# Chemical Abstracts

Volume 43

January 10—April 25

1949

# ABSTRACTORS

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(Continued on back of next title page)

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Published semi-monthly by
THE AMERICAN CHEMICAL SOCIETY
at Easton, Pa.

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Editorial Office: The Ohio State University, Columbus 10, Ohio
Branch Office: Library of Congress Annex, Washington 25, D.C. (M. Hoseh in charge)
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# CHEMICAL ABSTRACTS®

Vol. 43 DECEMBER 10, 1949 No. 23

## I. AUTHOR INDEX

("P" before a page number indicates "Patent")

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**Aalst, A. van.** Painting of bridges of the Netherlands canal system, 6835*b*.
**Aamodt, L. G.** See Townes, C. H.
**Aarnisalo, S. A.** See Bryk, P. B.
**Aas, K.**, and Blegen, F. Effect of tetraethylammonium bromide on the kidneys, 7586*b*.
**Abad, L. F.** Surigao iron ores, 1291*f*.
**Abadie, A.** See Vincent, D.
**Abadie, F.** See Chambard, P.
**Abadie, P.** See Girard, Pierre.
——, Vassy, A. and Vassy, E. Night sky—latitude effect, 7334*i*.
**Abas-Zade, A. K.** Heat cond. of liquids, 7284*c*.
**Abbad, M.**, and Rivoir, L. Structure of the dihydrate of $BaS_2O_6\ 2H_2O$ (I), 8232*e*.
**Abbey, A.** Dehydrocholic acid, P 4304*g*; quinacrine, P 5127*c*, see Armour & Co.; Carborundum Co.; Consolidated Mining and Smelting Co. of Canada, Ltd., Procter & Gamble Co.
**Abbey, R. G.** Basic regenerator materials for glass furnaces, 5161*i*.
**Abbiatti, F. A.** See Healy, J. J., Jr.
**Abbinder, G. A.** See Agramovich, B. D.
**Abbolito, E.** Ferriferous sands in Italy, 2133*b*; coal deposits of Sulcis, Sardinia, 3323*b*.
**Abbot, E. B.** Nylon dyeing, printing, and finishing, 9454*i*.
**Abbott, G. A.**, and Miller, M. J. $CCl_4$ poisoning, 3525*c*.
**Abbott, J. L.** X ray fluorescence analysis, 961*a*.
**Abbott, L. D., Jr.**, and Smith, J. D. Chem. prepn. of homogentisic acid, 7002*i*.
——, Smith, J. D., and Reid, J. D. Antibacterial activity of gentisyl alc. and homogentisic acid, 1456*b*.
**Abbott, N. J.**, and Goodings, A. C. Moisture adsorption, d., and swelling properties of nylon filaments, 5191*d*.
**Abbott, O. D.** See French, R. B.
**Abbott, R. K., Jr.** See Gilman, H.
**Abbott, W. E.** Bacteriostatic effect of methylene blue on the B.O.D. test, 3351*i*, activated sludge process, 3123*f*, nitrification and denitrification during the detn. of B.O.D. (I), (II), 3541*i*, production of O by freely developing algae, 4793*h*.
**Abbott, William E.** See Dorfman, R. I.; Meyer, F. L.
**Abbott, W. G., Jr.** Slivers of artificial fibers, P 8174*h*.
**Abbott Laboratories.** α-[Phenyl (and phenylalkyl)aminomethylene]phenacetur-ates, P 1807*d*, antibiotic intermediates, P 5425*f*, streptomycin solns., P 6372*d*, biotin intermediates, P 6669*a*, syphilotherapy arsenical agent, P 8105*c*; bacteriostatic and vasoconstrictive substance, P 9388*g*.
**Abboud, H. I.** Louisiana feedwater problem solved, 8583*i*.
**Abbrecht, H. R.** Filter for the sepn. of flue dust from furnace gases, P 6009*i*.
**Abdeev, M. A.** Cu silicates, 1070*h*.
**Abdel-Latif, I. A.** See Christensen, B. V.
**Abdel-Malek, A.** See Bodenstein, D.
**Abd-El-Moneim Ezzat, M.** See Ezzat, M. A. El-M.
**Abderhalden, R.** Vitamine, ormoni e fermenti (book), 7197*g*.
**Abdie, F.** See Chambard, P.
**Abdou, I. A.** See Elliott, H. W.
**Abe, C.** See Kawamura, K.
**Abe, N.** See Morikawa, Isao.
**Abe, R.** See Ishiguro, T.; Yoneda, K.
**Abe, S.** Alumina gels (IV), (V), 2080*d*; see Ishikawa, S.
**Abe, Tatsuji.** Proteolytic effect of *B. pneumosint* and *Micrococcus tetragenus*, 9152*d*.
**Abe, Tomosaburo.** See Miyake, Y.
**Abe, Y.** 4-Phenylquinol and its intramol. rearrangements, 2181*i*.
**Abecasis, L.** See Moniz de Bettencourt, J.
**Abeele, F. R. van.** See Van Abeele, F. R.
**Abel, E.** Catalytic decompn. of $H_2O_2$ by Fe salts, 4087*a*, kinetics of polymerization by $H_2O_2$, 7310*f*, reactions in the system $H_2O_2$, $HIO_3$, I, 7799*b*.
**Abele, W.** Sawing of wood—bleaching of groundwood, 1182*c*.
**Abelin, I.** Sterol formation in the animal body (II), 1843*a*, influence of diet on alloxan diabetes, 4364*h*; see Aebi, H.; Brada, Z.
**Abelson, P. H.** See Snell, A. H.
——— and Duryee, W. R. Radioactive Na permeability and exchange in frog eggs, 8560*b*.
**Åberg, Bertil.** See Jorpes, J. E.
**Åberg, Börje**, and Ekdahl, I. Effects of N fertilization on the ascorbic acid content of green plants, 3552*f*.
**Åberg, K.** Coke-oven refractory materials for retorts, 1438*i*.
**Abernethy, J. L.** Principles of Org. Chemistry (book), 7496*c*.
**Abinder, A. A.** Hard coating for metallic surfaces, P 2920*b*.
**Abletsova, T. A.** See Kazarnovskii, I. A.
**Abma, R. R.** See Dam, B. van.
**A. B. M. A. C. Research Group.** Physiol. characteristics of the Chinese (I) plasma vol., blood vol., available fluid, hematocrit value, plasma protein level, and O capacity and CO content of the blood in normal Chinese males (II) in normal Chinese females, 8480*a*.
**Abood, L. G.** See Kun, E.
**Aborn, R. H.** Martempering, 1699*e*.
**Abouzeid, Y. M.**, and Linnell, W. H. Synthesis of monomeric forms of α-hydroxy-β-methoxy-propionaldehyde and 1,3 dimethoxy 2-propanone, 4611*h*, structure of γ-sugars (VI) 6-methylketohexose, 5370*e*.
**Abragam, D. R.** See Zhvitblyanskii, Yu. M.
**Abraham, B. M.** See Osborne, D. W.
**Abraham, E. P.** See Heidelberger, C.
**Abraham, S.** See Wagreich, H.
**Abrahamczik, E.** Detn. of Mg after removal of such interfering elements as Fe, Al, and Mn, 4598*b*.
**Abrahams, M.** Dechroming leather waste as fiber body for plastic material, P 4506*a*.
**Abrahams, M. D.** See Vickery, H. B.
**Abrahams, S. C.**, and Robertson, J. M. Crystal structure of *p*-nitroaniline, 3262*f*.
**Abrahamson, B.**, Lindgren, B. O., and Hägglund, E. Chemistry of sulfite cooking (XLV) sulfonation of spruce lignin, 2428*h*.
**Abrahamson, G.** Britain's chem. export trade, 2711*c*.
**Abrahm, P. M.** See Friedman, M.
**Abramov, V. S.** Diene synthesis with cyclones, 2585*b*, 5370*f*; desulfuration of molten pig iron, P 3340*c*.
——— and Shapshinskaya, L. A. Diene synthesis of cyclones with bis(alkylmercury)-acetylides, 2614*b*.
——— and Shokhin, S. P. Cupola furnace for melting materials for slag wool, P 6338*a*.
**Abramovich, G. A.** Regulating the feed of lime soln. in the purification of juice during preliminary defecation, P 9506*c*.
**Abramovich, V. A.** Fastening thermometer scale inside stem, P 8760*e*.
**Abramovitch, B.** 2-Imino 3 alkyloxazolidines, P 252*d*.
**Abramovitch, J.** Treatment of undegreased wool, P 4869*d*.
**Abramowitch.** See Abramovich.
**Abrams, A.**, and Cohen, P. P. Electrophoretic and chem. characterization of human lymphoid tissue and calf thymus, 3049*a*.
**Abrams, A. J.** Geophys. prospecting method, P 4456*e*.
**Abrams, E.** Microbiol. deterioration of org. materials, 2660*c*.
**Abrams, H. K.** Public health aspects of agricultural chemicals, 5142*b*.
**Abrams, I. M.** See McBain, J. W.
**Abrams, M.**, DeFriez, A. I. C., Tosteson, D. C., and Landis, E. M. Self selection of salt solns. and water by normal and hypertensive rats, 5837*h*
———, Rutenburg, A. M., Lesser, M. F., and Gargill, S. L. Hyperparathyroidism with nephrolithiasis—parathyroid tumor located within the thymus, 9231*b*.
**Abrams, R.**, Hammarsten, E., Reichard, P., and Sperber, E. Tracer studies of N assimilation in yeast, 6278*d*.
**Abrams, R. K.** Chromates of alkali metals, P 3981*a*.
**Abramski, K.** Production of electrode C from coal, 5927*d*.
**Abramson, E.**, and Kahane, E. Microdetn. of B in org. substances, 3310*d*.
**Abramson, H.** Oxidation of unsatd. fatty acid in normal and scorbutic guinea pigs, 3895*c*.
**Abrasive Dressing Tool Co.** Abrasive wheel, P 7206*d*.
**Abresch, K.** See Kempf, H.
**Abrest, E. K.** See Kohn-Abrest, E.
**Abrest, U. K.** See Kohn-Abrest, U.
**Abreu, A. de P.** See Paiva Abreu, A. de.
**Abreu, B. E.** See Pickering, R. W.
———, Liddle, G. W., Burks, A. L., Sutherland, V., Elliott, H. W., Simon, A., and Margolis, L. Influence of amphetamine sulfate on cerebral metabolism and blood flow, 8552*g*.
**Abribat, M.** See Pouradier, J.
——— and Pouradier, J. Detn. of the mol. wt. of macromol. substances, 3266*c*.
———, Pouradier, J., and David, J. Influence of the oxidation-reduction potential and the pH of the developer on development, 3735*e*.
**Abrioux, M.** See Ardry, R.
**Abt, A.** Dry fire-extinguishing powder esp. for quenching bomb fires, P 5594*e*.
**Abul-Fadl, M. A. M.** Detn. of K by Folin-Ciocalteu phenol reagent, 9134*c*, see King, E. J., Roche, J.
——— and King, E. J. Purification of alk. phosphatase by tryptic digestion, 9104*h*; reactivation of alk. phosphatase after dialysis, 9104*i*; purification of fecal alk. phosphatase, 9134*g*.
———, King, E. J., Roche, J., and Nguyen-Van-Thoai. Purification of alk. phosphatase, 9134*e*.
**Abural, S.** Distn. tower for alc. sepn., P 5902*c*; pressure regulator in the water-removing chamber in fractionating tower of alc., P 5902*c*.

**Abu-Shady, H.** See Fahmy, I. R.
**Accadia, F. D. di.** See Di Accadia, F. D.
**Accardi, A.** Molding powder of synthetic or natural resins and peat or peat with other vegetable or mineral fillers, P 5634*a*.
**Acchoumow, E. I.** See Akhumov, E. I.
**Accountius, O. E.** See Sisler, H. H
**Accoyer, P.** See Camelin, A.
**Acevedo, D.** B. A. Houssay, 5237*i*.
**Acharya, B. N.** See Das, B. R. S
**Achaya, K. T.** Rancidity in Indian butter fats, 9283*a*; see Rangappa, K. S.
**Acheson, G. G.,** and West, T. F Reaction of 2-naphthol with *l*-α- and *l*-β-phellandrene, 158*d*.
**Acheson, G. H.** See Goldstein, A.
**Acheson, R. M.** See King, F E
**Achkinasi.** See Ashkinazi.
**Achón, M. A.** See Infiesta, J. I.
**Achoumow, E. J.** See Akhumov, E. I.
**Ackelsburg, M. R.** Coagulation by ultrasonics, 8577*g*.
**Acker, J. T.** Insulated coating compns., P 2344*a*.
**Acker, M. M.** See Dobran, J
**Ackerly, O. B., Jr.** Rotary drum filter, P 7273*d*.
**Ackerman, L.** Errors in routine screening tests, 5885*h*
**Ackerman, L. V.,** and Regato, J. A. Cancer (book), 8051*a*
**Ackerman, N.** See Wick, A. N
**Ackerman, R. A.** See Vanlandingham, A. H
**Ackermann, A.** Absorbant earth industry, 7159*g*.
**Ackermann, F.** See Granacher, C
**Ackermann, H.,** Prue, J. E., and Schwarzenbach, G. Stability of chelate complexes 8812*c*.
**Ackermann, I.** Silicate glass as supporting film for electron optical arrangements, 3716.
**Ackermann, Paul.** See Kölbel, Herbert.
**Ackermann, Philip,** Hofstatter, L., and Kountz, W. B. Concn. of free valine, tryptophan, and histidine of plasma of young and old individuals, 4361*d*.
**Ackermann, W. W.,** and Kirby, H α-Amino-β,β-dimethyl-γ-hydroxybutyric acid, 138*d*.
—— and Shive, W. α-Amino β,β-dimethyl-γ-hydroxybutyric acid —precursor of pantoic acid, 715*a*.
**Ackers, G. L.** Water sampling and interpretation of analysis, 5889*f*.
**Ackerson, C. W.** See Borchers, R., Hites, B. D
**Ackley, H. A.** See Perkins, R. N.
**Ackley, W. B.** See Bullock, R. M
**Ackroyd, G. C.** See Fittou, A.
**Acme Aluminum Alloys, Inc.** Al-Mg alloys, P 3771*a*.
**Acosta Rodriquez, J.** See Pino Perez, F.
**Acquista, N.** See Plyler, E. K.
**A.C.T.A. Applicazioni Costruzioni Technische Antigas.** Solid compn. for prepg. a detergent soln., P 8712*c*.
**Acuña Lagos, D.** Motion of the isolated gall bladder—action of water-sol. vitamins, 8408*d*.
**Ada, G.,** and Fulton, J. D. Electrophoretic studies on the serum of golden hamsters infected with *Leishmania donovani*, 4757*b*
**Adad, R. C.** See Cohen-Adad, R.
**Adair, F. E.,** Mellors, R. C., Farrow, J. H., Woodard, H. Q., Escher, G. C., and Urban, J. A. Estrogens and androgens in advanced mammary cancer, 8521*g*.
**Adair, R. K.** See Bockelman, C. K
——, Barschall, H. H., Bockelman, C. K., and Sala, O. Total cross section of Be, O, Na, and Ca for fast neutrons, 4947*d*.
——, Bockelman, C. K., and Peterson, R. E Theory of neutron resonance scattering, 8849*i*.
**Adam.** Protein and carbohydrate diet in nutritional disturbances, 9188*i*.
**Adam, M. G.** Interferometric measurements of solar wave lengths—Einstein gravitational displacement, 5300*g*.
**Adam, N. K.** Penetration of liquids into solids, 1239*f*; see Balson, E. W.
**Adamanis, L. I.** See Povarnin, I. G
**Adamenkova, V.** See Zhdanov, A. K.
**Adam-Gironne, J.** See Guérin, H.
**Adamik, E. R.** See Endicott, K. M.
**Adamo, M.** See Bellucci, I.
**Adamov, M. N.** Calcn. of the deriv. of the polarizability of the H mol.—internuclear distance, 1264*h*.
**Adamova, Yu. S.** Sanitary ware from grog faience, 3585*i*.
**Adamovich, V. I.,** and Rybnikova, A. I. Detn. of small quantities of As in water, 1127*h*.
**Adams, A.,** and Hey, D. H. Nitration of 4-hydroxyquinoline, 7027*f*.
**Adams, A. M.** See McKee, J. H.
—— and Sander, A. J German work on the physics of solids, 8781*h*.
**Adams, B. A.** See Ocean Salts (Products) Ltd.
**Adams, C. E.** See Shoemaker, B. H.
—— and Burney, D. E. Alcs. from H, CO, and olefinic substances, P 5032*a*.
**Adams, C. H.** See Findley, W. N.
**Adams, C. P.,** and Lagemann, R. T. Absence of H bonding in 2 benzoic acid esters as indicated by their infrared transmission, 1351*e*.
**Adams, C. S.** 3,3-Bis(4-dimethylamino-3-methylphenyl)phthalide, P 252*c*. 2-[4,4'-bis(dimethylamino)benzhydryl]-5-dimethylaminobenzoic acid, P 3463*c*
**Adams, D. A. W.** Intermediates, 4788*i*
**Adams, D. E.** Segregation in Al-Cu alloys, 6557*f*.
**Adams, D. F.** Ti—polarographic detn. in clays and clay products, 1285*a*, 5699.
**Adams, D. H.** Specificity of the human erythrocyte cholinesterase, 5062*e*, see Whittaker, V. P
—— and Whittaker, V. P Characterization of the esterases of human plasma, 6258*b*
**Adams, D. P.** See Evans, H. T., Jr
**Adams, E.** See Roberts, Sidney
**Adams, E. N., II.** See Avery, R
**Adams, Forrest H.,** Cooney, M., Adams, J. M., and Kabler, P. Toxoplasmosis, 4382*e*.
**Adams, Frederic H.** Stabilization of printing pastes contg. diazonium salts, P 9473*g*, see Kienle, R. H., Lecher, H. Z., Orem, H. P
**Adams, G. D.** Absorption of high-energy quanta (I), 2088*a*
**Adams, G. K.,** and Bawn, C. E. H. Homogeneous decompn. of $EtNO_2$, 6901*i*
**Adams, J. A.** Oriental beetle as a turf pest assocd. with the Japanese beetle in New York, 9345*i*.
**Adams, J. F.** Xanthone-DDT insecticide, P 350*f*.
**Adams, J. J.** See Quadt, R. A
**Adams, J. M.** See Adams, Forrest H
**Adams, J. T.** See Hauser, C. R
**Adams, J. T., Jr.** See Kwong, J. N. S.
**Adams, J. W.** See Madigan, J. C
**Adams, K. H.** See Doelling, G. L.
**Adams, Mabelle E.** See Kamon, M. L
**Adams, Mary E.** See Buthn, K. R
**Adams, M. H.** Stability of bacterial viruses in solns of salts, 6690*f*, Ca requirement of coli phage T5, 8443*e*
**Adams, M. L.** See Hearne, G. W
**Adams, N. G.** See Hopkins, R. L.
**Adams, P.** Melamine-HCHO, P 7240*f*
**Adams, P. D.** Gas exchange of the skin, 8409*i*.
**Adams, R.,** and Chase, R. G Restricted rotation in substituted aromatic amines (V) derivs. of *N,N'*-dimethyldiaminomesitylene, 1734*i*
—— and Garber, J. C Amine bisulfites (II) resolving agents for aldehydes and ketones, 3356*a*.
—— and Govindachari, T. R. Senecio alkaloids—α- and β-longilobine from *Senecio longilobus*, 6208*h*; senecio alkaloids—alkaloids of *Senecio douglassii, carthamoides, rremophilus, ampullaceus,* and *parksii*, 9076*d*, senecio alkaloids—isolation of senecionine from *Senecio cinerarsa*—structure of senecionine, 9075*i*.
——, Harfenist, M., and Loewe, S. Analogs of tetrahydrocannabinol (XIX), 8383*f*.
——, Hine, J. S., and Campbell, J. Triarylpyridylmethanes, 3417*a*.
—— and Johnson, J. L. Leucenol (VI) total synthesis, 3416*g*.
—— and Johnson, J. R. Lab Expts. in Org. Chemistry (book), 8396*i*.
—— and Lipscomb, R. D. Amine bisulfite addn. products of aldehydes and ketones (I), 3355*f*.
—— and Rothstein, M. Restricted rotation in substituted aromatic amines (VII) stereoisomers of *N,N'*-dimethyl-*N,N'*-(diarylsulfonyl)diaminomesitylenes, 7919*a*.
—— and Schrecker, A. W. Condensation reactions of *N*-substituted pyridones, 6627*f*
—— and Sundholm, N. K. Restricted rotation in aryl amines (IV) prepn. and resolution of *N*-succinyl-1-methylamino-2,4-dimethyl-6-substituted benzenes, 1342*i*.
—— and Tjepkema, J. J. Restricted rotation in substituted aromatic amines (IV) stereoisomers of *N,N'*-dialkyl-*N,N'*-bis(phenylsulfonyl)diaminomesitylene, 1735*d*.
**Adams, R. E.** See Cason, J.
**Adams, R. L.** Alloy steel in oil-field equipment, 89*h*.
**Adams, Roy L.,** and Zickrick, L. Improved elec contact brushes, P 4590*b*.
**Adams, R. R.,** and Mosher, H. S 2-Amino-4-(aminoalkylamino)pyrimidines, P 4704*b*.
**Adams, R. S.,** and Merrill, H. B. Detg. tannin in liquors, 9509*a*.
**Adams, R. V.** See Lloyd, P. E.; Rau, R. R
——, Anderson, C. D., and Cowan, E. W Cosmic rays at high altitudes, 6503*i*.
——, Lloyd, P. E., Rau, R. R., and Anderson, C. D. Distribution in energy of cosmic-ray mesotrons and protons at 30,000-ft. elevation, 4093*i*
**Adams, S.** See Burkhart, L. E
**Adams, S. L.** Industrial alc. from cannery wastes, 9358*h*; see Stark, W. H.
**Adams, W. H., Jr.,** and Lebach, H. H Corrosion test for plastics, 7259*g*, furfuryl alc. resinous products, P 7751*i*
**Adams, W. L.** See Campbell, G. S.
**Adams, W. S.** Interstellar H and K, molines, and radial velocities in the spectra of 300 *O* and *B* stars, 7335*a*, see Lewis, W. K., Jr.
**Adamson, D. C. M.** Ultraviolet absorption of riboflavin, 2895*g*
—— and Handsyde, F. P Detn. of vitamin $B_1$ in tablets and ampul solns., 1157*b*
**Adamson, P. S.** Cellulosic plastics, 4341 4788*g*.
**Adarkar, S. P.** See Hattiangdi, G. S.
**Adcock, L. H.** See Howards & Sons Ltd Lock, R. H
**Adcock, W. A.,** and Cole, R. H. High-field conductance of paraffin chain electrolytes 7836*b*.
**Addink, N. W. H.** Quant. spectrochem. analysis, 7365*i*
—— and Hekelaar, M. Amorphous Se, P 9398*e*.
**Addis, T.** See Barrett, E.; Persike, E. C.
——, Barrett, E., and Menzies, J. T. Detn. of serum-creatinine concn., 6691*h*
——, Barrett, E., Poo, L. J., and Yuen, D. W. Serum urea concn. and protein consumption, 6710*h*
**Addison, C. C.,** and Thompson, R. Liquid dinitrogen tetroxide solvent system (I) introduction, (II) liquid and solid solns. of nitrosyl chloride in dinitrogen tetroxide 7803*e*.
**Addison, H.** Centrifugal and Other Rotodynamic Pumps (book), 4906*f*.
**Addobbati, A.** See Genova, J.
**Addor, A. A.** Hexachlorocyclohexane 1898*i*
**Addressograph-Multigraph Corp.** Paper planographic printing plate, P 1189*a*
**Adel, A.** Near-infrared spectra of the planets, 1092*d*, comparison of atm. $CH_4$ content above Flagstaff, Ariz., and Columbus, Ohio, 4139*f*, excited-state bands in atm. spectra, 4952*h*, abundance of atm. CO, 7276*d*.
**Adelson, D. E.** Alkenyl ω3 (alkenoxy)alkanoates, P 5037*a*; see Evans, T. W., Hatch, L. F.
—— and Dannenberg, H Polymer of allyl glycolate, P 4896*d*, polyallyl levulinate, P 9081*g*.
—— and Evans, T. W. Polyallyl-type alcs. P 6045*h*.
—— and Gray, H. F., Jr. Polymeric β,γ-olefinic alcs., P 1795*d*; acetal resins, P 5228*e*; polyallyl alcs., P 6219*a*.
**Adelt, M.,** and Gruendler, G. A. Photometric detn. of P, Cr, Ni, and Mo in a weighed amt., 1286*c*.
**Adembri, G.** See Poggi, A. R.
**Aderichin, P. G.** See Aderikhin, P. G.
**Aderikhin, P. G.** Exchangeable cations in the adsorption of P by chernozem, 7621*c*.
**Adey, C. F.** Improved graphite eutectic with spherical shaped graphite, 2558*i*.
**Adirovich, E. I.** Kinetics of consecutive reactions, 2494*d*; band theory of crystals and the flash on cooling, 5668*f*; effect of local electronic states on the dielec. const. of crystallophosphors, 8893*i*.
**Adkins, H.** See Roebuck, A. K.
—— and Billica, H. R. Hydrogenation of esters to alc., 572*c*; effect of ratio of catalyst and other factors on the rate of hydrogenation, 573*g*.
—— and Burks, R. E., Jr. Equilibria in hydrogenation of esters and of indoles, 2164*i*.
—— and Roebuck, A. K. Isomerization of

cyclohexenes to cyclopentenes—oxidation of these alkenes to glycols and acids, 2173*b*.
———, Rossow, A. G., and Carnahan, J. E. 3,4-Dihydro-2(1 *H*)-naphthalenone, 1755*i*
——— and Thompson, Q. E. Diacylation of water and of $H_2S$ with acyl chloride-pyridine compds, 8353*b*.
**Adler, E.** 3,4-Bis(*p*-hydroxyphenyl)-2,4-hexadiene, P 5804*g*; see Euler, H. v.
———, Björkqvist, K. J., and Häggroth, S. Color reaction of wood, 1181*h*.
——— and Ellmer, L. Coniferyl aldehyde groups in wood and in isolated liguin preps., 4461*g*.
——— and Häggroth, S. Formation of vanillin and AcH from lignin and liguosulfonic acid by alkali treatment, 7001*i*.
**Adler, F.** See Straub, J.
**Adler, F. T.,** and Blanchard, C. H. Systematic deviation in the Lamm scale method, 6870*g*.
**Adler, H.** Hexaethyl tetraphosphate, P 3836*g*.
**Adler, I.** See Schnopper, I.
**Adler, J.** See Wheeler, A. H.
**Adler, L.** Spotting paste for metal surfaces of machine parts, P 102*e*.
———, Johnson, H. G., and Schneider, B. J. Coloring unit for oleomargarine blocks, P 1124*b*.
**Adler, M.,** and Wintersteiner, O. Flavicidin, the penicillin produced by *Aspergillus flavus*, 1767*f*
**Adler, N.** Decoloration and the ultramicroscopic behavior of natural blue and violet rock salt, 7817*d*; see Wieninger, L.
**Adler, R. K.** See Kapeller-Adler, R.
**Adley, F. E.** See Farner, L. M.
**Adolf, M. S.** See Spiegel-Adolf, M.
**Adolph, E. F.** Water ingestion and excretion in rats under chem. influences, 4753*i*, tolerance to cold and anoxia in infant rats—lethal limits of cold immersion in adult rats, 4754*g*
——— and Parmington, S. L. Partial nephrectomy and the water exchanges of rats, 4754*b*.
**Adolph, W. H.** See Hsu, P.-C.
——— and Yeh, H.-L. Ca metabolism in the rat (I) in relation to oxalate in the diet, 3892*e*.
**Adrian, A.** See Collins, T. L., Jr.
**Adrian, J.** See Cailleau, R., Terroine, T.
**Adriani, J.** See Howard, J. P.
**Advance Solvents & Chemical Corp.** Emulsion polymerization, P 5901*d*
**Aebersold, P. C.** Development of the isotopes of distribution program, 5131*g*, isotopes and their application in the field of industrial materials, 5885*i*.
**Aebi, H.** Kidney phosphatase detn., 1820*f*, phosphatases (III) activity, $Mg^{++}$ activation, and stability of alk. kidney phosphatase, 5053*g*
——— and Abelin, I. Phosphatases (II) action of agents on the activity of alk. kidney phosphatase ($Mg^{++}$, $Mn^{++}$, $Na_2CO_3$, $NaHCO_3$, $NH_4^+$, and amino acids), 5053*i*
**Aenishaenslin, R.** Identifying formaldehyde-resin finishes on cellulose fibers and wool, 4017*g*.
**Aenlle, E. O.** See Otero Aenlle, F.
**Aepelbaum.** See Epel'baum.
**Aepli, O. T.** See Munter, P. A.
**Aeroil Products Co., Inc.** Melting furnace of the immersion heater type for tar, asphalt, etc., P 4460*d*
**Aerotec Corp.** Centrifugal dust separator, P 3540*a*, 7273*e*.
**Aerov, M. E.** See Zhavoronkov, N. M.
**Aerovox Corp.** Regenerated cellulose dielec. material, P 3119*g*.
**Aeschlimann, J. A.** Aryl esters of tertiary carbamic acid, P 1438*f*.
**Afanas'ev, A. S.** Detg. the octane no. of liquid motor fuels, P 6403*e*.
———, Rostovtseva, V. K., and Burakova, M. G. Corrosion tests, 2918*e*.
**Afanas'ev, B. N.** Detn. of cyclopentadiene, 5346*b*.
——— and Ural'skaya, A. V. Fe detn., 6938*f*.
**Afanas'ev, G. D.** Influence of microclinazation on the granodioritic batholith type of intrusion of Western Caucasus, 8993*b*.
**Afanas'ev, L. V.,** and Fein, Yu. E. Mech. strength of glass, 3578*d*.
**Afanas'ev, P. B.,** Zel'dovich, Ya. B., and Todes, O. M. Spatial distribution of ppts. during crystn. of mutually diffusing substances, 5264*b*.
**Afanas'ev, P. V.** Enzyme activity, 2252*d*, 7526*a*.
——— and Bresler, S. E. Vulcanization of cellulosic materials, 8136*c*.
**Afanas'ev, Ya. E.** Metallurgical ladle, P 4909*c*.
**Afanas'eva, E. M.** See Stepanenko, B. N.
**Afanassew, Afanassieff.** See Afanas'ev.
**Afanassjeva, E. M.** See Afanas'eva, E. M.
**Afico S. A.** Preservation of the aroma of dry sol. coffee exts., P 5514*a*.
**Agafonov, A. V.,** and Kaliko, M. A. Porous structure and catalytic activity of catalysts, 6336*b*.
**Agahd, K.** Chemistry of artificial substances, 4459*i*.
**Agallidis, E. S.** See Schwab-Agallidis, E.
**Agapov, I. F.** Conveyor kiln, P 3587*d*.
**Agar, A.,** and Alexander, A. E. Action of colloidal electrolytes on bacteria—soaps and soap-phenol mixts. (V) effect of additives known to influence surface activity, 9143*e*.
**Agar, J. N.** Kinetics of electrode processes, 4931*e*.
**Agarwal, O. P.** See Narayanamurti, D.
**Agarwal, P. N.** See Singh, Kartar
——— and Peterson, W. H. Utilization of nonsugar C of molasses by food yeasts, 6274*d*.
**Agarwal, R. N.** Comparison between the Deerr and the Java methods of sucrose detn. in bagasse, 8715*e*.
**Agarwal, R. R.,** and Mukerji, P. Bundelkhand soils of the United Provinces (II) chem. compn. of the clay fractions in relation to the process of soil formation, 1889*i*.
**Agate, J. N.** Delayed pneumonitis in a Be worker, 787*e*.
——— and Buckell, M. Hg poisoning from fingerprint poisoning, 9258*f*.
———, Hunter, D., Perry, K. M. A., Garrad, J., and Cheeseman, E. A. Clinical, radiological, hematological, and biochem. findings in selected groups of individuals from Fort William and Kinlochleven, 5884*i*.
**Agatov, P. A.** Acidic and basic properties of zein, 5435*h*.
**Agee, G. W.** Color committee report, 5975*c*.
**Ageev, N. V.,** and Ageeva, D. L. Detn. of the electron d. in crystals (II) electron d. of Cu, 31*g*.
——— and Guseva, L. N. Detn. of the electron d. in crystals (III) electron d. of Ni, 1261*h*; (IV) electron d. of NiAl, 6030*i*
**Ageev, P. Ya.** Physicochem. processes in liquid steel, 2560*e*
**Ageeva, D. L.** See Ageev, N. V.
**Ageiev.** See Ageev.
**Ageno, M.,** and Chiozzotto, M. Penetration of electrons of 17 m.e.v., 7811*d*
**Agens, M. C.** Methyl siloxane elastomers, P 432*c*.
**AGEV Aktiengesellschaft für Erfindungsverwertung.** Refractory cement, P 7660*g*.
**Agey, W. W.,** and Shibler, B. K. Concn. of oxide Mn ores from the Turtle claims and Pacific Coast Mn properties, Paymaster district, Imperial Co., Calif., 4987*a*
**Aggarwal, J. S.** See Dhar, D. C.
———, Bhatnagar, S. S., Narain, P., and Karimullah. Chem. examn. of the seeds of *Mallotus philippinensis* (I) analysis of drying oil and seed cake, 4027*a*.
——— and Soni, P. Chem. examn. of the oil from the seeds of *Gmelina asiatica*, 5611*i*
**Aggarwal, S. L.** See Singh, B. K.
**Aggarwala, J. C.,** and McCarthy, J. L. Distribution of mol. wt. in bamboo celluloses, 7680*g*.
**Agid, R.** See Cahn, T.
**Agliardi, N.,** and Murelli, S. Activated adsorption of H and of CO on Co, 3086*e*.
**Aglintsev, K. K.** Ocherki po fizike atomnogo iadra (book), 1266*e*.
**Aglintsew, K. K.** See Aglintsev, K. K.
**Agma Aktiengesellschaft.** Anode oxidation of objects and alloys of Al, P 4963*d*, chem. oxidation of Al and its alloy, P 4999*d*.
**Agnello, G.** Welding alloy for Al and its alloys, P 4628*b*.
**Agner, K.,** Hösk, O., and Porat, B. v. Treatment of MeOH poisoning with EtOH, 3936*g*.
**Agnew, A. L.** See Mindell, F. M.
**Agnew, J. T.** Combustion studies using the Golay photothermal detector with an infrared monochromator, 2403*a*.
———, Franklin, R. G., Bann, R. R., and Bazarian, A. Combustion studies with the orthicon spectrograph, 5312*h*.
**Agnew, W.** See Seymour, R. B.
**Agol, V. I.** See Ivanov, I. I.
**Agostini, G.** Diaphragms for chlorine-alkali cells, P 8200*d*.
**d'Agostino, O.** See D'Agostino, O.
**Agostinucci, G.,** and Anzalone, B. Antimicrobial potency of exts. of the native flora of Lazio, 7091*g*
**Agranenko, N. P.,** Agranenko, S. A., and Pokrovskaya, L. A. Production of Nitrolacquer and Nitroenamel (book), 2447*g*
**Agranenko, S. A.** See Agranenko, N. P.
**Agranovich, B. D.,** Abbinder, G. A., Golbinder, A. I., Zinchenko, E. M., Popov, T. T., and Feigin, L. M. Nonbrisant ammonites, P 3200*b*
**Agre, C. L.** Prepn. and reactions of (1,2-dichlorovinyl)trichlorosilane, 2571*h*.
**Agrell, I.** Fluctuation of pH, buffer capacity, and pH dependence of H-activating enzyme systems during insect metamorphosis, 2333*i*, occurrence and metabolism of free amino acids during insect metamorphosis, 9270*h*
**Agren, A.** See Thörn, N.
**Agren, G.** Microbiol. detns. of amino acids on the medium of Henderson and Snell, 4326*i*, utilization of peptide bound amino acids by lactic acid bacteria (II), 5079*f*, bacterial growth factors in liver exts., 5082*g*, amino acid content of Bence-Jones protein, 7066*d*; see Verdier, C. H. de.
——— and Nilsson, T. Paper chromatographic analysis of amino acids and other ninhydrin-reacting substances in deproteinized human plasma, 8429*c*.
**Agren, P. H. W.** Refining hydrocarbons, P 3191*a*.
**Agroskin, A. A.,** and Loskutova, E. N. Wetting coal charge with micro-addns. of anthracene oil, 3168*i*
**Agrov, P. V.** See Antonov, V. A.
**Agster, A.** See Ruth, H.
**Aguiar de Carvalho, L. F.** Detn. of the residue of water by specific cond., 7612*h*.
**Aguilar, M.** Diccionario técnico de ingeniería (book), 6761*h*
**Aguirre, H.** See Martínez Garza, H.; Sodi Pallares, E.
**Aguirre, M.** See Arjona, E., Jiménez Díaz, C., Perianes, J.
**Aguiló, M. C.** See Castañeda-Aguiló, M.
**Agul'nik, Yu. M.** See Livshits, R. S.
**Ahearn, A. J.** Crystals that exhibit conduction pulses under α-particle bombardment, 8263*h*; see Newton, R. R.
**Ahlf, R. E.** See Marencik, W. J.
**Ahlfeld, H.** Beet-sugar industry in Europe, 4879*g*
**Ahlhelm, H.** See Franke, K.
**Ahlmann, S. W.** See Hillig, F.
**Ahlquist, R. P.** Adrenotropic receptors, 298*f*, interaction of tetraethylammonium and ephedrine, 8552*a*.
———, Hohensack, B., and Woodbury, R. A. Pharmacol. study of *N*-methyl-*N*-cinnamyl-2 phenylpropylamine, 8554*b*.
**Ahlström, C. G.,** and Berg, N. B. Relative fluorescence of 3,4-benzopyrene in rabbit skin, 6315*g*.
**Ahmad, B.** See Sadana, J. C.
———, Mehra, S. L., and Bharihoke, G. Thiamine content of common Punjab foodstuffs, 8565*e*
**Ahmad, K.,** Bumpus, F. M., and Strong, F. M. Synthesis of *cis*- and *trans*-11-octadecenoic acids, 566*g*
**Ahman, E.** Diabase of the Schäre Halsaren and its hybrids with Jotnian sediments, 4984*i*
**Ahmann, J. S.** Teaching of inorg. chemistry, 6875*e*.
**Ahmed, M. S.** See Amorós Portolés, J. L.
**Ahmed, Z. F.,** and Fahmy, I. R. Botanical and phytochem. studies in *Hyoscyamus muticus* (I), 9380*i*; effect of environment on the growth and alkaloidal content of *Hyoscyamus muticus* (II), 9381*a*.
———, Zufall, C. J., and Jenkins, G. L. Chemistry and toxicology of the root of *Phytolacca americana*, 8554*c*.
**Ahoomov, E. J.** See Akhumov, E. I.
**Ahrends, I.,** Drecki, A., and Kotecki, W. Portland pozzuolana cement as a concrete material, 2751*g*.
**Ahrens, E. H., Jr.** See Eisenmenger, W. J.; Kunkel, H. G.
**Ahrens, G. L.** Segregation of $C_4$ hydrocarbons by extractive and azeotropic distn., P 2824*a*.
**Ahrens, L. H.** Evidence of geol. age against decay of $Sn^{115}$ to $In^{115}$ by electron capture, 1691*g*; measuring geologic time, 2906*f*, geochemistry of radiogenic Sr, 6132*b*.

**Ahrland, S.** Complex chemistry of the uranyl ion (I) hydrolysis of the sexivalent U in aq. soln., 8940*i*.
**Ahuja, M. L.** See Shrivastava, D. L.
**Ahumada Buesa, M.** See Hoyos de Castro, A.
**Aicher, A. A.** See Synthetic Oils Ltd.
**Aicher, J. O.** Protective coating for fluorescent lamps, P 7840*f*
**Aidarov, T. K.** Sorting of Zn alloys with the steeloscope, 1286*g*.
**Aiello, T.**, and Pappalardo, G. Action of sulfonamide compds.—findifg flew bacteriostatic substances, 1738*i*
**Aigistova, S. Kh.** See Pudovik, A. N.
**Aikawa, H.** See Tsuchiya, Y.
**Aikawa, J. K.**, Harrell, G. T., and Helsabeck, N. J. Effect of peptic and tryptic digestion on antigenicity of *Trichinella spiralis*, 4361*i*.
**Aikawa, T.**, and Ido, K. Slow-burning rubber-insulated wires and flame tests, 3225*e*.
**Aiken, J. K.** See Jordan, L. A
—— and Jones, H. Sebacic acid polyesters in surface coatings, 6463*a*.
**Aiken, W. H.** Plastics as paper coatings, 6410*i*.
**Ainley, A. D.**, Curd, F. H. S., and Rose, F. L. Synthetic antimalarials (XXXIII) alternative route to *N*-aryl-*N*'-alkylbiguanides and related compds.—condensation of guanidines and cyanamides, 9035*i*.
——, Curd, F. H. S., Rose, F. L., and Imperial Chemical Industries Ltd. Substituted biguanides, P 4691*a*
——, and Sexton, W. A. Chem. constitution and insecticidal action (II) substituted α-aminonitriles, 4415*d*.
**Ainsworth, G. C.** See Wellcome Foundation Ltd.
**Aira, M.** See Kuuli, T.
**Airal A.-G.** Mg alloy, P 2154*c*, 2921*h*, 3341*h*, Mg-Al alloys, P 5000*c*.
**Airan, J. W.** Phosphate from bagasse ash, 3156*c*; see Rege, A. V.
—— and Ghatage, N. D. Mercurochrome as an indicator in halogen and Ag ion titrations, 3307*h*
**Air-Maze Corp.** Filter of zig zag folded material and wire screen, P 8758*a*; removable air filter, P 8757*g*.
**Airola, V. R.** Influence of high-protein and high-carbohydrate diets in the production of glycosuria in the partially depancreatized rat, 3498*h*.
**Airoldi, R.** Microchem. test for Ca as sulfate, 2889*d*.
—— and Stratta, R. Cr recovery from tan wastes, P 4884*b*, 8186*c*
**Air Preheater Corp.** Heat-exchange unit for preheating air by combustion gases from a boiler, P 6874*f*.
**Air Products Inc.** Transference and manuf. of liquid O, P 6798*c*.
**Air Reduction Co., Inc.** Vinyl chloride, P 1433*e*; flux coating for welding rod, P 2156*c*; aldol, P 3451*d*; cuprous naphthenate, P 7224*b*; movable O blower for decarburizing molten steel, P 7404*a*; desulfurizing Fe and steel with molten $CaC_2$, P 7404*b*.
**Airs, R. S.**, Garner, P. J., and "Shell" Refining and Marketing Co. Ltd. Dehydrohalogenation processes, P 5788*f*
**Aisenberg, W.** See Aizenberg, V.
**Aita, A.** Plastificanti (book), 8207*f*
—— and Ambrosioni, A. Analisi delle materie plastiche (book), 8207*f*
**Aitchison, R. E.** Geiger counter for detn. of Th content of thoriated-W wire, 4945*g*.
**Aitken, G. A., Jr.** See MacLeod, J.
**Aitken, J. B.** See Nightingall, R. V.
**Aitken, T. R.** See Fisher, M. H.
**Aivazov, B. V.**, and Nelman, M. B. Tritium, radioactive isotope of H, 7809*f*.
**Aiyar, S. P.** Effects of K deficiency on rice, 9176*g*.
**Aizenberg, V.** Preservation of edible blood, 5128*c*.
**Ajax Engineering Corp.** Producing metal alloys in a submerged resistor type induction furnace, P 6094*f*.
**Ajello, T.**, and Meraglia, A. Allyl-substituted thiouracil compds. and a new biheterocyclic condensed system (I), 6985*b*
**Ajinomoto, K. K.** Reaction of hypochlorite on $NH_3$, P 7052*b*.
**Aji, S. J.**, and Werkman, C. H. Enzymic fixation of $CO_2$ in α-ketoglutaric acid, 2249*c*; anaerobic replacement of $CO_2$, 5445*c*; replacement of $CO_2$ in heterotropic metabolism, 8435*b*, 8435*c*.
**Akabane, H.** See Nobori, H.
**Akahir, T.**, and Kamazawa, M. Effect of relative humidity on the dielec. loss angle and surface resistivity of insulating materials at high frequencies, 2054*b*.
**Akalan, S.** See Terem, H. N.
**Akamatsu, H.**, and Iijima, Y. Oiliness of lubricants on the surface of phenol resin, 8125*f*.
**Akamatsu, Shigeru.** β-Carboxylase, 6267*g*.
**Akamatsu, Sumie.** See Sahashi, Y.
**Akamine, E. K.** Plant-growth regulators as selective herbicides, 9351*h*.
**Akashi, K.** Compds of amines, aldehydes, and $SO_2$, 7899*i*; formation of indazoles from Schiff bases, 7934*a*.
**Akasawa, H.** See Niimi, O.
**Akchoumov, E. I.** See Akhumov, E. I.
**Akerlof, G. C.** See Oshry, H. I
**Akeroyd, E. I.** See Prescott, W. G
——, Kressman, T. R. E., and Cooper, A. T. Ion exchange in research and industry (I) removal of ions from solns., 331*f*, (II) miscellaneous applications, 1881*c*.
**Akesson, N. B.** See Michelbacher, A. E.
**Akhmedli, M. K.** Hydrogenation of fat from Caspian Sea seals, 877*f*; hydrogenation of monocyclic aromatic hydrocarbons on a Co catalyst, 6172*c*.
**Akhoomow, Akhoumow.** See Akhumov, E. I
**Akhumov, E. I.** Calcn. of the heats of fusion of Fe carbide and silicide, 477*c*, periodic system of elements, 916*f*, systematization of inorg. compds., 6898*c*.
—— and Spiro, N. S. Laws of change of the solv. (I) eutonic points of polytherms in multicomponent systems, 6902*c*.
**Akh'yan, A. M.** Soft porcelain, 3581*f*, non fritted glaze for faience, 3585*f*
**Akimov, G. V.** See Rozenfel'd, I. L
**Akimova, L. N.** See Gavrilov, N. I.; Zelinskii, N. D.
——, Gavrilov, N. I., and Zelinskii, N. D. Structure of submol. units of proteins (III) synthesis and properties of amino acid derivs. of piperazine and dihydropyrazine, 3790*a*.
**Akishin, P. A.** See Treshchova, E. G
**Akita, T.** Quant. analysis of *o* and *p* cresols, 7867*i*.
**Akiyama, J.** Influence of dextrose administration on hypoglycemic shock induced by synthalin, 8527*g*, blood sugar-lowering substances, 8558*h*.
**Akiyama, K.** Special portland cement (VII) large-scale manuf. of Mn-Cr portland cement, 1935*g*.
——, Otani, M., and Yamada, K. Cryst. modification of alumina and alumina porcelain (I) sintering of $Al(OH)_3$, (II) effects of Al salts on the sintering of $Al(OH)_3$, 1933*i*
——, Sunahara, A., and Otani, M. Loess of North China (I) fineness modulus of loess, (II) thermal expansion of loess, 1889*a*.
**Akker, J. A. van den.** See Van den Akker, J. A.
**Akku-Consortium.** See Bornhauser, O
**Ako, T.** See Inoue, K.
**Akomfina A.-G.** Acid- and heat-resistant steel alloy, P 1709*h*; Cr-W-Co-Mo-V steel, P 1709*i*; cellulose acetate lacquer, P 1990*c*; viscous electrolyte for Pb batteries, P 4590*e*
**Akpinar, S.** Resolving power and anisotropy of proportional counters, 2861*b*.
**Aksel'rod, R. S.**, and Radutskaya, Kh. A. Analysis of alloys of AMC type (Al, Mn, Zn), 4181*e*.
**Aksenova, G. P.** See Khlopin, N. Ya
**Aksu, S.** Effects of ouabain given *per os*, 7144*c*.
**Aktiebolaget A. Ekströms Maskinaffär.** Filtering, sorting, dewatering, or washing fibrous suspensions, P 9447*f*.
**Aktiebolaget Astra, Apotekarnes Kemiska Fabriker.** 2-Amino-5-bromothiazole and its hydrobromide, P 3466*h*
**Aktiebolaget Centrallaboratorium.** Dimethyl sulfoxide, P 3438*g*.
**Aktiebolaget Elektrolux.** Corrosion inhibitors in refrigeration systems, P 2568*e*
**Aktiebolaget Ferrosan.** Same as Aktieselskabet "Ferrosan"
**Aktiebolaget Kamyr.** Hydrolysis of cellulosic materials, P 3197*f*.
**Aktiebolaget Pharmacia.** Penicillin solns., P 3154*e*; 2-methylimidazolines substituted in the methyl group by aromatic radicals, P 3467*a*; derivs. of 2-sulfanilamido-5-methyl-1,3,4-thiadiazole, P 6661*a*; azo compds. for chemotherapeutic purposes, P 6662*e*.
**Aktiebolaget Recip.** 2-(1-Naphthylmethyl)-2-imidazoline, P 5808*f*.
**Aktiebolaget Rosenblads Patenter.** Evapg. strongly foaming liquids, P 8760*e*.
**Aktiebolaget Separator.** Producing butter by cooling cream of high concn., P 3117*c*, purifying sugar juice, P 8718*b*; centrifugal separator for gases, P 6758*f*; high-temp. evapn. of sulfite lyes, P 9448*a*.
**Aktiebolaget Torkapparater.** Continuous concn. of liquids, solns., or liquid suspensions, P 5649*b*.
**Aktiebolag Mo och Domsjo.** See Mo och Domsjo Aktiebolag.
**Aktiengesellschaft Brown, Boveri & Cie.** (*Patents.*) Electrodes for elec. arc furnaces, 509*a*, inert gas producer for the bright-annealing of metals, 2153*d*; attaching Cu or Cu alloy layers to Fe or Fe alloy objects, 2151*b*; evaporator design, 2478*a*, rotary-current-fed electrodes in crucible salt bath, 3731*c*, insulation, 3948*h*, 6388*b*; bright heating of metals with a protective gas, 4209*h*, shaft furnace for producing combustion gases at high pressure for driving gas turbines, etc., 4449*g*, blades from metallic oxides for gas and steam turbines, 4625*e*, electrically heated glass-melting furnace, 4824*b*, 6386*c*, quenching and drying of the slag produced at the reduction of ores, 4999*b*, soldering articles of Al or Al alloys, 5002*f*; pig iron, 5418*b*, laminated sintered articles, 5357*f*; hollow structural parts with corrosion, heat, and fireproof protection, 5359*a*, regulation of elec.-arc furnaces, 6094*f*, electrode system for glass-melting furnaces, 6386*c*, cementation and hardening of Fe and steel parts, 9019*h*.
**Aktiengesellschaft für chemische Holzversertung.** Carbonization of wood and other org. compds., P 6398*d*
**Aktiengesellschaft Cilander.** Preliminary treatment of artificial fabrics, P 7713*g*
**Aktiengesellschaft der Eisen- und Stahlwerke vorm. Georg Fischer.** Hardening cast Fe, P 4909*e*, malleable Fe, P 7892*g*
**Aktiengesellschaft für Erfindungsverwertung AGEV.** See AGEV Aktiengesellschaft für Erfindungsverwertung
**Aktiengesellschaft Karrer, Weber & Cie.** Production of bright phosphate protective coatings on Zn alloys by electrolysis, P 4589*d*.
**Aktien-Gesellschaft für technische Studien.** Heat exchange tubing, P 8347*a*.
**Aktien-Gesellschaft vorm. B. Siegfried** (*Patents.*) Substituted pyrimidine, 2231*b*, *p*,*p*'-dichlorodiphenyldibromochloroethane, 3969*c*, sol. diphenyl sulfone, 4297*a*, bis-(*p*-bromophenyl)dichloroethane 4808*d*, *p*,*p*'-dibromodiphenylchloroethylene, 5040*g*, 4,4'-diaminodiphenyl sulfone deriv., 6233*a*; 4,4'-diphthalimidodiphenyl sulfone, 7042*c*, 6-(*p*-aminophenylsulfonamido)-4-hydroxyquinaldine, 7973*h*; glucose deriv., 7958*b*; 5-sulfanilamidoindazole, 7965*i*, sulfanilamidoquinaldine, 7965*h*.
**Aktieselskabet de Danske Spritfabrikker.** Regulating the addn. of a foam-suppressing agent in fermentation, boiling, or similar processes, P 6781*d*.
**Aktieselskabet Dansk Gaerings-Industri.** Recovery of alc. from fermentation $CO_2$, P 2366*f*
**Aktieselskabet "Ferrosan."** 2-(Phenylsulfonamido)thiazoles, P 3458*h*, chemotherapeutics for tuberculosis, P 6236*c*, 2-hydroxy-4-aminobenzoic acid, P 9085*b*.
**Aktieselskabet Niro Atomizer.** Recovery of penicillin, P 3154*d*; active gels in dry form, P 3161*c*.
**Aktieselskapet Norsk Aluminium Co.** Fluorides for the manuf. of Al from molten fluoride baths, P 5680*e*, utilization of furnace residues in the electrolytic production of Al, P 6095*f*; alkali Al fluoride, P 7201*b*
**Akulov, N. S.** Diffusion of transmuting particles, 2860*f*; theory of alloys, 6959*c*.
**Alabouvette, C.** Synthetic tannins, 8719*b*.
**Alabyshev, A. F.** See Fedot'ev, N. P.
**Alamela, B. S.**, and Dey, B. B. Isoquinoline series (IX) 1-(4-quinolyl)isoquinolines and 1-(6-methoxy-4-quinolyl)isoquinolines, (X) 1-(6-quinolyl)- and 1-(8-quinolyl)-isoquinolines, 1421*d*.
**Alanís, R. J.** Action of cardiac glucosides and of reagents inhibiting sulfhydryl enzymes on the smooth muscle, 1485*h*.

**Alatyrtseva, M.** See Kugenev, P.
**Alb, H.** Special-effect coatings, 420*b*.
**Alba, R. T.** See Wallerstein, J. S.
—— and Wallerstein, J. S. Clarifying and purifying vegetable beverages, P 6334*a*.
**Albada, G. B. v.** See Nassau, J. J.
**Alban, E. K.**, Ford, H. W., and Howlett, F. S. Effect of various cultural practices with greenhouse tomatoes on the respiration rate of the harvested fruit, 9174*a*.
—— and Keirns, V. E. Weed control in vegetable crops with 2,4-D and oil, 1894*c*.
**Albanese, A. A.** See Holt, L. E., Jr.
——, Davis, V. I., Lein, M., and Smetak, E. M. Biochemistry of the metabolic fecal protein N, 5099*f*.
——, Davis, V. I., Smetak, E. M., and Lein, M. Amino acid compn. of proteins excreted by the nephrotic child, 4370*f*.
——, Davis, V. I., Smetak, E. M., Lein, M., and Fisher, M. Amino acid analyses of the nondiffusible fraction of enzymic protein digests and human urine, 9099*a*.
——, Holt, L. E., Jr., Davis, V. I., Snyderman, S. E., Lein, M., and Smetak, E. M. S amino acid requirement of the infant, 5834*a*.
—— and Lein, M. Chromatographic estn. of lysine, 9126*f*.
——, Snyderman, S. E., Lein, M., Smetak, E. M., and Vestal, B. Biol. value of corn and wheat proteins in the male infant—utilization of D-tryptophan, 7559*a*.
**Al'bankskii, V. L.** H bond, 8220*h*.
**Albareda Herrera, J. M.**, Burriel, F., and Munoz Taboada, M. Total Mn in relation to the black soils of Andalusia, 6348*d*.
——, Santos Ruiz, A., and Albiñana Llorente, T. Org. material in Spanish soils (I) C, (II) N and C/N ratio, 8590*f*.
**Albaugh, F. W.** Well logging, P 3603*h*.
**Albers, A.** See Martin, Hans.
**Albert, Adrien.** Acridine synthesis and reactions (IV) synthesis of aminoacridines from formic acid and diarylamines, 647*b*, chem. and biol. properties of acridines, 7028*g*; action of 8-hydroxyquinoline (oxine), 9163*g*.
——, Brown, D. J., and Duewell, H. Syntheses in the benzoquinoline, benzacridine, and phenanthridine series, 1417*e*.
—— and Falk, J. E. Formation of H carriers by hematin-catalyzed peroxidations (I) H carriers from acridine and quinoline compds., 6259*d*.
—— and Goldacre, R. J. Action of basic antibacterial substances, 7081*b*.
——, Goldacre, R. J., and Phillips, J. Strength of heterocyclic bases, 3416*d*.
**Albert, Alexander.** Biochemistry of the thyrotropic hormone, 3908*i*; see Hamilton, C. F.
**Albert, H. E.** Purification of phenol sulfides and prepn. of metallic salts thereof, P 3037*i*, rubber tackifier, P 8195*g*; stabilizers for diene copolymers, P 8195*b*; synthetic rubber stabilizers, P 8732*c*.
**Albert, H. S.** See Seewann-Albert, H.
**Albert, J.** Dielec. material and elec. condenser, P 1883*g*.
**Albert, P.** See Litwins, J.
**Albert, R. D.** See Wu, C. S.
**Albert, S.**, Heard, R. D. H., Leblond, C. P., and Saffran, J. Distribution and metabolism of iodo α-estradiol labeled with radioactive I, 3081*g*.
**Albert, W. W.** See Harper, H. J.
**Alberto Salvatore, C.** Absence of vitamin A activity in cashew nut kernel oil and peanut bran, 5098*h*; influence of ambient temp. on the symptoms of avitaminosis A, 5098*h*.
**Alberto Texera, D.** Production of antibiotic substances by fungi of the genus *Fusarium*, 5821*i*.
**Alberto Torrent, J.** Upper-layer index in the detn. of the degree of deterioration of spray-dried eggs, 7154*h*.
**Alberto Videla, C.**, Gazzano, P. M., and Morelli, M. J. Concn. of Ca sulfamethazine in the blood and urine, 318*a*.
**Albert Products Ltd.** and Martin, S. R. W. Purification of resinous rubber-transformation products, P 7744*i*.
**Alberts, J. O.** See Roberts, Elmer.
**Albertsma, N. A.** *Euphorbia marginata* oil, 4872*b*.
**Albertson, N. F.** See Archer, S.; McMillan, F. H.
——, Archer, S., and Suter, C. M. Alkyl esters of α-acylamino-α-cyanoindolepropionic acid, P 1442*d*; esters of α-acylamino-3-indolepropionic acid, P 5806*g*.
**Alberty, R. A.** Electrophoresis (II) analysis and theory, 1619*d*; variation of the av. isoelec. points of plasma proteins with ionic strength, 3860*f*, see Anderson, Elmer A.; Van Holde, K.
**Albi Chemical Corp.** Complex metal ammine salts, P 3158*a*.
**Albi Manufacturing Co., Inc.** Fire-retardant compn., P 1126*g*.
**Albiñana Llorente, T.** See Albareda Herrera, J. M.
**Albiswerk Zürich A.-G.** Direct-reading ionization vacuum gage, P 3669*a*; sealing glass to metal, P 6386*g*.
**Alboth, H.** Gas warfare and biol. means for waging war, 3947*h*.
**Albouy, G.** See Faraggi, H.
—— and Faraggi, H. Fading of plates for nuclear investigations, 4109*i*; fading of the latent image produced by charged particles, 6928*b*.
**Albrecht, H.** See Bernhard, K.
**Albrecht, W. A.** Soil fertility as a pattern of possible deficiencies, 7171*c*; see Brown, D. A.; Sheldon, V. L.
**Albright, C. W.**, Holden, J. H., Simons, H. P., and Schmidt, L. D. Pneumatic feeder for finely divided solids, 6872*a*.
**Albright, F.** See Burnett, C. H.; Reifenstein, E. C., Jr.
——, Forbes, A. P., and Bartter, F. C. Adrenocorticotropic hormone, 7567*f*, 8040*h*.
—— and Reifenstein, E. C., Jr. Parathyroid Glands and Metabolic Bone Disease (book), 1104*c*.
**Albright, John C.** Natural gasoline plant increases output by using propane refrigeration unit, 382*f*; recover usable water from waste by extg. condensable gases, 2718*b*; gasoline plant uses direct heaters, 3179*i*; treating spent caustic, 4839*b*, gasoline plant emphasizes compactness, 9422*h*.
**Albright, Joseph C.** Humidity analyzer, P 4057*a*.
**Albright, P. N., and Rich, A. B.** Bacteriol. study of swimming-pool waters, 6766*h*.
**Albright, R. E.**, Nelson, F. L., and Raymond, L. Effect of additives on gasoline-engine deposits, 5579*h*, utilization of 2,2-dinitropropane as a cetane no. improver, 5930*i*.
**Albright & Wilson Ltd.** and Inglis, G. Polyphosphates, P 2380*d*.
and Taylor, A. G. Organosilicon compds., P 1607*i*.
**Albrink, W. S.**, and Fuoss, R. M. Elec. properties of synthetic membranes, 4892*e*.
**Alburger, D. E.** γ Rays from deuteron reactions, 4113*a*, β-ray spectrum of $K^{40}$, 5294*g*; γ-radiation from $Na^{22}$ and $Co^{60}$, 8872*d*, see Pollard, E. C.
—— and Pollard, E. C. Automatically recording γ-ray scattering app., 4091*c*.
**Alburn, H. E.** See Ehrich, W. E.; Warren, C. H.
**Alcaide, J. A.** See Bacila, M.
**Alcala, J. M. R. de la B. y.** See Borbolla y Alcalá, J. M. R. de la.
**Alcaniz, E. M.** See Moreno Alcaniz, E.
**Alcazár Ampuero, J.** Monography of quinua, 1121*i*.
**Alcober, T.** Same as Alcober Coloma, T.
**Alcober Coloma, T.** Detection of acetylcholine in cerebrospinal fluid, 9234*i*.
**Alcock, F. J.** New Brunswick oil shales (II) exploration of oil shales in the Taylor Village area, (III) exploration of oil shales in the Albert Mines area, 3996*b*.
**Alcock, G. P.** See Edwards, J. E.
**Alcock, N. Z.**, and Hurst, D. G. Neutron diffraction by gases, 5285*d*.
**Alcorn, I. W.**, and Bond, D. C. Cementing earth bores, P 5568*g*.
**Aldama, E. R.** See Romo Aldama, E.
**Alden, R. C.**, and Legatski, T. W. Natural-gas butane and motor fuel vapor pressures, 375*c*.
**Alden, W. C.** See Gibson, R.
**Alder, R.** Hollow thermoplastic moldings, P 5633*g*.
**Alderks, O. H.** Soybeans—quantity and quality of oil, isolated protein, and nutritional value of the meal, 3539*f*.
**Alderman, D. M.** See Gregg, R. A.
**Alders, J. C.** Cosi la chimica diverte (book), 8842*c*.
**Alderson, W. L., Jr.** Insolubilizing hydrolyzed ethylene-vinyl ester polymers, P 442*h*; long-chain secondary alkyl *N*-substituted polymeric styrene-maleamic acids and dispersions contg. them, P 857*b*; curing polyethylene, P 2038*d*.
—— and Robertson, J. A. Hydrazonitriles from azines of Bu ketones, P 6652*e*.
**Alderton, G.** See Carlisle, S. S.; Chin, Y.-C.; Dimick, K. P.
**Aldington, J. N.** High-intensity flash discharge tube, 3731*i*.
**Aldinio, V.** Action of *p*-aminobenzoic acid on microörganisms, 9239*d*.
**Aldman, B.**, Claesson, L., Hillarp, N. Å., and Odeblad, E. Storage mechanism of the estrogen-precursor, 5479*e*.
Diczfalusy, E., Ingelman-Sundberg, A., and Rosenberg, T. Effect of α-tocopheryl phosphate on the inhibition of phosphatase by estrogens, 7530*h*.
——, Diczfalusy, E., and Rosenberg, T. Inhibition of alk. phosphates by estrogenic hormones, 6716*c*.
**Aldous, E.** See Roberts, R. B.
**Aldous, J. G.** Effect of pH on the toxicity of iodoacetic acid to yeast cells, 1828*i*.
**Aldovrandi, F.** Synthetic gasoline, P 8662*h*.
**Aldrich, L. T.** See Lane, C. T.; McInteer, B. B.; Taconis, K. W.
—— and Nier, A. O. $Argon^{40}$ in K minerals, 485*e*, $He^3$ in natural sources of He, 2090*e*.
**Aldrich, R. A.** See Grinstein, M.
**Aldrich, W. W.** See Reitemeier, R. F.
**Aldridge, G. E.** See Orcutt, J. A.
**Aldridge, W. N.**, and Liddell, H. F. Microdetn. of Be—its detn. in biol. materials, 1681*h*, 7862*b*.
**Aldrovandi, A.** Effect of drouth and chem. fertilization on the industrial value of sugar beets, 9503*c*.
**Alegria, J. G. del T. y.** See Gonzalez del Tanago y Alegria, J.
**Aleixandre, V.** Same as Aleixandre Ferrandis, V.
**Aleixandre Ferrandis, V.** Physicochem. studies of binary mixts., 6066*h*; differential thermal analysis of Spanish clays and kaolins, 8590*c*.
—— and Garcia Vicente, J. Phys. chem. study of artificial aluminosilicates, 2067*e*; variation of the physiochem. properties of soils with their particle size, 6347*a*.
**Alekejewski, E. W.** See Alekseevskii, E. V.
**Alekhin, P. P.** Enlarging the resources for coke production and the reconstruction of coking batteries, 3184*e*; naphthalene production, 3998*i*.
**Aleksandrov, A. I.** Amberlike fossil resins from Mesozoic layers of the west slope of Ural, 6131*a*.
**Aleksandrov, A. P.** See Ponomarev, L. T.
**Aleksandrov, V. G.** Conversion of unavailable into available soil K by bacteria, 8084*c*.
**Aleksandrov, V. Ya.** Denaturation and the response of cells to external reagents, 3050*d*.
—— and Kryukova, Z. I. Analysis of holocrine secretions of the sebaceous glands, 7114*b*.
**Aleksandrova, I. V.** See Kononova, M. M.
**Aleksandrova, L. A.** See Losikov, V. V.
**Aleksandrova, T. A.** See Fedoseev, A. D.
**Aleksandrova-Preis, E. M.** Same as Preis, E. M.
**Aleksandrovskaya, N. S.** See Lisitsyn, M. A.
**Aleksandryan, K. Z.** Keratin adhesive, P 9512*d*.
**Alekseenko, V. I.** Formulation of rubber-sole compns., 6853*i*.
**Alekseev, A. M.**, and Gorelova, Z. P. Influence of mineral feeding level on aq. regime of plants, 8012*g*.
—— and Gusev, N. A. Influence of phosphates and nitrates on the water regime of wheat leaves under conditions of inadequate water supply, 6703*d*.
**Alekseev, N. F.** Detn. of diene hydrocarbons in coke gas, 8645*d*.
**Alekseev, N. G.** See Chmutov, K. V.; Dubinin, M. M.
**Alekseev, V. N.** Kurs Analiticheskoi Khimii (book), 2548*e*.
**Alekseeva, A. M.** Transformation of creatine into creatinine, 147*a*, 3051*d*.
**Alekseeva, E. A.** See Tsyskovskii, V. K.
**Alekseeva, K. I.**, and Vernov, S. N. Cosmic-ray showers accompanying penetrating particles, 3705*i*.
**Alekseeva, M. V.** Detn. of aniline in air, 8979*a*.
——, Andronov, B. E., Gurvits, S. S., and Zhitkova, A. S. Detn. of Harmful Substances in the Air of Industrial Establishments (book), 9298*b*.

——— and Gol'dina, Ts. A. Detn. of $SO_2$ in air, 5339*i*.
**Alekseevskii, E. V.**, Gol'ts, R. K., and Musakin, A. P. Quant. Analysis (book), 5346*d*.
**Alekssejewa.** See Alekseeva.
**Alella, A.**, and Meda, E. Heart frequency of men breathing O and the influence of the vagus, 9200*i*.
**Alencev, M. N.** See Aleutsev, M. N.
**Aleutsev, M. N.** D. curves for short exposures, 51*h*; dependence of the quantum efficiency of the fluorescence of I vapor on the wave length of the exciting light, 1265*i*; yield of luminescence of crystal phosphors in its dependence on the wave length of the exciting light, 4578*a*.
**Alépée, G. tan J. G.** Carbonization of wood, P 4838*b*.
**Aler, M. E.** See Furry, M. S.
**Aleschin, S. N.** See Aleshin, S. N.
**Aleshin, S. N.** Change of montmorillonite into hydromica, 2540*f*.
**Alesi, F. M. R.** See Russo-Alesi, F. M.
**Alesker, E. M.** Effect of nicotinic acid on blood sugar during parenchymatous hepatitis, 7126*c*.
**Alesovetskii, A. Kh.** See Kovel'man, G. A.
**Alessandrini, E. I.** High-temp. furnace for electron-diffraction studies of thin films, 7328*i*.
**Alessandrini, M. E.** Detn. of DDT on a sprayed surface, 2359*f*, 4416*b*.
**Alessandroni, H. V.** Manuf. of rutile Ca pigments, 8696*h*.
**d'Alessio de Carnevale Bonino, R. C.** See Carnevale Bonino, R. C. d'A. de.
**Alexa, G.**, and Rădulescu, F. D. Activated C from nut shells and grape seeds, 9295*i*.
——— and Simionescu, C. Rumanian grapeseed oil, 7241*a*.
**Alexander, Albert E.** Measuring force/area curves of adsorbed and insol. monolayers at air/water and oil/water interfaces, 8216*d*; see Agar, A.; Gray, V. R.; Posner, A. M.; Salton, M. R. J.; Stainsby, G.
——— and Johnson, P. Colloid Science (book), 4554*c*.
——— and Saggers, L. App. for quant. electrophoretic work, 2822*i*.
**Alexander, Alexandre E.** Synthesis of rutile and emerald, 4909*f*; analysis of rubies and sapphires, 8981*h*.
**Alexander, A. L.** Measurement of thickness of paint films applied to nonmagnetic metals, 417*h*; org. finishes, 8175*f*.
———, Ballentine, J. B., and Yeiter, M. O. Pigment particle size in antifouling paints, 8696*d*.
——— and Benemelis, R. L. Antifouling paints—multiple pigmentation, 7715*b*.
**Alexander, A. P.** Gray iron parts successfully surface-hardened in the flask, 6957*i*.
**Alexander, B.** See Seligman, A. M.
———, De Vries, A., and Goldstein, R. Prothrombin—its detn., 3871*i*.
———, De Vries, A., Goldstein, R., and Landwehr, G. Prothrombin-conversion accelerator in serum, 7103*d*.
**Alexander, B. H.** See Mehltretter, C. L.
**Alexander, C.** Recovering HF from an azeotropic mixt. by crystn., P 3180*h*.
**Alexander, C. H.** Stabilization of chloroethylene by metallic silicates during polymerization, P 5642*d*.
**Alexander, D. K.** Yeast treatment, P 5902*f*.
**Alexander, E. B.** See Miller, L. C.
**Alexander, E. R.**, and Marvell, E. N. Reaction of hydroxy aldehydes with Et orthoformate (I) hydroxypivalaldehyde, 2940*i*.
——— and Pinkus, A. G. Optical activity in compds. contg. D (I) 2,3-dideuterio *trans*-menthane, 8226*g*.
**Alexander, Frank.** Action of hormonal agents on the horse intestine, 7564*i*; see Sellers, K. C.
**Alexander, Fred.** Medical survey of the Aleutian Islands, 6711*b*.
**Alexander, G. B.** Sepn. of perrhenic and molybdic acids, 8794*b*.
**Alexander, H. E.** See Hatch, L. F.
**Alexander, J.** Odor detection, 7519*e*.
**Alexander, J. E.** See Walker, W., & Sons Ltd.
**Alexander, K.**, and Schniepp, L. E. Bis(5-hydroxyamyl) ether, P 5790*g*.
——— and Smith, G. H., Jr. Hydrogenation products from furfuralacetofuran, 3407*c*.
**Alexander, K. M.**, and Fairbrother, F. Halides of Cb and Ta (I) vapor pressures of $CbCl_5$ and $CbBr_5$ and $TaBr_5$ and $TaCl_5$, 7851*h*.
**Alexander, L.** See Klug, H. P.
——— and Klug, H. P. X-ray absorption in quant. diffraction analysis of powder mixts., 2063*e*.
———, Kummer, E., and Klug, H. P. Geiger-counter x-ray spectrometer, 8852*g*.
**Alexander, L. T.** See Muckenhirn, R. K.
**Alexander, M. H.**, and Yapp, W. W. Estg. milk and fat production in dairy cows, 7600*b*.
**Alexander, P.** H bonds in the supercontraction and permanent set of wool fibers, 5955*h*; see Kitchener, J. A.
———, Carter, D., and Earland, C. Application of organosilicon polymers to wool, 4017*a*.
———, Carter, D., and Hudson, R. F. Treatment of wool with acid permanganate solns., 5192*e*.
——— and Hudson, R. F. Kinetics of the heterogeneous reaction between $KMnO_4$ and wool, 6896*i*.
**Alexander, Paul.** Glycerol vapor vacuum pump, 911*g*, see Pollard, J.
**Alexander, Peter.** See N. V. de Bataafsche Petroleum Maatschappij.
**Alexander, P. P.** Li hydride, P 1159*i*, metal nitrides, P 5160*d*, TiN, P 5162*a*; $Ta_2N_3$, P 5162*b*; ZrN, P 5162*d*.
**Alexander, R. O.** Polysulfide polymer coating compn., P 6001*f*.
**Alexandrouskaja, N. S.** See Aleksandrovskaya, N. S.
**Alexandrov, Alexandrow.** See Aleksandrov.
**Alexandrowa.** See Aleksandrova.
**Alexanian, C. L.** X-ray examn. of decolorizing, adsorbing, and catalyzing agents, 810*i*.
**Alexeeff.** See Alekseev.
**Alexeeva.** See Alekseeva.
**Alexeevskij, Alexeewski.** See Alekseevskii, E. V.
**Alexéiewa, Alexéjeva.** See Alekseeva.
**Alexejevskij, E. W.** See Alekseevskii, E. V.
**Alexejew, Alexejewa.** See Alekseev, Alekseeva.
**Alexejewskij, Alexeyevsky.** See Alekseevskii, E. V.
**Alexopoulos, K.**, and Scouloudi, H. Scattering of x-rays by the *L* electrons of B, 4131*a*.
**Alf, R. M.** Mylonite belt in the southeastern San Gabriel Mountains, 6129*c*.
**Alferova, N. S.** See Svechnikov, V. N.
**Alfieri, C. C.** See Truce, W. E.
**Alfin-Slater, R. B.**, and Caldwell, M. L. Action of pancreatic amylase—differentiation of the products of the hydrolyses of potato starch and of a linear fraction from corn starch, 2655*e*.
———, Larack, A. M., and Petermann, M. L. Prepn. and properties of the mitochondria and submicroscopic particles of normal and leukemic mouse organs, 5488*g*.
**Alfredson, B. V.** Lab. Manual of Exptl. Pharmacology for Veterinary Students (book), 4386*g*.
**Alfredsson, B.** See Enkvist, T.
**Alfrey, T., Jr.** See Kaufman, H. S.
———, Arond, L., and Overberger, C. G. Acid-catalyzed copolymerization behavior of auethole, 8826*g*.
——— and Berdick, M. Isolation and purification of polyvinyl acetate, 7200*g*.
——— and Hardy, V. Chain transfer in co-polymerization reactions, 7748*i*.
——— and Kapur, S. L. Copolymerization of monomer pairs, 7260*i*.
——— and Lewis, C. Heat of copolymerization, 7748*h*.
——— and Rodewald, C. W. Thixotropy in bentonite suspensions, 6885*b*.
———, Wiederhorn, N., Stein, R. S., and Tobolsky, A. Plasticized polyvinyl chloride, 5628*h*, 6462*a*.
**Alfvén, H.** Solar origin of cosmic radiation, 6502*d*.
**Alfyorova, N. S.** See Alferova, N. S.
**Algar, J.** See Nolan, T. J.
**Algemeene Kunstzijde Unie N. V.** Spinneret, P 5188*c*; oximes from cyclic ketones, P 6230*h*.
**Alger, R. S.** See Von Hippel, A.
**Algeri, E. J.** See Fisher, R. S.
**Algerino, A.** Chimica analitica applicata all'industria tessile e tintoria. Vol. I. Analisi tessile (book), 1573*i*.
**Algéus, S.** Utilization of glycine by *Chlorella vulgaris*, 3494*a*; deamination of glycine by green algae, 3494*b*.
**Alginate Industries Ltd.**, Speakman, J. B., Chamberlain, N. H., and Dorkin, C. M. C. Alkali-resistant alginate materials, P 7237*a*.
**Ali, M. A.** Compn. of garden and field crops grown in Egypt, 7777*b*.
**Alia Medina, M.**, and Alvira Alvira, T. Samples of saline soil from the Ougrunat depression of the Spanish Sahara, 2347*h*.
**Alibrandi, A.** Prostigmine and the convulsant action of strychnine, 2327*h*.
**Alichanian.** See Alikhanyan.
**Alichanow, A. I.** See Alikhanov, A. I.
**Alicino, J. F.**, Crickenberger, A., and Reynolds, B. Detn. of Br—application to analysis of org. compds., 6107*h*.
**Alikhanian.** See Alikhanyan.
**Alikhanov, A. I.** See Alikhanyan, A. I.
**Alikhanyan, A. I.**, Alikhanov, A. I., Morozov, V. M., and Khrimyan, A. V. Mass spectrum of mesons (II), 4105*a*.
———, Valsenberg, A., Dalon, M., Kharitonov, V., and Konstantinov, A. Mesons in the hard component of cosmic rays, 4105*f*.
———, Valsenberg, A., Kharitonov, V., and Dalon, M. Mass spectrum of mesons at 3250 m above sea level, 1612*e*.
**Alikhanyan, S. I.** Chem. nature of genes, 7989*d*.
**Alikonis, J. J.** Grinder and pulverizer of cacao nibs, P 4398*d*.
**Alimarin, I. P.**, and Podval'naya, R. L. Detn. of small quantities of Cb as thiocyanate complex, 2543*d*.
**Aliod, M. C.** See Claver Aliod, M.
**Aliverti, G.**, and Lovera, G. Efflux of Rn from the soil, 7332*a*.
**Aljoschin, S. N.** See Aleshin, S. N.
**Alkaloida Vegyeszeti Gyar Reszventarsasag.** Opium alkaloids from dry poppy straw, P 8620*h*.
**Allan, C. T.** The young engineer, 8219*f*.
**Allan, F.** Clacton-on-sea gas undertaking, 1550*f*.
**Allan, H. R.**, and Wilkinson, C. A. Transmutation of Mg, Al, and Si by deuterons, 3284*e*.
———, Wilkinson, C. A., Burcham, W. E., and Curling, C. D. Disintegration of sepd. isotopes of Mg by deuterons, 4562*h*.
**Allan, J.** Phenol-aldehyde molding compns., P 2039*c*, synthetic resin molding compns., P 8739*h*.
**Allan, J. A. van.** See Van Allan, J. A.
**Allard, G.** Thomas-Fermi atom derived from a variational principle, 8844*c*.
**Allard, J.** Action of methoxymethyl chloride on terpene hydrocarbons, 5017*g*, see Quelet, R.
**Allaway, W. H.** See Larson, W. E.
**Allcock, H. W.**, Kipnis, F., Ornfelt, J., and Allen, P., Jr. Acyloxyacetylfurans (II), 1392*b*.
**Allcroft, W. M.** Metabolic disorders of cows—chem. analysis of blood (I) conditions of occurrence, (II) blood chemistry, 4736*h*.
**Allegheny Ludlum Steel Corp.** Inorg. insulating coating for elec. steel sheet and strip, P 6145*b*.
**Allegra, G.** Polypeptidemia in cardiopathic patients, 8049*b*; detn. of I in blood 8419*h*; see Ortoleva, G.
**Allègre, S. G.** See Guillot-Allègre, S.
**Allegri, A.** Codehydrogenase I and II in blood of patients with typhoid fever, 5110*f*.
**Allemand, A.** See Almeida Costa, O. de.
**Allemann, T.** See Schlittler, E.
**Allen, A. G.**, and Lyle, A. K. Container-glass compn., 2748*b*.
**Allen, A. M. van.** See Van Allen, A. M.
**Allen, C. F.** See Walker, G. B.
**Allen, C. F. H.** See Cason, J.
——— and Bell, A. Sulfamyl-2-mercapto benzothiazoles, P 5042*g*.
——— and Burness, D. M. Chemistry of *o*-terphenyl (III) sulfonic acids, 4655*c*, nitration of terphenyls, 4656*h*.
———, Burness, D. M., Edens, C. O., Kibler, C. J., and Salminen, I. F. Chemistry of *o*-terphenyl (IV) amine derivs., 4656*b*.
———, Burness, D. M., and Van Allan, J. A. Chemistry of *o*-terphenyl (V) 4-vinyl-*o*-terphenyl, 4656*f*.
——— and Van Allan, J. A. Azomethines in the 3a-azaindol-2-one series, 642*i*; 3-(carboxymethyl)benzothiazolines, 5022*b*.
———, Wilson, C. V., and Frame, G. F. Sulfonamido disazo dyes, P 858*f*.
**Allen, C. H.** See Whiteside, R. S.
**Allen, C. W.** Influence of mineral aggregates on the strength and durability of concrete, 5168*d*; see Woolley, R. v. d. R.
**Allen, D. I.** See Swain, H. L.

**Allen, E.** See Pfeiffer, C. A.
**Allen, E. M.**, Gage, F. W., and Wolf, R. E. Compounding of natural rubber with a new fine-particle silica, 7251*a*.
**Allen, F. A.** Chem. coloring of Al, 3629*e*.
**Allen, G.** "Olivine synthetic molding sand controls silicosis," 2343*e*.
**Allen, G. A.** See Seaman, W.
——— and Gunning, H. E. Hg-photosensitized reactions of isobutene, 1660*e*.
**Allen, G. L.**, and Miller, V. Japanese Al industry, 4989*i*.
**Allen, H. C.** See Ariente, P. J.
**Allen, H. D.**, and Malkemus, J. D. Partial esters, P 9494*c*
**Allen, H. L.** Thermosetting coumarone-indene resins, P 5631*d*.
——— and Kerr, E. G. Complex resins, P 1607*a*; thermoplastic resins, P 1607*c*.
——— and Kleinguenther, H. G. Distn. of $H_2SO_4$-treated hydrocarbon oils, P 8668*a*.
**Allen, H. S.**, and Moore, H. Text-Book of Practical Physics (book), 932*a*.
**Allen, H. W.** Japanese weevil appears in damaging nos., 7628*d*.
**Allen, J. A.**, and Lauder, I. O exchange with oxides, 8821*h*.
**Allen, J. F.**, Cook, J. H., and Fenton, G. Open-hearth furnace combustion problems (III) Maerz port, 2908*g*
**Allen, J. G.** See Jacobson, L. O
———, Moulder, P. V., McKeen, C. L., Egner, W., Elghammer, R. M., and Grossman, B. J. Protamine titration and platelet level in hemorrhagic diseases, 5850*h*.
**Allen, J. J.**, and Hawkes, J. A. Purifying cellulose esters of higher fatty acids, P 404*g*; cellulose esters, P 5592*a*.
**Allen, J. R.** Recovery of Mn, P 1708*a*
**Allen, J. S.** Search for the neutrino through nuclear recoil expts., 2501*g*
———, Paneth, H. R., and Morrish, A. H. Electron-neutrino angular correlation in the $\beta$-decay of $He^6$, 4112*c*
**Allen, K. W.**, Burcham, W. E., and Wilkinson, D. H. Resonance phenomena in the interaction of fast neutrons with Be and Al, 4946*i*.
——— and Wilkinson, D. H. Measurement of fast-neutron flux, 2087*f*
**Allen, L. A.**, Cooper, A. H., and Maxwell, M. C. C. Manuf. of sugar from beet (II) losses due to fermentation during the diffusion process, 5217*e*
———, Eden, G. E., and Cooper, A. H. Manuf. of beet sugar, 9502*h*.
**Allen, L. R. van.** See Van Allen, L. R
**Allen, M. E.** See Flory, C. M.
**Allen, N. N.** Colostrum milk for calf feeding (I) stored colostrum as a substitute for marketable milk for feeding dairy calves, 9103*c*.
**Allen, P., Jr.** See Allcock, H. W
**Allen, P. J.**, and Emerson, R. Guayule rubber—microbiol improvement by shrub retting, 3611*g*
**Allen, R. E.** See Overberger, C. G.
**Allen, R. M., Jr.** Geology and mineralization of the Morning Mine and adjacent region, Grant Co., Ore., 524*g*
**Allen, R. P.** See Neuman, W. F., Philips, F. S.
**Allen, R. R.**, Jackson, A., and Kummerow, F. A. Stability of highly unsatd. acids (I) oxidation of conjugated and non-conjugated linoleic acid, 7721*d*.
**Allen, R. S.** See Murley, W. R.; Squibb, R. L.
———, Wise, G. H., and Jacobson, N. L. Blood plasma factors that interfere with the color reactions of activated glycerol dichlorohydrin with vitamin A and carotenoids, 8423*c*.
**Allen, S. A.** See Ruhl, O.
**Allen, S. J.**, and Drewitt, J. G. N. Basic polyamides, P 4052*f*; linear polyamides contg. heterocyclic rings, P 4519*d*
**Allen, S. L.** Fast cementing of leather belting laps, 5996*h*.
**Allen, T. C.** See Bronson, T. E.; Chapman, R. K.
**Allen, T. H.**, and Orahovats, P. D. Measurement of traces of the dye T-1824 by extn. with cellophane from both blood serum and urine of normal dogs, 713*g*
**Allen, V. O.** Ni alloy and elec. resistor element made thereof, P 8348*h*.
**Allen, W. A.** See Stanbridge, H. H.
**Allen, W. B.** See Quinn, A.
——— and Jeffords, R. M. Ground-water resources in Exeter, R. I., 6341*d*.
**Allen, W. H., Sons, & Co., Ltd.** Corrosion in industrial-type steam turbines, 8078*g*.
**Allen, W. W. van.** See Van Allen, W. W.
**Allenby, O. C. W.**, and Nicholls, R. V. V. Dinitration and dealkylation of *p*-cymene, 9046*a*.
**Allende, I. L. C. de**, Astrada, J. J., and Orías, O. Action of sulfonamides on ovulation and on liberation of spermatozoa in the toad, 7593*h*.
———, Caligaris, L. S. de, and Orías, O. Action of thiamine, ascorbic acid, and tocopherols on secretion by the oviduct glands of the toad, 7593*i*.
**Allen and Hanburys Ltd.** and Eastland, C. J. Salts of basically substituted phenyl esters of alkyl carbamic acids, P 6876.
**Allen, Stafford, & Sons Ltd.** See Stafford Allen & Sons Ltd.
**Allen-Williams, D. J.**, and Appleyard, R. K. Expts. with a 14-m.e.v. betasynchrotron, 3280*h*.
**Aller, L. H.** Collisional excitation of the $\lambda$ 3727 radiation of O II, 490*g*, absorption line spectra of the central stars of the planetary nebulas, 2509*b*, 4133*d*, atm. of $\gamma$ Pegasi, 5301*d*
———, Ufford, C. W., and Van Vleck, J. H. Multiplet intensities for the nebular lines $^4S-{}^2D$ of O II, 3711*c*.
**Allerton, J.** Through-drying of porous media, 4056*f*
**Alles, F. P.** Photographic elements having a Ag halide layer and an antihalation layer on a polyvinylpyridine layer, P 53*e*, photographic elements having antihalation layer composed of vinylpyridine polymer with vinylpyridine polymer sublayer and outer protective layer, P 53*h*
**Alles, G. A.** Vasoconstrictor compn., P 4429*d*, see Redemann, C. E.
——— and Ellis, C. H. Actions of $\alpha$ fagarine compds., 2320*d*, central depressant actions of 5-phenyl-5 alkenylbarbituric acids, 4769*b*
——— and Redemann, M. A. Activities of benzhydryl alkamine ethers and related compds., 8545*i*
**Alley, R. D.**, and Lindskag, C. E. Pharmacol. factors influencing collateral respiration—relation to the etiology of pulmonary complications, 1483*g*
**Allfrey, V.**, Teply, L. J., Geffen, C., and King, C. G. Detn. of pteroylglutamic acid, 4720*d*
**Allgeier, (Sister Ann Miriam).** See Sica, A. J.
**Allied Chemical & Dye Corp.** (*Patents*) Alkylaryl sulfonate mixts., 6845*a*; anthraquinone C-arylthiazoles, 7049*e*; antifungus wrapper and pest control, 8606*c*, app. for analyzing a fluid mixt. by means of transmitted light, 449*e*; azeotropic distn. of styrene, 5040*d*, 5419*h*, 5799*b*, azeotropic distn. of xylene oil with MeOH 3454*b*, benzene sulfonation, 3457*b*, 1,3 benzodioxan azo dyes, 8149*a*, benzonitrile from benzene or biphenyl and HCN, 1004*c*, brine chamber and regenerator arrangement in Hg cathode cells used in the electrolysis of chlorides and bromides of alkali metals, 6097*b*; carboxylic acid arylides, 8309*e*, catalyst for isobutylene-nitrosyl chloride (or bromide) addn., 7950*c*, chlorofluoromethanes, 3023*i*, cleaning metal catalysts, 6763*d*; coke, 6812*e*; coke-oven battery to coke coal of low volatile content, 3598*i*; diamino-anthraquinone acid dyes for wool, silk, and nylon, 3205*f*, diaryl monosulfide purification, 7041*i*, 1,4-dihydroxyanthraquinone, 8692*e*, disazo dyes, 8156*c*; distn. of $H_2SO_4$-treated hydrocarbon oils, 8668*a*, dyeing nylon-acetate mixed fabrics with 3-nitro-4-amino 2'-chlorobiphenyl, 2442*g*, dyeing wool with indigo dyes, 4151*i*, $CH_2O$, 3837*g*; hydrofluorination of olefins, 3834*i*, HF, 2744*i*; *p*-nitrobenzenesulfonyl chloride, 6232*a*; oxidation of heterocyclic aromatic N compds., 697*c*, oxynitration of aromatic compds., 1805*i*; phosphonic acid esters, 7969*d*; polymerization of conjugated diolefins, 3228*a*, polymerization of resin oils with mixed clay and org. acid catalyst, 5641*g*; purification of heterocyclic N compds., 1810*i*; pyridine carboxylic acids, 8402*d*; quinoline isolation from a mixt. of N bases, 2241*d*; reaction product of alkenylsuccinic esters with S, 2634*i*; resins, 1607*a*; resolution of N base mixts., 2240*c*; Ag-surface catalyst, 4289*h*, 9299*g*; styrene recovery, 5582*g*; sulfosuccinamic acid derivs., 1798*a*; sulfuric acid, 6374*b*; $SO_2$ stabilization, 2745*g*; tetrachlorodifluoroethane, 5789*i*; thermoplastic resins, 1607*c*; thermosetting coumarone-indene resins, 5631*d*; $SOCl_2$, 7201*d*; vat dyes applied to alkali-sensitive fibers by acid reduction, 414*h*; xanthone-DDT insecticide, 350*f*.
**Allied Laboratories, Inc.** 10-Carboxyacylphenothiazines, P 3853*h*; bactericidal compns., P 9389*i*.
**Allied Mills, Inc.** Corn-germ removal, P 8718*d*.
**Allies, F.** See Brugsch, J.
**Alliger, G.** *N*-Monochlorocyclohexylamine, P 3033*c*.
**Alling, E. L.** See Bruce, R. A.
**Allingham, W. J.** Lecithin-gum preservative coating for foods, P 5881*a*.
**Allison, A. M.** Detg. decompn. in fishery products, 1120*c*.
**Allison, F. E.**, Love, K. S., Pinck, L. A., and Gaddy, V. L. Gaseous losses of N from green plants (I) studies with *Chlorella* and *Lemna*, 282*e*.
——— and Sterling, L. D. Gaseous losses of N from green plants (II) studies with excised leaves in nutrient media, 282*g*; nitrate formation from soil org. matter in relation to total N and cropping practices, 6772*h*.
**Allison, J. B.** See Brown, Jack H.; Roth, J. S.
———, Anderson, J. A., and White, J. I. Evaluation of the nutritional value of proteins with normal and protein-deficient dogs, 3900*d*.
———, Cole, W. H., Walcott, W. W., Gelfan, S., Root, W. S., and Gregersen, M. I. Evaluation of transfusion therapy in hemorrhagic shock, 5857*f*.
**Allison, J. R.** See Kessler, K. L.
**Allison, L. E.** See Reeve, R. C.
**Allison, S. K.**, and Del Rosario, L. Performance of an electron multiplier tube counting $\alpha$-particles, 4094*f*.
———, *et al.* Constructive Uses of At. Energy (book), 6517*c*.
**Allmänna Svenska Elektriska Aktiebolaget.** Improved counter electrode for Se rectifier, P 2526*b*.
**Allman, S. L.** Thrips injure nectarines, 7184*c*.
——— and Friend, A. H. Insecticides and fruit-fly control, 7184*c*
——— and Wright, J. A. Grasshopper control, 7185*d*.
**Allmand, A. J.** See Banerjee, T.; Roffey, F.; Young, K. W.
**Allmark, M. G.** See Lavallée, A.
——— and Bachinski, W. M. Assay for curare, 8612*i*.
**Allmen, S. v.**, and Eggenberger, H. Anthraquinone dyes for wool and nylon, P 8164*d*.
**Allner, W.** Gas manuf. from wood by the Bugiag-Didier parallel flow-carbonization process, 6392*e*.
**Allport, N. L.** Colorimetric Analysis (book), 522*f*.
——— and Carratt, D. C. Estn. of metallic contaminants in foodstuffs, 2705*i*.
**Allquist, J. W.** Washing cellulose, P 6415*d*.
**Allsman, P. T.** Fe-ore reserves of Iron Co., Utah, 1293*f*; see Horton, F. W.; Severy, C. L.
———, Majors, F. H., Mahoney, S. R., and Young, W. A. Sublette Ridge V deposit, Lincoln Co., Wyo., 6124*d*; Salt River Range V deposits, Lincoln Co., Wyo., 8990*b*.
**Allsop, H.**, and Bygate, P. W. Grain growth in Si-Cr valve steel, 4617*d*, 8334*g*.
**Allsopp, C. B.** See Fell, H. B
**Allsopp, W. E.** Holder for dropping-Hg electrode, 4056*d*.
——— and Damerell, V. R. Detn. of Sn in steel, 7864*d*.
**Allwood, E.** See Watkins, J. M.
**Alm, F.** See Nilsson, R.
**Almasow, B. A.** See Almazov, B. A.
**Almazov, B. A.** Detn. of $NH_3$ dose in water purification, 7165*e*.
**Almeida, F. F. M. de.** Petrographic study of the chromite vein in Itaú, 2122*g*; origin of the Fe and Mn ores of Urucum, Brazil, 3751*a*; geology of the southwestern part of Mato Grosso, Brazil, 3751*f*.
**Almeida, H. de.** Sources of Pb in port wine, 3559*g*.
**Almeida, J. R. de.** See Roche de Almeida, J.
**Almeida, P. R. de.** Toxicity of DDT to fish, 4805*e*.
**Almeida Baltasar, J. A. de.** Detn. of

ascorbic acid with silicotungstic acid, 1077*i*.
**Almeida Costa, .O. de,** and Allemand, A. Estn. of caffeine, 5904*e*.
**Almen, J. O.** Reducing corrosion, P 5730*i*.
**Almin, K. E.** Crystal structure of CdSb and ZnSb, 3260*g*.
**Almond, L. H.,** and Steinbiss, H. K. P combustion system, 2378*h*.
**Almquist, H. J.,** and Davis, J. G. Amino-acid extn., P 6054*c*.
**Almy, E. F.** See Otting, H. E.
—— and Garret, O. F. High-grade crude lactose, P 8072*c*.
—— and Hull, M. E. Low-ash crude lactose, P 5130*i*.
**Aloisi, M.,** and Bonetti, E. Bacterial metabolism of glycerol and some of its derivs. (II) enzymic mechanism of the oxidation of substrates and the importance of phosphates and phosphatases, 5076*b*; prepn of the isomeric Me ethers of glycerol, 7423*d*.
—— and Buffa, P. Glycerylphosphorylcholine and choline glycerophosphate, 4709*c*.
**Alonso, J. I. F.** See Fernández Alonso, J. I.
**Alonso, S. T.** See Terol Alonso, S.
**Alov, A. A.,** and Bagapov, I. M. Crystal structure of the metal of the seam in arc welding, 4623*f*
**Alpar, S. R.,** and Esin, S. Fatty acids of mahaleb-oil, 2791*e*.
**Alpatov, V. V.** Mol. basis of the morphological inversion of organisms, 3861*f*.
—— and Nastyukova, O. K. Actiou of optical isomers of quinacrine, org acids, and alkaloids in depressing cardiac activity, 3932*e*.
**Alpatova, R. A.** See Vinokurov, M. A.
**Alper, C.** See Chow, B. F.
**Alper, T.** $H_2O_2$ and the indirect effect of ionizing radiations, 3058*c*
**Alpern, D. E.** Blood acetylcholine in gastroduodenal ulcers, 3514*d*.
**Alpert, N. L.** Phase transitions by means of nuclear magnetic resonance phenomena, 4136*g*.
**Alpert, S.** See Martin, G. J.
—— and Martin, G. J. Inhibitory action of chem. agents on peptic activity, 8405*g*
**Alphen, J. van,** and Drost, G Discrepancies in the literature (III) dimorphism of *N*-salicylidene-1-naphthylamine, (IV) asymmetric di-1,2-naphthylene dioxide, (V) m. p. of 1-naphthylamine picrate, 1757*c*; (VI) 4 - (3 - nitrophenylazo)- 1-naphthol 4661*d*; (VII) 2-thiobenzaminonaphthalene, 7011*f*
**Alpher, R. A.** Neutron-capture theory of the formation and relative abundance of the elements, 2084*f*
—— and Herman, R. C. Relative abundance of the elements, 1618*h*
——, Herman, R. C., and Gamow, G. Thermonuclear reactions in the expanding universe, 479*h*.
**Alquist, F. N.** Deposits and corrosion, 2150*g*
—— and Hopkins, C. W. Acid cleaning compn., P 6439*a*.
**Alsop, W. G.** See Troy, A
**Alstine, R. E. van.** See Van Alstine, R E.
**Alston, E. J.** See Goldenberg, M.
**Altamira, R.** Special alloys for articles exposed to higher temp , 2564*a*
**Altamirano, M.,** Fernández, F , and Luco, J. V. Study of antagonistic drugs on normal and denervated effectors, 5872*b*
**Altar, W.,** and Garbuny, M. Abs speed gage for high-voltage particles, 8850*i*.
——, Garbuny, M., and Coltman J. W. Speed gage for high-voltage-ion beams, 4091*i*.
**Altarac, S.** See Pushin, N. A.
**Alta Trujillo, V. A.** Detn. of Cu by α-benzoin oxime and its application to pharmaceuticals, 2117*i*.
**Altchek, A.** See Houck, C. R.
**Alter, F. A.** Dyeing tubular and warp knit textile fabrics, 5953*b*; application of vat dyes, 6827*g*, 7087*f*, dyeing unit, 8685*b*
**Althaus, E. J.** See Sard, R D.
**Althausen, D.** See Guenther, E. S.
**Althausen, T. L.** Hormonal and vitamin factors in intestinal absorption, 8496*d*.
**Althof, F. C.** Dilatometric measurements—age hardening of Al alloys, 4618*c*.
**Althof, H.** Binder which eliminates the sensation of cold in building materials, P 1167*c*, 2396*g*.
**Althouse, P. M.** See Bonhorst, C. W.
**Althuisius, F.** Spoilage of fatty oils, 6841*f*.
**Altieri, N.,** and Carrelli, A. Hall effect, 7763*a*.
**Altman, D.,** and Penner, S. S. Chem. reaction during adiabatic flow through a rocket nozzle, 2847*f*.
**Altman, K. I.** Incorporation of the methylene C atom of glycine into rabbit bone marrow fats, 5054*b*; see Boyd, G. A.
——, Casarett, G. W., Masters, R E., Noonan, T. R , and Salomon, K Hemoglobin synthesis from glycine labeled with radioactive C in its α-C atom, 2243*f*.
——, Casarett, G W , Nooman, T. R , and Salomon, K. Distribution in rat tissues of the methylene C atom of glycine labeled with $C^{14}$, 9120*g*.
——, Salomon, K., and Noonan, T. R. Hemin synthesis in rabbit bone marrow homogenates, 5054*a*.
——, Smull, K., and Barron, E. S. G. Prepn. of uricase and the effect of uricase on the blood uric acid levels, 7530*d*.
**Altman, N.** Brush out your fires, 8177*h*
**Altman, R. F. A.** Natural vulcanization accelerators in *Hevea* latex, 4045*g*.
**Altmann, A.,** and Murray, J. F Anemia of malignant malnutrition—protein deficiency, 4352*f*
**Altmann, C. G. J.** Streaming-through cell for serial measurements of liquids with the Abbé refractometer, 2821*e*.
**Altschul, A. M.** See Arthur, J. C., Jr.; Condon, M Z
——, Karon, M L., and Kyame, L. Catalase and peroxidase in germinating cottonseed, 1080*d*.
**Altschul, O.** Glycol from EtOH, P 1434*h*.
**Altschule, M. D.,** and Tillotson, K. J. Effect of electro-convulsive therapy on water metabolism in psychotic patients, 9234*h*.
**Al'tshuler, S.** Kak byl Otkryt Mendeleevym Periodicheskii Zakon (book), 5276*f*.
**Al'tshuler, V. S.** See Chernyshev, A. B.
**Alty, H. J.** See Partridge, W A.
**Aluise, V. A.** High-temp. gas burners for microcombustion methods of ultimate analysis, 7272*i*
**Aluminium - Industrie - Akt.-Ges.** (*Patents*) K aluminate from alkali-Al silicates, 3691, C electrodes, 5096; 7359*e*; hard solder for Al and Al alloys, 556*g*; addn metal for welding Al alloys, 2568*f*, welding Al alloys, 2924*a*; arc-welding electrode for light metals, 2924*b*, fluoboric acid from Ca fluoride, 4435*b*, 6374*a*; Al-$NH_4$ fluoride, 4435*c*; furnace for the thermal prepn. of Mg, 4587*f*, furnace dressing from the C skull of the furnace for the electrolytic production of Al, 4587*g*; $AlF_3$ from $AlF_3.nNH_4F$, 4820*ef*; furnace for the electrolysis of molten Al, 4963*abc*; galvanic element, 4966*d*; refining of constituents from alloys or impure metals, especially for refining Al or its alloys from Fe, 4998*i*; Al-Mg Be alloys, 5358*e*, $AlF_3$ from $HBF_4$, 5912*e*; $AlF_3$ from KF, 5912*f*; induction furnace for the melting of metals, especially Al and Al-alloys, 7357*d*; light-metal bodies, 7403*b*, bright articles with a surface of Al alloy, 8347*e*.
**Aluminium Plant & Vessel Co., Ltd.** Sepn. by azeotropic distn. of complex hydrocarbon mixts , P 7*e*.
——, Ralph, S. J., and Dummett, G. A. Distn. of complex mixts., P 7274*h*
**Aluminum Co. of America.** Oxide coatings on Al, P 3772*b*, 5001*e*; remelting furnace for light metal scrap of varying wt., P 4209*a*; Al, P 5357*d*, bearing alloy, P 6145*g*; etching Al, P 6147*f*.
**Alvarado, J.** See Erdős, J.
**Alvarez, J.,** Cattaneo, P., Grandolini, E , Karman, G., and Rigotti, J P. Chem. compn. of oils from the pulp of the Argentina avocado pear, 9489*g*.
**Alvarez, J. G.** See González Alvarez, J.
**Alvarez, L. W.** $N^{17}$, a delayed neutron emitter, 4562*c*; $N^{12}$, 6910*b*.
**Alvarez, W. C.** Introduction to Gastroenterology (book), 1104*c*.
**Alvarez de la Vega, F.** Estn of vitamin C, 7996*i*; mustard oil-contg. plants—"Grelos" of Galicia, 8013*f*, chromatography in galenical pharmaceutics, 8094*g*.
—— and Ruiz Capillas, A. F. Estn. of mustard oils in mustard seeds and other materials, 8097*a*.
**Alvarez Garcia, N.** See Landaburo, P. B.
**Alvarez Querol, M. C.** See Bosch, F. de A.
**Alvarez-Tostado, C.** See Jameson, E.
**Alverson, C. M.** See White, H. J.
**Alves, G. E.** Flow of non-Newtonian suspensions, 4906*c*.
**Alves Ferreira, B.** See Passos Guimarães, J. E.
—— and Longo, O. W. Identification of radioactive minerals by their α-radiation, 7810*h*.
**Alves Guimarães, M.,** and Amazonas Sampaio, P. Circuit for the study of the operation of the Geiger-Müller counter, 8756*d*.
**Alvira, T. A.** See Alvira Alvira, T.
**Alvira Alvira, T.** Soils of the north zone of the Spanish Protectorate in Morocco, 8589*d*, see Alia Medina, M.
**Alvord, E. C.** See Kellner, A.
——, Correll, J. W., Ladd, A. T., and Kellner, A. Effect of pyribenzamine in beeswax in meningoencephalomyelitis, 1113*c*.
**Alvos, D.** Sulfite-carbonate preservative wash for fruits and vegetables, P 5882*d*.
**Alvsaker, E.** Modified Waksman procedure and its application to soil samples from western Norway, 9316*d*.
**Alwall, N.** Artificial kidney (VIII–XIII), 8424*g*.
——, Nilsby, I., Serin, F., and Sylvan, S. Influence of Mg anesthesia and curare paralysis on the metabolic effect of 2,4-dinitrophenol and thyroxine—synergism of thyroxine and dinitrophenol, 5863*a*
**Aly, S. M.,** and Wilson, C. W. Ionization produced by high-voltage radiation in molded ionization chambers with walls of various effective at. nos., 5664*d*.
**Alyavdin, N. A.** Cyclone separators, 6008*c*.
**Alzofon, F. E.** Relativistic treatment of neutron-proton elastic scattering in the Born approximation, 6905*d*.
**Alzola Victorero, F.** Fermentation app., P 355*b*
**Amacker, T. M.** Chlorination of phthalic anhydride, P 3463*h*.
**Amado Cattaneo, H.** Strength and age of mortars and concretes from portland cement, 3988*i*.
**Amadori M., E.** Calcn of columns for distn of binary mixts , 3246*i*.
**Amaral, S. E do.** Crystals of cerussite from Lageado and Monjolinho, Iporanga, S P., 2549*b*
**Amaral Rogick, L.** Vitamin A in market shark-liver oils, 1911*a*
**Amarós, J. M.** See Mir Amarós, J
**Amat, M.** Colloidal Cr hydroxide, 8801*a*
**Amati, A.** Influence of the nu of bacteria and amts. of peptones on the course of the lysis by amino acids and exts of *B subtilis*, 715*e*.
**Amati, G.,** and Lorusso, G. Action of riboflavin on disturbance of hematopoiesis by methylthouracil, 4351*e*
**d'Amato, F.** See D'Amato, F.
**Amazonas Sampaio, P.** See Alves Guimarães, M.
**Ambache, N.,** Morgan, R S., and Wright, G. P. Action of tetanus toxin on the acetylcholine and cholinesterase contents of the iris, 4764*e*.
**Ambelang, J. C.,** Smith, G. E. P., Jr., and Gottschalk, G. W. Furfural phenylhydrazone as chem softener for GR S, 2014*f*.
**Amberg, C. R.** Terra sigillata—forgotten finish, 2392*d*.
**Amberg, L. O.** See Gould, C. W.
**Amberson, W. R.,** and Smith, D C. Physiology (book), 3915*a*.
**Ambert, P.** Detn. of spinal fluid glucose and albumin in the same assay, 7539*e*
**Ambler, C. M.** Centrifugal purification of oils in steel plants, 6399*e*.
**Ambler, J. A.** See Roberts, E. J.
—— and Curl, A. L. Itaconic acid, P 1057*b*.
—— and Roberts, E. J. Effect of pH on the stability of *cis*-aconitic acid in dil. soln., 127*a*, noninterference of pectinous substances in aconitic acid method and of aconitic acid in uronic acid method, 2126*b*, elimination of Mg from insol. alk. earth aconitates, P 7506*d*.
**Ambridge, D. W.** Canadian pulp and paper industry, 4847*g*.
**Ambrose, A. M.,** and DeEds, F. Value of rutin and quercetin in scurvy, 8023*a*.
——, DeEds, F., and Rather, L. J. Toxicity of thioacetamide, 8052*h*.
**Ambrose, E. J.** See Elliott, A.
——, Elliott, A., and Temple, R. B. Structure of some proteins from measurements with polarized infrared radiation, 7529*e*.
—— and Hanby, W. E. Chain folding in a synthetic polypeptide and in keratin, 6248*e*.

**Ambrose, J. R.**, Kistiakowsky, G. B., and Kridl, A. G. Inhibition of urease, 5437*d*.
**Ambrose, Mrs. B. A.** See Hughes, E. B.
**Ambrosioni, A.** See Aita, A.
**Ambrus, Gyula.** See Ambrus, Gyuláné.
**Ambrus, Gyuláné**, and Ambrus, Gyula. Effect of hyperthyrodism and treatment with thiouracil on the cholinesterase level, 9244*i*.
**Amdur, E.** See Montonna, R. E.
**Amdur, I.** Calcn. of transport properties of gases, 2832*h*.
——— and Brown, N. L. Effect of temp. on the steady-state sensitivity of vacuum radiation detectors, 7272*g*.
———, Glick, C. F., and Pearlman, H. Scattering of high-velocity neutral particles (I), 2086*h*.
**Améen, W.** Dissolving pulps, 3612*b*
**Amelin, A. G.** Formation of supersatd vapor and aerosol on mixing gases contg vapor and having different temps., 7775*c*
**Amemiya, A.** See Yamanouchi, T.
**Amemiya, T.** Pinacolone from pinacol, P 1434*i*.
**Amengual, B. M.** See Mateu Amengual B.
**Amenta, S.** Dentures from polymerizable acrylic materials, P 2472*c*.
**Americaine, Inc.** Benzocaine soln., P 1914*d*
**American Abrasive Metals Co.** Aq polyvinyl acetate emulsion contg a dichromate of a trivalent metal, P 6001*d*
**American Brake Shoe Co.** Friction elements, P 1126*e*, 3949*a*, polymerized cashew-nut shell liquid in friction elements, 4210*h*
**American Brass Co.** Cu Ni alloys, P 2153*i*
**American Chemical Paint Co.** Protection of nonferrous metal surfaces, P 1710*i*, cleaning bath for Zn and Zn-base alloys prior to electroplating, P 3299*g*, coating Al, P 6147*i*, 6564*i*, purification of aryloxy monocarboxylic acids, P 7045*e*, treating surfaces of Fe, Zn, and alloys, P 8445*a*
**American Chicle Co.** Chewing gum base, P 6004*i*
**American Cholesterol Products, Inc** Recovery of sterols, P 9088*d*
**American Cyanamid Co.** (*Patents.*)
acetoxy aliphatic amides, 3418*f*.
acidic org. compds., purification of, 7508*b*.
acrylic acid, 6221*h*
acrylic acid esters, 4288*i*
acrylonitrile, 1794*i*, 2220*i*, 3439*i*, 3836*i*
acylaminodianthrimideacridones, 8056*d*
acylcyanodiamides and their salts, 1057*d*
acylguanylthioureas, 4292*d*.
acyl nitro arylides, 3033*h*.
*N*-acyl sulfonamides, 3846*c*.
alkali metal hydracrylates, 2634*f*
alkenoxyaminodiphenylamines, 856*d*.
*o* alkoxybenzoyl derivs of 4,4′-diamino stilbene-2,2′-disulfonic acid, 5977*g*.
*N*-alkylacrylamides, 672*c*.
alkylene cyanohydrins, 1434*i*
4-alkylmorpholine-$SO_3$ compds., 2242*f*.
allyl halo silanes, 5999*f*
amino acid derivs., 1812*d*.
β-amino-α-chloroacrylonitriles, 3440*b*.
aminodianthimideacridones, 8661
2-amino-4-hydroxy-6-methylpyrimido[4,5-*b*]pyrazine, 3046*e*.
4-amino-1,8-naphthalimidedisulfonic acids, 7710*f*.
4-aminonaphthalimides, 7511*d*.
2-aminothiazole, 3466*h*.
aminotriazines, 9088*b*.
anion-exchange resins, 5517*g*, 5518*ab*, 6339*a*, 7162*g*.
anion removal from liquids, 6339*d*.
antibodies, 1483*b*.
1-aryl-5-alkylbiguanides, 2229*f*.
arylazoarylguanides, 7710*h*.
aspartic acid esters, 6224*f*.
azeotropic distn. of acetonitrile and trichloroacetonitrile, 4285*e*.
benzanthronylaminodianthrimide acridones, 7708*g*.
benzotetronic acid and salts, 693*g*.
β (benzylmercapto)valine esters and derivs. and intermediates thereof, 1796*g*.
bis(hydroxymethyl)dithiobiuret, 3032*b*.
butadiene-styrene copolymer, cut-growth inhibitors for, 7258*h*.
2-butoxyethyl fluoroacetate, 3140*h*.
1-carbethoxy-4-methylpiperazine and salts thereof, 6671*e*.
carboxythiophanes, 5425*d*.
Caflon concn. modification in fluid mediums, 3950*d*.
cation-exchange resins, 5238*e*.
chemiluminescent compn., 1266*g*.
chloropyrazine, 5809*f*.
2-chloropyrimidines, 8105*f*.
collagen strand treatment, 7248*f*.
curing of copolymers, 5638*fh*.
cyanamide, 825*b*, 2380*c*.
cyanoguanidines, 1799*c*, 2635*i*.
cyanuric chloride, 2381*a*.
desoxyisoxanthopterins, 7052*h*.
dialkyl mercaptoles of cholestanone, 1532*f*.
diaminodianthrimideacridones, 9469*d*.
2,4-diamino-*s*-triazines, 3046*e*.
1,5-diarylbiguanides from aromatic amines and dicyanamide, 1799*f*
dicyanamide alkali metal salts, 1532*d*
dicyandiamide hydrochlorides, 9082*b*
dicyandiamine-aldehyde sirups, 9534*i*.
1,4-di(heterocyclic-substituted)piperazines, 4704*i*.
dihydrothiophenes, 1066*a*.
β (2,3-dihydroxy-2-propenylidene amino) benzoic acid amides, 6236*a*
dimerized fatty acid alkylolamides condensed with alkylene oxide, 9472*c*
dye contg cryst violet, 3206*b*.
dyeing animal fibers with metallized dyes, 9472*a*
dyeing wool, sulfonated triaminodianthrimides, 3627*b*
dyes, acid treatment of heterocyclic imide and imidazole vat, 9469*i*.
dyes (anthraquinone-thiazole vat), 3626*e*.
dyes (azo), 8151*h*, 8152*b*, 8155*d*, 9460*a*.
dyes (azo), Cr complexes of, 8150*g*.
dyes (grav vat), 7706*f*
dyes (leuco vat), 8171*a*.
dyes (pyranthrone vat), 3205*g*.
dyes (pyrenequinone vat), 2442*b*.
dye (S), 8169*i*
emulsion breaking, 5232*c*.
emulsions of mixed phthalic glyceride and melamine-formaldehyde resins, 6434*c*
ethylene cyanohydrin 3029*b*
ethylene compds (aryl substituted), 2233*d*
flavanthrones, 8172*e*
flotation of apatite and ilmenite, starch-caustic in, 1624*b*
flotation of apatite from Fe minerals, 5727*d*
flotation of Fe ores, 3330*i*, 3768*b*, 4624*i*, 4998*g*, 7402*c*
flotation of nonmetallic ores with black liquor soap in acid circuit, 4822*e*.
flotation of ores, 5726*f*
flotation of sulfide ores, 5725*a*.
fluoroacetamide, 351*c*.
formaldehyde, purification and stabilization of, 5034*a*.
fungicidal prepn., 4419*g*.
glass mold release agent, 8633*b*.
glutamic acid amides of pteroic acid, purification of, 7052*g*.
gold recovery, 6562*c*.
guanamine aldehyde condensation products, 3662*e*
guanamines, 3854*f*, 5051*f*, 5052*a*, 7053*e*, 9082*de*.
guanidine nitrate purification, 2227*b*.
guanidine phosphates, 5796*e*.
guanidines, 7500*i*, 7507*a*
guanidine sulfates, 4293*f*
heterocyclic compds., 7518*e*
hydracrylic acid, 2634*e*, 3029*g*, 7038*h*
hydroxythiophane carboxylic acids and esters, 6667*f*.
imidazolidothiophanes, 6670*g*
2-imino-3-alkyloxazolidines, 252*d*.
inoculum, 3066*i*.
insecticides, 2732*c*, 6357*i*.
isocyanates (unsatd.) and polymers, 5422*f*.
isocytosine chloriuation, 9082*f*.
isodibenzanthrone, 6237*g*.
lead nitroaminoguanidine, 3200*e*.
leather bleaching and filling, 5618*e*.
lubricating-oil additive, 4845*d*.
lubricating oil clarification, 5183*b*.
magnesium cyanide, 1537*e*.
melamine, 698*h*, 699*d*, 1068*i*.
melamine-HCHO, 7240*f*.
mercaptoethylbiguanides, 1799*b*.
β-mercaptovaline and its metal salts, 4687*g*.
metanilamidodiazines, 5427*i*, 7516*f*
1-methyl 2,5-diaryl-3,4-pyrrole dicarboxylic acids, bis(dialkylaminoalkyl) esters of, 4700*i*.
6-methylpteridines, 1813*a*.
mildewproofing, 6357*c*.
morpholinoalkanol esters, 9086*g*.
1-naphthylamine-2-sulfonic acid, 6606*h*.
nitriles, 3170*b*.
nitriles (olefinic), 7498*f*.
nitriles purification, 1794*d*.
nonionic stabilizing agent, 7267*b*.
nonionic surface-active agent, 6439*d*.
optical elements, 1221*fi*.
ore separator (sink and float), 7401*h*.
pantoyltauramides, 3450*c*
paper of high wet strength, 7686*g*.
pest control, 7634*d*.
phenacylpyridines (heterocyclic-substituted), 3045*d*.
phenyl sulfides, bivalent metal salts of halogen-substituted, 2739*h*.
phthalic anhydride, fractional condensation of, 1228*f*
phthalocyanine pigments from ω-chlorine- or ω-bromine-substituted *o*-xylenes, 3215*b*
phthalocyanines from ω-Cl or ω-Br substituted *o*-tolunitriles, 3214*g*.
piperazine, 2242*g*
1-piperazinecarboxamides, *N*-alkyl derivs. of, 6245*a*
plant growth regulators, benzothiazolyl ethers as, 5154*d*
polyester polyamide condensation products, 4517*g*.
poly(hydroxyalkyl) amine aldehyde condensation products, 2633*g*.
polymerizable emulsified mixts. of unsatd. polyesters with vinyl monomers, 7264*f*.
polymerizing allyl alc., 4285*a*.
polymers of unsatd. alkyd resins, 1219*h*.
printing assistants, monoquinonyl amides of dicarboxylic acids combined with urea derivs. as, 416*g*
printing inks, lakes of basic dyes for, 4494*b*.
printing pastes, 3207*a*, 9473*g*
printing sulfuric esters of leuco vat dyes, 8172*b*
protein, 6757*k*.
pteridine compds., 6245*i*.
pteroic acid amides purification, 4430*e*
pteroic acid or amides thereof, 6673*c*.
pteroylglutamic acid, 6672*e*
pteroylglutamic acid and related compds., purification of, 6672*i*.
pteroylglutamic acid purification, 6672*h*, 7971*e*
pyridine lactones, 3045*b*
pyrrole acrylic acid alkamine esters, 4302*i*.
3,4-pyrroledicarboxylic acid alkamine alkyl esters, 1402*g*
pyrroledicarboxylic acid alkamine esters, 4302*fh*.
quaternary ammonium compds., 4430*h*
quaternary $NH_4$ compds (aliphatic amide-substituted propyl), 2630*i*.
reaction product of a polymethylol melamine and an aromatic amine, 9537*g*.
resin intermediates and their aldehyde condensation products, 7751*i*
resins plasticized with polyesters, 9527*b*.
riboflavin, 6792*e*.
rocket propulsion by treating alkyl-substituted mononuclear aromatic amines and nitric acid, 6811*c*.
rosin acid recovery, 3637*e*
rosin size compn., 8706*e*
rubber-curing accelerators, 8194*d*.
silica-base gel catalysts, 9209*d*
soap antioxidants, 5215*i*.
spinneret treatment, 8080*h*
spinning collagen solns., 7248*e*.
starch adhesive, 3223*a*
sugar purification activation of anion exchangers, 890*b*.
sugar soln purification, 7244*f*.
α-(sulfinylamino)anthraquinone, 9467*h*.
sulfonates (unsolubilized) and products thereof, 2344*e*.
1,1,3,3-tetraalkoxypropanes, 4291*a*.
textile materials, treatment of H-donor, 6428*b*
textile-shrinkage control, 4869*c*.
thiodipropionic acids, 895*d*.
thiophanecarbohydrazides, 1065*g*.
thiophanecarboxylic acids, urea derivs. of, 1809*a*.
thiouracils, 674*h*
2 (thioureido)-4-methylthiazole hydrochloride, 5425*i*.
titania pigments 4028*h*, 9482*h*.
toxins and toxoids, 3066*i*
2,4,5-triamino-6-hydroxypyrimidine, 7052*a*.
triazolylene triazines, 7975*a*.
ultramarine, 6434*a*.
ultramarine raw mix, dustless plastification of, 9483*a*.
water-resistant materials from compns. contg. Me cellulose, 1980*b*.
**American Dairies, Inc.** Improving the

taste of water-sol. constituents of forage crops, P 6334*g*.
——— and Quaker Oats Co. Synthetic thyroprotein, P 7998*i*.
**American Electro Metal Corp.** Fe-Si rotors, etc., P 1308*e*.
**American Enka Corp.** (*Patents.*) Regeneration of activated C by inorg. liquid treatment, 1552*h*; viscose-rayon spinning, 1990*e*; amino carboxylic acids from lactams, 2225*a*; bonding cellulosic materials to rubber and composite products formed therefrom, 3227*e*; improving the adsorption of $CS_2$ contained in gaseous mixts. from the manuf. of rayon, 5603*b*, polyamides, 5967*g*; mixer and cooler for cellulose solns. prepd. for spinning, 6416*d*, aftertreatment of viscose rayon, 6429*d*; treatment of alkali cellulose, 6825*e*.
**American Felt Co.** Microporous sheet material, P 6834*d*.
**American Gas Association, Inc.** App for measuring the pH and $E_h$ values of soils, P 1137*b*
**American Home Foods, Inc.** Decaffeinated sol. coffee, P 6334*d*.
**American Home Products Corp.** Totaquine, P 4431*b*; fat-sol. vitamin-contg. materials in oil, P 5910*c*.
**American Instrument Co., Inc.** Lowering the temp. of Dry-Ice refrigerated chamber, P 9154.
**American-LaFrance-Foamite Corp.** Fire-extinguishing powder, P 6418*f*.
**American Magnesium Metals Corp.** C catalyst impregnated with alkali-alk. earth hydroxide, P 5886*h*.
**American Maize-Products Co.** Plasticized prolamine-base proteins, P 2033*fhi*, prolamines, P 6466*f*; corn oil and corn protein, P 8711*i*.
**American-Marietta Co.** Phenol-aldehyde reaction product, P 3236*d*, synthetic resin adhesive base from cresylic acid and furfural, P 5643*d*.
**American Meat Institute Foundation.** Oxidation inhibitors for fats and oils, P 3637*g*.
**American Metal Co., Ltd.** Fluidization in Zn production, P 7892*a*.
**American Optical Co.** Adhesive for optical elements, P 2472*a*; reflection-modifying coatings, P 4900*c*; reflection-reducing $SiO_2$ coatings, P 6803*a*; vacuum coating of optical elements, P 8634*a*.
**American Potash & Chemical Corp.** Tetraborates of K and of Na, P 1927*i*; granular KCl, P 6376*g*, absorbing $CO_2$ from gases, P 8121*d*.
**American Seal-Kap Corp.** Treating lactalbumin, P 2375*g*.
**American Smelting & Refining Co.** Autometer for detg the total of volatile S compds. in the air, P 3249*g*; purifying In, P 8345*b*.
**American Steel & Wire Co. of New Jersey.** Steel wool, P 104*i*; Si electrical steel, P 1307*c*; bath for Cu coating ferrous metal, P 6564*g*; coated steel wire, P 9020*a*; wire-coating enamel, P 9488*b*.
——— and Carnegie-Illinois Steel Corp. Precoating steel strip, P 2568*a*.
**American Viscose Corp.** (*Patents.*) Textile fabric selvedge treatment, 856*f*; filter assemblies, 913*f*, 6873*h*; app. for applying liquid to traveling yarns, etc, 1990*d*; drying wound packages, 2444*b*; treatment of regenerated cellulose thread, 2785*g*, molding powder from rubber, 2803*c*; concn of salts having min. solubilities at temps. above those of the initial solns, 2824*g*, conditioning cellulose ester filaments, 3207*e*; feltlike products, 3208*ef*; synthetic sutures, etc., 3209*c*, flame retardant, 3210*a*; acrylonitrile-vinylidene chlorofluoride copolymers, 3239*b*; crimped artificial filaments, 3627*d*; polyfluorinated propionitriles, 4083*f*; globular regenerated-cellulose particles, 4854*c*; spinning artificial filaments, 5593*b*, 6826*d*, textile products incorporating thermally adhesive fibers, 8174*i*; forming cellulose xanthate, 8680*h*.
**American Zinc, Lead & Smelting Co.** $MgSiO_3$ and MgO from dolomite, P 1537*g*.
**Amerik, B. K.** Pyrolysis of cracking residues, P 9428*f*.
**Amerio, A.**, and Nozari, M. Esercitazioni di fisica (book), 478*d*.
**Amerio, Alberto.** Pyramidone and water metabolism (I) influence of pyramidone on diuresis, 7113*b*.
**Amero, R. C.** See Granquist, W. T.
**Amerongen, G. J. van.** Permeability of rubber to gases, 4884*i*; depolymerizing by heat, P 5231*e*; tire or balloon for compressed gas, P 5224*c*; see Boonstra, B. B. S. T.
**Ames, C. B.** See Neal, H. A.
——— and Tabbert, T. D. $C_2H_5$ and $C_2H_3$ sepn., 7217*b*
**Ames, E. W.** See Hild, J. H.
**Ames, S. R.**, and Risley, H. A. Detn. of creatine, creatinine, and related compds. in urine, 1451*f*
**Amiard, G.** See Velluz, L.
——— and Torelli, V. Syntheses in the esculetol series (IV) oside derivs., 4670*b*.
**Amick, C. A.**, and Kienle, R. H. Monoquinonyl amides of dicarboxylic acids combined with urea derivs as printing assistants, P 416*g*.
**Amick, E. H., Jr.** Removal of sol. catalysts from product streams, esp. in catalytic hydrocarbon conversions, P 7222*h*; see Harney, W. S., Jr.
**Amiel, J.**, Rodier, G., and Brenet, J. Parallelism of the evolution of the catalytic, magnetic, and depolarizing properties of samples of $MnO_2$, 7313*d*.
**Amin, G. C.**, and Shah, N. M. 2,5-Dihydroxyacetophenone, 1742*a*; Fries migration, 6593*h*; (III) of quinol esters, 2187*f*.
**Amin, M. S.** Origin and alteration of chromites, 8316*b*.
**Amino Acids, Inc.** Solubilizing protogenous substances, P 2339*g*.
**Aminoff, D.**, and Morgan, W. T. J. Hexosamine components of the human blood group substances, 3479*f*
**Amir, L. B.** See Bustamente Amir, L.
**Amis, E. S.** Kinetics of Chem Change in Soln. (book), 1640*i*; see Potts, J. E., Jr.
**Amler, M. H.** Radioactive phosphate permeability in dentine following the use of medicaments, 1863*d*.
**Ammann-Brass, H.** Photographic gelatins, 1667*g*, 3301*a*.
**Ammon, R.** Diastase in bee's honey, 9106*g*.
——— and Braunschmidt, G. Periston in the organism, 8539*f*
——— and Dirscherl, W. Fermente, Hormone, Vitamine und die Beziehungen dieser Wirkstoffe zueinander (book), 7531*c*.
**Ammonia-Nova Società anon.** Insectifuge and insecticide waxes, P 4807*b*; insecticide masses, P 5529*f*; paints contg insecticides and(or) insect repellents, P 5607*e*; rodenticide harmless to men and house animals, P 7636*a*; solid mixts. for producing active Cl, HOCl, and hypochlorites in aq. solns., P 8110*c*; solid products developing active Cl and hypochlorites, P 8110*d*; durable insectifuges, P 8605*a*.
**Ammosov, I. I.** Estn. of the capability of mined coal to be beneficiated, P 9419*b*.
**Amor, I. A.** See Asensio Amor, I.
**Amorati, A.** See Troisi, F. M.
**d'Amore, G.** See D'Amore, G.
**Amoros, A.** Elec. furnace, 4145*d*.
**Amorós, L.** Sucrose, 5217*d*; see Colón, I. A.
**Amorosa, M.** 4-Hydrazinobenzenesulfonamides, 601*a*.
**Amorós Portolés, J. L.** Ionic refraction increments in the field of crystal structure, 3683*f*; optical structure of the silicates, 8784*b*; (011) twinning of kernite, 8984*e*.
——— and Ahmed, M. S. Powder diagrams with a single crystal, 4566*g*.
**Amos, A. J.** Moisture content of mite-infested foodstuffs, 2707*b*; rheological methods of control (II) in the milling and baking industries, 8750*d*.
**Amos, E. S.** See Totter, J. R.
**Amos, G. L.**, and Dadswell, H. E. Siliceous inclusions in wood in relation to marine-borer resistance, 5090*i*.
**Amosov, N. I.** Measuring the dullness of triplex and multilayer glass blocks, 3579*c*.
**Ampco Metal Inc.** Welding electrode, P 5002*h*
**Amphlett, C. B.**, Mullinger, L. W., and Thomas, L. F. Phys. properties of U hexafluoride, 4530*f*.
**Amphlett, P. H.** See Dunlop Rubber Co, Ltd.
**Ampuero, J. A.** See Alcázar Ampuero, J.
**Amromin, G. D.** See Taubenhaus, M.
**Amsler, N. K.**, and Gamov, A. M. Lime from Tyulkubass and its role in the sugar industry, 4033*h*; movement of Mg salts in beet-sugar manuf., 9504*b*.
**Amstel, J. J. A. P. van.** See Geel, W. C.
**Amster, A. B.**, Beckett, C. W., and Johnston, H. L. Punched cards for the coding of inorg. and simple org. compds., 8220*d*.
**Amstutz, E. D.** See Feeman, J. F.
**Amstus, J. O.** Solvent-vapor control, 2342*e*.
**Amtman, L.** See Meyer, K. A.
**Amundson, N. R.** Mathematics of adsorption in beds, 1624*d*.
**Anaconda Copper Mining Co.** App. for recovery of Cu from mine water, P 7890*i*.
**Anaconda Wire and Cable Co.** Flame-resistant compn., P 334*c*.
**Anagnostopoulos, C.** See Courtois, J.
**Anand, N.**, Patel, D. M., and Venkataraman, K. Azoic dyes (IX) behavior of 2-(benzoylacetyl)-1 naphthol towards diazonium salts, 5778*f*.
——— and Venkataraman, K. Synthesis of 4-hydroxycoumarins, 3414*i*; 6,7-benzocoumaranone, 3415*g*
**Ananenko, E.** See Lands, A. M., Ludueña, F. P.
**Ananenko, N. H.** See Shepherd, R. G., Stansly, P. G.
**Anan'in, A. V.** See Zal'kind, I. Ya
**Anantakrishnan, C. P.** See Lahiry, N. L.; Moghul, H. K.; Paul, T. M.; Rao, V. R. B.; Singh, P. G. R., Singh Verma, I. P. and Herrington, B. L. Trace sugars in milk, 1496*a*.
**Anastassiades, P. A.** Soils of Greece, 7615*d*.
**Anatrella, B.** Steel, P 4625*h*
**Anazawa, K.**, and Yamaguchi, T. Sepn of Ni or Co from Ni or Co smelt, P 6965*b*
**Ancharov, L. M.** App. for galvanizing of small objects, P 9022*c*
**Anchel, M.** Identification of the antibiotic substance from *Cassia reticulata* as 4,5-dihydroxyanthraquinone-2-carboxylic acid, 3062*f*.
———, Hervey, A., Kavanagh, F., Polatnick, J., and Robbins, W. J. Antibiotic substances from Basidiomycetes (III) *Coprinus similis* and *Lentinus degener*, 2274*i*.
**Anchor Chemical Co. Ltd.** Factice and sulfurized oils, P 895*f*
**d'Ancona, U.** See D'Ancona, U.
**Anderau, W.** Theory of the latent photographic image, 3735*c*
**Anderegg, F. O.** Testing surface water proofers, 3590*c*
**Anders, H. K.** See Caley, E. R.
**Anders, M. V.** See Barnett, T. B.
**Andersag, H.** Antimalarials of the group of halogen-substituted quinoline compds., 5400*g*; see Salzer, W.
**Andersen, A. B.**, and Horn, K. Fractional air sepn. of slurry components, P 3249*c*.
**Andersen, A. H.** Pharmacology of activated charcoal (III) adsorption in presence of gastrointestinal contents, (IV) adsorption of allylisopropylbarbituric acid, (V) adsorption of sulfanilamide, 4767*c*.
**Andersen, A. L.** Vacuum distn app., P 8757*f*.
**Andersen, J. K. L.** Detn. of an isothermal transformation diagram, 4617*e*
**Andersen, J. W.**, and Friedman, R. Gas-metering system for laminar flow studies, 3246*f*.
**Andersen, P.**, and Hassel, O. Phloroglucitol diammoniate, 6486*g*; configuration of the $\alpha$-phloroglucitol mol., 6881*f*.
**Andersen, V. S.** $H_2O_2$ decompn.—ferric salt catalysis, 25*b*.
**Anderson, A.** See Bucher, G. R.
**Anderson, A. B.** Rosin and other extractives from ponderosa pine stumps, 8176*h*
——— and Gripenberg, J. Antibiotic substances from the heart wood of *Thuja plicata* (IV) constitution of $\beta$-thujaplicin, 5016*c*.
**Anderson, A. E.**, and Lundquist, R. H. Flame hardening, 8999*a*.
**Anderson, A. J.**, Fischer, L., and Arrigoni, L. Assay methods for crude drugs involving the removal of interfering substances (I) for *Colchicum* corm and seed, 2368*d*.
**Anderson, A. L.** Co mineralization in the Blackbird district, Lemhi County, Idaho, 2550*c*; Ag-Au deposits of the Yankee-Fork district Custer County, Idaho, 4607*f*, geology and ore deposits of Boise Basin, Idaho, 4980*i*; W mineralization at the Ima Mine, Blue Wing district, Lemhi Co., Idaho, 8315*i*.
**Anderson, A. S.**, Barker, G. R., and Farrar, K. R. Methylation in the study of polynucleotides, 6248*i*.
**Anderson, A. W.** Chlorinated polythene compns., P 9531*c*

——— and Sperati, C. A. Purification of polymerizable esters, P 7502*i*.
**Anderson, B.** See Dreyfus, C.
**Anderson, C. D.** See Adams, R. V.; Leighton, R. B.; Lloyd, P. E.; Rau, R. R.
**Anderson, O. I.** Disazo dyes, P 8156*c*.
**Anderson, C. N.** Metalloörg. antiseptics, P 363*i*.
**Anderson, C. O.** See Burdick, E. M.
**Anderson, C. R.** Transference and manuf. of liquid O, P 6798*c*.
**Anderson, C. V.** See Doner, M. H.
**Anderson, D.** See Magoffin, R.
**Anderson, D. A.**, and Kinnear, G. U. Use of Cu naphthenate-treated burlap in forest nursery operations, 6351*g*.
**Anderson, Donald A.** Magnetic moment of $B^{11}$, 8878*i*.
**Anderson, D. H.** See Rees, H. L.
**Anderson, D. J.** H-ion concn. of the saliva (I) factors influencing $CO_2$ content, 6715*i*.
**Anderson, Elna**, and Martin, J. H. Millet and sorghum, 9276*h*.
**Anderson, Eskil.** Asbestos and jade in the Kobuk River region Alaska, 8318*g*; mineral occurrences other than gold deposits in northwestern Alaska, 8314*i*.
**Anderson, Ethel.** See Skinner, G. S.
**Anderson, Evelyn**, and Long, J. A. Hormonal influences on the secretion of insulin, 5840*a*.
**Anderson, Edmund A.** Zn anodes, 6093*k*, see Boyle, E. J., Graham, A. K.
——— and Jillson, D. C. High-Mn brass alloys, P 8348*c*.
**Anderson, Elmer A.**, and Alberty, R. A. Homogeneity and the electrophoretic behavior of proteins (II) reversible spreading and steady-state boundary criteria, 2217*b*.
**Anderson, E. B.** Finishing of wire forms and stampings, 8335*c*.
**Anderson, E. C.** See Libby, W. F.
**Anderson, E. G.** Frequency and transmitted chromosome alterations and gene mutations induced by at. bomb radiations in maize, 277*e*.
**Anderson, E. J.** See Sawyer, C. N.; Smith, R. L.
**Anderson, E. L.** See Parham, W. E.; Wartman, F. S.
**Anderson, E. O.**, and MacLeod, P. Effect of a period of nonmilking on the leucocyte count of milk, 8567*c*; effect of prepartum milking and of feeding of vitamin A supplemented ration on the leucocyte count of postpartum milk samples, 9188*e*.
**Anderson, E. R.** See Schaeffer, G. W.
**Anderson, F. E.** Cyclic acetals, 5004*d*.
**Anderson, G. C.** See Hogan, A. G.
**Anderson, G. H.** Recovery of Cd from Cd-Cu ppt., 4145*g*.
**Anderson, G. W.** See Clark, J. H., Vaughan, J. R. Jr.
———, Arndt, C. H., Goldbey, E. G., and Jones, J. C. Cattle-feeding trials with derivs. of 2,4,5-trichlorophenol, 8071*b*.
**Anderson, H.** Australia's native tanning materials, 5219*e*; bacteriology of hide preservation, 7731*c*; see Birdsall, G.; Coombs, L. A.; Purss, A.
**Anderson, H. C.** See Columbic, N.
**Anderson, H. E.** See Watson, J. H.
**Anderson, Hamilton H.** See Chin, Y.-C.; Elliott, H. W.; McOmie, W. A.
———, Ch'eng, C. H., and Sah, P. P. T. Pharmacologically active biurets contg. piperidine and their related compds., 5369*g*.
———, Johnstone, H. G., and Hansen, E. L. Chemotherapy of amebiasis, 8559*a*.
**Anderson, Herbert H.** Semi-self-filling micropycnometers—drainage of micropipets, 3245*d*; ethyl Ge isocyanates, 6536*g*; ethylsilicon isothiocyanates—use of acidimetry without weighing, 6571*b*.
**Anderson, H. P.** Powd. Mg, P 1048.
**Anderson, H. V.** Precious metal paints, 9479*c*.
**Anderson, H. W.** See Larsh, H. W.
**Anderson, I. G.**, and Kenyon, J. Esterification rate of dibasic acid anhydrides with primary alcs., 1354*d*.
**Anderson, James.** Sugar content of bull semen and its reduction during storage, 2683*i*.
**Anderson, John.** See McAllister, S. H.; Ross, W. W.
———, McAllister, S. H., Derr, E. L., and Peterson, W. H. Diolefins in alkylation feedstocks—conversion to monoölefins by selective hydrogenation, 1554*h*.
**Anderson, J. A., Jr.** Controlling multicomponent sepn. process in accordance with light-absorption characteristics, P 3191*d*.
——— and Seyfried, W. D. Detn. of oxygenated and olefin compd. types by infrared spectroscopy, 1687*e*.
**Anderson, John A.**, and Voorhees, V. Spheroidal gel particles, P 5134*b*.
**Anderson, John Ansel.** See Allison, J. B., Fisher, M. H.; Rasmussen, H. E.
**Anderson, J. B.** See Shema, B. F.
**Anderson, J. D. C.**, and Le Fevre, R. J. W. Diazoöxides, 2967*e*.
**Anderson, J. G. C.** Limestones of Scotland (IV) southwest Highlands and islands (V) central Grampians, (VI) Banffshire and the northeast Grampians, 4086*a*; see Richey, J. E.; Robertson, T.
**Anderson, J. M.** Changes in the distribution of N in the Japanese beetle during metamorphosis, 774*a*.
**Anderson, J. O.** See Groschke, A. C.
**Anderson, J. R.** See Swietoslawski, W.
**Anderson, J. S.** Primary reactions in roasting and reduction processes, 4988*e*, see Bevan, D. J. M.
**Anderson, James T.**, and Wells, R. S. "Red" phosphors, 6081*c*.
**Anderson, Joseph T.**, and Nasset, E. S. N-balance index and specific dynamic action in rats receiving amino acid mixts. low in isoleucine, methionine or valine, 1468*b*.
**Anderson, K. F.** See Carpenter, C. B.
**Anderson, L. C.**, and Seeger, N. V. Absorption spectra of the aminopyridines, 3202*a*; absorption spectra of some methyl pyridine derivs., 3202*d*.
**Anderson, L. D.** Cantaloupe-mosaic investigations in the Imperial Valley—insecticide tests, 2725*g*; see Poos, F. W.
**Anderson, L. T.**, Gakenheimer, W. C., Rosenblum, C., and Smith, E. H. Pyranisamine maleate, 9373*e*.
**Anderson, L. V.**, and Porter, J. V. Relation of glyceride oil compn. to polymerization, 5605*h*.
**Anderson, M.** See Wilcock, D. F.
**Anderson, N. G.** See Wilbur, K. M.
**Anderson, P. A.** Work function of Li, 4942*d*; work function of Cu, 8257*e*.
**Anderson, P. R.** See Elster, S. K.; Freeman, M. E.
**Anderson, P. T.** See Schindler, Hans.
**Anderson, P. W.** Anomalous line-shapes in the $NH_3$ inversion spectrum, 5308*b*; pressure broadening in the microwave and infrared regions, 8884*a*.
**Anderson, R. B.** See Krieg, A.
———, Hall, W. K., Krieg, A., and Seligman, B. Fischer-Tropsch synthesis (V) activities and surface areas of reduced and carburized Co catalysts, 3273*h*.
———, Krieg, A., Seligman, B., and Tarn, W. Fischer-Tropsch Co catalysts—influence of type of kieselguhrs, 3167*d*.
**Anderson, R. Christian**, and Wallis, E. S. Catalytic hydrogenation of polyhydric phenols (I) synthesis of *meso*-inositol, scyllitol, and an isomeric cyclitol, 587*i*.
**Anderson, Robbin C.** See Foley, R. T.
**Anderson, R. E.** Growth requirements of luminous bacteria at various temps., 2276*f*.
**Anderson, R. F.** Host selection by the pine engraver, 1145*c*; relation of droplet size to toxicity in residual-type DDT-oil sprays, 3138*i*.
**Anderson, R. J.** See Fethke, N.
**Anderson, R. L.** See Young, W. H.
**Anderson, R. P.** See Beall, G.
**Anderson, R. S.** Chemiluminescence in aq. solns., 4554*h*.
**Anderson, R. V.** Sewerage system at Ingersol, Ont., 9307*e*.
**Anderson, R. W.** See Blakely, R. M.
**Anderson, S.** Orientation of methylene blue mols. adsorbed on solids, 5666*a*.
**Anderson, S. G.** Mucins and mucoids in relation to influenza virus action (I) inactivation by RDE and by viruses of the influenza group, of the serum inhibitor of hemagglutination, 7120*i*.
———, Burnet, F. M., Fazekas de St. Groth, S., McCrea, J. F., and Stone, J. D. Mucins and mucoids in relation to influenza virus action (VI) general discussions, 7121*e*.
**Anderson, S. M.** Mineral industry of Middle and South America, 2127*i*.
**Anderson, V. D., Co.** Distn. system for solvent recovery from oil extn., P 5215*b*.
**Anderson, W.** Demethylation of *p*-dimethylaminoazobenzene (butter yellow) with $H_2O_2$, 5756*f*.
**Anderson, W. A. D.** Pathology (book), 2698*h*.
**Anderson, W. E.** Infrared absorption spectrum of diborane, 8880*c*.
**Anderson, W. S.** Loss of carotene in preserved samples of sweet potatoes, 1121*i*; see Leonard, O. A.
**Anderson, W. T., Jr.** Electrodes for high-pressure metal discharge devices, P 7840*d*.
**Andersson, S.** Standardization of permanganate solns., 60*c*.
**Andersson-Kottö, I.**, and Hevesy, G. C. Zn uptake by *Neurospora*, 9153*g*.
**Andik, I.**, and Donhoffer, S. Effect of methylthiouracil on food intake and selection, 6709*f*.
**Andjus, R.** See Giaja, J.
**Andler, M.** See Cheronis, N. D.
**Ando, H.** Fluorescent film, P 6518*e*.
**Ando, Kazuo**, Kato, T., and Fukaya, Y. Chem. compn. of Diesel fuel and its inflammability (I) indication of the inflammability and the cetane no., (II) refining with $H_2SO_4$, 5569*b*.
**Ando, Kozo.** See Kawanaka, T.
**Ando, T.** See Kodama, S.
**Andrade, E. N. da C.** Creep of metals and recrystn., 81*g*.
——— and Randall, R. F. Y. Surface effects with single crystal wires of Cd, 2142*i*.
**Andrade, J. L.**, Mosqueda Suarez, A., and Casartelli, B. Detn. of *p,p*-DDT in com. and tech. products, 9354*b*.
——— and Suarez, S. N. Detn. of total chloride in acriflavine and its hydrochloride, 9369*h*.
**Andraschko, E.** Ointment bases, 6361*i*.
**André, É.**, and Kogane-Charles, M. Volatile S compds. of the seeds of crucifers (II), 880*i*; (III) glucosides contg. S—allyl and crotonyl mustard oils, 3888*b*.
**André, H.** See Coutier, L.
**André, L.** See Germain, A.
**André, M. J.** Neurological aspects of $CS_2$ poisoning, 3936*c*.
**André, R.** See Cornubert, R.
**Andreadis, T.** Nicotine in Greek tobaccos—production of nicotine poor tobaccos, 8616*i*.
**Andreae, J. H.** See Lamb, J.
**Andreae, S. R.**, and Andreae, W. A. Metabolism of scopoletin by healthy and virus-infected potato tubers, 6284*d*.
**Andreae, W. A.** See Andreae, S. R.
**Andreae, Ditta, & Co.** See Pastore, G.
**Andreani, G.** See Corti, L.
——— and Corti, L. Sensitivity to insulin in the alloxan diabetic rabbit—thyroidectomy and treatment with thiouracil, some factors of sensitivity to insulin, 4377*g*.
**Andreasen, A. A.** Beverage distillery fermentation, 9357*f*; see Mande, B. A.
——— and Rust, G. M. Distn. vapor loss detector, P 5236*f*.
**Andreasi, F.** See Bonoldi, V.
**Andreatta, C.** Cryst. rocks of the Peloritani Mountains, Sicily, Italy, 978*d*; hydrothermal stratum of the clay minerals of Capalbio, Orbetello, Italy, 5706*e*; hydrothermal member of illite-hydromica series—transitions among mica, hydromica, and montmorillonite, 7871*i*.
**Andreenko, G. V.** Influence of dicoumarin on prothrombin and thrombotropin concn. in the blood, 3106*e*.
**Andreev, A. F.** Burning flotation pyrite in a suspended state and withdrawing from the burner molten cinder, 3992*d*; vitamins and glucose in the prothrombin-forming function of the liver, 5464*a*.
**Andreev, E. A.**, and Kavtaradze, N. N. Catalytic oxidation of phosphine in adsorbed layers, 6898*a*.
**Andreev, K. K.** Flash and combustion of nitroglycerin, 1980*i*; influence of the conditions of mixing on the inflammation of gaseous mixts., 1981*i*.
——— and Purkalu, M. M. Combustion of $MeNO_3$, 1981*d*.
**Andreev, V. A. N.** See Natuss-Andreev, V. A.
**Andreeva, E. P.** See Iofa, Z. A.
**Andreeva, N. A.**, and Bukin, V. N. Detn. of folic acid, 4720*f*.
**Andreeva, N. P.** See Gorin, Yu. A.
**Andreeva, T. F.** See Zubkovich, L. E.
**Andreevskaya, E. G.** Effect of yeast on wine materials for cask champagne, 353*c*.
**Andrejew, Andrejeff, Andrejew.** See Andreev.
**Andrejewa.** See Andreeva.
**Andres, A. G.**, and Shershul'skaya, L. V. Morphology of P metabolism in the nor-

mal and pathol. states (III) alk. and acid glycerophosphatases in malignization of mouse skin, 5486*c*.
**Andres, G.** See Lehmann, F. E.
**Andrèsen, N.** See Nickerson, W. J.
**Andres Irigoyen, P.** See Santos Ruiz, A.
**Andress, H. J., Jr.** See Reiff, O. M.
**Andress, K.**, and Topf, W. Light absorption of $H_3BO_3$ complex compds., 2003*d*.
**Andreu, S. M.** See Miguel Andreu, S.
**Andrew, E. R.** Automatic temp control for a liquid-He cryostat, 4056*c*; intermediate state of superconductors (II) resistance of cylindrical conductors in transverse magnetic fields, (III) theory of behavior of superconducting cylinders in transverse magnetic fields, 4069*b*.
——, Axford, D. W. E., and Sugden, T. M. Measurement of ionization in a transient flame, 481*a*.
**Andrew, G.** See Irving, H.
**Andrew, H. G.** Indicator changing at pH 0.5 for control of sulfide pptn., 7368*h*
**Andrew, K. F.** See Gulbransen, E. A.
**Andrew, L. E.**, and Rhoades, H. F. Soil development from calcareous glacial material in eastern Nebraska, 2719*h*.
**Andrew, V. W.** See Wagner, J. C
**Andrews, A.** See Clark, A.
**Andrews, A. C.** See Schrenk, W. G.
**Andrews, A. I.** See Jones, R. A
**Andrews, D. H.** See Lebacqz, J. V.
——, Fowler, R. D., and Williams, M. C. Effect of α-particles on a superconductor, 8851*a*
**Andrews, E. F.** See Bailey, H. P.
**Andrews, G. W. S.**, and Miller, J. Penicillin and Other Antibiotics (book), 6791*a*.
**Andrews, H. J., Jr.** See Reiff, O. M.
**Andrews, H. W.** See Gross, W. F.
**Andrews, I. H.** $ZnS_2O_4$ treatment of groundwood, 6410*g*
**Andrews, J. T. R.** Glycerol analysis, 5212*d*, see Lambert, R. S., Miller, W. J.
**Andrews, K. W.** Lattice parameters and interplanar spacings of some artificially prepd. melilites, 4605*h*.
—— and Mackenzie, J. Fe cordierite in blast-furnace linings, 5705*e*.
**Andrews, L. J.** See Keefer, R. M.
—— and Keefer, R. M. CuCl complexes of maleic and fumaric acids, 1677*i*; cation complexes of compds. contg. C-C double bonds (II) soly. of CuCl in aq. maleic acid solns., 8940*f*.
—— and Kepner, R. E. Rates of hydrolysis and ethanolysis of certain allyl chloride derivs., 2849*d*
**Andrews, M. B.** See Kidder, G. W.
**Andrews, R. D.**, Hofman-Bang, N., and Tobolsky, A. V. Elasto-viscous properties of polyisobutylene (I) relaxation of stress in whole polymers of different mol. wts. at elevated temps., 4510*e*
**Andrews, W.** Welding electrodes, P 4212*f*.
**Andreyev.** See Andreev
**Andrianov, P. I.** Heat capacity of bound water, 6060*d*
**Andrieux, J. L.** Prepn. of metal powders by high-temp. electrolysis, 5313*g*
—— and Blum, P. Electrolytic prepn. and the properties of U borides, 8933*b*
—— and Bozon, H. Electrolytic prepn. and the properties of several spinels of V, 6510*c*.
**Andrini, F.**, and Biondo, G. Normal and pathol. blood iron, 2312*d*; amylase in blood in various diseases, 2312*e*.
—— and Trovato, A. Lipases in exudates and transudates, 2691*b*.
**Andrisano, R.** Furyl derivs. of thiouracil, 7929*h*; structure of furylpyrimidine derivs., 7929*i*.
—— and Carassia, R. BzH-MesCO resins, 9521*e*.
**Andronikashvili, E. L.** Temp dependence of the normal d. of He II, 3679*f*; viscosity of the normal component of He II, 3680*a*.
—— and Tumanov, K. A. Superfluidity and supercond. in the U.S.S.R., 7765*h*.
**Andronov, B. E.** See Alekseeva, M. V.
**Androvandi, A.** Effect of drought, moisture, and chem. fertilizers on sugar beets, 4411*f*.
**Andrus, R. J.** See Kaplan, N. O.
**Andrus, W. D.** See Hoffman, R. S.
**Andrushchenko, N. K.**, and Dankov, P. D. Velocity of the primary stage of oxidation of Al under low pressures at room temp., 1245*f*.
**Andryanov, A. S.** See Kats, M. L.
**Andur, B.** See Stokinger, H. E.
**Andus, L. J.** 2,4-Dichlorophenoxyacetic acid and coumarin, 8454*e*; pH relations of root growth and its inhibition by 2,4-dichlorophenoxyacetic acid and coumarin, 8454*h*.
**Anellis, A.** See Van Lanen, J. M.
**Anet, E.**, Hughes, G. K., and Ritchie, E. Syntheses of hygrine and cuscohygrine, 4256*h*.
**Anfanger, H.**, and Heavenrich, R. M. Amino acid-tolerance tests in children, 6724*e*.
**Anfinsen, C. B.** See Ball, E. G.; Beloff, A.; Buchanan, J. M., Gould, R. G.; Hastings, A. B.
——, Beloff, A., and Solomon, A. K. Incorporation of radioactive $CO_2$ and acetate into liver proteins, 9090*a*.
**Angel, E. G. R.** Fe in pure or alloyed state, P 6526*e*
**Angel, F.** See Awerzger, A
**Angel, G.** Ca, 8899*b*.
**Angel, H. S.** See Fuller, E. W.
**Angelescu, E.**, and Damian, D. Adsorption on cellulose and on viscose rayon from cellulose (I) adsorption of I, 9438*g*.
**Angeles Sandoval, M. de los.** See González Ochoa, A.
**Angelico, R.**, and Galamini Ligori, M. Pancreatic function (I) lipoid absorption and liver-lipoid content as related to pancreatic function, 3909*e*, 8485*a*
**Angell, E.** See Auerbach, M. E
**Angell, H. W.**, Hribar, V. F., and McFarland, W. A. Use of high vacuums and wetting agents in the preservative treatment of green Douglas-fir lumber, 2731*i*.
**d'Angelo, S. A.** See D'Angelo, S. A.
**Angelucci, R.** See Menghini, G
**Angier, R. B.** Amides of *p*-(2,3-dihydroxy-2-propenylideneamino)-benzoic acid, P 6236*a*; see Hutchings, B. L.
——, Waller, C. W., Boothe, J. H., Mowat, J. H., Semb, J., Hutchings, B. L., Stokstad, E. L. R., and SubbaRow, Y. Pteridine chemistry (I), 675*g*
**Anglade, R.** See Reis, T
**Anglaret, P.** See Institut technique d'etudes et de recherches des corps gras.
**Anglesio, G.** See Lovera, Giuseppe.
**Anglo-Iranian Oil Co., Ltd.** (*Patents*) Benzene and(or) cyclohexane from mixts. contg. them, 1957*h*; sepn. of narrow boiling hydrocarbon fractions, 1958*a*; pure hydrocarbons from petroleum naphtha, 1958*c*; cyclohexane and alkylated aromatic hydrocarbons, 1958*d*; pure hydrocarbons from naphtha and other hydrocarbon feedstocks, 1958*s*; additive for stabilizing leaded gasolines, 2423*d*; $SO_3$ from petroleum fractions, 2123*g*, 5159*i*, polystyrene mineral-oil extract plastic compn., 2467*b*, conversion of normal to branched chain hydrocarbons, 3188*d*, removal of $C_6H_6$ from other hydrocarbons, 3844*g*; hydrocarbons from CO and H, 5573*d*; vinyl polymers plasticized with air-blown exts. of mineral-oil fractions, 5998*e*, vinyl polymers plasticized with S-treated ext. of mineral-oil fractions, 5998*i*, see Birch, S. F.
——, Birch, S. F., and Collis, C. B. Cyclohexane, P 4460*h*.
——, Birch, S. F., and Fawcett, E. W. M. Isoparaffins, P 7077*g*.
——, Birch, S. F., Fidler, F. A., and Dean, R. A. Xylidines, P 5709*i*.
——, Birch, S. F., Fidler, F. A., and Thornes, L. S. Aviation or motor fuel or a constituent of an aviation or motor fuel, P 6818*g*
——, Birch, S. F., and Hyde, J. W. Sepn. of hydrocarbons, P 5938*f*.
——, Collis, C. B., and Owen, J. Hydroforming *n*-hexane, P 7034*h*.
——, Fawcett, E. W. M., and Millien, A. Polymers and copolymers of vinyl chloride, P 2817*i*.
——, Fawcett, E. W. M., and Narracott, E. S. Isoparaffins, P 6819*a*.
——, Fawcett, E. W. M., Narracott, E. S., and Rowland, K. J. Plastic compns., P 4894*i*.
——, Shearer, A. P., and Cubin, T. Alkylation of isoparaffins with pentenes, P 3189*f*.
**Angoris, G. M.-Di-.** See Miani-Di-Angoris, G.
**Angoris, L. M.-Di-.** See Miani Di-Angoris, L.
**Angoris, O. M.-Di-.** See Miani-Di-Angoris, O.
**Angrisani, D.**, and Salvi, P. Serum cholinesterase in sound and in paralytic limbs, 2311*g*.
**Anguiano L, G.** See Del Pozo, E. C.
**Angulo Carpio, M. D.** c-Mitotic action of some opium alkaloids as compared with the effect of colchicine, 3108*d*.
**Angus, J.** See Curran, S. C.
**Angus, T. C.** See Renbourn, E. T
**Ang'yan, A.**, Lissak, K., and Martin, I. Action of sympathomimetic substances, esp. aleudrine, 5499*a*
**Anhorn, V. J.** See Barr, W. E.
**A.N.I.C. Azienda Nazionale Idrogenazione Combustibili.** See Azienda Nazionale Idrogenazione Combustibili A.N.I.C.
**Anicetti, R. J.** Crucible with removable bottom, P 7273*c*.
**Anish, A. W.** Trinuclear cyanine dyes, P 9588*h*, 8926*i*, quarternizing agents, P 3466*f*; trinuclear imino cyanine dyes, P 4158*i*; cyanine dyes contg. a carbonyl or thiocarbonyl group, P 4591*g*, toluenesulfonates, P 7042*d*; dye-sensitized Ag halide photographic emulsion, P 8825*b*, see General Aniline & Film Corp.
**Anitia, N.** Influence of soil humidity on the production and quality of tobacco, 9382*h*.
**Anker, H. S.** Synthesis of carbonyl-labeled pyruvic acid, 2582*i*, metabolism of pyruvic acid in the intact animal, 3073*g*
—— and Bloch, K. Metabolism of $\Delta^{5,6}$-cholestenone, 6291*d*
—— and Raper, R. Metabolic fate of pyruvamide and acetamide, 3073*i*
**Anker, R.** See Berk, L.
**Anker, W.** See Schopfer, W. H
**Anlyan, A. J.** See Fishman, W. H.
**Ann, T.-W.** See Liang, S.-C
**Annaev, R. G.** Change of the elec. resistance and of thermoelec. emf in a longitudinal magnetic field of the NaMn alloy, as a function of the amt. of the ordered phase, 1231*c*; change of the elec. resistance of a superstructure alloy in a longitudinal magnetic field, 7278*d*; thermomagnetic Nernst effect in crystals of ferrosilicon and of NaMn, 8221*g*
**Annajew, R. G.** See Annaev, R. G.
**Annau, E.**, Eperiessy, A., Mihályi, E., and Zathureczky, Z. v. Biol. oxidation of fat, 4311*b*.
**Annegers, J. H.** See Heersma, J. R.; Searle, G. W
**Annequin, R.** See Laurand, J. B
**Anner, G.** See Muescher, K
——, and Muescher, K. Steroids (LXXXIII) synthesis of natural estrone—total syntheses in the estrone group (5), 3431*i*
**Annersten, S.** Surgical aspects of the adrenaline content in blood, 6300*d*
——, Gronwall, A., and Kouw, E. Defn. of adrenaline in blood plasma, 1317*g*
**Anniah, G. S.** White quartz around Mysore, 2134*e*
**Anning, S. T.**, Dawson, J., Dolby, D. E., and Ingraham, J. T. Toxic effect of calciferol, 765*g*
**Annis, D.** Despeciated bovine serum, 5435*e*.
**Anoshkina, A. A.** See Palladina, O. K.
**Anosoff, W. J.** See Anosov, V. Ya
**Anosov, V. Ya.**, and Pogodin, S. A. Osnovnye Nachala Fiziko-Khimicheskogo Analiza (book), 2548*f*.
**Anossow, W. J.** See Anosov, V. Yu.
**Anrep, G. V.**, Barsoum, G. S., and Kenawy, M. R. Pharmacol. actions of the cryst. principles of *Ammi visnaga*, 5542*d*.
——, Barsoum, G. S., Kenawy, M. R., and Misrahy, G. Therapeutic uses of khellin, 4373*e*.
**d'Ans, J.** Formation and transformation of K salt deposits, 5708*e*.
—— and Lax, E. Taschenbuch für Chemiker und Physiker (book), 7318*h*.
**Ansbacher, F.**, and Ehrenberg, W. Electron-bombardment cond., 8847*g*.
**Ansbacher, S.** See Fernholz, E.; Wisansky, W. A.
**Anselmi, S.** Sensitivity of analytical characteristics of milk to dilu., 4393*b*.
—— and Calo, A. Elephant milk, 8566*h*
**Ansidei, R. M.** See Manzoni-Ansidei, R.
**Anslow, G. A.**, Hsieh, H.-T., and Shea, R. C. Ultraviolet absorption by H-bridged mols., 7340*e*.
**Anslow, W. P., Jr.** See Wesson, L. G., Jr.
**Anson, H. A.** See Jellinek, H. H. G.
**Anthes, J. F.** Mixed gas research project, 6393*g*.
**Anthony, A. W., Jr.** Wet scrubbing of gases for reduction of atm. pollution, 4405*e*.

**Anthony, B. F.** See Charman, W. M.
**Anthony, J.** Mold coating widens centrifugal casting use, 981*g*.
**Anthony, R. D.** See Frear, D. E. H.
**Antia, D. P.** Al production in India, 3754*d*.
**Antipin, P. F.**, Smirnov, M. N., and Svistunov, A. I. $Al_2O_3$, P 4820*h*.
**Antipov-Karataev, I. N.**, Kader, G. M., and Filippova, V. N. Uptake of ions by clays and soils (III) uptake of univalent and bivalent cations of chernozem soil and humic acid, (IV) uptake of bivalent cations by red-brown clays and some soils, 7618*b*.
———, Pasvik-Khlopina, M. A., Merkulova, M. S., and Grebenshchikova, V. I. Uptake of ions by clays and soils (V) uptake of heavy metal ions by clays and soils in dynamic conditions, 7618*g*.
**Antipow-Karatajew, J. N.** See Antipov-Karataev, I. N.
**Antle, L. L.** See Cofield, E. P., Jr.
**Antoci, G.** Hepatoprotective therapy with S-contg. amino acids, 5861*d*
**Antoine, G.** and Debay, A. Stability of acetylcholine salts, 9374*g*
**Antonena, C. M.** Industrialization of sea water—source of raw materials, 4819*c*.
**Antongiovanni, E.** Insecticidal power of DDT, 9344*f*
**Antoni, H. J.** Prepn of injectable solns of ascorbic acid and their conservation, 9365*f*
**Antoniani, A.**, and Cerruti, A HCl, P 8623*b*; purification of NaCl, P 8624*f*.
**Antoniani, C.** Acetoinic condensation in normal alc fermentations, 4807*g*.
——— and Cioffi, R. M Deamination and alc. fermentation of amino acids (I), (II), 7541*f*
———, Federico, L., and Missiroli, M Detn of vitamin E, 1075*d*, variations in vitamin content of eggs preserved by refrigeration, 1875*f*.
——— and Trotta, A. Origin of the volatile acids of *Kloeckera apiculatus*, 9142*f*
**Antonini, J.**, and Créac'h, P. Manuf. and compn of native butter in the Chad, 781*e*
**Antonio, O.** Pb poisoning, 5120*d*, Hg poisoning (I) $Na_2S$, 6311*g*
**Antonioli, A.** O content in steelmaking, 8331*i*
**Antonoff, G.** Physicochem aspects of reinforcement of rubber, 2800*i*
——— and Conan, T. J. D. of water as a function of temp., 8225*h*.
———, Yakimac, A., and Randall, D. Fluctuations in properties of liquids and the effect of radiations on them, 4091*h*
**Antonoff-Romanowsky, W. W.** See Antonov-Romanovskii, V. V.
**Antonov, V. A.**, Agrov, P. V., and Mazankin, E. A. Charging open hearth furnaces, P 9018*h*.
**Antonova, L. G.** See Volchkova, L. M.
**Antonov-Romanovskii, V. V.** Stimulating action of the exciting light in phosphors, 5668*d*, see Levshin, V. L.
——— and Epshteln, M. I. Measurement of the abs yields of luminescence of powd. phosphors, 4578*f*.
———, Levshin, V. L., Morgenshtern, Z. I., and Trapeznikova, Z. A Flash in SrS phosphors activated by rare earth activators and the interaction of activators, 5667*h*.
**Antoshkiw, T.** See Kern, C. J.
**Anufrieva, E. P.** See Khmenko, Yu. V.
**Anurov, S. A.**, and Shekoldin, N. G. Striking surface for matches, P 9451*a*.
**Anysz, S.** See Junser, O. L.
**Anzai, H.**, Nagaki, D., Date, K. Hatori, T., and Nakamura, M. Antibiotic substance from broth culture of a soil bacillus, *Bacillus brevis* (I) antibiotic in broth culture, 9162*e*.
———, Nagaki, D., Date, K., Tsukakoshi, N., Hatori, T., and Nakamura, M. Antibiotic substance from broth culture of soil bacillus, *Bacillus brevis* (II) purification of the antibiotic agency and its characteristics, 9162*f*.
**Anzai, R.** See Ueno, Seiichi.
**Anzalone, B.** See Agostinucci, G.
**Anziani, P.**, Aubry, A., Bourguignon, P., and Cornubert, R. Substituted cyclohexenones, 3373*d*.
——— and Cornubert, R. Cyclane stereochemistry (XVI) action of $HNO_2$ on stereoisomeric 2-methylcyclohexylamines, 2961*e*.
**Ao, T.** Artificial abrasive wheels (I–III), (IV) fundamental properties of β-alumina grains, (V) sizes and shapes of alumina abrasive grains, 1934*a*.
**Aoe, I.** See Senba, T.
**Aoto, E.** See Eguchi, T.
**Aoyagi, Y.** See Sakurai, Y.
**Aoyama, S.**, and Fukuroi, T. Young's moduli of metals and alloys at low temps (II) Ni, Cu, and their alloys, 7398*a*.
**Apell, G. A.** M C. Zn mine, Lafayette County, Wis., 6545*f*; see Sanford, R. S.
———, Hazen, S. W., and Howe, E. G. Lake valley Mn deposits, Sierra Co., N. Mex., 6052*d*
**Apel'tsin, I. E.** Stabilization of industrial water, 4793*f*.
**Apker, L.** See Taft, E.
———, Taft, E., and Dickey, J. Photoelec. emission and contact potentials of semiconductors, 1256*i*; semimetallic characteristics of the photoelec emission from As, Sb, and Bi, 8257*h*
**Apler, N. H.** See Ringström, E.
**Apodaca, A. R.** See Blackburn, W. E.
**Appanna, T. C.**, and Devadatta, S. C. Fractionation of the different types of P compds in the prawn muscle, 1116*h*
**Appel, H.**, Böhm, H., Keil, W., and Schiller, G Fats from fat acids with odd nos of C (VII) properties, stability, physiology, and toxicology of synthetic fats from paraffin fat acids, 9487*f*
**Appel, I.** See Goehring, M
**Appel, M.** See Weiss, M.
**Appell, F.** See Mayer, R.
**Appert, J.** See Bréchot, P.
**Apple, J. W.**, and Decker, G. C. Insecticidal dust formulations for corn-borer control, 6351*d*
**Applebaum, E.** See Ziskin, D. E.
**Applebey, M. P.** Wm. Hughes, 8219*d*.
**Appleby, D. K.** Action of light on textile materials, 3201*b*.
**Appleby, W. G.** See Johnston, R. W. B.
**Applegarth, A.** Histochem changes in the adrenal cortex in alloxan diabetes, 8043*h*
**Appleman, D.** Citrus quality, 9287*d*
**Appleton, E.** Organization and work of the Dept of Scientific and Industrial Research, 9295*h*.
**Appleton, E. V.**, Rose, R. C., Plesch, P. H., and Cefoil Ltd Cellular material of low d., P 900*h*
**Appleton, H.** See Bridger, G. W.
**Appleyard, R. K.** Stopping power of liquid water for α-particles, 5285*c*; see Allen-Williams, D. J
**Applicazioni Costruzioni Tecniche Antigas.** See A.C.T.A. Applicazioni Costruzioni Tecniche Antigas.
**Appling, J. W.** See Heuser, Emil; Shema, B. F
———, Buckman, S. J., and Cash, C. D Detn. of the mold resistance of paper and paperboard, 9444*b*
———, Buckman, S. J., and Meals, R. N Mold with a high resistance to organomercurials, 7684*d*.
**Apraiz Barreiro, J.** Stainless steels, 538*f*.
**Aprodova, A. A.** Dependence of the chem. compn of petroleum-bearing carbonate rocks on porosity, 5573*h*, cryst deposition stock in a boring at the mouth of the river Izh, the right bank tributary of the Kama River, 5709*g*.
**Apt, L.** See Zuelzer, W. W.
**Apte, A. S.** See Majumdar, R. C.
**Aptekman, P. M.** See Lewis, M. R.
**Arabadshi, V. I.** Influence of cyclones on the atm. content of $O_3$, 5302*h*.
**Arai, Y.** See Nakagawa, Shikazo
**Arakawa, H.** Sepn. and purification of rare-earth elements from monazite (I), 7854*d*.
**Araki, G.** Divergence difficulty and mixed-meson theory, 479*f*, magnetic moment of nucleons according to the pseudovector meson theory, 479*h*; difficulty of the meson theory of nuclear forces, 4554*i*; vector and pseudovector theories of nuclear forces, 4940*h*.
**Araki, T.** Spinning cellulose acetate fibers (VI), (VII) "false" soly., (XI) properties of cellulose acetate prepd. by after-acetylation method, (XII) detn. of the seasoning degree by means of pptn. analysis, (XIII) acetylation of cellulose, (XIV) properties of aq. soln. of cellulose sulfoacetate, 2430*h*; (XV) alkali sapon of the cellulose sulfoacetate aq. soln., (XVI) ion interchange of the cellulose sulfoacetate, (XVII) acetylation of hemicelluloses, starch, and agar-agar, 2432*e*.
——— and Tadenuma, S. Spinning of cellulose acetate (V) influence of the compn. of the solvent mixt. on the properties of cellulose acetate fiber prepd by the dry-spinning method, (VI), 1965*a*; spinning cellulose acetate fibers (IV) influence of varying the spinning conditions in dry spinning process, (V) behavior of sulfate radical of cellulose acetate in mixed org. solvents, (VIII) relation of acetylating conditions to the amt. of combined $H_2SO_4$, (IX) catalytic mechanism of the acetylation of cellulose, (X) measurement of AcOH in cellulose sulfoacetate, 2430*b*.
**Aramayo, M.** See Domato, J.
**Aramburu, T.** See Spies, T. D.
**Arango, N. I.** See Michaelis, M.
**Aranjo, E. B. de.** See Bayma de Aranjo, E.
**Arant, F. S.** Insecticides for control of velvetbean caterpillar, 1521*h*.
**Arany, A(lexander).** Same as Arany, S(ándor).
**Arany, S.** Clay minerals, 9315*b*.
**Araujo, J. B. de.** See Benedito de Araujo, J.
**Araujo, L. B. de.** See Benedito de Araujo, L.
**Araujo, L. E. de.** See Euler de Araujo, L.
**Arblaster, H. E.** Ag plating in Australia, 4146*i*
**Arbogast, A. H.** Detn. of dust in gas, 972*b*.
——— and Morris, M. K Heating and treatment of alloy steels, 2146*i*
**Arbousoff, Arbousow, Arbouzov, Arbusow.** See Arbuzov
**Arbuzov, A. E.** A Brief Survey of Development of Org. Chemistry in Russia (book), 2627*g*.
——— and Nikonorov, K. V. Synthesis and the study of properties of mixed thioesters of $H_3PO_3$, 1004*c*, action of analogs of Boyd's chloride on Na alcoholates, 1346*i*; prepn of some esters of diphenylphosphinous acid, 3801*i*
**Arbuzov, B. A.**, Sobolevskil, M. V., Rez, I. S., Kolobnev, I. F., and Baranov, P. I. Bonding agent for sand cores, P 6340*c*.
**Arbuzov, S. Ya.** Antagonism and synergism between narcotics and sympathomimetic amines in the action on vertebrate central nervous system (I) waking action of sympathomimetic amines in respect to chloral hydrate and medinal, (II) changes of the latent reflex time and body temp under action of sympathonimetic amines and the waking action of the latter in respect to narcotics, 7141*g*.
**Arbuzov, Yu A.** Reaction of diene hydrocarbons with nitroso compds —addn of 1,3-butadiene to nitrosobenzene, 650*c*; reactions of diene hydrocarbons with nitroso compds.—reduction of 2-phenyl-3,6-dihydro-1,2,2*H*-oxazine, 5403*f*.
**Arbuzova, I. A.** See Ushakov, S. N.
**Archambault, M.** See Osborne, F. F.
**Archangeliskaja, Archanguelskaja.** See Arkhangel'skaya, M.
**Archarow, W. I.** See Arkharov, V. I.
**Archdeacon, J. W.** See Sullivan, C. D.
———, Presnell, M. W., and Walton, C. J. Effects of atropine on food ingestion and water drinking in dogs, 6744*d*.
**Archer, F. G.** See Eilerts, C. K.
**Archer, R. S.**, Briggs, J. Z., and Loeb, C. M., Jr. Mo, Steels, Irons, Alloys (book), 554*a*.
**Archer, S.** See Albertson, N. F.; Haggett, E.; Jackman, M.; Klenk, M. M.; Pratt, M. G.; Tullar, B. F.
——— and Albertson, N. F. Leucine, P 2225*c*.
**Archer-Daniels-Midland Co.** Protein-water-paint vehicles with increased wet-abrasion resistance, P 4493*e*; hydrogenated tallow soap as polymerization emulsifier, P 5991*e*.
**Archibald, F. M.** Distn. of alcs. from mixts. of alkyl sulfates and acid, P 5790*c*; see Mottern, H. O.
**Archibald, F. R.** Roasting arsenical Au ores and concentrates, 6131*i*.
**Archibald, P. K.** See International Bitumen Emulsions Ltd.
**Archichovskaya, E. W.** See Artsikhovskaya, E. V.
**Archipow.** See Arkhipov.
**Arciniega, L.** See Sánchez-Marroquín, A.
**Arco Co.** Interpolymers of monovinyl aromatic compd., monocarboxylic olefinic acid, and drying oil or acid, P 5972*b*, interpolymer produced from polyhydric alc., polybasic acid, and interpolymer of monovinyl-aromatic compd., olefinic acid, and drying oil or oil fatty acid, P 6433*b*.
**Arcos Corp.** Welding flux, P 4212*c*.
**Arcus, C. L.**, Campbell, A., and Kenyon, J.

Reaction of Br with Ag (+)-α-phenylpropionate—electrophilic bimol substitution, 4241e.
**Ard, J. S.** Detection of chlordan (octachloro-4,7-methanotetrahydroindane) in insecticide oil sprays, 347g
**Ardao, M. I.** See Barron, E. S G
**Ardashev, B. I.** Quinoline derivs (III) mechanism of quinaldine synthesis, (IV) synthesis of quinaldine and some Me homologs from aromatic amines and ethylene glycol, 7020g.
**Ardau, B.** See D'Aste, G
**Arden, T. V.**, Burstall, F. H., Davies, G. R., Lewis, J. A, Linstead, R. P. Sepn., detection, and estn of inorg. compds., 2888f.
**Ardenne, M. v.** Arrangement of the universal electron microscope for almost eliminating heat damage to mounts, 4557a.
**Ardis, A. E.** Monomeric alkyl α-cyanoacrylates, P 6222c; 1,1-dicyanoethylene from 1-acetoxy-1,1-dicyanoethane, P 9079e
**Arditti, G.** Oxidation of paraffin oil by O in the presence of certain agents, 2410i.
**Arditti, R.**, and Heitzmann, P. Chem analysis by means of oscillator circuits, 8943i.
**Ardizio, P.** See Naves, Y R
**Ardry, R.** Pyrogenic substances 7121g
——— and Abrioux, M. Detn. of proteins (I) salting-out techniques, 3874b.
**Arduini, A.**, and Machne, X. Convulsant action of acetylcholine, 6744i.
**Arellano, A. R. V.** Compn. of the volcanic rocks in the southern part of the Mexico Valley, 527d.
**Arenu, A. G.** $K_2O$ recovery from ferrous and nonferrous by products, 2377g; electrolytic production of Fe oxide pigments, 2522f; wool-scouring liquors—potash reclamation, 4862e, reclaiming Sn from residues, 5712e; fusible alloys from Sn-bearing residues, 5719c.
**Arend, H.** See Eilender, W.
**Arendonk, A. M. van.** See Van Arendonk, A. M.
**Arends, E.** Whey and its possible uses in the pharmacy, 11516.
**Arends, J.** Development of pharmacy, 8093c.
**Arens, H.** Electron microscope investigations of sep. phases in the prepn of emulsions, 8922g.
**Arens, J. F.** See Dorp, D. A. van.
——— and Dorp, D. A van. Unsatd aldehydes from carbonyl compds. having two C atoms less, P 5418c; ketones related to vitamin A, P 5418g, intermediate product for vitamin A, P 5418i, chemistry and biochemistry of vitamin A, 7561f
———, Dorp, D. A. van, Dijk, G. van, Brandt, B. J., Hubers, P. J, and Pieters, H. A J Synthesis of α,β-unsatd. aldehydes—prepn of β-methylcinnamaldehyde, citral, and β-ionylideneacetaldehyde, 7413h.
**Arens, K.**, and Arens-Lausberg, T. Epidermal excretion of mineral salts by the leaves of *Ricinus communis* and its relation to the mineral content of the soil, 2354a.
——— and Lauro, F. de. Vacuole contraction, 2287a.
**Arens-Lausburg, T.** See Arens, K.
**Arent, A.** Plating metal on Fe or steel by application of a cold soln. of a salt of the metal, P 7895e.
**Arent, A., Laboratories, Inc.** Plating metal on Fe or steel by application of a cold soln. of a salt of the metal, P 7895e.
**Arens, B.** Testing of Cu fertilization in 3-yr. pot expts. and its after-effect, 7623a; see Schropp, W.
**Areshidze, Kh. I.** Hydroaromatic hydrocarbons in Mirzaan gasoline 95–122 fraction by dehydrogenation catalysis, 4838i.
——— and Tavartkiladze, E. K. Dehydration of cyclohexanol on gumbrin, 5010e; gumbrin and ascanite as dehydrating and isomerizing catalysts (II) catalytic isomerization of 1-butene, 6153a.
**Areshkina, L. Ya.** N oxides of alkaloids of *Senecio platyphyllus*, 280c
**Arevalo, A.** Chem. compn of the saurel, 3115h.
**Arfken, G. B.** See Hatcher, R. D.
**Argall, G. O., Jr.** Industrial minerals of Colorado, 6335a.
**Argant, N.** See Hamburger, J.
**Argersinger, W. J., Jr.** See Stephanou, S. E.
**Arghyroudis, D.** Varieties of tobacco cultivated in Greece and their improvement by biol. procedures, 5828b.
**Argilés, V. P.** See Pérez Argilés, V.
**Argiolas, L.** See Lippi, M.
**Argo, H. V.** Direct detn. of the energy of the He³ nucleus from the D-D reaction, 935h; see Taschek, R. F.
**Arguello Rufilanchas, F.** See Santos Ruiz, A.
**Argy, M.** Spiral driers, 401e
——— and Supper, H. L Vocabulaire papetier (book), 6825c.
**Argyle, A.** See Dixon, J. K
——— and Price, W. J. Photographic evaluation in spectrographic analysis, 961e.
**Arhangelskaja, M.** See Arkhangel'skaya, M.
**Arharow, W. I.** See Arkharov, V. I.
**Arhipow.** See Arkhipov
**Ariado, D. M.** See Baker, E S
**Ariano, R.** Granulometric analysis of soils, 5521h; S in Abruzzi rock asphalt powders and the influence of heating on the latter, 6817d.
**Arias, A. C.** See Charro Arias, A
**Arias, J. I.** Electrolytic H, 4146e.
**Arias, R. S.** See Simón Arias, R
**Arieff, A. J.** See Finkleman, I
**Ariente, P. J.**, and Allen, H C Rendering textiles water-repellent, P 2444a.
**Arienti, M. N.** See Novak-Arienti, M.
**Aries, R. S.** Profits in the chem. industries, 331g; continuous wood-distn unit, 837f, pulping of southern New England hardwoods, 1182c; bark for paper de-inking, 4847d; utilization of wood waste, 6407d; btOH from petroleum, 6568b, oxidation of olefins to their oxides, P 8399b; see Savitt, S A.
——— and Copulsky, W Marketing of Chem. Products (book), 3119e
——— and Othmer, D F Detg. plant location, 5131h.
——— and Pollak, A. Com. lignins, 7680i
**Ariga, K.** Decompn. of vitamin A by various factors (I) relation of the effect of standing, heat, and ultraviolet rays on vitamin A decompn., 5837g
**Ariga, Y.** See Koketsu, R
**Arii, K.**, and Nagasawa, S. Geochem. study on mineral springs in the northeastern districts of Japan (II), (III), 7611c
**Arlis, D.** Il macchinario dell'industria chimica (book), 7161g
**Arimori, T.** Pure $Al_2O_3$ from Manchurian clay (X) mechanism of formation of cryst. hydrated $Al_2O_3$, (XI) x-ray analysis of cryst. hydrated $Al_2O_3$, (XII) calcination of hydrated $Al_2O_3$, (XIII) result of pilot plant expt. by $H_2SO_4$ extn. process, 1921c.
——— and Konishi, Y. Purification of crude $Al_2O_3$ by Cl gas treatment (I) Cl gas treatment of crude alumina and the analytical method for fused $Al_2O_3$, (II) conditions of Cl gas treatment of crude $Al_2O_3$, (III) effects of the preliminary heating of crude $Al_2O_3$ and the treatment with Cl gas mixed with air on the purity of $Al_2O_3$ obtained, 1922i.
**Arison, B.** See Trenner, N R.
**Aristoff, E.** See Pines, H.
———, Graham, J. A., Meen, R H., Myers, G. S., and Wright, G. F. Nitrolysis of hexamethylenetetramine (VI) recombination of fragments during hexamethylenetetram nitrolysis in acetic anhydride, 9075a.
**Aristovskaya, T. V.** Enzyme activity of northern strains of microörganisms, 5825g
**Arita, H.** $BaCl_2$, P 7200i.
**Arizumi, T.** Thermionic consts. of polycryst. metal, 4101a.
**Arjona, E.** See Jiménez Díaz, C.; Perianes, J.
———, Jiménez Díaz, C., Perianes, J., Lorente, L., and Aguirre, M. Blood histaminase in anaphylactic shock, 1100e.
———, Perianes, J., and Jiménez Díaz, C. Histamine in blood and tissues (I), 2658b
**Ark, P. A.** Leaf distortion in sunflower produced by lanolin, 7091a; diseases of cultivated mushrooms in Calif. and their control, 7180d.
**Arkel, A. E. van.** Substitution of halogens in inorg. compds., 2495h; heats of formation and stability of binary inorg. compds., 6531i.
——— and Swallow, J. C. Mols. and Crystals in Inorg. Chemistry (book), 5692f.
**Arkel, C. G. van**, and Meyst, M. Chem. properties of promizole, 8615d.
——— and Sonsbeek, J. J. M. van. Testing methods with MgO or CaO in prepg. neutralized oils for injections, 3972h.
**Arkhangel'skaya, M.** See Dogadkin, B.
**Arkharov, V. I.**, and Gol'dshtein, T. Yu. Effect of small addns. of Sb on the frontal diffusion of Ag into polycryst. Cu, 7393i.
**Arkhipov, A. S.** Industrial hygiene of phosphate industry, 1534h.
**Arkhipov, M. I.** Soly. of Cu hydroxide in aq. $NH_3$ solns., 2489a; detn. of the viscosity of cellulose (II)compn. and method of prepn. of the cuproammoniacal soln., 9435i; (III) effect of stirring conditions on the viscosity of 1% cuprbammoniacal solns. of cellulose, 9436d.
**Arkhipova, M. F.** See Rogovin, Z. A.
**Arkhipova, O. P.** See Mel'nikov, N. N.
**Arkin, L.**, and Singleterry, C. R. Soap micelles in nonaq. solvents, 4081b.
**Arledter, H.** Technol. and scientific operational control in the paper industry, 3614f.
**Arlet, F.** See Dubrisay, R.
**Armand, M.** See Jolivet, H.
**Armangué, M.** Use of phenyl Hg salts against microörganisms on plants, P 9355d.
**Armantrout, C. E.** See Graham, T. R.; Long, J R
**Armatys, E.** Pyrazolone azo pigment, P 7098e
**Armbrecht, B. H.** See Woods, G. F
**Armbruster, E. H.** See Ridenour, G M.
——— and Ridenour, G M. Effect of water ions on the bactericidal properties of quaternaries, 8588e
**Armco Steel Corp.** Gas turbine alloy, P 556a; nitriding, P 989a, ferrochrome process and product, P 991a, stainless steel, P 1307d, 4210e; electrolytic polishing of stainless steel, P 2525e, 2880e, 2880f, alloy process, P 4626b; thin Si steel with high magnetic permeability and low core loss, P 6144g.
**Armentrout, C. E.** See Silvette, H.
**Armfield, W.** Rate of dyeing as an aid to the classification of direct dyes on viscose rayon yarn, 7688f, see Boulton, J
**Armiger, W. H.** See Dean, L A
**Armistead, G., Jr.** Refining processes—hydroforming process, 2760a
**Armistead, W. H.** Glass having low power factor, P 372g, ophthalmic glass for bifocal lenses, P 1164a, infrared transmitting glass, P 5917i.
**Armitage, E R.**, Ashworth, R. de B, and Ferguson, W S Detn of lignin in plant materials of high protein content, 65e
**Armitage, F.** See Berger, L, & Sons Ltd., Wakeford L. E
——— and Cottrell, J A. Conjugated linkages in the C chain and their role in the surface-coating industry (IV) production of artificially conjugated oils and fatty acids, 4025g
———, Hessett, D. H., and Sleightholme, J J Developments in styrene copolymers, 3645c.
**Armour & Co.** (*Patents.*) Accelerating the ripening of cheese by the use of zymogens, 330a; nitriles from fatty acids, 666f; distn. app. for treating fatty acid-contg stock, 671a, distn. of fatty acid stock by fractionation and flash steps, 671d, acid hydrolysis of proteins, 3054c; compds. modified by abietic nitriles, 3228g; purifying fatty acid nitriles, 3836i, 5791b; drying eggs, 3948b; blood product contg oxidized heme, 4792c; fluid mixts. of fatty acid amine salts and brines, 5519c; dried protein products, 6332g; foam stabilizer, 8075h; perhydrocyclopentaphenanthrene compds., 6674g.
——— and Abbey, A. Treatment of triglycerides and their fatty acids, P 4032h.
**Armour Research Foundation.** Crystallographic data [ascorbic acid]—1,3,5-tris(*p*-chlorophenyl)benzene, 450i; crystallographic data [2-methylnaphthalene], 1237c; crystallographic data [pimelic acid], 2064g; crystallographic data [*p*-benzylideneaminophenol], 2838h; crystallographic data [allylthiourea], 3263a; crystallographic data [*o*-aminophenol], 4910c; crystallographic data [2-mercaptobenzothiazole], 6033f; crystallographic data [γ-hexachlorocyclohexane], 7288b; crystallographic data [*o*-aminobenzoic acid (anthranilic acid)], 8232g; crystallographic data [uranyl nitrate hexahydrate],
**Armstrong, B. W.** See Wilson, B. J.
**Armstrong, C. E.** See Potter, G. V.
**Armstrong, C. M., Inc.** Sepn. of amino acids, P 3029i, 3808b.
**Armstrong, E. L.**, and Beman, W. A. Oxidation of $H_2SO_4$ heavy alkylate, P 5584c
**Armstrong, G. M.** See Miller, Arthur J.

**Armstrong, G. P.**, Grove, D. H., Hammick, D. L., and Thompson, H. W. Catalyzed gas-phase reactions of aromatic hydrocarbons (III) methylation of naphthalene by means of dimethyl ether, 2197*a*.
**Armstrong, H. S.** See Moore, E. S.; Satterly, J.
**Armstrong, J. W.** See Julian, P. L.
**Armstrong, L.**, and Willoughby, L. B. Packaged food compn. (preleavened dough), P 9294*a*.
**Armstrong, L. D.**, and Grayson-Smith, H. Sp. heats of Mn and Bi at liquid-H temps., 6069*c*.
**Armstrong, R.** See Roberts, J. D.
**Armstrong, R. M.**, *et al.* Influence of fouling on design, 8755*h*.
**Armstrong, R. W.** Delaware aqueduct to increase New York's water supply 50%, 3543*i*.
**Armstrong, W. D.** See Lindenbaum, A.; Savchuck, W. B.; Schubert, J.
——— and Barnum, C. P. Concurrent use of radioisotopes of Ca and P in the study of the metabolism of calcified tissues, 3856*g*.
———, Schubert, J., and Lindenbaum, A. Distribution of $C^{14}$ in a mature rat receiving intraperitoneal injections of $Na_2CO_3$ labeled with $C^{14}$, 7567*d*, uptake of $C^{14}$ by bones and other tissues of the rat, 8508*e*.
**Armstrong, W. H.**, and Bankowski, R. A. Sulfaquinoxaline treatment in acute outbreak of fowl cholera, 8062*a*.
**Armstrong Cork Co.** (*Patents*) Textile-fiber drafting element, 416*i*; roll cover for textile-fiber drafting, 417*a*; screening and molding assembly for producing insulating blocks from slurries of mineral wool, paper pulp, and asphalt fibers, 7906*b*; dimethylstyrene polymerization products, 8976*b*; gaskets and bottle cap liners, 2040*b*, tall oil cellulose ether compns., 2436*a*, linoleum surface covering, 2448*g*, floor and wall covering, 2448*i*; sound-insulating materials, 8580*b*, rubberlike copolymers of allyl esters 9519*f*
**Army Ministry.** 2,3,4,5-Tetramethylhexane (isodecane) from isoamyl alc. or oil contg. isoamyl alc., P 3835*e*, trimethylethylene from isoamyl alc. or an oil contg. isoamyl alc., P 3834*a*
**Arnaboldi, A.** Italian minerals luminescent in ultraviolet light, 4977*i*
**Arnal, T. G. y** See Gaspar y Arnal, T.
**Arnant, P.** Button samples and aid to temp. control on acid furnaces, 6552*d*
**Arnason, A. P.**, Fox, W. B., and Gelu, R. DDT and benzene hexachloride for the control of wireworms in a Saskatchewan potato field, 2726*h*.
**Arnason, T. J.** Chromosome breakage induced by absorbed radioactive P, 4732*g*
**Arnaud, A.** See Loubatières, A.
**Arnaud, L. E.** See Raffel, S.
**Arnaudi, C.**, and Colla, C. Oxidation of cholesterol, 7079*f*.
———, Polli, I., Colla, C., and Corbetti, E. Changes in silage by Fidalvigna's method, 5511*g*
**Arndt, C. H.** Evaluation of certain substituted phenol esters for the treatment of cottonseed, 3133*i*, see Anderson, G. W.
———, *et al.* Tests of cottonseed treatments, 7180*c*.
**Arndt, F.**, Loewe, L., and Ergener, L. Structure of cyclic carboxamides, 579*a*
———, Loewe, L., and Ginkok, R. Enolization and solvation, 2944*i*.
**Arndt, W. J.** Coarse ground cement and pozzuolanic addns., 8635*c*
**Arner, O.**, and Swedin, B. Detn. of acid and alk. phosphatase in blood serum and the value of this method of investigation in the diagnosis of prostate cancer, 2661*b*.
**Arnesen, K.**, Buxton, L., and Dulaney, A. D. Effect of testis ext. on growth of a transplanted lymphosarcoma in AKm mice, 7120*e*.
**Arnfred, N. H.** See Veibel, S.
**Arnold, A.** Thiamine assay, 2336*a*, effect on dogs of flours treated with various improving agents, 2707*g*; flour-maturing agents, 8565*i*.
**Arnold, A. P.** See Miller, E. W.
**Arnold, C. S.** Device for dispersing atomized water spray into a confined moving stream of org. solvent in dry-cleaning plants, P 7242*d*.
**Arnold, F.** Experiences in gas purification by means of water spray, 8119*g*.
**Arnold, F. M.** Intergranular weakness in cartridge brass, 2563*i*.
**Arnold, G. P.**, Myers, V. W., and Weber, A. H. Effect of crystal orientation on the scattering of slow neutrons, 4106*b*
**Arnold, Hans.** Thickening of zinc white enamels, 5202*i*.
**Arnold, Herbert.** See Wagner-Jauregg, T.
———, Jung, F., Reuber, R., and Spielmann, W. Synthetic azulenes with anti-inflammatory action, 8064*e*.
**Arnold, H. W.** Acrylonitrile, P 8658*d*.
——— and Searle, N. E. Fly spray, P 4421*b*.
**Arnold, J. E.** Rheological properties of C-black suspensions, 419*g*.
**Arnold, J. R.** Adsorption of gas mixts.—N-O on anatase, 3263*h*; see Libby, W. F.
**Arnold, L. K.** See Measamer, S. G.; Sweeney, O. R.
——— and Hollowell, E. G. Detn. of trichloroethylene, 2122*h*
**Arnold, M. H. M.** See Nonhebel, G.
——— and Baxter, D. Sepn. of $C_2H_4$ from gaseous mixts., P 7670*d*.
——— and Perry, W. E. Salts of aminomethonic acid, P 6219*h*
———, Young, R. J., and Imperial Chemical Industries, Ltd. Water gas, P 1552*c*, dehydration of gypsum, P 3166*i*.
**Arnold, M. R.** Extn. thimble, P 8218*h*.
——— and Rosenheim, M. L. Effect of pentamethonium iodide on normal and hypertensive persons, 8540*h*.
**Arnold, P.**, Goetz, R. H., and Rosenheim, M. L. Effect of pentamethonium iodide on the peripheral circulation, 8541*b*
**Arnold, P. M.** Treatment of hydrocarbons, P 6403*b*.
**Arnold, R.** See Krige, G. J. R.
**Arnold, R. D.** See Kip, A. F.
——— and Kip, A. F. Paramagnetic resonance absorption in $CuSO_4$, 4066*i*; paramagnetic resonance absorption in two sulfates of Cu, 4568*d*.
**Arnold, R. T.** See Schultz, E. M.
——— and Buckley, J. S., Jr. Dienone-phenol rearrangement (II) rearrangement of 1-keto-4-methyl-4-phenyl-1,4-dihydronaphthalene, 8372*a*
——— and Craig, P. N. Steric effect of methylene groups (III), 208*d*
———, Liggett, R. W., and Searles, S., Jr. Grignard cleavage of allylic esters (IV) steric hindrance in the Grignard reagent, 1351*d*
——— Morgan, ——— Reactions of Ag salts carboxylic ids with halogen, 1719*d*
———, Parham, W. E., and Dodson, R. M. Rearrangement of allyl 9-fluorenecarboxylate, 7168*a*
——— and Richter, J. Steric effect of methylene groups (IV), 616*g*
——— and Searles, S., Jr. Rearrangement of allylic esters, 5768*i*; mechanism of Grignard cleavage of allylic esters, 9051*d*
**Arnold, R. T. D.** See Marshall, S. P.
**Arnold, W.** See Langsdorf, A. S., Jr.
**Arnold, Z.** See Šorm, F.
**Arnon, D. I.** Cu enzymes in isolated chloroplasts—polyphenoloxidase in *Beta vulgaris*, 2287*b*
——— and Whatley, F. R. Factors influencing O production by illuminated chloroplast fragments, 9168*b*.
**Arnott, D. G.**, Emery, E. W., Fraser, R., and Hobson, Q. J. G. Urinary excretion of radioactive I as a diagnostic aid in thyroid disease, 9227*g*
**Arnous, E.**, and Massignon, D. Kinetic theory of liquids, 7282*i*.
**Arnow, L. E.** Physiol. and Pathol. Chemistry (book), 2656*b*.
——— and Reitz, H. C. Introduction to Org. and Biol. Chemistry (book), 3435*d*.
**Arnst, A.** Pulp waste, 2771*d*
**Arnstein, H. R. V.** See Huang, H. T.
———, Tarbell, D. S., Scott, G. P., and Huang, H. T. Structure of colchicine—structure of ring C, 8376*b*.
**Arntzen, C. E.**, and Rowley, R. D. Silicone rubber materials, 9516*f*.
**Arnulfo, M.** See Ciferri, F.
**Aron, E.**, and Herschberg, A. D. Anaphylactic shock and serum cholinesterase, 4761*b*
**Aron, Ya. B.**, and Frenkel, Ya. I. Stability of multimol. films (I) surface pressure of oil multilayers, 1240*g*.
——— and Pavlova, M. V. Capillary effects in drops, 1239*b*.
**Arond, L.** See Alfrey, T., Jr.
**Aronina, Yu. N.** Solubilities of oxidation products of the Ursols, 6419*d*; spectrophotometric studies of the products of oxidation of the Ursols, 6419*d*.
**Aronovsky, S. I.**, and Lathrop, E. C. Mechanochem. process for pulping agricultural residues, 4463*f*.
**Arons, A. B.**, Cole, R. H., Kennedy, W. D., and Wilson, E. B., Jr. Tourmaline gages for piezoelec. measurement of explosion phenomena, 4467*b*.
**Aronson, D.** Concn. of salts having min. solubilities at temps. above those of the initial solns., P 2824*g*.
**Arora, R. B.** Excretion of nicotinic acid in normal healthy human beings, 8510*f*.
**Arpesella, L.** See Pratesi, P.
**Arreguin, B.** See Bonner, J.
**Arreguine, V.** Color reaction of the ephedrines, 1529*c*.
**Arribas, A. S. M.** See San Miguel Arribas, A.
**Arrieta Aupart, D.** See Fierro del Rfo, L.
**Arrigoni, L.** See Anderson, A. J., McCutcheon, R. S.; Verhulst, H. L.
**Arrillaga, J. G.** See Guiscafré-Arrillaga, J.
**Arrol, W. J.** Tracers in biochem. investigations, 2861*h*; radioactive tracer methods, 6071*f*; see Glascock, R.
——— and Glascock, R. Microsynthesis of $C^{14}$-labeled ethyl iodide, 37*h*; conversion of $CO_2$ into $C_2H_5$ on the scale of 2-20 micromoles, 1713*g*.
**Arroyo, R.** Simultaneous production of light and heavy rums from the same beer using the same distn. equipment and technique, 814*h*; rum distillery yields and efficiency, 1146*i*, 7636*h*; Arroyo fermentation process for alc. and light rum from blackstrap molasses, 3141*b*, rum distn., 6780*f*.
**Arsdel, P. M. van.** See Van Arsdel, P. M.
**Arsdel, W. B. van.** See Van Arsdel, W. B.
**Arsdell, W. J. van.** See Van Arsdell, W. J.
**Arsem, K. B.** See Dervoort, G. van.
**Arsem, W. C.** Active halogen compds., P 7517*c*.
**Arsen'eva-Geil, A. N.** External photoelec. effect in semiconductors, 482*d*.
**Arsenjewa-Heil, A. N.** See Arsen'eva-Geil, A. N.
**Arshavskiĭ, I. A.** Physiol. mechanism of regenerative functions in ontogenesis, 8509*c*.
**Artamonov, B. P.** State Inst. of Applied Chemistry, 3670*h*.
**Artamonov, N. S.** See Kryuchkov, N. I.
**Artamonov, V. S.** Enamels for railroad signaling equipment, 3585*f*.
**Arteaga y Ortega, J.** Increase and improvement of the production of rice, 4803*b*.
**Artemov, I. S.** Influence of surface-active substances on the coagulation of aerosols, 2068*d*; high-grade distn. of liquids, 4053*i*, condensation of aerosols in the presence of foreign gaseous substances, 7290*a*.
**Artemova, V. S.** See Sadov, F. I.
**Artemow, I. S.** See Artemov, I. S.
**Artemowa, W. S.** See Artemova, V. S.
**Arth, G. E.** See Harris, S. A.
**Arthur, J. C., Jr.** See Cheng, F. W.
——— and Cheng, F. W. Peanut protein for window-shade sizes, 7233*f*.
———, Crovetto, A. J., Molaison, L. J., Guilbeau, W. F., and Altschul, A. M. Pilot-plant manuf. of peanut protein, 784*g*.
———, Karon, M. L., Pomes, A. F., and Altschul, A. M. Artificial fiber from proteins contained in cottonseed, P 4021*e*.
**Arthur, J. R.**, Bangham, D. H., and Thring, M. W. Combustion in fuel beds, 3592*b*
——— and Bowring, J. R. Combustion of C—inhibition of secondary reactions by volatile reagents added to the oxidizing gas 9417*a*.
**Arthur, M. A.** Evaluation of protective coatings as moisture barriers, 8577*h*.
**Arthur, P., Jr.**, and Raasch, M. S. Polymers from nitropolyhydroxy alcs. and polyamines, P 8209*e*.
**Arthur, T. J. B.**, and Imperial Chemical Industries Ltd. Phenol-$CH_2O$ condensation resins, P 1606*b*.
**Artis, W. G.** See Bawden, R. F.
**Artmann, K.** Theory of the Kikuchi envelopes (I) intuitive theory without aid of the reciprocity principle, (II) general theory based on the reciprocity principle, 6072*i*, (III) periodic potential field, 8843*a*; (IV) case of triply periodic potential field, 6073*b*; theory of Kikuchi bands, 6073*b*.
**Artmann, P.** See Hanofsky, K.
**Artom, C.** See Cornatzer, W. E.
——— and Cornatzer, W. E. Action of ethanolamine, methylethanolamine, and

Milan, J. W. Detg. edema fluid protein, 5442a.
**Ault, W. B.** Detn. of the apparent d. of dry powders, 3265a.
**Ault, W. C.** See Stirton, A. J.; Swern, D.
——— and Schaeffer, R. B. Rubberlike product from org. hydroxy acids, P 2026i.
**Aumaréchal, J.** Treating lanolins, P 8180g.
**Aumeras, M.**, and Minangoy, R. Monotropy of monochloroacetic acid, its polymorphic varieties, and its equil. diagram with water, 3274d.
**Aunis, G.** See Muraour, H.
**Aunis, M.** External antiseptics in general use in the U. S., 5533c; tincture of I and other antiseptics, 6303f.
**Aupart, D. A.** See Arrieta Aupart, D.
**Auricchio, G.** See Baccari, V.
**Aurilio, J. M.**, and Schecter, J. H. Flotation app. adapted to sepn. of coke and cinder, P 1172b.
**Aurora aethergyár és vegyészeti R.T.** Plant insecticide, P 1525b.
**Aussum, P.** Vorschriften und Regeln der Technik fur Druckgefässe (book), 5648g.
**Aust, K. T.**, and Pidgeon, L. M. Soly. of Ti in liquid Mg, 7882b.
**Austen, A. E. W.**, and Pelzer, H. Elec. strength of paraffins and some high polymers, 2480c.
**Austerweil, G.** Detn. of the efficiency of ion exchangers, 1881d; anion exchangers in the industrialization of processes of sugar-juice purification by ion exchange, 6443h.
**Austin, A. E.** See Schwartz, C. M.
**Austin, C. R.** Use of Te in promoting chills on gray iron castings, 6554f.
**Austin, D. E.** See Ricketts, H. P.
**Austin, E.** See Tolansky, S.
**Austin, F. B.** Eliminating porosity in bronzes, P 5729e.
**Austin, G. T.** Chem. engineer's job, 1881b.
**Austin, H. R.** See Smith, E. S. C.
**Austin, J. B.** Horizons in metallurgy, 6131f.
**Austin, L. W.**, and Rhodes, D. Sorel cement, P 4828c.
**Austin, P. R.** Halogenated fluoroalkanes, P 661c.
**Austin, R. G.** Aids to Phys. Chemistry (book), 4940c.
**Austrian, R.**, and MacLeod, C. M. Type-specific protein from pneumococcus, 5085h; acquisition of M protein by pneumococci through transformation reactions 5086b.
**Austt, E. G.** See Garcia Austt, E.
**Auten, R. W.** Urea resins contg. amino alkoxy substituents, P 6464f.
**Auterhoff, H.**, and Seelkopf, K. Cantharidin drug, 5547i.
**Autio, L.**, Eränkö, O., and Jalavisto, E. Vasomotor reactions in Valsalva's expt.—effect of smoking, 6738c.
**Autret, M.** Nutrition in Indo-China, 7563h.
**Avakian, S.** *p*-(Dialkyl-1-pyrryl)benzoates, P 690g; benzoic acid derivs., P 3461c, see Martin, G. J.
——— and Martin, G. J. *N*-[4-(4-Quinazolylamino)benzoyl]glutamic acid, P 1914b.
———, Moss, J. N., and Martin, G. J. Synthesis and microbiol. properties of β-2-benzothienyl-α-aminopropionic acid, 631h.
**Avakyan, S. V.**, and Lashko, N. F. Eutectic alloys (I), 6136c; (II) eutectic crystn in the presence of surface-active substances, 7315f; (III) modifying binary eutectics, 8832d.
**Avallone, S. C.**, Harris, A. W., and Whiting, E. J. Bath for Cu coating ferrous metal, P 6564g.
**Avanzi, M. G.** See D'Amato, F.
**Avdievich, N. M.** See Imshenetskii, A. A.
**Avens, A. W.** See Taschenberg, E. F.
**Averbach, B. L.** Effect of plastic deformation on solid reactions (I) diffusion reaction, 7394e; recovery and recrystn. in brass, 9013h.
———, Castleman, L. S., and Cohen, M. Measurement of retained austenite in C steels, 8331e.
———, Kulin, S. A., and Cohen, M. Effect of plastic deformation on solid reactions (II) effect of applied stress and strain on the martensite reaction, 7394e.
——— and Warren, B. E. X-ray patterns of cold-worked metal, 9001f.
**Averbukh, B. D.** See Chufarov, G. I.
——— and Chufarov, G. I. Kinetics of reduction and dissocn. of $Ag_2O$, 4086a.
**Averbukh, M. M.**, Erina, I. I., and Strel'tsov, I. G. Detn. of Si in malleable and gray cast irons and steels, 967g.
**Averbukh, Ya. D.**, and Shabalin, K. N. Retention of dust particles on the surface on which they settle during gas purification, 3666d.
**Averill, C. V.** See Jenkins, O. P.
**Averitt, P.** Work of the U. S. Geol. Survey on coal and coal reserves, 6547i.
**Aversa, T.** Cu content of serum in kala azar, 3923f, see Crosca, A.
——— and Crosca, A. Hemoglobin metabolism in healthy children, 2691d.
**Avery, G. S., Jr.** See Kelly, S.
**Avery, H. S.** Heat-resistant alloys, P 4210h.
——— Austenitic Mn Steel (book), 7890f.
——— and Matthews, N. A. Cast heat-resistant alloys of the 16% Cr 35% Ni type, 8337a.
**Avery, R.**, and Adams, E. N., II. Exchange moments of $H^3$ and $He^3$, 4561h.
——— and Sachs, R. G. Magnetic moments of $H^3$ and $He^3$, 911c.
**Avery, R. C.** See Woody, E., Jr.
**Avgustinik, A. I.**, and Mchedlov-Petrosyan, O. P. Kinetics of the reaction between $BaSO_4$ and $Al_2O_3$, 6804g.
——— and Vigdergauz, V. S. Properties of talc during heating, 5911i.
**d'Avice, R.** Oliver Campbell mud filter in South Africa, 887i.
**Avignon, P.** See Haissinsky, M.
**Avramenko, G. D.** Vacuum pan feed line, 6146c.
**Avramenko, L. I.** Prepn. of at. O in a discharge in water vapor and some of its reactions, 8823d.
———, Ioffe, I. I., and Lorentso, R. V. Reaction of O atoms with $C_2H_4$, 7922g.
——— and Lorentso, R. V. Reactions between free hydroxyl and hydrocarbons, 8820h.
**Avrett, J. R.** See Irelan, B.
**Awad, W. I.** See Moubasher, R.; Schonberg, A.
**Awapara, J.** Estn. of free amino acids in tissues, 6685b, 8127d, see Landua, A. J.
——— and Marvin, H. N. Relative absorption of intravenously immustered amino acids by the liver, kidney, and muscle 5845b.
Marvin, H. N., and Wells, B. B. Quant. relation between certain amino acids and glyc genesis as influenced by adrenalectomy and adrenal replacement, 8544b.
**Awe, W.** Detn. of the adherence no. as criterion of very finely powd. pharmaceuticals, 816g; calabash curare, 1155c, synthesis of vitamin A, 3079f; bivalent S in org. medicaments, 3974c, see Kunert, G.
**Awerzger, A.**, and Angel, F. Magnesite deposits of the Millstatter Alps at Radentheim, Carinthia, 8319b.
**Awgoustinik, A. I.** See Avgustinik, A. I.
**Awny, A. J.** See Schell, G. J.
**Axe, E. J.** Paperboard mill white-water treatment, 4796c.
**Axe, W. N.** Normal alkenyl and normal alkyl derivs. of aromatic hydrocarbons, P 7507f; see Wagner, C. R.
**Axelrad, B. A.** See Fitzhugh, R. R.
**Axelrad, I.**, and Fromm, M. M. Electromech. tester evaluates ballbearing greases, 9425b.
**Axelrod, A. E.** See Hofmann, K.; McCoy, R. H.; McIlroy, A. P.
——— and Hofmann, K. Oxybiotin derivs. as biotin and oxybiotin antagonists, 9149b.
———, Hofmann, K., Purvis, S. E., and Mayhall, M. Action of biotin, 1833e.
———, Mitz, M., and Hofmann, K. Chem. nature of fat-sol. materials with biotin activity in human plasma—lipide stimulation of microbial growth, 2651g.
———, Purvis, S. E., and Hofmann, K. Application of structural analogs to enzyme studies (I) biotin analogs, 2244g.
**Axelrod, B.** Phosphotransferase activity by use of radioactive P, 1819i.
**Axelrod, D. J.** See Scott, K. G.
**Axelrod, H. E.** See Tidwell, H. C.
**Axelrod, J.** See Brodie, B. B.; Soberman, R.
———, Cooper, J. R., and Brodie, B. B. Estn. of dicoumarol in biol. fluids, 5038a.
**Axford, D. W. E.** See Andrew, E. R.; Rank, D. H.
——— and Norrish, R. G. W. Oxidation of gaseous HCHO, 4085d.
——— and Rank, D. H. Infrared absorption spectrum of *n*-butane in the solid state, 7842c.
———, Sawyer, K. F., and Sugden, T. M. Hygroscopic aerosols, 4076e.
**Axford, L.** Improving the tensile strength of gray cotton yarn, P 6429d.
**Axon, A.** Sterile cream bases using bentonite, 2307g.
**Axon, H. J.** Systematization of certain binary metallic equil. diagrams, 3759b, see Little, K.
——— and Hume-Rothery, W. Lattice spacings of solid solns. of different elements in Al, 3684g.
**Axtell, W. G.** Electropolishing brass, 6523b.
**Ayerbe, F. R.** See Velasco, J. R.
**Ayers, A. L.**, and Dooley, J. J. Lab. extn. of cottonseed with various petroleum hydrocarbons, 423g.
**Ayers, J. C.** See Ketchum, B. H.
**Ayerst, McKenna & Harrison, Ltd.** Streptomycin and grisein, P 4431c; estrogenic compds., P 5158d.
**Aykut, R.** Effect of pentobarbital Na on blood-clotting time, 7144d.
**Ayme, R. D.** See Durande-Ayme, R.
**Aynard, R.**, and Herman, L. Emission of Na vapor dild. in an atm. of Xe, 5304g.
**Ayres, E.**, Montgomery, C. W., and Hirsch, J. H. Fischer-Tropsch process, 1550c, 2401g.
**Ayres, G. H.** Evaluation of accuracy in photometric analysis, 7367c.
——— and Glanville, B. V. Spectrophotometric detn. of Co as Co (II) chloride in EtOH, 8959h.
**Ayres, J. A.** See Newton, A. S.
**Azbe, V. J.** Hot-zone gas recirculation, 3590b; rock wool, 4790d; vertical lime kiln performance, 5554g, vertical lime kiln for small stone, P 7200h.
**Azbe Corp.** Vertical lime kiln for small stone, P 7200h.
**Azcona, J. M. L. de.** See Lopez de Azcona, J. M.
**Azerbaev, I. N.** See Nazarov, I. N.
**Azevedo, L. H. P.** See Paiva Azevedo, L. H.
**Azevedo, M. D. de.** See Deodata de Azevedo, M.
**Arienda Nazionale Idrogenazione Combustibili A.N.I.C.** Emulsionability of bitumens, P 4846f, removal of paraffin from its oxidation products, P 8667a.
**Azimov, S. A.** Measurement of the hard and soft components of cosmic radiation with the aid of a circular counter arrangement, 3705g.
———, Veksler, V. I., Dobrotin, N. A., Zhdanov, G. B., and Lyubimov, A. L. Measurements of cosmic-ray intensities, 5283b.
———, Veksler, V. I., Zhdanov, G. B., and Lyubimov, A. L. Measurement of the intensity of cosmic rays at 3860 and 5000 m. above sea level, 5283c.
**Aziz, D.** See McLaughlin, R. R.
**Aziz, P. M.** See Sugyatt, R. M.
**Aziz Sharaf, A. El.** See Sharaf, A. El A.
**Aznárez, J. I.** See Ibarz Aznárez, J.
**Aznar Reig, A.**, and Candau Herrero, P. Intestinal absorption of Ca (II) behavior of blood Ca after oral and intravenous administration of Ca, 737i.
———, Gonzalez Alvarez, J., and Valladolid del Val, A. Intestinal absorption of Ca (III) fecal and urinary elimination after oral administration, (IV) influence of the Ca-P ratio on absorption, (V) Ca absorption with different combinations of salts, 7556h.
———, Rodriguez Gallego, S., and Caballero Pastor, L. Intestinal absorption of Ca (VI) absorption of other salts of Ca and the effect of dehydrocholic acid, 7557a.
**Azorlosa, J. L.** Resin acid soaps in GR-S polymerization, 8724h.
**Azou, P.** See Bastien, P.
**Azzi, G.** Biologia agricola (book), 3867i.

**Baab, K. A.**, and Kraner, H. M. Detg. Young's modulus of elasticity, 829g, abrasion resistance of various refractories, 830a.
**Baan, I. van der.** Powd. rubber in asphalt roads, 5984g.
**Baan, J. C.** See Bender, T. O. D.
**Baart, M.** See Nellensteyn, F. J.
**Baba, A.** Treatment of coal with solvent (I) extn. of coal by solvents at comparatively high temp., 1942c.
**Baba, G.** See Shinoyama, H.
**Baba, M.**, and Mizokami, K. Prepn. for controlling stomach acids, P 5552e.
**Babadzhanov, S. N.** See Kuzin, A. M.
**Babaev, M. V.** Cr detn. in ferrochrome without $AgNO_3$, 965c; detn. of Si in ferrosilicon, 967i, app. for C detn., 4054f;

detn. of moisture and Mo in unignited Moore concentrates, 5333*a*.

**Babaeva, A. V.** Absorption spectra of isomeric diammines of quadrivalent Pt, 5664*h*.

——— and Lapir, E. S. Ultraviolet absorption spectra of geometric isomers of complex compds. of bivalent Pt and Pd, 4953*h*.

——— and Mosyagina, M. A. Ultraviolet absorption spectra of solns of complex oxalates of bivalent metals, 4954*e*.

**Babaewa, Babajewa.** See Babaeva, A. V.

**Babak, S. F.** See Udovenko, V. V.

**Babak, V. K.** Joint flotation of sulfidic and oxidic Pb minerals, 1693*f*.

**Babbitt, H. E.**, and Doland, J. J. Water Supply Engineering (book), 4406*f*

**Babcock, A. B.** Revivification of bone char, 8650*b*; see Bastone, H. J.

**Babcock, C. J.**, Stabile, J. N., Windham, E. S., and Randall, R. Frozen homogenized milk (VI) use of stabilizers, 3942*h*.

———, Windham, E. S., and Randall, R. Frozen homogenized milk (VII) effect of agitation during freezing on the keeping quality, 9281*a*.

**Babcock, D. E.** See Grant, J. A.

**Babcock, D. F.** Fractionation of mixts. of di- and triethylamine, P 3837*b*.

**Babcock, H. D.**, and Herzberg, L. Fine structure of the red system of atm. O bands, 939*g*.

**Babcock, H. W.** Magnetic intensification of absorption lines, 1263*f*; magnetic field of γ-Equulei, 1263*g*, test for a magnetic field in the white dwarf 40 Eridani B, 1651*i*.

**Babcock, M. J.** Vacuum distn. app. for microquantities, 6005*g*.

**Babcock & Wilcox Co.** Spray towers for concg. pulp residual liquor, P 4406*i*, mineral wool, P 5566*f*.

**Babel, F. J.** Acid production by cheese cultures, 1497*b*.

**Babers, F. H.** Insect resistance to insecticides, 7181*g*.

**Babey, C.**, Thommen, W., and Stocker, L. Textile printing compns., P 2143*b*.

**Babibbo, B.**, and Godley, L. F. Applications of pharmaceutical preservatives, 3143*i*.

**Babich, L. B.** See Lipatov, S. M.

**Babich, S. Kh.** Electrodialysis as a method for isolation of alkaloids from plant raw materials and other sources, 3975*c*.

——— and Karabasheva, I. N. Prepns. made from tea-dust, 5535*b*.

**Babienco, A. T.** Methenamine-HCl vit. amin B prepn., P 5157*b*.

**Babin, G.** Influence of method of salting on the quality and yield of salted meats, 6751*b*.

——— and Pavlov, F. Influence of method of processing by-products on their quality, 5220*f*.

**Babintsev, N. G.** See Chekanovskii, M. I.

**Babitsch.** See Babich.

**Babkin, B. P.**, and Karp, D. Effect of quinine and atebrin on gastric secretion, 5491*i*.

**Babkin, M. P.** Oxidizability of sulfides, 5700*i*.

**Babko, A. K.** Complex formation in the ternary system—cupric ion, pyridine, salicylate in soln., 2536*i*, influence of the H ion concn. on colored complexes, 3306*h*, influence of foreign ions on detn. of metals, 4174*c*; concn. dependence of the compn. of complex groups in soln., 4542*i*, reaction of Ni ion with dimethylglyoxime in the presence of oxidizers, 8935*c*.

——— and Pilipenko, A. T. Use of dithizone in analysis (I) acid properties of dithizone, (II) instability consts. of Zn, Cd, and Pb dithizonates, 5344*d*.

——— and Rychkova, T. N. Salicylate complexes of Al, 2536*c*.

——— and Vasil'eva, E. V. Pinacyanol complexes with Hg—analytical use of cyanin dye complexes of metals, 5602*d*.

**Bablik, H.** Influence of Ti and N on the galvanizing properties of Fe sheets, 3336*c*.

———, Götzl, F., and Kukaczka, R. Effect of Ti in Fe for hot galvanizing, 6956*f*; N content of Fe in hot galvanizing, 6957*a*.

**Babskii, E. B.**, and Minaev, P. F. Influence of thiamine and its phosphorylated derivs. on the sensitivity of muscle to acetylcholine, 291*f*.

**Babson, R. D.** Alkyl acyloxyacrylates, P 3448*i*; substituted propionic acids, P 7038*g*.

**Babudieri, B.** Antimicrobial action of various antibiotics studied with the electron microscope, 4339*g*.

**Babushkin, S. A.**, and Druyan-Rempel, E. A. Detn. of C, H, and the heat of combustion of org. substances, 7374*e*.

**Baccaredda, A.** Effect of vitamins on the complement content and hemolytic power of serum—effect of large doses of vitamin $D_2$ and vitamin $H_1$, 6294*c*.

**Baccaredda, M.** Velocity of ultrasonic waves in aq. solns. of HCHO, 4543*g*, phenomena of poisoning in heterogeneous catalysis, 6498*b*; ultrasonic velocities in *cis*- and *trans*-decalin, 6879*b*, see Natta, G.

**Baccari, V.** Activation of phosphatases by carbohydrate loading, 9098*a*.

——— and Auricchio, G. Activation of phosphatase as a result of lack of glucides, 3856*c*.

**Baccarini, V.**, Businco, L., and Cappucci, B. Normal Br in blood of man, 6684*g*.

**Bacco, G. di.** See Di Bacco, G.

**Bach, E.** HCN formation in mushrooms, 3194*f*.

**Bach, I.**, and Neufeld, L. Effect of insulin-free pancreatic exts. on the liver glycogen of rabbits intoxicated with thyroxine, 9200*a*.

**Bach, N. B.** Clarification and sedimentation app., P 6611*a*.

**Bach, P. de.** See De Bach, P.

**Bach, R. O.** Inorg. chromatography (I) estn. of small quantities of cupric ion, (II) estn. of small amts. of Cd ion in the presence of Zn and Cu ions, 7859*e*.

**Bach, S. J.**, and Lasmitzki, I. Arginine and arginase in mouse carcinoma, 2306*i*.

**Bache, H. J.** Efco-Udylite bright Ni-plating solns., 8900*d*.

**Bachelder, M. C.** See Cox, E. M.

**Bacher, F. A.** See Trenner, N. R.

**Bacher, J.** Complex spectra of diat. Mn halides, 1261*c*.

**Bachinski, W. M.** See Allmark, M. G.

**Bachman, C. H.** See Johnson, W. F.

**Bachman, D. M.** See Bunnett, J. F.

**Bachman, G. B.** See McGee, E. T.

——— and Barker, R. S. Derivs. of the pyridoquinolines, 3826*h*.

———, Hass, H. B., and Kahler, E. J. Emulsion polymerizations at low temps.—isobutylene and isobutylene butadiene mixts., 2019*d*.

——— and Heisey, L. V. Monomers and polymers (IV) vinylthiophenes, 2166*f*, (VI) prepn. of vinyl derivs. of five-atom heterocyclic rings, 7018*d*.

——— and Mienert, D. D. Monomers and polymers (V) vinylpyridines and vinylquinolines, 2170*b*.

**Bachmann, G.** Identification of alkaloids, 5535*b*, detn. of MeOH in EtOH, 6541*h*.

**Bachmann, P.** See Naves, Y. R.

**Bachmann, R. C.** See Teeter, H. M.

**Bachmann, W. E.**, and Brockway, C. E. Dissocn. rates of 1,1,1,2-tetraphenyl-2-arylethanes contg. tetralyl, naphthyl, fluoryl, and tetrahydrophenanthryl groups, 1941*f*.

———, Carlson, E., Jr., and Moran, J. C. Effect of halogen atoms and of alkyl groups on the rates of dissocn. of pentaarylethanes, 2607*e*.

———, Chemerda, J. M., Deno, N. C., and Horning, E. C. Oxynitration of benzene to 2,4-dinitrophenol, 179*f*.

——— and Ramirez, F. Lactams of *cis*- and *trans*-1 (aminomethyl)-2-carbomethoxy-2-methyl-1,2,3,4-tetrahydrophenanthrene, 7014*a*.

——— and Sheehan, J. C. Prepg. the high explosive RDX, 8137*d*.

**Bachmeyer, C.** See Macovski, E.

**Bachofer, C. S.** Histological responses of bean plants to α-naphthylmethyl acetate, 729*g*.

**Bachrach, J.** See Whistler, R. L.

**Bachstez, M.** Mexican drugs, plants, and foods (IX) hibiscic acid, 7644*c*.

**Bachvalov, G. T.** See Bakhvalov, G. T.

**Bacila, M.**, and Alcaide, J. A. Characteristic reaction and colorimetric detn. of barbiturates, 7639*h*.

**Back, I.** See Hanil Szintétikus Vegyi Termékek Kft.

**Backer, H. J.** Properties of the sulfonyl group (III) oxidation of tetramethyl tetrathioörthocarbonate, 6995*h*.

———, Dost, N., and Knotnerus, J. Properties of the sulfonyl group (IV) addn. of diazomethane to unsatd. cyclic sulfones, 5777*e*.

——— and Jong, G. J. de. Properties of the sulfon[illegible] benzyl sulfone into propenyl benzyl sulfone, 6995*d*.

——— and Moed, H. D. Intramol. rearrangement of arylsulfonylguanidines, 600*i*.

———, Stevens, W., and Dost, N. Properties of the sulfonyl group (I) bromination of allyl sulfones, 558*h*.

——— and Strating, J. Use of $SO_2$ as a cyclization agent in org. synthesis, 1309*b*.

——— and Wanmaker, W. L. Reaction between $Et_3$ orthoformate and aromatic primary amines, 5757*g*.

**Backer, S.** Relation between the structural geometry of a textile fabric and its phys. properties (I) literature review, 1193*a*.

**Backès, M.** Action of $NH_3$ on dichloroacetamide, 3781*i*.

**Backhausen, M.** See Brintzinger, H.

**Backhouse, W. F.** Are the claims for rutile Ti justified? 4023*j*, building a chem. factory, 6759*g*.

**Backhurst, I.** At heat of molten metals, 7880*e*.

**Backmeyer, D. P.** Disposal of cheese whey by digestion, 3125*c*; effect of whey on the operation of an activated sludge plant, 4795*i*, digester design improvements, 7168*e*.

**Backus, H.** See Lott, F. S.

**Backus, R. C.** See Lensen, S. G.; Williams, R. C.

**Baclesse, M.** See Colonge, R. A.

**Bacon, A.** See Davis, H. C.

**Bacon, C. E.** Molding materials, P 9528*h*.

**Bacon, C. G.** Radioactive tracers in corrosion studies, 4620*e*.

**Bacon, C. H.** Testing of silica bricks for service in open-hearth furnace roofs, 2389*a*.

**Bacon, E. K.** See Lassen, S.

**Bacon, F. E.** See Kroll, W. J.

**Bacon, G. E.** Detn. of the unit cell dimensions of noncubic substances, 3709*f*.

——— and Lowde, R. D. Secondary extinction and neutron crystallography, 3260*c*.

**Bacon, J. C.** Fluoroacetamide, P 351*c*; see Norris, W. C.

**Bacon, L. R.** See Tremain, H. E.; Wegst, W. F.

**Bacon, O. C.**, and Smith, J. E. Detergent action—mech. work as a measure of efficiency of surface-active agents in removing soil, 2002*i*.

**Bacon, R. G. R.**, Jarrett, S. G., Morgan, L. B., and Imperial Chemical Industries Ltd. Polymeric materials, P 6866*e*.

———, Lewis, J. R., Morgan, L. B., and Imperial Chemical Industries Ltd. Polymeric materials, P 6866*d*.

———, Morgan, L. B., Whalley, W. B., and Imperial Chemical Industries Ltd. Polymerization of vinyl chloride, P 901*f*.

———, Taylor, H., and Wood, L. Aq. polyvinyl chloride–polystyrene dispersions, P 2037*f*.

**Bacq, Z. M.** War poisons—peace remedies, 3974*d*, physiol. action of adrenaline oxidation products, 4750*a*; metabolism of adrenaline, 5866*f*; see Lecomte, J.

———, Charlier, R., and Philippot, E. Mustard gas and respiratory exchange, 4374*f*.

———, Charlier, R., Philippot, E., and Fischer, P. NaSCN and cardiac output, 4374*f*.

———, Firket, J., and Herve, A. Derivs. of yperite in therapy, 1529*f*.

———, Fischer, P., and Lecomte, J. Stabilizing effect of BAL on adrenaline solns., 3143*i*.

———, Lecomte, J., and Fischer, P. Stabilizer for adrenaline in aq. soln., 3563*b*.

**Badaeva, T. A.** Mol. formations in ternary primary solid solns. of Al, 4534*h*.

**Badami, G. N.** See Ghosh, J. C.

**Badarcu, E.**, and Brătescu, G. G. Detn. of Townsend coeffs. in Hg vapor, 6906*e*.

**Badayeva, T. A.** See Badaeva, T. A.

**Baddar, F. G.** 2-Methoxy-*meso*-benzanthrone, 209*i*.

——— and Assal, L. S. El. Phenylpropiolic acids (II) dimerization of *p*-nitro- and *p*-methoxyphenylpropiolic acid, 606*c*.

———, Assal, L. S. El., and Gindy, M. 1-Phenylnaphthalenes (I) synthesis of 2',5-dimethoxy-1-phenyl-, 4',7-dimethoxy-1-phenyl-, and 1-*p*-tolyl-7-methyl-2,3-naphthalenedicarboxylic acids, 615*c*.

——— and Gindy, M. 3,4-Benzofluorenones (II) further observations on the effect of groups on their fission with alkali, 3396*a*.

———, Hilal, O. M. M., and Sugden, S. Detn. of magnetic susceptibility by the Gouy method, 6479*f*.

**Baddeley, A. R. W.**, Nissan, A. H., and

Garner, F. H. Detergency of C black in hydrocarbon soln. (I), 5933*d*.
**Baddeley, G.** Acylation of naphthalene, 8371*b*; alkylation of acetophenone and phenyl cyanide, 8367*e*; see Refiners Ltd.
———, Holt, G., and Kenner, J. Rearrangement of acyldiazoethanes, 6992*e*
**Baddiley, J.**, Ehrensvärd, G., and Nilsson, H. Synthesis of alanine labeled with heavy carbon in the α-position, 5004*h*
———, Michelson, A. M., and Todd, A. R. Nucleotides (II) synthesis of adenosine triphosphate, 9040*b*.
**Bade, O.** See Klem, G. G.
**Bader, A. R.** Os tetroxide oxidation of some long-chain unsatd. acids, 1319*d*.
**Bader, H.** Degrees of freedom of simple symmetry operations, 8762*e*
———, Cross, L. C., Heilbron, I. M., and Jones, E. R. H. Acetylenic compds. (XVIII) addn. of thiolacetic acid to acetylenic hydrocarbons—conversion of monosubstituted acetylenes into aldehydes and 1,2-dithiols, 7417*e*.
**Bader, R.**, Dupré, D. J., and Schutz, F. Prepn. of pure NaCNO from urea, 3792*b*.
**Badescu, A.** Methylene blue, a stimulant of uterine contraction, 1106*f*.
**Badger, D. C.** Toxic level of F in water supplies, 8045*d*.
**Badger, G. M.** Polycyclic aromatic amines, 2985*f*, modified synthesis of chrysene, 3402*e*; relative reactivities of aromatic double bonds, 8374*h*.
———, Carruthers, W., Cook, J. W., and Schoental, R. Isomerization reactions (I), 7013*c*.
———, Cook, J. W., and Walker, T. Synthesis of piperidine derivs. (II) aryldecahydroquinolines, 3418*c*.
**Badger, R. M.** See Blaker, R. H., Brooks, M. C.; Giguère, P. A.
———, Zumwalt, L. R., and Giguère, P. A. Vacuum spectrograph for the infrared, 2513*c*.
**Badger, W. L.**, and Lindsay, R. A. Evapn., 1227*h*.
**Badgley, W. J.**, and Mark, H. Osmometry and viscosity of polymer solns., 5003*a*.
**Badia, W.** See Croxatto, H.
**Badin, E. J.** Hydrocarbon oxidation initiated by at. H, 1309*c*, reaction between at. H and mol. O at low pressures, 2079*a*.
———, Stuart, J. G., and Pease, R. N. Burning velocities of 1,3-butadiene with N-O and He-O mixts., 5268*d*.
**Badinez, O.**, and Croxatto, H. Effect of KCl and NaCl on the wt. of rat adrenals—histological changes in the adrenal cortex caused by administration of KCl or NaCl, 2330*g*.
**Bading, W.** Production of low-N steel 7389*b*
**Badoche, M.** See Delepine, M.
**Badollet, M. S.** Asbestos fibers., 1125*d*
**Badran, N.** See Fahmy, I. R.
**Badrick, F. E.** See Reiss, M.
**Baechler, R. H.** Wood-preservative salts, P 7188*e*.
———, *et al.* Preservatives, 2731*a*.
**Bäcklund, B.** See Hellerqvist, G. R.
**Bäckman, A. W.** Citric acid from potato juice, P 6333*f*.
**Baege, H.** See Reichert, B.
**Bähr, G.** Metalloörg. compds., 3780*c*, thermal decompn. and cation exchange of Ag permanganate, 4968*g*.
**Bährner, V.** Resin products as admixt. to concrete, 4827*d*; Vinsol resin and Darex as admixts. to concrete, 4827*e*, sp. gr. and moisture content of sand and aggregate for concrete, 6387*i*.
**Baenziger, N. C.** Detg. x-ray intensities, 1650*g*.
——— and Rundle, R. E. Structure of $TiCl_3$, 3261*f*.
**Baer, B. H.** See Grab, E. G.
**Baer, E.**, and Kates, M. L-α Glycerylphosphorylcholine, 6166*e*
——— and West, T. F. Structure of pyrethrolone and related compds. (VI), 6088*c*.
**Baer, H.** See Kabat, E. A., Woodward, R. B.
**Baer, J. E.**, and Carmack, M. Ultraviolet absorption spectra of aliphatic sulfides and polysulfides, 6511*h*
**Baer, M.** Granular polymers of vinyl halides, P 6002*b*; polymerization of vinyl compds. in an aq. dispersion, P 8742*g*
**Baer, R. L.** See Sulzberger, M. B.
**Baerg, W. J.** Introduction of Applied Entomology (book), 1525*a*
**Baertich, E.**, and Weber, H. J. Fish proteins, 3498*g*.
**Baerts, F.** Undetd. losses in the sugar industry, 6445*b*; sugar-beet culture, 9502*f*.
**Baestle, H.** Baking problems from rye flour, 4302*c*.
**Baetslé, R.** Yeast and bacterial-growth inhibition effect exhibited by humulone and lupulone, 9361*f*.
**Baeyens, J.** Physiol. effect of minor elements in Chilean nitrate, 799*h*; aspects of agricultural chemistry, nitrogenous and phosphatic fertilizers, 4803*d*
**Baeyens, P.** Effect of operating conditions on the throwing power of cyanide Cd-plating solns., 4148*d*
**Baeyertz, M.**, Craig, W. F., Jr., and Bumps, E. S. Metallographic description of fracture in impact specimens of a structural steel, 9009*h*.
———, Craig, W. F., Jr., and Sheehan, J. P. Effects of Mo and com. ranges of P on the toughness of 0.40 % C-Cr steels, 9008*e*.
**Bagapov, I. M.** See Alov, A. A.
**Bagaryatskii, Yu. A.** Orientation of crystals with the aid of a goniometer head, 4917*i*.
——— and Umanskii, M. M. Cameras for x-ray structure analysis of single crystals, 5290*i*.
**Bagchi, P.**, Bergmann, F., and Bannerjee, D. K. Synthesis of 9-hydroxy-*sym*-octahydrophenanthrene, 4251*c*.
**Bagchi, S. N.** Base exchange power of clay minerals, 8232*i*
**Bagdasar'yan, Kh. S.** Photopolymerization of vinyl compds. (III) photopolymerization of methyl acrylate, 1266*a*, photographic development, 7810*i*; mechanism and kinetics of vinyl polymerization, 8201*e*, calcn. of mols. with conjugated bonds, 8885*a*
**Bagdy, D.**, Guba, F., Loránd, L., and Mihályi, E. Reducing properties of fibrinogen—SH groups in clotting, 9096*f*
**Bagger, N. B.** Forgings ferrous and nonferrous, 3329*l*, coloring of metals, 5352*h*; how to select anode materials for cathodic protection against corrosion, 6560*h*
———, and Griffiths, J. H. E. Paramagnetic resonance in $CuSO_4$, 3252*e*.
———, Griffiths, J. H. E., Penrose, R. P., and Plumpton, B. I. Paramagnetic resonance in salts of the Fe group (I) theoretical discussion. (II) exptl. results, 4568*b*.
**Bagguley, D. M. S.**, Bleaney, B., Griffiths, J. H. E., Penrose, R. P., and Plumpton, B. I. Paramagnetic resonance in salts of the Fe group (I) theoretical discussion. (II) exptl. results, 4568*b*.
———, and Griffiths, J. H. E. Paramagnetic resonance in $CuSO_4$, 3252*e*.
**Bagirov, I. T.**, and Mironov, A. T. Extractor for ozocerite, P 5186*b*
**Bagnera, G.** Regeneration of lubricants, P 4845*a*
**Bagot, Y.** Expression and extn. in the oil mill, 6841*g*.
**Bagotskii, V. S.** Theory of concn. polarization at a dropping Hg electrode (II) curves of the concn. polarization of H, 2873*b*
———, and Yablok———, I. E. Kinetics liberation of H at a Hg cathode from buffer solns., 8055*d*
**Bagouri, M. M.** Coronary vasodilator action of the cryst. principles of *Ammi visnaga*, 5542*i*
**Bagrowski, B. P.** Kansas minerals and localities, 6115*b*.
**Bagshawe, B.**, and Dyke, E. Detg. the Sn content of W high speed steel, 6940*e*.
**Bahme, R. B.** Nicotinic acid as a growth factor for certain orchid embryos, 6285*d*.
**Bahner, C. T.** Ethers of primary nitro alkanes, 1716*c*.
**Bai, K. J.** See Menon, V. K. N.
**Bai, M. P.** Chromosomal changes and nutritional requirements of yeasts, 6273*d*.
**Baier, C. H.** See Dunn, E. J., Jr.
**Baiker, L.** See Gfeller, F.
**Baillar, J. C., Jr.** Special features of the stereochemistry of the metal ammines, 4170*b*; see Laitinen, H. A.
**Bailenger, J.** See Pautrizel, R.
**Bailey, A.** Soly. and extn. of lignin, 1962*e*, adsorption chromatography of lignin, 5590*a*
**Bailey, A. E.** Semicontinuous deodorization of fats, 1191*h*.
**Bailey, A. L.**, and Landry, B. A. Coal for float-and-sink tests, 4444*h*.
**Bailey, A. R.** See Whitaker, M. E.
**Bailey, A. S.**, Pickering, G. B., and Smith, J. C. Alkylnaphthalenes (III) butyl-, amyl-, and hexylnaphthalenes, 6188*a*
**Bailey, C.**, Drukey, D. L., and Oppenheimer, F. Magnetic ion source, 5660*i*.
**Bailey, C. C.**, Bailey, O. T., and Leech, R. Alloxan diabetes, 8523*h*
**Bailey, C. W.** See Ball, J. S.
**Bailey, D.** See Hodgson, H. H.
**Bailey, D. L.** See Sommer, L. H.
**Bailey, F. M.** Management and tannin production in N. S. Wales, 5219*f*.
**Bailey, G. C.** See Himel, C. M.
**Bailey, G. F.**, Atkins, M. E., and Bickoff, E. M. Carotene retention in alfalfa meal—effect of moisture content, 9291*e*.
**Bailey, G. L. J.** See Shuttleworth, R.
**Bailey, H. P.**, Nadelman, A. H., and Andrews, E. F. De inking (III) survey of a production system by screen analysis, 847*d*.
**Bailey, J. F.** Texas clay-products plant utilizes modern methods, 3986*e*.
**Bailey, J. H.** See Cavallito, C. J.
**Bailey, J. S.** Controlling quack grass by spraying with Ammate or Atlacide, 1893*a*; control of mummy berry on cultivated blueberries, 5143*g*, see Shaw, F. R.
**Bailey, K.** Tropomyosin—asymmetric protein component of the muscle fibril, 2653*e*.
———, Gutfreund, H., and Ogston, A. G. Mol. wt. of tropomyosin from rabbit muscle, 3086*h*.
**Bailey, L. F.** Leaf oils from Tennessee Valley conifers, 1530*b*.
**Bailey, M.** Crystal structure of diethyl terephthalate, 6485*i*; see Wells, A. F.
**Bailey, O. T.** See Bailey, C. C.
**Bailey, P. Se**, and Kelly, J. T. Reaction of ales. with 1,2 dibenzoylethylene (II), 622*g*.
——— and Nowlin, C. S. 3 (Hydroxymethyl)-4-(morpholinylmethyl)-2,5-diphenyl furan and some derivs., 3406*c*.
——— and Ross, J. H. Synthesis of 1,4-dibenzoyl 1,3-butadiene, 7452*i*
**Bailey, R. V.**, and Coates, J. Fractionation calcns.—min. reflux ratio Colburn correlation, 2758*i*, fractionation calcns.—distribution of split key components (I), 3217*b*, (II), 7215*g*
**Bailey, W. J.** See Cope, A. C.
**Bailey Meter Co.** Gas analyzer, P 3804*h*, magnetically detg. gas content, P 4836*h*
**Baillie, J. C.** Macrospherical silica gels, P 2746*f*, see See, M. J.
**Baillie, J. M.**, and Irving, J. T. Changes in the metaphysis of the long bones during the development of rickets, 4757*d*
**Baillod, P.**, and Boss, G. Org. composts starting from org. waste and the resulting compost, P 9327*b*
**Bailly, R.** Infrared light for mineral detn., 8981*d*.
**Baily, J.** Taste and odor of milk, 5877*b*
**Bain, F. A.**, and Emmerson, H. R. Purification of solvent used in dodecene concn., P 4682*c*
**Bain, H. F.** Alaska's minerals as a base for industry, 2130*e*
**Bain, J. A.**, and Pollock, G. H. Normal and seizure levels of lactate, pyruvate and acid sol. phosphates in the cerebellum and cerebrum, 9202*f*.
———, Pollock, G. H., and Stern, S. N. Lactate, pyruvate, and acid sol. phosphate in monkey brains treated with $CO_2$ and elec. shock, 9202*g*.
**Bain, J. P.** Acid of norpinane series, I, 1807*g*; compds. of the norpinane series, I, 1807*h*.
——— and Best, A. H. Unsatd. alc. from pinene derivs., P 1807*f*.
**Bain, W. A.**, Broadbent, J. L., and Warin, R. P. Comparison of Anthisan and Phenergan as histamine antagonists, 7580*a*.
———, Hellier, F. F., and Warin, R. P. Aspects of the action of histamine antagonists, 5500*f*
**Bainbridge, J. R.**, Scanlan, P. G., and Belyea, I. Detn. of moisture in brown coals, 4445*b*.
**Baines, H.** Photographic latent image 4965*f*.
——— and Clubnall, B. Photographic materials and processes, 4789*d*.
**Bains, G. S.** Effect of com. fertilizers and green manure on yield and nutritive value of wheat (I) nutritive value with respect to total P, phytic P, nonphytic P, and Ca content of the grain, 8084*d*.
**Bair, R. R.**, Benner, H. L., and Walker, J. J. Bright Zn plating, P 50*d*.
**Baird, B. M.** See Gibbs, F. C., Jr.
**Baird, N. C.**, and Manson, R. K. Storage batteries or accumulators, P 3736*a*.
**Baird, W.**, Barr, T., Lowe, A. R., and Imperial Chemical Industries Ltd. Textile-treatment agents, P 4488*i*.
———, Barr, T., Lowe, A., and Oliver, J., and Imperial Chemical Industries Ltd. Chem. compds. that conferred antishrink properties on wool, P 5968*b*.

——, Evans, J. G., Jackson, J. R. F., and Imperial Chemical Industries Ltd. Preservation of textile material or paper, P 856*g*.

——, Gaubert, P., Lowe, A., and Imperial Chemical Industries Ltd. Org. polycarbamates, P 4080*g*.

**Baisset, A.**, Bugnard, L., Grezes-Rueff, F. A., Grezes-Rueff, C., and Planquier. Influence of insulin-induced hypoglucemia on the encephalogram of epileptics, 9224*f*.

**Baity, J. H.** See Russell, Alfred.

**Baizer, M. M.** See Ginsburg, D.

**Bajna, F.** Surface theory of combustion, 9411*d*.

**Bak, B.**, Knudsen, E. S., and Madsen, E. Microwave absorption of some org. vapors, 5310*d*.

**Bakalar, A. B.** Condensation products from ketones and aralkyl compds., P 2036*h*.

**Bakalor, S.** Compn. of South African milk (V) relations between the various constituents of milk, 4782*b*.

**Bakay, L.**, and Lindberg, O. Cerebrospinal fluid in brain metabolism as measured with radioactive phosphate, 8503*h*.

**Bake, L. S.** Self-curing polychloroprene compns., P 1602*a*.

**Bakelite Corp.** (*Patents*) Removing stresses from calendered thermoplastic sheeting, 9016; unsatd. acid esters, 3634*a*, urea- or melamine formaldehyde resin plasticized with polyacrylonitrile, 4049*i*; resin-oil compn., 4050*i*; polyethylene lubricants, 4520*g*; pure methylenediphenols, 4698*e*, etherified phenol-$CH_2O$ resins, 5630*i*; resin-covered wire or cable, 5631*i*; antiblocking agent for plasticized vinyl resins, 5999*a*, phenol-aldehyde amine condensation products, 7755*e*, modified drying oil compns., 9481*d*; phenolic resins, 8208*a*, 8207*h*, sulfonic acid catalyzed oil-sol. phenol aldehyde resins, 9526*d*.

**Bakelite Ltd.** Sized paper, P 1980*f*; phenolic resins, P 4894*a*, polymerization of styrene or of its polymerizable derivs., P 6001*h*, 2,2′-dihydroxydiphenylmethane, P 6666*d*; phenol-aldehyde resins, P 9526*c*.

**Baker, A. W.**, and Sweiger, R. L. Comparison of various vegetable oils as fuels for compression-ignition engines, 4827*g*.

**Baker, B. L.** Histochem. variations in the metrial gland of the rat during pregnancy and lactation, 739*g*.

——— and Everett, N. B. Effect of diethylstilbestrol on the anterior hypophysis of thyroidectomized rats, 7104*f*.

——— and Ingle, D. J. Growth inhibition in bone and bone marrow following treatment with adrenocorticotropin, 8037*d*.

**Baker, B. P.** See Manbre and Garton Ltd.

**Baker, B. R.** Dihydrothiophenes, P 1066*a*, urea derivs. of thiophanecarboxylic acids, P 1809*a*, carboxythiophanes, P 5425*d*, hydroxythiophane carboxylic acids and esters, P 6667*f*.

——— and Querry, M. V. Thiophanecarbohydrazides, P 1065*g*; imidazolidothiophanes, P 6670*g*.

**Baker, C. E.** Effectiveness of org. mulches in correcting K deficiency of peach trees on a sandy soil, 9318*i*.

**Baker, C. L.**, and Sams, R. H. Adhesive, P 2471*i*.

**Baker, C. P.**, and Vozzella, J. F. Effect of temp. on the dispersion of $TiO_2$ in alkyd resin—mineral spirits by means of a pebble mill, 8704*d*.

**Baker, D. B.** See Tuba, J.

**Baker, E. B.** See Gloss, G. H.

**Baker, E. E.**, Goebel, W. F., and Perlman, P. Specific antigens of variants of *Shigella sonnei*, 3490*c*.

**Baker, E. S.**, Pontius, R. G., Ariado, D. M., and Lambertsen, C. J. Simultaneous comparisons of alveolar gas tensions obtained by various sampling methods, 6262*a*.

**Baker, G.** Volcanic rocks from Mt. Bogana, Bougainville Island, Solomon Islands—plagioclase feldspars, 4191*a*.

——— and Coulson, A. Metamorphic and volcanic rocks from the D'Entrecasteaux Islands, 2135*i*.

**Baker, George A.**, and Hunter, W. Aryl alkyl ketones and carbinols, P 5421*g*.

**Baker, Guy A.**, and Parsons, J. A. Ni-base alloy, P 5000*h*.

**Baker, G. L.** Edible gelling compn. contg. Irish-moss ext., locust-bean gum, and an edible salt, P 5132*b*.

———, Carrow, J. W., and Woodmansee, C. W. Three-element colloid makes better low-solid gels, 5510*f*.

——— and Woodmansee, C. W. Fruit jellies (XIII) grading pectins, 3945*g*.

**Baker, G. W.**, and Taubes-Steinfeld, S. Estn. of cyanide in plant material, 6110*e*.

**Baker, H.**, and Bloom, W. L. Gram stain, 273*e*.

**Baker, H. J.** See Pulaski, E. J.

**Baker, H. R.**, Jones, D. T., and Zisman, W. A. Polar-type rust inhibitors—testing the rust-inhibition properties of polar compds. in oils, 2420*g*.

——— and Zisman, W. A. Polar-type rust inhibitors—theory and properties, 1953*j*.

**Baker, I.** Removing oil and oily substances from solid or water surfaces, P 3949*d*.

**Baker, J. T., Chemical Co.** Crystallization of DDT, P 1526*c*.

**Baker, J. W.** Written Exercises in Org. Chemistry (book), 660*a*; α methylene reactivity in olefin systems (III) Prins reaction with ethylene and α methyl styrene, 6967*h*.

———, Davies, M. M., and Gaunt, J. Reaction of aryl isocyanates with alcs. and amines (IV) evidence of infrared absorption spectra regarding alc.-amine assocn. in the base-catalyzed reaction of phenyl isocyanate with alcs., 7442*a*.

——— and Gaunt, J. Reaction of aryl isocyanates with alcs. and amines (II) base-catalyzed reaction of phenyl isocyanate with alcs., (III) "spontaneous" reaction of phenyl isocyanate with various alcs.—anomalous effect of dialkylanilines in the base-catalyzed reaction, (V) kinetic investigations of the reaction between phenyl isocyanate and methyl and ethyl alcs. in $C_6H_6$ soln., 7141*a*.

**Baker, K.** 4-Aminocinnoline, 1780*d*.

**Baker, L. M.** See Murphy, R. T.

**Baker, L. R.** See Rendell-Baker, L.

**Baker, M. J.** See White, H. J.

**Baker, M. N.** Quest for Pure Water (book), 2347*d*.

**Baker, M. O.** See Johnston, R. W. B.

———, Chesnutt, S. D., and Wier, T. P., Jr. Na contamination on cracking catalysts, 2414*g*.

**Baker, R. H.** Side reaction in the Williamson synthesis, 1350*g*.

——— and Linn, L. E. Passerini reaction (II) optically active anilides, 1353*f*; catalysis with (−)-Al 2-methylbutoxide, 6155*e*.

——— and Squire, E. N. Derived steroids (II) structure of products derived from 3-magnesio halides, 2214*h*; (III) 5-androsten-17-ol 3-carboxylic acid, 6216*f*.

**Baker, R. J.**, and Nelson, F. E. Effect of added amino acids on the flavor of Cheddar cheese made from pasteurized milk, 9284*e*.

**Baker, R. S.** See Gaiston, A. W.

**Baker, T. T.** Photographic Emulsion Technique (book), 1276*h*.

**Baker, W.** Partially aromatic systems, 4910*f*; derivs. of 2-styryl-4,5-dihydro-5-(4H)-oxazolone, 7021*e*.

——— and Brown, N. C. Elbs persulfate oxidation of phenols and its adaptation to the prepn. of monoalkyl ethers of quinols, 3386*g*.

——— and Collis, C. B. Fluorescent acylating agents derived from 7-hydroxycoumarin, 7936*e*.

——— and Flemons, G. F. Dimerides of anethole, 2180*b*; structure of ginkgetin (I) synthesis of 5,8-dihydroxy-4′-methoxyflavone, 3414*b*.

——— and Hey, D. H. Org. chemistry—introduction, 5001*b*.

——— and Leeds, W. G. Prepn. of aromatic systems (I) cyclopentatridene—phenylcyclopentanecarboxylic acids and derived ketones, 3398*c*.

——— and Ollis, W. D. Attempted syntheses of penicillin homologs, 7427*e*.

———, Ollis, W. D., and Poole, V. D. Cyclic meso-ionic compds. (I) structure of the sydnones and related compds., 7479*e*.

**Baker, W. A.** Fstn. of O in metals by H reduction, 8963*f*, see Pearson, T. F.

——— and Hallowes, A. P. C. Elimination by Li of Bi embrittlement in deoxidized coppers and Cu alloys, 5718*f*; removal of Se and Te from blister and fire-refined Cu, 8322*f*.

**Baker, W. H.** See Ashburn, L. L.

**Baker, W. O.** Microgel, a macromol.—relation to sol and gel as structural elements of synthetic rubber, 4506*c*; see Mason, W. P.

**Baker, W. R.** See Kerns, Q. A.

———, Franck, J. V., and Gow, J. D. Linear-accelerator oscillator and coupling system, 4093*b*.

**Baker, W. S.** See Tyler, S. W.

**Baker, W. W.**, Crumb, S. E., Landis, B. J., and Wilcox, J. Biology and control of the western raspberry worm in western Washington, 9341*f*.

**Baker Castor Oil Co.** Partial esters of polyhydric alcs., P 5794*d*, unsatd. higher fatty-acid esters, P 6651*f*, fatty oil-aromatic hydroxy compd. reaction products, P 9481*h*, hydroxycarboxylic-polycarboxylic acid esters, P 9529*d*.

**Baker & Co., Inc.** App. for handling and heating glass, P 3164*a*, oxidation of $NH_3$ to oxides of N, P 5160*i*, supported Pt metal catalyst, P 7609*h*.

**Bakhmutskaya, S. S.** See Nazarov, I. N.

**Bakhvalov, G. T.**, and Turkovskaya, A. V. Corrosion and Protection of Metals (book), 7890*f*.

**Bakin, E. N.** Furnace for semicoking of coal, P 6398*d*.

**Bakker, J.** See Gisolf, J. H.

**Bakonyi, Istvan.** Keratin-contg. material, P 2039*e*.

**Bakonyi, Stefan.** See Bakonyi, Istvan.

**Bakore, G. V.** See Bhagwat, W. V.

**Bakshi, V. M.** See Mahdihassan, S.

**Bakst, M.** See Warner, A. J.

**Balaban, I. E.**, and Levy, M. B. 1,1,1-Trichloro-2,2-bis(*p*-aminophenyl)-ethane, 1367*e*.

——— and Sutcliffe, F. K. Aryl derivs. of trihalogenoethane (insecticides), P 350*h*; halogenated aromatic derivs. of $C_2H_6$, P 2235*g*.

———, Sutcliffe, F. K., and Geigy Co. Ltd. Insecticide, P 2364*e*.

**Balacianu, R. W.** See Wal-Balacianu, R.

**Balák, L.** See Stehlík, B.

**Balakhonov, A. D.** See Lemberskii, Ya. Z.

**Balakin, B. B.** See Karskii, N. F.

**Balakrishna, K. J.**, and Seshadri, T. R. Synthesis and study of 5,6,8-hydroxyflavonols, 224*c*, coloring matter of tambul seeds (III) synthesis of 3,4′,8-trimethyl ether of herbacetin and the constitution of tambulin, 227*a*, formation of quinones by oxidative dealkylation (III) alkali fission of gardenin, 5779*f*.

**Balakrishnan, T. S.** See Rao, R. V. G. S.

**Balandin, A. A.** Thermodynamic properties of adsorption complexes in heterogeneous catalysis, 1644*i*; multiplet theory and the transition-state theory, 2852*b*, see Freidlin, L. Kh.

———, Berkenheim, B. M., and Nesmeyanov, A. N. Soviet chemistry at the thirtieth anniversary of the October Socialist Revolution, 7761*a*.

——— and Isagulyants, G. V. Detn. of the adsorption coeff. in the dehydrogenation of hydroaromatic hydrocarbons, 1731*e*; kinetics of the catalytic dehydrogenation of cyclic hydrocarbons on Cr oxide, 1732*a*; orientation of decahydronaphthalene and of cyclohexane mols. in dehydrogenation on oxide and on metallic catalysts, 4551*d*.

——— and Kiperman, S. L. Reversible and complex-reversible poisoning of a Ni catalyst in dehydrogenation, 2499*b*.

——— and Kukina, A. I. Dependence of the specificity of catalysts on their genesis, 4087*d*.

——— and Marukyan, G. M. Catalytic dehydrogenation of 1,3,5-triethylbenzene, 165*d*.

——— and Marushkin, M. N. Detn. of $C_4H_6$ in gases contg. butadiene and higher olefins—relation of 1,3-butadiene to an ammoniacal soln. of $Ni(CN)_2$, 5343*d*.

——— and Tolstopyatova, A. A. Rate of dehydrogenation of ethylbenzene and of its binary mixts. with styrene, toluene, and $C_6H_6$, 473*a*.

——— and Vasyunina, N. A. Catalytic dehydrogenation of amines and its kinetics (I) dehydrogenation of 1-diethylamino-4-aminopentane, 132*i*.

———, Zelinskii, N. D., Bogdanova, O. K., and Shcheglova, A. P. Catalytic dehydrogenation of butylene to butadiene, 4213*i*.

**Balandina, V. A.** See Solovelchik, L. S.

**Balarev, D.** Aging of finely dispersed $Na_2SO_4$, 8228*i*; dispersed structure of real crystal systems and its thermodynamic basis (VI), 8228*f*; periodic pptn. in gelatin, 8237*e*.

**Balavoine, P.** Smell and taste in the service of pharmacy—fatty oils and glycerol, 1147*g*; olfactive and gustative qualities of food, 1494*c*.
**Balázs, F.** Theory of viscosity, 8226*e*.
**Balbi, G.** Paint and varnish industry in the Netherlands, 1577*c*; Belgian paint and varnish industry, 3209*e*; dehydration of grapeseed oil, 6434*g*.
**Balbi, R.,** and Saitta, L. Cholinesterase in nervous physio-pathology, 2311*d*; Ca and K of blood during hysteria, 7124*h*.
**Balch, R. H.,** and McCormick, I. G. Sized org. derivs. of cellulose yarn, P 856*d*.
**Balch, R. T.** See Broeg, C. B.
and Broeg, C. B. Sugar-cane trash problem, 1588*i*, 4880*i*.
**Baldacci, E.** See Ciferri, R.
**Baldanza-Zaffiro, B.** Metallic minerals of Mt. Peloritani, Italy, 3318*i*; realgar of Alì (Messine, Italy), 3319*a*.
**Baldassi, G.,** and Rocco, L. Influence of the cupric ion on cell respiration, 6707*d*.
**Baldes, A.; R.** See Rippel-Baldes, A.
**Baldi, B.** Characteristics of American GR-S synthetic rubber and of its vulcanizates, 2802*b*.
**Baldi, G.** Hyperthyroidism and chronic Hg poisoning, 8689*a*, see Vigliani, E. C.
**Baldini, M.** See Astaldi, G.
**Baldock, G.,** Berthier, G., and Pullman, A. Electronic structure of aromatic hydrocarbons having five fused benzene rings—mol. orbitals, 9234*d*.
**Baldock, H.** See Scaife, C. W.; Wilder Smith, A. E.
**Baldridge, H. D., Jr.** Graphite bearings for mech. stirrers, 2821*b*.
**Baldt, R.** See Cremer, E.
—— and Cremer, E. Thermal decompn of ethylene chloride, 7307*c*
**Balducci, D.** Effect of vitamin P and of dicoumarol on the formation of prothrombin, 8481*h*.
**Baldwin, A. W.,** and Statham, F. S. Alkyl quaternary ammonium nitrates, P 667*a*
**Baldwin, B.** Sioux quartzite, 2905*a*
**Baldwin, E.** Comparative Biochemistry (book), 2656*b*.
**Baldwin, F. P.** Bonding Alfin type polymers to metal or rubber, P 5625*i*; Bu rubber vulcanization retarder, P 8195*g*; see Haworth, J. P.
**Baldwin, G. C.** See Charlton, E. E.
**Baldwin, H. E.** TAPPI survey of water technology, 3121*d*.
**Baldwin, R. R.** Detn. of $CO_2$ in gas samples, 6109*h*.
**Baldwin, W. E.** See Lowy, A.
**Baldwin, W. J.** Zircon and zirconia refractories, 830*d*; factors affecting the ceramic and elec. properties of high dielec. const titanates, 6385*h*; see Urban, S. F.
**Baldwin, W. M., Jr.** Macro-residual stresses in metals resulting from plastic deformation, 7394*c*, see Gurnick, R. S.
**Baldyga, W. V.** See Ridgway, J. W.
**Bale, W. F.** See Mann, W.
**Balendra, W.** Effect of betel chewing on the dental and oral tissues and its possible relation to buccal carcinoma, 8520*d*.
**Balenović, K.** See Mladenović, M.
**Balermann-Fiola, M.** See Spangenberg, K.
**Bales, P. D.** See Freedman, A. M.
**Balesine, S. A.** See Balezin, S. A.
**Balestrini, G.** Detn. of the percentage of neutral substance in oils and fats of high acidity, 4029*g*.
**Balezin, S. A.** Mechanism of the formation of sugars from formaldehyde (II), 148*h*
——, Razumovskiĭ, G. S., and Fil'ko, A. I. Laboratornye raboty po neorganicheskoĭ khimii (book), 2540*a*.
**Balfe, B. J.,** and Imperial Chemical Industries Ltd. Adhesive compns., P 4899*c*.
**Balfe, M. P.** Chemistry of the natural grease of hides and skins, 1203*f*; reactions of collagen with acids, bases, and salts, 1203*f*; adhesives for leather, 1204*e*, chamois tannages, 1204*f*, vegetable tanning, 1204*f*; currying, 1204*g*, detn. of the salts and acid contents of vegetable tan solns., 8720*h*; see Lloyd, D. J.
—— and Humphreys, F. E. Shrinkage temp. of collagen and leather, and the effects of heat and moisture on leather, 1203*i*; corrosion in tannery liquors and processes, 1204*e*.
**Ballah, V.** See Noller, C. R.
**Baliga, M. N.,** and Hilditch, T. P. Acids of rape-seed oil, 1201*a*.
—— and Meara, M. L. Component fatty acids and glycerides of Dhupa fat, 4873*h*.
**Balin, G. P.** Luminescence of phosphors with a layer structure of the crystal lattice, 6086*b*.
**Bálint, P.,** and Benko, G. Distribution of Na and chloride in blood serum, fluids of serous cavities, and cerebrospinal fluid, 9200*a*.
——, Hässing, L., and Lenner, M. Tubulary azotemia caused by sucrose injections, 8548*i*.
——, Hársing, L., Lenner, M., and Rusznyák, I. Hypersalemia and tubular azotemia, 4776*b*.
——, Kincses, A., and Sziga, I. Detn. of urea in serum and urine, 9130*b*.
——, Komáromy, I., and Lenner, M. Detn. of phosphatase in blood serum, 4314*h*; liver-function test based on thymol turbidity measurements, 9219*b*
—— and Zsótér, T. Detn of prothrombin time by use of snake venom, 9130*g*.
**Balis, E. W.** See McCarty, L. V.
——, Liebhafsky, H. A., and Getz, D. H. Flammabilities of four chlorosilanes and MeCl, 7229*h*.
**Baljasnaja, A. I.** See Balyasnaya, A. I.
**Balk, A. N.** See Coops, J.
**Balkanyi, N.** Burnishing leather, P 5222*a*.
**Balke, C. W.** Powd metal, P 2878*i*; electrolytic Fe powder, P 2879*c*, 3733*c*; electrolytic production of Fe, P 2879*d*
**Balks, R.,** and Wehrmann, O. Detn. of nutrient requirements of soils, 7171*h*.
**Ball, C. D.** See Waldron, D. R.
**Ball, C. J. P.** Mg and its alloys, 83*i*; extn., alloying, and fabrication of Mg, 7876*g*
—— and Jessup, A. C. Mg alloys, P 4211*c*
——, Jessup, A. C., Finley, E. F., and Wilson, J. B. Mg-Zr alloys, P 1308*i*
**Ball, E. G.** See Carter, H. F.
—— and Cooper, O. Activity of succinate oxidase in relation to phosphate and P compds., 9112*g*.
——, McKee, R. W., Yuhnsen, C. B. Cruz, W. O., and Geiman, Q. M. Malarial parasites (IX) chem. and metabolic changes during growth and multiplication, 5107*a*
——, Solomon, A. K., and Cooper, O. Production of radioactive cystine by direct bombardment in the pile, 2861*a*.
**Ball, F.** See Pearson, D. E., Richardson, H. M.
**Ball, J. J.** See Pixler, E. K.
**Ball, J. M.,** and Randall, R. L. Effect of whole-tire reclaimed rubber on the accelerated aging of natural rubber and GR-S, 3647*f*
**Ball, J. S.** See Wenger, W. J.
——, Dunneen, G. U., Smith, J. R., Bailey, C. W., and Van Meter, R. Compn of Colo. shale-oil naphtha, 4453*e*
—— and Espach, R. H. Crude oils of Wyoming, 839*g*.
**Ball, M. R.** See Cope, O.; Moore, F. D.
**Ball, S. H.** Gem stones, 2127*c*
**Ball, S. M.** See Wolf, A. V.
**Balla, F.** Sugar milling, 8713*h*
**Ballabio, G.** Removal of paraffin from its oxidation products, P 8667*a*
**Ballam, J.** See Turner, C. M.
**Ballard, A. E.** See LaForce, J. R.
**Ballard, C. W.** Detn. of aromatic diamidines in pharmaceutical prepns. (I) detn. of propamidine, 1151*e*, detn. of amino compds. in pharmaceutical chemicals (II) 3-amino-4-hydroxybenzenearsonic acid in acetarsol, 1810*g*
——, and Ballard, E. J. Amino compds. as impurities in pharmaceutical chemicals (I) arsanilic acid in tryparsamide, 1907*h*; detn. of traces of Bi in Pb, 3743*h*; detn. of vitamin $B_1$, 5539*g*, detn. of tribromophenol Bi, 9374*d*.
**Ballard, E. J.** See Ballard, C. W.
**Ballard, S. A.** See Dorman, S. C.; Finch, H. de V.; Smith, C. W.; Williams, P. H.; Winkler, D. E.
——, Finch, H. de V., and Peterson, E. A. $\beta,\gamma$-Unsatd. alcs., P 7497*g*.
—— and Geyer, B. P. Acrylic acid, P 3026*i*.
——, Geyer, B. P., and Mortimer, R. H. Acetoxypropionic acid, P 6223*i*.
**Ballard, W. E.** Metal spraying, 3766*e*.
**Ballard & Ballard Co.** Packaged food compn (preleavened dough), P 9294*a*.
**Ballarin, O.** Dairy studies in Holland, 1496*f*; dairy research, 6326*i*.
**Ballauf, A.** See Wegler, R.
**Ballay, M.** Constitution and properties of certain Fe-Be alloys contg. more than 3% C, 543*d*.
—— and Vogt, P. Hardening Ag alloys, 1703*b*.
**Ballcso, H.** Detn. of the F content of mineral waters, 8960*d*.
**Balle, G.** See Orthner, L.
**Ballenger, H. C.** See Ballenger, W. L.
**Ballenger, W. L.,** and Ballenger, H. C. Diseases of the Nose, Throat, and Ear (book), 755*f*.
**Ballentine, J. B.** See Alexander, A. L.
**Ballentine, K. D.,** and Schwarting, A. E. *Mentha cardiaca* (I) volatile oil, 8617*b*
**Ballentine, R.** See Bernstein, W.
**Ballester, M.** See Pascual Vila, J.
**Balley, E. J. G.,** Page, F. M., and McGowan, J. C. Adhesives, P 2039*d*.
**Ballich, N. L.** See Goldston, M.
**Ballin, S. G.** See Hatch, L. F.
**Ballinger, H. J.** Pearl Pb-Zn deposit, Jasper County, Mo., 6950*i*, see Dupuy, L. W.; Ruhl, O.
**Ballio, A.** See Marini-Bettòlo, G. B.
—— and Vittori, R. L. $HgCl_2$ in org. syntheses -prepn. of triphenylmethane dyes, 184*c*.
**Ballmoos, M. v.** Cosmetic prepns., P 4434*e*
**Ballou, J. W.,** and Smith, J. C. Dynamic measurements of polymer phys. properties, 6045*a*
**Ballou, N. E.** $\alpha$-Radioactivity in elements lighter than Bi, 1563*h*, see Wolfe, R. D.
**Balloul, A.** Cours de chimie. T. I. Chimie générale et métalloïdes. T. II. Chimie organique (book), 6500*h*.
**Balls, A. K.** See Jansen, E. F., Schwimmer, S., Tucker, I. W.
**Balmer, C. E.** See Ladisch, R. K.
**Balmer, R. R.** Industrial waste control, 8586*f*
**Balmer-Ott, L.** Soln. of cellulosic material, P 6414*i*
**Baló, J.,** Banga, I., and Josepovits, G. Enzymic activity of the aorta—adenyl pyrophosphatase of the aorta, 3909*g*
**Balopolsky, A. P.** See Belopol'skiĭ, A. P.
**Balows, A.,** and Jennison, M. W. Thermophilic, cellulose-decomp. bacteria from the porcupine, 4336*f*
**Balser, E. V.** See Gwinn, G. R.
**Bal'shin, M.** Poroshkovoe metallovedenie (book), 2919*e*.
**Balson, E. W.,** and Adam, N. K. Vapor-pressure measurement (IV) total vapor pressure of mixts. of $SO_2$ and chloro sulfonic acid, 455*f*.
**Baltá, J.** See Rius, A.
**Baltazar, J. A. de A.** See Almeida Baltazar, J. A. de.
**Baltimore Paint & Varnish Production Club.** Grinding efficiency in ball and pebble mills, 3213*g*
**Baltsly, R.,** Buck, J. S., De Beer, E. J., and Webb, F. J. Family of long-acting, depressors, 6593*h*
——, Dvorkovitz, V., and Phillips, A. P. Synthetic analogs of oxytocic drugs (I) phenethyl-$\beta$-alanine derivs., 5765*d*
—— and Phillips, A. P. Fries reaction, 2187*a*.
**Bal'yan, Kh. V.** Yu. S. Zal'kind, 6477*i*, 7761*e*.
**Balyasnaya, A. I.** See Mardashev, S. R.
**Balyi, K.,** and Papp, F. Light-reflecting capacity of some Hungarian black and brown coals, 8639*g*
**Bamag Ltd.,** Schwitzer, M. K., and Williams, W. Fatty acids and fatty alcs., P 1202*a*
**Bamag-Meguin A.-G.** Partial oxidation of $H_2S$, P 4822*i*.
**Bamann, E.,** and Nowotny, E. Phosphatic activity of hydrogels (V) conversion of meta- and pyrophosphoric acid into orthophosphoric acid, (VI) prepn. of the lanthanum salt of glycerol-$\beta$-phosphoric acid—striking differences in the ester stability of the lanthanum and the Na salts (VII) effect of salt formation on the stability of phosphoric acid esters—induction effects on the stability of esters, (VIII) $\alpha,\beta$-substrate specificity in the alk. saponification of glycerol-$\alpha$- and -$\beta$-phosphoric acids in an enzyme model expt., 4549*c*
——, Nowotny, E., and Rohr, L. Colorimetric detn. of phosphoric acid (effect of acid concn. on the reduction of phosphomolybdic acid with aminonaphthol sulfonic acid), 4603*b*.
**Bambas, L. L.** Thiosemicarbazides, P 1057*d*; acylaminothiazolyl phenyl sulfides, P 9086*c*.

**Bamberger, R.,** and Saint-Poulof, C. Synthetic hydrocarbon, P 4589*a*.
**Bamdas, E. M.,** and Shemyakin, M. M. Thermal decompn of salts of carboxylic acids (IV) thermal decompn. of Cu salts of carboxylic acids, 1241; (V) thermal decompn. of Ca salts of carboxylic acids, 1318*a*.
**Bamford, C. H.,** and Dewar, M. J. S. Polymerization (I) detg. the velocity consts in polymerization reactions and its application to styrene, (II) investigating the relation between the mol. wts. and intrinsic viscosities of polymers, and its application to polystyrene, 3272*i*, photosensitization by vat dyes, 4580*b*; abs velocity consts. in the autoxidation of tetralin, 4580*e*; frequency factors in radical reactions, 4934*e*, rates of radical reactions in the liquid phase (I) abs. velocity consts. in vinyl polymerizations, (II) radical replacement reactions, 5271*a*
——, Hanby, W. E., and Happey, F. α-Protein structure of polypeptides, 9033*h*
**Bamforth, A. W.** Controlled crystn., 3668*b*.
**Bami, H. L.** Antimalarials (VIII) arylcyanoguamidines from arylazocyanoguamidines, 169*e*, 2179*d*, prepn. of paludrine, 5756*h*
——, and Guha, P. C. Antimalarials (IX) $N^1$-aryl-$N^5$-alkylbiguanides, 7905*c*, (X) $N^1$-aryl-$N^5$-heterocyclic biguanides, 5777*c*, 7905*g*.
——, Iyer, B. H., and Guha, P. C. Antimalarials (IV) ammonolysis of aliphatic ketones with hydrogenation, (V) sulfabiguanide derivs., (VI) sulfabiguanide derivs., (VII) meta-chloraniline substituted arylbiguanides, 2178*i*
——, Natarajan, S., Ramaswamy, A. S., De, N. N., Iyer, B. H., and Guha, P. C. Antimalarial screening tests of some biguanide derivs., 5880*b*
**Ban, H.** High vacuum distn., 8709*b*
**Banbury, F. H.,** Comes, D. A., and Schnuck, C. F. Reclaiming vulcanized rubber, P 3230*e*, reclaiming waste uncured rubber stock, P 3230*f*
**Banchetti, A.** Indones (XXI) chloro derivs of α-ethyl β-phenylcinnamic acid, 1393*h*, photochemistry of cholesterol (II) photosynthesis of vitamin $D_3$ from cholesterol, 1782*g*, acids and bases, 6051*e*
**Bancroft, R. W.** Effect of anoxia and blood transfusions on the production of polycythemia, 5848*i*
**Band, W.** Anomalous adsorption of He at liquid-He temps., 8778*d*
——, and Meyer, L. Nonequil. states in He II, 8780*b*
**Banda, J. F. G. de la.** See Garcia de la Banda, J. F.
**Bandelin, F. J.** Preservation of pharmaceuticals, 6364*a*, microbiol. detn. of choline, 8428*f*.
**Banderet, A.** See Loeb, C.
**Bandot, J.** Residual liquors from wine distilling, P 1148*d*
**Bandow, F.** Extinction of the afterglow of ZnS-Cu and CaS-Bi phosphors, 5667*f*
**Bandt, H. J.** Detn. of aldehydes in sewage, 3123*c*, see Nolte, E.
**Bandyopadhyay, N.** Compn., structure, and physicochem. properties of buffalo horn, 8413*g*
**Banerjee, B.,** Chakraborty, S., and Dutta, J. S. Isomerism observed in 4-(benzylmercapto)-4-methyl-2-pentanone, 7804*b*
**Banerjee, B. N.** See Ramamurti, K., Ramaswamy, T. S., Rangappa, K. S.
**Banerjee, K. C.** See De, H. N.
**Banerjee, S.** See Sen Gupta, S. B.
**Banerjee, Sachchidananda,** and Bhattacharya, G. Alloxan hypoglycemia, 1864*c*, ketosis in alloxan diabetic rabbits, 4702*l*
——, and Ghosh, N. C. Effect of nicotinamide on blood sugar and blood acetone bodies of diabetic and normal subjects, 4383*g*.
——, Ghosh, N. C., and Bhattacharya, G. Effect of nicotinic acid on the blood sugar and urinary excretion of sugar, 8470*d*.
**Banerjee, Sukumar.** See Haldar, B. C.
**Banerjee, T.** Cathode potential in electrolytic alloy deposition—Cu-Zn alloys, 4147*i*.
——, and Allmand, A. J. Electrodeposition of brass from cyanide solns., 3727*e*.
**Banerji, B. K.** Viscosity of liquids and temp., 2835*e*; effect of ultraviolet light on colloidal Au, 4538*h*; relation between $n$ and viscosity, 6024*a*.
**Banes, D.** Analysis of sulfadiazine-sulfathiazole mixtures, 7641*h*; detn. of Ca, P, and Fe in vitamin preps., 9368*b*; detn. of theobromine and phenobarbital, 9369*g*.
**Banfield, T. A.** See Hudson, J. C.
**Bång, F.** Chem. flavoring of butter, 4394*d*.
**Bang, F. B.** Factor in old hepatitis serum capable of agglutinating chicken red cells, 8524*c*.
**Bang, H. O.** Sugar detn. in urine, 3054*e*
—— and Georg, J. Elimination of iodophthalein in normal and icteric subjects, 8521*c*.
**Bang, N. H.** See Hofman-Bang, N.
**Banga, I.** Enzymic reactions of dinucleotide and adenosinediphosphoric acid with myosin, 9093*f*, see Baló, J.
—— and Josephovits, G. Enzymic splitting and deamination of adenylpyrophosphoric acid, 9093*i*; deamination of adenylpyrophosphoric acid, 9094*b*.
**Bangham, D. H.** See Arthur, J. R.
**Baniel, A.,** Frankel, M., Friedrich, I., and Katchalsky, A. Prepn. and condensation polymerization of higher alkyl esters of α-amino acids, 4610*i*
**Bank für elektrische Unternehmungen.** Dry rectifier, P 4824*a*.
**Bankert, R. A.** See Gresham, T. L.
**Bankowski, R. A.** See Armstrong, W. H.
**Bańkowski, Z.** See Zawadzki, J.
**Banks, A. A.,** Emeléus, H. J., Haszeldine, R. N., and Kerrigan, V. Reaction of $BrF_3$ and $IF_5$ with $CCl_4$, $CBr_4$, and $CI_4$ and with $C_2I_4$, 3771*i*.
**Banks, C. K.** 3-Amino-4-hydroxybenzenearsonous acid (III) oxophenarsine-HCl—decompn. products, (IV) oxophenarsine-HCl—decompn. rate, 9376*g*, see Brooker, L. G. S., Pearlman, W. M.
——, Controulis, J., Walker, D. F., Tillotson, E. W., Sweet, L. A., and Gruhzit, O. M. 3-Amino-4-hydroxybenzenearsonous acid (II) derivs., 998*g*.
——, Mitulski, J. D., Walker, D. F., and Wheeler, L. M. Estn. of sulfoxylate S, 8306*a*
**Banks, C. V.** See Patterson, James H.
**Banks, E. D.** Linimentum terebinthinae B.P., 4425*h*
**Banks, F. R.** Influence of $Et_4Pb$ on engine design and performance, 6814*b*.
**Banks, T. E.,** Boursnell, J. C., Dewey, H. M., Francis, G. F., Tupper, R., and Wormall, A. Radioactive isotopes in immunological investigations (II) fate of injected $I^{131}$-contg. proteins, 3919*e*
**Banks, W. H.** See Harrison, V. G. W.
**Bann, R. E.** See Agnew, J. T.
**Bann, R. F.** See King, V. L.
**Bannan, M. W.** Tetraploid *Taraxacum kok saghyz* (V) cell size, 1086*f*
**Banner, R. L.** See Van Middlesworth, L.
**Bannerjee, D. K.** See Bagchi, P.
**Bannister, B.,** and Plant, S. G. P. Action of $HNO_3$ on polycyclic indole derivs. (XIV) acenaphthyleno [7′, 8′, 2,3]indole, 628*b*
**Bannister, F. A.** See Hunham, K. C., Hey, M. H., Smith, Walter C.
—— and Bennett, H. Whitlockite from Sebdou, Oran, Algeria, 2128*h*.
——, Hey, M. H., and Stadler, H. P. Nigerite, new Sn mineral, 5701*g*
—— and Hutchinson, G. E. Identity of minerivite and palmerite with taranakite, 2129*a*.
**Bannister, L. C.** See Leonard, N. J.
—— and Price, R. H. Effect of melting conditions on the detn. of Cu in Pb alloys, 1282*f*
**Bannon, J.,** and Coogan, C. K. Thin evapd. $CaF_2$ films, 4071*b*.
**Bannon, L. A.** Diln. and hydrolysis of $Et_2SO_4$ solns., P 7498*c*.
—— and Morrell, C. E. Diln. and hydrolysis of $Et_2SO_4$ solns., P 7498*a*.
**Bano, E. A.** See Johnson, A., & Co. (London) Ltd.
**Bansi, H. W.** Protein metabolism in lipophile dystrophy, 3093*i*, 8471*f*.
**Banta, H. M.** See Sims, C. E.
**Banti, L.** Antiseptic and disinfecting of power of certain Hg compds., 4811*b*; action of blood on germs presumably killed by antiseptics, 6278*b*.
**Banus, M. D.** See Schumb, W. C.
**Banzon, J.,** Fulmer, E. I., and Underkofler, L. A. Fermentative utilization of cassava—production of EtOH, 5530*i*.
**Baouman, A.** Manuf. of lubricating greases—influence of pH and of heat on the surface tension-activity of oils, 8659*h*.
**Baptist, N. G.** Properties of plaster of Paris prepd. from sea-water gypsum, 3165*h*.
**Baptist, V. R.** See Bull, H. B.
**Bar, D.** See Lespagnol, A.
**Barabanova, G. P.** See Butkov, N. A.
**Barabás, E., Jr.** Preserving ripened fruits in a natural condition, P 1502*g*.
**Barabash, E.** See Seymour, G. W.
**Barabasheva, G. K.** See Malinovskii, M.
**Barac, G.,** and Gernay, J. M. Albumin-bilirubin synapse, 8485*a*.
**Barach, J. H.** Diabetes and its Treatment (book), 4371*e*.
**Barach, J. L.** Dynamic studies of carpet resilience, 5957*g*.
**Barachini, B.** See Bettini, S.
**Baradzei, L. T.,** Vernov, S. N., and Smorodin, Yu. A. Disintegrating particles in cosmic rays in the stratosphere, 4557*h*.
**Baragwanath, W.** Victorian goldfields (II) Wood's Point and district, 525*b*; (III) Berringa district, 4980*b*
**Barai, S. C.** See De, H. N.
**Barail, L. C.** Odor measurement, 7762*e*.
**Barakan, T. H.,** Barker, G. R., Gulland, J. M., and Parsons, L. D. Tissue changes in mice treated with pentose nucleotides and related compds., 4367*d*.
**Barakat, M. R.,** and Smith, D. A. Plasma-protein levels in West Africans, 8039*b*.
**Barakat, M. Z.** See Schonberg, A.
**Baral, W. J.** See Linford, H.
**Baralt-Pérez, J.** See Perez, J. E.
**Baram, O.** See Tovbin, M.
**Baranauckas, C. F.** See McHee, E. T.
**Baranchuk, S. I.** See Sadovskii, V. D.
**Baranov, P. I.** See Arbuzov, B. A.
**Baranov, S. S.,** Khludov, S. V., and Shpol'skii, E. V. Atlas Spektrov Propuskaniya Prozrachnykh Okraskennykh Plenok (book), 5311*a*.
**Barantsev, A. A.** Viscometer, P 6012*f*.
**Bárány, E. H.** Anticonvulsant drug action and temporal summation of epileptogenic stimuli, 3101*b*, entrance of Na into aq. humor, 4750*a*, relative importance of ultrafiltration and secretion in formation of aq. humor, 4750*b*, action of atropine, homatropine, eserine, and prostigmine on osmotic pressure of aq. humor, 4775*a*
**Baratta, P. F.** See Bertoli, R.
**Barb, W. G.,** Baxendale, J. H., George, P., and Hargrave, K. R. Reactions of ferrous and ferric ions with $H_2O_2$, 6895*c*.
**Barbanti-Silva, L.,** and Ligabue, L. Normal and anomalous inhibitions in various types of spectroscopic sources, 7337*h*.
**Barbas, M. I.,** and Panashchenko, A. D. Action of vitamins and plastic substances on the content of lipoid P in blood and liver, 5463*e*
**Barbé, L.** Detection of volatile vapors and noxious gases from the viewpoint of recovery and industrial hygiene, 4602*c*.
**Barbee, J. F.** See Latchiser, R. R.
**Barber, C. L.** How to evaluate solder efficiency, 8343*b*.
**Barber, C. W.** See Levine, P. P.
**Barber, E.** Development in alloy steels, 6556*a*.
**Barber, G. W.** See English, J., Jr.; Grancett, P., Hansens, E. J. nd Schmitt, J. B. Resistance to DDT in the housefly, 8600*d*.
**Barber, H. H.,** and Grzeskowiak, E. Thioacetamide in place of gaseous $H_2S$ for pptn of insol. sulfides, 2115*c*.
**Barber, H. J.** Amino-substituted acridines, P 698*d*; see May & Baker, Ltd.
—— and Wragg, W. R. Lab. prepn. of anhyd. hydrazine, 1672*f*.
**Barber, S. W.** Viscosity-compn.-temp. relations in the system $Na_2O$–$SiO_2$, 1636*f*.
**Barbero, S.** Electroplating Al, P 4588*d*.
**Barbet, E. A.** App. for distg. wines, P 1148*d*; brandies distd. *in vacuo*—their superior quality, 3141*h*.
**Barbier, D.** Spectrum of the night sky (I) measurement of wave lengths and identifications, (II) spectrophotometry, 2091*i*; emission of the rays of Na and [O I] at twilight, 4133*g*; comparison of the formulas giving the extinction corrections for observations of the night sky, 5662*i*; see Roach, F. E.
—— and Roach, F. E. Na in the upper atm., 5302*d*.
**Barbier, G.** Partial cure of diseased apple trees in the Palatinate by the application of Zn, 3494*h*; see Boischot, P.; Trocmé, S.
—— and Chabannes, J. Adsorption of phosphates by various constituents of the clay of soils, 9315*c*.
——, Chabannes, J., and Durroux, M. Spontaneous return to the mobile state,

in the soil, of the fraction of phosphatic and potassic fertilizers called reverted, 8594*a*.
——— and Dufroux, M. Equil. to which the fixation of K in the nonexchangeable state gives rise in the soil, 7172*f*.
——— and Trocmé, S. Speed of slag decompn. in soil in relation to the fineness of grinding, 3552*a*
———, Trocmé, S., and Chabannes, J. Mn deficiency as a result of irrigation with drain water, 3129*b*
**Barbieri, A. de.** See De Barbieri, A
**Barbieri, G. A.** Complex compds. of Ru and Os, 4972*a*.
**Barbieri, L.** See Prim, C
**Barbizet, J.,** and Pertuiset, B. Trente-trois exposés de physiologie (book), 6683*a*
**Barbosa, A. F.** See Fabio Barbosa, A
**Barbosa, P. E.** See Emidio Barbosa, P.
**Barbosa Hargreaves, A.** Influence of serum proteins and Ca ion on the velocity of the thrombin-fibrinogen reaction, 5472*g*
**Barbour, I.** Pantograph and tilting stage for use with nuclear plates, 8852*e*
**Barbu, E.,** and Macheboeuf, M. Gelation of proteins—serum proteins and esp. γ-globulins, 3857*f*, reducing power of proteins in strongly alk. media, 5811*g*, conditions for gelatinization of protein as criteria for identification of the protein, 7983*c*.
**Barby, D.,** and Bowman, C. A. M. Perfect buffer, 4083*c*.
**Barceló Matutano, J. R.** Presence of Ti in the black sands of the Canary Islands, 8318*f*.
——— and Rodriguez Perez, A. Saline mixt. in spectrochem. detns., 8945*e*
**Barch, W. E.** Sepn. of hydroxy org. acids, P 6053*a*.
**Barchewitz, P.** Absorption spectra of $C_6H_6$ (I) vapor state and the liquid state in the spectral region extending from 3 to 15 μ, 7342*i*, see Cabrac, Mme., Maniere, M. B
**Barchuk, I. F.** See Latyshev, G. D
**Barcia, R. C.** See Caldeyro Barcia, R
**Barcia Goyanes, C.,** and Sánchez Serrano, F. Detn. of the phosphate ion with radioactive indicator, 2547*f*
**Barclay, A. E.** Demonstration of Fe in cells, 5850*f*
**Barclay, J. A.,** Cooke, W. T., and Kenrick, R. A. Renal excretion of inorg. phosphate, 9205*h*.
**Barcroft, H.,** and Konzett, H. Action of noradrenaline and adrenaline on human heart rate, 3525*e*, effects of noradrenaline, aleudrine, and adrenaline on blood pressure, pulse rate, and blood flow through muscles, 8544*h*
**Bard, C. C.** See Farr, J. D
**Bard, J. W.** See Brabender, G. J
**Bard, P.** See Bromley, R. B
**Bard, R. C.,** and McClung, L. S. Biochem. properties of the toxins of *Clostridium novyi* and *Clostridium hemolyticum*, 720*e*.
**Bardawill, C. J.** See Cornell, A. G.
**Bardeen, J.** Pressure change of resistance of Te, 7285*f*; see Pearson, G. L.
**Bardgett, W. E.,** and Gartside, F. Effect of variation in Si content on the properties of Si Mn spring steel, 3330*e*.
**Bardhan, J. C.** See Mukherji, D., Swaminathan, R.
**Bardichew, J.** See Bardyshev, I. I.
**Bardill, J. D.** Magnetic surveys—Dannemora magnetite district, Clinton County, N. Y., 7384*i*; magnetic surveys—Russia Station magnetite district, Clinton County, N. Y., 7385*a*, magnetic surveys—Radford-Clayburg magnetite district, Saranac and Black Brook, Clinton County, N. Y., 7385*c*.
**Bardinet, G.** Ionization const. of the diacids and their monoesters, 7305*a*.
**Bardócz, Á.** Elec. spark generator for spectrochem. analysis with a periodically damped charging current circuit, 4488*e*, synchronous switches for spark generators used in spectrochem. analysis, 5095*d*
**Bardos, T. J.** See Price, C. C.
**Bardoux, C.** Multiple performance evapn. 426*h*
**Bardwell, J.,** and Winkler, C. A. Formation and properties of 3-dimensional polymers (I) statistics of network polymers, (II) network formation, (III) effect of network structure on elastic properties, 5227*b*
**Bardwell, R. C.** Developments in water treatment, 9304*h*
**Bardyšev, I. I.** See Bardyshev, I. I.
**Bardyshev, I. I.** Viscosity of terpenic hydrocarbons, 5249*c*, prepn. of alloöcimene, 7003*i*; see Piryatinskiĭ, A. L.
——— and Bardysheva, K. V. Nature of the *l*-component of native resin turpentines, 2192*b*
——— and Befilov, V. V. Prepn. of the pentaerythritol ether (ester) of rosin, 2788*b*
——— and Piryatinskiĭ, A. L. Analysis of native turpentines (I) constancy of Biot's law, 5971*b*
**Bardysheva, K. V.** See Bardyshev, I. I.; Tishchenko, D.
**Bareau, M. B.** See Betz Bareau, M
**Barella, J. M.** Analytical study of the changes produced in wool by damage or by foreign substances, 5596*a*.
**Barenholm, A. M.** See Berkman, A. S
**Barendregt, T. J.** See Kögl, F
**Barendse, J. C.** Perforated metallic sieves, etc., P 6966*d*
**Barengo, E.** See Pisu, I
**Barer, A. P.,** and Fowler, W. M. Effect of an acid and alk. salt on the urinary excretion of Fe, 8556*a*
**Barer, R.,** Cole, A. R. H., and Thompson, H. W. Infrared spectroscopy with the reflecting microscope in physics chemistry, and biology, 2857*a*
**Barer, R. D.,** and Bever, M. B. Effect of quenching on the age hardening of two Al alloys, 9010*a*
**Baresi, F.,** and Zammarchi, A. Mille fiorin esperienze di tintura (book), 7318*i*
**Barfield, M. L.,** and Gurtowski, J. J. Temp.-stable molded resistor, P 6529*h*
**Barfod, B.** Distribution of glycogen in the rabbit liver, 3910*d*, see Richter, K
**Barfuss, F.** See Richter, O
——— and Fichler, O. Repeated administration of persiston, 8743*h*
**Bargallo, M.** "Nueva Theorica del Beneficio de los Metales de Oro y Plata" of Joseph Garcés y Luque, 2477*e*
**Bargellini, G.** Diaza-phenanthrene series—cation-phalochromy of quinoline and diaza-phenanthrene derivs., 9376*a*, see Oliverio, A
**Bargen, J. von.** See Von Bargen, J
**Barger, P.** Lampblack, P 1172*e*
**Barger, W. R.,** Want, J. S., Pentzer, W. T., Ryall, A. L., and Dewey, D. H. Fungicidal treatments for the control of decay in California cantaloupes, 3133*h*
**Bargeton, D.** See Chabrol, E.
——— and Krumm Heller, C. Detn. of the metabolic rate of small animals for short intervals, 1821*b*
**Barghi, M.** Ion exchange in the sugar industry, 8713*f*
**Barghoorn, E. S.** See Siu, R. G. H.
**Bargmeyer, E. G.** Compounding copolymers of butadiene and styrene, P 3228*i*, butadiene styrene copolymer cements, P 3229*b*.
**Bargone, A.,** and Rinaldi, F. Decarbonization in the treatment of steel, 3759*g*
**Bargoni, N.** Inhibition of oxidation of ascorbic acid in the endocarp of the orange, 4343*d*, pyruvic acid and reticulocyte content of the blood of normal and cancerous rats, 6723*e*, oxidation of EtOH in the liver, 9129*a*
**Barham, H. N.** Chlorination of starch and products thereof, P 128*c*.
——— and Wagoner, J. A. Effect of time and conditions of cure on carbohydrate compn. of sweet potatoes and properties of their starches, 2454*g*
**Barić, L.** Barite of the Trepča mines, 4979*h*, form of barite crystals and cavities corresponding to them in quartz of Suplja Stena near Belgrade, 4979*i*
**Bariéty, M.,** and Kohler, D. Influence of ascorbic acid on adrenaline-provoked pulmonary edema, 1107*h*.
**Barillet, F.** Sécurité dans les laboratoires et les fabriques de produits chimiques minéraux. Fasc. IV (book), 789*a*
**Barilli, V.** See Capraro, V
**Barit, I. Ya.,** and Podgoretskiĭ, M. I. Fluctuations of the current in an ionization chamber as a function of the end of the collection period, 2087*h*.
**Barium Reduction Corp.** $H_2S$, P 7201*h*; $CS_2$ and $H_2S$, P 7201*i*.
**Barkas, W. H.** Threshold energy for meson production, 4561*b*.
**Barkas, W. W.** Sorption, swelling, and elastic consts. of the cell-wall material in wood, 4009*a*; sorption and swelling of cellulose under natural and imposed restraints, 4009*b*
**Barke, A.** Soporific narcosis in animals, 318*c*.
**Barker, A.** See Burden, H.
**Barker, A. F.** Evolution of wool research, 5955*c*; architecture of wool fibers, 9465*i*.
**Barker, A. N.** Microbiol. aspects of sewage purification, 6767*d*.
**Barker, A. W.,** and Imperial Chemical Industries Ltd. Removal of liquids, P 3250*c*
**Barker, B. T. P.** Stability of ciders and perries, 2364*h*.
**Barker, C. W.** See Young, R. S.
———, Cahill, M., and Young, R. S. Sepn. of Cd from Zn, 4176*b*
**Barker, E. C.** Av. γ energy emitted per β-particle for several radioactive isotopes, 4091*c*
**Barker, E. F.** See Posey, L. R., Jr.
**Barker, F. C.** Coals for Midland gas undertaking, 1944*e*.
——— and Peierls, R. E. Definition of the effective range of nuclear forces, 4097*g*.
——— and Ravenhall, D. G. Scattering of like particles at 100-m.e.v., 2860*e*
**Barker, G. E.** Effect of a nonionic detergent on the detergency of alkylaryl sulfonates and soap in hard water, 5976*b*, synthetic detergent compn., P 6438*f*
**Barker, Ge R.** Chemistry of ribose and its derivs. (I) methyl D-ribofuranoside and the characterization of trimethyl D-ribofuranose, 2953*h*, see Anderson, A. S.; Barakan, I. H
**Barker, H. A.** Bhat, J. V., Karlsson, J. L., Sacks, L. E., Stadtman, E. R., Stadtman, F. C.
——— and Lipmann, F. Phosphate in the metabolism of *Lactobacterium pentosaceum*, 6701*b*
**Barker, H. G.** See Clark, J. K.
**Barker, L. J.** Metallographic study of Al alloy 35, 7095*a*
**Barker, M. G.** See Hollman, W. C.
**Barker, N. W.** Technique of quick prothrombin time, 5387*a*, see Margulies, H.
**Barker, R. C.** See Ocean Salts (Products) Ltd.
**Barker, R. S.** See Bachman, G. B.
——— and Whitehill, L. N. Polymers of vinyl (allyloxy)acetate, P 2817*a*
**Barker, S. B.** Metabolic functions of the endocrine system, 5467*c*
——— and Lipner, H. J. Iodination of tissue protein following injection of elemental I, 2647
**Barkhuff, R. A., Jr.** Asphalt molding compns., P 6004*e*
**Barki, V. H.** See Couch, J. R., Nath, H.
———, Deise, P. H., Collins, R. A., Hart, E. B., and Elvehjem, C. A. Influence of coprophagy on the biotin and folic acid requirements, 5833*h*.
**Barkov, B. N.,** and Rozhkov, E. M. Detn. of small quantities of Mn in steel, 3518*a*
**Barkov, B. Ya.** Detn. of Fe and Ti in V slag, 4178*c*.
**Barkov, S. A.** Comparative accuracy of the simpler equations for the calcn. of the lattice energy, 8230*f*.
**Barksdale, J.** Titanium. Its Occurrence, Chemistry and Technology (book), 6500*b*
**Barkulis, I. L.** Growth inhibition of *Eberthella typhosa* by certain carbohydrates and its release by mutation, 8005*i*
**Barlot, J.,** and Marsaule, S. Prepn. and properties of hydrazine perchlorate, 8934*b*
**Barlow, A.,** and McCance, R. A. N partition in newborn infants' urine, 2294*a*
**Barlow, C. S.** See Waring, C. E.
**Barlow, G. W.** See Norris, W. C.
**Barlow, J. S.,** Slinger, S. J., and Zimmer, R. P. Reaction of growing chicks to diets varying in NaCl content, 286*e*
**Barlow, R. B.,** and Ing, H. R. Curare like action of polymethylene bis-quaternary $NH_4$ salts, 2703*c*.
**Barman, P.** See Kobelt, M., Prelog, V
**Barmore, M. A.** See Finney, K. F.
**Barnabò, M.** Electrolytic production of Al, P 4153*b*
**Barnaby, H. S.** See Jones, L. D., Kuh, P.
**Barnard, C. H.** Firing rotary kilns, 8115*b*
**Barnard, D.,** and Challenger, F. Formation of kojic acid from EtOH by *Aspergillus oryzae* and the action of this mold on some carbohydrate derivs., 8007*a*.
**Barnard, N. H.,** and Hartley, F. Stability of penicillin in lozenges, 1149*g*.
**Barnard, R. D.** Guanidine ferridehemoglobin and the carbimide structure of "cyanamide"—relation of chem. structure to cholinergic activity, 1074*d*; see Heitz, R. G.

**Barnartt, S.**, and Ferguson, J. B. Isopiestic method applied to sorption isotherms, 4922*b*; isopiestic investigation of charcoal activation, 4922*e*.
**Barnesboy, H. L.** High-temp. processing of fatty oils and acids, 9488*h*, see Shields, J. R.
——— and McWhorter, C. J. Fume control in varnish manuf., 1903*c*.
——— and Shields, J. R. Autoclave for treating liquids, P 7273*f*
**Barnes, B. A.** Estg groundwater supplies with elec logs of wells, 3119*a*
**Barnes, C. E.** Emulsion polymerization, P 5991*c*; α-chloroacrylic acid esters, P 7502*d*
——— and Ney, W. O., Jr. Photographic emulsions P 2882*g*, reversible gel compn., P 8076*d*.
**Barnes, D. F.** See Lindgren, D. T.
**Barnes, E. W.** See Hanzlik, P. J.
**Barnes, H.** Leaching rate and behavior of antifouling compns., 3631*f*, antifouling compns. (I) introduction, (II) formation of Cu soap in the prepn. of cuprous cont.; $Cu_2O$ and rosin, (III) rate of loss of material from a graded series of varnishes exposed in the sea, (IV) relations among leaching rate, Cu loss, and antifouling performance, under raft and service conditions, (V) behavior of $H_2O$ in some antifouling compns.—leaching-rate test, 3631*g*, (VI) leaching rate during the early stages and its relation to the surface conditions in $Cu_2O$ compns., 6857*b*
——— and Wilkie, E. T. Prepn. of small uniform areas of paint films of graded thickness, 3628*i*
**Barnes, H. M.** 5-Pentadecylresorcinol as an oxidation inhibitor of glycerides, P 884; ———, Kramer, F., and Wood, J. R. Unusual impurity in caffeine, 9377*b*
**Barnes, J. E.** See Weiland, J. H., Jr.
**Barnes, J. M.** Staining of the duodenal mucosa of rats following the ingestion of tannic acid, 4704*f*, see Ros, H. E.
**Barnes, J. R.** See Bratzler, J. W.
**Barnes Jack R.** Ground water resources of Wharton County, Texas, 1127*b*
**Barnes, John R.** See Shapiro, Maurice M.
**Barnes, R. A.** See Holly, F. W.
**Barnes, R. B.** Infrared spectrometer and its application, 1939*b*, see Christ, C. L., Dohrmann, K., Gore, R. C. and Gore, R. C. Infrared spectroscopy in analytical chemistry, 2115*c*. and Stock, C. R. App. for transmission in the infrared, 2145*b*
**Barnes, R. H.** Bud antioxidants, 9180*h*, see Bosshardt, D. K., Westfall, R. J., Clausen, M., Russell, L. J., Hanson, H. T., Swendseid, M. E., and Butt, G. O. Nutritive characteristics of rancid fat, 9180*a*. and Gurin, S. Formation and utilization of the ketone bodies, 9090*i*
**Barnes, R. P.** See Ferguson, L. N.
**Barnes, S. W.** See Ingram, M., Clark, A. F., Collin, G. B., Oxley, C. L., McCreary, R. L., Platt, J. R., and VanVoorhees, S. N. Rochester cyclotron, 1109*a*
**Barnes, T. C.**, and Beutner, R. Pharmacodynamic action of acetylcholine, 8526*b*
**Barnes, V. E.** See Cloud, P. E.
———, Goldich, S. S., and Rombera, F. L. Geology in the Llano region, central Texas, 8990*g*
**Barnes, W. E.** Deusitometer of drilling muds, P 843*b*.
**Barnes, W. H.** Detn of unit cell constants and space groups, 8782*g*, unit cell and space group of childrenite, 8986*a*, unit cell and space group of lindgrenite, 8985*n*, unit cell and space group of probertite, 8984*f*.
**Barnes Drill Co.** Magnetic separator, P 6011*c*
**Barnett, A. E.** See Robey, R. F.
**Barnett, B.** See Vaughan, W. E.
**Barnett, C. E.** Physics and chemistry of materials, 2787*i*
——— and Durland, G. R. Luminescence of minerals and synthetic compns., 490*g*
——— and Grady, L. D. Emission characteristics of fluorescent pigments, 8278*h*.
——— and Jones, H. C. Adsorption in reinforcement of GR-S, 8188*h*.
**Barnett, E. H.** Critical consts., d., and viscosity, 8226*e*.
**Barnett, H. M.** See Hartmann, M. L.
**Barnett, R. S.** See Ashburn, H. V.; Herbst, M.
**Barnett, T. B.**, Metcalf, R. G., Suter, G. M., Inda, F. A., Casarett, G. W., Kennedy, R. P., and Anders, M. V. Pathol. anatomy of U poisoning, 8528*e*.
**Barneville, R. de.** Concretes of portland cement, 5567*g*
**Barney, A. L.** *dl*-Menthone, P 501*of*, copolymers of vinyl isocoumarans with 1,3-dienes, P 7259*a*, copolymers of vinyl isocoumarans with vinyl monomers, P 7262*a*, copolymers of vinyl isocoumarans with styrenes, P 7263*e*, see Mochel, W. E.
**Barnhurst, J. D.** See Tormey, H. J.
**Barnicoat, C. R.** Packing and storage of butter (VI) effect on keeping quality of butter on exposure to light during manuf., (VII) effect of "free" air in butter, (VIII) effect of certain added substances on the storage life of butter, 326*f*
**Barnicot, N. A.** Local action of calciferol and vitamin A on bone
**Barnitz, E.** low-pre… still, 3636*h*, … sub-tank 7919*d*
**Barnothy, J.** mesons, Sc… ty prod… and Forro… at depth, … ucts of cosmic … 1643*b*
**Barnstorff, H.** Fey… 8081*b*
**Barnum, C. P.** Ars… W. D., Gollan, F. K. ——— and Hasel… A. Analyses of the particulate fr… from mouse cytoplasm, 431
**Barnum, E. R.**, Perry, G. L. L. … P
**Baro Graf, J. C.** Acridin complex… thin-layer adsorption, 7868*i*, microchem. reactions of Cr⁺⁺⁺ and Fe⁺⁺⁺, 8072*d*
**Baron, A. I.** Erythrism, P 9390*k*.
**Baron A. M.** Dyeing of "Rhodil," 6420*a*
**Baron G. K.** Retort for melting ozokerite, P 5896*g*.
**Baron, H. C.** See Shafroff, E. G. P.
**Baron, H. G.** See Hodgson, C. C.
**Baron, J.** Loss on ignition in the analysis of iron ores, 520*g*, detn. of Fe in the minerals of the Lorraine district, 2544*d*.
**Baron, N. M.**, and Mishchenko, K. P. Compn. and vapor pressure over solns. of NaBr in a binary solvent, 6902*f*
**Baron, S. A.** Inflatable solar still for obtaining drinking water from sea water, P 2348*a*
**Baron, V. V.** See Svyatskii, E. M.
**Barona de la O., F.** Efficient cements for Mexican reclamation work, 7659*b*
**Barondes, R. de R.**, Kuhns, R. H. Levine, D. L., and Strachan, C. E. Psychotic states correlations of biochem. and histologic changes in the brain, 6486*k*
——— and Levine, D. I. Ac. radiation effects—release and neutralization of humoral toxic agents, 7322*a*.
**Baroni, G.** See Marini Bettòlo, G. B.
**Baronnet, R.** Conditions of prepn. of Ag gluconates—their behavior on hydrolysis—ferriglucosic acid, 5713*k*, see Delaby, R.
**Barott, H. G.**, and Pringle, E. M. Effect of environment on growth and feed and water consumption of chickens (II) effect of temp. and humidity of environment during the first 18 days after hatch, 5459*e*
**Barquín López, F.** Oxaluria in Cuba, 1477*k*
**Barr, A. T.** W carbide bits for blockholing at Ajo, 6135*i*
**Barr, C. G.** Fluorometric detn. of malic and succinic acids in apple tissue, 267*b*, see Need, A. L.
**Barr, F. T.** High-pressure H, P 309*g*, hydrocarbon synthesis, P 6810*i*, 8120*e*.
**Barr, J.** Combustion in vitiated atms. (II) diffusion flames, 8657*b*
——— and Mullins, B. P. Combustion in vitiated atms. (I) combustion process in vitiated air, 7707*a*
**Barr, J. A.** Potash and phosphate in 1948, 6551*a*
**Barr, J. R.** See Woke, P.
**Barr, Martin**, and Nelson, J. W. Paul assay of aconite tincture, 9300*d*
**Barr, Mollie.** Effect of heat on diphtheria toxoid antitoxin flocules, 7149*h*, test toxins and the need for standards in the detn. of avidity of antitoxins, 9228*i*
**Barr, T.** See Baird, W.
**Barr, W.**, and Erskine, J. Manuf. and use of stainless-clad steel, 5351*d*.
**Barr, W. E.**, and Auhorn, V. J. Scientific and Ind. Glass Blowing and Lab. Techniques (book), 913*d*.
**Barr, W. F.** See Lehrer, W. P., Jr.
**Barragán C., J. M.** Amylase in blood and urine, 5840*b*.
**Barrett, R. W.** See Tatum, E. L.
——— and Horsfall, J. G. Fungicidal action of metallic alkyl bisdithiocarbamates, 9335*c*.
**Barre, J. la.** See La Barre, J.
**Barré, René.** See Courtois, J.
**Barre, Roger**, and Ladouceur, B. Prepn. of ketones from organomagnesium compds. and ortho esters, 5365*g*.
**Barreda, P. de la.** See Jiménez Díaz, C.
**Barredo, J. M. G.** See González Barredo, J. M.
**Barreiro, J. A.** See Apraiz Barreiro, J.
**Barrenscheen, H. K.**, and Pany, J. Methylation by plant and animal tissues (II) methionine and choline as methyl donators in creatine synthesis by animal ti… 665
——— and Skudrzyk, J. Uniformity of sarcoma mekanus, 6727*g*
——— and Valvi-Nagy, T. Methylation by plant and animal tissue, (III) methyl transfer from methionine, 6681*e*.
**Barrer, R. M.** Rate consts. of "unimol." reactions, 471*i*, fluid flow in porous media, 1239*k*, mol.-sieve absorbents, P 1618*b*; ion exchange in crystals, 4534*g*, gas-metal equil. interstitial solns. and diffusion, 4917*e*, synthesis and reactions of mordenite, 5324*c*, transient flow of gases in sorbents providing uniform capillary networks of mol. dimensions, 6488*g*, prepn. of some cryst. H zeolites, 9296*e*
——— and Skirrow, G. Transport and equil. phenomena in gas-elastomer systems (I) kinetic phenomena, (II) equil. phenomena, 8730*a*
——— and Woodhead, M. Hg-chabazite system, 7288*g*
**Barrera i Costa, H.** Synthesis and cyclization of aryl aliphatic acids, 4659*b*.
**Barret, A.** See Keilling, J.
**Barreto, A.** Polychlorophenols in fermentation of carbohydrates, P 6782*e*
**Barreto, L. N.**, Díaz Mendez, H. E., Falabella, P., Genovese de Poggi, N. E., and Couto de Rothman, C. L. Amino acid content of foods, 2297*a*.
**Barreto Cavalcanti, M. da C. P.** See Paes Barreto Cavalcanti, M. da C.
**Barrett, C. S.** Crystallographic mechanisms of translation, twinning, and banding, 7394*d*; see Hess, J. B., Smigelskas, A.
**Barrett, E.** See Addis, T.
——— and Addis, T. Serum creatinine concns., 7110*g*
**Barrett, E. G. V.**, and Howe, D. J. T. Photographic materials and processes, 4788*h*.
**Barrett, Edward P.** Production of sponge Fe, 3794*h*
**Barrett, Elliott P.** Synthetic granular adsorbents for sugar refining, 8649*e*
**Barrett, J.**, and Hartley, R. S. Protection of wool against attack by insect pests, 9319*a*
**Barrett, L. R.** See Clements, J. F., Gad, G. M.
**Barrett, R. H.** Na succinate—clinical use in respiratory depression, 9265*i*
**Barrett, W. L., Jr.**, and Wells, R. W. Transplantation of *Hypoderma* larvae and testing chemicals for control of larvae in exptl. hosts, 1867*g*.
**Barrett, W. W.** Pulpstones and their use, 3612*g*.
**Barretto Filho, L.** See Emidio Barbosa, P.
**Barricelli, L. L.**, and Rasmussen, O. Structure of divanyl ether, 8788*i*
**Barrick, P. L.** Mono- and disubstituted 2,2,3,3-tetrafluorocyclobutanes, P 4293*g*, 1-aryl-2,2,3,3-tetrafluorocyclobutanes, P 4294*c*, unsatd. 2,2,3,3-tetrafluorocyclobutanes and their polymers, P 4294*g*, see Coffman, D. D.
**Barriol, J.**, and Frühling, A. Abnormal polarization of diffuse light by crystals, 2869*b*
**Barro, V. M.** See Budnikov, P. P.
**Barron, E. S. G.** Cellular metabolism and growth, 4710*g*, see Altman, K. I.; Kalnitsky, G.
——— and Dickman, S. Action of ionizing radiations (II) inhibition of sulfhydryl enzymes by α, β, and γ rays, 6682*e*
———, Dickman, S., Muntz, J. A., and Singer, T. P. Action of ionizing radiations (I) inhibition of enzymes by x-rays, 4716*c*.
———, Flood, V., and Gasvoda, B. Action of ionizing radiations (V) effect of $H_2O_2$ and of x-ray irradiated sea water on the

respiration of sea-urchin sperm and eggs, 9272g.
——, Gasvoda, B., and Flood, V. Action of ionizing radiations (IV) effect of x-ray irradiation on the respiration of sea urchin sperm, 9272e.
——, Muntz, J. A., and Gasvoda, B. Regulatory mechanisms of cellular respiration (I) cell membranes—U inhibition of cellular respiration, 2256h.
——, Nelson, L., and Ardao, M. I Regulatory mechanisms of cellular respiration (II) sol. sulfhydryl groups as shown by the effect of sulfhydryl reagents on the respiration of sea-urchin sperm, 2257c.
—— and Tahmisian, T. N. Metabolism of cockroach muscle, 2333a.
**Barron, G. P.**, Brown, S. O., and Pearson, P. B. Histol. manifestations of Mg deficiency, 3895a
——, Pearson, P. B., and Brown, S. O. Mg deficiency in the sexually mature rat, 734g.
**Barron, H.** Protecting metal surfaces, 8734f.
**Barron, J. M.** See McReynolds, H
**Barron, S. S.** β granules in the islets of Langerhans of the pancreas, 4755i.
**Barron-Gray Packing Co.** Extn of sweetening ingredients from fruit juices, P 6333h.
**Barrow, D. N.** Natural-gas dehydration, 3171i.
**Barrow, R. F.** See Vago, E. E.
—— and Mulcahy, M. F. R. Excited states of AgBr and AgI, 40c, B-N system of AgI, 3712h.
**Barrows, R. S.** Emulsion polymerization of 2-chloro-1,3-butadiene in the presence of tetraalkyldiaminodiphenylmethanes, P 1601c; polymerization of chloroprene in the presence of tetraalkyldiaminodiphenylmethane, P 9520d, 2-chloro 1,3-butadiene copolymers having improved stability, P 9519d.
—— and Scott, G. W Stability of high-polymer latexes to acidification, 2009d.
**Barry, A. F.** Removal of free water from high-pressure gas lines to prevent formation of hydrates, 4832e
**Barry, A. J.** Organopolysiloxane resins, P 3233i, monoaryldihalosilane, P 5801g; rendering hydrophilic substance water repellent, P 6430d; organohalosilanes, P 8743h, see De Pree, L.
—— and Gilkey, J. W. Alkylsesquisiloxanes, P 6221d
——, Hook, D. E., and DePree, L. Hydrochlorosilyl addn. product with rubber, P 8194c.
**Barry, E. F.**, and Gaddie, R. S. Ion-exchange purification of low-grade beet sirup, 6442b.
**Barry, G. T.** See Hogeboom, G. H.
—— and Boyer, R. $H_2SO_4$ as a rearrangement medium for some α-diphenylchloroethanes, 199a, synthesis and biol. toxicities of some DDT homologs and related compds., 199c.
**Barry, J. P.** Effect of herbicides based upon plant hormones upon flax, 1139b, see Kuhnholtz-Lordat, G.
**Barry, R. E.** See Kunn, R
**Barry, T. H.** Glutamic acid, 3531h; (II), 4632f.
**Barry, T. M.** Relation of stock prepn. to the formation of sulfite papers, 1566e
**Barry, V. C.**, Belton, J. G., Conalty, M. L., and Twomey, D. Antituberculous activity of oxidation products of substituted o-phenylenediamines, 3932a
**Barsakowsky, W. P.** See Barzakovskii, V. P.
**Barsanov, G. P.**, and Pogonyn, Va. F Mineralogy of the new Ni-Ag deposits of Akol, 5707f.
**Barsantini, J. C.** See Masson, G.
—— and Masson, G. Effect of steroids on lactation, 8032d.
**Barsby, G. S.** Cr in paints and pigments, 1195e.
**Barschall, H. H.** See Adair, R. K.; Bockelman, C. K., Gittings, H. T.
—— and Taschek, R. F Angular distribution of 14 m.e.v. neutrons scattered by protons, 6909e.
**Barsh, M. K.** See McCullough, J. D.
**Barshad, I.** Mo detn. in plant material, 9132c; vermiculite and its relation to biotite as revealed by base-exchange reactions, x-ray analyses, differential thermal curves, and water content, 8987h
**Barshchevskii, F. A.** Bonding material, P 6389c; concrete and cement mixes, P 6389c.
**Barshtein, I. K.** Influence of moisture content in fuel on boiler performance, 5921d.
**Barsigian, F. M.** See Harness, C. L.; Johnson, Bertrand L.
**Barsotti, M.**, and Crotti, G. Epileptiform attacks as manifestations of professional poisoning with trimethylenetrinitroamine (T4), 8682c.
—— and Vigliani, E. C. Tumors of the bladder from aromatic amines, 9297h.
**Barsoum, G. S.** See Aurep, G. V
**Barstow, W. F.** Gas atms in the paint, varnish, and chem industries, 7607e
**Bartell, F. E.** See Davis, J. K.; Hansen, R. S
——, Purcell, W. R., and Dodd, C. G Measurement of the effective pore size and of the water-repellency of tightly woven textiles, 3623.
**Bartels, C. R.**, and Kleiman, G Solvent fractionation with immiscible solvents, 8747d
**Bartels, H.** Line emission from an inhomogeneous layer (I), 6917d, (II), 8879g
**Bartels, H. J.**, and Benesovsky, F. Sintereisen und Sinterstahl (book), 554a
**Bartenev, G. M.** High elastic properties of vulcanized butadiene-styrene rubber, 7253e; see Dogadkin, B
—— and Luzhyanskaya, S. G. Control of strains in sheet glass, 1540g
**Barth, L. G.** Adenosinetriphosphatase activity in embryonic development, 5177e, see Jaeger, L.
**Barth, O.** Development of the elec. furnace and elec smelting, 3725c
**Barth, R. H.**, and Snow, J. E Formals of pentaerythritol, P 4290h
**Barth, T. F. W.** Frequency distribution of the minerals in two petrographic provinces, 6547a; see Bloss, F. D
—— and Rosenqvist, T Thermodynamic relations of miscibility and crystn. of molten silicates, 6890b.
**Barthe, R.**, and Paris, J. Neuro vegetative system in chronic CO poisoning, 5108g
**Barthel, J. C.**, Davis, A. R., and Poor, F. N Stabilized dry rosin-size compn., P 8706e
**Barthel, W. F.** See Gersdorff, W. A., La Forge, F. B
**Bartholomew, C. J.** Enamel compn., P 6838f.
**Bartholomew, G. A.** See Clarke, R. L.
**Bartholomew, J. W.**, Evans, F. F., and Nielson, E. D Effect of esterification of protein carboxyl groups on the staining of bacterial cells, 9155g
**Bartholomew, W. H.** All glass lab. long-tube evaporator, 4905g.
**Bartleson, J. D.** Lubricating-oil additive, P 8668c, see Hughes, E. C
—— and Sundby, M. L Complex thiophosphoric amides as lubricant additives, 6400c.
**Bartlett, G.** Elec and allied developments in 1948, 188b.
**Bartlett, G. R.**, and MacKay, E. M Insulin stimulation of glycogen formation in rat abdominal muscle, 9202d
——, Wick, A. N., and MacKay, E. M Influence of insulin and adrenal cortical compds. on the metabolism of radioactive $C^{14}$-glucose in the isolated rat diaphragm, 6714e.
**Bartlett, James H.** Comparison of transients in inorg. systems with those in plant and nerve cells, 2253c
**Bartlett, Jeffrey H.** See McNab, J. G.; Rogers, D. F.
**Bartlett, M. N.** See Humm, J. H.; Kochakian, C. D.
**Bartlett, Paul Devore**, and Gaebler, O. H. Phlorhizin diabetes in vitamin deficiencies—conversion of protein to glucose, and serum phosphatase, during deficiencies of thiamine, riboflavine, and pyridoxine, 5484b, anterior pituitary growth prepns—N storage and other criteria of activity, 8187i.
**Bartlett, Paul Doughty.** See Nozaki, K.
—— and Cotman, J. D., Jr. Kinetics of the decompn of K persulfate in aq. solns. of MeOH, 6055f.
——, Dauben, H. J., Jr., and Rosen, L. J. Lewisite, P 5412b.
——, Hammond, G. S., and Kwart, H. Inhibition and retardation by certain quinones of the peroxide-induced polymerization of allyl acetate and vinyl acetate, 5740g
—— ——, Ross, S. D., and Swain, C. G. Kinetics and mechanism of the reactions of 2-chloroethylamines in soln. (III) 2-chloroethyldiethylamine and tris-2-chloroethylamine, 6158d.
—— and Swain, C. G. Kinetics of hydrolysis and displacement reactions of β,β′-dichlorodiethyl sulfide (mustard gas) and of β-chloro-β′-hydroxydiethyl sulfide (mustard chlorohydrin), 6057e.
**Bartlett, P. G.** Quaternaries in the laundry field, 7725g
**Bartlett, S.**, Folley, S. J., Rowland, S. J., Curnow, D. H., and Simpson, S. A. Estrogens in grass and their possible effects on milk secretion, 6702d.
**Bartlett, S. G.** Fe from Fe ore, P 6562d.
**Bartocci, A.** Metalli e l'Acciaio (book), 554a
**Bartole, A.** Al acetate, 7192g
**Bartolomé, J. M.** Reactors (I) heating systems, 2823g; (II) description, 7270d.
**Barton, B. C.** Vulcanization of rubber, P 5626f
**Barton, C. J.** Photometric analysis of phosphate rock, 1288a.
**Barton, D. H. R.** Structure of an isomeric satd. lactone, 2192d; optical rotation and mol. structure of the steroids, 4080d, chemistry of the diterpenoids, 6601f, kinetics of the dehydrochlorination of substituted hydrocarbons (I) induced dehydrochlorination, 7107d; see Distillers Co., Ltd., Klyne, W
—— and Cox, J. D. Application of the method of mol. rotation differences to steroids (IV) optical anomalies, 242h, (V) olefinic unsatn. at the 7,8-position, (VI) neosterol, 1125a; (VII) olefinic unsatn. at the 8(9)-position, (VIII) 22(23) dehydroergosterol D, 7492h
—— and Howlett, K. S. Kinetics of the dehydrochlorination of substituted hydrocarbons (II) thermal decompn. of 1,2-dichlorethane, (III) thermal decompns. of EtCl and of 1,1-dichlorothane, 7407h
—— and Klyne, W Identification of "17-keto steroid II" as androsten-6-ol-17-one, 1018a, survey of steroid mol. rotations, 6680d
—— and Miller, E Application of the method of mol. rotation differences to steroids (IX) α ergostadienol, 7493e
—— and Rosenfelder, W. J. Δ⁷ Cholesten-3-ol, 7911c, Δ⁸-cholesten-3(β)-ol, 9077b
—— and Schmeidler, G. A Application of the method of electrostatic energy differences (I) stereochemistry of the diterpenoid acids, 1012e
**Barton, G. B.**, and Kurbatov, J. D Dependence of the diffusion current of Yb on supporting electrolyte and pH, 6523h
**Barton, H. C.** See Kinsell, L. W
**Barton, H. K.** Die casting dies—production of cavity inserts from sintered metal powders, 1697a, temp. control—principles and practices for die casting dies, 1697b, hot dip tinning Zn die castings, 5673g
**Barton, J.** See Brody, S.
**Barton, J. C.** See Lafferty, R. H., Jr.
**Barton, L. V.** See Prill, E. A
—— and Solt, M. L. Growth inhibitors in seeds, 3492i.
**Barton, O. A.** See Parker, J. E.
**Barton, R. C.** See Woods, H. A
**Barton-Wright, E. C.**, and Dawson, E. R. Fermentation industries, 4789c.
**Bartos, J.** See Velluz, L.
**Bartow, V.** W. F. Hillebrand and some early letters, 6014f
**Bartram, K.** See Inhoffen, H. H.
**Bartrum, J. A.** Lava injection of carbonized tree trunk and other interesting minor volcanic phenomena at Auckland, 2903h, inclusions of igneous and metamorphic rocks in the serpentinite at Harper's, near Wellsford, North Auckland, 4010d.
**Bartstra, E. A. C.**, and Verburgt, J. W Mineral compn. of leaf and root of sugar beet (IV) analysis, 4500i.
**Bartter, F. C.** See Albright, F.
**Barttlingck, H.** See Geilmann, W.
**Bartu, F.** Economy of Radex brick in smelting furnaces, 3755f; burner-head for tilting furnaces, 7877i; development of the "Maerz" type open-hearth furnace, 8324f.
**Bartunek, R.** Hindrance to viscose formation as a result of the properties of individual fibers and the pulp sheet, 3611b.
**Barucha, R.** See Sahney, R. C.
**Baruh, J.** See Lacourt, A.
**Barvinok, M. S.** Spectrophotometric study of cobalt(II) halogen complexes, 520a, spectrophotometric investigation of co-

baltous chloride and cobaltous bromide complexes in acetone, 7817*e*; spectrographic investigation of cobaltous halide complexes in PrOH soln., 7817*i*; spectrophotometric investigation of cobaltous halide complexes in alc. soln., 8273*h*.
**Barwell, C. F.** Antigenic components of psittacosis virus, 4363*a*.
**Barwell, F. T.**, and Milne, A. A. Measurement of kinetic boundary friction—specifications for lubricating oils, 8658*c*.
**Barwinok, M. S.** See Barvinok, M. S.
**Baryshanskaya, F. S.** See Landsberg, G. S.
**Barzakovskii, V. P.**, and Raskin, N. M. First scientific chem. research lab. in U.S.S.R., 6477*h*.
**Bas, J. A.** See Spitz, J.
**Basak, B. S.** Space group of phenanthrene, 919*g*.
**Basak, G. C.** See Himus, G. W.
**Basak, N. G.** See Ghosh, J. C.
**Basavilbaso, F. C.** Application of spectrography to the analysis of potable waters, 3951*g*.
**Basberg, A.** Net calorific value of black liquor from the sulfate process, 3612*i*, effective heat value of Kraft black liquor, 8676*b*.
**Baschieri, L.**, and Ferri, F. Effect of lipotropic factors and vitamins in diphtheria-toxin poisoning, 9256*i*.
**Bascom, F.** See Vanderbilt, B. M.
**Bascom, R. C.** Vulcanization of expanded rubber, P 2027*a*, nitrile rubber phenolic blends, 7748*i*.
**Basevi, E.** Extn. of resins and oil from vegetable materials, P 1873*e*.
**Basford, F. R.**, Curd, F. H. S., and Rose, F. L. 2-Benzimidazolylaminopyrimidine derivs., P 3874*a*.
——, Curd, F. H. S., Rose, F. L., Openshaw, H. T., Hull, R. T., and Todd, A. R. Pyrimidine compds., P 6213*a*.
**Bashforth, G. R.** Thermal efficiency and economies of oil firing, 3755*c*; Manufg. of Iron and Steel (book), 4997*i*.
**Bashilov, A. A.** See Latyshev, G. D.
**Bashkirov, A. N.**, Kryukov, Yu. B., and Kagan, Yu. B. Synthesis of hydrocarbons from CO and H, 9415*h*.
**Basic Refractories, Inc.** Formation and repair of basic refractory linings for furnaces, etc., P 832*d*, purification of $MgCO_3$, P 1537*e*, sepn. of Mg and Ca carbonates, P 3981*g*, magnesia refractory, P 4442*b*, refractories, P 4825*b*, 6804*a*, 9408*e*; products from refractory material, P 4826*a*.
—— and Arnold, J. C. Refractory materials, P 9408*d*.
**Basile, A.** Therapeutic treatment of infections by *B. coli* through immunization with glucidolipide, 5483*c*.
**Basilevich.** See Bazilevich.
**Basiński, A.** Heaviest H isotope, 1619*c*.
**Baskai, E.** Same as Brummer, E.
**Baskakov, Yu. A.** See Nametkin, S. S.
**Baskerville, E. E.** Analysis of Be Cu alloys, 8965*e*.
**Baskin, C. M.**, and McLeod, N. W. Fibrous building comps., P 6389*f*.
**Baslavskaya, S. S.** Physiol. indexes of salt-tolerance of sugar beet, 5455*f*.
**Bass, A.** See Kleinzeller, A.
**Bass, A. D.** See Richert, D. A.
—— and Feigelson, M. Response of normal and malignant lymphoid tissue to methyl-bis(2-chloroethyl)amine and ethyl carbamate in adrenalectomized and non-adrenalectomized mice, 3109*f*.
**Bass, A. M.** Short-wave cut-off filters for the ultraviolet, 944*h*.
**Bass, I. B.** Tanning hides, P 3612*b*.
**Bass, S. L.** See Rowe, V. K.
**Bassani, B.** See Cattaneo, Carlo; Monzini, P.
**Bassermann, C.** See Horn, L.
**Bassett, E. A.**, Emblem, H. G., Frankel, M., and Ridge, D. The Wurtz Fittig reaction in the prepn. of organo-substituted silanes, 124*e*.
**Bassett, H.** See Ewens, R. V. G.
**Bassett, H. L.**, Thorne, N., and Young, C. L. Tetraphenylethylene series (I), 7005*i*.
**Bassett, J. G.** See Fitterer, G. R.
**Bassett, L. G.** See Wiberley, S. E.
**Bassett, S. H.** See Waterhouse, C.
**Bassford, H. H., Jr.**, Harmon, W. S., and Mahoney, J. F. Ascorbic acids, P 3451*g*.
**Bassham, J. A.** See Benson, A. A.
**Bassi, G.** Glossitis caused by vitamin deficiency, 6295*c*.
**Bassi, M.** See Rondoni, P.
**Bassi, P.**, and Loria, A. Showers generated in Pb by mesons, 6075*d*.
**Bassière, M.** See Guérin, H.
**Basso, U.** See Maxia, Carlo.
**Bassot, J.** Broad-bean flour as an ameliorant of wheat flour, 4383*a*.
**Bast, H.** See Treibs, W.
**Bastenie, P. A.**, and Kowalewski, K. P. Gastrointestinal disturbances in hypothyroidism, 9233*c*.
**Basterfield, H. A.**, and Imperial Chemical Industries Ltd. *p-tert* Butylphenol, P 5042*i*.
**Bastiaans, J.** See Groen, J.
**Bastian, E. L. H.** Developing palm-oil replacements, 2762*e*; metal-cutting fluids—their selection, application, and maintenance, 3336*a*, wiredrawing of some non-ferrous metals, 6559*c*.
**Bastiansen, O.** See Barricelli, L. L.
—— and Hassel, O. Electron diffraction of cyclooctatetraene vapor, 6480*h*.
——, Hassel, O., and Lund, L. K. Mol. structures of dodecafluorocyclohexane and decafluorocyclopentane, 7277*a*.
—— and Viervoll, H. Comparison between the structures of acetone and Me sulfoxide, 3672*h*.
**Bastić, B. L.**, and Pushin, N. A. Melting diagrams of systems of HCOOH and amines, 6066*b*.
**Bastick, J.** See Guérin, H.
**Bastick, M.** Combustible fossils belonging to the same Triassic formation, 4984*f*, see Guérin, H.
**Bastick, R. E.** Glass, 4788*e*, 4789*a*.
—— and Gould, C. E. Control of glass quality by the measurement of *n*, 8625*f*.
**Bastien, P.** Pickle brittleness of steel (III) influence of a preliminary H annealing of Armco Fe on the diffusion of the gas into the metal at room temp., 1701*c*, Mg et les alliages ultralegers (book), 1708*a*, creation of the fiber in the plastic deformation of metals, 4198*f*, influence of solidification interval on the castability of ferrometallurgical slags, 9000*b*.
—— and Azou, P. Action of sub-zero temps. on the ductility and deformation characteristics of steel which has been charged electrolytically with H, 5717*a*; influence of H on the cohesion of steel, 8331*g*.
—— and Daeschner, S. Corrosion of castings by molten Al- and Si-contg. light alloys, 1705*d*.
—— and Popoff, A. Microfissures in deposits of electrolytic Cr plate—their influence on the fatigue strength of steel parts, 2099*c*.
**Bastitch, B. L.** See Bastić, B. L.
**Bastone, H. J.**, and Babcock, A. B. Sweetening off of bone char, 8650*d*.
**Bastrup-Madsen, P.** Action of mitotic poisons *in vitro* (I) effect of urethan on division of fibroblasts, 3526*b*.
**Basu, G. K.** See Pal, J. C.
**Basu, K. P.** See Iyer, S. G., Kannan, A.
—— and De, H. N. Vitamins in the metabolism of Ca, Mg, and P in human subjects, 8476*b*.
**Basu, N. K.**, and Mithal, B. M. Assay of kurchi bark, 3564*d*.
**Basu, N. M.**, and Ray, G. K. Influence of vitamin $B_1$ on detoxication by glucuronic acid produced in liver, 4372*h*; influence of thiamine on inflow of phosphates into, and absorption of glucose from, intestinal canal, 5838*e*.
**Basu, S.** Osmotic pressure and mol. wt. of shellac, 1198*f*, polyesterification of hydroxy acids (I) 12 hydroxy stearic acid, 2166*c*, (II) $\theta,\iota$-dihydroxy stearic acid, (III) $\theta,\iota,\lambda$-trihydroxy stearic acid, 2941*c*; elasto-viscous effect in shellac, 4079*f*; flowing birefringence of shellac solns., 5205*b*.
——, Bhowmik, T., and Bose, P. K. Aleuritic acid (I) polycondensation, 2941*a*.
**Basu, U. P.** Extn. of vitamin A from shark-liver oil, 2737*a*; standards of dehydrocholic acid, 3508*c*; chemistry of antibiotics, 5868*a*, activity of paludrine, 8551*b*; see Bhattacharya, S.; Rao, N. K. S.
—— and Bhattacharya, S. Stability of vitamin A, 7195*h*.
—— and Sikdar, J. Aurothioacyl compds. from sulfa drugs, 1347*g*.
**Basu-Chaudhury, G. P.** See Majumdar, S. K.
**Basylewycz, I.** Hormone organs and old age, 3505*h*.
**Batacchi, A.** See Piontelli, R.
**Bataille, R.** Superdeodorizer, 2792*h*.
**Batanov, A. I.** Concn. of Mn ores of the Polunochnoe deposit, 1294*d*.
**Batchelder, G. W.**, and Hawkins, A. W. $NO_3$, P 1929*f*.
**Batchelor, G. S.** See Breakey, E. P.
**Batchelor, L. D.** Small-orange-size problem, 1135*e*.
**Batchelor, R.**, Eppstein, J. S., Flowers, B. H., and Whittaker, A. Slow-neutron capture in He, 4562*b*.
**Batchelor, T. M.** See Boyle, A. J.; Mosher, R. E.
**Bateman, J. D.** Prospecting with the Geiger counter, 6505*c*.
**Bateman, L.**, Cunneen, J. I., and Koch, H. P. Bromination of $\Delta^1$-olefins with *N*-bromosuccinimide, 9024*e*.
—— and Gee, G. Kinetic investigation of the photochem. oxidation of nonconjugated olefins, 4934*b*, detn. of abs. rate consts. in olefinic oxidation, 4934*d*.
**Bateman, R. L.** See McCelland, C. P., McClure, H. B.
**Bates, D. R.** Earth's upper atm., 8882*d*.
——and Damgaard, A. Calcn. of the abs. strengths of spectral lines, 7335*h*.
—— and Massey, H. S. W. Basic reactions in the upper atm. (II) theory of recombination in the ionized layers, 4914*b*.
**Bates, F.**, and Black, M. V. Examn. of glass surfaces with electron microscope, 4436*f*.
**Bates, G. H.** Weed Control (book), 8604*d*.
**Bates, H. T.** Inexpensive diaphragm pump operates on air pressure, 4903*f*.
——, Fergus, D. J., and Craver, A. F. Water-heating device with corrosion-protective anode, P 2923*b*.
**Bates, J. E.** See Harsh, H. C.
—— and Runyan, I. V. Processing control procedures for Ansco color film, 7361*c*.
**Bates, J. R.** Catalysis, P 7609*e*.
**Bates, L. F.**, and Davis, J. H. Effect of temp. on the heat changes accompanying magnetization of the Ni-Si alloy W5, 3335*e*.
—— and Harrison, E. G. Adiabatic temp. changes accompanying magnetization at low and moderate fields—study of Fe, 3328*e*; adiabatic temp. changes accompanying the magnetization of some ferrimagnetic alloys in low and moderate fields, 3673*c*.
**Bates, O. K.** Thermal cond. of liquid silicones, 8777*c*.
**Bates, R. G.**, and Pinching, G. D. Resoln. of the dissocn. consts. of citric acid at 0 to 50° and detn. of related thermodynamic functions, 6051*d*; acidic dissocn. const. of $NH_4$ ion at 0° to 50° and the base strength of $NH_3$, 7303*c*.
**Bates, R. W.** See Cohen, H.
——, *et al.* Smalley Foundation Report, 423*i*, 6842*b*.
**Bates, W. H.** Insulating materials and their application in India, 6761*d*.
**Bates Manufacturing Co.** Electrically conductive fabric, P 6528*e*.
**Batey, H. H.** See Sisler, H. H.
**Bather, J.** Solid aldehyde fuel, P 7668*i*.
**Bathie, H. P. de la.** Value and possibilities of rubber-yielding plants of Madagascar, 5221*e*.
**Baticle, R. L.** Dynamic measurement of wetting of pigments, 5969*i*; phys. properties of pigments, 6835*h*.
**Batigne, M. E.** See Grunfeld, M.
**Batisse, M.** See Laurent, P.
**Batjer, L. P.**, and Thompson, A. H. Effect of $H_3BO_3$ sprays applied during bloom on the set of pear fruits, 9347*i*.
**Batke, T. L.**, Dorfman, L. M., and LeRoy, D. J. Photochlorination of methyl chloroformate in $CCl_4$ soln., 8896*d*.
**Bat'kov, A. I.**, and Kulikov, M. A. Dyeing and finishing, 3619*g*.
**Batliwalla, K. C.** Incidence and causation of glycosuria in pregnancy (II), 745*f*; (III), 4753*c*.
**Batra, P. C.**, and Rozdon, O. N. Acetylation of phenols with AcOH, 9049*e*.
**Batson, D. M.**, and Hogan, J. T. Computer for rapid conversion of pH values to terms of H-ion concn., 6471*c*; estn. of moisture in sweet-potato starch, 7244*d*.
**Batson, H. C.** See Miller, Gerald; Lundy, M.
**Batt, G.**, and Duyckaerts, G. Analytical techniques at the Univ. of Liège, 3741*i*.
**Batt, R. F.**, and Woolcock, D. Condensation of chloral with aryl cyanides, 2967*d*.
**Battaglia, S.** See Crane, E. V.
**Battcock, W. V.** See Karthauser, F. B.
**Batte, E. G.**, and Gaines, J. C. Comparison

of DDT and chlordan for control of the horse louse, 1520c.
**Battegay, J.**, See Prelog, V; Ruzicka, L.
**Battelle Development Corp.** Compn. for electrodeposition of Pb, P 6526f, recovering surface permeability of a porous body, P 8345d
**Battelle Memorial Institute.** Soldering flux, P 6150d.
**Battersby, A. R**, Openshaw, H. T., and Wood, H. C. S. Emetine, 7492e.
**Battista, B. L. di.** See Di Battista, B. L.
**Battista, C. di.** See Di Battista, C.
**Battista, O. A.** Globular regenerated cellulose particles, P 4854i
**Battistella, F. C.** Extn. of an essential oil from olive pits, P 7647h.
**Battistoni, G.** Na$_2$S solns., P 8109d.
**Battle, W. R.** Effect of scarification on longevity of alfalfa seed, 1079e.
**Battley, J. F.** Paint industry in the U. S. and Canada, 3209e
**Batty, J. W.**, Huggill, H. P. W., and Imperial Chemical Industries Ltd. Polymeric carbamates, P 3658h.
**Batuecas, T.**, and Fernández Alonso, J. I. Revision of the d. of Hg at 0°, 3678g.
**Batuev, M. I.** See Kazanskii, B. A.; Petrov, A. D.
**Baty, V.** Evaluation of ore deposits, 3749h
**Bauch, R.** Irreversible injury to chromosomes by acriflavine, 5089i selective accumulation of trypaflavine by the nucleoproteins of chromosomes, 7525d.
**Baud, C.** See Fleisch, A., Grandjean, E.
**Baud, C. A.** Inframicroscopical structures (I) ultraviolet light and fluorescence, (II) ultramicroscopy, (III) dichroic staining, 945h, (IV) birefringence, 946d.
— — and Fullerringer, A. Cytochem studies on the enzymes of the nuclear membrane, 704g.
**Baudart, G. A.** Bauxite deposits in the Far East, 6952f.
**Baudelot, P.** Regenerating vulcanized rubbers, P 5221f.
**Baudet, H. P.** See Meurs, G. J. van.
**Baudet, P.**, and Giddey, C. Detn. of protein N, 2547h.
**Baudisch, O.** Radical reactions with certain N compds.—conversion of benzene, toluene, etc., in other compds. at low temp., 2495e.
**Baudler, M.** See Fehér, F.
**Baudot, H.** Prepn. of the steel surface prior to painting, 1701b.
**Baudrenghien, J.**, and Jadot, J. Oil of *Ocimum kilimadjarum*, 8617e
**Bauer, A.** See Brecht, W., Wessely, F.
**Bauer, A. B.** Sugar-beet experimentation and agronomy in England, 4500g.
**Bauer, A. C.** See Smith, S. E.
**Bauer, C. D.** See Dasler, W.
**Bauer, C. L.** See Dahm, P. A.
**Bauer, C. W.**, and Wasson, L. A. Sugar-free and nonglycogenetic prepns. for use by diabetic persons, 7638h.
**Bauer, F. C., Jr.**, and Hirsch, E. F. Detn. of the total esterified fatty acids in human serums, 8429g, esterified fatty-acid levels of normal human serums, 9197e.
**Bauer, F. X.** See Glenn, W. W. L.
**Bauer, H.** See Seel, F.
——— and Jensen, J. H. D. Radiation damping of the oscillator, 8843d.
**Bauer, H. F.**, and Glabe, E. F. Stabilized Na diacetate, P 7606e.
**Bauer, J. V.** See Caesar, G. V.
**Bauer, L. N.** See Neher, H. T.
**Bauer, N.**, and Beach, J. Y. Ionization cross sections of $H_2$ and $D_2$, 2862h.
**Bauer, P. T.** Rubber Industry (book), 2462h.
**Bauer, S. T.** See Johnson, J. F.
**Bauer, W.** Manuf. and properties of polymethacrylic acid ester and its application as org. glass in dentistry, 1213b.
**Bauer, W. C.** See Lewis, W. K.
**Baueresis, R.** See Wertle, E.
**Bauerle, L. C.** See Sanoell, W. G.
**Baughan, E. C.** Absorption of org. vapors by thin films of polystyrene, 437c, energy of C bonds—re-examn. of the Fox-Martin rule, 4527e.
**Baughman, J. L.** Marine fouling and boring organisms, with some material on corrosion, 4414e.
**Baukloh, W.** Vacuum metallurgy, 2111a, annealing in protective gases, 3747c.
**Baule, M. E. A.** See Ducamp, A. J.
**Baum, A. A.** Non-S vulcanization of butadiene elastomers, P 8196e.
**Baum, G. J.** See Nalbandov, A. V.
**Baum, R. A.** Chem. impregnation of paper as aid to packing citrus fruits, 5591e
**Baum, S. J.**, and Paist, W. D. Polymerized α,p-dimethylstyrene, P 3642f
**Bauman, W. C.** Ion-exchange resins of stable granular form, P 5517f; see Heusted, G. B., Hunter, M. J.
**Baumann, C. A.** See Griffin, A. C., Johnson, R. M., Noland, J. L., Sauberlich, H. E., Steele, B. F.
**Baumann, E. J.**, and Metzger, N. Behavior of the thyroid toward elements of the seventh periodic group (I) halogens and thiocyanates, 5171f
**Baumann, H.** See Eilenmeyer, H.
**Baumann, H. N., Jr.**, and Woodell, C. L. Aluminous abrasive material, P 7658e
**Baumann, P.** Production of $C_2H_2$ by the elec.-arc process, 1661a
**Baumann, W.** Salve for mucous membranes, P 8105b.
**Baumberger, J. P.**, and Fried, N. M., as an activator of antivenin, 4708.
**Baumer, L. N.** See Marbiker, E. F.
**Baumfeld, L.** See Feigl, F.
**Baumgärtel, T.** Achylia of the feces, 3918e degradation of chlorophyll in the human intestine, 5834e, intestinal reduction of bilirubin, 6721a, 8497f, bilirubin derivs., 9110f
**Baumgarten, E.** See Brouillard, R. E.; Lecher, H. Z.
**Baumgarten, G.** Erged. 361s, calcn. of the absinthin content in the detn. in drugs,
**Baumgarten, P.** Impregnation of soft limestone, 3560a, see L'Hermite, R.
**Baumgartner, F. N.** See Ivison, R. C.
**Baumgartner, R. R.** See Sihvonen, Y. T.
**Baumhardt, L. C.** See King, B. W., Jr.
**Baumhofer, L. G.** See Weigel, C. A.
**Baumhoff, L.** See Hornung, W.
**Bauminger, B. B.**, and Poulton, F. C. J. Extn. of C black in compd. rubber, 9515k.
**Baur, H.** Animal phosphatases—physiology, pathol. physiology, and clinical significance, 7062a.
— — and Staub, H. Adrenaline-histamine counter regulation (V) blood histamine after injection of sympathol, 7588i, blood histamine and leucocytosis after synephrine, 8515a
**Baur, K. E.** See Tremblay, P. J.
**Bauscher, J. A.** See Lankford, W. T.
**Bausch & Lomb Optical Co.** Marking glass, P
**Bautzmann, H.** Natur und Entfaltung organischer Gestalten (book), 7069e.
**Bava, A. M. C.** See Cocea Bava, A. M.
**Bavendamm, W.** Antifungal chemicals used in wood protection, 5892h, wood impregnation with methylolurea, 7208d
**Bavink, B.** Atomenergie und ihre nutzung (book), 2096i
**Bavley, A.** Couplers for color photography, P 958s, 5339g, see Mueller, F. W. H.
**Bawden, F. C.** Plant viruses, 5194g, 8157f; Plant Diseases (book), 3496b
**Bawden, F. F.**, and Artis, W. G. Comparison of ficin and papain in the extn. of the β amylase of barley, 8092e
**Bawn, C. E. H.** See Adams, G. K.
— —, Cockbain, E. G., and Imperial Chemical Industries Ltd. Polyurethane compns., P 1884a
— — and Tipper, C. F. H. Reaction of free alkyl radicals in the gas phase, 5270d
——— and Whitby, F. J. Formation and reactions of free radicals in solns. at low temps., 5732d
**Bawn, C. V.** See Madigan, J. C.
**Baxendale, J. H.** See Barb, W. G., Evans, M. G.
——— and George, P. Fourth-order reaction, 3695e, formation and decompn. of ferrous-α α′-bipyridyl, 6056e
**Baxendale, L.** See Gottfried, S.
**Baxter, A. S.** See Freeman, J. M.
**Baxter, D.** See Arnold, M. H. M.
**Baxter, J. G.**, and Robeson, C. D. Sepn. of tocopherols, P 4818g
**Baxter, J. H.**, and Cetzias, G. C. Effect of proteinuria on the kidney—proteinurea, renal enlargement, and renal injury consequence on protracted parenteral admin. of protein solns., 5859i.
**Baxter, N.** See Daglish, C.
**Baxter, R. A.**, Newbold, G. T., and Spring, F. S. Pyrazine derivs. (VI) oxidation of 2-ethoxy- and 2-chloropyrazine derivs. with $H_2O_2$, 3005g
———, Norris, W. L., and Morris, D. S. Perhydrophenanthrenecarboxylic acid derivs., 8376f.
**Baxter, S. M.** $SnO_2$, P 7203b.
**Baxter, W. P.** See Cary, H. H.
**Bay, G.**, and Gisvold, O. Digitalis, 2371e.
**Bay, Z.**, and Papp, G. Coincidence device of $10^{-8}$–$10^{-9}$ sec. resolving power, 934f.
**Bayan, S.** Antiknock power of some pure compds., 3997h.
**Bay Chemical Co., Inc.** Chem. seasoning of lumber with salt mixts., P 1168a.
**Bayer, A. R.** See Hall, A. G.
**Bayer, H.** See Lynen, Feodor.
**Bayer, O.** Acrylonitrile, 7411d.
**Bayerle, H.** See Marx, R.
— — and Marx, R. Coumarin derivs. as antithrombin agents, 3934h, (II), 8539i; prevention of acute fatal muscle juice poisoning by dicoumarin, 8543e.
**Bayes, A. L.**, Flook, E. R., and Graham, G. B. Gasometry for sharper control of food quality, 4779d
**Bayley, C. H.** See Weatherburn, A. S.
———, Weatherburn, A. S. and Rose, G. R. F. Influence of Na carboxymethylcellulose on the suspending power of soap and soap builder solns., 8710a
— and Weatherburn, M. W. Weathering characteristics and rot resistance of cotton duck treated with the Cu complex of nitrophenylhydroxylamine, 5957i.
**Baylies, H.** See Bovarsky, L. L.
**Baylis, J. R.** Na silicate treatment at Chicago filtration plant, 6345a, Chicago south district filtration plant, 8581f
**Bayliss, N. S.** Western Australian alunite, 2551e, spectra of I and Br solns., 6511d
——— and David, D. J. Filter paper pellets in the spectrochem. analysis of solns.,
and Elho, G. A. Kinetic dication of t m, 171e
d Ewe, W. Thermodyna of some reactions involving $Al_2O_3$ and anhyd. $AlCl_3$, 3694a
— — and Riviere, J. C. Photocond. of naphthalene and anthracene, 6503b
**Baylor, M. B.** See Johnson, D. H.
**Bayma de Aranjo, E.** See Sequdas, R.
**Baymiller, J. W.** Textile-fiber drafting element, P 416a, roll cover for textile fiber drafting, P 417a
**Bayramgil, O.** Volcanic bre of Dagkoy, Turkey, 6610a
**Bayrektar, S.** See Rosenthaler, L.
**Bazarian, A.** See Agnew, J. T.
**Bazilevich, N. I.** Basis of classification the chemistry of ground waters of Baraboinsk lowland, 8077b
**Bazilevich, V. V.** see Belgol'ts, V. M. Shpol'skii, E. V.
**Bazin, S.** Elec. charge of erythrocyte change of the charge of erythrocytes by agglutinins, 6784b, see Halpern, B. N.
**Bazire, G. C.** See Cohen-Bazire, G.
**B. B. Chemical Co. Ltd.** and Puddefoot, J. E. Plastic compns., P 6864b.
———, Puddefoot, J. E., and Swire, W. H. Compns. for filling cavities, P 6859a
**Beach, G.**, and Mussenbrock, A. Effect of N and potash fertilizers on Patrician carnations in soil, 1804e
**Beach, J. Y.** See Bauer, N.
**Beach, L. A.**, Peacock, C. L. and Wilkinson, R. G. γ-Ray of $W^{187}$ in the low-energy region 4124e.
**Beach, L. K.** Alkyl cyanides, P 666b, recovery of diolefins from hydrocarbon mixts., P 1955b.
— and Connolly, G. C. Catalytic partial oxidation process, P 6338e.
**Beachell, H. C.** Borate-quinone resorcinol polymeric tanning substances, P 6452e
— and Sveda, M. Purification of chloral, P 6650e.
**Beacon, J. L.** Cotton waste control, 8686b
**Beadenkopf, W. G.**, Loosli, C. G., Lack, H. Rice, F. A., and Slattery, R. V. Tuberculin, coccidioidin, and histoplasmin sensitivity in relation to pulmonary calcifications, 3513g.
**Beadle, B. W.** See Kraybill, H. R.
———, Wilder, O. H. M., and Kraybill, H. R. Deposition of trienoic fatty acids in the fats of the pig and the rat, 292e.
**Beadle, G. W.** Physiol. aspects of genetics, 1447f.
**Beadle, L. C.** See Shaw, John.
**Beakbane, M. E.** Permeability of leather to air, water vapor, and liquid water, 1203i, see Robinson, C.
**Beakes, H. L.** Permanence to light of chem. pigments, 5201f.
**Beal, C. W.** pH of bone char filtered liquors, 8650e.

**Beal, D.** Cold-roll low-C sheets *vs.* enamel Fe for high-temp. enamels, 7205*e*.
**Beal, J.** Detn. of quercetinlike substances in several mid-western plants, 8102*a*.
**Beal, J. M.** Histological effects of $C^{14}$ on the leaves of certain medicinal plants, 6786*h*.
**Beal, K. F.,** and Thor, C. J. B. Polyvinyl acetal resins, P 2813*g*
**Beal, P., III.** See Newman, M. S
**Beal, R. E.** See Cowan, J. C.
**Beale, P. T.** Spectrographic analysis—general-purpose source unit for nonferrous alloys, 7857*i*
**Beall, G.** Detn of distribution of mol. size in a sample of cellulose, 9435*d*
—, Anderson, R. P., and Harvey, A. A. Error of a nomogram for the calcn. of Clark softness, 1186*f*
**Beaman, R. G.** Anionic chain polymerization, 559*f*.
**Beament, J. W. L.** Penetration of insect egg shells (I) penetration of the chorion of *Rhodnius prolixus*, 5527*g*, (II) properties and permeability of sub chorial membranes during development of *Rhodnius prolixus*, 7594*d*, wax layers in waterproofing of insect cuticles and egg-shell 6322*g*
**Beamer, C. M.** See Chappell, R. E.
**Beamer, W. H.** Mol. structure of the two dimethylhydrazines by electron diffraction, 1314*b*, prepn of $C^{14}$ labeled $CH_4$ and $CCl_4$, 2090*h*
**Beamish, F. E.** Inorg. gravimetric analysis, 2113*b*
**Bean, E. L.** See Taylor, F. J.
**Bean, J. J.** Sink and float ore separator, P 7401*h*
**Bean, R. S.** See Bracht-Clyomat H.
Laneweaver, H.
**Bean, W. B.** See Nelson, N.
**Bear, F. E.** Minor elements in soils and plants, 2347*f*, see Cox, Herbert E., Prince, A. L., Wallace, A.
— and Prince, A. B. Mg needs of New Jersey soils, 3956*e*
and Prince, A. L. Agricultural value of sewage sludge 3969*b*
**Bear, J. E.** See Callison, E. C.
**Bear, R. S.** See Marks, M. H.
**Beard, C. I.,** and Dailey, B. P. Microwave spectra of $CH_3NCS$ and $CH_3SCN$, 6510*e*
**Beard, D.** See Lamm, F., Weil, M. L.
**Beard, E. E.** Nonerystg. printing compns., P 8706*b*, stabilized phthalocyanine toners for paints, enamels, and lacquers, P 8705*a*.
**Beard, H. H.** Effect of administration of cryst. chymotrypsin on placental transplants spontaneous tumors, and Jensen sarcoma in rats: results of the Beard test with clinical diagnosis of human malignancy and their relation to the trophoblastic thesis of malignancy 7124*b*, effect of administration of cryst. chymotrypsin on the Beard test for malignancy, 7124*e*
**Beard, J. W.** See Kerby, G. P., Lamm, F., Sharp, D. G., Weil, M. L.
**Beard, R. L.** Physiol. effects of induced hemorrhage in Japanese beetle larvae, 8562*g*, species-specificity of toxicants as related to route of administration, 9340*m*
**Beardslee, A. C.** Removing ultimate moisture from powd. products, P 6332*a*.
**Beardslee, C. E.** Dry Milks (book), 1123*f*.
**Beardsley, A. P.** $HNO_3$ concn., P 3983*h*.
and Whiting, S. H. Ultramarine, P 6431*a*.
**Beardsley, C. W.** Suppression of sewer slimes, 8079*d*
**Beardsley, F. A., Jr.** See Swift, W. E., Jr.
**Bearse, A. E.** See Lutz, G. A.
**Beater, B. E.** Obtaining readily sol. phosphates and phosphate fixation in soils, 4110*a*.
**Beath, L. R.** See Hill, H. S.
— and Hill, H. S. Concg. waste sulfite liquor with recovery of $SO_2$, P 11886, elec. evapn. of waste sulfite liquor, 8677*c*
**Beath, O. A.** See Rosenfeld, I.
and Eppson, H. F. Forms of Se in some vegetation, 3890*e*.
, Hagner, A. F., and Gilbert, C. S. Rocks and soils of high Se content, 2905*i*.
**Beatson, E. V.** Welding, brazing, and soldering of coated metals, 6561*d*.
**Beattie, H. G.** See Pederson, C. S.
**Beattie, J. A.** Computation of the thermodynamic properties of real gases and mixts. of real gases, 4530*d*.
—— and Edwards, D. G. Vapor pressure, orthobaric ds., and crit. consts. of 2,2,4-trimethylpentane, 2833*g*.
——, Edwards, D. G., and Marple, S., Jr. Vapor pressure, orthobaric liquid d., and crit. consts. of isobutane, 8778*e*
**Beattie, J. H.** See Kushman, L. J.
**Beattie, J. M.,** Dickson, W. E. C., and Drennan, A. M. Pathology, General and Special (book), 5111*i*
**Beatty, C. H.** Comparison of glucose metabolism after hemorrhage in nondiabetic, alloxan diabetic, and depancreatized dogs, 753*d*, see Nustuk, W. L.
**Beatty, H. A.,** and Lovell, W. G. Antiknock agents, 5578*h*
**Beatty, J. E.** See Emling, B. L.
**Beatty, J. R.,** and Davies, J. M. Time and stress effects in the behavior of rubber at low temp., 6853*e*
**Beatty, S. A.** Cholesterol from fish meal, 3535*a*
**Beatty, S. van D.** Interplanar spacings for different target materials for the back reflection region, 4567*d*, x ray spectrometer study of mica powders, 8987*e*
**Beatty, W. E.** Utilizing citrus and pineapple products in resin compns., P 9526*i*
**Beau, D. S. le.** See Le Beau, D. S.
**Beauchamp, C. E.** Silva juice clarification process, 9500*i*
**Beaucourt, J. H.** Detn of halogens, 968*g*, bomb methods used in microchemistry (II) detn of S, P and As, 2541*i*
**Beaufait, L. J.** See Huffman, E. H.
**Beaufort, M. F.** See Jaillray, J.
**Beaujard, L.** See Lacoudre, P.
**Beaujean, P.** See Beeckmans, I.
**Beaulieu, A. A.** See Monro, H. A. I.
**Beaumont, A.** Metabolism of hemoglobin in *Gastrophilus intestinalis*, 5506*n*
**Beaumont, D. W.** See Matthias, B. T.
**Beaumont, H. du B. de.** Attempt to rationalize anomalous phenomena in viscosity, 2059*i*
**Beaumont, J. H.** Rept. of University of Hawaii Agr. Expt. Sta., 9513*i*
**Beaumont, S.** See Premer, J. G. M.
**Beaumont, W.** Infrared Radiation (book), 4720*d*
**Beauseigneur, G.,** and Michaud, M. Oxygenrichied air blast in glass furnaces, 4476*e*
**Beauvalet G.,** Champetier, G., and Lertian, R. Cryst. structure of the N,N'-hexamethylene-$\alpha,b$-dihydroxyadipamide polymer, 8232*g*.
— and Clement, P. Av. mol. wt. of high polymers—calcn. and representation of polymolecularity, 6044*a*
**Beauvallet, M.** Action of adrenaline, noradrenaline, and dihydroxynorephedrine on arterial pressure 5861*h*, see Hazard, R.
and Brochart, M. Presence of noradrenaline in bull semen, 2404*e*
**Beauvillain, A.,** and Sarradin, J. Adrenaline ascorbate products formed by air oxidation, 2972*c*, adrenochrome and its oxidation products and leuco derivs., 2972*d*.
**Beaver, C. E.** See Roberts, I. M.
**Beaver, D. C.** See Dertinger, R. I.
**Beaver, D. J.** Vulcanizing synthetic rubber with dixanthic sulfides, P 1712*e*
**Beaver, W. W.** Powder metallurgy, 1696*g*, recovering surface permeability of a porous body, P 8345*d*
**Beavers, E. M.** Resinous linear polyesters in crumblike form, P 2032*e*, alkyd resin technology, 1509*e*, applications for alkyds and polyesters, 5994*i*
**Beavon, D.** See Hammock, E. W.
**Bebb, R. L.** Synthetic rubber, P 2803*i*; see Johnson, P. H.
**Bober, A. J.** Dithiazolyl disulfides, P 5425*i*
**Beccari, E.** Reducing the no. of pharmacol. assays, 5119*b*, see Cusa, W.
**Beccari, L.** Fisiologia degli animali domestici (book), 3091*d*.
**Becher, P.** See Schlesinger, W.
**Becher, R.** Comparative examn. of an ointment based on gelatinized pectin and contg. salicylic acid or salicylates 3562*h*.
**Bechert, P.** See Casparis, P.
**Bechgaard, P.,** and Bergstrand, A. Can the administration of desoxycorticosterone acetate give rise to nephrosclerosis? 5489*h*.
**Bechle, C. W.** See Olsen, J. W.
**Bechly, A. F.** See Beklih, A. F.
**Bechmann, R.** Piezoelec. resonator of ethylenediamine tartrate with zero temp. coeff. of frequency, 8227*d*.
— and Lynch, A. C. Piezoelec. coeffs. of ethylenediamine tartrate, 7285*g*.
**Becht, K. H.** See Klement, R.
**Bechtel, W. G.** Detg. starch viscosity, 5980*f*
— and Fischer, E. K. Measurement of starch paste viscosity, 7241*b*
**Bechtereva, A. I.** See Bekhtereva, A. I.
**Bechtol, L. D.** See McBee, E. T.
**Bechtold, M. F.** Mol.-wt. methods for polymers, 7292*d*, kinetics of condensation polymerization 7310*i*
**Beck, A.** Processing of light metal scrap, 6552*f*
**Beck, A. N.** Water-supply quality, 9308*f*.
**Beck, Gottfried.** Detn of Se with quinalizarin and the similarity of Se pyrophosphate to Ce phytate, 8505*e*.
— and Gasser, A. Analytical chemistry of the rare earths 8300*i*
**Beck, Guido.** Theory of the Cherenkov effect, 9338*b*
**Beck, G. E.,** and Bon, H. L. Production of muscle contracture by substances reacting with sulfhydryl groups 1861*b*
**Beck, H.** Chemie der Ketonranzigkeit (book), 2452*b*
**Beck, H. O. de.** See De Beck, H. O.
**Beck, I. T.** See Frommel, E.
—, Frommel, E., Lavie, M., and Vallette, F. Action of 10-(2-diethylaminoethyl)-phenothiazine on the autonomic system and its anesthetic and anticonvulsant effects, 7129*a*.
**Beck, J. V.** Detn. of adermine, 2674*f*, bacteria for release, oil from sands, 6397*i*; see Smith, R. L.
**Beck, L.** See Leonard, E. A.
— and Shepherd, H. R. Aerosol deodorant 9266*e*
**Beck, L. V.** See Diller, I. C.
—, Berkowitz, D., and Seltzer, B. Tumor inhibiting agents. III. effect on apparent systolic blood pressure in mice of the *Serratia marcescens* tumor-necrotizing polysaccharide of Shear 1806*c*.
**Beck, P. A.** Formation of recrystn. nuclei, 6026*g*, factors affecting the rate of pptn. hardening in Cu-Be alloys, 7389*b*
—, Holzworth, M. L., and Sperry, P. R. Effect of a dispersed phase on grain growth in Al-Mn alloys, 91*g*
— and Hu, H. Recrystn. texture and coarsening texture in high purity Al, 7885*a*
, Towers, J., Jr., and Sperry, P. R. Grain coarsening in Cu, 2556*e*
**Beck, R. A.** Evaluation of fluid catalyst development of lab. scale units, 7247*d*
, Sensel, F. E., and Millendorf, A. J. Maintaining the catalyst activity in synthesis of hydrocarbons P 1418*i*
**Beck, R. W.** See Dunn, I. H.
**Beck, S. D.,** and Lilly, I. H. European corn borer resistance 7185*i*
**Beck, T. M.** See Low, A. D. F.
**Beck, W.** Insulating couplings for underground pipe and cable lines 6090*d*.
**Beck, W. A.** Irwinton bauxite district, Wilkinson Co., Ga., 6952*i*, see Kline, M. H.
**Beck, W. R.** Crystallographic inversions of the Al orthophosphate polymorphs and their relation to those of silica, 4552*h*.
**Beckel, A.** See Daeves, K.
**Beckel, A. C.,** and Belter, P. A. Recovery of products from ale extn. of vegetable oil, P 2794*i*, extn. of soybeans with ale., P 5613*d*
**Beckenbach, J. R.** See Burgis, D. S.
**Becker, A.** Quenching of phosphorescence (I), 6020*b* migration of Br in $\beta$-keto acid esters and 1,3-diketones, and prepn. of a 1,3 cyclopentanedione (I), 7908*i*; see Druey, J.
—— and Becker, F. Quenching of phosphorescence (III) quant. treatment, 7347*b*.
**Becker, B.,** and Friedenwald, J. S. Inhibition of glucuronidase by ascorbic acid and by heparin, 7529*a*.
**Becker, C. E.,** and May, C. E. Structure of p-glucosone, 5907*i*.
**Becker, D.** S from different sources for use in sugar houses, 7b51*c*.
**Becker, D. E.** See Kivlen, J. L.
**Becker, E. A.,** and Grassmann, W. Combination of water with pptd. ZnS, 517*g*
**Becker, E. I.** See Reich, I.; Smith, G. B. L.
**Becker, E. R.** 35 drugs and 3 plant materials tested against *Plasmodium lophurae* in the White Pekin duck 5860*e*
——, Brodine, C. E., Marousek, A. A., and Byrd, D. A. Influence of normal and immune duck plasma on chick infections of

*Plasmodium lophurae* induced with parasites in duck erythrocytes, 9216*d*.
**Becker, E. W.** See Waldmann, L.
**Becker, F.** See Becker, A.
**Becker, G.** German electrode development, 4208*b*; see Schulze, B.
—— and Schulze, B. Protective action of wood preservatives against insects, 5894*i*.
**Becker, H.** See Kordes, E
**Becker, K.**, and Hunold, G A. $Zn_3P_2$ prepns. as raticides, 3967*g*.
**Becker, Kurt**, and Siebel, F. P., Jr. Protein balance in American brewing, 9360*f*.
**Becker, L.** See Bird, R M.
**Becker, R.** Ferromagnetism, 2054*a* Max Planck's personality, 5239*c*.
**Becker, R. A.** See McElhinney, J.
**Becker, R. B.** See Marshall, S P.
**Becker, R. M.** Suppression of local tissue reactivity by N mustard, benzene, and x-ray irradiation, 1487*e*.
**Becker, R. v.** C black from $CH_4$, P 6812*g*, mixt. of liquid hydrocarbons from gaseous hydrocarbons, P 9429*i*.
**Becker, S. B.** Oxidation of hydrocarbons, P 2236*f*; see Johnson, E. A.
**Becker, T. J.** See Lands, A M.
**Becker, W.** Synthetic caoutchouc, 4505*g*; see Carten, V ; Graulich, W.; Logemann, H.
**Becker, W. H.** Loss of proteins in operations, 9223*f*.
**Becker, W. W.** See Butts, P. G.; Kouba, D. L.; Meldrum, W. B , Jr.; Mirel, S L.
**Beckermann, F.** See Schumm, O
**Beckett, C. W.** See Amster, A. B., Kilpatrick, J. E.
——, Freeman, N. K., and Pitzer, K. S. Thermodynamic properties and mol. structure of cyclopentene and cyclohexene, 2831*b*.
**Beckett, S.** See Hyde, J.
**Beck, Koller & Co. (England) Ltd.** Maleamic acid, P 3843*a*.
——, Robinson, R. S., and Humburger, E. L. Maleamic acid, P 7039*i*.
**Beckley, V. A.** Protection of grain weevils, 1900*b*.
**Beckman, A. A.** See Molloy, E. W.
**Beckman, A. O.** See Miller, W. C
**Beckman, L.** Influence of a transverse magnetic field on a cylindrical plasma, 4060*c*.
**Beckman, W. W.** See Hiller, A.
**Beckmann, C. O.** Racemization of *d*-$\alpha$-hydroxy-$\beta,\beta$-dimethyl-$\gamma$-butyrolactone, P 4291*c*; see Rosenberg, J. L.
**Beckmann, G.** Soap substitute, P 8712*b*
**Beckmann, P.** Detn. of O in industrial gases, 3744*f*; see Mapstone, G. E.
**Beckwith, D. R.** See New, A. A
**Beckwith, N. P.** See Weed, F. G.
**Beckwith, R. S.** See Piper, C. S
**Bècquart, M.** Glycols, 1320*g*
**Becze, G I. de.** See De Becze, G I.
**Beczkóy, J.** App for semiquant. estn of CO, 8749*d*.
**Bedekar, S. G.**, Tilak, B D , and Venkataraman, K. Anthraquinone series (II) halogenated aminoanthraquinones and indanthrones, 3399*e*.
**Bedell, F.** What led to the founding of the Am. Phys. Soc., 4909*a*.
**Bedell, H. L.** See Faulconer, F. M
—— and Hatchett, V W. Chemicals for retarding corrosion, 96*h*.
**Bedell, H. M.** See Stecher, R. M.
**Bedford, C. L.** See McGregor, M. A.
—— and McGregor, M A Effect of canning on the ascorbic acid and thiamine in vegetables, 1122*d*.
**Bednar, A.** Soft-rubber bearings water lubrication, 6454*f*.
**Bednarski, V. N.** Measurements of mud viscosities at high temps., 381*e*.
**Bedolla, J. M.**, and Cegama, M. L Modification of Guerman's method for the detn. of urinary pregnandiol, 7533*g*.
**Bédos, P.** Decompn. of organomagnesium compds. by $MgBr_2$, 5740*a*; contraction of a six- to a five-membered carbocycle by means of the ether-MgBr complex and organomagnesium compds., 7431*h*.
**Bedoukian, P. Z.** Essential oil and perfumery progress, 9377*d*.
**Bedov, Yu. A.** See Levina, R. Ya.
**Bedwell, M. E.**, Spencer, J. F., and Trew, V. C. G. Diamagnetic susceptibility of $NH_4$ compds., 5651*f*.
**Bee, E.** Paper from hardwoods in Australia, 4462*i*.
**Beears, W. L.** See Gresham, T. L.
**Beebe, A. H., Jr.** See Mason, J F.
**Beebe, C. W.**, Rogers, J. S., and Happich, W. F. Alum retannage for leather insoles, 7733*c*.
**Beebe, R. A.** See Smith, Walter R.
——, Cope, A. C., Johnson, W. C., Riegel, B., Wiig, E. O., Young, W. G., and Billings, E. M. Progress rept. No. 20 of the Committee on Professional Training, 6478*f*.
——, Johnson, W. C., Lind, S. C., Noyes, W A , Jr., Riegel, B., Young, W G., and Billings, E. M. Progress rept No. 19 of the Committee on Professional Training, 2826*f*
**Beeby, M. H.** See Mann, F. G.
**Beech, W. F.**, Mendoza, M., and Imperial Chemical Industries Ltd Bluish green azo dyes for wool, P 8146*f*.
**Bee Chemical Co.** Coolant for metal machining, P 6819*b*.
**Beecher, H. K.**, Warren, M. F , and Murphy, A. Comparison of cyclopropane and ether anesthesia on lymph production, 1869*g*.
**Beecher, H. W.** Burning of wood waste in the pulp and paper industry, 3612*i*.
**Beeching, R.** Resistance to cavitation erosion of propeller alloys, 96*a*
**Beeck, O.** Application of infrared spectroscopy in analysis, 4072*e*; see Smith, A. E , Stevenson, D. P.; Wagner, C D
——, Otvos, J. W., Stevenson, D P , and Wagner, C. D. H-exchange reactions of the butanes in $H_2SO_4$, 7897*c*
——, Ritchie, A W , and Wheeler, A Adsorption of H on Ni catalysts (I) effect of sintering, 2079*f*
**Beeckmans, I.** See Leclerc, E
—— and Beaujean, P. Analysis of waste waters—oxidizability (of unheated and heated water), the putrescibility, the B. O D , 9309*d*
**Beeghly, H. F.** Ferrous metallurgy, 2888*h*.
**Beekley, N. S., Jr.** See Lightbown, I E
**Beekman, W. J.** Specific ionization of fast $\beta$-particles in a mixt. of air and EtOH water vapor, 3284*c*; distribution of the no. of ion pairs in the clusters along the track of a fast $\beta$-particle in air and in neon, 8262*c*
**Beel, J. A.** See Gilman, H.
**Beeman, W. W.** See Hanson, Harold.
**Beenakker, J. J. M.** See Tacoma, K W
**Beer, A. A.** Derivs of thiouracil, P 6655*g*
**Beer, E. de**, and Debroeck, W Clays of the Condroz Basin, 3163*b*
**Beer, E. J. de.** See De Beer, E J
**Beer, R. E.** See Pritchard, A E
**Beer, R. J. S.**, Clarke, K , Khorana, H G., and Robertson, A. Chemistry of bacteria (I) synthesis of hydroxyindoles, 1764*i*, chemistry of melanins (I) synthesis of 5,6-dihydroxyindole and related compds., 3405*h*
**Beerbower, A.** See Zimmer, J. C
—— and Ricards, H. A., Jr. Solidified oils, P 1960*f*
**Beerens, D. A.** See Stroink, J B. A
**Beereus, H.**, and Demonchy, M. Nongas-forming variety of *Zuberella praecacuta*, 4331*c*
**Beers, N. R.** Stack meteorology and atm. disposal of radioactive waste, 5664*g*
**Beerstecher, E., Jr.** See Williams, R J.
**Beesing, D. W.**, Tyler, W P., Kurtz, D. M , and Harrison, S A. Detn of acrylonitrile and $\alpha,\beta$-unsatd carbonyl compds. using dodecanethiol, 8976*c*
**Beeson, P. B.**, *et al* 1948 Year Book of General Medicine (book), 5491*f*.
**Beeson, W. M.** See Mertz, E. T.
**Beevers, C. A.**, and Stern, F Crystal structure of D-tartaric acid, 4074*h*.
**Beevers, H.** See James, W. O.
—— and James, W. O. Behavior of secondary and tertiary amines in the presence of catechol and belladonna catechol oxidase, 3863*h*
—— and Simon, E. W Effect of pH on the activity of some respiratory inhibitors, 6251*e*.
**Beezley, H. V.** See Olson, G. R.
**Befani, A.** See Pegni, U.
**Begany, A. J.** See Ehrich, W. E.
**Begg, M.** Nutritional requirements of *Drosophila*, 7594*h*.
**Beghelli, G.**, and Rosso, G. Hepatic and renal alterations from folic acid treatment, 9182*a*.
**Beghian, L. E.**, and Halban, H. Abs. cross sections for the capture of neutrons of 200 and 900 e.kv. energy, 5287*c*.
**Begtrup, H.**, and Hansen, P. F. Reaction of the liver to small doses of vitamin K as a liver-function test, 2661*e*.
**Béguin, J.** Folic acid, 1842*d*.
**Behnisch, R.** Sulfonamides with antimalarial activity, 4648*b*; see Domagk, G.
**Behr, E. A.** Preservation of fiber insulating board with chlorinated phenols, 1516*i*; application of pentachlorophenol as soil poison and wood preservative, 4806*h*.
**Behr, G. E.** See Hack, C. H.
**Behr, W.** See Kröger, C.
**Behre, A.** Food poisoning from fish products, 6752*a*.
**Behre, J.** Detn. of the activity of rubber fillers, 6454*d*.
**Behrendt, H.** Phosphatase in blood of man—values in whole blood, plasma, cytolyzates, and erythrocyte suspensions, 3864*a*.
**Behrens, A.**, and Behrens, H Ceramic industry plant of Santa Claudia, San Caetano, San Pablo, 7205*a*
**Behrens, C. F.** At Medicine (book), 8117*f*.
**Behrens, H.** See Behrens, A
**Behrens, O. K.** Biosynthesis of penicillins, 4328*a*; penicillin salts, P 4433*f*, *N*-phenylacetyl amino acid esters, P 4697*i*, *N*-phenylacetyl amino acids, P 4698*d*, see Corse, J , Jones, R G , Soper, Q F.
——, Corse, J., Edwards, J. P., Garrison, L., Jones, R G., Soper, Q F., Van Abeele, F R , and Whitehead, C. W. Biosynthesis of penicillins (IV) cryst. biosynthetic penicillins, 2274*b*
——, Corse, J., Huff, D E , Jones, R G , Soper, Q F., and Whitehead, C. W Biosynthesis of penicillins (III) prepn and evaluation of precursors for penicillins, 2271*e*.
——, Corse, J., Jones, R G , Kleiderer, E. C., Soper, Q F., Van Abeele, F R , Lawson, L. M , Sylvester, J. C , Hames, W J., and Carter, H E Biosynthesis of penicillins (II) utilization of deuterophenylacetyl $N^{15}$ DL-valine in penicillin biosynthesis, 2271*c*.
——, Corse, J., Jones, R G , Mann, M. J., Soper, Q F., Van Abeele, F R , and Chiang, M C. Biosynthesis of penicillins (I) biol precursors for benzylpenicillin (penicillin G), 2269*e*.
——, Jones, R G., and Corse, J *N*-Phenylacetylated amino alcs and ethers, P 4697*f*, *N*-(2-phenylacetoxyethyl)phenyl acetamide, P 4697*h*
—— and Kuck ale, M. J Biosynthesis of penicillins (VIII) biosynthetic penicillins on penicillin resistance, 3489*a*
**Behrens, R. W** See Griffin, W C.
**Behrens, W. U.** Effect of phosphate fertilization on the sugar content of carrots, 7624*c*, trimetaphosphate as a fertilizer, 7624*d*.
**Behringer, H.** Animal poisons, 3940*a*, cystine, 4224*d*.
**Behrmann, R. A.** Fatty acids and liquid soaps, 9488*g*
**Behr-Manning Corp.** App. for the manuf of abrasive-coated materials, such as sandpaper, emery paper, or cloth, P 4442*d*
**Beich, P. F., Co.** Grinder and pulverizer of cacao nibs, P 4398*d*.
**Beiduk, F. M.**, and Konopinski, E J Shaped field for 180° spectrograph, 4094*g*
**Beiler, A. C.** See Schulman, E. L
**Beiler, J. M.** See Martin, G. J.
——, Brendel, R , Graff, M., and Martin, G. J Effect of metabolite antagonists on histidine decarboxylase, 8553*d*.
**Beilikhis, G. A.** $PbEt_4$ decontamination, 1881*i*.
**Bellin, I. G.** Fungus diseases of seedlings and transplants, 9176*g*
**Bein, H. J.** Influence of K and Ca ions on the action of procaine, 1869*a*; see Beck, G E.
**Beinert, H.**, and Maier-Leibnitz, H. Cytochrome c labeled with radioactive Fe, 1818*h*.
**Beisel, C. G.**, and Troy, V. S. Vaughn-Levine $H_3BO_3$ medium in the examn. of frozen concd. orange juice, 8571*h*.
**Beiser, A. L.** See Miller, I.
**Beiser, S. M.**, and Kabat, E. A. Material in bovine stomachs related to blood-group B substance, 7118*b*.
**Beitler, S. R.**, and Masson, D. J. Calibration of eccentric and segmental orifices in 4- and 6-in. pipe lines, 8750*e*.
**Béja, M.** Tl and its compds., 7854*a*.
—— and Loisy, R. A. $MnO_2$, P 7202*h*.
**Bek, J. J. M.** See Mansour-Bek, J. J
**Beken, F.** Conception of mixing, dispersing and wetting, 5648*f*.

**Bekatovskii, S. N.** Testing of the purity of fibroin, 5819*g*.
**Bekhli, A. F.** See Topchiev, K. S.
———, Ufimtsev, V. N., and Topchiev, K. S. Chem. structure and parasiticidal activity (VII) synthesis of paludrine, 3793*g*.
**Bekhtereva, A. I.** Moisture detn. in mold materials and mixts., 5339*d*.
**Bekkedahl, N.**, and Saffioti, W. Mangabeira latex and rubber, 3641*e*.
——— and Stiehler, R. D. Natural and synthetic rubbers, 4045*b*.
**Bekkerman, I. Ya.** Pituitrin, 1488*c*.
**Belajev.** See Belyaev.
**Belajéva, A. P.** See Belyaeva, A. P.
**Belan, F. I.** Corrosion protection of idle boilers by means of $NH_3$, 4623*e*.
**Béland, R.** Synthesis of some thioarsenites of Ag in alkali sulfide solns., 8312*i*.
**Belcher, R.** Anodic oxidation of coal (I) introduction and preliminary expts., (II) effect of oxidizing vitrain and ulmic acids at various metal electrodes, (III) examn. of the water-sol. acids, 376*a*; (IV) examn of the ulmic acids, (V) miscellaneous expts., 1942*d*; miscellaneous org reagents for K test sensitivities given by various compds., 2115*e*, see Ingram, C.
**Belchetz, A.** $SO_3$, P 369*d*.
**Bel'chikova, N. P.** See Kononova, M. M.
**Belden, D. H.**, and Kassel, L. S. Pressure drops encountered in conveying particles of large diam. in vertical transfer lines, 6476*e*.
**Belen'kii, L. I.** Hydrophilic org solvents for analysis of dyes, 1560*f*
——— and Kazanskaya, M. E. Converting polycycloketone dyes to leuco solns., 3619*d*
**Belen'kii, M. S.** Oxide catalysts, P 3576*g*
**Belen'kii, S. Z.** Equil spectrum of cascade electrons, 2859*h*, Labile Processes in Cosmic Rays (book), 7830*i*
**Belf, L. J.**, and Green, S. W. P yields chem products, 6373*e*
**Bel'govskaya, A. A. P.** See Prokof'eva-Bel'govskaya, A. A.
**Beliaev.** See Belyaev
**Beliankin, D. S.** See Belyankin, D. S
**Belic, H. J.** See Steinberg, R. H.
**Belikov, V. M.** See Rodionov, V. M.
**Beljaeff.** See Belyaev.
**Beljankin, D. S.** See Belyankin, D. S.
**Beljanski, M.** Microdetn of ribose in nucleic acids and their derivs., 7540*e*
——— and Macheboeuf, M. Microdetn of ribose of ribosenucleic acids, 8420*h*
**Belke, J.**, and Dierkesmann, A. Detn of Na, K, and Ca in biol fluids, 7070*d*
**Belkin, M.** See Walton, R. P.
**Bell, A.** See Allen, C. F. H.
——— and Wright, G. F. Carbonyl group in birch lignins, 8674*e*, isobutyl group in spruce and birch lignins, 8674*h*
**Bell, A. D.** See Fookson, A.
**Bell, A. E.** Teaching ionic dissocn., 2826*d*
**Bell, A. P.**, and Mitchell, W. A. $CCl_4$ causes 2 deaths, 7605*i*.
**Bell, C. E.** See Volk, G. M.
**Bell, C. W.** Detn. of theobromine in theobromine and Na salicylate, 9374*c*.
**Bell, D.** See Kuzmick, J. N.
**Bell, D. J.** Applications of periodate oxidation to some problems of carbohydrate chemistry, 1330*e*, 9040*f*, enzymic *in vitro* syntheses of natural glycosidic derivs., 4710*e*.
——— and Palmer, A. Quant. chromatographic analysis of tetra-, tri-, and dimethylfructoses, 6947*d*.
**Bell, E. W.** See Teeter, H. M.
**Bell, F.**, and Waring, D. H. Stilbenecarboxylic acids, 198*f*; sym. bianthryls (I), 7472*g*.
**Bell, F. K.**, and Krantz, J. C., Jr. Digitalis (VII) effect of various alkalies on the sensitivity of the Baljet reaction for digitoxin, 2374*d*; (VIII) Baljet reaction, digitoxin, and digitoxigenin, 9372*b*.
**Bell, G. H.**, and Weir, J. B. de V. Phys properties of bone in fluorosis, 5854*d*.
**Bell, H. D.** Potential treatment of complex silicates and Fe Al phosphate, 823*h*
**Bell, H. S.** Oil Shales and Shale Oils (book), 1556*e*.
**Bell, J.** See Crawford, F. A. F.
**Bell, J. A.** Waterproof plastic compn., P 3234*i*.
**Bell, K. E.**, and Flinn, E. S. Chem. requirements of the leather industry, 7246*g*, 8181*g*.
**Bell, L.**, and Veksler, V. I. Flat proportional counter, 5292*a*.
**Bell, M. C.** See Whitehair, C. K.
**Bell, N. M.**, and Childs, W. C. Chlorinator, P 6012*a*.
**Bell, P. H.**, Bone, J. F., English, J. P., Fellows, C. E., Howard, K. S., Rogers, M. M., Shepherd, R. G., and Winterbottom, R. Polymyxin—comparison with aerosporin, 9385*h*.
**Bell, P. R.**, Ketelle, B. H., and Cassidy, J. M. $\beta$-Decay of $In^{115}$, 8873*f*.
**Bell, R. E.** See Elliott, L. G.
——— and Elliott, L. G. $\gamma$-Rays from the reaction $H^1(n,\gamma)D^2$ and the binding energy of the deuteron, 1259*h*; search for a 3.20 m.e.v. $\gamma$-ray in the disintegration of $Th^{\bullet}C''$, 3286*e*.
**Bell, R. G.**, and Smith, H. W. Clinical trials of antabuse, 9266*h*
**Bell, R. M.** See Nieset, R. T.
**Bell, R. N.** Polarizing microscope, 3531*h*.
**Bell, R. P.**, and Fendley, J. A. Electrometric measurement of the free energy of formation of naphthalene picrate, 5274*i*.
——— and Prue, J. E. Reaction-kinetic investigations of the incomplete dissocn of salts (I) decompn. of diacetone alc in solns of metallic hydroxides, 6055*a*.
———, Smith, R. D., and Woodward, L. A. Kinetics of the base-catalyzed bromination of ethyl cyclopentanone-2-carboxylate, 3698*d*
———, Thompson, H. W., and Vago, E. E. Intensities of vibration bands (I) bending vibrations of $C_2H_5$ derivs and the dipole of the C-H link, 3714*h*
——— and Trotman-Dickenson, A. F. Acid-base catalysis in nonaq solvents (XII) amine-catalyzed decompn. of nitramide in amsole soln., 8828*d*
**Bell, R. W.** Retention of ascorbic acid, changes in oxidation-reduction potential, and the prevention of an oxidized flavor during freezing preservation of milk, 778*i*
**Bell, S. A.** By-product distd citrus oil, 6366*c*
**Bell, T. E.** Continuous bleaching of textiles, 6830*i*
**Bell, W. C.** Reheat shrinkage characteristics of silica and clay mixts., 828*i*
**Bella, L. di.** See Di Bella, L.
**Bella, S. di.** See Di Bella, S.
**Bellack, E.**, and DeWitt, J. B. Rodent-repellent studies (I) evaluation of chem repellents, 8604*a*.
**Bellah, J. S.**, Mertz, R. V., and Kilmer, J. W. Split-flow gas sweetening unit features Slaughter plant, 8657*d*.
**Bellamy, L. J.**, and Watt, C. H. Effect of rubber, polythene, and polyvinyl chloride tubing on penicillin, 4428*d*
**Bellamy, W. D.** See Sprague, C. F.
**Bellanca, A.** Structure of erythrosiderite, 3747*h*.
**Bellatti, R.** See Scarzella, M.
**Bellavita, V.** Sparteine in *Spartium scoparium* of Umbria, 819*d*, sulfonamide derivs., 6180*d*; derivs of *n*-propyl ethers of 2-amino-4 nitrophenol, 7450*h*.
**Belle, C. W.** In. See LaBelle, C. W.
**Beller, H.**, Christ, R. E., and Wuerth, F. Carburetor process for $C_2H_2$ reactions, P 7036*e*.
**Beller, N. N.** Influence of drying and grinding in the prepn. of pulverulent clays for drilling muds, 2409*f*.
**Bellet, G. R.** See Rey Bellet, G.
**Bellet, S.**, and Urbach, J. Intramuscular prepn. of quinidine (quinidine gluconate), 9365*a*.
**Belli, R.**, and Pandolfi, C. Diazo reaction of H. van den Bergh (I) influence of proteins on the direct and indirect reactions, (II) influence of biliary pseudo mucin on the diazo reaction, (III) influence of serum globulins on the direct and indirect diazo reaction, (IV) isolation of a globulin specific in ol. tructive jaundice, 6684*a*
**Bellini, B.** Chem. compn. of sausages, 3944*d*
**Bellis, D. M.** See Collier, H. O. J.
**Bellman, D. R.**, and Evvard, J. C. Knock-limited performance of several internal coolants, 839*i*.
**Bellone, A. F. S.** $MnO_2$, P 4588*i*
**Bello Pereira, F.** See Tapadinhas, J.
**Bell Telephone Laboratories, Inc.** (*Patents.*) Compn comprising org peroxide-cured glycoldicarboxylic acid polyester and red oxide of Fe, 432*d*; Pb-alloy coating, 556*c*; insulated coating compns., 2344*a*; metallizing compn., 3587*e*; metallic-oxide resistor, 4403*a*; Si material, 5556*g*; electrooptical light valve of $NH_4H_2PO_4$, 5682*g*; passivation of ferrous metals, 6143*i*; stabilization of polyesters, 7746*a*.
**Bellucci, A. J.** See Seymour, G. W.
**Bellucci, I.** Ashing, for analytical purposes, of blood and other biol. materials, 8419*d*; detn. of Cl, Br, and I in biol. solns., 8419*e*.
——— and Adamo, M. As content of com. Zn, 4193*g*.
——— and De Gori, R. Br and Cl contents of some vegetables, 3537*f*, 8572*d*.
**Bellwood, C. R.** Chem. progress in water-repellency, 414*d*; treatment of textiles with acyloxy-substituted aromatic acid salts, P 418*d*.
**Belmag Quarzbrenner A.-G.** App. for bending quartz tubing, P 5918*a*.
**Belmas, R.** Physicochem. study of the *Hevea* latex (I) metal cations in the latex, 5619*b*; (II) adsorption of metal cations on the surface of latex particles, 7249*d*.
**Beloff, A.** See Anfinsen, C. B.
——— and Anfinsen, C. B. Products of proteolysis of some purified proteins, 1816*a*.
**Belmont Iron Works.** Paper machine, P 7686*d*.
**Belopol'skii, A. P.** Physicochem. investigations in the field of the $NH_3$-soda process (V) relative roles of the resistance of the gaseous and the liquid film in the carbonation of $NH_4$ salt solns, (VI) dependence of the rate of carbonation of $NH_4$ salt solns on the partial pressure of $CO_2$ in the carbonating gas, (VII) application of the theory of absorption, in the presence of a chem. reaction in the liquid phase, to the carbonation of $NH_4$ salt solns., 3155*a*; (VIII) anomalies in the middle range of carbonation of ammoniacal salt solns., 3574*h*
———, Shmanenkov, I. V., and Shereshevskii, A. I. Academician E. V. Britske, 3251*b*
——— and Urusov, V. V. Oxidation of ferrous sulfate in soln by free O, 1632*d*.
**Belorizky, D.**, and Fehrenbach, C. Change in the spectrum of $\gamma$-Cassiopeiae, 2092*c*.
**Beloruchev, E. A.** As detn. in flour, 1118*d*.
**Belostotskaya, T. V.** See Levkoev, I. I.
**Belous, A. T.**, and Vedenina, L. V. Relation of certain dyes to the mercerization of fibers, 3622*a*
**Belov, K. P.** Effect of expansion on the magnetization of ferromagnetic substances, 4529*b*.
**Belov, V. N.**, Bogoslovskii, B. M., Korolev, A. I., Fedorova, A. M., and Shemyakin, M. M. Vladimir M. Rodionov, 7761*c*.
**Belova, V. I.** See Syrkin, Ya. K.
**Belovitskii, G. E.**, and Sukhov, L. V. Removal of emulsion background due to charged-particle tracks by the acceleration of photoregression, 2860*g*, formation of heavy particles and absorption of the generating component at an altitude of 3860 m., 4558*f*.
**Below, F.** War developments in the German rubber industry, 7740*i*.
**Belschner, H. G.** Control of the buffalo fly, 4416*f*.
**Belt, J. R.** See Collegeman, S. M.
**Belt, M.** See Broquist, H. P.; Franklin, A. L.; Hutner, S. H.
**Belter, P. A.** See Beckel, A. C.
**Belton, J. G.** See Barry, V. C.
———, Nowlan, N. V., and Wheeler, T. S. $H_2SO_4$ as catalyst in acylations with acyl chlorides, 7000*i*.
**Beltrami, T. F.** Org. and chem. fertilizer, P 5524*c*.
**Beltrami, V.**, and Borgese, G. Filler composed of bituminous-oil-distillate base and synthetic resins, P 5632*f*.
**Beltran, E.**, and Bonas, R. Detn. of fat in vegetables, 1122*f*
**Beltrán Martínez, J.** See Rius, A.
——— and Rodriguez Rios, B. Electrolysis by means of a silent discharge, 8910*d*.
**Beluga, S. M.**, and Zolotorog, A. F. Metlach plates from Artemovsk clays, 1163*c*.
**Belval, H.** Structure of Jerusalem artichoke tubers, 6701*a*, see Cugnac, A. de; Turmel, J. M.
——— and Grandchamp-Chaudun, A. de. Glucose of glucofructosans, 5828*e*; hydrolysis of glucofructosans with diastase—effect of the ratio enzyme/substrate on the velocity of the reaction, 7526*i*.
———, Legraud, G., and Lewis, C. Specificity of saccharase prepns., 4712*i*.
——— and Lemoyne, S. Mol. constitution of saccharose and raffinose, 3795*i*.
**Belward, D.** See Howlett, F.
**Belyaev, A. F.**, Bobolev, V. K., and Ratner,

Z. I. Detonation of explosives under impact, 1982*b*.
**Belyaev, A. I.** Fiziko-khimicheskie protsessy pri elektrolizè alyuminiya (book), 2524*c*.
**Belyaev, A. K.** Packed linings for rotary kilns, 1166*f*.
**Belyaeva, A. P.** See Bondarenko, M. M.
**Belyankin, D. S.**, and Lapin, V. V. Crystn. of cordierite in industrial glasses, 1540*i*; merwinite and $2CaO.SiO_2$—their paragenesis in a slag of Fe-V production, 1691*c*.
**Belyanskii, D. S.**, and Ivanov, B. V. Petrographic characteristics of basic chromomagnesite refractory masses, 6383*h*.
**Belyea, I.** See Bambridge, I. R.
**Belzeaux, G.** Red spider in the Conflent, France, 8600*b*.
**Beman, W. A.** See Armstrong, E. L.
**Bemis, W. A.**, and Reed, W. L. Corn char driers, 8649*g*.
**Benacerraf, B.** See Kabat, E. A.
——— and Fischel, E. E. Partially inhibiting effect of 10-(2-dimethylaminoisopropyl)-phenothiazine on the Arthus reaction, 7139*g*
——— and Kabat, E. A. Passive anaphylaxis in the guinea pig (V) and latent period its relation to the dose of rabbit antiovalbumin, 8523*f*
**Benade, A. H.**, and Said, R. D. Time distribution of decay electrons from mesons stopped in Mg at 3500 m. altitude, 8866*f*
**Bena-Medean, V.** *N*-Ammonaphthalsoimides—toluylidene, cumuylidene, and anisylidene derivs.—their transformation to the normal imide forms, 2982*d*
———and Liteanu, C. Buffering power of cow milk, 3114*i*
**Bénard, H.**, Desgrez, P., Gajdos, A., Lambotte, F., and Polonovski, M. Lecithinase and cholesterol esterase in plasma, 8408*f*.
———, Gajdos, A., and Gajdos-Torok, M. Lang's rhodanese—its role in mediating the anticyanide effect of Na dithionite, 4709*b*, variations in cholinesterase and tributyrinase activities of the blood serum in rabbits poisoned with $CCl_4$, 5116*a*, comparative inhibiting action of diisopropyl fluophosphate on the serum pseudocholinesterase and tributyrinase of rabbits, 5116*c*, antagonistic action of $Na_2S_2O_3$ to cyanide—rhodanese of Lang, 8412*c*.
———, Horn, A., Kaswin, A., and Seeman, A. Action of alkali cyanides on glycogenolysis by phosphorolysis and by hydrolysis by amylase—inhibition of the phosphorolysis of glycogen by certain compds. blocking sulfhydryl groups, 5864*i*.
**Bénard, J.** Cryst.-structure factor in reactions in the solid state, 2065*g*, oxidation of metals and reactions in the solid state, 4546*a*, variation of the compn. of ferrous oxide, 6901*g*, see Chaudron, G.
**Benassi, C.** See De Barbieri, A.
**Bencze, B.** App. for the Kjeldahl detn. of N, 5234*f*, detn. of tocopherol, 5442*f*
——— and Halmy, J. B. Poppies, 8617*d*
**Benda, E.**, and Urquia, D. A. Degree of natural resistance of guinea pigs to histamine aerosols, 1108*d*; histamine in the antihistaminic action of serum, 5495*b*
**Bendel, H. J.** See Stromk, J. B. A.
**Bender, C. E.** Recovering caffein, P 6371*b*.
**Bender, D.** Elec. properties of Th, 8227*c*
**Bender, H. L.**, and Farnham, A. G. Etherified phenol-$CH_2O$ resins, P 5630*i*, phenolic resins, P 8207*g*.
———, Farnham, A. G., and Guyer, J. W. Methylenediphenols, P 4698*e*.
**Bender, M.** Vat dyes, 6417*i*.
**Bender, M. L.** See Hass, H. B.
**Bender, R. S.**, Shoemaker, F. C., Kaufmann, S. G., and Bouricius, G. M. B. Resonance scattering of protons by Al, 8265*g*.
**Bender, T. O. D.**, and Baan, J. C. Technologie der lichte metalen (book), 6561*i*.
**Bender, W. A.** Grading pectin in sugar jellies, 3945*i*.
**Bendich, A.** See Burchenal, J. H., Cavalieri, L. F.
——— and Brown, G. B. 2,6-Diaminopurine, a precursor of nucleic acid guanine, 2259*g*.
———, Getler, H., and Brown, G. B. Isotopic cytosine and its metabolism, 3893*c*.
——— and Kabat, E. A. Immunochem. estn. of the rate of disappearance of transfused γ-globulin from the blood in hypoproteinemia, 9102*a*.
———, Tinker, J. F., and Brown, G. B. Synthesis of isoguanine labeled with isotopic N, 579*h*.
**Benditt, E. P.** See Jaffé, E. R.
———, Wissler, R. W., and Cannon, P. R. Protein synthesis—the influence of the levels of energy and protein intake on protein synthesis, 7100*i*
———, Wissler, R. W., Woolridge, R. L., Rowley, D. A., and Steffee, C. H. Loss of body protein and antibody production by rats on low protein diets, 4452*i*
**Bendix, G. H.** Electrolytic stripping and detn. of plating metal, P 1665*g*, detn. of inorg. elements in beer, 8607*g*; Cu in foods, 7151*c*
**Bendix Aviation Corp.** Friction material, P 334*b*, spark-plug assembly molded in one operation, P 831*c*, porous metallic structure, P 3949*a*, graphite brushes, P 4403*b*, electromagnetic pump P 7274*d*.
**Bendixen, T. W.**, Hershberger, M. F., and Slater, C. S. Bars for classifying soil permeability, 7941*f*
**Bendor, B.** See Munsell, H. E., Streightoff, F.
**Benedek, L.**, and Richter, M. Crude fiber of paprika powder products, 5879*h*
**Beneden, G. van.** Detn. of org. matter in water, 8582*f*
**Benedetti, G.**, Tortori-Donati, B., and Ferri, F. Nicotinamide and lactoflavin and the carbohydrate metabolism, 3901*g*.
**Benedetti, S. de.** See De Benedetti, S.
**Benedetti-Pichler, A. A.** Precision of weighings, 6537*g*, calibration of wts., 8296*d*.
**Benedicks, C.** Superfluid He(II), 455*c*, allotropy of Fe and of He, 3257*g*
——— and Tenow, O. Prepn. of thin steel specimens by cutting and the isolation of nonmetallic inclusions *in vitro*, 3329*i*
**Benedict, H. M.** Effect of waste products from the guayule rubber mill on the growth of various crops, 1515*a*
**Benedict, J. D.** See Heidt, L. J.
**Benedict, M.**, and Williams, C. Engineering Developments in the Gaseous Diffusion Process (book), 7275*c*
**Benedict, R. G.**, and Stodola, F. H. Effect of various factors on the production of polymyxin, 8441*g*
**Benedict, W. S.** See Nelson, Richard C.
**Benedikt, K.** See Wessely, F.
**Benedito de Araujo, J.** Treatment of a Su-contg. pegmatite from S. Tadeu, João del Rei, Minas Gerais, Brazil, for concn. of jacutinga from Itabira, 6055*a*, apatite of Araxá and the Brazilian fertilizer industry—solubilizing mineral phosphates by defluorization, 8084*f*, see Bourcy, Trajano, R.
——— and Mendonça Pinto, C. solubilities of phosphate minerals, 8084*g*
**Benedito de Araujo, L.** Detn. of small amts. of P, 7865*i*
**Benemelis, R. L.** See Alexander, A. L.
**Benenson, V. D.** Selective flotation of complex ores, 1693*d*.
**Beneš, J.**, Ghosh, A., Hedgran, A., and Hole, N. Decay scheme of $Hf^{181}$, 487*a*
**Beneš, V.** $C_6H_6$ washing oil, 7667*a*.
**Benesch, R.** See Dziewiatkowski, D. D.
——— and Benesch, R. E. Amperometric titrations of sulfhydryl groups in amino acids and proteins, 4315*f*
**Benesch, R. E.** See Benesch, R., Dziewiatkowski, D. D.
**Benesi, H. A.**, and Hildebrand, J. H. Solv. of I in 1,2- and 1,1-dichloroethanes, *cis*- and *trans*-dichloroethylenes and *p*-fluoroheptane, 2844*c*; interaction of I with aromatic hydrocarbons 7824*h*
**Benesovsky, F.** See Bartels, H. J., Kieffer, R.
**Benet, P. J.** Capillary analysis of Argentine woods, 1565*e*.
**Benezech, C.** See Cristol, P.
**Bénezet, L.** See Garnero, J., Cattefossé, I.
**Benfey, O. T.** Electrophilic attack on halogen in a homogeneous medium—reaction of mercuric nitrate with some primary and secondary alkyl bromides, 557*g*.
**Benfield, A. E.** Thermal consequences of the capture of neutrinos by the earth, 479*e*
**Benfield, T.** See Commercial Solvents (Great Britain) Ltd.
**Benford, F.**, Schwarz, S., and Lloyd, G. P. Coeffs. of reflection in the ultraviolet of Mg carbonate and oxide, 945*a*
**Bengal Immunity Co. Ltd.** Active Al(OH)$_3$, P 364*c*.
**Benger, H.** See Panthitschko, H.; Wessely, F.
**Bengough, W. I.**, and Norrish, R. G. W. Catalytic effect in vinyl polymerizations, 5272*f*.
**Bengtsson, E.** See Dahlén, A.
**Benham, G. H.** Glucose—detg. carbohydrates, 2125*g*.
**Benigni, K.** See Brintzinger, H.
**Benigni, R.** *p*-Aminobenzoic acid in the therapy of tuberculosis, 7576*g*.
**Benigno, P.** Antibacterial action of mercurialated sulfanilide, 1456*c*; time factor in the quant. comparison of antihistaminic action, 2323*g*, pharmacology of tietergents (I), 4774*d*; (II) cetyltrimethylammonium bromide, 4774*d*
——— and Sauti, R. Antibacterial action of Hg(II) fixation by organisms of $Hg(CN)_2$ and $HgCl_2$, 7076*d*, (IV) fixation of mercuric chloride by organisms which have developed resistance, 7076*e*, (V) influence of NaCl on the fixation of Hg in bacteria, 5076*c*.
**Benignus, P. G.** Fungusproofing compn., P 1902*a*, 7632*f*, Cu 8-quinolinolate industrial preservative, 4018*g*, see McArdle, M.
**Benin, G. S.**, and Shnaider, E. E. Estn. of ion exchangers, 7729*i*, evaluation of anion exchangers, 9206*f*.
**Beninchke, H.** Cystine detn. in plants, 3485*g*
**Benjamin, E. B.** See Lippman, A., Jr.
**Benjamin, H. A.** See Jackson, J. M.
**Benjamin, L. P.** See Silson, J. E.
**Benk, E.** Org. tung acids as active ingredients in cold wave solns., 3144*i*, glycols in cosmetics, 6147*f*, basic Al acetate 5533*d*
**Benkeser, R. A.**, and Landesman, H. Oxidation of organosilanes with $SeO_2$, 9065*c*
**Benko, G.** See Balint, P.
**Bennati, D.** See Heymans, C.
**Benne, E. J.** See Shirley, R. L., Waldron, D. R.
**Bennekou, I.** Monoglycerides of dihydroxy derivs. of polyhydrocyclopentaphenanthrenes, P 1552*i*, esters of diols and triols of polyhydrocyclopentaphenanthrenes, P 6247*a*
**Benner, H. L.** See Blair, R. R.
**Bennet-Clark, T. A.** Nonosmotic water movements in plant cells, 1464*a*, org. acids of plants, 9471*i*
——— and Bevan, D. Water relations of plant cells (IV) diffusion effects in plasmolyzed cells, 267*0a*
**Bennett, A.** Reduced Cu in the microdetn. of C and H, 6105*a*
**Bennett, D. G.** Development of, and uses for, nylon yarns, 6422*f*
**Bennett, E. L.**, and Niemann, C. Ion exchange resins in the isolation of blood group A-specific substance from hog gastric mucin, 1310*e*
**Bennett, F. C., Jr.** Detn. of [illegible] Al alloys, 2120*g*
**Bennett, G. E.**, and [illegible] R. M. Variation of Young's [illegible]s with temp., 5715*b*.
**Bennett, G. M.** [illegible] of $H_2SO_4$ in aromatic nitrations, 5501*b*
——, Crofts, P. C., and Hey, D. H. Antimalarials. XXXV. [illegible]ylaminoalkylamino-alkyla[illegible] derivs., 9037*d*
**Bennett, G. W.** Liquid unknowns in quant. analysis, 6915*b*.
**Bennett, H.** Trade Marks (book), 4790*i*.
**Bennett, Hilda.** See Bannister, F. A.
**Bennett, H. P.** Detection of $CH_2O$, 8974*g*
**Bennett, H. R.**, and Wieseman, P. C. Beef Fe, and wine N, P., 6783*c*
**Bennett, H. S.**, and Yphantis, D. A., 1-(4-Chloromercuriphenylazo)-2-naphthol, 6114*h*
**Bennett, J. G.**, Foster, D. B., Greaves, C. D., Phillpotts, G. C., Pirani, M., and Kramers, W. J. Carbonized shapes from coal, P 7176*i*
——— and Griffith, R. O. Photoreaction between I and $H_2O_2$ in aq. soln., 490*g*.
**Bennett, L. L.** Effects of the pituitary growth and adrenocorticotropic hormones on the urinary glucose and N of hypophysectomized diabetic rats, 2692*b*; see Fisher, C. W., Gordan, G. S.; Whitney, J. E.
———, Garcia, J. F., and Li, C. H. Production of increased ketonemia in a normal dog by adrenocorticotropic hormone, 740*d*.
——— and Laundrie, B. Effect of the pituitary growth and adrenocorticotropic hormones on the urinary glucose, N, and ketone bodies of diabetic rats maintained on a carbohydrate-free diet, 2691*i*.
**Bennett, L. L., Jr.** See Wiley, R. H.
**Bennett, M. A.** Inability of the rat to utilize the Me groups of methionine sulfone and oxidized casein for methylation of homocystine, 3895*b*.

**Bennett, Nicholas.** See Foster, R. T.
**Bennett, Norah,** and Loomis, W. E. Tetrazolium chloride as a test reagent for freezing injury of seed corn, 2290*c*.
**Bennett, O. G.,** and Dubin, J. Delay fuse compn., P 2438*e*.
**Bennett, O. L.** Soybean flour in sausage, etc., 7155*b*.
**Bennett, R. B.** See Yule, L. T.
— — and Spokes, K. F. Friction element, P 3048*i*.
**Bennett, R. D.** Processing nylon staple on the Bradford worsted system 7232*g*.
**Bennett, R. H.** Electrolytic Mn, 8090*g*.
**Bennett, S. H.** Systemic insecticides, 5897*b*.
**Bennett, W.** See Roberts, J. D.
**Bennett, W. C.** Small and large blocks in C hearth construction, 7389*h*.
**Bennett, W. D.,** Dhuner, K. G., and Orth, O. S. Effectiveness of dihydrocrotalamine and dihydroergocornine in the prevention of cardiac irregularities during cyclopropane anesthesia, 4381*k*.
**Bennett, W. E.** See Davidson, A. W.
**Bennett, W. R.** Alk. detergent P 4054*b*.
**Benning, A. F.** Distn. process for separating products of $CHCl_3$ fluorination, P 6619*g*, distn. process for separating products of $CCl_4$ fluorination, P 6624*a*, see Graham, Donald P.
— — and Downing, R. L. Transmutting energy, P 3671*a*.
— —, McHarness, R. C., and Murray, W. S. Purification of crude dichlorofluoromethane P 2786*h*.
— —, Park, J. D., and Krahler, S. F. CFA, P 3187*a*.
**Benoist, P.** Calcn. of the period of disintegration of $Sr^{90}$ as a function of the degree of ionization of the atom, 3555*b*.
— — and Jean, M. Relative probability of nuclear capture of *L* and *K* electron in $Ar^{37}$, 8216*e*.
**Benoit, H.,** and Sadron, C. Mol. chains of dil. solns., 8805*b*.
**Benoit, R.** Complex chloride and bromides of the transition elements, 2937*e*.
**Bensley, E. H.,** Wood, P., and Lang, D. Estn. of acid phosphatase of hemolyzed serum by the dye RO inactivation technique, 7763*a*.
— —, Wood, P., Mitchell, S., and Mihut, B. Estn. of serum acid phosphatase in the diagnosis of metastasizing carcinoma of the prostate, 3011*i*.
**Bensley, R. D.** Color photography, P 3626*k*.
**Benson, A. A.** See Calvin, M.
— — and Bassham, J. A. Chem. degradation of labeled succinic and malic acid, 1121*i*.
— — and Calvin, M. Path. of C in photosynthesis (II), 5456*a*.
**Benson, F. R.,** Lawzel, L. W., and Savell, W. L. 3,4 Dimethylamine from fenchone by the Schmidt reaction, 4234*e*.
**Benson, G.,** and Fletcher, R. M. Detection of AcOH in AcOH, 6947*b*.
**Benson, G. C.,** and McIntosh, R. L. Surface pressure area measurements for films of polyvinyl acetate polymers spread on water, 4375*b*.
**Benson, M.** Electroneutralization of milk, 7506*i*.
**Benson, R. A.** See Slobody, L. B.
**Benson, S. W.,** and Criswell, R. Effusion of gaseous nitrogen tetroxide—molwts. of gases and vapors, 2055*b*.
— — and Ellis, D. A. Surface areas of proteins (I) surface areas and heats of adsorption, 2218*a*.
**Benson, W. M.** Inhibition of cholinesterase by adrenaline, 257*b*.
**Bent, F. A.** See Shokal, E. C.
**Bent, R. D.,** and McCullough, J. H. Unisol process, 3814*i*.
**Bentley, G. A.** See Keogh, P. P.
**Bentley, G. T.** High-B.t.u. gas for peak shaving, 1550*d*.
**Bentley, H. R.,** McDermott, E. E., Pace, J., Whitehead, J. K., and Moran, T. Action of NCh on proteins—isolation of the toxic factor, 7523*e*.
— — and Whitehead, J. K. Furan derivs. in paper chromatography, 8299*d*.
**Bentley, R.** $O^{18}$ as a tracer element, 3279*b*, 1565*i*, hydrolysis of acetyl dihydrogen phosphate, 8351*c*.
**Bentley, T. L. J.** See Southworth, J.
**Benton, A.,** and Kinsey, E. L. Effect of water of crystn. on absorption bands of Nd bromate crystals, 4003*c*; absorption spectrum of Nd bromate crystals, 4137*d*.
**Benton, B. E.** See Lehning, F. E.
**Ben Venue Laboratories, Inc.** Purification of Bacitracin, P 2742*a*.
**Benz, F.** See Wettstein, A.
**Benz, G. W.** See Henze, H. R.
**Benz, H.** Protective agent against insects, P 5899*d*.
**Benz, J.** See Karrer, P.
**Benzer, S.** Spontaneous elec. oscillations in Ge crystals, 4002*a*; photoelec. effects and their relation to rectification at metal-semiconductor contacts, 4095*g*.
**Beohner, H. L.,** and Mindler, A. B. Ion-exchange in waste treatment, 3668*c*.
**Béquignon, R.,** and Reinic, L. Consecutive encephalitis by corneal inoculation of hyaluronidase-treated rabbits, 5857*i*.
**Bera, B. C.** See Tewari, C. N.
**Beraldo, W. T.** See Rocha e Silva, M.
**Beran, F.** Effect of various fumigants on San Jose scale, 1144*g*; chem. protection of plants, 6775*f*, 9339*g*.
— —, Prey, V., and Bohm, H. Insecticidal effect of org. compds., 7625*h*.
**Beran, K.** See Bretschneider, H.
**Beránek, M.** See Quadrat, O.
**Berardinelli, F.** See Paist, W. D.
**Berardinis, C. de.** See Gruber, C. M., Jr.
**Berardinis, E. de.** See De Berardinis, F.
**Berberian, D. A.,** and Dennis, F. W. Field expts. with chloroquine diphosphate, 9266*a*.
**Bercel, N. A.** See Ziskind, E.
— — and Ziskind, E. Comparative efficacies of anticonvulsants, 9262*a*.
**Bercuson, N.** See Herman, A.
**Berdick, M.** See Alfrey, T., Jr.
**Berducou, J.** Action of parasitic fungi, 9177*c*; see Nasteraskis, F.
**Bereau, F. Y.** See Voldi Bereau, F.
**Berek, M.** Measurement of the magnitude of the anisotropy effect between crossed Nicol., 1918*a*.
**Berenblum, I.,** and Schoental, R. Carcinogene constituents of coal tar, 306*b*; metabolism of chrysene—isolation of 3-methoxychrysene by methylation of the phenolic metabolite of chrysene from rat feces, 9207*h*.
**Berenblum, I. S.** See Berenblyum, I. S.
**Berenblyum, L. S.** See Dehmarsk'il, Yu. K. Slobets, F. M.
**Berenbom, M.,** and Foner, W. S. Prepn. of diazoacetophenone, 5762*i*.
— — and White, I. Prepn. of benzyl N-carbobenzoxy-2-pyrrolidone-5-carboxylate 7019*j*.
**Berends, W.** Biochemistry of antibiotics, 3065*b*.
**Berenshtein, F. Ya.** Effect of trace elements on hormone activity, 742*b*, biol. role of Zn, 7521*e*, biol. properties of Mn, 7989*e*.
**Bereslavskii, B. B.** See Fok, N. V.
**Berezowskaja.** See Berezovskaya.
**Berezowskii, A. A.** See Berezovskii, A. A.
**Berestovskaya, S. S.** See Goldovskii, A. M.
**Berezhnaya, A. A.,** and Prokop'eva, A. G. Dinas brick for arches of elec. furnaces, 6382*e*.
**Berezhnoi, A. S.** Theory of liquid type sintering and the effect of pressure on sintering, 5016*b*, effect of diabase on the properties of magnesite refractories, 6384*b*, sintering processes of powders, 6386*b*; see Budnikov, P. P.
— — Mitasov, V. I., and Fadeev, I. G. Synthetic metallurgical powder for open-hearth furnaces, 2555*b*.
**Berezin, M. T.** See Lagunov, L. I.
**Berezina, N. V.** See Fedot'ev, N. P.
**Berezina, V. A.** See Serebryakov, A. M.
**Berezinskaya, D. I.** H ion concn. of solns. of pilocarpine in its action on glaucomatous eye, 764*b*.
**Berezovskaya, N. N.** Effect of temp. on the vitamin C content of potato, 5129*h*.
**Berezovskaya, V. M.** See Knunyants, I. L.
**Berezovskii, A. A.,** and Egorova, M. F. Improving the silage qualities of plants of a low sugar content, 3538*d*.
**Berg, A. L.** See Waters, K. I.
**Berg, B. F.** See Fuchs, L. E.
**Berg, B. N.,** Zucker, T. F., and Zucker, L. M. Duodenal ulcers produced on a diet deficient in pantothenic acid, 8469*a*.
**Berg, C.** Ni Cd batteries, 8910*b*; see Reed, H.
**Berg, C. F. van.** See Van Berg, C. F.
**Berg, G.** Detn. of alc. content and purity of tinctures, 9365*i*.
**Berg, G. J. van den.** Calcn. of the resistance of metals at low temps., 8771*c*; see Bosch, J. C. van den.
**Berg, H.** Rotary-kiln nodulizing of Fe fines and flue dust, 7391*g*, 7878*h*.
**Berg, H. E.** Slime control, 8680*d*.
**Berg, H. J. van den.** See Dervichian, D. G.; Jong, H. G. B. de.
— — and Heer, L. J. de. Stearate systems contg. methylhexylcarbinol with viscous and elastic properties comparable to elastic viscous oleate systems contg. KCl, 5261*a*.
**Berg, L.** Reflux condenser, P 7760*b*.
— — and Harrison, J. M. Azeotropic distn. of styrene-contg. hydrocarbon fractions, P 9084*a*.
**Berg, N. B.** See Ahlström, C. G.
**Berg, O. E.** See Kaiser, H. F.
**Berg, R.** App. for mixing liquids, P 914*b*.
**Berg, S. P.** Puranen's sperm test, 7074*f*.
**Berg, S. S.,** and Newbery, G. Amidines, P 688*f*, amidines (X) substituted 4,4'-diamidino-$\omega,\omega$-diphenoxyalkanes and -diphenyl ethers, 9018*c*.
**Berg, V.** Firing portland cement, 8635*g*.
**Berg, W. F.** Cause of low-intensity reciprocity failure, 1275*b*, latent image formation in photographic Ag halide-gelatin emulsions, 1275*d*, behavior of the latent image towards low-intensity exposures, 1669*e*; production of line grain emulsions for electrons, 2527*b*.
— — and Ford, D. G. Latent-image distribution as shown by phys. development, 5681*h*.
**Bergal, G.** See Caujolle, F.
**Bergamin, M. I.** See Isepponi Bergamin, M.
**Bergamini, L.** Inhibiting action of various anticoagulants on hyaluronidase and staphylocoagulase, 3855*g*, see Severi, R.
— — and Ferrari, W. Inhibiting action of polysulfonate anticoagulants on the lytic action of lysozyme, 3855*f*.
**Berge, J. van den.** Asphalt coatings, P 5186*d*.
**Bergefors, L.,** and Schill, G. Detn. of I in org. compds., 6539*h*.
**Bergeim, O.** Quant. analysis for premedical students, 1619*a*.
— — and Kirch, E. R. Reduction of Fe in the stomach, 5473*d*.
**Bergek, T.** Viscose process, 8674*c*.
**Bergel, F.** Relation between chem. constitution and physiol. activity, 6736*f*; see Roche Products Ltd.
— —, Cohen, A., Haworth, J. W., and Hughes, E. G. Chalcones, P 6235*h*.
— — and Morrison, A. L. Analgesics, 3565*e*.
— —, Morrison, A. L., Moss, A. R., Königstein, M., and Rinderknecht, H. Dehydrocholic acid derivs., P 1814*f*.
— —, Morrison, A. L., and Rinderknecht, H. Piperidine and pyrrolidine derivs., P 695*b*; 3-aryl- and 3-carbalkoxypiperidines and -pyrrolidines, P 695*e*.
**Bergelin, O. P.** Flow of gas-liquid mixts., 4906*c*.
— —, Davis, E. S., and Bull, H. L. Three-tube arrangements in unbaffled tubular heat exchangers, 4905*f*.
**Bergel'son, L. D.** See Nazarov, I. N.
**Bergen, H. S.** Plasticizers, 5627*f*.
**Berger, A.** See Frankel, M.
**Berger, C. W.** Extn. of S and phenolic impurities from hydrocarbons, P 7949*g*.
**Berger, F.** Handbuch der Drogenkunde (book), 8104*c*.
**Berger, F. M.** Relation between chem. structure and central depressant action of $\alpha$-substituted ethers of glycerol, 311*g*; pharmacol. properties of 2-amyl-2-methyl-1-hydroxymethyl-1,3-dioxolane, 7582*a*; anticonvulsant action of 2-substituted 1,3-propanediols, 8546*g*; spinal cord depressant drugs, 8546*g*, see British Drug Houses Ltd.; Riley, R. F.; Sauvage, G. L.
——, Boekelheide, V., and Tarbell, D. S. Pharmacol. properties of 2-substituted 4-hydroxymethyl-1,3-dioxolanes, 1866*a*.
— —, Bradley, W., and Sayer, F. G. Water solns. of aryl 2,3-dihydroxypropyl ethers, P 7508*f*.
—— and Riley, R. F. Prepn. and pharmacol. properties of the acid succinate of 3-(*o*-toloxy)-1,2-propanediol, 8545*d*.
**Berger, G.** Structure of montmorillonite—capacity of clay and clay minerals to be methylated, 6347*g*.
**Berger, H.** Production of crude opium as a by-product of the poppy crops, 362*g*.
**Berger, Hans.** Leitfaden der bakteriologischen Trinkwasseruntersuchen (book), 8588*h*.
**Berger, Heinrich.** Tricresylphosphate in synthetic finished products—toxicity of igelite, 4893*b*

**Berger, H. G.**, Crandall, G. S., and Socolofsky, J. F. Treatment of drying oils, P 9484*a*.
———, Noland, T. T., and Fuller, E. W. Mineral-oil compn., P 1177*g*.
**Berger, J.** See Jacquemain, R.
**Berger, K. C.**, and Gerloff, G. C Mn toxicity of potatoes in relation to strong soil acidity, 2353*g*.
**Berger, L., & Sons Ltd.** Interpolymers of styrene with polyhydric alc. mixed esters and of coating compns., P 1223*a*.
———, Cottrell, J. A., and Hewitt, D. H. Polymerizable esters, P 2819*b*.
———, Hammond, W. T. C., and Wakeford, L. E. Interpolymers of vinyl aromatic hydrocarbons and oils, P 4874*b*
———, Tattersall, H. J., and Wakeford, L. E. Poly(methylene amide) resinous condensation products, P 7751*f*.
———, Wakeford, L. E., and Hewitt, D. H. Interpolymers of aromatic vinyl hydrocarbons with other polymerizable org. compds. and coating compns., P 4052*a*.
———, Wakeford, L. E., Hewitt, D. H., and Armitage, F. Interpolymers of styrene with polyhydric alc. mixed esters, P 4051*h*.
**Berger, L. B.** See Busch, H. W.
**Berger, P.** Electrolytic polishing of brass pressings, 7835*a*.
**Berger, S.** See Bersin, T.
**Berger, S. V.** Intensity measurements on Zn Fe spinel and its solid solns with $Fe_2O_3$, 4171*e*.
**Bergeret, A.**, and Varay, A. Disturbances in blood-sugar regulation after gastric operations, 5108*e*.
**Bergeret, B.** See Fromageot, C
**Bergeron, T.** Artificial control of rainfall on the globe (I) effects of ice nuclei in clouds, 8761*g*.
**Bergès, G.** Bleaching cellulose pulp, P 4854*g*
**Berges, M. D.** See Dominé-Berges, M
**Bergh, H.** Chem. soil analysis, 337*h*
**Bergh, S.** Influence of Pb on behavior of stainless steel, 6557*a*.
**Berghezan, A.** See Lacombe, P
**Bergholm, A.** Relative volatility for binary solns. as a basis for distn. calcns., 2060*e*.
**Bergin, M. J.** See Keilholtz, G. W.
**Bergkampf, E. S.** See Schwarz-Bergkampf, E.
**Bergkvist, R.** See Karrman, K. J.
**Berglund, D. T.** Sugar jelly with carboxymethylcellulose, 2709*e*.
**Berglund, U.**, and Sillén, L. G Can ionic concns. in diethyl ether be detd. by e.m.f. measurements? 2075*h*.
**Bergman, M.** Detn. of permanent hardness in water, 1886*d*.
**Bergman, W. E.** Removal of drilling mud from oil wells, P 5582*d*.
———, Fisher, H. B., and Carpenter, P. G Removal of sulfate from drilling muds by $BaCO_3$, 8651*f*.
**Bergmann, E.** Bromination of 1,5-dihydroxynaphthalene and its Me ethers, 615*b*; synthesis and structure of polycyclic aromatic hydrocarbons, 2610*d*, synthesis of fluoranthene derivs., 2986*c*, reactions of paraffins and olefins, 6149*f*, structure of aromatic compds., 6174*d*, see Weizmann, C.
——— and Orchin, M. Synthesis of 1-aminofluorene, 2246*a*; synthesis of fluoranthene and its derivs., 7014*e*.
——— and Sulzbacher, M. Trihalogenated alcs., P 664*d*, 4284*h*.
**Bergmann, E. A.**, Ashburn, H. V., and Eckert, G. W. Ba soap greases, P 391*e*.
**Bergmann, Felix.** Bromination of dimethoxystilbenes, 7008*a*, see Bagchi, P.; Weizmann, M.
——— and Szmuszkowicz, J. Influence of substituents on the course of addn. of maleic anhydride to diarylethylenes, 206*a*.
**Bergmann, Fernand.** Effect of intravenous injection of procaine on adrenaline secretion, 4380*b*.
**Bergmann, L.** See Levy, Hilton; Schafer, C.
**Bergmann, T.** See Thomé, K. E.
**Bergmann, W.**, and McTigue, F. H. Marine products (XXI) chondrillasterol, 4271*d*.
**Bergner, A. D.** See Shapiro, D. M.
**Bergner, G. E.**, and Deane, H. W. Effects of pituitary adrenocorticotropic hormone on the intact rat—cytochem. changes in the adrenal cortex, 8487*c*.
**Bergner, K. G.**, Bremanis, E., and Sperlich, H. Identification of disinfectants in seeds, 802*i*.
**Bergner, N. E.** Centrifugal separator for gases, P 8758*f*.
**Bergold, G.**, and Pister, L. Microdetn. of 0.1–7 γ of P in org. material, 5699*i*, microdetn. of desoxy- and ribonucleic acids, 8420*b*.
**Bergol'ts, M. Kh.** Stimulants of the adrenaline ephedrine group, 5542*c*, antibacterial drugs—gramicidin and penicillin, 5551*c*.
**Bergol'ts, V. M.** Bistiodin, an iodoorg. substance, 5540*a*.
———, Il'ina, A. A., and Bazilevich, V. V. Fluorescence spectra of 3,4-benzopyrene as a means of identification in the animal organism, 5072*a*, fate of 3,4-benzopyrene at the place of injection and its observation in malignant tissues, 7574*a*.
**Bergquist, H. R.** See Goldich, S. S.
**Bergstermann, H.** Surface activity of phenol derivs. and some cyclic nitrogenous bases at the interface between water and lipoid solvents, 3687*f*.
——— and Lummer, H. D. Action of $H_2S$ and its oxidation products on succinic acid dehydrogenase, 256*e*.
——— and Mangler, K. H. Toxic action of tellurite, selenite, arsenite, and $KSCdI_4O_7$ on pyruvic dehydrogenase—toxicology of thiol poisons, 3935*b*.
**Bergstrand, A.** See Bechgaard, P
———, Eliasson, N. A., Hammarsten, E., Norberg, B., Reichard, P., and Ubisch, H. v. Expts. with $N^{15}$ on purines from nuclei and cytoplasm of normal and regenerating liver, 4718*e*.
**Bergström, H. O. V.** By-products from the manuf. of sulfate pulp, 3612*g*
——— and Jansson, H Control of deliveries and methods of analysis of wood charcoal, 2407*c*
**Bergström, I.**, and Thulin, S. Mass assignment of the 13-min Hg isomer, 8868*b*.
**Bergström, S** Isolation of (—)-β-methoxyadipic acid from the oxidation products of calciferol methyl ether, 4228*f*, see Arvidson, H
———, Arvidson, H., Hammarsten, E., Eliasson, N. A., Reichard, P., and Ubisch, H. v. Orotic acid, a precursor of pyrimidines, 7108*b*.
———, Euler, U. S. v., and Hamberg, U Isolation of noradrenaline from the adrenal gland, 7537*d*.
——— and Pääbo, K. Identification of α-aminoadipic acid, 8423*e*.
**Bergstrom, E. V.** App. for hydrocarbon conversion, P 9429*d*, see Utterback, F.
**Bergstrom, F. W.** See Goetz Luthy, N.
**Bergstrom, H. A.** Nondusting agent for stabilized diazo compds., P 9474*i*; see Von Glahn, W. H.
**Bergwein, K.** Influence of odorous substances during storage of perfumes, 3150*e*
**Bergy, G. A.** Action of thioglycolates in relation to cold waving, 2371*d*.
**Berhol'tz.** See Bergol'ts.
**Berim, N. G.**, and Edel'man, N. M. Physiol. factors which det. the resistance of insects to DDT and benzene hexachloride, 8561*f*.
**Bering, B. P.**, and Serpinskii, V. V Adsorption of vapors by cryst. adsorbents, 461*f*
**Bering, P.** Semimicro-fractionating column, 4053*e*.
**Beringer, F. M.** See Doering, W. v. E.
**Beringer, R.** See Humphreys, R. F.
——— and Castle, J. G., Jr. Microwave magnetic resonance absorption in O, 8878*i*
**Berinzaghi, B.** See Deulofeu, V
**Berisso, B.** Microcryst. complexes, 7375*h*; microchem identification of Pb and other metals in bromatology and toxicology, 7864*c*; microchem. investigation of the cations Ag+ and Cu++ by the integration of microcryst. complexes, 8973*e*.
**Berivoie, A.** See Rădulescu, D.
**Berk, A. A.** Corrosion prevention through the chem. treatment of steam, 9307*b*; see Schroeder, W. C.
**Berk, F. W., & Co. Ltd.** and Chambers, F. W. Zr oxysulfate, P 8625*b*
**Berk, L.**, Castle, W. B., Welch, A. D., Heinle, R. W., Anker, R., and Epstein, M. Etiologic relation of achylia gastrica to pernicious anemia (X) activity of vitamin $B_{12}$ as food factor, 1845*h*.
**Berk, S.** Fungicidal treatment for cork gaskets, 4803*i*.
**Berke, H.** See Rothstein, A.
——— and Rothstein, A. Amino aciduria in U poisoning (II) response to different amts. of U given intravenously and by inhalation, 7581*i*.
**Berkebile, J. M.** See Wolfrom, M. L.
——— and Fries, A. H. Prepn. of ANTU from naphthalene, 2983*f*.
**Berkenheim, B. M.** See Balandin, A. A.
**Berkhout, H. W.** Chemische en enzymatische bepalingen van aminozuren (book), 4725*i*; see Waterman, N
———, Hekkiug, J. W. H., and Geerling, H. Carotene detn. in dried grass, 2895*e*
——— and Jongen, G. H. Detn. of carotene in carrot meal, 7156*g*.
**Berkhout, M.** See Domingo, W. R.
**Berkley, E. E.** Variations in the structure and properties of natural cellulose fibers, 5954*a*, see Hessler, L. E
**Berkman, A. S.**, and Barenbolm, A. M. Tunnel kiln for saggerless firing of sanitary-structural fluence, 3585*c*.
——— and Miklashevskii, A. I. App. for measuring the fluidity of ceramic bodies, P 6386*h*, testing and eliminating instability of ceramic mixes, 9402*i*
**Berkman, B.** Milkweed, 9206*i*
**Berkman, E. M.**, and Flyate, D. M. Introduction of high-rosin size to paper mills, 9444*h*.
**Berkman, S.** See Henry, Jane; Henry, R. J
———, Housewright, R. D., and Henry, R. J. Streptomycin (V) complex formation between streptomycin and cellulose, proteins, and desoxyribonucleic acid and its reversal by salt, 5875*a*
**Berkman, Ya. P.** Synthetic tanning agents, P 5221*b*
**Berkmann, J.** See Berkman, Ya. P
**Berkovich, E. M.** Placental metabolism, 8509*a*
**Berkovich, I.** Milk sugar, 9280*b*
**Berkovich, M. P.**, and Luzina, G. S Detn. of Cl in the presence of $SO_4$, 6942*d*
**Berkovich, M. T.** Potentiometric titration of Cd in factory products, 964*h* K ethyl xanthate for the detn. of Zn and Cd, 6106*a*
**Berkovich, T. M.** See Butt, Yu. M
**Berkowitz, D.** See Beck, L. V
**Berkowitz, N.** Solv. of bituminous coal in alc. potash, 3593*f*, phys. approach to the theory of coking, 4833*i*
**Berkson, J.** See Cromer, H. E., Jr., Flock, E. V., Keating, F. R., Jr
**Berl.** See Lunge
**Berlin, A. A.** Chemistry and technology of fluoroorg. compds., 3776*d*
**Berlin, A. Ya.** *p*-Aminophenyl chloromethyl sulfone, 2597*a*
——— and Markova, Yu. V Alkaryl derivs. of acetoacetic ester, 3392*h*
——— and Sherlin, S. M. Derivs. of zingerone (I), 2185*i*
———, Sherlin, S. M., and Serebrennikova, T. A. Derivs. of zingerone (II), 7001*d*
**Berlin, N. I.** See Shimkin, M. B
———, Huff, R. L., Van Dyke, D. C., and Hennessy, T. G Blood vol. of the adult rat as detd. by $Fe^{59}$ and $P^{32}$ labeled red cells, 8037*i*.
**Berlin, T.** Quantization and elec. interaction in diat. mols., 4527*b*
**Berline.** See Berlin.
**Berliner, E.** See Fieser, L. F.
——— and Berliner, F Hyperconjugation (III) relative rates of bromination of 12 monoalkylbenzenes, 6583*e*
**Berliner, F.** See Berliner, E
**Berliner, R. W.**, Kennedy, T. J., Jr., and Hilton, J. G Salyrgan and renal tubular secretion of *p*-aminohippurate, 1870*f*.
**Berlinguet, L.** See Gaudry, R
**Berman, A.** Coal-tar products, 1551*c*.
**Berman, D.**, Sylvester, M., Hay, E. C., and Selye, H. Adrenal and hepatic regeneration, 7566*d*.
**Berman, H** See Gardner, L. I.
**Berman, J. E.**, and Robinson, R. C. Calking compn., P 4900*a*.
**Berman, R.** Thermal cond. of glasses at low temps., 8786*i*
**Berman, S.**, Isbenjian, H., Sedoff, A., and Othmer, D. F Esterification continuous production of dibutyl phthalate in a distn. column, 1747*a*
**Bern, H. A.** Effects of long-continued estrogen treatment on male Dutch rabbits, 4776*f*, urinary and genital tract phosphatases of the male Dutch rabbit, 6721*c*.
**Bernaerts, M. J.** Chromatographic analysis, 3307*g*
**Bernal, I.** See Varela, G.
**Bernal Nievas, J.**, and Mateo Tinao, A. Electrochem. study of macrostructures, 8288*g*.
**Bernard, A.** See Leulier, A.
**Bernard, G. G.** See Bond, D. C.

—— and Bond, D. C. Sepn. of olefins from hydrocarbon mixts., P 1432*h*.
**Bernard, L. de.** See Roche, J.
**Bernard, P.,** and Sicé, J. Aphrogenic principle of *Clematis flammula*, 6306*d*.
**Bernard, R.,** and Hirtz, J. Effect of adsorbed films on the energy of solid-liquid adhesion, 8234*e*.
—— and Peyron, M. Excitation mechanism of red auroras of type B, 3289*f*; spectroscopic study of the glow at the beginning of a discharge in N, O, and air, 3290*f*.
**Bernardi, A.,** and Ghigi, E. Structure of marrubin, 5011*b*.
**Bernardi, D. J.** Sepn. of amino acids from protein hydrolyzate, P 2268*e*.
**Bernardini, G.,** Cortini, G., and Manfredini, M. Absorption of nucleonic component in cosmic rays, 3279*a*.
——, Polvani, G., and Wick, G. Questioni di fisica (book), 2856*f*.
**Bernas, R. H.,** and Nier, A. O. Production of intense ion beams in a mass spectrometer, 2505*i*.
**Bernasconi, E.** Triazine azo dyes, P 7699*a*.
**Berndtsson, B. S.** See Richter, S. U. K. A.
**Berner, L. R.** S in the open hearth, 7390*a*.
**Berneralpen - Milchgesellschaft.** Milk product, P 6757*h*.
**Bernert, T.** See Karbik, B.
**Bernfeld, P.** See Fischer, E. H., Meyer, K. H.
—— and Fischer, E. H. Purification of labile proteins, P 7991*c*.
—— and Meuténeodan, A. Isophosphorylase and the formation of branched chain polysaccharides, 3861*a*, amylolytic enzymes (VI) isophosphorylase, 6247*d*, (VII) isophosphorylase and the formation of branched polysaccharides, 7979*c*.
——, Staub, A., and Fischer, E. H. Amylolytic enzymes (XI) properties of cryst. α amylase from human saliva, 7980*d*.
**Bernhard, A.,** Rosenbloom, L., and Eichen, S. Inorg. P release accompanying glycolysis of blood in cancer, 2310*i*.
**Bernhard, K.** Influence of higher satd. fat acids on fat absorption, 1843*i*, biol. significance of isotopes, 3856*f*; formation of lipides by *Phycomyces blakesleeanus*, 4341*b*, essential fat acids, 9180*a*, biol. breakdown of fat acids, 9198*d*.
—— and Albrecht, H. Phosphate metabolism—uptake and distribution of phosphate in *Phycomyces blakesleeanus*, 3061*a*; lipide synthesis in molds, 5821*a*.
—— and Cadisch Weill, H. Fate of decahydronaphthaleneacetic acid and naphthaleneacetic acid in the animal body, 6730*c*.
—— and Lincke, H. Biol. oxidations, 4710*h*.
**Bernhard, S. A.** See Davidson, D.
**Bernhardt, E. C.** Hardness tests based on scratch resistance measurements, 4056*b*.
**Bernhardt, W. O.** Automatic polariscope, 4904*h*.
**Bernhart, F. W.** Emulsions of vitamins and oil with glycerol, P 8572*g*.
**Bernhauer, K.,** Niethammer, A., and Rauch, J. Microbiol. protein and fat synthesis (II) protein and fat formation by different molds in submerged culture, 4336*a*.
—— and Rauch, J. Microbiol. protein and fat synthesis (I) basic requirements for protein and fat production by mold in submerged culture, (III) submerged cultivation in "stirred culture" and its application to the production of fat mycelium, 4335*h*.
**Bernheim, F.** See Eadie, G. S.; Fitzgerald, R. J.; Handler, P.
—— and Bernheim, M. L. C. Effect of various compds. on urea formation by rat liver slices, 6256*h*.
**Bernheim, M. L. C.** See Bernheim, F.; Handler, P.
**Bernheimer, A. W.** Properties of rapidly acting bacterial toxins, 271*d*.
**Bernimolin, J.** Insecticidal activity of 1,1,4,4 - tetra(*p* - chlorophenyl) - 2,2,3,3-tetrachlorobutane, 7184*d*.
**Berning, (Sister Nivelle).** See Fardon, J. C.
**Bernsohn, J.,** and Borman, E. K. Proteins in the colloidal Au reaction, 7540*b*.
**Bernstein, H.** See Bowen, H. G., Jr.; DePierre, V.
**Bernstein, H. J.** Internal rotation (I) product rule for cis and trans isomers, (II) energy difference between the rotational isomers of 1,2-dichloroethane, (III) potential barrier in 1,2-dichloroethane, 5308*d*.
—— and Ramsay, D. A. Vibration spectra of *cis*- and *trans*-$C_2H_2Cl_2$ and $C_2D_2Cl_2$, 8889*c*.
**Bernstein, J.** See Lott, W. A., Miller, W. T., Jr.
——, Roth, J. S., and Miller, W. T., Jr. Prepn. and properties of some substituted benzyl fluorides, 165*i*.
**Bernstein, R. B.** Transient pressure effect in effusion, 4530*h*.
**Bernstein, S.,** and Dorfman, L. Dialkyl mercaptoles of cholestanone, P 1543*i*.
——, Oleson, J. J., Ritter, H. B., and Sax, K. J. Irradiated 7-dehydrocholesteryl halides, 7195*f*.
——, Sax, K. J., and SubbaRow, Y. 7-Dehydrocholesteryl chloride and bromide, 4679*a*.
**Bernstein, T. B.,** and Feinberg, S. M. Histamine antagonists (XIV) *N,N*-dimethyl *N'*-2-thiazolyl-*N'*-*p*-methoxybenzylethylenediamine hydrochloride, 8557*a*.
**Bernstein, W.,** and Ballentine, R. $CH_4$ flow β-proportional counter, 7327*f*.
**Bernstorf, E. C.** Hepatic inactivation of testicular androgen in the White Leghorn cockerel, 2299*h*.
**Bernstorff, H.** Sintering process in Fe powder, 2656*h*, production of Fe powder, 4613*h*, Fe powder manuf. and their influence on powder properties, 7879*a*.
—— and Silbereisen, H. Powder metallurgy of Fe, sintered steel, and its application, 4990*f*.
**Berolzheimer, D. D.** Fifty Years of History of the Chemists' Club (book), 3701*b*.
**Berraz, G.** ZnS as a reagent, 60*g*; see Virasoro, I.
—— and Davie, A. G. Polymerization of $C_2H_2$ by the action of high frequency electromagnetic fields, 3744*e*.
—— and Virasoro, I. Photoelec. photometer for the visible light and the near infrared, Id, cuprirhotometry, 519*e*.
**Berrens, C.,** and Rong, R. Detn. of S in steel and cast iron, 7371*f*.
**Berretti, R.** See Musante, C.
**Berriman, R. W.** Recording of charged particles of min. ionizing power in photographic emulsions, 3706*g*.
**Berry, A. E.** Wastes disposal in Canada, 5140*h*, sewage treatment and waste disposal in Ontario, 7169*a*.
**Berry, A. J.** Tartrazine in detg. chlorides by Volhard's method, 2892*c*.
**Berry, E. G.** See Nolan, M. O.
**Berry, E. J.** See Hass, H. B.
**Berry, H.,** and Michaels, I. Bactericidal activity of ethylene glycol and monoalkyl ethers against *Bacterium coli* (V), 1827*c*; (VI), 7079*a*; (VII), 9387*d*.
**Berry, H. W.** Scattering of fast A atoms in A gas, 4107*e*.
**Berry, J. J.** See Williams, R. J.
**Berry, J. K.** Rayons in engineering applications, 7692*f*.
**Berry, K. L.** Dispersions of polytetrafluoroethylene-ethylene copolymers, P 444*b*; aq. dispersions of polytetrafluoroethylene, P 9528*f*.
**Berry, L. G.** See Peacock, M. A.
—— and Graham, A. R. X-ray measurement on brackebuschite and hematolite, 8986*b*.
**Berry, L. J.** Influence of O tension on the respiratory rate in different segments of onion roots, 7093*g*.
——, Starr, R. W., III, and Haller, E. C. Effect of surface-active agents on phagocytosis, 7082*b*.
**Berry, R. C.** Crude protein in feeding stuffs—catalysts, 7158*g*.
**Berry, R. E. L.,** Iob, V., and Campbell, K. N. K metabolism in the immediate post operative period, 2309*e*.
**Berry W.** See British Cellophane Ltd.
**Berryman, J. H.** Applications of O in elec. furnace steelmaking, 1267*g*.
**Berryman, L. H.** See Nielsen, J. R.
**Bersin, T.** Detn. of the active principle of uzara, 6786*d*.
—— and Berger, S. Substrate inhibition in tryptic and peptic proteolysis, 7115*d*.
**Bersworth, F. C.** Carboxylic substituted aliphatic amines and metallic salts, P 3449*e*; removing inorg. impurities from animal and vegetable oils, P 3637*e*; see Martell, A. E.; Smith, Roscoe.
**Bert, L.,** Procofieff, M., and Blinoff, V. Aliphatic sulfonic acids and esters, P 8220*i*.
**Berta, R.,** and Palisca, A. Analysis of bronzes, 8944*g*.
**Bertalanffy, L. von.** Biologische Weltbild (book), 6683*a*.
**Bertani, Giorgio.** Histamine and antihistaminic substances in allergy otolaryngology, 7585*g*.
**Bertani, Giuseppe.** Intranuclear pH of the cells of the salivary glands of *Chironomus thummi*, 3532*c*.
**Bertarelli, E.** Amino acids, 4710*b*.
**Bertaut, F.** Distribution of dimensions of crystallites in a cryst. powder, 5252*c*.
**Berthelot, A.** Energy-period relation of α-emitter radioelements, 2090*c*.
**Berthet, R.** Wetting agents and their application to pharmacy, 363*e*.
**Berthier, G.** See Baldock, G.; Pullman, A.; Pullman, B.
—— and Pullman, B. Electronic structure of divinylmethane, divinylethane, diphenylmethane, and diphenylethane, 41*e*; simultaneous conjugation of several extracyclic groups with an aromatic nucleus, 165*g*; electronic structure and color of conjugated hydrocarbons contg. a triple bond, 4570*a*, autoxidation of olefins, 6733*b*; electronic structure and dipole moment of the hypothetical cross-conjugated isomer of cyclo-octatetraene, 6918*g*.
**Berthier, P.** Spectral characteristics of the erythrocruorins of *Planorbis corneus*, 250*g*.
**Berthier, P.** See Boutarie, A.
**Bertho, A.** Nitrogenous sugars (VI) 1-azido and 1-amino derivs. of acetylated mono- and disaccharides, 7430*d*.
**Berthois, L.** Crystals of stibnite dredged up near the Azores archipelago, 977*a*.
**Bertholf, W. M.** See Price, J. D.
—— and Price, J. D. Rupp-Frantz vibrating filter, 3665*c*.
**Berthrong, M.** See Rich, A. R.
**Berti, T.** See Hoffam, C.
**Berti, V.,** and Leidi, G. Detn. of the compn. of benzine, 2415*b*.
**Bertiaux, L.** Detn. of B in metals and alloys, 519*g*, detn. of Ag by nephelometry, 2545*f*; detg. Mn, 1973*i*, detn. of Na in Al and light alloys, 4974*e*.
—— and Théry, R. Detn. of Bi in industrial Pb, 2117*d*.
**Bertl, K.** See Englehard, H.
**Bertola, G.** See Marchetti, G.
**Bertolani, F.,** and Farinetti, M. Variations in blood Na salicylate after oral administration of Na benzoate, 9242*d*.
**Bertolani, M.** Nodular pyrite and marcasite in sedimentary rocks of the Apennines, 5703*h*; quartz of Valle Aveto (Italy), 5705*b*; serpentine of Parma's Apennines, 5706*d*, granites of Modena's Apennines, 5708*a*, red snow on Mt. Abetone, 6015*e*.
**Bertoli, G.** Measurement of retardation of combustion velocity, esp. in fuels with octane no. greater than 100, 6813*i*.
**Bertoli, R.,** and Baratta, P. F. Death from injection of vitamin K, 9181*i*, lesions from aerosol of histamine and vitamin K, 9181*h*.
—— and Cavalli, P. Histaminelike action of vitamin K—skin reaction to histamine and vitamin K, 9181*f*.
—— and Lecco, V. Aerosol of histamine and vitamin K, 9181*h*.
—— and Urbani, B. Capillartropic action of vitamin K, 9181*g*.
**Bertolini, A.** See Laporta, M.
**Bertolini, F.** Spherical polymerization products, P 6000*f*.
**Berton, A.** Ultraviolet absorption spectra of cumarone, indene, and indole in the vapor phase, 420*a*; comparison, by means of spark spectra, of normal and hemophilic blood serums, 4357*a*, spark spectrography, using as support for the analyzed material, a band of paper moving at const. speed between the electrodes, 6104*g*.
**Berton, H. S.** Allergens, 9221*d*.
**Bertone, E.** Phosphate coating of Fe, P 4627*a*.
**Bertoni, B.** Microscopic differentiation of different qualities of starch with metachromatic staining, 8716*b*.
**Bertorelle, E.** See Cambi, L.
**Bertossi, F.** See Ciferri, R.
—— and Ciferri, R. Action of hexachlorocyclohexane on *Lupinus albus*, 7626*b*.
**Bertougeif, M.** See Tchitchibabine, A.
**Bertoye, A.** See Sédallian, P.
**Bertram, S. H.** Keeping quality of elaidinated fats, 2789*g*, oil from the seeds of hound's tongue, 3635*b*; wool wax, 9491*e*.
**Bertramson, B. R.** See Royer, A. E.
**Bertrand, D.** Distribution of Li in seeds.

5828*d*; action of 2,3-dimercaptopropanol on pyrocatechol oxidase and laccase, 6253*i*; reactivation of laccase inhibited by KCN, 8403*c*; see Bertrand, G.
— and Polonovski, J. Action of cationic detergents on certain oxidase systems, 3857*e*, 6253*i*.
**Bertrand, G.** Traces of elements in the organs of plants and animals, 7907*g*.
— and Bertrand, D. Rb content of various families of phanerogams, 3494*i*, relatively high Rb content of certain fungi, 4343*c*, 9166*a*, migration of Rb in the organs of some mushrooms, 5453*i*, 9166*a*, Rb content of wines, 6360*g*, 8091*d*, 9359*e*; nutrition chemistry—cause of the variation in Rb content of wines, 9359*e*.
— and Silberstein, L. Determination of MeOH in ordinary alc., 68*b*, manuf. of straw paper, 4010*g*; action of dil. alk. solns. on woods, 6409*g*.
**Bertrand, I.** See Gayet-Hallion, T.
—, Gayet-Hallion, T., and Quivy, D. Spasmolytic action of certain halogen derivs. of saligenin, 9248*i*.
— and Quivy, D. Interaction of heparin and thrombokinase, 7130*g*.
—, Quivy, D., and Gayet-Hallion, T. Antagonism between metrazole and anticonvulsants demonstrated by the rabbit electroencephalogram, 5494*d*.
**Bertrand, J.** Compds. of halogenated xanthydrols with certain alcs., 3822*e*; condensation of halogenated xanthydrols with urea and some ureides, 3822*f*.
**Bertrand, J. J.**, Waine, H., and Tobias, C. A. Distribution of Au in the animal body in relation to arthritis, 763*d*.
**Bertrand, M. F.** Regenerating used paper, P 1188*i*.
**Bertsch, E.** See Brunner, W. H.
**Bertschinger, R.** Somatodal graphite in gray iron casting, 9004*h*.
**Bertuzzi, A.** $SO_2$ solns., P 8623*d*.
**Bertwistle, W. K.** See Whinfield, J. R.
**Berukshtis, G. K.** Brass solder, P 9021*a*.
**Berworth, F. C.** Soapless, germicidally active detergent, P 6438*h*.
**Beryllium Corp.** $K_2TiF_6$, P 7652*c*.
**Berzelius, J.** Reiseerinnerungen aus Deutschland (book), 7808*a*.
**Berzon, S. A.** Photoceramic technique, 3586*c*; see Budnikov, P. P.
— and Smirnova, K. A. Noncrit. pigments for Metlach and facing plates, 3586*c*.
**Besançon, J. J.** See Justin Besançon, J.
**Besborodow, M. A.** See Bezborodov, M. A.
**Bescher, R. H.**, Henry, W. T., and Dreher, W. A. Permanence of com. fire retardants, 2712*c*.
**Beseda, V.** Drying of simulated silk, 8142*g*.
**Besemer, A. F. H.** Legal measures for the manuf. and trade-in products for the protection of plants, 1137*c*.
**Besman, L.** See Sobel, A. E.
**Bespalko, I. A.** See Ivanova, A. A.
**Bessem, H.** Brass from brass waste, P 6966*c*.
**Bessemans, A.** Lab. diagnosis of syphilis, 6301*b*.
**Bessey, O. A.** See Burch, H. B.
—, Lowry, O. H., and Love, R. H. Measurement of the nucleotides of riboflavin and their concn. in tissues, 9193*i*.
**Bessman, S. P.**, Magnes, J., Schwerin, P., and Waelsch, H. Absorption of glutamic acid and glutamine, 766*d*.
**Besson, J.** Prepn. of Be and its compds., 4967*e*; electrolytic detn. of Tl, 8305*h*; see Hackspill, L.
— and Chu, Y.-C. Anodic oxidation of ferrochrome in a NaOH sol., 8912*a*.
**Bessonov, L. F.** Phosphorescence of rock salt, 4143*e*.
**Bessonov, S. V.** See Plaksin, I. N.
**Best, A. H.** See Bain, J. P.
**Best, C. H.** Lipotropic factors, 2324*i*, discovery of insulin, 8618*c*.
**Best, P. F.** See Burdock, J. L.
**Beste, M. D.** See Reed, R. E.
**Bestehorn, H. H.**, and Grimmel, H. W. Diazo dyes of the urea type, P 8690*i*.
**Bestougeff, M.** Asphaltenes, 1054*c*, petroleum hydrocarbons—analytical study of Sugarland (Texas) crude petroleum, 2409*i*.
**Besubets, M. K.** See Bezzubets, M. K.
**Besugly.** See Bezuglyĭ.
**Besszubsz, M. K.** See Bezzubets, M. K.
**Betekhtin, A. G.** Influence of S and O on the paragenetic relations of minerals in ores, 8980*a*.
**Bethe, A.** Bredig rhythmic catalysis of $H_2O_2$ on a Hg surface, 927*b*.
**Bethe, H. A.** Large air showers, 4091*d*; H eigenfunctions in Dirac theory, 4554*i*; theory of the effective range in nuclear scattering, 7322*e*, see Courant, E. D.
— and Longmire, C. L. Value of the fine-structure const., 3279*c*.
**Bethea, O. W.** 1948 Year Book of General Therapeutics (book), 9269*a*.
**Bethell, J. J.**, and Lardy, H. A. Effectiveness of vitamin $B_{12}$ whole liver substance, and exts. high in APA activity, as growth promoting materials for hyperthyroid animals, 5833*h*.
**Bethge, J.**, Soehring, K., and Tschesche, R. $H_2O_2$ in the inhibition according to Dold (II) part of $H_2O_2$ in the inhibition of bacterial growth by human saliva, 5079*i*.
**Bethge, P. O.**, Jonevall-Westoo, I., and Sillén, L. G. Electrometric investigation of equil. between Hg and halogen ions (VI) complexes between $Hg^{++}$ and $Br^-$ and some equil. involving solid Hg(I) bromide, 4545*g*.
**Bethke, R. M.** See Kennard, D. C., Pensack, J. M.
**Bethlehem Steel Co.** Bottoms for metallurgical furnaces, P 7658*c*.
**Bethon, H. E.** Performance of steam condensers aboard U. S. naval vessels, 701*g*, fouling of marine-type heat exchangers, 8755*f*.
**Béthune, A. J. de.** See De Béthune, A. J.
**Béton, E. S.** Screen printing of textiles, 7232*e*.
**Bétrémieux, R.** Fermentation of org. matter, and chem. dynamics of the soil, 7172*d*.
**Bettelheim, L.**, and Cedwall, J. Kinetics of urea-HCHO condensation, 1217*a*.
**Bettemmbourg, P.** Oil-fired open-hearth furnaces, 5713*a*.
**Bettencourt, J. M. de.** See Moniz de Bettencourt, J.
**Betteridge, W.** Relation between the degree of order and the lattice parameter of $CuAu$, 4205*d*.
— and Gadd, E. R. Steel-backed bearing alloy, P 1308*d*.
—, Wilson, C., Haughton, M. A., and Morgan, W. Influence of over ageing and annealing on the hardness and microstructure of an Al alloy to Brit. Standard Specification L42, 5351*i*.
**Bettini, S.** Insecticides, 3964*e*, DDT-resistant flies, 6355*b*.
— and Barachini, B. Action of Octa-Klor and Gammaesan on houseflies resistant to DDT, 3965*e*, 6355*e*.
— and Tentori, L. Vitamins and insects, 6321*i*.
**Bettòlo, G. B. M.** See Marini Bettòlo, G. B.
**Betts, R. H.** Exchange reactions in the uranyl uranous systems, 3708*e*.
— and Harvey, B. G. Absorption spectrum of sexivalent Pu, 492*f*, absorption spectra of Pu ions in aq. soln., 8273*i*.
**Betz, C. P.** Operating features at the Zinc Island sintering plant, 7389*a*.
**Betz, F., Jr.** Geology and mineral deposits of Southern White Bay, 1692*b*.
**Betz, H.** See Heusghem, C.
**Betz, J. D.** Cond. test in boiler water control, 1128*h*.
**Betz, W. H. & L. D.** Protecting system for transporting media corrosive to metal, P 2568*d*.
**Betz-Bareau, M.** See Frederic, P.
**Beu, K. E.** X-ray diffraction patterns of stretched low-temp. polybutadiene using Mo, Cu, and Cr radiation, 8727*d*.
—, Reynolds, W. B., Fryling, C. F., and McMurry, H. L. Low-temp. polybutadiene and butadiene-styrene copolymers, 8191*a*.
**Beumer, J.** Antibiotic substance extd. from the lysinogenic coliform bacillus, 3488*b*.
**Beus, J. de.** See Genderen, H. van.
**Beutel, R. H.** See Tishler, M., Wolf, F. J.
— and Tishler, M. Resolution of α-hydroxy-β,β-dimethyl-γ-butyrolactone, P 7028*i*.
**Beuther, H.** See Offutt, W. C.
**Beutler, F.**, and Stampfli, R. Changes in blood and plasma coagl. in mountain climate, 3501*f*.
**Beutner, R.** See Barnes, T. C.
**Bevan, D. J. M.**, Shelton, J. P., and Anderson, J. S. Properties of some simple oxides and spinels at high temps., 4533*i*.
**Bevan, E. A.**, and Robinson, R. S. Natural and synthetic resins, 4789*b*.
**Bevenue, A.** Detn. of sugars in plant materials—use of decolorizing C in the ferricyanide method, 6542*a*; see Bickoff, E. M.
**Bever, M. B.** See Barer, R. D.
**Bever, R. J.** See Duke, F. R.
—, Crouthamel, C. E., and Diehl, H. High-frequency conductometric titration app., 6472*b*.
**Bever, W. M.**, and Stiffe, F. W. Effect of 2,4-D in culture medium on the growth of three pathogenic fungi, 3133*c*.
**Beveridge, C. R.**, and Imperial Chemical Industries Ltd. Pest-control agents, P 2732*b*.
**Beveridge, J. M. R.**, and Johnson, S. E. Detn. of phospholipide, P 8424*b*.
**Bevilacqua, E. B.** See Matheson, M. S.
**Bevilacqua, L.** Vitamin $B_{12}$ and the elimination of $N^1$-methylnicotinamide in urine, 9185*c*.
**Bevington, J. C.**, and Norrish, R. G. W. Cross-linking of vinyl polymers by Friedel-Crafts catalysts (II), 7406*h*.
**Bewley, T.** See Distillers Co., Ltd.
**Bewsher, J. N.** Development of India's chem. industry, 5883*d*.
**Bexon, D.** See Bennet-Clark, T. A.
**Beyard, R. M.** See Nichols, E. H.
**Beydon, J.** Formation during irradiation of U of $Te^{137}$ isotopes of periods 70 days and 9.3 hrs. from $Sb^{127}$ (9.3 hrs.), 5706*d*.
**Beyer, A.** See Elsner, G.
**Beyer, D. L.** See Pearl, I. A.
**Beyer, K. H.**, Tillson, E. K., Rosso, H. P., Schuchardt, G. S., and Cass, S. R. Vit. sorption and elimination of carotenoids, 759*a*.
**Beyer, R. T.** Foundations of Nuclear Physics (book), 9558*i*.
**Beyerman, H. C.** Effect of glycerol, 1995*a*.
**Beyersdorfer, K.** See Klemm, W.
**Beyler, R. E.** See Leonard, N. J.
**Beynon, N. T.** Bicycle material with wrinkle-textured coating, P 2760*i*, cellulose compd. wrinkle coating, P 2760*k*, wrinkle bicycle material with rubber-like coating, P 5609*h*, wrinkle coating composition consisting of a mixt. of coagulated double-bonded oil and aq. emulsion of polyvinyl acetate resin, P 9185*h*.
**Bezborodov, M. A.** Pioneer scientific chemists in Russia, 324*f*, Lomonosov and his Work on the Chemistry and Technology of Silicates (book), 3276*i*, D. I. Mendeleev and glassmaking, 6916*c*, glassmaking in Russia, 5913*e*.
**Bezel, L. I.** Detn. of Be in colored waters, 7406.
**Bézier, D.** See Chabal, G.
**Bezinger, E. N.** See Oparin, A. I.
**Bezman, I. I.** See Honn, F. J.
**Beznák, A. B. L.** See Kovách, A. G. B.
—, Beznák, M., and Gaspar Rady, Z. Effect of prolonged administration of *l*-ascorbic acid and *d*-glucomic acid on the body wt., food, water and salt solns. consumption of albino rats, 9182*e*, effect of prolonged administration of *l*-ascorbic acid and *d*-glucomic acid on the wt. fat, protein, glycogen, and vitamin C contents of some organs of albino rats, 9183*h*.
—, Beznák, M., and Hajdu, I. Growth and the food and water consumption of albino rat on diets containing various amts. of fat and low in vitamin $B_{12}$, 9184*b*.
—, Gaspar-Rády, Z., and Kovách, A. G. B. Distribution of lethal sensitivity to histamine in normal and histamine pretreated guinea pigs, 9243*f*.
**Beznák, M.** Cholinesterase activity of myosin solns., 2246*a*, light absorption of sheep hemoglobin and myoglobin compds. in the Soret region—simultaneous detn. of hemoglobin and myoglobin, 3486*d*, see Beznák, A. B. L.; Hajdu, I.
— and Hajdu, I. Distribution of protein fractions in normal and hypertrophied cat hearts, 9199*f*.
**Bezuglyĭ, D. V.**, Kiselevskiĭ, V. I., and Senyutin, N. K. Analyses without grain Hg, 2887*f*.
**Bezuglyĭ, V. B.** See Izmailov, N. A.
**Bezyalko, S. M.** See Ivanov, B. G.
**Bezzi, S.** See Croatto, U.
— and Croatto, U. Crystal structure investigations with Fourier analysis, 8873.
— Croatto, U., Scatturin, V., and Bruno, M. Structural investigations of crystals by the Fourier method of analysis (II) errors attributable to Gibbs' waves, 8874*d*; (III) use of thermal factors and of the Patterson $\bar{P}$ factor in Fourier-Bragg analyses, and the possibility of transcribing a projection from a relative scale to an abs. scale, 8874*f*, (IV) errors and the

possibility of eliminating them, 8874*h*; (V) Fourier-Patterson series, 8875*a*.
**Bezzubets, M. K.**, and Rozina, V. S. Acidic derivs. of anthraquinone (I) influence of substituents in the phenylamine radical of anthraquinone derivs. on their properties, 6193*f*
**Bezzubik, Z. G.** See Makar'eva, S. P.
**Bhabha, H. J.** Theory of the elementary particles, 4556*f*
**Bhaduri, A.** See Ray, P.
**Bhagavantam, S.**, and Suryanarayana, D. Photoelastic effect in Ba nitrate, 4916*g*, crystal symmetry and phys. properties, 6481*a*, photoelastic behavior of $NH_4$ alum crystals, 6482*a*
—— and Venkatarayudu, T. Theory of Groups and Its Application to Phys. Problems (book), 8842*a*
**Bhagwat, R. V.** See Bhave, V. M.
**Bhagwat, W. V.** See Shukla, S. O., Subnis, S. W.
—— and Bakore, G. V. Group parachors by Gibling's method (I), (II), 20*a*7
——, Harmalkar, S. G., and Bhandari, P. K. Reaction between $NH_4$ oxalate and I, 7309*a*.
——, Kaweeshwar, S. N., and Saxena, R. C. Application of Hammick and Andrew's mixt. law for solutes in water, 8805*a*.
——, Ramaih, S., Shukla, S. O., and Kaweeshwar, S. N. Parachor of ions, 8241*g*
—— and Subnis, M. V. Application of mixt. law to rheochor (I), 2077*a*
**Bhale Rao, V. R.** See Rao, V. R. B.
**Bhandari, P. K.** See Bhagwat, W. V.
**Bhandari, R. R.** See Pandya, K. C.
**Bhar, A.** See Mitra, S. N.
**Bhar, C.** Cryst. components of the seeds of *Heracleum nepalense* (I), 643*h*
**Bhargava, M. P.**, and Singh, S. Indian China clays as paper fillers, 8014*a*
**Bhargava, P. M.** See Sen, A. B.
**Bhargava, S. S.** See Dhawan, B. D.
**Bharihoke, G.** See Ahmad, B. Dev, A. N.
**Bharucha, F. R.** See Navalkar, B. S.
**Bhat, J. V.** See Sethna, K.
——— and Barker, H. A. Acetic and $CO_2$ in the fermentation of lactate by *Clostridium lactoacetophilum*, 2976*h*
——— and Pulkes, G. Influence of some bacterial cultures in the N status of soil (I) *Serratia marcescens* (II) *Bacillus subtilis*, 7705*i*, (III) *Pseudomonas cyanosa*, 7621*i*
———, Sethna, K., and Fernandes, A. Chem. and microbiol. studies on Mawa, 1906*e*
**Bhatnagar, S. S.** See Aggarwal, J. S.
**Bhatt, M. V.**, Iyer, B. H., and Guha, P. C. Action of diazomethane on triacetylglyceryl chloride, 2974*e*, anamothazoles, 3810*i*
**Bhattacharjee, H. P.**, and Macmillan, W. G. Estn. of pentachlorophenol in jute, 1566*b*
**Bhattacharya, A.** See Bose, J. B.
**Bhattacharya, A. K.** Compn. of ferric arsenite and ferrous arsenite (II) compn. of the so-called ferric arsenite, (III) analysis of the so called ferrous arsenate product, 8296*c*, see Dey, A. K., Ganguly, P. C.
——— and Ganguly, P. C. Physicochem. studies on the compn. of complex metallic ferro- and ferricyanides (IV), (V), (VI) compn. of Cd ferrocyanide, 1677*g*
**Bhattacharya, B. K.** See Chuse, H. P.
**Bhattacharya, G.** See Banerjee, Sachchidananda
**Bhattacharya, S.** Test for mutagenicity of methylcholanthrene, 3030*b*, see Basu, U. P.; Ghose, T. N., Mukherjee, S.
— and Basu, U. P. Indian ox bile powder, 5907*b*.
**Bhattacharyya, B. K.** See Khastgir, H. N., Sen-Gupta, P.
**Bhattacharyya, S. C.** Santalol series (VIII) relation between bicyclo- and tricyclokasantalic acid, (IX) prepn. of bicyclokasantalic acid and bicyclokasantalol, (X) synthesis of bicyclokasantalic acid, 5382*h*; (XI) structure of β-santalol and β-santalene, (XII) conversion of α-santalol to β-santalol, and α-santalene to β-santalene, (XIII) synthesis of α-santalic acid and a synthesis of α-santalol, (XIV) synthesis of β-santalol and β-santalic acid, 5384*d*.
**Bhaumik, H. D.**, and Clark, F. E. Soil moisture tension and microbiol. activity, 1889*e*.
**Bhave, V. M.**, and Bhagwat, R. V. Synthesis of lactones of substituted crotonic acids—condensation of β-arylglutaconic anhydrides with phenolic ethers, 4639*a*
**Bhide, B. V.** See Gokhale, V. G.; Iygle, T. R., Limaye, N. S.
**Bhimeswar, B.** See Rao, S. R. A.
——— and Kumar, S. Cytochemistry of yeasts (I) estn. of total chromatin, 5065*b*.
**Bhola, K. L.** Raw materials for a ceramic industry, 6547*e*.
**Bhowmik, A. C.** See Mukherjee, S. N.
**Bhowmik, T.** See Basu, S.
**Bhuiyan, S.** Transformation of N in rice soil, 6773*a*.
**Bhujang, K. S.**, and Nabar, G. M. Properties of acidic oxycellulose, 8672*a*
**Bhushan, B.** See Joshi, M. L.; Verghese, J.
**Biach, E.** See Hoffmann-Ostenhof, O.
**Biaggi, N.**, and Piazza, R. Effect of chloramine on the miracidia of *Schistosoma mansoni*, 4333*e*
**Biale, J. B.** See Pratt, H. K.
**Bialosky, J. M.** See Mears, R. B.
**Biancalana, L.** Thiosulfate in thyreotoxicosis, 6312*e*.
**Bianchi, C.**, and Ippolito, G. Hematologic modifications detd. by administration of reticuloendotheliotropic colloids, 4766*a*
**Bianchi, F.** See Heredia, P. A.
**Bianchi, G.**, and Zoja, R. Influence of continuous elec. current on the diffusion of pptd. substances in metals, 6956*d*, fragility in steels, 6962*a*.
**Bianchi, V.** Modification and diminution of the antigenic power of horse plasma, 3511*b*
**Biaso, S. de.** See De Biase, S.
**Biayna Nicolau, Q. R.** Condenseers, 1056*d*.
**Bibby, B. G.** See Manly, R. S., Roberts, J. F.
**Biber, V. A.** See Filatov, V. P.
**Biberschick, W.** Detn. of Zn, 7865*d*
**Bicchieral, G.** Ni sulfate, P 4588*i*
**Bice, R. A.** See Boyd, John
**Bichet, G.** See Etienne, A.
**Bichler, A.** Producing butanone, 3480*i*
**Bichowsky, I.** See Guggenheim, K.
**Bick, I. R. C.**, and Todd, A. R. Alkaloids of *Duboisia* species (I) repandine, 3017*i*
——— and Whalley, T. G. Alkaloids of Queensland flora (III) alkaloids of *Duboisia myoporoides*, 6787*g*.
**Bickel, C. L.** β-Alkoxy derivs. of 2-chloro-chalcone, 2972*b*
—— and Fabens, A. J. Addn. of $CdI_2$ to an acetylenic ketone, 6183*a*
**Bickel, G.** Bombe atomique à la médecine (book), 9125*k*
**Bickenbach, W.**, Hess, M., and Loeser, A. Methylthiouracil and pregnancy, 9265*b*.
**Bickerdike, R. L.**, and Sutcliffe, D. A. Tensile strength of Ti at various temps., 4618*b*
**Bickerton, J. M.** Fumigant, P 6357*b*
**Bickford, C. F.** Squibb separatory funnel for microanalytical work, 8213*g*
**Bickford, L. E., Jr.** Ferromagnetic resonance absorption in magnetite, 8275*b*
**Bickford, W. G.** See Fisher, G. S.
**Bicknell, J. A.** Stabilizer for Al-casein compn., P 3242*f*, dual toned metallic coated web, P 8346*d*, separable liner for tacky elastomers, P 8732*i*
**Bickoff, E. M.** See Bailey, G. F., Jones, F. T.
———, White, J. M., Bevenue, A., and Williams, K. T. Isolation and spectrophotometric characterization of four carotene isomers, 7152*e*
**Bicuda de Castro, A. T.** See Tovar Bicuda de Castro, A.
**Bidart, G. L. J.** App. for making glycerol phthalate varnishes, P 8178*i*
**Bidault, Elion et Cie.** See Vangrevenynge, C.
**Bidder, H. v.**, and Undritz, F. Influence of age and sex on hemoglobin, erythrocyte count and liver Fe content of white lab. rats on a normal diet, 3894*d*
**Biddiscombe, D. P.** See Coulson, E. A.
**Biddle, A.** Al-covered glass thread, P 3988*b*
**Biddulph, C.** See Harris, J. R., Meyer, R. K.
**Biddulph, O.** Interrelations between Fe and P in plant nutrition, 8015*i*.
**Bide, A. E.** See Glaxo Laboratories Ltd.; Smith, Ernest L.
———, Henbest, H. B., Jones, E. R. H., Peevers, R. W., and Wilkinson, P. A. Sterol group (XLVII) route to 7-dehydrocholesterol and its derivs., 3019*i*
———, Henbest, H. B., Jones, E. R. H., and Wilkinson, P. A. Sterol group (XLVIII) 7-substituted cholesterol derivs. and their stereochemistry (I) 7-halo derivs., 3020*f*.
———, Nicholls, R. J., and Wilkinson, P. A. Cholesterol derivs., P 5428*d*.
**Bidelman, W. P.** Spectrum of 1 Delphini, 3711*e*.
**Bidwell, E.** κ-Toxin (collagenase) of *Clostridium welchii* (II) effect of alk. pH and heat, 6257*h*
**Bidwell, R. M.** See Booth, H. S.
**Bie, G. J. van der.** Removing insol. compds. of metals from aq. rubber dispersions, P 432*b*, rubber obtained from different species of *Hevea*, 3641*e*; centrifuging of latex (I) results, (II) theoretical views, 3641*f*, detn. of N in crude rubber, 4043*g*
——— and Gils, G. B. van. Processing rubber, 2799*h*
**Bieber, R.**, and Trumpler, G. Detn. of hydration equil. consts. of aq. HCHO solns., 940*e*
**Biebl, R.** Resistance against Zn, B, and Mn as an aid in the identification of different types of plant plasma, 729*d*.
**Biedebach, F.** Detn. of morphine in poppy-seed capsules, 2369*h*, ergology of pharmaceuticals 6785*b*
——— and Haussler, A. Substitutes for tragacanth as a clearing aid in detns. of alkaloids, 6364*b*
**Biedermann, G.**, and Sillén, L. G. Soly. of red Hg(II) iodide, 6047*e*
**Biedermann, R.** Phenoxyphenyl propylamines, P 365*a*
**Biegeleisen, J. I.** Silk screen process for industrial users, 5205*c*
**Biehler, R. M.**, Hickman, K. C. D., and Perry, E. S. Lab. centrifugal mol. still, 6005*f*
**Biel, J. H.** Antihistaminics (I) ethylenediamines and an amino ether, 6587*a*.
**Bielig, H. J.** See Wieland, T.
———, Kausche, G. A., and Hardick, H. Detection of reduction loci in bacteria, 8440*g*
——— and Medem, F. G. Materials of animal fertilization, 2300*i*
——— and Querner, H. Tri- and tetrazolium salts as reduction indicators in growth studies with marine animals, 7593*b*.
———, Vogelbach, C., and Wieland, T. Detg. hypochlorite and its application in the analysis of chlorite samples, 2892*d*.
**Bieling, R.** Biologische Infektionsabwehr des menschlichen Korpers (book), 6305*g*.
**Bielschowsky, F.** Effect of a diet contg. yeast on the development of tumors induced by 2-acetylamidofluorene, 306*g*; see Malcolm, J.
**Bielschowsky, M.** See Green, H. N.
**Bielý, J.** See Halpern, G. R., Karc, M. R.
**Bienia, G. van.** See Van Bienia, G.
**Bienfait, H.**, and Willigen, P. C. van der. Welding electrode, P 1308*h*.
**Bienvenu, R. J.** See Owen, W. L.
**Bier, M.** See Timasheff, S. N.
——— and Nord, F. F. Aggregation phenomena in egg albumin solns. as detd. by light scattering measurements, 3690*d*.
**Bierbrauerei Steinholzl A.-G.** See Vilsmeier, J.
**Bierer, J. M.** Built up thermoplastic sheet material, P 3235*d*
**Bieri, B.** See Huber, K.
**Bierman, A.** Betatron without an Fe yoke, 6908*g*
**Bierman, H.** Be addns. to Zn-base alloys, P 5000*b*
**Biermann, L.** Normalized wave-functions for different states of the valence electron and the oscillator strengths of the transitions between them for Na I, K I, Mg II, Si II, and Al I, 6511*b*, oscillator strengths in different continua at series limits of Mg II and Si II, 6511*c*, cause of turbulence in the chromosphere and the ultraviolet excess solar radiation, 6916*g*.
**Bierwirth, R. A.** Dehydrator for concg. effervescent liquids, P 7273*h*.
**Biesterfeld, C. H.** Patent Law for Lawyers, Students, Chemists, and Engineers (book), 4402*b*.
**Bieth, R.** See Mandel, P.
———, Mandel, P., and Stoll, R. Biochem. development of the brain of the chick embryo—nucleic acids, 3502*f*.
**Biffi, G.** See Di Marco, A.
**Bigeleisen, J.** Isotope effect in the rupture of C—C bonds in propane $I\,C^{13}$, 5298*c*; validity of the use of tracers to follow chem. reactions, 7332*i*; isotope effect in the decarboxylation of labelled malonic acids, 7333*a*.

**Bigelow, M.** Development of Plaskon, 3117*e*; see Simonds, H. R.
**Bigger, J. W.** Antagonism and synergism of antibacterial substances, 4339*e*.
**Biggerstaff, W. R.**, and Wilds, A. L. Stilbestrol-like analogs of desoxycorticosterone and progesterone, 9055*e*.
**Biggs, B. S.** Stabilization of polyesters, P 7746*a*; see Hawkins, W. L.
**Biggs, R.**, Macfarlane, R. G., and Pilling, J. Fibrinolysis—increase in activity produced by exercise or adrenaline, 8541*a*.
**Biggs, W. A., Jr.** See Lewis, W. K., Jr.
**Bigich, I. S.** Elec. cond. and viscosity in the system NaBr $Al_2Br_6$ in $PhNO_2$, 6898*g*; system KBr.$Al_2Br_6$–$C_6H_5NO_2$—elec. cond., viscosity, and specific wt., 6899*b*.
**Bigot, H.** See Kahan, T.
**Biguenet, C.** Cements in radio-tube construction, 2029*h*.
**Bigwood, E. J.** Phytic acid compn. of corn, 3116*d*.
**Bihan, H. le.** See Le Bihan, H.
**Bihan, Y. le.** See Le Bihan, Y.
**Bijker, J.** Salt [$Cl^-$] content measurements of river water by means of a self-recording cond. meter, 5889*g*.
**Bijl, D.** Magnetic thermometry and heat cond. of Cr K alum and glass at low temps., 7316*f*.
**Bijl, L. H.** See Winterfeld, K.
**Bijma, J.** Cattle feed, P 8576*g*.
**Bijvoet, J. M.** Crystal structure of gammexane, 2838*h*, phase detn. in direct Fourier synthesis of crystal structures, 6079*b*; see Bokhoven, C.; Vloten, G. W. van.
——, Kolkmeijer, N. H., and MacGillavry, C. H. Rontgenanalyse van kristallen (book), 7830*g*.
**Bikchentaev, M. K.** Sampler for liquids and liquid masses such as pulp, P 2826*a*.
**Bikerman, J. J.** Theory of capillarity, 5255*i*.
**Bikhshteln, I. A.** Dry pressing of Ukrainian brick clays, 9404*f*.
**Bikin, H.**, Jenkins, G. L., and DeKay, H. G. Radio-frequency drying of tablet granulations, 8607*i*.
**Bilek, L.** See Pailer, M.
**Bilfinger, R.** Effect of high-frequency currents on the electrodeposition of Cr, 2872*h*.
**Bilhuber, E., Inc.** Aliphatic amino alcs., P 3029*c*; substituted α halogen alkyl tetrazoles, P 7971*c*; substituted amino alkyl tetrazoles, P 7971*g*.
**Bilisoly, J. P.** Mixed silica-alumina, silica-magnesia catalyst, P 3188*h*.
**Billen, D.**, and Lichstein, H. C. Aspartic acid decarboxylation by *Rhizobium trifolii*, 4336*f*, 8439*i*.
**Billen, G. N.** See Swern, D.
**Billet, D.** See Mentzer, C.
**Billeter, J. R.** See Miescher, K.
—— and Miescher, K. Steroids (LXXXIV) degradation products from cholesterol oxidation (5) constitution of 3(β),17-dihydroxy-$\Delta^5$-cholenic acid lactone(24 → 17), 6637*i*.
**Billett, F.** See Morrison, T. J.
**Billica, H. R.** See Adkins, H.
**Billig, E. S.**, and Pogosyants, E. E. Action of cancerogens in minimal doses, 8049*d*.
**Billing, B. H.** See Wilkinson, A. W.
**Billinger, R. D.** Penna. papermaking, 4013*a*.
**Billings, B. H.**, and Hyman, M., Jr. Infrared *n* and dispersion of evapd. stibnite films, 2062*a*.
**Billings, E. M.** See Beebe, R. A.; Young, W. G.
**Billings, H. P.**, and Stubbs, F. G. Electroforming Cu deposits, P 8918*b*.
**Billitzer, A. W.** Magnetic stirrer for water trap, 6471*a*; device for injecting powd. substances, 6472*a*; removal of chromic oxide and gypsum crusts from glass vessels, 6876*c*; manuf. of EtCl, 6969*d*.
**Billman, J. H.**, and Cleland, E. S. Methods of Synthesis in Org. Chemistry (book), 4283*b*.
**Billmeier, R. A.** Requirements of petroleum solvents in pigmented textile printing pastes, 1985*f*.
**Billmeyer, F. W., Jr.** Estg. intrinsic viscosity, 6891*e*.
**Bills, C. E.**, McDonald, F. G., Niedermeier, W., and Schwartz, M. C. Na and K in foods and water—detn. by the flame photometer, 4780*e*; reduction of error in flame photometry, 8943*f*.
**Bills, J. L.**, and Noller, C. R. Dihydroisoquinolines and their absorption spectra, 1412*f*.
**Biltz, H.**, and Biltz, W. Ausführung quantitativer Analysen (book), 1290*i*.
**Biltz, W.** See Biltz, H.
**Bimes, C.** See Virenque, J.
**Binazzi, M.** See Lisi, F.
**Binda, B.**, and Martinetto, G. Curare and gastric secretion, 7143*b*.
**Binda, F. J.** Hot-water treatment of vinyl resin light-polarizing sheet, P 3242*c*.
**Binder, L.** Thermodynamic functions of $CH_3SH$ and $(CH_3)_2S$, 7804*g*.
**Binder, R. C.** Fluid-flow progress, 4906*b*.
**Binder, T.** Chem. specificity for the antagonistic arrest of the bactericidal action of invert soaps, 9377*a*.
**Bindler, J.** High-mol. acylbiguanides, guanamines, and their water-sol. derivs., P 699*f*.
**Bine, R., Jr.** See Friedman, M.
—— and Friedman, M. Detection of min. concns. of digitoxin, 2658*d*.
**Binet, L.**, and Bourlière, F. Problèmes de physiologie comparées (book), 5105*c*.
—— and Burstein, M. Peripheral vasoconstrictor action of adrenaline, 1107*b*; peripheral vasomotor effects of procaine, and vasomotor reactions of anoxemic origin in the animal treated with procaine, 4767*i*; action of some cations on the tone of peripheral blood vessels, 5115*i*, tone of the peripheral vessels in CO poisoning, 5494*h*, benzodioxans and peripheral vascular tone, 5861*g*, $CO_2$ and sensitivity of peripheral vessels to adrenaline, 9201*h*.
—— and Marquis, M. Effect of a prolonged Cl free diet, 1471*i*.
—— and Strumza, M. V. Plasmatic acid-base equil. and duration of resistance to anoxia, 8038*d*.
——, Wellers, G., and Dubrisay, J. Hydrocyanic intoxication—antidote value of Na tetrathionate, 7578*f*.
**Bing, F.** See Reinders Gauwentak, C. A.
**Bing, J.**, and Petersen, P. V. Effect of some basically substituted amides on sensitivity and blood pressure, 3101*h*.
**Bingel, J.** Approximation to the soln. of the heat-cond. equation and its application in thermodynamics, 2854*e*.
**Bingenheimer, L. E., Jr.**, and Christian, J. E. Polarographic studies of diethylstilbestrol, 8285*c*.
**Bingold, K.** Pentdyopent, its significance in hemoglobin metabolism, 8558*g*.
—— and Stich, W. Propentdyopent—formation, detection, and clinical significance, 5535*a*.
**Bini, G.** See Guareschi, G.
**Binkley, C. H.** See Ward, Wilfred H.
**Binkley, F.** Inhibition of the adenosinetriphosphatase activity of prepns. of myosin, 3053*a*; source of sulfate in the formation of ethereal sulfates, 5836*b*, formation of mercapturic acids by cystinuric and normal dogs, 5845*d*.
**Binkley, S. B.** Penicillin compns., P 9390*c*, see Bird, O. D.; Cheney, L. C.; Cooper, D. E.; Doisy, E. A., Speeter, M. E.; Wheatley, W. B.
**Binkley, W. W.**, and Wolfrom, M. L. Chromatography of sugars and related substances, 425*h*; homogeneity of the phenylosazone prepd. from D-fructose, 580*h*; acetylation of D-psicose, 1327*h*; Chromatography of Sugars and Related Substances (book), 2215*f*.
**Binnie, D.** Expts. with small ingots of rimming steel, 9007*g*.
**Binnie, W. P.** See Morrison, J. D.
—— and Robertson, J. M. Crystal structure of hexamethylenediamine and its dihalides—hexamethylenediamine dihydrobromide, 6486*c*; crystal structure of $(CH_2)_6(NH_2)_2.2HCl$, 7773*d*.
**Binns, W.** See Harris, J. R.
**Binswanger, L. A.**, Erlenmeyer, H., Sorkin, E., and Suter, E. Tuberculostatic action of 8 hydroxyquinoline and 4-hydroxybenzothiazole, 2329*c*.
**Biocca, E.**, and Tarantino, E. Toxic action of intramuscular and oral administration of curare (IV), 8527*h*.
**Biörck, G.** Myoglobin and its occurrence in man, 6301*c*.
**Biolley, A.** Piston compressor for oil-free pumping of air and gases, 4903*e*.
**Biondi, M. A.**, and Brown, S. C. Measurement of ambipolar diffusion in He, 6504*h*, 8774*h*.
**Biondo, G.** See Andrini, F.
**Biozzi, G.**, and Malizia, E. Estn. of *N*-(2-dimethylaminoethyl)-*N*-benzylaniline in blood after intravenous injection, 6684*e*.
——, Mené, G., and Ovary, Z. Histamine and granulopexy of the vascular endothelium, 3916*g*; (III) granulopexy of the endothelium produced by histamine, 4766*f*; relation of histamine and the adsorption of granular material to the vascular epithelium (I) mechanism of granulopexy produced by various substances, (II) granulopexy of the vascular epithelium in cutaneous anaphylaxis of the guinea-pig, 5854*b*.
**Biquard, P.** Ultrasons (book), 6500*i*.
**Biradar, N. S.** See Prasad, M.
**Birch, A. J.** Electrolytic reduction in liquid $NH_3$, 2521*g*; anionic intermediates in reduction by nascent H, 6058*b*.
—— and MacDonald, D. K. C. Metal-$NH_3$ solns. (II), 2500*c*.
—— and Mukherji, S. M. Reduction by Na-$NH_3$ solns., 8370*c*.
**Birch, E. J. H.** Hardness in water, 5521*c*.
**Birch, H. F.**, and Doughty, L. R. Distribution and interrelations of the alkaloids in the bark of *Cinchona ledgeriana*, 2284*a*.
**Birch, I. H.** Automatic steaming control for sulfate digesters, 2773*i*.
**Birch, S. F.** See Anglo-Iranian Oil Co., Ltd.
——, Dean, R. A., Fidler, F. A., and Lowry, R. A. Prepn. of the $C_6$ monocyclic aromatic hydrocarbons, 7438*g*.
——, Fidler, F. A., Collis, C. B., and Anglo-Iranian Oil Co., Ltd. Cyclohexane, P 3186*i*.
——, Fidler, F. A., Hardy, D. V. N., and Molloy, E. L. Aromatic amines, P 5799*e*.
—— and Habeshaw, J. Hydrocarbons from CO and H, P 5573*d*.
——, Habeshaw, J., and Collis, C. B. Prepn. of benzene and(or) cyclohexane in a condition of purity from mixts. contg. them, P 1957*h*, sepn. of narrow boiling hydrocarbon fractions, P 1958*a*.
——, Habeshaw, J., and Lowry, R. A. Prepn. of cyclohexane and alkylated aromatic hydrocarbons, P 1958*d*, production of pure hydrocarbons from naphtha and other hydrocarbon feedstocks, P 1958*i*.
——, Lowry, R. A., and Collis, C. B. Hydrocarbons from petroleum naphtha, P 1958*c*.
**Birchenall, C. E.**, and Cheng, C. H. Vapor pressures of Zn and Cd over some of their Ag alloys, 6558*a*.
**Bircher, L. J.** See Watson, A. T.
**Bircher, R.** See Cerletti, A., Suter, E.
—— and Schalch, W. R. Action of ergot alkaloids on histamine-like reactions, 3028*i*.
**Birckenbach, L.** Chemistry of anions—pseudohalogens, 4082*i*.
**Bircumshaw, L. L.**, and Harris, I. Thermal decompn. of Pb oxalate, 2837*h*.
**Bird, C. L.** Color and dyeing properties of the aminoacridines (II) diaminoacridines and substituted monoaminoacridines, 1189*i*.
**Bird, E. J.** See Boyle, A. J.; Mosher, R. E.
**Bird, H. R.** See Lillie, R. J.
——, Groschke, A. C., and Rubin, M. Effect of arsonic acid derivs. in stimulating growth of chickens, 5400*c*.
**Bird, M. J.**, Kelman, E., Lerner, H., Rosenfeld, D., Totah, V., and Hodge, H. C. Analysis of teeth showing unusual wear, 1823*d*.
**Bird, M. L.**, Challenger, F., Charlton, P. T., and Smith, J. O. Biol. methylation (XI) action of molds on inorg. and org. compds. of As, 2670*g*.
**Bird, O. D.** See Swendseid, M. E.
—— and Binkley, S. B. Antianemia vitamin product, P 364*e*.
**Bird, P. G.**, and Jacoby, A. L. Inhibiting foaming in steam boilers, P 5890*g*.
**Bird, R.** See Lamb, J.
**Bird, R. B.** See Hirschfelder, J. O.
**Bird, R. M.**, Evans, J. D., and Becker, L. Effect of pH on the metabolism of rabbit bone marrow, 4752*a*.
**Bird, S.**, Pugsley, L. I., and Klotz, M. O. Recovery of synthetic estrogens from tissues of birds, the response of the birds' testis, comb, and epidermis to estrogens and of humans to ingestion of tissues of treated birds, 8031*i*.
**Birdsall, C. G.** Dry-cell unit for flashlights, hearing aids, etc., P 4156*a*.
**Birdsall, D. H.**, and Farrington, B. B. Effect of water and other additives on the fiber structure of Ca soap greases, 4455*e*.
**Birdsall, G.**, and Anderson, H. Sulfiting of mimosa ext., 5617*i*.
**Birdseye, C.** Food drier using N or $CO_2$ under increased pressure as drying agents and sulfonated alc. spray as wetting agent

during the sweating step, P 1123*h*; treatment of vegetable tissue, P 6759*a*.
**Bird & Son, Inc.** Removable floor and wall covering, P 2040*d*.
**Birger, N. G.** Study of showers under Pb and in the atm. at 3860 m. altitude, 2859*g*.
**Birillo, A. S.** Purifying waste water of the paper industry, P 9310*i*
**Birkeland, J. M.** Microbiology and Man (book), 3887*e*.
**Birkeli, H.** *Mentha piperita* (I) effect of mineral nutrients and of water, 3149*a*.
**Birkett, B.** See Bishop, A.
**Birkinshaw, J. H.** See Therapeutic Research Corp of Great Britain Ltd.
———, Bracken, A., Morgan, E. N., and Raistrick, H. Biochemistry of microorganisms (LXXVIII) mol. constitution of mycophenolic acid, a metabolic product of *Penicillium brevi-compactum* (2) possible structural formulas for mycophenolic acid, 6184*h*.
**Birkofer, A.** See Birkofer, L.
**Birkofer, L.**, and Birkofer, A. Lactoflavin, a component of bacterial fluorescein, 3884*d*
**Birks, J. B.** Applications of microwaves, 2514*f*; measurement of the permeability of low-cond ferromagnetic materials at centimeter wavelengths, 3328*c*; natural and induced ferromagnetic resonance, 453*d*
**Birman, Ya N.**, Goncharenko, K. S., and Tupitsin, G. I. Cr coating of cylinders, piston rings, etc., P 8017*i*
**Birmingham, D. J.** Dermatitis from plastics, 5906*c*, see Schwartz, L.
**Birmingham, J. E.** Synthetic detergent cream, 3972*g*
**Birmingham, M. K.** See Eagle, H.
Elliott, K. A. C.
**Birmingham Electric Furnaces Ltd** and Hancock, P. F. Gaseous atm. for the cementation of Fe and steel, P 5726
———, Robutte, A. G. E., and Hancock, P. F. Heat-treatment of austenitic white cast iron alloys, P 1709*f*
**Birnbaum G.**, and Franeau, J. Measurement of the dielec. const. and l. of solids and liquids by a cavity perturbation method, 8769*i*
**Birnbaum, S. M.** See Shchigol, M. B.
——— and Shchigol, M. B. Detn. of Ca ion in the presence of Mg ion, 6938*d*
**Birnberg C. H.** See Sherber, D. A.
**Birnie, J. H.** See Eversole, W. J.
———, Jenkins, R., Eversole, W. J., and Caunt, R. Antidiuretic substance in the blood of normal and adrenalectomized rats, 3084*e*.
**Birnthaler, W.** Vol. effects in mixing of polyvinyl chloride with plasticizers, 1214*g*
**Biró, L. J.** Ink for ball pens, P 1995*d*
**Biró, N. A.**, and Szent-Györgyi, A. Effect of KCl and adenylpyrophosphoric acid on succinic dehydrogenase and cytochrome oxidase, 9096*h*, washed muscle, 9200*b*.
**Biro, V.** See Wizinger, R.
**Biron, M.** Turkish brandy, 353*f*, Pekmez, 784*c*.
**Birsch, E. T.**, and Silcox, W. D. Filter assembly of two or more sets of filters in sequence, P 913*f*.
**Birse, E. A. B.**, and Roberts, J. K. Action and design of mech. filters for dust and smoke, 1*f*.
**Birtwell, S.**, Crowther, A. F., Curd, F. H. S., Hendry, J. A., Richardson, D. N., Rose, F. L., and Imperial Chemical Industries Ltd. Biguanide derivs., P 683*h*.
———, Curd, F. H. S., Hendry, J. A., and Rose, F. L. Synthetic antimalarials (XXX) $N^1$ aryl-$N^4$,$N^4$-dialkylbiguanides conversion of guanylthioureas into biguanides, 2949*c*.
**Birtwhistle, W. K.** Polymeric esters, P 2228*h*.
**Biryukov, N. D.** Calcn. of pH regardless of the voltage of the storage battery, 954*d*.
**Biryuzova, V. I.** See Kriss, A. E.
**Bisal, F.** Siphon drainage in the Hyde-Park-Benson area, Cache Valley, Utah, 7610*h*.
**Bisbey, B.** See Weis, A. E.
**Biscoglie, V.** Folic acid, 1472*e*.
**Bischler, A.**, Favre, M., Frommel, E., and Vallette, F. Permeability of guinea pig skin to oleates of the alkaloids of poisonous Solanaceae measured by acetylcholine aerosols, 2699*e*.
**Bischler, W.** Vitamins and neurology, 1842*h*.
**Bischof, B.** See Jeger, O.
——— and Jeger, O. Triterpenes (CXXX) prepn. of 2,7-dihydroxy-$\Delta^{12,13}$-oleanene with sumaresinolic acid as starting material, 211*i*; (CXXXIV) identity of genin A from the roots of *Primula officinalis* and *Primula elatior* with 2,16(or 22),28-trihydroxyoleanene, 1750*e*.
**Bischof, W.** Intermediary-stage hardening of different alloy steels, 4617*f*.
——— and Boetger, L. Effects of Cr, Mn, C, and P on the temper-brittleness and the hot-brittleness of steel, 1301*e*.
**Bischoff, F.** O and N in elec. arc welding with coated nonalloyed com. electrodes, 987*a*; catalytic effects through gas phases in calcining gypsum, limestone, and magnesite, 8621*i*; N absorption in elec. arc welding, 9017*b*.
**Biserte, G.** See Boulanger, P.
——— and Masse, L. Electrophoretic heterogeneity of the γ-globulins of blood serum, 1071*i*, differential electrophoresis of bovine gall bladder bile, 2264*c*; electrophoretic study of human colostrum, 2264*d*.
**Bishop, A.**, and Birkett, B. Drug resistance in *Plasmodium gallinaceum* and the persistence of paludrine resistance after mosquito transmission, 5860*e*.
——— and McConnachie, E. W. Resistance to sulfadiazine and paludrine in the malaria parasite of the fowl, 2702*f*
**Bishop, A. W.** London clay (III) strength variations, 3163*a*
**Bishop, C. A.** See Coull, J.
**Bishop, C. J.** Pollen tube culture on a lactose medium, 2076*a*
**Bishop, C. R.** See Stark, L. E.
**Bishop, E.**, and Crawford, A. B. Prepn. of *N* phenylanthranilic acid indicator solns., 7861*a*; sepn. of Be, Al, U, and V by cupferron in systematic qual. analysis, 7862*a*.
**Bishop, E. L.**, Hollis, M. D., Mansur, C. I., *et al.* Malaria control on impounded water, 3953*f*
**Bishop, E. T.** 4 Methyl 1,3-pentadiene copolymers, P 1038*d*, see Morris, R. C.
**Bishop, G. R.**, Collie, C. H., Halban, H., and Wilson, R. Lower limit for the binding of the deuteron, 8862*b*
**Bishop, H. B.** Electrolytic clarifier of industrial waste waters, P 2102*e*
**Bishop, H. D.** See Corson, B. B.
**Bishop, H. R.** See Drogin, I.
**Bishop, J., & Co. Platinum Works.** Seamless Pt-Rh alloy tubes, P 1710*c*.
**Bishop, L. R.** Prediction of ext. (IV) adjustment of prediction to give true ext. in malt, 3142*f*
**Bishop, M. N.** See Kuehl, F. A., Jr.
**Bishop, O. M.**, and Needham, A. B. Douglas fluorite property, Pope County, Ill., 4190*e*.
**Bishop, O. N.** See Russell, R. S.
**Bishop, P. M. F.**, Kennedy, G. C., and Wynn-Williams, G. Potency and toxicity of some synthetic estrogens, 3935*f*
**Bishop, R. B.** See Denton, W. I., Marisic, M. M., Schlesman, C. H.
**Bishop, R. E.** Extn. of an essential oil from olive pits, P 7647*h*.
**Bishop, W. H. H.** See Jephcott, C. M.
**Bishop, W. T.**, Lorand, E. J., and Reese, J. E. Froth flotation of ores with aromatic ale., P 4624*d*
**Bishopp, D. W.** Irish sources of lime and magnesia of high purity—limestone, dolomite, and brucite-marble, 526*e*; Irish mineral resources, 4607*e*.
——— and McCluskey, J. A. G. Industrial silica in Ireland, 4190*f*.
**Bishopp, F. C.**, and Stage, H. H. World activities relating to mosquitoes, 9345*d*.
———, Stage, H. H., and Sollers, H. Mosquito work throughout the world, 9345*d*.
**Bishui, B. M.** Polarization of Raman lines of ethylene dibromide in soln. and intensities at different temps., 2514*b*; Raman spectra of 1,2- and 1,1-dichloroethanes in the solid state, 2514*c*; Raman spectra of propyl bromide and ethylene chlorohydrin in different states, 2514*e*; see Sirkar, S. C.
**Bissi, A.**, and Manzotti, M. Proteinemia, 9127*b*.
**Bissinger, W. E.**, Kung, F. E., and Hamilton, C. W. Rearrangement of alkyl sulfites to alkanesulfonate esters, 1313*f*.
**Bissolino, G.** Therapeutic combination of streptomycin and liver ext. in pulmonary tuberculosis, 5861*e*
**Bisson, E. E.** See Johnson, R. L.
**Bistline, J. A., Jr.** Properties of $BF_3$ in ionization chambers, 2505*g*.
**Biswas, B.** See Seth, B. D.
**Biswas, H. G.** Manuf. of milk sugar from confectioners' waste, 1119*d*; saponin from *Sapindus laurifolius*, 1156*e*; tannic acid from myrobalan, 3149*f*.
——— and Munsi, N. K. Compn. of fusel oil from the distillery, 814*g*.
**Biswas, N. N.** See Dhar, N. R.
**Biswas, S.** Geiger-Nuttall relation, 4097*h*.
——— and Patro, A. P. Fission cross-section of $U^{235}$ for thermal neutrons, 8896*f*.
**Biswas, S. C.**, Singh, H., and Joshi, N. V. Indian soils (VIII) nitrifying capacities of soils, 9311*f*.
**Bitler, W. P.**, Aschner, T. C., and Nicholl, L. Alkyl esters of chloroacetic acid, P 2223*d*.
**Bitman, J.**, and Cohen, S. L. Destruction of 3-β-hydroxy-17-keto steroids during hydrolysis with HCl, 7059*a*.
**Bitskoi, J.**, and Forhénez, M. Carminic acid and indole as oxidimetric indicators, 8949*e*, titration of $H_2SO_3$, K thiocyanate, NaCN, or $Na_2S_2O_3$ soln. in an alk. medium, 8971*e*.
——— and Petrich, K. Detn. of $N_2H_4$, $H_2SO_4$ by titration with hypochlorite, 8970*a*.
**Bittencourt Machado, R.** See Jordão da Rosa, M.
**Bitter, F.** Nuclear magnetic moments and hyperfine structure of the Rb isotopes, 8879*c*.
**Bittera, R.** See Csiszár, J.
**Bittner, J. J.** Enigmas assocd. with the genesis of mammary cancer, 5489*d*; see Glick, D.
**Bitzer, E. B.** Hydraulic classifier with hindered settling, P 3249*a*.
**Biva, G.** Raw materials in the Belgian varnish, paint, mastic, and printing ink industry, 8701*d*.
**Bixby, W. F.** Porous-sheet process of drying GR-S American rubber, 2801*i*.
**Bixler, A. L. M.** Problems in the paper mill, 1567*b*.
**Bizard, G.**, Vanlerenberghe, J., and Robelet, A. Adrenaline and sulfonamides—action on isolated rabbit intestine, 1486*i*.
**Bizette, H.** Orientation of some mols. and crystals in the magnetic field, 10*h*.
**Bizioli, O.** Tipral, a textile auxiliary, 4861*i*.
**Bjarnason, O. B.** Component acids of Icelandic herring oil, 2001*e*.
**Bjergaard, G. P.** See Pedersen-Bjergaard, G.
**Bjergaard, K. P.** See Pedersen-Bjergaard, K.
**Bjergo, T.** Elektron- og atomfysik (book), 947*f*.
**Bjerrum, J.**, and Nielsen, E. J. Metal ammine formation in aq. soln. (VI) stability and light absorption of Cu ethylenediamine ions, 7857*d*.
**Bjerrum, N.** Inorg. Chemistry (book), 520*c*, Selected Papers (book), 6072*b*; stability of the chlorides of Au in soln., 6494*i*.
**Bjerver, K.**, and Goldberg, L. Alc. tolerance in individuals with chronic producer-gas intoxication, 1866*e*.
**Björkenheim, G.**, and Hortling, H. Influence of tetraethylammonium bromide on the peripheral blood picture, 9257*b*.
**Björkman, S. E.**, and Horsfall, F. L., Jr. Production of a persistent alteration in influenza virus by La or ultraviolet irradiation, 754*f*.
**Björkqvist, K. J.** See Adler, R.
**Björling, C. O.** Adsorption analysis of salts of org. acids, 5703*c*.
**Björling, K. G. E.** Pb, P 2879*f*.
**Bjørlykke, H.** Hosanger Ni mine, 6545*g*.
**Bjørneboe, M.** Serum proteins in hepatitis (III) serum protein variations in chronic hepatitis and the course of the disease, 2308*h*.
———, Eskesen, B., Harboe, N., and Hennings, H. Amino acid treatment intravenously and by duodenal tube, 1087*a*.
**Bjorklund, S. C.** See Webber, B. S.
——— and Wright, W. S. Knik Valley chromite deposits, Palmer, Alaska, 74*c*.
**Bjorksten, J.**, and Crowley, T. C. Coolant for metal machining, P 6819*b*.
**Bjorn, M. K.**, and Northen, H. T. Effects of 2,4-dichlorophenoxyacetic acid on chicks, 343*h*.
**Bjornseth, E. H.** See McLean, D. M.
**Blaas, J. G.** Viscose-spinning auxilliaries, P 850*c*.
**Blaas, T. A. H.** Viscose-spinning auxilliaries, P 850*c*.
**Blachman, N. M.** Counting vol. of a cylindrical ionization chamber, 8851*f*.
——— and Courant, E. D. Scattering of particles by the gas in a synchrotron, 8862*e*.

**Black, A.** See Swift, R. W.
——, French, C. E., Cowan, R. L., and Swift, R. W. Relation of fat to economy of food utilization (V) fluctuations in curve of daily heat production, 5461*c*.
——, French, C. E., and Swift, R. W. Relation of fat to economy of food utilization (IV) influence of activity, 5461*c*.
**Black, A. F.** Rock-salt dissolver and filter, P 6378*f*.
**Black, A. H.** See Brundage, D. K.
**Black, A. P.** Chemistry of water treatment, 5137*h*, (V) water-treatment problems, 8077*g*, lime and lime soda sludge disposal, 8587*d*.
——, *et al.* Fluoridation of public water supplies, 8582*h*.
**Black, C. A.** See Low, P. F.; Pritchett, W. L.; Thompson, L. M.
**Black, C. E.**, and Ogle, R. S. Influence of local acidification of tissue bordering cancerous growths—eosinophil, Paneth cell, and the acidophilic plasma cell, 4362*h*.
**Black, E. S.** See Scatchard, G.
**Black, George.** Metal finishing process information sheets, 95*h*, properties of coated panels, 870*f*, Al finishes, 871*e*, luminescence - fluorescence phosphorescence, 2084*e*, prepn of test panels, 2443*h*, hardness testing of org. coatings, 7239*c*, scuff-resistant coatings for ferrous parts, 7392*b*, see Rosen, E.
——- and Lewis, P. Vapor degreasing equipment for metals, 1301*f*.
**Black, Gordon,** Depp, E., and Corson, B. B. Oxidation of methylpyridines to pyridinecarboxylic acids, 3825*a*.
**Black, J. F.** Aromatizing hydrocarbons, P 6818*g*; Zn aluminate spinel catalyst, P 7222*f*.
**Black, L. A.** See Levine, B. S.; Weber, C. R.
**Black, M. B.** See Wang, C.-F.
**Black, M. M.** Changes in the reducing power of serum or plasma of patients with malignant neoplastic disease 2993*d*, plasma reduction of methylene blue, 2648*h*.
——, Kleiner, I. S., and Bolker, H. Energy mechanisms in malignant tumors in relation to chemotherapy, 303*g*, changes in the heat coagulation of plasma from cancer patients, 3515*b*, glycolytic enzyme inhibitor therapy in human malignant neoplasia, 5856*g*, toxicity of NaF, 8533*g*.
**Black, M. V.** See Bates, F.
**Black, N. H.**, and Davis, H. N. Physics (book), 6500*k*.
**Black, R. F.** See Duckworth, H. E.
**Black, R. H.** Effect of antimalarial drugs on *Plasmodium falciparum* 9163*h*.
**Black, R. P. S.** Dyeing of nylon-wool blends, 6827*h*.
**Black, R. W.** Gas-freezing tanks *vs.* mechanical movers *vs.* steaming, 3179*d*.
**Black, W. A. P.** Seasonal variations in chem. construction of some of the sublittoral seaweeds common to Scotland (II) *Laminaria digitata*, (III) *Laminaria saccharina* and *Saccorhiza bulbosa*, 278*b*, seasonal variation in chem. compn. of some of the littoral seaweeds common to Scotland (I) *Ascophyllum nodosum* 2285*h*, (II) *Fucus serratus*, *Fucus vesiculosus*, *Fucus spiralis*, and *Pelvetia canaliculata*, 8457*a*.
**Black, W. C.** See Kesler, C. C.
**Black, W. W.** Ramie, 1570*f*.
**Blackburn, A. R.**, Shevlin, T. S., and Lowers, H. R. Sintering and testing of cermet bodies (I) wetting of alumina by Ni, Co, Fe, Cr, and Cr B, (II) furnace equipment for cermet fabrication, (III) equipment for cross-bending stress and tensile testing at high temps., 4473*c*.
**Blackburn, B. O.** See Hatch, L. F.
**Blackburn, C. R. B.** Pb in the reduction of the erythrocyte sedimentation rate by hyaluronidase, 6266*h*.
**Blackburn, E. G.** See Craige, A. H., Jr.
**Blackburn, I.** See Ferrell, D. T., Jr.
**Blackburn, S.** Compn and reactivity of medullated keratins, 2089*g*; sepn of 2,4 dinitrophenyl amino acids on buffered silica gel, 7379*a*.
**Blackburn, W. E.** Se rectifier, P 510*f*, 8290*i*, pure free cryst Se films, P 4143*d*.
——- and Apodaca, A. K. Se rectifier, P 8920*d*.
**Blackburn, W. H.** See Dent, B. F.
**Blackford, V. L.** See Leonard, J. M.
**Blackman, M.** Transformation of solid foam to a fluid foam, 6*d*.
— —, Egerton, A. C., and Truter, E. V. Heat transfer by radiation to surfaces at low temps., 4939*a*.
— — and Michiels, J. L. Efficiency of counting systems, 3706*f*.
**Blackmore, P. O.** Plastic resins as protective coatings, 875*e*; industrial paint progress, 1195*a*; surface coatings for reinforced plastics, 7718*a*.
**Black, Sivalls & Bryson, Inc.** Separator for gas entrained in foamy liquids, such as petroleum oils, P 7222*e*; spray extractor, P 8759*d*.
**Blackstone, F. B.** Power-plant expansion for S mine—Port Sulphur, Louisiana, 2347*a*.
**Blackwell, R. Q.** See Fosdick, L. S.
**Blackwood, A. C.**, Wheat, J. A., Leslie, J. D., Tedrahan, G. A., and Simpson, F. J. Production and properties of 2,3-butanediol (XXXI) fermentation of wheat by *Aerobacillus polymyxa*, 7635*b*.
**Blackwood, A. J.** Generating power, P 9419*d*.
**Blackwood, P. F.** Heat resisting alloy, P 2922*c*.
**Blado, O. C.** National motor-gasoline survey, 2112*f*, 6813*g*, high-S crude oils—trends in supply (II) U. S. data, 7213*f*.
**Bladergroen, W.** Physikalische Chemie in Medizin und Biologie (book), 5815*d*.
**Blagorazumova, M. V.** See Okunev, N. V.
**Blagoveshchenskii, A. V.**, and Kologrivova, A. Yu. Activation of catalase by products of desamination of amino acids, 4309*b*.
**Blagovestchenski, A. W.** See Blagovesh chenskii, A. V.
**Blaha, E.** SiC refractories, P 4441*g*, firing of kilns to produce glasslike surfaces on work pieces, P 7657*c*.
**Blaha, J.**, and Hanzlik, F. Chem. composition of berries and semifruits, 3536*f*.
**Blaigot, J.** See Blaigot, S.
**Blaigot, S.**, and Blaigot, J. Relations between the thyroid gland and vitamin $B_1$, 5903*e*.
**Blaine, R. L.**, and Vahs, H. J. Surface available to $N_2$ in hydrated portland cements, 4826*d*.
**Blaine, R. F.** See Held, E. J., Jr.
**Blair, C. A.** Scientific process control of tanning, 3223*b*, leak stopping compn., P 5520*b*.
**Blair, C. M., Jr.**, and Gross, W. F. Corrosion inhibitors, P 5001*k*, 6406*g*.
**Blair, G. W. S.** See Scott-Blair, G. W.
**Blair, J. M.**, Freier, G., Lampi, L. E., and Sleator, W. Jr. Scattering of deuterons by He at deuteron energies from 0.9 to 3.5 m.e.v., 6506*f*.
— —, Freier, G., Lampi, E. E., Sleator, W., Jr., and Williams, J. H. Scattering of 2.4 to 3.5-m.e.v. protons by protons, 34*g*, angular distribution of 1 to 3.5 m.e.v. deuterons scattered by deuterons, 2088*c*, angular distributions of the products of the *td*,*n* reaction 1 to 3.5 m.e.v., 2088*c*.
**Blair, J. S.** Electro-disintegration of nuclei, 1120*c*.
**Blair, L. R.** Decal application method, 830*f*.
**Blair, T. S.** Plating easily buffed Ni, 6089*i*.
**Blaisten, R. J.** Prepn. of a steeping agent from fungi, 1571*h*.
**Blaizot, J.** Nutrition and reproduction, 1737*h*, see Blaizot Guénot, S.
**Blaizot, S.** Same as Blaizot Guénot, S.
**Blaizot-Guénot, S.** Antagonistic effects of thyroxine and aneurine on creatinuria, 2679*h*.
— — and Blaizot, J. Relations between thyroid gland and vitamin $B_1$, 3500*g*.
— — and Sacy, G. de. Assimilation of Ca and P (III) metabolic utilization of parenterally administered Ca salts, 310*e*.
**Blake, A. D., Jr.** See Strunna, M. M.
**Blake, C. H.** See Marks, M. H.
**Blake, D. B.** Developing finishes for plastic products, 7259*h*.
**Blake, E. S.** Rubber antioxidants, P 5626*e*; vulcanizing rubber, P 5992*g*, (hydroxyalkylmercapto) succinic acids and esters, P 7957*b*, see Eastman, E. C.
**Blake, G. G.** Comparator operating at radio frequency 418*c*, rectified radio-frequency applications, 5235*f*.
**Blake, H. T.** See Drinnen, L. D.
**Blake, J. T.** Effects of light and $O_2$ on rubber, 8722*f*.
——- and Kitchin, D. W. Effect of soil microörganisms on rubber insulation, 9517*d*.
——- and Lyle, R. Rubber insulation, 2343*e*.
**Blake, P. D.** Detg. surface area and other particle-size data of fine powders, 6883*i*.
**Blake, R. E.** Inhibitor for photographic emulsions, P 53*b*.
**Blake, W. D.**, Wégria, R., Keating, R. P., Ward, H. P., and Brown, E. M. Effect of increased renal venous pressure on renal function, 7115*f*.
**Blakely, R. M.**, and Anderson, R. W. Influence of thiouracil on growth, fattening, feed consumption, and thyroid wt. of turkey broilers, 8466*b*.
**Blakemore, F.**, Bosworth, T. J., and Green, H. H. Industrial fluorosis of farm animals in England attributable to the manuf. of bricks, the calcining of ironstone, and the enameling processes, 3508*k*.
**Blakemore, F. T.** Sulfamic acid—paper softener and fire retardant, 8136*h*.
**Blaker, R. H.**, Badger, R. M., and Gilmann, T. S. Properties of nitrocellulose mols in soln. by light-scattering methods (I), 6888*d*.
**Blakeslee, E. B.** Testing insecticide residues against ants, 811*f*.
**Blan, L. le.** See Le Blan, L.
**Blanc.** Detn. of peanut oil in olive oil, 7722*h*.
**Blanc, D.**, and Schérer, M. Geiger-Muller counters with external cathode, 8263*e*.
**Blanc, G.** Degassing of bronzes and brasses, 1703*g*.
**Blanc, L. A.** Effect of Diesel-fuel characteristics on engine deposits and wear, 6400*i*.
**Blancato, M.** Re using soap solns., P 4877*d*.
**Blanchard, A. F.** See Parkinson, D.
**Blanchard, C. H.** See Adler, F. T.
**Blanchard, J. F.** Ca tartrate crystals in processed cheese, 3534*c*.
**Blanchard, K. C.** See Marshall, E. K., Jr.
**Blanchard, P.** Operation of slow filters, 1507*e*.
**Blanchard, R. A.**, and Chamberlin, T. R. Insecticides, including DDT, against the corn earworm and the fall armyworm in corn, 3136*a*.
——, Douglas, W. A., and Wene, G. P. DDT sprays for control of the corn earworm and budworm in sweet corn, 7183*f*.
**Blanchard Castillo, E.** Viscose spinning in different metallic salt baths, 5588*b*.
**Blanchetais, C. H. la.** See La Blanchetais, C. H.
**Blanck, A.** See Remy, H.
**Blanco, J. G.** See García Blanco, J.
**Blanco, J. R.** See Dunlop Rubber Co. Ltd.
**Bland, W. F.** Petrochemicals in the southwest, 7673*c*.
**Blandau, R. J.** See Odor, D. L.
**Blanding, F. H.** Fluidized catalyst regeneration, P 1956*c*.
**Blangey, L.** See Fierz-David, H. E.
——- and Fierz David, H. E. Anhydride of 1,5-naphthalenedisulfonic acid, 6607*d*.
**Blank, E. W.** Semimicro analysis of soap (I) semimicrodetn. of the usual constituents, 1584*f*.
——- and Kotolo, B. Semimicro analysis of soap (II) semimicro detn. of K, 3636*e*.
**Blankart, A.** Isolating vanillin, P 688*c*.
**Blankenship, F.** See Sampson, J. E.; Smith, Clifford K.
——- and Donaldson, P. Gas adsorption, 3686*d*.
**Blankmeyer, H. C.** See Stark, W. H.
**Blanks, R. F.** Better concrete for our future dams, 9409*i*.
——- and McHenry, D. Plastic flow of concrete relieves high-load stress concns., 6387*i*.
**Blanksma, J. J.** Derivs. of diphenylamine, 3799*h*.
**Blann, W. A.** Activation of anion exchangers in sugar purification, P 890*b*, purification of org. nitriles, P 1704*d*.
**Blanquet, P.** See Masquelier, J.
**Blanter, M. E.** Detn. of diffusion coeffs. in Fe alloys, 3334*b*.
**Blanton, F. S.**, Husman, C. N., Travis, B. V., and Wilson, C. S. Control of Alaskan mosquito adults by aerial sprays, 6354*h*.
**Blaricom, L. O. van.** See Van Blaricom, L. O.
**Blas, L.** Biografías y descubrimientos químicos (book), 4090*c*; Mg as a fertilizer, 6774*e*.
**Blaschko, H.** Decarboxylation of *o*-hydroxyphenylalanine, 9103*d*.
—, Bülbring, E., and Chou, T. C. Tubocurarine antagonism and inhibition of cholinesterases, 5504*h*

——, Holton, P., and Sloane Stanley, G. H. Decarboxylation of β-3,4-dihydroxyphenylserine, 2691*e*, enzymic formation of pressor amines, 8061*a*.

**Blasco López-Rubio, F.** See Rubia Pacheco, J. de la

**Blasco Santiago, E.** See Mora, A.

——, Doblas, J., and Yzu, L. Catalytic aromatization of paraffinic gasolines, 3997*d*.

—— and González-Montes, L. M. Mol. distn., 6871*c*, 7269*f*, 8299*d*.

—— and Yzu, A. Mol. distn. of voltolyzed olive oil, 4875*c*.

**Blasdale, W. C.** Secretion of farina by species of *Primula*, 5086*f*.

**Blaser, J. P.** See Marmier, P.

——, Boehm, F., and Marmier, P. Positron decay of $F^{18}$, 7320*e*.

**Blaser, R. E.** See Rigney, J. A.

**Blasiak, E.** Polish fertilizer research lab., 8504*h*.

**Blasis, M. de.** See De Blasi, M.

**Blass, J.**, and Michelowski, M. Amino acid of chick embryo, 9247*c*.

**Blatt, A. H.** Isoxazolines and isoxazoles from benzyl bromoacetophenone and *p*-bromobenzaldoxime, 7026*b*.

**Blatt, J. M.** Air showers, 1095*f*, theoretical analysis of ionization-chamber data on large air showers, 9278*a*.

—— and Jackson, J. D. Neutron-proton scattering, data, 7822.

**Blattman & Co.** Prepg. a starch degradation product, P 3502*f*.

**Blattner, H.**, Graucher, H., Kanzig, W., and Merz, W. Crystal structure of hexagonal and rhombic Ba platinate titanates, 1236*d*.

——, Kanzig, W., and Merz, W. Preparation and investigation of $BaTiO_3$ single crystals, 1414.

**Blattny, C.** Effect of the orthodinitrocresol complex, 3974*a*.

**Blatz, L. A.** See Yeaman, F. I.

**Blau, M.** Cosmic-ray photographic tracks of heavy particles, 9237.

—— and Dreyfus, J. A. Development of track emulsions by a two-bath method, 1909.

**Blauch, L.** See Weber, H. C.

**Blauth, J. O.** See Speed, J. Blauth, J.

**Blaw Knox Co.** Decomposition of cyanide waste materials, waste liquors, P 3126*f*, alkali in the nitrate, P 3750, autoclave for treating liquids, P 5270, soaking pit furnace with pusher type of burners located in the wall of the heating chamber, P 5402, recn. of aromatic hydrocarbons, P 8610*f*.

**Blay, H.** See Colón, J. A.

**Blaydon, H. E.**, Gibson, J., and Riley, H. L. Study of bituminous coal by exhaustive solvent extn. and x-ray diffraction, 3593*d*.

**Blayney, J. R.** See Hill, J. N.

**Bleakney, W.** See Marmier, P.

**Bleaney, B.** Radio frequency spectroscopy of gases, 1559*f*, paramagnetic resonance spectra of Cr chrome sulfate alums, 8879*a*, see Bagguley, D. M. S.

—— and Penrose, R. P. Pressure broadening of the inversion spectrum of $NH_3$ (II) disturbance of thermal equil. at low pressures, 9067, (III) collision cross sections for self broadening and for mixts. with nonpolar gases, 3716*g*.

**Bleary, J.**, and Hill, R. W. Speeds of diffusion pumps for gases of low mol. wt., 2042*a*.

**Blecha, E. E.** See Bryant, J. M.

**Bledsoe, R. W.**, Comar, C. L., and Harris, H. C. Absorption of radioactive Ca by the peanut fruit, 5087*c*.

**Blegen, E.** See Aas, K.

**Blegen, J. R.** See Frank, R. L.

**Bleicher, J. E.** See Hellwig, C. A.

**Bleikhman, S. O.** See Polyakov, I. S.

**Blenweis, J. L.** Ni plating provides low cost quality finish, 5213*a*, plating waste disposal, 6090, cleaning metals for plating, 8281*g*, inorg. finishes for light metals, 9903*b*.

**Blekhman, E. A.** See Rogovin, Z. A.

**Blekkingh, J. J. A.** Structure and isomers of cyclohexane derivs., 6988*a*.

**Blenkinsop, Ward, & Co. Ltd.** See Ward, Blenkinsop, & Co. Ltd.

**Blenkiron, C. H.**, Ewing, J. B., and Seddon, F. Preoperative skin antiseptics, 6305*f*.

**Blessing, W. H.** See Roberts, L. M.

**Bletner, J. K.** See Clark, T. B.

**Bleuler, E.** See Lark-Horovitz, K.

**Bleuler, H.** Removing ion-forming preservatives from liquids, P 4397*a*; deacidification of plant juices, P 4397*b*; removing fruit acids from solns., P 4398*a*.

**Blew, J. O.** Treating wood in pentachlorophenol solns., 806*e*.

**Blewett, J. P.** Induction accelerator for a proton synchrotron, 4095*h*, see Moore, W. H.

**Bley, J. A.** Frame printing, 6120*c*.

**Blicharz, S.**, and Olaszek, A. Polish rubber industry, 9512*h*.

**Blick, R. T. J.** See Askew, H. O.

**Blicke, F. F.**, and Sheets, D. G. Derivs. of thianaphthene (I), 1395*h*.

**Blickenstaff, D.**, Grossman, M. I., and Ivy, A. C. Stimulating effect of sugar, fats, and meat meals on duodenal secretion, 8028*h*.

**Blickwede, D. J.**, and Cohen, M. Isolation of carbides from high speed steel, 7883*e*.

——, Cohen, M., and Roberts, G. A. Effect of V and C on the constitution of high-speed steel, 8831*c*.

**Blinc, M.**, Šarec, M., and Spolenak, B. Starch-splitting and ring-closing action of enzymes from *Bacillus macerans*, 9511*g*.

**Blincoe, C.** See Brody, S.

**Blindenbacher, F.**, and Reichstein, T. Desoxy sugars (XIX) synthesis of L-glucomethylose 3-methyl ether and its identification with thevetose, 1728*f*, (XXI) synthesis of L-oleandrose, 1729*f*.

**Blinn, K. A.**, and Noell, W. K. Measurement of alveolar $CO_2$, 6087*a*.

**Blinoff, V.** Higher mol. alcs., P 3835*f*, see Burt, L.

**Blinov, V. A.** N. I. Planovskii, 3251*b*.

**Blinov, V. I.** Combustion of ash content coal (III), 5569*g*.

**Blinova, N. E.** Content of $CO_2$ and O in venous blood in rickets, 5486*e*.

**Bliss, A. F.** Absorption spectra of visual purple of the squid and its bleaching products, 2250*f*, chemistry of vision, 7065*c*.

**Bliss, C. I.** See Vickery, H. B.

**Bliss, D. E.** See Lindgren, D. L.

**Bliss, E. A.** See Bryer, M. S., Long, P. H.

——, Chandler, C. A., and Schoenbach, E. B. Polystyrene, 8754*a*.

—— and Todd, H. P. Comparison of eight antiseptic agents, 8004*h*.

**Bliss, H.** Waste disposal process, 7855*g*.

—— and Doljac, B. F. O. manual — thermodynamic analyses of processes dependent on low-temp. distn. of air (I), 2745*f*, (II) 3156*h*.

——, and Sussky, W. C. Hydrogenation of tall oil, P 1980*g*.

**Bliss, L. A.** See Sperberg, J. R.

**Bliss, L. E.** Intelligent filter, P 958*h*.

**Bliss, L. R.** Detg. sucrose and fiber in bagasse, 9502*a*.

**Blitzer, L.** See Cady, W. M.

**Blix, G.** Whey cheese as a source of Fe, 3834*e*, detn. of hexosamines, 6269*g*, joint physiology and pathology, 6727*h*.

—— and Pedersen, K. O. Electrophoresis and ultracentrifugation of lipide free human serum, 3052*i*.

**Blizard, E. P.**, and Debenedetti, S. Distant counting of scintillations, 3251*h*.

**Blizzard, R. H.** See Johnson, J. Enoch.

**Blizzard, W. L.**, and Hawkins, L. E. Science serving agriculture, 9330*b*.

**Bloch, A.** See Davis, H. L.

**Bloch, H. S.** Tetrabasic polyacids, P 846*l*, resins prepd. by reacting an alkyl benzene, a phenolic compd., and a dihaloalkane, P 3654*g*, phenophilic adduct resin intermediate, P 5937*c*.

—— and Hervert, G. L. Distn. of alkylated aromatic hydrocarbons contg. neutral org. sulfates, P 3187*d*.

—— and Schaad, R. L. Conversion of hydrocarbons, P 1955*h*.

**Bloch, I.** Pacific Northwest—1960, 8577.

**Bloch, K.** Biol. synthesis of lipides, 5481*a*; synthesis of glutathione in isolated liver, 8503; see Anker, H. S., Johnston, R. B.

**Bloch, M.** Spectrum of Nova Serpentis 1948, 39*d*, see Dufay, J.

—— and Echenaach, C. Spectrum of Nova Cygni 1948, 38*b*.

**Bloch, R.** See Farkas, L.

——, Farkas, L., and Stein, G. Level control instrument for brine contg. solid salt, 4903*i*.

——, Goldschmid, K., Schnerb, I., and Goldschmidt, P. Bleaching of cellulosic matter, P 3208*d*.

**Bloch, R. G.**, Gomori, G., and Sperry-Braude, M. Effect of Fe on tuberculosis, 3509*f*.

**Bloche, E.**, Guéron, J., Hering, H., and Provisor, H. Catalytic action of various metal salts on the oxidation of uranyl sulfate solns., 3745*i*.

**Blochincew, Blochinzev.** See Blokhintsev, D. I.

**Block, B.** Lime kilns, 2377*f*.

**Block, H.** See Dunn, M. S.

**Block, M. H.** See Jacobson, L. O.

**Block, R. J.** Amino acid sepn., P 3868*b*; estn. of amino acids on paper chromatograms, 5341*h*, see Winegard, H. M.

——, Bolling, D., Gershon, H., and Sober, H. A. Prepn. and amino acid compn. of salmine and clupeine, 5431*h*.

—— and Howard, H. W. Purifying casein, P 5136*d*.

**Block, S. S.** Microbial fermentation of acid hydrolyzed carbohydrate mashes, P 6782*a*; fungicide-treated cotton fabric—outdoor exposure and lab. tests, 8035*f*.

**Block, W. D.**, Geib, N. C., and Robinson, W. D. Metabolism, toxicity, and manner of action of Au compds. in the treatment of arthritis, (VIII) effect of BAL and other thiol compds. in preventing the inhibition of O consumption of rat tissues produced by Au salts, 2328*f*.

**Blokhintsev, D. I.** See Blokhintsev, D. I.

**Blockson Chemical Co.** $Na_2HPO_4.2H_2O$, P 5556*e*, noncaking alkali compns., P 6438*f*.

**Blodgett, E. O.** See Yohe, G. R.

**Blodinger, J.** See Clark, J. H.

**Bloembergen, N.** Nuclear Magnetic Relaxation (book), 4146*b*; interaction of nuclear spins in a cryst. lattice, 8273*c*.

**Bloemen, F.** Hydrolysis of cellulosic material, P 6414*i*.

**Blömer, K.** Influence of CO on readily dissociable blood iron, 318*f*.

—— and Kiese, M. Behavior of the readily dissociable blood iron in CO poisoning, 5864*c*.

**Blohm, C. L.**, and Chapin, W. F. Purification and dehydration of gases, 5571*d*.

**Blok, G.** Yeast as a material for prevention of molding and souring of butter, 9285*g*.

**Blok, H.** Viscosity of lubricating oils at high rates of shear, 4840*c*.

**Blokh, G. A.** Domestic studies in the field of synthetic rubber, 6855*c*, see Kul'berg, L. M.

—— and Zalonchikovskii, A. D. Thermal vulcanization of Na-butadiene rubber in the presence of vinyl compds., 6857*i*.

**Blokhintsev, D. I.** Wave field with mass spectrum, 3703*c*, meson retarding emission of deuterons, 5664*a*.

**Bloksma, A. H.** See Ketelaar, J. A. A.

**Blom, A. V.** Plastic, P 5832*g*; Org. Coatings in Theory and Practice (book), 9482*f*.

**Blom, J. A.** Tar and $NH_3$ pits, 5926*i*.

**Blom, R. H.** See LeMense, E. H.

**Blome, W.**, and Reichstein, T. Glycosides and aglycones (XIX) cymarylic acid, 1430*g*.

**Blomquist, A. T.** Org. Chemistry (book), 1049*c*.

**Blom-Sallin, B. S.** See Jullander, I.

**Blondeau, R.** See Crane, J. C.

—— and Crane, J. C. Maturation of Calimyrna fig fruits by synthetic hormone sprays, 2726*f*.

**Blondheim, S. H.** See Eisenmenger, W. J.

**Blondiau, L.** Expansion of cements, 2751*c*, 5565*i*.

**Blonstein, M.** See Kibrick, A. C.

**Blood, D. W.**, and Patterson, M. C. Effect of aminophyllin on coagulation time of human blood, 761*d*.

**Blood, F. R.** See D'Amour, F. E.

—— and D'Amour, F. E. Efficiency of various types of artificial respiration at high altitudes, 5122*d*.

——, Glover, R. M., Henderson, J. B., and D'Amour, F. R. Relation between hypoxia, O consumption, and body temp., 5480*e*.

**Blood, J.** See Conn, J. W.

**Blood, P. T.** See Prince, F. S.

**Bloodgood, D. E.**, and Canham, R. A. How can plant losses be detd.? 4796*k*.

—— and Hargleroad, J. C. Anaerobic decompn. of strawboard wastes, 848*d*.

—— and Losson, F. J., Jr. Removal of toxic substances from metal-plating wastes by ion exchange, 4797*a*.

**Bloom, E. G.** See Mohler, F. L.

——, Mohler, F. L., Lengel, J. H., and Wise, C. E. Mass spectra of octanes, 88*a*.

——, Mohler, F. L., Wise, C. E., and Wells, E. J., Jr. Metastable transitions in mass spectra of hydrocarbons, 8896*h*.

**Bloom, H., Harrap, B. S., and Heymann, E.**

Detn. of the viscosity of molten salts by a capillary method—system CdCl–CdBr, 4936*g*.

**Bloom, M. A.**, and Bloom, W. Effects of Ra and Pu on bone, 7135*e*.

**Bloom, W.** See Bloom, M. A.

——, Curtis, H. J., and McLean, F. C. Deposition of $C^{14}$ in bone, 4373*f*.

**Bloom, W. L.** See Baker, H., Lewis, G. T.

**Bloomberg, R.** Still improves quality of peppermint oil, 5532*i*.

**Bloomfield, A. L.** Penicillin, 3488*i*.

**Bloomfield, G. F.** Reaction of S and S compds. with olefinic substances (III) reaction of S with squalene, (IV) thermal decompn. of org polysulfides and its contribution to the S-olefin reaction, 1001*k*; (VI) factors influencing cyclic sulfide formation in the reaction of S with polyisoprenes, 4886*b*.

**Bloor, W. R.** See Flagg, J. F.; Haven, F. L.

**Bloot, J. F. T.** See N. V. de Bataafsche Petroleum Maatschappij.

**Bloss, C. H** Beverage compn., P 7606*b*.

**Bloss, C. H., Corp.** Beverage compn., P 7606*b*.

**Bloss, F. D.**, and Barth, T. F. W. Yellowstone geysers, 6131*d*.

**Blott, J. F. T.** Compn. for the construction of roads, P 6805*a*.

**Blount, E. A.** Machine-tool plating installation, 6089*i*; production plating of die cast automotive trim, 6523*a*.

**Blount, H. C., Jr.**, and Smith, W. W. Influence of thyroid and thiouracil on mice exposed to Röntgen radiation, 3111*a*.

**Blout, E. R.**, and Fields, M. Absorption spectra (VII) infrared spectra of some nucleic acids, nucleotides, and nucleosides, 4707*d*.

——, Hohenstein, W. P., and Mark, H. Monomers (book), 2813*a*

—— and Mellors, R. C. Infrared spectra of tissues, 7987*g*.

**Blow, C. M.** Estn. of small percentages of rubber in fibrous materials, 7739*b*.

**Bludworth, J. E.** First tonnage O plant ties in with petrochem. manuf., 7651*b*

—— and Easter, D. P. 1-Cyclohexyl-3-butanol and ethers and esters, P 679*d*; ethers of [1-(hydroxymethyl)cyclohexyl]-cyclohexylcarbinol, P 902*f*.

—— and Pearson, P. C., Jr. Oxidation of crotonaldehyde, P 5034*c*.

——, Robeson, M. O., and Truby, H. A., Jr. Electrolytic allyl alc., P 3300*f*.

**Blue, D. D.** See St. Clair, H. W.

**Blue, R. D.**, Hunter, R. M., and Neipert, M. P. Electrolytic cell for the production of Mg from a fused salt mixt., P 6095*h*.

**Blue, R. W.** See Regier, R. B.

**Blue, W. G.** See Sheldon, V. L.

**Bluestein, B. A.** Polysilmethylene compds. and their siloxy derivs., 568*c*; linear silmethylenesiloxane, P 3656*e*

**Blum, A. E.** See Horn, M. J.

**Blum, C.**, and Käsermann, H. Glycerol suppositories, 1528*h*.

**Blum, F.**, and Schmid, R. Action of $\alpha$-hydroxybenzylphosphinic acid and its Na salt, 1486*h*.

**Blum, J.** Photoelectrons caused by x-rays in photographic plates, 5300*a*.

**Blum, J. S.** See Blum, R. A.

**Blum, P.** Glandes endocrines et syphilis (book), 4371*e*; see Andrieux, J. L.

**Blum, R. A.**, Blum, J. S., and Chow, K. L. Production of unilateral epileptiform convulsions from otherwise quiescent foci by the administration of benzedrine, 1865*i*.

**Bluma, R.** See Delorme, J.

**Blumberg, H.** See McChesney, E. W.

**Blume, W.**, and Vogel, W. Absorption of sulfathiazole after oral and rectal administration, 6308*h*.

**Blume, W. A.**, and Spokes, R. E. Friction elements and bond therefor, P 1126*e*.

**Blumel, J.**, and Kirby, H. Amino acid constituents of tissues and isolated chromosomes of *Drosophila*, 7152*a*.

**Blumenfeld, O.** See Bodansky, O.

**Blumenthal, D. I.** See Woods, G. F.

**Blumenthal, H.** See Norton, J. T.; Proske, O.

**Blumenthal, H. T.** See Lansing, A. I.

**Blumer, A. F.** Crude still overhead system corrosion, 5178*g*.

**Blumer, M.** Water investigation with ion exchangers, 791*f*.

**Blunt, R. F.** A.c. magneto-resistance of Bi, 4066*f*.

**Bluntschli, H. J.**, and Staub, H. Influence of kidney function on the effect on blood pressure of a dehydrogenized deriv. of ergot, 3524*f*.

**Blyakher, G. S.** Analysis of results of chem. analysis, 4173*h*.

**Blyth, F. G. H.** Pyroxene from the Squilver dolerite, south Shropshire, 4606*a*.

**Blyth, R. C.** Concrete mixes, 1546*i*.

**Blythe, R. H.**, Gulesich, J. J., and Tuthill, H. L. Evaluation of hydrophilic properties of bulk laxatives, including Na carboxymethylcellulose, 8609*b*.

**Blyumenfel'd, L. A.** Absorption spectrum of naphthalene—absorption spectra of dinitro derivs. of naphthalene, 2864*c*; no. of singlet states of complicated mols., 4137*c*.

**Boag, J. W.** Electrostatic generators, 6075*i*.

**Boak, R. A.**, Fawcett, M. L., and Carpenter, C. M. Cultivation of *Treponema pallidum*, 9144*h*

**Boak, W. E.** Wire coating enamel, P 9488*b*.

**Boardman, A.** Finishing materials ingredients—alkyd resins, 899*a*

**Boardman, N. K.**, Dorman, F. H., and Heymann, E. Ds. and molar vols. of molten salt mixts., 6498*f*.

**Boari, D.** See Guareschi, G.

**Boas, A.** Crit. consts., d. and viscosity, 3678*f*, 8226*c*.

**Boas, E. P.**, and Boas, N. F. Coronary Artery Disease (book), 8525*g*.

**Boas, I. H.** Paper from hardwoods, 2768*f*.

**Boas, N. F.** See Boas, E. P.

**Boasson, E. H.** Possibility of an inorg. chem. industry in Holland, 2341*c*.

**Boas-Traube, S. G.**, Dresel, E. M., and Dryden, I. G. C. Properties of ethylenediamine 3256*h*

**Boatner, C. H.** See Eagle, E., Hall, C. M.; Williams, P. A

——, Castillon, L. E., Hall, C. M., and Neely, J. W. Gossypol and gossypurpurin in cottonseed of different varieties of *G. barbadense* and *G. hirsutum* and variation of the pigments during storage of the seed, 1998*i*

**Bobalek, E. G.** Interpolymers of monovinyl aromatic compd., monocarboxylic olefinic acid, and drying oil or acid, P 5972*b*, interpolymer produced from polyhydric alc., polybasic acid, and interpolymer of monovinyl aromatic compd., olefinic acid, and drying oil or oil fatty acid, P 6433*b*.

**Bobb, M. L.** Sprays for control of the peach borer, 8088*e*

**Bobba, P.**, Wunderly, C., and Wuhrmann, F. Electrophoresis as analytical method in clinical research, 1453*i*

**Bobeth, W.** Elasticity measurements of glass fibers, 7654*g*

**Bobkov, P. K.** Proizvodstvo kauchuka iz kok-saghyza (book), 2802*g*

**Bobolev, V. K.** See Belyaev, A. F.

**Bobrański, B.** Edward Sucharda, 1618*g*

——, Jankowski, J., and Wierzchowski, J. Chem. constitution of dermatol and airol, 1354*b*.

**Bobrik, I. P.**, and Parfenov, E. G. Continuous action filterpress, P 8758*a*.

—— and Savitskiĭ, M. A. Distn. app., P 4907*b*.

**Bobrova, M. I.**, and Sokolov, N. P. Reduction potentials of org. substances on dropping Hg electrode, 5328*c*.

**Bobrovnik, D. P.** Scapolite from cryst. limestone in granodiorite xenolith, 4187*a*.

**Bobrownicki, W.** Development of the fertilizer industry in Poland, 2724*a*; supertomasyna—phosphatic fertilizer material, 8595*a*.

—— and Kosowski, J. Polish superphosphate industry, 8595*b*.

**Bobrowski, N.** See Holliman, W. C.

**Bobrowsky, A. R.** Refractories as structural materials in continuous-combustion power plants for aircraft, 4439*a*; ceramics and ceramals as turbine-blade materials for the aircraft power plants, 7654*i*.

**Bobtelsky, M.**, and Glasner, A. Oxidation of HBr by chromic acid in the presence of $MnSO_4$, 1631*f*.

—— and Spiegler, K. S. Co halide and thiocyanate complexes in EtOH soln., 4970*g*.

**Bobyleva, A. T.** See Genkin, A. M.

**Bocchia, A.** Detg. the alkaloids in aconite and in its pharmaceutical prepns., 5535*g*.

**Bocchiotti, S.** Enzymic activity of the pancreatic tissue of dogs killed under various conditions, 4746*b*.

**Bocciardo, S.** Product used for the maceration of hides obtained by the utilization of the enzymes of the insides of fish, P 4881*i*.

**Boche, R. D.** See Bruner, H. D.

**Bochsler, A.** Water permeability of protoplasm on the basis of Fick's law of diffusion, 7089*a*.

**Bochvar, D. A.** Change of the wt. of analogous structures with the increase of their no. in superposition, 10*f*; configurations characteristic of superposition of structures, 41*f*.

——, Levitskaya, S. V., and Shemyakin, M. M. Azo coupling of bisulfite derivs. of *p*-quinones and of 1-nitrosonaphthol, 2437*g*.

——, Vinogradova, E. I., Shvetsov, Yu. B., and Shemyakin, M. M. Compds. with quinoid structures (II) reactions of bisulfite derivs. of *p*-naphthoquinones with substituted hydrazines, 615*h*

**Bock, A. de.** Measurement of the velocity of sound in liquids at low temp., 7284*a*, see Utterbeck, A. van.

**Bock, L. H.**, and Houk, A. L. Polymeric quaternary $NH_4$ salts, P 1587*d*.

—— and Rainey, J. L. Modified phenol-HCHO polymers with surface-active properties, P 1587*f*, surface-active linear polyesters, P 1588*b*.

**Bock, M.** Formation of Heinz bodies and methemoglobin by methylene blue, 7371

**Bockelman, C. K.** See Adair, R. K.

——, Peterson, R. E., Adair, R. K., and Barschall, H. H. Total cross section measurements for fast neutrons, 8260*h*

**Bocklage, B. C.** See Doisy, E. A., Jr.

**Bockman, J.** Rust removal and metal conditioning, 100*a*.

**Bockmann, O.** See Sem, M.

**Bockmühl, M.**, and Ehrhart, G. Spasmolytic and analgesic compds. (I), 4243*a*

——, Ehrhart, G., Eisleb, O., and Stern, L. Diarylalkylamino heterocycles, P 1810*e*

**Bockris, J. O'M.** H overpotential, 3276*d*, ionic solvation, 7301*e*, see Kitchener, J. A.

—— and Conway, B. E. H overpotential and the partial inhibition of the corrosion of Fe, 952*a*

—— and Egan, H. Preferential solvation in mixed solvents, 922*e*

—— and Ignatowicz, S. Electrolytic polarization (IV) effect of the solvent on the H overpotential, 503*e*

——, Kitchener, J. A., Ignatowicz, S., and Tomlinson, J. W. Elec. conf. of silicate melts—systems cont. Ca, Mn, and Al, 4936*i*

—— and Parsons, R. Hg tube effect, 481, electrolytic polarization (V) H overpotential in methanolic soln., 1085*a*

—— and Tomlinson, J. W. Constitution of melts, 7285*d*.

**Bockus, H. L.** See Seppington, T. S.

**Bočvar, D. A.** See Bochvar, D. A.

**Bodansky, O.** Influence of Mg and Co on the inhibition of phosphatases of bone, intestine, and osteogenic sarcoma by amino acids, 6743*d*, see Finkelstein, M.

—— and Blumenfeld, O. Effect of Zn on serum alk. phosphatase activity in patients with and without cancer, 5106*b*.

**Boddie, G. F.** Effects of F compds. on animals in the Fort William area, 5884*e*.

**Bode, C. E.** See Finney, K. F.

**Bode, H.**, and Ludwig, H. Chemisches Praktikum für Mediziner (book), 7127*a*.

**Bode, Hans**, Butow, K., and Lienau, G. Phosphonitrile compds. (IV) structure and the amides of the trimer, 5364*d*.

—— and Clausen, H. Phosphaun (I) phenylphosphaums, 6634*h*.

**Bode, Helmut.** See Geilmann, W.

**Bodea, C.**, and Muresanu, P. L. Stimulating action of *p*-aminobenzoic acid on the biochem. decompn. of cellulose, 3600*e*.

——, Muresanu, P. L., and Precup, E. Biochem. decompn. of cellulose, 3600*e*.

**Boden, O. M.** Filtering app. for gases, esp. generator gases, P 2476*f*

**Bodendorf, K.** Pharmazeutischen Chemie (book), 9388*b*

——, Krüger, K. J., and Zermal, F. Anesthetics resembling cocaine, 7642*h*.

——, Mildner, J., and Lehman, T. Antipyrinealdehyde and antipyrinic acid, 7476*i*.

**Bodenlos, A. J.** Barite deposits of Camamú Bay State of Bahia, Brazil, 4984*a*.

**Bodenstein, D.**, and Abdel-Malek, A. Induction of ariştapedia by N mustard in *Drosophila virilis*, 8564*c*.

**Bodenstein, W. G.** See Phillips, G. L.

**Bodforss, S.**, and Ehrlén, I. Adsorption of amine bases on activated C, 6037*d*.
**Bodine, J. H.**, and Fitzgerald, L. R. Action of ethyl carbamate on the respiration of active and blocked embryonic cells, 774*f*; effect of diethyldithiocarbamate on respiration of active and blocked embryonic cells, 2331*f*; Cu content of the egg and its distribution during the development of the embryo, 3531*c*; effect of urea, thiourea, phenylthiourea and thiouracil on the O consumption of blocked and active embryonic cells, 3988*i*, formation of a complex between certain respiratory inhibitors and Cu, 8561*i*.
**Bodkin, E. A.** Zeolytic alkali from gels, P 9299*b*.
——— and Johnson, J. M. Reactivating $SiO_2$-$Al_2O_3$ cracking catalysts, P 9426*c*.
——— and Payne, J. W. Stabilizing inorg oxide-gels against wetting, P 2746*c*.
**Bodman, G. B.**, and Mazurak, A. P. Infiltration of low-Na irrigation water in soil with dense layer, in relation to treatment with gypsum and other materials, 794*a*.
**Bodman, J. W.** Dustless powd. soaps, P 6437*i*.
**Bodmer, G.** Gas odorization, 5925*b*.
**Bodnár, J.**, and Kiss, I. Influence of tobacco on the enzymes of carbohydrate metabolism, 8407*a*
——— and Novak, L. Nicotine absorption by the smoker, 8550*a*
———, Szép, O., and Bucsy, I. Biochem. significance of Au content of dental amalgams, 9014*b*.
**Bodur, H.** Asym. dimethylsuccinic acid, 5469*e*.
**Bodyazhina, V. I.** Influence of O starvation on placental development, 4359*b*
**Böck, J.** Acetalphosphatides in the structures of the eye, 4753*j*, serum protein fractionation in normal old individuals, 8513*h*, serum protein concn. and relative albumin percentage in normal individuals, 9206*g*.
**Boeckeler, B. C.** Separator of starch and gluten, P 1204*d*, see Chemprotin Products.
**Böckh, E. M.** See Hölscher, B.
**Böckmann, K. W. F.** See Hesse, G.
**Böeseken, J.** Oxides of thiourea (IV), 1325*d*
**Bøggild, J. K.**, and Minnhagen, L. Cloud-chamber study of the disintegration of Li by slow neutrons, 4113*i*.
**Bøgvad, R.** Ordovician bentonite from the islands of Bornholm, Denmark, 8320*e*.
**Böhler, K.** Quality layer anorganischer Analysengang (book), 7870*e*
**Boehm, A. B.** Lubricating-oil improvers, 2762*d*, 5580*h*.
**Böhm, Egon**, and Technochemie A.-G. Removal of solvent from extd. material, P 5886*b*, leaching of solid materials, P 7274*b*.
——— and Zucker, J. Equipment for sapon. of fats, P 6437*a*
**Boehm, Erich.** Compns resistant to or active against microorganisms, P 352*d*.
**Boehm, F.** See Blaser, J. P.
———, Huber, O., Marmier, P., Preiswerk, P., and Steffen, R. M. Conversion of $In^{115}$ γ radiation, 4949*d*.
——— and Preiswerk, P. Dual decay of $In^{115}$, 6911*a*.
**Böhm, G.**, and Clusius, K. Structure of rising $H_2$-$O_2$ flames, 3254*c*.
**Böhm, Hans.** See Appel, H.
**Böhm, Helene.** See Beran, F.
**Böhm, J.** See Polaczkowa, W.
**Boehm, R. M.**, and Hall, H. E. Recovery of sugar precursors, P 5593*a*.
——— and Harper, J. S. Wood, plywood, and hardboard, 7683*i*.
**Böhme, H.** Detn. of mustard oils, 5345*e*.
———, Fischer, H., and Frank, R. Prepn. and properties of α-halogenated thio ethers, 7409*d*.
——— and Seil, K. Hydrolysis of halogenated ethers and thio ethers in water-dioxane mixts., 128*i*.
**Boehme, W. R.** See Huber, Wolfgang.
**Böhning, R. H.** Time course of photosynthesis in apple leaves exposed to continuous illumination, 4733*e*.
**Böhringer, H.**, and Graf, W. Rayon (III) and fiber bulk, 2778*c*.
——— J. Tech. temp. control, 2476*b*
rationalizing analysis, 5692*i*.
**Boekelheide, V.** See Berger, F. M.; Price, C. C.; Sauvage, G. L.
——— and Figueras, J. 2,4-Diketooctahydro-2-pyrido[1,2-*a*]pyrimidine, 7031*b*.
——— and Rothchild, S. Curariform activity and chem. structure (V) syntheses in the quinolizidine series, 4267*e*.
——— and Schramm, L. M. Ketones in the Erlenmeyer azlactone synthesis, 7427*a*.
**Boekenoogen, H. A.** Scheikunde der ohen en vetten (book), 883*k*; compn. of linseed oil, 4496*b*.
**Boeles, J. T. F.** See Cate, J. ten.
**Boell, E. J.** Biochem. differentiation during amphibian development, 3530*b*.
——— and Nicholas, J. S. Respiratory metabolism of the mammalian egg, 4752*e*.
**Bömmel, H.** $NH_4H_2PO_4$ crystals as ultrasonic generators, 1233*g*.
**Boer, B. de.** See De Boer, B.
**Boer, F. de.** Structure and cond. in the VI*B* group of the periodic system, 1622*d*; calcg. the Madelung potential, 2838*b*, treatment of Se for rectifiers, P 3770*b*, see Santen, J. H. van, Verwey, E. J. W.
**Boer, H.** See Wibaut, J. P.
**Boer, J. de.** Neutrino, 5659*e*; see Kronig, R.
——— and Dongen, K. van. Expts. with dihydroergotamine, 4374*h*.
——— and Kranendonk, J. van. Viscosity and heat cond. of gases with central intermol. forces, 2832*g*.
——— and Lunbeck, R. J. Quantum theory of condensed permanent gases (III) equation of state of liquids, 3678*e*; properties of the condensed phase of the light He isotope, 3679*c*.
**Boer, J. H. de**, and Ormondt, J. van. Removing CO from air and gas-mask canister therefor, P 8075*b*.
**Boersch, H.** Contrast due to atoms in the electron microscope, 481*e*, possibility of forming images of atoms in the electron microscope (III) contrast of crystal lattices and the phase contrast method in electron microscopy, 481*h*.
**Boese, A. B., Jr.** Glycidyl sorbate dimers, P 3240*h*.
——— and Young, F. G., Jr. 1,3 Diketones, P 7954*a*.
**Boetger, L.** See Bischof, W.
**Böttcher, B.** Trithiones (III), 4652*b*; see Lüttringhaus, A.
**Böttger, W.** Gravimetric and electroanalytical detns., 3309*e*.
**Böttner, H.**, and Quecke, K. Influence of antistine on the renal and nonrenal excretion of water, 9268*d*.
**Boeuf, C. F.** See Francis-Boeuf, C.
**Bogaardt, M.**, and Bottema, M. Range distribution of the α-particles of U in the photographic emulsion, 8263*d*.
**Bogacheva, G. N.** See Sadovskiĭ, V. D.
**Bogardus, J. S.** See Tepperman, J.
**Bogart, M. J. P.** See Brunjes, A. S.
**Bogart, R. F.** See Skinner, G. S.
**Bogaty, H.** Deterioration of cotton textiles exposed to the weather, 5524*f*.
**Bogdanchenko, A. G.** Multiple-action sand filter, 909*d*, duration of analyses in chem. labs., 959*g*, detn. of Cr in ferrochrome without $AgNO_3$, 965*b*, analysis of Mn and P in the same sample of cast iron, 966*f*, detn. of CO in air by combustion in a Mars furnace, 970*i*; acceleration of cast iron analysis in the blast-furnace process, 4193*f*; detn. of Cr and Ni in steel, without the use of Ag nitrate, 6038*g*.
——— and Sapir, A. D. Detn. of W in steel, 5335*a*.
**Bogdaniko, M. G. R.** See Ryk-Bogdaniko, M. G.
**Bogdanoff, C.** See Martinet, N.
**Bogdanov, A. V.** Albichthol, P 3572*c*.
**Bogdanov, I. F.** Damping material, P 3241*f*.
———, Papernov, L. Z., and Gollandskaya, E. I. Highly dispersed Ag, P 9300*a*.
**Bogdanov, M. N.** See Shilov, E. A.
**Bogdanov, N. F.** Vacuum distn. of heavy petroleum products, 1952*d*; fractional extn. of liquids, P 4907*b*; flask for vacuum distn. of high-boiling liquid mixts., P 6010*b*.
**Bogdanov, V.** Prepns. of leaven (I) theoretical basis, 9282*i*.
——— and Maksimova, A. Yeast for prevention of mold formation, 9282*f*
**Bogdanova, E.** See D'yachenko, P. F.
**Bogdanova, O. K.** See Balandin, A. A.
**Bogdanova, V. A.** Potentiometric titration in detn. of vitamin C, 5439*g*; see Manteifel, A. Ya
**Bogdarin, G. A.** See Nelman, M. B.
**Bogen, H. J.** Influence of ions on protoplasts of plants, 5091*c*.
**Boger, W. P.**, and Crosson, W. J. Effect of caronamide on excretion of phenolphthalein, 5120*h*.
——— and Wilson, W. W. Comparison of penicillin G and a biosynthetic penicillin—diffusion into cerebrospinal fluid, 2670*b*.
**Bogert, F. W.** Decoration of cans and metal containers, 871*i*
**Bogert, M. T.** International organization of chemists, 6477*i*.
**Boggiano, E. M.** See Hutchings, B. L.
**Boggs, J. K.** Hydrocarbon solvents, 2445*g*.
**Boggs, M. M.** See Johnson, G.
**Boggs, W. B.** Cu reverberatory, 1296*g*.
**Boggust, W. A.**, and Cocker, W. Chemistry of benzothiazole, 7476*a*.
**Bognár, G.** Public correlations of food chemistry, 8565*e*.
**Bogo, B.** Chlorinated paraffin and rubber, 3643*i*.
**Bogogna, G.** See Spisni, D.
**Bogojawlensky, W. W.** See Bogoyavlenskiĭ, V. V.
**Bogolyubov, K. K.** Secondary appearance of *B. coli* in chlorinated water, 1886*i*.
**Bogomolov, A. I.** See Dobryanskiĭ, A.F.
**Bogomolova, T.** See Tsuverkalov, D.
**Bogoroch, R.** See Leblond, C. P.
**Bogoslovskiĭ, B. M.** See Belov, V. N; Rodionov, V. M.
——— and Kazakova, Z. S. Prepn. of 3 isomeric nitrobenzyl ales., 6182*a*.
**Bogoyavlenskiĭ, V. V.** See Frishberg, V. D.
**Bogs, U.** From the British to the German Pharmacopeia (IV) Spiritus Aethereus in the Pharmacopeia, 5551*i*, material for a new German Pharmacopeia (II) liniments of the D. A.-B. 6 and proposals for their compounding in a pharmacopeia, 9387*g*.
**Bogue, J. Y.** Lab. design, 3665*b*.
**Bogue, R. H.** See Eubank, W. R.
**Bogunets, N. P.** See Shpeier, L. F.
**Boguńska, A.** See Dobrański, J.
**Bogushev, Z.**, Kogan, B., and Shuraev, G. Drying mucous membrane for production of pepsin, 7195*g*
**Boguslavskiĭ, N. I.** Food color, P 6371*f*.
**Boguslavskiĭ, Ya. M.** Examn. of quartz dust by luminescence analysis, 1287*i*.
**Boguslawsky.** See Boguslavskiĭ.
**Bohart, R. M.** Comparison of DDT and dichlorodiphenyldichloroethane as larvicides for *Aedes* mosquitoes, 1519*a*
**Bohlken, S. F.** Disintegration of fire bricks by CO (I) detn. of the resistance to disintegration of fire bricks, (II) disintegration of fire bricks, 1933*a*.
**Bohlman, W. S.**, and Bruce, D. S. Cr-plated rolls for colloidal mills used in the production of smokeless powder, P 2438*b*.
**Bohlmann, F.** See Inhoffen, H. H.
**Bohm, D.** Supercond., 4068*i*.
**Bohm, E.**, and Sturz, O. Detection and detn. of vegetable additives in sausages—germinated soybean material, 1876*c*.
**Bohn, A. O.** Colloids and Nellensteyn's theory of the colloidochem. structure of asphaltic bitumen and tar, 6817*d*.
**Bohne, H.** Mobilization of soil phosphates by lime in acid soils, 7623*g*.
**Bohnsack, H.** Essential oils (II) quant. isolation of vanillins from natural products—vanillin structure of similar compds., 6367*f*.
**Bohr, A.** At. interaction in penetration phenomena, 4559*b*.
**Bohr, D. F.** See Greenberg, L. D.; Pickering, R. W.
**Bohr, N.** Penetration of at. particles through matter, 4099*f*.
**Bohren, B. B.** See Ferrand, R. H., Jr.
**Bohrer, G. J.** Synthetic waxes, P 2004*b*; tetrachlorophthalic diesters, P 4513*g*.
**Bohstedt, G.** See Bowland, J. P.; Pope, A. L.; Weir, W. C.; Whitehair, C. K.
**Boichenko, E. A.** Product of reduction of $CO_2$ by chloroplast hydrogenase, 5452*f*.
**Boido, D.**, and Jacquet, B. Comparison of some pigments based on Fe oxide, 3629*c*.
**Boiffard, J. A.** See Arvy, L.
**Boig, F. S.** Domestic and foreign publications in the field of analytical chemistry—statistical analysis, 3670*g*; domestic and foreign periodicals in the field of org. chemistry—statistical analysis, 7405*h*.
——— and Fitzpatrick, W. J., Jr. Chem. periodicals in the dye and textile industries—statistical analysis, 5953*a*.
**Boige, J.** See Boinot, F.
**Boinot, F.** Formation of $SO_2$ during alc. fermentation, 3141*a*.

——— and Boige, J. Yeast culture, P 356*a*.
**Boischot, P.** See Coppenet, M., Demolon A.
——— and Barbier, G. Artificial manure and some other sources of humus, 8595*c*
———, Coppenet, M., and Hébert, J. Fixation of the phosphate ion on calcareous sands in the soil, 8592*b*
——— and Hébert, J. Fixation of arsenates by soil, 795*e*
**Boisselot, J.** Congenital malformations produced in rats by a deficiency of pantothenic acid in the maternal diet, 2683*b*.
**Boissin.** Control of H in blast-furnace gas, 6552*g*.
**Boissonnas, C. G.** See Mayor, A. R.
**Boissonnas, R. A.** Esterases (I) measurement of pancreatic lipase activity, (II) partial purification of lipase of pancreas, 2262*d*; see Meyer, K. H.
**Boiteau, P.**, Buzas, A., Lederer, E., and Polonsky, J. Chem. constitution of asiaticoside, a heteroside formerly used against leprosy, 8053*g*.
———, Dureuil, M., and Ratsimamanga, A. R. Antitubercular properties of hydroxyasiaticoside, 6319*c*.
**Boivin, A.** Two nucleic acids and their function in the constitution and life of bacterial cells, 721*g*, 3880*f*. Bacteries et virus (book), 6283*g*
———, Vendrely, R., and Tulasne, R. Specificity of nucleic acids in living systems bacteria, 9158*e*.
**Boivin, J. L.** See Gagnon, P. E.
**Boivin, M.** Mass spectrometry, 2511*a*, 3743*a*, 4971*h*; see Roudier, A.
**Bojanowski, J.**, Seniow, S., and Jędrysik, H. Purification of crude anthracene, 209*c*
**Bojesen, E.** Detn. of diodrast in blood and urine, 2661*g*.
**Bojner, G.** Continuous concn. of liquids, solns., or liquid suspensions, P 5649*b*
**Bojtschenko, E. A.** See Boichenko, E. A.
**Boken, E.** See Steenbjerg, F.
**Bokhout, B.** See Rinse, J.
**Bokhoven, C.**, Schoone, J. C., and Bijvoet, J. M. Crystal structure of strychnine sulfate and selenate (II) [010] projection and structure formula, 4918*c*, (III) [001] projection, 5254*c*.
**Bokii, G. B.**, and Distler, G. I. Dichroism of $Pt(NH_3)_3Cl_3OH$, 3683*c*.
——— and Popova, L. A. Crystal structure of Chugaev's salt, 7287*a*.
——— and Porai-Koshits, M. A. Crystal structure of $[Pt(NH_3)_4Cl_2]Cl_2$, 1535*i*
**Bokkel Huinink, H. ten.** See Huinink, H. ten B.
**Bokma, F. T.** Rubber in bituminous road constructions—applications of rubber contg. bitumen, 4443*b*.
**Bol, A.** See Verway, E. J. W.
**Boland, C. E.** Soapless and invert soaps, 1584*g*.
**Bolaños, J. F.** See Fernández Bolaños, J.
**Bolas, B. D.**, and Portsmouth, G. B. Effect of $CO_2$ on the availability of Mn in soil producing Mn deficiency, 3957*b*
**Bolcato, V.** Influence on aspergilli of some org. compds. administered as vapors, 6276*i*.
———, and Pozzi, F. Lactic-mannitol enzymes (IX) competitive action of the enzymes on pyruvic acid, 9358*f*
**Bolcs, G.** Hydrogenation of furan derivs., P 4301*i*.
**Bold, H. J. van den.** See Held, E. F. M. van der.
**Boldizsár, T.** Formation of bauxite and other mineral gels from disperse colloidal systems, 2133*e*
**Bolen, C.** See Jackman, M.
**Bolen, M.**, and Weil, B. H. Literature search on dry-cell technology, 4587*e*, (book), 956*c*.
**Boley, C. C.** Analysis of coal cleaning on a concg. table, 5922*f*
**Bolfa, J.**, Pastant, R., and Roubault, M. Synthesis of nadorite by calcination, 7199*g*.
**Bolger, J. T.** Eliminating pickling room fog, 4989*h*.
**Boliden Gruvaktiebolag.** Pb, P 2879*f*, furnace for smelting sulfide ores, P 9018*f*, Fe and S from sulfide ores, P 9018*d*
**Bolin, D. W.** See Bolin, E. M.; Brady, L.
**Bolin, E. M.**, and Bolin, D. W. Effect of thiourea on the conversion of carotene into vitamin A, 5096*e*.
**Bolker, H.** See Black, M. M.
**Boll, M.** Prepn. of I from Hg(II) iodide, 2078*g*.
**Boll, M.** Treadwell's manuel de chimie analytique (book), 4180*f*; Mémento du chimiste (books), 6501*a*, 7808*a*.
——— and Canivet, P. A. Précis de chimie (book), 932*a*.
**Bollaert, A. R.**, and Halvorsen, G. G. Decolorization and clarification of sugar liquors, P 6819*g*.
**Bolland, J. L.** Kinetic studies in the chemistry of rubber and related materials (VI) benzoyl peroxide catalyzed oxidation of Et linoleate, 5271*g*, kinetics of oleate oxidation, 6496*c*.
——— and Hughes, H. Thermal oxidation product of squalene 7405*a*
——— and Ten Have, P. Kinetic studies in the chemistry of rubber and related materials (V) inhibitory effect of phenolic compds. on the thermal oxidation of ethyl linoleate, 5271*f*, (VII) mechanism of chain propagation in the oxidation of polyisoprenes, 5271*i*
**Bolle, A.**, and Mirimanoff, A. Influence of proteins on the activity of the antiseptic mercurials, 9376*f*
——— and Zanotelli, G. Detn. of the magnetic moment of $Na^{23}$ by measurement of the nuclear induction, 4953*a*
**Bollea, G.** Poisoning by gasoline contg. Pb(Et)$_4$, 2416*a*
**Bollenbacher, K.** See Marsh, P. B.
**Bollenrath, F.**, and Grober, H. Al cast alloys contg. Cu and Sn, 91*a*, Al alloys with Mg, Sn, and Zn, 2915*c*
——— and Kiessler, H. Effect of hardening from the rolling heat in heat-treatable steels, 8328*f*
**Bollens, W. F.** Coating material, P 8576*e*
**Boller, E. R.**, Eubank, L. D., and Kepfer, R. J. Galvanizing flux, P 6450*b*
**Bolles, W. L.** Decimal classification system for chem. engineering, 6876*b*
**Bolley, D. S.** Synthetic drying oils, 2787*g*, see Houston, G. W.
——— and Gallagher, P. C. Purifying and bleaching fatty oils, P 2790*f*.
**Bolliger, A.**, and Hinks, N. F. Photolysis of pu[illegible]id, 1181*c*
——— and McDonald, N. D. Histological investigation of glycogen in skin and hair, 6719*f*, glycogen content of rabbit hair 7105*f*
——— and Peters, F. E. Pentoses in hair, 7106*g*.
**Bolliger, H. R.**, and Prins, D. A. Cryst. 3-desoxy-2,1,6-triacetyl-α-methyl-D-mannoside (1,5-), 5751*a*
**Bolling, D.** See Block, R. J.
**Bollinger, L. J.** Aryl sulfate: (I) halogenated derivs. of diphenyl sulfate, (II) nitration (III) amine derivs., 1735*b*, see Lingfors, P.
**Bollini, L. S. V. de.** See Villegas de Bollini, L. S.
**Bollman, J. L.** Influence of dietary factors on the resistance of rats to $CCl_4$, 3072*d*, chem. hepatic injury—dietary protection against $CCl_4$-induced liver damage, 3077*b*, see Flock, E. V.; Mann, J. D.; Salassa, R. M.
**Bolognesi, G.** See Cavallaro, L.
**Bolomey, R. A.** See Giles, N. H., Jr.
**Bolschakowa.** See Bol'shakova.
**Bol'shakova, A. A.** See Koton, M. M.
**Bol'shakova, G. A.** See Chernikhov, Yu. A.
**Bolt, R. O.** See McBee, E. T.
**Boltaks, B. I.** Magnetic susceptibility of the intermetallic compd. $Mg_2Sn$, 4528*f*, elec. properties of the intermetallic compd $Mg_2Sn$, 4533*f*
**Boltansky**, Griffon, H., Derobert, L., Tanret, Reymond, J. C., Éloy, and Étienne, A. Poisoning by Mg arsenide with intrapulmonary production of $AsH_3$ 3105*b*
**Bolton, E. K.** See Du Pont de Nemours, E. I., & Co.
**Bolton, H. C.** Measurement of dielec. const. in a waveguide, 4912*g*, see Yarnold, G. D.
**Bolton, J.** Sewage purification, 7613*i*.
**Bolton, M. E.**, and Marshall, A. W. Examn. of wax suspensions, 9491*f*.
**Bolton, M. S.** Aids to Forensic Pharmacy (book), 7197*g*
**Boltz, D. F.**, DeVries, T., and Mellon, M. G. Polarographic study of molybdiphosphoric and molybdisilicic acids, 5701*d*.
**Bolz, A.** See Wiberg, E.
**Bombrini Parodi-Delfino.** Treatment of wood-waste, P 3618*a*; explosive incendiary mixt., P 8682*h*
**Bommer, M.** See Hauser, H.
**Bomskov, C.** Methodik der Hormonsforchung (book), 5105*c*.
**Bona, G. A.**, and Curgo Salce, P. G. Anti knock compds., P 1558*d*
**Bona, G. B.** See Rowe, R. G.
**Bonacina, R.** See Piontelli, R.
**Bonamy, C.** See Hazard, R.
**Bonanomi, A.** See Silprandi, N.
**Bonatti, A. A.** See Lebron, E. J.
**Boncambi, C. L.** See Lippi Boncambi, C.
**Bond, A., Jr.** See Sutton, M.
**Bond, C. R.**, *et al.* Detn. of benzyl penicillin by pptn. with N-ethylpiperidine, 5817*g*
**Bond, D. C.** Halosdane treatment of oil bearing formations, P 5585*b*, see Alcorn, I. W., Bernard, G. G.
——— and Bernard, G. G. Paint remover, P 3334*d*.
——— and Russell, N. B. Effect of antifreeze agents on the formation of $H_2S$ hydrate 1673*g*.
——— and Savoy, M. Alkyl halides, P 2628*b*, breaking emulsions P 4186*b*
**Bond, G. C.**, Hirschler, R. F., and MacDonald, L. H. Stability of bacteracin, 8618*a*
**Bond, H. R.** Detn. of glycerol, ethylene glycol, and propylene glycol in a cream-type lanolin lotion 2359*g*
**Bond, R. W.** Synthesis of carbon-14-labeled tryptophan from hydantoin contg. isotope C 2114, see Hundley, J. M.
**Bond, R. L.**, Griffith, M., and Margs, F. A. P. Properties of water adsorbed in the capillary structure of coal 1167*a*
——— and Maggs, F. A. P. Rapid method for measurement of specific surface of carbonaceous powders 7298*c*, particle size and pore structure of finely ground coal chars, 7208*i*
**Bond, W. C.** See Cowan, J. C.
**Bond, W. L.** Heat-formation of gases 8762*e*
**Bondarenko, M. M.**, Krolevets, S. M., and Beryazeva, L. P. Accelerated S detn. in coal and coke, 2405
**Bondarenko, P. I.** Operation of large blast furnaces, 1957*f*
**Bondarev, K. T.** Thin layer feeding of charge, 1a 59*g*
**Bondesson, W.**, Canback, P., Ehrlen, J., Liljestrand, A., Kvist, O., Sandell, I., Soderhandle, S., and Fluchs, N. Kontrollerbok Svenska Farmakopen 1946 (book), 3151*b*
**Bondinus, F. J.** See Fieser, L. F.
**Bondi, A.** Relation between diamagnetic rotation and refractive dispersion of hydrocarbons, 2011*a*
——— and Meer, H. Lignins in some plants, 2284*i*., chem. compn. of fodder plants in Palestine, 8a 72*b*
**Bondi, A., Jr.**, and Dietz, C. C. Relation of penicillinase production to susceptibility of bacteria to penicillin 4326*g*
**Bondi, A. A.** Lubricating grease, P 7080*a*
**Bondi, M.** See Gangitano, L.
**Bondley, R. J.** Electrolytic deburring of laminated magnetic cores, P 8019*c*
**Bondon, L. A.** Insulated elec. conductor P 2010*e*
**Bondy, C.** See Revertex Ltd.
**Bondy, P. K.**, Engel, F. L., and Farrar, B. Metabolism of amino acids and protein in the adrenalectomized nephrectomized rat, 8493*e*
**Bone, J. F.** See Bell, P. H.
**Boned, J. R.** See Ramos Boned, J.
**Boner, C. J.** Thixotropic qualities of soap hydrocarbon systems, 2002*f*, soap as a lubricant, 3184*a*, lubricating greases (I) introduction, (II) processing equipment (III) Ca and Na base greases, 7219*g*, (IV) Al- and Ba-base greases, 8660*c*, (V) Li base and miscellaneous lubricating grease 8660*b*
**Bonét-Maury, P.** Detn. of the shape and structure of viruses by means of irradiation, 9165*d*
**Bonetti, A.** See Pani, P.
**Bonetti, E.** See Alossi, M.
——— and Giunchi, G. Action of an antibacterial principle produced by a micrococcus, 4327*e*.
**Bonetti, G.** See Viscontini, M.
**Bonfils, S.** See Boulin, R.; Goumelle, H.
**Bongini, O.** Indication and limits in the use of *Adonis vernalis*, 5861*c*.
**Bonham, L. D.** Alloy steels in the airplane 89*i*.
**Bonham, W. M.** Fe deposits—Labrador and New Quebec, 526*c*; nonferrous base metals in Quebec, 528*i*; magnetite in eastern Ontario, 7872*i*.

**Bonhoeffer, K. F.** Physicochem. models of life processes, 4360*c*, (book), 7531*c*; periodic chem. reactions (I), 7791*h*.
———, Brauer, E., and Langhammer, G. Periodic chem. reactions (II) cathodic polarization of Fe in $HNO_3$, 7792*a*.
——— and Gerischer, H. Periodic chem. reactions (V) anodic behavior of Cu in HCl, 7792*f*.
———, Haasé, V., and Langhammer, G. Periodic chem. reactions (III) refractory state of passive Fe in concd. $HNO_3$, 7792*d*.
——— and Langhammer, G. Periodic chem. reactions (IV) theory of the cathodic polarization of Fe in $HNO_3$, 7792*e*.
**Bonhorst, C. W.,** Althouse, P. M., and Triebold, H. O. Esters of naturally occurring fatty acids—phys. properties of methyl, propyl, and isopropyl esters of $C_8$ to $C_{18}$ fatty acids, 2164*h*, vapor-pressure app., 6473*h*.
**Boni, P.** See De Lerma, B.
**Bonicatti, M.** Chimica tessile della lana (book), 1986*a*.
**Boniece, J. R.** See Luecke, R. W.
**Bonifas, V.,** and Chesni, Y. Detn. of streptomycin in the synthetic medium of Monod, 1825*c*.
**Bonilla, C. F.** See Chowdhry, N. A.; Cropper, R. C.
**Bonino, A. F.** Detg. the industrial oil field of olives, 4875*a*.
**Bonino, G. B.,** and Mariani, E. Calcg. the osmotic coeff. of concd. aq. solns. of strong electrolytes, 4929*i*.
——— and Rolla, M. Electronic structure of quinones and quinonoid forms (I). *o* and *p*-quinonoid forms (II) benzoquinone, 4954*h*.
**Bonino, R. C. d'A. de C.** See Carnevale Bonino, R. C. d'A. de.
**Bonis, A.,** and Morov. Artificial aging of liquors, 8608*d*.
**Bonkáló, S.** Delirium caused by $PbEt_4$ poisoning, 8547*e*.
**Bonnard, Y.,** and Josso, E. Testing the resistance to cavitation-erosion, 1705*h*.
**Bonnell, L. S.** Prepn. of effective lantern slides, 8219*i*.
**Bonnell, W. S.** See Weinrich, W. W.
**Bonnemaison, L.** Chem. attack against beetles, 811*h*.
**Bonnemay, M.** Energy-distance curves of electrode-ion complexes intervening in the electrode process, 4119*c*, measuring the adhesion of electroplated surfaces, 4584*g*, detn. of the effect of temp. on a single electrode, 7836*f*.
——— and Hamelin, A. Detn. of the energy distance curve of the complex between the electrode and unsolvated ion, 5315*c*.
**Bonnén Nielsen, P.** Detn. of vitamin $D_2$, calciferol, 3871*g*.
**Bonner, D. M.** Genes as determiners of cellular biochemistry, 2260*d*; see Bonner, J.
**Bonner, J.** Limiting factors and growth inhibitors in the growth of the *Avena* coleoptile, 5831*b*; flowering in *Xanthium*, 6705*d*, relations of respiration and growth in the *Avena* coleoptile, 7555*c*, see Tang, Y. W.; Thurlow, John, Wildman, S. G.
——— and Arreguin, B. Biochemistry of rubber formation in the guayule (I) rubber formation in seedlings, 9176*i*.
——— and Bonner, D. M. Induction of flowering in *Xanthium*, 729*i*.
——— and Thurlow, J. Inhibition of photoperiodic induction in *Xanthium* by applied auxin, 6705*b*.
**Bonner, J. T.** Acrasin in the later stages of the development of the slime mold, 5124*f*.
**Bonner, L. G.** Metal parts for solid propellant rockets, 4619*g*.
**Bonner, N. A.** See Garner, C. S.
——— and Orr, W. C. Yields of Mn in spallation reactions, 8266*h*.
**Bonner, T. G., James, M. E., Lowen, A. M.,** and Williams, G. Nitration in $H_2SO_4$, 7310*e*.
**Bonner, T. W.** See DeBenedetti, S.; Evans, J. E.; Harris, J. C.; Whaling, W.
———, Evans, J. E., Harris, J. C., and Phillips, G. C. Neutrons and $\gamma$-rays from the disintegration of $C^{13}$ by deuterons, 5294*d*.
———, Evans, J. E., and Hill, J. E. Detn. of the threshold for the nuclear reaction $C^{13}(d,n)N^{13}$, 5294*c*.
**Bonner, W. A.** *S*-1-Naphthylmethylthiuronium chloride for the characterization of org. acids, 565*f*; cleavage of Ph tetraacetyl-$\beta$-D-thioglucoside with Br, 1326*g*; action of Li salts on acetobromoglucose, 5748*a*; see Zelinski, R. P.
——— and Hurd, C. D. Disubstituted desoxyalditols, P 3447*i*.
——— and Mosher, A. Identity of a-benzylphenanthrene, 1762*d*.
———, Woods, H., and Hurd, C. D. Monosubstituted desoxyglycoses, P 7507*c*, aryldesoxyglycoses and diaryldesoxyalditols, P 7507*d*.
**Bonner, W. D., Jr.** See Christiansen, G. S.; Thimann, K. V.
**Bonnet, A.,** and Coatet, P. Purifying $(Na)_2SO_4$, 5161*h*.
**Bonnet, H.,** and Nevot, A. Travaux pratiques de bacteriologie et de serologie (book), 4312*f*.
**Bonnet, L.** Ceramics, P 1166*b*, 7658*b*.
**Bonnet, P.** Anodic oxidation of Al, 4620*e*.
**Bonnet, V.** See Bremer, P.
**Bonneveaux, S. C. de.** See Castillo de Bonneveaux, S.
**Bonnevie-Svendsen, M.** See Teichert, W.
**Bonney, J. C.** Nital urats., 7229*d*.
**Bonnichsen, R. K.** Hematin and the bile pigments in catalase, 5058*g*.
——— and Wassén, A. M. Cryst. alc. de hydrogenase from horse liver, 1445*h*.
**Bonnier, E.** Detn. of heat flow with an elec. model, 2175*i*.
**Bonoldi, V.** See Mucciolo, P.
——— and Andreasi, F. Detn. of inorg. P in equine blood, 2665*h*.
**Bonrath, W.,** and Urbschat, E. Seed dressing agents employing a hydroxyphenyldiazonium compd., P 9355*a*.
**Bonsack, W.** Purification of Al and Mg, P 7403*e*, economy in production, 8998*i*.
**Bonsdorff, E.** Erythropoietins in the plasma from sheep fetuses during the latter half of gestation, 8504*d*.
——— and Jalavisto, E. Humoral mechanism in anoxic erythrocytosis, 3918*i*.
**Bonsembiante, L.,** and Cavallini, E. Oil refining, P 4842*i*.
**Bonshtedt-Kupletskaya, E. M.** Alumina hydrate from nephelite pegmatites of Vishnevye Mtns., 2897*c*.
**Bonsignore, A.,** and Ricci, C. Metabolism of nicotinamide in relation to its N-methyl derivs. and to pyridine nucleotides (II), 4551*f*, prepn. of diphosphopyridine nucleotide, 7995*h*.
**Bonsmann, M. R.** Pharmacology of cinchona alkaloids, 5114*i*.
**Bonstedt, E. M.** Same as Bonshtedt-Kupletskaya, E. M.
**Bont, R. le.** See Le Bont, R.
**Bonvallet, M.** See Ranger, M.; Traverse, P. M. de.
**Bonví, J. M.** See Mañas Bonví, J.
**Boodberg, A.,** and Parker, E. R. Transition temps. of structural steels, 6958*e*.
**Booe, J. M.** Electrodeposition of Pb-Sn-Sb alloys, P 6526*i*.
**Booge, J. E.** See Krehma, I. J.
——— and Gulledge, H. C. Org. Ti compds., P 6223*c*.
**Booker, E. E.,** and Starkie, P. D. Effect of thyroxine and iodinated casein on the development of the chick thyroid, 8482*b*.
**Booker, W. M.,** French, D. M., and Molano, P. A. Effect of prolonged thiopental anesthesia on metabolism of carbohydrate and of proteins, 7139*a*.
**Boom, E. A.** Prepn. of photomicrographic metal specimens of easily oxidizable alloys, 3761*g*, phase in the system Al-Si-La, 7886*c*, purification of Al alloys of Fe, P 9020*a*.
**Boomgaard, J. van den.** See Kröger, F. A.
**Boon, W. R.,** Calam, C. T., Gudgeon, H. and Levi, A. A. Penicillin—analysis of the crude product by a modified partition chromatogram (II) chromatographic analysis of the penicillins from two strains of *Penicillium notatum*, 2737*b*.
**Boone, P. W.** Resoln. treatment of Al alloys—improving the formability of high-strength aircraft alloys, 5718*d*.
**Boonen, H. M.** Solder, P 1712*b*.
**Boon-Long, N.** Biphenol derivs., 5017*h*.
**Boonstra, B. B. S. T.** Tensile properties of rubber at elevated and abnormal temps., 9513*g*, see Salomon, G.
——— and Amerongen, G. J. van. Pyrolytic depolymerization of rubber into isoprene, 2009*g*.
**Boord, C. E.** See Derfer, J. M., Evans, G. L.; Van Volkenburgh, R.
———, Brode, W. R., and Bossert, R. G. Lab. Outlines and Notebook for Org. Chemistry (book), 3435*d*.
———, Henne, A. L., Greenlee, K. W., Perilstein, W. L., and Derfer, J. M. Grignard reagent in hydrocarbon synthesis, 3773*g*.
**Boos, M. F.** See Maillot, E. E.
——, Maillot, E. E., and Mosier, M. Portland beryl-mica district, Middlesex Co., Conn., 4609*b*.
**Boos, R. N.** Microdetn. of MeOH, 1687*i*.
**Boot, J. C. G.** Petroleum, raw material for chem. industry, 7215*f*.
**Booth, A. D.** Location of at. positions from x-ray data, 38*f*, Fourier Technique in X-ray Org. Structure Analysis (book), 2097*a*, treatment of the diffraction of x rays from perturbed lattices, 4666*d*.
——— and Britten, K. H. V. Accuracy of at. coordinates derived from Fourier series in x-ray crystallography (V), 4918*f*.
**Booth, A. N.** See Rouse, P.
**Booth, F.** Theory of surface diffusion reactions, 3694*d*, surface conductance and cataphoresis, 7778*b*.
**Booth, F. E., Co. Inc.** Amino acid extn., P 6654*i*.
**Booth, G. M.** $ClO_2$, P 3150*f*, water filter, P 7614*f*.
**Booth, H.** See Ferguson, D. M.
**Booth, H. S.,** and Bidwell, R. M. Soly. measurement in the crit. region, 6492*c*.
——— and Everson, H. E. Hydrotropic solubilities (I) solubilities in 40% Na xylenesulfonate, 1242*d*.
——— and Jarry, R. L. Methyldichlorosilane and its fluorination products, 5739*c*.
——— and Martin, D. R. Boron Trifluoride and its Derivatives (book), 5092*g*.
———, Martin, D. R., and Kendall, F. E. Fluorination of thiophosphorylethoxydichloride, 1313*h*.
——— and Pollard, E. F. Reactions in inert, fused substances—conversion of barytes to $BaCO_3$, 367*f*, reactions in inert fused substances—conversion of celestite to Sr carbonate, 368*d*.
———, Pollard, E. F., and Rentschler, M. J. Reactions in inert fused substances—production of blanc fixe from barytes, 367*h*.
**Booth, J.,** and Boyland, E. Metabolism of polycyclic compds. (V) formation of 1,2-dihydroxy-1,2-dihydronaphthalenes, 8505*i*.
**Booth, M. F.** App. for extruding dense Al stock, P 9089*d*.
**Booth, N.** Underground gasification of coal (II) application of underground gasification methods in Britain, 3169*i*, see British Oxygen Co. Ltd.; Jolley, L. J.
——— and Jolley, L. J. Purification of coal gas, P 839*b*.
———, Wilkins, F. T., Jolley, L. J., and Tebboth, J. A. Catalytic synthesis of $CH_4$, 7402*i*, 3169*e*.
**Booth, R. B.,** and Herkenhoff, E. C. Froth flotation of Fe ores, P 3708*b*, 7402*c*.
——— and Pickens, R. A. Froth flotation of sulfide ores, P 5725*a*.
**Booth, R. G.** Characteristics of the nuclear enzymes of wheat, 4708*i*.
**Booth, V. H.** Extn. of carotene from green leaves, 9378*a*, see Harris, L. J.
**Boothe, J. H.** Amino acid derivs., P 1812*d*; 6-methylpteridines, P 1813*a*, 2-amino-4-hydroxy-6-methylpyrimido[4,5-*b*]pyrazine P 3046*e*, pteroic acid or amides, P 6673*c*, see Angier, R. B.; Hutchings, B. L.; Mowat, J. H.
**Boothroyd, A. R.,** Cherry, E. C., and Makar, R. Electrolytic tank for the measurement of steady-state response, transient response and allied properties of networks, 5317*b*.
**Boots, B. P.** See Stevens, L. C.
**Boots Pure Drug Co., Ltd.** (*Patents*) Substituted carboxamides, 688*i*, amidines, 2279*e*, 3156*e*, sulfone-substituted benzonitriles, 3846*a*, biguanide compds., 4292*g*, dienestrol, 4699*f*, purification of streptomycin, 6791*i*, sulfonic acid salts of biguanides, 7040*d*, 2-amino-pyrimidines and 2-amino glyoxalines, 7050*d*, therapeutic acridine, 8104*i*.
———, Hill, C. A., and Stevenson, H. A. Therapeutic substances, P 2738*f*.
———, Howieson, W., Stevenson, H. A., and Short, W. F. Nuclear-chlorinated phenoxyalkanecarboxylic acids, P 2233*i*.
———, Oxley, P., and Short, W. F. Amidines, P 5038*d*, heterocyclic compds., P 7512*g*.
———, Short, W. F., and Cymerman, J. Phenanthridine compds., P 5050*i*.

———, Short, W. F., and Oxley, P. Heterocyclic compds., P 5049*e*, amidines or amidine salts., P 6222*g*; heterocyclic amines, P 6670*d*.
———, Short, W. F., Partridge, M. W., and Oxley, P. Amidines, P 688*g*.
**Booty, R. G.** Synthetic resin, P 3656*b*
**Bope, F. W.**, Cranston, E. M., and Gisvold, O. Pharmacol. investigation of the tannin obtained from *Pinus caribaea*, 759*g*.
——— and Gisvold, O. Phytochem investigation of the tannin obtained from *Pinus caribaea*, 8719*b*.
**Bopp, F.** Electron theoretical investigation of the mass spectrum of elementary particles, 6904*i*.
**Boquet, A.** See Calmette, A.
**Borbiro, M.**, and Szent-Gyorgyi, A. Relation between tension and ATP in cross-striated muscle, 6247*g*.
**Borbolla, M. de los A. C. de R. de la.** See Camoyán de Rodriguez de la Borbolla, M. de los A.
**Borbolla y Alcalá, J. M. R. de la.** Effect of Cl on plants, 6284*h*.
——— and Camoyán de Rodriguez de la Borbolla, M. de los A. Prepn. of solns for investigations in plant nutrition, 4351*a*.
——— and Gómez Herrera, C. Rancidification of olive oil (I) specific action of agents producing spontaneous rancidification and of prooxygens, (II) joint action of agents producing spontaneous rancidification and prooxygens, (III) influence of light of various wave lengths, 8707*h*.
**Borchers, R.**, Ackerson, C. W., and Mussehl, F. E. Trypsin inhibitor (VI) effect of various heating periods on the growth-promoting value of soybean oil meal for chicks, 286*i*.
———, Ackerson, C. W., Mussehl, F. E., and Moehl, A. Trypsin inhibitor (VIII) growth-inhibiting properties of a soybean trypsin inhibitor, 2680*i*.
**Borchert, W.** Coloring of halite by x rays, 7871*a*; den. for Patterson analyses, 8847*a*.
**Bordas, J.**, Mathieu, G., and Huguet, Mme. F. Soil and the improvement of the marshes of Morestel, 8589*c*.
**Bordea, A.** See Arventi, B.
**Borden, G. C.**, and Gutkin, S. S. Resins for Paper Converter (book), 1979*b*
**Borden Co.** Vacuum treatment of milk powder, P 1124*a*; synthetic estrommetic agents, P 1534*b*; purifying casein, P 5136*d*, molding thermoplastic and thermosetting plastic materials, P 5633*f*; removing ultimate moisture from powd. products, P 6332*i*; forming protein comps., P 6337*i*.
**Borders, A. M.**, Wolfe, W. D., Osterhof, H. J., and Walton, C. W. Polymerization, P 2805*e*.
**Borders, B.** See Marple, K. E.
**Borders, C. R.** See Kremen, S. S.
**Borders, H. I.** Effectiveness of certain fungicides in control of late blight of tomato, 4412*i*.
**Bordiga, A.** Influence of riboflavin on the oxidative metabolism of the cryst. lens, 3503*e*.
**Bordwell, F. G.**, Lampert, B. B., and McKellin, W. H. Thionaphthene chemistry (III) reaction of 2,3-dibromo-2,3-dihydro- and -bromothianaphthene 1-dioxides with secondary amines, 8379*c*.
——— and Rondestvedt, C. S., Jr. Mechanism for the reaction of dioxane sulfotrioxide with olefins (II) sulfonation of styrene, 172*a*.
**Borei, H.** Action of 1,2-propanediol phosphate on respiration in intact sea-urchin eggs, 3112*f*; respiration of oöcytes, unfertilized eggs, and fertilized eggs of echinoderms, 3112*h*, independence of post-fertilization respiration in the sea-urchin egg from the level of respiration before fertilization, 6321*c*.
———, Carlstrom, G., Monath-Hansson, H., and Lundqvist, B. Comparison between sperm lysin, leucotaxine, and detergents as to their capacity to hemolyze and to increase capillary permeability, 3112*g*.
——— and Lybing, S. O uptake of *Asterias* embryos before hatching, 4777*i*, temp. coeffs. of respiration in *Pasammechinus* eggs, 6321*a*.
——— and Renvall, S. Action of oxidases on dimethyl-*p*-phenylenediamine, 4707*f*
**Borek, E.**, and Waelsch, H. Glutamic acid antimetabolites—sulfoxides and sulfons derived from methionine homologs—β-hydroxyglutamic acid, 3499*h*.
**Borelius, G.** Kinetics of transformations in solids, 5650*e*; transitions in supercooled metallic solns., 8254*d*.
——— and Larsson, L. E. Kinetics of pptn. in Al-Zn alloys, 542*c*.
——— and Säfsten, K. M. Evolution of heat during the pptn. in a Pb-Sn alloy, 544*b*.
**Borell, L. C.** See Coulter, G. L.
**Borell, U.**, and Holmgren, H. Effect of methylthiouracil on the O consumption of the thyroid, liver, and kidneys, 8054*b*.
———, Westman, A., and Örström, Å. Functions of the hypophyseal diencephalic system and of the ovaries by means of radioactive P, 3913*d*.
**Borenstein, M. K.**, and Schwartz, C. Effect of the complex-forming amorphous Na phosphates on the Ca retention, 1407*h*.
**Borenstein, P.** See Justin-Besançon, J.
**Bores, C. S.** See Sequeiros Bores, C.
**Boreskov, G. K.** Effect of heat and material transfer on the rate of contact reactions, 3698*g*.
———, Borisova, M. S., Dzis'ko, V. A., Kiselev, A. V., Likhacheva, O. A., and Morokhovets, T. N. Effect of the temp. of firing on the structure of various types of silica gels, 1628*d*.
———, Ritter, L. G., and Volkova, E. I. Heating-up temp. of V $H_2SO_4$ catalysts, 8251*f*.
**Borettl, G.** Activation heat of peptidases from tumor and normal tissues, 5105*f*.
**Borezée, R.** See Mouton, M. J.
**Borgarello, G.** Histologic changes of endocrine glands caused by insulin, 2328*a*.
**Borgatti, G.** Chemistry of striated muscle after castration, 2692*i*.
**Borgó, J.** Water purification, 790*e*.
**Borges, P. R. F.** Mammary tumor milk agent given to female mice following splenectomy and vital staining, 8047*i*.
**Borgese, G.** Linoleumlike compn., P 4874*f*, see Beltrami, V.
**Borges Trajano, R.** Mineral pigment from João Pessoa, Paraíba State—its refining and project for a mill, 7716*i*
——— and Benedito de Araujo, J. Beneficiation of chromite ores, 2907*b*
——— and Carlos Wahle, S. Metallurgical treatment of Au in Minas Gerais, 2905*i*.
**Borget, M.** Parasitic fungi of *Hevea* in Indo China, 5891*i*.
**Borghero, A.** Na pyrocatechol disulfonate and urinary elimination of Pb in intoxication, 1860*b*, action of Na pyrocatechin disulfonate in porphyrinuria caused by Pb poisoning, 4376*f*.
**Borghetti, U.** Genito mammary tumors and an ideoplasmatic factor, 299*b*
**Borghetty, H. C.** Auxiliary products in dyeing, 2775*h*, detergents in the textile industry, 5976*e*.
**Borghi, M.** Distribution of the sugar, etc., in beets, 9503*b*, ion exchangers in the sugar industry, 9503*d*
**Borght, A. van der.** pH in oenology, 8606*e*
**Borgin, G. L.** Mol. properties of water-sol. polysaccharides from western larch, 6823*b*
**Borgioli, N.** See Talenti, M.
——— and Iacozzilli, R. Detn. of K and Na in aq. soln. by org. reagents, 4178*g*.
**Borglin, J. N.** Naval stores chemicals in the disinfectant field, 9378*i*, polymerizing butadiene in aq. emulsion in the presence of an alkali metal salt of hydroxytetrahydroabietic acid, P 896*b*; stabilization of terpene polymers, P 3235*i*.
**Borgmann, K.** pH measurements in the pharmaceutical lab. and in the field, 1905*h*.
**Borgnis, F.** High-temp. measurements on dielec. substances in the region of cm. waves, 7204*e*.
**Borgolte.** Pb in drinking water and its hygienic importance, 3952*c*.
**Borgo S., J. dal**, and Weibel S., J. Guterman's reaction for the diagnosis of pregnancy, 7993*d*.
**Borgström, B.** Detoxification of benzoic acid by glucuronic acid under normal conditions and in liver disease, 6300*g*.
**Borgstrom, E.**, and Gallagher, T. F. Partial synthesis of compds. related to adrenal cortical hormones (XI) reactions of ring C ketols in the prepn. of an 11-keto bile acid, 4679*d*.
**Bori, V. D.** Nicotinamide in human milk, 1852*f*.
**Boriani, A.** Digitalislike action of *Nerium oleander*, 818*e*; synergistic action of sparteine and adrenaline, 3518*b*; variation of the coagulation time of blood plasma by sympathicomemetic agents, 7136*h*.
**Boris, F.**, and Mardones, J. Effect of simultaneous administration of Ca ion on the lethal dose of *Digitalis lanata* glycosides, 5872*i*.
**Borišek, R.** See Slávik, J.
**Borisenko, A. I.** See Toropov, N. A.
**Borisevich, I. V.** Tensimetry of artificial hydrargyllite, 975*g*.
**Borisov, A. E.** See Nesmeyanov, A. N.
**Borisov, N. V. K.** See Khromov-Borisov, N. V.
**Borisov, V. P.** Food fat detn., 9285*e*.
**Borisova, K. V.** See Korshak, V. V.
**Borisova, M. S.** See Boreskov, G. K.
**Borisova, N. P.** See Rudakov, G. A.
**Borisova, T. I.** See Rakov, A. A.
———, Ershler, B. V., and Frumkin, A. N. Detn. of the zero points of solid metals from measurements of the capacity of the double layer, 470*i*.
**Bork, A. Kh.** Properties of catalytically active surfaces on the basis of the kinetics of unimol. reactions, 2498*d*.
——— and Markova, O. A. Dependence of relative adsorption coeffs. on temp. and the extent and nature of the catalyst surface, 2498*c*.
**Borkenhagen, R. H.** See Keil, Havard L.
**Borker, E.** See Ishler, N. H.
**Borkowski, C. J.** Instruments for measuring radioactivity, 5288*a*.
**Borland, J. H.** See Queneau, P. E.
**Borland, J. W.** See Myers, A. T.
**Borman, E. K.** See Bernsohn, J.
**Born, G. V. R.** Detn. of barbiturates in tissues by ultraviolet absorption spectrophotometry, 9134*k*.
**Born, M.**, and Cheng, K. C. Theory of supercond., 6879*g*.
——— and Rodriguez, A. F. Meson masses and the principle of reciprocity, 5277*f*.
**Borneman, E. H.** See Marcn, S. H.
**Bornhauser, O.**, and Akku-Consortium. Depolarization of galvanic elements with water sol. substances, P 6098*a*.
**Bornmann, G.**, and Loeser, A. Action of papaverine on the intestine, 7131*i*.
**Bornstein, J.** See Huntress, E. H.
——— and Nelson, J. F. Effect of hypophysectomy on glycogen deposition in isolated muscle, 3556*a*, effect of high fat diet in alloxan diabetic rats, 9234*c*.
**Borodkin, V. F.** Chloro derivs. of 2-nitrodiphenylamine, 6175*c*.
——— and Mal'kova, T. V. Alkalimetric detn. of 2,3,6,8-carbazole tetrasulfonic acid, 9736, hydrolysis of 3-carbazolesulfonic acid, 6205*b*, carbazoletrisulfonic acid, 6205*c*.
———, Mal'kova, T. V., and Nikol'skaya, N. N. Reduction of chloronitrodiphenylamines with $Na_2S$, 1734*c*.
**Boroff, D. A.** Toxins and antigens of *Shigella dysenteriae* (I) toxicity and antigenicity of whole organisms and various fractions of *Shigella dysenteriae*, 7082*e*.
——— and Macri, B. P. Toxins and antigens of *Shigella dysenteriae* (II) active protection of rabbits with whole organisms and fractions of *Shigella dysenteriae*, 9228*f*
**Borok, B. A.**, and Ol'khov, I. I. Powder Metallurgy (book), 5350*i*.
**Borovička, M.** See Protiva, M.
**Borovik, E.** Heat cond. of N, 3253*c*.
**Borovik, S. A.**, and Borovik-Romanova, T. F. Effect of total compn. on the intensity of Li lines in the spectrum of a sample, 2544*h*.
——— and Indichenko, L. N. Spectrographic analysis of microscopic inclusions, sediments, and ppts., 6933*h*
**Borovik-Romanova, T. F.** Detn. of Li in soils, 9318*i*, see Borovik, S. A.
**Borovskil, S. P.** Detg. the flow of gases from drill holes, P 8758*d*.
**Borowitz, S.**, and Hamermesh, M. Depolarization of neutrons during diffusion, 1645*e*.
**Borrallo, P.**, and Rivas, S. Relation between the increment of ash and the degree of extn. of wheat flour, 7590*c*.
**Borrell, S.** Phys. consts. of milk and their application to food control, 9278*h*.
**Borro, E. F.** Low-pressure molding phenolics, 9524*g*.
**Borsche, W.** Classification of org. C compds., 105*i*.
**Borsdika, A. M.** See Borzdyka, A. M.
**Borsodi, L.** See Horn, Z.
**Borsook, H.** See Dubnoff, J. W.
———, Deasy, C. L., Haagen-Smit, A. J., Keighley, G., and Lowy, P. H. Deg-

radation of L-lysine in guinea pig liver homogenate—formation of α-aminoadipic acid, 3082*f*; degradation of α-aminoadipic acid in guinea-pig liver homogenate, 3082*i*; peptide fraction in liver, 7519*e*; incorporation of labeled lysine into the proteins of guinea-pig liver homogenate, 8029*h*.

**Borst, L. B.** See Floyd, J. J.

——— and Floyd, J. J. Radioactive decay of $K^{40}$, 485*f*

———, Fox, M., Gurinsky, D. H., Kaplan, I., Powell, R. W., Williams, C., and Winsche, W. E. Nuclear reactor at the Brookhaven National Lab., 3280*i*.

**Borsuk, V. N.** Repression of ascorbic acid synthesis in rabbit under hypoxic conditions, 4740*e*; ascorbic acid in bird ontogenesis, 4748*h*.

**Borthwick, H. A.** See Parker, M. W.

**Bortnick, N. M.** Nitriles, P 2220*d*.

——— and Butterbaugh, D. J. Methacrylonitrile from α-amino-isobutyraldoximes, P 6647*h*.

——— and Cannon, G. W. Methacrylonitrile, P 6647*i*.

**Borts, I. H.** Water-borne diseases, 8077*f*

**Borus, B.** C remover and metal-surface cleaning compn., P 6439*b*

**Borysowski, Z.** See Gurney, C.

**Borzdyka, A. M.** Causes of the high heat resistance of coarse-grained chrome-Ni austenite, 85*g*, temp. dependence of the modulus of elasticity of steels, 7396*a*; influence of alloying elements on the heat resistance of chrome-Ni austenite, 8332*f*

——— and Fstulin, G. V. Heat resistance of ferronichrome and nichrome, 4206*b*

**Borzini, G.** See Ciferri, R., Marini Bettòlo, G. B.

——— and Ciferri, R. Disinfecting property of two Italian antierythogams used for cereals, 8595*b*

——— and Malquori, A. Chem. reactivity and fungistatic action of S, 5143*e*.

——— and Marini Bettòlo, G. B. Mechanism of fungistatic action (II) biol. action of some triphenylmethane dyes in relation to their state of oxidation and to the presence of sulfonic acid groups, 8435*h*.

**Borzyak, P. G.** See Morgulis, N. D.

——— and Morgulis, N. D. Optical and photoelec. properties of Ag O-Cs cathodes, 4557*i*.

**Bos, C. J.** See Waterman, N.

**Boscardi, F.**, and Gualandi, G. Behavior of the lipoprotein complexes in the serum in luetic infections, 3920*b*

——— and Petrillo, F. Toxicity of DDT to the larvae of trematodes and to intermediate molluscan hosts, 1111*d*

**Bosch, F. de A.**, and Alvarez Querol, M. C. Detn. of N, 1285*h*

**Bosch, F. M.**, and Haemers, H. Crucibles for high-frequency furnaces, 2391*n*.

**Bosch, J. C. van den**, and Berg, G. J. van den. Zeeman effect in the arc and first spark spectrum of U, 8272*i*.

**Bosch, J. van den.** Application of O in large quantities for the manuf. of illuminating and synthesis gases from coal, 3595*a*.

**Bosch, V. vanden.** See Vandenbosch, V.

**Bosco, I.** Il sangue nella sifilide (book), 3925*i*.

**Boscott, R. J.** Color and fluorescence reactions in the steroid and synthetic estrogen series, 3870*e*, dehydration effects in the analysis of steroids, 7865*b*

———, Mundl, A. M., Danelli, J. F., and Shoppee, C. W. Cytochem. demonstration of ketosteroids, 3184*g*

**Boscq de Beaumont, H. du.** See Beaumont, H. du B. de.

**Bose, Akshayananda.** Paramagnetism of single crystals of the salts of the Fe group of elements at low temps. (II) inversion of the Stark patterns for six-coördinated $Ni^{++}$ and $Co^{++}$ ions and four- and six-coördinated $Co^{++}$ ions, 2479*h*.

**Bose, Amalendu.** See Chatterjee, N. N.

**Bose, A. K.**, Dasgupta, A. K., Chakravarti, K. K., and Siddiqui, S. Rosin acids (I) conversion of the primary rosin acids into *l*-abietic acid, 2977*h*.

**Bose, A. N.** Variation of abs. viscosity with concn.—org. solutes in nonaq. solvents, 8213*b*; variation of abs. viscosity with temp.—org. solutes in nonaq. solvents, 8213*c*; see Chatterji, A. C.

——— and Ray, N. Effect of sulfanilamide derivs. on the dehydrogenase system of resting *E. coli*, 9154*g*.

**Bose, H. N.** Chrome-Sn pink color, 2391*a*.

**Bose, Harendra N.**, and Chakraborty, D. C. Bactericidal action of metallic Cu on *Vibrio cholerae*, 9154*h*.

**Bose, Harsha N.** Luminescence of some org. compds. under x-ray excitation, 2516*d*

**Bose, I. B.**, and Bhattacharya, A. Assay of quinine in pharmaceutical prepns., 3564*i*.

**Bose, P. K.** See Basu, S.

**Bosio, M.** See Venturello, G.

**Bosland, H. S.** See La Piana, F. G.

**Bosly, J.** Detn. of theophylline, 6786*b*.

**Bosma, G. S. K.**, Meerburg, W., and Verkade, P. E. Alkoxyammonitrobenzenes (IV) nitration of 1 alkoxy-2 (arylsulfonamido)benzenes, 166*f*.

——— and Verkade, P. E. Alkoxyaminonitrobenzenes (V) fission of the Me group in the nitration of 1 alkoxy-2-[(*p*-tolyl sulfonyl)methylamino] benzenes with dil. $HNO_3$, 167*f*

**Bošnjaković, F.** Technische Thermodynamik (book), 8842*d*.

**Bosquet, M. le, Jr.** See Le Bosquet, M., Jr.

**Boss, A. E.** Adaptability—tool for production development, 3117*e*.

**Boss, G.** See Baillod, P.

**Boss, G. H.** Max. C in gas-carburizing, 2111*e*, is hardenability of B steels indirectly due to complete deoxidation? 2146*i*.

**Boss, M. L.** See Schopfer, W. H.

**Bossak, E. T.**, Gordon, A. S., and Charipper, H. A. Influence of endocrine factors on hemopoiesis in the adult frog, 3530*e*

**Bossak, H. N.**, Rosenberg, A. A., and Harris, A. Detn. of spinal-fluid protein, 4324*a*.

**Bossard, W.** Polyazo dyes, P 3204*e*

**Bosse, R.** See Kuntzel, A.

**Bosserhoff, H.** Prepn. of solns for injection, 6783*d*

**Bossert, F.** See Zinke, A.

**Bossert, R. G.** See Boord, C. E.

**Bosshard, W.** See Hartmann, M.

**Bosshardt, D. K.** See Skeggs, H. R.; Westfall, R. J.

———, Paul, W. J., O'Doherty, K., and Barnes, R. H. Caloric restriction and protein metabolism in the growing mouse, 1469*a*.

———, Paul, W. J., O'Doherty, K., Huff, J. W., and Barnes, R. H. Mouse-growth assay procedures for the animal protein factor, 7098*c*.

**Bossi, A.** Hollow bodies made with cellulose derivs., P 1187*h*.

**Bostick, W. C.** See Pickering, R. W.

**Boston Woven Hose & Rubber Co.** Plasticizing vulcanized-rubber scrap, P 3230*b*, built-up thermoplastic sheet material, P 3235*e*, fractionation of rubber tire scrap, P 4046*a*.

**Bostwick, H. C.** Sintering furnaces and atms. for powder metallurgy, 3327*i*.

**Boswell, A. L.** See Smith, E. F.

**Boswell, J. G.** Measurement of H ion concn. in soils, 3955*g*.

**Boswell, W. E.**, and Jorczak, J. S. Properties of Thiokol PR-1, 7255*b*

**Bosworth, R. C. L.** Viscosity of liquids, 12*e*, sigma phenomenon, 405*f*, distribution of reaction times for laminar flow in cylindrical reactors, 4084*c*; corrosion of surfaces heated above the b. p. of the corrodant, 6141*f*, thermal conductivities of fluids, 6499*e*.

**Bosworth, T. J.** See Blakemore, F.

**Bot, J. le.** See Le Bot, J.

**Botchvar, D. A.** See Bochvar, D. A.

**Botden, T. P. J.**, and Kroger, F. A. Energy transfer in sensitized $Cu_3(PO_4)_2$-Ce-Mn and $CaSiO_3$-Pb-Mn, 3721*k*.

**Botella Llusiá, J.**, and Maldonado del Castillo, A. Sensibilization of the oxytocic action of pituitrin by novocaine, 14868*b*.

**Botero Restrepo, G.** Reconnaissance of the Quindio cinnabar deposit, Cajamarca municipio, El Tolima department, Colombia, 525*f*; El Tascon Cu deposit, Anserma municipio, Caldas, Colombia, 525*h*, La Plombagina deposit of Cu and Mo—Anserma municipio, Caldas department, Colombia, 526*a*, La Palma Sb deposit, Riosucio municipio, Caldas, Colombia, 526*b*.

**Botet, E. L.** See López-Botet, E.

**Botha, D. H.** See Gunn, D. L.

**Botham, G. H.**, and Dummett, G. A. Corrosion by com. Na hypochlorites and its inhibition, 8341*c*.

**Bothe, W.** Activities generated in Mg by deuterons, 6506*g*; artificial radioactivity of the rare earths through thermal neutrons, 6911*b*; single scattering of electrons, 8269*g*; theory of neutron deceleration, 8845*h*.

——— and Ho, Z.-W. Single scattering and annihilation of fast positrons, 7325*h*.

**Botkin, C.**, and Shifkin, S. C. Diazotype material, P 4593*b*.

**Botkin, C. W.**, and Duisberg, P. C. Nordihydroguaiaretic acid content of the creosote bush, 9174*f*

——— and Shires, L. B. Compn and value of pinon nuts, 9290*g*.

**Botló, V.** Detn. of heating value of coal, 8117*h*

**Botschwar, D. A.** See Bochvar, D. A.

**Botsford, C. B.**, and Mosier, M. West Portal magnetite mines, Hunterdon Co., N. J., 74*e*.

**Botson, R.** Detergent, P 4022*e*

**Bottaro, G.** Soap extn. of unsaponifiable matter, P 3638*f*, making and sepg. exts. from liquid and solid materials, P 3669*c*; prepn. of emulsions without emulsifying agents, P 5516*i*.

**Bottema, M.** See Bogaardt, M.

**Bottero, E.** Extn. app. for vegetable oils, 5973*d*.

**Botteron, D. G.** Vinyl ethers, P 4683*b*.

**Bottger, G. T.**, and Gertler, S. I. *N*-Substituted *m*-nitrobenzamides as insecticides, 7181*h*, *N*-substituted phthalimides as insecticides, 7182*c*.

——— and Yerington, A. P. Synthetic org. compds. as insecticides (V), 1896*b*; *N*-substituted *p*-nitrobenzamides as insecticides, 2357*f*.

———, Yerington, A. P., and Gertler, S. I. Phenylhydrazides as insecticides, 5525*i*.

**Botti, E. C.** See Kromer, A. E.

**Bottini, E.** Minor elements of soils (I) B in plant life, 5891*d*, adsorption compds. of soils in relation to their reaction and the chem. fertility grade, 5891*f*, advances in agricultural chemistry, 5892*b*.

**Bottini, O.** $NH_4$ nitrification in soils, 4800*i*.

——— and Lisanti, I. Chem. compn of the colloidal fraction of Italian soils, 5891*c*.

**Bottoms, A. M.** See Stephens, W. E.

**Botvinkin, O. N.**, Liozynanskaya, S. G., Grinkot, R. I., Vizental, I. B., and Degtev, V. M. Multilayer glass, P 6386*f*.

**Botvinko, M. E.** See Bulychev, G. G.

**Botvinnik, M. M.**, Gaukhman, G. Va., and Severin, I. S. Test for β-hydroxy-α-amino-acids and serine, 2124*d*.

**Bouas, R.** See Beltran, E.

**Bouchard, F. J.** Chlorinated rubber, P 2024*e*, halogen derivs. of rubber and rubberlike materials, P 2024*f*.

**Bouchard, G.** See Heitzmann, P.

**Bouchardy, M.** See Siefert, L.

——— and Mirimanoff, A. Drying by infrared radiation in the field of pharmacy, 4423*f*, moisture content of dry exts.—use of infrared rays, 5535*e*.

**Bouchayer, H.** Chem. and semichem. pulps prepd. with Na sulfite, 5947*h*.

**Boucher, D. F.** Fluid dynamics, 1227*h*; pressure drop across tube banks, 4903*g*.

**Boucher, P. L.** Stainless steel wire filter assembly, P 2476*e*; rotary self-cleaning water filter, P 3548*h*.

**Bouchet, G.** See Meyer, Andre.

**Bouchez, R.**, Daudel, P., Daudel, R., and Muxart, R. Variation of the period of $Be^7$ as a function of the degree of ionization of the atom, 4117*e*.

———, Daudel, P., Daudel, R., Muxart, R., and Rogozinski, A. Effect of degree of ionization on the period of $Be^7$, 8806*b*.

——— and Kayas, G. Sepn. of traces of Na from a large quantity of Mg, 6078*b*; abs. radiation intensities emitted by $Cu^{61}$ and $Cu^{64}$, 7329*i*.

**Bouchilloux, S.** See Roche, J.

———, Derrien, Y., Roche, J., and Roger, M. Soly. curves in sepn. of active protein fractions in enzyme prepns.—phosphatases, 1451*e*.

**Boudet, R.** Action of heat and several oxidants on *N*-benzyl aryl thio amides, 4652*d*; *N*-benzyl thio amides (I), 6595*h*.

——— and Rambaud, R. Mol. refraction and S compds.—increments of S, 13*a*.

**Boudet, V.** See Flanzy, M.

**Boudnikoff, P. P.** See Budnikov, P. P.

**Boudnitzky, S. M.** See Budnitskiĭ, S. M.

**Bougault, J.**, Cattelain, E., and Chabrier, P. Action of Na amalgam on the semicarbazones of keto acids, 139*i*.

**Boughton, W. A.**, Dawes, C. L., and Mansfield, W. R. Composite bonded sheet insulating material, P 1612*c*.

**Bouissieres, G.** See Camarcat, M.
**Boulanger, Charles**, Leroy, C., and Société anon. de materiel de construction S from CaS, P 4822*g*.
**Boulanger, Christian.** Portevin Le Chatelier phenomenon in soft steels and its relation to the aging of a cold-hardened test bar, 7883*a*.
**Boulanger, P.** See Driessens, J.
———, Biserte, G., and Swyngedauw, J. Electrophoretic sepn. of products of peptic digestion of proteins, 6250*d*.
——— and Osteux, R. Kidney *d*-amino acid dehydrogenase activity and alimentary riboflavin intake in rats with grafted Guérin epithelioma -flavoproteins and alimentary riboflavin in rats with Guerin epithelioma, 1477*h*; characterization and detn. of *d*-glutamic acid in the proteins of normal and neoplastic tissue and of microorganisms, 9126*i*.
**Bould, C.** Availability of N in composts prepd. from waste materials, 342*g*.
**Boulin, R.** Glucemia in diabetic coma, 9224*d*, see Verne, J.
———, Uhry, P., Meyer, F. W., and Bonfils, S. Treatment of diabetic coma and biochemistry of sugar metabolism, 8060*g*.
**Boullé, A.**, and Dominé-Berges, M. Reversibility of the reaction $3UO_3 \rightleftarrows U_3O_8 + O$, 4128*c*; prepn. of $UO_3$ and the study of its decompn., 7354*e*.
**Boultbee, T. H.** See Hume Rotherv, W.
**Boulton, J.** Dyeing of rayon, 9454*h*.
——— and Armfield, W. Fiber maturity of cotton differential dyeing test, 7689*d*.
**Bouma, P. J.** Couleurs (book), 5194*a*.
**Bounameaux, Y.**, and Goffart, M. Anticholinesterase activity of caffeine, 4380*i*.
**Boundel, A. A.** See Bundel, A. A.
**Bouquet, F.** See Féron, F.
——— and Paquot, C. Higher fatty acylons and of some derivs., 3791*g*.
**Bourbeau, G. A.** See Jackson, M. L.
**Bourbon, P.** See Brustier, V.
**Bourdillon, J.** Hemagglutinins from Papilionaceae and from influenza virus, 8001*d*, cryst. protein from com. beans, 9169*a*.
**Bourdiol, M.** Solidifying oleic acid compds., P 1202*c*.
**Bourdon, D.** Semimicrodetn. of K based on the pptn. of $K_2NaCo(NO_2)_6$, 6939*i*.
——— and Cotte, J. Adsorption of molybdic acid by $NH_4$ phosphomolybdate, 8071*c*.
**Bourdouil, C. S.** See Sosa Bourdouil, C.
**Bourgeat, J. C.** See Creveaux-Bourgeat, J.
**Bourgeois, E.** Influence of octane no. on the development of French industry, 8054*h*.
**Bourguignon, Mme. J.** See François, M. J.
**Bourguignon, P.** See Anzani, P.
**Bouricius, G. M. B.** See Bender, R. S.
**Bouricius, W. G.** See Brett, G.
**Bourkser.** See Burkser.
**Bourland, J. F.** See Haas, H. B.
**Bourlot, L.** See Nepoux, G.
**Bourne, A. I.** See Shaw, F. R.
**Bourne, E. J.**, Donnison, C. H., Haworth, N., and Peat, S. Thymol and cyclohexanol as fractionating agents for starch, 6446*f*.
———, Donnison, C. H., Peat, S., and Whelan, W. J. Fractionation of potato starch by means of $Al(OH)_3$, 6447*a*.
———, Fantes, K. H., and Peat, S. Modified method for the end group assay of amylose and other long-chain starch fractions, 8715*h*.
———, Haworth, N., Macey, A., and Peat, S. Amylolytic degradation of starch—revision of the hypothesis of sensitization, 723*e*.
——— and Peat, S. Amylose component of waxy maize starch, 6447*d*.
——— and Wiggins, L. F. Ethylidene derivs. of sorbitol, 2939*b*.
**Bourne, G. H.** See Hoch-Ligeti, C.
**Bourne, H. K.** Discharge Lamps for Photography and Projection (book), 956*c*.
**Bournot, K.** See Doll, W.
**Bourquin, J. P.** See Schnider, O.
**Bourrelier, M.** Polarographic study of the complexes of Mg with $NH_3$ and cyanide ion, 4595*a*.
**Bourret, P. E.** Nonmetallic mineral deposits of the Province of Quebec, 525*a*.
**Boursnell, J. C.** See Banks, T. E.
———, Dewey, H. M., and Wormall, A. Chem. and immunological properties of phosphorylated proteins, 2254*i*.
**Bourson, M.**, and Fayette, S. Detn. of Mg in Al alloys, 2544*i*.
**Bouscary, A.** See Vinot, M.
**Bousquet, A. G.** Counting rate meters *vs.* scalers, 4055*g*; see Kip, A.
**Boutaric, A.** Au seuil de l'ère atomique (book), 947*f*; variation of the optical d. of colloidal solns. in the course of flocculation, 2070*i*, $\pi$ of colloidal solns., 1078*d*; stabilization of alk. solns. of bilirubin by serum proteins, 4710*i*.
——— and Berthier, P. Depolarization produced by a suspension of isotropic particles on a beam of polarized light observed in the direction of propagation, 5257*g*, interference refractometry of colloidal solns., 6040*c*.
——— and Brit. J. Clearing of gamboge suspensions by $NaHCO_3$ and NaCl, 256*i*.
——— and Maraux, C. Inhibiting action of ascorbic acid on fluorescence of solns., 947*d*, fluorescence of uranin solns by the electrofluorimeter, 2096*a*, inhibiting action of procaine on the fluorescence of solns., 5540*h*, fluorescence of solns. of esculoside, 6921*d*.
**Bouté, C. M. R.** See Rorive Bouté, C. M.
**Boutillon, H.** Metering device capable of measuring variable quantities of liquid, P 6011*a*.
**Bouton, G. M.**, Phipps, G. S., and Schumacher, E. E. Pb alloy coating, P 5516.
**Bouttier, L.** App. for obtaining and transporting monocrystals at low temp. applications to $HNO_3$, its hydrates, and to their x-ray diagrams, 7280*e*.
**Boutwell, R. K.**, Brush, M. K., and Rusch, H. P. Physiol. effects assocd. with chronic caloric restriction, 2298*e*.
**Bouvier, M. E.**, and Mosnier, M. M. Sepn. of isomeric quinolinecarboxylic acids and esters, P 1305*e*.
**Bouychou, J. G.** See Le Bras, J.
**Bouyer, S.**, and Tourte, R. Fertilization of soils used to grow peanuts in Senegal, 8083*c*.
**Bouyoucos, G. J.** Nylon elec. resistance unit for continuous measurement of soil moisture, 8756*h*.
**Bouzat, A.** L'energie atomique (book), 6922*f*.
**Bovard, F. C.** Electrolytic oxidation of small parts of Al or its alloys, P 2404*a*.
**Bovarnick, M. R.**, and Snyder, J. C. Respiration of typhus rickettsiae, 5826*i*.
**Bovay, E.** Influence of position on the stalk and of topping on the chem. compn. of tobacco leaves, 1080*f*.
**Boverman, J.** See Wells, C.
**Bovet, D.** Natural and synthetic curare, 9378*c*, see Fusco, R.
——— and Bovet Nitti, F. Curare, 3614*g*, 9363*b*, Structure et activité pharmacodynamique des medicaments (book), 2705*g*.
———, Bovet-Nitti, F., Guarino, S., and Fusco, R. Curarelike properties of some quaternary $NH_4$ derivs., 1486*h*.
———, Courvoisier, S., Ducrot, R., and Jacob, R. Action of 1-ethyl-4 (ethylsulfonyl)piperazine hydrochloride in traumatic shock, 8551*a*.
**Bovet-Nitti, F.** See Bovet, D.
**Bovingdon, H. H. S.** Persistence of pyrethrins and $\gamma$ isomer of benzene hexachloride, 6777*b*.
**Bowden, C. W., Jr.** Temp. measurements of moving textile material, 5956*g*, see Herbach, M. G.
**Bowden, F. P.** Chem. attack in the lubrication of metals, 2417*f*.
——— and Gurton, O. A. Initiation of explosions by grit particles, 1982*d*.
——— and Yoffe, A. Tribochemistry and the initiation of explosions, 1982*g*.
**Bowden, J. P.**, and Peterson, W. H. Release of free and bound forms of biotin from proteins, 6254*h*.
**Bowden, R. C.** See Simmons, W. H.
**Bowden, S. T.** See Forward, M. V.; Grant, W. E.
——— and Jones, W. J. Latent heat of vaporization and compn., 2833*i*.
**Bowden, W. C., Jr.** Analysis of cemented carbide compns., 1287*a*.
**Bowe, J. C.**, Goldhaber, M. Hill, R. D., Meyerhof, W. E., and Sata, O. Short-lived metastable state in an even-even nucleus—$Ge^{74}$, 4004*d*.
——— and Scharff Goldhaber, G. Decay scheme of $Te^{125*}$, 8873*g*.
**Bowen, B. D.** See Lenzner, A. R.
**Bowen, B. E. V.** See Distillers Co., Ltd.
**Bowen, C. F.** See Toner, R. K.
**Bowen, C. V.** List of publications on benzene hexachloride, 810*d*; distribution of anabasine between certain org. solvents and water, 6789*a*.
**Bowen, E. J.** Wave-mech. considerations applicable to fiber-forming substances, 4857*f*.
**Bowen, G.** Alcoholysis of polyvinyl esters, P 6867*e*.
**Bowen, H. G., Jr.**, and Bernstein, H. Effect of 16 alloying elements on the grain size of cast 4.5% Cu-Al alloy, 8337*e*.
**Bowen, I. G.** See Lubbock, I.
**Bowen, J. B.** App. for fractional distn. under reduced pressure, 5233*h*.
**Bowen, N. L.**, and Tuttle, O. F. System $MgO$–$SiO_2$–$H_2O$, 3274*h*.
**Bowen, R. J.** See Fisher, A. W., Jr.
**Bowen, V. T.** Ba metabolism in hornets studied by means of radioisotopes, 5124*b*.
**Bowen, W. J.** Myoglobin prepn. and Fe content, 2264*h*, absorption spectra and extinction coeffs. of myoglobin, 7058*g*.
**Bower, C. A.** Tests for sol. and exchangeable Na in saline and alkali soils, 1890*f*.
**Bower, J. C.** See Martin, L. H.
**Bower, J. O.** Synthetic blood suture, P 2375*e*, penicillin compns., P 8106*f*.
**Bowerman, E. R., Jr.** Pickling metal contact surfaces, P 6147*d*.
**Bowers, J. A.** Effect of bottom shape and life on slag vol. in acid elec. furnace, 1267*g*.
**Bowers, R.**, and Mendelssohn, K. Surface transport of liquid He II, 7765*c*.
**Bowers, W. A.** Relative yields of $(\gamma,n)$ reactions, 1260*e*.
——— and Rosen, N. $H^2$ and the n–s of the neutrino, 4112*f*.
**Bowery, T. G.** See Granett, P.
**Bowes, J. H.** Tanning, 1203*g*, chemistry of mineral tanning, 1204*f*, reaction of $CH_2O$ with protein and amino acids—$CH_2O$ tanning, 1204*i*, chemistry of the tanning process, 6448*i*.
——— and Kenten, R. H. Amino acid compn. and titration curve of collagen, 3861*c*, effect of alkalies on collagen, 3862*b*, effect of deamination and esterification on the reactivity of collagen, 6258*i*.
——— and Moore, G. O. Salts in the finishing of sole-leather bends (III) effect of $MgSO_4$, cane sugar, and glucose on the drying of leather and on the water content of leather at different relative humidities, 427*h*.
———, Quinn, F. H., and Ward, C. I. Salts in the finishing of sole leather bends (IV) effect of immersion in solns. of $MgSO_4$, cane sugar, and glucose on some phys. properties of the finished leather, 1206*d*.
**Bowland, J. P.**, Crummer, R. H., Phillips, P. H., and Bohstedt, G. Effect of lactation and ration on the fat and vitamin A level of sow milk, 3907*a*, effect of the plane of nutrition on the compn. of sow colostrum and milk, 8466*i*.
**Bowler, R. G.**, Buckell, M., Drucll, H. A., and Richardson, J. D. Contamination produced in the Fort William area by I compds., 5883*f*.
**Bowler, W. W.** See Maron, S. H.
**Bowles, L. L.**, Hall, W. K., Sydenstricker, V. P., and Hock, C. W. Corneal changes in the rat with deficiencies of pantothenic acid and of pyridoxine, 5457*f*.
**Bowles, R. F.** Wetting and dispersion, 19*a*.
——— and Silcox, A. Detg. the ink absorbency of paper, 402*e*.
**Bowles, V. O.** See Reed, C. S.
**Bowley, H.** Rept. of the Australian government mineralogist, analyst, and chemist for 1944, 6115*b*.
**Bowman, A.** See Tinsley, S. G.
———, Evans, E. M., Myles, J. R., Payman, L. C., and Imperial Chemical Industries Ltd. Org. Si compds., P 3656*i*.
**Bowman, C. A. M.** See Barby, D.
**Bowman, D. R.** See Whistler, R. L.
**Bowman, F.**, and Hanning, F. Procedure that reduce darkening of cooked potatoes, 7603*i*.
**Bowman, F. T.**, Whittaker, E. C., MacKenzie, P. B., and Thomas, R. B. Hormone sprays for apple crop regulation, 7181*f*.
**Bowman, J. J.** Al-base die-casting alloy contg. 9.5% Si and 0.5% Mg or contg. 8% Mg, 6960*a*.
**Bowman, J. R.**, and Burk, H. S. Sweating of paraffin wax, 9425*c*.
**Bowman, K.** See Sherwood, N. P.
**Bowman, M. C.** See Mendel, B.
**Bowman, M. I.** Reaction between $KMnO_4$ and $H_2O_2$, 4595*a*; see Watson, R. C.
**Bowman, R. E.** Synthesis of erucic and brassidic acids, 6161*d*.

**Bowman, R. L.** See Lo-Grippo, G. A.
**Bowman, R. S.** Purification of 3-picoline, P 3013*i*; purification of 4-picoline, P 3044*f*; see Slagle, K. H.
**Bowrey, S. E.** Corrosion of turbine journals, 9017*a*.
**Bowring, F. C.** See Hunting, P. L.
**Bowring, J. R.** See Arthur, J. R.
---- and Sterling, L. Underground gasification, 5172*a*.
**Bowtell, J. N.** See Jenkins, H. G.
**Box, F. W.** Estn. of Se in Pb alloys, 5334*f*.
**Box, M. M.** See Maduefio Box, M.
**Boxer, G. E.** See Jelinek, V. C.
---- and Everett, P. M. Detn. of benzylpenicillin- detn. of total penicillins, 8097*g*.
**Boxer, J. P.** Periodic classification of the elements, 8220*f*.
**Boy, C.** Detn. of Li in minerals, 1683*a*.
**Boyack, G.**, Moore, G. E., and Clausen, D. F. Localization of brain tumors with radiodyes (I) chem. and phys. aspects- -synthesis of diodo[131] fluorescein, 1356*i*.
**Boyandin, G. S.** Mech. separator of beet pulp from water, 7729*f*.
**Boyarsky, L. L.**, Bayliss, H., Casida, L. E., and Meyer, R. K. Influence of progesterone on fertility of gonadotropin treated female rabbits, 8032*f*.
----, Rosenblatt, A. D., Portel, S., and Gerard, R. W. Action of Me fluoroacetate on respiration and potential of nerve, 7147*f*.
**Boyce, J. S.** Forest Pathology (book), 4351*b*.
**Boyce Thompson Institute for Plant Research, Inc.** Speeding the germination of potato tubers, P 3491, (3,4-methylenedioxyphenyl)-propylene compds., P 3602*a*, α-ethylpiperonyl ethers, P 2633*a*, piperonyl chrysanthemumate, P 2732*b*.
**Boyd, A. W.** See Cunningham, G. L.
**Boyd, B. L.** See Greenburg, Joseph.
**Boyd, D. M., Jr.** Fractionation instrumentation and control (II), 2041*b*.
**Boyd, E. J.**, and Warner, E. D. Effect of vitamin K on dicoumarol-induced hypoprothrombinemia in rats, 2329*a*.
**Boyd, G.** Design of low-power induction heater, 4581*g*.
**Boyd, G. A.** Abs. reaction kinetics of tobacco mosaic virus and a theory of denaturation, 1461*g*.
----, Casarett, G. W., Altman, K. I., Noonan, T. R., and Salomon, K. Autoradiographs of $C^{14}$ incorporated in individual blood cells, 2262*b*.
**Boyd, G. E.** Method of activation analysis, 5287*b*.
**Boyd, G. H., Jr.** See Remington, J. W.
**Boyd, G. N.** Electronic instrument for measuring wt. variations in slivers, rovings, and yarns, 7660*d*.
**Boyd, James.** Oil shale development and research, 5029*f*.
**Boyd, John**, and Bice, R. A. Compn. bearing material, P 4518*f*.
**Boyd, J. H., Jr.** Com. chem. development of butadiene—specifications, 557*e*, com. chem. development of butadiene -transportation and handling, 557*e*, industrial catalysis, 1505*d*.
**Boyd, L. J.** See Glass, G. B. J.
**Boyd, M. L.** See Rogers, R. R.
**Boyd, P. B., Jr.** See Christian, D. C.
**Boyd, T.** Addn. of H halide to olefins and acetylenes, P 2620*a*.
**Boyd, T. F.**, MacQueen, I. M., and Stacy, I. N-ray diffraction patterns for the identification of surface-active agents, 6915*g*.
**Boyd, W. C.** See Shatin, H. S.
**Boyd, W. L.** See Gullickson, T. W.
**Boye, E.**, and Graner, E. Detn. of $SO_2$ and $H_2S$ by means of $KMnO_4$, 65*a*.
**Boyer, C. M.** See Atkins, G. T.
**Boyer, F.** See Lihermann, D.
**Boyer, H. E.** Analysis of nitriding, 3327*h*.
**Boyer, P. D.** See Gullickson, T. W.
**Boyer, R.** See Barry, G. T.
**Boyer, R. F.** Vinyl heat stabilizers, P 4520*h*, compatibility, efficiency, and permanence of plasticizers, 6160*h*, see Matheson, L. A.
and Woodland, P. C. Synthetic plastic insulation, 2342*i*.
**Boyer-Kawenoki, F.** See Dobry, A.
**Boylan, J. A.**, and Wray, R. I. Effect of temp. on the rate of blister failure of finishes on steel in water-immersion tests, 4872*e*.
**Boyland, E.** Chemistry of neoplastic tissue, 9225*g*; see Booth, J.
---- and Rhoden, E. Distribution of urethan in animal tissues as detd. by a micro diffusion method and the effect of urethan treatment on enzymes, 9258*c*.
**Boyle, A. J.** See Mosher, R. E.; Willard, H. H.
-, Whitehead, T., Bird, F. J., Batchelor, T. M., Isert, L. F., Jacobson, S. D., and Myers, G. B. Emission spectrograph for the detn. of Na, K, Ca, $Mg$, and Fe in plasma and urine, 7071*f*.
**Boyle, E. J.**, and Anderson, E. A. Zn Fe cd alloys, P 106*b*.
**Boyle, F. P.** Factors involved in $O_2$ evolution from infiltrated spinach leaves, 732*f*.
**Boyle, J. L.** Large-scale disposal of fatty acid mixts., 7795*b*.
**Boyle, W. E.**, and Hoyt, P. R. Application of combustion controls to a process heater, 2403*g*.
**Boyle-Midway Inc.** Air deodorizing compn., P 3959*f*, 9-phenylenediamine, P 4694*f*.
**Boymond, P.** Detn. of penicillin in galenical preps. and a biol. microdetn., 8176*h*, detn. of the presence or absence of water in salts, powders, and galenical preps., 2370*f*.
**Boynton, D.** See Embleton, J. W.
---, Compton, O. C., and Fisher, F. Leaf N and leaf color as measures of the N status of fruit trees, 9119*d*.
**Boynton, P.**, and Gray, H. Maintenance of zeolite filters, 5122*e*.
**Boysen-Jensen, P.** Plantefysiologi (book), 3892.
**Boytschenko, E. A.** See Boltchenko, I. A.
**Bozel-Maletra Société industrielle de produits chimiques.** Accels., P 2222*a*.
**Bozeman, M. L.**, and Metz, C. W. Sensitivity of chromosomes to irradiation at different meiotic stages in oocytes of Sciara, 6325*b*.
**Bozhenkova, T. A.**, Ivashova, Z. V., and Purtova, A. M. Effect of vitamin K on menstruation of a healthy woman, 4706.
**Bozó, J.** Removal of alkaloids from lupine seeds, 9109*h*.
**Bozon, H.** See Amarieux, L. L.
**Bozorth, R. M.** Magnetic remanence, 8766*e*.
----, Mason, W. P., Merkamm, H. J. and Walker, J. G. Elastic consts. and internal loss of single Ni crystals, 7768*d*.
**Bozsin, M. J.**, and Vana, C. A. Measuring temp. gradients in porcelain enameling furnaces, 6982.
**Bozza, G.** Flow of cuprammonium cellulose solns. in cylindrical tubes, 7681*g*. Lezioni di impianti chimici industriali (book), 7750*f*.
**Bozzo, A.**, and Carcassi, V. Antibacterial activity of *o*-nitro-2-furaldehyde semicarbazone, 9147*d*, antibacterial activity of some synthetic antihistamines, 9147*f*.
**Brabant, H.** Detection of Bi and its elimination by salivary glands, 4372*e*.
**Brabender, G. J.**, Bard, J. W., and Daily, J. M. Bleaching cellulose pulp with $O_3$, P.

**Bracci, U.**, and Pezzuoli, G. Modifications in the $NH_3$ content in plasma and erythrocytes, 3095*a*.
**Bracco, M.**, and Fuller, H. v. Chromoplastin from ripening tomatoes- effect of streptomycin on chlorophyll metabolism, 2286*c*, action of vitamin A and the primary symptoms of vitamin A deficiency, 3079*d*.
**Brace, N. O.** See Marvel, C. S.
**Brace, P. H.**, and Binford, W. J. High temp. properties of Ti alloy castings, 3766*i*.
**Bracewell, R. N.** See Straker, T. W.
---- and Straker, T. W. Study of solar flares by means of very long radio waves, 7334*d*.
**Brachet, J.** Biochem. and physiol. relations between nucleus and cytoplasm during early development, 1851*b*, nucleic acids during development of the embryo, 3502*b*.
---- and Jeener, R. Alk. phosphatase of the nuclei, 2685*g*.
----- and Shaver, J. R. Effect of nucleases on cytochem. reactions for amino acids and on staining with acid dyes, 2558.
**Brachvogel, R.** Subcutin, 3566*f*.
**Bracken, A.** See Birkinshaw, L. H.
**Brackett, F. S.** See Olson, R. A.
**Brackin, C. W.** See Coon, A. I.
**Brackman, W.** Complex resonance, 6635*b*.
**Brada, Z.** Detn. of thiourea (I) volumetric detn., 8311*b*.
---- and Abelin, I. Influence of thiamine on carbohydrate metabolism in alloxan diabetes, 2696*b*.

**Bradburn, M.**, Coulson, C. A., and Rushbrooke, G. S. Graphite crystals and crystallites (I) binding energies in small crystal layers, 2484*b*.
**Bradburne, G. B.** See Weil, A.
**Bradbury, E.** Testing of sizes for continuous-filament yarns of high-filament strength, 5956*i*.
- and Hacking, H. Sizing and weaving, 7693*i*.
**Bradbury, G. F.** Diatomite filtration, 3545*i*.
**Bradbury, J. T.** Ovarian influence on the response of the anterior pituitary to estrogen), 8034*i*, see Brown, Willis E.
---, Brown, E. S., and Brown, W. E. Absorption of urinary gonadotropins on kaolin, 7995*e*.
**Bradbury, R. B.** Microdetn. of acetyl groups—modification of Elek and Harte's method, 8074*i*.
**Bradbury, T. F.** Al-Cu alloy, P 2567*e*, heat-treatment of Al alloys, P 6563*h*.
**Braddock, Z. I.** See Wright, S.
**Braden, C. H.** See Slack, L.
----, Owen, G. F., Townsend, J., Cook, C. S., and Shull, F. B. Discrepancies caused by source charging, in $\beta$-spectrometers, 12*g*.
-, Slack, L. and Shull, F. B. Forbidden $\beta$-decay of $Sr^{89}$ and $Yb^{169}$, 8860*d*.
**Bradfield, A. E.**, and Penney, M. Catechins of green tea (II), 3364*a*.
**Bradfield, F. C.** See Prince, A. T.
**Bradford, C. I.**, Catlin, J. P., and Wemple, I. L. Properties of Ti prepd. by arc melting and casting, 3765*i*.
**Bradford, L.**, Charlton, W., Plimmer, H., Robinson, E. B., and Imperial Chemical Industries Ltd. Polyurea, P 3843*h*.
**Bradford, W. R.** See Wyckoff, H. O.
**Bradley, A. J.** Electron atom ratios in alloy phases as a monotonic sequence, 6880*c*; Fe-Ni-Al system (I) $\alpha+\gamma$ alloys and isothermal sections of the phase equil. diagram, 8338*b*.
**Bradley, C. E., Jr.** Coating compn., P 5224*d*.
**Bradley, D. C.** Pressed metal powder applications in the automotive industry, 3756*b*.
**Bradley, H. P.**, and Dunn, J. L. Metal bonded by means of chlorinated rubber adhesives contg. a polyalkylene polyamine, P 2807*d*.
**Bradley, K.** See Chadwick, I. C.
**Bradley, L. C.**, and Kuhn, H. Spectrum of He$^+$, 1052*e*.
**Bradley, R. S.**, and Sheilard, A. D. Molecular attraction and its exptl. verification, 7764*i*.
**Bradley, T. F.** See Dannenberg, Hans.
- and Hess, F. W. Thermal polymerization of esters of drying oil acids, 2787*g*.
**Bradley, W.** Cationoid reactivity of aromatic compds. (VI) amination of *meso*-benzanthrone, 1759*a*, see Berger, F. M.; British Drug Houses Ltd., Dean, A. C. R., Graves, E. J.
---- and Jadhav, G. V. Cationoid reactivity of aromatic compds. (VII) compn. of the di-*meso*-benzanthronyl formed by the action of alk. condensing agents on *meso*-benzanthrone, 1760*b*, (VIII) action of fused KOH on 6,6′-di-*meso*-benzanthronyl--properties of 6- and 8-chloro-*meso*-benzanthrone, 2984*i*.
---- and Saver, F. G. o-Tolyl 2,3-dihydroxypropyl ether, 5802*i*.
**Bradley, W. B.** Black light problem, 323*h*.
**Bradley, W. F.**, and Grim, R. E. Colloid properties of layer silicates, 2841*e*.
**Bradlow, H. L.**, and VanderWerf, C. A. Acid hydrolysis of α-halogenated pyridine compds., 9068*b*.
**Bradner, H.**, Crawford, R., Gordon, H., and Woodyard, J. R. Berkeley linear accelerator, 1093*a*.
**Bradshaw, B. C.** Metallic electrodes, 5044*i*.
**Bradshaw, G. B.** Soapmaking process, P 1586*e*.
**Bradshaw, L. C.** See International Bitumen Emulsions Ltd.
**Bradshaw, R. C. A.**, and Coppock, J. B. M. Test for purity in food in the examn. of dried fruits, 7602*g*.
**Bradshaw, W. H.**, and Schmitz, W. R., Jr. Alkali cellulose, P 2435*d*.
**Bradshaw, W. N.**, and Clarke, S. G. Anodic oxide coating formation on Al alloys, 8899*h*.
**Bradsher, C. K.**, and Vingiello, F. A. Aromatic cyclodehydration (XXI) *o*- and *p*-9-anthrylbenzoic acids, 4662*h*, (XXII) cyclization of *o*-benzylphenones (3), 6194*b*.

**Bradstreet, R. B.** Te and Se as catalysts for Kjeldahl digestion, 8961*g*.
**Bradt, H. L.**, Fueier, P., Lofgren, E. J., Ney, E. P., Oppenheimer, F., and Peters, B. Heavy nuclei as a component of primary cosmic radiation, 6504*e*
——— and Peters, B. Primary cosmic radiation with nuclear photographic emulsions, 1643*g*; flux of heavy nuclei of the primary cosmic radiation at geomagnetic latitudes, 8849*e*.
**Bradt, M.** Filters clean oily condensate, 4794*b*.
**Bradt, P.** See Madorsky, S. L.
**Brady, A. P.** Surface tensions of aq solns. of two foam-fractionated detergents, 3687*e*; diffuse ionic layer in relation to lamellar micelles in aq solns. of colloidal electrolytes, 6886*i*, surface films of sol. detergents, 7770*h*, see Cushman, A., McBain, J. W.
——— and McHan, H. (nee Huff). Temp. dependence of cond. and crit. concn. of two typical colloidal electrolytes, 2071*d*.
**Brady, E. L.**, and Deutsch, M. Angular correlation of successive $\gamma$-ray quanta (II), 1642*i*
**Brady, G. S.** Substitutes for scarce stocks, 9295*h*.
**Brady, J.** See Janes, R. G.
**Brady, L.**, Lutjen, D., Bolin, D. W., and Klosterman, E. W. Oxidation of org. matter, 4976*c*.
**Brady, L. J.** Detn. of small amts of O in gases, 1286*a*; see Corson, B. B.
**Brady, N. C.** Effect of period of Ca supply and mobility of Ca in the plant on peanut-fruit filling, 3067*b*, see Reed, J. F.
**Brady, T. G.** See Conway, E. J.
**Braendle, H. A.**, Steffen, H. C., and Sheppard, J. R. C. pH and structure in rubber compounding, 892*d*.
———, Sweitzer, C. W., and Steffen, H. C. Application of very fine furnace black in low-temp. GR-S, 3644*c*.
**Braff, A. F.**, and Cobb, J. M. Serum albumin detn., 7534*c*.
**Braga, V. T.** Detn. of gases in liquid steel, 4600*i*.
**Bragagnolo, G.** Radioactive waters of Bormio in Valtellina, 4565*d*, ascorbic acid and oxidation catalysts (II), 8465*b*, mineral waters of Val Carallina (Bergamo), 8580*i*.
**Bragg, J. K.** Interaction of nuclear elec. quadrupole moments with mol. rotation in asymmetric top mols. (I), 43*c*, see Golden, S.; Goldstein, J. H.
——— and Golden, S. Interaction of nuclear elec. quadrupole moments with mol. rotation in asymmetric top mols. (II) first-order coupling, 4140*h*.
——— and Sharbaugh, A. H. Microwave spectrum of $CH_3O$, 6920*g*.
**Bragg, W. L.** Advances in the study of the cryst. state, 1235*d*; acceptance of the Roebling Medal of the Mineralogical Soc. of America, 8760*g*; slip in metals, 9002*g*.
**Bragin, M. S.** Biochem. changes of perspiration in dermatomycosis, 7122*c*.
**Braglia, C.** See Laporta, M.
**Brahinsky, R. A.** See Kazal, L. A.
**Brahmajirao, V.** Oxidation-reduction indicators, 4575*b*.
**Brahmer, H.** Max. yields from the cultivation of microörganisms, 9357*f*.
**Braidech, M. M.** Controlling industrial fire hazards, 1189*b*
**Brailsford, R. E.** See Kischitz, A. D.
**Brain, R. C.**, Hyde, J. W., and Judd, R. O. Design and development of pumps for the development lab., 8748*a*.
**Brainerd, H. D.** Aureomycin and other antibiotics, 8550*d*.
———, Bruyn, H. B., Jr., Meiklejohn, G., and Scaparone, M. Assay of aureomycin in body fluids, 4719*g*.
**Braitberg, L. D.** See Friedman, H. L.
**Braithwaite, D. G.** See Cruickshank, G. A.
**Brajnikov, B.** Importance of granulometry in heavy mineral study, 2905*g*; see Guimarães, D.
**Brake, A. E.** See Ralston, A. W.
**Brakeley, P. W., Jr.** See Young, D. W.
——— and Young, D. W. Low-temp. polymerization process, P 6866*g*.
**Brakss, N.** See Straumanis, M. E.
**Bralley, J. A.** Vinyl chloride, P 5700*a*.
——— and Pope, F. B. Nuclear-halogenated bis[4 - (alkenylcarbonyldioxy)phenyl]-alkanes and polymers thereof, P 2234*d*; bis(alkenylcarbonyldioxy) aromatic compds. and polymers thereof, P 2234*e*; unsatd. diesters, P 3847*c*; unsatd. polyesters and their polymers, P 4298*g*.
**Brambel, C. E.** Prothrombin clotting time detn., 3487*d*; see Wise, W. D.
**Bramberry, H. M.** Compn. for treating metallic surfaces, P 5358*i*.
**Bramble, W. C.** See English, P. F.
**Bramel, H. R.**, Eric, J. H., and Egenhoff, E. L. Bibliography, 5707*f*.
**Bramstedt, F.** Digestive physiology of the aphids, 3221*i*.
**Bramwell, F. H.** Mech. engineering in the chem. industry, 8577*a*.
**Bramwyche, P. L.** See Distillers Co., Ltd.
——— and Mugdan, M. Vinyl ether and homologs, P 9078*h*.
**Brancato, J. J.** See Muller, O. P.
**Brancato, U.** Glucose content of blood, 2312*b*.
**Branch, A. C.**, and Sweeten, J. L. Fabrication of chem. plant [equipment] in stainless steel, 6135*e*.
**Branch, G. E. K.**, and Tolbert, B. M. Spectra of some diammotriphenylmethane dyes in concd. $H_2SO_4$, 5306*i*.
**Branch, G. M.** See Snell, A. H.
**Brancker, A. V.** See Savage, L. H. W.
**Brancone, L. M.** See Hewitt, R. I., Kushner, S., Safir, S. R.
——— and Fulmor, W. Detn. of N in difficultly combustible ring compds., 8964*i*
**Brand, J.** See Broh-Kahn, R. H.; Mutsky, I. A.
**Brand, J. C. D.**, and Rutherford, A. Kinetics of aromatic sulfonation in sulfuric acid, 6058*a*.
**Brand, K.**, and Henning, W. Compds of the diphensuccindene series (XIX) derivs. of diphensuccindan 9,12 dione, (XX) 9,12-substituted derivs. of diphensuccindan-9,11-diene, 4661*e*
**Brand, R. W.** See Ogg, C. I.
**Brandejs, J.** See Šorm, F.
**Brandela, M.** See Gallais, F.
**Brandén, T. H. L.** Pure chromic acid from chromic acid or chromate solns. P 2880*h*
**Brandenberger, E.** See Gunthard, H. H.; Jakob, J.
——— and Niggli, P. Importance of crystal chemistry for the engineer, 2752*i*
——— and Schinz, H. R. Urinary calculi, 6722*e*
**Brandenburger, K.** Extrusion process for working hardenable plastic masses, 9524*f*.
**Brandes, C. H.** See Zeile, K.
**Brandes, E. W.**, and Van Overbeek, J. Auxin relations in hot water treated sugar-cane stems, 725*h*
**Brandner, J. D.** Removal of reducing sugar from polyhydric alc. compns., P 4037*a*.
**Brandon, G. E.** Coke, P 6812*e*.
**Brandon, R. C.** Sepn. of 2,3-dimethyl-1,3-butadiene from methylpentadiene, P 3436*g*, catalytic hydrogenation of triisobutylene, P 4007*e*.
**Brandsma, W. F.** Handleiding voor de practische oefeningen in de Metallogie (book), 987*i*.
**Brandstätter, M.** Isomorphous replaceability of H, OH, $NH_2$, $CH_3$, and Cl in the *m*-dinitrobenzene series, 3277*d*, incorporation of micro methods into the new Austrian pharmacopeia, 4809*h*, isomorphous replaceability of halides, 5754*f*, oriented growth of org. compds., 6881*c*; isomorphous replaceability of OH, $NH_2$, $CH_3$, and Cl—pentachlorophenyl group, 7803*h*, see Kofler, A.
**Brandt, A. D.** Respirators, 3543*a*.
**Brandt, B. J.** See Arens, J. F.
**Brandt, D. J. O.** Use of O in the ferrous and nonferrous metallurgical industries, 8998*c*
**Brandt, J. L.**, and Gruhn, J. G. Effect of renin on proteinuria and *p*-aminohippuric acid clearance at low plasma levels, 321*c*.
**Brandt, K.** See Heyns, K.
**Brandt, P. L.** Vinyl resins plasticized with polyalkylnaphthalenes, P 9528*d*.
**Brandt, W.** Action of steroids on amphibian embryos, 4388*c*.
**Brandt, W. W.** See Smith, G. Frederick.
**Branion H. D.** See Motzok, I.
**Brânisteanu, D.**, and Popovici, G. G. Action of cibazol on the frog heart, 7133*e*, effect of phenylethylbarbituric acid on the frog heart, 7133*g*; sulfathiazole and phenobarbital on the frog heart, 7134*g*.
**Brannen, C. G.** See Gilman, H.
**Brannon, J. L.** Onium-catalyzed phenolic resins, P 8208*a*.
**Brannon, R. A.** Internal corrosion of crude-oil tanks, 4621*i*, 5929*h*.
**Brannström, P. G. L.**, Hage, K. O., and Sundström, E. O. A. Furnace for smelting sulfide ores, P 9018*f*.
**Branopol'skaya, R. A.** See Volarovich, M. P.
**Bransby, E. R.** See Stones, H. H.
**Branscheid, F.** Detn. of ascorbic acid, 3317*c*.
**Branscombe, D. J.**, Slade, R. E., and Imperial Chemical Industries Ltd. Food, P 3946*i*.
**Bransky, D. W.**, and Lemmon, N. E. Recovery of sulfonic compds. from $H_2SO_4$ sludge, P 9434*a*.
**Bransom, S. H.**, and Dunning, W. J. Detn. of particle-size distribution, 6039*d*.
**Branson, H.** Use of isotopes as tracers, 4092*b*; use of isotopes in an integral equation description of metabolizing systems, 5436*b*.
**Branson, W. R.** See Greenwood, H. D.
**Brant, J. H.** See Hasche, R. L.; McMahon, E. M.
**Brante, G.** I as a means of development in paper chromatography, 5336*e*.
**Branton, C.** See Seath, D. M.
**Branum, I., Jr.** See Seymour, R. B.
**Bras, G.**, and Fauconau, L. Sugars from cellulosic material, P 1980*a*.
**Bras, J. le.** See Le Bras, J.
**Bras, R. le.** See Le Bras, R.
**Brasch, A.** Yield of essential oils from plants, P 1915*f*
**Brashares, C. A.** Silica and clay refractories for steel plant furnaces, 981*c*, see Rochow, W. F.
**Brasher, D. M.** See Wormwell, F.
**Brasher, E. P.** Effect of minor elements and widely varying fertility levels on the yields of nine vegetable crops, 1134*d*
**Brasmalt, S. A.** Clarification of worts, P 3972*d*.
**Brass, H. A.** See Ammann-Brass, H.
**Brassel, J.** See Straub, F.
**Brussert, H. A.** Metal products, P 2152*e*, see Cape, A. T.; Ramseyer, C. P.
**Brassert, H. A., & Co.** App. for reducing finely divided metal oxides or sulfides, and nonferrous metals, P 9884*i*, metal products, P 2152*e*
**Brasseur, H.** Properties and chem. formula of fournarierite, 8985*g*, see Dallemagne, M. J.
——— and Dallemagne, M. J. Apatites, 7381*e*
———, Dallemagne, M. J., and Melon, J. Compn. of bone salts, 5060.
**Bratenahl, A.**, Hildebrand, R., and Moyer, B. J. Scattering of high energy neutrons, 4093*e*
**Brater, E. F.** See Wisler, C. O.
**Brătescu, G. G.** Townsend coeff., 6906*b*, see Badareu, E.
**Bratkovskiĭ, R. Kh.** 16% soln. of sulfidine for parenteral application, 9252*f*
**Brattain, R. R.** See Rasmussen, R. S., Thompson, H. W.; Weaver, J. R.
**Brattain, W. H.**, and Briggs, H. B. Refractive index of Ge films, 4066*a*, optical consts. of Ge in the infrared and visible spectra, 6513*e*.
**Bratton, F. H.** See Calfee, J. D.
**Bratton, R. W.**, Foote, R. H., Musgrave, S. D., and Vandemark, N. L. Lavability and fertility of bovine spermatozoa in different diluents, 8534*h*
**Brattsten, I.**, and Svensson, H. Behavior of electrolytes in moving boundary systems (II) methodological investigation of AcOH, 8808*c*.
**Bratzler, J. W.** See Swift, R. W.
———, Barnes, J. R., and Swift, R. W. Effects of thiouracil on metabolism, 6292*a*
**Brauckhoff, H.** Detection of hair damage, 414*e*, detg. moisture in paper, 4464*d*.
**Braude, E. A.** Acidity functions (I) dissocn. of HCl in, and proton affinities of, some O-contg. solvents, 4544*g*; photosynthesis, 4939*i*.
———, Jones, E. R. H., Sondheimer, F., and Toogood, J. B. Acetylenic compds. (XVI) prepn., reactions, and light-absorption properties of some 2,5-dihydroacetophenones and related compds. (5) light absorption, 7415*g*.
——— and Stern, E. S. Kinetics of anionotropic rearrangement (VIII) medium compn., acidity function, and reaction rate, 2183*e*, acidity functions (II) nature of H ion in some aq. and nonaq. solvents—solvating properties of water, 4544*i*.
——— and Waight, E. S. *N*-bromosuccinimide as a reagent for Br addn., 9034*e*.
**Braude, G.** See Bruns, B.

**Braude, M. B.** See Topchiev, K. S.
**Braude, M. S.** See Sperry-Braude, M
**Braudo, C. J.**, Craggs, J. D., and Williams, G. C. Excitation temp. in a spectroscopic spark source, 8277*b*.
**Brauer, E.** See Bonhoeffer, K. F.
—— and Brauer, P. Luminous transitions inside the basic multiplet of the trivalent ions of rare earths, 4567*f*.
**Brauer, G.** Magnetic behavior of Cb oxide, 2053*c*; Cs-O system, 2884*i*; metals, borides, silicides, germanides, and stannides, 3329*b*; metal phosphides, arsenides, antimonides, and bismuthides, 3739*i*, rational abbreviations in analytical chemistry, 4595*f*.
**Brauer, G. M.** See Wiley, R. H
**Brauer, P.** See Brauer, E
**Braun, A. C.** Thiamine and certain related compds in pigment production, 3057*h*, see Thornberry, H. H.
**Braun, A. D.** Binding capacity of native and denatured proteins for dyes, 1073*g*.
**Braun, A. E.** Coating compd., P 7240*e*.
**Braun, F. C.** Alloy steel in oil refineries, 89*h*
**Braun, H.** Solanine accumulations in potato tubers, 7551*d*.
**Braun, Hans.** Fe in metabolism and therapy, 3508*a*, effect of exts from *Tanacetum vulgare* on gastric secretion, 8537*h*.
—— and Butckhardt, H Ca metabolism and Ca therapy 5815*f*
—— and Meyer, E. Stabilization of vitamin C by $HPO_3$ in aq. solns., in hawthorn bud exts., or urine, 8475*e*.
**Braun, Hugo**, and Yalim, F Chromatin corpuscles of bacteria, 3388*g*
**Braun, J.** British Pharmacopeia 1948, 9366*c*
**Braun, K.** Effect of 3-acetylpyridine and nicotinamide on the perfused heart, 2681*b*
**Braun, Karl** Disinfectants, 1127*b*
**Braun, W. G.**, and Fonke, M. R Raman spectra in analytical chemistry, 2113*e*
**Braunbek, W.** Resistance of Pt foil fu n of atmosphere 6481*h*.
**Braund, R. W.** Treating gra ores, P 5726*i*
**Brauner, O. C.** Metallic naphthenat soaps, P 5978.
**Braun Menéndez, E.**, and Covian, M. R Hypertension in nephrectomized 5473*a*
**Brauns, F. E.** Lignin, 1841*g*, 4461*f*; polysaccharide from black spruce, 2767*h*, see Buchanan, M. A
**Brauns, O** Pressure evapn of sulfite waste liquor—means to prevent incrustation, 8077*e*
**Braunschmidt, G.** See Ammon, R.
**Braunshtein, A. E.**, Goryachenkova, E. V., and Paskhina, T. S. Enzyme formation of alanine from kynurenine and L-tryptophan—role of vitamin $B_6$ 6264*c*
—— and Yalenkina, G. N. Enzyme formation of glycine from serine, threonine and other hydroxyamino acids in animal tissue, 7986*f*
**Braunstein, J** See Brook, A. A
**Brauss, F. W.** Disinfectants testing methods, 1151*c*; action of *p*-aminobenzoic acid as growth factor for pathogenic microorganisms, 5075*g*.
**Braverman, J. B. S.** Citrus Products—Chem. Composition and Chem Technology (book), 4402*b*
**Bravo, G. A.** Degree of dispersion of tannin solns., 9507*b*, natural and sweetened chestnut exts., 9506*i*.
**Bravo Oliva, J.** See Piédrola Gil, G.
**Bray, H. G.**, James, S. P., and Thorpe, W. V. Deacetylation of acetamido compds. and formation of benzoxazolone, 6714*f*.
——, Lake, H. J., and Thorpe, W. V. Metabolism of derivs of toluene (II) nuclear methyl substituted derivs of *N*-phenylurea, 6718*i*.
——, Ryman, B. E., and Thorpe, W. V. Org. acids and amides in the rabbit (V) *o*- and *m*-hydroxybenzoic acids and amides, 3911*i*.
—— and Thorpe, W. V. Metabolism of derivs. of toluene (I) metabolism of acetotoluidides, 2325*c*.
——, Thorpe, W. V., and Wood, P. B. Org. acids and amides in the rabbit (VI) nitrobenzoic acids and amides, 6717*h*.
**Bray, R.**, Lark-Horovitz, K., and Smith, R. N. Spreading resistance discrepancies and field effects in Ge, 4066*d*.
**Bray, R. H.** Nitrate tests for soils and plant tissues, 3551*g*; see Melsted, S. W.
**Bray, R. W.** See Dicke, R. J.
**Bray, U. B.** Multivalent-metal hydrocarbon sulfonate, P 3194*f*
**Brayshaw, S. N.** See Brayshaw Furnace & Tools Ltd.
**Brayshaw Furnace & Tools Ltd.**, Brayshaw, S. N., Newman, F. C., and Rushton, F. Silica-gel app. for the adsorption of moisture, P 5049*a*.
**Brazda, F. G.** See Coulson, R. A.
—— and Coulson, R. A. Effect of nicotinic acid monoethylamide on the liver, 1739*a*.
**Brazeau, Fé** See Lieberman, S
**Brazier, L. G.** See British Insulated Callender's Cables Ltd.
**Brazier, M. A. B.** See Finesinger, J. B.
**Brazier, S. A.** Rubber, 4789*c*
**Braznell, G. S.** Photoelec. control of printing-ink flow, 1196*h*
**Brdička, R.** Polarographic analogy of γ-thujaplicin with colchicine, 3728*f*, see Kouteckỳ, J.; Vesely, K.
**Break, R. A.** See Nelson, K. E
**Breakey, E. P.**, and Batchelor, G. S. Orange tortrix, a pest of raspberries, 1521*i*, Willamette mite, a pest of raspberries, 3137*c*.
**Brearley, C. S., Jr.** See Grote, H. W.
**Breault, E.**, and Dermer, O. C. Prepn and properties of 2-vinylfuran, 2615*c*.
**Breazeale, F.**, and Whisnant, J. App to depict the load-elongation diagram of yarn, 6422*g*.
**Brecher, G.** See Endicott, K. M.
—— and Waxler, S. H. Obesity in albino mice due to single injections of Au thioglucose, 5117*f*
**Bréchot, P.**, Appert, J., and Plessis, A. Detn. of valeric acid, 5531*d*
**Brecht, W.** Tensile strength of the paper web, 7682*e*; measurement of wet strength of paper, 9443*c*.
—— and Bauer, A. Resistance to ply sepn of couched papers and boards, 402*h*
—— and Schroter, H. Revolving screen, 2130*a*.
**Breck, D. W.**, Harvey, J. L., and Haendler, H. M. Solv. of Sb(III) fluoride in org. compds., 6890*a*.
**Breck, L. W.** Antifreeze appliance, P 5238*a*
**Breckenridge, R. G.** Low-frequency dispersion in ionic crystals contg. foreign ions, 5245*a*, see Matthias, B. T.
—— and Jelatis, J. G. Dipole moment of gaseous HCN, 5244*h*
**Breckler, I. A.** See Fleischmann, W
**Breda, R.**, and Confalonieri, G. Coagulation of transudates and exudates, 2307*h*
**Bredemann, G.** Yacon-groundpear, 7155*i*
**Brederock, H.**, Haas, H. T. A., and Martini, A. Nucleic acids (XXIII) methylated nucleosides and purines and their pharmacological effects (2) methylation of nucleosides with dimethyl sulfate, 4634*h*.
—— and Hoepfner, E. Prepn. of 1,2,3,5-tetraacetylribose, 147*c*.
—— and Reif, E. Trityl substituted carbodiimides, 4641*e*
—— and Schuh, H. v Aminobenzoic acids in peptidelike combination, 1031*c*.
**Brederode, H. van**, and Gerding, H. Calcns of force consts. for the mols. $P_4O_6$, $P_4O_{10}$, and $P_4O_8S_4$ with the help of Raman effect data, 6015*a*.
**Bree, G. van** Geometric isomerism of the arylaliphatic series, 182*i*
**Breejen, A. D.** See Luce, R. L.
**Breeze, J. E.** Precision electronic pH control, 4904*d*, 6091*c*.
**Brefort, J.** Registering thermobalance for the study of chem. reactions, 7757*b*.
**Breger, A. Kh.** Eotvos rule and the surface condensation of the heat capacity of electron gas, 457*e*.
**Breger, I. A.** Semimicro mod still, 1226*c*.
**Brehm, W. J.** See Woodward, R. B.
**Breier, A.** See Brenner, W
**Breiger, H.** See Papa, D.
**Breirem, K.**, Linder, F., Halse, K., and Slagsvold, L. Hypomagnesemia and ketosis in dairy cows, 7557*b*
**Breit, G.** See Hatcher, R. D
—— and Bouricius, W. G. Boundary value condition for proton-proton scattering, 1258*f*, boundary conditions and range of force for *S* state of two protons, 4097*i*.
—— and Brown, G. E. Effect of nuclear motion on the fine structure of H, 1653*a*.
—— and Meyerott, R. E. Hyperfine structure of the ground term of H, 5302*i*.
**Breit, J. E.** Standardization of $TiCl_3$, 7368*e*, 8969*i*.
**Breitenbach, J. W.** Inhibition of polymerization by aromatic hydroxy and amino compds., 8736*e*; polymerization of styrene in emulsion—various emulsifiers—*p*-chlorostyrene—polymerization velocity, 8736*b*.
—— and Bremer, G. Chain rupture by peroxide in the polymerization of styrene, 8736*c*
—— and Frank, H. P. Osmotic and swelling equil of polystyrene—entropy of limited swelling, 4541*f*.
——, Preussler, H., and Karlinger, H. Growth capacity of inhomogeneous polymers, 8731*h*.
—— and Thury, W Formation of high-mol. substances by thermal polymerization, 8735*d*
**Breitenstein, J. S.** See Cole, S. S.
**Breitman, V. M.** Kinetics of solidification of ingots, 6494*g*
**Breivogel, P. J.** See Sondern, C. W.
**Brekke, O. L.** Fractionation of soybean oil by liquid-liquid extn., 882*a*.
**Bremanis, E.** See Bergner, K. G.
**Bremer, F.**, and Bonnet, V. Specific action of barbiturates on central synaptic transmission, 3111*f*
**Bremer, G.** See Breitenbach, J. W.
**Bremmers, L. H. A.** Meson processes in the meson field of a nucleus or nuclear particle, 2504*c*.
**Bremner, J. G. M.** Ni plating, 46*g*; see Jones, D. G., Starkey, F.
——, Beaumont, S., and Imperial Chemical Industries Ltd Catalysts, P 2382*c*; heterocyclic compds., P 4301*g*.
——, Coats, R. R., and Imperial Chemical Industries Ltd. Dehydration of org. compds., P 3835*i*.
—— and Colpitts, J. H. C black, 1169*h*
—— and Imperial Chemical Industries Ltd. Conversion products of 2,3-dihydropyran, P 4702*c*.
—— and Jones, D. G. Furan derivs., P 1065*b*, substituted pyrans, P 1442*i*, purification of tetrahydrofurfuryl alc., P 1526*f*; acrolein and $C_2H_4$ by pyrolysis of dihydropyran, P 1795*e*, oxidation of cyclic ethers, P 2224*e*, 5415*b*.
——, Jones, D. G., Coats, R. R., and Imperial Chemical Industries Ltd. Dehydration of tetrahydropyran, P 5650*b*.
——, Jones, D. G., and Imperial Chemical Industries Ltd Furil, P 690*f*; substituted tetrahydropyrans, P 693*b*; hydrogenation of salts of 2,3-dihydropyran-5-carboxylic acid, P 3469*i*; purification of tetrahydrofurfuryl alc., P 4700*g*
——, Jones, D. G., Taylor, A. W. C., and Imperial Chemical Industries Ltd. δ-Valerolactone, P 7502*d*.
——, Reynolds, P. W., and Taylor, A. W. C. Dehydrogenation catalysts, P 3161*e*.
—— and Thomas, G. D Calcn. of resonance energies from thermal data, 10*d*; standard free energies of formation of gaseous org. compds., 477*f*.
**Bremner, J. W.** See Poole, J. H. J.
**Bremner, T. S.** See Kelly, H. E.
**Brémond, P.** Products and manufg. progress in the ceramic industry, 1541*i*, soln. and disintegration of glass surfaces in contact with water and aq. solns., 6379*g*.
**Bren, B. C.**, and White, J. O. Plasticized polyvinyl butyral, P 2468*c*.
**Bren, G. I.** Domestic latexes, 6853*d*.
**Brenchley, W. E.** Toxic action of Mo in relation to soils and crops, 9320*a*.
**Brendel, R.** See Bieler, J. M.; Martin, G. J.
**Brendler, H.** Effect of a folic acid antagonist on hormonally induced changes in the rat prostate, 8508*e*.
**Brenet, J.** Bonding of the Mn atoms in $MnO_2$, 4059*f*, see Amiel, J.
**Brennan, E. G.** See Leone, I. A.; Prince, A. L.
**Brennan, E. W.** See Cocroft, R.
**Brennan, J. B.** Electrostatic condenser plate, P 510*c*; applying a Ag layer to a steel-bearing blank, P 7892*h*.
—— and Conrad, L. M. Electrostatic condenser plate, P 510*c*.
**Brennan, J. E.** See Levy, R. M.
**Brennan, J. H.** See Burwell, B.
**Brenner, Abner**, and Jennings, C. W. Phys. properties of electrodeposited metals (I) Ni, 2100*h*.
—— and Meites, T. S. Electroplating rack adapted to Cr plating of ball bearings, P 2524*h*.

——, Seegmiller, R., and Riddell, G. E. Films of chromated proteins on Zn, P 7895*d*.
—— and Senderoff, S. Contractometer for measuring stress in electrodeposits, 5315*e*, calcn of stress in electrodeposits, 5315*g*
**Brenner, Anton.** Al production, 2141*d*
**Brenner, B.** Compensating lead wire for thermocouples, P 5001*c*.
**Brenner, M.**, and Kocher, V. Prepn. of D- and L-methionine, 4724*h*
——, Sailer, F., and Kocher, V. Prepn. of D- and L-tryptophan, 2656*e*
**Brenner, S.** See Thomas, M. H
——, Dunlop, S. G., and Wodicka, V. O. Effect of fortification of canned bread on stability, 2336*d*.
——, Wodicka, V. O., and Dunlop, S. G. Dried yeast in Army rations, 9275*i*, effect of high-temp. storage on the retention of nutrients in canned foods, 1493*h*.
**Brenner, S. A.** See Foster, C
**Brenner, W.** Fe and Cu metabolism in infancy (I) Fe and Cu curves in the serum of normal children, 5475*g*, (II), 8520*f*
—— and Breier, A. Fe and Cu metabolism during childhood - schizophrenia, 9237*c*
**Brentnall, G. C.** See Dunlop Rubber Co. Ltd.
**Brentzel, W. E.** Ergot of grains and grasses, 3959*f*
**Bréquet, A.**, Viatte, R., and Chareyron, C. Absorption and fixation of NaOH by mercerized cellulose, 7233*g*
**Broreton, H. G.**, and Lucia, S. P. Detn of urobilinogen in stool and of bilirubin and urobilinogen in urine, 1452*i*
**Břeský, L.** Spectral analysis of colored metals, 3314*b*
**Breslau, M.** See Rauscher, W. H.
**Bresler, S. E.** Structure of globulin proteins and their interaction with the external medium, 6264*e*; see Afanas'ev, P. V
—— and Glikina, M. V. Enzymic synthesis of polypeptides, 704*h*
——, Glikina, M. V., Komkov, A. P., Selezneva, N. A., and Finogenov, P. A. Synthesis of proteins and peptides under pressure, 7988*b*.
**Breslove, J., Jr.** Elimination of flue dust from stoker-fired boilers, 3991*a*
**Bresser, A.** Production of nitroglycerin and similar explosives, 4013*h*
**Bretán, M.** See Fischer, Antal
**Bretey, J.** See Calmette, A
**Bretón, A. S.** See Saenz Bretón, A.
**Breton, E. le.** See Le Breton, E.
**Breton, J.** Application of the Meunier electrophotometer—titrimetry of amino acids in blood serum, 3871*f*
**Bretscher, E.**, and French, A. P. Low-energy cross section of the D-T reaction and angular distribution of the $\alpha$ particles emitted, 4946*g*
—— and Wilkinson, D. H. Excitation functions of some $(n,p)$ reactions, 4117*h*
**Bretschneider, H.** Phenylalkanolamines (III) reduction of O-acylated hydroxyphenylalkanonamine salts to the corresponding carbinols and acylation of these, (IV) partial acylation of the amino group in phenolic phenylalkanonamines and phenylalkanolamines and conversion of *N*-acyl compds., (V) $\beta$-chlorophenethylamine derivs. and their conversion into halogen-free compds., (VI) reactions of phenylalkanolamines and phenylalkanonamines, 2601*c*, (VII) tartaric acid dibenzenesulfonate—Berlstein reaction of sulfonic acid derivs. and a new color test for tartaric acid, 7379*f*
—— and Beran, K. Transformation of uni- and bivalent phenols into acetylated $\beta$-D-glucosides with $\beta$-pentaacetyl-D-glucose and $BF_3$, 7922*i*
**Bretsznajder, S.** See Zawadzki, J.
**Breusch, F. L.** Lehrbuch der gesamten Chemie (book), 932*a*.
—— and Keskin, H. Synthesis of hydroxy and keto fatty acids, 3785*a*
**Brevets Aéro-Mecaniques Soc. anon** Coated explosive particles, P 6418*d*, coated pyrotechnic compn., P 6418*e*
**Brewer, A. K.**, and Mudorsky, S. L. Mol. distn. and app. for the sepn of isotopes and liquid mixts. contg. isotopes, P 500*e*.
**Brewer, C. M.** See Ostrolenk, M.
**Brewer, G.** See Lennox, J. W
**Brewer, G. E. F.**, and Sevick, J. Stimulating student interest in instrumentation, 2050*f*.
**Brewer, H. C.** Bibliography of the literature on the Minor Elements and their Relation to Plant and Animal Nutrition (book), 3868*a*; Bibliography of the Literature on Na and I (book), 3868*a*.
**Brewer, L.** Vapor pressure and m.p. of graphite, 1638*e*; see McCullough, J. D
**Brewer, R. E.**, and Ghosh, J. K. Desulfurization of coal during carbonization, 9414*b*.
**Brewer, S. D.** Trimethylcyclotrisiloxane, 1316*f*.
—— and Haber, C. P. Alkylsilazanes and some related compds., 1315*h*.
**Brewer, W. D.** See Ohlson, M. A.
**Brewer, W. L.**, and Holly, F. R., Jr Spectral distribution curves, 496*c*
**Brewster, F. R.** Mineral position of ECA nations (X) Great Britain, 3118*g*.
**Brewster, J. H.** See Snyder, H. R.
**Brewster, L.** See Holtkamp, D. E.
**Breyer, B.**, and Gutmann, F. Structure of the elec. double layer at a polarized electrode, 2101*d*
**Breyer, G.** Effect of mold thickness and cooling on base quality of intermediate size ingots, 1296*e*.
**Brian, P. W.** Biol. activity of griseofulvin, 3006*d*, production of antibiotics by soil microorganisms, 6698*i*, curling factor, a substance causing abnormal development of fungal hyphae, produced by *Penicillium janczewskii*, 9164*c*, see McGowan, J. C
——, Curtis, P. J., and Hemming, H. G. Gladiolic acid an antibiotic substance produced by *Penicillium gladioli*, 3056*g*, substance causing abnormal development of fungal hyphae produced by *Penicillium janczewskii* (III) identity of curling factor with griseofulvin, 7543*i*
——, Jamieson, M., and McGowan, J. C. Toxicity of sulfhydryl compds. to seeds, 3133*b*.
**Brian, R. C.** See Georgian, M. J
—— and McDowell, C. A. Ignition of coal tar by hot gases, 5188*g*
**Briant, A. M.**, and Hutchins, M. R. Influence of ingredients on tenderness in baking powder biscuits, 2356*i*
**Brice, B. A.** See Halwer, M., Swain, N. F.
**Brice, D. B.** See Conrad, E. H.
**Brice, W. L.** Stabilization of photographic emulsions, P 52*e*
**Brichard, E. A. G.** High Al bricks used in the regenerators of glass ovens, 504*e*
**Brichta, L. C.** Rush Creek Zn district, Marion, Co., Ark., 6545*f*, South Carthage Zn-Pb deposit, Jasper Co., Mo., 6950*e*, Kline and Frey Zn tracts, Wentworth mining district, Lawrence and Newton Counties, Mo., 6951*a*, Lone Elm Zn-Pb deposit, Jasper Co., Mo., 8989*b*
**Brick, R. M.** Deformation textures, 7394*d*.
—— and Phillips, A. Structure and Properties of Alloys (book), 5724*f*
**Bricker, C. E.** See Hartnell, E. D
—— and Furman, N. H. Multiple dropping Hg electrodes, 1616*d*.
**Bricker, M. L.**, Shively, R. F., Smith, J. M., Mitchell, H. H., and Hamilton, T. S. Protein requirements of college women on high cereal diets, 5459*i*
**Brickman, H. F.** See Goldbloom, A
**Brickson, W. L.** See Ruegamer, W. R.
——, Henderson, L. M., Solhjell, I., and Elvehjem, C. A. Antagonism of amino acids in the growth of lactic acid bacteria, 4331*g*
**Brickwedde, F. G.** See Woolley, H. W.
**Brickwedde, L. H.** Properties of aq. solns. of $HClO_4$, 4929*h*.
**Bricq, R.**, Gager, A., and Lacapere, J. Fractional pptn. of serum by $(NH_4)_2SO_4$—reconciline in the ppt., 6692*g*.
**Bridge, F.**, and Harrison, H. A. K.B.B. galvanic sizing tester, 5948*d*
**Bridge, H. S.**, and Hazen, W. E. Shower production by penetrating particles, 34*e*
——, Hazen, W. E., Rossi, B., and Williams, R. W. Cosmic ray bursts, 1645*b*.
—— and Rossi, B. Cosmic-ray bursts, 4103*f*
**Bridge, W.**, and Imperial Chemical Industries Ltd. Removal of solvents from chlorinated paraffin wax, P 5586*f*.
—— and Matchet, J. Chloral alcoholate, P 5412*e*.
**Bridgeman, W. A.** Wax coatings for preserving perishables, P 5900*e*.
**Bridger, G. L.**, Moore, J. W., and McLeod, H. M., Jr Phosphatic animal-feed supplement- lab. and pilot plant production, 7158*h*.
**Bridger, G. W.**, and Appleton, H. Inhibition of the combustion of C and CO, 3592*e*.
**Bridgman, P. W.** Linear compression of various single crystals to 30,000 kg./sq. cm., 2063*b*; viscosities to 30,000 kg./sq. cm., 4067*d*, rough compressions to 40,000 kg./sq. cm., esp. certain liquids, 4067*e*; linear compressions to 30,000 kg./sq. cm., including relatively incompressible substances, 4916*i*.
**Bridgwater, R. M.** Liquid $CH_4$ as a motor fuel, 2402*f*
**Brieger, H.** $CS_2$ poisoning (III) effects of $CS_2$ on bone cells and bone marrow, (IV) on the heart, 7577*f*, see DeMeio, R. H.
—— and Friedman, M. H. F. $CS_2$ poisoning (II) effects of $CS_2$ on digestive enzymes, 7577*e*.
**Brieghel-Müller, A.** Structural physics in sugar technology, 6845*f*
—— and Brueniche-Olsen H. Phys. chemistry of the 2nd carbonation in the beet-sugar industry, 5217*f*.
**Briegleb, G.** Baro-photometer for measuring minute pressure differentials, 3277*i*, 7279*h*
—— and Rebelein, H. Keto-enol transformation of acetoacetic ester in the gaseous state, 129*i*
—— and Strohbusch, W. Effect of a H bond on the light absorption of the COOH group, 377*a*/*i*
**Brien, R. M.** See Read, W. D.
**Brierley, P.** See Smith, F. F.
**Brieskorn, C. H.** Biogenetic formation of essential oils, 5909*a*, (anon principles of sage (II), 5907*d*, see Lindner, A. F
**Brigando, J.** See Caravon-Gentil, A
—— and Caravon-Gentil, A. Prepn. of choline acetate and glutamate, 5742*i*
**Brigatti, L.** See Zanetti, J.
**Briggs, E. K.** See Vurley, Va. K
**Briggs, A. S.**, Haworth, J., and Imperial Chemical Industries Ltd. Antioxidants for rubber, P 7257*b*
——, Haworth, J., and Jackson, H. E. 4,4'-Alkylidenebis(2-alkylhydroxyphenyl)alkanes [nonstaining rubber antioxidants], P 7255.
**Briggs, D. R.** See Sanmoyitch, D
—— and Sanmoyitch, D. Chemistry of the bitter bark of the Black locust tree in relation to frost hardiness (II) seasonal variation in the electrophoretic pattern of the water-sol. proteins of the bark, 9167*g*
**Briggs, F. N.**, Chernick, S. S., and Chaikoff, I. L. Metabolism of arterial tissue (I) respiration of rat thoracic aorta, 7111*e*
**Briggs, G. F.** Corrosion and incrustation of well screens, 2416*b*
**Briggs, G. M.** See Glazener, L. W. Grochoke, A. C., Haque, M. Ex., Milligan, J. L., Short, M. S.
**Briggs, H. B.** See Brattain, W. H
**Briggs, H. M** See Dunning, J. S.; Whitehair, C. K.
——, Gallup, W. D., and Hatheld, E. F. Influence of prepn. of cottonseed and soybean meals on their supplemental value in fattening rations, 6711*e*
**Briggs, J. Z.** See Archer, R. S
**Briggs, L. H.**, and Cawley, R. W. Interpenes (I) identity of kaurene with podocarpene, 2978*a*
——, Daere, J. C., and Nicholls, G. A. Chemistry of the *Coprosma* genus (III) synthesis of aerolatin and an isomer, 3,5,6,7-tetrahydroxy-2-methylanthraquinone, 210*b*.
—— and Mangan, J. L. *Sophora* alkaloids (V) alkaloids of the seeds of a new species from Anawhata, New Zealand, 3016*h*
——, Mangan, J. L., and Russell, W. I. Alkaloids of New Zealand *Senecio* species (I) alkaloid from *Senecio kirkii*, 3017*a*
**Briggs, S. W.** Filter cartridges of accordion folded cellulose wadding and filter paper, P 6873*h*.
**Bright, N. F. H.**, and Carson, T. Photosensitive adsorption of water vapor on wool (II), 3622*i*
**Bright, R. D.** Western balance—synthetic detergents, 8577*e*
**Brighton, C. A.** See Distillers Co., Ltd
**Briglio, A., Jr.** See Shuster, P. A., Jr
**Brigonnet, J.** Interfacial mol. adsorption 921*c*; see Trillat, J. J.
**Brihta, I.** Viscosity in aq. solns., 6891*f*
**Brik, S. D.**, Nefmark, V. E., and Entin, R. I. Effect of small addns. of B and V on the crystn. of steel, 531*h*.
**Brikker, S. I.**, Vernov, S. N., Grigorov, N. L., Ivreinova, I. M., and Charakhch'yan, T. N. Transition effect of cosmic rays in the stratosphere, 4557*g*.
**Bril, A.** Satn. of fluorescence with cathode ray excitation, 8281*i*

**Brll, I. L.** Detn. of the chem. resistance of glass, 3579*a*.
**Brll, J.** See Boutaric, A.
**Brill, R.** Structural investigations with x-rays, 3691*d*.
——, Hermann, C., and Peters, C. Analysis of magnesia, 6032*d*.
**Brille.** Centrifugal separators, 909*d*.
**Brilliant, V. A.** Influence of preliminary darkening on photosynthesis in higher and lower aquatic plants, 4731*h*; influence of certain factors on the light and the dark reactions of photosynthesis in aquatic plants, 5452*h*.
**Brimhall, B.** See Frey, K. J., Sprague, G. F.
**Brimley, R. C.** Paper chromatography, 5695*h*; see Partridge, S. M.
—— and Snow, A. Automatic app. for continuous collection of liquid samples, 4523*i*.
**Brin, G. P.** See Krasnovskii, A. A.
**Brindley, G. W.** Order and disorder in certain lamellar silicates, and dehydration of halloysite, 6121*i*; mineralogy and crystal structure of chamosite, 8987*g*.
—— and Goodyear, J. Halloysite and metahalloysite (II) transition of halloysite to metahalloysite, 4607*b*.
—— and Robinson, K. Anatase in some fireclay deposits, 4605*d*, halloysite and metahalloysite (I) structure of metahalloysite, 4606*i*.
——, Robinson, K., and Goodyear, J. Halloysite and metahalloysite (III) effect of temp. and pressure on the transition from halloysite to metahalloysite, 4607*i*.
**Brindley, T. A.**, Schopp, R., and Hinman, F. G. Field tests *vs* lab. tests with DDT against the pea weevil, 1521*g*.
**Briner, E.** Effect produced on the equil. const. and the rate of transformation of a chem. system by the addn. of an additive, 2077*b*; chem. reactions for which the Berthelot Thomsen principle of max. work is valid, 2817*c*; see Spreter, V. C., Szmaragd, S.
——, Panza, G., and Paillard, H. Dissocn. equil. of Ca sulfate, K sulfate, and Na sulfate, 2493*i*; velocity of thermal dissocn. of the sulfates of Ca, K, and Na—reaction strongly accelerated by water vapor, 6895*g*.
**Bringi, N. V.** See Ingle, T. R.
**Bringman, R. E.**, Pascoe, T. A., and Kahn, J. M. Making white liquor, 4463*d*.
**Brink, C.**, Dallinga, G., and Nivard, R. J. F. Solid hydrides of As, Sb, and Bi, 6929*i*.
—— and MacGillavry, C. H. Crystal structure of $K_2CuCl_3$ and isomorphous substances, 7771*i*.
**Brink, D. L.**, Hossfeld, R. L., and Sandstrom, W. M. Products from the degradation of lignin by Na hydrosulfide, 6823*i*.
**Brink, F.**, and Posternak, J. M. Thermodynamic analysis of the relative effective ness of narcotics, 3933*c*.
**Brink, N. G.**, Kuehl, F. A., Jr., Flynn, E. H., and Folkers, K. Streptomyces antibiotics (XVI) structures of bisdesoxystreptose, dihydrodesoxystreptose, and tetraacetylbisdesoxystreptobiosamine, 1328*e*.
——, Wolf, D. E., Kaczka, E. A., Riekes, E. L., Komuszy, F. R., Wood, T. R., and Folkers, K. Vitamin $B_{12}$ (IV) characterization, 8469*d*.
**Brinkerhoff, L. A.** See McMichael, S. C.
**Brinkhous, K. M.** See Graham, J. B.
**Brinkley, S. R., Jr.** See Owen, B. B.
—— and Lewis, B. Combustion gases—equil. compn. and thermodynamic properties, 8119*f*.
**Brinkman, H. C.** Fluid flow through swarms of particles and through macromols. in soln., 6050*d*, Bouw der atomen en moleculen (book), 7318*i*; see Kersten, J. A. H.
—— and Hermans, J. J. Effect of nonhomogeneity of mol. wt. on the scattering of light by high-polymer solns., 8814*f*.
—— and Vlam, C. C. Emission bands of luminescent solids, 7347*d*.
**Brinnick, F. E.** See Tuve, R. L.
**Brinsley, F.** Controlling the combustion of town gas, 8110*e*.
**Brinton, H. P.** See Fairhall, L. T.
**Brinton, W. C.** Polishing compn., P 8714*c*.
**Brintzinger, H.** Detn. of ionic wts., 2074*e*; antimonate, antimonite, germanate, and aluminate ions in soln., 2112*f*; diasolysis, 8800*d*.
—— and Benigni, K. $Al_2O_3$, low in Fe, from the $H_2SO_4$ decompn. of clay, 2744*c*.
—— and Götze, M. Diasolysis, 4077*e*.
—— and Hesse, B. Dialkylaminomethylol, tetraalkylaminomethylenediamine, and alkyloxazolidine as gelatin hardeners and tanning agents, 7246*e*.
——, Lochner, K. H., and Noeske, H. Tetrachlorophthalic and nitrophthalic acids for the prepn. of alkyd and modified alkyd resins, 8733*c*.
—— and Mollers, A. Prepn. of active oxides and oxide hydrates by decompn. of metal salts with superheated steam, 2533*i*.
—— and Munkelt, S. Complex compds. and salts of ethylenediaminetetraacetic acid, 2113*c*.
—— and Pfannstiel, K. Reactions with nitryl chloride (I) addn. of nitryl chloride to aliphatic double or triple bonds, 1716*b*, nitrosoalkylcarbamic acid esters, 4633*h*.
——, Pfannstiel, K., and Koddebusch, H. Prepn. of chloropropionitriles and chloroacrylonitriles by means of the pyridine-catalyzed chlorination of acrylonitrile, 2571*d*.
——, Pfannstiel, K., and Vogel, H. Seleno org. compds., 2159*e*.
——, Rausch, F., and Backhausen, M. Detg. W, 1683*e*, tungstic acid from slag and ores, 2743*e*.
—— and Schneider, E. Cathodic halogen removal from halogenated benzenes, 8908*f*.
——, Thiele, H., and Munkelt, S. Salts and complex compds. of nitrilotriacetic acid (II), 2888*c*.
—— and Titzmann, R. Detn. of W in slags, 3313*b*.
—— and Ziegler, H. W. Thio ketones, 4633*c*.
——, Ziegler, H. W., and Schneider, E. Cathodic reduction of trichloronitromethane, 8915*b*.
——, Ziegler, H. W., and Scholz, A. Polymers and copolymers from aromatic compds. with a halogenated side chain by heterogeneous catalysis, 1603*c*.
**Brion, A.**, Pellerat, J., and Castric, M. Blood histamine in pulmonary emphysema of horses, 748*i*.
**Briscoe, H. T.** General chemistry for Colleges (book), 327*g*.
**Briscoe, H. V. A.** See Holt, P. F.
**Briseno-Castrejon, B.** See Finerty, J. C.
**Brisker, N. A.** See Zbarskii, I. B.
**Briskman, A. A.** Operation of gas wells, 1550*i*.
**Brisou, R.** Steam injection in horizontal retorts at the gas works Chalons sur Saone, 5925*e*.
**Brissaud, L.** Detn. of pentosans in plant materials and in pulp, 7227*h*, see Fleury, G.
**Brisson, R.** *meso*-Di-2-furylquinols of anthracene—transpositions in HCl, 4252*f*, See Étienne, A.
**Brister, J. E.**, and Burch, C. J. Resin-covered wire or cable, P 3234*c*, 5631*i*.
**Bristol, J. E.** See Hansley, V. L.
**Bristol Aeroplane Co., Ltd.** Steel-backed bearing alloy, P 1308*d*.
**Bristow, F. J.** Esterification of phthalic anhydride with primary alcs., 2974*f*.
**British Aluminium Co. Ltd.**, Pullen, A. N. D., and Richmond, J. T. Treatment of Al, etc., P 4589*c*.
**British Artificial Resin Co. Ltd.** See Frank, Fritz.
**British Celanese Ltd.** (*Patents.*) Purifying cellulose esters of higher fatty acids, 401*g*, aliphatic acids, 1666*a*; dyes, 1986*c*, cellulose esters, 2468*d*, 3197*a*, 5592*a*, 6414*f*; cellulose derivs., 3197*d*; washing of cellulose derivs., 3208*i*, $C_2H_4$ polymers and copolymers, 3235*i*, crotonic acid, 3442*i*; producing ornamental and other effects on org. esters of cellulose material, 4030*d*; allyl alc., 4284*i*; cyclopentadiene, 4292*i*; purification of cellulose products, 4466*c*; org. sulfites, 4466*g*, 6219*g*, butadiene, 5410*i*, maleic acid and maleic anhydride, 5415*i*, cellulose ethers, 6411*d*; 4-chloro-3-nitrobenzenesulfonamide, 6662*a*; treatment of textile materials, 7713*e*, anthrapyridone dyes, 8165*a*, anthraquinone dye for cellulose acetate, 8164*h*; stiff or semi-stiff fabrics and articles, 9477*e*.
**British Cellophane Ltd.**, Berry, W., and Oswin, C. R. Flexible metal hose or tubing, P 4626*g*.
——, Berry, W., and Pritchard, F. W. Sheet wrapping materials, P 5881*f*.
**British Drug Houses Ltd.** Esters of hydroxyalkoxybenzoic acids, P 2233*e*; *o*-tolyl 2,3-dihydroxypropyl ether, 5802*i*; water solns. of aryl 2,3-dihydroxypropyl ethers, P 7508*f*.
——, Berger, F. M., Bradley, W., and Saver, F. G. Water solv. of phenyl $\beta,\gamma$-dihydroxy ethers, P 4696*f*.
——, Bradley, W., Forrest, J., and Stephenson, O. Aryl dihydroxyisobutyl ethers, P 5420*i*.
——, Bradley, W., and Stephenson, O. Glycerol ethers, P 5794*f*, basic ethers, P, 7045*h*.
**British Industrial Solvents Ltd.** *N*-Arylacetamides, P 3845*f*.
**British Insulated Cables Ltd.** Same as British Insulated Callender's Cables Ltd.
**British Insulated Callender's Cables Ltd.** High frequency electrodes, P 4151*d*.
——, Callender-Suchy Developments Ltd., Hunter, P. V., Brazier, L. G., and Suchy, C. J. Flexible elec. conductors, P 4589*e*.
—— and Hamilton, G. M. Cellular polymerized ethylene, P 6001*c*.
—— and Mills, E. W. Plastic materials, for the covering of elec. conductors, P 902*d*.
—— and Northway, H. S. Lacquers, P 876*g*.
**British Oxygen Co., Ltd.**, Booth, N., and Gardner, J. B. Melamine, P 7518*i*.
**British Plaster Board Ltd.** Plaster of Paris, P 374*e*.
**British Resin Products Ltd.** Cyanoethyl substituted 1,3,5-trimethylene trisulfones, P 6674*b*.
——, Evans, E. M., and Thurston-Hookway, H. Allyl derivs. of 1,3,5-trimethylene trisulfone, P 4705*c*; cyanoethylation of 1,3,5-trimethylene trisulfone, P 5427*e*.
——, Morgan, J. D., and Frenkel, B. Synthetic resins, P 2814*g*.
**British Rubber Manufacturers' Research Association.** Influence of the material forming the mold surface on the tensile and aging properties of rubber, 2023*h*.
**British Rubber Producers' Research Association.** Gee, G., and Stokes, S. C. Oil-resisting rubbers, P 7744*g*.
—— and Popham, F. J. W. Rubber derivs., P 4890*e*, resinous condensation products and molding compns., P 5999*e*, 7751*f*, resinous condensation products including rubber or derivs., P 5999*e*.
—— and Roberts, K. C. Adhesive compns., P 9535*f*.
**British Schering Research Laboratories Ltd.**, Hey, D. H., Carter, P. R., Hook, W. H., and Fitzgerald, M. E. H. Estrogens, P 6666*e*, estrogen intermediates, P 6666*g*.
**British Thomson-Houston Co. Ltd.** (*Patents.*) Copolymers contg. 2-vinyldibenzofuran, 1220*d*, alkylsilicone sols and gels, 1504*i*; organosilicon sols and gels, 1505*b*; removal of Si-bonded chloromethyl radicals from polysiloxanes, 3238*b*; (chloromethyl)silicon compds., 3441*d*, (di- and (trichloromethyl)chlorosilanes and their hydrolysis products, 3441*e*; vinyl fluoride polymers, 3659*i*, fixative for insulating materials contg. halogenated hydrocarbons, 4402*d*, chlorination of methylpolysiloxane resins, 4050*a*, stabilization of halogenated hydrocarbons, 4682*e*; methyl silicone elastomers, 5625*ad*, tetraallylsilane polymers, 5637*f*, vinylfluorenes, 5804*g*, organoboron compds., 6220*i*; alkenyl substituted chlorosilanes, 6220*e*, carbazole derivs., 6669*i*; 9 vinylcarbazole, 6669*f*, polymerizable polysiloxane compds. and copolymers thereof, 7262*d*; methylvinylpolysiloxane-methyl methacrylate copolymers, 7262*f*, fluorescent materials, 7352*b*; treating materials to render them water-repellent, 7686*c*, 9478*e*; hydrocarbon-substituted halogenosilanes, 7752*e*; alkylation of silanes, 8398*a*; resinous condensation products, 9527*f*.
**British Titan Products Co. Ltd.** Extn. of Fe from titaniferous ores, P 554*i*, $TiO_2$ pigments, P 1994*f*, utilizing $FeCl_2$ liquors, P 7368*b*.
**Britt, K. W.** Developments in wet-strength paper, 1185*d*.
**Brittain, E. H.** See Distillers Co., Ltd.
**Brittain, F. H.** Crystal contact, P 8919*f*.
—— and Ransley, C. E. Point-contact rectifier, P 6098*d*.
**Britten, K. H. V.** See Booth, A. D.
**Britton, C. E.** See Young, D. W.
**Britton, E. C.** See Moll, H. W.; Sexton, A. R.
—— and Coleman, G. H. Derivs. of 9-anilinoacridine, P 4703*c*.

——, Coleman, G. H., and Perkins, R. P. Classification headaches, 6967*f*.
—— and Dietzler, A. J. Ca Ni phosphate catalyst, P 2382*e*; Ca Ni phosphate-Cr oxide catalyst, P 2382*i*.
—— and LeFevre, W. J. Emulsion polymerization in the presence of an Fe salt and a water-sol. peroxide, P 5641*f*; polystyrene, P 8742*i*.
—— and Monroe, E. Esters of 5-*tert*-butylsalicylic acid, P 4697*d*.
—— and White, H. C. Organosiloxane polymers, P 8210*c*.
——, White, H. C., and Moyle, C. L. Polymerization of organopolysiloxanes, P 3238*b*.
**Britton, J. W.,** and Dosser, R. C. Polymerizing vinyl chloride, P 6465*h*.
**Britton, S. C.** Sn undercoatings, 4492*e*.
**Britton, S. W.** See Silvette, H.
**Brix, P.** Photographic effect of moderately fast protons, 8895*d*; see Geerk, J.
—— and Kopfermann, H. Isotope displacement effect of the heavy elements, 7337*c*.
**Brixius, J. K.** Filter of zig-zag folded material and a wire screen, P 8758*a*.
**Broach, W. J.** See Keith, C. K.
**Broadbent, F. E.** N release and C loss from soil org. matter during decompn. of added plant residues, 1891*e*.
**Broadbent, H. S.** See Gilman, H.
**Broadbent, J. L.** See Bain, W. A.
**Broadbooks, K. J.** See Kenyon, R. L.
**Broadfoot, H. H.,** and Schwarz, E. R. Permanent mounting medium for textile fibers, 1570*h*.
**Broadfoot, J.** Protection of cut sets of potato from infection with penicillium, 343*a*.
**Broadhurst, W. L.,** Sundstrom, R. W., and Weaver, D. E. Public water supplies in western Texas, 7611*b*.
**Brobeck, W. M.** Design for a ten-b.e.v. magnetic accelerator, 931*e*.
**Brobst, K. M.** Detn. of moisture in lecithin and crude soybean oils, 1581*h*
**Broca, J.** See Vincent, D.
**Brocard, J.** Accelerators and retarders of the setting of portland cements, 3165*e*; see Guimet, A.
**Broch, E. K.** Fine structure of the H atom, 4135*d*.
**Broch, O. J.** Effects of plasma transfusions in nephrogenic hypoproteinemia, 9225*h*.
**Broch, P. J. F.,** and Jacob, F. Antibiotic secretion of *Bacillus brevis*, 5826*e*.
**Brochard, P.** Chem. hydration of pulp, 400*b*.
**Brochart, M.** Adrenaline in mammalian semen, 1098*e*; see Beauvallet, M.
**Brocheriou, J.** See Desclaux, P.
**Brochmann-Hanssen, E.** See Christian, J. E.
**Brock, F. D.,** and Holleman, M. P. Com. feeding stuffs, 3538*i*.
**Brock, H.** See Damerell, V. R.
**Brock, L. W.,** Swart, G. H., and Osberg, E. V. Advances in rubber, 2457*c*.
**Brockhoff, F. G.** See Grosse-Brockhoff, F.
**Brockington, S. F.,** Dorin, H. C., and Howerton, H. K. Hygroscopic equil. of whole-kernel corn, 4783*f*.
**Brockman, F. G.,** Dowling, P. H., and Steneck, W. B. Anomalous behavior of the dielec. const. of a ferromagnetic ferrite at the magnetic Curie point, 5244*e*.
—— and Wescott, J. W., 2nd. Extremely thin filaments, P 5318*c*.
**Brockman, F. J.,** Downing, D. C., and Wright, G. F. Nitrolysis of hexamethylenetetramine (III) prepn. of pure cyclonite, 9073*e*.
**Brockman, J. A., Jr.** See Koepfli, J. B., Shaffer, P. A., Jr.
**Brockmann, H.,** and Mühlmann, R. Photooxidizable derivs. of helianthrene, 5391*a*.
—— and Pini, H. Actinorhodine, 5823*d*
**Brockway, C. E.** See Bachmann, W. E.
**Brockway, D. R.** See Phillips, A. M., Jr.
**Brod, J.,** and Sirota, J. H. Effects of emotional disturbance on water diuresis and renal blood flow, 7115*h*.
**Broda, E.** Detn. of the yield of some ($\alpha$, $n$) reactions by the Szilard-Chalmers effect, 6910*e*; Szilard-Chalmers effect produced by neutrons of different energies, 6910*f*; chemistry of the transuranium elements, 8261*a*; see Zajac, B.
——, Grummitt, W. E., Guéron, J., Kowarski, L., and Wilkinson, G. Self weakening in $\beta$-ray measurements, 3707*f*.
**Brodal, E.,** and Guldhav, H. Fluorides for the manuf. of Al, P 5680*e*; utilization of furnace residues in the electrolytic production of Al, P 6095*f*.
**Brodbeck, H.** Soldering powder, P 4212*a*.
**Brode, R. B.** App. for mesotron mass measurements, 4092*i*; mass of the mesotrons, 4103*b*, 5284*h*, see Moore, Donald C.; Retallack, J. G.
**Brode, Wm R.** Chem. spectroscopy, 4939*g*; application of absorption spectra to chem. problems, 4939*h*; see Boord, C. E.
—— and Timma, D. L. Influence of extraneous elements on line intensity (IV) extraneous element effects in the d.-c. arc, 6083*f*.
**Broderick, A. E.** Insolubilization of water-sol. hydroxyl-contg. polymeric materials, P 5640*a*.
**Brodersen, K.** See Orthner, L.
**Brodersen, R.** Inactivation velocity of penicillin G by acids, 3697*e*; kinetic investigations into enzymic inactivation of penicillin G, 9092*a*.
**Brodie, B. B.** See Axelrod, J.; Flinn, F. B.; Lo Grippo, G. A.; Papper, E. M.; Rosenberg, B., Soberman, R.
—— and Axelrod, J. Estn. of acetanilide and aniline, *N*-acetyl-*p*-aminophenol, and *p*-aminophenol in biol. fluids and tissues, 263*g*, acetanilide in man, 313*e*.
——, Axelrod, J., Soberman, R., and Levy, B. B. Estn. of antipyrine in biol materials, 6693*c*.
——, Lief, P. A., and Poet, R. Procaine in man following its intravenous administration—estn. of procaine and diethylaminoethanol, 1821*c*.
**Brodie, D. C.,** and Lowenhaupt, E. Acute and chronic toxicity of 9-aminoacridine-penicillin, 9265*a*
**Brodie, J.,** and Shepherd, W. Differential inhibition of coliform bacilli and rough variants of intestinal pathogens, 4329*a*.
**Brodie, O. J.** See Walton, R. P.
**Brodien, G. D.** Finishing calcg. machines, 1578*i*.
**Brodine, C. E.** See Becker, E. R.
**Brodovich, L. A.** Fe metabolism in anemic conditions (IV) nonhemoglobin Fe of plasma in diseases of the blood, 3076*e*.
**Brodrick, C. I.** See Peters, A. T.
——, Peters, A. T., and Rowe, F. M. Reaction of diazosulfonates derived from 2-naphthol-1-sulfonic acid (XXV) phthalazine reaction with bases not contg. a nitro group, 236*f*.
**Brodskii, A. I.** Investigation of some chem. reaction mechanisms with the aid of isotope exchange, 5011*c*; Phys. Chemistry (book), 5276*f*, Work of Pisarzhevskii on peroxides and the electrochemistry of nonaq. solns., 7761*i*; Calcn. of Thermodynamic Functions (book), 7808*b*.
**Brodsky W. A.** See Rapoport, S.
**Brody, E. B.** Psychologic tension and serum I levels in psychiatric patients without evidence of thyroid disease, 5852*g*.
**Brody, F.** See Elderfield, R. C.
**Brody, J. K.** See Fred, M.; Lesher, M.
**Brody, S.,** Burge, C., Blincoe, C., Barton, J., Ragsdale, A. C., Thompson, C. J., Tary, R., Platner, W., and Worstell, D. M. Environmental physiology—domestic animals (III) influence of ambient temp. on the blood compn. of Jersey and Holstein cows, 9209*g*.
——, Comfort, J. E., Kibler, H. H., and Worstell, D. M. Growth and development with reference to domestic animals (LXI) growth and metabolism of beef cattle, 4353*b*
**Broeck, W. T. L. ten, Jr.** See Ten Broeck, W. T. L., Jr.
**Broeder, J. J.** See Kramers, H.
**Broeg, C. B.** See Balch, R. T.
—— and Balch, R. T. Refined sugar-cane wax, P 428*a*.
**Broeke, J. A. ten.** See Ten Broeke, J. A.
**Broekers, C. R.** Crystal form and paint-tech. properties of chrome green, 7237*f*.
**Bröking, H.** Surface protection of steel by Cu plating, 3337*i*.
**Broer, L. J. F.** Reflection-transmission effect in expts. on polarization of electrons, 3705*f*, quadratic Zeeman effect in the Cs spectrum, 4953*g*.
**Broese, W.** Effect of large doses of vitamin $B_1$ on the working capacity of the organism in subjects receiving a normal or subnormal vitamin $B_1$ diet, 8475*f*.
**Brötz, W.** See Wicke, E.
**Brogi, Gabriele.** See Caniggia, A.
**Brogi, Giulio,** and Petreni, D. Antiparasitic wax or substitutes for floors, furniture, etc., P 5614*a*.
**Broglie, L. de.** Life and work of Paul Langevin, 8219*e*; reality of mols. and the work of Jean Perrin, 8219*f*.
**Brogren, G.** Detn. of the lattice const. of quartz 1340, 7287*a*; x-ray absorption spectra of rare gases with Geiger counters and bent crystal, 7816*f*.
**Broh-Kahn, R. H.** See Mirsky, I. A
——, Mirsky, I. A., Perisutti, G., and Brand, J. Inactivation of insulin by tissue exts. (II) effect of fasting on the insulinase content of rat liver, 6252*h*.
**Brohult, S.** See Eeg-Olofsson, R.
**Broida, V.** Heat inertia in problems of automatic control of temp., 5648*d*
**Broihan, F.** Ignition of explosive mixts. of gas and air, 407*b*.
**Broja, G.** See Schmitz-DuMont, O.
**Brokaw, A.** See Schmidt-Nielsen, B.; Schmidt-Nielsen, K.
**Brokaw, A. D.** Correction of gas vol. for compressibility and temp., 8645*c*.
**Brokow, C. H.** See Cotton, R. H
**Brolley, J. E., Jr.,** Sampson, M. B., and Mitchell, A. C. G. Energy levels of $Sn^{120}$, 8870*i*.
**Broman, T.,** See Olsson, O
—— and Olsson, O. Contrast media for cerebral angiography—injurious effects on the cerebral blood vessels, 8418*g*
**Bromberg, A. V.** See Chmutov, K. V.
**Bromiley, R. B.,** and Baird, P. Tremor and changes in reflex status produced by DDT in decerebrate, decerebrate-decerebellate, and spinal animals, 6319*a*
**Bromley, L. A.** See McCullough, J. D.
**Bromley, W. H., Jr.** Stable aq. dispersions of polyvinyl butyral, P 2038*b*
**Brommelle, N. S.,** and Phillips, H. W. L. Al-Cu-Mg alloys, 4204*d*
**Bromstead, E. J.,** and Glaser, M. A. Heat-resisting silicone finishes, 875*b*
**Bron, V. A.** Compn. and structure of drops from the roofs of open-hearth furnaces 3163*e*; silica brick with magnesia binder, 4437*d*, tridymite Dinas from vein quartz, 5345*i*, wear of Dinas in the arch of open-hearth furnace, 6382*g*.
—— and Zegzhda, D. P. High-Al ware from clays of the southern Urals, 5915*d*.
**Bronell, G.** Detn. of Lovibond color, 7719*g*.
**Broniewski, A.** Systematic configurations of nuclei, 5288*b*, systematics of heavy nuclei, 7330*i*
**Bronk, L. B.** See Liebhafsky, H. A
**Bronovitskaya, Z. S.** See Mikhlin, D. M
**Bronsart, H. v.** Soil sickness in tree nurseries, 8081*c*.
**Bronshtein, I. I.** Photoelec. app. for the study of settling of solid or colloidal particles in liquid, P 3250*d*
**Bronshvager, V. S.** See Lapushkin, S. A
**Bronson, J. F.** See Dudley, H. C.
**Bronson, T. E.** See Dudley, J. E., Jr.
——, Stone, P. V., and Allen, T. C. Hexaethyl tetraphosphate for cabbage aphid control, 5526*d*
**Brook, A. J.** See Greene, R. D
**Brook, M. J. van der.** Van der Brook, M. J
**Brooke, M.** Detn. of chlorides in water, 1886*a*
**Brooke, R. O.** See Tyler, S. W
**Brooker, L. G. S.** Photographic emulsions sensitized with *N*, *N*-alkylene cyanine dyes, P 3736*e*; quaternary salts and dyes for sensitizing photographic emulsions, P 4160*d*, *N*-arylthiazolinium quaternary salts and dyes therefrom and the incorporation of *N*-arylthiazolinium dyes in photographic emulsions, P 7843*e*, see Carroll, B. H.
——, Holcomb, W. F., and Banks, C. K. Pyrimido 2′-cyanine dyes, P 8167*d*.
——, Sprague, R. H., and Kodak Ltd. *N*, *N*′-alkylene cyanine dyes, P 7845*a*.
**Brooking, W. J.** Testing paint and finishing materials, 418*i*.
**Brookman, E. F.,** Pearce, S. F., and Imperial Chemical Industries Ltd. Thermoplastic compns., P 4050*g*.
——, Smith, L. M., and Imperial Chemical Industries Ltd. Thermoplastic compns., P 4050*f*.
**Brooks, B. T.** Origin of petroleum, 2903*b*; chlorohydrins, P 4687*b*; active surface catalysts in formation of petroleum, 5920*f*.
**Brooks, C. E. P.** Atm. pollution in Great

Britain in relation to burning of coal, 3592*i*.

**Brooks, C. H.** See Dougherty, P. F.

**Brooks, C. M.**, and Eccles, J. C. Effects of anesthesia and asphyxia on the monosynaptic pathway through the spinal cord, 9259*h*.

**Brooks, F. R.**, Lykken, L., Milligan, W. B., Nebeker, H. R., and Zahn, V. Analysis of gases by absorption and combustion, 8962*b*

——, Nelsen, F. M., and Zahn, V. Nomograph-testing lab. batch-distn app., 2041*c*

**Brooks, J. A.** See Mavity, J. M.

**Brooks, J. D.** Catalytic oxidation of coal and petroleum products, 5133*e*.

**Brooks, J. W.** Polymerization of olefins in presence of dihydroxyfluoboric acid, 8657*b*; see Poos, F. W.

**Brooks, L. A.** Polymers of halogenated diphenylethylene as insulator for elec conductors and dielectrics for condensers, P 6866*a*

**Brooks, L. J.** Pigments and paints, 4788*g*, 4789*c*.

**Brooks, M. C.**, and Badger, R. M. Characterization of high-polymer fractions, 2071*f*.

**Brooks, R. E.** Ether esters, P 1055*d*, esters from CO and ales., P 3143*b*, see Gresham, W. F.

**Brooks, R. L.**, and Atkin, M. L. Lubricating oil film between piston ring and cylinder of a running engine—effects of lubricant properties and additives, 8658*f*.

**Brooks, V. B.**, Ransmeier, R. E., and Gerard, R. W. Action of cholinesterases, drugs, and intermediates on respiration and elec activity of the isolated frog brain, 7147*f*

**Brooks, W.** See Wilson, J. W., III

**Brooks, W. B.** See Waggoner, A. G.

**Brooksby, J. B.** See Henderson, W. M.

**Broom, W. A.** See Harmer, G. I. M.

**Broome, F. K.** See Ralston, A. W.

**Broomhead, J. M.** Structures of pyrimidines and purines (II) detn. of the structure of adenine HCl, 3263*a*

**Broos, J.** See Kroger, P. A.

**Brophy, D.**, and McEachern, D. Effect of thyroxine on O consumption of different tissues, 3503*a*

**Brophy, G. R.**, and Millet, A. J. Steels and structural embodiments for use at low temps., P 989*c*.

**Brophy, J. E.**, Larson, I., and Mohtz, R. O. High temp. performance of silicone fluids in journal bearings, 1173*e*

**Broquist, H. P.** See Snell, E. E.

——, Stokstad, E. L. R., Hoffmann, C. E., Bell, M., and Jukes, T. H. Growth factors required by *Leuconostoc citrovorum*, 9148*b*

**Brosamer, R. J.** See Gibbs, F. C., Jr.

**Brosch, C. D.** See Dias Brosch, C.

**Broschard, R. W.** See Porter, J. N.

——, Dornbush, A. C., Gordon, S., Hutchings, B. L., Kohler, A. R., Krupka, G., Kushner, S., Lefemine, D. V., and Pidacks, C. Aureomycin, 3881*b*

**Broser, I.**, and Kallmann, H. Measurements of $\alpha$ particle energies with the crystal fluorescence counter, 2861*c*.

——, Kallmann, H., and Warminsky, R. Counting neutrons with CdS crystals, 4110*h*

**Broser, W.** Detn. of the mol. size of polyamides, 5262*i*.

**Brosi, A. R.**, DeWitt, T. W., and Zeldes, H. Decay of 8-day iodine[131] to a metastable state of xenon[131], 5296*d*.

**Brosse, E. la.** See La Brosse, E.

**Brossot, C.**, and Olander, A. Fusion of siliceous fluorspar, 1535*e*.

**Brostrøm, K. J.**, Huus, T., and Koch, J. $\gamma$-Rays from proton bombardment of sepd. A isotopes, 2506*e*.

**Brotman, M.** See Wilkins, D. S.

**Brouardel, J.** See Rinck, E.

**Brouckere, L. de**, and Casimir, J. Stabilization of colloidal solns. of lyophobe particles, 2486*i*.

**Brough, P. V.**, and Gillespie, K. B. Concg. Pb-Zn ore at the Bayard mill, 78*b*.

**Broughton, D. B.** See Uhlig, H. H.

——, Wentworth, R. L., and Farnsworth, M. E. Exchange between cobaltous ion and cobaltic hydroxide, 8820*i*.

**Broughton, H. E.** Waste Fe sulfate soln. recovery, P 1927*b*.

**Brouillard, R. E.** See Lacey, H. T.; Lecher, H. Z.

—— and Baumgarten, E. Phthalocyanines from $\omega$-Cl or $\omega$-Br substituted *o*-toluonitriles, P 3214*g*.

**Broun, A. S.**, and Ioffe, B. V. Reaction of S with unsatd. compds. (I) dehydrogenative action of S on naphthene hydrocarbons, 5376*e*.

—— and Voronkov, M. G. Synthesis of phenylthiophenes and homologs, 2614*i*, reaction of S with unsatd. compds. (III) syntheses in the 3-phenylthiophene series, 5392*f*.

——, Voronkov, M. G., and Gol'dburt, F. I. Reaction of S with unsatd. compds. (II) synthesis of 4-phenyl-3-thiotolene, 5392*d*.

——, Voronkov, M. G., and Shlyakhter, R. A. Reaction of S with unsatd. compds. (I) synthesis of 3-phenylthiophene, 5392*d*.

**Brouwer, R. de.** Cathodic protection, 1706*a*.

**Brower, A. E.** Beech scale and beech bark disease, 5895*b*.

**Brower, T. E.**, and Larsen, B. M. Thermochem. factors in basic open-hearth production rate, 530*c*, correlations between variables affecting S in blast-furnace iron, 2565*e*, 7389*a*.

**Brown.** See also Braun.

**Brown, Alexander.** Stretching and relaxing of polyethylene, 6045*h*

**Brown, Anita**, Corkill, A. B., Fantl, P., and Nelson, J. F. Alloxan diabetes, 301*d*.

**Brown, A. F.** Fine structure of slip-zones in pure Al, 8325*g*.

**Brown, A. G.** See Thuman, W. C.

**Brown, A. H.**, Fager, E. W., and Gaffron, G. Assimilation of tracer C in the alga *Scenedesmus*, 8009*f*.

**Brown, A. M.** Antibiotic, P 6702*a*

**Brown, A. R.**, Hucks, R. T., and Johnson, C. W. Hammered-metal finish-lacquers, P 9486*i*.

**Brown, A. W. A.**, Hopewell, W. W., Wenner, B. J., and McDonald, H. Org. insecticides for control of certain lepidopterous larvae, 2726*d*.

**Brown, B. F.** See Hawkes, M. F.

**Brown, B. R.**, and Hammick, D. L. Syntheses of some asymmetric naphthalene and acenaphthene hydrocarbons, 1388*h*; decarboxylation (III) occurrence of 2-quinolyl anions during the decarboxylation of quinaldinic acid, 7024*h*; (IV) kinetic evidence that the decarboxylation of quinaldinic and isoquinaldinic acids takes place through the amphoteric ion form, 7310*a*

**Brown, Bruce R.** See Greer, M. A.

**Brown, B. W.** Wyo. corderite, 828*f*, effect of Na carboxymethylcellulose on bentonite, 8652*g*, Wyo. bentonite, 8988*a*.

**Brown, C. A.** See Talley, E. A.

——, Holdeman, Q. L., and Hagood, E. S. Injuries to cotton by 2,4-D, 9350*e*.

**Brown, Carl F.** See Deuel, H. J., Jr.

**Brown, Charles F.** Aq. dispersions of synthetic rubbers, P 896*b*.

**Brown, C. J.**, Peiser, H. S., and Turner-Jones, A. Crystal structure of Na sesquicarbonate, 7771*c*.

**Brown, C. W.**, Madsen, R. C., and McClymont, G. L. Pea vine residue—valuable stock feed, 8575*e*

**Brown, D., & Sons (Huddersfield) Ltd.** and McPherson, D. Protective coating and surface hardening of Fe and steel, P 7405*b*

**Brown, D. A.**, and Albrecht, W. A. Plant nutrition and the H ion (VI) $CaCO_3$, 2722*d*

**Brown, D. D.** See Denny-Brown, D.

**Brown, D. J.** See Albert, Adrien.

**Brown, Daniel M.**, and Kon, G. A. R. Heterocyclic analogs of stilbenes, 3426*g*.

—— and Ross, W. C. J. Condensation of *p*-dimethylaminobenzaldehyde with 4-methylpyrimidine derivs., 1780*e*.

**Brown, Douglas M.** See Cartwright, G. E., Jager, B. V.; Smith, Emil L.

**Brown, D. R.**, Galloway, W. C., Robertson, J. B., and Silvey, G. A. Self-contained recording pressure gage, 3246*h*.

**Brown, E.**, Wise, C. S., and Wheeler, E. O. Effect of local cooling on the filtration and absorption of fluid in the human forearm, 8039*c*

**Brown, E. A.** See Slanetz, L. W.

——, Skiffington, R. E., and Krabek, W. B. Glycerite of $H_2O_2$—comparison of its bacteriotoxic effect on clostridia with that of other antiseptics, 5533*i*.

**Brown, E. B., Jr.** See Campbell, G. S.

**Brown, E. G.** See Ohlson, M. A.

**Brown, E. M.** See Blake, W. D.

**Brown, E. S.** See Bradbury, J. T.

**Brown, E. V.** See Salivar, C. J.

**Brown, F.**, Hirst, E. L., and Jones, J. K. N. Structure of almond-tree gum (I) constitution of the aldobiponic acid derived from the gum, 1323*h*.

—— and Manu, F. G. Indole formation from phenacylarylamines (II) stability and reactions of phenacyl-*N*-alkylarylamines, (III) isomerization and indolization of phenacylarylamines, 217*i*.

**Brown, F. C.** Temp.-pressure-cond. relations in semiconductors, 4095*g*.

**Brown, F. W.**, and Greenfield, M. A. Calcn. of *n* of water vapor in the far infrared, 4092*b*.

**Brown, G.** Coal resources of Victoria, 526*e*.

**Brown, G. B.** Purine metabolism, 5838*a*; see Bendich, A.; Burchenal, J. H.; Cavalieri, L. F.; Di Carlo, F. J.; Getler, H.

——, Petermann, M. L., and Furst, S. S. Incorporation of adenine into pentose and desoxypentose nucleic acids, 255*e*.

**Brown, G. C.** See Francis, T., Jr.

**Brown, G. E.** See Breit, G.

**Brown, Geoffrey L.**, and Randall, J. T. Low-temp. ultraviolet absorption spectra of biologically important compds., 4714*a*.

**Brown, George L.**, Grieger, P. F., and Kraus, C. A. Properties of electrolytic solns. (XXXVI) effect of addn. agents on the conductance of long-chain salts, 3268*i*.

**Brown, G. M.** See Stutzman, L. F.

—— and Stutzman, L. F. Low-temp. vapor-liquid equil. (II) equil. consts. for N, $CH_4$, and $C_2H_6$, 4914*f*.

**Brown, Harold.** See Longmire, C. L., Perez-Mendez, V.

—— and Perez-Mendez, V. $\beta$-Spectrum of $A^{41}$, 4948*a*.

**Brown, Harrison.** Abs. nuclear abundances, 4095*c*.

—— and Goldberg, E. Neutron pile as a tool in quant. analysis, 6537*h*.

**Brown, Henry.** Cu-plating bath, P 2103*b*; Ni-plating bath, P 2103*d*; electrodeposition of metals, P 4152*b*; electrodeposition of Ni, P 4153*a*, 6095*ab*.

**Brown, Howard.** See Symons, G. E.

**Brown, H. C.** See Ash, A. B.; Schlesinger, H. I.

—— and Eldred, N. R. Stereochemistry (XIV) reaction of triethylamine and quinuclidine with alkyl halides—steric effects in displacement reactions, 3422*f*.

—— and Fletcher, R. S. Chem. effects of steric strains (I) effect of structure on the hydrolysis of tertiary aliphatic chlorides, 6968*e*.

—— and Sujishi, S. Stereochemistry (XIII) acid base studies in gaseous systems (5) dissocn. of the addn. compd. of trimethylboron with quinuclidine—steric configuration of triethylamine, 3422*c*.

**Brown, Horace D.**, and Hixon, R. M. Vapor-phase hydrogenation of furfural to furfuryl alc., 7474*b*.

**Brown, Howard D.** Vitamins and minerals in the production of vegetables, 799*g*.

**Brown, H. E.**, and Schwachtgen, E. C. Physics (book), 5658*f*.

**Brown, H. M.** Pebble and ball mills, 6432*d*.

**Brown, H. T.** Bead-form catalyst, P 1931*a*.

—— and Shankland, R. V. Catalysts, P 1161*b*

**Brown, I. C.** See Reitemeier, R. F.

**Brown, I. E.** Shrink-resistant wool sweaters, 9457*c*.

**Brown, J.** See Lind, D. A.

**Brown, James B.** $CuCl_2$ in aq. soln., 3278*a*.

**Brown, John B.** See White, M. F.

**Brown, J. G.**, Lilleland, O., and Jackson, R. K. Detn. of Cu and Mg in leaves, 9173*a*.

**Brown, Jack H.**, and Allison, J. B. Effects of excess dietary DL-methionine or L-arginine or both, 1470*d*.

**Brown, Joseph H.**, Suckling, C. W., and Whalley, W. B. Fluorinated derivs. of toluene, 7917*e*

—— and Whalley, W. B. Fluorination of org. compds. with anhyd. HF (III) uncatalyzed fluorinations, 2924*i*.

**Brown, J. T.** See Walker, R.

**Brown, James W.** See Linder, P. J.

**Brown, John W.**, Sims, J. L., White, E., and Clifford, J. E. Liver function during infectious mononucleosis, 4366*c*.

**Brown, K. D.** See Kubacki, V.

**Brown, K. R.** Waxy polyol ether-esters, P 886*a*.

**Brown, L. E.** See Swift, C. E.

**Brown, L. J.** See Katcoff, S.

——— and Katcoff, S. Characteristics of the 16.5-minute $Y^{94}$, 7813*b*.
**Brown, L. V.** See Toy, A. D. F.
**Brown, M.** See Hank, R. J.
**Brown, M. H.**, and DeLong, W. B. Stainless steels and other ferrous alloys, 1*d*, 8745*d*.
**Brown, N. C.** See Baker, W.
**Brown, N. L.** See Amdur, I.
**Brown, R.**, Camerini, U., Fowler, P. H., Muirhead, H., Powell, C. F., and Ritson, D. M. Electron-sensitive plates exposed to cosmic radiation (I) decay of μ-mesons, (II) existence of unstable charged particles, of mass 1,000 $m_e$, and their mode of decay, 5284*d*.
———, Johnson, A. W., Robinson, E., and Todd, A. R. Stimulant involved in germination of *Striga hermonthica*, 6285*e*.
——— and Rickless, P. Cell division and cell extension—effect of temp. and of nutrients, 6285*g*.
**Brown, Rachel**, and Hazen, E. L. Activation of antifungal exts. of *Actinomycetes* by ultrafiltration through Gradocol membranes, 9147*i*
**Brown, Raymond A.** See Cann, J. R.; Swendseid, M. E.
——— and Swift, E. H. Coulometric titration of tripos. Sb by electrolytically generated Br and an amperometric end-point, 8301*d*; formal potential of the antimonous-antimonic half cell in HCl solns., 8286*c*.
**Brown, Rupert A.** See Hammock, E. W.
**Brown, R. C.**, and McCormick, H. Comparison of surface tensions, 4064*d*.
**Brown, R. D.** Nonbenzenoid hydrocarbons (I), 5650*i*; quantum mech. investigation of the azulene mol. (I), 7340*a*
**Brown, R. H.** See Verink, E. D., Jr.
——— and English, G. C. Electrochem. principles of cathodic protection, 6092*c*.
——— and Verink, E. D., Jr. Chem. engineering materials of construction—Al alloys, 1*c*.
**Brown, Robert James.** High-frequency induction hardening, 2911*e*.
**Brown, Robert John.** See Day, D.
**Brown, Robert Junius.** See Milas, N. A.
**Brown, Ray K.**, Read, J. T., Wiseman, B. K., and France, W. G. Electrophoretic analysis of serum proteins of the blood dyscrasias, 4758*a*.
**Brown, Robert K.** See Miller, E. C.
**Brown, Robert L.** Cellulose deriv. combined with *N*-alkoxymethyl polyamide, P 3659*c*.
**Brown, Robert Litzel**, and Hafenrichter, A. L. Production and use of beachgrass and dune-grass clones for erosion control (III) influence of kinds and amts. of fertilizer, 1135*f*.
**Brown, R. M.**, and Purcell, E. M. Nuclear magnetic resonance in weak fields, 4952*i*.
**Brown, R. O.** See Kimball, M. H.
**Brown, R. R.** See Johnson, P. H.
**Brown, R. S.** Wear resistance of wire for wire rope, 546*h*.
**Brown, R. T.** See Nearpass, D. C., Painter, J. H.
——— and Potter, G. F. Relation of fertilizers to cold injury to tung trees, 9325*a*.
**Brown, R. W.** Applications of fused cast alumina refractories in the glass industry, 5563*e*.
**Brown, S. C.** Theory and operation of Geiger-Müller counters (III), 1259*c*; see Biondi, M. A.; Farmer, E. C.; MacDonald, Alexander D.
——— and McCarthy, J. J. Microwave gas-discharge counter for the detection of ionizing radiation, 3282*c*.
**Brown, S. M.** See Chapman, H. D.
**Brown, S. O.** See Barron, G. P.
———, Wilkening, M. C., and Schweigert, B. S. Tryptophan deficiency in the chick, 289*c*.
**Brown, T. B.** Foundations of Modern Physics (book), 478*e*.
**Brown, T. F.** See Hunter, T. G.
**Brown, U. J.** Electrolytic device for prevention of scale, corrosion, etc., in radiators and engine-cooling systems, P 6149*b*.
**Brown, Whitman E.** Humphreys spiral concn. on Mesabi Range ores, 6131*h*
**Brown, William E.** See Heitz, R. G.
**Brown, Willis E.** See Bradbury, J. T.
——— and Bradbury, J. T. Influence of diuretics on urinary Na, 4373*b*.
**Brown, W. F., Jr.** Crystal interactions in ferromagnetic resonance, 7278*i*.
**Brown, W. G.** See Chaikin, S. W.; Hochstein, F. A.; Nystrom, R. F.
**Brown, W. H.** See Pearce, L.
**Brown, W. J.** Textile-reinforced plastics, 4356*b*
**Brown, W. N., Jr.** See Mack, P. B.
**Brown, Wallace W.** Horizontal disk chipper, 1182*b*
**Brown, William W.**, McKay, A. S., and Palmatier, E. D. Knock-on secondaries of penetrating particles, 8849*c*.
**Browne, J. S. L.**, McAlpine, H. T., and Hoffman, M. M. Metabolic effects produced by the administration of large doses of adrenocorticotropic hormone to normal humans, 8040*i*.
**Brownell, K. A.** See Hartman, F. A.
——— and Hartman, F. A. Increased glyconeogenetic factor production after adrenal enucleation, 8031*f*
**Brownell, L. E.**, and Gudz, C. B. Blower requirements of rotary-drum vacuum filters, 8213*f*
**Browning, B. L.** App. for detn. of polyuronide carboxyl, 3614*c*, detn. of total and active alkali in sulfate black liquors, 9412*c*, see Pigman, W. W.
———, Pigman, W. W., Leaf, R. L., Jr., Steinert, G., and Wethern, J. Polarography of tannins, 4037*i*
**Browning, D. R.** See Smith, R. M.
**Browning, E.** Modern Drugs (book), 3977*i*.
**Browning, G. L., Jr.** Polymerization modifiers, P 4507*g*.
**Browning, H. C.**, Fraser, F. C., Shapiro, S. K., Glickman, L., and Dubrûle, M. Biol. activity of DDT and related compds., 2359*g*.
———, Shapiro, S. K., and Dubrûle, M. Insecticidal activity of DDT and related compds. against different insect species, 2360*f*.
**Brownlee, G.** Chemotherapy of tuberculosis, 8063*e*.
———, Bushby, S. R. M., and Short, E. I. Biol. studies of polymyxin A and D, 8445*c*; pharmacology of polymyxin A, B, and D, 8554*g*.
———, Green, A. F., and Woodbine, M. Sulphetrone for tuberculosis—pharmacology and chemotherapy, 3099*f*
——— and Kennedy, C. R. Treatment of tuberculosis with sulphetrone, 3100*c*, action of streptomycin, sulphetrone, and promin in tuberculosis, 3100*e*.
——— and Woodbine, M. Antibacterial activity of some synthetic compds. related to penicillin, 2737*d*
**Brownlie, D.** Spray coatings for metals and plastics, 5720*b*.
**Brownlie, I. A.**, and Cumming, W. M. Estn. of impurities in tetryl, 1189*c*
———, Sutherland, G. B. B. M., and Todd, A. R. Infrared spectroscopic measurements of substituted pyrimidines (I) H bonding in 4-triacetyl-D-xylosidoaminopyrimidines, 3422*i*.
**Brownstein, M.** See Doty, P.
**Broyles, A. A.**, and Powell, J. L. Coulomb functions for heavy nuclei, 4090*g*
**Brošek, G.** Fat detn. in substances of vegetable origin, 3746*b*.
**Brozek, S. J.** See Janiszewska Brozek, S.
**Brú, L.** Same as Brú Villaseca, L.
**Brubach, H. F.**, and Smith, N. H. Hydraulic device for raising and lowering Hg in gas analyzers, 911*i*.
**Brubaker, M. M.**, and Jacobson, R. A. Polymerization process, P 4895*i*
**Brubaker, W. M.** See Slepian, J.
**Bruce, C. E. R.** Zeeman effect in astrophys. spectra, 7334*b*.
**Bruce, D. S.** See Bohlman, W. S.
**Bruce, E. I.** See Ewalt, J. R.
**Bruce, G. H.** See Price, W. E.
**Bruce, H. M.**, and Emmens, C. W. Feeding and breeding of lab. animals (VII) testing the adequacy of diets, 1845*d*.
**Bruce, J. L.** Cyprus mines Cu again, 1294*g*.
**Bruce, M. D.** See MacNider, W. de B.
**Bruce, R. A.**, and Alling, E. L. Electrophoretic changes in plasma proteins—effects of albumin on hypoalbuminemia in pneumococcic pneumonia, 2305*g*.
**Bruce, R. S.** Pyrometry 8217*e*
**Bruce, W. A.** Measuring permeability, P 450*c*; see Rose, W.
**Bruce, W. F.** Lactone derivs. of 2-pyridone compds., P 3045*h*, disubstituted acetamidyl derivs. of aminoquinolines, P 3046*b*.
——— and Seifter, J. Substituted glycinamides, P 677*f*.
**Bruce, W. N.** Biol. requirements of the cat flea, 1871*g*.
**Brucelle, G.** Steel analysis, 2546*c*; feasibility of interchanging equipment in spectrochem. analysis, 5695*b*.
**Bruche, K.** Cleaning of the water side of a double-sheaf boiler with Hévolin mixt., 9307*a*.
**Bruchhausen, F. v.** Detn. of MeOH, 0511*g*
**Bruckner, G., Jr.** Same as Bruckner, V.
**Bruckner, I.** See Danielopolu, D.
**Bruckner, R. J.** Alk. phosphatase in pulpal tissue of human teeth, 6715*f*.
**Bruckner, V.** See Fodor, G.
———, Fodor, G., Kiss, J., and Kovács, J. 6,7-Diethoxy-3-methylisoquinolines, 1423*b*.
——— and Kovács, J. Addn. of maleic anhydride to anethole, 2969*i*.
———, Kovacs, J., and Koczka, I. Betulinic acid in the bark of the plane tree, 730*b*
**Bruckner, W. H.**, and Ellis, W. E. Strain aging in welding low-C structural steel, 553.
——— and Newmark, N. M. Axial tension impact tests of structural steels, 3761*a*
——— and Sandberg, S. W. Strain aging in welding structural steel, 8342*e*
**Bruckach, W. F., Jr.** See Howland, J. H.
**Brücke, F. v.**, and Kaindl, F. Intracisternal injections of drugs and the carotid sinus reflex, 7130*b*.
**Brücker, H.** Detn. of germination capacity of seeds, 3494*d*
**Brückmann, G.** Diabetogenic activity of alloxan, 7578*h*.
——— and Isaacs, S. D. Prepn. and properties of new derivs. of alloxan, 2953*d*
**Brückner, H.** Untersuchungsverfahren für feste Brennstoffe (book), 1551*g*.
**Brueckner, K.**, Hartsough, W., Hayward, E., and Powell, W. M. Neutron-proton scattering, 4106*h*.
——— and Powell, W. M. Charged particles emitted by C bombarded by 90 mev neutrons, 1947*e*, 8265*f*.
**Brüderlin, A.**, Meier, K., and Muhleder, H. Elec. $O_2$ producer, P 8289*e*.
**Brüne, F.** Which soils are most suitable for fertilization with raw phosphates? 3151*g*; fertilization of peat soils, 7621*e*.
**Brueniche-Olsen, H.** See Brieghel-Muller, A.
**Brüninghaus, L.** L'énergie atomique (book), 1266*b*
**Brues, A. M.** Effects of $^{32}$P in the liver, 2322*f*, see Ducoff, H. S.; Painter, E. P.; Wesson, L. G., Jr.
——— and Buchanan, D. L. $CO_2$ metabolism of tissues and total organisms, 5481*f*
**Brues, C. T.** Changes in the insect fauna of a New England woodland following the application of DDT, 810*a*.
**Bruger, M.** See Delevett, A. F.
——— and Lowenstein, B. E. Atherosclerosis (X) effect of desoxycorticosterone acetate on the cholesterol content of the blood, the aorta, and the liver of the rabbit, 7119*a*.
**Brugne, J.** Aerosols from thermal waters at Luchon, 1531*f*
**Brugsch, J.** Metabolism of tetrapyrrole derivs. in the human organism, 8558*g*.
——— and Allies, F. Stokvis Bingold reaction—pentdyopent, 3050*g*.
**Brugsch, T.** Lehrbuch der inneren Medizin (book), 6683*b*.
**Bruhl, P. T.**, Rudolph, E. R., and Taverner, L. Application of small amplitude high frequency vibratory motion to certain types of ore-dressing equipment, 77*g*.
**Bruin, P.** Work of O. de Vries in establishing agricultural research at Groningen, 8760*i*, see Vries, O. de.
**Bruker, A. B.** Formation of As and Sb aromatic compds. (IV), 4647*b*.
——— and Muklyaev, F. L. Cu in prepn. of metallo-aromatic compds.—Sandmeyer reaction, 2592*d*.
——— and Nikiforova, N. M. Complex compds. from the reaction of diphenylstibine chloride and triphenylstibine with benzenediazonium chloride (III), 1737*i*.
**Brulé, R.** Stability of thrombase, 8412*b*.
**Brumbaugh, C. C.** Calcination of dolomite, 9395*g*.
**Brumberg, E. M.**, Sverdlov, Z. M., and Timofeeva, T. V. Luminescence analysis of optical glasses, 6797*g*.
**Brummer, E.** Bomb filled with dye fluorescing when moist, 8139*a*.
**Brumpt, É.** Soybean cultural trials at Richelieu Univ. station, 2334*h*.

**Brun, E.** See Ribaud, G.
**Brundage, D. K.**, and Black, A. H Vapor-phase esterification over $NaHSO_4$, 7799*h*.
**Brundage, E. B.** Dust fall, 4405*b*.
**Brundell, P. G.**, and Ljernstrom, S. H Bituminous shale, P 5180*a*.
**Brune, K.** See Jullander, I.
**Brunel, H.** Solns. of colloidal S, P 2746*d*.
**Brunelli, E.**, and Wainio, W. W. Purification of D-glucose dehydrogenase, 3047*e*.
**Bruner, H. D.**, Boche, R. D., Chapple, C. C., Gibbon, M. H., and McCarthy, M. D Phosgene poisoning (III) O therapy in phosgene-poisoned dogs and cats, 6741*h*.
**Bruner, L.** See Nielsen, J. R.
**Bruner, W. M.** See Gresham, W. F.
—— and Sherwood, L. T., Jr Diglycolic acid, 9032*d*
**Brunerie, G.**, Cabel, A., Chazal, R., Desthieux, G., and Sons, M. Débouchés des matières plastiques dans l'industrie chimique (book), 3231*g*.
**Brunes, B.** Alc. fermentation, evapn., and burning of sulfite waste liquor, 3994*a*
**Bruni, Giordano.** H at the crit. point, 7764*a*
and Trombara, G. Analysis and compn. of some mollusk shells, 5506*f*.
**Bruni, Giuseppe**, and Rolfini, M. A. Chimica generale e inorganica, con elementi di chimica organica (book), 6072.
**Bruning, C., Co** Diazotype light sensitive materials, P 4165*g*.
**Brunjes, A. S.**, and Bogart, M. J. P. Halogenation of aromatic hydroc P 5799*a*
**Brunner, A. H.**, Mc. P. E., and Zapoleit, R. H. Analysis of developers and bleach for Ansco color film
**Brunner, E.** Thermodynamic properties of activated complex correlation between viscosity and energy of vaporization, 7206*a*
**Brunner, H.**, and Tucker, D. R. Products obtained by refluxing styrene and drying oils in xylol solns., 1027*e*
**Brunner, J. R.**, Trout, G. M., and Lucas, P. S. Babcock test for homogenized milk, 9281*b*.
**Brunner, O.**, and Singule, F. Echinoidea dyes (II) 2-ethyl-3,5,6,8-tetrahydroxy-1,4-naphthoquinones, 2608*h*
**Brunner, R. G.** See Golay-Brunner, R.
**Brunner, W. H.**, and Bertsch, E. Synth. diamnoarylthiazines, 238*d*
**Bruno, B.** Capture of mesons, 4105*b*
**Bruno, C.** See Crotto, U., Ritchey, N. F.
**Bruno, G. L.**, and Ross, S. D. Automatic control in new coal hydrogenation plant, 6806*a*
**Bruno, M.** Basic zone vein with quartz of Mt. Frerone, 2136*b*, see Bezzi, S., Crotto, U.
**Bruno, M. S.** Fatal toxic nephrosis following the administration of mercurial diuretics, 1112*f*
**Bruns, B.**, Braude, G., and Tsikbs, D. Conductometric detn. of some gases, 6943*h*
**Bruns, F.** See Hahn, Fritz.
**Bruns, M.** See Rothschuh, K. E.
**Brunskill, L.** See Wokes, F.
**Bruns-Runge, G.** See Esdorn, I.
**Brunst, E. A. S.** See Sheremetieva Brunst, E. A.
**Brunst, V. V.**, and Sheremetieva-Brunst, E. A. Biol. effects of Röntgen rays of various wave lengths, 8405*a*.
**Brunstrum, L. C.** Light-wt. cone for penetration of soft greases, 1555*c*.
**Brunswig, H.** Fighting of mineral oil fires, 6417*e*.
**Brunt, B. P.** Pyrobar elec. heaters, 3725*g*.
**Brunton, D. C.**, and Hanna, G. C. Fission fragment energies in $U^{235}$ and $U^{238}$, 6076*c*.
**Brush, M. K.** See Boutwell, R. K.
**Brush Development Co.** Controlling the resistivity of P-type (primary ammonium phosphate) crystals, P 3681, piezoelec. crystal with moistureproof coatings, P 1666*f*, resolution of racemic tartaric acid, P 3031*d*; growing crystals, P 6013*a*.
**Bruson, H. A.** 2-(2-Carboxyethyl)-2-cyclohexenylcyclohexanone, P 6230*c*.
— and Niederhauser, W. D. Addn. products from acrylic esters, P 2034*d*; hydroxycarboxylic acids, P 3039*d*; diamine from dimeric octadecadienonitrile, P 3447*e*.
and Raterink, H. R. 2-Acyl-2-(β-
—— and Riener, T. W. γ-Dialkylbutyronitriles, P 3440*a*; 2-acyl-2-(4-cyanobutenyl)cycloalkanones, P 6230*c*.
**Brusset, H.** Microporosity of C catalysts, 2080*c*, structure of C and coal, 1072*f*, graphite formation, 4515*c*, particle size in silica gels, 6335*c*; coals, natural solid colloids, 6391*a*, x-ray study of humic acids, 6395*e*; activation of C by low-angle x-ray scattering, 6396*e*, colloidal structure of coals —small angle x-ray scattering, 9412*c*
**Brustier, V.**, Bourbon, P., Vignes, R. Detn. of MeOH and EtOH in a mixt., 522*d*
**Brusyantsev, N. V.**, Zuslavskii, Yu. S., and Koltygin, S. G. Detn. of Fe in fine oil filters, 6939*a*.
**Brut, M.** Sepn. of Pb as sulfate, 966*c*
**Brutschy, F. J.** See Woodward, R. B
**Brú Villaseca, L.**, Pérez Rodríguez, M., and Cortés, V. Measurement of cond. by means of a voltage impulse, 923*g*
**Bruylants, A.** See Henne, G., Tits, M.
**Bruyn, H. B., Jr.** See Brainerd, H. D
**Bruyn, P. L. de.** See De Bruyn, P. L
**Bruyn, W. M. de.** Lymphopenia-causing agent found in mice after injection with tumor tissue and with cell free filtrates of lymphosarcoma, 7123*c*.
**Bruyne, N. A. de.** See De Bruyne, N. A.
**Bruzau, Mme.** Double phosphates of Tl and $NH_4$, 3741*c*.
**Bruzzone, S.** See Iglesias, R.; Lipschutz, A.
—— and López, H. Cortical action of different pregnenolones in the adrenalectomized guinea pigs, 295*c*
**Bryan, C. E.** See Skipper, H. E., Mitchell, J. H., Jr.
——, Skipper, H. E., and White, L., Jr. Carbamates in the chemotherapy of leukemia (IV) distribution of radioactivity in tissues of mice following injection of carbonyl-labeled urethan, 3917*f*.
**Bryan, F. R.** See Tuttle, H. A.
**Bryan, G.**, and Marshall, P. B. Instability of picrotoxin in alk. soln., 762*e*.
**Bryan, J. D.** See Pollard, A.
**Bryan, J. M.** Corrosion of Al, 548*f*; see Ingram, M.
**Bryan, R. S.** See Shetlar, M. R.
**Bryan, W. L.** See Seigel, L. G.
**Bryans, F.** See Dreyfus, H.
**Bryant, E. E.** Porcelain enamel finish, 5020*d*
**Bryant, F.** Compn. and estn. of the size of nylon knitting yarn, 5957*b*
**Bryant, H. W.** Vinyl carboxylate polymerization, P 1219; see Cornthwaite, W. R.
**Bryant, J. M.**, Iob, V., Phillips, G. L., and Blecha, E. E. Estn. of urinary Na—test for patients on low-Na diets, 6689*g*.
**Bryant, K. C.** See Vago, E. E.
——, Kennedy, G. T., and Tanner, E. M. Alkylnaphthalenes (V) detn. in Trinidad petroleum, 8660*h*.
**Bryant, L. H.** Exploitation of N. S. Wales tannin-bearing species, 5219*f*
**Bryant, W. T.** Combination gasoline plant goes on stream at Silsbee, 7220*f*
**Bryde, Ø.** Reaction kinetics in the sulfite-cooking processes, 8676*g*
—— and Rånby, B. Mol. wt. and other properties of native wood cellulose, 1960*h*.
**Bryden, J. D.** See Pasfield, G.
**Bryer, M. S.** See Long, P. H.
——, Schoenbach, E. B., and Bliss, E. A. Pharmacology of polymyxin, 8554*g*.
**Bryk, P. B.**, and Aarnisalo, S. A. Electrolytic purification of Ni from Ni mat, P 8910*h*.
**Brykit, G. D.** Oiliness agent, P 845*f*.
**Brynildsen, A. K.** Titration method for $CO_2$ in air, 1182*a*.
**Bryson, A.** Effects of substituents in the naphthalene ring (I) basic strengths of the mono-nitronaphthylamines, 6192*e*.
**Bryson, D. S. T.** See Levy, N.
**Bryson, H. C.** See Scott Bader & Co., Ltd.
**Bryson, M. J.** See Harris, J. R.
**Bryson, V.** Effects of N mustard on *Escherichia coli*, 273*g*.
**Bubb, W.** See Maier, C.
**Bube, R. H.** Correlation between cathodoluminescence efficiency and decay as a function of temp., 8279*h*.
**Bubeck & Dolder.** Dextrins, P 1590*b*; starches, P 1590*c*.
**Bubenin, I. G.** See Yung, V. N.
**Bublil, V. F.**, and Shelest, I. G. Continuous steeping and sprouting of grain for malt, P 9362*e*.
**Bublitz, W. J.**, Dappen, J. W., and Van den Akker, J. A. Permeabilities of paper to oil and air, 1186*b*.
**Bubnov, D.** Milk sugar, 7598*e*.
**Buc, S. R.**, and Ford, J. H. β-Aminopropionitrile, P 1052*e*.
**Buccar, M. de.** Silicones (III) manuf., 899*b*, (V) greases and insulating compds., 1211*h*; (VII) rubbers, 8723*i*, see Dériberé, M.
**Buccellato, G.** Serum cholinesterase in children with kala-azar, 3923*c*.
**Bucci, F.** Iodine no. of wine vinegars, 3969*g*.
**Bucciero, M. C.** See Orten, J. M.
—— and Orten, J. M. Choline and the production of polycythemia by Co, 1870*c*.
**Buch, M.** See Machek, G.
**Buchan, R. F.** See Blassman, J. M.
**Buchanan, A. R.** See Holtkamp, D. E.; Roberts, J. E.
—— and Roberts, J. E. Relative lack of myelin in optic tracts as a result of underfeeding in the young albino rat, 734*g*; thermal reactions of young albino rats to intraperitoneal injections of ergotoxine, 2692*h*
**Buchanan, A. S.**, and Heymann, E. Electrokinetic potential of cellulose and electrokinetic equations, 21*d*, electrokinetic potential of $BaSO_4$, 4924*a*, 8800*e*, electrokinetic potential of sparingly sol. sulfates, 4924*c*, electrokinetic potential and reversible electrode potential of sparingly sol. sulfates, 4924*g*; detn. of electrokinetic potentials in concd. solns., 4924*i*.
**Buchanan, C.** Sepn. and Identification of Org. Compds. (book), 5346*e*; see Patterson, T. S.
**Buchanan, D. F.** Asbestos-Al coating compns., P 8706*a*.
**Buchanan, D. L.** See Brues, A. M.
**Buchanan, G. L.**, Cook, J. W., Loudon, J. D., and MacMillan, J. Synthesis of colchicine derivs., 2986*d*.
**Buchanan, H. O.** See Tainter, M. L.
**Buchanan, J. F.** Bronzes, 1703*h*.
**Buchanan, J. M.**, and Anfinsen, C. B. Partial purification of aconitase, 9117*f*.
**Buchanan, M. A.** See Van den Akker, J. A.
——, Brauns, F. E., and Leaf, R. L., Jr. Native lignin (II) native aspen lignin, 5589*g*
**Buchanan, M. N.** See McKay, A. F.
**Buchanan, N. J.** BeC compd., P 8347*g*.
**Buchanan, W. K.**, Simpson, W., and Metropolitan-Vickers Electrical Co. Ltd. Anhyd. ether, P 4683*b*, silicone intermediates, P 6648*a*.
**Buchdahl, H. A.** Principle of Carathéodory —theorem, 2501*a*, 8838*d*.
**Buchdahl, R.** See Talbot, W. F.
**Buchegger, G.**, and Biermann, E. Effect on healthy humans of adrenaline—blood circulation and carbohydrate metabolism, 6728*f*.
**Bucher, G. R.**, and Anderson, A. Uropepsin output in cats treated with caffeine and histamine, 297*g*.
**Bucher, H.**, and Widerkehr-Scherb, L. P. Morphology and structure of wood fibers, 3608*d*, (book), 8137*a*.
**Bucher, K.** Influence of antistine on the amt. of histamine set free in the anaphylactic reaction of guinea-pig intestine, 3512*e*; antihistamine drugs, 7131*f*.
**Bucher, O.** Influence of urethan on mitotic cell division in tissue cultures, 4380*i*.
**Bucher, R.** Blood-filtration funnel, P 267*d*; obtaining a dry prepn. of one of the constituents of a liquid, P 2268*c*.
**Buchholtz, W. F.** National coöperative potato spray fungicide expt., 9327*i*.
**Buchholz, H.** Fe powder—raw materials and economy, 8324*i*.
**Buchka, M.** See Rauen, H. M.
**Buchman, E. R.**, and Howton, D. R. Cyclobutane derivs. (IV) Ziegler bromination of methylenecyclobutane, (V) Ziegler bromination of cyclobutene, 586*d*.
**Buchmann-Olsen, B.** See Asmussen, R. W.
**Buchner, A.** See Ehrenberg, P.
**Buchner, E. H.** Andreas Smits, 3660*g*.
**Buchner, G.** Taschenbuch für die Wachsindustrie (book), 3637*e*.
**Buchníček, J.** See Šantavý, F.
**Buchs, S.** Caffeine-induced hyperglycemia, 8542*h*; pepsin, cathepsin, and parachymosin as equiv. and integrant constituents of stomach protease, 9100*a*.

**Buchta, E.** Synthesis of steroids (III) diene synthesis with β-acetylacrylic acid and β-ethyl-α-methylacrolein, 1040*b*.
——— and Dauner, S. Synthesis of steroids (I) 2-cyclopentyl-, 2-(2-cyclopenteuyl)-, and 2-(2-methylcyclopentyl)-3,4-dihydro-1(2*H*)-naphthalenone, 1039*c*.
——— and Haagner, W. Synthesis of steroids (II) α-aryl-β-aroylpropionic acids, 1039*h*.
**Buchthal, F.**, Deutsch, A., Knappeis, G. G., and Munch-Petersen, A. Phosphorylation of myosin by adenosine triphosphate, 3481*h*; phosphorylation and adenine nucleotide uptake of actomyosin and actin-free myosin, 4714*e*.
**Buchwald, K. W.**, and Hudson, L. Biochem. effects of injections of sex hormones into hypophysectomized rats, 7565*f*.
**Buchy, A.** See Matet, J.
**Buck, A. C.**, and Lankelma, H. P. Thiophosphoric amides—aminolysis, 3353*a*, reaction of aniline with $P_2O_5$—phosphoric anilides, 3353*f*.
**Buck, G. S., Jr.** Flammability of consumer textiles, 3024*d*.
——— and McCord, F. A. Crease-resistance and cotton, 4862*b*.
**Buck, J. B.** Anatomy and physiology of the light organ in fireflies, 4388*g*.
——— and Keister, M. L. Respiration and water loss in the adult blowfly—physiol. action of DDT, 9354*e*.
**Buck, J. H.** See White, J. R.
**Buck, J. S.** See Baltzly, R., Ide, W. S., Larsen, A. A.
**Buck, L.** Drying and leather driers, 6450*i*
**Buck, M. P.** Electrodeposited Ni strip contg. B, P 2103*e*; electrolytic Ni, P 7358*d*; carbon-contg. Ni, P 7358*e*.
**Buckeley, A.** See Buckeley, M.
**Buckeley, M.**, and Buckeley, A. Structural changes during solidification of Al-Si and Al-Cu-Mg alloys, 5718*d*.
**Buckell, M.** 2,3-Dimercapto-1-propanol and MeI intoxication, 4776*e*; see Agate, J. N.; Bowler, R. G.
**Buckey, J. P.** Abrading wheel, P 4442*e*
**Buckholdt, R. E.** Conveying and quenching device for heat-treated shells, billets, etc., P 8*g*.
**Buckler, E. J.** Canadian rubber developments, 1207*e*.
**Buckles, R. E.** Addn of Br to olefine double bonds—*N*-bromoacetamide as a source of Br, 5753*h*.
**Buckley, D. J.** See Young, D. W.
——— and Chaney, A. L. Plasticization of rubber, P 4890*d*.
**Buckley, G. D.**, Ray, N. H., and Imperial Chemical Industries Ltd. Polymeric N-contg. compds., P 5639*g*, polymeric ureas, P 5639*i*.
**Buckley, J. S., Jr.** See Arnold, R. T.
**Buckley, J. W. A.** See Dent, F. J.
**Buckley, T. P.** Pottery plaster and its application, 1933*e*.
**Bucklin, A. G.** See Grant, Nicholas J.
**Bucklin, G. W.** See Osinski, E. D.
**Buckman, S. J.** Microorganism control in mech. pulp and its relation to paper manuf., 3615*i*; see Appling, J. W.
**Buckmann, J. P.**, and Neff, L. L. Lubricating compn., P 3192*g*, 8131*c*.
**Bucknall, E. H.** Metals in instruments, 5233*c*.
——— and Price, L. E. Attack of controlled atms. on heating elements and other Ni-Cr parts of furnaces, 2918*c*.
**Buckner, A. J.** See Tay, R. W.
**Bucko, E.** See Ludkiewicz, A.
**Buckwalter, F. H.**, and Dickison, H. L. Absorption-delaying vehicle for penicillin, 7189*h*.
**Buckwalter, J. A.** See Graham, J. B.
**Bucsy, I.** See Bodnár, J.
**Bucur, C.** See Nemtzescu, C. D.
**Bucskówna, B.** See Moszew, J.
**Budagyan, F. E.** Nutrient value of native food products, 1844*i*.
———, Vladimirov, B. D., Levitskii, L. M., and Shchurov, K. A. Effects of prolonged use of small amts. of cottonseed cake on the human organism, 1471*d*.
**Budanova, L. M.**, and Gavrilova, K. D. Detn. of W and Cb in steel, 5835*e*.
**Buddenberg, J. W.**, and Wilke, C. R. Calcn. of gas-mixt. viscosities, 7281*f*.
**Buddhue, J. D.** Color of blue halite, 6543*e*.
**Budeanu, C.** See Gheorghiu, C. V.
**Budeanu, E.** See Arventi, B.
**Budge, E. A.** Calibration of volumetric flasks, 6470*d*.
**Budge, M.** See Simha, R.
**Budig, K. H.** Adhesive plasters, 6369*e*; Buna in adhesive-plaster compns., 6369*e*; aging inhibitors by means of color reactions, 6455*f*.
**Budnikov, P. P.** Stalingorsk plaster, 832*e*; Soviet silicates, 2748*e*, 20 yrs. of L. V. Pisarzhevskii Inst. of Phys. Chem. of the Acad. of Sci., U.S.S.R. (Ukraine), 5650*e*; Technology of Ceramic Products (book), 8115*e*.
———, Barro, V. M., and Mchedlov-Petrosyan, O. P. Detn. of the temp. of beginning agglomeration of powd. dielectrics, 7607*g*.
——— and Berezhnoĭ, A. S. Spinellides—formation of spinellides and analogous compds. at high temps., 7870*i*.
——— and Berzon, S. A. Ceramic stoneware from clays of Efreminsk deposit, 1163*d*.
——— and Butt, Yu. M. Ash cements, 1938*b*, effect of TeO cement on the binding properties of $CaSO_4$, 9409*c*, anhydrite cement, P 9410*f*.
——— and Kosyreva, Z. S. Sulfoaluminate as an essential factor in the production of expanding cement, 2395*b*.
——— and Mchedlov-Petrosyan, O. P. Raising the water resistance of materials from gypsum clay, 7205*h*.
——— and Zhukovskaya, S. S. Detn. of silica in cast iron and steel, 5700*b*.
**Budnitskii, S. M.** Bait for sugar beet pests, P 3110*i*.
**Budó, A.**, and Kovács, I. Structure of $^2\Sigma$ states of diat. mols., 2092*f*.
**Budvári, R.** See Orovecz, B.
**Budy, A. M.** See Urist, M. R.
**Budy, W. A.** See Savich, T. R.
**Bueche, A. M.** Dimensions of coiling polymer mols. from viscosity and light scattering, 5262*f*, see Debye, P.
**Büche, K.**, and Smetana, O. Production of alumina, 2744*d*.
**Buechele, A. C.** Plastic compn., P 3657*e*.
**Büchi, G.** See Kharasch, M. S.
——— and Jeger, O. Compds. with the C structure of the bicyclo[3.3.0]dodecane, 5375*a*.
———, Seitz, K., and Jeger, O. Violet perfumes (XXIX) dehydration of β- and α-ionone, 3798*d*.
**Büchi, J.** Histamine and antihistaminics, 8099*d*, see Schudel, H.
——— and Gundersen, P. O. Penicillin-depot preps., 4809*g*, prepn. and stability of penicillin powder mixts. (V), ——, penicillin troches (VI), 5904*e*.
——— and Hippenmeier, P. Evaluation of pure capsaicin, drugs, and preps. utg. capsaicin, 5536*g*.
——— and Keller, A. Removal of fat as ballast material—prepn. of extractum strychni, colchici, and stramonii, 1149*e*.
———, Ursprung, R., and Lauener, G. *N,N'*-Dialkylpyrazolones, 7934*b*.
**Buechler, P. R.**, Lollar, R. M., and Chang, T. S-distribution studies on cattle hair and epidermis, 7737*a*.
**Buechler-Czaczkes, E.**, and Guggenheim, K. Nutritional value of food proteins, 4780*g*.
**Buechner, W. W.** See Van de Graaff, R. J.
———, Strait, E. N., Stergiopoulos, C. G., and Sperduto, A. Excited level in $Li^7$ from the $Li^6(d, p)Li^7$ and $Be^9(d, \alpha)Li^7$ reactions, 2088*g*
——— ———, Van de Graaff, R. J., Burrill, E. A., and Sperduto, A. Thick-target *x*-ray production in the range from 1250 to 2350 kv., 1262*e*.
**Bücking, E.** See Hesse, G.
**Bueding, E.** Metabolism of the filarial worm, 2334*d*, see Oliver-González, J.; Peters, I.
**Büeler, H.** Treatment of solid materials with liquids or gases, P 8*d*.
**Bügel, R. D.** See Verwey, E. J. W.
**Buehler, C. A.**, Spees, R. B., and Sanguinetti, P. A. 4-Hydroxybenzene-1,2,3-tricarboxylic acid, 5-hydroxybenzene-1,2,4-tricarboxylic acid, and their derivs., 2974*i*.
**Bühler Gebrüder.** Extn. of bulk material, P 5238*a*.
**Bührer, N. E.** Iguape [tung] nut, 2445*d*; differentiation of theobromine and caffeine, 2666*i*; chem. analysis of industrial hexachlorocyclohexane, 2896*e*.
**Bülbring, E.** See Blaschko, H.
——— and Burn, J. H. Action of acetylcholine on rabbit's auricles in relation to acetylcholine synthesis, 4383*b*; liberation of noradrenaline from adrenal medulla by splanchnic stimulation, 6729*d*.
———, Burn, J. H., and Walker, J. M. Reduction in coronary flow by pituitary in relation to the action of nicotine and to smoking, 4385*a*.
——— and Depierre, F. Action of synthetic curarizing compds. on skeletal muscle and sympathetic ganglia, 5504*e*.
**Buell, B. G.** See Johnson, William S.
**Buell, M. V.** See Still, J. L.
**Bünning, E.** Theoretischen Grundfragen der Physiologie (book), 5483*a*.
**Bueno, P.** Reaction of the reticuloendothelial system to avitaminosis C, 8469*e*.
**Buentello, H. C.** See Calzado Buentello, H.
**Büren, G. v.** Lake Burgaschi, 9118*k*.
**Buerger, M. J.** Ambiguity factor in implication theory, 3289*b*; Fourier aspects of implication theory, 8847*a*; structural nature of the mineralizer action of F and OH, 8936*a*; see Hamburger, G. E.
——— and Washken, E. Bonded structures, P 3104*e*.
**Bürgin, A.** Detection of sulfonamides in pharmaceutical-chem. analyses, 3146*i*.
**Bürstenbinder.** Natural fungicidal action of fats and oils, 4413*i*.
**Buesa, M. A.** See Alhumada Buesa, M.
**Bütow, K.** See Bode, Hans.
**Büttner, G.** B content of honey, 3538*b*.
**Buff, F. P.** See Kirkwood, J. G.
**Buffa, B.** Permeability of the blood-spinal fluid barrier for sulfonamides in some mental diseases, 750*e*.
**Buffa, P.** See Alost, M.
——— and Peters, R. A. Formation of citrate induced by fluoroacetate poisoning, 9265*b*.
**Buffalo Electro-Chemical Co., Inc.** Peroxide-glycerol explosive, P 1190*e*, desensitization of org. peroxides, P 1806*b*, 1807*c*, $H_2O_2$, P 1929*e*, acetyl peroxide, P 3111*f*, bleaching mech. wood fibers, P 4851*d*, treatment of groundwood pulp, P 4851*f*.
**Buffum, D. C.** See Jaffe, I. D.
**Bugár-Mészáros, K.** Vestibular symptoms after a penicillin treatment, 8518*e*.
**Bugge, J. A. W.** Rare mines—Fe mines in Dunderlandsdalen, 6946*b*.
**Bugher, J. C.**, and Taylor, M. Radio P and radio Sr in mosquitoes, 8562*e*.
**Bugnard, L.** See Basset, A.
**Bugosh, J.** See Yeager, E.
**Buhl, O.** Decrease in the magnetic satn. of Ni under tension, 8766*h*.
**Buhr, G.** Poisoning with dulcin, 3105*h*.
**Buhs, R. P.** See Tremper, N. R.
**Bulnov, N. N.**, Demcnev, N. V., Slur, A. S., and Fedorova, G. G. Structure of Pt films produced on the surface of aq. solns. of salts of the metal, 6038*h*.
**Buisman, J. A. K.** 7-Dehydrosterol esters, P 6674*j*.
**Buist, J. M.** Tear initiation and tear propagation, 7256*b*.
**Bukatin, E. A.** High contrast photosensitive AgBr layer, P 3302*b*.
**Bukharov, P. S.** See Podlubnaya, E. T.
**Bukin, V. N.** See Andreeva, N. A., Lagunov, L. L.
**Bukina, L. A.**, and Govorova, L. S. Detn. of av. water hardness by K oleate, 5521*e*.
**Bukowiecki, A.** See Schlapfer, P.
**Bulakhova, P. A.** See Usatenko, Yu. I.
**Bulanova, T. F.** See Kazauskii, B. A.
**Bulard, C.** Inversion of geotropism by heteroauxin of *Thuja orientalis*, 280*g*.
**Bulaty, K.** Consumption of chemicals in Czechoslovakia, 4397*e*.
**Bulavko, A. G.** Water samples, P 3548*g*.
**Bulgakova, N. G.** Carbide sludge for decreasing the concn. of Hg vapor in buildings, 1503*e*.
**Bulgakova, T. I.** See Gerasimov, Ya. I., Klyachko-Gurvich, L. L.
———, Gerasimov, Ya. I., Simanov, Yu. P., and Klyachko-Gurvich, L. L. Formation of Co and Ni ferrites, 3304*f*.
**Buljan, M.** Elimination of the sulfide ion in the detn. of salinity, 4975*a*; auxiliary normal sea water, 4975*b*.
**Bull, F. A.** Action of F on deciduous teeth, 6766*e*.
**Bull, G. M.** See Linder, G. C.
**Bull, H. B.** See Dieu, H. A.; Sahyun, M.
———, Hahn, J. W., and Baptist, V. H. Filter-paper chromatography, 3057*c*.
**Bull, R. L.** See Richards, C. E.
**Bull, W. C.** See Cowan, J. C.
**Bullard, E. T.** See Ellis, N. K.
**Bullard Co.** High-speed cutting tool, P 990*d*.
**Bullen, J.** Operation of a Bach subsider—reduction of sucrose losses during shutdown periods, 887*g*

**Bullens, D. K.,** *et al.* Steel and its Heat Treatment. Vol. III. Engineering and Special-Purpose Steels (book), 4997*i*.
**Bullock, E. R.** Sulfide fog and properties of $Ag_2S$ in photography (I), 957*b*.
**Bullock, F.** See Nickerson, Mark.
**Bullock, J. A.** See Hunter, Francis R.
**Bullock, J. L.** See Smith, Roscoe.
**Bullock, K.** Local anesthetics and ester-hydrolyzing enzymes (III) inhibitory action on cholinesterase, 762*e*
**Bullock, M. W.** See Gilman, H.
**Bullock, R. L.** Al pipe test, 96*g*.
**Bullock, R. M.,** and Ackley, W. B. Hard end and cork spot of pears as influenced by high-concn hormone sprays, 9348*a*.
**Bullough, W.** See Pearson, J.
——— and Gardam, G. E. Adhesion of Ni electrodeposits to Al alloys, 4147*d*.
**Bullough, W. S.** Epidermal mitosis in relation to sugar and phosphate, 7567*a*.
**Bulow, C. L.** Wrought Cu and Cu-base alloys, 1*c*, 8745*c*.
**Bulychev, G. G.,** and Botvinko, M. E. Rotary app. for high strength gypsum, P 3591*a*.
**Bulycheva, A. I.** Detn of acetone in air, 8971*i*
**Bulyginskiĭ, D. G.** See Kul'chitskiĭ, L. A.
**Bumax Werke A.-G Durrenäsch.** Insulation material, P 5135*f*
**Bumbacher, H.** See Ludres, G
**Bumgarner, J. I** See Little, J. M.
**Bumps, E. S.** See Bacyertz, M
**Bumpus, F. M.** See Ahmad, K
**Bunce, E. H.,** and Peirce, W. M. New Jersey Zinc develops a new condenser, 282*a*
**Bunce, S. C.** See Ximenez, M. R
**Bunde, C. A.,** and Lackey, R. W. Failure of oral saccharin to influence blood sugar, 315*b*
**Bundel, A. A.** See Kretovich, V. L., Mishustin, E. N
——— and Rusanova, A. I. Properties of ZnS, ZnS-CdS, and ZnS-ZnSe luminescent materials, 5670*h*
**Bunderson, M. H.** Artificial snow, P 4104*a*
**Bundy, K. N.,** and Jordan, P. E. Water-pollution control in the steel industry, 4194*a*.
**Bundy, P. A.** Cuba has potential W mines, 7387*f*.
**Buneeva, L. I.,** Pollyak, V. V., and Tykachinskiĭ, I. D. Action of glass melting accelerators at high temps., 5914*e*.
**Bungardt, W.** Effect of addns. on the stress-corrosion resistance of Al-Zn-Mg alloys contg. 4.5% Zn and 3.5% Mg, 92*c*.
——— and Gröber, H. Effect of Zn on some properties of com. wrought Al-Cu-Mg alloys, 542*b*.
**Bungenberg de Jong, H. G.** See Jong, H. G. B. de
**Bungor, E.** See Fischer, Antal.
**Bunin, K. V.** Action of ephedrine, cordiamine, and caffeine on the circulatory system in typhus, 8535*h*
**Bunn, C. W.** Crystal structure of polyvinyl alc., 16*b*; mol. structure and the phys. properties of polymers, 2071*h*, optical properties of fibers, 4857*f*, study of fibers by x-ray diffraction methods, 4857*g*, see Crowfoot, D.
**Bunn, E. S.** Zn-base alloys, P 6147*c*; see Wilkins, R. A.
**Bunn, F. H.** Wax treatment of uncured rubber goods, P 2803*a*.
**Bunnell, D. G.,** Irvin, H. B., Olson, R. W., and Smith, J. M. Effective thermal conductivities in gas-solid systems, 8834*i*
**Bunnell, I. L.** See Furcolow, M. L.
**Bunnell, R. H.,** and Hatcher, D. B. Organosilicon compns. contg. rapidly polymerizable olefinic double bonds, P 5635*b*.
**Bunnett, J. F.,** Bachman, D. M., Snipper, L. P., and Maloney, J. H. Chlorination of 2-thiophenecarboxylic acid, 5775*d*.
——— and Marks, J. L. Prepn. of tertiary amines by the Leuckart reaction, 7920*f*.
**Bunting, A. L.** Chem. conversion of salt-contg. solns., P 1888*c*.
**Bunting, E. N.** See Shelton, G. R.
**Bunting, H.** Histochem. detection of Fe in tissues, 5437*g*; see Bunting, M. I.; Dempsey, E. W.; Pearson, O. H.; Wislocki, G. B.
**Bunting, M. I.,** Robinow, C. F., and Bunting, H. Elaboration of pigment and polysaccharide by *Serratia marcescens*, 8006*f*.
**Bunton, C. A.** Oxidation of α-diketones and α-keto acids by $H_2O_2$, 6061*f*.
——— and Minkoff, G. J. Oxidation of α,β-unsatd. ketones with alk. $H_2O_2$, 7414*b*.
**Bunyan, D. E.,** Lundby, A., Ward, A. H., and Walker, D. Delayed coincidence method in the study of radioactivity, with application to isomerism in $Ta^{181}$, 4950*a*.
**Bunyatyan, G. Kh.,** and Matinyan, G. V. Biogenic antihistamine substances, 1112*i*.
**Bunzel, E. G.,** and Kohlmeyer, E. J. Thermal behavior of Na compds., esp. $Na_2O$ and $Na_2S$, and their reactions with metals, 2109*a*.
**Buogo, G.** Trattato di chimica applicata all'igiene (book), 3548*g*.
——— and Radogna, L. Analysis of Sn alloys, 7861*f*
**Buoni, M.** Blood lipase after strenuous work, 9224*g*
**Buonsante, A.,** and Mallardi, G. Influence of lactoflavin and lactoflavin-insulin on the purinic metabolism, 1472*e*.
**Burakova, M. G.** See Afanas'ev, A. S
**Burandt, M. L.** See Wiechert, K
**Buravas, S.** Cupriferrous schist of Phom Sarakam, 2900*h*.
**Burawoy, A.** Existence of nonlocalized electrons, resonance, and stereomerism, 2479*a*
——— and Chamberlain, J. T. Nuclear methylation of 3,5-dimethylphenol, 7450*i*, action of alkali and acid on bis(hydroxyduryl)methane, 7465*d*
**Burbank, H. R.,** and Zoulea, B. J. Chocolate coating, P 2340*h*.
**Burbank, R. D.,** and Evans, H. T., Jr. Crystal structure of hexagonal titanate, 3261*g*
**Burbidge, J. H.** Dyehouse processing of nylon stockings, 6419*g*
**Burbury, D. W. P.** See Fenton, A. G.
**Burch, C. J.** See Brister, J. E
**Burch, G. E.** See Ray, C. T.; Reaser, P. B., Threefoot, S. A.
———, Threefoot, S. A., and Cronvich, J. A. Biol. decay rates of isotopes, 3477*b*.
———, Threefoot, S. A., Cronvich, J. A., and Reaser, P. B. Biol. decay periods—$Na^{24}$, 5491*b*
———, Threefoot, S. A., and Reaser, P. B. Renal excretion of $Na^{24}$ by normal subjects and by patients with congestive heart failure, 4744*c*
**Burch, H. B.,** Bessey, O. A., and Lowry, O. H. Fluorometric measurements of riboflavin and its natural derivs. in blood serum and cells, 265*c*.
**Burch, L. W.** Liquid level indicator, P 2049*c*.
**Burchak, G. P.** Electrolyte for Zn-anode batteries, P 7360*d*
**Burcham, W. E.** See Allan, H. R., Allen, K. W
——— and Freeman, J. M. Disintegration of $B^{10}$ by protons, 3284*b*; short range α-particles from F and Li bombarded by protons, 7329*d*.
**Burchenal, J. H.,** Bendich, A., Brown, G. B., Elion, G. B., Hitchings, G. H., Rhoads, C. P., and Stock, C. C. Effect of 2,6-diaminopurine on transplanted mouse leukemia, 5505*g*.
———, Burchenal, J. R., Kushida, M. N., Johnston, S. F., and Williams, B. S. Chemotherapy of leukemia (II) effect of 4-aminopteroylglutamic acid and 4-amino-$N^{10}$-methylpteroylglutamic acid on transplanted mouse leukemia, 5505*f*.
———, Johnston, S. F., Burchenal, J. R., Kushida, M. N., Robinson, E., and Stock, C. C. Chemotherapy of leukemia (IV) effect of folic acid derivs. on transplanted mouse leukemia, 9249*d*.
———, Kushida, M. N., Johnston, S. F., and Cremer, M. A. Prevention of chemotherapeutic effects of 4-amino-$N^{10}$-methylpteroylglutamic acid on mouse leukemia by pteroylglutamic acid, 9186*i*.
**Burchenal, J. R.** See Burchenal, J. H
**Burchfield, H. P.** See Gullstrom, D. K.
———, Gullstrom, D. K., and McNew, G. L. Agricultural dusts—prepn. of dusts of uniform particle size by fractional sedimentation, 2357*a*.
**Burchhard, H.** See Jungmann, H.
**Burchinskaya, N. B.** See Shchigol, M. B.
**Burckhalter, J. H.** See Rawlins, A. L.
——— and Fuson, R. C. 2-Alkyl-1-indanones, 1757*e*.
———, Jones, E. M., Rawlins, A. L., Tendick, F. H., and Holcomb, W. F. Quinoline compds., P 7514*b*, 9085*g*; acridine compds., P 7516*a*.
**Burckhardt, H.** See Braun, Hans.
**Burden, F. A.** See Burgoyne, J. H.
**Burden, H., and Barker, A.** Measurement of grain size of W and WC powders used for the manuf. of hard metal, 533*d*.
**Burden, R. P.** See Fair, G. M.
**Burdette, J.,** and Roberts, H. P. Removing volatile material from latex, P 3226*i*, 4889*i*.
**Burdick, E. M.,** Anderson, C. O., and Duncan, W. E. Application of submerged combustion to processing of citrus waste products, 9287*f*
**Burdick, M. D.,** Moreland, R. E., and Geller, R. F. Strength and creep characteristics of ceramic bodies at elevated temps., 5559*h*.
**Burdin, S. F.,** Zusman, M. N., and Samsonova, O. A. Water-resistance and weather resistant properties of fibers—impregnation, 3623*g*.
**Burdock, J. L.,** Best, P. F., and McBride, C. B. Centrifugal dust separator for grain elevators, P 3540*a*
**Burdun, G. D.,** and Kantor, P. B. Dielec. properties of formamide, 8769*g*.
**Burdzhanadze, I. P.** Extn. of substances from their aq. solns., P 3250*a*
**Buré, J.** Rational flour, 777*d*; effect of baker's yeast in bread fermentation, 4725*i*.
——— and Delarouzée, G. Detn. of fats in flour products after baking, 7596*h*.
**Bureau, A. G.** See Lohrisch, F. W.
**Bureau, F.** Wave mechanics of the electron, 8862*h*.
**Buret, R.** See Guinot, H. M.
**Burfening, J.,** Gardner, E., and Lattes, C. M. G. Pos. mesons produced by the 184-in. Berkeley cyclotron, 4105*d*.
**Burg, A. B.** See Gordy, W.
**Burg, C.** See Chevallier, A.
**Burg, M.** See Roberts, J. D.
**Burg, M. S.** Core oils, P 5727*i*.
**Burage, G.** See Brody, S.
**Burgemeister, B. B.** See Zimmerman, F. T.
**Burgen, A. S. V.** Urinary excretion of phosphatases, 2684*c*.
**Burgor, A.** See Markees, D. G.
**Burger, E. E.** See Hull, A. W.
**Burger, V. L.** See McGavack, J
**Burgers, W. G.** See May, W.; Tiedema, T. J.
**Burgess, A. F.,** and Sweetman, H. H. Residual property of DDT as influenced by temp. and moisture, 7628*h*
**Burgess, B. C.** See Warriner, L. P.
**Burgess, B. F., Jr.** Surface-film studies on DDT-oil larvicides, 8087*f*
**Burgess, C. O.** Nodular Fe, 4990*a*; see Kinzel, A. B.
**Burgess, H.** See Smoluchowski, R.
**Burgess, J. S.** Frequency $\nu_3$ in the infrared spectrum of $CH_4$, 8274*h*
**Burgess, K. A.** See Sweitzer, C. W.
**Burgess, R.** Protection of wool against insects by Mitin FF and DDT, 8089*d*.
**Burgess, R. J.,** and Sanford, R. S. Cheever limonite deposit, Berkshire Co., Mass., 4189*i*.
**Burgis, D. S.** Chem. control of weeds in vegetable seedbeds, 3134*g*.
——— and Beckenbach, J. R. Herbicides for control of weeds in vegetable seedbeds also control root-knot, 5145*b*.
**Burgoine, E.,** Collie, B., New, R. G. A., and Imperial Chemical Industries, Ltd. Org. isocyanates, P 6227*f*.
**Burgoyne, J. H.,** and Burden, F. A. Explosive decompn. of ethylene oxide, 5951*g*.
——— and Richardson, J. F. Inflammability of oil mists, 1568*h*, extinguishing burning liquids by the application of noninflammable gases and liquids, 6417*f*.
——— and Thomas, N. Effects of fine solid particles on flame propagation, 6806*c*.
——— and Williams-Leir, G. Limits of inflammability of gases in the presence of diluents, 407*g*, influence of incombustible vapors on the limits of inflammability of gases and vapors in air, 3619*a*; inflammability of liquids, 6395*f*.
**Burgstahler, A. W.** See Eliel, E. L.
**Burgus, W. H.,** Davies, T. H., Edwards, R. R., Gest, H., Stanley, C. W., Williams, R. R., and Coryell, C. D. Valence of the products of β disintegration and isomeric transitions, 7332*e*.
**Burgvits, G. A.,** and Yakovlev, G. S. Analysis of flue gases, 9415*d*.
**Burgy, M. R.** See Hughes, D. J.
**Burhop, E. H. S.,** and Massey, H. S. W. Capture of neutrons by deuterons, 3703*h*.
——— and Yadav, H. N. Fast neutron-proton scattering and the law of interaction between nucleons, 4944*h*.

**Burk, A. P.**, and Crewdson, H. Applying liquid to travelling yarns, etc., P 1990*d*.
**Burk, D.** See DuBuy, H. G., Fiala, S., Hearon, J. Z.; Warburg, O.
——, Hendricks, S. B., Korzenovsky, M., Schocken, V., and Warburg, O. Max. efficiency of photosynthesis, 9178*f*.
——, Hesselbach, M. L., Fischer, C. E., Hearon, J. Z., and Schade, A. L. Interrelations of biotin, $CO_2$, and heavy metals (Co, Cu) in tumor glycolysis, fermentation, and dehydrogenation, 2694*g*.
**Burk, H. S.** See Bowman, J. R.
**Burk, R. E.** Isomerization catalyst for normal paraffins, P 660*f*.
—— and Hughes, E. C. Copptd. gel catalyst, P 1930*e*; lubricant additives, P 5940*c*, 7680*a*.
**Burkalow, A. van.** See Van Burkalow, A.
**Burkard, P. N.**, and McNabney, R. Water-sol. Be compd., P 6374*i*.
**Burke, E.** See Friedman, R.
**Burke, J. C.**, and Jurist, A. E. Long-acting *d*-tubocurarine prepns., P 7198*g*.
**Burke, J. E.** Grain growth in metals, 533*i*.
——, *et al.* Grain Control in Industrial Metallurgy (book), 7890*g*.
**Burke, O. W., Jr.** See Hadlock, G. B.
**Burke, S. S., Jr.** Buret for precise measurement of small vols. of gases, 5005*c*
**Burke, W. J.** 3,4-Dihydro-1,3,2 *H*-benzoxazines—reaction of *p*-substituted phenols with *N,N*-dimethylolamines, 3425*c*; *β*-substituted ethylmercapto polymers, P 8209*e*; see Smith, A. R.
**Burkert, G. M.** See Erlich, V. L.
**Burkett, H.** Demonstration polarimeter, 6015*a*; see Fulmer, J. M.
**Burkhard, C. A.** Reaction of chlorosilanes with 2-methoxyethanol, 2160*c*; polydimethylsilanes, 4218*d*.
—— and Norton, F. J. Analysis of organosilicon compds. and polymers—detn. of hydrocarbon constituents, 3317*d*.
**Burkhard, M. J.** Insecticidal spray oil contg. lecithin, P 4420*e*.
**Burkhardt, C.** Spectrographic methods and their standardization in the Klus factory (Swiss), 2539*h*, spectrographic analysis of steels, 2546*d*.
**Burkhardt, G. B.** Treating steel ingots or castings with noble gas, P 104*g*.
**Burkhardt, R.** Ceramic products, P 831*b*
**Burkhart, B. A.** See Dickson, A. D.
**Burkhart, L. E.** See Peed, W. F.
——, Peed, W. F. and Spitzer, E. J. A spectra of element 61, 4133*a*.
——, Stukenbroeker, G. and Adams, S. Isotope shifts in U spectra, 4136*f*
**Burkheiser, W.** Location of leaks in buried gas mains that are not under gas pressure, 1551*a*.
**Burkholder, P. R.** See Sanders, M. E.; Siu, R. G. H.
——, and Nickell, L. G. Atypical growth of plants (I) cultivation of virus tumors of *Rumex* on nutrient agar, 6288*e*.
**Burkholder, T. M.** See Eagle, H.
**Burkin, A. R.** Ultrarapid processing of photographic materials, 1667*b*.
**Burkov, G. A.** See Golubtsov, V. A.
**Burks, A. L.** See Abreu, B. E.
**Burks, R. E., Jr.** See Adkins, H.
**Burkser, G. V.** Influence of oligodynamic Ag sols on *Brucella* organisms, 8446*a*.
**Burkser, L. E.** See Davydov, A. L.
**Burlage, H. M.** Pharmaceutical applications of isopropyl alc. (III) solubilities of sedatives, hypnotics, and sulfonamides, 3147*h*.
——, *et al.* Lab. Manual for Principles and Processes of Pharmacy (book), 8619*f*.
**Burleigh, E. G., Jr.**, Wakeham, H., Honold, E., and Skau, E. L. Pore-size distribution in textiles, 8685*i*.
**Burleson, A. L.** Rotary-drum filter, P 913*g*.
**Burley, F. H.** Vacuum sludge filtration practices at the Detroit sewage-treatment plant, 3123*h*.
**Burley, G. D.** Cell-type filter for oil, P 2048*b*.
**Burman, L. M.** See Eilerts, C. K.
**Burman, U. R.** See Sen, N. R.
**Burmester, B. R.** Influence of sex hormones on the occurrence of prolapse, 1097*c*.
**Burmistrov, S. I.** Org. components of rubber compns., 893*g*; dependence of the azo coupling ability of azo components, ArX, on the basicity of the substituent X, 4647*a*; reactions of primary arylamines, 5344*a*; tests for azotols, 5344*c*.
**Burn, G. P.** See Harris, E. J.
**Burn, J. H.** Excretion of medicinal substances in the milk, 7568*a*; see Bullbring, E.
——— and Dutta, N. K. Action of antagonists of acetylcholine on the vessels of the rabbit ear, 2704*g*.
——— and Holton, P. Standardization of secretin and pancreozymin, 4722*i*.
——— and Vane, J. R. Inhibitory action of paludrine on the secretion of gastric juice, 2704*d*.
**Burness, D. M.** See Allen, C. F. H
**Burnet, F. M.** Inactivation of the receptor-destroying enzyme of *Vibrio cholerae* by immune serum, 6279*g*; mucins and mucoids in relation to influenza virus action (III) inhibition of virus hemagglutination by glandular mucins, (IV) inhibition by purified mucoid of infection and hemagglutination with the virus strain WSE, (V) destruction of "Francis inhibitor" activity in a purified mucoid by virus action, 7121*b*; see Anderson, S. G.
**Burnet, I. M.** Selective weed killers, 806*a*
—— and Holmes, E. Gammexane as an agricultural insecticide, 810*e*.
**Burnett, C. H.**, Commons, R. R., Albright, F., and Howard, J. E. Hypercalcemia without hypercalciuria or hypophosphatemia, calcinosis, and renal insufficiency—syndrome following prolonged intake of milk and alkali, 7480*e*
**Burnett, D.** See Smith, C. N
**Burnett, G. M.**, and Melville, H. W. Detn. of transfer coeffs. in polymerization reactions, 5271*d*.
**Burnett, R. C.** See Pickering, R. W.
**Burnett, R. S.** Peanut protein free from peanut skin pigment, P 4032*i*
**Burnett, T. H. J.** Radiation hazards in industry, 5885*f*
**Burnette, L. W.** See Johns, I. B
**Burney, D. E.** See Adams, C. E., Duvillier, E. L.
**Burney, T. E.**, and Golub, O. J. Effect of enzyme inhibitors on the activity and growth of psittacosis virus, 305*h*
**Burnham, J.**, and Robinson, P. Insulating $Al_2O_3$ films, 5250*h*
**Burns, B. D.** See Rees, W. P
**Burns, E. R.** See Madigan, J. C
**Burns, F. B.**, Larrison, M. S., and Higgs, M. C. Fire-resistant asphalt roofing, P 1940*c*.
**Burns, J. J.** See Scott, F. E
**Burns, K.**, and Sullivan, F. Spectrum of Ni in the vacuum arc—wave lengths in other spectra, 941*a*.
**Burns, L.** Nonactinic fluorescent lamp, P 1208*c*
**Burns, R. E.**, and Wood, J. Conventional and sludge blanket softeners at a Fire stone plant, 8583*h*.
**Burns, R. M.** Properties of metallic surfaces, 80*g*.
**Burns, T. W.**, Merkin, M., Sayers, M. A., and Sayers, G. Concn. of adrenocorticotropic hormone in rat, porcine, and human pituitary tissue, 8492*g*
**Burnside, J. E.** See Cunha, T. J.
——, Cunha, T. J., Pearson, A. M., Glasscock, R. S., and Shealy, A. L. Effect of APF supplement on pigs fed different protein supplements, 9293*c*.
**Burov, A. K.** Sheets and other forms from molten anisotropic substances, P 8760*b*.
**Burov, N. A.** Satg. liquids with O, etc., P 6010*i*.
**Burr, A. C.**, Oppelt, W. H., and Kamps, T. W., Jr. Drying of lignite in hot oil, 4831*a*
**Burr, G. O.** See Barnes, R. H.
**Burr, G. S.** See Hindman, H.
**Burrage, L. J.** Safety and good housekeeping in chem. labs., 7159*h*.
——, Denny, P. W., and Imperial Chemical Industries Ltd. Benzene hexachloride, P 7187*c*.
——— and Imperial Chemical Industries Ltd. Benzene hexachloride, P 5797*i*.
——, Smart, J. C., and Imperial Chemical Industries Ltd. Benzene hexachlorides P 3033*b*
——, Williams, C., and Imperial Chemical Industries, Ltd. Benzene hexachloride as an insecticide, P 1525*c*.
**Burrell, F. B.** See Martin, J. R.
**Burrell, H.**, and Neidig, C. P. Surface coatings, 1125*c*.
**Burriel, F.** See Albareda Herrera, J. M.
—— and Hernando Fernandez, V. P in the soils of Spain (III) extn. of total P from soils, 6348*c*.
—— and Lucena Conde, F. Detn. of Cu by dichromate, 62*d*; detn. of ferrous salts in the presence of thiocyanate ions (III) detn. of ferrous and ferric irons, 4602*a*; (IV) detn. of Fe in its minerals and alloys, 5331*c*.
——— and Pino Perez, F. Analytical applications of the reaction $HgO + 4\,KX = [HgX_4]K_2 + 2\,KOH$, 7860*c*; differentiation of ppts. and analogous crystals (I) recognition of the white ppts. of the Pb salts with quinalizarin, 8309*d*.
—— and Ramírez-Muñoz, J. Tincture of anchusa as an indicator in volumetric neutralization measurements, 4596*g*.
——— and Suárez, R. Sepg. nitrates and nitrites (II) detn. of nitrites by indirect colorimetry, 64*g*.
**Burriel Martí, F.** Same as Burriel, F.
**Burrill, E. A.** See Buechner, W. W.
**Burris, R. H.** See Lindstrom, E. S.; MacVicar, R.; Mitchell, J. E.; Olson, O. E.
**Burroughs, L. F.** Titration of the acidity of apple juice and cider, 3537*b*.
**Burroughs, S. G.** Styrene resin, P 1605*f*, stabilizers for coumarone indene resins, P 4511*e*, indene resin stabilizers, P 4511*f*.
**Burroughs Wellcome & Co. (USA) Inc.** Urea derivs., P 2229*a*, complex org. Sb compds., P 7500*h*.
**Burrows, B.** See Sawyers, J. L.
**Burrows, J. A.** See Smith, O. M.
**Burrows, L. A.**, and Fuller, M. F. Monochloroacetic acid, P 1795*g*.
**Burrows, W.** Jordan's Textbook of Bacteriology (book), 7550*c*.
**Burrsi, R. H.** See Clagett, C. O.
**Bursaux, J.** Rare metals from phosphate salts, P 4961*f*.
**Burshtein, I. N.** See Temkin, B. S.
**Burshtein, R. Kh.**, and Miller, N. B. O adsorbed by C and its ability for forming $H_2O_2$ and water, 4075*i*
**Burshtein, Yu. A** See Gorenbein, E. Ya
**Burstall, F. H** See Arden, T. V.
——, Davies, G. R., Linstead, R. P., and Wells, R. A. Inorg. chromatography on cellulose, 4595*g*
**Burstein, E.**, Oberly, J. J., and Pyler, E. K. Infrared properties of MgO and their interpretation, 4570*a*
——— and Smith, P. L. Photoelastic properties of diamond, 4071*a*; photoelastic properties of ionic crystals, 5251*h*
**Burstein, M** See Binet, L.
——— and Parrot, J. L. Elevation of blood histamine after injection of atropine, 9248*f*.
**Burström, H.** Mineral nutrition of plants, 1083*f*, influence of galactose on wheat roots, 3493*i*.
**Burstyn, H** Synthesis of rubber from petroleum hydrocarbons, 3644*b*.
**Bursztyn, I.** Wet strengthening of paper, 2773*e*; natural and synthetic adhesives, 4510*h*, synthetic resins and plastics materials in the textile industry, 8197*i*, paper of high wet strength, 8678*g*.
**Burt, C. S.**, *et al.* Wood preservation, 6351*h*
**Burt, J. C.** See Odell, L. D.
**Burt, R. L.**, and Fallers, H. R., Jr. Amino N retention in plasma following trauma, 4366*a*
**Burt, W. E.** See McBee, R. T.
**Burtchaell, E. P.** Reservoir performance of a high-relief pool, 8651*i*.
**Burte, H. M.** "Secondary yield point" in wet wool fibers, 413*c*.
**Burtis, T. A.**, Dart, J. C., Kirkbride, C. G., and Peavy, C. C. Economics of moving-bed catalytic-cracking processes, 3180*b*.
**Burtner, R. R.** Liberation of dialkyl aminoalkyl chlorides from their hydrochlorides, 6976*g*; see Gilman, H.
**Burton, A. C.** Biophysics and the responsibilities of a department of biophysics, 7061*b*; see Fry, F. E. J.; Gunton, R.
**Burton, C. C.** See Watson, Claude W.
**Burton, C. H.** Analytical Methods for Al Alloys (book), 2548*f*.
**Burton, C. J.** Electron microscopy, 2113*f*, see Schneider, William C.
**Burton, D.** Vegetable tanning (I) detn. of the different kinds of acids and salts in tan liquors, 1205*d*; see Atkin, W. R., Walker, W., & Sons Ltd.
**Burton, E. F.**, *et al.* College Physics (book), 478*e*.
**Burton, G. W.** Coastal Burmuda grass, 3552*d*.
——, Parham, S. A., Southwell, B. L., and Stephens, J. L. Winter grazing in Georgia coastal plain, 9321*a*.

**Burton, H.**, and Duffield, J. A. Synthesis of derivs. of 5,6-dihydroxyindole (I) 5,6-methylenedioxyindole and its 2-methyl deriv., 7020*b*.
—— and Hu, P. F. Converting α-amino acids into 2-substituted ethylamines, 6978*d*; formation of diphenyl sulfoxide from PhMgBr and 2 thiophenesulfonyl chloride, 6994*d*, reaction between acetanilide and *p*-toluenesulfonyl chloride in presence of $AlCl_3$, 6994*f*, compds. related to 4,4′-diaminodiphenyl sulfone—*p*-arylsulfonylphenylethylamines and related compds., 7449*g*
—— and Kurzer, F. Fluorescein dyes derived from 2-methylresorcinol, 1983*g*.
**Burton, H. B.** See Miller, L. A.
**Burton, J. A.** Photoelec. and optical properties of Cs-Sb films, 4092*a*, cutting compd., P 5185*f*.
**Burton, J. J.** See Little, K. B.
**Burton, K. A.** See Wickerham, L. J.
**Burton, P. C.** Two-stage theory of the d.-intensity-time relation for single and double photographic exposures, 2527*c*; action of surface developer at various depths in the emulsion layer, 5319*d*, see Farnell, G. C.
**Burton, R. B.** See Zaffaroni, A.
**Burton, R. L.** See Clark, G. L.
**Burton, S. E.**, and Sanford, R. S. Boiling Springs Mn-Fe deposits, Cumberland Co., Pa., 5348.
**Burton, W. E.** Engineering with Rubber (book), 2024*d*.
**Burton, W. G.** Mashed potato powder (IV) deterioration due to oxidative changes, 6754*e*.
—— and Sprague, W. T. Extn. of gas from plant sap or tissue, 8454*e*
**Burton, W. K.**, Cabrera, N., and Frank, F. C. Dislocations in crystal growth, 6027*d*.
**Burwell, A. L.** Cellular material from volcanic ash, P 6639*g*.
**Burwell, B.**, and Brennan, J. H. Recovering W from low-grade ores, P 3768*f*; improvement in Mo and W compds., P 4436.
**Burwell, C. S.** See Dexter, L.
**Burwell, R. L., Jr.** Catalytic racemization and dehydrogenation of optically active sec.-BuOH by Cu and by Zn chromite, 1249*c*; stereochemistry of the sulfation of optically active *sec* BuOH, 5737*f*
—— and Gordon, G. S., III. Action of $H_2SO_4$ on an optically active hydrocarbon, 1247*g*.
—— and May, T. P. Measurement of permeability characteristics of anodic films on Al, 47*a*
——, Roake, W. E., and Dole, M. Purification of water for isotopic analysis, 4531*d*.
**Bury, C. R.** See Franklin, Reginald G.
**Bury, P. A.** See Calvert, F. L.
**Busà, E.** See Cacioppo, F.
**Busacchi, V.** Vitamin $B_2$ and blood Fe, 4738*d*.
—— and Giacomoni, G. Vitamin $B_2$ and O debt, 4738*c*.
**Busath, H.** Radioactive materials in the textile industry, 8685*e*
**Busatti, L.** See Camiggia, A.
**Busby, C. C.** See Spretnak, J. W.
**Buscaino, G. A.** Proteins in cerebrospinal fluid, 2311*d*, cytochrome c in human brain, 6720*c*.
—— and Rapisarda, A. α Ketogluturic acid in the blood in dementia praecox—its changes after administration of nicotinic acid and nicotinamide, 2311*h*.
**Buscarons Ubeda, F.**, and Herrera de la Sota, A. Detn. of tungstates in the presence of sulfates and of silicates, 8968*a*.
—— and Loriente González, E. Formation of insol. compds. of 4,4′-diamino 3,3′-dimethoxybiphenyl with tungstates in aq. media and their applications to the detn. of W, 8310*c*; formation of insol. compds. of 4,4′-diamino-3,3′-dimethoxybiphenyl with vanadates in aq. media and their analytical applications, 8310*e*.
—— and Marín Malumbres, J. L. Detns. without previous extn. (II) detn. of V, 634.
——, Marín Malumbres, J. L., and Cluver, J. Alcs. with the V-oxine complex, 8974*c*.
**Busch, H. W.**, and Berger, L. B. Sampling and detn. of aldehydes in Diesel-engine exhaust gas and in mine air, 8646*c*.
——, Berger, L. B., and Schrenk, H. H. "C-O complex" as a possible initiator of explosions and formation of CO in compressed-air systems, 5952*c*.
**Busch, L. S.** See Larsen, E. I.
**Busch, R. H.** Theory of $C_3H_4$, 557*a*; thermochemistry of $C_3H_3$ and allylene and the valency of C, 3276*d*
**Busch, W.** Automatic dyeing of silk and rayon in skein form, 4469*f*, paper yarn, 6413*h*.
**Buschinelli, J.** See Guimarães da Fonseca, P.
**Buschke, W.** Intercellular cohesion in corneal epithelium—effects of proteolytic enzymes, salts, H-ion concn., and nonpolar substances, 8514*e*; see Friedenwald, J. S.
**Buschman, D. M.** See Cunha, T. J.
**Buser, J. S.** Testing plating solns. for the ratio of Sn to fluoride, P 6527*f*.
**Busev, A. I.** Specific reagent for Mo detection, 7859*a*, sepn. of Bi and Pb, 8302*f*
—— and Korets, N. P. Detn. of Bi in Pb with thiourea, 5328*i*
**Busey, H. M.**, and Pollard, E. F. Conversion of $SrSO_4$ to carbonate in molten state—effect of alkali halides, 368*e*.
**Bush, B. T., Inc.** Unsatd. alcs., P 1063*c*; 3-*tert* butyl-4-alkoxybenzaldehydes, P 1063*e*, 3-*tert*-butyl-4-alkoxy-5-nitrobenzaldehyde, P 1063*g*; 2,4-di-*tert*-butyl-5-methoxybenzaldehyde, P 1063*i*, esters of 2,4,5-trichlorophenol, P 3459*f*
**Bush, F.** Integral dose received from a uniformly distributed radioactive isotope, 3282*e*.
**Bush, J. D.** See Sisler, H. H.
**Bush, O. B.**, Vandegrift, R. B., and Hanley, T. E. Use of Ti and Zr nitrides as conducting elements in thoria cathodes, 3731*g*.
**Bush, R. E.** See Fulbright, H. W.
**Bushby, S. R. M.** See Brownlee, G.
**Bushell, C. H. G.** Effect of high-pressure steam curing on vol. changes of portland-cement mortars, 15166
**Bushland, R. C.**, Wells, R. W., and Radeleff, R. D. Effect on livestock of sprays and dips contg. new chlorinated insecticides, 1520*a*
**Bushra, A.** See Foster, R. T.
**Businco, L.** See Baccarini, V.
**Buskirk, E. C. van.** See Van Buskirk, E. C.
**Bussard, A.** Antihormones—antigonadotropic serums, 7125*b*, see Grabar, P.
**Busse, L. W.** See Swintosky, J. V.
**Busse, W. F.** See Lambert, J. M.
—— and Lambert, J. M. Poly-*N*-vinylpyrrole compds., P 9534*g*.
——, Lambert, J. M., McKinley, C., and Davidson, H. R. Polyvinylcarbazole resin as a dielec. material, 4891*j*.
**Bussell, K. R.** See Rischbieth, J. R.
**Bussmann, G.** Test for S in org. compds., 3744*i*; Dumas N microdetn., 6869*d*, see Furter, M. F.
**Busso, C. J.** See Walters, E. L.
**Busso, R. H.** Kinetic changes in the oxidation of C at 1450°, 7798*c*; see Audubert, R.
**Bustamente Amir, L.** Reactions in the disintegration of $U^{235}$, 8868*a*.
**Bustinza Lachiondo, F.**, and Caballero Lopez, A. Influence of antibiotics on the germination of seeds, 7094*i*.
**Buston, H. W.**, and Roy, S. K. Physiol. activity of unsatd. lactones (I) effect on the growth of microörganisms, 7542*c*.
**Busvine, J. R.**, and Kennedy, J. S. Insecticide smokes for indoor use, 9342*a*.
**Buswell, A. M.** Microbiol. utilization and disposal of wastes, 3547*h*
——, Pagano, J. F., and Sollo, F. W., Jr. Effect of $Na_2SO_4$ and NaCl on $CH_4$ fermentation, 6768*i*.
**Busz, J. J.** See Frere, F. J.
**Butacet Ltd.** Sepn. of acetone and BuOH from fermented mash by activated charcoal, P 6782*a*
**Butaeva, F. A.**, and Fabrikant, V. A. Influence of discharge parameter on the intensity of lines 1850 and 2537 A. in luminescent lamps, 6905*i*.
**Butcher, A.** Water-settling and -clarifying app., P 1130*a*.
**Butcher, E. O.** Adrenal autotransplants with hepatic portal drainage, 8485*h*.
**Butement, F. D. S.** Absorption and fluorescence spectra of bivalent Sm, Eu, and Yb, 2510*a*; radioactive tracers in antiserums, 3923*g*; radioactive Gd and Tb isotopes, 4949*h*.
**Butenandt, A.** Origins of chemotherapeutic research, 3109*i*.
——, Jatzkewitz, H., and Fouché, P. Synthesis of racemic β,β-dimethylcysteine, 5742*i*.
**Buth, W.** See Karl, H. L.
**Butkov, K. V.** Complex equil. of mols. of $Br_2$, $Cl_2$, BrCl, and of atoms Br and Cl in the temp. range 298.1–3000°K., 1630*e*; complex equil. in the system Cl–$Cl_2$–Br–$Br_2$–BrCl, 5265*g*.
—— and Voltsekhovskaya, I. A. Influence of the state of aggregation on the absorption spectrum of $SbI_3$, 8891*c*.
**Butkov, N. A.**, Mitkalev, B. A., and Baranova, G. P. Sepn. of α-methylnaphthalene from green oil, P 6404*d*.
**Butler, B. C.** See Turner, F. P.
**Butler, C.** See Levin, E.
**Butler, C. A., Jr.** Design of wells to supply salt to chem. plants, 3982*i*.
**Butler, C. C.** See Rochester, G. D.
**Butler, E.** See Ashby, W.
**Butler, E. J.** See Irving, H.
**Butler, E. M.** Electrolytic water correction device, P 509*e*
**Butler, G. B.** Polycyclopentadiene, P 5231*f*; see Saunders, H. L.
**Butler, J.** Hydraulic equipment ancillary, 435*a*
**Butler, J. A. V.** Enzymes, 9110*d*.
——, Dodds, E. C., Phillips, D. M. P., and Stephen, J. M. L. Action of trypsin on insulin, 6261*c*.
——, Phillips, D. M. P., and Stephen, J. M. L. Core of the insulin mol., 2652*h*.
**Butler, J. M.** Synthesis of phenanthridone, 7028*g*, see Seymour, R. B.
**Butler, K. H.** Fluorescent lamp phosphors, 4939*i*; fluorescence of silicate phosphors (III) application of potential energy curves, 5311*g*; see Cassanos, J. G.
**Butler, M. J.** North American Rayon Corp. Chem. Lab. Manual of Analytical Standards (book), 3203*f*.
**Butler, M. L.** See Marsh, P. B.
**Butler, R. C.**, and McCurdy, W. N., Jr. Fouling rates and cleaning methods in refinery heat exchangers, 8755*d*.
**Butler, S.** See Sanford, H. N.
**Butler, T. A.** See Warf, J. C.
**Butler, T. C.** Bromal hydrate and chloral hydrate, 1862*a*; reduction and oxidation of chloral hydrate by isolated tissues, 4769*d*
**Butlin, K. R.**, Adams, M. E., and Thomas, M. Sulfate-reducing bacteria and internal corrosion of ferrous pipes conveying water, 2564*h*; isolation and cultivation of sulfate-reducing bacteria, 4328*g*.
**Butner, D. W.** W occurrences in Darwin district, Inyo Co., Calif., 6124*c*.
**Butom, M. L.** See Utevskil, A. M.
**Butros, J. M.** Effect of saponin on tissue and cancer cells, 1857*g*; effect of methylcholanthrene on the viscosity of paramecium, 2311*a*, see Djanian, A. Y.
**Butsch, W. L.** See Leahy, L. J.
**Butt, E. A., Jr.** Portable filter with a high-vacuum pump used for filling the tank and discharging the filtered liquid, P 8080*i*.
**Butt, H. R.** See Cromer, H. E., Jr.
**Butt, M. T.** See Streiff, A. J.
**Butt, Yu. M.** Detn. of the velocity of hydration of cements and cement ingredients, 3589*b*; hydration of portland cements and their components, 8636*a*; see Budhikov, P. P.; Yung, V. N.
—— and Berkovich, T. M. Effect of air-retaining substances in the tech. properties of cement solns. and concretes, 1543*g*; rosin and abietic tar as plastifiers in portland cement, 7657*i*.
—— and Yurchik, S. I. Cement, P 9410*f*.
**Buttaro, C. A.** See Frascarelli, R.
**Buttazzoni, A.** See Padovani, C.
**Butterbaugh, D. J.** See Bortnick, N. M.
**Butterfield, C. T.** Bactericidal properties of free and combined available Cl, 1128*b*.
**Butterfield, G. P.**, and Thorne, L. A. Treating lactalbumin, P 2375*g*.
**Buttiaux, R.** Viscous deterioration of sucrose solns. by *Leuconostoc mesenteroides*, 6363*d*.
**Butts, H. A.** See Evans, Robert J.
**Butts, P. G.**, Meikle, W. J., Shovers, J., Kouba, D. L., and Becker, W. W. Detn. of dinitrotoluene in smokeless powder, 1567*i*.
——, Prine, G. B., Kouba, D. L., and Becker, W. W. Detn. of diethyl phthalate in smokeless powder, 1568*f*.
**Butturini, U.** Antihistaminic and antiallergic action of nicotinamide, 1863*i*.
**Butyagin, P. Yu.**, and Margolis, L. Ya.

Catalytic oxidation of hydrocarbons, 6505*h*.

**Butzengeiger, K. H.** Chronic As poisoning, 8533*i*.

**Butzner, J. L.** See Payne, J. W.

**Buu-Hoï.** See Caussé, R.; Clercq, M. de; Corre, L.; Daudel, P.; Lacassagne, A.

——— and Dat-Xuong. Addn reactions of higher ethylenic fatty acids and their analytical application, 565*i*.

——— and Nguyen-Hoán. Thiophene series (II) acids and ketones of the thiophene series and their derivs., 4665*a*.

———, Nguyen-Hoán, Lecocq, J., and Clercq, M. de. Substituted α,β,β-triarylethylenes, 7006*h*.

——— and Royer, R. Substitution reactions of triphenylethylene and its derivs.—synthetic analogs of progesterone, 199*g*.

**Buxton, C. L.** See Atkinson, W. B.

**Buxton, L.** See Arnesen, K.

**Buxton, L. O.** Treatment of oil-bearing vegetable meals, P 2712*a*, vitamin-fortified meals, P 3542*b*.

——— and Dryden, C. E. Stabilization of fatty materials, P 3637*f*, antioxidants for fatty materials, P 3637*g*.

**Buyanov, N. V.** Spectral analysis of slags, 6541*d*.

———, Lutsenko, A. V., and Sorokina, N. N. Spectral detn. of small quantities of B, V, Ti, and Al in steel, 964*f*.

**Buyanovskiĭ, D. S.** Horse-radish ... a source of vitamin C, 1498*g*.

**Buydens, R.** Water filtration, 791*b*.

**Buylla, A.** See Vivanco, F.

**Buys, J. A.** Lecithin emulsion, P 5138*a*

**Buys, W. L.** Analysis of scale units, 3667*f*.

**Buyze, H. G.**, and Engel, C. Utilization of folic acid conjugate, 3895*e*.

**Buzagh, A.** Colloid Systems (book), 4554*c*.

**Buzas, A.** See Boiteau, P.

**Buzzo, T. M.** See Calhoun, J. R.

**B. X. Plastics Ltd.** and Colborne, R. S. Treatment of coal-tar distillates, etc., P 5929*b*.

**Byall, S.** See Fort, C. A.

**Byatt, W. J.**, Rogers, F. T., Jr., and Waltner, A. β-Particle spectrum from the decay of T, 8268*b*.

**Bychkov, S. M.** Chondroitin-$H_2SO_4$ and heparin, 6678*e*; hyaluronic acid and hyaluronidase, 7524*h*; hyaluronic acid and its physiol. significance, 7989*c*.

**Bycichin, A.**, and Vlach, L. Influence of betaine on the photographic properties of hide gelatin, 51*g*.

**Byerly, F. S.** Resistance of traffic paint to bleeding, 8695*b*.

**Byers, A.**, and Hickinbottom, W. J. Reactions of unsatd. compds. (VI) reaction of α-diisobutylene with org. per acids, 1309*d*; (VIII) oxidation of diisobutylene by chromic acid, 1310*f*; oxidation of olefins by per acids, 2571*c*.

**Byers, A. M., Co.** Desulfurizing molten ferrous metal, P 2566*h*.

**Byers, J. H.**, Jones, I. R., and Haag, J. R. Comparative value of high and low-fat concentrates with alfalfa hay, 8472*i*.

**Byers, R. C.**, and Dickman, J. Quality control in the foundry, 4990*i*.

**Byers, R. J.**, and Christian, M. B. Veneer, P 5518*i*.

**Byers, S. O.** See Friedman, M.

——— and Friedman, M. Hypercholesteremia after intravenous administration of cholesterol, 4383*h*; entrance of urate and allantoin into the cerebrospinal fluid of the Dalmatian and non-Dalmatian dog, 7117*c*.

———, Tytell, A. A., and Logan, M. A. Production and properties of *Clostridium perfringens* hyaluronidase, 7985*d*.

**Bygate, P. W.** See Allsop, H.

**Bykhovskaya, E.** See Knunyants, I. L.

**Bykhovskaya, M. S.** Detn. of $Et_4Pb$ in org. substrates, 5439*d*.

**Bykhovskiĭ, Yu. A.** See Egorov, F. G.

**Bykov, I. E.** See Stromberg, A. G.

**Byler, R. E.**, and Dunn, R. C. Recovery of precious metal values, P 8344*e*.

**Byler, W. H.**, and Carroll, C. C. X-ray screen, P 1662*c*.

——— and Kirkpatrick, G. P. Decay of phosphorescence—luminescence of ZnS phosphors, 4577*g*.

**Bynum, E. K.** See Ingram, J. W.

**Byrd, D. A.** See Becker, E. R.

**Byrd, W., Jr.** Electrostatic separator comprising a rotatable sepg. electrode, P [illegible].

**Byrd, W. M.** See Speeter, M. E.

**Byrkit, G. D.** Oiliness agent, 845*f*; Lincoln, B. H.

**Byrne, J. F., and Steward, P.** Extn. and prepn. of agar, P 2344*g*.

**Byrne, R. E., Jr.** Detn. of acetone, 4183*g*.

**Byrns, A. C.** 1,3-Diketones, P 2634*c*; ketones, P 4685*i*; catalytic reforming of hydrocarbon mixts., P 94[illegible].

——— and Von Stroh, G. Vulcanization of butadiene-styrene rubbery copolymer, P 2808*f*.

**Byron, G. M.** Efficiency of Eusol and chloramine in bacteriostatic emulsions, 3561*i*.

**Byrtus, F.** See Czyzewski, M.

**Byström, A.** Stereochemistry of Pb and some metals with similar at. structure, 451*g*; structure of the fluorides and oxyfluorides of bivalent Pb, 459*i*.

**Byström, A. M.** Crystal structure of ramsdellite, an orthorhombic modification of $MnO_2$, 6485*f*.

**Bywater, W. G.** See Cheney, L. C.

——— and Coleman, W. R. 5,5-Di-2-thienylhydantoin, P 5805*i*.

**Bziava, M. L.** Compn. of org. matter of the soils in the subtropics, 7617*b*.

Cabal, A. V., and Oliver, H. G. Stabilization of pyrrole with biguanide, P 4701*b*.

**Cabalà P., L.**, and Damiano B., J. Pilot plant distn. of Manantiales crude oil, 3995*e*.

**Caballero López, A.** See Bustinza Lachiondo, F.

**Caballero Pastor, L.** See Aznar Reig, A.

**Cabanes, T. F.** See Fevel-Cabanes, T.

**Cabannes, J.** Spectroscopy applied to mol. physics, 4556*f*.

**Cabarat, R.**, Guillet, L., and LeRoux, R. Influence of the chem. constitution of Cu-Zn alloys on their elastic properties, 2561*i*; elastic properties of metallic alloys, 3332*h*; internal friction and elastic anisotropy of metals and alloys, 4198*h*.

**Cabel, A.** See Brunerie, G.

**Cabo, J. R., Jr.** See Rodríguez Cabo, J., Jr.

**Cabot, G. L., Inc.** C black, P 3178*a*, HCHO, P 5792*b*.

**Cabot, H.** See Ross, S. D.

**Cabrera, C. F.** See Fernández Cabrera, C.

**Cabrera, N.** See Burton, W. K.

**Cabrero Gómez, F.** Spanish brown algae, 3117*h*.

**Cabrini, F.** Fe removal from sands, P 4624*h*.

**Caccia-Bava, A. M.** Br in detn. of double bonds (I), (II), 4976*d*; lipo-sol. salt of Bi, 5539*i*; see Vitali, T.

**Cacioppo, F.** Fluorescence of cerebrospinal fluid of diseased children, 2313*b*.

——— and Busà, E. Glutathione of red blood cells in pernicious anemia of sucklings, 2313*i*.

**Caddell, H. M.** See Remington, J. W.

**Cade, A. R.** Testing germicides, 3873*c*; increasing efficiency of FDA phenol coeff. test, 9307*d*.

——— and Gump, W. S. Esters of 2,4,5-trichlorophenol, P 3459*f*.

**Cade, J. F.** Anticonvulsant properties of creatinine, 317*f*.

**Cade, S.** Malignant Disease and its Treatment by Radium (book), 5112*a*

**Cadili, G.** Pentothal Na and serum therapy in treatment of tetanus, 6729*a*.

——— and Li Voti, P. Mucinolytic activity of the testicle as related to the functional status of the organ, 7567*h*

**Cadwallader, E. A.**, Fookson, A., Mears, T. W., and Howard, F. L. Aliphatic halide-carbonyl condensations by means of Na, 111*a*.

**Cadwell, C. A.** Welding materials, P 3772*g*.

**Cady, George H.** See Farrar, R. L., Jr.; Kellogg, K. B.; Rohrback, G. H.

**Cady, Gilbert H.** See Helfinstine, R. J.

**Cady, W. M.**, Cassen, B., and Blitzer, L. Spectra of electroplated electrodes, 4090*h*.

**Caemmerer, A. B.** Detn. of volatile amine intermediates in coal-tar colors, 9454*e*.

**Caesar, G. V.** Formation of carbohydrate derivs., P 678*e*.

———, Bauer, J. V., and Hawley, D. M. Waterproof adhesive for laminated and corrugated paperboard, P 5633*d*.

**Caesar, P. D.** Alkylation of thiophene with olefins, 1395*d*; alkylthiophene-aldehyde resins, P 2031*i*; see Hansford, R. C.

——— and Sachanen, A. N. Alkylation of thiophene, P 691*c*; thiophene-aldehyde resins, P 2031*g*; interpolymerization of thiophene and butadiene, P 5231*b*.

**Caffyn, J. E.** Correction in viscometry due to varying hydrostatic head, 4522*e*; see Scott Blair, G. W.

**Cañero, M.** Bacteriostatic action of penicillin, 8618*f*, pyrophosphatase of *Escherichia coli*, 9145*c*.

——— and Zambruno, D. Action of colchicine on multiplication of *Staphylococcus aureus*, 8434*d*.

**Caflisch-Weill, H.** See Bernhard, K.

**Caggianelli, G.** See Fusco, R.

**Cagianut, B.** Effect of D oxide on growth, 3181*b*, action of sex hormones on growth, 3507*h*.

**Çağlar, K. Ö.** Mineral waters and thermal springs of Turkey, 7611*d*.

**Cagle, F. W., Jr.** Partial differentials for the estn. of errors in volumetric analysis, 8299*b*.

**Cagliotì, V.**, and Sartori, G. Polarographic behavior of some complex ions, 8915*g*.

**Cagna, F.** Irradiated stovarsol and staphylococci, 1460*b*.

**Cagniant, D.** See Cagniant, P.; Cordier, P.

**Cagniant, P.** Benzosuberan and its derivs., 2965*d*, derivs. of 13*H*-dibenzo[*a*,*g*]-fluorene, 2981*h*; arylation of ethyl 2-cyclopentene-1-acetate, 3796*d*.

——— and Cagniant, D. Cholanthrene hydrocarbons, 2625*h*.

———, Cagniant, D., and Deluzarche, A. Thiophene series (I) ω-2 thienyl aliphatic acids of the general formula $C_4H_3S(CH_2)_nCO_2H$, 3817*f*.

——— and Deluzarche, A. Reactivity of alkyl 2-thienyl ketones, 228*a*.

**Cagnoni, J. A.** See Zappi, E. V.

**Cahen, L.** Samples of itabirite of Luembe-Lubilash, Katanga, 2133*c*, two groups of doleritic intrusives in the Katanga group, 2136*a*.

**Cahen, P.**, and Letort, M. Detn. of small quantities of CO in a stream of air, 2892*i*.

**Cahen, R. L.**, Epstein, H. J., and Krementz, C. S. Evaluation of the analgesic action of methadon isomers and other analgesics, 1487*c*.

**Cahill, G. F.**, Osborne, G. E., and Lee, C. O. Clear soln. of Pb subacetate, 456*e*.

**Cahill, M.** See Barker, C. W.

**Cahill, O. J.** Coating compd., P 7240*e*.

**Cahn, A.** See Spatz, W. D. B.

**Cahn, F. J.** Esters of alc. nontertiary amines, P 674*e*, testing of solns. for quaternary $NH_4$ compds., P 6948*h*.

**Cahn, T.**, and Houget, J. Mobilization of lipides during various physiol. and pathol. states, 9217*e*.

———, Houget, J., and Agid, R. Validity of calcns. of the content of phospholipides in tissue, 4355*b*.

**Cahnmann, H. J.** See Schwarzkopf, O.

**Cahoon, N. C.**, and Heise, G. W. Depolarizing reaction in the dry cell, 49*f*.

**Cahour, J. A.**, Wallbaum, H. J., and Masing, G. Pptn. reactions in Zn-rich Cu-Zn alloys, 7887*e*.

**Caillat, R.** See Jacquet, P. A.

**Cailleau, R.** Cheeses and wines as sources of vitamin B, 5509*h*.

——— and Adrian, J. Influence of adsorbent C on the vitamin efficacy of a balanced diet, 1846*a*, riboflavin, nicotinic acid, and pantothenic acid in French wheats, 4391*g*.

———, Adrian, J., and Lévy, J. Riboflavin, niacin, and pantothenic acid content of different types of cheese, 8570*b*.

——— and Chevillard, L. Thiamine, riboflavin, niacin, and pantothenic acid content of some French wines, 6777*i*.

———, Lévy, J., Terroine, T., Adrian, J., and Jacquot, R. Variations in riboflavin, and in nicotinic, pantothenic, and ascorbic acids at the beginning of germination of wheat and peas, 5830*e*; variations in riboflavin, nicotinic acid, pantothenic acid, and ascorbic acid contents during the growth of corn and peas, 6289*h*.

**Caillère, S.**, Guennelon, R., and Hénin, S. Thermal behavior of some phyllites at 14 A., 5347*b*.

——— and Hénin, S. Formation of chlorites from montmorillonite, 6121*a*; transformation of minerals of the montmorillonite family into 10-A. micas, 6121*f*; occurrence of sepiolite in the Lizard serpentines 7382*b*.

———, Hénin, S., and Guennelon, R. Transformation of mica into different types of argillaceous minerals by expansion of the lattice, 7200*c*.

———, Hénin, S., and Mériaux, S. Xylotile, ferriferous variety of sepiolite, 2899*b*.

——— and Kraut, F. Oölitic Fe minerals of Wabana, Newfoundland, 4189*h*, 8991*a*; Fe-bearing constituents of oölitic ores of the

Longwy Basin, and the origin of hydrohematite in these formations, 6125*b*; oölitic Fe ore of the Sauvage deposits (Longwy Basin), 8318*a*

**Cain, C. K.** See Taylor, E. C., Jr.

———, Mallette, M. F., and Taylor, E. C., Jr. Pteridines (III) pteridinemono- and -dicarboxylic acids, 6814*d*.

———, Taylor, E. C., Jr., and Daniel, L. J. Pteridines (IV) derivs. of 2,4-diamino-6,7-diphenylpteridine, 4268*e*

**Cain, J.** See Mercier, J.

——— and Mercier, J. Influence of certain anticonvulsant drugs on audiogenic spasms, 2699*h*.

**Caine, J. B.,** and McDaniels, G. R. Effect of temp. and of basic addns. on slag vol. in the elec. furnace, 1267*i*.

**Caines, C. M.** Nonalkaloidal constituents of ergot, 2371*e*.

**Cairns, D.** Western Australia's potash lakes, 1020*f*

**Cairns, T. L.** Polymide emulsions, P 5232*b*.

——— and Joyce, R. M., Jr. Polytetramethylethylene oxide, P 2038*f*

———, Foster, H. D., Larchar, A. W., Schneider, A. K., and Schreiber, R. S. Prepn. and properties of *N*-methylol, *N*-alkoxymethyl, and *N*-alkylmercaptomethyl polyamides, 3651*f*

———, Gray, H. W., Schneider, A. K., and Schreiber, R. S. Reactions of *N*-alkoxymethyl polyamides, 3653*a*

**Cairy, C. F.** Lab. Manuel of Physiology for Veterinary Students (book), 4361*f*

**Cakebread, E. J. N.** Development of nitrophenols in the control of red spider, 811*a*

**Cakenberghe, J. van.** See Juliard, A.

**Calam, C. T.** See Boon, W. R.

**Calamari, J. A.** Metal identification, P 8980*g*.

**Calandra, E.,** and Cattáneo, P. Chem. compn. of human depot fat, 8194*d*.

**Calbeck, J. H.** See Larson, L. P.

**Calbert, C. E.** See Deuel, H. J., Jr.

**Calbert, H. E.,** and Price, W. V. Diacetyl in cheese (I) diacetyl content and flavor of Cheddar cheese, (II) changes in diacetyl content of Cheddar cheese during manufg. and curing, 8068*d*.

**Calcote, H. F.** Ionization flame detectors, 7327*d*.

**Calcutt, G.** See Weigert, F.

**Caldas, J. M.** See Levy, G. B.

**Calder, R. M.** Effect of nicotinic acid on anoxia, 761*a*.

**Calderbank, K. E.,** and Le Fèvre, R. J. W. Dipole moments of benzocinnoline and benzocinnoline oxide in relation to those of *cis*-azo- and -azoxybenzene, 3009*d*, intervalency angles of O and S in dioxane, dithiane, trioxymethylene, and trithioformaldehyde, 7487*d*.

**Calderón, E. A.** Amino derivs. of fluorene, 2081*eg*.

**Calderon, E. R.** Pit formations in electrodeposits, 3727*d*.

**Calderon, F. E. P.** See Prieto Calderon, F. E.

**Caldeyro Barcia, R.** See Heymans, C.

——— and Garcia Austt, E. Pharmacology of dimethylcarbamate of (2-hydroxy-5-phenylbenzyl)trimethylammonium bromide (I) action on the cardio-inhibitory center, 7133*a*; (V) action on the excitability of the vagus and the sensitivity of the heart to acetylcholine, 7134*f*.

**Caldirola, P.** Theory of fine structure of the H$\alpha$ line, 4567*d*; calcns. of parameters characteristic of the detonation of solid and liquid explosives (I), (II), 6416*h*.

**Caldwell, A.** See Jones, D. Breese.

**Caldwell, A. H., Jr.** See Hoskins, W. M.

**Caldwell, A. L.** Vitamins and nutrition, 4742*g*, see Roberts, Eugene.

**Caldwell, C. G.** Starch ester derivs., P 3222*h*.

**Caldwell, H. J.** Magnetic separator, P 6011*c*.

**Caldwell, H. P., Jr.,** and Chapman, H. D. Nitriles, P 3439*a*.

**Caldwell, J. R.** $\beta$-Lactones, P 1055*g*; resinous condensates of $\beta$-propionolactone and polyhydroxy compds., P 2032*g*; acetylacetamides, P 4289*b*; polyvinyl alc. and esters insolubilized with (hydroxymethyl) nitro paraffins, P 9533*e*.

——— and Hagemeyer, H. J., Jr. $\beta$-Lactones, P 3840*c*.

**Caldwell, J. S.** See Culpepper, C. W.; Wright, R. C.

**Caldwell, J. T.** Temp.-control of the Fe chloride soln. in still etching, 5684*a*.

**Caldwell, L.** Decolorizing vegetable oils with ferric salts and silicates, P 884*i*.

**Caldwell, L. T.** Light-wt. cellular slag aggregate from molten slag, P 832*i*.

**Caldwell, M. L.** See Alfin-Slater, R. B.; Mindell, F. M.

**Caldwell, M. R.** See Sperry, L. B.

**Caldwell, N. E. H.** Codling-moth control, 6351*f*.

**Caldwell, W. A.** Viscous aq. alk. solns. of vegetable globulins, P 5950*f*.

**Caldwell, W. E.** See King, G. B.

——— and Eddy, L. P. Soln. of Au by selenic acid, 6931*b*.

**Caldwell, W. L.** Light-wt. cellular slag aggregate from molten slag, P 832*i*.

**Cale, G. N.** See Sully, A. H.

**Calegari, A.** Adhesive, P 8744*a*.

**Calero, C. D.** See Dominguez Calero, C.

**Caley, E. R.** Prehistoric use of arsenical Cu in the Aegean region, 2825*h*; Klaproth as a pioneer in the chem. investigation of antiquities, 4909*a*, validity of the sp. gr. method for the detn. of the fineness of Au objects, 6112*b*, archeological chemistry, 6478*d*.

——— and Anders, H. K. $K_2Cr_2O_7$ as a volumetric reagent, 5327*i*.

——— and Gordon, L. Trap for detn. of water by the distn. method, 7269*g*.

**Calfee, J. D.** See Thomas, R. M.

——— and Bratton, F. H. Hydrofluorination of olefins, P 3834*i*.

——— and Florio, P. A. Tetrachlorodifluoroethane, P 5789*i*.

——— and Pearson, J. H. Low-temp. polymerization of conjugated diolefins, P 3228*a*.

——— and Smith, L. B. Chlorofluoromethanes, P 3023*h*.

**Calhoun, J. R.,** and Buzzo, T. M. Protein compns., P 6337*i*.

**Calhoun, W. A.** See Kenworthy, H.

**Calico Printers' Assoc. Ltd.,** Lantz, L. A., and Schofield, A. Finishing and coating of fibrous materials, P 2786*c*.

**Califano, L.** Virus proteins, 3477*e*.

**California Flaxseed Products Co.** Polyamide-ester compn., P 9537*f*

**California Institute Research Foundation.** Microfractionation still with capillary tube offtakes for condensate, P 2476*c*.

**California Research Corp.** (*Patents.*) Synergists, 351*d*; conditioning of drilling fluids, 1173*i*; compounded oil, 1177*k*; grease, 3193*d*; leafing-paint compn., 3214*d*; methyl vinyl ketone, 4287*h*, vinyl pyridine copolymers, 5231*a*; chlorinated wax-polystyrene compn., 5626*a*; lubricating oil compn., 6820*b*; stabilization of lubricating oils, 6820*f*; halogenated aromatic compds., 7041*f*; dicarboxylic acid anhydrides 7046*f*, oxidation of org. compds., 7510*b*; cyclohexadiene dicarboxylic acids, 7839*a*; inhibiting cotton deterioration, 9476*f*; sulfonated detergent, 9486*i*.

**California Spray-Chemical Corp.** 1-Cyclopropyl-3-(2-furyl)-2-propen-1-one, P 5530*d*.

**Caligaris, L. S. de.** See Allende, I. L. C. de

**Calignon, P. de.** See Urison, J.

**Calingaert, G.,** Shapiro, H., Dykstra, F. J., and Hess, I. Decompn. of alkyllead compds., 2111*f*.

——— and Wintringham, J. S. Antiknock mixt., P 8667*e*.

**Calise, V. J.** Boiler feed-water practices, 702*a*; cooling water treatment, 3952*h*.

**Calistri, U.** See Pensa, Z.

——— and Pensa, Z. Cu extn. from alloys, P 3341*c*.

**Calkin, F. G.** Facsimile recording papers, P 6530*b*.

**Calkins, C. R.** See Pigman, W. W.

**Calkins, E.** See Lerner, A. B.

**Call, L. S.** See Ward, J. R.

**Callaghan, E.** Endellite deposits in Gardner Mine Ridge, Lawrence Co., Indiana, 3751*e*.

**Callaham, J. R.** Steroid hormone production, 8090*h*; synthetic zeolite, 8577*g*.

**Callamand, O.** See Fontaine, M.

**Callaway, J. B.,** and Killian, D. B. Ba lake pigment, P 2789*e*.

**Callaway, S.** See Gunn, D. L.

**Callan, H. G.** Cleavage rate, O consumption, and ribose nucleic acid content of sea-urchin eggs, 5126*b*.

**Calle, F. F. de la.** See Fernández de la Calle, F.

**Callear, T. E.** See Sun, K.-H.

**Calleja, J.** See Rius, A.

**Calleja Carrete, J.** Same as Calleja, J.

**Callen, J. E.** See Dornfeld, C. A.

———, Dornfeld, C. A., and Coleman, G. H. 9-Acetylphenanthrene, 1762*b*; 9-cyanophenanthrene, 1762*c*.

**Callender, S. T. E.** See Cameron, D. G.

———, Mallett, B. J., Spray, G. H., and Shaw, G. E. Antianemia activity of fecal ext. from pernicious anemia patient, 7586*f*.

**Callender's Cable & Construction Co., Ltd.** Same as British Insulated Callender's Cables Ltd.

**Callender-Suchy Developments Ltd.** See British Insulated Callender's Cables Ltd.

**Callery, E. L. d'A.** Hydrogenation of fats and oils, P 6436*i*.

**Callis, V. W.** Application of the method of least squares to the quant. study of reactions by chem. kinetics, 7796*a*.

**Callinan, T. D.** Impregnating asbestos with $SnO_2$, P 3544*c*; coating asbestos, P 8075*g*.

**Callison, E. C.,** Bear, J. E., and Orent-Keiles, E. Effect of cooking on some nutrients in soy grits, 1495*b*.

———, Orent-Keiles, E., Frenchman, R., and Zook, E. G. Comparison of chem. analysis and bioassay as measures of vitamin A value of some vegetables and the effect of comminution on the bioassay value, 5459*b*.

**Callite Tungsten Corp.** Porous metallic bodies, P 3769*i*; high-d. refractory metal alloys, P 4999*g*, pressed and sintered oxidation-resistant Ni alloys, P 6117*a*.

**Callot, J.,** and Bendrely, R. Enzymic action on rickettsias, 1455*h*.

**Callow, D.** See Chain, E.

**Callow, E. H.** Meat (I) chem. compn. of fatty and muscular tissue in relation to growth and fattening, 4782*i*.

**Callow, H. J.** Yellowing of jute, 6422*a*.

**Calmette, A.,** Boquet, A., Nègre, L., and Bretey, J. Manuel technique de microbiologie et de serologie (book), 5820*c*.

**Calo, A.** See Anselmi, S.

**Caltabiano, G. B.** Amylolytic power of blood and of cerebrospinal fluid, 2302*b*; amylase of blood and of cerebrospinal fluid in the Heine-Medin disease, 2313*h*; see Pafumi, A.

——— and Wrzy, G. Ca in blood and cerebrospinal fluid after $CaCl_2$ injection in sound and meningitic children, 3937*b*.

**Calver, J. L.** Florida kaolins and clays, 6126*e*.

**Calverley, C. E.** See Gullickson, T. W.

——— and Kennedy, C. Effect of fat on Ca and P metabolism in normal growing rats under a normal dietary regime, 7558*c*.

**Calvert, C.** See Wade, F. B.

**Calvert, F. E.** Recovery of proteins from soybeans in presence of blanketing agents and enzyme inhibitors, P 3120*c*.

——— and Bury, P. A. Thermosetting plastic preforms, P 2033*e*.

**Calvert, J.** Elimination of suckering in tobacco by chemicals, 5145*c*.

**Calvert, R. R.** See King, J. H.

**Calvery, E.** See Wolfson, W. Q.

**Calvet, E.** See Nicolas, L.

———, Thibon, H., and Maillard, A. Measuring the stability of solns. of Na aluminate, 5274*h*.

**Calvin, M.** See Benson, A. A.; Weigl, J. W.; Yankwich, P. E.

——— and Benson, A. A. Path of C in photosynthesis (IV) identity and sequence of the intermediates in sucrose synthesis, 6287*e*.

———, Heidelberger, C., Reid, J. C., Tolbert, B. M., and Yankwich, P. E. Isotopic C (book), 947*f*.

——— and Melchior, N. C. Stability of chelate compds. (IV) effect of the metal ion, (V) *o*-formylnaphthoxide chelates, 1678*c*.

**Calviño, G.** See Secondi, A.

**Calvo, J.** See Massieu, G. H.

**Calvo C., J. M.,** and Elgueta, B. Inhibitory effect of goitrogenic drugs on the growth of newborn rats, 8051*c*.

**Calvo Rodés, R.** Metales y aleaciones (book), 3338*h*.

**Calzado Buentello, H.** Triboluminescent alkaloids, 499*b*.

**Camara, M. S. M. de la.** See San Miguel de la Camara, M.

**Cámara Niño, F.** Medicinal mineral waters of Zaragoza, 5137*e*.

**Camarcat, M., Bouissières, G.,** and **Haissinsky, M.** Spontaneous deposition of Pa on various metals, 7791*g*.

**Camargo, P. F.** See Hauptmann, H.
**Camba, R.** See Liguori, G.
**Camber, B.** Histochem. demonstration of ketosteroids in the adrenal cortex, 4314*d*
**Cambi, L.**, Bertorelle, E., and Marzorati, C. Ferrous-ferric cyanides (III), 1676*f*.
**Cambron, A.** See Steacie, E. W. R.
**Camelin, A.**, Accoyer, P., Garnung, H., and Druilhon, L. Paradiabetic states without glucosuria, 1856*a*.
**Camerini, U.** See Brown, R
———, Muirhead, H., Powell, C. F., and Ritson, D. M. Slow mesons of the cosmic radiation, 2501*a*
**Camerino, B.** See Gallico, E.
**Cameron, A.** Bearing and wear-testing machine, 4842*b*.
**Cameron, Anne.** See Craver, B. N.
**Cameron, A. E.** See White, J. R.
**Cameron, A. M.** Chemistry in Relation to Fire Risk and Fire Extinction (book), 1570*b*.
**Cameron, C.** See Knowles, W. H. C.
**Cameron, D. B.** See Goldstein, M. N.; Holden, W. D.
**Cameron, D. D.** Flame-resistant paper, P 9448*d*
**Cameron, D. G.**, Callender, S. T. E., Watson, G. M., and Witts, L. J. Macrocytic anemia in the rat treated with purified liver ext., pteroylglutamic acid, and vitamin $B_{12}$, 8028*i*.
**Cameron, D. H.** See Merrill, H. B.
**Cameron, E. J.**, Pilcher, R. W., and Clifcorn, L. E. Nutrient retention during canned-food production, 7151*c*.
**Cameron, G. R.**, Cooray, G. H., and De, S. N. Effect of castration on the action of some barbiturates, 1489*h*.
——— and Courtice, F. C. Effects of skin contamination with liquid mustard gas on water balance, 5113*b*.
**Cameron, J. R.** See Leverin, H. A.
**Cameron, J. W.** See Oncley, J. L
——— and Teas, H. J. Relation between nicotinic acid and carbohydrates in a series of maize endosperm genotypes, 277*g*.
**Cameron, W. G.** Metering of crude producer gas in a horizontal main, 6395*e*, see Kilby, J. A.
——— and Morton, T. H. Permanent finishes on viscose rayon depending on cross bonding, 853*a*
**Camien, M. N.** See Dunn, M. S.
———, Dunn, M. S., Malin, R. B., Reiner, P. J., and Tarbet, J. Percentages of 12 amino acids in swine organs, 7061*g*.
**Caminade, G.** Light alloy capable of heat-treatment, 1704*f*.
**Cammermeyer, J.** Histochemistry of the mammalian area postrema, 8480*h*.
**Camoyán de Rodríguez de la Borbolla, M. de los A.** See Borbolla y Alcala, J. M. R. de la
**Camp, D. B.** See Olynyk, P.
**Camp, E. Q.** Suppression of corrosive action of carbonic acid, P 5730*f*, see Viles, P. S.
**Camp, T. P.** Water-repellent coating, P 3606*g*.
**Campaigne, E. E.** See Howard, E. G
——— and Foye, W. O. Halogen-Li interconversion with iodothiophenes, 1393*g*
——— and LeSuer, W. M. 3-Substituted thiophenes (II) dialkylaminoalkyl esters of 3-thenoic acid, 630*f*; (III) antihistaminics of the *N*-3-thenylethylenediamine series, 2986*h*; quaternary methyleneamine salts of 3-thenyl bromide, P 6237*i*
**Campan, F.** See Obré, A.
**Campana, C.** Levo splanchnicectomy and dextro suprarenalectomy in a hypertensive subject, followed by Addison's disease, 1853*f*.
**Campbell, A.** See Arcus, C. L.
**Campbell, A. D.**, Carter, C. L., and Slater, S. N. Prepn. of some branched-chain monocarboxylic acids, 2931*f*.
**Campbell, A. H.** See Revertex Ltd.
**Campbell, A. N.**, Wood, J. H., and Skinner, G. B. System Fe–Sn—liquidus only, 6498*b*.
**Campbell, A. W.** *N,N,N′,N*-Tetrabutyladipamide as plasticizer for butadiene-acrylonitrile copolymer, P 7258*e*.
**Campbell, B.** Nitrocellulose emulsions, 1197*f*.
**Campbell, Berry.** See Glick, D.
**Campbell, Bertram.** See Rubenstein, L.
**Campbell, B. K.** See Campbell, K. N.
**Campbell, C. C.** See Saslaw, S.
——— and Saslaw, S. Growth of certain fungi by streptomycin, 5079*d*.
**Campbell, C. G.** See Friedman, S. M.
**Campbell, C. H.** Oil-resin reclaiming blend, P 5626*i*; auxiliary cooling of refining mill, P 6459*a*.
**Campbell, C. S.** See Gross, P.
**Campbell, D. H.** See Lanni, F.
**Campbell, D. L.** See Murphree, E. V.
**Campbell, G.** New Albany shale, 2136*h*.
**Campbell, G. H.** See Utermohlen, W. P. Jr.
**Campbell, G. S.**, Brown, E. B., Jr., and Gollan, F. Plasma morg. phosphate concn. and hyperventilation, 1476*d*
———, Haddy, F. H., Adams, W. L., and Visscher, M. B. Circulatory changes and pulmonary lesions following increased intracranial pressure, and the effect of atropine on such changes, 8063*i*.
**Campbell, H.**, and Johnson, P. Interaction between cellulose nitrate in soln. and inorg. salts (I), 8134*e*, (II) liquid and vapor phase adsorption of acetone, 8241*c*.
**Campbell, H. C.** See Rozet, D.
**Campbell, H. L.** See Sherman, H. C
**Campbell, H. W.** See Seibert, F. B
**Campbell, I. E.** See Jaffee, R. I.
**Campbell, J.** See Adams, R.
**Campbell, James A.** Structural chemistry, 451*d*
**Campbell, John A.** See Schmidt, P. L.
**Campbell, J. G.** See Fash, R. H.; Kerr, L. M. H.
**Campbell, J. J. R.** See King, J. V.
**Campbell, Jean M.** See Wildman, S. G.
**Campbell, John M.** See Cramer, P. J.
**Campbell, J. R.**, Cumming, A. P. C., and Horn, J. A. $C_2H_2$ flames (I) extinction, 8822*h*
**Campbell, K. N.** 4-Alkylquinolines, P 1443*c*, see Berry, R. E. L.
———, Campbell, B. K., and Salm, (Sister Eleanor Marie) Derivs. of the lower aliphatic amines, 4630*a*
———, Helbing, C. H., Florkowski, M. P., and Campbell, B. K. Reaction of Grignard reagents with Schiff bases, 1349*g*
———, LaForge, R. A., and Campbell, B. K. Quinoline series (IX) 4-substituted 8-aminoquinolines and related naphthalenes, 7023*f*
——— and Sommers, A. H. Hexamethylene chlorohydrin, 1720*d*
**Campbell, K. S.**, and Sands, J. E. Fireproofing compns., P 3655*c*
**Campbell, M. A.** See Milas, N. A
**Campbell, N.** Analisi qualitativa organica (book), 4978*h*, aromatic compds., 5002*i*; adsorption chromatography, 5255*d*.
——— and Easton, W. W. Friedel-Crafts reaction of fluoranthene, 7473*c*.
———, Gow, R. S., and Wang, H. Fluoranthene syntheses, 7014*b*.
——— and McKail, J. E. Prepn. of the halophenylacetic acids, 6054*b*.
**Campbell, N. R.** Medicinal substances, 4783*c*, see Evers, N.
**Campbell, P. C., Jr.** Dermatitis from cutting oils and solvents (I) cutting oils, (II) solvents, 5885*d*.
**Campbell, P. N.**, and Davson, H. Absorption of 3-methylglucose from the small intestine, 3911*e*.
**Campbell, R. B.** See Young, E. G.
**Campbell, R. C.** Cation-exchange cells for the purification of sugar solns., P 2798*e*
**Campbell, R. M.** See Lindquist, C. A., Jr.
——— and Kosterlitz, H. W. Effect of dietary protein on the turnover of phospholipides, ribonucleic acid, and desoxyribonucleic acid in the liver, 1844*f*, relation between losses in labile liver cytoplasm and urinary N excretion, 3911*d*, assay of the nutritive value of a protein by its effect on liver cytoplasm, 4722*f*.
**Campbell, R. S.** See Peevy, F. A
**Campbell, S. G.** See Hillier, W. H.
**Campbell, T. W.** Synthesis of *N,N*-dimethyl-*p*-nitroaniline and *N,N*-dimethyl-*o*-nitroaniline, 3378*a*
——— and Young, W. G. Allylic rearrangements (XXV) reaction of the Na deriv. of allylbenzene with α-haloacetic acids, 3351*f*.
**Campbell, W. B.** Surfaces of cellulose, 6407*e*, see Spencer, H. S.
**Campbell, W. D.** See Ross, O. B.; Stephens, D. F.
**Campbell, W. G.** See Farmer, R. H.
——— and Packman, D. F. Cellulose from lignin-contg. cellulosic materials, P 7685*c*.
**Campbell, Warren M.** Sewage-filtering and water-purification app., P 7170*g*; see Campobasso, J. J.
**Campbell, William M.** Nitriles, P 666*e*.
**Campen, J. H. van.** See Van Campen, J. H.
**Campen, M. G. van, Jr.** See Van Campen, M. G., Jr.
**Campen, W. H.**, and Smith, J. R. Angular aggregates in development of stability in bituminous mixts., 7900*b*.
**Campillo, C. C.** See Casa Campillo, C.
**Campo, A. del**, and García Escolar, L. Photoelec. evaluation (III) evaluation of chlorides—evaluation of iodides in an ammoniacal medium—evaluation of a mixt. of chlorides and iodides, 8067*c*.
**Campobasso, J. J.**, and Campbell, W. M. Sewage-disposal app., P 7170*f*.
——— and Latham, A., Jr. Scale formation and control in compression distn. of sea water, 8755*c*
**Campos, R.** Respiration and glycolysis of the retina after section of the optic nerve, 7105*c*.
**Camposortega, C.**, Moncada, F., and Rowen, J. W. Is the adsorption of water vapor by wool photosensitive? 7691*e*.
**Camuñas Puig, A.** See López de Azcona, J. M.
**Canadian Copper Refiners Ltd.** $SeO_2$, P 2381*c*, Se, P 2920*h*; protecting ferrous metal surfaces by coating and dipping soln. P 6968*a*, chemically coating metallic articles of Al or predominantly of Al and soln. for use, P 7404*b*.
**Canadian General Electric Co., Ltd.** Solid porous contact mass, P 5517*b*; bending app. for glass tubes, P 5565*b*; laminated elec. insulating panel, P 5544*h*.
**Canadian Industries, Ltd.** Polymerization of 4-vinylcyclohexene dioxide, P 2817*b*, 5639*e*, laminated glass and plastic, P 3235*e*.
**Canadian International Paper Co.** Rayon filaments, P 809*e*
**Canadian Westinghouse Co. Ltd.** Electroplating, P 2878*g*, electrolytic polishing of Ag, P 2879*g*, electrolytic etching of a Cu base alloy, P 2880*f*, elec. insulation, P 3242*a*
**Canback, T.** Medicinals, 1527*e*, reaction between aromatic nitro compds. and active methylene groups (XII) photometric detn. of dihydromorphinone, dihydrocodeinone, and hydroxydihydrocodeinone, 2126*f*, (XIII) survey of the literature of theoretical interpretations, 4650*f*, (XIV) mechanism of the reaction, 4650*g*, (XV) difference in behavior of 2,9 *m* dinitrobenzene derivs. in their reaction with acetone in alk. soln., 6175*a*; chem. assay of digitalis and strophanthus glycosides, 4811*a*, see Bondeson, W., Lundgren, P.
**Candal, J. G. de L.** See López Candal, J. G. de.
**Candau Herrero, P.** See Aznar Reig, A.
**Candeira, J. S.** See Souto Candeira, J.
**Candel, E. J.** See Rawn, A. M.
**Candela, J. L. R.** See Goñi, P. M., Pamagua, J. A., Torres Ruiz, A.
——— and Llorca, F. Alloxan diabetes (X) action of hyaluronidase on the diffusion of India ink in alloxan diabetic animals, 5485*d*
——— and Urgoiti, L. G. Complement in alloxan diabetes, 7569*c*.
**Candelpi, A.** Cyclic alkylamines, 6998*h*.
**Candido de Medeiros, A.** Montmorillonite in Portugal, 5709*g*.
**Candler, A. V. B.** App. for breaking crude oil emulsions, P 7221*i*.
**Cane, R. F.** Phys. chemistry of refrigeration gases, 3541*g*; motor fuel from oil shale, 3996*d*, manuf. and application of DDT, 6761*e*.
**Canepa, J. F.**, Grossman, M. I., and Ivy, A. C. Lipotropic factors derived from the pancreas, 6268*b*.
**Canfield, J. J.** Enameling difficulties, 1934*d*, see Ikenberry, L. C.
**Canfield, W. B.** See Rust, J. B.
**Canham, R. A.** See Bloodgood, D. E.
**Canhoto Vidal, V. A.** Spectrographic absorption of olive oils in the ultraviolet, 2792*b*.
**Caniggia, A.**, and Brogi, G. Vegetative modifications from sense stimulation in human organism (I) blood sugar after some light, sound, odor, and taste stimulations, 5847*h*.
——— and Pasquini, V. Combination theophylline-neptal, 7143*b*, hypotensives and hypertensives with Volhard's test, 8052*a*.
——— and Pignotti, L. Action of mercurial diuretics, 2323*e*.
**Canina, E. G.** See Garino-Canina, E.

**Canivet, P. A.** See Boll, M.
**Cann, J. R.** Electrophoretic analysis of ovalbumin, 5433*c*.
——, Brown, R. A., and Kirkwood, J. G. Fractionation of γ globulin by electrophoresis-convection, 7998*c*.
——, Kirkwood, J. G., Brown, R. A., and Plescia, O. J. Fractionation of proteins by electrophoresis-convection—app. and its use in fractionating diphtheria antitoxin, 7071*e*.
**Cannavà, A.** Action of 2-methyl-1,4-naphthoquinone on blood coagulation, 9247*g*; cardiovascular activity of 2-methyl-1,4-naphthoquinone, of 2-methyl-1,4-naphthohydroquinone, and of some of its esters (I) pressor activity of these substances alone and together with vasoconstricting and vasodilating drugs, 9246*g*, methemoglobinizing action of 2-methyl-1,4-naphthoquinone, 2-methyl-1,4-naphthohydroquinone, and some of its esters, 9247*d*
—— and Cavalleri, L. Action of synthetic compds with vitamin K activity on the heart, 8059*g*; cardiovascular activity of 2-methyl 1,4-naphthoquinone, of 2-methyl-1,4-naphthohydroquinone, and of some of its esters (II) action on the heart, (III) action on the isolated heart of frogs and mammals and the local vascular action, 9246*h*.
**Cannefax, G. R.** Stable control serum for standardizing the sensitivity of tests used in the diagnosis and control of syphilis, 7575*d*.
**Canneri, G.**, and Cozzi, D. Detn. of F by means of the alteration of glass surface, 4599*e*.
**Cannon, C. W.** See Shiras, R. N.
**Cannon, C. Y.** See Squibb, R. L.
**Cannon, G. W.** See Bortnick, N. M.
**Cannon, J. D.** Effect of extent of bottom repairs on slag vol. in acid elec. furnace, 1267*h*.
**Cannon, P. R.** Dynamic equil., 3864*a*, see Benditt, E. P.
**Cannon, R. C.** Control of the potato tuber moth in North Queensland, 8599*e*.
**Canonica, L.** Condensation products of aromatic aldehydes with nitroparaffins (I), 7453*f*, autodisplacement of Pb (II), 8811*g*; see Piontelli, R.
**Cano Vega, F.** See Fierro del Rio, L.
**Cantarel, R.** Rupture of the *N*-substituted benzhydrylamines, 192*h*, covalent radius of the doubly bound N atom, 7276*i*, nature of the bond in the carbonyl group of aldehydes and ketones; covalent radius of doubly bound O, 7413*f*.
**Cantarow, A.** See De Meio, R. H.; Paschkis, K. E., Rupp, J.
— and Miller, L. L. Nonexcretion of jaundice-serum alk. phosphatase in bile, 297*f*.
——, Stasney, J., and Paschkis, K. E. Influence of sex hormones on mammary tumors induced by 2-acetaminofluorene, 2698*d*.
—— and Trumper, M. Clinical Biochemistry (book), 5112*a*.
——, Wirts, C. W., Snape, W. J., and Miller, L. L. Excretion of bilirubin and bromosulfalein in bile, 1476*a*, effect of certain choleretic agents on excretion of pigment and bromosulfalein in bile, 1869*i*.
**Cantino, E. C.** Physiology of the aquatic phycomycete—its nutrition and metabolism, 4349*f*.
**Cantor, M. M.** See Tuba, J.
——, Wight, P. A., and Tuba, J. Serum alk. phosphatase and alloxan diabetes, 5486*h*.
**Cantrell, T. L.** See Smith, Herschel G.
—— and Smith, H. G. Lubricating-oil additive, P 6404*f*
**Cantrell, W.** Antagonism of Ca pantothenate for the antimalarial effect of pantoyltaurylamide, 9254*g*.
——, Kelsey, F. E., and Geiling, E. M. K. Sulfonamide blood levels in prophylactic tests against *Plasmodium gallinaceum*, 9253*f*.
**Cantuarias, O. M. Q.** See Miró-Quesada Cantuarias, O.
**Canzanelli, A.**, Guild, R., and Rapport, D. Influence of the thyroid on alanine synthesis by the liver, 7565*f*.
——, Rapport, D., and Guild, R. Control of liver regeneration and nucleic acid content by the thyroid—effects of pyrimidines, 7145*i*.
**Capaccioli, P.** Histidine in the urine of mental patients, 2312*i*.
**Capdevielle, C. C.** Molasses-sugar sirup, P 2711*a*.
**Cape, A. T.** Structural element for use in high-temp. service, P 2154*e*, ferrous alloy, P 3771*f*; hard-facing valve alloy, P 9021*b*.
——, Brassert, H. A., and Thomas, L. H. Fe from oxide ores, P 4208*i*.
**Capelli, B.** Dyeing of hides with hair or fur in acid bath esp. to harmonize the color with that of a fabric, P 5982*h*.
**Capellini, A.**, and Parmeggiani, L. Schamberg dermatosis in a worker exposed to benzene vapors, 2701*b*.
**Capillas, A. F. R.** See Ruiz Capillas, A. F.
**Capitaine, H.** Low frequency melting—twin-hearth induction furnace for light alloys, 2097*c*.
**Caplan, H.** See Melville, K. I.
**Caplan, S.** Cashew-nutshell liquid and kernel-oil sepn., P 9494*g*, see Harvey, M. T.
—— and Rosamilia, P. L. Mineral-oil compn., P 8129*d*
**Capo, L. R.** See Moe, G. K.
**Capola, A.** Herschelite of Palagonia, Sicily, 3320*d*.
**Capone, A.** See Covello, M.
**Capont, F. L.** See López Capont, F.
**Capp, C. W.**, Cook, A. H., Downer, J. D., and Heilbron, I. M. Azole series (VIII) interaction of α-amino nitriles and carbethoxy isocyanate, 1402*d*.
—— and Speakman, J. B. Cross-linking of animal fibers (I) 3,4-isopropylidene-1,2,5,6-dianhydromannitol, 8141*i*
**Cappelletti, C.** Culture of vegetable tissues (V) N content of cultures of *Daucus carota*, 3195*d*
**Cappellin, M.** Action of bone phosphatase on osteogenesis, 3050*h*.
**Cappiello, M.** See Russell, J. A.
**Capponi, M.** See Diesbach, H. de
**Capps, B. F.**, Hobbs, N. L., and Fox, S. H. Microbiol. assay of vitamin $B_{12}$, 4335*a*.
**Cappucci, B.** See Baccarini, V.
**Cappucci, C.** Causes of the unusual high volatile acid content of some wines of Emilia and Romagna, Italy, 6779*e*
**Cappuccilli, P.** Heavy water and living organisms, 5054*h*
**Capra, C.** Analysis of the exts. of medicinal plants (III), (IV), 9371*f*.
**Capra, P.** Glutathione in the blood and basal metabolism in hyper- and hypothyroidism, 5119*g*, 8050*g*.
**Capraro, V.**, and Barilli, V. Antagonism of Ba-K on the small intestine, 2326*i*; mechanism of action of $BaCl_2$ and acetylcholine in biol. systems, 5505*h*
**Capriati, E.** Recovery of Cu and Zn from their alloys, P 4210*b*.
**Caprino, G.** Foam formation in beer, 9359*f*
**Caprio, A. F.**, and Horback, W. Filaments of plasticized lower fatty acid esters of cellulose, P 3207*f*, plasticized lower fatty acid esters of cellulose, P 4514*d*
**Capron, P.**, Crèvecoeur, E., and Faes, M. Difference in the recoil energy of the $Br^{80}$ isomers following neutron capture, 5295*f*.
——, Faes, M., and Tavernier, G. C. Tolerance flux of thermal neutrons, 4562*a*.
**Capuano, L.** See Rosenthaler, L.
**Caputi, F.** Vitamin K and colloidal state of the serum, 2294*e*
**Caputto, R.** See Cardini, C. E.; Leloir, L. F.; Paladini, A. C.; Trucco, R. E.
——, Leloir, L. F., and Trucco, R. E. Lactase and lactose fermentation of *Saccharomyces fragilis*, 6283*a*.
——, Leloir, L. F., Trucco, R. E., Cardini, C. E., and Paladini, A. C. Coenzyme for phosphoglucomutase, 1070*g*; enzymic transformation of galactose into glucose derivs., 6680*f*.
**Carandente, A.** See Scotto, M.
**Carassia, R.** See Andrisano, R.; Merlin, L.
**Carassiti, V.** See Rolla, M.
**Carasso, F. M.** Polysulfide sealing compds., P 4508*f*.
**Carayon-Gentil, A.** See Brigando, J.
—— and Brigando, J. Prepn. of acid aspartates and acid glutamates of choline, 7426*b*.
—— and Cheymol, J. Colorimetric detn. of synthetic stilbene estrogens in pharmaceutical prepns., 359*f*.
**Carbide & Carbon Chemicals Corp.** Roto ink solvent recovery, 3629*g*; (*Patents.*) heat-resisting coating compn., 102*d*; polyoxypropylene compds., 391*a*; allyl alc., 1049*i*; improvements in esters, 1562*e*; vinyl copolymer, 2470*e*; cyclopentadiene and its homologs, 3032*d*; dispersion of vinyl chloride resins, 3233*c*; glycidyl sorbate dimers, 3240*h*, higher alcs. by alk. condensation of lower alcs., 3437*i*; polyoxyalkylene diol esters, 3446*d*; enol acetates, 3838*h*, 7953*h*; polyoxyalkylene glycols, 4289*e*; purification of glyoxal, 4688*i*; insolubilization of water-sol. hydroxyl-contg. polymeric materials, 5640*a*; acylation with enol ester, 5795*g*, 7037*h*; styrene, 6230*i*; reaction of enol esters with anhydrides, 7038*c*; vinyl chloride resins plasticized with diester amides, 7750*i*, 1,3-diketones, 7954*a*; hydroxyalkyl alkylenimines, 7955*c*.
**Carbide & Carbon Chemicals Ltd.** Resin-covered wire or cable, P 3234*g*.
**Carboloy Co., Inc.** Brazing cemented carbides, P 6968*b*.
**Carbonaro, G.**, and Imbesi, A. Action of pervitin on rabbit isolated intestine, 2327*f*.
**Carbone, E.** Fontina cheese, 8570*i*.
**Carbone, S.** See De Fazi, R.
**Carbone-Lorraine.** $TiWC_4$, P 3576*b*; electrodes for elec. arcs, P 6097*d*
**Carbonisation et charbons actifs.** Active C, P 1838*b*, cation exchangers, P 8076*c*; penicillin, P 8621*a*.
**Carborundum Co.** Abrasive paper or cloth, P 1544*e*; urea-resin abrasive binder, P 5631*g*, fused cast alumina refractory, P 6804*b*, aluminous abrasive material, P 7658*e*; ceramic-bonded abrasive articles, P 8116*b*; abrasive article, P 8116*c*.
—— and Abbey, A. Abrasive materials, P 1936*d*.
**Carcassi, U.** See Bozzo, A.
**Card, I. R.** See Kirchmeyer, F. J.
**Carden, E. M.** Viscose rayon yarn and fabric, P 4021*h*.
**Carden, W. B.** Viscose rayon yarn and fabric, P 4021*h*
**Cardenas, M. G. S. y de.** See Suarez y de Cardenas, M. G.
**Cardeza, A. F.** See Foglia, V. G.
**Cardin, A.** See Dugal, L. C.
**Cardini, C. E.** Metabolism of Fe, 292*f*; see Caputto, R., Leloir, L. F., Paladini, A. C., Trucco, R. E.
——, Paladini, A. C., Caputto, R., Leloir, L. F., and Trucco, R. E. Isolation of the coenzyme of phosphoglucomutase, 7528*h*.
**Cardon, S. Z.** See Heath, J. C.
—— and Lankelma, H. P. Acyloin condensation of 2-thiophenecarboxaldehyde, 1763*a*.
**Cardoso, H. T.**, and Pirro, C. Nuclear proteins in selachians, 4310*b*.
**Cardoso, M. R.** See Rodrigues Cardoso, M.
**Cardoso do Vale, J.** Arrow poisons, 8615*i*; detn. of ascaridole, 8421*hg*; see Fernandes Costa, A.
**Cardox Corp.** Dehydrating liquid $CO_2$, P 8109*g*.
**Cardwell, A. B.** Photoelec. and thermionic properties of Ni, 6907*b*.
**Cardwell, H. M. E.** Synthesis of substances related to the sterols (XLVII) synthetic use of 4-thiacyclohexanone methiodide, 7433*e*.
—— and McQuillin, F. J. Synthesis of substances related to the sterols (XLVI) synthetic use of 4-keto-1,1-dialkylpiperidinium salts, 7432*a*.
**Cardwell, P. H.**, and Eilers, L. H. Wetting agents in connection with acid inhibitors, 986*b*.
—— and Martinez, S. J. Corrosion of boiler steels by inhibited HCl, 1305*h*.
**Cardwell, W. T., Jr.** Conditioning of drilling fluids, P 1173*i*.
**Careri, G.** Kinetics of dissocn. reactions, 7797*e*.
**Carey, M. F.** See Reilly, J.
**Carey, M. M.**, and Dziewiatkowski, D. C. Adenosinetriphosphatase and phosphatase activity of muscle homogenates from rabbits on a vitamin E-deficient diet, 6713*a*.
**Carey, P., Manufg. Co.** Treating asbestos paper with HF, P 6340*e*.
**Carhart, H. W.** See Johnson, J. Enoch; Krynitsky, J. A.
**Caridroit, F.** Feminization of the plumage of capons by hexestrol and natural estrogens administered orally, 1098*h*; antagonistic effects of adrenaline and thyroxine in the masculinization of the capon crest, 6717*b*; see Cheymol, J.
**Carignan, C. J., and Kraus, C. A.** Properties of electrolytic soins. (XLIII) effect of

NH$_3$ and H$_2$O on the conductance of Li, Na, and Ag ions in pyridine, 8811*b*.

**Carini, A.**, and Cuboni, E. Male *Rana esculenta* for the quick diagnosis of pregnancy, 9130*h*.

**Carl, H. F.** Reliability of the x-ray diffraction spectrometer for mineral analysis, 8981*f*.

**Carl, M. H.** Device for sepg supernatant nitrotoluene from spent nitration mixt., P 3845*h*.

**Carlassare, M.** Detn. of codeine in tablets, 2368*i*; alkalimetric titration of Aconitum and of Solanaceae, and of their pharmaceutical prepns. (I), (II), 9367*c*.

**Carle, B. N.** See Larson, C. L.

**Carle, G.** Pipe attack by stray current from elec. railways, 4021*h*.

**Carlén, S.** Surface activity of burnt pholerite prepns., 6035*h*.

**Carleton, R. H.** Chemistry for the New Age (book), 4554*c*.

**Carlin, G. T.** Packaging materials which resist rancidity, 3531*f*

**Carlin, R. B.**, and Fisher, E. E. Fischer indole synthesis (I), 622*b*.

**Carliner, P. E.** See Gay, L. N

**Carlinfanti, E.** Nozioni di immunologia (book), 755*f*, mechanism of influenzal infection and its application in prophylaxis and therapy, 3511*c*, sensitivity of staphylococci to various antimicrobic factors, 4327*d*.

——, D'Alò, F., and Cutolo, I. Prepn. of testosterone with depot action, 3085*a*, long-acting prepn. of testosterone, 4423*i*

**Carlisle, C. H.**, and Dornberger, K. X-ray measurements on single crystal of tomato bushy-stunt virus, 919*h*

— and Furberg, S. X-ray investigation of some pyridindene derivs., 6487*h*.

**Carlisle, P. J.** Accident in recrystn. of $\alpha,\alpha'$-azodiisobutyronitrile, 8682*a*

Deyrup, A. J., and Short, O. A Vitreous enamels for Al, 7205*d*, 7656*h*.

—— and Hinegardner, W. S. Volatile fungicides, P 1525*d*.

**Carlisle, S. S.**, and Alderton, G. Temp coeff. of sensitivity of PbS photoconductive cells at room temp., 5678*c*

—— and Smith, B. O. Elec pressure meter for the measurement of open-hearth furnace differential pressure, 3327*e*, differential pressures, 8215*i*

**Carlo, F. J. di.** See Di Carlo, F. J.

**Carlo, J. A. de.** See De Carlo, J. A.

**Carlomagno, J.** Ethiopine, a nitrogenated org. base extd. from calla, 1156*g*

**Carlos Wahle, S.** See Borges Trajano, R.

**Carlow, C. A.** Coal resources of the Brit. commonwealth, 8638*g*.

**Carlqvist, B.** Hydrolysis of glycogen with HCl, 4307*c*; enzymic breakdown of glycogen, 4307*e*.

**Carlson, A. S.** See Hehre, E. J.

—— and Hehre, E. J. Compn of the starch synthesized from glucose 1-phosphate by diphtheria bacilli, 3062*h*.

**Carlson, E., Jr.** See Bachmann, W. E.

**Carlson, E. C.** See Lange, W. H., Jr.

**Carlson, E. W.** See Zimmer, J. C.

**Carlson, F. W.** Toxicants for the peach silver mite, 1523*d*.

—— and Newcomer, E. J. Control of pear psylla in the Pacific Northwest, 9348*e*.

Yothers, M. A., and Dean, F. P. DDT, benzene hexachloride, and sabadilla to control climbing cutworms, 1522*b*.

**Carlson, H. A.** Corrosion in natural gas-condensate wells—pH and $CO_2$ of well waters at wellhead pressure, 3590*f*.

**Carlson, H. C.** Absorption and humidification, 1227*g*.

**Carlson, H. J.** See Walter, F. E.

**Carlson, L. E.** See Havenhill, R. S.

**Carlson, R.** See Krone, P. R.

**Carlson, R. B.** See Metcalf, R. L.

**Carlson, R. F.**, and Moulton, J. E. Use of the $NH_4$ salt of trichloroacetate, the Na salt of trichloroacetate, $NH_4$ thiocyanate, and herbicide "PB" in the eradication of grasses and the effect of these chemicals on strawberry and raspberry plants, 4413*f*.

**Carlson, V. W.** See Whiteside-Carlson, V.

**Carlson, W. A** By-products from wheat, 8566*d*.

**Carlson, W. W.** Hydroxyethylation of org compds., P 673*f*; see Whiteside-Carlson, V.

— and Whiteside-Carlson, V. Biotin-carbohydrate interrelation in the metabolism of *Leuconostoc*, 7542*i*.

**Carlsson, C. G.** Calcg. boards in quant. spectrochem analysis, 1679*d*.

**Carlsson, G. E.** Driers for printing inks, 4025*a*.

**Carlsten, A.**, Kahlson, G., and Wicksell, F. Strong histaminolytic activity and its bearing on the distribution of histamine between lymph and plasma, 7108*h*; accumulation in the canine lymph during reactive hyperemia of a substance contracting guinea-pig gut which is not histamine, 7108*i*.

**Carlström, G.** See Borel, H.

**Carlton, C. A.** See Williams, I.

**Carlton, R. P.** App. for the manuf. of abrasive-coated materials, such as sandpaper, etc., P 4442*d*.

**Carlyle, A.** Integration of the total O consumption of the sheep fetus from that of the tissues, 747*d*.

**Carmack, M.** See Baer, J. E.; Fehnel, E. A

—— and Leavitt, J. J. Ultraviolet absorption spectra of tris(hydroxymethyl)-methyln ydr droxymethyl)methylnitroamine, and their salts, 5307*e*.

**Carman, E.** Ink dryograph, 5202*d*.

**Carman, G. E.** See Ewart, W. E.; Gunther, F. A.

**Carman, P. C.** Mol distn and sublimation, 2011*e*; water flow in porous media, 2069*a*, flow of adsorbed mols., 6883*d*

**Carmichael, H.** Studies of bursts at sea level, 2086*c*; see Smith, B. S

**Carmichael, N.** See Taylor, Alfred.

**Carmody, D. R.** Hydrocarbon conversion process, P 3188*b*.

**Carnahan, J. E.** See Adkins, H

**Carnaut, M. B.** Chemistry of paints and its relation to pictorial art, 3209*e*

**Carne, P. B.** Persistence of DDT in the soil, 1898*h*

**Carnegie, S. S.** Sewage-treatment control tests, 2718*d*.

**Carnegie-Illinois Steel Corp.** (*Patents*) Cyclopentadiene recovery, 382*b*, detn of Cb carbide in stainless steel, 522*h*; reducing vapor condensation above steel-pickling tanks, 555*f*, refining aromatic hydrocarbons, 1802*f*; low-C Cr steels, 2153*g*; electrodeposition of Sn, 2879*h*, electrolytic Sn-plating app., 3290*e*; purification of aromatic hydrocarbons, 5798*i*; detg. TiC in stainless steel, 7870*g*; furnace for annealing steel strip in coils, 9018*f*, soaking furnace, 8760*f*; see American Steel & Wire Co. of New Jersey.

**Carnegie Institute of Technology.** Org. acids from carbonaceous material, P 3176*a*.

**Carnell, P. H.** Corrosion-resistant valve lubricant, P 846*a*.

**Carnevale Bonino, R. C. d'A. de.** Functional reaction of the methylxanthines—caffeine, theobromine, and theophylline, 5904*g*, see Sánchez, J. A.

**Carney, A. L.** See Hughes, W. L., Jr.

**Carney, T. P.** See McElvain, S. M.; Pohland, A.

**Carney, W. M.**, Noll, H. D., and Hoge, A. W. T[hermofor] C[atalytic] C[racking] unit catalytically processes sour gas oil, 841*a*, 3180*c*.

**Carnot, M. C.** See Coquoin-Carnot, M.

**Caro, L. de.** See De-Caro, L.

**Carobbi, G.**, and Pieruccini, R. Cu detns. in some sedimentary rocks of the Tuscan and Emilian Apennines, 978*g*.

**Carolan, R. J.** Influence of heating on the pH of soil suspensions, 3128*i*; detg soil org. matter, 3129*h*

**Caroli.** Physiol. jaundice of the new-born mule—its relation to post-natal hemolysis in infants, 5483*i*.

**Caron, H.**, and Raquet, D. Detn. of iodide in I-iodide solns., 6111*i*; detn. of I in iodotannic sirup, 8096*c*.

**Caron, M. H.** Extg. Ni and Co from ores, P 4998*e*; scpg. Ni and Co, P 8109*a*.

**Caronna, G.** Bacterial antagonism and the influence of soly., 5443*e*; dehydrogenating action of Cu on benzaldoxime, 5760*f*.

**Carosella, M. C.** Mo compds., P 5160*a*.

**Carpéni, G.** Electrolytic equilibria among ions, simple mols., and condensed mols. (II) the isohydric point, 22*f*; (III) isohydric point and the constitution of borates and polyborates in aq soln., 3693*g*; influence of time on the titration curve of molybdic acid, 4182*f*; isohydric point (IV) hydrated derivs. of $H_3BO_3$—isohydric point and isopolyborates, 6040*f*; protonic interactions in dibasic acids (II) structure of the germanic acids, 7789*h*; see Lévy, Max.

**Carpenter, C. B.**, Anderson, K. F., and Cook, A. B. Petroleum-engineering study of the New Hope oil field, Franklin Co., Tex., 9421*c*.

**Carpenter, C. M.** See Boak, R. A.

**Carpenter, C. P.** See Smyth, H. F., Jr.

**Carpenter, D. C.**, and Smith, W. C. Sepn. of a cryst globulin from tomato juice and detn. of its isoelec. point, 9167*i*.

**Carpenter, E. L.** Alkylene cyanohydrins, P 1434*i*, see Davis, H. S.

—— and Davis, H. S. Acrylonitrile, P 3836*i*.

**Carpenter, F. H.** Anhydride of benzylpenicillin, 633*d*; see Livermore, A. H.; Vigneaud, V. du, Wood, John L.

——, Stacy, G. W., Genghof, D. S., Livermore, A. H., and Vigneaud, V. du. Prepn and antibacterial properties of the crude Na salts of some synthetic penicillins, 1768*f*.

——, Turner, R. A., and Vigneaud, V. du. Benzylpenicillenic acid as an intermediate in the synthesis of benzylpenicillin, 1768*c*.

——, Wood, J. L., Stevens, C. M., and Vigneaud, V. du Vesicant-treated proteins, 707*e*

**Carpenter, K.** See Jary, S. G.

**Carpenter, K. J.** See Kodicek, E.

**Carpenter, L. G.**, Connell, L. J. C., and Osborn, A. B. Supercooling of Hg, 2830*a*.

—— and Reavell, F. R. Reaction of Ti with O and N, 2533*d*, vaporization of Ti, 6070*a*

**Carpenter, M. S.**, and Easter, W. M., Jr. 3 *tert* Butyl 4-alkoxybenzaldehydes, P 1063*e*; 3 *tert*-butyl-4-alkoxy-5-nitrobenzaldehyde, P 1063*g*; 2,4-di *tert* butyl-5-methoxybenzaldehyde, P 1063*i*, 1-alkoxy-2,4-dinitro-6 *tert*-butylbenzenes, P 8400*f*

**Carpenter, M. T.** Experience patterns of industrial research leaders, 8577*d*

**Carpenter, P. G.** See Bergman, W. E.

**Carpenter Steel Co.** Wear-resistant steel, P 105*c*; austenitic steel having high hot hardness, P 6114*f*, glass sealing alloy, P 6145*h*

**Carpentier, S.** See Pacault, A.

**Carpio, M. D. A.** See Angulo Carpio, M. D.

**Carr, C. J.** Properties of the oil of *Xanthium spinosum*, 8617*i*; see Krantz, J. C., Jr.

**Carr, D. E.** Asphaltic jet-propulsion fuel, P 8669*c*

**Carr, D. S.**, and Harris, B. L. Solns. for maintaining const. relative humidity, 8839*i*.

**Carr, D. T.** See Levin, I.

**Carr, E. L.** See Smith, G. E. P., Jr.

—— and Johnson, P. H. Nonaq. emulsion polymerization systems, 8728*a*.

—— and Rafter, J. R. Accelerators for curing rubber, P 8732*a*.

—— and Smith, G. E. P., Jr. Vulcanization accelerator, P 1602*d*.

**Carr, E. M.**, Clarke, J. T., and Johnston, H. L. Vapor d of diboſane, 4913*h*.

**Carr, F.** Power savings in process refrigeration, 4524*f*.

**Carr, H.** Tool steels, 8335*a*.

**Carr, R.** Alkali de-inking, 5948*c*.

**Carrara, G.** Folic acid, 8022*f*.

**Carrasco, E. O.** See Salcedo, J., Jr.

**Carré, P.**, Cires Sultanes, and Husson, A. Stabilizing NaOCl solns., P 1160*c*.

**Carreiro, C. F.** See França Carreiro, C.

**Carreker, R. P.** See Forsyth, A. C.; Leschen, J. G.

——, Leschen, J. G., and Lubahn, J. D. Transient plastic deformation, 84*a*.

**Carrelli, A.** Partial emissive power of alkali chloride, 4955*b*; see Altieri, N

**Carrera, G. M.**, and Changus, G. W. Demonstration of acid phosphatase in *Endamoeba histolytica*, 270*b*.

**Carrera, M. A.** Diels-Alder reaction, 1529*b*.

**Carreras G., J.** Fertilization of sugar cane, 341*g*.

**Carreras Ledon, A.** Electron microscope, 4553*g*.

**Carreras Linares, R.** Phytohormones, 3554*f*.

**Carrère, L.**, and Moustardier, G. Action of the glucido-lipide antigen of *Brucella*, 3916*h*.

**Carretero, R.** See Holt, L. E., Jr.; Snyderman, S. E.

**Carreyett, R. A.** Alc. in spirit-water mixts., 1528*i*; color reaction for vitamin A 4978*d*.

**Carrick, C. W.** See Gerry, R. W ; Mishler, D. H.
**Carrick, L. L.**, Das Gupta, S. M., and Das Gupta, R. C Detg. unsatn. in drying oils, 7718*a*.
**Carrier, E. W.** Soda ash, P 3159*e*.
**Carrier, W. W.** Filtering unit for cleaning fluids, P 8757*f*.
**Carrier Corp.** Refrigeration, P 8580*f*
**Carrière, É.** Al sprays, 8596*h*
**Carrière, J. E.** Protection methods for cast iron and steel pipes, 7888*g*
——, *et al.* Coating steel pipe with blown asphalt, 5720*h*
**Carrington, D. W. J.** See James Carrington, D. W.
**Carrington, H. C.** Reaction between $CS_2$ and some α-methylamino nitriles, 1766*b*
**Carritt, D. E.** See Rakestraw, N. W
**Carroll, A.** Synthetic emulgents, 2367*b*
**Carroll, B.**, and Lehrman, A Electron configuration of the ground state of the elements, 2509*i*.
**Carroll, B. H.** Photographic emulsion contg nitraniline sulfonic acids, P 958*g*
—— and Brooker, L. G. S. Supersensitized Ag halide emulsion, P 512*e*
—— and Spence, J. Photographic Ag halide emulsion supersensitized with a *C*-acyloxy quinoline base, P 958*d*, supersensitized Ag halide photographic emulsion, P 8925*e*.
—— and Staud, C. J. Optically supersensitized photographic Ag halide emulsion, P 512*h*
**Carroll, C. C.** See Byler, W. H., Wallhausen, C. W
**Carroll, D.** Western Australian diatomaceous earths, 7873*f*
**Carroll, F. D.**, Goss, H., and Howell, C. E. Synthesis of B vitamins, 8467*b*
**Carroll, J.** See Geld, I
**Carroll, J. W.** Reforming of hydrocarbons in water-gas sets (I) reforming of refinery oil gas, liquefied petroleum gas, and gas oil, 6393*e*
**Carroll, M. F.** Acid-catalyzed alcoholysis (I), 7118*c*
**Carroll, R. T.** See Tocantins, L. M
**Carroll, W. B., Jr.** Dyed cellulose ethers and their use in dyeing fabrics, P 1166*b*.
**Carron, M.** See Juda, W
**Carrow, J. W.** See Baker, G. L
**Carrozzi, R. C.** Toluene and $C_6H_6$ prepn from Argentine crude oils and gases, 8661*a*.
**Carruthers, C.** See Roberts, Eugene
—— and Suntzeff, V. Qual chem change in carcinogenesis, 752*g*, polarograph on the lipides of epidermis, 5488*e*
**Carruthers, D. G.** Diseases of the Ear, Nose, and Throat (book), 5491*d*.
**Carruthers, W.** See Badger, G. M.
**Carsjö, A.** See Lindvall, S
**Carson, A. S.**, Hartley, K., and Skinner, H. A. Bond dissocn energies of Cd-$CH_3$ in $Cd(CH_3)_2$ and of $CH_3$ I in $CH_3I$, 4939*e*
**Carson, B. C.** See Dreizen, S.
**Carson, B. G.** $NH_3$ salt of maleic acid, P 7506*b*.
**Carson, S. F.** C isotope expts. in bacterial metabolism, 5449*d*
**Carson, T.** See Bright, N. F. H.
**Carson, W. F.** Pinene to camphene, P 2234*f*.
**Carson, W. N., Jr.** T-tube pressure regulator, 3666*g*; gas bubbler, 4903*a*.
**Carswell, T. S.** Structure of phenoplasts, 5003*b*.
—— and Hayes, R. F. (Hydroxyethyl)-2,5-dichlorobenzene, P 688*a*.
**Carta, B.** Sirup from asphodel tubers, P 8182*e*.
**Carter, A. C.** See Shorr, E.
**Carter, A. G.** C catalyst impregnated with alkali-alk. earth hydroxide, P 5886*h*, see Magnesium Metal Corp Ltd
**Carter, A. S.** See Du Pont de Nemours, E. I., & Co.
**Carter, B. B.** Rh hapten, 3062*c*.
**Carter, C. A.** Higher alcs by alk. condensation of lower alcs., P 3437*i*.
**Carter, C. E.** See Morse, M. L.
**Carter, C. L.** See Campbell, A. D.
—— and Heazlewood, W. V. Essential oil of *Pittosporum eugenioides*, 3976*h*.
**Carter, D.** See Alexander, P.
**Carter, F. E.** Noble metals find increasingly wide use in industry, 532*i*.
**Carter, H. D.** Estn. of Co, 4147*b*, 5677*d*
**Carter, H. E.** See Behrens, O. K.; McCasland, G. E.
——, Ball, E. G., Niemann, C., Sealock, R. R., and Snell, E. E. Biochem. Prepns. Vol. I. (book), 4725*d*
——, Clark, R. K., Jr., Lytle, B., and McCasland, G. E. Synthesis of amino analogs of inositol, 149*b*.
—— and Human, J. W. Azlactones (VI) acid halides of *p*-tolylsulfonyl-, carbobenzoxy-, and benzoyl-*p*-methoxyphenyl-L-alanine, 7456*i*.
——, Van Abeele, F. R., and Rothrock, J. W. Synthesis of α,γ-diamino acids, 5005*d*.
—— and Zirkle, C. L. Synthesis of α-amino-β-hydroxybutyric acids (VII) synthesis of DL-allothreonine, 6169*d*
**Carter, J. H.** Smoke abatement's wider horizons, 3989*i*.
**Carter, J. M.** UBr₄, P 6797*a*
**Carter, N. L.** Analysis and control of cyanide electroplating solns, 7351*i*.
**Carter, P.** See Wilson, Hildegarde
**Carter, P. G.** Chloropyrenes, P 6812*a*, empirical equation for the resonance energy of polycyclic aromatic hydrocarbons, 8221*c*
**Carter, P. J.** See Griffin, W. C
**Carter, P. R.** See British Schering Research Laboratories Ltd.
**Carter, P. T.** Phys. chemistry of S removal in steelmaking, 4936*a*.
**Carter, P. W.**, Cross, L. C., Heilbron, I. M., and Jones, E. R. H. Algae (IV) lipochromes of the male and female gametes of some species of the Fucaceae, 2677*f*
**Carter, R. E.** See Koch, H. W
**Carter R. H.** DDT as spray residue on foods, 7629*b*; see Shepherd, J. B
——, Hubanks, P. E., Mann, H. D., Smith, F. F., and Piquett, P. G. DDT content of milk from cows fed pea-vine silage contg. DDT residues, 6356*a*
——, Hubanks, P. E., Mann, H. D., Zeller, J. H., and Hankins, O. G. Storage of DDT in the tissues of pigs fed beef contg this compd., 2337*h*
——, Wells, R. W., Radcleff, R. D., Smith, C. L., Hubanks, P. E., and Mann, H. D. Chlorinated hydrocarbon content of milk [illegible] flies, 6355*f*
**Carter, W. C.** See Scott, R. L.
——, Magat, M., Schneider, W. C., and Smyth, C. P. Dielec. dispersion and absorption in natural rubber, Neoprene, Butaprene NM and Butaprene S, gum, and tread stocks, 5985*a*
**Carthage Mills, Inc.** Felt-base material for adhesive attachment to surfaces and coating compns., P 3242*e*
**Cartier, H. E.** Carburizing furnace, P 2566*g*
**Cartier, P.** Absorption of Ca by the rectal mucosa, 5470*h*, variations in the org. anions of bone during growth, 5841*a*
**Cartner, D.** See Karnaun, B. T.
**Cartoux, H.** Three-phase indirect Pechiney Cartoux arc furnace, 4959*e*.
**Cartwright, G. E.** See Gunder, C. J., Wintrobe, M. M
——, Smith, E. L., Brown, D. M., and Wintrobe, M. M. Electrophoretic analyses of serums of normal and hypoproteinemic swine, 2293*g*
——, Tatting, B., and Wintrobe, M. M. Niacin deficiency anemia, 4738*b*
—— and Wintrobe, M. M. Free erythrocyte protoporphyrin, plasma Cu, and plasma Fe in protein-deficient and iron-deficient swine, 2292*c*; hematopoiesis, 5850*b*, production of anemia in swine fed purified diets and sulfasuxidine, 6293*e*.
**Cartwright, H. M.** Photogravure—diffusion of ferric chloride solns., 5684*a*
**Cartwright, K. St. G.**, and Findlay, W. P. K. Decay of timber and its prevention, 5143*h*
**Cartwright, N. J.**, Robertson, A., and Whalley, W. B. Synthesis of citrinin, 6206*a*
**Caruselli, M.** Cholesterol and the intradermal tuberculin reaction, 2312*a*
**Carvajal, R.**, and Quiroga, J. J. Froth flotation of sulfide ores with amyl *N*-phenyldithioimidocarbonate, P 4908*h*.
**Carvajal S., G.** See Erdős, J
**Carvalho, H. G. de.** See Guimarães de Carvalho, H.
**Carvalho, J. G. de.** See Guilherme de Carvalho, J
**Carvalho, J. L. da S.** See Silva Carvalho, J. L. da.
**Carvalho, L. F. A. de.** See Aguiar de Carvalho, L. F.
**Carver, J. H.**, and White, G. K. $CH_2Br_2$ as a quenching agent in Geiger-Müller counters, 5292*b*.
**Carver, J. L.** Alloy steels in railroad service, 89*i*.
**Carver, J. S.** See McGinnis, J.
**Carwile, N. L.** See Digges, T. G.
**Cary, C. A.** See Hartman, A. M.
**Cary, H. H.**, and Baxter, W. P. Glass electrode, P 4441*b*.
**Cary, S. G.** See Longfellow, D
**Casa Campillo, C.** Ascorbic acid and sulfanilamide in the treatment of influenza, 7118*f*
**Casado, F. L.**, Massie, D. S., and Whytlaw-Gray, R. Mol. wt. and limiting d. of $C_3H_8$, 8773*e*
**Casal, A.** See Desnuelle, P.
**Casalis, J.** See Keilling, J.
**Casals, J.** Acetone-ether extd antigens for complement fixation with neurotropic viruses, 4760*a*.
**Casamada, R. S. M.** See San Martin Casamada, R.
**Casanovas, M.** See García-Valdecasas, F.
**Casares, C.** See Casares Lopez, R.
**Casares Gil, J.** Berzelius and his time 1617*g*
——, and Moreno Martin, F. F in vegetable ash, 1684*g*
**Casares Lopez, R.**, and Casares, C. Detg. the glycerol content of com. glycerin, 1290*g*.
——, Coutinho, C. C., Guedes, R., and Villanua Fungairiño, L. Detn. of the hardness of water by use of K palmitate, 5521*f*.
—— and Olmedo, R. G. Analytical study of some Spanish cognacs, 5154*h*.
—— and Villanúa Fungairiño, L. Detg. nitrates in water (I) diphenylamine reaction, 1886*b*, bromatological detn of W, 5699*d*, detn of W in minerals, 5699*e*.
**Casarett, G. W.** See Altman, K. I; Barnett, T. B; Boyd, G. A
**Casartelli, B.** See Andrade, J. L.
**Casas, C. B.** See King, J. T
——, King, J. T., and Visscher, M. B. Effect of caloric restriction on the adrenal response of ovariectomized $C_3H$ mice, 7125*c*.
**Casassa, E. F.** Degradation of high polymers, 7292*g*.
**Casati, A. M. L.** See Lahousse, J. E. G.
**Casavecchia, E. S. di.** See Sernagiotto di Casavecchia, E
**Casavola, D.** Humo-nitrogenous fertilizer, P 3132*h*
**Cascales, A.** Vacuum distn.—vapor-pressure curves, 4914*h*
**Case, E. M.**, and Duckens, F. Influence of synthetic estrogens and related substances on the succinic oxidase system of rat liver, 3862*c*.
**Case, F. H.** Substituted 1,10-phenanthrolines (I) synthesis of certain mono- and polymethyl 1,10-phenanthrolines, 2211*g*, (II) di- and trimethylphenanthrolines related to 5-methyl-1,10-phenanthroline, 4277*c*, (III) polymethyl phenanthrolines related to 3,4-dimethyl-1,10-phenanthroline, 8390*h*.
**Case, K. M.** Magnetic moments of the neutron and proton, 3279*d*; divergences in field theory, 5277*c*; equivalence theorems for meson-nucleon couplings, 6905*e*; nucleon moments and the neutron-electron interaction, 6908*d*.
**Case, L. C** Water injection in wells and corrective methods (II) chem. problems in salt-water injection, 3599*e*.
**Case, O. P.** Detn. of As in Cu and Cu-base alloys, 1681*f*.
**Case, R. A. M.** Phenomenon of symbiotic N fixation, 9156*d*.
**Case, S. L.** See Sims, C. E.
**Case, T. J.**, and Funderburk, W. H. Effect of curare on the central nervous system, 9262*e*.
**Casella, C.** Detn. of folic acid and biotin with *Lactobacillus casei*, 5818*a*.
—— and Siliprandi, N. Presence and distribution of alloxan in tissues, 4378*g*.
**Caselli, P.** Behavior of plasmal protein in chickens with *Rous sarcoma*, 752*a*.
**Casey, E. J.** See Luidler, K. J.
**Casey, J. P.** Starch paste, P 6850*d*.
—— and Libby, C. E. Penetration of starch adhesive in a coating mixt. into base paper, 1185*f*.
**Casey, R. S.** See Grove, C. S., Jr.
—— and Grove, C. S., Jr. Fibers, 1*c*, 8745*c*.
**Cash, C. D.** See Appling, J. W.

**Cashion, C. G.** Compression set of nitrile rubbers as affected by compounding, 7255*d*.
**Cashman, A. T.** See Hodges, C. E.; Lieber, E.
**Cashman, E. P.** See Lieber, E.
**Cashman, R. J.** Photocell, P 500*f*.
**Casida, L. E.** See Boyarsky, L. L.; Cheng, P.; Dutt, R. H.
**Casier, H.,** and Delaunois, A. L. Influence of metabolism-stimulating and hyperthermic substances—action of dinitrophenol and dinitrocresol on absorption, excretion, and oxidation of alc., 7127*c*.
**Casimir, J.** See Brouckere, L. de.
**Casini, A.** Bromide content of table salt, 1286*h*; analysis of Hg oxides, HgCl, and Hg chloramide, 8969*e*, detn of disodium arsenate, 9372*b*.
**Cason, J.** Synthesis of benzoquinones by oxidation, 2155*h*; see Prout, F. S.
——, Allen, C. F. H., and Goodwin, S. Prepn. of the chlorotoluquinones, 182*d*
—— and Prout, F. S. Me 4-keto-7-methyloctanoate, 1725*a*; synthesis of tris(hydroxymethyl)methylnitramine and other compds related to tris(hydroxymethyl)-aminomethane, 6575*a*
—— and Stanley, W. L. Branched-chain fatty acids (IX) synthesis of acids with sym. end-groups, 3780*h*.
——, Wallcave, L., and Whiteside, C. N. Prepn of suberic acid—homogeneity and use in synthesis of polymethylene chlorobromide prepns., 3792*e*.
—— and Way, R. L. Prepn of cyclobutane, 3796*a*.
—— and Wolfhagen, H. J. Branched-chain fatty acids (XI) location of branching Me groups near carboxyl by rate studies of amide hydrolysis, 3781*h*
——, Wolfhagen, H. J., Tarpey, W., and Adams, R. E. Branched chain fatty acids (X) synthesis of acids with branching Me groups near the carboxyl, 3781*c*.
**Casoni, D. dal M.** See Dal Monte-Casoni, D.
**Caspari, E.,** and Richards, J. Proteins of $a^+a^+$ and *aa Ephestia*, 9273*b*
**Casparis, P.** See Spirig, H.
—— and Béchert, P. Alkaloid glycosides (III) morphine-3-trisaccharide, 360*h*.
**Caspersson, T.** See Schultz, Jack
**Cass, O. W.** Photochlorination of $C_3H_8$, P 2870*f*; 1,1,2-trichloroethane, P 3834*e*, fungicide comprising 1 methoxy-4-chloro-2-butene, P 3968*f*, fungicidal compn., P 4419*d*, see Du Pont de Nemours, E. I., & Co.
**Cass, S. R.** See Beyer, K. H.
**Cass, W. E.** See Nordlander, B. W.
**Cass, W. G.** Wheat-meal-time fermentation test, 3531*h*
**Cassaday, J. T.** See Fletcher, J. H.
**Cassan, H.** Length of carbonizing period in coke ovens, 1551*e*.
**Cassanos, J. G.,** and Butler, K. H. Ba Mg Pb silicate phosphor, P 4959*b*.
**Cassel, H. M.** Tensiometer of the max. bubble pressure type, P 8*f*.
**Cassel, J. M.** See Kanagy, J. R.
—— and Kanagy, J. R. Purification of collagen, 8184*a*, electrophoresis of modified collagen, 8184*d*.
**Cassel, N. S.** Textile printing paste, P 8174*f*.
**Cassell, R. T.** See Kushner, S.
**Cassell, W. L.** See Kellner, H. L.
**Cassen, B.** See Cady, W. M.
**Cassidy, H. G.** Electron exchange-polymers (I), 5263*c*; see English, J., Jr.; Updegraff, I. H.
**Cassidy, J. M.** See Bell, P. R.
**Cassidy, J. W.** See McCullagh, D. R.
**Cassidy, N. G.** Salting on citrus groves—leaf sampling tests - yellow tips as possibly early salt indication, 4803*c*.
**Cassie, A. B. D.** Contact angles, 1239*d*; physics and textiles, 4857*h*.
**Cassil, C. C.** See Hansen, J. W.
**Castagne, E.** Chemistry of plant insecticides, 1140*h*.
**Castagnou, E.** See Dervillée, P.
**Castaing, R.** Pptn in Al alloys, 5718*c*
**Castañeda-Agulló, M.,** Hernandez, A., and García H., M. Crystd. mexicain, 5431*a*.
——, Huerta M., L., Hernández, A., and Salázar P., V. Development of the proteolytic activity of latex mexicain during the ripening of the fruit of *Pilcus mexicanus*, 6451*b*.
—— and Salázar P., V. Cryst'd globulins of pumpkin seeds, 5450*i*
**Castaño, V. G. M.** See García-Morato Castaño, V.
**Castberg, T.,** and Schwartz, M. Blood examn. in hay fever patients during acute allergic shock, 7125*f*.
**Castel, P.** See Turchini, J.
**Castell, C. H.** Effect of nitrite on reduction of trimethylamine oxide in cod fillets, 6751*h*.
**Castellani, C. A.** Textile products incorporating thermally adhesive fibers, P 8174*i*.
**Castellan, G. W.,** and Moore, W. J. Diffusion of radioactive Cu during oxidation of Cu foil, 2851*b*
**Castellani, E.** Viruses of the soybean plant, 2679*a*.
**Castelli, T.** Grape must fermentation, 5532*d*.
**Castelliz, L.,** and Halla, F. Ferromagnetic interactions in Mn alloys, 4911*g*.
**Caster, A. van.** See Vanesse, M.
**Castiel, N.,** and Goldstein, D. Transformation of alk.-earth sulfates into alk.-earth halides by $NH_4$ halides, 9393*c*
**Castiglioni, A.** Detn of cinchophen, 4811*b*
**Castiglioni, I.** Electrolytic cell, P 4966*a*
**Castillo, A. L. A. del.** See Cytronberg, S. S.
**Castillo, A. M. del.** See Maldonado del Castillo, A.
**Castillo, C. G.** See Neill, J. M.
**Castillo, E. B.** See Blanchard Castillo, E.
**Castillo, J. C.** Tracheal chain (II) anaphylactic guinea-pig trachea and its response to antihistaminic and bronchodilator drugs, 1862*b*, see Jaros, S. H.
**Castillo de Bonneveaux, S.** See Heymans, C.
**Castillon, L. E.** See Boatner, C. H.; Eagle, E.; Hall, C. M.; Williams, P. A.
**Castillo Nicolau, J. del.** Central actions of myanesin, 5492*c*, pharmacology of lobeline (I) actions of lobeline on the spinal cord, 5492*g*.
**Castillón Mora, L.** Oxidation-reduction potential in human serum (I) detn. of (III) values found in certain infectious processes, 5183*e*
**Castillo Penna, M.** Analytical value of chem. reactions, 8943*a*
**Castle, C. H.** Tumbling-barrel finishing, P 3771*g*.
**Castle, H.,** and Kubsch, F. Production of usnic, didymic, and rhodocladonic acids by the fungal component of the lichen *Cladonia cristatella*, 9143*g*
**Castle, J. G., Jr.** See Beringer, R.
**Castle, R. N.** Optical crystallographic properties of org. compds. (I) barbituric acid derivs., 8612*e*.
——, Witt, N. F., and Poe, C. F. Optical crystallographic properties of some sulfonamides and their derivs., 3262*f*
**Castle, W. B.** See Berk, L.
**Castleman, L. S.** See Averbach, B. L.
**Castleman, R. A., Jr.** Independence of energy released from the atom of surrounding atm. conditions, 4091*f*
**Castner, R. C.** See Peters, L. M.
**Castolin Schweissmaterial.** Solder for Zn, P 3343*b*.
**Castorina, G.** Basic ethers of aromatic carbinols, 4657*c*
**Castrejon, B. B.** See Briseno Castrejon, B.
**Castric, M.** See Brion, A.
**Castro, A. H. de.** See Hoyos de Castro, A.
**Castro, A. T. B. de.** See Tovar Bicudo de Castro, A.
**Castro, C. de.** See Florencio, W.
**Castro, R.** See Phéline, J. M.
—— and Lebet, A. Hard facing welding electrode, P 6565*d*.
—— and Phéline, J. M. Detn. of $Al_2O_3$ in residues of metallic oxides—detn. of O in special steels, 2546*g*.
**Castro, R. de.** See Rius, A.
**Castro-Mendoza, H.** See Jiménez Díaz, C.
——, Jiménez Díaz, C., and Rio, J. del. Elimination and post surcharge of choline in urine of normal subjects and liver patients, 718*g*.
**Castro Yáñez, F.** Tecnología industrial del moldeo de plasticos (book), 6803*d*.
**Casty, R.,** and Krähenbühl, E. Continuous dyeing of wool, 8139*i*
**Catala, R.** Control of a parasite of potatoes, 5146*h*.
**Catalisano, S.** Volcanic activity at Cape Ferrato, southeast Sardinia, Italy, 978*b*.
**Catalyst Research Corp.** Delay fuse compn., P 2438*e*
**Catch, J. R.** See Therapeutic Research Corp. of Great Britain, Ltd.
——, Elliott, D. F., Hey, D. H., and Jones, E. R. H. Halogenated ketones (V) derivs of ω-chloroacetophenone, 7452*a*.
——, Jones, T. S. G., and Wilkinson, S. Chemistry of polymyxin A, 9386*c*.
**Catchpole, H. R.** Reproduction, 5467*c*.
**Cate, G. ten.** Metabolism of citric acid, 2690*f*.
**Cate, J. ten,** and Boeles, J. T. F. Effect of quinine on the nervous system, 4375*a*.
**Cater, F. W., Jr.** See Wells, F. G.
**Cathers, G. I.** See Fuoss, R. M.
—— and Fuoss, R. M. Polyelectrolytes (IV) conductance of *n*-butyl bromide addn. compds of 4-vinylpyridine-styrene copolymers in nitromethane-dioxane mixts., 7786*d*.
**Catlin, J. P.** See Bradford, C. I.
**Catlow, W. R.** See Daniels, R. S.
**Cattaneo, C.** Biochemistry of Koch bacillus, 1831*a*.
—— and Bassani, B. Carbonic anhydrase in pulmonary tuberculosis, 1487*f*
**Cattaneo, F.** Cholesterol in blood after treatment with stilbene compds., 1113*f*
**Cattaneo, H. A.** See Amado Cattaneo, H.
**Cattaneo, Pedro.** See Alvarez, J., Calandra, E.
**Cattaneo, Piero,** and Maggiora-Vergano, T. Lysozyme content of colostrum, early milk, meconium, and feces of the newborn during breast feeding or mixed artificial alimentation, 3898*b*
**Cattaneo, R.,** and Rosso, S. Synthetic antihistamines in protection against histamine shock, 6722*c*
**Cattelain, E.** Org. reagents in inorg. analysis, 1079*c*, see Bougault, J.
—— and Chabrier, P. Properties of 5,5-disubstituted thiohydantoins (II) comparison of the sulfoxotriazine and thiohydantoin rings, 3015*i*
**Cattell, R. A.** Report of petroleum and natural gas division, 6398*e*
——, *et al.* Report of petroleum and natural-gas division, 1952*e*
**Catterson, L.** See Noble, I.
**Catton, D. S.** Raw material survey, 2787*e*, Canadian paint industry, 8693*h*.
**Catton, N. L.** Processing characteristics of Neoprene, 5086*g*
——, Krismann, E. H., and Keen, W. N. Dynamic characteristics of Neoprene vulcanizates, 7251*i*
**Catz, P.** Mineral position of ECA nations (VI) The Netherlands, 3118*g*.
**Cauer, H.** Grippe and the chemistry of air, 9233*g*
**Cauer-Wilhelm, L.** See Rabe, P.
**Caujolle, F.,** and Bergal, G. Influence of phenylboric acid on the germination of certain Apetalae, 5831*h*, effects of boric and phenylboric acids on the growth of seedlings of apetalous plants, 6703*i*.
**Cauley, S. P.** Commercially pure mercaptans and disulfides, P 1557*h*, thiol removal from alkylphenols, P 6234*i*; removal of mercaptans from hydrocarbons, P 8667*g*.
**Caulfield, K. W.** See Hoare, W. E.
**Causeret, J.** See Randoin, L.
**Causse, J. P.** Ripening of grapes, 728*c*.
**Causse, Mme.,** and Barchewitz, P. Absorption spectra of $CsI_3$ (II) spectra of $CsI_3$ in the liquid state between the visible and 3.5 μ, 7343*a*
**Caussé, R.,** Bun-Hoï, Gondet, L., and Nguyen-Hoàn. Modification of cochlear potentials in the guinea pig by arsacetin, 5865*e*.
—— and Gondet, L. Histological modification of the vestibulary app. under the influence of streptomycin, 5871*b*.
——, Gondet, L., and Vallancien, B. Vestibular action of streptomycin, 1108*d*
**Cavagnol, J. C.** Sintered-glass valve for maintaining an inert atm., 7270*e*
**Cavalca, L.** See Ferrari, Adolfo.
**Cavalcanti, M. da C. P. B.** See Paes Barreto Cavalcanti, M. da C.
**Cavalieri, L. F.,** Bendich, A., Tinker, J. F., and Brown, G. B. Ultraviolet absorption spectra of purines, pyrimidines, and triazolopyrimidines, 1424*g*.
—— and Brown, G. B. Exchange between a formamido group and formamide, studied with $C^{13}$, 6984*a*.
——, Tinker, J. F., and Bendich, A. Synthesis of adenine—incorporation of isotopes of N and C, 3366*i*.
**Cavallaro, L.** Electrochem. measurements of the corrodibility of straight and alloy

steels in aq. solns. of various electrolytes, 551*c*; evaluation and mechanism of action of corrosion inhibitors, 1707*b*.
—— and Bolognesi, C. Anticorrosive power of inhibitors and mol. structure (I) measurements on some org. compds in acid medium, 547*i*; (II) measurements on derivs of thiourea and isothiocyanates, 548*b*.
—— and Ferri, A. Mechanism of decompn of silicomolybdic acid, 6893*e*.
—— and Indelli, A. Corrosion in a neutral medium and the measurement of its intensity, 547*e*; electrochem. mechanism of corrosion processes, 547*f*, reaction mechanism of some org. and morg. inhibitors in a neutral medium, 518*d*; electrochemistry of corrosive phenomena (I) characteristic size of local piles in acid medium, 4621*d*
—— and Tani, A. Detn. of the rate of corrosion of ferrous alloys at different pH values, 550*c*.
**Cavallaro, U.** 2,4-D, 6352*h*.
**Cavalieri, L.** See Cannavà, A
**Cavalli, L. L.** Relations between titers of vaccine and antibodies and specific resistance, 5105*h*, see De Barbieri, A
— — and Di Modrone, N. V Variations in resistance to mutagenic agents in *B. coli* (I) x-rays and ultraviolet, 5076*a*.
**Cavalli, P.** See Bertoli, R
**Cavallini, D.** See Reed, L. J.
——, Frontali, N., and Toschi, G Detn of keto acids by partition chromatography on filter paper, 5312*e*.
**Cavallini, E.** See Bonsembiante I.
**Cavallini, G**, Goissis, M., and Massarani, L. Cancer therapy and substances of vascular activity, 8059*i*
—— and Ravenna, F Derivs. of diphenylacetic and 4-stilbene-carboxylic acids, 2980*h*
**Cavallito, C. J.**, and Fruehauf, D M Peracetic acid oxidation of thiol esters, 6975*d*.
——, Fruehauf, D M., and Bailey, J H Lactone aliphatic acids as antibacterial agents, 1322*b*
**Cavanagh, J. P.** See Simpson, G K
**Cavanagh, P. E.** Com production of sponge Fe, 5353*e*
**Cavanaugh, R. M.**, and Lufkin, J F. Dimethyl terephthalate, P 3039*f*
**Cavanna, A. H.** See Mosto, O
**Cavanna, D.** Nicotinylamino-1,2 diphenyl ethane and some derivs of nicotinic acid, 8052*e*, surfacaine, a local anesthetic, 8100*a*
**Cavazzini, M.** Activity of penicillin combined with pupillo-effector pharmaceuticals, 4772*d*.
**Cave, G. A.**, Krotinger, N J., and McCaleb, J D Prepn of explosives of fixed particle size and shape, 6415*g*.
**Caves, L. C.** Adhesive waterproof plastic compn., P 5633*c*.
**Cavett, J. W.** See McClendon, J. F.
**Cavicchi, G.** Detn. of allyl isothiocyanate, 4184*g*.
**Cavier, R.** Toxicity of the celomic fluid of *Ascaris*, 2319*a*, see Valette, G
**Cavill, G. W. K.**, Phillips, J N., and Vincent, J. M. Fungistatic activity and structure in a series of simple aromatic compds., 4803*g*
— — and Vincent, J. M. Fungistatic properties of *p* aminobenzoic acid and related compds. (II) relative fungistatic activities, 8443*g*.
**Cawley, C. M.** See King, J. G.
**Cawley, R. W.** See Briggs, L. H.
**Cayer, D.** See Yeagley, J. D.
—— and Cornatzer, W. E. Effects of choline and methionine on phospholipide formation in patients with liver disease, 7578*b*.
**Cazaud, R.** Fatigue des métaux (book), 5724*f*; Métallurgie (book), 5724*f*
**Cazier, J.** Quaternary derivs. of (methylamino)tris(hydroxymethyl)methane, 134*b*.
—— and Steyaert, G. Tertiary amines of cyclized pentaerythritol, 133*i*.
**Cazzola, D.**, and Chiara, A. Colloid chem. characterization of the serum in puerperium and in some gynecol disturbances, 1102*d*.
**C. D. Patents Ltd.** Carbonized shapes from coal, P 3176*i*, 4449*c*.
**Ceaglske, N. H.** See Earle, P. L.; Mann, C. A.
**Ceccaldi, J., and Trinquier, E.** Toxicity of the salivary gland of various African colubridae—toxicity of the salivary glands of certain African vipers at birth, 322*e*.
**Ceccaldi, J. C.** See Colonna-Ceccaldi, J.
**Ceccherelli, E.** Detn. of the wt. of Sn coatings of cans for conserves, 9275*c*.
**Cecchini, A.** Fertilizer, P 8596*d*.
**Čech, V.** Deposit of Mn ore at Jindřichův Hradec, 4189*b*
**Čech, W.** Czechoslovakian dye industry, 4469*a*.
**Cechova, V.** See Fucik, K
**Čechovič, V.** Barite deposits near Smolenice and Nestich in the Little Carpathians, 71*f*, geology and genesis of Mn ore deposits, 6546*c*.
**Cecil, A.** See Pickrell, K. L.
**Cecil, I. A.** See Woodroof, J. G
**Cecil, R.** See Peters, R. A.
—— and Ogston, A. G. Sedimentation of thymus nucleic acid in the ultracentrifuge, 1816*d*; examn. of cryst catalases in the ultracentrifuge, 2255*i*, accuracy of the Svedberg oil-turbine ultracentrifuge, 3667*h*; sedimentation const., diffusion const., and mol. wt. of lactoglobulin, 6258*a*, sedimentation and diffusion of glucose oxidase, 6261*d*
**Cecil, S. R.** See Woodroof, J. G.
**Cederquist, D. C.** See Ohlson, M. A.
**Cedrangolo, F.** Appunti di chimica in organica per gli studenti di medicina e veterinaria (book), 7858*f*.
**Cedwall, J** See Bettelheim, L.
**Cefoil Ltd.** See Appleton, E. V; Cunningham, G. E; Speakman, J. B
—— and Rose, R. C. Algmic materials, P 2713*d*
**Cegama, M. L.** See Bedolla, J. M
**Ceillier, B.**, and Wahl, H. Dinitro-2 chloronaphthalenes, 5773*h*
**Ceithaml, J.**, and Vennesland, B Synthesis of tricarboxylic acids by $CO_2$ fixation in parsley root preps., 5056*i*
**Celanese Corp. of America.** (*Patents*) acetic anhydride purification, 4288*i*, ammonium azide polymers, 8740*b*, bis(trialkyl citrate) sulfites, 5796*c*, bonding cellulose surfaces, 5950*i*, casting solns. of cellulose, 5592*de*, cellulose ester and ether products colored with a dinitrophenoxazine or dinitrophenothiazine, 4188*d*, 4-chloro-3-nitrobenzenesulfonamide, 5042*d*, coating from polyvinyl formal, 2037*e*, crotonaldehyde oxidation, 5031*c*, 1,2 cycloalkanediols, 6229*i*, 1-cyclohexyl-3-butanol and ethers and esters, 6794*d*, dye, 8143*f*, dyeing and printing org. derivs. of cellulose, 3206*e*, dyeing of nylon fabrics with insol acetate dyes, 7712*b*, dyeing of resins with polyhydroxy alc. assistants, 3206*f*, dyes (anthraquinone), 8162*i*, dye (water sol leuco vat), 9171*a*, electrolytic allyl alc., 3300*f*, ethers of [1-(hydroxymethyl)cyclohexyl]-cyclohexylcarbinol, 902*f*, filaments of plasticized lower fatty acid esters of cellulose, 3207*f*, fire-resistant org. fibrous materials contg. ethylenediamine dihydrobromide, 4024*c*, fluorescent cellulose-acetate fibers, etc., 3627*f*, 7713*c*, fluorescent materials, 2517*c*, glycol mixed esters, 1795*h*, 1,5-hexadiene polymers, 3236*a*, hydrogen cyanide, 1926*b*, loom temple, 6430*c*, lubrication and conditioning of cellulose textile materials, 8694*a*, methyl ethyl ketone purification, 9079*i*, mixed satd.-unsatd. esters of cellulose, 1979*c*, patterned textile fabrics composed of thermoplastic yarns, 3207*g*, phenol-aldehyde molding compns., 2039*c*, pigment fixation on textile materials, 7712*i*, plasticized lower fatty acid esters of cellulose, 4514*d*, polymerization of olefinic compds., 1218*g*, polymers from carbylamines and carboxylic acids, 4515*f*, resin molding compns., 8739*h*, ribbon for typewriters, etc., 5607*i*, ripening and stabilizing of cellulose esters, 5592*cd*, ripening cellulose esters, 3616*i*, shaped textile materials, 2785*h*, sheet material, 2774*e*, sized org. derivs. of cellulose yarn, 856*d*, stabilized cellulose acetate, 1979*g*, stabilized cellulose compd., 849*e*, stabilized cellulose esters and ethers, 2435*e*, 4853*a*, 6414*f*, 7685*g*, stabilized ethylcellulose compns., 4853*de*, stretching cellulose acetate filaments, 8175*b*, sulfone resins, stabilization of, 9527*d*, textile fabric having the two sides in differing colors, 8693*a*, translucent textiles, 9478*f*, treatment of a polynitrohydroxyanthraquinone with a primary amine, 9468*a*, unsatd. org. compds., 2220*f*, washing cellulose, 6415*d*, water-sol cellulose esters, 1187*g*, wool recovery from wool-acetate fabrics, 6834*a*, yarn of high tenacity, 9476*c*.
**Celcova, M. A.** See Chel'tsova, M. A.
**Celdit-Cellulosa d'Italia, S.A.** Diaphragms for chlorine alkali cells, P 8290*d*.
**Čelincev, Čelinzev.** See Chelintsev, G. V.
**Celis, M. G. de.** See Gutierrez de Celis, M.
**Cellan-Jones, G.** Increased benzene yields from coke ovens, 2755*i*.
**Celsi, S. A.** Luis Rossi, 1229*f*.
—— and Iacobucci, A. D Compendio de química moderna (book), 5276*g*.
**Celusta-Howard, P. R.** See Vassel, B.
**Centola, G.** Colloidal aspects of paper manuf (I), 5588*c*, (II) analogies between methylcellulose aq. solns. and cellulose suspensions, 7227*c*.
—— and Pancirolli, F. Reactivity of cellulose and the uniform constitution of wood, 7225*a*.
**Centolella, A. P.** See Heyl, F. W.
——, Heyl, F. W., and Herr, M. E. Derivs. of bismor-5-cholenaldehyde (II), 658*h*.
**Centrale Vereeniging tot beheer van proefstations voor de overjarige cultures in Nederlandsch-Indië** Removing insol compds of metals from aq. rubber dispersions, P 432*b*, rubber with low protein content, P 4890*a*, purifying latex, P 6456*c*
**Central Laboratory of Swedish Cellulose Industry, Analysis Comm.** Detn. of cuprammonium viscosity, 4851*h*.
**Central Soya Co., Inc.** Treating fish press water, P 2342*a*
**Centre nationale de la recherche scientifique.** Solidifying oleic acid compds., P 1202., Mg metal, P 4625*d*, synthetic drying oil, P 4873*b*.
**Centrifugal & Mechanical Industries, Inc.** Assembly for reclaiming slurry coal, P 7669*a*.
**Centro Research Laboratories, Inc.** Insulating coating having high dielec. strength, P 4873*f*.
**Cerceo, E.** See Pearlman, W. H.
**Cerchez, V.**, and Oprescu, G. M Dielec. const. of petroleum products, 2409*h*.
**Cerecedo, L. R.** See Busebi, A. J.; Sica, A. J.
**Ceresa, C.** Blood picture of workers in the nylon industry, 1985*g*
**Ceresa, M.** See Jernstedt, G. W.
**Ceriotti, G.** Influence of streptomycin and mineral salts in the action of ribonuclease, 7530*b*, testing tyrothricin in complex pharmaceutical preps., 8614*g*; *Lactobacillus casei* for testing L-tryptophan microbiologically, 8434*e*.
**Čerkašine, E. E.** See Cherkashin, E. E.
**Čerkassowa, E. M.** See Cherkasova, E. M.
**Cerkovnikov, E.**, Malnar, M., Marijan, N., Predojević, M., and Stern, P. Chem. constitution and antihistamine action (IV) ephedrine derivs., 604*i*.
**Cerletti, A.**, Bircher, R., and Rothlin, E. Protective action of CCK 179 on the onset of ischemia of the renal cortex, 9249*a*.
—— and Kalleuberger, A. Influence of pharmacodynamic sympathicolysis on hypoxemia test, 3520*f*.
**Cernătescu, R.** See Poni, M.
**Černik, S.** See Chernik, S.
**Černjajev, Černjajev.** See Chernyaev.
**Cernuda, C. F.** See Loustalot, A. J.
**Cerrione, L. A. di.** See Di Cerrione, L. A.
**Cerruti, A.** See Antoniani, A.
**Cervini, C.**, and Mannetti, C. Effect of St. Leopold's water on gastric function and uremia, 6305*h*.
**Cesa, I.** Action of nicotinic acid on the kinetics of the fallopian tube, 6731*f*.
**Césarman y Vitis, T. E.**, and Martín S., S. Pharmacol. aspects of the salicylates, 1105*g*.

**Cestari, A.** Influence of vitamins on sulfonamide therapy, 4737*i*; combined chemotherapeutic action of sulfonamides, 5112*i*; pharmacol. action of PP vitamins, 6296*i*.
**Cetl, I.** See Martinec, T.
**Chabannes, J.** See Barbier, G.
**Chabert, J.** See Loeb, C
**Chaboud, G.** See Launoy, L.
**Chaboussou, F.,** and Lavaur, J. Control of *Hoplocampa flava*, 3964*f*
**Chaboux, R.** See Servantie, L.
**Chabrier, P.** See Bougault, J.; Cattelain, E.; Hazard, R; Quevauviller, A.
——— and Renard, S. H *N,N*-Disubstituted thio amides, 5027*f*.
——— and Sekera, A. Catalytic hydrogenation of semicarbazones of ketonic acids in presence of Raney Ni, 2604*d*.
**Chabrol, E.,** Lemaire, A., Bargeton, D., and Cottet, J. Action of bile salts on intestinal motility, 1865*e*.
**Chaccham, I. B.** See Khakham, I. B
**Chace, E. G.** See Wilcock, D. F.
**Chace, F. M.** Sn-Ag veins of Oruro, Bolivia, 8989*e*.
**Chace, P. G.** Corrosion-resisting thermostat metal, P 3342*f*; thermostatic bimetallic wire, P 5357*h*
**Chackett, K. F.,** and Martin, G. R. Isotopic-abundance rule, 3708*i*.
———, Paneth, F. A., and Wilson, E. J Chem compn. of the stratosphere at 70 km. height, 8761*f*.
**Chacravarti, A. S.** See Khanna, K. L.
**Chadder, W. J.** See Rider, D.; Woodall-Duckham (1920) Ltd.
**Chadwick, D. H.** See Fuson, R. C.
**Chadwick, L. C.,** and Bradley, K. Effects of certain earthworms on crop production, 1514*h*.
——— and Houston, R. Pre-storage defoliation of some trees and shrubs, 1892*i*.
**Chadwick, L. E.** See Dethier, V. G., Otis, A. B.
——— and Dethier, V. G Stimulation of tarsal receptors of the blowfly by aliphatic aldehydes and ketones, 4778*d*.
**Chadwick, R.,** and Hooper, W. H. L. Recrystn. characteristics of Al-Mg-Mn alloys, 4201*i*
———, Richards, T. L., and Sumner, K. G Effect of rolling and annealing on the structure and grain size of Al-Cu-Mg alloy strip, 5355*d*.
**Chadyk, M. I.** See Khadyk, M. I
**Chaffee, C. C.** See Kastens, M. L.; Skinner, L. C.
**Chafranovsky, I. I.** See Shafranovskiĭ, I. I
**Chaigneau, M.** Crystd. corynanthine and corynantheine, 9372*a*; see Janot, M. M
**Chaikin, S. W.** β Glyceryl phenyl ether and 1,3-dichloro-2-phenoxypropane, 570*a*; see Redemann, C. E.
——— and Brown, W. G. Reduction of aldehydes, ketones, and acid chlorides by Na borohydride, 2570*d*.
**Chaikoff, I. L.** See Briggs, F. N.; Chernick, S. S.; Entenman, C., Lerner, S. R., Masoro, E. J.; Nichols, C. W., Jr., Rauney, R. E.; Srere, P. A., Taurog, A., Wolff, J., Zilversmit, D. B
———, Entenman, C., Gillman, T., and Connor, C. L. Pathol. reactions in the livers and kidneys of dogs fed alc. while maintained on a high-protein diet, 7097*a*.
——— and Taurog, A Formation of org. I compds. in the thyroid gland and their appearance in plasma, 3908*b*.
——— and Zilversmit, D. B. Radioactive P—its application to the study of phospholipide metabolism, 4710*d*.
**Chaikovskaya, M. Ya.** Influence of external and internal factors on reproduction in geese, 9212*b*.
**Chain, E.** Chemistry of penicillin, 1459*a*.
———, Philpot, E. J., and Callow, D. Catalytic effect of metal ions on alcoholysis of the penicillins, 1455*d*.
**Chain, J. T.** See Kirby, D. T
**Chain Belt Co.** Trickling filter for clarification systems, P 4406*h*.
**Chaix, P.** Does an antagonism exist between γ-hexachlorocyclohexane and *meso*-inositol? 5462*e*.
**Chajec, W.** I in brines from oil wells, 3995*c*.
**Chajkin, S. E.** See Khaĭkin, S. E.
**Chakrabarty, S. K.** Generation of mesons and its dependence on meson spin, 5661*a*.
**Chakraborti, K. K.** See Sen-Gupta, P.
**Chakraborty, C. H.** See Nath, M. C
**Chakraborty, D. C.** See Bose, Harendra N.
**Chakraborty, K. M.** See Chowdhury, J. K.
**Chakraborty, S.** See Banerjee, B.
**Chakravarti, D.,** Kundu, N., and Ghosh, R. P. Cryst. components of the bark of *Prunus puddum* (III), 2736*g*.
**Chakravarti, K. K.** See Bose, A. K.
**Chakravarti, S. C.** See Mukherjee, S. N.
**Chakravarty, K. M.,** and Sen, R. X-ray diffraction studies of a Ni-thoria-kieselguhr catalyst for Fischer-Tropsch synthesis, 2888*c*.
**Chakravorti, S.** Effect of Gammexane on the durability of paper, 5896*c*.
**Chakravorty, C. H.** See De, H. N.
**Chalak, J.** See Dutra, F. R.
**Chalaust, R.** See Pochon, J.
**Chalenko, D. K.** Wine from Schizandra, 353*c*; strains of yeasts for fruit or berry wines, 354*h*.
**Chaletzky, A. M.** See Khaletskiĭ, A. M
**Chalin, C.** See Epelboim, I.
**Chaliot, C. du.** See Du Chaliot, C
**Chalklin, F. C.** Intensity measurements in the very soft x-ray region, 4131*a*.
**Challenger, F.** Biochemistry of S, 7061*c*; see Barnard, D; Bird, M. L.
——— and Clapham, P. H. Derivs of 2,4,6-trinitrotoluene (*a*) nitration of polynitrostilbenes, (*b*) 2-(2,4,6-trinitrophenyl)ethyl alkyl (aryl) sulfides, 1733*d*; derivs of thianaphthene, 1762*g*
———, Clapham, P. H., and Emmott, R Substitution products of the liquid isomer of thiophthene, 4666*i*
——— and Greenwood, D. S compds of *Allium*—detection of propylthiol in the onion—fission and methylation of diallyl disulfide in cultures of *Scopulariopsis brevicaulis*, 6286*f*.
——— and Simpson, M. I Biol methylation (XII) precursor of the dimethyl sulfide evolved by *Polysiphonia fastigiata*—dimethyl(2-carboxyethyl)sulfonium hydroxide and its salts, 2571*e*
**Challis, K. J.** See Dimsdale, W. H
**Chalmers, B.** Progress in Metal Physics Vol. I (book), 5724*h*.
———, King, R., and Shuttleworth, R. Thermal etching of Ag, 3758*f*.
**Chalmers, D.** See Hurry, J. A
**Chalov, N. V.** Prepn. of trihydroxyglutaric acid by oxidation of xylose by $HNO_3$, 6982*h*, extn. of methanol in the course of direct cooling of wood gas-generator gas by aq. alc. solns. in countercurrent flow, 7665*h*.
——— and Kruzhevnikova, A. I Detn. of trihydroxyglutaric, oxalic, and nitric acids in their mixts., 5343*c*
**Chalov, V. P.** Symmetrization of org. Hg salts which contain an amino group in the ring, 600*c*
**Chaltykyan, O. A.** Cuprous complexes, 3307*d*.
**Chalupa, L.** See Fischer, Robert
**Chalvet, O.** See Daudel, P
———, Daudel, P., and Lesein, E Construction of mol. diagrams of mesomerism, 4650*d*
——— and Sandorfy, C. Study of several org. compds. contg. N by the method of mol. orbital diagrams, 5013*f*.
**Chalybaeus, W.** See Fischer, Werner
**Chamales, C.** See Cheroms, N. D
**Chambadal, P.** Thermodynamique de la turbine a gaz (book), 8256*d*.
**Chambard, P.** Leather industry, 8719*b*
——— and Abadie, F. Mellowing of chestnut ext., 8183*h*; resistance to corrosion [by tanning solns.] of metals, alloys, and stainless steels, 9506*f*.
——— and Durande-Ayme, R Detn. of the activity of wetting agents with respect to their utilization for soaking skins, 9505*f*, oxidizability of oils in the Mackey app., 9488*h*.
——— and Grall, F. Effect of adding org. salts to solns. of chrome alum and $Al_2(SO_4)_3$, 9507*f*.
——— and Jamet, A. Tannin analysis—methods—hide powders, 8181*i*; detannization, 8182*h*.
——— and Lasserre, R. Zr tannage, 8720*e*.
**Chamberlain, C. C.** See Ross, O. B.
**Chamberlain, D. F.** See Stout, L. E.
**Chamberlain, G. H. N.** Furnace for use in combustion studies, 5921*g*.
**Chamberlain, J.** See General Electric Co. Ltd
**Chamberlain, J. T.** See Burawoy, A.
**Chamberlain, N. H.** See Alginate Industries Ltd.; Cunningham, G. E.; Speakman, J. B.
**Chamberlain, N. S.,** and Martin, R. B. Control of slime in groundwood mills, 5949*e*, 8680*b*.
**Chamberlain, R. C.** Ion exchangers in the manuf. of sirups, 6442*a*.
**Chamberland, H. J.** Machining the acrylic resins, 7745*g*; diamonds in the ceramic industry, 9402*f*.
**Chamberlin, A. C.,** and Serfass, E. J. Electronic C analyzer for steel samples, 7390*b*.
**Chamberlin, N. F.,** Dinwiddie, J. A., and Franklin, J. L. Wax crystn. from propane soln., 4455*h*.
**Chamberlin, T. R.** See Blanchard, R. A.
**Chamberlin, V. D.** See Kennard, D. C.
**Chambers, F. W.** See Berk, F. W., Co. Ltd
**Chambers, H. H.** Vacuum-freeze drying, 2823*f*.
**Chambers, J. M.** Still with means of injecting fresh feed into the down comer, P 7*d*
**Chambers, R. J.** Twin-generator oil-gas process for production of high B.t.u. gas, 378*e*
**Chambers, V. S.** See Howland, L. H.
**Chambers, W. H.,** and Williams, D. Nuclear gyromagnetic ratios (II), 8865*a*
**Chambers, W. P.** Evaluation of tragacanth by apparent viscosity (II) whole gum, 5218*d*.
**Chambon, M.,** and Rochebillard, R. Detn. of thiocol and sunoxol, 3747*a*.
**Chambon, Y.,** and Odiet, C Effect of folliculin on bone calcification—effects of folliculin and histamine on bone calcification, 5471*a*.
**Chamfy, C.** See Lamirand, J. B.
**Chamie, C.,** and Filçakova, H. Absorption of Po by Hg in different solns., 7791*a*
**Chaminade, R.** Detection of α particles by destruction of foams, 8865*c*
**Chamorro, A** Production in female rats of mammary hyperplastic cystic nodules by doses of an antithyroid substance, 300*a*, role of the thyroid in the production of cystic hyperplasia of the mammary glands of rats by estrogenic substances, 8485*d*.
**Chamova, K. G.** See Susakyan, N. M
**Champaygne, E. F.** See Christ, C. L
**Champeix.** See Martin
**Champeix, R.** Optical pyrometry of oxide cathodes—measurement of spectral emissivity, 1658*g*, photoelec. effect in oxide cathodes (I) exptl. findings, 5678*f*, see Debiesse, J
**Champetier, A.,** Cornubert, R., Dupont, G., Javillier, M., Naves, Y. R., and Sreadjan, J. Traité de chimie organique Vol. XVI Cycles complexes homogènes à caractère cyclanique (book), 6642*h*
**Champetier, G.** Constituents of paints, 1577*c*, constitution and mech. properties of high polymers, 2810*b*; Molécules géantes et leurs applications (book), 4893*f*, see Beauvalet, G
——— and Clément, P Hydration of cellulose and its derivs., 845*h*.
**Champeux, R.** See Kahan, T.
**Champion, C. H., & Co. Ltd.** and Koppel, L. C black, P 5929*e*.
**Champion, F. A.** Metal thickness and corrosion effects—interrelations with Al and its alloys, 3337*c*, testing the corrosion resistance of metals, 7889*g*, see Gilroy, P. E
——— and Whyte, M Analysis of corrosion time curves, 5721*i*
**Champion, F. C.,** and Roy, R. R. Scatter of β-particles through large angles by N nuclei, 4115*i*.
**Champion Paper & Fibre Co.** Water base printing ink, P 9483*c*.
**Champion Paper Mills Ltd.** Waterproof wrappings, P 3198*g*.
**Champougny-Clément, J.** See Le Breton, E.
**Chamray, F.** See Shamraĭ, F. I
**Chamsy, H. M.** See Delpy, L.
**Chanan, H. H.** See Reynolds, T. W.
**Chance, B.** Enzyme substrate compds. of catalase and peroxides, 260*g*; enzyme substrate compds. of horseradish and lactoperoxidase, 3859*i*; enzyme substrate horseradish compds. of peroxidase and peroxides (I) spectra of the primary and secondary complexes, 7981*i*; (II) kinetics formation and decompn. of the primary and secondary complexes, 9121*a*.
**Chance, D. C.** See Kulp, M. P.
**Chance, F. S.** See Kvalnes, H. M.
**Chance, M. R. A.,** and Dirnhuber, P Sol. vitamins of parasite worms, 9270*d*.
——— and Mansour, T. E. Kymographic study of the action of drugs on the liver fluke, 5503*h*.

**Chandler, C. A.** See Bliss, E. A; Long, P. H.
**Chandler, D.,** and Lacey, A. D. Rise of the British gas industry (II) pioneer work of Murdoch and Winsor—how London saw first demonstration of street lighting by gas, (III) how the first gas company started, (IV) pioneer work of Samuel Clegg, (V) when gas lighting was started in Britain, (VI) early processes for the purification of gas, (VII) early app for making coal gas—first fifty years of the rise of the gas industry in Britain, 9114*i*.
**Chandler, J. B.** Temp. measurement and control, 448*f*; instrumentation for the sulfite mill, 1184*e*.
**Chandler, N.** See Wearn, R. B
**Chandler, R. C.,** and McBain, J. W. Diffusion and osmotic coeffs., cond., membrane analyses, and the detn. of micellar charge and compn. in some colloidal electrolytes, 6887*a*.
**Chandler, R. F.** See Muckenhurn, R. J
**Chandler, V. L.** See Price, C. W
**Chandler, W. A.** See Harry, J. B
**Chandley, E. F.** See Weizmann, C
**Chandra, G.** See Dhingra, D. R.
**Chandran, K. R.** See Rao, N. K. S
**Chandrasekhar, S.** Light scattering by a plane-parallel atm., 4094*i*
**Chandrasekharan, V.** Influence of optical activity on light scattering in quartz, 4955*h*.
**Chandrashaker, B.** See Mettes, J
**Chandrashekhar, T. R.,** and Shah, R. C. γ-Substitution in the resorcinol nucleus (VI) formylation of 4-nitro- and 2-nitroresorcinols, 7925*a*
**Chandros, L. G.** See Khandros, L. G.
**Chanel, J.** See Cordier, D
**Chaney, A. L.** See Buckley, D. J.
**Chaney, D. W.** Polyfluorinated propiomtriles, P 1683*f*
**Chaney, N. K.,** Hall, E. L., Skeen, J. R., and Smoker, E. H. Developments in high temp. pyrolysis—control methods and product seps., 2760*g*
**Chang, C.-S.** See Ch'en, S. Y
**Chang, C. S. W.,** and Falkoff, D. L. Continuous γ radiation during β-decay, 4091*e*, 8860*h*
**Chang, C. T.** See Wang, Y. L
**Chang, E. T.** See Ho, C. S., Wan, Y. L
**Chang, F. C.** See Prieser, L. F
**Chang, F. N.-H.** See Elliott, W., Tolbert, B. M
**Chang, H. C.** See Meng, H. M.
**Chang, Hsi-C.** and Lin, K. Tissue acetylcholine (X) placental acetylcholine and absorption, 8479*i*.
——, Lin, T.-M., and Lin, T.-Y. Increased acetylcholine sensitivity of muscle by acetone magnification of the rectus test, 3478*i*
**Chang, I.** See Huang, Y.-T.
——, McLaren, B., and Murray, H. C. Detn. of vitamin $B_{12}$, 1821*h*.
——— and Murray, H. C. Biol. value of the protein and the mineral, vitamin, and amino acid contents of soymilk and curd, 8475*h*.
——— and Veh, Y.-W. Rebuilding of phosphagen by the oxidation of lactate, pyruvate, succinate, and malate in toad muscle, 3914*f*
**Chang, K. C.** See Wang, Y. L
**Chang, K.-N.** See Liang, S.-C
**Chang, L.-C.** See Chipman, John
**Chang, M. C.** Effects of heterologous serums on fertilized rabbit ova, 3086*i*, see Pincus, G
**Chang, N. C.** Antibacterial action of exts. from *Coptis* root, 716*h*.
**Chang, P.** See Hollander, V.
**Chang, P. C.** Fixation of Chinese valonia by hide powder, 9505*i*.
**Chang, S. L.** See Fair, G. M.
**Chang, T.** See Buechler, P. R.
**Chang, T.-C.** See Liang, S. C.
**Chang, T.-L.,** and Hsieh, Y.-Y. Soly. of K salts in heavy water at 25° (I) chlorate, perchlorate, bromate, chromate and dichromate, 6492*c*; (II) chloride, bromide, iodide, iodate, sulfate, perrhenate, and ferricyanide, 8821*h*.
——— and Tung, L.-H. D. of heavy water between 25° and 100°, 6181*e*; Laudolt reaction in heavy water, 8821*f*.
**Chang, W.-S.,** and Peterson, W. H. Biotin content of yeasts, 8005*b*.
**Chang, W. Y.** α-Ray spectra of Ra C and Ra C′, 489*b*; cloud-chamber study of meson absorption by thin Pb, Fe, and Al foils, 7325*d*.
——— and Coor, T. α-Ray spectra of Rd-Th, Th C, and Th C′, 489*c*.
——— and Winckler, J. R. Cloud-chamber equipment for study of infrequent cosmic-ray processes, 5661*f*.
**Chang, Y. T.** See Smith, Maurice I.
**Chang, Y. W.** See Youngken, H. W., Jr.
**Changus, G. W.** See Carrera, G. M.
**Chanley, J. D.** Synthesis and properties of spiranes contg. O heterocycles, 4253*a*; see Sobotka, H.
**Channabasappa, K. C.** See Naidu, M. G. C.
**Chanois, F. R. du.** See Du Chanois, F. R
**Chantrel, H.** See Freymann, M.
**Chantrenne, H.** Mixed anhydrides of benzoic and phosphoric acids, 2188*c*, synthesis of phenylbenzoylphosphoric acid, 6996*c*.
**Chanutin, A.** See Ludewig, S., Warren, T. N.
——— and Gjessing, E. C. Effect of partial hepatectomy, thermal injury, and β chloroethyl vesicants on the lipides of plasma and plasma fractions of rats, 4753*e*
———, Gjessing, E. C., and Smith, R. Fractionation of liver—compn. of regenerating liver after partial hepatectomy, 7116*i*.
——— and Ludewig, S. Biochem. studies on the whole and fractionated thymus of rats injected with β chloroethyl vesicants, 2701*c*.
**Chao, C.** See Sah, P. P. T.
**Chao, C. H.** See Hsieh, C. Y.
**Chao, C. Y.** Mixed cosmic-ray showers at sea level, 4103*c*, nuclear level spacing deduced from the resonance absorption of neutrons, 4123*b*
———, Lauritsen, T., and Rasmussen, V. K. High-energy γ-radiation from $Be^9 + D^2$, 8876*a*.
**Chao, J.,** Sah, P. P. T., Oneto, J. F., Pratt, R., and Dufrénoy, J. Derivs. of 2,4-dichlorophenoxyacetohydrazides as chem. regulators for growth, 7551*f*
**Chao, M.** See Chao, T.-P.
——— and Su, M.-T. Reagent for detection of ferrocyanide ion, 6106*d*.
**Chao, P. C.** See Elving, P. J
**Chao, T.-P.,** and Chao, M. Removal of acid from the filtrate of group I, 1681*b*
——— and Chen, S.-C. Rarer elements in qual. analysis (II) U, 2545*h*.
**Chapas, G.** See Pariaud, J. C
——— and Charmetant, C. Chimie minérale. Pt. 10. Métaux (book), 4590*d*
**Chapchinskaja, L. A.** See Shapshinskaya, L. A
**Chapelle, J.** Raman spectrum of a single crystal of Rochelle salt as a function of temp., 7344*c*.
**Chapelle, T. J. la.** See La Chapelle, T. J.
**Chapin, E. C.** See Fordyce, R. G
**Chapin, E. J.,** and Hayward, C. R. Cu-Fe alloy coatings on mild steel, 8331*c*
**Chapin, W. F.** See Blohm, C. L
**Chapiro.** See Shapiro.
**Chaplin, A. L.** Analyzing the instrumentation of a continuous chem. process, 445*b*, application of cond. equipment, 6008*d*.
**Chapman, A. D.,** and Johnston, R. K. Occurrence and control of sludge in treating solns., 2731*g*
**Chapman, A. J.** See Fife, L. C.
**Chapman, C. C.,** and Hendrix, H. V. Silica-alumina catalysts, P 5887*b*.
**Chapman, D. R.** Laminar mixing of a compressible fluid, 3667*b*.
**Chapman, D. W.,** and Shaffer, C. F. Effect of ascorbic acid on cardiac toxic action of mercurial diuretics, 4373*c*.
**Chapman, E. M.** Treatment of hyperthyroidism with radioactive I, 8533*d*.
**Chapman, F. W., Jr.,** Marvin, G. G., and Tyree, S. Y., Jr. Volatilization of elements from $HClO_4$ and HF solns., 6106*c*.
**Chapman, H. D.** See Caldwell, H. P., Jr.
———, Brown, S. M., and Rayner, D. S. Effects of potash deficiency and excess on orange tree growth, compn., and fruit quality, 1132*g*.
**Chapman, H. E.** Future of refractories in the gas industry, 2302*b*.
**Chapman, J. B.** See Skipper, H. E.
**Chapman, N. B.,** Heap, R., and Saunders, B. C. Detn. of F in org. compds., 2890*i*.
——— and Saunders, B. C. Esters contg. P (VI) prepn. of esters of fluorophosphonic acid by means of P oxydichlorofluoride, 121*b*.
**Chapman, O. W.** Statistical quality control in college analytical labs., 7275*i*.
**Chapman, P. J.** See Glass, E. H.
——— and Pearce, G. W. Susceptibility of winter eggs of the European red mite to petroleum oils and dinitro compds., 5898*a*.
**Chapman, P. W.** Research and investigational activities, 9290*a*, 9329*i*.
**Chapman, R. A.,** and Mackay, K. Estn. of peroxides in fats and oils, 6840*h*.
**Chapman, R. D.** See Rietz, E. G.
**Chapman, R. K.,** and Allen, T. C. Stimulation and suppression of some vegetable plants by DDT, 1520*h*.
**Chapman, R. M.** See Migeotte, M. V.
**Chapman, R. W.** Lithification of Pleistocene clay, at Kahuku Point, Oahu, 2136*i*, petrology and structure of the Percy Quadrangle, New Hampshire, 6129*b*.
——— and Greenfield, M. A. Spheroidal weathering of igneous rocks, 6549*f*.
**Chapman, S. M.** Correlation of the Board Comm. test for surface-oil resistance of paperboard with the results of gloss-ink printing, 4012*e*.
**Chapman, S. S.,** Coriell, L. L., and Kowal, S. F. Streptomycin studies in tularemia (II) therapy in white rats, 9253*c*
———, Coriell, L. L., and Nelson, W. E. Streptomycin studies in tularemia (III) therapy in monkeys, 9253*d*.
———, Downs, C. M., Coriell, L. L., and Kowal, S. F. Streptomycin studies in tularemia (I) effect of streptothricin and streptomycin on *Bacterium tularense*, 9253*a*.
**Chapman Valve Manufacturing Co.** Stainless-steel production in an elec. furnace, 4151*e*
**Chappell, R. E.,** Beamer, C. M., and Duff, R. B. Conduit for corrosive fluids, P 3669*e*.
**Chapple, C. C.** See Bruner, H. D.
**Chaput, M.** See Marion, L.
**Charakhch'yan, T. N.** See Brikker, S. I
**Charalampous, F. C.,** and Hegsted, D. M. Effect of alloxan diabetes on the riboflavin requirements of young rats, 2306*f*, susceptibility of the guinea pig to action of alloxan as compared with the rat, 3915*i*, acetylation in the diabetic rat, 9220*f*
**Charanjit.** See Sarna, H. R
**Charconnet-Harding, F.,** and Jacquot, R. Synthesis of tryptophan by isolated plantlets—comparison with the synthetic power of *Sterigmatocystis nigra*, 4350*c*.
**Chard, S. J.** See Cullinane, N. M.
**Chardonnens, L.,** and Heinrich, P. Reaction capacity of the Me group (XI) 9-methylacridine and nitroso derivs., 6631*d*.
**Chareyron, C.** See Bréquet, A.
**Chargaff, E.** Role of lipides and lipoproteins in cellular structure, 9090*h*, glycogen and nucleoprotein fractions of tubercle bacilli, 9164*e*, lipides in blood coagulation, 9198*e*, see Goldenberg, M.; Magasanik, B.; Nyman, M. A.; Vischer, E., Zamenhof, S.
——— and Kream, J. Study of certain enzymes in minute amts. and its application to the investigation of cytosine deaminase, 1816*g*.
———, Levine, C., and Green, C. Demonstration by chromatography of nitrogenous lipide constituents, S-contg. amino acids, and reducing sugars, 264*g*.
———, Magasanik, B., Doniger, R., and Vischer, E. Nucleotide compn. of ribonucleic acids, 5817*d*.
——— and Saidel, H. F. Nucleoproteins of avian tubercle bacilli, 3063*b*.
———, Stewart, R. N., and Magasanik, B. Inhibition of mitotic poisoning by *meso*-inositol, 1865*h*.
———, Vischer, E., Doniger, R., Green, C., and Misani, F. Compn. of the desoxypentose nucleic acids of thymus and spleen, 3482*b*
**Chari, S. T.** Nutritive value of some of the west coast marine food fishes of the Madras Province, 9286*c*.
——— and Unny, M. M. Food value of molluscs found near Pamban and chem. compn. of their shells, 5878*c*.
**Charin, A. N.** See Kharin, A. N.
**Charipper, H. A.** See Bossak, E. T.; D'Angelo, S. A.; Joel, T.
**Charisius, K.** Cement roofing tile—manufg. control, 5915*d*.
**Charles, A. M.** See Kanagy, J. R.
**Charles, F. R.** See Dosne, R. E.
**Charles, M. K.** See Kogane-Charles, M.
**Charles, R. F.,** and Durgin, F. W. Creped paper, P 3198*f*.
**Charlesworth, A.** See Whewell, C. S.
**Charlet, P. V.** See Leroy, A. M.

**Charlier, R.** Polyvinylpyrrolidone and aerosol action, 4374*d*; see Bacq, Z. M.
——— and Philippot, E. Pulmonary vol. and aerosols, 4374*c*, 7128*g*, action of dibenzylmethylamine and the diethylaminoethyl ester of phenylcyclopentanecarboxylic acid as aerosols, 4374*e*.
**Charlot, G.** Actual role of the engineer-analyst, 5692*h*
——— and Bézier, D. Méthodes modernes d'analyse quant. minerale (book), 6543*a*
. Lacroix, S., and Wolff, J. P. Definitions of acids and bases, 8971*c*.
**Charlton, E. E.**, and Baldwin, G. C. Nuclear research with the 100-m.e.v. betatron, 8850*b*.
**Charlton, H. E.** Chem. processes, P 5031*c*.
**Charlton, P. T.** See Bird, M. L.
**Charlton, W.** See Atherton, D.; Bradford, L.
——— and Harrison, J. B. Resinous condensation products, P 441*c*.
———, Harrison, J. B., and Imperial Chemical Industries Ltd. Phenol-HCHO resins, P 6864*a*.
———, Harrison, J. B., Perrins, L. E., and Imperial Chemical Industries Ltd. Phenol-HCHO resins, P 2030*d*.
———, Jarrett, S. G., Walker, E. E., and Imperial Chemical Industries Ltd. Treatment of paper or textile fabrics, P 9448*e*
**Charman, W. M.**, and Anthony, B. F. Insulating cover for solidifying ingots, P 3769*f*.
**Charmbury, H. B.** See Herbert, S. A.
**Charmetant, C.** See Chapas, G
**Charney, J.** See Tomarelli, R. M.
**Charonnat, R.**, Chevillard, L., Giono, H., Harispe, M., and Harispe, J. V. Pharmacodynamic properties of nicotinic esters (I) action on the smooth musculature, (II) action on the heart and on striped muscles, (III) haloalkylates, 6316*f*
———, Harispe, M., Harispe, J. V., and Chevillard, L. Nicotinic acid esters of mono- and polyhydroxyl alcs. and their alkyl halide derivs., 2022*d*.
**Charova, A. M.**, and Rutenburg, E. B. Detn. of ferrous Fe in Fe ores, sinter cake, and blast-furnace dust, 965*i*; detn. of Mn oxide, 5339*h*.
**Charow, W.** See Sharov, V. S.
**Charpentier, L. J.** See Ingram, J. W.
**Carrière, G.** Promenade à travers la chimie (book), 6501*a*.
**Charrin, V.** Li minerals in France, 1292*c*; U minerals of the upper Katanga (Belgian Congo), 1291*i*; principal deposits of barite in France, 1292*f*, kieselguhrs of Touraine, 1292*i*; enrichment of ores by electromagnetic sepn., 1694*h*, kieselguhr in painting, 4023*g*; bauxite residues as sources of pigments, 5200*h*, "bauxite" of l'Auvergne, 8981*e*; Ca phosphates of the Pyrenees, 8991*h*, Cu mines of Charrier (Allier), 8989*d*; deposits of Pb and Zn at Nantuel (Savoie), 8984*g*; deposits of refractory clays in the Paris Basin, 8992*b*; domestic (French) deposits of Pb, 8989*g*; useful minerals of the Upper-Maurienne—asbestos, 8992*c*, world resources of bauxite, 9296*h*, anthracite basin of Roannais, 9411*f*
**Charro, A.** Same as Charro Arias, A.
**Charro Arias, A.** Hydrotropic action of urea on cereal proteins, 7595*d*
——— and Ron Noya, J. Refractometry of cow milk in Galicia, 7597*h*, cryoscopy of the milk of Galician cows and its value in the investigation of the watering of milk, 9279*c*.
**Charron, F.** Viscosity measurements at varying pressures, 5248*f*
**Charskaya, K. N.** See Gorin, Yu A.
**Chase, A. M.** Chemistry of *Cypridina* luciferin, 4388*g*, cell enzyme systems (I) effect of ferricyanide on the reaction of *Cypridsna* luciferin and luciferase and the combining wt. of luciferin, 7064*b*; see Parpart, A. K.
——— and Gregg, J. H. Analysis of *Cypridina* luciferin for N, 7072*g*.
**Chase, C. R., Jr.**, and Pratt, R. Fluorescence of powd. vegetable drugs—development of a system of identification, 8611*d*.
**Chase, E. S.** Pollution of Androscoggin River and control, 7614*b*.
**Chase, G. O.** See Christiansen, W. G.
**Chase, H.** Wrinkle finishes applied electrostatically, 874*g*.
**Chase, H. B.** See Sherman, F. G.
**Chase, H. F.**, Bhattacharya, B. K., and Schmidt, J. L. Prolongation of curarizing and anticurarizing action, 3103*e*.
**Chase, L. C.** Water injection in wells and corrective methods, 2757*c*.
**Chase, R. G.** See Adams, R.
**Chase Brass & Copper Co., Inc.** Intermittent discharge induction furnace, P 4151*c*; Sn-coating the interiors of Cu tubes, P 5730*a*.
**Chassevent, L.**, and Stiglitz, P. Alkalies in artificial cements—their origin and their behavior towards water, 8633*f*.
**Chastel, R.** Variation of $(\gamma,n)$ nuclear cross sections and the structure of light nuclei, 7326*d*; see Vigneron, L.
——— and Süe, P. Detection of individual $\beta$ tracks in a sensitive emulsion, 8921*f*
**Chaston, J. C.** Nonferrous metals, 4788*i*, see Johnson, Matthey & Co., Ltd.
**Chatagner, F.** See Fromageot, C
**Chateau, M.** See Pomey, J
**Chatelain, J.** Thermodynamics of soil moisture, 9317*a*.
**Chatelain, P.** Diffusion of polarized light through liquid crystals of nematic type, 3257*i*.
**Chatelier, G. G. du.** Distinction of powd. oak, cascara sagrada, and frangula bark, 8100*h*
**Chatfield, H. W.** Developments in drying oils, 4871*a*.
**Chatham Chemical Co.** $MnSO_4$, P 3690*b*.
**Chatonnet, J.** See Hermann, H; Jourdan, F.
——— and Vial, J. Adrenaline content of rat adrenals, 1098*a*.
**Chatt, J.** See Spence, P., & Sons Ltd.
**Chattaway, F. W.**, and Dawson, J. Pressor material prepd. from hemoglobin, 5547*h*
———, Dolby, D. E., and Happold, F. C. Growth factors for *Lactobacillus casei*, 4335*g*
———, Hall, D. A., Happold, F. C., and Holdsworth, E. S. Reversal of penicillin inhibition by a yeast ext., 9166*b*
**Chatterjee, A.** See Deuel, H. J., Jr.
——— and Mitra, S. S. Constitution of the active principles isolated from the matured bark of *Aegle marmelos*, 2903*g*.
——— and Parks, L. M. Structure of verbenalin, 7017*f*.
**Chatterjee, A. K.** See Ghosh, B. N.
**Chatterjee, B.** See Mackie, W. Z., Mukherjee, J. N.
**Chatterjee, H.** See Sarkar, P. B
**Chatterjee, J. N.** See Guha, S. K
**Chatterjee, N. N.**, Bose, A., and Roy, H. B. Synthesis of pyrene, 2613*g*
**Chatterjee, R.**, Cook, A. H., Heilbron, I. M., and Levy, A. L. Azole series (VII) new route to $\alpha$-amino-$\beta$-mercapto acids, 1401*h*
——— and Lahiri, J. K. Indian belladonna, 8616*b*; Indian *Datura*, 9380*i*.
**Chatterjee, S.** $MnO_2$, P 3984*h*.
**Chatterjee, S. K.** Effect of moisture content on the dielec. properties of some solid insulating materials, 2480*b*; see De, C.; Ghose, A. B.
——— and Das-Gupta, H. N. Silt from the Ganges River (II) its use in oil refining, 5165*a*.
——— and Sreekantan, B. V. Absorption of ultrahigh-frequency waves in salt solns., 2480*a*.
**Chatterji, A. C.**, and Bose, A. N. Variation of relative viscosity with temp.—org. solutes in nonaq. solvents, 8243*d*, supersatn. limits of nonaq. solns. (I), 8804*c*.
——— and Nath, R. Charge and stability of colloids (XIV) effect of nonelectrolytes, 8793*i*.
**Chauchard, B.**, and Chauchard, P. Action of some hormones on the nervous system of the crab, 5506*g*; action of adrenochrome on the excitability of visceral muscles, 5864*e*; changes in central and peripheral nervous excitability and muscle excitability in rats under the influence of curare, 8053*i*.
———, Chauchard, P., and Mazoué, H. Effects of thyroxine administration and thyroidectomy on neuromuscular excitability, 1107*g*.
**Chauchard, P.** Chemistry of nervous control, 3087*g*; vitamin investigations, 3196*d*; histamine and its antagonists on chronaxia and its application to anaphylactic shock, 7130*a*; see Chauchard, B.; Lecoq, R.
———, Mazoué, H., and Lecoq, R. Antagonistic or synergistic effects of vitamins on various chronaxic manifestations of acid-base imbalance, 288*c*; chronaximetric investigation of anaphylactic shock, 2696*g*; influence of various vitamins on the nervous effects of adrenaline, acetylcholine, choline, and adrenochrome, 6293*c*.
**Chaudhari, M. B.**, and Nargund, K. S. Derivs. of 3-chloro- and 3-iodophthalic acids, 6600*e*.
**Chaudhri, J. R.** See Singh, Surgit.
**Chaudhri, R. M.**, and Fentou, A. G. Adjustable Geiger-Müller counters, 3706*i*.
——— and Khan, A. W. Emission of secondary electrons from Ni, and Mo by neutral atoms of Hg and K, 4100*h*.
**Chaudhuri, D. K.**, and Kodicek, E. Estn. of nicotinamide in biol. materials, 8425*d*.
**Chaudhuri, D. R.** Titration curves of fibrinogen and clotted fibrinogen, 9097*d*.
**Chaudhury, D. N.**, Holland, R. A., and Robertson, A. Synthesis of glycosides (XII) fabiatrin, 1770*d*.
———, King, H. I., and Robertson, A. Syntheses of glycosides (XIII) primulaverin, 3393*g*.
**Chaudhury, G. P. B.** See Basu-Chaudhury, G. P.
**Chaudhury, P. K. S.** Anomalous absorption of Ra C $\gamma$ rays, 2505*d*.
**Chaudron, G.** Al of high purity, 1300*d*; see Chossat, H., Pruna, M.
——— and Bénard, J. Decompn. of FeO, 6901*h*.
———, Lacombe, P., and Yannaquis, N. Intergranular corrosion of pure Al in relation to the behavior of grain boundaries during melting, 2557*i*.
———, Lacombe, P., and Youssov, G. Detn. in the absence of O of the soln. potential of electrolytically polished Al, 8912*d*
——— and Moreau, L. Acid brittleness of single cryst. Fe, 7395*f*.
——— and Wallaeys, R. Synthesis of apatites by solid phase reactions, 6949*c*.
**Chaudun, A. de G.** See Grandchamp-Chaudun, A. de.
**Chaussin, C.**, and Hilly, G. Metallurgy Production and Fabrication of Metals (book), 4997*i*.
**Chauvelier, J.** Addn. compds. of $\alpha,\alpha'$-diacetylenic ketones and amines, 2999*b*.
**Chauvin, M.** See Ramart-Lucas, P.
**Chavance, J.** See Chavance, M.
**Chavance, M.**, and Chavance, J. Treating horses suffering from acute founders with antihistaminic agents, 1101*h*.
**Chavane, V.** Ammomethanephosphonic acid, 124*b*
**Chavannes, M. A.**, and Sherry, A. B. Films bearing designs, P 9301*b*
**Chavannes Industrial Synthetics, Inc.** Films bearing designs, P 9301*b*
**Chave, J. L. L.** See Llarena Chave, J. L.
**Chaves, J. M.**, and Pechnik, E. Chem. constitution of pataua oil, 2792*d*
———, Pechnik, E., and Mattoso, I. V. Chem. and nutritional studies on palm fruits, 3116*c*
**Chaves Sánchez, M.** See Voldi Bereau, F
**Chávez, R.** See Monge M., C.
**Chawla, B. R.** See Nirula, B. L.
**Chawriguine.** See Shavrygin.
**Chaybauy, A.** Protection of Mg and its alloys, P 992*a*.
**Chayes, F.** Point counter for thin-section analysis, 8747*e*
**Chazal, R.** See Brunerie, G.
**Chazova, V. V.** See Spiridonova, N. S.
**Chebaevskaya, V. S.** See Koval'skii, V. V
**Cheburkova, E. E.** Detn. of sulfide inclusions of Fe and Mn in the metal of a welded joint, 970*c*; detn. of nonmetallic inclusions in austenite steel, 6111*c*.
**Checcacci, L.** Disinfection of the air (III) with aerosols of several aldehydes and essences, 5083*e*; (IV) with phenol aerosols and several of its derivs. and by glycerol and glycols, 3953*h*; (VI) influence of type of nebulizer on activity and duration of bactericidal power of the aerosols of certain disinfectants, (VII) with vapors of glycols, 9387*a*.
**Chechenov, N. I.** See Kul'berg, L. M.
**Chechik, N. O.** Photo amplifiers in spectral analysis, 8297*g*.
**Chęciński, T.** Foreign turnover of the Polish chem. industry, 2711*c*; Polish chem. market, 8072*i*, 8577*c*.
**Chédid, L.** Effects of implantation of testosterone crystals into the testicle of the immature rat, 5470*h*.
**Chédin, J.** See Fénéant, S.
——— and Fénéant, S. Spectra of nitrates dissolved in $HNO_3$—$(HNO_3)_2.NO_3^-$ complex, 3716*a*; equil. equation of the ionization of $HNO_3$ in aq. soln., 6053*b*, Raman spectrography and inorg. acids ($HNO_3$, $H_2SO_4$, complexes with water, coeff. of

distribution of water between the 2 acids), 6071*g*.
—— and Tribot, A Nitration of cellulose, 5588*g*, ethylcellulose from ethyl sulfate under vacuum, 6824*c*.
—— and Vatidom, R. Interaction between $HNO_3$ and the $NO_3$ ion $-(NO_2H)_2.NO_3^-$ complex, 3306*a*; gelatinization of high polymers—nitrocellulose, 4927*i*.
**Cheek, P. H.,** Wiley, R H., and Roe, A. Prepn of aromatic F compds. from diazonium fluosilicates, 6992*b*.
**Cheeseman, E. A.** See Agate, J H.
**Cheesman, G. C. N.** See Wyllie, D.
**Cheesman, G. H.** Odor classification, 9100*e*.
**Cheesman, W. L.** Stake of private business in government-owned patents, 331*f*
**Cheetham, H. S.** Use of hydrocarbon oil in town-gas manuf., 378*f*, manuf and application of water gas in town-gas production, 5571*g*, 5924*h*.
**Cheftel, H.** See Vonovitch, I.
- - —, Custot, F, and Nowak, M. Detn of Sn in elementary materials, 8957*b*
**Cheintziss, O. G.** See Sheintsis, O. G
**Cheka, J. S.** Evaluation of special fine-grain particle film for use in neutron monitoring, 4089*i*
**Chekanovskii, M. L.,** and Babintsev, N. G. Effective gasification of wood chips, 4832*h*.
**Chekulaeva, L.** Calcn of sugar in evapd milk, 7599*d*
**Cheldelin, V. H.** See Christensen, B. E.; Fels, J G , King, T E
**Chelemski, M. S.** See Khelemskii, M. Z
**Chelintsev, G V.** Tautomerism, 5359*d*, Survey of Theoretical Org Chemistry (book), 5409*d*.
**Chelmo, K.** See Mouriquand, G
**Chelnokova, G. N.** See Rafikov, S R
- - Rafikov, S. R , and Korshak, V V Kinetics of the polyamidation reaction, 1517*e*.
**Chelpin, H. K. A S. v. E.** See Euler-Chelpin, H K A S v
**Chel'tsova, M. A.** See Petrov, A D
**Chelzova, M. A.** See Chel'tsova, M. A
**Chemal Trust.** Deposition of an Al coating on ferrous metal strip or sheet, P 6561*f*
**Chemerda, J. M.** See Bachmann, W. E
**Chemiakine.** See Shemyakin.
**Chemical Construction Corp.** Waste Fe sulfate soln recovery, P 1927*b*, hexamethylenetetramine, P 2224*a*, decompn of $H_2SO_4$, P 3157*e*; $HNO_3$ concn., P 3983*h*, FeO, and HCl from Fe chloride, P 6375*a*
**Chemical Developments Corp.** Adsorption app for the recovery of acetone from acetone air mixts , P 450*d*, air-dry curing of surface coatings, P 1222*e*; ion-exchange resin, P 3119*d*.
**Chemical Engineering & Wilton's Patent Furnace Co. Ltd.,** Mann, H C., Kernon, D. R , Priest E H., and Eastlake, A. W. Gases and vapors, P 6811*h*.
**Chemical Foundation, Inc.** Recovery of acidic gases, P 308*h*
**Chemical Works** of **Gedeon Richter Ltd.** See Richter, Gedeon, Vegyészeti Gyár R. T.
**Chemische Fabriek L. van der Grinten.** Photosensitive film and screen for screen reflectography, P 4594*a*.
**Chemische Fabrik Dr. R. Maag.** Prepn. of a plant protectant, P 3140*g*
**Chemische Fabrik G. Zimmerli A.-G.** Dicyanodiamide condensation products, P 6440*d*.
**Chemische Fabrik Röhm & Haas G.m.b.H.** See Rohm & Haas Co.
**Chemische Fabrik Rohner A.-G.** Basic Cu alloy from Cu-bearing materials, P 2154*a*; basic Cu arsenate, P 3159*a*; basic Cu carbonate, P 3159*a*; basic Cu chloride, P 3159*c*; $CuSO_4$, P 3159*d*.
**Chemische Fabrik Schönenwerk H. Erzinger, A.-G.** Casting of polymers, P 8741*d*.
**Chemische Fabrik Servo.** See N. V Chemische Fabrik Servo.
**Chemische Fabrik Uetikon.** U salt, P 6375*c*.
—, Schwarzenbach, G , and Schnorf, P. Detn of metals, P 4800*b*.
**Chemische Fabrik vormals Sandoz.** Same as Sandoz Ltd.
**Chemisches Laboratorium Schmuki.** Adhesive, P 6004*b*.
**Chemitalia Colori.** Dye for printing fibers and fabrics, P 5602*d*.
**Chemjakine.** See Shemyakin.
**Chemodanova, L. S.** Detn of O compds of Se and free Se in the atm of industrial establishments, 8961*h*; detn. of small quantities of dioxane in the atm. of industrial establishments, 8976*f*
**Chemprotin Products.** Separator of starch and gluten, P 1204*c*.
- - —, Kormendi L , and Boeckeler, B C Gluten comps , P 3241*h*
**Chen, C.** See Price, C. C
**Chen, C. H.** See Dienst, R B
**Chen, C.-P.** See Chou, T Y.
**Chen, C.-Y.** Effect of continuous and periodical feeding of purine bases on the longevity of albino rats, 3893*a*.
— — and Tuan, M.-T. Effect of light on the production of ascorbic acid in germinating garlic, 3887*g*; biol value of Szechuan fish protein, 3892*i*, protein of marine animals as a supplement to maize protein, 3892*i*
- — and Yi, L.-K. Utilization of Ca in steamed bone meal, 3893*b*; ascorbic acid content of Chengtu peppers, 3945*c*, ascorbic acid content of Chinese teas, 3945*i*
— —, Yi, L.-K , and Tuan, M.-T. Effect of fertilizers on the ascorbic acid content of vegetables, 3958*h*.
**Chen, G.** See Long, Loren M.
—— and Ensor, C. R. Appraisal of anticholinergic activity by prevention of methacholine-induced fatal bronchospasm, 8557*b*.
— —, Russell, D., and Nash, V L. Effect of β halogenated ethylamine derivs on ventricular fibrillation and on the isolated heart, 7131*f*.
**Chen, H.-K.,** and Shiao, T.-H. Inorg. compds of N in rice field soils, 341*d*.
**Chen, J. L.,** Medler, J. D., and Harte, R A. Formation of fluorescing substances from amino acids, 708*f*
**Chen, J. Y. P.** See Pickering, R W
**Chen, K. K.** Pharmacology of methadon and related compds , 1869*d*, physiol. and pharmacol background, including methods of evaluation, of analgesic agents, 8611*f*, see Henderson, F. G.; Powell, C E., Sah, P P T , Swanson, E E.
**Chen, M. H.** See Lu, C. H
**Chen, Shang-C.,** and Wilson, S D Control of fecal-borne diseases in North China (XII) detn of K, 9126*e*
**Chen, Shih-Chia.** See Chao, T.-P
**Chen, Shih-Chieh.** See Sah, P P T
**Chen, S. D.,** Elliott, K J , and Schuck, C Total, dehydro, and reduced ascorbic acid in cantaloupes, 1120*e*
**Ch'en, S.-Y.,** and Chang, C. S. Absorption spectrum of dense Li vapor, 4137*b*.
**Chen, T. I.,** and Tsai, C. Hemostasis in peripheral vessels, 754*i*.
**Chen, T.-L.** See Sah, P. P T.
**Chen, T.-T.** Complement titer of vegetarian and omnivorous rats, 3892*f*.
**Chen, W.-M.,** and Chu, F.-T. Requirements of vitamin C in infants and children, 3892*f*
**Chenavier, P.** See Meunier, Paul
**Chenery, E. M.** Thioglycolic acid as an inhibitor for Fe in the detn. of Al, 2889*b*.
**Cheney, A. J., Jr.** Extruding polytetrafluoroethylene and coating articles therewith, P 2037*d*.
**Cheney, H. A.** See Nixon, A. C.
——, Dagley, R., Jr., and McAllister, S. H Unsatd alcs., P 5790*f*.
**Cheney, L. C.** See Speeter, M. E ; Wheatley, W. B.
—— and Bywater, W. G. 4-Morpholinylalkyl diphenylacetates, P 6673*e*.
—— and Piening, J. R Carboalkoxy alkylcarboalkoxy sulfides, P 7504*d*.
——, Smith, R. R., and Binkley, S. B. Alkylaminoalkyl ethers of the benzyl phenols, 3386*a*; ketimines and acyl ketimines related to amidone, 3391*f*.
**Cheney, R. H.** Stratification and deformation of *Arbacia punctulata* eggs centrifuged in caffeine solns., 3939*d*.
**Cheng, A. L. S.,** Morehouse, M. G , and Deuel, H. J., Jr. Effect of the level of dietary Ca and Mg on the digestibility of fatty acids, simple triglycerides, and some natural and hydrogenated fats, 5460*g*.
**Cheng, C. H.** See Birchenall, C. E.
**Ch'eng, Charles H.** See Anderson, Hamilton H.
**Cheng, C.-P.** See Sayers, G.
—— and Sayers, G. Insulin hypersensitivity following administration of desoxycorticosterone acetate, 8492*e*.
- —, Sayers, G., Goodman, L. S., and Swinyard, C. A. Discharge of adrenocorticotropic hormone in the absence of neural connections between the pituitary and hypothalamus, 8511*i*.
**Cheng, F. W.** See Arthur, J. C , Jr.
— and Arthur, J C , Jr. Viscosity of cottonseed protein dispersions, 4400*h*
**Cheng, K. C.** Theory of supercond., 4532*g*; see Born, M.
**Cheng, P.,** and Casida, L. E. Effects of testosterone propionate on sexual libido and production of semen and sperm in the rabbit, 8055*b*.
**Cheng, P. T.,** See McCrone, W. C
**Chenicek, J. A.** Stabilization of org. compds , P 4005*e*; see Thompson, R. B
**Chennels, M.,** Floyd, W. F., and Wright, S. Action of condensed alkyl phosphates on the nerve muscle prepn. and the central nervous system of the cat, 7587*i*.
**Chenoweth, M. B.** Toxicity of Na alginate in cats, 1483*f*; see Garb, S.
**Chentsova, L. G.,** and Vedeneeva, N. E. Decompn of coloring centers in smoky quartz, 8785*d*.
**Chenykaeva, E. Yu.** See Verzhbinskaya, N A.
—— and Chirkovskaya, E. V. Influence of sympatomimetic substances on the activity of carbonic anhydrase in animal blood, 7142*i*.
**Chepelevetskii, M. L.** See Klyachko, Yu A.
**Chepelewa, E. S.** See Shepeleva, E. S.
**Chepelkin, Yu. N.** Protective devices for the glass electrodes, 6008*i*
**Cherbuliez, E.,** and Mori, M Disinfectant, P 7068*b*
**Cherdyncew, W.** See Cherdyntsev, V. V.
**Cherdyntsev, V. V.** See Mashovets, V. P.
**Cherepkov, F. I.** Adsorption of $H_2SO_4$ fumes by $H_2SO_4$, 3981*d*.
**Cherepnev, A. A.** Photoluminescence of Zn sulfides contg. Sn, 1265*d*.
—— and Dobrolyubskaya, T. S. ZnS luminophors contg. Co, 1265*b*; formation of the emission centers in ZnS-Cu luminophors, 6514*e*.
**Cherevatenko, L. V.** Elec heating of glass in the Fourcault channel, 1540*f*.
**Cheritat, R.,** and Vignau, M Detn. of total P in Thomas slag, 6109*e*.
**Cherkashin, E. E.,** Derkach, F. A., and Przhevolotskaya, S M Chem. reactions of intermetallic phases (I) corrosion of the intermetallic compds. $Ag_3Al_2$ and $Mg_2Pb$, 8341*f*.
**Cherkashina, L. V.** See Vinokurov, M. A.
**Cherkashina, T. V.** See Goryushina, V. G.
**Cherkasova, E. M.,** and Mel'nikov, N. N. Aliphatic nitro compds. (VI) formation of halonitroparaffins from oximes of aldehydes and ketones, 6569*a*.
**Cherline, S. M.** See Sherlin, S. M.
**Chernenko, E. S.** Changes in growth symptoms of apple varieties of different maturation time and time of coming into production, 278*f*.
**Chernetsov, G. F.** See Grom, V. A.
**Cherniak, G. S.** See Coffin, L. F., Jr.
**Cherniavsky, A. J.** See Johnson, A. J.
**Chernick, S. S.** See Briggs, F. N.
——, Lepkovsky, S , and Chaikoff, I. L. Dietary factor regulating the enzyme content of the pancreas—changes induced in size and proteolytic activity of the chick pancreas by the ingestion of raw soybean meal, 2682*i*
——, Srere, P. A., and Chaikoff, I. L. Metabolism of arterial tissue (II) lipide syntheses—formation *in vitro* of fatty acids and phospholipides by rat artery with $C^{14}$ and $P^{32}$ as indicators, 7114*g*.
**Chernigovskii, V. N.** Chemoreception in intestine (I), 7564*d*.
**Chernikhov, Yu. A.,** and Bol'shakova, G A. Internal electrolysis with protective films, 8285*d*.
— — and Makarova, R. F. Detn. of sulfide S, 969*f*.
—— and Roshchina, R N. Detn. of Sn in Sn concentrates, 8956*h*.
—— and Tramm, R. S. Application of color matching to detn. of W, 5335*d*.
**Chernikov, M. P.** Amino acid content of ox procollagen, 8411*d*.
**Chernikova, T. N.** See Gapon, E. N.
—— and Gapon, E N. Distribution of electrolytes between solid and liquid phases (I) uptake of $AgAsO_4$ by $Fe(OH)_3$, 6885*i*.
**Chernitskaya, R. E.** Spectra of combination scattering of halogen-substituted fatty acids, 6082*g*

**Chernojookow, N. I.** See Chernozhukov, N. I.
**Chernov, N. A.** App. for generating $C_2H_2$ from carbide, P 4908*g*
**Chernov, V. A.** Soil acidity (III) reaction of acid soils with an alk soln., 7616*h*.
**Chernova, K. S.** See Zaks, M. G.
**Chernozhukov, N. I.** Khimiya nefti (book), 3185*b*, see Tsyskovskiĭ, V. K.
**Chernyaev, D. A.**, and Makushinskaya, N. S. Ceresin and ozocerite compns., P 9433*e*
**Chernyaev, I. I.**, Sokolov, V. A., Shmidt, N. E., and Muravelskaya, G. S. Heat capacity of stereoisomers of Pt diammine chloride, 29*i*.
**Chernyak, N. B.** P fractions of erythrocytes and plasma and their changes during storage of preserved blood, 1099*a*.
**Chernyak, B.**, and Pasynskiĭ, A. G. Deformation of gelatin mols. in soln. on varying their charge, 7787*f*
**Chernyak, Ya. A.** See Shkol'nikov, M. G.
**Chernyavskiĭ, A. I.** Distn. column, P 8757*e*.
**Chernyavskiĭ, N. F.** App. for bottling under $CO_2$, 1905*a*.
**Chernyshev, A. B.**, and Al'tshuler, V. S. Gasification of solid fuels, P 6397*c*
**Chernysheva, M. A.** See Klassen-Neklyudova, M. V.
**Cheronis, N. D.**, Kowitz, A., Chamales, C., Larson, R., Newbury, E., Tripp, G., MacArtor, F., Arvan, P., Gustus, E., Wildman, P., and Andler, M. Deposition of hydrophobic polymers within leather, 8185*b*.
**Cherrier, C.** Raman spectra of α-substituted acetophenones, 3716*e*; infrared absorption spectra of ω-substituted acetophenones, 4955*c*; see Metzger, J.
—— and Metzger, J. Refractometric study of α-substituted acetophenones as a function of the temp., 4651*f*.
**Cherrington, M. E.** See Woodruff, C. W.
**Cherry, E. C.** See Boothroyd, A. R.
**Cherry, R. H.** Detn. of water vapor—thermal cond. methods, 1288*c*.
**Cherry-Burrell Corp.** See Sugar Creek Creamery Co.
**Chervenak, M. B.** See Turrell, F. M.
**Chesbro, R. M.** See Shahrokh, B. K.
**Cheshire, A.** Ca oxalate for age stability in vegetable-tanned leather, P 6452*i*, effect of formic acid on tannage with mimosa, 9510*c*.
**Chesni, Y.** See Bonifas, V.
**Chesnokov, F. A.** Limits of explosiveness of turpentine vapor-air mixt., 7687*d*.
**Chesnutt, S. D.** See Baker, M. O.
**Chester, A. E.**, and Reisinger, F. F. Compds. of gelatin and aldonic acids for use in alk. Zn cyanide electroplating baths, P 2102*h*; Zn electroplating, P 6096*a*; electroplating bath and electrodeposition of Zn, P 8917*d*.
**Chester, K. S.** Nature and Prevention of Plant Diseases (book), 6707*e*.
**Chesterikowa, I. S.** See Shesterikova, I. S.
**Chesters, C. G. C.**, and Street, H. E. Plant nutrition (I) effect of some org. supplements on the growth of lettuce in sand culture, 9175*a*.
**Chesters, J. H.** Cinematography of open hearth-furnace flames, 2142*a*.
—— and Elliot, G. D. C linings for blast furnaces, 7878*d*.
——, Lee, L., and Mackenzie, J. Steel-tight linings for basic induction furnaces, 9405*d*.
—— and Philip, A. R. Open-hearth-flow models (I) flow patterns in ducts, 7878*a*.
**Chesworth, L. A.** Bright barrel plating of Ni and Zn, 8901*d*.
**Chetaev, P. M.** See Urazovskiĭ, S. S.
**Chetrick, M. H.** Nomographs for bubble and dew points—benzene-toluene-xylene mixts., 2050*f*.
**Chetverikov, D. A.** Carbonic anhydrase in eye tissues in ontogenesis, 4358*i*
**Chetverikova, I.** See Mantelfel, A. Ya.
**Chetverikova, L. S.** See Fuks, N. A.
**Chevalier, A.** Rubber-contg. creepers of tropical Africa, 5221*e*; pharmaceutic *Strophanthus* species, 5550*i*.
**Chevallier, A.** See Fontaine, R.
——, Burg, C., and Manuel, S. Intervention of β-carotene in the oxidation of lipides in the dark and when exposed to light—influence of chlorophyll pigments on the action of carotene on oxidation of lipides, 2172*i*, 9076*f*; influence of vitamin A on oxidation of lipides, 3857*g*.
——, Manuel, S., and Burg, C. Influence of folliculin on oxidation of lipides, 739*j*; oxidation of lipides in the presence of certain lipide-sol. vitamins and hormones, 4753*a*; relations between the oxidation of unsatd. glycerides and their absorption in the ultraviolet, 9091*g*.
**Chevallier, R.**, Mathieu, S., and Girard, J. Rectifying note on ferrous boroferrite, 4968*f*.
**Chevenard, P.**, and Wache, X. Selective surface oxidation of alloys and the effect of metallic structure on thermal oxidation, 541*f*.
**Chevigny, R.**, and Syre, R. Reversion heat-treatment, 2914*d*.
**Chevillard, L.** See Cailleau, R.; Charonnat, R., Nguyen-Van-Thoai.
**Chew, G. F.** Elastic scattering of high-energy nucleons by deuterons, 933*c*.
—— and Goldberger, M. L. Analysis of nucleon-nucleon scattering expts., 6502*g*.
**Cheymol, J.** Assay of antianemic opotherapeutic exts. (VII) action on blood pressure, 5537*b*, see Carayon-Gentil, A., Hazard, R.
——, Caridroit, F., and Henry, R. Androgens, 7566*f*.
—— and Corteggiani, E. Curare (III) bioassays of natural and synthetic curares, 9378*c*.
—— and Lechat, P. Assay of antianemic opotherapic exts. (V) detn. of histamine in presence of antihistamine agents, (VI) pyrogenic action of certain exts., 1911*f*.
—— and Pfeiffer, A. *Amanita phalloides* poisoning and treatment with cortin, 7131*d*.
—— and Quinquaud, A. Action of ergotamine on the emetic center, 4375*a*.
**Cheyney, L. E.** Plasticizers in the plastics industry, 1211*f*, polyvinylidene chloride-polyvinyl chloride blend, P 2471*c*, rubber-HCl film, P 3227*d*, plasticizers for polar synthetic rubbers, 5986*a*, see Clark, R. A.; Smith, Charles Lea.
**Chi, N.-T.** See Nguyen Thuen-Chi.
**Chia, H.-M.** See Sah, P. P. T.
**Chianca, L.**, and Cicconardi, A. Variations in lipasemia in guinea pigs treated with desoxycorticosterone acetate, 7136*b*, variations in lipasemia in guinea pigs treated with thyroxine and desoxycorticosterone acetate, 7136*c*.
**Chiancone, F. M.** Physiol. role of trimethylamine, 738*f*, relation between pyridoxine and tryptophan in rats on a gelatin diet, 6294*a*.
**Chiang, M.-C.** See Behrens, O. K.
**Chiao, T. S.** See Wang, Y. L.
**Chiara, A.** See Cazzola, D.
**Chiavarelli, S.** See Fusco, R.
**Chibaeff, V.** Plate calcns. in distn. columns without side stream cuts, 4901*i*.
**Chibnall, B.** See Barnes, H.
**Chicago Development Co.** Hardening of Ti, P 1709*c*.
**Chicago Mill and Lumber Co.** Veneer, P 5569*a*.
**Chicago Paint & Varnish Production Club.** Silicone white baking enamels, 3213*e*.
**Chichakow, N. A.** See Shishakov, N. A.
**Chichibabin, A.** See Tchitchibabine, A.
**Chichorro, V.** See Furtado, D.
**Chidester, G. H.** See McGovern, J. N.
**Chieffi, M.** See Kirk, E., Kountz, W. B.
—— and Kirk, E. Vitamin studies in middle-aged and old individuals (II) correlation between vitamin A plasma content and certain clinical and lab. findings, 5458*c*.
**Chiego, B.** Gum-contg. seeds for dehusking, P 8718*h*.
**Chien, J.-Y.** Kinetic analysis of irreversible consecutive reactions, 3275*f*.
**Chigasaki Manufg. Co.** Urea contg. fertilizer, P 5524*d*
**Chighizola, R.** See Mouriquand, G.
**Chih, C. M.** See Sroog, C. E.
**Chihara, H.**, and Seki, S. Vol. change of hexamethylbenzene, 3678*h*.
**Chikhere.** See Shikher.
**Chikurov, I. F.**, and Mul'gina, V. M. Briquets for grog firing in shaft kilns, 8113*d*.
**Chilcote, M. E.** See Ellenberger, H. A.
——, Guerrant, N. B., and Ellenberger, H. A. Stability of vitamin A acetate under lab. conditions, 9138*f*.
**Child, C. M.** Patterns of indicator oxidation in *Tsturus* development, 3530*f*.
**Child, F. C.** See Pearson, T. F.
**Child, I. H.** Cellulose acetate tubing for insulation, 8751*c*.
**Childers, N. F.** See Loustalot, A. J.
——, Seguinot Robles, P., and Loustalot, A. J. Bay-oil production in Puerto Rico, 4427*d*.
**Childs, A. F.**, Goldsworthy, L. J., Harding, G. F., King, F. E., Nineham, A. W., Norris, W. L., Plant, S. G. P., Selton, B., and Tompsett, A. L. L. Amines contg. 2-haloethyl groups, 2927*a*.
——, Goldsworthy, L. J., Harding, G. F., Plant, S. G. P., and Weeks, G. A. Prepn. of certain urethans and their conversion into *N*-nitroso derivs.—chloro nitro compds. of the type $CRR'ClCCl(NO_2)R''$, 2945*g*
—— and Plant, S. G. P. Some tri- and tetranitro 4-methyldiphenylamines, 2176*e*.
——, Plant, S. G. P., Tompsett, A. L. L., and Weeks, G. A. Compds. contg. the 3-chloroallyl group, 2927*i*.
**Childs, E. C.**, and George, N. C. Soil geometry and soil-water equilibria, 1889*c*.
**Childs, J. F. L.** Maintaining viability of citrus seed in storage, 1515*i*.
**Childs, W. C.** See Bell, N. M.
**Chiloff, E. A.** See Shilov, E. A.
**Chilquist, V.**, Gilmour, R., and Jannke, P. Volatile oil of *Pycnanthemum pilosum*, 8617*g*.
**Chilson, W. H.**, Martin, W. H., and Parrish, D. B. Relation of ascorbic acid to the development of oxidized flavor in market milk, 4781*h*.
**Chilton, C. H.** Organizing a working technical literature file, 915*i*.
**Chilton, E. G.** Large deformations of an elastic solid, 1208*h*.
**Chilton, L. V.** Photography in the study of atoms, 8922*c*.
——, Kendall, J. D., and Phillips, H. Photographic materials, P 3735*i*.
**Chimie Agricole S. A.** Insecticidal powder, P 5899*f*.
**"Chimiotechnic" Union chimique du Nord et du Rhône, Soc. anon.** Synthetic soap, P 2001*a*.
**Chin, H.** See Sakuma, I.
**Chin, H.-C.** See Sah, P. P. T.
**Chin, Y.-C.**, Anderson, H. H., Alderton, G., and Lewis, J. C. Antituberculous activity and toxicity of lupulon, 3522*c*.
**Chinard, F. P.**, and Newell, D. A. Use of the hypobromite reaction for the estn. of ammonia plus urea N in urines, contg. large amts. of protein, reaction of alk. hypobromite with proteins, 4319*g*, interactions of quaternary ammonium compds. and proteins—estn. of urinary protein concns. with alkyldimethylbenzyl-ammonium compds., 5071*a*.
**Ching, K.-K.** Plasma proteins and liver disturbance, 9228*h*.
**Chino, W.** See Takaoka, M.
**Chinoin Fabrik Chemisch-Pharmaceutischer Produkte A.-G. (Keresztу & Wolf).** See Chinoin Gyogyszer es Vegyészeti Termékek Gyára R. T. (Dr. Keresztу és Dr. Wolf).
**Chinoin Gyogyszer es Vegyészeti Termékek Gyára R. T. (Dr. Keresztу és Dr. Wolf).** (*Patents*) Vitamin $B_1$, 364*g*, disubstituted tetrazoles, 2239*c*, 2 methyl-3 halo-1,5 dihydrofurans and vitamin $B_1$ therefrom, 3573*b*, ammothiazole derivs., 3851*i*, 3852*e*, 6669*h*, anticoccoid compds., 3978*e*, sulfonamide derivs., 3979*d*, mono ethers (and derivs.) of bis(hydroxy phenyl)hexane and hexene, 3979*g*; unsatd. derivs. from 2 methyl-2-hydroxy 3 halotetrahydrofurans, 9085*h*, sterol decompn. products contg. ketone groups, 9389*d*.
—— and Foldi, Z. Steroid alc. derivs., P 3980*d*, steroid thio ketone derivs., P 3980*h*, sterol decompn. products, P 9389*c*.
**Chinoy, J. J.** C assimilation in the production of dry matter of plants, 1081*c*, detn. of starch in leaves and woody tissues of plants, 1688*i*.
**Chiodi, H.** Influence of Pb on blood bilirubin and erythrocyte resistance, 4770*g*, see Sacerdote de Lustig, E.
**Chiodi, V.** Histological research on the effect of a cofactor (EtOH) in intoxication with phenylcinchoninic acid, 2318*i*.
**Chiorboli, P.** See Rolla, M.
**Chiozzotto, M.** See Ageno, M.
**Chipault, J. R.** See Lundberg, W. O.
**Chipman, John.** Activities in liquid metallic solns., 4930*h*; steel deoxidation, 7397*a*; what is metallurgy? 9001*d*; see Dast, M. N.; Hatch, G. G.
—— and Chang, L.-C. Ionic nature of

metallurgical slags—simple oxide systems, 2550*c*.
**Chipman, June.** See Geyer, R. P.
**Chipman, W. A., Jr.** Physiol. effects of sulfate pulp mill wastes on shellfish, 1118*a*.
**Chiriaco, G. V.** See Corgan, J. A.
**Chirico, M.** Hyperplastic changes due to Kieselguhr assocd. with 3,4-benzopyrene, 5111*g*.
**Chirkov, N. M.** See Fok, N. V.
—— and Entelis, S. G. Differences in the formal kinetics of the high-temp. and the low-temp. oxidation of ethane (I) kinetics of the reaction of slow oxidation of ethane at temps. below 400°, 473*h*.
—— and Vereshchinskii, I. V. Ionic mechanism of the heterogeneous catalysis in the region of unimol. adsorption—depolymerization of paraldehyde in the gas phase under the action of acids, 7801*e*.
**Chirkov, S. K.** Detg. Ni and Cu in ores, 4178*f*, detn. of chlorides in dil. solns., 5337*h*.
**Chirkova, L. A.** See Epshtein, D. A
**Chirkovskaya, E. V.** See Chenykaeva, E. Yu.
**Chiro, G. di.** See Di Chiro, G.
**Chirvinskii, P. N.** See Gerasimov, N. P.
**Chisholm, D. S.,** and Griswold, T., Jr. Vacuum still for metal sepn., P 2567*e*.
**Chisholm, G. G.** Centrifugal ore concentrator, P 7402*b*.
**Chisholm, H. E.** Weighted needles for detg. the setting time of Mg oxychloride cements, 831*e*.
**Chisholm, M. J.** See Hopkins, C. Y.
**Chisholm, R. D.,** and Mason, A. C. Ethylene dibromide chlordan dip for treating plant balls infested with various stages of the Japanese beetle, 2362*a*.
——, Nelson, R. H., and Fleck, E. E. Toxicity of DDT deposits as influenced by sunlight, 5895*e*.
**Chistoni, A.,** and Scarinci, V. Blocking of metamorphosis of tadpoles of *Rana temporaria* by 4-methyl-2-thouracil, 9269*b*.
**Chistyakov, M. P.** See Malchenko, A. L.
**Chitrik, S. I.** See Khitrik, S. I.
**Chittum, J. R.** See Longmo, P. H.
**Chiu, W. F.,** and Walker, J. C. Physiology and pathogenicity of the cucurbit black rot fungus, 7543*b*
**Chizhskii, A. F.** Advances in theory and practice of drying ceramic ware, 7655*a*.
**Chkitine, W. P.** See Shkitin, V. P.
**Chkoniya, E. A.** See Rokhlina, M. L.
**Chlebnikow.** See Khlebnikov.
**Chlopin.** See Khlopin.
**Chlorox Chemical Co.** Detergent compn., P 6138*e*
**Chlossberg, E. M.** See Shlosberg, E. M.
**Chmanenkow, I. W.** See Shmanenkov, I. V.
**Chmielewska, I.,** and Janiszewska-Brożek, S. Vitamin and antivitamin K, 1846*b*.
**Chmutov, K. V.** Sorption phenomena in capillary systems (I), 5256*a*; (II), 6882*d*; Methods of Physicochem. Investigations (book), 5276*g*, see Dubinin, M. M.
—— and Alekseev, N. G. Effect of irradiation by supersonic waves on the adsorption of fatty acids by finely porous C, 7774*f*.
—— and Bromberg, A. V. Lateral diffusion of dyes in the transfer of the image in the hydrotype method of color photography, 8921*d*.
**Choay, A.** Posterior pituitary powder in the treatment of diabetes insipidus, 8520*h*.
**Chobei Takeda Chobei Taketa Store.** Same as Takeda Drug Industries Co.
**Chochieva, M. M.** See Nikitin, N. I.
**Chocoladefabriken Lindt & Sprüngli Akt.-Ges.** Coffee substitute, P 3118*b*.
**Chocolat Tobler A.-G.** Coffee substitute, P 332*c*.
**Chodroff, S.** See Pickel, F. D.
**Choi, R. P.,** Koncus, A. F., O'Malley, C. M., and Fairbanks, B. W. Detn. of color of dry products of milk, 8567*h*.
**Cholak, J.** See Treon, J. F.
—— and Hubbard, D. M. Spectrochem. detn. of Be—increased sensitivity of detection in the cathode layer, 3310*b*.
**Chollet, M. M.** Glucides of *Paulownia imperialis*, holoside and heteroside, 4729*d*; biochem. data concerning some alpine Campanulaceae, 8014*h*.
**Cholodny, N. G.** See Kholodnyĭ, N. G.
**Chomse, G.,** and Heinrich, G. Org. phosphors of inorg. raw materials (IV) luminescence of $P_2O_5$, 4576*f*.
**Choporov, N. P.** Preventing corrosion in petroleum-treating app., P 9431*e*.
**Choporov, Ya. P.** Catalyst regeneration, P 3604*c*; generating cold, P 4908*b*.
**Choppin, A. R.,** and Compere, E. L. Kinetics of the thermal decompn. of isopropyl chlorocarbonate, 6056*i*.
—— and Rogers, J. W. Prepn. of di-*tert*-Bu carbonate and *tert*-Bu chlorocarbonate, 578*h*.
**Chopra, I. C.,** Handa, K. L., and Kapoor, L. D. Seasonal variation in the alkaloidal contents of the leaves of *Atropa accuminata* (I), 9378*d*.
**Chornock, F. W.** See Karr, W. C.; Moseley, V.; Strumia, M. M.
**Chossat, H.,** Relation between recrystd. grain size and mech. properties in high-purity Al—effect of small addns. on grain growth, 5715*e*.
——, Lacombe, P., and Chaudron, G. Recrystn. of high-purity Al, 982*h*.
——, Mouflard, M., Lacombe, P., and Chaudron, G. Influence of traces of impurities and cold-hardening on the variation of the mech. properties of Al in the course of its recrystn., 81*i*.
**Chotkewitsch, W. I.** See Khotkevich, V. I.
**Chou, C.-N.** Cosmic-ray bursts at sea level and under 30 m. of clay, 2085*i*.
**Chou, T. C.** See Blaschko, H.
**Chou, T.-Y.,** and Chen, C.-P. Middle juice carbonation, 9500*e*.
**Chouard, P.** Growth substances and their use, 6704*d*.
**Choucroun, N.** Tubercle bacillus antigens—biol. properties of two substances isolated from paraffin-oil ext. of dead tubercle bacilli, 3509*b*; precipitin reaction which permits the detection in tuberculosis serum and leprosy serum of antibodies pptd. by a polysaccharide of the tubercle bacillus, 8515*h*.
**Choudhury, A. Q. A. U.** Synthesis of fused rings, 3829*g*.
**Choudjakow, G. N.** See Khudyakov, G. N.
**Chouikine, N. J.** See Shulkin, N. I.
**Choura, J.** See Simek, B. G
**Chouteau, J.** See Monnier, A. M.
**Chovnyk, N. G.** Decompn. potentials in fused salts in the presence of glass diaphragms, 8909*g*.
and Klelbs, G. A. Amperometric study of the pptn. of heavy metal ferrocyanides (I) pptn. of Cu ferrocyanide, 8966*f*.
——, Kuz'mina, N. N., Galkina, A. N., and Starik, B. Ya. Detn. of some basic components of electroplating bath electrolytes, 6939*d*.
**Chow, B. F.** Albumin and α-globulin contents of plasma, 6726*h*.
——, Alper, C., and De Biase, S. Effects of oral administration of different protein on the plasma proteins of protein-depleted dogs, 1469*c*; effect of retention of N in casein or lactalbumin hydrolyzates on the regeneration of plasma proteins of protein-depleted dogs, 8023*a*.
—— and Greep, R. O. Growth of hypophysectomized rats injected with growth hormone and fed on different proteins, 1092*i*.
——, Hall, L., Duffy, B. J., and Alper, C. Detn. of the human albumin, globulin, and hemoglobin contents, 2666*c*.
—— and Peticolas, M. A. Detn. of proteolytic activities of enzyme prepns., 2663*g*.
**Chow, C. S.** Phase equil. for a complex mixt.—coal gas—at low temps. and high pressures, 3700*a*.
**Chow, K. L.** See Blum, R. A.
**Chow, Y.-C.** See Yi, C.-L.
**Chow, Y. K.,** and Hellwege, K. H. Structure of electrolytic solns., 8885*a*.
**Chowdhery, M. S.** Activated C, P 5574*e*.
**Chowdhry, N. A.,** and Bonilla, C. F. Soly. of cinchonine and cinchonidine in alc.-water mixts., 8610*e*.
**Chowdhury, J. K.,** Chakraborty, K. M., and Ghosh, J. K. Prepn. of activated C from rice husk (II) activation by carbonizing in various gas atms. and secondary gas activation, 4834*f*.
**Chowdhury, N. K.** See Cooke, N. E.
**Chowdhury, S.** Plant Diseases (book), 8604*d*.
**Chrelashvili, M. N.** See Makarevskaya, E. A.
**Chrencik, F.** See Shearon, W. H.
**Chrétien, A.,** and Hagenmuller, P. Existence of alums in aq. solns.—stability of the complex sulfates, 4172*i*.
—— and Mathis, M. Pyrolysis of $Fe_3N$—lower Fe nitrides, reduction by H, 4169*c*.
—— and Oechesel, G. Mg metal, P 4625*d*.
**Chrétien, M.,** and Miescher, E. Electronic band-systems of diatomic B compds. (BF, BO, and BH), 7817*b*.
**Christ, C. L.** See McLachlan, D., Jr.
——, Champaygne, E. F., Barnes, R. B., and Salzman, C. F., Jr. X-ray diffraction photometer, 2507*h*.
**Christ, R. E.** See Beller, H.
**Christain, D. C.,** and Boyd, P. B., Jr. CO conversion catalysts, 5133*e*.
**Christen, F.,** Prijs, B., and Lehr, H. Condensations of biacetyl with primary aromatic amines in presence of concd. $H_3PO_4$ (I), 4234*e*.
**Christensen, A. C.,** and McIlvaine, R. L. Reclaiming foundry sand, P 1709*a*.
**Christensen, A. L.,** and Sillman, H. F. O-free high-cond. Cu, P 8345*g*.
**Christensen, B. E.** See Clarke, R. A.; Isensee, R. W.; Wang, C. H.
——, Naff, M. B., Cheldelin, V. H., and Wulzen, R. Antistiffness factor, 291*i*.
**Christensen, B. G.,** and Plum, C. M. Endocrine glands in the ripening of reticulocytes, 8032*h*.
**Christensen, B. V.,** and Abdel-Latif, I. A. Borntraeger reaction for anthraquinone drugs, 9366*c*
**Christensen, C. J.,** Rigterink, M. D., and Treptow, A. W. Metallizing compn., P 3587*e*.
**Christensen, C. M.,** Olafson, J. H., and Geddes, W. F. Grain storage (VIII) relation of molds in moist stored cottonseed to increased production of $CO_2$, fatty acids, and heat, 4875*e*.
**Christensen, H.,** and Kleimack, J. J. Metallic-oxide resistor, P 4403*a*.
**Christensen, H. N.** Conjugated amino acids in portal plasma of dogs after protein feeding, 8505*g*
—, Cushing, M. K., and Streicher, J. A. Concn. of amino acids by the excised diaphragm suspended in artificial media (II) inhibition of the concn. of glycine by amino acids and related substances, 9120*d*
——, Decker, D. G., Lynch, E. L., McKenzie, T. M., and Powers, J. H. Conjugated nonprotein amino acids of the plasma (V) significance of peptidemia, 6741*c*.
——, Lynch, E. L., Decker, D. G., and Powers, J. H. Conjugated nonprotein amino acids of the plasma (IV) difference in the utilization of the peptides of hydrolyzates of fibrin and casein, 6741*b*.
—— and Streicher, J. A. Concn. of amino acids by the excised diaphragm suspended in artificial media (I) maintenance and inhibition of the concg. activity, 9120*a*.
**Christensen, J. A.** See Jensen, K. A.
**Christensen, L. K.** Trypsin splitting and denaturation of β-lactoglobulin, 7064*h*.
**Christensen, N.** Metallurgical aspects of welding mild steel, 8342*c*.
**Christensen, W. R.,** and Pearson, O. H. Effect of cytochrome c on the respiration of tissue slices, 7587*d*.
**Christenson, F.** See Tolbert, B. M.
**Christenson, G. L.,** and Shelton, R. S. Acidic germicidal lotion, 3143*h*.
**Christian, H. A.** Bright's Disease (book), 1104*c*.
**Christian, J. E.** See Bingenheimer, L. E., Jr., Duncan, J. B.; Hurley, C. J.; Jarvis, A. E.; Jenkins, G. L.; Thoms, R. K.
—— and Brochmann-Hanssen, E. Radioactive isotopes (II) application of radioactive tracer elements to pharmacy and related fields, 3569*f*.
**Christian, M. B.** See Byers, R. J.
**Christian, R. S.** Analysis of neutron-proton scattering with tensor forces, 6907*i*.
**Christiansen, A.** Activated siliceous materials, P 9300*a*.
**Christiansen, A. M.** See Opatowski, I.
**Christiansen, G. S.,** Kunz, L. J., Bonner, W. D., Jr., and Thimann, K. V. Action of growth inhibitors on carbohydrate metabolism in the pea, 2290*d*.
**Christiansen, H., Jr.** Elec. pig-iron smelting in Norway, 4959*e*.
—— and Ydstie, B. Söderberg electrode system, 4959*e*.
**Christiansen, J. A.** Activation energies and frequency exponents in chem. kinetics, 5266*h*; detg. the mechanism of an enzymic reaction the kinetics of which is known, 7987*h*.
**Christiansen, J. B.** See Cooley, M. L.
**Christiansen, J. E.** See Reitemeier, R. F.
**Christiansen, W. G.,** and Chase, G. O.

Alkylaminoalkyl *p*-alkoxybenzoates as local anesthetics, P 4430*c*.
**Christiansson, B.** Tar formation by pyrolysis of various Swedish peats (II) test with white peat moss, 5926*i*.
**Christie, A. G.** Industrial research, 6333*i*
**Christie, C. F.** Diethyl malonate, P 3031*a*
**Christie, J. C.,** and Stramero, D Mineral position of ECA nations—Germany, Austria, Italy, 73*g*
**Christie, J. H.** Isomer of abietic acid, 2605*b*.
**Christie, L. D., Jr.** See Harter, I
**Christie, R.** Biochem and serological characteristics of *Pseudomonas pyocyanea*, 7080*b*.
**Christien, A. A.** Carbonization of wood, P 4838*a*.
**Christillin, G. A.** Treatment of Au sands, P 7891*c*.
**Christin, R. E.** See Schier, S. L.
**Christman, A. A.** See Chu, A. Y.-H.
**Christman, J. F.** See Lichstein, H. C.
**Christoff, S. G.** See Khristov, S. G.
**Christophe, J.** See Kling, R
**Christopher, E. P.** See Dolan, D D.
**Christopher, G. L. M.** See Dixon, J. K.
**Christopher, H.** See Goodson, L. H.
**Christy, R. F.** See Lauritsen, T.; O'Reilly, J.
**Chrome Chemicals (Aust.) Pty. Ltd.** Chromates of alkali metals, P 3984*a*.
**Chromogen, Inc.** Aldehydes, P 6225*f*.
**Chrysler, L. H.** See Otting, H. E.
**Chrysler Corp.** Roughening metallic surfaces, P 103*a*.
**Chtchegolov.** See Shchegolov.
**Chtcherbakov.** See Shcherbakov
**Chtcherbina, W.** See Shcherbina, V V.
**Chtchoukin.** See Shchukin
**Chu, A. Y.-H.,** Christman, A A., and Lewis, H. B. Alk. phosphatase of the serum in lathyrism, 2306*b*.
**Chu, C. M.** Inactivation of hemagglutination and infectivity of influenza and Newcastle disease viruses by heat and by formalin, 1856*e*, see Elford, W. J., Tai, A.-P.
**Chu, F.-T.** See Chen, W.-M.
**Chu, H. P.** See McGaughey, C A.
**Chu, J. C.,** Dmytryszyn, M., Moder, J J., and Overbeck, R. L Latent heat of vaporization, 3276*b*.
**Chu, J. C.-H.** Influence of excess ions on the adsorption of dye ions on crystd AgBr and $PbSO_4$—soly. and elec. cond. of some Li salts in $Et_2O$, 8790*h*.
**Chu, K. Y.,** and Wiedenbeck, M. L. Radiations from $Hf^{181}$, 4124*b*.
**Chu, T.-K.** See Kummerow, F A.
**Chu, Y.-C.** See Besson, J.
**Chuachiaco, M.** See Co Tui, F. W
**Chuang, W.-P.** See Libsch, J F
**Chubb, M. F.** Coating fused litharge particles with red lead, P 826*e*
**Chubb, R. L.** See Cummings, J. M.
**Chubbuck, J. B.,** and Perlman, I Neutron-deficient isotopes of Ce and La, 486*e*.
**Chudakov, M. I.** Prepn. of natural lignin from destructively decompd wood pulp, 2767*h*, 7225*g*.
**Chudiakow, G. N.** See Khudyakov, G. N.
**Chudoba, K. F.,** and Lange, H. Recrystn. expts. on metamict gadolinite, samarskite, and euxenite, 8983*i*.
**Chudzyński, S.** Purification of lactic acid, 9032*h*.
**Chufarov, G. I.** See Averbukh, B. D; Nosyreva, S. S.; Sharova, A. K.
——— and Averbukh, B D. Oxidation of Fe sulfide by O, 7854*g*.
**Chugunov, I. G.** Cold defecation, 6847*i*.
**Chugunova, V. I.** See Ivanova, A. P.
——— and Ivanova, A. P. Detn. of MgO in powd. Mg, 4182*d*.
**Chulko, V. T.** Detn. of traces of Ni (I), 7371*b*.
**Chukhanov, Z. F.** Nonisothermal combustion of C tubes, 2495*a*, 6896*a*.
**Chukhrov, F. V.** Bi in the ores of Akchatan, 2901*b*.
**Chukina, A. V.** Occupational dermatitis in thiodiphenylamine production, 6761*a*.
**Chulkov, P. S.** Antisulfonamide action of ascarides, 8538*a*.
**Chulkov, V. N.** See Tronev, V. G.
**Chulski, T.** See Leininger, E
**Chumakov, A. A.,** Morozov, A I., and Ginzburg, I. V. Vesuvianite from Western Keiba, Kola Peninsula, 3749*d*.
**Chung, L.** Impregnating and decorating clay or plaster of Paris, P 6389*e*.
**Chung, P. K.** See Hartough, H. D.
**Chuprakova, N. P.,** and Sadovskiĭ, V. D. Effect of nonuniformity of an ingot on the kinetics of austenite decompn , 538*b*
**Chuprin, K. K.** Deoxidation of steel by diffusion, 88*i*.
**Chuprinko, E. S.,** and Gavrish, D I. Multigrog ladle brick, 5560*f*
**Churbakov, A. N.** Hydrolysis of 1,2,3 trichlorobutane in the presence of $K_2CO_3$ under pressure, 6567*h*
**Church, F.** See Princi, F
**Church, H.** Mg refining, P 1708*i*.
**Church, H. F.,** and Garton, C G Elec. breakdown of org. insulators by electrochem. reactions, 7837*c*
——— and Scott, J. R. Ebonite (XXXVI) silica as a loading material, 4044*b*
**Church, J. S.** See Kehl, G. L.
**Church, J. W.** Plastic polystyrene, P 3235*a*, see Corkery, F W
**Church, M. G.** Thermoplastic synthetic resins, 4788*f*
**Churchill, B. C.** See Grigsby, B. H.
**Churchill, H. V.** Nonferrous metallurgy [review of analytical chemistry], 2888*i*
**Churchill, J. F.** See Ulmer, R C
**Churchill, W. E.** Plant operation in relation to utilization, 3171*e*
**Churchman, A. T.** See Cottrell, A H
**Churchward, P. E.** Cathode treatment to facilitate removal of electrolytic Mn, P 8918*c*
**Churchward, R. E.,** and Shelton, F. K Co soln purification, P 8107*f*
**Churina, N.** Detn of casein in milk, 7598*h*.
**Churý, J.,** Kučerová, V., and Vrzalová, S. Antibiotic effect of phenol on *Saccharomyces ellipsoideus* from the viewpoint of target theory, 9152*e*.
———, Němcová, A , and Novák, I . Effect of $NH_3$ on the spores of *Rhizopus nigricans*, 7999*d*
——— and Slouka, V. Effects of Br on mitosis in root-tips of *Allium cepa*, 3068*i*, 8449*e*
**Chute, N. E.** See Quinn, A.
**Chute, R.** See Woolley, G W.
**Chute, W. J.** See Wright, G. F
———, Downing, D C , McKay, A F , Myers, G S , and Wright, G F Nitrolysis of hexamethylenetetramine (I) significance of 1,5-endomethylene-3,7-dinitro-1,3,5,7-tetrazacyclooctane, 8354*c*
———, McKay, A. F., Meen, R. H , Myers, G. S., and Wright, G F Nitrolysis of hexamethylenetetramine (V) 1,7-dinitroxy-2,4,6-trinitro-2,4,6-triazaheptane and related compds., 9074*d*.
——— and Wright, G. F. Liquid-liquid extn at superatm. pressures, 2474*e*
**Chuvilov, I. V.** See Gorbunov, A N.
**Chuyko, V.** See Chuĭko, V T.
**Chvostikov, I.** See Khvostikov, I. A
**Chwala, A.** Ethers of *N*-methylol acid amides, 569*e*; development of soaplike agents for textiles, 8710*b*.
**Chwala, C.** See Wessely, F.
**Chwalibóg, H.** $H_2SO_4$ manuf., 9393*a*, calcn of the mean velocity of circulation in evaporators, 1616*h*.
**Chwiliwitzki, R. Ya.** See Khvilivitskiĭ, R. Ya
**Chynoweth, A. G.** Removal of space-charge in diamond crystal counters, 8264*a*.
**Cianetti, E.** Nitrocellulose adhesive varnishes, 4492*b*; estn of dimethylacetal, 4603*g*; behavior of bitumens, 5178*d*.
**Cianmon, L.** Fluxes, P 1310*a*.
**Ciapetta, F. G.,** Macuga, S J., and Leum, L. N. Depolymerization of butylene polymers—analysis of isomeric octenes, 1311*a*; depolymerization of butylene polymers, 1713*d*.
**Ciaranfi, E.** Action of cysteine and other thio derivs. on respiration of *Escherichia coli commune*, 5078*b*.
**C I B A Ltd.** (formerly Société pour l'industrie chimique à Bâle). (*Patents.*)
acetamidines and imidazolines, 6240*b*.
adhesive, 5642*i*.
adhesive diluent, 5643*a*.
alkali cellulose, 4852*hi*.
alkyd modified melamine-formaldehyde resin, 440*d*.
amide derivs , 1434*d*, 4500*b*, 5217*c*, 5218*ab*, 5978*dfh*, 7242*d*, 7728*bc*, 8712*efg*, 9496*e*.
amides (basic), 2227*g*, 2636*d*
amidines (therapeutically active), 2738*h*, 4430*a*.
amine mixt., 8180*i*.
amines (monoaryl tertiary), 682*h*.
aminoalkyl ester salts, 6652*b*.
aminoester salts, 4878*g*.
1-amino-4-sulfo-2-benzenecarboxylic acid, 3039*b*.
amino sulfonic acid deriv., 4300*d*.
aminotriazine-aldehyde condensation products, esters of, 4050*b*.
aminotriazine-aldehyde reaction products, 2448*b*, 4050*d*, 4499*a*, 8743*c*.
androstene and androstane monoesters, 1915*h*.
$\Delta^{4,5}$-androsten-17-ol-3-one, 3572*e*.
2-(anilinomethyl)imidazoline hydrochloride, 4303*a*
anthraquinone deriv., 4020*g*, 7376*c*.
aromatic condensation product, 1588*c*.
aromatic oxy-compd deriv., 8713*c*.
benzimidazole deriv , 886*d*, 1990*i*, 5426*h*, 5807*i*.
1-(2-biphenylyl)-3-methyl-5-pyrazolone and its sulfonic acid deriv , 2238*f*
4,4′-bis(β-glucosido)-α,α′-diethylstilbene, 3039*h*
caprylyl caproyl deriv , 4878*f*.
caprylyl capryl deriv , 4878*e*
carbonyl sterols, 7978*e*
carboxylic acid chloride mixts., 2223*g*
carboxylic acid esters of aromatic sulfodicarboxylic acids, 6236*g*.
cardioactive glucoside, 823*d*
casein, purification of tech. acid, 4791*e*
chloramidines, 5414*b*
2-(chloromethyl)imidazoline, 3042*d*.
chloromethyl laurate and thiourea condensation product, 2226*i*.
*p*-chlorophenyl dichlorovinyl ether, 7966*a*
*N*-(3-chloropropyl) amines, 666*i*
chloropropylimidazoline, 7050*b*.
$\Delta^{4,5}$-cholestenon 3-one, 366*f*
cleansing agent, 5977*i*, 7726*a*, 8714*b*, 9198*i*
coloring substances sol in hydrocarbons, 7712*e*
condensation products, 441*d*, 885*h*, 886*b*, 6439*j*, 6440*b*, 7238*c*, 7726*i*.
cyanamide type polymerization products, 2469*g*
cyclohexanecarboxylic acid chloride, 3033*d*.
6-dehydroprogesterone, 7056*b*
dentifrice, 6794*a*
desoxycorticosterone palmitate, 2648*f*
desoxycorticosterone propionate, 1916*f*
diacyl compds., 5216*i*.
diaminodiphenylsulfone 7960*e*
1,2-di-2-benzimidazolylethylene, 4303*c*, 5217*a*, 6241*a*
2,5-di-2-benzimidazolylfuran, 5426*e*
dicaprylyl deriv , 4878*d*.
α-dicarbonyl compd of the polyhydrocyclopentaphenanthrene series, 2377*a*.
dicarboxylic acids semiesters, 7241*g*
α,δ-dichloroadipyl chloride, 7957*e*
2-(3,4-dichlorophenyl)-1,1,1,2-tetrachloroethane, 7959*i*
α,β-dichlorosebacyl chloride, 7957*f*
dichlorovinyl ethers, 7045*f*
2-diethylaminoethyl α-phenylcyclohexaneacetate and amide, 3453*e*.
1,2-diethyl-1,2-bis(*p*-hydroxyphenyl)-ethane bis(primary phosphate), 2236*e*
1,2-diethyl-1,2-bis-(*p*-hydroxyphenyl)-ethane diacetate, 2236*d*
diethylstilbestrol ester, 3979*c*, 7048*b*.
*N*,*N*-diethyl-4-thiazolecarboxyamide, 7049*d*
3,21-dihydroxy-$\Delta^{5,6,20,22}$-norcholadienic acid lactone, 5810*h*.
3,17a-diketo-$\Delta^{4}$-*D*-homoandrostene, 7055*f*
20,21-diketo-$\Delta^{5}$-pregnene-3-ol, 1916*b*.
dinitro monoazo compd., 9462*e*.
20,21-dioxo-$\Delta^{4}$-pregnen-3-ol, 1916*h*.
diphenyl(3-dialkylaminopropyl)carbinol, 5423*h*.
disinfectants, 5910*e*, 9392*cd*.
dyeing glass fibers, 4440*g*.
dyeing polyamide, 6428*a*.
dye intermediates, 7699*f*, 8692*a*.
dye (merocyanine), 1988*d*.
dyes (anthraquinone), 863*c*, 1986*f* 4483*bghi*, 6424*f*.
dyes (anthrimide carbazole), 7704*g*, 7705*a*, 8171*b*, 9468*g*.
dyes (azo), 857*e*, 1987*c*, 2440*ab*, 3624*h*, 4019*efh*, 4020*b*, 4471*fgh*, 4472*adi* 4473*d*, 4474*acd*, 4475*abc*, 4478*i*, 4479*i* 4480*bh*, 4864*ab*, 4865*c*, 4866*g*, 5194*adfg* 5195*g*, 5597*beg*, 5958*g*, 5959*c*, 5960*b*, 5963*e*, 7235*bcdf*, 7695*c*, 7696*ac*, 7697*bcdefgi*, 7699*e*, 7703*a*, 8145*fg* 8146*bc*, 8161*k*, 8689*cf*, 9458*fgh*, 9459*bd*, 9464*f*.

dyes (azo), acid esters of, 8153*b*.
dyes (azo benzidine), 8148*e*.
dyes (azo), esterlike derivs. of, 8153*e*
dyes (chrome azo), 4482*f*, 4805*hi*, 5598*a*, 8155*f*.
dyes (diazotized) coupling reactions with, 6424*g*.
dyes (dioxazine), 5965*d*, 7236*c*.
dyes (disazo), 4476*abc*, 4864*b*, 4806*b*, 5598*ef*, 5961*c*, 5962*h*, 7699*i*, 7700*fgi*, 7701*ac*, 8155*i*, 8157*a*, 8158*i*, 8690*c*, 9462*g*.
dyes for cotton and rayon, 2784*c*.
dyes (indigoid), 7706*g*, 9470*d*.
dyes (metallizable azo), 5198*e*, 5959*i*, 6425*b*, 6832*fg*, 7698*a*.
dyes (metallizable formazyl), 5198*h*,
dyes (methine), 5600*i*, 8691*c*
dyes (stilbene), 4486*ei*, 9466*a*
dyes (tetrakisazo), 2781*c*, 5963*a*, 6425*b*
dyes (triazine azo), 7699*a*.
dyes (trisazo), 4476*g*, 4477*aef*, 4866*c*, 5195*e*, 5599*abd*, 5962*i*, 7702*c*, 8159*dg*, 8160*h*.
dyes (trisazo and polyazo), 9464*a*
dyes (urea-type), 5962*f*, 9459*e*
dyes (vat), 862*h*, 4484*h*, 4867*i*, 5601*cdf*, 5966*ceg*, 5967*a*, 6426*i*, 6427*de*, 7705*g*, 7706*d*, 7707*h*, 8170*be*, 8691*ef*, 9470*i*
emulsion cements, 8744*e*.
emulsions of thermosetting plastics, 6000*e*
esters (basic), 679*h*, 2234*g*
estradiol phosphoric ester, 7056*f*, 7969*a*
estrogenic compds., 823*f*, 1915*g*, 3464*b*, 7048*c*.
ethyl diphenyl(2-diethylaminoethoxy)acetate, 3462*c*
2,2′-ethylenebis(1-benzylbenzimidazole), 4487*i*
17-ethynyltestosterone, 3476*e*, 7056*i*
etiocholanic acids, 2243*d*
etiocholanic acid series compds., 3046*gh*
fiber finishing material, 9498*i*
filaments, films, etc., 9474*d*.
fluorescent dyes, 8173*i*.
foam suppresser, 7610*c*
fungicide, cuprioxychloride as, 9355*e*
β-glucosido derivs., 7047*h*.
glue compn. contg. vetch seed meal, 908*g*.
half ester, 8712*i*
half-esters of unsatd. dicarboxylic acids, 4500*e*
*D*-homoandrostanedione, 7055*b*
hydration of acetylenic bond, 7054*e*
hydrazine derivs., 9497*g*
hydroxyalkylamidine reactive esters, 5048*e*.
hydroxy diketo sterol, 7058*a*.
7-hydroxy-1-ethyl-2-methyl-2-carboxy-1,2,3,4-tetrahydrophenanthrene, 2642*a*.
hydroxyhydrophenanthrenecarboxylic acid derivs., 7969*fh*.
hydroxyhydrophenanthrene derivs., 5047*f*, 6667*c*, 7048*g*, 7969*f*
3-hydroxy-21(hydroxymethylene)choladienic lactone, 7054*e*
hydroxynorcholenic lactones, 6246*i*.
17-hydroxyprogesterone, 3476*a*, 6248*b*
hydroxystilbene esters, 2641*d*
imidazolines, 692*c*, 3979*a*, 5048*g*, 5049*c*, 6240*fi*.
insecticides, 5529*e*, 7633*a*, 8604*e*.
insulation (porous), 4518*a*
ketoetiocholenic acid, 1070*a*, 2244*i*
3-keto-17*a*-hydroxy-*D*-homoandrostane, 7055*ce*.
ketohydroxy-*D*-homoandrostene, 7978*a*.
ketones of the cyclopentaphenanthrene series, 365*h*, 821*c*, 824*e*.
lacquer (phenol oxide resin), 2448*c*
lactone of the polyhydrocyclopentaphenanthrene series, 7976*cdh*.
leather, aftertreatment of semichrome, 2008*f*.
leather (artificial), 7268*b*.
leather finishing, 8722*e*.
lubricant, 844*h*.
medicinal carrier, 2375*c*.
melamine purification, 7975*c*.
mercurimercaptoammonium salts, 667*h*.
mercury compd., 9355*h*.
(*p*-methoxyphenyl)(3-diethylaminopropyl)carbinol, 5043*b*.
mold culture for antibacterial substances, 4727*h*.
nitrogen-contg. condensation product, 1577*b*, 7711*d*.
norcholadienic acid lactone, 7053*h*, 7054*a*.
norcholenic acid lactone, 7975*d*, 7976*a*.
optical bleach, 5604*d*, 6429*h*.
organic base, 5199*a*.
organism control, 9356*e*.
oxalic acid ester, 1988*h*, 2634*g*.
oxidation product of the polyhydrodimethylcyclopentaphenanthrene series, 4432*g*.
oxy-ketone of the androstane series, 4432*e*.
paint, varnish, and lacquer remover, 6340*f*.
penicillin, 7648*g*.
(*sym*-pentachloroisopropyl)-*p*-chlorobenzene, 6231*b*.
pest control, 7188*c*, 9359*b*.
(phenoxyethyl)ammonium compds., 1158*c*.
α-phenylcyclohexane acetic ester, 3453*d*, 7040*i*.
phenylcyclohexylacetic acid, 2636*d*.
phenylcyclohexylacetic esters, 679*f*.
phenylsulfonamide, 7962*g*.
(phenylsulfonyl)guanidine, 5802*c*, 7965*e*.
pickling metals, 2567*c*.
pigments, improving color properties of, 7712*f*.
1-piperidyl alcs., 6241*c*.
piperidyl ketones, 2240*e*.
plant protective spray contg. colloidal Cu oxychloride, 5528*e*
plastics contg. HCHO, aminotriazines, and phenolic homologs, 6000*b*.
polyglycol ester, 7726*i*.
*N*-polyhydroxyalkylamine derivs., 4206*d*, 4469*c*.
pregnane aldehyde deriv., 3476*d*
$\Delta^{4,5}$-pregnene-17(α),20-diol-3-on-21-al, 7055*h*.
$\Delta^5$ pregnene-3,17(α)-diol-20-one, 5052*d*.
$\Delta^{4,5}$-pregnene-3,20-dione, 700*b*, 1916*c*.
$\Delta^{5,6}$ pregnene-3,17,20,21-tetrol, 3476*c*.
$\Delta^5$-pregnen-3-ol-20-one, 2376*g*.
$\Delta^4$-pregnen-20-one, 7056*a*.
printing inks, 1580*c*, 7239*e*.
progesterone, 823*g*, 1916*f*, 2376*e*, 4706*e*, 5812*i*, 7649*c*.
quaternary N compds., 5979*b*.
quaternary pyridinium salt, 5049*i*.
quinolylaminobutyramidine, 7051*c*.
resins, 4050*b*.
rust removal from metals, 6149*c*, 7405*c*.
saccharide derivs., 2243*c*, 5428*a*.
shoes, stiffening caps for, 3211*i*.
sodium sulfonamide salt, 6233*d*.
splitting of fats and oils, 2793*h*.
stearic acid polyglycol esters, 6652*f*.
steroidal dihydroxy ketone, 6246*f*, 7978*gh*.
steroid glucoside, 5811*c*.
*N*-substituted 3-hydroxy-2-naphthamide, 4701*c*
sulfamethylthiazole, 2638*e*, 3036*d*
sulfamic acid deriv., 7726*e*.
sulfamide mixt., 2784*i*.
sulfanilamide derivs., 4297*d*, 6233*g*, 7508*d*.
sulfanilamidopyrimidine, 7965*f*.
sulfanilamidothiazoles, 2644*g*, 3458*d*, 7044*d*.
sulfanilylguanidine, 7043*a*, 7965*c*.
sulfathiazole condensation product, 6234*i*, 8401*a*
sulfochloroacetic acid, 2632*e*.
sulfonamide deriv., 2795*g*, 3034*h*, 3220*i*, 3457*e*, 4878*a*.
sulfonated ether, 7969*bc*.
sulfones, 7042*a*.
sulfonimidothiazoline, 6662*c*.
sulfoniminothiazoline, 6662*d*.
4-sulfophthalic acid ester, 4878*b*, 5423*d*.
sulfur dioxide, 5556*f*, 5913*a*.
surface-active agents, 2452*ghi*, 2795*i*, 2796*a*, 3221*b*, 3222*c*, 3639*a*, 4498*fh*, 4499*e*, 5216*i*, 7729*d*, 9496*f*.
testosterone acetate, 2377*b*.
testosterone propionate, 824*d*, 7978*c*.
tetracyclic compd., 5810*g*.
tetracyclic ketone, 5428*c*.
tetrahaloethane derivs., 8399*f*.
textile assistants, 2796*ie*, 4500*d*, 5218*c*, 8694*d*, 9497*c*.
textiles (anticreasing), 4869*d*.
textiles, decreasing slip of, 855*g*.
α,β-unsatd. aldehydes, 6674*e*.
unsatd. steroid ketone, 2378*a*.
urea derivs., 4487*g*, 6227*f*, 7727*g*.
varnishes, 1580*d*.
vinylchloroacetylene, 6645*b*.
vinylchloroacetylene series compds., 4284*f*.
17-vinyltestosterone, 5810*f*.
viscose spinning process, 9446*f*.
washfastness agents, 5604*e*.
water repellent, 7237*b*.

**CIBA Ltd.** and Groves, W. W. Vat dyes, P 8170*d*.

—— and Roll, L. v., A.-G. für kommunale Anlagen Evapn. and distn. process, P 5648*h*.

**Ciba Pharmaceutical Products, Inc.** (*Patents.*) Imidazolines, 692*d*, 2-(aminomethyl)indenes, 1440*g*; 2-substituted furan 3,4-urethans, 1441*g*, degradation of the steroid side chain, 3474*g*, 1,2-dialkyl-7-hydroxy-1,2,3,4-tetrahydro-2-phenanthrenecarboxylic acids and their esters, 3848*f*; 2,2′ (4,4′-biphenylene)di 2-imidazolines, 3852*h*; aminobenzenesulfonamines, 4695*e*; sepn. of racemic isomers of natural 7-methylbisdehydrodoisynolic acid, 5805*a*; org. thiomercury compds., 6648*b*; org. Hg compds contg. S and N, 6648*i*.

**Ciba Products Corp.** Aminotriazine-aldehyde condensation products with linolenic acid monoglyceride, P 441*i*; aldehyde condensation products of aminotriazines, P 2471*d*.

**Ciborowski, J.** Dimensional analysis in chem. engineering, 8215*f*; fluidization process, 8656*f*

**Cicardo, V. H.** Shock-producing toxic substances obtained from muscles, 3510*b*; liberation of histamine by tissues during shock due to transfusion of incompatible blood, 3510*e*

—— and Stoppani, A. O. M. Presence of histamine in central nervous-system exts., 6713*g*.

**Cicconardi, A.** See Chianca, L.; Lorusso, G.

—— and Lorusso, G. Influence of adrenal hormones in benzene poisoning, 765*a*; potassemia and chloremia in benzene poisoning treated with adrenaline, 2816*e*.

**Ciccone, A.** Absorption spectrum in primary ultrared of benzyl alc. in $CCl_4$, 4573*h*.

**Cichos, T.** Gasification as method of utilizing coal wastes obtained in the prepn. of coal in washers, 1945*h*, coal-gas purification in plate and bell jar washers, 1945*i*.

**Cier, J. F.** See Hermann, H

**Cifelli, T., Jr.** Depilatories, 5533*g*.

**Ciferri, F.** See Ciferri, R.

—— —— and Arnulfo, M. Effect of the photosensitivity of coumarin in light and darkness on the germination of some seeds, 8010*c*

**Ciferri, R.** See Bertossi, F.; Borzini, G.

——, Baldacci, E., and Borzini, G. Biol. interaction between Hg derivs. and cysteine, 9335*h*.

——, Borzini, G., and Bertossi, F. Influence of DDT and of hexachlorocyclohexane on alc. fermentation and the germination of fungus conidia, 8089*g*.

—— and Ciferri, F. Effect of some methylcoumarins on the multiplication test of *Lemna* fronds, 8010*e*; action of selenates, selenites and Se salts with cysteine on lupine in Macht's test, 8452*a*.

—— and Scaramuzzi, G. Metabolism of soil microorganisms and the solubilization of $Cu_2O$, 7542*a*; insecticidal power of thiourea derivs. on larvae and adults of various strains of *Drosophila melanogaster*, 8089*a*.

**Cilag Aktiengesellschaft.** Same as Cilag Ltd

**Cilag, chemisches industrielles Laboratorium A.-G.** Name changed to Cilag Ltd

**Cilag Ltd.** (*Patents.*) 4-(Acetylsulfanilamido)pyridine, 364*i*; *p*-aminobenzenesulfamide derivs., 1437*i*; *p*-aminobenzene sulfonamide derivs., 3035*b*; 2-(*p*-aminobenzenesulfonamido)pyrimidine, 7963*k*; (*p*-aminophenylsulfonyl)thiourea, 3034*f*; aminopyridine, 7972*h*, 4-aminopyridine deriv., 304*g*; baking powder, 6757*f*; Ca salts of *p*-aminobenzenesulfonamides, 3458*b*; 2-carboxy-6-aminopyridine, 3471*d*; citrazinic acid derivs., 3571*i*; contrast material for röntgenographic representation of organs in human beings and animals, 4819*b*; diamino pyridine injectable soln., 7647*b*; 1-(hydroxymethyl)-2(1*H*)-pyridone, 7973*e*; 2-(4-morpholinyl)ethyl nicotinate, 5809*d*; 2-(4-morpholinyl)ethyl 3-pyridinecarboxylate, 7973*b*, nicotinamides, 8620*e*; nitrilotriacetic acid, 6224*g*; plastic masses, foils, and filaments, 5229*g*; substituted aceto-morpholide, 7974*d*; sulfamethazine deriv. for injection, 4817*e*; sulfanilamide deriv. for injection, 4817*b*; sulfanilamides, 3035*d*; sulfanilamide derivs., 3457*c*, 7962*e*; sulfanilamidophenylthiourea, 7042*f*; sulfanilamidopyrimidine, 7042*i*, 7964*a*; 2-sulfanilyl-4,6-dimethylpyrimidine, 7963*g*; 2-sulfanilylimino hydantoin, 6234*e*; sulfonamide derivs., 7961*f*, 7965*a*; sulfonamide salt, 7043*b*, 7960*d*, 7965*b*; sulfonamido

sulfone, 7963*e*; sulfone deriv., 7042*b*; triazine deriv., 7974*h*; 1,1,1-trichloroethane deriv., 7968*g*; 2,4,6-trimethyl-3-pyridyl methyl ketone, 7973*d*.
**Cilag Soc. anon.** Same as Cilag Ltd.
**Cilander Aktiengesellschaft.** See Aktiengesellschaft Cilander.
**Cilento, G.** Structure of aromatic aldehyde semicarbazones, 4574*e*; see Dobriner, K.
——, Ramsay, D. A., and Jones, R. N. Infrared spectrum of thiophosphoryl chloride, 7821*g*.
**Cillié, J. F.,** and Visser, H. N. Records of boreholes 21 to 40, 4609*d*.
**Cima, V.** Action of benzopyrene on serum complement, 5105*f*.
**Cimerman, C.** 8-Hydroxyquinoline in microanalysis, 6105*i*.
**Cimino, G.** Enzymes in cow milk treated with pure and stable 39% $H_2O_2$ soln., 3115*a*; action of niacin in rats deficient in thiamine, 9179*e*.
**Cin, G. D.** See Dal-Cin, G.
**Cinamon, L.** Fluxes, P 1310*a*.
**Cincinnati - Dayton - Indianapolis-Columbus Paint & Varnish Production Club.** Effect of Al stearate on embrittlement of highly pigmented oil films, 3211*a*.
**Cingi, M.** See Ferrari, Adolfo.
**Cingolani, E.** Halogenation of *p*-aminobenzenesulfonamide, 174*i*; action of Cl on alk. solns. of *p*-acetylamidobenzenesulfonamide, 7450*g*; reaction of hypobromite on sulfanilamide, 7450*h*.
**Cinquina, G.** Effect of heavy metals on the current wave of nitrate on reduction at the dropping-Hg cathode, 4149*e*.
**Cintra do Prado, L.** Radioactivity of the waters emerging in the "Fortaleza" tunnel near Moeda, Brazil, 7814*f*.
**Cioc, M.** See Palacios Costa, N.
**Cioffari, A.,** and Gallo, V. Bilirubin in the blood of adults as related to age and sex and the evaluation of the pathol. significance, 7568*a*.
**Cioffari, M. S.** Dietary control of dental caries, 7098*h*.
**Cioffi, R. M.** Prevention of the decrease of amino acids during alc. fermentation, 4807*h*; superior alc. content of Italian wines, 6779*g*; see Antoniani, C.
**Cioglia, L.,** and Fradà, G. Substances causing contraction of the spleen (III) 2-phenylisopropylamine, 1114*a*.
**Ciornai, I.** Detn. of Co in ores, 7862*i*.
**Cippo, F. P.** See Perelli-Cippo, F.
**Ciranna, C.** Cómo se nutren las plantas? (book), 8021*e*.
**Cires, S.** See Carré, P.
**Cirilli, V.** Detn. of the temp. of formation, from its oxide constituents, of $4CaO \cdot Al_2O_3 \cdot Fe_2O_3$ in portland cement, 3587*g*; reduction of Ca ferrite by $CO_2$ at high temp., 4967*g*.
**Cirino, V. O.** See McCall, E. R.
**Cirio, G. P.** KH tartrate, P 8624*f*.
**Cislaghi, F.** Combinations of sulfonamides, 2736*a*.
**Cislak, F. E.,** and Kranzfelder, A. L. Carbazole, P 1808*g*; 2-amino-5-methylpyridine, P 7050*i*.
—— and Otto, M. M. Sepg. 2,4-lutidine and 2,5-lutidine, P 1811*a*; sepn. of *m*-cresol, P 3459*c*; sepn. of isomeric xylenols, P 3458*c*.
—— and Wheeler, W. R. Catalytic oxidation of nicotine, P 1811*b*.
**Cisman, A.,** and Ruscior, C. Radioactivity of the hot mineral springs of Mangalia (Rumania), 6077*g*.
**Cities Service Oil Co.** Turbine oils, P 1178*d*; sealing compds., P 1883*c*; flushing compn. for engine-lubricating systems, P 6404*d*; dibenzylidene deriv. of 2,2,6,6-tetrakis(hydroxymethyl)cyclohexanol, P 6656*g*; metallic soap formation, P 8669*a*.
**Citroën, A.** Molding thermoplastics, P 4895*e*.
**Citterio, L.** See Monzini, P.
**Ciuca, M.** Microbial variants obtained by the action of bacteriophage on certain species of the *Salmonella* group, 9165*f*.
**Ciulli, G.** See Corazza, G.
**Ciusa, W.** Pyramidone as methyl donor, 2316*b*; Na cacodylate as a Me donor, 4766*c*; detn. of nicotinic acid and nicotinamide in the same soln., 9127*d*.
—— and Beccari, E. $N_1$-alkylated nicotinamide derivs. are not dealkylized, 4383*f*.
—— and Cristini, G. Vitamin B antagonisms, 5102*h*.
——, Dessì, P., and Rizzoli, C. Transmethylation—liver slices in presence of nicotinic acid, methyl donors, and aneurine, 9200*h*.
—— and Nebbia, G. 1,3,7-Trimethylxanthine as methyl donor in man, 2316*c*; identification of biol. methyl donors, 7526*f*.
——, Rizzoli, C., and Dessì, P. Methylation—experiences on nicotinic acid and trigonelline with liver slices, 9130*i*.
**Civelekoğlu, H.** See Helberger, J. H.
**Čkonija, E. A.** See Chkoniya, E. A.
**Claas, W. J.** Partition function for the elements in the solar atm., 7335*g*.
**Claassen, A.** Continuous-reading vacuum-tube voltmeter for electrometric titrations, 5235*c*.
—— and Westerveld, W. Detn. of Co with nitroso-R-salt, 7370*d*.
**Claassen, C. E.** Safflower—potential oilseed crop, 6434*g*.
**Clack, B. N.** Introducing Hg into elec. discharge lamps, P 4154*c*.
**Claesson, I. M.** See Moring-Claesson, I.
**Claesson, L.** See Aldman, B.
——, Diczfalusy, E., Hillarp, N. Å., and Högberg, B. Formation of estrogenic hormones (III) lipides of the pregnant rabbit ovary and their changes on gonadotropic stimulation, 3910*f*.
**Claesson, O.** See Nordfeldt, S.
**Claesson, S.** Adsorption analysis of high-mol. substances, 6037*h*, mol.-wt. detns., 7300*c*; see Moring-Claesson, I.
**Claff, C. L.,** and Tahmisian, T. N. Cartesian diver technique, 7536*a*.
**Claffy, E. W.** Detg. trace elements in rocks and minerals, 6106*f*; see Schulman, James H.
**Clagett, C. O.** See Hagen, C. E.
——, Tolbert, N. E., and Burrsi, R. H. Oxidation of α hydroxy acids by enzymes from plants, 6267*a*.
**Claiborne, F. B.** See Cox, K. E.
**Claire, C. D. le.** See Le Claire, C. D.
**Clancy, J. J.** S-set furfuryl alc. resins, P 5630*i*.
**Clandinin, D. R.** Effect of methods of processing on the nutritive value of herring meals, 8465*g*; see McElroy, L. W.
**Clapham, H. F.,** Harris, M., and Smith, A. L. Treatment of wool to impart shrinkage resistance, P 4022*c*.
**Clapham, P. H.** See Challenger, F.
**Clapp, L. B.** See Coles, J. S.
**Clapp, R. C.** See Clark, J. H.; Sutherland, L. H., Vaughan, J. R., Jr.
**Clapper, R. L.,** *et al.* Fouling in the process industries, 8755*h*.
**Clapper, T. W.** See Kuh, E.
**Clapper, W. E.,** and Heatherman, M. E. Difference in oral lactobacilli and the relation to dental caries, 8440*e*.
**Clar, E.** Aromatic hydrocarbons (XLIII) isohexaphene (1,2-benzopentacene) and the analysis of absorption spectrum by the anellation process, (XLIV) synthesis of 1,2,3,4-dibenzotetracene, (XLVI) 2',3'-3,4-naphthopentaphene, 1362*c*; (XLVII) higher benzologs of benzanthrene and 1,12,2,3-dibenzoperylene, 5389*i*.
—— and Frömmel, H. Aromatic hydrocarbons (XLV) 1,2,3,4-dibenzopentacene and its investigation by the anellation process, 1363*g*.
—— and Sandke, R. Aromatic hydrocarbons (XLII) condensation principle in the structure of aromatic hydrocarbons, 1359*h*.
—— and Wright, J. W. Equil. between methyl acenes and methylenedihydro acenes, 8377*b*.
**Clardy, F. B.** Detn. of Ni content of steel, P 990*b*.
**Clare, K. E.** Waterproofing of soil by resinous materials, 6388*d*.
**Clare, L. E. A.,** and Underwood, E. J. Thiamine and riboflavin contents of wheat and its mill products, 5507*i*.
**Claringbull, G. F.** See Dunham, K. C.; Smith, Walter C.
**Clark, A.** Hydrocarbons from CO and H, P 839*c*, 9420*d*; Fischer-Tropsch synthesis gas from oil shale, P 1170*f*; motor fuel, P 4834*i*.
——, Andrews, A., and Fleming, H. W. Compn. of a synthetic gasoline, 7211*h*.
**Clark, A. F.** See Barnes, S. W.
**Clark, A. M.** Detn. of carbonic anhydrase activity, 5432*c*.
**Clark, Ariel M.** See Spicer, S. S.
**Clark, C.** Wet end $H_2O$ removal, 2772*g*.
**Clark, C. L.** See Comstock, G. J.
**Clark, C. R.,** Degont, J., Denard, L., and Dervichian, D. G. Adsorbed layers (I) isotherms of adsorbed layers of org. substances at the surface of water, 8797*e*.
**Clark, C. W.,** and Collins, T. G. Coating metallic articles of Al, or predominantly of Al, and soln. for coating, P 7404*h*.
—— and Schloen, J. H. Protecting ferrous metal surfaces by coating and dipping soln., P 6968*a*.
**Clark, D. E.,** and Steiner, A. B. Fibrous, $H_2O$-sol. alginates, P 7610*d*.
**Clark, D. G. C.,** Clifton, E. E., and Newton, B. L. Antiproteolytic activity of human serum—changes in the presence of and considerations of its use for detection of malignant neoplasia, 1478*f*.
**Clark, D. P., Jr.** Sulfurized oils, P 1178*b*.
**Clark, E. L.** See Savich, T. R., Weller, S.
**Clark, E. R.,** and Linnell, W. H. Synthetic estrogens, 5014*i*, 8367*b*.
**Clark, E. W.,** and Thomas, W. L. Estn. of fatty matters in wool, 6423*c*.
**Clark, F.** Recovery of U from Na estn. residues, 8958*f*.
**Clark, Fred.** See Killinger, G. B.
**Clark, F. E.** See Bhaumik, H. D.
**Clark, Francis M.** N requirements of *Clostridium thermosaccharolyticum*, 5447*g*.
**Clark, Frank M.** Fluorenone dielectric compn., P 2344*g*; insulating and dielec. compns., P 2714*h*; stabilization of halogenated hydrocarbons, P 5887*e*, heat-resisting capacitor, P 6529*g*; dielec. materials for capacitors, P 6530*b*.
—— and Raab, E. L. Halogenated hydrocarbon compn., P 2217*c*.
**Clark, G. C. H.** See Howards & Sons Ltd.
**Clark, G. H.,** and Davies, G. F. Measuring diffusion of antiseptics from ointment bases, 8093*f*.
**Clark, G. L.,** Eckert, A. C., Jr., and Burton, R. I. Com. and exptl. C blacks, 1919*g*.
——, Kao, H., Sattler, L., and Zerban, F. W. Glutose, 3795*a*.
——, Kaye, W. I., Pipenberg, K. J., and Schieltz, N. C. Identification and crystallography of penicillins and related compds., 4920*h*.
—— and Tso, T. C. Detection of penicillin in acid soln., 8309*b*.
**Clark, G. W.** Pyridoxine, choline, and methionine content of parenteral liver ext., 363*d*.
**Clark, H. T., Jr.** Lattice parameters of high purity α Ti—effects of O and N on them, 7882*c*.
**Clark, I.** See Porter, C. C.
**Clark, I. T.,** Hicks, J. R., and Harris, E. E. Constituents of extractive from Douglas fir lignin residue, 1182*f*.
**Clark, James d'A.** Rational evaluation of pulp, 1184*d*.
**Clark, James Andrew.** Molding powder from rubber, P 2803*c*.
**Clark, J. B.** Increasing productivity of wells, 8121*h*.
**Clark, J. C.** Flash radiography applied to ordnance problems, 5593*f*.
**Clark, J. H.** See Vaughan, J. R., Jr.
——, Clapp, R. C., Vaughan, J. R., Jr., Sutherland, L. H., Winterbottom, R., Anderson, G. W., Forsythe, J. D., Blodinger, J., Eberlin, S. L., and English, J. P. Antihistamine agents (III) substituted *N,N*-dimethyl-*N'*-(2-pyridyl)-*N'*-thenylethylenediamines as antihistamine agents, 5781*d*.
**Clark, J. K.,** and Barker, H. G. Is mannitol metabolized? 761*h*.
**Clark, K. A.,** and Pasteruack, D. S. Mineral matter in the hot-$H_2O$ sepn. process as applied to Athabaska bituminous sand, 9421*e*.
**Clark, K. C.** Absorption by $N_2$ and $O_2$ of solar wave lengths in the extreme ultraviolet, 4095*e*.
**Clark, K. G.** See Fuller, W. H.
**Clark, L. J.** Economics of the gas and electric industries, 7666*d*.
**Clark, L. M.** Identification of minerals in boiler deposits—hydrothermal synthesis in boilers, 4605*b*.
——, Evans, H., and Imperial Chemical Industries Ltd. Water softening, P 2719*d*.
**Clark, L. V.** Pb nitroaminoguanidine, P 3200*e*.
**Clark, M. A.** See Cox, Herbert R.
**Clark, M. C.** See Cunningham, R. W.
**Clark, M. E.** Soda ash in its fastest-growing market—glass, 1539*c*.
**Clark, O. H.,** and Lyman, E. M. Plastic flow effects in steel, 9010*d*.
**Clark, O. W.** Vat dyeing, 6827*d*.
**Clark, P. F.,** McClung, L. S., Pinkerton,

H., Price, W. H., Schneider, H. A., and Trager, W. Influence of nutrition on infection, 8027*i*.
**Clark, R.** Alimentary tract of merino sheep in S. Africa (XIV) effect of some commonly used antifermentatives on the formation of gas in the rumenal ingesta and its bearing on the pathogenesis of bloat, 2694*a*; see Hoflund, S.
**Clark, R. A.,** and Cheyney, L. E. Compounding of O-ring hydraulic packings, 7744*c*.
**Clark, R. E. D.** See Saunders, B. C.
**Clark, R. G.** Asphaltic road materials, 7207*a*.
**Clark, R. H.** See Dersch, F.
**Clark, R. K., Jr.** See Carter, H. E., McCasland, G. E.
**Clark, R. L.** See Kuehl, F. A., Jr.
**Clark, R. T.,** Stannard, J. N., and Fenn, W. O. Conversion of CO to $CO_2$ by the intact animal, 8030*g*.
**Clark, R. U.** Porous electrode for electrolytic cells, P 6097*e*.
**Clark, S. W.** See Snipes, B. T.
**Clark, T. A. B.** See Benact Clark, T. A.
**Clark, T. B.,** Bletner, J. K., and Vanlandingham, A. H. Soybean oil meal, solvent, and hydraulic cottonseed meals in chick diets, 287*d*.
**Clark, T. F.** Agricultural residues in plastics (III) evaluation of residue flours as fillers in thermosetting phenolics, 6862*e*; saccharification lignin concentrates in phenolics, 7746*i*.
**Clark, T. S. H.** Enrichment compn., P 5881*b*.
**Clark, W.** Synthetic ale from gasoline is developed for plastics industry, 3180*i*.
**Clark, W. B.** Resinous compns., P 2496*i*.
**Clark, W. C., Jr.** Gas turbine alloy, P 556*a*.
**Clark, W. E.,** and Holt, M. J. Electrodeposition of Co-W alloys from a citrate bath, 45*g*.
**Clark, W. G.** Effect of rutin on dicoumarolism, 761*c*, effect of adrenochrome on spreading action of hyaluronidase and "capillary permeability," 6742*i*.
——— and Geissman, T. A. Potentiation of adrenaline effect by flavonoid compds., 3104*i*, 5116*g*.
——— and MacKay, E. M. Effect of *l*-adrenaline and *l*-arterenol on egg-white edema, 6309*e*.
———, Uncapher, R. P., and Jordan, M. L. Effect of flavonoids on mortality from total body Roentgen irradiation, 1846*f*.
**Clark, W. J.** Thermal cond. analysis of gases, P 6543*a*.
**Clark, W. K.** Effect of stabilizers and lubricants on the coloring of plasticized polyvinyl chloride-type compds., 5996*d*.
**Clark, Wesley M.** Growth and the N structure of a pure culture of *Saccharomyces cerevisiae*, 9150*b*.
**Clark, W. Mansfield,** Harris, J., and Rosenberg, L. L. Coördination of proteins with ferromesoporphyrin, 6249*e*.
**Clark Bros. Co., Inc.** Oxidation of satd. aliphatic hydrocarbon gases, P 1433*b*.
**Clarke, A. P. W.,** Cleghorn, R. E., Ferguson, J. K. W., and Fowler, J. L. A. Circulatory failure of adrenal insufficiency, 5855*g*.
**Clarke, B. L.** Statistical methods in the chem. industry, 4785*e*.
**Clarke, E. A.** See Hirst, L. L.
**Clarke, E. J.,** and Murex Welding Processes Ltd. Welding rods, P 2568*f*, 3772*h*, 6565*f*.
**Clarke, F. A.** See Endicott, K. M.
**Clarke, G. L.,** Nash, L. K., and Fischer, R. B. Qual. Analysis (book), 7380*e*.
**Clarke, H. T.** Bacteriostatic substance, P 3887*e*.
———, Johnson, J. R., and Robinson, R. Chemistry of Penicillin (book), 3978*b*.
**Clarke, I. D.** See Sievers, A. F.
**Clarke, J. R.,** Glaser, G., and Robertson, A. Furano compds. (VIII) isovisnagin and a partial synthesis of visnagin, 3413*e*.
——— and Robertson, A. Furano compds. (IX) kellin and related compds., 7480*f*.
**Clarke, J. S.,** Storer, E. H., and Dragstedt, L. R. Effects of vagotomy on the physiology of the stomach in patients with peptic ulcer, 6726*f*.
**Clarke, J. T.** See Carr, E. M.
**Clarke, J. T., Jr.** See Gould, B. S.
**Clarke, K.** See Beer, R. J. S.
**Clarke, K. H. J.** See LaQue, F. L.
**Clarke, L. A.** Isomerization and alkylation, P 5583*h*.
**Clarke, M. F., and Owen, L. N.** Alicyclic glycols (I) *p*-toluenesulfonyl and methanesulfonyl derivs. of 1,2-cyclohexanediol, 7434*h*.
**Clarke, R.** Ambergris, 8100*g*.
**Clarke, R. A.** See Meldrum, W. B., Jr.
———, Graham, B., and Christensen, B. E. Pyrimidine (III) bromination of 5-acetyl-4-methyl-2-phenylpyrimidine, 1124*b*.
**Clarke, R. B. F. F.** See Flint, C. F.
**Clarke, R. E.,** and Collins, N. R. MgO, P 8621*b*.
**Clarke, R. L.,** and Bartholomew, G. A. Proton range-energy relation, 8850*a*.
**Clarke, S. G.** See Bradshaw, W. N.
**Clarke, S. G. S.,** Kidder, D. E., and Robertson, W. D. Toxic principle of *Oenanthe crocata*, 6368*a*.
**Clarke, W. F.** See Wells, L. S.
**Clarkson, C. E.,** and Malkin, T. X-ray and thermal examn. of the glycerides (IX) polymorphism of simple triglycerides, 134*e*.
**Clarkson, J. R.** See Gunn, D. L.
**Clark Thread Co.** Molding compn., P 4051*a*, Zn and high Zn alloy dyeable corrosion-resistant surfaces, P 7891*i*.
**Clary, P. D., Jr.** See Meade, R. E.
**Clas, G.,** and Houben, K. Thermally stabilized cast iron, 6553*h*.
**Clason, C. B.** Welding and cutting fumes (I), 9017*e*.
**Clason, C. E.** Compressibility of fluids, 4466*h*, evolution and use of gypsum cement for oil wells, 7210*a*.
**Clasper, M.,** and Haslam, J. Analysis of nylon and related polymers, 6917*h*.
**Classen, F.** See Stumper, R.
**Classen, G.** See Noerr, H.
**Classen-Nekludowa, M. W.** See Klassen-Neklyudova, M. V.
**Clastre, J.** See Lochet, R.
**Clatt, J. B.** See Barnes, S. W.
**Claudi, M. A.** See Soldi, A.
**Claudin, J.,** and Société anon. des matières colorantes et produits chimiques de Saint-Denis. Isothiocyanates; P 5038*b*.
**Claudio Sanahuja, J.** System of analysis of dietary flours, 7153*f*.
**Claus, G.** See Schneiderhohn, H.
**Clausen, D. F.** Fluorometric detn. of thiamine, 2660*i*, see Bovack, G.
——— and Shroyer, J. H. Mo blue reaction, 1680*i*.
**Clausen, H.** See Bode, Hans.
**Clausen, M.** See Barnes, R. H.
**Clauser, H. R.** Mech. tubing as an engineering material, 983*d*, structural parts from metal powders, 7879*c*.
**Claussen, G. E.** Metallurgy of covered electrode weld metal, 4207*i*.
**Claussen, W. H.** See Levine, I. E.
**Claver, J.** See Buscarons Ubeda, F.
**Claver, M.** Same as Claver Aliod, M.
**Claver Aliod, M.** Siliceous soils of Guadarrama that contains humus, 6348*i*; see Rodriguez Muñoz, C.
**Claxton, G.,** and French, K. H. V. Corrosive S test, 9426*a*.
**Clay, H. F.,** and Watson, V. Crystal structure of Pb chromes, 4023*i*.
**Clay, J.** Spectrum of the soft, electronic part of the cosmic radiation, 5284*c*; production of meson pairs in various materials, 5285*b*, energy spectrum of cosmic-radiation particles and photons, 6504*c*; high-energy particles, bursts, and showers, 6504*d*.
——— and Scheen, W. L. Second shower max. in Au, Hg, and Pb, 5285*a*.
**Claydon, E. W.** See Wood, J. W.
**Claydon, T. J.,** and Martin, W. H. Cream quality resulting from keeping deliveries segregated vs. mixing as practiced in buying stations, 8068*b*.
**Clayton, A. B.** See Sayrs, R. L.
——— and Sayrs, R. L. Tennessee Zinc Co. property, Bumpus Cove, Unicoi Co., Tenn., 3322*a*.
**Clayton, B.** Refining glyceride oils, P 94 4*c*.
**Clayton, B.** (trading as Refining Unincorp.). See Refining Unincorp.
**Clayton, B. E.** See Sommerville, I. F.
**Clayton, C. C.** See Griffin, A. C.
**Clayton, C. N.** See Ellis, D. E.
——— and Ellis, D. E. Soil treatment with chloropicrin, D-D, and Uramon for control of root-knot nematodes, 7186*g*.
**Clayton, E. E.** See Steinberg, R. A.
———, Goldsworthy, M. C., Haskell, R. J., Heuberger, J. W., Leukel, R. W., McClellan, W. D., and Miller, P. R. Fungicides, 7176*g*.
**Clayton, H. R.** Spectrographic analysis, 2114*f*.
——— and Mountford, N. D. G. Lamination detection—examn. of Al sheet by ultrasonic radiation, 1698*b*.
**Clayton, J. O.** Compounded oil, P 1177*h*.
——— and Jensen, W. L. Reaction of paraffin hydrocarbons with P trichloride and O to produce alkanephosphonyl chlorides, 1315*d*.
**Clayton, W. J.** Multicellular dry plastic foam products, P 9529*b*; see Svendsen, E. C.
**Clayton Aniline Co. Ltd.,** Schedler, J. A., and Whalley, R. Disazo dyes contg. Cu, P 2141*a*, 8198*c*.
**Clear, A. J.** See Rinkenbach, W. H.
**Cleary, E.** See Turner, R. D.
**Cleave, A. B. van.** See VanCleave, A. B.
**Cleaves, A. P.** See Hibbard, R. R.
**Cleere, M. C.** See Lloyd, S. J.
**Clegg, D. L.** See Muller, R. H.
**Clegg, E. L. G.** Su and W in Burma and India, 8315*h*.
**Clegg, G. G.** Microscopical examn. of worn textile articles, 8680*i*.
**Clegg, L.** See Mason, J. B. M.
**Clegg, L. F. L.,** and Lomax, K. L. Application of the phosphatase and turbidity tests to sterilized milk, 6749*c*.
**Clegg, R. E.,** and Sealock, R. R. Metabolism of dihydroxyphenylalanine by guinea-pig kidney exts., 8115*c*.
**Cleghorn, R. A.** Species difference in the cortical hormone requirement of adrenalectomized dogs and cats, 7566*e*.
**Cleghorn, R. E.** See Clarke, A. P. W.
**Cleland, E. S.** See Billman, J. H.
**Cleland, G. H.,** and Niemann, C. Dakin-West reaction, 4220*h*.
**Clemedson, C. J.** Air blast injuries, 8521*d*.
**Clemence, L. W.** See Raziss, G. W.
**Clemens, E. S.** Portable water still, P 8080*h*.
**Clément.** See Griffon, H.
**Clement, E.** The ionization by high-energy cosmic-ray electrons, 4092*f*.
**Clément, G.** Nervous and hormonal factors affecting mobilization of reserve fats, 9198*d*.
**Clément, J. C.** See Champougny-Clement, J.
**Clément, P.** Influence of freezing temp. on the tenderness of beef, 3534*d*; see Beauvalet, G., Champetier, G.
**Clements, F. E.** Dynamics of Vegetation (book), 4736*g*.
**Clements, H. F.,** and Munson, J. As toxicity studies in soil and in culture soln., 6350*d*.
**Clements, J. F.** Behavior of firebricks on reheating, 2748*e*; see Clews, F. H.
——— and Rigby, G. R. Behavior of firebricks on reheating (V) after-expansion in firebricks, 3582*d*; (VI) initial contraction temp., 3582*g*.
———, Vyse, J., and Barrett, L. R. Evaluation of the properties of high-temp. insulating materials (VII) heat dissipation tests at higher temps., 3582*e*.
———, Vyse, J., and Rigby, G. R. Heat transfer in refractory insulating materials (II) influence of pore size, 3582*e*; (III) influence of the firing temp. on the thermal cond. of porous refractory bodies, 3583*a*.
**Clements, L. B.** See MacIntire, W. H.
**Clemmer, J. B.** Flotation, 1227*h*.
**Clemo, G. R.,** and Daglish, A. F. 1,3-Dihydroxyphenazine, 3009*b*, structure of the pigment of *Chromobacterium iodinum*, 3057*i*.
——— and King, T. J. Strychnine (III) reduction products, 2213*d*.
Raper, R., and Short, W. S. Lupin alkaloids (XIV), 7490*c*.
——— and Swan, G. A. Constitution of yohimbine (II), 7490*f*.
**Clendenning, K. A.** Cu corrosion and its control in starch-sirup manuf., 889*b*.
——— and Wright, D. E. Production of sirups from wheat, potato, tapioca, and waxy cereal starches, 888*i*.
**Clennett, G.** See Wood, W. S.
**Clensol, S. A.** Water softener, P 2348*a*.
**Clerck, J. de.** Colloidal stability of beer, 3971*b*, brewery water and its analysis, 3971*c*; Cours de Brasserie. Vol. II (book), 4424*b*.
——— and Roey, G. van. Assay of dextrins in must and beer, 3970*g*.
**Clercq, M. de.** See Buu-Hoï; Corre, L.
——— and Buu-Hoï. Steric hindrance in the Pfitzinger reactions with ketones derived from cresylic ethers, 3825*d*; steric hind-

rance in Pfitzinger reactions with ketones derived from ethers of xylenols, 7924*d*.
**Clermont, Y. G.** See Goldschmidt-Clermont, Y.
**Cleve, H.** Removal of the germ from the corn grain, 5876*b*.
**Cleveland, A. S.** See Huggins, C.
**Cleveland, F. C.**, and Kerr, R. W. Osmotic pressure studies on corn amylose, 4502*h*.
**Cleveland, F. F.** See Meister, A. G; Mitchell, R. W.; Ziomek, J. S.
**Cleveland Graphite Bronze Co.** Friction material, P 5518*i*; electrodeposition of Pb-Sb-Sn alloys, P 6094*i*.
**Cleveland Heater Co.** Water-heating device with corrosion protective anode, P 2923*b*.
**Cleveland Paint & Varnish Production Club.** Weathering machine correlation in the Cleveland Club and other areas (II) chalking rate measurement, 3211*b*; hard resins and oleoresinous compns. in the modification of oxidizing alkyds, 8733*i*.
**Clever, E.** Sterilization, 2367*b*.
**Cleverdon, D.** See Distillers Co., Ltd.; Smith, J. W.
**Cleverdon, R. C.**, Pelczar, M. J., Jr., and Doetsch, R. N. Vitamin requirements of *Bacillus coagulans*, 8006*b*.
**Clews, C. J. B.** See Hodgson, M. L.
——, and Cochran, W. Structures of pyrimidines and purines (III) x-ray investigation of H bonding in aminopyrimidines, 6487*j*.
**Clews, F. H.** See Colegrave, F. B.
——, Clements, J. F., and Green, A. T. Behavior of firebricks on reheating (IV) variability of re-heat behaviors in firebricks, 3582*c*.
**Clibbens, D. A.** Structure of textile fibers (IV) structure of cotton, 6420*k*.
**Clifcorn, L. E.** See Cameron, E. J.; Henry, R. E.
**Clifford, A. M.** Copolymers of halo allyl esters of carboxylic acids, P 432*h*, butadiene-butylene copolymer rubber, P 2463*e*, copolymer of cyclohexyl-α-chloroacrylate and 1,3-butadiene, P 2471*a*, diketo acrylates, P 2631*f*; copolymers of butadiene and tetrahydrofurfuryl methacrylate, P 9519*d*; copolymers of vinylfuran and chloroprene, P 9532*h*, copolymers of vinylfuran and vinylidene chloride, P 9532*f*
—— and D'Ianni, J. D. Copolymer of diallyl chloromaleate and 1,3-butadiene, P 6866*b*.
—— and Gleim, C. E. Reaction of a piperylene with a halo-substituted maleic anhydride, P 3227*h*.
—— and Long, J. R. 2-Cyano-2,3-diacetoxybutanes, P 9080*c*.
**Clifford, E. D.** Weed control in guayule seedbeds with stove oil, 5145*d*
**Clifford, I. L.**, Hudson, J. H., Rowell, S. W., and Lewis, J. P. Acids, alkalies, and salts, 4789*a*.
——, Manning, J., Rowell, S. W., and James, C. W. Acids, alkalies, and salts, 4788*e*.
**Clifford, J. E.** See Brown, John W.
**Clifton, E. E.** See Clark, D. G. C., Downie, G. R.; Tallan, H. H.
——, Elliott, D. W., and Nero, W. J. Antiproteolytic reaction of the serum of mice, 7123*g*.
—— and Pan, S.-C. Effect of a progesterone compd. on growth of a transplanted granulosa cell tumor, 2696*i*.
**Clifton, F. L.** See Phillips, W. M.
**Clifton Products, Inc.** BeO, P 3158*e*, 5680*a*.
**Climax Molybdenum Co.** Alloy addn. agents, P 6145*e*.
**Cline, E. T.** Fibers from hydroxyl-contg. polymers, P 8174*g*; spinning and stretching of zein filaments, P 8093*c*.
**Cline, R. F.** Diamond abrasive, P 8116*e*.
**Clingan, I. C.** Electrolytic stainless steel polishing, P 2880*ef*.
**Clini, D. J.** Aq. bath for coloring stainless steel, P 7893*i*.
**Clinton, M.** Acrylonitrile, 5513*f*; alkyl disulfides, 5513*g*; $AlCl_3$, 5513*h*; $NH_3$, 5513*h*; benzene, 5513*i*; boron trifluoride, 5513*i*; *p*-BuNHC$_6$H$_4$OH, 5514*c*; $CCl_4$, 5514*c*; cresol, 5514*d*, cumene, 5514*d*, β,β′-dichloroethyl ether, 5514*e*, furfural, 5514*f*; HCl, 5514*f*; $H_2S$, 5514*g*; Fe(CO)$_5$, 5514*g*; Hg, 5514*h*; MeEtCO, 5514*i*; morpholine, 5514*i*; naphthenic acids, 5515*a*; nitrobenzene, 5515*a*, phenol, 5515*a*; $P_2S_5$, 5515*b*; styrene, 5515*b*; $SO_2$, 5515*c*; $H_2SO_4$, 5515*c*; thiophene and derivs., 5515*d*; toluene, 5515*d*, xylene, 5515*e*.
**Clinton, R. O.** Heterocyclic substituted hydrazines, 3410*b*, see Fohlen, G. M.
—— and Laskowski, S. C. Prepn. of Me esters, 567*a*.
——, Salvador, U. J., and Laskowski, S. C. S-contg. amines (VII) local anesthetics (2), 6184*a*.
**Cliven, E. C.** See Curd, F. H. S.
**Cljachco.** See Klyachko.
**Cloke, J. B.** See Maginnity, P. M.
**Clopton, J. R.**, and Roberts, A. Oil bearing seeds(II) hubam clover seed, 1999*g*, osage orange—a source of edible oil and other industrial raw materials, 9490.
——, Roberts, A., and Jeskey, H. A. Oil-bearing seeds (I) okra seed, 880*g*
**Clore, W. J.** Effect of α naphthaleneacetic acid on Lima beans, 1893*c*.
**Close, W. J.** See Spielman, M. A.
——, Tiffany, B. D., and Spielman, M. A. Analgesic activity of some benzoxazolone derivs., 6616*a*
**Closs, K.** See Laland, P.
**Clouaire, J.** Hysteresis of natural vulcanized rubber, 3649*f*, phys. aspects of the elasticity of rubber (I) hysteresis, 9513*b*
**Cloud, P. E.**, and Barnes, V. E. Ellenburger group of central Texas, 4986*b*
**Cloud, R. W.** See Trump, J. G.
**Clough, G. B.** See Wohl, M. G.
**Clough, J.** Water treatment operation maintenance, and costs, 3515*c*
**Clowes, G. H. A.** See Roberts, Eugene.
**Clowes, G. J.**, and Hallsworth, E. G. Preservation of pasture samples for carotene estn., 9291*d*
**Clusius, K.** Sp. heat and heat content of solids, 1638*d*; diffusion thermoeffect, 6875*g*; see Bohm, G.
——, Ko, F. L., and ch (VI) detn. of the heat of vaporization of O at atm. pressures and of $C_2H_4$ and propylene above and below atm. pressure, 8251*b*
—— and Schumacher, E. Stationary flames of light and heavy hydrogen at atm. pressure, 7282*a*
**Čmelik, S.** Adriatic Elasmobranchia liver oils (II), (III) oil from the eggs of *Acanthias vulgaris*, 5210*d*, iodine content of some algae of the Adriatic, 5150*e*
**Co, F. J. F.** See Farrerons Co, F. J.
**Coast Metals, Inc.** Structural element for use in high temp. service, P 2154*e*, ferrous alloy, P 3771*j*, hard-facing valve alloy, P 9021*b*.
**Coates, G. E.** Protective surface treatment of Mg base alloys, P 2525*b*, 8348*e*
—— and Sutton, L. E. Heats of formation of the $-N=N-$ and $>C=N-$ bonds, 931*a*.
**Coates, H.** Chemistry of P insecticides, 5897*b*.
**Coates, J.** See Evans, P.
**Coates, Jesse.** Estg. evaporator capacity and steam consumption, 2016*d*. see Bailey, R. V.
**Coatney, G. R.** Chemotherapy of malaria, 3523*d*.
—— and Cooper, W. C. Exoerythrocytic forms of malarial parasites (III) chemotherapy, 3107*g*.
**Coats, R. R.** See Bremner, J. G. M.
**Cobb, E. G.** Protecting metal surfaces, P 1710*e*.
**Cobb, J. M.** See Braff, A. F.
**Cobb, M. L.** Double solvent extn. of residual stocks, 5580*d*.
**Cobb, S.**, Pearson, O. H., and Hastings, A. B. Inhibitory effects of pteroylglutamic acid prepns., 5431*i*
**Coblans, H.** Bibliography of Chem. Research in S. Africa (book), 478*e*.
**Cobler, J. G.** See Fletcher, G. I.
**Coburn, S. E.** Treatment of combined industrial wastes and sewage, 6344*j*, treatment of wool scouring wastes, 8080*i*, limits for toxic wastes in sewage treatment, 8586*e*.
**Coca, A. F.** Antibodies, P 1483*b*.
**Cocconi, G.** Extensive air showers, 4558*d*.
—— and Cocconi, V. (nee Tongiorgi) Angular distribution and multiplicity of neutrons assocd. with local cosmic-ray showers, 8849*c*
——, Cocconi, V. (nee Tongiorgi), and Greisen, K. Neutrons in the penetrating showers of the cosmic radiation, 1643*i*; penetrating particles in extensive cosmic-ray air showers, 4558*a*.
**Cocconi, V.** (nee Tongiorgi). Neutrons in the extensive air showers of the cosmic radiation, 5283*e*; production of the neutron component of the cosmic radiation, 8849*b*; see Cocconi, G.
**Cocea, E.** See Matei, I.
**Coche, A.** See Haïssinsky, M.
**Cochery, A., Entreprises.** Resins from phenolic mixts., P 1605*e*.
**Cochin, J.**, Gruhzit, C. C., Woods, L. A., and Seevers, M. H. Addiction to methadon in the monkey, 2321*f*.
**Cochran, D. R. F.** See Hildebrand, J. H.
**Cochran, J. H.** Effectiveness of various org. insecticides against the oriental fruit moth, 7630*g*
**Cochran, N.** See Koch, L. R.
**Cochran, R. T.** See Knox, W. H., Jr.
**Cochran, W.** X-ray analysis and the method of steepest descents, 3289*c*, see Clews, C. J. B.; Hodgson, M. L.
**Cockbain, E. G.** See Bawn, C. E. H.
—— and Imperial Chemical Industries Ltd. Explosive compns., P 1984*b*.
**Cockbill, G. F.** See Ross, D. M.
**Cockburn, R.**, Drucker, B., and Lindley, H. Action of alkalies on wool (III) action of alkalies on deaminated wool, 4017*d*
**Cockburn, W. F.** See Marion, L.
**Cocker, W.** See Boggust, W. A.
——, Cross, B. E., and Lipman, C. Desmotropo-γ-santonins, 4242*d*
**Cockerham, K. L.**, and Deen, O. T. Insecticide tests for control of sweet-potato weevil, 1142*d*
**Cockerille, F. O.** Esters, P 3838*d*
**Cockfield, W. E.** Geology and mineral deposits of Nicola map area, Brit. Columbia, 3750*i*
**Cockroft, A. L.** See Curran, S. C.
**Cocroft, R.**, Brennan, E. W., and Manteuffel, A. Lubricating-oil oxidation inhibitor P 9432*fg*
**Codazzi, R. L.** See Lleras Codazzi, R.
**Code, A. D.** Effect of electron scattering in stellar atm., 5662*d*
**Codignola, F.**, and Piacenza, M. 1,4-Dihalobutane from tetrahydrofuran, P 1284*b*, raw materials from 2-furaldehyde for the prepn. of polyurethan resins, P 1511*e*, furan from 2-furaldehyde, P 5047*c*, 1,2-, 1,3-, and 1,4-dihalo derivs. of butane from tetrahydrofuran, P 5047*i*, butadiene from 2-furaldehyde, P 5048*b*
**Codoni, J. C.** Chem. study and application of our trees: *Patagonula americana*, 1565*i*
**Coe, C. S.** See Doumani, T. F.
——, Attane, E. C., Jr., and Doumani, T. F. Aliphatic dinitrohydrocarbons, P 4683*d*
**Coe, E. L.** See Wicker, D. B.
**Coe, M. R.** See Willits, C. O.
**Coe, R. H.**, and Rogers, L. B. Electroreduction of periodate at the dropping-Hg electrode (I) behavior in acidic solns. of pH less than 3, 1661*i*
**Coelho, I. S.** See Soares Coelho, I.
**Coenen, M.** Reactions of heterocyclic compds. having an active methylene group, 4211*h*
**Coes, L., Jr.** Plasticizing and vulcanization of butadiene-acrylonitrile copolymer, P 898*f*, 2034*c*; improving water-resistant characteristics of resins, resinous articles, etc., P 2033*a*.
**Coffeen, W. W.** Antimonates as opacifiers in dry-process enamels for cast iron, 2892*f*
**Coffey, S.**, Driver, G. W., Fairweather, D. A. W., and Imperial Chemical Industries Ltd. Anthraquinone leuco sulfuric ester, P 415*j*.
——, Driver, G. W., Fairweather, D. A. W., Irving, F., and Imperial Chemical Industries Ltd. Anthraquinone leuco sulfuric esters, P 3205*h*.
——, Fairweather, D. A. W., Lodge, F., Wardleworth, J., and Imperial Chemical Industries Ltd. Acedianthrone intermediates, P 7709*d*.
——, Haddock, N. H., Lodge, F., Wardleworth, J., Wood, C., and Imperial Chemical Industries Ltd. Anthraquinone dyes, P 8163*d*.
——, Schofield, K., Slinger, F. H., Tatum, W. W., and Imperial Chemical Industries Ltd. Orange anthrapyridazone dyes for wool, P 8165*g*.
**Coffin, C. C.** Thermal decompn. of complex mols., 3697*i*.
——and Funt, B. L. Effect of sound waves on fractional distn., 6870*e*.
——and Tingley, I. I. Exchange of Ag ions between aq. solns. and surfaces of metallic Ag, 7791*b*.
**Coffin, G. W. Clinton, Me., water system—ground water, 333*e*.**

**Coffin, J. M.** See Craige, A. H., Jr.
**Coffin, L. F., Jr.**, Shepler, P. R., and Cherniak, G. S. Primary creep in the design of internal-pressure vessels, 8216*a*.
**Coffin, O. Tv,** and Raden, D. J. Nicotine and $\beta,\beta$-dichloroethyl ether insecticide, P 2732*f*.
**Coffman, D. D.** See Du Pont de Nemours, E. I., & Co.; Mochel, W. E.
———, Barrick, P. L., Cramer, R. D., and Raasch, M. S. Synthesis of tetrafluorocyclobutanes by cycloalkylation, 3370*c*.
—— and Cramer, R. D. Dehydrofluorination of polyfluoroalkalanes, P 3437*b*.
———, Cramer, R. D., and Rigby, G. W. Synthesis of chlorofluoropropanes, 4213*d*
—— and Ford, T. A. Polymers of trifluoroethylene, P 1008*d*
—— and Jacobson, H. W. Hydrolyzed interpolymer of $C_2H_4$, vinyl acetate, and diethyl fumarate, P 9531*h*.
—— and Salisbury, L. F. Unsatd. fluo hydrocarbons, P 2218*e*
**Cofield, E. P., Jr.**, and Antle, L. L. Antioxidants for oils and fats, 3633*f*
**Cogan, B.** See Glaymann, J.
—— and Glaymann, J. Protecting light alloys, P 990*f*
**Cogan, H. D.**, and Ketcham, N. H. Heat-resisting coating compn., P 102*d*.
**Coggeshall, N. D.** See Saier, E. L.
—— and Glessner, A. S., Jr. Ultraviolet absorption analysis of naphthalenes, 6542*g*; ultraviolet absorption study of the ionization of substituted phenols in EtOH, 8881*c*
—— and Muskat, M. Automatic system of process control by infrared spectrometry, P 6873*d*, focusing arrangements for a mass spectrometer, P 6922*h*
**Coghill, R. D.** International standard and unit for penicillin (V) prepn. and properties, 3568*i*.
**Cogin, G. E.**, and Kimball, G. E. Vapor pressures of some alkali halides, 457*d*.
**Cohan, L. H.** Effect of pigments on elastomer properties, 7741*a*; see Suesholtz, H. W.
—— and Spielman, R. Inorg. pigments in natural and synthetic rubber, 1593*c*.
**Cohausz, F.** See Rabe, P.
**Cohen, A.** Rationelle Metallanalyse (book), 4604*f*.
**Cohen, Aaron.** See Bergel, F., Roche Products Ltd.
**Cohen, C. J.** See Newberry, A. W., Reed, D. F.
**Cohen, D.** See DeVries, T.
**Cohen, G. N.** See Cohen-Bazire, G.
—— and Cohen-Bazire, G. Fermentation of pyruvate, $\beta$-hydroxybutyrate, and of $C_4$ dicarboxylic acids by some butyric acid-forming organisms, 3489*a*, synthesis of aspartic acid and $NH_3$ by *Clostridium saccharobutyricum*, 3489*b*, conversion of acetoacetic acid to acetic and butyric acids by suspensions of *Clostridium acetobutylicum* and *Clostridium butyricum*, 6700*d*; formation of some volatile acids by anaerobic bacteria, 9147*h*.
**Cohen, H.**, and Bates, R. W. Hydrolysis of conjugated sulfates of estrogens by a coenzyme prepn. of *Aspergillus oryzae*, 7983*g*.
**Cohen, Ira.** See Litwins, J.
**Cohen, Isaac.** See Velculescu, A. I.
**Cohen, J. A.** Effect of adrenaline on the utilization of glucose, 7986*c*.
———, Kalsbeek, F., and Warringa, M. G. P. J. Reversibility of the inhibition of true cholinesterase by physostigmine, 3865*b*.
**Cohen, L.**, and Jessel, R. Testing draft diverters, 448*h*.
**Cohen, M.** Retained austenite, 984*b*; see Averbach, B. L.; Blickwede, D. J., Harris, W. J., Jr.; Teitel, R. J.
**Cohen, M. E.**, Consolazio, F., and Johnson, R. E. Blood lactate response during moderate exercise in neurocirculatory asthenia, anxiety neurosis, or effort syndrome, 5855*d*.
**Cohen, P.** See Jonakin, J.
**Cohen, P. P.** See Abrams, A.; Grisolía, S.
———, Thompson, F. L., and Nitshe, G. A., Jr. Electrophoretic analysis of ante- and post-mortem serum in different diseases, 6691*g*.
**Cohen, S.** Nitrogenous metabolism of the earthworm, 4778*d*.
—— and Lewis, H. B. Nitrogenous metabolism of the earthworm, 9272*a*.
**Cohen, S. G., and Sparrow, D. B.** Action of regulators in polymerisation of monomers contg. allyl and methacrylate groups, 8199*c*
**Cohen, S. J.** Unsatd. halogen compd as plasticizer for elastomers, P 8732*f*
—— and Scheer, W. E. Unsatd. halogen compd. as plasticizer for elastomers, P 8732*f*
**Cohen, S. L.** Excretion of 17-ketosteroids by patients suffering from poliomyelitis, 4365*a*, urinary steroid excretion by patients during labor and the post-partum period, 8011*c*; see Bitman, J.
**Cohen, S. S.** Adaptive enzyme formation in the study of uronic acid utilization by the K 12 strain of *Escherichia coli*, 1333*i*; growth requirements of bacterial viruses, 5080*h*
**Cohen, V. W.**, Koski, W. S., and Wentink, T., Jr. Nuclear spin and quadrupole coupling of $S^{36}$, 8869*g*.
**Cohen, W. E.** Performance and use of the Lampén mill in Australia, 6113*f*, lab beaters and their correlation with mill beaters, 6413*a*
**Cohen-Adad, R.** See Rollet, A. P.
**Cohen-Bazire, G.** See Cohen, G. N.
———, Cohen, G. N., Nisman, B., and Raynaud, M. Inhibiting action of $NaAsO_2$ on production of butyric acid from pyruvate by *Clostridium saccharobutyricum*, 4331*e*.
**Cohenour, L. B.** See Flagg, J. F.
**Coheur, P.** Spectrochem. analysis of metals in America, 5695*a*.
—— and Hans, A. Steel detns., 2516*d*, spectrum analysis, 3741*e*.
—— and Lejeune, L. M. Relation between rolled and recrysta structures, 7879*h*
**Cohn, C.** See Wolfson, W. Q.
—— and Kolinsky, M. Effect of blood-sugar levels and insulin lack on gluconeogenesis, 6305*b*
———, Levine, R., and Kolinsky, M. Hepatic and peripheral removal rates, in the dog, for intravenously injected bromosulfalein, 3111*h*
**Cohn, E. J.** Protein fractionation, P 5136*r*
**Cohn, E. M.** See Hofer, L. J. E.
**Cohn, L.** See Kochakian, C. D.
**Cohn, Melvin,** Wetter, L. R., and Deutsch, H. F. Immunol. studies on egg white proteins (I) prtn. of chicken ovalbumin and conalbumin by rabbit and horse antisera, 5857*b*
**Cohn, Mildred,** and Cori, G. T. Action of muscle and potato phosphorylase, 4712*e*.
**Cohn, M. L.** See Corper, H. J.
**Cohn, M. M.** Waste treatment, 3548*a*
**Cohn, S., & Co.** Lead wire for thermocouples, P 5001*f*
**Cohn, W. E.** Nature and production of artificial radioactivity, 4710*b*, sepn. of purine and pyrimidine bases and of nucleotides by ion exchange, 5440*b*, sepn. of mononucleotides by anion-exchange chromatography, 7075*b*; see Wesson, L. G., Jr.
———, Parker, G. W., and Tompkins, E. R. Ion-exchangers to sep., concentrate, and purify small amts. of ions, 4129*c*.
**Cohoe, W. P.** Chewing gum base, P 6004*f*
**Colc, Y.** Action of nitrogenous fertilizers distributed at time of blooming on the assimilating activity of chlorophyll in winter wheat, 9325*b*
—— and Coppenet, M. Mn deficiency in org. soils of Brittany, 6348*h*, 9319*a*.
**Coignet, J.** See Roche, J.
**Coin, L.** Hydrogeology of Champagne and Brie between Arcis sur-Aube and Montmirail, 8321*a*.
**Coinon, H.** Testing of finished industrial rubber products, 429*b*.
**Cojan, J. L.**, and Lennuier, R. Spectral analysis of selectively reflected rays - structure of the hyperfine component Be of the $\lambda$ 2537 Hg radiation, 6918*a*.
**Coke, C. E.** Industrial applications of viscose rayon, 7692*f*.
**Coker, R. G.**, and Woods, A., Jr. Fibrous conduit, P 9148*i*.
**Colarusso, A.** See De Lerma, B.
**Colas, E.** Aggressive waters, 8582*f*.
**Colbe, O.**, and Duquénois, P. Standardization of vegetable drugs (II) lignin value, 5539*c*.
**Colbert, J. W., Jr.** See Havens, W. P., Jr.
**Colbert, W. H.**, and Weinrich, A. R. Coating by evapg. metals, P 104*c*
**Colbeth, I. M.** Partial esters of polyhydric alcs., P 5794*d*; unsatd. higher fatty-acid esters, P 6851*f*.
**Colborne, R. S.** See B. X. Plastics Ltd.
**Colbrie, E. F.** See Fischer-Colbrie, E.
**Colby, M. Y.**, and Connell, L. F., Jr. Detn. of thermal expansion coeffs. of crystals, 4066*f*.
**Colby, R. W.** See Ensminger, M. E.
———, Cunha, T. J., Lindley, C. E., Cordy, D. R., and Ensminger, M. E. Biotin pantothenic acid interrelation and enteritis in the pantothenic acid-deficient pig, 1166*e*
**Colcher, A.** See Patek, A. J., Jr.
**Colditz, P. v.** See Von Colditz, P.
**Cole, A. R. H.** See Barer, R.
**Cole, C. D.** See Griffith, F. R., Jr.
**Cole, C. V.** See Swenson, R. M.
**Cole, E. B.** See Rawlings, F. N.
**Cole, Eldon B.** Distn. of aq. alc. exts of mahogany sulfonates, P 3194*e*.
**Cole, E. H.** See Entwistle, D.
**Cole, E. J.** Gays River conglomerate, 5347*d*.
**Cole, E. R.** Estn. of strychnine, 6785*h*.
**Cole, J. H.** See Greenwood, J. N.
**Cole, J. O.** Chem. changes in elastomers and antioxidants during aging, 8722*g*
**Cole, J. R.** Zn dimethyldithiocarbamate, fungicide for pecan scab control, 1139*a*
**Cole, J. W.** Investigation of the Electric Point and Gladstone Pb Zn mines, Stevens Co., Wash., 3322*b*; see Sanford, R. S.
**Cole, O. D.** See Spothun, I. J.
**Cole, P. A.** See Wright, B. A.
**Cole, R. H.** See Adcock, W. A.; Arons, A. B.
—— and Strobel, H. A. Dielec. absorption by $NH_4$ salts in solvents of low dielec. const., 7279*a*.
**Cole, R. M.** Metal sulfide catalysts, P 844*e*.
**Cole, S. S.** Inorg. bond for chlorination charge, P 9398*e*.
———, Holiday, R. L., and Breitenstein, J. S. Hydrous $V_2O_5$, P 9398*a*.
**Cole, V. V.** See Hopper, S. S.
**Cole, W.** See Julian, P. L.
**Cole, W. B.** See Winmaler, N. I.
**Cole, W. F.** See Kaan, G.
**Cole, W. H.** See Allison, J. B.
**Colebaugh, D. C., Jr.** Taste and odor control, 6343*c*.
—— and Hassler, J. W. Removal of tastes and odors from water supplies by active C, 4303*h*
**Colegate, G. T.** Inhibitors for controlling metal corrosion (I), 1305*e*, (II) types, 2561*e*, (III) chromate and dichromate inhibitors, 3337*e*, (IV) miscellaneous inhibitors, 4207*i*, (V) inhibitors for light metals, 4022*e*; dezincification—"Plug and Layer" types of attack-susceptible alloys, 1701*c*, corrosion prevention—influence of correct design of metal structures, 3336*i*; galvanic corrosion and its practical significance, 3337*a*, electrodeposited Pb coatings, 3726*i*.
**Colegrave, E. B.**, and Clews, F. H. Behavior of refractory materials under stress at high temps. (VIII) porcelain in torsion and a discussion of the properties of a system of viscoelastic elements, 3583*b*.
**Coleman, C. F.**, and De Vries, T. Heat capacity of org. vapors (V) AcII, 7804*h*
**Coleman, D. H.** See Green, D. M.
**Coleman, E. D.** Bridge structure for pH measurement device, P 2047*h*.
**Coleman, E. H.**, and Gaydon, A. G. Radicals BrO and CBr in flames, 5312*g*.
**Coleman, E. J.** Compn. of resin, powd. metal, and fiber, P 3233*h*; fast-setting compd. of resin and powd. metal, P 7163*e*.
**Coleman, F. C.** Prothrombin time in dicoumarol therapy, 6315*i*
**Coleman, F. F.** See Mitchell, J. J.
**Coleman, George H.** See Callen, J. E.; Combs, E. E., Dornfeld, C. A.
**Coleman, Gerald H.** Aralkylalkylammonium chlorophenates, P 4298*e*, see Britton, E. C.
—— and Wolf, P. A. Making carbohydrate foods resistant to microörganisms, P 6758*ab*; making proteinaceous and fatty foods resistant to microörganisms, P 6758*d*; retarding growth of microörganisms in light alc. beverages, P 6783*a*.
**Coleman, K. D., Nudenberg, R.**, and Pool, M. L. X-ray emission from radioactive Sn, Sb, and W, 4091*a*.
**Coleman, R. G.** See Underwood, E. J.
**Coleman, T. L.** See Hill, H. B.
**Coleman, W. R.** See Bywater, W. G.
**Coles, D. K.** Microwave absorption line frequencies of MeOH and their Stark effect, 496*a*; microwave spectroscopy, 8888*g*; see Good, W. E.
**Coles, H. W.** Recovery of dextrins from stillage sirup, P 816*c*.

**Coles, J. S.**, Clapp, L. B., and Epple, R. P. Chem. education at Brown Univ—teaching the fundamentals of chemistry in college, 2049*g*.
**Coley, B. L.** Neoplasms of Bone and Related Conditions (book), 4371*f*.
**Coley, J. R.** See Komarewsky, V. I.
**Colgate-Palmolive-Peet Co.** (*Patents*) Detergents, 886*c*, 3638*g*, 4034*a*, 9495*h*; hydrolysis of fats, 1586*b*, 2793*g*, 9493*h*; nondusting soap compn., 1587*a*, bromination of org. compds, 2232*f*, Al soaps, 2452*d*; bromination of unsatd. compds., 2628*i*, reaction of org compds with H halides, 3024*a*, catalyzed sulfamic acid sulfation, 3024*g*, photocatalytic reactions, 3726*e*, monoglycerides, 6843*f*; recovering glycerol from fermentation concentrates, 8608*f*; glycerol extn. process, 9081*d*; org sulfonates, 9496*i*; partial esters, 9194*c*
**Colhoun, J.** N content in relation to fungal growth in apples, 9176*c*
**Colichman, E. L.** See Meites, L.
**Colin, G.**, Jarrijon, A., and Thirion, P Caoutchouc materiau de construction (book), 1600*i*
**Colin, L. L.** Treatment of pyrrhotite ore, 7875*g*.
**Colin, R.** See Dubois, P
**Colin, R. H.**, and Gardner, D. A. Detn. of $Al_2O_3$ in steel, 7371*i*.
**Colingsworth, D. R.** See Garson, W.; Murray, F. J.
**Colla, C.** See Arnaudi, C.
**Collard, A.** See Moureau, P
**Collahl, H.** Changes in the organism from insufficient gas exchange (III) cause of the lowered tissue respiration in insufficient gas exchange and the effect of high $CO_2$ concns in tissue respiration, 3910*c*.
**Collegeman, S. M.**, and Belt, J. R. Factors affecting simulated service tests of greases 5936*b*.
**Collet, A.** Metallic sulfides in eruptive and cryst. rocks, 71*f*, gneiss-contg layers of fibrolite in the Lyons deposits, 8092*d*.
**Collet, H.** Hydrates of Al selenate, 5687*a*; $H_2O$ at a temp of 20° in the quaternary system $Al_2(SeO_4) + 3Na_2SO_4 = Al_2(SO_4)_3 + 3Na_2SeO_4$, 6067*b*.
**Collet, R. A.**, and Favarger, P. Compn. of plasma lipides of the dog after absorption of trieladin, 8494*c*.
**Collett, J. D., Jr.** Gas-sampling device, P 449*f*.
**Colli, A.**, and Quacci, G. Blood histamine and bronchial asthma, 5869*g*.
**Colliander, S.** Silica gel as a dehydrator, 3873*b*.
**Collie, B.** See Burgoine, E.
**Collie, C. H.** See Bishop, G. R; Shaw, P. F. D.; Wilson, R
—— and Grace, M. A. Absorption coeff. of the $\beta$-rays from $_{16}S^{35}$ in Al, 4118*h*.
——, Hasted, J. B., and Ritson, D. M. Measuring the dielec. consts of polar liquids in the cm band, 453*i*; dielec. properties of $H_2O$ and $D_2O$, 3676*c*.
**Collier, D.** Deciding influence of matrix rock on chem. compn. of Auvergne soils, 3955*d*; black soils of the Limagne in Auvergne—compn. and origin, 8589*f*.
**Collier, D. W.** See Wilhelm, R. H.
**Collier, H. B.** See Fee, D. A.
**Collier, H. O. J.**, Fieller, E. C., Paris, S. K., and Bellis, D. M. Evaluation of the purgative activity of senna exts.—comparison of bio-assay and chem. assay of senna, 1153*e*.
**Collier, J. S.** See Floro, M. B.
**Collier, W. A.** See Veen, A. G. van.
**Collin, R.** Histological tests for hormone activity, 3056*f*.
**Collin, R. L.**, and Lipscomb, W. N. Crystal structure of groutite, 6484*b*.
**Collinge, B.** Reduction of dead times in Geiger-Müller counters, 4110*a*.
**Collins, C. B.** See Macnamara, J.; Thode, H. G.
**Collins, D. A.** Influence of tetraethylammonium ion on responses of isolated intestine to angiotonin and other substances, 1110*f*.
**Collins, D. L.** See Connola, D. P.
**Collins, E. B.**, and Nelson, F. E. Effect of *Streptococcus lactis* and coliform organisms on the sol. N of milk, 8067*g*.
**Collins, F.** See Morton, A. A.
**Collins, F. C.**, and Kimball, G. E Diffusion-controlled reaction rates, 7796*b*.
**Collins, F. H.** Detn. of added inorg. material in phosphated flour, 9277*f*.
**Collins, G. B.** Decay times of scintillations, 1258*c*; see Barnes, S. W.
—— and Hoyt, R. C. Detection of $\beta$-rays by scintillations, 4095*i*.
**Collins, G. T.** Product of the reaction of alkenylsuccinic esters with S, P 2634*i*.
**Collins, H. M.** See Morrison, G. O.
**Collins, H. S.** See Paine, T. F, Jr
—— and Finland, M. Detn of caronamide, 5074*i*.
**Collins, J. F.** See Offenhauer, C. M.
**Collins, J. H.** Plastics in the building trades, 434*h*.
**Collins, L. F.**, Schlachter, F J., and Winans, G. D Corrosion of underground steam line supports, 9016*h*.
——, *et al* Fouling in water circuits and evaporators, 8755*g*.
**Collins, N. R.** See Clarke, R. E
**Collins, P.** See Kolmer, H. S.
**Collins, R. A.** See Barki, V. H
**Collins, R. B.** See Nicholson, E. E
**Collins, R. D.**, and Tyler, J. D Gaseous mixing in open-hearth furnace models (I) maerz, 7878*g*
**Collins, R. F.** Volcanic rocks of northeastern New Mex., 6128*b*
**Collins, T. G.** See Clark, C. W.
**Collins, T. T., Jr.** Detn of sulfide in oxidized sulfate black liquor, 8678*b*
—— and Adrian, A. Wet-strength paper, 6824*i*
—— and West, P. H Kraft recovery, 9141*c*.
**Collins, V. G.** See Taylor, C. B
**Collins, W. L.** Fatigue and static load tests of an austenitic cast iron at elevated temps., 6554*b*
**Collins, W. T.** Prepn. of business reports, 3117*g*.
**Collins-Williams, J.** See Wrenshall, G. A
**Collinsworth, E. T., Jr.** See Pratt, W. E.
**Collis, C. B.** See Anglo Iranian Oil Co., Ltd; Baker, W; Birch, S. F.
**Colloid Drug Manufg. Co.** Prepn. for controlling stomach acids, P 5552*e*
**Collonges, R. S. A.**, and Vallee, J P S Nondrying oils from rosin or rosin oil, P4873*c*.
**Collumbien, H.** Imitation in perfumery, 9363*i*.
**Collyer, H. J.** See Dannenberg, E. M
**Colman, E. A.**, and Hendrix, T. M. Fiberglas elec. soil moisture instrument, 7619*f*.
**Colmeiro, J. M. F.** See Fernández Colmeiro, J. M.
**Colobraro, V.**, and Valenciano, O A. N fractions of milk and their detn, 5876*f*
**Coloma, T. A.** See Alcober Coloma, T.
**Colomb, P.** Utilization of the by-products of the manuf of synthetic fat acids in the paint and varnish industry, 4027*c*.
**Colombier, L.** Métallurgie du fer (book), 1708*a*.
**Colombo, C.** Incubation temp and the course of lysis of bacterial colonies by amino acids and bacterial exts, 715*f*
**Colomina, M.** See Foz Gazulla, O R.
**Colon, A. A.**, Herpich, G. E., Nuss, J. D, and Frediani, H A Assay of relatively pure benzylpenicillin by ultraviolet absorption, 8613*f*.
**Colón, I. A.** See Fernández-García, R.
——, Fernández-García, R, Amorós, L., and Blay, H. *N*-Substituted 2,4,3,5-dimethylene-D-gluconamides, 5006*i*.
**Colon Fortis, R.** See Fernández-García, R.
**Colonge, J.**, and Dreux, J. Condensation of $\alpha$-vinyl ketones by the diene synthesis, 5023*i*
—— and Lagier, A. Secondary and tertiary $\gamma$-ethylenic aliphatic alcs.—prepn. of these alcs.—transformation into tetrahydrofuran compds., 5731*i*, tertiary $\alpha$-alc. $\delta$-ethylenic acids, 5736*b*; use of chlorinated $\gamma$-ethylenic compds. in the Friedel-Crafts reaction, 5736*e*.
——, Marey, R., and Thomas, G. Synthèse organique Vol. II (book), 6642*i*.
—— and Pichat, L. Addn. of aromatic compds to ethylenic ketones (I) $\alpha$-ethylenic ketones and benzene, toluene, and anisole, 5761*i*.
—— and Rochas, P. Reaction of ethylene oxide with aromatic hydrocarbons in the presence of $AlCl_3$ (I) benzene, (II) homologs of benzene, (III) biphenyl, (IV) naphthalene and 1,2,3,4-tetrahydronaphthalene, 2182*d*; compds. of hydrophenanthrene and hydroanthracene, 2183*b*.
**Colonge, R. A.**, and Baclesse, M. Does purified progesterone exert an androgenic action? 739*f*.
——, Baclesse, M., and Guyon, L. Action of dimethylethylallenolic acid on the male rat, 5864*h*.
—— and Raffy, A Riboflavin and physiology of the hypophysis, 1848*c*.
**Colonial Sugars Co.** Fractionation of sugar-cane wax, P 2795*d*.
—— and Johnson, S. C., & Son, Inc. Refining sugar-cane wax, P 4037*d*
**Colonna, M.** Benzothiazole (VIII), 1766*f*, diazaphenanthrene series (I) derivs. with a probable antimalarial action, 2209*g*; prepn. and administration of synthetic estrogens, 9363*i*
—— and Dal Monte-Casoni, D. Diazaphenanthrene series (IV) cation halochromism of some diazaphenanthrones, 8392*g*.
—— and Montanari, F. Benzothiazole (X) resonance in some 2-substituted 6-nitrobenzothiazoles, 5395*c*; diazaphenanthrene series (III) influence of the methyl group on the halochromism of cinchoninic acids intermediate between diazaphenanthrenes and the corresponding quinolines, 8392*a*.
—— and Passerini, R Diazaphenanthrene series (II) cation halochromism of cinchoninic acids intermediate between diazaphenanthrenes and the corresponding quinolines, 8391*d*, (V) cation halochromism of some diazaphenanthronimines, 8393*c*
**Colonna-Ceccaldi, J.** Abrasive products for superfinish, 7205*c*
**Colorado Fuel and Iron Corp.** Prepg a phosphate-impregnated acid treated activated charcoal, P 4452*d*
**Colorado Iron Works Co.** Hydraulic classifier with hindered settling, P 3219*b*.
**Colovos, N. F.** See Keener, H. A.
——, Keener, H. A., Prescott, J. R., and Teeri, A. E Nutritive value of timothy hay at different stages of maturity as compared with second cutting clover hay, 7601*c*.
**Colowick, S. P.** Action of insulin, 8555*d*.
**Colpitts, J. H.** See Bremner, J. G. M.
**Colson, A. F.** Detn. of C and H in org compds., 969*a*
**Colt, E. W.** See Ralston, A. W.
**Colt, R. S.** Cellulose ester lithographic printing process, P 958*a*.
**Coltman, J. W.** See Altar, W
**Colton, H. S.**, Frischmuth, R. W., and Knowles, R. L. K tungstate, P 7201*c*
**Colucci, G.** Elimination of trimethylamine during puerperium, 742*g*
**Columbia Records, Inc.** Phonograph record, P 2820*f*
**Colvin, J. R.**, and McCalla, A. G Phys and chem properties of gluten (I) estn of mol properties using electrophoretic and diffusion data, 7065*g*
**Colwell, L.** See Strumia, M. M.
**Colwell, W. E.** See Nelson, Walter L.
**Coma Díaz, C.** Firing of ceramics, 7655*f*
**Comaford, D. J.** See Gifford, A. P
**Comar, C. L.** Radioisotopes in nutritional trace element studies (I), 37*g*; (II), 733*e*, (III), 1841*h*, see Bledsoe, R. W
—— and Driggers, J. C Secretion of radioactive Ca in the hen's egg, 6715*e*.
—— ——, Singer, L., and Davis, G. K. Mo metabolism and interrelations with Cu and P, 9187*e*
**Combes, R.** Physiologie végétale (book), 3892*c*
**Combs, E. E.**, McCloskey, C. M., Sundberg, R. L., and Coleman, G. H. Alcoholysis of sugar derivs., 2951*d*.
**Comeadow, W. A.** Fungicide for gladiolus, 3961*c*.
**Comenge, M.**, and López López, J. Spanish pepper, 6329*d*.
—— and Ojeda, E. Metabolism of *Bombyx mori* (II) dry matter and $H_2O$, (III) carbohydrates and lipides, (IV) protein metabolism, 3529*a*.
**Comer, J. J.**, and Hamm, F. A. Modified silica replica technique, 4557*b*.
**Comes, D. A.** See Banbury, F. H.
**Comes, R.** Bacteriostatic activity *in vitro* of *p*-sulfamylthiophenol (4-mercaptobenzenesulfamide) (III), 9246*e*.
**Comessatti, G.** Ca metabolism—reaction of Ca in urine, 6683*f*.
**Comfort, A.** Acid-sol. pigments of shells (I) distribution of porphyrin fluorescence in molluscan shells, 6321*g*.
**Comfort, J. E.** See Brody, S.
**Comfort, M. W.** See Cromer, H. E., Jr.
**Comín, J. L.** See García-Blanco, J.
**Comings, E. W.**, and Johnson, R. C. Flowmeter for high temp. gases, 3666*b*.
**Commarmont, A.** See Stoll, M.
**Commerce Pattern Foundry & Machine Co.** Continuous replenishment of metal

electrodes in high-temp. salt bath, P 4154*a*.

**Commercial Solvents Corp.** (*Patents*) Acetylenic alcs., 6219*b*; alkali metal salts of penicillin, 5553*c*; *N*-alkyl-4-amino 4-methylvaleramides, 3450*b*; 2-amino-2-alkyl-*N*,*N'*-diaryl-1,3-propanediamines, 2230*b*; arylalkyluitro alcohols, 3038*a*, cryst. K and $NH_4$ penicillin salts, 5554*a*, fungicidal comps., 4419*a*, halogenated olefins, 2218*b*, 1,2,3,4,5,6 hexachlorocyclohexane, 6778*f*, *N*-(hydroxyalkyl) amides and fatty acid ester type derivs., 7258*s*; methylamines, 3440*g*, nitroalkylcyclic amines, 813*a*; nitroalkyl sulfites, 6222*s*, 2-nitro amines, 5424*g*, 5-nitrotetrahydro-1,3-oxazines, 1068*g*; penicillin extn., 5553*a*, plasticizers for butadiene copolymers, 5992*a*, purification of penicillin solns., 8106*h*, recovery of nitromethane from aq. alc. mixts., 5790*a*, recovery of riboflavin, 7190*ac*, riboflavin, 6782*g*; substituted 3-carbamyl 2-piperidones, 7051*c*, *N*,*N*,*N'*,*N*-tetrabutyladipamide as plasticizer for butadiene-acrylonitrile copolymer, 7258*e*; tyrothricin, 4342*g*, unsatd alcs., 2629*c*.

**Commercial Solvents (Great Britain) Ltd.** Sepn. of $Me_2CO$, EtOH, and BuOH from aq solns., P 1906*d*.

——, Benheld, T., and Holdsworth, H. Refining $Me_2CO$, P 7953*e*.

**Commoner, B.** Absorption of ultraviolet light by cellular nucleic acids, 7081*e*.

**Commons, R. R.** See Burnett, C. H.

**Commonwealth Engineering Co. of Ohio.** Dry-cleaning emulsion, P 4022*b*, blueprint marking compn., P 6090*f*, bonding of metal carbonyl deposits, P 7897*e*.

**Comolli, E.**, and Riva, R. Influence of vitamin E on muscular chronaxie of children, 1842*g*.

**Compagnie pour la fabrications des compteurs et matériel d'usines à gaz** Desulfurizing of coal gas, P 8122*a*.

**Compagnie française de raffinage.** Alkylation of aromatic hydrocarbons, P 4004*i*, hydrogenation of hydrocarbons, P 4843*i*.

**Compagnie générale des conduites d'eau, Soc. anon.** Malleabilization of cast iron and centrifugal castings, P 988*i*.

**Compagnie nationale de matières colorantes & manufactures de produits chimiques du Nord réunies établissements Kuhlmann.** Disazo dyes for rayon and artificial fibers, P 1573*b*, pyridine derivs., P 5040*b*, azo dyes, P 8044*i*.

**Compagnie de produits chimiques et électrométallurgiques Alais, Froges & Camargue.** (*Patents*) Electrometallurgy of Al, 5036*c*, protecting Al alloys, 9906*g*, cell for refining Al, 1588*a*, 11-aminohendecamoic acid, 5037*i*, Cu oxide of hydroxide, 5161*d*, $MnO_2$, 7203*h*, sepn of aq. azeotropic mixts 7275*c*, acetonitrile, 7409*c*, extg Ga oxide from aluminous substances, 7052*a*; Ba and its alloys, 7894*c*.

**Comparat, P.**, *et al.* U 235 et plutonium 239 (book), 947*g*.

**Compere, E. L.** See Choppin, A. R.

**Compere, M.** See West, P. W.

**Compte, H.**, and Mercier, M. Tannage, 8720*b*.

**Comptoir des textiles artificiels** Purifying Na sulfate, P 5161*h*, filtering app., P 7228*h*, cross-linking cellulose derivs., P 8137*b*; treating cellulose derivs., P 8137*c*, treating regenerated cellulose, P 8138*b*.

**Compton, E. D.** Effect of tannage on strength of collagen fibers, 7246*g*.

**Compton, K. G.** Building org. protective coatings to special requirements, 5202*f*

——— and Mendizza, A. Corrosion of telephone outside plant material, 5723*h*.

**Compton, O. C.** See Boynton, D.

**Comroe, J. H., Jr.**, and Dripps, R. D. Curare and curarelike compds., 9261*e*.

**Comsa, J.** Action of thyroxine and estrone on creatinuria—action of thyroxine and testosterone on creatinuria, 1107*c*.

**Comstock, G. F.** Low-alloy steel for high temp. use, 6556*b*; see Thomas, R. D., Jr.

**Comstock, G. J.**, Shaw, J. D., Clark, C. I., and Knopp, W. V. Powder metallurgy, 3756*b*.

**Comstock, R. L.** See Lippman, A., Jr.

**Comstock, V. E.**, and Law, A. G. Effect of clipping on the yield, botanical compn., and protein content of alfalfa-grass mixts., 1515*c*.

**Conabere, G. O.** Design of the skin of various animals (I) layout of interweaving fibers, 1203*e*; phys. properties of leather (I) sampling—relative humidity, 1203*h*; leather, 4788*g*.

——, Dempsey, M., and Raymond, B. W. Design of the skin of various animals (II) weave pattern and grain surfaces, 1203*f*

——— and Hall, R. H. Phys. properties of leather (II), 1203*h*.

**Conalty, M. L.** See Barry, V. C.

**Conan, T. J.** See Antonoff, G.

**Conant, F. S.**, Dum, J. L., and Cox, C. M. Frictional properties of tread type compds. on ice, 2012*d*

——, Hall, G. G., and Thurman, G. R. Relation between Couch-Joule coeffs. and moduli of vulcanized rubbers, 6858*c*.

**Conant, G. H., Jr.** Stabilized and solubilized, I compn. for water decontamination, P 9310*d*

——— and Morris, J. C. $H_2O$ disinfectant compn., P 3954*g*.

**Concannon, C. C.** Exports and imports show decline, 1125*b*; U. S. world trade in chemicals, 8577*a*

——— and Swift, A. H. World chem. developments, (II), 1230*f*

**Conceição Paes Barreto Cavalcanti, M. da.** See Paes Barreto Cavalcanti, M. da C.

**Conde, F. L.** See Luceua Conde, F.

**Condé, G. E.** Coating compn comprising a polychloroprene and Al powder, P 3659*d*.

**Condit, I. J.** See Stewart, W. S.

**Condit, P. C.** Cyclohexadiene dicarboxylic acids, P 7839*a*, see Denison, G. H., Jr.

——— and Haynor, R. L. Thermal decompn. of nitroxylene and nitrobenzene, 9045*c*

**Condon, E. U.**, and Crittenden, E. C. International Conference on Weights and Measures, 4526*g*.

**Condon, F. E.** Hydrocarbon sepn., P 7223*d*

**Condon, M. Z.** See Lambou, M. G.

———, Lambou, M. G., Vignes, J. L., Loe, J. R., and Altschul, A. M. Inhibitors of heating and deterioration in seeds (I) ethylene chlorohydrin and related compds., 4733*h*

**Cone, C.** Annealing furnace for metal strip in coils, P 9018*g*.

**Cone, W. V.**, Tower, D. B., and McEachern, D. Acetylcholine and neuronal activity in epilepsy, 9232*b*.

**Conese, G.** See Ferrannini, A.

**Confalonieri, G.** See Breda, R.

**Conklin, J. G.**, and Walter, G. L. Parathion for bud moth control, 5897*d*

**Conklin, L. H., Jr.** Evaluation and use of flatting agents, 5202*b*; action of a flatting agent in clear finishes, 5606*a*.

**Conklin, R. L.**, and Ogle, W. $\gamma$-$p$ Process in Be$^9$, 4093*g*

**Conley, C. L.**, Hartmann, R. C., and Lalley, J. S. Relation of heparin activity to platelet concn., 1487*e*

——, Hartmann, R. C., and Morse, W. J. IV. Circulating anticoagulants—detection and clinical studies, 5443*a*.

**Conley, J. E.**, and Skow, M. L. Lime-soda sinter process for $Al_2O_3$ from high silica bauxites—lab. and pilot plant tests, 5909*g*.

———, Wilson, H., Klinefelter, T. A., *et al.* Production of lightweight concrete aggregates from clays, shales, slates, etc., 1047*i*

**Coun, A. L.**, and Brackin, C. W. Cracking of high S stocks—use of steam with natural catalyst, 8656*e*.

**Conn, E.** See Schubert, J.

——, Vennesland, B., and Kraemer, L. M. Distribution of a triphosphopyridine nucleotide specific enzyme catalyzing the reversible oxidative decarboxylation of malic acid in higher plants, 9168*e*.

**Conn, G. K. T.**, and Donovan, B. Magnetoresistance effects in Bi, 10*g*.

**Conn, J. B.**, and Van de Kamp, J. Quinolinic acid, P 1443*a*.

**Conn, J. W.** Acclimatization to heat—conservation of NaCl—N and salt equils.—metabolic effects of desoxycorticosterone acetate, 8408*b*.

———, Louis, L. H., and Johnston, M. W. Alleviation of diabetes in man by administration of reduced glutathione—metabolic implications, 6290*c*.

——, Louis, L. H., Johnston, M. W., Johnston, B., Blood, J., and Pinkham, E. Metabolism of uric acid, glutathione, and N, and excretion of "11-oxy steroids" and 17-keto steroids during induction of diabetes in man with pituitary adrenocorticotropic hormone, 4366*i*.

**Conn, R. C.** See King, V. L.

**Conn, Robert C.** Liquid S dye compn comprising an alkylol amine, P 8169*i*, see Parker, R. P.

—— and Weiss, R. H. 1-Naphthylamine-2-sulfonic acid, P 6666*h*.

**Connell, L. F., Jr.** See Colby, M. Y.

**Connell, L. J. C.** See Carpenter, I. G.

**Connert, W.**, Maurer, E., and Scherer, R. Suitability of Cr-V steels for high-temp and high-speed tools, 6135*f*.

**Connick, R. E.** Disproportionation of Pu(V), 6531*g*

—— and McVey, W. H. Peroxy complexes of Pu(IV), 6536*f*, aq. chemistry of Zr, 8929*a*.

**Connin, R. V.** See Gertler, S. I.; Questel, D. D.

**Connola, D. P.** See Granett, P.

——, Collins, D. L., and Hagmann, L. F. Log treatments for bark beetle control in the Dutch elm disease, 4417*b*.

**Connolly, G. C.** Hydrocarbon conversion catalyst, P 843*s*; $SiO_2$-$Al_2O_3$ gel, P 7608*g*, synthetic gels, P 9298*h*; see Beach, L. K.

**Connolly, G. E.** Scrubber and classifier of reconditioned foundry sand, P 9019*a*.

**Connolly, J.** See Pollard, M.

**Connor, C. L.** See Chakoff, I. L.

**Connor, P. M.** See Weesner, C. W.

**Connor, R. D.** Properties of the $\alpha$-particle spark counter, 5202*c*.

**Connors, W. M.** See Dounce, A. L.

—— and Stotz, E. Purification and properties of a triacetic acid-hydrolyzing enzyme, 6266*i*.

**Conover, C.** Synthesis of carbazole from *o*-aminobiphenyl with $Al_2O_3$ as tar inhibitor, P 9086*a*.

**Conrad, A. L.** Detn. of aromatic compds. in petroleum products, 3179*c*.

—— and Vigler, M. S. Detn. of B in borine compds., 5329*e*

**Conrad, C. M.** See Segal, L.

**Conrad, F. H.**, and Bryce, D. B. Soly. of $SO_2$ in Mg bisulfite solns., 5947*f*.

**Conrad, G.** Stripping finishing materials, 875*a*, hammer finishes, 876*b*.

**Conrad, L. M.** See Brennan, J. B.

**Conradi, L. T.** See Deas, R. E.

**Conrat, H. F.** See Fraenkel-Conrat, H.

**Consden, R.** Structure of textile fibers (VI) wool, 8686*c*

——— and Gordon, A. H. Effect of salt on partition chromatograms, 266*c*.

———, Gordon, A. H., and Martin, A. J. P. Acidic peptides formed on the partial acid hydrolysis of wool, 9105*i*

**Considine, D. M.**, and Eckman, D. P. Electronics improves industrial process control (I) electronic potentiometers and x-ray spectrometry, 6469*h*.

——— and Sharp, C. E. New Standard Oil Co.'s scientific instruments and air-conditioning controls, 7220*h*.

**Consolazio, F.** See Cohen, M. E.

**Consolazio, F. C.** See Swain, H. L.

**Consolazio, W. V.** NaCl tablet, P 8619*h*.

**Consolidated Engineering Corp.** Mass spectrometer, P 7274*d*.

**Consolidated Mining and Smelting Co. of Canada, Ltd.** Filtering app. for sepg. molten Sn from Fe admixtures, P 554*d*; electrolytic cells for the electrolysis of chloride fusions heavier than Mg to produce Mg and Cl, P 4588*b*, electrolysis of chloride fusions heavier than Mg, P 4588*h*.

——— and Abbey, A. App. for the production of anhydrous metal chlorides, P 826*b*; anhyd. $MgCl_2$, P 6795*i*

**Consolidated Royal Chemical Corp.** Condensation products of stearyl stearate with polyethylene glycols, P 9080*e*.

**Consolidated Vultee Aircraft Corp.** Translucent sheet for reproduction purposes, P 908*c*; flexible insulating pad, P 5518*h*.

**Consolidated Water Power & Paper Co.** Laminated plastic, P 1513*h*.

**Constable, F. H.**, and Mergen, S. Dynamics of heptylic acid foams, 2811*h*.

**Constable, R. F. S.** See Strickland-Constable, R. F.

**Constaninides, P.** Estn. of vitamin C in leucocytes by the hydrazine method, 7069*g*.

**Constantin, T.** Action of a cancerigenic agent, styryl 430, on *Saccharomyces cerevisiae*, 7078*i*.

**Constantine, W. W.** See General Motors Corp.

**Conte, E. del.** See Del Conte, E.

**Conti, S.** Defiement of ground waters, 5519*f*.

**Continental Can Co., Inc.** Electrolytic stripping and detn. of plating metal, P 1665*g*; glass-cloth spotting material, P 1935*a*; gas-sampling device adapted to testing canned food, P 2339*f*; solder-flux mixts., P 8350*d*.
**Continental Carbon, Inc.** Enamel for coating metal film resistors, P 4142*h*
**Continental Foods, Inc.** Cored packaged soups, P 5512*g*.
**Continental Oil Co.** Addn. agent for lubricants, P 2423*i*, organic cyclic-Si condensation polymers, P 8210*d*
**Contractor, G. P.** Rimming steel, 6556*g*.
**Contractor, R. B.**, and Peters, A. T. Intermediates and dyes (I) *tert*-butylphthalic acid and anhydride, 8139*g*.
**Contreras, L.** See Monge M., C.
**Controlled Heat & Air Ltd.** Filter arrangement for air-washing app., P 913*e*
**Controulis, J.** See Banks, C. K.
**Conway, A. C.** See Ting, K. S.
**Conway, B. E.** See Bockris, J. O'M.
**Conway, E. J.**, and Brady, T. G. Source of the H ions in gastric juice, 3500*i*
**Conway, J. G.** See Nachtrieb, N. H.
**Conway, M.** Chromospheric flare, 5301*g*.
**Conway, M. J.**, and Hogan, J. J. Estg. costs of industrial O for steelmaking, 1267*f*.
**Conway, N. S.** See Harper, E. M.
**Conwell, Y.**, Roeser, G. P., and Fobolsky, A. V. Prepn. and vulcanization of liquid polyisoprene polymers, 8193*i*.
**Consetti, A.**, and Schetty, G. Chromable azo dyes, P 8147*e*
**Coogan, C. K.** See Bannon, J.
**Cooil, B. J.** K deficiency and excess in guayule (II) cation-anion balance in the leaves, 281*e*.
——— and Slattery, M. C. Effects of K deficiency and excess upon certain carbohydrate and nitrogenous constituents in guayule, 281*i*.
**Cook, A. A.** Function of a lab. in the evaluation of textile finishes, 6423*g*.
**Cook, A. B.** See Carpenter, C. B.
**Cook, A. H.** Chemistry of the penicillins, 1078*d*; chromatographic sepn. of natural compds., 8234*e*; see Capp, C. W.; Chatterjee, R., Heilbron, I. M., Therapeutic Research Corp. of Great Britain Ltd.
———, Downer, J. D., and Heilbron, I. M. Azole series (VI) interaction of α-amino nitriles and isothiocyanates, 1400*f*, (IX) interaction of α-amino nitriles and alkyl isothiocyanates, 3408*h*.
———, Elvidge, J. A., and Heilbron, I. M. Fertilization including chemotactic phenomena in the Fucaceae, 1081*h*
———, Harris, G., and Heilbron, I. M. Azole series (V) synthesis of β-phenylcysteine, 1399*e*.
———, Harris, G., Heilbron, I. M., and Shaw, G. Azole series (IV) the prepn. of some thiazolones, 1398*d*
———, Heilbron, I. M., and Stern, E. S. Azole series (X) 5-amino-2-mercapto-4-alkylthiazoles and 2,4-dithio-5-alkylhydantoins, 3409*e*.
**Cook, A. J.** See Rees, W. P.
**Cook, A. O. M.** See Patterson, T. S.
**Cook, B. E.** Molar refraction and alternating polarity in alkyl chains, 8770*a*
**Cook, C.** See Hucker, C. J.
**Cook, C. S.** See Braden, C. H.; Moe, D.; Owen, G. E.; Robinson, J. E.; Ter Pogossian, M.
———, Langer, L. M., and Price, H. C., Jr. β-Spectra of $Cl^{36}$ and $S^{35}$, 36*g*.
**Cook, E. L.** See Glenn, E. E., Jr.
**Cook, E. T.**, and Dye, J. A. Pancreatic diabetes in the calf, 9233*h*
———, Dye, J. A., and McCandless, E. Pancreatic diabetes in the calf, 6305*e*
**Cook, E. W.** Soap antioxidants, P 5215*i*; see Moss, P. H.
——— and Moss, P. H. Bivalent metal salts of halogen-substituted phenol sulfides, P 2739*h*; quaternary ammonium compds., P 4430*h*; mildew-proofing, P 6357*c*.
**Cook, F. V.** Treating engine jacket water, 7888*h*.
**Cook, G. T.** Urease and other biochem. reactions of the *Proteus* group, 1459*f*
**Cook, H. A.**, Griffin, A. C., and Luck, J. M. Tissue proteins and carcinogenesis (II) electrophoretic studies on serum proteins during carcinogenesis due to azo dyes, 4370*d*.
**Cook, H. G.**, Saunders, B. C., and Smith, F. E. Esters contg. P (VIII) structural requirements for high toxicity and miotic action of esters of fluorophosphonic acid, 8350*i*
**Cook, J. G.**, Dickson, J. T., Huggill, H. P. W., Lowe, A. R., and Imperial Chemical Industries Ltd. Polyester fibers, P 7236*h*.
———, Dickson, J. T., Lowe, A. R., and Whinfield, J. R. Polymeric linear esters, P 6236*d*
———, Dickson, J. T., Lowe, A. R., Whinfield, J. R., and Imperial Chemical Industries Ltd. Polymeric linear esters and the production of filaments, fibers, etc., P 1223*g*
———, Harper, D. A., Reynolds, R. J. W., Smith, W. F., and Imperial Chemical Industries Ltd. Vulcanized materials, P 4046*k*.
———, Huggill, H. P. W., Lowe, A. R., and Imperial Chemical Industries Ltd. Polyester fibers, P 7236*g*.
**Cook, J. H.** See Allen, J. F.; Taylor, J.
——— and Leckie, A. H. Furnace for the investigation of open hearth furnace combustion problems (IV) roof temps., 2908*e*
**Cook, J. W.** Test paper of urease and acid base indicator for detection of urea, 7070*i*
**Cook, James W.** Chem. and biochem. oxidation of polycyclic aromatic hydrocarbons, 4211*i*, colchicine, 9075*h*, see Badger, G. M.; Buchanan, G. L.
———, Hunter, L., and Schoental, R. Naphthalene 2,3-dialdehyde, 8371*i*
——— and Schoental, R. Chem. and biochem. oxidation of polycyclic aromatic hydrocarbons, 9060*g*
——— and Somerville, A. R. Synthesis of 3,4-benzotropolone, 4753*a*
**Cook, J. Williamson.** See Scott, R. B.
**Cook, L.** Desulfurization in the basic open hearth furnace with bauxite, 8999*h*.
**Cook, L. J.**, McMillan, E. M., Peterson, J. M., and Sewell, D. C. Total cross sections of nuclei for 90-m.e.v. neutrons, 3282*n*
**Cook, M. A.** Fugacity detns. of the products of detonation 407*e*, theory of adsorption of gases on solids, 1237*d*
——— and Puck, D. H. Extrapolation of adsorption isotherms to high relative pressures and the detn. of the surface pressure of adsorbed films on solids, 6033*g*.
**Cook, N. C.** See Dixon, J. A.; Stehman, C. J.
**Cook, R. K.**, Greenspan, M., and Weissler, P. G. Thermal voltages of a quartz crystal, 2062*e*
**Cook, Ralph L.** See Tuttle, M. A.
——— and Esseuprees, J. F. Effect of soda, potash, and lithia on phys. properties of a titania cover enamel, 4439*e*
**Cook, Ray L.** See Lawton, K.
———, Robertson, L. S., Lawton, K., and Rood, P. J. Green-tissue testing with the Spurway soil testing equipment as an aid in soil-fertility studies, 2723*h*
**Cook, R. M.** See Speight, C. E.
**Cook, S. J.** Nobel prizes and their donor—Canadian tribute, 2049*f*
**Cook, W. A.** See Drinker, P.
**Cook, W. B.** Refinery paint program (I), (II), 7237*d*, see Emerson, W. S.
**Cooke, E. I.** Gardner's Chem. Synonyms and Trade Names (book), 479*a*; see Gardner, W.
**Cooke, G. B.** Cork and cork products 1811*i*, cork compn., P 4518*g*.
**Cooke, G. W.** Fertilizer placement in Engl. and, 7173*d*
**Cooke, J. T.** See Elkins, L. F.
**Cooke, M. A.** See Wartman, F. S.
**Cooke, M. D.** See Distillers Co., Ltd.; Standinger, I. J. P.
——— and Standinger, I. J. P. Improvements in copolymers of vinyl chloride, P 2035*e*
**Cooke, M. I.** See Corgan, J. A.
**Cooke, N. E.**, and Chowdhury, N. K. Utilization of fish wastes—com. enzymes from the pyloric ceca of fish, 1815*f*.
**Cooke, R. G.** Structure of dunnione, 3408*e*
**Cooke, S. A.** Detn. of hiding power of pigments, 2444*f*.
**Cooke, S. R. B.** Flotation of quartz using $Ca^{++}$ as activator, 6953*i*.
——— and Digre, M. Activation of quartz with $Ca^{++}$, 6953*h*.
**Cooke, W. D.**, Hazel, F., and McNabb, W. M. Volumetric detn. of Fe, 5098*i*, 8953*i*.
**Cooke, W. T.** See Barclay, J. A.
**Cooke-Yarborough, E. H.** See Putman, J. L.
——— and Davey, C. N. Quench circuit for Geiger counters, 4945*i*.
**Cookson, K.** Purification of potable water, P 4800*a*.
**Cookson, R. C.**, and Mann, F. G. Cyanoethylation of amines and arsines, 8351*g*.
**Cool, R. L.**, Fowler, E. C., Street, J. C., Fowler, W. B., and Sard, R. D. Cloud-chamber study of mesons stopping in Al foils, 4944*a*.
**Cooley, M. L.**, and Christiansen, J. B. Stability of choline in feed mixts., 1123*e*.
———, Christiansen, J. B., and Koehn, R. C. Vitamin A in mixed feeds—chromatographic sepn. and estn., 6756*h*.
**Coolhaas, C.** Work of Prof. O. de Vries at the Expt. Sta. for Vorstenland Tobacco, 8760*h*.
**Coolidge, A. S.** Imaginary contact angles and the Jones Ray effect, 8234*f*.
**Coolidge, T. B.** See Lightfoot, L. H.
———, Williams, N. B., Ebisch, A. E. I., and Hodges, E. A. Metabolic changes in oral lactobacilli, 9151*b*.
**Cooman, E. P. de.** Phosphatases in *Ascaris lumbricoides*, 7149*a*
**Coombes, A. I.** See Rice, E. E.
**Coombs, G. W.** Canning of butter, 9282*d*
**Coombs, L. A.**, and Anderson, H. Use of mangrove bark, 4039*d*; influence of synthetic tannin on the dispersion of "myrtan," 4040*b*.
**Coombs, R. D.** See Morton, A. V.
**Coon, J. H.** $He^3$ isotope abundance, 5283*i*
——— and Nobles, R. A. Disintegration of $He^3$ and $N^{14}$ by thermal neutrons, 5283*g*
**Coon, John M.**, and Rust, J. B. Polymeric monosoloetuic materials, P 3236*b*.
**Coon, Julius M.** See DuBois, K. P., Salerno, P. R., Ting, K. S.
**Cooney, M.** See Adams, Forrest H.
**Coonradt, H. L.** See White, R. V.
———, Hartough, H. D., and Johnson, G. C. Chlorination of thiophene (II) substitution products, phys. properties of the chlorothiopheues, mechanism of the reaction, 624*d*
**Coons, F. F.** High-pressure evapn., 6446*a*.
**Coons, W. C.** Electrolytic polishing procedures for Mo metallographic specimens, 4960*g*
**Coops, R.** Disease of the Chest (book), 1104*f*
**Cooper, A.** Expanded rubber and plastics, 429*e*, see Distillers Co., Ltd., Expanded Rubber Co. Ltd.
**Cooper, A. C.** The *n* of org. pigments, 1577.
**Cooper, A. H.** See Allen, L. A.
**Cooper, A. T.** See Akeroyd, E. I.
**Cooper, C.** Economics of gas washing, 3093*b*, see Holmes, W. C., & Co., Ltd.
**Cooper, C. W.** Ethylene 1,3-dioxolane copolymer, P 2171*b*
**Cooper, D.** See Wagner, N.
**Cooper, D. E.**, and Binkley, S. B. Pemicillin amide, 1406*b*.
**Cooper, D. S.** See Hagemeyer, H. J., Jr.
**Cooper, E. A.**, and Nicholas, S. D. Aids to Biochemistry (book), 5065*e*.
**Cooper, E. J.** See Dabrowska, W.
**Cooper, H. G.** See Walker, R.
**Cooper, H. J.** Scientific Instruments. Vol. I (book), 2047*g*, 3068*h*, O injection process in melting low-C Cr-Ni stainless steel, 7397*d*.
**Cooper, H. P.** Sixtieth annual rept. of the S. Carolina Agr. Expt. Sta., 9328*e*.
———, Mitchell, J. H., and Page, N. R. Relation of the energy properties of soil nutrients to the chem. compn. of crop plants, 3067*c*.
**Cooper, H. S.** Al-Mg alloys, P 3771*a*; Co alloy, P 5358*e*
——— and Tzveteoff, V. Al-Mg alloys, P 3771*c*
**Cooper, H. W.** See Weissler, A.
**Cooper, I. H.** See Uhl, H. B.
**Cooper, J. R.** See Axelrod, J.
**Cooper, K. A.**, Dhar, M. L., Hughes, E. D., Ingold, C. K., MacNulty, B. J., and Woolf, L. I. Elimination reactions (VII) solvent effects on rates and product-proportions in uni- and bimol. substitution and elimination reactions of alkyl halides and sulfonium salts in hydroxylic solvents, 3346*h*.
———, Hughes, E. D., Ingold, C. K., and MacNulty, B. J. Elimination reactions (VI) unimol. olefin formation from *tert*-butyl- and *tert*-amylsulfonium salts, 3346*f*.
———, Hughes, E. D., Ingold, C. K., Maw, G. A., and MacNulty, B. J. Elimination reactions (VIII) temp. effects on rates and product-proportions in uni- and bimol. substitution and elimination reactions of

alkyl halides and sulfonium salts in hydrolytic solvents, 3347*b*.

**Cooper, L. H. N.** Significant figures in analytical chemistry, 2887*e*.

**Cooper, L. V.** Deformation characteristics of rubber and rubberlike compds as a measure of quality, 1207*d*.

**Cooper, M. D.,** and Winter, P. K. Detn of V as phosphotungstovanadate, 8306*e*.

**Cooper, O.** See Ball, E. G.

**Cooper, P. D.,** and Rowley, D. Radioactive penicillin, 5820*g*.

**Cooper, R. E.** See Gaarder, H. M.

**Cooper, Roland S.** See Karlsson, P. H.

**Cooper, Roy S.** See Snipes, B. T.

**Cooper, S. S.,** and Kofron, V. K. Purification of di-β-naphthylthiocarbazone—mol. extinction coeff. in $CHCl_3$ at 650 millimicrons, 9057*b*.

**Cooper, W.** Radical reactivity in the initiation reaction of the polymerization of styrene, 3698*b*; peroxide-catalyzed vinyl polymerization, 8201*b*.

**Cooper, W. B.,** and Seabold, E. J. Strip annealing app. for treatment of low C cold-rolled strip steel, P 9018*g*.

**Cooper, W. C.** Antimalarial drugs, 7192*i*, see Coatney, G. R.

**Coöperatieve Condensfabriek "Friesland."** Hardening yarns, fibers, and films spun from protein solns., P 4868*i*.

**Cooperstein, S. J.,** Eichel, B., and Wainio, W. W. Characteristics of the desoxycholate-treated cytochrome oxidase, 6254*e*.

**Coops, J.,** Galenkamp, H., Heemjes, J., Lunink, H. L., and Nauta, W. T. Energy data on the C-C bond (IV) energy of activation, Arrhenius constant, and half life for the radical dissocn. reaction of six hydrocarbons of the pentaphenylethane type in *o*-dichlorobenzene as a solvent, 5387*f*

—, Galenkamp, H., Lunink, H. L., Balk, A. N., and Nauta, W. T. Energy data on the C-C bond (V) energy of activation, Arrhenius const., and period of half-life for the radical dissocn. reaction of five hydrocarbons of the pentaphenylethane type in *o*-dichlorobenzene as a solvent, 6496*c*.

**Coor, T.** See Chang, W. Y.

— — and Snow, G. A. Ionization chamber bursts at high altitudes, 4095*f*.

**Cooray, G. H.** See Cameron, G. R.

**Coote, R. H.,** and Crabill, M. P. Free residual chlorination in Indiana, 5520*g*.

**Coover, H. W.,** Dickey, J. B., and Towne, E. B. Ammoanthraquinone dyes for cellulose acetate, P 3205*b*.

**Cope, A. C.** Secondary alkylamino alc. esters of aryl-substituted aliphatic acids, P 2639*f*, secondary alkylaminoalkyl esters of *p* dialkylaminobenzoic acids, P 2640*b*, alkylamine esters of *p*-aminobenzoic acid, P 3038*f*, see Beebe, R. A.

—— and Bailey, W. J. Cyclic polyolefins (II) synthesis of cyclooctatetraene from chloroprene, 591*b*.

—— and Field, L. Rearrangement of allyl groups in three-C systems (V) ethyl (3-indenyl) allylcyanoacetate, 8373*c*.

— —, Nace, H. R., Hatchard, W. R., Jones, W. H., Stahmann, M. A., and Turner, R. B. Synthesis of 6-methoxy-8-aminoquinoline derivs.—ethylenimine rearrangements in attachment of monoalkylaminoalkyl side chains, 3419*b*.

**Cope, O.,** Graham, J. B., Moore, F. D., and Ball, M. R. Nature of the shift of plasma protein to the extravascular space following thermal trauma, 3501*c*.

**Cope, O. B.** See Gjullin, C. M.

—, Gjullin, C. M., and Storm, A. Effects of some insecticides on trout and salmon in Alaska, 9352*g*.

**Cope, W. C.** Ammonia (I) U.S. production facilities, 6372*i*; (II) cost of production and end-use pattern, 7190*h*.

**Copeland, D. H.** See Engel, R. W.

**Copeland, J. E.** See Gruber, C. M.

**Copeland, M.** See Geschickter, C. F.

**Copeland, P. L.** See DeLany, B. P.

**Copello, M. A.** See Jung, W.

**Copeman, P. R. van der R.** Detn of As in contaminated soils, 1890*b*; detn. of Cu and Pb in biol. material, 4319*i*.

**Copenhaver, W. M.,** and Delwiler, S. R. Effects of sulfonamides on *Amblystoma* embryos—blood development, 4388*i*.

**Copisarow, M.** Cancer and the coördination of contact and inductive influences, 5850*d*.

**Coplans, M.** Stable medicinal salts of acetylsalicylic acid, P 4429*i*.

**Copley, D. M.** Assay of nux vomica and nux vomica preps., 4812*d*, botanical drugs, 5535*e*.

**Copp, D. H.** See Scott, K. G.

**Copp, F. C.** See Wellcome Foundation Ltd.

**Copp, J. L.,** and Ubbelohde, A. R. Physicochem. processes at high pressures and temps. (I) interaction between TNT and $NH_4NO_3$, (II) effect of "inert" components on detonation, 2775*e*.

**Coppa, M. T. G.** See Garate Coppa, M. F.

**Coppa, S.,** and Jessa, F. B. Lability of the serum in chronic TNT poisoning, 6311*e*.

**Coppa-Zuccari, G.** Detn of HCHO in urea resins, 66*a*.

**Coppée, G.** See Lapière, C.

— — and Gontier, R. Action of diethyl xanthines on the action potentials of nerve and striated muscle of frogs, 1983*d*.

**Coppenet, M.** See Boischot, P., Cote, Y. and Boischot, P. Fixation of the phosphate ion by limestone, 1409*i*.

**Coppens, R.** Bombe atomique, Energie atomique (book), 5314*a*, distribution of radioactive minerals in granite, 6127*c*, action of Na borate on the conservation of the latent image in the photographic, of trajectories of particles, 7328*c*, disappearance of latent images in the photographing of trajectories of particles, 7328*f*, radioactive inclusions contained in eruptive rocks, 7332*c*, 8396*e*.

**Coppin, F. W.,** and Spencer, D. A. Basic features of the "Vivex" process, 5114*d*.

**Coppin, R.** See Lambert, R.

**Coppins, W. C.** Sepn. of Be from Al, 7350*h*.

**Coppo, M.,** and Lancetti, C. Action of vitamin D on the curve of blood Ca and K, 9181*e*.

**Coppock, J. B. M.** See Braddaw, R. C. A.

**Coppock, P. D.** See Distillers Co. Ltd.

**Copson, H. R.** Prevention of pencilling corrosion of metallic salt-bath electrodes, P 4155*g*, see Wesley, W. A.

**Copulsky, W.** See Aries, R. S.

**Coquenpot, A.** App. for vacuum distn. with magnetic stirring, 4001*c*, spindle-oil fractions, 4001*g*.

**Coquillat.** Influence upon plants attributed to the moon, 9177*g*.

**Coquoin-Carnot, M.** See Verne, J.

**Corazza, G.,** and Ciulla, C. Treatment of diabetes mellitus with lysates of organs, 5861*a*.

**Corazza, M.** Distribution of $NaSO_4$ in the organism after intravenous injection, 6307*f*.

**Corben, H. C.,** and Corben, M. Range of nuclear forces, 4991*h*.

**Corben, M.** See Corben, H. C.

**Corberi, E.** *Penicillium roqueforti* behavior in presence of α-aminovaleric acid, 5825*d*, see Arnaldi, C.

**Corbett, P. F.** Estimate of SO in the presence of $SO_2$, 65*a*.

**Corbett, P. M.,** and Rummells, O. J. C. Working properties of local [Queenston] shales, 6801*e*.

**Corbière, J.** Application of insol. dyes, 4015*c*.

**Corbin, E. N.,** and Green, M. W. Ammonia liniment assay, 3358*c*, barbital elixir, 3358*f*, assay for camphor in camphor spirit, 3145*c*.

**Corbitt, P. E.** See Smith, R. D.

**Corboz, J. R.** Carbohydrate metabolism of rat diaphragm, 1375*e*.

**Corby, J. C., Jr.** See Weber, P. R.

**Corby, T. A.** SiC linings in water-gas generators, 378*g*.

**Corcoran, A. C.** Renal pressor system and hypertension, 6717*a*.

——, Masson, G., Reuting, R., and Page, I. H. Measurement of renal function, 714.

——, Taylor, R. D., and Page, I. H. Lead poisoning from the use of salt substitutes, 3935*e*.

**Corddry, E. I.** See Leftwich, W. B.

**Cordebard, H.,** and Schneider, J. Detn of the protein in insulin, 8096*b*.

**Cordell, J. C.** See Weinang, C. F.

**Cordero, H. G.** Metal Bulletin World Register of Non-Ferrous Smelters and Refiners (book), 5724*h*.

**Cordier, D.,** and Chanel, J. Influence of volatile anesthetics and barbiturates on rate of gastric passage and intestinal absorption of glucose solns., 4767*g*.

— and Cordier, G. Ether-sol. acids produced during anoxia, 749*a*, effect of preventive injections of histamine on the production of pulmonary edema—histaminase in the prevention and therapy of pulmonary edema, 2700*a*, atropinic action of chloro derivs. of diethanolamine and triethanolamine on the heart—relation between chem. constitution and atropinic action, 2700*b*, pharmacol. action of bis(2-chloroethyl) sulfide on the cardiovascular system—action on salivary glands, 5493*i*; pharmacol. action of bis(2-chloroethyl) sulfide on the vascular system, 8054*a*.

— — and Touze, M. Disturbance of intestinal absorption of glucose during traumatic shock—changes in rate of hepatic phosphorolysis of glycogen during traumatic shock, 1100*g*, relation between intensity of respiration and phosphorylating activity of liver tissue during traumatic shock, 8518*a*.

**Cordier, D. E.** Thetmosetti urea-HCHO compn., P 5232*b*.

**Cordier, G.** See Cordier, D.

**Cordier, P.** Permanganate oxidation of benzylidene benzylsuccinic acid preps. of benzylpyruvic acid 5017*a*

— and Cagnant, D. (*p* Nitrophenyl)-pyruvic acid and its derivs., 5766*g*

— and Magimos, H. Condensation of benzalacetone with phenylpyruvic acid, 157*b*.

**Cordón, J.** See Lux, H.

**Cordon, T. C.,** Rogers, J. S., Mann, C. W., and Teitell, L. Protection of Army Ordnance leather equipment from molds, 7734*b*.

**Cordova-Marquez, R.** Effect on toxin production and growth, of passing air and $CO_2$ through deep broth cultures of *Corynebacterium diphtheriae*, 4726*b*.

**Cordovi, M. A.** Quant. analysis by x ray fluorescence, 959*h*.

**Cordy, D. R.** See Colby, R. W.

**Corelli, M. R.** Vapor pressure of the satd. vapor of nitromethane at above its normal b.p., 4531*d*.

**Coret, I. A.** Effects of a congener of dibenzamine on the actions of sympathomimetic amines, 760*f*.

— and Dyke, H. B. van. Altered blood-pressure response after adrenolytic drugs and large doses of sympathomimetic amines, 4760*i*.

**Corey, R. C.** Corrosion of high-pressure steam generators—effect of Cu and Fe oxide deposits in steam-generating tubes, 4995*c*; see Jonakin, J.

**Corfield, G.** Relations between protective coatings and cathodic protection, 6091*a*.

**Corgan, J. A.** See DeCarlo, J. A.

— — and Chiriaco, G. V. Peat, 2127*e*

— — and Cooke, M. I. Coal—Penna. anthracite, 2127*b*.

**Corhart Refractories Co.** Cast refractory products, P 5919*e*.

**Cori, C. F.** See Sutherland, E. W.

**Cori, G. T.** See Cohn, Mildred.

**Coriell, L. L.** See Chapman, S. S.

**Cork, B.** See Turner, C. M.

**Cork, J. M.** γ-Rays and internal conversion, 6075*h*.

— —, Keller, H. B., Rutledge, W. C., Stoddard, A. E., and Sazynski, J. Radioactivity induced in Yb by neutron bombardment, 4948*e*.

——, Keller, H. B., Sazynski, J., Rutledge, W. C., and Stoddard, A. E. Electron spectrum of $I^{131}$, 5296*a*; γ-rays from $Ta^{182}$, 6913*i*

— —, Keller, H. B., and Stoddard, A. E. Neutron-induced radioactivities in $V^{52}$, $Mo^{99}$, and $W^{185}$, 8872*b*.

— —, Shreffler, R. G., and Fowler, C. M. Converted γ-radiation from Ag, Cd, In, Pr, and Re, 2089*e*, γ-radiation from Sc, Ce, and Tb, 4094*e*

——, Shreffler, R. G., and Weaver, A. Internally converted γ-rays from the heavy elements, 4091*g*.

**Corkery, F. W.** Synthetic rubber plasticized with a compn. composed essentially of an aromatic hydrocarbon oil, P 896*e*; elastomer plasticizing compn. composed of coumarone resin and an aromatic hydrocarbon oil, P 896*g*

— — and Church, J. W. Chewing gum base, P 5232*i*.

**Corkill, A. B.** See Brown, Anita.

**Corless, L. M.** See Starcck, J. E.

**Corley, H. M.** See Ralston, A. W.

**Corliss, J. M.** Gypsy moth control with DDT, 3477*b*.

**Cormack, S. B.,** and Stubbs, J. Produc-

tion of 96% $H_2SO_4$ on a chamber plant, 7197*i*.
**Corman, J.** Elimination of nitrite interference in iodometric sugar detns., 1453*g*; see LeMense, E. H; Van Lanen, J. M.
**Cormier, M.** Tobacco fermentation, 1156*a*; antivitamin action of fish-liver oils, 5834*h*.
**Cornatzer, W. E.** See Artom, C; Cayer, D.
— — and Artom, C. Relation of chem structure to the stimulation of lipide phosphorylation, 6291*c*.
**Cornea, I.,** and Rudenco, A. Raw materials for industry from the vegetable oils of Rumania (II) analysis and evaluation of the oil, fatty acids, and extn. residue from the seeds of *Sophora japonica*, 2449*i*.
**Cornec, A.** See Hazard, R
**Cornée, C. C.** Glycerol from sugar, P 1148*b*.
**Corneil, H. G.** Catalyst, P 3161*b*.
**Cornelius, F. H.** Heat-exchanger for refrigeration, P 4058*c*.
**Cornell, G. N.** How statistical control expedites chem. operations, 4901*g*.
**Cornell, R. C.** Heat-treating Mg-alloy die castings, P 105*d*; Mg-refining furnace with a flux-free dipping zone, P 7402*h*
**Cornell Aeronautical Lab.** Copolymerization of polyesters and vinyl compds, P 1220*b*.
**Corner, G. W.** Hormones dans la reproduction sexuelle (book), 8515*c*
**Corner, J.** Second virial coeff of a gas of nonspherical mols, 3677*c*; intermol. potentials in Ne and A, 4527*d*; calcn of surface tension from intermol. forces (II) numerical results, 7284*e*
**Corner, J. O.,** and Woodward, D. W. Hydroxy- and acyloxyaroylaminoaldehydes as dye intermediates, 8169*d*.
**Cornforth, J. W.,** and Huang, H. T Action of HCl on 5,5-dichloro 6-hydroxy-6-methyl-5,6-dihydrouracil, 2170*c*, synthesis of a 4-cyanoöxazole, 2202*i*, dibenzamidodioxytetrol, 2988*e*, oxazoles and glyoxalines, 2989*d*; synthesis of penicillin, 2989*h*.
**Corning Glass Works.** (*Patents.*) Coating articles with siloxanes, 7610*i*, combustible organosilicols, 2815*d*; electrically conducting refractory body, 5919*d*, fibrous glass articles, 3987*c*, glass having low power factor, 373*a*; heat-resistant insulating materials, 4518*b*, 4894*e*; hexadecamethylcyclooctasiloxane, 5791*e*; increasing the viscosity of liquid polymeric dimethyl silicone, 5639*d*; infrared-transmitting glass, 5917*i*; liquid polymeric dimethyl silicones, 2813*b*, Me siloxanes, 1222*b*, 4517*c*; molded glass article, 5565*c*; multicellular glass, 5565*a*; ophthalmic glass for bifocal lenses, 1164*i*, organosilicon compds, 1051*b*, 5420*e*, 7500*d*, organosilicones, 3441*b*; organosilicon polymers, 2469*c*; organosilicon salts, 7500*b*, preventing the blackening of glass by Hg vapor, 4410*i*; rubbery silicones, 3229*d*, siloxane elastomers, 9520*e*; siloxane polymers, 1220*i*, 2036*a*, 3237*h*, 3657*f*; siloxanes, 442*c*, 667*c*, 1803*c*, 2036*e*, 3237*e*, 4402*e*, 4517*a*, 5634*h*; symmetrical bis (chloromethyl)tetramethyldisiloxane, 7500*f*.
——— and Haddan, R. Heat-cast refractories, P 832*c*.
**Cornish, G. W.** Plastic for coatings, 899*b*
**Cornman, I.** Cytological phenomena observed during selective and nonselective injury to malignant cells in tissue culture with penicillium exts. and with N mustards, 9248*d*.
**Cornog, J.** Semimicro qual. analysis (book), 2126*g*.
**Corn Products Refining Co.** Disubstituted desoxyalditols, P 3447*i*; stannate treatment of starch, P 6850*c*, monosubstituted desoxyglycoses, P 7507*c*; aryldesoxyglycoses and diaryldesoxyalditols, P 7507*d*.
**Cornthwaite, W. R.,** and Bryant, H W Polymerization of vinyl acetate, P 5230*h*.
——— and Elston, A. A. Peracid solns., P 825*h*.
——— and Flodin, N. W. Polyvinyl ketals, P 7752*c*.
**Cornubert, R.** See Anziani, P.; Champetier, A.
— —, André, R., and Hartmann, P. Cyclane stereochemistry (XVIII) *cis*-3,5-dimethylcyclohexanone, 2962*d*
———, André, R., and Morelle, G. Cyclane stereochemistry (XVII) essential conditions in constitution of substituted cyclanones to give rise to an equil. phenomenon, 2961*e*.
——— and Hartmann, P. Cyclane stereochemistry (XIX) derivs of *cis*-3,5-dimethylcyclohexanone, 2962*h*
——— and Philisse, J. Systematic study of Raney Ni selective hydrogenation of $\alpha,\beta$-ethylenic ketones, 4652*a*.
**Cornwell, J. C.** Prevention of accidents arising from elec. work, 7159*h*
**Cornwell, R. T. K.** *N,N*'-Dicyclohexylphthalamide, 1354*e*.
**Corona, J. J.** See Rosenkranz, G.
**Coronas, J. M.** Quadrivalent Mo in sulfate soln, 6052*d*, see Rius, A.
**Corona T., L.** Química normal y patológica de la sangre (book), 1099*g*
**Corper, H. J.,** and Cohn, M L. Effect of phenylhydrazine in tuberculosis, 3518*f*
**Corps, E. V.** Digboi oil field, Assam, 2903*f*
**Corrado, M.** Action of proteolytic enzymes on lens substance, 3512*i*.
**Corral, C. V.** See Velasco Corral, C.
**Corral, J. I. del.** Engineering of the atom — explanation of the at. phenomena employing the elliptical relativity, 4553*f*
**Corran, J. W.** Starches, 4789*c*
**Corre, L.,** Clercq, M. de, Bun-Hoï, Nguyen-Hoan and Lacassagne, A. Relation between chem constitution and estrogenic activity of certain $\alpha,\beta,\beta$-triarylethylenes, 4746*d*.
**Correa, O. G.** See Gonzalez Correa, O
**Correa Urquiza, L. M.** See Grinberg, R
**Correia, D.** Existence of trigonelline in yerba maté, 2373*b*
**Correia Ralha, A J.** See Mendes Ribeiro J
**Correll, J. T.** Therapeutic sponge, P 1131*g*
——— and Vanderpoel, J. C. Biol. absorption of insolubilized gelatin films, 8037*e*
**Correll, J. W.** See Alvord, E C., Jr; Kellner, A.
**Correns, C. W.** Viktor M Goldschmidt, 4525*e*, geochem balance, 5350*i*
**Corrigan, J. R.** See Moore, M L.
———, Langermann, M J, and Moore, M L Prepn of *N* substituted 1-(3,4 dihydroxyphenyl)-2-aminoethanols, 3388*c*.
**Corrigan, K. E.** See Pearson, I A
**Corrigan, T. E.** Dust-free alk. detergent product, P 6438*i*
**Corrin, M. L.** Effect of salts and chain length on the crit. concn of colloidal electrolytes, 20*a*
**Corruccini, R. J.** See Ginnings, D C
**Corse, J.** See Behrens, O. K; Jones, R. G; Soper, Q F
— —, Jones, R. G, Soper, Q F, Whitehead, C. W., and Behrens, O K Biosynthesis of penicillins (V) substituted phenylacetic acid derivs as penicillin precursors, 3360*i*
**Corsini, N.** $CuSO_4$, P 7840*c*.
**Corson, B. B.** Prevention of corrosion in catalytic reactions involving the use as catalysts of acids of P, P 8319*f*, see Black, Gordon, Jones, H. E, Kutz, W. M; Nickels, J E; Stahly, E. E.
— — and Brady, L. J. Catalyst for polymerization and condensation of hydrocarbons, P 5119*b*.
———, Stahly, E. E., Jones, H. E., and Bishop, H D Butadiene from EtOH—variables of operation, 5733*g*.
——— and Webb, G. A. Dehydrogenation process, P 5788*d*.
**Corson, E. F.,** and Rouse, G. P. Contact dermatitis from morphine, 3150*e*.
**Corson, E. M.** Equation of state, 4916*b*.
**Corson, G., & W. H., Inc.** Hydrated lime product, P 1929*g*
**Corson, J. H.** Formation and properties of martensite on the surface of wire rope, 87*g*
**Corson, M. G.** Economy in production—economy in fatigue testing, 8999*b*; refining Cu alloys, P 1307*g*; *N:S* relation in endurance testing, 3328*b*.
**Corteen, H.** See Tootal Broadhurst Lee Co. Ltd.
**Corteggiani, E.** See Cheymol, J; Hazard, R.
**Cortelyou, E.** Tech. editing as a career for bachelors of chemistry, 1230*e*.
**Cortelyou, W. P.** Quantized qual. analysis, 7762*c*
**Cortês, V.** See Brú Villaseca, L.
**Cortese, L.** Toxicity of exts from hypertrophic human prostate, 7571*a*.
**Cortese, O.,** and Di Lauro, S. Amino acids in the blood in trinitrotoluene poisoning, 8060*d*.
**Cortesi, M. C.** Influence of the insulin-shock therapy on protein metabolism and on chloride elimination in schizophrenia, 2312*h*.
**Corti, L.** See Andreani, G.
——— and Andreani, G. Influence of methylthiouracil on sensitivity to alloxan in the rabbit—influence of methylthiouracil on sensitivity to insulin in alloxan diabetes, 4377*e*.
**Corti, U. A.** Methylation of tyrosine with $Me_2SO_4$ and some derivs. of *N*-methyltyramine, 6590*h*.
**Cortini, G.** See Bernardini, G.
——— and Manfredini, A. Transition effect in Pb of star-producing radiation, 7813*g*.
**Corwin, A. H.** See Doak, K. W.; Kuhn, L. P.
——— and Karr, C., Jr Advantages of Butyl rubber in org. analysis, 1596*c*.
——— and Straughn, J. L Pyrrole series (XXI) acylization of pyrrolecarboxylic esters, 623*a*.
**Coryell, C. D.** See Burgus, W H
**Coryell, M. N.,** Harris, M. E., Miller, S, Rutledge, M. M, Williams, H H., and Macy, I G Metabolism of women during the reproductive cycle (XV) utilization of biotin during lactation, 28*h*
— —, Harris, M E, Miller, S, Williams H. H, and Macy, I. G Metabolism of women during the reproductive cycle (XIV) utilization of pantothenic acid during lactation, 289*f*
**Cosby, J. N.** Benzonitrile from benzene or biphenyl and HCN, P 1064*c*
**Cosens, K. W.** See Jeuhart, J.
**Cosgrove, C.,** and Barhart, K A Reactions of unsatd. dibasic acids with linseed oil, 8700*c*
**Cosgrove, D. J.,** Ishp, H F, and Thain, E M. Oil of *Melaleuca bracteata* from Kenya, 7566*g*
**Cosgrove, J. B. R.,** and Perry, W F Plasma Mg disorders of the thyroid gland, 6299*a*
**Cosgrove, R. R.** See Cunningham, R W
**Cosma, J.** Thymus-thyroid gonads group research on hormonal interactions by study of urinary creatine, 71*h*
**Cosmetische Fabriek "Prodonta."** Tooth paste, P 1542*f*
**Cosmo, I.** White sweet wines of the Venise province, 1808*i*
**Cosmulescu, I.** See Urechia, C. I.
**Cossey, B. O.** Automatic water feed for recording calorimeters, 8217*c*.
**Cosslett, V. E.** Electron Microscope (book), 947*g*.
**Cossor, A. C., Ltd.,** and Mitchell, A. G Deposition of materials by settling, P 5073*a*.
**Costa, A. F.** See Fernandes Costa, A
**Costa, D.,** and Costantinides, G Temp of autoignition of starch dust and factors which influence it, 8681*f*
**Costa, Dante.** Degrees of utilization of dietary Ca, 288*b*
**Costa, G.** Detn. of Hg in org materials, 8419*c*.
———, Guala, P, and Grosso, L Action of 5-nitro-2-furaldehyde semicarbazone in appendicitis, 5869*i*; nitrofurazone in peritonitis, 7143*a*
**Costa, H. B. I.** See Barrera i Costa, H
**Costa, J. L.,** and Kahler, W H. Flotation process of clarifying regenerating baths, P 4014*c*.
**Costa, N. P.** See Palacios Costa, N.
**Costa, O. de A.** See Almeida Costa, O de
**Costa de Moraes, J.** See Ubatuba, F
**Costa Moura, J. E. da,** and Silva Carvalho, J. L. da Catalog of Fe mines in Portugal (I), 7872*h*.
**Costa Novella, E.** See Santa-Pau Vota, A.
**Costantinides, G.** See Costa, D.
**Costanzo, F. E.** See Peifer, N. P.
**Costello, C. H.** See Grote, I. W.
**Costello, D. P.** Relation of the plasma membrane, vitellin membrane, and jelly, in the egg of *Nereis limbata*, 2706*d*.
**Costello, E. J.** See Filachione, E. M.
**Coster, D.,** and Lang, H. de. X-ray absorption edges $L_I$ of Ta and W and $L_{II}$ and $L_{III}$ of Pt, 8272*b*.
**Coster, N. W.,** Johnson, L. M., and Thieme, R. I. Heat and $SO_2$ recovery from sulfite blowpit gases, 2771*f*.
**Costes, S.** Micromanometers, 1225*h*.
**Costet, P.** See Bonnet, A.
**Costrell, L.** Detn. of the deadtime and recovery characteristics of Geiger-Müller counters, 4946*a*.

**Cosulich, D. B.** See Hultquist, M. E.
**Coswell, R.** See Benson, S. W.
**Cotelo Neiva, J. M.** Serpentines and serpentinization, 5709*e*; see Rosas da Silva, D. J.
**Cotey, B. S.** Water well acidizing, 3543*i*.
**Cothran, C. D.** Removal of surface moisture from wet articles, P 6758*h*.
**Cotino, L. E.** See Valentinuzzi, M.
**Cotlove, E.**, Spiro, D., and Vorzimer, J. J. Serial detns. of prothrombin activity in pregnancy and the puerperium, 7112*d*
**Cotman, J. D., Jr.** See Bartlett, Paul Doughty
**Coton, M. M.** See Koton, M. M.
**Cotte, J.** See Bourdon, D.
**Cotter, F. T.** Cocoa, P 7606*d*
**Cotter, G. E.** Cocoa, P 7606*d*
**Cotterman, F. D.** Ti, 6555*a*
**Cottet, J.** See Chabrol, E.
**Cottier, H.**, and Muralt, A. v. Antichohmergic activity of the second substance set free on stimulation of the vagus, 3083*g*.
**Cottier, W.** Control of dicky rice weevil, leaf rollers, and the mealy-bug on citrus, 7185*b*
**Cottin, M.** See Haïssinsky, M.
**Cottington, R. L.** See Hardy, R. C.
**Cotton, D. S.** Raw materials survey, 7714*a*.
**Cotton, P.** Spreading of fatty acids on vaporized metallic films, 4925*h*; spreading of oils over the surface of Au and Ag films, 8799*a*.
**Cotton, R. H.**, Roy, W. R., Brokow, C. H., McDuff, O. R., and Schroeder, A. L. Storage studies on frozen citrus concentrates, 2708*e*.
**Cotton, R. T.**, Frankenfeld, J. C., and Dennis, N. M. Residual sprays for use against the confused flour beetle, 2501*e*
— —, Frankenfeld, J. C., and Strickland, W. B. Insect-proofing cotton bags, 7186*e*.
**Cotton, W. J.** Elec. discharge app. for the synthesis of NO from atm. N, P 6699*e*
**Cottrell, A. H.** Theoretical Structural Metallurgy (book), 5549*i*; effect of solute atoms on the behavior of dislocations, 3259*h*
— and Churchman, A. T. Change of elec. resistance during the strain-aging of Fe, 7881*e*.
— and Gibbons, D. F. Thermal hardening of Cd crystals, 3258*a*.
**Cottrell, H. J.** Tetrazolium salt as a seed germination indicator, 9175*a*
**Cottrell, J. A.** See Armitage, F., Berger, L. & Sons Ltd
**Cottrell, J. E.** See McDearman, S. C.
**Cottrell, R. H.** Developments in processing of sugar beet, 887*e*
**Cottrell, T. L.** Binding energies in hydrocarbons, 2052*k*; thermodynamic functions of the quartic oscillator—application to cyclobutane, 2501*b*.
— —, Drake, G. W., Levi, D. L., Tully, K. J., and Wolfenden, J. H. Thermochemistry of solns. (V); heats of ionization of some org. acids, 477*h*.
— — and Sutton, L. E. Interpretation of bond properties, 1230*f*.
— — and Wolfenden, J. H. Thermochemistry of solns. (VI); heat of ionization of succinic acid, 478*b*.
**Cottrill, C. W.** See Parmer, L. G.
**Cotugno, V.** Biochem. changes in the blood caused by emotions, 5840*e*.
**Co Tui, F. W.** Protein metabolism in disease and injury, 3915*c*; see Hollaender, V.
— —, Kuo, N. H., Chuachiaco, M., Rosh, R., and Mulholland, J. H. Protein nutrition in cancer, 9191*h*
**Cotulla, L. E.** Defense requirements for lubricants relating esp. to greases, 5937*a*
**Cotzias, G. C.** See Baxter, J. H., Sweet, W. H.
**Couch, J. F.** References to the literature on rutin, vitamin P, flavanols, and related subjects, 3976*g*; see Naghski, J., Porter, W. L.
— and Krewson, C. F. Nicotinamide from nicotinonitrile, P 1811*d*; removing fats from rutin exts., P 1913*e*
—, Krewson, C. F., and Naghski, J. Prepn. of rutin from buckwheat leaf meal and green buckwheat with hot solvents, 1156*d*.
—, Naghski, J., White, J. W., Taylor, J. W., Sando, W. J., and Street, O. E. Tartary buckwheat as a source of rutin, 1428*g*.
**Couch, J. R.**, Barki, V. H., Sunde, M. L., Cravens, W. W., and Elvehjem, C. A. Utilization of lactose by the mature fowl, 7557*g*
—, Cravens, W. W., Elvehjem, C. A., and Halpin, J. G. Daily uptake of biotin by the hen egg, 1088*g*; effect of the injection of biotin and insulin on congenital deformities in the chick, 8466*d*, function of biotin in the domestic fowl, 8468*g*
—, Sunde, M. L., Cravens, W. W., Elvehjem, C. A., and Halpin, J. G. Effect of oats, oat products, and fat on the intestinal synthesis of biotin in mature fowl, 5461*a*.
**Coufalik, F.** See Simek, B. G.
**Coughanour, L. W.**, and Norton, F. H. Clay (IX) influence of particle shape on properties of suspensions, 4436*g*
**Coughlan, J. J.**, and Wint, R. F. Nitrocellulose brushing lacquers, 4492*a*.
**Coughlan, R. E.**, *et al.* Intercryst. and other types of corrosion of steam boilers, 3546*b*.
**Coughlin, J. P.** See Todd, S. S.
**Coukervanik, J. P.** See Tsukervanik, I. P.
**Čoulkov.** See Chulkov.
**Coull, J.** See Heiss, J. F.; Li, Y.-M.; Yu, K. T.
— Bishop, C. A., and Gaylord, W. M. HCl production in a Karbate falling-film-type absorber, 9391*e*
**Coulon, M. J.** See Faure, M.
**Coulson, A.** See Baker, G.
**Coulson, C. A.** At. radius of C, 2478*e*, excited electronic levels in conjugated mols. (I) long-wave ultraviolet absorption of naphthalene, anthracene, and homologs, 3713*a*; theory of the structure of free radicals, 5241*f*, free valence in org. reactions, 6877*a*, see Bradburn, M., Crawford, V. A.; Duncanson, W. E., Moffitt, W. E.
— —, Cox, J. T., Ogston, A. G., and Philpot, J. St. L. Detg. diffusion consts. in soln., 3692*g*
— —, Craig, D. P., Maccoll, A., and Pullman, A. *p*-Quinodimethane and its diradical, 5759*d*.
— —, Daudel, P., and Daudel, R. Comparison of the two methods of constructing mol. diagrams—cause of substituted or heterocyclic mols., 4528*a*
— — and Dewar, M. J. S. Difficulties in the application of mol. orbital theory to mesomeric ions, 5241*e*.
— —, Duchesne, J., and Manneback, C. Interpretation of cross terms in the potential function of polyat. mols., 2511*a*
— — and Gillam, C. M. The van der Waals force between a proton and a H atom (II) excited states, 2501*i*
— and Longuet Higgins, H. C. Electronic structure of conjugated systems (II) unsatd. hydrocarbons and their hetero derivs., 5302*i*, (III) bond orders in unsatd. mols., (IV) force consts. and interaction consts. in unsatd. hydrocarbons, 6512*c*, (V) interaction of two conjugated systems, 8223*a*.
— — and Moffitt, W. E. Properties of strained hydrocarbons, 4059*a*.
— — and Rushbrooke, G. S. Graphite crystals and crystallites (II) energies of mobile electrons in crystallites infinite in one direction, 2481*d*.
**Coulson, E. A.**, and Biddiscombe, D. P. Analysis of carbazole, 3746*g*.
— —, Hales, J. L., and Herington, E. F. G. Fractional distn. (II) dil. solns. of thiophene in $C_6H_6$ as test mixts. and a comparison with mixts. of $C_6H_6$ and $C_2H_4Cl_2$, 2471*c*
— — and Herington, E. F. G. Fractional distn. (I) test mixts. for estg. the efficiency of fractionating columns, 2473*g*, physicochem. data on coal-tar constituents, 4446*c*.
**Coulson, E. J.**, Spies, J. R., and Stevens, H. Immunochemistry of allergens (IX) relationship of carbohydrate to the antigenic properties of the allergenic protein from cottonseed, 7575*c*.
— — and Stevens, H. Anaphylaxis (III) effect of the alum adjuvant and site of administration on the sensitizing dose, 4369*d*.
**Coulson, R. A.** See Brazda, F. G.
— — and Brazda, F. G. Influence of choline, cystine, and methionine on toxic effects of pyridine and certain related compds., 2321*h*.
**Coulston, F.**, and Huff, C. G. Symposium on exocrythrocytic forms of malarial parasites (IV) chemotherapy and immunology of pre-erythrocytic stages in avian malaria, 3107*i*.
**Coulter, E. W.** Detection of gums in mayonnaise and French dressing, 9290*e*.
**Coulter, G. L.**, and Borell, L. C. Low-temp. flow-resistance test for lubricating oils, 7218*h*.
**Coulter, K. E.** Distn. column for processing polymerizable compds., 4053*h*.
**Coulter, S. T.**, Jenness, R., and Crowe, L. K. Changes in dry whole milk during storage, 780*d*.
**Coulthard, C. E.** Microbiol. control of sterile pharmaceutical products, 5533*a*, see Ungar, J.
**Coumbe, A. T.** See Lott, F. S.
**Coumou, D. J.** Colorimetric and photometric absorption analysis, 7858*h*
**Coupard, C. J. C. D. F.** Aromatic hydrocarbons from $C_2H_2$, P 5040*c*.
**Couper, M.** Degradative Action of Acids and Alkalies on Cellulose (book), 5950*b*.
**Courant, E. D.** See Blachman, N. M.
— — and Bethe, H. A. Electrostatic deflection of a betatron or cyclotron beam, 5663*e*
**Čourbakov, A. N.** See Churbakov, A. N.
**Courchaine, A. J.** Advances in the chemistry and medicinal use of urea, 6365*h*.
**Courcy, C. B. de.** See DeCourcy, C. B.
**Courcy, J. L. de.** See DeCourcy, J. L.
**Courmont, P.**, Gardère, H., and Déries, G. Survival of tubercle bacilli in media contg. streptomycin, 5441*g*.
**Cournot, J.** Novelties in the field of high-speed steels, 981*d*.
**Courrier, R.** Alfred Lacroix, 8219*e*.
— —, Horeau, A., Jacques, J., Marois, M., Morel, F., and Sue, P. Radioactive hormones and receptors, 9214*f*.
**Coursey, P. R.** See Dubilier Condenser Co. Ltd
**Court, J. M. A.** See Pugh, B.
**Courtaulds Ltd.** Acetone-sol. cyanoethyl ethers of cellulose, P 404*h*, dyeing of textile fibers contg. N, P 868*e*; dyeing nylon from acid baths, P 2442*h*; extn. of protein from seeds, P 3544*f*, stabilized alk. vegetable protein solns., P 3627*c*.
— and Atkinson, C. P. Treatment of textile fabrics, P 9476*h*.
—, Regan, H. J., and Robertson, S. Colored threads, filaments, strips, or films of cellulose, P 9475*b*.
— —, Hodson, E., and Soutter, R. R. App. for measuring liquids, P 7273*f*.
— — and Spencer, J. G. Purification of $Ac_2O$, P 5792*i*.
— — and Weigham, W. R. Crimped artificial threads, P 9475*e*.
— —, Wilcock, C. C., and Hampson, H. Dyeing of alginate fibers, P 7712*d*
— — and Wormell, R. L. Artificial textile fibers, P 5967*d*
**Courtel, R.** Action of high-pressure lubrication additives, 1953*e*, 2417*c*; vacuum molding with simultaneous electron microscope control, 5281*e*
— — and Léger, R. App. for high-speed grinding and observation of the surface by electron diffraction, 4056*b*.
**Courtial, C.** See Josieu, M. L.
**Courtice, F. C.** See Cameron, G. R.
— — and Simmonds, W. J. Effect of carboxyhemoglobin on the detn. of O in the blood, 714*b*.
**Courtney, A. L.**, and Smith, C. E. "Laundry-souring compn., P 4022*d*.
**Courtney-Bryson, H.** See Bryson, H. C.
**Courtney-Harwood, F.** See Harwood, F. C.
**Courtois, J.** Phytase (X) action of purified wheat bran phosphatase prepns. on various phosphoric esters, 4308*e*; detn. of mandelic acid with $HIO_4$, 7379*d*, see Fleury, P.
— and Anagnostopoulos, C. Action of some complex-forming mineral acids on the phosphatases, 9099*f*.
— and Barré, R. Influence of the reaction of the medium on the pptn. of phosphoric esters with conamandin, 6268*e*.
— and Grandchamp, M. Detn. of the three ethanolamines in mixts. thereof, 6364*e*.
— and Joseph, G. Phytase (IX) structure of inositoltriphosphoric and inositoltetraphosphoric acids obtained by partial hydrolysis of inositolhexaphosphoric acid, 4308*d*.
— and Pérez, C. Phytase (XI) attempts to obtain source materials in which the original phytase is artificially enhanced, 4308*f*; inositol phosphate content and phytase activity of various seeds, 4709*a*.

——— and Plumel, M Purification of urinary phosphatase—its heterogeneity, 8420*g*
**Courtot, C.**, and Metzger, J Physicochem. study of the tautomerism of 2-methylbenzothiazole (I) status of the problem, 2853*e*.
**Courtoy, C.** Infrared absorption spectra of $CH_3OH$, $CH_3OD$, $CD_3OH$, and $CD_3OD$ in the liquid and vapor state (3-15 $\mu$), 4140*b*; see Hemptinne, M. de.
**Courty, C.** Soln. of Pt sheet in aqua regia, 3692*a*
**Courvoisier, S.** See Bovet, D
— — and Ducrot, R. Histamine-liberating action of *d*-tubocurarine and synthetic curariform drugs, 8558*f*
**Coury, T.**, and Ranzani, G Effects of As on cotton in sandy soil, 1835*b*
**Cousans, F.**, *et al* Freezing of horizontal steel castings, 7882*h*
**Cousins, E. W.** See Thompson, N J.
**Coussens, R.** See Peeters, G
and Sierens, G Estrogenic properties of tulip bulbs, 4727*i*
**Coutier, L.**, Andté, H., and Prat, J Detn of the γ- and δ-isomers of hexachlorocyclohexane and sepn. by means of chromatographic partition, 8978*e*.
**Coutin, R.** Effects of various insecticides on the adult Ceridomyia of pears, 9348*d*; see Delmas
**Coutinho, C. C.** See Casares Lopez, R.
**Coutinho, J. M. V.** Calcite from Lageado, São Paulo, 2549*a*
**Couto de Rothman, C L.** See Barreto, L. N
**Coutsouris, H. C.** See Goyan, F M
**Couture, L** Same as Couture Mathieu, L.
**Couture-Mathieu, L** Raman effect and crystal structure, 2513*e*
— — and Mathieu, J. P Raman effect in cubic crystals, 3294*c*, Raman spectra of $NH_4Cl$ and $NH_4Br$, 4955*g*, Raman spectrum of $KHF_2$ and structure of the $FHF^-$ ion, 4957*a*, fundamental oscillations of an ensemble of identical at groupings, 7339*f*
— — and Riche, N. Raman effect of monocryst. $KHSO_4$ and $NH_4HSO_4$, 7344*d*
**Cova, N.**, Polli, E, and Ratti, G Fatty livers from amanita toxin, 9256*h*
**Cova, P.** Synthetic varnishes, P 1995*h*, stand oils, P 4873*a*
**Covello, M.**, and Capone, A 3- and 5-Iodosalicylates of alkaloids, 3148*c*
**Covey, E. P.** Urinary sugar test for the blind, 5442*b*.
**Covián, F. G.** See Grande Covián, F
**Covián, M. R.** Changes in the spontaneous appetite of albino rats with pancreatic diabetes, 5485*d*, see Braun Menéndez, E
**Čovnic, N. G.** See Chovnyk, N. G.
**Covo, G. A.** See Cross, R. J.
**Cowan, B.** See Sankey, C. A.
**Cowan, C. E.** See De Benedetti, S
**Cowan, C. L.** Absorption of γ radiation, 1646*i*.
**Cowan, E. W.** Low-mass meson, 2085*h*, cloud chamber using rear illumination, 8756*c*; see Adams, R V.
**Cowan, J. C.** Developments in soybean research at the Northern Regional Research Lab., 900*c*, isomerization reactions of drying oils, 2787*g*, see Dutton, H. J.; Lewis, A. J, Scholfield, C. R., Teeter, H. M.
———, Falkenburg, L. B, and Teeter, H M. Polyamide resins from polymeric fatty acids, P 4410*c*.
— — and Teeter, H. M. Protective coating compns., P 8705*c*
Wheeler, D H, Teeter, H. M, Paschke, R. F, Scholfield, C R, Schwab, A. W., Jackson, J. E., Bull, W. C., Earle, F. R., Foster, R. J., Bond, W C., Beal, R. E, Skell, P S, Wolff, I. A., and Mehltretter, C. L. Polymerization of drying oils—rubberlike products from polymeric fat acids, 8699*a*
**Cowan, R. D.** Use of photo-tubes in the ultraviolet region by fluorescence, 4094*i*; infrared spectra of borane carbonyl tetramethyldiborane, 4573*c*.
**Cowan, R. L.** See Black, A
**Cowdry, E. V.** See Roberts, Eugene.
**Cowen, P. N.** Action of urethan, 307*c*.
**Cowie, D. B.** See Flexner, L. B
———, Flexner, L. B, and Wilde, W. S. Capillary permeability—rate of transcapillary exchange of chloride in the guinea pig as detd. with radiochloride, 8512*i*.
**Cowing, R. F.** See Rudenberg, F. H.
**Cowles, P. B.**, and Klotz, I M. Effect of pH on the bacteriostatic activity of certain nitrophenols, 271*f*.
**Cowley, J. G.** Electricity coats radio tubes at R. C A. Victor, 2523*g*
**Cowley, P.** See Small, P. A
**Cowley, R. A.** See Yeager, G H
**Cowling, K. W.**, and Elliott, A Coring of fireclay refractories, 4823*f*
**Cox, C. I.** Manuf of Ba nitrate, 7199*e*
**Cox, C. M.** See Conant, F S.
**Cox, C. R.** Water-supply quality, 9308*f*
——, *et al.* Water supply, 7165*a*.
**Cox, E. F.** Upper-atm temps. from remote sound measurements, 2477*f*.
**Cox, E. G.**, Jeffrey, G. A., and Stadler, H P. Structure of the dinitrosulfite ion, 5241*f*; structure of K dinitrososulfite, 8781*h*.
— —, Jeffrey, G A, and Truter, M R Crystal structure of nitronium perchlorate, 460*d*
**Cox, E. M.** See Van Middlesworth, L
, Bachelder, M. C, Nachtrieb, N. H., and Skapski, A S. Influence of temp on the affinity of S for Cu, Mn, and Fe, 2558*f*.
**Cox, F. W.**, and Wallace, J M, Jr. Stabilized polyvinyl chloride, P 2468*b*; color stabilization of vinyl halide resins, P 3655*f*, 9528*c*.
**Cox, G. C.** Marine electrocleaning and electropickling app, P 7839*h*.
**Cox, G. J.** F and dental health, 6302*f*
— —, Dodds, M. L., Levin, M. M, and Hodge, H C. Effect of carbohydrate on exptl caries in the rat, 1843*i*.
**Cox, H. E.** Foods, 4789*e*
**Cox, Herald R.**, Koprowski, H, Mover, A W, Sharpless, G R., and Wong, S C Failure of phenosulfazole in treating viral infections, 5496*h*
**Cox, Herbert R.**, Bear, F. E, Clark, M. A, Craver, R K, Munch, N, Quackenbush, G. A, and Wilson, K P Monmouth County soils their nature, conservation, and use, 3955*b*
**Cox, J. A.** Parathion and benzene hexachloride in plum curculio control, 6777.
**Cox, J. D.** See Barton D. H R
**Cox, J. L.** Fluorescent lamp, P 15*b*
**Cox, J. M.** See Sampey, J R
**Cox, J. T.** See Coulson, C A
**Cox, J. T., Jr.** See Hadlock, G B
**Cox, K. E.**, and Claiborne, F B Effect of age and storage temp. on bacteriol water samples, 9309*a*
**Cox, M. W.** See Eric, J. H., Heyl, G R
— — and Wyant, D. G. La Victoria Cu mine, Mariposa County, Calif., 5707*d*, Jesse Belle Cu mine, Madera County, Calif.—marketing and metallurgy of complex ores in Calif., 5707*e*
— —, Wyant, D. G, and Heyl, G. R Geology of the Lilyama and Pioneer mines, El Dorado County, Calif., 5709*a*.
**Cox, P. E.** Testing clays for lightweight aggregate manuf., 2391*d*; Haydite—light weight aggregate, 5560*a*
**Cox, R. F. B.** Stabilized cellulose ether, P 4466*d*.
**Cox, R. H.**, and Spencer, E Y Effect of 7 ketocholesterol on the rabbit, 7578*d*
**Cox, S. M.** Kinetic approach to the theory of the strength of glass, 3162*h*; elementary kinetic theory of dil. silica glass, 5251*h*
**Coxon, W. F.** Corrosion resistance, 3336*e*, electrostatic spraying and detearing, 3632*e*, continental trends in metal finishing, 4148*g*.
**Coy, N. H.**, Sabo, C W., and Keeler, B T Infrared assay of procaine salt of benzylpenicillin, 7639*h*.
**Coyner, E. C.** See Ropp, G. A.
— — and Hillman, W S. Thermal dimerization of acrylonitrile, 3779*c*.
**Cozubschi-Sciurevici, E.** Action of isothiocyanates on benzoin oximes, 1038*f*
**Cozzi, D.** See Cauneri, G.
**Crabalona, L.** Br no. and maleic acid deriv. of ocimene, 3621, presence of β-ocimene in the essential oil of *Citrus bigaradia*, 3617, presence of a cryst lactone in the essential oil of the root of *Saussurea lappa*, 3628*h*.
— — and Teisseire, P. Presence of *d*-α-pinene in the solid residue of *Helichrysum angustifolium*, 3624*d*.
**Crabill, M. P.** See Coote, R. H.
**Crabtree, E. H.** See Myers, J. F.
**Crabtree, J. I.** Processing of films and papers, 8922*e*; see Henn, R. W.; Miller, H. A.; Russell, H. D.
**Craft, W. S.** See Given, R A
**Crafts, A. S.** Movement of materials in phloem as influenced by the porous nature of the tissues, 1464*e*; oil sprays for weeding carrots, etc., 1895*f*
— — and Emanuelli, A. Combination of 2,4-D with fortified oil-emulsion contact herbicides, 805*d*; herbicides in pineapples, 2356*h*; eradication of grasses, 9351*e*.
**Crafts, R. C.**, and Walker, B. S. Effects of hypophysectomy on serum Fe and storage Fe in adult female rats, 8032*g*.
**Crafts, W.**, and Lamont, J. L Secondary hardening of tempered martensitic alloy steel, 89*i*.
**Cragg, L. H.**, Faichney, L. M, and Olds, H. F. Coned-soln. viscosity of GR-S—its variation with temp. and concn, 1210*b*.
**Craggs, J. D.** See Braudo, C J.
— — and Meek, J. M. Initiation of low pressure glow discharges, 4962*d*.
— —, Williams, G. C., and Hopwood, W Excitation of the Balmer series lines in H spark channels, 4135*i*
**Cragoe, C. S.** See Stimson, H. F.
**Craig, A. B.** See Gluesenkamp, E. W, Mowry, D T
**Craig, D.** Triphenylmethyl derivs of diphenylamine, 7005*g*; see Gregg, E. C Jr.
**Craig, D. P.** See Coulson, C. A.
**Craig, D. S.** See Smith, B. S.
**Craig, J. R.** Water-filtering unit, P 3518*h*
**Craig, K. A.** Use of poplar mech or ground wood pulps contg rot in high-grade book paper, P 6826*f*
—— and Auchter, R. J Panel facings for wood surfaces, P 1188*d*
**Craig, L. C.** Extn in analytical chemistry, 2113*g*.
— and Post, O App for countercurrent distribution, 5617*e*
**Craig, L. E.**, and Tarbell, D S Curariform activity and chem structure (III) syntheses in the 3 indolylmethylamine series, (IV) syntheses in the piperidine series, 3407*g*.
**Craig, P. N.** See Arnold, R T
**Craig, R. A.** See Newman, M S
**Craig, R. S.** See Ketchen, E E
**Craig, V.** See Thomas, M H
**Craig, W. E.** See Hester, W F
**Craig, W. F., Jr.** See Baeyertz, M
**Craig, W. G.** See Prutton, C F
**Craig, W. J.** See Walker, H L.
**Craig, W. L.** Pigment starch compn, P 2006*h*.
**Craige, A. H., Jr.**, Johnson, R B., Blackburn, E. G, and Coffin, J. M Biochem studies on three cows at parturition including one case of milk fever, 7119*h*
— — and Kleckner, A L Bactericidal compn., P 9389*i*.
**Craighead, C. M.** Technology of Al and Mg, 1300*e*
**Cram, D. J.** Mold metabolism (II) structure of sorbicillin, a pigment produced by the mold *Penicillium notatum*, (III) structure of citrinin, 2184*h*; see Cromwell N. H
and Tishler, M Mold metabolism (I) isolation of several compds from clinical penicillin, 2184*f*
**Crame, A. H.** Pipe corrosion mitigation practices, 547*a*.
**Cramer, B. J.** See Jarowski, C I.
——, Schroeder, W, Moran, W., J, Nield, C H., Edwards, M A, Jarowski, C I, and Puetzer, B. Antibacterial activity of some β-aroylacrylic acids, esters, and amides, 7192*g*
**Cramer, D. L.** See Ward, W. C.
**Cramer, J. S. N.**, and Voerman, J Detn. of morphine, 5537*c*.
**Cramer, M.** See Myers, Jack
—— and Myers, J. Nitrate reduction and assimilation in *Chlorella*, 2285*c*, effects of starvation on the metabolism of *Chlorella* 4734*a*.
**Cramer, P. L.**, and Campbell, J M Combustion of hydrocarbons—free-radical chain reactions, 5570*f*
**Cramer, Ralph D.** See Hunter, R. I
**Cramer, Richard D.** Monomeric addn products of azobisformates and polyfluoroethylenes, P 3445*h*, see Coffman, D. D.
**Crammer, H. P.** See Kassner, J L
**Crampton, A. B.**, Hulse, S. H., and Rickley, N. H. Diesel fuels safe for railroad locomotives, 6805*e*.
**Crampton, D. K.**, and Wood, M L Soln. coating the interiors of Cu tubes, 5730*a*

**Crampton, E. W.**, and Lloyd, L. E. Effec of rutin on the biol. potency of vitamin C, 7557*f*.
**Crandall, D. I.** See Gurin, S
**Crandall, E. W.** See Ungrade, H. E
**Crandall, G. S.** See Berger, H. G ; McCracken, J. H
**Crandall, H. W.** Formula of uranyl ion, 8764*c*.
**Crane, C. L.** See Hiatt, G. D.; Malm, C. J.
**Crane, E. E.**, Davies, R. E , and Longmuir, N. M. Relations between HCl secretion and elec. phenomena in frog gastric mucosa, 3506*h*; effect of elec current on HCl secretion by isolated frog gastric mucosa, 3507*d*.
**Crane, E. J.** Postwar distribution of scientific research activity, 9*e*, nomenclature, spelling, and pronunciation, 4909*d*, scientific publication now very active, 6875*h*, two UNESCO Conferences on Abstracting and Indexing, 6876*d*, see Emery, A. H
**Crane, E. V.**, Battaglia, S , and Rottersman, H. Triple surface protection for drawing and ironing Al, 3335*e*.
**Crane, H. L.** See Shear, C. B
**Crane, H. R.** Discharge of a Geiger counter at voltages above the plateau, 4110*h*, see Wiedenbeck, M. L.
**Crane, J. C.** Roselle - potentially important plant fiber, 4469*e*, see Bloudeau, R
—— and Bloudeau, R Use of growth-regulating chemicals to induce parthenocarpic fruit in the Calimyrna fig, 2287*i*
**Crane, R. K.**, and Keltch, A. K. Dinitrocresol and phosphate stimulation of the O consumption of a cell free oxidative system obtained from sea urchin eggs, 4778*i*
**Crane, S. C.** See Fox, D. L
**Crane Co.** Malleable cast Fe, P 1709*d*, diffusion heat treatment, P 9144*b*
**Crane Packing Co.** Compn. of resin, powd. metal, and fiber, P 3233*h*, fast-setting compd of resin and powd. metal, P 7163*e*
**Crang, A.**, James, D ad Sturdy, M Retention of ascorb. acid preserved fruits, 2709*b*
**Crank, J.** Diffusion of direct dyes into cellulose (II) interpretation of rate of dyeing measurements, 1983*d*, diffusion problem in which the amt. of diffusing substance is finite (II) diffusion with non-linear adsorption, 3253*h*, (IV) solutions for small values of time, 4082*e*, see Wood, A. M
and Henry, M. F. Diffusion in media with variable properties (I) variable diffusion coeff. on the rates of absorption and desorption, 8789*f*
and Park, G. S. Evaluation of the diffusion coeff. for $CHCl_3$ in polystyrene from simple absorption expts., 5654*g*.
**Cranmer, J. T.** See Legg, D. A
**Cranmer, W. W.** Specifications for metal protective paints, 6429*i*.
**Cranston, E. M.** See Bope, E. W.
**Cranston Print Works Co.** Lustrous printed patterns on a dull ground, P 1989*c*
**Crater, W. deC.** Nitration, 7759*c*
**Cravenette Co.** Treatment of textiles with acyloxy-substituted aromatic acid salts, P 418*d*
**Cravens, W. W.** Effect of leucine on egg production and hatchability, 286*g*, see Couch, J. R ; Nichol, C. A ; Robblee, A. R.
and Halpin, J. G. Effect of pteroyl glutamic acid and an unidentified factor on egg production and hatchability, 5458*i*.
and Snell, E. E. Effects of desoxypyridoxine and vitamin $B_6$ on development of the chick embryo, 6293*f*.
**Craver, A. F.** See Bates, H. F
**Craver, B. N** See Meier, Rolf
and Cameron, A. Action of histamine in canine Thiry Vella loops, 7128*i*
**Craver, L. F.** See Hoster, H. A
**Craver, R. K.** See Cox, Herbert R.
**Cravioto, R. O.** See Guzman G., J.; Massieu, G.
— and Massieu, G. Protein fraction of the mucoproteins of the eye, 7525*e*
**Cravioto B., R. O.** Same as Cravioto, R. O.
**Crawford, A. B.** See Bishop, E.
**Crawford, A. G.**, Edwards, G., and Lindsay, D. S. Ternary system MeOH–AcOMe–$H_2O$, 8835*a*.
**Crawford, A. L.** Chem. resources of the Western States—Utah, 9295*d*
**Crawford, B. L., Jr.** Molded propellant powders, P 9450*h*; see Parr, R. G.
—— and Miller, F. A. Planar vibrations of benzene, 5305*i*
**Crawford, C. A.** High-strength Ni alloy retains performance properties at high temps., 9013*h*
**Crawford, F. A. F.**, Bell, J., and Imperial Chemical Industries Ltd. $H_2SO_4$, P 5912*c*.
——— and Imperial Chemical Industries Ltd. Nitroglycerin and like explosive liquid nitric esters, P 408*d*.
**Crawford, F. H.** Jacobian methods in thermodynamics, 2500*i*.
**Crawford, J. B.** See Whewell, C. S.
**Crawford, J. W. C.** Polymerization products, 4789*b*, F-contg. esters and their polymers, P 5445*a*, properties of some higher polymethacrylic esters, 9524*a*, see Hammod, Roy.
—, Wallsgrove, F. R , and Imperial Chemical Industries Ltd. 3,3,3-Trifluoro-1,1,2-trichloro-1-propene, P 8397*d*
**Crawford, M. F.** See Welsh, H. L.
—— and Levinson, J. Nuclear moments of $P^{31}$, 8273*a*
—— Schawlow, A. L. Gray, W. M., and Kelly, F. M. Nuclear moments of Ag, 4507*h*.
——, Welsh, H. L , and Locke, J. L. Infrared absorption of O and N induced by intermol. forces, 5307*i*
**Crawford, R.** See Bradner, H
**Crawford, R. A** Reclaiming mixed rubber and Neoprene compns , P 3227*g*
and Tiger, G. L. Improved processing GR-S by variations in compounding, 3644*e*
**Crawford, S. C.** O balance studies of a typical swamp stream, 3124*h*.
**Crawford, S. S.** Addns. to Lake Charles sewage-disposal plant, 6344*e*.
**Crawford, V. A.**, and Coulson, C. A. Dimerization of acenaphthylene, 2981*a*
— and Tompkins, F. C. Adsorption of gases $SO_2$, $NH_3$, $CO_2$, and NaO on BaF crystals, 2485*b*
**Craxi, P.**, and Ferrara, A Parenchymal ide nte al al leishi 3516*d*
**Créac'h, P.** See Antonini, J
**Creager, J. E.** See Smith, Howard E
**Creamer, A. S.** See Hunt, C. B , Shelton, G. R.
**Creamer, R. M.** Water sol. cellulose esters, P 1187*g*.
**Crean, L. E.** See Schefer, H. F
**Credner, K.** Influence of ephedrine, sympathol, veritol, and pervitin on diuresis, 8542*g*, see Holtz, P
**Creech, H. J.** See Wharton, D. R. A.
—, Hamilton, M. A , and Diller, I. C. Comparative studies of the immunological toxic and tumor-necrotizing properties of polysaccharides from *Serratia marcescens*, 2310*i*
, Hamilton, M. A , Nishimura, E. T , and Hankwitz, R. F , Jr. Influence of antibody-contg. fractions on the lethal and tumor necrotizing actions of polysaccharides from *Serratia marcescens*, 2310*h*.
—, Hankwitz, R. F. Jr., and Wharton, D. R. A. Immunol. properties of polysaccharides from *Serratia macescens* (I) effects of passive and active immunization on the lethal activity of the polysaccharides, 4368*d*.
**Creegan, H. F.** Rayon dyeing and finishing, 3209*i*
**Creelman, G. D.** Contact app. for gaseous mixts. with finely divided catalyst, P 2048*c*.
**Creighton, H. J.**, and Hales, R. A Electrolytic process for reducing sugars, P 2104*d*.
**Creighton, J. T.** Developments in insecticides and application equip. ment, 3135*h*.
**Creighton, M.**, Wenner, W , and Wuest, H. M 5,6-Diacetyl-L-ascorbic acid, 576*c*
**Cremaschi, P.** See Pietrucci, M.
**Cremer, E.** Abs. calcn. of the rates of heterogeneous reactions, 471*h*; see Buldt, R.
— and Baldt, R. Dependence of the activity of a catalyst on the temp. at which it is prepd., 4035*b*.
**Cremer, H. D.** See Lang, K.
**Cremer, M. A.** See Burchenal, J. H.
**Crepax, P.** Antithyrotropic action of ascorbic acid, 9199*b*, deficiency of platelets due to trypsin, 9242*g*; inhibition of the thyrotropic hormone by iodides, 9199*a*, permeability of the placenta to thyrotropic hormone and variations of susceptibility of the thyroid to thyrotropic stimuli, 9199*d*.
**Crépy, O.** Hepatic conjugation of natural estrogens with glucuronic acid, 5479*h*
**Crescitelli, F.** Carbamate conduction block in frog nerve fibers, 2329*f*, dual action of carbamates on the resting potential of frog nerve, 3933*a*.
**Crespi, R.** Mirrors, P 5565*f*.
**Crespi, S.** Dynamic adsorption and desorption of water vapor on silica gel, 6034*d*.
**Crespi, S. B.** Germicidal treatment of milk with O under high pressure, P 1123*h*.
**Crespi, V.** See Ubaldini, I.
**Cress, W. C.** Refractory lining compn , P 3988*d*
**Cressman, H. W. J.** *meso*-Alkylmercapto substituted carbocyanine dyes, P 4159*d*
and Kodak Ltd. Naphtho[1,2]selenazole nucleus and dyes therefrom, P 7848*c*.
**Cresson, S. L.** See Glenn, W. W. L.
**Crosswell, A.** Spinning collagen solns , P 7248*d*, treatment of collagen strands, P 7248*f*, treatment of spinnerets, P 8680*f*
**Cretcher, L. H.** See Renfrew, A. G
**Creteanu, G.** See Tudoranu, G.
**Creutz, E.** See Falk, C. E.
**Creutzberg, F.** See Mighorst, J. C. A
**Creveaux, H.** See Lagonnière, G.
**Creveaux-Bourgeat, J.** Formation of blood elements in relation to diet, 1467*a*, see Terroine, T.
Terroine, T , and Jacquot, R Alimentary value of maize - limiting factor and amino acid-niacin relation, 9179*d*.
**Crèvecoeur, E.** See Capron, P.
**Crewdson, H.** See Burk, A. P.
**Crews, L. T.** See Ralston, A. W
**Crézé, J.** Paralysis of batrachian spermatozoa by curare and a synthetic curarizing drug, 5873*h*
**Crichton, P. V.**, and Lazarus, A. S. Relation between prodigiosin production and catalase activity, 273*d*
**Crickard, R. G.** See Olson, R. A.
**Crickenberger, A.** See Alicino, J. F
**Criegee, R.** Rearrangement of decahydronaphthalene peroxide esters resulting from cationic O, 6188*g*
—— and Dietrich, H. Prepn. and esterification of tertiary hydroperoxides, 6189*d*.
—— and Schnorrenberg, W. Methyl lactolide-methyl ether rearrangement, 6190*b*.
**Crile, G., Jr.** Thyroid Disease (book), 1859*g*.
**Crim, R. F.** See Dunham, R. S
**Crima S. A.** Combustible volatile liquid, P 4835*c*.
**Crimora Research and Development Corp.** Electrolytic cell for Mn recovery, P 2103*h*, stripping electrolytic Mn, P 2153*c*, purifying Mn electrolytes, P 8918*i*.
**Crippa, G. B.** Lezioni di chimica organica (book), 6043*a*.
—— and Maffei, S. Methylenic mobile H in the transformation of Schiff bases, 2209*d*.
——— and Pietra, S. Investigations on mesatins (I) synthesis of *p*-methyl-*p*-tolylimesatin, 1396*d*.
——— and Vailati, P. Biochem. catalysts (VIII) pepsidine, 5429*b*.
**Crippen, R. A.** Unusual concretions from Templeton, San Luis Obispo County, Calif., 2899*a*.
**Crippen, R. C.**, and Bonilla, C. F Detn. of styrene in hydrocarbon copolymers, 8975*h*.
**Cripwell, F. J.** See Swaun, G
—— and Sutherland, G. B. B. M Absorption of centimetric waves by liquid dielectrics, 6019*f*.
**Crise, G. W.** Electrostatic air filter and dust precipitator, P 2050*i*
**Crismon, J. M.** See Fuhrman, F. A
——— and Fuhrman, F. A. Gangrene following cold injury (IV) use of fluorescein as an indicator of local blood flow—distribution of fluorescein in body fluids after intravenous injection, (V) use of fluorescein as an indicator of local blood flow—fluorescein tests in frost bite, 5858*d*
**Crisp, D. J.** Adsorption of amines on negatively charged monolayers, 8796*f*; two-dimensional phase rule (I) derivation of a two-dimensional phase rule for plane inter-

faces, (II) applications of a two-dimensional phase rule for a single interface, 8795*i*; see Forman, J.
—— and Thorpe, W. H. Water-protecting properties of insect hairs, 0324*f*
**Cristie, J. R.** See McClellan, W. D.
**Cristini, G.** See Cinsa, W.
**Cristol, P.**, Benezech, C., and Lisstzky, S. Deamination by nitrous acid (I) rate const. of deamination of amino acids in aq. soln., (II) influence of I on the rate of deamination of amino acids; -deamination of mixts. of amino acids, 6269*a*.
**Cristol, S. J.** Structure of α-benzene hexachloride, 5752*f*, see Dittmer, K., Goering, H. L.; Meek, J. S.
——, Ragsdale, J. W., and Meek, J. S. Na hydride and alkyl halides, 6968*e*.
**Critchfield, C. L.**, and Dodder, D. C. Scattering of protons in H, 4107*a*; phase shifts in proton-α-scattering, 8864*i*
**Critchlow, J. P.**, and Kroell, D. R. Lubrication and its effect on paper-mill operating and maintenance costs, 7681*g*
**Crittenden, E. C.** Temp. scale—centigrade or Celsius? 8219*i*, see Condon, E. U.
**Crittenden, P. J.** See Winbury, M. M.
**Crivelli, E.** Aerosols as dispersive agents for parasiticides, 5527*e*.
**Croatto, U.** Chromatographic sepn. of rare earths, 6941*d*, H overvoltage in relation to the compn. of the soln. (I), (II), 8284*h*, magnetic effects for investigating the corrosion of metals—corrosion of Pb and of Ag by S, 8310*a*; see Bezzi, S.
—— and Bezzi, S. Calcns. in the x ray detn. of crystal structure by Fourier analysis (I) mechanization adapted to the I. B. M. system, 4952*g*, (II) mech. system for rapid calcn., 3288*i*, (VI) rational use of the system, 7815*f*; (VII) its application to the detn. of the structure of *p* dibromobenzene, 8875*c*.
—— and Bruno, C. E.m.fs. in piles with solid electrolytes (electrodes in abstract by mistake)—electrolytes of mixed conductance, 6926*e*; (II), 8914*e*, galvanic piles with solid electrolytes, 7551*d*
—— and Bruno, M. Cryst. structures with reticular disorder (IV) solid solns. of sesquioxides in dioxides of rare earths, (V) solid solns. of Ag halides and bivalent metal halides, 8789*a*
—— and Scatturin, V. Magnetism of phosphonium compds., 7277*d*.
**Croce, T. lo M.** See Lo Monaco Croce, T.
**Crocioni, A.** Selective hormone herbicides, 8598*a*.
**Crocker, E. C.**, and Dillon, F. N. Odor directory, 9387*f*.
—— and Sjöstrom, L. B. Odor detection and thresholds, 6675*a*
——, Sjöstrom, L. B., and Tallman, G. B. Measurement of food acceptance, 1491*b*.
**Crockett, J. M.** Industrial uses of N and the rare gases, 980*f*
**Crockett, K. A.** See Roberts, R. C.
**Crockford, M. B. B.** Geology of Kootenay coal measures in southwestern Alberta, 6547*g*.
**Croft, C. C.** See Mayer, M. M.
**Croft, C. M.** Dyeing of nylon fabrics with insol. acetate dyes, P 7712*b*.
—— and Hindle, W. H. Combined dyeing and printing org. derivs. of cellulose, P 3206*g*; water-sol. leuco vat dye, P 9471*a*
**Crofts, P. C.** See Bennett, G. M.
**Crokaert, R.** Color reaction of pantothenic acid with Na β-naphthoquinone-4-sulfonate, 4317*f*.
**Cromack, G. H.** See Sundstrom, R. W.
**Cromer, H. E., Jr.**, Comfort, M. W., Butt, H. R., and Berkson, J. Gastric acidity in cases of adenomatous gastric polyp, 9224*a*.
**Cromwell, F. J.** See McAdam, D. J., Jr.
**Cromwell, N. H.** Condensation of hydroxy- and methoxy-*N* methylbenzylamines with heterocyclic chlorides, 2212*a*
—— and Cram, D. J. α,β-Diamino ketones (V) synthesis of α,β-diamino tertiary carbinols, 7028*b*.
—— and Hoeksema, H. Ethyleneimine ketones (IV) isomerism and absorption spectra, (VI) reactions with phenylhydrazine, 3388*h*.
—— and Tsou, K.-C. Keto-hemiacetal tautomerism of some *N*-phenacyl-*N*-substituted ethanolamines, 4239*e*.
—— and Wankel, R. A. Ethyleneimine ketones (V) reaction with HCl, 3389*a*.
—— and Watson, W. R. Ultraviolet absorption spectra of some amino-substituted unsatd. ketones, 7819*e*.
**Cromwell, T. M.** See Scott, Allen B.
**Cron, C. L.** See Rector, L. L.
**Crone, T. B.** Soldering and tinning flux, P 4212*b*.
**Croney, D.** Detonation in liquid explosives, 3197*a*.
**Crouheim, G.**, Wilaud, J., and Ehrlich, M. Metabolism and toxicity of salicylic acid in combination with various drugs, 8551*d*
**Cronin, H. J.** Bleaching process for groundwood pulp using deoxidizing agents, P 4066*b*
**Cronin, L.** See Wood, E. H.
**Cronshaw, C. J. T.** Marmaduke Barrow club, 9153*g*, dye industry, 3199*e*, through chemistry, adornment—dye industry, 6417*i*.
**Cronvich, J. A.** See Burch, G. E.; Ray, C. T.
**Crook, E. M.**, and Holden, M. Factors affecting the extn. of nitrogenous materials from leaves of various species, 2284*i*
**Crooks, D. A.**, Scott, T. R., and Imperial Chemical Industries Ltd. Salt from brine, P 6796*d*
**Crooks, R. C.** Reaction rates in sulfonation of $C_6H_6$ by $H_2SO_4$, 8815*c*
**Cropper, F. R.**, and Hiner, A. Infrared spectroscopy in analytical chemistry, 8297*e*.
**Cropper, W. P.** See Marschner, R. F.
**Crosca, A.** Ca and K in blood serum after nicotinamide injection, 1472*b*, hemoglobin metabolism in internal leishmaniasis, 2312*d*, Fe content of serum in kala-azar, 3923*f*, see Aversa, F.
—— and Aversa, F. Nicotinamide and glycemic curves from glucose injection, 1172*c*
**Crosfield, J., & Sons.** Soap, P 1765*b*
—— and Owen, R. V. Soap, P 3229*c*, 6841*e*
**Croson, M.** See Lemoigne, M.
**Cross, A. H. B.** Detn. of powder d., 2969*i*
—— and Young, P. F. Measurement of apparent porosity and bulk d., 2488*e*, apparent solid d. of silica bricks, 4823*j*
**Cross, B. E.** See Cocker, W.
—— and Drew, H. D. K. Chemiluminescent org. compds. (VIII) substitution in the amino group of luminol and its effect on the luminescence, 7488*d*
**Cross, C. K.** See Lemon, H. W.
**Cross, H. C.** Wrought Ti alloys made by arc melting or by sintering, 3766*a*; see Freeman, J. W.
—— and Freeman, J. W. Forged disk of S 816 alloy, 3331*d*
**Cross, H. E.** H-ion control of alky. in cyanide solns., 78*c*
**Cross, H. F.** Powders on clothing for protection against chiggers, 1518*f*.
—— and Snyder, F. M. Field tests of uniforms impregnated with mite toxicants (I) protective studies, 3554*i*; chigger control, 8499*g*.
**Cross, L. C.** See Bader, H.; Carter, P. W.
**Cross, L. E.**, Dennison, A. T., Nicolson, M. M., and Whiddington, R. Optical properties of Ba titanate, 6032*i*.
**Cross, P. C.** See Grady, H. R.; Taylor, R. C.
**Cross, R. J.**, Taggart, J. V., Covo, G. A., and Green, D. E. Cyclophorase system (VI) coupling of oxidation and phosphorylation, 7059*g*.
**Cross, R. P.**, and Fugassi, P. Kinetics of semicarbazone formation with para-substituted acetophenones, 2850*b*
**Cross, T., Jr.** See McNab, J. G.
**Cross, W. P.** See Norris, S. E.
**Crossley, M. A.** See Elthorn, A.
**Crossland, R.** See Haven, F. L.
**Crossley, T. L.** Fungus infection in groundwood pulp, 4463*c*
**Crossley, W.** See Jacobs, H.
**Crossmon, G. C.** Microscopical distinction of corundum among its natural and artificial associates—employing the Christiansen effect by transmitted, dark-field illumination, 3315*a*.
**Crosson, J. W.** See Boger, W. P.
**Croston, C. B.** See Evans, C. D.
**Croton, L. M.** See Renbourn, E. T.
**Crotti, G.** See Barsotti, M.
**Crouch, G. E., Jr.** Ferromagnetic resonance in Fe oxides, 4061*c*; see Surber, W. H., Jr.
**Crouch, W. W.** See Schulze, W. A.
—— and Pritchard, J. E. $FeSO_4$ pretreatment in emulsion polymerization, P 6457*i*.
**Crounse, N. N.** Gattermann-Koch reaction—formylation of isopropylbenzene under pressure, 6182*f*.
**Crous, A.** See Waal, H. L. de.
**Crouse, G. B.** Article for reproducing drawings on blanks, P 2532*e*
**Crouthamel, C. E.** See Beyer, R. J.
**Crovetto, A. J.** See Arthur, J. C., Jr.
**Crow, T. B.** Hot-dip galvanizing—technique for HCl pickle control, 5356*e*.
**Crowden, D.** Formularization of stress-strain curves, 7885*d*
**Crowder, M.** See Artom, C.
**Crowe, B. F.**, and Nord, F. F. Syntheses of azlactones from thiophenecarboxaldehydes, 7930*a*.
**Crowe, G. A., Jr.**, and Lynch, C. C. Urea-formaldehyde kinetic studies, 2079*b*
**Crowe, J. J.** Desulfurizing Fe and steel with molten $CaC_2$, 7401*b*
**Crowe, L. K.** See Coulter, S. T.
**Crowe, M. O'L.**, and Walker, A. Pterin-like pigment derived from the tubercle bacillus—fluorescence and absorption spectral data for erythropterinlike pigment, 9142*c*.
**Crowell, J. E.** See Friedenwald, J. S.
**Crowell, T. I.**, and Hammett, L. P. Kinetics of the reactions of thiosulfate ion with ethyl, propyl, and isopropyl bromides, 1632*h*
**Crowell-Collier Publishing Co.** Ni powder, P 3733*d*
**Crowfoot, D.**, Bunn, C. W., Rogers-Low, B. W. and Turner-Jones, A. Structure of penicillin, 1919*g*.
—— and Dunitz, J. D. Structure of calciferol, 2839*b*
**Crowley, D. J.** See Smith, Robert L.
**Crowley, F. L.** Quick frozen homogenized milk, P 5881*e*
**Crowley, J. A., Jr.** App. for cyclic conversion of hydrocarbons, P 8435*h*, app. for conducting the regeneration of a moving bed cat. dust, P 6012*a*, reactor for conversion of gaseous hydrocarbons, P 7222*e*, see Utterback, E.
**Crowley, J. F.** See Scott, K. G.
——, Hamilton, J. G., and Scott, K. G. Metabolism of carrier-free radio Be, 4309*g*
**Crowley, T. C.** See Bjorksten, J.
**Crowley's Milk Co., Inc.** Quick frozen homogenized milk, P 5881*e*
**Crown Cork & Seal Co., Inc.** Sn plate treatment, P 50*g*, cork compn., P 1518*i*, strip annealing app. for treatment of low C cold-rolled strip steel, P 9018*g*
**Crowther, A. F.** See Ashworth, R. de B.; Birtwell, S.
——, Curd, F. H. S., Henry, J. A., and Rose, F. L. Biguanide derivs., P 1039*e*
——, Curd, F. H. S., Richardson, D. N., and Rose, F. L. Synthetic antimalarials (XXIX) prepn. of some $N^1$-aryl-$N^2$-alkyl $N^5$-alkyl- and -dialkylbiguanides, 2947*i*.
——, Curd, F. H. S., Rose, F. L., and Imperial Chemical Industries Ltd. Biguanide derivs., P 6227*h*.
**Crowther, E. M.** Field expts. as a basis for planning fertilizer practice, 8594*e*.
**Crowther, J. A.** Manuel de radiologie industrielle (book), 4582*a*.
**Crowther, J. R.**, Pitkethly, T. E., and Stansfield, R. Sunbury lubricating oil test engine, 6816*d*.
**Croxall, W. J.** See Neher, H. T.
—— and Fegley, M. F. Condensation of $C_2H_2$ with esters—monosubstituted acetylenes and alkyl carbonates, 6168*f*.
—— and Neher, H. T. Acetals, P 1433*h*, ester lactones, P 3032*f*; halogen-substituted acetals, P 6649*i*.
—— and Schneider, H. J. Condensation of acetylenes -$C_2H_2$ and alkyl carbonates, 6167*g*.
—— and Van Hook, J. O. Condensation of $C_2H_2$ with esters (III) $C_2H_2$ and phenylacetylene with Me benzoate, 7453*b*.
**Croxatto, H.** See Badinez, O.; Croxatto, R.; Jarpa, S.
——, Badia, W., and Croxatto, R. Enzyme characteristics of the fibrinolytic enzyme of plasma (I) hypertensin, 2260*i*; effect of fibrinolysin on oxytocin, vasopressin, and hypertensinogen, 2321*c*.
— and Croxatto, R. Action of acetone and ether on the renin-hypertensinogen reaction, 1860*h*.
—, Croxatto, R., and Reyes, M. Effect of

hypertensin on the inactivation of oxytocin by the serum of pregnant women, 3482*h*.
——, Croxatto, R., and Rosati, S. Leucylglycinase in plasma in tourniquet shock, 5857*g*.
——, Donoso, C., and Croxatto, R. Effect of amino acids on the inactivation of oxytocin by kidney hypertensinase exts., 2260*g*.
——, Egaña, E., Parra, R. de la, and Leixellard, E. Effect of muscular work on urinary thiamine excretion, 2303*f*.
—— and Lastra, M. de la. Vasoactive substances of blood plasma, 5472*h*.
—— and Reyes, M. Effect of cysteine and glutathione on the oxytocinase activity of blood plasma, 2330*i*.
**Croxatto, R.** See Croxatto, H.; Rosati, S.
——, Donoso, C., and Croxatto, H. Effect of amino acids on the inactivation of vasopressin by kidney hypertensinase exts., 2260*h*.
**Croxton, F. C.** See Litz, L. M.; Lutz, G. A.
**Cruchard, S.** See Halpern, B. N.
**Crucible Steel Co. of America.** Steel for plastic mold dies and articles made therefrom, P 8316*i*.
**Cruck, S.** See Malméjac, J.
**Crudup, W. R.** See Knox, W. H., Jr.
**Cruess, W. V.** Flor sherry process, 3559*e*, see Tabey, A. M. El; Wahab, A.
**Cruger, D.** See Fee, D. A.
**Cruickshank, A. H.** See Payne, T. P. B.
**Cruickshank, C. N. D.** Evaluation of skin cleansers and protective creams for workmen exposed to mineral oil, 3543*d*.
**Cruickshank, D. B.** Complex ferrocyanides of Zn, 2113*a*; microestn. of Zn in teeth, 2890*f*, frequency distribution of the Zn content in the dental tissues of the normal population, 9206*k*.
**Cruickshank, D. W. J.** Accuracy of electron-d. maps in x ray analysis—bibenzyl, 6509*c*, accuracy of at. coordinates derived by least-squares of Fourier methods, 7816*e*.
**Cruickshank, G. A.** Evaluation of mold-resisting treatment of paper and paperboard, 8678*e*.
—— and Braithwaite, D. G. Sterilization of cation exchange resins, 3952*i*.
**Cruise, A. B.** See Smadel, J. E.
**Crumb, S. E.** See Baker, W. W.
**Crumley, J. A.** See Seymour, R. B.
**Crundall, S. F. W.** See Spence, P., & Sons Ltd.
**Cruse, K.**, and Haul, R. Detn. of *m*-dinitro-, *s*-trinitrobenzene, and tetranitromethane, 8978*c*.
**Cruse, R. R.** Chemurgic survey of the desert flora in the Am. Southwest, 6337*f*.
**Crussard, C.** Thermoelec. properties of metals—influence of cold work and impurities, 2912*f*.
—— and Aubertin, F. Thermoelec. force of metals, 2912*c*, measuring the space lattice of individual grains—application to the study of cold deformation and recrystn., 6956*c*.
**Crut, G.** See Dechaume, M.
**Cruz, W. O.** Effect of acetylphenylhydrazine on *Plasmodium knowlesi* infection in *Macaca mulatta*, 5318*b*, see Ball, E. G.
—— and Silva, E. M. da. Anaphylactoid shock produced by antiplatelet serum, 3916*a*.
——, Silva, E. M. da, and Pimenta de Mello, R. Attempts to modify the pathol. picture by high doses of estradiol benzoate, 1854*c*.
**Cryns, M. P.** Powd. milk and wheat-germ compn., P 3291*i*.
**Cryst, E. E.** See Gezon, H. M.
**Csábi, I.** See Iványovics, G.
**Csajághy, G.** See Liffa, A.
**Csáky, T. Z.** Estn. of bound hydroxylamine in biol. materials, 7071*b*, influence of pH and inhibitors on the $NH_3$ and nitrate assimilation by *Azotobacter*, 8008*d*; improving the biol. value of bread made with corn flour by the addn. of extd. sunflower meal, 9183*a*; see Virtanen, A. I.
—— and Kovách, A. G. B. Blood-pressure response to histamine, before and after pretreatment with histamine, 9243*e*.
—— and Magyury-Kossa, G. Histamine in the development of secondary traumatic shock, 9243*d*.
**Csányi, L.** See Szabó, Z.
**Csanyi, L. H.** Effects of asphalt film thickness on paving mixts., 7659*d*.
**Csapó, Á.** Actomyosin content of the uterus, 7423*i*.
**Csefkó, I.** See Gerendás, M.
**Csellak, W. R.** See Pigman, W. W.
**Cser, A.** Bauxite concrete or aluminous concrete, 9409*i*.
**Cservény, J.** See Ludány, G.
**Csetneky, É.** See Kiss, Á.
**Csík, L.** See Wolsky, S.
**Csiszár, J.** Oily taste of butter, 9282*e*.
——, Tomka, G., and Bittera, R. Preserving milk by applying $CH_2O$ and bisulfite, 8568*b*.
**Csitkey, I.** Adhesive, P 9535*i*.
**C. Società anon.** Product used for the maceration of hides obtained by the utilization of the enzymes of the insides of fish, P 4881*i*.
**Csók, T.** See Csuros, Z.
**Csonger, E.** See Szalay, A.
**Csukás, Z.** Carotene in the periodic variation of reproductive capacity, 9183*e*.
**Csuros, Z.** New principles in catalysis—selectivity, 8832*a*.
—— and Groszmann, S. Dressing of cellulosic textile with polymerization products, P 1989*g*.
——, Makádi, J., and Csók, T. Catalytic decarboxylation of org. acids, 7800*i*.
**Cubbedge, R. H.** See Miller, E. V.
**Cubicciotti, D. D.**, and Latimer, W. M. Reaction between $CCl_4$ and $NH_4Cl$, 557*f*.
—— and Thurmond, C. D. Metal salt interactions at high temps.—the solubilities of some alk. earth metals in their halides, 7803*d*.
**Cubin, T.** See Anglo-Iranian Oil Co., Ltd.
**Cuboni, E.** See Carini, A.
**Cucchiarelli, E.** Insulating plaster, 4828*e*.
**Čuchanov, Z.** See Chukhanov, Z. F.
**Čuchrov, F. V.** See Chukhrov, F. V.
**Cuckow, F. W.** Calibration of reference standard hydrometers, 4522*g*.
——, Harris, R. J. C., and Speed, F. E. Fraction collecting machine for chromatographic analysis, 8756*i*.
**Cucuzza Silvestri, S.** See Silvestri, S. C.
**Cudahy Packing Co.** Stabilization of fatty materials, P 2793*e*.
**Cueilleron, J.**, and Scartazzini, H. Combustion of Al in $O_2$, 4593*h*.
**Cuellar, F. T.** See Tallada Cuellar, F.
**Cuenot, M. A.** Milling products in Germany, 3533*f*.
**Cuer, P.** Action of charged particles on the photographic layer, 2527*a*, see Morand, M.
——, Morand, M., King, T., and Locqueneux, R. Measurement of the abs. dosage from an at. pile, 6077*e*.
——, Morand, M., and Rossum, L. van. Production of high-energy deuterons by fast neutrons, through a new nuclear reaction, 8862*e*.
**Cuervo, C.**, and Villarino, R. Pharmacological property of vitamin E, 5457*d*.
**Cuevas, J. D. C.** See Curet Cuevas, J. D.
**Čufarov, G. I.** See Chufarov, G. I.
**Cugnac, A. de**, and Belval, H. Affinities between the species *Agrostis* and *Apera* based on the constitution of their glucides, 8014*e*.
**Cuillé, J.** Insecticides against *Cosmopolites sordidus*, 5147*b*.
**Cukervanik, I. P.** See Tsukervanik, I. P.
**Cukierski, L. J.** Hard rubber, P 2462*i*.
**Culbertson, J. W.** Electrodeposition of speculum, 4148*b*, see Snyder, H. E.
**Cullen, A. M.** See Stern, Karl.
**Cullen, G. V.**, and Marshall, J. E. Machine for detg. clay substance in molding sands, 4613*f*.
**Cullen, H. L.**, and McDermid, A. J. Nonferrous secondary metals, 2127*g*.
**Cullen, O. E.** Homogeneous carburizing, 7884*b*.
**Cullinan, J. F.**, and Lytle, L. D. Acid treatment of pyrenequinone vat dyes, P 2412*b*, acid treatment of pyranthrone vat dyes, P 3205*g*; reducing particle size of anthraquinonethiazole vat dyes, P 3626*e*; acid treatment of heterocyclic imide and imidazole vat dyes, P 9469*i*.
**Cullinane, N. M.** See Spence, P., & Sons Ltd.
——, Chard, S. J., and Meatyard, R. Catalytic ethylation of $C_6H_6$ with EtOH in the gaseous phase, 1019*d*.
**Cullis, C. F.**, and Hinshelwood, C. N. Labile mols in the kinetics of hydrocarbon reactions (III) low-temp. oxidation of higher paraffins in relation to structure, 5269*e*.
**Culmer, C. U.** See Karlson, K. E.
**Culp, F. B.**, and Kinard, F. W. Effect of creatinine on the pain of muscle ischemia, 5846*h*.
**Culpepper, C. W.** See Wright, R. C.
——, Caldwell, J. S., Porte, W. S., and Hutchins, M. C. Dehydration of tomatoes, 1122*a*.
**Culshaw, G. W.**, and Garside, J. E. Aerated burner flames—measurements of ignition velocity and flame stability, 3173*c*.
**Culter, S. H.** Stability study of penicillin ointments, 3562*i*.
**Cultrera, R.**, and DeLuca, G. Lemon pectin (IV) gels formed by metallic couples in contact with pectin solns., 3266*g*.
**Culvenor, C. C. J.**, and Davies, W. Alkylene trithiocarbonates and attempted syntheses of 2,3-dimercaptopropanol (B A L), 7419*b*.
——, Davies, W., and Heath, N. S. Prepn. and reactions of aliphatic and alicyclic ethylene sulfides, 7419*h*; reactions of ethylene oxides (II) reactions with thio amides, thiols, and inorg. S salts, 7420*e*.
**Culver, C. A.** Construction and use of a Geiger-Müller counter assembly, 8215*e*.
**Culver, I. S.** See Lott, F. S.
**Culvern, J. B.** See Mason, C. M.
**Cummerow, R. L.**, Halliday, D., and Moore, G. E. Paramagnetic resonance absorption at 9000 mc./sec. for five salts of the Fe group, 4065*i*.
**Cumming, A. P. C.** See Campbell, J. R.
**Cumming, W. M.** See Brownlie, I. A.
**Cummings, A. D.** Developments in fuel technology, 4827*f*.
**Cummings, A. M.** Investigation of Vial Zn mine, Iowa County, Wis., 2131*e*; sampling the Kennedy Zn tailing pile, Lafayette County, Wis., 4987*c*.
**Cummings, J. M.**, and Chubb, R. L. High-pressure process for guayule sepn., 2799*i*.
**Cummings, L. W. T.** App. for catalytic conversion of hydrocarbons with a stationary catalyst bed, P 7760*h*.
**Cummings, R. W.** See Jacob, K. D.
**Cundiff, W. H.** Simplified equations for solution of countercurrent washing problems, 1614*i*.
**Cunha, J. D. S. da.** See Sinde da Cunha, J. D.
**Cunha, T. J.** See Burnside, J. E.; Colby, R. W., Engminger, M. E.
——, Burnside, J. E., Buschman, D. M., Glasscock, R. S., Pearson, A. M., and Sheely, A. L. Effect of vitamin $B_{12}$, animal protein factor, and soil for pig growth, 9293*b*.
**Cunneen, J. I.** See Bateman, L.
—— and Smith, F. Constitution of mesquite gum (I) isolation of 6- and 4-glucuronosido-galactose, (II) methylated mes-

**Cunningham, A.** Practical Bacteriology (book), 725*e*.
**Cunningham, A. M.** See Krause, A. W.
**Cunningham, B. B.** See Seaborg, G. T.
——, Hopkins, H. H., Lindner, M., Miller, D. R., O'Connor, P. R., Perlman, I., Seaborg, G. T., and Thompson, R. C. Transmutations with high-energy deuterons in the 184-in. cyclotron, 4092*e*.
—— and Werner, L. B. First isolation of Pu, 7319*e*.
**Cunningham, C. H.** Lab. Guide in Virology (book), 2314*h*.
**Cunningham, E. N.** See Howlett, R. M.
**Cunningham, G. E.**, Chamberlain, N. H., Speakman, J. B., and Cefoil Ltd. Alginic acid compds., P 2648*f*.
**Cunningham, G. L.**, Boyd, A. W., Gwinn, W. D., and LeVan, W. I. Structure of ethylene oxide, 4576*b*.
——, LeVan, W. I., and Gwinn, W. D. Rotational spectrum of ethylene oxide, 944*a*.
**Cunningham, H. S.** Control of downy mildew of Lima beans on Long Island, 3959*h*.
**Cunningham, R. W.**, Harned, B. K., Clark, M. C., Cosgrove, R. R., Daugherty, N. S., Hine, C. H., Vessey, R. E., and Yuda, N. N. Pharmacology of 3-(*N*-piperidyl)-1-phenyl-1-cyclohexyl-1-propanol HCl and related compds., 7581*a*.
**Cunningham, W. K.**, Gee, E. A., and Riordan, F. S. Purifying inorg. salts by use of org. solvents, P 9397*c*.
**Cuno, C. W.** Hard granules of waterproof type for surface-covering materials, P 2396*g*.
**Cunto, M. de.** Utilization of soybean products in the feeding of Brazilians, 7154*b*.
**Cuny, L.**, and Quivy, D. Influence of poly-

vinylpyrrolidone on elimination of heparin injected intravenously, 4380*f*.
**Cupery, M. E.** Esters, P 422*d*; *N*-alkyl polymeric acids, P 3239*i*, water-thinned paint, P 5205*f*.
——— and Rothrock, H S. Diallyl diglycolate-styrene copolymer, P 2035*h*.
**Cuppini, J.** Trattato generale sulle pitture e vernici naturali e sintetiche (book), 9482*f*.
**Cupples, H. L.** Parasiticidal compn. and films, P 352*e*; infrared absorption spectrum of γ benzene hexachloride, 6104*i*
**Cupps, P. T.,** and Howell, C E. Effects of feeding supplemental Cu to growing foals, 8467*a*
**Čupr, V.** Normal potential of Bi electrode, 7836*h*.
——— and Hemala, M. Detn. of P and phosphates, 7374*b*, analysis of phosphating baths, 7375*f*.
**Curado, J. G.** Moisture-set inks, 4870*h*.
**Curcho, M. de la G.** See Garza Curcho, M. de la.
**Curci, G.,** and De-Francisci, V Photometric detn. of *p*-aminosalicylic acid in biol. liquids, 7073*h*.
**Curd, F. H. S.** See Ainley, A. D., Ashworth, R. de B.; Basford, F. R.; Birtwell, S , Crowther, A F.
———, Cliven, E. C., Richardson, D N, and Imperial Chemical Industries Ltd. Alkyl (halophenyl)dicyandiamides, P 6658*e*
——— and Davey, D G. Antrycide—trypanocidal drug, 5905*g*
———, Hendry, J. A., Kenny, T. S., Murray, A. G., and Rose, F. L. Synthetic antimalarials (XXVIII) alternative route to $N^1$-aryl-$N^5$-alkylbiguanides, 2946*i*.
———, Hoggarth, E., Landquist, J. K., and Rose, F L. Synthetic antimalarials (XXXII) 4-arylamino- and 4 arylthio-2 (aminoalkylamino)quinazolines and 2-arylthio - 4 - (aminoalkylamino)quinazolines, 2952*c*.
———, Landquist, J. K., and Rose, F. L. Synthetic antimalarials (XXXI) 2 *p*-chloroanilino - 4 - (2 - diethylaminoethylamino)quinazolines contg. various substituents in the quinazoline nucleus, 2951*h*.
———, Raison, C. G , and Rose, F L. 2-Arylamino-4-haloquinolines, P 7973*i*
———, Richardson, D. N., and Rose, F L. Biguanide derivs., P 9082*e*.
———, Richardson, D. N., Rose, F L , and Imperial Chemical Industries Ltd. Biguanide derivs , P 6658*h*.
——— and Rose, F. L. Biguanide derivs , P 6659*d*
**Curet-Cuevas, J. D.** Magnetic susceptibility of weakly paramagnetic substances, 4911*f*.
**Curie, I.** Same as Joliot-Curie, I.
**Curl, A. L.** See Ambler, J A., Roberts, E. J.
**Curletti, I.** Sapon. of fats, P 8711*h*
**Curling, C. D.** See Allan, H. R
**Curman, C.** See Euler, H v.
**Curnow, D. H.** See Bartlett, S , Underwood, E. J.
**Curran, (Brother Columba).** See Moede, J. A., Palermiti, F. M.
**Curran, S. C.,** Angus, J , and Cockroft, A L. Soft radiations by proportional counters (I), 4131*b*; (II) β spectrum of tritium, 4131*k*, 7320*f*.
**Currie, A. N.** Arsenic in carcinogenesis, 3917*i*.
**Currie, C. C.** See Kauppi, T A , Young, C. W.
**Curry, J. J.** See Lowell, F. C.
**Curry, M. J.** See McElvain, S M
**Curry, R. S.** Cellulose pulp from wood, straw, and other fibrous materials, P 9447*d*.
**Curti, P. C.** See Freschi, A.
**Curtin, D. Y.** See Gerber, S. M
**Curtis, B. R.,** Fowler, J. L., and Rosen, L. Instrumentation for nuclear studies with externally focused deuteron beam from 10-m.e.v. cyclotron, 7327*a*.
———, Rosen, L., and Fowler, J. L. Differential $D(d,n)He^3$ cross section for 10-m.e.v. deuterons, 4093*g*.
**Curtis, C. A.,** and Stephens, D. S. Thioplasts, P 2025*e*
**Curtis, D.** Carbohydrate-boric acid salts of aromatic amines, P 1800*e*.
**Curtis, D. S.** Effect of O supply in nutrient soln. on avocado and citrus seedlings, 6702*b*.
——— and Zentmyer, G A. Effect of O supply on *Phytophthora* root rot of avocado in nutrient soln., 7555*h*.
**Curtis, F. D.,** and Urban, J. Biology in Daily Life (book), 5065*f*.
**Curtis, F. J.** Industrial management's point of view, 5650*f*
**Curtis, F. W.** Induction brazing with Ag alloys, 6561*c*.
**Curtis, G. M.,** and Fertman, M. B Iodine in nutrition, 2295*c*, radioiodine in thyroid disease, 8533*d*.
——— and Swenson, R E. Protein bound blood I in patients with hyperthyroidism, 1477*c*.
**Curtis, H. J.** See Bloom, W.
**Curtis, H. P.** Testing of Yarns and Fabrics (book), 2139*i*.
**Curtis, J. J.** Earle, F R Tanner, F W., Jr.
**Curtis, J. M.** See Umberger, E J
**Curtis, J. T.** See Yates, R C
**Curtis, L. C.** Naked seed in *Cucurbita pepo* as a source of high-quality liquid vegetable fat, as a high-analysis protein, as a confection, and as a sandwich spread, 9285*a*.
**Curtis, M. R.** See Dunning, W F
**Curtis, O. F.** See Hewitt, S P.
**Curtis, P. J.** See Brian, P. W.
**Curtis, R. G.,** and Hatt, H H. Equil in furfural-water systems under increased pressure and the influence of added salts on the mutual solubilities of furfural and water, 6900*d*.
**Curtiss, C. F.,** and Hirschfelder, J O Transport properties of multicomponent gas mixts , 8774*c*.
**Curtiss, L. F.** Measurement of radioactive isotopes, 1648*f*
**Curtis, G. D.,** and Harris, L E Phytochem study of *Malva rotundifolia*, 8458*h*, isolating plant constituents, 9363*b*
**Curtze, A.** See Diemair, W.
**Cusachs, L.** Water technology lab at Louisiana State Univ , 2715*f*, industrial wastes and their effect on sewage-treatment plants, 2718*i*.
**Cushing, E. M.** See Schneider, Robert
**Cushing, M. K.** See Christensen, H N
**Cushman, A.,** Brady, A. P., and McBain, J W Osmotic activity and cond of aq solns. of some typical colloidal electrolytes, 20*c*
**Cusic, J. W.** Aminoalkyl 9,10-dihydroanthryl ketones, P 365*g*; aminoalkyl ethers, P 6671*c*; chemistry of Dramamine 7193*a*.
**Cusimano, G. N.** See Nicosi Cusimano, G
**Cusmano, G.** Analogies and differences between camphor and isonitrosocamphor 7926*c*
**Cusmano, S.** Action of $HNO_3$ on γ diketones (V), 2991*a*, (VII), 5303*i*.
——— and Giambrone, S Action of nitric acid on γ-diketones (VI), 2991*h*.
——— and Liberto, T. Transformation of γ-isoxazolecarboxylic acids into pyrazole derivs (VII) decarboxylation of γ-isoxazolecarboxylic acids, 7020*i*.
**Custance, H. M.,** and Higgins, M Estn. of amyl acetate vapors in the air, 7377*i*.
**Custer, J. J.,** and Natelson, S Detn of microquantities of I, 8961*a*.
**Custot, F.** See Cheftel, H.
**Cuthbertson, G. R.** See Temple, J W
**Cuthbertson, J. W.** Electrochem and electrometallurgical industries, 4788*f*, see Miller, P. J.
**Cuthbertson, W. F. J.** Developments in microbiol methods, 7997*g*.
**Cuthill, R. W.** Rubber-cork compn , P 5990*g*.
**Cutinelli, C.** Influence of fatty acids on the development of *Bacillus tuberculosis*, 717*h*, inhibition by fatty acids of glycolysis in *Escherichia coli*, 717*i*, leucocytes and lysozyme, 3856*f*.
**Cutler, J. A.,** and McLaren, A D Sorption of water vapor by proteins and polymers (III), 7294*b*.
**Cutler, V. M., Jr.** See Meversburg, R.
**Cutolo, L.** See Carlinfanti, E
**Cutright, C. R.** Acaricides in concentrate form, 7630*a*
——— and Parks, T H. Combating the periodical cicada with insecticides, 7629*i*
**Cutten, A. F.** Fe or steel base for silver plating, P 50*c*.
**Cutter, V. M., Jr.** See Tatum, E L.
**Cutting, W. C.** See Hanzlik, P J , Newman, H W.
——— , Dreisbach, R H , and Neff, B. J. Antiviral chemotherapy, 4765*h*.
**Cuttino, J. T.,** Paris, A S., and Rosenthal, M. H. Effect of NaCl deprivation on the growing rat, 4355*g*.
**Cvetkov, V. N.** See Tsvetkov, V N
**Cymerman, J.** See Boots Pure Drug Co , Ltd.
——— and Short, W. F. Amidines (XII) prepn. of 9-substituted phenanthridines from *N*-2-biphenylyl amidines, 7445*e*.
**Cyr, R. R.** See Schaaf, S A.
**Cyriax, B.** Copolymer dispersions, 6462*g*; vinyl polymers for the coatings industry, 8735*e*
**Cyrot, J.** Ethylcellulose—ethylation of cellulose, 4848*i*.
**Cytronberg, S. S.,** Castillo, A. L. A. del, and Lachica, A de. Digestive capacity of the stomach, 7381
**Czaczkes, E. B.** See Burchler Czaczkes, E
**Czajkowska, J.** Detn. of the permeability and porosity of Polish oil and gas deposits, 3599*g*
**Czaky, T. Z.** See Kerby, G P.
**Czech, A.** Aspasan as an inhalant and in tablet form, 4426*d*.
**Czekalowski, J. W.** Penicillin inactivators of bacterial origin, 4340*d*
——— and Dolby, D. E Effect of enzyme inhibitors on the genesis of phage, 6277*e*.
——— and Skarzynski, B. Breakdown of phenols and related compds. by bacteria, 8058*d*.
**Czernov** See Chernov.
**Czerny, M.** Anweisungen zum Physikalischen Anfanger Praktikum (book), 4551*d*.
**Czerski, L.** Oxidation of Cu at high temp. and low pressures, 2851*a*, oxidation of Cu with air at high temps., 8950*h*.
**Czetsch-Lindenwald, H.** Pharmazeutische Technologie (book), 8201, galenic of yeast preps. in pharmacy, 9365*h*.
**Czolgos, E. P.** See Sivory, G
**Czyżewski, M.** Calcn of the time for which a metallic charge has to remain in the cupola melting furnace, 4989*f*
——— and Byrtus, F Influence of grain size of coal blends on the blast furnace coke properties, 6392*a*

**Daane, A. H.** See Speidling, F H , Wilhelm, H A
**Daas H C. den.** Internal friction in metals, 2114*g*
**Dabadghao, P. M** See Mirchandani, T I
**Dabbs, J. W. T.** See Moak, C D
**Dabrowska, W.,** Cooper, E J , and Laskowski, M Specific inhibitor for desoxyribonuclease, 5059*a*.
——— , Kazenko, A , and Laskowski, M Specificity of chicken pancreas conjugase 9111*b*
**Dachevski, M.** See Dashevskiĭ, M
**Dack, G. M.** Food Poisoning (book), 5880
——— , Niven, C F , Jr , Kirsner, J B , and Marshall, H Feeding tests on human volunteers with enterococci and tyramine 9101*f*
**Dackerman, M. E.** See Patterson, E K
**Dacorso, G F.** Aromatic hydrocarbons their production at Volta Redonda, 6581
**Da Costa Moura, J. E.** See Costa Moura J E da
**Dacre, J. C.** See Briggs, L H
**Dadape, V. V.,** Kane, G P , and Sathe, P K Carborundum—prepn in a high-temp resistance furnace, 2871*c*
**Dadswell, H. E.** See Amos, G L
**Dadykin, V. P.** Effect of external conditions on the osmotic pressure of the cell fluid in plants, 5453*a*, influence of soil temp on the availability of P to plants, 8082*d*
**Daelen, P. van den.** See Massart, L
**Däniker, H. U.** See Heilbronner, E
**Daeninck, L.,** and Libbrecht, L Central action of Purpanit, 7131*c*.
**Dänzer, H.** See Maier Leibnitz, H.
**Daeschner, S.** See Bastien, P
**Daeves, K.,** and Beckel, A. Grosszahl Forschung und Haifgkeits-Analyse (book), 4940*c*.
**Daff, M.,** Hoch Ligeti, C., Kennaway, E L , and Tiplet, M M. Effect of carcinogenic compds on the ascorbic acid content of the liver, 3921*c*.
**Da Fonseca, P. G.** See Guimarães da Fonseca, P
**Daft, F. S.** See Ashburn, L. L Mc Queeney, A J.
**Dagg, G. D.** See Naruyanamurti, D
**Dagley, R., Jr.** See Cheney, H A
**Dagley, S.,** Dawes, E A , and Morrison G A. Application of bacterial kinetics to biochem. problems, 5080*d*.
**Daglish, A. F.** See Clemo, G R.
**Daglish, C.,** Baxter, N., and Wokes, F Spectroscopy of riboflavin, 1093*a*.

— — and Wokes, F. Hydrojuglone and apparent vitamin C in walnuts, 281*c*.
**Dagnan, A.** Phosphate process used by the iron works "Pokoj," 4988*i*.
**D'Agostino, O.** Mn ores in the Lazio region, 8990*f*
**Dague, G.**, and Tabary, A. Is there any relation between graphitization [of steel], aging, flakes, and temper brittleness? 2911*d*.
**Dahl, A. D.** Dense MgO, P 1538*f*.
**Dahl, A. I.**, and Fiock, E. F. Shielded thermocouples for gas turbines, 2040*g*.
**Dahl, L. A.** Equil. in heterogeneous systems of 2 or more components, 7305*d*.
**Dahl, S.** Serum Fe (I) serum Fe in healthy women during the latter part of pregnancy, parturition, and puerperium, 3913*g*.
**Dahlberg, A. C.** See Kosikowsky, F. V.
— — and Kosikowsky, F. V. Influence of temp of ripening on the tyramine content and flavor of American Cheddar cheese, 4782*e*, bacterial count, tyramine content, and quality score of com. American Cheddar and stirred curd cheese made with *Streptococcus faecalis* starter, 8570*g*
**Dahlbom, R.** Antihistamine agents (II) 2-imidazolinylmethyl ethers of carbocyclic carbinols, (III) 2-imidazolinylmethyl ethers of heterocyclic carbinols, 6619*e*
— and Österberg, L. E. Diphenylmethoxyacetic acid and some related compds., 5018*h*
**Dahlén, A.**, and Bengtsson, E. Biphenyl, its properties, use, and manuf., 2979*b*, chlorobiphenyl, its properties, use, and manuf., 5387*i*
**Dahlgren, D. J. A.**, Hendrickson, L. G., and Griffith, D. L. Activated Zn dust for Au and Ag pptn., P 7891*e*.
**Dahlgren, E. G.** Second underground gasification project starts, 3993*a*
**Dahlig, W.** Polyethylene, 8198*a*.
**Dahlin, D. C.** Secondary amyloidosis, 8017*g*
**Dahlström, H.**, and Stostrand, T. Relation between the dosage of desiccated thyroid and its effect on the O consumption, 3910*a*
**Dahm, P. A.**, and Bauer, C. L. Miticidal properties of di(*p* chlorophenyl)methyl carbinol in lab. insect rearings, 1899*j*.
**Dahme, A.**, and Mackowsky, M. T. Coals, cokes and graphites (II) x-ray investigation, 7661*i*, (III) relations between the fine structure and the values, 7662*d*.
**Dahmen, E. A. M. F.** Elaidinizing fat oils with $SO_2$, P 5215*e*.
**Dahners, L. A.** See Newberry, A. W.
**Daigle, C. J.** See Riley, H. K.
**Daigle, E. C.**, and Lee, J. H. Caleg results of infrared analyses of gaseous hydrocarbon mixts., 382*e*
and Stripling, J. B. Evaluating coastal type crude oils for lubricating oils, 5580*g*.
**Daiichi Kogyo, K. K.** Same as First Industrial Co.
**Daiichi Seiyaku K. K.** Same as First Pharmaceutical Co.
**Dailey, B. P.** Microwave spectra and chem. analysis, 6103*h*; see Beard, C. I.; Townes, C. H.
— —, Mays, J. M., and Townes, C. H. Microwave rotational spectra and structures of $GeH_3Cl$, $SiH_2Cl_2$, and $CH_2Cl_2$, 8275*d*.
— — and Wilson, E. B., Jr. Microwave spectra of several polyat. mols., 4001*h*.
**Dailey, W. H., Jr.** Furnace for annealing steel strip in coils, P 9018*f*.
**Daily, F. L.** See Daily, J. M.
**Daily, J. M.** See Brabender, G. J.
—, Daily, F. L., and Ryan, J. F. Bleaching cellulose pulp with $O_3$, P 5594*a*.
**Daily, L. E.** Nitrofurans, 315*g*.
**Daimler, K.** How can the efficiency of fireproofing impregnations be checked? 8638*c*.
**Daimon, N.** See Noda, T.
**Dain, B. Ya.** See Glikman, T. S.; Valsberg, V. M.
— — and Kachan, A. A. Heterogeneous phenomena in the reduction of quadrivalent Ce ions, 7349*h*.
**Daines, R. H.** See Leone, I. A.; Prince, A. L.
**Dainihon Seiyaku K. K.** Same as Dainippon Drug Co.
**Dai Nippon Beer Shuryokagaku Kenkyujo.** Same as Dainippon Inst. Research Beer Source Chemistry.
**Dainippon Celluloid Co.** Ketoximes, P 3844*c*, film of polyvinyl acetal, P 6867*d*, $C_2H_3Cl_3$, P 7035*f*; alcs. from aldehydes, P 7035*h*. AcH and vinyl chloride from $C_2H_2$, P 7037*d*; vinyl chloride from $C_2H_2$, P 7951*a*; polyamide synthetic fibers, P 9475*h*.
**Dainippon Drug Co.** Condensation of cyclohexanone and cyanoacetic ester, P 7507*d*, sulfonamide compds., P 7508*c*; α-(chloromethyl)naphthalene, P 7511*d*.
**Dainippon Inst. Research Beer Source Chemistry.** Base for beerlike beverage, P 7190*e*.
**Dainton, F. S.**, and Ivin, K. J. Reversibility of the propagation reaction in polymerization processes and its manifestation in the phenomenon of a ceiling temp., 2497*c*.
— — and Sutherland, G. B. B. M. Infrared analysis in elucidation of the mechanism of the $BF_3$-catalyzed vapor phase polymerization of isobutene, 8830*b*.
**Dalon, M.** See Alikhanyan, A. I.
**Dake, G. E.**, and Lyne, J. A. Oil and water separator for oil-well fluids, P 385*h*.
**Dakhnov, V. N.** Prospecting for underground waters, P 3548*g*.
**Dakin, T. W.** Microwave phenomena in gases, 2342*i*; elec. insulation, P 3242*a*
**Dakshinamurti, C.** Triat. II in discharge tubes, 480*h*; Doppler and retrograde Doppler effect in the resonance radiation of Hg λ 2537 A., 491*e*; see Schofield, R. K.
**Dalalian, H.** See Kushner, S.
**D'Albay, J.** Dehydrating ales, P 5032*h*
**Dalbert.** See Mangenot
**Dal Borgo S., J.** See Borgo S., J. dal.
**Dalbro, S.**, and Muller, D. Biol. detn. of $C_2H_4$, 6688*f*.
**Dalby, G.** Detn. and definition of color in eggs, 2337*e*, see Hoffman, C., Russ, W. R.
**Dal-Cin, G.** Antibiotics in wine making, 6780*e*
**D'Alcontres, G. S.** Solns. of tannin in mixts. of water AcOH, 1539*d*, gelling and viscosity of solns. of gelatin—influence of various salts, 4540*f*
**Dale, A. B.** See Rodes, N. D.
**Dale, A. E.**, and Stanworth, J. E. Soft glasses and some of their elec. applications, 3161*i*, 3985*g*.
**Dale, J. J.** Structure of thick Cr electrodeposits, 4147*e*.
**Dale, J. K.** See Husa, W. J.
**Dale, O. O.** Plastic resins used with oil-base mud, 899*a*.
**Dale, W. M.**, and Davies, J. V. Relation between structure of nitrogenous compds. and their sensitivity to x-rays, 4133*b*.
—, Gray, L. H., and Meredith, W. J. Inactivation of an enzyme (carboxypeptidase by x- and α radiation, 6678*b*
**D'Alelio, G. F.** Molecularly oriented copolymers of acrylonitrile, 1,3-butadiene, and diethyl maleate, P 2470*d*, vulcanizable copolymers of a vinyl aryl compd., butadiene, and maleic esters, P 3230*d*, vulcanizable copolymers of acrylonitrile butadiene, and maleic esters P 3239*c*.
and Underwood, J. W. Polymers of nitroalkyl acrylates, P 2815*f*
**D'Alessandro, A.** See Pani, P.
**Dalev, D.** Prepn. of indones, 6193*c*.
**Daley, C.** Metal-glass seals, P 1935*c*
**Dalfsen, J. W. van.** Comparison of the properties of rubber vulcanized by different methods, obtained from several latex samples all prepd. from one field latex, 2802*e*
**Dalgaard, J. B.** Serum and bile phosphatase in biliary fistula dogs, 4714*c*; tracer phosphatase detn. in tissue sections, 4723*j*, phosphatase following bile obstruction and removal of the small intestines, 4750*h*; serum phosphatase after hepatectomy, 4750*i*; serum phosphatase after nephrectomy and bile obstruction, 4751*a*.
**Dalgaard-Mikkelsen, S.**, and Kvorning, S. A. Viscometric estn. of hyaluronidase, 2658*a*
—, Kvorning, S. A., and Møller, K. O. Hyaluronidase unit, 7111*i*.
**Dalglish, C. E.** Synthesis of β-phenylserines, 7455*h*; see Astbury, W. T.
**Dall, W. B.** Textile industry, 3201*b*.
**Dallas, D. E.** See Dunning, J. W.
**Dalla Torre, L.** See Travia, L.
**Dallemagne, M. J.** See Brasseur, H.
—, Brasseur, H., and Mélon, J. Mineral substance of bone and the synthesis of apatites, 7616*e*; existence of α-tricalcium phosphate, 9201*f*.
— — and Philippot, E. Pharmacology of dodecyl(2-hydroxyethyl)dimethylammonium chloride acetate, (2,3-dihydroxypropyl)dodecyldimethylammonium chloride diacetate, (4-carboxy-2-hydroxybutyl)-trimethylammonium chloride γ-lactone, and [3-carboxy-1-(hydroxymethyl)propyl]trimethylammonium iodide δ-lactone, 7132*f*.
**Dalley, O. T.**, and McIlroy, R. J. Acetone compds. of sugar mercaptals—diisopropylidene D-xylose diethylmercaptal, 7429*h*.
**Dallinga, G.** See Brink, C.
**Dalma, G.**, and Mateu Amengual, B. Alkaloids of *Pogonopus tubulosus*, 5548*i*, 8617*j*
**Dalmasso, G.** Vitamin content of apples, 5878*d*.
**Dalmatov, K. R.** Receiver for steam distd. essential oils, P 9390*i*.
**Dal Monte-Casoni, D.** See Colonna, M.
**D'Alò, F.** See Carlinfanti, E.
**Dalrymple, R. S.** See Pray, H. A.
**Dalton, A. J.**, Morris, H. P., and Dubnik, C. S. Morphologic changes in the organs of female C3H mice after long-term ingestion of thiourea and thiouracil, 8536*f*
**Dalton, J. A.**, and Wiltshire, W. A. Systematic identification of spots and specks in paper, 4464*d*
**Daly, A. J.**, and Lowe, W. G. Mixed esters of glycols, P 1795*h*.
**Daly, J. M.** Influence of N sources on the development of stem rust of wheat, 7090*g*, see Stakman, E. C.
**Daly, M. M.**, and Mirsky, A. E. Chromatography of purines and pyrimidines on starch columns, 7536*f*
**Daly, R. A.** Rock norms in geophys. investigations, 2552*a*.
**Dam, B. van**, Abma, R. R., and Revaillier Warffemius, J. G. Dried skim milk in breadmaking, 1872*h*
**Dam, C. F. van.** IJzer in staal (book), 4208*i*.
**Dam, F. J. van.** Bijdrage tot de physiologie van de essentiele vetzuren (book), 8029*b*
**Dam, H.** See Glavind, J., Granados, H.
— —, Granados, H., and Prunge, I. Influence of two different fats on reproduction capacity of vitamin-E-deficient rats, 9190*e*
— —, Hjorth, E., and Kruse, I. Detn. of vitamin K in chloroplasts, 3494*e*
— — —, Kruse, I., Prange, I., and Søndergaard, E. Influence of dietary ascorbic acid, nordihydroguaiaretic acid, and cystine on vitamin E-deficiency symptoms, 3902*f*.
— — — and Søndergaard, E. Coagulation anomaly in vitamin K deficiency and dicoumarol poisoning, 2681*d*
**Dam, J. W.** See Demuth, H. W.; Pieters, H. A. J.
**D'Amato, F.** Cytologic activity of some org. compds.—mitoses induced by colchicine and its toxic effects, 9171*f*; Gammexane as a polyploidizing agent, 9170*g*, influence of *m*-inositol and sugars on Gammexane-induced c-mitosis, 9170*i*, mutagenic activity and the type of mutation of the chromosomes induced by acenaphthene, 9170*e*, preprophase inhibition of mitosis in root meristems, 9171*a*.
— — and Avanzi, M. G. Auxinlike responses and the induction of root formation in onion, 9171*d*; comparison of the cytologic activity of 7 essential oils, 9170*i*
**D'Ambrosio, A.** Marmalade problem, 9290*c*
**D'Ambrosio, L.** Cardiovascular changes in industrial Pb poisoning, 9297*f*.
**Damen, L. W. J.** Dehydrated castor oil 7238*f*
**Damerell, V. R.** See Allsopp, W. E.
— — and Brock, H. Colloidal gardens from Na metasilicate, 4538*i*.
**Dameshek, W.**, and Taylor, F. H. L. Minot's Symposium of Hematology (book), 4361*h*.
**Damgaard, A.** See Bates, D. R.
**Damian, D.** See Angelescu, E.
**Damien, M.** Anodic treatment of Al and light alloys, 1270*a*.
**Damiens, A.** Cours de chimie minérale (book), 5092*g*.
**Damiliano B., J.** See Cabalà P., L.
**Dammers, E. G.**, Haantjes, J., and Offe, J. Anwendung der Elektronenröhre (book), 4958*h*.
**Damon, S.** Effect of brazing temps. on base metal properties, 7890*a*
**D'Amore, G.** See Ricca, B.
**D'Amour, F. E.** See Blood, F. R.
— — and Blood, F. R. Manual for Lab. Work in Mammalian Physiology (book) 1099*h*.
**Damrau, F.**, and Ferguson, E. A. Action of carminatives, 5114*g*.
**Damron, C. M.** See Mills, M. B.

**Damschroder, R. E.**, and Gates, J. W., Jr. Methylated derivs. of gelatin, P 9512*d*.
—— and Kauffman, M. E. Removal of photographically active ingredients from gelatin, P 958*e*; gelatin, P 3224*e*.
**Damsgaard-Sørensen, P.** Soil P studies (IV) org. bound P, 1510*a*.
**Dana, A. S.** See Johnson, B. C.
**Dana, B. F.** See Vaughan, E. K.
**Dana, E. S.**, and Hurlbut, C. S., Jr. Minerals and How to Study Them (book), 1294*b*.
**Dana, J.** Filter for flash lamps, P 4160*f*.
**Danby, C. J.** See Partington, R. G.
**Dance, E. L.** See Hill, H. W.
**Danchakov, V.** Effect of benzopyrene and methylcholanthrene on the guinea-pig embryo, 3516*e*
—— and Nicod, J. L. Effects of carcinogenic hydrocarbons on guinea pigs, 7121*h*.
**Danciger Oil & Refining Co.** $C_2H_2$, P 5174*i*.
**Dancoff, S. M.** See Kubitschek, H. E.; Lichtenberger, H. V.
—— and Drell, S. D. Electrostatic scattering of neutrons, 8262*h*.
**D'Ancona, U.** Action of sexual hormones on gonads, 8481*g*
**Dancy, T. E.**, and De Jersey, N. J. App for the carbonization assay of samples of coal and oil shale, 4830*a*.
**Danders, G.** See Schwarz, Robert.
**Daniel, A. F.** Fertilizing sugar cane, 1136*h*.
**Danforth, J. D.** Arylalkylamines, P 681*h*; emulsifier for polymerizations, P 4896*b*.
**Danforth, W. E.**, and Goldwater, D. L. Resistance of oxide coatings for high values of pulsed emission, 2857*d*
—— and Ramsey, W. E. Decay of thermionic emission of Ba-Sr oxide cathodes during space charge limited operation, 4095*d*.
**Dange, G. V.** See Prasad, M.
**Dangelmajer, C.** Plasticized polyvinyl alc. compns., P 440*g*.
**D'Angelo, S. A.** See Joel, T.
——, Gordon, A. S., and Charipper, H. A. Differential response of the rodent adrenal gland to acute starvation, 288*i*, effect of manition on the anterior pituitary-adrenocortical interrelation, 8485*g*
**Daniel, F. K.** Regeneration of ion-exchange material, P 3119*f*, removal or replacement of electrolytes in serums, P 3153*h*.
**Daniel, J. H., Jr.**, and Landes, C. G. Wet-strength paper, P 7686*g*
**Daniel, L. J.** See Cain, C. K.; Peeler, H. T.
——, Peeler, H. T., Norris, L. C., and Scott, M. L. Unidentified factors required by *Lactobacillus casei* (IV) evidence for two growth factors in purified liver exts., 4338*c*.
**Daniel, V.** Diffusion in a two phase alloy, 3761*h*, cooperative transition in a mixed ketone shown by a change of dielec. const., 6020*d*.
**Danielli, J. F.** Concn. of ions at interfaces, 8411*h*; see Boscott, R. J.
**Danielopolu, D.** Mechanism of immunity—anaphylaxis and specific maladies caused by antigens (VI) antianaphylaxis, 3513*b*.
——, Popesco, M., and Popa, G. G. Action of drugs on cholinesterase and on the adrenolytic factors—inactivating action of physostigmine, strophanthin, and ascorbic acid, 4379*h*.
——, Rudeanu, A., Bruckner, I., and Simionescu, Mlle. Liberation of acetylcholine during paraphylactic shock, 1478*a*
**Daniels, A.** Calcite concrete, 4827*b*.
**Daniels, C. R.** See Morway, A. J.
**Daniels, F.** Solar energy, 3251*h*
——, Hubber, M. K., and Wigner, E. P. Energy resources, 4058*g*.
**Daniels, F. W.**, Gardner, F. S., and Rood, R. M. Comparative behavior of mild-steel welds made with E6010 and E6016 electrodes, 553*a*
**Daniels, G. C.** Corrosion from flue gases, 100*c*.
**Daniels, G. H.** See Weidlich, H. A.
**Daniels, L. G.** Economy in production—eliminate machining, 8998*i*.
**Daniels, R.** See Levy, Harold
**Daniels, R. S.**, and Catlow, W. R. Resin-oil compns., P 4050*i*.
**Daniels, T. C.** See Kumler, W. D.; Salt, P. P. T.
**Danielson, G. C.** Domain orientation in polycryst. $BaTiO_3$, 4066*i*, 6485*d*.
——, Matthias, B. T., and Richardson, J. M. Dielec. behavior of single domain crystals of $BaTiO_3$, 453*f*.
**Danielson, L. L.** Pre-planting soil treatments with 2,4-D for weed control, 1895*b*.
**Danielsson, K. E.** Pptn. of proteins with tannic acid, 261*c*; mol. wt. of malt-amylase, 2365*e*; vicilin and legumin, 4711*b*; seed globulins of the Gramineae and Leguminosae, 8456*d*.
**Danil'chenko, E. P.** See Khachvankyan, M. A.
**Danil'chenko, P. T.** Detn. of stoichiometrically combined water in hydrogels and other finely dispersed systems by a method of third component, 6943*c*.
—— and Fridman, G. B. Detn. of the compn. of a complicated compd. in finely dispersed systems, 7316*a*.
**Danilevskii, V. V.** Saratov natural gas for O cutting of metals, 7394*c*.
**Danilina, M. I.** See Gorin, Yu. A.
**Danilov, S. N.** In memory of A. M. Butlerov, 2477*c*; hydro- and solvolytic and intramol. oxidation reduction (II) acid and acid-salt catalysis in isomerization of aldehydes into ketones, 4632*f*
—— and Grad, N. M. Chemistry of xanthates and viscose (II) dixanthides and thioanhydrides, 1181*g*.
——, Grad, N. M., and Gelne, E. I. Chemistry of xanthates and viscose (III) oxidative reactions in alkali cellulose and viscose, 9439*a*.
——, Grad, N. M., Klesman, V. O. Chemistry of xanthates and viscose (V) thioanhydrides of xanthic acids and their transformations, 8135*b*.
——, Grad, N. M., and Vorob'eva, A. F. Chemistry of xanthates and viscose (IV) components of viscose which add or lose an atom of S—oxidation-reduction addn. of S, 9439*i*
—— and Koz'mina, O. P. Three dimensional structure of mols. (II) oxidative polymerization of allylcellulose, 5013*i*; reaction of *N* chloroamines with amines, 6570*c*
—— and Tikhomirova, N. S. Isomerization of hydroxy aldehydes (XII) hydroxy ketones with primary alc. group and their behavior with α-hydroxy aldehydes and isomeric α-hydroxy ketones, 3791*i*
**Danilova, A.** See Konovalova, R. A.
**Danilova, E. D. V.** See Venus-Danilova, E. D.
**Danilovich, A. I.**, Moshkin, P. A., and Utyanskii, Z. S. Plasticizer, P 6465*b*.
**Danil'tsev, V. A.** Vertical filter press, P 3249*e*; frameless filter, P 4906*f*, concentric filter bag, P 8758*b*, app. for continuous diffusion, P 9506*d*, vacuum evaporator for continuous concn. of massecuite, P 9506*d*.
**Danko, A. W.**, and Wiener, G. W. Solders and babbitts—analysis, 3311*i*
**Dankov, P. D.** See Andrushchenko, N. K.; Gorbunova, K. M.; Tyapkina, V. V.
—— and Shishakov, N. A. Electronographic study of the size of Fe crystals and of the thickness of the oxide film formed, 84*f*.
**Dankova, T. F.**, Evdokimova, L. G., Stepanov, I. I., and Preobrazhenskii, N. A. Syntheses in the analog series of colchicine, 2606*i*.
**Dann, G. E.** History of pharmacy, 8093*d*.
**Dann, G. H.** Water-works maintenance, 7611*f*.
**Dannatt, C. W.**, and Ellingham, H. J. T. Roasting and reduction processes, 4988*d*.
**Dannegger, K.** See Ott, W.
**Dannenberg, E. M.** C black-loaded GR-S stocks—relation between reinforcement and swelling properties, 2014*a*, see Stokes, C. A.
—— and Collyer, H. J. Channel and furnace blacks in low temp. GR-S, 8724*c*
—— and Stokes, C. A. Characteristics of reinforcing furnace blacks, 4887*a*.
**Dannenberg, Hans.** See Adelson, D. E.
——, Bradley, T. F., and Evans, T. W. Drying oils and resins—O-convertible alkyd resins from glycerol α-allyl ether, 9480*d*.
**Dannenberg, Heinz**, Schramm, G., and Flammersfeld, H. Ultraviolet absorption of different strains of tobacco mosaic virus, 3070*h*
**Dannenmuller, M.** See Portevin, A. M.
**Dannewitz, I. H.** See Hansen-Dannewitz, I.
**Danowski, T. S.** See Elkinton, J. R.; Tager, M.; Winkler, A. W.
——, Winkler, A. W., and Elkinton, J. R. Biochem. and hemodynamic changes following the subcutaneous injection of glucose solns., 7110*h*.
**Dan River Mills, Inc.** Dyed cellulose ethers and their use in dyeing fabrics, P 416*b*.
**D'Ans, J.** See d'Ans, J.
**D'Ans, L. B.** See Lunge.
**Dansi, A.**, and Pasini, C. Condensation products of some aromatic amines and their bacteriostatic action against tuberculosis, 4812*f*.
—— and Reggiani, M. Polycyclic hydrocarbons derived from tetrahydronaphthalene, 5389*d*.
——, Reggiani, M., and Morelli, E. Max reactivity in 1,2-benzanthracene and 1,2-benzanthraquinone, 3091*h*.
**Danskin, K. A.** See Glassmire, W. F.
**Dantas, C. R.** See Rodrigues Dantas, C.
**Dantchakoff, V.** See Danchakov, V.
**D'Anteo, G.** Tetramethyl and tetraethyl $NH_4OH$ (II) action on the isolated heart and blood vessels of the toad and on the blood pressure and respiration of the rabbit, 6731*c*.
**Danyushevskii, Ya. L.** See Goldfarb, Ya. L.; Setkina, O. N.
**Danz, F. J.**, and Schultz, E. W. Gelatinous variants of *Pseudomonas aeruginosa*, 9155*i*
**Danzin, A.** Calcns. of the elec. resistivity of silicate glasses, 4534*d*, calcd. formula approximating the dilatation of silicate glasses, 5915*a*; glasses having a low coeff. of expansion, P 5917*g*
—— and Despois, E. Fusion glass, P 5564*i*
—— and Meunier, P. Dielec. properties of glass, 4529*i*.
**Dappen, J. W.** See Bublitz, W. J.
**Dapples, E. C.**, Krumbein, W. C., and Sloss, L. L. Tectonic control of lithologic assocns., 2130*f*.
**Daprà, L.** Chem. processes in the stomach and fecal compn., 2687*i*
**D'Aquin, E. L.** See Gastrock, E. A.
**D'Aragona, I.** *Ginestra scoparia* and spartein—deriv. of the alkaloid, 1581*a*
**Darbishire, O. B.** Extn. of tomato solids, 2894*i*.
**Darby, H. T.** See Ginger, A. W.
**Darby, J. F.**, Rollin, B. V. Nuclear magnetic relaxation in solids, 8878*f*
—— and Swan, J. B. Angular distribution of D-D neutrons scattered by deuteron, 6990*h*
**Darby, J. R.** Heat-stabilized polyvinyl chloride compns., P 2037*i*
**Darby, R. T.** See Stu, R. G. H.
**Darby, W. J.** See Jones, Edgar, Woodruff, C. W.
**Darbyshire, J. A.** Materials used in electronic engineering—Mo, 3758*d*
**Darch, W. J.** See Grant, W. F.
**Dardel, Y.** Ti in Al, 9824*i*, American conceptions relative to the temperability of steel, 3759*i*.
**Dardonnes, R.** Materias colorantes, 6424*e*
**Dargent, M.** See Reboul, J., Santy, P.
**Darken, L. S.** Maps of Fe oxides on silica—phase equil. in the system Fe-Si-O as a function of gas compn. and temp., 818*i*, diffusion of C in austenite with a discontinuity in compn., 80*i*, map of magnetite-silica mixts. in air, 5712*g*
—— and Smith, R. P. H in steel during and after immersion in acid, 1401*h*
**Darley, M. M.** See Driggers, B. F.
**Darling, J. W.** See Lilley, H. S.
**Darling, R. C.** See Gordon, E. E.
**Darlington, H. N.**, and Holdsworth, P. Sepn. of $Me_2CO$, EtOH, and $BaOH$ from aq. solns., P 1906*d*.
**Darlow, A. E.** See Ross, O. B.; Stephen, D. F.
**Darmois, E.** Electroosmosis, 22*a*; attack of silica and glasses, by fluorides, 3570*c*, Thermodynamique et rayonnement (book), 4090*c*, penetration of H into Fe and several consequences, 7304*h*.
—— and Dobiaski, S. Oscillations of relaxation of a special type, 4584*e*.
——, Mostovetch, N., and Vodar, B. Electroconduction of very thin films of metals on various supports, 9026*i*
**Darmois, J.** See Darmois, R.
**Darmois, R.** High precision thermostat applied in viscometry, 3183*f*.
—— and Darmois, J. Physicochem. measurements on Mediterranean water in the region of Monaco, 4058*g*.
**Darmon, S. E.** See Astbury, W. T.
**Da Rocha, O.** See Rocha, O. da.
**Darovskii, B. S.** Performance of artificial defibrinating stones in the processing of brown wood paste, 5947*i*.
**Darowski, B. S.** See Darovskii, B. S.
**Darragh, J. L.** Halogenated aromatic compds., P 7041*f*.
**Darrah, W. A.** Fields of use for prepd. atm., 7607*d*.

**Darrah, W. C.** Flaw detection, P 5359*b*.
**Darraspen, E.**, Florio, R., Joubert, L., and Foucher, J. Corpuscle chloride: plasma chloride ratio, 5470*f*.
——, Florio, R., Joubert, L., and Louf, R. Pathol. variations of the corpuscle chloride: plasma chloride ratio, 5484*i*.
**Darrin, M.** Corrosion inhibitor in recirculating water systems, 6560*h*.
**Darrow, C. W.** Acetylcholine (III) acetylcholine as a pharmacol. agent, 4753*b*.
**Dart, J. C.** See Burtis, T. A.
——, Kuhn, C. S., Jr., Penick, J. E., and Wagner, U. H. Primary alkylation products in HF alkylation, P 5583*f*.
— and Oblad, A. G. Heat of cracking and regeneration in catalytic cracking, 3180*d*
——, Savage, R. T., and Kirkbride, C. G. Regeneration characteristics of clay cracking catalyst, 3181*e*.
**Dart, S. L.**, and Peterson, L. E. System for fiber testing of textile materials, 3201*h*.
**Daruwala, E. D.**, Mandlekar, M. R., Mehta, T. N., and Parekh, V. M. Cracking of vegetable oils (IV) thermal decompn of certain vegetable oils under reduced pressures, 424*b*
**Darwent, B. de B.** See Phibbs, M. K., Steacie, E. W. R.
—— and Steacie, E. W. R. Hg-photosensitized reactions of neopentane, 6516*f*
**Darwins Ltd.**, Lunley, A., and Torry, A. Permanent magnets, P 5729*i*.
**Darworth, Inc.** Metallic naphthenates and soaps, P, 5978*c*.
**Darzens, G.** Direct synthesis of 2-nitro-1,3-propyleneglycol—its utilization for the synthesis of glycerol, 128*f*, life and work of Berthollet, 2049*d*, γ and δ lactones, 3786*a*
**Das, B. K.** See Sen Gupta, S. B.
**Das, B. M.** See Pal, B. C.
— and Mitra, S. K. pH of tan liquors, 6849*a*.
— and Sarkar, P. K. Detn. of the emulsifying power of egg yolk, 7248*i*
—— and Sen, S. N. Bacterial studies of raw hides and skins in the process of leather manuf. (I), 5617*b*
**Das, B. R. S.**, Acharya, B. N., and Devadatta, S. C. Fish-liver oils (I) seasonal variation in vitamin A content and some of the phys. and chem. consts. of fish liver oils, 5210*b*
**Das, G. K.** See Dasannacharya, B.
**Das, M. N.** Iodination of AcONa in glacial AcOH, 2932*h*.
**Das, N. N.** Effect of cardiac drugs on heart tissue, 4372*g*.
**Das, R.** See Reddi, K. K.
**Das, R. K.** Removal of S from Assam coal contg. S, 2754*i*.
**Das, S.** Delayed neutrons, 4122*h*; see Mukherji, A.; Saha, A. K.
**Das, S. C.**, and Moturamani, D. P. Diseases of gram, 6289*i*.
**Dasannacharya, B.**, and Das, G. K. Analysis of canal rays, 4135*b*.
**Daschevski, M.** See Dashevskil, M.
**Dasgupta, A. K.** See Bose, A. K.
**Das-Gupta, H. N.** See Chatterjee, S. K., De, C., Mukherjee, P. N.; Mukherji, B. K.; Sen, S.
**Das Gupta, K.** Soft x-ray *K* emission and absorption spectra of Na halides and their ultraviolet absorption bands, 2091*d*.
**Das Gupta, P. N.** Specifications for soaps, cosmetics, and glycerol, 9492*d*, see Naram, K.
**Das Gupta, R. C.** See Carrick, L. L.
**Das Gupta, S. N.** See Young, J. H.
**Das Gupta, S. C.** See Tewari, C. N.
**Das Gupta, S. K.** See Verman, L. C.
**Das Gupta, S. M.** See Carrick, L. L.
**Dasher, D. E.** Porous metallic structure, P 3949*a*.
**Dasher, J.**, and Norman, J. E. Conditioning minerals for film concn., P 5726*d*.
**Dasher, P. J.** Reclaiming vulcanizates of butadiene-acrylonitrile polymers, P 4510*a*.
**Dashevskaya, B. I.** See Kiprianov, A. I.
**Dashevskil, M.** See Dogadkin, B.
**Dashiell, P. T.** Carbureting B.W.G. with heavy fuel oil, 836*e*; developments and trends in water-gas operation, 1946*f*.
**Da Silva, E. M.** See Silva, E. M. da.
**Da Silva, D. J. R.** See Rosas da Silva, D.
**Da Silva, J. M.** See Martins da Silva, J.
**Da Silva Carvalho, J. L.** See Silva Carvalho, J. L. da
**Da Silva Pinto, M.** See Silva Pinto, M. da.
**Dasler, W.**, and Bauer, C. D. Assay for antistiffness activity with guinea pigs depleted on solid rations, 3894*f*.
**D'Asseev, C.** $Mg(HCO_3)_2$ and $MgNH_4PO_4$, P 2381*b*
**Dassow, A.**, and Stansby, M. E. Stabilization of vitamin A in halibut-liver oil with nordihydroguaiaretic acid, 9379*c*
**D'Aste, G.**, and Arduu, B. Antihistamines and traumatic shock, 9219*g*.
**Dastugue, G.**, and Dupuis, P. Sensitization of the isolated ventricle of *Helix pomatia* to acetylcholine by local anesthetics—sensitization of denervated leech muscle to acetylcholine by local anesthetics, 1107*e*, sensitization of isolated ventricle of *Helix pomatia* to acetylcholine by morphine and its derivs., 3102*e*.
**Dastur, M. N.**, and Chipman, J. Elimination of the thermal-diffusion error in gas-metal equil., 4932*i*, equil. in the reaction of H with O in liquid Fe, 8822*e*.
—— and Gokcen, N. A. Optical temp. scale and emissivity of liquid Fe, 9004*e*.
**Dastur, N. N.** See Sen, K. C.; Trivedy, J. N.
**Date, K.** See Anzai, H.
**Datlow, J.** Nitrating cellulose lacebacking fabrics, P 4021*i*
**Datrier, F.** Resinous products—macrocrystals, 8704*a*
**Datsenko, O. V.** See Usatenko, Yu. I.
**Datsko, V. G.** Phosphates in the bottom of the Azov Sea, 3252*a*.
**Datta, N. P.** See Vanselow, A. P.
**Datta, P. C.** Synthetic expts. in the alicyclic systems (II), 3829*b*.
**Dat-Xuong.** See Buu-Hoï, Mentzer, C.
**Daub, W. E.** Equation of state of a pure substance, 8774*b*.
**Dauben, H. J., Jr.** See Bartlett, Paul Doughty, Youngken, H. W., Jr.
——, McKusick, B. C., and Mueller, G. P. Catalytic hydrogenation of 2-naphthol to 1,2,3,4-tetrahydro-2-naphthol, 2197*e*
**Dauben, W. G.** See Entenman, C., Fieser, L. F.; Lernet, S. R.; Masoro, E. J., Srere, P. A.; Tolbert, B. M.
**Daubert, B. F.** Fatty acid structure and nutritive value, 9194*i*, see Doerschuk, A. P.; Honn, F. J., Kapur, S. L., Spencer, J. F.
**Daubert, W. S.** Cost of trash to the sugar factory, 6848*i*
**Dauby, R.** Chromatography, 1625*b*
**Daudel, P.** See Bouchez, R., Chalvet, O.; Coulson, C. A.; Martin, M.
—— and Daudel, R. Formation of a complex between cancerigenic compds. and the tissues subjected to their action, 9220*e*
——, Daudel, R., Buu-Hoï, and Martin, M. Mol. diagrams of mesomerism and reactivity of org. mols., 5731*d*.
——, Daudel, R., and Martin, M. Radioactive tracers in reactions involving solids, 4553*i*
——, Daudel, R., May, S., Muxart, R., and Chalvet, O. Chem. reactions during nuclear reactions which do not change the chem. nature of the atoms, 7332*h*
——, Flon, M., and Herczeg, C. Detn. of radioactive Br in biol. material by mineralization with $Na_2O_2$ in the Parr microbomb, 5815*g*.
——, Neukomm, S., Lescin, E., Henriet, L., and Daudel, R. Detn. of radio Br in biol. material, 1154*b*.
**Daudel, R.** Formation of an addn. complex between carcinogenic hydrocarbons and a cell element in the course of their metabolism, 3920*i*; influence of substituents and of hetero-atoms on the chem. properties of condensed aromatic hydrocarbons, 5019*f*; free radicals, 5732*f*, relation between pK and mutual polarizability, 8243*c*; see Bouchez, R.; Coulson, C. A.; Daudel, P.; Vroelant, C.
—— and Martin, M. Value of elec. charges created by certain substituents and certain heteroatoms in org. mols., 6582*e*.
**Daudin, J.** See Maze, R.
**Daudt, W. H.** Organodisiloxane, P 1803*c*; organosilicon compns., P 5420*e*.
**Daugherty, C. C.** $MnSO_4$, P 3690*b*.
**Daugherty, N. S.** See Cunningham, R. W.
**Daul, G. C.** See Reid, J. David.
**Daum, K.** See Tuttle, W. W.; Wilson, M.
——, Tuttle, W. W., and Wilson, M. Influence of thiamine intake on physiol. response (VII) thiamine requirements, 9182*e*.
——, Tuttle, W. W., Wilson, M., and Rhodes, H. Influence of thiamine intake on physiol. response (II) urinary excretion of thiamine, 1467*d*.
——, Tuttle, W. W., Wilson, M., Rhodes, H., and Osborne, M. Influence of thiamine intake on physiol. response (I) low-thiamine diets, 1467*c*.
**Dauner, S.** See Buchta, E.
**Daunt, J. G.**, and Johnston, H. L. He liquefier, 3668*a*, liquid-He cryostat, 4055*f*.
—— and Mendelssohn, K. He liquefier and cryostat, 911*e*.
**Daus, M. A.** See Hirschmann, H.
**Dautrebande, L.** See Davies, C. N.
**Dautzenberg, W.** See Giesen, K.
**Dauval'ter, A. N.** Thermal expansion of decorative glass, 1541*c*.
**Dauvergne, M.** See Mouriquand, G.
**Davel, J.**, and Jonxis, J. H. P. Optimal protein content in food of children, 737*g*.
**Davenport, F. M.**, and Horsfall, F. L., Jr. Associate reactions of pneumonia virus of mice and influenza viruses—effect of pH and electrolytes on virus host cell combinations, 1482*i*.
**Davenport, H. W.** See Hendley, C. D.
**Davenport, V. D.** Relation between brain and plasma electrolytes and electroshock seizure thresholds in adrenalectomized rats, 6301*i*, see Woodburv, D. M.
**Davenport, W. H., Jr.** Detn. of Al in presence of Fe, 7369*f*
—— and Thomason, P. F. Detn. of U (VI) in presence of anions—$NH_4$ thioglycolate as an analytical reagent, 8958*h*.
**Davey, C. N.** See Cooke-Yarborough, E. H.
**Davey, D. G.** See Curd, F. H. S.
**Davey, J. H.** Paint industry, 4489*d*
**Davey, N.** See Lea, F. M.
**Davey, W. J. G.** Gas analyses (I) correct detn. of main constituents of gaseous mixts., (II) Wobbe index, 3171*f*; (III) viscosity, 3596*g*; (IV) triangular coordinate chart, 3993*a*, (V) triangular coördinate chart for calorific value of 500 B. t. u. gas, 4445*f*, (VI) viscosity corrections into gas flow formulas, 5172*c*.
**D'Avice, R.** See d'Avice, R.
**David, D. J.** See Bayliss, N. S.
**David, Erwin.** Radius of the electron, 4953*a*
**David, Eugene**, Malissard, G., and Dutin, J. Carbonization furnace, P 4837*d*.
**David, H. E. F.** See Fierz-David, H. E.
**David, J.** See Abribat, M.
**David, M. M.** See Cornall, A. G.
**David, Robert.** See Régnier, J.
**David, Roger.** Herbicidal action of isopropylphenyl carbamate, ethyl-2,4-dichlorophenoxyacetate, and chloropicrin, 3554*g*, stimulation of germination of *Pinus maritima*, 5151*d*, influence of vernalization on the carbohydrates of wheat endosperm, 5831*f*
—— and Séchet, J. Influence of treatment at low temp. on the glucides of wheat embryo, 6286*a*.
**David, S.** Structure of germanicol (I), 5385*b*.
**Davide, H.** Products from *Proteus vulgaris* and *Pseudomonas aeruginosa*, active against *Mycobacterium tuberculosis*, 5085*b*.
**Davidoff, M.** See Friedman, A. P.
**Davidov, R.** A. A. Kalantar, 7275*g*.
**Davidow.** See Davydov.
**Davidsohn, A.** Pomegranate juice as a natural indicator, 2541*k*, detn. of ash in matter contg. high percentages of water, 2547*h*, processing spent lubricating oils for use in news ink, 3999*c*; com. adhesives, 8716*i*.
**Davidsohn, I.**, and Stern, K. Antibodies in mice of low and high tumor strains, 7573*e*.
**Davidsohn, J.** Polishes. Their Raw Materials and Manuf. (book), 6761*i*.
**Davidson, A. D.** Heat transfer, 1616*i*.
**Davidson, A. W.** Teaching of electrochemistry, 451*a*; see Sisler, H. H.
——, Kleinberg, J., Bennett, W. E., and McElroy, A. D. Metallic Al in soln. in liquid $NH_3$, 4960*h*.
**Davidson, C. F.** Prospector's handbook to radioactive mineral deposits, 6123*h*.
**Davidson, C. S.** See Eckhardt, R. D.
**Davidson, D.**, and Bernhard, S. A. Structure of Meldrum's supposed β-lactonic acid, 571*i*.
—— and Kahn, S. J. Methallylbenzene, P 2228*c*.
**Davidson, D. L.** Dewar flasks, 405*g*.
**Davidson, E. M.** See Morris, K. B.
**Davidson, G.** Adhesive compn. from soybean oil, P 1221*c*; simultaneous recovery of protein and hemicellulose from soybean meal, P 3663*b*.
**Davidson, H. O.** Filtration app. for viscose dispersions, P 6873*h*.
**Davidson, H. R.** See Busse, W. F.; Schildknecht, C. E.

**Davidson, J.** Brit waterworks, 1885*a*.
**Davidson, J. A.** See Evans, Robert J.
**Davidson, James H.** Statistical tests of significance, 4173*c*.
**Davidson, John H.** Preventing arsenical injury to plants, P 5151*d*.
**Davidson, J. L.**, Wiley, J. L., and Troost, M. A. Prolonged elevation of blood levels in dogs with procaine-penicillin, 8555*b*.
**Davidson, J. N.** Nucleoproteins, nucleic acids, and derived substances, 9123*c*.
——, Leslie, I., and Waymouth, C. Nucleoprotein content of fibroblasts (IV) changes in the ribonucleic acid P and deoxyribonucleic acid P contents, 6257*d*.
**Davidson, K. C.** Reclamation of transformer oil, 4962*g*.
**Davidson, M.** Practical Manual of Diseases of the Chest (book), 755*g*; systemic administration of heparin and dicoumarol for post-operative adhesions, 8541*e*.
**Davidson, N.** See Fried, S.
—— and Sullivan, J. H. Kinetics of the vapor-phase exchange of radioactive bromine between trichlorobromomethane and bromine, 4548*g*, estg. and minimizing the error of measurement of the rate of a radioactive exchange reaction, 4951*h*.
**Davidson, N. S.** See Gay, L. N.
**Davidson, O. W.** Effects of $C_6H_4$ on orchid flowers, 8014*a*.
**Davidson, R. H.** See Niswander, R. E.
**Davidson, W. L.** See Wollan, E. O.
—— and Geib, I. G. Effect of pile bombardment of uncured elastomers, 8730*a*.
**Davidson, W. M. B.** Estn. of cholesterol in urine, 8418*e*.
**Davie, A. G.** See Berraz, G.
**Davies, B.** See Hicks, J. C.
**Davies, B. L.** Technology of Plastics (book), 7261*h*.
**Davies, C. N.**, and Dautrebande, L. Dust particles and aq. aerosols, 7607*c*.
**Davies, C. W.** See Stock, D. I.
—— and James, J. C. Cond. of aq. solns. of La ferricyanide, 4082*g*.
—— and Monk, C. B. Condensed phosphoric acids and their salts (I) sol. metaphosphates, 6533*i*.
**Davies, D. A.** See Johnson, Matthey & Co., Ltd.
**Davies, D. D.** See Watt, G. W.
**Davies, D. L.** Developments in synthetic insecticides—gammexane, 6777*a*.
**Davies, D. V.** See Mann, T.
**Davies, E. P.**, and Eggertsen, F. T. Pelleted $Fe_2O_3$-type catalysts, P 5135*b*; dehydrogenation catalysts, P 7610*b*.
**Davies, F.** See Webster, James E.
**Davies, G. E.** See Clark, G. H.
**Davies, G. R.** See Arden, T. V., Burstall, F. H.
**Davies, J. G.** Sampling procedure and Java ratio in sugar cane testing, 2453*h*.
**Davies, J. K.** Effect of Ni on the corrosion resistance of high purity Mg base alloys, 3337*i*.
**Davies, J. M.** See Beatty, J. R.
**Davies, J. N.** HOCl gas, P 1532*h*.
**Davies, J. T.** Monolayers of some diesters, 4537*d*; lactonization of γ hydroxystearic acid in a monolayer, 6883*g*; properties of monolayers of monocetyl succinate, 8797*a*.
—— and Rideal, E. K. Distribution of ions at interfaces, 18*a*; kinetic salt effect in monolayer reactions, 4086*e*.
**Davies, J. V.** See Dale, W. M.
**Davies, L. J.** Work of the BTIF research lab., 4525*h*.
**Davies, Mansel.** Phys. Principles of Gas Liquefaction and Low Temp. Rectification (book), 5236*d*; simple potential functions and the H halide mols., 7276*g*; see Baker, J. W.
**Davies, Max.** Furnaces of the Brit. Iron and Steel Research Assoc., 529*h*.
**Davies, O. L.**, and Hurst, E. W. Blood-brain barrier (I) basis of dosage for animals of various wts., 3110*b*.
**Davies, R. A. L.** Practice of Industrial Medicine (book), 4402*b*.
**Davies, R. C.** See Dunlop Rubber Co. Ltd.
**Davies, R. E.** HCl production by isolated gastric mucosa, 2688*i*; see Crane, E. L.
——, Harper, A. A., and Mackay, I. F. S. Comparison of the respiratory activity and histological changes in isolated pancreatic tissue, 7146*i*.
—— and Longmuir, N. M. Production of ulcers in isolated frog gastric mucosa, 2308*i*.
—— and Terner, C. Effects of applied pressure on secretion by isolated amphibian gastric mucosa, 8806*c*.
**Davies, R. E. M.** Alginates in the formation of dermatological and cosmetic bases, 8093*c*.
—— and Hough, J. B. Penicillin preprns., 3977*e*.
**Davies, R. H.** Sepn. of the O isotopes by thermal diffusion, 5299*a*.
**Davies, R. M.** See Bennett, G. E.
**Davies, S. J.** Combustion turbines, 2823*d*.
**Davies, T. A. L.**, and Harding, H. E. Mn pneumonitis, 8074*a*.
**Davies, T. H.** See Burgus, W. H.
**Davies, T. L.** See Raff, R. A. V.
—— and Williams, H. L. German Buna S-3 chem. rubber, 6455*c*.
**Davies, W.** British resources of gannister and silica rock, 2391*d*; see Culvenor, C. C. J.
——, Jagger, J. B., and Whalley, H. K. Methylene dichloride and 1,2-dichloroethane (I) solv. in water, (II) vapor pressure, 3691*f*.
**Davies, W. H.**, Johnson, A. W., and Imperial Chemical Industries Ltd. Pyrimidine derivs., P 2646*a*.
—— and Sexton, W. A. Chem. constitution and insecticidal action (I) of S compds., 4414*i*.
**Davignon, E. H.** Composite metal P 6966*b*.
**Davis, A. C.** See Rawlins, W. A.
**Davis, A. J.** See Tauber, F. W.
**Davis, A. R.** Cut growth inhibitors for butadiene-styrene copolymer, P 7248*f*; accelerators for rubber curing, P 8194*a*; see Barthel, J. C.
——, Lindaw, A. C., and Naylor, R. F. GR-S and natural rubber with improved processing qualities, 7252*f*.
**Davis, B. D.** Isolation of biochemically deficient mutants of bacteria, 2673*i*, 9140*i*.
—— and Dubos, R. J. Interaction of serum albumin, free and esterified oleic acid, and lipase in relation to cultivation of tubercle bacillus, 2668*g*.
—— and Maas, W. K. Inhibition of *Escherichia coli* by D serine and the production of serine resistant mutants, 582*i*.
**Davis, C. C.** See McGavack, J.
**Davis, C. E.** See Johnson, Willard S.
**Davis, C. H.** Cu-Ni alloys, P 2155*b*.
**Davis, C. P.** See Schudel, P.
**Davis, C. T.**, Slater, C. R., and Lesnesky, B. Androgen ketosteroid ratio of rabbit urine, 8489*d*.
**Davis, C. W.** Peat in synthetic-rubber compds., 2801*f*.
**Davis, D. E.** Effects of Ca deficiency on the anatomy of *Pinus taeda*, 5095*b*.
**Davis, D. S.** See Higuchi, Takeru.
**Davis, E. A.** Wound healing of trees as affected by plant-growth regulating substances, 9173*e*.
**Davis, E. F.** See Fisher, M. A.
**Davis, E. G.** See Kirkpatrick, A. F.
**Davis, E. P.**, and Heltzer, H. Glass beads, P 4440*e*.
**Davis, E. S.** See Bergelin, O. P.
**Davis, F. F.** Mines and mineral resources of Napa Co., Calif., 2901*f*.
**Davis, F. J.** Factors affecting operation of app. for counting α-particles in an ion-counting chamber, 3706*h*.
**Davis, F. L.** Effects of liming on response to minor elements of crimson clover, soybeans, and Alyce clover, 8593*c*.
**Davis, F. L., Jr.**, and Williams, O. B. Heat resistance (I) increasing resistance to heat of bacterial spores by selection, 719*i*.
——, Wyss, O., and Williams, O. B. Heat resistance (II) comparison of resistance to heat with resistance to disinfectants, 719*i*.
**Davis, G. H. B.** Artificial fogging app., P 450*f*.
**Davis, G. J.** See Rose, B. A.
**Davis, G. K.** See Comar, C. L.
**Davis, Harold.** First-aid practice in lab. accidents, 7159*i*, Bentley's Text Book of Pharmaceutics (book), 8104*d*.
——, Muckie, H. B., and Fishburn, A. G. Preservation of medicinal substances and pharmaceutical preprns., 1907*g*.
**Davis, Henry.** See Foster, J. W.
**Davis, H. C.**, and Bacon, A. Chem. reactions employed in photometric analysis, 8297*h*.
**Davis, H. G.** See Murphy, E. K.
**Davis, H. L.** Industrial requirements of courses in colloid chemistry, 2050*d*; see Johnson & Johnson (Great Britain) Ltd.
——, Bloch, A., and Stonehill, A. A. Sterility, 207*e*.
**Davis, H. N.** See Block, N. H.
**Davis, H. P.** See Schultze, A. B.
**Davis, H. S.** Hydracrylic acid, P 2634*e*, acetoxy-aliphatic amides, P 3448*f*; see Carpenter, E. L.
—— and Carpenter, E. L. Acrylonitrile, P 2220*i*.
—— and Newey, H. A. Acrylonitrile, P 1794*f*.
**Davis, H. W.** Co, 2127*b*; Ni, 2127*e*, W, 2127*g*.
—— and Greenspoon, G. N. Fluorspar and cryolite, 2127*c*. Pt and allied metals, 2127*f*.
—— and Trought, M. E. Bauxite, 2127*a*.
**Davis, J. A.** See Herres, S. A.
**Davis, J. B.** See Foster, J. W.
**Davis, J. C., Jr.**, and Hiterins, H. O. Comparison of atropine and tripelennamine in treatment of peptone shock, 4382*g*.
**Davis, J. D.** Carbonizing properties of American coals, 378*c*.
**Davis, J. E.** Hemolytic anemia caused by fat and choline is not due to lipotropic action, 2315*c*.
**Davis, J. F.**, and Lawton, K. Correlation of soil test results with celery-plant growth, 1802*f*.
**Davis, J. G.** See Almquist, H. J.
**Davis, J. H.** See Bates, L. F.
**Davis, J. K.** Preventing the blackening of glass by Hg vapor, P 1140*f*.
—— and Rattell, P. F. Detn. of surface tension of molten materials, 325*h*.
**Davis, J. L.** See Sellers, J. L.
**Davis, James S.**, Meyer, R. K., and Meshan, W. H. Effect of androgen and estrogen on sucrase dehydrogenase and cytochrome oxidase of prostate and seminal vesicle, 8488.
**Davis, Joseph S.** Carl Alsberg Scientist at Large (book), 2602.
**Davis, J. V.**, and Hoffman, J. S. Filter assembly using diatomaceous earth as filtering aid, periodically replaced by reverse flow of wash water, P 2018*b*.
**Davis, K. E.**, and Hafner, E. M. Inelastic scattering of protons by light nuclei, 4095*a*.
**Davis, L., Jr.** Nuclear spin and magnetic moment of $Na^{22}$, 191*h*, nuclear spin and magnetic moment of $Cs^{136}$, 8879*e*.
—— and Zacharias, J. R. Hyperfine structure of $K^{40}$, 1004*e*.
**Davis, L. E.** See Krishnamoorthy, C.
**Davis, L. G.** Structure of wood fiber, Sci. textiles in America, 3201*a*, developments in scientific testing and control devices for textiles, 3623*b*.
**Davis, L. J.** See McFadzean, A. J. S.
**Davis, L. L.** Jellies produced from steam condensate from apple blanchet, 9287*i*.
**Davis, M. E.**, and Fugo, N. W. Does administration of diethylstilbestrol to pregnant women result in increased output of urinary pregnenediol? 2299*e*.
**Davis, M. M.**, and McDonald, E. A. Acid-base equilibrium; for the reaction of tribenzylamine with picric acid and with trinitro-*m*-cresol in CaHe, 7793*a*.
**Davis, M. V.**, and Heath, F. H. Sepn. of Cl ion from cuprous ion, 6412*h*.
**Davis, N. C.** See Sedlock, R. R.
**Davis, N. L.** Coal prepn. for steelmaking, 3902*a*.
**Davis, Orris L.** See Nixon, A. C.
**Davis, Owen L.** Statistical Methods in Research and Production with Special Reference to the Chem. Industry (book), 7608*i*.
**Davis, P. B.** Relative humidity indicator, P 2713*e*.
**Davis, P. C.** See Karrer, P.
**Davis, P. T.**, Grossman, J., and Harris, R. L. Stopcock grease for org. vapors, 2762*e*.
**Davis, R.** See Lark-Horovitz, K.
**Davis, R. E.** See Lindahl, I.
**Davis, R. H.**, Mathis, A. L., Howton, D. R., Schneiderman, H., and Mead, L. F. Photochemistry of 2-methyl-1,4 naphthoquinone, 6921*e*.
**Davis, R. M.** See Rizzo, P.; Serfass, E. J.
——, Rizzo, P., and Smith, A. H. Effect of heat on the nutritive value of lactalbumin (I) growth on diets contg. heated proteins, 5458*e*.
**Davis, R. N., and Kemmerer, A. R.** Lactating factors for dairy cows in dried grapefruit peel, 785*i*.
**Davis, R. O. E.** Fertilizer research, 3131*i*.
**Davis, R. W.** See Young, L. E.
**Davis, S. B.**, Willson, S. D., and Van Order, R. B. Cryst. phenyl isocyanate derivs. from benzylpenicilloic acid and α methyl benzylpenicilloate, 6618*b*.
**Davis, S. G.** See Millares, R. 8759*i*.
**Davis, T. L.** Pulvis fulminans,

pyrotechnics (III) chem. warfare in ancient China, 9449*c*.
**Davis, V. E.** See Moyer, F
**Davis, V. I.** See Albanese, A A.
**Davis, W.** See Flagg, J F
**Davis, W. D.** See Dent, F. J
——, Mason, L. S., and Stegeman, G. Heats of formation of Na borohydride, Li borohydride, and Li Al hydride, 7805*d*
**Davis, W. E.**, and Elliott, J. H Intrinsic viscosity detn , 6472*g*.
**Davis, W. H.** Self consistent field with exchange for Ca XIII, 8871*c*
**Davis, W. M.** Phthalic anhydride recovery, P 2640*d*.
**Davis, W. S., Jr.**, and Wright, D L. Corrosion preventive, P 7895*a*.
**Davis, W. W.**, and McGuire, J. M Microbiol antibiotic testing by diffusion methods (II) automatic delivery pipet for use with porous disks, 8428*i*.
–, McGuire, J M., and Parke, T V. Microbiol antibiotic testing by diffusion methods (I) zone reader, (III) prepd tables for converting zone diameters to potencies, 8428*h*
**Davison, C.** See Gimble, A. I
**Davison, D. C.** Distribution of formic and alc dehydrogenases in the higher plants—their variation in the pea plant during its life cycle, 8462*a* formic dehydrogenase in the oxidation mechanisms of *Pisum sativum*, 8462*a*
**Davison, F. R** Handbook of Materia Medica Toxicology and Pharmacology (book), 4386*e*.
**Davison, J. R.** Lime-induced chlorosis of fruit trees on the Murrumbidgee irrigation area, 6773*f*
**Davison, P. W.** Proton groups from deuteron bombardment of S, 4095*b*, energy levels in S nuclei, 4118*i*, see Pollard, E C
– and Pollard, E C Cyclotron bombardment of gaseous targets, 4090*e*.
**Davison, W. H. T.** See Gordon, Manfred
**Davison Chemical Corp.** Granulated superphosphate, P 828, comminuted hydrogels, P 2050*a*, relative humidity indicators, P 2713*c*; humidity analyzer, P 4057*a*, dehumidifier for silica gel utilizing solar energy, P 4403*b*, silica hydrosol, P 5135*h*.
– and Fife, J G. Animal feed compns., P 788*e*
**Davoli, R.** Antibiotic from *Aspergillus ochraceus* 3489*f*
– and Terni, M Antibacterial activity of caffeic acid, 1327*i*
**Davoll, J.**, Lythgoe, B, and Todd, A R Synthesis of purine nucleosides (XIX) synthesis of adenosine 110*h*, (XX) synthesis of guanosine, 1720*a*.
**Davson, H.** Physiology of the Eye (book), 708*a*, see Campbell, P N ; Langham, M
**Davydov.** See Davydov
**Davy, E. D.** Salt substitute, P 555*b*/*f*
**Davy, L. G.** See Kenyon, R L
**Davydov, A. L.**, Vaĭsberg, Z M., and Burk [illegible] F Defy Cb in steel, 4177*e*
**Davydov, A S.** Nonorthogonality of wave functions in the method of mol orbitals, 5403*b* dependence of the frequency of absorption of light in *p*-polyphenyls on the no of phenyl groups, 3714*a*, theory of the absorption spectrum of biphenyl, 4569*d*, theory of absorption spectra of mol crystals, 1475*i*
**Davydova, E. G.** Effect of moisture and ambient on the explosive properties of trotyl, 8682*d*
**Davydova, S. Ya.** See Konikova, A S
**Dawance, G.** Hysteresis and internal friction of plastic material under alternate flection, 1226*f*
**Dawbarn, M. C.** Effects of milling on the nutritive value of wheaten flour and bread, 6329*d*, detn of thiamine in white bread, 6718*b*, thiamine content of white bread in Adelaide, 6748*d*.
**Dawes, C. L.** See Boughton, W A.
**Dawes, E. A.** Production of indole by *Escherichia coli*, 721*c*, see Dagley, S.
– and Happold, F C. Tryptophanase tryptophan reaction (IX) nature, characteristics, and partial purification of the tryptophanase complex, 9104*d*.
**Dawidow.** See Davydov.
**Dawihl, W.**, and Rix, W. Influence of tensile forces on shrinkage during the sintering of metal powders, 5714*h*.
—— and Schmidt, U. Relation between manufg. process and the crystal hardness of Fe powders, 5714*f*.
**Dawkins, J. M.** Zn and spelter—Zn from Babylon to the 18th century, 6875*d*.
**Dawsey, L. H.**, Umhoefer, R R , and Muehlhausser, C. $H_2O_2$, P 1929*e*.
**Dawson, A.** See Wing, L
**Dawson, C. R.** See Eiger, I. Z., Keil, H , Mallette, M. F , Sletzinger, M , Wasserman, D.
**Dawson, E. C.** Reaction between Fe and dithizone, 1680*h*
**Dawson, E. R.** See Barton-Wright, E C
**Dawson, F.**, and Imperial Chemical Industries Ltd Coned. dispersions, P 6762*a*
**Dawson, H. G.** Mech. stability test for *Hevea* latex, 9511*f*
**Dawson, I. M.** See Elford, W J.
– and Robertson, J. M. Structure of certain polysulfides and sulfonyl sulfides (II) crystal structure of 2,2′ dinodoethyl trisulfide, 15*i*
**Dawson, J.** [illegible] Anning, S T , Chattaway, F W
**Dawson, N. D.** See W J W , III
**Dawson, R. C.** Decompn of wheat straw by some fungi Nebraska soils, 8001*a*
**Dawson, R. D.** Fluid for drilling wells, P 8661*i*, reclamation of waste oil base drilling fluid, P 8662*c*.
**Dawson, R. F.** Alkaloids, 1154*e*, Soils Testing Manual (book), 6771*f*, test of Eggleton's proposed mechanism of N loss, 8008*h*
**Dawson, R. M. C.** See Richter, D.
**Dawson, T. R.** Lignin, 2768*d*, 5984*f*, Brit. rubber industry, 3643*e*, rubber, 4788*g*, meaning of covulcanizable plasticizer, 6455*i*.
—– and Messenger, T. H. Rubber research (VI) rubber information, 3643*e*
**Dawson, W. O.** Bleaching and filling leather, P 5618*e*
**Dawydow.** See Davydov
**Day, A. J.** See Trethewie, E R
**Day, A R.** See Gordon, Maxwell.
**Day, D.**, Brown, R. J., and Powers, T. M. Growing fungi on leather, 9510*e*
**Day, E. E.**, Myers, W I., and Hemicke, A J Annual rept New York State Agr. Expt Sta., 9328*i*, 9329*d*
**Day, H. G.** See Kelley, B.
**Day, H. M.** See Jayne, D. W , Jr
**Day, M. F.** Ascorbic acid in the tissues of insects, 8561*d*, alk. phosphatase in insects, 8560*i*
**Day, M. R.** See Maeder, H. G , Jr
**Day, M. W.** Chem control of certain forest shrubs, 4413*i*.
**Day, P L** See Keith, C K ; Totter, J R.
–, Totter, J R , Gaines, D. S., Houchins, R , McKee, M , and Scroggin, P. Pteroylglutamic acid balance studies, 1469*e*
**Day, S D** Pipe-line coatings and mech application methods, 6138*e*
**Dayne, B. J.** See Dain, B Ya
**Dayrit, C.** See Gold, H ; Modell, W.
**Dayton, B. B.** See Milas, N A
**Dazeley, G H.**, Gall, D , and Hall, C C Olefin polymer lubricating oils, 2418*f*.
**De, B. N.** See Sircar, S. M.
**De, C**, Chatterjee, S K , and Das Gupta, H N. Silt from the Ganges River (I) properties—ceramic purpose, 5164*i*
**De, H. N.** See Basu, K. P.
—— and Banerjee, K C. Nicotinic acid requirements of Indian adult, 8170*e*.
– and Barai, S C Availability of ascorbic acid of shaddock to adults, 2298*e*
– and Chakravorty, C. H Ascorbic acid requirement of Indian adult, 9182*b*
**De, N. N.** See Bami, H. I. , Lahiry, N. L
**De, S. N.** See Cameron, G. R.
**De, S. S.** See Desikachar, H. S R ; Karnani, B T , Rangnekar, Y. B.
**Deacon, G. E. R.** Oceanography, 4526*f*
**Deaderick, J. W.** Ceramic insulation, 2342*i*
**Deadman, A. L.** See Fudge, G. H
**Deahl, N. L.**, Powers, J. L., and Green, M. W Drying conditions, 3971*f*
**Deal, C. H., Jr.** See Shiras, R. N.
**Deal, J. M.** See Sjogren, C. N.
**De Allende, I. L. C.** See Allende, I. L. C. de.
**De Almeida, F. F. M.** See Almeida, F F. M. de.
**De Almeida, H.** See Almeida, H de.
**De Almeida, J. R.** See Rocha de Almeida, J
**De Almeida, P. R.** See Almeida, P R. de.
**De Almeida Baltazar, J. A.** See Almeida Baltazar, J. A.
**De Almeida Costa, O.** See Almeida Costa, O. de.
**Dean, A. C. R.** Ultraviolet absorption of the proteins of the ground nut, 7341*a*.
– – and Bradley, W. Surface tension of aq. solns of $\alpha,\beta$-dihydroxy $\gamma$-aryloxypropanes, 5655*e*.
**Dean, E. S.** Analyses of coals of Ohio, 3168*d*
**Dean, F.** See Jones, D. G
**Dean, F. M.**, and Robertson, A. Hydroxycarbonyl compds. (XIII) extensions of the Wolff rearrangement, 1713*g*.
**Dean, F. P.** See Carlson, F. W ; Newcomer, L. J
**Dean, H. A.** See Gaines, J. C.
**Dean, J. A.** Polarographic detn of Al, 8049*c*
**Dean, K. C.** See Sandell, W G.
– – and Vincent, K C Concn. of oxide Mn ores from Columbia and Elberta mining districts, Tooele and Jaub Counties, Utah, 5711*e*.
**Dean, L. A.** See Hendricks, S B ; McAuliffe, C. D , Nelson, Walter L.
–, Nelson, W. L., MacKenzie, A J , Armiger, W H., and Hill, W. L. Radioactive tracer technique of phosphatic fertilizer utilization by crops (I) greenhouse expts , 1134*g*
**Dean, L. B., Jr.** See Lassettre, E. N.
**Déan, M.** Same as Déan Guelbenzu, M.
**Dean, R. A.** See Anglo-Iranian Oil Co., Ltd , Birch, S. F.
**Dean, R. B.** Textbook of colloid chemistry, 2049*i*, see McBain, J W
—– and Moore, A R. Protective action of cations on the membrane-forming capacity of echinoderm eggs, 8559*g*.
**Dean, R. F. A.**, and Holman, W. I. M. Metabolism of nicotinic acid by infants, 5847*e*
**Dean, R. H.** Modern Colloids (book), 4090*d*.
**Dean, R. M.** See Lieber, E.
**Dean, R. S.** Hardening of Ti, P 1709*c*.
**Dean, R. T.**, and Hook, E. O. Thiodipropionic acids, P 895*d*.
**Deane, H.**, and Mitchell, W. Dry exts. of cascara and Krameria, 1149*a*.
**Deane, H. E.** See Wislocki, G B.
**Deane, H. W.** Phosphatases in mammalian liver, pancreas and salivary glands, 7057*c*; see Bergner, G E ; Dempsey, E W.
– – and Greep, R O. Adrenal cortex in hypothyroidism and hyperthyroidism, 8013*a*.
– –, Nesbett, F. B , and Hastings, A. B. Fixation for histological demonstration of glycogen and comparison with chem. detn in liver, 4355*e*
**Deanesly, R. M.** Oxidizing ales., P 3025*g*.
**Déan Guelbenzu, M.** Relation of elements in minute quantities to biocatalysts (III), 704*c*, elements active in traces with enzymes, 1820*b*; oligoelements of the alkali and alk. earth groups, 7987*j*, see Santos Ruiz, A.
– –, Lopez de Azcona, J M., and Santos Ruiz, A Trace elements in Spanish foods of vegetable origin (V) tubers, seeds, and dried fruits, 4395*c*.
**Deanin, R.** Chemistry of synthetic rubber, 8723*k*, see Marvel, C. S.
**Deans, A. L.**, and Woods, M. W. Value of the ratio of the sp. heats of gases during compression, 8836*d*.
**Deans, T.** V in Fe ores consumed by the Brit. Fe and steel industry, 4985*h*.
**De Aranjo, E. B.** See Bayma de Aranjo, E.
**De Araujo, J. B.** See Benedito de Araujo, J.
**De Araujo, L. B.** See Benedito de Araujo, L
**De Araujo, L. E.** See Euler de Araujo, L.
**Dearborn, C. H.**, Sweet, R D., and Havis, J. R Weeding sweet corn with 2,4-D—effects of timing, rates, and varieties, 1804*i*.
**Dearborn, E. H.** Comparison of one dose per day with six doses per day of quinine in the suppression of lophurae malaria, 759*c*, inhibition of the appearance of phenol red in frog kidney tubules, 3502*h*.
**Dearborn, F. E.** Metal nicotine silicates, P 5899*g*, 5900*a*, 7634*b*.
**Dearborn Chemical Co.** Antifoam compd., P 2348*b*, antifoaming additives for steam generators, P 3548*i*; inhibiting foaming in boiler waters, P 4407*b*, inhibition of foam in an aq. gas-liquid system, P 6348*c*.
**Dearden, J.** Climatic effects on the corrosion of steel, 2564*i*.
**Dearth, L. E.** See Wink, W. A.
**Deas, C. P.** See Tarr, H. L. A.
——, Ney, P. W., and Tarr, H. L. A. Amino acids in fishery products (II), 3115*d*.
**Deas, R. E.**, and Conradi, L. T. Detn. of

total C in pig iron, high-C Fe, and nodular cast iron, 6930*e*.
**Deasy, C. L.** See Borsook, H
**Deatherage, F. E.** Rendering lard, P 2340*d*.
**De Atley, W. W.** See Harris, C. R.
**Deaton, W. M.**, and Frost, E M., Jr. Gas hydrates and their relation to the operation of natural-gas pipe lines, 3172*b*.
**De Azcona, J. M. L.** See Lopez de Azcona, J M.
**De Azevedo, M. D.** See Deodata de Azevedo, M.
**Deb, S.**, and Ghosh, N. Ozonizer and the light effect, 4556*a*.
**DeBach, P.** Population studies of the long-tailed mealybug and its natural enemies on citrus trees in Southern Calif., 4805*d*.
**Debacher, M. O.** Plasticized polyvinyl-acetal resins, P 3655*g*.
**De Barbieri, A.** Antibacterial action of reductones, 9144*i*; see Tricerri, S
—— and Benassi, C. 2,3-Dimercaptopropanol and its derivs. (III) respiratory elimination of 2,3-dimercaptopropanol, (IV) action of the disulfide of 2,3-dimercaptopropanol on the activity of insulin, 4377*a*.
—— and Cavalli, L L. 2,3-Dimercaptopropanol and its derivs. (VI) action of 2,3-dimercaptopropanol on staphylococcic toxin, 4377*c*.
—— and Tricerri, S. 2,3-Dimercaptopropanol and its derivs. (I) 2,3-dimercaptopropanol and its glucoside, (II) action on corporeal temp. of 2,3 dimercaptopropanol and its glucoside, 4376*i*.
——, Vacirca, F., and Turri, M. 2,3-Dimercaptopropanol and its derivs (V) antidotal action of 2,3-dimercaptopropanol on diphtheric toxin, 4377*b*, (VII) singular antibacterial action of 2,3-dimercaptopropanol, 4377*c*.
**De Barneville, R.** See Barneville, R. de.
**Debay, A.** See Antoine, G
**Debeaumont, A.**, and Desodt, J. Optimal conditions of the reaction of Schryver, Fosse, Paget, and Berger, 1290*h*
**De Beaumont, H. du B.** See Beaumont, H. du B de.
**DeBeck, H. O.** Correlation of the Wilcox formation, 977*g*.
**Debecq, A.** Silicatization of soils, 4443*c*.
**De Becze, G. I.**, Votaw, J. W., Jr., and Nanz, R H., Jr. Evaluation of diastatic activity of malt-contg liquids, 4809*c*.
**De Beer, E.** See Beer, E de.
**De Beer, E. J.** See Baltzly, R., Jaros, S H.
**DeBenedetti, S.** See Blizard, E. P.; McGowan, F. K.
——, Cowan, C. E., and Konneker, W. R. Angular distribution of annihilation radiation, 8869*b*
——, Francis, J. E., Jr., Preston, W. M., and Bonner, T W. Angular dependence of coincidences between fission neutrons, 2089*h*
—— and McGowan, F. K. Short-lived isomers of nuclei, 937*b*.
**De Benedictis, A.** See Luten, D B.
**De Berardinis, C.** See Berardinis, C de
**De Berardinis, E.** See Fidanza, F.
**De Bernard, L.** See Bernard, L. de.
**De Béthune, A. J.** H overvoltage—salt effect, 6494*a*, see Present, R. D.
**De Bettencourt, J. M.** See Moniz de Bettencourt, J
**De Beus, J.** See Beus, J de.
**De Biase, S.** See Chow, B. F.
**Debiesse, J.** Photoelec. effect in oxide cathodes (II), 5678*i*.
—— and Champeix, R. Luminous spectrum of oxide cathodes, 7321*h*.
**Debing, L. M.** Molding compn. of polyvinyl aromatic compd., P 3239*h*.
**De Blasis, M.** See Schiavini, A. C.
**De Bock, A.** See Bock, A. de.
**Deboeck, W.** See Beer, E de.
**De Boer, B.** Effects of thiamine-HCl on pentobarbital Na hypnosis and mortality, 2315*f*.
**De Boer, F.** See Boer, F. de.
**De Boer, J.** See Boer, J de
**De Bollini, L. S. V.** See Villegas de Bollini, L. S
**De Bonneveaux, S. C.** See Castillo de Bonneveaux, S.
**Debot, R.** Behavior of the latent image towards low-intensity exposures, 1669*a*; granularity of photographic images, 8922*c*; see Hautot, A.
**Deboy, S. S.** See Zbarskil, I. B.
**Debré, R.** Overdosage of vitamin $D_3$, 5836*f*.
**Debresse, J.** See Kahan, T.
**De Broglie, L.** See Broglie, L. de.
**De Brouckere, L.** See Brouckere, L. de.
**De Brouwer, R.** See Brouwer, R. de.
**De Bruyn, P. L.** See Gaudin, A M.
**De Bruyn, W. M** See Bruyn, W. M de.
**De Bruyne, N. A.** Viscometer, 8214*d*.
**Debsarma, G. D.** Jute retting (I) isolation of microörganisms from jute retting pit, their characterization, and their action on jute stems, 9456*b*.
**De Buccar, M.** See Buccar, M. de.
**Debye, P.** Light scattering in soap solns., 20*g*, 3688*b*, 7292*i*.
—— and Bueche, A. M. Scattering by an inhomogeneous solid, 6040*e*.
—— and Nauman, R. V. Scattering of light by Na silicate solns, 8814*c*
**Dec, J.** See Strain, W. H.
**De Caligaris, L. S.** See Caligaris, L. S. de.
**De Calignon, P.** See Calignon, P. de.
**DeCarlo, J. A.**, and Corgan, J A. Coproducts of coke in the U.S., 5926*e*
——, Corgan, J. A., and Otero, M. M. Coke and coal chemicals, 2127*b*.
**De Carnevale Bonino, R. C. d'A.** See Carnevale Bonino, R C. d'A de.
**De-Caro, L.**, and Rindi, G. Vitamin B of worked rice and of its by-products, 6754*i*.
**De Carvalho, H. G.** See Guimarães de Carvalho, H.
**De Carvalho, J. G.** See Guilherme de Carvalho, J.
**De Carvalho, L. F. A.** See Aguiar de Carvalho, L. F.
**De Castro, A. H.** See Hoyos de Castro, A
**De Castro, C.** See Castro, C. de.
**De Castro, R.** See Castro, R. de
**De Celis, M. G.** See Gutierrez de Celis, M
**Dechaume, M.**, Crut, G., and Goudaert, M. Thrombin and agents which retard its action as modifiers of blood coagulation time, 8537*i*
**Dechaux, G.** Marine paints, 869*a*.
**Dechavanne, D.** See Mouriquand, G
**Decherd, G.** See Ruskin, A.
**Decius, J. C.** Tabulation of general formulas for inverse kinetic energy matrix elements in acyclic mols., 452*e*, symmetry species of overtones of degenerate vibrational fundamentals, 7820*e*.
**Deckenbrock, W.** Problems of tuberculosis, 2311*a*, antihistamine compds., 3974*e*, strychnine, 6308*f*; Swedish pharmacopeia, 6790*b*, rutin, drug for capillary fragility, 8617*g*.
**Decker, A. R.**, and Royal, H. F. Torsional stresses for observing high-temp characteristics of ceramic materials, 1542*a*.
**Decker, D. G.** See Christensen, H N
**Decker, G. C.** See Apple, J W., Kearns, C. W., Weinman, C. J.
**Decker, H. C. J. de.** Choice of materials and prevention of corrosion in the chem. industry, 548*g*
——, Krijff, A. P., and Plaut, J. M. Electrolytic polishing, 7835*a*.
**Decker, W. E.** Pearl essence luster, 2445*i*; white writing ink, P 3215*c*.
**De Clerck, J.** See Clerck, J de.
**De Clercq, M.** See Clercq, M. de
**Décombe, J.** Detn. of halogens in org. substances, 968*h*.
——, Jacquemain, R., and Rabinovitch, J. Speed of conversion to oximes of certain ketones of the sterol group, 244*a*
**De-Cooman, E. P.** See Pennoit-de-Cooman, E.
**DeCourcy, C. B.**, and DeCourcy, J. L. Etiology of goiter in man, 3511*i*
**DeCourcy, J. L.** See DeCourcy, C. B.
**Decristoforo, J.**, and Welter, S. Immediate action of apomorphine on the circulation, 5863*h*.
**De Cugnac, A.** See Cugnac, A. de.
**DeCunto, M.** See Cunto, M. de.
**DeDecker, H. C. J.** See Decker, H. C. J. de.
**Dědek, J.** Chemistry of lime salts in sugar-beet juices, 6443*i*.
——, Ivančenko, D., and Zerkalej, V. Ion exchangers in sugar-beet technology, 4500*g*.
**Dederichs, R.**, and Kostron, H. Zwei neue Schuellverfahren zur Kornquerschnittbestimmung (book), 7808*b*.
**Dedichen, J.**, and Laland, P. Anti-pernicious-anemia factor and white-cell count, 8507*a*.
**De Diesbach, H.** See Diesbach, H. de.
**De Dios Guevara R., J.** See Guevara R., J. de D.
**Dedomenico, S.** Roughen stainless before nitriding, 539*g*.
**Dedonder, R.** Production of inulase by *Sterigmatocystis nigra*, 5449*a*.
**Dédoussenko, L.** See Dedusenko, L.
**Dedrick, C. H.**, and Wills, J. H. Silicate of soda as detergent—effect of single soaps and common builders on suds formation in hard water, 6435*h*.
**Dedusenko, L.** Synthesis of butylisopropylacetylene, 6567*g*.
**De Duve, C.** See Duve, C. de.
**Dedyulin, I. M.** See Vladimirov, G. E.
**Deebel, G. F.** See Emerson, W S.
**De Eds, F.** See Ambrose, A. M.; Wilson, Robert H.
**De Elio, F. J.** See Javier de Elio, F.
**Deen, O. T.** See Cockerham, K. L.
**Deenstra, H.** Time of the diazo reaction in lab. and clinic, 3055*g*; serum bilirubin during the course of an icterus, 3918*h*.
**Deerr, N.** Sugar, 4788*h*.
**Dees, S. C.** Effects of alc and alc. beverages on allergic reactions, 9252*g*.
**Deeva, V. E.** See Novotel'nov, N. V.
**Deewall, O.** See Long, R. A
**Defant, C.** Action of cations on *Proteus vulgaris* and *Proteus X19*, 1455*f*.
**Defay, N.** See Dupont, G
**De Fazi, R.**, and Carbone, S. Indones (XX) chloro derivs of 2-ethyl-3-phenylindone, 2610*e*.
**De Felice, F.**, Gargasole, C., and Demajo, F Intervitaminic relations (VII) synergism between ascorbic acid and aneurine and between ascorbic acid and *p*-aminobenzoic acid, 7100*b*, 9181*i*.
**De Felice, J. A.** See Blau, M
**Defelice, L. F.** Casein hydrolyzate, 3521*b*
**Deffner, M.** Insecticides in Greece, 9340*g*
—— and Augustides, D Insecticidal power and microscopical structure of residual films of phenylisonitrile and benzene hexachloride, 7184*e*.
**De Figueiredo, A. P** See Pinto de Figueiredo, A
**De Fleury, R.** See Fleur, R de
**De Flon, J. G.** How to maintain oilin, towers, 1128*g*
**De Forest, T.** Fluorescent flaw detection, P 3339*i*, laminating, P 5232*f*, leak detection, P 5972*h*.
**De Fortunato, E. J. G.** See Guitarte de Fortunato, E J.
**De Franch, M. R.** See Rotilant de Franch, M.
**De Franciscis, P.** See Marsico, F., Saviano, M., Vacca, C
—— and Marsico, F Modification of serum Fe in rabbits poisoned with $CaH_2$, 6730*g*
**De-Franciscis, V.** See Curci, G.
**Defretin, R.**, and Riff, T Glycogen and phenolases of the mucus glands of *Anodonta cygnea*—glycogen of the nerve tissue of *Anodonta cygnea*, 3529*f*.
**DeFriez, A. I. C.** See Abrams, M.
**Defrise, G.** Obtaining color photographs on a single emulsion, P 958*c*.
**De Garcia Paula, R. D.** See Descartes de Garcia Paula, R.
**Degard, C. J. H. M.**, and Molle, R. D J Synthetic pitch from fuel oil or heavy gas oil and its use in the manuf. of agglomerates, lining, and protective coatings, P 4008*h*.
**De Garilhe, M. P.** See Privat de Garilhe, M.
**De Garrone, V. G.** See Garcia de Garrone, V.
**De Gee, A. L. W.** See Gee, A. L. W. de.
**DeGeer, B. W.** See Zahm, E L. E.
**De Gennes, L.** See Gennes, L. de.
**Degens, P. N., Jr.** Task of the analytical chemist in industry, 5691*i*.
and Zee, H. van der. Influence of synthetic detergents on sewage purification, 5140*e*.
**Degerholm, E.** See Rosdahl, K. G.
**Degering, E. F.** Enol acetates, P 7505*l*, see Dietz, A. A.; Gochenour, C. I., Slimowicz, C. E.; Spence, J. A.
—— and Van Biema, G. Azo compds. from 1-dibutylamino-2-nitrobutane, P 8153*i*; azo compds from 1-*N*-morpholino-2-nitropropane, P 8154*a*.
**Degeyndt, E.** See Lacourt, A.
**De Gier, J.** See Gier, J. de.
**De Giers, C. A.** Weatherproofing transmitter resistors, P 5644*g*.
**De Goldfiem, J. S.** See Goldfiem, J. S. de
**Degont, J.** See Clark, C. R.
**De Gorl, R.** Detn. of assimilable $P_2O_5$ in

soils, 3550*f*; phosphoric nutrition of plants, 3890*h*; anticryptogamic action of an exhausted desulfuring mixt., 3959*f*; see Bellucci, I.
——— and Fiore, L. Doccio's water a Macereto, Italy, 3951*c*.
**De Graaff, G. B. R.** See Graaff, G. B. R. de.
**De Graef, H.** See Graef, H. de
**DeGraff, A. C.** Comparison of the cardiac glycosides, 3106*a*.
**De Grandchamp-Chaudun, A.** See Grandchamp-Chaudun, A de.
**DeGrandpré, R.** See Henriques, O. B.
**DeGrazia, C.** See Setter, L R
**De Greve, L.** See Greve, L. de.
**De Groot, P. W.** See Groot, P W de
**De Groot, W.** See Groot, W de
**De Groote, M.** Polycarboxy esters of dimerized 9,11-linoleodiricinolein, P 675*d*, carbonic acid amides of substituted glyoxalidines, P 9127*a*.
— — and Keiser, B. Breaking petroleum emulsions, P 5180*b*, 6818*d*, 7221*i*, oxyalkylated diol esters for use as wetting agents, P 6663*d*.
— and Pettingill, O H. Breaking petroleum emulsions, P 1557*e*
— and Wirtel, A F Polyhydric alc esters, P 843*d*, 1955*b*.
**Degtev, V. M.** See Botvinkin, O N.
**Degteva, T. G.** See Kuz'minskiĭ, A S.
**Degtyar, M. Ya.** Deep sulfitation of remelt and thick juice, 7729*h*.
**Degtyar, R. G.** See Szorenyi, E. T.
**De Haas, G.** See Haas, G. de
**De Haas, T. K.** See Haas, T K de
**De Heer, J.** See Evans, M. G
**De Heer, L. J.** See Heer, L J de
**De Hemptinne, M.** See Hemptinne, M de.
**De Heus, J. G.** See Heus, J. G de.
**De Hilster, C. C.** See Wolf, G M
**Dehio, H.**, Eggert, J Honerjager Sohm, M., Hornung, H., and Kaiser, H. Plate errors, 8276*b*
**Dehlinger, U** Grundbegriffe der Physik (book), 5658*e*.
**Dehn, F. B.** See Federal Electric Co., Inc.
**Dehn, W. M.** See Henry R A.
**De Hoffmann, F.**, Feld, B T., and Stein, P R Delayed neutrons from $U^{238}$ after short radiation, 937*g*.
**De Hoogh, G.** See Hoogh, G de
**Dehydration, Inc** Food drier using N and $CO_2$ under increased pressure as drying agents and sulfonated alc spray as wetting agent during the sweating step, P 1123*a*, treatment of vegetable tissue, P 6759*a*.
**Deibner, L.** Microdetn. of Fe in wines and grape juice, 3560*b*.
**Deicha, G.** Alpine feldspathization along the southwest border of the Mt Blanc massif, 2899*b*, polysynthetic twinning and crystn conditions, 6032*a*, outline of the domains of crystallogenic disequil. in nature, 6181*i*, structural interpretation of orientated overgrowths in crystn, 8230*b*.
**Deichman, E. N.** See Tananaev, I. V.
**Deichmann, W. B.** Local and systemic effects following skin contact with phenol, 8052*g*, see Treon, J. F.
——— and Mergard, E. G. Comparative evaluation of methods employed to express the degree of toxicity of a compd., 1807*e*.
**Deigen, M. F.** See Pekar, S. I.
**Deijs, W. B.**, and Feldmeyer, J. H. Microdetn of Co in plant material, 7908*e*.
**De Ines, V. L.** See Lopez de Ines, V.
**Deinum, H. W.**, and Dam, J. W. Orsat app. for analysis of purified coke-oven gas, 5234*g*, detn. of small quantities of O, 8963*d*.
——— and Rietveld, B. J. Expts. with the Baird Associates infrared gas analyzer, 6869*i*.
**Deisinger, W.** 25 Jahre Heraeus-Vacuumschmelze A.-G. (book), 6964*d*.
**Deitrick, J. E.** See Hanlon, L. W.
**Deitschmann, E. N.** See Deichman, E. N
**Deitz, V. R.** See Loebenstein, W. V., Pennington, N. L.
**De Jalon, G.** See Jalon, G. de
**De Jalon, P. D. G.** See Garcí P. D.
**Déjardin, G.**, and Falgon, R. Infrared H spectrum, 8272*g*.
**De Jersey, N. J.** See Dancy, T. E
**De Jong, A. W. K.** See Jong, A. W. K. de.
**De Jong, D. J.** See Jong, D. J. de.
**De Jong, G. J.** See Jong, G. J. de.
**De Jong, H. G. B.** See Jong, H G. B. de.
**De Jong, J. D.** See Jong, J D de.
**DeJong, R. N.** Anticonvulsant drugs, used in the treatment of epilepsy, 2370*h*, evaluation of the anticonvulsant drugs, 9267*a*.
**De Jonge, A. P.** See Jonge, A. P. de.
**De Jonge, J.** See Jonge, J. de.
**De Jongh, D. K.** See Jongh, D. K. de.
**De Jongh, S. E.** See Jongh, S. E de.
**De Junnemann, M.** See Junnemann, M de.
**DeKay, H. G.** See Bikin, H ; Patel, B N.
**De Keghel, M.** See Keghel, M. de
**Dekema, C. J.**, and Krige, P. R Two-stage filtration *vs.* single stage—comparison under working conditions, 7168*a*
**Dekker, A. J.** Prepg. Se for the purpose of increasing its cond , P 5162*h*; electrolytic double layers, 8814*b*.
**De Kock, P. C.** See James, W O
**De la Banda, J. F. G.** See García de la Banda, J. F.
**De la Barreda, P.** See Barreda, P. de la.
**Delabie, A.** See Lambert, R
**Delaby, R.**, Baronnet, R., and Guy, J Sarothamnine, fixed alkaloid of the common broom, 5543*b*
**De la Calle, F. F.** See Fernandez de la Calle, F.
**De la Camara, M. S. M.** See San Miguel de la Camara, M.
**De Lachica, A.** See Lachica, A. de
**De la Gándara, J. O.** See Otero de la Gándara, J.
**De la Garza Curcho, M.** See Garza Curcho, M. de la
**Delahay, P.** Elec. differential method of measurement in electrotitrations - application to conductometric titrations, 2115*b*; elec differential method of measurement in electrotitrations—application to potentiometric titrations, 2115*b*.
**De la Helguera y Ortiz, J. M.** See Helguera y Ortiz, J. M. de la.
**De la Huerga, J.**, and Popper, H Standardized reagent for thymol turbidity test, 7541*b*.
**Delalande, A.** Action of unsatd compds on natural rubber in soln , 6453*d*.
**De la Lastra, M.** See Lastra, M de la
**De la Macorra, L.** See Macorra, L de la
**De la Mare, P. B. D.** Kinetics of thermal addn. of halogens to olefinic compds , 7310*b*.
— —, England, B. D , Fowden, L , Hughes, E. D., and Ingold, C. K Isotope exchange and mechanisms of heterolytic substitution (II) halogen exchange and mechanisms of nucleophilic substitution, 6876*e*.
**Delamare, V.** See Garmer, M.
**DeLamater, E. D.**, and Ulrich, D. Basic fuchsin as a nuclear stain, 263*b*.
**De la Mora, J.** See Mora, J. de la.
**De Landsberg, V.** See Landsberg, V. de
**De Lang, H.** See Lang, H. de.
**De Langen, C. D.** See Langen, C. D. de.
**DeLany, B. P.**, and Copeland, P. L. Glow discharge in Hg vapor contained in cylindrical tubes with glass walls, 4094*h*.
**De la O, F. B.** See Barona de la O, F
**De la Parra, R.** See Parra, R de la
**Delaplace, R.** Pulverization of Cu-Pb - fabrication of thin bearings, 2561*g*
**Delaplane, J. P.** See Grumbles, L C.
**De Larambergue, M.** See Larambergue, M. de.
**DeLargey, R. J.**, Okie, J. P , and Roberts, L M. Xylidene process revealed, 2415*d*
**Delarouzée, G.** Ash content of bread in estg the percentage extn. of the flour seed —influence of NaCl, 777*i*, dosages of bread materials, 4392*e*; see Bure, J.
**De la Rubio Pacheco, J.** See Rubio Pacheco, J. de la.
**De la Sota, A. H.** See Herrera de la Sota, A.
**Delassus, M.**, Devaux, R., and Montigny, P Detn of dissolved O in degassed water, 9304*b*.
**De Lattre, P.** Disposal of ferrous sulfate from waste pickle liquor, 94*g*.
**Delattre, R.** Diazo and similar compds. in diazotype printing and in photography, 1665*i*; thermal sensitization of latex by biochem. degradation by means of Desamulon-N, 5983*e*.
**Delattre-Seguy, J.** See Seguy, J. D.
**Delaunay, A.** Bactericidal and bacteriolytic action of filtrates of *B. subtilis* cultures on *B. anthracis*, 3881*a*.
**Delaunois, A. L.** See Casier, H.
**De Lauro, F.** See Lauro, F de.
**Delaval, E.** Silica bricks for open-hearth roofs, 829*c*.
**De Laval Separator Co.** Centrifuge for sepg whey from cheese constituents, P 3540*d*; centrifuge bowl with discharge valves for sepg. sludge from liquids, P 6011*h*.
**Delavault, R. E.** See Warren, H V.
**De la Vega, F. A.** See Alvarez de la Vega, F.
**De Lavergne, E.** See Lavergne, E. de
**Delavet, J.** See Perperot, H.
**Delbart, G.**, Potaszkin, R , and Kohn, A Low alloy Ti bearing steels for heat-resistant forgings, 2913*i*
——— and Ravery, M Relation between structure and creep rate of steel, 8330*d*
**Delbourg, P.** Utilization of gaseous fuels, 3989*f*, mechanism of propagation and the stability of aerated flames, 6023*d*.
**Delbrück, M.** Bacteriophages, 5823*i*.
**Del Campo, A.** See Campo, A del
**Del Castillo, A. L. A.** See Castillo, A L A. del.
**Delchambre, M.** Corrosion in a petroleum refinery, 8127*g*.
**Del Conte, E.** Sensitivity of the thyroids of normal and hypophysectomized rats to small doses of hypophysial thyrotropic hormone, 5438*b*
**Del Corral, J. I.** See Corral, J I del.
**Delcroix, J. L.** Lippmann plates as color filters, 945*c*.
**Delcroix, P.** How to evaluate printing paper, 402*g*, how to evaluate writing paper, 1978*b*, $HNO_3$ processes used in pulp manuf , 4847*g*.
**Del Dotto, M.** Variations in the blood related to vol. and pressure produced by fever in hypertensive persons, 301*h*
**Deleau, P.** Carboniferous basins of Sud-Oranais, Algeria—Colomb-Béchar-Kenadza Basin and the Guir Basin (II), 3591*b*.
**De Leenheer, L.** See Leenheer, L. de
**Deleo, E.**, Indovina, R., and Parlato, A Effect of $D_2O$ on the catalysis of $H_2O_2$ with solns. of colloidal Pt, 8829*a*
**Delépine, M.** Vie et oeuvres de Joseph Achille Le Bel (book), 4554*d*; Cu piping and potable water, 5521*a*.
——— and Badoche, M. Pinocamphone derived from 2-hydroxy-3-pinanone derived from *d*-pinene, 2976*d*; *d*-iso (or *cis*-) pinocamphone—its semicarbazone, 2977*b*, pinocamphone from the oil of hyssop, 2977*f*; optically active semicarbazones, 3806*d*.
**De Lerma, B.**, Colarusso, A., and Boni, P. Fluorescence spectra of folic acid and xanthopterin in neutral aq solns , 9128*g*.
——— and Salvi, P. Human cerebrospinal fluid, 7065*b*.
**De Lestrange, Y.** See Lestrange, Y. de.
**Delevett, A. F.**, and Bruger, M Plasma lipides in primary xanthomatosis and secondary hypercholesteremia (I) effect of lipotropic substances, 3092*i*.
**De Ley, J.** See Ley, J de.
**Delfosse, C.** Product for treatment of textile fibers, esp. synthetic fibers, P 4022*f*.
**Delga, J.** Chem compn. of the stalks of cereals, 7220*e*.
**Delgado, S. V.** See Viego Delgado, J
**Delille, G. P.** See Pourneau-Delille, G.
**Delimarskiĭ, Yu. K.**, and Kolotii, A A Decompn potentials of molten iodides (I) decompn. potentials of individual molten iodides, (II) decompn. potentials of metal iodides in molten NaI as solvent, 4581*i*, (III) decompn potentials of metal iodides in fused Al iodide as solvent, 6519*f*, elec trochem. potential series of metals in molten NaBr and KBr as solvent, 6089*f*.
———, Skobets, E. M , and Berenblyum, I. S Detn of the decompn. potentials of metal chlorides in molten AlCl3 NaCl as solvent, 8915*d*.
**Delimarsky, J. K.** See Delimarskiĭ, Yu. K
**Delindati, G.** As in exts for broth, 5127*h*.
**Delisle, L.** Examn of sections of fine metal powder particles, 3756*d*.
**Delisle, R.** See Monro, H. A. U.
**Delius, H. A.** Centrifugal filter for sepg. cryst. sugar from mother liquor, P 4504*d*.
**Delius, M. M.** See Meyer-Delius, M.
**Della Gatta, L.** Calcimeter, 5235*a*.
**Dellicour, E.** Black-liquor recovery, P 4854*i*.
**Dello Iojo, G.** Poisoning by ingestion of metal phosphides, 6311*e*.
**Delmas** and Coutin, R. Toxicol. action o

various insecticides on adult beetles, 3555*f*.
**Delmonte, J.** Furfuryl alc.-resorcinol resin compn., P 3655*b*; influence of catalysts on formation of polyester resins, 4891*g*, *Plastics in Engineering* (book), 5228*c*.
**Delo, D. M.** Science and the nation's future, 915*g*.
**DeLoach, O. C.** Catalytic polymerization — McMurrey unit, 383*e*.
**De Long, H. K.** Anodizing Mg alloys, P 2880*c*; anodic coating of Mg, P 6926*a*, surface finishing and protection of Mg alloys, 7399*g*.
**DeLong, W. A.** See Robertson, W. K.
**DeLong, W. B.** See Brown, M. H.
—— and Peterson, E. V. Flame-spraying polythene, 6961*i*.
**DeLonge, K. A.** Alloying white cast iron increases abrasion resistance, 93*a*.
**Delor, J.** See Gley, P.
**Delor, R. A.** See Petering, H. G.
**Delorme, J.** Properties of polyvinyl chloride, 435*i*.
—— and Bluma, R. Solvents and plasticizers for vinyl resins, P 5999*a*.
**Delorme, J. M.** Fabricación de perfumes y cosméticos modernos (book), 3570*h*.
**De los Angeles Sandoval, M.** See Angeles Sandoval, M. de los
**Delperdange, G. R.** Cryst. form of quinine-HCl, 2839*c*.
**Delphaut, J.** See Vignoli, L.
**Del Pilar Rifé Lamprecht, M.** See Rifé Lamprecht, M. del P.
**Delporte, G.** See Thill, J.
**Del Pozo, A.** Detn. of alkaloids in galenic prepns., 8094*g*; detn. of nux vomica and quina tinctures, 8097*c*.
**Del Pozo, E. C.** Action of the venom of a Mexican scorpion on cholinesterases, 1868*e*.
——, Anguiano L., G., and Pardo, E. G. Influence of striated muscle activity on the lethal dose of strophanthin k, 6733*g*.
**Delpy, L.,** and Chamsy, H. M. Stabilization of *Bacillus anthracis* spore suspensions by the action of certain antiseptics, 6281*i*; prepn. of immunizing antigens and allergens by hydrolysis of bacteria with pepsin, 7080*h*.
**Delpy, P. L.** Same as Delpy, L.
**Del Regno, F.** Thiamine in urine, 5847*g*.
**Del Riego, A. F.** See Fernandez del Riego, A.
**Del Rio, J.** See Rio, J. del.
**Del Rio, L. F.** See Pierro del Rio, L.
**Del Rio M., A.** See Río M., A. del.
**Del Rosario, L.** See Allison, S. K
**Delsal, J. L.** Delipidation by ether at very low temp.—rupture of the cholesterol-protein cenapses of serum—resistance of the phosphatide cenapses—influence of delipidation on the albumin:globulin ratio, 8420*d*.
**Delsemme, A.** Infrared spectrometry in industry, 5694*d*.
—— and Rosen, B. Spectrum of FeO, 3712*e*.
**Delsol, M.** Action of thiouracil on metamorphosis of *Discoglossus pictus* tadpoles, 322*f*.
**Del Tanago, J. G.** See González del Tanago, J.
**Deltour, G. H.** See Gennes, L. de
—— ——, Mayer, S., Michel, R., and Roche, J. Biol. activity of iodinated proteins, 5097*h*, thyroxine content and biol activity of thyroglobulin and artificially iodinated proteins, 9185*f*.
**Deluard, H.** Removal of proteins from blood when detg. blood urea, 7531*d*.
**De Luca, Gastone.** Inhibition by sulfonamides of intestinal synthesis of vitamin K, 8061*d*.
**DeLuca, Guido.** See Cultrera, R
**De Luna, S. M.** See Luna, S. M. de.
**De Lustig, E. S.** See Sacerdote de Lustig, E
**Delusarsche, A** See Cagniant, P.
**Del Val, A. V.** See Valladolid del Val, A.
**Del Val, M. J.** See Jesus del Val, M.
**Del Vecchio, A.** Galvanic sepn. of metals, that are subject to secondary reaction with the electrolyte—sepn. of isotopes, P 4963*e*.
**Del Vecchio, V.** See Virgili, R.
**Delwaulle, M. L.,** and François, F. Raman spectra of fluorinated derivs of $CH_4$, 2865*g*, equil. reactions between Ge tetrachloride and tetrabromide - proof of the 3 chlorobromides of the quadrivalent Ge by means of the Raman effect, 2885*h*; germanochloroform, its prepn. and its structure as detd. by means of the Raman effect, 5321*e*.
**Delwiche, E. A.** Mechanism of propionic acid formation by *Propionibacterium pentosaceum*, 2277*e*; vitamin requirements of *Propionibacterium*, 9156*c*.
**Delwiler, S. R.** See Copenhaver, W. M.
**Dely, J. G.** Regenerating spent ammoniacal cuprous soln., P 1928*f*
**Del Zotto, G.** Drying peat, P 8651*c*
**De Magnée, I.** See Magnée, I de
**Demajo, F.** See De Felice, F.
**De Mallemann, R.** See Mallemann, R de.
**De Man, T. J.** See Man, T. J. de.
**De Man, W.** See Man, W de.
**DeMann, J. G.** See Weston, R. F.
**Demann, W.** Gasification of bituminous coal, 7065*d*.
**De Marbaix, M.** See Marbaix, M de.
**De Maria, F.** See Lewis, M. N.
**De Maria, G.** See Elkins-Kaufman, E.
**Demart, P.** Underground gasification, P 3994*d*, underground gasification expts. in Belgium, 7210*g*
**De Matos, A. R.** See Matos, A. R de
**De Matteo, M.** Fire fighting, 1984*a*
**De Mattos, A. R.** See Rosera de Mattos, A.
**Dembo, A. G.** Detn. of O deficiency in the organism of patients with circulatory system disorders, 3093*e*
**Demeczky, M.** See Gartner, K.
**De Medeiros, A. C.** See Cândido de Medeiros, A.
**De Meillon, B.** See Meillon, B. de
**De Meio, R. H.** Phenol detn., 974*e*, metabolism of the natural estrogens, 7106*f*, see Pearlman, W. H
—— and Brieger, H. Theory and pathology of $CS_2$ poisoning (I) effect of $CS_2$ on tissue respiration and glycolysis, 7577*d*.
——, Rakoff, A. E., Cantarow, A., and Paschkis, K. E. Inactivation of α-estradiol by the rat liver, 8186*a*
**Demelenne-Jaminon, G.** See Welsch, M
**DeMello, G.** See Little, P. A
**De Mello, R. P.** See Pimenta de Mello R.
**De Membrillera, J. L. G.** See Laustau Gómez de Membrillera, J
**De Mende, S.** See Mende, S. de
**Demenev, N. V.** See Bunov, N. N
**De Menezes, M. J. G.** See Garroga de Menezes, M. J.
**DeMent, J.** Fluorochemistry of fluorite, 6116*g*, fluorochemistry of calcite, 6117*i*, Handbook of Fluorescent Gems and Minerals (book), 7876*c*
**Demers, P.** Radioactive stars showing migration of single nuclei in the photographic emulsion, 4092*c*, see LaPalme, I
—— and Fredette, V. Autoradiographic method, 4092*d*
**Demeshina, A. I.** See Skanavi, G. I.
**De Micheli, G.** Oxidized glutathione in the tissues, 5103*c*.
**Demidenko, S. G.,** and Geller, B. A Semimicro gas analyzer, 910*c*.
**De Milt, C.** Value of the historical approach in the teaching of general chemistry, 2049*f*.
**Demin, G. V.** Phys. chemistry of endogenous fires and of fire prevention, 1569*a*
**Demin, N. N.** Influence of acetylcholine on autolysis of animal tissues, 1071*f*.
**De Mingo, M.** See Mingo, M. de
**Demjén, I.** See Földi, Z.
**Demmerle, R. L.,** and Sackett, W. J Superphosphate production, 7174*i*
**Demmler, G.** See Kumetat, K
**Demmler, P. E.** Hardening of tung oil by anhyd. ferric chloride soln., 5605*c*
**De Molina, A. F.** See Molina, A. F de
**Demolon, A.,** and Boischot, P. P cycle, 3124*i*.
**Demonchy, M.** See Beerens, H
**De Montaner, R.** See Montaner, R de
**De Moraes, J. C.** See Costa de Moraes, J.
**Demorest, D. J.** See Nye, R. D
**Dempsey, E. W.** Chem cytology of the thyroid gland, 3907*f*, chem cytology of endocrine glands, 6710*i*, see Wislocki, G. B.
——, Bunting, H., Singer, M., and Wislocki, G. B. Dye-binding capacity and other chemo-histological properties of mammalian mucopolysaccharides, 7101*i*.
——, Bunting, H., and Wislocki, G. B. Chem cytology of the mammary gland, 7057*h*.
——, Greep, R. O., and Deane, H. W. Changes in the distribution and concn. of alk. phosphatases in tissues of the rat after hypophysectomy or gonadectomy and after replacement therapy, 8489*f*.
**Dempsey, M.** Histology of hides and skins, 1203*e*; leather microscopy, 1203*i*; see Conabere, G. O.
**Dempster, E.** See Rutman, R
**Demurov, M.** Sour milk products in the Soviet Union, 9280*f*.
**De Muylder, E.** See Muylder, E de.
**Dem'yanets, A. N.** Photoelec. app. for detg. the distribution of solid particles in a liquid, P 3668*i*.
**Denard, L.** See Clark, C. R.
**De Nardo, J. B.** See Nardo, J. B. de.
**De-Natale, A.** See Schilling, F. J.
**De Nayer, H.** See Nayer, H. de.
**Denbigh, K. G.** Thermoösmosis of gases through a membrane, 4062*f*; see Hutchison, H. P.; Stead, B., Vickery, B. C.
——, Hicks, M., and Page, F. M. Kinetics of open reaction systems, 471*e*.
**Dencker, J. J.** Detn. of the proportion between wt. and vol. of pulverulent medicaments, 7192*a*
**Den Daas, H. C.** See Daas, H. C den
**Den Dooren de Jong, L. E.** See Jong, L. E den dooren de
**Dénes, Z.** Permanganate iodometric titrations of urine, 9130*f*
**Denham, W. L.** Oklahoma City builds two stage trickling-filter sewage disposal plant, 6767*e*
**Den Herder, P. C.** See Herder, P. C den
**Den Hertog, H. J.** See Hertog, H. J den
**De Nicola, M.** Distribution of alk. phosphatases in nucleic polyploids of the testicular tunicate cells of *Asellus aquaticus*, 3528*i*, see Montaleuti, G., Vitaghano, G.
**De Nicola, P.** Prothrombin constitution and hypoprothrombinemia, 3514*b*, dehydrogenase activity of some degenerative forms of *Escherichia coli*, 5078*i*, influence of vitamin k and dicoumarol on bactericidal action of blood, 5114*d*, ethyl bis(4-hydroxycoumarinyl)acetate—its hypol and anticoagulant characteristics, 5870*b*
—— and Rosti, P. Coagulation of blood decalcified with Amberlite resin, 7103*i*, relation between hypothrombinemia, Ca and thromboplastin, 8511*f*
**De Nie, W. L. J.** See Nie, W. L. J de
**Denig, F.** Gas purification, P 2408*d*
**Denigès, G.** Complementing reaction for the identification of HCN by Na picrate paper, 5701*b*, microchem identification of very small amts. of histamine, 5904*c*.
**Denis, B. D.** Geol sketch and metallic mineral deposits of the Province of Quebec, 525*e*.
**Denisen, E. L.** Tomato color as influenced by variety and environment, 1462*h*
**Denison, G. H., Jr.,** and Condit, P. C Oxidation of lubricating oils—dialkyl selenides as inhibitors, 6399*h*; lubricating oil compn., P 6820*b*; stabilization of lubricating oils, P 6820*f*
—— and Harle, O. L. Oxidation of lubricating oils at high temps., 5932*h*
**Denison, I. A.** Underground corrosion and corrosion prevention, 6140*i*
—— and Romanoff, M. Behavior of Zn-Fe couples underground, 6093*g*.
**Denison, M. C.** Nitration of the higher alkanes, 4629*e*.
**Denison, R. C.** See Shabaker, H. A.
**Denisov, P. I.** App. for detg. the rate of filtration of clay suspensions, 3665*d*.
**Denissoff, Denissow.** See Denisov, P. I
**Denk, G.,** and Dewald, W. Thermal decompn. of Cd oxalate, 4934*a*.
**Denkewalter, R. G.** See Wolf, F. J.
**Denkishikenjocho.** Recording paper for puncture-voltage estn., P 7229*e*, base for puncture-voltage recorder, P 7230*a*
**Denko, C. W.,** and Grundy, W. E. Min tryptophan requirement and urinary excretion of tryptophan by normal adults 7564*a*.
**Denman, W. L.** Antifoam compd., P 2348*b*.
**Dennell, R.** Weismann's ring and the control of tyrosinase activity in the larva of *Calliphora erythrocephala*, 6321*j*
**Denning, D. G.** Aphid control with hexaethyl tetraphosphate, 1899*b*.
**Dennis, C.** See Karlson, K. E.; Monson, E. M.
**Dennis, E. W.** See Berberian, D. A.
**Dennis, N. M.** See Cotton, R. T
**Dennis, P. E.** Ground water near Buxton, Traill Co., N. Dakota, 8581*g*.
**Dennis, S. F.,** Powell, A. S., and Astle, M. J

Reduction of substituted nitrobenzenes at the dropping-Hg cathode, 5078*a*.

**Dennis, T. W.,** and Hunt, J. M. Application of certain instrumental methods in production research, 6469*d*

**Dennis, W. E.** San Antonio Canyon Pb-Zn deposits, Presidio Co., Texas, 6950*h*.

**Dennis, W. H.** Zn volatilization, 3751*f*, Ag extn., 5711*s*; reclamation of Cu from scrap, 5712*f*.

**Dennison, A. T.** See Cross, L. E.

**Dennison, G. E.** See Sitzler, R. R

**Dennison Manufg. Co.** Creped paper, P 3198*f*.

**Denny, F. E.** Speeding the germination of potato tubers, P 3497; effect of the surface microflora on the respiration rate of germinating seeds, 802*e*

**Denny, G. H.** High-d. alloy, 4203*g*

**Denny, P. W.** See Burrage, L. J

**Denny-Brown, D.** See Uzman, L.

——, Swank, R. L., and Foley, J. M. Respiratory and cle signs in barbiturate intoxication, 9261*h*.

**Deno, N. C.** 1-Vinylnaphthalene in the Diels-Alder reaction, 5019*f*, see Bachman, W. E.

**De Nó, R. L.** See Lorente de Nó, R

**Denoël, A.** Indigenous species of *Drosera* and their tinctures, 5544*g*.

**De-No-Fa, A. S.** See Nordiskefabriker De-No-Fa, A. S

**De Nooyer, C. N. J.** See Nooyer, C. N. J. de.

**De Nora, O.** Electrolysis of alk chlorides, P 7840*b*, electrolytic cell with Hg cathode, P 8289*e*.

**Den Otter, H. P.** See Otter H. P. den

**Denslow, K. R.** See Hucks, R. T.

**Denstedt, O. F.** See Saffran, M

**Dent, C. E.** Chromatography in the study of liver disease, 4364*c*, hypophosphatemia glycosuric rickets (II) commentary 6714*c*

—— and Schilling, J. A. Absorption of proteins—amino acid pattern in the portal blood, 8505*d*

**Dent, F. J.,** Blackburn, W. H., Millett, H. C., and Moignard, L. A. O and high pressure in gasification (IV) synthesis of gaseous hydrocarbons at high pressure, 3170*g*

——, Moignard, L. A., Buckley, J. W. A., Davis, W. D., and Tantrum, A. D. S. Hardening of oxide in purifiers, 3173*i*.

——, Moignard, L. A., Eastwood, A. H., Blackburn, W. H., and Hebden, D. Catalytic synthesis of $CH_4$ for town-gas manuf., 2405*g*

——, Moignard, L. A., and Roberts, L. G. M. Gas destructive distn., tar, and tar products, 4788*e*.

**Dent, J. E.,** Morlan, H. B., and Hill, E. L. Effects of DDT dusting on domestic rats, 7186*a*.

**Dentay, J. T.,** and Rae, J. J. Phosphatase in saliva, 6255*d*.

**Dentists' Supply Co. of New York.** Compns for molding dentures, P 9538*f*

**Denton, C.** See Schiller, I. W

**Denton, C. A.** See Lillie, R. J.

**Denton, E. T.** Elec. discharge app for the synthesis of nitric oxide from atm. N, P 6096*f*.

**Denton, H. H.** Treatment of drilling fluid, P 9426*g*.

**Denton, J. J.** See Parker, R. P.; Vaughan, J. R., Jr.

—— and Howard, K. L. 1,4-Di(heterocyclic substituted)piperazines, P 4704*i*

——, Lawson, V. A., Neier, W. B., and Turner, R. J. Antispasmodics (II) tertiary β-amino alcs., 9070*f*.

——, Neier, W. B., and Lawson, V. A. Antispasmodics (III) study of the amino group in the tertiary β-amino alcs., 9071*b*

——, Schedl, H. P., Neier, W. B., and Lawson, V. A. Antispasmodics (IV) morpholinyl and piperidyl tertiary alcs., 9071*g*.

——, Turner, R. J., Neier, W. B., Lawson, V. A., and Schedl, H. P. Antispasmodics (I) substituted β-amino ketones, 9069*i*.

**Denton, W. I.** See Marisic, M. M.; Schlman, C. H.

——— and Bishop, R. B. Nitriles, P 3439*e*, 4285*f*

**De Nunno, R.** Action of double salts of Sb on the spleen and on the cardiovascular system, 2310*g*.

**Denz, E.** See Preiswerk, E.

**Deo, P. G.** Emission spectrum of Cl under conditions productive of the Joshi effect, 4101*h*; spectral sensitivity of Joshi effect in Cl, 4555*g*.

**Deobald, H. J.** See Singer, P. A

**Deodata de Azevedo, M.** See Jacobsohn, K. P.

**DeOme, K. B.** See Strait, L. A.

**DeOng, E. R.** Chemistry and Uses of Insecticides (book), 2363*g*

**Deotto, R.** Oxidn.-reduction phenomena in living bacteria in relation to reproduction and variation, 7176; multiplication and bacterial respiration, 5078*e*, 9165*d*.

**De Oya, J. C.** See Oya, J. C de

**De Paiva, G.** See Paiva, G. de.

**De Paiva Abreu, A.** See Paiva Abreu, A. de.

**De Palencia, J. N.** See Navarro de Palencia, J.

**De Palma, E.** See Palma, E de

**De Palo, A.** Effect of stilbene compds in the female sex organs and endocrine glands, 742*f*

**De Paolis, P. F.** Optical glass, P 5166*e*

**De Paredes, C. H.** See Hernandez de Paredes, C.

**De Pasquale, F.** See Trimarchi, E

**De Pedro, S.** See Pedro, S de

**Depierre, F.** See Bulbring, E.; Funke, A

**DePierre, V.,** and Bernstein, H. Grain refinement in cast Al, 2143*e*

**De Pisapia, N.** See Simoncini, E

**De Poggi, N. E. G.** See Genovese de N. E.

**Deponte, R.** See Hofmann, W.

**Depp, E.** See Black, Gordon.

**DePree, L.** See Barry, A. J.

——, Barry, A. J., and Hook, D. E. Alkyl halosilanes, P 5791*d*.

**Dequeker, R.** Detn. of sugar, 7378*a*.

**Dequidt, J.** See Merville, R

**D'Eramo, N.** See Paolantonio, U

**Derby, J. V., Jr.,** and DeWitt, J. B. Det of carotene, 6948*d*.

**Derderian, S. K.** See Kaufman, David

**Derfer, J. M.** See Boord, C. E., Evans, G. L., Van Volkenburgh, R

——, Greenlee, K. W., and Boord, C. E. Synthesis of monoalkylcyclobutanes—reduction of neopentyl type tribromides, 3369*f*.

——, Pickett, E. E., and Boord, C. E. Infrared absorption spectra of some cyclopropane and cyclobutane hydrocarbons, 8274*h*

**Derge, G.** Oxygen in Ti, 8963*h*.

**Dergunov, E. P.** Complex form... between $CdCl_2$ and alkal. metal chloride, 4595*c*

**Derham, L. J.** See Lumsden, J. National Smelting Co. Ltd., Robson, S

——— and Johnson, F. J. Desulfurization of gas, P 3599*b*.

**Děrl, M.** Ceramic materials of high dielec const., 2388*d*.

**Deriaguin, B. W.** See Deryagin, B. V.

**Déribéré, M.** Silicones (IV) properties, 899*b*, infrared in the paper industry, 1975*c*, infrared drying of some chem. products, 2046*f*, testing of surface conditions by fluorescence, 7368*a*

—— and Buccar, M. de. Silicones (VI) silicone liquids and oils, 5630*a*.

**Dériès, G.** See Courmont, P.

**De Rigo, H. T.** See Newmau, A. S

**Deringer, H.** Absorption and recovery of CO in town gas, 8119*d*; detoxification of manufd. gas with recovery and use of the CO, 8644*g*.

**Deringer, M. K.** See Heston, W. E

**De Ritis, F.,** Scalfi, L., and Lucentini, L. Inhibition of phagocytosis by thiourea, 3489*c*.

——, Scalfi, L., and Zanussi, C. Sensitivity of several species of Schizomycetes and Hyphomycetes to the antibiotic action of thiourea and thiouracil, 4337*c*.

—— and Zanussi, C. Antimicrobic action of a synthetic antihistaminic (*N*-dimethylammoethyl - *N* - benzylaniline), 9152*h*.

**DeRitter, E.,** Jahns, F. W., and Rubin, S. H. Detn. of ketotetrahydropyridines—urine, 8428*g*.

——, Moore, M. E., Hirschberg, E., and Rubin, S. H. Detn. of riboflavin in urine, 4724*c*.

——— and Rubin, S. H. Microbiol. assay of panthenol, 9132*i*.

**Derivaux, J.** See Liégeois, F.

**Derjaguin, B. W.** See Deryagin, B. V.

**Derkach, F. A.** See Cherkashin, E. E.

**Derkach, V. G.** Electromagnetic sepn. of washed Mn ore, 3326*c*.

**Derkatsch.** See Derkach.

**Derksen, J. C.** Applying metal coatings, 1611*d*; improving of bitumen, P 7224*h*

**Derman, B. M.** Gas analyzer, P 8758*c*.

**Dermer, O. C.** Dibenzylidene deriv. of 2,2,6,6 - tetrakis(hydroxymethyl)cyclohexanol, P 6656*g*; see Breault, E.

**Dermott, W.,** and Trinder, N. Brown heart in swedes—detn. of available B in soil, 4412*d*.

**Dernehl, C. U.,** Nau, C. A., Frank, T. M. and Neidhardt, H. W. Action of silica gel catalyst administered to guinea pig by inhalation, 4401*b*

**Dérobert, L.** See Boltansky; Griffon, H.

———, Descłaux, P., Hadengue, A., and Le Breton. 2,4-Dinitrophenol(thermol) poisoning, 3105*f*.

——— and Hadengue, A. EtOH-MeOH poisoning—protective role of EtOH, 3105*e*

examn. of sperm in legal medicine, 3316*e*.

——, Hadengue, A., and Hariri, A. A. K. Pulmonary edema following CO poisoning, 3105*d*.

——, Hadengue, A., and Le Breton. NaCN poisoning, 3105*f*

**De Robertis, E.** Cytological and cytochem. bases of thyroid function, 3907*e*.

**De Rohan Barondes, R.** See Barondes, R. de R.

**De Roo, P. H. M.** See Roo, P. H. M. de

**De Rooster, J.** See Rooster, J. de.

**De Rose, H. R.** See Newman, A. S

**De Rothman, C. L. C.** See Couto de Rothman, C. L.

**De Roubaix, J.** See Roubaix, J. de

**Derouet, L.** Comparison of respiratory exchange with *Gammarus pulex* and *Niphargus virei*, 5873*e*

**Derow, H. A.** Nephrotic episodes with normal urine, serum protein, and cholesterol in the edema-free intervals, 3515*e*.

**Derr, E. L.** See Anderson, John.

**Derrett-Smith, D. A.** Identification of vat dyes, 851*f*; soly. no.—measure of cellulose degradation, 8133*c*.

**Derrien, Y.** Detn. of serum albumin and globulin fractions, 4719*f*; see Bouchilloux, S.; Roche, J

——, Michel, R., Pedersen, K. O., and Roche, J. Physicochem. characteristics and amino acid compn. of pure thyroglobulin, 9121*k*.

——, Michel, R., and Roche, J. Prepn. and properties of pure thyroglobulin (I), 2651*b*.

——— and Roche, J. Hemoglobin of the human fetus, 3904*g*.

**Derry, R. L.,** and Roff, W. J. Cellulose textile chemistry, 4789*a*

**Dersch, F.** 1,3,5-Triazines as antifogging agents, P 7851*b*.

——— and Clark, R. H. Tetrazolyl disulfides as antifogging agents in photographic developers, P 4593*c*, antifogging agent for photographic emulsions, P 5319*h*.

**Derse, P. H.** See Barki, V. H.

———, Nath, H., Elvehjem, C. A., and Hart, E. B. Nutritive value of casein as influenced by alc. extn., 289*b*.

**Dertev, N. K.,** Zverev, B. P., and Khvilivitskii, R. Ya. Chem. resistance of glass, 7203*f*.

**Dertinger, B. L.** See Lands, A. M.

———, Beaver, D. C., and Lands, A. M. Toxicity of 3,4-dihydroxy-α-(isopropylaminomethyl)benzyl alc., 760*a*

**Dervichian, D. G.** Coacervation as phase equil. in colloidal systems, 5654*f*, properties of adsorbed layers (II) surface potential of aq. solns. of org. substances, 8797*g*; structure of condensed monolayers, 8796*e*; see Clark, C. R.

——— and Berg, H. J. van den. Phase equil. in protein solns. (I) system gelatin-$(NH_4)_2SO_4$—water, 3691*a*.

———, Fournel, G., and Guinier, A. Protein solns. by x-ray diffraction, 7787*d*

**Dervillée, P.,** Castagnou, E., and Raveleau. $BaCO_3$ poisoning, 3105*g*.

**Dervoort, G. van,** Fletcher, B. S., Perry, M. H., and Arsem, K. B. Prepn. of o-nitro salicylic acid and its use in the detn. of Ni, 3309*c*.

**Derwael, A. H.** Alkyd resins, 2463*h*.

**Dery, R. J.** Development of a combustion wave in a flowing gas, 4467*b*

**Deryagin, B. V.** Increasing the sensitivity of a balance, while simultaneously shortening its period of oscillation, 3245*f*.

——, Fridlyand, R., and Krylova, V. Measurement of the specific surface area of porous bodies and of powders, 18*f*

—— and Krotova, N. A. Elec. theory of adhesion of films to solid surfaces, 2842c, 7769f.
—— and Makarov, N. V. App for controlling the viscosity of a flowing liquid, P 3250b.
—— and Pichugin, E. Measurements of the viscosity of multimol. liquid boundary layers by the blowing-off method, 2486a.
——, Sidorenkov, G., Zubushchenkov, E., and Kiseleva, E. Kinetic phenomena in boundary films of liquids (I) capillary osmosis, 7765f.
—— and Titievskaya, A. Detn. of the thickness of the liquid layer left on a solid wall behind the receding meniscus, 2059b.
—— and Vlasenko, G. Ultramicroscopic measurement of particle concns of aerosols and other disperse systems, 2068e.
**De Sacy, G.** See Sacy, G. de.
**Desai, C. M.** See Naik, K. G
—— and Vyas, M. T. Seeds of *Jatropha curcas*, 5975h.
**Desai, K. K.** See Gurjve, K. V.
**Desai, V. D.** See Tawde, N. R.
**De St. Groth, S. F.** See Fazekas de St Groth, S.
**De Salamanca, F. E.** See Enriquez de Salamanca, F.
**De Salas, E.** See Hsu, S. K
**Desalbres, L.** Oils from rosin, P 4873d.
**Desalme, R.**, and Persoz, B. Viscometer, 2174i.
**De Sarasqueta, P. A.** See Sarasqueta, P. A. de.
**Desbarats, M. L.** See Hoffman, M. M.
**Descartes de Garcia Paula, R.** Nutritive value of peanut meal, 4395g
**Desch, C. H.** Effect of impurities on the properties of metals, 8325c; progress in special steels, 8327g.
**De Schaepdryver, A.** See Schaepdryver, A. de.
**De Schaepdryver, L.** See Schaepdryver, L. de
**Deschalit, G. I.** See Deshalit, G. I.
**Deschamps, I.** Mechanism of enzyme action (XXXIV) influence of a pigment from *Fusarium solani* D2 purple (solanione) on the compn. of fats formed in fusaria, 9162b
——, King, W. J., and Nord, F. F. Thiophene series (II) prepn and phytochem. reduction of 2,2′-thenoin and 2,2′-thenil, 9062i.
**Desclaux, P.** See Dérobert, L.
——, Soulairac, A., and Brocherioux, J. Changes in the adrenals and thyroid during development of alloxan diabetes—changes in the pancreatic insular tissue at the beginning of alloxan diabetes, 1854a.
——, Soulairac, A., and Teysseyre, J. Changes in the hypophysis during alloxan diabetes, 1853i
**Desclin, L.** Action of thyroxine on mammary glands of adult female rats—action of thyroxine on mammary glands stimulated by prolactin, 3928g; action of prolactin on the structure of the ovary of the normal and hypophysectomized rat, 5470i; action of inhibitors of thyroid activity on development of mammary glands—action of antithyroid drugs on the rat ovary, 5495d
**Desgrez, P.** See Bénard, H.
**Deshalit, G. I.** Benzaldehyde, P 3847a; Course in Technology of Coke Production (book), 8120e.
**Deshays, M.** See Martinet, J.
**Deshmukh, G. S.** Production of the Joshi effect under silent elec. discharge, 2858b; production of Joshi effect in I vapor in elec. discharge, 8857a.
—— and Dhar, U. S. Production of Joshi effect in $SO_2$ under silent elec. discharge, 8258d.
—— and Sirsikar, S. Production of Joshi effect in Br vapor under silent elec. discharge, 2085g; interaction of N and S under silent elec. discharge, 2516g; time hysteresis in the cond. of Br vapor under silent elec. discharge, 3731a.
**Deshusses, J.** Analysis and evaluation of rose water, 817i; analysis and evaluation of orange-flower water, 1152h.
**De Sigmond, A. A. J.** See Sigmond, A. A. J. de.
**Desikachar, H. S. R.** Oxidation of cystine by $HNO_3$, 4224f.
—— and De, S. S. Cystine and methionine contents of Indian foodstuffs, 5876d.
—— and Subrahmanyan, V. Influence of dietary factors on the endogenous Ca excretion in the albino rat, 3902h; utilization of Ca from cow and buffalo milk and effect of souring on Ca availability, 4354b.
**Desikachar, N.** See Rao, T. V. S.
**De Simo, M.** Halogenation of unsatd. org. compds., P 3436h.
**Désirant, M.**, and Shoenberg, D. Penetration of magnetic field in superconductors (I) measurements on thin cylinders, 3673f; intermediate state of superconductors (I) magnetization of superconducting cylinders in transverse magnetic fields, 4069a.
**Desjobert, A.** See Fleury, P
**Desmarais, A.** Shock, 6728a; see Dugal, L. P.
**De Smet, G.** See Smet, G de.
**De Smet, P.** See Smet, P. de
**Desnuelle, P.** Standardization of vegetable lecithins for use in the margarine industry, 2791a; see Naudet, M., Rovery, M.
—— and Casal, A. Reduced resistance to acid hydrolysis of a peptide linkage adjacent to a hydroxyl group, 2943h.
—— and Micaelli, O. Analysis of sulfated fat acid alkylanolamine condensation products, 8705g.
——, Naudet, M., and Rouzier, J. Enzymic hydrolysis of triglycerides, 3871h, formation of partial glycerides during hydrolysis of triglycerides by pancreatic lipase, 9120i
—— and Rovery, M. Mode of inactivation of physiologically active proteins by chem. means, 2650f, inactivation of urease by phenyl isocyanate, 5062g.
**Desodt, J.** See Debeaumont, A.
**De Souza, A. H.** See Henrique de Souza, A
**Despois, E.** See Danzin, A
**Desreux, V.** Fractional extn. of polymers, 6460d; see Ghuyssen, J. M
**Desrivières, J. E.** See Eschet-Desrivières, J
**Dessart, A.** Chimie appliquée, industrie organiques (book), 1125h.
**Dessauer, F.** L'énergie atomique et ses applications (book), 2870d
**Dessaux, G.** Phosphomonoesterases of the hepatopancreas of *Helix pomatia*—pyrophosphatases of the hepatopancreas of *Helix pomatia*, 1071h
**Dessens, H.** Catalytic effect of water in gaseous reactions, 1634g.
**Dessert, A. M.**, and Halverstadt, I. F. Synthesis of β-oxo esters from acylpyruvates, 139i.
**Dessi, P.** See Ciusa, W.
—— and Rizzoli, C. Testing of 3,4,5-trimethoxyphenethylamine in aq. solns., urine, and blood, 9128h
**Destexhe, Y.** Detn. of tannins in plants, 1086h.
**Desthieux, G.** See Brunerie, G.
**Destouches, J. L.** Relation between the masses of mesons, 2505c.
**Destriau, G.** Electrophotoluminescence and its possibilities for the investigation of crystal lattice (II) momentary illumination produced by deactivation of the long-duration centers, 6086f, (III) elec. extinction of the visible phosphorescence, (IV) elec. acceleration of infrared extinction on phosphorescence, 6087c.
—— and Mattler, J. Action of alternating elec. fields on the intensity of luminescence of sulfides irradiated by x-rays, and the deformations of emission bands, 3721d.
**Detaille, H.** Plasticity of ceramic masses, 3163c.
**De Takats, G.** See Dolkart, R. E
**De Temmerman, M. C. T.** See Temmerman, M. C. T. de
**Deterling, R.** See Goldenberg, M.
**Dethier, F. M.** See Solomon, D. H.
**Dethier, V. G.** See Chadwick, L. E.
—— and Chadwick, L. E. Stimulating effect of glycols and their polymers on the tarsal receptors of blowflies, 2358e
**De Traverse, P. M.** See Traverse, P. M. de.
**De Trey frères S. A.** Synthetic resin, P 5999d; catalysts for prepn. of polymers, P 6002f.
**Detrick, S. R.**, Lockwood, W. H., and Whitman, N. Polysulfonyl chlorides, P 5033b.
**Detroit Paint & Varnish Production Club.** Styrene in protective and decorative coatings (I), 3212g.
**Dettinger, U.** See Nowotny, H.
**Detwiler, G. T.**, Kulp, M. P., Moss, S. A., Jr., and Merion, H. D. App. for spinning artificial filaments, films, etc., P 6826d.
**Deuel, H.** Pectins (XIX) esters of polygalacturonic acid, (XX) action of formaldehyde on pectin materials, 140f; (XXI) glycol esters of pectic acid, 141c; see Pallmann, H.
—— and Neukom, H. Reaction of $H_3BO_3$ and borax with polysaccharides and other high-mol. polyhydroxy compds., 6986c.
**Deuel, H. J., Jr.** See Cheng, A. L. S.; Ershoff, B. H.; Hurt, W. W.; Marx, W.; Nieft, M. L.; Zechmeister, L.
——, Greenberg, S. M., Straub, R. E., Fukui, T., Chatterjee, A., and Zechmeister, L. Stereochem. configuration and provitamin A activity (VII) neocryptoxanthin U, 9180d.
——, Greenberg, S. M., Straub, E. E., Fukui, T., Gooding, C. M., and Brown, C. F. Comparative nutritive value of fats (XI) growth-promoting activity of $\Delta^{12}$-octadecenoic acid, 8023h.
——, Johnson, R. M., Calbert, C. E., Gardner, J., and Thomas, B. Comparative nutritive value of fats (XII) digestibility of rapeseed and cottonseed oils in human subjects, 8023i
**Deulofeu, V.** Metabolism of natural estrogenic substances, 1475a.
——, Labriola, R., and Berenzaghi, B. Structure of α-fagarine, 1778i.
**Deutsch, Adam.** See Buchtha, F.
**Deutsch, Alfred**, and Osoling, S. Stoichiometry and equil. of the boric acid-mannitol complexes, 6894b
**Deutsch, G. C.**, Repko, A. J., and Ludman, W. G. Elevated temp. properties of several Ti carbide-base ceramals, 8627f
**Deutsch, H. F.** See Cohn, Melvin, Hess, E. L.
—— and Nichol, I. C. Blood plasma proteins (X) fractionation studies of normal and immune horse serum, 1855h
**Deutsch, M.** Decay of $Ag^{110}$ (200 days), 4091i, high-efficiency, high-speed scintillation counters for β- and γ rays, 4091a, see Brady, E. L., Metzger, F., Miller, A. E.
—— and Hedgran, A. Decay of $Cr^{51}$, 5294g
—— and Metzger, F. C. elation between direction and polarizati of successive ray quanta, 1643a
**Deutsch, S.** See Schraufstatter, E
**Deutschman, A. J., Jr.** See Hillyer, J
**Deuwalter, A. N.** See Dauvalter, A. N
**Dev, R.** See Shrikhande, J. G
**Dev, S.** Sesquiterpenes (III) synthesis homocadalenes (IV) hydriodic acid simultaneous ring closure and reduction synthesis of alkylnaphthalenes, 2605a
**Devadatta, S. C.** See Appanna, T. C.; Das, B. R. S.; Karnik, M. G
—— and Varadan, K. S. Nutritive value of proteins and mineral contents of some varieties of fish found in Bombay, 782b
**De Vaissière, A. J. D. H. M.** See Vaissière, A. J. D. H. M. de
**DeVaney, F. D.** Froth flotation of siliceous gang from an alk. magnetic Fe ore pulp, P 1034, froth flotation of oxide Fe ore, P 5721i.
**Devaney, L. W.** See McBee, E. T.
**Devaney, W. A.** See Wolfson, W. Q.
**Deva Rajan, M. R.** Powdery mildew of oranges, 2356i.
**De Vaucouleurs, A.** See Vaucouleurs, A. de
**De Vaucouleurs, G.** See Vaucouleurs, G. de
**Devaux, H.** Hygroscopy of monolayers, 8798e.
**Devaux, J.** Diffraction of electrons—app. utilized in France and abroad—cryst. analysis of their lamellas and the structure of surfaces, 1256h; measurement of the absorption of x-rays by matter, 5299d.
**Devaux, R.** See Delassus, M.
**De Verdier, C. H.** See Verdier, C. H. de
**Deverell-Smith, R.** Surface dyeing of plastics, 7688h.
**De Verter, P. L.** Motor fuels, P 4457g, 8667d.
**De Vevey, B.** See Vevey, B. de.
**Deviatnin, V. A.** See Devyatnin, V. A
**Devillers, P.** See Dupont, G.
**Devillers, R.** Chromatography and the sugars, 4033h.
**De Vincentiis, M.** Glycolytic activity of the retina during dark adaptation, 3503g, oxidative activity of cataractous human cryst. lens—presence of amino acids, 8044g.
**De-Vita, P.** See Zacco, M

**De Vleeschhouwer, G. R.** See Vleeschhouwer, G. R. de.
**De Vleeschouwer, A.** See Vleeschouwer, A. de.
**Devlin, J. A.**, McNabb, W. M., and Hazel, F. Prepn. of $V_2O_5$ sols by ion exchange, 8840*a*.
**Devoe & Reynolds Co., Inc.** Synthetic surface coatings, P 1996*c*.
**Devons, S.**, and Hereward, H. G. Proton bombardment of F, 36*b*.
—— and Hine, M. G. N. γ-Radiation from $Be^8$, 484*d*.
**Devor, A. W.** See Winzler, R. J.
**De Vries, A.** See Alexander, B.
**De Vries, C. L.** See Vries, C. L. de
**De Vries, G.** See Vries, G. de.
**DeVries, J.** Beyond the Atom (book), 947*g*.
**De Vries, J. A.** See Herbert, P. H
**De Vries, L. C.** See Vries, L. C. de.
**De Vries, O.** See Vries, O. de.
**DeVries, T.** See Boltz, D. F., Coleman, C. F.; Lewis, W. R.
—— and Cohen, D. Standard potential of the Hg-Hg(I)phosphate electrode, 5677*a*.
**DeVries, W. H.** See Ford, J. H.
**De Vrijer, F. W.** See Vrijer, F W de
**Devyatnin, V. A.**, and Iosikova, V. M Detn. of nicotinic acid, P 8981*g*.
**Devyatykh, G. G.** See Starobinets, G L.
——, Pamfilov, A. V., and Starobinets, G. L. Adsorption layers in nonaq systems (II) alcs. at the diphenylamine-air boundary, 404*e*.
**De Waal, H. L.** See Waal, H. L. de.
**De Waard, J.** See Waard, J de
**De Waard, R. D.** Measuring stiffness of nonrigid plastics, 7747*d*
**De Waele, A.** Thixotropic behavior of petroleum jelly, 4540*e*, 6490*g*; rheology, 6040*g*
**Dewald, W.** See Denk, G
**DeWalt, C. W.** See Wolfrom, M L
**Dewar, M. J S.** Structure of $O_3$, 20*a*, 21*e*, calcd. heats of formation of some π-complexes, 5275*a*, Electronic Theory of Org Chemistry (book), 5409*e*, *o:p* ratios and orientation in benzene substitution, 8841*c*, see Bamford, C H, Coulson, C A
**De Weck, G.** See Weck, G. de.
**Dewey, D. H.** See Barger, W. R
**Dewey, H. M.** See Banks, T. E., Bo J C
—— an Wormall, A Suramin (VI) detn of suramin in whole blood and serum, 2662*i*
**Dewey, V. C.** See Kidder, G. W
**Dewey & Almy Chemical Co.** Container closure, P 2025*i*, coating compn., P 5613*e*, soda lime, P 5012*h*.
**De Whalley, H. C. S.** Sucrose its prepn for use in analysis, 9502*b*.
**De Wijkerslooth, P.** See Wijkerslooth, P de.
**De Wild, A. M.** See Wild A M de.
**De Willegen, A. H.** See Willegen, A H de
**Dewing, T.** Marfanil derivs., P 6806*b*
—— and Foster, G E. Sulphetrone 9746
**De Wit, H.** See Wit, H. de
**De Wit, S. D.** See Wit, S. D de.
**De Wit, W.** See Wit, W. de.
**DeWitt, C. C.** See Ludt, R W.
**DeWitt, J. B.** See Bellack, E.; Derby, I V, Jr.
**DeWitt, T. W.** See Brosi, A R Kummer, J. T.
**DeWolfe, T. A.** See Klotz, L. J.
**De Wolff, P. M.** See Wolff, P. M de.
**Dexter, C. H., & Sons, Inc.** Synthetic fiber paper, P 9148*g*.
**Dexter, F. D.** See Dienes, G J.
**Dexter, G. M.** Municipal-water needs vs. strip coal mining, 5137*g*.
**Dexter, L.**, Haynes, F. W., Burwell, C S., Eppinger, E. C., Sagerson, R. P., and Evans, J. M. Congenital heart disease (II) pressure and O content of blood in the right auricle, right ventricle, and pulmonary artery in control patients—O satn. and source of pulmonary capillary blood, 7571*i*.
——, Haynes, F. W., Burwell, C. S., Eppinger, E. C., Seibel, R. E., and Evans, J M. Congenital heart disease (I) venous catheterization as a diagnostic procedure, 7571*h*.
**Dexter, M. I.** See Niederl, J. B.
**Dexter, T. H.** See Jonassen, H. B.
**Dey, A. K.** Colloidal behavior of some complex-forming systems, 19*b*; calcn. of the formulas of the polyhalides from soly. data, 3306*g*; estn. of Ag, Ba, and Sr in aq. solns 7271 pptn. of cupric hydroxide from cupric salts by sol. hydroxides (II) hydration in detg. the chem. character of the hydrated oxide, 8295*h*.
and Bhattacharya, A. K Physicochem. studies in the formation of complex stannioxalates (I) conductometric study of the $Sn(OH)_4$-$H_2C_2O_4$ system, 7365*b*.
**Dey, B. B.** Nitrophenyl ethers, F6687*i*; see Alamela, B. S.
——, Friedmann, H. C., and Sivaraman, C. Prepn. of adenosine triphosphate, 6269*d*.
——, Govindachari, T. R., and Rajagopalan, S. Electrolytic reduction of nitro compds. (X) elimination of the nitro group in the process of diazotization of 2,5-dichloro-4-nitroaniline, 3729*e*.
——, Govindachari, T. R., Rajagopalan, S. C., and Udupa, H. V. Electrolytic reduction of nitro compds. (IX) synthesis of 2,5,2′,5′-tetrachlorobenzidine, 3729*e*.
——, Govindachari, T. R., and Udupa, H. V. Prepn of 4-chloro-2-nitroanisole, 4-chloro-2-nitrophenetole, 2,4 dinitroanisole, and 2,4-dinitrophenetole, 2599*e*.
——, Maller, R K., and Pai, B R. Electrolytic reduction of *o*-nitrotoluene to 4-amino *m*-cresol, 3729*g*; electrolytic reduction of *m*-nitrotoluene in acid medium, 3730*f*; electrolytic reduction of nitro compds (XI) 2-nitro-4-chloro phenetole in alk. emulsion, 4150*g*, dinitration of *m*-chloroacetanilide, 5755*f*.
—— and Ramanathan, V. S. Isoquinoline series (XI) influence of alkyl and aryl substituents in the side chains of *N*-phenethyl amides in the closure of the isoquinoline ring, 5025*i*
—— and Udupa, H V. Nitroanisoles or nitrophenetoles, P 687*g*.
**Dey, F. L.** See Dolkart, R. E.
**Deyrup, A. J.** Vitreous coatings for light metals, P 5001*g*; see Carlisle, P. J
**Deyrup, I. J.** See Walcott, W. W
—— and Walcott, W. W. Mechanism of vagal cardiac slowing following intravenous injection of small vols of strongly hypertonic solns., 1190*e*
**Deys, W. B.** See Rameau, J T L. B.
**Deysach, L. J.**, and Ray, T. W. Absorption of Mn by the thyroid gland, 7105*a*.
**Deysson, G.** Tropokinetic effect of mitoclastic agents, 4346*h*, mitodepressive action of antipyrine, 5830*f*; mitoclastic action of antipyrine, 6286*b*, mitoclastic action of boldine, 6704*d*, see Mascré, M
**Dezider'ev, G. P.** See Vozdvizhenskii, G. S.
**Dhar, D. C.**, and Aggarwal, J S. Stabilizers for fats used in baking, 5127*f*
**Dhar, J.** Structure of biphenyl, 4655*b*.
**Dhar, M. L.** See Cooper, K. A.
——, Hughes, E D, and Ingold, C. K Elimination reactions (X) kinetics of olefin elimination from isopropyl, *sec*-butyl, 2-amyl, and 3-amyl bromides in acidic and alk. alc. media, (XI) kinetics of olefin elimination from *tert*-butyl and *tert*-amyl bromides in acidic and alk alc. media, 3347*h*.
——, Hughes, E. D., Ingold, C. K, Mandour, A. M. M., Maw, G. A., and Wolf, L. I. Elimination reactions (XVI) constitutional influences in elimination, 3350*f*.
——, Hughes, E. D., Ingold, C. K., and Masterman, S. Elimination reactions (IX) kinetics of olefin elimination from propyl, butyl, amyl, and isobutyl bromides in alk. alc. media, 3347*f*.
**Dhar, N. R.**, Seshacharyulu, E. V., and Biswas, N. N. N fixation and loss in soils, 4801*b*.
**Dhar, U. S.** See Deshmukh, G. S.
**Dhurmatti, S. S.** See Prasad, M.
**Dhawan, B. L.**, Bhargava, S. S., and Ghose, A N. Waxes and leather polishes, 9491*h*.
**Dhawan, C. L.** See Asghar, A. G., Hoon, R. C.
**Dhellemmes, G.** See Puget, M.
**Dhéré, C.** Color reaction of ergosterol, 4718*i*.
—— and Laszt, L. Salkowski's test for cholesterol, 5703*d*.
**Dhingra, D. R.** See Seth, B. D.
—— and Chandra, G. Component fatty acids of buffalo milk fats, 7600*d*.
——, Gupta, G. N., and Gupta, M. G. Electrodeposition on nonconducting surfaces, 8286*a*.
—— and Mithel, B. B. Utilization of cotton wastes for the manuf. of chem. cotton, 6830*b*.
**Dhingra, L. R.** See Nijhawan, S. D.
**D'Hont, M.** See Hont, M. d'.
**Dhuner, K. G.** See Bennett, W. D.
**Dhyse, F. G.** See Hertz, R.
**Di Accadia, F. D.** Influence of metal ions on the antibiotic activity of polymyxin, 9153*a*.
**Diachenko.** See D'yachenko.
**Diacono, H.**, and Massa, V. Source of pectin—*Opuntia vulgaris*—hemostatic properties—delayed-action penicillin, 6368*c*.
**Dialer, K.** System misch metal–H, 2840*h*, bonding in the rare earth hydrides, 2883*a*; see Isler, O.
—— and Stabentheiner, W. Mol. wt. and viscosity of polyvinyl acetates, 5263*b*.
**Diametal A.-G.** Grinding metal pins, P 5357*i*
**Diamond, E. L.**, and Frankau, A. M. Open-hearth furnace charging, 3327*c*.
**Diamond, H.**, Kennedy, H. C., and Larsen, R. G Deposition and oil deterioration, 4453*i*
**Diamond, H. W.**, and Smith, R. A. Sol. compds. of chlorophyll, P 7648*a*.
**Diamond, R. W.**, Swanson, C. O., and Sutherland, P. B Utilization of low-grade ores, 7387*f*.
**Diamond Alkali Co.** Grignard app., P 4287*b*; water softening detergent, P 6438*g*, purification of alkylation mixts., P 8666*a*.
**Di-Angoris, G. M.** See Miani-Di-Angoris, G.
**Di-Angoris, L. M.** See Miani-Di-Angoris, L.
**Di-Angoris, O. M.** See Miani-Di-Angoris, O.
**D'Ianni, J. D.** See Clifford, A. M.
**Dianova, E. V.** See Mogilevskii, G. A.; Voroshilova, A. A.
**Diaper, D. G. M.**, and Smith, J. C. Synthesis of *dl*-hydnocarpic acid, 1730*f*.
**Dias, M. V.** See Vianna Dias, M.
**Dias Brosch, C.** Chromite in Itaú, Minas Gerais, 2132*f*.
**Diatkina, M.** See Dyatkina, M.
**Diaz, C. C.** See Coma Diaz, C
**Díaz, C. J.** See Jiménez Díaz, C
**Diaz, M. A. J. y.** See Jimenez y Diaz, M A.
**Diaz Mendez, H. E.** See Barreto, L. N.
**Diaz Velarde, J.** Detn. of Na, 2263*e*.
**Di Bacco, G.** Identification of fluidexts. (II), 361*c*; (III), 1908*b*; (IV), 3145*h*; condurango fluidext., 9371*h*.
**Di Battista, B. L.** See Di Battista, C.
**Di Battista, C.**, and Di Battista, B. L Coating compn., P 3214*e*.
**Dibeler, V. H.** See Mohler, F. L.
—— and Taylor, T. I. Mass-spectrometric and infrared study of rates of D exchange, isomerization, and hydrogenation of the *n*-butenes, 24*f*; construction of glass diaphragm leaks for gas analysis, 2822*d*.
**Di Bella, L.** Changes in the colors of anthocyanins and their use as indicators, 7860*h*.
**Di Bella, S.** See Triolo, R.
**Di Carlo, F. J.**, Schultz, A. S., and Fisher, R A. Yeast nucleic acid (II) cultural characteristics of yeasts in nucleic acid biosynthesis, 6274*h*.
——, Schultz, A. S., Roll, P. M., and Brown, G. B. Isotopically labeled nucleic acid from yeast, 9115*i*.
**Di Casavecchia, E. S.** See Sernagiotto di Casavecchia, E.
**Dice, J. R.**, and Smith, P. A. S. Aminophenanthrene derivs., 4603*i*.
**Di Cerrione, L. A.** Action of $HNO_3$ on hexamethylenetetramine, 4633*b*.
**Di Chiro, G.** See Salvi, P.
**Dick, A. T.** Histochemistry, 7075*e*.
**Dick, G. W. A.** Mengo encephalomyelitis virus—pathogenicity for animals and phys properties, 4757*e*.
——, Smithburn, K. C., and Haddow, A. Mengo encephalomyelitis virus—isolation and immunological properties, 4757*e*.
**Dicke, R. J.**, Pope, A. L., Bray, R. W., and Hanning, F. Rotenone and benzene hexachloride dusts for the control of insect ectoparasites, 7631*g*.
**Dickel, D. F.** See Porter, W. L.
**Dickel, G.** Sp. heat of gases, 1619*i*; adsorption and desorption, 1623*d*; thermal diffusion and thermics, 1638*b*; sepn. and utilization of inactive isotopes, 1639*f*; sepn. of isotopes, 2083*i*.
**Dickel, G. B.** See Swern, D.
**Dicken, C. A.** How to control dust hazards, 7607*b*.
**Dickens, D. A.**, and Washburn, L. H. Buff-firing calcareous shales of New York State, 9404*g*.

**Dickens, F.** See Case, E. M.
**Dickenson, A. F. T.** See Trotman-Dickenson, A. F.
**Dickenson, H. G.** Cyclic lactones, P 693*i*; see Pickholz, S.
**Dicker, S. E.** Effects of progressive nutritional hypoproteinemia on the extracellular fluid phase and plasma colloid osmotic pressure, 3809*g*; changes in the extracellular- and intracellular-fluid phases of tissues during water diuresis, 3919*c*; changes in the extracellular- and intracellular-fluid phases of muscle during starvation and dehydration, 9190*i*
**Dickerman, G. K.** Laminated plastic, P 4513*h*.
**Dickerman, S. C.,** and Lindwall, H. G Piperidone chemistry (I) synthesis of 5 homopiperazinones, 9067*e*.
**Dickey, E. E.,** and Wolfrom, M. L. Polymer-homologous series of sugar acetates from the acetolysis of cellulose, 3609*a*
**Dickey, F. H.** Reaction products of tertiary org hydroperoxides with aldehydes or ketones, P 2029*e*; prepn of specific adsorbents, 6489*c*.
———, Rust, F. F., and Vaughan, W. E. *tert*-Butyl hydroperoxide derivs. of aldehydes and ketones, 6156*e*
**Dickey, F. P.** See Lagemann, R T.
**Dickey, G. D.** Development of filtration, 1619*d*.
**Dickey, H. C.,** and Foote, M. W. Colostrum milk for calf feeding (II) effect of cold storage on the vitamin A and carotene content of colostrum milk, 9193*e*
**Dickey, J.** See Apker, L.
**Dickey, J. B.** Copolymers of 2-acylamino-1,3-butadienes and vinyl compds., P 3650*i*; heterocyclic compds., P 4868*e*; methylenemalononitrile and vinyl acetate copolymer, P 4807*c*, fluoromethacrylate ester polymers, P 6465*f*; derivs of fluorinated methacrylic acid, P 8398*h*, polymers of *N*-acylamnoalkyl-acrylamide compds, P 9531*b*; see Coover, H. W; McNally, J. G
——— and McNally, J G. Azo compds contg. a tetrahydroquinoline nucleus, P 862*a*, trimethylenebenzomorpholine azo compds., P 2781*e*; azo compds. contg a triazole nucleus, P 3625*d*; prepn of esters of acids of P, P 4877*fh*, diphenylamine dyes, P 9470*b*, monoazo dyes, P 9461*i*.
——— and Stanin, T E Polymers of α-fluoroacetoxyacrylonitrile compds, P 5636*c*; polyfluoromethyl styrene, P 8209*i*, copolymers of *N*-(alkylsulfonyl)- and *N*-(arylsulfonyl)vinylamines, P 8211*i*
——— and Towne, E. B. Anthraquinones contg. a trifluoromethyl group, P 7709*e*.
**Dickey, L. C.** Underground gas reservoir, 3169*c*.
**Dickey, R. D.** Deficiencies in ornamentals, 2722*f*.
———, Drosdoff, M., and Hamilton, J. Cu deficiency of tung in Florida, 3552*e*.
**Dickey, R. E.** See Sorg, L. V.
——— and Sorg, L. V. Detn. of inorg. chlorides in crude oils, 2758*c*, 5175*e*.
**Dickie, H. A.** Development of an improved basic Bessemer steel, 2560*d*
**Dickie, W. A.,** and Rudorf, G Self sealing containers for liquid hydrocarbons, P 7698*g*.
**Dickinson, C. L.** See Shearon, W. H.
**Dickinson, D.** Purification of cannery wastes, 4779*gi*.
**Dickinson, E. M.,** and Stoddard, E. D. Sulfamerazine against *Salmonella pullorum* in adult chickens, 8531*e*.
**Dickinson, H. O.** Sensitizing by thiacarbocyanine dyes, 1275*h*, use of dyes to det. the isoelec. point of gelatin, 6884*d*.
——— and Ilford Ltd. Colloidal Ag, P 5685*a*; Bi and As electrodes, 7356*e*.
**Dickinson, J. T.,** Scarsdale, O. M., and Van Orden, L. J. Fractionation of fats, P 1585*i*.
**Dickinson, L.** See Ungar, J.
**Dickinson, R. G.,** Wallis, R. F., and Wood, R. E. Photochem. I sensitized cis trans isomerization of dichloroethylene, 5672*a*.
**Dickinson, T. A.** L.A. plant blows, welds, Hg seals processing glass ware, 371*g*; production refinishing automobiles, 875*c*; ethylcellulose coatings, 876*a*, coatings for screen processing, 899*c*; flocking with org. coatings, 1199*e*; preventing salt-water corrosion, 1578*i*; ceramic electrets, 6798*h*; electrostatic processing of plastics, 6862*a*; electrostatic glazing, 7205*d*; plastics for processing leather, 8198*h*.
**Dickinson, W.,** and Iball, J. Oil-water emulsions, 2072*a*.
**Dickinson, W. C.,** and Wimett, T. F. Magnetic moment of $Be^9$, 6018*b*.
**Dickison, H. L.** See Buckwalter, F. H.
**Dickman, J.** See Byers, R. C.
**Dickman, S.** See Barron, E. S. G.
**Dickmann, S.** Iodometric detn. of rest N in blood without distn., 5069*d*.
**Dickson, A. D.** See Olson, W. J.
———, Shands, H. L., and Burkhart, B. A. Influence of growth-regulating chemicals on the malting of barley and the compn. of malt, 3142*g*.
**Dickson, J. G.** See Whitehead, M. D
**Dickson, J. T.** Linear polyesters, P 4897*h*; see Cook, J G; Whinfield, J. R.
——, Heath, R. L., Reynolds, R. J. W., and Imperial Chemical Industries Ltd. Terephthalic acid polyesters for melt spinning, P 4052*e*
**Dickson, W. E. C.** See Beattie, J. M.
**Dickstein, B.,** and Wolman, I. J. Normal red cell in infancy and childhood, 3086*h*
**Dictaphone Corp.** Hydrogenation of tall oil, P 1980*g*; forming endless belts useful as sound-recording media, P 6468*a*.
**Dictograph Products Co., Inc.** Molding compn., P 8740*a*.
**Dicsfalusy, E.** See Aldman, B; Claesson, L., Garazsi, M Z; Iványovics, G.
**Didenko, S. I.** See Kriss, A E.
**Diding, E.** Detn of progesterone with 2,4-dinitrophenylhydrazine, 6785*b*.
——— and Diding, N Å Progesterone solns for injection, 9364*h*
**Diding, N. Å.** See Diding, E
——— and Rosén, C. O Stability of penicillin prepns, 5908*a*
——— and Söderlundh, S Detns. of penicillin, 2370*a*.
**Di Donna, D.** See Du Chahot, C
**Diedrich, P.** See Fox, H
**Diehl, H.** See Bever, R J; Duke, F R, Mathews, J., Jr.
——— and Henn, J. Water in O carrying Co compds, 6932*e*
**Diehl, J. M.,** and Hart, I. Vacuum column head, 4903*b*
**Dieke, G. H.** Short period phenomena in light sources, 6083*b*, bands from doubly excited levels of the H mol, 7338*e*.
——— and Duncan, A. B. F National Nuclear Energy Series Vol II Spectroscopic Properties of U Compds. (book), 7830*h*.
——— and Tomkins, F. S Mol. spectrum of H—Fulcher bands of TH and $T_2$, 8884*e*.
**Dieke, S. H.** Assays of rodenticides on wild Norway rats (II) acceptance, 3140*c*, thiosemicarbazide—toxic deriv. of thiourea, 5497*f*; effects of removing various endocrine glands on the hair cycles of black rats, 8036*c*.
**Diels, O.** Organische Chemie (book), 7949*b*.
**Diemair, W.** See Luers, H.
——— and Curtze, A Sepn and detn. of amino acids from protein hydrolyzates by adsorption (II), 1817*i*.
——— and Huter, L. Analytical examn. of baking powders, 3531*i*.
——— and Koch, J Yeast phosphatides (I), 718*a*.
——— and Lötzbeyer, E. Chemistry and technology of dried vegetables (I), 3945*c*; (II) reduction of vitamin-C-like material, 5879*a*.
——— and Manderscheid, G. Detn. of vitamin D, 5345*e*.
——— and Neu, H. Adsorption of amino acids, 3746*c*; compn. of food yeast (III), 5125*i*.
——— and Sobel, G. Gums as the basis for the detection and detn. of nutrient yeast, 5509*e*.
**Diemer, G.** See Julian, P. L.
**Diemer, R. B.** Metropolitan water district doubles capacity of La Verne softening and filtration plant, 9306*e*.
**Dien, E. van.** See Van Dien, E.
**Dienes, G. J.** Flow properties of phenolic resins, 6860*i*; see Smith, E. F.
——— and Dexter, F. D. Resin-plasticizer systems, 4891*h*.
**Dienst, R. B.,** Chen, C. H., and Greenblatt, R. B. Detn. of serum streptomycin level using *Donovania granulomatis* as test organism, 269*h*.
**Diepen, G. A. M.,** and Scheffer, F. E. C. Satd. solns. in binary systems, 4937*c*; soly. of naphthalene in supercrit. $C_2H_4$, 4937*f*.
**Diephuis, F.,** and Dunn, C. L. Toxaphene residues (IV) toxaphene in tissues of cattle and sheep fed toxaphene-treated alfalfa, 8600*g*.
**Diepschlag, E.,** and Grosser, F. Deviations of chem. compn. of marginal layers of cast iron from the total chem. compn., 9054*h*.
**Diercks, H.,** and Euler, H. Praktische Nomographie (book), 6501*a*.
**Dierkesmann, A.** See Belke, J.
**Diesbach, H. de,** Capponi, M., and Farquet, J. Benzoylated derivs. of indigo (IX), 7930*c*.
——— and Heppner, E. Tests in the indigoid series, 6614*d*.
**Dieser, J.,** Jordan, W., and Schweizer, E. Elec. properties of cellulose plastics, 5250*e*.
**Dietel, H.** Liver during pregnancy, 6717*c*.
**Dieter, C. E.,** and Thiegs, B. J. Insecticide, P 812*h*.
**Diethelm, L.,** and Hilscher, W. Radiation and the blood picture, 9089*a*.
**Diethelm, O.** See Rockwell, F. V.
**Dietmann, H.** Fe therapy and Blaud's pills, 1150*f*, differentiation between glycerol and glycol, 6113*b*.
**Dietrich, G.** See Freudenberg, K.
**Dietrich, H.** See Criegee, R.
**Dietrich, J.** Siderite mines in the Lahn Dill region and in Upper Hessia, 8991*a*.
**Dietrich, J. A.** Greenwich, Conn., controls Dutch elm blight, 7629*h*
**Dietrich, L. S.** See Nichol, C. A.
**Dietrich, M. A.** Artificial fibers, P 5602*i*.
**Dietrich, R. L.** Surface orientation and rolling of Mg sheet, 7881*h*
**Dietrich, W. C.** See Van Atta, G. R.
**Dietz, A. A.** Compn. of bone marrow, 9197*f*.
———, Mench, J. W, Degering, E F, and Schopmeyer, H H. Saccharic acid prepn by the $HNO_3$ oxidation of glucose, 4644*b*.
——— and Steinberg, B Compn. of irradiated bone marrow, 9090*c*
**Dietz, A. G. H.** Engineering Laminates (book), 4049*f*
———, Gallus, W J., and Yurenka, S Effect of speed of test on strength properties of plastics, 7200*f*
**Dietz, C. C.** See Bondi, A., Jr.
**Dietz, T. J.** See Hansen, J. E.
**Dietz, V. H.** Microbeaker for use with the Beckman pH meter, 445*h*.
**Dietze, I. C.** Corrosion in the power industry, 98*a*
**Dietzel, A.,** and Sheybany, H. A. Filling of structural voids in glass—alkali silicate glasses, 6380*d*
**Dietzel, R.,** and Tunmann, P. Anleitung zur Analyse organischer Arzneimittel (book), 4129*e*
**Dietzler, A. J.** 4,4'-Isopropylidenebis(2-isopropylphenol), P 9084*h*; see Britton E C
**Dieu, H. A.,** and Bull, H. B. Monolayers of pepsin and of insulin, 3264*h*.
**Diev, N. P.** Electrolysis of Zn at high c d, 6522*c*.
**Diez de Urdanivia, I.** See Martínez Garza, H., Sodi Pallares, E.
**Di Ferrante, N.** See Zilli, E.
**Di Francia, G. T.** Causes of analogies in the behavior of the retina and the photographic plate, 1276*f*.
**Digges, T. G.,** Irish, C. R., and Carwile, N L. Effect of B on the hardenability of high-purity alloys and com. steels, 3333*a*
——— and Reinhart, F. M. Influence of N on the hardenability and notch toughness of B-treated steels, 8332*d*.
**Diggin, M. B.** Electroplating lab., 2098*g*
**Diggins, E. R.** See Verink, E. D., Jr.
**DiGiorgio, P. A.,** Sommer, L. H., and Whitmore, F. C. Organosilicon compds. (XX) chlorination of methyltrichlorosilane, 5653*b*
**Di Giulio, A.** Al coating of steel, 8335*a*.
**Digre, M.** See Cooke, S. R. B.
**Dijev, N. P.** See Diev, N. P.
**Dijk, G. van.** See Areus, J. F.
**Dijk, J. van.** Velocity of ozonization of benzene and its homologs, 4086*c*.
**Dijke Beatty, S. van.** See Beatty, S. van D
**Dijkema, L. F. M.** See Emmens, J. A.
**Dijker, A. J.** Moderne Physica (book), 6501*a*.
**Dijksman, J. C. W.** Alkalimetric titration of $P_2O_5$ and phosphates, 4182*h*.
**Dijkstra.** See also Dykstra.
**Dijkstra, D. W.** Transformation of gnomograms and its application to the micro chem. identification of crystals (I), 6030*a*, (II), 6487*a*.
**Dijkstra, L. J.** Pptn. phenomena in the solid solns. of N and C in α-Fe below the eutectoid temp., 3758*a*

**Dijkstra, R.** See Jonge, J. de.
**Dikasova, E. T.** Electrophoresis in research on eggs of silkworms infected with silkworm jaundice virus, 6747*a*.
**Dike, P. H.** Instrumentation and measurement in dielectrics, 2342*i*.
**Dikun, P. P.** See Sveshnikov, B. Ya.
**Dilanyan, Z.** Yields of Swiss cheese, 9284*b*.
**Di Lauro, S.**, See Cortese, O
**Dill, W. A.** See Glazko, A. J.
——— and Glazko, A. J. Biochem studies on benadryl (I) detn., 7535*h*
**Dillard, G. H. L.** See Forbes, J. C.
**Dille, J. M.** See Hall, N. A
**Dillehay, E. R.** Rubber-coated, resin satd. sheet, P 4490*a*.
——— and Schuetz, R. D. Furfuryl alc. resin, P 3232*f*
**Diller, I. C.** See Creech, H. J.
———, Beck, L. V., and Blanch, B. Effect of adrenal cortical ext. on the growth of mouse tumors, 5109*i*
— — —, Blanch, B., and Beck, L. V. Changes in adrenal glands of tumor-bearing mice injected with *Serratia marcescens* polysaccharide alone or in combination with adrenal cortical ext., 5110*a*.
**Dilling, E. D.** See Hayes, E. T.
**Dillon, C. S.** Lactaldehyde, P 4589*b*, tooth powder or prepn., P 7650*a*
**Dillon, E. S.** See Kerby, G. P., Lanni, F., Sharp, D. G.
**Dillon, F. N.** See Crocker, E. C
**Dillon, J. H.** Melvin Mooney-E. C. Bingham Medalist (I) introduction, 6013*g*.
**Dillon, M. L.** See Kerby, G. P.
**Dillon, R. E.** See Spencer, R. S.
**Dillon-Weston, W. A. R.** Diseases of Cereals (book), 1086*i*, Diseases of Potatoes, Sugar Beets and Legumes (book), 6707*e*.
— and Stapley, J. H. Diseases and Pests of Vegetables (book), 8604*d*
**Dills, L. E.**, and Odland, M. L. Cabbage-caterpillar insecticide tests, 3136*i*.
**Dilthey, W.**, and Kaiser, A. 2- and 4-Methyl 5,6 benzoquinolines, 7185*a*
**Dilworth, C. C.** Influence of surface films on the elec. behavior of contacts, 3731*j*.
**Di Maggio, C.** Influence of ions on metabolism of *Pseudomonas aeruginosa*, 1827*e*, see Petrina, N.
**Dimant, E.** See Weizmann, M.
**Di Marco, A.** Strains of *Staphylococcus* artificially made penicillin-resistant, 4327*f*.
— — — and Biffi, G. Action of penicillin, 5078*a*.
**DiMaria, G.** Flocculation reaction in the serum of patients with pulmonary tuberculosis, 3517*j*.
**Dimont, P. M.** See Khodorov, E. I.
**Di Menza, A.** Functional analysis of Ebesal, 1351*b*.
**Di-Met Proprietary Ltd.** Coated ferrous metal surfaces, P 3342*e*.
**Dimick, A. L.** See Fevold, H. L.
**Dimick, K. P.**, Alderton, G., Lewis, J. C., Lightbody, H. D., and Fevold, H. L. Subtilin, P 2742*b*.
———, Stubbs, J. J., Garibaldi, J. A., Lightbody, H. D., and Fevold, H. L. Purification of subtilin, P 7198*g*.
**Dimitri, M. S.**, Jongedyk, R. P., and Lewis, H. C. Distn. of fluidized hardwood, 1949*i*.
**Dimitrijević, D.** See Pushin, N. A.
**Dimler, R. J.** Wheat starch, P 3222*g*
**Dimmick, G. L.** Hardened optical coatings by electron bombardment, P 4824*e*.
**Dimmick, T. D.** Phosphates, 6546*h*.
**Dimmig, D. A.** See Horning, E. C.
**Dimock, A. W.** Tests of fungicides for snapdragon rust control, 9327*i*.
**Dimock, W. W.** 2-g. daily dose of phenothiazine for strongylosis, 7589*g*.
**Di Modrone, N. V.** See Cavalli, L. L.; Quilico, A.
**Dimofte, N.**, and Vladescu, I. Rumanian fermented tobacco, 5907*e*, 9382*d*.
**Dimon, R. A.** Circulating electrolyte cell for strip plating evaluation, 8907*f*
**Dimond, A. E.** See Stoddard, E. M.
———, Plumb, G. H., Stoddard, E. M., and Horsfall, J. G. Chemotherapy and vector control by insecticides for combating Dutch elm disease, 9350*a*.
**Di Montezemolo, R.** See Serono, C.
**Dimpfl, L. H.**, and Rlwell, W. E. Chlorinated wax-polystyrene compn., P 5626*a*.
**Dimroth, K.**, and Lüderitz, O. Ultraviolet absorption of α,β-unsatd. ketones and their semicarbazones, 1017*b*.
**Dimsdale, W. H.**, and Challis, K. J. Reduction of scratch marks on photographic emulsion layers, P 4592*f*.
——— and Robinson, R. R. Photographic light-sensitive elements, P 3735*i*.
**Dim-Zajec, V.** Breeding medicinal plants (II) lemon balm, 9170*b*.
**Dinamite Nobel Società anon.** Plastic explosive, P 7688*d*
**Di Nardo, G.** Alchemy and the Cabal (II), 4908*i*.
**Dinerstein, R. A.**, and Klipp, R. W. Detn. of O in petroleum products, 5930*f*.
**Dingemanse, E.** See Veld, L. G. H. in't, ———, Veld, L. G. H. in't, and Hartogh Katz, S. L. "17-Ketosteroid II" isolated from urine- its reaction with HCl, 1048*f*.
**Dinger, K.** Resistance of window glass to variations in temp., 2748*a*; see Jebsen-Marwedel, H.
**Dingle, R. B.** Theory of the propagation of second sound in He II, 3081*a*.
**Dingley, C. S.** Certification mark for plastics, 434*g*.
**Dings Magnetic Separator Co.** Sintering furnace with magnetized grate bars, P 2152*g*.
**Dingwall, J. A.** See Hoffman, R. S.
**Diniz Sinde da Cunha, J.** See Sinde da Cunha, J. D.
**Dinkelacker, F.** See Klemm, W
**Dinneen, G. U.** See Ball, J. S.
**Dinning, J. S.**, Briggs, H. M., and Gallup, W. D. Value of urea in protein supplements for cattle and sheep, 3496*f*
— — —, Gallup, W. D., and Briggs, H. M. Excretion of creatinine and creatine by beef steers, 3084*h*; N balance with sheep on rations contg. urea, 3901*i*.
**Dinsdale, C.** Prevention of Iron and Steel Corrosion (book), 554*b*.
**Dinsley, A.** Carnivorous-fish repellent, P 5154*c*, insecticide, P 5899*e*.
**Dinsmore, D. W.** See Eastman, E. C.
**Dinsmore, R. P.** Hot and cold rubber, 7256*b*.
— and Fielding, J. H. Natural and butadiene-styrene rubbers, 3646*g*.
**Dinwiddie, J. A.** See Chamberlin, N. F.
**Dinwiddie, W. G.** See Mills, J.
**Diomede-Fresa, V.** See Tripodo, C.
**Dion, H. G.**, and Mann, P. J. G. Trivalent Mn in soils, 2353*e*.
**Dionis'ev, D. E.** Interaction between ethylenediamine and org. acids, 8832*e*
**Dios, R.** See Vieitez, E.
**Dios Guevara R., J. de.** See Guevara R., J. de D.
**Diotti, G.** Prepn. of lignosulfonates directly in the solid state, P 4854*h*.
**Di Paola, G.** Gonadotropin test, 7539*a*.
**Dippold, A.** See Jendrassik, A.
**D'Ippolito, A.** Polypeptide and blood N after renal resection, 3086*d*.
**Di Raimondo, F.**, and Ortali, V. Antibiotic action of streptomycin assoed with various substances (I), (II), (III), 6275*c*.
**Directie van de Staatsmijnen in Limburg.** Measurement of the viscosity of liquids and suspensions, P 4907*c*, removing Ca-$(NO_3)_2$ from a soln. of Ca phosphate in $HNO_3$, P 5161*b*, toluene nitration, P 8140*f*; purification of ether, P 8620*b*, acid Ca phosphates and Ca nitrate from raw phosphate and $HNO_3$, P 8623*i*; manuf. of a simple soln. from a compd. soln. by crystg. one or more components of the desired soln. and redissolving them, P 8759*e*.
**DiRienzo, J. B.** Revivification of Fe oxide catch boxes, 6395*a*.
**Dirken, M. N. J.**, and Heemstra, H. Gas-analysis app. for 200 cu. mm. samples—alveolar O tension and lung circulation—adaptation of the lung circulation to the ventilation—agents acting on the lung circulation, 5104*g*.
**Dirks, B. M.** See Johnson, J. A.
——— and Miller, B. S. Inactivation and removal of proteolytic enzymes from amylolytic supplements, 5066*c*.
**Dirnagl, K.** Biol. activity of $O_3$ in air near the ground, 5066*i*.
**Dirnhuber, P.** See Chance, M. R. A.
——— and Schütz, F. Isomeric transformation of urea into ammonium cyanate in aq. solns., 143*h*, distn. of cyanic acid from aq. solns. of cyanate, 2583*a*; distn. of cyanic acid from tissues, 3864*h*.
**Dirr, K.**, and Ruppert, A. Value of food yeast in human nutrition (VI) phosphatides, 5120*d*.
**Dirscherl, W.** See Ammon, R.
——— and Zilliken, F. Sex hormones and sterols (XXI) detn. of male and female sex hormones in mare urine exts.—their biol. demonstration, 8426*c*.
**Dische, Z.**, and Shettles, L. B. Specific color reaction of methylpentoses, 4723*i*.
— —, Shettles, L. B., and Osnos, M. Specific color reactions of hexoses, 9139*c*.
**Dischendorfer, O.**, and Limontschew, W. Condensation of benzoin and hydroquinone (II) degradation products of the linear and angular *p*-benzotetraphenyldifurans, 7016*g*.
**Diserens, L.** Chem. Technology of Dyeing and Printing (book), 1574*a*, Neuesten Fortschritte in der Anwendung der Farbstoffe (book), 4471*e*.
**Dishon, B. R.** Trimeric phosphonitrilic dibutyl and dimethyl ester, 6970*i*; see Goldschmidt, F.
— — and Hirshberg, Y. Photochemistry of phosphonitrile chlorides (I) photochem. reaction of low-polymeric phosphonitrile chlorides, 8282*g*
**Diskina, L. S.** See Strukov, I. T.
**Dissel, T. A.**, and Fertel, I. I. De icing compn., P 2712*g*.
**Distèche, A.** Pptn. and crystn. of muscle proteins of the myogen group, 5429*h*, 7989*b*.
**Di Stefano, F.**, and Simoncelli, F. L. Influence of animal parasites on the principal constituents of flours (I) ash and cellulose, 2335*i*.
**Dister, A.** Pentamethylenetetrazole, 4426*h*; metrazole, 4978*c*, metrazole and EtBr combination, 5540*g*.
**Distillation Products, Inc.** Vacuum distn., P 914*d*, 8757*f*; tocopherol concentrate, P 2741*e*, 4433*d*; sepn. of tocopherols, P 4818*g*; chromatographic adsorption, P 6013*c*, purification of β ionone, P 6657*a*; concn. of org. substances, P 7949*d*.
**Distillers Co., Ltd.** (*Patents.*) Crotonic acid, 671*e*, removing halogen from coumarone-indene polymers, 904*g*, drying oils and ketones, 1228*d*, alkyl chlorides, 1793*d*; colorless α-ethylcaproic acid, 1795*f*, copolymers of vinyl chloride, 2035*e*, polystyrene, 2038*h*, plasticized vinylidene chloride copolymers, 2817*h*; α-ethylhexoic acid, 3442*d*, oxidation of ethylpropylacrolein to 3,4-heptanedione and ethylpropylacrylic acid, 4689*d*; butenetriol monoethers, 5414*c*, alc. motor fuel, 6396*g*, stabilized vinyl copolymers, 6866*c*, vinyl ether and homologs, 9078*k*; see Gasson, E. J.
———, Bewley, T., Keeble, J. A., and Salt, F. E. Hydrogenation of cashew-nutshell liquid and its deriv., P 4497*i*.
———, Bramwyche, P. L., and Mugdan, M. Vinyl ether, P 1049*i*
———, Brighton, C. A. Cooke, M. D., Faulkner, D., Staudinger, J. J. P., and Cleverdon, D. Polymerization products, P 7753*f*.
———, Cooke, M. D., and Staudinger, J. J. P. Low-temp. polymerization of olefins, P 5419*d*.
———, Coppock, P. D., and White, A. G. Treatment of streptomycin-contg. solns., P 4434*d*.
— —, Duval, B., Elce, A., and Tuerck, K. H. W. 3,4-Heptanedione and α-ethyl-β-propylacrylic acid, P 677*i*.
———, Eaglesfield, P., and Tozer, H. $NH_4$ salts of penicillin, P 6372*a*.
— — —, Expanded Rubber Co., Ltd., Staudinger, J. J. P., Kelly, B. K., and Cooper, A. Cellular thermoplastic compns., P 4050*h*.
———, Gaintzenstein, E. G., Salt, F. E., Stanley, H. M., and Weir, T. (1-Chloroethyl)benzenes, P 681*b*.
———, Gaintzenstein, E. G., and Woolf, C. Chlorinated derivs. of (1-chloroethyl)benzene, P 680*j*
———, Hall, R. H., and Quin, D. C. Alkylbenzene peroxides, P 3459*d*.
——— and Hastings, J. J. H. Penicillin extn., P 2742*c*
———— and Henshall, T. Chlorinated derivs. of 2,5-dihydrofuran, P 5425*a*.
———, Highet, H. C., and Salt, F. E. Isophorone and related products, P 5419*a*.
——— and Langwell, H. Ethylene oxide, P 3028*i*.
———, Morgan, J. D., and Frenkel, B. Synthetic resins, P 2814*e*
— —, Mugdan, M., and Barton, D. H. R. Splitting-off of H halide from halogenated hydrocarbons, P 2216*e*, 3023*b*.
— —, Philip, T. B., Stanley, H. M., and Smart, W. A. Unsatd. aldehydes and ketones, P 3026*a*.

—— and Salt, F. E. Ethylbenzene, P 681*e*.
——, Stanley, H. M., and Minkoff, G. Vinyl chloride, P 3024*d*.
——, Staudinger, J. J P., and Cooke, M. D. Polymerization products from polymerizable org Cl compds., P 7753*b*.
——, Staudinger, J. J. P., and Hutchinson, H. M. Synthetic plastic materials, P 6864*f*; treatment of plastic surfaces, P 9529*a*.
——, Staudinger, J. J. P., and Tuerck, K. H W. Acyl peroxides, P 2223*g*; oxidation of unsatd. aldehydes, P 2629*d*; derivs of propionaldehyde, P 3026*d*, condensation products of $C_2H_2$, P 3031*f*, 4281*a*; polymerizable unsatd acids, P 4288*a*; halogenated org acids, P 4288*b*
——, Staudinger, J. J P., Tuerck, K. H. W., and Brittain, E. H. Acetic anhydride, P 2223*h*; AcOH, P 2632*d*, 3026*c*; AcH recovery from gases, P 7037*d*.
——, Staudinger, J. J P., Tuerck, K. H. W., and Lichtenstein, H. J. Reduction of the peracid content of oxidation reaction products, P 3025*c*; β hydroxy acids, P 7039*a*
—— and Tuerck, K. H. W. Crotonic acid, P 3838*d*.
——, Wood, W. L., and Bowen, B. E. V. $C_2H_4$, P 4283*d*.
——, Wood, W. L., Stanley, H M., and Joshua, W. P Sepn. of butadiene from olefins, P 6218*b*.
**Distler, G. I.** See Bokiĭ, G. B.
**Ditlevsen, L.** Fine-grain developers, 6532*a*
**Ditta Conti Latini F. Illi.** Mixt. for storing eggs, P 8072*f*.
**Dittl, J.** Influence of metallurgical factors on welding, 4996*h*.
**Dittman, F. W.**, and Winding, C. C. Thermal properties of GR-S latexes, 3644*h*
**Dittmer, K.** Synthesis and microbiol properties of β-3 thienylalanine, an antiphenylalanine, 6613*h*; see Goering, H. L.; Goodman, I.
——, Goodman, I., Visser, D., and McNulty, H. P. Microbiol. properties of synthetic nucleosides, 716*f*.
——, Martin, R. P., Herz, W., and Cristol, S. J. Effect of $Bz_2O_2$ on the bromination of methylthiophenes by *N*-bromosuccinimide, 6612*h*
**Ditto, Inc.** Duplicating inks, P 1995*d*.
**Dittrich, R.** Autoclave splitting of fats, 3215*h*.
**Dityatkovskaya, R. V.** See Stromberg, A. G.
**Diven, B. C.** See Hanson, A. O.; McElhinney, J.
**Divinskiĭ, A. F.**, Kabachnik, M. I., and Sidorenko, V. V. P thio ester reactions with acyl and alkyl halides, 560*g*.
**Dix, E. H., Jr.** See Fink, W. L.
**Dixit, V. M.**, and Mulay, L. N. Sulfuryl chloride—condensing agent for the Pechmann reaction—isolation of *trans* β-(2,4-dihydroxyphenyl)glutaconic acid, 1408*b*.
**Dixon, B. E.**, and Williams, R. A. Detn. of $CO_2$ in absorbent liquors of other carbonate solns., 7866*c*.
**Dixon, F. J.** Radiation-induced hemorrhagic disease, 256*i*.
**Dixon, J. A.**, Cook, N. C., and Whitmore, F. C. Dehydration of olcs (XX) dehydration of isopropyl-*tert*-butylcarbinol, 557*b*.
**Dixon, J. K.** See Pfann, H. F.
——, Christopher, G. L. M., and Salley, D. J. Melamine resin acid colloid, 433*i*
—— and May, D. R. Aryl substituted ethylenic compds., P 2235*d*
——, Weith, A. J., Jr., Argyle, A., and Salley, D. J. Measurement of the adsorption of surface-active agent as a soln.-air interface, 6882*e*.
**Dixon, K. C.** Anaerobic leakage of K from brain, 6710*e*.
**Dixon, M. B.**, Rehberg, C. E., and Fisher, C. H. Prepn. and phys. properties of alkyl β-ethoxypropionates, 1322*f*.
**Dixon, O. G.** High efficiency lab. fractionation (I) gauze ring packing and flooding technique for lab columns, 5645*d*, (II) glass lab stills, 6870*d*
—— and Imperial Chemical Industries Ltd. Treatment of gases or vapors with liquids, P 1228*h*, 5237*f*, treatment of liquids with gases or vapors, P 7760*d*.
**Dixon, P.**, and Scott, T. R Prepn and properties of synthetic cryolite, 2379*d*.
**Dixon, R. M.** See Robertson, P. W.
**Dixon, S.** See Hodgson, H. H.
**Dixon, T. F.** See Weltman, W. C
**Dizertinskaya, T. S. Z.** See Zatsepina-Dizertinskaya, T. S.
**Djachenko.** See D'yachenko.
**Djang, S.** High-temp. (air) bath made from Al shavings, 8217*b*.
**Djanian, A. Y.**, Shanklin, W. M., and Butros, J. M. Effect of tubercle bacilli exts. on induced tumors of the rat, 923*f*.
**Djatchkow, P. N.** See D'yachkov, P. N.
**Djatlovitskaja, B. I.** See Dyatlovitskaya, B. I.
**Djatschenko.** See D'yachenko.
**Djerassi, C.** Brominations with *N*-bromosuccinimide and related compds.—Wohl-Ziegler reaction, 1013*g*; identification of cryst. progesterone with 2,4-dinitrophenylhydrazine, 1690*c*; sulfonation of polycyclic ketones, 2214*c*; reaction of dinitrophenylhydrazine with steroidal bromo ketones, 4282*c*.
—— and Ryan, E. Ultraviolet absorption spectra of steroidal dinitrophenylhydrazones, 4570*c*.
—— and Scholtz, C. R. 5-Methyldoisynolic acid and 1-methylestrone, 4270*i*; 2-(benzhydryloxymethyl)imidazoline, a histamine antagonist, 4669*g*.
**Djurkovitch, O.** See Durković, O.
**Dmitrenko, P. A.** P content in the org. portion of the soil, 4409*e*; anions in the feeding of plants with ammonia N, 7174*b*.
**Dmitriev, K. G.** Application of interrupted spark for quant. spectral analysis of metals in solns., 5325*h*.
**Dmitriev, V. A.** See Vozdvizhenskiĭ, G. S.
**Dmitrieva, V. L.** See Kovalenko, P. N.
—— and Kovalenko, P. N. Detn. of Bi in the presence of Pb, 1282*a*.
**Dmochowski, L.** Properties of agents causing fowl tumors (I) isolation of the fowl-tumor agents by differential centrifugation, (II) by chem. methods, (III) desiccation of the fowl-tumor agents freed from extraneous protein, 8045*f*, see Horning, E. S
**Dmytryszyn, M.** See Chu, J. C.
**Doadrio, A.** Detn. of Cu in ores, 1682*h*; see Lamo, M. A de
**Doak, G. O.** See Freedman, L. D.; Jaffe, H. H.
**Doak, J. H.** See Melaney, R.
**Doak, K. W.**, and Corwin, A. H. Kinetics of pyrrole substitutions—iodination reaction, 2849*a*
**Dobay, D. G.** Adsorption of aliphatic amine vapors by silica gel, 4922*h*.
**Dobbins, T. N.** See Fronk, W. D.
—— and Fronk, W. D. Control of coleopterous larvae attacking peanuts in the soil, 1897*c*.
**Dobeneck, H. v.** Stokvis reaction (peutdyopent reaction), 3050*h*.
**Dobinsky, E.** Automatic sampling device for an av. sample of the daily milk supply, 5127*b*.
**Dobkin, J.** See Lichtenstein, N.
**Dobkina, B. M.** Detn. of Si in IIF, 967*a*.
**Doblas, J.** See Blasco Santiago, E.; Mora, A.; Yzu, L.
**Doblas Larios, J.** Same as Doblas, J.
**Dobran, J.**, Acker, M. M., and Frediani, H. A *n* measurements at and above the m.p. of solids, gums, resins, and waxes, 9363*g*
**Dobretsov, L. N.** Breakdown in gases of different dielec. strength, 454*f*.
**Dobrianski, A. F.** See Dobryanskiĭ, A. F.
**Dobriner, K.** See Jones, R. N.; Lieberman, S.
——, Kritchevsky, T. H., Fukushima, D. K., Lieberman, S., Gallagher, T. F., Hardy, J. D., Jones, R. N., and Cilento, G. Infrared spectrometry in metabolic studies with D-labeled steroids, 4323*f*.
——, Lieberman, S., and Rhoads, C. P. Steroid metabolism (I) isolation and quant. estn of neutral steroids in human urine, 5066*d*.
——, Lieberman, S., Rhoads, C. P., Jones, R. N., Williams, V. Z., and Barnes, R. B. Steroid metabolism (III) application of infrared spectrometry to the fractionation of urinary ketosteroids, 5069*a*.
**Dobrinskaya, A. A.**, Nelman, M. B., Polkanova, L. N., and Protsenko, R. V. Absorption spectrum of furfural in alk. and in acid soln., 2865*a*.
**Dobrjanski, Dobrjanskij.** See Dobryanskiĭ, A. F.
**Dobrolyubskaya, T. S.** See Cherepnev, A. A.
**Dobrotin, N. A.** See Azimov, S. A.
——, Nikol'skiĭ, S., and Tsyrlin, V. Genetically related pulses provoked by cosmic rays, 2859*i*.
**Dobrotsvetov, E. N.** Sp. heat of solids as a function of the coördination no. and of the no. of particles in the sp. vol., 6499*h*; dependence of the sp. heat and the specific wt. of binary compds. on the distance between the centers of the ions, 6499*i*
**Dobrotvorskaya, K. M.** See Vlasyuk, P. A.
**Dobrovol'skiĭ, A. E.** Planning and designing cement mills in U.S.S.R., 1936*g*.
**Dobrowolski, J.** See Juściński, Z.; Lewon, J.
**Dobrowsky, A.** Solution of the diffusion problem, 7796*d*.
**Dobry, A.**, and Boyer Kawenoki, F. Incompatability of macromols. in aq soln., 6460*e*; incompatability of high polymers, 6862*h*.
**Dobryanskiĭ A. F.** Geochemistry of Petroleum (book), 8996*f*
—— and Bogomolov, A. I Petroleumlike liquid from Tkvibulsk coal deposits, 8122*h*.
——, Strigaleva, N. V., and Georgiadi, N. I. Mixts. of petroleum fractions, 8653*c*.
**Dobrzański, B.**, and Uziak, S. Fertility of the soils of the Exptl. Sta. Tuńka, 9314*d*
**Dobscha, H. F.** Effect of sized and sintered Mesabi Fe ores on blast-furnace performance, 7388*h*.
**Dobson, E. L.**, Gofman, J. W., Jones, H. B., Kelly, L. S., and Walker, L. A Colloids contg. radioisotopes of Y, Zr, Cb, and La (II) controlled selective localization of radioisotopes of Y Zr, and Co in the bone marrow, liver, and spleen, 5113*e*.
**Dobyns, B. M.** See Dudley, R. A.
**Docherty, A. C.**, and Ritchie, M. Thermal diffusion in aq solns., 2490*h*.
**Dock, E. H.**, Porritt, B. D., and Willott, W. H. Properties of ebonite (XXIX) absorption spectrum of ebonite, 8729*g*
**D'Ocon, D.** Structure of metanethole, 1710*i*.
**Dodd, A. S.** See Scott-Dodd, A.
**Dodd, C.** Detection of heating in liquid dielectrics at low frequencies, 3731*b*
**Dodd, C. G.** See Bartell, F. E
**Dodd, G.**, and Griffith, R. O. Reactions of the halogens in aq. soln (II) reactions in the systems $I_2$-$S_2O_3^{--}$-$N_3^-$ and $I_2$-$S_2O_3^{--}$-$N_3^-$, 7799*b*
**Dodd, H.**, and Imperial Chemical Industries Ltd. Compns for the lubrication of textile materials, P 855*i*
**Dodd, M. C.** See Thompson, J. H., Jr., Ward, W. C
**Dodd, R. E.**, and Robinson, P. L. Inorg chemistry, 4593*f*.
**Dodder, D. C.** Double scattering of protons in He, 8861*h*; see Critchfield, C. L
**Dodds, E. C.** Proteins as biologically active substances, 1815*f*, carcinogenic and anticarcinogenic substances, 1856*c*, 7120*c*, synthetic estrogens, 4747*a*, see Butler, J. A. V.
**Dodds, H. H.**, and Du Toit, J. L Chem lab. reports—S. African sugar factories, 6845*e*.
**Dodds, M. L.** See Cox, G. J
**Dodds, S.** See Griffith, F. R., Jr
**Dodé, H.** See Moureu, Henri
**Dodé, M.** See Moureu, Henri.
—— and Peneloux, A Thermodynamics of the decompn of nitrites, 4545*f*.
**Dodge, B. F.** See Bliss, H.
—— and Reams, D. C. Disposal of plating-room wastes (I) waste cyanide solns, 6924*e*.
**Dodge, B. S.** Introduction to Chemistry (book), 932*b*.
**Dodge, C. H.** See Tangren, R. F.
**Dodge, D. A.**, and Jones, H. E. Effect of long-time fertility treatments on the N and C contents of a prairie soil, 1129*i*.
**Dodge, N. B.** Dark-field color immersion method, 8750*c*.
**Dodge, P.** See Smith, W. K.
**Dodgen, H. W.**, and Rollefson, G. K. Complex ions formed by Fe and Th with fluoride in acid soln., 7857*b*.
—— and Taube, H. Exchange of $ClO_2$ with chlorite ion and with Cl in other oxidation states, 8821*a*.
**Dodgson, D. P.** See Hodgson, H. H.
**Dodonov, N. A.** Na silicate, 9394*g*.
**Dodonov, Ya. Ya.**, Eferova, L. V., Kolosova, V. S. Fractional sepn. of salts from $CaCl_2$ brines of underground waters of the Saratov gas sites, 2743*d*; salts of alk. earth metals in bore waters of Saratov gas fields, 6371*h*.
**Dodson, A. M.** Cellulose bleaching P 9447*f*.
**Dodson, E. O.** Lampbrush chromosomes of vertebrates, 7150*a*.
**Dodson, R. M.** See Arnold, R. T.; King, L. C.

- and Riegel, B Stereochemistry of the *i*-steroids and their transformation products, 246*h*.
**Dodson, R. W.** See Gryder, J. W.
**Dodson, V. H.** See Oddy, H. G.
**Doebel, K.**, and Reichstein, T. Isolation of three cryst. alkaloids from the seeds of *Evonymus europaeus*, 5545*i*.
**Döhle, W.** Chem bleaches—development of bleaches for cellulose materials, 5591*a*.
**Doelling, G. L.**, and Adams, K H. Plasticizable org. compds plasticized with an alkoxyalkyl ether of a halonitrophenol, P 1062*d*, 5421*e*.
**Dönges, E.** Soly. in acid of pptd. Co and Ni sulfides, 2074*a*; oxidation of CO by O-contg. Co or Ni sulfide and by atm. O in the presence of Co sulfide, 2076*i*; O content of pptd. Co and Ni sulfides, 2108*i*; pptn. of cubic $Co_9S_8$ with $H_2S$ from aq. solns. of Co salts, 2531*i*; reaction of $S+CO+H_2O=H_2S+CO_2$ in the presence of Co and Ni sulfides, 2532*i*.
—— and Fricke, R Compn. and structure of antimonial cinnabar and the surface energy of amorphous $Sb_2S_3$, 3685*h*.
**Dönhardt, A.** Diagnosis of poliomyelitis in spinal fluid, 3094*c*.
**Döring, E.** Treatment and Reutilization of used emulsion lubricants, 3183*b*.
**Döring, G.**, and Loeschcke, H. H. Respiration and acid-base equil. during pregnancy, 7111*f*.
**Doering, H.** Detn. of α-cellulose, 1975*d*; detn. of the total alkali-sol. portion of pulp—β- plus γ-cellulose, 4464*b*.
**Döring, W.** Energy, entropy, and dissocn. const. of the N mol., 8221*a*.
**Doering, W. v. E.** See Nash, L. M., Woodward, R. B.
—— and Aschner, T. C. Stereochem. equilibration of alcs., 4215*b*.
—— and Beringer, F. M. Sulfonic acids in the rearrangement and aromatization of cyclic ketones, 9043*h*.
—— and Farber, M Rearrangement of 2-bromobicyclo[2.2.2]octane with AgBr, 5752*c*.
—— and Zeiss, H. H. Resolution of an aliphatic tertiary alc., 1312*g*.
**Doerschuk, A. P.**, and Daubert, B. F. Low-temp. solvent fractionation of corn oil and calcn. of its glyceride structure, 1581*e*.
**Døssing, J.**, Helweg-Larsen, H. F., and Sørensen, H. R. Electron-microscope studies of breast cancer exts., 3514*g*.
**Doetsch, H.** Amphibian larvae—relation between thyroid and liver by filling the gall bladder with biliselectan, 1492*d*, 5507*b*.
**Doetsch, R. N.** See Cleverdon, R. C.; Pelczar, M. J., Jr.
—— and Pelczar, M. J., Jr. Microbacteria (II) growth of *Microbacterium lacticum* in a chemically defined medium, 3883*g*.
—— and Speck, M. L. Expts. in Dairy Bacteriology (book), 8418*f*.
**Dogadkin, B.** Khimiya i Fizika Kauchuka (book), 5621*b*.
——, Bartenev, G. M., and Novikova, N. Vulcanization of rubber (VI) variation of the modulus of two-dimensional extension caused by vulcanization of natural and butadiene-styrene rubbers, 8192*g*.
—— and Karmin, B. Vulcanization of rubber (IV) optimum of vulcanization in mixts., with a high content of the structure-forming agent, 5022*e*.
——, Karmin, B., Dobromyslova, A., and Sapozhkova, L. Vulcanization of rubber (VII) effect of org. accelerators on the kinetics of vulcanization and the properties of vulcanizates from natural rubber, 8193*a*.
——, Pechkovskaya, K., and Dashevskii, M. Structure and properties of filled rubber mixts. (III) mixts. of Na-butadiene rubber with channel black, 8188*c*.
——, Soboleva, I., and Arkhangel'skaya, M. Detn. of the mol. wt. of rubber and polystyrene, 7742*b*.
—— and Tarasova, Z. [illegible] vulcaniza-tion of d[illegible]n, 8721*g*.
——, Tarasova, Z., and Pasynskii, A. G. Structural changes in rubber brought about by mol. O (III) properties of disintegrated vulcanized natural rubber, 8721*g*; destructive dissoln. of vulcanized rubber, 8731*i*.
**Doggett, R. H.**, and Johnson, A. R. Treatment of wool, P 9476*d*.
**Dogigli, G.** Strahlende Materie (book), 5672*e*.
**Dogilbert, F.** Liquid desiccant, P 1126*d*.
**Dognon, A.**, and Gougerot, L. Fractions in human hemoglobin demonstrated by its frothing power in the presence of salts, 6254*b*.
**Dohan, F. C.**, and Lukens, F. D. W. Diabetes produced by administration of glucose, 7569*d*.
**Doherty, E. W.** See Hanzlik, P. J.
**Doherty, J. D.** Synthetic liquid fuels from coal, 3989*g*.
**Doherty, M. E.** See Goldstein, A.
**Dohnalek, R.** Chem. plant construction in Czechoslovakia, 4397*g*.
**Dohogne, A.** Dyes and the dyeing of leather, 6853*a*, 8721*d*.
**Dohrmann, F. C.** Antiseptic with color indicator, P 363*g*.
**Dohrn, M.** See Fox, H.
—— and Laubereau, O. 4-Aminophenyl 5-amino 2-pyridyl sulfone, P 1803*g*.
**Dohrow, R. H.** See Searle, H. E.
**Doi, S.** Dokuimo as a raw material for fermentation industry, 1146*f*.
**Doisy, E. A.**, Thayer, S. A., MacCorquodale, D. W., McKee, R. W., and Binkley, S. B Vitamin-K compds., P 1917*e*.
**Doisy, E. A., Jr.**, and Bocklage, B. C. Chronic toxicity of γ-isomer of hexachlorocyclohexane in the albino rat, 8602*c*.
**Doja, M. Q.**, and Prasad, K. B. Cyanine dyes of the pyridine series (VI), 7024*d*.
**Dokras, V. M.** See Funk, C. G.
**Doladilhe, M.**, and Legrand, P Absence of antigenic properties of certain blood proteins, 6267*i*.
**Dolák, F.** Table of sp. grs. and degrees of apparent solid matter of sugar solns. at higher temps., 6847*e*.
**Dolan, D. D.**, and Christopher, E. P. Effect of modified fertilizer ratio on vegetables, 8083*h*.
**Dolan, M.** See Strumia, M. M.
**Dolan, R. A.** Choline and other lipotropic factors—action and significance in chronic liver disease, 3093*c*.
**Dolan, T. J.**, and Yen, C. S. Effect of metallurgical structure on fatigue strength and notch-sensitivity of steel, 6556*g*.
**Doland, J. J.** See Babbitt, H. E.
**Dolby, D. E.** See Anning, S. T., Chattaway, F. W.; Czekalowski, J. W.
**Dold, H.** Antituberculous bacillus substance in normal human urine, 3175*g*.
**Dole, F. H.** See Thompson, H. L.
**Dole, K. K.** Selected Chapters from Modern Inorg. Chemistry (book), 7366*f*; see Mujumdar, G. G.; Phatak, S. S.
**Dole, M.** Statistical analysis of the sorption of vapors by high polymers, 17*a*; history of O, 2049*g*; scientific contributions of Grinnell Jones, 6875*a*, interactions between vapors and high polymers, 8236*i*; see Burwell, R. L., Jr.
**Dole, V. P.**, Rothbard, S., and Winfield, K. Electrophoretic changes in serum of a patient with rheumatoid arthritis, 5487*h*.
——, Yoemans, A., and Tierney, N. A. Electrophoretic changes in the serum protein pattern of a patient with typhus fever, 5855*c*.
**Doleja, L.** See Šorm, F.
**Doležal, R.** Detn. of losses owing to incomplete combustion in furnaces from curves of ash content of burned coal, 4830*e*, slag granulation unit, P 6905*h*.
**Dolgina, G. Z.** See Kukolev, G. V.
**Dolgopolov, N. N.** See Karavaev, N. M
**Dolgov, B. N.**, and Nizovkina, T. V. Kinetics of the acidless esterification of EtOH, 8252*c*.
—— and Panina, O. K. Reduction products of (triethylsilyl)nitrobenzene, 1737*c*, behavior of triethylphenylmonosilane under conditions of the Friedel-Crafts reaction, 2177*i*.
**Dolin, P. I.** See Melik-Gaĭkazyan, V. I
**Dolinek, A.** Automatic control and regulation of the extn. of filter presses, 4501*i*.
**Doliński, J.**, and Bogurska, A. Fractionation of crude $C_6H_6$, 3507*b*.
**Dolinski, S.** See Darmois, E.
**Dolinsky, M.** Spectrophotometric analysis of D & C Red No. 19, 7231*c*; spectrophotometric testing of D & C Violet No. 2, 7367*d*; subsidiary dyes in coal-tar colors, spectrophotometric detn. of D & C Orange No. 4, in samples of FD & C Orange No. 1, 9452*d*.
**Dolkart, R. E.**, Halpern, B. N., Larkin, M., Dey, F. L., and De Takats, G. Effect of penicillin on the clotting activity of blood 7582*e*.
**Doll, E. R.**, and Wallace, M. E. Serum level response of horses to aq. solns. of penicillin, 7589*d*; serum level of streptomycin in sheep, 7589*e*.
——, Wallace, M. E., and Newton, A. C. Serum levels of penicillin in cattle, 8555*a*.
**Doll, R.**, and Schneider, R. Effect of paludrine on human gastric secretion, 2704*f*.
**Doll, W.**, and Bournot, K. Odor of optical antipodes, 8100*c*.
**Dollar, A. T. W.** *n* comparator for the microscope, 4521*e*.
**Dollear, F. G.** See Swift, C. E.
**Dollinger, A.** Peroral poisoning with nitrobenzene or aniline in the newborn, 8060*f*.
**Dollinger, J.** Nonionic surface-active agents, 2002*g*.
**Dollinger Corp.** Radial fin-type filter with replaceable filter element, P 4056*h*.
**Dolliver, M. A.** See O'Keeffe, A. E.
**Dolson, F. E.** Requirements of cathodic protection systems, 5356*f*.
**Domagk, G.**, Behnisch, R., Mietzsch, F., and Schmidt, H. Compd. active against tuberculous bacilli, 3523*e*.
**Doman, N. G.** See Kuzin, A. M.
**Domange, Is.**, and Wohlhuter, M. Reaction of $UF_6$ with water vapor, 8248*f*.
**Domaniale Mijn-Maatschappij N. V.** Gravity separator for magnetite, P 2566*e*.
**Domanski, B.** See Patek, A. J., Jr.
**Domanský, R.** Ultraviolet radiation during the anodic oxidation of metals and alloys, 8900*g*.
**Domato, J.**, and Aramayo, H. Hormones and their application in agriculture (I) 2,4-D tested as herbicide in the control of "tortorilla," 343*e*.
**Dombrow, B. A.** See Miskel, J. J.
—— and Miskel, J. J. Plasticizer, P 4507*f*.
**Dombrow, M.** Hg salicylate assay, 9370*g*.
**Domenici, T. J.** Hepatitis without jaundice and without hepatomegaly, 3515*d*.
**Domeniconi, G.** Nicotinamide and carbohydrate metabolism (I) influence on basal glucemia and on the increase caused by glucose administration and adrenaline, 7395*b*.
**Domenjoz, R.** Scabies remedy, 3109*g*; parpanit, a therapeutic agent for disturbances of the extra-pyramidal motor system, 3109*h*.
**Domick, C. B.** Tobacco flea beetle control, 9346*a*.
**Dominé-Bergès, M.** $CrO_2$, 7363*c*; see Boullé, A.
**Domingo, W. R.**, Timmer, H. J., Klaar, L. E., and Berkhout, M. I B/7 Pulfrich photometer, 7270*g*.
**Dominguez, C. M.** See Zavala Muñiz, J.
**Dominguez, F. S.** See Sanz Dominguez, F.
**Dominguez Calero, C.** Oleander and its glucosides, 5548*b*.
**Domingues Rodriguez, J.** See Ribas Marqués, I.
**Domingues Sánchez, R.** Action of acetylcholine on medullar excitability, 7578*a*.
**Dominici, G.** Intoxication from coumarin, 1114*c*.
**Dominick, C. B.** Insecticides for tobacco flea beetle control, 5895*d*; control of aphids on flue-cured tobacco, 5897*c*.
**Dominikiewicz, M.** Theory of the binding of kaolin nucleus, 1291*d*.
**Dominion Magnesium Ltd.** Metallic Ca by thermal reduction of lime, P 3769*d*.
**Dominion Rubber Co., Ltd.** Treatment of guayule, P 5624*c*; tire-curing bag, P 5626*b*; multicellular dry plastic foam products, P 9529*b*.
**Dominion Tar & Chemical Co. Ltd.** Styrenes and other aromatic compds., P 2228*f*; alkyl-substituted styrene polymers, P 4051*c*, 5420*b*; aromatic vinyl compds. and polymers thereof, P 5636*e*.
**Domony, A.** Location of Al furnaces of the world, 7877*i*.
—— and Koves, E. Working up and refining of light-metal wastes, 9000*c*.
**Domoto, S.** Changes in various endocrine organs and the variation in their vitamin C contents under diphtheria toxin intoxication (VI) vitamin C content of the thyroid gland, (X) of the adrenal gland, 1104*a*.
**Donahue, D. D.** See Von Oettingen, W. F.
**Donahue, J. K.** Fluorimetric and biol. detn. of estrogens in the eggs of the American lobster, 7735*b*.
**Donaldson, H. V.** Impregnated paper for protecting adhesive tape or sheets, P 908*f*.
**Donaldson, J. A.**, Loomis, R. J., and

Krchma, L. C. Measurement of aggregate absorption, 7207*e*.
**Donaldson, P.** See Blankenship, F.
**Donaldson, R.** See King, E. J.
**Donaldson, R. E.** See Lester, C. T.
**Donaldson, W. J.** See Wright, H. R.
**Do Nascimento, R.** See Nascimento, R. do.
**Donatelli, L.** Detoxication of barbiturates of short action, 4766*c*, see Passerini, M.
—— and Galleotti-Flori, A. Antihistamine action of vitamin B6 on the guinea-pig intestine, 4351*f*.
**Donath, E. E.** See Hirst, L. L.
**Donati, B. T.** See Tortori Donati, B.
**Dondon, M. L.** Potentiometric studies in anhyd. media, 6053*c*.
**Donelson, J. G.**, and Neish, R. A. Detn. of cottonseed oil on tin plate, 9490*a*
**Doner, M. H.** Testing insecticide residues, 3554*h*.
—— and Anderson, C. V. Testing insecticidal residues—biol. testing of nonfumigant type insecticidal residues on the housefly, 9345*c*.
**Dongen, K. van.** See Boer, J. de.
**Donhoffer, S.** See Andik, I.
**Donia, R. A.** Vinyl chloride resin compns. contg. imidazolidines, P 8738*g*.
**Doniger, R.** See Chargaff, E.
**Donna, D. di.** See Di Donna, D.
**Donnan, F. G.** E. C. C. Baly, 1229*e*
**Donnelly, H. F.** See Nagelschmidt, G.
**Donnelly, K.** See Strunna, M. M.
**Donner, K. O.**, and Graut, R. Scotopic dominator and state of visual purple in the retina, 8503*f*.
**Donnet, J. B.** Electron-microscopic studies of $V_2O_5$ sols, 32*g*.
**Donnini, A.** Sparteine mono- and diphenylethylbarbiturates—action on the sympathetic nervous system, on the excitability of the sensitive nerves and the carotid sinus reflex, 2316*e*
**Donnison, G. H.** See Bourne, E. J.
**Donoghue, J. J.**, Gerjuoy, E., and Vollrath, R. E. Measurement of tensile strengths of liquids, 4066*e*.
**Donoho, C. K.** Steels with higher than normal Si content, 1302*e*; nodular graphite cast iron, 6957*d*.
**Donoso, C.** See Croxatto, H.; Croxatto, R.
**Donoso, J. J.** Baghouse operation at the Whiting, Indiana, plant of the Federated Metals Division, American Smelting and Refining Co., 3753*g*.
**Donovan, B.** Sp. heat of a linear ionic lattice, 3700*e*; see Conn, G. K. T.
**Donovick, R.** See Rake, G.
**Dontigny, P.** Hypertension of hormonal origin, 6728*c*.
**Dontsova, E. I.** Clarification of the oxidation process of Fe by means of O isotopes, 2564*f*
**Dontzowa, E.** See Dontsova, E. I.
**Donworth, A. B.** Gravitation and At. Bomb (book), 947*g*.
**Donworth, R. B.** Station design and material compn. factors in boiler corrosion, 335*f*.
**Dooley, H. H.** See Wallhausen, C. W.
**Dooley, J. J.** See Ayers, A. L.
**Dooley, M. S.**, and Rappaport, J. Pharmacology and Therapeutics in Nursing (book), 6745*f*.
**Doolittle, J. H.** R. H. Goddard, 449*i*.
**Doolittle, S. P.** See Fontaine, T. D.
**Dooper, R.** See Hermann, F. J.
—— and Hermann, F. J. Gloss and gloss preservation of paints prepd. with linseed-oil stand oils of different viscosities, 869*c*, dehydrated castor oil (II) varnishes prepd. with dehydrated castor oil—putties prepd. with dehydrated castor oil, 872*b*; exposure tests with primers on wood, 11990*b*, 7239*a*; Iranolin 2241 as paint raw material, 3209*g*; drying of oil-contg paints (II) "hexogen" and naphthenate driers, (III) tests with Nuact Paste, 4024*f*, 5969*i*.
—— and Talen, H. W. Exposure tests with primers on wood—influence of variations in the compn. of the basic system on the durability, 8696*a*.
**Dooren de Jong, L. E. den.** See Jong, L. E. den dooren de.
**Doormaal, J. J. van.** Manuf. of sugar from molasses by an ion exchanger, 6442*e*.
**Doornenbal, P.**, and Nijhoff, F. W. Natuurkunde-A met opgaven (book), 6501*b*.
**Do Prado, L. C.** See Cintra do Prado, L.
**Dorabialska, A.** Heat of hydration of langbeinite, 8836*e*.
**Dorçioni, F.** See Erspamer, V.
**Dorée, C.** Méthodes de la chimie de la cellulose (book), 9445*d*.
——, McGhie, J. F., and Kurzer, F. Lanosterol (V) hydrogenation of the inert double bond in lanosterol derivs., 242*d*; (VI) dehydrogenation and oxidation reactions, 7495*e*; position of the hydroxyl group in lanosterol, 8830*b*.
**Dorfman, A.** See Elster, S. K.; Freeman, M. E.
**Dorfman, A. S.** See Dorfman, R. I.
**Dorfman, L.** See Bernstein, S.
**Dorfman, L. M.** See Batke, T. L.
—— and Sheldon, Z. D. Photochem. decompn. of diethyl ketone, 8895*g*.
**Dorfman, R. I.** Radiopotassium for detection of min. amts of desoxycorticosterone, 5816*i*, metabolism of androgens, 5840*a*; bioassay of hormones—skewed response of the chick oviduct to methoxybisdehydroisosynolic acid, 7994*d*, see Miller, A. M.; Schiller, S.
—— and Dorfman, A. S. Bioassay of hormones—relative potencies of testosterone propionate and testosterone-17($\beta$)-diethyl aminoethyl carbonate hydrochloride—assay of testosterone propionate and androsterone, 7993*h*; bioassay of hormones—relative reactivity of the comb of various breeds of chicks to androgens—assay of estrogens—oviduct response to stilbestrol, 7994*a*.
——, Dorfman, A. S., and Grim, D. Bioassay of hormones—assay of pregnant mare's serum chorionic gonadotropin—activity of estrogens by the oviduct response, 7994*c*.
——, Horwitt, B. N., Shipley, R. A., Fish, W. R., and Abbott, W. E. Metabolism of the steroid hormones—17-ketosteroids and androgens, 8033*f*.
——, Potts, A. M., and Feil, M. L. Bioassay of hormones—radiosodium for detection of small quantities of desoxycorticosterone, 7993*i*.
——, Ross, E., and Shipley, R. A. Metabolism of the steroid hormones—metabolism of progesterone and ethynyltestosterone, 8034*f*
—— and Rubin, B. L. Bioassay of hormones—assay of chorionic gonadotropin from human pregnancy urine and serum, 7993*h*
——, Wise, J. E., and Shipley, R. A. Metabolism of the steroid hormones—conversion of isoandrosterone to androsterone, 8034*h*
**Dorfman, V. A.**, and Kastorskaya, T. L. Assay method for penicillin activity, 1824*e*
**Dorgelo, E. G.**, and Lemmens, H. J. Elec conductor to be fused in glass, P 1274*f*, bodies consisting of a core of Cr-Fe or Cr alloy and a layer to form a metal-to glass seal, P 8918*f*.
**Dorin, H. C.** See Brockington, S. F.
**Dorin, R.** See Mandel, E. E.
**Dorkin, C. M. C.** See Alginate Industries Ltd.
**Dorleyn, J.** Hexachlorobenzene, P 8132*e*.
**Dormael, A. van**, and Ghys, T. Acylmethylene derivs. of heterocyclic bases, 4262*e*; intermediates for the manuf. of polymethine dyes, P 8167*c*
—— and Nys, J. Synthesis for dequaternized cyanines, 8291*f*.
**Dorman, F. H.** See Boardman, N. K.
**Dorman, S. C.** Insecticidal compns. contg. chloralimines, P 5153*f*, (trihaloalkylidene)amines, P 7490*c*.
—— and Ballard, S. A. Insecticidal compn. contg. an aromatic unsatd. carbonyl compd., P 4420*f*; arylidene alicyclic ketone insecticide, P 4420*g*.
**Dormer, G. G.** Peak-load experiences, 4832*a*.
**Dormer, K. J.**, and Street, H. E. Carbohydrate nutrition of tomato roots, 7091*c*.
**Dorn, H. W.** What research means to the frozen-food industry, 8571*c*; research and the frozen-food industry (I), 8571*d*; Na glutamate in seasoning, 8572*g*.
**Dorn, J. E.** See Tietz, T. E.
——, Goldberg, A., and Tietz, T. E. Effect of thermal-mech. history on the strain-hardening of metals, 82*h*.
**Dornberger, K.** See Carlisle, C. H.
**Dornbush, A. C.** See Broschard, R. W.
**Dornfeld, C. A.** See Callen, J. E.
——, Callen, J. E., and Coleman, G. H. 9-Bromophenanthrene, 1762*b*.
—— and Coleman, G. H. Phenanthrene-9-aldehyde, 1762*a*.
**Dornte, R. W.**, and Young, D. W. Alkylation catalysts, P 8660*b*.
**Dorp, D. A. van.** See Arens, J. F.
—— and Arens, J. F. Aldehydes of the vitamin A series and alkyl- or aryloxyethenes as starting material, P 5417*h*.
**Dorph-Petersen, K.** See Iversen, Karsten.
—— and Steenbjerg, F. Fertilizers contg. Na, 7173*d*.
**Dorr Co.** Cation-exchange cells for the purification of sugar solns., P 2798*e*; clarification of sugar cane juice, P 5980*g*, sewage screening assembly, P 6346*c*; calcining lime-bearing sludge, P 6378*d*, treatment of arsenical Au ores, P 7891*b*, reducing $Fe_2O_3$ to $Fe_3O_4$, P 8108*g*.
**Dorre, D. D.**, and Dunn, W. L. Duplicating industrial processes in the school lab., 2477*h*.
**Dorschner, O.** Gas pipe line transmission of $CH_4$ derived from pressure gasification and synthesis, 4832*b*.
**Dorsey, N. E.** Freezing of supercooled water, 6025*e*.
**Dorsky, J.**, Mattson, G. W., and Neher, C. M. Photochem. chlorination of gaseous hydrocarbons, P 2518*b*.
**Dorst, S. O.** See Robinson, P.
**Dorsten, A. C. van**, Oosterkamp, W. J., and Poole, J. B. le. Electron microscope for 400 kv., 1641*g*
**Dort, R. G.** Fluorescent red cellulose acetate fibers, P 3627*f*.
**Dorta-Schaeppi, Y.**, and Treadwell, W. D. Detn. of highly dild. $O_2$ in $O_2$, 4599*i*
**Dorward, K.** Parathion toxicity to livestock, 3139*e*
**Dosh, H. G.** See Kline, M. H.
**Doškář, J.** Sliding properties of cast iron and its use as bearing material, 5716*d*
**Dosne, R. E.**, and Charles, F. R. Rayon filaments, P 8693*e*
**Doss, K. D. V.** See Prasad, M.
**Doss, K. S. G.** See Subrahmanya, R. S.
**Dos Santos, J. L. G.** See Guimarães dos Santos, J. L.
**Dosse, J.** Betatron, 3701*g*
**Dosser, R. C.** See Britton, J. W.
**Dossmann, H.** Light-fast printing inks, 1196*f*.
**Dost, N.** See Backer, H. J.
**Dostál, R.** Morphogenesis of the potato sprouts, 8456*b*
**Dostrovsky, I.**, Hughes, E. D., and Ingold, C. K. Substitution at a satd. C atom 555*i*.
—— and Llewellyn, D. R. Storing and dispensing purified Na, 8762*a*.
**Doswald, A.** Cosmetic intermediate, P 6793*b*
**Dothie, H. J.** X-ray analysis, 1595*f*
**Dotterweich, F. H.** Removal of entrained materials from natural gas, 5571*g*
**Dotto, M. del.** See Del Dotto, M.
**Doty, D. M.** See Martin, J. B.
**Doty, J. R.** Detn. of adrenaline in pharmaceutical products, 2309*b*
**Doty, P.** Depolarization of light scattered from dil. macromol. solns. (I) theoretical 7783*h*.
——, Brownstein, M., and Schlener, W. Thermodynamic properties of polystyrene solns., 4927*f*.
—— and Stein, S. J. Depolarization of light scattered by macromol. solns., 4094*c*; depolarization of light scattered from dil. macromol. solns. (II) exptl. 7784*c*.
**Doty, W. R.** Vacuum jacketed vapor dividing reflux head, 6008*a*.
**Doub, L.** Cellulosic products, P 6792*i*.
—— and Vandenbelt, J. M. Ultraviolet absorption spectra of simple unsatd. compds. (II) *m* and *o*-disubstituted benzene derivs., 8890*i*.
**Doubilet, H.** Secretin test in surgery 9231*e*.
**Doubinine.** See Dubinin.
**Douce, P.** Measuring converters and their applications in electrochemistry, 5670*i*
**Doucet, Y.** Spontaneous arresting of supercooling of water, 1620*g*.
**Doudoroff, M.**, Wiame, J. M., and Wolochow, H. Phosphorolysis of sucrose by *Pseudomonas putrefaciens*, 5447*b*.
**Doudykina, N. V.** See Dudykina, N. V.
**Dougherty, C. B.** See Hornyak, W. F.
**Dougherty, E. C.**, and Lawrence, J. H. Isotopes in medicine, 3483*f*, 4710*c*.
**Dougherty, G.** See Frye, A. H.; Woodbridge, R. G., 3rd.
**Dougherty, P. F.**, and Brooks, C. H. Cleaning tubular heat exchangers, 3179*h* 8755*d*.

**Dougherty, R. W.** See Hirst, L. L.
**Dougherty, T. F.** See White, A.
**Doughty, L. R.** See Birch, H. F.
**Douglas, A. E.** See Rank, D. H.
——, and Rank, D. H. Polarization of the Raman line of the totally symmetric vibration of stannic chloride, 2513*f*.
**Douglas, A. M. B.** Metal physics (I) x-ray work on metals and alloys, 7884*i*
——, Raynor, G. V., and Waldron, M. B. Structure of $Ce_2Al_3$, 1235*i*.
**Douglas, B.** Use for BzONa, 6962*h*.
**Douglas, C. G.**, and Priestley, J. P. Human Physiology (book), 3915*a*.
**Douglas, D. G.** Radiations from $Lu^{177}$, 7330*b*.
**Douglas, G. T.** See Imperial Chemical Industries Ltd.
——, Hill, A., Todd, W., and Imperial Chemical Industries Ltd. Printing of textile fabrics, P 2784*h*.
**Douglas, G. W.** Chem. engineering problems in the leather industry, 1589*f*.
**Douglas, H. C.** See Fornachon, J. C. M., Vaughn, R. H
**Douglas, R. W.**, and Jones, G. A. Study of configuration changes in glass by d. measurements, 5163*i*.
**Douglas, T. H. J.** Dental condition of adults and school children in the Fort William area, 5884*f*
**Douglas, W. A.** See Blanchard, R. A.
**Douglas Aircraft Co., Inc.** Coated metal structure, P 6157*b*
**Douglass, I. B.**, Simpson, V. G., and Sawyer, A. K. Action of aq Cl on *s*-trithiane, 6970*e*
**Douglass, J. R.** See Furman, D. P.; Smith, Arthur Hamilton
, Gibson, K. E., and Hallock, H. C. Reducing curly top infection with insecticides, 1897*i*
and Shirck, F. H. Control of onion thrips, 5896*i*
**Doull, J.** See DuBois, K. P.
**Doumani, T. F.** See Attané, E. C., Jr.; Coe, C. S.
, Coe, C. S., and Attané, E. C., Jr. Cycloalkyl nitrites, P 4693*i*, oxidation of cycloaliphatic hydrocarbons and alcs., P 3842*b*
**Doumanskij, A. V.** See Dumanskiĭ, A. V.
**Dounaew.** See Dunaev.
**Dounce, A. L.**, Flagg, J. F., Fanta, P. E., Tishkoff, G. H., Lan, T. H., and Kaley, M. U. compds., 8270*a*
, Lan, T. H., Connors, W. M., Kaley, M., Robinson, B., and Rothermel, D. Action of U on enzymes and proteins, 9118*h*.
, Roberts, E., Wills, J. H., Lan, T. H., Connors, W. M., Orcutt, J. H., Kaley, M., Robinson, B., and Smith, F. A. Catalasuria as a sensitive test for U poisoning, 8530*f*
, Wills, J. H., Neuman, W. F., Lan, T. H., Haven, F. L., Neuman, M. F., and Roberts, E. Action of U compds in the animal body, 9239*i*
**Dourdine, J. W.** See Durdin, Ya. V
**D'Ouville, E. L.** Reactivation of catalysts in hydrocarbon synthesis, P 9420*h*; rendering noncorrosive the products resulting from catalytic alkylation, P 9430*g*; see Evering, B. L.
—— and Burney, D. E. Sulfonation of alkyl aromatic hydrocarbons, P 394*f*.
**Dove, J. R.** See Feeman, J. F.
**Dove, W. E.** See Sarlis, M. P.
**Dovey, D. M.**, and Jenkins, I. Gas carburizing, 4614*f*.
**Dow, M. L.** Detn. of physostigmine in ointments, 9368*a*.
**Dow Chemical Co.** (*Patents*)
acid cleaning compn., 6439*a*.
acid inhibitors, 5730*d*.
alkaline detergent, 4034*b*.
alkaline earth metal, carboxylated resins for absorption of, 7162*i*.
alkoxy-Si halides, 5033*g*.
alkyl halides, 6218*e*.
alkylhalosilanes, 5791*d*.
alkylsilicon halides, 2221*a*.
9-aminoacridine derivs., 4703*c*.
arylalkylalkylammonium chlorophenates, 4298*e*.
armor (nonmetallic), 4402*g*.
1,3-butadiene and styrene polymers, 2815*h*.
5-*tert*-butylsalicylic acid esters, 4697*d*.
calcium Ni phosphate catalyst, 2382*e*.
calcium Ni phosphate-Cr oxide catalyst, 2382*i*
cellular thermoplastic product, 3235*d*.
cellulose deriv. compns., 6831*b*
cellulose ether plasticized with a cyclotetramethylene sulfone, 6003*d*.
cellulosic material preservation, 1146*i*.
coating for metal articles, 2922*g*
descaling compn for ferrous metal, 3772*d*.
diphenylamine, 8399*h*.
divinylbenzene purification, 6658*a*.
drying oil-styrene interpolymers, 5608*c*
enamels, film-forming base for baking, 9488*a*.
ethyl chloride, 2217*h*.
indigosol compn., 8092*b*.
3-indolecarboxaldehyde, 5806*e*.
insecticide, 812*h*, 6358*b*.
ion-exchange resins, 337*b*, 5517*f*
1,4′-isopropylidenebis(2-isopropylphenol), 9084*h*.
magnesium alloy die castings, heat-treatment of, 105*d*.
magnesium alloys, treatment of, 6563*f*
magnesium, app for transferring molten, 6143*h*.
magnesium, electrolytic cell for the production of, 6095*h*.
magnesium, gas-shielded C arc welding of, 6565*f*.
magnesium metal anodization, 2880*e*, 6926*a*.
magnesium oxide, 1538*f*
magnesium refining furnace with a flux-free dipping zone, 7402*h*.
methyl carboxymethylcellulose, 9445*e*
methyl 2-hydroxyisopropyl ketone, 1051*e*.
microorganism inhibition in carbohydrate-rich foods, 6758*a*.
microorganism inhibition in light ale. beverages, 6783*a*.
microorganism inhibition in proteinaceous and fatty foods, 6758*d*.
microorganisms, protecting cotton against, 8094*c*.
monoaryldihalosilane, 5801*g*
organohalosilanes, 8743*h*.
organo silicon esters, 3141*f*.
organosiloxane resins, 3233*i*, 8210*c*.
organosiloxanes, 3238*b*, 6221*a*
parasiticidal compns comprising alkyl halonaphthalenes, 7633*h*.
plants, preventing arsenical injury to, 5151*d*.
polymerization in the presence of an Fe salt and a water-sol peroxide, 5641*f*.
polymers of drying oils, monoalkenylaromatic hydrocarbons, and divinyl benzene, 5608*a*.
rosin-styrene interpolymers, 5639*a*
rubber, hydrochlorosilyl addn product with, 8194*c*.
sewage-treatment app., 9310*h*.
shoe soles, 2035*i*.
soil fumigant, $C_2H_4Br_2$, 349*c*
styrene, 8742*i*.
styrene-butadiene interpolymers, 7258*f*
styrene-linseed oil interpolymers, 5639*b*.
ternary copolymers and casting of films thereof, 8732*d*.
vacuum still for metal sepn., 2567*c*
vinyl aromatic resins, colored extruded articles from, 5632*c*.
vinyl chloride polymerization, 6465*h*.
vinyl heat stabilizers, 4520*h*.
vinylidene chloride-butadiene-Et acrylate interpolymers, 7260*c*.
vinylidene chloride-butadiene-isobutylene interpolymers, 7259*b*.
vinylidene chloride-butadiene-α-Me styrene interpolymers, 7260*a*.
vinylidene chloride-butadiene-vinyl acetate interpolymers, 7259*c*.
vinylidene chloride-butadiene-vinyl chloride interpolymers, 7259*d*.
vinylidene chloride comps., 8741*efg*
vinylidene chloride copolymer stabilizers, 8741*h*.
vinylidene chloride film, 8209*a*.
vinylidene chloride light stabilizers, 4520*d*, 7265*h*.
vinylidene chloride light-stable polymers, 2037*h*.
vinylidene chloride tubing, 2020*g*, 8209*i*
water, rendering hydrophilic substance repellent to, 6430*d*.
**Dow Corning Corp.** Alkylsesquisiloxanes, P 6221*d*; rendering materials water-repellent, P 6759*d*; orgnosilicon compds., P 8867*b*.
**Dowd, O. J.** B deficiency in apples in south western Michigan, 8591*e*.
**Dowdell, R. L.** See Mackay, W. B. F.
**Dowden, H. C.** Reagent for detecting fat oxidation in milk powders, 2707*h*.
**Dowlin, M. R.** See Harlock, C. R.
**Dowling, P. H.** See Brockman, F. G.
**Downer, J. D.** See Capp, C. W., Cook, A. H.
**Downes, K. W.** See Lowe, S. P.
**Downey, J. H.** Sampling in textile printing, 6829*a*.
**Downey, M. G.** See Harness, C. L.; Josephson, G. W., Metcalf, R. W.
**Downey, S. L.** See Driekamer, H. G.
**Downie, A. R.** Sugar beet storage expt., 6413*f*
**Downie, C. C.** Ag extn., 5711*i*, treatment of pyritic shales, 6552*e*
**Downie, E.** See King, W. E.
**Downie, G. R.** See Tallan, H. H.
—— and Clifton, E. E. Assay of serum proteolytic activity, 6686*i*.
**Downing, D. C.** See Brockman, F. J.; Chute, W. J.
**Downing, F. B.** See Benning, A. F.; Pedersen, C. J.
**Downing, G. V.** See Whitmore, L. M.
**Downing, J.**, and Wilcox, M. H. $C_2H_4$ polymers and copolymers, P 3235*h*
**Downs, C. M.** See Chapman, S. S.
**Downs, C. R.** See Rushton, J. H.
**Downs, D.** See Wheeler, R. W.
—— and Walsh, A. D. "Knock" in internal-combustion engines, 5579*e*
**Doxey, D.** Effect of isopropyl phenyl carbamate on mitosis in rye and onion, 7089*b*.
—— and Rhodes, A. Effect of the plant-growth regulator 4-chloro-2-methylphenoxyacetic acid on mitosis in the onion, 3068*d*.
**Doyeux, M. G.** See Granier-Doyeux, M.
**Doyle, B. G.**, Cógan, F., Gowan, J. E., Keane, J., and Wheeler, T. S. Transformation reactions (I) transformation of *o*-aroyloxyacetarones into *o*-hydroxydiaroylmethanes, and the synthesis of flavones, 2620*h*.
**Doyle, C. D.** Polysiloxane resins, P 2030*h*.
**Doyle, D. M.** Flux-coated Al rod for gas welding, P 7406*b*.
**Doyle, F. P.** See Kendall, J. D.
——, Kendall, J. D., and Ilford Ltd. Cyanine dyes for sensitizing photographic emulsions, P 7812*f*.
**Doyle, N. J.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*.
**Doyle, P. C.**, and Rudd, K. H. Plastic compn of a polyvinyl chloride resin and an asphaltic material, P 8208*f*.
**Doyle, W. L.** Effect of cleaned vs. uncleaned foundry scrap on slag vol., 1267*h*
**Doyle, William L.** Effects of dehydrating agents on phosphatases in the lymphatic nodules, 702*h*.
**Doyle, W. L. H.**, and Landen, E. W. Diesel fuels, 833*g*.
**Drabkin, D. L.** Standardization of hemoglobin measurement, 6262*b*, hyperglycemia glycosuria, and dephosphorylation-phosphatases, 6300*a*, large scale crystn. of human oxyhemoglobin- isomorphous transformations of hemoglobin and myoglobin in the cryst. state, 7538*f*; see Ehrich, W. E.; Forman, C.
**Drachovská-Šimanová, M.** *Cercospora beticola*, 3134*b*.
**Drackett Co.** Thermosetting plastic preforms, P 2033*e*, recovery of proteins from soybeans in presence of blanketing agents and enzyme inhibitors, P 3120*c*.
**Draeger, A. A.** Recovery of tertiary olefin from a hydrocarbon stream, P 1557*i*.
**Drăganu, M.** Theory of nonstationary phenomena in electrolytic solns., 4544*a*, calcn of eigenenergies of an electron, 6905*a*.
**Dragiff, D. A.** See Ziskin, D. E.
**Dragounov, S. S.** See Dragunov, S. S.
**Dragstedt, L. R.** See Clarke, J. S.
**Dragunov, S. S.**, Zhelokhovtseva, N. N., and Strelkova, E. I. Humic acids of soil and peat, 3127*f*
**Drain, D. J.**, and Wilson, W. Condensation of *p*-dimethylaminobenzaldehyde with nitroparaffins, 6993*b*
**Drake, S. B.** See Smythe, C. V.
**Drake, C. F.** See Roffey, P.
**Drake, C. J.** Influence of insects on alfalfa seed production in Iowa, 1521*e*
**Drake, G. W.** See Cottrell, T. L.
**Drake, J. F.**, Kennard, T. G., and Saylor, W. A. Control of cupola stack emissions, 4194*b*.
**Drake, L. C.** Pore-size distribution in porous materials—application of high-pressure Hg porosimeter to cracking catalysts, 5575*e*

**Drake, N. L.**, and Garman, J. A. N¹-(6-methoxy-8-quinolylaminoalkyl)guanidines, 7485*d*.
——, Hayes, R. A., Garman, J. A., Johnson, R. B., Kelley, G. W., Melamed, S., and Peck, R. M. Synthetic antimalarials—derivs. of 8-aminoquinoline (II), 3421*a*.
**Drake, R. L.** See Hellwig, C. A.
**Drake, T. G. H.**, Jackson, S. H., Tisdall, F. F., Johnstone, W. M., and Hurst, L. M. Biol. availability of the Ca in bone, 5462*d*.
**Dralle, R.** Glasfabrikation. Vol. II (book), 5165*f*.
**Draman, R. E.** GR-S black latex, P 8732*a*.
**Dranovskii, A. B.** Detn. of acidity in mineral salt solns., 972*d*.
**Drant, P.** Evaluation of blood protein and factors in atopic eczema, 3092*d*.
**Draper, O. J.**, and Pollard, A. L. Purification of phenol for paper partition chromatography, 5758*d*.
**Dratman, M. B.** See Hoster, H. A.
**Drautz, E. G.** Regeneration of waste paper, 399*g*.
**Drautz, W. G.** See Huey, W. G.
**Draves, C. Z.** See Edelstein, S. M.
**Dravnieks, A.** See Straumanis, M. E.
—— and McDonald, H. J. High-temp. corrosion of metals, 6140*f*, 8343*c*, gas-metal reactions, 7880*a*.
**Drawe, R.** Evaluation of fuels, 6389*h*.
**Drawert, H.** Stimulation of plant growth (I) effect of ext. of leaves of *Digitalis* on the germination of the fruits of *Cichorium endivia*, 5829*e*; absorption of substances by the living plant cell (IV) effect of the H-ion concn of the cell sap and of the environment on the uptake of urea, 5829*g*, (V) theory of absorption of basic substances, 3493*c*.
**Drayton, L. G.**, and Thompson, H. W. Infrared spectrum of ketene, 1057*b*.
**Drecki, A.** See Ahrends, I.
**Dreger, E. E.**, and Ross, J. Detergents. P 3638*g*.
**Dreher, W. A.** See Bescher, R. H.
**Dreisbach, R. H.** Antagonists for fatal and nonfatal doses of quinine intravenously in depressed circulatory states and in hypertherma, 4768*i*; see Cutting, W. C.
**Dreisbuch, R. R.** Applicability of the Eykman equation, 2061*h*; purification of divinylbenzene, P 6658*a*; latent heat—obtaining Haggenmacher correction factor without use of crit. values, 8775*e*.
—— and Fletcher, F. W. Parasiticidal compns. comprising alkylhalonaphthalenes, P 7633*h*.
—— and Heusted, G. B. Methyl 2-hydroxyisopropyl ketone, P 1051*e*.
—— and Spencer, R. S. Infinite points of Cox-chart families and $dt/dP$ values at any pressure, 3254*i*; equations for vapor and liquid ds., 7279*h*.
**Dreizen, S.**, Greene, H. L., Carson, B. C., and Spies, T. D. Production of a yellow-brown melaninlike pigment in the org. matrix of noncarious human tooth crowns by methylglyoxal and acetol, 6310*d*.
——, Greene, H. L., and Spies, T. D. Effect of addn. of selected nitrofurans on acid production in human saliva, 5497*b*, dental caries-inhibiting properties of some selected nitrofuran compds., 6735*f*.
——, Scholz, E., and Spies, T. D. Influence of antimetabolites of essential vitamins on growth and acid production of *Lactobacillus acidophilus*, 716*c*.
**Drekter, I. J.** See Glass, G. B. J.
**Drekter, L.**, Drucker, R., Pankopf, R., Scheiner, J., and Rubin, S. H. Bioassay in rats for panthenol, 9373*c*.
**Drell, S. D.** Magnetic internal conversion coeff., 4100*a*; anomalous magnetic moments of nucleons, 8862*i*; see Dancoff, S. M.
**Drell, W.**, and Dunn, M. S. Inhibition of lactic acid bacteria by analogs of pantothenic acid, 722*e*.
**Drenkhahn, F.** See Holtz, P.
**Drennan, A. M.** See Beattie, J. M.
**Drennan, H. E.** Solvent extn. of mercaptans, P 2423*e*.
**Drescher, A. B.** Sepn. of magnetic and nonmagnetic materials, P 6011*d*.
**Dresel, E. I. B.** Passage of hemoglobin from blood into eggs of *Daphnia*, 1872*j*.
**Dresel, E. M.** See Bous-Traube, S. G.
——, Griffith, M., and Hirst, W. Free and total energies of interaction of coals with MeOH, 8835*i*.
**Dresel, R.** See Neuberg, C.
**Dresser, T.** See Smith, R. B.
**Dressler, R. G.** See Skinner, L. C.
**Dreux, J.** See Colonge, J.
**Dreven, J. van.** See Aten, A. H. W., Jr.
**Drever, H. I.**, and Livingstone, D. F. Basaltic rocks from West Greenland, 4984*g*.
**Drevon, B.** See Hermann, H.; Leulier, A.
—— and Stupfel, M. Changes in aq. solns. of adrenaline subjected to the action of O, 9098*f*.
**Drew, A. L.** See Schlesinger, E. B.
**Drew, E. F., & Co., Inc.** Thioglycol esters, P 3662*b*; mixed esters of fatty acids, P 5792*e*; mixed hydroxy and fatty acid glycerol ester emulsifiers, P 9493*i*.
**Drew, H. D. K.** See Cross, B. E.
**Drew, R. D.** See Payne, J. W.
**Drewitt, J. G. N.** See Allen, S. J., Dreyfus, H.
—— and Harding, G. F. Polyester amides, P 7266*e*.
**Drewitz, I.** See Heering, H.
**Drews, B.**, and Lampe, B. Sulfurous acid as an antiseptic in the distillery, 6361*b*.
—— and Lantermann, H. Gerstenschleimehl in EtOH manuf., 6359*c*.
**Dreyer, H.** See Ensslin, F.; Kleinert, R.
**Dreyer, J. F.**, and Ertel, C. W. Dichroic film detects glass, glaze, and enamel defects, 3579*e*.
**Dreyer, N. B.** Action of autonomic drugs on elasmobranch and teleost involuntary muscle, 4763*d*.
—— and King, J. W. Anaphylaxis in the fish, 306*a*.
—— and Leonard, C. S. Effects of Hg salts on the compn. of the gastric juice, 4763*e*.
**Dreyer, R. M.**, Garrels, R. M., and Howland, A. L. Liquid inclusions in halite as a guide to geologic thermometry, 8982*b*.
**Dreyfus, C.** Artificial filaments, P 3207*b*, polymerized $\alpha,p$-dimethylstyrene, P 5612*f*.
——, Anderson, B., and Kojevnikoff, N. Cellulose sheet material, P 2774*e*.
——, Rowley, R. D., and Thompson, R. P. Cellulose ester stabilization in anhyd. medium, P 2435*e*.
**Dreyfus, H.** Aliphatic acid anhydrides, P 672*a*, 1,5-hexadiene polymers, P 3236*a*, polymers from carbylamines and carboxylic acids, P 4515*f*, concg. AcOH, P 5035*d*, linear N-contg. polymers, P 5602*i*, extrusion of fused filament-forming compns., P 6000*c*, urethan-type linear polymers P 6867*a*, artificial textile materials, foils, etc., P 9476*f*.
——, Bryans, F., and Drewitt, J. G. N. Aliphatic dienes, P 4284*d*.
——, Moncrieff, R. W., and Williams, H. O. HCN, P 825*f*.
—— and Pool, W. Extrusion of fused filament-forming compns., P 6868*a*.
**Dreyfus, J. C.** See Schapira, G.
—— and Schapira, G. Biochemistry of muscle Fe (IV) muscular atrophy produced by fasting and by nerve section, 4357*b*.
——, Schapira, G., and Schapira, F. Muscle Fe in ischemic necrosis, 8518*i*.
**Drickamer, H. G.** See Giller, E. B.; Trevoy, D. J.
——, Downey, S. L., and Pierce, N. C. Thermal diffusion in H-hydrocarbon mixts., 7281*d*.
**Driesen, W.**, Grün, L., and Rummel, W. Action of marbadal, 5824*d*.
**Driessche, R. van den.** Assay method for estrogenic substances, 5070*b*.
**Driessens, J.**, and Boulanger, P. Riboflavin level of the diet and the metastatic activity of Guérin epithelioma, 1478*a*.
**Driggers, B. F.**, and Darley, M. M. Control of the plum curculio on peaches with benzene hexachloride, parathion, chlordan, and Pb arsenate, 9348*g*.
—— and Merrill, L. G., Jr. Oriental fruit moth control with DDT and parathion, 7630*h*.
**Driggers, J. C.** See Comar, C. L.
**Drigo, A.**, and Rostagni, A. Radioactivity in the thermal area of Abano (Padua), Italy, 7331*i*.
**Drill, V. A.** See Hall, C. A.
**Drinberg, A. Ya.** Technology of Film-Forming Substances (book), 5607*d*; testing paint, plastic films, etc., P 6433*b*.
—— and Golant, Sh. I. Substitute for linseed oil, P 3215*f*.
—— and Tsyskovskii, V. K. Siccatives, P 3216*b*; drying-oil substitute, P 3633*a*; oil colophony varnish, P 3634*c*.
**Drinker, C. K.**, and Hardenbergh, E. Acute effects on the lungs of dogs of large intravenous doses of α-naphthylthiourea, 5122*b*.
**Drinker, P.**, and Cook, W. A. Max. allowable concns. of atm. impurities, 4400*i*.
**Drinnen, L. D.**, and Blake, H. T. Treatment of low-grade massecuites at Bingera, 8715*d*.
**Dripps, R. D.** See Comroe, J. H., Jr.
**Drisch, N.** Sponge-forming compns., P 6868*a*.
**Driscoll, R. L.** See Thomas, Harold A.
**Driver, D. L. A.** Se rectifiers, P 8920*e*.
**Driver, G. W.** See Coffey, S.
**Driver-Harris Co.** Creep-resistant alloy, P 990*h*; elec. resistance element, P 2878*g*.
**Drobinin, I. N.**, and Dunaev, S. E. Plunger pump for liquid O, P 6010*i*.
**Drobintseva, A. V.**, and Plotnitskaya, A. M. Vitamin $B_2$ in skin diseases, 1471*e*.
**Drobyshevskii, E. A.** Formulas for the evaluation of incomplete combustion processes in the lampblack industry, 6396*a*.
**Droegemueller, E. A.** Better Pb scavenging needed for aviation gasoline, 1173*a*.
**Droese.** Diagnostic significance of the K-Ca ratio in the serum, 9224*b*.
**Drogin, I.** Effects of C blacks on the viscosity of rubber, 7251*b*.
——, Bishop, H. R., and Wiseman, P. Processing and reënforcement characteristics of low-temp. GR-S with various C blacks, 2461*a*, high-temp. mixing of fully reënforcing C blacks in synthetic and natural rubbers (I), 9515*g*.
**Dronov, S. F.** Maceration and diffusion method in diffusion battery, 9503*h*.
**Drosdoff, M.** See Dickey, R. D., Nearpass, D. C., Painter, J. H.
**Drosdow.** See Drozdov.
**Drost, G.** See Alphen, J. van.
**Droste, W. H.** Pigment content and consistency of pigment pastes, 5201*c*.
**Drost-Hansen, W.** See Koch, Jørgen.
**Drotschmann, C.** Detn. of available O in $MnO_2$ for elec. batteries, 2521*g*, corrosion of Zn in Leclanché-type cells, 7836*d*.
**Drouet, L.** See Wolff, R.
**Drouhet, E.**, and Segrétain, G. Action of hyaluronidase on the capsule of *Torula histolytica*, 4726*c*.
**Drozdov, B. V.** Potentials and solv. of Cu in Ni-plating solns., 4955*g*, kinetics of the cementation reaction, 7790*h*, potential of Ni in Ni-plating solns., 8902*c*; see Rotinyan, A. L.
——, Kozich, E. S., and Rotinyan, A. L. Detn. of Cu in Ni electrolyte, 4177*g*.
—— and Rotinyan, A. L. Slime formation and anodic behavior of Pd in the electrolysis of Cu anodes contg. varying amts. of S, 2519*c*.
**Drozdov, N. S.** Scientific activity of I. A. Smorodintsev, 5649*c*.
—— and Materanskaya, N. P. Detn. of nicotine as picrate, 5537*c*.
**Drozdova, T.** See Kretovich, V. L.
**Druce, E.**, and Willcox, J. S. Hydrolytic evaluation of cellulose, 8677*i*.
**Druce, J. G. F.** Re Dvi-Mn, the Element of At. No. 75 (book), 932*b*; Re and some of its compds., 7361*f*.
**Druce, S.** $H_2SO_4$ test for liquid paraffin, 2122*f*; detn. of phenolphthalein in medicinal preps., 9371*e*.
**Drucker, B.** See Cockburn, R.
**Drucker, C.** Shape and vol. of liquid meniscuses, 4064*b*; surface-tension correction for the capillary viscometer (II), 4064*f*.
**Drucker, D. C.** Plastic deformation of metals, 6553*d*.
**Drucker, M.** Thiouracil in tablet mixt., 7641*f*.
**Drucker, R.** See Drekter, L.
**Druckrey, H.**, and Küpfmuller, K. Dose and effect, 8064*d*.
**Drude, W.** Adulteration of cocaine, 5544*h*.
**Druel, M.**, and Huit-Fidor, G. Extg. oil, etc., from soybeans, P 8180*h*.
**Druett, H. A.** See Bowler, R. G.
**Druey, J.** See Hartmann, M.
—— and Becker, A. Condensation products of heterocyclic substituted sulfanilamides with aldehydes, 4237*f*.
**Druge, L. W.** Cone-shaped, perforated insert for funnels to hold and remove filter paper, P 4057*a*.
**Druker, L. J.** See Gold, M. H.
**Drukey, D. L.** See Bailey, C.
**Drulhon, L.** See Camelin, A.
**Drum, L. F.** See Pollak, Arthur.
**Drummond, F. E.** Air-dry curing of surface coatings, P 1222*c*.

**Drury, D. R.**, Henry, J. P., and Goodman, J. Effects of pressure breathing on kidney function, 7111*a*.
**Drury, H. F.** Identification and estn. of pentoses in the presence of glucose, 7869*h*.
**Drutskaya, L. V.** Detn. of Si and Fe in Silumin, 907*c*; detn. of Fe, Si, Cu, and Zn in Al, 6538*h*.
**Druyan-Rempel, E. A.** See Babushkin, S. A.
**Druzhinina, K. V.** See Kritsman, M. G.
**Dry, T. J.** See Salassa, R. M.
**Dryamova, N. A.**, Zav'yalov, S. I., and Preobrazhenskii, N. A. Pilocarpine alkaloids (XXI) synthesis of pilosinine, 2625*e*.
**Dryden, C. E.** See Buxton, L. O.
**Dryden, E. C.** See White, J. W., Jr.
**Dryden, H. L.** Rockets as research tools in aeronautics, 4828*g*.
**Dryden, I. G. C.** Extn. of bright coals by anhyd. ethylenediamine, 3593*h*, see Boas-Traube, S. G.
**Dryden, J. S.**, and Jackson, W. Dielec. behavior of methyl palmitate —resonance absorption, 2055*e*
**Dryden, L. P.** See Hartman, A. M.
**Dryden Rubber Co.** Gasket compn., P 7260*d*.
**Drying & Concentrating Co.** Spray drier, P 6874*h*.
**Drzewiński, S.** See Krotowski, L.
**Dsissko, W. A.** See Dzis'ko, V. A.
**Duarte Rodrigues, L.** Detn. of Bi compds. in injectable oil suspensions by pptn. as $Bi_2S_3$, 8612*g*, see Tavares, A.
**Dubar, G.** See Jérémine, E.
**Dubeau, A. L.** See Vincent, G. P.
**Duben, V.** Detection of origin of water, 2343*i*.
**Dubilier Condenser Co. Ltd.** and Coursey, P. R. Ceramic compns., P 830*i*.
**Dubin, A.** See Popper, H.
**Dubin, J.** See Bennett, O. G.
**Dubinin, B. M.** Cleavage of *tert*-Bu group from aromatic compds., 3804*h*
**Dubinin, M. M.** Adsorption, 7774*a*.
— —, Chmutov, K. V., and Alekseev, N. G. Structure of active carbons and time of attainment of the adsorption equil., 7289*d*.
— — and Radushkevich, L. V. Equation of the characteristic curve of activated char coal, 3680*g*.
— — and Timofeev, D. P. Calcn. of adsorption isotherms of vapors on active carbons, 10*f*
— — and Zaverina, E. D. Sorption and structure of active carbons (III) alteration of the porosity characteristics of C and sorption of water vapor, 4075*g*, (IV) structure and sorptive properties of active carbons from phenol aldehyde resins, 8388*b*, 6037*c*, structure and adsorptive properties of $ZnCl_2$-activated carbon, 8790*a*
**Dubinin, N. P.** Biochem genetics, 3050*f*.
**Dubinkina, R. P.** See Kultiasov, S. V.
**Dubins, I. M.** See Runnels, R. T.
**Dublanc, L.** Analyses of Ag electroplating baths, 8903*i*
**Dubnik, C. S.** See Dalton, A. J.; Morris, H. P.
**Dubnoff, J. W.**, and Borsook, H. Dimethylthetin and dimethyl-β-propiothetin in methionine synthesis, 2261*f*
**DuBois, A.** See Pouradier, J.
**DuBois, A. S.** Bacteriol. evaluation of cationic germicides, 3873*e*.
**Dubois, J. E.** Steric effect and orientation in the Grignard reaction, 5001*d*; condensation of aldehydes and ketones (II) mixed ketolization reaction, 6159*i*
**DuBois, K. P.** Rodenticidal compds., 2362*f*; see Herrmann, R. G.
— —, Doull, J., Salerno, P. R., and Coon, J. M. Toxicity and action of *p*-nitrophenyldiethyl thionophosphate, 3520*i*.
**Dubois, M.** See Nuret, H.
**Dubois, P.** French plastics industry, 2809*f*; Generalites technologiques (book), 7161*g*.
— —, Gor, P., and Colin, R. Manuel des plastiques (book), 6863*d*.
**Dubois, S. V.** See Valladas-Dubois, S.
**Dubois, Y.** Anticryptogamic compds., P 5152*c*.
**Dubos, R. J.** Cellular structure and functions in parasitism, 271*c*; Bacterial and Mycotic Infections of Man (book), 1483*b*; cultivation of tubercle bacilli, 5085*d*; see Davis, B. D.; Middlebrook, G.
**Dubost, P.** See Durel, P.
**Duboulos, P.** Action of antioxidants, 9241*h*.
— —, Fondarai, J., and Lagarde, C. Action of tissues on ethyl oleate peroxide, 7104*d*.
— — and Laurent, J. Detn. of the speed of autoxidation of fats and oils, 879*d*.
—, Suzanne, Y., and Villers, J. Detn of fat acids, 3483*g*.
**Dubourg, J.** Control of diffusion, 1587*i*; fuel economies in the derived industries of org. chemistry, 3541*g*; ion exchangers in the sugar industry, 4034*g*.
— — and Lemaitre, A. Pptn. of $CaCO_3$ in sucrose solns., 3221*e*.
**Dubovitskii, A. M.** See Vol'fkovich, S. I.
— — and Margolis, F. G. Production of storage-resistant $NH_4NO_3$, 2741*h*.
**Dubovitskii, F. I.** Conjugated oxidation in mixts. 2 CO + $O_2$ + $H_2$ and 2 CO + $O_2$ + $PH_3$, 4548*a*.
**Dubovol, V. Ya.**, and Romanov, V. A. Detn. of H in steel, 64*d*; effect of H on the mech. properties of steel, 4200*h*.
**Dubpernell, G.** Cr plating and treating steel airplane propeller blades, P 4152*f*
**Dubrauszky, V.** See Schubert, G.
**Dubrisay, J.** See Binet, L.
**Dubrisay, R.** Corrosion of metals by org. liquids, 2918*e*.
— — and Arlet, F. Spreading of oils on metals, 465*b*.
**Dubrov, N. F.**, and Nikitenko, M. D. Grog nozzles in open-hearth furnaces, 5916*a*.
**Dubrovitskaya, N. I.** See Krenke, A. N.
**Dubrovskii, S. M.** Detn. of free Cl in drinking water, 5138*g*.
**Dubrûle, M.** See Browning, H. C.
**Dubuisson, A.** Detn. of free lime in cements, concretes, slags, and siliceous products, 5567*f*.
**Dubuisson, C. V.** See Vassas-Dubuisson, C.
**Dubuisson, M.** Appearance of a new protein, contractin, in exts. of contracted muscles, 2258*e*, 6253*h*.
— — and Mathieu, L. Adenosinetriphosphate and the extractibility of myosins, 1447*f*.
**DuBuy, H. G.**, Woods, M. W., Burk, D., and Lackey, M. D. Enzymic activities of isolated amelanotic and melanotic granules of mouse melanomas—mitochondria, 8047*a*
**Duca, A.** See Ripan, R.
**Ducamp, A. J.**, and Baule, M. E. A. Protecting Fe or Cu by powd. Zn and undecylenic acid, P 1710*g*
**Ducci, A.** Monte Maggiore eruptive center and its lava and pyroclastic "facies," 2135*d*.
**Ducci, H.** Thymol test of Maclagan—standardization and adaptation to the Evelyn photoelec. colorimeter, 7072*i*.
**Ducellier, G. L. R.**, and Isman, M. A. Combustible gas from fermentation of org. matter, P 6781*e*.
**Ducet, G.** Synthesis and degradation of choline in plants, 3492*h*, 6793*a*; sepn. and detn. of the water-sol. forms of choline, 7998*b*, occurrence of choline during growth of vegetables, 8457*b*.
— — and Grison, P. Variation in content of choline lipides in the potato beetle, 3532*d*.
**Du Challot, C.** Action of antithyroid drugs—methyl-2-thiouracil, 6307*h*.
— — and Di Donna, D. Action of sparteine sulfate on the isolated ureter, 6731*f*.
**DuChanois, F. R.** See Gjullin, C. M.
**Du Chatelier, G. G.** See Chatelier, G. G. du.
**Duchaufour, P.** Pedological studies—analysis of soils of Gascony, 8589*a*.
**Duchesne, G.** See Roux, H.
**Duchesne, J.** Raman spectrum of trimethylsilicon chloride, 42*g*; Raman spectrum of tetraethyl orthosilicate, 42*i*; potential functions and structural properties of polyat. mols., 2478*g*; see Coulson, C. A.
— — and Monfils, A. Interaction terms in the potential function of polyat. mols., 8705*c*.
**Duchoň, F.**, Economic substitution in plant nutrients by their biochem balance, 8455*d*; Czechoslovakian concd. fertilizer, 9326*d*.
**Duckert, F.** See Meyer, K. H.
**Duckert, R.** See Wenger, P. E.
**Ducks, G.**, and Mosonyi, L. Increasing the bactericidal action of penicillin by pyramidone, 8549*c*.
**Duckworth, H. E.** Double-focusing mass spectrographs, 4093*j*, rare stable isotopes, 5297*d*; measurement of the $Pt^{195}$-$Cu^{65}$ packing fraction difference, 8869*d*.
—, Black, R. F., and Woodcock, R. F. Stable $Pd^{100}$, $W^{178}$, and $Pb^{202}$, 5297*e*; stable isotope of Pt, 5297*e*.
**Duclaux, J.** Compressibility of a gas as a function of the temp., 3077*g*.
**Ducoff, H. S.** See Straube, R. L.
—, Neal, W. B., Jr., Straube, R. L., Jacobson, L. O., and Brues, A. M. Biol studies with $As^{76}$ (II) excretion and tissue localization, 3030*i*.
**Ducommun, P.** Alteration of stabilized watch lubricating oils, 4455*b*.
**Ducornet, J.** See Fauré-Fremiet, E.
**Ducrocq, A.** Horizons de l'énergie atomique (book), 6517*c*.
**Ducrot, R.** See Bovet, D.; Courvoisier, S.
**Ductile Chrome Process Co.** Metal stamping die, P 5318*g*.
**Dudash, A. P.** See Krieg, A.
**Dudavskii, I. E.** Detn. of the heat cond. of refractories, 3584*h*; structure of liquids—technology of Dinas refractories, 6381*i*.
**Dudek, M.** See Seemann, H. J.
—, Mahl, H., and Seemann, H. J. New constituent in Mn-bearing Al alloys, 542*c*.
**Dudgeon, J. A.** See Elford, W. J.
**Dudley, H. C.** Detn. of Ga in biol. materials, 6686*e*.
— —, Bronson, T. E., and Taylor, R. O. Shielding of syringes used for injecting radioactive solns., 7533*i*.
— — and Garzoli, R. F. Prepn. and properties of Ga lactate, 1909*b*.
— — and Levine, M. D. Toxic action of Ga, 6320*e*.
— — and Maddox, G. E. Deposition of $Ga^{72}$ in skeletal tissues, 7580*i*.
— —, Maddox, G. E., and La Rue, H. C. Metabolism of Ga, 7580*g*.
**Dudley, J. E., Jr.**, Bronson, T. E., and Stone, P. V. Tetraethyl pyrophosphate, parathion, and benzene hexachloride to control the pea aphid, 1807*b*.
**Dudley, J. F.** See Kastens, M. L.
**Dudley, J. R.** Urea and melamine resins, 2807*i*, anion-exchange resins, P 5517*g*, 7162*g*; anion-active resins, P 5518*b*; see Lundberg, L. A.
— — and Lundberg, L. A. Anion-active resins, P 5517*i*
**Dudley, R. A.**, and Dobyns, B. M. Autoradiographs in the quant. detn. of radiation dosages from $Ca^{45}$ in bone, 4951*i*.
**Dudykina, N. V.** Butylene glycol and its formation fermentation processes, 7187*g*.
**Duecker, W. W.** Surveying the market, 3117*f*.
**Duensing, F.** Cerebrospinal fluid protein, 7535*h*.
**Duensing, M. E.** See Fletcher, H. M.
**Duerr, H. H.**, Morreall, H. W., Jr., and Harsh, H. C. Color neg. film contg. integral masking images for color correction, P 2532*a*; color photography, P 4591*d*.
**Dürr, L.** Raising the fire resistance of cooking vessels made from silicates, P 5166*f*.
**Dürst, O.**, Jeger, O., and Ruzicka, L. Triterpenes (CXXXVII) partial synthesis of ambratriene, 3808*c*.
**Duesberg, R.** Hemoglobin metabolism, 8497*f*.
**Duesel, B. F.**, and Friedman, H. L. Nicotinamide, P 7513*i*
— — and Scudi, J. V. Carboxylic acids of 3-pyridinesulfonic acid and their salts, 7024*e*.
**Duewell, H.** See Albert, Adrien.
**Dufay, J.** Permitted radiations of neutral atoms of O and N in the spectra of the aurora, 4567*e*.
— — and Bloch, M. Forbidden lines of Fe III in the spectrum of Nova Herculis 1934, 2092*c*.
— — and Tcheng, M.-L. Spectra of lightning (I), 3710*g*, 7334*h*.
**Dufay, M.** Excitation of the band spectrum of the ionized N mol. at dawn, 2510*g*; emission of the neg. bands of N at twilight and dawn, 5662*g*.
**Duff, G. H.**, and Forward, D. F. Plant metabolism (I) respiration of the seedling wheat leaf in starvation and ontogeny, 7094*h*.
**Duff, G. L.**, and McMillan, G. C. Effect of alloxan diabetes on cholesterol atherosclerosis (I) inhibition of cholesterol atherosclerosis in alloxan diabetes, (II) effect of alloxan diabetes in the retrogression of cholesterol atherosclerosis, 5859*e*.
**Duff, R. B.** See Chappell, R. E.
**Duffaud, N.** See Quelet, R.

**Duffey, D.** Redistd. Ca, P 2380*h*.
**Duffey, G. H.** Bipyramidal pentacovalent bond orbitals, 4526*h*; see Eyring, H
**Duffie, E. R.** Relation of paper and ink to high-speed printing, 1186*i*
**Duffield, J. A.** See Burton, H.
**Duffield, R. B.** See Hanson, A O, McElhinney, J.
—— and Knight, J. D Radioactive Ag isotopes produced by photodisintegration of Cd, 5295*h*, $In^{113}$ and $In^{110}$ produced by photodisintegration of Sn, 8267*h*, radioactivity of $Mo^{91}$ and $Mo^{93}$, 8873*a*.
**Duffin, G. F.** See Huggett, W E.
**Duffy, B. J.** See Chow, B F
**Duffy, G. J.** C black for the ink industry, 1190*e*; channel and furnace C blacks, 8647*i*.
**Duffy, P. A.** Radiation detectors- at age police force, 8261*b*.
**Dufour, C.** Evapn. of multiple thin layers, 1621*e*.
**Dufour, F.** Nouveau dictionnaire technique (book), 6761*i*.
**Dufour, M. F.** See Hills, R. C.
**Dufour, R. E.** See Matson, A. F.
**Dufraisse, C.** O and C, 2477*h*.
— —, Étienne, A., and Rigaudy, J Constitution of the peroxides of Julian—photoxidation and autoxidation in the phenylanthranol series—isomerism between a photoöxide and a peroxide of nonphotochem. origin, 620*d*.
——, Mathieu, J., and Rio, G *meso* Bis-(phenylethynyl)anthracene, 3401*d*.
**Dufrane, A.** See Lambert, R
**Dufrénoy, J.** Org. fungicides, 804*g*; effect of elevated temps on higher plants and on microorganisms, 5062*d*; physiology of rice seedlings, 5092*c*, sugar cane growth, 6704*e*; amino-acid antagonism in pathology, 8516*i*; vegetal physiology for horticulture (I) oligoelements—activity of B on respiratory phenomena, 8459*d*, see Chao, J.; Pratt, R
—— and Dufrénoy, M L. From Genesis to at. bomb, 4745*f*.
—— and Langeron, M Wetting, detergent, and emulsifying agents in parasitology, 6699*g*.
—— and Pratt, R. Utilization of waste liquors from pulping in the biosynthesis of penicillins, 1072*i*; responses of cuttings, seeds, and flowers to dithiobiuret, 2678*i*.
**Dufrénoy, M. L.** See Dufrénoy, J
**Dugal, L. C.**, and Cardin, A. Purification of sea-wolf oil, 6812*f*.
**Dugal, L. P.**, and Desmarais, A Partial hepatectomy and resistance to burns (V) variations of ascorbic acid and of the wt. of the adrenals, 9221*h*
— and Thérien, M Influence of ascorbic acid on the adrenal wt during exposure to cold, 8025*b*.
**Dugan, L. R.** See Kraybill, H. R.
**Dugay, R.** See Poincaré, L.
**Duggan, E. L.**, and Luck, J. M. Combination of org. anions with serum albumin (IV) stabilization against urea denaturation, 4707*g*
**Duggan, F. W.**, and Stambaugh, R P. Antiblocking agent for plasticized vinyl resins, P 5999*n*
**Duggan, R. E.** Standardization of $KMnO_4$ solns., 7368*e*.
**Dughi, R.** Metachromatin and the pseudovacuoles of the Cyanophyceae, 5831*g*
**Dugleux, P.** See Fréling, E
**Duhig, W. G.** See Shearon, W H, Jr.
**Duimov, A. M.** See Dymov, A M
**Duin, G. F. van.** Handleiding tot de practischeen theoretische receptuur (book), 3978*a*.
**Duisberg, P. C.** See Botkin, C. W
**Duisend, M.** See Hamburger, J.
**Dujardin, I.** See Hoyaux, M.
**Duke, F. R.** Reactions involving like-charged ions (I) neutral intermediate in alk. permanganate oxidations, 2847*i*.
——, Bever, R. J., and Diehl, H Pptn of $BaSO_4$, 6941*f*.
—— and Forist, A A. Theory of kinetics of specific oxidation (III) cerate 2,3-butanediol reaction in $HNO_3$ soln., 7798*i*.
**Duke, H. N.** Action of $CO_2$ on isolated perfused dog lungs, 7135*i*
**Duke, J. B.** Concn. of phosphate minerals, P 3160*b*, 3986*a*; concn of nonsulfide, nonsilicate ores with $HNO_3$-treated fatty acids, P 3768*e*; see Greene, E W.
**Duke, M.** See Seymour, G. W.
**Dukel'skii, V. M., and Zandberg, E. Ya.** Neg. ions in the gaseous discharge in Na vapor, 4942*a*.
—, Zandberg, E. Ya., and Ionov, N. I Neg. ions of alkali metals in gaseous discharge in alkali halide vapors, 1256*c*, neg. ions of Rb and Cs, 8868*i*.
**Dukes, D.** See Raffel, S
**Dukhan, D. S.** See Yurovskaya, F. S.
**Dulac, J.** See Maume, L.
**Dulaney, A. D.** Antigen for the diagnosis of malaria, P 5112*d*; see Arnesen, K
**Dulaney, E. L.** *Streptomyces griseus* (II) N sources for growth and streptomycin production, 272*a*
**Dulce, H. J.** Reduction in the activity of the cholinesterase in serum of cases with liver damage, 7570*e*
**Dulis, E. J.** See Smith, G V.
**Dull, M. F.** Chem. education at Hope College, 1229*b*.
**Dulou, R.** See Dupont, G
**Dum, J. L.** See Bradley, H I Conant, F S.
**Dumanskii, A. V.** Study of Colloids (book), 2502*b*, heats of wetting and swelling, 4553*d*; I S Teletov, 7275*h*
—— and Kurilenko, O D. Dispersion of dielec const —detn of the hydrophily of starch sols, 6888*e*
—, Mezhennii, Ya P, and Nekryach, E F. Lyophilism of disperse systems (I) heat of wetting, 6042*b*, (II) heat of wetting of starch, gelatin, agar, and $SiO_2$ with water and alc, 7781*f*, swelling of agar in mixts of dioxane, $H_2O$, and EtOH, 7788*f*
— and Voltsekhovskii, R. V Detn. of the hydrophilism of disperse systems, 7781*h*.
**Dumas, J.** Reaction of cacotheline and stannous salts, 520*h*; tartrate and stannitartrate of triethanolamine, 6171*e*.
**Dumbell, K. R.**, and Lovelock, J E Handkerchiefs in the transfer of respiratory infection, 6278*f*
**DuMerac, M. L.** See Merac, M L du.
**DuMez, A. G** See Jenkins, G L
**Dumitrescu, Z. O.** See Opreanu-Dumitrescu, Z.
**Dumler, E. G.** Corrosion stability of steel Zh 3, 6560*d*
**Dumm, M. E.** Ovando, P., Roth, P., and Ralli, E. P. Relation of pantothenic acid to white blood cell response of rats following stress, 8494*h*.
—— and Ralli, E P. Requirement for pantothenic acid by the adrenalectomized rat, 8025*a*.
**Dummett, G. A.** See Aluminum Plant & Vessel Co Ltd, Botham, G H, Ralph, S J
**DuMond, J. W. M.** Solid state interpretation of the structure near the limit of the continuous x-ray spectrum, 3280*e*; optimum luminosity and energy resolution in an axial $\beta$ ray spectrophotometer with homogeneous magnetic field, 3706*d*, consistency diagram of the natural at. consts., 4948*c*; effect of Compton shifted scattering on precision wave length detns with the focusing crystal spectrometer, 4948*d*, see Lind, D. A., Watson, B B
—, Lind, D A, and Watson, B B Wave length and spectral profile of the annihilation radiation from $Cu^{64}$, 4948*b*
**Du Mond, T. C.** Free cutting steels, 88*f*, metal cleaning, 544*h*, materials for collapsible tubes 983*d*, progress in Ti, 2143*h*, gray-iron castings, 4199*e*
**DuMont, A. B., Laboratories.** Forming a luminescent screen, P 1267*c*.
**DuMont, C. S.** Production and properties of Ti, 3766*b*.
**Dumont, O. S.** See Schmitz-Dumont, O
**Du Montcel, F. T.** See Montcel, F. T. du
**Dunaev, S. E.** See Drobinin, I N.
**Dunaev, Ya. A.**, and Maslakovets, Yu. P. Phys. properties of PbS, 4532*a*.
**Dunahoe, J. W.** See Karchmer, J H.
**Dunajev.** See Dunaev.
**Dunbar, A.** See Woodberry, D. L.
**Dunbar, C.**, Weston, C. D., and Imperial Chemical Industries Ltd Compns. for coating textile fabrics, P 4023*a*.
**Dunbar, D. N. F.** See Martin, L. H.
**Dunbar, R. E.** See Ferrin, F. J.
**Dunbar, T. L.** Treating waste sulfite liquor, P 5950*g*.
**Duncan, A. B. F.** See Dieke, G. H.; Liu, T.-K.
**Duncan, C. S.** CuO rectifier, P 2525*g*.
**Duncan, C. W.** See Sarkar, B. C. R.
**Duncan, D. R.** Drying of $NaNO_3$ to obtain a noncaking granular form, P 3984*i*.
**Duncan, G. W.** See Paliwoda, M. A., Zimmer, J. C.
—— and Zimmer, J. C Oily compn., P 1564*a*; hydrocarbon-oil concentrates of metal sulfonates, P 3192*i*; complex from a multivalent metal petroleum sulfonate, P 5584*e*; purification of concd. oil solns of multivalent metal sulfonates, P 9434*d*.
**Duncan, J.**, and Starling, S. G. Physics (book), 3278*f*.
**Duncan, J. B.**, and Christian, J. E. Polarographic detn. of folic acid and Zn salts in pharmaceuticals, 8613*e*
**Duncan, J. F.**, and Lister, B. A. J Ion exchange, 3264*e*.
**Duncan, R. D.** Mg cathodic protection to inhibit corrosion of bronze facing wires on groundwood deckers, 4012*i*.
**Duncan, W. E.** See Burdick, E. M.
**Duncanson, W. E.**, and Coulson, C A Electron momenta in atoms, 3703*d*.
**Dunegan, J. C.** See Goldsworthy, M. C
**Dunet, A.**, and Willemart, A Products of reduction of phthalimide—hydroxyphthalimidine and its "so called dimer," 623*f*, action of amines on hydroxyphthalimidine, 623*h*, prepn. of hydroxyphthalimidines, 3805*e*; aminophthalide and hydroxyphthalimidine (I), 3806*b*, synthesis of $\beta$ isoindigo (I), 7930*e*
**Dunford, R. A.** Detn of synthetic estrogens, 8419*f*
**Dunham, A.** Working with Plastics (book) 1216*f*.
**Dunham, K. C.** Geology of the northern Pennine orefield (I) Tyne to Stainmore, 1188*e*, see Edwards, W, McLaughlin A I G; Smythe, J A
—, Claringbull, G F, Bannister, F A, and Harvey, C O Dickite and collophane in the magnesian limestone of Durham, 4607*d*.
**Dunham, L. S.**, and Jegre, E O Alk primary battery P 5104*d*.
—— and Steffensen, E V Impregnating rbc bodn fo npr primary cell, P 7530*e*
**Dunham, R. S.**, Crim, R F, and Hegge H. G Chem. weed control in Minne 7624*i*.
**Dunitz, J. D.** Structure of the centrosymmetric isomer of 1,2,3,4-tetraphenylcyclobutane, 6480*a*, see Crowfoot, D.
— and Weissman, L. Constitution of the dimer of acenaphthylene, 6487*c*
**Dunk, G. von der.** See Hoff, H.
**Dunkak, E. B.** Dehumidifier for silica gel utilizing solar energy, P 4403*b*.
**Dunker, M. F. W.** Decompn of Na phenobarbital in solns. of aliphatic amines and alkanolamines, 9375*d*.
**Dunkerley, F J.** See Kalish, H S
**Dunklee, D. E.** See Mudgley, A. R
**Dunkley, G. T.** Silicone finishes, 3632*e*
**Dunkley, M. E.** Milk treatment with oxidation-inhibiting gases, P 4396*h*
**Dunlap, J. H.** Water and power facilities at Diamond Alkali in Houston, 3122*i*.
**Dunlap, W. B., Jr.** See Nellen, A H.
**Dunlap, W. C., Jr.** Se- new semiconductor, 2877*g*
—— and Heunelly, E. F Nonrectifying Ge, 453*e*.
**Dunlop, A. P.** See Hillyer, J. C.; Swadesh, S.
— and Reineck, E A Furfuryl alc phenolic resins, P 1605*i*, condensation of polymerized furfuryl alc with a hydroxybenzene, P 2037*a*
**Dunlop, D. M.** Antihistamine drugs 4812 see Hunter, R. B; Stewart, C. P
**Dunlop, R. D.** Polyvinylbutyral comp 2467*g*, thermosetting polyvinyl compn., P 4989*i*.
**Dunlop, S. G.** See Brenner, S; Hill Robert M.
**Dunlop Rubber Co. Ltd.**, Amphlett, P Hughes, A. J., and Twiss, D F Reclaiming vulcanized rubber contg cellulosic material, P 5992*h*.
——, Blanco, J. R., Neal, A E. T., and Twiss, D. F. Emulsions or compns of organic polysulfides and articles produced therefrom, P 4876*i*.
and Davies, R. C. Reclaiming vulcanized rubber, P 4892*c*.
— and Goldstaub, M. Cold-setting acetal thioplast compns., P 5644*bd*.
—, Rogerson, J., and Warren, F. W. Treatment of felt and products obtained thereby, P 7720*d*.
—— and Round, A. A. Adhesive compn., P 7745*c*.

—, Trobridge, G. W., Brentnall, G. C., and Simmons, D. N. Self-lubricating compns. contg. rubberlike substances, P 7678*c*.

—, Twiss, D. F., and Hughes, J. Compns. of rubber, etc., P 9518*i*.

**Dunn, A. L.**, and McIntyre, A. R. Detection of bromate in blood and urine, 4324*d*.

**Dunn, C. G.** Recrystn. textures, 7304*d*.

—— and Lionetti, F. Effect of orientation difference on grain boundary energies, 2557*f*.

— and Martin, W. W. Detn. of orientations of cubic crystals, 6510*a*.

**Dunn, C. L.** See Diephuis, F.

**Dunn, E. J., Jr.**, and Baier, C. H. Effect of white pigments on phys. properties of paint films, 1577*g*.

**Dunn, G.**, Newbold, G. T., and Spring, F. S. Structure of the antibacterial compd., aspergillic acid, 3014*a*.

**Dunn, G. E.** See Gilman, H.

**Dunn, H. C.**, Hilditch, T. P. and Riley, J. P. Compn. of seed fats of West Indian citrus fruits, 880*f*.

**Dunn, H. J.** See Geiger, E.; Lassen, S.

**Dunn, J. A.** Mn ore, 525*b*. Cu, 525*c*.

**Dunn, J. S.** Breakpoint, 6343*e*.

**Dunn, L. E.**, and Rost, C. O. Yield and nutrient content of sugar beet tops, 4305*f*.

**Dunn, M. S.** See Camien, M. N.; Drell, W., Rockland, L. B., Camien, M. N., Malin, R. B., Murphy, E. A., and Reiner, P. J. Percentages of 12 amino acids in blood, carcass, heart, kidney, liver, muscle, and skin, 7061*d*.

—, Camien, M. N., and Pillemer, L. Amino acid compn. of tetanal toxin, 8520*g*.

—, Camien, M. N., Shankman, S., and Block, H. Amino acids in lupine and soybean seeds and sprouts, 1080*e*.

—, Feaver, E. R., and Murphy, E. A. Amino acid compn. of a fibrosarcoma and its normal homologous tissue, 5856*e*.

—, McClure, L. E., and Merrifield, R. B. Detn. of proline in protein hydrolyzates with *Lactobacillus brevis*, 6993*i*.

**Dunn, R. C.** See Byler, R. E., McBain, J. W.

**Dunn, R. W.** Recovery and estn. of radioactive isotopes from biol. tissues (I). Au, 711*a*, see Tobias, C. A.

**Dunn, T. B.** See Maver, M. E.; Morris, H. P.

**Dunn, T. H.**, Nuss, W. F., and Beck, R. W. Flow properties of drilling mud, 2757*b*.

**Dunn, W. L.** See Dorte, D. D.

**Dunne, H. W.** See Luecke, R. W.

**Dunne, T. C.**, and Gulvin, A. T. Mn deficiency of apple trees, 8596*b*.

**Dunning, J. W.**, and Dallas, D. F. Control of saccharification operatic 0412*a*.

and Lathrop, E. C. Saccharifying plant materials, P 405*b*.

**Dunning, W. F.**, Curtis, M. R., and Friedgood, C. E. Benzopyrene-induced sarcomas in alloxan diabetic rats, 3515*c*.

, Curtis, M. R., and Maun, M. E. Effect of dietary fat and carbohydrate on diethylstilbestrol induced mammary cancer, 8028*a*.

**Dunning, W. G.** Max. use of the chemist lab., 7762*d*.

**Dunning, W. J.** See Bransom, S. H.

**Dunoyer, J. M.** Measurement of gas flow at low pressure, 1613*i*, kinetics of a gas solid reaction, 8820*a*.

**Dunoyer, L.** Measurement of low pressure with the thermal manometer, 3676*i* thermal micromanometer (I), 7269*d*.

**Dunphy, L. W.** See Wetmore, R. T.

**Dunphy, E. P.** See Myskowski, E. T.

**Dunstan, E. J.** Oil refining, 7217*c*.

**Dunstan, S.**, and Gillam, A. E. Detn. of pentoses, 7870*a*.

**Dunworth, J. V.** Operational characteristics of the Harwell piles, 4096*h*.

**Duparque, A.** Petrographic study of Paleozoic coals—heterogeneity and discontinuity of coal veins—analyses and forms from—chem., tech., and petrographic classifications—coking coals and cokable coals—sandstones and bituminous schists associated with coals of northern France, 3167*i*, polarized light in the microscopic examn. of polished surfaces of anthracite and the detn. of these fuels in ligneous tissues, 5569*g*.

**Dupas, J.** See Lespagnol, A.

**Dupas, R.** Synthesis of lubricants, 1952*i*.

**Dupéron, R.** Effect of vernalization on the evolution of lipides and glucides of *Sinapis alba*, 3491*f*.

**Dupire, A. P. H.** Benzene hexachloride, P 4295*h*.

**Duplaix, S.** Détermination microscopique des minéraux des sables (book), 5550*b*.

**Duplessis, H. T.** See Tuchmann Duplessis, H.

**Duplessis-Kergomard, A.** See Dupont, G.

**Dupont, G.** Autoxidation of the pinenes, 609*h*, Robert Lespieau, 3669*g*, see Champetier, A.

— and Dulou, R. Spectrographic study of an isomeric carbide of pyronene, 4666*a* catalytic properties of clays, 6799*a*

—, Dulou, R., and Defay, N. Action of *N*-bromosuccinimide on terpenes, 6600*h*

—, Dulou, R., and Devillers, P. Prepn. of dehydroabietic acid and Me dehydroabietate, 6605*d*

—, Dulou, R., and Duplessis-Kergomard, A. 2,2-Bis(hydroxymethyl)-1-heptanol, triol derived from enanthaldehyde, 6570*a*

—, Dulou, R., and Naffa, P. Sesquiterpene constituents of oil of turpentine of cluster pine—caryophyllene and longifolene, 2087*c*

—, Dulou, R., and Vilkas, M. Prepn. of alumina for chromatography, 1535*b*.

**Dupont, H. F.** See Perard, J.

**Dupont, J.** See Établissements Roure Bertrand Fils.

**Du Pont de Nemours, E. I., & Co.** (*Patents*)

acetylene tetramethacrylate and polymers thereof, 2031*f*

acrolein acetal polymers, 5635*h*

acrylates from β alkoxypropionates, 3442*e*

acrylonitrile, 3658*d*.

*m* acylaceteamidobenzaldehyde acetals of alkanols, 4299*e*.

acyclic olefins, addn. of F to, 5031*f*

adhesive compns. and adhesive sheets, 6868*e*

adiponitrile sulfonic acid salts, 3840*b*

airplane wing tanks, 6457*b*.

alcohols (denatured), 5902*a*

aldehydes, 4685*d*.

aldehydes (tertiary amino matic), 2232*i*

alkali cellulose, 2435*d*

alkali metal compds., 7203*a*

*N*-alkoxymethyl polyamide coatings, 6466*c*.

*N*-*tert*-alkyl amides, 3028*g*.

alkylated aromatic hydrocarbon polymers, 6657*f*

alkylation of cyclic unsatd. hydrocarbons using alkali metal catalyst, 1057*i*

*N*-alkylethanolamines, 2633*e*

*N*-alkyl polymeric acids, 3239*a*

4-alkylquinolones, 1433*e*

amines, 2630*g*, 5791*b*

animal feed, 3542*e*.

anthraquinone derivs., 1808*i*

aralkyldiamines, 3155*i*

aryl esters, 6234*i*.

arylmethylmercapto aldehydes, 6664*a*.

1-aryl-2,2,3,3-tetrafluorocyclobutanes, 4294*e*.

aryl trichlorothiolacetates in elastomer treatment, 4046*e*

azobisformates and polyfluoroethylenes, monomeric addn. products of, 3445*h*.

benzenediacetic acids and their polymers, unsatd. esters of, 3661*d*

8,9-benzothiophanthrene, 9167*g*.

1,1′-bis(amino *tert* butyl)-substituted aromatic hydrocarbons, 4296*i*.

*p*-bis(α hydroxyalkoxy)benzene esters, 4512*b*

2,2-bis(4-methoxyphenyl)-1,1,1-trichloroethane, 9085*d*

2,2-bis(4-methylthiophenyl)-1,1,1-trichloroethane, 7187*d*.

butadiene copolymers, processing agents for, 4046*b*.

butadiene-styrene interpolymers, improving the millability of, 7258*a*.

carbon tetrafluoride, 3437*a*.

carbonyl compds., 4287*b*

carbonyls (metallic), 9398*b*

carboxamides, 7263*e*

carboxylic acid esters (phenol-substituted), 5014*g*

carboxylic acids, 669*g*, 670*b*

casting compns. comprising methyl methacrylate and glycol dimethacrylates, 6467*b*.

cast synthetic resin with integral pattern effects, 9525*f*.

cast synthetic resin with integral sheen, 9525*i*.

catalyst for photopolymerization, 2818*g*

catalyst (Hg-treated charcoal), 1932*d*.

catalysts, 825*e*, 6096*d*.

catalysts for polymerization, azodisulfone acid salts as, 5642*b*

catalysts (oxime) for polymerizing olefins, 4514*i*.

catalysts, recovery of $HF$-$BF_3$, 3949*b*

cellular plastic articles, 3234*h*.

cellulose deriv. combined with *N*-alkoxy methyl polyamide, 3659*e*.

cellulose oxazolidone ethers, 3196*h*.

cellulosic derivs. and fabrics coated therewith, 9146*g*

chloral purification, 6650*i*

chlorinated formals, 5035*b*.

chlorinated heterocyclic org. compds., 3041*b*.

chlorinated polyethylene elec. insulating compns., 9534*e*

chlorinated polythene compns., 5642*f*, 9534*c*

chlorinated polythene treatment, 9533*i*

chlorination of $C_2H_3$, 2870*f*.

chlorination of hydrocarbons, 681*g*.

chloroacetic acid, 1795*g*.

chlorobutadienes, 9078*fg*, 9519*d*.

choline chloride, 2739*f*.

cleaning compn., 3640*b*.

coal, gravity separator and classifier of, 9419*d*

coated cotton fabric, 8176*b*.

coated granular resins, 441*b*

coating compns., 876*h*, 1711*a*, 2786*e*, 5608*f*, 9485*a*, 9535*d*

coating compns. comprising a polychloroprene and Al powder, 3659*f*.

coating compns comprising a polychloroprene and C black, 3659*h*.

coating compns comprising a polychloroprene and stripping agent, 3659*f*

coating compns for fabrics, polyhaloprene-halogenated polyethylene blends for, 4508*e*.

coating compns using polyethylene-coated pigments, 6838*d*

coatings (vitreous) for light metals, 5001*g*.

collar (semistiff), 4870*e*

condensation products of citric acid with long chain aliphatic monohydric alcs., 6846*c*.

condensation products of pentaerythrityltetramine with β-diketones and β-hydroxymethylene ketones, 4687*e*.

condensation products of tri(2-aminoethyl)amine and β-diketones or hydroxymethylene ketones, 3839*i*

curing polyethylene, 2038*d*

1-cyano-1,3-butadiene sepn. fro AcOH, 2220*h*

cyanohydrin esters, 2641*g*

cyanohydrins, 2223*i*

cyclohexene, 5418*f*.

DDT, 350*g*, 3970*a*, 5540*i*

dehydrofluorination of polyfluoralkalanes, 3437*b*.

α,α-dialkyl-β-chloropropionic acids, 671*g*

dialkyl disulfides, cleaving the —S-S- group in, 1794*c*.

diallyl diglycolate-styrene copolymer, 2035*h*.

1,4-dicyano-2-butene, 4286*d*.

1,4-dicyano-2-butene isomerization, 6617*e*.

difluoroethane, 6644*b*.

dihalobutanes, 1133*d*.

3,4-dihydroxythiophene, 2237*a*.

3,4-dihydroxy-2,5-thiophenedicarboxylic acid, 2236*i*.

dimethylethanolamine, 3839*e*, 7501*b*.

dimethyl terephthalate, 3039*g*.

1,3-dioxolane polymers, 3237*a*, 3658*g*

distillation, 7608*e*

drying of $NaNO_3$ to obtain a relatively noncaking granular form, 3984*i*.

drying oils, 422*a*, 1995*e*.

drying oils and coating compns., 876*g*, 877*a*.

dyed textiles or flexible org. sheet materials, increasing the wash fastness of, 4022*b*.

dyeing nylon, 8692*d*, 9473*a*.

dyeing unwoven fibers, 2784*e*

dye intermediates, 8169*d*, 9471*c*.

dyes (anthraquinonylbenzazole vat), 4484*a*

dyes (azomethine), 8161*h*.

dyes (cyanine) and photographic Ag halide emulsions sensitized with such dyes, 6532*e*.

dyes for photographic sensitizing, 4160*b*, 8026*c*.

dyes (green tetrakisazo), 860*i*.

dyes (quinoneimine), 8167*g*.
dyes (S), 4020*h*.
electrodepositing compn. and bath for Sn, 6527*d*.
electrodepositing compn. and process, 6095*d*.
electrodeposition of Ni, 4964*a*.
emulsions (water-in-oil), 9494*h*.
esters, 422*d*, 3443*b*, 3838*e*, 9078*h*.
esters of polyhydric alcs. with mercaptocarboxylic and drying oil acids, 9081*f*.
ether esters, 1055*df*.
ethylene - 1,3 - dioxolane copolymer, 2471*b*.
ethylene polymers, 444*d*, 1222*h*, 3235*g*, 4869*e*, 9537*c*.
ethylene polymers, working of, 9533*b*.
ethylene-vinyl acetal polymeric compn., 444*e*.
ethylmercapto polymers (β-substituted), 8209*e*.
extraction thimble, 8218*h*.
extruding polytetrafluoroethylene and coating articles therewith, 2037*d*
fats and oils, stabilization of, 4397*b*
fibers, 5602*i*.
fibers from hydroxyl-contg. polymers, 8174*g*.
filaments and yarn, 4021*a*.
film from regenerated cellulose, 1567*d*.
films (antistatic), 4520*g*
films (nonthermoplastic synthetic-resin), 3662*c*.
films with hydrophilic polyvinyl acetal sublayers, 3738*d*.
fluorinated hydrocarbons, 3831*f*
fluorine-substituted orthosilicic acid esters, 6220*a*.
fluorohydracrylic acids and their esters, 2224*b*.
fluorohydrocarbons, 2218*e*, 7035*e*.
fly spray, 4421*b*.
formaldehyde, 5791*i*.
fractionation of mixts. of di- and triethylamine, 3837*b*.
fungicides, 1525*d*, 3968*f*, 4119*d*
galvanizing fluxes, 6150*b*, 6565*b*, 6967*b*.
gas-purification process, 7669*e*
glass laminate, 9407*g*
glycol diester emulsions, 9533*g*.
halogenated alcs. and formals, 3835*g*.
halogenated fluoroalkanes, 661*d*.
herbicide, 1904*b*.
hydraulic fluid, 1504*dh*, 3949*i*
hydrazonitriles from azines of Bu ketones, 6652*e*
hydrocarbometallic halides, 7953*d*.
hydrogenation of alkynes, nitriles, nitrites, and nitro compds., 1793*g*
hydrolyzed ethylene-vinyl ester copolymer and *N*-substituted polyamide mixt., 443*a*.
hydrolyzed ethylene-vinyl ester polymers, 442*h*.
hydrolyzed polymer of $C_2H_4$, vinyl acetate, and diethyl fumarate, 9531*h*.
hydrolyzed vinyl ester polymers and interpolymers, 1609*i*.
hydrolyzing vinyl ester polymers, 5230*g*
2-imidazolidone, 7513*e*.
iodoso diacylate catalysis of addn. polymerization processes, 5231*c*.
isobutylene copolymers by emulsion polymerization, 4897*b*.
isocyanates, 8732*c*.
isocyanates of hydrolyzed ethylene vinyl ester interpolymers, 1219*e*.
ketenes, 4494*d*.
lacquers (hammered-metal-finish), 9487*a*.
long-chain secondary alkyl *N*-substituted polymeric styrene-maleamic acids and dispersions contg. them, 857*b*.
maleic acid ($NH_4$ salt), 7506*b*
melamine-$H_2CO$ resin dispersion, 1607*d*.
mercaptan stabilization, 1794*a*.
metal cleaning, 509*g*.
methacrylate copolymer finishes, 4874*c*.
methylene- and ethylidenedithiophene derivs., 6238*a*.
2-methyl-4-keto-1,3-dioxolane, 6239*a*.
methylmethacrylate, 4051*f*
*N* - methyl - *N* - nitroglycolamide nitrate, 1797*b*.
methylolmelamine ethers, 3473*h*.
molding hollow articles from plastic materials, 9528*i*.
mussel provitamin D, 7648*c*.
nicotinamide, 694*f*.
nitrile esters, 3027*f*.
nitriles, 1433*f*, 3439*fh*.
nitro alkyl amides, 1796*h*.
nitrogen tetroxide, 1929*g*.
nitroörg. compds., 665*a*.
nylon thread treatment, 9475*c*
nylon yarn, 1990*e*.
olefin-CO polymers, 2816*g*, 3236*g*
olefin polymers, 6000*i*.
oleum, 5159*h*.
oxygen-contg. org. compds., 5035*f*
paint (water-thinned), 5205*f*
paraformaldehyde, 3441*h*, 5412*f*.
peracid solns., 825*h*.
phenyl-2-naphthylamine aq. dispersions, 4892*a*.
photographic antihalation elements, 53*eh*, 54*b*, 4166*c*
photographic bipack film with a stripping layer, 3738*f*.
photographic elements bearing a polyvinylpyridine sublayer, a layer contg. a sol. B compd., and a Ag halide synthetic hydroxyl polymer layer, 53*i*.
photographic elements having light sensitive and water-insol. vinylpyridine polymer layers, 54*e*.
photographic emulsion inhibitor, 53*b*
photopolymerization, 441*a*.
phthalideneacetamides, 7850*a*
phthalocyanine pigments, 1994*h*.
pigment compns., 1579*f*, 1995*a*.
pigments (Ba lake), 2789*f*.
piperazine, 6244*g*.
plant nutritive compn consisting of 2,4-dichlorophenoxyacetic acid or its salts, 7187*c*.
plasticization of polyamides and polyester amides, 900*i*
plasticized hydroxylated polymeric film, 5610*c*.
polyamide articles, improving the tensile strength and other properties of, 5967*h*.
polyamide derivs., 7266*b*.
polyamide emulsions, 5232*c*.
polyamide fractionation, 7266*f*
polyamides, 4519*b*, 7713*h*
polyamides and a process for retarding their crystn., 7266*a*.
polyamides contg. S, 4520*c*
polyamides of high birefringence, 2818*i*.
polyamides, plasticizers for, 2034*a*
polyamides (thermosetting), 1610*g*
polyesters, 4897*h*
polyesters of mercapto dicarboxylic acids with dihydric alc., 3633*b*
polyformals, 9081*f*.
polyhydric alc. mixed esters, 4290*c*.
polyhydroxy compds., 673*d*.
polymeric linear terephthalic esters, 4896*g*.
polymerization, 4895*i*
polymerization and copolymerization of asym. dihalogenated ethylenes, 9530*e*
polymerization and interpolymerization of ethylene, 3238*e*
polymerization modifiers, 4051*e*
polymerization of 2-chloro-1,3-butadiene in the presence of tetraalkyldiammodiphenylmethanes, 1601*e*
polymerization of chloroprene, 1601*d*, 9520*d*.
polymerization of $C_2H_4$, 6001*a*.
polymerization of ethylene compds., 905*h*.
polymerization of methyl methacrylate, 907*a*.
polymerization of olefins in the presence of alkali and alk. earth metal catalysts, 5640*g*.
polymerization of tetrafluoroethylene, 901*d*.
polymerization of vinyl acetate, 5230*h*.
polymerization of vinyl carboxylate using a thiourea stopper, 1219*c*.
polymerization of vinyl halide, 4896*b*.
polymerizations with azo compds. as catalysts, 6002*g*
polymer pptn. from aq. emulsion, 2469*d*
polymers contg. aldehyde groups, 3235*f*
polymers contg. polymeric chain C atoms to which are attached carbocyclic ring-contg. radicals, 9529*f*.
polymers from $C_2H_4$ and $CO_2$, 4515*d*.
polymers from nitropolyhydroxy alcs. and polyamines, 8209*e*.
polymers of $C_2H_4$ and vinyl esters, 7264*e*.
polymers of phenol-rubber and resorcinol-HCHO, 432*f*.
polymers of vinylidene fluoride with $C_2H_4$ and halogenated ethylenes, 5638*b*.
printing cellulose esters with direct and acid dyes, 5190*e*.
purification of polymerizable esters, 7503*a*.
reaction between $CH_2$:CHCN and reactive methylene compds., 3446*g*.
reaction products of 3-hexenedinitrile and certain aldehydes, 3847*i*.
reaction products of inorg. polyisocyanates and polyisothiocyanates, 908*a*.
reaction products of *N*-substituted polyamides with hydroxylated materials, 1610*e*.
reduction (partial) of polycyclic aromatic hydrocarbons, 7510*g*.
resinous compns., 2466*c*, 7261*i*, 9525*a*.
rubber articles, 2025*a*.
rubberlike materials, 4890*i*
rubber processing aids, 5224*b*.
rubbers, thiol ester modification of, 2805*c*
silver salts, water-permeable polycarbonamide layers for binding, 8925*f*.
sintered B articles, 3734*f*.
sodium hydroxylaminesulfonates, 3440*i*.
spinning acrylonitrile polymers, 5636*a*.
steel, inhibiting corrosion of stainless, 3312*g*.
succinic acid esters, 3451*h*.
succinonitrile, 1435*f*.
suede leathers, synthetic polymers for noncrocking, 9512*b*.
sulfides (org.), 2219*g*
sulfides (satd. polyhaloalkyl), 6645*i*
sulfonamides, alkylmercury derivs. of, 1805*c*.
sulfonates (alkyl-substituted aromatic), 6232*cg*.
sulfonyl chlorides, 5033*h*.
sulfur dioxide sepn. from Cl, 4822*h*.
sulfur trioxide, 4822*h*.
surface-active agents, prevention of foaming in the concn. of, 3638*i*.
tanning agents, 1592*h*, 6152*dc*, 7738*b*
tetrachloroethylene purification, 3437*g*
tetraethyllead, 4287*d*, 8398*b*.
2,2,3,3-tetrafluorocyclobutanes and their polymers, 4293*g* 4294*g*
tetrafluoroethylene aq. dispersions, 9528*e*
tetrafluoroethylene-bonded shaped articles, 9300*e*
tetrafluoroethylene copolymers, 5410*f*
tetrafluoroethylene - ethylene copolymer dispersions, 444*b*.
tetrafluoroethylene powder, shaping of articles from, 2820*e*.
tetrafluoroethylene stabilization, 6218*h*
[5,6,7,8 - tetrahydro - 1 - hydroxy - 2 - (and 3) - naphthoylamino]benzaldehydes and their acetals with lower alkanols and 1,2- and 1,3-alkanediols, 7511*f*
tetramethylethylene oxide, 2038*f*
textiles, app. for the hot-fluid treatment of, 856*c*.
thiocyanates and isothiocyanates, 3847*f*
ω-thiocyanoalkyl esters and insecticidal compns. contg. same, 5152*h*
β,β′-thiodipropionic acid, long chain ester of, 5414*g*
thioethers, 7952*f*
thiols, 2629*h*, 5418*d*.
thiophanthraquinone derivs., 6668*g*
2-thiophenecarboxylic acid, 3850*h*
titanium-contg. org. compds., 1796*d*, 6225.
titanium dioxide, 369*e*, 4028*g*
titanium soln. hydrolysis, 1579*i*
titanium tetrachloride purification, 4822*i*
1,1,2-trialkoxyethanes, 675*a*.
1,1,1-trichloro-2,2-diarylethanes, 7968*h*.
1,1,2-trichloroethane, 3834*e*.
trichloroethylene copolymers, 901*e*
(trichloromethyl)bis(*p* - chlorophenyl) methane, 4299*h*.
trichloromethyl diaryl methanes, 4420*i*
trichloromethyl-substituted thiols, 8195*c*
trifluoroethylene polymers, 1608*e*, 5637*g*
3,5,5-trimethylhexanoic acid, 7501*g*.
unsatd. org. compds., 6221*g*.
urea-HCHO compns., 5232*a*.
vinylacetal films, 4518*i*.
vinyl alc., 9533*d*.
vinyl-alc. plasticizers, 4514*a*.
vinyl boronates, 2631*c*.
vinyl butyral, 2468*c*.
vinyl butyral stabilization, 2467*i*
vinyl chloride-contg. polymers having a high stability against thermal de compn., 9530*e*.
vinyl chloride resin coatings, 1222*e*
vinyl cyanide, 3027*d*, 3439*a*, 7037*b*, 8398*a*.
vinyl ester alcoholysis, 6867*e*.
vinyl ester-dioxolane copolymers, 9532*e*
vinyl ester hydrolysis, 5413*b*.
vinyl ethers, 664*f*.
vinyl fluoride polymers, 8740*f*.
vinyl halide emulsions, 5635*d*.
vinylidene chloride-acrylonitrile solns., 7755*b*.
vinylidene chloride polymer solns., 4515*g*.
vinyl isocoumaran and 1,3-diene copolymers, 7259*a*.
vinyl isocoumaran and styrene copolymers, 7262*c*.

vinyl isocoumaran and vinyl monomer copolymers, 7262*a*.
vinyl ketals, 7752*c*.
vinyl resins contg. Cl and stabilized with a tri(2-alkenyl)phosphite, 1606*c*.
vinyl resin stabilizer, 2032*b*.
vinyl sulfone-diene interpolymers, 7266*g*.
vinyl trimethylacetate, 9528*e*.
vitreous bonding compns., 3587*b*.
volatile substance removal from aq. dispersions of elastomeric materials, 9518*f*.
vulcanization of butadiene elastomers, 8196*ce*.
vulcanization of isobutylene rubber, 2464*e*
wood impregnation, 3167*a*.
wrapping material, 3664*a*.
x-ray film, 4166*d*.
xylyl trichlorothiolacetate, 6664*d*.
zein filaments, spinning and stretching of, 8693*e*.
zinc plating, 50*d*.
zinc propionate, 2223*a*.

**Du Pont de Nemours, E. I., & Co.**, Bolton, E. K., and Kirk, W., Jr. Polyamides, P 6866*i*.
——, Carter, A. S., and Johnson, F. W. 2-Cyano-1,3-butadiene, P 9522*b*.
—— and Cass, O. W. Stabilization of furan, P 5805*b*.
—— and Coffman, D. D. Ether esters, P 6224*a*.
—— —, Hartsfield, E. P., and Richmond, J. I. Paste-form quaternary compds., P 1202*f*.
—— and Herndon, L. R. Reinforced rubber articles, P 2024*i*.
—— and Hoffman, W. A. Org. compds. contg. S, P 1050*b*.
—— and Latham, G. H. Rubber and rubberlike materials, P 2024*f*.
—— —, Lazier, W. A., and Whitman, G. M. Vinyl chloride, P 2629*a*.
—— and Mighton, C. J. Rubberlike polymeric materials, P 4891*a*.
—— and Nicholas, H. Alkali metals, P 2567*a*.
—— and Rigby, G. W. Org. fluorine compds., P 1444*e*.
—— and Signaigo, F. K. Catalysts, P 825*f*.
—— and Sturgis, B. M. Stable dispersions of secondary aromatic amines, P 660*e*.
—— —, Tinker, J. M., and Stallmann, O. Anthrimides, P 1576*d*.
—— —, Tinker, J. M., Stallmann, O., and Wingate, P. J. Pentaanthraquinonetetracarbazole, P 1576*h*.

**Duport, R.** Auto-ignition temps. of Diesel motor fuels, 2402*d*.

**Dupré, D. J.** See Bader, R.
——, Elks, J., Hems, B. A., Speyer, K. N., and Evans, R. M. Analgesics (I) esters and ketones derived from α-amino-ω-cyano-ω,ω-diarylalkanes, 9052*d*.

**Du Pré, F. K.** See Hutner, R. A.; Rittner, E. S.

**Duprez, A.** Sugar metabolism after subtotal gastrectomy, 3514*b*.

**Dupuis, J.** Electroplating, P 7358*e*.

**Dupuis, Mme. J.** Same as Dupuis, T. (nee Duval).

**Dupuis, P.** See Dastugue, G.

**Dupuis, T.** (nee Duval). Volatility of molybdic anhydride, 4915*i*; see Peltier, S.
—— and Duval, C. Gravimetric analysis of Cr ppts. with the thermobalance of Chevenard, 2543*c*, reactions of the cations (IV) U, 3313*i*; gravimetric detn. of Th ppts. with the thermal balance of Chevenard, 4599*b*; thermogravimetry of analytical ppts (XVIII) detn. of Sc, (XIX) detn. of Pr, (XX) detn. of Eu, (XXI) detn of Al, 8304*i*; (XXII) detn. of Ga, (XXIII) detn. of In, 8952*d*; (XXV) detn. of Cr, 8953*a*, gravimetric detn. of anions, 8971*g*.

**Dupuy, L. W.**, and Ballinger, H. J. Filled-sink Fe deposits in Crawford, Dent, Franklin, and Texas Counties, Mo., 5708*a*.

**Duquénois, P.** Suicide by oral ingestion of 2,4-dinitrophenol, 5498*b*; see Colbe, O.; Jaeger, P.; Phu, L. Q.
—— and Métais, P. Purification and phys. properties of 4 - (hydroxymethyl)antipyrine, 360*i*.
—— and Schraer, E. Metallic elements in the leaves of *Digitalis purpurea* from the Vosges, 6703*i*.

**Duraiswami, S.**, and **Subramaniam, M. K.** Nicotinic acid content of diploid and tetraploid yeasts, 1147*d*.

**Durand, E.**, Oberly, J. J., and Tousey, R. Analysis of the first rocket ultraviolet solar spectra, 3711*b*.

**Durand, E. J.** See King, R. O.

**Durand, M.** See Yvernault, T.

**Durand, M. C.** See Tuzet, O.

**Durande-Ayme, R.** See Chambard, P.

**Durand & Huguenin A.-G.** Delustering agents for lustrous fibers, P 856*h*; accelerated fixation of Cr-mordant-dye prints, P 1989*a*; stable prepn. for dyeing and printing of textiles, P 4488*g*, 9473*d*; dulling and dyeing of glossy viscose fibers, P 4488*g*; stable prepns for fixing of chrome dyes, P 5198*i*; increasing the color absorption of oxide layer of Al and its alloys, P 7404*c*; $H_2SO_4$ leuco esters of anthraquinone azo dyes, P 7703*h*; capacity of oxidic protective layers on Al or Al alloys to absorb white pigments, P 9021*f*.

**Duratube & Wire Ltd.** and Veit, J. Insulation of elec. conductors, P 7611*a*

**Durbrow, R. T.** Irrigation water for domestic purposes, 8583*f*

**Durdević, S. K.** See Konchar-Durdević, S.

**Durdin, Ya. V.** Electrochem. theory of soln. of metals in acids (I), (II), (III), 506*e*.

**Durel, P.**, and Dubost, P. Insulin prepns., P 6791*g*.

**Durer, A.** Vol. changes resulting from the dissocn. of binary metal crystals, 8232*b*.

**Dureuil, M.** See Borteau, P.

**Durfee, W. W.**, and Foley, J. P. Blowing in blast furnaces, P 6965*f*.

**Durgeat, M.** See Frèrejacque, M.

**Durgin, F. W.** See Charles, R. F.

**Durie, R. A.**, and Iredale, T. Emission bands from the electrodeless discharge in $CBr_4$ vapor, 3723*e*

**Du Rietz, T.** Geology of the Ingelsby district (Sweden), 7382*f*; granitization of Västervik quartzite, 7386*e*.

**Duriez, J.** See Langeron, L.

**Duriez, L. H.**, and Neuman, J. V., Jr. Geology and mining practice at the Bayard, N. Mex., property, 788*b*.

**Duriron Co., Inc.** Ni-base alloy, P 5000*h*.

**Durković, O.** See Pushin, N. A.

**Durland, G. R.** See Barnett, C. E.

**Durland, J. R.** Stabilization of monomeric vinyl compds., P 2468*i*.

**Durney, L. J.** Plating-room process control, 6089*h*.

**Durocher, J.** See Voinovitch, I.

**Duron, P.**, and Fournier, A. Detn of chlorides in milk, 7597*f*.

**DuRose, A. H.** See Willson, K. S.
—— and Little, J. D. Pb-Sn alloy plating, P 2524*h*.

**Duro-Test Corp.** Fluorescent lamp, P 45*b*.

**Durroux, M.** See Barbier, G.

**Durso, J. G.** See Warren, G. H.

**Durst, D.** See Mehlig, J. P.

**Dury, A.** Correlation of circulating polymorphonuclear leucocytes with adrenal ascorbic acid, 8188*b*.
—— and Robin, E. D. Urethan-induced lymphopenia in normal and adrenalectomized rats, 7580*e*

**Duryee, W. R.** See Abelson, P. H.

**Durynina, L. I.** See Sakharov, B. A.

**Dušánek, V.** See Kubelka, V.

**Duschinsky, R.** Imidazolones, P 5808*a*.

**Dushko, D. N.**, and Faltel'berg, R. O. Absorption of glucose in the stomach under extirpation of individual sections of the vegetative nervous system, 295*i*

**Dushman, S.** Vacuum technique, 4*i*, (book), 5236*d*

**Dussel, K.** See Rabe, P.

**Dustan, C.** See Tabershaw, I. R.

**Dustan, G. G.**, and Putnam, W. L. Particle size of DDT wettable powders in relation to toxicity, 7628*e*

**Dustin, G. F.**, and Manning, R. B. Resin melt, P 5228*i*.

**Dutcher, J. D.** See Wintersteiner, O.

**Dutcher, R. A.** See Guerrant, N. B.

**Duthie, E. S.**, and Lorenz, L. Protease inhibitors (I) serum antiprotease, (II) bacterial proteases and their inhibitors, 6259*g*.

**Dutin, J.** See David, Eugene.

**Dutoit, C. H.** See Pearson, O. H.

**Du Toit, J. L.** See Dodds, H. H.

**Dutra, F. R.** Pneumonitis and granulomatosis peculiar to Be workers, 3119*a*.
——, Chalak, J., and Hubbard, D. M. Value of Be detns. in the diagnosis of berylliosis, 4366*e*.

**Dutruc, J. H.** French paper industry today, 5591*g*.

**Dutt, A. K.** Effect of water-sol. K silicate and other treatments on soil structure and crop growth, 2721*i*.

**Dutt, M. C.** Controlled compressive shrinkage, 5596*f*.

**Dutt, R. H.**, and Casida, L. E. Alteration of the estrual cycle by use of progesterone and its effect on subsequent ovulation and fertility, 8487*a*.

**Dutt, R. K.** See Ray, P.

**Dutt, S.** See Kochar, R. K.; Mandiratta, M. R.; Pargal, H. K.; Parihar, D. B.; Sharma, H. D.

**Dutta, A. P.** See Sen Gupta, S. B.

**Dutta, J.** See Banerjee, B.
—— and Sengupta, R. Synthesis of amino acids (I) novel synthesis of DL-methionine, 5742*e*.

**Dutta, M.** Treatment of imperfect gas after Fermi's model (II), 4530*d*.

**Dutta, N. C.** Butter fat and hydrogenated vegetable fat—utilization of Ca and P, 8476*d*.

**Dutta, N. K.** Action of substances which antagonize acetylcholine on the body temp. of mice, before and after adrenalectomy, 1868*i*, see Burn, J. H.; Stephenson, R. P.

**Dutta, P. C.** See Karrer, P.; Mitter, M. C.; Sen-Gupta, R.

**Dutta, R.** See Mukherjee, B.

**Dutton, H. J.** Edible soybean oil, 882*b*, see Scholfield, C. R.
——, Schwab, A. W., Moser, H. A., and Cowan, J. C. Flavor problem of soybean oil (IV) structure of compds. counteracting the effect of prooxidant metals, 882*d*, (V) metal scavengers in com. operations, 7723*d*.

**Dutton, W. L.** See Short, H. G.

**Duval, B.** See Distillers Co., Ltd.
—— —, Elce, A., and Tuerck, K. H. W. Oxidation of ethylpropylacrolein to 3,4-heptanedione and ethylpropylacrylic acid, P 4689*d*.
—— — and Tuerck, K. H. W. Colorless α-ethylcaproic acid, P 1795*f*; α-ethylhexoic acid, P 3442*d*.

**Duval, C.** How a filter paper burns, 60*b*; detn. of U, 2889*i*; reactions of the cations (III) Re, 3313*i*; automatic gravimetry in inorg. analysis, 5693*a*; application of Chevenard's thermobalance to analytical chemistry, 7367*e*, 8943*a*; pyrolysis of asbestos, 8310*b*; thermogravimetry of analytical ppts (XXIV) detn. of U, 8952*h*; see Dupuis, T. (nee Duval); Duval, R.; Peltier, S.
—— and Lecomte, J. Infrared absorption spectra of metallic sulfates, 3293*b*

**Duval, J. C.** Standardization in the control testing of rubber, 2458*e*.

**Duval, R.** Analytical applications of phenothiazine, 8299*h*.
—— and Duval, C. Reactions of the cations (II) Co, 3313*h*.

**Duval, T.** Same as Dupuis, T. (nee Duval).

**Duvanova, Yu. T. L.** See Lukashevich-Duvanova, Yu. T.

**Duve, C. de.** Detn. of myoglobin and hemoglobin in exts. of human muscle, 4324*f*, see Sutherland, E. W.

**Duveen, D. I.** Bibliotheca Alchemica et Chemica (book), 6501*b*.
—— and Willemart, A. 17th century chemists and alchemists of Lorraine, 8759*i*.

**Du Vigneaud, V.** See Vigneaud, V. du.

**Duwez, P.** See Jordan, C. B.
—— and Odell, F. Analysis of cubic and monoclinic zirconia, 5336*d*.
——, Odell, F., and Taylor, J. L. Recrystn. of BeO bodies at 2000°, 2390*b*.

**Dux, C.**, Guérin, M., and Lacour, Mme. F. Hyaluronidase in human and exptl. tumors, 1478*b*, 3021*c*.

**Duyckaerts, G.** Absorption methods in analytical chemistry, 7858*h*; see Batt, G.
—— and Michel, G. Analysis by Raman spectrography, 7858*e*.
—— and Pirlot, G. Method of compensated extinctions and classical method in the analysis of a mixt. of xylenes, 7367*b*.

**Duyvis, F. D.** Survey of abstracting services, 6876*a*.

**Duzer, R. M. van, Jr.** See Van Duzer, R. M., Jr.

**Dvonch, W.** See Whistler, R. L.

**Dvoretskaya, R. M.** Effect of selective wetting on the formation of emulsions, 7776*b*.

**Dvoretskiĭ, A. I.** Saratovskiĭ prirodnyĭ gaz (book), 2756*b*.

**Dvorkovitz, V.** See Baltzly, R.

**Dvornikoff, M. N.**, and Morrill, H. L.

Detn. of tetraethyl pyrophosphate in mixts. of ethyl phosphate esters, 2125*a*

**Dvornikova, P. D.** See Szorenyi, E. T.

**Dvorskii, A. D.,** Lafer, I. M., and Erukhimovich, M. I. Transformation of sulfite alc. slops, 6449*g*

**Dvoskin, S.** Thyroxinelike action of elemental I, 2705*b*, 8032*g*; intracellular colloid droplets as a basis for thyrotropic hormone assay, 8031*g*; spontaneous formation of intracellular colloid droplets in surviving chick thyroid tissue, 8033*e*

**Dwek, J.** See Dziewiatkowski, D. D.

**D. W. S. Officine meccaniche.** Stainless Cr steel, P 8346*h*.

**Dwyer, F. P.,** and Gyarfas, E. C. Persistence of optical activity in an oxidation-reduction reaction, 7363*a*

——— and McKenzie, H. A. Instability const. of the tris(2,2′-bipyridyl) ferrous ion, 8814*h*.

———, McKenzie, H. A., and Nyholm, R. S. Bivalent and trivalent Ir (IV) oxidation reduction potential of the bromnidate bromiridite system, 6535*g*

———, Nyholm, R. S., and Rogers, Mrs. L. E. Bivalent and trivalent Rh (X) oxidation of cesium hexachlororhodate(III) to cesium hexachlororhodate(IV), 6535*h*.

———, Nyholm, R. S., and Tyson, B. T. Os (III) complexes of tertiary arsines with bivalent and trivalent Os halides, 6535*i*.

**D'yachenko, M. N.** Ultraviolet phosphorescence of subtractively and additively colored NaCl crystals at low temps., 3718*a*; electron transitions and decay of the ultraviolet luminescence of colored NaCl crystals, 3718*h*.

**D'yachenko, P. F.** Adsorption and bonding of water by casein, 7787*c*; influence of protein on stability of butter, 9282*b*, protein content and plasma compn. in butter, 9281*i*

———, Katunina, L., and Bogdanova, E. Production of milk protein hydrolyzates, 7599*a*.

**D'yachkov, P. N.** See Mamykin, P. S.

**Dyal, R. S.** See Myers, A. T.

**Dyar, C. E.** Standard reference samples in the pulp and paper mill lab., 7228*b*

**Dyar, M. T.** Electrokinetic studies on bacterial surfaces (II) surface lipides, amphoteric material, and other surface properties, 2673*d*

**Dyatkina, M.** Free radicals with hetero atoms, $1230_k$, see Samoilov, S.

**Dyatlovitskaya, B. I.** Secondary-electron emission of Sb-Cs cathodes, 3704*g*; see Morgulis, N. D.

**Dybing, F.,** and Dybing, O. Ether concn. in brain, blood, and muscles during ether elimination, 2318*a*.

**Dybing, O.** Effect of thyroid on toxicity of arsenobenzenes, 3102*b*, see Dybing, F.

**Dyck, A. W. J.** Wood to paper at Kalamazoo Vegetable Parchment Co., 3612*i*

**Dyduszynski, A.** Hydrocarbon conversion, P 1174*e*

**Dye, J. A.** See Cook, E. T., McCandless, E.

——— and Woodward, B. A. Alloxan diabetes, 8049*e*

**Dyer, C. A.** See Mouzon, J. C.

**Dyer, J. R., Jr.** Electrolytic deposition of In, P 7838*g*

——— and Rowan, T. J. Electrodeposition of In and its alloys, P 6526*e*.

**Dyer, W. J.** Bacterial reduction of $NaNO_2$ and formation of trimethylamine in fish, 6751*g*.

**Dyestuffs & Chemicals, Inc.** Coloring unit for oleomargarine blocks, P 1124*c*.

**Dygert, H. P.,** LaBelle, C. W., Laskin, S., Pozzani, U. C., Roberts, E., Rothermel, J. J., Rothstein, A., Spiegl, C. J., Sprague, G. F., Jr., and Stokinger, H. E., *et al* Toxicity following inhalation, 9240*g*.

**Dyke, B. H. van.** See Van Dyke, B. H.

**Dyke, E.** See Bagshawe, B.

**Dyke, F. R.** See Kitchin, D. W.

**Dyke, H. B. van.** See Coret, I. A., Maynert, E. W.

**Dyke, K. S. van.** See Van Dyke, K. S.

**Dyke, M.,** and Self, E. S. Treatment of drilling fluids, P 5179*h*, 8662*a*.

**Dyke, R. E. van.** See Van Dyke, R. E.

**Dykova, H.** See Sorm, F.

**Dykstra.** See also Dijkstra.

**Dykstra, F. J.** See Cahngaert, G.

**Dykyj, J.** See Dykyj-Sajfertová, D.

**Dykyj-Sajfertová, D.,** and Dykyj, J. Effect of water on the effectiveness of growth solns. in seed hormonization, 1837*b*, influence of N and K on the structure and physiology of sugar beets, 7622*f*.

**Dymov, A. M.** App. for Fe extn. by ether, 2042*g*; air condenser, 3665*i*; detn. of Pb in steel, 6939*d*.

**Dyne, P. J.,** and Style, D. W. G. Radical spectra in fluorescence, 5312*f*.

**Dyniewicz, H. A.** See Popper, H.

**Dyrkacz, W. W.** Brazing alloy, P 4211*b*.

**Dyson, W. H.** Pb-chamber system for the manuf. of $H_2SO_4$, 3573*g*.

**Dzantiev, B. G.,** and Nelman, M. B. Radioactive isotopes of I, 8261*b*.

**Dzelepow.** See Dzhelepov.

**Dzhelepov, B. S.** See Volkhanskii, M. E.

**Dzhelepov, V. S.** Radioactive nuclei of the type $zM^{zz}$, 4563*a*.

**Dzhemukhadze, K.** See Kursanov, A. I.

**Dzhemyan, S. K.** See Yavolskii, V. I.

**Dzhumaev, O. M.,** and Nosov, A. Genesis of $KNO_3$ in the nitrate beat earths of the Turkmenistan Valley, 977*i*

**Dziewiatkowski, D. D.** Utilization exogenous sulfate S in the formation ethereal sulfates $Na_2SO_4$ labeled with radioactive S, 3905*d*, Carey, M. M., Minot, A.

———, Benesch, R. E., and Benesch, R. Utilization of sulfate S by the suckling rat for the synthesis of chondroitin sulfate—radioactive S, 6713*i*

——— and Dwek, J. Excretion of radioactive S and its concn. in some tissues after intraperitoneal administration of labeled Na sulfate, 4376*a*

———, Venkataraman, A., Lewis, H. B., Sahibi, B. S., and Rajam, P. C. Metabolism of some branched chain aliphatic acids, 3905*b*.

——— and Wingo, W. J. Metabolism of isocysteine labeled with $S^{35}$, 5117*e*.

**Dzis'ko, V. A.** See Boreskov, G. K.

**Dzsida, J.** Hungarian Peat Research Inst., 9413*d*

**Eade, R. A.** and Earl, J. C. dno 3417*f*

**Eadie, G. S.,** Bernheim, F., and Fitzgerald, D. B. Inhibition of the cholinesterase of rat brain by methadone, 1108*e*, kinetics of the oxidation of benzoic acid by myco bacteria, 1828*a*.

**Eads, R. B.** *Lipoptena mazamae* from cattle, and its control, 6355*e*

**Eager, R. L.,** and Winkler, C. A. Oxidation of mercaptans by K persulfate in homogeneous soln., 120*b*

**Eagle, E.,** Castillon, L. E., Hall, C. M., and Boatner, C. H. Acute oral toxicity of gossypol and cottonseed-pigment glands, 1105*e*

**Eagle, H.** Host and parasite factors which modify the therapeutic activity of penicillin, 4339*f*, 8408*a*.

———, Fleischman, R., and Musselman, A. D. Serum concn. of penicillin G after its intramuscular injection in aq. soln., 3935*h*.

———, Newman, E. V., Greif, R. L., Burkholder, T. M., Goodman, S. C., and Musselman, A. D. Blood levels and renal clearance of an antibiotic derived from *Bacillus subtilis*, 7587*b*

———, Newman, E. V., Musselman, A. D., Robinson, M., and Birmingham, M. K. Renal clearance of penicillins F, G, K, and X, 6741*e*.

**Eagle-Picher Co.** Coating fused litharge particles with red Pb, P 826*e*, sepn. of Fe and Ti from titaniferous ore, P 1306*d*; recovery of Cd, P 6964*h*.

**Eagles, B. A.** See King, J. V.

**Eaglesfield, P.** See Distillers Co., Ltd.

**Eakin, R. M.** Nature of the organized, 3529*g*; see Friedberg, F.

**Eames, A. J.** Histol. effects of treatments with growth-regulating substances of the 2,4-D group, 9351*i*

**Eareckson, W. M., III** See Svirbely, W. J.

**Earhart, K. A.** Theories and facts concerning alkyds, 5993*d*, see Cosgrove, C.

**Earl, J. C.** See Eade, R. A.

———, Leake, E. M. W., and Le Fèvre, R. J. W. Dipole moments of *N*- and *C*-substituted sydnones, 3418*a*

**Earland, C.** See Alexander, P.

**Earle, D. P., Jr.** See Lo-Grippo, G. A.

**Earle, F. R.** See Cowan, J. C.

———, Curtis, J. J., and Hubbard, J. E. Compn. of the corn kernel, 2333*h*.

**Earle, H. H., Jr.** See Melvin, R.

**Earle, P. L.,** and Ceaglske, N. H. Checking of macaroni, 8066*h*.

**Earley, J. W.** Selenides (I) klockmannite, CuSe, 8982*d*.

**Earls, L. T.** Brief Course in Physics (book), 5276*g*.

**Early, F.** See Meng, H. C.

**Eash, J. T.** Gas-welding rod, P 2568*h*.

**East Asia Fuel Industries Co.** Volatile oils with a high octane no. by vapor-phase contact decompn., P 3605*d*.

**East Asia Nutrition Chemical Industries Co.** Treatment for nuts or acorns, P 6844*d*.

**East Asia Synthetic Chemical Industries Co.** Treatment of $SO_2$ in flue gases, P 7201*g*; recovering of waste catalyst for $NH_3$ synthesis, P 7204*c*.

**Eastcott, E. V.,** and Wright, G. F. Small-scale expts. for the org. chem. lab.—oxidation of *p*-nitrotoluene, 6875*f*.

**Easter, D. P.** See Bludworth, J. E.

**Easter, G. J.** See Ries, K. G.

**Easter, W. M., Jr.** See Carpenter, M. S.

**Eastlake, A. W.** See Chemical Engineering & Wilton's Patent Furnace Co., Ltd.

**Eastland, C. J.** See Allen and Hanburys, Ltd.

**Eastman, E. C.,** Dunsmore, D. W., Godfrey, K. L., and Blake, E. S. Extreme pressure lubricant tester, 2761*h*.

**Eastman Kodak Co.** (*Patents.*)

acetylacetamides, 4289*b*.

acid anhydrides and acetone, 8398*e*

acidity indicator, 4186*f*.

acrylamide, 5793*b*

acrylic acids, color removal from, 3442*i*

acrylic diester-propionamides and polymers thereof, 3447*c*.

acrylic ester amides and polymers thereof 3446*h*, 3447*d*

*N*-acylaminoalkylacrylamide polymers 9531*b*

2-acylamino-1,3-butadienes and vinyl compd. polymers, 3650*i*.

acylating amines, 6652*c*.

acyl halides, 7954*b*

1-acyloxy-1,3-butadienes and crylonitrile 3658*i*.

adhesive tape, 908*d*.

aldol condensation, 5415*h*.

alkoxy pyrazolones, 6930*c*.

*N*-(alkylsulfonyl)- and *N*-(arylsulfonyl)vinylamine polymers, 8211*i*

anthraquinones contg. a trifluoromethyl group, 7709*e*.

azo compds. contg. a tetrahydroquinoxalyl nucleus, 862*a*

azo compds. contg. a triazole nucleus 3625*d*

beryllioaluminate glass, 5166*a*.

cellulose esters of amino acids, 3616*h*

cellulose ester stabilization, 7685*e*

cellulose triacetate pptn., 5592*g*.

ceramic color photograph design, 8834*b*

2-chlorobenzothiazole, 6670*c*.

coating compn. for moistureproofing, hot-melt coating, 4028*e*.

color couplers, 54*g*, 4164*d*, 4591*d*, 7811, 8293*h*.

color photography, 52*e*.

copper catalyst, 7609*f*.

developer, antioxidant for, 2106*d*.

developers, 516*a*, 4591*i*, 4593*e*.

dyes, 7694*b*

dyes (aminoanthraquinone) for cellulose acetate, 3205*b*.

dyes (azamethine), 7848*a*.

dyes (azo), 4868*e*, 9461*i*.

dyes (diphenylamine), 9470*b*.

dyes (sulfonamido disazo), 858*f*.

dyes (therapeutic pyrimido-2′ cyanine 8167*d*.

emulsion contg. nitraniline sulfonic acid 958*g*.

emulsions, 53*cd*, 512*ch*, 2105*e*, 8925*b*

emulsions, antiplumming agents for, 11[illegible]

emulsions, fog inhibitor for, 6000*g*.

emulsions sensitized with *N*,*N*-alkylene cyanine dyes, 3730*e*.

emulsions, stabilization of, 52*e*.

emulsion supersensitized with a Cacyclox quinoline base, 958*d*.

enol acetates of α-diketones, 3451*e*.

enteric coatings, 2739*c*.

ethylenediamine unsatd. deriv. polymers thereof, 3447*a*.

fixing photographic images, 4592*i*, 4593*a*

fluoborate glass, 4440*b*, 5165*i*.

fluorescent cellulose ester compn., 4013*d*

fluoride glass, 5165*f*.

α-fluoroacetoxyacrylonitrile polymer 5636*c*.

fluoromethacrylate ester polymers 646[illegible]

fluoromethyl styrene, 8209*c*.

formaldehyde solns., concn., 7273*i*

gelatin, 3224*f*.
gelatin, removal of photographically active ingredients from, 958*e*.
gelling polyvinyl alc., 1670*e*.
heterocyclic compds., 4868*c*.
N - 2 - hydroxyethyltetraiodophthalimide, 1534*c*.
isopropenyl acetate and maleic anhydride polymer, 2226*d*.
isopropenyl acetate and vinyl chloride polymer, 3661*c*.
isopropenyl acetate resinous copolymer, 903*g*.
ketene condensation products with aldehydes, 5037*f*.
β-lactones, 1055*g*, 1056*a*, 3840*c*, 5414*h*, 5794*i*, 5795*d*.
lactones of dicarboxylic acid esters, 2635*f*.
laminating photographic images to plastic in single-step operation, 2467*d*.
light filter, 958*h*.
lithographic printing process, 958*i*
metallic sheets (perforated), 5318*e*
methacrylic acid, derivs. of fluorinated, 8398*h*.
methylenemalononitrile and vinyl acetate copolymer, 4897*c*.
mirror with low thermal expansion support, 4441*e*
multilayer photographic element with a mixed grain emulsion, 4592*g*
nitriles, 3836*d*.
optical glass, 5166*bc*, 8633*de*.
oxidation of cellulose, 404*f*
oxidation of starch with $NO_2$, 7244*h*.
oxidized nitrated cellulose, 6825*f*
β,β'-oxydipropionic acids, 5037*d*
phosphorus, esters of acids of, 4877*fh*.
piperine compds. having photosensitivity, 8212*e*
β propionolactone and polyhydroxy compd., resinous condensates, 2032*g*.
quaternary salts and dyes for sensitizing photographic emulsions, 4160*d*
regenerated cellulose, 6415*f*.
silver-coating org. surfaces, 4520*d*.
soldering flux, 3343*c*.
stencils, 2532*f*.
subbing layer for hydrolyzed cellulose acetate emulsion, 2106*c*.
sulfamyl-2-mercaptobenzothiazoles, 5042*g*.
trimethylenebenzomorpholine azo compds., 2781*e*.
vinyl alc. coatings, 1670*f*.
vinyl carbamates, 4898*d*.
——— and Nadeau, G. F. Film or sheeting, P 849*a*
— and Staehle, H. C. Photographic relief images, P 3738*a*.
**Easton, N. R.** See Gardner, J. H.
**Easton, P.** Sveen-Pedersen savealls in board mills and reuse of water, 8679*i*
**Easton, R. P.** Heterocyclic nitrogenous bases in subbing compns., P 3739*b*, film-forming soln. of cellulose acetate, P 4853*h*.
**Easton, W. W.** See Campbell, N.
**Eastwood, A. H.** See Dent, F. J.; Gas Research Board.; Key, A.
**Eastwood, F. R.** Wool-grease recovery in Australia, 5971*g*.
**Eastwood, J. A.** Scouring of worsted piece-goods oiled with mineral oils, 7692*d*.
**Eastwood, L. W.** See Jackson, J. H.; Kura, J. G.; Udy, M. C.
**Eaton, A.** See Thomas, M. H
**Eaton, B. J.** Cinchona alkaloids as vulcanization accelerators, 8730*b*.
**Eaton, F. C.** Standardization of wts. (I) modification of the method of Richards, 6478*h*.
**Eaton, F. M.** See Ergle, D. R
**Eaton, H. D.**, Johnson, R. E., Matterson, L. D., and Spielman, A. A Carotene and vitamin A and proximate compn. of portions of the first milking postpartum, 8472*f*
—, Spielman, A. A., Johnson, R. E., and Matterson, L. D. Utilization of fetal stores of vitamin A by the newborn calf, 9188*a*.
**Eaton, J. C.** Pipet for use with the Van Slyke-Neill manometric app., 3871*b*.
**Eaton, J. L.** Tetramethylthiuram disulfide, P 4090*h*.
——— and Fenn, J. B. Mercaptans, P 5790*h*.
**Eaton, M.** See Huffman, H. M.
**Eaton, M. D.** See Huang, C.-T
——, Huang, C.-T., and Levenson, C. G Effect of nitro compds. on viruses of the psittacosis - lymphogranuloma groups, 9249*h*.
——, Levenson, C. G., and Hanks, C In-hibition of agents of the psittacosis-lymphogranuloma group by *p*-arsenobenzamide, 9249*i*.
**Eaton, S. E.**, Hyde, R. W., and Old, B. S. Tracer study of S in the coke oven, 837*h*.
———, Hyde, R. W., and Rood, M. H. Tracer techniques used in study of coke S, 9418*e*
**Eaton, S. V.** Effects of P deficiency on growth and metabolism of sunflower, 6288*h*.
**Eaton Laboratories, Inc.** Vaginal suppository, P 5155*h*.
**Eaves, H.**, and Williams, P. D. Electron tube, P 2518*f*.
**Ebaugh, P.** Glass fibers, P 3987*b*.
**Ebel, J. P.** Participation of metaphosphoric acid in the constitution of bacteria of animal tissues, 6277*c*.
**Eberhardt, A.** See Mudge, G. H.
**Eberhart, D. R.**, See Lecher, H. Z
———, Lecher, H. Z., and Scaletta, M. C Alkoxybenzoyl derivs. of 4,4'-diaminostilbene-2,2'-disulfonic acid, P 5977*g*.
**Eberl, J. J.** Thermoplastic cast material, P 5633*a*.
——— and Ingram, A. R. Process for making high-strength plaster of Paris, 5568*b*.
**Eberlin, S. L.** See Clark, J. H.; Sutherland, L. H.
**Eberly, W. S.** See Post, C. B
**Ebersole, E. R.** See Reynolds, T. W.
**Ebert, A.** Accidents in chem. work, 6335*d*, see Rust, E.
**Ebert, F.** No. of theoretical connections between lattice structures and quadratic forms of Debye-Scherrer-(Hull) diagrams of cubic symmetry, 3260*b*.
**Ebert, Friedrich.** Detn. of moisture in wood, 5585*h*.
**Ebert, H.**, and Gieslessen, J Pressure and temp. coeffs of the elec. resistance of alloys (I) introductory expts., 5678*i*.
**Ebert, L.** Detn of the electron affinity of chem. compds., 8765*d*
**Ebisch, A. E. I.** See Coolidge, T. B.
**Eble, O.** See Scallet, B. L.
**Eby, L. T.** Tertiary aliphatic mercaptans for reclaiming Butyl rubber, P 6459*a*; thio ethers, P 6046*c*; mercaptans, P 6640*e*.
——— and Mikeska, L. A. Lubricating-oil antioxidant, P 3606*f*
**Ecary, S.** Phenyliudanedione—synthesis and reactions, 1041*a*, reaction of 1,3-diphenyl-1-hydroxyisoindanone, 3397*c*.
**Eccles, J. C.** Acetylcholine and synaptic transmission in spinal cord, 7102*b*, see Brooks, C. M.
——— and MacFarlane, W. V. Actions of anticholinesterases on end-plate potential of frog muscle, 9261*a*.
**Eccleston, B. H.** See Schwartz, F. G.
**Echeistova, A. I.**, and Shehkter, A. B Structural changes of highly dispersed solids on heating, 4923*b*.
**Echeverría, I.**, and Pedro, S. de. *Pinus pinaster* in Pontevedra and its application to industrial cellulose, 4010*c*.
**Eck, H. W.** Insecticide, P 2732*c*.
**Eck, J. L.** Semiconducting liquids, 8780*d*
**Eckel, E. J.**, and Poprocki, S. J Detg. the austenitic grain size of steel, 4992*h*.
**Eckel, J. C.**, and Romine, H. E. Enameling, P 1936*d*.
**Eckelmann, W.** See Hartmann, Helmut.
**Ecker, E. E.**, and Hiatt, C. W. Quant. measurement of complement fixation, 3020*c*
——— and Likover, B. Detn. of albumin – globulin ratio in guinea-pig serum, 264*c*
**Eckermann, H. v.** Alk. district of Alnö Island, 4609*e*.
**Eckert, A. C., Jr.** See Clark, G. L.
**Eckert, E. A.** See Lanni, F.
**Eckert, G. W.** See Bergmann, E. A.
**Eckert, H. W.** See McChesney, E. W.
**Eckert, J. E.** Detg. toxicity of agricultural chemicals to honeybees, 9349*g*.
**Eckert, J. N.** S balance indexes of casein with and without addn of DL-methionine, 8483*f*.
**Eckert, P.** Vinyon N—prepn. and properties, 5192*a*; dyeing in classical Greece, 6419*h*.
——— and Herr, E. Formation of bridged compds. in cellulose fibers with diisocyanates, 1563*d*.
——— and Wirén, R. Evaluation of the Lilienfeld process, 2770*b*, 3195*f*.
**Eckey, E. W.** Carotenoid concentrates from palm oil, P 2794*i*.
——— and Formo, M. W. Directed interesterification in glycerides—reaction in presence of added glycerol, 5207*f*.
**Eckhardt, R. D.**, and Davidson, C. S Urinary excretion of amino acids by a normal adult receiving diets of varied protein content, 4351*c*; nutritive value of intravenously administered hydrolyzed human serum albumin, 9189*f*
**Eckman, D. P.** See Considine, D. M.
**Eckman, H. A.**, and Maack, H. W. Malleable cast Fe, P 1709*d*.
**Eckstrom, H. C.** See Ricklin, S.
**Eck-Vermande, G. J. van**, and Freud, J Structure and function of ovaries after x-raying (I), (II) action of gonadotropins and of estrogens on x-rayed ovaries, 4743*g*
**Ecusta Paper Corp.** Catalytic bleaching, P 8176*a*, 9448*a*.
**Eddy, G. W.**, and Graham, C. H. Insecticides to control horn flies, 9342*d*.
**Eddy, L. P.** See Caldwell, W. E.
**Eddy, M. S.** See Hummel, K. P.
**Eddy, N. B.** Pharmacology of metopon and other analgesic opium derivs., 1869*d*.
**Eddy, R. W.** See Swain, C. G.
**Edel, V.** See Mouriquand, G.
**Edelberg, R.**, and Hazel, F. Streaming-potential measurements with phosphors, 6925*b*.
**Edelman, C. H.**, and Schuffelen, A. C. Origin of clay minerals in soils, 6347*c*.
**Edelman, N.** Water content of rocks, 5349*c*.
**Edel'man, N. M.** See Berim, N. G
**Edelstein, S. M.** Applications of Ba no. detns., 2439*b*; aq. solns. of cellulose [for coating textiles], P 2786*d*, blowpipe analysis, 3251*e*; coating and impregnating textile materials with cellulose, P 4023*b*; textile treatment with alkali-zincate solns. of cellulose ethers, P 6428*g*.
——— and Draves, C. Z. Reexamn. of present wetting tests, 5957*e*.
**Eden, E.**, and Sellers, K. C Absorption of vitamin A in ruminants and rats, 8475*c*.
**Eden, G. E.** See Allen, J. A.
**Eden, R. J.** Analytic behavior of Heisenberg's *S* matrix, 479*b*
**Edens, C. O.** See Allen, C. F. H
**Edens, E.** Digitalisbehandlung (book), 9268*h*
**Eder, H.** See Hansgren, R.
**Eder, R.** See Schudel, H.
**Edgar, D. E.** Resinous compns., P 9525*a*.
**Edgar, S. A.**, and Walsh, W. Anthelmintic activity of NaF, 3441.
**Edge, N. D.**, and Somers, G. F. Effect of dimercaprol in Fe poisoning, 763*b*.
**Edge, S. R. H.** Strength of paper, 2773*e*; see Wiggins, Teape & Co. Ltd.
**Edgell, W. F.**, and Roberts, A. Moment of inertia of $CF_3CH_3$, 43*b*.
**Edgerton, R. O.** See Milas, N. A.
**Edholm, O. G.** See Fry, F. E. J.
**Edinger, J.** See Šimek, B. G.
**Edington, M. D.** Coke Oven Managers Assoc., Northern Section—address, 3174*a*.
**Edisbury, J. R.**, Hunter, R. F., and Scott, A. D Ultraviolet absorption spectra of 2 aminobenzothiazole and 2-imino-3-methyl 2,3 dihydrobenzothiazole derivs., 1766*h*, ultraviolet absorption spectra of dehydrothio *p* toluidine and its deriv.., 3292*g*.
**Edison, T. A., Inc.** Alkaline primary battery, P 510*d*; impregnating carbonaceous bodies for an improved primary cell, P 6530*e*.
**Edlén, B.**, and Lidén, K Arc spectrum of Li, 4135*c*.
**Edlund, B. D.** Aging of steel, 3329*g*.
**Edlund, D. L.**, Oberle, T. L., and Strauss, J. Alloys, P 5358*c*.
**Edlund, T.** Absorption of colloids and fluid from knee joints, 8504*g*.
——— and Linderholm, H Action of salyrgan on skin permeability—salyrgan as a spreading factor, 9257*h*, effect of salyrgan on the osmotic pressure of the blood, 9257*g*.
**Edman, P.** Partition chromatography on starch, 4036*i*.
———, Hammersten, E., Low, B., and Reichard, P. Partition chromatographic sepn. of adenine and guanine, 4722*d*.
**Edmister, W. C.** Hydrocarbon absorption and fractionation, 385*d*, 4001*i*, applications of thermodynamics to hydrocarbon processing (XIII) heat capacities, (XIV) latent heats of vaporization, 2758*f*, (XV) Joule Thomson effect, 3178*h*; (XVI) effects of pressure on enthalpy and entropy, (XVII) enthalpy-entropy plots for pure hydrocarbon, 5576*a*; (XVIII) entropy charts for hydrocarbon mixts., 7216*a*; (XIX) vapor-liquid equil. in ideal mixts., 7216*b*; (XX) vapor-liquid equil. in nonideal systems, 8653*h*

— and McGarry, R. J. Gas-compressor design—isentropic temp. and enthalpy changes, 6471*d*.
and Pollock, D. H. Phase relations for petroleum fractions, 8654*d*.
**Edmondson, Y. H.** See Thimann, K. V.
**Edmont, J.** Standardization of a plaque of nuclear physics—application to the study of traces of isolated products by cosmic radiation at sea level, 7326*a*.
**Edmundson, R. S.** Industrial limestones and dolomites in Va.—northern and central parts of Shenandoah Valley, 2551*f*.
**Edneral, T. B.** See Koritskiĭ, V. G
**Edogawa Industrial Inst. Inc.** Refining of electrolyte soln. for making $H_2O_2$ from acid $(NH_4)_2SO_4$, P 6528*d*.
**Edridge, E. G.** Packing-plant water treated by recirculation filter, 1887*e*
**Edrington, M. P.,** and Weinstein, S. Filter improves sirup production, 426*f*.
**Eds, F. de.** See De Eds, F.
**Edsall, J. T.** Detn. of prothrombin in plasma and plasma fractions, 3876*f*, structure and reactions of proteins, 5003*b*; see Morrison, P. R.
**Edsall, L. B.,** and Kilander, A. K Separators of starch and gluten, P 1204*c*.
**Edsberg, R. L.** See Siggia, S.
**Edson, A. P.,** Paquette, D. G., and Newell, I. L. Gaseous fluxes for brazing steel, 7890*b*.
**Edson, E. F.** Radiation hazards and their control, 3279*a*.
**Edson, F. G.,** and Poe, C. F. Detn. of reducing sugars in food products, 7153*a*.
**Edson, M.** See Young, L.
**Edson, N. L.** See Finlayson, M. K
**Eduljee, H. E.** Entrainment and efficiency in distn. columns, 6005*h*.
**Edwal Laboratories, Inc.** *sym* Triamino benzene compds., P 3456*b*.
**Edward, J.** Heat balance, 1548*h*.
**Edwards, A. H.** Analysis and testings of solid fuel (I), (II), 3989*h*, (III), 4828*f*.
—— and Smith, A. H Detn. of moisture in producer gas, 8119*i*
**Edwards, A. R.,** and Lewis, F. G Izod, tensile, and hardenability tests on aircraft steels, 5717*e*.
**Edwards, B. G.** Ultraviolet spectra of indole derivs., including tryptophan and gramicidin, 8892*h*.
**Edwards, C. A.** Strain-age-hardening, 8325*b*.
**Edwards, D. G.** See Beattie, J. A.
**Edwards, G.** See Crawford, A. G
**Edwards, H. D.** See Gilliam, O. R.
**Edwards, Harry D.** See Kendall, J. D.
—— and Kendall, J. D. Dicyanoketene dialkyl mercaptoles, P 6650*d*.
**Edwards, J.** Screening groundwood pulp, 2772*f*, 4465*h*; sulfite screening, 7684*h*, see Hill, H. S.
**Edwards, J. D., Jr.** See Frampton, V. L
**Edwards, J. E.,** and Alcock, G. P. Routine gravimetric analysis of boiler scales and deposits contg. phosphate, 7866*e*.
**Edwards, J. M.** See Maitland Edwards, J.
**Edwards, J. P.** See Behrens, O. K.
**Edwards, J. W.,** Speiser, R., and Johnston, H. L. High-temp. x-ray diffraction camera, 4095*f*, 7333*f*.
**Edwards, L.** See Scofield, F.
**Edwards, L. D.** See Jarvis, A. E., Thoms, R. K.; Zupko, A. G.
**Edwards, L. J.** See Johnson, J. D.
**Edwards, M. A.** See Cramer, B. J.; Morris, C. S.; Nolte, W. A
**Edwards, M. G.** Pyrethrin contents of undried *Chrysanthemum cinerariaefolium* detd. by extn. with petr. ether, 3148*f*.
**Edwards, O. E.** See Hurd, C. D.
**Edwards, R. E.** See Graham, H. W
**Edwards, R. F.** See Kerns, Q. A
**Edwards, R. R.** See Burgus, W. H.
**Edwards, V.** See Haven, F. L.
**Edwards, W.** See Seyler, C. A.
——, Stubblefield, C. J., and Dunham, K. C. Marine bands and other faunal marker horizons in relation to the sedimentary cycles of the Middle Coal Measures of Nottinghamshire and Derbyshire—petrography of two sedimentary cycles, 3752*i*.
**Edwards, W. A.** Wood preservatives, 9339*c*.
**Edwards, W. G. H.,** and Petrow, V. Schmidt rearrangement, 1765*i*.
**Edwards, W. T.** Detn. of Al in Al bronze, 963*f*.
**Eeckhout, J.** Analysis of slags, 8307*f*; analysis of Cr–Ni [18/8] steel, 8965*b*.
**Eeg-Olofsson, R.** Total protein, globulin, and albumin in lumbar fluid in cryptogenic epilepsy, 2667*c*.
——, Nihlén, H., and Brohult, S. Detn. of proteins in cerebrospinal fluid, 2667*b*.
**Eekelen, M. van.** See Hintzer, H. M. R.
**Eerbeek, C. D. F.** See Smithuysen, W. C. B.
**Eerste Nederlandsche Cement Industrie N. V.** See N. V. Eerste Nederlandsche Cement Industrie.
**Efanov, N. I.** See Smolyarenko, D. A.
**Efendiev, T. D.** See Shakhtakhtinskiĭ, G. B.
**Eferova, L. V.** See Dodonov, Ya. Ya.
**Efimenko, A. I.** App. for charging glass melting furnaces, P 6386*d*, fining glass melted in shaft furnaces, P 6386*d*.
**Efimov, V. A.** See Sharkov, V. I.
**Efremov, I. F.** Surface tension and gelation of solns. of rosin and its derivs., 8177*a*.
**Efremov, N.** Entwicklung der chemischen Element (book), 4582*b*; constitution of hydrous silicates, 6544*f*.
**Efremova, G. D.** See Krichevskiĭ, I. R.
**Efremova, K. A.** See Plaksin, I. N.
**Efroimovich, Yu. E.** Automatic control of a system of electric arc heating furnaces for ores, 3297*a*.
**Efros, L. S.** See Poral-Koshits, B. A.
**Efrosse, L. S.** See Efros, L. S
**Egaki, M.** Refining of sulfite pulp, P 5950*h*.
**Egan, C. H.** Soda lime, P 5912*h*.
**Egan, H.** See Bockris, J. O'M
**Egan, W. J.** See Moloney, W. C.
**Egaña, E.** See Croxatto, H
**Egea, J. F.** See Figueroa Egea, J.
**Egenhoff, E. L.** See Bramel, H. R
**Eger, C. W.** Electrochem. and electrometallurgical industry of Norway, 4959*d*
**Eger, L. W.** See Weidner, C. L.
**Eger, W.** Protein dry matter and fatty degeneration of human livers in relation to the histol. picture, 1479*f*, N and residual N content of human livers in relation to the histological picture, 1850*h*.
—— and Klarner, C. Formation and storage of glycogen in the human liver, 1850.
**Egerton, A. C.** See Blackman, M.
——, Harris, E. J., and Young, G. H. S. Slow combustion of hydrocarbons (I) absorption spectra of peroxides, 3724*e*.
—— and Powling, J. Limits of flame propagation at atm. pressure (I) influence of promoters, (II) influence of changes in the phys. properties, 3617*g*.
—— and Young, G. H. S. Slow combustion of hydrocarbons (II) absorption spectra of butane undergoing slow combustion, (III) effect of diluents and other substances on the slow combustion of butane, 3724*h*.
**Egerton, G. S.** $H_2O_2$ in the photochem degradation of cotton sensitized by vat dyes and metallic oxides, 412*b*; action of light on viscose rayon, silk, and nylon, undyed and dyed with vat dyes, 412*d*; action of light on cellulose acetate rayon and nylon dyed with Duranol, Dispersol, S.R.A., and Solacet dyes, 853*i*; photochem. degradation of nylon, silk, and viscose rayon, 1192*a*.
**Eggebert, W. S.** See Seelmann-Eggebert, W.
**Eggenberger, D. N.** See Ralston, A. W.
**Eggenberger, H.** See Allmen, S. v.
**Egger, A. B. M.** Plastics, P 4513*g*; emulsifier, P 5909*b*.
**Egger, I.** Local anesthetics, P 1913*g*.
**Egger, P.** Serum proteins in distribution of sulfonamides in the body, 5112*f*.
**Eggersgluess, W.,** Monroe, A. G., and Parker, W. G. Heat of formation of $B_2O_3$, 8835*g*.
**Eggert, J.** Samuel Edward Sheppard, 1617*i*, post-fixation phys. development, 1668*f*; Lehrbuch der physikalischen Chemie (book), 4940*d*; Landolt reaction (VI) photographic developing agents as reducing agents, 6532*a*, 7842*c*; see Dehio, H.
**Eggertsen, F. T.** See Davies, E. P.
**Egginton, H. H.** Thickness testing of electrodeposited coatings, 4148*h*.
**Egg-Larsen, N.,** Linderstrøm-Lang, K., and Ottesen, M. Transformation of ovalbumin into plakalbumin, 3857*b*.
**Eggler, C.** See Hughes, D. J.
**Eggleston, L. V.** See Krebs, H. A.; Stern, J. R.
**Eggleton, M. G.,** and Habib, Y. A. Action of thiosulfate on the kidney, 7143*i*.
**Egglhuber, E.** See Opitz, K.
**Egidi, U.** See Erbacher, O.
**Egle's, H., Erben.** Brazing flux, P 5360*b*.
**Egner, W.** See Allen, J. G.
**Egoroff, A.** See Huge, J.
**Egoroffa.** See Egorova.
**Egorov, F. G.,** and Bykhovskiĭ, Yu. A. Reverberatory furnaces of the Balkhash smelter and how to improve their efficiency, 2142*c*.
**Egorov, I. A.** B vitamin activity of Georgian tea, 5511*e*.
**Egorova, A. A.** Physiol. data on phenol-oxidizing thermophilic bacteria, 276*d*; see Kozlov, V. V.
**Egorova, A. V.,** and Gribkova, V. I. Acetaldehyde, P 5034*b*.
**Egorova, G. M.** See Topchiev, A. V.
**Egorova, M. F.** See Berezovskiĭ, A. A.
**Egorova, M. N.** See Tsukershteĭn, E. I.
**Egorova, O. I.** Resinification process in light tar distillates, 7664*g*.
**Egorova, V. S.** See Putokhin, N. I.
**Egsgaard, J.** Detn. of P with amidol, 3744*h*; detn. of the phosphatide content of serum, 4320*g*.
**Eguchi, T.,** and Morita, S. Occlusion of impurities by growing cane-sugar crystals (IV) occlusion of caramel, (V) occlusion by sugar crystals of dyes in coexistence with caramel, 2005*a*.
——, Morita, S., and Aoto, E. Occlusion of impurities by growing cane-sugar crystals (I) occlusions of dyes, (II) quantity of dyes occluded by cane-sugar crystals, (III) occlusion of coagulated particles of different dyes, 2003*h*
**Egyesult Izzólámpa és Villamossági R. T.** Rare gases boiling higher than O, P 1618*e*; enamel-like substance for electric discharge lamps, P 8020*h*
**Ehardt, J. H.** Reverberatory furnace, P 6965*g*.
**Eheart, M. S.,** and Sholes, M. L Nutritive values of cooked immature and mature cowpeas, 1121*e*.
**Ehler, K.** Detn. of $Cu^{++}$ ions with the saving of I by $Na_2S_2O_3$, 5340*c*.
**Ehrenberg, L.** Time concn. curve of local anesthetics, 4772*f*, see Fischer, Inga
—— and Fischer, I. H bond (I) influence of double bond on assocn. between ethers and water, 3671*h*.
**Ehrenberg, P.,** and Buchner, A. Rubbish from city ruins for lime fertilization, 7173*h*
**Ehrenberg, R.** Animal expts. with radioactive indicators, 6692*b*.
**Ehrenberg, W.** Shell model for at. nuclei, 6072*g*; see Ansbacher, F.
**Ehrenhaft, J. L.,** and Meyers, R. Blood fat levels following supradiaphragmatic ligation of the thoracic duct, 3081*c*.
**Ehrensvärd, G.** See Baddiley, J
——, Fischer, A., and Stjernholm, R Protein metabolism of tissue cells (VII) chem. nature of some obligate factors of tissue cell nutrition, 9190*h*.
——, Högström, G., Reio, L., Sperber, E., and Saluste, E Amino acid metabolism in *Torulopsis utilis*, 5436*d*.
**Ehret, W. F.** Correlation of high-school and college chemistry courses, 1229*i*.
**Ehrhart, G.** See Bockmühl, M
—— and Schaumann, O. Polamidone, powerful analgesic, 8537*h*.
**Ehrich, W. E.** See Forman, C.
——, Drabkin, D. L., and Forman, C. Nucleic acids and the production of antibody by plasma cells, 8525*a*.
——, Seifter, J., Alburn, H. E., and Beganv, A. J. Heparin and heparinocytes in elephantiasis scroti, 3915*h*.
**Ehrlén, I.** Detn. of adrenaline (III) structure of the fluorescent compd., 9135*h*; see Bodforss, S.; Bondeson, W.
**Ehrlich, J.** Zein as a cork binder, P 2039*f*
**Ehrlich, M.** See Cronheim, G.
**Ehrlich, P.** W sulfides, 5273*d*, see Klemm, W.
**Ehrlich-Gomolka, H.** Prepn. of L-methionine, 5743*b*.
**Ehrlinger, D. B.** See Rogers, L. B.
**Eichbaum, F. W.** See Leão, A. T.
—— and Leão, A. T. Narcotic action of hexylresorcinol on cold-blooded animals, 3113*d*.
**Eichborn, J. L. v.** Theory of capillary liquid forms and their boundary lines, 8777*b*.
**Eichel, B.** See Cooperstein, S. J.
—— and Wainio, W. W. D-Glucose dehydrogenase and its carrier system, 4712*g*.
**Eichelberger, L.,** Kollros, J. J., Walker, A. E., and Roma, M. Water, N, and electrolyte content of brain following cerebral concussion, 5111*f*.
**Eichelman, G. H., Jr.** See Hibbard, W. R., Jr.

**Eichen, S.** See Bernhard, A.
**Eichenberger, Ernst.** See Pallmann, H.
**Eichenberger, Erwin.** Hyaluronidase, 1447*d*; mucin-splitting enzyme in normal and pathol. human sperm, 5061*b*; detn. of estrone, estradiol, and estriol in pregnant urine, 9136*g*; see Meier, Rolf.
——— and Käser, O. Hormone detns. in toxemias of late pregnancy, 9233*d*.
**Eichenberger, J.** Synthesis of 3-isopropyl-6-methylhomophthalic acid, 1747*f*.
**Eicher, J. H.** See Kornblum, N.
**Eichholtz, F.** Metabolism, 1475*a*, Lehrbuch der Pharmakologie (book), 7148*i*; see Koll, W.
———, Hotovy, R., and Erdniss, H. App for measuring muscular contractions, 7070*a*.
——— and Roesch, E. Effect of drugs on synapses, 7128*c*.
**Eichholz, H.** Influence of temp on the dyeing of wool, 6828*f*.
**Eichhorn, F.** See Rappaport, F.
**Eichler, O.** Effects of coffee in sports exercises, 8543*a*; see Barfuss, F.; Euler, Hermann.
———, Hindemith, H., and Barfuss, F. Action of org. fluorides on yeast fermentation and on phosphatases, 6253*f*.
——— and Stober, W. Decompn of pyrophosphate by the heart, 8184*f*.
**Eichner, F. L.** Treatment of Al foil for bonding, printing, and coloring, P 9022*b*
**Eickhoff, A. J.,** and Kebrich, L. M. Ba K chromate pigment in metal protective paint, 5604*h*.
——— and Shaw, W. E. Principles of protecting metals with org. coatings, 421*b*.
**Eickmeyer, A. G.** Treating oil wells, P 1557*a*.
**Eickworth, E.** N content of basic Bessemer steel and pig iron, 980*c*.
**Eide, P. M.** See Stitt, L. L.
**Eidel'man, M. M.,** and Gordon, F. Ya. Bound ascorbic acid in blood, 5072*f*
**Eidinoff, M. L.** Measurement of radiocarbon as $CO_2$ in Geiger-Muller counters, 2090*f*.
——— and Ruchlis, H. Atomzeitalter (book), 6517*c*.
**Eidus, J. T.** See Eidus, Ya. T.
**Eidus, Ya. T.** Reactions of CO with the assistance of acidic and basic agents, 2881*h*, catalysts for the hydrogenation of CO (IV) kinetics of carbide formation and the hydrogenation of CO on Co, Ni, and Fe catalysts, 6063*g*.
———, Zelinskii, N. D., and Ershov, N. I. Condensing action of methylene radicals on ethylene, 108*a*.
——— ———, Zelinskii, N. D., and Puzitskii, K. V. Catalytic hydrocondensation of CO with olefins (I) hydrocondensation of CO with ethylene, 4829*f*.
**Eiermann, E.** See Buchegger, G.
**Eiermann, H.** Disturbances of the body and commotio cerebri (II) commotio cerebri and carbohydrate metabolism, (III) commotio cerebri and changes in the blood (1) alkali reserve, nonprotein N, and sedimentation rate, 9229*f*.
**Eigeles, M. A.** Effect of variable H-ion concn. on flotation, 1227*i*; alumina concentrate from the tailings of the Balkhash concn. plant, 1503*e*.
**Eigen, E.** See Winsten, W. A.
**Eigenson, A. S.,** and Yakhina, P. D. Influence of several factors on detn. of S in dark petroleum, 5575*g*.
**Eiger, I. Z.,** and Dawson, C. R. Sweet potato phenolase—prepn., properties, and detn. of protein content, 7530*f*; detn. of the protein content of mushroom tyrosinase prepns., 7537*i*.
**Eigeles, M. A.** See Eigeles, M. A.
**Eijk van Voorthuijsen, J. J. B. van.** See Voorthuijsen, J. J. B. van E. van.
**Eijnsbergen, J. F. H. van.** Zink-yellow primers, 5605*c*.
**Eikhfel'd, V. I.** See Levina, R. Ya.
**Eilender, W.** See Jurich, H.; Müller, Freidrich.
———, Arend, H., Eggers, U., and Sadrazil, F. Electrolyte for the electropolishing of steel, 8902*a*.
———, Arend, H., and Sadrazil, F. Corrosion of hard Cr layers, 9018*a*.
———, Arend, H., and Schmidtmann, E. Effect of heat treatment on hardness and gaseous content of hard Cr plate, 9014*e*; gaseous content of hard Cr plates deposited from sulfate plating baths, 8901*i*; hardness and current efficiency of hard Cr plate as function of plating conditions, 8901*h*; hard Cr layers of highest wear resistance, 8902*i*.
**Eiler, J. J.,** and McEwen, W. K. Effect of pentobarbital on aerobic phosphorylation in brain homogenates, 9264*c*.
**Eilerman, G. E.** Water-dispersible coating vehicle, P 1995*a*, 4498*f*; polysulfone resins plasticized with esters of org sulfonic acid, P 7751*c*.
**Eilers, L. H.** See Cardwell, P. H.
**Eilerts, C. K.,** Smith, R. V., Archer, F. G., Burman, L. M., Greene, F., and Hamontre, H. C. Field and lab. tests of Na chromates and alkalies for controlling corrosion in gas-condensate wells (I) problem and a résumé of results obtained, 6813*a*; (II) theoretical considerations, 7216*i*; (III) max. and min. requirements of Na chromate detd., 8651*e*.
**Eiles, E.** See Hromatka, O.
**Eimer, E. J.,** and Grausam, W. J. Measuring pitch flexibility, 8092*b*.
**Einbinder, H.** Generalized virial theorems, 916*e*; deductions from the N theorem, 8772*f*.
**Einstein, P. A.,** and Jacob, L. Focal properties of an electron-optical immersion objective, 2858*d*.
**Eipper, W. R.** Isomerization of fats and oils, P 2341*a*.
**Eirich, F.,** and Riseman, J. First interaction coeff. of the viscosity-concn. equation, 8235*c*.
**Eischens, R. P.** See Selwood, P. W.
**Eiseman, J. H.** Lab. Bunsen burners for natural gas, 7211*a*.
**Eisemann, F. B.** Effect of bank repairs on slag vol in acid elec. steelmaking, 1267*h*.
**Eisen, H. N.,** and Karush, F. Interaction of purified antibody with homologous hapten—antibody valence and binding const., 3925*c*.
——— and Keston, A. S. Immunologic reactivity of bovine serum albumin labeled with trace amts. of radioactive I, 9233*f*.
**Eisen, J. B.** Conditioning cellulose ester filaments, P 3207*d*.
**Eisenberg.** See also Alzenberg.
**Eisenberg, E.,** Gordon, G. S., and Elliott, H. W. Effect of castration and of testosterone on the respiration of brain, 5468*e*.
**Eisenberg, G. M.** See Reese, E. T.
**Eisenberg, M. A.** See Schwert, G. W.
**Eisenberg, R.,** and Raudebaugh, R. J. Impact strength of single-bead arc weld deposits as affected by temp, 552*i*.
**Eisenberg, S.** Application of a semimicro-Kjeldahl method to flour analysis, 325*c*.
**Eisenberger, S.,** and Machlis, S. Nondusting detergent compns., P 4034*e*
**Eisenmann, Mrs. J.** Atomic energy and rubber, 7740*i*.
**Eisenmenger, W. J.,** Ahrens, E. H., Jr., Bloudheim, S. H., and Kunkel, H. G. Effect of rigid Na restriction in patients with cirrhosis of the liver and ascites, 9225*a*.
**Eisenreich, F.** Bilirubin conversion in bile and intestine, 3082*b*; see Siedel, W.
**Eisenschiml, O.,** and Kalberg, V. N. Fungicidal protective coatings, 1993*d*.
**Eisenstark, A.** See Roberts, Elmer.
**Eisenstecken, F.** Improvement in adhesion of baked lacquer deposits on steel strip and thin sheet, 6837*c*.
**Eisenstein, A.** Elec. properties of the $BaSiO_4$ oxide cathode interface, 4092*a*, 8856*g*.
**Eisenstein, J.** See Rohrlich, F.
**Eisermann, E.** See Felix, W.
**Eisleb, O.** See Bockmühl, M.
**Eisler, M.,** and Gottdenker, F. Effect of "pyocyanase," 1458*e*.
**Eisler, O.** Czechoslovakian chem. exports, 4397*f*.
**Eisman, P. C.,** Kull, F. C., and Mayer, R. L. Bacteriol. aspects of deionized water, 8584*h*.
**Eismann, W., Jr.** Significance of chem. tests in lubricating-oil specifications, 3601*g*.
**Eisner, A.** See Haines, P. G.; Swain, M. L.
**Eisner, G.** See Wacek, A. v.
**Eisner, M.,** and Rosen, N. Neutron-proton scattering, 4089*i*.
——— and Straley, J. W. Cond. of Na-$NH_3$ solns., 4065*i*.
**Eistert, B.** Chemismus und Konstitution (book), 3278*f*; modification of the synthesis of α-diazo ketones, 6177*i*; Tautomérie et mésomérie (book), 7034*g*.
**Eitel, A.,** and Fialla, R. Effect of solvent on the Friedel-Crafts reaction—synthesis of *o*-naphthoylbenzoic acids, 209*g*.
**Eitel-McCullough, Inc.** Rugged cathode, P 1666*c*; electron tube, P 2518*f*.
**Eitner, H.** Serum proteins in dysproteinemia, 7570*c*.
**Ek, B.,** Euler, H. v., and Hahn, L. Phosphatases of animal origin (V), 7988*i*.
**Ekdahl, I.** See Åberg, Börje.
**Ekelund, S.** Carbohydrates in hay, 6755*g*.
**Ekman, B.** Citrin and ascorbic acid therapy in chronic arthritis and toxemia of pregnancy, 1087*b*; paper chromatography of primary aromatic amines, 2263*b*; see Strömbeck, J. P.
——— and Strömbeck, J. P. Effect of some split products of 2,3-azotoluene on the urinary bladder and their excretion on various diets—effects of feeding aniline on the urinary bladder, 6315*c*.
**Ekman, P.** See Lundblad, K.; Stenberg, M.
**Ekman, W.,** and Hildebrand, G. E. H. Acid Bessemer steel or Thomas steel low in N, P 4625*a*.
**Ekstein, H.,** and Siegel, S. Limits of accuracy in the detn. of lattice parameters and stresses, 6485*c*.
**Ekstrand, T.** 2 Amino-5-bromothiazole and its hydrobromide, P 3466*h*; thiazole derivs. of aminopropanes, 4263*a*; methylpyrazolonethiocarboxamide and aromatic halogen ketones, 6619*g*; phenothiazine derivs. of pharmacol. interest, 7938*d*.
**Ekwall, A.** Straw as raw material for board production in U.S., 1970*c*.
**Ekwall, P.** See Harva, O.
——— and Setala, K. Solubilization of carcinogenic hydrocarbons by assocn. colloids, 4363*d*.
**Ekzertsev, V. A.** Detg. microbiol. activity of active strata in lake mud deposits, 5239*e*.
**Elander, M.,** and Myrbäck, K. Isolation of cryst. trehalose after fermentation of glucose by maceration juice, 7544*d*.
**El-Assal, L. S.** See Assal, L. S. El.
**Elbe, G. v.** See Von Elbe, G.
**Elbeih, I. I. M.** See Pollard, F. H.
**Elce, A.** See Distillers Co., Ltd.; Duval, B.
**Eld, A. C.** Pressure drop in fractionating towers, 2041*i*.
**Elder, F. K., Jr.** Thermal diffusion with Ne, 4067*a*.
**Elder, F. R.** See Westendorp, W. F.
**Elder, J. A., Jr.** Corrosion inhibitors, P 8349*b*.
**Elder, L. W.** Functional package design, 9297*a*.
**Elder, M. E.** See Maron, S. H.
**Elder, W. C.** See Harper, H. J.
**Elderfield, R. C.** Synthesis and properties of unsatd. lactones related to the cardiac aglucons, 3017*i*.
——— and Brody, F. (Alkylamino)alkyl halides, P 4683*i*.
———, Kupchan, S. M., and Rosenberg, C. C. Effect of pamaquin on the O consumption of liver slices, 7148*b*.
——— and Maggiolo, A. Synthesis of 4-hydroxyquinolines from β-anilinopropionic and butyric acids, 8387*f*.
**Eldred, N. B.** See Brown, H. C.; Schiessler, R. W.
**Eldridge, E. F.,** and Purdy, R. W. Treatment and disposal of waste sol. oils, 3125*f*.
**Eldridge, J. E.** See Ferry, J. D.
**Electric Railway Improvement Co.** Welding materials, P 3772*g*.
**Electric Steel Foundry.** Austenitic stainless steel, P 1307*f*.
**Electrochlore (Soc. anon.)** Ca arsenate, P 4821*b*.
**Electro Manganese Corp.** Electrodeposition of Mn, P 2879*g*.
**Electro Metallurgical Co.** Metals sepn., P 1708*d*.
**Electronized Chemicals Corp.** Yield of essential oils from plants, P 1915*f*.
**Electroverre Romont Soc. anon.** Elec. glassmaking, P 4439*f*, 8632*h*, 8633*a*; elec. fusion furnace, P 7357*f*.
**Elektrizitätswerke Lonza u. chemische Fabriken. A.-G.** See Lonza Elektrizitätswerke und chemische Fabriken A.-G.
**Elektrokemisk A/S.** Anode app. for electrolytic cells for the manuf. of Al, P 5682*d*; app. for breaking up surface crusts of carbide and ferroalloy charges in elec. smelting furnaces, P 7357*g*.
**Elenbaas, W.** Intensity measurements on water-cooled high-pressure Hg lamps with addns. of Cd and Zn, 2095*g*; high-pressure rare-gas discharges, 7357*a*.

**Elenevskaya, E. V.** See Shpelzman, V. M.
**Elert, R.** Glycogen loss during pregnancy (I) metabolism of creatine, carbohydrate, and lactic acid, 8495*h*
**Eleveth, D. F.**, Goldsby, A. I., and Nelson, C. I. Fowl cholera (*Pasteurella multocida*), 7589*f*.
**Eley, D. D.** Abs. rate of conversion of parahydrogen by metallic catalysts, 26*g*; phthalocyanines as semiconductors, 3731*h*; biol. polymers, 5432*i*.
——— and Richards, A. W. Ionic polymerizations (I), (II) polymerization of vinyl octyl ether catalyzed by iodine $SnCl_4$ and other catalysts, 6896*c*.
**Elfers, W.** Measurements of the absorption const. of Au in the ultraviolet and visible, 4957*f*.
**Elford, W. J.**, Chu, C. M., Dawson, I. M., Dudgeon, J. A., Fulton, F., and Smiles, J. Phys. properties of the viruses of Newcastle disease, fowl plague, and mumps, 4757*g*.
**Elfrink, E. B.**, Sandberg, C. R., and Pollard, T. A. Compressibility correlation for natural gases and its application to estimates of gas-in-place, 8643*e*.
**Elftman, A. G.** See Elftman, H.
**Elftman, H.** Response of the alk. phosphatase of the adrenal cortex to androgen, 7060*c*.
———, Elftman, A. G., and Zwemer, R. L. Histochem. distribution of Au after administration of $AuCl_3$, 2698*i*.
**Elgabaly, M. M.**, and Wiklander, L. Effect of exchange capacity of clay minerals and acidoid content of plant on uptake of Na and Ca by excised barley and pea roots, 8010*a*.
**Elghammer, R. M.** See Allen, J. G.
**Elgin, J. C.** Solvent extn., 1227*h*; glycerol extn., P 9081*d*.
**Elgueta, B.** See Calvo C., J. M.
**Elias, L. N. J. H.** Anticorrosive paint for Fe, cement, or other structural materials, P 1200*b*.
**Elias, N. M.** Spermicides, P 4818*i*.
**Elias, V. E.** Variations in serum K by the action of diphtheria toxin, 5484*g*.
**Eliassen, R.** Developments in the water works field, 2343*i*, incineration mechanization, 6767*h*.
———, Heller, A. N., and Kisch, G. Effect of chlorinated hydrocarbons on $H_2S$ production, 8585*e*.
———, Heller, A. N., and Krieger, H. L. Sewage chlorination, 3547*d*.
**Eliasson, N. A.** See Arvidson, H.; Bergstrand, A.; Bergström, S.
**Eliava, T. A.** See Melikadze, L. D.
**Eliel, E. L.** See Snyder, H. R.
——— and Burgstahler, A. W. Synthesis of Me phthalaldehydate and phthalaldehydic acid by the Rosenmund reduction, 7003*c*
**Eliezer, C. J.** Theory of particles, 4554*i*, quantum electrodynamics and the interaction of the H-like atoms with a radiation field, 5659*i*.
**Elin, V. L.** Sulfonamide prepns. in the organism, 724*b*.
**Elio, F. J. de.** Biol. evaluation of local anesthetics, 8095*a*.
**Elio Membrado, J.**, Jalon, G. de, and Obrador, S. Anticonvulsant action of paraldehyde on the nervous system, 5119*g*.
**Elion, E.** Proteolysis in bread dough, 325*h*.
**Elion, G. B.** See Burchenal, J. H.; Hitchings, G. H.; Russell, P. B.
———, Light, A. E., and Hitchings, G. H. Prepn. of xanthopterin, 3887*b*.
**Eliot, T. Q.**, Goddin, C. S., Jr., and Pace, B. S. Chemicals from hydrocarbon synthesis, 9416*c*.
**Elisarova.** See Elizarova.
**Eliseev, E. I.** Coloring of amazonite, 6118*c*.
**Elisejew.** See Eliseev, E. I.
**Elishewitz, H.** Epidemic control with DDT, ANTU, and 1080, 3556*a*.
**Elithorn, A.**, Johnson, D. M., and Crosskey, M. A. Effects of agenized flour, 3490*a*
**Elizarova, A. N.** See Nazarov, I. N.
**Elizarova, S. S.**, and Melsel, M. N. Activity of catalase and the functional condition of protoplast of microbe cell, 7081*c*.
**Elkan, F.** Coal activator, P 8651*a*.
**Elkarim, A. A.** Viscometer for transparent viscous liquids, 2044*f*.
**El Khishen, S. A.** See Khishen, S. A. El.
**Elkins, E.** See Elkins Kaufman, E.
**Elkins, H. B.** Max allowable concns. of toxic substances, 6759*i*.
——— and Fahy, J. P. Urinary Hg detns., 9138*h*.
**Elkins, L. F.**, and Cooke, J. T. Pilot gas injection—its conduct and criteria for evaluation, 8652*d*.
**Elkins-Kaufman, E.**, and Neurath, H. Kinetics and inhibition of carboxypeptidase activity, 701*d*.
———, Neurath, H., and De Maria, G. Structural requirements for specific inhibitors of carboxypeptidase, 6265*i*.
**Elkinton, J. R.** Vol. of distribution of mannitol as a measure of the vol. of extracellular fluid, 7572*i*; see Danowski, T. S
———, Winkler, A. W., and Danowski, T. S. Importance of vol. and of tonicity in salt-depletion shock, 6726*i*.
**Elks, J.** See Attenburrow, J.; Dupré, D. J.
———, Hems, B. A., and Ryman, B. E. Synthesis of α-amino acids, 1322*h*.
**Ellefson, B. S.** Fluorescent products, P 2870*f*.
**Elleman, A. J.**, and Wilman, H. Structure and growth of PbS deposits on rock salt substrates, 3685*g*.
**Ellenberger, F.**, and Visse, L. Identification of acid feldspars, 3315*c*.
**Ellenberger, H. A.** See Chilcote, M. E., Guerrant, N. B.
———, Guerrant, N. B., and Chilcote, M. E. Vitamin A reference standard and its use in evaluating the vitamin A potency of fish oils, 5459*g*.
**Ellerbeck, T. R.** Continuous-operating kiln adapted to produce high-grade lime and $CO_2$ of high quality, P 826*c*.
**Ellerbrook, L. D.** See Lippincott, S. W.
**Ellerton, E.** Theory and practice in food hygiene, 7595*a*.
**Ellery, E.**, and Imperial Chemical Industries Ltd. Polyamides, P 5602*h*.
———, Reynolds, R. J. W., and Imperial Chemical Industries Ltd. Polyamides, P 6866*i*.
**Ellery, K. W.** See Hebert, B. E.
**Ellestad, R. B.** Li industry, 1300*e*.
**Elliekson, R. T.** See Scott, F. R.
**Elliker, P. R.** Practical Dairy Bacteriology (book), 9293*i*.
**Ellinger, F.** Adrenal cortical hormone in radiation sickness, 1484*c*
**Ellinger, L. P.**, and Goldberg, A. A. Route to imidazoles—2-ω aminoalkyl derivs. of 4-methylimidazole, 7478*e*.
**Ellinger, P.**, and Emmanuelowa, A. Effect of *p*-aminomethylbenzenesulfonamide on biosynthesis of nicotinamide, 2314*i*.
——— and Kader, M. M. A. Tryptophan in the biosynthesis of nicotinamide, 6710*a*, nicotinamide metabolism in mammals, 6718*a*, nicotinamide biosynthesis by intestinal bacteria as influenced by methyltryptophans, 9154*e*; nicotinamide saving action of tryptophan and the biosynthesis of nicotinamide by the intestinal flora, 9191*e*.
**Ellingham, H. J. T.** See Dannatt, C. W., Rose, B. A.
**Ellington, O. C.** Safety arrangements in labs. handling explosives and kindred materials, 7159*h*.
**Elliot, G. D.** See Chesters, J. H.
**Eliot, M. I.** See Gunther, F. A.
**Elliott, A.** See Ambrose, E. J.; Cowling, K. W.
———, Ambrose, E. J., and Temple, R. B. Double orientation and infrared dichroism in polymers, 5311*c*.
**Elliott, A. C.** Feed-water conditioning, 5522*a*, 6343*e*.
**Elliott, D. F.** Conversion of DL-serine into inactive cystine, 3786*i*; synthesis and isolation of threonine, 3787*a*, stereochemistry of an oxazoline deriv. of threonine—threonine synthesis, 9033*a*; see Catch, J. R.
**Elliott, D. R.**, and Madison, K. K. Tire-curing bag, P 5626*b*.
**Elliott, D. W.** See Cliffton, E. E.
**Elliott, F. W.** Electronic sizing tester, 4012*g*.
**Elliott, G. A.** See Bayliss, N. S.
**Elliott, G. de C.**, Hahn, L., and Hevesy, G. Inorg. phosphate of blood plasma, 2661*i*.
**Elliott, H.** See Gofman, J. W.
**Elliott, H. W.** See Abreu, B. E.; Eisenberg, E.; Gordan, G. S.
———, Chang, F. N. H., Abdou, I. A., and Anderson, H. H. Distribution of radioactivity after administration of $C^{14}$-labeled methadone, 5866*a*.
**Elliott, I. L.** See Grimmett, R. E. R.
**Elliott, J. H.** See Davis, W. E.; Stow, F. S., Jr.
**Elliott, J. R.** See Krieble, R. H.
Krieble, R. H. Treatment of chloromethyl-substituted polysiloxanes, P 3837*d*.
**Elliott, J. S.** See Evans, E. A.
**Elliott, K. A. C.** Removal of traces of O from gases, 7758*d*; metabolism of brain tissue slices and suspensions, 9208*e*; see Webb, J. L.
——— and Birmingham, M. K. Effect of pH on the respiration of brain tissue—pH of tissue slices, 3084*e*.
——— and Henderson, N. Blood and spinal fluid guanidine in epilepsy, 9238*b*.
——— and Penfield, W. Respiration and glycolysis of local epileptogenic human brain tissue, 9230*h*.
**Elliott, K. J.** See Chen, S. D.
**Elliott, L. G.** See Bell, R. E.
——— and Bell, R. E. Upper limit for the mean life of the 478 5-e kv. excited state of $Li^7$, 1646*f*.
———, Hincks, E. P., and May, A. N. Attempt to detect a $(n,2n)$ reaction in D, 3283*a*
**Elliott, N.** Magnetic susceptibilities of tetravalent U fluorides 8768*f*. see Hutchison, C. A., Jr.
**Elliott, P. A. D.** Hair-treating compn. P 5554*c*.
**Elliott, R. B.** See Loucks, C. E.
**Elliott, R. E.** Effect of a petroleum type of plasticizer on furnace blacks in natural rubber, 1208*d*
**Elliott, R. F.** See Swift, R. W.
**Elliott, T. J.** See Graves, E. L.
**Elliott & Sons Ltd.**, and Howe, D. J. T. Photographic materials, P 2532*b*
**Ellis, A.** See Scholz, E.
**Ellis, B.** See Lincoln, J.
———, Petrow, V., and Snook, G. F. Chemistry of antipernicious anemia factors (I) liberation of P as phosphate from vitamin $B_{12}$ by acid hydrolysis, 5432*b*
**Ellis, C. B.** Closed shells in nuclei, 1258*g*, nuclear power, 4096*i*
**Ellis, C. H.** See Alles, G. A.
**Ellis, D. A.** See Benson, S. W.
**Ellis, D. E.** See Clayton, C. N.
——— and Clayton, C. N. Soil treatment with new insecticides ineffective in control of root-knot, 809*c*.
———, Clayton, C. N., and Owens, R. G. Effects of soil treatments with Uramon and certain fumigants on plant growth and incidence of root-knot, 7186*g*.
**Ellis, D. G.** See Willson, K. S.
**Ellis, F. A.**, Grant, R., and Hill, V. E. Typhoid paratyphoid vaccine and respiratory response to the inhalation of $CO_2$, 8063*d*
**Ellis, G. H.** Detn of lignin and cellulose in plants, 9438*f*, see Thacker, E. J.
**Ellis, H. A.** Principal tantalum-bearing deposits of the Pilbara goldfield, Western Australia, 6124*e*; Donnelly River graphite deposits of Western Australia—Munglinup graphite deposits, P.A. 802H, Munglinup River, Western Australia, 6125*g*; quartz crystal deposits on P.A. 2096, Pilbara goldfield, Western Australia, 6126*c*; beryl and tantalite occurrences on P.A. 2096 and 818H, Pilbara goldfield, Western Australia, 6546*i*.
——— and Grace, J. N. A. Young River vermiculite deposits, Western Australia 6126*a*.
**Ellis, J. N.** Applications of fluidized-bed technique (I), (II), 9414*g*.
**Ellis, J. P. J.** Silicate binders for cold molding compns., P 6865*e*.
**Ellis, M.** See Selwood, P. W.
**Ellis, M. A.** Official assay of ammoniated Hg ointment, 4425*h*.
**Ellis, M. E.**, and Grollman, A. Antidiuretic hormone in the urine in hypertension 8044*b*.
**Ellis, N. K.**, and Bullard, E. T. Varietal response of sweet corn to 2,4-D spray and the effect of different formulations of 2,4-D on yield, 1894*i*.
**Ellis, N. R.** See Hoagland, R.
**Ellis, O. C. de C.** History of foams and the properties of $CH_3I$, 5952*e*.
**Ellis, S.** Enzymic hydrolysis of morphine esters, 702*b*; effect of diisopropyl fluorophosphate on O quotient of cerebral cortex, 1446*b*; action of sympathomimetic amines on the isolated heart, 9250*d*.
**Ellis, S. C.**, and Pankhurst, K. G. A. Monolayers of collagen, 6039*i*.
**Ellis, S. E.** Delimitation of diorite and gabbro and related rocks, 4010*b*.
**Ellis, S. G.** Electron microscopy (I) techniques, (II) oil-industry uses, 31*i*
**Ellis, W. C.** See Greiner, E. S.

**Ellis, W. E.** See Bruckner, W. H.
**Ellis-Foster Co.** Sulfurized jojoba oil, P 885*e*; modified alkyd compn, P 2471*g*, dehydration of hydroxylated oils, P 2780*a*; aldehyde-polycyanoacetamido compd. condensation products, P 6003*a*, alkyd resin-oxidized butadiene polymer emulsion, P 6859*e*; unsatd. polymerizable liquid, P 9537*e*; rosin esters, P 9485*f*; see Montclair Research Corp
**Ellison, H. E.** Sugar-end operations on ion-exchange juice, 6442*a*.
**Ellison, H. L.** See Merrill, H. B
**Ellison, J. H.** See Smith, O.
—— and Smith, O. Effects of spraying a sprout inhibitor on potato plants, 1517*h*.
**Ellison, J. M.** See Renbourn, E. T.
**Ellison, M. A.** Sudden phase anomaly, 5301*i*, characteristic properties of chromospheric flares, 7333*i*.
**Ellmer, L.** See Adler, E.
**Ells, S. C.** New Brunswick oil shales (I) exploration of oil shales in the Rosevale area, 3095*s*.
**Ellsworth, J. T.** Electrolytic recovery of Zn, P 7839*c*.
**Ellwood, E. C.** Brillouin zone effects in Al alloys, 6557*d*.
**Elm, A. C.** Deterioration of dried-oil films, 2787*g*; testing the durability of house-paint systems for outdoor use, 6833*i*; see Kittelberger, W. W.
**Elmadjian, F.** See Pincus, G
**Elman, R.** Amino acid mixts as parenteral protein food, 1845*c*, see Ross, C. A.
**Elmendorf, E. T.** See Wolf, F. J.
**Elmer, O. C.**, and Holman, R. T. Prepn of linoleic and linolenic acid esters of several polyhydroxy ales, 4639*b*
**Elmer, R. A.** See Katcoff, .
**El-Monsim Ezzat, M. A** See Ezzat, M. A El-M.
**Elmore, D. T.** Sepn of pyrimidine nucleosides by synthetic resin ion-exchangers, 3423*h*
**Elmore, J. C.** Control of darkling ground beetles, 3139*e*
**Elmore, K. L.** Alumina, P 1926*e*, defluorinating phosphate rock, P 7652*i*
—, Hatfield, J. D., Mason, C. M., and Jones, A. D. Thermodynamics of aq HF at 25°, 7790*e*.
**Elmore, N. M.**, and Gessler, A. M. Rubber softened with $SO_2$ and Cl treated polyisobutylene reacted with $NH_3$, 3227*b*
**Elmore, W. C.**, and Holstadter, R. Temp dependence of scintillations in Na iodide crystals, 4111*a*
**Elöd, E.**, and Frohlich, H. G. Influence of fiber structure on the swelling tendencies of staple rayon, 1571*b*, effect of the fine structure of cellulose-hydrate fibers on their properties, 5587*h*.
—— and Klein, A. $NaClO_2$ as a bleaching agent (I), 1572*e*; (II), 2780*e*.
—— and Zahn, H. Study of wool, 413*a*, structure and reactivity of wool fiber (XVIII) soly. of wool in pancreatin, 2778*i*; damage to wool in discharge printing with Rongalite, 4015*d*; cross-linkages in wool, 9457*e*.
**Elofson, R. M.**, and Mecherly, P. A Amperometric titration with diazotized aromatic amines, 5694*h*.
**Elović, S. J.** See Elovich, S. Yu.
**Elovich, S. Yu.**, and Zhabrova, G. Theoretical Bases of Hydrogenation Fats (book), 3219*c*.
**Éloy.** See Boltansky.
**Elpern, B.** See Larsen, A. A
**El'piner, I. E.** Polarographic method in biology and medicine, 3870*i*; ultrasonic waves in biol and medicine, 7989*d*.
**Elrod, R. P.** See Thornberry, H. H.
**El-Sadek, G. M.** See Sadek, G. M. El.
**Elsden, S. R.**, and Phillipson, A. T. Ruminant digestion, 1475*c*.
**Elsea, A. R.** See Herres, S. A.; White, W. H.
**El Shamy, H. K.** See Shamy, H. K. El.
**Elsner, B. B.**, and Wallsgrove, F. R 1,4-Pentadiene, 7898*f*.
**Elsner, E.** Detn. of the sapon. no. with nonale lye, 2449*h*.
**Elsner von Gronow, H.** Glassy state and properties of cements, 2394*a*.
**Elson, L. A.**, Goulden, F., and Warren, F. L. Absence of a direct relation between growth inhibition and S metabolism after 1,2,5,6-dibenzanthracene, 320*e*.
—— and Haddow, A. Inhibitory action of 1,2,5,6-dibenzanthracene on the growth of the Walker carcinoma 256 in rats maintained on high and low protein diets, 306*f*.
and Harris, R. J. C. Influence of 1,2,5,6-dibenzanthracene on the nucleic acid content of the livers of rats maintained on high and low protein diets, 306*d*
and Warren, F. L. Relation between growth inhibition, toxicity, and protein metabolism in rats treated with 1,2,5,6-dibenzanthracene, 306*b*.
**Elson, W. O.** See Miller, C. R.
**Elsner, G.**, and Bever, A. Thickness growth of anodized oxide coatings on Al and its limitations, 2872*i*.
**Elster, S. K.** Failure of rutin to inhibit hyaluronidase, 5867*c*.
—— , Freeman, M. E., and Anderson, P. R. Effect of hyaluronidase on the hematocrit and plasma proteins, 7529*d*.
—— , Freeman, M. E., and Dorfman, A. Effect of hyaluronidase on the passage of fluid and of T-1824 through the capillary wall, 6721*e*
—— , Freeman, M. E., and Lowry, E. L. Action of tripelennamine (pyribenzamine) on hyaluronidase, 8056*i*
**Elston, A. A.** See Cornthwaite, W. R
**Elston, J.**, and Laffitte, P. Effect of dilg. gas on the range of inflammability of H, 8249*a*
**Elston, J. W.** Silica hydrosol, P 5133*h*.
**Elsukov, I. E.** Detg. the degree of salinization by the detn. of the Cl content, 7617*a*.
**El Tabey, A. M.** See Tabey, A. M El.
**Elton, G. A. H.** Electroviscosity (I) flow of liquids between surfaces in close proximity. (II) demonstration of the electroviscous effect, 4927*a*.
**Elvehjem, C. A.** Tryptophan and niacin relations and their implications to human nutrition, 1967*b*; see Barki, V. H.; Brickson, W. L.; Couch, J. R.; Derse, P. H.; Hankes, L. V.; Henderson, L. M., Hou, H. C., Krehl, W. A., Lewis, U. J., Maddy, K. H., Nath, H.; Newell, G. W., Nichol, C. A., Olson, O. E.; Ramasarma, G. B.; Register, U. D.; Robblee, A. R.; Roine, P., Ruegamer, W. R.; Sreenivasan, A.; Whitehair, C. K.; Williams, J. N., Jr.
**Elvidge, J. A.** See Cook, A. H.
and Spring, F. S. Synthesis of a S-contg degradation product from ghotoxin, 6704*i*
**Elving, P. J.**, and Chao, P. C. Detn of alkali metals in silicates and similar materials, 5700*g*
—— and Mellon, M. G. Teaching students how to evaluate data, 4173*e*.
**Elvio, C.** See Cianetti, E.
**Elvius, P.**, Gronkvist, K. E., and Sandell, E. Stability tests for oils and fats, 2791*d*
**Elwell, W. E.** See Dimpfl, L. H.; Meier, R. L.
**Ely, F. G.**, and Rogers, C. E Spray towers for concg pulp residual liquor to be used in conjunction with chem. recovery furnaces, P 4466*h*.
**Ely, J. O.**, and Ross, M. H Nucleic acid in intestines after x-radiation, 1817*i*; lack of depolymerase effect on desoxyribonucleic acid in living cells, 4713*a*; nucleic acid in intestines after neutron radiation, 5489*c*.
**Ely, R. E.** See Sarkar, B. C. R.
**Elyutin, V. P.**, and Levin, B. E Phys. chemistry basis of ferroalloy production, 4546*c*.
**Elze, D. L.** Growth of the Jaffa orange, 8459*g*.
**Emanuelli, A.** See Crafts, A. S.
**Emblem, H. G.** Silicon esters in paint technology, 869*b*; see Bassett, E. A.; McDowell, C. A.; Ridge, D., Shaw, C.
——, Marsden, C., and Stockwell, G. E. Si-modified plastics, 2027*d*.
——, Shaw, C., and Smith, W. E. Liquids comprising silicyl esters, P 6647*d*.
**Embleton, T. W.**, Boynton, D., and MacDonald, H. A. Acidification of the soil in northeastern apple orchards, 2721*h*.
**Embree, N. D.**, and Kuhrt, N. H. Tocopherol concentrate, P 2741*e*.
**Emch, E., & Cie.** Purifying waste water, P 7614*i*.
**Emch, P. I.** See Green, D. H.
**Emde, H.** See Micheel, F.
**Emeléus, H. J.** B hydrides and related compds., 1535*d*; development of F chemistry, 5158*i*; see Banks, A. A.; Sharpe, A. G.
—— and Heal, H. G. Ethoxyfluorosilanes, 8939*a*.
——, Maddock, A. G., Miles, G. L., and Sharpe, A. G. Fluorides of the natural radioactive elements, 3286*g*.
—— and Wood, J. F. Prepn. and reactions of carbonyl and sulfuryl fluorides and chlorofluorides, 3741*f*.
**Emel'yanova, A. P.** See Pisarenko, A. P.
**Emel'yanova, O. A.** See Rudakov, G. A.
**Emersleben, O.** Lattice energy of rock salt crystals and its dependence on the exponent of the power function, 2838*a*.
**Emerson, E.**, and Kelly, K. Condensation of aminoantipyrine (VI) effect of excess base on the reaction of aminoantipyrine with phenolic compds. in the presence of oxidizing agents, 1044*e*.
—— and Sagal, J. Condensation of aminoantipyrine (VII) hydrolysis in the presence of nitrous acid, 1044*f*.
**Emerson, George A.** See Hill, J. E.
**Emerson, Gladys A.** Growth promoting activity of vitamin $B_{12}$ in rats receiving thyroid substance, 4739*c*; see Stoerk, H. C.
**Emerson, K., Jr.** See Young, John H.
**Emerson, R.** See Allen, P. J
**Emerson, W.** [illegible]
d
[illegible], see Patrick, T. M., Jr.
——, Deebel, G. F., and Longley, R. I., Jr. Alkoxychloroalkenes, 9025*d*.
—— and Lucas, V. E. Acetophenone-benzoic acid distn., P 2639*e*
——, Lucas, V. E., and Heimsch, R. A. Prepn. of aromatic acids by liquid-phase oxidation, 8367*i*.
—— and Patrick, T. M., Jr. 2-Acetylthiophene derivs. and related acetophenone analogs, 5393*a*; 2-vinylthiophenes, 5393*e*.
**Emert, O.** Operation of the Duisburg copper works in the tech. application of metal amalgams, 5313*h*
**Emery, A. H.**, Muehlhause, W., Lamb, A. B., Crane, E. J., Hamor, W. A., and Murphy, W. J. American Chemical Society official reports, 2826*h*
**Emery, E. W.** See Arnott, D. G.
**Emery, G. A.** Synthetic insecticides, 807*a*.
**Emery, W. B.** See Glaxo Laboratories Ltd.
**Emery, W. L.** Radiofrequency radiations from elec discharges in gas, 1640*f*.
**Emery Industries, Inc.** Oleonitrile, P 4286*c*; primary aliphatic amines, P 4286*f*; cutting-oil base, P 4845*f*; dibasic acids, P 5214*d*; plasticized prolamines, P 6000*c*; device for dispersing atomized water spray into a confined moving stream of org. solvent in dry-cleaning plants, P 7242*d*; cyano derivs. of aliphatic carboxylic acids, P 7502*g*, plasticizers from esterification of the oxidation products of fatty acid nitriles and esters, P 7504*g*; sepg solid and liquid triglycerides, P 7726*a*; drying oils, P 9483*e*.
**Emge, M. E.** See Furcolow, M. L.
**Emidio Barbosa, P.**, and Barretto Filho, L. Qual. and semiquant. spectrography, 7858*g*.
**Emilsson, B.** Rest period and dormant period in the potato tuber, 7095*f*.
—— and Gustafsson, N. Control of late blight in potatoes (IV) haulm-killing chemicals, 9336*f*.
**Emin, B. N. I.** See Ivanov-Emin, B. N.
**Emley, E. F.** Nonmetallic inclusions in Mg-base alloys and the flux-refining process, 3334*g*; nonmetallic inclusions in Mg-base alloys contg. Zr, 3335*a*; Mg-$Zn_2$ alloys, P 1308*c*; see Ball, C. J. P.; Fox, F. A.
**Emling, B. L.**, Beatty, J. E., and Stevens, J. R Furfuryl- and thenylalkylamines from Schiff bases, 3406*h*.
**Emmanuel, E.** Medicinal and aromatic plants of Greece, 3975*b*.
**Emmanuelowa, A.** See Ellinger, P.
**Emmart, E. W.** See Smith, Maurice I.
——, Kissling, R. E., and Stark, T. H. Tuberculostatic action of nocardia extracts, 6316*a*.
**Emme, A. M.** Death and injury by heat and the toxic factor, 8049*d*.
**Emmel, V. M.** Effects of KCN on alk. phosphatase activity in kidney and intestine, 2649*d*.
**Emmelin, N.**, and Feldberg, W. Systemic effects of adenosine triphosphate, 2693*e*; distribution of acetylcholine and histamine in nettle plants, 8455*b*.
—— and Mureu, A. Effects of antihistaminic compds. on adrenaline liberation, 6738*g*, liberation of adrenaline caused by bile salts, 6738*i*.
—— and Palm, E. Histamine content of aq. humor during intravenous injection of histamine, 1473*f*

**Emmens, C. W.** Principles of Biol. Assay (book), 5075*e*; see Bruce, H. M.
—— and Swyer, G. I. M. Motility of spermatozoa in dil. suspension, 2690*a*.
**Emmens, J. A.**, and Dijkema, L. F. M. $CO_2$ formation in stored barley, 4345*e*.
**Emmerich, W. S.**, and Kurbatov, J. D. $\beta$ Decay spectrum of $Ag^{108}$, 5295*i*.
**Emmerson, H. R.** See Bain, F. A.
**Emmett, P. H.** See Harris, B. L.; Kummer, J. T.
**Emmick, R. D.** See Rogers, A. O.
**Emmons, R. C.**, and Gates, R. M. Use of Becke line colors in *n* detn., 8981*g*.
**Emmott, R.** See Challenger, F.
**Emmrich, R.** Macromol. chemistry of serum proteins (I), (II), (III), (IV) glucose peptization in protein deficiency, 3480*g*; (V) biuret colorimetry, 7524*h*.
**Emoto, S.** See Ichiba, A.
**Emslie, A. R. G.** See Migicovsky, B. B
**Emsweller, S. L.** Colchicine-induced polyploidy in *Lilium longiflorum*, 4350*a*.
—— and Stuart, N. W. Use of growth-regulating substances to overcome incompatibilities in *Lilium*, 1838*f*.
**Emulsol Corp.** Esters of alc. nontertiary amines, P 674*e*; testing of solns [quaternary ammonium compds.], P 6918*h*; dried egg products, P 7009*a*.
**Endell, J.** X-ray detection of cryst intermediates in the formation of cristobalite from kieselguhr by heating, 4073*b*; see Rüdorff, W.
**Endell, K.**, and Hofmann, U. Adhesion of inorg. binders and the plasticity and thixotropy of clay, 828*h*.
**Ender, C. D.** Rosin ester-modified alkyd resin, P 8739*f*.
**Ender, F.** See Breuem, K.
**Enders, C.**, Tschapek, M., and Glawe, R. Colloidal properties of natural humic acids and synthetic melanoids, 5255*e*.
—— and Windisch, S. Amylases in yeast, 4726*e*.
**Enders, J. F.** See Morgan, H. R
**Endersby, V. A.**, Griffin, R. L., and Sommer, H. J. Adhesion between asphalts and aggregates in the presence of water, 7207*c*.
**Endicott, H. S.** Elec. testing of capacitor paper, 8288*d*.
**Endicott, K. M.**, Gillman, T., Brecher, G., Ness, A. T., Clarke, F. A., and Adamik, E. R. Histochem. Fe using tracer methods, 4354*c*.
**Endo, H.** Reclaimed rubber (XIV) effect of compounding ingredients on reclaimed rubber (3) effect of vegetable oil and fish oil on reclaimed vulcanizates, 2021*a*.
**Endo, K.** Changes in metabolism of muscle when at rest and when working during O depletion, 4743*b*; changes in muscle metabolism during rest and during work in an atm. high in $CO_2$, 4713*e*; influence of the intravenous administration of acids or alkalies on the protein and the colloid osmotic pressure of the blood in normal rabbits and those with renal disease, 4702*h*.
**Endo, N.** O consumption of surviving frog skin under various conditions, 3530*a*; see Motokawa, K.
**Endo, S.** Nicotine insecticide, P 7632*i*.
**Endow, N.** See Higuchi, Takeru
**Endres, G.**, Bumbacher, H., and Rohr, E. Respiratory coeffs. of aerobic bacteria, 4332*e*.
**Endter, F.** Crystal structure of Gd nitride, 5252*i*.
**Enebo, L.** Isolation of thermophilic cellulose bacteria, 721*c*; yield from sulfite waste liquor fermentation, 4851*f*; symbiosis in thermophilic cellulose fermentation, 6699*a*.
—— and Berg, B. F. Fats, P 9166*h*.
——, Johnsson, E., and Lundin, H. Ethanol fermentation from evapd. sulfite waste liquor, 8677*g*.
**Enescu, M.** See Prévot, A. R.
**Enfield Rolling Mills Ltd.** and Sykes, J. Cu alloys, P 9020*f*.
**Engel, A. E. J.** New York talcs, their geological features, mining, milling, and uses, 8319*b*.
**Engel, B. G.**, and Tondeur, R. Cryst. alkaloids from *Erythrophleum guineense*, 4076*a*.
**Engel, C.** See Buyze, H. G.
**Engel, E.** See Hromatka, O.
**Engel, F. L.** See Boudy, P. K.
——, Schiller, S., and Pentz, E. I. Nature of the protein catabolic response to adrenal cortical ext., 8493*a*.
**Engel, K. H.** Resolution of N-base mixts., P 2240*c*; isolation of quinoline from a mixt. of N bases, P 2241*d*; azeotropic distn. of styrene, P 5040*d*, 5419*h*; recovery of styrene, P 5582*g*.
**Engel, M.** See Raub, E.
**Engel, P.** Myosarcoma in the abdominal cavity caused by painting the skin with benzopyrene, 1100*c*; male mating behavior shown by female rats treated with enormous doses of estrone, 8055*h*.
**Engel, R. W.** Anemia and edema of chronic choline deficiency, 1477*f*.
—— and Copeland, D. H. Mammary carcinoma in female rats fed 2-acetylaminofluorene, 750*h*.
**Engel, W. F.** Circulation of gases, 4*a*; desulfurizing and dehalogenizing gasoline and the like, P 300*c*; see Hoog, H.; Voorthuijsen, J. J. B. van E. van.
—— and Hoog, H. Diphenylamine from aniline, P 682*f*.
**Engelbach, A. G.** Spray-painting plant for motor bodies, 8695*e*.
**Engelbrecht, H. J.** Quaternary N compds., P 1798*g*.
**Engeler, C. O.** See Funke, A.
**Engel'gardt, V. A.** See Seifis, I. F.
**Engelhard, C.** Pt metals, 2912*b*
**Engelhard, G.** Vulcanization in the elec. wire and cable industry, 3619*f*.
**Engelhard, H.**, Müller, O., and Bertl, K. Surface tension and fungicidal or bactericidal effect, 5823*h*
——, Schilfarth, H., and Kaul, H. G. Surface tension of aliphatic hydroxy-acid esters, 8779*e*.
**Engelhardt, F.** See Kolbel, Herbert.
**Engelkemeir, A. G.**, Hamill, W. H., Ingram, M. G., and Libby, W. F. Half-life of radiocarbon ($C^{14}$), 6508*b*
**Engels, G.** See Naesen, G.
**Engels, O.** Use and handling of the most important preps. for the control of pests, 4111*h*.
**Engels, W. H.** Iodized salt compn., P 1926*e*
**Engelsma, J. W.**, and Gerding, H. Binary m.-p. diagram of the two isomeric ketones $C_5Cl_8O$, 4552*f*.
**Enger, R.** Nephrin, the pressor hormone of the kidney, 5840*b*.
**England, B. D.** See De la Mare, P. B. D.
**Engle, E. T.** See Atkinson, W. B
**Engle, L. S.** See Lee, E. D.
—— and Fikar, W. Rust-inhibiting coating compns., P 6148*h*
——, Sheridan, E., and Fischer, E. K. Urea-aldehyde resin dispersions, P 2032*a*.
**Engleman, M. W.** Removal of surface moisture from wet articles, P 6758*h*.
**Engler, W.** Soaps and soaplike bodies, 4497*c*.
**Englert, R. D.**, and Sweeting, O. J. Prepn. of aromatic stibonic acids of benzenesulfonamides, 602*a*.
**Englesberg, E.**, and Stanier, R. Y. Relation between growth and mutation in *Pseudomonas fluorescens*, 8439*c*.
**Englis, D. T.**, and Manchester, M. Oxidation of vanillin to vanillic acid—detn. of vanillin, 6786*e*.
—— and Miles, J. W. Detn. of levulose in the presence of dextrose, 6541*h*.
—— and Reinschreiber, J. E. Detn. of sapon no., 5974*e*.
**English, F. L.** Detn. of dinitro aromatics in the presence of the corresponding mononitro compds., 70*d*; polarography—factors affecting drop time, 1270*h*.
**English, G. C.** See Brown, R. H.
**English, J., Jr.**, Barber, G. W., and Lapides, L. J. Substitution products of 5-cyclopentyl-5-oxopentanoic acid and 6-cyclohexyl-6-oxohexanoic acid, 587*d*.
—— and Cassidy, H. G. Principles of Org. Chemistry (book), 8307*a*.
—— and Gregory, J. D. Ziegler bromination of ethyl tetrolate, 4220*c*.
**English, J. A.** Effects of thiouracil and Se on the teeth and jaws, 6735*c*.
**English, J. P.** See Bell, P. H.; Clark, J. H.; Shepherd, R. G.; Vaughan, J. R., Jr.
**English, L.** See Stanford, G.
**English, P. F.**, and Bramble, W. C. Deer eat best forage they can find, 6331*f*.
**English, W. N.**, and Loeb, L. B. Point-to-plane corona onsets, 7323*b*.
**Engstrand, E. R.**, Gleszer, K. M., and Polonetz, J. W. Powder metallurgy, 7391*a*.
**Engström, A.** Microradiography, 8945*f*.
—— and Lindström, B. Detg. the wt. of cellular structures, 5438*c*
—— and Welin, S. Detn. of the amt. of Ca salts in bone tissue, 8418*i*.
**Engstrom, W. W.** Neutral steroids in urine in normal and abnormal states, 9234*d*.
**Enkemeyer, E. M.** See Olsen, S.
**Enkvist, T.** Thiolignin with high S content, 397*e*.
—— and Moilanen, M. Digestion of vanillyl alc. and other lignin model substances with $H_2S$ and hydrosulfide, 9438*b*.
——, Moilanen, M., and Alfredsson, B. Distillable compds. with lignin structure from cooking of wood with Na hydrosulfide, 4851*a*.
**Ennis, W. B., Jr.** See Wood, D. C.
**Ennor, A. H.**, and Stocken, L. A. Prepn. of Na phosphocreatine, 2268*h*.
**Enns, J. H.**, and Wolfe, R. A. Controlled spectrographic light source, 4957*f*, 6006*i*.
**Eno, Y.** See Sakai, S.
**Enoksson, B.** Influence of solvent movement on sedimentation, 405*c*.
**Enquist, T.** See Enkvist, T.
**Enrich, S.** See Malmejac, J.
**Enrico, R. J.** See Iredell, C. V
**Enrique Pérez, J.** Same as Pérez, J. E
**Enríques de Salamanca, F.**, Poggio Mesorana, F., and Otero de la Gándara, J. Extn. of porphyrins from urine for their characterization by means of their Me esters; congenital porphyrinuria, 7533*c*; detn. of porphyrins in blood, 7533*f*; extn. and detn. of copro- and uroporphyrin in urine, 7992*h*
**Enselme, J.**, and Petat, J. M. Specificity of monophenoloxidase, 8408*h*.
**Ensminger, M. E.** See Colby, R. W
——, Singleton, H. P., Hememann, W. W., Cunha, T. J., and Colby, R. W. Feeding value of roughages and protein supplements fed to cattle, 9292*b*.
**Ensor, C. R.** See Cheu, G.
**Ensor, D. A.** See Rainalter, H
**Ensslin, F.** Chemistry of In (X) In periodate, 2883*h*.
——, Drever, H., and Lessmann, O. Chemistry of In (XI) compds. of In with oxy acids of P, 2883*i*.
—— and Lessmann, O. In salts (IV) soly. of the In(III) halides in org. solvents 2109*g*
——, Lessmann, O., and Ziemeck, B. In salts (III) system $In_2O_3$–$SO_3$–$H_2O$ at 20, 40°, and 60°, 2109*e*
——, Ziemeck, B., and Schaepdryver, L. de. Chemistry of In (VI) soly. of In(III) chloride, bromide, and iodide in water at different temps., (VII) double salts of In halides with alk. earth metal halides, (VIII) double salts of In(III) halides with the halides of Li, Tl, and Zn, (IX) thiocyanates of Li, Na, K, and Ba, 2883*f*.
**Ensuiko Pulp Co.** Mg bisulfite from battern or sea water to be used for pulp cooking, P 6796*a*
**Entelis, F. S.** Elec. glassmelting, 9390*e*.
**Entelis, S. G.** See Chirkov, N. M.
**Entenman, C.** See Chaikoff, I. L.; Lerner, S. R., Ranney, R. E.; Zilversmit, D. B.
——, Chaikoff, I. L., Gillman, T., and Reichert, F. L. Choline prevents fatty change and cirrhosis in livers subjected to both hypophysectomy and thyroidectomy 7580*e*.
——, Chaikoff, I. L., and Reichert, F. L. Influence of hypophysectomy, thyroidectomy, and of both on the fat content of the liver, 7580*c*.
——, Lerner, S. R., Chaikoff, I. L., and Panben, W. G. Detn. of $C^{14}$ in fat acids, 4719*h*.
**Enterprise Oil Co.** Lubricating grease, P 8132*c*.
**Enthone, Inc.** Coloring Cu alloys, P 3341*f*; compd. for blackening Cu and its alloys, P 3341*g*; rendering Al and Al-alloy surfaces corrosion resistant, P 3342*h*.
**Entin, G. M.** Activity of valeriana tinctures made with 40% and 70% alc., 5904*a*
**Entin, R. I.** See Brik, S. D.; Nelmark, V. E.
**Entreprise R. & J. Moritz.** See Moritz, R. & J., Entreprise.
**Entreprises Albert Cochery.** See Cochery, A., Entreprises.
**Entrostungs- und Sandstrahl G.m.b.H.** Coloring Al powder, P 9483*b*.
**Entwistle, D.**, Cole, E. H., and Wooding, N. S. Autoxidation of alkali cellulose (I) kinetics, 9434*g*.
**Entwistle, K. M.** Damping capacity of metals in transverse vibration, 5321, effect of grain size on the damping capacity of α-brass, 5336.
**Entwistle, V. P.**, and Hunter, W. L. Detn. of crude fiber, 9275*a*.

ny, D. M. Amino acids in healthy *Chlorella* cells, 8456*i*.
inyedi, B. Availability of photosensitive materials in ultraviolet spectrum analysis, 2114*e*.
insian, G. H. See Feigenbaum, S.
inzie, J. B. See Eyer, J. R.
Sollos, Z. See Garaszi, M. Z.
Spel'baum, S. E., Sheves, G. S., and Kobylin, A. A. Adenosinetriphosphatase of the brain, 6263*c*.
Epel'baum, V. A., and Ormont, B. F. Analysis of V nitride, 971*e*.
Epelberg, J. Shrinkage control of wool—chlorination, 7692*a*.
Epelboim, I. Application of thyratrons for the electrolytic polishing of magnetic materials, 5354*i*; see Wyart, J.
—— and Chalin, C. Electrolytic polishing, 2101*b*; elec. resistance of the cell of electrolytic polishing and the anode surface, 2522*e*.
Eperjessy, A. See Annau, E.; Zathureczky, Z. v.
—— and Zathureczky, Z. v. Action of the alkyl- and alkanolamines on the respiratory exchange of liver, 4385*h*.
Ephrati, E. See Latarjet, R.
Ephrussi, B. Action of acriflavin on yeasts, 9158*g*.
—— and Lederer, E. Red pigments of yeast, 2258*c*.
Epifanov, G. I., and Rebinder, P. A. Energy balance of the process of cutting metals, 8227*h*.
——, Rebinder, P. A., and Shrelner, L. A. Influence of the nature of the metal on the adsorptive easing of the cutting process, 7880*f*.
Eppelsheimer, D. S. See Hames, F. A.
—— and Reynolds, J. E. Nomograph for converting wt percent to at. percent, 6014*h*
Eppig, H. J. See Hart, D., Horan, H. A.
Eppinger, E. C. See Dexter L.
Eppink, D. L. See Hemker, H. W.
Epple, R. P. See Coles, J. S.
Eppler, A. H. Polishing app. for metal bearings and the like, using an abrasive powder in liquid suspension, P 3342*b*.
Eppright, M. See Everson, G.
Eppson, H. F. See Beath, O. A.
Eppstein, J. S. See Batchelor, R.; Harding, G. N.
Epremian, E., and Harker, D. Crystal structure of $Ni_4W$, 3764*g*.
Epshtein, A. S. Arrangement for cleaning of mineral wool free of beads, P 3544*c*.
Epshtein, D. A., Chirkova, L. A., and Papulova, I. N. Topochem. conversion of Na and K chlorides into nitrates—interaction of solid chlorides with liquid and gaseous $NaO_4$, 2533*f*.
Epshtein, M. I. See Antonov-Romanovskii, V. V.
Epshtein, Ya. A. Acid-base relation in brain tissues, 1090*c*; distribution of electrolytes between the cell and the surrounding media, 7107*d*.
Epstein. See also Epshtein.
Epstein, B. Logarithmico-normal distribution in breakage of solids, 1621*g*; see Lowry, H. H.
Epstein, E., Kreitner, G. H., and Lorenz, K. Stable lipoid emulsions, P 1913*c*.
Epstein, F. H. See Relman, A. S.
Epstein, H. J. See Cahen, R. L.
Epstein, H. T. Arrangement of mols. in monolayers and multilayers of org. acids, 8794*e*; see Park, D.
Epstein, J. H. See Roe, J. H.
Epstein, M. See Berk, L.
Epstein, M. B., Mair, B. J., Willingham, C. B., and Rossini, F. D. Sepn. of the 177–200° fraction of petroleum and the isolation of *n*-undecane, 5176*c*.
——, Pitzer, K. S., and Rossini, F. D. Heats, equil. consts., and free energies of formation of cyclopentene and cyclohexene, 8255*a*.
—— and Rossini, F. D. Naming of cis and trans isomers of hydrocarbons contg. olefin double bonds, 107*c*.
Epstein, M. E. See Wagreich, H.
Epstein, S. S. Quaternaries kill yeasts found in carbonated beverages, 4783*i*.
Epton, S. R. Analysis of Na alkyl sulfates and related compds., 522*b*.
Erkkö, O. See Autio, L.
Eramo, N. d'. See D'Eramo, N.
Eramus, H. de W. Purification of ferrochromium, P 6146*b*.
—— and Persson, J. A. Prepn. and properties of Si monoxide, 6101*g*.
Erb, C., and Zerban, F. W. Total sugars, fermentable sugars, and alc. yield from molasses, 9504*b*.
Erb, R. E., Scott, G. W., Jr., Norton, C. L., and Morrow, K. S. Efficacy of vitamin supplements for new-born calves, 8467*e*.
Erb, W. Anthrasols on the wide washing and soaping machine, 6831*e*.
Erbacher, O. Sepn of isotopes and use of the product obtained, 2083*h*; size and distribution of reactive places—points of discontinuity or active centers on metal surfaces—effectiveness of surface atoms, 6028*b*.
——, Herr, W., and Egidi, U. Artificially radioactive $Cu^{64}$ from $ZnCl_2$, 2089*b*
——, Herr, W., and Wiedemann, M. Metal-ion adsorption on metal surfaces, 5254*f*.
——, Jensen-Hellmann, G., and Mellin, A. Detn. of abs. surface of base metals, 8325*c*.
Erbe, J. R. See Stoltz, G. E.
Erbring, H. Colloid chemistry, 1625*b*; disintegration of fibrous raw materials with multivalent alcs., 7227*a*.
Erchov. See Krahov.
Ercoli, A., and Koller, M. Activity of an aq. suspension of testosterone propionate, 5476*c*.
Ercoli, G. Stenamine and energy metabolism, 2296*f*; see Tuci, P.
Erdélyi, G. See Zsigmond, Z.
Erdey-Grúz, T. Rate of hydrogenation in solns. and the mass of the catalyst, 4551*c*.
—— and Hunyár, A. Diffusion of 2 components in the same soln., 8807*d*.
——, Hunyár, A., Pogány, E., and Váli, A. Differences of concns. caused by diffusion and the effect of glass diaphragms on diffusion rate, 8773*g*
—— and Szabó, J. Change of velocity of catalytic hydrogenations by the amts. of catalysts applied, 8819*b*
Érdi, P. Bacteriology in leather manuf., 8181*g*
Erdmann, H. Analytical technique in the control of chrome tanning, 6851*d*.
Erdmann, R. Rough and streaky deposits in Cu electroforming, 7353*a*; adhesion of electrodeposits, 8901*g*; Cu deposits from fluoborate baths, 8908*a*; plating of Pb-Sn alloys from the fluoborate bath, 8902*c*; Zn plating from fluoborate solns., 8901*g*.
Erdmann, W. Penicillin and other antibiotics in the German medical literature, 5551*d*.
Erdmann-Jesnitzer, F. Effect of concd. $HNO_3$ on ferro-silicon coatings on steel, 545*h*; welding light metals, 3767*e*; testing of welds in light-metal alloys of various thicknesses, 3767*f*.
Erdmannsdörfer, O. H. Magmatic and metasomatic processes in granites, esp. two-mica granites, 7874*d*.
Erdniss, H. See Eichholtz, F.
Erdos, J. Detn. of S, 8307*a*; detn. of quinine, 357*g*; app. for the prepn. of org. acyl chlorides, 5740*h*; chlorosulfonic acid as esterification agent, 6578*e*.
—— and Carvajal S., G. Chlorosulfonic acid in esterification, 5707*a*.
—— and Gonzalez R., R. Prepn. of several esters of phenylquinoline carboxylic acid by the action of chlorosulfonic acid, 127*g*.
—— and Ramírez, L., R. Detn. of S in sulfanilamides, 6364*i*.
——, Ramírez L., R., Ureto, E., Ortíz, L., and Alvarado, J. Sulfanilamide Cu complexes, 6996*g*.
Erdos, T. See Snellman, O.
—— and Snellman, O. Investigations of crystd. myosin, 3866*c*.
Erdtman, G. A. See Aulin-Erdtman, G.
Erdtman, H. Lignin, 2767*f*; sulfite pulping reaction, 2771*c*; chemistry of the forests, 3607*c*; corticrocin, a pigment from the mycelium of a mycorrhiza fungus (II), 6982*d*; heartwood extractives of conifers—their fungicidal and insect-repellent properties and taxonomic interest, 7679*f*; compds inhibiting the sulfite cook, 7682*b*; sulfonation and delignification of wood, 8676*g*; chem. considerations on the classification of evergreen trees, 9440*e*.
—— and Gripenberg, J. Antibiotic substances from the heart wood of *Thuja plicata* (II) constitution of γ-thujaplicin, 5016*a*.
—— and Leopold, B. Bromination products of 3,5-dimethoxystilbene, 1037*i*; aromatic keto and hydroxy polyethers as lignin models (I), 3610*e*.
Erenberg, G. B. See Livshits, I. I.
Erf, L. A. See Gruber, C. M., Jr.
Ergang, R. Potential of Fe in aerated AcOH, 6520*b*.
—— and Masing, G. Potential formation of Al in buffered (NaCl) solns (I), 7835*h*.
Erganian, G., and Hargleroad, J. C. Strawboard waste-disposal research, 4796*f*.
Ergener, L. See Arndt, F.
Ergle, D. R., and Eaton, F. M. Org. acids of the cotton plant, 8017*h*.
Ergun, S., and Orning, A. A. Fluid flow through randomly packed columns and fluidized beds, 6475*f*
Eric, J. H. Zn-Cu deposits of the Big Bend mine, Calif., 5706*k*; tabulation of Cu deposits of California, 5707*f*; see Bramel, H. R.; Heyl, G. R.
—— and Cox, M. W. Zn deposits of the American Engle-Blue Moon area, Calif., 5707*d*.
Ericks, W. P. See Moore, L. P.
Erickson, A. M., and Ryan, J. D. Extn. of sweetening ingredients from fruit juices, P 6333*h*.
Erickson, A. W. Tolstoi Mountain Fe deposits, Kasaan Peninsula, Prince of Wales Island, Alaska, 1694*e*; exploration of Mountain View tungsten deposit, Hyder, Alaska, 2131*h*.
Erickson, D. R. Hydroxy alkyl cellulose, P 5592*f*, paper, P 5594*a*; hydroxyethylcellulose in paper coating, 7682*i*.
Erickson, E. M. See Miles, (Sister Mary Carolanne).
Erickson, E. R. Stabilization of vinyl aromatic compds., P 2037*g*; inhibition of polymerization of styrene and *ar*-chlorinated styrenes, P 2806*b*; inhibition of polymerization of vinyl aromatic compds., P 3454*c*; stabilization of nuclear chlorostyrenes, P 6001*i*.
Erickson, J. G. *N*-Alkylacrylamides, P 672*c*; β-amino-α-chloroacrylonitriles, 2574*h*, 3440*b*, expression for the m. ps. of the straight-chain dicarboxylic acids, 3792*h*; see Sunde, C. J.
Erickson, J. L. E., and Hix, H. B. Fatty acids from the scent glands of the muskrat, 1580*h*.
Erickson, K. W., Fowler, J. L., and Stovall, E. J., Jr. Differential cross section for reaction $D(d,n)He^3$ for 10-m.ev. bombarding energy, 4112*i*.
Erickson, L. C., Seely, C. I., and Klages, K. H. Effect of 2,4-D on the protein content of wheats, 1517*c*.
Erickson, R. O. Protoanemonin as a mitotic inhibitor, 2675*c*.
—— and Rosen, G. U. Cytological effects of protoanemonin on the root tip of Zea mays, 5830*i*.
Erickson, T. C. See Newell, G. W.
——, Larson, F. C., and Gordon, E. S. Uptake of radioactive P by malignant brain tumors, 7140*h*.
Ericson, G. See Liander, H.
Erie Mining Co. Froth flotation of siliceous gang from an alk. magnetic Fe ore pulp, P 103*d*, froth flotation of oxide Fe ore, P 5724*i*.
Eriksen, A. See Reed, R. M.
Eriksen, K. R. Lytic action of penicillin, 4339*g*.
Eriksen, N. See Stokinger, H. E.
Eriksen, H. A., and Hill, E. L. One-electron states of diat. mols., 3290*k*.
Eriksson, A. F. V. Change in particle-size distribution of polymethyl methacrylate during polymerization, 8201*f*.
Erina, I. I. See Averbukh, M. M.
Eristavi, D. I. Adsorption of Ni and Co from aq. solns. by $MnO_2$ and Mn ore of Chiatur, 7774*f*.
Erkel, K. van. Fishbait, P 4786*c*.
Erkko, E. O., and Trelfa, R. T. Isolation of soybean protein, P 3120*d*.
Erko Corp. Zein as a cork binder, P 2039*f*.
Erlenmeyer, H. Isosteric compds. and their chem. resemblance, 5431*e*; macromolecular product contg. S and N, P 6465*a*, 7745*e*; see Binswanger, L. A.; Lehr, H.; Noll, H.; Tomcsik, J.
——, Baumann, H., and Sorkin, E. Comparisons of the structures of thiazole and isoquinoline, 3820*f*.
—— and Jung, J. P. Derivs. of 2-aminothiazoles, 4283*e*.
——, Junod, J., Guex, W., and Erne, M. Thiazolecarboxylic acids, 5021*c*.
—— and Kühne, H. 1-(*p*-Hydroxyphenyl)-2-amino-3-butanone, 5498*i*.
——, Mengisen, W., and Prijs, B. Derivs. of 5-aminothiazole (I), 221*a*.
—— and Menzi, K. Stereochem. investigations of dithiazoles, 2302*g*.

—, Meyer, H., Noll, H., and Sorkin, E. Action of radioactive $S^{35}$ labeled 2-(*p*-aminophenyl)thiazole on cultures of tubercle bacilli (II), 7544*i*.
— and Müller, M. Resemblance in chemistry (III) growth of org. compds. on salt, 4240*g*.
Noll, H., and Sorkin, E. Characterization of tuberculostatic active amines, 6282*c*; action of radioactive $S^{35}$ labeled 2-(*p*-aminophenyl)thiazole on tubercle bacilli, 8437*d*
———, Sorkin, E., and Vögtli, W. Amines of tuberculostatic effect (II), 7545*b*.
**Erler, K.** See Klement, R.
**Erler, L. G.** See Giraut-Erler, L.
**Erlich, V. L.,** and Burkert, G. M. Influence of salts on amylase activities of malt, 6201*e*; importance of malt extn. in the detn. of amylase activities, 8092*f*.
**Erlinghagen, K.** Degasification of coal seams and possibility of draining gas from mines, 5923*e*
**Ermel, W.** Soft solder for Al and Al alloys, P 7896*f*.
**Ermert, C.** Banana pulp free from starch, P 7160*b*.
**Ermolaeva, E. Ya.,** and Shcheglova, O. A. Anthogyanin and plant development, 279*d*.
**Ermolaeva, S. S.** AcOH formed by thermal decompn. of the wood matter of foliate plants, 6809*i*
**Ermolenko, N. F.** See Levitman, S. Ya.
**Ermolina, A. P.** See Fedorov, B. P.
**Erne, K.** Frangula bark, 362*c*.
**Erne, M.** See Erlenmeyer, H.
**Ernest, T. R.** Gut casings, P 2710*b*.
**Ernotte, J.** Paste for the manuf. of fibrous cement, P 1166*i*.
**Ernould, L.** Treatment of beet seed with Gammexane against wire worms, 8088*g*.
**Ernst, R. C.** See Jury, S. H.
**Ernst, T.** Crystal structure of $\alpha$-NaOH, 8232*c*.
——— and Laves, F. Working of Mg and its alloys, 4206*e*.
——— and Schober, R. Crystal structure of $\alpha$-KOH, 7771*d*.
**Ernst, V. C.** Gelatin printing-plate process, P 54*g*.
**Ernst, W.,** and Sorkin, M. Detg. the amt of resin on fibers, 7233*a*.
**Ernstene, A. C.** Coronary Heart Disease (book), 1859*g*.
**Ernster, L.** See Lindberg, O
**Eroševskij, J. G.** See Eroshevskii, I. G
**Eroshevskii, I. G.** See Rudakov, G. A.
**Errera, M.** Liver glutaminases, 5057*h*.
——— and Greenstein, J. P. Phosphate-activated glutaminase in kidney and other tissues, 5057*i*.
**Ershler, B. V.** See Borisova, T. I.; Pleskov, V. A.; Rakov, A. A.; Rozental, K.
**Ershoff, B. H.** Antithyrotoxic factor of liver, 3912*i*; effects of liver on growth and survival in the immature hyperthyroid mouse, 4308*i*; antithyrotoxic factor not identical with vitamin $B_{12}$, 7104*i*; effects of thouracil feeding on resistance to low environmental temp., 8037*b*.
——— and McWilliams, H. B. Effects of B vitamins, liver, and yeast on promin toxicity, 8553*b*.
———, Pagones, J. N., and Deuel, H. J., Jr. Comparative nutritive value of butter and vegetable fats under conditions of low environmental temp., 4738*g*.
**Ershov, I. I.,** and Iossel'son, G. G. Adhesive, P 9535*g*.
**Ershov, N. I.** See Eldus, Ya. T.
**Erskine, J.** See Barr, W.
**Ersov, I. I.** See Ershov, I. I.
**Erspamer, A. S.,** and Rice, W. D. Pulp and paper-mill waste, 8680*a*.
**Erspamer, V.** Chem. and pharmacol. research on the extracts of the hypobranchial gland of *Murex trunculus*, *Murex brandaris*, and *Tritonalia erinacea* (IV) presence of enteramine or an enteraminelike substance in the ext., 1491*f*; action of vitamin $B_1$ on pilocarpine, eserine, arecoline, histamine, and adenylic acid, 2290*g*; active substances in the posterior salivary glands of octopods (I) enteramiuelike substance, (II) tyramine and hydroxyoctopamine, 4387*c*; moschatine, 7000*f*.
——— and Dordoni, F. Chem. and pharmacol. research on the extracts of the hypobranchial gland of *Murex trunculus*, *Murex brandaris*, and *Tritonalia erinacea* (III) presence of a choline deriv. or homologi n the ext.—murexine, 1491*c*.
**Ertaud, A.** Utilization and functioning of the Châtillon pile, 2856*h*.
**Ertel, C. W.** See Dreyer, J. F.
**Erukhimovich, M. I.** See Dvorskil, A. D
**Ervin, C. E.,** Stahle, D. C., and Mulligan, P. B. Silicosis, 3118*i*.
**Erzyutova, E. I.** See Petrov, A. D.
**Esafov, V. I.** Halogenation of unsatd. hydrocarbons (V), 109*i*.
**Escamilla, R. F.** Urinary hormonal assays—measurements of 17-ketosteroids and follicle stimulating hormone in urine, 4322*d*.
**Escard, Mme. J. L.** See Longuet-Escard, Mme. J.
**Escard-Longuet, J.** Same as Longuet-Escard, Mme. J.
**Esch, U.,** and Schneider, A. U-C system, 5273*f*.
**Eschenbrenner, H.** Pepsin and its detn. 6784*h*.
**Escher, G. C.** See Adair, F. E.
**Escher-Desrivieres, J.** Special glasses in the illuminating technique, 1541*h*.
**Escher Wyss Maschinenfabriken A.-G.** Plant for the sepn. of materials by vaporization and condensation, P 3670*b*; removal of $CO_2$ from gas mixts., P 4450*d*; vessel for chemical reactions, evapns., etc., P 4525*c*; thermal compression evaporator, P 5238*f*, thermal process to sep materials, P 6011*e*.
**Eschmann, M. S.** See Eshman, M. S.
**Escoffery, C. A.** Se rectifiers, P 510*h*.
——— and Merva, M. D. Se rectifiers, P 510*g*.
**Escolar, L. G.** See García Escolar, L.
**Escot, E. P.** See Pozzi-Escot, E
**Escubós, J. M.** Same as Monche, J.
**Escudero, A. R.** See Ramos Escudero, A.
**Esdorn, I.,** and Bruns-Runge, G. Essential oil and camphor content of *Ocimum canum*, 6290*b*.
**Eselgroth, T. W.** N degassing of nonferrous metals, 5715*d*
**Eseltine, W. P. van** Se Van Eseltine, W. P
**Esguerra Gomez, G.** Wilhelm Conrad Röntgen, 915*c*
**Esh, G. C.,** and Sutton, T. S. Nutrition of the new-born dairy calf (II) effect of dietary tryptophan on the urinary excretion of niacin and its metabolites, 735*a*
**Eshman, M. S.** See Khaletskii, A. M
**Esin, O. A.** Effect of silicic acid on the equil. between liquid Fe and the simplest basic slags, 2908*h*, fused silicates as micro heterogeneous electrolytes, 2909*h*, see Gel'd, P. V.
———, Gel'd, P. V., and Popel, S. I. Redistribution of ions in the thermal dissocn of double salts, 7306*g*
——— and Kozheurov, V. A. Distribution of O between the metal and the basic slag from the point of view of the ion theory, 2908*h*
**Esin, S.** See Alpar, S. R.
**Eskesen, B.** See Bjørneboe, M
**Eskew, G. L.** Salt (book), 5555*a*.
**Eskew, R. K.** Extn. of rutin from buckwheat, P 8620*a*, recovering nicotine from plant material, P 8620*f*; see Van Arsdel, W. B.
**Eskin, I. A.,** and Skebel'skaya, Yu. B. Gonadotropic activity of the frontal part of hypophysis during arrest of its thyrotropic action, 2686*g*.
**Eskin, V. E.** See Tsvetkov, V. N.
**Eskola, S.** See Toivonen, N. J.
**Esme, A.** Colored pigment for paper—ocher, 2772*e*.
**Espach, R. H.** See Ball, J. S.
**d'Espagnat, B.** Av. life of $\pi$-mesons and the capture of $\mu$ mesons by nuclei, 7320*g*
**Espanés, E. M. de.** See Moisset de Espanés, E.
**Espe, W.** Manuf. of ductile Th, 2559*c*, new getter materials for the high-vacuum technique, 2877*b*; normal growth of a human tubercle strain, and the effects of some antibacterial substances, 3882*a*.
**Espinola, A.** Analysis of com. Sn by I digestion, 3312*i*, 6539*e*.
**Esposito Vitolo, A.** Identification of analgesics, 1907*i*; acridines and their toxicity, 3105*e*.
**Essafow, W. I.** See Esafov, V. I.
**Esselen, W. B., Jr.** See Kaplan, A. M.
**Esseling, L. A. L.** See Geel, W. C. van.
**Essen, L. N.** See Gel'man, A. D.
**Essenpreis, J. F.** See Cook, Ralph L.
**Essex, H.** See Williams, N. T.
**Essex Research Corp.** Desulfurization of gl iron, P 1306*e*.
[illegible]. **K. A.** Air-retaining power of textiles, [illegible]
**Essine, O.** See Esin, O. A.
**Estable, J. J.** Ocular effect of several irritant drugs applied directly to the conjunctiva, 756*c*; see Heymans, C.
**Estanislau do Amaral, S.** See Amaral, S. E. do.
**Estartús, F. G.** See Garcia Estartús, F.
**Esterer, M. B.** See Lewis, H. B
**Estermann, I.,** Foner, A., and Randall, J. A. Resistivity and Hall const. of Ge samples at low temps., 4066*c*.
——— and Kane, E. D. Torsion balance for measuring forces in low-d. gas flows, 6005*d*.
———, Leivo, W. J., and Stern, O. Change in density of crystals on irradiation with x-rays, 4132*b*.
**Estess, F. M.** See McOmie, W. A.
**Esteve, R. M., Jr.** See Swain, C. G.
**Esteves Ramos, M. Y.** See Guerreiro, A.
**Esteves, J. M. J.** Contact pressure laminating resins, 433*c*.
**Eston, T.,** and Rapp, V. Detection of insulin utilizing hypophysectomized-adrenalectomized mice, 1821*f*.
**Estrada Ocampo, H.** Polymerization of anthracene (II), 610*f*, 6194*b*
**Estulin, G. V.** See Borzdyka, A. M.
**Établissements Bourgeouis et Verdier-Dufour-Reunis.** Amino-acid detergents, P 4877*i*.
**Établissements Gommers frères, Soc. anon.** Al sulfate from Al metal, P 3984*b*.
**Établissements Jacob Holtzer.** Tempering steel, P 4625*g*.
**Établissements Lambiotte frères.** Tanning agent, P 2008*e*.
**Établissements Roure-Bertrand Fils** and Dupont, J. Ethylanilines, P 1437*e* substituted ureas, P 1439*g*.
**État français,** L'. Salts of chloroethane sulfonic acids, P 660*d*.
**Etcheverry, M. A.,** and Mancini, R. F. Photochem. reaction for demonstration of polysaccharides in tissues, 5817*c*.
———, Marchissio, A. A., and Mancini, R. F. Action of ultraviolet light on polysaccharides, 5704*a*.
**Etheredge, M. P.** Detn. of N in fertilizers, 9325*e*.
**Ethyl Corp.** Photochem. chlorination of gaseous hydrocarbons, P 2518*c*, anti knock mixt., P 8667*d*.
**Étienne, A.** Tri-2-thenylarsine and transformation products, 6102*f*, see Boltansky, Dufraisse, C.
——— and Bichet, G. Labile union of O and C—dissociability of photoöxides at ordinary temp., 5313*b*
——— and Brisson, R. *meso*-2-Furyl derivs of anthracene—results of HCl on the *meso*-phenyl-2-furyl mono- and diquinols, 2198*i*; interpretation of reactions in the anthracene series, 2199*b*.
——— and Heymès, R. Derivs. of di-2-indolylmethane—condensation of aldehydes with skatole and 3-methoxyindole, 629*c*, sulfonation of *meso*-diphenylanthracene, 3815*e*.
**Etinburg, E. Ya.** Ni formate, P 5161*g*
**Etingof, R. N.** See Murdashev, S. R
**Etsten, B.** See Hunwich, H. E.
**Ettel, V.,** and Liebster, J. Biochem oxidation of volemitol, 7548*c*.
——— and Nosek, J. Phenylmercury compds., 7922*e*.
——— and Semonský, M. Thiazole sulfones 7931*b*.
——— and Weichet, J. Condensation of chloral with 2,4-dichlorophenol and 2-bromophenol, 1754*d*.
**Ettelstein, N.** Detn. of Pb in coal-tar colors, 9451*i*.
**Etten, H. A. van.** See Van Etten, H. A.
**Ettinger, M. B.** See Ruchhoft, C. C.
——— and Ruchhoft, C. C. Detn. of phenol and structurally related compds. by the Gibbs method, 4185*a*; removal of phenol and cresols from natural water, 7169*g*.
**Ettling, A. C.** See Lewis, A. H.
**Ettlinger, M. G.** See Astwood, E. B.
Fieser, L. F.
**Ettori, J.** Estn. of peroxidase activity 6270*d*.
**Eubank, L. D.** Foaming-type galvanizing flux, P 6967*a*; see Boller, E. R.
——— and Krister, C. J. Foaming galvanizing fluxes and processes employing them P 6565*b*.
**Eubank, W. R.,** and Bogue, R. H. System $Na_2O$–$CaO$–$Al_2O_3$–$Fe_2O_3$ and $Na_2O$–$CaO$–$Fe_2O_3$–$SiO_2$, 930*i*.
**Eucken, A.** Ion hydrates in aq. solns. 6493*a*; Grundriss der Physikalischen

Chemie (book), 6501*b*; theory of the constitution of water, 7283*d*; assocn. of water, 8225*i*; effect of dissolved substances on the constitution of water, 8243*g*.

**Eudes, J.** Plastics industry, 4509*f*.

**Eudier, M.** See Laurent, P.

**Eugene, P.** See Verzele, M.

**Eugster, C. H.** See Karrer, P.

**Euler, Hans.** See Diercks, H.

**Euler, Hermann,** Eichler, O., and Hindemith, H. Action of org. fluorides administered for long periods, 5863*f*.

**Euler, H. v.** Vitamins in animal metabolism, 4736*g*; chem studies on diploid and triploid aspens from normal and x-rayed pollen, 5831*d*, see Bracco, M.; Ek, B.

—— and Adler, E. Trans-1,2-dichloroethylene, P 6218*i*.

—— and Euler, J. v. Catalase action of plant cells, 3802*a*.

—— and Hahn, L. Ribonucleic acid in plants, 5092*f*.

—— and Hasselquist, H. Oxidation of paraffins, 7428*g*, reductone (IV), 7903*h*.

——, Hasselquist, H., and Lööv, U. Reductone (III), 4227*d*.

—— and Heller, L. Pptn of nucleoproteins, nucleic acids, and nucleotides by streptomycin, 1069*c*

——, Heller, L., and Curman, C. Freund-Kaminer reaction (I) methods, 7570*a*.

——, Heller, L., and Högberg, K. Nucleoproteins in birch pollen, 3891*h*.

—— and Karrer, P. Biol. activity of axerophtene and related hydrocarbons, 6297*b*.

—— and Lindeman, G. Biochemistry of tumor development and tumor retardation, 7570*b*

—— and Solodkowska, W. Dehydrogenation of nucleoprotein-components from normal and cancerous cell nuclei (I), 4304*s*.

**Euler, J. v.** See Euler, H. v.

**Euler, U. S. v.** Identification of the sympathomimetic ergone in adrenergic nerves (sympathin N) with *l*-noradrenaline, 2688*d*, assay of noradrenaline and adrenaline in exts. of nerves and tissues, 3484*e*, prepn., purification and evaluation of noradrenaline and adrenaline in organ exts., 4312*h*, noradrenaline and histamine as active factors in vegetative nerves, 7140*g*, see Bergström, S.

—— and Astrom, A. Liberation of histamine and sympathin by stimulation of isolated splenic nerves, 2688*h*.

—— and Hamberg, U. *l*-Noradrenaline in the suprarenal medulla, 5541*i*.

**Euler-Chelpin, H. K. A. S. v.** Same as Euler, H. v.

**Euler de Araujo, L.** Al bronzes, 9013*i*.

**Eunen, C. van.** Face cream, P 3646*b*.

**Eunomia.** EtOH from peat, P 5156*b*.

**Eury, J.** Compd. of oxide of Hg with Na tyrosine-sulfonate, 1672*i*.

**Eusebi, A. J.,** and Cerecedo, L. R. Antithiamine effect of oxythiamine and neopyrithiamine, 9179*a*.

**Euw, J. v.,** and Reichstein, T. Compds. of the adrenal cortex and related substances (LXXXI) 4,11-pregnadien-21-ol-3,20-dione acetate and a partial synthesis of 11-dehydrocorticosterone, 1788*a*.

**Euw, M. v.** Analysis of the system $SiO_2$–$Al_2O_3$–CaO, 6499*a*.

**Evanari, M.** Germination inhibitors, 4348*a*.

**Evans, A. G.,** and Meadows, G. W. Polymerization of isobutene catalyzed by $BF_3$, 8829*g*.

—— and Warhurst, E. Equilibria involving the mols. arsenic trichloride, monophenylchloroarsine, diphenylchloroarsine, and triphenylarsine, 28*a*.

**Evans, A. M.** Mn deposits, Little Florida Mountains mining district, N. Mex., 8990*e*.

**Evans, A. N.** See Wolman, I. J.

**Evans, C. C.,** and Sugden, S. Exchange reactions and electrolytic dissocn. in nonaq. solvents, 6055*b*.

**Evans, C. D.** See Ofelt, C. W.

—— and Croston, C. B. Formaldehyde curing of zein fibers, 4858*h*.

**ans, C. E.** See Jackson, M. L.

—— and Attoe, O. J. K-supplying power of virgin and cropped soils, 3551*b*.

**ans, C. H.** Treatment of wheat, rye, and other cereals, and bran, P 8071*g*

**s, C. L.** Production problems and the future, 837*h*.

**l, C. W.** See Olson, G. R.

**—, E. A.,** and **Elliott, J. S.** Lubricating compns., P 844*i*.

**Evans, E. B.,** McCue, C. F., and Woodrow, W. A. Color measurement, 6478*h*.

**Evans, E. E.** See Bartholomew, J. W.

**Evans, E. F.,** and McBurney, L. F. Ultraviolet-light stability of ethylcellulose—heat stability of cellulose acetate, 5943*d*.

**Evans, E. I.** See Van Slyke, K. K.

**Evans, E. J.** See Jones-Evans, E.

**Evans, E. M.** See Bowman, A.; British Resin Products Ltd., Thurston-Hookway, H.

**Evans, E. T. R.** See Evans, W. Charles.

**Evans, G. E.** Gas enrichment oil, 8657*a*.

**Evans, G. L.,** Greenlee, K. W., Derfer, J. M., and Boord, C. E. Cryoscopic behavior of 1,1-dimethylcyclohexane contg. hydrocarbon impurities, 2964*f*.

**Evans, G. S.** Cathode coating, P 8290*f*.

**Evans, H.** See Clark, L. M.

**Evans, H. C.** See Newberg, R. G.

**Evans, H. J.,** and Purvis, E. R. Mn deficiency of alfalfa and red clover in N. J., 1513*b*.

—— and Weeks, M. E. Influence of N, K, and Mg salts on the compn. of burley tobacco, 2351*h*.

**Evans, Howard J.** Detg. the dielec. const. and power factor of ceramics at 100 megacycles as a function of temp., 8111*g*.

**Evans, H. M.** See Gordan, G. S., Ingle, D. J., Li, C. H.; Nelson, M. M.; Whitney, J. E.

**Evans, H. T., Jr.** See Burbank, R. D.

—, Tilden, S. G., and Adams, D. P. Techniques applied to the Buerger precision camera for x-ray diffraction studies, 3709*e*.

**Evans, J. C. W.** Hardwoods in the pulp and paper industry, 2768*f*.

**Evans, J. D.** See Bird, R. M.

**Evans, J. E.** See Bonner, T. W.; Harris, J. C., Whaling, W.

—— and Bonner, T. W. 440-c.-kv. resonance of $Li^7 + H^1$, 4093*h*.

——, Malich, C. W., and Risser, J. R. Neutrons and γ-radiation from deuteron bombardment of Be, 4561*i*.

**Evans, J. G.** Fine structure of fibers in relation to dyeing and finishing, 4857*g*; see Baird, W.

**Evans, J. M.** See Dexter, L.

**Evans, J. R., & Co.** Tanning with free HCHO and melamine simultaneously, P 6452*h*.

**Evans, J. S.** See Lagemann, R. T

**Evans, L. P.** Hydrocarbon conversion, P 387*g*; conducting reactions in the presence of a contact mass, P 6819*g*; burning contaminants from a moving-bed contact mass, P 6819*h*; regeneration of a moving-bed catalyst, P 6819*h*; see Simpson, T. P.

**Evans, M. G.,** Baxendale, J. H., and Uri, N. Heat of the reaction between ferrous ions and $H_2O_3$ in aq. solns., 5658*c*.

——, George, P., and Uri, N. $[Fe(OH)]^{+2}$ and $[Fe(O_2H)]^{+2}$ complexes, 5690*g*.

—— and Gergely, J. Structure of the dinitrosulfite ion, 5242*a*; possibility of bands of energy levels in proteins—selectronic interaction in nonbonded systems, 6918*e*.

——, Gergely, J., and De Heer, J. Oxidation-reduction potentials of quinones, 6524*f*.

—— and Uri, N. Dissocn. const. of $H_2O_2$ and the electron affinity of the $HO_2$ radical, 5651*c*.

**Evans, N. L.** Descaling metals—Na hydride process, 100*h*, 1704*h*.

**Evans, P.,** and Coates, J. Prospecting for oil in India, 8992*c*.

**Evans, R. B.** See Kunze, W. G.

**Evans, R. D.** Fundamentals of radioactivity and its instrumentation, 4710*c*; see Gibson, J. G., 2nd; Kip, A.; Moore, F. D.

**Evans, R. J.** Detn. of bacterial sensitivity to sulfonamides by the use of blotting-paper disks, 6281*b*.

**Evans, Raymond, J.,** and Kurek, F. L. Solder-flux mixts., P 8350*d*.

**Evans, Robert J.,** and Butts, H. A. Heat inactivation of methionine in soybean-oil meal, 6255*a*; inactivation of amino acids by autoclaving, 6676*e*.

——, Davidson, J. A., and Butts, H. A. Changes in egg proteins occurring during cold storage of shell eggs, 8571*b*.

—— and St. John, J. L. Influence of autoclaving dry peas on some properties of the proteins, 2338*d*.

**Evans, R. L.** Cyclic ureas, P 6911*f*; coloring hair, 2737*g*, 4423*h*; see Howson, M.

**Evans, R. M.** Color (book), 7808*b*; see **Dupré, D. J.**

—, **Fraser, J. B., and Owen, L. N.** Dithiols (III) derivs. of polyhydric alcs., 7424*d*.

—— and Owen, L. N. Dichlorobutanediols (I) addn. of hypochlorous acid to chlorobutenols, 6976*b*; dithiols (II) 2,3-dimercaptopropyl ethers of glycerol and of glycolic acid "BAL-Intrav.," 7423*e*

**Evans, T. C.** Fast neutron hazard, 4128*i*.

**Evans, T. W.** Polymeric aldehyde diesters, P 8741*i*, see Adelson, D. E.; Dannenberg, Hans; Finch, H. de V.; Hearne, G. W.; Peters, L. M.; Williams, P. H.

—— and Adelson, D. E. Alkyd resins, P 1216*g*.

—— and Melstrom, D. S. 2,4,5-Trihalophenyl ethers of glycerol and derivs., P 675*e*.

—— and Shokal, E. C. Autocondensation polymers of unsatd. glycidol ethers, P 903*i*.

**Evans, U. R.** Researches on passivity, 83*c*; formation of films on metals, 96*g*; corrosion and oxidation, 1705*c*; tarnishing and related phenomena, 4149*a*; see Gould, A. J.; Mayne, J. E. O.; Wanklyn, J. N.

—— and Pryor, M. J. Passivity of metals (IX) soly. product of freshly pptd. $Fe(OH)_2$, 7789*d*.

**Evans, V.** Tank linings and insulating materials, 6761*e*.

**Evans, W. C.,** and Partridge, M. W. Partition chromatography of alkaloids (II) Australian *Datura ferox* and Indian henbane, 9379*g*

**Evans, W. Charles,** and Evans, E. T. R. Relation of a clover-juice factor causing paralysis of smooth muscle to bloat in ruminants, 6306*e*, poisoning of farm animals by the Marsh ragwort, 8011*b*.

**Evans, W. D.** Petrology of mine dusts in the South Wales coalfield, 2405*b*.

**Evans, W. W.** Plasticizing vulcanized-rubber scrap, P 3230*b*.

**Evdokimov, V. V.** Micro test for K, 6939*g*.

**Evdokimova, L. G.** See Dankova, T. F.

**Eveno, J. H.** See Henry-Eveno, J.

**Everard, B. A.** See Fantl, P.

**Everdell, M. H.** Variation of standard electrode potentials with temp., 4585*b*.

**Everett, A. J.,** and Minkoff, G. J. Ultraviolet absorption spectrum of formaldehyde, 3713*f*.

**Everett, D. H.,** and Pinsent, B. R. W. Relative strengths of fatty acids, 470*c*.

**Everett, F. G.** Comparison of depth of anesthesia and toxicity of 2 and 4% procaine-HCl soln., 6735*e*.

**Everett, G M.,** and Richards, R. K. α-(*O*-Cresol) ether of glycerol (Myanesin), 7133*c*.

**Everett, J. L.,** and Kon, G. A. R. 1-Phenyl-2-naphthyl- and 1,2-dinaphthylethylenes, 1756*d*.

**Everett, J. W.** Hormonal factors responsible for deposition of cholesterol in the corpus luteum, 8033*a*; progesterone and estrogen in the exptl. control of ovulation time and other features of the estrus cycle, 8054*f*; see Miller, D. C.; Sawyer, C. H.

——, Sawyer, C. H., and Markee, J. E. Neurogenic timing factor in control of the ovulatory discharge of luteinizing hormone in the cyclic rat, 8490*h*.

**Everett, M. R.** See Shetlar, M. R.

**Everett, N. B.** See Baker, B. L.

**Everett, P. M.** See Boxer, G. E.

**Everhart, D. L.** See Myers, W. B.

**Everhart, G. G.** See Gittings, H. T.; Taschek, R. F.

**Everhart, J. L.** Proportional limit and yield strength, 983*e*.

**Everhart, J. O.** Refractories (VIII) extruding refractories—facts on blending, adding water, picking augers, (IX) scientific design of refractory dies replaces "cut and try" construction, (X) higher-forming pressures improve dry press refractories properties, (XI) firing is the most important step in the manuf. of refractories, 3724*h*; org. binders [in ceramic bodies], 8928*a*.

**Everhart, M. B.** See Shinowara, G. Y.

**Evering, B. L.** See Lien, A. P.

—— and D'Ouville, E. L. Isomerization of hydrocarbons, P 5182*d*; equil. consts. for the isomeric hexanes, 5656*f*.

**Everitt, W. T.,** and Pope, C. L. Service experience with grease, 5934*c*.

**Everling, W. D.** Improved spectrographic power source, 4905*a*.

**Everote, W. F.** Using instructional films in science 5230

**Evers, C. F.** Frozen-food industry, 1494*e*.
**Evers, D.** Removal of Bi by the Kroll-Betterton methods, 7388*f*.
**Evers, E. C.,** and Kraus, C. A. Properties of electrolytic solns. (XXXIV) cond. of some long-chain electrolytes in MeOH-$H_2O$ mixts. at 25°, 1244*a*.
**Evers, N.** Phys. chemistry in pharmacy, 1147*g*.
——— and Campbell, N. R. Fine chemicals and medicinal substances, 4788*h*.
———, *et al.* Flake tragacanth, 4881*d*.
**Evershed, J.** Apparent change of wave length in solar Fe lines, 1651*i*; central intensities of the Fraunhofer lines, 6915*i*.
**Everscle, W. J.** See Birnie, J. H.
———, Birnie, J. H., and Gaunt, R. Inability of the liver to inactivate the 3-methyl ether of bisdehydrodoisynolic acid, 7580*g*.
**Everson, G.,** Williams, E., Wheeler, E., Swanson, P., Spivey, M., and Eppright, M. 5 B-vitamins in the tissues of pregnant rats fed rations satisfactory and unsatisfactory for reproduction, 1089*d*
**Everson, H. E.** See Booth, H. S.
**Everson, J. N.,** and Weaver, J. B. Effect of C black on properties of soils, 9517*i*.
**Everts, C. M., Jr.** Water-supply standards and how to maintain them, 3951*f*.
**Every, C. E.** Thyroxine, P 262*e*, see Titanium Alloy Manufg. Co
**Evreinoff, V. A.** Carob tree of *Ceratonia siliqua*, 5128*f*.
**Evreinova, I. M.** See Brikker, S. I.
**Evseev, N. N.** App. for the production of porous leather substitute, P 3241*g*
**Evsejev, N. N.** See Evseev, N. N.
**Evstigneev, V. B.** Appraisal of the quality of granulated sugar, 9499*d*.
———, Gavrilova, V. A., and Krasnovskiĭ, A. A. Effect of O on absorption spectrum and fluorescence of chlorophyll solns., 7823*i*.
——— and Krasnovskiĭ, A. A. Quenching of fluorescence of Mg phthalocyanin and of chlorophyll by extraneous mols., 43*e*.
**Evstigneeva, Z. G.** See Kretovich, V. L.
**Evva, F.** Measurements of electrode potentials in fused salts, 8898*h*.
**Evvard, J. C.** See Bellman, D. R
**Ewald, A. W.** Photoelec. mechanism in the thallous sulfide photoconductive cell, 4557*f*.
**Ewald, H.** Detn. of the relative isotope frequency, 37*i*, at.-wt. detn., 2051*b*; see Maier-Leibnitz, H.
**Ewalt, J. R.,** and Bruce, E. L. Schizophrenia, 8518*e*.
**Ewart, W. E.,** and Carman, G. E. Insect killer trials, 4805*a*.
**Ewdokimow, W. W.** See Evdokimov, V. V.
**Ewell, R. H.** Western balance—synthetic organics, 8577*b*.
**Ewens, R. V. G.** See Gibson, C. S.
——— and Bassett, H. Inorg. chem. nomenclature, 8927*d*.
——— and Gibson, C. S. Org. derivs. of Au (X) diethylgold cyclic derivs. contg. the N-C-C-S system, 7421*e*.
**Ewers, E. W.** See Jones, Edgar.
**Ewers, W. E.** See Bayliss, N. S.
**Ewing, C. O.,** Krone, O. R., and White, C. W. Aromatic elixir, 5533*g*.
**Ewing, D. T.,** and Gordon, W. D. Effect of impurities and purification of electroplating solns. (I) Ni solns., (II) correlated abstract and critical review, 2098*h*.
———, Rominski, R., and King, W. Effect of impurities and purification of electroplating solns.—effects of Cu in Ni-plating solns. on the salt-spray resistance of Ni and Ni-Cr deposits on steel, 2098*h*.
**Ewing, F. J.** Refining of animal and vegetable oils, P 7241*h*.
**Ewing, G. W.** See Nachod, F. G.; Steck, E. A.
**Ewing, J. B.** See Blenkiron, C. H.
**Ewing, K. P.** See Parencia, C. R., Jr.
——— and Parencia, C. R., Jr. Early-season application of insecticides for cotton-insect control in Wharton County, Texas, 7183*d*.
**Ewing, P. L.** See Hill, J. E.
**Ewing, P. Leckie.** See Leckie-Ewing, P.
**Ewins, A. J.** See May & Baker, Ltd.
**Ewoldt, H. B.,** and Sanford, R. S. Sweetsprings Mn deposits, Monroe County, W. Va., and Craig County, Va., 8753*c*.
**Exner.** Tanning of fish skins, 5219*i*.
**Exner, M.** See Holtz, P.; Waldschmidt-Leitz, E.
**Expanded Rubber Co., Ltd.** See Distillers Co., Ltd.
——— and Cooper, A. Gas-expanded rubber materials, P 2028*a*.
**Eyck, M. J. M. van.** Faraday effect of $Ni(NO_3)_2$ in aq. soln., 4029*f*; magneto optical rotation of the cupric ion, 5244*a*
**Eydus, J. T.** See Eldus, Ya. T.
**Eyer, J. R.,** and Enzie, J. B. Codling-moth control, 9347*a*.
**Eyges, L.** Multiple scattering with energy loss, 1255*d*.
**Eymann, C.,** and Marnet, C. Accuracy of gas heating values detd with the automatic Junkers calorimeter with compensator, 3596*i*.
**Eymé, J.** Presence of Ca oxalate in the cells of bryophytes, 280*f*.
**Eymer, K. P.** See Zöllner, N.
**Eynon, L.** Chem. analysis, 6103*g*.
**Eynsbergen, J. F. H. van.** See Eijnsbergen, J. F. H. van.
**Eyraud, C.** See Janin, J
**Eyring, H.** See Gibbs, P.; Johnson, F. H.; Parlin, R. B.
———, Lumry, R., and Woodbury, J. W. Applications of rate theory to physiol. systems, 9211*i*.
———, Powell, R. E., Duffey, G. H., and Parlin, R. B. Stability of detonation, 8139*b*.
**Eyster, H. C.** Inhibitor in onion for starch synthesis, 5453*g*.
**Eyt, E.** Laitiers métallurgiques et leur réactions (book), 4998*a*.
**Eyzaguirre, C.,** Folk, B. P., Zierler, K. L., Lilienthal, J. L., Jr., and Lenkins, E. Myotonia and repetitive phenomena—veratrinic effects of 2,4-dichlorophenoxyacetate (2,4-D), 2329*e*.
——— and Lilienthal, J. L., Jr. Veratrinic effects of metrazole and DDT on mammalian neuromuscular function, 4382*f*
**Ezama, E.** Química de los minerales (book), 1693*b*.
**Ezekiel, S. R.** See Streightoff, F.
**Ezell, B. D.** See Mitchell, J. W.
**Ezrokhi, L. L.** Rate of soln. of rock salt and of sylvine in mixed solns., 4933*g*.
**Ezzat, M. A. El-M.** Anthelmintic action of phenothiazine, 1106*c*.

**Fabel, K.** Polyamides as nontextile raw materials as reflected in the patent literature, 1212*h*.
**Fabens, A. J.** See Bickel, C. L.
**Faber, H. A.** Shall fluoride be added to public water supplies? 335*a*, 1507*b*.
**Faber, M.** See Goldenberg, M.
**Faber, R. L.** Detn. of a sludge index for engine oils, P 1179*c*.
**Faber, W. F.** Dayton-Faber process for the manuf. of oil gas and reformed gas with the use of O-enriched air, 8643*g*.
**Fabian, F. W.** Absorption of spice oils by pickles from different menstrua, 5130*b*; see Krum, J. K.
——— and Krum, J. K. Effect of alum on microörganisms in pickles, 8572*i*.
**Fábián, G.** Effects of colchicine injected to female *Drosophila*, 7149*g*; see Matoltsy, A. G.; Wolsky, S.
——— and Matoltsy, A. G. Effect of benzo[*e*]pyrene on nondisjunction frequency in *Drosophila melanogaster*, 8525*i*.
**Fabinyi, J.** Metallic iron and slag cement from Hungarian bauxites, 9000*d*.
**Fabinyi, M.,** Klein, E., and Szebehelyi, J. Effect of histamine on the swelling of collagen, 4378*g*.
——— and Szebehelyi, J. Histamine hypothesis of the O deficiency, 4756*c*; effect of histamine on hyaluronidase activity, 5119*c*; effect of cholesterol on respiration, 9244*f*.
**Fabio Barbosa, A.** See Passos Guimarães, J. E.
**Fabrani, M.** See Marinoni, J.
**Fabre, L. A.,** and Mayacos, D. Passage of penicillin through the placenta, 5500*b*.
**Fabre, R.** Toxicologie (book), 773*a*; plant protection and its evolution, 1137*c*; see Perrot, E.
———, Régnier, M. T., and Grasset, E. Relative importance of the blood and the lymphatic routes for the absorption of medicinal and toxic substances (III) sulfaguanidine, 3936*e*; (IV) EtOH, 8537*a*.
**Fabriani, F.** C equiv., bending test, correlation between mech. test and chem. compn., and practical results in gray cast iron, 9004*i*.
**Fabriani, G.,** Fratoni, A., and Spadoni, M. A. Action of the thiamine modified by a factor contained in the leaves of *Pieris aquilina*, 7074*c*; thiaminase in some species of Lamellibranchia, 7150*i*.
——— and Spadoni, M. A. Thiamine in Italian vegetables and fruits, 6753*g*.
**Fabricius-Hansen, I.** Agonal Acidosis (book), 755*g*.
**Fabrikant, G. L.** See Fokina, T. V.
**Fabrikant, V. A.** Physics of new light sources, 5666*i*; see Butaeva, F. A.
**Fabrique d'Accumulateurs Geinoz Soc. anon.** Dry batteries, P 7360*f*.
**Fabrique de couleurs d'aniline et d'extraits a-devant J. R. Geigy.** See Geigy, J. R., A.-G.
**Fabrykant, M.,** and Pacella, B. L. Diabetes—electroencephalographic status and effect of anticonvulsive therapy, 1102*f*.
**Facchini, U.,** and Orsoni, L. Fission of $U^{235}$ for the analysis of the U content of minerals, 8306*b*.
**Faddis, M. O.,** and Hayman, J. M., Jr. Pharmacology for Nurses (book), 9268*h*.
**Fadeev, I. G.** See Berezhnoĭ, A. S.
**Fadeeva, A. A.** Influence of strychnine on the conditioned reflex activity in animals, 316*a*.
**Fadl, M. A. M. A.** See Abul-Fadl, M. A. M.
**Faelten, C. R.** See Morgan, W. L.
**Faermark, S. E.** Metabolism of the estrogenic hormones, 4357*h*.
**Faes, M.** See Caprón, P.
**Fagan, F. N.** See Thomas, W.
**Faganelli, A.** Layer of fresh water of fluvial origin in the lagoons of Chioggia, 5137*d*
**Fager, E. E.** See Olson, O. E.
**Fager, E. W.** See Brown, A. H.
**Fagg, L. W.** See Mock, D. L.
**Fagnani, G.** Quartz porphyry of Cavagnano, near Lake Lugano, 4609*g*, uranium minerals in pegmatite dikes near Lake Como, 4979*h*.
**Fahey, J. J.** See Hunt, C. B.; Pecora, W. T
**Fahey, J. L.** See Ware, A. G.
———, Olwin, J. H., and Ware, A. G. Effect of dicumarol on Ac-globulin and prothrombin activity, 2321*i*.
———, Ware, A. G., and Seegers, W. H. Stability of prothrombin and Ac-globulin in stored human plasma, 706*f*.
**Fahim, H. A.** Action of oxalyl chloride on the aromatic hydrocarbons, 2603*b*; *p,p'*-dialkylbenzophenones and derivs. of *p* alkylbenzoic acids, 7001*g*
——— and Mustafa, A. Wurtz-Fittig and the Clemmensen method for prepn. of aromatic hydrocarbons, 6990*i*.
**Fahim, I.** See Samaan, K.
**Fahlberg, W. J.,** Swan, J. C., and Seastone, C. V. Retention of hexachlorophene in human skin, 3196*b*.
**Fahlenbrach, H.,** and Sixtus, K. Different nomagnetic conditions, 6961*d*.
**Fahlgren, S.** Jonsson screen and its application to stock production, 1186*g*.
**Fahlström, J. M.** Development of the Swedish pulp and paper industry, 3615*e*.
**Fahmy, I. R.** See Ahmed, Z. F.
——— and Abu-Shady, H. Isolation and properties of ammoidin, ammidin, and majudin, 1910*e*.
———, Badran, N., and Messeid, M. F. Estn. of khellin, 8096*e*.
**Fahr, E.** Fat and air embolism, 1479*c*.
**Fahrenbach, M. J.** Nitriles, P 3470*b*.
**Fahy, E. F.,** and Scheiu, M. Large cosmic ray bursts at an altitude of 3500 m., 4103*f*.
**Fahy, J. P.** See Elkins, H. B.
**Faichney, L. M.** See Cragg, L. H.
**Faick, C. A.,** Williams, A. E., and Rynders, G. F. Effect of convection currents on the distribution of striae in pots of optical glass, 5558*e*.
**Faidysh, V. I.** Stabilizing action of the anions of dibasic fatty and aromatic acids on the arsenic trisulfide hydrosol, 7779*h*.
**Faierman, L. Y.** See Yarchin Faierman, L.
**Faigen, H. L.** Visual rating system for rusted steel specimens, 1302*f*.
**Faiman, F.** See Shapiro, D. M.
**Fainberg.** See also Feinberg.
**Fainberg, M. M.,** and Turkel'taub, N. M. Detg. the content of hydrocarbon gases in subterranean air, P 8759*b*.
**Fainer, P.** See Ryan, D. E.
**Fainshtein, S. M.** Cascade electron multiplier for photometric purposes, 482*c*; detn. of the heat resistance of ebonite, 4044*a*.
**Fainsil'berg, A. A.** See Levina, R. Ya.
**Fair, G. M.,** Morris, J. C., Chang, S. L., Weil, I., and Burden, R. P. Behavior of Cl as a water disinfectant, 334*i*.
**Fair, W. F., Jr.** Bituminous laminated material, P 1668*a*; bituminous mastic coated metal sheet, P 6148*f*.

**Fairbank, H. A.** See Lane, C. T.; Reynolds, C. A.; Webber, R. T.
**Fairbanks, B. W.** See Choi, R. P.
**Fairbanks, H. V.** See Kapnicky, J. A.
**Fairbrother, F.** See Alexander, K. M.
**Fairchild, M. E.**, Hoffman, R. A., Lindquist, A. W., and Mote, D. C. Chlorinated hydrocarbon insecticides for control of the sheep tick, 8598*i*.
**Fairchild, T. M.** Bottoms for metallurgical furnaces, P 7658*c*.
**Fairchild Engine and Airplane Corp.** Al coatings on Cu-base alloys, P 1710*g*; coating Fe with Al, P 2154*e*.
**Fairfield, J.** Effects of cold on infant rats—body temps., O consumption, and electrocardiograms, 4754*f*.
**Fairhall, L. T.** Advances in toxicology—V—Th—Pt, Se, and Te, 5871*c*; industrial toxicology — Sb — pentachlorophenol—benzene hexachloride—2,4-dichlorophenoxyacetic acid—tetrachloroethylene—ethylene glycol—methyl methacrylate—dichlorobenzene—phosgene—Hg, 5883*e*; insecticides, 6352*i*; Industrial Toxicology (book), 9298*c*.
——, Keenan, R. G., and Brinton, H. P. Co and dust environment of the cemented $WC$ industry, 4614*d*.
**Fairley, D. M.** See Gardner, G. M.; Kuzell, W. C.
**Fairley, J. L., Jr.**, and Loring, H. S. Growth-promoting activities of guanine, guanosine, guanylic acid, and xanthine for a purine-deficient strain of *Neurospora*, 3068*f*.
**Fairlie, A. M.** $H_2SO_4$, P 6793*gh*
**Fairweather, D. A. W.** See Coffey, S.
**Fairweather, H. G. C.** Improvements in copolymers, P 2818*f*; see Rayonier Inc.
**Faist, C. A.** See Wyman, C.
—— and Wyman, C. O-decarbonized acid elec steel, 9007*e*.
**Faitel'berg, R. O.** See Dushko, D. N.
**Faith, H. E.** See Winnek, P. S
**Faith, W. L.** Plant location in agricultural process industries, 5131*i*.
**Faivre, E.** Monochromator for the identification and measurement of metallic phases, 4055*a*; Debye-Scherrer theory for substances having pseudosymmetry, 7285*h*, see Katz, T.; Pruna, M.
**Fajans, R. S.** See Lewis, H. B.
**Fajdysch, W.** See Fajdysh, V. I.
**Fajer, A.** See Rabinovitch, M.
**Fakidov, I. G.** Hall effect in liquid Rb, 1619*g*.
—— and Grazhdankina, N. P. Elec. cond. of Cr sulfides, 1621*c*; effect of the magnetic field on the elec. resistance of the ferromagnetic Mn-Sb alloy, 7278*g*.
**Falabella, E.** See Barreto, L. N.
**Falco, E. A.** See Hitchings, G. H.; Russell, P. B.
——, Hitchings, G. H., and Russell, P. B. Reaction of diazonium salts with some 2-thiouracils, 2953*c*.
——, Hitchings, G. H., Russell, P. B., and VanderWerff, H. Antimalarials as antagonists of purines and pteroylglutamic acid, 8526*b*.
**Falco, F.** Br complexes for identification of metals and alkaloids, 1529*d*.
—— and Hilbug, S. Alkaloids in *Opuntia* cacti, 1530*i*.
**Falconbridge Nickel Mines.** Electrolytic refining of Ni, P 1665*e*.
**Falconer, S. A.** Pretreatment of mineral surfaces for froth flotation, 6131*g*.
**Faldi, G.** See Pegazzano, F.
**Faleev, P. V.** Analysis of Sn minerals of the Pt group, 5339*a*.
**Faleiev, P. W.** See Faleev, P. V.
**Fales, A. L.** Plating waste-disposal problem, 3125*g*.
**Fales, J. H.** See Nelson, R. H.
**Falgon, R.** See Déjardin, G.
**Falini, F.** Temp. distribution and genesis of magmatic ore deposits, 3320*h*.
**Falinski, M.** Impregnation of wood by synthetic resins, 6388*e*.
**Falk, C. E.**, Creutz, E., and Seitz, F. Angular distribution of neutrons from $(d,n)$ reactions, 8866*d*.
**Falk, H. L.**, Goldfein, S., and Steiner, P. E. Products of pyrolysis of cholesterol at 360° and their relation to carcinogens, 7873*i*.
**Falk, J. E.** Formation of H carriers by hematin-catalyzed peroxidations (II) reactions of adrenaline and adrenochrome, 9104*g*; see Albert, Adrian.
**Falk & Co.** Plastic polystyrene, P 3385*a*.
**Falkenbach, K. H.** See Gohr, H.
**Falkenburg, L. B.** See Cowan, J. C
**Falkenhausen, v.**, and Gaida. Biopsic examn. of the liver (I) protein-deficiency diseases and starvation edema, 3898*d*.
**Falkenheim, M.** See Schulman, J., Jr.
**Falkoff, D. L.** Directional correlation of successive nuclear radiations, 4559*e*; see Chang, C. S. W.; Ling, D. S., Jr.
—— and Uhlenbeck, G. E. Directional correlation between successive $\beta$- and $\gamma$-emissions, 4093*i*.
**Fal'kovskii, V. B.** Bond free energies in org. compds., 3276*f*.
**Falla, L.** Resolving power of photographic emulsions (II), 7841*d*; resolving power and diffusion of light in the emulsion, 8292*g*
**Fallers, H. B., Jr.** See Burt, R. L.
**Fallows, L.**, and Mellers, E. V. HCN, P 825*d*, 1926*b*; polymerization of olefinic compds., P 1218*g*.
**Falter, A. W. M.** See Hertog, H. J den
**Falter, C. L.** See Webster, H. G.
**Faltin, H.** Heat transmission in the construction of contact synthesis furnaces, 2475*g*.
**Famielcówna, H.** See Moszew, J.
**Familiari, R.** Chlorides and N after exptl. renal resection, 3086*f*.
**Famulener, K.** Photographic film base, P 7850*i*
**Fan, H.**, and Kung, L.-C. Digestibility of the protein of millet, rice, and millet-soybean meal, 3892*d*
**Fan, H. Y.** Rectification of an insulating layer, 1641*f*; thermionic emission from sintered cathode of $ThO_2$ and W mixt., 7323*e*.
**Fan, Hsing Y.** See Richards, A. G
**Fanchamps, F.** Electronics, 8745*e*.
**Fancutt, F.** Weathering machine, 5603*h*.
**Fand, T. I.** App for detg. mineral oil in org. compds., 3997*b*.
**Fanderlik, M.** Grid gas in the Czechoslovakian glass industry, 9397*i*
—— and Schill, F. Reduction of Co in glass, 3161*f*, 3985*e*.
**Fanelli, A. E.** Chem. nature of the virus, 3511*f*; alk. denaturation of myoglobin and hemoglobin, 9092*h*.
—— and Giulotto, L. Detn. of myoglobin and hemoglobin in solns., 4719*e*.
**Fanelli, R.** Soly. of $H_2S$ in S, 8839*c*.
**Fanett, H. M.** See Wahlquist, H. W.
**Fang, L. T.** Salt industry in China—Li Jung, 450*i*.
**Fang, S. F.** Food value of *Polygonum* to microörganisms, 7085*a*.
**Fanger, H.** See Solomon, D. H.
**Fankuchen, I.** X-ray diffraction, 4566*h*; see Kaufman, H. S.; Miller, Edward; Sobel, A. E.
**Fanning, L. M.** Rise of American Oil (book), 2762*i*.
**Fano, U.** Meson mass and range of nuclear forces, 8844*g*
**Fanshaw, H. L.** $H_2SO_4$, 2377*e*.
**Fansteel Metallurgical Corp.** Powd metal, P 2878*i*; electrolytic Fe powder, P 2879*cd*, 3733*c*.
**Fanstone, R. M.** Dufaycolor process, 6099*b*.
**Fanta, P. E.** See Dounce, A. L.; Frank, H. R.
**Fantes, K. H.** See Bourne, E. J.
**Fanti, P.** See Brown, Anita.
—— and Everard, B. A. Prothrombin accelerator in the thrombin formation by Russell viper venom, 6316*b*.
—— and Simon, S. E. Fibrinolysis following electrically induced convulsions, 3915*e*.
**Fanto, E. C.** See Omohundro, A. L.
**Farabee, L. B.** See Schubert, J.
**Faraday, J. E.** Encyclopedia of Hydrocarbon Compds. Vol. VI. $C_6H_{14}$ (book), 1432*a*.
**Faraggi, H.** Effacing the latent image and the study of the nuclear reactions, 4109*g*; see Albouy, G.; Halssinsky, M.
—— and Albouy, G. Nuclear explosions provoked by cosmic rays, 488*a*; O of the air and pH of the emulsion in the fading of the latent image, 8921*a*.
**Faragher, W. F.** Collecting German industrial information, 1125*b*.
—— and Harrison, J. W. Synthetic rubber, P 4507*b*.
**Farah, A.**, and Smuskowicz, B. Effect of liver damage on activity of *g*-strophanthin, 7138*i*.
**Farahat, K.** See Tadros, W.
**Faraone, G.** See Monforte, F.; Ricca, B.
**Farbar, L.** Flow characteristics of solids-gas mixts., in a circular conduit, 6475*b*.
**Farber, E.** Converting lignin residue from wood hydrolysis into resinous material, P 1980*b*; see Wallerstein, J. S.
—— and Sciascia, M. Improving chem. reactivity and adsorptive capacity of lignin from wood saccharification, P 849*f*.
**Farber, M.** See Doering, W. v. E.
**Fardig, O. B.** See Guerrant, N. B.
**Fardon, J. C.**, Prince, J. E., and Berning, (Sister Nivelle). Effect of beef-spleen ext. on mitosis in the small intestine, 5103*d*.
**Farenhorst, E.** See Hertog, H. J. den; Werner, E. G. G.
**Farghaly, A. H.** See Miller, H.
**Fargher, R. G.** Progress in bleaching, 6880*i*.
**Farinetti, M.** See Bertolani, F.
**Farkas, Adalbert**, and Stribley, A. F., Jr. Oxidation of hydrocarbons and manuf. of lubricant additives, P 1959*b*, Diesel fuel, P 6810*f*; recovery of naphthene hydrocarbons, P 7678*a*
**Farkas, Andor**, and Lazarovits, I. Effect of bilirubin on the resistance of red blood corpuscles, 9217*i*.
**Farkas, L.** See Bloch, R.
——, Lewin, M., and Bloch, R. Reaction between hypochlorite and bromides, 7799*c*.
——, Perlmutter, B., and Schächter, O. Reaction between EtOH and Br, 7800*e*; oxidation of EtOH in bromate and Br, 7800*g*.
—— and Schächter, O. Brominations with tetramethylammonium bromide-Br mixts., 6970*h*; oxidation of alcs. by Br in bromate, 8350*g*
——, Schächter, O., and Vromen, B. H. Rate of the acid-catalyzed trans-esterification of butyl alc. and ethyl acetate, 8827*e*.
**Farkas, W. G.** See Flexser, L. A.
—— and Flexser, L. A. Isoalloxazines, P 7053*a*.
**Farley, F. F.**, and Greenshields, R. J. Deposition of lacquer and sludge in passenger-car service, 5580*e*.
**Farley, R. W.** Steelmaking, 5714*e*.
**Farley, W. J.** Geology of the Sherritt Gordon orebody, 4188*a*.
**Farlow, M. W.** Synthesis of cystine, 2166*d*.
**Farly, G. M.** See Kerns, Q. A.
**Farmer, E. C.**, and Brown, S. C. Deterioration of methane-filled Geiger-Müller counters, 484*a*.
**Farmer, E. H.** Isomerization of oils—chemistry of thermal treatment and oxidative changes, 4025*d*
—— and Shipley, F. W. Reaction of S and S compds. with olefinic substances (I) reaction of S with monoölefins and with $\Delta^{1,4}$-diolefins, 995*g*.
**Farmer, R. H.** See Hunting, P. L.
—— and Campbell, W. G. Metallurgical coke from the resin of wallaba wood, 379*d*.
**Farmilo, C. G.**, and Lucas, G. H. W. Narcotics (I) microchem. reactions for identification of Metopon, 9373*a*.
**Farnell, G. C.**, Hallama, R., and Burton, P. C. Luminescence of Ag halides at low temps., 8804*d*.
—— and Pinoir, R. Stability of the spectral sensitivity of certain photographic emulsions, 7841*c*.
**Farner, L. M.**, Yaffe, C. D., Scott, N., and Adley, F. E. Use of Pb arsenate in apple orchards, 8085*b*.
**Farnham, A. G.** See Bender, H. L.
**Farnsworth, E. B.**, Krakusin, J. S., and Hughes, L. B. Electrolyte partition in patients with edema of various origins—definition of cations and anions in cardiac decompensation, 4758*c*; electrolyte partition in patients with edema of various origins—definition of cations and anions in hepatic cirrhosis, 4758*d*.
**Farnsworth, H. E.** See Reichertz, P. P.
**Farnsworth, M.**, Smith, C. S., and Rodda, J. L. Metallographic examn. of a sample of metallic Zn, 2825*i*.
**Farnsworth, M. E.** See Broughton, D. B.
**Farnworth, A. J.**, and Speakman, J. B. Action of sulfuryl chloride on wool, 5192*b*; reactivity of the S linkage in wool, 6423*b*.
**Farooqee, M. A.** See Strong, F. M.
**Farquet, J.** See Diesbach, H. de.
**Farquhar, J. W.** See Wilson, W. M.
**Farquharson, G. W.** See Law, J.
**Farr, J. D.**, Bard, C. C., and Wheland, G. W. Electrolysis of solns. of *m*-dinitrobenzene in liquid $NH_3$, 8908*h*.
**Farr, L. E.** See Strobino, L. J.
**Farr, T. H.** See King, H. L.
**Farr, W. K.** Tertiary membrane of the plant cell wall, 5092*h*.

**Farrag, H. F.**, and Sherif, M. A. F. Pharmacol. actions of *Erythraea spicata*, 4771*c*.
**Farran, J.** Rotating anode in the electropolishing of Cd and Al, 2101*c*.
**Farrar, B.** Preservation of fish nets, 8688*d*; see Bondy, P. K.
**Farrar, C. H.** See Morrison, James L.
**Farrar, K. R.** See Anderson, A. S.
**Farrar, M. D.** Use of Na selenate on greenhouse bench soil for the control of plant pests, 1141*h*.
**Farrar, M. W.** See Levine, Robert.
——— and Levine, R. Oxidation of ketones to acids by alk. hypochlorite soln., 5015*b*.
**Farrar, R. L., Jr.**, and Cady, G. H. Comparison of age with the relative abundance of A and K in rocks, 4986*e*.
**Farrell, R. A.**, and Wagner, C. L. Heat-sealable labels, P 1188*f*.
**Farrer, K. T. H.** Influence of mineral content on the loss of vitamin $B_1$ in baking bread, 6748*e*.
**Farrerons-Co, F. J.** Regulatory antagonism of histamine and sympathin, 3519*b*, antihistamine effects of sympathin E, 3519*c*; histamine-sympathin balance, 9221*d*.
**Farrington, B. B.** See Birdsall, D. H.
**Farrington, O. M.** 2,4-D treated gladiolus, 9338*d*.
**Farrington, P. S.**, and Sage, B. H. Behavior of propene, 8832*c*.
**Farris, E. J.** See Griffith, J. Q., Jr.
**Farrow, J. H.** See Adair, F. E.
**Farthing, A. C.** See Parkes, G. D.
**Fasce, E. V.**, and Wood, W. H. Acetylene from diolefin-contg. mixts., P 662*f*.
**Fasciolo, J. C.** See Taquini, A. C.
——— and Taquini, A. C. Complete renal ischemia and renin content of the kidneys, 8503*a*; estn. of renin in the tissues, 8424*e*.
**Fash, R. H.**, and Campbell, J. G. Petroleum exploration by soil analysis, P 3185*e*.
**Fashena, G. J.** Hyperbilirubinemia in the newborn infant—functional hepatic immunity, 8045*b*.
**Fass, J. I.** See Pickel, F. D.
**Fassbender, J.** Optical and elec. properties of CdS, 6031*d*.
**Fassbinder, W.** See Nothdurft, H.
**Fassel, J.** See Pollak, F. F.
**Fassel, V. A.** Spectrographic analysis of the rare-earth elements (III) detn. of major constituents in complex mixts., 2889*a*; see Smith, A. Lee.
**Fassina, L.** See Fassina, Mme.
**Fassina, Mme.**, and Fassina, L. Purifying mother liquors from pickling metals, P 4999*c*.
**Fast, J. D.** Equil. between liquid silica and liquid Fe, 23*c*; coating of welding rods, 1707*c*; Entropie (book), 2083*c*.
**Fastier, F. N.** Circulatory properties of amidine derivs. (I) pressor analogs of methyl isothiourea, 1868*c*.
——— and Reid, C. S. W. Circulatory properties of amidine derivs. (II) potentiation of the vasoconstrictor action of adrenaline, 1868*d*.
**Fastier, L. B.** Antibiotic substance produced by a member of the *Shigella* group, 8443*d*.
**Fastje, D.** Construction and operation of the Krupp direct reduction plant in Watenstedt, 8997*c*.
**Fatehally, R. A.** See Garlick, G. F. J.
**Fatio, P.** App. for the detn. of the vols. of solid, powd., or granular materials, P 3668*i*.
**Fattinger, F.** Monazite sand, 6337*b*.
**Faucherre, J.** Detn. of the degree of condensation of basic Pb ions, 2073*i*, 8277*a*; condensation of basic ions in the hydrolysis of Al and U nitrate, 7308*b*; see Geloso, M.; Souchay, P.
**Fauconau, L.** See Bras, G.
**Fauconnet, L.** Pharmacology of valerian, 1490*a*; infusion of digitalis, 1907*c*; structure of linseed mucilage, 4881*g*.
**Faul, H.**, and Sullivan, G. R. Density correction in $\beta$-ray assaying of rock and mineral samples, 6112*d*.
**Faulconer, F. M.**, McCann, D. L., and Bedell, H. L. Flocculation—conditioning refinery effluent for re-use, disposal, 7169*c*.
**Faulhaber, F. V.** Finishing office equipment, 875*a*; degreasers, 6901*i*.
**Faulkner, D.** See Distillers Co., Ltd.; Staudinger, J. J. P.
**Faulkner, E. E.** See Ashburn, L. L.; McQueeney, A. J.
**Faure, C.** See Lichtenberger, J.
**Faure, M.** See Polonovski, J.
——— and Coulon, M. J. Phosphatides of heart muscle—prepn. of phosphatidic acids, 3483*f*.
**Fauré-Fremiet, E.**, Stolkowski, J., and Ducornet, J. Calcification of the integument of *Coleps hirtus*, 3941*a*.
**Faust, C. L.**, and Graves, E. E. Electropolishing, 8904*c*.
**Faust, J.** Alk.-earth-metal petroleum sulfonates, P 1959*h*; viscosity reduction of petroleum mahogany sulfonate hydrocarbon solns., P 6822*ef*; poisoning due to tetraethylpyrophosphate, 9330*e*.
**Faust, W. R.**, and Johnson, M. H. Multiple Compton scattering, 4119*d*.
**Fauve, M.** Isano oil and its use in industry, 3629*h*.
**Favalli, I. H.** See Hélio Favalli, I.
**Favarger, M.** See Karrer, P.
**Favarger, P.** See Collet, R. A.; Metzger, E. F.
**Faville, L. W.** Influence of bacteriophage, antibiotics, and $E_H$ on the lactic fermentation of cucumbers, 4726*b*.
**Favini, I.** Elastic material, P 4507*c*.
**Favor, H. H.**, and Johnston, N. F. Effect of polyoxyethylene stearate on the crumb softness of bread, 3113*g*.
**Favorskaya, T. A.**, and Fridman, Sh. A. Transition from derivs. of ethylenic hydrocarbons to derivs. of simplest polymethylene rings (II) reaction of dimethyl-, methylphenyl-, and diphenylallylcarbinols with HCl and $H_2SO_4$, 3776*a*.
——— and Shirshova, A. N. Dimethylethynylphenylethylene glycol and its reaction with $H_2SO_4$, 6181*g*.
**Favour, C. B.** See Miller, Joseph M.
**Favre, M.** See Beck, I. T., Bischler, A.; Frommel, E.
**Favre, R.** Polarographic analysis applied to the products of Zn metallurgy, 5353*f*.
**Fawaz, G.** See Fieser, L. F.
**Fawcett, C. C.**, Markus, H., and Hirt, G. E. Steel cartridge case, P 3770*e*.
**Fawcett, D. W.** Relation of insulin to the deposition of glycogen in adipose tissue, 8036*f*.
**Fawcett, E. W. M.** Application of high-vacuum distn. to the processing of triglyceride oils, 419*i*, see Anglo-Iranian Oil Co., Ltd.
———, Millien, A., and Mulhern, N. Polystyrene-mineral-oil ext. plastic compn., P 2467*b*.
——— and Narracott, E. S. Conversion of normal to branched-chain hydrocarbons, P 3188*d*.
———, Narracott, E. S., and Fawcett, K. J. Vinyl polymers plasticized with air-blown exts. of mineral-oil fraction, P 5998*e*.
———, Narracott, E. S., and Millien, A. Vinyl polymers plasticized with S-treated ext. of mineral-oil fractions, P 5998*i*.
**Fawcett, H. H.** Hazards of nitul mixts., 5593*e*, 7220*d*; flammable liquids refrigerated, 6827*a*.
**Fawcett, J. E.** Measurement of Fluid Pressures (book), 3702*a*.
**Fawcett, K. J.** See Fawcett, E. W. M.
**Fawcett, M. L.** See Boak, R. A.
**Faworskaia, T. A.** See Favorskaya, T. A.
**Fawzy, H.** See Said, H.
**Fay, R. E.** Plastic coating compn., P 2780*d*.
**Fayette, S.** See Bourson, M.
**Fayles, R. R.** Scrap charging—increasing open-hearth production, 8999*i*.
**Fayol, A.** Second centenary of the birth of Berthollet, 1617*h*.
**Fazekas, I. G.** Changes in blood fat and cholesterol contents in NaOH poisoning, 8549*a*.
**Fazekas, J.**, and Hikó, L. Cotton substitute, P 1990*g*.
——— and Schaffer, Z. Cotton substitute, P 1990*g*.
**Fazekas de St. Groth, S.** Modification of virus receptors by metaperiodate (I) properties of $IO_4$-treated red cells, 4758*g*; see Anderson, S. G.
——— and Graham, D. M. Modification of virus receptors by metaperiodate (II) infection through modified receptors, 4758*i*.
**Fazi, R. de.** See De Fazi, R.
**Fazio C., C.** Detn. of glucose in blood and cerebrospinal fluid, 4317*a*.
——— and Mácola, B. A. Detn. of sulfonamide in blood, 3056*c*; NaOBr, 4316*h*.
**Feagan, R. A., Jr.** See Lyon, L. R.
**Fearey, J. E.** See Heubner, D. W.
**Fearing, R. B.** See Redemann, C. E.
**Fearn Laboratories, Inc.** Effervescing carbonated beverages, P 5131*d*; carbamino salt compds., P 5415*b*.
**Fearnley, G.** Octoate driers, 4492*b*; octoate and naphthenate driers, 6431*i*.
**Feast, M. W.** See Pearse, R. W. B.
**Feaster, C. V.** Influence of planting date on yield and other characteristics of soybeans, 5449*h*.
**Feaster, G. R.** Pulse-emission decay phenomena in oxide-coated cathodes, 5660*f*.
**Feaster, J. F.**, Mudra, A. E., Ives, M., and Tompkins, M. D. Effect of blanching time on vitamin retention in canned peas, 3538*a*.
**Feather, N.** Isotopic assignment of the $\alpha$-activity of Sm, 1647*d*; radioactive branching, 4559*i*; radioactivity, 6908*c*; see Zajac, B.
———, Kyles, J., and Pringle, R. W. Permanent-magnet double $\beta$-ray spectrograph with coincidence counting (I) Th active deposit, 4109*d*.
——— and Richardson, H. O. W. $\beta$-Disintegration and the Sargent diagram, 4125*f*.
**Featherstone, R. M.** See Gross, E. G.; Wilkins, D. S.
**Feaver, E. R.** See Dunn, M. S.
**Feazel, C. E.** See Steadman, T. R.
**Feddersen, P. C.**, and Lee, H. E. Cd-recovery in Pb smelting, 2554*f*.
**Feder, H. M.** Water-activity correlation in the HCl azeotropic system, 2058*g*.
**Federal Cartridge Corp.** Milkweed seed oil, P 9494*h*.
**Federal Electric Co., Inc.**, and Dehn, F. B. Tube of fibrous cellulosic material, P 5951*a*.
**Federal-Mogul Co.** Sn fluoborate, P 2745*c*; atomized metal, P 3341*d*.
**Federal Telephone & Radio Corp.** (*Patents.*) Reducing brittleness of carburized W wire, 102*b*; Se rectifiers, 510*gh*, 2104*h*, 4589*f*, 5318*g*, dimerization of $\alpha$-alkyl-*p*-alkylstyrenes, 1059*c*, insulation of elec. cables, 1126*h*, Se rectifier element, 2525*h*, electroforming rectifier elements 2526*d*, improved blocking layer in Se rectifiers, 2526*e*, metal-contact rectifiers, 3734*h*, plasticized polystyrene insulating material, 4518*d*.
**Federer, E.** See Rabe, P.
**Federico, L.** See Antoniani, C.
**Federico, M.** Brazilianite, 7871*b*.
**Federovskaya, N. P.** See Titov, N. G.
**Fedirko, J.** See Robey, R. F.
**Fedorov, B. M.** As and P contents of iron ores, 2138*a*.
**Fedorov, B. P.** Anthracene derivs. (V) reactions of addn. of maleic anhydride to some *ms*-substituted anthracenes, 1758*i*.
——— and Spryskov, A. A. Sepn. of 1,5- and 1,8-dinitronaphthalenes, 6190*h*.
———, Spryskov, A. A., and Ermolina, A. P. Detg. 1,5- and 1,8-dinitronaphthalenes, 9744*i*.
**Fedorov, G. I.** Electrolyzer for the production of Cl from alkali, P 3300*e*.
**Fedorov, I. I.** See Vladimirov, G. E.
**Fedorov, M. V.** Fixation of mol. N by *Azotobacter* in amides and amino acids 5522*i*; participation of hemin enzyme in the fixation of mol. N by *Azotobacter* 7172*i*; effect of ascorbic acid on atm. N fixation by *Azotobacter*, 8082*i*, two component structure of the catalyst of N fixation in *Azotobacter* and the course of the physiol. process in fixation of mol. N 8591*f*, N fixation by *Azotobacter* in surface-active compds. and dehydrating agents, 9160*a*.
**Fedorov, N. I.** Gas generator, P 4908*i*.
**Fedorov, V. S.** See Grigorovskii, A. M.
**Fedorova, A. M.** See Belov, V. N., Rodionov, V. M.
**Fedorova, G. G.** See Bulnov, N. N.
**Fedorova, G. P.** See Reznik, B. E.
**Fedorovskii, D. V.** Relation of the wilting coeff. to the plant species and osmotic pressure of the soil soln., 4801*f*.
**Fedoseev, A. D.**, and Aleksandrova, T. A. Vladimirovka deposit of kaolins, 6126*f*.
**Fedosov, M.** Detn. of As as arsine, 4176*a*.
**Fedosova, V. M.**, and Magidson, O. Yu. Sulfanilamide derivs. of coumarin, 2179*d*.
**Fedosseiew, A. D.** See Fedoseev, A. D.
**Fedot'ev, N. P.**, Alabyshev, A. F., and Grigor, V. A. Guide to Lab. Exercises in Applied Electrochemistry (book), 5317*d*.
———, Berezina, N. V., and Kruglova, E. G. Cathodes with lowered H-evolution potentials, 501*e*.
**Fedotova, N. Ya.** See Magidson, O. Yu.
**Fedotowa, N. J.** See Fedotova, N. Ya.
**Fee, D. A.**, Cruger, D., and Collier, H. B. Hypobromite method for nonprotein N, 7541*a*.

**Feed Products Laboratories, Inc.** Treatment of citrus waste press water, P 5881*i*.
**Feely, N.** See Hartman, F. W.
**Feeman, J. F.,** Dove, J. R., and Amstutz, E. D. Condensation of thiophene and certain derivs. with chloral, 627*c*.
**Feenberg, E.** Nuclear shell structure and isomerism, 4129*d*, see Shull, F. B.
—— and Hammack, K. C. Nuclear shell structure, 7321*d*.
——, Hammack, K. C., and Nordheim, L. W. Nuclear shell models, 8850*f*.
**Feeney, R. E.** See Garibaldi, J. A.
**Feer, D. B.** Emission of radiation in the disintegration of mesons, 4108*b*; polarization of mesons produced at threshold in γ-nucleon collisions, 8260*c*.
**Feeweg, M. P.** See Fiveg, M. P.
**Fefilov, V. V.** See Bardyshev, I. I., Piryatinskii, A. L.
**Fegler, G.** Intracorpuscular inactivation and reactivation of hemoglobin—intracorpuscular methemoglobin formation and its relation to the rate of O release, 5467*e*
**Fegley, M. F.** See Croxall, W. J.
**Fehér, D.** Biol effect of short wave radiations of elements, 9093*d*, biol effect of the penetrating rays of the elements, 9093*e*.
**Fehér, F.,** and Baudler, M. Chemistry of S (III) prepn and properties of $H_2S$, (IV) existence and prepn. of hydrogen tetrasulfide, 2884*bc*; prepn of $H_2S$, 3156*f*.
—— and Heuer, E. Chemistry of S (VII) thermochemistry of H polysulfide, 3305*d*
——, Talpay, B., and Heuer, E. Chemistry of S (V) detn of H polysulfide, 3745*a*.
**Fehér L.** Effect of urethan in chronic myeloid leukemia, 8548*b*.
**Fehling, H. R.,** and Leser, T. Combustion with O and O-enriched air (II) detn. of the true compn of the products of theoretical combustion with O and O-N mixts., 4415*h*.
**Fehlmann, H.** See Hugi, E.
**Fehlmann, W. F.** See Fluck, H.
**Fehnel, E. A.** Thiaxanthone dioxide thiaxanthenol dioxide thiaxanthene dioxide oxidation system—sulfone series analog of the anthraquinone-anthrahydroquinone-anthrone system, 4273*i*
— and Carmack, M. Ultraviolet absorption spectra of org. S compds (I) contg. the sulfide function, (II) contg. the sulfone function, 4215*c*; (III) substituted phenyl sulfides, 7820*c*.
**Fehrenbach, C.** Comparison of the 4050-A. group of comet 1948g with the bands attributed to $CH_2$, 39*f*, see Belorizky, D.; Bloch, M.
**Fehrlin, A.** See Fierz-David, H. E.
**Feichtinger, H.** 4-Amino-3-mercapto-1,2,4-*H*-triazole from the reaction of hydrazine hydrate on tetrachlordimethyl sulfide, 5396*a*, lubricating oils and improved Diesel fuels from brown coal-tar distillates, 6816*e*
—— and Moos, J. Chlorination of $Me_2S$, 4629*a*
**Feichtmeir, E. F.** Effect of particle size and soly. of S in CS₂ on its toxicity to fungi, 9333*h*.
**Feifel, E.** Large installations for dust removal, 8213*e*.
**Feigelman, V.** See Undank, P.
**Feigel'son, I. B.** Underground waters of gas-petroleum deposits of the Sarato district, 4192*b*.
**Feigelson, M.** See Bass, A. D.
**Feigelson, P.** See Maxwell, R. D.
**Feigen, G. A.** See Van Harreveld, A.
**Feigenbaum, J.** Citrus oils of Palestine 4814*g*.
—— and Israelashvili, S. $H_2SO_3$ in citrus juices, 5129*b*.
**Feigenbaum, S.,** and Enzian, G. H. Ni steel, 6557*d*.
**Feigin, L. M.** See Agranovich, B. D.
**Feigl, F.** Chemistry of Specific, Selective and Sensitive Reactions (book), 3318*c*; masking of Mo, W, and V reactions by fluoride, 4598*d*, 6539*b*.
—— and Baumfeld, L. Analytical value of reactions with molten [illegible] 8299*f*;
hydr
droxyquinoline, 8306*a*.
—— and Feigl, H. E. Sensitive and selective reaction for tannic acid and other tannins, 8183*b*; reactivity of innercomplex-bonded Pd—specific test for cyanides in alk. solns., 8956*a*.
—— and West, P. W. Test for Se based on its catalytic effect, 8961*d*.
**Feigl, H. E.** See Feigl, F.
**Feil, G. H.** See Shreeve, W. W.
—— and Lorber, V. Distribution of $C^{14}$, administered as $CaC^{14}O_3$, in rat-liver glycogen and blood glucose and lactate, 7995*g*.
**Feil, M. L.** See Dorfman, R. I.
**Feild, A. L.** Nitriding, P 9894*a*; electrolytic polishing of stainless steel, P 2525*c*; alloy process, P 4626*b*.
**Feiman, E. M.** How to prevent silicosis in employees handling silica brick, 6921*i*
**Fein, M. L.** Portable water-jet pumps, 2823*b*.
—— and Fisher, C. H. Plasticizers for cellulose derivs., P 676*b*; purification of alkyl acrylates, P 4288*e*; *n*-alkyl β-hydroxypropionates and β-acetoxypropionates, 4639*c*.
**Fein, Yu. E.** See Afanas'ev, L. V.
**Feinaigle, G.** Frictional resistance to stock flow in pipes, 6413*i*.
**Feinberg, Richard.** See Stuart, C. A.
**Feinberg, Robert.** See Stuart, C. A.
**Feinberg, S. M.** See Bernstein, T. B.
**Feinbrun, R. I.** See Korotkov, S. Ya.
**Feinleib, M.** See Fink, C. G.
**Feinstein, R. N.** Modification of biuret method of protein detn., 5073*d*; see Volk, M. E.
—— and Volk, M. E. Phosphoprotein phosphatase in mammalian tissues, 6679*b*.
**Feinstein, S. M.** See Feinshtein, S. M.
**Feiring, E.** See Friedman, A. P.
**Feiser, J.** Dressing of Pb-bearing intermediates, 528*i*.
**Feitelberg, S.** Standardization of radioactive I, 6691*f*
—— and Kaunitz, P. E. X-ray diffraction studies of human chorda tendineae, 7113*c*.
**Feitknecht, W.** Corrosion of metals in aq. solns. with Zn metal, 1705*e*; reactions in crystals with lamellar structure, 5266*c*.
—— and Maget, K. Basic salts of bivalent metals (XIV) hydroxychlorides of Cu, 8930*a*, double hydroxides and basic salts (VI) copptn. of Cu-Ni hydroxide, 8929*e*; (VII) double chlorides of Cu, (VIII) mixed phases of Cu-Ni hydroxychlorides, 8929*f*.
**Fekete, A.** See Takács, L.
**Fekete, J.** Flour for adhesives, P 9536*a*.
**Fekete, L.,** and Sugár, L. Caries in school children of Tata, 8024*c*.
**Felber, I. M.** Formation of protuberances on bean leaves in response to 2,4-D treatments, 1517*e*; see Lucas, E. H.
—— and Hamner, C. L. Control of mildew on bean plants, 2355*d*.
**Feld, B. T.** Inelastic scattering of fast neutrons, 4944*e*; angular correlations in successive nuclear α-γ-emission and the excited state of $Li^7$, 5294*a*; see De Hoffmann, F.
**Feld, E. A.** See Rothenberg, M. A.
——, Grundfest, H., Nachmansohn, D., and Rothenberg, M. A. Effect of diisopropyl fluophosphate on action potential and cholinesterase of nerve (IV), 9259*e*.
**Feld, H.** Detn. of the basicity of chrome alum solns. partly neutralized with Na carbonate, 2007*a*.
**Feldberg, W.** See Emmelin, N.
—— and Lin, R. C. Y. Action of local anesthetics and *d*-tubocurarine on the isolated intestine of the rabbit and guinea pig, 7589*i*.
—— and Vogt, M. Acetylcholine synthesis in different regions of the central nervous system, 747*h*.
**Feldmahn, A.** See Smith, W. K.
**Feldman, C.** Spectrochem. analysis of solns., 8945*b*.
**Feldman, H.** See Rosenblum, H.
**Feldman, H. B.** Recovery of Ag from a dime—lab. expt., 4010*a*.
**Fel'dman, I. Kh.** Catalytic reduction of nitro groups in S compds., 6179*b*.
—— and Nikitskaya, E. S. Syntheses in amino-sulfone series (I) *p*-aminophenyl dialkylaminoalkyl sulfones, 6179*i*.
—— and Preln, N. G. 4-Nitrophenyl 2-acetamido-5-thiazolyl sulfide, P 6670*a*.
—— and Usovskaya, V. S. Derivs. of benzotriazole (I) isomerization of acetylmethoxybenzotriazole, 2618*f*; (II), 7016*c*.
**Feldman, J.,** Myles, M., Wender, I., and Orchin, M. Evaluation of vacuum rectification columns, 4521*f*.
**Feldman, K.,** and Wright, G. M. Diamond drill hole G.-M. counter, 6078*i*.
**Feldman, L.** See Wu, C. S.
—— and Wu, C. S. β-Spectra from thick sources, 8870*f*.
**Fel'dman, R. M.** See Ioffe, Ya. S.
**Feldman, W. H.** See Hinshaw, H. C.
——, Karlson, A. G., and Hinshaw, H. C. Dihydrostreptomycin—its effect on exptl. tuberculosis, 3518*i*.
**Feldmann, U.** See Gochring, M.
**Feldmeyer, J. H.** See Deijs, W. B.
**Feldott, G.** See Lardy, H. A.
**Felice, F. de.** See De Felice, F.
**Felice, J. A. de.** See De Felice, J. A.
**Felicetta, V. F.,** Markham, A. E., Peniston, Q. P., and McCarthy, J. L. Diffusion in agar-agar gels, 7788*c*.
**Felix, A.** Bacteriophages, 9165*e*.
**Felix, F.,** and Hechendorn, A. Azo dyes, P 9459*e*.
—— and Reich, E. Dinitro monoazo compd., P 9462*e*.
**Felix, K.** Chemistry and physiology of protein and the amino acids, 7021*i*.
—— and Schaefer, H. *p*-Hydroxyphenylpyruvic acid-consuming ferment, 4360*d*.
**Felix, W.** Recovery of Fe from iron-bearing grinding dust and slime, P 4153*d*.
—— and Eisermann, E. Corrosion-resisting Cr Ni [Mo] cast steel—sigma phase, 9016*a*
**Felkin, H.** Formation of α-amino acids by the Beckmann rearrangement of β-isonitroso esters, $CH_3C(:NOH)CR_1CO\text{-}OC_2H_5$, 1723*g*; nitrous deamination of α-amino alcs.—influence of reaction media (II) deamination in anhyd. media, 2600*d*.
**Fell, H. B.,** and Allsopp, C. B. Action of mustard gas on living cells (I) cytological effects of mustard gas and of its hydrolysis products, (II) effect on cell growth of adding small concns. of mustard gas to the culture medium, 319*d*; effect of repeated applications of mustard gas on the skin of mice, 1866*d*; tissue-culture expts. on the biol. action of methylbis(2-chloroethyl) amine and its hydrolysis products, 5503*a*.
**Fella, J. H.** Pyrobar heaters for salt-bath furnaces, 4615*c*.
**Fellenberg, T. v.,** and Potterat, M. F detn. in common NaCl, 5875*d*.
**Feller, B. A.** See Macek, T. J.
**Feller, D. D.** See Zilversmit, D. B.
**Fellers, C. R.** See Kaplan, A. M.; Millares, R.
**Felletschin, G.** See Wittig, G.
**Felley, D. L.** See Leonard, N. J.
**Fellner, I. J.** Patent infringement, 1125*f*.
**Fellows, C. E.** See Bell, P. H.; Shepherd, R. G.
**Fellows, M. D.** See Nutting, M. D. F.
**Fellows Nutting, M. D.** See Nutting, M. D. F.
**Fels, E.** Gestation and temporary ligation of the ovarian pedicles, 5473*b*.
—— and Foglia, V. G. Ligation of the ovarian pedicles and pancreatic diabetes, 3512*g*.
**Fels, I. G.** See King, T. E.
—— and Cheldelin, V. H. Methionine in Se poisoning, 1831*a*; selenate inhibition (III) reversal of selenate inhibition in *E. coli*, (IIIa) sulfate in selenate toxicity in yeast, 9157*g*.
**Felsing, W. A.,** and May, M. Ionization consts. of butyric acid in isopropyl alc.-water mixts., 1244*c*.
**Felter, J. S.** See Thomas, C. E.
**Feltham, P.** Fatigue in metals, 1697*c*.
**Felton, D. G. I.** See King, F. E.
**Fendley, J. A.** See Bell, R. P.
**Fénéant, S.** See Chédin, J.
—— and Chédin, J. Detn. of the distribution coeff. of water between $HNO_3$ and $H_2SO_4$ in ternary mixts., 4938*c*.
**Feng, C. L.** See Kirkham, D.
**Feng, T. P.** See Liu, Y. M.
**Fenger, F.** Glandular products and ferments, 4425*g*.
**Fenger, H.** See Rothschuh, K. E.
**Fenikszova, R. V.** See Vyatkin, V. V.
**Fenimore, C. P.** Polarization of the nitroso absorption band in *m*-nitrosonitrobenzene monomer, 1655*i*; crystal structure of dibiphenyleneethylene, 3263*c*.
—— and Thrailkill, A. Mutual habit modification of NaCl and dipolar ions, 7772*c*.
**Fenn, J. B.** See Eaton, J. L.
**Fenn, J. E.** Adhesive, P 3198*k*; dusting powder, P 5910*c*.
**Fenn, W. O.** See Clark, R. T.
**Fennah, R. G.** Tests with DDT against insect pests of food crops, 8598*e*.
**Fenner, C. N.** Incandescent tuff flows in southern Peru, 75*c*.

**Fenner, E.**, and Koch, L. Protection of Fe by oxide coatings, 95*h*.
**Fenney, W. N.** Alkylation method and app., P 3189*d*.
**Fenoglio, M.** Ni in peridotitic-serpentine masses of the piedmont Alps, 4984*i*.
**Fenske, C. S., Jr.** See Naghski, J.
**Fenske, M. R.** See Braun, W. G.; Foehr, E. G.
**Fent, O. S.** Geologic methods in groundwater prospecting, 8581*f*
**Fenton, A. G.** See Chaudhri, R. M.
——— and Burbury, D. W. P. Measurement of the east-west asymmetry of cosmic rays at Hobart, Tasmania, 34*g*.
**Fenton, E. A.** See Stern, I. L.
**Fenton, G.** See Allen, J. F.
**Fenton, S. W.** See Marion, L.
**Fenton, W. M.** Li compds. in porcelain enamels, 1544*a*.
**Fényes, I.** Wave-mech. derivation of the statistical model of the atom, 5277*e*.
**Feofilaktov, V. V.** 3-Indolebutyric acid, P 5424*f*.
**Feofilov, P. P.** Polarized luminescence, 7809*i*; polarization of luminescence and the structure of the mol., 7820*d*; see Gurevich, D. B.
**Feophilaktoff, W. W.** See Feofilaktov, V. V.
**Feremans, K. H.** Light insulating compn., P 1126*c*.
**Ferencz, G.** Detn. of As, 8301*h*.
**Ferencz, P.** $H_2SO_4$ drying towers, 9392*g*.
**Ferger, M. F.**, and Vigneaud, V. du. Antiphenylalanine effect of β-2-thienylalanine for the rat, 7561*i*.
**Fergus, D.** See Levy, G. B.
**Fergus, D. J.** See Bates, H. T.
**Ferguson, A. L.** Sn fluoborate, P 2745*c*.
**Ferguson, C. K.** See Folsom, R. G.
**Ferguson, C. S.**, and Welsh, C. E. Polysiloxane resins, P 8864*b*.
**Ferguson, D. M.**, Booth, H., and Landberge, M. J. Slime-control methods, 2773*i*.
**Ferguson, E. A.** See Damrau, F.
**Ferguson, H. E.** Manufd gas instrumentation shows needed improvements, 8645*f*.
**Ferguson, H. R.** See Patrick, J. C.
**Ferguson, J. B.** See Barnartt, S.; Sheffer, H.
**Ferguson, J. H.** Brake lining, P 6341*b*; see Gerheim, E. B.; Ximenez, M. R.
**Ferguson, J. K. W.** See Clarke, A. P. W.; Hamilton, H. S.
——— and Lucas, G. H. W. Henderson's Materia Medica (book), 1913*b*.
**Ferguson, L. N.** Absorption spectra and chem. constitution of org. mols., 2923*e*.
——— and Barnes, R. P. Absorption spectra of some enols and related intermediates, 2093*f*.
——— and Goodwin, T. C. Absorption spectra of azines and dianils, 5755*i*.
——— and Robinson, J. K. Absorption spectra of some benzylidene and mesitylidene Schiff bases, 3388*g*.
**Ferguson, M. H.** See Forbes, I., Jr.; Robson, J. S.
**Ferguson, R. B.** Al fluoride minerals, 8984*b*.
**Ferguson, R. R.** Advances in Zn dithionite bleaching of groundwood, 400*f*.
**Ferguson, W. S.** See Armitage, E. R.
———, Ashworth, R. de B., and Terry, R. A. Muscle-inhibiting compd. in lucerne—bloat in cattle, 6315*b*.
**Fergusson, W. C.** Polytetrafluoroethylene, 8203*d*.
**Ferin, J.** See Schockaert, J. A.
**Ferlazzo, A.** Amino acids content of blood in tuberculosis, 1482*b*.
**Fermi, E.**, and Marshall, L. Spin dependence of slow neutron scattering by deuterons, 4107*c*.
**Fernandes, F.** See Bhat, J. V.
**Fernandes, L.**, and Ganapathi, K. Chemotherapy of malaria (I) synthesis of diguanides, 5746*b*.
**Fernandes, V. H.** See Hernando Fernandes, V.
**Fernandes Costa, A.**, and Cardoso do Vale, J. Essential oil of *Lavandula stoechas* and comparison with oil of *Lavandula pedunculata*, 9382*c*; essential oil of *Origanum virens*, 9383*d*.
**Fernandez, A.** Pharmacology of hydroxyphenylbenzyltrimethyl - ammonium dimethylcarbamate (III) effect on the respiratory reflexes of the carotid body, 7134*d*.
——— and Vinoles, J. J. Pharmacology of hydroxyphenylbenzyltrimethylammonium dimethylcarbamate (IV) effect on salivary secretion, 7134*e*.
**Fernández, A. A.** Skin disturbances caused by vitamin deficiencies, 291*h*.
**Fernández, A. G.** Excretion of urea in pancreatic juice, 7564*h*.
**Fernández, E.** See Altamirano, M.
**Fernandez, E. G.** See Garcia-Fernandez, E.
**Fernandez, J. B.** See Rietz, E. G.
**Fernández, O.** Starches (IV) P in residual dextrins, 5218*f*.
——— and Martínez, E. Phosphorylation of glucose, 152*f*.
——— Mingo, M. de, and Martínez, E. Cyclization of glucose, 4220*c*.
———, Olalla, R., Martínez, E., and Larrañeta, R. L. Starches (II) acetylation and methylation, (III) constitution of amylose and amylopectin, 4036*d*.
**Fernandes, S. G.** See García Fernandez, S.
**Fernandez Alonso, J. I.** See Batuecas, T.
**Fernández Bolaños, J.** See García González, F.
**Fernández Cabrera, C.** Rosenthaler reaction in the investigation of sugars in vanillin (II) lactose, 1122*h*; chromatic reactions for differentiating eugenol and essences of clove, 3973*d*.
**Fernández Colmeiro, J. M.** Etiology of mammary cancer and the hormonal factor, 8042*g*.
**Fernández de la Calle, F.** See Romo Aldama, E.
**Fernandez del Riego, A.** Nutritive value of the sardine (*Sardina pilchardus*), 3115*g*.
**Fernández-García, R.** See Colón, I. A.
———, Colón, I. A., and Colon Fortis, R. Products from sugar cane, 2366*b*.
**Fernández Pol, R.** See Loustalot, A. J.
**Fernando, I.** Spectrum of iodine VII, 4136*a*.
**Fernando, L. J. D.** Geology and mineral resources of Ceylon, 5707*h*.
**Fernando Peran, D.** Action of Na and Mg sulfate on the intestine, 5120*b*.
**Fernbach, S.**, Serber, R., and Taylor, T. B. Scattering of high-energy neutrons by nuclei, 5285*e*.
**Fernelius, W. C.** Structure of coördination compds., 4527*a*.
**Fernholz, E.**, and Ansbacher, S. Vitamin K-active compds., P 1533*b*
**Féron, F.**, and Bouquet, P. Lipase in millet flour, 4709*a*.
**Ferraez, N.** Sediment tester for milk, P 4307*a*.
**Ferrand, R. H., Jr.**, and Bohren, B. B. Effect of carotenols on fertilizing capacity of fowl sperm, 1088*c*.
**Ferrandis, V. A.** See Aleixandre Ferrandis, V.
**Ferrando, R.** See Meunier, Paul.
**Ferrannini, A.**, and Conese, G. Histamine and uric acid metabolism (II) histamine and uric acid in gastric juice, 5846*c*.
**Ferrante, N. di.** See Di Ferrante, N.
**Ferrara, A.** See Craxi, P.
**Ferrara, E.** Crystn. of tar oils, P 4846*e*.
**Ferrares, O.** See Zinke, A.
**Ferrarese, M.** Distillazione agraria pratica moderna (book), 1906*c*.
**Ferrari, Adolfo**, and Cavalca, L. Structure of Cd Ni chloride and of Mn Mg chloride, 2064*f*; nitrites of the alkali-earth metals—crystal structure of $Ba(NO_3)_2.H_2O$, 3261*h*; triple thiocyanates $Cs_2BaCu_2(CNS)_7$ and $Cs_2BaAg_2(CNS)_7$, 5324*g*.
———, Cavalca, L., and Nardelli, M. Salts of heteropoly acids (II) compns. and structure of alk. earth dodecamolybdophosphates and dodecatungstophosphates, 2537*e*.
———, Cavalca, L., Nardelli, M., Selegari, A., and Cingi, M. Salts of heteropoly acids (III) compn. and cryst. structure of phosphododecamolybdates and of phosphododecatungstates of Mg, Zn, Co, Ni, Mn, and Cd, 7366*a*.
——— and Nardelli, M. Structure of Ca, Sr, and Pb dithionates, 2483*i*.
**Ferrari, Antonino.** Detn. of quinine salts in the urine—prophylaxis, 4722*b*.
**Ferrari, C.** Compds. formed by Cu salts with citrates, 4182*b*; adsorption of silicic acid by roots, 9320*e*.
**Ferrari, C. G.** Breadmaking, P 4784*f*.
**Ferrari, F.** Building materials, 2752*g*; hydraulic cements, 5567*c*.
**Ferrari, M.** Strength of fabrics treated with crease-proofing solns., 5596*b*.
**Ferrari, P. V.**, and Società A.S.F.A. Sugar, fermentation products, and feeding stuff from asphodal tubers, etc., P 5616*h*.
**Ferrari, S.** Action of 3,4-benzopyrene on adenocarcinoma, 4363*d*; thyroxine and inoculated exptl. tumors, 9239*e*.
**Ferrari, W.** See Bergamini, L.
**Ferrario, E.** Basal metabolism and erythrocyte sedimentation rate in chronic leukemia, 5854*e*.
**Ferraro, A.**, and Roizin, L. Motor disorders in rats on amino acid-deficient diet, 9191*i*.
**Ferrazzi, M.** See Jacini, G.
**Ferre, L.** Grading of wines, 8606*h*.
——— and Jaulmes, P. Pb in the Sn seals as a source of Pb in wine, 3141*g*.
**Ferrebee, J. W.** See Solomon, D. H.
**Ferreira, B. A.** See Alves Ferreira, B.
**Ferreira, R.** Curarizing substance, 9380*h*.
**Ferrel, I. L.** See Dissel, T. A.
**Ferrell, D. T., Jr.**, Blackburn, I., and Vosburgh, W. C. Ag-Ag oxalate electrode, 2101*g*.
**Ferrer, D.** Modifications of the secretory aspect of thyroid cells by the action of thiouracil, 757*b*.
**Ferrero, C.** Pos. Millon reaction of the urine in renal insufficiency, 4304*g*.
**Ferrero, G. P.** See Gaggia, R.
**Ferrero, P.** Chem. valorization of coal gases in Belgium, 8118*i*.
**Ferretti, A.** Textile fibers from casein, P 1194*e*.
**Ferretti, B.** At. capture of slow mesons, 34*c*, absorption of slow mesons by an at. nucleus, 5661*d*
**Ferretti, P.** Diesel-engine fuels—retarding of the ignition, 6805*b*.
**Ferri, A.** See Cavallaro, L.
**Ferri, F.** See Baschieri, L.; Benedetti, G.
**Ferri, M. G.**, and Lex, A. Stomatal behavior as influenced by treatment with β-naphthoxyacetic acid, 3493*a*.
**Ferrié, F.** See Manson, N.
**Ferrière, P. J. J. F. de**, Ruère, J. G de, and Siméon, S. Influence of climate and soil on the nitrogenous nutrition of the grape—influence on phosphate nutrition, 6349*g*; influence of climate and soil on the K supply of grapevines, 7174*d*.
**Ferrin, F. J.**, and Dunbar, R. E. Synthesis of 3,5-dinitrobenzoates of alcs. and phenols, 5015*g*.
**Ferris, B. J.** Fossils as indicators of environments of deposition, 5710*a*, sol. material in oil shales, 7215*c*
**Ferris, F. H.** See Loosli, J. K.
**Ferris, L. W.** Milk fat in milk chocolate, 6755*b*.
**Ferris, S. W.**, Lamson, E. R., and Smith, D. M. Mol. distn., P 449*c*.
**Ferris, V.** See Spink, W. W.
**Ferro Enamel Corp.** Porcelain enamel finish, P 5920*d*.
**Ferro Engineering Co.** Insulating cover for solidifying ingots, P 3769*f*, detg. the solidification time of a casting, P 4621*f*
**Ferroni, A.** Ca of blood and cerebrospinal fluid in tetanus, 2311*g*, Fe content of blood in progressive paralysis, 2311*i*.
**Ferroni, E.** Thermosetting powder, P 8744*d*.
**Ferry, J. D.** Viscoelastic properties of polymer solns., 467*a*; properties of substances of high mol. wt. (IV) rigidities of gelatin gels—dependence on concn., temp., and mol. wt., 467*e*; see Ashworth, J. N., Smith, T. L.
——— and Eldridge, J. E. Cross-linking process in gelatin gels (I), 3690*i*; m ps., rigidities, and optical activities of gelatin gels, 4066*g*.
——— and Shulman, S. Conversion of fibrinogen to fibrin (I) influence of hydroxyl compds. on clotting time and clot opacity, 9102*d*.
**Ferry, R. M., Jr.** See McKibbin, J. M.
**Fersman, A. E.** Role of Mendeleev's Periodic Table in Contemporary Science (book), 478*f*.
**Fertman, G. I.**, and Pokrovskii, A. L. Rectification of alc., P 5156*a*.
**Fertman, M. B.** See Curtis, G. M.
**Feruglio, F. S.** See Salvini, M.
**Feshbach, H.** See McKinley, W. A., Jr.
——— and Lax, M. Production of mesons by photons and electrons, 8849*a*.
——— and Rarita, W. Tensor forces and the triton binding energy, 5278*f*.
**Fessenden, G. R.** Suppository coating, P 8621*d*.
**Fessler, J. H.** Blue-fining, 2733*g*.
**Festa, C.**, and Santangelo, M. Radioactivity of the earth, 6903*h*.
**Fester, G. A.** Coloring materials in works of Roman authors, 1229*h*.

—— and Martinuzzi, E. A. Florence flask for volatile essences, 1530*d*.
——, Martinuzzi, E. A., and Gargallo, M. A. Volatile oils of San Luis and Cordoba, 1530*i*.
——, Suarez, A. F., and Gargallo, M. A. Dyes in the roots of *Relbunium atherodes* and *Relbunium hypocarpium*, 1569*e*, 1983*g*.
**Fethke, N.**, and Anderson, R. J. Lipides of tubercle bacilli (LXXIV) acid-fastness of acid-fast bacilli, 3877*i*.
**Fetisenko, I. V.** See Verzhbinskaya, N. A.
**Fetterly, L. C.** Regenerating spent aq. alk. soln. [contg. mercaptans], P 1793*i*; hydrosulfide conversion to neutral S compds., P 7223*gh*.
**Fetterolf, L. D.** See Peirce, W. M.
**Fetters, K. A.** Basic open-hearth slags—mineralogy and control, 7389*i*.
**Fettes, E. M.** See Ruderman, I. W.
**Fetzer, M. C.**, and Post, C. B. Wear-resistant steel, P 105*c*.
**Feuchter, C. F.** Economics of thermal reforming, 8654*c*.
**Feuell, A. J.** Desoiling properties of carboxymethyl cellulose, 8711*c*; see Powney, J.
**Feuer, G.** See Straub, F. B.
——, Molnár, F., Pettkó, E., and Straub, F. B. Compn and polymerization of actin, 9005*d*.
**Feuer, Irving.** Radioactive electronic detector in Seederer-Kohlbusch microbalance, 2044*b*.
**Feuer, István.** See Issekutz, B., Jr.
**Feuge, R. O.**, and Gros, A. T. Modification of vegetable oils (VII) alkali-catalyzed interesterification of peanut oil with EtOH, 3635*f*
—— and Reddi, P. B. V. Rice-bran oil (III) as an edible oil, 6842*b*.
**Feurer, M.** See Plattner, P. A.
**Fevold, H. L.** See Dimick, K. P.; Klose, A. A., Lieber, I. E.
—— and Dimick, A. L. Lipovitellenin from egg yolk, P 2340*a*.
**Fèvre, R. J. W. le.** See Le Fèvre, R. J. W.
**Fevre, W. J. le.** See Le Fevre, W. J.
**Few, A. V.**, and Smith, J. W. Mol polarization and mol. interaction (I) dipole moments of aniline, methylaniline, and dimethylaniline in benzene and 1,4-dioxane solns., 7438*d*.
**Foy, R. F.** See Maccary, R. R.
**Feyel-Cabanes, T.** Monophosphoesterase in the submaxillary salivary glands, 8485*e*.
**Feynman, R. P.**, Metropolis, N., and Teller, E. Equations of state of elements based on the generalized Fermi-Thomas theory, 5246*f*.
**Fiala, R.** See Konopik, N.
**Fiala, S.**, and Burk, D. Fe binding by siderophilin, conalbumin, hydroxylamine, aspergillic acid, and other hydroxamic acids, 9211*d*.
**Fialka, K. M.**, and Kibria, M. G. Mildew growth on leather and its prevention, 6853*b*.
**Fialkov, Ya. A.** Polycompds., 3306*c*; complex compd., 7856*b*.
—— and Muzyka, I. D. Physicochem. study of the system acetamide ICl, 6900*i*; physicochem. investigation of the system ICl–$C_5H_5N$, 6901*a*.
—— and Shargorodskil, S. D. Thermal decompn. of sulfates of metals of the second group of the periodic system (I) $BeSO_4$, 2499*h*.
—— and Sol'ts, L. M. Utilization of wastes of Ishimbai petroleum as bases for ointments and for the prepn. of petrolatum (II), 5581*f*.
**Fialkow, J. A.** See Fialkov, Ya. A.
**Fialla, R.** See Eitel, A.
**Fiandaca, R.** Prothrombin in blood in infectious diseases, 3516*a*.
**FIAT Società per azioni.** Cementation of Fe materials, P 4625*d*.
**Fibel, L. R.**, and Spoerri, P. E. Synthesis and investigation of pyridine and pyrazine analogs of salicylates, 1409*g*.
**Fibro-Mold Specialties, Inc.** Wallboard compn., P 374*f*.
**Ficai, A.** Influence of products of microorganisms on the healing process of cutaneous wounds, 8434*a*.
**Ficai, C.** Recovery of Ni, Fe, Cr, Co, and Cu from metallic wastes, P 8345*a*.
**Ficarra, B. J.** Hyperuricemia in surgery, 3511*g*; transitory hypoproteinemia in acute severe fractures, 3511*h*.
**Fichera, G.** Ascorbic acid action on glycogen content of liver, 1113*g*.
**Fidanza, F.**, and De Berardinis, E. Transmethylation in the cryst. lens (I), (II), 7059*e*.
—— and Franza, C. Thiamine in transmethylation, 3904*a*.
**Fiddes, F. S.** See Smith, Sydney.
**Fidler, F. A.** See Anglo-Iranian Oil Co., Ltd.; Birch, S. F.
**Fidler, J.** Detn. of V, 8959*a*.
**Fidler, J. C.** Influence of O on respirable substrate, 782*g*.
**Fidor, G. H.** See Huit-Fidor, G.
**Fiedler, E. L.** Ternary copolymers and casting of films, P 8732*d*.
**Fiedler, H.** See Schwabe, K.
**Fiedler, H. P.** Natural and synthetic thiophene compd. production, 4452*g*.
**Fiedler, J.** Polyploidal forms in sugar beets, 3069*g*.
**Fieger, E. A.** See Williams, V. R.
**Field, D. C.** See Sparks, W. J.
**Field, D. J.** Boiler feedwater treatment, 6766*c*.
**Field, E. T.** See McKennon, F. L.
**Field, G. E.** Vinyl-nitrile blends, 5986*g*.
**Field, J.** Energy metabolism of the cell, 3049*c*; see Fuhrman, F. A.; Hollinger, N.; Peiss, C. N., Pierce, F. T.
**Field, J. B.** Prothrombin activity in rats with mammary tumors, 1856*h*.
—— and Rekers, P. E. Effects of flavonoids on röntgen irradiation disease (I) protective influence of rutin in irradiated dogs, 7122*h*.
**Field, L.** See Cope, A. C.
**Field, M.**, and Merchant, M. E. Detg. preferred orientation on the Geiger-counter spectrometer, 8852*e*.
**Field, T. E.** Cast refractory products, P 5919*e*.
**Fielden, J. E.** Electronic moisture meter, 5949*d*.
**Fielding, J.** Estg. penicillin and other bacteriostats, 8135*e*.
**Fielding, J. H.** Cold rubber and its adaptability to tires, 8720*g*; see Dinsmore, R. P.
**Fielding, M. E.** See Page, J. E.
**Fieldner, A. C.**, and Gottlieb, S. Research and technologic work on coal, 8638*g*.
**Fields, A.** Opium, 4815*d*.
**Fields, E. K.** Benzamidine derivs., 5756*i*.
**Fields, M.** See Blout, E. R.; Fieser, L. F.
——, Leaffer, M. A., and Rohan, J. Synthesis of $C_6H_6$, MePh, and BzOH labeled in the ring with isotopic C, 9045*e*.
——, Valle, C., Jr., and Kane, M. Polarographic studies of some hindered and unhindered aromatic nitro compds., 4586*b*.
**Fields, R. T.** Shaping of articles from polytetrafluoroethylene powder, P 2820*e*.
**Fieller, E. C.** See Collier, H. O. J.
**Fiero, G. W.** Review of Pharmacy (book), 6370*g*; detn. of Cl in DDT insecticides, 9331*c*.
**Fierro del Rio, L.**, and Arrieta Aupart, D. Endocrine studies in vernal conjunctivitis—detn. of urinary 17-keto steroids, 7126*g*.
——, Arrieta Aupart, D., and Cano Vega, F. Detn. of fibrinogen, 7075*c*; blood bilirubin in various diseases, 7126*h*.
**Fierz-David, H. E.** Improving the tone quality of stringed instruments, P 4494*e*; see Blangey, L.
—— and Blangey, L. Fundamental Process of Dye Chemistry (book), 4019*c*.
—— and Fehrlin, A. Glycerol nitrate sulfates and their estn. in the nitroglycerin process, 5368*b*.
—— and Merian, E. Abriss der chemischen Technologie der Textilfasern (book), 4471*c*.
**Fieser, L. F.** Naphthoquinone antimalarials (III) diene synthesis of 1,4-naphthoquinones, 1371*b*; (XVI) water-sol. derivs. of alc. and unsatd. compds., (XVII) chromic anhydride oxidation, 1386*ci*; impressions of chemistry on the European continent, 2826*i*; chromic anhydride oxidation of alkyl side chains, 5773*g*; see Heymann, H.; Lieberman, S.
——, Berliner, E., Bondhus, F. J., Chang, F. C., Dauben, W. G., Ettlinger, M. G., Fawaz, G., Fields, M., Fieser, M., Heidelberger, C., Heymann, H., Seligman, A. M., Vaughan, W. R., Wilson, A. G., Wilson, E., Wu, M., Leffler, M. T., Hamlin, K. E., Hathaway, R. J., Matson, E. J., Moore, E. E., Moore, M. B., Rapala, R. T., and Zaugg, H. E. Naphthoquinone antimalarials (I), 1370*f*.
——, Berliner, E., Bondhus, F. J., Chang, F. C., Dauben, W. G., Ettlinger, M. G., Fawaz, G., Fields, M., Heidelberger, C., Heymann, H., Vaughan, W. R., Wilson, A. G., Wilson, E., Wu, M., Leffler, M. T., Hamlin, K. E., Hathaway, R. J., Matson, E. J., Moore, E. E., Moore, M. B., and Zaugg, H. E. Naphthoquinone antimalarials (IV) synthesis—alkyl side chains, 1372*h*; (V) cycloalkylalkyl series, 1374*d*; (VI) 4'-cyclohexylcyclohexyl and cycloalkyl series, 1375*f*; (VII) unsatd. compds., 1377*g*; (VIII) aralkyl and substituted aralkyl series, 1378*b*; (IX) aryl derivs., (X) miscellaneous compds. with O, halogen, or N in the side chain, 1380*ai*; (XI) related compds., 1382*d*.
——, Chang, F. C., Dauben, W. G., Heidelberger, C., Heymann, H., and Seligman, A. M. Naphthoquinone antimalarials (XV) distribution between org. solvents and aq buffers, 1385*i*.
—— and Fieser, M. Naphthoquinone antimalarials (XII) Hooker oxidation reaction, 1383*f*, cortical steroids—configurations at $C_{20}$ relative to $C_{17}$, 1428*g*; Natural Products Related to Phenanthrene (book), 3832*h*.
——, Fieser, M., and Rajagopalan, S. Absorption spectroscopy and the structures of the diosterols, 4281*e*.
—— and Heymann, H. Naphthoquinone antimalarials (XXII) relative antirespiratory activities (*Plasmodium lophurae*), 2609*i*.
——, Heymann, H., and Seligman, A. M. Naphthoquinone antimalarials (XX) metabolic degradation, 1108*i*.
—— and Huang-Minlon. Serini reaction, 8396*c*.
—— and Richardson, A. P. Naphthoquinone antimalarials (II) structure and activity against *P. lophurae* in ducks, 1370*h*.
—— and Szmuszkovicz, J. Synthesis of keto acids by chromic anhydride oxidation of tertiary alcs., 3365*g*
**Fieser, M.** See Fieser, L. F.
**Fife, H. R.** Improvements in esters, P 1562*e*.
—— and Roberts, F. H. Polyoxypropylene compds., P 391*a*.
—— and Toussaint, W. J. Polyoxyalkylene diol esters, P 3446*c*.
**Fife, J. G.** Fluid catalyst, P 1538*i*; see Davison Chemical Corp.
**Fife, L. C.**, Chapman, A. J., and Shiller, I. Toxicity of several chlorinated hydrocarbons to thrips on cotton, 1143*c*.
**Figaret, J.** Effect of surface active agents on the wettability of pigments, 8698*e*.
**Figdor, H. G.** Ethylcellulose plastic comps., P 2815*c*.
**Figge, F. H. J.** Theory of carcinogenesis, 2694*i*.
——, Weiland, G. S., and Manganiello, L. O. J. Cancer detection and therapy—affinity of neoplastic, embryonic, and traumatized tissues for porphyrins and metalloporphyrins, 749*b*
**Fighetti S., C.** See Pizarro C., G.
**Figueiredo, A. C.** See Matos, A. R de.
**Figueiredo, A. P. de.** See Pinto de Figueiredo, A.
**Figueras, J.** See Boekelheide, V.
**Figueroa Egea, J.** Ascorbic acid in infectious diseases, 287*i*.
**Figurovskil, N. A.** Sedimentation Analysis (book), 5276*h*.
—— and Futran, M. F. Nature and thickness of protective layers of emulsifiers on the surface of emulsion droplets, 5256*h*.
**Fijll, H.** See Fukikawa, F.
**Fikar, W.** See Engle, L. S.
**Fikry, A.** Water-table effects (V) peach functional disorder, 1081*d*.
**Filachione, E. M.** See Fisher, C. H.
——, Costello, E. J., and Fisher, C. H. Lactic acid derivs. as plasticizers—esters of polymeric lactic acids, 3651*e*.
—— and Fisher, C. H. Esters of hydroxy carboxylic acids, P 1058*a*.
**Filaseta, L.** Ground water in the Fessenden area, Wells Co., N. Dak., 8581*h*.
**Filatov, V. P.**, and Biber, V. A. Biogenic stimulators of the surviving vegetable tissues, 726*f*; biol. activity of exts. and distillates from chernozem soil, 1889*g*.
**Filbert, W. F.** Nitro alkyl amides, P 1796*h*; *N*-methyl-*N*-nitroglycolamide nitrate, P 1797*h*.

**Filçakova, H.** See Chamie, C.
**Filho, J. M.** See Malhado Filho, J.
**Filho, L. B.** See Barretto Filho, L.
**Filimonov, L. N.** See Lyubimov, A. P.
**Filina, E. I.** See Patushinskaya, F. P.
**Filintsev, G. P.,** and Viro, S. E. Bentonite clays in the production of porcelain, 3581*b*.
**Filipe, M. A. R.** See Marques Leal, A.
**Filipi, T. A.** Water supply quality, 9308*c*.
**Filipowicz, B.** Vitamin F, 1846*c*.
**Filipp, G.** Reticulo-endothelial system, 4356*i*.
**Filippov, S. A.,** and Vetoshkiĭ, V. F. Detn of small quantities of Sb in nonferrous metals and alloys contg. less than 0.5% Sn, 963*h*.
**Filippov, S. I.** See Stark, B. V.
**Filippova, V. N.** See Antipov-Karataev, I. M.
**Fil'ko, A. I.** See Balezin, S. A.
**Fill, M. A.** See Stock, J. T.
**Filley, G. L.** See Goldston, M.
**Fillius, M. F.** Report of Chem Methods Comm. (TAPPI), 2773*b*.
**Fillmore, F.,** Hudgins, A., and Jeppson, M. Ion-source equipment for Berkeley electrostatic generator, 4093*a*.
**Filman, C. C.,** Truscott, J. H. L., and Goodwin-Wilson, R. 5000-acre water garden, 340*d*.
**Filonenko, N. E.** Influence of the reactivity and structure of the binder on the mech. properties of corundum contg. ceramic bodies, 4437*i*; Ca hexaaluminate in the system $CaO–Al_2O_3$, 4594*f*.
——— and Lavrov, I. V. Ca hexaaluminate in the system $CaO–Al_2O_3–SiO_2$, 8937*b*.
**Filosofo, I.,** and Rostagni, A. Liberation of ions by electron bombardment, 4941*g*.
**Filtrol Corp.** Ammoniated acid activated montmorillonite catalyst, P 3707*f*; activating catalyst clays with mineral acids, P 4004*d*; $NH_4$ alum from acid liquors, P 5161*a*; acid-activated clay, P 6403*g*.
**Filyanskaya, E. D.** See Vorokhobin, I. G.
**Finbak, C.,** and Norman, N. Subtraction of atom images from a Fourier synthesis of a crystal lattice, 4566*c*.
——— and Viervoll, H. Structure of liquids (XIV) KOH and NaOH dissolved in $H_2O$, 4067*h*.
**Finch, C. A.** Methemoglobinemia and sulfhemoglobinemia, 304*e*; pathologic physiology of hemoglobin formation, 2309*e*, see Hegsted, D. M.; Kinney, T. D.; Ross, J. F.
**Finch, H. de V.** Unsatd. esters of substituted adipic acids, P 1217*g*, see Ballard, S. A.
———, Ballard, S. A., and Evans, T. W. Conversion of alicyclic aldehydes, P 5416*c*.
——— and Marple, K. E. Conversion of vinyl-type halides to aldehydes or ketones, P 9078*h*.
**Finch, R. B.** Phys. behavior of fibrous visco-elastic materials, 4042*e*.
**Finch Telecommunications, Inc.** Facsimile recording papers, P 6530*b*.
**Finck, H. F.,** and Mathews, M. M. Beusta's modern filter plant, 7166*c*.
**Fincke, H.** Aromatic materials—their importance for nutrition, application in the food industry, and food prepn., 5507*h*.
**Fincke, J. K.** Vinyl chloride resin stabilizer, P 4049*h*, phenyl ethyl sulfones, P 5801*e*.
——— and Gluesenkamp, E. W. Stabilizing vinyl chloride, P 9530*h*.
**Fincke, M. L.,** McGregor, M. A., Storvick, C. A., and Woods, E. Ascorbic acid content of foods, 1493*c*.
**Findlay, A.** Hundred Years of Chemistry (book), 932*b*.
**Findlay, G. M.,** Hardwicke, J., and Phelps, A. J. Tsetse fly repellents, 1900*i*.
**Findlay, G. R.** See Fletcher, H. G., Jr.
**Findlay, R. A.** Tertiary-base olefins, P 5186*i*.
**Findlay, W. P. K.** See Cartwright, K. St G.
**Findley, J. W., Jr.** See Wissler, R. W.
**Findley, T. W.** See Swern, D.
**Findley, W. N.,** Adams, C. H., and Worley, W. J. Effect of temp. on creep of two laminates, 5227*f*, 7259*h*.
**Fine, J.** See Gibson, J. G., 2nd; Seligman, A. M.
**Fine, M. M.** Concn of fluorite from tailings and mine-waste rock in Crittenden and Livingston Counties, Ky., 1693*i*, see Kenworthy, H.
**Fine, S. D.** Iodine 7373*f*; assay of procaine-HCl soln., 9368*e*; detn. of I, 8960*h*.
**Fineman, M. A.** See Nickels, J. E.
——— and Wallace, W. E. Heats of formation and some derived thermodynamic properties of NaCl-NaBr solid solns., 2854*h*.
**Finerty, J. C.,** and Briseno-Castrejon, B. Cell types in the rat hypophysis following unilateral adrenalectomy, 8491*f*.
**Finesinger, J. E.,** Brazier, M. A. B., Tucci, J. R., and Miles, H. H. W. Levels of consciousness based on electro-encephalographic data in pentothal anesthesia, 9262*b*.
**Finger, J.** Melting of colorless glass in the elec. furnace and its development in Spain, 2384*h*.
**Fink, A.** Rubber substitute, P 5624*f*.
**Fink, A. O.** Bonding of metal carbonyl deposits, P 7893*b*.
**Fink, C. G.** Metal articles found in the tomb of Tut-Ankh Amen, 451*d*, electrochem. restoration of badly corroded Ag Cu alloy objects, 5679*e*.
——— and Dokras, V. M. Electrodeposition and electrowinning of Ge, 2876*a*.
——— and Feuerieb, M. Electrodeposition and electrochemistry of the deposition of synthetic resins, 954*i*.
——— and Ma, C. C. W. P 4964*b*.
——— and Smatko, J. S. Bone fixation and the corrosion resistance of stainless steels to the fluids of the human body, 1494*f*.
**Fink, Kay,** and Fink, R. M. Formation of monoiodotyrosine from radioiodine in the thyroid of rat and man, 709*i*, application of filter paper partition chromatography to qual. analysis of volatile and nonvolatile org. acids, 5695*i*.
**Fink, Kurt,** and Hempel, M. Magnetic measurements on fatigue stressed steel rods, 4616*b*.
**Fink, L. D.,** and Wright, H. N. Nature and extent of the binding of oxophenarsine by the red blood cell of the rabbit (I) adsorption on the cell surface, (II) factors other than adsorption, 1862*i*.
**Fink, P.** Bleaching with Na chlorite, 8544*i*.
**Fink, R. M.** See Fink, Kay.
**Fink, W. L.,** Keller, F., Sicha, W. E., Nock, J. A., Jr., and Dix, E. H., Jr. Phys. Metallurgy of Al Alloys (book), 5724*g*.
**Finke, W.** Sym. periodic system of the chem. elements, 8761*i*.
**Finkelnburg, W.** Production of electrode vapor jets by sparks and arcs, 1661*g*; Einführung in die Atomphysik (book), 5314*d*; Hochsttomkohlebogen Physik und Technik einer Hochtemperatur-Bogenentladung (book), 5672*i*, see Kopfermann, H.
**Finkel'shtein, D. N.,** and Kruzhevnikova, A. I. Detn. of Mn compds. in air, 2545*b*.
**Finkelstein.** See also Finkel'shtein.
**Finkelstein, A.** Energy transfer between N and Hg, 8282*e*.
**Finkelstein, J.,** and Linder, S. M. 5,5′-Dibromosalicil and related compds., 4246*c*.
**Finkelstein, L.** Rheological properties of incendiary gels, 4014*i*.
**Finkelstein, M.** Microdetn. of steroid estrogens in urine by fluorometry, 710*i*.
——— and Bodansky, O. Effect of cardiac glycosides on the respiration of cardiac muscle, 1110*g*.
**Finkelstein, R. J.** Quantization of a unitary field theory, 4097*c*.
**Finkl, A., & Sons Co.** Steel alloys and piercing dies, P 7404*b*.
——— and Stevens, A. H. Steel alloys and die blocks, P 9020*a*.
**Finkleman, I.,** and Arieff, A. J. Action of α,β-dihydroxy-γ-(2-methylphenoxy)propane on peripheral nerves, 9266*c*.
**Finks, A. J.,** and Petito, N. J. Penetration of sintered metals by soins of surface-active agents, 8791*d*.
**Finland, M.** See Collins, H. S.; Paine, T. F., Jr.
**Finlay, W. L.** Size effects in quenching high-purity, pptn.-hardenable alloys, 9010*g*.
——— and Hibbard, W. R., Jr. Effects of applied stresses on pptn. phenomena, 82*a*.
**Finlayson, D.** See Mellor, A., Simpson, W. J.
——— and Jackson, T. Applications of high tension rayon in the rubber and plastics industries, 6408*e*.
**Finlayson, M. K.,** and Edson, N. L. Catalase activity of mycobacteria, 4727*e*.
**Finn, F. H.** Geology and occurrence of natural gas in Oriskany sandstone in Pa. and N. Y., 4190*h*.
**Finn, R. K.** Penicillin extn., P 1158*h*.
**Finn, W. J.** See Herbst, M.
**Finnegan, J. K.** See Larson, P. S.
**Finnegan, W. G.** See Henne, A. L.
**Finney, K. F.,** and Barmore, M. A. Loaf vol. and protein content of hard winter and spring wheats, 324*h*.
———, Heizer, H. K., Shellenberger, J. A., Bode, C. E., and Yamazaki, W. T. Comparison of certain chem., phys., and baking properties of corn, Buhler- and Hobart-milled flours, 2707*d*.
———, McCammon, J. F., and Schrenk, W. G. Effect of varying concns. of certain metals and their salts on gas production and loaf vol., 4781*f*.
**Finney, W. H.** Chem. weed control, 343*c*.
**Finogenov, P. A.** See Bresler, S. E.
**Finter, F. B.** Acids, bases, and salts, 2826*d*.
**Finucane, K. J.,** and Telford, R. J. Tantalite deposits of the Pilbara gold-field, 2550*d*.
**Finucane, T. P.** Ishler, N. H.
**Finzi, B.,** and Vitello, B. Penicillin and histamine pictures, 1375*e*.
**Finzi, E.** Food drying by, 8565*d*.
**Fiock, E. F.** See Dahl, A. I.
**Fiola, M. B.** See Baldermann Fiola, M.
**Fioletova, A. F.** Luminescence analysis of bituminous materials, 5678, 7675*a*.
**Fiore, G.** Phosphatic fertilizer, P 8596*f*.
**Fiore, J. V.** See Weiss, S.
**Fiore, L.** See De Gori, R.
**Fiorelli, F.** Treatment of ferr minerals with gas produc the elec reduction furnace, P 2879*e*.
**Fiorentino, F.** Influence of Me thiouracil on the hematopoiesis of persons with normal thyroid function, 9247*h*.
**Fiorenza, M.** Insecticide, P 1807*e*.
**Fioretti, D.** Natu Sb of La Selva (Val Cavargna), 4979*b*.
**Fireman, E. L.** Measurement of the half life of double β-decay fr $_{50}Sn^{124}$ 4122*f*, decay of $K^{40}$, 650*d*.
**Firestone, L. J.** Food product of vegetable and fruits, P 330*e*.
**Firestone Tire & Rubber Co.** *(Patents)* Stabilization of dichlorobutadiene resins, 4430*h*, unvulcanized rubber latex, 2802*i*, synthetic rubber, 2803*c*, 7746*a*, coagulation of synthetic rubber latex, 2804*c*, 7744*g*, rubber cyclizer, 2804*b*, 8195*c*, elastomeric copolymer mixed with phenol aldehyde resin, 2806*g*, metal bonded by means of chlorinated rubber adhesives contg. a polyalkylene polyamine, 2807*c*, adhesion of rubber to Mg, 2807*f*, activator for thiazole accelerators, 2808*c*, *N*-monochlorocyclohexylamine, 3033*i*, stabilization of vinylidene chloride resins, 3233*c*, purification of phenol sulfides and prepn. of metallic salts, 3037*i*; accelerators for curing rubber, 4508*i*, 8732*a*, alkylated phenol, 6663*a*, 2,3 dichloro 1,3-butadiene, 7035*g*, mold adhesive for foam rubber, 8194*c*, addn. of amines to synthetic rubber latex, 8194*f*; stabilizers for diene copolymers, 8195*b*; removing surface impurities from Po-plated metal, 8346*a*, GR-S black latex, 8732*a*; forming fine filaments, 8743*g*; stabilization of Cl-contg. resins, 8739*e*; vinyl chloride resin compns. contg. imidazolidines, 8738*g*, synthetic rubber stabilizers, 8732*c*.
**Firket, J.** See Bacq, Z. M.
**Firor, W. M.** Malignant disease, 3925*c*.
**First Industrial Co.** Adsorbent, P 6762*e*.
**First Pharmaceutical Co.** Refining of lactoflavin, P 6792*d*.
**Firth, T., & J. Brown Ltd.** Cb-contg. steel, P 9019*h*.
**Fisch, W.** See Widmer, G.
**Fischbach, H.** Electrodialysis in the field of antibiotics, 7195*i*, see Levine, J.
**Fischel, E. E.** See Benacerraf, B.
———, LeMay, M., and Kabat, E. A. Effect of adrenocorticotropic hormone and x-ray on the amt. of circulating antibody, 3087*f*.
**Fischer, Albert.** Nutrition of animal tissue cells, 294*e*; amino acid metabolism in tissue cells, 3862*e*; see Ehrensvärd, G.
**Fischer, Alfred.** Oil-sol. metal-salt compns. as driers, P 3216*a*, 7240*d*.
**Fischer, Antal.** See Sellei, C.
———, Bungor, E., and Martos, K. Abnormal protein fractions of the serum in persons with inflammations, 8517*c*.
——— Sellei, C., and Bretán, M. Abnormal

serum protein in parenchymatous liver diseases, 3096*a*.
**Fischer, A. C.** Asphalt expansion joints, P 1940*b*.
**Fischer, A. J.** Sewage screening assembly, P 6346*b*.
**Fischer, A. M.** Washing app. for brewer's pitching yeast, P 356*b*.
**Fischer, C., Jr.** Self-poisoning of cut flowers and plants, 8158*g*.
**Fischer, C. E.** See Burk, D.
**Fischer, E.** Walpurgite, 9754*i*; morphology of barthite, 5348*a*.
**Fischer, Edgar.** See Wieland, T.
**Fischer, Emil.** Untersuchungen über Kohlenhydrate und Fermente Vol II (book), 14326*b*.
**Fischer, Erich.** Dielec. relaxation of polar liquids and solns., 5246*d*, mols. with extremely small relaxation periods, 6021*a*
**Fischer, E. H.** See Bernfeld, P.; see Meyer, K. H.
——— and Bernfeld, P. Amylolytic enzymes (VIII) cryst. α-amylase from hog pancreas, (IX) stability and inactivation of α-amylase from hog pancreas, 7979*j*, (XII) absence of inositol from α-amylase, 7980*f*
**Fischer, E. K.** Printing ink—past and present (II), 1196*h*, fire-retarding compns., P 3210*a*, see Bechtel, W. G., Engle, L. S., Utermohlen, W. P., Jr
———, Rolle, C. J., and Ryan, L. W. Pigment dispersion with ball and pebble mills, 3629*a*
**Fischer, F.** See Maier, C.
**Fischer, F. O.** Detn. of C and H, 6936*f*
**Fischer, H.,** and Fröhlicher, R. Action of adenosinetriphosphoric acid on electrically induced fibrillation of the isolated mammalian heart, 2319*b*
**Fischer, Harriet.** See Bohme, H.
**Fischer, Hellmut.** Correlations between the conditions for the formation and form of metal crystals grown electrolytically (I) origin of the stepwise structure, 592*b*, (II) role of inhibitors with moderate inhibition, 953*a*, protective effect of corrosion inhibitors and its evaluation (I), 4356*f*, block structures of electrolytically formed metal crystals, 8906*a*, inhibitors and catalyst poisons in the electrodeposition of H and in electrolytic reduction, 8907*d*, structural elements in the anodic oxidation of Al alloys, 8910*f*
**Fischer, Hellmuth.** Hydrolysis of penta erythritol tetranitrate to pentaerythritol, 2580*b*
**Fischer, Hermann.** Plasmolysis form in relation to content of mineral salts in leaves (I) in *Helodea canadensis* and *Fontinalis antipyretica*, 5089*e*.
**Fischer, H. G. M.** Asphalt antistripping agent, P 3193*g*, hydroquinone as inhibitor against Pb pptn., P 4003*e*.
**Fischer, H. M.** See Helberger, J. H.
**Fischer, H. O. L.** See Iselin, B.
**Fischer, Inga.** See Ehrenberg, L., Löfgren, N.
——— and Ehrenberg, L. H bond (II) influence of the polarizability of the heteroatom, 3671*i*.
**Fischer, Isabel.** See Zbarsky, S. H.
**Fischer, J.** Electrodeposition of bright metallic deposits (II) metal plating, 46*r*, electropolishing, 3727*h*; throwing power of plating baths, 7835*b*; electrodeposition of alloys from aq. solns., 8900*i*.
**Fischer, J. E.,** and Sutton, T. S. Effects of lactose on gastrointestinal motility, 3902*h*.
**Fischer, Lena,** Kopf, R., and Loeser, A. Effects and blood picture changes produced by thiouracil and 4-methylthiouracil, 8542*b*.
**Fischer, Louis.** See Anderson, A. J., McCutcheon, R. S.; Verhulst, H. L.
**Fischer, L. E.** See Ipatieff, V. N.
**Fischer, M. A.,** and Lauffer, M. A. Reaction of tobacco mosaic virus with HCHO (I) electrophoretic studies, 9168*h*.
**Fischer, P.** Neues Manual für die praktische Pharmazie (book), 5552*c*; see Bacq, Z. M.; Heusghem, C.; Lecomte, J.; Nihoul, E.
——— and Heusghem, C. Chem. union of ovalbumin and glutathione, 3857*d*.
——— and Lecomte, J. Metabolism of adrenochrome semicarbazone given orally to normal human subjects, 5116*e*; action of quinones and oxidation products of adrenaline on blood coagulation—participation of -SH groups, 5435*i*; metabolism of adrenochrome and its semicarbazone in the rabbit, dog, and man, 8062*f*.
**Fischer, Robert.** Detection of traces of water, esp. water of crystn., 521*b*.
——— and Chalupa, L. Detection of narcotics in biol. material, 8421*i*
——— and Langer, E. Standard substance for the detn. of the value of saponin drugs—digitonin, primulic acid, guaiac saponin, saponin Kahlbaum, radix senegae, cortex quillaiae, and radix sapouariae, 5905*a*
——— and Langhammer, T. Gutzeit test for As, 6538*b*; identification of metals, as salts, by the *n* of ppts. obtained with org. reagents, 6540*h*.
——— and Neupauer, E. Mixing temp. for the identification and detn. of small quantities of liquid, 8308*h*.
**Fischer, Roland,** Seidenberg, S., and Weis, U. P. Affinity of water-sol. substances to wool and their antibacterial activity, 4017*d*.
**Fischer, R. B.** See Clarke, G. L.
——— and Simonsen, S. H. Metallo-org. ppts. in inorg. analysis—investigation by electron microscopy, 1279*d*
**Fischer, V.** Reflux condensation of vapor mixts. of any no. of components, 6022*g*.
**Fischer, Walther.** 450th anniversary of Agricola, "father of mineralogy," pioneer in mining and metallurgy, 3669*h*.
**Fischer, Werner.** Sepn. and prepn. of the elements, 2051*b*.
——— and Chalybaeus, W. Sepn. of inorg. mixts. by distribution between two solvents (III) sepn. of Hf from Zr, 2883*c*.
———, Chalybaeus, W., and Zumbusch, M. Sepn. of inorg. mixts. by distribution between two solvents (IV) prepn. of pure Hf compds., 2883*e*.
——— and Keim, H. Detn. of traces of Ge, 3311*e*
——— and Wernet, J. Detn. of small quantities of Be, 611*i*.
**Fischer, W. A.** See Peter, W.; Wiemer, H.
**Fischer, W. F.** Improving cured Butyl rubber for pressure working, P 3228*d*.
**Fischer-Colbrie, E.,** and Jaworek, H. Inelastic scattering of α-particles, 1645*g*
**Fischinger.** Detn. of Mg with 8-hydroxyquinoline, 4973*g*.
**Fischl, S.,** and Jung, W. Assay of emetine in pharmaceuticals and injectable solns., 1908*b*.
**Fischlewitz, J.** Action of morphine on the respiratory center, 1486*g*
**Fiselskii, V. N.** Champagne, P 3144*b*, champagnization of wine, 7636*e*, P 9362*d*.
**Fish, W. E.** See Dorfman, R. I.
**Fishburn, A. G.** See Davis, Harold.
———, Hendry, J. A., and Francis, J. Animal hypnotic compn., P 8105*b*.
**Fishburn, B.** See Jackman, M.
**Fishel, J. B.,** and Haskins, J. F. Compn. of cigaret smoke—gaseous phase, 7645*c*.
**Fishel, V. C.** Ground-water resources of Republic Co., and northern Cloud Co., Kansas, 789*e*.
**Fishenden, R. M.** At. energy research and some application of its work, 8261*c*
**Fisher, A. J.** Fuel oil in the steel industry, 981*c*, 4193*h*.
**Fisher, A. M.** See Korenman, I. M.
**Fisher, Albert M.** See Scott, D. A.
**Fisher, A. W., Jr.,** and Bowen, R. J. Stainless steel McMahon packing, 5616*c*.
**Fisher, C. H.** See Dixon, M. B., Fein, M. L.; Filachione, E. M., Must, W. C.; Ratchford, W. P.; Rehberg, C. E.
——— and Filachione, E. M. Lactic acid—versatile intermediate for the chem. industry, 787*h*
**Fisher, C. K.** See Simmons, P.
**Fisher, C. W.,** and Bennett, L. L. Production of positive inotropism in the dog heart by some constituent of intocostrin, 315*c*.
**Fisher, D. G.** Mol. structure and arrangement in stretched natural rubber, 891*g*, 9513*g*.
———, Mullins, L., and Scott, J. R. Ebonite (XXXVII) elec. properties of synthetic-rubber ebonites, 5986*b*.
———, Newton, R. G., Norman, R. H., and Scott, J. R. Ebonite (XXXIV) influence of org. accelerators of vulcanization, 430*g*, 8729*g*.
——— and Scott, J. R. Ebonite (XXVIII) influence of light-absorbent pigments on elec. surface deterioration during exposure to light, 8729*f*; (XXXIII) influence of various proportions of Mg carbonate, 429*i*.
———, Scott, J. R., and Willott, W. H. Ebonite (XXX) influence of the type of rubber used, 8729*g*.
**Fisher, Elton.** See Shaw, J. A.
**Fisher, Elwood.** See Boynton, D.
**Fisher, E. E.** See Carlin, R. B.
**Fisher, E. F.** Tiltable sludge dewatering tank for dust collectors, P 3250*f*.
**Fisher, E. J.,** Franklin, W. B., and Smith, D. A. App. for alkylation of $H_2SO_4$ isoparaffins with olefins and means to maintain a high internal ratio of isoparaffins to olefins, P 1175*c*.
**Fisher, F.** Preservation of hard fibers against molds and fungoid growth, 6831*f*, 7693*b*.
**Fisher, G. S.,** Kave, L., and Bickford, W. G. Norconidendrin, 6842*a*.
**Fisher, H.** See Scott, K. G.
**Fisher, H. B.** See Bergman, W. E.
**Fisher, H. E.** Electronic reflux ratio timer, 1225*e*.
**Fisher, H. F.** Mg refining, P 1708*h*, 3340*e*.
**Fisher, H. J.** E. M. Bailey, 5649*f*
**Fisher, H. L.** Elastomers, Ic, 5003*a*, 8745*c*, methionine, P 677*a*
**Fisher, H. T.** Measuring, recording, and control instruments paper manuf., 4465*c*
**Fisher, J.** See Weissman, N.
**Fisher, J. C.** Anisotropic plastic flow, 4614*d*, free-energy change accompanying the martensite transformation in steels, 9008*c*, see Turnbull, D.
———, Hollomon, J. H., and Turnbull, D. Kinetics of the austenite→martensite transformation, 9008*b*.
**Fisher, J. H.** Cleaning and polishing compn., P 9498*d*.
**Fisher, J. R., Jr.** Dry-cleaning emulsion, P 4022*b*; corrosion-proofing simplified, 4207*a*; blueprint marking compn., P 6099*f*.
**Fisher, J. W.,** and Lincoln, J. Polyesters, P 7755*a*.
——— and Wheatley, E. W. Aminotriazole polymers, P 8740*b*.
**Fisher, L. B.** See Nazarov, I. N.
**Fisher, L. W.** Color photography of minerals, 7379*h*.
**Fisher, M.** See Albanese, A. A.
**Fisher, M. A.** Atm. pollution, 8588*e*.
——— and Davis, E. F. Fly-ash erosion, 5923*b*.
**Fisher, M. H.,** Aitken, T. R., and Anderson, J. A. Effects of mixing, salt, and consistency on extensograms, 4780*i*.
**Fisher, N. H.** Mg, magnesite, and dolomite, 6546*f*; Bi, 6546*f*; Pb, 6546*g*; feldspar, 6546*g*; Ba (barite), 6546*g*; bentonite and fuller's earth, 6546*h*; Zn, 6546*i*.
**Fisher, R. A.** See Di Carlo, F. J.
**Fisher, R. B.,** Parsons, D. S., and Holmes, R. Paper chromatography, 8298*h*.
**Fisher, R. S.,** Algeri, E. J., and Walker, J. T. Detn. and the urinary excretion of caffeine in animals, 6693*g*.
**Fisher, R. W.** See Newton, A. S.
**Fisher, S.** Inhibition of vaccinia hemagglutination by protamine and histones, 1101*s*; inhibition of pertussis hemagglutinin by exts. of erythrocytes, 4362*i*.
**Fisher, S. O.** High-temp. alloys, P 3341*b*.
**Fishman, J. B.** See Smith, Emil L.; Wilhelmi, A. E.
**Fishman, W. H.,** and Anlyan, A. J. β-Glycuronidase activity in human tissues—correlations with processes of malignant growth and with the physiology of reproduction, 303*e*.
**Fisk, C. F.** Oil-phase polymerization, P 5230*b*.
**Fitch, E. B.,** and Michener, J. W. Nonsugars in beet juices removable by ion exchange, 6442*f*.
**Fitch, F. H.** Sn mines of the Pahang Consolidated Co., Ltd., 7383*d*.
**Fitingof, S. A.** See Rashkovan, B. A.
**Fitterer, G. R.** Utilizing metallurgical slags, P 6144*d*, acid elec. slags, 8897*g*.
———, Bassett, J. G., and Kopec, J. B. Relation of acid open-hearth furnace efficiency to practice, 7390*e*.
**Fitting, C.** See Scherp, H. W.
**Fitton, A.,** Hurley, T. F., Moss, W. C., and Ackroyd, G. C. Gas producers, P 7669*a*
**Fitzgerald, D. B.** See Eadie, G. S.; Fitzgerald, R. J.
**Fitzgerald, E. E.,** and Hughes, E. B. Microbiol. assay of aneurine—improved method employing *Lactobacillus fermenti* 36, 8448*a*.
**Fitzgerald, J. V.** Detn. of efficiency of dealkalization of glass surfaces by radioactive Na, 5163*e*.
**Fitzgerald, L. R.** See Bodine, J. H.

**Fitzgerald, M. E. H.** See British Schering Research Laboratories Ltd.
**FitzGerald, O.,** and Murphy, P. Gastric urease, 2326*e*.
**Fitzgerald, R. C.,** Wilder, A. B., Smith, G. V., and White, A. E. Properties of 0.5% Cr-0.5% Mo pipe steel, 539*e*.
**Fitzgerald, R. J.** Inactivation of streptomycin by cyanate, 1829*b*; see Eadie, G. S.
——— and Bernheim, F. Effect of salicylic acid on the growth, morphology, and virulence of *Mycobacterium tuberculosis*, 3878*e*.
———, Bernheim, F., and Fitzgerald, D. B. Inhibition by streptomycin of adaptive enzyme formation in mycobacteria, 714*d*; effect of various compds on adaptive enzyme formation in mycobacteria, 6274*f*.
**Fitzgerald, T. H.** See Holbrook, F. L.
**FitzGerald-Lee, G.** Powder metallurgy, 7391*a*.
**Fitzhugh, O. G.** See Nelson, A. A.
——— and Nelson, A. A. Liver tumors in rats fed thiourea or thioacetamide, 1858*e*.
**Fitzhugh, R. R.,** Frederick, B. F., and Axelrad, B. A. $NH_3$ recovery from ore-tailings pulp, P 2919*h*.
**Fitzpatrick, E. T.** See Wheat, F. M.
**FitzPatrick, F. K.** Effect of an analog of DDT on murine typhus, 3404*c*.
**Fitzpatrick, J. D.** See Myers, L. D.
——— and Myers, L. D. Oxidizing unsatd. fatty bodies, P 884*a*; cyano derivs. of aliphatic carboxylic acids, P 7502*g*.
**Fitzpatrick, T. B.** See Lerner, A. B.
**Fitzpatrick, W. H.** Spectrophotometric detn. of amino acids by the ninhydrin reaction, 5341*g*; see Swain, H. L.
**Fitzpatrick, W. J., Jr.** See Borg, F. S.
**Fitzwilliam, C. W.,** and Yearwood, R. D. E. Ion-exchange processes for use in the manuf. of raw sugar, 4499*h*.
**Fiumanò, D.** Celestite of the Sicilian S mines, 3319*h*.
**Fiveg, M. P.** Seasonal cycle of rock salt sedimentation in the deposits of Verkhnekamsk, 3752*f*.
**Fix, P. F.,** and Swinney, C. M. Quicksilver deposits of the Oakville District, Napa Co., Calif., 3749*i*.
**Fixl, J. O.** See Schauenstein, E.
———, Kratky, O., and Schauenstein, E. Direction-dependent ultraviolet absorption of collagen, 8404*g*.
——— and Schauenstein, E. Diketopiperazine in silk fibroin, 6422*d*.
**Fizhenko, N. V.,** and Shcherbakova, M. P. Vitamin A content in the blood of newborn children, 4749*c*
**Flack, H.** See Inashima, J.
**Flackbarth, C. T.,** and Pondo, C. S. Economy in production—small tubes, 8999*a*.
**Flagg, J. F.** Org. gravimetric analysis, 2113*h*; see Dounce, A. L.
———, Bloor, W. R., Neuman, W. F., Tishkoff, G. H., Steadman, L. T., Smith, F. A., Lobene, R., Tarbell, A., Voss, M. J., Cohenour, L. B., Davis, W., Horton, C., Weil, C., and Schlamowitz, M. Detg. U and F, 8306*d*.
——— and Lobene, R. Detn. of N oxides in air, 1686*g*.
**Flaherty, L. M.** Salt-spray testing, 2150*e*.
**Flamini, B.** Fertilizers used in expts. with beets, 9326*c*.
**Flamm, A.** Exposure study on transparent cellulosic lacquers, 7718*e*
**Flammersfeld, A.** 3.3-hr. activity of Tb, 6077*b*; see Mattauch, J.
**Flammersfeld, H.** See Dannenberg, Heinz; Schramm, G.
**Flanagan, G. W.** Developments in special-purpose polymers, 9524*e*.
**Flanagan, J. W.** Pilot plants—suspensoid cracking pilot plant, 6399*d*.
**Flanzy, M.** Prepn. of wines, 5532*c*, 8606*e*; desulfitation of wines and fruit juices, 6329*a*.
——— and Boudet, V. Alc. losses during the course of fermentation of the juice of the grape in the production of wine, 8090*h*.
**Flaschenträger, B.,** and Hosoda, T. Storage of large amts. of injected succinic acid in the animal body, 4766*d*.
**Flaschka, H.** See Umstätter, H.
——— and Spitzy, H. Microdetn. of Ca with the ferrocyanide anion, 8302*h*.
**Flaschner, L.** See Kast, W.
**Flater, E.** Glass electrode, 4960*i*.
**Flattery, M.** Effective way to control snakes, 4418*e*.
**Flaws, D. B.** See Gadwa, T. A.
**Fleck, E. E.** Polymerizing the glyceryl ester of *l*-pimaric acid-maleic anhydride adduct, P 2469*i*; action of ultraviolet light on DDT, 4245*i*; see Chisholm, R. D.
——— and Haller, H. L. J. Catalytic removal of H halide from halogenated hydrocarbons, P 5424*a*.
**Fleck, F.,** Rossi, A., and Schinz, H. Reactions of α-keto-β-bromo γ-lactones, 6980*e*.
**Fleck, H. R.** Export potentialities of the British plastics industry, 2809*f*; Plastics, Scientific and Technological (book), 4893*f*.
**Fleck, L. C.** Chalk, P 4821*b*.
**Fleck, L. R.** Mixing leaded gasoline, 8655*c*.
**Fleckenstein, A.** Influence of esters of monohalogenated AcOH on metabolism of yeast, 3488*a*; primary energy storage for muscle contraction, 5841*i*.
——— and Hertel, H. Changes in contractile systems in relation to extracellular K and Na, 6720*a*.
**Fleisch, A.** See Grandjean, E.
——— and Baud, C. Locus of action of parpanit, 1107*a*.
**Fleischer, A.** Sintered plates for Ni-Cd batteries, 954*f*.
**Fleischhacker, H.** Treatment of blood diseases, 5498*d*.
**Fleischman, R.** See Eagle, H.
**Fleischmann, R.** Applications of radioactive and stable isotopes, 7319*d*.
**Fleischmann, W.,** and Breckler, I. A. Mitotic and wound-healing activities of the corneal epithelium in thiouracil-treated and thyroidectomized rats, 7578*i*.
———, Stubbs, J. L., and McShane, W. P. Effect of α-naphthylthiourea (ANTU) on serum cholesterol in thyroidectomized dogs, 3931*b*.
**Fleisher, G. A.** See Zeller, E. A.
**Fleisher, J. W.** See Miller, Arthur J.
**Fleisher, M. S.** Effect of various dyes on influenza virus infection, 7589*c*.
**Fleming, A.** International standard and unit for penicillin (VIII*a*) assay, 3569*b*; antibiotics, 4339*d*.
——— and Smith, C. Estn. of penicillin in serum—use of glucose, phenol red, and serum water, 6687*g*.
**Fleming, C. A.** Serpentinite at Wairere, Totoro Survey District, King Country, 1692*g*.
**Fleming, H. W.** Dibasic acids, P 2225*h*; ethylene diformate from dioxane, P 7503*a*; see Clark, A.
**Fleming, J.,** Narayanan, P. I. A., and Robottom, H. H. Beneficiation of an Sb ore from Chitral, N. W. India, 1695*b*.
**Fleming, M. T.** Fundamentals of textile drying, 5957*d*.
**Fleming, R. F., Jr.** Organosilicon compds., P 1051*b*.
**Fleming, W. E.** Chlordan for control of Japanese beetle larvae, 2730*b*.
**Flemisch, O.** Expts. with Euvernil, 4776*i*.
**Flemons, G. F.** See Baker, W.
**Flenner, A. L.** Herbicide, P 1904*b*.
**Flentje, M. E.** Chem. weed killers, 7624*i*.
**Flerinskaya, E. M.** See Pozin, M. E.
**Flerov, A. F.,** and Kovalenko, N. N. Fruit and berry yeasts and their distribution in nature, 7637*b*.
**Flerov, K. V.,** and Ozimov, B. V. Detn. of H ions, 2075*e*.
**Flesch, P.** Cu in mammalian pigmentation, 3084*c*; inhibitory action of exts. of mammalian skin on pigment formation, 3503*b*.
——— and Kun, E. Action of acetylcholine, histamine, and cholinesterase inhibitors on isolated ileum in relation to its survival time, 761*i*.
——— and Rothman, S. Sulfhydryl compds. in pigmentation, 3502*a*.
**Fletcher, B. S.** See Dervoort, G. van.
**Fletcher, D. A.** Chlorinated polyethylene elec. insulating comps., P 9534*e*; treatment of chlorinated polythene, P 9533*i*.
——— and Renfrew, M. M. Polyethylene-polyvinyl acetal compn., P 444*e*.
——— and Taylor, R. S. Chlorinated polythene comps., P 5642*g*.
**Fletcher, D. E.,** and Rigdon, R. H. Neurologic manifestations assocd. with vitamin A deficiency in young ducks, 9195*g*.
**Fletcher, F. W.** See Dreisbach, R. R.
**Fletcher, G. L.,** Insalaco, M., Cobler, J. G., and Hodge, H. C. Elimination maxima of certain satd. cholesterol esters, 7640*c*.
**Fletcher, H. B.** Australia's textile industry, 3201*b*.
**Fletcher, H. G., Jr.** See Jeanloz, R.
——— and Findlay, G. R. Identity of Möller's isoinositol with racemic inositol, 2175*c*.
——— and Sponable, C. M. Cryst. 1,4-anhydro-D-glucitol tetraacetate, 1321*i*.
**Fletcher, H. M.,** Hansen, A. M., and Duensing, M. E. Evaluating the elastic properties of knitted fabrics, 3202*b*.
**Fletcher, J. C.,** and Forster, H. K. Energy of the disintegration product of a light mesotron, 4104*c*.
**Fletcher, J. H.** See Nolan, K. G.
———, Hamilton, J. C., Hechenbleikner, I., Hoegberg, E. I., Sertl, B. J., and Cassaday, J. T. Prepn. of *o,o*-diethyl *o,p*-nitrophenyl thiophosphate, 1318*i*.
**Fletcher, L. S.** See Tour, S.
**Fletcher, M. H.** Detn. of Li in rocks, 2118*b*.
**Fletcher, O. K., Jr.** See Larsh, J. E., Jr.
**Fletcher, R. D.,** and Manoe, N. E. Importance of meteorological elements in the spreading of smoke, 3990*h*.
**Fletcher, R. S.** See Brown, H. C.
**Flett, L. H.** Derivs. of sulfosuccinamic acid, P 1798*a*; detergents—synthetics, 2451*f*; mixts. of alkylaryl sulfonates, P 6845*a*; antifungus wrapper and pest control, P 8606*c*.
**Flett, M. St. C.** Application of infrared spectroscopy to structural problems in the anthraquinone field, 2094*a*, characteristic infrared frequencies and chem. properties of mols., 3715*e*.
**Fleur, K. S.** See LaFleur, K. S.
**Fleuret, A. M. A.** Org. Th salts, P 3457*a*.
**Fleury, A. M.** See Marszak-Fleury, A.
**Fleury, C.** Action of thiourea on *Aspergillus niger*—fungistatic effect, 3880*b*, action of thiourea on *Aspergillus niger*—role of the N source, 3880*d*, 7077*e*.
**Fleury, G.,** Brissaud, L., and Lhoste, J. Structure and stability of nitric esters, 5007*e*.
**Fleury, P.** Lecithins (I) preliminary, (II) some properties of glycerophosphatogen prepd. from egg lecithin, 3478*a*, hydrolysis of egg lecithin and the constitution of this phosphatide, 9091*d*.
——— and Courtois, J. Diastases (book), 1074*i*.
———, Courtois, J., and Desjobert, A. Diose phosphate (VI) acid hydrolysis, 147*f*.
———, Courtois, J., and Garrido, M. A. Detn. of oxyhemoglobin, 7539*b*.
———, Courtois, J., and Grandchamp, M. Action of periodic acid on amine compds., 6570*a*.
———, Courtois, J., and Wickström, A. Action of periodic acid on gluconic acid (I) study of the reaction, application to the detn. of Ca gluconate in the absence of other compds., 5339*i*.
——— and Guitard, H. Lecithins (III) extn and purification of glycerophosphatogen, (IV) alk. hydrolysis of egg lecithin, 3478*b*; detn. of choline in lecithin, 5344*h*.
——— and Recoules, A. Chem. detn. of inositol, 2666*e*, 7993*g*.
**Fleury, R. de.** Status of plastics in the industrial chemistry of fuels, 3229*i*.
**Flexner, L. B.** See Cowie, D. B.
———, Cowie, D. B., and Vosburgh, G. J. Capillary permeability with tracer substance, 4754*i*.
———, Vosburgh, G. J., and Cowie, D. B. Capillary permeability—rate of transcapillary exchange of Fe added to plasma as radioactive ferric $\beta_1$-globulinate, 298
**Flexser, L. A.** See Farkas, W. G.
——— and Farkas, W. G. Riboflavin synthesis, P 1813*e*.
**Fleysher, M. H.** Anthraquinone-C-aryl thiazoles, P 7049*e*.
**Flick, B. M.** See Keenan, R. G.
**Fliegelman, M. T.** See Wilkinson, C. F., Jr.
**Fliess, M.** Fruit juice industries, 8571*g*.
**Flinker, M. L.,** and McCarrell, J. D. Effect of ether and pentobarbital anesthesia on cervical lymph flow and protein content, 2329*d*.
**Flinn, E. S.** See Bell, K. E.
**Flinn, F. B.,** and Brodie, B. B. Effect on pain threshold of *N*-acetyl-*p*-aminophenol, a product derived in the body from acetanilide, 314*a*.
**Flinn, J. H.** Effect of digitalis on the coagulability of blood, 9255*d*.
**Flinspach, J. H.** See Flinspach, M. L.
**Flinspach, M. L.,** and Flinspach, J. H. Soil-moisture indicator, P 3554*a*.
**Flint, C. F.,** Clarke, R. B. F. F., and Imperial Chemical Industries Ltd. Purulent polythenes and dispersions produced therefrom, P 7755*a*.
**Flint, H. T.,** and Symonds, N. Conserva

tion of energy, momentum, and charge in the nuclear field, 4097*g*.
**Flock, E. V.**, and Bollman, J. L. Alk. phosphatase in the intestinal lymph of the rat, 4712*i*.
——, Bollman, J. L., and Berkson, J. Effect of thyroxine and thiouracil on the rate of phospholipide turnover in the liver, 4777*d*.
**Flodin, N. W.** Polyvinyl ethers, P 664*f*; see Cornthwaite, W. R.
**Flon, J. G. de.** See De Flon, J. G.
**Flon, M.** See Daudel, P.
**Flood, A. E.**, Hirst, E. L., and Jones, J. K. N. Quant. analyses of mixts. of sugars (I) standardization of procedure, 1290*b*.
**Flood, E.**, Förland, T., and Roald, B. Equil. $CaCO_3$ (melt) = $CaO(s) + CO_2$—activity coeffs. of $CaCO_3$ in alkali carbonate melts, 6053*d*.
**Flood, R. G.**, and Pinelli, R. W. Urinary glycocyamine, creatine, and creatinine (I) their excretion by normal infants and children, (II) their excretion in children with the nephrotic syndrome, 8501*d*.
**Flood, V.** See Barrón, E. S. G.
**Flook, E. R.** See Bayes, A. L.
**Flook, W. A.** See Floro, M. B.
**Flora Chemical Co.** Isolation of histidine, P 2740*c*.
**Florê, L.** See Morando, G. C.
**Florence, J. M.**, Glaze, F. W., Hahner, C. H., and Stair, R. Transmittance of near-infrared energy by binary glasses, 1541*g*, 2747*f*.
**Florencio, W.** Analysis of the betafite group, 8940*f*; radioactive spring, the "Bomba," at Barreiro-Araxá, Minas Gerais, 8883*i*, uraninites of Brazil, 8983*e*.
—— and Castro, C. de. Thermal waters of Itaú, Brazil, 9302*g*.
**Flores, L. G.** See Arzac, J. P.
**Flores, M. M.** See Monsalve Flores, M.
**Florestano, H. J.** Tuberculocidal activity and toxicity of some diphenylmethane derivs., 3614*h*.
**Flori, A. G.** See Galleotti-Flori, A.
**Florida Frozen Fruits, Inc.** Concg. fruit juice, P 331*a*.
**Florijn, E.** Vitamine $B_1$ en bloed (book), 8041*g*; see Smits, G.
—— and Smits, G. Aneurine pyrophosphate content of red and white blood corpuscles, 736*f*; detn. of thiamine deficiency by means of blood analysis—thiamine-pyrophosphate content of red and white blood corpuscles, 1841*i*.
**Florin, R. E.** Friedel-Crafts copolymerization, 6991*b*.
**Florio, A.** Adhesive, P 8744*b*.
**Florio, P. A.** See Calfee, J. D.
**Florkin, M.** Symposium sur les protéines (book), 1074*i*; Biokhimicheskaya evolyutsiya (book), 1451*a*, Welsch's médecine et biologie. No. 1. Dosage microbiologique des vitamines (book), 1472*i*; evolution of the metabolism of nitrogenous substances among animals, 1842*h*; inorg. compn. of the body fluids of fresh water and terrestrial invertebrates, 4388*d*.
—— and Morgulis, S. Biochem. Evolution (book), 3483*d*.
**Florkowski, M. P.** See Campbell, K. N
**Floro, M. B.**, Williams, V., Flook, W. A., and Collier, J. S. Food yeast—its development and production in Jamaica, 814*i*.
**Florschütz, P. A.** See Waard, J. de.
**Flory, C. M.**, and Allen, M. R. Intussusception, fecal impaction, and volvulus produced by injection of pilocarpine, 7119*a*.
**Flory, P. J.** Nitriles, P 2227*h*; condensation polymerization and constitution of condensation polymers, 5003*b*; thermodynamics of crystn. in high polymers (IV) theory of cryst. states and fusion in polymers, copolymers, and their mixts. with diluents, 5254*e*; configuration of real polymer chains, 5262*h*; see Fox, T. G., Jr.; Rehner, J., Jr.; Schaefgen, J. R.
—— and Leuther, F. S. Head-to-head arrangements of structural units in polyvinyl alc., 8340*f*.
—— and Rabjohn, N. Low-temp. vulcanization of rubber, P 5626*h*.
——, Rabjohn, N., and Shaffer, M. C. Dependence of elastic properties of vulcanized rubber on the degree of cross-linking, 8730*i*; dependence of tensile strength of vulcanized rubber on degree of cross-linking, 8730*b*.
**Flory, W. S., Jr.**, and Moore, R. C. Fermate sprays, 1838*c*.
**Flosdorf, E. W.** Desiccating lemon and lime juices, P 5882*b*; desiccating orange juice, P 5882*b*; Freeze-drying (book), 8218*c*.
**Flowers, B. H.** See Batchelor, R.; Harding, G. N.
**Flowers, L. W.** See Flowers, R. G.
**Flowers, R. G.**, and Flowers, L. W. Elec capacitator for high f—
—, Hauser, R. F., and Flowers, L. W Some reactions of *N*-(2-hydroxyalkyl)-carbazoles, 623*i*.
**Flowers, T. E.** Safe handling of HF in a petroleum refinery, 5175*h*.
**Floyd, C.** See Gjessing, E. C.
**Floyd, D. E.** Polyamides, P 3240*f*; addn. of alkylmalonic esters to acrylonitrile, 8357*h*.
**Floyd, J. J.** See Borst, L. B.
—— and Borst, L. B. Energy of β rays from $K^{40}$, 4563*e*.
**Floyd, W. F.** See Chennels, M.
**Fluck, L. A., Jr.** See Lynn, J. E.
**Flück, H.** See Hegnauer, R.
—— and Fehlmann, W. F. Drying of the roots of the official Umbelliferae, 363*a*.
**Flügge, G.** Most favorable wt. of mill sludge, 4987*d*; viscosity measurements of ore suspensions, 8321*g*.
**Flügge, S.** Development of the quantum theory since the foundation of quantum mechanics, 5659*c*; discovery of U fission, 8269*c*.
**Fluharty, R. G.** See Rawson, R. W.
**Fluke, C. L.** Buffalo treehopper adults controlled with DDT, 1144*b*; see O'Neal, E. J.
**Fluke, D.** Comparison of Hg diffusion pumping speed for 5 gases, 446*h*.
**Flur, I. C.** See Hauser, C. R.
**Flury, C.** See Gallusser, G.
**Flury, M.** See Schäffeler, K.
**Flussfisch, M.** Alloy to replace gold-plating in watch making and jewelry, P 8349*a*.
**Flyate, D. M.** See Berkman, E. M.
**Flynn, E. H.** See Brink, N. G.; Kuehl, F. A., Jr.
**Flynn, J. E.** Blood Clotting and Allied Problems (book), 4718*i*.
**Flynn, L. M.** Folic acid, 7151*d*; detn of folic acid, 9370*c*.
**Flynn, R. M.** See Novelli, G. D.
**Foà, P. P.**, Weinstein, H. R., and Kleppel, B. Lipides of the rat brain and liver in choline deficiency, 1842*f*.
——, Weinstein, H. R., and Smith, J. A. Secretion of insulin and of a hyperglycemic substance studied by means of pancreatic-femoral cross-circulation expts., 7145*a*.
**Fock, J. D.** Mill-house and over-all efficiency, 9501*g*.
**Fodor, G.** See Bruckner, V., Foldi, Z.; Kiss, Á.
——, Bruckner, V., Kiss, J., and Óhegyi, G Acyl migration in sepg. diastereoisomeric amino alcs, 6999*d*.
and Kiss, J. Sepn. of diastereoisomeric amino alcs., 4238*b*.
—— and Kovacs, Ö. Synthesis of adrenalinelike compds., 4240*c*.
**Fodor, P. I.** Same as Fodor, P. J.
**Fodor, P. J.** Specific inhibition by Na taurocholate of part of the lipolytic enzyme systems contained in exts. from various organs of the grasshopper, 6676*i*; insect lipases and esterases (II) esterases and lipases of the grasshopper, 6677*c*; specificity of the action of insect lipase, 6677*d*; specificity of the lipases and esterases coutained in the larvae of the silkworm (IV), 6677*g*.
——, Price, V. E., and Greenstein, J. P. Prepn. of L- and D-alanine by enzymic resoln. of acetyl-DL-alanine, 5058*b*; enzymic hydrolysis of satd. and unsatd. tripeptides, 9113*d*.
**Foehr, E. G.**, and Fenske, M. R. Magneto-optic rotation of hydrocarbons, 8838*h*.
**Föhr, F.** Fe tanning with the aid of first run fatty acids from paraffin oxidation and of fatty alc. sulfonates, 6852*d*.
**Förland, T.** See Flood, H.
——, and Weyl, W. A. Distribution of heavy-metal ions in silicates contg. several ions of different size, 8782*c*.
**Förster, S.** Surface hardening, 2557*d*.
**Förster, T.** Quantum theory and chem. bond, 5659*c*; intermol. energy transference and fluorescence, 5667*d*; expts. on intermol. transition of electron excitation energy, 6079*i*; see Kopfermann, H.
**Förvaltning Aktiebolaget Aß.** Microbiol. prepn. of fats, P 9166*h*.
**Foex, G.** Data furnished by magnetism on the state of ionization of metals of the Fe family in compds. contg. a single magnetic constituent, 6018*c*.
**Foëx, M.** Rare earth glasses, 3577*g*; rate of change of the apparent d. of crude light oxides—application to Th oxide, 6494*d*; effect of preliminary thermal treatment on the low-temp. properties of W anhydride, 6533*f*; see Trombe, F.
—— and La Blanchetais, C. H. Antiferromagnetism of NiO, 8222*g*.
**Foffani, A.** See Riccoboni, L.; Semerano, G.
——, Vecchi, E., and Riccoboni, L. Chem. kinetics of autoxidation processes in the dil. phase (III), 8824*d*.
**Foffani, G.** "Colloidoclasia" in anaphylactic shock, 3510*g*.
—— and Berti, T. Medullary blood of cancerous patients, 3510*i*; influence of hematic protein on anaphylactic shock, 8042*c*; proteinemia of peripheral and medullary blood of the aged, 8483*e*.
**Fogel, M. C.** See Offertt, W. C.
**Fogelberg, J. M.** See Tuve, R. L.
**Fogelman, M. J.**, and Ivy, A. C. Effect of thiouracil on liver regeneration, 320*h*.
**Fogel'son, E. I.**, and Mikhailova, E. G. Use of $CrCl_2$ soln. for detn. of O in gases, 4599*i*.
**Fogg, C. C.** See Palmer, E. W.
**Fogg, G. E.** Adhesion of water to the external surfaces of leaves, 1464*h*; growth and heterocyst production in *Anabaena cylindrica* (II) in relation to C and N metabolism, 7091*e*; penetration of 3,5-dinitro-o-cresol into leaves, 9337*c*.
**Fogler, B. B.**, and Marek, L. F. O, P 1160*h*.
**Foglia, V. G.** See Fels, E.
——, Mancini, R. E., and Cardeza, A. F. Glomerular schlerosis of the kidneys of rats made diabetic by subtotal pancreatectomy, 5106*e*.
**Fogo, J. K.**, and Popowsky, M. Conversion of S compds. to $H_2S$ in air, fuel gas, or mixts., 6112*f*; spectrophotometric detn. of $H_2S$, 7375*b*.
**Fogwell, J. W.** Bearing-strength tests on thermoplastics, 4891*i*.
**Fohlen, G. M.**, Huber, W., Laskowski, S. C., and Clinton, R. O. S-contg. amines (VI) antispasmodics, 3395*a*.
**Fok, N. V.**, Bereslavskiĭ, B. B., Nalbandyan, A. B., and Shtern, V. Ya. Hg-sensitized photochem. oxidation of propane, 7825*b*.
—, Gol'danskiĭ, V. I., and Chirkov, N. M. Adsorption of water vapor and of aq. solns. of HCl on mica, 462*h*.
**Fókásy, L.** Control of infection of wheat by *Tilletia* spores, 8085*e*.
**Fokin, N. A.** See Lyubimov, A. P.
**Fokina, N. S.**, and Pitel'man, B. S. Detn. of sugars in tanning substances, 1204*h*.
**Fokina, T. V.**, and Fabrikant, G. L. Elimination of porphyrins in children with eczema, 6300*a*.
**Folch, J.** See Folch-Pi, J.
**Folch-Pi, J.** Complete fractionation of brain cephalin—isolation from it of phosphatidylserine, phosphatidylethanolamine, and diphosphoinositide, 4318*b*; brain diphosphoinositide, a phosphatide having inositol metadiphosphate as a constituent, 4818*f*.
**Folda, B.** Spark-plug thread lubricant, P 4459*f*; aircraft-grease stability study, 5935*h*.
**Foldi, M.** See Zsoldos, I.
—— and Karady, I. K acetate diuresis—excretion of ions and mechanism of diuresis, 2684*f*.
——, Rusznyák, I., and Szabó, G. Passive tubular glucose diffusion, 9226*f*.
—— and Szabó, G. Aglycosuric blood-sugar level in diseased kidneys, 8517*c*.
**Foldi, Michael.** See Magyar, I.
**Foldi, Z.** Hydrazine compds., P 3846*e*; see Chinoin Gyógyszer és Vegyészeti Termékek Gyára R. T. (Dr. Keressty és Dr. Wolf).
——, Fodor, G., and Demjén, I. Synthesis of patulin, 1406*f*.
——, Gerecs, Á., Demjén, I., and Konig, R. Sulfathiazole derivs., P 686*d*.
—— and Kollonitsch, J. Addn. of thiol compds. to the double bond (I) prepn. of tertiary mercapto acids, 1722*f*.
**Foldvári, Aladár.** Postvolcanic Mo traces in the Velence Mountains, 8321*b*.
**Foldvári, Alexander.** See Szalay, T.

**Foldvári, M.** Mo content in rocks of the Velence Mountains, 8321*b*.
**Foldy, L. L.** Multiple scattering with energy loss, 4098*f*; single production of mesons by γ-rays near threshold, 8260*d*.
——— and Marshak, R. E. Production of π-mesons in nucleon-nucleon collisions, 8259*h*.
**Foley, F. B.** Large ingots, 1295*i*.
**Foley, H. M.** See Wu, T.-Y.
**Foley, J. M.** See Denny-Brown, D.
**Foley, J. P.** See Durfee, W. W.
**Foley, L. P.** See Frampton, V. L.
**Foley, R.** See Keller, W. D.
**Foley, R. T.**, and Anderson, R. C. Spectrophotometric studies of complex formation with sulfosalicylic acid (II) with uranyl ion, 5325*b*.
**Folger, H. H.**, Herbolzheimer, F., Stinchfield, R. M., and Jenness, L. C. Spray-drying coeff. for sulfite-waste liquor, 9441*f*.
**Folin, T.** Barking of pulpwood, 3615*e*.
**Folk, B. P.** See Eyzaguirre, C., Lilienthal, J. L., Jr.
**Folkers, E.** See Mozingo, R.
**Folkers, K.** Streptothricin and streptomycin arylazosulfonates, P 3154*g*, unidentified vitamins and growth factors, 4710*f*, see Brink, N. G.; Harris, S. A.; Heyl, D.; Holly, F. W.; Kaczka, E. A.; Koniuszy, F.; Kuehl, F. A., Jr.; Mozingo, R.; Peck, R. L.; Rogers, E. F.; Wolf, D. E. and Koniuszy, F. R. Alkylation of phenolic hydroxyl groups in alkaloids, P 6674*c*.
——, Mozingo, R., and Wolf, D. E. Synthesis of biotin, P 3469*g*.
——— and Wolf, D. E. Synthesis of biotin, P 3469*h*.
**Folkow, B.**, Frost, J., Haeger, K., and Uvnäs, B. Sympathetic vasomotor innervation of the skin, 8503*i*.
———, Frost, J., and Uvnäs, B. Action of acetylcholine, adrenaline, and noradrenaline on the coronary blood flow, 8539*a*.
——— and Uvnäs, B. Chem. transmission of vasoconstrictor impulses to the hind limbs of the dog, 8538*f*.
**Follett, A. E.** Prepn and some properties of hyaluronic acid from umbilical cord, 2301*b*.
**Folley, S. J.** Biochem aspects of mammary gland function, 8496*h*; see Bartlett, S.
——— and French, T. H. Acetate as a possible precursor of ruminant milk fat, esp. the short-chain fatty acids, 4358*f*
——— and Greenbaum, A. L. Effect of adrenalectomy on the arginase levels of liver, mammary gland, and kidney in lactating rats, 3912*d*; detn. of the arginase activities of homogenates of liver and mammary gland—effects of pH and substrate concn. and esp of activation by bivalent metal ions, 4321*i*.
**Folliet, A.**, and Sainderichin, N. Purifying argil, P 1166*b*.
**Follin, L. S.**, and Szilagyi, D. Metabolic changes after total pancreatoduodenectomy, 1470*h*.
**Follis, R. H., Jr.** Failure of glucoascorbic acid in the diet to produce scurvy, 4742*e*; glycogen in rachitic cartilage and its relation to healing, 8038*a*.
**Folsom, R. G.** Jet pumps with liquid drive, 3*c*.
——— and Ferguson, C. K. Jet mixing of two liquids, 1614*e*.
**Folt, V. L.** Interpolymers of vinylidene halides, dialkyl esters of maleic acid, and vinyl esters, P 2818*a*.
**Folsenlogen, R. G.** See Lange, W.
**Fomenko, A. S.**, Miklukhin, G. P., and Sadovnikova, E. A. Claisen rearrangement, 602*i*.
**Fomin, M. A.** Development of a fertilizer industry from K salt deposits of the Carpathian foothills, 2742*h*
**Fonda, G. R.** Constitution of Zn Be silicate phosphors and its effect on their luminous properties, 6084*g*; enigma of multiple band emission, 8277*d*; see Studer, F. J.
——— and Studer, F. J. Optical properties of $ZnF_2$ phosphors, 1669*f*.
**Fondaral, J.** See Dubouloz, P.
**Foner, A.** See Estermann, I.
**Fones, W. S.** See Berenbom, M.
**Fong, J.**, and Krueger, A. P. Effect of NaCl on phage formation by staphylococci at elevated temps., 3064*b*.
**Fongaux, M. I.** Basic problems of industrial hygiene in recovery and treatment of high-S petroleum, 5931*a*.
**Foni, I.** See Tudoranu, G.
**Fonó, C.** See Gero, L.
**Fonseca, P. G. da.** See Guimarães da Fonseca, P.
**Fontaine, M.**, and Callamand, O. Influence of a decrease in salinity on the blood pH of some marine teleostomes, 5507*d*; determination of downstream migration of amphibiotic migratory fishes, 8565*b*.
———, Callamand, O., and Olivereau, M. Hypophysis and euryhalinity of eels, 6321*h*.
**Fontaine, R.**, Chevallier, A., Mandel, P., Wiest, E., and Schuller, M. Phosphatase activity of the long bones during fracture, 1071*i*.
**Fontaine, T. D.** See Ma, R. M.
———, Irving, G. W., Jr., Ma, R. M., Poole, J. B., and Doolittle, S. P. Isolation and partial characterization of cryst. tomatin, an antibiotic agent from the tomato plant, 2280*d*
**Fontana, C. M.** See Gorin, E.
——— and Herold, R. J. Vapor-pressure studies in the system, $AlBr_3$-HBr paraffin hydrocarbon, 1253*e*
——— and Kidder, G. A. Kinetics of the polymerization of propylene with $AlBr_3$-HBr catalyst, 2496*h*
**Fontana, F.** Toxicity of sulfapyridine in assocn. with aspirin and pyramidon, 6731*a*.
**Fontana, F. J.** Kiln for regenerating granular catalyst used in oil cracking, P 8129*i*.
**Fontana, Giuseppe.** Action of emetine on the cornea, 8057*h*.
**Fontana, Guido.** Degumming raw plant fibers, esp. ramie, P 4868*h*.
**Fontana, M. G.** Corrosion, 9015*f*; see McPherson, D. J.
——— and Luce, W. A. Erosion-corrosion of metals and alloys, 5723*c*
**Fontana, P.** See Rolla, M.
**Fontana, W.** See Seppilli, A.
**Fonyo, A.** Pepper condiment, P 2342*b*.
**Food Machinery and Chemical Corp.** Recovery of Cl from HCl, P 4964*h*, powd. $C_2Cl_6$, P 5031*d*; Cl cell, P 6926*d*, free-flowing granular nonsoap product, P 9495*c*
**Food Research Laboratories, Inc.** Protein hydrolysis, P 1880*e*
**Fookson, A.** See Cadwallader, E. A.
——— and Bell, A. D. S compds. in gasoline—their effects on octane no., Pb susceptibility, and engine wear, 383*i*.
**Foord, S. G.** See New, A. A.
**Foot, A. S.** Trends in dairy-milk production, 3941*d*.
**Foot, R.** Characteristics of empire coals bearing on the industrial potential of the empire, 8638*g*.
**Foote, F. M.** Hypophysectomized second-year *Rana clamitans* larvae, 8563*e*.
**Foote, M. W.** See Dickey, H. C.; Little, J. E.; Sproston, T., Jr.
**Foote, R. H.** See Bratton, R. W.
**Foran, M. R.** Chem. engineering labs at Nova Scotia Tech., 5650*d*.
**Forbes, A. P.** See Albright, F.
**Forbes, I., Jr.**, and Ferguson, M. H. Effects of strain differences, seed treatment, and planting depth on seed germination of *Zoysia spp.*, 1079*c*.
**Forbes, I. L.** See Taggart, W. G.
**Forbes, J. C.** Urine I following ingestion of different I preps., 8551*h*.
———, Dillard, G. H. L., Porter, W. B., and Petterson, O. Fractionation of serum cholesterol of chickens, 5841*g*.
**Forbes, R. J.** Short History of the Art of Distillation (book), 5048*g*; standardization and codification of analytical methods, 5693*a*; was Newton an alchemist? 8759*g*.
**Forbes, R. M.**, and Garrigus, W. F. Digestibility and metabolizability of a standard ration of corn and alfalfa and one contg. cottonseed hulls, 7158*e*.
**Forbes, T. R.** See Fraps, R. M.; Hooker, C. W.
———, and Hooker, C. W. Inactivity of bound plasma progesterone, 5472*c*.
**Forbush, S. E.**, Gill, P. S., and Sandoval Vallarta, M. Sudden increases of cosmic radiation assocd. with solar flares, 5282*g*.
**Force, J. R. Ia.** See La Force, J. R.
**Forch, J. H.** Selection of instantaneous gas samples, 8749*f*.
**Ford, C. E.** C and graphite, 8745*c*.
**Ford, C. L.**, and LeMar, L. Detn. of $Al_2O_3$ in portland cement, 4441*i*.
**Ford, D. G.** See Berg, W. F.
**Ford, F. J.** Feeding of premature babies, 8039*b*.
**Ford, H. W.** See Alban, E. K.
**Ford, I. M.** See Robinson Brothers Ltd.
**Ford, J. G.**, and Wenzel, R. N. Lubricants, P 1177*i*.
**Ford, J. H.** See Buc, S. R.; Kilgore, L. B.
———, Nelson, H. A., DeVries, W. H., and Hanson, R. (γ-Chlorocrotylmercapto)-acetic acid and (γ-chlorocrotylmercaptomethyl)penicillin, 575*f*.
**Ford, L. L.** Solvent extractor of vegetable oils, P 884*h*.
**Ford, O. W.** See White, H. K.
**Ford, T. A.** α,α-Dialkyl-β-chloropropionic acids, P 671*g*; copolymers of vinylidene fluoride with $C_2H_4$ and halogenated ethylenes, P 5638*b*, see Coffman, D. D.
———, Jacobson, H. W., and McGrew, F. C. Hydrogenolysis of 2,2,3-trimethyl-1-butanol, 1312*i*.
**Ford, W. D.** Cellular glass, P 7657*a*.
**Ford, W. F.**, and Rees, W. J. CaO-MgO-$Cr_2O_3$ ternary system (I) CaO-$Cr_2O_3$ system, 2110*a*; hydration-expansion app., 2391*b*.
———, Rees, W. J., and White, J. CaO-MgO-$Cr_2O_3$ ternary system (II) expts., 9405*a*.
**Ford, W. L.** Radiological and salinity relations in the water at Bikina atoll, 4129*b*
**Ford, W. W.**, and Thiel, F. D. Low-temp polymerization process, P 2034*h*.
**Fordham, D.** See Stokstad, E. L. R.
**Fordham, J. W. L.**, O'Neill, A. N., and Williams, H. L. Lab. study of German Buna S-3 chem. rubber, 6454*i*.
**Fordham, S.** Calcn. of surface tension from measurements of pendant drops 4064*c*.
——— and Moilliet, J. L. Gelatin dynamite contg. water-sol. salts, P 3619*c*.
**Ford Motor Co.** Enamel compn., P 6838*f*, sol. compds. of chlorophyll, P 7648*a*
**Ford Motor Co. of Canada Ltd.** Heat resisting alloy, P 2922*c*.
**Ford Motor Co. Ltd.** Heat-treatment of steel alloys, P 5729*e*.
———, Waters, P. W., and Shackleton, J. Malleable cast Fe, P 7403*h*.
**Fordyce, C. R.** Improved safety motion picture film support, 511*e*.
——— and Simonsen, D. R. Cellulose ester solns.—evapn. in binary solvent mixts., 1964*h*.
**Fordyce, R. G.**, Chapin, E. C., and Ham, G. E. Copolymerization (V) relative monomer addn. rates in vinyl copolymerization, 3696*f*
——— and Ham, G. E. Copolymerization (VI) mechanism of emulsion polymerization, 8736*g*
**Foreman, E. M.** See Patton, A. R.
**Foreman, R. W.**, and Jackson, W., Jr. Computing infrared spectra for analyses, 7857*h*.
**Forest, T. de.** See De Forest, T.
**Forestier, H.**, Haasser, C., and Longuet-Escard, Mme. J. Reaction in the solid state at low temp.—influence of the state of the surface and of the water vapor adsorbed, 6059*h*.
——— and Kiehl, J. P. Reactions between solid oxides *in vacuum*, 8930*f*.
——— and Nury, G. Variation of the velocity of cementation of Fe at the temp. of the Curie point, 472*d*; speeds of reaction in the vicinity of magnetic transformation points—cementation of Fe, 6018*e*.
**Forge, F. B. Ia.** See La Forge, F. B.
**Forge, M. Ia.** See La Forge, M.
**Forgeng, W. D.** Color metallography, 79*g*, nital mixts., 7229*d*.
**Forgeur, E.** Heating slag in induction and other furnaces, P 3732*i*.
**Forhéncz, M.** See Bitskei, J.
**Forist, A. A.** See Duke, F. R.
**Forland, T.**, and Weyl, W. A. Heavy-metal ions in silicates contg. several ions of different size, 8782*c*.
**Forman, C.** See Ehrich, W. E.
———, Drabkin, D. L., and Ehrich, W. E. Nucleic acids and antibody production by plasma cells, 6262*b*.
**Forman, E. O.** See Henze, H. R.
**Forman, F. G.** Structural features of the Blue Spec Au-Sb mine, Middle Creek, Nullagine district, Pilbara goldfield, 6122*i*; kyanite deposit near Canman S. W. Division, 6125*h*.
**Forman, J.**, and Crisp, D. J. Radio

frequency absorption spectra of solns. of electrolytes, 6081*c*.
**Forman, L. V.** See Kottwitz, F. A.
**Forman, S. A.**, and Peacock, M. A. Crystal structure of rickardite, $Cu_{4}Te_{3}$, 8982*e*
**Forman, S. E.** 5-Diethylamino-2-pentanone, P 668*e*.
**Formisano, M.** Cellulose degradation in soils, 5891*e*.
**Formo, M. W.** See Eckey, E. W.; Nicholsen, R.
**Formosa Monopoly Bureau.** Toluene from terpenes, P 1437*a*.
**Fornachon, J. C. M.** See Vaughn, R. H.
——, Douglas, H. C., and Vaughn, R. H. *Lactobacillus trichodes*, a bacterium causing spoilage in appetizer and dessert wines, 6360*h*.
**Fornaguera, R. O.** See Ortiz Fornaguera, R.
**Fornander, S.** Behavior of O in liquid steel during the refining period in the basic open-hearth furnace, 4989*a*, effect of Mn on the metallurgical reactions in the basic open-hearth process, 6551*f*.
**Fornelli, D.** Ammalization of cellulose fibers, 2425*g*.
**Forney, J. E.** See Raffel, S.
**Forney, W. E.** Metallic soap formation, P 8669*a*.
**Forrer, R.** Appearance of the Sommerfeld fine-structure factor $\alpha$ in the mechanism of interaction in a solid body, 4916*a*, discontinuities in at distances resulting from certain of the electronic interactions, 6030*f*.
**Forrest, H. S.**, Fuller, A. T., and Walker, J. Chemotherapeutic agents of the sulfone type (III) effect of homologation on the antibacterial activity of *p*-(methylsulfonyl)benzamidine and *p*-(methylsulfonyl)benzylamine hydrochloride, 17.39.
—— and Walker, J. Chemotherapeutic agents of the sulfone type (IV), 17.40*f*, (V) 2,5-disubstituted derivs. of pyridine, 2995*d*, condensation of 2,4,5-triamino-6-hydroxypyrimidine with glucose and invert sugar, 7489*a*
**Forrest, J.** See British Drug Houses Ltd.
—— and Tucker, S. H. Condensation of fluorene with acetone (IV.) synthesis of 2,4-dimethylfluoranthene, 3101*e*.
**Forrest, J. L.** Metallic salt track on Ansco 16 mm color film, 7361*a*
**Forrest, R. A.** See Kendrick, A. B.
**Forrester, J. D.** Mining and mineral resources of Missouri, 3749*a*.
**Forró, M.** See Barnóthy, J.
**Forsberg, H.** Paint stripping, 4190*d*.
**Forsberg, J. L.** Evaluating fungicides, 3140*d*, gladiolus corm treatment, 9527*h*.
**Forsch, B. N.** See Forsh, B. N.
**Forschke, J. L.** Palthé senna as an adulterant of Indian senna leaves, 4815*f*
**Forsh, B. N.** Basic parameters of salt flow in open channels, 6764*h*.
**Forssling, S.** Toxicology and pharmacology of hexaethyl tetraphosphate, 2699*g*.
**Forssman, S.**, Gernant, B., and Goldberg, L. Combined action of prolonged exposure to small doses of CO and trichloroethylene, 3934*f*
**Forster, A.** See Simmons, W. H.
**Forster, H. K.** See Fletcher, J. C.
**Forster, J. A. B.** Autogenous roasting of low-grade Zn concentrate in multiple-hearth furnaces, 8999*e*.
**Forster, O.** Decaffeinated coffee, P 5882*i*
**Forster, T. L.** Oxidized flavor in milk and cream, 9281*i*.
**Forster, W. S.** See Lecher, H. Z.; Scalera, M.
**Forstner, G. E.** Metallic contaminants in foods, 323*d*.
**Forsyth, A. C.**, and Carreker, R. P. Fatigue limit of S.A.E. 1095 steel after various heat-treatments, 539*h*.
**Forsyth, W. G. C.** Carbohydrate metabolism in the soil, 337*g*; characterization of humic complexes of soil org. matter, 4808*e*, chemistry of cacao fermentation, 8010*i*.
—— and Webley, D. M. Polysaccharides synthesized by aerobic mesophilic spore-forming bacteria, 9153*j*
**Forsythe, J. D.** See Clark, J. H.; Sutherland, I. H.
**Forsythe, R. H.**, and Foster, J. F. Electrophoretic compn. of egg white, 9110*b*.
**Forsythe, W. L., Jr.**, and Hertwig, W. R. Attrition characteristics of fluid cracking catalysts, 7217*f*.
**Fort, C. A.** Use of ion-exchange resins in demineralizing sugar-beet juices, 6442*i*; see Stout, M.
—— and Byall, S. Uniformity of quality of beet sugars (XXVII) (I) chem. and phys. studies on the beet sugars of the 1947 campaign, 1203*a*.
—— and Stout, M. Comparative compn. of different parts of the sugar beet, 6443*d*.
**Fort, G.**, and McLean, A. Condensation of nitromethane with aldehydes.—derivs. of 1-nitro-3-penten-2-ol, 2926*g*, derivs. of tris(hydroxymethyl)nitromethane, 2935*a*.
**Fortess, F.** Interaction of various org. liquids with cellulose acetate fibers as detected by sp. gr. measurements, 2777*e*.
**Fortier, C.** See Skelton, F. R.
**Fortier, G.** Antidiabetic properties of sumac, 6745*a*.
**Fortina, P.**, and Gagliardi, B. Prothrombinemia in diphtheria, 301*f*
**Fortis, R. C.** See Colon Fortis, R.
**Forton, H. R.** App. for prepg. powd. metals from briquets of Zn, Al, alloys of Al, and metals similar to Al, P 5556
**Fortunato, E. J. G. de.** See Contart de Fortunato, E. J.
**Fortune, I.** See Lyle, C.
**Forward, D. F.** See Duff, G. H.
**Forward, M. V.**, Bowden, S. T., and Jones, W. J. Phys. properties of triphenyl compds. of Group Va elements, 8786*e*
**Foschini, A.** Detection and detn. of stannic salts in the presence of oxalic acid, 8970*b*, examn. of the linseed oil with Wood light, and validity limits of the color reaction of the oil from Plata (Argentina), 9481*a*
—— and Rossi, B. Analysis of the water of Canale di Vito S. Romano, 9303*h*.
**Fosdick, L. S.**, and Blackwell, R. Q. Instrument for quant. one-dimensional paper partition chromatography, 4055*g*
**Fosdik, A. H.** Operating features and practices at the Bethlehem sintering plant, 7388*i*.
**Fosnaess, G.** Briquet for lighting fires, P 8122*b*
**Fosnot, R. H.**, and Haman, R. W. Detn. of malt syrup d.—application of the Brabender recording viscometer to syrup densimetry, 1525*h*.
**Foss, B.** Anaphylactic iridocyclitis, 5109*a*.
**Foss, G. L.** Effects of an acute toxic substance formed by soln. of methylbis(2-chloroethyl)amine in water after injection in animals, 5113*f*
**Foss, M. E.** See Gibson, C. S.
**Foss, O.** Interrelation between monoselenopolythionates, 7855*f*; see LaMer, V. K.
**Fossan, K.**, and Ronold, O. A. Examn. of oils for the Norwegian canning industry, 8069*e*.
**Fosse, E. L.** Exploration of the Cu-S deposit, Khayyam and Stumble-On Properties, Prince of Wales Island, Alaska, 2131*a*, see Holt, S. P.
**Fossel, M.** Urease of human gastric mucosa, 9111*i*
**Foster, A. G.** Pore size and pore distribution, 1240*c*.
**Foster, A. L.** Synthetic glycerol plant goes on stream, 128*e*, TXL plant conserves 50 million cu. ft. of gas, 2412*d*; gas conserved to make chemicals, 3993*c*; refining technology ready for demand, 5575*d*; styrene plant, 6462*g*.
**Foster, B. H.** Elastic fabrics, P 1194*g*.
**Foster, C.** See Jones, James H.
——, Jones, J. H., Henle, W., and Brenner, S. A. Nutrition and poliomyelitis—effects of deficiencies of P, Ca, and vitamin D on the response of mice to the poliomyelitis virus, 9188*g*.
**Foster, C. A.** See Solomon, A. K.
**Foster, D. B.** B.C.U.R.A. transport producer—road tests, 1547*h*, see Bennett, I. G.
**Foster, G. E.** See Dewing, T.
—— and Stewart, G. A. Stability of ergometrine preps.—chem. and biol. studies, 1148*i*.
**Foster, Harry D.** Lightweight aggregates, P 9410*i*
**Foster, Henry D.** See Cairns, T. L.
**Foster, H. G.** See Lear, S. A.
**Foster, John F.** See Reid, W. T.
—— and Vorum, D. A. Water-gas reaction, 378*g*.
**Foster, Joseph F.** Phys.-chem. study of zein in aq. detergent solns., 3690*e*; see Forsythe, R. H.
—— and Lepow, I. H. Streaming birefringence of amylose solns., 3221*g*.
**Foster, J. V.** See Shetlar, M. R.
**Foster, J. W.** Penicillin producing culture, P 2278*f*; Chem. Activities of Fungi (book), 5820*c*; see Schubardt, V. T.
—— and Davis, H. Detection and occurrence of acid-producing fungi, 7077*f*.
—— and Davis, J. B. Anaerobic formation of fumaric acid by the mold *Rhizopus nigricans*, 272*j*, $CO_2$ inhibition of anaerobic fumarate formation in the mold *Rhizopus nigricans*, 9140*e*.
—— and Heiligman, F. Mineral deficiency in complex org. media as limiting factors in the sporulation of aerobic bacilli, 7082*d*, biochem. factors influencing sporulation in a strain of *Bacillus cereus*, 7082*g*
**Foster, L. S.** Periodic table and arrangement of the extranuclear electrons, 6014*h*.
**Foster, L. V.** Microscope optics, 6005*f*.
**Foster, N. C.** Isotropic polymers, P 1607*g*, styrene copolymer solvent-reactive finishes, 2411*e*
—, Hill, L. R., Runk, R. H., and Schulman, L. L. Insulation for elec. app., P 8075*d*
**Foster, P. F.** Mech. Testing of Metals and Alloys (book), 6502*a*
**Foster, R. A. C.** Analysis of the action of proflavine on bacteriophage growth, 2277*b*
**Foster, R. E.**, and Schreiber, R. S. Cyclooctadienes from dienes, 590*f*.
**Foster, R. H. K.** Assay of heparin (III) measurement of the end point—influence of surface on clotting, 9372*e*.
**Foster, R. J.** See Cowan, J. C.
**Foster, R. T.**, Bennett, N., and Imperial Chemical Industries Ltd. Chlorinated org. compds. P 7035*b*, chlorinated phenoxy compds., P 7045*b*.
—— and Imperial Chemical Industries Ltd. Phenoxyalkylcarboxylic compds., P 689*e*; (chloroaryloxy)alkanecarboxylic compds., P 2234*a*; chlorocresol derivs., P 7044*g*; chlorocresols, P 7045*a*
—— Robertson, A., Bushra, A., MacKenzie, J. B. D., and Healey, T. V. Furano compds. (VII) synthesis of 2,3-dihydrospiroalene, 3112*b*
**Foster, W. C.** See McClendon, J. F.
**Foster, W. R.** Fluorescence of accessory-mineral-zircon, 8986*b*.
—— and Royal, H. E. Intermediate compd. in the system $BeO.Al_2O_3$–$Al_2O_3$, 2535*d*
**Foter, M. J.** See Quisno, R. A.
**Fouache, H.** Treatment of steam power plant circulating water—vaccination, 1887*d*.
**Fouasson, F.** Telluric acid, 2534*e*.
**Foucar, F. H.**, Gordon, B. S., and Kaye, S. Death following ingestion of ferrous sulfate, 2326*b*.
**Fouché, P.** See Butenandt, A.
**Foucher, J.** See Darrasjean, R.
**Fouinat, F.** Decompn. of $H_2O_2$ by $KMnO_4$—effect of the concn., 8250*c*.
**Foulds, L.** Induction of tumors in mice of the Ra strain by 2-acetylaminofluorene, 306*i*
**Foulke, D. G.** Analysis of electroplating baths, 8903*i*.
**Foulkes, E. C.**, and Lemberg, R. Inhibition of catalase by ascorbic acid, 1449*b*.
**Foulkrod, G. M.** See Keener, H. A.
**Foulks, J.** See Mudge, G. H.
**Foulon, A.** Paint binders, 3627*h*.
**Found, C. G.**, and Winninghoff, W. J. Comparison of A and Kr as a filling gas in fluorescent lamps, 3299*a*.
**Foundry Services, Ltd.** Degasification and grain refining of Mg, P 3340*f*.
**Fountain, H. C.** See Weissenborn, A. E.
**Fouquet, R.** Mg and its ores, 3325*a*.
**Foureau, P.** Agglomeration of coal fines with tar pitch, 3594*b*
**Fourmarier, P., Jr.** Properties of the elec. arc, 954*c*.
**Fourneau, E.** Aspects of chemotherapy, 3147*a*.
—— and Janot, M. M. Curare (II) curares and curarizing substances, 9378*c*.
—— and Tréfouel, J. Monamide derivs. of 4,4′-diaminodiphenyl sulfone, P 5041*i*.
**Fournet, G.** See Dervichian, D. G.
**Fournier, A.** See Duron, P.
**Fournier, M.**, and Thiesse, X. Mixts. of chlorinated biphenyl and of tritolyl phosphate in the plasticization of polyvinyl chlorides, 4366*b*.
**Fournier, P.** Assay of the constituents of plant membranes, 1455*a*; Plantes médicinales et vénéneuses de France (book),

3151*c*, 5908*i*; analysis of wheat bran by different methods, 3532*f*; influence of the method used for the detn. of constituents of wheat membranes for the evaluation of their rate of intestinal degradation, 3902*d*.
**Fouts, E. L.**, and Freeman, T. R. Dairy Manufg. Processes (book), 4396*f*.
**Fowden, L.** See De la Mare, P. B. D.
**Fowell, D. M.**, Winslow, J. A., Sydenstricker, V. P., and Wheeler, N. C. Circulatory and diuretic effects of theophylline isopropanolamine, 4383*e*.
**Fowler, C. M.** See Cork, J. M.
**Fowler, E. C.** See Cool, R. L.
**Fowler, G. B.** Cellulosic products, sizing paper, and producing a precipitable paper-sizing material, P 4014*d*.
**Fowler, J. L.** See Curtis, B. R.; Erickson, K. W.
**Fowler, J. L. A.** See Clarke, A. P. W.
**Fowler, P. H.** See Brown, R.
**Fowler, R. C.** Infrared gas analyzer, 5066*f*
**Fowler, R. D.** See Andrews, D. H.
**Fowler, R. T.** Evolution of the equil. still—obtaining equil. samples of liquid and vapor (I), (II), 1615*h*, modified vapor-liquid equil. still, 6871*c*.
**Fowler, W. A.** See Thomas, R. G.; Tollestrup, A. V.
——— and Lauritsen, C. C. γ Radiation from light nuclei under proton bombardment, 8860*g*.
**Fowler, W. B.** See Cool, R. L.
**Fowler, W. F., Jr.** See Kenyon, W. O.
——— and Kenyon, W. O. Polyvinyl carbamates, P 4898*d*.
**Fowler, W. M.** See Barer, A. P.
**Fowles, G. R.** Hyperfine structure of $Te^{125}$, 8880*b*.
**Fox, A. H.** See Smith, E. S. C.
**Fox, A. L.** Phthalocyaninesulfonic acid hydrazides, P 4487*h*, phthalocyanine heterocyclic sulfonamides, P 8692*h*.
**Fox, C. S.**, and Misra, C. V. Indian minerals, ores, etc., for industrial purposes, 5256.
**Fox, D.** See Gershenfeld, L.
**Fox, D. L.**, Crane, S. C., and McConnaughey, B. H. Biochem. study of the marine annelid worm, 5123*c*.
**Fox, E. J.** See Hill, W. L.
**Fox, F. A.**, and Emley, E. F. Flux for Mg, P 4209*e*.
**Fox, H.**, Diedrich, P., and Dohrn, M. Derivs. of sulfonic acid amides, P 8399*i*
**Fox, H. H.** Arsenicals (II) derivs. of $N^1$ (*p*-arsonobenzyl)sulfanilamide, 176*a*, 2,3,-4,5-tetraacetyladonitol and 1-chloro-1-desoxy - 2,3,4,5 - tetraacetyladonitol, 571*c*.
——— and Wenner, W. Arsenoso compds., P 4694*g*; arsono compds., P 5011*a*
**Fox, H. J.** Absorption of unemulsified and emulsified vitamin A in sprue, 9189*i*.
**Fox, H. M.** Blood pigments, 3914*e*.
**Fox, I.** DDT to control house mice in buildings, 1524*c*.
**Fox, J.** British lignite production, 4415*d*
**Fox, J. P.** See Ris, Hans.
**Fox, M.** See Borst, L. B.
**Fox, R. E.** See Langer, A.
**Fox, S. H.** See Capps, B. F.
**Fox, S. W.** See Minard, F. N.
**Fox, T. G., Jr.**, and Flory, P. J. Intrinsic viscosity-mol. wt. relations for polyisobutylene, 4927*d*.
**Fox, V. W.**, Hendricks, J. G., and Ratti, H. J. Degradation and stabilization of polyvinyl chloride, 8737*g*.
**Fox, W. B.** See Arnason, A. P.
**Foxboro, Co.** Sp. gr. and liquid level indicator, P 3248*i*.
**Foxwell, G. E.** Carbonizing industries after nationalization, 1549*g*; power production from at. energy, 2856*i*; pressures developed during carbonization, 4443*i*; destructive distn., tar, and tar products, 4788*i*.
**Foye, W. O.** See Campaigne, E. E.
**Fos, O. R.** See Foz Gazulla, O. R.
**Fos Gazulla, O. R.**, Colomina, M., and García de la Banda, J. F. Variations of the thermal cond. of the vapors of MeOH, EtOH, $C_6H_6$, and $H_2O$ with pressure (I) exptl. results, 4553*b*.
———, Vidal, J. M., and Morcillo, J. Detn. of the virial coeffs. of vapors of approx. atm. pressure, 7280*c*.
**Fraas, F.**, and Ralston, O. C. Electrostatic sepn. of several industrial minerals, 979*e*.
**Fracasso, A.** See Salvini, M.
**Fracasso, G.** Ethers of 2-amino-4-nitrophenol, 8099*a*.
**Fracchia, P.** See Piontelli, R.
**Fradà, G.** See Cioglia, L.
——— and Sicari, S. Uricemia and temporal application of short waves, 704*b*.
**Fradkin, R.** See Schmidt, L. H.
**Fradkina, E. M.** See Frenkel, Ya. I.
**Fraenkel-Conrat, H.** See Lineweaver, H.; Olcott, H. S.
———, Bean, R. S., and Lineweaver, H. Essential groups for the interaction of ovomucoid and trypsin, and for tryptic activity, 7107*f*.
——— and Mecham, D. K. Reaction of formaldehyde with proteins (VII) demonstration of intermol. cross-linking by means of osmotic-pressure measurements, 3481*i*.
——— and Olcott, H. S. Isocyanate derivs. of proteins, P 3241*d*.
**Fraenkel-Conrat, J.**, and Li, C. H. Hormonal effects on the nucleic acid and phospholipide turnover of rat liver and thymus, 8493*g*.
**Frágner, P.** Antibacterial substance from *Inoloma tragamum*, 5444*a*.
**Fram Corp.** Cell type filter for oil composed of stacked and identical cardboard elements, P 2048*b*; filter cartridge for use in the bypass or shunt system of an oil filter, P 3249*f*
**Frame, B.** See Hall, C. A.
**Frame, G. F.** See Allen, C. F. H.
**Frampton, V. L.**, Edwards, J. D., Jr., and Henze, H. R. Ultraviolet absorption spectrum of gossypol, 1408*e*.
———, Foley, L. P., and Webber, H. H. Photolysis or cotton cellulose (I) production of $CO_2$ on irradiation of cellulose with intense ultraviolet light, 1563*c*
**França, J. M.** See Mendes França, J.
**França Carreiro, C.** Na bismuthyl tartrate soln., 8610*g*.
**Franc de Ferrière, P. J. J.** See Ferrière, P. J. F. de
**France, B.** Mineral position of ECA nations (IV) France, 3118*g*
**France, W. G.** See Brown, Ray K.; Laws, W. D.
**Franceschi, R.** Drying hides with infra red rays, 9505*h*.
**Francescon, M.** Nicotinic acid and pulmonary circulation, 3519*e*; testing for glucose in urine—methylene blue test, 7993*b*
**Franch, M. R. de.** See Rotilant de Franch, M.
**Franchi, F. A. R.** Polishing of sheet Fe, P 2153*b*.
**Franchi, G.**, and Risolo, A. Induced bilirubinemia and the excretion of oxysantonine as related to hepatic pathology, 8537*e*.
**Francia, G. T. di.** See Di Francia, G. T.
**Francis, A. W.** Liquid-phase alkylation of aromatic hydrocarbons, 1019*b*, sepn. of olefins, P 4283*g*
——— and Schlesman, C. H. Alkyl benzenes, P 1175*c*.
**Francis, C. B.** Ferric alums from $FeSO_4$ solns., P 826*c*.
**Francis, C. S., Jr.** Feltlike products, P 3208*e*; shaped felted structures, P 3208*f*.
**Francis, D. H.**, and Sontag, H. R. Factors affecting the polymerization of GR-S, 1209*f*, 5986*h*.
**Francis, G. E.** See Banks, T. E.
**Francis, H. E.** See LeBrasse, G. J.
**Francis, J.** See Fishburn, A. G.; Herreid, E. O.
———, Madinaveitia, J., Nacturk, H. M., and Snow, G. A. Isolation from acid-fast bacteria of a growth-factor for *Mycobacterium johnei* and of a precursor of phthiocol, 6273*f*.
**Francis, J. E., Jr.** See DeBenedetti, S.; McGowan, F. K.
**Francis, K. G.** Cryst. vinylidene chloride polymer tubing whose walls do not cohere, P 8209*i*.
**Francis, T., Jr.**, and Brown, G. C. Evaluation of the effect of darvisul on infection with SK strain of virus, 5496*i*.
**Francis, V. J.** Theory of the high-pressure Hg-vapor discharge, 7319*g*.
——— and Isaacs, G. G. Phenomenon in the high-pressure Hg-vapor discharge, 3279*e*.
**Francis-Boeuf, C.** O adsorption of estuary muds, 916*c*; physicochem. factors of estuarian water and the interpretation of tropisms during the migration of eels, 5126*c*.
**Franciscis, P. de.** See De Franciscis, P.
**Franciscis, V. de.** See De-Franciscis, V.
**Francisco, A. C.** See Richmond, J. C.
**Franck, H. H.**, and Wallouch, R. Prepn. of Mg by reduction of MgO with $CaC_2$, 5685*h*.
**Franck, J.** Measurements of the photosynthetic quantum yields and related phenomena, 9168*i*.
——— and Livingston, R. Intra- and intermol. migration of excitation energy, 8841*i*
——— and Loomis, W. E. Photosynthesis in Plants (book), 3496*b*.
——— and Sponer, H. Comparison between predissocn. and internal conversion in polyat. mols., 2511*d*.
**Franck, J. V.** See Baker, W. R.
**Franco, R. R.** See Ribeiro Franco, R.
**François, A.** Calcn. of the forage value of a composite nutrient, 8575*a*.
**François, F.** See Delwaulle, M. L.
**François, M. T.** Detn. of humidity in oil seeds, 8708*b*.
——— and Bourguignon, Mme. J. I values of drying oils, 1992*h*.
——— and Régent, M. Detn. of the fusion point of food fats, 6327*g*.
——— and Sergent, A. Conservation of raw tallow, 8177*e*.
**François, R.** Reclaiming the waste products of palm oil refineries, 3634*i*, Contribution à l'étude de la pyrolyse des matières oléagineuses (book), 5928*a*.
**Francombe, K. W.**, and Grant, A. G. Selection and design of gas-condensing plant, 5172*d*.
**Franeau, J.** See Birnbaum, G.
**Frangi, P.** See Vacirca, F.
**Frank, C. E.**, Hallowell, A. T., Theobald, C. W., and Vaala, G. T. Reactions of CO and $SO_2$ with polychlorinated methanes, 9031*c*.
**Frank, E.** Pathologie des Kohlenhydratstoffwechsels (book), 5465*g*.
**Frank, Friedel.** See Hunt, A.
**Frank, Fritz**, Aspro Ltd., and British Artificial Resin Co. Ltd. Condensation products from thiocyanates with HCHO, 9527*g*.
**Frank, F. C.** Isotopic-abundance rule and its bearing on the origin of the nuclei, 3708*f*, comparison of Debye's and Onsager's theories of the dielec. consts. of concd. polar media, 6018*g*, math. model representing polar mols. in crystal, 8770*f*; see Burton, W. K.
**Frank, Frederick C.** Monoesters of the diacetic acid, P 6221*d*.
**Frank, H.** See Minot, A. S.
**Frank, H. A.** See Seligman, A. M.
**Frank, H. P.** See Breitenbach, J. W.
**Frank, H. R.**, Fanta, P. E., and Tarbell, D. S. Structure of colchicine—synthesis in the biphenyl series, 190*c*.
**Frank, I.** See Weygand, F.
**Frank, I. M.** See Groshev, L. V.; Vavilov, O. N.
——— and Shapiro, I. S. Horizontal component of cosmic radiation at sea level, 5661*i*
**Frank, M.** Technically important properties of natural building stones, 2396*b*.
**Frank, N. H.** See Twiss, R. Q.
**Frank, Robert.** Calcification and structure of tooth crown dentine in man, 4357*d*.
**Frank, Rudolf.** See Böhme, H.
**Frank, R. H.** Effect of time of heat on slag wt. in the elec. furnace, 1267*i*.
——— and Renner, R. W. Supersonic reflectoscope, 7390*b*.
**Frank, R. L.**, and Blegen, J. R. Benzoyl disulfide, 1741*b*.
——— and McGeachin, R. L. AcOH as an irritant in pyrethrum exts., 8002*f*.
——— and McPherson, J. B., Jr. Decarboxylation and cyclization reactions of some pimelic acid derivs., 6578*e*.
——— and Smith, P. V. 1-Phenylthiourea, 1734*h*.
——— and Weatherbee, C. Pyridines (III) 3-butylpyridine and an unusual alkylation in its synthesis, 643*c*.
**Frank, S.** See Gellhorn, E.; Lipschitz, R.
**Frank, T. M.** See Dernehl, C. U.
**Frank, V. S.** See Sheehan, J. C.
**Frankau, A. M.** See Diamond, E. L.
**Franke, I.**, and Longchamp, M. H. de. Production of artificial quartz crystals, 6026*h*.
**Franke, K.** Effect of therapeutic treatments on N metabolism, 8497*a*.
——— and Ahlheim, H. Hippuric acid test in lipophile dystrophia, 3055*d*.

**Franke, N. W.** See Hou, H. L.
**Franke, W.** See Freimann, J.
——, Lee, L.-T., and Siewerdt-Kibat, D. Metabolism of acid fast bacteria (II) behavior of unsatd. fatty acids, 5082*h*.
—— and Mönch, J. Autoxidation of unsatd. fat acids (IV), 125*f*; D as indicator (II) biochem hydrogenation of fumaric acid with D, 4727*a*.
——, Mönch, J., Siewerdt-Kibat, D., and Hamm, A. Autoxidation of unsatd fat acids (V) effect of soybean lipoxidase, 1440*d*.
——, Rügge, H., Gäbelein, K. Dehydrogenation of fatty acids (I) oleic acid formation from stearic acid, 2940*f*.
**Frankel, J.** See Waksman, S. A.
**Frankel, J. J.** South African Su-extn. problems—low-grade concentrates, 979*b*; crystals of artificial cassiterite, 6031*g*; dickite from the Witwatersrand gold mines, 6121*e*.
**Frankel, M.** See Baniel, A., Bassett, E. A.; Katchalski, E.
—— and Berger, A. Synthesis of polyaspartic acid, 4642*f*.
**Frankel, R.** See Henry, J. P.
**Frankel, S.** See Roberts, Eugene.
**Frankenburg, W. G.**, and Gottsabo, A. M. Myosmine in cigar tobacco, 9383*b*; nicotinic acid in processed cigar tobacco, 9382*b*.
——, Komarewsky, V. I., and Rideal, E. K. Advances in Catalysis. Vol. I. (book), 2084*c*.
**Frankenfeld, J. C.** See Cotton, R. T.
**Frankenhoff, C. A.** Clarification of water supplies, P 5522*e*, water-purifying filter aid, P 5522*f*.
**Frank-Kamenetskij, D. A.** See Frank-Kamenetskii, D. A.
**Frank-Kamenetskii, D. A.** Diffusion and Heat Transfer in Chem. Kinetics (book), 7808*e*, see Urusovskaya, L. G., Zel'dovich, Ya. B.
**Franklin, A. L.** See Hoffmann, C. E.; Hutner, S. H.; Stokstad, E. L. R.
——, Belt, M., Stokstad, E. L. R., and Jukes, T. H. Biol. studies with 4-amino-10-methylpteroylglutamic acid, 3895*g*.
**Franklin, D. F.** Hormone sprays to facilitate bolting and seed production of hard-headed lettuce varieties, 1893*d*.
**Franklin, J. L.** Prediction of heat and free energies of org. compds., 5658*c*; see Chamberlin, N. F.
**Franklin, J. N.** Instrumentation of the groundwood pulping process, 2773*h*.
**Franklin, L. U.**, and Plumhoff, C. F. Isomerization of normal butane, P 1561*b*.
**Franklin, M. C.** See Reid, R. L.
**Franklin, R. E.** Colloidal structure of coke 5172*f*; fine structure of carbonaceous solids by measurements of true and apparent ds (I) coals, 5053*f*; (II) carbonized coals, 9412*d*.
**Franklin, R. G.** See Agnew, J. T.
**Franklin, Reginald G.**, Bury, C. R., and Imperial Chemical Industries Ltd. Improvements in and relating to superphosphates, P 1137*a*.
**Franklin, W.** See Ingelfinger, F. J.; Schiller, I. W.
**Franklin, W. B.** See Fisher, E. J.
**Fransen, J. J.** Susceptibility of the Colorado beetle for different insecticides, 5146*f*.
**Franssen, H.** Structures of hard metal alloys, 1297*h*; importance of the magnetic characteristics for the evaluation of hard metal alloys, 1297*i*.
**Frantz, M. J.**, and Kirschbaum, A. Androgenic secretion by tumors of the adrenal cortex, 1478*i*, 5855*h*.
**Franza, C.** See Fidanza, F.
**Franzen, A. E.** Use of the Viscorator for plant viscosity control, 3183*d*, 5178*g*.
**Franzen, W.**, Halpern, J., and Stephens, W. E. Ionization measurements of $He^4$ $(n,p)$ and $N^{14}$ $(n,p)$ and the neutron-H mass difference, 8865*f*.
**Franzini, T.** Tavole di fisica nucleare (book), 2870*e*; cross section on fission of Hg and Tl, 7814*d*.
**Frappa, C.** Analysis of Madagascar soils, 1509*h*.
**Frapric, F. R.** Preservation of daguerreotypes, 1276*g*.
**Fraps, G. S.** See Whitacre, J.
**Fraps, R. M.** See Rothchild, I.
——, Hooker, C. W., and Forbes, T. R. Progesterone in blood of cocks and ovulatin
, F. C.
**Frascarelli, R.**, and Buttaro, C. A. Influence of acidifying and alkalizing substances on the metabolism, 317*h*.
—— and Mescolini, G. Thymus and uric acid metabolism, 2323*d*, does a relation exist between the pineal gland and the uric acid metabolism? 9201*d*.
**Frasch, J.** Protection of metallic objects by galvanic action, P 3734*d*
**Fraschina, K.** Suspended solids detn., 8582*d*.
**Fraser, D.** See Johnson, F. H.
**Fraser, F. C.** See Browning, H. C.
**Fraser, G. K.** Microörganisms in relation to the production and degradation of soil org. matter, 6350*b*.
**Fraser, H. M.** Lubricating greases, P 1960*e*.
**Fraser, J. B.** See Evans, R. M.
**Fraser, L. H. D.** Heat-insulating materials, P 5918*e*.
**Fraser, R.** See Arnott, D. G.
**Fraser, R. L.** Sulfite screening of Ste. Anne (Paper Co.), 7684*i*.
**Fraser, W. R.**, and Resnick, I. World's largest LP-gas plant, 836*b*
**Fratini, L.** Electrolytic cell for Cl and NaOH manuf., P 8289*d*.
**Fratoni, A.** See Fabriani, G., Granati, A.
**Frauenschill, H.**, and Halla, F. Activities in the ternary liquid system Na-Cd-Hg, 8253*d*.
**Fraser, A. C.** Digestion and absorption of fat, 9197*h*; lipoproteins, 9090*h*.
**Fraslef, E. I.**, Porter, T., and Humphrey, M. J. Utilization of nicotinic acid by pregnant women, 5832*f*.
**Frazier, H. D.** See Riesenfeld, F. C.
**Frazier, L. E.** See Wissler, R. W.
**Frazier, R.** App. for collecting halogenated hydrocarbons, 6869*e*.
**Frear, C. L.** Effect of gases on Sn bronze, 532*h*, (II), 3763*a*.
**Frear, D. E. H.** Chemistry of Insecticides, Fungicides, and Herbicides (book), 4804*e*.
——, Anthony, R. D., Haskins, A. L., and Hewetson, F. N. K content of various parts of the peach tree and their correlation with K fertilization, 9173*f*.
——, Hilborn, M. T., and Prince, A. E. Pest-control materials—fungicides, herbicides, insecticides, and rodenticides—trade names, companies, uses, and active ingredients, 2725*d*.
**Freas, G. L.** See Grove, G. W.
**Frechen, J.** Genesis of the olivine phenocrysts of Dreiser Weiher (Eifel) and Finkenberg (Siebengebirge), 7873*h*.
**Freck, S. B.** Protective coatings have their own protection, 875*i*.
**Fred, M.** See Tomkins, F. S.
——, Tomkins, F. S., and Brody, J. K. Isotope shift in the He spectrum, 6917*e*.
**Fred, R. B.**, and Knight, S. G. Reduction of 2,3,5-triphenyltetrazolium chloride by *Penicillium chrysogenum*, 6281*i*.
**Fredenhagen, M.** See Scheele, W.
**Frederick, B. F.** See Fitzhugh, R. R.
**Frederick, M. R.** See McBee, E. T.
**Frederickson, F. T.** See Zasada, Z. A.
**Frédéricq, E.**, and Linderstrøm-Lang, K. Soly. of plakalbumin in $NH_4(SO_4)_2$ solns., 4717*f*.
**Fredericq, P.** Destruction of colicins by bacterial proteinases, 1455*i*; production of antibiotic substances by certain strains of *Shigella*, 1455*i*; mutual antibiotic action among the Enterobacteriaceae—relation between the biochem. characteristics of cultures of Enterobacteriaceae and the type of colicin produced, 1456*a*; spontaneous appearance of mutants resistant to colicins—independence of the mutations involving antibiotic receptors among the Enterobacteriaceae—independence of mutations of *Shigella sonnei*, 4330*h*.
—— and Betz-Bareau, M. Distinctive characteristics of *Escherichia freundii* isolated from urine of typhoid patients, 5444*f*.
**Fredette, V.** See Demers, P.
**Fredga, A.** Resolution of benzylsuccinic acid into the optical antipodes, 1747*d*.
—— and Palm, O. Optically active thiophene compds. (I) 2-thenylsuccinic acid, 6611*b*.
**Frediani, H. A.** See Colon, A. A.; Dobran, J.; Mader, W. J.; Neuss, J. D.; Szalkowski, C. R.
**Freed, B.**, and Hibbert, D. Decolorization of sugar juices, 887*b*.
**Freed, S.**, and Hochanadel, C. J. Solns. of salts fluid at the temp. of liquid N spectra of solns. of rare earths, 8881*a*.
—— and Leits, F. J., Jr. Absorption spectra of transuranic salts in crystals, 8889*h*.
**Freed, W. V.** Polymerization of olefins in the presence of alkali and alk. earth metal catalysts, P 5640*g*.
**Freedberg, A. S.**, Ureles, A., and Hertz, S. Serum level of protein bound radioactive $I^{131}$ in the diagnosis of hyperthyroidism, 5851*a*.
**Freedlander, B. L.** See French, F. A.
—— and French, F. A. Derivs of diaminodiphenyl sulfone and heterocyclic sulfones in exptl tuberculosis, 3518*c*.
**Freedman, A. M.**, Bales, P. D., Willis, A., and Himwich, H. E. Production of elec. major convulsive patterns, 5122*e*; biochem. analysis of grand mal type of elec pattern produced by diisopropyl fluophosphate, 9262*f*.
—— and Himwich, H. E. Diisopropyl fluophosphate—site of injection and variation in response, 5122*g*.
——, Willis, A., and Himwich, H. E. Correlation between signs of toxicity and cholinesterase level of brain and blood during recovery from diisopropyl fluophosphate poisoning, 6743*i*.
**Freedman, L. D.**, and Doak, G. O. Prepn. of phenylarsenoxides (X) arsenoso derivs. of phenyl-substituted fatty acids, 4237*a*.
**Freeland, R. O.** Photosynthesis in relation to stomatal frequency and distribution, 283*i*.
**Freeman, G. G.**, and Morrison, R. I. Biol. properties of trichothecin, an antifungal substance from *Trichothecium roseum*, 4328*i*; isolation and chem properties of trichothecin an antifungal substance from *Trichothecium roseum*, 6277*h*.
**Freeman, H.** See Pincus, G.
—— and Zaborenke, R. N. Relation of changes in carbohydrate metabolism to psychotic states, 9234*b*.
**Freeman, H. G.** Elektrotechnisches Englisch (book), 6525*i*.
**Freeman, I. M.** Modern Introductory Physics (book), 2856*d*.
**Freeman, J. G.** Ascorbo-salicylate double salts, P 1914*e*.
**Freeman, J. H.**, and McNabb, W. M. Detn. of As in the presence of Sb, Bi, Sn, and Pb, 1281*h*
**Freeman, J. M.** See Burcham, W. E.
—— and Baxter, A. S. Short-range $\alpha$-particles from the disintegration of Na, Al, and F by protons, 3284*g*.
**Freeman, J. R., Jr.**, and Tracy, A. W. Comparative corrosion resistance of some Cu alloy condenser tubes, 7398*i*.
**Freeman, J. W.** See Cross, H. C.
—— and Cross, H. C. NACA and Office of Naval Research metallurgical investigation of two large forged disks of S-590 alloy, 3330*i*.
**Freeman, K. A.** Identification of certain coal-tar colors used in cosmetics, 6364*c*; pure dye in lakes and pigments, 7231*f*, 9452*d*.
—— and Harrow, L. S. Detg. the boiling range of pseudocumidine in FD&C Red No. 1, 7231*b*.
**Freeman, L.** Cane shredding, 9503*h*.
**Freeman, M. E.** See Elster, S. K.
——, Anderson, P. R., Oberg, M., and Dorfman, A. Prepn. of purified hyaluronidase from bovine testes, 9137*e*.
——, Whitney, R., and Dorfman, A. Mg and hyaluronidase inhibitor of blood serum, 4711*a*.
**Freeman, M. F., Jr.** See Kaye, E.
**Freeman, M. R.** Clean plant seldom burns, 870*a*.
**Freeman, M. W.** Lubricating-oil compn., P 9431*h*.
**Freeman, N. E.**, and McCullen, B. V. Sepn. of bromides, chlorides, and iodides in drugs, 7640*a*.
**Freeman, N. K.** See Beckett, C. W.
**Freeman, P. R.** See Ward, A. G.
**Freeman, S. E.** Modern paint plant, 1991*b*.
**Freeman, S. M.**, and Weissenberg, K. Rheological phenomena and their significance for the constitution of materials, 19*d*.
**Freeman, T. R.** See Fouts, E. L.
**Freeman, W. A.** See Wien, R.
**Freese, H. B.** See Hambourger, W. E.
**Frei, J.**, and Leuthardt, F. Biol. synthesis of glutamine, 7103*c*.
**Freidlin, L. Kh.**, Balandin, A. A., and Nazarova, N. M. Cleavage of the ether link in simple ethers of phenol (I) low-temp. decompn. of anisole and phenetole in sealed tubes, 5759*a*.
**Freidlina, R. Kh.** See Nesmeyanov, A. N. —— and Kan, E. I. Organo-Hg compds.

(XLI) reaction of CO with Hg salts in amine media, 2111*b*.
**Freier, E. F.**, and Larson, E. A. Micro-adapter for the Evelyn macrocolorimeter, 4719*b*
**Freier, G.** See Blair, J. M.
——, Lampi, E. E., Sleator, W., Jr., and Williams, J. H. Angular distribution of 1 to 3.5-m.e.v. protons scattered by $He^4$, 5293*i*
——, Lampi, E. E., and Williams, J. H. Neutron yields from $Li^7$ $(p, n)Be^7$, 4114*d*.
**Freier, P.** See Bradt, H. L.
——, Lofgren, E. J., Ney, E. P., and Oppenheimer, F. Heavy component of primary cosmic rays, 1643*e*.
——, Ney, E. P., and Oppenheimer, F. Energies of heavy nuclei in cosmic rays, 4104*i*.
**Freier, R.** See Todt, F.
**Freifelder, M.** See Wright, H. B.
**Freiman, M.** See Kharasch, M. S.
**Freimann, J.**, and Franke, W. Glucose oxidases (IV) enzymic and antibacterial activity, 3857*i*.
**Freimuth, U.** See Täufel, K.
**Freire de Guzmán, A. R.** See Asenjo, C. F.
**Freis, E. D.** See Wilkins, R. W.
——, Stanton, J. R., and Moister, F. C. Sympatholytic effects of diethylaminoethanol, 6734*e*.
**Freiser, H.** See Keswani, R.; Spakowski, A. E.
—— and Glowacki, W. L. Phys. properties of 2-picoline, 223*d*, phys. properties of isoquinoline, 5784*c*.
——, Hobbs, M. E., and Gross, P. M. Elec. moments of some aromatic fluorine compds., 3252*h*.
**Frejacques, J. L. M.** Sepn. of aq. azeotropic mixts., P 7275*c*; acetonitrile, P 7499*c*.
**Frejdline, L. C.** See Freĭdlin, L. Kh.
**Frejlich, J.** Poland's sugar industry behind the Fe curtain, 9499*a*.
**Frejman, M.** See Freiman, M.
**Freksa, H. F.** See Friedrich Freksa, H.
**Fréling, E.**, and Dugleux, P. Kinetics of inflammation of paraffin hydrocarbons, 2420*b*.
**Fremel, V. B.** See Malchenko, A. I.
**Fremiet, E. F.** See Fauré-Fremiet, E.
**French, A. H.** See Irwin, W. Y.
**French, A. P.** See Bretscher, E.
**French, C. C. J.** See Rose, H. E.
**French, C. E.** See Black, A.
**French, C. S.** See Holt, A. S.; Van Norman, R. W.
**French, D.**, Levine, M. L., and Pazur, J. H. Schardinger dextrins (II) prepn. and properties of amyloheptaose, 2581*e*.
——, Levine, M. L., Pazur, J. H., and Norberg, E. Schardinger dextrins (I) prepns. and soly. of α-, β-, and γ-dextrins, 2584*c*.
——, Pazur, J. H., Levine, M. L., and Norberg, E. Reversible action of *B. macerans* amylase, 584*b*.
**French, D. M.** See Booker, W. M.
**French, E. M.** See Turner, R. D.
**French, F. A.** See Freedlander, B. L., Souders, M., Jr.
—— and Freedlander, B. L. Derivs. of BzOH and phenols in the chemotherapy of tuberculosis, 8553
**French, J. B.**, and Weisskopf, V. F. Elec. tromagnetic shift of energy levels, 4953*b*.
**French, K. H. V.** Automatic small-scale superfractionation, 6472*e*; see Claxton, G.
**French, R. B.**, and Abbott, O. D. Carotene and ascorbic acid in Florida-grown foods, 3535*i*.
**French, T. H.** See Folley, S. J.
**Frenchman, R.** See Callison, E. C.
—— and Johnston, F. A. Relation of menstrual losses to iron requirement, 5097*b*.
**Frenguelli, B.** Stabilization of olive oils, 2450*e*.
**Frenkel, A.** See Rothstein, A.
**Frenkel, B.** See British Resin Products Ltd.; Distillers Co., Ltd.
**Frenkel, G. M.**, Lipshits, V. V., and Karpenko, M. K. Dehydrogenation of some org. substrates by weakened forms of *Cl. welchii*, 5448*g*.
**Frenkel, Ya. I.** Fission of heavy nuclei, 6914*e*; interat. forces in solids and liquids, 7767*g*; elec. oscillations in disperse systems, 7776*f*; see Aron, Ya. B.; Moroz, L. M.
—— and Fradkina, E. M. Elec. parameters of disperse systems, 7776*h*.
—— and Gindin, L. G. Protection of Cu by anthraquinone against corrosion by S solns., 4207*f*
**Frenkiel, J.** See Petitcolas, P.
**Frenyó, V.** Agents which stimulate and inhibit seed germination, 9169*f*; see Gimesi, N.
**Fréon, A.** See Maze, R.
**Frere, F. J.**, and Busz, J. J. Detn. of iso-PrOH, diacetone alc., and 2-methyl-2,4-pentanediol in the presence of each other, 6112*i*.
**Frèrejacque, M.**, and Durgeat, M. Veneniferine and acetylneriifoline, 5787*i*.
—— and Hasenfratz, V. Extn. of digitalislike principles from *Tanghinia venenifera*, 6366*e*
**Freri, M.** Chimica organica (book), 7949*b*.
**Frerichs, R.** Optical and elec. properties of pure CdS, 3294*e*.
—— and Siegert, A. J. F. Photocond. of Cd crystals, 3705*g*
—— and Warminsky, R. Measurement of β- and γ-rays by means of the internal photoeffect in phosphorescent cryst. substances, 35*a*.
**Fresa, V. D.** See Diomede-Fresa, V.
**Freschi, A.**, and Curti, P. C. Liver biopsies in acute infectious hepatitis, 3922*e*.
**Frese, N. A.** See Freze, N. A.
**Fresenius, R.**, and Gehring, A. Einführung in die qualitative chemische Analyse (book), 3318*c*.
—— and Jander, G. Handbuch der analytischen Chemie (book), 7870*f*, 8080*f*.
**Fretter, W. B.** Penetrating showers in lead, 5282*i*, 8848*h*.
**Fretzdorf, A.** See Weitzel, G.
**Freud, J.** Proposal for shortening org. chem. structural formulas, 6067*d*; see Eck-Vermande, G. J. van.
**Freudenberg, E.** Fetor hepaticus, 8521*i*.
**Freudenberg, K.** Organische Chemie (book), 7496*c*.
—— and Dietrich, G. Spruce and beech lignins, 6408*i*.
**Freudenberg, W.** Stabilized vinylpyrrole, P 907*d*.
**Freudenthal, A. M.** Cold work and fatigue, 7394*e*.
**Freudiger, A.**, and Rothlin, E. Action of natural and dihydro ergot alkaloids on the isolated frog heart, 7128*a*.
**Freund, M.** Adhesive properties of lubricating oils, 4454*d*, Hungarian mineral oil industry, 8122*i*; liquid catalysts in the mineral oil industry, 8122*i*.
**Freundlich, H. F.** β-Ray applicator with fission products, 8803*c*.
**Frevel, L. K.** See Kennedy, C. C.
**Frey, A.**, and Frey, M. Detn. of bromosulfalein in the presence of hemolysis, turbidity, and bile, 7539*i*.
**Frey, A. R.** See Gardner, M. E.
**Frey, Ernst.** Antagonistic action of atropine toward acetylcholine, 5115*a*; influence of saponins on the retention of dyes in the frog perfused *via* the aorta, 5870*f*.
**Frey, Eugene.** Blue Bell fluorite deposit, Beaver County, Utah, 6952*h*; Good Fortune Fe mine, Platte County, Wyo., 7383*i*; Hartville Fe deposit, Platte County, Wyo., 7384*a*.
**Frey, F. E.** HF alkylation process, P 1174*i*; isomerization of olefins, P 1175*g*, molding polysulfone resins, P 1217*c*, alkylation of paraffins in presence of HF, P 1559*b*, hydration of olefins, P 3438*f*, isomerization of low-boiling satd. hydrocarbons, P 3833*c*; catalytic dehydrogenation, P 5030*e*; see Hepp, H. J.
——, Kerley, R. V., and Lovell, W. G. Knock characteristics of 16 pure gaseous hydrocarbons, 382*i*.
**Frey, H.** See Miescher, K.
**Frey, H. J.**, and Moore, W. J. Adsorption of vapors on org. crystals (I) adsorption of water vapor on glycine, leucine, diketopiperazine, and diglycylglycine, 2066*h*.
**Frey, J. M.** See Lombard, R.
**Frey, J. R.** Antihistaminic substances and exptl. contact eczema, 5500*e*.
**Frey, K.** Properties and application of Melocol, 1212*i*.
**Frey, K. J.** Inheritance of protein and certain of its components in maize, 7088*d*.
——, Brimhall, B., and Sprague, G. F. Effects of selection on protein quality in the corn kernel, 9288*h*.
**Frey, M.** See Frey, A.
**Frey, M. L.** Alloy steels, the farm tractor and the full granary, 89*i*.
**Frey, R.** See Lux, H.
**Frey, W. H.** Thermodynamics of the prepn. of $H_2S$, 2847*a*.
**Freyburger, W. A.** See Moe, G. K.
**Freyer, E.** Sampling tank cars at destination and a method which overcomes the geometric error, 7719*g*.
**Freyer, R. H.** See Larsen, E. I.
**Freyermuth, H. B.** See Grimmel, H. W.
**Freyhan, F. A.** See Shenkin, H. A.
**Freymann, M.**, and Chantrel, H. Fluorescence spectra of some org. combinations of uranyl nitrate, 2512*c*.
—— and Freymann, R. Application of infrared absorption spectra to the examn. of lubricants, 1173*e*; microwave spectrum and mol. structure (II) microwave-spectral data on mol. structure, 2869*d*; fluorescence spectra of uranyl salts at the temp. of liquid II—existence of a frequency of 12 $cm.^{-1}$, 3295*a*; identification of fuels by near-infrared spectrometry—application to the analysis of ketones, 3715*f*.
——, Freymann, R., and LeBot, J. Microwave spectrum and mol. structure (III) bibliographic analyses concerning mol. structure, 2869*d*.
**Freymann, R.** See Freymann, M.
**Freytag, Hans.** Photographic effects of $H_2O_2$, 6097*h*.
**Freytag, Helmuth.** Raumexplosionen durch elektrische Anlagen (book), 8149*d*
**Frey-Wyssling, A.** Physicochem. behavior of cytoplasm, 6716*d*
**Freze, N. A.** Detn. of Ag, 968*c*; detn. of sulfates, 2547*b*.
**Frezzotti, R.** Al in the edible-oil industry, 879*f*.
**Frick, G.** Physicochem. properties of thymonucleoprotein, 5063*e*.
**Frick, H.** See Prelog, V.
**Frick, K.** Enameling of cast steel in the chem. equipment industry, 9407*b*.
**Frick, P.** See Koller, F.
**Fricke, E. F.** $SoCl_4$, P 7201*d*.
**Fricke, R.** Complex chem. behavior of Be (VII), 4172*f*, active states and reaction properties in solids, 5250*g*; surface energy of solid metals, 5652*i*; surface tension of solid metals, 8255*e*; see Dönges, E., Hund, Franz, Weitbrecht, G.
—— and Keefer, H. Position of the isoelec. point of γ-$Al_2O_3$ and of the various modifications of $Al(OH)_3$, 6041*a*.
—— and Kubach, J. Conversion processes in the reaction series $Cu(OH)_2 \rightarrow CuO \rightarrow Cu \rightarrow CuO$ with pure substances and on kieselguhr as a carrier—Cu tower, 6063*e*
—— and Löffler, I. Measurement of the basicity of the surfaces of rare earth hydroxides by combined phys. and chem. adsorption, 8244*g*.
—— and Schmah, H. Water soly. and alkali and zeolitic properties of $Al(OH)_3$, 2070*g*.
—— and Seitz, A. Cryst. hydroxides of the rare earths, 2108*d*; cryst. hydroxides of In and Sc, 2532*i*.
—— and Weitbrecht, G. Effect of small amts. of $SiO_2$ on the primary particle size and lattice distortion of γ-$Al_2O_3$, 3685*d*.
**Frickhinger, H. W.** As and arsenicals as insecticides, 6353*a*, insecticides and pharmacy, 6353*a*; what should the pharmacist know about contact insecticides? 6353*a*.
**Frid, A. I.** See Rokhlina, M. L.
**Frid, Ts. B.** See Udovenko, V. V.
**Fridenberg, A. E.** See Razumovskiĭ, V. V.
**Fridlyand, R.** See Deryagin, B. V.
**Fridlyander, I. N.**, and Vysotskaya, N. A. Displacement of suspended impurities in the crystn. of a melt, 14*c*.
**Fridman, G. B.** Ferric oxide heptahydrate, 7363*d*; see Danil'chenko, P. I.
**Fridman, Sh. A.** See Favorskaya, T. A.
**Fridman, Ya. D.** Reduction of complex ions, 925*d*.
**Fridrikhsberg, D. A.** See Zhukov, I. I.
**Fried.** See also Frid.
**Fried, J.** See Stavely, H. E.
—— and Titus, E. Streptomycin (VIII) isolation of mannosidostreptomycin (streptomycin B), 1327*i*.
—— and Walz, D. E. Ethyl thioglycosides of D-mannose and D-galactose and a synthesis of styracitol, 3367*g*.
**Fried, M.** See White, J. L.
**Fried, N.** See Baumberger, J. P.
**Fried, P. H.**, and Rakoff, A. E. One-hr. rat ovary hyperemia pregnancy test synergist, 8506*i*.
**Fried, S.**, and Davidson, N. Prepn. of solid Np compds., 2106*i*; cryst. $UO_3$, P 8109*e*.
**Friedberg, A. L.**, and Petersen, F. A. Effect of Mo as a decolorizer for Ti enamels, 2749*a*.
**Friedberg, C. D.** See Olsen, S.

**Friedberg, F.** See Greenberg, D. M.
—— and Eakin, R. M. Protein metabolism of the amphibian embryo (I) uptake of radioactive glycine, 4389*e*.
—— and Webb, A. H. Uptake of $C^{14}$ of carboxyl-labeled glycine into the protein of *Torula utilis*, 8439*a*.
**Friedel, R. A.** See Orchin, M.; Wender, I.
—— and Sharkey, A. G., Jr. Mass spectrum of HD, 8889*b*.
**Friedell, H. L.** See Krieger, H.
**Friedell, M. T.** See Schaffner, F.
——, Schaffner, F., Pickett, W. J., and Hummon, I. F., Jr. Radioactive isotopes in the study of peripheral vascular disease (I) derivation of a circulatory index, 6723*b*.
**Frieden, E.**, and Winzler, R. J. Synthesis of the glycine homolog of thyroxine, 592*i*; thyroxinelike activity of compds. structurally related to thyroxine, 2327*b*; antagonists of thyroxine and structurally related compds., 7585*b*; comparative parenteral thyroxinelike activity of thyroproteins, 8054*d*.
**Frieden, E. H.** See Thomas, T. B.
**Friedenberg, E. Z.**, and Smith, O. M. Adapting a college chemistry course to student needs, 1229*i*.
**Friedenburgh, E. J.** Prepn. of colloidal Au reagent, 3871*e*.
**Friedenson, O.** See Matet, A.
**Friedenstein, H.**, Martin, S. L., and Munday, G. L. Thermionic emission from oxide-coated cathodes, 4560*a*.
**Friedenwald, J. S.** Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (VI) karyolysis of the corneal stroma cells, 768*g*, (XVII) summary and some possible interpretations, 770*i*, see Becker, B., Koelle, G. B.
—— and Buschke, W. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (V) nuclear fragmentation produced by mustard and N mustards in the corneal epithelium, 768*d*
——, Buschke, W., and Moses, S. G. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (XVI) effects of mustard, ultraviolet and x-radiation, and colchicine on the cornea, 770*e*.
——, Buschke, W., and Scholz, R. O. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (IV) effects of mustard and N mustard on mitotic and wound healing activities of the corneal epithelium, 767*i*.
—— and Crowell, J. E. Histochem. studies on nucleic acid phosphatase, 8415*g*.
—— and Moses, S. G. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (Appendix II) mech. device for the extn. of sol. compds. from the cornea and other tough tissues, 771*e*.
——, Scholz, R. O., Snell, A., Jr., and Moses, S. G. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (II) primary reaction of mustard with the corneal epithelium, 767*c*.
—— and Woods, A. C. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (I) introduction and outline, 766*i*.
**Friederich, L. A.** Tar dehydration, 1948*i*.
**Friederici, L.** Limits of the HCl-collargol reaction as a specific liver reaction, 8044*h*.
**Friedgood, C. E.** See Dunning, W. F.; Green, M. N.
**Friedgood, H. B.**, and Garst, J. B. Identification and microdetn. of estrogens, 5816*a*.
**Friedheim, E. A. H.** *p*-(2-Chloro-4-aminos - triazin - 2 - ylamino)benzenearsonic acid, P 4296*g*; melaminylphenylstibonic acid compn., P 4705*s*; organo-Sb compds. contg. 1,3,5-triazine rings, P 5427*e*.
—— and Pollak, J. E. Substituted 1,3,5-triazin-6-ylaminophenyl arsenic compds., P 5051*e*.
—— and Soloway, S. Addn. compds. of pyridine deriva., P 5471*b*.
**Friedlger, A.** See Veibel, S.
**Friedkin, M.**, Kalckar, H. M., and Hoff-Jørgensen, E. Enzymic synthesis of desoxyribose nucleoside with desoxyribose phosphate ester, 5058*d*.
—— and Lehninger, A. L. Oxidation-coupled incorporation of inorg. radiophosphate into phospholipide and nucleic acid in a cell-free system, 4309*e*; esterification of inorg. phosphate coupled to electron transport between dihydrodiphosphopyridine nucleotide and O (I), 6256*b*.
**Friedlaender, A. S.**, and Friedlaender, S. Antihistaminic, antianaphylactic, and antiallergic activity of *N*-(α-pyridyl)-*N*-(α-thenyl) - $N^1$,$N^1$ - dimethylethylenediamine-HCl, 2324*d*.
**Friedlaender, S.** See Friedlaender, A. S.
**Friedland, R.** See Fridlyand, R.
**Friedland, S. S.** Life of self-quenching counters, 483*i*.
**Friedlander, E.** Histologic and chem. aspects of thrombus formation, 3095*g*.
**Friedlander, G.** See Hill, K. D.
——, Goldhaber, M., and Scharff-Goldhaber, G. Long-lived metastable state of $Te^{125}$, 486*b*.
—— and Kennedy, J. W. Introduction to Radiochemistry (book), 4958*h*.
**Friedlander, H. N.** See Kharasch, M. S., Seren, L.
**Friedman, A. J.** See Siegel, M. B.
**Friedman, A. P.**, Feiring, E., and Davidoff, L. M. Effect of drugs on intracranial circulation in patients with chronic headache, 9232*g*.
**Friedman, B. S.**, and Hervert, G. L. Surface-active agents, P 2004*f*
—— and Stedman, R. F. Sepn. of olefins from paraffins, P 3436*c*.
**Friedman, C. L.** See Friedman, S. M.
**Friedman, H.** See Schwerma, H.
**Friedman, H. L.** See Duesel, B. F.
—— and Braitberg, L. D. Aminopyridine derivs., P 3470*g*, benzylideneamino compds. of pyridine, P 7972*g*.
—— and Tolstoouhov, A. V. 2-[*p*-Methoxybenzyl(2 - dimethylaminoethyl)amino]-pyrimidine and its hydrochloride, P 6244*d*.
**Friedman, J. S.** Methylene blue effect, 3735*d*.
**Friedman, M.** Effect of choline on the production and excretion of uric acid, 6710*g*, see Bine, R., Jr.; Byers, S. O., Rinehart, J. F.
——, Bine, R., Jr., and Byers, S. O. Urinary excretion of digitoxin, 7583*e*.
—— and Byers, S. O. Effect of Na salicylate on the uric acid clearance of the Dalmatian dog, 771*h*; causes of the excess excretion of uric acid in the Dalmatian dog, 5473*g*
——, Byers, S. O., and Abrahm, P. M. Renal clearance of allantoin as a measure of glomerular filtration rate, 3090*g*.
**Friedman, M. H. F.** See Brieger, H.; Thomas, J. E.
—— and Snape, W. J. Influence of secretin and insulin on pancreatic secretion in healthy human subjects, 4357*f*.
**Friedman, O. M.** See Seligman, A. M.
—— and Seligman, A. M. Derivs. of 10-methyl - 1,2 - benzanthracene related to the N and S 2-chloroethyl vesicants, 621*a*.
**Friedman, R.** See Andersen, J. W.
—— and Burke, E. Spark ignition of gas mixts., 9450*g*.
**Friedman, Sam.** See Weller, S.
**Friedman, Sidney.** See Harris, T. N.
**Friedman, S. J.** Drying, 1227*h*.
—— and Marshall, W. R., Jr. Rotary drying (I) holdup and dusting, (II) heat and mass transfer, 8752*e*.
**Friedman, S. M.** Plasma electrolytes in hypertension produced by renal compression, 3087*e*.
—— and Friedman, C. L. Role of the rat kidney in hypertension caused by desoxycorticosterone acetate, 5849*e*.
——, Friedman, C. L., and Campbell, C. G. Effects of adrenalectomy and of adrenal cortical ext. on DCA-hypertension, 7146*d*.
——, Mackenzie, K. R., and Friedman, C. L. Renal function in the adrenalectomized rat, 8486*d*.
**Friedmann.** See also Fridman.
**Friedmann, E.**, Marrian, D. H., and Simon-Reuss, I. Sulfhydryl addn. compds. of some quinones and related substances in their action on the growth of normal cells, 2703*i*; analysis of antimitotic action of certain quinones, 3526*f*; antimitotic action of maleimide and related substances, 7591*b*.
**Friedmann, H. G.** See Dey, B. B.
**Friedmann, R.** Characterization of sugar components of proteins, 6259*e*.
**Friedrich, I.** See Daniel, A.
**Friedrich, W.** See Crosser, A.
**Friedrich-Freksa, H.** See Kratky, O.
**Friedrichsen, I.** Function of Mn in the assimilation of food by plants, 1836*g*.
**Friel, D. D.** See Hanson, V. F.
**Friend, A. H.** Control of 4 cauliflower seedcrop pests, 4410*g*; springtails and benzene hexachloride, 7184*i*, see Allman, S. L.
**Friend, J. N.** Phys Chemistry (book), 5658*g*.
**Friend, N. A. C.** Plastics from natural polymers, 4789*b*.
**Friend, W. Z.** Ni and high-Ni alloys, 1*c*, 8745*d*; corrosion tests in org. sulfations and sulfonations, 97*c*; corrosion by sulfates, 1706*f*.
**Fries, A. H.** See Berkebile, J. M.
**Fries, C., Jr.** Optical calcite deposits of the Republic of Mexico, 2901*g*.
—— and Schmitter, E. Sn-bearing placers near Guadalcazar, State of San Luis Potosi, Mexico, 4988*a*.
**Fries, K. W.** Wax-polyamide-pinene resin coating compn., P 5632*d*; lactic acid, P 6826*a*.
**Fries, L.** Mutations induced in *Coprinus fimetarius* by N mustard, 6702*f*.
**Fries, N.** Viability and resistance of spontaneous mutations in *Ophiostoma* representing different degrees of heterotrophy, 3885*i*; effects of different purine compds. on the growth of guanine-deficient *Ophiostoma*, 8460*e*.
—— and Kihlman, B. Fungal mutations obtained with Me xanthines, 3881*e*.
**Friesen, G.** Galenical topics, 9364*e*.
**Frieser, H.** Indexing the domain of scientific photography and boundary subjects by DK-nos., 6529*i*.
**Friess, H.** Changes in processed foods, 1493*e*.
**Friess, S. L.** Reactions of per acids (I) reaction of perbenzoic acid with some simple ketones, 2588*i*; (II) reaction of perbenzoic acid with simple cyclic ketones —kinetic studies 8358*g*.
**Friez, A. I. C. de.** See DeFriez, A. I. C.
**Frimer, A. I.** Electron-microscopic investigation of Sb-Cs layers, 2481*i*.
—— and Pupko, S. L. Techniques in electron microscopy, 8847*f*.
—— and Smitskaya, I. G. Electron-microscopic investigation of the microstructure of photocathodes, 6074*a*.
**Friou, G. J.** Inhibitor in human serums of the hyaluronidase produced by a strain of hemolytic streptococci, 9151*h*.
**Frisby, H.** Electrolytically polished Cu surface, 4960*e*.
**Frischmuth, R. W.** See Colton, H. S.
**Frishberg, V. D.**, and Bogoyavlenskii, V. V. Coke for the production of converter pig iron, 1551*d*.
**Frishman, D.**, and Harris, M. Treating wool, P 6429*b*.
——, Hornstein, L., Smith, A. L., and Harris, M. Reaction between wool and active Cl, 1572*b*.
**Frisk, P. W.** Viscose spinning machines, 8674*e*.
**Frisman, E.** See Tsvetkov, V. N.
**Frison, M.** Sand filtration-coagulation and settling, 7916*b*.
**Frith, P. H.** Fatigue tests on crankshaft steels (I) effect of nitriding on the fatigue properties of a Cr-Mo steel, 2560*h*.
**Fritsch, R.** See Kölbel, Herbert.
**Fritz, A. R.** See McKee, S. A.
**Fritz, F.** Nitrocellulose for the production of synthetic leather, 3231*d*.
**Fritz, J. C.** See Lloyd, M. D.
**Fritz, J. J.** See Giauque, W. F.
—— and Giauque, W. F. Magnetism and the third law of thermodynamics—magnetic properties and heat capacity of $CoSO_4 \cdot 7H_2O$ from 0.1 to 15° K., 8766*g*.
**Fritz, J. S.** See Smith, G. Frederick.
**Fritz, N. D.** See Moeller, T.
**Fritz, W.** [Viscosity] cup DIN 5311 (German Standards designation), 4904*a*; see Hennenhöfer, J.
**Fritzlen, T. L.** High-strength corrosion-resistant Al alloy sheets, P 6146*a*.
**Fritzsche, C. H.** Combating coal dust in mining, 375*i*.
**Fritzsche, H.** Opening up and construction of the mines at Maubacher Bleiberg, 6123*d*.
**Frivold, O. E.**, Hassel, O., and Hetland, E. Elec. cond. of solns. of HCl in ordinary water and of DCl in heavy water, 4544*d*.
**Frobisher, M.** Fundamentals of Bacteriology (book), 7087*h*.
**Fröhlich, H.** Static dielec. const., 11*b*; Theory of Dielectrics (book), 7161*g*.

——, Huby, R., Kolodziejski, R., and Rosenberg, R. L. Decay and capture of slow mesons in dielectrics, 2505*b*.
**Fröhlich, H. G.** See Elöd, E.
**Fröhlich, K. W.** Importance of the noble metals for the German chem. industry, 9295*i*; see Gretchman, M.
**Fröhlich, P.**, and Szalay, L. Permanent orientation of dye mols. caused by illumination, 6080*b*.
**Fröhlicher, E.** See Fischer, H.
**Froelich, H. C.** Ultraviolet-emitting $Mg_3P_2O_7$ phosphor, P 1662*b*; luminescent material, P 2098*a*; double and triple activated Mg pyrophosphate phosphors, 5312*c*; alk.-earth fluorophosphate phosphors, P 7831*h*.
—— and Margolis, J. M. Al phosphate phosphor, P 1661*d*; Ca phosphate phosphor, P 1662*a*.
**Frömel, W.** Effect of the amt. of solid phase on the soly. of humic acid from marshy soils, 6771*a*.
**Frömmel, H.** See Clar, E.
**Froentjes, W.**, and Wild, A. M. de. Scientific argument in the van Meegeren law suit, 6431*e*.
**Froeschel, P.** Retarding growth during malting, 2365*b*.
**Frogley, K.** Chem. resources of the Western States—Nevada, 9295*d*.
**Frohring, P. R.** See Tabor, J. M.
**Frolich, P. K.** Modifying agents for low-temp. polymerization reactions, P 1602*b*.
**Frolov, S. S.** See Leporskii, A. M.
**Fromageot, C.** Lysozyme, 7059*i*.
——, Chatagner, F., and Bergeret, B. Formation of alanine by enzymic desulfination of L-cysteinesulfinic acid, 5430*e*.
—— and Garilhe, M. P. de. Amino acid compn. of lysozyme (I) aromatic acids, dicarboxylic acid, and hexonic bases, 5063*c*.
——, Jutisz, M., Lafon, M., and Roche, J. Presence of monoiodotyrosine in the gorgonin of *Gorgonia verrucosa*, 1871*c*.
——, Jutisz, M., and Lederer, E. Chromatographic sepn. of amino acids and peptides (IV) sepn. into four groups, 2659*e*.
—— and Séjourné, T. Action of δ-hexachlorocyclohexane (deltexane) on tubercle bacilli, 3061*i*.
**Fromaget, J.** French Indo-China—geol. structure, rocks, mines, and tectonic relations, 2135*b*.
**Froman, D.**, Rosen, L., and Rossi, B. Cosmic-ray-induced fission, 4091*h*.
**Fromandi, G.** Rayon in tire manuf., 6454*f*.
—— and Roelig, H. Elastic behavior of Buna-S as a function of the filler, 4045*c*
**Froment, P.** Peat bogs of the Haute-Somme and Sommette Valleys—ash content of peat from the Somme and the Souche, 2902*d*; peat deposits of the Souche Valley (Aisne), 2902*d*.
**Fromherz, K.**, and Markees, S. Amt. tolerated and metabolism of large doses of an amino acid mixt., 5492*i*.
**Fromm, F.** Recreaciones químicas by Tomás Arrata, one of the first chem. publications in Puerto Rico, 915*g*; control of Bermuda grass by a mixt. of 2,4-D and $NH_4$ sulfamate, 5145*a*; nital mixts., 7229*d*.
**Fromm, H. R.** From the British to the German pharmacopeia (II) pharmacopeia to be revised, 5551*i*.
**Fromm, M. M.** See Axelrad, I.
**Fromm, S.** See Pollard, M.
**Fromme, I.** See Goubeau, J.
**Frommel, E.** See Beck, I. T.; Bischler, A.
—— and Beck, I. T. Pharmacodynamic action of 3-pyridinemethanol, 7138*d*.
——, Beck, I. T., Beck, M., and Vallette, F. Action of acetylcholine manganochloride, 7129*f*.
——, Beck, I. T., Gold, P., Favre, M., and Vallette, F. Strength and duration of the ergotamine-adrenaline antagonism measured electrocardiographically—sensitizing action of ergotamine to acetylcholine aerosol, 3520*f*.
——, Beck, I. T., Vallette, F., and Favre, M. Diethylaminoethyl ester of phenylcyclopentane carboxylic acid and the vegetative nervous system, 7127*g*.
——, Gold, P., Beck, I. T., Favre, M., and Vallette, F. Antiadrenalinic and antiacetylcholinic action of hydrastinine and effect on the *refractory* period of the heart, 8109*f*.
**Frommurse, H. F.** Br in South African underground water, 6763*i*.
**Frondel, C.** Crystallography of spangolite, 8985*g*.
—— and Palache, C. Retgersite, 8985*f*.
**Fronk, W. D.** See Dobbins, T. N.
—— and Dobbins, T. N. Insecticide tests for control of the southern corn rootworm in peanuts, 7182*i*.
**Frontali, N.** See Cavallini, D.
**Froome, K. D.** Rate of growth of current and the behavior of the cathode spot in transient arc discharges, 3704*d*.
**Froshel, P.** Cultivating molds completely or partially in a culture medium, P 1079*a*.
**Frost, A. A.** See Zaukelies, D.
——, Braunstein, J., and Schwemer, W. Correlated mol. orbitals, 2827*d*.
**Frost, A. V.** See Gryaznov, V. M.; Petrov, A. A.
**Frost, B. R. T.** See Raynor, G. V.
**Frost, D. V.**, and Sandy, H. R. Partial acid hydrolyzates of proteins (VI) assay of liquid protein hydrolyzates in protein-depleted rats, 4742*c*.
**Frost, E. M., Jr.** See Deaton, W. M.
**Frost, I. C.** See Stanfield, K. E.
**Frost, J.** See Folkow, B.
**Frost, P. D.** See Jackson, J. H.
**Frost, R. H.** Specific ionization of 25- to 300-kv. electrons, 4092*g*.
**Frost, W. E.**, and Linnett, J. W. Spark ignition (II) CO-O mixts., (III) effect of adding org. vapors to H-O mixts., 406*g*.
**Frostick, F. C., Jr.**, and Hauser, C. R. Condensations (XLII) condensations of esters by diisopropylaminomagnesium bromide and certain related reagents, 6170*g*.
**Fruechtenicht, H. L.**, and Simpson, J. B. Underground storage of a propane-air and natural gas mixt., 5926*c*.
**Fruehauf, D. M.** See Cavallito, C. J.
**Frühling, A.** Raman spectrum of monocryst. $C_6H_6$, 3716*b*; low-frequency Raman spectrum of a single anthracene crystal—comparison with other aromatic hydrocarbons, 8888*h*; see Barriol, J.
**Fruggiero, E. J.** See Stutzman, J. W.
**Frumen, L. N.** Demulsifier for petroleum emulsions from petroleum acid sludge, 3996*e*.
**Frumin, I. I.** Measurement of the corrosion of welded joints, 2919*b*.
**Frumkin, A. N.** Adsorption and oxidative processes, 7774*a*; see Borisova, T. I.; Kryukova, T. A.
**Frunder, H.** pH changes of living tissue during activity and inflammation, 9237*d*.
**Frush, H. L.** See Isbell, H. S.
—— and Isbell, H. S. Amino derivs. of mannuronic acid, 576*e*; amides of glucuronic, galacturonic, and mannuronic acids, 4642*a*.
**Fruton, J. S.** See Simmonds, S.
**Fry, A. B.** See Kirk, R. C.
**Fry, A. S.**, and Withrow, L. L. Reconditioning spark plugs with P compds., P 7611*a*.
**Fry, D. J.** See Kendall, J. D.
**Fry, D. L.** Infrared absorption analyses used in control of a pilot-plant process, 5132*f*; see Sihvonen, Y. T.
**Fry, D. W.** Synchrotron accelerator—its potentialities as a generator of x-rays and electrons of 10–50-m.e.v. energies for medical use, 8850*e*.
——, Harvie, R. B. R. S., Mullett, L. B., and Walkinshaw, W. Traveling-wave linear accelerator for 4-m.e.v. electrons, 4109*c*.
**Fry, F. B.** Detection, measurement, and mitigation of stray-current electrolysis, 6092*g*.
**Fry, F. E. J.**, Burton, A. C., and Edholm, O. G. Gas analyzer, 8215*f*.
**Frydlender, J. H.** Compds of Ti and Zr—technology and uses, 515*d*; parasiticides, 4803*g*.
**Frye, A. H.**, Wallis, R. S., and Dougherty, G. Structure of citrinin, 9066*e*.
**Frye, E. E.** See Graham, W. R., Jr.
**Frye, J. B.**, Hawkins, G. E., Jr., and Henderson, H. B. Winter pasture and sweetpotato meal for lactating dairy cows, 786*a*.
**Fryling, C. F.** See Beu, K. E.
——, Landes, S. H., St. John, W. M., and Urauech, C. A. Emulsion polymerizations at low temps., 5987*e*.
**Fu, F. Y.**, and Jang, C. S. Chemotherapeutic studies on ch'ang shan, *Dichroa febrifuga* (III) potent antimalarial alkaloids from ch'ang shan, 1529*i*.
**Fu, S.-C.** See Sah, P. P. T.
**Fu, Y.** See Hansen, R. S.; Tsai, K. R.
**Fuchino, E.** See Senba, T.
**Fuchino, K.** Formation of cellulose III from hydrazine-cellulose II, 8131*i*; see Tanaka, Masaya.
**Fuchs.** See also Fuks.
**Fuchs, Adalbert.** Diseases of the Fundus Oculi with Atlas (book), 755*g*.
**Fuchs, Alois.** Mixed fertilizer, P 5144*d*.
**Fuchs, C.** Antacids, their function, formulation, and evaluation, 9380*g*.
**Fuchs, L.** *Secale cornutum*—development of ergot research, 3140*h*, 9384*i*; flavone derivs. as remedies, 5547*g*.
—— and Matzke, O. Detn. of aromatic aldehydes with hydrazine sulfate, 5703*b*.
**Fuchs, P.** Detn. of effective Cu and free $NH_3$, etc., in pure and impure cuprammonium solns., 2117*h*.
**Fuchs, W.** Synthetic growth hormones for physiology and agriculture, 4748*f*.
**Fucik, K.**, Prochazka, Z., and Cechova, V. Anticoagulant substances (I); derivs. of bis(4-hydroxy-3-coumarinyl)acetic acid, 5399*d*.
**Fucke, H.** See Wentrup, H.
**Fucks, W.** Energiegewinnung aus Atomkernen (book), 1601*c*.
**Fudeman, H. A.** Adsorption phenomena in the plating room, 7351*i*.
**Führer, H.** Pharmakologie für Pharmazeuten (book), 6320*h*.
**Führer, J.** See Prelog, V.
**Fuel Research Inst.** Pinacolone from pinacol, P 1434*i*; lubricating oil from coal, P 4844*e*, liquid fuel from hydrogenation of coal, P 6810*f*.
**Fuenzalida, F.** See Lipschütz, A
**Fürst, A.** See Plattner, P. A
—— and Plattner, P. A. Steroids and sex hormones (CLX) 2(α),3(α)- and 2(β),-3(β)-oxidocholestane—configuration of the 3-hydroxycholestanes, 3831*e*.
**Fürst, K.** Detection of glycerol in pharmaceutical prepns. and cosmetics, 3145*i*.
**Fürth, R.** Masses of mesons, 5284*g*; structure of liquids, 6023*a*.
**Fues, E.** Electron interference of convergent pencils in thin platelets found by Kossel and Mollenstedt, 6907*a*
**Fueter, R.** Mathematische Werkzeug des Chemikers, Biologen, Statistikers, und Soziologen (book), 1254*i*.
**Fugassi, P.** Characteristics of half-cells used as reference electrodes, 6092*e*, see Cross, R. P.; Warrick, E. L.
**Fugitt, C. H.** See Roberts, J. D.
**Fugo, N. W.** See Davis, M. F.
**Fuhr, A.** See Kaunitz, H.
**Fuhrman, F. A.** See Crismon, J. M., Hollinger, N.
—— and Crismon, J. M. Gangrene following cold injury (III) edema following cold injury—its magnitude and the compn. and source of edema fluid, 5858*b*.
—— and Field, J. Inhibition of brain respiration by EtOH at varied temp. levels, 1863*b*.
**Fuhrman, R. C.** Antiseize and sealing compn., P 1221*e*.
**Fuidge, G. H.**, Deadman, A. L., and Hutton, A. L. E.V.T. viscometer, 5*h*.
**Fuji Communications Instrument Co.** Powd. $Al_2O_3$ of high purity, P 6794*g*.
**Fuji Denkiseizo K. K.** Same as Fuji Electric Instruments Manufg. Co.
**Fuji Electric Instruments Manufg. Co.** Covering compd. for elec. welding rods, P 6763*e*.
**Fujii, M.** Sugar-cane invertase (I) leaf invertase, (II) distribution of invertase in the leaves and its enzymic chem. properties, 1466*b*.
**Fujii, O.** See Koyanagi, T.
**Fujii, R.** Catalytic reduction of $CO_2$ under pressure (II), 7899*c*.
**Fujii, S.** Polyhydric alcs., P 3447*h*.
**Fujikawa, F.**, Nakajima, K., and Fijii, H. Antiseptics for foodstuff (XXXVI), 9273*h*.
——, Nakajima, K., Omoto, T., and Sato, H. Antiseptics for foodstuff (XXXV), 8065*h*.
**Fujikura Elec. Wire Co.** Concn. of vinyl chloride, P 3885*c*.
**Fujimoto, C. K.** See Sherman, G. D.
**Fujimoto, Y.**, and Yamaguchi, Y. Cosmic-ray stars, 7321*c*.
**Fujinaga, B.** Cooking of tropical woods (I) compn. of woods of South Seas and pulping by the soda process, (II) prepn. of high-viscosity cellulose from the wood of *Trichospermum lademannii* from Palao Island, 1970*h*.

**Fujino, H.** See Hirabayashi, S.
**Fujisaki, T.** See Kitawaki, I.; Shoji, N.
**Fujisawa Drug Industries Co.** 2-Aminothiazoles and their derivs., P 3851*i*; Fe salt of lysalbinic acid, P 6224*i*; Fe salt of protein acids, P 6225*a*; borneol, P 6528*c*; aromatic hydrocarbons by electrolysis of salt of aromatic carboxylic acid, P 6926*h*.
**Fujisawa Yakuhin Kogyo K. K.** Same as Fujisawa Drug Industries Co.
**Fujita, K.** See Kodama, S.
**Fujita, T.** Physiol. studies on changes of membrane substances in higher plants (IV) changes during different periods of development, (V) influence of air temp., (VI) influence of sunlight, (VII) influence of air humidity, (VIII) influence of soil humidity, 5454*g*, (IX) changes of membrane substances and degree of hardening in some cultivated plants, (X) summary of the results, 6287*c*.
**Fujita, Y.** Chem. compn. of some late type stars, 6916*a*.
**Fuji Tsushinki K. K.** Same as Fuji Communications Instrument Co.
**Fujiwara, Mitsuzo.** See Kurokawa, M.
**Fujiwara, Motonori,** and Shimizu, H. Microdetn. of riboflavin by synthetic ion-exchange resin, 9139*g*.
**Fujiwara, S.** Soln of metallic alloys in the range of pH 2-6 (I) soln. loss of pure Fe and various ferro alloys, (II) soln. of ferro-Mn, 1703*d*.
**Fukagawa, K.,** and Shinno, T. Dezincification of brass (I), 7399*d*.
**Fukae, G.** Utilization of starch factory effluent, 7244*a*, increase of yield in the production of starch from potatoes, 8716*h*.
**Fukaya, Y.** See Ando, Kazuo.
**Fuks, G. I.** Structured $Fe(OH)_3$ sols obeying Poiseville's law, 5259*a*, obituary of A. I. Rabinerson, 6875*c*; flow of structured dil sols and suspensions, 7291*f*.
—— and Puchkov, N. G. Viscosity of polyisobutylene solns. in mineral oils (I) dependence of viscosity on concn. and mol. wt., 8241*d*, (II) temp dependence of viscosity, 6891*f*.
**Fuks, N. A.,** and Chetverikova, L. S. Partition chromatography in analytical chemistry (I) analysis of hexachlorocyclohexane, 8978*g*.
—— and Rappoport, M. A. Sepn. of $NH_3$, methyl-, dimethyl-, and trimethylamine, 121*i*.
**Fuks, Ž.** Metabolic products of the tubercle bacillus, 4332*h*.
**Fukuda, K.** Dark photosensitive printing paper, P 6930*f*.
**Fukuda, Y.** See Horio, M.
**Fukui, T.** See Deuel, H. J., Jr.; Zechmeister, L.
**Fukumoto, J.** Bacterial amylase (I) isolation of bacteria excreting potent amylase and their distribution, (II) bacterial and physiol. nature, (III-IV) conditions of amylase production, (V) optimum pH and temp. and heat resistance, 1450*b*; (VI) liquefaction and saccharification, (VII-VIII) mechanism of starch decompn., 1450*f*.
**Fukuoka, F.** Activation of catalase activity, 255*i*.
**Fukuroi, T.** X-ray absorption spectra of ordered and disordered Ni-Al and Ni-Mn alloys, 7815*h*; see Aoyama, S.
**Fukushima, D. K.** See Dobriner, K.
**Fukushima, I.** See Kodama, S.
**Fukushima, M.** See Kusu, M.
**Fukushima, S.** See Kasuya, G.
**Fukuyama, T.** Seasonal variation of urinary creatinine, 5848*c*.
**Fulbright, H. W.,** and Bush, R. R. Inelastic scattering of protons from light nuclei, 1259*f*.
**Fuld, M.** See Meyer, K. H.
**Fulda, W.** $Al_2O_3$ from solns. of bauxite in dil. NaOH, 9393*h*.
**Fulford, T. D.** Mg anodes extend water-heater-tank life, 1306*a*.
**Fuller, A. T.** See Forrest, H. S.
**Fuller, C. H. F.** See Lampitt, L. H.
**Fuller, C. S.** Contributions of polymer chemistry to the plastics and coating industries, 2787*h*.
**Fuller, E.** Improving the quality of Maine clays, 8318*i*.
**Fuller, E. G.** Photo-disintegration of D by 7 to 20-m.e.v. x-rays, 8855*g*.
**Fuller, E. W.** See Berger, H. G.; Richter, F. P.
—— and Angel, H. S. Mineral-oil compn., P 1561*i*.
—— and Johnson, E. M. Lubricant, P 8131*d*.
**Fuller, F. B.** Properties of wrought Ti, 7882*e*.
**Fuller, G.** Se compds. in greenhouse-pest control, 1141*b*; see Kiplinger, D. C.
**Fuller, H. C.** See Wartman, F. S.
**Fuller, H. I.** See Irving, H.
**Fuller, H. J.** See Green, M.
—— and Tippo, O. College Botany (book), 5457*c*.
**Fuller, J. F.** Septic tanks, 6767*d*.
**Fuller, M. F.** See Burrows, L. A.
**Fuller, W. H.,** and Clark, K. G. Microbiol. studies on urea-form prepns., 1514*f*.
**Fullerinqer, A.** See Baud, C. A.
**Fullhart, L.** See Gilman, H.
**Fullmer, O. H.** See Smith, R. F.
**Fulmer, E. I.** See Bunzon, J.
**Fulmer, J. M.,** and Burkett, H. Esters of *N*-substituted *p*-aminobenzoic acid, 6183*e*.
**Fulmore, W.** See Brancone, L. M.
**Fulton, F.** See Elford, W. J.
**Fulton, J. D.** Photostilbamidine, the irradiation product of stilbamidine, 2982*g*; see Ada, G.
—— and Goodwin, T. W. Hydrolytic changes in solns. of stilbamidine, 4813*b*.
**Fulton, J. F.** Howell's Physiology (book), 7568*c*.
**Fulton, J. K.,** Marcus, S., and Robinson, W. D. Hyaluronidase inhibitors in body fluids in normal and disease states, 1478*d*.
**Fulton, L. D.,** and Page, E. W. Nature of the refractory state following a sublethal dose of human placental thromboplastin—value of soybean trypsin inhibitor in preventing the toxic effects of human placental thromboplastin, 760*h*.
**Fulton, L. S.** Forging alloys for high-temp service, 4203*i*.
**Fulton, R. A.** See Nelson, R. H., Smith, F. F.
——, McBride, O. C., and Sullivan, W. N. Toxicity of residues from $CO_2$-propelled insecticides, 6353*g*.
—— and Rohwer, S. A. Liquefied gas insecticidal aerosols, 7181*g*.
**Fulton, R. W.** Virus concn. in plants acquiring tolerance to tobacco streak, 5087*a*.
**Fultz, S. C.,** and Harding, G. N. $\gamma$-Rays of Th CC'', 1648*c*.
**Fumi, F.** Intercorpuscular bonds and quantum mechanics, 3072*b*.
**Funabashi, S.,** and Michi, K. Pantothenic acid (III) synthesis of *dl*-ethyl pantothenate, 7903*c*.
**Funaki, Y.** Grease to be used for propeller, P 6821*c*.
**Funasaka, W.,** and Tahara, H. Removal of org. S compds. in water gas by means of yellow ocher, 1946*b*.
—— and Tojo, T. Synthesis of gasoline from CO and H (LXVII) desulfurizing ability of various metal hydroxides, 2401*e*.
**Funatsu, M.** Color reaction of amino acids with diphenylamine (I) color reaction of protein with diphenylamine, 9138*g*.
**Fundaburk, E. H.** See Gittings, L. D.
**Funderburk, W. H.** See Case, T. J.
**Fungairiño, L. V.** See Villanúa Fungairiño, L.
**Funk, C. E., Jr.** Purification of guanidine nitrate, P 2227*b*; lubricating-oil additive, P 4845*d*.
**Funk, C. R.** Cr alloy steel, P 3770*h*; economy in production—alloy recovery, 8998*i*.
**Funk, E. J., Jr.** Inert gas in the resin plant, 8177*a*.
**Funke, A.,** Engeler, C. O., Jacob, J., and Depierre, F. Curarelike properties of some arylaliphatic quaternary ammonium salts, 8058*i*.
—— and Karrer, P. Synthesis of ethyl fumaraldehydate *trans*-muconic acid, methyl muconaldehydate, and hexatriene-1,6-dicarboxylic acid, 6981*b*.
—— and Kornmann, P. Prepn. of some biguanidine derivs. for therapeutic tests, 2946*e*; prepn. of homologs of ethylenediamine, 6176*c*.
**Funke, G. L.** Malt, P 1148*f*.
**Funke, S.** Sterilization of digitalis prepns., 8561*i*.
**Funkhouser, E. N.** Can-sealing compds., 7256*c*.
**Funkhouser, H. J.,** Sass, L. C., and Hedberg, H. D. Santa Ana, San Joachuin, Guario, and Santa Rosa oil fields, Central Anzoategui, Venezuela, 2134*d*.
**Funkhouser Co.** Aggregates, P 3989*d*.
**Funshtein, B. L.** See Nemilov, Yu. A.
**Funt, B. L.** See Coffin, C. C.
**Fuortes, M. G. F.,** and Maspes, P. E. Therapeutics of intracranial hypertension, 765*d*.
**Fuoss, R. M.** Development of Theoretical Electrochemistry (book), 509*a*; polyelectrolytes, 1626*b*; see Albrink, W. S.; Cathers, G. I.; Strauss, U. P.
—— and Cathers, G. I. Polyelectrolytes (III) viscosities of butyl bromide addn. compds. of 4-vinylpyridine-styrene copolymers in nitromethane-dioxane mixts., 7785*h*.
—— and Strauss, U. P. Electrostatic interaction of polyelectrolytes and simple electrolytes, 4078*f*; viscosity of mixts. of polyelectrolytes and simple electrolytes, 7299*c*.
**Fuqua, F. D.** Improve efficiency in mercaptan extn. using Kascade-type fractionating trays, 2761*b*.
**Fuqua, M. C.** See Lovell, J. B.
**Furberg, S.** Crystal structure of cytidine, 7773*i*; see Carlisle, C. H.
**Furbetta, D.** See Magrini, A.
—— and Giunti, V. Octyl alc. and oscillometric values—octyl alc. and (*m*-hydroxyphenyl)trimethylammonium methyl sulfate dimethylcarbamate and oscillometric values, 8061*e*.
**Furchgott, R. F.,** and Shorr, E. Effect of succinate on respiration and metabolic processes of mammalian tissues at low O tensions, 756*d*, physiol. and chem. characteristics of a renal vasoexcitor (VEM) involved in circulatory regulation, 2686*f*.
**Furcolow, M. L.,** Emge, M. E., and Bunnell, I. L. Depression of tuberculin and histoplasmin sensitivity assocd. with crit. illness, 300*h*.
**Furer, O.** Opaque, dyeable oxide films on Al and Al alloys, P 7358*h*.
**Furlong, C. R.** Effect of dipping in borax soln. on the B content of oranges, 3115*i*.
**Furlong, J. R.** Insecticides as preventives against hide beetles, 2725*h*.
**Furlong, R. R.,** and Wertz, D. H. Controlled drying of retorts, 6552*i*.
**Furman, C.** See Holden, J. T.
**Furman, D. P.,** and Douglass, J. R. Evaluations of insecticides for cattle-grub control, 1520*d*.
**Furman, N. H.** Introductory course in quant. analysis, 1619*a*; see Bricker, C. E.; Stone, K. G.
—— and Stone, K. G. Polarographic study of certain anthraquinones, 2521*a*.
**Furman L., A.** Extn. processes, 3247*d*.
**Furman L., J.** Theory and calcn. of absorption equipment, 3216*e*.
**Furnal, J.** See Thomas, Albert.
**Furry, M. S.,** McLendon, V. I., and Aler, M. E. Evaluation of soaps and synthetic detergents, 1201*h*.
**Furry, W. H.** Measuring masses of cosmic-ray mesotrons, 4091*d*; theory of isotope sepn. in geol. processes, 4192*g*; see Snyder, J. N.
—— and Snyder, J. N. Stimulated de of mesons, 4943*i*.
**Furst, S. S.** See Brown, G. B.
**Furstenberg, F. F.** See Gay, L. N.
**Furtado, D.,** and Chichorro, V. Bilirubinemia after cerebral accidents, 4362*e*.
**Furter, M. F.,** and Bussmann, G. $CO_2$ generator for the Dumas N microdetn., 6869*c*.
**Furter, Max F.,** and Lauter, W. M. Fortifying grain products, P 8071*e*.
**Furufuji, I.** Treatment of $SO_2$ gas in flue gas, P 7201*g*; recovering waste catalyst for $NH_3$ synthesis, P 7204*c*.
**Furuhjelm, M.** Urinary excretion of 17-ketosteroids, 3508*a*.
**Furukawa, J.,** and Iwasaki, T. Swelling of rubber (II) measurement of swelling pressure and theory, 4042*i*.
—— and Nishida, M. Application of radio heating to the vulcanization of rubber, 5989*c*.
—— and Tomihisa, K. Plasticity of rubber (I) plasticity index of raw rubber, (II) effect of the magnitude of stress in the measurement of plasticity, (III) temp. coeff. of plasticity, (IV) effects of various plasticizers on synthetic elastomers, 2010*c*.
**Furukawa, K.** See Tanabe, U.
**Furukawa, Takehiko,** and Matsushima, M. Microscopic investigation of curled staple fiber, 1968*f*.
**Furukawa, Tonosuke.** Natural inorg. fillers comprising chiefly of $CaCO_3$ (I)

testing of natural fillers by the Meigen reaction and by fineness, (II) sedimentation method of analysis, 8187*i*; see Minatoya, S.

**Furukawa Denki Kogyo K. K.** Same as Furukawa Electric Industries Co.

**Furukawa Electric Industries Co.** Elec. insulating coating, P 6763*f*.

**Furukawa Industrial Co.** Recovering of $SO_2$, P 7201*f*.

**Furukawa Institute of Physical Research.** Sepn. of Fe from scraps of Al alloy contg. Fe, P 6965*a*; sepn. of Ni or Co from Ni or Co smelt, P 6965*b*.

**Furukawa Kogyo K. K.** Same as Furukawa Industrial Co.

**Furukawa Rika Kenkyujo.** Same as Furukawa Institute of Physical Research.

**Fusco, R.** See Bovet, D.; Quilico, A.

——— and Caggianelli, G. Sympathomimetic substances (I) synthesis of some (*p*-hydroxyphenyl)isopropylalkylamines, 1741*e*.

———, Chiavarelli, S., Palazzo, G., and Bovet, D. Synthetic curare compds (II) aryl aliphatic derivs. with double quaternary $NH_4$ function, 6590*d*.

———, Palazzo, G., Chiavarelli, S., and Bovet, D. Synthetic curare compds. (I) aromatic polyesters of (2-hydroxyethyl)trialkylammonium, 2190*d*.

——— and Renieri, L. Sympathomimetic substances in the biphenyl series (I) synthesis of biphenyl sympathol [4-hydroxy-4′-(1 - hydroxy - 2 - methylaminoethyl)-biphenyl], 1033*e*.

——— and Romani, R. Formazyls (III) synthesis of pyrazoles—application to the synthesis of 3-arylazopyrazoles and 3-aminopyrazoles, (IV) arylazochloroacetic acids, 4257*h*.

——— and Rossi, S. Action of diazo compds on methacrylic acid, 1744*d*.

**Fushimi, T.** See Kobayashi, Ryonosuke.

**Fushtey, S. G.** See Hunter, G.

**Fuson, N.** Infrared sensitivity of superconducting bolometers, 493*g*; effect of current magnitude on the behavior of a superconducting bolometer in its transition region, 2044*c*

**Fuson, R. C.** See Burckhalter, J. H.

——— and Baumgartner, F. N. Comparison of the reactions of mesityl cyclopropyl ketone and mesityl propenyl ketone, 3389*i*.

——— and Chadwick, D. H. Action of Grignard reagents on 2 methoxy 1-naphthonitrile, 1040*e*.

——— and Gaertner, R. Replacement of methoxy groups in *p*-methoxy-aryl ketones by the action of the Grignard reagent, 186*e*.

———, Gaertner, R., and Chadwick, D. H. Replacement of nuclear alkoxy groups by the action of Grignard reagents, 185*c*.

——— and Hoch, P. E. Reduction of mixed hindered benzils, 5773*c*.

——— and Koehneke, J. H. Rearrangement of 2-chloroisopropyl phenyl sulfide, 9049*i*

——— and Melamed, S. Bis(*p*-nitrophenyl) sulfide, 3802*f*.

——— and Munn, G. Condensation of 2′-methyl - 3′,5′ - dinitrochalcone with ethyl malonate, 4239*b*; 1,8-naphthalide, 7011*g*

——— and Speziale, A. J. Formation of a seven-membered cyclic disulfide from 1,2-dibromohydrin and 1,2-dithiol, 4278*f*; ring contraction by rearrangement of a β-chloro sulfide, 7030*b*

——— and Tull, R. *p*-Alkylation of hindered ketones by the Grignard reagent, 8369*i*

——— and Zirkle, C. L. Ring enlargement by rearrangement of the 1,2-aminochloroalkyl group—rearrangement of 1-ethyl-2-(chloromethyl)pyrrolidine to 1-ethyl-3-chloropiperidine, 227*c*.

**Futlerknecht, A.** Detn. of $Na_2SO_4$ in the presence of NaCl in dye baths, 6419*e*.

**Futran, M. F.** See Figurovskiĭ, N. A.

**Fux, V.** Limonites from Bagamér-Nagyléta, 7873*c*

**Fux, W.** Vitamin food product, P 8576*f*.

**Fusek, J. F.** See Smith, H. A.

——— and Smith, H. A. Kinetics of heterogeneous reactions—catalytic hydrogenation, 2079*e*.

**Fynn, G. F.** See Symons, G. E.

**Fysh, D., Gomm, A. S., Harland, J. C. and Imperial Chemical Industries Ltd.** Water-sol. dyes, P 7094*f*.

**Gaade, W.** Beginselen der organisch chemische nomenclatuur (book), 2215*f*.

**Gaarder, H. M.,** and Cooper, R. E. Upholstery pad, P 8176*c*.

**Gaarenstroom, J. H.,** Hublé, J., and Jongh, S. E. de. Diabetogenic activity of growth-promoting pituitary exts., 5852*c*.

**Gabba, L.,** and Molinari, E. Manuale del chimico Vol I (book), 7808*c*

**Gabbard, J. L.,** and Thompson, M. R. Effect of NaOH on the electrodeposition of electrodialyzed kaolin, 6091*c*.

**Gabe, M.** Histol. changes in the kidney in alloxan poisoning, 4380*d*, see Arvy, L.

**Gabel, A. R.** See Kropscott, E. L.

**Gabel, O.** Importance of the pituitary diencephalon system for the water and carbohydrate balance, 4359*f*.

**Gabel, Yu. O.** Chemistry of antibiotic substances, 8006*i*.

**Gable, D. E.** See McGavack, J.

**Gábor, G.** See Julesz, M.

**Gabovich, R. D.** Chlorination of well water, 7613*f*; F content in drinking water of Ukrainian S.S.R., 8582*i*.

**Gabriel, A.,** Jaffe, H. W., and Peterson, M. J. Detn of the constituents of boiler scale and related compds, 3309*i*

**Gabrielova, M. G.** See Orlov, V. I.

**Gabrielsen, E. K.** Quantum efficiency in photosynthesis, 1079*i*; photosynthesis in leaves at very low CO₂ concns, 6284*f*

——— and Schou, L. Expiration of $CO_2$ by green leaves in the light, 8010*g*

**Gabrilova, J. L.** See Soffer, L. J.

**Gabrilovich, A. B.** Piezodilatometric method and some of its applications, 7070*a*.

**Gabrio, B. W.** See Salomon, K.

——— and Salomon, K. Ca deposition in the femora of chick embryos after the injection of estradiol benzoate, 7579*g*.

**Gachot, H.** Enzymes for clarification, 261*f*; fruit juices free of $SO_2$, 328*e*; powd orange juice, 328*f*, Mn in apple must, 352*i*; vitamin C, a powerful reducing agent, 783*g*; organoleptic properties of juice from hybrid grapes, 784*e*; detn of malic acid, 1146*h*; enzymes for clarification, 3855*b*; citric acid in fruit juices, 3944*e*; fruit juice industry in Gt. Britain, 5510*c*, gelation ability of apple pomace, 5516*e*; Na benzoate and fruit juices, 7155*h*; prepn. of grape and apple juice in the United States, 8069*d*; fruit-juice industry in Switzerland, 8069*f*; fruit juices in central Europe, 8069*f*, frozen fruit juice, 8069*g*; solid $CO_2$ in the fruit juice industry, 8069*h*, grape sugars, 8070*b*

**Gad, A. M.** See Mustafa, Ahmed.

**Gad, G.** Detn of free Cl in water, 3952*f*

——— and Naumann, K. Detn of Pb in sterilized water, 7864*a*.

**Gad, G. M.,** and Barrett, L. R. Constitution of some Egyptian clays, 6121*b*; action of heat on alunite and alunitic clays, 9404*c*.

**Gad, I.** Detn of proteolytic activity in pancreas prepns, 1823*h*; detn of amylolytic activity in pancreas prepn., 2665*g*; detn. of lipolytic activity in pancreas prepns, 3055*i*

**Gadd, E. R.** See Betteridge, W.

**Gaddie, R. S.** See Barry, F. F.

**Gaddis, S. W.** Cutting the cost of high-school chemistry, 2826*f*; semimicro methods for quant. analysis, 8943*i*

**Gaddum, J. H.** Pharmacology (book), 773*a*.

**Gaddy, V. L.** See Allison, F. E.

**Gadeau, R.** Theory of electrolysis in Al tanks, 2871*e*.

**Gadsby, J.,** Long, F. J., Sleightholm, P., and Sykes, K. W. CO-C reaction, 3694*i*.

——— and Sykes, K. W. Control of the temp. of endothermic reactions in flow systems, 3668*e*.

**Gadwa, T. A.** Styrene distn., P 3454*d*.

——— and Flaws, D. B. High-vacuum distn app., P 6874*c*.

**Gaebel.** Fiber formation from viscose solns, 6408*g*

**Gäbelein, K.** See Franke, W.

**Gäbler, H.** Moth stages in relation to the chem. control of moths, 348*d*.

**Gaebler, O. H.** See Bartlett, Paul Devere.

**Gaensler, E. A.,** McKay, D. G., Ware, P. F., and Lynch, J. P. Cytologic changes in bronchogenic carcinoma following treatment with nitrogen mustard, 7135*b*.

**Gärtner, K.** Action of ultraviolet light on gram-pos. and gram-neg. bacteria, 3877*e*.

**Gaertner, R.** See Fuson, R. C.

**Gaerttner, E. R., and Yeater, M. L.** Resonance scattering of high-energy γ-rays by nuclei of C and Cu, 8266*a*.

**Gaetani, E.** Action of carcinogenic hydrocarbons on enzymic action of papain, 5054*d*.

**Gäth, R.** Synthetic thermoplasts, 3230*h*.

**Gaffney, G. W.** See McKennis, H., Jr.

**Gaffron, G.** See Brown, A. H.

**Gagarin, G.,** Nikitin, V. V., and Gliszczynski, S. v. Serbian occurrences of vivianite, 2128*i*.

**Gage, F. W.** See Allen, E. M.

**Gage, J. C.** Cell for the measurement of diffusion in aq. soln., 21*h*; synthetic antimalarials (XXXIV) physicochem. studies on the biguanides, 9037*a*; (XXXVI) physicochem. studies on pyrimidine derivs., 9038*c*

**Gage, M.** Geology of the Reefton quartz lodes, 6544*g*.

**Gage, T. B.** See Wender, S. H.

**Gagel, O.** Significance of the pituitary for the water and carbohydrate metabolism, 1851*c*.

**Gager, A.** See Bricq, R.

**Gager, R.** Distd. water for injection purposes, 1149*f*.

**Gager, R. M.** See Trout, E. D.

**Gaggia, Re,** and Ferrero, G. P. Urinary elimination of vitamin C in tuberculosis, 5850*f*.

**Gagliardi, B.** See Fortina, P.

**Gagliardi, D. D.** See Gruntfest, I. J.

**Gagnebin, A. P.,** Millis, K. D., and Pilling, N. B. Ductile cast iron—engineering material, 3328*i*.

———, Seigle, L. L., and Vanick, J. S. Alloys for making cast iron, P 1709*e*

**Gagnon, P. E.,** and Boivin, J. L. Synthesis of amino acids from substituted cyanoacetic esters, 4222*e*.

——, Boivin, J. L., and Jones, R. N. Synthetic and spectrometric studies of some pyrazolones, 7477*i*.

**Gahan, J. B.** See King, W. V.; Peffy, R. L.

———, Gilbert, I. H., Peffy, R. L., and Wilson, H. G. Toxicities of 4 chlorinated org. compds. to mosquitoes, housefllies, and cockroaches, 1518*h*

**Gaida.** See Falkenhausen, v.

**Gaidarov, L. P.** Combined chrome vegetable tanning, 6450*b*

**Gaikazyan, V. I. M.** See Melik-Gaikazyan, V. I.

**Gaikhorst, G.** Examn of a coke button as a measure of the agglutinating power of coals, 3594*d*

**Gaillard, P.,** and Gayte, F. Detn of small percentages of Cr in cast iron, 2117*g*.

**Gaillard, P. J.,** and Veer, W. L. C. Influence, of adrenochrome on fibroblastic cells 1073*b*.

**Gailus, W. J.** See Dietz, A. G. H.

**Gain, J. F.** See Lawrence, C. A.

**Gainer, G. C.** See Gilman, H.

**Gaines, D. S.** See Day, P. L.

**Gaines, J. C.** See Batte, E. G.

——— and Dean, H. A. Insecticides for control of several cotton insects, 1142*i*; insecticides for control of harlequin bugs, 1897*c*; insecticide dusts for grasshopper control, 3135*h*.

——— and Hanna, R. I. Comparison of diluents in insecticide mixts for cotton insect control, 1142*h*.

**Gaines, J. M.,** and Skinner, G. M. Use of O in the elec. furnace, 1267*g*.

**Gaines, P. C.,** and Woodriff, R. Sepn. of Cu and Cd, 4597*h*.

**Gaines, R. W.** Equipment used for Vinyon N yarn production, 1985*f*

**Gainey, P. L.** Effect of inoculating a soil with *Azotobacter* on plant growth and N balance, 7173*b*

**Gainor, C.** Effects of certain anionic, cationic, and nonionic agents on growth of *Escherichia coli*, *Salmonella paratyphi* B, and *Staphylococcus aureus*, 4330*d*.

**Gaio, A.** Machinery for plastic coatings, 435*c*.

**Gairaud, R.,** and Joly, E. Biology of the pear tree *Hoplocampa*, 8600*c*.

**Gaisinskiĭ, I. E.,** and Levitina, M. V. Gypsum, P 9410*h*.

**Gajdos, A.** See Bénard, H.

**Gajdos-Torok, Mme. M.** See Bénard, H.

**Gajewski, W.** See Zawadzki, J.

**Gajewski, Z.** Expressing concns. of binary solns., 2074*c*; introduction of new elec. units of measurement and their effect on some electrochem. consts., 2101*f*.

**Gajjar, I. M., Mistry, S. P., Mande, R. A.,**

and Sreenivasaya, M. Agricultural and industrial wastes as fortifying supplements for industrial fermentations, 9359c.
Gakenheimer, W. C. See Anderson, L. T.
Gakhanov, F. N. See Kazanskiĭ, B. A.
Gál, E. M. Prepn. of some *N*-substituted amino acid analogs, 6979d.
—— and Greenberg, D. M. Identification of some *N* substituted amino acids, 6269b.
Gal, I. Estn. of cholinesterase activity in blood serum, 6272b.
—— and Vegh, L. Detn. of cholinesterase activity of blood serum, 6272d.
Galambos, J. See Sós, J.
Galamini Ligori, M. See Angelico, R.
Galan, E. Nephrosis in children (I) 84 patients, (II) clearance and satn. tests, 6724b.
Galanin, M. D. See Karyakin, A. V.; Vavilov, S. I.
Galanina, N. D. See Pokrovskiĭ, N. L.
Galansino, G. Histamine action on exchange between blood and aq. humor, 1113i.
Galat, A. Nicotinamide from nicotinonitrile by catalytic hydration, 1411c.
Galatina & Biomalz A.-G. Therapeutic product, P 7198f.
Galatioto, L. C. Recovery of spent dye liquors, P 8174f.
Galbraith, A. L. See Loofbourow, D. G.
Galchenko, M. I. See Zhuravlev, S. V.
Gale, E. F. Assimilation of glutamic acid by *Staphylococcus aureus* and its prevention by penicillin, 4340a.
—— and Rodwell, A. W. Assimilation of amino acids by bacteria (VII) resistance to penicillin in *Staphylococcus aureus*, 4329d.
Gale, P. See Peck, R. L.
Galecki, A. Physicochem studies on pectins, 9296h.
Galenkamp, H. See Coops, J.
Galeone, A., and Romagnolo, A. Anticoumarol action of DL-methionine, vitamins PP and K, and casein hydrolyzate, 309d
Galetti, C. See Grandjean, E
Galginaitis, S. V. Elec fields in the cathode dark space of an abnormal H discharge, 4095d
Galinovsky, F., and Kainz, G. *dl*-Oxysparteines, 4260g, synthesis of *d*- and *l*-sparteine, 7031e.
—— and Mulley, H. Synthesis of natural conhydrine, 7937a.
—— —, Schoen, C., and Weiser, R. Elimination of HBr from dibromocyclohexanone with pyridine, 7912c.
—— and Vogl, O. Chromatographic sepn. of epimeric alcs., 2894f.
Galinowski, S., and Urbański, T. Products of nitration of some derivs. of dimethylaniline, auramine, and crystal violet, 2982a.
Galitzenstein, E. G. See Distillers Co., Ltd.
—— and Woolf, C. Alkyl chlorides, P 1793d.
Galkin, A. A., and Lazarev, B. G. Superconductive transition, 457g; supercond at the frequency of $1.8 \times 10^{10}$ hertzes, 4069e; oscillography of the curve of perturbation of supercond. by currents of acoustic frequencies, 4070a.
Galkina, A. N. See Chovnyk, N. G
Galkowski, T. T. See Whelan, W. P., Jr.
Gall, D. See Dazeley, G. H.
—— and Hall, C. C. Production of fatty acids by the oxidation of Fischer-Tropsch waxes, 1200h.
Gall, H. J. F. Effects of 2,4-dichlorophenoxyacetic acid on starch digestion and reducing activity in bean tissue cultures, 2286e.
Gall, J. F. Purification of $SF_6$, P 3575g.
—— and Miller, H. C. Electrochem. process for polishing Ta, P 4963i.
Gall, L. S., Stark, C. N., and Loosli, J. K. Isolation and preliminary study of some physiol. characteristics of the predominating flora from the rumen of cattle and sheep, 270e.
Gall, W. M. Compounding of hard rubber, 7250h.
Gallagher, D., and Perez Siliceo, R. Geology of the Huahuaxtla Hg district, State of Guerrero, Mexico, 4981g.
Gallagher, E. C. See Bolley, D. S.; Houston, G. W.
Gallagher, G. A. See Griesinger, W. K.
Gallagher, J. J. See Dunn, G.
Gallagher, R. T. Dewatering fine-size anthracite, 9411g.
Gallagher, T. F. See Borgstrom, E.; Dobriner, K.; Kritchevsky, T. H.; Marshall, C. W.; Munson, P. L.
Gallagher, U. M. See Paterson, E.
Gallai-Hatchard, M. Breaking up foamed blast-furnace slag and other melts, P 3106h, app. for the production of foamed slag, P 4209e.
Gallais, F., and Brandela, M. Nature and stability of the Bi(III) thiocyanate anion, 7300g.
—— and Masdupuy, É Constitution of Li nitride and the existence of the $N^{3-}$ ion, 1621a.
Gallant, D. L. See Toennies, G.
Gallardo Villa, M. See García Marquina, J. M.
Gallaway, H. E. *Melanoplus occidentalis occidentalis*, a range species of grasshopper in Nevada and its control, 3136b.
Gallaway, W. S. See Murray, M. J.
Gallego, J. L. See Lucas Gallego, J
Gallego, J. R. S. See Ruiz-Seiquer Gallego, J.
Gallego, S. R. See Rodríguez Gallego, S.
Gallego y Gómez, F. See González Gomez, C.
Galleotti-Flori, A. See Donatelli, L.
Galler, G. N. See Weitzenkorn, L. F.
Gallet, M. Detn. of Th in thoriated W, 7815h.
Galley, R. A. E. Coördination of insecticide research in Britain, 1139e.
Galli, B. Distn. app., P 6010a.
Gallic, P. le. See Le Gallic, P.
Gallico, E., and Camerino, B. Reducing action of x-rays on methylene blue, 2508a.
Gallien, L. Reactivity of various species of male anurians to injection of small doses of human pregnancy urine concd. by frothing, 3529d; amphisexual action of pregneninolone, 8066e
Galli Mainini, C. Chloremia and glucemia relations, 1114b.
Gallingani, M. See Laporta, M.
Gallo, G. Ba cements, P 8638d.
Gallo, V. Leucocytes after Na nicotinate administration, 4383g, see Cioffari, A.
Galloway, M. E. See Robertson, E. C.
Galloway, W. C. See Brown, D. R.
Gallowhur Corp. Metallo6rg. antiseptics, P 363i.
Gallup, A. H. See Muir, R. M
Gallup, B. E. Laminated boards, P 7208f.
Gallup, W. D. See Briggs, H. M.; Dinning, J. S.; Ross, O. B.; Whitehair, C. K.
Gallusser, G., and Flury, C. Clarifying tannery wastes, P 7170h.
Gallusser, H. Fe metallurgy, P 4963d.
Galmés, P. J. Covalent bond according to the wave-mech theory, 1621i
Galmiche, P. See Jacquet, P. A.
Gálócsy, Z. See Koller, K.
Galperin, A. S. Lab. for control of heat technology, 6845e.
Gal'perina, S. A. See Rigberg, Ya. L.
Galston, A. W. Riboflavin-sensitized photooxidation of indoleacetic acid and related compds., 3887i.
—— and Baker, R. S Inactivation of enzymes by visible light in the presence of riboflavin, 6264g.
—— and Hand, M. E. Physiology of light action (I) auxin and the light inhibition of growth, 4349e; effect of 3-indoleacetic acid on the response of *Lactobacillus arabinosus* 17-5 to nicotinamide, 6697g; adenine as a growth factor for etiolated peas and its relation to the thermal inactivation of growth, 9178d.
Galvana, R. L., Società a. See Società a R. L. Galvana.
Galva S. A. Alloys of Ni and an electrolytic process for their prepn., P 4588f.
Galvin, S. L. Concd. packaged soups, P 5512g.
Galybin, N. A. Briquetted peat fuel for glass works, 9400g.
Gambarin, F. See Pavolini, T.
Gamberg, E. R. See Jennings, C. H
Gambill, M. Water-softening app., P 7616a.
Gamble, E. See Zettlemoyer, A. C.
Gamble, E. L. See Schumb, W. C.
Gambrell F. L. DDT for control of the potato leafhopper on apple nursery stock, 1522a; DDT, *Ryania*, and benzene hexachloride for control of the elm leaf beetle, 1897g.
Gamburg, D. Yu. Fe catalyst, P 5135a.
Gamov, A. K. See Amsler, N. K.
Gamow, G. Het ontstaan en vergaan van de son. Subatomaire energie en de ievensloop van de sterren (book), 5672f; see Alpher, R. A.
Gamrath, H. R. Plasticizers for polyvinyl-acetal resins, P 1606d.
Gamson, B. W. Generalized thermal-cond. correlation for gas state, 2832f; "sulfo compns.," P 4792g; see Rush, W. F.
—— and Joffe, J. Fugacities in gas mixts., 2057a.
Ganapathi, K. See Fernandes, L.
—— and Venkataraman, A. Chemotherapy of bacterial infections (XII) synthesis of some sulfanilamide and sulfone derivs. of thiazole, 6180g.
Gand, E. Formation and flocculation of AgI in aq. medium (I) influence of concn. and structure of AgI, (II) other variables, 8236c.
Gándara, J. O. de la. See Otero de la Gándara, J.
Gandenberger, W. Water purification at the Gallenklinge Waterworks, Stuttgart, 1885f.
Gander, R. See Overberger, C. G.
Gandhi, M. P. Indian Cotton Textile Industry Annual. 1947–1948 (book), 5596i.
Gandolfi, C. Action of priscol on retinal arterial pressure, 3522h; pharmaceutical for superficial anesthesia in the eye, 3522i.
Gandolfo, N. Detection and detn. of small quantities of $SO_2$, 8308e.
Gandyurina, A. I. Filtration process in purification of lubricating oils with clays, 3182i.
Gane, J. See Margulis, H.
Ganelina, I. E. Action of nicotinic acid on circulatory system, 3076c.
Gangitano, L., and Bondi, M. Toxic action on epithelium and endothelium of histamine, 3108c.
Gangler, J. J., Robards, C. F., and McNutt, J. E. Phys. properties at elevated temp. of 7 hot-pressed ceramic materials, 8627c.
Gangneux, R. See Kopp, G.
Ganguly, A. K. Base-exchange properties of quartz and silica gel, 5885f; reactivity of exchange spots of silicate minerals, 5885g, height adjustment of Hg column for accurate polarographic measurements, 7835d.
—— and Gupta, S. L. Hydration of exchangeable cations of clay minerals and synthetic resins, 921h.
Gansinger, I. See Jantsch, G.
Gansloser, E. Evaluation of municipal sewage, 8595c.
Ganssen, R. Classification of German forest soils, 9312e.
Ganter, W. See Wagner-Jauregg, T.
Gantmakher, A. R., and Medvedev, S. S. Catalytic polymerization of unsatd. compds., 7295f.
Gantman, L. V., and Shvedov, E. P. Industrial production of reagent grade HCl, 2743c.
Gantt, W. H. See Teitelbaum, H. A.
Gants, E. St. C. See Nelson, P. M.
Ganucheau, J. J. Preserving canned crustacean meat, P 7861.
Ganz, A. See Geiling, E. M. K.
Ganzenmüller, W. Julius Ruska, 6875d.
Gapchenko, M. V., and Sheintsis, O. G. Detn. of K in mineral fertilizers and soils, 1136c.
Gapeeva, G. M. Camptonites from Toyun, southern Tyan-Shan, 6128f.
Gapen, C. A., and Gapen, L. Antiskid rubber tire, P 9519b.
Gapen, L. See Gapen, C.A.
Gapon, E. N. Al oxide for chromatographic analysis, 5328a; specific surface area of soil humus, 7617g; work of wetting and heat of wetting of soils, 7619c; N fixation by *Azotobacter*, 8445i; see Chernikova, T. N.; Gapon, T. B.; Ivanenko, D. D.
—— and Chernikova, T. N. Chromatographic exchange adsorption of cations by soil minerals, 3549h.
—— and Gapon, T. B. Chromatographic ion-exchange adsorption (II) ion-exchange chromatograms, 465a; chromatographic analysis of ions, 7859d.
—— and Zhev, L. A. Heat of wetting of soils, 7619c.
Gapon, T. B. See Gapon, E. N.; Ivanenko, D. D.
—— and Gapon, E. N. Chromatographic analysis of ions (I) chromatographic exchange adsorption of ions, 8971g.
Gapp, K. Ardil, the new synthetic wool, 5191i; caroá fiber, 5192a.
Gappelan, P. T. See Gleditsch, E.
Gaptchenko, M. W. See Gapchenko, M. V.

**Gapuz, D. B.** See Roddy, W. T.
—— and Lollar, R. M. Degreasing of pickled sheepskins, 4042*b*.
**Gar, K. A.** Soly. and toxicity relations of thermal Ca arsenate, 3966*b*, see Orlov, V. I.
**Garach, J.** Prepn. of pure hydrocarbons and characteristics of identification—hendecane, dodecane, tridecane, tetradecane, and the corresponding ethylenic hydrocarbons, 2156*h*; some alkylbenzenes contg. 10–15 C atoms, 2174*h*; hydrocarbons with two benzene nuclei—derivs. of biphenyl, 2175*a*.
**Garaci, C.**, and Pietrogrande, V. Modification in the cold of the Wassermann reaction, 4363*f*.
**Garand, A.**, and Givaudon, J. Inoxidizable steels 18/8—use in the factories for the carbonization of wood, 8120*c*.
**Gárate Coppa, M. T.** See Pérez Mateos, J.
**Garazsi, M. Z.**, Diczfalusy, E., and Lollos, Z. Effect of urea on the sulfanilamide treatment of sulfanilamide resistant gonorrhea, 8549*e*.
**Garb, S.**, and Chenoweth, M. B. Hydrocarbon-adrenaline-induced ventricular fibrillation, 313*a*.
**Garber, E. E.** See Kochakian, C. D.
**Garber, J. D.** See Adams, R.
**Garber, M.**, Marquette, M. M., and Parsons, H. T. Vitamin from yeasts (V) differences in the influence of live yeast on the absorption of pure thiamine-HCl, pure riboflavin, and N by human subjects, and the effect of distribution of the vitamin doses, 7559*c*.
**Garbo, P. W.** Catalytic production of amides, P 2240*a*; fluidization in Zn production, P 7892*i*; nicotinamide, P 7973*f*.
**Garbuny, M.** See Altar, W.
**Garbuzov, A. I.** Effect of electrolyte mixts. on the formation of periodic ppts. of Ca phosphate in agar gels, 7788*h*.
**Garbuzova, A. P.** Detn. of the alkaloids in lupines, 8096*f*.
**García, A. L.** See López García, A
**García, F.** Farmacologia experimental y terapéutica general (book), 6745*f*.
**García, F. G.** See González García, F.
**García, J. F.** See Bennett, L. L.
**García, J. G. O.** See Obregón García, J. G
**García, J. O.** See Ocón García, J
**García, N. A.** See Alvarez García, N.
**García, R. F.** See Fernández-García, R.
**García Austt, E.** See Caldeyro Barcia, R.; Heymans, C.
**García-Blanco, J.**, and Grisolía, S. Distribution of oxidases forming melanins in vegetable tissues, 277*h*.
—— and Vento, V. Presence of histamine in the fruit of *Cucumis melo* and its probable origin, 328*a*.
—, Viña, J., and Comín, J. L. Action of various dyes on the benzidine-peroxidase color, 7521*c*.
**García de Garrone, V.** See Jung, W.
**García de Jalón, P. D.** Evaluation of antihistaminic substances, 8424*d*
—— and West, G. B. Use of K in the pharmacol. assay of curare, 3973*c*.
**García de la Banda, J. F.** See Foz Gazulla, O. R.
**García Escolar, L.** See Campo, A. del.
**García Estartús, F.** Plastics and rubber derivs. in corrosion prevention, 1707*c*.
**García-Fernandez, E.** Chem. reactions of free and combined S (V) application to the detection of free S in French mineral waters, 9304*f*.
**García Fernández, S.** See Otero Acrille, E.
**García Gonzáles, F.**, and Fernández Bolaños, J. Synthesis of mercaptoglucumidazoles (I), 2988*i*.
—— and Sequeiros Bores, C. Influence of the aromatic nucleus in the dehydration of polyhydroxylated chains (I), 4664*e*; (II), 5392*a*.
**García-Gutiérrez, A. G.** Stabilization of smokeless powders, 6825*i*.
**García H., M.** See Castañeda-Agulló, M.
**García Lopez, G.** See Spies, T. D.
**García Marquina, J. M.**, and Gallardo Villa, M. Saponin of *Hepatica triloba*, 2736*d*.
**García Martín, D.** Detn. of Mn, 8303*i*.
**García-Morato Castaño, V.** Detn. of albumin in the gastric contents, 262*g*.
**García Paula, R. D. de.** See Descartes de García Paula, R.
**García Pineda, M. D.** See Jesús del Val, M.
**García Puertas, P.** See Villanúa Fungairiño, L.
**García Tabarés, L.** Protein metabolism of *Hordeum vulgare* during the germination period, 7554*b*.
**García-Valdecasas, F.**, Vilanova, X., Casanovas, M., and Puig Muset, P. Action of Gammexane on skin fungi, 7541*e*.
**García Vicente, J.** See Aleixandre Ferrandis, V
**Gard, C. D.** Solid $CO_2$, 1169*a*; extn. of $CO_2$ gas from natural gas and the manuf. of Dry Ice therefrom, 1882*d*, 2711*g*, 5516*c*
**Gard, S.**, Magnus, P. v., and Svedmyr, A. Inhibition and interference in influenza, 9236*i*.
**Garda, F.** See Ostow, M.
**Gardam, G. E.** Throwing power of electroplating solns., 2099*f*; relation of electrodeposition to electrochemistry, 4146*h*, brightening action of org sulfonates in bright Ni plating, 1146*i*, see Bullough, W.
**Gardell, S.** See Jorpes, J. E.
**Gardella, J. W.** See Solomon, D. H.
**Garden, N. B.** Semihot labs., 2505*f*
**Gardenghi, G.**, and Tanganelli, G. Changes in serum Fe in stenoses of the trachea, 3506*j*.
**Gardère, H.** See Courmont, P.
**Gardiner, K. W.**, and Smith, I. B. Adsorptive capacity of cotton for Na oleate, 4497*a*
**Gardner, A. D.** Disinfection of clean unwashed skin, 3525*c*.
**Gardner, D. A.** See Colin, R. H.
**Gardner, D. E.** As, 6540*a*, Hg, 6546*g*; Al and bauxite, 6546*h*.
**Gardner, E.** Stars in photographic emulsions initiated by α-particles, 4113*g*, see Burfening, J.
—— and Peterson, V. Stars in photographic emulsions initiated by deuterons (I), 4113*a*
**Gardner, E. J.** Coal prepn. for production of coke to be used in a 2000-ton blast furnace, 1168*g*
**Gardner, E. R.** See Lane, K. A. and Wills, R. P. L. Fatigue tests on the rubber cord bond, 7252*b*
**Gardner, F. E.** See Reuther, W., Smith, P. F.
**Gardner, F. S.** See Daniels, F. W.
**Gardner, F. T.** See McCay, R. C.; Roschach, R. L.
**Gardner, G. B.** Regenerated cellulose dielec. material, P 2119*g*.
**Gardner, G. D.** See Markovits, J. A
**Gardner, G. M.** See Kuzell, W. C.
——, Fairley, D. M., and Kuzell, W. C. Effect of BAL on polyarthritis of rats, 7583*a*
**Gardner, J.** See Deuel, H. J., Jr.
**Gardner, J. A.**, and Monsanto Chemicals Ltd. Org disulfides, P 1067*b*, 7034*a*
**Gardner, J. A. F.** Oxidation of waste sulfite liquor, 8877*f*
—— Mitchell, L., and Purves, C. B. Polyoxyphenol series (I) prepn. of some substituted benzylamines and benzylureas from vanillin, 2176*i*.
——, Moir, R. Y., and Purves, C. B. Polyoxyphenol series (III) syntheses of substituted phenylureas from methylated and ethylated vanillin, 2177*d*
**Gardner, J. B.** See British Oxygen Co. Ltd.
**Gardner, J. H.**, Easton, N. R., and Stevens, J. R. Compds. related to amidone, 611*d*
—— and Stevens, J. R. Heterocyclic derivs. of ethylenediamine, 7023*d*.
**Gardner, L. I.**, Berman, H., MacLachlan, E. A., and Terry, M. L. Spinal fluid glucose micromethod for the pediatric ward lab., 7072*e*
**Gardner, M. E.**, and Frey, A. R. College Physics (book), 4940*d*.
**Gardner, R.** See Whitney, R. S.
**Gardner, T. S.** *Drosophila melanogaster* as a screening agent for longevity factors (I) pantothenic acid as a longevity factor in royal jelly, (II) effects of biotin, pyridoxine, Na yeast nucleate, and pantothenic acid on the life span of the fruit fly, 2333*f*; cellulose esters of amino acids, P 3616*g*; see Gearhart, W. M.
**Gardner, V. R.** See Neal, A. L.
**Gardner, W.**, and Cooke, E. I. Chem. Synonyms and Trade Names (book), 2083*d*.
**Gardner, W. G.** Stock prepn. in beaters, 6410*b*.
**Gardner, W. U.** Hormonal imbalances in tumorigenesis, 2311*b*; see Pan, S.-C.
**Garey, C. L.**, and McHenry, J. R. Dependence of certain phys. and chem. measurements in a soil profile on the type of water-stable aggregate, 794*d*.
**Garfinkel, M. A.** $H_2SO_4$ coolers, 2743*c*.
**Gargallo, M. A.** Catalytic decompn. of $H_2O_2$ by KI, 2121*i*, 8307*i*; see Fester, G. A.
**Gargasole, C.** See De Felice, F.
**Gargill, S. L.** See Abrams, M.
**Gargiulo, M.** See Intonti, R.
**Garibaldi, J. A.** See Dimick, K. P.
—— and Feeney, R. E. Subtilin production, 5447*i*.
**Garibay, J.** Same as Garibay y R., J.
**Garibay y R., J.** Instrumentation for superphosphate manuf., 7175*b*; see Zimmerman, G. D.
**Garikian, G.** See Prigogine, I.
**Garilhe, M. P. de.** See Privat de Garilhe, M.
**Garino-Canina, E.** Wine fermentation—biochem. details of must fermentation, 6780*f*.
**Garland, G. W.** Gas-fired infrared or radiant-heat drying, 6411*d*.
**Garland, T.** Accurate moisture-content measurement in textile fabrics and yarns, 8686*g*.
**Garlick, G. F. J.**, and Fatehally, R. A. Measurement of particle energies with scintillation counters, 5292*d*.
—— and Gibson, A. F. Electron-trap mechanism of luminescence in sulfide and silicate phosphors, 3720*a*.
—— and Mason, D. E. Electron traps and infrared stimulation of phosphors, 7826*h*.
——, Wells, A. F., and Wilkins, M. H. F. ZnS phosphor constitution and its effect on electron traps, 7317*f*
**Garlock, E. A., Jr.** See Levine, J.
—— and Grove, D. C. Detn. of cryst. penicillin G by infrared analysis, 8613*e*.
**Garm, O.** Bovine nymphomania, 6303*b*
**Garmaise, D. L.** See Whittingham, D. J.
**Garman, J. A.** See Drake, N. L.
**Garman, P.** Fruit insects, 8016; increase in red banded leafroller damage following use of DDT, 8019
—— and Kennedy, B. H. Effect of soil fertilization on the rate of reproduction of the two-spotted spider mite, 6349*i*.
—— and Townsend, J. F. Mite control in connection with DDT expts., 8099*h*.
**Garman, W. L.** Org. P in Oklahoma soils, 2721*c*
**Garnatz, G.**, Hodler, P. W., and Rohrbaugh, W. Evaluation of cabinet fermentation with corn size sponges and doughs, 6325*g*.
**Garner, C. S.** See Leventhal, L.; Menker, H. E.
——, Bonner, N. A., and Seaborg, G. T. Search for elements 91 and 93 in nature—presence of $91^{239}$ in carnotite, 1648*i*
**Garner, F. H.** See Baddeley, A. R. W.; Petty, D. S.
—— and Nissan, A. H. Rheological properties of high-viscosity solns. of long mols., 4055*h*.
**Garner, P. J.** See Airs, R. S.
**Garner, W.** Textile Lab. Manual (book), 6832*d*.
**Garner, W. E.** Percy F. Frankland, 1618*h*.
——, Gray, T. J., and Stone, F. S. Reduction of thin films of Cu oxide, 6531*i*.
**Garnero, J.**, Bénezet, L., and Igolen, G. Chem. compn. of Brazilian oil of peppermint, 4427*f*.
**Garnier, M.**, and Delamare, V. Dictionnaire des termes techniques de médecine (book), 6268*i*.
**Garnir, H.** Group theory and its application to vibrational problems, 3672*e*.
**Garnung, H.** See Camelin, A.
**Garola, J.** Fertilization with phosphates, 797*g*.
**Garratt, D. C.** See Allport, N. L.
**Garreau, Y.** Action of 2-amino-4-methyl-5-halothiazoles and their Ac derivs. on hydrosulfides and thiourea, 632*a*.
**Garrels, R. M.** See Dreyer, R. M.
—— and Gucker, F. T., Jr. Activity coeffs. and dissocn. of $PbCl_2$ in aq. solns., 4544*e*.
**Garret, O. F.** See Almy, E. F.
**Garrett, A. B.** Visualization, 451*b*; see Gayer, K. H.; Litz, L. M.; Mack, E., Jr.; Newman, M. S.
**Garrett, B. S.** Isobutylene extn., P 5582*f*.
**Garrett, C.** See Johns, H. E.
**Garrett, C. G. B.** Nuclear effect in magnetic cooling expts. on Cu salts, 7336*h*.
**Garrett, K. B.** See Marshall, I.
**Garrett, L. C.** See McArdle, M.
**Garrett, S. D.** Soil conditions and the take-all disease of wheat (IX) interaction between host plant nutrition, disease escape, and disease resistance, 9233*d*.
**Garrido, M. A.** See Fleury, P.

**Garriga de Menezes, M. J.** See Jordão da Rosa, M.
**Garrigus, W. F.** See Forbes, R. M.
**Garriott, F. E.** Welding electrode, P 5002*h*.
**Garrison, A. D.** Recovery of liquefiable hydrocarbons from fluids flowed from high-pressure distillate or condensate wells, P 8002*h*.
**Garrison, L.** See Behrens, O. K.
**Garrison, M. E.** General Petroleum's Burrel gasoline plant, 4453*a*, 7216*h*, 7218*d*.
**Garrison, W. M.** See Stover, C. N., Jr.
——, Haymond, H. R., and Maxwell, R. D. Sepg carrier-free radioactivities, 8876*e*
**Garrity, L. V.** Hazards due to Cd-coated pipe and fittings, 9866.
**Garrod, J.** See Agate, J. H.
**Garrod, M.** See Lloyd, D. J.
**Garrod, R. I.**, and Gross, K. A. Combined thermocouple and cold-cathode vacuum gage, 3248*b*; universal coupling for use in vacuum systems, 8748*c*.
**Garrone, V. G. de.** See Garcia de Garrone, V.
**Garside, J. E.** Process and Phys Metallurgy (book), 4998*a*; see Culshaw, G. W., Kilham, J. K.; Scholefield, D. A., Williamson, R. H.
**Garson, W.**, McLeod, C., Tetrault, P. A., Koffler, H., Peterson, D. H., and Colingsworth, D. R. Naming of two antibiotics from members of the *Bacillus circulans* group—circulin and polypeptin, 8006*c*
**Garst, J. B.** See Friedgood, H. B.
**Garta, I.** Hematology of Pb poisoning, 8549*i*.
**Garteiser, A.** Metallic cloths used in papermaking, 5919*f*
**Garten, V.**, and Becker, W. Size and shape of Buna mols., 7253*g*.
**Gartler, K.** See Ziegler, E.
**Gartner, K.**, and Demeczky, M. Changes in nicotine content of *Nicotiana rustica*, 9169*h*
**Garton, C. G.** See Church, H. F.
**Garton, G. A.**, and Williams, R. T. Detoxication (XVII) fate of catechol in the rabbit and the characterization of catechol monoglucuronide, 2325*b*; (XXI) fates of quinol and resorcinol in the rabbit, 6313*i*
**Gartside, F.** See Bardgett, W. E.
**Gartside, J.** See Hutton, F. A.
**Garve, T. W.** Downdraft kilns of continuous circuit, 2391*f*, chamber kiln, 4439*a*, clay drying, 7204*i*; floor driers, 9480*h*
**Garverich, E. S.** Laundry-sour compn., P 6438*c*.
**Garvey, T. M.** See Grange, R. A.
**Garwick, J.** See Rosenqvist, I. T.
**Gary, W. W.** Activating catalyst clays with mineral acids, P 4001*d*.
——, and Secor, R. B. Ammoniated acid activated montmorillonite catalyst, P 370*f*.
**Garza, H. M.** See Martinez Garza, H.
**Garza Curcho, M. de la.** Mutation to tryptophan independence in *Eberthella typhosa*, 273*c*
**Garzoli, E. F.** See Dudley, H. C.
**Gascoigne, J. A.** Choice of paint (I) essential constituents, 4489*c*, (II) paint in action, 4869*g*, (III) surface coatings today—paint media, 6429*i*, (IV) 20th century varnishes, 8695*c*, (V) speed and color, 8695*d*.
**Gascoigne, R. M.**, Ritchie, E., and White, D. E. Anthocyanins in the Australian flora, 3068*e*.
**Gascoigne, S. C. B.** Emission in λ Pavonis, 5300*e*.
**Gasior-Russell, A.** See Roberts, R. G.
**Gaskill, M. S.** Carbonizing, 7665*c*.
**Gas Light & Coke Co.**, Griffith, R. H., and Newling, W. B. S. Catalytic oxidation of $H_2S$ in gaseous mixts., P 7212*h*.
——, MacCormac, M., and Lewis, C. H. Gas from oil, P 4449*g*.
**Gasnier, A.** Growth (II) diet and growth, (III) effect of increase in the Mn content of the ration, (IV) nutritional characteristics, (V) action of cod-liver oil on development, 3078*b*.
**Gaspar, B.** Aldehydes, P 6225*f*.
**Gaspare, A.** Poisoning by HCN and the eye, 3522*g*.
**Gáspár-Rády, Z.** See Beznák, A. B. L.; Hajdu, I.; Kovách, A. G. B.
**Gaspar Romero, J.** See Olea Gomez, J.
**Gaspart.** Deposits of $NaNO_3$ in Chile, 4190*a*.
**Gaspar y Arnal, T.**, and Matesanz Rojo, A. Sulfites and sulfates in chem. analysis (V) sepns. of the cupric ion from the alk. earths and from Pb—quant. sepns., (VI) sepns. of Mg from the alk. earths and Pb, (VII) sepns. of Ca from Ba, Sr, and Pb in water-alc.-$HNO_3$, 2115*g*; (VIII) detns. in the sepn. of Ca and Sr—detns. in the sepns. of Ca and Ba—detns. in the sepn. of Ca and Pb, 2116*a*.
——— and Santos, M. $BaS_2O_3$ (I) reaction for Ba and thiosulfate ions, (II) detn. of Ba as $BaS_2O_3 \cdot H_2O$—detn. of Ba by indirect iodometry, with previous pptn. as $BaS_2O_3 \cdot H_2O$—detn. of thiosulfates as $BaS_2O_3 \cdot H_2O$, 1680*f*.
**Gas Research Board** and Eastwood, A. H. Removal of org. S from gas, P 379*i*.
**Gasser, A.** See Beck, Gottfried
**Gasser, F.** Detection of the chlorite ion, 8972*f*.
**Gassmann, A. G.**, and O'Neill, W. R. Detn. of P and metals in lubricating oils, 4840*f*.
**Gassmann, F.** See Hugi, E.
**Gasson, E. J.**, Quin, D. C., Salt, F. E., and Distillers Co., Ltd. Vinyl ethers, P 5111*a*.
**Gast, T.** Dielec. behavior of synthetic materials, 920*e*.
**Gastaldi, A.** See Gastaldi, E.
**Gastaldi, E.** Industrial production of cocaine, 8100*h*.
——— and Marangoni, P. Activity of digitalis powder tablets over 25 yrs. old, 7189*g*.
**Gastaldi, F.**, and Gastaldi, A. Changes in insulin sensitivity caused by stasis of the lymph in the head, 5846*a*; glucemic changes produced by lymph returning from the head, 5846*b*.
**Gastambide, B.** See Vavon, G.
**Gastellier, S.**, Peeters, L., and Sorotchinsky, C. Samples of native Au from the Nyongwe deposit, middle Ruanda, 523*c*.
——— and Sorotchinsky, C. Samples of native Au from the placers at Camp Bumva, 523*c*.
**Gastellu, C.** Dyes for leather and their application, 8721*d*.
**Gaston, E.** See Jacobson, L. O.
**Gastrock, E. A.** See Spadaro, J. J., Van Arsdel, W. B.
——— and D'Aquin, F. L. Continuous solvent extn. of cottonseed and peanuts at the Southern Regional Research Lab., 423*c*.
———, Persell, R. M., Spadaro, J. J., and Vix, H. L. E. Pilot-plant fraction of cottonseed (IV), 9490*d*.
**Gasvoda, B.** See Barron, E. S. G.
**Gatchell, H. D.** See Geiger, P.
**Gates, C. W.**, and Howey, C. R. Purification of phenothiazine, P 821*d*.
——— and Woods, W. P. Recovery of $HSO_3F$ and use as condensing agent in production of DDT, P 2732*g*.
**Gates, D. M.** Analysis of the infrared spectra of the normal paraffin hydrocarbons and the far-infrared spectra of $CCl_4$, 4573*j*; skeletal frequencies of the paraffin hydrocarbons and the far infrared spectrum of $CCl_4$, 7342*a*.
**Gates, J. W. Jr.** See Damschroder, R. E.
**Gates, R. L.**, and Kneen, E. Maltase activity of various mold brans, 6361*d*.
**Gates, R. M.** See Emmons, R. C.
**Gatta, L. della.** See Della Gatta, L.
**Gattani, M. L.** See Stakman, E. C.
**Gattefossé, J.**, Bénezet, L., and Igolen, G. Aromatic flora of Maroc, 4815*a*.
——— and Igolen, G. Essential oil of the leaves of thuja of Barbary, 4814*d*; flora of Morocco—rare or unknown essential oils, 7193*g*.
**Gattini, M.** See Travia, L.
**Gattorta, G.**, and Tombesi, L. Influence of the aquatic regime on the production and compn. of rapeseed, 2286*g*.
**Gaty, F.** Controlled graphitization in cast iron, 7877*h*.
**Gaubert, P.** See Baird, W.
**Gaucher, G.** Properties of calcareous crusts which are related to their origin, 76*g*.
**Gauchmann, G.** See Gaukhman, G. Ya.
**Gaudin, A. M.**, and De Bruyn, P. L. Radioactive tracers in mineral engineering problems and esp. in flotation, 8321*i*.
——— and Pannell, J. H. Radioactive detn. of K in solids, 2118*g*.
**Gaudin, O.** See Halpern, B. N.
**Gaudino, M.** Kinetics of distribution of insulin between two body water compartments, 5841*d*.
——— and Levitt, M. F. Inulin space as a measure of extracellular fluid, 7117*a*.
———, Schwartz, I. L., and Levitt, M. F. Inulin vol. of distribution as a measure of extracellular fluid, 739*h*.
**Gauditz, I. L.**, and Ramsauer, R. Effect of org. substances and org. binary mixts. on interfacial friction, 2059*i*.
**Gaudry, R.** Synthesis of DL-alanine and DL-phenylalanine by way of the corresponding hydantoins, 3786*e*; synthesis of aminoadipic acid, 4228*d*; see Mertz, E. T.; Nadeau, G.
——— and Berlinguet, L. Synthesis of proline by cyclization of dihalogenated valeric acids, 6615*a*.
**Gaudy, J. P.**, and Stämpfli, R. Elec. cond. of blood and plasma on high mountains and its relation to the no. and vol. of erythrocytes, 3504*e*.
**Gauger, A. W.**, and Darby, H. T. Solid and gaseous fuels, 2753*h*.
———, Kinney, C. R., and Struck, R. L. Water-gas tar, 378*h*.
**Gaughran, E. R. L.** Temp. activation of certain respiratory enzymes of stenothermophilic bacteria, 2671*e*.
**Gaugler, E. A.** Magnetic materials, 7394*b*.
**Gauguin, R.** Phenomenon of dismutation in analytical chemistry—utilization of the generalized Brönsted theory, 58*e*; reducing properties of the CN ion, 2076*b*; oxidation of CN by I, 2121*a*; oxidation of thiocyanates by iodate, 8309*g*.
**Gaukhman, G. Ya.** See Botvinnik, M. M.
**Gaul, L. E.**, and Underwood, G. B. Dermatitis venenata from organomercurial compds with a comparison of their pharmacol. action on normal and injured skin, 8510*d*.
**Gault, E. S.** See Smith, Laurence W.
**Gault, H.** Aldolization, ketolization, and acidolization, 3074*d*.
——— and Ghilhardi, G. Diethyl-α,δ-bis(1-aminoethyl)adipate, 577*i*.
**Gault, H. R.** Frequency of twin types in quartz crystals, 8986*g*.
**Gaunø Jensen, V.** See Jepsen, V. G.
**Gaunt, J.** See Baker, J. W.
**Gaunt, R.** See Birnie, J. H.; Eversole, W. J.
**Gaur, H. C.** See Bhattacharya, A. K.
——— and Bhattacharya, A. K. Compn. of complex metallic ferro- and ferricyanides (VII) conductometric studies on the compn. of Cd ferricyanide, 2113*b*; (VIII) thermometric study of the compn. of Cd ferricyanide, 7366*a*.
**Gausé, G.** See Gauze, G. F.
**Gause, G. R.** Amt. of inspection as a function of control of quality, 5233*d*.
**Gautheret, R. J.** Action of indoleacetic acid on growth of tissues of salsify root, 1461*h*; utilization of glycerol by plant tissue cultures, 2281*b*; see Longchamp, R.
**Gauthier, B.** Pharmaceutical uses of fats, 5546*b*; analytical properties of 2-sulfanilamidothiazole, 7869*c*.
**Gautier, E.** Relaxing effect of thiamine on isolated rat intestine, 9185*i*.
**Gautier, J. A.** Constitution of the periodide of methylene blue—analytic applications of the compd., 654*h*; methylene blue in analytical chemistry—reagent for certain cations and as volumetric indicator, 962*h*.
**Gautier, R.** Health Organization and biol. standardization, 3561*f*.
**Gauwentak, C. A. R.** See Reinders-Gauwentak, C. A.
**Gauze, G. F.** Dextral and sinistral forms of *Bacillus mycoides* (I) geographic distribution and some physiol. properties, 7549*e*.
**Gauzer, E.**, and Pashaeva, K. Chloroform content of gastric juice, 7191*g*.
**Gavarret, J.** See Weiss, A.
**Gavarrón, F. F.** See Sánchez-Marroquín, A.
**Gavăt, M.** See Vântu, V.
**Gavatin, E. J.** Artificial resins, artificial rubber, etc., P 3232*c*.
**Gavaudan, P.** Properties common to kinetoclasic and carcinogenic substances, 8517*a*.
**Gavelin, G.** Effect of mill water on pitch troubles, 2773*h*; effect of hexametaphosphate on pitch troubles in the paper mill, 9444*e*.
**Gavelin, S.** Adak area (Sweden)—geology and ore deposits, 3320*i*.
**Gaver, G. van.** Foam products from polyvinyl chloride, 4893*b*.
**Gavrikova, A. D.** See Ginsburg, A. N.
**Gavrilenko, V. S.** Flameless gas heating in industrial plants, 7665*i*.
**Gavrilko, V. M.** Operation of strainer pipes in the electrochem. corrosion theory, 1705*g*; effect of chem. corrosion on the yield of water in drilled wells, 2346*a*.

**Gavrilov, A. I.** See Karklit, A. K.
**Gavrilov, B. G.,** and Tishchenko, V. E. Reaction of Na salts of thiol acids with satd. α-dibromides (II) action of Na thiosulfate and ethyl xanthate, 2569*h*.
**Gavrilov, F. F.** See Vergunas, F. I.
**Gavrilov, N. I.** Scales for weighing liquids, P 3249*h*; see Akimova, L. N.; Ginzburg, E. I.; Plekhan, M. I.; Poddubnaya, N. A.; Zelinskii, N. D.
—— and Akimova, L. N. Structure of submol. units of proteins (II) prepn. of substituted diketopiperazines with amino acid side-chains, 3789*b*.
**Gavrilova, K. D.** See Budanova, L. M.
**Gavrilova, V. A.** See Evstigneev, V. B.
**Gavrilova, V. M.** Pathogenesis of photo dermatitis from chlorinated naphthalenes, 7122*d*.
**Gavrish, D. I.** See Chupranko, E. S.
—— and Zegzhda, D. P. Ladle brick from Nev'yansk kaolin, 6381*e*.
**Gavurina, R. K.** See Ushakov, S. N.
**Gaw, H. Z.,** and Wang, H. P. Survey of Chinese drugs for presence of antibacterial substances, 7643*i*.
**Gawel, A.** Geol. conditions of origin of blue salt, amethyst, and violet fluorite, 8313*a*
**Gawrilow.** See Gavrilov.
**Gawron, O.** Chloromethylation of veratrole, 2970*d*; see Hiemenz, A.
**Gay, A. F.** See Stringer, J.
**Gay, G.** Intoxication by arsenicals as a possible cause of leucosis, 3519*a*.
**Gay, Helen.** See Kaufmann, B. P.
**Gay, Henry.** See Boynton, P.
**Gay, J.** See Gellhorn, E.
**Gay, L. N.** See Landau, S. W.
—— and Carliner, P. E. Prevention and treatment of motion sickness (I) sea sickness, 6319*a*.
——, Landau, S. W., Carliner, P. E., Davidson, N. S., Furstenberg, F. F., Herman, N. B., Nelson, W. H., Parsons, J. W., and Winkenwerder, W. W. Antihistamine substances (III), 3938*d*
**Gay, P. J.** Measurement of wetness of exposed paint films—climatic factors in paint breakdown, 3627*i*, see Jordan, L. A.
**Gay, R.** Dendritic crystal growth, 6026*i*, diffusion method of studying ppta phenomena — mineralogical applications, 7276*h*.
**Gay, V. V.** See Gel, V. V.
**Gayatonde, N. S.,** and Khorana, M. L. Suppository bases (I), 3563*c*.
**Gaydon, A. G.** Spectroscopy and Combustion Theory (book), 1170*c*; see Coleman, E. H.
—— and Wolfhard, H. G. Low-pressure flames—temp. measurements in $C_2H_2$ flames, 4958*b*; free radicals in low pressure flames, 5312*g*.
**Gayer, K. H.,** and Garrett, A. B. Equil. of $Ni(OH)_2$ in solns. of HCl and NaOH, 8809*h*.
**Gayet, J.** P metabolism of *Stereomalocystis nigra* (I) changes in P content during growth in a balanced medium, 1455*h*; (II) influence of the phosphate concn. of the culture medium, 4330*e*.
**Gayet-Hallion, T.** See Bertrand, I.
—— and Bertrand, I. Frog heart for the comparative biol. assay of procaine solns., 2370*d*.
—— and Quivy, D. Detn. of adrenaline, 2264*e*.
**Gaylor, P. J.** Polymerization process, P 3238*d*; waterproofing cellulosic material with higher aliphatic acyl peroxides, P 4023*c*.
**Gaylord, W. M.** See Coull, J.
**Gaynor, J. W.** Stabilized org. S contg. compn., P 8132*b*.
**Gayon, J. R.** See Ribereau-Gayon, J.
**Gayte, F.** See Gaillard, P.
**Gazet du Chatelier, G.** See Chatelier, G. G. du.
**Gazia, R.** Automatic extn. of pharmaceutical liquids in the absence of air, P 7197*h*.
**Gazulla, O. R. F.** See Fdz Gazulla, O. R.
**Gazzano, P. M.** See Alberto Videla, C.
**Gazzola, A. L.** See Hutchings, B. L.
**Gdanoff, Gdanow.** See Zhdanov.
**Geake, A.** Absorption of the two vat dyes Caledon Red BN and Caledon Jade Green by cotton, 2770*f*.
**Gearhart, R. P.** See Riggins, H. M.
**Gearhart, W. M.,** and Gardner, T. S. Stabilizing cellulose esters, P 7685*e*.
—— and **Kennedy,** W. D. Cellulose acetate butyrate plastics—high-temp. evaluation of plasticizers, 5944*g*.
—— and Meyer, L. W. A. Fluorescent cellulose ester compn., P 4013*d*.
**Gebauer, C. L.** Lubricating compn., P 390*d*.
**Gebauer, K.** Hard Cr plating on Al and its alloys, 7833*f*; prepn. of hard Cr-plated bearing surfaces with good surface properties, 8902*h*; see Wahl, Hans.
—— and Sommer, K. Cr-plating baths contg. fluosilicic acid, 46*f*.
**Gebauer Chemical Co.** Lubricating compn., P 390*d*.
**Gebhardt, E.** Equil. studies of the systems Zn-Al and Zn-Al-Cu, 6961*g*.
—— and Schmidt, I. Reactions of molten Zn-Al alloys with Fe, 2148*e*.
**Gebhart, A. I.** Reaction of org. compds. with H halides, P 3024*a*; see Ross, J.
—— and Ross, J. Al soaps, P 2452*d*.
**Gebler, K. A.,** and Wisely, H. R. Dense cordierite bodies, 5164*g*.
**Gebrüder de Trey Akt.-Ges.** Same as De Trey frères S. A.
**Gebrüder Sulzer Akt.-Ges.** Same as Sulzer Freres Soc. anon.
**Geckler, R. P.** N mustard inactivation of the cytoplasmic factor kappa in *Paramecium aurelia*, 8065*b*.
**Gedda, E.** Triethylene glycol as air disinfectant, 9377*c*
**Geddes, W. F.** See Christensen, C. M., Larsen, R. A.; Milner, M.
**Gedeon, T.** Bauxite, 7876*f*, alunite in Hungary, 8991*c*; $Al_2(SO_4)_3$ in campaigns against insects, 9341*c*.
**Gedeonov, L. I.** See Nemilov, Yu. A.
**Gedge, F. G.** $CO_2$ in lime softening, 3122*h*.
**Gedigk, P.** See Westphal, U.
**Gedschold, H.** See Tronnel, G.
**Gee, A. L. W. de.** Analytische Scheikunde (book), 1291*a*.
**Gee, D. W.** See Hunter, G.
**Gee, E. A.** See Cunningham, W. K.
**Gee, G.** Polymer science and rubber technology, 6451*h*, 9512*g*, interaction between rubber and liquids (X) thermodynamic theory of rubber-liquid systems, 8722*h*; see Bateman, L., British Rubber Producers' Research Association.
**Gee, K. W.** Nitro paraffins, P 4285*b*
**Gee, O. F.** See Shearon, W. H., Jr.
**Gee, W. P.** Fractional sepn. of fatty oil substances, P 884*f*.
**Geehan, R. W.** Sultan Zn-Pb mine, Clark Co., Nev., 7382*i*.
**Geel, W. C. van.** Passage of electrons through boundary layers, 3732*e*.
—— and Amstel, J. J. A. P. van. Blocking-layer rectifier, P 4154*d*
—— and Esseling, L. A. L. Application of Se blocking-layers, P 5682*d*; heat-treating Se electrodes, P 5682*e*.
**Geer, B. W. de.** See De Geer, B. W.
**Geer, M. R.,** and Yancey, H. F. Coal washing in Wash., Ore., and Alaska, 6807*a*.
**Geerk, J.,** and Brix, P. Producing blackening steps on photographic plates with medium speed protons, 7328*c*.
**Geerling, H.** See Berkhout, H. W.
**Geffen, C.** See Allfrey, V.
**Gegner, P. J.** Corrosion of Cu in HCl, 550*a*.
**Gehman, S. D.** Creep, recovery, and permanent set for GR-S and *Hevea*, 8724*c*; see Wilkinson, C. S., Jr.
**Gehrenbeck, G. B.** Sol. and infusible synthetic resins, P 2031*b*.
**Gehring, A.** See Fresenius, R.
**Gehring, C. I.** Grinding different kinds of groundwood with 3 pocket grinders, 2772*d*; screening of groundwood, 4465*f*.
**Gehring, G.** See Hieber, W.
**Gel, V. V.** See Latyshev, G. D.
——, Latyshev, G. D., and Pasechnik, M. V. Fine structure of the γ-line of Ra C, 4505*b*
**Geib, I. G.** See Davidson, W. L.
**Geib, N. C.** See Block, W. D.
**Geidelman, M. M.** Operation of lime kilns [of the sugar industry] with low-grade fuels, 5979*g*.
**Geiersberger, K.** Lattice consts. of $FeCl_3$, 8782*i*; see Klemm, W.
**Geiger, C. F.,** Turner, A. A., and Stach, O. R. Super-refractories from elec.-furnace products, 8631*b*.
**Geiger, E.,** and Dunn, H. J. Failure to utilize α aminoadipic acid as a precursor of lysine by rats and certain bacteria, 6708*f*
——, and Geiger, L. E. Time factor in feeding supplementary proteins, 1469*g*.
—— and Hagerty, E. B. Growth of rats on hydrolyzed zein, 8464*g*.
——, Hagerty, E. B., and Gatchell, H. D. Transformation of tryptophan to nicotinic acid investigated with delayed supplementation of tryptophan, 9180*f*.
**Geiger, L. E.** See Geiger, E.
**Geiger, L. M.** Ale.-sol. phenol-modified coumarone-indene resin, P 5631*b*.
—— and Marsh, D. L. Water-dispersible phenothiazine, P 3572*b*.
**Geiger, M.** See Gränacher, C.
—— and Hefti, F. Glycerol recovery, P 4498*c*.
**Geiger, W. B.** Chetomin an antibiotic substance from *Chaetomium cochliodes* (III) compn. and functional groups, 7544*b*.
**Geiges, A. J.** Fatty oil-aromatic hydroxy compd. reaction products, P 9484*h*; hydroxy carboxylic-polycarboxylic acid esters, P 9529*c*.
**Geiges, A. S.** Hydroxy carboxylic-polycarboxylic acid esters, P 9529*c*.
**Geigy, J. R.** See Ris, H.
**Geigy, J. R., A.-G.** (*Patents.*)
acaricides, 4419*h*.
4-acetylnaphthosultone, 5047*d*.
*N*¹-acetylsulfanilamide, 3458*f*.
acylamino aliphatic amides, 4680*f*, 6653*f*, 7956*a*.
*N*¹-acyl-*p*-aminobenzenesulfonamide, 3035*g*, 4695*b*, 6662*a*.
acylamino carboxylic acid amines, 248*c*.
acylated aliphatic amino acid amide, 4291*d*, 6653*g*, 7956*h*.
acylated amino carboxamide, 4086*i*.
acylated arylsulfonamides, 2231*e*, 2364*a*, 6233*f*, 7960*f*, 7962*h*.
acylbiguanides, 2442*c*, 4878*i*, 5199*c*.
acylbiguanides, guanamines, and their water-sol. derivs., 699*f*.
acylglycinamides, 248*g*.
aliphatic amides, 6224*h*.
alkylene dicarboxylic diamides, 3842*d*.
1-allyl-5-diethylcarbamyl-2(1*H*)-pyridone, 6071*g*.
amides of pyridinecarboxylic acids, 252*i*.
amides of 2-pyrone-5-carboxylic acid, 2239*i*.
amides of α,β unsatd. carboxylic acids, 5413*c*, 7954*c*.
amino cyclopentanecarboxylic acid ester, 6229*b*
1-amino-7-hydroxy-3-naphthalenesulfonic acid, 5967*b*
1-(4-aminophenylsulfonyl)-3-benzylurea Na salt, 6234*b*.
(4-aminophenylsulfonyl)urea, 1061*b*, 1804*f*.
4-amino-*N*-(α-propoxypropionyl) benzenesulfonamide, 5802*b*
araliphatic amines, 6231*f*
aryloxy(alkylamino)butanol derivs., 1915*a*.
aryloxy(alkylamino)butanone derivs. 1914*h*.
basic amide of 1-arylcycloalkanecarboxylic acid, 5797*c*, 7958*g*.
basic arylalkyl esters, 6229*c*
basic aryl alkyl ethers, 5943*c*.
basic benzyl ether, 4299*c*.
basic esters, 4693*a*, 5797*e*, 6229*g*, 7958*c*, 7972*e*, 8399*a*
basic esters of aliphatic tertiary carboxylic acids, 3443*d*.
basic esters of 1-arylcycloalkanecarboxylic acids, 6229*d*, 6655*g*, 6656*a*, 7958*f*.
benzodioxan derivs., 4304*b*.
benzoic acid esters, 7967*i*.
benzylamines (α-substituted), 3044*h*, 4431*e*.
1,1-bis(aminophenyl)-2,2,2-trichloroethanes, 6237*d*, 7510*e*.
1,1-bis(*p*-chlorophenyl)-2-nitroethane, 5046*c*.
1,1-bis(3,4-dimethylphenyl)-2-nitroethane, 5803*f*.
bis(*o*-methoxyphenoxy)propyl phosphoric acid ester, 665*h*.
bistriazine compd., 1444*f*.
α,α′-(butylimino)bis(*N*,*N*-dimethylpropionamide), 5793*g*.
*N*¹-carbomethoxysulfanilamide, 821*a*.
chlorination of aromatic compds., 5900*d*.
4-chlorobenzenesulfonamide, 5801*i*, 6661*g*.
4-chloro-*N*,*N*-dimethylbenzenesulfonamide, 6234*a*.
chlorophenyl ethers, 4807*e*, 6663*b*.
condensation of diphenyl sulfone with HCHO, 6660*b*.
condensation products, 2376*i*, 3968*d*, 7632*b*.
condensation products of dicyanodiamide and HCHO, 7238*a*.
cycloheptenylbarbituric acids, 5038*h*.
1-cyclohexyl-*N*,*N*-diethyl-1,6-dihydro-6-oxonicotinamide, 6241*h*.

**DDT emulsions, prevention of crystallization of,** 6358*e*.
**detergent,** 4498*e*.
**2,4-diamino-1,3,5-triazine,** 6246*c*.
**dicarboxylic acid diamides,** 1797*e*.
**5,7-dichloro-8-hydroxyquinaldine,** 4431*g*
*N* - (2 - diethylaminoethyl) - 1 - phenylcyclopentanecarboxamide, 7958*f*.
**1,1 - diethyl - 3 - (*p* - aminophenylsulfonyl)urea,** 821*d*.
*N,N* - diethyl - 1 - cyclohexyl - 1,6 - dihydro - 6 - oxo - 3 - pyridinecarboxamide, 3979*i*.
*N,N* - diethyl - 4,6 - dimethyl - 2 - pyrone-5-carboxyamide, 821*h*.
**dihydroxyacetone monoethers,** 3038*c*.
*N*-(dimethylacrylyl)sulfanilamide, 1060*h*, 3457*e*.
*N*¹ - (2,4 - dimethylbenzoyl) - 4 - amino benzenesulfonamide, 2638*d*.
*N*¹ - (3,4 - dimethylbenzoyl) - *p* - amino benzenesulfonamide salts, 2740*a*
*N*¹ - (3,4 - dimethylbenzoyl)sulfanilamide 3458*d*.
*N* - [1 - (dimethylcarbamyl)ethyl] - *N* - ethylcrotonamide, 5793*d*
*N* - [1 - (dimethylcarbamyl)propyl] - *N* - propyl crotonamide, 5793*e*
*N,N* - dimethyl - 2 - (*N* - crotonylethyl amino)butyramide, 4431*h*
**2,7 - dimethyl - 7,9 - diazaspiro[4.5]decane-6,8,10-trione,** 3472*i*.
*N,N* - dimethyl - α - (propionylpropyl amino)butyramide, P 5795*f*.
*N,N* - dimethyl - α - (*N* - propylacetamido)butyramide, 5793*e*
**diphenoxypropyl phosphoric acid ester,** 6231*g*.
**disinfectants,** 8622*a*
**1,1 di-*p* tolyl 2-nitroethane** 5803*d*
**dye intermediates,** 4488*b*.
**dyes (azo),** 1987*a*, 2440*c*, 3204*c*, 4474*g*, 4864*c*, 5194*c*, 5196*ef*, 5597*a,g*, 5599*g*, 5960*f*, 6424*i*, 7231*i*, 7696*fh*, 8149*g*, 9465*a*.
**dyes (brown polyazo),** 891*b*, 9466*b*.
**dyes (chromable azo),** 858*b*, 1987*g*, 2440*i*, 4020*f*, 4482*c*, 4865*g*, 5960*d*, 5961*b*, 8147*c*, 9461*c*.
**dyes contg. Cr,** 2784*b*, 5600*c*, 8169*g*
**dyes contg Cu,** 2441*b*, 2780*h*, 4180*i*, 5598*g*, 5961*g*, 8144*e*, 8691*b*.
**dyes (coppERizable polyazo),** 5963*h*, 6126*i*, 6832*h*, 9466*g*
**dyes (*o,o'* dihydroxyazo),** 2781*b*, 5959*g*, 7698*f*.
**dyes (direct),** 1574*b*, 1862*h*
**dyes (disazo),** 1987*i*, 4470*c*, 5195*a*, 5962*i*
**dyes (green chrome),** 1988*h*, 8690*i*, 8691*a*.
**dyes (*o* hydroxyazo),** 5597*h*, 8148*a*
**dyes (metallizable),** 5194*h*, 5600*b*, 5960*a*, 8143*h*, 9461*d*.
**dyes (metallized stilbene),** 5198*c*, 7235*g*
**dyes (mordant),** 2441*d*, 8691*d*
**dyes (nitro),** 7236*e*.
**dyes, org. Cr compds. for,** 6427*g*
**dyes (stilbene),** 1574*e*, 1988*f*, 4485*c*, 4486*a*, 5198*a*, 5965*c*, 8151*a*
**dyes (substantive yellow),** 5600*g*, 7705*d*.
**dyes (tetrakisazo),** 4477*i*.
**dyes (trisazo),** 7701*hi*, 9463*ch*.
**dyes (wool chrome),** 4488*b*.
**equalizing agent,** 3473*i*.
**1 - *o* - ethoxyphenoxy - 3 - hydroxy - 2-propanone,** 4209*f*.
**1-ethoxy-3-phenoxy-2-propanone,** 3460*i*
*N* - ethyl - *N* - (2 - diethylammoethyl) - 1-(3,4 - dimethylphenyl)cyclohexanecarboxamide, 5707*h*.
**fatty acid arylhydrazidesulfonic acids,** 6660*c*, 7954*i*.
**fatty acid derivs. of arylhydrazonesulfonic acids,** 251*g*.
**furanamides,** 4301*d*.
**furandicarboxamide,** 2643*a*
**guaiacoxyacetolphosphoric acid ester,** 6232*i*.
**guanamines,** 1814*c*, 4499*e*, 5216*c*
**haloacylamino sulfonic acids,** 684*i*, 857*c*
**4-halomethyl-1,8-naphthosultones,** 2641*f*.
**hydrophobic agent,** 5552*f*.
**1 - (*o* - hydroxyphenoxy) - 3 - [2 - (4 - morpholinyl)ethoxy] - 2 - propanol,** 4432*a*.
**1 - (*o* - hydroxyphenoxy) - 3 - (4 - morpholinyl) - 2 - propanone,** 5809*h*.
**2-hydroxy-3-phenoxypropyl 2 hydroxy 3 (4-morpholinyl)propyl ether,** 1812*h*
**8-hydroxyquinaldines,** 4303*g*
**iminoamides,** 5036*c*, 7038*f*, 7954*g*, 4294*f*
**insecticides,** 5529*d*, 6358*f*, 7633*c*.
**insectproofed fibers or formed** of a 9478*g*.
**isopropenylmalonamide,** 6226*g*
**1 - (isopropyloxy) - 3 - phenoxy - 2 - propanol,** 3460*h*.
**malonamide,** 7039*g*.
***o* mercaptobenzoic acid,** 3039*a*.
*N*¹-4-methoxybenzoylsulfanilamide, 821*b*.
*N*¹ - 2 - methylbenzoyl - 4 - aminobenzenesulfonamide, 2638*c*.
*N*¹ - 4 - methylbenzoyl - 4 - aminobenzenesulfonamide, 2638*b*
*N*¹ - (3 - methyl - 4 - methoxybenzoyl)-4-aminobenzenesulfonamide, 2637*i*.
**1 - [2 - (4 - morpholinyl)ethoxy] - 3 - phenoxy-2-propanol,** 3473*a*.
**mothproofing compd.,** 8146*b*.
**naphthosultone deriv.,** 4020*c*.
**narcotics,** 4429*e*.
**nitro sulfonamide,** 7961*e*
**oxazinyl derivs.,** 4304*d*.
**pest control,** 4419*h*, 4422*e*, 5899*ab*, 6358*g*, 7188*b*, 7634*f*, 9357*d*.
**1 - phenoxy - 3 - (4 - morpholinyl) - 2-propanol,** 6242*i*.
**phenoxyphenyl propylamines,** 3654
**phenoxypropanones,** 6235
**phenylcycloalkyl esters,** 7959*b*.
**[2 - (1 - phenylcyclopentylcarbonyloxy) ethyl]diethylmethylammonium chloride,** 5796*h*
**1 - phenyl - 2 - ethyl - 3 - amino - 4 - isopropyl-5-pyrazolone,** 6240*b*
**1 - phenyl - 2 - ethyl - 3 - amino - 5 - pyrazolone,** 7049*h*.
**1 - phenyl - 2 - methyl - 3 - amino - 4 - isopropyl-5-pyrazolone,** 6239*e*.
**1 - phenyl - 2 - methyl - 3 - amino - 5-pyrazolone,** 6239*g*
**2 (1 piperidyl)ethyl dibutylacetate,** 6241*f*
**plant sprays with good adhesion,** 3140*h*
**pyrazolone,** 7970*c*.
**pyrazolone deriv.,** 7049*g*
**quaternary ammonium compd.,** 6346*e*.
**quaternary compd for use as a softening agent,** 9498*e*.
**reaction products of org. compds. contg sulfonic acid groups with quaternary ammonium compds.,** 1802*i*, 7728*g*.
**softeners,** 1064*a*
**sulfanilamides** 5420*h*, 7014*ac*, 7647*g*, 7960*g*, 7962*ab*
**sulfanilyl amidine derivs.,** 6233*i*, 6660*g*
**sulfanilyl(isopropylmercapto)benzamide,** 7043*g*
**sulfanilylmethylmercaptobenzamide,** 6233*g*.
**sulfanilylurethan,** 7044*e*
**sulfonamides,** 686*a*, 7043*e*, 7961*abz*, 7962*d*.
**sultonamide salt,** 6233*e*, 7043*a*
**sulfuric acid esters,** 4499*a*, 7727*c*
**surface-active agents,** 2452*j*, 2786*fh*, 4870*c*, 7730*b*.
**tanning agents,** 4504*i*, 4883*a*, 6452*bf*, 8722*a*.
*N,N,N',N'* - tetraethyl - β,β - dimethylglutaramide, 6227*c*
*N,N,N',N'* - tetraethyldimethylmalonamide, 6226*k*.
*N,N,N',N'* - tetraethyl - α,α - dimethylsuccinamide, 6227*b*.
*N,N,N',N'* - tetraethyltetrahydro - 4,4 - pyrandicarboxamide, 6226*s*.
**tetra-substituted ethylenediamines,** 5420*b*.
**textile assistants,** 1991*a*, 4880*d*, 7726*fg*.
**textile printing comps.,** 2443*b*.
**textile softener,** 8694*c*.
*N* - (*p* - tolylsulfonyl)octadecenylanilinesulfonic acid, 4487*a*.
**triazine condensation products,** 7242*g*.
α,β-unsatd. amide, 7634*a*.
**waterproofing agent,** 7714*f*.
**Geigy Colour Co. Ltd.** Name changed to Geigy Co. Ltd
**Geigy Co. Ltd.** Aryl derivs. of trihaloethene, P 3504; aryl derivs. of trichloroethane, P 3516; halogenated aromatic derivs. of $C_3H_6$, P 2235*g*, see Balaban, I. E.
**Geil, A. N. A.** See Arsen'eva-Geil, A. N.
**Geil, G. W.** See McAdam, D. J., Jr.
**Geiling, E. M. K.** See Cantrell, W.
——— and Kelsey, F. E. Metabolism of quinine, 5115*h*.
———, Kelsey, F. E., McIntosh, J. J., and Ganz, A. Biosynthesis of radioactive drugs using $C^{14}$, 1910*b*.
**Geilmann, W.,** and Bode, H. Analytical chemistry of Re (XVI) detn. of small quantities, (XVII) sepn. and detn. in tech. products, 3312*a*; detection of $H_3BO_3$ as $BF_3$, 4603*a*.
———, Lange, G., and Barttlingck, H. Re content of some Mo minerals, 975*e*.
**Geiman, Q. M.** See Ball, R. G.
**Geine, E. I.** See Danilov, S. N.
**Geiselman, R. A.** See Stoltz, G. B.
**Geisendorf, W.** See Herschberg, A. D.
**Geiser, C. E.** See Ray, Francis E.
**Geisler, A. H.** See Newkirk, J. B
——— and Hill, J. K. X-ray diffraction effects in patterns of aged alloys, 2914*d*.
———, Hill, J. K., and Newkirk, J. B. Divergent beam x-ray photography with standard diffraction equipment, 1262*e*.
**Geisler, A. N.** Coloring of the multicolored Cu beds of the Don Basin, 6130*d*.
**Geisler, W. C.** See Wade, F. B.
**Geisselbrecht, G.** Gas manuf., 6807*d*.
**Geissler, H.** Treatment of fox scabies with Jucutin, 4413*c*.
**Geissman, T. A.** Structure of khellin, 5024*c*, see Clark, W. G.
**Geist, D.** Zn sublimation crystals, 6484*a*.
**Geist, G.** Dispensatory of the United States (U.S.P. XIII), 815*g*.
**Geist, J. M.** See Katz, D. L.
**Geistlich, E., Söhne, A.-G. für chemische Industrie.** Adhesives, P 2458*ab*, 2471*i*; increasing the keeping quality of cut flowers, P 4792*f*
**Geiszler, A. O.** See Spielman, M. A.
**Geitlin, B.** Detn. of active CaO in lime, 5339*g*.
**Gelabert, A. I.** See Invers Gelabert, A.
**Geld, I.,** and Carroll, J. Detn of Cb and W in high-temp. alloys, 8950*i*.
**Gel'd, P. V.** Reduction of silica in the production of ferrosilicon, 4582*h*; see Esin, O. A.
——— and Esin, O. A. Dissocn. of dolomite into individual carbonates, 6059*f*.
——— and Kochnev, M. I. Vapor pressure of SiO, 111*f*; equil. of systems involving SiO, 7793*i*.
———, Kologreeva, A. G., and Serebrennikov, N. N. Velocity of reduction of silica by C, SiC, Fe-Si, and cryst. Si, 5687*h*.
**Gélébart, F.** Prepn. and preservation of procaine ampuls and of procaine-adrenaline ampuls, 6361*i*; reciprocal action of hydronodic and iodic acid—detn. of sol. iodides, 8096*a*; I detn. in solns. of I in iodide, 8961*b*.
**Gealenger, S. M.,** and Wiggers, R. F. Relation of the pleural-finid sugar to tuberculosis, 3512*a*.
**Gelfan, S.** See Allison, J. B.
**Gelfgat, M. S.** See Gel'fgat, M. Z.
**Gel'fgat, M. Z.,** and Gerasev, S. V. Tanning of sole and saddle leather, 5617*f*.
**Gel'fman, M. Sh.** Calcn. of the chem. affinity in the formation of sulfuric-nitric compds., 931*c*; vapor pressure of $HNO_3$ over nitrosulfuric mixts., 5652*e*.
**Gell, P. G. H.,** Harington, C. R., and Michel, R. Antigenic function of simple chem. compds.—correlation of antigenicity with chem. reactivity, 4757*f*.
**Geller, B. A.** See Demidenko, S. G.
**Geller, R. F.** See Burdick, M. D.
**Geller, W.** Metallurgy of the basic Bessemer process, 4612*a*.
——— and Kuntze, H. Age-hardening of ingot Fe, 3757*e*, 4205*h*.
**Gellért, E. L.** Tartaric acid and its salts, P 2226*e*; decoloration of soln. obtained in the production of tartaric acid and its salts, P 2226*f*.
**Gellert, S. A.** See Kuzel, W. C.
**Gellhorn, A.** See Morgan, C. E.
**Gellhorn, E.** See Hyde, J.
——— and Frank, S. Sensitivity of the lymphopenic reaction to adrenaline, 2321*e*; lymphopenia and secretion of adrenaline, 7104*g*.
——— and Heymans, C. Differential action of anoxia, asphyxia, and $CO_2$ on normal and convulsive potentials, 9260*d*.
———, Hyde, J., and Gay, J. Propioception and convulsions, 7134*g*.
**Gellman, N.** See Johnston, F. A.
**Gel'man, A. D.,** Karandashova, E. F., and Essen, L. N. Synthesis of the three stereoisomers of $[Pt(C_5H_5N)(NH_3)ClBr]$, 1678*i*.
**Gel'man, N. E.** See Korshun, M. O.
**Gel'man, N. S.** Dehydrogenases of pea seedlings, 5091*i*.
**Geln, R.** See Arnason, A. P.
**Geloso, M.,** and Faucherre, J. Condensation of basic ions in the hydrolysis of Pb salts, 472*e*; titration of Pb nitrate, 2892*g*.
**Gelperin, A.** Mass cultivation of the Reiter spirochete, 3878*f*.
**Gelus, E.,** Marple, S., Jr., and Miller, M. E. Vapor-liquid equil. of hydrocarbon systems above atm. pressure, 8775*b*.
**Gemant, A.** Measurements by radioactive tracers of diffusion in liquids, 2490*k*; see Hines, E.

**Gemeinhardt, K.** P content of incendiary articles and its dangers, 2437*a*; origin of antibiotic substances in microbes, 3882*d*; murexide and tetramethylalloxantin reactions and a similar color reaction of pyramidone, 0785*e*; toxicology, 8555*d*.
**Gemmill, C. L.** Isotopes in pharmacodynamics, 5505*i*; effects of naphthoquinones on glycolysis in muscle exts., 7581*c*; effects of amidines and related compds. on glycolysis in muscle exts., 7581*e*; see Pertzoff, V.
**Gem Participations, Inc.** Reclaiming plastic scrap, P 6865*b*.
**Genas, M.** 11-Aminohendecanoic acid, P 5037*i*.
**Genazzani, R. U.** See Ward, G. C.
**Genderen, H. van.** Stirring app. for electrometric titration, 445*a*.
——, Lier, K. L. van, and Beus, J. de. Detn. of 4-methyl-2-thiouracil in animal tissue and blood, 2659*d*.
**Genders, R.** See MacNair, J. L. P.
**Genel, S. V.**, and Orlova, A. I. Compn for precision casting models, P 9300*g*.
**General Aniline & Film Corp.** (*Patents.*)
acetylene reactions, carburetor process for, 7036*e*.
acrylamides and allyl acetoacetate polymers, 9531*g*.
*N*-alkylated indoles, 4302*d*.
aminoanthraquinone sulfonamides, 7709*i*.
antistain agent for color-film bleach, 7850*g*.
antistain bath for multilayer color film, 7850*f*.
arylides of o-hydroxy carboxylic acids and azo dye derivs., 8162*d*.
azo compds. contg. a thiazolone cyanine dye component, 7845*f*.
4,4′-bis(acylamino)-x,x′-bis(carboxyalkoxy)derivs., 2442*f*.
carbalkoxy aminoanthraquinone sulfonamides, 7709*h*.
carbazole purification, 3465*i*.
carboxylic acid amides and imides, 4686*h*.
α-chloroacrylic acid esters, 7502*d*.
color photography, 4591*d*.
color reproduction of black-and-white pictures, 2881*g*.
contrast control with aromatic diamine color developers, 4591*g*.
couplers for color photography, 958*c*, 5319*g*.
coupling agent for diazo prints, resorcinol carbonamides as, 5320*e*.
4-cyano-2,5-dialkoxyacetoacetanilides, 3461*i*.
diazo complexes, 7850*h*.
diazo compds., nondusting agent for, 9474*a*.
diazotype material, 4593*b*.
dye images (azo) by color development with asymmetrical *N* aryl hydrazines, 3302*b*.
dyeing, 3206*e*.
dyes, (aminostilbene anthraquinone) for wool and nylon, 9467*f*.
dyes (anthrimidecarbazoleacridone), for cotton, 9469*a*.
dyes (anthrimidecarbazolethiaxanthone), for vegetable fibers, 9468*h*.
dyes (color-forming), 513*i*.
dyes (cyanine), contg. a carbonyl or thio carbonyl group, 4591*g*.
dyes (diazo), 7846*d*.
dyes (disazo), 8690*e*.
dyes (filter and antihalation), 6100*a*
dyes (methine), thio ketone intermediates for, 514*e*.
dyes (monoazo Cr complex), 8155*h*.
dyes (trinuclear cyanine), 958*h*, 8926*i*.
dyes (trinuclear iminol cyanine), 4158*i*.
emulsion polymerization, 5991*d*.
emulsions, 2882*g*, 8025*b*.
emulsions, stabilizers for, 4165*b*, 8294*ef*.
film base, 7850*i*.
film contg. integral masking images for color correction, 2532*a*.
film forming soln. of cellulose acetate, 4883*h*.
fog inhibitor for photographic emulsions, 52*h*, 5319*h*.
fog inhibitor in photographic developers, tetrazolyl disulfides as, 4593*c*.
fog inhibitors, 1,3,5-triazines as, 7851*b*
gelatin and polyvinyl urea compn., 5231*i*.
α-haloacrylic esters, 6650*f*
hydroxy aromatic carboxylic acids, 3040*d*.
light-filter films, 2871*a*.
manganic sulfate paste recovery and recycling in org. oxidations, 5161*e*.
negative for dry developing, 2531*g*.
nitrophenol reduction, 4695*f*.
*C*-nitrosoarylamines, 7507*h*.
papers (diazo sensitized), 8294*g*.
phenol-acetylene resin and polyvinyl ether mixt., 9526*f*.
phthalocyanine heterocyclic sulfonamides, 8692*h*.
phthalocyanine polyhydroxyalkylsulfonamides, 8168*h*.
phthalocyaninesulfonic acid hydrazides, 4487*b*
pigment green for rubber, etc., 3650*f*.
polymeric *N*-vinyl pyrrole compd. and $CHCl_3$, 2035*b*.
potassium alcoholates, 2218*h*.
printing of line drawings in color, 2106*e*.
pyridazones, 2242*h*.
pyrylium salts in photographic materials, 7849*a*.
quaternizing agents, 3466*f*.
resinous products from $C_2H_2$ and secondary and tertiary alkyl phenols, 2466*g*.
reversal or secondary exposure of reversible color film, 5320*g*.
reversible gel compn., 8076*d*.
rubberlike polyvinyl isopropyl ethers, 3228*g*.
rubbery polyvinyl butyl ethers, 2808*d*.
subbing compns., aliphatic amides in, 3738*i*.
subbing compns., ascorbic acid in, 3739*a*.
subbing compns., diphenyl sulfones in, 3740*b*.
subbing compns., formamide and glycerol-α-chlorohydrin, 3740*c*.
subbing compns., heterocyclic nitrogenous bases in, 3739*h*.
subbing compns., hexose derivs. in, 3739*e*
subbing compns., lactones or hydroxylactones in, 3739*d*.
subbing compns., unsatd. lactones in, 3740*a*.
4-substituted 5,6,7,8-tetrahydro-2-naphthols, 3040*b*.
toluenesulfonates, 7042*d*.
vinyl alkyl ether polymerization, 2469*h*.
vinylbiphenyl polymerization, 1609*h*.
vinyl ether polymers, 4051*c*, 8210*a*.
vinyl ethers and polymers, 9080*a*
vinylpyrrole, 907*d*.
*N*-vinylpyrrole compds., 0534*g*.
*N*-vinylpyrrole, inhibitors for, 2037*f*.
**General Aniline & Film Corp.** See Thompson, Henry T.
——, Anish, A. W., and Hensley, L. C. Photographic emulsions contg. sensitizing dyes, P 4155*i*.
**General Biochemicals, Inc.** Conditioning a hard soap for solvent extn., P 3220*e*; powd. soap, P 5614*a*.
**General Dry Batteries, Inc.** Dry-cell unit for flashlights, hearing aids, etc., P 4156*b*.
**General Electric Co.** (*Patents.*)
alk.-earth fluorophosphate phosphors, 7831*h*.
alkenyl silane interpolymers, 1223*e*.
alkylhalosilanes, 3025*d*.
alloy for use as the magnetic circuit of elec. app., 9020*h*.
alloys (high-temp.), 3341*b*.
alloy steel, 4210*f*.
aluminum conductor alloy, 9020*e*
aluminum phosphate phosphor, 1661*d*
bonding mica pieces, 2750*b*.
boron hydrides, 6795*e*.
brazing alloy, 4211*b*.
cadmium phosphate phosphors, 7832*a*.
calcium phosphate phosphor, 1662*a*
capacitors, 500*h*, 6529*g*, 9302*b*.
chloromethyl-substituted polysiloxanes, treatment of, 3837*d*.
coating asbestos, 8075*g*.
coating compns. exhibiting resistance to pigment flotation, 5206*c*.
coating for fluorescent lamps, 7840*f*
contact brushes, 4590*b*.
crystal contact, 8919*f*.
dimethylgermanium dichloride, 2631*e*.
dimethyl silicone gums, 2026*d*, 2036*f*, 6464*h*.
discharge lamps, introducing Hg into, 4154*c*.
elastic compns., 1212*c*.
electrode coating process, 6529*a*.
electrolytic deburring of laminated magnetic cores, P 8910*c*.
erythemal phosphor, 500*i*.
filter for flash lamps, 4166*f*.
fluorenone dielec. compn., 2344*g*.
fluorescent material and elec. discharge device, 7832*g*.
fluorescent materials, 7352*b*.
forgeable high-temp. alloys, 5729*f*.
germanium films, 3340*b*.
glass insulating bushings, 8633*c*.
halogenated hydrocarbon compn., 2217*e*.
halogenated hydrocarbon stabilization, 5887*g*.
halosilanes, 4286*h*, 4512*d*, 4685*a*.
impregnating asbestos with $SnO_2$, 3544*c*.
insulating and dielec. compns., 2714*h*.
lanthanum silicate phosphor, 4959*a*.
luminescent material, 2098*a*.
methylchlorosilanes and their hydrolysis products, 7752*f*.
methyl silicone elastomers, 5624*h*.
methyl siloxane elastomers, 432*c*, 2808*a*.
methyl substituted polysiloxanes, 6867*b*.
modified wax-compatible ethylene glycol-tetrachlorophthalate resins, 3655*a*.
nickel-Cr-W composite metal body, 1710*a*.
nitroalkyl acrylate polymers, 2815*f*.
organoaminosilanes, P 5033*h*.
organo-silicon compds., 1051*b*, 9532*i*.
resolution of azeotropic mixts. of trimethylchlorosilane with $SiCl_4$, 1051*d*.
selenium rectifier, 8920*c*.
silmethylenesiloxane, 3656*f*.
siloxane resins, 440*f*, 2030*h*, 6864*bc*.
siloxanes, 5237*a*, 5939*g*, 6220*f*.
silver recovery from residues, P 6562*g*.
surface treatment of dynamoelec. machine core, 2154*g*.
synthetic waxes, 2004*b*
tetrachlorophthalic diesters, 4513*g*.
tetramethyl silicate, 6647*c*
ultraviolet emitting $Mg_2P_2O_7$ phosphor, 1662*b*.
unsatd. alkyd resin-diallyl tetrachlorophthalate copolymer, 3233*a*.
2-vinylfluorene, polymers, 8740*g*.
vinyl fluoride polymers, 9530*d*.
vinyl halide resins, stabilizers for, 2032*c*, 4512*e*.
vinylphenoxathiin polymers, 904*i*, 1223*d*
vinylphenoxthines, 1814*a*.
water-repellent materials, treatment of, 9478*e*.
zinc-Be casting alloys, 9021*c*
**General Electric Co., Ltd.** Point contact rectifier, P 6098*d*.
——, Jenkins, I., and Williams, S. V. Surface carburizing steel, P 6563*c*.
—— and Partridge, J. H. Glasses contg. Pb, P 830*i*.
—— and Ransley, C. E. Metallizing of ceramics, P 5918*a*
——, Turner, H. C., and Chamberlain, J. Elec. dry-plate rectifiers, P 7360*b*.
**General Foods Corp.** 5-Pentadecylresorcinol as an oxidation inhibitor of glycerides, P 884*d*, recovering caffein, P 6371*b*.
**General Mills, Inc.** (*Patents.*) Degumming of vegetable oils, 885*a*; epoxy derivs. of unsatd. fat acids and related compds., 3030*d*; polyamides, 3240*f*, stabilization of oleaginous materials, 3540*e*; plastic compn., 3657*e*; starch esters, 4038*b*, cyanoethyl ethers of galactomannan and glucomannan gums, 4504*d*; purification of a fatty oil, 5215*d*; β-amino propionates, 5978*b*; cyano tricarboxylic acids and derivs., 7505*f*; rosin-acid esters, 8402*a*; polyallyl ether compns. contg. an orthosilicic acid ester, 9538*a*; low-ash condensation products, 8743*a*; esters of ketone-HCHO condensation products, 9527*hi*.
**General Motors Corp.** (*Patents.*) Filters of sintered, noncompacted metal powders, 913*g*; reconditioning battery plates, 957*a*; olefins, 1432*c*; electrodeposition of Cu, 4151*i*, 4152*h*; sealing means and method for spark plugs, 5166*h*; storage battery expander, 5318*i*, 5319*a*; reducing corrosion, 5730*i*; reactive lime, 7200*g*, reconditioning spark plugs with P compds., 7611*a*; ceramic compn., 7658*b*; regraining Al lithographic plates, 8346*e*; resistor for temp. indicators, 9407*i*.
—— and Constantine, W. W. Bearings, P 5729*i*.
—— and Ohio State University Research Foundation. Latex foam, P 8194*b*.
**General Printing Ink Corp.** Sulfonamides, P 4297*b*; triarylmethane dyes from biphenyl, P 4484*i*; isomeric diaminobiphenyls as dye intermediates, P 8174*c*; disazo dyes and pigments, P 8174*e*.
**General Tire & Rubber Co.** Coagulation, P 7*b*; reclaiming elastomers, P 8196*f*.
**Generozov, B. A.** Detn. of Ni in alloy steel, 967*a*; detn. of Cr and Vin ferrous metals, 4176*f*.
—— and Kuskova, N. K. Detn. of small quantities of V in steel and pig iron, 5335*h*.
**Genersich, P.** See Issekutz, B., Jr.

**Genes, S. G.** Insulin and carbohydrate metabolism, 8026*c*.
**Genesee Research Corp.** Hydraulic pressure transmitting fluid, P 6340*i*; flushing fluid for hydraulic brake systems, P 6341*a*.
**Geneva Processes, Inc.** Colloid mill, P 6011*h*.
**Genevese, F.** Angular distribution of neutrons from the photodisintegration of the deuteron, 8861*k*.
**Genevois, L.** Chem. nature of blastocholines, inhibitors of the germination of pulpy fruits, 8459*c*.
——, Peynaud, E., and Riberreau-Gayon, J. Balance among secondary products of alc. fermentation, 8080*f*.
**Genghof, D. S.** S amino acid requirement of *Tetrahymena geleii*, 9272*d*; see Carpenter, F. H.
**Gengou, O.** Dispersion of suspensoids, 4426*c*.
**Gengrinovič, A. I.** See Gengrinovich, A. I.
**Gengrinovich, A. I.** See Gnesin, Yu. D.
**Gengrinowitsch, A. I.** See Gengrinovich, A. I.
**Genin, H.** See Stora, C.
**Genis, M. Ya.** See Grenberg, E. I.
**Genkel, P. A.** See Maksimov, N. A.
**Genkin, A. M.**, and Bobyleva, A. T. Carbohydrate metabolism in children with scarlet fever, 2697*g*.
**Gennes, L. de**, and Deltour, G. H. Artificially iodized proteins and natural iodoproteins, 7987*f*.
**Gennete, P. R.** See Remy-Gennete, P.
**Genova, J.**, and Addobbati, A. Detn. of Cu in the raw materials of the rubber industry, 8187*b*.
**Genovese de Poggi, N. E.** See Barreto, L. N.
**Gensamer, M.** Cold working of metals, 7394*c*; see Klier, E. P.; Poole, J. P.
**Gensch, C.** See Jander, G.
**Gent, W. L. G.** Polarity of the C-H bond, 3252*b*.
—— and Gibson, C. S. Org. compds. of Au (XI) diethylthiocyanatogold, 9034*a*.
**Genter, A. L.** Disk filter, P 4056*i*.
**Genther, C. S.** See Schmidt, L. H.
**Gentil, A. C.** See Carayon-Gentil, A.
**Gentil, H. L.** Treatment of contaminated oils, P 6820*a*.
**Gentilini, L.** Citric acid formation during the alc. fermentation, 6777*h*; desulfuration of musts, 6779*c*, 8607*c*.
**Gentner, E. J.** Coated granular resin, P 4116.
**Gentner, W.** See Maier-Leibnitz, H.
**Genzler, M. N.** Frothed lightweight brick, 8629*e*; see Glebov, S. V.; Karklit, A. K.
—— and German, E. A. Ultralightweight brick, 8629*e*.
**Geoffrion, P.** See Giguère, P. A.
**Geoghegan, M. J.**, and Brian, R. C. Aggregate formation in soil (I) influence of bacterial polysaccharides on the binding of soil particles, (II) influence of carbohydrates and proteins on aggregation of soil particles, 2348*i*.
**Georg, J.** See Bang, H. O.
—— and Soune, L. M. Relation of the O tension of the inspired air to the chemoreceptor response, 2688*c*.
**Georg, L. K.** Influence of nutrition on growth and morphology of the dermatophytes, 8002*b*.
**George, C., Jr.** See Loomis, E. C.
**George, E. P.** Milne's cosmology and the origin of cosmic rays, 2860*b*.
**George, I. A.** See Rao, T. V. S.
**George, K. P.** See Miller, W. C.
**George, M.** See Pandalai, K. M.
—— and Pandalai, K. M. Influence of nucleic acid on the action of streptomycin on certain pathogens, 5447*h*; sensitization of penicillin-resistant pathogens, 6278*g*; penicillin bacteriostasis (I) nucleic acid antagonism of penicillin bacteriostasis, 8550*i*; (II) relation between penicillin action and the gram-staining characteristics of certain pathogens, 8440*f*.
**George, M. F., Jr.** See Hamilton, W. F.; Simon, E.
**George, N. C.** See Childs, E. C.
**George, P.** Comparison of the decompn. of $H_2O_2$ by catalase, ferrous and ferric ions, hemin, and ferrous phthalocyanine, 2653*i*; reactions of K superoxide in aq. solns., 5321*f*; effect of the peroxide concn. and other factors on the decompn. of $H_2O_2$, 6260*b*; see Barb, W. G.; Baxendale, J. H.; Evans, M. G.
**George, W. E.** Al powder in the prevention and treatment of silicosis, 6335*e*.
**Georges, L. W.** See Wolfrom, M. L.
—— and Hamalainen, C. Polyhalogenated phenyl isocyanates, 3378*b*.
**Georgesco, M.** Detection of ionizing particles with a crystal of S, 4560*b*; application of axial magnetic fields to $\beta$-ray spectrometry, 8853*i*.
**Georgescu, J.** See Macovski, E.
**Georgi, C. W.** Consumption of motor oils, 3183*h*; affect of inorg. fillers in greases on wear of antifriction bearings, 7675*f*; lubricating grease, P 8132*c*.
**Georgiadi, N. I.** See Dobryanskiĭ, A. F.
**Georgiadis, C.** Contribution à l'étude chimique et physicochimique des houilles (book), 5928*a*.
**Georgievskiĭ, A. P.** Fluorine in milk and its sanitary significance, 1119*b*.
**Gepnerówna-Szpakowska, J.** Analysis of crude $C_6H_6$ from the gas-oven and coke-oven, 2755*h*.
**Geraci, J. E.** See Wood, E. H.
**Gerard, R. W.** See Boyarsky, L. L.; Brooks, V. B.; Michaelis, M.; Tobias, J. M.
**Gerardis, S.** Detn. of diastatic power, 4421*h*.
**Gerasev, S. V.** See Gel'fgat, M. Z.
**Gerasimov, I. P.** Mountain soil types in the vertical zonation, 7615*d*.
**Gerasimov, N. P.**, Grushko, T. E., and Chirvinskiĭ, P. N. Mineral of the palygorskite group from the Solikamsk beds of the northern Sub-Ural, 6122*c*.
**Gerasimov, Ya. I.** Activity of metal oxides in fusions with $SiO_2$ and CaO, 2553*f*; see Bulgakova, T. I.; Klyachko-Gurvich, L. L.
——, Bulgakova, T. I., and Simanov, Yu. P. Formation of ferrites of Ni and of Co (II), 5354*i*.
**Gerasimova, E. T.** See Miropol'skiĭ, L. M.
**Gerbasi, F. S.**, and Robinson, A. R. Excretion of Ag in a patient with agryrosis—ineffectiveness of treatment with BAL, 7586*i*.
**Gerber, E.** Piezoelec. properties, 2062*g*.
**Gerber, L. S.** Dry-charged, storage-battery separator, P 8920*i*.
**Gerber, M. I.** Polarographic analysis of sulfidic compds. (I) $H_2S$ and mercaptans, 6943*i*; see Neiman, M. B.
**Gerber, S. M.**, and Curtin, D. Y. Reaction of diazomethane with phenols in the presence of propanol, 5773*a*.
**Gerchuk, M. P.** Sulfanilamide, P 6660*e*.
—— and Livshits, D. A. Urea derivs. and primary aromatic or heterocyclic amines, P 6660*d*.
**Gerčuk, M.** See Gerchuk, M. P.
**Gerding, H.** Detn. of the mol. structure of inorg. and org. substances, 6071*h*; see Brederode, H. van; Engelsma, J. W.
—— and Haak, F. A. Mol. structure of 1,4-cyclohexadiene, 6082*e*; Raman spectrum of 4,5-dibromo-1-cyclohexene, 6919*i*.
**Gerecht, J. F.** See Ross, J.
**Gerecs, A.** See Foldi, Z.
**Gerendás, M.** See Horn, Z.; Matoltsy, A. G.
——, Csefkó, I., and Udvardy, M. D. F. Histamine-heparin-thrombin chain, 296*g*.
and Matoltsy, A. G. Double refraction of the *N*-protein, 9094*g*; structure of the bands *A* and *J* of striated muscle, 9094*i*.
——, Szarvas, P., and Matoltsy, A. G. *N*-protein in muscle, 9094*f*.
**Gergely, G.** See Lock, G.
**Gergely, J.** See Evans, M. G.; Issekutz, B., Jr.
**Gergely, K.** Baby food, 8566*h*.
**Gergs, W.** See Lüers, H.
**Gerhardt, A. W.** See McMillan, W. D.
**Gerhardt, L. S.** See Hatch, L. F.
**Gerhardt, O.** Komponieren in der Parfümerie (book), 6791*a*.
**Gerhart, H. L.** Vulcanized copolymers of drying oils and diene hydrocarbons, P 7754*b*.
**Gerhartz, H.** Liver changes in AcOH poisoning, 5498*a*.
**Gerheim, E. B.**, and Ferguson, J. H. Staphylocoagulation in plasmas of various animal species—species reactivity to staphylokinase, 8001*g*.
**Gerhold, C. G.** App. for gas-liquid contacting, P 8759*b*; see Zimmerman, G. B.
—— and Mekler, L. A. Drying and spraying app. for forming spherical catalyst particles in hydrocarbon reactions, P 6013*e*.
**Gericke, S.** Mineral supply of the population of Berlin, 1844*b*; fertilizer expts. with Plantoradon, 7174*a*; production of phosphate fertilizers from phosphate rock, 7624*d*.
**Gerischer, H.** See Bonhoeffer, K. F.
**Gerischer, W.** See Riemschneider, R.
**Gerjuoy, E.** Stability of gas bubbles in water, 4066*e*; see Donoghue, J. J.
**Gerke, P. Ya.** Analysis of quinacrine deposits in human skin, 2701*f*.
**Gerkens, M.** Insecticidal grease- and stain-removers, P 1146*c*.
**Gerkusha, G. A.** *dl*-2-Phenylisopropylammonium salt of *N*-sulfanilylacetamide, P 4297*c*.
**Gerlach, G. H.** *Datura innoxia*, com. source of scopolamine, 1912*b*.
**Gerlach, W.** Atomenergie (book), 8898*b*.
**Gerling, E. K.** See Klilopin, V. G.
**Gerloff, G. C.** See Berger, K. C.
**Gerlough, T. D.**, and Smith, E. L. Riboflavin solns., P 2741*g*.
**Germain, A.**, and André, L. Hypochlorinemia and the possibility of alkalosis in $CCl_4$ poisoning, 5500*a*.
**Germain, J. F. L. M.** See Morrison, G. O.
**German, A.** Pyrogens, 5535*b*.
**German, E. A.** See Genzler, M. N.; Glebov, S. V.
**German, H. L.**, Schweigert, B. S., Sherwood, R. M., and James, L. E. Lysine in the formation of normal bronze turkey feathers, 8466*a*.
**German, H. M.** Creep-resistant alloy, P 990*h*.
**German, W. J.**, Page, W. R., and Nims, L. F. Cerebral blood flow and cerebral O consumption in intracranial injury, 9232*a*.
**Germanov, A. N.** Operation of glass plants with sulfate charge, 3577*d*.
**Germer, L. H.** Electron diffraction and the examn. of surfaces, 4939*g*; see Lander, J. J.
**Germinal S.-A.** Treatment of liquids before electrocapillary action or cataphoresis, P 8290*b*.
**Germuth, F. G., Jr.** See Rich, A. R.
**Gernant, B.** See Forssman, S.
**Gernay, J. M.** See Barnc, G.
—— and Lecomte, J. Action of As derivs. on the skeletal muscles, 4374*c*.
**Gernhuber, B.** Iodine and Br salts and the mistura nervina RF, 816*f*.
**Géro, E.** Progress in chemical assay of ascorbic acid, 1078*b*.
**Gero, L.** Bond energies of hydrocarbons, 452*f*.
—— and Fonó, C. Dissocn. schemes of $N_2$, $P_2$, $As_2$, $Sb_2$ and $Bi_2$, 5240*e*.
—— and Schmid, R. Dissocn. of the NO mol., 3711*i*.
and Valatin, J. G. Dissocn. of some carbonyl compds., 452*h*.
**Gerold, E.** Corrosion nd mech. load, 9014*g*.
**Gerovich, M.**, and Kaptsan, O. Effect of adsorption of multivalent cations on the elec. properties of a unimol. film of palmitic acid, 6038*f*.
**Gerow, M. E.** Future of plastic films, 7747*a*.
**Gerretsen, F. C.** Mn in relation to photosynthesis (I) $CO_2$ assimilation and Mn deficiency of oats, 8016*c*; *Aspergillus niger* for the detn. of plant nutrients in the soil, 8083*e*.
——, Manten, A., and Muller, F. M. Prepn. and application of substitutes for stable manure and cereal straw in the biol. heating of hot-beds, 4411*c*.
**Gerritsen, A. N.** Ionization by $\alpha$-particles in liquids at low temps. (I) measurements in liquid N and liquid H, (II) measurements in liquid He and liquid A, 1257*h*; elec. resistance of a Ge rod at low temps., 8288*i*.
**Gerry, E. I.** DDT in the control of greenhead flies, 9344*i*.
**Gerry, R. W.**, Carrick, C. W., and Hauge, S. M. Untoasted soybean-oil meal in chick rations, 2875*b*.
**Gersdorff, W. A.** See Jones, M. A.; LaForge, F. B.; Nelson, R. H.
—— and Barthel, W. F. Deterioration of pyrethrins, 2362*i*.
**Gersh, I.** Protein component of the Golgi app., 7102*i*.
**Gersh, S.** Glubokoe Okhlashdenie (book), 2856*d*.
**Gershbein, L. L.** See Hall, L. A.
——, Wang, C. C., and Ivy, A. C. Assay of secretin and cholecystokinin concentrates, 5538*e*.
**Gershenfeld, L.** Urine and Urinalysis (book), 1825*h*.

—— and Fox, D. Bactericidal efficiency of crude I in (0.1 *N*) alkali, 360*g*.
—— and Stedman, R. L. Potentiating effects of various compds. on the antibacterial activities of surface-active agents (II), 9147*f*.
—— and Witlin, B. Iodonium compds. and their antibacterial activity, 268*f*; bacteriostatic efficiency of iodonium compds. —toxicity studies, 268*h*; free halogens—efficiencies as bactericidal agents, 5540*b*; evaluation of the antibacterial efficiency of dil. solns. of free halogens, 9159*f*.
**Gershenzon, S. M.**, Zil'berman, R. A., Levochkina, O. L., Sit'ko, P. O., and Tarnavskii, N. D. Inducing mutations in *Drosophila* with thymonucleic acid, 8564*d*.
**Gershlikovich, E. N.** See Sosnitskiĭ, G. G.
**Gershoff, S. N.** See Newell, G. W.
——, Newell, G. W., and Stone, W. E. Chem. studies of the brain in dogs with running fits, 8047*f*.
**Gershon, H.** See Block, R. J.
**Gershtein, N. A.** See Shostakovskiĭ, M. F.
—— and Shostakovskiĭ, M. F. Vinyl ethers (III) reaction with org. acids, 3785*i*.
**Gershun, A. A.** See Vol'kenshteĭn, A. A.
**Gerstel, D. U.** HCl as a fixative for root tip chromosomes, 5450*h*.
**Gerstenkorn, I.** See Theilacker, W.
**Gerstner, H.** Action of protein hydrolyzation products in dyeing (II), 9454*f*.
**Gertler, S. I.** Insect repellent, P 5153*d*; phenylsemioxamazide insecticidal compns., P 5530*a*; see Bottger, G. T.; Goldsworthy, M. C.; Nelson, R. H.; Questel, D. D.; Siegler, E. H.
—— and Haller, H. L. J. Knockdown insecticides, P 350*b*; synergist, P 351*e*.
——, Questel, D. D., and Connin, R. V. Toxicity of some phenylhydrazides to the European corn borer, 7182*g*.
**Gertschouk, M. P.** See Gerchuk, M. P.
**Gertsman, F. M.** See Mal'tsev, V. F
**Gerts, O.** Starch in oak galls produced by *Neuroterus lenticularis*, 6289*c*.
**Gerundo, M.** Control of hepatic coccidiosis of rabbits with succinylsulfathiazole—action of the sulfonamides, 4375*f*.
**Gervids, I. A.** Cooker for production of gypsum, P 6389*d*.
**Gervits, M. D.** See Gol'dberg, D. O.
**Geschickter, C. F.**, and Copeland, M. Tumors of Bone (book), 4371*f*.
**Geschwind, I.** See Li, C. H.
**Gesellschaft für chemische Industrie in Basel.** See C I B A Ltd. (formerly Société pour l'industrie chimique à Bâle).
**Gesellschaft zur Förderung der Forschung an der Eidg. technischen Hochschule.** Thermosetting condensation products for the elec. industry, P 4517*h*; synthetic resins for elec. techniques, P 5229*a*; heating of cathodes for electrooptical equipment, P 7359*g*; increasing the strength of a thin Al layer on a glass surface, P 7657*ef*, molding compn. with good mech., chem., and dielec. properties, P 8740*a*.
**Gesellschaft für Industrieforschungen und Betriebsversuche.** Milk - protein powder, P 2710*d*; extn. of water-sol. components from fluid foods and condiments, P 3117*c*; extn. of roasted coffee for the production of sol. coffee, P 4398*c*.
**Gesellschaft der Ludw. von Roll'schen Eisenwerke A.-G.** Steel from acidic ores, P 4624*i*, 7893*f*, Fe, P 5318*a*; Ca(AlO$_2$)$_2$, P 5912*g*; furnace for the smelting of ore, P 7837*i*; lowering the temp at the tuyères of the smelting furnace, P 7891*d*, desulfurization during the smelting of Fe ore, P 7891*f*; furnace for smelting Fe ore, P 7891*gi*; conversion of pig iron into steel, P 7892*a*.
**Gessler, A. M.** See Elmore, N. M.
—— and Sayko, A. F. Processing behavior of high polymers—effect of plasticizer type, 8190*f*.
**Gessner, F.** Assimilation by chloroplastids stained with vital stains, 1834*c*.
—— and Schumann-Petersen, M. Water metabolism of plants with a N deficiency, 281*a*.
**Gessner, O.** Analeptic action of sumaudarine, picrotoxin, and metrazole, 3519*i*
**Gest, H.** See Burgus, W. H.; Kamen, M. D.; Reiner, J. M
—— and Kamen, M. D. P metabolism of green algae and purple bacteria in relation to photosynthesis, 1829*c*; photoproduction of mol. H by *Rhodospirillum rubrum*, 6698*e*; metabolism of photosynthetic bacteria (IV) photochem. production of H$_2$ by growing culture, 8440*c*.
**Getler, H.** See Bendich, A
——, Roll, P. M., Tiuker, J. F., and Brown, G. B. Metabolism of dietary hypoxanthine and xanthine, 3895*d*.
**Getman, S. L.** See Titkov, N. P.
**Gettens, R. J.** Sn oxide patina of ancient high-Sn bronze, 2825*i*.
**Gettler, A. O.** Toxicologist as a crime detector, 3316*e*.
**Getty, R.** See Merrill, R. C.
**Getz, C. A.** Dehydrating liquid CO$_2$, P 8109*g*.
**Getz, D. H.** See Balis, E. W.
**Getz, H. R.** See Koerner, T. A.
**Geuer, G.** Detn. of S in Fe and steel, 1286*f*, 6937*c*; detn. of minute amts. of Cd, Bi, Fe, Pb, and Zn, 4597*f*.
**Geurts, J. J.** See Pieters, H. A. J
**Gevaert Photo-Producten N. V.** Vinyl esters or ethers and their homologs, P 3839*a*; polymerization process, P 4895*g*; photograph emulsion sensitizers, P 5684*c*, 8293*e*, intermediates for the manuf. of polymethine dyes, P 8167*c*, color production in photographic images, P 8924*e*.
**Gey, W. W.** See Gey, V. V.
**Geyer, B. P.** See Ballard, S. A.
**Geyer, J. L.** Chem. resources of the Western States—Wyo, 9295*d*.
**Geyer, R. P.** See Stare, F. J.
——, Chipman, J., and Stare, F. J. Oxidation of emulsified radioactive trilaurin administered intravenously, 2297*i*.
**Geyndt, E. de.** See Degeyndt, E.
**Gezburg, V. A.** Furnace for firing metallurgical dolomite, 5911*g*.
**Gezon, H. M.**, and Cryst, E. E Antibiotic studies on β-hemolytic streptococci (V) streptomycin resistance acquired by group A, B, and C organisms, 710*e*.
**Gfeller, C., A.-G.** Dry rectifier element, P 1274*h*.
**Gfeller, F.**, and Baiker, L. Spraying metals and their alloys, P 4626*h*; spraying of thermoplastic materials on metal surfaces, P 4626*i*.
**Ghaswala, S. K.** Indian Al industry, 8322*i*.
**Ghatage, N. D.** See Airan, J. W.
**Ghe, A. M.** See Manzoni Ausidei, R
**Gheorghiu, C. V.**, and Budeanu, C Condensation of isothiocyanates with oximes (VI) conversion of camphor oxime to the nitrile of α-campholenic acid, 3806*g*, (VII) action of benzoyl isothiocyanate on cyclic ketoximes, 4232*c*.
—— and Stoicescu, L. Condensation products of derivs. with reactive H with 2-thioxo - 3 - phenyl - 4 - ethoxy - 1,2,3,4-tetrahydroquinazoline, 1047*a*.
**Gherassimov.** See Gerasimov.
**Ghermanov, A. N.** See Germanov, A N.
**Ghigi, E.** Constitution of marrubin (I), 7481*g*; see Bernardi, A.
**Ghilhardi, G.** See Gault, H.
**Ghilmetti, G.** Decarboxylation of *p*-aminosalicylic acid, 2973*b*.
**Ghiorso, A.** See Meinke, W. W.; Perlman, I.
**Ghiretti, F.** Actions of choline and acetylcholine on the isolated hearts of molluscs, gastropods, and cephalopods, 3528*h*, relation of temp. to activity of cholinesterase in homothermic and poikilothermic animals, 3528*i*.
**Ghormley, J. A.** See Jenks, G. H.
**Ghose.** See also Ghosh.
**Ghose, A. B.**, and Chatterji, S. K. Photomicrographs of crystals of addn. compds. of HgCl$_2$ with different pyridine homologs of coal-tar origin, 7868*i*.
**Ghose, A. N.** See Dhawan, B. L.
**Ghose, T. N.**, and Bhattacharya, S. Prepn of tris(*p*-ureidophenyl)arsine, 5014*h*.
**Ghosh.** See also Ghose.
**Ghosh, A.** See Benes, J.; Siegbahn, K.
**Ghosh, A. B.** See Sharma, H. D.
**Ghosh, A. N.** See Schwab, G. M.
**Ghosh, B. N.**, and Chatterjee, A. K. Effect of snake venoms on the oxidation of glucose and its metabolites in cell suspensions, 2260*a*.
—, Chatterjee, A. K., and Sinha, A. C. Effect of snake venom on the cytochrome-cytochrome oxidase system, 2260*c*.
**Ghosh, D.** See Lardy, H. A.
**Ghosh, J. C.**, Basak, N. G., and Badami, G. N. Ni-ThO$_2$-kieselguhr catalyst for the Fischer-Tropsch reaction (I), 5921*f*; (II), 3167*f*.
——, Basak, N. G., and Venkatesan, C. Ni-ThO$_2$-kieselguhr catalyst for the Fischer-Tropsch synthesis at medium pressure (III), 3167*h*.
**Ghosh, J. K.** See Brewer, R. E.; Chowdhury, J. K.
**Ghosh, K. B.** See Mukherjee, S. N.
**Ghosh, K. P.** Detn. of Se and Te in refined Cu, 520*d*.
**Ghosh, N.** See Deb, S.
**Ghosh, N. C.** See Banerjee, Sachchidananda.
**Ghosh, N. N.** See Ray, P.
**Ghosh, R.** Org. chemistry of vegetable tannins, 1203*g*.
**Ghosh, R. F.** See Chakravarti, D.
**Ghosh, S. K.** See Sirkar, S. C.
**Ghosh, T. N.** Antimonials in Kala-azar, 5540*d*, see Pathak, B.; Sikdar, J.
**Ghoshal, S.** See Saha, A. K.
**Ghuysen, J. M.**, and Dreyux, V Isolation of pure ribonucleic acid, 5747*c*.
**Ghys, T.** See Dormael, A. van.
**Giacomello, G.** Action of bromosuccinimide on cholesteryl acetate, 5408*d*.
**Giacomi, A. A.** Sole leathers for shoes, 2456*h*.
**Giacomoni, G.** See Busacchi, V.
**Giaja, J.**, Markovič, L., and Andjus, R Thyroid, adrenaline, and the value of the O tension, 8482*h*.
**Gialdi, F.** See Soldi, A
—— and Nascimbene, A Emulsifier for the cutaneous application of medicinal substances, 6363*a*
**Giambrone, S.** See Cusmano, S
**Giammaria, J. J.** P and S org compds., P 666*a*; lubricating oil compn., P 4458*i*, wax-substituted diaryl dithiophosphoric acids and salts, P 7224*g*, see Reiff, O M
**Gianella, C. V.**, and Kaulla, K. N. v. Detection of ethyl 3,3'-dicoumarinylacetate and dicoumarol in human blood, 7995*i*.
**Gianfagna, A. J.** Gladiolus weed control, 5145*i*, bulb, potted plant, and cut flower production, 9337*h*.
**Gianferrara, S.** Detn. of dulcin in food, 4391*e*.
**Giannettano, G.** See Lavitola, G.
**Giannone, A.** Contraction and expansion of pastes of cement mixts., 4825*c*.
**Giannotti, O.** See Lepage, H. S.
**Giardina, G.** Alk reserve and gastric secretion, 1099*e*.
**Giarman, N. J.** Antibiotic lactones and synthetic analogs (I) cardiotoxic effects, 1110*c*, (II) cardiotonic effects, 7138*g*.
**Glauque, W. F.** Obtaining equil. corresponding to a macrocryst nonvolatile phase in the reaction Mg(OH)$_2$ ⇌ MgO + H$_2$O(*g*), 8823*a*; see Fritz, J. J.; Lyon, D. N.
——, Fritz, J. J., and Lyon, D. N. Measurement of magnetic susceptibility, 6016*e*
—— and Gordon, J Entropy of ethylene oxide—heat capacity from 14 to 285°K. vapor pressure—heats of fusion and vaporization, 8837*b*
**Gibadlo, F.** Calcining with indirect-fired rotary kilns, 8217*g*.
**Gibb, T. R. P., Jr.** Hydrides, 959*b*, Li-AlH$_4$ and AlH$_3$, P 5556*d*
**Gibbard, J.** International standard and unit for penicillin (VIIId), 3569*c*.
**Gibbens, W. J., Jr.** See McElhinney, T. R.
**Gibbins, B. J.** See Sisler, H. H.
**Gibbon, M. H.** See Bruner, H. D.
**Gibbons, D. F.** See Cottrell, A. H.
**Gibbons, L. C.** See Serijan, K. T.
**Gibbs, F. C., Jr.**, Baird, B. M., and Brosamer, R. J. Silica-alumina catalyst, P 1932*a*.
**Gibbs, F. W.** Furnaces and thermometers, 5649*i*.
**Gibbs, H. L.** Differential froth flotation of sulfide ores, P 988*c*.
**Gibbs, M.** Distribution of labeled C in plant sugars after a short period of photosynthesis in C$^{14}$O$_2$, 7088*i*.
**Gibbs, P.**, and Eyring, H. Creep of ceramic bodies under const. load, 6798*g*.
**Gibbs, R.** Computing combustion vols. for burning oil fuel, 2419*e*; what size rotary kiln? 3573*i*; manufg. refractory dolomite, 5554*f*.
**Gibbs, R. G.** Our scientific potential, 8219*g*.
**Gibbs, T. E.**, and Lockenvitz, A. E. Relative mol. stopping powers of some hydrocarbon isomers for α-particles from Po, 4094*b*.
**Gibian, H.** Definition of a penicillinase unit, 1460*b*.

**Giblin, J. C.** Qual. and Volumetric Analysis (book), 522*g*.
**Gibshman, M. E.** Lactic acid streptococci (I) dissocn. of heteroenzymic streptococci, 1832*d*.
**Gibson, A. A.** See Morgan, L. B.
**Gibson, A. F.** Optical sensitization of PbS layers made without O, 5281*h*; see Garlick, G. F. J.
**Gibson, C. S.** Fire prevention at Ontario mines, 7688*c*; see Ewens, R. V. G.; Gent, W. L. G.
——, Ewens, R. V. G., and Foss, M. E. Trimethyl platinum derivs., 2887*b*.
**Gibson, D. M.** See Surgenor, D. M.
**Gibson, G. P.** Autoxidation of methyl oleate and linoleate and the decompn. of the oxidation products, 3358*a*, see Gridgeman, N. T.
**Gibson, H. J.** Factors affecting octane no. requirement, 8655*b*.
**Gibson, J.** See Blayden, H. E.
**Gibson, J. D.** Dehydrofluorination, P 661*a*; isomerization of paraffins, P 4006*h*.
**Gibson, J. G., 2nd.** See Vallee, B. L.
——, Aub, J. C., Evans, R. D., Peacock, W. C., Irviue, J. W., Jr., and Sack, T. Measurement of post-transfusion survival of stored human erythrocytes by means of two isotopes of radioactive Fe, 7540*a*.
——, Evans, R. D., Aub, J. C., Sack, T., and Peacock, W. C. Post-transfusion survival of preserved human erythrocytes stored as whole blood or in resuspension, after removal of plasma, by means of two isotopes of radioactive Fe, 6691*d*.
——, Peacock, W. C., Evans, R. D., Sack, T., and Aub, J. C. Post-transfusion loss of nonviable stored human erythrocytes and the reutilization of hemoglobin-derived radioactive Fe, 7110*a*
——, Sack, T., Evans, R. D., and Peacock, W. C. Effect of varying temps on the post-transfusion survival of whole blood during depot storage and after transportation by land and air, 6691*f*.
——, Seligman, A. M., Peacock, W. C., Fine, J., Aub, J. C., and Evans, R. D. Circulating red cells and plasma vol., and the distribution of blood in large and minute vessels, measured by radioactive isotopes of Fe and I, 5855*a*.
**Gibson, K. E.** See Douglass, J. R.; Lane, M. C.
**Gibson, M.** Large-scale development of the aerated retting process, 1985*b*.
**Gibson, Q. H.,** and Harrison, D. C. Hemoglobin-methemoglobin mixts., 261*h*.
**Gibson, R.,** Alden, W. C., and Pardee, J. T. Geology and ore deposits of the Libby Quadrangle, Mont., 8315*c*.
**Gibson, R. E.** See Wood, J. H.
—— and Loeffler, O. H. Pressure-vol.-temp. relations in solns. (VIII) behavior of some solns. of electrolytes in water, 7298*d*.
**Gibson, S. A.** See Olpin, H. C.
**Gibson, S. T.** Blood and its derivs., 2301*f*
**Gibson, T. B.** Western balance—chem. industry in the West, 8577*b*.
**Gibson, W. D.** See Zahm, E. L. E.
**Gibson, W. M.,** and Livesey, D. L. Neutrons emitted in the disintegration of N by deuterons, 3707*e*.
**Giddens, J. E.** See Reeves, R. E.
**Giddey, C.** See Baudet, P.
**Gide, R.** Corrosion protection of Mg, P 4211*d*.
**Gidley, P. T.** Sunlight resistant rubber, P 4045*i*; elec. cable compn., P 5135*g*; oil-resistant compn., P 6457*g*, mixts. of butadiene-acrylonitrile copolymer with polyvinyl-acetate polymers, P 6860*a*.
**Gidvani, B. S.** Chemistry of lac, 2445*h*.
—— and Indian Lac Cess Committee. Condensation products of lac, P 4030*b*.
**Gieger, H. H.** Al phosphate binder, P 1160*i*.
**Gieger, M.** See Leonard, O. A.
**Giehmann, H.** Nitrocellulose-phthalate resin combination lacquers, 8703*a*.
**Gielessen, J.** See Ebert, H.
**Gier, J. de,** and Smelt, J. A. M. Cathode-ray tube, P 8290*g*.
**Giers, C. A. de.** See De Giers, C. A.
**Giersberg, H.,** and Lotz, R. G. A. Radiation and metabolism (II) effect of ultraviolet and infrared radiation, including the visible light, 5059*d*.
**Gierth, H. W.** Chemistry of bleaching, 3614*a*; relation between the properties of pulp and the paper manufd. from it, 4011*b*; evaluation of sulfite pulp bleachability, 8678*i*.
**Giesbrecht, E.** See Rheinboldt, H.
**Giese, A. C.,** and Zeuthen, E. Photooxidations in pigmented *Blepharisma*, 4779*c*
**Gieseking, J. E.** See Wiklander, L.
**Giesen, J.** See Voukennel, J.
**Giesen, K.,** and Dautzenberg, W. Aluminothermic reduction of Mg, 3754*d*.
**Gifford, A. P.,** Rock, S. M., and Comaford, D. J. Mass spectrometer analysis of alc. and other oxygenated derivs., 8974*e*.
**Gifkins, R. C.,** and Rees, W. P. Stress-corrosion cracking in alloy-steel gas cylinders, 1303*g*.
**Gigli, G.** Digestion and absorption of lipides (I) blood lipides after administration of glycerides, (III) blood lipides after administration of increasing or repeated quantities of glycerides, 2296*c*; see Monasterio, G.
**Giguère, P. A.** See Badger, R. M.
—— and Badger, R. M. Elimination of water vapor in infrared spectrometers, 944*e*.
—— and Geoffrion, P. Refractive index of $H_2O_2$ solns., 6049*d*.
—— and Jaillet, J. B. Analysis of $H_2O_2$, 3315*f*.
**Gih, Y.-W.** See Sah, P. P. T.
**Gik, D. L.** Increasing the rate of pick-up of sheet glass on Fourcault machines, 9401*e*, see Tykachinskii, I. D.
——, Tykachinskii, I. D., and Zingman, L. I. Addn. of fluorspar increases output of sheet-glass plants, 1540*c*
**Gil, G. P.** See Piédrola Gil, G.
**Gil, J. C.** See Casares Gil, J.
**Gilbert, C.** See Gillman, J.
**Gilbert, C. M.** Cementation of some California Tertiary reservoir sands, 6550*d*.
—— and McAndrews, M. G. Authigenic heulandite in sandstone, Santa Cruz Co., Calif., 2129*h*.
**Gilbert, C. S.** See Heath, O. A.
**Gilbert, C. W.** See Paterson, E.
**Gilbert, Edmund.** See Hahn, H.
**Gilbert, Engel.** See Langford, G. S.
**Gilbert, E. E.,** and Segool, H. D. Purification of diaryl monosulfides, P 7041*i*.
**Gilbert, F. A.** Mineral Nutrition of Plants and Animals (book), 709*h*.
**Gilbert, G. R.** Mineral-oil concentrate, P 4460*e*.
**Gilbert, H.** Stabilization of monomeric 1,1-dicyanoethylene, P 6220*c*.
**Gilbert, H. L.** See Kroll, W. J.
**Gilbert, H. N.** Metal cleaning, P 509*g*.
**Gilbert, I. H.** See Gahan, J. B.
**Gilbert, J. B.,** Price, V. E., and Greenstein, J. P. Resolution of racemic phenylalanine, tyrosine, and tryptophan, 9092*c*.
**Gilbert, L. O.** Phosphate coating of metallic articles, P 9022*d*
**Gilbert, V. E.,** and Stacey, M. Constitution of a levan produced from sucrose by *Pseudomonas mors-prunorum*, 1331*e*.
**Gilbertson, F. S.** Research in smaller industries, 5883*d*.
**Gilbertson, R. E.** Soldering to a Ni alloy coil, P 5732*a*.
**Gilby, A. R.,** and Heymann, E. Rate of evapn. of $H_2O$ through duplex films, 6884*f*.
**Gilchrist, M.** See King, E. J.
**Gilcreas, F. W.** Value of lab examns. to water plant operators, 7165*b*.
**Gilda, J. E.** See Goldberg, H. J. V.
**Gilde, W.** Relation between degree of satn. and durability of steel plant chill molds, 8324*g*; see Vogel, R.
**Gildea, E. F.** See Parsons, E. H.
**Gil'dengershel, Kh. I.** See Grinberg, A. A.
**Gilder, C. F. van.** See Van Gilder, C. F.
**Gildersleeve, N.** Analytical instruments in automatic control systems, 8213*b*.
**Giles, E. V.** Plastics and the textile industry, 8686*i*.
**Giles, N. H., Jr.,** and Bolomey, R. A. Cytogenetical effects of internal radiations from radioisotopes, 4732*i*.
**Giles, W. E.** See Wolff, W. A.
**Gilewicz, J.** See Kuczyński, W.
**Gilfert, W.** See Koch, H.
**Gilkey, J. W.** See Barry, A. J.
**Gill, D. L.** Azalea petal blight and its control, 802*g*; powdery mildew of oriental magnolias, 7179*g*.
**Gill, J. B.** See Young, H. C.
**Gill, J. F.** See Teago, F. J.
**Gill, J. W.** Joint filler, P 1548*d*.
**Gill, L. O.** See Hansen, D. W.
**Gill, P. S.** See Forbush, S. E.
**Gill, R. C.** Curariform drug, P 5155*g*.
**Gill, R. F., Jr.** See Kortschak, H. P.
**Gillam, A. E.** See Dunstan, S.
——, Moss, D. G., and West, T. F. Absorption spectra of terpenoid compds. (VI) isocadinene, 1389*d*.
**Gillam, C. M.** See Coulson, C. A.
**Gillam, N. W.** Conservation of alk. ingredients in piece-goods scouring, 4862*c*; changes of $I_2$ value during the processing of fats and oils, 6840*c*; variation of chem. reactions during the oxidation and polymerization of fatty oils, 6840*e*; oxidation of fatty oils, 6841*c*; esterification reactions in the oxidation of unsatd. fatty oils, 6841*e*.
**Gillard, J.** See Lacourt, A.
**Gillaspie, A. G.** Slime control by chem. toxicants, 3615*b*.
**Gille, G.** See Kootz, T.
**Giller, E. B.,** and Drickamer, H. G. Viscosity of normal paraffins near the f. p., 8839*d*.
**Gilles, E.** Containers for the aseptic culture of seedlings on a liquid medium—influences on their growth—inhibitory action of neutral red on the growth of seedlings, 1084*d*.
**Gillespie, D. T. C.** Wool Wax (book), 2452*b*.
——, Macbeth, A. K., and Mills, J. A. Reactions of $\alpha,\beta$-unsatd. cyclic aldehydes and ketones (VI) (+)-*cis*- and (−)-*trans*-cryptol from (−)-cryptone, 160*g*.
**Gillespie, J. S.** Economy in production—hard carbides for wear persistence, 8999*b*.
**Gillespie, K. B.** See Brough, P. V.
**Gillespie, R. J.,** Hughes, E. D., Ingold, C. K., Millen, D. J., and Reed, R. I. Kinetics and mechanism of aromatic nitration, 5754*g*.
—— and Millen, D. J. Aromatic nitration, 3799*g*.
**Gillespie, T.** See Langstroth, G. O.
**Gillespie, W. F.** Sulfate industry of the South, 7681*i*.
**Gillet, A.** Constitution of coal, 8638*h*; mol. of coal, 8639*b*.
**Gillet, H.** See Potter, R. I.
**Gillet, I.** Anthracene photooxides—maleic addn., 2983*f*; photoxynaphthacenes, 7341*c*
**Gillet, J.** Detn. of colchicine in powders and exts. of saffron, 7191*f*.
**Gillett, E. C.** Low Grade Sugar Crystn. (book), 1204*c*.
**Gillett, T. R.** Detn. of ash in raw sugars, 9502*e*; measurement of ash in white sugars, 9502*i*.
**Gillette, E. D.** Herreshoff furnace operations at Refined Syrups & Sugars, Inc., 8649*c*.
**Gillette, R. H.,** and Jellinek, M. H. Instrument for detn. of crystal orientation, 8748*i*.
**Gillham, E. M.** See Tattersfield, F.
**Gillham, R. W.,** and Tomlinson, J. E. Suppository base, sol. in water, 9365*g*.
**Gilli, W.** Impregnation of wood and wood products, P 6466*h*.
**Gilliam, O. R.** See Gordy, W.; Livingston, Ralph.
——, Edwards, H. D., and Gordy, W. Microwave investigations of methyl fluoride, fluoroform, and P trifluoride, 4141*f*.
**Gilliam, W. F.** Dialkyl-substituted dihalosilanes, P 4286*h*; chlorinated methyl chlorosilanes and their hydrolysis products, P 7752*f*.
—— and Meals, R. N. Hydrocarbon-substituted halosilanes, P 4685*a*.
**Gilliland, E. R.** See Lewis, W. K.
—— and Mason, E. A. Gas and solid mixing in fluidized beds, 6475*i*.
**Gilliland, J. L.,** and Moran, W. T. Siliceous admixt specified for Davis Dam concrete, 3165*f*.
**Gillingham, T. E.** Soly. and transfer of silica and other nonvolatiles in steam, 8804*f*.
**Gillis, J.** Spectral analysis, 58*i*; application of the Harker-Kasper method of phase detn., 919*f*; spectrochemistry, 1639*h*; reagents for cations—V, Cb, and La, 8948*a*.
**Gillis, M. B.,** and Norris, L. C. Effect of the animal protein factor on the requirement for methylating compds., 8021*f*.
——, Norris, L. C., and Heuser, G. F.

Effect of phytin on the P requirement of the chick, 8466e.
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——— and Luna, S. M. de Toxicity of some dyes for the tubercle bacillus and its relation to metachromasia (I) metachromatic and tinctorial activities, (II) classification of dyes according to toxicity—influence of the metachromatic property and various radicals, 4330f.
**Gillman, J.**, Gilbert, C., and Gillman, T. Rupture of the uterus[sic] of nutritional origin, 8025d; puerperal inversion of the uterus of nutritional origin, 8025g.
——— and Gillman, T. Structure of the liver in fatal burns, 4760c.
**Gillman, T.** See Chaikoff, I. L.; Endicott, K. M.; Entenman, C.; Gillman, J.
**Gilman, A.** See Koelle, G. B.; Mudge, G. H.; Philips, F. S.
**Gilman, H.**, and Abbott, R. K., Jr. Characterization of sulfonic, sulfinic, phosphonic, and some other acids as thallous salts, 3352f.
——— and Beel, J. A. Reactions of organometallic compds. with benzothiazoles, 7475g.
———, Beel, J. A., Brannen, C. G., Bullock, M. W., Dunn, G. E., and Miller, L. S. Prepn. of *n*-butyl Li, 5739i.
——— and Brannen, C. G. Perylene, a by-product from some 1-naphthyl metallic compds., 3402i.
——— and Broadbent, H. S. Basically substituted quinoxalines, 234h, 1-(dimethylaminomethyl) - 2 - hydroxydibenzofuran, 1392c; 2-(*p*-hydroxyphenyl)quininic acid, 1421a.
——— and Burtner, R. R. Orientation in the furan nucleus (XII) 3-methyl-4-furoic acid and some of its derivs., 5020f.
——— and Fullhart, L. Substituted 2-hydroxyethyl sulfides, 6573i.
——— and Gainer, G. C. Reaction of phenyllithium and phenylmagnesium bromide with the azomethine linkage, 7484d, 6-quinolyl sulfides and sulfones, 8388e.
——— and Kyle, R. H. Meta rearrangement in the reaction of *p*-bromoanisole with Li diethylamide, 1348b.
——— and Marshall, F. J. Cleavage of some organosilanes by HCl, 8366d.
——— and Massie, S. P. Substituted quinolyl dodecyl sulfides, 3418i.
——— and Melstrom, D. S. Organolithium compds. with hydroxy, nitrilo, and sulfonamido groups, 2188g.
——— and Nelson, R. D. Reaction of aryllithium compds. with 6-arylphenanthridines, 648i.
——— and Nobis, J. F. Aminodibenzothiophenes, 2987c.
——— and Plunkett, M. A. Anil addns involving organosilicon compds., 4277a.
——— and Shirley, D. A. Metalation of thiophene by butyllithium, 7018f.
**Gilman, H. H.** See Thoman, R.
**Gilman, J. C.**, and Semeniuk, G. Mold microflora in stored grain and its role in the deterioration process, 324c.
**Gilman, L.**, and Lowell, S. J. Adhesives for phenol-formaldehyde laminates, 3653c, 4892i.
**Gilmann, T. S.** See Blaker, R. H.
**Gilmont, R.** See Othmer, D. F.
**Gilmore, E. L.** See Sprince, H.
**Gilmore, F. E.** Sepn. of N from natural gas, P 7670b.
**Gilmore, G. D.** See Spencer, R. S.
**Gilmore, L. O.** Inheritance of functional causes of reproductive inefficiency, 3907d.
**Gilmore, R. C.** See Samuels, L. T.
**Gilmour, R.** See Chilquist, V.
**Gilron Products Co.** Lubricating metal surfaces during cold working, P 6405i.
**Gilroy, F. J.** See Hanlon, L. W.
**Gilroy, P. E.**, and Champion, F. A. Al and fruit juices, 1877f.
**Gils, G. E. van.** Rubber with low protein content, P 4890a; see Bie, G. J. van der; Haan-Homans, L. N. S. de.
**Gilson, P. R.** See Stevens, C. D.
**Gilson, W. E.** See Newell, G. W.
**Giltges, A.** See Willems, J.
**Gilula, I. O.** Action of vapors of ozocerite on the nervous system, 9297f.
**Gimble, A. I.**, Davidson, C., and Smith, P. K. Toxicity, distribution, and excretion of emetine, 1862d.
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**Gimeno Ondovilla, A.** Hydrolysis of fats and oils, 5609b.
**Gimesi, N.**, and Frenyó, V. Numerical evaluation of the effect of agents inhibiting germination, 8009b, stimulating effect of humus on the germination of spores of *Tilletia tritici et foetens*, 8085c.
**Gindin, L. G.** See Frenkel, Ya. I.
——— and Sil's, R. Kh. Protection of Cu by anthraquinone against corrosion by S solns., 4207b.
**Gindy, M.** See Baddar, F. G.
**Ginkel, J. G. van.** See Kruisheer, C. I.; Mulder, H.
**Ginkõk, R.** See Arndt, F.
**Ginnings, D. C.**, and Corruccini, R. J. Liquid isopropyl alc.—enthalpy, entropy, and sp. heat, 476g.
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**Gins, H. A.** Einfuhrung in die Bakteriologie (book), 8008f.
**Ginsbourg.** See Ginzburg.
**Ginsburg.** See also Ginzburg.
**Ginsburg, A. N.**, and Gavrikova, A. D. Inhibition by AcH of oxidation reactions catalyzed by pyridine proteins, 705d.
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**Ginsburg, N.** Addnl. rotational energy levels of $H_2O$ and $D_2O$ mols., 1658c.
**Ginsburg, S.** See Jordon, T. E.
**Ginter, W. D.** See Pucher, G. W.
**Ginther, R. J.** See Schulman, James H.
**Ginzburg, D. B.** Production of high-calorific gas from local fuels, 1168h, heat cond. of glass mass, 3579a, effect of moisture and fuel size on gas quality and output of gas generator, 3596h, high-output glass-melting tank furnace, 5913g; fuel consumption in glass-melting furnaces, 6379d; utilization of heat in glass-melting furnaces, 9399b.
**Ginzburg, E. I.**, and Gavrilov, N. I. Detn. of morphine, 5904b.
**Ginzburg, I. V.** See Chumakov, A. A.
**Ginzburg, L. B.** See Lur'e, Yu. Yu.
——— and Lur'e, Yu. Yu. Variation of the thiocyanate method of detn. of Mo, 966h.
**Ginzburg, L. I.** Melting of rosin for the manuf. of high-rosin size, 9181f.
**Ginzburg, S. L.** Detn. of Hg in urine, 7996b.
——— and Neiland, T. A. Detn. of Pb in urine, 5439c.
**Ginzburg, Yu. N.** See Tovarev, V. V.
**Ginzel, A.** Semigan LG for rabbit-fur dressing, 854f; dyeing of rabbit fur, 7689f; bleaching and dyeing of fur pelts, 7689g.
**Ginzel, K. H.**, Leupold-Löwenthal, H., and Weis, W. Animal tests of myocain, 8533h.
**Giono, H.** See Charonnat, R.
**Giordano, A.** See Lenzi, F.
——— and Lodone, G. Influence of sulfonamides intravenously injected on the gastric secretion, 3527b.
**Giordano, G. G.** See Salvi, P.
**Giordano, M.** See Graziani, G.
**Giorgi, G.** Frantumazione dell'atomo (book), 947h.
**Giorgio, P. A. di.** See Di Giorgio, P. A.
**Giossa, E.** See Urechia, C. I.
**Giot.** See Jourdan.
**Giotti, A.** Dialkylamino group in the local anesthetic action of alkaloids, 4426f; pharmacology of Ca salts—Ca ethyl sulfate, 4426g.
**Giovanardi, A.**, and Zanetti, R. Measuring av. radiant temp., 7272d; thermal properties of materials, 7272e.
**Giovannini, E.** Cracking of $CH_4$ in the presence of Ir—in the presence of Ru—in the presence of Ro, 3773f; enzymes and models of enzymes, 5813g.
——— and Portmann, P. Reactivity of the carbonyl group and dehydrogenase activity of compds. in the isatin series, 215b; derivs. of oxindole and of isatin (I) derivs. nitrated in positions 5 and 6, (II) amino, hydroxy, and methoxy derivs. substituted in positions 5 and 6, (III) 5- and 6-isatincarboxylic acids, 215c.
**Giovannini, S.** Concn. of blood Fe after gastric resection for ulcer, 748d.
**Giovannozzi, G.** Control of blue mold, 4412h.
**Giovannozzi, M.** Tobacco fermentation (II) temp. of tobacco bulk in the manuf. of Tuscany cigars, multiplication of microbes in these bulks, comparisons of cultural media in respect to the evaluation of germs, 1910i.
**Giove, J. L.** See Hodge, J. M.
**Giral, F.** Antimalarial drugs (IX) arsenical azo deriv. of stovarsol and the plasmochin nucleus, 8099e.
**Giral, J.** Nutrition—tryptophan, nicotinic acid, maize, and pellagra, 5837c; reactions of tyrosine, 7538i.
**Giraldi, P.** See Musante, C.
**Giral Pereira, J.** Same as Giral, J.
**Girard, A.**, and Laboratoires français de chimiotherapie Azo derivs. of 4-nitro-4'-aminodiphenyl sulfone, P 4817h.
**Girard, H.** Quebec's peat-moss industry, 787i; see Heitzmann, P.
**Girard, P.** See Jude, A.
**Girard, Pierre**, and Abadie, P. Exptl. curves of losses and of anomalous dispersion as a basis of a spectral method, 6019c.
**Girardet, A.**, and Greppin, R. *o*-Nitrophenylpropiolic acid, a reagent for glucose, 4313d.
**Giraud, P.** See Roche, J.
**Girauta, C. M.** See Mayoral Girauta, C.
**Giraut-Erler, L.**, and Grimberg, J. Detn. of the I index of the total lipides of serum, 7539c.
**Girden, E.** Electroencephalogram in curarized mammals, 9260c.
**Girdler Corp.** Synthetic resins, P 2031f, controlling high-frequency heating of dielec. material, P 2524e, sepn. of acidic constituents of gases, P 4450a.
**Giré, C.** Detergents derived from petroleum, 839g.
**Girelli, A.** Evaluation of lubricating oils from their viscosity-temp. behavior, 3183c.
**Giri, K. V.** See Krishnamurti, C. R.; Lakshmanan, S.; Rao, P. S.; Reddi, K. K.
**Gironne, J. A.** See Adam-Gironne, J.
**Girouard, M.** Polymerization of thermosetting resins, 6008f.
**Giroudot, M.** Electrolytic polishing of German silver, 7354b.
**Girschig, R.** Statistical fluctuations in spectrographic analysis, 5693i.
**Girshman, L. M.** Steelmaking in U.S.S.R., 4614d.
**Giscafré, L.** See Urbach, K. F.
——— and Moisset de Espanés, E. Toxicity of histamine, 1105h, 4374a.
**Gisclard, J. B.** Solvent analysis, 8943b.
**Gish, C. L.**, Kummerow, F. A., and Payne, L. F. Choline and ethanolamine in the laying ration, 8406g.
**Gishler, P. E.** Distn. of oil from bituminous sand, 9421d.
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——, Kroger, F. A., and Bakker, J. Erythemal phosphor, P 500i.
**Gisondi, A.**, and Marimpietri, L. Detg. phosphate available from soil, 4802d.
**Gisvold, O.** See Asano, A.; Bay, G.; Bope, F. W.
**Gitchel, W. B.** See Arvin, J. A.
**Githens, T. S.** Drug Plants of Africa (book), 4429c.
**Gitlin, D.** Ultraviolet absorption spectroscopy in the quant. precipitin reaction 8523c.
**Gitman, L.**, Greenblatt, I. J., and Mitchell, N. Serum cholinesterase in hyperthyroidism, 6722i.
**Gittens, W.**, and Hetzel, R. Enrichment of Pt ore applicable to muds, slimes, and washing residues, 4193b.
**Gitter, S.**, and Rietti, V. Alloxan diabetes of rats and its modification by hypophysectomy, 5851d.
**Gittings, H. T.** See Taschek, R. F.
———, Barschall, H. H., and Everhart, G. G. Inelastic scattering of 14.5 m.e.v. neutrons by Pb, 5287b.
——, Taschek, R. F., Ronzio, A. R., Jones,

E., and Masilun, W. J. Relative sensitivities of some org. compds. for scintillation counters, 4111*d*.
**Gittinga, L. D.**, and Fundaburk, R. H. Plasticized rosin compns., P 4513*e*.
**Gitther, H.** Papaverine, 1869*c*, 7195*b*; material for a new German pharmacopeia (I) nomenclature, 9387*g*.
**Giua, A.**, and Perra, A. Hemoglobin metabolism in Sardinian children of malarial countries, 3516*b*.
**Giúdice, C. R.** Luis Rossi, 1229*f*.
**Giudicelli, R.** See Hazard, R.
**Giuffrida, A.** Cellulose from vine branches, P 8080*f*.
**Giuliano, G.** See Vescia, A.
**Giulio, A. di.** See Di Giulio, A.
**Giulio, U.** See Marciante, A.
**Giulotto, L.** See Fanelli, A. R.
**Giunchi, G.** See Bonetti, E.
**Giunta, F.** Corrosion from boiler feed water, 4404*g*.
**Giunti, V.** See Furbetta, D.
**Giuseppetti, G.** See Illari, C.
**Giuseppini, F.** Detg. vitamins, 5066*b*.
**Giusti, M.** See Masi, A.
**Givaudan, L., & Cie.** Antiseptic soap, P 1587*c*; isomers of ambrettolide of ambrette musk odor, P 2376*c*
**Givaudan Corp.** Mildew-proofing textiles, P 5200*e*; 1-alkoxy-2,4-dinitro-6-*tert*-butylbenzenes, P 8400*f*.
**Givaudon, J.** See Garand, A.
——, Nagelstein, E., and Leygonie, R Formation of chromic anhydride from $Cr_2O_3$ at 520°, 8296*f*
**Given, P. H.**, and Hammick, D L. Catalyzed gas-phase reactions of aromatic hydrocarbons (IV) polymethylbenzenes formed in the reactions of dimethyl ether with benzene, toluene, and the xylenes, 3377*b*.
**Given, R. A.**, and Craft, W. S. Concn. of butadiene, P 2627*h*
**Givens, H. T. F.**, and Herbst, R. M Aliphatic amino alcs., P 3029*e*.
**Givord, J. P.** Detn. of Fe and Si in Al, 2544*f*.
**Gjaldbaek, J. C.** Reaction between CO and alc. catalyzed by alcoholate (II) propyl and butyl alcs.—solv. of CO in *sec*- and *tert*-Bu alc., 3697*i*
—— and Hildebrand, J. H. Solv. of N in $CS_2$, $C_6H_6$, normal- and cyclohexane, and in three fluorocarbons, 8803*h*.
**Gjedebo, F.** Sepg. metals, P 5727*e*
**Gjertsen, P.** See Kühnel-Hagen, S.
**Gjessing, E. C.** See Chanutin, A.
——, Warren, T. N, and Floyd, C Protein-fractionation studies of a mouse thymoma, 5853*d*
**Gjullin, C. M.** See Cope, O. B.
——, Cope, O B., Quisenberry, B. F., and DuChanois, F. R Effect of insecticides on black fly larvae in Alaskan streams, 6354*a*.
**Glabe, E. F.** See Bauer, H. F.
**Glace, I. M.** Limestone contact beds for corrosion control, 5740*d*.
**Glacet, C.** Condensing reductions—synthesis of 2-hydroxytetrahydrofurans of the type RCH.CHR.$CH_2$.CHOHO
through intermediate glycols of the type RCH(OH)CHRC$H_2$C$H_2$OH, 4253*i*
**Gladding, J. K.** See Milas, N. A.
**Gladis, G. P.** See Atkinson, R. H.
**Gladisch, H.** See Senftleben, H
**Gladner, J. A.** See Skinner, G. S.
**Glafkidès, P.** Chimie photographique (book), 5319*f*.
**Glagoleva, A. A.** Elec. cond. in the binary system AcOH–$H_2O$, 6900*f*.
**Glahn, W. H. v.** See Von Glahn, W. H.
**Glanville, B.** See Ayres, G. H.
**Glanville, J. W.**, and Sage, B. H. Volumetric behavior of $C_6H_6$, 6481*f*.
**Glanville, W. H.** Highway authority and road research, 1547*b*.
**Glanzer, C. J.** Removable air filter, P 8757*g*.
**Glanzmann, E.**, and Salva Miquel, J. A. Vascular effects of *N*-dimethylaminomethylethyldibenzoparathiazine, 7584*e*.
**Glascock, R.** See Arrol, W. J.
—— and Arrol, W. J. Microsynthesis of $C^{14}$-labeled ethylmagnesium iodide, 4130*g*.
**Glaser, C. J., Jr.** See Nellen, A. H.
**Glaser, F. W.** Diffusion in Fe-Si compacts, 2562*d*; elec. resistivity measurements on Fe-Si compacts, 9001*b*.
**Glaser, G.** See Clarke, J. R.
**Glaser, H.** Quality performance rating of heat exchangers, 4905*e*.
**Glaser, I.** See Keilling, J.
**Glaser, K.**, Parmelee, A. H., and Hoffman, W. S. Comparative efficacy of vitamin D preps. in prophylactic treatment of premature infants, 5100*f*.
**Glaser, L.** See Vaucouleurs, A. de.
**Glaser, M. A.** See Bromstead, E. J.
**Glaser, R.** Analyses of typical Polish crude oils with particular reference to the oily portions, 3995*d*.
**Glasfasern A.-G.** Glass fibers, P 4440*g*.
**Glasgow, A. R., Jr.** See Rossini, F. D.
——, Krouskop, N. C., Sedlak, V. A., Willingham, C. B., and Rossini, F. D. Analysis of recycle styrene, 7216*d*.
**Glasgow, C. O.** Dehydrator for oil-water emulsions, P 7274*c*.
**Glasgow, G. U.** Synthetic rubber latexes, P 9520*i*.
**Glasner, A.** See Bobtelsky, M.
**Glass, D. B.** See LuValle, J. E.
——, Vittum, P. W., and Weissberger, A. Colored couplers, P 4164*d*, 4591*d*.
**Glass, E. H.**, and Chapman, P. J. Red-banded leaf roller problem, 5527*c*.
**Glass, E. M.** Lubrication of military aircraft, 7675*a*.
**Glass, G B. J.**, Boyd, L. J., Heisler, A., and Drekter, I. J. Dissolved mucin of the gastric juice (III) heterogeneity of the gastric dissolved mucin and its differentiation and sepn. into two fractions—dissolved mucoproteose and dissolved mucoprotein, 6252*i*.
**Glass, H. M.** Sol. silicates as bonding media, 6801*c*.
**Glass, W. H.** Persistent tachycardia caused by snake venom, 9258*i*.
**Glasscock, R. S.** See Burnside, J. E.; Cunha, T. J.
**Glasser, A. C.** See Halpern, A
**Glass Fibers, Inc.** Glass melting and drawing furnace, P 4439*i*; app. for drawing glass fibers, P 9407*f*.
**Glassman, H. N.** Surface-active agents and their application in bacteriology, 7546*f*
**Glassman, J.**, and Imperial Chemical Industries Ltd Pigments, P 415*e*.
——, Sarfas, D. T., and Imperial Chemical Industries Ltd. Azo pigments for rubber and synthetic resins, P 7746*d*.
**Glassman, J. M.**, and Buchan, R. F. DDT, 8528*a*
**Glassmire, W. F.**, Smith, W. R., Haskell, N. B., and Danskin, K. A. Electrolytic regeneration of $AlCl_3$ catalyst, P 3733*e*.
**Glasson, B.**, and Mutrux, S. Cholinesterase in blood and spinal fluid in psychiatric cases, 4761*b*
**Glathart, J. L.**, and Preston, F. W. Behavior of glassware in service, 1541*f*.
**Glauberman, A. E.** Surface tension of metals, 4991*c*; surface energy of heteropolar crystals, 5653*b*.
**Glaubitz, H.** Surface hardening and mech. strength of gears, 983*f*.
**Glavind, J.** See Granados, H.
——, Granados, H., Hansen, L. A., Schilling, K., Kruse, I., and Dam, H. Vitamins in the saliva, 1094*i*.
——, Granados, H., Hartmann, S., and Dam, H. Fat peroxides, 4721*h*.
**Glavis, F. J.**, and Neher, H. T. Noncombustible hydraulic fluid, P 1960*g*.
**Glawe, E.** See Enders, C.
**Glaxo Laboratories Ltd.** Cholesterol derivs., P 5428*d*.
——, Bide, A. E., Graham, W., Smith, E. L., and Wilkinson, P. A. Penicillin salts, P 1158*g*.
——, Bide, A. E., and Wilkinson, P. A. 7-Dehydrocholesterol derivs., P 5810*b*.
—— and Emery, W. B. Riboflavin prepn., P 1158*d*.
——, Jones, E. R. H., Bide, A. E., and Nicholls, R. J. 7-Chlorocholesteryl acetate and 7-dehydrocholesterol, P 5052*f*.
——, Smith, E. L., and Bide, A. E. Penicillin salts, P 1158*g*, 2742*c*.
**Glaymann, J.** Electrolytic tinning, P 4588*f*; see Cogan, B.
—— and Cogan, B. Phosphatizing Fe, P 989*c*.
**Gláz, E.** Aureomycin, 9385*d*.
**Glaze, F. W.** See Florence, J. M.
—— and Hahner, C. H. Optical glass, 1539*c*.
**Glaesener, E. W.**, and Briggs, G. M. Abnormal blackening of feathers of vitamin D deficient chicks, 284*i*.
**Glazier, E. M.** See Packie, J. W.
**Glazko, A. J.** Effect of blood protease and trypsin inhibitor on the clotting mechanism, 5847*c*; see Dill, W. A.
—— and Dill, W. A. Biochem. studies on benadryl (IV) degradation of benadryl by tissue enzymes, 7524*d*; (II) distribution in tissues and urinary excretion, 7584*g*.
——, McGinty, D. A., Dill, W. A., Wilson, M. L., and Ward, C. S. Biochem. studies on benadryl (III) application of radioactive C to metabolic studies, 7584*i*.
—— and Wolf, L. M. Colorimetric detn. of folic acid and adenine, 8977*d*.
**Glazunov, A.**, and Jirkovský, R. Detn. of S in Fe and steel, 2546*b*.
**Glazunova, Z. I.** See Korenman, I. M.
**Gleason, A. H.**, and Vanderbilt, B. M. Cyclic diolefin polymerization, P 8742*h*.
**Gleave, W. W.**, and Imperial Chemical Industries Ltd. Electrodes for electrolytic cells, P 1666*b*.
**Glebov, S. V.** Heat insulating refractories, 8631*c*, 9405*h*.
——, Genzler, M. N., and German, E. A. Frothed grog lightweight refractories, 8632*c*.
——, Gol'din, Ya. A., German, E. A., and Strelets, V. M. Manuf. of heat-resistant lightweight refractories by using combustible admixts., 8631*e*.
—— and Mel'nikov, F. I. Manuf. of lightweight refractories by a chem. method, 8631*g*.
—— and Zegzhda, V. P. Testing thermal stability and reheat shrinkage of lightweight refractories, 8631*c*.
**Glebova, G. O.** S pyrite deposit in Karelia, 2132*i*.
**Glebova, L. F.** See Shafranov, B. V.
**Gleditsch, E.**, and Gappelen, P. T. Ion exchange in solid salts, 4534*g*.
**Gleichmann, H.**, and Zepter, K. H. Dressing of Siegerland siderite, 1693*i*.
**Gleim, C. E.** Polymer and copolymer of allyl carbamate, P 9531*f*; see Clifford, A. M.
**Glemser, O.** Hydroxides and hydrated oxides, 3739*g*.
—— and Häusser, V. CO compds. of the nonmetals (II) properties of carbonyl cyanide, 3682*i*.
—— and Lutz, G. Mo oxides and molybdenum blue, 5686*g*.
—— and Poscher, W. Existence of Te oxides, 2885*a*.
—— and Risler, T. CO compds. of nonmetals (I) prepn. and properties of Se carbonyl, 1673*c*.
——, Sauer, H., and König, P. Sulfides and selenides of W, 5321*i*.
**Glen, M.** Overseas ore-treatment (I), (II), 1694*h*.
**Glen, W. L.** See Grant, G. A.
**Glendening, A. S.**, and Sanderson, C. F. Propane recovery (I), (II), (III), (IV), 7220*d*; (V) multi-stage distn., (VI) multistage distn., calcns., 7673*f*.
**Glenfield & Kennedy Ltd.** Stainless steel wire filter assembly, P 2476*e*; rotary self-cleaning water filter, P 3548*h*.
**Glenn, E. E., Jr.**, Cook, R. L., and Hackerman, N. Solid surface in "electroless" plating, 4995*f*.
**Glenn, H. J.** See Johnson, William S.
**Glenn, R. A.** Effects of temp. on the hydrogenation of certain bituminous coals, 2404*d*.
**Glenn, R. D.**, Kernan, J. R., and Swalm, J. M. Development plant for Vinyon N yarn, 3621*e*.
**Glenn, W. W. L.**, Cresson, S. L., Bauer, F. X., Goldstein, F., Hoffman, O., and Healy, J. E., Jr. Thoracic duct fistula—technique, absorption of fat and fluid from the intestine, and protein depletion, 8522*c*.
**Glessner, A. S., Jr.** See Coggeshall, N. D.
**Gleszer, K. M.** See Engstrand, E. R.
**Gletkier, H.** See Zawadzki, J.
**Gley, P.**, and Delor, J. Antivitamin P action of phenylindandione, 5834*g*.
**Gleysteen, L. F.** See Loebenstein, W. V.
**Glick, C. F.** Photographic elements bearing a polyvinylpyridine sublayer, a layer contg. a sol. B compd., and a Ag halide synthetic hydroxyl polymer layer, P 53*i*; see Amdur, I.
**Glick, D.** Techniques of Histo- and Cytochemistry (book), 714*c*; see Grais, M. L.; Hakanson, E. Y.
—— and Campbell, B. Mucolytic enzyme systems (V) a . . . viscin effects on hyalu-

ronidase inhibitor in serum of normal and herpetic rabbits, 3094*i*.
———, Good, R. A., Kelley, V. C., Winzler, R. J., and Mehl, J. W. Lack of identity of hyaluronidase inhibitor and certain mucoproteins of blood serum, 9238*c*.
———, Good, T. A., and Bittner, J. J. Mucolytic enzyme systems (IV) relation of hyaluronidase inhibition by blood serum to incidence of mammary cancer in mice, 2697*a*.
——— and Gruis, M. L. Occurrence of hyaluronidase in skin, 2298*i*.
——— and Moore, D. H. Hyaluronidase inhibitor in electrophoretically sepd. fractions of human serum, 4745*i*.
**Glick, S. E.** Polymerizable compn., P 2469*g*; polymerization of styrene, P 3238*f*.
**Glickman, I.** See Browning, H. C.
———, Turesky, S., and Hill, R. Detn. of O consumption in normal and inflamed human gingiva, 6299*h*.
**Glickmann.** See Glikman.
**Glidden Co.** (*Patents.*) Polymerization of rosin, 1580*f*, 1996*f*; unsatd. alc. from pinene derivs., 1807*f*; improving color of polymerized rosin, 1996*e*; oil-acid modified alkyd, 2815*e*, 3216*c*; oxidation of soybean sitosteryl acetate dibromide, 4706*c*; compds. of the norpinane series, 1807*gh*.
**Glikina, M. V.** See Bresler, S. E.
**Glikman, S. A.,** and Komarova, L. V. Lyophilic colloidal systems (II) lyophilic and lyophobic sols of high polymers, 7782*a*.
——— and Root, L. A. Dilatometric characterization of energy effects of diln. of high polymer solns., 6044*g*.
———, Vladykina, N. Ya., and Perepelova, T. M. Falling spheres for the characterization of structural viscosity and thixotropy, 8235*g*.
**Glikman, T. S.,** Daln, B. Ya., and Kutsaya, B. F. Photochem. oxidation-reduction in electrolyte solns.—absorption spectra of Fe perchlorate solns. in ethanol, 499*e*.
**Glinkov, M. A.** Calcg. the heat balance of an open-hearth furnace, 78*i*.
**Gliszczynski, S. v.** Intergrowths of pseudobrookite, 3747*g*; fluorite twins, 8984*a*; intergrowths of topaz (I) twins, (II) coaxial intergrowths, 8986*g*; structural and geometrical significance of chrysoberyl twins, 8983*d*; structural geometric studies of staurolite twins, 8987*a*; see Gagarin, G.; Stoicovici, E.
**Globus, A. R.** Recovering W from WC, P 5729*b*.
**Globus, J. H.** DDT poisoning—histopathol. observations on the central nervous system in so-treated monkeys, dogs, cats, and rats, 9263*b*.
**Glock, C. E.** Sn-plate treatment, P 50*g*.
**Glock, G. E.** Effects of the administration of thiouracil to dogs, 5868*f*.
———, Mogey, G. A., and Trevan, J. W. Pharmacology of some bis-trimethylammonium compds., 6737*b*.
**Glocker, R.** Dependence of the range of electrons on their energy, 2859*c*; calcn. of proton range-energy relations in materials composed of light atoms, 6502*f*.
——— and Hasenmaier, H. X-ray measurements of the distribution of hardness and stresses in nitrided steel, 6958*c*.
**Glockler, G.** See Swensen, A. W.
——— and Sausville, J. W. Thermionic emission from C, 5278*i*; electron affinity of the C atom, 5303*g*.
**Gloriosov, P. A.** See Shapovalenko, S. G.
**Gloss, G. H.** Purified MgO from brines, P 2745*d*.
——— and Baker, E. B. Mg compds., P 827*c*.
**Glossop, R.** London clay—soil mechanics studies of a stiff fissured clay (I) field and lab. technique, 372*a*.
**Glouchnew, W. E.** See Glushnev, V. E.
**Glouchov, I. A.** See Glukhov, I. A.
**Gloukhovski, I. E.** See Glukhovskiĭ, I. E.
**Glouŝnew, W. E.** See Glushnev, V. E.
**Glover, A. T.** See Woodward, L. A.
**Glover, C. P.,** and Van Dyke, K. S. Variations in crystal quartz, 4066*a*.
**Glover, J.** See Scott, M.
———, Goodwin, T. W., and Morton, R. A. Vitamin A (VI) conversion of vitamin $A_2$ aldehyde (retinene$_2$) to vitamin $A_2$, 2294*g*; (VIII) conversion of β-carotene into vitamin A in the intestine of the rat, 3899*e*.
**Glover, N.** See Stokinger, H. E.
**Glover, R. M.** See Blood, F. R.
**Glover, S. L.** Industrial minerals in Washington, 6547*c*; origin and occurrence of gem stones in Washington, 8981*g*.
**Glover, S. T.** See Pratt, H. R. C.
**Glowacki, W. L.** Sepn. of *o*-xylene from isomeric xylenes by fractional distn., P 5039*e*; see Freiser, H.
**Gloyer, S. W.** Refining and fractionating soybean oil with furfural, 4496*d*.
**Gluck, B.,** Smith, W. R., and Shaw, C. Polymerization of silicate esters, P 6464*g*.
**Glueckauf, E.** Energy of nuclei, 3702*i*; activity coeffs. in concd. solns. contg. several electrolytes, 6048*h*.
**Glückmann.** See Glikman.
**Gluesenkamp, E. W.** See Fincke, J. K.
——— and Craig, A. B. Synthetic rubber, P 2025*i*.
**Gluk, B.** Phenolic resins, 8197*b*.
**Glukhov, I. A.** Perfume, P 9391*a*.
**Glukhovskiĭ, I. E.** See Kartashov, A. K.
**Glushkina, R. B.** Mg detn. in Al alloys, 966*c*.
**Glushnev, V. E.** See Vasil'ev, S. F.
——— and Vasil'ev, S. F. Catalytic desulfurization of reforming gasoline with $H_3PO_4$ and $ZnCl_2$, 8125*d*.
**Glusman, M.** See Kabat, E. A.
**Glycofrides, E.** Furfuryl alc. resins, P 6863*i*; urea-HCHO molding compds., P 6865*d*.
**Glymph, E. M.** See Willis, J. M.
**Glynn, J. H.** Story of Blood (book), 1477*a*
**Gmünder, E. M.** Baking aid, P 6757*e*.
**Gnadt, O. A. F.** Natural pigments of our food, 6365*i*.
**Gnaedinger, P. E.** Quality control of rubber compds., 3643*d*, 4884*g*.
**Gnann, G.,** and Spiegelhoff, W. Formation and mode of action of antihormones, 7566*i*.
**Gnesin, Yu. D.,** Gengrinovich, A. I., and Yakover, E. S. KI and ICl as indicators in detn. of $As_2O_3$, 5328*b*.
**Gnisci, S.** See Romano, R. V.
**Goas, D. P.** See Penas Goas, D.
**Goble, F. C.** Chemotherapeutic activity of certain 8-aminoquinolines, in Chagas' disease, 9255*a*.
**Gobron.** Sea algae, 3542*g*.
**Gochenour, C. I.** See Kischitz, A. D.
——— and Degering, E. F. Reaction of certain nitro alcs. with aromatic dizonium bases and(or) salts, 4646*f*.
**Godchaux, L., 2nd.** Aconitate plant operations, 9499*b*; chlorate for Johnson grass control, 9351*d*.
**Goddard, D. R.** See LuValle, J. E.
**Goddard, F. C.** Injection molding thermosetting materials, 4892*e*.
**Goddard, P. E.** See Pearlman, D.
**Goddard, R. F.** Anatomical and physiol. studies in young rats with propylthiouracil-induced dwarfism, 748*b*.
**Goddard, R. H.** Rocket Development (book), 4468*e*.
**Goddard, V. R.** See White, B. H.
**Goddin, C. S., Jr.** See Eliot, T. Q.
**Godeaux, J.** Action of monohalogen acetic acids on neuromuscular prepns. of the frog—electrophysiol. study, 3506*g*; effect of temp. on the behavior of frog muscle poisoned with sodium monobromoacetate, [illegible]
**Godel, A.** Detn. of milk acidity, 7507*b*, controlling the development of bitter taste in butter, 9282*c*.
**Godescheit, M.** See Schmalfuss, H.
**Godet, C.** Concn. of musts and diln. of concentrates, 2734*d*.
**Godfrey, D.** See Good, J. N.
——— and Nelson, E. C. Oxidation characteristics of $MoS_2$ and effect of such oxidation on its role as a solid film lubricant, 6816*g*
**Godfrey, E.** See Hazleton, L. W.
**Godfrey, G. H.** See Ryall, A. L.
**Godfrey, K. L.** See Eastman, E. C.
**Godfried, E. G.** See Groen, J.
**Godley, L. F.** See Babibbo, B.
**Godlowski, Z. Z.** Transportation of the anaphylactogenic property by eosinophil, 4757*a*.
**Godnev, T. N.,** Kalishevich, S. V., and Zakharich, G. F. Structure of chloroplasts and concn. of chlorophyll in some aquatic plants, 8011*g*.
**Godoy, R. P.** See Herrero, F. J.
**Godston, J.** Seaplant extractives, 9296*g*.
**Göbbels, P.** See Oelsen, W.
**Goebel, A.** Behavior of sphingomyelin in the animal body, 4751*c*.
——— and Seckfort, H. Hydrolysis of sphingomyelin by organs, 4751*d*.
**Goebel, E. H.** Expectorant to replace $NH_4Cl$, 8615*h*.
**Goebel, H.** See Schmidt-Thomé, J.
**Goebel, M. T.** Tannery auxiliary agents from sulfonated copolymers of styrene and maleic anhydride, P 7735*b*.
**Goebel, W. F.** See Baker, E. B.; Northrop, J. H.
——— and Perlmann, G. E. Effect of Li periodate on cryst. bovine serum albumin, 5814*g*.
**Goecke, M.** See Husemann, E.
**Goeckermann, R. H.,** and Perlman, I. High-energy-induced fission of Bi and Pb, 8855*e*.
**Goedblood, L. A.** Waste slag in Au assaying, 7390*c*.
**Goederitz, F.** Molding sand deposits in the northern "Harzvorland"—metal-casting molding sands, 531*a*.
**Goedewaagen, M. A. J.,** and Willigen, A. H. A. de. Root development of different potato varieties and the influence of the acidity of the soil, 3060*f*.
**Goedkoop, W.** Malt from Netherlands barley, 3970*g*.
**Goehring, E. J.** See Wyman, C.
**Goehring, M.** Sulfoxylic acids (I) reactions of diethylsulfoxylate and its thioamine, (II) reaction and structure of rongalite, 2880*b*.
——— and Feldmann, U. Prepn. of K penta- and hexathionates, 4968*d*.
———, Helbing, W., and Appel, I. Sulfoxylic acids (III) decompn. of polythionate solns., 2886*e*.
——— and Stamm, H. Development in S chemistry, 515*c*.
——— and Wiebusch, K. D. Lower oxides of S, 5689*e*.
**Gönnert, R.** See Kikuth, W.
**Goepfert, G. J.** Urea-resin abrasive binder, P 5631*g*, see Ries, K. G.
**Göpfert, H.** Measurement of basal metabolism, 8430*e*.
**Goeppert-Mayer, M.** Closed shells in nuclei (II), 8859*g*.
**Görcs, J.** See Lajos, L.
**Goerdeler, J.** Extn. of lichenase from barley, 8407*f*.
**Goerens, P.** Einfuhrung in die Metallographie (book), 5357*a*.
**Goerg, W.** Flux coating for welding rod, P 2156*c*.
**Goering, H. L.,** Cristol, S. J., and Dittmer, K. Unsatd. amino acids (II) allylglycine, β-methallylglycine, and crotylglycine, (III) 2-amino-5-heptenoic acid, the vinylene analog of methionine, 574*a*.
**Görlich, B.,** and Očenášek, F. Detn. of 2- and 5-ketohexonic acids, their salts and esters, 1689*g*.
**Goerner, G. L.,** and Hines, W. G. Synthesis of *cis*-1,3 diphenyl-1-butene, 612*g*
**Görrissen, J.** Brittleness in mild steel, 4616*e*.
**Goertz, M.,** and Unseld, D. M. Medizinisches Taschenwörterbuch (book), 7990*i*.
**Goessl, E. A.** Historical development of glass, 4435*e*.
**Gössner, W.** Nature of the pigment formed in normal urine with Ehrlich's aldehyde reagent, 5442*f*.
**Goetchius, G. R.** Quaternary inactivator, 7085*f*; see Lawrence, C. A.
**Goeters, W.** Oxidase reaction for the bacteriol. identification of the meningococci, 7999*g*.
**Götte, A.** Selective flotation of the Pb-Zn Cu ores of Tsumeb, 1693*h*.
**Götte, H.** Complex salts of U, Th, and element 93, 2506*h*; see Seelmann-Eggebert, W.
**Götther, G. H.** Indexes for the temp. dependence of the viscosity of lubricating oils, 4840*d*.
**Göttmann, G.** See Schöpf, C.
**Goettsch, M.** Minimal protein requirement for reproduction and lactation, 7562*b*; minimal protein requirement for growth, 8024*e*.
**Goetz, R. H.** Action of dihydroergocornine on the circulation, 5501*c*; see Arnold, P.
——— and Katz, A. Adrenolytic action of dihydroergocornine in man, 5501*e*.
**Götze, M.** See Brintzinger, H.
**Goetzel, C. G.** Cemented steels—infiltration studies with pure Fe and Cu powders, 2146*e*; Treatise on Powder Metallurgy. Vol. I (book), 8767*i*.
**Götzl, F.** See Babilk, H.
**Goetzl, F. R.** See Shimkin, M. B.; Wheeler, P.

**Goetz-Luthy, N.** Fusion analysis, a rapid method for identification of org. compds., 4975*i*; sepn. of primary, secondary, and tertiary amines by chromatographic adsorption analysis, 6113*a*; reaction of ethylmagnesium bromide with pyridine, 7022*i*.
——, Bergstrom, F. W., and Mosher, H. S. Alkylamino and dialkylamino groups in the quinoline nucleus, 4270*f*.
**Goff, M. M.** See Marvel, C. S.
**Goff, P. le.** See Le Goff, P.
**Goffart, G.** Polarographic and amperometric analysis (I) theoretical principles, (II) applications, 2888*e*.
**Goffart, M.** Effect of oxidation derivs. of adrenaline on striated muscle, 5840*e*; see Bounameaux, Y.; Lecomte, J.
**Goffin, C. C.**, Hayes, F. R., Jodrey, L. H., and Whiteway, S. G. Exchange of materials in a lake as studied by radioactive P, 9098*f*.
**Goffin, G. R.** Brisbane's new water-filtration plant, 2345*f*.
**Goffin, R.** Physiol and pathol. changes in biliary function, 304*f*.
**Gofman, J. W.** Colloids contg. radioisotopes of Y, Zr, Cb, and La (I) prepn of colloids of Y, Zr, Cb, and La, 4539*c*; see Dobson, E. L.
——, Lindgren, F. T., and Elliott, H. Ultracentrifugal studies of lipoproteins of human serum, 7520*i*.
**Gofstein, R.** See Seligman, A. M.
**Gógan, F.** See Doyle, B. G.
**Gogek, C. J.** See Jones, R. N.
**Goggi, G.** Absorption of gases by activated charcoal, 8789*d*.
**Goggin, W. C.**, and McIntire, O. R. Plastics foams, 2464*h*.
**Gogicheva, Kh. I.** See Mchedlov-Petrosyan, O. P.
**Gohar, N.** Mycoses and Practical Mycology (book), 6701*i*.
**Gohr, E. J.** Conversion process, P 8664*b*; unsatd. hydrocarbon production, P 8663*e*.
——, Martin, H. Z., and Tyson, C. W. Device for stripping contaminated hydrocarbon catalyst, P 388*i*.
—— and Tyson, C. W. App for contact reactions of fluidized solids with gases, P 6873*f*.
**Gohr, H.**, Falkenbach, K. H., and Langenberg, H. Change in the serum proteins with liver insufficiency, 7125*a*.
——, and Langenberg, H. Detn. of the serum protein distribution, 3055*e*.
—— and Scholl, O. Detn. of the total protein and its fractions in plasma and serum, 9131*b*.
**Goidanich, G.** Wood-pulp flora, 7078*k*.
**Goiffon, R.** Serum globulins pptd. by $H_3BO_3$, 6692*g*.
—— and Kerléo, F. Variations in optical d. of inorg. and protein ppts. formed in gummy suspension, 3873*i*; effect of varying concns. of gum on the optical ds. obtained by ppts. serum globulin with boric acid—variations among serums, 3874*a*.
—— and Nepveux, F. Function of pH in the nephelometric detn. of serum Ca—measurement of total Ca, 5439*i*; serum Ca pptd. by various concns. of $NH_4$ oxalate, 6271*d*.
**Goisis, M.** See Cavallini, G.
**Goit, L. E.** See Maffitt, D. L.
**Gokcen, N. A.** See Dastur, M. N.
**Gokhale, V. G.**, Phalnikar, N. L., and Bhide, B. V. Chem. investigation of the fruits of *Piper longum*, 1085*a*, synthetic mosquito larvicides (I), 1144*d*.
**Gokhshtein, Ya. P.** Multicapillary dropping-Hg electrode, 503*b*; polarographic calcn. method, 5654*i*.
**Gola, G.** Fisiologia delle razze precoci Strampelli (book), 9179*a*.
**Golant, Sh. I.** See Drinberg, A. Ya
**Golay, M. J. E.** Multi-slit spectrometry, 6083*h*.
**Golay-Brunner, R.** Casein-type varnish, P 6838*h*.
**Golba, T. E.** Sticking of baize to polished glass, 1162*g*; detg. acidity of crocus suspensions, 2390*i*.
**Golberg, L.**, Kropman, M., and Thorp, J. M. Vitamins in African foodstuffs (VII) riboflavin and nicotinic acid contents of beans and other legumes, 8070*c*.
—— and Meillon, B. de. Nutrition of the larva of *Aedes aegypti* (III) lipide requirements, (IV) protein and amino acid requirements, 8071*d*.
**Gol'binder, A. I.** Inert salts in the compn. of firedamp-proof explosives, 3199*e*; see Agranovich, B. D.
**Gold, H.** See Modell, W.
——, Modell, W., Kwit, N. T., Shane, S. J., Dayrit, C., Kramer, M. L., Zahm, W., and Otto, H. L. Comparison of ouabain with strophanthidin-3-acetate by intravenous injection, 313*d*.
**Gold, J. R.** See Sommer, L. H.
——, Sommer, L. H., and Whitmore, F. C. Organosilicon compds. (XVIII) synthesis and cleavage of ethyl(trimethylsilyl)acetate, 562*f*.
**Gold, L.** Directional character of the long-range order parameter, 4918*i*.
**Gold, L. J.** Plastic-coated paper blackboard, P 1612*b*; thermoplastic coating compn., P 2037*b*.
**Gold, M. H.** Still for flash or mol. distn., 6006*d*.
—— and Druker, L. J. Nitro alkanesulfonyl chlorides, P 5411*h*; nitroalkanesulfonates from nitroalkanes, P 9079*c*; nitro sulfonates from β-nitro alkanols, P 9079*a*.
**Gold, P.** See Frommel, E.
**Gold, V.** Hydrolysis of $Ac_2O$, 472*f*; bond orders and other criteria of double-bond character, 5240*d*.
**Goldacre, R. J.** See Albert, Adrien.
——, Loveless, A., and Ross, W. C. J. Production of chromosome abnormalities by the N mustards, 7523*b*.
**Gol'danskii, V. I.** Dependence of the rate of heterogeneous catalytic reactions on the amt. of the catalyst, 2498*a*, elec. double layer, 2522*g*; see Fok, N. V.
**Goldbach, G. L.** See Orchin, M
**Goldbach, H. I.**, and Opfer-Schaum, R. Toxicol. identification of several analgesics and sedatives, 8429*h*.
**Goldbaum, L. R.** Ultraviolet spectrophotometric procedure for detn. of barbiturates, 264*a*; see Schack, J. A.
**Goldberg, A.** See Dorn, J. E.
**Goldberg, A. A.** See Ellinger, L. P.; Ward, Blenkinsop, & Co., Ltd.
—— and Kelly, W. Addn. of $H_2S$ to 2-phenyl-$\Delta^2$-oxazoline and benzoylethylenimine—attempted synthesis of fused thiazolidine-butyroxlactone ring systems, 3014*c*.
——, Kelly, W., and Turner, H. S. Acridine derivs., P 4703*e*.
**Goldberg, A. M.** See Othmer, D. F.; Savitt, S. A.
**Goldberg, B.** See Goldin, A.; Schoenbach, E. B.; Shapiro, D. M.
**Goldberg, C.** Detn of Cu in Al and Zn die-casting alloys, 3311*c*; detn. of Cu in Pb-base alloys, 7863*d*.
**Gol'dberg, D. O.** Oil purification with activated gumbrin, 3996*i*.
—— and Gervits, M. D. Effect of contact temp. on deparaffination of residue oil, 4001*a*.
**Goldberg, Edward.** See Brown, Harrison.
**Goldberg, Evelyn.** See Schubert, Maxwell.
**Goldberg, G. M.** See Sommer, L. H
**Goldberg, H. J. V.**, Gilda, J. E., and Tishkoff, G. H. Paper partition chromatography—free amino acids in saliva, 1076*b*.
**Goldberg, J. A.** Check list for the occasional solvent user, 3543*e*.
**Goldberg, J. B.** Textile research, 5953*d*, 6829*b*.
**Goldberg, Leo.** See McMath, R. R.; Mohler, O. C.
——, Mohler, O. C., and McMath, R. R. Isotopes of C and O in the earth's atm., 3289*i*; solar lines in the spectral region 1.52–1.75μ, 3710*i*.
**Goldberg, Leonard.** Cardiac irregularity and respiratory arrest in assay of cardiac glucosides by the guinea pig method—influence of sex and wt., 4810*i*; local anesthetics—pharmacol. properties of homologs and isomers of xylocaine, 9257*d*; see Bjerver, K.; Forssman, S.
—— and Luft, R. Comparison of oral and intravenous dextrose tolerance tests in healthy subjects, 4320*d*; diagnostic value of oral and intravenous dextrose tolerance tests in endocrine disorders with decreased dextrose tolerance—diabetes mellitus, thyrotoxicosis, Cushing's syndrome, and acromegaly, 8424*h*.
**Gol'dberg, M. M.** See Tomashov, N. D.
**Goldberg, M. W.**, and Teitel, S. Penicillin metal salts, P 2742*d*.
**Goldberger, J.** See Tomoskozy, J.
**Goldberger, M. L.** Interaction of high-energy neutrons and heavy nuclei, 1255*f*; see Chew, G. F.
**Goldbey, E. G.** See Anderson, G. W.
**Gol'dbinder, A. I.** Explosive properties of mixts. of inert salts with nitroglycerin, 1567*e*.
**Goldblatt, H.** See Gollan, F.; György, P.
**Goldblatt, L. A.** See Johanson, A. J.; Parker, E. D.
**Goldblatt, M. W.** Vesical tumors induced by chem. compds., 8073*f*.
**Goldblith, S. A.** See Proctor, B. E.
—— and Proctor, B. E. Effect of high-voltage x-rays and cathode rays on riboflavin and carotene, 9270*e*.
——, Proctor, B. E., Hogness, J. R., and Langham, W. H. Effect of cathode rays produced at 3000 kilovolts on niacin tagged with $C^{14}$, 8863*b*.
**Goldbloom, A.**, and Brickman, H. F. Galactemia hepatomegaly and cataract, 2290*i*.
**Gol'dburt, F. I.** See Brown, A. S.
**Golden, M. J.** Detn. of peroxides in mineral oil and petrolatum, 2762*a*; detn. of peroxides in petrolatum, 8618*h*; see Omohundro, A. L.; Oster, K. A.
**Golden, S.** Kinetics of homogeneous gas-phase reactions (I), 8816*f*; see Bragg, J. K.
—— and Bragg, J. K. Asymptotic expression for the energy levels of the asymmetric rotor (III) approximation for the essentially degenerate levels of the rigid rotor, 7820*i*.
—— and Peiser, A. M. Kinetics of homogeneous gas-phase reactions (II) approximations for displacement reaction between an atom and a diat. mole, 8816*h*.
**Golden, V.** Thickening latex, P 3227*a*.
**Go'ldenberg, L. G.** Thermal insulation of tank furnaces, 6381*g*; drying of sulfate in the suspended state, 9393*g*.
**Goldenberg, M.**, Faber, M., Alston, E. J., and Chargaff, E. Noradrenaline in the adrenal medulla, 7103*e*.
——, Upgar, V., Deterling, R., and Pines, K. L. Noradrenaline as a pressor drug, 8540*c*.
**Goldenberg, N.** See Lampitt, L. H.
**Golden Gate Paint & Varnish Production Club.** Cure plate as a possible tool for alkyd manuf., 3213*i*.
**Goldenson, J.**, and Sass, S. Detn. of diphenyl carbonate, 71*a*; detn. of the insect repellent, Dimalone, 1901*a*.
—— and Still, W. F. Support for filtering and separatory funnels, 1*a*.
**Gol'dfarb, Ya. L.** See Kondakova, M. S.; Setkina, O. N.
—— and Karaulova, E. N. Amino aldehydes of the pyridine series, 6626*e*.
——, Setkina, O. N., and Danyushevskii, Ya. L. Ultraviolet absorption spectra of some derivs. of pyridine and nicotine (I), 4137*e*.
**Goldfeder, A.**, and Wal-Balacianu, R. Thiourea and Ca and P metabolism, 4764*d*.
**Goldfein, S.** See Falk, H. L.
**Goldfiem, J. S. de.** Chem. study of *Balanites aegyptica*, 8572*c*.
**Goldfinger, G.**, and Steidlitz, M. Temp. dependence of copolymerization, 8203*a*.
**Goldfinger, P.**, Le Goff, P., and Letort, M. Chem. and spectroscopic identification of the free radical methylene, $CH_2$, 2513*d*.
——, Letort, M., and Niclause, M. Relations between the mechanism and the order of a reaction—rules governing the initiation and the termination of chains in the homogeneous pyrolysis of org. vapors, 2849*h*.
**Goldhaber, G.** γ-Ray spectrum from $F^{18} + H^1$ using photographic emulsions contg. $D_2O$, 1260*a*.
**Goldhaber, G. S.** See Scharff-Goldhaber, G.
**Goldhaber, M.** Spins of nuclei of mass no. ten, 491*i*; see Bowe, J. C.; Friedlander, G.
—— and Muchlhause, C. O. Metastable state of $Sc^{46}$, 3285*b*.
—— and Teller, E. Nuclear dipole vibrations, 1645*h*.
**Goldich, S. S.** See Barnes, V. E.
—— and Bergquist, H. R. Aluminous lateritic soil of the Republic of Haiti, W. I., 4799*g*.
**Goldie, M.** See Goldie, W.
**Goldie, W.**, Goldie, M., and Johnstone, K. I. Mutation in a single-cell culture of *Corynebacterium diphtheriae*, 4336*i*.
**Goldin, A.** See Schoenbach, E. B.; Shapiro, D. M.
——, Noe, H. A., Landing, B. H., Shapiro,

D. M., and Goldberg, B. Neurological syndrome induced by administration of some chlorinated tertiary amines, 1861*c*.
**Goldin, A. S.**, Knight, G. B., Macklin, P. A., and Macklin, R. L. $U^{234}$ specific *α*-activity, 8269*e*.
**Gol'din, L. L.** See Konikova, A. S.
**Goldin, M.** See Novak, M.
**Gol'din, M. I.** Specificity of filamentary virus inclusions, 5455*a*.
**Gol'din, Ya. A.** See Glebov, S. V.
**Gol'dina, Ts. A.** See Alekseeva, M. V.
**Golding, N. S.** See Miller, D. D.
**Goldman, A.** How spice oleoresins are made, 8573*e*.
**Goldman, H. M.** See Gould, B. S.
**Goldman, J. E.**, and Smoluchowski, R. Magnetostriction and order-disorder, 4060*a*.
**Goldman, M.** See Tauber, F. W.
**Goldman, M. A.** Filter assembly for clearing cold milk prior to pasteurization, P 3291*i*.
**Gol'dman, M. M.** See Slobodin, Ya. M.
**Goldman, R.** See Rosenblum, H.
**Gol'dman, V. Ya.** See Simouenko, Ya. P.
**Goldner, M. G.**, and Morse, M. Serum esterase in liver disease, 9238*d*.
**Goldovskii, A. M.** Evolutionary biochemistry, 8414*i*; biochem. changes in organisms during evolution, 8414*h*.
——— and Berestovskaya, S. S. K compds in plants, 7552*g*.
**Goldsbarry, A. W.** Distg. in alternate heating and cooling zones, P 8218*d*.
——— and Martin, H. S. Glass distg. head, P 6874*b*.
**Goldsby, A. I.** See Eleveth, D. F.
**Goldsby, A. R.** Antiknock synthesis gasoline, P 3994*b*; alkylation of hydrocarbons, P 4004*h*.
——— and Watson, C. W. Alkylation, P 1559*b*.
**Goldschmid, K.** See Bloch, R.
**Goldschmidt, B.** Purification of U, 2856*h*.
**Goldschmidt, F.**, and Dishon, B. R. Polymeric phosphonitrile esters—inorg.-org. plastics, 4047*g*.
**Goldschmidt, H. J.** Structure of carbides in alloy steels (I), 2914*a*, 6958*c*; carbide in Cr steels, 3764*b*, interplanar spacings of carbides in steels, 7396*i*; Mo sigma phase, 7881*i*.
**Goldschmidt, P.** See Bloch, R.
**Goldschmidt, S.** Therapeutically active derivs. of diphenylamine, P 5156*f*; aminoalkylbiphenyl derivs., P 5423*g*.
——— and Veer, W. L. C. Biphenylyl derivs. (I) basic 2-biphenylyl compds. related to the morphine mol., 1355*f*.
**Goldschmidt-Clermont, Y.**, King, D. T., Muirhead, H., and Ritson, D. M. Detn. of the masses of charged particles in the photographic plate, 3706*b*.
**Gol'dshtein, E. O.** See Shvedov, V. P.
**Gol'dshtein, T. Yu.** See Arkharov, V. I.
**Gol'dshtein, Ya. R.** Reactions in suspension, 791*e*.
**Goldsmid, P.** Loading material in paper, 400*i*.
**Goldsmith, E. D.**, Schreiber, S. S., and Nigrelli, R. F. 4-Aminopteroylglutamic acid, pteroylglutamic acid, and response of frogs to estrogens, 1474*f*; aminopterin and response of frog oviducts to estradiol (II) histol. studies and mitotic counts, 9202*h*.
———, Tobias, E. B., and Harnly, M. H. Folic acid antagonists and the development of *Drosophila melanogaster*, 2331*g*.
**Goldsmith, G. A.** Chem. measurements in relation to phys. evidence of malnutrition, 7561*g*; see Sarett, H. P.
**Goldsmith, G. J.**, and Lark-Horovitz, K. CdS as a crystal counter, 4110*g*.
**Goldsmith, H. A.**, and Humbert, A. L. Impregnating agent for metal-wool cleaning pads, P 9497*b*.
**Goldsmith, J.** Melilite solid solns., 73*b*.
**Goldsmith, J. R.** See Ziegler, N. A.
**Goldsmith, K.** Measurement of the elastoplastic properties of gels, 6047*d*.
**Goldsmith, M.** See Peiss, C. N.
——— and Wheland, G. W. Phenyl-carbonphenyl angle in 1,1-diphenylcyclopropane, 155*b*.
**Goldsmith, P. H.** See Hodge, E. A.
**Goldsmith, S. S.** See Katcoff, S.
**Goldstaub, M.** See Dunlop Rubber Co. Ltd.
**Goldstein, A.** Antibacterial chemotherapy, 2884*e*; interactions of drugs and plasma proteins, 5866*g*.
———, Krayer, O., Root, M. A., Acheson, G. H., and Doherty, M. E. Plasma neostigmine levels and cholinesterase inhibition in dogs and myasthenic patients, 6733*g*.
**Goldstein, A., Jr.** Cementation of Dakota sandstones of the Colorado Front Range, 2137*a*.
**Goldstein, D.** See Castiel, N.
**Goldstein, F.** See Glenn, W. W. L.
——— and Holburn, R. R. Toxic action of thiocyanate, 7582*d*.
**Goldstein, H. B.** Lab. evaluation of sizing materials for nylon hosiery yarns, 5957*b*.
**Goldstein, I. S.** See Rauscher, W. H.
**Goldstein, J. H.**, and Bragg, J. K. Nuclear quadrupole effects in the microwave spectrum of the asymmetric top mol., vinyl chloride, 5310*c*.
**Goldstein, L.** See King, L. D. P.
**Goldstein, L. S.** Congenital thiamine deficiency, 290*f*.
**Goldstein, M.** See Levine, Rachmiel.
**Goldstein, M. N.**, and Cameron, D. B. Effect of dicoumarol on embryonic chick liver and spleen, 761*b*.
**Goldstein, N.** See Hughes, D. J.
**Goldstein, N. P.** See Roe, J. H.
**Goldstein, P.** See Mylon, E.
**Goldstein, R.** See Alexander, B.
**Goldstein, R. F.** Petroleum Chemicals Industry (book), 8128*i*.
**Goldston, M.**, Leutscher, J. A., Jr., Longcope, W. T., Ballich, N. L., Kremer, V. I., Filley, G. L., and Hopson, J. L. Residual effects of phosgene poisoning in human subjects (I) after acute exposure, (II) after chronic exposure, 5513*e*.
**Goldstone, N. I.** Chemicotoxicol. examn. of foods, 9273*g*.
**Goldsworthy, L. J.** See Childs, A. F.
———, Harding, G. F., Norris, W. L., Plant, S. G. P., and Selton, B. Sulfides contg. the 2-chloroethyl group, 2928*f*.
———, Hook, W. H., John, J. A., Plant, S. G. P., Rushton, J., and Smith, L. M. Compds of diarylcyanoarsine type, 3382*e*.
**Goldsworthy, M. C.** Effect of DDT on the growth of peach trees, 809*a*; see Clayton, E. E.
———, Dunegan, J. C., and Wilson, R. A. Control of apple scab by ground and tree applications of eradicant fungicides, 9347*b*.
——— and Gertler, S. I. Fungicidal and phytotoxic properties of 506 synthetic org. compds., 6351*e*.
**Goldthwait, C. F.**, and Smith, H. O. Cotton cordage, P 4188*b*.
**Goldthwait, R. P.** See Norris, S. E.
**Goldthwaite, J. W.** Mineral compn. of N. H. sands, 4986*d*.
**Goldtrap, W. A.**, and Jones, E. L. Self-contained naphtha polyforming, 384*a*.
**Goldwasser, E.** See Heckly, R. J.
**Goldwater, D. L.** See Danforth, W. E.; Haddad, R. E.
**Goldwater, L. J.** See Shils, M. E.; Shoib, M. O.; Smith, A. R.; Tabershaw, I. R.
——— and Shils, M. E. Relations of nutrition to detoxication, 9194*c*.
**Goldzieher, J. W.** Effect of steroids on the senile human skin, 8514*e*; see Goldzieher, M. A.
**Goldzieher, M. A.**, and Goldzieher, J. W. Toxic effects of percutaneously absorbed estrogens, 8506*h*.
**Goldzweig, M.** Cellulose-splitting fungi of Palestine, 8444*e*.
**Golik, A. Z.**, and Ravikovich, S. D. Viscosity coeff. of isomorphous substances, 4064*i*.
**Goliszewski, W.** Safety fuse powder, 4467*c*.
**Goll, M.** See Minich, A.
**Gollan, F.** See Campbell, G. S.
———, Barnum, C. P., and Olsen, O. P. contg. compds. in normal and polio encephalitic mouse brain, 749*d*.
———, Richardson, E., and Goldblatt, H. Hypertensin in the systemic blood of animals with exptl. renal hypertension, 754*a*.
**Gollandskaya, E. I.** See Bogdanov, I. F.
**Golledge, A.** See Young, R. S.
**Gollin, N. W.** Measuring liquid level, 4476.
**Gollmar, H. A.** Gas purification, P 3807 4450*c*; see Mitchell, J.
**Gollub, M. C.** See Vennesland, B.
**Gologorskii, B. S.** Vitamin C in market milk, 1119*a*; dynamics of ascorbic acid content in artificially ripened and over-ripened tomatoes, 1462*d*.
——— and Timkovskii, Yu. V. Preservation of milk by high-frequency current, 5127*d*.
——— and Yudina, V. P. Waste water of a cracking plant, 1554*d*.
**Gololobov, Ya. K.** Age of the present stage of the Black Sea, 7387*c*.
——— and Pirogova, M. V. Upper limit of the $H_2S$ zone in the eastern part of the Black Sea, 3324*d*.
**Golotina, Z. S.**, Meshchaninova, E. A., and Reznikova, A. I. Action of penicillin on gonococci sensitive and resistant to sulfa preps., 5446*a*.
**Goloushin, N. S.** See Gundobin, V. P.
**Golovanova, M. Ya.** Amino derivs. of 2-methyl-1,4-naphthoquinone, 204*i*.
**Golovastikov, I. N.** Unreduced chrome ext. and methods for a fractional tanning, 5617*f*; detn. of the basicity of chrome exts. and liquors, 6449*h*; basicity and the calcn. of basicity in chrome tanning, 6449*h*.
**Golovato, E.** See McMurdie, H. F.
**Golovchinskaya, E. S.** 8-Substituted derivs. of methylated xanthines (I) caffeine-carboxaldehyde and (hydroxymethyl)caffeine, 3794*e*.
**Golovčinskaja, E. S.** See Golovchinskaya, E. S.
**Golovin, P. V.** Filter press, P 3541*c*; app. for continuous diffusion, P 9506*d*.
**Golse, R.** Syntheses in the phenylacetylene series, 1019*h*; see Quelet, R.
**Gol'ts, R. K.** See Alekseevskii, E. V.
**Golub, O. J.** Resistance of psittacosis virus to sulfadiazine and effects of chem. antagonists on sulfonamide activity, 7076*h*, see Burney, T. E.; Wagner, J. C.
**Golubev, B. A.** D. N. Pryapishnikov, 7761*e*.
**Golubev, T. I.** Cl detn. in water, 1885*i*; removal of Fe from drinking water, 1886*f*, purification of drinking water, 7612*e*.
**Golubev, V. V.** See Korshak, V. V.
**Golubitskaya, Z. M.**, and Nikitina, M. D. Carbonic anhydrase of the blood as an index of organism reactivity in dystrophic conditions in young children, 750*a*.
**Golubtsov, V. A.** Cationic filter, P 6009*f*, water softener, P 6345*c*.
——— and Burkov, G. A. App. for water softening, P 3548*i*.
**Golubtsova, R. B.** Detg. W in steel, 7372*a*.
**Golumbic, C.** Partition studies on phenols (II) sepn. of isomeric phenols by countercurrent distribution, 7789*a*.
———, Orchin, M., and Weller, S. Partition studies on phenols (I) relation between partition coeff. and ionization constant, 7788*i*.
**Golumbic, N.** Chemicals from synthetic liquid fuel processes, 5921*b*.
———, Anderson, H. C., and Crass, R. C. Production of liquid fuels from oil shale, coal, lignite, and natural gas, 9414*f*.
**Golz, R.** See Gol'ts, R. K.
**Gombás, P.** Die statistische Theorie des Atoms und ihre Anwendungen (book), 4958*h*.
**Gómez, C. G.** See González Gómez, C.
**Gomez, F. C.** See Cabrero Gomez, F.
**Gomez, F. G. y.** See Gallego y Gomez, F.
**Gómez, F. J. I.** See Idoipe Gómez, F. J.
**Gomez, G. E.** See Esguerra Gomez, G.
**Gomez, J. O.** See Olea Gomez, J.
**Gómez, P. L.** See López Gómez, P.
**Gómez de Membrillera, J. L.** See Loustau Gómez de Membrillera, J.
**Gomez Herrera, C.** See Borbolla y Alcalá, J. M. R. de la.
**Gómez R., C.** See Honorato C., R.
**Gómez Ruimonte, F.** Detn. of cationic impurities in Ca gluconate, 8614*g*.
**Gomm, A. S.** See Fysh, D.
**Gomolka, H. E.** See Ehrlich-Gomolka, H.
**Gomonet, E.** Vacuum in gas-discharge lamps, 1664*f*.
**Gomori, G.** Phosphamidase activity, 2299*d*; histochem. specificity of phosphatases, 3048*a*; detn. of phenol in biologic material, 8430*a*; see Bloch, R. G.
**Gonashvili, Sh. G.** Decompn. of casein, 260*d*.
**Gonçalves, J. M.** See Moura Gonçalves, J.
**Goncarov, W. W.** See Goncharov, V. V.
**Goncharenko, K. S.** See Birman, Ya N.
**Goncharov, V. V.** Effect of some admixts. on the hydration of Mg oxide and magnesite, 5919*h*; see Kolechkova, A. F.
**Goncharova, M. A.** See Gutyrya, V. S.
**Goncharskii, L. A.** Extending the range of the McLeod gage, 910*e*.
**Gondet, I.** See Caussé, R.
**Gonfi, F.** See Luco, J. V.
**Gonfi, F. M.**, and Candela, J. L. R. Fe (II) absorption curves in

human subjects, (III) Fe in hemorrhagic anemia, 287*g*; (IV) Fe in infections, (V) Fe after resection of the stomach, 3893*f*.

**Gonikberg, M. G.** Phase equil. between liquid and gas under pressure, 8832*b*.

——— and Poykh, G. S. Pressure effect on the rate of reaction in solns., 6054*h*.

**Gonnard, P.** Oxidation and dihydroxyphenylalanine decarboxylase activity, 7983*e*; utilization of methionine by the young plants of *Phaseolus vulgaris*, 8013*d*.

**Gonser, B. W.** Ti, 2553*c*; Sn and its alloys, 8745*d*; see Jaffee, R. I.; Litton, F. B.

**Gontaeva, N. I.** See Peshkova, V. M.

**Gontarski, H.** Vitamin C-oxidizing enzyme of the honey bee, 3113*e*.

**Gontcharow, Gontscharoff, Gontscharow.** See Goncharov, V. V.

**Gonzales, M. L.** See Teves, J. S.

**Gonzalez, A. de J.** Farmer and geol. science, 5707*i*.

**González, E. L.** See Loriente González, E.

**González, F. G.** See García González, F.

**González, J. O.** See Oliver-González, J.

**González, L. M.** See Morales-Otero, P.; Oliver-González, J.

**Gonzalez, S.** Graining molasses, 5615*f*.

**González Alvarez, J.** See Aznar Reig, A.

**González Barredo, J. M.**, and Senent Perez, S. Reaction velocities, 5265*c*; kinetic study of the relation between K permanganate and oxalic acid, 5267*e*.

**González Correa, O.** Uruguayan fish-liver oils, 3568*b*.

**González de López Candal, J.** See López Candal, J. G. de.

**Gonzalez del Tanago, J.** Operaciones y los aparatos químicos (book), 3668*h*, camphorsulfonic acids and certain camphor sulfonates of medicinal value, 7642*a*

**González García, F.** See Gutierrez Rios, E.; Hoyos de Castro, A.

**González Gómez, C.**, and Gallego y Gómez, F. Oxidized and reduced forms of the hydroxymethylanthraquinones in the pharmacol. action of the drugs which contain them, 4765*a*.

———, Gallego y Gomez, F., and Swiatopolk Mirski, A. Producing gutta-percha from species of *Evonymus*, 4886*i*.

**González-Montes, L. M.** See Blasco Santiago, E

**González Ochoa, A.**, and Angeles Sandoval, M. de los. Susceptibility of *Actinomyces bovis* to sulfadiazine, penicillin, streptomycin, and promin, 5821*h*.

**Gonzalez R., E.** Prepn. of certain esters through the action of chlorosulfonic acid, 127*e*; see Erdos, J.

**Gonzato, P.** See Salvini, M.; Zambotti, V.

**Gonze, M.** Glycol, P 6652*f*.

**Good, A. L.**, and Polya, J. B. Extn. of lignin by acetonitrile, 7225*f*.

**Good, G. M.** See Voge, H. H.

**Good, J. N.**, and Godfrey, D. Changes found on reciprocated steel, Cr plate, and cast iron sliding surfaces, 9009*c*.

**Good, M. G.** Local anesthetics, 6786*f*.

**Good, P. M.**, and Johnson, A. W. Paper chromatography of pterins, 3529*h*.

**Good, R. A.** See Glick, D.

**Good, T. A.** See Glick, D.

**Good, W. E.**, and Coles, D. K. Precision frequency measurements of microwave absorption lines and their fine structure, 4090*h*.

**Goodacre, C. L.**, Mitchell, B. W., and Seymour, D. E. *p*-Aminosalicylic acid (II) tuberculostatic behavior of *p*-aminosalicylic acid and related compds., 1154*e*.

**Goodale, G. M.**, and McKee, R. L. Quinazoline derivs., 5784*f*; interaction of 4,6-dichloroquinazoline with ethylenediamine, 5784*h*.

**Goodall, A. L.** See Symington, T.

**Goodall, D. W.** Diagnosis of mineral deficiency (IV) mineral content of barley plants in relation to K deficiency, (V) Mn deficiency in wheat, 9175*d*.

**Goode, J. F.** See Pauls, J. T.

**Goode, W. E.** *N*-phenacyltetrahydroisoquinoline, 1421*b*.

**Goodgen, E. L.**, and Updike, R. L., Jr. Storage tests on conditioned and wettable powders contg. 90% of DDT, 807*d*.

**Gooderham, W. J.** Developments in a method of gas analysis, 8970*i*.

**Goodeve, C.**, and Jack, K. H. Kinetics of N evolution from an Fe-N interstitial alloy, 4933*d*.

**Goodgal, S. H.** See Swanson, C. P.

**Goodhue, L. D.** Low and moderate pressure liquefied gas aerosols, 7635*c*.

**Gooding, C. M.** See Desai, M. J., Jr.

**Gooding, R. M.** See Schwartz, F. G.

**Goodings, A. C.** See Abbott, N. J.

**Goodland, R. L.** See Scrimshaw, N. S.; Sealock, R. R.

**Goodlass Wall & Lead Industries Ltd.** and Lloyd, A. Sheet Pb, P 6563*a*.

——— and Read, N. J. Paints, P 1904*b*.

**Goodliffe, A. H.** See Asiatic Petroleum Co., Ltd.

**Goodman, C.** Science and Engineering of Nuclear Power. Vol. II (book), 6088*i*; see Snell, A. H.; Tittle, C. W.

**Goodman, F. L.** Lubrication of low-pressure refrigerant compressors—Me chloride, etc., 5177*g*.

**Goodman, G. S.** Fuel briquets and packaged fuel, 2127*c*.

**Goodman, I.** See Dittmer, K.

———, Katsura, S., and Dittmer, K. Effect of amino acid antagonists on respiration of *Escherichia coli*, 6274*i*.

**Goodman, J.** See Drury, D. R.; Henry, J. P.

**Goodman, J. B.** See Parry, V. F.

**Goodman, L. S.** See Cheng, C.-P; Toman, J. E. P.

———, Toman, J. E. P., and Swinyard, E. A. Anticonvulsant properties of 5-phenyl-5-thienylhydantoin in comparison with dilantin and mesantoin, 760*g*; anticonvulsant drugs—action and methods of assay, 4763*f*.

**Goodman, S. C.** See Eagle, H.

**Goodrich, B. F., Co.**

(*Patents.*)

acrylic acid esters, 5035*i*.

acrylic ester polymer curing, 442*f*

acrylonitrile polymerization, 7263*a*

β-acyloxy acyl halides from β-lactones 1056*h*.

β-acyloxy carboxylic acid compds 1053*d*.

alkylthiazolyl disulfides, 5990*i*.

aniline condensation product, 6241*i*.

β-aryloxy carboxylic acids, 1053*i*.

bis(alkenylcarbonyldioxy) aromatic compds. and polymers thereof, 2234*e*.

carboxylic acids, 1053*c*.

catalysts for phenol-ketone condensation, 5424*b*.

catalysts for polymerization of 1,3-butadiene hydrocarbons, 2025*h*, 6859*c*

chlorination of phthalic anhydride, 3463*hi*.

α-cyano esters, 4288*g*.

diarylamine derivs. for Neoprene compounding, 2026*b*.

dicarbonate esters as plasticizers for vinyl resins, 5998*b*.

1,1-dicyanoethylene from 1-acetoxy-1,1-dicyanoethane, 9079*e*.

diesters (unsatd.), 3847*c*.

dithiazolyl disulfide, 5425*i*.

dithiocarbamic acid salts, 5224*e*.

β-dithiocarbamyl carboxylic acid compds., 7506*f*.

drying polymeric materials, 3660*i*.

ethylene polysulfide emulsion, 5992*e*.

fly spray comprising a diaryl disulfide, 9358*d*.

formaldehyde, 3026*e*.

β-haloacyl halides, 3444*e*.

β-halogen carboxylic acids, 1054*c*.

ice to rubber adhesion, reduction of, 6860*e*.

β-isothiourea derivs. of propionic acids, 7506*h*.

lactones, substituted acids from, 1056*c*.

monomeric alkyl α-cyanoacrylates, 6222*c*.

nuclear-halogenated bis[4-(alkenylcarbonyldioxy)phenyl]alkanes and polymers thereof, 2234*d*.

pesticidal compn. of polyethylene polysulfide and nicotine sulfate, 5528*i*.

polymerization modifiers, 4507*g*.

polymerization of acrylonitrile in the presence of an aromatic hydrocarbon, 7257*e*.

polymers, 7753*d*.

polymers of vinylidene halides, dialkyl esters of maleic acid, and vinyl esters, 2818*a*.

purification of nuclear chlorinated bisphenols, 1807*i*.

reclaiming mixed rubber and Neoprene compns., 3227*g*.

reclaiming vulcanisates of butadiene-acrylonitrile polymers, 4510*a*.

rubber softener, 3230*a*.

stabilization of chloroethylene by metallic silicates during polymerization, 5642*d*.

stabilization of monomeric 1,1-dicyanoethylene, 6220*c*.

structural material, 3473*df*.

sulfur-contg. dicarboxylic acids, 1054*h*.

terminating diene polymerizations, 5991*f*.

β-thio carboxylic acid compds., 1054*f*.

β-thio carboxylic acids, 1054*d*.

β,β′-thiodipropionic acid, 5795*f*.

thiuram disulfide and ethylene imine reaction, 3229*g*.

α,β-unsatd. carboxylic acid esters, 1055*c*.

unsatd. polyesters and their polymers, 4298*g*.

vacuum distn. app. for film distn. of vitamin and pharmaceutical oils, 3572*g*.

vinyl chloride, 5790*a*.

vinyl chloride coating on rubber, 895*i*.

vinyl chloride polymers plasticized with dialkyl chlorophthalates, 2817*d*.

vinyl polymerization, promotor for, 7264*h*, 7265*a*.

vinyl resin latex, 3232*d*.

vulcanization of vinyl resin, 901*i*.

**Goodrich, F.** See Watts, B. M.

**Goodrich, J. E.** See Zingaro, R. A.

**Goodrich, R. B.** See Rogers, L. B.

**Goodrich, W. C.** See Sweitzer, C. W.

**Goodrich, W. E.** Influence of teeming times on ingot surface defects, 2908*e*.

**Goodson, J. A.** See Wellcome Foundation Ltd.

———, Goodwin, L. G., Gorvin, J. H., Goss, M. D., Kirby, K. S., Lock, J. A., Neal, R. A., Sharp, T. M., and Solomon, W. Chemotherapy of amebiasis (II) amines derived formally from emetine, (III) variants of bis(diamylamino)decane, 3378*c*.

**Goodson, L. H.**, and Christopher, H. Reaction of *o*-hydroxy- and *o*-chlorobenzaldehyde with ethanolamine, 4235*b*.

**Goodwillie, J. E.** Paper machine, P 7686*d*.

**Goodwin, J.** See Wayne, E. J.; Wilson, A.

**Goodwin, L. G.** See Goodson, J. A.

———, Hoare, C. A., and Sharp, T. M. Chemotherapy of amebiasis (I) biol. assay, 3066*f*.

**Goodwin, R. G.** Continuous pulping, 1183*h*.

**Goodwin, R. H.** See Kavanagh, F.

——— and Kavanagh, F. Isolation of scopoletin, a blue-fluorescing compd., from oat roots, 7090*e*.

**Goodwin, S.** See Cason, J.

**Goodwin, T. C.** See Ferguson, L. N.

**Goodwin, T. W.** See Fulton, J. D.; Glover, J.

——— and Gregory, B. A. Vitamin A (VII) carotene metabolism in herbivores, 3899*b*.

**Goodwin, W. G. M.** See Robertson, P. W.

**Goodwin-Wilson, R.** See Filman, C. C.

**Goodyear, J.** See Brindley, G. W.

**Goodyear, J. M.** See Murphy, H. W.

**Goor, H. van.** Carbonic anhydrase, its properties, distribution, and significance for $CO_2$ transport, 6677*i*.

**Goor, W. R. van.** See Kappelmeier, C. P. A.

**Goorissen, J.** See Kröger, F. A.

**Goossens, N.** Thrombus-preventing action of salicylic acid, 9268*c*.

**Gopal, R.** Limits of supersatn. and the heat of soln., 6047*g*.

——— and Srivastava, T. N. Thermochor, 8226*e*.

**Gopalachari, B.** See Karimullah.

——— and Siddiqui, S. Latex from *Euphorbia tirucalli*, 9511*i*.

**Gopalarao, G.** See Rao, G. G.

**Gopalaswamy, S. N.** See Jatkar, S. K. K.

**Gopalkrishnan, K.** See Tawde, N. R.

**Goppel, J. M.** Degree of crystallinity in natural rubber (I) detg. the degree of crystn., (II) orientation of rubber crystallites in stretched samples, 2458*c*.

**Gor, P.** See Dubois, P.

**Gorai, M.** Plutonic rocks of Gosaisho-Takanuki district, Abukuma plateau, 6127*ih*.

**Goralewski, G.** Al lung—industrial disease, 3118*i*.

**Góralski, J.** Polish fertilizer industry, 8594*h*.

**Goranson, E. S.** Prevention of insulin hypoglycemia by DL-glyceraldehyde, 6306*i*; see Lundbaek, K.

**Gorazdovskii, T. Ya.** See Volarovich, M. P.

**Gorb, T. V.** Influence of protein concentrates and vitamin A on the growth and health condition of Romanov lambs, 291*b*.

**Gorbach, G.** Analysis of fats, 422*i*; glass microautoclave, 6470*e*; micromuffle for Gorbach's universal heating stand, 6470*f*; spray pipet, 6470*i*; handling ppts. by centrifugation, 6473*g*.

——— and Jurinka, A. Detg. water in foods, 6747*e*.

**Gorbacheva, A. P.** Detg. casein and albumin in milk, 3893*d*.

**Gorbacheva, N. A.** See Konstantinova-Shlesinger, M. A.
**Gorban, A. K.** See Shostakovskiĭ, M. F.
**Gorbman, A.** Tumorous growths in the pituitary and trachea following radiotoxic doses of $I^{131}$, 7120*d*.
**Gorbounow.** See Gorbunov.
**Gorbovitskiĭ, I. E.** See Kaplan, S. I.
**Gorbowitskij, I. E.** See Gorbovitskiĭ, I. E.
**Gorbunov, A. N.,** and Chuvilov, I. V. Heavy particles in cosmic rays with the aid of proportional counters, 4942*i*.
**Gorbunov, N. I.,** and Tsyurupa, I. G. Cryst. substances for x-ray detn. in mixts. with amorphous materials, 6252*b*.
**Gorbunova, K. M.,** and Dankov, P. D. Crystallochem. and diffusion mechanism of electrocrystn., 7356*h*; crystallochem. theory of the actual growth of crystals in electrolysis, 7836*c*.
——— and Ivanovskaya, T. V. Thickness of the unit layers of growth on crystal faces according to microinterferometer measurements, 953*d*.
——— and Zhukova, A. I. Oscillographic study of the cathode potential during growth of a filiform Ag crystal, 953*b*; crystn. of thin Ag filaments, 7356*g*.
**Gorchkov, G. S.** See Gorshkov, G. S.
**Gorcica, H. J.,** and Novak, L. J. Carbonated beverages, P 5131*d*; carbamino salt compds., P 5415*b*.
**Gordan, G. S.** See Eisenberg, E.
———, Bennett, L. L., Li, C. H., and Evans, H. M. Effect of dietary protein content on the N retention and wt. gain produced by the hypophyseal growth hormone, 7561*a*.
——— and Elliott, H. W. Diethylstilbestrol and some steroids on respiration of rat-brain homogenates, 7579*e*.
**Gordijenko, A.,** and Schenck, H. J. Detection of complex org. compds. by their precipitability, 4183*f*.
**Gordon, A. H.** Phosphate ester of a hydroxyamino acid, 3082*a*; see Consden, R.
**Gordon, A. S.** See Bossak, E. T.; D'Angelo, S. A.
**Gordon, B. S.** See Foucar, F. H.
**Gordon, C. L.** Nucleonics in analytical chemistry, 2113*g*.
**Gordon, C. W.** Flash drying, 8752*c*.
**Gordon, E.** Catalytic isomerization of vegetable oils, 2791*i*; dehydrogenation of fats, 3976*f*.
——— and Pailleux, Mme. O. Elaidinization of palm oil, 1582*a*.
**Gordon, E. B.** See Wiener, A. S.
**Gordon, E. E.,** and Darling, R. C. Percutaneous introduction of *d*-tubocurarine into muscles of rabbits, 3522*e*.
**Gordon, E. S.** See Erickson, T. C.; Maass, A. R.
**Gordon, F. Ya.** See Eldel'man, M. M.
**Gordon, G. B.** See Lifson, N.
**Gordon, G. S.** See Burwell, R. L., Jr.; May, T. P.
**Gordon, H.** See Bradner, H.; Turner, C. M.
**Gordon, H. H.** See Govan, C. D., Jr.
**Gordon, I.** Sp. gr. of the blood corpuscle in atherosclerosis, 4362*g*.
**Gordon, J.** Nongas-producing variant of *Escherichia coli* induced by growth in glycine, 4337*a*.
**Gordon, Joan.** See Noble, I.
**Gordon, Joseph.** See Glauque, W. F.
**Gordon, J. J.,** and Sowden, E. Effects of amidines on oxidases of *Escherichia coli* and of animal tissues, 9154*d*.
**Gordon, J. M.** Fluorescent dial panel, P 6518*f*; laminated phosphorescent fluorescent article, P 6518*g*.
**Gordon, K.,** and Imperial Chemical Industries Ltd. $(NH_4)_2SO_4$, P 2380*i*.
**Gordon, L.** See Caley, E. R.
**Gordon, M.** Reaction kinetics of adiabatic systems, 28*d*, 8815*c*; adiabatic reaction kinetics of Buna-S vulcanization, 8731*h*; see Villee, C. A.
**Gordon, Manfred,** Kendall, C. E., and Davison, W. H. T. Chem. Ciphering (book), 932*c*.
**Gordon, Maxwell.** See Hazel, F.
———, Miller, J. G., and Day, A. R. Effect of structure on reactivity (II) influence of solvents on ammonolysis of esters, 6495*c*.
**Gordon, M. M.** See Zhuravlev, V. F.
**Gordon, M. S.** See Joachim, W. F.
**Gordon, N.** Halogens in halogenated fluoresceins, 8959*e*; see Jones, J. H.
**Gordon, P. L.** Plastics for surface coatings, 899*d*.
**Gordon, R. B.** See Scott, H.
**Gordon, R. E.,** Powell, H., and Isbell, R. A. C. Industrial infrared spectrometer, 4*e*.
**Gordon, Ronald R.** Water-sol. vitamin K in the newborn, 5101*i*.
**Gordon, R. S., Jr.** See Surgenor, D. M.
**Gordon, S.** See Broschard, R. W.
**Gordon, Stuart,** Whitworth, E., and Imperial Chemical Industries Ltd. Flashless propellant powders, P 4856*c*.
**Gordon, S. A.,** and Sánchez Nieva, F. Biosynthesis of auxin in the vegetative pineapple (I) nature of the active auxin, (II) precursors of indoleacetic acid, 7096*d*.
**Gordon, S. G.** Gnomonic projector for x-ray Lauegrams, 8851*g*.
**Gordon, S. M.** See Klein, Daniel; Schoen, K.
**Gordon, W. D.** See Ewing, D. T.
**Gordon, W. H.** See Ray, C. T.
**Gordon, W. O.** See Veldhuis, M. K.
**Gordonoff, T.** Pharmacology of nicotinamino-1,2-diphenylethane, 9254*d*.
**Gordy, W.** Microwave spectroscopy, 3279*b*; relation of nuclear quadrupole moment to nuclear shell structure, 8261*i*; see Gilliam, O. R.; Livingston, Ralph, Smith, Alex G.
———, Gilliam, O. R., and Livingston, R. Nuclear magnetic moments from microwave spectra—$I^{127}$ and $I^{129}$, 8879*a*.
———, Ring, H., and Burg, A. B. Nuclear spins and quadrupole moments of $B^{10}$ and $B^{11}$, 491*f*, 8869*f*.
**Gore, P. H.,** and Phillips, J. N. Base-strengthening effect of resonant amine groups in some heterocyclic bases, 6893*c*.
**Gore, R. C.** See Barnes, R. B.
———, Barnes, R. B., and Petersen, E. M. Infrared absorption of aq. solns. of org. acids and their salts, 4573*i*.
——— and Petersen, E. M. Infrared studies of polymyxin, 9386*f*.
**Gorelova, Z. P.** See Alekseev, A. M.
**Gorenbein, E. Ya.** Complex compds. of $AlBr_3$ in the fused state, 1232*i*.
——— and Burshtein, Yu A. Physicochem. investigations of concd. soln. (IX) system $KCl$-$Al_2Br_6$-$C_6H_5NO_2$, 6898*i*.
**Goresline, H. E.,** *et al* Microbiol. examn. of foods, 6747*c*.
**Goret, P.,** and Joubert, L. Infection and immunity, 1100*a*.
**Gorev, Z. M.** Applications of luminescent compds., 6920*i*.
**Gori, R. de.** See De'Gori, R.
**Goria, C.** Constitution of the "tuffs" of Casale, 2552*e*.
**Gorin, E.** Chlorination of paraffinic hydrocarbons, P 2217*f*; see Kinney, R. E.
———, Fontana, C. M., and Kidder, G. A. Chlorination of $CH_4$ with Cu chloride melts—rate of chlorination—distribution of products, 1714*d*.
——— and Gorin, M. H. Conversion of dimethyl ether into liquid hydrocarbons, P 3435*f*.
——— and Miles, C. B. $COCl_2$, P 3160*a*.
——— and Oblad, A. G. Cyclohexene, P 6656*c*.
——— and Vorwerck, J. R. Aromatic hydrocarbons from $CH_4$ and natural gas, P 5928*i*.
**Gorin, M. H.** See Gorin, E.
——— and Swerdloff, W. Product recovery from hydrocarbon conversion reactions, P 3604*d*.
**Gorin, Yu. A.** Catalytic transformations of alcs. into bivinyl hydrocarbons (XI) application to the interpretation of the reaction of formation of piperylene from a mixt. of EtOH and PrOH, 992*i*.
——— and Charskaya, K. N. Catalytic transformations of alcs. into bivinyl hydrocarbons (XIII) catalytic synthesis of bivinyl from binary mixts. of MeOH and iso-PrOH, MeOH and acetone, iso-PrOH and $CH_2O$, 994*a*.
———, Danilina, M. I., and Andreeva, N. P. Catalytic transformations of alcs. into bivinyl hydrocarbons (XII) formation of 2,4-hexadiene from a mixt. of EtOH and MeCOEt, 993*d*.
——— and Gorn, I. K. Catalytic transformations of alcs into bivinyl hydrocarbons (X) formation of piperylene in the process of production of bivinyl from alc., 991*h*.
**Gorini, C.** Enzymic grouping of bacteria, 2277*i*; acidoproteolytic lactic enzymes, 6265*e*.
**Gor'kova, I. M.** Concd. disperse systems of soils, 7171*b*.
**Gorlenko, M. V.** Bacterial plant pathology in the U. S. S. R., 6704*f*; toxins of molds, 8002*b*.
**Gorley, J. T.** Purification of Bacitracin, P 2742*a*.
**Gorlin, R. J.** Variations in salivary protein concn., 1850*f*; see Ziskin, D. E.
**Gorman, A. E.** Safe disposal of radioactive wastes, 6769*b*.
——— and Wolman, A. Nuclear fission operations and the sanitary engineer, 8079*e*.
**Gorman, A. J.** See Moloney, W. C.
**Gorman, D. A.** Passivating treatment, P 1307*b*; removal of corrosion products from Zn, Zn alloys, and Zn-coated metals, P 6149*b*.
**Gorman, L. J.** Corrosion and protection of underground power cables, 6093*h*.
**Gorman, M.** Teacher coöperation with the At. Energy Commission, 1619*b*; teaching of isotopes, 5650*f*.
**Gorman, N. H.** See Steck, E. A.
**Gorn, I. K.** See Gorin, Yu. A.
**Gornall, A. G.,** Bardawill, C. J., and David, M. M. Detn. of serum proteins by means of the biuret reaction, 5070*c*.
**Gorodetskaya, A.** Rate of rise of bubbles in water and aq. solns. at great Reynolds nos., 4082*a*.
**Goronina, K. A.** Dependence of the magnetic permeability of permalloy-type alloys as a function of frequency, 4911*c*.
**Gorschkow, G. S.** See Gorshkov, G. S.
**Gorshkov, G. S.** Detn. of true potash feldspar on the five-axis universal stage, 5701*b*.
**Gorskiĭ, S. S.** Edgemull, P 3250*e*.
**Gorter, A.** See Hintzer, H. M. R.
**Gorter, C. J.** Irreversible process in liquid He II, 1232*d*; supercond., 8772*a*; see Vrijer, F. W. de.
——— and Houwink, A. L. Structure of wool hair, 4016*g*.
——— and Mellink, J. H. Irreversible processes in liquid He II, 8226*f*.
**Gorter, E.,** and Royen, A. van. Detn. of total base by exchange of ions, 1076*e*.
**Gortner, R. A., Jr.** See Muller, R. F.
**Gortner, W. A.** Gortner's Outlines of Biochemistry (book), 4312*e*.
**Gorvin, J. H.** See Goodson, J. A.; Wellcome Foundation Ltd.
**Goryachenkova, E. V.** See Braunshteĭn, A. E.
**Goryoya, K.** See Tomita, S.
**Goryunova, S. V.** Elimination of volatile substance during the life of *Oscillatoria* algae, 4731*f*.
**Goryushina, V. G.,** and Cherkashina, T. V. Detn. of Mo in the presence of W, 8957*i*; analysis of W and Mo alloys, 8958*d*.
**Gosieniecki, A. T.** Synthetic rubber, P 7745*f*.
**Goss, A. E.,** and Vance, G. H. MeOH vapors from duplicating machines as health hazard, 7159*i*.
**Goss, H.** See Carroll, F. D.; Guilbert, H. R.
**Goss, H. P.** Carburation principles—LP-gas compared to gasoline for engines, 3991*e*.
**Goss, M. D.** See Goodson, J. A.
**Goss, N. P.** Applied x-ray metallography, 532*h*.
**Goss, W. H.** Processing edible fats, 1497*f*; oil from grain, 9488*i*.
**Gossner, J. L.** Photographic light-curve and spectrum of Nova Serpentis 1948, 490*c*; see Whipple, F. L.
**Gossot, J.** Bonding of rubber to metals by chem derivs. of rubber, 4887*f*.
**Gosting, L. J.,** and Morris, M. S. Diffusion studies on dil. aq. sucrose solns. at 1 and 25° with the Gouy interference method, 7789*e*.
**Goswami, M.** Romance of perfumes—odor and constitution, 1531*e*; see Mukherji, S.
———, Mukherji, S., and Rav, S. N. Biol. availability of fatty acid monoester of L-ascorbic acid, 8498*a*.
**Goswami, S.** See Narain, K.
**Goth, Andres,** and Robinson, F. J. Chemotherapeutic studies on a series of dithiocarbamates and their Bi derivs., 1111*g*.
**Góth, Andrew.** Same as Góth, Endre.
**Góth, Endre,** and Littmann, I. Ascorbic acid content in human cancer tissue, 3921*c*.
——— and Simon, T. Alcoholism and $B_1$ vitamin deficiency, 8549*g*.
**Gothan, W.** Classification of bitumen 6401*e*.
——— and Mojen, H. P. Classification of bitumens, 6401*f*.
**Goti, F.** Hemogen in treatment with *p*-aminosalicylic acid, 5861*f*.

**Gotlib, M. B.** Sound signal for detg. deformation temp. of refractories, 8632*b*.
**Gotlieb, J.** See Zawadzki, J.
**Gotman, F. I.** See Nazarov, I. N.
**Goto, Hidehiro,** and Kakita, Y. Catalytic analysis (VI), 7860*b*.
—— and Musha, S. Detn. of Cu with phenolphthalen, 1682*g*.
**Goto, Hisanobo,** and Yoshizaki, T. Lubricating oil from $AlCl_3$ sludge, P 6820*i*.
**Goto, K.** See Tokune, Y.
**Goto, J. S.** See Sevag, M. G.
—— and Sevag, M. G. Enzymic studies of the mechanism of the resistance of pneumococcus to drugs (I) studies of the dehydrogenase activities and interrelations of pneumococci susceptible and resistant to acriflaviue, optochine, propamidine, and sulfonamides, 2672*b*.
**Gottardi, M. T.** Detg. Cr, V, and Mn in steel, 4176*i*.
**Gottdenker, F.** See Eisler, M.
**Gottfried, S.,** and Baxendale, L. Chemistry of rose perfumes, 8102*e*.
**Gottlieb, O. R.** Detn. of linaloöl, 357*e*; odorous products from sweet orange leaves, 4814*i*.
**Gottlieb, Sidney.** See Fieldner, A. C.
**Gottlieb, Steven.** Oil-operated shaft kiln for calcining raw materials in the manuf. of portland cement, P 4444*a*
**Gottschalk, G. W.** See Ambelang, J. C.
**Gottschalk, H. R.,** and Weiss, R. S. Sensitivity to plasticizers, 748*c*.
**Gottschalk, R. G.** Detn. of acid phosphatase—reaction of King and Armstrong, 3876*a*; viruses in avian tumors and leukemias, 3921*a*.
**Gottschalk, W. M.** Line strengths in the Fe spectrum in intermediate coupling with applications to the solar curve of growth, 1263*d*.
**Gottscho, A. M.** See Frankenburg, W. G.
**Gottwald, F.** Testing surface quality, 917*i*.
**Gouarné, R.,** and Yvan, P. Comparison of the orbital mol diagrams of linear polyene chains with certain of their N derivs., 6479*d*.
**Goubeau, J.** Raman and infrared spectra, 1639*g*; B compds., 2105*h*; Raman spectra of ethyl and propyl fluoride, 4139*c*; in memoriam Otto Hönigschmid, 5649*f*; see Heerdt, R., Kopfermann, H.
—— and Fromme, I. N-O bond (I) N-O bonds without mesomerism, 6016*b*.
—— and Köhler, E. Raman-spectral analytical examn. of some aromatic compds., 3216*i*.
—— and Seifert, H. Phys. properties and Raman spectra of olefins of the $C_5$ to $C_{11}$ series, 3774*a*.
—— and Siebert, H. Raman spectrum and structure of $AlCl_3$ monoammine, 2095*f*.
**Gouchmann, B. S.** See Gukhman, B. S.
**Goudaert, M.** See Dechaume, M.
**Goudal, H.** See Merklen, F. P
**Goudge, M. F.** Greater utilization of our [Canadian] industrial minerals would reduce imports, 2343*c*.
**Goudsmit, S. A.,** and Scott, W. T. Measuring scattering of particle tracks, 934*g*
**Gouge, M. G.** Limestone at Glen Morrison, 5349*h*.
—— and MacLeod, D. Government core drills, 5348*d*.
**Gougerot, L.** See Dognon, A.
**Gouguell, B. M.** See Gugel, B. M.
**Gouget, M.** See Pinte, C.
**Gould, A. J.** Corrosion-fatigue of steel under asymmetric stress in sea water, 2565*b*.
—— and Evans, U. R. Effect of shot-peening on the corrosion fatigue of a high-C steel, 2917*d*.
**Gould, B. S.** Existence of biochem. antagonism between α-ascorbic acid and structurally related compds., 3894*b*; see Lion, K. S.
——, Goldman, H. M., and Clarke, J. T., Jr. Antiscorbutic substances—3-methyl L-ascorbic acid and 1-methylheteroascorbic acid, 9179*h*.
**Gould, C. E.** Soln. of the refractory blocks in the tank wall of a glass-melting furnace, 8625*d*; cooling glass tanks by air, 9399*b*; see Bastick, R. E.
**Gould, C. W.,** Amberg, L. O., and Hulse, G. E. Methylisopropenyl ketone-butadiene copolymers—properties of vulcanizates, 5988*b*.
—— and Hulse, G. E. Emulsion copolymerization of Me isopropenyl ketone with butadiene, 5987*h*.
**Gould, C. W., Jr.** Microfractionation still with capillary tube offtakes for condensate, P 2476*c*.
**Gould, D. F.** Polymerization of resin oils with mixed clay and org. acid catalyst, P 5641*g*; see Maguire, J. B.
**Gould, E.,** and Hamstead, E. O. Control of the red-banded leaf roller, 2729*e*.
—— and Taylor, C. F. Effect of insecticidal sprays on incidence of pecan scab in W. Va., 2356*f*.
**Gould, E. S.** See McCullough, J. D.
**Gould, G. E.** Insect problem in corn-processing plants, 1518*d*; insect pests of muck crops, 3964*e*.
**Gould, J. A.** Corrosion of underground mains, 4621*f*.
**Gould, R. G.** See Hastings, A. B.
——, Hastings, A. B., Anfinsen, C. B., Rosenberg, I. N., Solomon, A. K., and Topper, Y. J. Metabolism of isotopic pyruvate and acetate in rabbit-liver slices, 3906*c*.
——, Sinex, F. M., Rosenberg, I. N., Solomon, A. K., and Hastings, A. B. Excretion of radioactive $CO_2$ by rats after administration of isotopic bicarbonate, acetate, and succinate, 3097*i*.
**Gould, R. H.** New York builds two new sewage-treatment plants, 3547*c*; activated sludge, 9308*a*.
**Goulden, F.** See Elson, L. A.
**Goulding, J. P.** See Orem, H. P.
**Goulston, W. W.** Mineral oils, 4788*e*, 4789*a*.
**Gounelle, H.,** and Bonfils, S. Absence of hypotensive action of crystd. vitamin A acetic ester, 2293*b*.
**Gouny, P.,** and Mazoyer, R. Soils of the coastal zone of the southwest of France (II) saline soils of eastern Provence, 9312*f*
**Goupil, R.** See Petitcolas, P.
**Gourevič.** See Gurevich.
**Gourévitch, A.** Estn. of riboflavin concn., 4185*g*.
**Gouréwitch.** See Gurevich.
**Gourlay, J. S.** See Swallow, J. C.
**Gourlay, P.** Temp in the tannery and means for controlling it, 6852*i*.
**Gourvitch, I. A.** See Gurvich, I. A.
**Gourwitz, S. S.** See Gurvits, S. S.
**Goussew.** See Gusev.
**Goutarel, R.** See Janot, M. M
**Goutier, R.** Sensitization to the inhibiting effects of K by the methylxanthines, 1108*c*; sensitization to K by some pure alkaloids of the veratrine group, 4380*g*; see Coppée, G.
**Goutirja, Goutyria.** See Gutyrya, V. S.
**Gouverneur, P.** Org. elementary analysis, 5702*c*.
**Govaert, F.** See Verzele, M.
—— and Hoste, J. 3-(Hydroxymethyl)-3-(aminomethyl)trimethylenimine, 214*a*.
**Govaerts, J.** Radio-$P^{32}$, 8874*a*.
**Govan, C. D., Jr.,** and Gordon, H. H. Effect of pteroylglutamic acid on the aromatic amino acid metabolism of premature infants, 5096*c*.
**Govindachari, T. R.** See Adams, R.; Dey, B. B.
**Govorenkova, A.** Detn. of fat content in milk products, 7599*h*.
**Govorova, L. S.** See Bukina, L. A.
**Gow, J. D.** See Baker, W. R.
**Gow, R. S.** See Campbell, N.
**Gowan, J. E.** See Doyle, B. G.
**Goward, F. K.** Effect of azimuthal inhomogeneities in the magnetic field of a betatron or synchrotron, 4945*e*; see Titterton, E. W.
**Gowdey, C. W.** Change in pharmacol. action produced by the introduction of a Me group into priscol, 1869*b*.
**Gowdy, R. A.** See Kerby, G. P.
**Goy, O.** German cellulose industry, 5949*g*.
**Goyal, D. P.** Production of a steady conductance as a detriment of the Joshi effect under silent discharge, 2858*a*.
**Goyal, R. K.** Investigation in the *in vitro* titration of cobra and daboia antivenins, 9266*d*.
**Goyan, F. M.** Conductometric studies of certain salts of penicillin, 8244*f*; see Hind, H. W.
—— and Coutsouris, H. C. pH indicators of the U. S. P. and the prepn. of selected buffer solns., 5533*d*.
**Goyanes C. B.** See Barcia Goyanes, C.
**Goyco, J. A.** See Asenjo, C. F.
—— and Asenjo, C. F. Edible yeasts (I) food yeast, brewers' yeast, and skimmed milk as supplements to a deficient diet, (II) growth and reproduction performance of rats fed on yeast as sole source of protein, (III) effect of heat treatment on the nutritive value of food yeast, 3897*a*.
**Graaff, G. B. R. de.** Scientific work of S. C. J. Olivier, 6013*i*.
**Graaff, R. J. van de.** See Van de Grauff, R. J.
**Grab, E. G., Jr.,** Wegener, J. B., and Baer, B. H. Firming strawberries before freezing, 3535*c*.
**Grab, W. E.** See Koll, W.
**Grabar, P.,** and Bussard, A. Precipitative and nonprecipitative antihormonal antibodies in antigonadotropic rabbit serum, 304*c*.
**Grabarovskava, R. E.** See Shapiro, M. M.
**Grabau, M.** See Land, R. H.
**Graber, L. F.** See Smith, D.
**Grace, J. N. A.** See Ellis, H. A.
**Grace, M. A.** See Collie, C. H.
**Grace, N. H.** Canadian erucic acid oils (I) refining and bleaching, 2000*e*; see Lips, H. J., Watson, R. W.; Zuckerman, A.
**Grace, W. R., & Co.** Clarifier for sugarcane juice, P 9506*c*.
**Grachev, A. A.** App. for cooling sheet glass with compressed air, P 5166*e*.
**Grachev, I. I.** Regulation of lactation by reflexes, 9212*a*.
**Grachev, I. V.** Structure and transformations of diazo compds. (IV) formation and reactions of *p*-nitrophenylnitrosaminate, 169*g*; (V) ability of various forms of *p*-nitrodiazobenzene in respect to decompn. and coupling, (VI) diazotization reaction, 595*f*; see Poral-Koshits, B. A.
—— and Kirzner, N. A. Structure and transformations of diazo compds. (VIII) acid and base properties of diazo compds., 2491*h*.
—— and Shour, V. M. Structure and transformations of diazo compds. (VII) oxidizing capacity of various forms of diazo compds., 1736*d*.
**Gracia, D. R. L.** See López Gracia, D. R.
**Gracian, J.** See Gracian Tous, J.
**Gracianskij, N. N.** See Gratsianskil, N. N.
**Gracian Tous, J.** See Yoldi Bereau, F.
**Gracie, D. S.,** and Khalil, F. $H_3PO_4$ in Egyptian soils and the effect of superphosphate on crops, 1891*b*.
**Grad, B.** See Leblond, C. P.
**Grad, N. M.** See Danilov, S. N.
**Gradijan, F. D.** See Harness, C. L.
**Gradsten, M. A.,** and Pollock, M. W. Reaction of formaldehyde with nitriles, 657*d*.
**Gradstain, M.** See Zerner, E.
**Grady, H. R.,** Cross, P. C., and King, G. W. HzS bands at 10,200 cm.$^{-1}$, 5308*g*.
**Grady, L. D.** See Barnett, C. E.
**Graef, H. de,** and Pierret, J. Action of 3-nitrophthalic anhydride on alcs., 5767*b*.
**Graef, I. P.** See Lo-Grippo, G. A.
**Graefe, G.** See Heyns, K.
**Gränacher, C.** See Sallmann, R.
—— and Ackermann, F. Fluorescent dyes, P 8173*i*.
——, Usteri, E., and Geiger, M. Condensation of chlorinated acetone with $C_6H_6$ derivs. and the prepn. of chlorinated isopropylbenzene derivs., 6583*i*.
**Gränicher, H.** See Blattner, H.
**Gräser, F.** See Manz, E.
**Graesser-Thomas, E. W.** Phenol, 5996*f*.
**Graessle, O. E.** See Waksman, S. A.
—— and Pietrowski, J. J. Effect of *p*-aminosalicylic acid in preventing acquired resistance to streptomycin by *Mycobacterium tuberculosis*, 5447*f*.
**Graetz, A.,** and Moulin, M. Rubber industry and the petroleum industry, 429*a*.
**Graevskaya, R. I.,** and Smirnov, O. K. Analysis of the higher aliphatic amines, 5341*f*.
**Graevskil, E. Ya.** Vitreous state of protoplasm in extreme cold, 7989*e*.
**Gráf, F.,** and Sellei, C. Effect of penicillin on the activity of bone marrow, 8548*a*.
**Graf, J. C. B.** See Baró Graf, J. C.
**Graf, L.** Crack formation in the stress corrosion of homogeneous cryst. solid solns. (I) formation of intercryst. and transcryst. cracks, 7879*e*; corrosion under tension, 9104*f*.
**Graf, O.** Concrete for "Autobahnen," 373*c*; gas-expanded concrete, foamed concrete, and concrete with light limestone aggregate, 6387*g*.
**Graf, R.,** and Monteil, S. Detn. of lattice consts. of coarsely cryst. metallic phases, 2091*c*.
**Gráf, T.** Half-life period of $K^{40}$, 485*i*;

radioactive K and its relation to atm. A, 6910*d*.
**Graf, W.** See Böhringer, H.
**Graf, Wilfried.** Über zwei und mehrkernige Thiazolverbindungen (book), 7496*d*.
**Grafe, E.** Diabetes und Tuberkulose (book), 3925*i*.
**Graff, A.** Manuf. of O from air, 4400*f*.
**Graff, A. C. de.** See De Graff, A. C.
**Graff, J. H.** Analysis of wool-content papers, 5948*i*.
**Graff, M.** See Beiler, J. M.; Martin, G. J.
**Graff, M. M.** Monoalkyl esters of the addn. products of *levo*-pimaric acid with maleic anhydride, P 5423*g*.
**Graff, W. H.** See Grard, J.
**Graffe, L.** Active Zn oxide, B. G. 150 [for rubber], 2461*h*.
**Graffiin, A. L.,** and Green, D. E. Cyclophorase system (II) complete oxidation of fatty acids, 2248*d*.
**Graffunder, W.** Linear accelerator, 6908*h*.
**Gragerov, I. P.** See Yur'ev, Yu. K.
—— and Miklukhin, G. P. H bond in benzoquinhydrone and its structure, 452*a*.
**Graham, A. F.,** and McClelland, L. Uptake of radioactive P by influenza virus, 9148*f*.
**Graham, A. K.** Plating high Cu-Zn alloys, 8901*c*.
——, Heiman, S., and Pinkerton, H. L. Deposition of precious metal alloys (I) attempts to deposit Pt-Au alloys from alk. solns., (II) binary Ag alloys from acid chloride solns., (III) Pt-Au, Ag-Au, and Ag-Pt-Au alloys from acid chloride solns., 2097*i*; (IV) bromide, iodide, and fluoride systems, 4148*c*.
——, Pinkerton, H. L., Anderson, E. A., and Reinhard, C. E. Plating of pressed metal powder parts, 6924*h*.
**Graham, A. R.** Artificial pyrrhotite, 8934*f*; see Berry, L. G.
**Graham, Boynton.** Reaction product of *N*-substituted polyamides with hydroxylated materials, P 1610*e*.
—— and Turner, H. S. *N*-Alkoxymethyl polyamide coatings, P 6466*c*.
**Graham, Bruce.** See Clarke, R. A
——, Porter, H. D., and Weissberger, A. Pyrazole compds. (VIII) synthesis and acylation of pyrazolones derived from hydrazine and methylhydrazine, 4272*a*.
**Graham, B. E.,** and Kuizenga, M. H. Pharmacol. study of β-(*o*-methoxyphenyl)-*N*-methylisopropylamine-HCl and related methoxy analogs, 1109*e*.
**Graham, C.** Control of the red-banded leaf roller, 7628*b*.
**Graham, C. E.,** Waitkoff, H. K., and Hier, S. W. Amino acid content of some scleroproteins, 4708*f*.
**Graham, C. H.** See Eddy, G. W.
**Graham, D. M.** See Fazekas de St. Groth, S.
**Graham, David P.** Gas and liquid contact app. with improved means for washing the undersides of the orifice plates, P 2048*e*.
**Graham, Donald P.,** and Benning, A. F. Contribution of solvation to the stability of anthraquinone vat-dye suspensions—evaluation and correlation with migration, 7232*c*.
**Graham, E. R.,** and Turley, H. C. Soil development and plant nutrition (III) transfer of K from the nonavailable to the available form as reflected by the growth and compn. of soybeans, 2720*e*.
**Graham, G.** See Mottram, V. H.
**Graham, G. B.** See Bayes, A. L.
**Graham, G. M.** Cost investigation on water-loss reduction, 3599*i*.
**Graham, H.** See Holtzman, H.; Stewart, A. W.
**Graham, H. G.,** and Schmidt, L. D. Ultraclean coal for electrode C in Germany, 375*f*.
**Graham, H. M.,** and Kurth, E. F. Constituents of extractives from Douglas fir, 3195*a*.
**Graham, H. W.,** Edwards, R. E., and Laughlin, W. G. Bessemer steel, 4194*a*.
**Graham, J. A.** See Aristoff, E.
**Graham, J. B.** See Cope, O.
——, Buckwalter, J. A., Hartley, L. J., and Brinkhouse, K. M. Canine hemophilia—clotting anomaly and the effect of blood transfusion, 8524*h*.
**Graham, J. D. P.** Adrenaline inhibition by spasmolytic agents, 4770*h*; effect of drugs on isolated human stomach muscle, 4771*b*; actions of Na azide, 8503*f*.
—— and Hood, J. Actions of British antilewisite (2,3 - dimercapto - 1 - propanol), 3100*g*.
**Graham, N. P. H.,** and Scott, M. T. Control of some ectoparasites of sheep (I) As, rotenone, S, and phenol for the control of the sheep ked and the sheep body louse, (II) DDT and benzene hexachloride for the control of the sheep ked and the sheep body louse, 9352*d*
**Graham, R. P.** See Maclay, W. D
**Graham, S. C.** Loss of soil fertility in N. S. Wales as reflected by depleted N content and its effect on the baking quality of wheat, 4801*a*.
**Graham, T. R.** See Long, J. R; VanZante, R. D.
——, Long, J. R., Armantrout, C. E., and Roberson, A. H. Ternary system, Cu–Mn–Zn, 9012*g*
**Graham, W.,** and Winkler, C. A. Kinetic studies on the formation of polybutadiene, 1598*b*.
**Graham, William.** See Glaxo Laboratories Ltd.
**Graham, W. D.,** Hsu, P. Y., and McGinnis, J. Correlation of browning, fluorescence, and amino N change with destruction of methionine by autoclaving with glucose, 9276*i*
**Graham, W. R., Jr.,** Kohler, G. O., and Frye, E. E. Improving the taste of water-sol. constituents of forage crops, P 6334*g*
**Grahame, D. C.** Entropy, enthalpy, and free energy of the elec. double layer at an ideal polarized electrode (I) thermodynamic theory, 1625*i*; measurement of the capacity of the elec. double layer, 4066*c*
**Grahame, J. H.** Conversion of synthetic hydrocarbons contg. oxygenated compds. to hydrocarbons of high octane value, P 2421*g*; catalytic conversion of hydrocarbons from CO and H, P 4417*h*
**Graillot, G.** Mn and ascorbic acid values of normal and infected potato tubers, 8458*e*.
**Grainger, H. S.** Carob juice, 4814*e*.
**Grainger, J.** Growth cycle metabolism of plants in relation to flowering, 9175*h*.
**Grais, M. L.** See Glick, D.
—— and Glick, D. Mucolytic enzyme systems (VI) inhibition of hyaluronidase by serum in infectious diseases, 9222*h*.
**Gralén, N.** See Kubal, J. V.; Lindberg, J.
**Grall, F.** Formation of complex ions in solns. of chromic alum and $Al_2(SO_4)_3$, 9508*d*; see Chambard, P.
**Gralow, B. B.** Soly of $CaSO_4$ and $CaSO_3$ in aq systems, 8805*c*.
**Grammaticakis, P.** See Grammatikakis, P.
**Grammatikakis, P.** Spectral study of the N derivs. of some aromatic aldehydes and ketones (IV) azines, 1654*d*; absorption of complex chromophores in the middle ultraviolet and in the visible (I) spectral effects of phenylation, 1651*g*; action of organomagnesium compds. on aldehyde semicarbazones—1-alkyl-2-phenylcarbamylhydrazines, 3801*g*.
**Granados, H.** See Dam, H.; Glavind, J.
——, Glavind, J., and Dam, H. Growth factor necessary for hamsters found in milk, 3901*e*; dental caries (II) effect of two similar diets having the same initial pH and the same growth-promoting action, 6295*f*; (III) effect of dietary lactic acid, 6709*d*; (V) effect of certain quinones with and without vitamin activity, 9258*g*.
**Granata, A. J.** Flue gas to Dry Ice, 9296*f*.
**Granati, A.,** and Fratoni, A. Thyroid mechanism in the prevention of fatty livers by methylthiouracil in acute I poisoning, 5120*e*.
**Granberg, W. J.** Elec. furnace combines olivine and phosphate, 45*d*.
**Grand, C. G.** Cytoplasmic inclusions and the characteristics of Hodgkin's diseased lymph nodes in tissue cultures, 4368*i*.
**Grand, L.** Degasification of Al alloys, 1702*a*.
**Grand, P. E. le.** See Le Grand, P. E.
**Grandchamp, M.** See Courtois, J.; Fleury, P.
**Grandchamp-Chaudun, A. de.** See Belval, H.
**Grande, F.** Same as Grande Covián, F.
**Grande Covián, F.** See Jiménez Díaz, C.; Oya, J. C. de.
and Oya, J. C. de. Effect of BAL on the action of alloxan, 758*a*; exptl. alloxan diabetes, 2304*e*; action of alloxan on blood lactic acid, 7564*f*.
—, Oya, J. C. de, and Jiménez Díaz, C. Effect of U poisoning in partially pancreatectomized dogs, 7120*b*.
**Grandine, J. D.** See Vold, R. D.
**Grandjean, E.,** Fleisch, A., Baud, C., and Galetti, C. Action of parpanit on the nervous functions of the normal animal organism, 1487*a*.
**Grandjean, L. C.** Thermostability and ultrafiltrability of histaminase, 5811*f*.
**Grandjean, P.** Disazo dyes for cotton and regenerated cellulose, P 8157*i*.
**Grandolini, E.** See Alvarez, J.
**Grandpré, R. de.** See DeGrandpré, R.
**Graner, E.** See Boye, E.
**Granett, P.,** Haynes, H. L., Connola, D. P., Bowery, T. G., and Barber, G. W. Two butoxypolypropylene glycol compds. as fly repellents, 8608*i*.
**Granfeld, J. C.** Alloy for use as the magnetic circuit of elec. app., P 9020*h*.
**Grangaud, R.** Detn. of I in org. compds., 1684*i*.
—— and Massonet, R. Activity of the oil of the crab on the vitamin A-deficient rat, 1087*c*, 8468*g*.
**Grange, R. A.,** Seens, W. B., Holt, W. S., and Garvey, T. M. Effect of B and kind of B addn. on the properties of steel, 8332*c*.
**Granger, H. R.** See Lands, A. M.
**Granholm, H. B.** See Zellner, C. N.
**Granick, S.** Pheoporphyrin nature of chlorophyll c, 7089*a*.
—— and Kett, R. Mg protoporphyrin as a precursor of chlorophyll in *Chlorella*, 2282*a*.
**Granier, G.** See Granier, I.
**Granier, I.,** and Granier, G. Propriétés électriques des résines synthétiques (book), 1216*f*
**Granier-Doyeux, M.,** Sanabria, A., and Holz, S. Pharmacodynamic action of cysteine, 9252*b*.
**Granirer, L. W.** Urinary excretion of creatine in arthritis, 6302*b*.
**Granit, R.** See Donner, K. O
**Grannigg, B.** Bodenschätz Österreichs und ihre wirtschaftliche Bedeutung (book), 8578*a*
**Granquist, W. T.,** and Amero, R. C. Low-temp. N-adsorption studies on attapulgite, 2840*b*
**Grant, A.,** and Wright, R. Photographic developers, 8921*c*.
**Grant, A. G.** See Brancombe, K. W
**Grant, C. L.,** *et al.* American High School Biology (book), 709*i*.
**Grant, F. C.,** Spitz, E. B., Shenkin, H. A., Schmidt, C. F., and Kety, S. S. Cerebral blood flow and metabolism in idiopathic epilepsy, 9231*h*
**Grant, G. A.** See McKay, A. F.
—— and Glen, W. L. Na equilin sulfate and Na equilenin sulfate, 7032*g*
**Grant, J.** Pulp and paper, 4788*e*
**Grant, J. A.,** and Babcock, D. E. Reinforced plastics, P 8208*h*.
**Grant, J. K.** *p*-Ethylphenylsulfuric acid in goat urine, 3911*h*.
**Grant, J. W.** See Morrogh, H.
**Grant, N.** Aeration speeds grit removal, 7168*h*
**Grant, N. J.** See Potter, Richard D.
—— and Bucklin, A. G. Extrapolation of short-time stress-rupture data, 8335*i*.
**Grant, P. J.,** and Hill, J. M. Decay of holmium$^{166}$, 5297*c*.
—— and Richmond, R. Decay of $Tm^{170}$ and $Re^{186}$, 8208*i*.
**Grant, R.** See Ellis, F. A.
**Grant, Rafael.** Mexico's Indepeudencia mill, 4503*a*.
**Grant, R. S.,** and Wegner, E. S. $H_3BO_3$ poisoning, 5869*c*.
**Grant, W. C.** O satn. in bone marrow, and in arterial and venous blood during prolonged hemorrhagic erythropoiesis, 307*i*.
**Grant, W. E.,** Darch, W. J., Bowden, S. T. and Jones, W. J. Surface tension and viscosity of solns. of uranyl salts, 1630*a*.
**Granshana, A. V.** See Molchanova, A. F.
**Grape Belt Preserve Co.** Preventing crystn. of argols in grape products, P 9295*a*.
**Graphol Products Co.** Cutting compd., P 5185*f*.
**Grard, J.,** and Graff, W. H. L'industrie chimique en Autriche (book), 1125*h*.
**Grashuis, J.** See Man, T. J. de.
**Grass, R. C.** See Columbic, N.
**Grasset, E.** See Fabre, R.
**Grassie, N.,** and Melville, H. W. Thermal degradation of polymethyl methacrylate, 5629*i*.
**Grassie, V. R.,** and Purves, C. B. Polyoxyphenol series (II) synthesis of 3 sub-

stituted *N*-benzylamides from ethylated vanillin, 2177*b*.
**Grassmann.** Mineral constituents of coal in combustion and gasification, 5169*i*.
**Grassmann, P.** Balancing of heat transfer and pressure drop in heat-exchange equipment, 2047*e*; fatigue strength of soft solder alloys, 6064*a*.
——— and Weiler, G. Manuf. and use of O in the U.S.A., 3575*d*.
**Grassmann, W.** Plant tannins, 2007*b*; see Becker, E. A.
**Grasso-Cannizzo, E.** Passage of various sulfonamide compds. into the tears and into the blood, 4771*e*; passage of sulfonamides into the conjunctival tissues, 4771*h*; passage of various sulfonamide compds. into the aq. humor, 4772*a*.
**Grasveld, M. S.** Influence of various chlorides on maturation and cleavage of the egg of *Limnaea stagnalis*, 5507*e*.
**Gratch, I.**, Purha, P. L., and Martin, M. L. Effect of Na fluoroacetate on plague diagnosis, 4365*h*.
**Gratchev.** See Grachev.
**Gratia, A.**, Joris, E., and Weerts, E. Colicin-producing bacteria in human and animal feces, 9163*c*.
**Gratsianskii, N. N.**, and Kalyuzhnaya, P. F. Chem. resistance of Sn coatings, 502*d*.
**Grattarola, R.** Estrogen in rats with liver lesions, 5854*a*.
**Grau, C. A.**, and Valenciano, O. A. Taste, odor, and ascorbic acid content of oranges and lemons, 4783*f*.
**Grau, C. R.** Threonine requirement of the chick, 5458*f*, see Jappesen, J. H.
**Grauer, H.** See Hegglin, R.
**Grauer, O. H.** See Rynders, C. F.
**Grauer, R. C.**, Starkey, W. E., and Saier, E. L. Influence of mixts. of androsterone and dehydroandrosterone on biol. response, 8035*b*.
**Graulich, W.**, and Becker, W. Influence of regulators on the emulsion polymerization of butadiene, 7253*c*.
**Grausam, W. J.** See Eimer, E. J.
**Graver Tank & Manufg Co., Inc.** Removal of sludge from clarification tanks, P 915*a*; water clarification assembly, P 4106*h*.
**Graves, E. E.** See Faust, C. L.
**Graves, E. L.**, Elliott, T. J., and Bradley, W. Metabolism of $\alpha,\beta$ dihydroxy-$\gamma$-(2-methylphenoxy)propane, 319*g*.
**Gray, A. G.**, Gresham, W. F., and Loder, D. J. Electrodepositing compn. and process, P 6095*d*.
**Gray, C. E.** See Wilkins, D. S.
**Gray, C. H.** See Wood, M. E.
——— and Holt, L. B. Isolation of coproporphyrin III from *Corynebacterium diphtheriae* culture filtrates, 2671*b*.
——— and Rimington, C. Acute porphyria, 5854*h*.
**Gray, D.** Electropolishing Ag, 4146*i*, 8904*d*.
**Gray, D. E.** Abstracts, 4057*i*.
**Gray, E.** Mol. assocns. by H bonding, 107*a*.
**Gray, E. H.** O analyzer, 8115*h*.
**Gray, F. V.**, and Pilgrim, A. F. Microanalysis of mixts. of volatile fatty acids, 8976*h*.
**Gray, H. F., Jr.** See Adelson, D. E.
**Gray, H. K.**, and Short, C. A., Jr. Jaundice in general surgery—lab. diagnostic aids, 9136*b*.
**Gray, H. W.** Thermosetting polyamides, P 1610*g*, see Cairns, T. L.
**Gray, I.** $CCl_4$ poisoning, 3106*a*.
**Gray, J. A.** See Pearson, P. B.
**Gray, J. B.** See Grove, C. S., Jr.
**Gray, J. D. A.**, and Lambert, R. A. Bacteriostatic action of oximes, 3974*g*.
**Gray, J. R.** Colloidal S and colloidal Cu compd. for the control of fungous diseases, 803*h*.
**Gray, K. R.** See Schlosser, P. H.
**Gray, L. H.** See Dale, W. M.; Tansley, K.
**Gray, M. M.** See Mayer, M. M.
**Gray, P.** Initiation of explosion in liquids—transient pressures during impact, 9450*e*.
——— and Yoffe, A. Explosions in liquids initiated from the gas phase, 8139*c*.
**Gray, P. P.** See Atkin, L.; Stone, I.
**Gray, R. W.** See Whytlaw-Gray, R.
**Gray, S. H.** See Lansing, A. I.
**Gray, T. J.** Application of measurements of semicond. to heterogeneous reactions, 474*h*; see Garner, W. E.
**Gray, V. R.**, and Alexander, A. E. Al soaps (I) viscosity and streaming birefringence of Al soap solns., (II) compn., structure, and gelling properties of Al soaps, 3688*e*.
———, Steiner, H. M. E., and Petrocarbon, Ltd. Oxidation of aliphatic olefinic hydrocarbons, P 5032*i*.
**Gray, W. D.**, and Martin, G. W. Soil-burial testing method for fabrics, etc., 6831*e*.
**Gray, William D.** Metabolism of *Hansenula anomala*, 7550*a*.
**Gray, W. M.** See Crawford, M. F.
**Grayce, I.** See Linder, G. C.
**Grayson, J. M.** Germination of fumigated peanuts, 1900*g*.
**Grayson-Smith, H.** See Armstrong, L. D.
**Grayston, J.** Fuels and the future, 8637*f*.
**Grayurskaya, R. I.** See Graevskaya, R. I.
**Grazhdankina, N. P.** See Fakidov, I. G.
**Grazia, C. de.** See DeGrazia, C.
**Graziadei, P.** Polarimetric changes in the serum of patients with fractures, 5854*b*.
**Graziani, G.**, and Giordano, M. Testing riboflavin in blood, 6684*e*.
**Grazianskv, N. N.** See Gratsiankii, N. N.
**Greaney, F. J.** See Machacek, J. E.
**Great Lakes Carbon Corp.** "Sulfo compns.," P 4792*g*; clarification of water supplies, P 5522*e*; water-purifying filter aid, P 5522*f*, decolorization and clarification of sugar liquors, P 6840*f*.
**Greaves, C. D.** See Bennett, J. G.
**Greaves, J. D.** See Klose, A. A.
**Greaves, J. H.** Drying oils, driers, and varnishes, 4788*g*, 4789*b*; comparative evaluation of drying oils, 4870*i*.
**Greaves, T.**, and Venables, D. G. Insecticidal control of cabbage pests, 5147*g*.
**Greaves, W. M. H.** Photometry of the continuous spectrum, 490*d*.
**Grebe, W.** See Jäger, A.
**Grebel'skii, S. G.** Hydrolytic enzymes of hemolymph of larvae and pupae of *Oedemagena tarandi*, 1116*a*.
**Grebenkina, M. A.** Action of acetylcholine and ganglionic poisons on the spinal cord, 316*c*.
**Grebenshchikova, V. I.** See Antipov-Karataev, I. N.
**Grebenstchikowa, W. I.** See Grebenshchikova, V. I.
**Grechnev, M. A.** See Grekhnev, M. A.
**Greco, A.** See Maver, M. E.
**Greco, J.** See Lillie, R. D.
**Greear, J. A.**, and Wright, E. R. Sepn. of Ca from Mg—preliminary pptn. of Mg hydroxide, 5329*f*.
**Greeley, S. A.** Design of high-rate trickling filters, 3122*b*.
**Green, A. A.** See Page, I. H.; Rapport, M. M.
**Green, A. D.** Stripping of polymer latexes, P 895*c*, app. for manufg. high polymers, P 2469*f*; isoölefin polymers, P 4051*b*.
**Green, A. F.** See Brownlee, G.
**Green, A. T.** See Clews, F. H.; Rigby, G. R.
**Green, A. W. F.** Structural alloy steels in the air age—aircraft engines, 89*h*.
**Green, C.** See Chargaff, E.
**Green, D. E.** See Cross, R. J., Grafflin, A. L.; Still, J. L.
**Green, D. F.** See Vandervell Products Ltd.
**Green, D. H.**, Kratzer, J. C., and Emch, P. I. Engine antifreeze and methods of evaluation, 787*i*.
**Green, D. M.** Desoxycorticosterone action—effects of liver passage, 8487*h*, see Skahen, J. G.
———, Coleman, D. H., and McCabe, M. Desoxycorticosterone action (II) relation of NaCl intake to fluid exchange, pressor effects, and survival, 2303*c*.
**Green, E. A.**, and Reynolds, R. A. Effects of heat and air on powdered metallic Mg and Ba chromate mixts., 2108*g*.
**Green, E. U.** Special condition of the interphase nucleus in normal and cancerous cells, 5856*a*.
**Green, G. H.** See Lampitt, L. H.
**Green, George H.** Carbohydrates in dental caries, 9180*h*.
**Green, G. K.** Ion-orbit control for a proton synchrotron, 4095*h*.
**Green, Harry.** See Meyerhof, O.
**Green, Henry.** Industrial Rheology and Rheological Structures (book), 4402*c*.
**Green, H. D.** See Little, J. M.; Potter, V. R.
**Green, H. H.** See Blakemore, F.
**Green, H. J., Jr.** Grading of sheet plastics by moisture-absorption and insulation-resistance measurements, 9521*i*.
**Green, H. N.** See Stoner, H. B.
———, Stoner, H. B., and Bielschowsky, M. Effect of trauma on the pentose content of the plasma in animals, 9229*b*.
**Green, H. S.** Kinetic theory of liquids (V) liquid He II, 3678*b*.
**Green, J.** Effect of temp. on pH of alk. waters—waters contg. carbonate, bicarbonate, and hydroxide alky., 7611*i*; see Ryznar, J. W.
**Green, J. E.**, Hall, A. H., and Luttrell, J. R. Suspended material in crude-oil streams, 7215*a*.
**Green, J. H.** See Lauder, I.
**Green, J. W., Jr.**, and Lushbaugh, C. C. Histopathologic study of the mode of inhibition of cellular proliferation by urethan—effect of urethan on Walker rat carcinoma 256, 5488*d*.
**Green, James W.** Relative rate of penetration of the lower satd. monocarboxylic acids into mammalian erythrocytes, 8502*a*.
**Green, John W.** See Wise, L. E.
**Green, L. C.** Oscillator strengths for the continua of Ca II, 5300*i*.
**Green, M.**, and Fuller, H. J. Indole-3-acetic acid and flowering, 2357*i*.
**Green, M. N.** Effect of furacin on the metabolism of bacteria, 8000*i*.
——— and Friedgood, C. E. Action of furacin in delaying growth of a transplanted fibrosarcoma, 2322*b*.
**Green, M. W.** Assay of Hg compds., 9369*a*, see Corbin, E. N.; Deahl, N. L.; Greene, J. F.
**Green, N.** See LaForge, F. B.; Schechter, M. S.
**Green, R. E.** See Wescoe, W. C.
**Green, R. H.** Inhibition of multiplication of influenza virus by exts. of tea, 6298*h*.
**Green, R. W.** Adsorption of water vapor on casein, 4537*b*.
**Green, S.** See Wohl, M. G.
**Green, S. J.**, and Mukherji, S. M. Insol. matter of coal tar (IV–V) coal tar resins, 3597*f*.
——— and Thakur, B. Insol. matter of coal tar (II) free C, 1949*b*; (III) inorg. constituents on free C, 3597*d*.
——— and Ward, S. G. Insol. matter of coal tar (I) introduction, 1949*a*.
**Green, S. W.** See Belf, L. J.
**Green, W. H.** Water-softening and clarification app., P 6345*a*.
———, McBride, G. A., and Hertzing, G. A. Obtaining coarse precipitate from strong solns., P 2798*g*.
**Greenbank, G. R.** Oxidized flavor in milk and dairy products, 780*e*; see Wright, P. A.
**Greenbaum, A. L.** See Folley, S. J.
**Greenbaum, S. S.** Dermatology (book), 6728*d*.
**Greenberg, D. M.** See Gal, E. M.; Sanadi, D. R.; Siekevitz, P.; Winnick, T.
———, Friedberg, F., Schulman, M. P., and Winnick, T. Protein synthesis with radioactive C-labeled compds., 5436*f*.
——— and Winnick, T. Transformation of carbonyl-labeled acetate, methyl-labeled acetate, and labeled bicarbonate into amino acids, 8027*g*.
**Greenberg, G. R.** Incorporation of C-labeled $HCO_3H$ and $CO_2$ into hypoxanthine in pigeon-liver homogenates, 3869*a*; see Wintrobe, M. M.
———, Ashenbrucker, H., Lauritsen, M., and Wintrobe, M. M. Anemia of infection (IV) lack of relation between the diversion of Fe from the plasma and the origin of anemia, 2695*i*.
———, Ashenbrucker, H., Lauritsen, M., Worth, W., Humphreys, S. R., and Wintrobe, M. M. Anemia of infection (V) fate of injected radioactive Fe in the presence of inflammation, 2696*a*.
**Greenberg, Jack.** See Meyer, A. E.
**Greenberg, Joseph.** Inhibition of the antimalarial activity of chlorguanide by pteroylglutamic acid, 6734*g*.
———, Boyd, B. L., and Josephson, E. S. Synergistic effect of chlorguanide and sulfadiazine against *Plasmodium gallinaceum*, 314*a*.
**Greenberg, L.** Toxic gases, fumes, and vapors, 1881*i*.
**Greenberg, L. A.** See Gross, M.; Lester, D.
**Greenberg, L. D.** See Rinehart, J. F.
———, Bohr, D. F., McGrath, H., and Rinehart, J. F. Xanthurenic acid excretion in the human subject on a pyridoxine-deficient diet, 8464*d*.
——— and Rinehart, J. F. Blood pyridoxine of vitamin $B_6$-deficient monkeys, 3074*g*.

**Greenberg, S. M** See Deuel, H. J., Jr.; Zechmeister, L.
**Greenblatt, I. J.** See Gitman, L.
**Greenblatt, R. B.** See Dienst, R. B.
**Greene, E. W.**, and Duke, J. B. Concn. of phosphate minerals, P 3160*d*, 3986*b*.
**Greene, F.** See Eilerts, C. K.
**Greene, H. I.** See Dreizen, S.
**Greene, I.** See Hiatt, E P.
**Greene, J. F.**, and Green, M. W. Chem. durability of glass and glass containers, 6797*e*.
——— and Hinson, A. L. Glass-durability tests—effect of shape and size of containers for injection, 6797*e*; autoclave test of glass containers with acid test liquid, 6797*f*.
**Greene, L. E.** Refractory cement, P 6388*i*.
**Greene, L. W.** Capture of a German gas dump 1881*g*; chem. microscopy of essential oils (V) reaction of catnip oil with phenylhydrazine, 5546*c*.
**Greene, R.** Practice of Endocrinology (book), 3915*b*.
**Greene, R. B.** Sepn. of styrene from phenylacetylene by azeotropic distn., P 5799*b*.
**Greene, R. D.** Extn. of folic (pteroylglutamic) acid conjugate from yeast, 8429*a*.
———, Brook, A. J., and McCormack, R. B. Assay of vitamin $B_{12}$ with *Lactobacillus lactis*, 6708*e*
**Greenfield, S. H.** See Staley, H. R.
**Greenfield, M. A.** See Brown, F. W.
**Greenfield, Mildred A.** See Chapman, R. W.
**Greenfield, R. E.** Decolorization of phosphatides contg lecithin, P 5552*i*.
**Greengard, H.** See Ivy, A. C.
**Greenhalgh, R.**, and Imperial Chemical Industries Ltd. Compns. useful for cleansing and emulsifying purposes, P 2004*d*.
**Greenham, C. G.** Meter for soil-moisture detns., 8590*h*.
**Greenhaus, L. R.** See Prengle, H. W., Jr
**Greenhill, E. B.** Lubrication of metals by compds. contg. S, 2418*b*; adsorption of long-chain polar compds. from soln on metal surfaces, 8780*h*, lubrication of metal surfaces by mono- and multi-mol. layers, 9424*c*.
——— and Whitehead, J. R. Measuring small temp. changes in liquids, 4523*i*
**Greenlee, K. W.** See Boord, C. E.; Derfer, J. M.; Evans, G. L.; Van Volkenburgh, R.
**Greenlee, S. O.** Synthetic surface coatings, P 1996*c*.
**Greenlie, D. G.** See Habib, E. E.
**Greenfelder, B. S.** See Moore, R. J.
——— and Moore, R. J. Mercaptans and thio ethers, P 691*g*; Diesel fuels, P 5173*i*
**Greenshields, B. D.** App for mixing atomized bituminous material with ground fillers, P 2754*a*.
**Greenshields, R. J.** See Farley, F. F.
**Greenslade, R. M.** See Ripper, W. E
**Greenspan, E. M.** See Haedicke, T. A.; Schoenbach, E. B.
**Greenspan, F. P.**, and MacKellar, D. G. Analysis of aliphatic per acids, 2124*f*.
**Greenspan, J.** See Weisberg, S. M.
**Greenspan, M.** Attenuation of sound in rarefied He, 4062*a*; see Cook, R. K
**Greenspoon, G. N.** See Davis, H. W.
**Greenstein, J. L.** Elementary theory of ionization, 938*h*; analysis of the metallicline stars (II), 4134*c*.
——— and Hiltner, W. A. Spectrophotometry of the F stars $\alpha$ Canis Minoris and $\alpha$ Persei (III), 5301*e*.
**Greenstein, J. P.** Viscosity and streaming birefringence of nucleic acid, 1305*h*; see Errera, M.; Fodor, P. J.; Gilbert, J. B.; Meister, A.; Price, V. E.
——— and Leuthardt, F. M. $NH_3$ formation from cystine peptides and dehydropeptides in rat-liver digests, 1071*d*, dehydropeptidase activity in tumors, 6725*d*
——— and Price, V. E. Derivs. of $\alpha,\alpha$-bis-(glycylamino) propionic acid, 138*g*; $\alpha$-keto acid-activated glutaminase and asparaginase, 6266*e*.
———, Price, V. E., and Leuthardt, F. M. Possible multiple nature of dehydropeptidase (I), 257*d*.
**Greentree, A.** Decolorizing vegetable oils with ferric salts and silicates, P 884*i*
**Greenup, R. W.** See Wohler, L. A.
**Greenwald, F. S.** Drying, driers, and driers usage, 8698*i*.
**Greenwald, I.** Is endemic goiter due to a lack of I? 9238*d*.
**Greenwald, W. C.** Purification of tetrachloroethylene, P 3437*g*.
**Greenwood, D.** See Challenger, F.
**Greenwood, D. A.** See Harris, J. R.
**Greenwood, D. E.** Wireworms on potatoes, 8086.
**Greenwood, H. D.** Fuel supply in Great Britain, 7662*i*.
——— and Branson, W. R. Coke-oven-gas supply in Western Germany, 8119*c*.
**Greenwood, H. W.** Powder metallurgy and heat-resisting alloys, 4614*a*; flake-metal powders and paint, 8695*e*.
**Greenwood, J. N.** Recrystn. of metals under stress, 4198*i*.
——— and Cole, J. H. Creep of Pb alloys, 2563*a*, 4197*f*
**Greenwood, M. L.**, and Tice, J. M. Palatability of potatoes grown in soil treated with benzene hexachloride, chlordan, and chlorinated camphene, 7157*d*.
**Greep, R. O.** See Chow, B F.; Deane, H. W.; Dempsey, E. W.; Shaw, James H.
**Greer, C. M.** See Pearson, D. E
**Greer, M. A.** See Astwood, E. B
——— and Astwood, E. B Antithyroid effect of certain foods in man as detd. with radioactive I, 7602*h*
——— and Brown, B R. Pituitary adrenocorticotropin and the circulating blood platelets, 1474*h*.
**Greffe, A.** Removal of Fe from Cr ores, P 103*f*, Mn or Cr ferroalloys from oxide ores, P 2152*d*
**Gregor, H. H.** Phosphate cements, P 373*h*; mineral binders, P 1035*f*, Al phosphates, P 3158*d*; molding powder, P 6466*a*.
**Gregersen, M. I.** See Allison, J B.
**Gregg, E. C., Jr.** Design of a 30-m e v biased betatron, 4092*h*.
——— and Craig, D. 2-Ethylpyridine and derivs., 641*c*.
**Gregg, J. H.** See Chase, A. M
**Gregg, J. R.** Carbohydrate metabolism of normal and of hybrid amphibian embryos, 3531*a*; see Parpart, A. K.
**Gregg, R. A.**, Alderman, D. M., and Mayo, F. R Chain transfer in the polymerization of styrene (V) polymerization of styrene in the presence of mercaptans, 1340*f*.
——— and Mayo, F. R. Chain transfer in the polymerization of styrene (III) reactivities of hydrocarbons toward the styrene radical, 5731*h*.
**Gregg, S. J.** Phase changes in adsorbed films at the gas/solid interface, 8789*e*
——— and Jacobs, J. Adsorption theory of Brunauer, Emmett, and Teller, and Brunauer, Deming, Deming, and Teller, 2065*h*.
——— and Razouk, R. I. Kinetics of the thermal decompn. of $Mg(OH)_2$, 8816*c*.
**Grégoire, C.** Effects of pyridoxine deficiency on the normal and neoplastic lymphoid tissue, 4362*e*; goitrogenic effect of aminothiazole and reactions of thymus and lymphoid tissue, 5868*g*.
**Grégoire, J.** See Khouvine, Y.
**Grégoire, P. E.** Hepatic glycolysis, 4358*c*.
**Grégoire, R.** See Joliot, F.
**Gregor, H. P.** Donnan equil., 6014*i*.
——— and Sherman, N. N. Demineralization of photographic wash water by ion exchange, 7359*h*.
**Gregor, M.** Cement industry, 2394*e*; furnace for flash roasting of pulverized pyrites, 7876*f*, S from pyrites, 8107*d*.
**Gregor-Haschke, E.** See Schmeisser, M.
**Gregory, B.** See Tinlot, J.
**Gregory, B. A.** See Goodwin, T. W.
**Gregory, E.**, and Simons, E. N. Non-Ferrous Metals and Alloys (book), 2566*a*.
**Gregory, F. G.** See Woodford, E. K.
**Gregory, H.** See Homer, R. F
———, Overend, W. G., and Wiggins, L. F. Conversion of sucrose into pyridazine derivs (V) synthesis of 3-amino-6-methylpyridazine and its sulfanilamido deriv., 3007*f*.
**Gregory, J.**, and McCulloch, A. Low-temp. carbonization of Alberta subbituminous coal—tests of the Stansfield retort, 3170*c*.
**Gregory, J. D.** See English, J., Jr.
**Gregory, J. N.** Lubrication of metals by compds contg. Cl, 2417*i*.
——— and Newing, M. J. Lubrication of metal surfaces by silicone films—synthesis and analysis of chlorosilanes, 7219*d*.
**Gregory, N. W.** See Wiseman, E. L.
**Gregory, W. A.** Alkoxy pyrazolones, P 6930*c*.
**Greider, H. W.** See Smith, M. F.
**Greif, R. L.** See Eagle, H.; Hiller, A.
**Greig, H. G.** Electrolytic recording, P 2881*d*, 4156*b*; morpholine salts of sulfonated-azo-dye components, P 3300*c*.
**Greig, M. E.**, and Holland, W. C. Effect of the *d* and *l* isomers of isoamidone on the permeability of dog erythrocytes, 7583*c*; increased permeability of the hemoencephalic barrier produced by physostigmine and acetylcholine, 9203*f*.
——— and Howell, R. S. Inhibition by amidone of pyruvate and succinate oxidation by rat brain and the reversal of the inhibition by boiled yeast ext., 8053*f*.
**Greinacher, H.** Detn. of the dielec. const. of liquids, 3675*b*.
**Greiner, A.**, and Podhradszky, L. Kidney function in diabetes insipidus, 7568*e*.
**Greiner, B.** Construction and operation of O-pressure gasification plants, 3595*c*.
**Greiner, E. S.**, and Ellis, W. C. Thermal and elec. properties of ductile Ti, 2565*g*.
**Greiner, L.**, and Vold, R. D. Suspension of $MnO_2$ in detergent solns., 3688*h*
**Greisen, K.** See Cocconi, G
**Greisheimer, E. M.** See Kolmer, H. S.; Robinson, H W
**Grekhnev, M. A.** Mixed catalysts in the dehydrogenation of isoborneol, 5382*e*
**Grelck, W. P. M.** Food product of vegetables and fruits, P 330*e*
**Gremels, H.** Metabolism, 1175*a*; metabolism-directive effect of the autonomous-hormonal system and its importance in pharmacology, 1851*f*, substrate regulation of metabolism and its therapeutic application in man, 3074*e*; Walther Straub, 5649*f*
——— and Heim, F. General reactions of the tissues, 1475*b*.
**Grenall, A.** Montmorillonite cracking catalyst—x-ray diffraction, 1554*d*.
**Grenberg, E. I.**, and Ashkinazi, M. O. Detn of Mo in high-Cr steel, 4598*b*.
——— and Genis, M. Va Detn of Ni with a standard soln of dimethylglyoxime, 1284*b*
**Grene, G. H. S.** Tiltable salt bath furnace, P 7357*h*
**Grenfell, T. C.** See Salvar, C. J.
**Grenier de Ruère, J.** See Ruère, J. G de
**Greninger, A. B.**, and Troiano, A. R. Martensite formation, 7883*h*
**Grenot, L. D.** Electrolytic prepn of rosion testing elements, P 7839*g*
**Grenouilleau, A.** White wines of the Bergerac district, 8606*i*
**Grenville, G.**, and Tregarthen, T Anodic treatment of Al and its alloys, 8284*h*
**Greppin, R.** See Girardet, A.
**Gresham, D. C.** Perforated metallic sheets, P 5318*c*; see Kodak Ltd
——— and Loeming, E L. Photographic stencils, P 2532*f*
**Gresham, T. L.** Polycarboxylic acids, P 1053*c*, $\beta$-thio carboxylic acids, P 1054*d*; substituted acids from lactones, P 1056*c*; vinyl chloride polymers plasticized with dialkyl chlorophthalates, P 2817*d*.
——— and Jansen, J E. $\beta$-Acyloxy carboxylic acid compds., P 1053*d*; $\beta$-dithiocarbamyl carboxylic acid compds., P 7506*f*.
———, Jansen, J E., Shaver, F W., Bankert, R. A., Beears, W L., and Prendergast, M G. $\beta$ Propiolactone (VI) reactions with phenols, thiophenols, and their salts, 3393*a*.
——— and Shaver, F. W. (*Patents.*) $\beta$-Aryloxy carboxylic acids, 1053*i*; $\beta$-thio carboxylic acid compds., 1054*f*; $\beta$-halogen carboxylic acids, 1054*c*, S-contg. dicarboxylic acids, 1054*h*; esters of $\alpha,\beta$-unsatd. carboxylic acids, 1055*b*, $\beta$-acyloxy acyl halides from $\beta$-lactones, 1056*h*; $\beta$-isothiourea derivs. of propionic acids, 7506*h*, $\beta$-haloacyl halides, 3444*e*.
——— and Steadman, T. R. Diels-Alder type reaction with formaldehyde, 3411*i*; triazines from formaldehyde and nitriles, 7031*c*.
**Gresham, W. F.** (*Patents.*) Ether esters, 1055*f*, nitriles, 1433*f*; *N*-alkyldiethanolamines, 2633*e*; choline chloride, 2739*f*; polymers of 1,3-dioxolane, 3237*a*; acrylates from $\beta$-alkoxypropionates, 3442*e*; esters of succinic acid, 3451*h*, polymeric compds. from 1,3-dioxolane, 3658*g*; *N,N'*-dimethylethanolamine, 3839*e*, 7501*b*; recovery of HF-$BF_3$ catalysts, 3949*b*; org. O-contg. compds., 5035*f*; see Gray, A. G.
——— and Brooks, R. E. Carboxylic acids from olefins, CO, and water, P 869*g*; polyhydroxy compds., P 673*d*; 1,1,2-trialkoxy-

ethanes, P 675*a*; aryl esters, P 6234*h*; polyformals, P 9081*f*.

—— and Bruner, W. M. Piperazine, P 6244*g*.

—— and Gribbins, M. F. Long-chain esters of β,β′-thiodipropionic acid, P 5414*g*.

—— and Grigsby, W. E. *N-tert*-Alkyl amides, P 3028*g*.

—— and Hardy, J. V. E. Metallic carbonyls, P 9398*b*.

**Gretchman, M.**, and Fröhlich, K. W. Resistance of Ag to HF, 4991*i*.

**Greth, A.** Phenolic resins as coating resins, 4891*f*.

**Grettie, D. P.**, and Young, H. H. Modified gelatin using negatively charged multivalent ions, P 8186*i*.

**Greulach, V. A.**, and Singh, S. Effects of nonherbicidal concns. of 1,4-D on the development of the bean plant, 5087*h*.

**Greuling, E.** See Levy, P. W.

**Greve, L. de.** See Itterbeek, A. van.

**Greve, L. F.** Corrosion of underground power-cable sheaths, 99*d*

**Greven, K.** Biol units of drugs (I) organs of internal secretion—hormones and their units, 6783*e*

**Grewe, H.** See Harders, F.

**Grewe, R.** Morphine synthesis, 3566*a*.

—— and Mondon, A. Synthesis in the phenanthrene series (VI) synthesis of morphinane, 4279*a*

**Grezes-Rueff, C.** See Baisset, A.

**Grezes-Rueff, F. A.** See Baisset, A.

**Grisanow.** See Gryaznov.

**Gribbins, M. F.** Animal feed, P 3542*c*; stabilization of fats and oils, P 4397*b*

**Gribetz, J.** See Monod, J.

**Gribkova, V. I.** See Egorova, A. V.

**Gribskii, N. A.** See Kovel'man, G. A.

**Gridgeman, N. T.**, Gibson, G. P., and Savage, J. P. Chromatographic estn. of vitamin A in whale liver oil, 3565*a*

**Griebel, C.** Aschanti pepper, 1878*e*, formation of viridinic acid in raw coffee 3116*g*, tannin soln as a micro reagent for alkaloid meconates, 7192*i*, leaves of the evening primrose as a tobacco substitute, 7195*b*, identification of phenothiazine, 7380*d*, ascorbic acid content of molasses-contg. preps., 8573*b*

**Grieger, P. F.** Rate of the chlorate-bromide reaction in acid soln with arsenious acid present—arsenic acid as a catalyst, 1248*f*, factors influencing the properties of long-chain electrolytes in water and water mixts. of org. solvents, 7303*e*; see Brown, George L., Young, H. S.

—— and Kraus, C. A. Properties of electrolytic solns (XXXV) conductance of some long-chain salts in MeOH-$H_2O$ mixts., 2491*d*, (XXXVIII) distribution of hexadecylpyridonium chloride between water and nitrobenzene at 25°, 5265*d*.

**Griegoroff, O. N.** See Grigorov, O. N.

**Griendt, G. H. van de.** See Van de Griendt, G. H.

**Grier, R. S.** See Auh, J. C.

——, Hood, M. S., and Hoagland, M. B. Effects of lie on alk. phosphatase, 9115*g*

**Gries, J. P.** Helen Beryl pegmatite, Custer County, S. Dak., 3322*f*

**Griesbach, W. E.** See Kennedy, T. H.; Malcolm, J.; Purves, H. D.

——, Kennedy, T. H., and Purves, H. D. Physiol. activities of the stereoisomers of thyroxine, 8492*i*

**Griesinger, W. K.** Hydrocarbon resins, P 5630*g*.

——, Nevison, J. A., and Gallagher, G. A. Nonionic detergents from wax, 5213*f*.

**Griess, G. A.** See Morris, E. D.

——, and Teot, A. S. Interpolymers of drying oils, monoalkenyl-aromatic hydrocarbons and divinylbenzene, P 5608*a*; drying oil-styrene interpolymers, P 5608*c*.

**Griess, J. C., Jr.** See Rogers, L. B.; Mathers, F. C.

—— and Rogers, L. B. Electrosepn. of traces of Ag from Pd, 3727*g*.

**Griest, E. M.** See Marisic, M. M.

**Grieve, W. S. M.** Indigo carmine test, 2438*h*.

**Griffel, M.** See Stout, J. W.

**Griffin, A. C.** See Cook, H. A.

—— and Baumann, C. A. Heat coagulation of homogenates from normal and precancerous livers, 304*h*; hepatic riboflavin and tumor formation in rats fed azo dyes, 1858*b*.

——, Clayton, C. C., and Baumann, C. A. Effects of casein and methionine on the retention of hepatic riboflavin and on the development of liver tumors in rats fed certain azo dyes, 4741*e*.

——, Nye, W. N., Noda, L., and Luck, J. M. Tissue proteins and carcinogenesis (I) effect of carcinogenic azo dyes on liver proteins, 2314*b*

**Griffin, A. E.** Chlorination practices, 3052*g*.

**Griffin, C. W.** Inorg. Quant. Analysis (book), 5346*e*.

**Griffin, D. N.** Crit. point of nitromethane, 5247*a*.

**Griffin, E. L., Jr.** See Homiller, R. P.

**Griffin, G. R.** See Redmon, B. C.

—— and Redmon, B. C. Hydracrylic acid, P 7038*h*.

**Griffin, L. I., Jr.** Hydrocarbon synthesis, P 7213*c*.

**Griffin, R. L.** See Endersby, V. A.

**Griffin, R. S.** See Mayo, L. R.

**Griffin, W. C.** Lanolin derivs., P 9391*c*

——, Carter, P. J., and Behrens, R. W. Hydrophilic lanolin derivs., 2736*i*

**Griffin Chemical Co.** Oil-sol. petroleum sulfonates, P 4460*d*.

**Griffing, J. M.**, and Salisbury, L. F. 2,5-Bis(chloromethyl)thiophene and some of its derivs., 629*i*

**Griffith, A. M.** See Glynyk, P.

**Griffith, B. A.**, and Stanley, J. P. Numerical calcn. of the internal conversion in the *K*-shell—elec. dipole case, 4565*a*.

**Griffith, D. L.** See Dahlgren, D. J. A.

—— and Rankin, M. J. Removing Co from electrolytes, P 6527*i*.

**Griffith, F. R., Jr.** See Whitcher, C. W.

——, Cole, C. D., Thomas, D. B., Dodds, S., and Watson, S. Effect of intravenous glucose and adrenaline on blood flow, O utilization, and glucose retention by hind-leg tissues of anesthetized cats, 7145*e*.

**Griffith, J. Q., Jr.**, and Farris, E. J. Rat in Lab. Investigation (book), 6696*i*.

**Griffith, M.** See Bond, R. L.; Dresel, E. H.

**Griffith, R. H.** Practice of Research in the Chem. Industries (book), 5516*h*; see Gas Light and Coke Co.

**Griffith, R. O.** See Bennett, J. G.; Dodd, G.

—— and Irving, R. Induced reactions of halogens in aq. soln. (I) reactions in the system I-thiosulfate-nitrite, 6496*g*, (II) reactions in the systems $N_3^-$–$Br_2$, $N_3^-$–$Br_2$-$S_2O_3^{--}$ and $N_3^-$-$Br_2$-$S_2O_3^{--}$, 7799*g*

**Griffith Laboratories, Inc.** Papain powder formulation, P 3947*e*; phospholipide carrier for antioxidant, P 6333*e*; fat antioxidant, P 6333*f*, gelatin-base coating for food etc., P 8576*e*.

**Griffiths, C.** Locust bean gum, 8717*a*.

**Griffiths, F. P.** Production and utilization of alfalfa, 6330*c*

**Griffiths, H.** Vacuum technique from a chem. engineering standpoint, 1615*b*.

**Griffiths, J. H. E.** See Baggulev, D. M. S.

**Griffiths, J. T., Jr.** See Stearns, C. R., Jr., Thompson, W. L.

——, King, J. R., and Thompson, W. L. Grasshopper control in citrus groves, 3136*a*

—— and Stearns, C. R., Jr. Effects of airplane DDT applications on citrus groves, 7631*a*.

**Griffiths, M.** Hypoglycemic action of alloxan, 1482*c*, inhibition of enzymic transphosphorylation by alloxan and ninhydrin in tissue exts., 9121*d*

**Griffon, H.** Identification of chloralose after periodic oxidation, 973*e*; $AsH_3$ poisoning during tartar removal, 7637*e*; see Boltansky.

——, Dérobert, L., and Clément. RAL for the treatment of $AsH_3$ poisoning, 3105*c*.

**Griffoul, R.** See Guinier, A.

**Grifoni, V.**, and Soliani, M. Paroxysmal fibrinolysis in cold—hemolytic disease, 2697*c*.

**Griggs, D. E.**, and Johns, V. J. Influence of mercurial diuretics on the excretion of Na, K, and chlorides, 3519*g*.

**Griggs, R. L.** Geology and ground-water resources of the eastern part of Colfax Co., N. Mex., 7163*h*.

**Griggs, W. H.**, and Rollins, H. A. Effect of soil management on yields, growth, and moisture and ascorbic acid content of blueberries, 1134*c*.

**Grignard, V.** Traité de chimie organique. T. XV. Diazoïque et azoïques (book), 3022*h*; Précis de chimie organique (book), 7496*d*.

**Grignolo, A.** Streptomycin in tuberculosis of the eye, 6729*a*.

**Grignon, E.** See Sabon, F.

**Grigor, V. A.** See Fedot'ev, N. P.

**Grigor'ev, D. P.** Naming of minerals according to compn., 3318*h*; see Smirnov, S. S.

**Grigor'ev, S. M.** Reaction app., P 2826*a*.

**Grigorieff, W. W.** Glass-insulating bushings, P 8633*c*.

**Grigoriew.** See Grigor'ev.

**Grigorov, N. L.** See Brikker, S. I.; Vernov, S. N.

**Grigorov, O. N.** See Nikol'skii, B. P.

—— and Prikhid'ko, N. E. Transference nos. of $Cl^-$ ions through collodion membranes of various structures, 7290*g*.

**Grigorovici, R.**, and Mavrodineanu, R. Spectral analysis (I) detn. of Na, Ca, and Sr, (II) visual photometric detn. of Na, Ca, and Sr with the help of optical filters, 6940*h*.

**Grigorovskii, A. M.** 9,9′-Biacridines, P 3853*h*.

—— and Fedorov, V. S. Dehalogenation with the aid of Raney Ni, 646*c*.

—— and Veselitskaya, T. A. Formation of acridones from diphenylamine-2-carboxylic acids, 3826*d*.

**Grigsby, B. H.** See Krone, P. R.

—— and Churchill, B. C. Effect of 2,4-dichlorophenoxyacetic acid on oats and barley varieties, 6775*i*.

**Grigsby, W. E.** See Gresham, W. F.

**Grill, E.** Bavenite, 2129*g*; refractometer for the detn. of the ns of crystals, 5652*i*.

**Grillat, J.** Diffusion of Zn in metals (Al) and light alloys, 534*b*.

**Grillot, E.** Imperfect complexes of bivalent Pb (II) acetate bromides and acetate iodides, 2112*a*.

**Grilly, E. R.** See Sydoriak, S. G.

——, Hammel, E. F., and Sydoriak, S. G. Approx. ds. of liquid $He^3$ between 1.27° and 2.79°K., 4915*b*.

**Grim, D.** See Dorfman, R. I.

**Grim, R. E.** See Bradley, W. F.

**Grimaud, G.** See Perard, J.

**Grimberg, J.** See Giraut-Erler, L.

**Grimes, H. L.** Detecting dilu. or commingling of substances, P 8760*a*.

**Grimley, S. S.** Liquid-flow conditions in packed towers, 1614*d*.

**Grimley, T. B.** Low-frequency dispersion in ionic crystals, 7768*i*.

**Grimm, G.** See Wu, C. S.

**Grimm, W.** Guanidinecarboxylic acid ters, P 6229*a*.

**Grimmel, H. W.** Mordant dyeing, P 3206*e*; see Bestehorn, H. H.

—— and Freyermuth, H. B. *N*-Alkylated indoles, P 4302*d*.

—— and Guenther, A. Carboxylic acid amides and imides, P 4686*h*.

—— and Richter, L. Monoazo Cr complex dyes, P 8155*h*.

**Grimmer, H.** Toxic polyneuritis caused by neoarsphenamine, 4383*i*.

**Grimmett, R. E. R.**, and Elliott, I. L. Serpentine superphosphate in New Zealand, 5892*e*.

**Grimshaw, R. W.** See Roberts, A. L.

—— and Roberts, A. L. Clay-quartz system (IV) extension of the thermal analysis method to quartzite rock, 3582*h*.

——, Westerman, A., and Roberts, A. L. Silica inversions (I) thermal effects accompanying the inversion of silica, 2390*d*.

**Grimson, K. S.** See Longino, F. H.

——, Hendrix, J. P., and Reardon, M. J. Adrenolytic, sympatholytic, and ganglionic blocking drugs, 2370*g*.

**Grinberg, A. A.**, and Gil'dengershel, Kh. I. Acidic properties of ammoniates and aminates of quadrivalent Pt, 1673*e*.

——, Razumova, Z. A., and Troitskaya, A. D. Complex compds. of Pt with phosphines and derivs. of phosphorus acid, 4172*g*.

—— and Zemlyakova, E. P. Influence of a supplementary component on the soly. of substances in mixed solvents, 6889*g*.

**Grinberg, R.**, and Correa Urquiza, L. M. Effect of *o*- and *p*-quinone of Roffo's sarcoma, 2323*i*; action of Cu nicotinate and glutamate on Roffo's sarcoma, 8538*b*.

**Grindlay, J. H.** See Miller, John R.

**Grindley, D. N.** Sudan seed oils, 1201*c*; see Henry, A. J.

**Grinenko, B. S.** Thermal treatment of hydrocarbon and other fluids, P 4908*a*, 6010*i*.

**Grinkot, R. I.** See Rotvinkin, O. N.

**Grinstead, R. R.**, and Yost, D. M. Ferromagnetic alloys in the system Cu-Mn-In, 4205*f*.

**Grinstead, S. R.** See Young, T. F.
**Grinstein, M.**, Aldrich, R. A., Hawkinson, V., and Watson, C. J. Isotopic study of porphyrin and hemoglobin metabolism in a case of porphyria, 7568*h*.
———, Kamen, M. D., and Moore, C. V. Glycine in the biosynthesis of hemoglobin, 8480*d*.
**Grip, E.** Hg in Boliden and in some other sulfide deposits in northern Sweden, 6544*i*.
**Gripenberg, J.** Resin phenols and their biogenetic relation (XI) configuration of epipinoresinol, 1018*e*; antibiotic substances from the heart wood of *Thuja plicata* (III) constitution of α-thujaplicin, 5016*b*; see Anderson, A. B.; Erdtman, H.
——— and Lindahl, R. G. Monosubstitution derivs. of cadalene (II), 7928*a*.
**Grippo, G A. L.** See Lo-Grippo, G. A.
**Gris, J.** Ultralight alloys, 984*g*.
**Grisard, G., A.-G.** Org. insecticides, P 7187*f*.
**Grisolia, S.** Reaction of certain indole derivs., 726*b*; see García-Blanco, J.
——— and Cohen, P. P. $CO_2$ fixation in the synthesis of citrulline, 1816*c*.
**Grison, P.** Effect of lecithin on the fertility of the potato beetle, 4387*b*; see Ducet, G.
**Griswold, J.**, Klecka, M. E., and West, R. V., Jr. Conjugate liquid-phase equil. —$C_4$-hydrocarbon-furfural-water systems, 475*g*.
——— and Morris, J. W. Pure hydrocarbons from petroleum—prepn. of methylcyclohexane from straight-run heptane fraction, 3603*c*.
——— and Walkey, J. E. Pure hydrocarbons from petroleum —compn of $C_6$ fraction of catalytic gasoline, 4453*b*
**Griswold, P.** See Klotz, I. M.
**Griswold, P. H., Jr.** See Woods, G. F.
**Griswold, R. M.** See Sheft, B B.
**Griswold, T., Jr.** See Chisholm, D. S
**Gritsaenko, G. S.**, and Grum-Grzhimailo, S. V. Cr-bearing halloysite from Aidyrlinsk, Southern Urals, 6121*i*.
**Grivet, P.**, and Soutif, M. Magnetic nuclear resonance, 8878*h*.
**Grixoni, F.** Influence of synthetic vitamins on certain pathogen hyphomycetic cultures, 9147*b*.
**Grizzard, A. L.** See Strauss, J. L.
**Grjznoff.** See Gryaznov.
**Grob, C. A.**, and Jundt, W Synthesis of compds. of the steroid series (I), 2611*g*
——— and Wicki, H. Synthesis of compds of the steroid series (II), 2613*a*
**Grob, D.**, and Harvey, A. M Effects of tetraethyl pyrophosphate in man, and its use in the treatment of myasthenia gravis, 8556*b*.
**Grob, E.** See Schmid, H.
**Grob, E. C.** Flavin pigment secreted by *Eremothecium ashbyii*, 1457*i*; see Schopfer, W. H.
**Grob, K.** Tobacco fermentation, 7194*i*
**Grobe, A. H.** See Roberts, G. A.
——— and Roberts, G. A Unnotched impact strength of high-speed steels, 8330*f*
**Grobstein, C.** Optimal gonopodial morphogenesis in *Platypoecilus maculatus* with const. dosage of Me testosterone, 4388*h*
**Grochowski, M.** Phenol-HCHO resins, 8197*b*
**Grodsky, V. A.** Cu-base alloy, P 5000*c*.
**Grodzenskii, D. E.**, and Koroleva, E. I. P metabolism in a protein-poor diet investigated with tagged atoms, 5465*b*.
**Grodzinski, P.** Resin-bonded diamond wheels, 2029*e*.
——— and Stern, W. Abrasion tests on diamonds, 8227*e*.
**Gröber, H.** See Bollenrath, F.; Bungardt, W.
**Grögli, O.** Plant protectant, P 2732*i*
**Groen, J.**, Hoogland, P. L., Willebrands, A. F., Bastiaans, J., and Godfried, E. G. Vitamin and N metabolism in typhoid fever patients, 2294*c*.
**Grönkvist, K. E.** Karaya mucilages, 888*e*; see Elvius, P.
**Grönwall, A.** Pneumococcus agglutinin in different globulin fractions, 8049*g*; see Annersten, S.; Lagergren, Å.
**Groetzinger, G.** See Kahn, D. S
**Grofcsik, J.** Ceramic materials in the chem. industries, 8626*i*.
**Groggins, P. H.** Glyceridic oils in our national economy, 6841*g*; Friedel-Crafts reaction, 7759*b*.
**Gróh, Gyula.** History of valency, 8761*f*.
**Groh, Julius.** Same as Gróh, Gyula.
**Grohskopf, J. G.**, and McCracken, E. Insol. residues of some Paleozoic formations of Missouri, their prepn., characteristics, and application, 8994*c*.
**Grollman, A.** See Ellis, M. E.; Stimmel, B. F.; Vanatta, J.
——— and Woods, B. Detn. of the antidiuretic principle in urine, 7995*a*.
**Grom, V. A.**, Perov, I. S., Maslov, T. N., and Chernetsov, G. F. Thiodiphenylamine, P 3854*e*.
**Gromov, B. V.** Values of pH in systems $MSO_4 + MO + H_2O$, 2492*h*.
——— and Negovorov, B. A. Electrolysis of Zn at the Chelyabinsk electrolytic Zn plant, 2519*b*.
**Groninger, H.** Fat splitting by NaOH, 2449*f*.
**Gronningsaeter, A. M.** Malleable and annealable Ni, P, 8289*h*.
——— and Hommeren, B G. Electrolytic refining of Ni, P 1665*e*.
**Groom, C. H.** See Loucks, C. M
**Groombridge, W. H.** Carboxylic acids, P 6650*f*; see Miller, Samuel. A
**Groot, C.**, and Hildebrand, J H. Soly. relations of white, P 2073*g*.
**Groot, E. H.** Improving the color of proteins from potatoes, P 4786*g*; oxidative phenomena in dil. solns. of substances with a system of conjugated double bonds (I) vitamin A acetate, 6080*c*.
——— and Linden, A. C. van der. Nutritional value of potato protein, 1877*i*
**Groot, H.** Atoomsplitsing (book), 2097*a*.
**Groot, P. W. de.** See Willigen, A H. A. de.
**Groot, W. de.** Effect of temp on light emission by ZnS phosphors, 5659*g*.
**Groote, M. de.** See De Groote, M
**Gros, A. T.** See Feuge, R. O.
**Gros, E. K.** See Köddermann-Gros, E.
**Gros, F.** See Rybak, B.
——— and Macheboeuf, M Biochem action of penicillin and other antibiotics on the metabolism of *Clostridium sporogenes* in suspensions, 4340*a*.
——— and Rybak, B. Action of penicillin and streptomycin on the catabolism of ribonucleic acid, 1814*h*
**Groschke, A. C.** See Bird, H R
———, Anderson, J. O., and Briggs, G. M. Amino acid imbalance of zein—relation to nicotinic acid deficiency, 734*d*; peculiar enlargement of eyeballs in chicks caused by feeding a high level of glycine, 2293*d*.
**Grosemans, P.** Geol. studies in the Kibara Mts., 2135*c*; basic rock from the Mutotolwa region, 2135*i*; andalusite-quartz vein in the Mandwe region, Kibara, Belgian Congo, 6549*e*; kyanite deposit of Haute-Kabompo, Katanga-Rhodesia frontier, 6549*e*.
**Grošev.** See Groshev.
**Grosh, W. A.** Toncrae-Howard Cu deposits, Floyd Co., Va., 74*a*; Valzinco Pb-Zn, Spottsylvania Co., Va., 3322*c*; Vest Ni prospect, Floyd Co., Va., 6545*h*.
**Groshev, A. V.**, and Ponosov, V. I. Statistical treatment of analytical results on standard samples, 8944*c*.
**Groshev, L. V.** and Frank, I. M. Angular distribution of pairs produced by Th C″ γ-rays, 5297*h*
**Grosjean, C.** See Nuyens, M.
**Grosowics, N.**, Kaplan, D., and Schneerson, S. Production of an antibiotic substance by *Lactobacillus*, 5826*d*.
**Gross, E. G.** See Halpern, A.; Schueler, F. W.
——— and Featherstone, R. M. Tetrazole derivs. (IV) pharmacol. properties of aminomethyltetrazoles, (V) of aminophenyltetrazoles, 1864*f*.
**Gross, F.** Combined water and NaCl loading in normal and adrenalectomized dogs (I) influence of various modes of administration on rate of elimination of water and NaCl, (II) influence of mode of administration on elimination in adrenalectomized dogs treated with desoxycorticosterone, 1848*g*; see Meier, Rolf; Sehönholzer, G.
——— and Matthes, K. Action of vascular active drugs (III) periodic respiratory rhythm after pervitin and ephedrine, 5863*e*.
——— and Meier, R. Action of synthetic histaminics on the chemosis of the rabbit eye inducted by mustard oil, 2315*d*.
——— and Merz, E. Pharmacol. properties of trafuril (tetrahydrofurfuryl ester of nicotinic acid), 9254*d*.
——— and Zeuthen, E. Buoyancy of plankton diatoms—cell physiology, 1081*g*.
**Gross, J.** Structure of elastic tissue, 5849*g*; see Leblond, C. P.; Schmitt, F. O.
**Gross, K.** Serpentine in Siegerland, 2129*g*.
**Gross, K. A.** See Garrod, R. I.
**Gross, M.**, and Greenberg, L. A. Salicylates (book), 3570*h*.
**Gross, M. E.** See Scott, D. W.
**Gross, P.** Production and refining of Al, P 5728*c*; production and refining of metals, P 5728*e*.
———, Campbell, C. S., Kent, P. J. C., and Levi, D. L. Equil. involving Al monohalides, 4932*a*.
——— and Wurrington, M. Reduction of ZnS by Fe under reduced pressure, 4936*e*.
**Gross, P. M.** See Freiser, H.; Maryott, A. A.
**Gross, P. M., Jr.** See Oncley, J. L.
**Gross, S. T.** Geometric disorder in linear polymers, 4510*f*; reversal or secondary exposure of reversible color film, P 5320*g*, see Schildknecht, C. E.
**Gross, W. F.** See Blair, C. M., Jr.
——— and Andrews, H. W. Prevention of corrosion in sour wells, 1553*b*
**Gross, W. G.**, Wood, L. K., and McHargue, J. S. Detn of I, 1685*b*.
**Gross, W. K.** Story of Mg (book), 2151*g*
**Gross, W. M.** See Mayer-Gross, W.
**Grosse, A. V.** See Hindin, S. G
———, Hindin, S G., and Kirshenbaum, A D. Elementary isotopic analysis, 5327*d*.
**Grosse-Brockhoff, F.**, and Karcher, G Hemolysins in congenital hemolytic icterus, 8519*e*.
**Grosse-Oetringhaus, H.** Analysis of hydrocarbons (III) close distn of liquid hydrocarbons, 3178*i*, (IV) analysis of gaseous hydrocarbons, 8652*i*
**Grosser, A.**, and Friedrich, W Formation of 6-methylsalicylic acid by *Penicillium claviforme*, 5080*a*, microbiol.-chem production of pyocyanin by submerged culture, 8435*i*.
**Grosser, F.** Polymerizing vinyl alkyl ethers P 2469*h*; vinyl ether polymers, P 4051*i*, see Diepschlag, F.
**Grossfeld, I.** See Katchalski, E
**Grossglauser, H.** Test for tannic acid, 5538*i*
**Grossi, F. X.** See Milas, N A
**Grossi, G.** See Usuelli, F
**Grosskinsky, O.** Recovery and utilization of N and S produced in coal carbonization, 5923*h*.
**Grosskreutz, J. C.** Neutrons from C(*d*, *n*)N and Cu(*d*,*n*)Zn, 8866*h*.
**Grossman, A.** See Hoffman, W S
**Grossman, B. J.** See Allen, J G
**Grossman, I. G.** $NaSO_4$ deposits of western N. Dakota, 4433*i*
**Grossman, J.** See Davis, P. T.
**Grossman, M. I.** See Blickenstaff, D., Canepa, J. F.; Janowitz, H., Krasnow, S.; Newman, E.; Wang, C. C.
——— and Robertson, C. R. Inhibition by histaminase of gastric secretion, 321*a*, stimulation of gastric secretion by a urticariogenic wetting agent and its inhibition by benadryl, 760*e*
**Grossman, M. S.**, and Penrod, K E Relation of hypothermia to high O poisoning, 5871*f*; thyroid and high O poisoning, 5871*h*.
**Grossman, N.** Pearlitic structure effect on brittle transition temp., 6958*d*.
**Grosso, L.** See Costa, G.
**Grósz, István.** Action of thiamine on accommodation, 4771*g*.
**Grósz, Stefan.** Same as Grósz, Istvan
**Groszmann, S.** See Csuros, Z.
**Grote, H. W.** Hydrocarbon dehydrogenation using $CO_2$ as stripping gas, P 9078*e*
———, Swoope, R. L., and Brearley, C. S., Jr High-boiling polymers, P 2469*a*.
**Grote, I. W.**, and Costello, C. H. Viburnum, 1910*d*.
**Grotelite Co., Inc.** Mixing and extruding app. for thermoplastics, P 7262*g*.
**Groten, F. J.**, and Reid, R. J. Elastomeric copolymer mixed with phenol-aldehyde resin, P 2806*g*.
**Grotenhuis, T. A. te.** See Te Grotenhuis, T. A.
**Groth, B.**, and Timell, T. Dialdehydes, 2577*e*.
**Groth, S. F. de St.** See Fazekas de St. Groth, S.
**Groth, W.** Quantum theory and photochemistry, 5659*d*.
**Grothe, E.** Thermodynamic considerations in the Kroll method, 8326*g*.

**Groulade, P., and Richou, R.** Antagonist complexes embodying penicillin, subtilin, and streptomycin, 5077*f*.
**Groum-Grjimailo, S. V.** See Grum-Grzhimailo, S. V.
**Groupé, V.** Interfering phenomenon assocd. with infectious bronchitis virus, 8448*c*.
**Grousdew, B. V.** See Gruzdev, B. V.
**Grove, C. S., Jr.** See Casey, R. S.
——— and Casey, R. S. Deionized water for writing-ink manuf., 336*a*.
——— and Gray, J. B. Crystn., 1227*g*.
**Grove, D. C.** See Garlock, E. A., Jr.
**Grove, D. H.** See Armstrong, G. P.
**Grove, G. W.,** and Freas, G. L. Coal-dust explosion gallery, 5952*e*.
**Grove, J. F.** Fungistatic activity of ethylenic and acetylenic compds. (II) esters of halofumaric acids and acetylenedicarboxylic acid, 9334*f*.
**Groven, L.** X-rays emitted by gases, 8875*e*.
——— and Lagasse, A. Weak lines in the *Lα* Hg spectrum, 8272*f*.
**Grover, D. W.,** and Wertheim, R. A. P. Capillary viscometer, 2014*d*
**Grover, K. C.** Formation and stability of bicarbonates of the metals of the group II of the Mendeleev's periodic table, 4171*a*
**Grove-Rasmussen, K. V.** Equitransferent solns., 4082*h*; diffusion potential between dil. solns. and concn. solns. of KCl plus $KNO_3$, 7789*g*
**Groves, G. A.** See Huston, M. J.
**Groves, W. T.** See Widrig, S. L.
**Groves, W. W.** See C I B A Ltd
**Grubb, T. C.** See Nolte, W. A.
**Gruben, S.** See Lindewald, T. W.
**Gruber, C. M.** See Kraatz, C. P.
———, Kraatz, C. P., Gruber, C. M., Jr., and Copeland, J. E. Effect of diethylaminoethyl ester of 1-phenylcyclopentane-1 carboxylic acid hydrochloride on decerebrate rigidity, spinal reflexes, and skeletal muscle, 6733*c*.
**Gruber, C. M., Jr.** See Gruber, C. M.
——, Berardinis, C. de, and Erf, L. A. Na malonate, 7133*b*.
—— and Halbersen, W. A. Comparative toxic effects of citric acid and its Na salts, 314*c*.
**Gruber, F.** Dyes for acetate rayon printing, 4169*f*
**Gruberg, L. D.** High pressure $C_2H_2$ chemistry, 5733*e*; action of B in hardening steel, 6958*a*
**Grudgings, D. M.** See Reynolds, P. W.
**Grün, A.** 2-Substituted guanamines, P 1814*c*.
**Gruen, D. M.** See Katz, J. J.; Klotz, I. M.
**Grün, F.** Measurements of diffusion in rubber, 8722*h*
**Grün, L.** Influence of sulfonamides on the growth and staining reactions of pathogenic agents, 1459*g*; sucrose-splitting diphtheroid bacilli, 7083*b*, see Driesen, W.
**Grün, P.** Effect of hardening from the rolling heat in heat-treatable steels, 8328*c*.
**Grünberg.** See also Grinberg.
**Grünberg, M.** Same as Grunberg-Manago, M.
**Grünberg-Manago, M.** See Aubel, E.
**Gründer, W.** Mining and dressing of graphite in South Bohemia, 1924*d*.
——— and Simon, H. Ore-dressing machines, 7387*h*
**Gruendler, G. A.** See Adelt, M.
**Grüner, H.** See Machek, G.
**Gruenstein, M.** See Shay, H.
**Grüssner, A.** See Schnider, O.
**Grütter, H.** Adaptability of hydrogenated sesame oil as an ointment base, 2367*g*.
**Grüttner, B.** See Jander, G.
**Gruhl, W.** Oxodation of static molten Pb, 7881*g*; Mn-Cu from blast furnace ferromanganese, 9013*g*.
**Gruhn, J. G.** See Brandt, J. L.
**Gruhsit, C. C.** See Cochin, J.
——— and Moe, G. K. Ganglionic blocking action of dibutoline, 6309*c*.
**Gruhsit, O. M.** See Banks, C. K.; Reutner, T. F.
**Grumbach, A.** Action of heavy metal salts on bacteria (III) Cu salts, 5824*e*
——— and Wehrli, U. Action of several disinfectants of the heavy metal group (II) Ag ions, 2277*f*; influence of free O on the action of sulfonamides, 2671*g*.
**Grumbles, L. C.,** Delaplane, J. P., and Higgins, T. C. Feeding of low concns. of sulfaquinoxaline for the control of coccidiosis, 321*g*.
**Grumelli, E.** See Milla, E.
**Grumez, M.** See Ramart-Lucas, P.
**Grum-Grzhimailo, S. V.** Alexandrite color of crystals, 6028*f*; see Gritsaenko, G. S.
——— and Lyamina, A. N. Optical testing of ceramic colors, 9403*c*.
**Grummer, M.** See Leva, M.
**Grummer, R. H.** See Bowland, J. P.; Whitehair, C. K.
**Grummitt, W. E.** See Broda, E.
**Grunberg, E.,** Randall, L. O., and Schnitzer, R. J. Chemotherapeutic and pharmacol. properties of the *l*-ephedrine salt of penicillin G, 4382*e*.
——— and Schnitzer, R. J. Influence of different vehicles on the effect of penicillin G, 9267*a*.
**Grunberg, L.,** and Nissan, A. H. Energies of vaporization, viscosity, and cohesion and the structure of liquids, 5248*c*; additivity of $T_c^2$ for some nonlinear mols., 7277*e*.
**Grundfest, H.** See Feld, E. A.
**Grundland, I.** Study of the existence of a du
on hydrophobic substances, 3083*c*; see Libermann, D.
**Grundmann, C.** Heterocyclic sulfonamides (I) sulfanilamidopyridazines, 176*g*, total synthesis of fatty alcs. and fatty acids with crotonaldehyde as starting material, 5363*g*, conversion of the cyclic condensation products from crotonaldehyde and similar products into aromatic compds., 5376*h*
**Grundon, M. F.,** and King, F. E. Chloropheum, a constituent of iroko, the timber of *Chlorophora excelsa*, 5388*b*.
**Grundy, W. E.** See Denko, C. W.
**Gruner, E.** Osmotic and zeolitic binding of the volatile phase, 4537*a*
**Gruner, F.** See Theilacker, W.
**Gruner, J. W.** Silicate structures, 8986*f*.
**Grunfeld, M.** Primary amines, P 682*e*.
——— and Batigne, M. E. Pimelic acid esters, P 7505*e*.
**Grunke, W.** Detection of heparin in blood in diseases of the liver and bile ducts, 3513*h*.
**Grunlund, J. M.** See Yaffe, L.
**Gruntfest, I. J.,** and Gagliardi, D. D. Modification of cellulose by reaction with $C_4H_8O$, 1192*e*; wrinkle resistance of fabrics, 5192*i*
—— and Young, E. M. Chemistry of detergency, 5213*a*
**Grupe, W. F.** Tinning endless metal strip, P 2568*b*
**Grupp, G. W.** Fungi and tropical deterioration, 873*c*.
**Grusdew, B. V.** See Gruzdev, B. V.
**Grushko, T. E.** See Gerasimov, N. P.
**Grushko, Ya. M.** Waste liquors of hydrolytic plants and sanitary protection of water reservoirs, 6768*b*; toxic substances and the method of establishing hygienic standards for their permissible concn. in water reservoirs, 8583*c*
**Gruszczyk, H.** Effect of drying conditions on hydraulic properties of powd. blast-furnace slags, 2393*i*.
**Grutta, G. la.** See La Grutta, G.
**Gruver, R. M.** Thermal analysis, 1227*d*.
**Gruz, R. I.** See Vansheldt, A. A.
**Grúz, T. E.** See Erdey-Grúz, T.
**Gruzdev, B. V.** Device for testing the wear resistance of bearing metal, P 9020*c*.
**Gry, H.** Bentonite in the Ordovician of Bornholm, 8320*e*.
**Gry, O.** Estn. of synthetic estrogens and estrone, 6692*c*.
**Gryaznov, N. S.,** and Khrapkin, M. A. Charge make-up of the eastern by-product coke plants, 4446*c*.
**Gryaznov, V. M.,** Simanov, Yu. P., Usova, L. K., and Frost, A. V. X-ray investigation of Pd catalysts on silica gel, 6062*a*
**Gryder, J. W.,** and Dodson, R. W. Exchange reaction between the 2 oxidation states of Ce in $HNO_3$ solns., 6532*g*.
**Grymko, S. M.** See Klier, E. P.
**Grzeskowiak, E.** See Barber, H. H.
**Grzhimailo, S. V. G.** See Grum-Grzhimailo, S. V.
**Gschaedler, L.,** and Viollier, G. Essential fat acids in the animal body (III) effects of feeding fats of different linoleic acid contents on the compn. of feces fat and body fat, 3497*c*.
**Gstirner, F.,** and Holtzem, H. Medicinal utility of *Rheum undulatum*, 9383*g*.
——— and Vollmer, K. Detn. of morphine, 4811*i*.
**Guadagni, D. G.** See Johnson, G.
**Guadagni, G.** Org. fertilizer, P 4804*f*.
**Guainazzi, G. C.** Esters of furfuryl alc. and pyromucic acid, 4252*h*.
**Guala, F.** See Costa, G.
**Gualandi, G.** See Boscardi, F.
——— and Pederzini, A. Choline and intestinal absorption of vitamin A, 7072*h*, 9181*d*.
**Gualtierotti, T.** Elec. circuit of an app. for measuring the H-ion concn., P 5682*f*.
**Guareschi, G.,** and Bini, G. DDT toxicity, 3937*a*.
——— and Boari, D. Toxicity of Ba, 3936*i*.
**Guareschi, P.** Alumina from aluminosilicate-contg. materials, P 1538*b*.
**Guarino, S.** See Bovet, D.
**Guarnieri, G. J.,** and Kanter, J. J. Metastable austenite of 4 to 6% Cr + 1/2% Mo cast steel, 8333*d*.
———, Miller, J., and Vawter, F. J. Effect of Σ phase on the short-time high-temp. properties of 25 Cr-20 Ni stainless steel, 8333*b*.
**Guastalla, J.** Adsorption and the Gibbs relation, 4921*g*; isotherms of oleic acid on various alk. substrates, 8797*c*; see Guastalla, L.
——— and Mibashan-Sharaga, L. Desorption of monolayers, 8798*b*.
**Guastalla, L.** Interfacial tension between benzene solns. of cholesterol-lecithin and aq. solns. of gelatin, 8800*b*
——— and Guastalla, J. Physics of surfaces—adhesion tension and bond energy, 7777*b*.
**Guazzo, P.** Dizionario tecnico italiano-inglese e inglese-italiano (book), 7808*d*.
**Guba, F.** See Bagdy, D.
**Guberniev, M. A.,** and Kovyrev, I. G. Quant. variation of nucleic acids in dog salivary glands in secretion, 5475*e*.
**Gubler, C. J.,** Cartwright, G. E., and Wintrobe, M. M. Effect of pyridoxine deficiency on the absorption of Fe, 6291*e*.
**Gubner, R.** Salicylate and succinate therapeutic prepns., P 6791*e*
**Guchmann, B. S.** See Gukhman, B. S.
**Gucker, F. T., Jr.** Thermal properties of electrolytic solns. and the Debye-Hückel theory, 7317*h*; see Garrels, R. M.
——— and O'Konski, C. T. Electronic methods of counting aerosol particles, 6038*i*.
**Gudalin, G. G.** Geology and genesis of Dzheskazgan, 1692*g*.
**Gudden, B.,** and Henninger, P. Dark current and photoelec current in $Cu_2O$ in alternating elec. field, 7324*i*.
**Gudgeon, H.** See Boon, W. R.; Isaacs, E.
———, Isaacs, E., Morgan, W. M., and Imperial Chemical Industries Ltd. Synthetic rubberlike materials, P 2803*h*.
**Gudheim, A.** Shortenings of high penetration from fats of low solid-to-liquid ratio, P 1586*a*.
**Gudz, C. B.** See Brownell, L. E.
**Guében, G.** At. energy and the international situation, 6914*i*; Phénomènes radioactifs et introduction à la physique nucléaire (book), 7830*h*.
**Guedes, R.** See Casares Lopez, R.
**Guelbenzu, M. D.** See Déan Guelbenzu, M.
**Guellich, G. E.** Adhesive for optical elements, P 2472*a*.
**Gülzow, M.** Hypoproteinemia and the regulation of blood sugar, 7563*f*.
——— and Pickert, H. Regulation of plasma proteins (I) hormone of the suprarenal cortex and plasma proteins, 3909*g*.
**Guenes, S.** See Genes, S. G.
**Guenkine, A. M.** See Genkin, A. M.
**Guennelon, R.** See Caillère, S.
**Guénoche, H.** Detonation and deflagration of gas mixts., 5576*c*; see Manson, N.
**Guénot, S. B.** See Blaizot-Guénot, S.
**Güntelberg, A. V.,** and Lindestrøm-Lang, K. Osmotic pressure of plakalbumin and ovalbumin solns., 6694*c*.
**Günthard, H. H.,** and Heilbronner, E. Thermodynamic properties of ethylene oxide, 2500*f*; chem. thermodynamics of Schottky, Ulich, and Wagner, 6903*d*.
——— and Plattner, P. A. Sesquiterpene and azulene (LXXXIV) infrared spectra of azulenes, 4139*b*.
———, Plattner, P. A., and Brandenberger, E. Crystal structure of azulene, 3262*h*.
**Guenther, A.** See Grimmel, H. W.
**Günther, E.** Detn. of total vitamin C, 3485*d*; see Schwarze, W. K.
**Guenther, E. S.** Citrus oils and their methods of extn., 5906*h*.
——— and Althausen, D. Essential Oils (book), 4816*g*.
——— and Langenau, E. E. Essential oils and related products, 3146*a*.

**Günther, O.** Enamel as surface protection, 9406*g*.
**Günther, P.** Niels Bjerrum, 6873*i*.
**Guenther, P. E.** See Hicks, B. L.
**Guenther, P. R.** See Jenkins, J. W.
**Gueorgiewski, A. P.** See Georgievskiĭ, A. P
**Guérassimoff, Guerassimow.** See Gerasimov.
**Guerber.** See Gerber.
**Guerbet, A.,** and Loth, V. Varieties of iodized oils for the radiological exploration of the subarachnoid space, 5534*b*.
**Guérillot-Vinet, A.** Vitamins K and antivitamins K in microbiology, 5444*e*; see Guérillot-Vinet, J.
——, Guérillot-Vinet, J., and Richer, A. Comparative action of some quinone derivs. and of different vitamins K on growth of *Fusarium solani*, 5822*d*.
**Guérillot-Vinet, J.** See Guérillot-Vinet, A.
——, Guérillot-Vinet, A., and Richer, A. Utilization of pyridine by *Fusarium solani*, 5449*c*.
**Guérillot-Vinet, Mme. J.** Same as Guérillot-Vinet, A
**Guerin, H.** See Viel, G.
—— and Bastick, M Coal deposits in the Contrexéville region, 2902*c*.
——, Bastick, M., Bastick, J., and Adam-Gironne, J. Heat of combustion of $CS_2$, 4089*e*.
—— and Mas, R. Action of heat and reduction on some arsenates of Cu, 3302*i*.
——, Masson, J., and Bassière, M Alk earth arsenites—system $As_2O_5$-BaO-$H_2O$, 8295*i*.
—— and Moreau, M. Detn of S in very high-S coals, 3168*h*.
**Guérin, L.** See Jourdan, F.
**Guérin, M.** See Dux, C.
—— and Lacour, Mme. F. Action of 2 benzacridine compds. on cancer, 6742*h*.
**Guerin de Montgareuil, P.** See Montgareuil, P. G. de.
**Guernsey, E. W.** Report of Org. S Committee, 836*f*.
**Guernsey, F. W.** Wood waste as a source of pulp on the Pacific Coast, 1183*f*.
**Guéron, J.** See Bloche, E.; Broda, E.
**Guerra, A. U. E.** See Ramon Guerra, A. U
**Guerrant, N. B.** Influence of age and of vitamin A intake on the storage of vitamin A in the liver, 5457*g*; see Chilcote, M. E.; Ellenberger, H A
—— and Dutcher, R A Relation of temp. of blanching to ascorbic acid retention in green beans, 1499*f*.
——, Fardig, O. B., Vavich, M. G., and Ellenberger, H. A. Nutritive value of canned food—influence of temp and time of storage on vitamin content, 1491*h*.
**Guerrant, W. B.** See Wiley, R. H.
**Guerreiro, A.** Analysis of Ti ores—sepn of Ti by complex formation, 7864*g*; fluorides in chem. analyses (I) analysis of chromites, 7867*a*.
—— and Esteves Ramos, M. Y. Analysis of chromite, 7866*i*.
**Guerrero, A. H.,** and Williams, R T. Tollens naphthoresorcinol reaction for uronic acids, 141*e*.
**Guerrero, Ariel H.** See Heriberto Guerrero, A.
**Guerrieri, F.** See Ubaldini, I.
**Guerritore, D.** See Leone, E.; Manzi, G.
**Guerstein, N. A.** See Gershtein, N. A.
**Guertchouk, M. P.** See Gerchuk, M. P.
**Gürtler, G.,** and Weigelt, H. Hardening of a cast Al-Si Mg alloy at room and elevated temps., 6960*g*.
**Gürtler, P.** See Meyer, K. H.
**Guerts, J. J.** See Pieters, H A. J.
**Guest, G. H.** Expts. in Elementary Chemistry (book), 1255*a*; industrial uses of radioisotopes, 6908*d*; radioisotopes, 8841*i*.
**Guest, G. M.** Effects of salicylate on the liver, 2701*i*; see Mackler, B.
**Guest, H. R.,** and McNamee, R. W. Purification of glyoxal, P 4688*i*.
**Guesnet, J.** See Vilars, J.
**Guevara R., J. de D.** Bacteriostatic action of *p*-hydroxybenzoic acid esters, 7193*d*.
**Guex, W.** See Erlenmeyer, H.; Isler, O.; Lehr, H.
**Gugel, B. M.** Purification of tech. soda, P 6376*h*.
—— and Solomina, V V. Preventing the darkening of luminophors in the sun, P 6090*a*.
**Guggenheim, E. A.** Statistical thermodynamics of cooperative systems, 8826*a*; superficial thermodynamics—progress since Willard Gibbs, 8789*i*; see Kemball, C.
**Guggenheim, K.** See Buechler-Czaczkes, E.
—— and Bichowsky, L. Chem. compn. and nutritive value of foodstuffs produced in Palestine, 8574*c*.
**Guggenheimer, K. M.,** and Heitler, H. Phase-change processes in Fe-Si alloys, 4094*h*.
**Guha, P. C.** See Bami, H. L.; Bhatt, M V.; Gupta, P. R.; Jain, B. C.; Raghavan, M.
**Guha, S. K.,** and Chatterjee, J. N. Dyes derived from acenaphthenequinone (X) 2 - (7 - chlorothianaphthene) - 8′ - acenaphthene indigos, 4855*e*.
**Guiberteau, Y.** Analysis of Al alloys with the aid of electron-multiplier phototubes, 5700*c*.
**Guice, W. A.** See Hall, C. M; Williams, P. A.
**Guilbeau, W. F.** See Arthur, J C., Jr.
**Guilbert, H. R.,** Miller, R. F., and Goss, H. Feeding value of sugar beet by-products, 9291*i*.
**Guilbot, A.** See Guillemet, R.
**Guild, R.** See Canzanelli, A.
**Guiler, G. M** See Schwartz, H A.
**Guilherme de Carvalho, J.** See Noe, F E.
**Guilhon, J.** Toxicity of hexachlorocyclohexane to psoroptic Acarina, 758*d*
—— and Rioux, J Effect of $CCl_4$ on small flukeworms, 4414*c*.
**Guillaud, C.** Importance of ferromagnetic properties for the knowledge of alloys, 7885*e*, see Ligonnière, G.
—— and Wyart, J Ferromagnetic binary alloys of Mn arsenides and nitrides, 1702*g*.
**Guillaumat, L.** See Halpern, B N.
**Guillaume, J.** Rums, 3141*i*
**Guillaumeron, P.** Liquefaction for sepg. H from coke oven gas, 7211*d*.
**Guillemet, R.,** and Guilbot, A Problems accruing from adding various substitutes to wheat flour in breadmaking, 4392*i*
**Guillemin, V., Jr.** Const.-flow gas analyzer, P 3805*i*
**Guillet, G. L.** See Shepherd, R G
**Guillet, L.** Internal friction, 3258*d*, see Cabarat, R.
**Guilliermond, A.** Cytoplasm of the Plant Cell (book), 733*d*
**Guillot, M.,** and Guillot-Allègre, S Keeping qualities of essential oils, 6367*h*; purified oil of *Melaleuca viridiflora*, Codex 1937, 6367*i*
—— and Renault, H. Analysis of a radioactive drug by measurement of the penetrating radiation—assay of a colloidal Th soln., 5537*g*.
**Guillot-Allègre, S.** See Guillot, M.
**Guillot-Urbain, Mme.** See Hazard, R.
**Guilmart, T.** See Ramart-Lucas, P.
**Guimarães, D.** Zr ore deposits of the Poços de Caldas plateau, Brazil, and Zr geochemistry, 6127*e*; age detn of quartz veins and pegmatites in Brazil, 8321*d*.
—— and Branikov, B. Fusenization in the Palisade Sill diabase, 5709*b*.
—— and Paiva, G de. Magmatic province of Roroimã, Brazil, 3751*g*.
**Guimarães, J. E. P.** See Passos Guimarães, J E.
**Guimarães, J. L.** See Lobato Guimarães, J
**Guimarães, M. A.** See Alves Guimarães, M
**Guimarães, N.** Pharmacol. basis of antiallergic therapeutics and antihistamine medicaments, 7140*h*
**Guimarães da Fonseca, P.,** and Buschinelli, J Hydrolysis of pentosans, 2171*e*
**Guimarães de Carvalho, H.** Thermochor, 2923*e*
**Guimarães dos Santos, J. L.** Principal ore deposits of Pb and Zn in Portugal, 5706*g*.
**Guimarães Villela, G.** Adenochromelike pigment of the polyzoa, 322*c*; detn of pteroylglutamic acid, 1821*e*; micromethod for thiamine assay based on the *Phycomyces* test, 3081*e*; detn. of pyridoxine, 3564*h*; Vitaminas-Métodos de dosificación (book), 6297*i*.
—— and Mello, M. I. Detn. of acid and alk. phosphatases in serum, 2268*a*, effect of pteroylglutamic acid on wt. and alk phosphatase of kidneys, 5462*h*.
—— and Queiroga, M de L Adsorbents in the detn. of thiamine, 3057*e*.
——, Vianna Dias, M., and Queiroga, L. T. Distribution of thiamine in the brain, 9197*c*.
**Guinard.** Compn. of the Fe ores of Lorraine, 6951*f*.
**Guinau, O. A.** Xerography—photographic technique, 7839*i*.
**Guinier, A.** Pptn. in alloys, 8335*g*; detn. of the size and mutual arrangement of large mols. by small angle x-ray scattering, 9112*e*; see Dervichian, D. G.
—— and Brocard, J. X-ray study of cements, 3588*i*.
—— and Griffoul, R Diffuse reflections of x-rays from a partially ordered alloy, 938*a*; order-disorder in solid solns. of Au-Cu-AuCu$_3$, 3260*e*.
—— and Lacombe, P. Polygonized condition of metallic crystals, 1698*b*.
—— and Tennevin, J. Studying crystal structures with x-rays, 2091*a*; two variants of the Laue method and their applications, 7816*b*.
**Guinness, A., Son & Co. Ltd.** Preservation of beer, P 7190*d*.
**Guinot, H.** Solvants et plastifiants (book), 1503*g*.
**Guinot, H. M.** Food preservation from pyroligneous liquors, P 1502*a*, ; catalytically hydrogenating org substances, P 2218*h*
—— and Buret, R. Synthetic rubbery reaction products of butadiene hydrocarbons and satd aliphatic compds., P 9520*b*.
**Guinsberg, Guinsbourg, Guinzburg.** See Ginzburg
**Guirard, B. M.** See Wagner, R P.
**Guiscafré-Arrillaga, J.** Formation of galls in stems and leaves of sugar cane in response to injection of growth-regulating substances, 7000*h*
**Guiss, L. W.,** and Stewart, P W Histologic basis for anacidity in gastric disease, 2309*f*
**Guitard, H.** See Fleury, P.
**Guitarte de Fortunato, E. J.** Chem compn. of Argentine wheat-germ oil, 7241*c*.
**Guiter, H.** Hydrolysis of the chloride, nitrate, and sulfate of Cu, 4086*g*
**Guitton, L.** Passivation of nonoxidizing steels and adsorption phenomena, 1099*c*
**Guixá, J. O.,** and Moral Querol, J Appraisal of sulfides, 7375*a*
**Guizetti, R L.** Amalgamator using a high elec potential for quicker action, P 9021*h*.
**Gukelberger, M.** Function of the normal and the diseased kidney, 1762*d*
**Gukhman, B S.,** Petrov, B I., and Yakovlev, T. I. Detn. of the moisture of materials, 3746*a*
**Gulati, K. C.** See Joshi, M. L.; Verghese, J.
**Gulbransen, E. A.** Surface oxidation of metals and alloys at elevated temps., 1698*h*, kinetic and structural factors involved in oxidation of metals, 7309*c*; see Hickman J W.
—— and Andrew, K F. Reaction of metals in high vacuums, 29*d*, 6053*f*, kinetics of the reactions of Ti with $O_2$, $N_2$, and $H_2$, 9006*b*, kinetics of the reactions of Zr with $O_2$, $N_2$, and $H_2$ 8817*b*
——, Wysong, W S., and Andrew, K F. Decarburization of chrome Ni alloys by their surface oxides in high vacuums and at elevated temps., 92*d*.
**Guldhav, H.** See Brodal, E.
**Gulesich, J. J.** See Blythe, R. H
**Gulf Oil Corp.** (*Patents*) Primary aliphatic amine salts of dialiphatic substituted monothiophosphoric acids, 665*f*, water settling and clarifying app., 1130*a*, mineral-oil compns resistant to foaming, 1561*h*, isomerization of normal butane, 1561*b*; additive and mineral-oil lubricants contg it, 1562*a*, antioxidants for mineral-oil lubricants, 2421*e*; 2-ethylhexyl *N*-octadecyltetrachlorophthalamate as an insecticide, 3558*h*; lubricating-oil additive, 6404*f*; lubricating-oil compn., 7078*d*; lubricant, 7679*a*.
**Gulf Research & Development Co.** (*Patents*) Rust-preventive Cr compds. and compns. contg them, 102*f*; catalytic contact process, 1175*d*; sulfurized oils, 1178*b*; grease compns., 1179*a*, 2425*d*; oil compns., 2765*f*, 2,6-di-*tert*-butylphenol, 3459*e*; sesame ext. synergized insecticides, 3960*b*, hydrocarbon synthesis, 5573*b*; catalytic dealkylation of aromatics and paraffins, 5584*a*; detergent-type lubricant, 5585*c*; rust-preventive compn., 5940*d*; automatic system of process control by infrared spectrometry, 6873*df*; focusing arrangements for a mass spectrometer, 6922*h*; aliphatic carboxylic acids, 7501*c*; reflux condenser, 7760*b*; azeotropic distn. of styrene-

contg. hydrocarbon fractions, 9084a; destructive hydrogenation of heavy hydrocarbon oils, 9431a.
**Gulyaev, A. P.** See Gulyaev, A. P.
**Gulino, E. A.,** and Newby, W. Deodorizer catch basin sludges and the metallic soaps found therein, 7724h.
**Gulland, J. M.** See Barakan, T. H.
——— and Overend, W. G. Benzylideneguanosine, 1825h.
——— and Smith, H. Yeast ribonucleic acid (XII) synthesis of cytidine 2'-phosphate, (XIII) synthesis of di-2-uridine phosphate, 2170e.
**Gullberg, M. E.** See Heidelberger, C.
**Gulledge, H. C.** See Booge, J. L.
**Gullickson, T. W.,** Palmer, L. S., Boyd, W. L., Nelson, J. W., Olson, F. C., Calverley, C. E., and Boyer, P. D. Vitamin E in the nutrition of cattle (I) effect of feeding vitamin E poor rations on reproduction, health, milk production, and growth, 8472d.
**Gulliksen, F. H.,** and Vedder, E. H. Industrial Electronics (book), 500a.
**Gullstrom, D. K.** See Burchfield, H. P.
——— and Burchfield, H. P. Agricultural dusts - detn. of particle size distribution, 2357c.
**Gulyaev, A. P.** Effect of alloying elements on the properties of high alloy austenitic steel, 4201d.
**Gumaer, P. W.** App. for analyzing a fluid mixt. by means of transmitted light, P 449g.
**Gumble, A.** See Hewitt, R. I.
**Gumiński, K.** Thermodynamic considerations on the interface equil., 6887g, formation of barrier anodes of Al at different concns. of oxalic acid solns., 6924d.
**Gummi-Werke Richterswil, A.-G.** Elastic forms of polyvinyl chloride, P 1507d drying of plastic coatings with infrared heat, P 4870a.
**Gump, W. S.** See Cade, V. R.
**Gumz, W.** Mineral constituents of coal, 7663c; see Transtel, S.
**Gunckel, J. E.,** and Thimann, K. V. Development in long shoots and short shoots of *Ginkgo biloba* (III) auxin production in shoot growth, 5003c.
———, Thimann, K. V., and Wetmore, R. H. Development in long shoots and short shoots of *Ginko biloba* (IV) growth habit, shoot expression, and the mechanism of its control, 5003f.
**Gund, F.** Dyeing of glass fibers, 2775i.
**Gund, K.** Electron accelerator for 6 million v., 7326h.
**Gundersen, F. O.** Catalytic influence of glycerol on the decompn. of penicillin in aq. solns., 2373g, penicillinase, 7519d, see Buchi, J.
**Gunderson, L. O.** Antifoaming additives for steam generators, P 3548i; inhibiting foaming in boiler waters, P 4407b; inhibition of foam in an aq. gas-liquid system, P 6340c.
**Gundobin, V. P.,** and Goloushin, N. S. Demulsification of aq. tar emulsions, P 9421a.
**Gunn, D. L.,** Lea, H. A. F., Botha, D. H., Callaway, S., Clarkson, J. R., Immelman, A., Taljaard, J. J., and Ward, J. Locust control by aircraft, 3557d.
———, Perry, F. C., Seymour, W. G., Telford, T. M., Wright, E. N., and Yeo, D. Behavior of the desert locust in Kenya in relation to aircraft spraying, 3558a.
**Gunn, E. G.** Filter cartridge for use in either the bypass or shunt system of an oil filter, P 3240f.
**Gunn, E. L.** Metallic contaminants in fluid cracking catalyst, 8055i.
**Gunnar, R. M.,** and Weeks, R. E. Effect of tripelennamine HCl on burn shock, 7135f.
**Gunness, R. C.** Regeneration of a hydrocarbon synthesis catalyst, P 3094e.
**Gunning, H. E.** See Allen, G. A.
——— and Steacie, E. W. R. Hg-photosensitized polymerization of cyclopropane, 7350c.
**Gunsalus, I. C.** Bacterial metabolism, 1458i; see O'Kane, D. J.; Umbreit, W. W.
**Gunter, H.** Oil and gas in Florida, 6126i.
**Gunter, M.,** and Ivy, A. C. Effect of Au administration on liver function, 5118a.
**Gunter, S.** See Tyler, R. G.
**Gunther, D. H.** Evaluation of leveling agents, 3624b.
**Gunther, F. A.** App. for mincing biol. materials, 7541d.
———, Carman, G. E., and Elliot, M. I. Inhibition of the field decompn. of DDT spray deposits on citrus, 5148c.
**Gunther, J. K.,** and Sair, L. Treating fish press water, P 2342a.
**Gunther, M.,** and Stanier, J. E. Diurnal variation in the fat content of breast milk, 8507a.
**Gunther, R. E.** App. for dispersing gases in liquids by means of porous media, P 8c.
**Gunton, R.,** and Burton, A. C. Concn. of protein in samples of normal urine measured by its surface activity, 6691i.
**Guntz, A.** Phosphorescent sulfides, 8893f.
**Gunz, F. W.** Reduction of tetrazolium salts by some biol. agents, 5813c.
**Gunze Industrial Co.** Polymers and condensates, P 6865h.
**Gunze Kogyo K. K.** Same as Gunze Industrial Co.
**Gunze Seishi K. K.** Same as Gunze Spinning Mill Co.
**Gunze Spinning Mill Co.** Extn. and refining of penicillin, P 5553b.
**Gupta, A. K.** Explosive polycondensation of ethylene oxide, 8138e; see Staveley, L. A. K.
**Gupta, C. N.** See Srivastava, B. P.
——— and Srivastava, B. P. Prepn. of Ag proteinates, 7642d.
**Gupta, G. N.** See Dhingra, D. R.
**Gupta, H. N.** See Sen Gupta, S. B.
**Gupta, H. N. D.** See Das-Gupta, H. N.
**Gupta, K. D.** See Das Gupta, K.
**Gupta, K. K.** Spin in Bhabha's theory of elementary particles, 8846a.
**Gupta, M. G.** See Dhingra, D. R.
**Gupta, P. R.,** and Guha, P. C. Antimalarials — $N^1$ - (8 - chloro - 5 - quinolyl)-$N^5$-substituted biguanides, 230i.
**Gupta, P. S.** See Sen-Gupta, P.
**Gupta, R. C.,** and Pandya, K. C. Condensation of malonic acid with aldehydes (XXIII) *o*-ethoxybenzaldehyde, 1030e.
**Gupta, R. N. D.** See Das Gupta, R. N.
**Gupta, R. S.** See Sen Gupta, R.
**Gupta, S. B. S.** See Sen Gupta, S. B.
**Gupta, S. C. D.** See Das Gupta, S. C.
**Gupta, S. K. D.** See Das Gupta, S. K.
**Gupta, S. L.** Max. exchange capacities of ion-exchange resins from their titration curves, 5885e; neutralization curves of ion exchangers, 8237c; see Ganguly, A. K., Mukherjee, S. K.
**Guptill, B.** See Orcutt, J. A.
**Gurd, G. W.,** and Sproule, L. W. Lubricating grease, P 8668i.
**Gurdjian, E. S.,** Webster, J. E., Stone, W. E., and Kopala, J. Relation of cerebral arteriovenous difference in O content to arterial $CO_2$ tension, 3088c; cerebral constituents in relation to blood gases, 5848f.
**Gurevich, A. A.** Catalytic action of chlorophyll-hemin and Fe on oxidation-reduction reactions, 4713e.
**Gurevich, D. A.,** and Orlov, A. I. Metering solids in a continuous process, 3666c.
**Gurevich, D. B.,** Tolstoĭ, N. A., and Feofilov, P. P. Initial stages of the photocond. of $Bi_2S_3$, 6503e.
**Gurevich, K. L.** Vitamin $B_1$ and pyruvic acid in some diseases of internal organs, 3093d.
**Gurevich, S. B.** See Mikhallov, I. G.
**Gurevich, T. N.** See Krasnovskiĭ, A. A.
**Gurevich, V. G.,** and Sigalovskaya, K. K. Removal of harmful gases from air, 6760h.
**Gurevitch, J.** Penicillin sensitivity of bacterial strains, 4339g.
**Gurevitch, M.** Stability of the isobaric pair $In^{115}$–$Sn^{115}$, 4121i.
——— and Teasdale, J. G. Nuclear spin of $Fe^{57}$, 8879b.
**Gurewitsch.** See Gurevich.
**Gurgo-Salice, P. G.** See Bona, G. A.
**Gurin, M. M.** Interaction of Na sulfite with the isomers of bivalent Pt (I), (II), 1674c; isomeric sulfitoammines of Pt (I), (II), 1675c; sulfitoammoniacal compds. of Ir (III), 1676a.
**Gurin, S.** Radioactive techniques in research, 3864f; see Barnes, R. H.; Heinrich, M. R.; Schepartz, B.
——— and Crandall, D. I. Biol. oxidation of fatty acids, 4755c.
**Gurinov, B. P.,** and Kalinushkin, M. P. Chill-casting—labor hygiene, 981f.
**Gurinsky, D. H.** See Borst, L. B.
**Guriye, K. V.,** Srinivasan, M. R., Desai, K. K., and Ray, S. C. Cream heating method of ghee making, 9283g.
**Gurjanowa, E. N.** See Gur'yanova, E. N.
**Gurley, N. F.** See Ruiz Munguia, R.
**Gurney, C.** Effective stress concn. at the end of a crack in materials having at. constitution, 2837f.
——— and Borysowski, Z. Delayed fracture of materials under tension, torsion, and compression, 4048h.
**Gurney, D. M.** Alloy steel in the turret lathe, 89h.
**Gurney, H.** Treatment and utilization of domestic org. waste, 6769d.
**Gurney, R. W.** See Mott, N. F.
**Gurney, W. B.** Anthrafilt as a filter medium, 2717g.
**Gurnham, C. F.** Waste-disposal studies, 4405b.
**Gurnick, R. S.,** and Baldwin, W. M., Jr. High-temp. oxidation of Mn, 8326i.
**Gurton, O. A.** See Bowden, F. P.
**Gurtowski, J. J.** See Barfield, M. L.
**Gurvich, I. A.** See Nazarov, I. N.
**Gurvich, L. L. K.** See Klyachko-Gurvich, L. L.
**Gurvits, S. S.** See Alekseva, M. V.
——— and Podgaits, V. V. Detn. of quartz, 2547c.
**Gurwitsch.** See Gurvich.
**Gur'yanova, E. N.,** and Syrkin, Ya. K. Dipole moments and vibrational spectra of sulfinic acids, 5245e.
**Gusberg, S. B.** See Atkinson, W. B.
**Gusev, N. A.** See Alekseev, A. M.
**Gusev, S. I.,** and Kumov, V. I. Detn. of W, 8957d.
**Guseva, A. R.** Unstable compds. in plants, 1082e, see Shmuk, A.
**Guseva, L. N.** See Ageev, N. V.
**Gussew, Gussewa.** See Gusev, Guseva.
**Gussjew.** See Gusev.
**Gustafson, F. G.** Tryptophan as an intermediate in the synthesis of nicotinic acid, 9177f.
**Gustafson, G. E.** See Koletsky, S.
**Gustafson, H. B.** Ion exchange in water treatment, 4404e.
**Gustafson, T.** Detn. of the dorso-ventral axis in the sea urchin egg, 4390c.
——— and Sävbagen, R. Detn. of the oral side of the sea-urchin egg (I) effect of some detergents on the development, 4390d.
**Gustafsson, A.,** and MacKey, J. Genetical effects of mustard gas substances and neutrons, 3048b.
**Gustafsson, C.** Alk splitting of the condensation product of methone and chloral (II), 2964i.
——— and Johanson, M. Decompn. of chloral hydrate by NaOH in aq. soln., 25g.
**Gustafsson, N.** See Emilsson, B.
**Gustafsson, R. H.** Pilot plant for solvent-extn. studies, 879f.
**Gustavson, K. H.** Accessibility of protein groups—factor in reactions of collagen with high-mol. compds., 1447g; chrome-vegetable tannage, 3640h; structural stability of $CH_2O$-tanned collagen fibers, 4040g; failure of $CH_2O$ fixed by guanidyl groups to effect hydrothermal stabilization of collagen, 4040h; depilatory action of urea, 6447h; chemistry of chrome tanning, 6851b; effect of drying vegetable-tanned hide powder on its reaction with chromic salts and acids, 7781f; evaluation of the action of proteinases on collagen in bating, 7735g; behavior of some long-chained glycoldialdehydes towards collagen, 7735i; H bonding of dihydric phenols on collagen, 7736b; analysis of Cr compds. by means of ion exchangers, 7863e; intermol. organization of mammal and fish collagen and its bearing on the denaturation of collagen, 9510i.
**Gustus, E.** See Cheronis, N. D.
**Gusyatskiĭ, M. L.** Mixing mill, P 6011b.
**Gutcho, S.,** and Stewart, B. D. Cozymase—assay of diphosphopyridine nucleotide prepns., 2265e.
**Gutfreund, H.** See Bailey, K.
——— and Ogston, A. G. Detg. the sedimentation const. of material of low mol. wt.—oxidation products of insulin, 6259f.
**Guth, E.** See Ivey, D. G.; James, H. M.; Mullin, C. J.; Witte, R. S.
——— and Mullin, C. J. Photo- and electrodisintegration of $Be^9$, 8265a.
**Guth, E. P.** See Ridolfo, A. S.
**Guthmann, K.** Gaseous C addn. to the open-hearth furnaces, 7389c.
**Guthof, O.** Toluene and $C_6H_6$ as aids for selective culturing of bacteria, 8432d.
**Guthrie, E. S.** See Krukovsky, V. N.
——— and Krukovsky, V. N. Effect of the elimination of vitamin C on the develop-

ment of the oxidized flavors in homogenized milk, 9280*h*.
**Guthrie, F. C.**, and Nance, J. T. Detn. of free acid and water-sol. phosphate in Ca superphosphate, 7867*b*.
**Guthrie, G., Jr.**, Wilson, J. N., and Schomaker, V. Theory of the thermal diffusion of electrolytes in a Clusius column, 5265*c*.
**Guthrie, J. C.** Integral and differential heats of sorption of water by cellulose, 9433*i*.
**Guthrie, J. D.** Introduction of amino groups into cellulose, P 3208*a*; see Hoffpauir, C. L.; Lesslie, C.; McCall, E. R.
**Guthrie, R.** Purine-requiring mutant strain of *Escherichsa coli*, 3883*c*
**Gutiérrez, A. G. G.** See Garcia-Gutiérrez, A. G.
**Gutiérrez, F. H.** See Hernández Gutiérrez, F.
**Gutierrez de Celis, M.** Prepn. of Cr bromide, 7851*i*.
——— and Mayoral Girauta, C. $NH_4$ compds. of Be and Co halides, 8298*b*.
**Gutiérrez Jodra, L.** See Rius, A
**Gutiérrez Rios, E.**, and Gonzalez Garcia, F. Isomorphous series· montmorillonite-beidellite, 6348*a*.
——— and Hernando, L. Bentonite deposits of Spanish Morocco, 6126*g*, 6547*e*.
——— and Martin Vivaldi, J. L. Silicates of laminar structure (I) hydration, (II) imbibition, 8233*a*.
**Gutira, W. S.** See Gutyrya, V. S.
**Gutkin, A. M.** See Volarovich, M. P.
**Gutkin, S. S.** See Borden, G. C.
**Gutkovskaya, Z. P.** Detn. of Ti in alloy steel contg. Cr and Ni, 5334*i*.
**Gutmann, A.** See Lwoff, A
**Gutmann, F.** See Breyer, B.
**Gutmann, H.** See Ruzicka, L.
**Gutmann, H. R.** See Wood, John L.
**Gutmann, V.** Kinetics of indene polymerization (IV) polyindene peroxides, (VII) acceleration of indene polymerization by polymer oxidation products of indene, 8818*e*; (VIII) polymerization acceleration by O, 8819*a*.
**Gutnik, G. B.** See Korenman, I. M.
**Gutop, V. G.** App. for cooling sheet glass, P 6386*f*.
**Gutorov, I. M.** Treatment of wine casks, P 6362*g*.
**Gutowsky, H. S.** Infrared and Raman spectra of dimethyl Hg and dimethyl Zn, 4572*g*; infrared spectrum of dimethyl Cd, 8882*h*; see Pake, G. E.
——— and Pake, G. E. Nuclear magnetism in studies of mol. structure and rotations in solids—$NH_4$ salts, 1653*d*.
**Gutsche, C. D.** Stereochemistry of the 2-phenylcyclohexanecarboxylic acids and the 2-phenylcyclohexanepropionic acids, 2174*b*; see Johnson, William S.
**Guttenberg, H. v.**, and Kröpelin, L. Effect of heteroauxin on the laminar nodes of *Phaseolus coccineus*, 5828*e*.
**Guttmann, R. T.** See Teske-Guttmann, R.
**Gutyria, W. S.** See Gutyrya, V S.
**Gutyrya, V. S.**, Goncharova, M. A., and Kabanova, M. F. Aromatizing action of aluminosilicates, 3998*g*.
**Gutzeit, C. L.** Autoregenerative catalysts, P 370*e*.
**Gutzeit, G.** Treatment of complex chem. wastes resulting from tank-car-cleaning operations, 8080*a*.
**Gutzwiller, E.** Anthraquinone dyes, P 860*f*; sulfonated aryl thio ethers of phthalocyanines, P 4487*e*; aryl thioethers of metal-contg. phthalocyanines, P 7710*d*.
**Guy, A. G.** Predicting C penetration curves in carburizing, 2144*d*; analysis of interstitial diffusion using activity methods, 7879*d*.
**Guy, J.** Structure of vitamin A, 5464*h*; applications of wave mechanics to the study of the properties of the electron, valence, and the structure of org. mols., 8274*d*; see Delaby, R.; Lecomte, Jean.
**Guy, J. J.** Detg. $CO_2$ in a gas, 910*h*.
**Guy, L. P.** See Holt, L. E., Jr.
**Guy, R.** Synthetic phytoean hormones, 2286*d*; see Hill, Joseph M.
**Guy, T. W.** Coal prepn., 6549*i*.
**Guye, C. E.** L'évolution physico-chemique (book), 1255*a*.
**Guye, P.** Detg. the fineness of cements, 5565*i*.
**Guyer, J. W.** See Bender, H. L.
**Guyer, R. B.** See Kramer, A.
**Guyon, G.** Withering of apple trees in meadow orchards of the Massif Central (France), 8457*i*.
**Guyon, L.** See Colonge, R. A.
**Guzmán, A. R. F. de.** See Freire de Guzmán, A. R.
**Guzmán, G. M.** See Mártin Guzmán, G.
**Guzmán, J.** See Massieu, G. H
**Guzman Barron, E. S.** See Barron, E. S. G.
**Guzmán G., J.**, Cravioto B., R. O., and Miranda, F. de P. Pteroylglutamic acid in Mexican foods, 1494*f*.
**Gverdtsiteli, I. M.** Synthesis of an α-glycol of the $C_4H_8$ series (1,2-diphenyl-3-butyne-1,2-diol), 1754*c*.
**Gwan, O. S.** See Ong, S. G.
**Gwin, G. T.**, and Yule, L. T. Pilot plant, 4522*b*.
**Gwinn, G. R.** Minor nonmetals, 2127*h*.
——— and Balser, E. V. Cement, 2127*a*.
——— and Tucker, E. M. Mica, 2127*e*.
——— and Tucker, G. E. Sand and gravel, 2127*f*.
**Gwinn, H. R.** See Hibbs, R. F.
**Gwinn, W. D.** See Cunningham, G. L.; Neu, J. T.; Thomas, J. R.
**Gwyn, J. D.**, and Williams, C. B., Jr. Protection of glass surfaces, P 7657*b*.
**Gwynn, M. H.** Cleaning metal catalysts, P 6763*d*
**Gyarfas, E. C.** See Dwyer, F. P.
**Gyarfas, K.** See Pollock, G. H.
———, Pollock, G. H , and Stein, S. N. Central inhibitory effects of $CO_2$ (IV) convulsive phenomena, 4770*d*.
**Gyarmati, E.** Detn. of nonprotein N content in horse blood serum, 9129*b*.
**Gyermek, L.** See Issekutz, B., Jr.
**Gyllenberg, H. H.** Influence of $NaNO_2$ on growth of bacteria, 9284*h*.
**György, P.** Urinary excretion of radioactive S, 2322*e*; massive hepatic necrosis —relation of dietary factors to liver injury, 4351*g*; urinary excretion of amino acids, 4364*d*, see Rose, C. S., Tomarelli, R. M.; Wheeler, J. E.
——— and Goldblatt, H Production and prevention of dietary hepatic injury, 3080*e*; treatment of dietary cirrhosis of the liver, 7148*d*.
——— and Rose, C. S. Effect of dietary factors on early mortality and hemoglobinuria in rats following administration of alloxan, 2682*f*; effect of steroid hormones on the fatty liver induced by dietary means, 7560*c*, lipotropic effect of estrogenic hormones, 9203*e*.
———, Williamson, M. B., and Stiller, E. T. Stabilized fat compns., P 1880*f*.
**Györgyi, A. S.** See Szent-Gyorgyi, A.
**Gyorffy, B.** Osmotic pressure of polyploid plants, 1834*d*.
**Gyorki, J.** Detg. cokability of coals, 9414*a*.
**Gyrisco, G. G.** See Marshall, D. S.
———, Newsom, L. D , Marshall, D. S., and Schwardt, H H. Alfalfa snout beetle control, 8599*d*
**Gysin, H.** See Hirt, R.; Martin, Henry.
**Gysling, H.** See Schwarzenbach, G.
**Gyulai, Z.** Crystal growth processes, 8787*f*.
——— and Tomka, P. Deviations from Ohm's law for additively colored alkali halide crystals, 6870*h*
**Gzemski, F. C.** Metal salts of petroleum sulfonates, P 1562*f*, cyclic N-base sulfonate, P 6822*c*; adhesion of asphalt to stone, 7659*f*; adhesivity of bitumens for mineral aggregates, P 7661*b*.
**Gzhitskii, S. Z.** Changes in the components of blood in equine encephalomyelitis, 7122*e*.

**Haab, F.** See Karrer, P.
**Haab, O.** See Karrer, P
**Haag, H. B.** See Larson, P. S.
**Haag, J. R.** See Byers, J H.
**Haagensen, E. A.** Ion exchange operations in a beet-sugar factory, 6141*i*.
**Haagen-Smit, A. J.** Essential oils—their chemistry and production, 4814*b*; see Borsook, H.; Mirov, N. T.; Roboz, E.
**Haagner, W.** See Buchta, E.
**Haaijman, P. W.** See Haayman, P. W.
**Haak, F. A.** See Gerding, H.
**Haan-Homans, L. N. S. de.** Purfying latex, P 6456*e*
——— and Gils, G E. van. *Hevea* latex, 891*d*.
**Haantjes, J.** See Coops, J.; Dammers, E. G.
**Haar, D. ter.** See Ter Haar, D.
**Haardick, H.** See Bielig, H. J.; Kausche, G. A.
**Haas, A. R. C.** Effect of K on citrus trees, 1132*c*, 8018*c*; symptoms of low K in leaves of citrus orchards, 1132*h*; orange fruiting in relation to the blossom-opening period, 8020*b*.
**Haas, E.** Methemoglobin formation (XXVIII) dinitrotolylhydroxylamine, 5863*i*.
**Haas, E. G.** Reducing the adhesion of ice to rubbery surfaces, P 6860*e*.
**Haas, G. de.** Bijdrage tot de kennis van de chemisch-technische verwerking van Damarhars (book), 8178*b*.
**Haas, H.** Comparison of the swelling and soln. mechanism in the formation of viscose from beech and spruce pulps, 2769*g*; compn. of cellulose and wood polyose constituents of various deciduous and coniferous woods, 5587*a*; see Münster, A.; Reiff, F.
**Haas, H. T. A.** Irritant substances and their mode of action, 5115*b*; disturbance of carbohydrate metabolism by 2,4-dinitrophenol and pervitin and its modification by ascorbic acid and adrenocortical hormone, 6308*d*; diuresis expts. with urea and urea derivs., 6308*e*, see Bredereck, H.
**Haas, J.** Wire tempering, P 5357*g*; refinishing hollow ware, 5675*i*; plating practice for Zn-base castings, 7834*e*
**Haas, J. O.** See Schnaebele, R.
**Haas, T. K. de.** Regenerating bauxite used with oil, P 5180*i*; scale problems in drum driers and spray driers, 6473*i*.
**Haas, V. A.**, and Stadtman, E. R. Deterioration of dried fruits—use of ion-exchange resins to identify types of compds. involved in browning, 5128*i*.
——— ——, Stadtman, E. R., Stadtman, F. H , and Mackinney, G. Deterioration of dried fruits (I) effect of sugars and of furfural, 1120*f*.
**Haas, W. O., Jr.** Cooling tools for cutting sol. artificial $NH_4H_2PO_4$ crystals, P 2343*g*.
**Haase, L. W.** Sn corrosion, 9015*e*.
**Haase, R.** Vapor equil. of multicomponent mixts. (III) systems with several liquid phases, 2854*f*, general relations among the coordinates of state in systems of many components, 8833*e*.
**Haase, V.** See Bonhoeffer, K F.
**Haasser, C.** See Forestier, H.
**Haayman, P. W.** See Verwey, E J. W.
——— Romeyn, F. C , and Verwey, E. J. W. Accumulator, P 51*a*
**Haber, C. P.** Cyclic polymeric organoaminosilanes, P 5033*h*, see Brewer, S. D.
**Haber, P. A.**, and Hendrix, B. M Effect of varying H-ion concns on the stability of heated fructose solns , 9040*h*.
**Haberlandt, H.** Emil Dittler, 1229*f*, differentiation of trace elements in minerals, 2137*g*; concn. of rare elements in mineral formations due to addns. of org. origin, 2137*i*; trace elements in modern research and in technology, 3321*f*, geochem. investigations abroad, 5350*c*.
——— and Hernegger, F. U detn. in hyalites and other minerals, 2119*e*.
**Haberman, S.** See Hill, Joseph M.
**Habeshaw, J.** See Birch, S. F.
**Habgood, B. J.**, Hill, R., Morgan, L B., and Imperial Chemical Industries Ltd. Synthetic rubberlike materials, P 2803*g*.
**Habib, E. E.**, and Greenlie, D. G. Coating compn., P 5643*e*.
**Habib, Y. A.** See Eggleton, M. G
**Hablitzel, C. P.** See Jezl, J. L.
——— and Jezl, J. L. Detn. of butadiene dimer (4-vinyl-1-cyclohexene) in 1,3-butadiene, 8975*e*.
**Habs, H.** Bakteriologisches Taschenbuch (book), 7550*d*.
**Hachihama, Y.**, and Imoto, M. Furfural-phenol resins (III) furfural-phenol condensation products obtained with $NH_3$ catalysts, (VI) formation of insol. resin and its chem. compn., (XII) prepn. of oil-sol. furfural-phenol resins, (XIII) reaction of furfural-phenol resin with rosin, 5225*a*.
———, Imoto, M., and Kuwata, T. Furfural-phenol resins (I) condensation of furfural and phenol in the presence of various salts, 5224*h*; (IV) furfural-*p*-cresol condensation product with $NH_3$ and HCl as accelerators, (V) furfural-phenol condensation product with HCl as accelerator, 5225*b*; (X) reaction between furfural and phenol with ferric chloride accelerator, (XI) effect of nitrates as accelerators in relation to the standard electrode potential of the cations, 5226*a*.
———, Imoto, M., Kuwata, T., and Ishii, Y. Furfural-phenol resins (VII) water formed in the furfural-phenol condensation, 5225*f*.
———, Imoto, M., Oiwa, M., and Hayashi, I.

Furfural-phenol resins (XIV) heat hardening of the primary reaction product of furfural and phenol, (XV) prepn. of plywood with furfural-phenol resin, (XVI) direct method for prepn. of plywood, 5226*d*.

——, Imoto, M., and Tsushima, R. Furfural-phenol resins (II) condensation products of furfural with phenol in the presence of alk. catalysts, 5224*i*.

—— and Jodai, S. Catalytic hydrogenation of lignin (IV) catalytic hydrogenation of softwood lignin, (V) phenolic fraction of the catalytic hydrogenation products of softwood lignin, 8674*i*; (XII) fundamental constituent of lignin, 8675*e*; lignin and related compds. (VI) comparison of behaviors of lignins isolated from softwood, hardwood, and grass in course of hydrogenation, (VII) phenols in the hydrogenation products of hardwood and grass lignins, (VIII) phenols in hydrogenation products of lignin, (IX) carbonyl and neutral constituents of the hydrogenation products of softwood lignin, 2427*g*.

——, Jodai, S., Sawai, K., and Nakayama, M. Catalytic hydrogenation of lignin (XI) hydrogenation decompn of Buna wood and bagasse, 8675*d*.

——, Jodai, S., and Takeda, M. Catalytic hydrogenation of lignin (X) hydrogenation decompn. of "Ezomatsu" wood, 8675*c*.

**Hack, C. H.**, Behr, G. E., and Vahrenkamp, G. J. Corrosion-resistant coating, P 9022*g*.

**Hack, M.** Resolving power of photographic emulsions, 8292*g*.

**Hackemann, F.** Formation of sugar in plants—enzyme-catalyzed photochem. reactions, 6703*a*.

**Hacker, W.**, Zimmermann, A., and Rechmann, H. Detn. of small quantities of Fe with thiocyanate, 5331*b*.

**Hackerman, N.** See Glenn, E. E., Jr., Matsen, F. A.; Shock, D. A.

—— and Schmidt, H. R. Adsorption of org corrosion inhibitors on Fe and steel surfaces, 6559*g*; kinetics of the corrosion process in condensate gas wells, 8250*i*.

**Hackett, A.** See Lushbaugh, C. C.

**Hacking, H.** See Bradbury, E.

**Hackman, R. H.**, Pryor, M. G. M., and Todd, A. R. Phenolic substances in arthropods, 3940*b*.

**Hackmann, J. T.** Addn. products of compds. with aliphatic double bonds and peroxy carboxylic acids, P 7503*d*.

**Hackney, F. M. V.** Metabolism of apples (VII) polyphenolase system in apples, (VIII) ascorbic acid oxidase in apples, 4350*e*.

**Hackney, R. L.** Identification of $N_2$ or Monel wire in a woven-wire screen, 2118*e*.

**Hackspill, L.**, and Besson, J. Reduction of $BeCl_2$ by H, 4967*e*; prepns. of $N_2O_5$ and $N_2O_4$, 8935*a*.

—— and Thomas, G. Action of CO on Cs hydroxide (synthesis of cesium formate), 2109*i*.

**Hadaček, J.** Reaction of quinolinic [2,3-pyridinedicarboxylic] anhydride with thiosemicarbazide, 7483*g*.

**Haddad, R. E.**, Goldwater, D. L., and Morgan, F. H. Zr carbide as a thermionic emitter, 8856*i*.

**Haddan, R.**, See Corning Glass Works.

**Hadden, R. P.** See Williams, P. A.

**Hadden, S. T.** Catalytic alkylation by liquid HF, P 5939*a*.

**Haddock, J. L.** Influence of plant population, soil moisture, and N fertilization on the sugar content and yield of sugar beets, 5142*g*.

**Haddock, N. H.** See Coffey, S.

—— and Wood, C. Yellow azo dyes for cotton, P 8146*h*; water-sol. phthalocyanine dyes contg. quaternary or ternary salt groups, P 8172*g*.

——, Wood, C., and Imperial Chemical Industries Ltd. Water-sol. phthalocyanine derivs., P 8173*b*.

**Haddon, C. L.** Plaster of Paris, P 374*e*, 4444*a*.

**Haddow, A.** Action of chem. carcinogens and its relation to the origin of viruses, 1479*g*; see Dick, G. W. A.; Elson, L. A.

**Haddy, F. J.** See Campbell, G. S.

**Hadengue, A.** See Dérobert, L.

**Hadert, H.** Rezeptbuch für Farben- und Lackindustrie. Vol. II (book), 1200*e*; wrinkle formation in coatings, 3631*e*; alkyd resin manuf., 5627*b*; performance tests for wire and cambric varnishes, 7718*d*; polyisobutylene and polyvinyl ether as adhesives, 8737*i*.

**Hadfield, A. W. M.** See Morledge-Hadfield, A. W.

**Hadgraft, J. W.** Emulsifying wax in pharmaceutical and cosmetic prepns., 1528*i*.

**Hadidian, Z.** See Hechter, O.

**Hadley, J.**, Kelly, E. L., Leith, C. E., Segrè, E., Wiegand, C. E., and York, H. *n-p* Scattering with 90- and 40-m.e.v. neutrons, 4106*f*.

**Hadley, R. F.** Environmental pH as a factor in control of anaerobic bacterial corrosion, 547*c*; see Wight, K. M.

**Hadlock, G. B.**, Cox, J. T., Jr., and Burke, O. W., Jr. Synthetic rubber quality, 1125*d*.

**Hadorn, C.** Efficiency of a no. of fungicides against mildew, 8596*i*.

**Hadorn, H.**, and Jungkunz, R. New substance in the unsaponifiable substance of teaseed oil, 1582*e*; how can medicinal soap of the pharmacopoeia be tested for its olive oil content? 5538*g*; detection and approx. detn. of olive oil based on its squalene content, 5973*d*; detn. of small quantities of mineral oil in edible oils, 5974*a*.

**Hadow, H. J.** See Scheffer, H.

**Hadsell, E. M.** See Sauer, R. O.

**Häberli, E.** Detection of *p*-aminosalicylic acid in parenteral solns., 3146*d*; detn of As in pharmaceutical prepns., 3972*i*.

**Haedicke, T. A.**, and Greenspan, E. M. Massive stilbamidine therapy of multiple myeloma, 7571*g*.

**Haefeli, M.** Plastic masses, P 4895*c*; molding compn., P 5633*g*.

**Häfliger, O.** See Prelog, V.; Ruzicka, L.

**Haeger, K.** See Folkow, B.

**Hägglund, E.** Chemistry of the soda pulping process (X) sulfate cooking process, 397*r*. 50 yrs. of wood chemistry, 3607*b*; sulfidity in the sulfate process, 6409*i*; see Abrahamson, B.; Stockman, L.

—— and Webjörn, B. Hardness of wood pulp, 8676*g*.

**Häggroth, S.** See Adler, E.

**Haehl, A.** Zn salt of mercaptobenzimidazole as a deactivating agent for the protection of rubber against natural deterioration (I), 7740*c*, (II), 9516*g*.

**Haemers, H.** Desulfurization in a high-frequency induction furnace, 501*c*; see Bosch, F. M.

**Haendler, H. M.** See Breck, D. W.; Tewksbury, C. I.

**Hänni, H.** Alc. in milk after the feeding of fermented fruit residues, 5876*i*; chem. weed control, 8598*b*.

**Haenny, C.**, Jaccottet, A., and Mayer, R. Detn. of radioactive $Fe^{59}$ in biol. material, 9132*f*.

**Haensel, V.** Catalyst, P 2746*f*; $Al_2O_3$-Pt-halogen catalyst, P 8578*i*; reforming a gasoline, P 8664*g*; see Thomas, C. L.

—— and Sterba, M. J. Pyrolytic and catalytic decompn. of hydrocarbons, 7759*c*.

**Härtel, O.** Cuticular transpiration in plants and its relation to membrane swelling capacity, 730*d*.

**Haeseler, G.** Whey vinegar, 6359*g*.

**Häsing, J.** See Mohr, W.

**Häsnig, A.** See Wunderly, C.

**Häuslerová, O.** Changes in the heavy liquors during storage, 4502*a*; see Pavlas, P.

**Häusser, V.** See Glemser, O.

**Häussler, A.** See Biedebach, F.

**Häussler, E. P.** Vanillin-sulfuric acid reaction (for rotenone) for the detection of other org. compds. (IV), 6105*g*.

**Haeussler, H.** See Rabe, P.

**Hafeli, J. M.** Tung oil—its past, present, and future, 419*i*.

**Hafenrichter, A. L.** See Brown, Robert L.

**Haferkorn, H.** See Lambris, G.

**Haff, R. M.** Color reproduction of black-and-white pictures, P 2881*g*; see Harsh, H. C.

**Haffenreffer, V. K.** See Hegsted, D. M.

**Hafford, B. C.**, and Parsons, J. S. Free-flowing granular nonsoap product, P 9495*c*.

**Hafkesbring, R.**, and Wertenberger, G. E. Effect of sulfonamide administration on cardiac function, 4371*i*.

**Hafner, E. M.** See Davis, K. E.; Heydenburg, N. P.

**Haga, T.** See Nagaki, D.

**Hagan, E.** See Lehmann, G.

**Hagan, L.** See Leslie, C.

**Hagan, R. M.** Autonomic diurnal cycles in the water relations of nonexuding detopped root systems, 8019*b*.

**Hagdahl, L.** Adsorption analysis, 3264*f*.

**Hage, K. O.** See Brannström, P. G. L.

**Hageman, R. H.** Extg. constituents of derris roots, 5149*i*; see Pagán, C.

**Hagemann, G.** Penicillin problem—chem. problem, 4332*h*.

**Hagemeyer, H. J., Jr.** *β*-Lactones, P 1056*a*, 5414*h*; lactones of dicarboxylic acid esters, P 2635*f*; enol acetates of *α*-diketones, P 3451*e*; nitriles, P 3836*d*; prepn. of anhyd. methyl vinyl ketone and methyl isopropenyl ketone, 4219*h*; *β,β'*-oxydipropionic acids, P 5037*d*; ketene condensation products with aldehydes, P 5037*f*; reactions of ketene, 5366*g*; acid anhydrides and acetone, P 8398*e*; see Caldwell, J. R.

—— and Copper, D. S. *β*-Lactones, P 5794*i*.

**Hagen, C. E.**, Clagett, C. O., and Helgeson, E. A. 2,4-Dichlorophenoxyacetic acid inhibition of castor-bean lipase, 8414*a*.

**Hagen, S. K.** See Kühnel-Hagen, S.

**Hagenbach, R.** See Prelog, V.

**Hagenguth, J. H.** High-voltage engineering lab., 8288*e*.

**Hagenmuller, P.** See Chrétien, A.

**Hager, F. D.** Inoculum, P 3066*i*.

**Hager, G. F.** 1,4-Dicyano-2-butene, P 4286*d*; isomerization of 1,4-dicyano-2-butene, P 6647*e*.

**Hager, G. P.** See Jenkins, G. L.

**Hager, H. F.**, Migliaccio, A. V., and Young, R. M. Nocardiosis—pneumonia and empyema due to *Nocardia asteroides*, 9230*h*.

**Hager, O. B.**, *et al.* High-temp. dyeing, 3199*f*.

**Hagerbaumer, W. A.** See Johnson, George L.

**Hagerty, E. B.** See Geiger, E.

**Haggar, G. C.** High-alumina cement in hot climates, 2393*c*.

**Haggenmacher, J. E.** Melting pressure of He II, 1232*d*.

**Hagger, O.** Catalysts for the polymerization of ethenes at room temp., 3231*a*.

**Haggett, E.**, and Archer, S. Prepn. of *β*-(3,4,5-trimethoxybenzoyl)propionic acid, 7003*d*.

**Haggis, G. H.** See Tait, J. F.

**Hagglin, R.**, Grauer, H., and Münchinger, R. Effect of various substances on the activity of heart muscle adenosine triphosphatase, 8058*b*.

**Hagihara, Y.** Electron velocity distribution in celestial gaseous assemblies in radiative equil., 5302*a*.

**Hagino, C.** See Yazawa, S.

**Hagisawa, H.** Detn. of the pH of river water, 7611*g*; hydrolysis of Br, 7799*d*; see Suzuki, T.; Yui, N.

**Hagler, T. B.**, and Scott, L. E. Nutrient element deficiency symptoms of muscadine grapes in sand culture, 9173*h*.

**Haglund, A.** Detn. of insolubles in tanning exts., 4039*b*.

**Haglund, T. R.** Fe and steel, P 9019*d*.

**Hagmann, L. E.** See Connola, D. P.

**Hagner, A. F.** See Beath, O. A.

**Hagood, E. S.** See Brown, C. A.

**Hahn, B.** Felting and fulling of wool, 6423*b*.

**Hahn, E.** See Schwabe, K.

**Hahn, E. L.** Measuring spin-lattice relaxation times, 8878*f*.

**Hahn, Friedrich.** Dets. of P in proteins-contg. substances, 520*e*; see Kausche, G. A.

—— and Kausche, G. A. Arginine in the chem. structure of the tobacco mosaic virus protein, 4732*d*.

**Hahn, Fritz.** Locus of action of metrazole and coramine (I) convulsant and arousing action, (III) action on the central parasympathetic system, (IV) action on the central sympathetic system, 7137*e*.

—— and Bruns, F. Cell-protecting action of org. and inorg. Ca prepns., 5495*a*.

—— and Simon, K. Locus of action of metrazole and coramine (II) action on blood pressure, 7137*e*.

**Hahn, F. L.** Detn. of Fe and Cu, 8303*h*; detn. of dithionite, 8309*h*.

**Hahn, H.** Metal amides and metal nitrides (XVIII) system V-N, 5690*i*.

—— and Gilbert, E. Metal amides and metal nitrides (XIX) Ag nitride, 5691*b*.

**Hahn, J. W.** See Bull, H. B.

**Hahn, L.** See Ek, B.; Elliott, G. de C.; Euler, H. v.

**Hahn, O.** Desintegración at. y nuevos elementos artificiales (book), 1661*e*; discovery of U fission, 3701*e*; Kettenreaktion

des Urans und ihre Bedeutung (book), 6922*f*; Künstliche neue Elemente (book), 6922*g*.
——, Strassmann, F., and Seelmann-Eggebert, W. Chem. sepn. of the elements and at. species arising from the fission of U (I), 4127*f*.
**Hahn, P. F.** Use of radioactive isotopes in the study of Fe and hemoglobin metabolism and the physiology of the erythrocyte, 4710*d*.
**Hahn, R. B.** See Willard, H. H.
**Hahner, C. H.** See Florence, J. M.; Glaze, F. W.
**Haigh, H. S.** Specialty fibers, 8685*h*.
**Haikin, S. E.** See Khaĭkin, S. E.
**Haile, H.** Analysis of MeOH poisoning based on the pathol. and anatomical picture, 7144*f*.
**Haller, E.**, and Heicken, K. Combating industrial anthrax (III) germicidal action of caporit, chloramine, chlorimide, and HCHO against anthrax spores at 20°, 12°, and 4°, (IV) safeguarding the fur and bristle manufg. industry—germicidal action of $H_2O$ and saline solns. of HCHO at elevated temps., 7999*h*.
**Haimovici, H.** Postganglionic site of action of nicotine—action on blood vessels, 760*b*.
**Hain, G. M.** Grease, P 8669*a*; see Zisman, W. A.
**Hainer, R. M.** See King, G. W.; McMahon, H. O.
**Haines, G. S.** Lab. flowmeter, 8745*f*.
**Haines, P. G.**, Eisner, A., and Woodward, C. F. Nornicotine, P 2740*e*.
**Haines, R. L.**, and Ryan, D. E. Org. reagents for Pt metals (II) detn. of Rh, 4974*c*.
**Haines, S. F.** See Keating, F. R., Jr
**Haines, W. J.** See Behrens, O. K.; Ingle, D. J.
**Haines, W. T.** See Mitchell, H. H.
**Hais, I. M.**, and Pecáková, L. Chromatography of riboflavin decompn. products, 7073*f*.
**Halasinsky, M.** Electrochem. study on active and passive Ta, 2101*e*; relations between exchange phenomena and electrochem. phenomena, 6891*b*, see Camarcat, M.; Yang, J.-T.
—— and Cottin, M. Szilard-Chalmers effect in natural α-disintegrations, 8264*c*; sepn. of tellurites and tellurates—application to the study of isotopic exchange, 8310*a*.
——, Cottin, M., and Varjabedian, B. Exchange between metals and their ions in soln. (I) expts., 6890*f*.
——, Faraggi, H., Coche, A., and Avignon, P. Electrolytic deposits of Po in extremely dil. solns., 8285*g*.
and Lefort, M. Oxidations and reductions induced by α-particles and x-rays, 4581*a*.
**Hajdu, I.** See Beznák, A. B. L.; Beznák, M.
——, Beznák, M., and Gáspár-Rády, Z. Autonomic innervation of the heart in regulating the blood sugar, 9199*g*.
**Hajdukiewicz, S.** Safety measures in the Polish superphosphate industry, 8595*b*.
**Hájíček, O.** Binary alloys contg. a eutectic, 4935*d*.
**Hak, D. P. A.** See Waterman, H. I
**Hakala, M.** See Virtanen, A. I.
**Hakanson, E. Y.**, and Glick, D. Mucolytic enzyme systems (III) inhibition of hyaluronidase by serum in human cancer, 3094*g*.
**Hála, E.** Dropping-Hg electrode in nonwatery media (I) anhydrous AcOH, 2874*a*.
**Halasz, M.** Quant. investigations of bilirubin in serum and urine, 3913*c*.
**Halban, H.** See Beghian, L. E.; Bishop, G. R.; Wilson, R.
**Halban, H. v.** Light absorption in the investigation of electrolytes, 2868*i*; see Schmid, H.
—— and Litmanowitsch, M. Ion assocn. and absorption spectra (IV), 4568*i*.
**Halbedel, H. S.** See Heath, J. C.
**Halbeisen, W. A.** See Gruber, C. M., Jr.
**Halbinger, R. E.** Clarification of fruit juices by enzymes from microörganisms, 8069*h*.
**Halbsguth, W.** Requirements for growth in culture of *Tilletia tritici* haploid clones on defined substrates and the response of various clones to individual factors as regards growth, formation of conidia, and germination of conidia, 7543*d*.
**Hald, J.** See Asmussen, E.
—— and Jacobsen, E. Formation of AcH in the organism after ingestion of antabuse and ethanol, 4379*f*; drug sensitizing the organism to EtOH, 5501*a*.
——, Jacobsen, E., and Larsen, V. Sensitizing effect of tetraethylthiuram disulfide to ethanol, 4379*c*.
**Hald, P. M.**, Heinsen, A. J., and Peters, J. P. Estn of serum Na from bicarbonate plus chloride, 6692*a*.
**Haldane, D.** Limestones of Scotland (VIII) Orkney and Shetland, 4986*b*.
**Haldar, B. C.** Basic sulfates of bivalent metals (IV) Be, (V) Ni, 4967*g*; complex formation between cupric ion ($Cu^{++}$) and pyrophosphate radical ($P_2O_7^{-4}$), 6104*a*.
—— and Banerjee, S. Ferric thiosulfate complex, 6536*b*.
**Halden, W.** Analysis of the substances accompanying the fats (I) phospholipides, 4029*h*.
**Hale, C. H.** Analysis of Fischer synthesis catalyst, 60*a*.
**Hale, D. H.** High-frequency-excited spectra of A, Kr, and Xe in the near infrared, 4090*g*; at. bomb and hazardous radiation, 6505*a*.
**Hale, F.** See Kuiken, K. A.
**Hale, G. C.** Delay powder, P 408*e*; ethylenеurea, P 691*h*; explosive compn., P 6827*c*.
—— and Hart, D. Fuse powder, P 3620*b*, 4856*b*, 5189*f*.
**Hale, J. B.** Mineral compn. of leaflets in relation to chlorosis and bronzing of oil palms in W. Africa, 7088*g*.
**Hale, M. G.** See Wallerstein, J. S.
**Hale, T. A.** Soldering flux, P 3343*c*.
**Hale, W. J.** Tobacco compn., P 3152*ab*; Farmer Victorious (A chemical diagnosis and chemurgic forecast of the role of the farmer) (book), 7176*a*.
**Hales, H. B.** See Tager, M.
**Hales, J. L.** See Coulson, E. A.
**Hales, J. S.** B.C.U.R.A. central-draught producer for road vehicles, 1547*f*.
**Hales, R. A.** Phenolphthalein β,β'-diglucoside, P 689*i*; see Creighton, H. J.
**Halewijn, A. van.** Mixer and cooler for cellulose solns. prepd. for spinning, P 6416*d*.
**Haley, T. J.** Microtoxicology (I) color reactions of sympathomimetic amines, 3563*i*; antihistaminic drugs, 8551*e*, see Thienes, C. H.
—— and Harris, D. H. Effect of topically applied antihistaminic drugs on the mammalian capillary bed, 4381*i*.
—— and Keenan, G. L. Microtoxicology (IV) identification of antihistaminic drugs of the thenyl series, 8611*g*; (V) colorimetric reactions and optical crystallographic properties of several antihistaminics of unrelated structures, (VI) identification and differentiation of the antihistaminic drugs related to benadryl, pyribenzamine, and antergan, 9366*d*.
**Halford, J. O.** Hindered rotation in EtOH, 4527*f*; deviation from perfect gas behavior to the entropy and heat capacity—water and benzene, 7280*h*.
**Halford, R. S.** See Keller, W. E.; Winston, H.
**Halfter, G.** Spark test of steels, 8965*d*.
**Halkerston, J. M.** See Reiss, M.
**Hall, A.** Vitreous enameling nameplates, 372*h*.
**Hall, A. D.** Fertilizers and Manures (book), 8596*d*.
**Hall, A. G.**, and Bayer, A. R. Mech. dehydration of water-gas tar emulsions, 837*c*.
**Hall, Alvah G.** See Katz, Alexander.
**Hall, A. H.** See Green, J. E.
**Hall, A. J.** Chemicals to aid textile finishing, 7689*h*; polyamides for new synthetic fibers, 8685*g*; acrylonitrile and fiber synthesis, 9456*b*; properties of rayon and synthetic fibers in relation to their moisture-absorption qualities, 9457*i*.
**Hall, A. M.**, and Hoyt, S. L. Graphitization of piping for the E.E.I. and A.E.I.C., 534*g*.
**Hall, C. A.**, and Drill, V. A. Lipotropic effect of liver ext. on dietary hepatic injury, 734*e*; relation of fat and protein intake to fatty changes, fibrosis, and necrosis of the liver, 8894*i*.
——, Frame, B., and Drill, V. A. Renal excretion of water and antidiuretic substances in patients with hepatic cirrhosis and rats with dietary liver injury, 8043*g*.
**Hall, C. C.** See Daseley, G. H.; Gall, D.
**Hall, Cecil E.** Electron microscopy of fibrinogen and fibrin, 3867*e*, 7524*f*; measuring spherical aberration of an electron-microscope objective, 6073*h*.
**Hall, Charles E.** See Ogden, E.
**Hall, C. M.** See Boatner, C. H.; Eagle, E.; Williams, P. A.
——, Castillon, L. E., Guice, W. A., and Boatner, C. H. Detn. of gossypol in cottonseed and cottonseed products, 1581*a*.
**Hall, D. A.** Natural precursor of the folic acid complex, 722*b*; see Chattaway, F. W.
**Hall, D. M.** Rearrangement of some arylbenzimidoquinolyl esters, 1777*e*.
—— and Turner, E. E. Structure and antimalarial activity (III) benzimidazoles, 2992*g*.
**Hall, E. L.** Hall process for producing high B. t. u. gas, 7665*g*; catalytic reforming and thermal cracking, 9415*b*; see Chaney, N. K.
**Hall, G.** Tech. service, 3615*h*.
**Hall, G. A., Jr.** Kinetics of the decompn. of malonic acid in aq. soln., 7797*f*.
**Hall, G. L.** See Conant, F. S.
**Hall, G. O.** Stabilizing the color of red fruits, P 9294*f*.
**Hall, H. C.**, and Wheeler, M. A. Al alloy, P 555*e*.
**Hall, H. E.** See Boehm, R. M.; Shearon, W. H., Jr.
**Hall, H. G.** Graphitization in the malleable Fe process, 6554*e*.
**Hall, H. H.**, and Teunisson, D. J. Uniformity of quality of beet sugars (XXVII) (2) biol. studies of sugars, 1203*d*.
**Hall, H. T.** Possibility of hardening the α solid soln of selected binary Mg alloys by the addn. of 1% of rare-earth metals, 3334*c*.
**Hall, H. W.**, Halliday, I. G., Johnson, W. A., and Walker, S. Wave-guide measurement of dielec. absorption of solns. of polar substances in nonpolar solvents, 6019*e*.
**Hall, J. A.** Influence of smoke and atm. absorption on optical pyrometry in steelworks, 2908*b*, see Aschaffenburg, R.
**Hall, J. M.** Spray drier comprising a single chamber for the entire dehydrating operation, P 6874*h*.
**Hall, K.** Progesterone in the mechanism of pelvic relaxation, 7565*b*.
**Hall, L.** See Chow, B. F.
**Hall, L. A.** Papain powder formulation, P 3947*e*, phospholipide carrier for antioxidant, P 6333*e*, gelatin-base coating for food, etc., P 8570*i*, see Klee, L.
—— and Gershbein, L. L. Fat antioxidant, P 6333*f*.
**Hall, L. D.** See Katcoff, S.
**Hall, M. B.** See Sponer, H.
**Hall, M. W.**, and Piret, E. L. Distn. principles of HCHO solns.—state of HCHO in the vapor phase, 6470*h*
**Hall, N.** See Kellner, H. L.
**Hall, N. A.**, and Dille, J. M. Pharmacology of 7 malonylguanidines, 7130*d*
**Hall, N. F.** Wisconsin chem. pioneer—scientific work of Louis Kahlenberg, 8761*a*; see Meinhard, J. E.; Templeton, C. C.
**Hall, N. S.** See McAuliffe, C. D.
—— and MacKenzie, A. J. Measurement of radioactive P, 935*e*.
**Hall, P. W.** See Selkurt, E. E.
**Hall, R. E.**, and Smith, J. M. Design of gas-solid catalytic reactors, 6471*h*.
**Hall, Ralph E.** Treatment of steam-boiler water, P 8080*i*.
**Hall, R. H.** See Conabere, G. O.; Distillers Co., Ltd.
—— and Mitton, R. C. Water absorption of vegetable-tanned sole leathers, 427*f*.
**Hall, Ronald H.** See Kaufmann, C.
**Hall, R. L.** Do spent hops and spent grain press liquor have value? 4423*f*.
**Hall, R. N.** High-frequency proton source, 3281*a*.
**Hall, R. T.** Role of analytical research, 519*d*.
**Hall, R. W.** See Read, H. J.
**Hall, S. A.** Tetraethyl pyrophosphate analysis, 7375*e*.
—— and Jacobson, M. Hexaethyl tetraphosphate and tetraethyl pyrophosphate, 120*i*; chem. assay of tetraethyl pyrophosphate, 4417*f*.
**Hall, T. A.**, and Warshaw, S. D. Detn. of the rates of energy loss of $H^1$ and $H^2$ nuclei in Au and Al, 4123*f*.
**Hall, T. D.**, Meredith, D., and Murray, S. M. Dry matter and protein of pastures as affected by amts. and forms of N applied, 340*i*.
**Hall, T. S.**, and Moog, F. Na azide as an inhibitor of amphibian development, 8563*d*.

**Hall, V. E.** See Ellis, F. A.; Peiss, C. N.
——, Attardo, F. P., and Perryman, J. H. Influence of dinitrophenol on body temp. threshold for thermal polypnea, 2321*a*.
**Hall, W. A.** See Myers, W. A.
——, and Weston, R. F. Maintenance of heat transfer by cooling-water treatment, 8217*h*.
**Hall, W. H.** See Malcolm, J.
**Hall, W. Keith.** See Anderson, R. B.
**Hall, W. Knowlton.** See Bowles, L. L.
**Halla, F.** Kosmetik und allgemeine Pathologie (book), 1104*d*; see Castelliz, L.; Frauenschill, H.
—— and Schützner, W. Kinetics of indene polymerization (V) reaction kinetics of indene vulcanization, (VI) further polymerization of indene fractions, 8818*g*.
**Hallama, R.** See Farnell, G. C.
**Hallas, H. L.** Wet finishing of woolens and worsteds, 4470*g*.
**Haller, C. v.** Changes in protein, water, and salt economy after acute injury of the peritoneum, 5483*g*.
**Haller, E. C.** See Berry, L. J.
**Haller, H.**, and Mirimanoff, A Cultivation of officinal plants in synthetic media—*Datura innoxia* 1529*g*.
**Haller, H. L. J.** Analyzing insecticides, 8086*h*; see Fleck, E. E., Gertler, S. I.
**Haller, J. F.** $ClO_2$, P 1928*i*
**Haller, R.** Characteristics of the sol. starches 5979*i*.
**Hallett, M. M.** Corrosion-resisting Ni-base alloy castings, 3335*e*.
**Halliburton, G. J.**, and McIlroy, R. J. Trityl derivs of D-arabofuranose, 7430*b*.
**Halliday, D.** See Cummerow, R. L.; Wheatley, J.
—— and Wheatley, J. Paramagnetic resonance absorption, 1619*f*, 2053*g*.
**Halliday, E. G.** See Sheft, B. B.
**Halliday, I. G.** See Hull, H. W.
**Halliday, I. M. D.**, and Philip, A. R. Open-hearth-flow models (III) flow patterns in model furnaces, 7878*c*
**Halliday, T. W.**, and Joseph, G. H. Supplemental therapeutic food, P 3151*e*
**Halliday, W. M.** Quality control in plastic molding (II), 2028*c*; (XIV), (XVI), (XVII), 9524*f*, designing for plastics molding, 9524*e*
**Hallimond, A. F.** Manual of the Polarizing Microscope (book), 1618*a*.
—— and Harvey, C. O. Pyroxenes, amphibole, and mica from the Tiree marble, 4606*b*
**Halling, M. S.** See Ingleman, B.
**Hallinger, L.** See LeVeen, H. H.
**Hallion, T. G.** See Gayet-Hallion, T.
**Hall Laboratories, Inc.** Retarding the reversion of alkali-metal phosphate glass in aq. solns., P 6793*i*; treatment of steam-boiler water, P 8080*i*; stabilizing the color of red fruits, P 9294*g*.
**Hallock, H. C.** See Douglass, J. R.
**Hallock, L. L.** See Steck, E. A.
**Hallopeau, J.** Water filtration at Relizane (Dept. Oran, Algeria), 791*c*.
**Hallowell, A. T.** Aryl trichlorothiolacetates in elastomer treatment, P 4046*e*, xylyl trichlorothiolacetate, P 6064*d*; see Frank, C. E.
**Hallowes, A. P. C.** Working behavior of P-deoxidized coppers contg Bi, 83*e*; embrittlement of tough-pitch Cu by Bi, 6555*d*, see Baker, W. A.
**Halls, E. E.** Marking processes and media for plastics, 2027*d*; electroplate finishes on Zn-base die castings, 3727*a*, plating and pickling Be-Cu components, 3727*h*; wax and paint fillers for engraving, 5199*i*; halogenated gases for gaseous insulation, 6337*f*; phosphate processes for Fe and steel—rustproofing, 7395*i*, 9008*g*; electroplating on Al for aircraft components, 7883*e*.
**Hallsworth, E. G.** See Clowes, G. J.; Reid, R. L.
**Halm, L.** Test method for silica bricks, 8114*f*.
**Halmágyi, D.** See Koltay, M.
—— and Zelenka, L. Hypochloruria characteristic to kidney disturbancies of gravid women, 8517*b*.
**Halmi, P.** Tea substitute, P 1880*i*.
**Halmy, J. B.** See Bencze, B.
**Halpern, A.** Detn. of aldehydes, 5341*b*; surface tension of oils, 6878*h*; assay of ascaridole (II) iodination of terpenes, 7190*i*; see Szmant, H. H.
—— and Glasser, A. C. Hydrophilic properties of possible ointment-base constituents (III) fatty mercaptans, 8610*a*.
—— and Hartwell, L. M. Effect of water on the efficiency of antiseptics in W/O emulsions, 5533*b*.
——, Jones, J. W., and Gross, E. G. Synthesis and study of mercurated *N*-allylbarbital derivs., 2169*g*
—— and Squeglia, N. Hydrophilic properties of possible ointment-base constituents (IV) fatty acid esters of the polyhydroxy alcs., 8610*a*.
—— and Wilkins, W. J. Hydrophilic properties of possible ointment-base constituents (II) *n*-alkyl alcs. with a C chain length of $C_{10}$ to $C_{18}$, 8609*i*.
**Halpern, B. N.** See Dolkart, R. E.; Kourilsky, R.; Vallery-Radot, P.
——, Bazin, S., and Gaudin, O. Influence of the cation on permeability of skin and cells to salicylates—cell permeability in fresh-water algae, 3495*f*.
—— and Caudin, O. Action of some choleretics on the bile of a dog with permanent biliary fistula, 2318*f*
——, Gaudin, O., and Stiffel, C. Influence of the cation on the permeability of skin and cells to salicylates—cutaneous absorption, 3520*b*.
——, Guillaumat, L., and Cruchaud, S. Action of antihistaminics on the permeability of the capillaries of the hemato-ocular barrier, 1107*i*, action of histamine and synthetic antihistaminics on the permeability of the capillaries of the hematoocular barrier, 3526*a*.
——, Hamburger, J., and Cruchaud, S. Preventive action of an antihistamine derived from thiodiphenylamine on edema of the lungs, 320*b*.
—— and Reber, H. Action of the synthetic antihistamine RP3277 on local inflammatory phenomena of bacterial origin 9248*g*.
—— and Reuse, J. Action of synthetic antihistaminic agents on the imbibition of striated muscle, 6318*f*.
——, Vermeil G. and Cruchaud, S. Histamine and the acute edema of the lungs produced by adrenaline, 4380*e*.
**Halpern, G. R.**, and Biely, J. Utilization of vitamin A in various carriers, 290*g*
——, March, B., and Biely, J. Stability and utilization of vitamin A emulsions in mixed feeds, 8466*a*
**Halpern, I.** $(\alpha,n)$ Cross sections of Be, Mg, and Al, 8265*e*, see Woodward, W. M.
**Halpern, J.** See Franzen, W.
**Halpern, O.** Scattering of neutrons by Or mols., 4092*g*; small-angle diffraction in lattices, 4094*c*.
**Halpern, P. E.** See Stevens, C. M.
**Halpin, J. G.** See Couch, J. R.; Cravens, W. W.; Robblee, A. R.
**Halsall, T. G.**, Hirst, E. L., Jones, J. K. N., and Sansome, F. W. Amylose content of the starch present in the growing potato tuber, 2284*e*
**Halse, K.** See Breirem, K.
**Halse, M.**, and Thorvik, Å. Stability of glyceryl trinitrate tablets, 5903*h*.
**Halse, T.** Dicoumarol properties and application, 3105*i*; effect of heparin on fibrinolysis (I), 6735*i*; (II), 9251*g*.
—— and Natusch, H. G. Coagulation activity of thrombokinase and its significance and usefulness for prothrombin time detn., 5819*i*.
—— and Schmitz, M. Thrombostatic and thrombolytic effects of a synthetic heparin prepn.—the heparinoid thrombocid, 8533*f*.
**Halut, R. E.** Tech applications of electrolytic polishing, 7834*i*.
**Halverson, A. W.**, and Hart, E. B. Influence of water levels and temp. of storage on carotene preservation in dehydrated alfalfa, cereal grasses, and mixed feeds, 1879*h*.
——, Zepplin, M., and Hart, E. B. Relation of I to the goitrogenic properties of soybeans, 7557*i*
**Halverson, F.** See Stamm, R. F.
**Halverstadt, I. F.** See Dessert, A. M.; Sutherland, L. H.
**Halvorsen, G. G.** See Bollaert, A. R.
**Halwer, M.** Light scattering by sucrose solns. at high concns., 3268*a*
—— and Brice, B. A. Mol. wt. of $\beta$-lactoglobulin, 7787*e*.
**Ham, G. E.** Copolymers of vinyl acetate, vinyl benzoate, and an alkyl acrylate, P 9532*e*; see Fordyce, R. G.; Mowry, D. T.
**Ham, L. B.** See Schneider, W. A.
**Ham, V. S., Jr.**, and Palmer, G. D. Lignin resins, 2807*h*.
**Ham, W. E.**, and Samans, C. H. Effects of electronic transitions on precision thermometry, 2501*c*.
**Hamada, M.**, Sasakawa, T., and Ono, M. Correlation between the chem. constitution and the insecticidal activity of halogenated aromatic compds. (I) DDT and its related compds., (II) Gammexane and related compds., (III) diphenylmethane series, 5894*c*.
——, Yamamoto, A., and Yasue, Y. Insecticide — 1,2,3,4,5,6 - hexachlorocyclohexane, 9341*h*.
**Hamai, S.**, Hayashi, S., and Shimamura, K. Physicochem. investigation on catalytic mechanism (III) desorption of various gases from the catalyst used in Fischer-Tropsch synthesis, 2401*h*.
**Hamaker, J.** Detn. of volatiles in bituminous coals on an ash-and-water-free basis, 377*a*; detn. of the S content of solid fuels (I), 3593*c*; (II), 8117*e*.
**Hamalainen, C.** See Georges, L. W.
—— and Reid, J. D. Partial acetylation of cotton cellulose by ketene, 5595*c*.
**Haman, R. W.** See Fosnot, R. H.
**Hamann, A.** See Palmer, W. L.
**Hamann, V.** Detn. of soybean content of fresh sausage, 1876*h*.
**Hamaoka, S.** See Naito, H.
**Hamashima, M.** Deodorization of chrysalis oil, P 7241*i*.
**Hamberg, U.** See Bergström, S.; Euler, U. S. v.
**Hamblet, C. H.** See Weber, A. G.
**Hambleton, J.** See Krejci, L. E.
**Hambourger, W. E.** See Winbury, M. M.
——, Freese, H. B., Winbury, M. M., and Michiels, P. M. Protective action of diphenylhydramine and aminophylline in fatal bronchospasm due to mecholyl aerosol, 1861*f*.
**Hamburger, C.**, and Østergaard, E. Detn. of antihormones against pregnant mares' serum hormone, 5479*a*.
—— and Rasch, G. Detn. of 17-ketosteroids in urine, 3874*e*.
**Hamburger, G. E.**, and Buerger, M. J. Tourmaline, 8987*c*.
**Hamburger, J.** See Halpern, B. N.; Vallery-Radot, P.
——, Ryckewaert, A., Duizend, M., and Argant, N. Microestn. of mannitol in blood and urine—clearance of this substance, 6271*e*, microestn of *p*-aminohippuric acid in blood and urine—clearance of this substance, 6271*s*, function tests for glomeruli and tubules of the kidneys, 9224*c*.
**Hamburger, W. J.** Elastic performance of textile materials (II) application of sonic techniques to the investigations of the effect of viscoelastic behavior on stress-strain relationships in high polymers, 1573*e*.
**Hamel, C., Spinn- & Zwirnereimaschinen A.-G.** Thermoplastic fibers, P 6386*e*; filaments, cords, bands, etc., from fusible materials, P 9474*b*.
**Hamelin, A.** See Bonnemay, M.
**Hamence, J. H.** Effects of org. manures on the auxin content of soils and the "auxin balance" in soils, 3958*e*.
**Hamer, A.** See Cropper, F. R.
**Hamer, D.**, and Woodhouse, D. L. Amino acid compn. of salmine, 7524*a*.
**Hamer, F. M.** Unsym. pentamethincyanine dyes and their tetramethin intermediates, 6928*e*; see Kodak Ltd.
——, Rathbone, R. J., and Winton, B. S. Trinuclear cyanine dyes (II) neocyanines with dissimilar nuclei, 2527*i*.
**Hamer, W. J.**, and Schrodt, J. P. Galvanic cells with solid and molten electrolytes, 8288*f*.
**Hamermesh B.**, Hamermesh, M., and Wattenberg, A. Angular distribution of the photoneutrons from Be, 8855*b*.
**Hamermesh, M.** Total reflection of neutrons on Co, 6505*f*; see Borowitz, S.; Hamermesh, B.
**Hames, F. A.**, and Eppelsheimer, D. S. Ferromagnetic Mn alloys, 3765*g*; ferromagnetic alloys in the systems Cu-Mn-In and Cu-Mn-Ga, 9012*d*.
**Hamet, R.** See Raymond-Hamet.
**Hamill, W. H.** See Engelkemeir, A. G.; Williams, Russell R., Jr.
—— and Williams, R. R., Jr. Kinetics of Br following neutron capture, 2078*a*.
——, Williams, R. R., Jr., and Schuler, R. H. Lab. exercises in nuclear chemistry (II) activation and detection, 8261*a*.
—— and Young, J. A. Efficiency of the internal conversion process in $Br^{80}$, 4563*g*.
**Hamilton, A.**, and Sillars, R. W. Spark

quenching at relay contacts interrupting d.-c. circuits, 3732*a*.
**Hamilton, Alice.** 40 yrs. in the poisonous trades, 6759*h*.
——— and Hardy, H. L. Industrial Toxicology (book), 8074*h*.
**Hamilton, A. L.** Eradication of St. John's wort, 2359*c*.
**Hamilton, A. S.** Demonstration of isoagglutination with the bloods of normal and of ill dogs, 1859*c*.
**Hamilton, C. F.** Radioactive iodocasein—its action, fate, and distribution, 9255*b*.
———, Albert, A., and Power, M. H. Bioassay of calorigenic substances using tadpoles of *Xenopus laevis*, 7994*f*.
———, Power, M. H., and Albert, A. Prepn. of radioactive iodocasein, 4305*g*.
**Hamilton, C. S.** See Johnson, F. E.; Stepan, A. H.
**Hamilton, C. W.** See Bissinger, W. E.
**Hamilton, D. M.** See Hehre, E. J.
**Hamilton, D. W.** Oriental fruit moth control with DDT, 5527*e*.
**Hamilton, E. M.** See Lips, H. J.
**Hamilton, G. M.** See British Insulated Callender's Cables Ltd.
**Hamilton, G. N. G.** South African building materials, 8115*f*.
**Hamilton, H. S.**, Westfall, B. A., and Ferguson, J. K. W. Comparison of 9 local anesthetics, 1110*i*.
**Hamilton, J.**, and Kennaway, T. Pressure relations in coke ovens, 5173*b*.
**Hamilton, Joseph.** See Dickey, R. D.
**Hamilton, J. B.** Testicular secretions, 6717*a*.
**Hamilton, J. C.** See Fletcher, J. H.
**Hamilton, J. G.** Metabolic properties of the fission products and actinide elements, 3497*i*; metabolism of the radioactive elements created by nuclear fission, 6318*e*; see Crowley, J. F.; Scott, K. G.
**Hamilton, J. H.**, and Wolf, C. S. Coking expts. on western coals, 3598*c*.
**Hamilton, J. M.** Fungicide tests for the control of apple diseases, 9327*c*.
**Hamilton, L. A.**, and Pedersen, C. J. Condensation products of tris(2-aminoethyl)-amine and β-diketones or hydroxymethylene ketones, P 3839*i*.
**Hamilton, M. A.** See Creech, H. J.
**Hamilton, M. H.** See Toland, W. C.
**Hamilton, R. M.** See Nichols, P. L., Jr., Talley, E. A.
——— and Yanovsky, E. Mixed allyl ethers of starch, P 4038*c*.
**Hamilton, T.** Centrifugal amalgamator, P 7402*d*.
**Hamilton, T. R.** See Miller, Herbert C.
**Hamilton, T. S.** See Bricker, M. L.; Mitchell, H. H.
**Hamilton, W. F.** Human Physiology (book), 9215*i*.
———, George, M. F., Jr., and Simon, E. Salts of sulfanilamides and vasopressor amines, P 9389*g*.
**Hamjian, H. J.**, and Lidman, W. G. Bonding between metals and ceramics (I) Ni, Co, Fe, or Cr with B carbide, 9402*b*.
**Hamlin, A. G.** Destruction of org. matter by acid ashing—use of $HClO_4$ in the oxidation of textile materials, 6420*f*.
**Hamlin, H. P.** See Klinefelter, T. A.
**Hamlin, K. E.** See Fieser, L. F.
——— and Weston, A. W. Synthesis of *N*-(3-methoxybenzyl)-*N*-methyl-3-methoxy-4,5-methylenedioxyphenethylamine, 9046*d*.
**Hamm, A.** See Franke, W.
**Hamm, F. A.** See Comer, J. J.
——— and Van Norman, E. Transformations in org. pigments, 2483*d*.
**Hamm, R.** See Schöberl, A.
**Hammack, K. C.** See Feenberg, E.
**Hammar, H. E.**, and Hunter, J. H. Influence of fertilizer treatment on the chem compn. of Moore pecan leaves during nut development, 2287*d*.
**Hammarsten, E.** See Abrams, R.; Arvidson, H.; Bergstrand, A.; Bergström, S.; Edman, P.
**Hammel, E. F.** See Grilly, E. R.; Sydoriak, S. G.
**Hammer, A. J.** Detn. of sol. salts in ceramic clay (I), 9404*a*.
———, B. W. See Horneman, H. C.
———, C. L. See Lucas, E. H.; Mitchell, A. E.
**Hammer, F. E.**, and Hoecker, F. E. Measuring the stopping power of several materials for α-particles, 7327*c*.
———, J. M. See Pearson, I. A.
**Hammer, K.** Glass reflection by metal oxide films, 3161*g*.
**Hammer, O.**, and Karmo, E. Poisonous effect on honey bees of the chemicals used for plant protection, 343*i*.
**Hammer, O. H.** Triethanolamine salt of dinitro-*o*-*sec*-butylphenol to control pests on fruit trees, 5897*h*.
**Hammerich, T.** Antiknock agents (I) $Pb(Et)_4$, (II) blending agents—benzene and alc., 7674*a*.
**Hammerton, C.** Effect of $H_2S$ on cement, 2346*g*.
**Hammett, L. P.** See Crowell, T. I.; Haskell, V. C.
**Hammick, D. L.** See Armstrong, G. P.; Asquith, R. S.; Brown, B. R.; Given, P. H.
——— and Thewlis, B. H. Prepn. of lepidine, 1415*b*.
**Hammock, E. W.**, Beavon, D., and Swift, E. H. Titration of thiocyanate, 8968*h*.
———, Brown, R. A., and Swift, E. H. ICl end point in titration of tripositive Sb—titration with iodate, permanganate, and ceric solns., 1280*h*.
**Hammond, A.**, Michener, J., Koehler, J., and Salkovitz, E. Damping capacity of anodized Al, 4066*g*.
**Hammond, A. R.**, John, J. A., and Page, R. Chlorinated aliphatic acids, P 6650*g*.
**Hammond, A. S.** Soil-cement mixts., P 5568*f*.
**Hammond, C. G.** Soil-cement mixts., P 5568*f*.
**Hammond, G. L.** Phys. testing of rubber—quality products, 3643*c*; qual. detection of $TiO_2$ in rubber, 8723*e*.
——— and Moakes, R. C. W. Evaluation of synthetic rubbers for fabric-to-fabric adhesion, 2800*i*.
**Hammond, G. S.** See Bartlett, Paul Doughty.
**Hammond, H. O.** See Millar, W. T.
**Hammond, L. D.** Detn. of lactose alone and in the presence of sucrose by the method of Munson and Walker, 4181*f*.
**Hammond, P.** Geology of Allard Lake ilmenite deposits, 6546*d*.
**Hammond, Rolt.** Instrumentation in the research lab., 5645*b*; compressed air in chem. engineering, 5645*c*.
**Hammond, Roy**, Crawford, J. W. C., and Imperial Chemical Industries Ltd. Polymerizable materials, P 1219*b*.
——— and Imperial Chemical Industries Ltd. Polymerizable materials and polymers, P 1608*f*, 1609*c*.
**Hammond, W. T. C.** See Berger, L., & Sons, Ltd.
**Hammons, J. G.** Efficiency of anhyd. ammonia as a source of N on fall-planted oats for forage and grain production, 1890*h*.
**Hamner, C. L.** See Felber, I. M.; Krone, P. R.; Luecke, Richard W.; Sell, H. M.
**Hamoir, G.** Myosins of fish and rabbit, 8485*a*.
**Hamon, V.** Relations between the structure, chem. reactivity, and therapeutic activity of several azobenzene derivs., 4379*a*.
**Hamontre, H. C.** See Eilerts, C. K.
**Hamor, G. H.**, Suchy, J. F., and Waldon, C. H. Pyrethrum flowers, 8602*f*.
**Hamor, W. A.** Chemists and history of steel, 8327*g*; see Emery, A. H.
**Hamous, J.** Quality of molasses as influenced by the economy of labor, 8715*c*.
——— and Mudrák, O. Sugar-manuf. expts. with activated bauxite, Porocel, 6848*g*.
**Hampel, C. A.** Elimination of tastes and odors in water, P 1888*d*.
**Hampel, G.** Detn. of fat, the columnar method, 5072*g*.
**Hampson, H.** See Courtaulds Ltd.
**Hampton, B. L.** Polymerization of rosin, P 1580*f*, 1996*f*; improving color of polymerized rosin, P 1996*e*.
**Hampton, R. R.** Infrared analysis of low-temp. polymers, 8976*b*.
**Hampton, W. H.**, and Smith, V. R. Inhibiting cotton deterioration, P 9476*e*.
**Hampton, W. M.** Scientific theory in industry, 2383*f*.
**Hamre, D.** Effect of ultrasonic waves on *Klebsiella pneumoniae*, *Saccharomyces cerevisiae*, *Miyagawanella felis*, and influenza virus A, 5081*e*.
**Hamrick, N. T.**, and Voskuil, W. H. Fluorine in industry (I) economic aspects of fluorspar, 1920*i*.
**Hamstead, E. O.** See Gould, E.
**Hanawalt, J. D.** Mg industry, 3758*c*.
**Hanby, W. E.** See Ambrose, E. J.; Bamford, C. H.
**Hancock, E. G.** Asbestos-base laminated plastic, 4346*g*; see Turner & Newall Ltd.
**Hancock, P. F.** See Birmingham Electric Furnace Ltd.; Robiette, A. G. E.
**Hancock, R. T.** Ash-content detn., 5922*i*; see Klinefelter, T. A.
**Hand, C. E.** Cottrell precipitator operation in the kraft industry, 7682*b*.
**Hand, E. A.** See Wilkinson, C. F., Jr.
**Hand, M. E.** See Galston, A. W.
**Handa, K. L.** See Chopra, I. C.
**Handel, J. van den.** Paramagnetic susceptibility of $Nd_2(SO_4)_3.8H_2O$, 5651*h*.
**Handelman, M.** See Newkirk, T. H.
**Handisyde, F. P.** See Adamson, D. C. M.
**Handler, P.** Response to diets deficient in choline, 3075*a*.
———, Bernheim, F., and Bernheim, M. L. C. Ammonia production by kidney slices of normal, acidotic, and alkalotic rats, 8507*c*.
———, Kamin, H., and Harris, J. S. Metabolism of parenterally administered amino acids (I) glycine, 6712*f*.
**Handley, C. A.** See Huggins, R. A.
———, Telford, J., and La Forge, M. Xanthine and mercurial diuretics and renal tubular transport of glucose and *p*-aminohippurate, 6734*a*.
**Handman, L.** See Wiener, A. S.
**Handrick, G. R.** See Lothrop, W. C.
**Hands, C. H. G.**, and Walker, B. Y. Prepn. of $HOCH_2CH_2CN$ and $CH_2{:}CHCN$, 4629*g*.
**Handwerk, E. C.**, and Mahler, G. T. Zn smelting in a vertical retort, P 2920*h*; condensing Zn vapor, P 2921*d*.
———, Mahler, G. T., and Haupt, H. C. Condensing Zn vapor, P 2921*a*; melting Zn dust, P 2921*g*.
**Hanebuth, R.** See Wiemer, H.
**Hanes, C. S.** Glucose from cellulosic material, P 6825*h*.
**Haney, P. D.** Brine disposal from cation-exchange softeners, 8587*e*.
**Hanford, W. E.** K alcoholates, P 2218*h*; azo dye images by color development with asymmetrical *N*-aryl hydrazines, P 3302*b*; see Joyce, R. M., Jr.; Sargent, D. E.; Zoss, A. O.
——— and Roland, J. R., Jr. Ethylene polymers, P 3235*c*; tetrafluorethylene copolymers, P 5110*f*.
———, Roland, J. R., Jr., and Moebel, W. E. Copolymers of ethylene with vinyl esters, P 7264*e*.
**Hani, Y.** Urea-contg. fertilizer, P 5524*d*
**Hanil Szintétikus Vegyi Termékek Kft.** and Back, I. Coloring Al articles, 9022*a*.
**Hank, R. J.**, and Brown, M. Revision of slow-curing oil specifications results in improved products for Texas highway department, 7207*c*.
**Hankes, L. V.** See Henderson, L. M.
———, Riesen, W. H., Henderson, L. M., and Elvehjem, C. A. Liberation of amino acids from raw and heated casein by acid and enzyme hydrolysis, 1816*b*.
**Hankins, O. G.** Detn. of the compn. of lamb carcasses and cuts, 2337*f*, see Carter, R. H.; Hoagland, R.
**Hankinson, H. W.** See Rawlinson, H. E.
**Hanks, C.** See Eaton, M. D.
**Hanks, J. H.** Inorg. aging of the plasma layer of tissue cultures—calcification of cell cultures in the presence of embryo juice and mammalian serums, 8409*a*.
**Hankwitz, R. F., Jr.** See Creech, H. J.
**Hanle, W.**, and Schmillen, A. Phosphorescence and luminescence of solids, 2084*e*.
**Hanley, E. J.** Ignition compn., P 8683*a*.
**Hanley, F. W.** See Pett, L. B.
**Hanley, J. A.** See Knudsen, P. E.
**Hanley, T. E.** See Bush, O. B.
**Hanlon, L. W.**, Romaine, M., III, Gilroy, F. J., and Deitrick, J. E. LiCl as a substitute for NaCl in the diet—its toxicity, 3935*f*.
**Hanlon, M. E.**, Kennedy, F. V., Jr., and Mitchell, D. G. Detn. of lactose in chocolate, 8573*h*.
**Hanly, V. F.** See Turner, J. S.
**Hanmer, R. S.**, and Swann, S., Jr. $C_2H_5NH_2$ condensations catalyzed by the presence of molten salts, 3778*g*.
**Hann, M.** See Henglein, F. A.
**Hann, R. M.**, and Richtmyer, N. K. Collected Papers of C. S. Hudson. Vol. II. (book), 982*c*.
**Hanna, C. R.** See Spicer, S. S.
**Hanna, G. C.** See Brunton, D. C.; Pentscervo, B.; Westcott, C. H.

——, Kirkwood, D. H. W., and Pontecorvo, B. High - multiplication proportional counters for energy measurements, 6076*b*.
—— and Pontecorvo, B. β-Spectrum of $H^3$, 6076*a*.
**Hanna, J. G.** See Siggia, S.
**Hanna, N. R.** See Ragheb-Hanna, N.
**Hanna, R. C.** Polarization of annihilation radiation, 33*c*.
**Hanna, R. L.** See Gaines, J. C.
**Hanna, S. S.** The [480-e. kv.] excited state of $Li^7$ and the angular yield in $Li^6(d,p)Li^7$-$(\gamma)Li^7$, 8869*e*.
—— and Inglis, D. R. Excited states of $Li^7$, 7336*a*.
**Hanna, W. J.** See Purvis, E. R.
—— and Reed, J. F. Detg. cation-exchange properties of limed soils, 3128*f*.
**Hannan, M. C.,** and Markham, M. C. Surface tension of chloroform, 4531*g*.
**Hannan, M. L.** See Harris, E. E.
**Hannay, N. B.,** MacNair, D., and White, A. H. Semiconducting properties in oxide cathodes, 7353*g*.
**Hannick, A.** Detn. of residual elements in thermal and electrolytic zincs, 2515*i*
**Hanning, F.** See Bowman, F.; Dicke, R J.
—— and Mitts, M. L. Effect of cooking on the folic acid content of eggs, 4782*i*
**Hanno, T. V.** Centrifuge bowl with discharge valves for sepg. sludge from liquids, P 6011*h*.
**Hannse, H.** Folic acid, a vitamin of the B complex, 5165*f*
**Hano, H.** Pineal-gland ext , P 6792*h*.
**Hanofsky, K.,** and Artmann, P. Kurze Anleitung zur qualitativen chemischen Analyse (book), 2896*h*
**Hanok, A.** See Sobel, A. E.
**Hanou, F.** See Verne, J
**Hanousek, J** See Káš, V.
**Hanovia Chemical and Manufg. Co.** Durable, highly emissive electrodes for high-pressure metal discharge devices, P 7840*d*
**Hanower, P.** Evolution of glucidic content of tubercles of Jerusalem artichokes and of their seeds, 1080*i*
**Hanquinet, J.** See La Barre, J
**Hans, A.** See Coheur, P.
**Hans, M.** Cardiotonic properties of convallotoxin, 5116*e*
**Hansberry, H. L.** See Weissberg, S. G.
**Hansch, C.** See Muir, R. M.
——, Saltonstall, W., and Settle, J. Catalytic synthesis of heterocycles (III) benzofuran, 4252*i*.
**Hansen, A.** Jorgensen s Micro-Organisms and Fermentation (book), 2675*a*; see Schmidt, S.
**Hansen, A. M.** See Fletcher, H. M.
**Hansen, C. J.,** and Proebsting, E. L. B requirements of plums, 9322*c*
**Hansen, D. W.** Corn products, P 6332*a*.
——, Gill, L. O., and Wrightsman, J. H. Modification of starch, P 4037*f*.
**Hansen, E. L.** See Anderson, Hamilton H.
**Hansen, E. T.** See Tage-Hansen, E
**Hansen, F. F.** Coating for bread baking pans, P 4396*f*.
**Hansen, G.,** and Mohr, E. Effective layer length in cylindrical cells, 8275*i*
**Hansen, G. A.** Corrosive action of HF on skin, 3096*h*.
**Hansen, G. M.** Arrangement for breaking up surface crusts of carbide and ferroalloy charges in elec. smelting furnaces, P 7357*g*.
**Hansen, H. L.** See Shupe, I S.
**Hansen, I. F.** See Fabricius-Hansen, I.
**Hansen, J. E.,** Palm, W. E., and Dietz, T. J. Amine vulcanization of ethyl polyacrylate, 3648*e*.
**Hansen, J. L.,** and Willard, J. E. Thermal neutron absorption cross section of $K^{39}$, 8873*e*.
**Hansen, J. W.,** and Cassil, C. C. 1-Cyclopropyl - 3 - (2 - furyl) - 2 - propen - 1-one, P 5530*d*.
**Hansen, K. S.** See Sckotz-Hansen, K.
**Hansen, L.** Modified Pettenkofer reaction for the quant. estn. of dehydroisoandrosterone and its application to analysis of urinary exts. and fractionations, 8421*a*.
**Hansen, L. A.** See Glavind, J.
**Hansen, M.** See Kessler, H. D.
**Hansen, M. E.** See Partridge, E. G.
**Hansen, O. K.** See Kofoed-Hansen, O.
**Hansen, P. F.** See Begtrup, H.
**Hansen, R. G.** See Johnson, R. Bernal.
—— and Phillips, P. H. Proteins from bovine colostrum (III) homologous and heterologous transfer of ingested protein to the blood stream of the young animal, 7102*i*.
**Hansen, R. S.** Multimol. adsorption from binary liquid solns., 4536*h*.
——, Fu, Y., and Bartell, F. E. Multimol. adsorption from binary liquid solns., 7288*i*.
**Hansen, W. D.** See Drost-Hansen, W.
**Hansen-Dannewitz, I.** See Umstätter, H.
**Hansens, E. J.,** Schmitt, J. B., and Barber, G. W. Resistance of houseflies to residual applications of DDT, 1519*g*.
**Hansford, R. C.** See Rasmussen, Herbert E.
—— and Caesar, P. D. Alkylation of thiophene, P 6667*d*.
——, Rasmussen, H. E., Myers, C. G., and Sachanen, A. N. Thiophene and its alkyl derivs., P 1066*f*.
——, Rasmussen, H. E., and Sachanen, A. N. Thiophene and butadiene, P 1066*e*.
**Hanske, W.** See Zeile, K.
**Hansley, V. L.** Sepn. of 1-cyano-1,3-butadiene from AcOH, P 2220*h*, partial reduction of polycyclic aromatic hydrocarbons, P 7510*g*
—— and Bristol, J. E Cyanohydrin esters, P 2631*g*
**Hanson, A. M.,** Rodgers, N. E., and Meade, R. E. Enhancing yield of yeast from whey, P 4810*d*
**Hanson, A. O.** Energies of neutrons from MsTh-D, La-D, Y-Be, and Sb-Be photoneutron sources, 6506*i*; see McElhinney, J.
——, Duffield, R B , Knight, J D., Diven, B. C., and Palevsky, H Thresholds for photoneutron reactions in Mn, Zn, Zr, Mo, Cd, Pr, Nd, Au, Hg, Ti, and Pb, 8864*d*.
**Hanson, D. N.** Principles of still design, 4902*c*.
**Hanson, E. S.** Calcn. of liquid ds at elevated temps , 3255*g*
**Hanson, Harold,** and Beeman, W. W. Mn *K*-absorption edge in Mn metal and Mn compds , 7333*h*
**Hanson, Horst,** and Schultze, W. Nutritive value of protein hydrolyzates, 2683*a*.
**Hanson, H. T.** See Barnes, R. H.
**Hanson, H. Theo.** See Smith, Emil L
—— and Smith, E. L. Application of peptides contg. β-alanine to the study of the specificity of various peptidases, 1418*a*; carnosinase—enzyme of swine kidney, 7068*b*; papain resolution of DL-tryptophan—optical specificity of carboxypeptidase, 7068*e*
**Hanson, M.** See Rothen, A.
**Hanson, M. A.** Water problems in Diesel locomotive operation, 1128*e*
——, *et al* Water conditioning for Diesel locomotive cooling systems and steam generators, 3546*i*
**Hanson, M. E.** See Janowitz, H
**Hanson, N. D.** Urea- or melamine-formaldehyde resin plasticized with polyacrylonitrile, P 4049*i*
**Hanson, N. W.** Analytical characterization of alkyd resins, 6459*c*.
**Hanson, R.** See Ford J. H.
**Hanson, T. K.** See Trinidad Leaseholds Ltd.
**Hanson, V. F.,** and Friel, D. D. Specialized instrument section in a chem. company, 6469*b*.
**Hanson, W. H.** Cracker and cookie flours, 8566*e*.
**Hanson, W. T., Jr.** Color photography, P 52*d*.
**Hanssen, E. B.** See Brochmann-Hanssen, E.
**Hanssen, W. J.** See Pieters, H. A. J.
**Hanssens, E.** See Hanssens, R.
**Hanssens, G.** See Hanssens, R.
—— and Hanssens, R. Soaps, P 1202*e*, 4033*c*, 4877*c*.
**Hanssens, R.** See Hanssens, G.
——, Hanssens, E., and Hanssens, G. Cleaning compd., P 4877*e*.
**Hansson, E.** See Solberg, P.
—— and Hietaranta, M. Effect of pasteurization and cooling on the elasticity of rennet curd, 4394*c*.
——, Sjöström, G., and Samuelsson, E. G. Effect of various factors on the elastic properties of rennet curd, 4393*h*.
**Hansson, H. M.** See Monath-Hansson, H.
**Hansson, J.** Interaction of alkylene oxides and amines (II) reaction rates and energies of activation for propylene oxide addn. to amines, 926*d*.
**Hansson, L.,** and Waller, I. Spherical neutron diffusion, 4099*a*.
**Hansson, O.** See Teichert, W.
**Hanus, E. J.** See Macek, T. J.
**Hanus, F.** See Zinke, A.
**Hanvey, J. T., Jr.** Infrared heater lowers concentrate drying costs, 8322*e*.
**Hanwick, T. J.** See Hoffman, P.
**Hanzawa, T.** See Tuchihashi, R.
**Hanzelka, F.** See Blaha, J
**Hanzlik, H.** See Hanzlik, P. J.
**Hanzlik, P. J.,** Cutting, W. C., Hoskins, D., Hanzlik, H., Barnes, E. W., and Doherty, E W Vasomotor drugs on the convulsant threshold in rodents with and without diphenylhydantoin, 4705*f*.
**Happel, J.** Pressure drop due to vapor flow through moving beds, 6476*c*.
**Happey, F.** Denaturation in regenerated protein fibers, 8416*f*; see Bamford, C. H.; Wormell, R. L.
—— and MacGregor, J. H. Crystal structure of cyanoethylcellulose, 2839*f*.
**Happich, W. F.** See Beebe, C. W.
**Happold, F. C.** See Chattaway, F. W.; Dawes, E. A.
**Happoldt, W. B., Jr.,** and Stockfleth, A. Polyethylene, P 444*d*.
**Haque, M. E.,** Lillie, R. J., Shaffner, C. S , and Briggs, G. M. Effect of vitamin deficiencies in chicks injected with high doses of thyroxine, 7561*c*.
**Hara, H.** See Yura, S
**Hara, T.** See Oshima, Y
**Hara, Y.** See Tanaka, Yoshio.
**Harada, J.** Analyses of Japanese minerals (II), 6115*a*
**Harada, T.** Organometallic compds. (XIII) trimeric structure of anhydro(dimethyltin dihydroxide)-dimethyltin diacetate, 7899*a*; (XV) dianhydro[tris(dialkyltin dihydroxide)]-dialkyltin dihalides, 7900*b*; (XVI) anhydro(dialkyltin dihydroxide)-dialkyltin dihalides, 7900*c*; (XVII) reduction of Sn with Na and prepn. of alkyltin compds. in liquid $NH_3$, 4632*d*.
—— and Okuba, T. Organometallic compds (XIV) propyl stannic compds., 7900*a*.
**Haraldsen, H.** Interat distances and chem. bonds in compds with pyrite and marcasite structure, 2052*c*.
**Harasawa, F.** Complex cyanide of mercuramide salts, P 3837*e*.
**Harbach, G. L.** Synthetic resin core binders, 4613*f*.
**Harbans, S.** See Ray, H. N.
**Harbaugh, M. D.** Fe ore, 6550*i*.
**Harbert, W. D.** Distribution curves (I) introduction and some special cases, 2045*f*.
**Harbison-Walker Refractories Co.** Preshaped and grooved refractory bricks for furnace walls, P 3588*d*; magnesia, P 6376*c*.
**Harboe, N.** See Bjørneboe, M.
**Hard, W. L.** Histochem. and quant. study of phosphatase in placenta and fetal membranes, 5460*d*
**Hardacre, R. W.,** and Imperial Chemical Industries Ltd. Local delustered effects on nylon fabrics, P 855*f*.
**Hardegg, W.** See Hölscher, B.
**Hardegger, E.,** and Jucker, O. Derivs. of 3,6-anhydroglucose and glucose-6-iodohydrin, 7905*h*.
——, Jucker, O., and Montavon, R. M. Transformation products from 1,3,4-triacetyl-2,6-ditosylglucose, 1720*h*.
——, Montavon, R. M., and Jucker, O. Ditosylation of glucose, 3368*a*.
**Hardenbergh, D. E.** See Marin, J.
**Hardenbergh, E.** See Drinker, C. K.
**Harder, E. C.** Bauxite deposits, 6124*f*.
**Harder, J. O.** See Noble, J. A.
**Harders, C. L.** Curaçao aloe and aloin (I), (II), 6786*i*.
**Harders, F.,** and Grewe, H. Behavior of graphite and C in fire clay, 8112*a*.
**Harders-Steinhäuser, M.** See Jayme, G.
**Hardesty, J. O.** See Hill, W. L.
**Hardiek, W.** See Trumbull, R. C.
**Hardiman, E. W.** See Tadayyon, J.
**Hardin, G.** Biology (book), 4718*g*.
**Hardin, L. J.** See MacIntire, W. H.
—— and MacIntire, W. H. Detn. of Mg, 7370*f*.
**Harding, A. G.** Construction materials for high-pressure equipment, 8646*c*.
**Harding, A. J.,** and Norrish, R. G. W. HCHO in the oxidation of ethylene, 6567*e*.
**Harding, C. L.** See Rupp, W. H.
**Harding, D.** Effect of heparin in artificial activation in the frog egg, 6873*i*.
**Harding, F. C.** See Charconnet-Harding, F.
**Harding, G. F.** See Childs, A. F.; Drewitt, J. G. N.; Goldsworthy, L. J.

**Harding, G. N.** See Fultz, S. C.
——, Flowers, B. H., and Eppstein, J. S. Scintillation counters using org. compds. 7811*i*.
**Harding, H. E.** See Davies, T. A. L.
**Harding, J.** See Reed, M. C.
**Harding, J. B.** Cross section for nuclear disintegration produced by cosmic rays, 7812*b*.
**Harding, J. V.**, and Pell-Wulpole, W. T. Constitution of Su-rich Sn-Sb-Cu alloys, 985*c*.
**Harding, K. G.** See LeFevre, W. J.
**Harding, M. L.** See Tomarelli, R. M.
**Harding, T. S.** Agricultural research and pharmacy, 8093*c*.
**Harding, W. M.** See Shive, W.
**Hardman, A. F.** Dithiofuroic acid derivs., P 434*a*; methylol dithionaphthoates, P 6666*i*.
**Hardman, J. A.** See Kelley, O. J.
**Hard Metal Tools Ltd.** Hard compns. for use in tools, P 6144*c*.
**Hardt, L. L.** Antacid compn., P 6370*i*.
**Hardt Foundation.** Antacid compn., P 6370*i*.
**Hardung, V.** Dipole moment of dinitrotoluene and the quantum mech. explanation of the reactivity of its Me groups, 8676*a*.
**Hardwick, J. L.** Enamel caries, 8520*d*.
**Hardwick, V. L.**, and Winzler, R. J. Effects of diethylcholine and ethionine on growth rate, liver fat, and kidney degeneration, 1470*g*.
**Hardwicke, J.** See Findlay, G. M.
**Hardy, A. C.**, and Young, F. M. Beer's law, 469*d*; colorimetry by abridged spectrophotometry, 6083*h*.
**Hardy, A. E.** See Johnson, Robert E.
**Hardy, D. V. N.** Polyethylene terephthalate and its early development, 4048*g*; silicones, 9521*g*; see Birch, S. F.
**Hardy, E.** Fish oils in paint manuf., 4496*i*; plant perfumes and their essential oils, 6367*e*; sources of musk, 6787*h*; textile mildews, 6831*h*, safflower-oil cultivation—its use for paint and varnish manuf., 6837*a*; home-produced drying oils (II) vegetable oils, 8699*a*.
**Hardy, E. E.** See Saunders, J. H.; Slocombe, R. J.
**Hardy, E. M.** See Hardy, W. B.; Scalera, M.
**Hardy, F.** See Meillon, B. de, Thorp, J. M.
—— and Hewitt, C. W. Phosphate fixation in sugarcane soils—nitrification in sugarcane soils, 8591*i*.
**Hardy, H. K.** Theories of pptn. processes, 5717*i*.
**Hardy, H. L.** Delayed chem. pneumonitis in workers exposed to Be compds., 3518*f*; see Hamilton, Alice.
**Hardy, J. D.** See Dobriner, K.
**Hardy, J. E.** Petroleum products in plant protection, 811*a*.
**Hardy, J. V. E.** See Gresham, W. F.
**Hardy, P. H., Jr.**, and Horsfall, F. L., Jr. Reactions between influenza virus and a component of allantoic fluid, 754*h*.
**Hardy, R. C.**, and Cottington, R. L. Viscosity of deuterium oxide and water from 5 to 125°, 7765*b*
**Hardy, R. G.** Pressure-casting app., P 7892*c*.
**Hardy, R. L.** See Nicholson, E. W.
**Hardy, T. M. P.** Evaluation of roll-wool felts for arctic footwear, 6830*f*.
**Hardy, V.** See Alfrey, T., Jr.
**Hardy, V. R.** See Stewart, F. S.
**Hardy, W. B.** See Lecher, H. Z.
—— and Hardy, E. M. Leuco vat dyes, P 8171*a*; printing sulfuric esters of leuco vat dyes, P 8172*b*.
**Hare, G.** See Miller, W. C.
**Hare, W. A.** Wet-spinning acrylonitrile polymers, P 5636*a*.
**Harfenist, M.** See Adams, R.
**Harger, R. N.**, Turrell, E. S., and Miller, J. M. Viscosity-effusion meter for measuring the concn. of anesthetic gases, 5121*i*.
**Hargleroad, J. C.** See Bloodgood, D. E.; Erganian, G.
**Hargrave, J. H.** See McNaughton, R. R.
**Hargrave, K. R.** See Barb, W. G.
**Hargreaves, A. B.** See Barbosa Hargreaves, A.
**Hargues, P. L.** See Lapadu-Hargues, P.
**Haring, R. C.** Weed control in glads, 3962*e*.
**Harington, C. R.** See Gell, P. G. H.
**Harirí, A. A. K.** See Dérobert, L.
**Harisaki, Y.** Action of supersonic waves on colloidal systems (X), 8255*f*.
**Harispe, J. V.** See Charonnat, R.
**Harispe, M.** See Charonnat, R.
**Harlton, L. B.** See Lieberman, S.
**Hariu, O. H.**, and Molstad, M. C. Pressure drop in vertical tubes in transport of solids by gases, 6476*a*.
**Harker, D.** See Epremian, E.
**Harkins, W. D.**, and Mittelmann, R. X-ray investigations of the structure of colloidal electrolytes (IV) micelle formed by film penetration, 7780*f*.
—— and Oppenheimer, H. Micelle-soly. by film penetration, 20*i*, solubilization of polar-nonpolar substances in solns of long-chain electrolytes, 6041*c*
**Harkness, D. M.** See Seifter, S.
——, Seifter, S., Novic, B., and Muntwyler, E. Effect of dietary protein restriction on the coenzyme A content of liver, 9195*d*.
**Harkness, J.** Plasma protein equil factor—chem detn. of clinical significance, 4303*i*.
—— and Whittington, R. B. Hypothesis of equil. between the proteins of human blood plasma and serum, 1813*h*.
**Harlan, J. L.** Resolving petroleum emulsions, P 1557*c*.
**Harland, J. C.** See Fysh, D.
**Harland, O. V.** Oil geology made easy, 3599*c*.
**Harle, G. A.** Detn of the absorption-relative humidity relations of silica gel and alumina, 6881*i*.
**Harle, O. L.** See Denison, G. H.
**Harley, C. P.**, Moon, H. H., and Regeimbal, L. O. Correlation between growth and nutrient reserves in young apple trees, 9321*d*.
**Harley-Mason, J.** Melanin and its precursors (I) synthesis of 5,5′,6,6′-tetrahydroxyindigo, 627*g*; structure of adrenochrome and its reduction products, 3404*e*; thermal decompn. of phenacyltrimethylammonium hydroxide, 6993*a*.
**Harlock, C. R.**, and Dowlin, M. R. Treatment of a highly colored water, 1506*h*.
**Harlow, W. F.** Causes of flue gas deposits and corrosion in boiler plants, 6808*b*
**Harmalkar, S. G.** See Bhagwat, W. V.
**Harman, D.** See White, E. R.
**Harman, M. W.** Reaction products of 2-mercaptobenzothiazole and HCHO, P 6239*d*.
**Harman, S. W.** Red-banded leaf roller as an apple pest, 9347*d*.
**Harman, W. D.** See Hibbs, R. F.
**Harmer, G. L. M.**, and Broom, W. A. Activity of synthetic estrogens, 3507*f*
**Harmon, J.** Polyethylene emulsions, P 4869*e*; see Joyce, R. M., Jr.
**Harmon, J. W.**, and Webster, J. H. Conway horizontal microburet, 1*d*.
**Harmon, K. M.** See MacAllister, R. V.; Peterson, J.
—— and Niemann, C. Competitive inhibition of the urease-catalyzed hydrolysis of urea by phosphate, 5055*e*; hydrolysis of *N*-benzoyl-L-argininamide by cryst. trypsin, 6266*g*
**Harmon, R. W.**, and Pollard, C. B. Bibliography of Animal Venoms (book), 2656*b*.
**Harmon, W. S.** Dehydration of compds. by distn. with hydrophobic oil, P 6477*c*.; see Bassford, H. H., Jr.
**Harmond, J. E.** Fiber flax processing equipment, 7690*i*.
**Harms, J. W.** Zoologie für Mediziner und Landwirte (book), 5508*e*.
**Harned, B. K.** See Cunningham, R. W.
**Harned, H. S.**, and Levy, A. L. Differential diffusion coeff. of $CaCl_2$ in dil. aq. solns. at 25°, 8806*b*.
—— and Nuttall, R. L. Differential diffusion coeff. of KCl in aq. solns., 4930*c*, 7300*d*.
**Harner, R. P.** Developments in high-temp. ceramics on metals, 6559*e*
**Harness, C. L.**, and Barsigian, F. M. Barite, 2127*a*; Mn compds. and miscellaneous salines, 2127*d*.
—— and Downey, M. G. Gypsum, 2127*c*.
—— and Gradijan, F. D. Lime, 2127*d*.
**Harney, W. S., Jr.**, and Amick, E. H., Jr. Dehydration of methyl ethyl ketone by pressure distn., P 2048*i*.
**Harnisch, H.** Chemotherapie in der Zahn-, Mund- und Kieferheilkunde (book), 7148*i*.
**Harnish, D. P.**, and Tarbell, D. S. Cleavage of the C—S bond—action of acid catalysts, especially Al bromide, on benzyl phenyl sulfide, 2178*c*; detn. of thiophenol, diphenyl disulfide, and phenyl thiolacetate, 8978*i*.
**Harnly, M. H.** See Goldsmith, E. D.
**Harper, A. A.** See Davies, R. E.
**Harper, A. E.** See Nichol, C. A.; Sreenivasan, A.
**Harper, D. A.** Technology of new rubber condensation polymers, 4885*g*; see Cook, J. G.
—— and Imperial Chemical Industries Ltd. Polymeric materials, P 7758*a*.
——, Reynolds, R. J. W., and Imperial Chemical Industries Ltd. Treatment of linear polymers with formaldehyde or formaldehyde-liberating substance, P 902*h*.
**Harper, E. M.**, and Conway, N. S. Clotting of human citrated plasma by gram-neg. organisms, 1830*i*.
**Harper, H. J.** See Hubbard, V. C.
——, Ross, O. B., Albert, W. W., and Elder, W. C. Beef production, 6711*g*.
**Harper, J. I.** Alkylation of isoparaffins, P 9430*e*.
**Harper, J. S.** See Boehm, R. M.
**Harper, R.** Food grading, 6749*d*.
**Harper, S. H.** Mono- and sesquiterpenes, 5002*i*.
**Harrap, B. S.** See Bloom, H.
**Harrel, C. G.** See Kimball, M. H.
**Harrell, G. T.** See Aikawa, J. K
**Harrer, G.**, and Loibl, K. Cholesterol and mineral metabolism in recent brain lesions and consequent conditions, 1101*h*
**Harries, W.** Design of vacuum lines, 5235*c*.
**Harriman, L. A.** See Josh, G.
**Harrington, D.** Safety in mines, 6549*i*.
**Harrington, E. L.**, Haslam, R. N. H., Johns, H. E., and Katz, L. Betatron building and installation at the Univ. of Saskatchewan, 8850*h*.
**Harrington, E. R.** Colloid properties of clays, 2070*a*.
**Harrington, G. A.** Chloretone, P 3836*b*.
**Harrington, J.** Centrifugal separator of coal fines from heavy impurities, P 1172*b*; washing of coal, 9411*h*.
**Harrington, P. J.** See Jackson, R. M.
**Harrington, R. H.** Al conductor alloy, P 9020*e*; Zn-Be casting alloys, P 9021*c*.
**Harris, A.** See Bossak, H. N
**Harris, A. C.** Indian and British steelmaking materials and their effect on practice and product, 6552*e*.
**Harris, A. H.** See Lange, C.
**Harris, A. S.**, and Madjerek, Z. Effects of added Ca on the intact, blood circulated, turtle heart, 297*c*.
**Harris, A. W.** See Avallone, S. C
—— and Ward, A. H. Precoating of steel strip, P 2568*a*.
**Harris, B. L.** Adsorption, 1227*g*; surface area of vermiculite, 4826*h*; see Carr, D. S.; Davis, P. T.
—— and Emmett, P. H. Adsorption studies—phys. adsorption of N, toluene, benzene, EtI, $H_2S$, water vapor, $CS_2$, and pentane on various porous and nonporous solids, 7288*d*.
**Harris, B. R.** Dried egg products, P 7605*a*.
**Harris, C. R.**, and De Atley, W. W. Nitriles from olefins and HCN, P 3439*h*.
**Harris, D. A.** See Waksman, S. A.
**Harris, D. H.** See Haley, T. J.
**Harris, D. L., III.** Theoretical contours of absorption lines, 413*e*.
**Harris, D. N.** Low-temp.-performance evaluation of aircraft greases, 5935*d*.
**Harris, D. W.** Combined firing of coal and wood refuse, 3591*e*.
**Harris, E. D.**, and Lindsey, A. J. Vibrating electrodes in polarography, 4*i*.
**Harris, E. E.** See Clark, I. T.; Johnson, M. C.
——, Hannan, M. L., and Marquardt, R. R. Production of food yeast from wood hydrolyzates — nutrient requirements, 1878*i*.
—— and Kline, A. A. Hydrolysis of wood cellulose with HCl and $SO_2$ and the decompn. of its hydrolytic products, 4461*b*.
**Harris, E. F.** Electrodeposition of Sn, P 2879*h*.
**Harris, E. J.** Decompn. of $H_2O_2$ and its formation during the slow combustion of hydrocarbons, 3690*h*; see Egerton, A. C.
—— and Burn, G. P. Transfer of Na and K ions between muscle and the surrounding medium, 8482*i*.
**Harris, E. M.** $HClO_4$ fires, 1982*i*.
**Harris, F. E.** Carburization and decarburization of steel, 1699*b*.
**Harris, Florence E.**, and Tucker, E. M. Salt, 2127*f*.
**Harris, F. F., Jr.** See Seymour, R. B.
**Harris, G.** See Cook, A. H.
**Harris, G. C.** Resin acids (V) compn. of the gum oleoresin acids of *Pinus palustris*, 1390*c*.

—— and Sanderson, T. F. Resin acids (VII) isolation and structure of isodextropimarinal, a possible resin acid precursor, 1390e.
—— and Sparks, J. Resin acids (VI) Kraft's proabietic acid, a mixt. of primary resin acids, 1390d.
**Harris, G. T.** See Oliver, D. A.
**Harris, G. W.** Hypothalamus and water metabolism, 3502d.
**Harris, H. A.** Antibacterial activity of seedling exts. of cultivated plants, 7077g.
**Harris, H. C.** Effect on the growth of peanuts of nutrient deficiencies in the root and the pegging zone, 2289i; Cu deficiency in relation to the nutrition of oats, 2352i; see Bledsoe, R. W.
**Harris, I.**, Vernon, C. E., Jacob, N., and Harris, M. E. Total serum-fat in hypertony, 8522a.
**Harris, Ivan.** See Bircumshaw, L. L.; Marshall, I.
**Harris, John.** See Hopkins, C. Y.
**Harris, Joseph.** See Clark, W. M.
**Harris, J. C.** See Bonner, T. W.; Phillips, G. C.
——, Bonner, T. W., Evans, J. E., and Phillips, G. C. Narrow resonance at 1430 e.kv. in the reaction of $C^{12} + H^2$, 4093h.
**Harris, Jay C.** Adsorption of surface-active agents by fibers, 1193f, shampoo formulation, 2367h.
——, Kamp, R. E., and Vanko, W. H. Application of the radioactive tracer technique to metal cleaning, 5720f
**Harris, J. E.** Antifouling research, 3963g
**Harris, Jack O.** See May & Baker, Ltd
**Harris, John O.** Respiration of *Salmonella* in the presence of agglutinating serum, 271d.
—— and Patty, R. E. Cond. studies of bacterial suspensions, 3883h.
**Harris, J. R.**, Biddulph, C., Greenwood, D. A., Harris, L. E., Bryson, M. J., Binns, W., Miner, M. L., and Madsen, L. L. Concn. of DDT in the blood and tissues of sheep fed varying levels of DDT, 8062e.
**Harris, Jerome S.** See Handler, P.
**Harris, John S.** See Kaberg, R. A.
**Harris, L.** See Kubota, J.
**Harris, Lorin E.** See Harris, J. R.
**Harris, Loyd E.** See Curts, G. D.
**Harris, L. J.** Influence in vitamin assays of antivitamins and other similar factors, 5816e, see Kodicek, E.
——, Mapson, L. W., Kodicek, E., Moore, T., and Booth, V. H. Chem. assay of vitamins, 4719e.
**Harris, M.** See Clapham, H. F.; Frishman, D.; Wright, Robert E.
**Harris, M. E.** See Coryell, M. N.; Harris, I.
**Harris, M. R.** See Von Oettingen, W. F.
**Harris, P. L.** Fat sol. vitamins, 9190c; see Quaife, M. L.
—— and Ludwig, M. I. Relative vitamin E potency of natural and of synthetic α-tocopherol, 8477g.
**Harris, P. N.** Diethylene glycol poisoning, 7130f; see Henderson, F. G.
**Harris, P. W.** Year's progress, 3735c; contribution of the amateur to photographic progress, 4589g.
**Harris, R. C.** See McMahon, E. M.
**Harris, R. J. C.** See Cuckow, F. W.; Elson, L. A.
—— and Thomas, J. F. Isolation and sepn. of the pyrimidine nucleosides of yeast ribonucleic acid, 144e; isolation of uridine from yeast ribonucleic acid, 2666g.
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**Harris, Sarah.** See Levy, Hilton.
**Harris, Susanna.** See Harris, T. N.
**Harris, S. A.** Synthesis of biotin, P 3468b; see Heyl, D.; Wilson, A. N.; Wolf, D. E.
—— and Arth, G. E. 2-(4-Carboxybutyl)-3,4 - di(acylamino) - 4,5 - dihydrothiophene and its esters, P 3040h; synthesis of biotin, P 3468h.
——, Arth, G. E., Hoffman, C. H., and Folkers, K. Esters of α-formylphenaceturic acid, P 9084i.
—— and Folkers, K. 2-Alkylidene-3-keto-4 - acylaminotetrahydrothiophenes, P 1809d; synthesis of biotin, P 3468d; synthesis of penicillin, P 7649b.
——, Folkers, K., Mozingo, R., and Arth, G. E. Synthesis of biotin, P 3469a.
—— and Heyl, D. Synthesis of biotin, P 3469d; biotin intermediates, P 6668i.
——, Wolf, D. E., and Arth, G. E. Synthesis of biotin, P 3469c.
**Harris, S. P.** See Seidl, F. G. P.
**Harris, S. R.**, and Levine, R. Condensations effected by the alkali amides (II) synthesis of acyl-2 thenoylmethanes by the alkali amides, 629g, (III) β-diketones contg. a furan nucleus, 4253g.
**Harris, T. H.** Decompn. in fruit products, 7155e; detn. of γ-benzene hexachloride in insecticide products, 9330h.
**Harris, T. N.** See Moore, Dan H.
—— and Friedman, S. Relation of the hemolytic streptococcus to rheumatic fever (IV) effect of streptococcic spreading factor in rheumatic patients and others, 6724f.
—— and Harris, S. Histologic evidence for synthesis of protein in lymphocytes following parenteral injection of antigen, 1072a; histochem. changes in lymphocytes during the production of antibodies in lymph nodes, 8524e
**Harris, W. E.** See Kaiser, H. F.
**Harris, W. J., Jr.**, and Cohen, M. Stabilization of the austenite-martensite transformation, 87e.
**Harris, W. V.** DDT and BHC for the protection of timber against termites, 1145b
**Harrison, C. V.** See King, E. J.
**Harrison, D. C.** See Gibson, Q. H.
**Harrison, E. G.** See Bates, L. F.
**Harrison, E. N.**, and Wagner, J. A. Intermittent O enrichment of the cupola blast, 4989d
**Harrison, G. A. F.** See Tullo, J. W.
**Harrison, G. D.**, and Shepherd, T. Thiuram disulfides in rubber compounding, 2800d
**Harrison, G. R.** Atoms in Action (book), 4146b
——, Lord, R. C., and Loofbourow, J. R. Practical Spectroscopy (book), 948a
**Harrison, G. T.** Prepg. and packing menhadden for marketing, P 3540i.
**Harrison, H. A.** See Bridge, F.
**Harrison, H. C.** Thiocarbanilide, the first org. accelerator to be used commercially, 5987e.
**Harrison, J.** See Wien, R.
**Harrison, J. B.** See Charlton, W.
**Harrison, J. L.**, Newell, W. C., and Hartley, A. Application of O enrichment to side blown converter practice, 2560c.
**Harrison, J. M.** See Berg, Lloyd.
**Harrison, J. S.** Extn. of pantothenic acid from natural materials, 6709h.
—— and Miller, E. J. Use of *Neurospora crassa* for the assay of aneurine, 1451h.
**Harrison, J. W.** See Faragher, W. F.
**Harrison, L. E.** See Hopkins, R. H.
**Harrison, M. H.** Chem. compn. of the sun from its internal constitution, 1263c.
**Harrison, P. K.** New compds. as insecticides against the sweet-potato weevil, 7183b
**Harrison, S. A.** Polymerization of acrylonitrile, P 7257e, 7263a; see Beesing, D. W.
**Harrison, T. S.** Detn. of combined C in cast iron, 4974h; detn. of P in hematite Fe and steel, 6109c.
**Harrison, V. G. W.** Gloss measurement of papers, 4851i.
——, Banks, W. H., and Poulter, S. R. C. Measuring sizing degree of papers, 4012b.
**Harrison, W. B.**, and Menke, J. R. Heat transfer to liquid metals flowing in asymmetrically heated channels, 8754b.
**Harrison, W. N.** See Moore, D. G.
—— and Moore, D. G. Weather resistance of porcelain enamels, 2302h, 4439c.
**Harris Research Laboratories.** Treating wool, P 4022d, 6429b.
**Harris-Seybold-Potter Co.** X-ray-opaque marking means, P 2872a; photographic developer, P 8925h.
**Harrold, G. C.** Water pollution from electroplating operations, 8903h.
**Harrow, L. S.** Detn. of Pb in lakes of coal-tar colors, 7231h, 9452g; nonvolatile unsulfonated amine intermediates in coal-tar colors, 7231i, 9454d; see Freeman, K. A.
**Harrower, J.** Phase emissivity, 82i.
**Harry, J. B.**, Wellman, R. H., Whaley, F. R., Thurston, H. W., Jr., and Chandler, W. A. Cu-Zn-chromate complexes as potato fungicides, 801e.
**Harry, R. G.** Principles and Practice of Modern Cosmetics. Vol. II (book), 820i.
**Harsh, H. C.** See Duerr, H. H.
—— and Bates, J. E. Sulfite antistain bath for multilayer color film, P 7850f; antistain agent for color film bleach, P 7850g.
——, Haff, R. M., and Kuszuba, F. J. Color printing of line drawings, P 2106e.
**Harshaw Chemical Co.** Electrodeposition of Ni, P 50b; welded AgCl articles, P 1712a; Pb-Sn alloy plating, P 2524h; HF, 3157c; extruded Fe oxide catalysts, P 3162d; vitreous-enamel opacification, P 5566f; electrodeposition of Cu, P 6094h, 3-chlorocoumarin, P 7513f.
**Harshbarger, K. E.** See Nevens, W. B.
**Hársing, L.** See Bálint, P.
**Hart, A. B.** Thermal decompn. of $H_2O_2$ in the vapor phase, 8139e.
**Hart, C. A.**, and Vander Werf, C. A. Synthesis of $N^1$-*p*-fluorophenyl-$N^5$-isopropylbiguanide, 5757e.
**Hart, D.** See Hale, G. C.
—— and Eppig, H. J. Coating Mg powder, P 2152i.
**Hart, E. B.** See Barki, V. H.; Derse, P. H.; Halverson, A. W.; Hoppert, C. A.; Nath, H.; Phillips, P. H.; Roine, P.
**Hart, E. J.** Preserving rubber, P 9519a; see Matheson, M. S.
—— and Matheson, M. S. Trichloroacetyl chloride, P 7954c.
—— and Meyer, A. W. Infrared studies of 1,2- and trans 1,4-structure of polybutadiene and butadiene-styrene copolymers, 7822f.
**Hart, H.** *o-tert*-Butylphenol, 6998f.
—— and Simons, J. H. Kinetics and mechanism of the uncatalyzed alkylation of phenol, 2850e.
**Hart, I.** See Diehl, J. M.
**Hart, J. A. H.**, and Lee, E. W. Photographic materials, P 3735h.
**Hart, J. L.** Purifying In, P 8345b
**Hart, J. T., Jr.** See Jobbins, D. M.
**Hart, K. H.** See Langstroth, G. O.
**Hart, P. M. d'A.** Antibiotics from aerobic spore-forming bacilli, 5826d.
**Hart, R. T.**, and Robinson, S. A. Alkyl-1,2,3,4-tetrahydronaphthalenes and -naphthalenes, 1370c.
**Hart, W. B.** Federal water-pollution-control act—its significance to petroleum refiners, 336i.
**Hartanov, A. S.** See Mitchell, H. S.
**Hartbower, C. E.** See Luther, G. G.
**Harte, R. A.** See Chen, J. L.
——, Travers, J. J., and Sarich, P. Caloric intake of the growing rat, 1467f.
**Harteck, P.** See Heisenberg, W.
—— and Suess, H. E. Argon content of K minerals and the dual disintegration of $K^{40}$, 5712a
**Hartelius, H.** See Hydén, H.
**Harter, I.**, Norton, C. L., Jr., and Christie, L. D., Jr. Mineral wool, P 5566d.
**Hartesveldt, C. H. van.** See Van Hartesveldt, C. H.
**Hartford, W. H.** Properties of technically important sexivalent Cr compds., 8785a.
**Hartford National Bank and Trust Co.** (*Patents.*) Magnet cores, 1306fi, 1307a; self-starting welding electrode, 1308h; cathodes for elec. discharge tubes, 2104g, 4154e, 4966b, 8921b; protective coatings, 3214f; treatment of Se for rectifiers, 3770b; blocking-layer rectifier, 4154d; prepg. Se for the purpose of increasing its cond., 5162h; application of Se blocking-layers, 5682d; heat-treating Se electrodes, 5682e; resistance elements, 5682f, 8920a; silicate-titanate phosphors, 6517f; elec. resistor, 7163c; improving of bitumen, 7224h; cathode-ray tube, 8290g; amorphous Se, 9398e; manufg. bodies consisting of a core of chrome-Fe or a similar Cr alloy and of a thin layer adapted to form a metal-to-glass seal, 8918f.
**Hartigan, D.** Control of mistletoe, 7181a.
**Harting, D.**, and Klinkenberg, P. F. A. Quadratic Zeeman-effect in the principal series of Cs, Rb, and K, 7337f.
**Harting, H.** ns of halide crystals, 3259k.
**Hartlapp, G.** See Klemm, W.
**Hartlaub, G. F.** Alchemisten und Rosenkreuzer, Sittenbilder von Petrarca bis Balzac, von Breughel bis Kubin (book), 2084a.
**Hartles, R. L.**, and Williams, R. T. Detoxication (XVIII) relation between conjugation and deamination of *p*-hydroxybenzylamine and related compds., 2702d; metabolism of sulfonamides (VI) fate of

$N^4$-*n*-acyl derivs. of ambamide and the sulfone, V 335, 8539*d*.
**Hartley, A.** See Harrison, J. L.
**Hartley, A. W.** Measurement of particle size, 3687*h*.
**Hartley, F.** See Barnard, N. H.
**Hartley, G. S.** Organized structure in soap solns., 6843*a*.
**Hartley, H.** Century of chemistry, 2827*b*.
**Hartley, H. E. R.** See Milbourn, M.
**Hartley, H. K.** See Kay Brothers Ltd.
**Hartley, H. O.** See Stones, H. H.
**Hartley, J.**, Tanz, S. S., and Schneider, M. Osteogenesis produced by a chem. ext. of bone, 7584*c*.
**Hartley, J. C.**, and Mull, E. K. Ultrasonic testing of tool steels, 4994*g*.
**Hartley, K.** See Carson, A. S
**Hartley, P.** International standard and unit for penicillin (II), 3568*f*
**Hartley, R. S.** See Barrett, J.
**Hartman, A. M.**, Dryden, L. P., and Cary, C. A. Vitamin $B_{12}$ in the normal mammal, 9179*f*.
**Hartman, F. A.** See Brownell, K. A.
—— and Brownell, K. A. Adrenal Gland (book), 5105*d*.
——, Brownell, K. A., and Knouff, R. A. Increased fat factor production after adrenal enucleation, 8031*d*.
**Hartman, F. W.**, Mangun, G. H., Feely, N., and Jackson, E. Chem. sterilization of blood and blood plasma, 4341*d*.
**Hartman, L.** Refining of oils contg. vitamin A, 6368*g*.
**Hartman, M.**, and Zopf, L. C. Levigating agents and incorporation procedures for compounding ointments, 5534*f*.
**Hartmann, F.** $CdSO_4$-serum albumin reaction, 6095*i*; globin, 8497*h*.
**Hartmann, H.** See Krollpfeiffer, F.
**Hartmann, Helmut.** Grundriss fur das anorganisch-chem. Praktikum (book), 1680*b*; metal carbides and cyanamides, 3739*h*.
—— and Eckelmann, W. La cyanamide, its prepn. and properties, 4169*d*.
**Hartmann, Hermann**, and Henschel, P Dielec. behavior of diphenyl ether in nonpolar liquids, 8223*g*.
**Hartmann, I.**, and Nagy, J. Explosibility of starch dust, 7230*e*.
**Hartmann, M.** Allgemeine Biologie (book), 1451*b*; Fortschritte der Zoologie. Bd. 8 (book), 9274*c*.
—— and Bosshard, W. Org. thiomercury compds., P 6648*b*; org. Hg compds contg. S and N, P 6648*g*.
—— and Druey, J. Aminobenzensulfonamides, P 4695*e*.
—— and Isler, H. 2,2′-(4,4′-Biphenylene)-di-2-imidazolines, P 3852*h*.
**Hartmann, M. L.**, and Barnett, H. M Carotene compn. and solns. of carotene, P 8106*b*.
**Hartmann, P.** See Cornubert, R.
**Hartmann, R. C.** See Conley, C. L.
**Hartmann, S.** See Glavind, J.
**Hartmann, W. D.** Chem. carcinogenesis, 749*h*; cancer treatment by fever therapy—effect of tetrahydro-2-naphthylamine on the growth of benzopyrene tumors, 763*c*.
**Hartnell, E. D.**, and Bricker, C. E. Polarographic study of oximes (I) methyl 4,5-dioxo-2-pentenoate-5-oxime, 1724*a*.
**Hartnell, M. R.** Soldering-iron tip, P 6150*e*.
**Hartnett, J. C.** Free phenols in renal uremia, 749*g*.
**Hartogh-Katz, S. L.** See Dingemanse, E.
**Hartong, B. D.** $CO_2$ and air in beer, 3970*i*; properties and compn. of chill haze, 9360*a*.
**Hartough, H. D.** Color reactions of thiophene compds. with ceric nitrate alc. reagent, 67*g*; carboxylic acid or aldehyde derivs. of thiophene, P 4302*b*; see Coonradt, H. L.; Kosak, A. I.; Reiff, O. M.
—— and Chung, P. K. Haloalkylation of aromatic hydrocarbons, P 5583*e*.
—— and Kosak, A. I. Acylation of thiophene, P 2643*g*; acylation of furans, P 3464*i*, 3465*a*; catalytic acylation of phenyl alkyl ethers, P 7966*f*.
——, Kosak, A. I., and Reid, E. E. Removal of thiophene from aromatic hydrocarbons, P 3605*c*.
—— and Meisel, S. L. Aminomethylation of thiophene (III) synthesis of the 2-thenylamines, 2201*e*.
——, Meisel, S. L., Koft, E., and Schick, J. W. Aminomethylation of thiophene (II) intermediate *N*-2-thenylformaldimines and their reactions, 1763*e*.
**Hartree, D. R.** Calcn. of at. structures, 4559*f*.
—— and Hartree, W. Self-consistent field, with exchange, for N and Na, 4097*d*.
**Hartree, E. F.** See Keilin, D.
**Hartree, W.** See Hartree, D. R.
**Hartroft, W. S.** Pathogenesis of renal lesions in weanling and young adult rats fed choline-deficient diets, 4737*d*; see Wrenshall, G. A.
**Hartsell, S. E.** Lysozyme and bacteria, 3881*d*.
**Hartsfield, E. P.** See Du Pont de Nemours, E. I., & Co.
**Hartsough, W.** See Brueckner, K.
——, Hayward, E., and Powell, W. M. Cloud-chamber photographs of artificial mesons, 4112*a*.
**Hartstein, S. R.** See Warner, A. J.
—— and Stolte, F. Insulation of elec. cables carrying high-frequency currents, P 1126*b*.
**Hartsuch, B. E.** Simplified Course in Elementary Qual. Analysis (book), 4186*e*.
**Hartung, E. J.** See Tolliday, J. D
**Hartung, H. O.** Solids-contact process basins, 336*g*.
**Hartung, W. H.** Ethers of oximino acid chlorides, P 5422*c*.
**Hartweg, L.** Detn. of the I no., 6784*g*
**Hartwell, E. J.**, Richards, R. E., and Thompson, H. W. Vibration frequency of the carbonyl linkage, 1656*b*.
**Hartwell, L. M.** See Halpern, A.
**Hartwig, C. E.** Binder compn. for sand cores, P 4624*g*.
**Hartzel, L. W.** See Benson, F. R.
**Haruda, S.** See Asai, I
**Harukawa, C.** See Uchida, Shunro
**Harva, O.**, and Ekwall, P Titration of fatty acids, 4495*d*.
**Harvel Corp.** Anacardic material condensation products, P 904*d*, anacardic-acralein resins, P 2030*i*, allyl ether of anacardic materials, bodied products thereof, and novel compns. and friction elements produced therewith, P 3240*i*; reaction products of an aldehyde with allyl ether of anacardic material, P 3241*b*; products of reaction of aldehyde with (phenol-phenol ether reaction products), P 4513*a*; mineral-oil compn., P 8129*d*; cashew-nutshell liquid and kernel-oil sepn., P 9494*g*.
**Harvel Research Corp.** Thermosetting resins, P 3234*c*; tertiary alkyl amides, P 3445*e*; friction element, P 3655*d*
**Harvengt, E.** Treatment of ores contg considerable proportions of fine particles, P 4623*i*.
**Harvey, A. A.** See Beall, G.
**Harvey, A. M.** Physiology of acetylcholine (V) effect of anticholinesterases and related substances on nervous activity, 4753*c*; see Grob, D.
**Harvey, B. G.** See Betts, R. H.
**Harvey, C.** Vol. and the fructose content of human semen, 4752*h*.
**Harvey, C. C.**, and Horwitt, M. K. Excretion of essential amino acids by men on a controlled protein intake, 6714*a*
**Harvey, C. O.** See Dunham, K. C.; Hallimond, A. F.
**Harvey, E. N.** See Johnson, F. H.
**Harvey, H. W.** Chimie et biologie de l'eau de mer (book), 4940*d*; Mn in salt and fresh waters, 8077*i*.
**Harvey, J. L.** See Breck, D. W.
**Harvey, M. T.** Anacardic material condensation products, P 904*d*; anacardic-acrolein resins, P 2030*i*; thermosetting resins, P 3234*c*; allyl ether of anacardic materials, bodied products thereof, and novel compns. and friction elements produced therewith, P 3240*i*; reaction products of an aldehyde with allyl ether of anacardic material, P 3241*b*; products of reaction of aldehyde with (phenol-phenol ether reaction products), P 4513*a*; friction element, P 3655*d*.
—— and Caplan, S. Tertiary alkyl amides, P 3445*e*.
**Harvey, S. C.** Effects of Zn-insulin on *Trypanosoma hippicum*, 2276*a*; maleimide as a dienophile, 4232*b*; carbohydrate metabolism of *Trypanosoma hippicum*, 6701*d*.
**Harvey, W. A.** Chem. weed killers, 1517*c*.
**Harvey, W. T.** See Lipkin, M. R
**Harvie, R. B. R. S.** See Shersby-Harvie, R. B. R.
**Harvill, E. K.**, and Herbst, R. M. Substituted α-halogen alkyl tetrazoles, P 7971*c*; substituted amino alkyl tetrazoles, P 7971*g*.
**Harwood, F. C.** History, art, and science of laundering, 414*a*; emulsification and detergency, 5975*i*.
—— and Hill, F. R. Laundry washing, 7725*f*.
**Harwood, H. J.** See Ralston, A. W.
**Harwood, J. J.** Ti—modern metal, 2141*d*.
—— and Schulman, F. Corrosion research in the Navy, 6139*c*.
**Harwood, P. D.** Coccidiostatic compn., P 7592*i*.
—— and Stunz, D. I. Nitrofurazone in the medication of avian coccidiosis, 5889*c*.
**Harwood, V. D.**, and Purves, C. B. Research on bark at McGill, 4848*d*.
**Hasche, R. L.** Regenerative furnace with carborundum bricks as regenerative mass, P 7357*d*; multistage conversion of hydrocarbons, P 7670*h*; $C_2H_2$ black, P 9422*a*.
—— and Brant, J. H Concn. of aq. HCHO solns., P 7273*i*.
—— and McMahon, E. M. Copolymer of isopropenyl acetate and vinyl chloride, P 3061*c*.
**Haschke, E. G.** See Gregor-Haschke, E
**Hasegawa, K.** See Isobe, H.
**Hasegawa, Masao.** See Hattori, S.
**Hasegawa, Masayuki.** See Ueno, I
**Hasegawa, T.** See Osaki, S.
**Hasek, R. H.** See Kenyon, R. L.; McMahon, E. M.
**Haseldon, G. G.** See Newitt, D. M.
**Hasenfratz, V.** See Frèrejacque, M.
**Hasenmaier, H.** See Glocker, R.
**Hasfurther, W. A.** See Klassen, C. W.
**Hashiguchi, R.** Theory of Rückbildung of age-hardening alloys, 7885*b*, see Kimura, Motoharu
**Hashikura, S.** See Horio, M.
**Hashimoto, Kazuji.** Wire and-plate-type counter, 7327*g*, production of Geiger-Muller counters and the discharge mechanism, 7327*i*, see Hayashi, C.
**Hashimoto, Kiyotaka**, and Mochinaga, H Calcination of cement, P 5318*f*
**Hashimoto, Sanai.** K acid tartrate, P 9397*f*.
**Hashimoto, Seiichi**, and Kobayashi, K. Antioxidant for Cu annealing, P 6966*a*.
**Hashimoto, Takashi.** Extn and refining of penicillin by use of alkaloids or their salts, P 5553*b*.
**Hashimoto, Taro.** See Nakajima, K.
**Hashimoto, Yukichi.** Oxidation of 8-methylquinoline, 6267*c*, see Ito, R.
**Hashimoto, Yurin.** Nonferrous elec.-resistant alloy, P 1710*b*.
**Haskelberg, L.** Aminative reduction of ketones, 1349*f*.
—— and Lavie, D. DDT series, 6604*i*, 4,4′-diaminodiphenylacetic acid, 7004*e*.
**Haskell, N. B.** See Classmire, W. F.
**Haskell, R. J.** See Clayton, E. E.
**Haskell, V. C.** See Van Cleave, A. B.
—— and Hammett, L. P. Rates and temp coeffs. in the hydrolysis of some aliphatic esters with a cation-exchange resin as the catalyst, 6061*h*.
**Haskins, A. L.** See Frear, D. E. H.
**Haskins, A. L., Jr.** Soly. of progesterone in water and in saline, 3691*f*.
—— and Sherman, A. I. Quant. bioassay of chorionic gonadotropin, 8421*a*.
**Haskins, F. A.** See Nye, J. F.
**Haskins, J. F.** See Fishel, J. B.; Mack, E., Jr.
**Haskó, L.** Hungarian perilla oil, 8178*i*.
**Haslam, J.** See Clasper, M.
**Haslam, R. N. H.** See Harrington, E. L.; Nordin, N. M.
——, Katz, L., Johns, H. E., and Moody, H. J. Confirmation of $Cl^{38}$ activity, 8869*h*.
**Haslem, M. E.** See Zapffe, C. A.
**Hass, G.** Growth and structure of thin oxide layers on Al, 1234*b*; structure and behavior of thin evapd. films of Ag, Al, Si, and Ge, 4066*a*; formation, and the structure of Si layers formed by vaporization, and their behavior at high temps., 6028*g*; prepn. of hard oxide films with precisely controlled thickness on evapd. Al mirrors 7356*b*.
—— and Scott, N. W. SiO protected front-surface mirrors, 2822*e*.
**Hass, H. B.** See Bachman, G. B.; Kispersky, J. P.; McBee, E. T.; Steinberg, G. M.
—— and Bender, M. L. Reaction of benzyl halides with the Na salt of 2-nitropropane—general synthesis of substituted benzaldehydes, 5761*a*.
——, Berry, E. J., and Bender, M. L. C aralkylations of nitro paraffins, 8364*i*.
—— and Bourland, J. F. Nitro ales., P 3438*b*.

—— and Whitaker, A. C. Fluorodinitroethanes, P 3024*i*.
**Hassan, M. U.**, Ibrahim, M., and Khanna, L. C. Relation of vitamin A to white cells in human blood and normal white cell counts in the Punjab, 3073*b*.
**Hassan, W. E., Jr.** See Youngken, H. W.
**Hassel, O.** Configuration of nonplanar six-atom rings, 4232*g*; see Andersen, P.; Bastiansen, O.; Frivold, O. E.
—— and Lund, E. W. Crystal structure of tetrachlorocyclohexane of m.p. 174°, 6487*d*.
—— and Ottar, B. Structure of mols. contg. cyclohexane or pyranose rings, 2964*h*.
**Hasselbach, H.** See Heyrovsky, J.
**Hasselquist, H.** See Euler, H. v.
**Hasselstrom, T.** Pine tree resenes in the biogenesis of the resiu acids, 5947*c*.
**Hasselt, J. A. K. van.** See Van Hasselt, J. A. K.
**Hasselwander, C. F.** Radial fin-type filter with replaceable filter element, P 4056*h*
**Hassett, C. C.** Utilization of sugars and other substances by *Drosophila*, 322*g*.
—— and Jenkins, D. W. Production of radioactive mosquitos, 8005*a*.
**Hassid, W. Z.** See Potter, A. L.
**Hassler, J. W.** See Colebaugh, D. C., Jr.
**Hassø, A. G.** Manuf. of paper in Denmark, 3615*f*.
**Hast, N.** Production of extremely thin metal films by evapn. onto liquid surfaces, 2481*f*
**Hasted, J. B.** See Collie, C. H.
**Hasterlik, R. J** Beryllium poisoning, 7161*d*
**Hastings, A. B.** See Cobb, S.; Deane, H. W.; Gould, R. G.; Pearson, O. H., Villee, C. A.
——, Solomon, A. K., Anfinsen, C. B., Gould, R. G., and Rosenberg, I. N. Incorporation of isotopic $CO_2$ in rabbit-liver glycogen, 3905*h*
**Hastings, C. C.** Co in animal nutrition, 1466*e*.
**Hastings, J. J. H.** See Distillers Co., Ltd
**Hastings, S. H.**, and Matsen, F. A. Photodecompn. of $PhNO_2$, 2096*g*.
**Hastings-James, R.** Spontaneous hypoglycemia, 6725*i*
**Haswell, W. T.** See Kramer, I. T.
**Haszeldine, R. N.** See Banks, A. A.
**Hata, K.** Esterification of fat acid and oil having high acid nos., 5609*f*; foaming of frying oil, 5612*b*, cleavage of mols by catalytic hydrogenation (I) formation of Me groups by the catalytic hydrogenolysis of aromatic nitriles, 7916*f*.
**Hata, T.**, Yokoyama, Y., and Oguchi, H. Purification of penicillin with EtOH, 9385*e*.
——, Yokoyama, Y., and Sawachika, K. Cultivation of *Penicillium* utilizing mycelium, 9162*e*.
**Hatanaka, T.** Optical interaction among He II, O III, and N III atoms in a planetary nebula, 5303*i*.
**Hatch, G. G.**, and Chipman, J. S equil. between Fe blast-furnace slags and metal, 3755*g*
**Hatch, L. F.** See Watt, G. W.
——, Adelson, D. E., and Blackburn, B. O. Polymerization inhibitors for butadiene, P 8195*c*.
—— and Alexander, H. E. Allylic chlorides (V) relative reactivities with Na ethoxide in ethanol, 4214*d*.
—— and Ballin, S. G. Allylic chlorides (VI) prepn. of the 1,3-dichloro-2-butenes, (VII) relative reactivities of the 1,3-dichloro-2-butenes, 4214*f*.
—— and Gerhardt, L. S. Allylic chlorides (VIII) 1-chloro-3-methyl-2-butene, 5734*f*.
**Hatchard, M. G.** See Gallai-Hatchard, M.
**Hatchard, W. R.** See Cope, A. C.
**Hatcher, D. B.** Reduction of halogenated silanes, P 3441*g*; see Bunnell, R. H.
**Hatcher, E. S. J.** Plant hormones, 5144*g*.
**Hatcher, R. D.**, Arfken, G. B., and Breit, G. *S*-wave proton-proton scattering from 0.2 to 40 m.e.v. for the Yukawa and Gauss error potentials, 5278*e*.
**Hatcher, W. M.** Introduction to Chem. Science (book), 932*c*.
**Hatchett, V. W.** See Bedell, H. L.
**Hatem, S.** Cond. of dil. solns. of $NH_3$ in several alcs., 5655*h*; phys.-chem. study of several alc.-ammonia and alc.-cyclic amine systems, 5657*g*; alc.-cyclic amine systems —mixts. of EtOH-aniline, 8833*i*; mixts. of EtOH with toluidines, 8834*a*.
—— and Valladas-Dubois, S. Ultraviolet absorption of some systems—alc.-amines of the cyclic series, 4188*i*.
——, Valladas-Dubois, S., and Volkringer, H. Raman spectra of mixts. of alc. and pyridine, 7345*e*.
**Haterius, H. O.** See Davis, J. C., Jr.
**Hatey, J.** See Jost, A.
**Hatfield, E. E.** See Briggs, H. M
**Hatfield, H. R.**, and Sharing, D. N. Application of chrome dyes to nylon textiles, 1569*h*.
**Hatfield, I.** Fly-control chemicals and toxicities, 8601*d*.
**Hatfield, J. D.** See Elmore, K. L.
**Hatfield, T. N.** See Schmitt, R. W.
**Hatfull, R. S.** Assay of Me salicylate ointments, 1529*e*.
**Hathaway, R. J.** See Fieser, L. F.; Leffler, M. T.
**Hatori, S.** See Katsura, Shigehiro.
**Hatori, T.** See Anzai, H.
**Hatoya, T.** $H_3BO_3$ from refined tourmaline, P 7200*f*.
**Hatoyama, M.**, and Maeyama, T. Magnetically locating scratches in Fe and steel, 7395*h*.
**Hatsuda, Y.** See Okabe, M.
**Hatt, H. H.** Fatty acids, 6839*g*; see Curtis, R. G.
**Hatters Fur Exchange, Inc.** Recovery of animal fibers from hides, P 8722*d*
**Hattiangdi, G. S.** Characterization of com soaps by x-ray diffraction, 6434*h*; see Vold, M. J.
—— and Adarkar, S. P. Soap gels in nonaq. media (III) setting time, syneresis, and gel strength of gels of some Na soaps in org. solvents, 9492*e*
——, Adarkar, S. P., Jassawalla, J. P., and Prasad, M. Effect of additives on the phys.-chem. properties of soap gels in org. solvents, 4080*a*
—— and Swerdlow, M. Characterization of alkali soaps by electron microscopy, 6435*a*.
——, Walton, W. W., and Hoffman, J. I. Phys. chem. properties of aq. solns. of soaps and soapless detergents, 6435*d*.
**Hatton, J.**, and Preston, G. Long-range protons from the $He^3$ $(d,p)$ $\alpha$-reaction, 8865*g*
**Hatton, J. P.**, and May, R. Purification of anthracene, P 2641*h*
**Hatton, R. E.** See McBee, E. T.
**Hattori, S.**, Hasegawa, M., and Kanao, S. Flavanone glycosides (II) naringin of Kijitsu, 7935*e*.
**Hatwalne, V. G.** See Nath, M. C.
**Hatz, F.** Influence of administered natural amino acids on the free alanine and the pyruvate contents of blood, 1860*i*, 4354*e*, see Wiss, O.
**Hauber, U. A.** Zoology (book), 3532*e*.
**Hauck, K. H.** Detn. of the degree of pptn. hardening of hardenable synthetic resin pressing materials 1212*i*; mech. properties of synthetic resin plywood, 1213*c*.
**Hauduroy, P.** Microbiologie générale et technique microbiologique (book), 5086*e*.
**Hauenstein, H.**, and Reichstein, T. Desoxysugars (XXII) prepn. of derivs. of D-xylo-2-desoxyhexose, 4635*h*.
**Hauffe, K.** Diffusion of O through Ag on a Ag-coated Cu wire, 5267*g*.
—— and Vierk, A. L. Activity measurements in liquid Na-Na alloys with wide departure from ideal behavior, 8245*e*.
**Haug, A. J.** Conversion of purified guar mannogalactan for tub-sized adhesive, 9442*a*
**Haug, K.** Glycol poisoning by glysantin, 1863*h*.
**Haugaard, G.**, and Kroner, T. D. Partition chromatography of amino acids with applied voltage, 137*i*.
**Haugaard, N.** See Stadie, W. C.
**Hauge, S. M.** See Gerry, R. W.; Mishler, D. H.
**Haughton, M. A.** See Betteridge, W.
**Hauk, V.** Internal stresses in spot welds, 987*d*.
**Haul, R.** Chemistry of silicones, 561*g*; see Cruse, K.; Turba, F.
—— and Uhlen, G. Detn. of azides by pptn. titration with adsorption indicators, 4603*e*.
**Haun, J. C.**, and Simpson, R. Austenitic stainless steel, P 1307*f*.
**Haupt, H. C.** See Handwerk, E. C.
**Hauptmann, H.**, Wladislaw, B., and Camargo, P. F. Behavior of S compds. in the presence of Raney Ni, 2597*c*.
**Haurie, M.** Winemaking, 7635*f*.
**Haurowitz, F.** Biol. problems and immunochemistry, 6723*e*; see Laqueur, W.
—— and Tümer, A. Proteolytic cleavage of ultraviolet irradiated proteins—problem of quantum biology and the amplifier action of living cells, 9099*i*.
**Haury, H.** See Klages, F.
**Haury, V. E.** Ureas, P 9082*c*.
**Hausam, W.** Bakteriologie in der Lederindustrie (book), 2457*b*.
**Hauschild, F.**, and Landbeck, H. Action of aliphatic amines on the perfused Läwen-Trendelenburg frog prepn., 5493*b*.
**Hausdorf, A.** See Hofmann, U.
**Hausdorf, G.** Detn. of sugar, NaCl, and Ca in blood and urine, 3484*h*.
**Hausen, H.** Effect of the Lewis coefficient on freezing condensation of vapors from gas-vapor mixts., 11*e*.
**Hausen, S. S.-v.** See Saubert-v. Hausen, S.
**Hauser, C. R.** See Frostick, F. C., Jr.; Humphlett, W. J.; Munch-Petersen, J.; Sanderson, J. J.; Weiss, M. J.
——, Adams, J. T., and Levine, R. Diisovalerylmethane, 1723*f*.
——, Flur, I. C., and Kantor, S. W. Metalation and carbonation of benzhydrylamine and derivs. using K amide, 2981*a*
—— and Reynolds, G. A. Reactions of $\beta$-keto esters with aromatic amines—syntheses of 2- and 4-hydroxyquinoline derivs., 228*c*, cleavage of nitrosated $\beta$-keto esters to form $\alpha$-oximino esters, 1746*e*.
——, Swamer, F. W., and Ringler, B. I. Alk. cleavage of unsymmetrical $\beta$-diketones—ring opening of acylcyclohexanones to form $\epsilon$-acylcaproic acids, 2174*e*.
——, Yost, R. S., and Ringler, B. I. 1,2- and 1,4-Addns. of cinnamic acid derivs. with sodio ketones, Grignard reagents, and metallic amides, 7002*e*.
**Hauser, E. A.** Importance of colloid chemistry in food technology, 1493*e*; what an introductory course and textbook on colloid chemistry should offer, 2049*i*; silicic chemistry, 2884*d*; Polaroid Land camera—new tool for education and research, 4905*a*, Raphael E. Liesegang, 4907*h*
—— and LeBeau, D. S. Ultramicroscopy of lyogels, 4540*d*.
—— and Michaels, A. S. Interfacial tension at elevated pressures and temps. (I) app. for boundary-tension measurements, 1620*f*.
—— and Perry, E. Emulsion polymerization of styrene, 2811*b*.
**Hauser, H.**, and Bommer, M. Anthrimide carbazole dyes, P 7704*g*, 7705*a*, 9468*g*.
**Hauser, M.** Metal-ceramic molded bodies, P 5565*h*, 5918*d*.
**Hauser, P. M.** Moistureproof, heat-sealable, sheet wrapping material, P 3664*a*; vinylidene chloride-acrylonitrile solns., P 7755*b*.
**Hauser, W.**, and Rosenberger, K. Digitalis assay using lupine sprouts, 5904*f*.
**Hausmann, E.**, and Slack, E. P. Physics Laboratory Experiments (book), 478*f*.
**Hausmann, F.** See Walker, W., & Sons Ltd.
**Hausner, H. H.** Kachanow's Plastic Deformation (book), 4090*f*.
**Haut, I. C.** See Kramer, A.
**Hautot, A.** Proceedings of the conference (on photography) held at Liège, 1668*c*; sensitivity centers, 1660*f*; action of ionizing particles on the sensitive layer, 2527*a*; Physique générale. Vol. II. Chaleur et thermodynamique (book), 6904*d*; theory of chromatic sensitization of photographic emulsions, 8923*f*.
—— and Debot, R. Theory of rehalogenation, 2527*d*; theory of solarization, 2527*f*.
—— and Sauvenier, H. Sensitization of photographic emulsions in the near infrared, 6529*i*.
**Havas, L. J.** Growth studied with the aid of colchicine in plants and animals, 296*f*; action of colchicine, alone or in combination with hormones, on growth and development, 5112*e*.
**Have, J. H. van der**, and Verver, C. G. Aardolie en aardolieproducten (book), 6817*g*.
**Have, J. ten.** Detn. of Mg in soil exts. and plant material by 8-hydroxyquinoline, 3744*d*.
**Have, P. ten.** See Ten Have, P.
**Haveg Corp. Furfuryl alc. resin**, P 6463*i*; furfuryl alc.-phenol aldehyde resinous compds., P 6464*b*; furfuryl alc. resinous products, P 7751*i*.
**Haven, F. L.** See Dounce, A. L.
——, Bloor, W. R., and Randall, C. Lipides of the carcass, blood plasma, and adrenals in cancer, 9230*b*.

——, Crossland, R., Randall, C., Edwards, V., and O'Leary, J. Tolerance to U compds., 8529*h*.
——, Hodge, H. C., Maynard, E., Orcutt, J. A., Miller, J., Thomas, I., and Edwards, V. Toxicity following the parenteral administration of certain sol. U compds., 8528*h*.
—— and Randall, C. Urinary excretion of citrate in U-poisoned rats, 5118*h*.
——, Randall, C., and Bloor, W. R. Citric acid content of tumor tissue and of tumor-bearing rats, 4761*g*.
**Havenhill, R. S.**, Carlson, L. E., and Rankin, J. J. Electrostatic charges produced during mastication of rubber and of GR-S, 7255*g*.
**Havens, C. B.** Light-stable vinylidene chloride polymers, P 2037*h*; see Irons, C. R.; Schaefer, H. L.
**Havens, R.** See Potter, C. M.
—— and McAllister, J. A. Concn. of oxide Mn ores from northeastern Utah, Daggett Chief, and Gray Hawk properties, 3325*b*
**Havens, W. P., Jr.**, Lloyd, H., Melnick, J. L., and Colbert, J. W., Jr. Complement fixation with fecal antigens in viral hepatitis, 9223*b*
**Havens, W. W., Jr.** See Ruderman, I. W.; Wu, C. S.
——, Rainwater, L. J., and Wu, C. S. Slow-neutron velocity spectrometer studies—crystal interference and mol. binding effects at low energies, 4096*b*.
**Havinga, E.** Resolution of a compd. contg. trivalent N into optical antipodes, 9072*g*; see Seekles, L.
—— and Nivard, R. J. F. Ultraviolet absorption spectra and stereochem. structure of plant growth substances of the *cis*-cinnamic acid type and of stilbestrol, 7093*e*.
—— and Veldstra, H. Plant growth regulators (XIV) influence of synthetic plant-growth substances on lipoid monolayers, 7554*d*.
**Havis, J. R.** Herbicidal properties of pure petroleum hydrocarbons, 1895*c*; see Dearborn, C. H.; Sweet, R. D.
**Havis, L.** See Weinberger, J. H.
**Havránek, J.** Utilization of sulfite liquor by different kinds of fermentation, 8091*b*
**Haward, R. N.** Fracture of squares of transparent plastic sheeting under impact at different velocities, 2464*i*, 4509*g*; polymerization in a system of discrete particles, 7296*b*.
**Hawes, R. J.** Regenerating Mg silicate adsorbents, P 5134*f*
**Hawirko, R.** See Newcombe, H. B.
**Hawk, C. O.**, Stern, N. R., and Hofer, L. J. E. Catalyst for hydrocarbon synthesis, P 827*a*.
**Hawke, D. L.** See Shaw, W. E.
**Hawke, F.** Hydroxyl value of fatty compds., 8177*h*; see Schoeman, D. J.
**Hawkes, J. A.** See Allen, J. J.
**Hawkes, M. F.**, and Brown, B. F. As-cast structures in cast steels, 88*b*.
**Hawking, F.**, and Laurie, W. Action of hetrazan on filariasis and onchocerciasis, 8540*e*.
—— and Perry, W. L. M. Activation of paludrine, 2703*f*.
—— and Sewell, P. Maintenance of a filarial infection for chemotherapeutic investigations, 2702*i*.
—— and Sewell, P., and Thurston, J. P. Action of hetrazan in filariasis, 1490*f*.
**Hawkings, E. C.**, Hunter, R. F., and Mann, W. B. Standardization of $I^{131}$, 7813*d*; efficiency of gas counters filled with $CO_2$ and $CS_2$, 8263*e*.
——, Hunter, R. F., Mann, W. B., and Stevens, W. H. Half life of $C^{14}$, 8266*d*
**Hawkins, A.** See Nelson, Walter L.
**Hawkins, A. W.** See Batchelder, G. W.
**Hawkins, B. G.** Governors—their design and application, 8645*f*.
**Hawkins, G. E., Jr.** See Frye, J. B.
**Hawkins, G. F.** See Minor, J. T.; Roe, A.
**Hawkins, J. H.**, and Thurston, R. European corn borer control in central Maine, 6354*e*.
**Hawkins, L. E.** See Blizzard, W. L.
**Hawkins, M. A.** See Wolff, W. A.
**Hawkins, P. A.**, and Imperial Chemical Industries Ltd. Stabilization of chlorinated paraffin wax, P 1179*d*.
**Hawkins, R. D.** See Mendel, B.
—— and Mendel, B. Cholinesterase (VI) selective inhibition of true cholinesterase, 9103*a*.
——, Nishikawara, M., and Mendel, B. Thyroid activity and level of pseudocholinesterase in plasma, 7521*i*.
**Hawkins, S. W.**, and Richards, R. B. Light transmission and the formation and decay of spherulites in polythene, 8802*i*
**Hawkins, W. L.**, and Biggs, B. S. Aliphatic 1,2-diamines, 8381*b*.
**Hawkins, W. W.**, Leeson, H. J., and McHenry, E. W. Hemoglobin levels in Canadian population groups—children and young women, 9215*g*.
**Hawkinson, H. R.** Plating decorative automotive hardware, 6089*h*.
**Hawkinson, V.** See Grinstein, M.
**Hawley, D. M.** See Caesar, C. V.
**Hawley, G. G.** What is colloid chemistry? 1625*b*.
**Hawley, J. E.**, and Hewitt, D. F. Pseudo-eutectic and pseudo-ex-soln. intergrowths of Ni arsenides due to heat effects, 8834*f*.
**Haworth, J.** See Briggs, A. S.
**Haworth, J. F.** Vulcanization of butyl rubber with *p*-quinonedioxime and its derivs., 5623*a*.
—— and Baldwin, F. P. Plasticizing of synthetic elastomers, P 4891*b*
**Haworth, J. W.** See Bergel, F.; Roche Products Ltd.
**Haworth, R. D.** John Masson Gulland, 915*h*.
——, Moore, B. P., and Pauson, P. L. Purpurogallin (I), 3403*a*.
**Haworth, R. D., Jr.** Abrasive wear of metals, 5721*a*.
**Haworth, W. N.** See Bourne, E. J.
——, Kent, P. W., and Stacey, M. Constitution of a specific somatic polysaccharide from *Mycobacterium tuberculosis*, 584*c*, constitution of a lipoid-bound polysaccharide from *Mycobacterium tuberculosis*, 585*f*
—— and Stacey, M. Production of dextran from sucrose by means of dextran-forming bacteria, P 5981*d*.
**Hawthorne, H. R.** See Nemir, P., Jr.
**Hawtin, P. R.** See Rooney, J. H.
**Haxel, O.** See Heisenberg, W.
—— and Houtermans, F. G. Simultaneous emission of two electrons during the radioactive disintegration of $Rb^{87}$, 8867*f*.
——, Houtermans, F. G., and Kemmerich, M. Half life of $Rb^{87}$, 4120*e*.
——, Jansen, J. H. D., and Suess, H. E. Magic nos. in nuclear structure, 6501*d*.
**Hay, E. C.** See Berman, D.
**Hay, W.** See Smith, W. A.
**Hayakawa, I.** See Kobayashi, H.; Komuro, T.
**Hayakawa, S.** Origin of high-energy photons, 7319*h*.
**Hayashi, C.**, Hashimoto, K., Kaneko, K., Okamoto, K., and Sagane, R. "Philip's gage," 8751*c*.
**Hayashi, D.**, and Nishikawa, Y. Foam-raising agent, P 6846*c*.
**Hayashi, I.** See Hachihama, Y.
**Hayashi, Koki.** See Ueno, Seiichi.
**Hayashi, Kozo.** Anthocyanins (XV) uliginosin, dye from the berries of *Vaccinium uliginosum*, (XVII) studies on uliginosin, 8450*c*; see Shibata, Keita.
—— and Inoue, T. Chem. nature of a yellow dye from the so-called Kariyasu plant, 8450*h*
—— and Ouchi, K. Yellow coloring matter in the flower of *Meratia praecox*, 8449*f*, meratin, 8419*i*; coloring matter contained in the white flower of *Magnolia kobus*, 8450*g*.
——, Yamaki, T., and Inoue, T. Occurrence of bergenin in Saxifragaceae, 8151*a*
**Hayashi, M.** See Osawa, S.
**Hayashi, S.** See Hamai, S.
**Hayashikane Marine Products Industrial Co.** Hesperidin, P 6791*g*
**Hayashikane Suisankogyo K. K.** Same as Hayashikane Marine Products Industrial Co.
**Haycock, C. G.** Treatment of soils for agricultural purposes, P 5144*c*.
**Hayden, B.**, and Smith, L. Relation of atmosphere to biol. effects of x-rays, 3495*c*.
**Hayden, H. S.** See Pearson, I. A.
**Hayden, R. J.** See Hess, D. C., Jr.; Ingram, M. G.; Lewis, L. G.
——, Hess, D. C., Jr., and Ingram, M. G. Isotopic constitution of Yb, 4130*d*.
——, Reynolds, J. H., and Ingram, M. G. Reactions induced by slow neutron irradiation of Eu, 5296*h*.
**Hayek, E.** Basic salts of Mg, 9393*e*.
—— and Rehner, T. ThI$_4$, 8932*i*.
**Hayes, A. O.** Coal possibilities in Newfoundland, 5708*h*.
**Hayes, E. R.** Rigorous redefinition of the plasmal reaction, 2657*f*.
**Hayes, E. T.** See Long, J. R.
——, Dilling, E. D., and Roberson, A. H. Fabrication and mech. properties of ductile Zr, 8327*b*.
—— and Roberson, A. H. Effects of heating Zr in air, O, and N, 8910*f*.
**Hayes, F. R.** See Goffin, C. C.
**Hayes, F. W.** Elec. equipment in modern rubber-mixing plant, 4505*e*.
**Hayes, J. G.**, Hays, L. A., and Wood, H. S. Com. desalting unit employing fiberglas as contacting agent, 4837*g*.
**Hayes, K.** 2-Nitro-4-furaldehyde semicarbazone, an isomer of furacin, 7015*c*.
**Hayes, R. A.** See Drake, N. L.
**Hayes, R. F.** Dialkyl sulfo-succinates as anticrazing agents in the polymerization of styrene, P 7264*a*; see Carswell, T. S.
**Hayman, J. M., Jr.** See Faddis, M. O.
**Haymond, H. R.** See Garrison, W. M.
**Haynes, F. W.** See Dexter, L.
**Haynes, H. L.** See Granett, P.
**Haynes, J. L.**, and Robbins, W. R. Ca and B as essential factors in the root environment, 1461*e*.
**Haynes, J. R.**, and Shockley, W. Trapping of electrons in Ag chloride, 3295*b*.
**Haynes, R.** See Sutherland, E. W.
**Haynes, S. K.** Evapn. of Ga, 4066*i*.
**Haynes, W.** American Chem. Industry, Vol. IV (book), 1503*h*.
**Haynor, R. L.** See Condit, P. C.
**Hays, F. N.** Modern vs. old-type soaking pits for steel ingots, 7390*b*
**Hays, G. E.** See Mayland, B. J.
**Hays, L. A.** See Hayes, J. G.
**Hayslip, N. C.** Insecticide studies on Chinese cabbage for the control of the turnip aphid and certain foliage-feeding larvae, 7628*a*.
**Haythorne, P. A.**, and Payne, B. R., Jr. Detn. of C content in steels, 539*i*.
**Hayton, J. D.** See Rowledge, H. P.
**Hayward, A. T. J.**, and Lee, A. R. Development in white and colored asphalts, 7220*b*.
**Hayward, C. R.** See Chapin, E. J.
**Hayward, E.** Energy spectrum of the delayed neutrons from $O^{17}$, 4116*e*; see Brueckner, K.; Hartsough, W.
**Hayward, E. G.** Penicillin and Other Antibiotics (book), 5086*e*
**Hayward, F. W.** See Seymour, R. B.
**Hayward, P.**, and Yost, D. M. Kinetics of the oxidation of hypophosphorous acid by iodate ion, 5267*i*
**Haywood, R. W., Jr.**, and Wells, B. H. Processing water for industry, 8583*e*.
**Hayworth, C. B.** See Newman, M.
**Hazán, S. J.**, and Treadwell, C. R. Saline and methionine-saline effects on survival rate of rats receiving standardized burn shock, 315*d*.
**Hazard, R.** Evaluation of procain esterase in the blood, 7997*a*.
——, Beauvallet, M., and Giudicelli, R. Comparison of the adrenolytic effects of ergotamine—peripheral vascular effects of some amino alcs. related to adrenaline in dogs pretreated with ergotamine, 3928*d*; effect of ergotamine on the vascular action of isopropyladrenaline and adrenaline, 7576*f*.
—— and Bonamy, C. Hydrolysis of procaine by the blood, 2318*e*.
——, Cheymol, J., Chabrier, P., and Smarzewska, K. Anticonvulsive action and mol. structure of some heterocyclic pentagonal compds. (V) duration of the anticonvulsive action of dimethyldithiohydantoin, 5500*c*; (VI) influence of substitution at the 5 position, 7585*f*; 5,5-dialkyl-2,4-dithiohydantoins, 6171*d*.
——, Cheymol, J., and Smarzewska, K. Anticonvulsive action and mol. structure of some heterocyclic pentagonal compds. (IV) dimethyldithiohydantoin and its salts, 2324*a*.
—— and Corteggiani, É. Antinicotinic action of pantocaine (tetracaine) and larocaine, 1107*e*.
——, Corteggiani, É., and Renard, S. H. Pharmacol. activity of the methiodides of homologs of phenylethylmorpholine and phenylethyldiethylamine, 4376*c*.
—— and Guillot-Urbain, M. Suppression of the local anesthetic action of procaine by sulfonamides—action of soluseptazine, 3520*c*.
——, Nicaud, P., and Lafitte, A. Procaine esterase in the blood in hepatic disease, 5108*d*.

——, **Renard, S. H., and Cornec, A.** Action on arterial pressure by amine derivs. of β-phenylethylamine—reversal starting from a certain mol. wt. of the substituted radical, 7585*f*.

**Hasel, F.** Outline of a colloid chemistry course, 2049*h*; see Cooke, W. D.; Devlin, J. A.; Edelberg, R.

——, **Parker, J. A., and Schipper, E.** Low-temp. studies with colloidal silicic acid, 8800*i*.

——, **Schock, R. U., Jr., and Gordon, M.** Interaction of ferric ions with silicic acid, 8237*d*.

**Haselton, L. W.,** and **Godfrey, E.** Interaction of autonomic drugs on isolated mouse intestine, 3097*h*.

—— and **Hellerman, R. C.** Pharmacology of *Euphorbia pilulifera*, 8551*f*.

**Hasen, E. L.** See Brown, Rachel.

**Hasen, S. W.** See Apell, G. A.

**Hasen, W. E.** See Bridge, H. S.

**Haslett, R. N.** McEwen, W. E.

**Hasra, G. D.** See Srinivasan, R.

**Head, F. S. H.** Formation of tartaric acid by oxidation and hydrolysis of oxycelluloses produced by dinitrogen tetroxide, 581*i*.

**Headley, F. B.** See Shipley, M. A.

**Heagy, A. B.** 2,4-D herbicides, 7625*a*

**Heagy, E. C.** Detn. of Mg in plasma or serum, 4323*c*.

**Heal, H. G.** Deposition potential of Po, 4583*b*; electrochemistry of U, 5314*g*; see Emeléus, H. J.

—— and **Thomas, J. G. N.** Unstable ions of quinquevalent U, 5209*b*.

**Heal, H. T.,** and **Savage, J.** X-ray method for studying rapid phase changes in steels at high temps., 9000*g*

**Heal, R. E.,** and **Menusan, H., Jr** Technique for the blood-stream injection of insects and its application in tests of certain insecticides, 1139*i*.

**Healey, A. C.** Functions of pigments in printing inks, 1196*e*; water-based intaglio inks, 2445*b*; water-based letterpress inks, 4491*h*.

**Healy, T. V.** See Foster, R. T

**Healy, J. E., Jr.** See Glenn, W. W. L.

**Healy, J. J., Jr.,** Taylor, M. H., and Abbiati, F. A. Pickling of stainless steel, P 6147*e*.

**Heany Industrial Ceramic Corp.** Porous refractory $Al_2O_3$ material, P 4441*f*.

**Heap, R.** See Chapman, N. B.; Lock, R. H.

—— and **Saunders, B. C.** Esters contg P (VII) substituted diaminofluorophosphine oxides, 1314*d*.

**Heard, R. D. H.** See Albert, S.

**Hearle, J. W. S.,** and **Jones, E. H.** Elec resistance of yarns made from mixed fibers, and its use in measuring the moisture condition of these yarns, 5954*h*.

**Hearne, G. W.,** and **Adams, M. L.** Unsatd carbonyl compds., P 2222*f*.

——, **Evans, T. W., and Yale, H. L.** 2-Monosubstituted pyrimidines, P 1813*f*

—— and **La France, D. S** Rearrangement process to obtain unsatd. halogen-substituted hydrocarbons of a definite structure, P 663*e*.

——, **LaFrance, D. S., and Evans, T. W.** Noncatalytic halogenation of certain alkylated acrylonitriles, P 7498*g*.

**Hearon, J. Z.** Configuration of cobaltodihistidine and oxy bis(cobalto-dihistidine), 4908*i*; see Burk, D.

——, **Burk, D., and Schade, A. L.** Physicochem. studies of reversible and irreversible complexes of Co, histidine, and mol. $O_2$, 7850*c*.

**Hearst, P. J.** See Noller, C. R.

**Heatbath Corp.** Blackening Cu and Cu alloys, P 7404*f*; aq. bath for coloring stainless steel, P 7803*i*.

**Heath, D. F.,** and **Linnett, J. W.** Mol. force fields (I) structure of the water mol., (II) force field of the tetrahalides of the Group IV elements, 2051*f*; (III) vibration frequencies of some planar $XY_3$ mols., (IV) application of the orbital valency force field to tetrahedral halides, (V) application of the orbital valency force field to some tetrahedral anions, 4571*d*; (VIII) vibration frequencies of some octahedral $XY_3$ mols., 5651*a*.

**Heath, F. H.** See Davis, M. V.

**Heath, G. D.** Generation of insecticidal smokes, 5146*e*.

**Heath, J. C.,** Cardon, S. Z., **and Halbedel, H. S.** 3-Chlorocoumarin, P 7513*e*.

**Heath, N. S.** See Culvenor, C. C. J.

**Heath, O. V. S.** Stomatal behavior (II) starch in light responses of stomata, 8455*d*.

**Heath, Robert L.,** and **Huxley, E. C** Regraining Al lithographic plates, P 8346*e*.

**Heath, Royden L.** See Dickson, J. T.

—— and **Imperial Chemical Industries Ltd.** Recovery of terephthalic acid, P 4052*b*; degradation of terephthalic acid polyesters, P 4519*a*.

—— and **Piggott, H. A.** β-Nitroalkanesulfonic acids, P 5411*f*.

**Heath, T. D.** Reducing $Fe_2O_3$ to $Fe_3O_4$, P 8108*g*.

**Heatherman, M. E.** See Clapper, W. E.

**Heatley, A. H.** See Morrison, G. O.

**Heatley, N. G.** International standard and unit for penicillin (VIII*b*), 3569*b*.

**Heaton, E.** Behavior of refractory materials in carbonizing plant (I) behavior in retort chambers of continuous vertical retort settings, 3582*f*.

**Heaton, T. B.,** and **Robinson, G. M** Biol properties of a substance isolated from wheat middlings and of hydroxymethylfurfuraldehyde, 3479*d*.

**Heavenrich, R. M.** See Anfanger, H.

**Heazlewood, W. V.** See Carter, C. L.

**Hebb, C. O.** See Konzett, H.

—— and **Konzett, H** Difference between morphine and synthetic analgesics in their actions on ganglionic transmission, 6311*a*; vasodilator and bronchodilator effects of *N*-isopropylnorephedrine (aludrine, isoprel) in isolated perfused lungs, 7582*c*

—— and **Nimmo-Smith, R. H.** Pulmonary vasoconstriction in response to inhalation of $CO_2$ in the isolated perfused lungs of Macacus rhesus, 5113*a*.

**Hebberling, H.** Mineral extenders, their detection and use, 8704*a*.

**Hebden, D.** See Dent, F. J.; Taylor, V. T.

**Heberlein, Georg.** See Heberlein, Georges.

**Heberlein, Georges,** Heberlein, Georg, Weiss, F., Odinga, T., and Risch, K. Producing fibrous materials and the product, P 4020*h*

**Heberlein & Co. A.-G.** Durable nongelatinizing cellulose solns., P 7228*g*, 7714*c*, stable printing paste for textile finishing, P 7713*b*; highly crimped synthetic fibers, P 8093*f*; stable impregnating bath for aftertreatment of parchmentized rayon fabrics, P 9478*b*; stable impregnating bath for stiffening textiles, especially those made of natural or regenerated cellulose, P 9477*b*; stable parchmentizing bath for finishing fine cellulose fabrics, P 9178*d*, stable textile-finishing bath, P 9476*i*.

**Heberlein Patent Corp.** Producing fibrous materials and the product, P 4020*i*; transparent cellulosic textiles, P 4869*a*.

**Hebermehl, R.** Isocyanates as raw materials for coatings, 1604*i*; cellulose ethers and chlorinated rubber, 5588*a*

**Hébert, B. E.,** and **Ellery, K. W.** Practical Pharmacognosy (book), 3570*h*

**Hebert, J.** See Boischot, P.

**Hébert, S.** See Verne, J

**Hebký, J.** Choline derivs., 1720*d*.

**Hebo, H.** Self-cleaning filtering unit where a combined vibratory, relaxing, and stretching movement of the filter ejects accumulated solids deposited by the treated liquid entering under pressure, P 2476*e*.

**Heby, P. C.** Control of snails on citrus trees, 4414*e*.

**Hechenbleikner, I.** Insecticides, P 2732*c*; 2-butoxyethyl fluoroacetate, P 3140*h*; see Fletcher, J. H.

**Hechendorn, A.** See Felix, F.

**Hecht, H.** Dehydration of metal chloride hydrates with thionyl chloride or carbonyl chloride, 2533*b*; see Jander, Gerhard.

——, **Jander, G., and Schlapmann, H.** Action of $SOCl_2$ on oxides, 2885*i*.

**Hecht, L.** See Schmidt, Gerhard.

**Hechter, O.** Lymphocyte discharge from the isolated rabbit spleen by adrenal cortical ext., 8036*a*.

—— and **Hadidian, Z.** Hyaluronidase activity of spermatozoa, 8031*c*.

**Heck, H. L.** Grundwasseratlas von Schleswig-Holstein (book), 4406*f*

**Hecker, J. L.** See Spadaro, J. J.

**Heckly, R. J.,** Goldwasser, E., and Kefauver, D. Infection with *B. anthracis* (VIII) production of an immunizing antigen, 9221*g*.

**Hector, L. G.,** Lein, H. S., and Scouten, C. E. Physics for Arts and Sciences (book), 932*d*.

**Heczko, T.** Chemisch - stöchiometrische Rechentafeln (book), 7318*i*.

**Hedberg, C. W. J.** Dust-collecting compns., P 3120*g*.

**Hedberg, H. D.** See Funkhouser, H. J.

**Hedemann, B.** See Kindler, K.

**Hedén, C. G.** See Malmgren, B.

—— and **Wyckoff, R. W. G.** Electron microscopy of heated bacteria, 8439*b*.

**Hedenburg, O. F.** Methylenedioxyphenyl compd. as insecticide and pyrethrin synergist, P 1526*b*

**Hedges, E. S.** Nonferrous metals, 4788*f*.

**Hedgran, A.** See Benes, J.; Deutsch, M.; Siegbahn, K.

**Hedin, R.,** and **Thorén, P. Å.** Lime research, 9409*e*

**Hedley, A. G. M.,** Joscelyne, F. M., McEntee, J. C. H., and Imperial Chemical Industries Ltd. Evapg $CaCl_2$ solns., P 3158*f*; evapg. caustic soda solns., P 3158*h*.

**Hedley, N.** See Herkenhoff, E. C

**Hedlund, I.** Lignin condensation in the sulfite cooking process, 8675*i*.

—— and **Steuinger, M.** Potentiometric trituration in 2-phase systems—detn. of bitter acids in hops, 3559*a*.

**Hedlund, T.,** Nutrition of the grain crop with special reference to the cause of the dry-spot disease, 3070*g*.

**Hedrick, M. T.** See Mayfield, H. L.

**Hedström, H.** See Löfgren, N.

**Hedvall, J. A.** Swedish Institute for Silicate Research, 4437*d*, reactivity of solid substances—actual tech. applications and future prospects, 7205*a*.

**Hée, A.** Radioactivity in a Vosges granite, 37*d*, 4128*e*.

**Heemstra, H.** See Dirken, M. N. J.

**Heepe, F.** See Holtz, P.

**Heer, J.** See Miescher, K.

**Heer, J. de.** See De Heer, J.

**Heer, L. J. de.** See Berg, H. J. van den; Jong, H. G. B. de.

**Heerdt, R.,** and **Goubeau, J.** Raman spectra of the solid alkali sulfates, 1657*h*.

**Heerhaber, I.,** Loeschcke, H. H., and Westphal, U. Action of progesterone on the basic metabolism, 7112*c*.

**Heering, E.** Hazards of arc reduction furnaces and accident prevention, 6519*b*.

**Heering, H.** See Nitsche, R.

——, **Puell, H.,** and **Drewitz, I.** Detn. of the water-vapor permeability of cable sheath materials, 8738*a*.

**Heersma, J. R.,** and **Annegers, J. H.** Cholecystectomy on fecal fat excretion, 740*f*.

**Hees, G.** See Jacobs, H.

**Hees, W.** See Noerr, H

**Heffelfinger, D.** Zeolite softening, 4794*e*.

**Hefti, F.** See Geiger, M.

**Hefti, H. R.** Spongy, porous product from materials contg. gelatin, P 5618*i*.

**Hegan, H. J.** See Courtaulds Ltd.

**Hegedus, L.** Storage of brown coal, 9413*h*.

**Heger, J. J.** Stainless steels—their characteristics, 88*h*.

**Heger, L.** Prepn. of nitroamines, 4218*d*.

**Heggen, M. H. M.,** and **Reith, J. F.** Detn. of phytic acid, 2896*c*.

**Heggeness, H. G.** See Dunham, R. S

**Hegglin, R.,** Grauer, H., and Munchinger, R. Effect of various substances on the activity of heart muscle adenosinetriphosphatase, 8058*a*.

**Hegnauer, R.** Chemistry and morphology of Swiss *Thymus* forms, 7090*b*.

—— and **Flück, H.** Detn of the activity of small quantities of drugs, 3145*d*; growing high-value drug plants (I) *Datura stramonium* and *Datura tatula*, 5544*f*; development of high-grade drug plants (II), 9380*f*.

**Hegner, R. W.** College Zoology (book), 3114*f*.

**Hegsted, D. M.** Activity of pantothenol as pantothenic acid in promoting growth, 3074*f*; see Charalampous, F. C.; Kinney, T. D.; Riggs, T. R.; Wang, C.-F.

—, **Finch, C. A., and Kinney, T. D.** Influence of diet on Fe absorption (II) interrelation of Fe and P, 8479*a*.

— and **Huffenreffer, V. K.** Calorie intakes in relation to the quantity and quality of protein in the diet, 6713*b*.

— and **Riggs, T. R.** Pantothenic acid requirements of chicks receiving a purified diet, 5462*c*.

**Hehre, E. J.** See Carlson, A. S.

—, **Carlson, A. S., and Hamilton, D. M.** Cryst. amylose from cultures of a pathogenic yeast (*Torula histolytica*), 3063*a*.

— and **Hamilton, D. M.** Bacterial con-

version of dextrin into a polysaccharide with the serological properties of dextran, 7079*d*.
—, Hamilton, D. M., and Carlson, A. S. Synthesis of a polysaccharide of the starch-glycogen class from sucrose by a cell-free, bacterial enzyme system (amylosucrase), 6678*h*.
**Heiberger, C. A.** Interpolymer, P 3660*h*.
**Heibing, W.** See Goehring, M.
**Heicken, K.** Properties of acidified potato starch and its applicability to the production of solid culture media, 274*h*; see Hailer, E.
**Heid, J. V.** See Levine, Robert.
——— and Levine, R. Acylation of furan and thiophene with aliphatic anhydrides in the presence of $BF_3$ etherate, 214*c*.
**Heide, H. E.,** and Rutledge, F. A. Potato Mountain Sn placer deposits, Seward Peninsula, northwestern Alaska, 4608*e*.
———, Wright, W. S., and Rutledge, F. A. Kobuk River asbestos deposits, Kobuk district, northwestern Alaska, 4190*c*
**Heidelberger, C.** Synthesis of DL-tryptophan-β-$C^{14}$, indole-3-AcOH-α-$C^{14}$, and DL-tryptophan-3-$C^{14}$, 8379*h*; see Calvin, M.; Fieser, L. F.; Potter, V. R.
———, Abraham, E. P., and Lepkovsky, S. Mechanism of the mammalian conversion of tryptophan into nicotinic acid, 2686*c*; tryptophan metabolism (II) mechanism of the mammalian conversion of tryptophan into nicotinic acid, 7115*a*.
———, Gullberg, M. E., Morgan, A. F., and Lepkovsky, S. Tryptophan metabolism (I) mechanism of the mammalian conversion of tryptophan into kynurenine, kynurenic acid, and nicotinic acid, 7114*h*.
**Heidelberger, M.** See Osler, A. G.
**Heideman, M. L., Jr.,** and Rutledge, R. C., Jr. *p*-Aminomethylbenzenesulfonamide—its detn. in biol. fluids—blood-serum levels obtained on oral and subcutaneous administration, 263*e*.
**Heidenreich, R. D.** Structure of slip bands and cold-worked metal, 7394*c*.
**Heider, M. F.** See Horan, F. E.
**Heider, R. L.,** and Stehman, C. J. Ethylene oxide, P 3445*i*
**Heidt, L. J.,** Mann, J. B., and Schneider, H. R. Photolysis of persulfate (II) quantum yield in water and the effect of NaCl in dil. alk. soln., 4144*h*.
———, Southam, F. W., Benedict, J. D., and Smith, M. E. Reducing powers of sugars under equiv. conditions in a carbonate-buffered cupric tartrate micro reagent of low pH, 7861*b*.
**Heil, V. E.** See Hensel, F. R
**Heilala, P.** See Patiälä, R.; Siintola, S.
**Heilborn, G.** Radioactive minerals—their source and their distribution, 5659*e*.
**Heilbron, I. M.** See Bader, H.; Capp, C. W.; Carter, P. W.; Chatterjee, R.; Cook, A. H.; Therapeutic Research Corp of Great Britain, Ltd.
———, Cook, A. H., and Levy, A. L. 5-Amino-2(3*H*)-thiazolethiones, P 0669*i*.
——— and Jones, E. R. H. 2,5-Dimethylfuran and acetonylacetone, P 4700*c*, 5805*i*.
———, Jones, E. R. H., Lewis, D. G., Richardson, R. W., and Weedon, B. C. L. Polyene series (XXVII) biologically active $C_{18}$ acid, 8360*g*.
———, Jones, E. R. H., and Richardson, R. W. Polyene series (XXV) mol. structure and vitamin A activity—biologically active $C_{17}$ acid, 7437*c*.
———, Jones, E. R. H., Richardson, R. W., and Sondheimer, F. Polyene series (XXVI) analogs of β-ionone, 8359*g*.
———, Jones, E. R. H., and Robins, P. A. Nonsaponifiable matter of shea-nut fat (IV) tetracyclic diethenoid alc., butyrospermol, 7462*i*.
———, Jones, E. R. H., and Sondheimer, F. Acetylenic compds. (XV) oxidation of primary acetylenic carbinols and glycols, 7415*c*.
**Heilbronner, E.** See Günthard, H. H.; Plattner, P. A.
———, Däniker, H. U., and Plattner, P. A. Ultraviolet-absorption spectra of alkyl substituted phenanthrenes, 8274*f*.
——— and Weber, S. Hammett acid-function of the system $H_3PO_4$–$H_2O$, 8833*f*.
**Heilbrunn, L. V.,** and Wilson, W. L. Effect of heparin on cell division, 3529*f*.
**Heiligman, F.** See Foster, J. W.
**Heiligman, H. A.** See Howard, J. J
**Heiligmann, R. G.** Polymerization of α-alkyl styrenes, P 4423*g*; ionic polymerization of monoölefinic hydrocarbons at low temps., 7313*a*; see Hersberger, A. B.
**Heilmann, A.** Recovery of fat-sol. vitamins, provitamins, and other nonsaponifiable constituents of chlorophyll-contg. plants, P 3152*c*.
**Heilmeyer, L.** Action of benzaldehydethiosemicarbazone (TB I/698) in tuberculous and nontuberculous disease, 8534*d*; therapy with cytostatic substances, 9263*f*.
———, Merk, R., and Pirwitz, J. Klinik und Pharmakologie der Urethans und anderer cytostatischer Stoffe. Hft. 4 (book), 9268*h*.
**Heilpern, W.** Absorption of light by O at the wave length λ = 2144A. as a function of the pressure in the interval from 0.2 to 130 kg./sq. cm., 7339*d*.
**Heim, F.** Alteration of the activity of amino oxidase toward adrenaline, 701*g*; action of synephrine on blood pressure in men pretreated with ephedrine, veritol, and pervitin, 7137*f*; organotropic action of neoarsphenamine, 7137*g*; see Gremels, H.
——— and Rurte, A. Values of the serumcholinesterase and blood sugar in some skin diseases, especially those of allergic nature, 4362*a*.
**Heim, H. C.** U. S. P. XIII method for the assay of desiccated thyroid, 7192*e*; atebrin (chinacrin, quinacrine), 7639*e*.
**Heim, R.** Louis Mangin and Pierre Allorge—first holders of the chair of cryptogamic botany at the museum, 9*a*.
**Heiman, E. Ya.** Enzyme system hyaluronidase–hyaluronic acid in the physiology and pathology of the animal organism, 5846*e*.
**Heiman, S.** Deposition of metals on Al by immersion from solns contg. fluorides, 4995*e*; see Graham, A. K
**Heiman, W. J.** See Orth, D. A
**Heimann, H.** See Wilbrandt, W
**Heimann, W.** Action of fumaric and maleic acids as fat antioxidants and effect of the temp., 3633*f*
**Heimann-Hollaender, E.** See Lichtenstein, N.
**Heimbach, N.** 5-Hydroxy-1,3,4-triazaindolizines as stabilizers for photographic emulsions, P 4165*b*.
——— and Kelly, W., Jr. Fog inhibitor for photographic emulsions, P 52*h*; 1,3-bis(3-amino-1,2,4-triazole)oxypropenes as stabilizers for photographic emulsions, P 8294*e*; 1,3-bis(5-amino-1,3,4,1*H*-triazolyl)-2-propen-1-ones, and photographic materials contg. such compds as stabilizers for photographic Ag halide emulsions, P 8294*f*.
**Heimer, C. B.,** Maslow, H. L., and Sobel, A. E. Influence of thyroid on utilization of vitamin A, 8023*e*
**Heimsch, R. A.** See Emerson, W. S.
**Hein, C. C.** Liquid treatment of contact surfaces for Cu oxide rectifiers, P 4590*a*; elec. contact device, P 6529*e*.
**Hein, D. W.** See Marvel, C. S
**Hein, F.,** and Arvay, D. Sepn. and detn. of Mn as basic Bi permanganate, 519*i*.
——— and Heuser, E. Organometal carbonyls (III) organo lead Fe tetracarbonyls, 2111*e*, (IV) reactions of organo lead bases with Fe carbonyl hydrides, 4596*b*.
**Heinänen, P.** Autoxidation of tall oil, 9442*f*
**Heinbecker, P.** See White, H. L.
**Heine, R. W.** Deoxidation of white cast iron, 7877*d*
**Heinecke, W.** Silk screen printing ink, P 878*b*.
**Heinemann, A.** Soybean oil, 5975*f*.
**Heinemann, F.** Fischer-Tropsch hydrocarbon synthesis, 3167*e*, tech. developments in the American petroleum industry, 3096*g*.
**Heinemann, G.** Corrosion problems in the manuf. of soda ash by the $NH_3$ soda process, 99*g*.
**Heinemann, H.** Al fluoride gels, P 1930*a*; acetals, P 2222*b*, see Krieger, K. A.
——— and Krieger, K. A. Regeneration of synthetic metal silicate adsorbents by oxidation, P 2422*e*.
**Heinemann, W. W.** See Ensminger, M. E.
**Heinicke, A. J.** See Day, E. E.
**Heinle, R. W.** See Berk, L.; Weir, D. R.
**Heinlein, L.** See Juza, R.
**Heinlen, W. H., Jr.** Acceleration study using reënforcing furnace blacks in natural-rubber treads, 7251*h*.
**Heinrich, E. W.** Pegmatite mineral deposits, 8318*h*, 8093*d*.
**Heinrich, F.** Acid-corrosion protection and acid-resistant construction, 9014*g*.
**Heinrich, G.** See Chomse, H.; Klemenc, A.
**Heinrich, M. R.,** and Mattill, H. A. Creatine content of the liver in the muscular cystrophy of vitamin E deficiency, 5836*c*.
———, Wilson, D. W., and Gurin, S. Isotopic studies of the biosynthesis of nucleic acid components (I) purines and pyrimidines, 6262*b*.
**Heinrich, P.** See Chardonnens, L.; Schuler, W.
**Heinrich, R. L.** Lubricating oil, P 4008*e*, 6404*e*; sepn. of 1-pentene from other $C_5$ olefins, P 4283*e*.
**Heinsen, A. J.** See Hald, P. M.
**Heintze, S. G.** Mn deficiency in peas, etc., in relation to availability of soil Mn, 2353*c*
**Heintzeler, M.** See Schmidt, O. T.
**Heintzelman, W.** See Nickels, J. E.
**Heinz, E.,** Muller, E., and Rominger, E. Citric acid and rachitis, 5464*b*.
**Heinz, H.** See Huttig, G. F.
**Heinzelman, D. C.** See O'Connor, R. T.
**Heinzen, B.** Acid phosphatase activity in transected sciatic nerves, 7101*g*.
**Heischkeil, W.** Coke-oven gas for distribution, 1169*c*.
**Heise, G. W.** Profession of electrochemistry—opportunities in the primary battery field, 6089*h*, see Cahoon, N. C.; Winslow, N. M
**Heisenberg, W.** Impact of Max Planck's activity, 5239*b*; Present Situation in the Theory of Elementary Particles -Electron Theory of Superconductivity (book), 5311*d*; Physik der Atomkerne (book), 7830*a*, production of meson showers, 8260*f*, statistical theory of turbulence, 8778*i*.
———, Wirtz, K., Haxel, O., Hocker, K. H., and Harteck, P. Nuclear technique 3701*f*
**Heiser, H. W.** Production of cryolite by fluoboric acid process, 3983*b*.
**Heisey, L. V.** See Bachman, G. B.
**Heisler, A.** See Glass, G. B. J
**Heiss, J. F.,** and Coull, J. Nomograph speed flow calcn., 4906*b*.
**Heiss, J. H.** See Mason, W. P
**Heiss, R.** Foodstuff technology as ultimate aim, 5507*f*; packaging moisture-sensitive food, 5875*b*.
**Heite, H. J.** Mathematical-statistical investigation of the detn. of the medium lethal dose, 5816*c*.
**Heitler, H.** See Guggenheimer, K. M
**Heitler, W.** Meson production, 6501*g*, see Slotnick, M.
**Heitman, F. R.** See Levin, L.
**Heitman, H., Jr.** See Hughes, E. H
——— and Hogan, A. G. Vitamin deficiencies in rations of natural feeds, 9192*f*.
**Heitz, R. G.,** Oldershaw, C. F., Brown W. E., and Barnard, R. D. Low-temp recovery of $C_3H_8$ from natural gas, 7210*i*
**Heitzmann, M. F.** See Leroux, H.
**Heitzmann, P.** See Arditti, R.
——— and Bouchard, G. Metabolism of bees wax by microorganisms, 8002*g*.
———, Girard, H., and Bouchard, G. Metabolism of paraffin by a strain of *Micrococcus ureae*, 1826*g*.
**Heiz, R.** Suitability of an aq. soln. of *Primula* extract as a substitute for the decoction and the infusion, 3144*h*.
**Heizer, H. K.** See Finney, K. F.
**Hejtman, B.** Limestone deposit at Dolní Nerestce in the Písek district (Bohemia), 4190*g*.
**Hekelaar, M.** See Addink, N. W. H.
**Hekker, T.** See Straub, J.
**Hekking, J. W. H.** See Berkhout, H. W.
**Helberg, E.** Detn. of the egg content in alimentary pastes, 5877*i*.
**Helberger, J. H.,** Manecke, G., and Fischer, H. M. Org. sulfonic acids (II) sulfochlorination of 1-chlorobutane and other alkyl halides—synthesis of sultones and sultams, 6569*c*.
———, Ulubay, S., and Civelekoglu, H. Prepg. α-angelicalactone—fission of O heterocycles on hydrogenation, 4640*d*.
**Helbing, C. H.** See Campbell, K. N.
**Helbling, C. A.** Rigid glass-fiber body, P 4824*b*.
**Helburn, M.** Mineral position of ECA nations (VIII) Belgium, 3118*g*.
**Held, E. F. M. van der.** Theory of evapn. during drying, 8753*b*.
——— and Bold, H. J. van den. Conduction of heat in a flame of at. H, 8253*f*.

**Held, F. J., and Blaine, R. P.** Dicarbonate esters as plasticizers for vinyl resins, P 5998*b*.
**Held, H.** See Oesterle, P.
**Held, K.** See Mosonyi, L.
**Helden, R. van.** See Kappelmeier, C. P. A.
**Helfenberger, H.**, and Reichstein, T. Glycosides and aglucones (XXXVII) thevetin (1), (XXXIX) thevetin (2), 1791*c*.
**Helferich, B.**, and Stetter, H. Potato phosphatase (II), 1072*d*; inhibition of potato phosphatase by phosphate and arsenate ions, 5811*i*.
——— and Wedemeyer, K. F. Prepn. of glucosides from acetobromoglucose, 7430*g*.
**Helfinstine, R. J.**, and Cady, G. H. Performance of domestic-stoker coals—chem and petrographic compn., 5170*d*, 6392*a*.
**Helger, B.** Reducing agent for the Jones reductor, 5088*b*.
**Helgeson, E. A.** See Hagen, C. E.
**Helguera y Ortiz, J. M. de la.** Arsenoxide, 7587*f*.
**Hélio Favalli, I.** Nitroglycerin, 4855*a*.
**Hellauer, H. F.** See Umrath, K.
——— and Umrath, K. Cholinergic nature of sensory cells, 5842*a*; "action substance" of the sensible nerves, 7111*h*.
**Hellberg, A.** Metabolism at different planes of nutrition—influence of the duration of fast and the degree of fatness, 8477*a*.
**Hellbrügge, H.** Smelting of pig Fe with the O-enriched air blast, 8323*h*.
**Helleday, T.** See Jarl, F.
**Heller, A. N.** See Eliassen, R.
**Heller, C. G.** See Maddock, W. O., Nelson, W. O.
——— and Nelson, W. O. Testis-pituitary relation in man, 6717*a*.
**Heller, C. K.** See Krumm-Heller, C.
**Heller, J.** P compds. and metabolic rate, 1856*b*.
**Heller, J. H.** See Mylon, E.
**Heller, L.** See Euler, H. v.
**Heller, M. E.**, Nold, T., and Willaman, J. J. Apple juice, 2708*d*.
**Heller, P.** See Wentrup, H.
**Heller, R.** Formation of anthocyanin in tissues of Virginia creeper cultivated *in vitro* on suppression of the N of the culture medium—lack of K in plant tissue cultures—influence of the concn. of K ion of the medium on the growth of plant tissue cultures, 2281*a*.
**Heller, R. B.** See Hughes, D. J.; Saxon, D.
**Heller, V. G.** See Moyer, F.; Savage, D. A.; Staten, H. W., Thayer, R. H.
——— and Staten, H. W. Yields and chem. [illegible] alfalfa foliage clipped at grazing heights, 9291*f*.
——— and Thayer, R. H. Chem. changes in the blood compn. of chickens and turkeys fed synthetic estrogens, 7561*a*.
**Heller, W.** See Watson, J. H. L.
——— and Oppenheimer, H. Photoelasticity of elastomers and plastomers, 2461*g*.
———, Wojtowicz, W., and Watson, J. H. L. Isothermal and nonisothermal transformations of tactoid-forming particles of tungstic acid, 13*i*.
**Heller, W. E.** Furnace lining, P 3340*a*.
**Hellerman, L.** Interference with oxidation in the cell—suppression of flavoenzyme catalysis and the application of the sulfhydryl hypothesis, 1449*i*.
**Hellerman, R. C.** See Hazleton, L. W.
**Hellerqvist, G. R.** See Bäcklund, B.
——— and Johnsson, R. Recovery of phytosterols from sulfate soap, P 9447*h*; removal of nonsaponifiables from sulfate soaps, P 9447*i*.
———, Johnsson, R., and Bäcklund, B. Recovery of hydrocarbons and alcs. from the phytosterols of sulfate soap, P 9447*g*.
**Hellestam, S.** Polarographic detn. of U, 2890*a*.
**Hellier, F. F.** See Bain, W. A.
**Helling, W.**, and Lay, H. Development of Al shot refining in 3 salt layer electrolysis, 6089*d*.
**Hellingman, J. E.** See Kröger, F. A.
**Hellmann, G. J.** See Jensen-Hellmann, G.
**Hellström, N.** Electrolytic oxidation of furfural, 1271*e*; prepn. of high-boiling silicic acid esters, 2573*g*; identification and detn. of polycyclic hydrocarbons by ultraviolet absorption and chromatographic adsorption, 3182*f*; distillates from fir stumps (I) fir tar and oils from fir tar, (II) neutral substances present in fir tar and oils from fir tar, 7211*f*.
**Hellwege, K. H.** Spectra of cryst. salts of rare earths, 5663*a*; transition for radiative and nonradiative processes in crystals, 5663*b*; electronic terms and radiation from atoms in crystals, 7336*i*; analysis of the spectra of cryst. Eu salts, 7337*a*; see Chow, Y. K.
**Hellwig, C. A.**, Drake, R. L., Voth, H. W., and Bleicher, J. E. Electron-microscopic studies of globular proteins in cerebrospinal fluid, 1073*d*.
**Hellwig, W.** Detn. of the vapor pressures of glycol-water mixts. at temps. up to 150°, 2481*c*.
**Helm, E.** Pure yeast in brewing, 354*g*.
**Hel'man.** See Gel'man.
**Helme, W.** Versatile Chicago coke-oven battery near completion, 3598*d*.
**Helmholz, A. C.** See Segrè, E.
——— and Peterson, J. M. Excitation of $Na^{24}$ and $Na^{22}$ by deuteron and α bombardment of Al, 4093*f*.
**Helmkamp, R. W.** See Olynyk, P.
**Helms, W.** Coating compn., P 9412*a*.
**Helmsworth, J. A.**, and Keefer, M. L. K content of normal cerebrospinal fluid, 295*f*.
**Helmus, W. G.**, *et al.* Variables in padding, 3623*g*.
**Helsabeck, N. J.** See Aikawa, J. K.
**Helsingborgs Gummifabriksaktiebolag.** Treatment of rubber fillers with organosilicon compds., P 6457*f*.
**Heltzer, H.** See Davis, E. P.
**Helve, O.** Effect of anesthesia on some P fractions of the blood, 4386*c*; blood P and certain lipides in chronic CO poisoning, 5114*a*; see Jokivartio, E.
**Helweg-Larsen, H. F.** See Døssing, J.
**Helwig, B.** Neuere Arzneimittel (book), 820*i*; postwar drugs and pharmaceutical specialties, 5531*j*, 9363*a*.
**Hemala, M.** See Čupr, V.
**Hemberg, T.** Growth-inhibiting substances in terminal buds of *Fraxinus*, 8460*c*; significance of growth-inhibiting substances and auxins for the rest period of the potato tuber, 8460*a*.
**Hemeon, W. C. L.** Air-pollution control, 792*f*; dust control in the ceramic industries, 4436*g*.
**Hemker, H. W.**, and Eppink, D. L. Coating Mg and Mg alloys, P 2567*g*.
**Hemmendinger, A.** Disintegration of $Be^8$, 4947*b*; see Taschek, R. F.
**Hemmer, H. D.** See Johnson, Matthey & Co., Ltd.
**Hemming, H. G.** See Brian, P. W.; McGowan, J. C.
**Hemminger, C. E.** Bringing solid particles and gaseous fluids into contact, P 389*d*; app. for the catalytic cracking of hydrocarbons, P 3187*i*, gasoline, P 3994*b*, cracking hydrocarbons with suspended catalyst, P 9427*f*.
**Hemmons, L. M.** See Proom, H.
**Hempel, C. H.** Synthetic rubber, P 4890*h*.
**Hempel, M.** See Fink, K.
**Hempelmann, L. H.** See Leifer, E.
**Hemphill, R.** Furfuryl alc.-resorcinol resin compn., P 3655*b*.
**Hemptinne, M. de.** Utilization of D in Raman and infrared spectroscopy, 2865*f*.
——— and Courtoy, C. Fundamental vibrations of $CH_2CHD$, 7342*e*.
——— and Riet, R. van. Raman spectrum of $CH_2CH_2D$, 7344*h*.
**Hems, B. A.** See Attenburrow, J.; Dupré, D. J.; Elks, J.
**Hems, R.** See Krebs, H. A.; Stern, J. R.
**Henbest, H. B.** See Bide, A. E.
——— and Jones, E. R. H. Sterol group (XLIX) 7-substituted cholesterol derivs. and their stereochemistry (2) esters of the epimeric 7-hydroxycholesterols, (L) 7-substituted cholesterol derivs. and their stereochemistry, (3) 7-alkoxycholesterol derivs., 3020*b*.
**Hende, A. van den.** Toxicity of nitrites for plants, and the possible role of nitrites in the N economy, 5452*c*.
**Hendel, C. E.** See Legault, R. R.
**Henderson, C. F.**, and Keiser, I. Adhesives for dil. and concd. cryolite sprays in white-fringed beetle-control operations, 806*h*.
——— and Padget, L. J. White-fringed beetles—distribution, survey, and control, 9347*c*.
**Henderson, D.** Bacteriology in the gas industry, 8645*g*.
**Henderson, D. A.**, and Legge, N. R. Detn. of the intrinsic viscosity of high polymers, 9516*b*.
**Henderson, D. S.**, and Sachanen, A. N. Sulfonation of aromatic hydrocarbons in the presence of acetonitrile, P 394*d*.
**Henderson, E. P.** Aggie Creek meteorite from Seward Peninsula, Alaska, 8988*f*; see Perry, S. H.
——— and Perry, S. H. Drum Mountains (Utah) meteorite, 524*f*; Linwood (Nebraska) meteorite, 8988*b*; Pima County (Arizona) meteorite, 8988*g*; reëxamn. of the Soper, Oklahoma, meteorite, 8988*i*; Wathena, Doniphan Co., Kansas, meteorite, 8988*h*.
**Henderson, F. G.** See Swanson, E. E.
———, Robbins, E. B., and Chen, K. K. Action and toxicity of methadon in various animals, 7131*e*.
———, Rose, C. L., Harris, P. N., and Chen, K. K. γ-Dichroine, the antimalarial alkaloid of ch'ang shan, 3929*h*.
**Henderson, G. T.** Analysis of gray iron, 966*b*.
**Henderson, H. B.** See Frye, J. B.
**Henderson, J.**, MacLagan, N. F., Wheatley, V. R., and Wilkinson, J. H. Urine pregnanediol estn. as a test for pregnancy, 8429*i*.
**Henderson, J. B.** See Blood, F. R.
**Henderson, J. H. M.** 2,4-D penetration, 343*f*.
——— and Veal, M. P. Effect of the interrelation of B and Mn on the growth and Ca uptake of blue lupine in soln. culture, 731*a*.
**Henderson, L. F.** Soap product contg. guanidine stearate, P 4033*d*; see Libby, L. H.
——— and Libby, L. H. Bleaching dark-colored oils and fats, P 5612*i*.
**Henderson, L. M.** Quinolinic acid excretion by the rat receiving tryptophan, 6291*f*; see Brickson, W. L., Hankes, L. V.; Ramasarma, G. B.
——— and Hankes, L. V. Effect of enterectomy on synthesis of niacin, 3084*a*.
———, Schurr, P. E., and Elvehjem, C. A. Influence of fasting and N deprivation on the concn. of free amino acids in plasma, 4740*g*.
———, Schweigert, B. S., Mozingo, A. K., and Elvehjem, C. A. Reproduction and lactation of rats receiving pork diets, 1089*h*.
**Henderson, N.** See Elliott, K. A. C.
**Henderson, W. J.**, LeCaine, H., and Montalbetti, R. Magnetic resonance accelerator for electrons, 2087*b*.
**Henderson, W. M.**, and Brooksby, J. B. Survival of foot and mouth disease virus in meat and offal, 6280*i*.
**Hendley, C. D.**, Davenport, H. W., and Toman, J. E. P. Effect of acid-base changes on convulsive seizures, 3038*c*.
**Hendley, E. C.** See Ungnade, H. E.
**Hendren, R. R.** Vitrified refractory, P 4825*b*.
**Hendricks, J. G.** See Fox, V. W.
**Hendricks, S. B.** See Burk, D.; Warburg, O.; McAuliffe, C. D.
——— and Dean, L. A. Basic concepts of soil and fertilizer studies with radioactive P, 793*a*.
**Hendricks, T. A.** See Weissenborn, A. E.
**Hendrickson, L. G.** Filter for purifying $ZnSO_4$ with Zn dust, P 8757*h*; see Dahlgren, D. J. A.
**Hendrickson, M. J.** See Lundberg, W. O.
**Hendrickx, G.** See Vleeschouwer, A. de.
**Hendrix, B. M.** See Haber, P. A.
——— and Wingo, W. J. Digestion of acetyl proteins by pancreatin, 7982*d*.
**Hendrix, H. V.** See Chapman, C. C.
**Hendrix, J. P.** See Grimson, K. S.
**Hendrix, T. M.** See Colman, E. A.
**Hendry, E. B.** Hemolysis of erythrocytes in NaCl soln. and in Na phosphate buffers, 1473*b*; hemolysis of erythrocytes in solns. of the alkali halides, 5839*b*.
**Hendry, J. A.** See Ashworth, R. de B.; Birtwell, S.; Crowther, A. F.; Curd, F. H. S.; Fishburn, A. G.; Paterson, E.
———, Waring, W. S., and Imperial Chemical Industries Ltd. 2-(Dimethylaminomethyl)-1-phenylcyclohexanol, P 6656*i*.
**Hendus, H.** At. distribution in liquid Hg, 8288*k*.
**Hene, E.** Treatment of petroleum residues, P 389*b*.
——— and Trinidad Leaseholds Ltd. Treatment of heavy hydrocarbons, P 4003*h*; heat-treatment of petroleum and like hydrocarbon products, P 5938*h*.
**Henecka, H.** β-Dicarbonyl compds. (I) dependence of the color of the ferric chloride reaction on structure, (II) cis-trans isomerism of enols, (III) CH-acidity, electromeric effect, and reactivity, 1007*g*.
**Hengl, L.** See Libermann, D.

**Henglein, E.** See Nowotny, H.
—— and Köster, W. Parks process—systems Pb–Zn, Bi–Ag–Zn, and Bi–Cu–Zn, 3764*f*.
—— and Nowotny, H. Fundamentals of the Parks process, 4193*e*.
**Henglein, F. A.** Grundriss der chemischen Technik (book), 4791*a*.
—— and Hann, M. Prepn. of D-galacturonic acid by enzymic pectin degradation, 5432*h*.
and Vollmert, B. Acetic acid content of sugar-beet pectins, 2954*i*.
**Hengstenberg, J.,** and Schulz, G. V. Detn. of the mol. wt. of polystyrene, 4077*a*.
**Henin, S.** Soil science and the formation of clays, 6770*h*; see Caillère, S
**Henke, L. A.** Swine-feeding trials in Hawaii, 9292*i*; see Willett, E. L.
**Henke, R. H.** Low-temp. properties of the austenitic stainless steels, 9008*a*
**Henkel & Cie. G.m.b.H.** Greases by fermentation, P 4810*c*.
**Henkels Persilwerke A.-G.** Exchanging the alk. component of the acid groups of cellulose derivs., P 5950*c*; $H_2O$-insol. coatings, P 6003*g*.
**Henkes, H. E.** Glutathione and vitamin C in the lens and cornea, 1849*i*.
**Henle, W.** See Foster, C.
**Henn, J.** See Diehl, H.
**Henn, R. W.** Antioxidant for photographic developer, P 2106*d*.
—— and Crabtree, J. I. Fine-grain developers, P 4591*i*.
**Henne, A. L.** See Boord, C. E.
—— and Finnegan, W. G. Perfluoro-2-butyne and its hydrogenation products, 2925*h*.
**Henne, G.** Synthetic estrogens, 2300*i*
—— and Bruylants, A. Synthetic estrogens, 7927*f*.
**Hennelly, E. F.** See Dunlap, W. C., Jr.
**Hennelly, E. J.** See Heston, W. M., Jr
——, Heston, W. M., Jr., and Smyth, C. P. Microwave absorption and mol. structure in liquids (III) dielec relaxation and structure in org. halides, 4912*e*.
**Hennenhöfer, J.,** and Fritz, W. Measurement of high viscosities at low temps., 12*c*.
**Hennessy, J. J.** Compounding and treating dough for baked products, P 8071*h*
**Hennessy, T. G.** See Berlin, N. I.
**Hennig, W.** See Brand, K.
**Henniker, J. C.** Depth of the surface zone of a liquid, 7284*d*.
**Henning, L. G.,** and Sessions, F. L. Cord, P 5602*g*.
**Henninger, P.** See Gudden, B.
**Hennings, H.** See Bjørneboe, M.
**Henningsmoen, G.** See Waern, B.
**Hennion, G. F.,** and Sheehan, J. J. 1,2-Hexadiene, 6967*i*.
**Henrich, L.** See Sewell, D. C
**Henrichs, J. A.** See Orozco, G. H.
**Henrici, A. T.,** and Ordal, E. J. Biology of Bacteria (book), 1461*d*.
**Henriet, L.** See Daudel, P.
**Henrique de Souza, A.** Hemagglutinins in legumes, 5547*g*.
**Henriques, F. C., Jr.** See Ormsbee, R. A.
**Henriques, O. B.** See Henriques, S. B.; Valle, J. R.
——, Henriques, S. B, DeGrandpré, R., and Selye, H. Influence of amino acids on adrenal enlargement, nephrosclerosis, and hypertension by anterior pituitary prepns., 2685*f*.
——, Henriques, S. B., and Wendel, L. Excretion of androgens and 17-ketosteroids following administration of testosterone propionate, 1849*c*.
**Henriques, S. B.** See Henriques, O. B.; Valle, J. R.
——, Henriques, O. B., and Selye, H. Influence of cold on blood fibrinogen concn., 6715*b*.
**Henry, A. J.** Toxic principle of *Courbonia virgata*—isolation and identification as tetramethylammonium salt, 4346*h*.
—— and Grindley, D. N. *Courbonia virgata*—its chem. compn. and basic constituents, 5544*d*.
**Henry, A. M.** Detn. of fat and moisture in nuts and nut products, 9290*i*.
**Henry, B. W.** See Lindgren, R. M.
**Henry, C. R.** Hialeah treatment plant, 3122*e*; characteristics of activated silica sols, 5520*f*.
**Henry, D. C.** Electrophoresis of suspended particles (IV) surface cond. effect, 7778*a*.
**Henry, E. C.** Utilization of waste slate, 1938*i*; see Misra, M. L.
**Henry, H. F.** Velocity of the anode spark in $CuSO_4$ soln. under application of impulsive potential, 1244*h*; importance of potential in maintaining a luminous spark in $CuSO_4$ solns., 4091*f*.
**Henry, H. M.** Economic realizations of high B.t.u. oil gas (I), (II), 837*b*.
**Henry, Jane,** Henry, R. J., Housewright, R. D., and Berkman, S. Streptomycin (III) effect of streptomycin on the metabolism of resting bacteria and on purified enzymes, 719*b*.
**Henry, Janine.** Same as Henry-Eveno, J.
**Henry, Josse.** Ion exchangers in the beet-sugar industry, 1589*c*
**Henry, J. B.** Heat-resistant steel (I), (II), 7396*h*.
**Henry, J. L.,** and King, G. B. System $Al_2(SO_4)_3$–$H_2SO_4$–water at 60°, 6067*g*.
**Henry, J. P.** See Drury, D. R.
——, Goodman, L., Meehan, J., and Frankel, R. Capillary permeability in relation to acute anoxia and to venous O satn., 7573*a*.
**Henry, K. M.** See Kon, S. K.
—— and Kon, S. K. Effect on the biol. value of bread N of addns. of dried skim milk and of soya flour, 8566*f*.
**Henry, M. E.** See Crank, J.
**Henry, O.** Action of choline and methionine in liver disease, 8528*b*.
**Henry, P.** Spontaneous adhesion of nascent Fe, 8322*f*
**Henry, P. S. H.** Diffusion of moisture and heat through textiles, 3623*e*.
**Henry, R.** See Cheymol, J.
**Henry, R. A.,** and Dehn, W. M. Derivs. of morpholine, 7029*i*; aromatic isocyanates as reagents for the identification of heterocyclic compds., 8365*b*.
——, Skolnik, S., Makosky, R., and Smith, G. B. L. Nitrosoguanidine—stability in aq. pastes and solns., 5745*i*
—— and Smith, G. B. L. Dearrangement of nitroammoguanidine in a soln. of $NH_4$ carbonate, 6983*i*
**Henry, R. E.,** and Clifcorn, L. E. Chem. decompn. of cane syrup and molasses during storage, 7153*i*
**Henry, R. J.** See Berkman, S., Henry, Jane
——, Housewright, R. D., and Berkman, S. Streptomycin (VI) effect of streptomycin on the metabolism of multiplying bacteria, 5447*d*
**Henry, T. A.** Plant Alkaloids (book), 3978*a*
**Henry, W. T.** See Bescher, R. H.
**Henry-Eveno, J.** See Levaditi, C.
**Henschel, P.** See Hartmann, Hermann
**Hensel, F. R.** Porous metal bodies, P 103*i*
—— and Larsen, E. I. Additive to Ag or Cu alloys used in vaporization deposition, P 102*c*.
——, Wiggs, J. W., and Heil, V. F. Ru compns. for elec contacts, P 5357*e*
**Henshall, T.** Butenetriol monoethers, P 5414*c*, see Distillers Co., Ltd., King, F. E.
**Hensler, O.** Thermal anomaly in the alloy "Isabellin," 2149*a*.
**Hensley, J. W.,** Long, A. O., and Willard, J. E. Reactions of ions in aq. soln. with glass and metal surfaces, 2066*e*, 8233*g*
**Hensley, L. C.** See General Aniline & Film Corp.
**Hensley, W. H.** See Johnston, Franklin
**Henstock, H. I.** Hydroxylamine assay of penicillin, 8097*e*.
**Henze, H. R.** 5-Alkoxy alkyl 5-cyclohexyl hydantoins, P 3452*f*, see Frampton, V. L.
——, Benz, G. W., and Sutherland, G. L. Synthesis of 1-methoxypropyl ketones, 6974*e*.
——, Melton, J. W., and Forman, E. O. Synthesis of 2,3 disubstituted cinchoninic acids from propoxymethyl alkyl (or phenyl) ketones by means of the Pfitzinger reaction, 227*g*.
——, Sutherland, G. L., and Benz, G. W. Synthesis of 5-(1-methoxypropyl)-5 alkyl (or 5-phenyl)hydantoins, 6984*i*
—— and Williams, E. M. Conversion of alkyl 2-anilino-2-phenylethyl ketones into hydantoins, 7429*f*.
**Hepburn, G. A.** See Ripley, L. B.
**Hepburn, J. S.** Joseph Priestley, Pa. scientist, 6014*g*.
**Hepenstrick, H.** Detn. of small concns. of Ag as a Ag sol, 4598*h*; see Kubli, H.
**Hepher, M.** Magenta color masking, 5683*h*; reproduction of color transparencies by magenta masking, 5683*i*.
**Hepler, O. E.** Manual of Clinical Lab. Methods (book), 5443*c*.
**Hepp, H. J.** Isomerization and hydrogenation of hydrocarbons, P 1561*a*; control of catalyst viscosity in alkylation processes by use of $AlCl_3$, P 4005*g*; recovery of Al halide from Al halide-hydrocarbon complex, P 4005*i*; isomerization of hexane, P 4006*i*.
—— and Frey, F. E. Pyrolysis of 2-pentene and trimethylethylene, 5733*f*.
—— and Sailors, H. R. Purification of hydrocarbons, P 2421*e*.
**Heppel, L. A.** Influence of dietary factors on the toxicity of dichloroethane and dichloropropane in weanling rats, 3077*c*; see Horecker, B. L.
—— and Porterfield, V. T. Enzymic dehalogenation of brominated and chlorinated compds., 1815*i*; metabolism of inorg. nitrite and nitrate esters (I) coupled oxidation of nitrite by peroxide forming systems and catalase, 5842*g*.
**Heppner, E.** See Diesbach, H. de
**Herb, R. G.,** Snowdon, S. C., and Sala, O. Abs. voltage detn. of three nuclear reactions, 3283*d*
**Herb, S. F.** See Riemenschneider, R. W.
**Herbach, M. G.,** and Bowden, C. W., Jr. Bright Cr-plating and temp. control, 4583*b*.
**Herbain, M.** See Velluz, L.
**Herbers, H.** Harten und Vergüten de Stahles (book), 6562*a*
**Herbert, B. E.,** and Ellery, K. W. Textbook of Practical Pharmacognosy (book), 1531*i*
**Herbert, D.,** and Pinsent, A. J. Cryst. bacterial catalase, 2255*e*, cryst. human erythrocyte catalase, 2255*h*
**Herbert, P. H.,** and De Vries, J. A. Administration of adrenocorticotropic hormone to normal subjects effect on the leucocytes in the blood and on circulating antibody levels 8491*a*
**Herbert, S. A.,** Charmbury, H. R., and Kinney, C. R. Acetone-sol. and acetone-insol. humic acids, 1168*g*
**Herbig, G. H.** Search for isotopes of Ti in late type stars, 1651*f*, identification of a mol. band at λ 3682 in the spectra of late-type stars, 4134*b*
**Herbolsheimer, G.** Sepn. of metallic Na from high mol. polymers, P 2469*e*
**Herbolzheimer, F.** See Folger, H. H.
**Herbrand, W.** Chemotherapy of hyperthyroidism, 1864*b*
**Herbst, E. J.,** and Snell, E. E. Putrescine as a growth factor for *Hemophilus parainfluenzae*, 4332*b*, nutritional requirements of *Hemophilus parainfluenzae*, 9156*a*
**Herbst, M.,** Prendergast, W. A., Barnett, R. S., Finn, W. J., and Puryear, O. P. Lab. performance tests for antifriction bearing greases, 5934*h*
**Herbst, R. M.** See Givens, H. T. F., Harvill, E. K.
**Herbst, W. A.** Hydrocarbon synthesis, P 6810*h*; see Matheson, G. L.
**Hercules Powder Co.** (*Patents*) Carboxyalkyl ethers of cellulose, 7685*a*, cellulose bleaching, 9447*f*; cellulose ether stabilization, 1187*h*, 4466*d*; cement compns., 7660*f*, chlorinated rubber, 895*a*, 2024*e*, dehydrobietic acid derivs., 6665*f*, emulsifying agents and emulsions contg. the same, 4846*b*; flame-resistant paper, 9148*d*; foundry core or mold, 106*d*, froth flotation of ores with aromatic alc., 4624*d*; halogen derivs. of rubber and rubberlike materials, 2024*i*, HCl, 9396*a*, ignition compn., 8683*b*; isolation of soybean protein, 3120*d*; pinene to camphene, 2234*f*, polyhydric alc. sepn., 3839*g*; polymerizing butadiene in aq. emulsion in the presence of an alkali metal salt of hydroxytetrahydroabietic acid, 896*h*, resinous mixed esters contg. pentaerythritol, 4511*h*; rosin ester modified alkyd resin, 8739*f*, sepn. of cineole from hydrocarbons by azeotropic distn. with phenols, 2476*g*; synthetic resins from a cresol HCHO condensate and a monohydric alc. ester of rosin, 3232*b*; terpene isomerization, 5423*f*; terpene-PhOH condensation, 9085*c*; terpene phenols, 6237*a*, terpene polymer stabilization, 3235*i*
**Herczeg, C.** See Daudel, P.
**Herczog, A.** See Wieland, K.
—— and Wieland, K. Regularities in the changes produced by temp. in a continuous absorption spectrum, 3713*d*.
**Herdan, G.** Estn. of polymer distribution on the basis of differences between the average mol. wts. of different order.

3689*c*; statistical inequalities in polymer research, 8734*h*.
**Herder, P. C. den.** See Kruisheer, C. I.; Mulder, H.
**Herdle, A. J.,** and Wolthorn, H. J. Silica refractories—spectrographic analysis with a controlled multisource power unit, 7656*b*.
**Herdlick, J. A.** Four chromes and other chromite deposits, Red Lodge district, Mont., 2132*e*; Big Ben Mo deposit, Neihart district, Mont., 4188*i*; Star Mine, Neihart district, Mont., 5711*f*.
**Herdy, R.** See Schmid, H
**Heredia, J. L.** Phosphatase and phosphate in the blood during birth and in the umbilical cord at birth, 1474*a*.
**Heredia, P. A.,** and Bianchi, F. Detn. of citric acid by permanganometry in alk. medium, 5343*b*
**Hereford, F. L.** Specific primary ionization and energy loss of fast electrons in matter, 34*d*, acceleration of electrons by a single resonant cavity, 4090*h*; specific primary ionization in H by a coincidence-counter method, 4095*a*, intensity of heavily ionizing penetrating particles at 4300-meter altitude, 4104*g*, penetrating component of cosmic-ray air showers, 8259*e*.
—— and Swann, C. P. Penetration of high-energy electrons in Al, 8861*f*
**Hereng, A.** Continuous hydrolysis of wood by mineral acids, P 1187*i*, continuous saccharification of vegetable substances, P 4014*a*; cellulose saccharification, P 6825*e*
**Hérenguel, J.** Examn of Al-alloy cables after long service, 1702*b*
—— and Lacombe, P. Micrographic and x ray analysis of a new basaltic structure resulting from the solidification of Al slags, 4991*f*
—— and Santini, F. Influence of heating rate on the size of Al grains, 2911*g*
—— and Scheidecker, M Annealing Al-Mg alloys made of pure metals, 1701*d*.
—— and Segond, R Special light alloys for electrolytic polishing, 1298*a*, defects of anodic oxidation owing to the presence of chlorides, 4149*d* anodic oxidation for the study of solid solns of Al Mg alloys, 8960*e*.
**Heresite & Chemical Co.** Synthetic rubber, P 1890*h*
**Hereward, H. G.** See Devons, S
**Herforth, L.** Measurement of very small ionization with the gas flow ion chamber, 5292*h*.
**Heriberto Guerrero, A.,** and Ruth, E. F. Analysis of the Group I cations—seminicrochem technique, 972*e*
**Hering, H.** See Bloche, F
**Hering, H. W.** See Oberdisse, K.
**Herington, E. F. G.** See Coulson, E. A.
**Hérisset, A.** Influence of carotenoids on glucide metabolism of bakers' yeast, 4330*j*
**Heritage, C. C** Surface fluxing coated liner, P 7163*b*
**Heritsch, H.** Artinite from Krauhath, Styria, 2897*h*.
**Herken, H.,** and Schuak, J Protein substances with NaOCl, 5431*d*; action of NaOCl on serum albumin, 7568*d*, detection of changes in the structure of serum protein with the aid of NaOCl, 8408*d*.
**Herkenhoff, E. C.** Froth flotation of Fe ores, P 4624*c*, see Booth, R. B
—— and Hedley, N Au recovery, P 6562*a*
**Herkness, C.** See Lavine, T. F.
**Herlett, C. W.** Se rectifier, P 8920*c*.
**Herlitzka, A.** Fisiologia del lavoro umano (book), 6722*b*.
**Herlofson, N.** Theory of meteor ionization, 4560*a*.
**Herman, A.,** Izsak, J. A., and Bercuson, N Recovery of distillery residue by spray drying, 3970*f*.
**Herman, D. F.** Reaction of $C_2H_2$ and KOH, P 1928*e*.
**Herman, H.** Detn. of Cb and Ta, 2543*g*.
**Herman, J.** Spectrograph and polarograph, 3297*d*.
**Herman, L.** [illegible] influence of pressu[illegible] compn. of the phosphorescence [illegible]trum of the He mol., 8277*d*; see Ay R.; Herman, R.; Weniger, C.
**Herman, N. B.** See Gay, L. N.
**Herman, R.** Cameron bands and their possible presence in night-sky radiation, 2091*h*; presence of $OH^+$ bands in the spectra of comets, 2510*b*; emission spectrum of O dild. with Xe, 4568*f*; emission of CO in the region of the group at 4050A from nuclei of comets, 6918*d*; spectra of the stars HD 108607 and HD 188625, 8882*c*.
—— and Herman, L. Afterflow of the Balmer spectrum of H, 491*b*; mol. N spectrum emitted in a He atm., 7338*i*.
**Herman, R. C.** See Alpher, R. A.; Silverman, S.
[illegible], Meyer, C. F., and Hopfield, H. S. Electron retrapping in phosphors, 1659*a*.
—— and Shaffer, W. H. Vibration-rotation mechanics of the allene mol. (I) classical vibration problem, 2831*d*.
**Herman, S. C.** See Kind, C. A.
**Hermance, H. P.,** Neumann, G. L., and Mosier, M Ely mine Cu deposit, Orange County, Vt., 4188*b*
—— and Sanford, R. S Parker and Webb Zn deposits, St Lawrence County, N. Y., 4188*f*
**Hermann, C.** See Brill, R
**Hermann, C. C.** Sludge separator, P 6874*a*
**Hermann, F. J.** Drying of oil-contg. paints (I) function of driers, 3210*g*, 5969*h*; influence of time and temp of cooking on the properties of 1:2 varnishes, contg. an oil-reactive phenolic resin and tung oil, 7238*g*; see Dooper, R.
—— and Dooper, R. Outdoor expts. with finishing paints on wood, 4491*c*.
**Hermann, G. J.** See Edwards, P. R.
**Hermann, H.,** Chatonnet, J., and Vial, J. Influence of cold on the adrenaline content of the adrenals, 8485*f*.
——, Drevon, B., and Cier, J. F. Does the nervous system intervene in the fixation of Ca in bone? 8485*f*.
——, Vial, J., and Chatonnet, J Modification by muscular work of the hypotensive action of adrenaline after F933, 5494*c*.
**Hermann, L.,** and Sándor, G. Improvement of textile materials, P 1989*e*
**Hermann, S. V.** See Mosonyi, J.
**Hermanne, L.** Mech. behavior of rayon, 3202*f*
**Hermann Egle's Erben.** See Egle's, H., Erben.
**Hermanns, H.** Detn. of the ppt. in unguentum hydrargyri praecipitati albi, 1152*f*
**Hermans, J. J.** See Brinkman, H. C.; Pals, D. T. F.; Vermaas, D.; Waals, J. H. van der.
—— and Overbeek, J. T. G. Theory of the electroviscous effect in polymer solns., 2072*h*; dimensions of charged long-chain mols. in solns. contg. electrolytes, 6050*e*.
**Hermans, P. H.** Degree of lateral order in various rayons, 8134*a*; Physics and Chemistry of Cellulose Fibers (book), 9445*d*.
—— and Weidinger, A. Crystallinity of cellulose, 8132*h*, change in crystallinity upon heterogeneous acid hydrolysis of cellulose fibers, 8135*f*.
**Hermanson, J. L.,** Thorson, J., and Sheets, J. Lab synthesis of (2,4-dichlorophenoxy)acetic acid from urea, 2189*c*.
**Hermetikkindustriens Laboratorium.** Improving the taste of canned fish, P 3540*g*.
**Hernández, A.** See Castañeda-Agulló, M.
**Hernandez, F.** Same as Hernández Gutiérrez, F.
**Hernandez, L.,** and Nord, F. F. Catalytic reductions with colloidal Rh in the liquid phase, 27*e*, influence of S on catalytic dehydrogenations with Rh, 27*i*.
**Hernandez, T. P.** See Warren, G. F.
**Hérnández de Paredes, C.,** and Paredes Manrique, R. Detn. of hippuric acid in Quick's (liver function) test, 7993*e*.
**Hernández Gutiérrez, F.** Química de las sulfamidas y sus aplicaciones técnicas y analíticas (book), 1157*h*; reaction of $HNO_3$ as a determinant for sulfanilamides, 5905*d*; detn. of piperazine in medicinal mixts., 6784*h*; detn. of 2(*p*-phthalylaminophenylsulfamido)thiazole, 8980*a*.
**Hernández Rubio, J.** Analysis of S in steel and cast Fe, 8961*i*.
**Hernando, L.** See Gutiérrez Ríos, E.
**Hernando Fernandes, V.** See Burriel, F
**Herndon, L. R.** See Du Pont de N E. I., & Co.
**Herne, R.** See Hultin, T.
**Hernegger, F.** See Haberlandt, H.
**Herold, R. J.** See Fontana, C. M.
**Heron, A. M.** Recognition of U and Th minerals in the field, 3749*h*.
**Héros, M.** Spectral analysis, 961*c*, 6103*h*, [illegible]*h*.
Detn. of eosin in lip [illegible]
**Herr, W.** Sepn. of artificial radioactive $_{79}Au^{198}$ in unweighable amt. from the stable isotope, 5297*f*; see Erbacher, O.
**Herrais, M. L.** See Radice, J. C
**Herrán Riva, L.** See López Gómez, P
**Herrbach, P.** See Roucher, A.
**Herreid, E. O.** See Stuhl, J. W.
—— and Francis, J. Effect of handling and processing of milk on its O content, 3941*f*
**Herrera, A.** Same as Herrera de la Sota, A
**Herrera, C. G.** See Gómez Herrera, C.
**Herrera, J. M. A.** See Albareda Herrera, J. M.
**Herrera de la Sota, A.** See Buscarón Ubeda, F.
**Herrero, F. J.** Action of snake venom on development of fungi, 1455*g*.
—— and Godoy, R. P. Action of cations on development of *Mycobacterium smegmatis*, 5444*c*.
**Herrero, P. C.** See Candau Herrero, P.
**Herrero Sánchez, L.** Soly. of tartaric acid, 3691*d*.
**Herres, S. A.,** and Davis, J. A. Arc-melting refractory metal, 4581*e*.
—— and Elsea, A. R. Temper brittleness in low-alloy steels, 9009*e*.
**Herrick, A. D.** See Smith, A.
**Herrick, G. S.** Crystal violet, P 3206*b*.
**Herrick, H. T.** See Irving, G. W., Jr.
**Herrick, J. F.** See Miller, John R.
**Herring, C.,** and Nichols, M. H. Thermionic emission, 5659*d*.
**Herring, D. A.** See Marsh, D. F.
**Herrington, B. L.** Milk and Milk Processing (book), 6332*a*; see Anantakrishnan, C. P., Kosikowsky, F. V.
**Herriott, R. M.** Inactivation of viruses and cells by mustard gas, 2257*f*.
—— and Price, W. H Formation of bacterial viruses in bacteria rendered nonviable by mustard gas, 2671*c*.
**Herrlinger, F.** Action of small amts. of alc. or ether on the peroxidase, dehydrogenases, and ascorbic acid oxidase in vegetables, 2251*g*.
**Herrly, C. J.** $C_2H_2$ chem. industry, 7406*i*.
**Herrmann, C. V.,** and Myers, L. A. Oleum, P 5159*h*.
**Herrmann, E. H.** See Williams, F. J.
**Herrmann, F. U.** See Schäffeler, K.
**Herrmann, H.** Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (VIII) effect of histamine and related substances on the cohesion of the corneal epithelium, 769*c*; (X) corneal metabolism, 769*g*; (XII) corneal metabolism in respect to glucose and lactic acid, (XIV) utilization of ribose and other pentoses by the cornea, 770*a*; effect of antihistaminics on loss of adhesiveness of corneal epithelium after injection of histamine, 2700*k*.
—— and Hickman, F. H. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (VII) adhesion of epithelium to stroma in the cornea, 768*k*; (IX) loosening of the corneal epithelium after exposure to mustard, 769*d*; (XI) effect of mustard on some metabolic processes in the cornea, (XIII) consumption of pyruvate, acetoin, acetate, and butyrate by the cornea, 769*g*.
—— and Moses, S. G. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (XV) nonprotein N in the cornea, 770*e*.
**Herrmann, H. F.,** Louis Atwell Olney, 2825*f*.
**Herrmann, R. G.** See Landahl, H. D.
—— and DuBois, K. P. Toxicity and pharmacol. action of Na *p*-dimethylaminobenzenediazosulfonate—effect on the enzymic reactions of intermediary carbohydrate metabolism, 4381*d*.

**Herrmann, W.** Prepg. tryptic peptones by means of fresh pancreatic glands, 5548*g*.
**Hersam, G. R.** See Holst, W. H.
**Hersberger, A. B.** Control of temp. in polymerization of isoölefins, P 7257*f*; polymerization of α-alkyl styrenes, P 7264*b*.
——— and Heiligmann, R. G. Polymerization of propylene, P 7223*b*; polymers of α-methylstyrene, P 9530*e*.
——— and Neidig, C. P. Present status of org. synthetic detergents, 5612*d*.
**Hershberg, A. D.** See Aron, E.
———, Geisendorf, W., and Piguet, J. Cholinesterase in toxemic pregnancies, 3922*g*.
**Hersh, J. M.** Organic cyclic-Si condensation polymers, P 8210*d*.
**Hershberg, E. B.** Regeneration of steroid ketones from their semicarbazones with pyruvic acid, 1048*b*.
———, Schwenk, E., and Stahl, E. 16-C$^{14}$-Dehydroisoandrosterone acetate, 2218*i*.
**Hershberger, M. F.** See Bendixen, T. W.
**Herskowitz, I. H.** Tests for chem. mutagens in *Drosophila*, 5673*e*.
**Herstein, K. M.,** and **Jacobs, M. B.** Chemistry and Technology of Wines and Liquors (book), 1525*i*.
**Hertel, H.** See Fleckenstein, A.
**Hertner, W.** See Widmer, G.
**Hertog, H. J. den.** Derivs. of pyridine and quinoline (LXXI) reactivity of bromine atoms in brominated pyridines—action of Na methylate on 2,4,6-tribromopyridine, 641*i*.
———, Falter, A. W. M., and Linde, A. van der. Derivs. of pyridine and quinoline (LXIX) reactivity of bromine atoms in brominated pyridines—prepn. of 3-acetamido-5-ethoxypyridine from 3,5-dibromopyridine, 641*e*.
——— and Farenhorst, E. Derivs. of pyridine and quinoline (LXX) pyridine derivs. from glutarimide, 641*g*.
——— and Jonge, A. P. de. Derivs. of pyridine and quinoline (LXXII) reactivity of bromine atoms in brominated pyridines—action of Na phenate on 2,4,6-tribromopyridine, 642*c*.
———, Jouwersma, C., Wal, A. A. van der, and Willebrands-Schogt, E. C. C. 2-Amino-5-ethoxypyridine, 6625*h*.
——— and Mulder, B. Pyridine and quinoline derivs. (LXXIV) bromo derivs. of 3,5-diethoxypyridine, 3824*a*.
——— and Weeren, J. W. van. Pyridine and quinoline derivs. (LXXV) nitration of 3,5-diethoxypyridine, 3824*i*.
**Herts Pharmaceuticals Ltd.** and **Seymour, D. E.** *N*$^4$-Phthaloylsulfanilamides, P 1061*a*.
**Hertwig, K.** See Wiberg, E.
**Hertwig, W. R.** See Forsythe, W. L., Jr.
**Hertyk, K.** $NH_4NO_3$ explosives in mining, 4467*a*.
——— and Sczés, T. Pyrotechnique mixts., 4468*b*.
**Hertz, R.** Factors of the B-complex in estrogen metabolism, 5834*g*.
———, Dhyse, F. G., and Tullner, W. W. Elevation of plasma riboflavin in estrogen-treated female chicks, 8491*e*.
——— and Tullner, W. W. Inhibition of estrogen-induced growth in the genital tract by a purine antagonist—reversal by adenine, 7103*h*; quant. interference with estrogen-induced tissue growth by folic acid antagonists, 8491*c*.
**Hertz, S.** See Freedberg, A. S.
**Hertzing, G. A.** See Green, W. H.
**Herve, A.** See Bacq, Z. M.
——— and Lecomte, J. Adrenoxyl and x-rays, 7129*g*.
**Hervert, G. L.** See Bloch, H. S.; Friedman, B. S.
——— and Murray, M. J. Sepn. of cyclic olefins from straight-chain olefins, P 4003*f*.
**Hervey, A.** See Anchel, M.; Kavanagh, F.
**Hervey, L. R. B.** See Johnson & Johnson (Great Britain) Ltd.
——— and Whitaker, A. C. Water-sol. coating compn. for paper, P 850*f*.
**Herwig, G.** See Morris, S.
**Herwig, R. S.** Graphite brushes, P 4403*b*.
**Herwijnen, W. B. van.** See Vlimmeren, P. J. van.
**Herz, R. H.** Electron tracks in photographic emulsions, 51*i*, 4109*f*; granularity measurements of x-ray emulsions exposed to x-rays with increasing quantum energy, 4109*g*.
**Herz, W.** See Dittmer, K.
**Herzberg, G.** Quadrupole rotation-vibration spectrum of the H mol., 3290*b*; high-pressure bands of C and the formation of $C_2$ mols., 7338*g*.
——— and Herzberg, L. Absorption spectrum of MeI in the near infrared, 6513*a*.
——— and Phillips, J. G. Infrared CN bands, 939*i*.
**Herzberg, L.** See Babcock, H. D., Herzg, G.
———, **P. T.** See Plattner, P. A.
**Herzog, B.** Chalk from Söhlde, 2136*g*.
**Herzog, E.** Reduction of Fe ore by the blast-furnace gas, 527*h*.
**Herzog, H.** Deriv. of guaiacol, P 5802*g*; ephedrine α-bromoisovalerianate, P 7617*f*.
**Herzog, S.** Alphabetisches polytechnisches Vademecum für die Industrie (book), 1503*h*.
**J. A.** Prevrat v chemii (book), 4554*d*.
———, **R. N.,** Irving, F., and Livingston, A. Vat dyes of 3′,4′-phthaloylacridone series, P 7706*b*.
**Hess, C.** See Hess, K.
**Hess, D. C., Jr.** Isotopic constitution of Eu, Gd, and Tb, 937*d*, see Hayden, R. J., Inghram, M. G.
——— and Inghram, M. G. Isotope of Dy, 1261*e*, slow-neutron cross sections of the Nd isotopes, 8268*g*.
———, Inghram, M. G., and Hayden, R. J. Relative abundances of the Zn isotopes, 1261*c*.
**Hess, E. L.,** and Deutsch, H. F. Biophys. studies of blood plasma proteins (IX) sepn. and properties of the immune globulins of the serums of hyperimmunized cows, 5065*b*.
**Hess, G. B.** See Jarowski, C. I.
**Hess, J. B.,** and Barrett, C. S. Structure and nature of kink bands in Zn, 7882*f*.
**Hess, K.** Morphological factors in cellulose fibers and their influence on chem. reactions, 4815*i*.
——— and Hess, C. Enrichment of tyrosinase by foam fractionation, 4305*f*, detn. of tyrosinase and its application to caoutchouc-bearing dandelion species, 4312*i*.
——— and Kiessig, H. X-ray interferences of mixed crystals in soaps and of mixed micelles in soap solns.—arrangement of the ends of paraffin chains of different length in lattice-arrangements, 4075*c*.
**Hess, K. P.** Textile Fibers and Their Use (book), 4019*d*.
**Hess, L.** See Calingaert, G.
**Hess, M.** See Bickenbach, W.
**Hess, M. P.,** and Siehrs, A. E. Irish moss ext., P 3542*a*, stabilizer from Irish moss residue, P 5132*a*.
**Hess, P. S.** See O'Hare, G. A.
**Hess, S. L.** Meteorol. approach to the question of water vapor on Mars and the mass of the Martian atm., 490*e*.
**Hess, V. F.** See Richter, Antonin F.
**Hess, Victor F.** Analysis of the γ-rays from granite and the ionization balance of the atm., 4128*e*.
**Hess, W. C.** See Hilmer, P. E.
——— and Smith, B. T. Salivary amylase activity of carious and noncarious individuals, 1850*f*.
**Hess, W. R.** Funktionelle Organisation des Vegetativen Nervensystems (book), 4361*g*; biology of active agents, 4381*b*.
**Hessaby, M.** Continuous particles, 4092*c*.
**Hess & Clark, Inc.** Coccidiostatic compn., P 7592*i*.
**Hesse, A.** Whey beverage, 1874*d*.
**Hesse, A. H.** Flux for Mg-Li alloy, P 2921*i*.
**Hesse, B.** See Brintzinger, H.
**Hesse, E.** NaCl retention in cerebral thinness disease, 4362*c*.
**Hesse, G.** Protein metabolism of aphids, 5874*a*; ionic reactions in org. chemistry—Hans Meerwein's 70th birthday, 6014*f*.
——— and Böckmann, K. W. F. African arrow poisons (IV) synthesis of the methylreductic acids, 6987*e*.
——— and Bucking, E. Synthesis of reductic acid, 6987*b*.
——— and Sauter, O. pH measurements on adsorbents, 4076*d*; mutual independence of exchange absorption and van der Waals adsorption on $Al_2O_3$, 6035*b*; pH dependence of adsorption of acids and bases, 6035*c*; pH dependence of the adsorption of amphoteric substances, 6035*d*.
**Hesse, P. R.,** and Schafer, B. Brass foundry realizes savings by modernizing melting furnaces, 2141*d*.
**Hesse, R.** Indexing powder photographs of tetragonal, hexagonal, and orthorhombic crystals, 1261*g*.
**Hesselbach, M. L.** See Burk, D.
**Hesselbart, R. C.** Water-sol. thermosetting resins, P 6863*h*.
**Hesselberger, W. E.** Automatic Ag plating—plant and processes for high output, 3727*d*.
**Hesser, F. P.** See Popper, H.
**Hessey, F. E.** Radiation pyrometer for low temps., 1227*a*, 6872*a*.
**Hessey, R. W. G.,** and Manning, R. N. Effect of magma purity on low-grade centrifugal capacity, process work, and raw sugar quality, 8713*g*.
**Hessing, H.** See Logan, H. L.
**Hessler, L. E.** Chem. removal of incrustants from dew-retted hemp fiber, 4853*f*.
——— and Merola, G. V. Detn. of cellulose in cotton and cordage fiber, 6411*g*.
———, Merola, G. V., and Berkley, E. E. Degree of polymerization of cellulose in cotton fibers, 413*e*.
———, Simpson, M. E., and Berkley, E. E. Degree of polymerization, spiral structure, and strength of cotton fiber, 1191*h*.
**Hester, F.** See Meitzner, E. F.
**Hester, H. M.** See Muller Hester, H.
**Hester, J. B.** Phosphate soil supplements, 2351*c*; mineral and N nutritional relations in plants and soils, 4408*i*, improving and maintaining soil fertility for canning crops, 6349*g*.
**Hester, W. F.,** and Craig, W. E. Insecticidal compns., P 350*a*; insecticidal halo-substituted octylphenoxyacetic acids, P 350*c*; insecticidal phenyl esters of octylphenoxyacetic acid, P 350*d*.
———, Hill, D., and Craig, W. E. Insecticide and fungicide, P 1901*e*.
**Heston, W. E.,** and Deringer, M. K. Hereditary renal disease and amyloidosis, 4362*f*.
**Heston, W. M., Jr.** See Hennelly, E. J.
———, Hennelly, E. J., and Smyth, C. P. Microwave absorption and mol. structure in liquids (I) measurement in org. halides at 1.27-cm. wave length, 4912*a*.
**Hestrin, S.** Fermentation of disaccharides (I) reducing disaccharides and trehalose, 1904*g*; action pattern of crystalline muscle phosphorylase, 7068*g*, acylation reactions mediated by purified acetylcholine esterase, 9124*h*; see Nachmansohn, D.
**Hetchler, J. D.** See Vanderbilt, B. M.
**Hetényi, G., Jr.** See Issekutz, B., Jr.
**Hetherington, A. L.** Chinese Ceramic Glazes (book), 8634*g*.
**Hetherington, C. R.** Grease, P 3193*d*.
**Hetherington, H. C.** Inhibiting corrosion of stainless steel, P 3312*g*.
**Hetland, E.** Dipole moments of α-, β-, γ- and δ-hexachlorocyclohexane and of tetrachlorocyclohexane, 3676*b*, see Frivold, O. E.
**Hetrick, J. H.,** and Tracy, P. H. Effect of high-temp. short-time heat-treatments on properties of milk (I) inactivation of the phosphatase enzyme, (II) inactivation of the lipase enzyme, 779*f*.
——— and Whitney, R. M. Detn. of N in milk by direct nesslerization of the digested sample, 3942*e*.
**Hettner, G.** Conduction of electricity in metals, 2062*f*.
**Hetzel, R.** See Gittens, W.
**Hetzel, S. J.** See Kennedy, R. M.
——— and Kennedy, R. M. Polymerization of olefins, P 1218*b*; conversion of $C_2H_4$, P 3833*g*; polymerization of ethylene, P 5640*i*.
**Hetzer, J.** History of chemistry—textile aids with foaming, wetting, washing, and dispersing properties, 4876*a*; treatment of materials to be distilled, 6433*i*.
**Heuberger, J. F.** Metal powders, P 2919*a*.
**Heuberger, J. W.** Fungicides from dithiocarbamates mixed with Zn salts and lime, P 4418*h*; national cucurbit fungicide test, 9327*g*; see Clayton, E. E.; Rahn, E. M.
**Heubner, W.** Astringent action of Al salts, 5492*a*; development of toxicity of aromatic nitro compds., 5493*e*; Genuss und Betäubung durch chemische Mittel (book), 5506*d*; benzedrine and pervitin, 6732*d*, toxicology of the blood pigments, 8534*e*.
———, Kiese, M., Stuhlmann, M., and Schwartzkopff-Jung, W. Methemoglobin content of normal blood, 5840*c*.
**Heuckeroth, A. W. van.** See Van Heuckeroth, A. W.
**Heuer, E.** See Fehér, F.
**Heuer, J. H.** De-inking waste papers with $Na_2O_2$, 1187*a*, 3613*s*.
**Heuer, R. P.,** and **Fay, M. A.** Modern refractories give new operating economies, 9405*g*.

**Heukelekian, H.** Similarities and differences between a biofilter and a standard filter, 3122*c*; aeration of sol. org. wastes with nonflocculent growths, 7169*h*; characteristics and treatment of penicillin wastes, 7645*i*.
——— and Kaplovsky, A. J. Effect of change of temp. on thermophilic digestion, 3124*a*.
**Heumann, T.** $As_2B$ phases, 7771*b*.
**Heus, J. G. de.** See Man, T. J. de.
**Heuschkel, J.** Steel properties related to welded performance, 3767*b*.
**Heusden, G. P. H. van.** *Asellus aquaticus* in the Amsterdam water-supply system, 1885*e*.
**Heuse, W.** Calorimetric testing of synthetic materials, 4047*f*.
**Heuser, E.** See Hein, F.
**Heuser, Emil,** Shemu, B. F., Shockley, W., Appling, J. W., and McCoy, J. F. Effect of lignin-destroying fungi on the carbohydrate fraction of wood, 8131*f*.
———, Shockley, W., and Van den Akker, J. A. Detn of the suitability of wood pulp for acetylation, 6408*b*.
**Heuser, G. F.** See Gillis, M. B.; Peeler, H. T.; Robertson, E. I., Scott, M. L.; Yacowitz, H.
**Heusghem, C.** See Fischer, P., Moureau, P., Welsch, M.
———, Betz, H., and Lecompte, J. Activity of the adrenal cortex after injection of N mustard, 5115*h*.
——— and Fischer, P. Behavior of glutathione toward biol. fluids, 4308*c*; acceleration of peptic digestion by compds. contg. sulfhydryl groups, 7983*e*.
———, Ponsart, L., and Lenaers, R. Identification and polarographic microdetn. of Pb in toxicology, 5332*b*.
——— and Welsch, M. Transformation of estradiol into estrone by a streptomyces, 9147*h*.
**Heusser, H.** See Plattner, P. A.
**Heussner, C. E.,** and Morse, L. M. Electrolytic cleaning of Ni electrolytes, 8005*i*.
**Heusted, G. B.** See Dreisbach, R. R.
——— and Bauman, W. C. Phenolsulfonic acid—HCHO ion-exchange agents, P 3376.
**Heuvel, G. van den.** Pharmacology of dodecyl(2-hydroxyethyl)dimethylammonium chloride, 7132*g*.
**Hevesy, G.** Francis William Aston, 915*g*; nucleic acid metabolism, 4710*c*; historical sketch of the biol. application of tracer elements, 4718*c*; effect of x-rays on the incorporation of $C^{14}$ into desoxyribonucleic acid, 7529*h*, see Andersson-Kotto, I., Elliott, G. de C.
**Hewetson, F. N.** See Frear, D. E. H.
**Hewett, C. L.** Isomers of (2-chlorovinyl)dichloroarsine, 561*b*.
**Hewett, P. S.** Aq. urea-formaldehyde resin, P 2166*a*.
**Hewitt, C. W.** See Hardy, F.
**Hewitt, D. F.** NiAs-NiSb system, 8834*e*; see Hawley, J. E.; Satterly, J.
**Hewitt, D. H.** Natural and synthetic resins, 4788*g*; see Armitage, F.; Berger, L., & Sons Ltd.; Wakeford, L. E.
**Hewitt, E. J.** Resolution of factors in soil acidity (I), 2349*h*; see Quastel, J. H.
———, Jones, E. W., and Williams, A. H. Relation of Mo and Mn to the free amino acid content of the cauliflower, 7552*e*.
**Hewitt, G. W.** See Penney, G. W.
**Hewitt, L. F.** Oxidation-Reduction Potentials in Bacteriology and Biochemistry (book), 2262*b*; effect of chemotherapeutic agents on *Corynebacterium diphtheriae*—diamidines, 4325*i*.
**Hewitt, R. I.,** Gumble, A., Kushner, S., Sahr, S. R., Brancone, L. M., and Subba-Row, V. Chemotherapy of trypanosomiasis (I) effect of *p*-phenylenediguanidine and related compds. against infections with *Trypanosoma equiperdum*, 8545*f*.
**Hewitt, R. L.** See May, J. C.
**Hewitt, S. P.,** and Curtis, O. F. Effect of temp. on loss of dry matter and carbohydrate from leaves by respiration and translocation, 3071*e*.
**Hewitt, W. B.** See Nelson, K. E.; Williams, W. O.
**Hewlett, P. S.** Formation of insecticide films on building materials (III) lab. tests on size and gelatin as pretreatments, 9330*f*, see Plackett, R. L.
**Hey, D. H.** See Adams, A.; Baker, W.; Bennett, G. M.; British Schering Research Laboratories Ltd.; Catch, J. R.
——— and Misra, G. S. *N*-Nitrosoacylarylamines as catalysts in addn. polymerization, 5629*h*.
——— and Morris, D. S. Formation of ketones from semicarbazones by the action of nitrous acid, 2957*h*.
——— and Walker, E. W. Union of aryl nuclei (VII) reactions with acyl peroxides, 3394*d*.
——— and Waters, W. A. Gomberg reaction, 1032*e*.
**Hey, M. H.** See Bannister, F. A.
——— and Bannister, F. A. Thermal decompn. of chrysotile, 4600*e*.
**Hey, R.** "Microspur"—means of sterilizing drinking water, 790*c*.
**Heyd, J. W.** See Emerson, W. S.
**Heydenburg, N. P.,** Inglis, D. R., Whitehead, W. D., Jr., and Hafner, E. M. Proton resonances in the deuteron bombardment of C, 4947*f*.
**Heyden Chemical Corp.** Purification of tripentaerythritol, P 6751; formals of pentaerythritol, P 4290*g*, HCHO, P 5791*i*; trioxane, P 5809*i*.
**Heyes, R. G.** See Morgan, L. B.
**Heyl, D.** Vitamin $B_6$ (V) conversion of pyridoxine to the lactone of 4-pyridoxic acid, 644*a*; lactone of 2-methyl-3-hydroxy-4-carboxy-5-(hydroxymethyl)-pyridine, P 6671*g*, see Harris, S. A.
———, Harris, S. A., and Folkers, K. Vitamin $B_6$ (VI) pyridoxylamino acids, 644*d*; pyridine derivs., P 4702*h*.
———, Luz, E., Harris, S. A., and Folkers, K. Chemistry of vitamin $B_6$ (VII) pyridoxylidene- and pyridoxylamines, 1410*g*.
**Heyl, F. W.** See Centolella, A. P.
———, Herr, M. E., and Centolella, A. P. Dehydration of 22-phenyl-3-methoxy-22-hydroxybisnor-5-cholene, 3018*f*.
**Heyl, G. R.** Cu in Calif.—foothill Cu-Zn belt of the Sierra Nevada, Calif., 5706*g*; Grayhouse area, Amador County, Calif., 5707*b*; ore deposits of Copperopolis, Calaveras County, Calif.—Zn-Cu mines of the Quail Hill area, Calaveras County, Calif., 5707*c*, see Cox, M. W.
———, Cox, M. W., and Eric, J. H. Penn Zn-Cu mine, Calaveras County, Calif., 5707*a*.
——— and Eric, J. H. Newton Cu mine, Amador County, California, 5707*a*.
**Heyman.** See also Helman.
**Heyman, W. A.** Coffee concentrate, P 1121*f*.
**Heymann, E.** See Bloom, H.; Boardman, N. K.; Buchanan, A. S.; Gilby, A. R.
——— and O'Donnell, I. J. Anion exchange resins—"acid adsorption" or "anion exchange"? 335*b*; physicochem. investigation of a cation-exchange resin (I) resin equilibria, (II) resin conductance, 7785*d*.
**Heymann, H.** Two-step reduction-oxidation of thiaxanthone 5-dioxide and thiaxanthenol 5-dioxide, 2994*h*, see Fieser, L. F.
——— and Fieser, L. F. Naphthoquinone antimalarials (XIX) antirespiratory study of protein binding, 1108*h*; (XXI) antisuccinate oxidase activity, 2328*e*.
**Heymann, J. C.** Economy in production—drawing die lubricant, 8999*a*.
**Heymans, C.** See Gellhorn, E.
——— and Bennati, D. Acetylcholine tachycardia, 7576*e*.
———, Caldeyro Barcia, R., and Garcia Austt, E. Synaptic inhibiting drugs and the cardio-inhibitory center, 7133*c*.
———, Estable, J. J., and Castillo de Bonneveaux, S. Pharmacology of (diethylaminoethyl)phenothiazine, 7129*h*; nicotinolytic action of (diethylaminoethyl)-phenothiazine, 7130*h*.
———, Mazzella, H., and Migliaro, E. Dimethyltubocurarine and regulation of blood pressure, 7132*a*.
———, Verheke, R., and Votava, Z. Cholinesterases, cholinergic symptoms, and sensitivity to acetylcholine, 4305*c*.
**Heymès, R.** See Étienne, A.
**Heyn, A. N. J.** Small-angle x-ray scattering of various cellulose fibers, 2091*f*, 4461*a*, 6044*e*.
**Heyndrickx, G.** See Vleeschouwer, A. de.
**Heyne, E.** See Whistler, R. L.
**Heyne, W.** See Zeidler, G.
**Heyns, K.,** and Brandt, K. Yeast fermentation test and detn. of vitamin $B_1$ (III) specificity and type of activation of fermentation and growth, 1823*b*.
——— and Graefe, G. Evaluation of potato juice for production of protein material and some other constituents, 6754*g*.
——— and Tauber, E. Yeast fermentation test and detn. of vitamin $B_1$ (II) specificity of the pyrimidine components of aneurine, 1822*g*.
**Heyroth, F. F.** See Largent, E. J.; Treon, J. F.
**Heyrovský, J.** Polarographisches Praktikum. Vol. IV (book), 3748*d*; polarographic analysis, 5695*g*.
——— and Hasselbach, H. Detn. of carotene, 6692*h*.
——— and Müller, O. H. Bibliography of publications dealing with the polarographic method, 907*f*.
**Heywood, B. J.** Monoazo dyes, P 7697*i*, 8154*d*, 8155*d*.
———, Knight, A. H., and Imperial Chemical Industries Ltd. Azo dyes, P 7695*e*.
**Heywood, F.** Textile machinery development and research, 414*f*.
**Heywood, M. M.** Activator for thiazole accelerators, P 2808*e*.
**Heyworth, F.** See Hodgson, H. H.
**Hiatt, C. W.** See Ecker, E. E.
**Hiatt, E. P.,** Greene, I., and Sparrow, S. Effects of repeated oral doses of quinine and quinidine on the blood pressure and renal circulation of dogs with neurogenic hypertension, 2329*h*.
**Hiatt, G. D.** See Malm, C. J.
——— and Crane, C. L. Regenerated cellulose, P 6415*f*.
**Hiatt, W. G.,** and Wagner, C. R. Recovery of aromatic hydrocarbons, P 4002*g*.
**Hibbard, R. R.** Silica-gel fractionation of 300-viscosity lubricating oil, 6400*h*.
——— and Cleaves, A. P. C-H groups in hydrocarbons—characterization by 1.10- to 1.25-$\mu$ infrared absorption, 5702*d*.
**Hibbard, W. R., Jr.** Plastic deformation of large-grained Cu specimens, 83*c*; see Finlay, W. L.; Maddin, R.; Yen, M.-K.
———, Eichelman, G. H., Jr., and Saunders, W. P. $\kappa$-Eutectoid transformation in the Cu-Si system, 92*i*.
———, Liu, Y.-C., and Reiter, S. F. Annealing twins in Cu and 70-30 $\alpha$-brass, 7887*f*.
**Hibbert, D.** See Freed, B.
**Hibbert, H.** See McCarthy, J. L.
**Hibbs, R. F.,** Redmond, J. W., Gwinn, H. R., and Harman, W. D. Natural abundance measurements on Ge, 4130*b*.
**Hibdon, C. T.,** and Muehlhause, C. O. Neutron cross sections at 115 e.v. and 300 e.v. (I), 6909*c*.
**Hibshman, H. J.** Hydrocarbons from CO and H, P 4447*a*; sepn. of hydrocarbons—relation of distn., vapor-liquid extn., and liquid-liquid extn., 7758*h*; sepn. of hydrocarbons by chem. type and mol. wt., 7758*i*.
**Hickam, W. M.** A metal mass spectrometer tube, 8851*b*.
**Hickel, A. E.** Petroleum-rust preventives, 3847.
**Hickethier, C. F.** Reaction of steel contg. a small amt. of Cu and of regular steel in tapwater of Buenos Aires, 1301*e*; behavior of 3 steel types in Buenos Aires tap water, 5720*i*.
**Hickey, G. E.,** and Matlack, W. W. Seamless Pt-Rh alloy tubes, P 1710*c*.
**Hickey, J. W.** See Ramser, J. H.
**Hickinbotham, A. R.** Acidimetric titration of lactic acid, 2895*d*.
——— and Ryan, V. J. Glycerol in wine, 6779*h*.
**Hickinbottom, W. J.** Reactions of unsatd. compds. (VII) mechanism of the formation of unsatd. alcs. from olefins by the action of org. per acids, 1309*h*; see Byers, A.
**Hickler, W. R.** Structural material, P 2472*j*; see MacKinnon, J. C.
**Hickling, A.** Electrode processes in aq. solns., 7351*e*.
——— and Taylor, D. Anodic behavior of metals (V) Cu, 47*a*.
**Hickman, F. H.** See Herrmann, H.
**Hickman, J. B.** See Yü, H.-A.
**Hickman, J. W.** Oxide films formed on metals and binary alloys, 985*f*.
——— and Gulbransen, E. A. Electron-diffraction study of oxide films formed on Hastelloy alloys A, B, C, and D, 1299*e*.
**Hickman, K. C. D.** Vacuum distn. app., P 9144; vitamin E in medicine, 4742*c*, 8757*f*; see Bieliler, R. M.
**Hickman, R. C.** Exploration for fluorite in Ky. (II) Hickory Cane and K-K fluorspar properties, 3551*d*; Bush-Hutchins ilmenite, Roanoke Co., Va., 6952*c*; Virginia marl deposits, New Kent Co., Va., 6953*f*.
**Hickok, W. H.** Controlling high-frequency heating of dielec. material, P 2624*e*.

**Hicks, B. L.**, Guenther, P. E., and Wasserman, R. H. Formulations of the equations for compressible flow, 2046*c*.
**Hicks, D.** Anthracite and dry steam coals, 3593*a*.
**Hicks, E. M., Jr.** Acid-catalyzed prototropic reactions of org. carbonyl compds. in liquid media, 4212*h*.
**Hicks, H. G.** See Wilkinson, G.
**Hicks, J. C.**, and Davies, B. High-temp. properties of MgO refractories, 8114*i*.
**Hicks, J. R.** See Clark, I. T.
**Hicks, M.** See Denbigh, K. G.
**Hicks, W. L.** See Kester, C. C.
**Hidachi Manufg. Co.** Calcination of cement, P 5318*f*; polysulfide synthetic rubber, P 6456*g*.
**Hidaka, J.** See Hirai, K.
**Hide, K.** See Kojima, C.
**Hieber, W.** Metal carbonyls, 3741*f*.
——— and Nast, R. NO complexes of metals, 3742*e*.
———, Nast, R., and Gehring, G. Inorg. compds. of NO (VIII) nitroprussiate of Mo, 3303*i*.
———, Nast, R., and Proeschel, E. Inorg. compds. of NO (VI) nitrosyl cyano Ni complex, (VII) formation of nitrosylcyano complexes, 3303*f*.
**Hieger, I.** Chem. carcinogenesis, 3514*h*.
**Hield, H. Z.** See Stewart, W. S.
**Hiemenz, A.**, and Cawron, O. Esters of mono-, di-, and trichloroacetic acids, 4220*d*.
**Hiemke, H. W.** Alloys for heat-treating equipment, 2150*b*.
**Hier, S. W.** See Graham, C. E.
**Hiers, G. O.** Pb and its alloys, 8745*c*.
**Hierserman, C. E.** See Seymour, G. W.
**Hiester, N. K.**, and Vermeulen, T. Elution equations for adsorption and ion exchange in flow systems, 464*i*.
**Hietaranta, M.** Effect of oxidizing salts on growth, acid production, and proteolytic properties of lactic acid bacteria, 1340*h*, see Hansson, E.
**Hift, H.**, and Wallace, G. I. Synthesis of cystine by some lactic acid bacteria, 1334*a*.
**Higashi, A.** See Peters, L.
**Higashi, K.** Estg. the dipole moment of a mol., 7764*a*; reaction between *p*-dibromobenzene and AlCl$_3$, 7918*f*, see Kan, D.
**Higbee, H. W.** See Swift, R. W.
**Higginbotham, R. S.**, and Morrison, G. A. Fractionation of starch (I) estn. of amylose in the presence of amylopectin, (II) sepn. of amylose and amylopectin, 5615*f*.
**Higginbottom, S. A.** Nameplates—forming and porcelain enameling, 2392*h*.
**Higgins, E. B.** Pentachlorophenol proteinates, P 687*h*; treatment of aq. liquids, P 5890*f*, plastics for textiles, 6459*i*; proofing proteinaceous fibers against biol. attack, P 9475*g*.
**Higgins, G. C.** See Jones, L. A.
**Higgins, H. C. L.** See Longuet Higgins, H. C.
**Higgins, H. G.**, and Plomley, K. F. Rheological properties of thickening colloidal systems, 2841*a*.
**Higgins, J. W.** See Piskur, M. M.
**Higgins, M.** See Custance, H. M.
**Higgins, R. V.** See Shea, G. B.
——— and Shea, G. B. Gravitational drainage of oil from unconsolidated sands, 3600*d*.
**Higgins, T. C.** See Grumbles, L. C.
**Higgins Industries, Inc.** Water still, P 8080*h*.
**Higgs, M. C.** See Burns, F. B.
**Higgs, P. M.** Recording mech. pressure gage, 3246*g*.
**Higguet, M. H. G.** Magnesia, P 4821*g*.
**High Duty Alloys Ltd.** and Whitby, L. Adhesives, P 901*b*.
**Highet, D. M.**, and West, E. S. Effect of methylene blue in preventing alloxan diabetes and in lowering the blood sugar of alloxan-diabetic rats, 5498*h*.
**Highet, H. C.** See Distillers Co., Ltd.
**Highman, B.** See Spicer, S. S.
**Hightower, C. C.** Alkali in Louisiana, 6371*h*.
**Hightower, J. V.** Cl—caustic soda, 2378*f*; Corn Products plant—it makes wet-milling history, 7248*i*; way to bleach vegetable oils, 8709*b*.
**Higinbotham, N.** Pigment production in nonchlorophyllous plants, 3491*f*.
**Hignett, T. P.** Blast-furnace process for production of H$_3$PO$_4$. (I), (II), 1533*e*; (III), 9392*f*.
**Higuchi, I.** Sorption isotherms for C$_6$H$_6$ on silica gels, 7774*b*.
**Higuchi, K.**, and Peterson, W. H. Penicillin in broths and finished products, 7641*a*.
**Higuchi, Takashi.** Toxic component of stagger bush (I) synthesis of aschogenin, 8603*b*.
**Higuchi, Takeru.** See Poetsch, C. E.; Swintosky, J. V.
———, Endow, N., and Willard, J. E. Prepn. and vapor pressure of bromopentachloroethane—vapor pressures of heptachloropropane and dibromotetrachloroethane, 2924*e*.
———, Leeper, H. M., and Davis, D. S. Detn. of tensile strength of natural rubber and GR-S—effect of specimen size, 2011*i*.
**Hikawa, F.** See Takahashi, T.
**Hikó, L.** See Fazekas, J.
**Hikosaka, R.** Sr salts, P 5160*c*, LiCl, P 6376*b*.
**Hilal, O. M. M.** See Baddar, F. G.
——— and Sugden, S. Magnetic susceptibilities of the rare earth elements (I) Y, 6479*g*.
**Hilbert, G. E.** See Montgomery, E. M.
**Hilborn, M. T.** See Frear, D. E. H.
**Hilbug, S.** See Falco, F.
**Hild, J. H.**, and Ames, E. W. Jamestown fluorite deposits, Boulder Co., Colorado, 6547*a*.
**Hildebrand, A. A.**, McKeen, W. E., and Koch, L. W. Row treatment of soil with tetramethylthiuram disulfide for control of blackroot of sugar-beet seedlings (I) greenhouse tests, 7175*h*.
**Hildebrand, G. E. H.** See Ekman, W.
**Hildebrand, J. H.** Theory of soly. of nonelectrolytes, 4542*h*; soly. of org. compds. in water, 6889*i*; seven liquid phases in equil., 7285*c*; philosophy of teaching, 7762*b*; see Benesi, H. A., Gjaldbaek, J. C.; Groot, C.
——— and Cochran, D. R. F. Liquid-liquid soly. of perfluoromethylcyclohexane with C$_6$H$_6$, CCl$_4$, chlorobenzene, CHCl$_3$, and toluene, 3267*a*.
——— and Wachter, A. Soly. of dotriacontane (bicetyl), 6890*c*.
**Hildebrand, R.** See Bratenahl, A., Moyer, B. J.
**Hildebrandt, A. C.** See Struckmeyer, B. E.
——— and Riker, A. J. Influence of various C compds. on the growth of marigold, Paris-daisy, periwinkle, sunflower, and tobacco tissue, 4348*h*.
**Hildebrandt, F.** Retention of digitalis glycosides by the guinea-pig heart, 1106*h*, therapy with desoxycorticosterone, 1844*e*; fixation of digitalis glycosides on the cat heart, 5493*c*, Leitfaden der Pharmakologie (book), 5506*d*.
**Hildebrandt, F. M.**, and Warren, K. H. Scale formation on lab. evaporator, 4521*c*.
**Hildenbrand, R.** Deactivating effect, 129*c*.
**Hilditch, T. P.** Glyceride structure of stearic-rich animal depot fats, 2790*e*; potential sources of drying oils, 4025*h*, fats, fatty oils, and detergents, 4788*f*, see Baliga, M. N., Dunn, H. C.
——— and Maddison, L. Component acids and glycerides of whale oil, 2451*c*.
——— and Pathak, S. P. Component acids of some seal blubber and liver fats, 6839*e*; component glycerides of Bacury seed fat, 7720*g*.
——— and Shrivastava, R. K. Component glycerides of an Indian sheep body fat, 1997*b*.
**Hildorf, W. G.** See Welchner, J.
**Hilfer, H.** Deodorant and antiperspirant prepns., 3561*i*; chelating agents, 5533*f*, nail lacquers, 5534*f*; dentifrices, 9364*d*.
**Hilfiger, J. P.** Ion exchangers, 8577*i*, see Maillard, Alfred.
**Hilfinger, M. F.** See Westerfeld, W. W.
**Hilinski, F. A.**, and Lovell, C. L. Clarification of corn mash—prepn. of malt-converted degerminated mash for fermentation, 353*g*.
**Hilker, D. M.** See Roberts, R. G.
**Hill, A.** See Douglas, G. T.
——— and Imperial Chemical Industries Ltd. Solns. of resinous condensation products, P 5999*b*.
**Hill, A. G.** See Strandberg, M. W. P.
**Hill, A. J.** See Turner, R. J.
**Hill, B.** See Klose, A. A.
**Hill, B. R.** See Lieberman, S.; Schales, O.
**Hill, C. A.** See Boots Pure Drug Co. Ltd.
**Hill, C. J.** See Klemperer, F. W.
**Hill, C. M.**, and Senter, G. W. Prepn. and properties of several cyclohexylalkyl-substituted ketene dimers, 2964*e*.
———, Towns, M. B., and Senter, G. W. Prepn. and reactions of several Cl-substituted phenoxyacetyl chlorides, 2973*f*.
**Hill, D.** See Hester, W. F.
**Hill, D. C.** Detn. of amino acids, 7069*d*
——— and Motzok, I. Seasonal differences in the percentage ash content of chick tibiae, 286*b*.
**Hill, D. W.**, and Howlett, F. Cellulose textile chemistry, 4788*e*.
**Hill, E.** See Koehler, A. E.
**Hill, E. F.** See Vaughn, T. H.
**Hill, E. G.** Increasing open-hearth production by use of O, better refractories, and control of slag, 5712*i*; see Patton, A. R.
**Hill, E. H.**, and Sliwinski, V. X. Water-resistant starch pastes, 8716*h*.
**Hill, E. L.** Pulp and paper, 4789*a*, see Deut, J. E.; Erikson, H. A.
**Hill, F. N.**, and Selwood, P. W. Structure and activity of supported Ni catalysts, 8831*d*.
**Hill, F. R.** Spoons and forks—production methods—practical plating processes, 2098*f*, see Harwood, F. C.
**Hill, F. W.** Multiple nature of the deficiency of unidentified nutrients in crude all-vegetable protein chick starter rations, 286*d*.
**Hill, H. B.**, Johnston, K. H., Coleman, T. L., and Seward, J. M. Petroleum engineering study of the West Red River field, Tillman Co., Okla., 4451*h*
——— and Vogel, F. A., Jr. Petroleum engineering study of Sheridan field, Colorado Co., Tex., 4451*i*
**Hill, H. M.** See McBee, E. T.
**Hill, H. S.** See Beath, L. R.
———, Edwards, J., and Beath, L. R. Cutlated pulp, 3613*g*
**Hill, H. W.**, and Dance, E. L. EtCl, P 2217*h*
**Hill, I. N.**, Jelinek, O. E., and Blayney, J. R. Evanston dental caries study (III) distribution of F in communal water supplies in the U. S., 9401*e*
**Hill, J. A.** Annual report of Wyoming Agr. Expt. Sta., 9273*i*, 9315*d*
**Hill, J. B.**, and Huffman, W. C. Factor of gasoline tail end volatility, 9423*a*
**Hill, J. E.** See Bonner, T. W.; Shoupp, W. E.
———, Ewing, P. L., and Emerson, G. A. Effects of benzedrine sulfate on estrus cycles, 8532*i*.
**Hill, J. K.** See Geisler, A. H.
**Hill, J. M.** See Grant, P. J., Shepherd, L. R.
**Hill, Joseph M.**, Haberman, S., and Guy, R. Antibodies of the third order—fractionation of agglutinins, blocking antibodies and cryptoagglutinoids, 3920*a*
**Hill, J. S.** See Schmutz, R. E.
**Hill, L. R.** See Foster, N. C.
**Hill, M. L.** See Smith, Herschel G.
——— and Smith, H. G. 2-Ethylhexyl 4-octadecyltetrachlorophthalamate as an insecticide, P 3558*h*.
**Hill, Rachel.** See Glickman, I.
**Hill, Rowland.** Polymer constitution and fiber properties, 9455*i*, see Habgood, B. J.
——— and Walker, E. E. Polymer constitution and fiber properties, 9455*b*
**Hill, R. A. W.**, and Sutton, L. E. Cyclic meso-ionic compds. (II) elec. dipole moments of some sydnones, 7480*d*
**Hill, R. D.** Long-lived Te isomers, 8268*a*, see Bowe, J. C.
——— and Mihelich, J. W. Radiations from Te$^{121}$, 3285*d*
———, Scharff-Goldhaber, G., and Friedlander, G. Internal conversion electrons from metastable Te$^{125}$, 4123*i*.
**Hill, Ralph M.** Alkylation of isoparaffins with olefins, P 3189*g*.
**Hill, Robert M.** See Holtkamp, D. E.
———, Dunlop, S. G., and Mulligan, R. M. Cryoglobulin present in high concn. in the plasma of a case of multiple myeloma, 9101*h*.
——— and Rutledge, E. K. Effect of autolyzed yeast, yeast nucleic acid, and related substances on body temp., 5867*b*.
**Hill, R. P.** See Weesner, C. W.
**Hill, R. W.** See Blears, J.
**Hill, T. J.** See Wehman, H.
——— and White, B. J. Acid production in saliva, 9204*d*.
———, White, B. J., Matt, M., and Pearlman, S. Biologically active salivary fraction possibly related to caries susceptibility, 7060*i*.
**Hill, T. L.** Phys. adsorption on nonuniform surfaces, 2840*a*; steric factors for some

reactions involving free radicals, 7795*i*; thermodynamic transition from adsorption to soln., 7804*h*; extension of Fowler's treatment of surface tension to phys. adsorption, 8776*i*; phys. adsorption and the free-vol. model for liquids, 8777*g*; statistical mechanics of adsorption (V) thermodynamics and heat of adsorption, 8791*e*.

**Hill, U. T.** Detn. of Si in low-alloy and C steels, 5337*c*

**Hill, W. H.** Guanidine nitrate, P 5416*b*.

**Hill, W. L.** Phosphates—relation between soly. and certain other properties of the Ca phosphates, 797*h*; see Dean, L. A.

——, Fox, E. J., and Mullins, J. F. Prepn. of radioactive phosphate fertilizers, 7175*d*.

——, Hardesty, J. O., and Whittaker, C. W. Detn. of moisture in fertilizers, 9325*g*

**Hillarp, N. Å.** Localization of hypothalamic centers controlling the gonadotropic function of the hypophysis, 5479*c*; cell reactions in the hypothalamus following overloading of the antidiuretic function, 5479*f*; see Aldman, B; Claesson, L.

**Hillberry, N.** Status of at. power, 6914*i*.

**Hillebrand, D. M.** See Muller-Hillebrand, D.

**Hilleman, M. R.**, and Nigg, C Lymphogranuloma venereum complement-fixing antigens (IV) fractionation with org. solvents of antigens of the psittacosis lymphogranuloma venereum group, 752*f*.

**Hiller, A.**, Greif, R. L, Beckman, W W., and Plazin, J. Detn. of protein in urine, 4319*e*

——, Plazin, J., and Van Slyke, D D. Kjeldahl detn. of N in proteins—Hg as a catalyst and measurements of the $NH_3$ formed, 4180*e*; substitutes for saponin in the detn. of O and CO of blood, 5070*g*

**Hiller, W.** Stahl-Handbuch (book), 2919*f*.

**Hillery, B. E.** See Karon, M. L.

**Hillger, R. E.** See Wentink, T, Jr.

**Hilliard, A.** See Stott, V. H

—— and Stott, V H. Cleavage in heat-treated zircon, 5563*g*.

**Hilliard, D. A.** Evaluation of protective coatings, 2446*d*

**Hilliard, J.** See West, P M

**Hillier, G. E.** Effect of impurities in pigments, 4869*i*

**Hillier, J.** Electron microscopy and micro analysis, 4972*e*, gas analyzer, P 6010*f*, see Knaysi, G; Turkevich, J

**Hillier, K. W.**, Kolsky, H., and Lewis, J P Measuring dynamic mech properties of rubberlike materials, 3643*c*.

**Hillier, W. H.**, and Campbell, S. G. Developments in uses of Bradford's recovered wool grease (I), (II), 4493*h*.

**Hillig, F.** Volatile acids in cream and butter (I) development of butyric acid during the decompn of cream, 6749*f*, detn of water insol fatty acids in dried eggs, 6750*i*, decompn. in dairy products—detn of water-insol. fatty acids in cream and butter, 9282*i*; see Lepper, H A.

—— and Ahlmann, S. W Water-insol. fatty acids in cream and butter, 6749*h*

—— and Montgomery, D Volatile acids in cream and butter (II) butyric acid in com. creams and butters, 6749*g*.

**Hillman, H. V.** Teaching of symbols, formulas, and equations in chemistry, 8220*c*

**Hillman, W. S.** See Coyner, E. C.

**Hillmann, A.** See Hillmann, G.

**Hillmann, G.** Prepn. of free esters of amino acids from their hydrochlorides, 742*h*

and Hillmann, A. Resolution of DL-glutamic acid, 6694*h*, synthesis of α-amino acids, 6695*d*.

**Hillpern, E. P.** Personal qualities of Wilhelm Ostwald, 8759*h*.

**Hills, C.** See Keil, Havard L.

**Hills, G. J.**, and Ives, D. J. G. H electrode, 7790*g*.

**Hilis, O. W.** See Horwitt, M. K.

**Hills, R. C.**, and Dufour, M. F. Reduction of ores contg. Ni, P 6562*e*.

**Hilly, G.** See Chaussin, C.

**Hillyer, J. C.**, and Deutschman, A. J., Jr. Detn of polymer in furfural, 4184*c*.

—— and Nicewander, D. A. Inhibition of furfural polymerization, P 7969*i*; inhibiting polymerization and corrosiveness of furfural by mercaptobenzothiazole, P 9430*i*.

——, Swadesh, S., Leslie, M. L., and Dunlop, A. P. Butadiene-furfural copolymers, 1597*f*.

—— and Wilson, J. F. Reaction of an $C_5H_8$ with HF to produce vinyl fluoride and(or) difluoroethane and homologs, P 6645*c*.

**Hilmer, P. E.**, and Hess, W C. Detn. of androsterone and testosterone, 9132*h*.

**Hilscher, W.** See Diethelm, L.

**Hilster, C. C. de.** See De Hilster, C. C.

**Hilt, L.** Index to Chem. and Related Subjects (book), 7318*i*.

**Hilti, B.**, and Huwyler, A. Agent for accelerating the setting of cement, P 7660*h*.

**Hiltner, W. A.** See Greenstein, J. L.

**Hilton, J. G.** See Berliner, R. W.

**Hilton, J. H.** Research and farming, 9320*f*

**Hilty, D. C.** Relation between Cr and C in the refining of Cr steel, 947*h*, 2560*f*, high-Cr steel in acid arc furnace, 8283*f*.

**Hilty, W. W.** Pharmaceuticals and natural drugs, 3145*b*; see Wesselman, H. J.

**Hiltz, P.**, and Pobeguin, T. Cystoliths of *Ficus elastica*, 5830*g*.

**Himbert, J.** See Libermann, D.

**Himel, C. M.** Thiol esters, P 3444*i*.

—— and Bailey, G. C. Lubricating oil additives, P 1176*d*.

**Himelick, R. E.** See Bond, G. C.; MacDonald, L H.

**Himmler, W.** Heterogeneous catalysis, 1634*h*

**Himsworth, F. R.**, Symington, R, and Imperial Chemical Industries Ltd. Oxidation of $SO_2$ to $SO_3$, P 6797*e*

**Himsworth, H. P.** Nutrition and liver disease, 1095*a*.

**Himus, G. W.**, and Basak, G. C. Analysis of coals and carbonaceous materials contg high percentages of inherent mineral matter, 3168*d*.

**Himwich, H. E.** See Freedman, A M.

——, Himwich, W. A., and Elsten, B Pentothal anesthesia, 9262*d*.

**Himwich, W. A.** See Himwich, H. E.

**Hincks, E. P.** See Elliott, L. G.

—— and Pontecorvo, B. Penetration of μ-meson decay electrons and their Bremsstrahlung, 4104*f*

**Hind, H. W.**, and Govan, F. M. H-ion concn and osmotic properties of lacrimal fluid, 9211*f*.

**Hindall, A. L.** Reconditioning battery plates, P 957*a*, storage-battery expander, P 5318*f*, 5319*a*.

**Hindemith, H.** See Eichler, O.; Euler, Hermann

**Hinden, W.** See Sorkin, E.

**Hindermann, P.** Metallizable monoazo dipyrazolones, P 9461*d*; see Krebser, A.

**Hindin, S. G.** See Grosse, A V.

—— and Grosse, A V Lamp for burning high-boiling org compds—detn of H, 1687*d*, detn. of N in org materials—application of the mass spectrometer, 2119*i*.

**Hindle, W. H.** See Croft, C. M

**Hindley, H. R.** Infrared gas analyzer, 4054*g*.

**Hindley, N. C.** See Isler, O.

—— and Low, J. A. Ethers, P 9086*a*.

**Hindley-Smith.** Medical problems of the asbestos-cement industry, 4826*h*

**Hindman, H.**, and Burr, G S. Instron tensile tester, 8748*d*

**Hindman, J. C.** See Kritchevsky, E S

——, Magnusson, L B, and LaChapelle, T. J. Oxidation states of Np in aq. soln., 5686*d*

**Hindmarsh, M. M.** Effect of sulfanilamide and *p*-aminobenzoic acid on mitosis, 7143*g*.

**Hinds, J.** Water-lowest-cost industrial mineral, 2715*g*

**Hine, Carolyn H.** See Cunningham, R. W.

**Hine, Charles H.** University instruction in toxicology, 7061*a*.

**Hine, G. J.** β and γ-Ray spectroscopy (I), (II), 4096*g*

**Hine, J. S.** See Adams, R.; Roberts, J. D.

**Hine, M. G. N.** See Devons, S.

**Hinegardner, W. S.** See Carlisle, P J.

**Hineline, H. D.**, and Young, D. W. Lubricant, P 8668*f*

**Hines, E.**, and Gemant, A. Prepn. and properties of tridecanoic acid contg. $C^{14}$ in the carboxyl group, 7333*b*.

**Hines, W. G.** See Goerner, G. L.

**Hinglais, H.**, and Hinglais, M. Action of hypophyseal or chorionic gonadotropins on adult male native toads—application to the diagnosis of human pregnancy, 1098*a*; inhibiting effect of estrogens on the development of malignant chorioepithelioma, 9256*g*.

**Hinglais, M.** See Hinglais, H.

**Hinkel, E. T., Jr.** See Nachod, F. C.

**Hinkle, J. M.** Thermal anomaly of the alloy of 80% Ni and 20% Cr ($Ni_3Cr$), 4619*f*.

**Hinks, N. T.** See Bolliger, A.

**Hinman, F. G.** See Brindley, T. A.

**Hinman, J. W.** See Carter, H. E.

**Hino, M.** Proteolytic system of enzyme-albumin-substrate—proteolytic system with protein-minced mucosa-albumin, 4705*i*; protease activity of thoroughly washed liver and cerebral tissue, 4707*a*; protease activity of frozen tissue slices (I) comparative protease activity of frozen slices, macerates, and dry prepns. from various organs, (II) sepn. of catheptase from ereptase and kathopeptonase from kathoproteinase of liver slices, (III) tryptic activity of frozen slices from pancreas, 9089*f*.

**Hinshaw, H. C.** See Feldman, W. H.

—— and Feldman, W. H. Streptomycin—its use in the treatment of tuberculosis, 8408*b*.

**Hinshaw, R. A.**, and Pool, M. L. Radioactive $Sn^{111}$, 8207*e*.

**Hinshelwood, C. N.** Chem. kinetics of bacterial growth, 2276*b*; centenary address, 2827*b*, labile mols in the kinetics of hydrocarbon reactions (I), 5269*c*; see Cullis, C. F.; Jackson, S, Lewis, P. R.; Morrison, G. A.; Peacocke, A. R.; Stubbs, F. J.

—— and Lewis, P. R. Adjustments in bacterial reaction systems (II) adaptive mechanisms, 1458*d*.

**Hinson, A. L.** See Greene, J F.

**Hinteman, H. M.** Cocoa, P 7606*d*.

**Hintenberger, H.** Relative abundances of Zr isotopes, 6077*h*; see Klemm, A.

——, Mattauch, J., and Seelmann-Eggebert, W. Abundance of the isotopes of Sn, 3288*c*.

**Hinteregger, H.** Betatron theory, 4940*g*.

**Hintermaier, A.** Analysis of alkyl sulfates and proposed nomenclature, 559*e*.

**Hintermaier, J. C.** Foundations for design, 4173*f*.

**Hinton, C. L.** Buffer power of sugars, 9499*f*.

**Hinton, J. J. C.** Parboiling treatment of rice, 8065*i*.

**Hintze, W. W.** Peat charcoal as gas-producer fuel, 2407*e*.

**Hintzer, H. M. R.** Influence of small quantities of thiamine on baking quality of wheat flour, 6325*d*.

——, Gorter, A., and Eekelen, M. van Nutritional value of bread (I) degree of extn. of wheat in relation to baking quality and nutritional value, 6748*g*

**Hinz, G.** Technology of cellulose triacetate, 6408*c*.

**Hippel, A. v.** See Von Hippel, A.

**Hippenmeier, F.** See Buchi, J.

**Hipple, J. A.** Applications of the mass spectrometer, 4972*e*, vapor trap for high vacuum systems, P 4057*b*; see Thomas, Harold A.

—— and Shepherd, M. Mass spectrometry, 2113*f*; time-of-flight mass spectrometer with varying field, 5292*g*.

**Hipsher, H. F.** See Serijan, K. T.

**Hirabayashi, S.**, and Fujino, H. Insecticidal Mn arsenate, P 6358*a*.

—— and Nonura, E. $H_3PO_4$, P 6374*b*.

**Hirai, K.**, and Hidaka, J B deficiency in plants (I) external B deficiency symptoms and B requirements of tobacco plants in culture solns, 5454*d*.

**Hiraki, S.** See Tanaka, I.

**Hirano, K.** Theobromine and confectionery raw material from cacao, P 6759*c*.

**Hirano, S.** See Tanaka, Yoshio.

**Hirayama, C.** See Parker, J V.

**Hirayama, T.** See Takaoka, M.

**Hird, F. J. R.** Amino acids in tobacco mosaic virus, 7092*a*.

**Hiroi, K.** Influence of radiation on anaphylaxis (I) amino acids, (II) Röntgen rays and amino acids, (III) vegetative nerve toxins and amino acids, (IV) Hg-lamp rays, (V) Hg-lamp rays and vegetative nerve toxins, (VI) Hg-lamp rays and amino acids, (VII) cholesterol, 308*d*.

**Hirokawa, K.**, Wada, E., and Hoshida, M Treatment for weathered mica, P 5550*h*.

**Hironaka, Y.**, and Tono, M. Benzanthrone vat dyes, P 7236*a*.

**Hirone, T.** See Honda, K.

**Hirose, S.**, Nobori, H., and Noguchi, M. Fatty acids by oxidation of paraffin (IV) compn. of refined fatty acids, (V) MeOH-sol. portion of the unsaponifiable matter, 9020*d*.

**Hirota, K.** See Takahashi, Kiyooki.
**Hirs, C. H. W.** Two derivs. of 2-aminofluorene, 5770*a*.
**Hirsbrunner, H. R.** Scouring mineral oil-lubricated wool, 2780*b*.
**Hirsch, A.**, and Mattick, A. T. R. Applications of nisin, 8004*e*.
**Hirsch, Albert.** Ni plating, 4147*b*.
**Hirsch, Alfred.** Continuous Grignard app., P 4287*a*.
**Hirsch, Arthur, and Jacquot, R.** Toxic effects of large doses of Me linoleate and sunflower oil in nutrition of the rat, 7561*g*.
**Hirsch, A. A.** Control of floating scum in digestion equipment, 2718*h*.
**Hirsch, E. F.** See Bauer, F. C., Jr.
**Hirsch, J. H.** See Ayres, E.
**Hirsch, P. B.**, and Kellar, J. N. Surface layers of crystals, 3259*g*.
**Hirschberg, E.** See De Ritter, E.
**Hirschbold-Wittner, F.** Detn. of at. wts., 2051*b*.
**Hirscher, H.** Carbohydrate metabolism and its vegetative hormonal control in lipodystrophy, 8515*i*
**Hirschfelder, J. O.** See Curtiss, C. F
——, Bird, R. B., and Spotz, E. L. Transport properties of gases and gaseous mixts (II), 4531*a*.
**Hirschler, A. E.** Purification of naphthenic hydrocarbons, P 678*i*, 4458*d*, 9431*f*; sepn. of aromatic hydrocarbons by selective adsorption in silica gel, P 679*a*, 6011*f*; see Lipkin, M. R
**Hirschmann, F. B.** See Hirschmann, H.
**Hirschmann, H.**, Hirschmann, F. B., and Daus, M. A. Configuration of the 3,16,20-allopregnanetriol of the urine of pregnant mares, 6641*h*
**Hirschorn, M.** Design of an equipment silencer, 8214*h*
**Hirsh, B. W.**, and Imperial Chemical Industries Ltd. Electrolysis of aq. solns., P 8918*g*.
**Hirshberg, Y.** Absorption spectra of phenylated anthracenes, 42*b*, see Dishon, B. R.
—— and Jones, R. N. Ultraviolet absorption spectra of some carboxy derivs. of naphthalene, 8885*e*.
**Hirshfeld, J. W.** See Meyer, F. L.
**Hirsiger, W.** See Muralt, G. v.
**Hirst, E. L.** Occurrence and significance of the pentose sugars in nature, and their relation to the hexoses, 5828*d*; see Brown, F.; Flood, A. E.; Halsall, T. G.
——, Hough, L., and Jones, J. K. N. Compn. of the gum of *Sterculia setigera*—D-tagatose in nature, 4881*c*.
——, Isherwood, F. A., Jermyn, M. A., and Jones, J. K. N. Pear cell-wall cellulose, 7679*f*.
—— and Jones, J. K. N. Galactomannan of carob-seed gum, 581*c*, pectic substances (VIII) araban component of sugar-beet pectin, 2954*a*
——, Jones, J. K. N., and Roudier, A. J. Structure of acorn starch, 2797*h*.
**Hirst, F.** See Martin, L. H.
**Hirst, G. K.** Virus receptors of red cells (III) partial purification of the virus agglutination inhibition in human plasma, (IV) effect of $NaIO_4$ on the elution of influenza virus from red cells, 3096*c*.
**Hirst, L. L.** See Kastens, M. L.; Skinner, L. C.
——, Markovits, J. A., Skinner, L. C., Dougherty, R. W., and Donath, E. E. Estd. plant and operating costs for producing gasoline by coal hydrogenation, 8641*f*.
——, Skinner, L. C., Clarke, E. A., Dougherty, R. W., and Levene, H. D. Estd. cost of producing heavy fuel oil by hydrogenation of coal, 1549*i*
——, Skinner, L. C., and Donath, E. E. Hydrogenation of coal, 1942*h*.
**Hirst, W.** Mech. interaction between mobile insol. adsorbed films, capillary condensed liquid, and fine-structured solids, 1238*g*; see Dresel, E. H.
**Hirt, G. E.** See Fawcett, C. C.
**Hirt, R.** Surface activity and spasmolytic action, 4777*a*, basic amide of 2-thioalkylcinchoninic acid, P 7647*d*.
——, Gysin, H., and Martin, H. *N*¹-Acylsulfanilamides, P 3035*e*.
—— and Hurni, H. Tuberculostatic action of *p*-aminosalicylic acid derivs. and similar substances, 6318*g*.
**Hirt, R. C.**, and Nachtrieb, N. H. Detn. of rare earth elements in U compds., 1684*a*.
**Hirtz, J.** See Bernard, R.
**Hirsel, O.**, and Wäffler, H. Radioactivity of $K^{40}$, 1260*d*.
**Hisaw, F. L.**, and Zarrow, M. X. Relaxin in the ovary of the domestic sow, 2299*c*.
**Hiscox, D. J.** Chem. assay of cryst. penicillins, 7532*a*.
**Hiskey, C. F.** Precision colorimetry, 5096*g*; see Mason, R. W.
**Hislop, W. J. C.** Elec. etching of metals, 6090*f*.
**Hitchcock, A. E.** See Zimmerman, P. W.
—— and Zimmerman, P. W. Activation of 2,4-D by various adjuvants, 805*h*; effect of concn. of 2,4-D on killing Japanese honeysuckle, 1895*c*.
**Hitchcock, C. R.** See Kremen, A. J.
**Hitchcock, F. A.** See Hunter, J. A.
**Hitchcock, L. B.** Putting new chemicals to work, 5131*f*.
**Hitchcock, W. J.** See McNally, J. R., Jr.
**Hitchens, R. M.** Cellulose esters stabilized by means of benzyl benzoate, P 1979*e*.
**Hitchings, G. H.** See Burchenal, J. H.; Elion, G. B.; Falco, E. A.; Russell, P. B.
—— and Elion, G. B. Isomeric dihydroxanthopterins, 3425*h*.
——, Elion, G. B., Falco, E. A., and Russell, P. B. Synthesis of cytosine and 5-methylcytosine, 4228*h*.
**Hite, E. C.** Basic refractory structure, P 1936*b*.
**Hite, J.** See Kummerow, F. A.
**Hites, B. D.**, Ackerson, C. W., and Volkmer, G. H. Detn. of lactose in milk products, 9280*g*.
**Hitzler, F.** Electron repulsion of alkyl groups in relation to Grimm's principle of hydride displacement, 3776*g*; see Schmidt, Erich.
**Hix, H. B.** See Erickson, J. L. E.
**Hixon, R. M.** See Brown, Horace D.
**Hixson, A. N.** See Martin, E. W.
**Hixson, A. W.**, and Miller, R. Recovery of acidic gases, P 368*h*.
—— and Smith, M. I. Mass transfer in liquid-liquid agitation systems, 5647*b*.
**Hixson, E.** See Muma, M. H.
**Hjort, C. I. F.**, and Jansa, O. V. E. Jet disperser and mixer of clay in liquid, P 3588*b*.
**Hjorth, E.** See Dam, H.
**Hladik, W. B.** See Plummer, N
**Hlavaty, R. F.** Flameproofing, P 3210*i*
**Hlynka, I.** Effect of bisulfite, acetaldehyde, and similar reagents on the phys. properties of dough and gluten, 8067*a*.
—— and Hood, E. G. Application of fat-acidity detn. to study of lipolytic flavor defects in Cheddar cheese, 6750*e*.
**Hnatek, A.** Factors detg. the const. of gelatin sensitometric wedges, 1275*g*
**Hnizda, V. F.**, and Kraus, C. A. Properties of electrolytic solns. (XXXIX) conductance of several salts in $NH_3$, 6892*b*.
**Ho, C. S.**, and Chang, E. T. Geology of Tsiaochiaping coal field, Ichun, Shensi, 2902*i*.
——, Liu, T. C., and Chang, E. T. Geology of the coal fields of eastern Kansu, 2902*f*
**Ho, K.** Chinese Vegetable Oils and Fats (book), 7725*i*
**Ho, Z.-W.** See Bothe, W.
**Hoag, J. B.**, and Korff, S. A. Electron and Nuclear Physics (book), 948*a*.
**Hoagland, C. L.** See Kunkel, H. G.; Labby, D. H
**Hoagland, D. R.** Lectures on the Inorg. Nutrition of Plants (book), 1086*i*.
**Hoagland, H.** See Pincus, G., Shapiro, Sumner.
**Hoagland, M. B.** See Grier, R. S
**Hoagland, R.**, Hankins, O. G., Ellis, N. R., and Snider, G. G. Nutritive properties of protein in different cuts of beef, 8024*b*.
**Hoak, R. D.** Recovery of Mn from Mn ores, P 3339*f*.
——, Lewis, C. J., Sindlinger, C. J., and Klein, B. Pickle liquor neutralization, 2142*g*.
—— and Sindlinger, C. J. Waste pickle liquor neutralization, 2557*c*.
**Hoán, N.** Same as Nguyen-Hoán.
**Hoar, T. P.** Org. inhibitors in the acid attack of mild steel, 2917*e*; protection of metals against corrosion, 6902*g*; breakdown and repair of oxide films on Fe, 9005*a*.
**Hoare, A.** Short Italian Dictionary. Vol. I. Italian-English. Vol. II. English-Italian (book), 5658*g*.
**Hoare, C. A.** See Goodwin, L. G.
**Hoare, J. P.** See Laidler, K. J.
**Hoare, R.** See Tuba, J.
**Hoare, W. E.** Hot-Tinning (book), 8343*f*.
—— and Caulfield, K. W. Thiocyanate porosity test for Sn plate, 8339*g*.
**Hoather, R. C.** Bactericidal effect of $NH_2Cl$ treatment, residual chloramine, and free residual Cl, 9405*d*.
**Hoatson, J. R.** See Rosenwald, R. H.
**Hobart, F. G.**, and Melton, G. Concise Pharmacology and Therapeutics (book), 6745*g*.
**Hobbiger, F.** Ether-sol. form of acetylcholine in the central nervous system of warm-blooded animals, 7106*e*.
—— and Werner, G. Chem. equil. of distribution of acetylcholine in the brain tissue of warm-blooded animals, 7106*c*; acetylcholine synthesis in brain tissue, 7130*h*.
**Hobbs, L. M.** See Weaver, W. I.
**Hobbs, M. E.** See Freiser, H.; Maryott, A. A., Moore, E. M., Scheraga, H. A
**Hobbs, N. L.** See Capps, B. F.
**Hobby, G. L.**, Lenert, T. F., Reed, W., and Rinne, D. Chemotherapeutic action of penicillin, 4776*d*.
**Hobday, G. I.** See Short, W. F
**Hobensack, B.** See Ahlquist, R. P
**Hoberman, H. D.**, Sims, E. A. H., and Peters, J. H. Creatine and creatinine metabolism in the normal male adult studied with the aid of isotopic N, 3904*b*
**Hobler, T.** Analogy between mass and heat transfer, 8772*i*; adsorption of N oxides in the manuf. of $HNO_3$, 9391*g*
**Hoblyn, T. N.** See Roach, W. A
**Hobson, C. F.** See Preisman, L.
**Hobson, J. A.**, and Prescott, F. Comparison of decamethonium iodide with *d*-tubocurarine in controlling electrically induced convulsions, 6739*i*
**Hobson, M.**, and Thodos, G. Mass transfer in the flow of liquids through granular solids, 8751*i*
**Hobson, P. H.** See Wiley, R. H.
**Hobson, Q. J. G.** See Arnott, D. G
**Hobson, W.**, Lewis, F. J. W., and Woodman, D. Nutritional survey in pregnancy—hematological and biochem. findings, 8480*i*.
**Hobstetter, J. N.** Stable transformation nuclei in solids, 9171*i*.
**Hocart, R.**, and Molé, R. Obtaining a cubic-type $Cu_2S$, and structural characteristics, 6102*c*.
—— and Monier, J. C. Epitaxy of double decompn. during isothermal evapn. on mica, 6027*i*.
**Hoch, H.** See Hoch-Ligeti, C.
**Hoch, J.** See Ramart-Lucas, P.
**Hoch, P.** See Stokinger, H. E.
**Hoch, P. E.** See Fuson, R. C.
**Hochanadel, C. J.** See Freed, S.
**Hochberg, I.**, and Hydén, H. Cytochem. correlation of motor nerve cells in spastic paralysis, 6301*e*
**Hochberg, S.** Aerosols, P 352*a*; see La Mer, V. K.
**Hoch-Ligeti, C.** Effect of feeding 7-hydroxy-2-acetamidofluorene to albino rats 307*c*; see Daff, M.
—— and Bourne, G. H. Changes in the concn. and histological distribution of the ascorbic acid in ovaries, adrenals, and livers during estrus cycles, 4355*h*
—— and Hoch, H. Electrophoretic studies on human serum albumin, 3863*c*.
**Hochmann, J.** High-temp. behavior of austenite and austenite-ferrite steels derived from the 18-8 type, 538*e*.
**Hochstätter, W.** See Rabe, P.
**Hochstein, F. A.** Li Al hydride reactions, 3316*f*.
—— and Brown, W. G. Addn. of Li Al hydride to double bonds, 603*i*.
—— and Wright, G. F. 5-Chlorofurfuryl derivs., 7014*i*.
**Hochuli, E.** See Widmer, G
**Hochweber, M.** See Schmid, H.
**Hock, C. W.** See Bowles, L. L.
**Hockberger, W. G.** Desulfurization of the isobutylene, P 5584*d*.
**Hockenhull, D. J. D.** Penicillin production by *Penicillium notatum* in surface culture (II) metabolism of S, 4335*c*; inhibition of a succinic acerodehydrogenase system by surface-active agents, 6675*b*; S metabolism of mold fungi—"biochem. mutant" strains of *Aspergillus nidulans* in elucidating the biosynthesis of cystine, 8402*h*, inhibition of some respiratory enzyme systems by derivs. of $H_2SO_4$, 8417*d*
——, Ramachandran, K., and Walker, T. K. Biosynthesis of the penicillins, 9143*h*
**Hocking, B.** Effect of crude benzene hexachloride on wheat seedlings, 5896*d*.

**Hodes, I.** Metallic carbide lattice energies and the electron affinity of $C_2$, 4098*d*.
**Hodge, E. A.**, Jackson, P. A., and Goldsmith, P. H. Paper machine developments, 2772*f*.
**Hodge, E. B.** Pure cryst. K and $NH_4$ pencillin salts, P 5554*a*.
**Hodge, H. C.** See Bird, M. J.; Cox, G. J.; Fletcher, G. L.; Haven, F. L.; Mann, W.; Maynard, E. A.; Voegtlin, C.
——, Sterner, J. H., Maynard, E. A., and Thomas, J. Toxicity tests on the mono- and dimethyl ethers of hydroquinone, 7577*b*.
**Hodge, J. M.**, Glove, J. L., and Storm, R. G. Hardenability effect of Mo, 3759*e*.
——, Manning, R. D., and Reichhold, H. M. Effect of ferrite grain size on notch toughness, 3760*e*.
**Hodge, W.** Production and properties of nonferrous metals, 1300*b*.
**Hodge, W. F.** Thermionic emission of oxide-coated cathodes in gaseous conduction devices, 4092*h*.
**Hodge, W. H.** Wartime *Cinchona* procurement in Latin America, 361*g*.
**Hodges, C. E.**, and Cashman, A. F. Lube additives made by solvent refining high-mol. aliphatic-aromatic condensation products, P 2424*a*.
**Hodges, E. A.** See Coolidge, T. B.
**Hodges, G. H.**, and Lawrence, C. H. Combustion problems in marine boilers, 3991*b*.
**Hodgins, J. W.**, Tickner, A. W., and LeRoy, D. J. Reactions of at. Na, 3694*c*.
**Hodgman, C. D.** Handbook of Chemistry and Physics (book), 2856*g*
**Hodgson, C. C.**, and Baron, H. G. Large crystal size in St Cr valve steel, 2560*g*, 8334*f*.
**Hodgson, H. H.** Structure of Hantzsch's isomeric diazocyanides—properties of the alleged *cis*-azobenzene, 595*d*, color and constitution (X) diazonium salts, 1191*a*; Gomberg reaction (III) fallacies of the free radical theory, 7895*i*.
—— and Bailey, D. Isolation of the hitherto unknown *anti*-diazosulfonate in the naphthalene series—prepn of 2- and 4-nitro and 4-chloro-1-naphthylamine, 616*a*, absence of geometrical isomerism among the diazoarylsulfonates, -sulfinates, and sulfones in the structural interpretation of Hantzsch's alleged *syn*- and *anti*-diazosulfonates, 5756*d*.
—— and Dixon, S. Prepn. of 4,4′-diamino- and 4,4′-dihydroxy-2,2′-binaphthyl, 1756*a*.
—— and Dodgson, D. P. Prepn. of 3,3′-dinitro- and 3,3′-diaminodiphenylamine and derivs., 169*c*, nitration of benzo-1-thia-2,3-diazole and the synthesis of 7-nitro-5-methyl-, and 7-nitro-5-methylbenzo-1-thia-2,3-diazole, with improved prepns. of 1-chloro-2,6-dinitrobenzene and 2-chloro-3-nitroaniline, 221*i*; elimination of S in certain reductions of the 2,2′,4,4′-tetranitrodiphenyl mono- and disulfides, and an alternative route to the prepn. of some 5-substituted benzo-1-thia-2,3-diazoles, 222*e*; prepn of *N*-(2,4-dinitrophenyl)- and of *N*-(2,6-dinitrophenyl)-phthalimide, 2190*c*.
——, Dodgson, D. P., and Smith, E. W. Prepn. of 2,2′-dichloro-4,4′-dinitrodiphenyl sulfide and 2′-chloro-4,4′-dinitro-2-aminodiphenyl sulfide and derivs. and attempts at cyclization to thiazines, 600*e*.
——, Heyworth, F., and Ward, E. R. Replacement of the diazonium by the nitro group (IV) decompns. involving neutral solns. of diazonium salts, with facile prepns. of *o*- and *p*-dinitrobenzene, 1734*a*.
——, Mahadevan, A. P., and Ward, E. R. 1,4-Dinitronaphthalene, 1755*h*.
—— and Norris, W. H. H. Diazotization and nitrosation, 5756*b*; decompn. of diazo compds. in neutral soln. (II) *p*-nitrobenzenediazonium sulfate, 7443*h*; replacement of the diazonium by the azido group in acid soln., 8365*i*.
—— and Ratcliffe, J. Sepn. of 6- and 8-nitro-2-naphthylamine, 7011*e*; prepn. of 8-nitro-1-naphthylamine, 8371*g*.
—— and Ward, E. R. Reactions of polynitro aromatic compds. with alk. sulfides (I) aryl monosulfide formation by interaction of Na thioaryloxides with polynitro aromatic compds. contg. labile nitro groups, 3387*b*.
**Hodgson, M. A. E.** Azeotropic distn. columns, 1225*b*.
**Hodgson, M. L.**, Clews, C. J. B., and Cochran, W. Punch-card modification of the Beevers-Lipson method of Fourier synthesis, 6509*d*.
**Hodgson, P. E.**, and Perkins, D. H. Heavy nuclear splinters, 7811*a*.
**Hodgson, R.**, Peterson, W. H., and Riker, A. J. Toxicity of polysaccharides and other large mols. to tomato cuttings, 3072*a*
**Hodgson, R.**, and **Sons Ltd.** Ca oxalate for age stability in vegetable-tanned leather, P 0452*i*.
**Hodler, P. W.** See Garnatz, G.
**Hododani Chemical Industries Co.** $C_2H_4$ from $C_2H_2$, P 3833*i*.
**Hodsman, H. J.**, Prasad, S. M., and Wolf, J. Germicidal properties of tar acids present in producer gas tars, 4833*h*.
**Hodson, A. Z.** Terminal heating of infant formula (III) retention of heat-labile nutrients, 4779*f*, microbiol. assay of "folic acid" as applied to milk, 5877*a*; oleic acid interference in the *Neurospora crassa* assay for biotin, 6693*f*; compds. with "folic acid" activity, 7536*g*.
—— and Krueger, C. M. Detn. of leucine—application to milk and other foodstuffs, 2337*a*.
**Hodson, E.** See Courtaulds Ltd.
**Höber, R.** Physikalische Chemie der Zellen und Gewebe (book), 5815*d*.
——, Langston, M., Strausser, H., and Macey, R. Physiol. effects of nonpolar-polar org. electrolytes (II) influence of detergents on the potentiometric reaction and the contractility of nerve and muscle, 2325*e*.
**Hoecker, F. E.** See Hammer, F. E.
**Höcker, H.** Wefelmeier model of higher at. nuclei, 5063*c*.
**Höcker, K. H.** Protons as primary components of cosmic radiation (I), (II), 4105*g*, meson spectrum at sea level, 7319*a*, see Heisenberg, W.
**Hoefle, A.** Cl liquefaction, 1536*b*.
**Högberg, B.** See Claesson, L.
**Hoegberg, E. I.** See Fletcher, J. H.
**Högberg, K.** See Euler, H. v.
**Högl, O.** See Potterat, M.; Wyler, O.
**Högler, R. V.** See Vogel Högler, R.
**Högström, G.** See Ehrensvärd, G.
**Höhn, E. O.**, and Robson, J. M. Action of estrogens on the corpus luteum, 8494*b*.
**Hoehne, E.** Anodic behavior of ternary Pb-Ca alloys in the storage battery, 7836*g*
**Höjensgård, I. C.** Serum protein assay, 1075*c*.
**Hoek, H.** Detn. of the total cation content of water, 2715*h*.
**Hoek, T. J. J.** Toluene nitration, P 8140*f*.
**Hoeksema, H.** See Cromwell, N. H.
**Hoekstra, H. R.**, and Katz, J. J. Prepn. and properties of the Group IV-B metal borohydrides, 8937*f*.
**Hoekstra, J.** Protective and insulating coatings, 1993*f*; rotating drum for cleaning or pickling, etc., P 4525*c*; see Rossem, A. van.
—— and Nijveld, H. A. W. Detn. of the hardness of org. films, 2788*d*.
—— and Rossem, A. van. Mastication of rubber (II), 7738*f*.
**Hölscher, B.** Locus of formation of the uterus-active principle and the stability of the substance toward HCHO, 8408*c*.
——, Böckh, E. M., and Hardegg, W. Effect of chronic methylthiouracil administration on the endocrine system, 8531*h*.
—— and Pöppinghaus, G. Basal metabolism and thyroid under the influence of Na methylthiouracil and choline thiocyanate, 8482*f*.
**Hoeltzel, O. R.** See Weinecke, L. A.
**Hölzle, K.**, and Kambli, E. Indigo vat dyes, P 7706*g*.
**Hoeman, E. C.** Prepg. $Al_2O_3$ from clays and other silicates of Al, P 8107*g*.
**Höner, F. G.** Preserving wood by impregnation, P 5900*g*.
**Hoenes, D.** Petrogenesis of basement rocks of the southern Black Forest, 7874*c*.
—— and Tröger, E. Oölitic Fe ore deposits in northwest France, 7882*g*.
**Hönigschmid, O.** Primary Ra standards, 7331*b*; see Johannsen, T.
**Hönsch, W.** See Kröner, W.
**Höök, O.** See Agner, K.
**Hoepfner, E.** See Bredereck, H.
**Höpker, W.** Relation of liver glycogen to blood-sugar regulation—insulin action, 3085*b*.
**Hörlein, H.**, and Weber, G. Chronic familial methemoglobinemia—methemoglobin, 3092*b*.
**Hörmann, H.** See Dehio, H.; Schultze-Werner.
—— and Schultze, W. Subtractive color films—Agfa color process, 5683*h*.
**Hoerner, J. L.** Cutworm on beans and its control, 1142*g*.
**Hoerr, C. W.** Fluid mixts. of fatty acid amine salts and brines, P 5519*c*.
**Hoerr, N. L.** See Jones, H. W.
**Höter, H.** See Zerbe, C.
**Hoeve, J. A. van der.** Analysis of textile auxiliary products, 1584*i*.
**Hövel, T.** Sintereisen (book), 6964*e*.
**Hövels, O.** Detn. of alk. serum phosphatase—diagnosis of rickets, 7992*b*.
**Hoeven, B. J. C. van der.** See Van der Hoeven, B. J. C.
**Hoeven, H. van der.** Cr steels in the petroleum refineries, 8127*f*.
**Hofer, L. J. E.** See Hawk, C. O.
——, Cohn, E. M., and Peebles, W. C. Modifications of $Fe_3C$, 3699*h*; isothermal decompn. of the carbide in a carburized Co Fischer-Tropsch catalyst, 6064*c*.
**Hofer, R.**, and Vogt, F. Hydrogenated fats as ointment bases, 1527*g*.
**Hofer, W.** Ointment bases, P 5909*a*
**Hoff, H.**, and Dunk, G. von der. Testing the uniformity of Zn coatings on steel wires by immersion in $CuSO_4$ soln., 5354*b*.
**Hoff, H. H.** See Hoffer, P. F. A.
**Hoff, J. J.**, Hoff-Vermeer, C. G., and Spruyt, J. P. Vitamines (book), 8029*b*.
**Hoff, J. L.** See Tama, Manuel.
**Hoff, S.** See Thomé, K. E.
**Hoffbauer, F. W.** Liver injury, 2699*b*, 2701*g*, 5467*d*.
**Hoffer, M.** Riboflavin solns., P 3979*b*
**Hoffer, P. F. A.**, Hoff, H. H., and Pluvinage, R. I. L. Effect of anticonvulsant therapy on the electroencephalogram of patients with idiopathic epilepsy, 9262*c*.
**Hoffert, J. R.** Why stream pollution concerns power engineers, 1128*i*.
**Hoffert, W. H.**, and Wendtner, K. Reactions of S, $H_2S$, and mercaptans with unsatd. hydrocarbons, 5932*e*.
**Hoffhine, C. E., Jr.** See Kuehl, F. A., Jr., Peck, R. L.
**Hoff-Jørgensen, E.** Growth-promoting effect of desoxyribosides and vitamin $B_{12}$ on three strains of lactic acid bacteria, 4335*b*, see Friedkin, M.; Snell, E. E.; Williams, William L.
**Hoffman, C.** See Russ, W. R.
——, Schweitzer, T. R., Spotts, E. K., and Dalby, G. Evaluation of the baking properties of roller process nonfat dry milk solids, 2336*h*
**Hoffman, C. H.** See Harris, S. A.
**Hoffman, C. R.** See Schnaebele, R.
**Hoffman, F. L.** Pb poisoning, 3543*a*.
**Hoffman, H. R.** Effect of Fe-ore addns. on slag vol. in the elec. furnace, 1267*i*.
**Hoffman, J. D.**, and Smyth, C. P. Mol. rotation in the solid forms of long-chain alcs., 5245*h*.
**Hoffman, J. I.** See Hattiangdi, G. S.; May, I.
**Hoffman, J. S.** See Davis, J. V.
**Hoffman, M. A.** Detn. of riboflavin in animal tissues and fluids, 1076*a*
**Hoffman, M. M.** See Browne, J. S. L.
——, Masson, G., and Desbarats, M. L. Bile in the absorption of steroid hormones from the gastrointestinal tract, 8036*a*.
**Hoffman, M. T.** Depitching wool and removing vegetable matter without carbonizing, 7233*d*.
**Hoffman, O.** See Glenn, W. W. L.
**Hoffman, O. A.** See McBain, J. W.
**Hoffman, P.**, and Hanwick, T. J. Raman spectra of phosphoric acids and their salts, 1657*i*.
**Hoffman, Raymond A.** Electrodeposition of Ni, P 4964*a*; electrodepositing compn. and bath for Sn, P 6527*d*.
**Hoffman, Robert A.** See Fairchild, H. E.
**Hoffman, R. E.** Control of oil pollution, 8587*k*.
**Hoffman, R. S.**, Dingwall, J. A., and Andrus, W. D. Growth-inhibitory fraction obtained from adult sheep cardiac muscle, 1849*d*.
**Hoffman, S. J.** See Meyer, K. A.
**Hoffman, W. A.** See Du Pont de Nemours, E. I., & Co.
**Hoffman, W. S.** See Glaser, K.
—— and McNeil, G. C. Enhancement of the nutritive value of wheat gluten by supplementation with lysine, 8023*d*.
——, Parmelee, A. H., and Grossman, A. Production of acidosis in premature in-

fants by protein milk, 5100*c*; electrolyte balance studies on premature infants on a diet of evapd. milk, 5100*i*.
**Hoffmann, A.** Detn. of aldehydes in orange oil, 1153*b*.
——— and João Maffei, F. Detn. of linalool, 1152*c*.
**Hoffmann, A. N.**, Montgomery, J. B., and Moore, J. K. Agitation in rocking-type autoclaves, 913*b*, 8753*f*
**Hoffmann, C.** Behavior of sulfosalicylic acid during halogenation, 2972*e*.
**Hoffmann, C. E.** See Broquist, H. P.; Hutner, S. H.; Stokstad, E. L. R.
———, Stokstad, E. L. R., Franklin, A. L., and Jukes, T. H. Response of *Lactobacillus leichmannii* 313 to the antipernicious anemia factor, 3062*c*.
**Hoffmann, C. R.** See Murray, M.
**Hoffmann, E.** See Wheeler, R. S.
——— and Wheeler, R. S. Value of thyroprotein in starting, growing, and laying rations (IV) effect on the egg production, shell quality, and body wt. of year-old pullets during hot weather, 287*a*
**Hoffmann, E. J.** See Hoffmann, Francisco.
**Hoffmann, F.** Refractory mix, P 6388*a*.
**Hoffmann, Ferdinand.** Whaling and pharmacy, 9377*d*.
**Hoffmann, Francisco**, Hoffmann, E. J., and Talesnik, J. Influence of thyroxine and adrenal cortical ext. on the O consumption of adrenalectomized rats, 747*a*.
**Hoffmann, F. A. M.** Detn. of menthone in garden mint oils, 8096*g*.
**Hoffmann, F. de.** See De Hoffmann, F.
**Hoffmann, F. W.** Aliphatic fluorides (I) $\omega,\omega'$-difluoroalkanes, 3774*f*.
**Hoffmann, I.** Comparison of insecticidal substances, 2728*e*.
——— and Lendle, L. Action of new insecticides, 5146*c*.
**Hoffmann, J.** Local anesthetics percaine and pantocaine and their differences from procaine, 5906*a*; actions of $MgSO_4$, 6743*c*; Ca salts, 8099*a*.
**Hoffmann, K.**, Schellenberg, H., and Miescher, K. 2 - (Aminomethyl)indenes, P 1440*g*.
**Hoffmann, O. L.** See Schoene, D. L.
——— and Smith, A. E. Plant-growth regulators. 5524*h*.
**Hoffmann, S.** Opal content of agates, 8313*d*.
**Hoffmann, T. A.** Dynamics of the RbI crystal, 8788*g*.
——— and Kónya, A. Linear at. chain and the metallic state, 1622*c*.
**Hoffmann, Walter.** Analysis of supronal prepns., 2735*g*; analysis of sulfamerazine, 9374*a*
**Hoffmann, Wilhelm.** Universal wall support, 2475*e*.
**Hoffmann-La Roche, F., & Co., A.-G.** Stabilizing action of ascorbic acid on frozen fruit, 3535*e*, (*Patents.*)
abietic acid deriv., 3462*a*.
1-acetoxy-3-chloro-4-pentanone, 6225*c*.
acetylpantothenic acid ethyl ester, 823*c*.
$\beta$-alanine, 2225*g*, 5682*a*.
alkylated phenylisopropylamine, 3454*i*, 6231*e*.
amines (primary), 6652*g*.
aminoaryl carbinol, 7046*b*, 7967*c*.
aminobenzoate ester of tocopherol, 1810*c*.
aminobutyric acid deriv., 7957*a*
2 - amino - 6 - hydroxy - 8 - (hydroxymethyl)pteridine, 7974*g*.
2-amino-4-oxo-5-ethoxy-2-pentene, 677*g*
anticoagulant, 3978*g*.
bactericide, 7036*i*.
bicyclic S compds., 5426*f*.
biotin intermediate, 7046*d*, 7970*d*.
2,5 - bis(hydroxymethyl) - 3 - hydroxy-4-methyl pyridine, 1811*g*.
3,4 - bis($p$ - hydroxyphenyl) - 3,4 - hexanediol, 6237*e*.
bithiazole compd., 5807*a*.
calcium pantothenate, 1917*d*, 1918*a*, 6792*g*.
2 - (4 - carbisopropoxybutyl) - 3,4 - dihydroxythiophene, 5806*b*.
cardiac glycoside, 2739*e*.
cellulose glycolic ether polysulfonic ester, 4013*e*.
$\alpha$-chloro-$\alpha$-acetylbutyrolactone, 6225*e*.
codecarboxylase compd., 6672*b*.
condensation product from xylohydroquinone and phytol, 1806*de*.
condensation product from 2,3 xylohydroquinone and phytyl halides, 1806*f*.
condensation product of 3,5-diethylhydroquinone with phytyl halides, 821*i*.
condensation product of 2-ethyl-3,5-dimethylhydroquinone and phytol, 822*a*.
contrast agent, 6241*a*.
cosmetic prepns., 4434*f*, 6793*a*, 7646*h*.
desthiobiotin, 6926.
4,4' - diaminodiphenyl sulfone - *N*,*N*'-bis(phosphonyl dichloride), 5156*g*.
4,4'-diaminodiphenyl sulfonediphosphamidic acid, 6233*c*.
dicoumarol hydrolysis product, 7050*f*.
dihydropyridone deriv., 7051*d*.
4,5-dihydro-3(2 *H*)-thiophenone, 3041*f*.
*N* - (3,4 - dihydroxybutyl) - $\alpha,\gamma$ - dihydroxy - $\beta,\beta$ - dimethylbutyramide, 7956*h*.
$\beta$ - ($\alpha,\gamma$ - dihydroxy - $\beta,\beta$ - dimethylbutyramido)butyric acid salt, 2634*b*
$d$(+) - $\alpha,\gamma$ - dihydroxy - $\beta,\beta$ - dimethyl-*N*-3-oxopropyl butyramide, 5115*f*
2,4 - diketo - 3 - ethyl - 3 - allyl - 1,2,3,4-tetrahydroquinoline, 3472*f*
2,4 - diketo - 3 - isopropyl - 3 - allyl - 1,2,3-4-tetrahydroquinoline, 3472*g*
*m* - dimethylaminophenyl dimethylcarbamate *N*-oxide, 7966*d*.
dimethylcarbamate, quaternary salt of, 7039*i*.
*N*,*N* - dimethylcarbamic acid esters of the 3 - hydroxy - 1 - methylpyridinium bromide, 5050*d*.
3,5 - dimethyl - *N*,*N* - dipropyl - 4 - isoxazole-carboxamide, 822*f*.
3,5-dimethyl-4-isoxazolecarboxylic acid 2-methylpiperidide, 822*i*.
5,7-dimethyltocophosphate, 3152*i*.
estrogen, 7968*i*.
ethyl $\alpha$ - acetyl - $\beta$ - phenoxymethyl - $\gamma,\gamma$-dicyanobutyrate, 689*c*.
ethyl $\gamma$-cyano-$\beta$-furyl-$\alpha$-acetylglutaranilate, 4818*e*.
ethyl 3-oxotetrahydrothiophenecarboxyl ate, 3041*e*.
flavones and their natural glucosides, solvent for, 2739*e*.
hair prepn , 8108*c*
3-hydroxy-3-methyl-1-hexen-5 yne, 7952*e*.
3-hydroxy-1 methylpyridinium bromide-*N*,*N*-dimethylcarbamic acid ester, 6671*h*
*N* - (3 - hydroxypropyl) D(+)$\alpha,\gamma$ - dihydroxy - $\beta,\beta$ - dimethylbutyramide, 5794*i*.
imidazolidone deriv., 5808*b*.
iron compd , 4816*h*
iron sulfate prepn., 5910*b*
lactoflavin solns , 5051*d*, 6371*d*, 7647*g*.
methionine compd (water sol ), 7956*f*
1 - methoxy - 3,7 - dimethyl - 6 - hydroxy-9 - (2,6,6 - trimethyl - 1 cyclo - hexen-1 - yl) - 2,7 - nonadien - 4 - yne, 6657*d*.
2 - methyl - 4 - amino - 5 - carbethoxypyrimidine, 3473*e*.
2 - methyl - 3 - carbethoxy - 4 - phenoxymethyl - 5 - cyano - 3,4 - dihydro - 6-(5 *H*)-pyridone, 3472*e*.
2 - methyl - 3 - carbethoxy - 4 - phenyl - 5-cyano - 3,4 - dihydro - 6(5 *H*) - pyridone, 3472*d*.
3,3' - methylenebis(4,4' - hydroxycoumarin) monophosphoric acid ester, 2645*f*.
2 - methyl - 4 - (ethoxymethyl) - 5 - cyano-6-hydroxypyridine, 3470*d*.
methyl pantothenate, 823*a*
1 - ($p$ - methylphenyl) - 2 - methylaminopropane, 1059*d*.
mold fermentation process, 6362*d*
octahydrophenanthrene derivs., 7517*h*.
pantothenic acid, 7039*b*
$d$(+) pantothenic acid, 2631*b*, 5552*i*
pantothenic acid intermediate, 6654*d*.
pantothenic acid substitute, 7956*f*.
pentaene compds related to vitamin A, 9082*f*.
pentamethyl-6-hydroxychromau, 693*a*
phytal, 2221*h*.
3-picolyl nicotinate, 6672*a*.
3,3'-propylidenebis(4-hydroxycoumarin), 3470*a*.
pyridine derivs., 1811*e*, 7051*b*.
pyridinium compds , 4702*e*.
3-pyridylcarbinol, 7973*a*.
3 pyridylcarbinol esters, 8105*gh*.
quaternary ammonium ester, 7960*a*.
1-D-ribitylamino-3,4-xylene, 678*f*.
$d$-$\gamma$-ribonic acid lactone, 8399*b*.
rice-polishing solns., 2710*f*, 3947*d*.
5 - (2 - salicyloylethyl) - 4 - hydroxycoumarin, 4702*a*.
sodium 1-methyl-5-isopropyl-5-allylbarbiturate, stable aq. soln. of, 7646*i*.
sodium pantothenate, 7956*i*.
sodium salt of an abietic acid deriv., 1441*c*.
2-sulfoethylcellulose polysulfate, 2774*f*.
5,6,7,8-tetrahydroisoquinoline, 6672*d*.
thiophanedione derivs., 5425*c*.
3-thiophanone-4-carboxylic acid ester derivs., 1067*b*.
thiophanone deriv., 7049*c*.
*dl*-$\alpha$-tocopherol, 1918*c*.
$\alpha$-tocopherol propionate, 365*f*.
trihydroxyabietic acid, 1913*h*.
*N*,3,5 - trimethyl - 4 - isoxazolecarboxanilide, 822*h*.
tryptophan, 6238*d*.
vitamin-A alc. intermediate, 7959*d*.
vitamin B6, 1917*b*, 2741*b*.
vitamin E-active compds., 2741*c*.
**Hoffmann-La Roche Inc.** (*Patents.*) Amino alcs., 9080*g*; 2-amino-6-hydroxy-8-(hydroxymethyl)pteridine, 3473*f*; arsenoso compds., 4694*h*, 5041*a*; 3-aryl and 3-carbalkoxypiperidines and -pyrrolidines, 695*e*; aryl esters of tertiary carbamic acid, 1138*f*; 3,4-bis($p$-hydroxyphenyl)-2,4-hexadiene, 5804*g*; carboxylated monosubstituted barbituric acid, 1799*h*; chalcones, 6235*i*; dehydrocholic acid derivs , 1814*f*, electrolytic reduction of pentonic acid lactones, 2104*b*, ethers, 9080*g*, heterocyclic amines, 5808*f*, hydroxyalkyl derivs of gentisamide, 5045*a*, imidazolones, 5808*a*; injectable Fe prepn., 3619*f*, isoalloxazines, 7053*a*, isolating vanillin, 688*c*; oxidation of barbituric acid to alloxan, 2227*c*, penicillin, 3981*b*, penicillin metal salts, 2742*d*, piperidine and pyrrolidine derivs., 695*b*, *sec*-polyhydroxyalkylarylamines, 5043*i*, 3-pyridylcarbinol as solubilizer, 1914*b*; riboflavin, 1813*e*, 3979*b*, salts of tocopheryl phosphoric acid esters, 4702*d*, thiamine derivs , 4433*h*, thiophane derivs , 1810*a*, unsatd aldehydes, 1800*h*, vitamin A alc and esters, 1801*i*, vitamin A ethers, 1801*bh*; Zn mercaptides, 1138*b*
**Hoffmann-Ostenhof, O.**, and Biach, E. Bacteriostatic quinones and other antibiotics (V) pH dependence of the inhibitory action of benzoquinone on urease and catalase activity, 8113*d*
——, Moser, H , and Putz, E Monophosphatase from yeast active in an alk medium, 1449*c*.
——— and Reitmaier, G Bacteriostatic quinones and other antibiotics (VI) inhibition of growth of *Lepidium sativum* seedlings by various quinone derivs , 8413*e*
**Hoffpauir, C. L.** International Commission on fats and oils (II), 3634*f*, detn. of starch in plants, 9504*d*.
——— and Guthrie, J D Ammized and phosphorylated cotton fabrics as ion-exchange materials in the prepn of oil-seed proteins, 5072*h*.
——, —— and O'Connor, R T. Sensitization of fuchsin sulfurous acid reagent for formaldehyde by addn of ketones, 4596*h*.
——— and Reeves, R. E. Detn of glycosidic methoxyl, 8975*i*.
**Hoff-Vermeer, C. G.** See Hoff, J. J
**Hoflund, S.**, Quin, J. I., and Clark, R. Alimentary tract of merino sheep in Africa (XV) cellulose digestion (*a*) in the rumen and (*b*) in ruminal ingesta, 2094*c*.
**Hofman-Bang, N.** See Andrews, R. D., Kuhnel-Hagen, S.
**Hofmann, A.** See Stoll, A.
**Hofmann, Artur.** See Wellinger, K.
**Hofmann, E.** Water supply of New York City, 6763*h*.
**Hofmann, H.** Arrow poison, curare, and its use in medicine, 3976*f*.
——— and Neubauer, M. Medicinal charcoal and the differences in adsorption capacity of various charcoal prepns , 3974*f*.
**Hofmann, K.** 2-Substituted furan 3,4-urethans, P 1441*g*; furan and tetrahydrofuran derivs. (IX) *epi*-oxybiotin and the four racemic 3,4-diamino-2-tetrahydrofuranvaleric acids, 2987*g*, furan derivs., P 5805*c*; 2-substituted 3,4-furan dicarboxylic acids and their corresponding tetrahydrofuran compds., P 5805*h*; tetrohydrofuran derivs., P 5805*i*; substituted furoimidazoles, P 8401*a*; see Axelrod, A. E.; McCoy, R. H.; Magee, M. Z.
———, Bridgwater, A., and Axelrod, A. E Furan and tetrahydrofuran derivs. (X) synthesis of sulfonic acid analogs of oxy biotin and homoöxybiotin, 5022*f*.
**Hofmann, T.** Quaternary $NH_4$ bases as disinfectants, 5540*b*.
**Hofmann, U.** Properties of C, 2051*d*; see Endell, K.; Rüdorff, W.
——— and Hausdorf, A. Settling vol. and swelling of bentonite, 4537*h*.
———, Ragoss, A., Rüdorff, G., Holst, R.,

Ruston, W. R., Russ, A., and Ruess, G. L. Structure and graphitization of C, 4072*e*.

**Hofmann, W.**, and Deponte, R. Detection of the carbides in austenitic chrome-Mn steels, 1685*h*.

——— and Schmitz, O. Metallkunde (book), 2919*f*.

——— and Trautmann, B Structures of cold-rolled Zn and Zn alloys and their influence on technological properties, esp. deep-drawing characteristics, 1703*f*.

**Hofmaster, R. N.** Biology and control of the potato tubeworm, 6770*e*.

**Hofmeier, H.** Volatility of plasticizers and its measurements, 1601*g*, wire enamels, 8703*h*.

**Hofstadter, R.** Rise time of pulses in AgCl crystal counters, 4092*h*, detection of γ-rays with Tl activated NaI crystals, 4111*b*, crystal counters, 5663*f*; see Fidmore, W. C.

**Hofstatter, L.** See Ackermann, Philip

**Hofstee, B. H. J.** Activation of urease, 2654*d*; inhibition of the enzymic oxidation of xanthine and xanthopterin by pteridines, 7067*g*; see Singer, T. P.

**Hofstee, J.** Compds. contg P in the colloidal behavior of potato protein, 1820*c*; fluorescence of potato starch, 4882*a*, globulin-albumin ratio of potato protein, 5429*g*.

**Hoftijzer, P. J.** See Krevelen, D W. van

**Hogaboom, G. B.** Metal cleaning and a test for surface cleanliness, 8899*f*.

**Hogaboom, G. B., Jr.** See Kellner, H. L.

**Hogan, A. G.** See Heitman, H., Jr.; O'Dell, B. L.

——— and Anderson, O. C. Vitamins required by swine for growth—reproduction, 1089*a*.

**Hogan, D.** See Salvesen, J. R.

**Hogan, J. J.** See Conway, M. J

**Hogan, J. T.** See Batson, D M.

**Hogarth, C. A.** Variation with vapor pressure of the properties of electronic semiconductors, 4555*c*.

**Hogberg, C. G.** Blast-furnace design, 4105*d*

**Hoge, A. W.** See Carney, W M.

——— and Ternan, W Ashland modernized wartime Thermofor Catalytic Cracking unit, 4839*b*.

**Hoge, H. J.** Circuits for minimizing transient effects on energy measurements in calorimetry, 3248*a*

———, Meyers, C. H., and McCoskey, R E Charts of compressibility factors and charts showing quantities delivered by com cylinders for H, N, and O, 3156*g*.

——— and Wechsler, M T Detn of the d. of $UF_6$ from the sinking temps. of glass floats, 8779*b*

**Hogeboom, G. H.** Cytochem studies of mammalian tissues (II) diphosphopyridine nucleotidecytochrome c reductase in rat liver fractions, 4356*c*.

——— and Barry, G. T. Purification of diphosphopyridine nucleotide, 1822*c*.

**Hogestyn, J.** See Young, L E.

**Hogg, A. R.** Cosmic radiation variations and meson disintegration, 4943*c*

**Hogg, G. F.** Cement compns., P 7660*f*.

**Hogg, J. A.** Synthetic sterols (II) isomer technique, 7032*f*; see Hunter, J H.

**Hogg, R.** Polyvinyl alc. for deep-etch plates for engraving, 5684*b*.

**Hoggarth, E.** See Curd, F. H S

**Hoglan, F. A.** Glutamic acid and Na glutamate, P 3947*a*.

**Hogness, J. R.** See Goldblith, S. A.; Leifer, E.; Roth, L. J.

———, Roth, L. J., Leifer, E., and Langham, W. H. Detn. of $C^{14}$ activity in biol. systems, 1454*e*.

**Hogness, T. R.** At. research may solve oil problems, 1171*i*; nuclear fission—source of competitive energy, 5277*c*, 6914*h*.

**Hohenstein, W. P.** See Blout, E. R.

——— and Mark, H. Polymerization in suspension and emulsion, 5003*a*.

**Hohl, L. A.** See Joslyn, M. A.

**Hohl, T.** See Karrer, P.

**Hohlt, R. B.** Limestone porosity, 2905*a*.

**Hohmann, E.** Silicides and germanides of the alkali metals, 5321*d*; see Klemm, W.

**Hoi, B.** See Buu-Hoi.

**Hoiberg, A. J.** Residues of 100 penetration from slow-curing road oils, 7659*h*.

**Hokes, J.**, *et al.* Czech-English Dictionary-English-Czech Dictionary (book), 6501*c*.

**Hokkaido Artificial Petroleum Co.** Isomerization of *n*-butylene to isobutylene, P 2216*d*.

**Hokuetsu Seishi K. K.** Same as Hokuetsu Spinning Mills Co.

**Hokuetsu Spinning Mills Co.** Vulcanized fiber, P 6826*e*.

**Holaday, D. A.** Radiation-measuring instruments, 2860*b*.

**Holaday, H. A.** Curare preps., P 3153*b*

**Holbeche, J. A.** B deficiency in apples, 4411*a*

**Holben, F. J.** See White, J. W.

**Holbro, T.** See Kern, Walter

**Holbrook, D. F.** Brookite deposit in Hot Spring Co., Ark., 8318*e*

**Holbrook, F. L.**, and Fitzgerald, T. H Stability of accelerators affected by high processing temps., 1210*d*.

——— and Hunter, B A Safe acceleration with fine-particle-size reënforcing furnace blacks, 1210*g*.

**Holbrook, G. E.** $PbEt_4$, P 4287*d*

**Holburn, R. R.** See Goldstein, F.

**Holck, H. G. O.** See Miya, T. S.

**Holcomb, D. E.** See Kispersky, J. P.

**Holcomb, W. F.** See Brooker, L. G. S.; Burckhalter, J. H., Rawlins, A. L.

**Holde, K. van.** See Van Holde, K.

**Holdeman, G. E.**, and Stearns, J. C. H. Producing nodular graphite cast iron by Mg treatment, 7395*e*

**Holdeman, Q. L.** See Brown, C. A

**Holden, A. F.** Salt-bath furnaces, P 1665*a*, 4058*b*; heat-treating salt bath, P 6965*t*, 7892*d*

**Holden, A. H.** Gas-fired industrial furnaces, 3248*f*.

**Holden, A. N.** Single metal crystals, 8787*g*; see Townes C. H.

——— and Hollomon, J. H Homogeneous yielding of carburized and nitrided single Fe crystals, 2558*h*.

———, Kittel, C., Merritt, F. R., and Yager, W. A. Microwave resonance absorption in a paramagnetic org compd., 5310*f*.

———, Kittel, C., and Yager, W. A. Microwave magnetic resonance absorption in a Ni salt, 5251*d*

**Holden, A. S., Jr.** Drying of low-d. fiber board in roller driers, 6411*d*

**Holden, H. A.** Chem. treatments for Zn surfaces, 2144*c*; application of phosphate coatings to wire, tube, and deep drawing, 3336*d*, phosphate coating, 8342*g*.

**Holden, J. H.** See Albright, C. W.

**Holden, J. T.**, Furman, C., and Snell, E E Vitamin $B_6$ group (XVI) D-alanine and the vitamin $B_6$ content of microorganisms, 5822*g*.

——— and Snell, E E. Vitamin $B_6$ group (XVII) relation of D-alanine and vitamin $B_6$ to growth of lactic acid bacteria, 5822*i*.

**Holden, M.** See Crook, E M

——— and Tracey, M. V. Effect of fertilizers on the levels of N, P, protease, and pectase in healthy tobacco leaves, 2284*f*, effect of infection with tobacco-mosaic virus on the levels of N, P, protease, and pectase in tobacco leaves and on their response to fertilizers, 2284*g*.

**Holden, R. B.**, Speiser, R., and Johnston, H. L. Vapor pressures of inorg. substances (I) Be, 2061*f*.

**Holden, R. W.** Polyester coating, P 3242*b*

**Holden, W. D.** See Krieger, H

———, Cameron, D. B., Shea, P. J., Jr., and Shaw, B W. Trypsin and thrombin induced venous thrombosis and its prevention with dicumarol, 5501*i*.

**Holder, C. H.** See Welty, A B., Jr.

**Holdermann, K.** Extractum ferri pomatum, 3143*g*.

**Holdsworth, E. C.** See Yorkshire Tar Distillers Ltd.

**Holdsworth, E. S.** See Chattaway, F. W.

**Holdsworth, H.** See Commercial Solvents (Great Britain) Ltd.; Darlington, H. N.

**Hole, N.** Nuclear isomerism, 3280*b*; see Benes, J.

**Holereck, F. H. L.**, and Loiselear, J. E. J. Protecting silver in mirrors from sulfides, P 1166*a*.

**Holford, C. J.** See Whitnack, G. C.

**Holgate, K. C.** See Robinson, W. B.

——— and Kertesz, Z. I. Ca salts in the firming of canned and frozen sliced apples, 782*g*.

———, Moyer, J. C., and Pederson, C. S. Ascorbic acid in preventing oxidative changes in apple juice, 2708*b*.

**Holiday, E. R.**, and Johnson, E. A. Paper chromatogram spots of purine and pyrimidine derivs. in ultraviolet light, 5704*c*.

**Holiday, R. L.** See Cole, S S.

**Holik, M. J.** Duplicating inks, P 1995*d*.

**Hollaender, E. H.** See Heimann-Hollaender, E.

**Holland, A.**, Lythgoe, B., and Todd, A R Synthesis of purine nucleosides (XVIII) of 9-D-glucopyranosidoadenine, 146*c*.

**Holland, A. A.** Saskatchewan salt cake, 1920*c*; Chaplin Na sulfate plant, Saskatchewan, 9394*f*.

**Holland, B. R.** See Meinke, Wilmon W

———, Johnson, P R., and Sorrels, J H Essential oil production in Texas (II) sweet goldenrod, 2372*a*.

——— and Meinke, W. W. Chinese tallow nut protein (I) isolation, amino acid, and vitamin analysis, 784*h*.

———, Meinke, W. W., and Sample, M. B Serine requirement of *Streptococcus faecalis* as a function of the basal medium, 4334*e*.

**Holland, C. R.** See Reinecke, R. M.

**Holland, H.** See Schueler, F. W.

**Holland, H. D.**, and Kulp, J. L. Distribution of accessory elements in pegmatites (I) theory, 8993*c*.

**Holland, M. O.** Modern medicinals (I), (II), 5531*h*.

**Holland, R. A.** See Chaudhury, D. N.; King, H. I.

**Holland, S. S.** Stanley area, Cariboo Mining Division, 4608*a*.

**Holland, V. B.**, *et al.* Stability of vat colors at elevated temps., 4856*f*

**Holland, W. C.** See Greig, M. E

**Hollande, A. C.** Cryst. chitocybine, 7080*e*.

**Hollander, F.** See Kraus, S. D.

**Hollander, V.** See Soberman, R.

———, Chang, P., and Co Tui, F. W. $D_2O$ and thiocyanate spaces in protein depletion, 7099*b*.

**Hollborn, K.** Dye for simultaneous staining, 7076*h*.

**Holleman, A. B.** See Metcalf, R. W.

**Holleman, M. P.** See Brock, F. D.

**Holley, A. D.** See Holley, R. W.

**Holley, R. W.** See Livermore, A. H.

——— and Holley, A. D. 2-Azetidinone, 8357*e*, synthesis and reactivity of 1-alkyl-2-azetidinones, 9033*i*.

**Hollihan, J. P., Jr.** Synthetic sutures, etc., 3209*c*.

**Holliman, W. C.**, Barker, M. G., and Bobrowski, N. Com. aviation-gasoline characteristics, 1553*h*, 5578*g*

**Hollinger, M. E.**, and Attaya, R. B. Ascorbic acid contents of plasma and of whole blood, 5460*a*.

**Hollinger, N.**, Fuhrman, F. A., Lewis, J. J., and Field, J. Effect of Na azide on respiration of rat skeletal muscle and brain cortex—temp., 8501*g*.

**Hollingsworth, B. L.**, and Petrow, V. Syntheses of heterocyclic compds. (IX) tetrahydrophenanthridines, 1778*g*.

**Hollingsworth, C. A.** See Whitney, W. T.

**Hollingsworth, J. W.** K deficiency, 8465*e*.

**Hollinshead, W. H.** See Markee, J. E.; Sawyer, C. H.

**Hollis, A. L.** Stabilized alkylthiazolyl disulfides, P 5990*i*

**Hollis, G. L.** See Tyrrell, H J. V.

**Hollis, J. P.** O and $CO_2$ relations of *Fusarium oxysporum* and *Fusarium eumartii*, 1455*b*.

**Hollis, M. D.** See Bishop, E. L.

**Hollister, J. W.** See Morris, R. E.

**Hollomon, J. H.** Nucleation of deformation, 7394*d*; see Fisher, J. C., Holden, A. N.; Leschen, J. G.

**Holloway, C. A., Jr.** See Weinrich, W. W.

**Hollowell, E. G.** Com. extn. of soybean oil using noninflammable solvents, 1581*f*; see Arnold, L. K.; Sweeney, O. R.

**Holluta, J.** Water chlorination, 7166*f*.

**Hollway, D. L.** Ionization manometer tube, 1272*f*.

**Holly, F. R., Jr.** See Brewer, W. L.

**Holly, F. W.**, Barnes, R. A., Koniuszy, F. R., and Folkers, K. Amino analog of pantothenic acid, 574*g*.

———, Mozingo, R., and Folkers, K. Streptomyces antibiotics (XX) conversion of streptamine into streptidine, 6579*i*.

**Holly, K.** Control of weeds in oil-seed crops, 9351*c*.

**Holm, E.**, Holm, R., and Shobert, E. I., II. Theory of hardness and measurements, 5351*i*.

**Holm, F.** See Müller, D.

**Holm, P.** See Schmidt, S.

**Holm, R.** Vaporization of the cathode in the elec. arc, 7356*f*; see Holm, E.

**Holm, U.**, and Wode, G. Spectrophotometric study of oils, 4874*g*.

**Holman, B.** Controlled atm. for heat-treatment of steel, 4992*a*.

**Holman, E. R.** Cleaning Al preparatory to spot welding, P 9022*i*.
**Holman, R. E.** Resinous interpolymers, P 7261*i*.
**Holman, R. T.** Spectrophotometric studies of the oxidation of fats (VIII) coupled oxidation of carotene, 7987*c*; see Elmer, O. C.; Huang, P.-T.
**Holman, W. I. M.** See Dean, R. F. A.; Wiegand, C.
**Holmberg, Bengt.** Interaction of neutrons with electrons, 4099*c*.
**Holmberg, Bror.** Spring sap of the birch, 2678*d*; lignin (XVII) aspenwoods and mercapto acids, 2767*g*; Gustaf Komppa, 5238*i*.
**Holmberg, C. G.**, and Laurell, C. B. Serum Cu (II) isolation of the Cu contg. protein, 4309*h*.
**Holmberg, C. V.** See Schatter, C.
**Holmberg, J.** Soap-boiling process, 3218*g*; soap, P 3638*c*; purifying glycerol-contg. solns., P 3638*e*.
——— and Rosenqvist, U. Bone fat and kidney fat, 6839*c*
**Holmboe, C. F.** See Nordiske Fabriker De-No-Fa A/S.
**Holmén, H.** See Kauko, Y
**Holmen, R. E.** Synthesis of sex hormones and their analogs, 9077*h*.
**Holmes, Arthur.** Oldest known minerals and rocks, 3324*f*; monazite from Bodmin Morr, Cornwall—geochronology (I) monazite as a geol timekeeper, 4980*a*.
**Holmes, August.** Increasing adhesivity of asphalt to calcareous aggregate, P 5168*h*, effect of the nature and particle size of granular aggregates on the properties of asphalt-closely graded aggregate mixts., 7207*f*.
**Holmes, A. D.** Loss of reduced ascorbic acid from lactose-enriched milk, 8567*c*.
———, Spelman, A. F., and Wetherbee, R. T. Compn. of Percheron mares' colostrum, 5469*a*.
**Holmes, B. E.** Indirect effect of x-rays on the synthesis of nucleic acid, 8405*d*.
**Holmes, E.** See Burnet, I. M.
**Holmes, E. L.** See Prescott, W. G.
**Holmes, G. H., Jr.** Exploration of the Riley tungsten mine, Humboldt Co., Nev., 2131*i*.
**Holmes, H. L.** Diels-Alder reaction—ethylenic and acetylenic dienophiles, 2155*f*.
**Holmes, H. N.** General Chemistry (book), 3278*g*.
**Holmes, J. B.** See Krieble, R. H.
**Holmes, J. E. R.**, Mei, J. Y., and Turgel, R. S. Nuclear isomers with half-lives between a milli-second and a second, 4118*c*.
**Holmes, J. R.** Isotope shifts in unexplored lines of N, 4093*d*.
**Holmes, L. E.** See Permutit Co., Ltd.
**Holmes, N. L.** Properties of the commoner vegetable tanning materials—tanning of heavy leather, 1203*h*.
——— and Lee, H. Phase equil. studies in vegetable tanning (I) influence of the tanning material on the bound water in leather, 2798*i*; (II) leather tanned with four different tanning materials at the natural pH value, 9509*d*.
**Holmes, O. G.** See Hoshowsky, S. A
**Holmes, P. E. B.**, Jenden, D. J., and Taylor, D. B. Interaction between curare and the K ion at the motor end-plate, 766*a*.
**Holmes, R.** See Fisher, R. B.
**Holmes, R. J.** See Kulp, J. L.
**Holmes, R. S.** See Reitemeier, R. F.
**Holmes, T.** Elec. resistor, P 7163*c*.
**Holmes, W. C., & Co., Ltd.** and Cooper, C. S recovery, P 2382*b*.
**Holmgren, B.** Spontaneous ignition in wood fiberboards, 408*b*.
**Holmgren, H.** See Borell, U.; Möllerström, J.
**Holmyard, E. J.** See Philbrick, F. A.
**Holness, H.** Reduction of Sb solns. with metallic Ni, 61*f*; pptn. of Ge by tannin, 62*i*; Zr salts in qual. analysis, 2546*a*; tannin as a reagent in qual. analysis, 8948*f*.
——— and Mattock, G. Phosphate removal in qual. analysis, 3745*c*; tannin as a reagent in quant. analysis, 8948*e*.
——— and Pate, B. D Pptn of $SiO_2$ by tannin, 8969*f*.
**Holophane Co., Inc.** Shock resistant glass, P 3164*a*.
**Holowatyj, M.** See Meyer, Julius.
**Holroyd, E. W.** See Roberts, J. D.
**Holsboer, M. G.** $O_3$ generator, P 5317*i*.
**Holst, E. C.** Field test for American foulbrood, 1821*h*.
**Holst, G.** $ClO_2$, 3575*d*, 5556*b*.
**Holst, R.** See Hofmann, U.
**Holst, T. G.** Same as Holst, G.
**Holst, W. H.**, and Hersam, G. R. Coating compn., P 3242*b*.
**Holsteyn, D.** Locations and materials for anodes for impressed current, 6093*b*.
**Holst-Larsen, T.** Specific dynamic action of glucose in healthy dogs, 5836*i*.
**Holt, A. S.**, and French, C. S. O production by illuminated chloroplasts suspended in solns. of oxidants, 8009*c*; isotopic analysis of the O evolved by illuminated chloroplasts in normal water and in water enriched with $O^{18}$, 8009*e*.
**Holt, B. M.** Optimum propane recovery in natural gasoline plants, 8054*c*
**Holt, G.** See Baddeley, G
**Holt, G. J.** Beneficiation of Fe ore 8995*g*.
**Holt, L. B.** Prepn. of purified and concd. diphtheria toxoid from a semisynthetic medium, 4325*h*; see Gray, C. H.
**Holt, L. E., Jr.** See Albanese, A. A; Snyderman, S. E.
———, Nemir, R. L., Snyderman, S. E., Albanese, A. A., Ketron, K. C., Guy, L. P., and Carretero, R. Thiamine requirement of the normal infant, 5458*b*.
**Holt, M. C. N.**, and Ward, A. M. Chem. coloring of metals -reactions involving the slow liberation of S, Se, and Te, 4148*i*, 5352*h*.
**Holt, M. L.** See Clark, W. E.; Lietzke, M. H., Netherton, L. F.; Seim, H. J.
**Holt, P. F.**, and Briscoe, H. V. A. Soly. of industrial siliceous dusts, 6335*f*
**Holt, P. H., 2nd.** See Matheson, G. L.
**Holt, S. J.**, and Petrow, V. Carbazoles, carbolines, and related compds. (II) transformations of quaternary salts of quindoline, (III) quinindoline derivs., 229*d*.
**Holt, S. P.** Royal Princess Zn-Pb deposit, Jo Daviess Co., Ill., 1694*g*, see Ruhl, O.
———, Shepard, J. G., Thorne, R. L., Tolonen, A. W., and Fosse, E. L. Salt Chuck Cu mine, Kasaan Peninsula, Prince of Wales Island, southeastern Alaska, 74*b*.
**Holt, T. W.** Water-resistant textile fabrics, P 856*b*.
**Holt, W. L.** See Mattson, L. N.
**Holt, W. S.** See Grange, R. A
**Holtan, S. D.** See Mattocks, A. M.
**Holtham, S. B.**, and Schutz, F. Cyanase, a new enzyme catalyzing the hydrolysis of cyanate, 2246*e*; effect of cyanate on the stability of proteins, 5062*i*.
**Holtkamp, D. E.**, Hill, R. M., Longwell, B. B., Rutledge, E. K., Buchanan, A. R., and Brewster, L. Failure of adrenal cortical hormones to protect against cold in young normal and adrenalectomized rats, 6721*b*.
**Holtman, D. F.** Antibiotic products of fungi, 275*f*; see Jones, W. G.
**Holtmann, W.** See Kootz, T
**Holton, G. J.** Propagation of sound in liquids under high pressure, 4066*f*; high-pressure expts. on ultrasonic propagation, 4067*b*.
**Holton, P.** Noradrenaline in adrenal medullary tumors, 4760*f*; see Blaschko, H.; Burn, J. H.
**Holtuna, A., Sr.**, and Schauer, O. E. Solder, P 9023*a*.
**Holtz, P.**, and Credner, K. Influence of ergotoxine and yohimbine on adrenaline diuresis, 8542*f*
———, Credner, K., Drenkhahn, P., Kroneberg, G., and Kunzelmann, E. Dopa decarboxylase, renin, and renal hypertension, 302*b*.
———, Credner, K., and Heepe, F Influence of hydroxytyramine and other sympathomimetic amines on diuresis, 6308*b*.
———, Credner, K., and Kroneberg, G. Sympathomimetic pressor principle of urine, 5840*c*.
———, Exner, M., and Schümann, H. J. Cell stimulation and cell damage—stimulated fermentation and respiration of the yeast cell, 5444*a*.
——— and Kroneberg, G. Adrenaline formation by adrenal tissue, 8484*f*.
——— and Schümann, H. J. Carotid sinus discharge and the adrenals—arterenol as a chem. mediator of sympathetic nerve stimulation and hormone of the adrenal medulla, 5470*c*; increasing the action of adrenaline by sparteine, 8542*d*; arterenol, adrenal cortex hormone, and chem. transmitter of the sympathicus, 9204*h*.
**Holtzclaw, H. F., Jr.** See Laitinen, H. A.
**Holtzclaw, J. B.** Frost-removing compn., P 3949*f*.
**Holtzem, H.** See Gstirner, F.
**Holtzman, H.**, and Graham, H. Unsulfonated phenolic intermediates in coal-tar colors—detn. of β-naphthol in D&C Red No. 35, 9453*c*.
**Holuba, S. J.** Detergent products, P 9495*h*.
**Holz, S.** Effect of nicotine on the isolated auricle, 4385*d*; see Granier-Doyeux, M.
**Holzach, K.** Indigo synthesis at the Badischen Anilin and Soda Fabrik, 407*h*, 9451*d*; Aromatischen Diazoverbindungen (book), 8397*a*.
**Holzapfel, L.** Effect of quartz dust on tuberculosis growth, 5823*g*; org. silicic acid compds. (VIII) lipoid fractions in dust lungs, 5852*e*; (X) silicones, (XI) elec properties of silicones, 6459*a*.
**Holzbecher, Z.** See Hovorka, V.
**Holzcker, R.** Concg. fruit juice, P 331*a*
**Holzer, H.** See Lynen, Feodor.
**Holzer, T.** Prepn. of molded articles with waste sulfite liquor, P 4517*e*.
**Holzworth, M. L.** See Beck, P. A.
**Homan, J. D. H.** See Lens, J
——— and Lens, J. Purification of heparin, 6684*h*.
**Homans, L. N. S.** Same as Haan-Homans, L. N. S. de
**Homburger, F.** See Savard, K
**Homelaya, Inc.** Vitreous coating, P 5168*a*
**Homer, R. F.**, Gregory, H., Overend, W. G., and Wiggins, L. F Conversion of sucrose into pyridazine derivs (IV) sulfanilamides derived from 6-methyl-3-pyridazone, 3007*a*.
———, Gregory, H., and Wiggins, L. F. Conversion of sucrose into pyridazine derivs (III) products of chlorination of 2,6-dimethyl-3 pyridazone, 3006*e*
**Homerberg, V. O.** Graphitic nitralloy, 543*g*, see Williams, R. S
**Homeyer, A. H.** See Wallingford, V. H.
**Homeyer, H. N., Jr.** Pressure sensitive adhesive sheet material, P 2463*f*.
**Homikovsky, P. M.** See Khomikovskii, P. M.
**Homiller, R. P.**, and Griffin, E. L., Jr Apple essence, P 9294*g*
**Hommeren, B. G.** See Gronningsaeter, A. M.
**Hompesch, H.** Coli bacteria infections in beer and similar beverages, 4123*a*, N metabolism of diphtheria bacteria (I) peptone decompn in the presence or absence of glucose, 8000*a*.
**Honda, K.**, and Hirone, T. Theory of magnetostriction in single crystals of Fe and Ni, 5243*c*.
**Honda, Y.** See Yoneda, K.
**Hone, M. R.** See Wood, J. G.
**Honen Oil Refining Co.** Lower homologs from satd. fat acids, P 2794*c*.
**Honerjäger-Sohm, M.** See Dehio, H.
——— and Kaiser, H Scattering of intensity ratios of spectral lines measured photographically, 8276*i*.
**Honert, T. H. van den.** Water transport in plants, 1464*c*.
**Honeyman, J.** Chemistry of Carbohydrates (book), 2627*g*.
**Honig, E.** PdO, P 1160*b*.
**Honig, L.** Semipermeable membranes, P 9298*d*.
**Honig, R. E.** Mass-spectrometric study of deuteriated hydrocarbons, 4096*c*.
**Honigmann, B.**, Molière, K., and Stranski, I. N. Validity of the Thomson-Gibbs equation, 5250*a*.
**Honjo, G.** Anomalies in electron-diffraction Debye-Scherrer rings, 6880*a*.
**Honn, F. J.**, Bezman, I. I., and Daubert, B. F. Infrared absorption of hydroxy compds. in autoxidizing linseed oil, 4574*b*
**Honold, E.** See Burleigh, E. G., Jr.
**Honolulu Iron Works Co.** Automatic crystallizer control in Hawaii, 425*h*.
**Honorary Advisory Council for Scientific and Industrial Research.** Recovering volatilizable metals, P 2920*b*; nitramines, P 4286*g*, 9079*g*, guanidine salts, P 5796*d*; ferrosilicon process of Mg production, P 6146*d*; recovering acid in the production of cyclonite, P 8082*i*.
**Honorato C., R.** Changes in the prothrombin time induced by methylxanthines—plasma cofactor of thromboplastin, 9255*e*.
——— and Gómez, R., C. Thrombosis and its relation to digitalis substances 8057*h*

—— and Lopetegui A., M. Relation of digitalis substances to blood coagulation, and their antagonism toward dicumarol, 8067*f*.
**Hont, M. d'**, and Jungers, J. C. Calcns. of chem. equil. (IV) detn. of sp. heat, 3275*e*.
**Hontschik, A. M.** Jahrbuch der Lederwirtschaft Österreichs (book), 6451*h*.
**Hontschik, I.** See Ziegler, E.; Zinke, A.
**Hoobler, S. W.**, Moe, G. K., and Lyons, R. H. Cardiovascular effects of tetraethylammonium—hypertension, 9266*b*
**Hood, E. G.** See Hlynka, I.
**Hood, G. C., Jr.**, and Murphy, G. W. Decompn of Ag oxide—autocatalytic reaction, 4934*i*.
**Hood, H. P.** Molded glass article, P 5565*c*.
**Hood, J.** Filter fly control, 5894*i*; see Graham, J. D. P.
**Hood, M. B.** See Grier, R. S.
**Hood, T. A.** Manuf. of cemented carbides, 2911*d*.
**Hoodyakov, G. N.** See Khudyakov, G. N.
**Hoog, H.** Selection and development of catalysts in industrial chemistry, 8074*c*; see Engel, W. F.
— and Engel, W. F. Heterocyclic six-membered ring compd. with one N atom, P 5426*i*.
**Hoogenstraaten, W.** See Kroger, F. A.
**Hoogerheide, J. C.** See Levine, H.
**Hoogh, G. de.** See Tendeloo, H. J. C.
**Hoogland, P. L.** Detn of trace elements in biol material, 7998*a*, see Groen, J.
**Hoogschagen, G.** See MacGillavry, C. H.
**Hoogsteen, H. M.** See Young, A. E.
**Hoogteijling, P. J.**, and Sizoo, G. J. Radioactivity and mineral compn of soil, 1261*c*.
**Hook, A van.** See Van Hook, A.
**Hook, D. E.** See Barry, A. J., De Pree, L.
**Hook, E. O.** See Dean, R. T.
**Hook, J. O. van.** See Van Hook, J. O.
**Hook, W. H.** See British Schering Research Laboratories Ltd.; Goldsworthy, L. J.
**Hooker, C. W.** Biology of the interstitial cells of the testis, 6716*i*; see Forbes, T. R., Fraps, R. M.
— and Forbes, T. R. Bioassay for minute amts. of progesterone, 7070*d*, transport of progesterone in blood, 8489*a*
**Hooker, G. W.**, and Peterson, N. R. Water-sol cellulose ether plasticized with a cyclotetramethylene sulfone, P 6003*d*.
**Hooker, H. W.** See Spence, H. R.
**Hooker, O. N.** See Knight, H. de B.
**Hooker, T.** Power consumption for geometrically dissimilar agitators, 446*f*.
**Hooker Electrochemical Co.** Fluorinated cyclic hydrocarbons, P 678*h*; mercaptans, P 3460*d*; corrosion retarder, P 3772*f*, photochem. chlorination of hydrocarbons, P 7197*a*; treating ferrous metals before drawing through dies, P 8346*a*.
**Hookway, H. T.** See Thurston-Hookway, H.
**Hoon, R. C.**, Dhawan, C. L., and Madan, M. L. Effect of soil factors on the yield of major crops in the Punjab (II) rice, 9321*h*
**Hoop, J. G.** Gas* generator for steel-hardening furnaces, P 7402*f*
**Hooper, J. H. D.**, *et al.* Analysis of gases by absorption, 7673*d*.
**Hooper, W. H. L.** See Chadwick, R.
**Hooreman, M.** See Lemoigne, M.
**Hooren, C. J. van.** See Krevelen, D. W. van.
**Hoorens, A.** Action of asphyxia, anemia, anoxemia, and $CO_2$ on the pupil, 4374*i*.
**Hoot, R. A.** Automatic control of raw sewage chlorination, 7168*f*.
**Hoover, C. O.** Cuprous naphthenate, P 7224*h*.
**Hoover, F. W.** Mixt. of hydrolyzed ethylene vinyl ester copolymer and *N*-substituted polyamide, P 443*a*; methacrylate copolymer finishes, P 4874*c*.
**Hoover, J. I.** See Pomerance, H.
——, Jordan, W. H., Moak, C. D., Pardue, L., Pomerance, H., Strong, J. D., and Wollan, E. O. Measurement of neutron absorption cross sections with a pile oscillator, 488*e*.
**Hoover, J. R.** Synthetics invade leather market, 7246*g*
**Hoover, S. R.** See Mellon, E. F.; Peterson, R. F.
**Hooykaas, R.** Origin of chem. at. and mol. theory before Boyle, 8759*h*.
**Hope, P. H.**, and Mora, J. de la. Waxes of sugar cane, 4035*c*.
**Hopewell, W. W.** See Brown, A. W. A.
**Hopf, P. P.**, and Race, E. Protection of mech. cloth with phenyl mercurials, 5523*f*.
**Hopff, H.**, and Ohlinger, H. Synthesis of amides of mono- and dicarboxylic acids from hydrocarbons and carbamyl chloride, 6183*c*.
—— and Rapp, W. 2,2'-Dicyanodiethyl ether, P 673*f*.
**Hopfield, H. S.** See Herman, R. C.
**Hopke, E. R.** See Sears, G. W.
—— and Sears, G. W. Vapor pressures of trimethylbenzenes in the low pressure region, 2481*b*.
**Hopkins, A. C., Jr.**, Stephenson, R. M., and Watson, W. E. HF, P 2744*i*.
**Hopkins, C. W.** See Alquist, F. N.
**Hopkins, C. Y.**, Chisholm, M. J., and Harris, J. 11-Eicosenoic acid, 4220*a*.
**Hopkins, D. W.** Reaction between solids—formation of Zn ferrite from ZnO and $Fe_2O_3$, 8933*h*.
**Hopkins, E. F.**, and Loucks, K. W. Reduction of mold decay in citrus fruits, 3536*d*.
**Hopkins, E. W.** Dried protein products, P 6332*g*; see Josh, G.
**Hopkins, H. H.** See Cunningham, B. B., Seaborg, G. T.
**Hopkins, H. S.** See Shanes, A. M.
**Hopkins, M. C.** See Kirkbride, C. G.
**Hopkins, R. H.**, and Jelinek, B. Fractionation of potato starch, 2454*i*.
——, Jelinek, B., and Harrison, L. E. Action of β-amylase on potato amylose, 2283*h*.
—— and Krause, B. Biochemistry Applied to Malting and Brewing (book), 3561*d*.
——, Wiener, S., and Rainbow, C. Pantothenic acid in brewing, 3143*a*.
**Hopkins, R. K.** Kellogg elec. hot-top process, 949*b*; production of composite materials by the elec fusion process, 949*d*, elec. ingot process, 949*e*.
**Hopkins, R. L.**, and Adams, N. G. Isolation and identification of 2,6-dimethyl naphthalene from West Edmond crude oil, 2760*c*.
**Hopkins, W. A.** Au and Cr combination plating, 1268*g*.
**Hopp, H.** See Slater, C. S.
**Hoppe, J. O.** See Lands, A. M.
——, Seppelin, D. K., and Lands, A. M. Acute toxicity of the optical isomers of arterenol and adrenaline, 5866*b*.
**Hoppe, W.** X-ray camera of high light intensity for powder photography, 4566*e*.
**Hopper, S. S.**, Hulpieu, H. R., and Cole, V. V. Toxicol properties of surface-active agents, 9264*i*.
**Hopper, T. H.** Report of seed and meal analysis committee, 6841*i*
**Hopper, V. D.** Detn. of the electronic charge, 6906*i*.
**Hoppert, C. A.**, and Hart, E. B. Nutritive value of dry and canned dog foods, 8071*a*.
**Hopping, C. O.** Puncture-sealing compn., P 5135*h*.
**Hopson, J. L.** See Goldston, M.
**Hopwood, W.** See Craggs, J. D.
**Horak, I.** See Wacek, A. v.
**Horan, F. E.**, and Heider, M. F. Sorghum and sorghum starches, 2454*e*
**Horan, H. A.**, and Eppig, H. J. Detn. of cobaltammine $NH_3$—detn of ferrocyanide ion, 5701*g*.
**Horányi, M.** Fractionation of fibrinogen, 6270*c*; formation of thrombin in the coagulation of native plasma, 9200*e*.
**Horback, W.** See Caprio, A. F.
**Horchler, D. H.** See Strandskov, F. B.
**Hordfield, B.** Electrostatic separator of particles of different elec. potentials, P 2106*a*.
**Horeau, A.** Synthetic estrogenic substances, 7468*i*; see Courrier, R.; Jacques, J.
——, Jacques, J., and Sylvestre, J. Synthetic estrogens—substituted β-naphthylpropionic acids, 3814*d*
**Horecker, B. L.**, and Heppel, L. A. Reduction of cytochrome c by xanthine oxidase, 6266*d*.
—— and Kornberg, A. Extinction coeffs. of the reduced band of pyridine nucleotides, 2265*a*.
**Horeczy, J. T.** Vinylacetylenes, P 2216*f*.
**Horel, J.** Differential extractive method in the analysis of plants for resins and rubber, 1686*i*.
**Hori, H.** See Sakurai, Y.
**Hori, S.**, and Saibara, S. Prepn. of $(NH_4)_2SO_4$ from an aq. soln. of $(NH_4)_2SO_3$ by oxidation (I) under const. pressure, (II) at const. temp., (III) under increasing pressure, 5157*i*.
**Horio, M.** See Kimoto, M.
——, Fukuda, Y., and Yamashita, S. Japanese red pine pulp (VII) influence of cooking conditions on the yield of pulp and its chem. compn., (VIII) sulfate pulp from larch, (IX) sulfate pulp from beech, (X) pulping of broad-leaved trees and the quality of paper therefrom, (XI) mech properties of paper from broad- and needle-leaved trees, 1971*i*
——, Fukuda, Y., Yamashita, S., and Tatsumi, M. Japanese red pine pulp (IV) prepg. viscose from sulfate pulp, (V) filterability of viscose from sulfate pulp, (VI) treatment of sulfate pulp with NaOH soln., (XII) prepn. of viscose from sulfate pulp, 1971*f*.
——, Kimoto, M., and Yamashita, S. Japanese red pine pulp (II) cooking the Japanese red pine by the sulfate process, 1971*f*.
—— and Kondo, T. Cooking process of wood (I) comparison of sulfite and sulfate processes with the heartwood of larch, (II) cooking of sapwood of the Japanese larch, (III) normal and abnormal cooking process, (IV) sulfite cooking of red pine, (V) sulfate cooking of red pine, (VI) cooking of spruce with sulfurous acid, (VII) cooking of the spruce with sulfate, (VIII) cooking of southern woods with sulfurous acid, (IX) cooking of southern woods with sulfate, 1968*g*.
—— and Ota, E. Pulp from southern woods (VI) sulfate pulp from Lauan wood, (VII) sulfate digestion of lauan, (VIII) sulfate digestion of the mixt. of various woods, (IX) fiber and strength of paper, 1969*f*.
——, Tsurugi, J., Fukuda, Y., and Hashikura, S. Manufg. of pulp and artificial fiber from deciduous trees (III) pulp of maple and white birch, 1971*c*.
——, Tsurugi, J., and Oda, H. Manufg. of pulp and artificial fiber from deciduous trees (I) beech pulp, (II) viscose artificial fiber from beech pulp, 1971*a*.
**Horiuchi, J.** Treatment of equil. and chem. reactions, 6494*c*.
——, Toraishi, S., and Ouchi, I. Detn. of the charge and the magnitude of a colloidal particle, 6490*e*.
**Horn, A.** See Bénard, H.
**Horn, E. C. van.** See Van Horn, E. C.
**Horn, H. T. van.** See Van Horn, H. T.
**Horn, J. A.** See Campbell, J. R.
**Horn, K.** See Andersen, A. B.
**Horn, L.** Effect of addn. elements on the oxidation of Ni and Cr-Ni alloys, 4619*f*.
—— and Bassermann, C. System Ni–Th, 985*h*.
**Horn, M. J.** See Jones, D. Breese.
——, Jones, D. B., and Blum, A. E. Detn. of arginine in proteins and foods, 2265*d*; detn. of phenylalanine in proteins and foods, 4331*i*; detn. of leucine in proteins and foods, 4337*h*; detn. of isoleucine in proteins and foods, 9138*b*.
**Horn, N. L.** See McClellan, W. D.
**Horn, W.** See Theis, K.
**Horn, Z.**, Gerendás, M., and Borsodi, L. Activity of toluidine blue or thrombokinase on thrombin inactivation, 3081*a*.
**Hornaday, G. F.** See Peavy, C. C.
——, Noll, H. D., Peavy, C. C., and Weinrich, W. W. Refinery applications of Houdriflow catalytic cracking, 8124*c*.
**Hornbeck, G. A.** See Herman, R. C.
**Hornberg, C. V.** See Payne, J. W.; Simpson, T. P.
**Hornby, F. P.**, and Thomas, E. H. Microstraining, 334*f*.
**Horne, W. A.** See Montgomery, C. W.
**Horne, W. L. van.** See Van Horne, W. L.
**Hornel, J. C.** See Whitworth, E.
**Horneman, H. C.**, Hussong, R. V., Quam, S. N., and Hammer, B. W. Butter, P 5131*a*; dairy process, P 5131*a*.
**Horner, V.**, and Kimbrell, W. B. Mud control and design in modern drilling practice, 8121*f*.
**Horney, A. G.**, and McFadden, G. H. Compounding sponge rubber, P 4890*c*.
**Hornfeck, A. J.** Response characteristics of thermometer elements, 2046*i*; magnetically detg. gas content, P 4836*h*.
**Hornflowa Ltd.** Bleached keratin meal for making molded plastics, P 8186*d*.
**Hornibrook, W. J.** Polymeric 4-vinylcyclohexene dioxide compns., P 5639*e*.
**Hornig, D. F.** Vibrational spectra of mols. and complex ions in crystals (I) general theory, 492*g*; see Wagner, E. L.
**Horning, E. C.** See Bachmann, W. E.
——, Horning, M. G., and Dimmig, D. A. 3-Carbethoxycoumarin, 1770*h*.

——, Horning, M. G., and Platt, E. J. Analogs of dihydroionone, 8361*h*.
——, Horning, M. G., and Walker, G. N. Aromatization studies (VII) alkylcarbazole, 1391*a*; (VIII) catalytic dehydrogenation of di- and trialkylcyclohexenones to phenols, 2968*i*.
—— and Reisner, D. B. Furocoumarins—synthesis of 2,3-dihydropsoralene, 1406*c*; catalytic reduction of aromatic ketones, 4241*g*.
—— and Schock, R. U., Jr. Morphine studies—2-keto-7-methoxy-2,3-dihydrobenzofuran derivs., 625*a*; morphine studies—tetralin analogs, 626*b*; morphine studies—synthesis of a tetralin-piperidine fused ring system, 6636*a*.
**Horning, E.** and Dmochowski, L. Induction of prostate tumors in mice, 305*f*.
**Horning, M. G.** See Horning, E. C.
**Horning, W.**, and Baumhoff, L. Stars in photographic emulsions initiated by deuterons (II) theoretical, 4113*f*.
**Hornstein, L.** See Frishman, D.
**Hornung, G.** Recovery of oil from corn, 5876*c*
**Hornyak, W. F.** See Rasmussen, V. K.
——, Dougherty, C. B., and Lauritsen, T. $\beta$-Decay spectra of $B^{12}$ and $C^{13}$, 2506*c*.
**Horovitz, K. L.** See Lark Horovitz, K.
**Horowitz, J. J.**, Kofoed-Hansen, O., and Lindhard, J. $\beta$-Decay of mesons, 933*g*.
**Horowitz, K. H.** See Stow, F. S., Jr.
**Horowitz, R. M.** See Morris, R. C.
**Horrex, C.**, and Perkins, F. T. Inhibition of the low-temp. polymerization of isobutene, 6061*c*.
**Horrocks, R. H.**, and Manning, G. B. Partition chromatography on paper—reducing substances in urine, 8426*h*.
**Horrom, B. W.** See Zaugg, H. E.
**Horsch, C.** Changes in the chondoitin sulfate content and distribution in cartilage in infective and aseptic osteoarthritis, 6727*i*.
**Horsey, R. E.** Mildew-proofing textiles, P 5200*e*.
**Horsfall, F. L., Jr.** Viral multiplication, 7522*a*; see Björkman, S. E.; Davenport, F. M.; Hardy, P. H., Jr., Shear, G. M.
**Horsfall, J. G.** See Barratt, R. W.; Dimond, A. E.
—— and Rich, S. Spirally arranged plots in a design for field assay of fungicides, 5891*h*.
**Horsfield, S. W.** Catalytic cracking process as a means of peak load shaving, 5932*a*.
**Horsley, G. F.**, and Imperial Chemical Industries Ltd. Catalysts, P 4791*f*.
**Horsley, L. H.** Azeotropes and nonazeotropes, 6481*c*.
**Horst, R. A.** Brine chamber and regenerator arrangement in Hg cathode cells used in the electrolysis of chlorides and bromides of alkali metals, P 6097*b*.
**Horst, R. L.** See Reid, K. K.
——, Reid, K. K., and Verink, E. D., Jr. Corrosion control by metal anodes (I), 4620*f*.
**Horst, W. P. ter.** See Ter Horst, W. P.
**Hortling, H.** See Björkenheim, G.
**Horton, B. T.** See Wakim, K. G.
**Horton, C.** See Flagg, J. F.
**Horton, E.** Internal strains in polymerized Me methacrylate, 8202*a*.
**Horton, F. W.**, and Allsman, P. T. Casper Mountain chromite deposits, Natrona Co., Wyo., 8990*d*.
**Horton, G. K.** Angular distribution in internal-pair creation, 3702*h*.
**Horton, W. S.** Temp. lag and chem. kinetics, 1245*b*.
**Horváth, J.** See Krámli, A.
**Horváth, J. I.** See Náray-Szabó, I.
**Horvitz, L.** Exploration by soil analysis, P 5581*h*.
**Horwitt, B. N.** See Dorfman, R. I.
**Horwitt, M. K.** See Harvey, C. C.
——, Hills, O. W., and Kreisler, O. Lactic and pyruvic acids in the blood after glucose and exercise in diabetes mellitus, 5111*b*.
—— and Kreisler, O. Detn. of early thiamine-deficient states by estn. of blood lactic acid and pyruvic acids after glucose administration and exercise, 5832*h*.
——, Liebert, E., Kreisler, O., and Wittman, P. Human requirements for B-complex vitamins, 3072*f*.
**Horwitz, D.** Mottle, 4491*f*.
**Horwitz, O.** Overdose of adrenaline, 4372*a*.
**Horwitz, W.**, and Knudsen, L. Sampling, fat, and moisture in cheese, 7154*e*.
**Horwood, J. H.** See MacFarland, H. N.
**Horwood, M.** See Shimwell, J. L.
**Hoshi, H.** Glass used for passage of infrared light, P 6802*f*.
—— and Inagaki, T. Glass used for passage of infrared light, P 6802*g*.
**Hoshida, M.** See Hirokawa, K.
**Hoshino, T.** See Kasuya, G.
**Hoshowsky, S. A.**, Holmes, O. G., and McCallum, K. J. Exchange reactions of $Co^{++}$, $Co^{+++}$, and their hexammino complexes, 6508*e*.
**Hoskins, D.** See Hanzlik, P. J.
**Hoskins, R. G.**, and Pincus, G. Sex-hormone relations in schizophrenic men, 5853*b*.
**Hoskins, W. M.** See Ricks, M.; Smith, R. F.
—— and Caldwell, A. H., Jr. Spray chamber for testing insecticides, 3554*h*.
**Hosley, R. J.** Nomograph for calcn. of icterus index values by colorimeter, 9135*e*.
**Hošna, B.** Testing of Zn coating of wires, 4619*h*.
**Hosny, A. M.** Tests of pancreatic function—action of secretin, oil, casein, grape sugar, and insulin and their pharmacol. influence, 9209*c*.
**Hosoda, T.** See Flaschenträger, B.
**Hosoi, K.** Effect of mono- and disaccharides on the contact oxidation of ascorbic acid by Cu and Fe, 1016*i*.
**Hosoya, S.**, Soeda, M., and Imamara, S. *Staphyloccus*-toxinase culture filtrate of *Penicillium notatum* and *P. chrysogenum*, 3880*e*.
**Hossein, A. M.** See Samaan, K.
**Hossfeld, R. L.** See Brink, D. L.; Nayer, A. N.
**Hoste, J.** Diaminobenzidine as a reagent for V and Se, 4599*c*; diphenylbenzidine as a reagent for V, 6935*e*, 8299*g*; specific at. groups and reagents in analytic chemistry, 8947*g*; see Govaert, F.
**Hoster, H. A.**, Dratman, M. B., Craver, L. F., and Rolnick, H. A. Hodgkin's disease (I), (II), 3515*a*.
**Hostettler, H.**, Rychener, E., and Künzle, L. Casein as it exists in cow milk, 7598*b*.
**Hotchkiss, A. G.**, and Webber, H. M. Protective atm. in industry, 332*f*, 3117*g*, 7607*c*.
**Hotchkiss, R. D.** Transforming factor of pneumococci, 9158*e*; action of chemotherapeutic agents, 9259*b*.
**Hothersall, A. W.** Electrochem and electrometallurgical industries, 4788*i*.
**Hotop, W.** See Kieffer, R.
**Hotot, G.** Detn. of H in steels, 8965*h*; see Lacombe, M.
**Hotovy, R.** Action of bile constituents on diuresis, 1107*a*; influence of chronic nicotine injury on fertility and offspring, 3102*b*, toxicity of beechnuts, 6312*c*; see Eichholtz, F.; Kuschinsky, G.
**Hotstream Heater Co.** Water-treating device, P 4406*g*.
**Hottel, H. C.**, Williams, G. C., and Satterfield, C. N. Thermodynamic Charts for Combustion Processes (book), 3174*f*.
**Hottenroth, B.** Manuf. of pectin, 5510*f*.
**Hottinger, F.** Syphon, P 6012*e*.
**Hottle, G. A.** See Salvin, S. B.; Shepard, C. C.
**Hotz, P. E.** See Wells, F. G.
**Hotzel, A.** Vitamine und Vitaminpraparate (book), 9196*i*.
**Hou, H. C.** Riboflavin and growth of tubercule bacilli, 5079*e*.
——, Riesen, H. W., and Elvehjem, C. A. Influence of heating on liberation of amino acids from whole soybeans, 5058*f*.
**Hou, H. L.**, and Franke, N. W. Countercurrent extn. in columns with fine packing, 2042*c*.
**Houben, K.** See Clas, G.
**Houchins, H. R.** Ceramic-bonded abrasive articles, P 8116*b*.
**Houchins, R.** See Day, P. L.
**Houck, C. R.**, and Altchek, A. Mutual depression of reabsorption and excretory max. in renal tubules, 7102*c*.
**Houdaille-Hershey Corp.** Electrolytic sheet-metal anode, P 6097*b*.
**Houdry, E. J.** Catalyst pellet, P 8578*f*.
**Houdry Process Corp.** (*Patents.*) Butadiene sulfone, 663*a*; treatment of gel and gelatinous ppts., 825*c*; cleaning zirconia-gel production equipment, 1162*c*; Na catalysts, 1932*c*; catalysts, 3161*a*, 8578*f*; synthetic rubber, 4507*b*; clay catalysts, 4843*a*; activating kaolin clay, 8129*gh*; kiln for regenerating granular catalyst used in oil cracking, 8129*i*; $SiO_2$-$ZrO_2$ catalysts, 8665*c*; catalytic conversion of hydrocarbons, 9428*g*.
**Hougen, A. O.**, and Hsu, J. P. Applied kinetics and equil., 7759*b*.
**Hougen, F.** See Sörenson, N. A.
**Hougen, O. A.** See Taecker, R. G.
**Houget, J.** See Cahn, T.
**Hough, A. T.** Synthetic tanning materials, 1203*h*; tanning mill, 1592*b*; polyvinyl alc.—reagent for vegetable tanning materials, 4503*h*; effects of water-sol. urea-HCHO condensates on vegetable-tanned sole leather, 6451*b*; tanning properties of phenol-HCHO water-sol. condensates, 8719*e*.
**Hough, E. W.**, and Sage, B. H. Volumetric behavior in gaseous hydrocarbon solns., 4531*c*.
**Hough, J. B.** See Davies, R. E. M.
**Hough, L.** See Hirst, E. L.
——, Jones, J. K. N., and Wadman, W. H. Application of paper partition chromatography to the sepn. of the sugars and their methylated derivs. on a column of powd. cellulose, 2542*b*.
**Hough, W. S.** Chlordan compared with parathion on plums, 3139*h*.
**Houghland, G. S.** Fractionating app., P 7760*b*.
**Houghton, B. C.** See Thatcher, J. S.
**Houghton, E. F., & Co.** Ethylcellulose plastic compns., P 2815*d*.
**Hougs-Olsen, W.** Analgesic effects of morphine and methadon, 5863*c*.
**Houk, A. L.** Halophenyl acetals, P 3968*a*; see Bock, L. H.
**Houlahan, M. B.**, and Mitchell, H. K. Metabolism of lysine, arginine, and pyrimidines in *Neurospora*, 2278*a*; accumulation of acid-labile, inorg. phosphate by mutants of *Neurospora*, 2670*a*.
**Houlton, H. G.** Synthetic resins, P 2031*f*.
**Hounie, E.** See Mondolfo, H.
**Houpeurt, A.** App for porosity studies, 5234*e*; effects of surface forces on the equil. and motion of oil deposits in the soil, 7671*c*
**Houpt, A. G.** Recovery of rosin acids, P 3637*e*
**House, F.** See Sure, B.
**House, H. L.** Nutritional studies with *Blattella germanica* reared under aseptic conditions (II) chemically defined diet, (III) five essential amino acids, 8561*i*, see Pratt, J. J., Jr.
—— and Patton, R. L. Nutritional studies with *Blattella germanica* reared under aseptic conditions (I) equipment and technique, 7152*a*.
**House, M. A.** See Muers, M. M.
**House, N. K.** Electroplating assembly, P 509*c*.
**Housewright, R. D.** See Berkman, S.; Henry, Jane; Henry, R. J.
**Houssay, A. B.** Diabetogenic activity of the fetal hypophysis, 1854*b*.
**Houssay, B. A.** Action of the thyroid on diabetes, 5850*g*.
—— and Martínez, C. Alloxan diabetes in dogs with renal pedicles clamped, 3513*c*, 5106*e*; prevention and cure of diabetes by thiouracils or cysteine, 5118*cf*, correction by thiouracil of the aggravating action of fats on diabetes, 7583*i*.
—— and Rapela, C. E. Substances augmenting the adrenaline-secretory action of K—substances diminishing the adrenaline-secretory action of K, 2319*b*.
**Houssiau, A.** Unfermented material in liquors from molasses, 2366*a*.
**Houston, D. F.** Ethers of *p*-hydroxy diphenylamine as alkylhalide identification derivs., 3386*f*.
**Houston, E. C.**, Jones, V. J., and Powell, R. L. Elec. dewatering of phosphate tailing, 8905*f*.
**Houston, E. G.** See Smith, G. V.
**Houston, G. W.**, Gallagher, E. C., and Bolley, D. S. Testing of drying oils (II) evaluation of natural and synthetic oils, 5605*g*; (III) correlation of evaluation data, 5975*e*.
**Houston, R.** See Chadwick, L. C.
**Houstoun, R. A.** Efficiency of the barrier layer photocell, 4557*f*.
**Hout de Longchamp, M.** See Longchamp, M. H. de.
**Houten, F. B. van.** See Van Houten, F. B.
**Houtermans, F. G.** $(n,2n)$-Process of Be with neutrons from a (Po$\alpha$ + Be) source, 7812*e*; see Haxel, O.; Maier-Leibnitz, H.
—— and Jordan, P. Time variation of $\beta$-disintegration and its detn., 6502*i*.

——— and Teucher, M. No. of fast neutrons emitted by a (Ra α + Be) source, 8868*c*.
**Houtz, R. C.** Solns. of vinylidene chloride polymers, P 4515*gi*.
**Houwink, A. L.** See Gorter, C. J.
**Houwink, R.** Elastomers and Plastomers (book), 5228*d*, 8207*f*.
**Hove, E. L.** Interrelation between α-tocopherol and protein metabolism (III) protective effect of vitamin E and certain nitrogenous compds. against $CCl_4$ poisoning, 2292*f*.
**Hove, H. vom,** and Muller, F. Electrolysis of molten $Na_2SO_4$ (II), 8898*f*.
**Hovers, J. W. J.** See Pieters, H. A. J.
**Hovey, A. G.** Versatile role of soybean oil in coatings, 1577*i*; development of equipment for alkyd resins manuf., 5993*b*.
**Hovorka, F.** See Lloyd, T. B., Yeager, E.
**Hovorka, V.** Detn. of dinitro-o-cresol on woody plants, 65*i*; application of benzidine derivs. in analytical chemistry, 2115*e*; Obecné úvahy a manipulace k technologickým rozborům (book), 2518*f*
——— and Holzbecher, Z. Detn. of U in the presence of Ce(III), Tl(I), Ag, Pb, Cu, Hg(II), and K ferricyanide, 8958*g*; metallic salts of the β-semicarbazones of isatin and its derivs., 8979*g*
**Howald, A. M.,** and Meyer, L. S. Resinous articles, P 7752*b*.
**Howard, A. J.** See Pearson, J.
**Howard, E. G.,** Campaigne, E. E., and Shriner, R. L. Syntheses of 2-methylmercapto-5-methylbenzaldehyde and 2-methylmercapto-5-methylcinnamic acid, 1746*c*.
**Howard, F.,** and Modlinger, R. Tryptophan and blood-sugar levels, 320*i*.
**Howard, F. A.** Synthetic fuels, 7209*e*.
**Howard, F. L.** See Cadwallader, E. A., Woodward, C. F.
**Howard, G. A.,** McLean, A. C., Newbold, G. T., Spring, F. S., and Todd, A. R. Synthesis of purine nucleosides (XXI) application of the Hofmann reaction to the synthesis of heterocyclic compds. (6), 6984*f*
**Howard, G. E.** Glass melting (I–III), 3578*a*.
**Howard, H. L.** Cellulose ester and ether lacquers, 4788*g*, 4789*b*, solvents 4789*b*.
**Howard, H. T.** See Atherton, F. R.
**Howard, H. W.** See Block, R. J.
**Howard, J. C.** High frequency induction heating process, 5673*b*
**Howard, J. E.** See Burnett, C. H.
**Howard, J. J.** Taconite utilization, 4987*e*.
——— and Heiligman, H. A. Treating oxide ores, P 988*e*.
**Howard, J. P.,** Levy, L., H., and Adriani, J. Effects of intrathecal administration of adrenaline on cardiac rhythm in dogs anesthetized with cyclopropane, 760*d*.
**Howard, K. L.** 2-Chloropyrimidines, P 8105*f*; see Denton, J. J., Vaughan, J. R., Jr.
**Howard, K. S.** See Bell, P. H.
**Howard, L. B.,** and Ramage, W. D. Preserving foods, P 8576*b*.
**Howard, M. E.** Modern Drug Encyclopedia and Therapeutic Index (book), 1158*a*.
**Howard, N. J.** Water supply in Canada, 5137*c*.
**Howard, P. R. C.** See Celusta-Howard, P. R.
**Howard, R. E.** Hydrogenation of coal at high temps., 4414*i*.
**Howard, W. L.,** and Wender, S. H. Asparagine content of burley tobacco, 6789*c*
**Howards & Sons Ltd.** Acyloxy carboxylic acids, P 676*f*, 6224*a*; thymol, P 5421*d*; see Ward, Blenkinsop & Co., Ltd.
———, Adcock, L. H., Clark, G. C. H., and Lock, R. H. Dehydrated lactic acid, P 5794*h*.
**Howarth, F.** Tissue distribution of a radioactive spinal anesthetic, 8058*c*.
**Howarth, L.** Effect of compressibility on laminar boundary layers and their sepn., 4062*c*.
**Howat, D. D.** Britain gets half its Fe from its lean ores, 5711*g*; O as a factor in combustion of fuel in the open-hearth furnace, 6133*c*.
**Howden, I. A.** Lubricants, 8657*h*.
**Howe, A. F.** Assembly for reclaiming slurry coal, P 7668*i*.
**Howe, C. W.,** and Tedeschi, C. G. Effects of urethan on living tissue, 7139*f*.
**Howe, D. J. T.** See Barrett, E. G. V.; Elliott & Sons Ltd.
**Howe, E. E.** See Pfister, K., III; Silber, R. H.; Snyder, H. R.; Zambito, A. J.
——— and Pietrusza, E. W. Bromination of ε-benzoylaminocaproic acid, 6978*b*.
——— and Tishler, M. Amino acid soln., P 4430*f*.
**Howe, E. G.** See Apell, G. A.; Runke, S. M.
**Howe, G. W.,** and Spurr, C. L. Antagonism of choline and heparin, 7583*g*.
**Howe, J. L.,** *et al* Bibliography of the Pt Metals (book), 5357*a*.
**Howe, R. F.** Diolefin distn., P 6643*f*.
**Howe, W. H.** Sp. gr. and liquid-level indicator, P 3248*i*.
**Howe, W. L.** Industrial use of gas in Liverpool, 5924*g*.
**Howell, C. E.** See Carroll, F. D.; Cupps, P. T.
**Howell, J. V.** Structure of Typical American Oil Fields. Vol. III (book), 4192*i*.
**Howell, M. J.** See Wittwer, S. H.
**Howell, R. S.** See Greig, M. E.
**Howell, T. H.,** and Piggot, A. P. Kidney in old age, 8513*i*.
**Howerton, H. K.** See Brockington, S. F.
**Howerton, P. W.** Russian literature in org. chemistry, 4909*d*.
**Howerton, W. W.** See Woodberry, D. L.
**Howes, D. A.,** and Rampton, H. C. Properties of hydrocarbon gas-turbine fuels, 7662*g*
——— and Stansfield, R. Aviation fuels—development of tests for detg. rich-mixt. performance, 2415*d*.
**Howes, F. N.** Vegetable sources of drying oils, 3212*c*
**Howes, R. S.,** and Philip, A. R. Open-hearth-flow models (II) flow visualization and photography, 7878*a*
**Howey, C. R.** See Gates, C. W.
**Howieson, W.** See Boots Pure Drug Co., Ltd.
**Howitt, F. O.** Protein fibers, 4857*f*, structure of textile fibers (V) proteins—silk, 6420*i*
**Howk, B. W.,** and Johnston, F. L. Emulsion polymerization of methyl methacrylate, P 907*a*
**Howland, A. F.** See Wilcox, J.
**Howland, A. H.** See Wilson, M. J. G.
**Howland, A. L.** See Drever, R. M.
**Howland, B.** See Shipman, J. D., Jr.
**Howland, J. W.** Human exposures to U compds., 8530*b*
——— and Warren, S. L. Effect of the at-bomb irradiation on the Japanese, 4710*d*.
**Howland, L. H.** Preserving synthetic rubber, P 2803*i*; antioxidants, P 3042*g*; see Madigan, J. C.; Smith, H. S.; Tewksbury, L. B., Jr.
——— and Brucksch, W. F., Jr. Fumaric acid, P 1798*d*
——— and Hunter, B. A. Aromatic arsenites as antioxidants in synthetic rubbers, P 4891*c*.
———, Messer, W. E., Neklutin, V. C., and Chambers, V. S. Effect of low polymerization temps. on properties of GR-S vulcanizates, 2460*c*.
**Howlett, F.** Textile fibers (II) fibers and plastics, 4016*d*, see Hill, D. W.
——— and Belward, D. Detg. the cuprammonium fluidity of cotton cellulose, 7692*i*.
——— and Urquhart, A. R. Solv. and structure of cellulose acetates, 9436*f*
**Howlett, F. S.** See Alban, E. K.
**Howlett, K. E.** See Barton, D. H. R.
**Howlett, R. M.,** and Cunningham, E. N. Action of safety-fuel hydrocarbons on Perbunan synthetic rubber compds., 2801*h*.
**Howsmon, J. A.** Water sorption and the polyphase structure of cellulose fibers, 4849*c*.
**Howson, L. R.,** and Kneer, V. R. Saginaw-Midland water-supply project, 3121*b*.
**Howson, M.,** Mulvaney, J. F., and Evans, R. L. Equil. diagram for the TNT-tetryl system and purification of each component, 6901*d*.
**Howton, D. R.** Thermal decompn. of allyltrimethylammonium hydroxide, 3779*i*; see Buchman, E. R.; Davis, R. H.
**Hoyaux, M.,** and Dujardin, I. Ion guns (I), (II), (III), 7811*g*.
**Hoyer, C. O.** Location of the plastics industry, 5226*h*.
**Hoyer, F.** Bamboo, a paper raw material source, 2428*g*.
**Hoyer, H.** See Kopfermann, H.
**Hoyos, V. S.** See Suarez Hoyos, V.
**Hoyos de Castro, A.** Canary and Tenerife soils, 4407*f*; detg. the base-exchange capacity of soils contg. carbonates, 8081*g*.
——— and Ahumada Buesa, M. Materials used in making ceramic ware, 6381*d*.
——— and Gonzáles García, F. Detns. in the peat of Padul in Granada, 2349*f*; Spanish kaolin, 6381*c*.
——— and Pascual Talavera, M. Influence of pH on the properties of suspensions of clay materials, 4538*d*.
**Hoyt, L. F.** Detecting surface-active agents, 4497*e*.
**Hoyt, P. R.** See Boyle, W. E.
**Hoyt, R. C.** Scintillation counter as a proportional device, 5663*f*; see Collins, G. B.
**Hoyt, R. E.** See Levine, M. G.
**Hoyt, S. L.** Metals at low temp., 5715*a*; see Hall, A. M.
**Hozik, J.** Mineral production, 2125*i*.
**Hrenoff, M. K.** See Strait, L. A.
**Hribar, V. F.** See Angell, H. W.
**Hromatka, O.** Enzymic laundry soakin agents, 8711*d*
——— and Eiles, E. Condensation of acrylic esters with formylamines, 575*h*.
——— and Engel, E. α-Keto mercaptans (I) acetonyl mercaptan and its derivs., (II) 2,5-dimethyl-2,5-endoxy-*p*-dithiane, 653*g*
**Hrubesky, C. E.** Comparison of several freeness testers on board stock, 1566*g*, 7683*b*.
**Hsiang, J. S.** See Whitmer, C. A.
**Hsiao, C. C.** See Sauer, J. A.
**Hsieh, C. K.** See Pearson, O. H.
**Hsieh, C. Y.** Paleogeography as a guide to mineral exploration, 3320*i*.
——— and Chuo, C. H. Phosphate deposits in China, 3322*i*.
**Hsieh, H.-T.** See Anslow, G. A.
**Hsieh, Y. C.** See Jen, C. K.
**Hsieh, Y.-Y.** See Chang, T.-L.
**Hsing, C.-Y.,** and Li, L.-T. Action of Grignard reagent on ethyl ethylenetetracarboxylate—prepn. of monoalkylated and monoarylated succinic acids, 4227*i*.
**Hsu, C.-C.** See Wang, Yu.
**Hsu, C. H.** See Liu, Y. M.
**Hsu, J. P.** See Hougen, A. O.
**Hsu, K. N.,** and Hu, T. M. Scattering of high-energy neutrons by protons with noncentral interaction, 4099*d*.
**Hsu, P.-C.,** and Adolph, W. H. Chinese celery cabbage as supplement to a cereal diet (II) metabolism expts. with human subjects, 3892*h*.
**Hsu, P. Y.** See Graham, W. D.
**Hsü, S. C.** See Meng, H. M.
**Hsü, S. K.,** Ingold, C. K., Raisin, C. G., De Salas, E., and Wilson, C. L. Isotope exchange and mechanisms of heterolytic substitution (I) H exchange and mechanisms of electrophilic substitution, 6876*d*.
**Hsu, T. L.** See Wang, Y. L.
**Hsü, Y.-K.** See Martin, D. G. E.
**Hu, H.** See Beck, P. A.
**Hu, M.** See Wang, Y. L.
**Hu, P. F.** Synthesis of some aryl pyrimidyl sulfones, 6634*f*, see Burton, H.
**Hu, T. M.** See Hsu, K. N.
**Huang, C.-T.** See Eaton, M. D.
——— and Eaton, M. D. Reversal by PABA of sulfonamide inhibition of the viruses of lymphogranuloma venereum and mouse pneumonitis, 8005*h*.
**Huang, H. T.** See Arnstein, H. R. V.; Cornforth, J. W.
———, Tarbell, D. S., and Arnstein, H. R. V. Cyclization of β-(3-bromo-4,4′,5,6-tetramethoxy-2-biphenylyl)propionic acid, 2197*i*.
**Huang, J. S.** See Raffel, S.
**Huang, K.** Calcn. of the heat of soln. and residual resistance of Au in Ag, 3683*g*.
**Huang, M.** Same as Huang-Minlon.
**Huang, P.-T.,** Holman, R. T., and Potts, W. M. Oil of *Sapium sebiferum*, 7721*b*.
**Huang, S. H.,** and Tu, H. C. Geology of the coal field between Shihtanching and Tawakou, Ninghsia, 2903*b*.
**Huang, S.-S.** Absorption coeffs. of the He atom, 2508*d*; continuous wave function of an electron in the field of a neutral atom, 4097*c*; elastic scattering of electrons by neutral H atoms, 8849*g*.
**Huang, T.-C.** Coeff. of the term $\pi\ \beta_{k^{ab}}$ in the cluster integral $b_l$ in Mayer's condensation theory, 5240*a*.
**Huang, W.-Y.** See Kung, H. P.
**Huang, Y.-O.** See Yuan, H.-I.
**Huang, Y.-T.** Hofmann reaction on substituted malonamic acids and their esters, 2166*e*; Hofmann reaction on dialkylacetamides, 2166*g*; see Lin, K.-H.
——— and Yang, S.-Y. Antibacterial action of cinnamaldehyde, 8430*f*.
———, Yieh, Y.-W., and Chang, I. Phenylthiourethans as local anesthetics, 2703*a*.
**Huang-Minlon.** Reducing carbonyl

compds. to the corresponding methylene compds., P 7509*e*; see Fieser, L. F.
**Hubach, C. E.** Detection of cyanides and ferrocyanides in wines, 2733*d*.
**Hubacher, M. H.** Detn. of carboxy group in aromatic acids, 8974*a*.
**Hubanks, P. E.** See Carter, R. H.
**Hubbard, D.** See Rynders, G. F.
—— and Rynders, G. F. Voltage anomalies of the glass electrode and the chem. durability of the glass, 3728*a*; chem. durability, specular gloss, and transmittance of optical glasses, 3985*h*; thickness of inhibiting films on glass-electrode surfaces, 4083*i*.
**Hubbard, D. M.** See Cholak, J.; Dutra, F. R.
**Hubbard, J. E.** See Earle, F. R., Wolf, M. J.
**Hubbard, J. K.**, and Kurth, E. F. Douglas-fir bark tannin, 9172*b*.
**Hubbard, R.** See Wald, G.
**Hubbard, R. L.**, and Stanfield, K. E. Asphalts from native bitumens and bituminous sandstones, 8660*g*.
**Hubbard, R. S.**, and Zoll, J. Intravenously injected sucrose into the cerebrospinal fluid, 4357*g*.
**Hubbard, V. C.**, and Harper, H. J. Effect of clipping small grains on compn and yield of forage and grain, 5450*d*
**Hubbard, W. N.** See Waddington, G.
——, Knowlton, J. W., and Huffman, H. M. Heat of combustion of 2,2′-bis(4-hydroxyphenyl)propane, 1639*b*.
**Hubbard, W. S.** Improving gas output of existing plants with regard to vertical retort installations, 1946*d*
**Hubbell, D. S.** Cu additive to oxychloride cement, P 833*a*.
**Hubbell, H. H., Jr.** See Turkevich, J.
**Hubbert, M. K.** See Daniels, F.
**Hube, E. L.** See Lozana Hube, E.
**Huber, B.** Measurement of water vapor and $CO_2$ exchange over vegetation, 729*a*
**Huber, F.** Recovery of vapors, P 4791*b*.
**Huber, H.**, and Reichstein, T. Desoxy sugars (XVIII) synthesis of 3-desoxy-D-idose and 3-desoxy-D-gulose, 1727*i*.
**Huber, J. L.** See Jackson, M. L.
**Huber, J. M., Corp.** Printing inks, P 878*d*, 1995*c*, dispersion of C black, P 1200*d*, increasing tackiness of rubberlike materials, P 3229*f*.
**Huber, K.** Structure and growth of anodic films on Al and Zn, 6923*i*; see Zbinden, H
—— and Bieri, B. Oriented deposition of oxide in anodic oxidation, 1269*i*
**Huber, L.** See Stubenrauch, W
**Huber, O.** See Boehm, F.; Steffen, R. M.
**Huber, R.** Industrial developments in primary cells, 6524*h*.
**Huber, R. W.** See Potter, E. V.
**Huber, Walter.** Vitamin A ethers, P 1801*h*; see Isler, O.
**Huber, Wolfgang.** See Fohlen, G. M.
—— and Boehme, W. R. Thiamine salts, P 4433*e*, 5552*h*.
**Hubers, P. J.** See Arens, J. F.
**Hubert, P.** Spectrograph having two points of focus for the study of β-rays, 2506*b*
**Huberty, M. R.**, and Pearson, H. E. Irrigation of citrus orchards, 9317*e*.
**Hubicki, W.** Error in hydrolytic titration of $Pb(NO_3)_2$ solns. with di- and tri-sodium phosphate, 2546*h*; pptn. of Pb phosphate, 3305*c*; system Sn–Tl–Zn, 3335*f*; pptn of phosphates—pptn. of La phosphate, 6535*c*; Ag phosphate pptn, 6931*f*
—— and Lechowski, M. Unmiscibility in system Ag–Cu–Pb, 3335*g*
—— and Mazurek, J. Pptn. of Al phosphate, 3305*a*
—— and Ryś, R. Detn. of Pb, 2544*f*.
—— and Sykut, K. Pptn. of ferric phosphate, 6931*d*
**Hublé, J.** See Gaarenstroom, J. H.
**Hublin.** Equipment in the rubber industry, 5983*a*.
**Huby, R.** See Fröhlich, H.
**Huc, M.** See Paget, M.
**Huchler, O.** See Kubaschewski, O.
**Huchting, I.** See Schlubach, H. H.
**Huck, J. L., Jr.** Hydroxyalkyl derivs. of gentisamide, P 5045*c*.
**Hucker, G. J.** See Pederson, C. S.; Van Eseltine, W. P.
——, Metcalf, D., and Cook, C. Germicidal action of the quaternary $NH_4$ compds., 3884*e*.
——, Watkins, S., Metcalf, D., and Stone, J. Effect of H-ion concn. and temp on the activity of quaternary $NH_4$ compds., 3884*g*.
**Hucknall, E.**, and Turfitt, G. E. Sulfonamides, 6785*i*; local anesthetics of the benzoic ester group, 7190*g*.
**Hucks, R. T.** See Brown, A. R.
—— and Denslow, R. R. Coating compn., P 5608*e*.
**Huddleson, I. F.** Potentiating effect of sulfadiazine on the *Brucella* antibody-complement system, 9236*f*.
**Huddleston, C. M.** See Hughes, D. J.
**Huddlestun, B.** See Levine, Rachmiel; Wolfson, W. Q.
**Hudgens, J. E., Jr.**, and Lyon, W. S. Radiation from $Cl^{38}$, 4120*h*.
**Hudgins, A.** See Fillmore, F.
**Hudlický, M.** Conversion of vinyl-type halides to ketones (III) ring closure of tris(3-chlorocrotyl)amine by $H_2SO_4$—constitution of the product and prepn. of certain derivs., 3003*h*.
**Hudson, C. S.** See Jeanloz, R.; Stewart, L. C.
**Hudson, D. R.** D and packing in an aggregate of mixed spheres, 2842*h*
**Hudson, J. C.** Atm corrosion of Fe and steel wire, 2917*c*.
—— and Banfield, T. A. Protection of Fe and steel by metallic coatings, 3766*f*
**Hudson, J. H.** See Clifford, I. L.; Van Cleave, A. B.
**Hudson, L.** See Buchwald, K. W.
**Hudson, R. E., Jr.**, and Waddle, H. M. Bleaching of blue cotton fiber, 6831*a*
**Hudson, R. F.** See Alexander, P.
**Hudson Bay Mining & Smelting Co. Ltd.** Electrolytic production of Zn, P 4964*c*, 5680*f*; removing Co from electrolytes, P 6527*i*; activated Zn dust for Au and Ag pptn., P 7891*e*, filter for purifying $ZnSO_4$ with Zn dust, P 8757*h*.
**Hudspeth, E. L.** See Swann, C. P.
—— and Swann, C. P. Reaction $B^{11}$ $(p,d)$, 1260*b*; value of the Li $(p,\gamma)$ resonance, 4947*c*.
**Hudspith, J. J.** See Turner & Newall Ltd.
**Hueber, E. F. v.**, and Lepeschkin, E. Action of acetylcholine on circulation and gaseous metabolism in man, 3936*e*
**Huebner, C. F.**, and Jacobs, W. A. Aconite alkaloids (XXI) oxidation studies with atisine and isoatisine, 210*e*.
**Huebner, D. W.**, Fearey, J. E., and Imperial Chemical Industries Ltd. Interpolymers of isoolefins, P 4897*a*, 5030*d*.
**Hübner, W.** Anodische Oxydation des Al in verschiede zusammengesetzten Oxalsäurelösungen (book), 5692*g*, see Zeerleder, A. v.
**Hueck, H. J.**, and Vermeulen, G. Sprouting damage of brewing barley, 5091*a*.
**Hückel, E.** Scattering of slow neutrons by free protons, 2860*b*.
**Hückel, W.** Org. Chemie. Bd I. (book), 2215*g*; Anorganische Strukturchemie (book), 3308*f*; stereochemistry, 3672*g*, structural chemistry and chem. bonds, 3672*g*, reaction processes, 3773*a*; volatility of $AlCl_3$ and $FeCl_3$, 4068*b*; F compds., 6793*d*.
—— and Pietsch, H. Membrane filters, 8746*d*.
—— and Rothkegel, W. Assocn. of phenols, 178*f*.
**Hügi, T.** See Hugi, E.
**Huelin, F. E.** Detn. of ascorbic acid, 3487*g*
**Hüll, G.** See Schmidt, O. T.
**Hüllstrung, H.** Ability of org. As compds. to penetrate into the cerebrospinal fluid, 318*d*.
**Huene, R. v.** See Von Huene, R.
**Hüni, A.**, and Frank, F. Bile pigments (XXXVII) oxidation of pyrrole with $H_2O_2$, 4257*b*.
**Hünlich, R.** Mixed yarns with the use of linen, hemp, and broom, 4469*e*.
**Hueper, W. C.** Environmental and occupational cancer, 7575*g*.
**Huerga, J. de la.** See De la Huerga, J.
**Huerta M., L.** See Castañeda-Agulló, M.
**Huerta Romo, A.** See Vazquez Sanchez, J.
**Hüter, F.** Biochemistry of the thyroid function (VII) symptoms of hypervitaminosis E, 737*e*; effect of chemotherapeutic agents on hyperthyroidism, 2704*i*; *p*-aminobenzoic acid, a growth substance for the protozoön *Vorticella nebulifera*, 5874*g*.
**Hüter, L.** See Diemair, W.
**Hüttenwerke A.-G.** Cast iron alloys, P 2922*a*.
**Hütter, L.** Fire-resistant building material, 3989*c*; design of elec. arc furnaces, 4145*d*; basic brick in the metallurgical industry, 8629*e*.
**Hüttig, G. F.** Kinetics of sintering compacted Fe powder, 1696*k*; Anorganische Chemie (book), 2640*a*; sintering in metal powders, 3756*f*.
—— and Heinz, H. Decompn. of $CaCO_3$ and the effect of foreign gases on it, 2078*c*.
—— and Zagar, L. Activated state of desorbed gas mols., 4088*a*.
**Huetz, J.** Mechanics of viscous fluids, 2059*h*; heat-capacity ratio for hydrocarbon vapors, 6088*h*.
**Huey, E. E.** See St. John, J. L.
**Huey, W. G.**, and Drautz, W. G. Pigment green for rubber, etc., P 3650*f*.
**Huff, C. G.** See Coulston, F.
**Huff, D. E.** See Behrens, O. K.
**Huff, G.**, Squitieri, E., and Snyder, P. E. Heat of formation of $WO_3$, 1639*a*
**Huff, H.** Same as McHan, H. (nee Huff)
**Huff, J. W.** See Bosshardt, D. K.; Skeggs, H. R.; Wright, L. D.
**Huff, L. C.** Shale oil-distn. retort, P 4450*f*, hydrocarbon-conversion app., P 4457*i*; reactor for close chem. control, P 7760*h*.
**Huff, R. L.** See Berlin, N. I.
**Huffaker, C. B.** Translocation of DDT in plants, 1521*b*
**Huffer, E. J. E.** Chemie (book), 1932*d*
**Huff McHan, H.** Same as McHan, H. (nee Huff)
**Huffman, C. F.** See Reid, J. T.
**Huffman, E. H.**, and Beaufait, L. J. Fractional sepn. of *Zr* and *Hf* by extn. with thenoyltrifluoroacetone, 8959*d*
**Huffman, H. M.** See Hubbard, W. N.; Scott, D. W.; Waddington, G.
——, Eaton, M., and Oliver, G. D. Heat capacities, heats of transition heats of fusion, and entropies of cyclopentene and cyclohexene, 1251*f*
——, Todd, S. S., and Oliver, G. D. Low temp. thermal data on eight $C_7H_{14}$ alkyl cyclohexanes, 5275*i*
**Huffman, M. N.** See Stimmel, B. F.
—— and Lott, M. H. 16 Substituted steroids (VI) steric structure of steroidal 16,17-ketols and 16,17-glycols, 3434*e*
——, Lott, M. H., and Ashmore, J. Lactones of 2 (hydroxymethyl)polyhydrophenanthryl-1-acetic acids, 1762*d*
**Huffman, W. C.** See Hill, J. B.
**Huge, J.**, and Egoroff, A. Mineral resources of the Congo, 525*d*
**Hugentobler, F.** See Wuhrmann, F.
**Huggett, W. E.**, and Duffin, G. F. Thymol, P 5421*d*
**Huggill, H. P. W.** See Batty, J. W., Cook, J. G.
——, New, R. G. A., and Imperial Chemical Industries Ltd. 1,4-Dicyanobutene, P 5796*a*.
**Huggins, C.** Serum proteins in cancer, 8047*h*.
——, Jensen, E. V., and Cleveland, A. S. Phenyletherase, 702*g*.
——, Miller, G. M., and Jensen, E. V. Thermal coagulation of serum proteins (II) deficient coagulation in cancer and the iodoacetate index, 4368*h*
—— and Russell, P. S. Detn. of amylase, 2057*a*.
—— and Talalay, P. Diagnosis of disease by enzymic methods, 8408*b*.
**Huggins, M. L.** X-ray diffraction and its applications, 4039*g*.
**Huggins, R. A.** See Smith, Edwin L.
——, Handley, C. A., and La Forge, M. Effects of morphine, codeine, and dilaudid on blood flow, 4382*b*; evaluation of the cardiovascular effects of certain drugs in hypotensive dogs, 7147*i*.
——, Morse, R. A., Handley, C. A., and La Forge, M. Protective action of various agents against chloroform-adrenaline ventricular fibrillation, 4768*d*.
**Hughes, A. D.** Alluvial Sn mining in Malaya, 4188*h*.
**Hughes, A. H.** Preservation of beer, P 7190*d*.
**Hughes, A. J.** See Dunlop Rubber Co. Ltd.
**Hughes, A. L.** Energy diagrams for β-dis integration, 2088*c*.
**Hughes, A. W.** See Regan, L. J., Jr.
**Hughes, D. E.** Glutamine and the growth of *Staphylococcus aureus*, 2278*d*; see Mc Ilwain, H.
**Hughes, D. F.**, and Voysey, R. G. Formation of deposits in gas-turbine plant, 5172*e*
**Hughes, D. J.** See Spatz, W. D. B.
——, Burgy, M. R., Heller, R. B., and Wallace, J. R. Magnetic refraction of neutrons at domain boundaries, 4106*g*.
——, Eggler, C., and Huddleston, C. M. β-Spectrum of $Be^{10}$, 4116*d*.

——, Spatz, W. D. B., and Goldstein, N. Capture cross sections for fast neutrons, 6506*a*.

**Hughes, D. M.**, and Reid, J. C. Synthesis of toluene-1,3,5-$C^{14}$ and oxalic acid-$C^{14}$—mechanisms of the reactions, 9051*f*.

**Hughes, E. A. M.** See Moelwyn-Hughes, E. A.

**Hughes, E. B.** See Fitzgerald, E E

——, Jellinek, H. H. G., and Ambrose, Mrs. B. A. Pyridine—ultraviolet absorption spectrum and dissocn const., 5306*c*; nicotinic acid—ultraviolet absorption spectrum and dissocn. consts., 5306*d*.

——, *et al.* Foods, 4788*h*.

**Hughes, E. C.** *N*-Methylaniline, P 3454*g*; arylamines, P 3454*h*; see Burk, R. E

——, Bartleson, J. D., and Sunday, M. L. Bearing corrosion test for lubricating oils—correlation with engine performance, 7221*a*.

—— and Veatch, F. Grinding-oil compn., P 3600*c*.

**Hughes, E. D.** Steric hindrance, 107*b*; see Cooper, K. A., De la Mare, P. B. D., Dhar, M. L.; Dostrovsky, I.; Gillespie, R. J.

—— and Ingold, C. K. Isotope exchange and mechanisms of heterolytic substitution (III) dissymmetry between the mechanisms of electrophilic and nucleophilic substitutions, 6876*f*.

——, Ingold, C. K., and Mandour, A. M. M. Elimination reactions (XV) olefin elimination from *sec*-isoamyl iodide and from the *sec*-isoamyldimethylsulfonium ion, 3350*d*.

——, Ingold, C. K., and Maw, G. A. Elimination reactions (XII) kinetics of olefin eliminations from ethyl-, propyl-, butyl-, isobutyl-, and 2-phenylethyldimethylsulfonium salts in alk. alc. media, 3348*i*.

——, Ingold, C. K., Maw, G. A., and Woolf, L. I. Elimination reactions (XIII) kinetics of olefin elimination from isopropyl-, *sec*-butyl-, and 1-phenylethyldimethylsulfonium salts in alk. alc. media, 3349*c*.

——, Ingold, C. K., and Woolf, L. I. Elimination reactions (XIV) kinetics of olefin elimination from *tert*-butyl- and *tert*-amyldimethylsulfonium salts in alk. and acidic alc. media, 3349*g*.

**Hughes, E. G.** Pyridoxine and its congeners, 4710*e*, see Bergel, F. Roche Products Ltd.

**Hughes, E. H.**, and Hettman, H., Jr. Swine feeding expts., 9192*b*.

**Hughes, E. W.** Extension of Banerjee's method for detg. signs of Fourier coeffs., 6509*h*, limitations on the detn. of phases by means of inequalities, 6509*k*.

—— and Moore, W. J. Crystal structure of β-glycylglycine, 7773*g*.

**Hughes, G.**, and Nevell, T. P. Oxidation of glucose by periodate, 8820*f*.

**Hughes, G. K.** See Anet, E.

——, Lahey, F. N., Price, J. R., and Webb, L. J. Alkaloids of the Australian Rutaceae, 648*g*.

**Hughes, H.** See Bolland, J. L.

**Hughes, H. K.**, and Murphy, R. W. Emulsion calibration scale for quant. spectroscopic analysis, 6006*g*.

**Hughes, J. S.** See Neff, A. W., Parrish, D. B.

**Hughes, L. B.** See Farnsworth, L. B.

**Hughes, O.** Introductory Foods (book), 8576*b*.

**Hughes, R. H.** Stevens-mixer performance, 1588*h*, 6445*h*.

**Hughes, T. E.** Paint dipping and electrostatic detearing, 8695*f*.

**Hughes, T. W.** Corrosion of mains and services, 5724*a*.

**Hughes, W. F., Jr.** Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (XVII) (Appendix I) tolerance of rabbit cornea for various chem. substances, 771*a*, 3110*f*; alkali burns of eye, 2341*i*; management of chem. burns to the eyes, 2711*e*.

**Hughes, W. L., Jr.**, Saroff, H. A., and Carney, A. L. Prepn. and properties of serum and plasma proteins (XXII) crystallizable guanidinated deriv. of human serum albumin, 8404*c*.

**Hugi, E.**, Huttenlocher, H. F., Gassmann, F., Fehlmann, H., Ladame, G. C., Hügi, T., and Wohlers, J. Fe and Mn ores of Switzerland—magnetite ore deposits, 6124*g*.

**Hugonet, J. J.** See Seaman, W.

**Hugony, E.** Corrosion under tension—Al alloys, 5494*a*.

**Huguenard, P.** See Roux, M.

**Huguet, Mme. F.** See Bordas, J.

**Huhndorff, R. F.** Pilot unit—reproducibility study, 8216*i*.

**Huidobro, F.** Action of some quaternary ammonium derivs. on neuromuscular transmission, 2330*f*; effect of some detergents on smooth and striated muscle stimulated by acetylcholine, 2330*h*.

—— and Poblete, R. Denervation and the excitability of certain muscular effectors, 8064*a*.

**Huinink, H. ten B.** See Kamer, J. H. van de.

**Huisberg, W. E.** Catalyst regenerator for hydrocarbon cracking systems, P 3604*d*.

**Huisgen, R.**, Wieland, H., and Eder, H. Strychnine alkaloids (XXXIII) degradation of quaternary salts of vomicine and desoxyvomicine, 7942*d*.

**Huis in't Veld, L. G.** See Veld, L. G. H in't.

**Huit-Fidor, G.** See Druel, M.

**Hujishige, H.** See Tamiya, H.

**Hukki, J.** Dimerization of α-methyl-*p*-methylstyrene by formic acid and structure of the dimers obtained, 7916*i*.

**Hukuyama, H.** See Sakai, W.

**Hulbert, B.** See Silberberg, M.

**Hulbert, S. Z.** See Parsons, E. H.

**Huldt, L.** Measurement of the temp. and the electron pressure in the C arc, 940*g*.

**Hulf, H. J.**, Rubach, A., and Withers, J. G. Ignition delay meter for the detn. of cetane no., 8660*d*.

**Hull, A. W.**, Burger, E. E., and Turrentine, R. F. Cs rectifier, 4094*g*.

**Hull, C. F.** See Ray, Francis E.

**Hull, D. C.** Aldol condensation, P 5415*h*, acyl halides, P 7954*b*.

—— and Quarles, J. F. Cu catalyst, P 7609*f*.

**Hull, D. E.**, Kent, J. W., and Lee, R. D. Radioactivity in pipe line flow studies, 5175*i*.

**Hull, F. C.** Brazing alloy, P 6506*g*.

**Hull, G. R.** Standard No. 3 uses hot-process on 100% makeup for 1500 lb. per sq. in. boilers, 4795*b*.

**Hull, H. L.** See Bergelin, O. P.

**Hull, H. M.** See Went, F. W.

**Hull, M. E.** See Alimy, E. F.

**Hull, R. O.** See Kellner, H. L.

**Hull, R. T.** See Basford, F. R.

**Hull, T. E.**, and Infeld, L. Factorization method, hydrogen intensities, and related problems, 480*d*.

**Hulm, J. K.** Thermal cond. of superconductors, 5250*i*.

**Hulme, A. C.** N metabolism of the apple—changes in the N metabolism of the apple during the normal and ethylene-induced climacteric rise in rate of respiration, 2677*e*.

**Hulme, R. E.**, and Tillman, A. B. Thermodynamic properties of Cl, 2057*d*.

**Hulpieu, H. R.** See Hopper, S. S.

**Hulse, G. E.** See Gould, C. W.

**Hulse, S. H.** See Crampton, A. B.

**Hulst, H. C. van de.** Scattering of light by colloidal solns.—interpolation of the oscillatory functions, 4078*d*.

**Hult, H.**, and Jorpes, J. E. Is insulin antigenic? 6315*a*.

**Hultgren, A. G. E.**, Modin, S. O., and Noren, T. M. I. Carbonizing Fe and steel, P 9019*g*.

**Hultgren, R.**, and Lever, S. A. Elec. resistance measurements to det. the solidus of the Pb-Sn system, 2562*h*.

**Hultin, E.** Assay of hyaluronidase, 5813*a*, equation for the viscosity and the rate const. of high-polymer substances under depolymerization, 7800*b*; see Nordström, L.

**Hultin, T.** Species specificity in fertilization reaction (II) influence of certain factors on the cross-fertilization capacity of *Arbacia lixula*, 776*c*; physiol. effects of basic sperm proteins, 3118*f*; effect of Ca on respiration and acid formation in homogenates of sea-urchin eggs, 7150*c*.

—— and Herne, R. Amino acid analysis of a basic protein fraction from sperm nuclei, 4387*i*.

**Hultquist, M. E.** 3-Substituted benzotetronic acid and salts, P 693*g*; 1,1,3,3-tetraalkoxypropanes, P 4291*a*; pteridine compds., P 6245*s*; heterocyclic compds., P 7518*e*; see Lemon, J.; Northey, E. H.

—— and Dreisbach, P. F. Pteroylglutamic acid, P 6672*g*.

—— and Northey, E. H. Substituted *N*-acyl sulfonamides, P 3846*c*.

—— and Seeger, D. R. Pteroylglutamic acid, P 6672*e*.

——, Smith, J. M., Jr., Seeger, D. R., Cosulich, D. B., and Kuh, E. Analogs of pteroylglutamic acid (II) 9-methylpteroylglutamic acid and derivs., 3424*a*.

**Hultzsch, K.** Phenolic resin formation, 433*d*, 4047*e*, 4891*e*; development of synthetic materials, 1211*k*; phenol-formaldehyde resins (XI) acid hardening of the phenol resins, 1213*i*; (XIII) phenol resin hardening, 1601*f*; theory of the setting of polycondensation-type resins, 4509*e*.

**Human, J. P. E.** Designs for some lab. glassware, 4901*e*.

——, Macbeth, A. K., and Rodda, H. J. Reactions of α,β-unsatd. cyclic aldehydes and ketones (VII) alcs. derived from phellandral, 7434*e*.

——, and Mills, J. A. Formylation of amines with Et formate, 1336*a*; dropping funnel without stopcock, 4053*g*; reflux-ratio head, 4903*b*.

**Humason, M. L.** See Joy, A. H.

**Humbel, F.** See Steffen, R. M.

**Humbert, A. L.** See Goldsmith, H. A.

**Humblet, J.** Dissolving metal compds., esp. oxidation products of Zn and of the alkali metals, P 988*h*.

**Humburger, E. L.** See Beck, Koller & Co. (England), Ltd.; Robinson, R. S.

**Hume, D. N.** Radiochem. activity analysis, 5287*e*; see Kingery, W. D.

—— and Kolthoff, I. M. Co cyanide complexes, 5676*e*.

**Hume, E. P.** Coir dust or cocopeat—by-product of the coconut, 4412*c*.

**Humerez, J.** See Lipschutz, A.

**Hume-Rothery, W.** Electrons, Atoms, Metals, and Alloys (book), 948*a*; effect of Mn, Fe, and Ni on the α/β brass equil., 3258*g*; sizes of atoms in metallic crystals, 8783*f*; see Axon, H. J.; Little, K.

—— and Boultbee, T. H. Coeffs. of expansion of some solid solns. in Al, 4204*c*.

**Humm, J. H.** See Kochakian, C. D.

——, Kochakian, C. D., and Bartlett, M. N. Effect of castration and steroids on the arginase and phosphatases of the organs of the guinea pig, 3089*a*.

**Hummel, F. A.** Thermal expansion properties of natural lithia minerals, 3319*i*; ceramics, 9402*d*, properties of some substances isostructural with silica, 9404*g*; see Misra, M. L.; Morgan, R. A.; Roy, R.

**Hummel, J. P.** See Lindberg, O.

—— and Lindberg, O. Aerobic phosphorylation, 9116*d*.

**Hummel, K. P.**, and Little, C. C. Mouse mammary tumor agent (I) agent in blood and other tissues in relation to the physiologic or endocrine state of the donor, 4367*h*, (III) survival and propagation of the agent in transplanted tumors and in hosts that grew these tumors in their tissues, 4368*a*.

——, Little, C. C., and Eddy, M. S. Mouse mammary tumor agent (II) neutralization of the agent by placenta, 4367*i*.

**Hummel, V.** Refining of lactic acid (II) esterification methods, 2941*f*.

**Hummer-Kroupa, A.** See Jantsch, G.

**Hummitzsch, W.** Plasticity measurements in compressed ceramic compns., 8627*i*.

**Hummon, I. F., Jr.** See Friedell, M. T.; Schaffner, F.

**Humoller, F. L.** See Reed, R. E.

**Humphlett, W. J.**, Weiss, M. J., and Hauser, C. R. Antimalarials (IX) antitubercular drugs (I) prepn. of ketones from γ-diethylaminobutyronitrile and aromatic Grignard reagents and their conversion to diamines—synthesis of quinacrine analogs, 2211*b*.

**Humphner, F. W.** Remoistening adhesive compn., P 5982*d*.

**Humphrey, C. W.** See Weiss, J.

**Humphrey, G. F.** See Mann, T.

—— and Mann, T. Metabolism of semen (V) citric acid in semen, 6718*e*.

**Humphrey, George F.** Endogenous respiration of homogenates of oyster muscle, 3939*f*, adenosinetriphosphatase activity of myosins from marine animals, 5123*i*.

**Humphrey, J. H.** Pathogenesis of glomerulonephritis—autoimmunization hypothesis, 1481*c*.

**Humphrey, M. J.** See Frazier, E. I.

**Humphreys, C. J.** See Plyler, E. K.

**Humphreys, E. M.** See Jaffé, E. R.

**Humphreys, F. E.** Drying of leather, 1204*g*; see Balfe, M. P.; Lloyd, D. J.

**Humphreys, R. F.**, and Beringer, R. First Principles of At. Physics (book), 948*a*.

**Humphreys, S. R.** See Greenberg, G. R.; Wintrobe, M. M.
**Humphreys & Glasgow Ltd.** and Williams, N. H. Water gas, P 4837*a*.
**Humphries, J. C.** Enzymic activity of bacteriophage-culture lysates (I) capsule lysin active against *Klebsiella pneumoniae*, 720*i*.
**Humphries, P.** See Jones, R. N.
**Hunaerts, J.** Identification of the emission from comets in the near infrared region, 490*i*.
**Hund, Frans.** See Juza, R.
——— and Fricke, R. Crystal structure of α-BiF$_3$, 8232*f*.
**Hund, Friedrich.** Einfuhrung in die theoretische Physik (book), 4554*e*.
**Hundhausen, R. J.** Henderson Gulch W deposit, Granite Co., Mont., 6951*c*; Blue Ledge Cu-Zn mine, Siskiyou Co., Calif., 7382*g*; see Lorain, S. H.
**Hundley, J. M.** Influence of intestinal bacteria on synthesis of nicotinic acid from tryptophan, 5472*b*; see Sebrell, W. H.
——— and Bond, H. W. Conversion of tryptophan to *N'*-methylnicotinamide using isotopic C, 8026*c*.
**Hungerford, C.,** and Reutter, J. G. Water-softening unit with controlled regeneration means of the base-exchange material, P 2720*b*.
**Hungerford, G. F.** Effect of adrenaline in decreasing the no. of circulating mononuclear leucocytes, 4746*h*.
**Hungerford & Terry, Inc.** Water-softening unit, P 2720*b*.
**Hunnam, R. E.** Leather processing, 7733*g*.
**Hunold, G. A.** Detn. of Zn phosphide in rat poisons, 3967*f*; see Becker, K.
**Hunsdiecker, H.** Cyclopentenone derivs., P 5039*c*.
**Hunsicker, H. Y.** See Lemon, R. C.
——— and Kempf, L. W. Bearing alloy, P 6145*g*.
**Hunt, C. B.,** Creamer, A. S., and Fahey, J. J. Clay deposit in Utah, 5708*g*
**Hunt, C. C.** Adrenergic blocking effects of certain β-chloroethylamines, 4381*b*
——— and Philips, F. S. Acute pharmacology of methylbis(2-chloroethyl)amine (HN2), 3521*f*.
**Hunt, C. H.,** and Reuter, F. H. Purification of paraldehyde, 7193*e*.
**Hunt, E. L.,** and Walken, J. J. $P^{32}$ in early chick embryos, 3913*h*.
**Hunt, H.** See Kibler, G. M.
**Hunt, H. D.** See Wolfson, W. Q.
**Hunt, J. K.** Explosion hazards, 8681*a*
**Hunt, J. M.** See Dennis, T. W.
**Hunt, J. N.** Peptic synergist in gastric juice—its importance in the estn. of the proteolytic activity of gastric juice, 747*g*.
——— and Spurrell, W. R. Effects of sucrose upon gruel fractional test meals, 737*g*.
**Hunt, M.** Terpene alcs., P 3039*g*; polymerization with azo compds. as catalysts, P 6002*g*.
———, Weinmayr, V., and Sartori, M. F. Alkyl-substituted aromatic sulfonates, P 6232*c*.
———, Weinmayr, V., and Willett, A. V., Jr. Alkyl substituted aromatic sulfonates, P 6232*e*.
**Hunt, R. H.** Polyvinyl acetal plasticizer, P 2467*f*; see Johnson, William S
**Hunt, T. E.** Mitotic activity in anterior pituitary of ovariectomized rats after injection of estrogens, 4354*i*.
**Hunter, A. S.** Yield and compn of alfalfa as affected by variations in the Ca-Mg ratio in the soil, 3956*g*.
**Hunter, B. A.** See Holbrook, F. L.; Howland, L. H.
**Hunter, D.** See Agate, J. H.
**Hunter, D. P.** See Wells, J. E.
**Hunter, E.,** and Richards, R. B. Polymeric fractionation, P 3236*i*.
**Hunter, E. A.** Silica-alumina catalyst, P 6338*d*; see Schexnailder, R. E., Jr.
——— and Kimberlin, C. N., Jr. Silica-metal oxide hydrogel catalyst, P 7162*e*.
**Hunter, F. E., Jr.** Anaerobic phosphorylation due to a coupled oxidation-reduction between α-ketoglutaric acid and oxalacetic acid, 4306*h*; see Preisler, P. W.
**Hunter, Francis R.** "Control" erythrocytes (II), 8501*f*; see Hunter, G. W.
———, Bullock, J. A., and Rawley, J. Bacteria and cellular activities (IV) action of toxins on respiration and hemolysis of dogfish erythrocytes and on respiration of marine eggs, 9144*e*.
**Hunter, Frank R.** Heavy minerals in the pebble phosphate deposits of Fla., 1292*f*.
**Hunter, G.** Detn. of ergothioneine in simple soln. and in blood, 9140*d*.
———, Fushtey, S. G., and Gee, D. W. Ergothioneine content of ergot from different plant hosts, 9379*b*.
———, Molnar, G. D., and Wight, N. J. Ergothioneine—prepn. from blood and ergot, 9378*e*.
**Hunter, G. W.,** and Hunter, F. R. College Zoology (book), 3532*e*.
**Hunter, I. R.,** Roberts, R. L., and Keater, E. B. Dimyristo- and erucostearocephalin, 570*h*.
**Hunter, J. A.,** Stacy, R. W., and Hitchcock, F. A. Mass spectrometer for continuous gas analysis, 7270*f*.
**Hunter, J. B.** Dropwise condensation of vapors, P 6467*a*; catalysts for refining hydrocarbons, P 8664*h*.
———, McConomy, H. F., and Weston, R. F. Environmental pH as a factor in control of anaerobic bacterial corrosion, 517*a*, 5356*g*.
**Hunter, J. F.** Decanting unit with intermittent and separate withdrawal of component liquids, P 6012*f*.
**Hunter, J. H.** Phonograph record, P 2820*f*, see Hammar, H. E.; Kolloff, H. G.; Reid, W. B., Jr.; Reitsema, R. H.; Wright, J. B.
——— and Hogg, J. A. Synthetic sterols (III) isomers of 1-ethyl-2-methyl-7-methoxy-1,2,3,4,9,10,11,12-octahydrophenanthrene-2-carboxylic acid, 7033*c*.
——— and Korman, J. α-Methyl-α,β-bis(*p*-hydroxyphenyl)valeric acid, an active estrogen, 613*d*.
**Hunter, L.** See Cook, James W.
**Hunter, L. R.** See Ronk, S. O.
**Hunter, M. J.** See Young, C. W.
——— and Bauman, W. C. Carboxylated resins for alk. earth metal absorption, P 7162*i*.
**Hunter, P. V.** See British Insulated Callender's Cables Ltd.
**Hunter, R. B.,** and Dunlop, D. M. Antihistamine drugs, 1865*g*
——— and Wilson, W. M. Effect of caronamide on blood-penicillin concns. in man, 5500*i*
**Hunter, R. F.** See Edisbury, J. R.; Hawkings, R. C.
——— and Mann, W. B. Modified Lauritsen electroscope for measurement of C$^{14}$ activities, 7757*d*
**Hunter, R. L.,** and Cramer, R. D. Patterned textile fabrics composed of thermoplastic yarns, P 3207*g*.
**Hunter, R. M.** See Blue, R. D.
**Hunter, S. W.** See Kremen, A. J.
**Hunter, T. G.,** and Brown, T. F. Dewaxing of mineral oil by liquid liquid extn., 4840*i*.
**Hunter, W.** Alcs. by hydration of olefins, P 4692*i*; see Baker, George A., Smith, Gordon E.
**Hunter, W. L.** See Entwistle, V. P.
**Hunting, P. L.,** Bowring, F. C., and Farmer, R. H. Arc-welding electrodes, P 7405*f*.
**Huntington, R. L.** Visual app. in the chem. engineering lab., 7757*d*.
**Huntington, Heberlein & Co.** See Trostler, F.
**Huntjens, F. J.** See Krevelen, D. W. van.
**Huntoon, R. D.** See Thomas, Harold A.
**Huntress, E. H.** Centennials, sesquicentennials, and bicentennials of chem. interest, 915*d*; methods for the rapid location of data on org. compds., 3343*d*, see Schuerch, C., Jr.
——— and Bornstein, J. Synthesis of 2,4-dihydroxyquinoline, 3002*d*.
——— and Olsen, R. T. Di-Et oxalophenoxyacetate, di-Et oxalo(*S*-phenylmercapto)-acetate, and related compds., 632*c*.
——— and Phillips, R. F. Alkane-choleic acids—compds. of paraffin hydrocarbons with desoxycholic acid, 3429*b*.
——— and Shaw, E. N. 4-Benzyl-2,6-dimethylpyridine, 1-benzylisoquinoline, 9-benzylacridine, and certain relatives, 4671*e*.
——— and Walter, H. C. Dichromate salts of 2-benzyl- and 4-benzylpyridine, 643*f*; Beckmann rearrangement of the oximes of Ph 2-pyridyl ketone (2-benzoylpyridine), 1408*i*, benzoylation of 2-aminopyridine, 4274*f*.
**Hunyár, A.** See Erdey-Grúz, T.
**Hunsiker, O. F.** Condensed Milk and Milk Powder (book), 7604*h*.
**Huot de Longchamp, M.** See Longchamp, M. H. de.
**Huppert, J.** Treatment of packing-house wastes, 4406*a*.
**Huppert, M. C.** See Seigel, L. G.
**Huppert, P. A.** Significance and calcn. of surface tension of porcelain enamels, 1544*a*; Li compds. in titania enamels, 7206*b*.
**Hurd, C. D.** See Bonner, W. A.
———, and Edwards, O. E. Reactions of dehydroperillic acid, 3797*c*; thermal dehydration of sugars, 9060*h*.
——— and McPhee, W. D. Reaction of dialkylethynylcarbinols with acidic reagents, 3352*b*.
——— and Moffat, J. 2,3-Dimethyl-4-pentyne-2,3-diol as a source of *C*-methyl sugars, 3358*h*.
——— and Sherwood, L. T., Jr. 1-Amino-2-nitroethenes, 1003*i*.
——— and Sims, R. J. Derivs. of kojic acid, 8385*e*.
——— and Yarnall, W. A. Prepn. of org. Si chlorides, 3354*i*
**Hurd, C. O.** See Souders, M., Jr.
**Hurd, D. T.** Dielec. breakdown, 954*c*, prepn. of B hydrides by the reduction of B halides, 3302*g*; complex metal alkyls, 4218*f*; hydrocarbon-substituted halosilanes, P 4512*d*; synthesis of $BCl_3$, 4967*f*, B hydrides, P 6795*e*.
——— and Roedel, G. F. Vinyl and allyl silicone polymers and copolymers, 2017*h*
———, Sentell, G. W., Jr., and Norton, F. J. Mn carbonyl, 6533*b*
**Hurd, L. C.,** Vander Weyden, A. J., and Stroupe, J. D. Zirconia opacifiers, P 1580*a*
**Hurd, Y. C.** Photoelec. brightness meter, 7757*g*
**Hurd Corp.** Concg. eggs, P 330*d*, concg. liquids by evapn., P 330*i*
**Hurdis, E. C.** Controlling polymerization of polyhydric alc. esters of α-olefinic dicarboxylic acids with ethylenic monomers, P 906*e*, 5230*e*, copolymerization of unsatd. alkyd resins, P 3239*e*.
**Huré, J.** App. for soln. or continuous extn. by solvents lighter than water—application to uranyl nitrate, 3667*h*
**Hurel-Py, G.** Action of naphthylacetic acid on the germination and growth of the leaf stalk of *Funaria hygrometrica*, 3493*f*
**Hurford, W. J.** See Brace, P. H.
**Huriez, H.** Grape growing near Nantes, 8605*h*.
**Hurlburt, D. W.** See Weetman, B.
**Hurlbut, C. S., Jr.** Mineral detn. by means of punched cards, 8981*b*, see Dana, E. S.
**Hurley, C. J.,** and Christian, J. E. P uptake in the rat tooth, 8551*i*.
**Hurley, J.** Sanitation and water purification, 4788*h*.
**Hurley, P. M.** Airborne magnetic survey in Maine speeds search for mineral deposits, 7873*b*.
**Hurley, T. F.** See Fitton, A.
**Hurme, V. O.** Developmental opacities of teeth in a New England community—their relation to F toxicosis, 5107*i*.
**Hurn, M.** See Mann, F. D.
**Hurni, H.** Antirachitic action of vitamin D and citric acid on rickets, 1091*g*; antagonism between *p*-aminosalicylic acid and *p*-aminobenzoic acid, 5824*g*; see Hirt, R.
**Hurry, J. A.,** and Chalmers, D. Photoelastic applications in rubber technology, 5620*c*
**Hursh, R. K.** Porcelain vacuum tube, 4439*a*.
——— and Morgan, W. R. Detn. of factors affecting size variation in clay products, 829*a*.
**Hurst, D. G.** See Alcock, N. Z.
**Hurst, E. W.** Nitroakridin 3582, 1868*a*, see Davies, O. L.
**Hurst, F. B.,** and Soper, F. G. Interaction of *N*-chloroacetanilide with phenols—formation of hypochlorous acid from *N*-chloroacetanilide by hydrolysis, 6992*h*
**Hurst, H.** Reversible action of DDT, 4416*c*; asymmetrical behavior of insect cuticle in relation to water permeability, 6323*i*; see Stafford Allen & Sons Ltd.
**Hurst, J. E.** Dissolved gases in cast iron, 3329*a*; mech. properties available in cast iron, 5352*i*, addn. of W to cast iron, 6555*b*.
——— and Riley, R. V. Residual gases in cast iron, 4199*f*; cast-iron cannon ball, 9005*i*.
**Hurst, L. M.** See Drake, T. G. H.
**Hurst, V.** See Kauffman, G.
**Hurt, W. W.,** Scheer, B. T., and Deuel, H. J., Jr. Synthesis of niacin from tryptophan in rat liver slices, 9088*h*.
**Huruya, M.** See Somiya, T.
**Hurwitz, C.** Effect of decompn. of added

oat straw and alfalfa meal on soly. of soil Cu in ammonium acetate, 1514*a*; effect of temp. of incubation of amended soil on exchangeable Mn, 3129*c*.
**Hurwitz, H., Jr.** Derivation and integration of the pile-kinetic equations, 6908*d*.
**Hurwitz, M. D.** See Mayo, F. R.
**Husa, W. J.,** and Dale, J. K. Adjusted collyria, 355*e*.
**Husain, A. G.** See Tawde, N. R.
**Huseby, R. A.** See Barnum, C P.
**Husek, H. P.** Emulsion for vectographic images, P 2106*b*.
**Huseman, G. W.,** and McMillan, W. D. Badu feldspar deposit, Llano Co., Tex., 6952*i*
**Husemann, E.,** and Goecke, M. Weak links and their fission velocity in cotton and ramie cellulose, 5587*f*
**Husman, C. N.** See Blanton, F. S
**Huss, E.** See Klemm, W.
**Hussey, A. S.,** and Newman, M S Reformatskii reaction, 613*a*.
**Hussey, S. J.** Ion-exchange resins in the evanidation of a Au and Ag ore, 3753*d*
——, Mitchell, T. F., and McAllister, J A. Concn of oxide Mn ore from the Ophir Hill Mine, Ophir, Tooele Co., Utah, 7383*e*.
**Husson, A.** See Carré, P.
**Hussong, R. V.** See Horneman, H C
**Huston, H.** Industry view of the International Trade Organization, 6759*g*
**Huston, K. M.** Surface finishing of stainless steels, 2100*a*.
**Huston, M. J.** See Riedel, B E
——, Riedel, B. E., Murray, I R, and Groves, G A. Universal oil-in-water ointment base, 5531*h*
**Huston, T. M.,** and Wheeler, R S Effect of synthetic thyroprotein on seasonal variation in vol and concn of cock semen, 8531*g*
**Huszák, I.** Oxidation of unsatd fatty acids of nervous tissue, 3305*h*, org phosphoric esters in cerebrospinal fluid under normal and pathological conditions 3937*d*
**Hutchenreuther, C. O.** See Pelton, E L
**Hutchens, J. O.** Growth of *Chilomonas paramecium* in mass cultures, 3881*g*
——, and Kass, B M Colorimetric microanalytical method for acetate and fluoroacetate, 4976*f*
——, Podolsky, B., and Morales, M F Kinetics and energetics of C and N metabolism of *Chilomonas paramecium*, 3881*f*
——, Wagner, H., Podolsky, B., and McMahon, T M Effect of EtOH and various metabolites on fluoroacetate poisoning, 3103*e*
**Hutcheon, A. T.,** and Winkler, C. A. Cathode ray oscillograph in the measurement of metal areas and the kinetics of electrode reactions, 6893*h*
**Hutcheon, D. E.** Biol. assay of thyroid activity, 1111*b*
**Hutchings, B. L.** Purification of pteroic acid amides, P 4430*e*; purification of pteroylglutamic acid and related compds, P 6672*i*, see Angier, R. B., Broschard, R W, Lemon, J
——, Mowat, J. H., Oleson, J. J., Gazzola, A L., Boggiano, E. M., Seeger, D R, Boothe, J. H., Waller, C W., Angier, R B, Semb, J., and SubbaRow, Y. Synthesis and some biol. properties of 4-aminopteroylaspartic acid, 9109*g*.
**Hutchings, L. E.,** Stutzman, L F., and Koch, H. A., Jr. Gas absorption—mass-transfer coeffs as function of liquid, gas rates, tower-packing characteristics, 4054*d*.
**Hutchins, M. C.** See Culpepper, C. W.; Wright, R. C.
**Hutchins, M. R.** See Briant, A. M.
**Hutchinson, E.** Mixed monolayers (I) adsorbed films at air-water surfaces, 17*d*; films at oil-water interfaces (III), 2068*g*; mixed adsorbed films at oil-water interfaces, 2068*i*; adsorption of aq. solns., 8791*i*
**Hutchinson, F. W.** See Raber, B. F.
**Hutchinson, G. E.** Geochemistry of C, 2906*a*, see Bannister, F. A.
**Hutchinson, G. W.** Ionization in liquid and solid A, 2861*d*.
**Hutchinson, H. M.** See Distillers Co., Ltd.
——and Staudinger, J. J. P. Polystyrene, P 2038*b*.
**Hutchinson, O. F.** Actual and potential white water system with the Sveen Pedersen saveall, 8486.
**Hutchinson, R. C.** Better Utilization of Milk (book), 6757*d*.
**Hutchinson, W. G.** See Ludwig, E. H.
**Hutchinson, W. S.** $ClO_2$ and $NCl_3$, P 3575*g*; $ClO_2$, P 8107*i*.
**Hutchison, C. A., Jr.** Magnetic susceptibility of BeO, 3252*e*; paramagnetic resonance absorption in crystals colored by irradiation, 6909*e*.
——and Elliott, N. Magnetic susceptibility of U oxalate, 4066*g*.
——and Malm, J. G. Volatilization of BeO in the presence of water, 5321*h*.
**Hutchison, D.,** Swart, E. A., and Waksman, S. A. Production, isolation, and antimicrobial, notably antituberculosis, properties of streptothricin (VI), 7645*g*.
**Hutchison, H. P.** Nixon, I S., and Denbigh, K. G. Thermoösmosis of liquids through porous materials, 2069*c*.
**Hutchison, O. S.** See Mattocks, A M; Mitchell, J. H., Jr.
**Hutchison, T. S.** See Reekie, J.
**Huth, E.** Viscosity, surface tension, and protective colloids in nutrition of infants, 3901*a*.
**Hutner, R. A.** See Rittner, E S; Saxon, D. S.
——, Rittner, E. S., and Du Pré, F. K. Polarization in ionic crystals of the NaCl type (II) polarization around two adjacent charges in the rigid lattice, 4535*e*.
**Hutner, S. H.** See Provasoli, L.
——, Provasoli, L., Stokstad, E L R., Hoffmann, C E., Belt, M., Franklin, A L., and Jukes, T H Assay of antipernicious anemia factor with *Euglena*, 3488*e*.
**Hutson, R.** See King, H L.
**Hutt, F. B.** See Scrimshaw, N. S.
**Hutt, G.** See Schneider, Armin
**Huttenlocher, H. F.** See Hugi, E.
**Hutter, J. C.** See Jolibois, P
**Huttl, J. B.** Diatomite—mining and processing, 7651*c*.
**Huttleston, R. J.** Perfume ingredients which cause discoloration in cosmetics and soap, 6362*i*.
**Hutton, A. L.** See Fuidge, G H.
**Hutton, E. A.,** and Gartside, J Moisture regain of silk (I) adsorption and desorption of water by silk at 25°, 4018*a*; adsorption and desorption of water by nylon at 25°, 4018*c*
**Hutton, H.** Sizing of vegetable-fiber and viscose rayon staple yarns, 5956*i*.
**Hutton, J. A. D.** Protection of ferrous metal from corrosion, 6962*h*.
**Hutton, R. S.,** and Pirani, M. High temps., their production, measurement, and use, 6798*i*.
**Huttrer, C. P.** Chemistry of antihistaminic substances, 1909*f*; progress in histamine and antihistamine research, 3931*i*.
**Hutzel, O.,** and Stössinger, S. Breakdown voltage of insulating oils, 8661*f*.
**Huus, T.** See Brostrøm, K. J.
——and Madsen, C. B. Proton stopping power of Au, 8868*b*.
**Huwyler, A.** See Hilti, B.
**Huxford, W. S.** See Sittner, W. R.
**Huxley, E. C.** See Heath, Robert L.
**Huyck, C. L.** Occupational dermatitis, 5131*h*, skin eruptions, 5492*b*; microamorphous silica as a suspending agent in calamine lotion, 8609*c*; see Woo, M.
**Huymann, M. V.** See Schild, E
**Huyser, H. W.** See Overhoff, J
**Huyskens, P.** See Mund, W.
**Huzenlaub, E. G.** Enriching the endosperm of cereal grains with natural vitamins, P 6332*f*
**Hvidsten, H.,** Sørvoll, S., and Nesmoen, S. Compn. of red clover and timothy at various stages of growth, 727*d*.
**Hwang, L.** Control of citrus canker, 5143*f*.
**Hyalsol Corp.** Quaternary N compds., P 1798*g*.
**Hyatt, C. A.** Swimming pool filtration, 4795*c*.
**Hyatt, G., Jr.** See Vanlandingham, A H.
**Hyatt, H. G.,** and Shanley, E. S Desensitization of org. peroxides, P 1806*h*.
**Hyde, E. K.** See Studier, M. H.
**Hyde, G. R.** See Mitten, R. G.
**Hyde, J.** See Gellhorn, E.
——, Beckett, S., and Gellhorn, E Acetylcholine and convulsive activity, 9260*h*
**Hyde, J. F.** (*Patents*) Siloxanes, 667*c*; siloxane copolymers, 1220*h*, 2036*a*, 3237*b*, 3657*f*; organosiloxanes, 3237*e*, 4402*e*, 5034*h*; organosilicones, 3441*b*, Me siloxanes, 4517*c*; increasing the viscosity of liquid polymeric dimethyl silicone, 5639*d*, organosilicon salts, 7500*b*.
——and Johannson, O. K Polymerizing organosiloxanes, P 3057*g*
——and Stookey, S. D. Multicellular glass, P 5565*a*.
**Hyde, J. W.** See Anglo-Iranian Oil Co.; Brain, R. C.
**Hyde, R. W.** See Eaton, S E.
**Hydén, H.** See Hochberg, I
——and Hartelius, H Stimulation of the nucleoprotein-production in the nerve cells by maleonitrile and its effect of psychic functions in mental disorders, 2330*e*.
**Hydro-Blast Corp.** App. for reclaiming foundry sand, P 9018*i*.
**Hydrocarbon Research, Inc.** Hydrocarbons from CO and H, P 4446*g*; synthetic motor fuel, P 5574*a*; hydrocarbon synthesis, P 7213*a*; controlling catalytic exothermic reactions, P 8650*h*; conversion of heavy hydrocarbons, P 8663*h*.
**Hydro-Nitro Soc. anon.** Gas ions of medium velocity, P 2881*a*, producing ionized air free of nitrous oxides, P 4154*g*.
**Hyer, W. C.** Marketing research in the chem. industry, 3117*f*.
**Hylander, C. J.,** and Stanley, O. B. Botany (book), 3496*c*
**Hyler, J. E.** Metal-cleaning equipment and methods, 544*i*
**Hyman, J.** Insecticide contg methylated naphthalene and 4,4′-dichlorodiphenyltrichloroethane, P 1902*f*; halogenated cyclopentadiene-hexahalocyclopentadiene adducts, P 5796*h*.
**Hyman, M., Jr.** See Billings, B. H.; Land, E H.
**Hyman, M. A.** See Wiener, A. S.
**Hyner, J.** Removing incrustation from Pb anodes, P 2102*g*.
**Hyodo, S.** Influence of certain ecological factors on the sex ratio of the rice weevil, 5874*c*.
**Hyson, A. M.** See Leonard, N. J.
**Hyttinen, A.** See Schafer, E R
—— and Schafer, E R. Grinding of hardwoods—eastern cottonwood, yellow poplar, sugar maple, black tupelo, white ash, paper birch, and sweetgum, 2771*f*
**Hyypiä, J.** Measurement of rates of spread of solns of surface-active agents, 1625*e*.
**Hyyryläinen, E. S.** See Kauko, Y.

**Iachan, A.** Water paints, 4869*g*.
**Iacobucci, A. D** See Celsi, S A.
**Iacoubovitch, A. J.** See Yakubovich, A Ya
**Iacozzilli, R.** See Borgioli, N.
**Iaitchnikow, Iaitschnikoff.** See Yaichnikov, I S
**Iakimow, P. A.** See Yakimov, P. A.
**Iakowlewa.** See Yakovleva.
**Iampol'skii, A. M.** Electroplating in the Heat-Treatment of Steel (book), 5317*d*.
**Iandelli, A.** Alloys of Pr and Ga, 8339*c*.
**Ianni, J. D. d'.** See D'Ianni, J D
**Ianovici, V.** Siderurgical ores of Rumania, 6125*c*.
**Iball, J.** See Dickinson, W
**Ibáñez, J.** See Marini-Bettòlo, G. B.
**Ibáñez, R.,** and Mata, J M. Capsular antigen of the microörganism of the genus *Brucella*, 9236*i*.
**Ibarz Aznárez, J.,** and Vericat Raga, J. Detn of the trivalent Cr content of Cr plating baths, 4597*g*.
—— and Virgili Vinadé, J. Detn. of chlorites in the presence of chlorates, 8966*i*.
**Iberall, A. S.** Effective $\gamma$ for isentropic expansions of real gases, 1231*e*.
**Ibes-Jung, M.** See Virenque, J.
**Ibrahim, M.** See Hassan, M. U.
**Ichiba, A.,** and Emoto, S. Pyridine series (IV), 4670*f*.
——, Emoto, S., and Nagai, M. Chemistry of vitamin $B_6$, 4673*f*.
**Ichiba, F.** See Wolfson, W. Q.
**Ichikawa, H.** Brewing of Shoyu and their by-products (I) hydrolyzate of the soybean cake by concd. HCl at ordinary temp. and its Shoyu fermentation, 5155*a*.
**Ichimura, S.** Present and future of Hokkaido mint, 8461*c*.
**Icke, R. N.** See Redemann, C. E
**Ickert, F.** Significance of amino acids, esp. those contg. S, in present-day nutrition, 2907*f*
**Ickis, M.** Working in Plastics (book), 1216*f*
**Idaho Maryland Mines Corp.** Mg salts, P 2380*e*.
**Ide, K.,** Ozaki, M., and Mizuma, M. Application of high-frequency power to the penicillin industry (I) bulk concn., (II) drying, 6789*e*
**Ide, W. S.,** and Buck, J. S. Synthesis of benzoins, 2155*h*.

**Ido, K.** See Aikawa, T.
**Idoipe Gómez, F. J.** See Mateo Tinao, M.
**Idrac, J.** Photoelec. cell micromanometers, 1226*b*.
**Iégorov.** See Egorov.
**Iermolenko, N. F.** See Ermolenko, N. F.
**Ierusalimskii, N. D.** Plant-growth hormones, 8460*a*.
**Iffland, D. C.** See Kornblum, N.
**Igelman, W. O.,** and Nussbaum, F. S. Economy in production—elec. furnace melting, 8998*i*.
**I. G. Farbenindustrie Akt.-Ges.** (*Patents*) Diethylcarbamates of alkyl ethers of resorcinol, 251*i*; dehydrogenating paraffin, 660*g*; stabilizing and plasticizing synthetic rubbers, 1212*b*; polymerizing ethylene, 1219*a*; thioammeline esters, 1444*d*, anthraquinone vat dye, 1986*h*, azo dyes, 1987*d*; Cr-contg. azo dye, 1987*h*, films and fibers of cellulose, 4852*g*; terpine hydrate, 5045*f*; unsatd. carboxy acids and derivs., 5412*i*.
**Igi, S.** See Kanao, Seizo
**Iglesias, R.** See Lipschütz, A.
——— and Bruzzone, S. Antitumorigenic action of large quantities of pregnenolones, 300*e*.
**Ignatiev, A. M.** See Simonov, K. A.
**Ignatius, J. G. W.,** and Wit, W. de. Vitamin C supply in the Netherlands by potatoes, vegetables, and fruits, 1846*e*.
**Ignatowicz, S.** See Bockris, J O'M.
**Igolen, G.** Oil of narcissus, 2372*d*; see Garnero, J.; Gattefossé, J.
**Iguchi, K.** See Sogabe, Y.; Umemoto, J
——— and Kitagawa, K. Extn of soybeans by alcoholysis (I) extn. method and preliminary expt., (II) ethanolysis of soybean oil, 5209*b*.
———, Kitagawa, K., and Yahiro, S. Extn of soybeans by alcoholysis (III) methanolysis of soybean oil, (IV) extn expt., 5209*d*
———, Umemoto, J., and Shimada, Y. Extn of soybeans by alcoholysis (V) properties of extd. soybeans, (VI) properties of ethyl esters of fatty acids in soybean oil, 5209*e*.
**Iguchi, M.** Manuf. of vinylacetylene (I) manufg. conditions for monovinylacetylene, 5222*f*.
——— and Nakanishi, G. Manuf. of vinylacetylene (II) $Cu_2Cl_2$-$NH_4Cl$ catalyst, (III) effect of catalyst compn. on the yield, 3225*c*.
**Ihde, A. J.** See Schuette, H. A.
**Iijima, S.** Microanalysis and detn of Pb (I) detection and detn. of Pb with hematoxylin, 1682*i*; boiling-liquid thermostat, 7272*f*; occlusion of $K_2CrO_4$ by an Al(OH)$_3$ ppt., 7775*a*.
**Iijima, Y.** See Akamatsu, H.
**Iimori, S.** Monazite in Korea, 7871*c*
**Iimori, T.** Black monazite in northeast Korea, 7871*c*.
**Iino, T.** Same as Yajima, T.
**Iitaka, I.** Wear-resisting characteristics of Cr plate (I), (II), (III), 1662*h*; structure of gray cast iron, 7394*g*; effect of various elements on the form of graphite in cast iron, 7395*a*; converting the eutectic graphite of cast iron into flake graphite, 7395*c*.
**Iizuka, A.** Regulating activity of the liver on carbohydrate metabolism (I) influence of infusion of liver blood on the blood sugar and blood lactic acid, (II) influence of insulin on blood sugar and blood lactic acid, (III) influence of adrenaline on blood sugar and blood lactic acid, 4360*a*.
**Ikawa, M.** Isolating rare elements, 7860*f*
**Ikawa, S.** See Watanabe, Susumu.
**Ikebe, T.,** *et al.* Recovery of $SO_2$ by Zn compd., P 6797*b*.
**Ikeda, N.** See Kimura, Kenjiro.
**Ikeda, S.** Tobacco smoke, 8102*g*.
**Ikeda, Tadamasa.** See Naito, H.
**Ikeda, Toshio.** Changes in properties of calcined magnesia, 1924*f*.
**Ikeda, Y.** Butanol fermentation (I) relation between carbohydrates and fermentation, 813*g*.
——— and Yamada, T. Distn. of acetone-butanol fermenting liquid (I) corrosion of metals by the so-called butyl oil and its prevention, and recovery of butylic and acetic acids produced in butanol fermentation as by-products, 813*e*.
**Ikenberry, L. C.,** and Canfield, J. J. Detg Ni on the surface of enameling Fe, 9406*i*.
**Ikeno, S.** See Nakagawa, Shikazo.
**Ikert, B.** Cumaronharz, seine Herstellung und Anwendungsgebiete (book), 5228*d*
**Ikeshita, T.,** and Ohama, A. Au alloy, P 6563*h*.
**Ikeuye, K. K.,** and Smith, C. S. Interface energies in some Al and Cu alloys, 9011*a*.
**Iki, H.** See Imada, F.
**Ikornikova, N. Yu.** Color of brookite, 71*g*; admixts in brookite, 72*f*.
**Ikui, S.** See Takahashi, T.
**Ikuta, S.** Prepn. and use of water-dispersed rubber paste, 2012*s*, processing of synthetic rubber of the Perbunan type and its reclaiming, 2020*i*.
**Ikwa Industrial Co.** Ore flotation by citronella oil treated with $H_2S$, P 6964*e*; $H_3BO_3$ from refined tourmaline, P 7200*f*, flotation of sludge-form graphite, P 7204*b*.
**Ikwa Kogyo K. K.** Same as Ikwa Industrial Co.
**Ilacqua, A. F.,** and Occasione, J. F. Coated steel wire, P 9020*a*.
**Iles, F. A.** Atomic energy in outline, 7319*c*
**Iles, W. G.,** and Sharman, C. F. Effect of ventilation in moisture-testing ovens, 7757*h*.
**Iley, R.,** and Riley, H. L. Deposition of C on vitreous silica, 2833*a*.
**Ilford Ltd.** (*Patents.*) Cyanine dyes, 54*i*, 4157*g*, 7844*b*; color photography, 511*g*; trinuclear cyanine dyes, 2781*c*; 5-pyrazolones, 3042*h*, reduction of scratch marks on photographic emulsion layers, 4592*f*; packaging photographic elements with alkyd-resin binders, 4593*d*; cyanine dye intermediates, 5602*e*, 7844*g*; mercaptocyclohexenones, 6230*h*; pyrazolone azo dyes, 8149*d*, see Dickinson, H. O., Doyle, F. P.; Kendall, J. D.
**Il'ichev, A. M.** Addn reactions of tolan, 1755*c*
**Il'in, G. S.** Formation of nornicotine in plants of *Nicotiana* genus, 1082*g*
**Il'in, V. A.** Detn. of $H_2SO_4$ in Cr plating baths, 4583*d*
**Il'in, V. S.** Ca chlorosis and metabolism in apple and cherry trees, 730*g*; biochem. type of plants and the diagnosis of pathol. states—nutritional deficiencies, 5829*a*; fibrinogenic and fibrinolytic factor of blood of people who met sudden death, 9210*b*.
**Il'ina, A. A.** See Bergol'ts, V. M., Shpol'skii, E. V.
**Il'ina, N. V.** See Levin, N. I
**Iljine.** See Il'in.
**Illari, G.** Synthesis of ketones, according to Friedel and Crafts, from anhydrides and from acids, 2930*h*, condensation of ales with aromatic hydrocarbons in the presence of anhyd $AlCl_3$, 5759*g*
——— and Giuseppetti, G. Two salicidebenzeins, 5770*e*.
——— and Orsolini, L. Action of BzH on Al dichloride *m*-cresolate, 5398*f*
**Illarionov, V. V.** Kinetics of the heterogeneous interaction of dry $SO_2$ and $NO_2$ at high temps (IV), 7308*e*.
**Illiminskaya, V. I.,** and Klein, Ya. N. Detn. of silica in portland cement raw materials and clinker, 2749*g*
**Illingworth, J. W.** Man-made fibers in tire casings, 1209*c*
**Illman, W. I.,** Semenuk, G., Neish, A. C., and Ledingham, G. A. Rot resistance of cotton duck treated with chelate Cu compds., 5958*a*
**Imada, F.** C (I) activation of amorphous C and prepn of active charcoal, (II) sorption isotherm of charcoal and its activation, (III) activation of charcoal, (IV) prepn. of active C, (V) effect of activation of charcoal on chem. reactivity (1) oxidation, (VI) (2) chlorination, 5571*i*; (XII) (5) sorption of O under low pressure and prepn. of graphitic acid and pyrographite, 5572*h*; see Okuno, T.
——— and Iki, H. C (VIII) sorption of O by active C (1) preliminary expt., (IX) (2) evaluation of the result, (X) (3) comparison with the results by others, 5572*e*.
——— and Ono, T. C (VII) (3) sulfonation, 5572*d*.
**Imade, H.** See Ueno, Seiichi.
**Imai, K.** Microanalysis of blood P, 5818*i*; detn. of blood chloride, 5819*d*.
**Imai, M.** See Ohtsuki, T.
**Imaida, M.** See Sekiya, M
**Imaki, T.,** Koike, K., Shimizu, S., and Takei, S. Fragrant odors from crude sugar (III) synthesis of syringylideneacetone and its related substances, 1743*d*.
**Imamara, S.** See Hosoya, S.
**Imamura, N.** See Asai, I.
**Imanishi, S.** See Kandu, Y.
——— and Kanda, Y. Near ultraviolet absorption spectra of vapors of benzyl halides and several other org. compds., 8885*c*.
**Imanishi, Y.,** and Okamoto, T. Uses of rubber (I) manuf. of linoleumlike floor matting, 8187*c*.
**Imaoka, M.** See Nagai, S.
**Imbembo, E. A.** See Kahn, N. A.
**Imber, O.** See Zerfoss, S.
**Imbesi, A.** See Carbonaro, G.
**Imbriano, A. E.** Penicillin and oxidation-reduction agents, 317*i*.
**Imelik, B.** Oxidation of heptane by *Pseudomonas aeruginosa*, 4327*c*; enzymic mechanism of bacterial oxidation of hydrocarbons, 6281*h*.
**Imhoff, C. E.** Boiler water conditioning to prevent turbine deposits, 335*d*
**Imhoff, K.** Wartime researches on waste waters in Germany, 3953*e*, trickling filter for the purification of waste waters, 5890*e*
**Imhoff, W. G.** Bending qualities of hot-dip Zn coatings, 2564*c*.
**Immelman, A.** See Gunn, H. L.
**Immers, J.** Heparinlike effect of fertilizin from sea-urchin eggs on blood coagulation and the modifying action of basic proteins and cephalin on the effect, 4300*f*; see Vasseur, E.
——— and Vasseur, E. Comparative studies on the coagulation process with heparin and sea-urchin fertilizin, 4391*g*.
**Imoto, M.** See Hachihama, Y.
———, Kuwata, T., and Asao, C. Furfural-phenol resin (VIII) reaction of furfural and phenols with HCl as catalyst, (IX) reaction product of furfural and phenol with NaOH as catalyst, 5225*g*
**Imperial Cellulose Co.** Alkali cellulose, P 6825*d*; highly polymerized polyamide from furfural, P 6867*h*.
**Imperial Chemical Industries Ltd.** (*Patents*)
α acetaminoacrylate copolymers, 3238*i*
acrolein and $C_7H_8$ by pyrolysis of dihydropyran, 1795*f*
acrylonitrile, 1051*a*
adhesives, 2039*d*.
alkali metal perborate compds., 3157*h*.
*N*-alkenoxymethyl polyamide insolubilization, 1221*b*.
alkyl quaternary $NH_4$ nitrates, 667*a*.
aminoanthraquinone sulfonic acids, 9468*d*
aminomethionic acid salts, 6219*e*.
animal hypnotic compn., 8105*b*.
2-arylamino-4-haloquinolines, 7973*i*.
arylbiguanide hydrochlorides, 684*h*.
2-benzimidazolylaminopyrimidine derivs., 3854*a*.
biguanide derivs., 1059*e*, 6659*d*, 9082*e*
bis(alkoxyphenyl)chloroethanes, 8400*h*
bis (*o*-alkylhydroxyphenyl)alkanes [non staining rubber antioxidants], 7257*e*
blasting-explosive compn., 5594*d*
bonding of polymeric materials to the surface of articles, 4897*a*.
γ-butyrolactone from satd. furans, 3029*e*
catalysts for dehydrogenation, 3161*e*
chloral alcoholate, 5412*e*
chlorinated *p*-phenylenediacetic acids, 1064*d*.
chlorine-contg. formals, 4685*g*.
chlorobutadienes, 9078*g*.
chloropyrenes, 6812*a*.
cyanines (unsym.), 6099*g*.
detonators (Pb azide), 6828*b*.
2,5-dialkoxytetrahydrofurans, 7512*d*
2,5-dihydrofuran, substitution products of, 7970*b*.
distillation, 7608*e*.
dyes (monoazo), 7697*i*, 8154*d*, 8155*a*
dyes (phthalocyanine), 7704*e*, 8172*g*
dyes (3′,4′-phthaloylacridone series) 7706*b*.
dyes (S), 4020*h*.
dyes (yellow azo), 8146*h*.
dynamite gelatin contg. water-sol. salts, 3619*c*.
emulsions (aq.), 6437*e*.
ethylene sepn. from gaseous mixts., 7670*d*
explosives (granular), 2776*d*.
flameproofed cellulosic material, 6428*h*
flameproofing cellulosic textiles with dipentaerythritol, 5604*c*.
fluorine-contg. esters and their polymers, 5413*a*.
α-fluoroacrylic esters and polymers, 2223*f*.
fluorocarbons, 7035*d*.
formals, 1051*h*.
furan derivs., 1065*b*.
furfuryl alc., 1064*i*.
gas- and power-producing liquids, 1552*a*
gases, thermal cond. analysis of, 6543*a*.
gas-generating compns., 852*d*, 5190*d*.
haloacyl halides, 1434*c*.

**halogenated pyran compds.**, 2239*h*.
**hydrocarbons (unsatd.)**, 1049*h*.
**ignition compns.**, 9450*i*.
**insecticide**, 4807*d*.
**iron compds. (org.)**, 2217*i*.
**lactones**, 4687*f*.
**latexes of synthetic elastomers, reducing the pH of strongly alk.**, 2463*c*.
**nitration of alcs.**, 5411*b*.
**nitrile ester**, 3027*f*.
**β-nitroalkanesulfonic acids**, 5411*g*.
**nitro olefins**, 3438*h*.
**nitroörg. compds.**, 6646*i*.
**nitro paraffins**, 2220*a*, 4285*b*.
**oxidation of cyclic ethers**, 2224*e*, 5415*b*.
**pentaerythritols**, 5036*f*.
**polymeric esters**, 1056*i*, 6236*d*.
**polymeric fractionation**, 3236*i*.
**polymerization of acrylonitrile**, 6000*g*.
polymerization of org. materials, 5991*e*.
polymers of asym. dichloroethylene with polymerizable unsatd. ketones, 9531*i*.
polythene compns. contg. $CaCO_3$, 4897*g*.
polythene (powd.), 1610*i*.
protein filaments, 2785*a*.
protein viscous aq. solns., 4021*g*.
pyrans, 1442*i*.
pyrimidine compds., 6243*b*
quaternary ammonium phenoxides, 5800*i*.
resinous condensation products, 441*c*.
sulfur dioxide sepn. from Cl, 4822*h*
sulfur trioxide, 4822*h*.
tetrahydro-3 furanone, 5424*i*.
tetrahydrofurfuryl alc. purification, 1526*f*.
textiles, app. for the fluid treatment of, 856*c*.
trichloroethylene copolymers, 901*c*
unsatd. org compds., 6221*g*.
vegetable globulins, viscous aq. alk. solns. of, 5950*f*.
vinyl acetal mixt. with a diisocyanate-modified polyester of polyester-amide, 3661*b*.
vinyl acetate deriv solns., 441*f*.
vinyl alc plastic compns, 900*h*.
vinyl chloride plastic compns, 4514*c*.
vinyl chloride polystyrene dispersions, 2037*f*.
vinyl fluoride, 6645*a*.
vinyl fluorides, 2-fluoro-1,3-butadiene, and 1,1-difluoroethane, 660*h*.
weed prevention and destruction, 1526*e*, 6778*c*.
yarn (nylon), 1990*e*.
yarn (sized glycol terephthalate), 3628*a*

**Imperial Chemical Industries Ltd.** See Ainley, A. D.; Arnold, M. H. M.; Arthur, T. J. B.; Atherton, D.; Bacon, R. G. R.; Baird, W.; Balfe, B. J.; Barker, A. W.; Basterfield, H. A.; Batty, J. W.; Bawn, C. E. H.; Beech, W. F.; Beveridge, C. R.; Birtwell, S.; Bowman, A.; Bradford, L.; Branscombe, D. J.; Bremner, J. G M.; Bridge, W.; Briggs, A. S.; Brookman, E. F.; Buckley, G. D.; Burgoine, E.; Burrage, L. J.; Charlton, W.; Clark, L. M.; Cockbain, E. G.; Coffey, S.; Cook, J. G.; Crawford, F. A. F.; Crawford, J. W. C., Crooks, D. A.; Crowther, A. F.; Curd, F. H. S.; Davies, W. H.; Dawson, F., Dickson, J. T.; Dixon, O G.; Dodd, H.; Douglas, G. T.; Dunbar, C.; Ellery, E.; Flint, C. F.; Foster, R. T.; Franklin, Reginald G.; Fysh, D.; Glassman, J.; Gleave, W. W.; Gordon, K.; Gordon, Stuart; Greenhalgh, R.; Gudgeon, H.; Habgood, B. J.; Haddock, N. H.; Hammond, Roy; Hardacre, R. W.; Harper, D. A.; Hawkins, P. A.; Heath, Royden L.; Hedley, A. G. M.; Hendry, J. A.; Heywood, B. J.; Hill, A.; Himsworth, F. R.; Hirsh, B. W.; Horseley, G F.; Huebner, D. W.; Huggill, H. P. W.; Irving, F.; Jamrack, W. D.; Jones, A. G.; Jones, D. G.; Jones, W. O.; Lane, E. S.; Leigh, T.; Levy, N.; Lewis, John Richard; Lilley, H. S.; Lowe, A. R.; McGeoch, S. N.; McGill, J. H.; Marshall, I.; Mendoza, M.; Myles, J. R; Nonhebel, G.; Pratt, H. R. C.; Ramage, G. R.; Reynolds, P. W.; Rose, J. D.; Rubenstein, L.; Sarsfield, N. F.; Scaife, C. W.; Sexton, W. A.; Slinger, F. H.; Starkey, F.; Strauss, D.; Subramanian, T. S.; Talbot, F.; Tanner, C. C.; Tatum, W. W.; Taylor, H.; Taylor, J.; Thomas, F. J. D.; Thomson, R. H. K.; Tyerman, W.; Wallsgrove, E. R.; Whitaker, W. O.; Wilder Smith, A.; Wilkinson, D. G.; Williams, James H.; Williams, V. H.; Worthington, H.; Wright, H. R.; Zenftman, H.

—, Douglas, G. T., Parkinson, A., and **Wakefield, H.** Azo dyes, P 7694*h*.

, Lodge, F., and Stephen, W. E. Anthraquinone acid wool dyes, P 7704*a*.

—— and Whalley, W. B. Monofluorinated aliphatic halohydrocarbons using $SnCl_4$ catalyst, P 2628*e*.

**Imperial Pyrethrum Co.** Insecticide, P 5529*e*.

**Imperial Rayon Co.** Fine grains of cellulose from viscose, P 6825*d*.

**Imperial Trust** for the **Encouragement** of **Scientific** and **Industrial Research.** Phenanthridinium compds, P 1812*c*.

**Impregnation (Société).** Synthetic condensation resin, P 1217*e*.

**Imšenecki, A. A.** See Imshenetskiĭ, A. A.

**Imset, O.** Beating of paper pulp, 1971*e*.

**Imshenetskiĭ, A. A.** Phylogeny of *Azotobacter chroöcoccum*, 276*b*.

—— and Avdievich, N. M Adsorption of bacterial enzymes by whiting, 5448*i*.

**Inagaki, K.** Borneol, P 6528*c*.

**I.N.A. (Industria nazionale alluminio).** Utilizing filtration cakes from the purification of $Na_2CO_3$ solns. in the Bayer bauxite processing for alumina, P 8623*f*.

**Inashima, J.**, and Flack, H. Pharmaceutical aspects of penicillin, 9365*d*.

**Inazuka, S.**, and Matsumura, M Influence of reduced glutathione on tissue-culture growth and antigen production (I) tissue culture, (II) antigen, 296*h*.

**Ince, J. F. R.** See Sharp, H. J.

**Inclán López, A.**, and Mañas Bonví, J. Física (book), 6501*c*.

**In-Co-Ra, Soc. anon.** Detergent and disinfectant product, P 1587*e*, destruction of injurious contaminants on clothing, leather, etc., P 4022*g*.

**Inda, F. A.** See Barnett, T. B.

**Indelli, A.** See Cavallaro, L.

**Indemans, A. W. M.** Electrophotometry in colorimetric analysis, 7305*h*.

**Indiana University Foundation.** Quaternary methyleneamine salts of 3-thenyl bromide, P 6237*i*; quaternary methyleneamine salts of 3-thenyl bromide—3-thenaldehyde, P 6237*i*; quaternary methyleneamine salts of 3-thenyl bromide—3-thenyl bromide, P 6237*i*; quaternary methyleneamine salts of 3-thenyl bromide—3,3′-thenoin, P 6237*i*.

**Indian Lac Cess Committee.** See Gidvani, B. S.

**Indichenko, L. N.** See Borovik, S. A.

**Indium Corp. of America.** Electrodeposition of In alone or with other metals, P 49*i*; In bearings, P 4211*e*; In bearing solders, P 4211*f*, electrodeposition of In and its alloys, P 6526*c*; electrolytic deposition of In, P 7838*g*.

**Indovina, R.** See Deleo, E.

**Inducta S.à.r.l.** Reversible calomel electrode, P 8290*e*.

**Industrial Patents Corp.** Soap, P 8182*a*.

**Industrial Tape Corp.** Adhesive tape for laminating, P 7756*d*.

**Industria nazionale alluminio.** See I.N.A. (Industria nazionale alluminio).

**Industria Pittura inalterabili S.à.r.l.** Weatherproof coating for pictures, P 5644*b*.

**Industria Saponi Affini Milano (ISAM).** Soap, P 3220*d*.

**Ines, V. L. de.** See Lopez de Ines, V.

**Infantellina, F.** Action of the vagus on glucose metabolism, 2693*a*, see Sarzana, G.

**Infeld, L.** Theory of radioactivity in the momentum space, 4089*i*; see Hull, T. E

**Infiesta, J. L.** See Lora Tamayo, M; Mora, A.; Palacios, J.

—— and Achon, M. A. Automatic rectifying column head, 1225*d*; methylpolysiloxanes by direct synthesis (I) prepn. of methylchlorosilanes, 2160*d*.

**Infilco Inc.** Obtaining coarse ppt. from strong solns., P 2798*g*; diatomite filter unit with air-bump wash, P 6009*g*; water-softening and clarification app., P 6345*a*.

**Ing, H. R.** Prepn. of 2,3-dimercaptopropanol from 2,3-dichloropropanol, 1321*f*; structure-action relations of the the choline group, 4385*h*; see Barlow, R. B.

**Ingarden, R. S.** Theoretical remarks on Crane and Halpern's evidence for the existence of the neutrino, 7810*d*.

**Ingelfinger, F. J.**, Lowell F. C., and Franklin, W. Gastrointestinal allergy, 9231*a*.

**Ingelman, B.** Isolation of polymetaphosphate of high mol. wt. from *Aspergillus niger*, 3064*i*; dextran and its use as a plasma substitute, 3914*a*; enzymic breakdown of dextran, 4307*g* (year of orig. j. ref. should read 1948 instead of 1940).

—— and Halling, M. S. Physicochem. expts. on fractions of dextran, 6886*e*.

—— and Malmgren, H. Enzymic breakdown of polymetaphosphate (II), 8403*h*; (III), 8404*a*.

**Ingelman-Sundberg, A.** Vitamin E-free diet for guinea pigs, 3898*g*; see Aldman, B.

**Ingersoll, H. G.**, and Johnson, A. A. Ion exchange and fiber contraction, 468*g*.

**Ingersoll, J. G.** See Strandberg, M. W. P.

**Ingham, J.** Mill expt.—worsted processing, 7692*d*.

**Inghram, M. G.** See Engelkemeir, A. G; Hayden, R J, Hess, D. C., Jr.

——, Hayden, R. J., and Hess, D. C., Jr. Isotopic constitution of Dy, 4130*f*.

**Ingle, D. J.** Effect of 11-desoxycorticosterone acetate on the glycosuria of partially depancreatized rats, 1474*g*; see Baker, B. L., Li, C H.

—— and Nezamis, J. E. Effect of nephrectomy in the eviscerated rat on tolerance for intravenously administered glucose, 297*a*, effect of insulin and glucose on survival time of eviscerated rats, 2306*a*; effect of muscle work on tolerance of eviscerated rat for glucose, 2691*h*; effect of adrenaline on the tolerance of the eviscerated rat for glucose, 6319*e*, work performance of adrenally insufficient rats given adrenal cortex ext. by continuous intravenous injection, 6319*g*, tolerance of normal and partially depancreatized rats for insulin, 6734*h*; effect of hormones of the posterior pituitary on tolerance of the eviscerated rat for glucose, 7116*d*; effect of isuprel on tolerance of the eviscerate rat for glucose, 7583*d*, work performance of adrenalectomized rats given continuous intravenous infusions of glucose, 8025*a*.

——, Nezamis, J. E., and Prestrud, M. C. Effect of diethylstilbestrol on alloxan diabetes, 7138*b*.

—— and Prestrud, M. C Effect of adrenal cortical ext. on urinary N of rats following adrenalectomy, 1819*f*

——, Prestrud, M C., and Li, C. H. Essentiality of the adrenal cortex in mediating the metabolic effects of adrenocorticotropic hormone, 8480*e*.

——, Prestrud, M. C, Li, C. H, and Evans, H. M. Relation of diet to the effect of adrenocorticotropic hormone on urinary N, glucose, and electrolytes, 7098*f*

——, Shepherd, D A., and Haines, W. J. Effect of adrenochrome on glycosuria, 3517*i*.

**Ingle, T. R.**, Bringi, N. V, Phalnikar, N. L., and Bhide, B. V. Azo dyes from sulfa drugs, 9017*g*.

**Ingles, O. G.** Structure of chitosamine, 5747*i*.

**Ingleson, H.**, Sage, A. M., and Wilkinson, R. Effect of the chlorination of drinking water on brass fittings, 3515*h*.

**Inglis, D. R.** Nuclear spin of $B^{10}$ and spin-orbit coupling in $Li^7$, 3283*j*; meson exchange and spin-orbit coupling in nuclei, 7336*b*; see Hanna, S. S., Heydenburg, N. P.

**Inglis, G.** See Albright & Wilson Ltd.

**Ingold, C. K.** See Cooper, K A; De la Mare, P. B. D., Dhar, M. L.; Dostrovsky, I.; Gillespie, R. J; Hsü, S. K.; Hughes, E. D.

—— and Shaw, F. R. Influence of directing groups on nuclear reactivity in oriented aromatic substitutions (VI) nitration of ethyl phenylacetate and of benzyl chloride, 7454*f*

**Ingold, H.**, and Mühlemann, H. Prepn. of stable yeast preps. (I) thiamine content and fermentability, 815*a*.

**Ingold, W.** See Prelog, V.

—— and Kuhli, H. Container for standard electrode, P 6097*f*.

**Ingols, R. S.** See Ridenour, G. M.; Weil, B. H.

—— and Murray, P. E. Urea hydrolysis for pptg. Ca oxalate, 4972*h*.

—— and Ridenour, G. M. Chem. properties of $ClO_2$ in water treatment, 1127*f*.

**Ingraham, H. E.** Mixed thiosulfates, P 7850*d*.

**Ingraham, J. S.** See Keil, Havard L.

**Ingraham, J. T.** See Anning, S. T.

**Ingram, A. R.** See Eberl, J. J.

**Ingram, B. L.** See Nichols, M. L.

**Ingram, C. B. R.**, and Wilson, C. L. Microchemistry (book), 6948*g*.
**Ingram, G.** Crit. examn. of the empty-tube combustion method, 972*i*; submicro balance and its applications (I) sub micro balance, 3245*g*. Ag vanadates as absorbents for $SO_2$, 8308*g*
**Ingram, J. W.**, Bynum, E. K., and Charpentier, I. J. Insecticides against the sugarcane borer, 3136*g*.
**Ingram, M.**, and Barnes, S. W. Blood of cyclotron workers, 6505*b*.
——— and Bryan, J. M. Estn. of chloride in meat products (II) influence of heating on the combination of Ag with meat substances, 1876*b*.
**Ingvorsen, H.** See Jensen, K. A.
**Inhoffen, H. H.**, Bohlmann, F., and Bartram, K. Syntheses in the carotenoid series (I) condensation of β-ionone and homologous ketones with oxalic acid esters, 2587*d*.
———, Pommer, H., and Bohlmann, F. Syntheses in the carotenoid series (II) synthesis of a hydrocarbon, $C_{30}H_{42}$, 2588*d*; prepn. of *o*-diketones from carboxylic acids, 5368*i*.
——— and Stoeck, G. Tribromocoprostanone, 4681*a*, steroids (I) prepn. of a bile acid with an aromatic "ring A," 7494*d*.
———, Stoeck, G., and Martens, H Steroids (II) bromination of unsatd 3-ketosteroids with bromosuccinimide, 7494*h*.
———, Stoeck, G., and Nebel, I. U Steroids (III) dibromocoprostanone, 7495*a*
**Inikhov, G.** Detn. of fat in milk, 9280*b*.
**Inland Steel Co.** Treating low-grade Fe ores, P 5726*i*.
**Inman, D. L.** Sorting of sediments in the light of fluid mechanics, 7874*h*.
**Innes, E. M.** See Innes, J.
**Innes, J.**, Innes, E. M., and Moore, C. V. Hematologic changes induced by the prolonged administration of pteroylglutamic acid antagonists, 8556*f*.
**Innes, M. J. S.** Applicability of gravimetric and magnetometric methods of geophys. prospecting, 8989*c*.
**Innes, R. F.** Preservation of vegetable-tanned leather against deterioration, 1203*i*.
——— and Pankhurst, K. G. A. Degreasing of pelts and leather in the light leather industry, 1203*g*
**Innis, Speiden & Co.** Fumigant, P 6357*b*.
**Ino, S.** See Kameyama, N.
**Inokuchi, K.** Same as Iguchi, K.
**Inoue, J.** See Sahashi, Y.
**Inoue, K.**, and Ako, T. Effect of vitamin B complex against the toxic action of histamine, 8058*h*.
——— and Kiyomiya, M. Protein metabolism and vitamin $B_2$ complex (III), 1095*c*.
——— and Omori, S. Protein metabolism and the vitamin $B_2$ complex, 8028*c*; (II), 1095*b*.
**Inoue, Seishu.** See Inoue, Yoshiyuki.
**Inoue, Shunjiro.** Toxic substances derived from *Staphylococcus aureus* (I), (II), 3886*e*.
**Inoue, T.** See Hayashi, Kozo.
**Inoue, Yoshiki.** See Kameyama, N.
**Inoue, Yoshiyuki.** Insecticide and germicide, P 6778*e*; see Takahashi, Kiyooki.
———, Inoue, S., and Kawamura, A. Leather (I) reaction mechanism of oil tanning, 890*i*.
——— and Kawaguchi, S. S-contg. amino acid in egg shell, 1450*i*.
——— and Shintani, G. Seed disinfectants (I) effect of $C_1$-$C_8$ alkylmercuric chlorides on the germination of seed rice, (II) lethal effect on microorganisms, 1138*d*.
**Inoue, Yukihiko.** Soly. of cellulose derivs. (VIII) soly. of cellulose acetate in mixed solvents contg. $CHCl_3$, (IX) soly of cellulose acetate in mixed solvent contg. $Me_2CO$, (X) soly. of cellulose acetate in mixed solvent contg. alc., 1963*i*.
——— and Nitami, K. Soly. of cellulose derivs. (XI) soly. of cellulose ethers, 1964*f*.
**Inouye.** See Inoue.
**Insalaco, M.** See Fletcher, G. L.
**Insinger, T. H., Jr.** Purification of carbazole, P 4450*f*.
**Inskeep, G. E.** See Marvel, C. S.
**Insley, H.** Presentation of the Arthur L. Day Medal to Geo. W. Morey, 6013*h*.
**Institute of Aviation Research.** Refining of shale oil, P 3186*a*.
**Institute of Chemical Research.** Polyhydric alcs., P 3447*h*.
**Institute of Fuel Research.** 2-Furaldehyde, P 3464*g*.
**Institute of Industrial Science Research.** Alkoxyadiponitrile and β-carboxyadipic acid, P 3031*g*; polymerization of gaseous olefins, P 3190*e*; isobutylene-rich gas from BuOH, P 3833*h*.
**Institute of Paper Chemistry.** Vanillic acid from lignin, P 2774*h*; converting lignin into its aldehydic and acidic fractions, P 3198*b*; papermaking fiber from straw, P 3198*f*; vanillic acid and vanillyl alc., P 6664*e*; app. for coating continuous strip of porous web, such as paper ribbons, cloth, etc., P 7229*b*; monocarboxylic acid, P 7509*a*, phenolic materials from lignin, P 9446*h*.
**Institute for Physical and Chemical Research, Tokyo.** BuOH and acetone from starch or sugars by utilizing an accessory enzyme, P 1148*c*; active alumina gel, P 1929*i*, 6338*b*; xylidine, P 2637*e*, P 7507*i*.
**Institute of Synthetic Organic Chemical Research.** Toluene, P 3454*a*.
**l'Institut français du caoutchouc.** Same as Société anon. des matières colorantes et produits chimiques de Saint-Denis.
**Institut technique d'études et de recherches des corps gras** and Anglaret, P. Reduction of esters, glycerides, etc., with alc and an alkali metal, P 5216*b*.
**Interchemical Corp.** (*Patents*) Color compns. for application to glass fabrics, 415*b*; urea-aldehyde resin dispersions, 2032*a*, sepn. of amino acids from protein hydrolyzate, 2268*e*, tinning endless metal strip, 2568*b*, fire-retarding compn., 3210*a*, tackifier for GR-S, 3229*d*; rubber cement, 3229*e*, amino acids, 3841*c*; press-stable water-set printing ink, 5205*f*; rust inhibiting coating compns., 6148*h*, water-set typographic ink, 6433*e*, pyrazolone azo pigment, 7698*e*; textile printing paste, 8174*f*, disazo bianisidine pigments, 8178*b*.
**Interessengemeinschaft Farbenindustrie Akt.-Ges.** See I. G. Farbenindustrie, Akt.-Ges.
**International Alloys Ltd.** Production and refining of Al, P 5728*c*; production and refining of metals, P 5728*e*.
**International Bitumen Emulsions Ltd.**, Montgomerie, J. A., Archibald, P. K., and Bradshaw, L. C. Emulsions of pitch, P 5920*d*
**International Carbonic Engineering Co.** Composite solid $CO_2$, P 3985*a*.
**Internationale Akt.-Ges.** für **Gassynthesen.** Mixts of aromatic hydrocarbons, P 5798*h*, 7959*g*
**Internationale Koolwaterstoffen Synthese Maatschappij (International Hydrocarbon Synthesis Co.).** See N. V. Internationale Koolwaterstoffen Synthese Maatschappij.
**International Hydrocarbon Synthesis Co.** See N. V. Internationale Koolwaterstoffen Synthese Maatschappij.
**International Latex Processes Ltd.** Articles of rubberlike material, P 2025*b*; sponge rubber, P 5624*e*.
**International Lubricant Corp.** Lubricating greases, P 1960*e*.
**International Minerals & Chemical Corp.** Glutamic acid and Na glutamate, P 3947*b*; improvements in the manuf. of $MgCl_2$, P 6795*h*.
**International Nickel Co. of Canada Ltd.** Treatment of Pb-contaminated cast iron, P 5358*a*; modified electrolytic Ni, P 7358*d*; carbon-contg. Ni, P 7358*e*.
**International Nickel Co., Inc.** (*Patents.*) Steels and structural embodiments thereof for use at low temps., 989*g*; Pd plating, 1665*c*; alloys for making cast iron, 1709*e*; electrodeposited Ni strip contg. B, 2103*e*; electrolytic Ni anodes for bath operating at a high pH, 2104*f*; gas welding rod, 2568*h*; electrodeposition of Ni, 2880*a*, 8919*a*; prevention of pencilling corrosion of metallic salt-bath electrodes, 4153*g*; insulated elec. resistances, 6098*f*; Pd articles, 6147*c*; cladding metal cooking utensils, 6564*h*; sintered precious metal products, 7403*a*; Co alloys, 7404*d*; powd. metal Pt alloys, 7894*g*; induction melting of Pd and its alloys, 8289*f*; treatment of Ni-contg. ores, 8343*h*; Ni and Co alloys, 9020*g*.
**International Paper Co.** Bleaching process for groundwood pulp using deoxidizing agents, P 4066*b*.
**International Polaroid Corp.** Plastic sheets or films convertible to dichroic polarizers and image carriers, P 6864*i*.
——— and Stevens, A. H. Light-polarizing dichroic material, P 4824*c*.
**International Printing Ink Corp.** Name changed to Interchemical Corp.
**International Smelting & Refining Co.** App. for dezincking Zn-Pb ores with Cl, P 3339*g*; O-free high-cond. Cu, P 8345*g*.
**International Standard Electric Corp.** Elec. insulating material, P 2343*h*; thermoplastic cable insulation, P 3657*d*; electrophoretic coating of metal articles, P 4151*g*; Se rectifiers, P 8290*h*.
**Intonti, R.**, and Gargiulo, M. Detn. of halogens in org substances, 4179*e*, in direct analysis of halogens, 8306*g*
**Inukai, F.** See Sakai, S.
——— and Tsurumi, M. Color reaction of threonine, 7368*g*.
**Inventors Guild.** Extn. of S and phenolic impurities from hydrocarbons, P 7949*g*
**Invers Gelabert, A.** Structure of tincal conite $B_4O_7Na_2.5H_2O$, 8981*h*.
**Inzigneri, M.**, and Tavasci, B. Vitreous material and its structure compared with that of porcelain, 5561*i*.
**Iob, V.** See Berry, R. E. L., Bryant, J. M.
**Iofa, Z. A.**, Shimshelevich, Ya. B., and Andreeva, E. P. Reduction of O at a Hg electrode, 8912*f*
**Ioffe, A. L.** See Shamshikova, G. A
**Ioffe, B. V.** Detn. of the index of refraction 4055*b*; see Broun, A. S
**Ioffe, I. I.** See Avramenko, L. I
**Ioffe, I. S.** Hydroxyfuchsin dyes, P 3627*a*, hydroxy derivs of triphenylmethane, P 3848*a*, hydroxyfuchsone dyes (IV) indicator properties of benzaurin, aurin, and their methoxy derivs., (V) bisulfite compds. of hydroxyfuchsone dyes, 5771*e*, (VII) monomethoxybenzaurin, 8683*f*, purification of hydroxyfuchsone dyes, P 9470*e*
——— and Khavin, Z. Ya. Hydroxyfuchsone dyes (VIII) fuchsone and 3-methoxyfuchsone, 8683*g*
——— and Pavlova, Z. I. Hydroxyfuchsone dyes (VI) methoxy- and dimethoxyaurines, 5772*b*
——— and Sukhina, A. F. Hydroxyfuchsone dyes (IX) structure and color of hydroxymethoxyfuchsones, 9451*b*
**Ioffe, Ya. S.**, and Shapiro, S. B. Rubrophen, P 3627*c*
———, Shapiro, S. B., Fel'dman, R. M., and Shevelev, G. N. K guanacolsulfonate, P 6660*a*
**Iojo, G. dello.** See Dello Iojo, G.
**Ionesco, H.** See Lwoff, A.
**Ionescu-Matiu, A.**, Popescu, A., and Mouciu, L. Deterioration and stabilization of morphine and apomorphine, 1150*a*
**Ionin, V. D.**, Lukovnikov, A. F., Nelman, M. B., and Nesmeyanov, A. N. Isotope exchange of P among $H_4P_2O_7$, $H_3PO_4$, and $HaPO_4$, 7815*a*
**Ionov, N. I.** See Dukel'skii, V. M.
**Iordan, E.** See Karpachev, S.
**Iosikova, V. M.** See Devyatnin, V. A.
**Iossel'son, G. G.** See Ershov, I. I.
**Iourieff, Iourjew.** See Yur'ev, Yu. K.
**Iowa State College Research Foundation.** Elastomer from furfural, P 2805*a*; methylfuran, P 3405*e*.
**Ipatieff, V. N.** See Pines, H
———, Monroe, G. S., and Fischer, L. E. High-pressure lab. flow app., 2473*b*
——— and Pines, H. Isomerization of paraffins with $AlCl_3$-$FeCl_3$ catalyst, P 8667*h*
——— and Schmerling, L. Effect of H on action of $AlCl_3$ on alkanes, 1712*g*.
**Ipatjew, W. N.** See Ipatieff, V. N.
**Ipatov, P. F.** Use of Nessler reagent in ampuls, 6934*g*.
**Ippolito, Giullo.** Bone decalcification for histological investigations by an electrolytic method, 3872*d*
**Ippolito, Guido.** See Bianchi, C.
**Irani, K. R.**, Phalnikar, N. L., and Nargund, K. S. Synthetic anthelmintics (XIV) γ-(2-methoxy-5-alkylphenyl)-γ-butyrolactones, (XV) γ-(4-methoxy-3-alkylphenyl)butyrolactones, (XVI) γ-(2,4-dimethoxy-5-alkylphenyl)butyrolactones, 1032*f*.
**Irany, E. P.**, and Noether, H. D. Stabilization of polysulfone resins, P 9527*d*.
**Iranzo, V.** Same as Iranzo Rubio, V.
**Iranzo Rubio, V.** Prepn. of monobarium orthophosphate, 5688*i*.
——— and Lopez de Ines, V. Cr bromosulfates, 7852*e*.
**Irayzoz, J. F.** See Palacios Costa, N.

**Irby, G. S., Jr.** See Poskitt, R. L.
**Iredale, T.** See Durie, R. A.
**Iredell, C. V.,** and Enrico, R. J. Mo, P 2152*a*.
**Irelan, B.,** and Avrett, J. R. Chem. compn. of Texas surface waters, 1127*a*.
———, Weaver, D. E., and Avrett, J. R. Chem. compn. of Texas surface waters, 8077*c*.
**Iremadze, I.** See Zal'kind, Yu. S.
**Irigoyen, P. A.** See Andres Irigoyen, P.
**Irion, C. D.** Liquid printing ink contg. a lignin compd., P 878*a*.
**Irish, C. R.** See Digges, T. G.
**Irish, P. R.** Analysis of alumina in silica brick, 8112*c*.
**Irisov, A. S.** Free energy of formation of mols. and knock resistance of alkanes, alkenes, and alkynes, 3600*g*.
**Irmann, F.** Mg carbides, 1670*i*.
**Irmscher, R.** See Wagner-Jauregg, T.
**Irons, C. R.** Plasticized vinylidine chloride film, P 8209*a*.
——— and Havens, C. B. Plasticized vinylidine chloride film, P 8209*b*.
**Irvin, H. B.** See Bunnell, D. G.
**Irvin, J. L.** See Johnston, C. G.
**Irvine, J. W., Jr.** Industrial applications of radionuclides, 5277*c*, see Gibson, J. G., 2nd
**Irvine, V. C.** See Tamele, M. W.
**Irving, E. M.,** and Quema, J. C. Reconnaissance geology of the Burgos-Pasuquin area, Ilocos Norte, 7874*b*.
——— and Teves, J. S. Guano caves of Pupug, municipality of Mabini, Bohol, P. I., 71*e*.
**Irving, F.** See Coffey, S., Heslop, R. N.
——— and Imperial Chemical Industries Ltd. Vat dye, P 7705*i*.
——— and Johnson, A. W. Synthesis of 3-acyl- and 3-aroyl-*meso*-benzanthrones, 3402*c*.
———, Johnson, A. W., and Imperial Chemical Industries Ltd. 3-Acylbenzanthrones, P 868*b*.
———, Livingston, A., and Imperial Chemical Industries Ltd. Anthraquinone vat dyes, P 1575*g*, 1576*a*.
**Irving, G. W., Jr.** See Fontaine, T. D.
——— and Herrick, H. T. Antibiotics (book), 9166*h*.
**Irving, H.,** Andrew, G., and Risdon, E. J. Dithiazone (I) detn. of traces of Hg, 6107*c*.
———, Butler, E. J., and Ring, M. F. Steric hindrance in analytical chemistry (I), 8941*i*
——— and Fuller, H. J. Action of amines on esters (II), 2926*e*.
———, Risdon, E. J., and Andrew, G. Detn. of traces of metals, 6107*a*
——— and Williams, R. J. P. Order of stability of metal complexes, 4969*c*, metal complexes and partition equilibria, 8807*f*.
**Irving, J. T.** Action of F on the calcification of the dentine in rats with low Ca rickets, 6295*d*; influence of the blood Ca level on the action of F in predentin and dentin formation, 6716*a*; see Bailie, J. M.
———, Weinmann, J. P., Schour, I., and Tweedy, W. R. Calcification (VII) dentinal changes in the incisor of the nephrectomized rat, (VIII) effect of large doses of calciferol on the dentine of the incisor in normal and nephrectomized rats, (IX) effect of parathyroid ext. on the dentin and pulp of the incisor in normal and nephrectomized rats, 9203*h*.
**Irving, R.** See Griffith, R. O.
**Irvington Varnish & Insulator Co.** Drying-oil residues, P 3215*e*.
**Irwin, J.** Checking water vapor in drying systems, 7272*d*.
**Irwin, J. P.** See Palmer, E. W.
**Irwin, L.,** and Ralli, E. P. Pantothenic acid and carbohydrate metabolism in the rat, 294*d*.
**Irwin, W. Y.,** and French, A. H. Treatment of felt-paper-mill wastes (I), 2719*a*; (II) pilot-plant operation—bacterial filtration, 3196*c*.
**Iryo, M.** Study of the system $CaO$–$Al_2O_3$–$SiO_2$ (I) synthesis of $CaO.Al_2O_3$, $5CaO.3Al_2O_3$, and $2CaO.Al_2O_3.SiO_2$, (II) extn. of $Al_2O_3$ from $CaO.Al_2O_3$ with soda soln., 1924*h*.
——— and Miura, Y. Study of the system $CaO$–$Al_2O_3$–$SiO_2$ (III) extn. of $Al_2O_3$ from $3CaO.5Al_2O_3$ with soda soln., (IV) extn. of $Al_2O_3$ from $5CaO.3Al_2O_3$ with soda soln., (V) extn. of $Al_2O_3$ from Ca aluminates contg. magnesia by soda soln., 1924*i*.
**Isa, T.** See Ogata, T.
**Isaac, L. H.** See Young, W. H.
**Isaacs, A.** Antihemolytic action of viridans ($\alpha$) variants of hemolytic streptococci, 1459*f*; reactivation of neutral mixts. of influenza virus and serum by virus inactivated by heat, 4757*c*.
**Isaacs, E.** See Gudgeon, H.
——— and Gudgeon, H. Copolymers of $\alpha$-acetaminoacrylates, P 3238*i*.
**Isaacs, G. G.** See Francis, V. J.
**Isaacs, S. D.** See Brückmann, G.
**Isachenko, B. L.** S bacteria from oil wells (I) pigmentation in org. media in darkness, 276*f*.
**Isachsen, F.,** and Rosenqvist, I. T. Weathering loam and fuller's earth from Karmöy, 8320*f*.
**Isagulyants, G. V.** See Balandin, A. A.
**Isagulyants, V. I.** Synthesis of triptane, 2569*b*.
**Isaka, T.** See Shibata, Keita
**Isbekow, W. N.** See Izbekov, V. N.
**Isbell, A. F.** $\beta$-Amino propionates, P 5978*b*.
**Isbell, C. L.** Effect of sprout-preventive treatments on fall-harvested kohlrabi, potatoes, sweet potatoes, and turnips while in storage, 9290*a*.
**Isbell, H.** Analgesic drugs—their use and abuse, 1909*e*.
**Isbell, H. S.** See Frush, H. L.; Walton, W. W.
——— and Frush, H. L. Ortho ester reactions of sugar acetates with $NH_3$, 5747*g*.
**Isbell, R. A. C.** See Gordon, R. R.
**Isbell, W. T.** Refining of Pb, P 3340*d*.
**Isbenjian, H.** See Berman, S.
**Isbister, J.** Estn. of serum albumin, 4719*c*.
**Ischer, H.** Disazo dyes, P 8689*i*.
**Iselin, B.** Oxidations by *Acetobacter suboxydans*, 1828*d*.
——— and Fischer, H. O. L. Derivs. of nitrodesoxyinositols, 1336*f*.
**Iselin, E.** Spoilage of fats and oils (II), 3216*i*; (III), 5972*h*.
**Isensee, R. W.,** and Christensen, B. E. Quinazolines (VII) synthesis of Me 2,4-dimethyl-8-quinazolyl ketone, 1779*h*
**Isepponi-Bergamin, M.** Prevention of corrosion in water heaters, P 4628*a*.
**Iseri, L. T.** See Boyle, A. J., Mosher, R. E.
**Isgarichew, Isgarischeff, Isgarishew, Isgaryšev.** See Izgaryshev, N. A.
**Isherwood, F. A.** See Hirst, E. L.; Jermyn, M. A.
**Isherwood, H.** See Wood, C. H.
**Ishida, E.,** *et al.* Polymers and condensates, P 6865*h*
**Ishidate, M.** $\alpha$-Halogen-$\pi$-hydroxycamphor, P 2640*e*.
**Ishigaki, Y.** Silica gel from iron-ore tailings (I), (II), 1925*h*.
**Ishiguro, E.** Value of the elec. quadrupole moment of the deuteron, 7336*f*, ground state of the H mol., 7338*e*.
**Ishiguro, T.,** Morikawa, K., and Abe, R. Combustibility of solid fuels (I), (II), 1939*g*.
**Ishihara, A.** Abnormal melting of raw rubber, 4505*c*, 9513*c*, see Sakai, Takuzo.
**Ishihara, I.,** and Kitamura, N. Emulsion paint, P 5607*d*.
**Ishihara, M.** See Kobayashi, Ko.
**Ishihara, Y.** See Takaoka, M.
**Ishii, K.,** and Matsushita, W. 2-Methyl-4-amino-5-aminomethylpyrimidine-HCl, P 6528*c*.
**Ishii, N.** Chemotherapy of protozoal infections, 1484*i*, 8528*b*.
**Ishii, Yasuo.** See Hachihama, Y.
**Ishii, Yoshio.** Degradation of fatty acids by alkali fusion of chlorinated fatty acids, 2164*d*; reaction between chlorinated fatty acids and metal carbonates, 2164*f*.
**Ishikawa, F.,** and Kobata, Y. Prepn. of Br from seawater, 8622*g*.
**Ishikawa, H.** See Kobayashi, Kyuhei.
**Ishikawa, S.** Synthesis of methylional, 2173*a*; refining of lactoflavin, P 6792*d*; olefins from fatty acids, P 7034*i*.
———, Abe, S., and Tikamori, T. Synthesis of alkyl naphthalenes (III) butylnaphthalene from naphthalene and butyric acid, 7928*c*.
——— and Kuroda, E. Synthesis of lubricating oil from alcs. (I) from cetyl alc., 8125*h*.
——— and Tsutsui, M. Synthesis of branched long-chain hydrocarbons (II) 17,18-dibutyltetratriacontane, 7897*a*.
**Ishikawa, T.** Dissolving process of solutes, 7299*a*.
**Ishikawa, Y.** Desorption of the adsorbed H on a Pt plate by the impact of slow electrons (I), (II), 5279*e*.
**Ishimaru, K.** See Naito, H.
**Ishino, E.,** and Osaki, K. Adhesive for leathers, P 6854*b*
**Ishino, N.,** and Matsuura, T. Printing ink from waste oil used for absorption of coal gases, P 5607*g*.
**Ishler, N. H.,** Finucane, T. P., and Borker, E. Spectrophotometric detn. of caffeine, 1878*c*
**Isjurova, A. I.** See Iz'yurova, A. I.
**Iskander, Y.** Anionic nature of the desyl and the $\alpha$-benzoylbenzhydryl radical as compared with the cationoid reactivity of the triphenylmethyl radical—hydrolysis of thio ethers, 1753*h*.
**Isker, R. A.** Use and effects of monosodium glutamate, 9182*d*.
**Isler, H.** See Hartmann, M.
**Isler, O.** Vitamin A ethers, P 1801*b*; vitamin A alc. and esters, P 1801*i*.
———, Ronco, A., Guex, W., Hindley, N. C., Huber, W., Dialer, K., and Kofler, M. Esters and ethers of synthetic vitamin A, 5371*i*
**Islip, H. T.** Essential oils of the British colonies in relation to world supplies, 5906*i*, see Cosgrove, D. J.
**Ismail, A. F. A.** Quinonoid structure for hydroquinone pyridinium salts of org. acids, 5781*a*
**Ismailov, N. A.** See Izmaĭlov, N. A.
**Ismailskij, W. A.** See Izmail'skiĭ, V. A.
**Ismailzade, I. G.** See Zhdanov, G. S.
**Isman, M. A.** See Ducellier, G. L. R.
**Isobe, H.,** Hasegawa, K., and Miyake, I. Light oil from dry distn. of wood, 7668*c*.
——— and Takizawa, M. Gasoline from coal-distn. products (X) states of sub-bitumin ous coal, low- and high-grade bituminous coal on low-temp. carbonization, 8642*a*.
———, Tanaka, K., and Yabuki, S. Catalytic dehydrogenation of cyclohexane (I), 7911*h*.
**Isobe, S.** See Kimijima, Takeo.
**Isomatsu, M.** Removing of mica from andalusite and sillimanite, P 7206*c*.
**Ison, H. C. K.** See Wormwell, F.
**Isono, M.** See Kan, D.
**Israel, G. C.,** and Reeve, K. D. Buffer action of Na pyrophosphate, 6895*h*.
**Israël, H.** Ionization equil. in atm. air, 2505*a*
**Israelashvili, S.** See Feigenbaum, J.; Weizmann, M.
**Israels, M. C. G.** Atlas of Bone-Marrow Pathology (book), 4371*f*.
**Issagoulantz, Issagouljanc, Issagouljanz, Issagoulyantz, Issaguliants.** See Isagulyants
**Issartel, R.** See Polonovski, M.
**Issekutz, B., Jr.,** Genersich, P., and Komlós, E. Antagonism between thyroxine and morphine plus scopolamine, 6732*g*.
——— and Gergely, J. Effect of morphine-scopolamine narcosis on metabolism, 6732*e*.
———, Gergely, J., and Hetenyi, G., Jr. Central and peripheral mechanisms in the increase of metabolic rate—mode of action of thyroxine, 6305*i*.
——— and Gyermek, L. Action of dihydroergotamine and dihydroergocornine on the metabolic rate, 4375*d*.
——— and Heténi, G., Jr. Antidiuretic effect of atropine, 7128*i*.
———, Heténi, G., Jr., and Feuer, I. Measuring the arterio-venous O difference, 5073*b*; sepn. of central and peripheral metabolic stimulatory effects—effect of thyroxine, 7102*e*.
——— and Murányi, A. Influence of morphine-scopolamine narcosis on central and peripheral stimulation of metabolism, 6732*f*.
**Istituto di ricerche per l'agricoltura e l'industria.** Purifying fruit juices, P 8576*f*.
**Istituto per lo studio della gomma sintetica.** Petrolatum substitute, P 8743*e*.
**Istrin, M. A.** Vtorichnye tsventnye metally (book), 1306*c*.
**Itano, H. A.,** and Pauling, L. Diagnostic test for sickle-cell anemia, 2665*c*.
**Itkina, E. S.** Cu in sedimentary rocks of coal deposits of the petroleum region of Ural-Volga, 2138*g*.
**Itkina, L. S.** See Makarov, S. Z.
**Ito, A.** See Sobe, T.
**Ito, Hanuemon.** Chem. studies on protein, carbohydrates, and oil of copra (I), 881*c*.
**Ito, Hisashi.** Ga, In, and Tl, 5554*d*.
**Ito, K.** See Tachimori, M.
**Ito, N.** See Takahashi, E.

**Ito, R.**, Hashimoto, Y., and Kitaura, S. Action of enzymes from liver on quinoline derivs., 6267*f*
**Ito, S.** See Kodama, S.
**Ito, Shinkichi.** See Uyeda, R.
**Ito, Sukesute.** See Kaneko, H.
**Ito, Takeshi.** See Kajimura, T.
**Ito, Tateo,** *et al.* Ore flotation by citronella oil treated with $H_2S$, P 6964*e*.
**Ito, Tsuneyoshi.** See Shimada, T.
**Itomi, H.**, and Nashimoto, N. Hydroquinone, P 6528*a*.
**Itsikson, M. I.**, and Rusanov, A. K. Scattered elements in cassiterite deposits of the Far East, 6123*h*.
**Itsumi, F.**, and Tomita, H. Utilization of inulin sources (I) prepn. of fructose sirup from the rhizome of Jerusalem artichoke, (II) prepn. of fructose sirup from the rhizome of Brussels chicory, 888*a*.
**Itterbeek, A. van.** Adsorption of gases by solid materials, 3263*f*
——— and Bock, A. de. Sound velocity and temp. change of mol. assocn., 2835*d*; velocity of sound in liquid O, 3681*a*; measurements on the velocity of sound in some org. liquids at low temps., 4915*c*
——— and Greve, L. de. Elec. resistivity of thin metallic films, 8771*e*
——— and Verhaegen, L. Velocity of sound in liquid H, 6024*g*.
**Ittner, H. H.** Monoglycerides, P 6843*f*.
**Ittner, M. H.** Fat splitting, P 2793*f*; monoglycerides, P 6843*f*; countercurrent hydrolysis of fat, P 9493*i*.
**Itzikson, M. I.** See Itsikson, M. I.
**Iungerich, F. L.** Food preservation, P 5882*c*
**Iuriev, Yu. K.** See Yur'ev, Yu. K.
**Iván, É.** See Vastagh, G.
**Ivančenko, D.** See Dědek, J.
——— and Zerkalej, V. Pptn. of nonsugars from sugar beets by coagulation in an acid medium, 4501*c*.
**Ivančeva, E. G.** See Ivancheva, E. G.
**Ivančević, I.**, and Stern, P. Objections to the histamine theory of allergy, 4756*c*.
——— and Tomić, D. F in the thermal waters of Sisak, Lipik, and Daruvar, 2345*b*.
**Ivancheva, E. G.** See Pamfilov, A. V.
**Ivanenko, D. D.** Elementary particles and their interactions, 7809*d*.
———, Rachinskiĭ, V. V., Gapon, T. B., and Gapon, E. N. Dynamics of ion exchange, 2067*b*
——— and Sokolov, A. A. Theory of the light-emitting electron, 483*f*.
**Ivankin, P. F.** Deformation of the vein quartz of the auriferous veins of Berezov, 2900*a*.
**Ivannikov, P. Ya.** See Vvedenskiĭ, A. A
**Ivanoff.** See Ivanov
**Ivanov, A. D.** See Volova, E. D.
**Ivanov, B. A.** Geology of the Irkutsk Basin, 2134*h*.
**Ivanov, B. G.**, and Bezyalko, S. M. Detn. of Al in bronzes and steel, 6938*b*.
**Ivanov, B. V.** See Belyanskiĭ, D. S.
**Ivanov, Ch.** See Ivanov, D.
**Ivanov, D.**, and Ivanov, Ch. Dehydration of aryl-disubstituted β-hydroxypropanoic acids—prepn. of indones, 208*a*.
**Ivanov, D. N.** Detn. of elements in flame test, 4595*h*.
**Ivanov, I. G.** Steam distn. of P from P-contg. sludges, 3981*g*.
**Ivanov, I. I.** Metabolism and mobility of spermatozoa, 1851*c*.
——— and Agol, V. I. Biochem. mechanism of muscle-fiber relaxation, 8499*i*.
——— and Ivanova, T. I. Nature of interaction of adenosinetriphosphate with actomyosin, 8499*c*.
——— and Kanygina, K. I. Adenosinetriphosphate in mammal sperm, 4359*c*.
**Ivanov, O. S.** See Savitskiĭ, E. M.
**Ivanov, S. N.** Paper strength, 9443*a*.
**Ivanov, V. I.** Collapsible mold for the production of sponge silicate blocks, P 5168*a*; see Stakheeva-Kaverzneva, E. D.
——— and Sokova, K. M. Oxidative decompn. of α-glycols and polyhydric alcs. with ammoniacal Ag soln., 2548*c*.
**Ivanova, A. A.**, and Bespalko, I. A. Tung-oil type from castor oil, 4872*a*.
——— and Petrova, A. S. Isomerization of linseed oil in the presence of metals, 4027*f*.
**Ivanova, A. P.** See Chugunova, V. I.
——— and Chugunova, V. I. Detn. of $Al_2O_3$ in Al powder, P 3318*f*; detn. of MgO in Mg powder, P 3318*f*.
**Ivanova, I. I.** See Vunder, P. A.
**Ivanova, M. F.** Spectrophotometric detn. of pH, 6933*c*.
**Ivanova, T.** Morphogenetic processes and the central nervous system (II) relations between neural and hormonal regulation of amphibian metamorphosis, 8564*f*.
**Ivanova, T. I.** See Ivanov, I. I.
**Ivanova, T. M.** See Melik-Zade, M., Rubin, B. A.
**Ivanová, V. V.**, and Lyubimov, I. M. Fertility of hybrid bulls, 8038*c*.
**Ivanova, Z. V.** See Kul'berg, L. M.
**Ivanov-Emin, B. N.** See Ostroumov, E. A.
**Ivánovics, G.** Antagonism between effects of *p*-aminosalicylic acid and salicylic acid on growth of *Mycobacterium tuberculosis*, 5079*c*.
———, Csábi, I., and Diczfalusy, E. Antibacterial action of Na salicylate, 9146*b*.
**Ivanovskaya, T. V.** See Gorbunova, K. M.
**Ivanovszky, L.** Chem. Industries (book), 4791*b*, synthetic waxes, 7724*c*.
**Ivarsson, B.** Paper as a viscoelastic body (IV) conditioning of paper and interpretation of stress-strain curves, 1978*d*.
**Ivaščenko, M. S.** See Ivashchenko, M. S
**Ivashchenko, M. S.** See Rigberg, Ya. L.
**Ivashova, Z. V.** See Bozhenkova, T. A.
**Iversen, Karsten,** and Dorph-Petersen, K. Phosphoric acid and potash fertilization—soil analyses, 1510*e*.
**Iversen, Kurt,** and Raaschou, F. Thymol turbidity test in infectious diseases, 4760*b*.
**Iverson, J. O.** HF recovery, P 5182*a*.
**Iverson, W. P.**, and Waksman, S. A. Effect of nutrients on growth of streptomycin-sensitive, streptomycin - resistant, and streptomycin dependent strains of *Escherichia coli*, 3061*b*.
**Ives, D. J. G.** See Hills, G. J
——— and Nettleton, M. R. Problem of mol. asymmetry based on isotopic differentiation of H—an attempted asymmetric synthesis, 3392*d*
**Ives, H. B.** House mice and their control, 7631*a*
**Ives, M.** See Feaster, J. F
**Ivey, D. G.**, Mrowca, B. A., and Guth, E. Propagation of ultrasonic bulk waves in high polymers, 6856*a*.
**Ivey, H. F.** Anomalous values of the thermionic emission constant, 481
**Ivin, K. J.** See Dainton, F. S.
**Ivy, A. C.** See Blickenstaff, D.; Canepa, J. F.; Fogelman, M. J.; Gershbein, L. L.; Gunter, M.; Newman, E., Potter, V. R.; Schwerma, H.; Wang, C. C
——— and Greengard, H. Tissue ext., P 8621*b*.
**Iwai, M.**, and Nakamura, K. Gossypol in cottonseed oil (I) isolation of gossypol from the bark of cotton root, (II) coloration of crude cottonseed oil, 5208*g*.
**Iwai, S.** Oxidation of ethylbenzene, 3915*i*.
——— and Toshima, K. Depolymerization of polystyrene, 7749*a*.
**Iwako, T.** See Shishido, K.
**Iwanenko, D. D.** See Ivanenko, D. D.
**Iwanitschewa, E. G.** See Ivancheva, E. G
**Iwannikow, P. J.** See Ivannikov, P. Ya.
**Iwanoff, Iwanow.** See Ivanov.
**Iwantchewa, Iwantscheff.** See Ivancheva, E. G.
**Iwao, M.** See Kodama, S.
**Iwasaki, I.** Geochem. investigation on geysers (VI), 7388*c*.
——— and Ieyoshi, M. Geochem. investigation on geysers (VII-XIV), 7388*d*.
**Iwasaki, M.** See Morino, Y.
**Iwasaki, T.** See Furukawa, J
**Iwaschtschenko, M. S.** See Ivashchenko, M. S.
**Iwase, E.** Luminescence of some alkali salts exposed to x rays, 7816*a*.
——— and Kanemura, H. Nephelite from Korea, 7871*f*; cancrinite found in Mōyōdō, 7871*g*.
**Iwase, Tokusaburo.** $NH_4Cl$, P 8623*h*.
**Iwase, Tsunehisa.** Phenol resin, P 3655*e*.
**Iwashima, T.** See Nishimura, H.
**Iwastchenko, M. S.** See Ivashchenko, M. S.
**Iwata, M.**, Suzuki, S., and Komiyama, I. Nutritive value of yolk oil, 8028*f*.
**Iwatare, S.** Aviation nutrition (V) influence of vitamins $B_1$, $B_2$, C, P, and K on the resistance to high altitude, 1096*h*.
**Iwasaki, S.** Solid starch for laundry, P 6850*f*.
**Iya, K. K.** See Nambudripad, V. K. N.
**Iyengar, B. R. Y.** See Jatkar, S. K. K.
**Iyer, B. H.** See Bami, H. L.; Bhatt, M. V.; Jain, B. C.; Raghavan, M.
**Iyer, S. G.**, Kannan, A., and Basu, K. P. Compn. of khoa or mawa, 3943*i*.
**Iyer, S. G. G.** Effect of compn. on moisture-absorption properties of jaggery, 2453*i*.
**Iyer, V. G.** Metallurgical Analysis (book), 2548*g*, recovery and utilization of W from unserviceable lamp filaments, establishment of an indigenous industry for the manuf. of ductile W, 6556*a*; see Swarup, D.
**Iytaka, I.** See Iitaka, I.
**Izard, E. F.** Acrolein acetal polymers, P 5635*h*; see Kolb, H. J
——— and Morgan, P. W. Synthesis of disulfide cross links in polyvinyl alc. and cellulose derivs., 3610*g*
**Izbekov, V. N.** See Kryuchkov, N. I.
**Izgarichev, N. A.** See Izgaryshev, N. A.
**Izgaryshev, N. A.**, and Aryamova, I. I. Cathodic process in the electrolytic reduction of oxalic acid, 49*b*.
**Izmailiskij, V. A.** See Izmail'skiĭ, V. A
**Izmailov, N. A.** Acidity of nonaq. solns., 7301*e*, dependence of the activity coeff. $\gamma_0$ on the dielec. const. and the basicity of the medium, 7304*g*.
——— and Bezuglyĭ, V. B. Detn. of Ca gluconate in acetone-water mixts., 6541*e*
**Izmail'skiĭ, V. A.** Principle of spin alternation in π-electron formulas, 410*c*.
——— and Solodkov, P. A. Color of cyanine dyes—absorption of light by mol. compds. between quinoline or pyridine salts and amines, 4071*a*.
**Izmaylov, N. A.** See Izmailov, N. A
**Izquierdo, J. A.** Pharmacology of the ergot parasite of *Spartina maritima*, 3933*d*
**Izrailevich, E. A.** See Shatenshteĭn, A. I
**Izsak, J. A.** See Herman, A
**Iz'yurova, A. I.**, and Ovchinkin, I. P. Purification of water by electrolysis with Al electrodes, 1507*b*, purification of water by electrolysis with Fe electrodes, 7612*g*

**Jablonski, F.** Detn. of Zn in Cu as well as Ni and Pb in Cu and some Cu alloys, 968*f*
**Jaboulay, B. E.** Detn. of Ta and Cb in ferrotantalum, ferrocolumbium, and steels, 2119*b*.
**Jaccottet, A.** See Haenny, C
**Jacimirskij, K. B.** See Vitsimirskiĭ, K. B
**Jacini, G.** Bacteriostatic activity of quinones, 2668*h*, structure of Eulan NK, 6178*h*.
——— and Ferrazzi, M. Triacetyl starch and its allyl ethers, 7902*a*
**Jack, K. H.** Binary and ternary interstitial alloys (I) Fe-N system—structures of $Fe_4N$ and $Fe_2N$, (II) Fe-C-Ni system (III) Fe-C system—characterization of a new Fe carbide, 3765*a*; see Goodeve, C
**Jack, O.** Production of portland cement 5919*f*.
**Jack, S. E.** Al pigments, 5970*c*.
**Jackel, R. D.** Research for the navy in ceramics, 2388*b*.
**Jack & Heintz Precision Industries, Inc.** Removing insulation from metallic elec. conductors, P 790*b*.
**Jackman, M.**, Bolen, C., Nachod, F. C., Tullar, B. F., and Archer, S. Prepn. of dimethyl - γ - cyclopentylidene - γ-phenylpropylamine and related compds., 8359*a*.
———, Klenk, M. M., Fishburn, B., Tullar, B. F., and Archer, S. Prepn. of some substituted thiohydantoins and thiomidazoles, 634*h*.
**Jacks, G. V.** Advances in pedology, 6771*a*
**Jackson, A.** Steel-plant developments at the Appleby-Frodingham Steel Co., 6133*i*, see Allen, R. R.; Woollam, J. P. V.
**Jackson, A. H.**, and Kummerow, F. A. Lipides of dehydrated alfalfa leaf meal, 1999*h*; stability of highly unsatd. acids (II) autoxidation of linolenic and alkali conjugated acid in the presence of metallic naphthenates, 9488*e*.
**Jackson, A. V.** Toxic effects of salicylate in the fetus and mother, 6316*e*.
**Jackson, E.** See Hartman, F. W.
**Jackson, E. B.** See Smadel, J. E.
**Jackson, E. C.**, and Roper, K. R. Water absorbency app., 6423*h*.
**Jackson, E. L.** See Smith, Maurice I.
**Jackson, E. R.** See White, H. J.
**Jackson, F. L.** See Lutton, E. S.
——— and Lutton, E. S. Polymorphism of 2-myristyldistearin, 2-myristyldipalmitin, 1-stearyldimyristin, and 1-palmityldimyristin, 8784*d*.
**Jackson, H.**, and Kendal, L. P. Oxidation of catechol and homocatechol by tyrosinase in the presence of amino acids, 9105*f*.

**Jackson, H. E.** See Briggs, A. S.
**Jackson, I. J.**, and Rose, B Histamine content of the cerebrospinal fluid, 4359*g*.
**Jackson, J. D.** See Blatt, J. M.
**Jackson, J. E.** See Cowan, J. C.
**Jackson, J. H.** See Kura, J. G.
——, Frost, P. D., Loonam, A. C., Eastwood, L. W., and Lorig, C H. Mg-Li base alloys, 2663*c*.
**Jackson, J. M.**, and Benjamin, H. A. Sterilization of foods, 1492*h*.
**Jackson, J. R. F.** See Baird, W.
**Jackson, L.** See Ohlson, M. A.
**Jackson, L. R.** Work hardening under combined stresses, 7394*e*; see Schwope, A. D.
**Jackson, L. W.** Varied chem. dosage easy in Phoenix water plant, 7167*c*.
**Jackson, M. L.** See Mackie, W. Z.; Pennington, R. P.; Tanner, C. B.; Willis, A. L.
——, Evans, C E., Attoe, O. J., Huber, J. L., and Kaudy, J C. Soil fertility level in relation to mineral and botanical compn. of forage, 2347*i*.
——, Tyler, S A., Willis, A. L., Bourbeau, G. A., and Pennington, R. P. Weathering sequence of clay-size minerals in soils and sediments (I), 3127*c*
**Jackson, P. A.** See Hodge, E. A
**Jackson, R.** International standard and unit for penicillin (VIIIg) assay, 3569*e*.
**Jackson, R. K.** See Brown, J. G
**Jackson, R. M.**, and Harrington, P. J. Distn. tower for washing, scrubbing, and refining of petroleum vapors, P 7224*i*.
**Jackson, S.**, and Hinshelwood, C N. Penetration of proflavine into bacterial cells, 7150*b*, training of bacteria to new C sources—*Bact. lactis aerogenes* and D-arabinose, 2669*f*.
**Jackson, S. H.** See Drake, T G. H.
**Jackson, T.** See Finlayson, D.; Small, J.
**Jackson, W.** See Dryden, J. S.
—— and Powles, J G Dielec. absorption in $C_6H_6$ and liquid paraffin soln at ultra-high frequencies, 6019*a*.
**Jackson, W., Jr.** See Foreman, R W.
**Jackson, W. G.** See Price, C C.
**Jacob, F.** See Broch, P J. F
**Jacob, H.**, and Jacob, J. P. Obtaining fine Sn, P 1273*f*
**Jacob, J.** See Funke, A.
**Jacob, J. P.** See Jacob, H.
**Jacob, K. D.** Fertilizers, 2724*a*.
—— and Cummings, R. W. Fertilizer progress in buzonal Germany, 5892*e*.
——, Ward, F. N., Magness, R. M., and Whittaker, C. W. Detn. of $P_2O_5$ in fertilizers—comparison of neutral $NH_4$ citrate and 2% citric acid as solvents for basic slag, 9321*d*.
**Jacob, L.** See Einstein, P. A.
**Jacob, M.** See Mandel, P.
**Jacob, N.** See Harris, J.
**Jacob, R.** See Bovet, D.
**Jacober, W. J.**, and Kraus, C. A. Properties of electrolytic solns. (XL) conductance of $AlBr_3$ in several solvents and of methylaluminum bromides in MeBr, 8810*f*, (XLI) conductance of Al bromides in MeBr on addn. of dimethyl ether, 8810*g*.
**Jacobi, E.** Chem. behavior of radioactive substances in unweighable amts in pptn. reactions, 2506*i*; chemistry of element 43, 2507*b*; carrier-free sepn. of radioactive In from Cd, 4949*c*.
**Jacobs, B. R.**, and Jolles, Z. E. Arylbiguanide hydrochlorides, P 684*h*.
**Jacobs, F. F.** Screen printing, 5953*d*, 7689*h*.
**Jacobs, H.**, and Hees, G. Variations in the consts. of Richardson's equation as a function of life for oxide-coated cathodes on Ni, 4091*e*.
——, Hees, G., and Crossley, W. Thermionic emission of oxide-coated filaments, 4095*d*.
—— and LaRocque, A. P. Min. sparking potentials of Ba, Mg, and Al in Xe, 4092*d*.
**Jacobs, H. R.** Treatment of viscometric data, 2058*i*.
**Jacobs, J.** See Gregg, S. J.
**Jacobs, Jean.** See Roddy, W. T.
**Jacobs, James H.** Stripping electrolytic Mn, P 2153*c*.
—— and Yarroll, W. H. Electrolytic cell for Mn recovery, P 2103*h*.
**Jacobs, J. Howard.** Processing of color films, 511*d*.
**Jacobs, L. E.** See Klevens, H. B.
—— and Platt, J. R. Does ultraviolet absorption intensity increase in soln.? 3291*g*; detn. of Lorentz-Lorenz correction in ultraviolet absorption, 4094*i*.
**Jacobs, L. J.** See Kauffman, T., Jr.
**Jacobs, M. B.** Mol. distn., 911*h*; trace flavoring materials, 2339*a*; gin flavorings, 2365*b*; propionates as flavor components, 2370*i*, terpene and aromatic propionates, 2372*f*; butyrates as flavor components, 8573*i*, candy flavorings, 8573*fg*, coffee flavor, 8574*a*, coffee-flavor components, 8574*a*, aromatic and terpene butyrates, 9375*d*; peppermint flavorings, 9382*a*, see Herstein, K. M.
**Jacobs, M. D.** See Volterra, M.
**Jacobs, M. L.** Wind-driven generators as an external source of protective currents, 6093*a*.
**Jacobs, R. T.** See Rawlings, F. N.
**Jacobs, S. E.**, and Marsden, A. W. Antibiotics in the decompn. of sawdust (II) inhibition of the growth of cellulose-decompg. fungi, 9158*i*.
**Jacobs, S. J.** Measurement of temp. in a detonating explosive, 4467*a*.
**Jacobs, T. L.**, and Tuttle, W. P., Jr. Acetylenic ethers (V) polymerization of phenoxyacetylene, 6997*a*
——, Winstein, S., Linden, G. B., Robson, J. H., Levy, E. F., and Seymour, D. 2-Hydroxycinchoninic acid, 1778*f*
**Jacobs, W. A.** See Huebner, C. F., Sato, Y.
—— and Sato, Y. Veratrine alkaloids (XXVIII) structure of jervine, 658*d*
**Jacobsen, A. E.** Significance of pigment particle size and shape, 3629*a*; $TiO_2$ pigments—correlation between photochem. reactivity and chalking, 4490*e*.
**Jacobsen, C. F.** Comparison of different $\beta$-lactoglobulin samples, 4717*g*; see Longsworth, L. G
**Jacobsen, E.** See Asmussen, E., Hald, J
**Jacobsen, H.** Danish Flax Research Institute, 5595*h*.
**Jacobsen, M.** Demonstration of complement fixing antibodies against sulfonamides and sanocrysin, 3525*h*.
**Jacobsmeyer, L.** Brazed assembly, 8999*b*.
**Jacobsohn, D.** Limits of error of the assay of pregnant mares' serum gonadotropin, 4721*d*, action of ovarian hormones on growth and development of mammary gland, 4750*f*; action of corticotropic and adrenal cortex hormones on the mammary gland, 9206*b*.
**Jacobsohn, K. P.**, and Deodata de Azevedo, M. Activity of thiaminase in the live and dead organism, 4308*g*; enzyme system attacking folic acid, 4308*g*, enzymic system which hydrolyzes thiamine, 7061*i*.
——, Tapadinhas, J., and Soares, M. Hydrases and their physiol. action—citrate metabolism, 7058*c*.
**Jacobson, H. G. M.** Introducing radioactive P into the grain of growing corn, 329*c*.
**Jacobson, H. W.** See Coffman, D. D.; Ford, T. A.
**Jacobson, J. N.** Hypophosphatemia glycosuric rickets (III) radiological features, 6713*e*.
**Jacobson, L.** See Overstreet, R.; Stout, P. R
**Jacobson, L. O.** See Ducoff, H. S.
——, Marks, E. K., and Gaston, E. Effect of BAL on Co-induced polycythemia, 761*c*.
——, Marks, E. K., Gaston, E., Allen, J. G., and Block, M. H. Effect of N mustard and x-irradiation on blood coagulation, 4764*g*.
——, Marks, E. K., Gaston, E., and Block, M. H. Effects of N mustard on erythroblastic hyperplasia, 8556*g*.
**Jacobson, M.** Herculin, a pungent insecticidal constituent of southern prickly ash bark, 1719*f*; structure of pellitorine, 2933*h*; see Hall, S. A.
**Jacobson, N. L.** See Allen, R. S.; Murley, W. R.
**Jacobson, R.**, and Webb, J. S. Nigerite, 6117*h*.
**Jacobson, R. A.** See Brubaker, M. M.
**Jacobson, S.**, and Wellington, M. S. Prechlorination of slow sand filters, 8584*e*.
**Jacobson, S. D.** See Boyle, A. J.; Mosher, R. E.
**Jacoby, A. L.** See Bird, P. G.
**Jacoby, F.**, and Martin, B. F. Histochem. test for alk. phosphatase, 7541*c*.
**Jacoby, W. R.** See Milsom, D.
**Jaconis, P. D.** Adhesive, P 3662*h*.
**Jacotot, H.** Alumina gel as adjuvant and stimulant of immunity, 7120*h*.
**Jacqué, L.** Scientific and tech. prospects in the petroleum industry, 1951*d*; extn. of solid substances by solvents, 2477*i*; panoramic view of petroleum sciences and techniques, 7215*e*.
——, Joussellin, A., and Millot, F. Fractionation of the phenoplastic resins by selective soln., 4047*a*.
**Jacquemain, R.** See Décombe, J.
—— and Berger, J. Theory of homogeneous catalysis in org. chemistry, 474*g*; oxidation of 2,4-dimethyl-2,4-pentadiene, 2080*f*; application of a theory of catalysis by mols. of permanent elec. moment to paint chemistry, 8694*h*.
**Jacques, J.** See Courrier, R., Horeau, A.
—— and Horeau, A. Mol. structure and estrogenic activity (VII) resolution of $\alpha,\alpha$-dimethyl-$\beta$-ethylallenolic acid, 6607*g*.
**Jacquet, B.** See Bordo, D.
**Jacquet, P. A.** Electrolytic polishing of steels and of Cr for micrographic examn., 508*e*, cause of error in the current-voltage curves of the electrolytes of anodic polishing—application to the study of polishing, 951*i*; electrolytic polishing of metallic surfaces (I), (II), 5673*f*; (III), (IV), (V), 8909*i*, detection of slight plastic deformation in Cu-rich alloys, 8337*h*.
—— and Caillat, R Electrolytic polishing of U, 6091*i*.
—— and Galmiche, P. Corrosion of refractory alloys—construction of turbo-reactors, 5723*f*.
**Jacquin, P.** See Tavernier, J.
**Jacquinot, P.** Optical analysis of photoelec. spectrographs—influence of aperture and slit width on the luminosity and resolution, 5233*i*.
**Jacquot, G.** See Roux, M.
**Jacquot, R.** See Cailleau, R.; Charconnet-Harding, F.; Creveaux-Bourgeat, J.; Hirsch, Arthur; Lévy, Jeanine; Terroine, T.
—— and Terroine, T. Physiol. relation between tryptophan and nicotinic acid, 6293*b*.
**Jadhav, G. V.** See Bradley, W.; Javeri, A. T.; Mehta, A. M.; Naik, A. R.; Vandrewala, H. P.
—— and Aslam, M. Bromination of compds. contg. two aromatic nuclei (VI) aryl esters of *m*-cresotic acid, 2603*g*.
**Jadot, J.** Reduction of $\beta$-diketones, 5744*f*; see Baudrenghien, J.
**Jaeckel, R.** See Nöller, H. G
—— and Oetjen, G. W. Mol. distn., 6006*c*.
**Jäger, A.**, and Grebe, W. Infrared recorder and its use in mining (II) development and application of the process for CO detn. in mine damp, 6008*g*.
**Jaeger, A. O.** See Ashley, K. D.
**Jäger, H.** Stabilization of aq. solns. of ascorbic acid, 3972*h*.
**Jaeger, L.**, and Barth, L. G. Relation of apyrase activity to differentiation in an ascidian, 5124*a*.
**Jaeger, P.**, and Duquénois, P. Cinnamon from Madagascar, 8573*c*.
**Jaeger, W. C.** Device for indicating changes in compn. of gases, P 3176*c*.
**Jaegers, K.** Treatment of sewage from hospitals, 8585*f*.
**Jaeggi, A.** See Spengler, H.
**Jäniche, W.**, and Saul, K. H. Distinguishing plain C steels, 3314*h*.
**Jaenike, J. R.**, and Nasset, E. S. Relation of iodinated $\beta$-amylose (tridine) to some thyroid functions, 3521*i*.
**Jäntti, O.** Home-made voltammeter for polarographic analysis, 909*c*
**Järnström, T.** See Myrbäck, K.
**Jaffa, M.** Degreasing tank, P 6967*a*.
**Jaffe, B.** Crucibles (book), 913*d*.
**Jaffe, E.** Reactions of tartaric acid for differentiation from citric and oxalic acids, 8977*g*.
**Jaffé, E. R.**, Humphreys, E. M., Benditt, E. P., and Wissler, R. W. Effects of various degrees of protein depletion on histological and chem. structure of rat liver, 7097*e*.
**Jaffé, G.** Statistical theory of liquids (III), 4065*a*.
**Jaffe, H.** Controlling the resistivity of P-type (primary $NH_4$ phosphate) crystals, P 368*i*; electroöptic effects in crystals of the primary phosphate type, 4066*e*; vol. electrostriction in Ba titanate ceramics, 4067*a*.
**Jaffe, H. H.**, and Doak, G. O. Disproportionation of aromatic stiboso compds. (I) mechanism, 3696*d*.
**Jaffe, H. W.** See Gabriel, A.
**Jaffe, L. D.**, and Buffum, D. C. Temper brittleness of plain C steels, 984*e*; isothermal temper embrittlement, 8329*d*.

——, Reed, E. L., and Mann, H. C. Discontinuous crack propagation, 9010*b*.
**Jaffé, W. G.** Limiting essential amino acids of some legume seeds, 9180*f*.
**Jaffee, R. I.** Magnetic properties of ordered Ni-Mn alloys, 93*e*, Zr metal, 6552*a*.
—— and Campbell, I. E. Effect of O, N, and H on iodide refined Ti, 7882*c*.
——, Minarcik, F. J., and Gonser, B. W. Low-temp. properties of Pb-base solders and soldered joints, 987*d*.
**Jaffray, J.**, and Beaufort, M. F. Elec. cond. of the sesquioxide of Cr at slightly elevated temps., 7285*e*.
—— and Roche, J. Optical properties of cerussite at various temps., 8788*h*.
**Jagannathan, V.**, and Luck, J. M. Phosphoglucomutase (I) purification and properties, (II) mechanism of action, 7067*a*.
**Jager, B. V.**, Smith, E. L., Nickerson, M., and Brown, D. M. Immunological and electrophoretic studies of human γ-globulins, 5107*g*.
**Jagersberger, A.** Measuring accuracy of tech. partial radiation pyrometers, 4521*b*.
**Jagger, J. B.** See Davies, W.
**Jagger, L.**, and Speakman, J. B. Recrystn of relaxed animal fibers, 8416*f*.
**Jagitsch, R.** Reaction kinetics in the $Na_2O$-$Al_2O_3$-$SiO_2$ system, 8253*e*.
**Jagremzew.** See Yagremtsev.
**Jahan, I.**, and Pitts, R. F. Effect of parathyroid on renal tubular reabsorption of phosphate and Ca, 2692*c*.
**Jahn, H. A.** Enumerating the phys. const. of crystals, 6483*b*.
**Jahn, W. F.**, and Pesonen, P. E. Sn-bearing pegmatites in the Tinton area, Lawrence Co., S. Dakota, 6545*i*.
**Jahnke, W.** Has $ZnSO_4$ an astringent effect on the eye? 5860*c*.
**Jahns, F. W.** See DeRitter, E.
**Jaicks, F.** Effect of high coke-oven gas firing on open-hearth operation, 7389*h*.
**Jailer, J. W.** Comparative thiamine satns. in women with uterine cancer and in normal women, 5490*a*; detn. of estrogens, 7534*e*, effect of inanition on the inactivation of estrogen by the liver, 8024*h*; see Levin, L., Soffer, L. J.
——, Rosenfeld, M., and Shannon, J. A. Influence of orally administered alkali and acid on the renal excretion of quinacrine, chloroquine, and santoquine, 7587*e*.
**Jaillet, J. B.** See Giguere, P. A.
**Jain, B.** See Jonakin, J.
**Jain, B. C.**, Iyer, B. H., and Guha, P. C. Sulfones (III) synthesis of contact insecticides, 2593*a*; (IV) substituted alkyl aryl and diaryl sulfones, 2593*d*; sulfanilamides (XIII) reaction with dicarboxylic acids—$N^1$- and $N^4$-acyl and heterocyclic derivs., 2597*e*; (XIV) $N^4$ (heterocyclic acyl)sulfanilamides, 2597*i*.
——, Mirchandani, P., Iyer, B. H., and Guha, P. C. Sulfones (I) Schiff bases of 4-nitro-4′-aminodiphenyl sulfone and their reduction products, 2592*g*.
**Jaitchnikow, Jaitschnikoff.** See Yaichnikov.
**Jakimoff, P. A.** See Yakimov, P. A.
**Jakob, A.**, and Mahl, H. Adsorption of metal colloids on bacteria, 274*g*, 4726*d*.
**Jakob, C. W.** See Shedlovsky, L.
**Jakob, J.**, and Brandenberger, E. Quality of the dioxides of Si and Ti, becoming apparent during an analysis of a silicate, 6484*c*.
**Jakob, M.** Heat Transfer (book), 6873*c*.
**Jakobey, I.** Calibration and control of fat detns. by refractometer, 5609*a*.
**Jakobsen, J. L.** Degumming of vegetable oils, P 885*a*; purification of a fatty oil, P 5215*d*.
**Jakobson, L. M.** See Yakobson, L. M.
**Jakobson, T.** Artificial sponges and porous materials from cellulose derivs., 2427*c*.
**Jakóby, L.** Al brasses, 7886*a*.
**Jakoubovič, Jakoubowitsch.** See Yakubovich.
**Jakovlev.** See Yakovlev.
**Jakovliv, G.** Preservation of perishable foodstuffs, 1122*g*; pectins, pectic acids, and their gels, 6327*i*.
**Jakowleff, Jakowlew.** See Yakovlev.
**Jaks, E.** See Lauer, K.
**Jakubovič, Jakubovitch.** See Yakubovich.
**Jakubow.** See Yakubov.
**Jakubowicz, Jakubowitsch.** See Yakubovich.
**Jakubowsky, K.** Recovery of sea salt at the Bulgarian Black Sea shore, 3983*a*.
**Jáky, J.**, and Szilvágyi, I. Solidity values of bitumen, 9425*e*.
**Jáky, M.**, and Perédy, J. Ash of sunflower-seed hulls, 8709*e*.
**Jalavisto, E.** See Autio, L.; Bonsdorff, E.
**Jalbert, J.** Fuel-injection tests in a Citroen engine, 2753*c*.
**Jalon, G. de.** See Elio Membrado, J.
**Jalón, P. D. G. de.** See García de Jalón, P. D.
**Jambor, W. P.** See Rake, G.
**James, C. W.** See Clifford, I. L.
**James, D. P.** See Crang, A.
**James, E. M.** Fractionation of unsatd. glyceride oils, P 3216*a*; report of the refining committee, 5975*e*.
**James, G. V.** Quaternary $NH_4$ compds., 2370*g*, synergistic effect of aerosol OT on certain germicides, 3065*c*; Water Treatment (book), 4800*a*; surface-active agents, 8180*a*; synthetic detergent powders, 8180*b*; glass polishes, 8180*d*; disinfectants, 9364*i*.
—— and Jannaway, S. P. Hair preps analyzed, 8093*g*.
—— and Vallance, J. M. Car polishes in liquid form, 9493*c*.
**James, H. M.** Conduction in photoconductive PbS films, 8848*d*.
—— and Guth, E. Network theory of rubber, 7739*f*.
**James, J. C.** See Davies, C. W.
**James, L. E.** See German, H. L.
**James, L. H.** Quaternaries *vs* phenolics—germicidal effectiveness of some quaternary and phenolic compds. reported together with time-survival nos. of *Eberthella typhosa* and *Staphylococcus aureus* (I), 9375*f*.
**James, M. E.** See Bonner, T. G.
**James, M. F.** See Johnson, B. C.; Kruder, J. L.; Neumann, A. L.
**James, R. G.** Latex thread and its industrial applications, 5983*h*.
**James, R. H.** See Hastings-James, R.
**James, R. R.** See Morris, R. E.
**James, R. W.** Crystalline State Vol. II Optical Principles of the Diffraction of X-rays (book), 3278*g*.
**James, S. P.** See Bray, H. G.
**James, T. H.** Site of reaction in direct photographic development (II) kinetics of development initiated by Au nuclei, 51*d*; ferrous iron photographic-developer soln., P 4593*e*.
—— and Levenson, G. I. P. Photographic development by resorcinol, 3301*c*.
**James, W. H.** See Swift, R. W.
**James, W. O.** Amino acid precursors of the belladonna alkaloids, 9377*f*; see Beevers, H.
——, Roberts, E. A. H., Beevers, H., and De Kock, P. C. Secondary oxidation of amino acids by the catechol oxidase of belladonna, 3863*d*.
**James-Carrington, D. W.** Factors affecting the corrosion of Fe and steel used in building, 3337*g*.
**Jameson, C. H.** See Maxey, G. B.
**Jameson, E.**, Alvarez-Tostado, C., and Lew, W. Electrophoretic changes in the blood-serum proteins in the mothers and young of rats during pregnancy and lactation, 4744*e*.
**Jamet, A.** Ultra-rapid drying, 9506*h*; see Chambard, P.
**Jamieson, C. A.** See Auclair, J. L.
**Jamieson, G. S.** Vegetable Fats and Oils (book), 8711*h*.
**Jamieson, M.** See Brian, P. W.
**Jaminon, G. D.** See Demelenne Jaminon, G.
**Jamison, V. C.**, and Reed, I. F. Durable asbestos tension tables, 9317*b*.
**Jamison, W.** See Veal, J. R.
**Jamrack, W. D.**, and Imperial Chemical Industries Ltd. K fluorozirconate, P 1927*h*, $SbCl_3$, P 3984*c*.
**Janckes, E. K.** V, 2127*h*.
**Jancsó, T.**, Kriza, K., and Szentmiklósi, I. Sepn. of emulsions, P 8758*g*.
**Jander, G.** Anorganische und Allgemeine Chemie in Einzeldarstellungen (book), 6904*e*; see Fresenius, R.; Hecht, H.; Pfundt, O.; Schmidt, Hans.
——, Gensch, C., and Hecht, H. Detn. of $NH_3$ and $H_3PO_4$ in $NH_4$ salts, 3315*e*.
——and Grüttner, B. Chemistry in anhyd. HCN (III) reactions analogous to neutralization in liquid anhyd. HCN, (IV) solvolysis phenomena with salts, esp. Ag salts in anhyd. HCN, (V) phenomenon of amphoterism in liquid HCN, 515*g*.
——, Rüsberg, E., and Schmidt, H. Reactions analogous to neutralization in $Ac_2O$, 2110*e*.
—— and Spandau, H. Kurzes Lehrbuch der anorganischen Chemie (book), 8942*h*.
——— and Wendt, H. Rudiments of a chemistry in abs. $HNO_3$ (I), 5264*h*; (II) solvolysis and amphoteric reactions, 6495*g*.
**Jandorf, B. J.** See Larner, J.
**Janecek, F. H.** C hearths in Republic blast furnaces, 7389*g*.
**Janecska, J.** $MnO_2$-contg. galvanic element of increased capacity, P 1274*g*.
**Janes, B. E.** Effect of varying amts. of irrigation on the compn. of two varieties of snap beans, 1514*i*.
**Janes, R. G.**, and Brady, J. Thiamine deficiency in normal rats and in rats made diabetic with alloxan, 293*i*.
**Janeway, C. A.** Plasma fractionation, 8408*b*.
**Jang, C. S.** See Fu, F. Y.
**Jang, R.** See Jansen, E. F.; Lineweaver, H.
**Janin, J.**, and Eyraud, C. Spectroscopic study of an elec. arc of very low intensity, 40*a*.
**Janistyn, H.** Ambergris, 3148*d*, nonionic emulsifiers, 3219*b*.
**Janiszewska-Brożek, S.** See Chmielewska, I.
**Janke, A.** Diving bell fermentation pipe—collecting gas from anaerobic fermentation, 1077*c*.
**Jankowski, J.** See Bobranski, B.
**Jankowsky, K. A.** See Yankovskii, K. A.
**Jann, G. J.** See Salle, A. J.
**Jannaway, S. P.** Alginates in cosmetics, 1905*i*, leg cosmetics, 1906*g*, see James, G. V.
**Janney, C. D.**, and Moyer, B. J. Routine use of ionization-chamber method for $C^{14}$ assay, 934*i*.
**Jannke, P.** See Chilquist, V.
**Jannone, G.** Toxicity of various mixts. contg. hexachlorocyclohexane and DDT on the larvae of *Melolontha melolontha*, 5526*e*; contact preps. for control of *Melolontha melolontha*, 8088*f*.
**Jannuzzi, S.** See Vicuna, A.
**Jánossy, L.**, and McCusker, C. B. A. Penetrating particles in air showers, 3279*h*
——and Nicolson, P. Meson formation and the geomagnetic effects, 4943*e*.
**Janot, M. M.** Structure of emetine, 5787*e*; structure of alkaloids 194*c*; see Fourneau, E.
——and Chaigneau, M. Fluocolumbates (V) of alkaloids, 5785*h*.
—— and Goutarel, R. Constitution of ketoyobyrine, 5786*a*.
**Janowitz, H.**, and Grossman, M. I. Effect of parenteral administration of glucose and protein hydrolyzate on food intake, 2298*g*, blocking action of tetraethylammonium on axon reflexes in the human skin, 3525*g*, effect of variations in nutritive d on intake of food of dogs and rats, 8478*d*
——, Hanson, M. E., and Grossman, M. I. Effect of intravenously administered glucose on food intake, 5465*f*.
**Jansa, O. V. E.** See Hjort, C. I. F.
**Jansen, E. F.** Isolation and identification of β,β′-dimercaptoisobutyric acid from asparagus, 2580*c*; see Lineweaver, H.; Michener, H. D.
——, Jang, R., and MacDonnell, L. R. Isolation of acetylesterase from citrus waste, P 2340*g*.
——— and Lineweaver, H. Pectic enzyme preps. fortified with pectin esterase, P 2650*c*
———, Nutting, M. D. F., and Balls, A. K. Reversible inhibition of acetylesterase by diisopropyl fluorophosphate and tetraethyl pyrophosphate, 258*g*; inhibition of chymotrypsin by diisopropyl fluorophosphate (I) introduction of P, 6080*a*.
——— , Nutting, M. D. F., Jang, R., and Balls, A. K. Inhibition of the proteinase and esterase activities of trypsin and chymotrypsin by diisopropyl fluorophosphate—crystn. of inhibited chymotrypsin, 6679*i*.
**Jansen, J. E.** Reaction of thiuram disulfides and ethylene imines, P 3229*g*; catalysts for phenol-ketone condensation, P 5424*b*; see Gresham, T. L.
**Jansen, K. F.**, and Tage Hansen, E. Dicoumarol in thrombosis, 8521*a*.
**Janser, O. L.**, Westbury, D. C., and Simon, A. Plastic material for molding and modelling, P 901*d*.
**Jansing, J.** See Roddy, W. T.
**Janssen, C.** Elec. methods for the analysis of water, 5889*b*.
—— and Spruitt, D. Detn. of low degrees

of hardness in water (I), 4794*f*; (II), 9306*g*.
**Janssen, F.** Refining of S, 2378*h*.
**Janssen, H. J. J.** Burning liquid fuel, P 379*g*.
**Janssen, L. W.** How does nature build macromols ? 5437*b*.
**Janssen, N. F.** See Kamer, J. H. van de
**Jansson, H.** See Bergström, H. O. V.
**Jansson, S. L.** Isotopic tracers in plant physiology, soil science, and fertilizing practice, 4554*g*.
**Jantsch, G.**, Hummer-Kroupa, A., and Gansinger, J. Detn. of traces of Sn, 3312*g*.
——, and Zemek, F. Prepn. of synthetic cryst. Mg carbonate, 8931*i*.
**Jany, J.** Tannin analysis, 9508*i*.
**Japan Celluloid Co.** Same as Dai Nippon Celluloid Co.
**Japanese High Frequency Wave Heavy Industries Co.** $TiO_2$ from Fe sand slag, P 6377*d*.
**Jappesen, J. H.**, and Grau, C. R. Whole wheat protein as an amino acid source for chicks, 286*h*
**Japs, A. B.** Pilot-plant design and construction—chem engineering research at the B. F. Goodrich Co., 1613*d*, drying polymeric materials, P 3660*i*.
**Jaques, L. B.** Detn. of prothrombin time, 3487*b*; detn of heparin in blood, 9136*d*; see Schwager, P. G., Scroggie, A. E.
——, Monkhouse, F. C., and Stewart, M. Detn of heparin in the blood, 8428*a*.
**Jaques, S.** Cell $H_2|HCl|AgCl|Ag$, 6051*h*
**Jaray, F. F.** S base jointing compds., 6344*d*
**Jares, J.** Fume disposal by combustion, 1617*c*.
**Jaretzky, R.** Lehrbuch der Pharmakognosie (book), 8619*b*.
**Jarka, J.** Improvement of Branany bentonite by chem. treatment, 3581*a*
**Jarkowa, W. R.** See Zharkova, V. R
**Jarl, F.** Monozygous cattle twins (VI) quant. variation of ascorbic acid in the milk, 1849*f*, prepn and nutritive value of silage (I) tests in small silos (1) different concns of formic acid, (2) Lungwe methods, (3) addn. of molasses and bacterial prepn., 1879*c*; nutritive value of sugar-beet by-products, 2338*i*
——, and Helleday, T. Prepn and nutritive value of silage (II) (1) tests in large silos with fresh grass forage by different methods, (2) digestibility test with fresh forage and silage, (3) group test with milk cows, 6756*i*
**Jarlan, H.** L'eau (book), 1129*a*
**Jarnagin, W. M.** Decolorization of petrolatum, P 8132*d*
**Jaros, S. H.**, Castillo, J. C., and De Beer, E. J. Application of a piperazine compd. (I) human pharmacology, (II) clinical observations, 9252*i*
**Jarov, V. S.** See Sharov, V. S.
**Jarowski, C. I.** Diisoeugenol as an antioxidant, P 1586*d*, see Cramer, B. J.
——, and Hess, G. B. Ultraviolet absorption study of some substituted β-aroylacrylic acids and 2-carboxychromones and chromanones, 6019*a*.
——, and McPhail, M. K. Antipyretic action of some derivs. of salicylic acid, *p*-aminophenol, and dihydropyrazolone, 8553*h*.
——, Moran, W. J., and Cramer, B. J. Synthesis of β-(2,6-dihydroxybenzoyl)- and β-(2,4,6-trihydroxybenzoyl)acrylic acids, 4265*c*
——, and Stiller, E. T. Antioxidants, P 2339*h*.
——, Stiller, E. T., and Williamson, M. B. Antioxidant from rice bran, P 2340*a*.
**Jarpa, S.**, and Croxatto, H. Arterial pressure of rats with adrenal hypertrophy from KCl, 5872*f*; excretion of corticosteroids in urine of rats treated with KCl, 5872*i*.
**Jarrett, K. B.** Powd. polythene, P 1610*i*
**Jarrett, M. E. D.** Effect of surface-active agents on paint consistency, 1195*a*; paint flow, 1577*c*.
**Jarrett, S. G.** See Bacon, R. G. R.; Charlton, W.
**Jarrijon, A.** Synthetic elastomers and natural rubber—testing of the raw product, 429*d*; see Colin, G.
**Jarry, R. L.** See Booth, H. S.
**Jarvis, A. E.**, Christian, J. E., Edwards, L. D., and Jenkins, G. L. Effect of various soils on the P depletion of the rat tooth using radioactive P, 8552*i*.
**Jarvis, G. A.** See Taschek, R. F.
**Jarvis, R. N.**, and Waugh, R. K. Cottonseed oils in purified and skim-milk diets for calves, 7604*a*.
**Jary, S. G.**, and Carpenter, K. Control of insect pests of *Brassica* seed crops, 9336*b*.
**Jarzyńska, M.** Synthetic resin adhesives, 8197*h*
**Jarzyński, Adam.** Synthetic liquid fuels, 3591*e*, 5570*i*
**Jarzyński, Andrzej.** Phenol, 8197*c*.
**Jaschke, F.** From the British to the German Pharmacopeia(III) proposals for a pharmacopeia, 5551*i*.
**Jasco, Inc.** Modifying agents for use in low-temp. polymerization reactions, P 1602*c*, app. for manufg. high polymers, P 2469*g*, tie-gum compns., P 5224*a*; insulated conductor, P 5518*f*.
**Jasiewicz, Z.** Definition of a metal, 5251*a*.
**Jaskot, E.** See Santoro, O
**Jasmund, K.** Sepn and detn. of colloidal particle sizes with a continuous centrifuge, 8800*g*
**Jasnopolskij, V.** See Yasnopol'skiĭ, V. D.
**Jasonni, E.** Histamine tests and sulfurated mineral waters (I) cutaneous histamine reaction in allergies treated at S springs, (II) aerosol-histamine shock of guinea pigs treated with inhalations of S waters, (III) expts on the prophylactic and antagonistic action of S springs against histamine, 6731*h*
**Jassawalla, J. P.** See Hattiangdi, G. S.
**Jaswon, M. A.**, and Wheeler, J. A. At. displacements in the austenite-martensite transformation, 918*h*
**Jaszczyn, P.** See Viallard, R
**Jatkar, S. K. K.**, and Iyengar, B. R. V. Dielec. consts. and mol. structure (II) relation of the new equation to previous equations, 7279*e*
——, and Kulkarni, S. B. Dielec. const. and mol. structure of hexachlorocyclohexanes, 6877*g*, dielec. const of ionic solids, 6877*f*, bond in ionic crystals, 8762*g*, bond energy and ionic character of H and alkali halides, 8763*a*.
——, Kulkarni, S. B., and Gopalaswamy, S. N. Ionic character of H and alkali halides, 8762*i*
**Jatul, B. B.** See Wilcox, P. W.
**Jatzina, L. T.** See Yatsyna, L. T.
**Jatzkewitz, H.** See Butenandt, A.
**Jaubert, G. F.** Protection of airplane engines against rust and the deceptive indications given by $CoCl_2$ as a hygrometric indicator, 5516*d*
**Jaudon, E.** Phosphate treatments in the protection of metal by paint, 7715*i*
**Jaulmes, P.** See Ferre, L.
**Jauregg, T. W.** See Wagner-Jauregg, T
**Javeri, A. T.**, Jadhav, G. V., and Shah, R. C. Synthesis of α-naphthaleneacetic acid, 9057*a*
**Javillier, M.** Andre Boivin, 6875*c*, see Champetier, A
**Javoisky, V. I.** See Yavorskiĭ, V. I.
**Javorskaja, S. F.** See Yavorskaya, S. F
**Jaworek, H.** See Fischer-Colbrie, E
**Jaworek, M.** Acid- and heat-resistant stainless steels, 1699*d*.
**Jaworonkow, N. M.** See Zhavoronkov, N. M.
**Jaworski, B. M.** See Yavorskiĭ, B. M
**Jaworski, H. E.**, and Lavetter, V. E. Battery-operated midget impinger app., 6469*f*.
**Jax, P.** Chem. compn of Austrian butter, 3534*b*.
**Jay, A. R.** See Sherwood, N. P.
**Jayaraman, A.**, and Srikantan, B. S. System $[Al_2O_3-H_2O]$ in relation to the dehydrating properties of $Al_2O_3$, 8833*g*.
**Jayle, M. F.** Precis de Biochimie clinique (book), 5820*b*
**Jaymé, G.** Poplar wood for pulp manuf., 2428*d*; Australian pulp and paper industry, 7681*a*.
—— and Harders-Steinhäuser, M. Broom plant, 397*h*.
—— and Mohrberg, W. Swelling measurement with holocelluloses retaining lignin, 6407*f*.
—— and Schenck, U. Detg. the cellulose content of aspen woods, 1179*g*.
——, Schenck, U., and Rothamel, L. Changes in the properties within an individual bole in the case of aspen woods, 3607*f*.
**Jayne, D. W., Jr.**, Day, H. M., and Nolan, K. G. Benzothiazolyl ethers as plant-growth regulators, P 5154*d*.
**Jdanoff.** See Zhdanov.
**Jdanovitch, A. I.** See Zhdanovich, A. I.
**Jean, Marcel.** Tungstic and molybdic heteropoly acids, 1671*f*; spectrographic analysis, 2539*e*; analytical sepn of the arsenates of Zr for the detn of As, 8302*b*, detn. of Cu, Hg, and As in the presence of considerable Fe, 8303*c*.
**Jean, Maurice.** Ionic structure in the method of the spin state, 3672*a*, see Benoist, P.
**Jeanes, A.**, Schieltz, N. C., and Wilham, C. A. Mol. assocn in dextran and in branched amylaceous carbohydrates, 2583*f*
——, Wilham, C. A., and Miers, J. C. Prepn and characterization of dextran from *Leuconostoc mesenteroides*, 2269*i*
**Jeanes, J.** See Truitt, P.
**Jeanloz, R.** See Prins, D. A
——, Fletcher, H. G., Jr., and Hudson, C. S. 1,5 Anhydroribitol, 1721*a*; reactions of 2,3,4 - tribenzoyl - β - D - ribopyranosyl bromide, 1721*d*
**Jebsen-Marwedel, H.** Interfacial microreactions in glass melts (I), (II), 3578*b*, capillary hydrodynamics in sol liquid pairs as a result of neg. surface tension, 4531*h*.
—— and Dinger, K. Modification of the surface tension under the influence of the furnace atm. and the consequences, 6379*a*.
**Jech, Č.** Radioactivity of dust, 5298*i*
**Jedlicka, H.** Oxidation of the alkali metals in an electrolytic cell, 1661*h*, galvanic cell Na-amalgam | NaOH | CuO, 5315*b*, galvanic cells with alloy electrodes, 8907*e*
**Jedrysik, H.** See Bojanowski, J.
**Jeener, R.** Nucleic acids and phosphatases during growth stimulated by estradiol and prolactin, 2686*a*; see Brachet, J
**Jefferies, A.** See Jones, J. O
**Jefferson, G. D.** Textile wax compns., P 2444*d*.
**Jefferson, M. E.** See O'Connor, R. T
**Jefferson, R. N.**, and Pence, R. J. Control of the leaf miner on asters, 1522*g*.
**Jefferson Island Salt Co.** Rock-salt dissolver and filter, P 6378*f*
**Jeffery, G. H.**, and Vogel, A. I. Phys. properties and chem. constitution (XVI) ethylenic compds., (XVII) acetylenic compds and cyanamides, 2591*e*; (XVIII) three-membered and four-membered C rings, 2955*e*
**Jeffery, J. W.** Crystal setting by x-rays, 6509*g*
**Jeffes, J. H. E.** See Richardson, F. D.
**Jeffords, R. M.** See Allen, W. B
**Jeffrey, G. A.** See Cox, E. G.
——, Koch, H. P., and Nyburg, S. C. Mol. configuration and isomorphism in the *meso*-α,β-divinylbibenzyl series, 611*i*
**Jeffreys, G. A.** Yeast-and vitamin B products, P 1906*i*, biochemically processed liquid base for food products, P 3540*a*, yeast and vitamin concentrates from cultured material, P 9362*f*
**Jeffreys, H.** Origin of the solar system, 490*c*; Pb isotopes and the age of the earth, 3288*b*
**Jeffries, C. D.** Detn of the essential minerals in soils, 1131*b*; see White, J. W.
**Jeffries, J. F.** See Wiley, R. H.
**Jefremoff, Jefremov.** See Efremov.
**Jefts, A. W.**, and Schmidlein, J. A. Ethylene cyanohydrin, P 3029*b*.
**Jegard, S.** See Lips, H. J.; Pearce, J. A.
**Jeger, O.** See Bischof, B.; Büchi, G.; Durst, O.; Lardelli, O.; Meisels, A.; Meyer, Armin; Nowak, R., Perold, G. W., Ruegg, R.; Ruzicka, L.; Schinz, H.
——, Bischof, B., and Ruzicka, L. Triterpenes (CXXXI) oxidative scission of ring C in 2-desoxyechinocystic acid, 212*k*.
**Jegge, E. O.** See Dunham, L. S.
**Jegoroff, Jegorow.** See Egorov.
**Jekel, E.** Malt wines in pharmacy, 816*i*; Austrian pharmacopeia, 3145*b*; treatment of P injuries, 6743*c*.
**Jelatis, J. G.** See Breckenridge, R. G.
**Jelinek, B.** See Hopkins, R. H.
**Jelinek, J.** Chloritoid schists south east of Zvánovice in Central Bohemia, 4191*g*.
**Jelinek, O. E.** See Hill, I. N
**Jelinek, R. V.**, Linford, H. B., McMahon, E. K., and Schutz, P. W. Dielec. heating of granular materials - $SiO_2$, 5316*i*.
**Jelinek, V.** See Karasek, F
—— and Zikmund, E. Variation in the vascular action of nicotinic acid according to sex, 3496*i*.
**Jelinek, V. C.**, and Boxer, G. E. Detn. of streptomycin in body tissues and urine, 710*a*.

**Jelissejew, E. I.** See Eliseev, E. I.
**Jelley, E. E.** Light microscopy, 2113*f*.
**Jelley, J. V.**, and Paul, E. B. 600-Kv. ion accelerator, 2087*a*.
**Jellinek, H. H. G.** Degradation of long-chain mols. (II), 472*h*; inhomogeneity of polymers, 7295*s*; thermal degradation of polystyrene (I), (II), (III) thermal degradation of polystyrene and polyethylene, 8203*f*; see Hughes, E. B.
——— and Anson, H. A. α-Monostearin and Na stearate as emulsifying agents, 7725*b*.
**Jellinek, K.** Lehrbuch der physikalischen Chemie (book), 932*e*.
**Jellinek, M. H.** See Gillette, R. H.
**Jellinghaus, W.** Course of the isothermal austenite transformation of a Cr magnet steel, and the influence of hardening temp. and hardening time, 7883*b*; influence on the heat-treatment on the magnetic properties of a Cr maguet steel, 7883*d*.
**Jellonek, A.** Searching for oil deposits by means of high-frequency currents, 3599*d*.
**Jemeljanowa, Jemel'yanova.** See Emel'yanova.
**Jen, C. K.** Zeeman effect in microwave mol. spectra, 1658*e*.
——— and Hsieh, Y. C. Theory of the artificial disintegration of Be by γ-rays, 4117*e*.
**Jenckel, E.** Vapor pressure and partial miscibility of high-polymer solns., 8801*a*
——— and Wilsing, H. Crystn. and melting of polyurethan, 5254*b*.
**Jenckes, E. K.** Cr, 2127*a*; Mo, 2127*e*.
**Jenden, D. J.** See Holmes, P. E. B.
**Jendrassik, A.**, and Dippold, A. Detn. of fluorides, 8967*e*.
**Jendrassik, G.** App. for cooling gases, P 8758*d*.
**Jeney, Andrew.** Same as Jeney, Endre.
**Jeney, Endre.** Bacteria and fungi with lytic action against the *Mycobacterium tuberculosis*, 5085*a*; antibiotic effect of D-amino acids, 9145*g*; bacterial antagonism, 9146*b*; effect of Deseptyl on diphtheria bacillus, 9146*d*.
**Jenicek, V. A.** Detn. of hardness of water, 2345*g*.
**Jenke, A. L.** See Weissenborn, A. E.
**Jenkins, D. I.** See Provan, A. L.
**Jenkins, D. M., Jr.** See McLean, E. R.
**Jenkins, D. W.** See Hassett, C. C., Markley, K. S.
**Jenkins, F. A.** See Tollestrup, A. V.
**Jenkins, G. L.** See Ahmed, Z. F.; Bikin, H.; Jarvis, A. E.; Patel, B. N.
———, DuMez, A. G., Christian, J. E., and Hager, G. P. Quant. Pharm. Chemistry (book), 6791*a*.
**Jenkins, G. O., Co.** Felted water-resistant sheet fiberboard, P 5594*b*
**Jenkins, H. G.**, Bqwtell, J. N., and Strong, R. W. Afterglow phenomena in A-N mixts. at pressures close to atm., 6084*a*
———, McKeag, A. H., and Ranby, P. W. Alk. earth halophosphates and related phosphors, 6925*c*.
**Jenkins, I.** See Dovey, D. M.; General Electric Co. Ltd.
**Jenkins, J. M., Jr.** Gladiolus corm treatments, 9338*c*.
**Jenkins, J. W.**, Lavery, N. L., Guenther, P. R., and Post, H. W. Silicoorg compds. (VII) prepn and properties of certain substituted silanes, 2160*g*.
**Jenkins, O. P.**, and Averill, C. V. Chem resources of the western States—Calif., 9295*c*.
**Jenkins, P. W.** See Singleton, F. G.
**Jenkins, R.** See Birnie, J. H.
**Jenkins, R. O.**, and Newton, R. H. C. Free Ba and the oxide cathode, 5079*i*, 7323*g*.
**Jenkins, W. T.** Milk manuf.—condensing practices, 5509*a*.
**Jenkinson, J. R.** See Rylands, J. R.
**Jenks, G. H.**, Chormley, J. A., and Sweeton, F. H. Measurement of the half-life and av. energy of T decay, 4112*e*.
**Jenks, W. F.** Geology of the Arequipa quadrangle of the Carta Nacional del Peru, 73*h*.
**Jennerup, E.** Vitamin C in stored apples, 1499*g*.
**Jenness, L. C.** See Folger, H. H.
**Jenness, R.** See Coulter, S. T., Larsen, R. A.
**Jenning, W.** See Pfeiffer, P.
**Jennings, A. B.** Photographic bipack film with a stripping layer, P 3738*f*.
**Jennings, A. C.** Gas in foundries, 6808*a*.
**Jennings, A. J.** Coated cotton fabric, P 8176*b*.
**Jennings, B.** See Shoupp, W. E.
**Jennings, C. A.** Significance of the Bubbly Creek expt., 336*f*.
**Jennings, C. H.**, and Gamberg, E. H. Protecting metal surfaces during soldering and brazing processes, P 6566*e*.
**Jennings, C. W.** See Brenner, Abner.
**Jennings, D. S.** See Kelley, O. J.
**Jennings, H. W. K.** Catalysts for hydrocarbon reactions, P 844*c*, see Sturtevant, B. F., Co.
**Jennings, P. H.** See Pumphrey, W. I.
**Jennings, W. A.**, and Russ, S. Radon Its Technique and Use (book), 7351*a*.
**Jennison, M. W.** See Balows, A.
**Jenny, F. J.**, and Riblett, E. W. Hydrocarbon synthesis, P 7213*a*
**Jenny, G.** See Orton, C. R.
**Jenny, L.** Relation between the normal potential of a reducing agent and its usefulness as a photographic developer, 3301*b*.
**Jense, W. F.** Asphalt emulsions, P 5186*c*.
**Jensen, A. T.** See Tovborg-Jensen, A.
**Jensen, C. A.** Cleaning, penetrating, and corrosion-loosening compn., P 6147*g*.
**Jensen, C. C.** Filter, P 2823*i*, see Onclev, J. L.
**Jensen, E.** System $Ag_2S$–$Sb_2S_3$ 3274*f*, melting relations of chalcocite, 3319*b*
**Jensen, E. F.** See Lineweaver, H.
**Jensen, E. N.**, and Laslett, L. J. Shape of the β-spectra of $Sr^{90}$ and $Y^{90}$, 7330*a*.
———, Laslett, L. J., and Pratt, W. W. Application of a magnetic lens spectrometer to the measurement of γ-radiation from $Zn^{65}$ and $Co^{60}$, 4119*f*; revaluation of the γ-radiations from $Co^{60}$ and $Zn^{65}$, 8867*e*.
**Jensen, E. V.** See Huggins, C.; Kharasch, M. S.
**Jensen, H.** See Steeples, G. L., Jr.
**Jensen, J.** Action of wetting agents (I) wetting of textiles, (II) results, 3623*h*
**Jensen, J. H. D.** See Bauer, H.; Haxel, O., Steinwedel, H.; Suess, H. E.
——— and Steinwedel, H. Systematics of the binding energies of at. nuclei, 3702*d*
——— and Suess, H. E. Frequency distribution of elements, 4526*g*, 6071*i*
**Jensen, K. A.** Sulfanilyl derivs. of heterocyclic amines (XI) derivs. of quinoxaline, 1028*d*; phonetics, 2826*f*; see Pedersen, E. E.
———, Lauridsen, M., and Christensen, J. A. Quaternary derivs. of some anesthetic, spasmolytic, analgesic, and antihistaminic agents, 7921*d*.
——— and Nygaard, B. Stereochemistry of 5-coordinated compds. (II) configuration of the Ni compd. $[NiBr_2(Et_2P)_2]$, 7856*f*; Ni compds. of aminoguanidine, diaminoguanidine, and triaminoguanidine, 7856*h*.
——— and Ploug, J. Tuberculostatic derivs. of *p*-aminobenzoic acid (II) derivs. of 2-halo 4-aminobenzoic acids, 7454*i*
———, Rosdahl, K. G., and Ingvorsen, H. Tuberculostatic derivs. of *p*-aminobenzoic acid (I) esters and amides of 4-aminosalicylic acid, 6596*d*.
——— and Schmith, K. Antagonism between sulfathiazole and pteroylglutamic acid, 2324*g*.
**Jensen, K. B.** Toxicity of dihydroxypropyltheophylline and theophylline-ethylenediamine, 9259*a*.
**Jensen, K. K.** See Kjerulf-Jensen, K.
**Jensen, N. C.** See Josephson, G. W.
**Jensen, P.** Nuclear photo effect and isotopic no., 4107*g*.
**Jensen, Paul.** Grundzüge der allgemeinen Physiologie (book), 1099*h*.
**Jensen, P. B.** See Boysen-Jensen, P.
**Jensen, V. G.** Chem. and phys. detn. of penicillin, 1157*b*; estn. of morphine-scopolamine solns., 9369*b*.
**Jensen, W.** Modernization of Lower Harz metal smelting in the last century, 5296*b*; chromatographic analysis of tall oil, 9442*f*; connection between the anatomical structure, chem. compn., and properties of the outer bark of white birch, 9440*e*; detn. of lignin, 9438*d*.
**Jensen, W. L.** See Clayton, J. O.
——— and Noller, C. R. Prepn. of phosphonyl chlorides by the reaction of hydrocarbons with $PCl_3$ and O, 8366*b*.
**Jensen-Hellmann, G.** See Erbacher, O.
**Jentschke, W.**, and Lintner, K. Range distribution of fission fragments from irradiation of U with slow neutrons, 4128*a*.
**Jentzsch, C.**, and Unsöld, A. Interpretation of interstellar Ca and Na lines, 4952*i*.
**Jephcott, C. M.**, and Bishop, W. H. H. Detection of second-hand kapok in articles of bedding and upholstered furniture, 5193*f*.
**Jeppson, M.** See Fillmore, F.
**Jepson, C.** Sewage purification, 7168*g*
**Jepson, M. D.**, and Thompson, F. C. Acceleration of the rate of isothermal transformation of austenite, 4992*f*.
**Jéquier, E.** See Peterfalvi, M.; Plotka, C.
———, Plotka, C., and Peterfalvi, M. Parallelism of action, of acetylcholine and substances intervening in the metabolism of carbohydrates, 5865*d*.
**Jerabek, R. D.** See Runk, R. H.; Schulman, E. L.
**Jeremias, C. G.**, and MacKenzie, C. A. Action of the Grignard reagent on β-D-glucose pentaacetate, 1326*d*.
**Jérémine, E.** Sillimanite schist near Jerdeux, Hague, 2552*g*.
——— and Dubar, G. Eudialyte-bearing nepheline syenite of the igneous massif of Bou Agrao, Haut-Atlas, Morocco, 6127*d*
**Jermain, G. D.**, and Ricker, S. Antimony Peak, Kern Co., Calif., 6951*d*
**Jermolenko, N. F.** See Ermolenko, N. F.
**Jermstad, A.** See Nordal, A.
**Jermyn, M. A.** See Hirst, E. L.
——— and Isherwood, F. A. Sepn. of sugars on a paper partition chromatogram, 8312*a*
**Jernstedt, G. W.** Electroplating, P 956*d*, 2878*g*; electrolytic etching of a Cu base alloy, P 2880*d*; phosphate coatings, P 2022*d*, 3342*a*; prepg. Cu alloys for painting, P 3300*d*; Cr plating, P 5347*e*.
——— and Ceresa, M. Electroplating Ni and Co with periodic reverse current, P 5680*h*.
**Jernstrom, P.**, and Perkins, E. Bromosulfalein tests, 7539*i*
**Jersey, N. J. de.** See De Jersey, N. J.
**Jesafov, V. J.** See Esafov, V. I.
**Jeskey, H. A.** See Clopton, J. R.
**Jesnitzer, F. E.** See Erdmann-Jesnitzer, F.
**Jessafow, W. I.** See Esafov, V. I.
**Jesse, J.** Muscle-relaxing agents and their use in narcosis, 1869*c*.
**Jesse, W. P.**, and Sadauskis, J. α-Particle ionization in A and in air and the range energy curves, 4558*i*
**Jessee, G. L.** Industrial finishes, 6835*h*
**Jessel, R.** See Cohen, I.
**Jessen, F. W.** Subsurface disposal of oil field brines, 2757*f*
**Jessine, O.** See Esin, O. A.
**Jessop, A. C.** Hot-working Mg alloys, P 991*c*; see Ball, C. J. P.
**Jesus del Val, M.**, and Garcia Pineda, M. D. Sea algae, 8021*d*
**Jetter, L. K.**, and Stansbury, E. E. Metallurgical lab. at Oak Ridge, 7388*g*
**Jetter, W. W.** Toxicology of alc., 2326*f*
**Jewel, P. W.** Mascaras, eyebrow pencils and eye shadows (II) analysis of mascara, 9368*c*
**Jewsbury, A.** See Osborn, G. H.
——— and Osborn, G. H. Polarographic detn. of Zn, Cu, and Pb in $FeSO_4$, 2890*e*
**Jezl, J. L.** See Hablitzel, C. P.
——— and Hablitzel, C. P. Sepn. of butadiene from its dimer, 8975*d*
**Jibben, B.** See Ketelaar, J. A. A.
**Jilek, J.** Gasification of young fuels under pressure with drying, 8118*f*
**Jillson, D. C.** See Anderson, Edmund A.
**Jimenez, D. F. S.** See Sierra Jimenez, D. F.
**Jiménez Díaz, C.** Patología médica (book), 6728*e*; see Arjona, E.; Castro Mendoza, H., Grande Covián, F.; Perianes, J.; Vivanco, F.
——, Burreda, P. de la, Molina, A. F. de, and Machado, B. Neurochem. mechanism of arterial pressure regulation, 2685*a*
——— and Castro-Mendoza, H. Kidney in fat metabolism, 295*a*.
———, Castro-Mendoza, H., Paniagua, G., and Vivanco, F. Anemia through choline deficiency, 1092*c*.
———, Grande Covián, F., and Oya, J. C. de. Kidney in alloxan diabetes, 748*h*; role of the kidneys in production of alloxan diabetes—potentiation of the alloxan effect by previously induced U nephropathy, 5484*h*.
———, Marina, C., and Romeo, J. M. Intestinal fat absorption in the diarrhea of patients with Addison's disease, 4759*g*
———, Perianes, J., Arjona, E., Aguirre, M., and Lorente, L. Histamine in blood and tissues (III) distribution of histamine and antihistaminics in the organs of the normal animal and in anaphylactic shock, 4759*f*
——— and Rodríguez-Miñón, J. L. Phlorizin diabetes, 1097*g*.
——— and Souto Candeira, J. Kidney and glucemia regulation, 1097*i*; function of the

kidneys in regulation of blood sugar, 5470*d*.
—— and Vivanco, F. Thermolabile and water-sol. factor (CH factor) active on growth and protein utilization in rats, 733*i*.
——, Vivanco, F., and Pitacoste, R. Action of choline on protein starvation, 733*h*.
**Jiménez-Vargas, J.** Blood histamine in hemorrhage, 3510*a*.
—— and Larralde, J. Combination of histamine with plasma proteins, 7521*b*.
—— and Vidal-Sivilla, S. Action of vaso-constricting and vasodilating substances on the pulmonary circulation, 9248*a*.
**Jimenez y Diaz, M. A.** Oxidizing enzymes of the guava, 4729*f*.
**Jindra, A.** Detn. of alkaloids by exchange of ions, 4809*i*.
**Jira, J.** Steam consumption for sep. boilings to crystal, and control of the amt. of water drawn off by the vacuum, 5614*f*, heat expts in the sugar factory, 6845*h*.
**Jira, J. W.** Enamel for coating metal film resistors, P 4442*h*.
**Jirgensons, B.** Denaturation of plant proteins, (I), 7527*d*.
—— and Straumanis, M. E. Kurzes Lehrbuch der Kolloid-chemie (book), 8256*d*.
**Jiřina, K.** Biol. titration of digitalis preps. —titration of insulin —titration of ergot preps.—titration of pituitrin, 6364*d*.
**Jirkovský, R.** See Glazunov, A.
**Jirků, E.** Liquid phase in production of cement, 7205*g*.
**Jirsa, F.** Anodic oxidation of Au in alkali hydroxide solns., 4583*i*.
**Jivănescu, A.** See Macovski, E.
**Joachim, A. W. R.,** and Kandiah, S. Soil-fertility studies (II) effect of shifting chena cultivation and subsequent regeneration of vegetation on soil compn. and structure, 2351*a*.
**Joachim, B.,** and Kafka, F. M. Al silicate pigments, 4490*f*.
**Joachim, W. F.,** Robbins, W. E., Gordon, M. S., and Timberlake, T. G. Experience with Diesel lubricating oils, 841*h*.
**Joannides, C.** Materials for dental purposes, P 2026*h*.
**João Maffei, F.** See Maffei, F. J.
**Joaquim, B.** Plasmatic phosphatase and metastatic cancer in bones, 1855*f*.
**Job, R.** Enriching Cr ores, P 5726*g*.
**Jobbins, D. M.,** Hart, J. T., Jr., and Lake, R. Insecticides for mosquito control in the Passaic Valley, 9345*e*.
**Jobling, A.** Viscosity-vol. relation for ether, 2885*i*.
**Jochem, G.** See Tapernoux, A.
**Jodai, S.** Catalytic hydrogenation of lignin (XIII) compn. of hydrolignin of Yezomatsu wood—mol. formula of hydrolignin of Yezomatsu wood, (XIV) oxidation of hydrolignin of Yezomatsu wood, (XV) mechanism of hydrogenation decompn. of lignin and the generation of hydrolignin, 8675*f*, see Hachihama, Y.
**Joder, F.** Heat pump—application to air conditioning in land and marine service, 3248*i*.
**Jodra, L. G.** See Gutiérrez Jodra, L.
**Jodrey, L. H.** See Goffin, C. C.
**Jögi, P.,** Ström, G., and Uvnäs, B. Origin in the central nervous system of gastric secretory impulses induced by hypoglucemia, 8514*h*.
—— and Uvnäs, B. Gastric secretory response to insulin, 8538*h*.
**Joel, T.,** D'Angelo, S. A., and Chaipper, H. A. Effect of thiourea on the thyroid gland of the winter frog—testis, 4389*a*.
**Jönsson, N. W.** App. for screening, desiccating, or washing fibrous suspensions, P 4058*a*, app. for dewatering and washing fibrous suspensions, etc., P 9447*e*; app. for filtering, sorting, dewatering, or washing fibrous suspensions, P 9447*f*.
**Jörgensen, A.** Microörganisms and Fermentation (book), 3561*d*.
**Jørgensen, C. B.** Permeability of the amphibian skin (II) effect of molting of the skin of anurans on the permeability of water and electrolytes, 9270*g*.
**Jørgensen, E. H.** See Hoff-Jørgensen, E.
**Jørgensen, G.** See Asmussen, E.
**Jørgensen, J.,** and With, T. K. Porphyria, 4366*e*.
**Jørgensen, L.** Detn. of distribution of mol. size in a sample of cellulose—relation for the solv. of cellulose to mol. size—propriety of the binomial in representing fractional distribution, 9435*d*.
**Jofa, S. A.** See Iofa, Z. A.
**Joffe.** See also Ioffe.
**Joffe, I.,** and Post, H. W. Silicoörg. compds. (VIII) prepn. and properties of polyethers from trichlorosilane, 9028*b*.
**Joffe, J.** Prediction of PVT properties of gases, 2832*d*; gas flow in long pipelines, 7272*b*; see Gamson, B. W.
**Joffe, J. R.** See Marcus, H.
**Joffe, P.** Preserving flowers and foliage, P 3950*g*.
**Joffe, P. M.** See Joffe, S.
**Joffe, S.,** and Joffe, P. M. Preserving flowers and foliage, P 3950*g*.
**Jogarao, A.** Water absorption and anisotropic swelling of horn keratin, 2073*c*; evaln. of red lead pigments (II), 9480*a*.
**Johannsen, R. S.** See Smith-Johannsen, R.
**Johannsen, T.,** and Höngschmid, O. At. wt. of Be, 2051*c*.
**Johannson, O. K.** Heat-resistant insulating materials, P 4518*b*, 4894*g*; see Hyde, J. F.
**Johansen, A.,** and Thygesen, J. E. Direct dilatometry of peptidase activity of normal human serum and hemolyzate, 4717*b*.
**Johanson, A. J.** See McKennon, F. L.
—— and Goldblatt, L. A. Emulsion copolymerization of isoprene and styrene, 2018*h*.
**Johanson, M.** See Gustafsson, C.
**Johanson, R.** Cystine plus cysteine and methionine contents of the seed proteins, and S distributions of seeds of *Vicia*—their cyanogenesis, 1448*f*; micro-Kjeldahl distn. app., 6470*f*, prepn. of cystine from wool (I) large scale prepn., (II) sources of loss in prepn. of cystine from wool, 6830*d*.
——, Moir, R. J., and Underwood, E. J. S. contg. amino-acids in the rumen bacteria of sheep, 5813*e*.
**Johanssen, J. K.** Iron-ore concn. at Sydvaranger, Norway, 4611*d*.
**Johansson, C. H.,** Persson, G., and Svensson, B. Sorption in flow through a granular layer, 6872*g*.
**Johansson, E. A.** App. for the dry distn. of shale, peat, sawdust, hard coal, etc., P 3176*b*, 5648*i*; app. for dry distn., esp. of oil bearing shales, P 9426*h*.
**Johansson, E. H. E.** Fe and other metal powders by electrolytic reduction, P 2879*a*.
**Johansson, K. R.,** Sarles, W. B., and Shapiro, S. K. Intestinal microflora of hens as influenced by various carbohydrates in a biotin-deficient ration, 736*d*.
**Johansson, O. S.** Repulping of wet-strength paper, 8678*g*.
**Johansson, W. I.,** Rosene, L., and Warner, C. N. Effects of a miscible oil, a dinitro compd., and DDT emulsion on the egg masses of the eastern tent caterpillar, 2730*d*.
**Johlin, J. M.** Phys. Biochemistry (book), 2262*b*, effect of glycine on action of insulin, 4770*g*, effect of phenobarbital on the action of insulin, 7137*i*.
**John, A.** Cleaning of fouled heat exchanger tubes, 8755*b*.
**John, H. J.** See Willits, C. O.
—— and Rehberg, C. E. Wire-screen packing for fractionating columns, 5645*f*.
**John, J. A.** See Goldsworthy, L. J.; Hammond, A. R.
**Johnels, K.** Incompatibility, 6363*h*.
**Johns, H. E.** See Harrington, E. L., Haslam, R. N. H.
—— and Garrett, C. Sensitivity and exposure graphs for Ra radiography, 1301*c*.
**Johns, I. B.** Elastomer from furfural, P 2805*a*; see Newton, A. S., Spedding, F. H.
—— and Burnette, L. W. Methylfuran, P 3465*e*.
**Johns, V. J.** See Griggs, D. E.
**Johnsen, S. E. J.** See Roberts, R. H.
**Johnsen, V. K.,** and Ussing, H. H. Influence of corticotropic hormone from ox on the active salt uptake in the axolotl, 4715*c*.
**Johnsen, V. L.** See Smith, A. K.
**Johns-Manville Corp.** Plastic insulation, P 3235*b*, brake lining, P 6341*b*.
**Johnson, A.** Spraying tests with selected hormone-type weedicides—methoxone and 2,4-D preps., 7180*h*.
**Johnson, A., & Co. (London) Ltd.** and Bano, E. A. Alloys, P 5729*g*.
**Johnson, Arthur.** Flame-resistant fabrics contg. wool, 1192*i*.
**Johnson, A. A.** See Ingersoll, H. G.
**Johnson, Axel A.** (for Johnson, A., & Co.) Refining hydrocarbons, P 8191*a*.
**Johnson, A. C.,** McNabb, A. R., and Rossiter, R. J. Lipides of peripheral nerve, 3912*b*; lipides of the nervous system during degeneration, 8498*f*; concn. of lipides in the brain of infants and adults, 9207*f*.
**Johnson, A. E.** Creep of a nominally isotropic Al alloy under combined stress systems at elevated temps., 7398*d*; behavior of cast steel at elevated temps., 8328*g*.
—— and Tapsell, H. J. Comparison of some C Mo steels on the basis of various creep limits, 4994*a*.
**Johnson, A. F.** Electrolytic production of Al, P 1273*d*; enriching the alumina content of recirculated cryolite fusion in Al production, P 1273*e*.
**Johnson, A. J.** Reactor for catalytic dehydrogenation of naphthenic hydrocarbons, P 7678*b*.
—— and Cherniavsky, A. J. Vinyl chloride, P 663*i*.
——, Souders, M., Jr., and Marsland, J. E. Toluene, P 4008*h*.
**Johnson, A. K.,** and Suhr, H. B. Coarse granular KCl, P 6376*g*.
**Johnson, A. L.** Surface area and its effect on exchange capacity of montmorillonite, 6036*b*.
**Johnson, A. M.,** and Marshall, H. B. Waste sulfite liquor as a tanning agent, 8677*a*.
**Johnson, A. N.** See Sconce, J. S.
**Johnson, Agatha R.** See Marvel, C. S.
**Johnson, Alfred R.** See Doggett, R. H.
**Johnson, A. S.** Estn. of water, 8309*c*.
**Johnson, A. W.** Advances in org. chemistry, 2569*b*, 6967*d*, tetrahydro-3-furanone, P 5424*h*; see Brown, R.; Davies, W. H.; Good, P. M.; Irving, F.
**Johnson, B.** See Conn, J. W.
**Johnson, B. C.** Raising calves of a synthetic milk ration and the production of vitamin B deficiencies, 1096*e*; see Neumann, A. L.
—— and Dana, A. S. Ascorbic acid therapy of pteroylglutamic acid-deficient rats, 292*g*.
——, James, M. F., and Krider, J. L. Raising newborn pigs to weaning age on a synthetic diet with attempt to produce a pteroylglutamic acid deficiency, 2680*d*.
—— and Neumann, A. L. Cryst. vitamin $B_{12}$ compared to antipernicious anemia liver ext. for pig growth, 6291*f*.
**Johnson, Bernard L.** Detn. of hydroxyl groups in org. compds., 66*i*; see Lucas, V. E.
—— and Wolfangel, R. D. Viscosity-mol. wt. relation for polybutadiene—effect of polymerization temp., 8727*a*.
**Johnson, Bertrand L.** N compds., 2127*e*.
—— and Barsigian, F. M. Talc and pyrophyllite, 2127*g*.
—— and Marsh, D. I. Potash, 2127*f*.
—— and Tucker, E. M. Phosphate rock, 2127*f*.
**Johnson, Carolyn.** See Whistler, R. L.
**Johnson, Clarence.** Gas analyzer, P 380*h*.
**Johnson, C. C.,** and Poe, C. F. Toxicity of some cinchona alkaloids, 4767*b*.
**Johnson, C. E.** Ketones, P 3441*i*.
**Johnson, C. G.** See Lord, K. A.
**Johnson, Charles R.** Coagulation of synthetic rubber latex, P 2803*i*.
—— and Otto, W. M. Monomer recovery in GR-S manuf., 5986*i*.
**Johnson, Cleon R.** Vulcanization activator, P 4046*h*.
**Johnson, C. W.** See Brown, A. R.
——, West, H. D., Jones, H. L., and Long, C. J. Biocerin—antibiotic produced by *Bacillus cereus*, 3883*g*.
**Johnson, D. M.** See Elithorn, A.
**Johnson, E. A.** Hydrocarbons from CO and regeneration of synthesis catalyst, P 1551*h*; catalytic conversion system, P 4457*h*; hydrocarbon synthesis with fluidized catalyst regeneration, P 8120*i*; app. for catalytic cracking and reforming of hydrocarbons, P 9428*b*; see Holiday, E. R.
—— and Becker, S. B. Hydrocarbon synthesis, P 3175*b*.
**Johnson, E. H.** App. for charging a liquid with gas, P 4058*b*.
**Johnson, E. M.** See Fuller, E. W.
**Johnson, F. B.** See Richardson, Roger W.
**Johnson, F. D.** Insol.-resin finishes, 420*h*; metal coating, 6559*c*.
**Johnson, F. E.,** and Hamilton, C. S. Derivs. of 2-aminobenzothiazole, 2617*g*.
**Johnson, F. H.** See Schlegel, F. M.
——, Baylor, M. B., and Fraser, D. Thermal denaturation of tobacco-mosaic virus in relation to hydrostatic pressure, 2280*f*.

——— and Eyring, H. Action of pressure, temp., and drugs on enzymes, as revealed by bacterial luminescence, 4717*a*.
———, Rexford, D., and Harvey, E. N. Hypothetical structure of luciferin, 7064*e*.
——— and Zobell, C. E. Retardation of thermal disinfection of *Bacillus subtilis* spores by hydrostatic pressure, 5082*a*; acceleration of spore disinfection by urethan and its retardation by hydrostatic pressure, 5082*b*.
**Johnson, F. J.** See Derham, L. J.
**Johnson, F. W.** See Du Pont de Nemours, E. I., & Co.
**Johnson, G.**, and Boggs, M. M. Cold-processing of fruit jellies, P 2710*h*.
——— and Guadagni, D. G. Treatment of fruits to prevent browning, P 7605*f*.
**Johnson, G. C.** See Coonradt, H. L.
——— and Rope, B. W. Alkylation, P 5583*b*
**Johnson, G. E.** Development of muffle furnaces for the production of Zn oxide and Zn at East Chicago, Indiana, 2554*g*.
**Johnson, G. L.**, Leininger, R. F., and Segrè, E. Chem. properties of astatine (I), 2862*b*.
**Johnson, George L.** Conversion of fluid hydrocarbons, P 387*i*.
——— and Hagerbaumer, W., A. Cracking hydrocarbons, P 386*f*
**Johnson, Gordon L.** See Kraus, K. A.
**Johnson, G. W.** See Wyman, C.
**Johnson, H. A.**, and Rubesin, M. W. Aerodynamic heating and convective heat transfer, 6009*d*.
**Johnson, Henry A.** Coating compn. for containers holding bituminous substances, P 907*g*
**Johnson, Harlan E.** See Rucker, R. R
**Johnson, Harold E.** Sepn. of cumeoles from hydrocarbons by azeotropic distn with phenols, P 2476*g*
——— and Spurlin, H. M. Sepn of cumeoles from hydrocarbons by azeotropic distn with phenols, P 2477*a*.
**Johnson, H. G.** 2-Amino-2-alkyl-*N*,*N*-diaryl-1,3-propanediamines, P 2230*b*, see Adler, L.
**Johnson, H. L.** Vinylcyclohexene, P 5231*i*, see Ritz, B. L.
**Johnson, H. O.** See Parks, T. D.
**Johnson, H. S.**, and Yost, D. M. Kinetics of the gas reaction between $O_3$ and $NO_2$, 7308*f*.
**Johnson, H. S., Jr.** See MacIntire, W. H.
**Johnson, H. W.** Building design for batch processes, 4901*i*.
**Johnson, I. E.** See Kremers, H. C.
**Johnson, J.** Charging a liquid with gas, P 4058*b*, molding of plastics, P 6865*c*
**Johnson, J. A.**, Dirks, B. M., and Shellenberger, J. A. Evaluation of amylase supplements for bread-making purposes, 7596*e*.
**Johnson, J. D.**, and Edwards, L. J. Kinetics of the transient state in a continuous reaction system, 5656*c*
**Johnson, J. Enoch**, Blizzard, R. H., and Carhart, H. W. Hydrogenolysis of alkyl halides by Li Al hydride, 1311*h*.
**Johnson, John E.** App. for charging a liquid with gas, P 4058*b*.
**Johnson, J. F.** See Kwong, J. N. S.
——— and Bauer, S. T. Detn. of refining loss of soybean oil, 7723*g*.
**Johnson, J. L.** See Adams, R.
**Johnson, J. M.** Amidoamino soap for use in paving compns., P 5614*c*; see Bodkin, E. A.
**Johnson, J. P.** Coagulation of emulsion polymers, P 5635*g*.
**Johnson, James R.** Detg. the relative penetration of diffused $Na^{24}$ tracer into glass, 2747*f*.
**Johnson, John R.** See Adams, R.; Clarke, H. T.
**Johnson, J. S.** See Schulman, E. L.
**Johnson, J. S., Jr.**, and Williams, F. E. Thermoluminescence of Mn activated $ZnF_2$ phosphors, 8281*e*.
**Johnson, L. H.** See Laakso, J. W.
**Johnson, L. M.** See Coster, N. W.
**Johnson, L. R.** See Zerfoss, S.
**Johnson, M. C.** Quant analysis for home economics majors, 1619*a*.
——— and Harris, E. E. Acclimatization of various yeasts to wood sugar, 815*c*.
**Johnson, M. F. L.** See Ries, H. E., Jr.
**Johnson, M. H.** See Faust, W. R.
**Johnson, M. J.** See Karnovsky, M. L.; Maass, E. A.; Olson, B. H.; Shu, P.; Singh, Kesar.
**Johnson, M. W.** Relation of plankton to hydrographic conditions in Sweetwater Lake, 5519*f*.
**Johnson, N. S.** See Norman, D. P.
**Johnson, O.** See Newton, A. S.; Spedding, F. H.
**Johnson, Oliver.** Apparent molar refraction and vol. of salts in water, ether, and acetone solns., 4543*c*.
**Johnson, O. H.**, and Nebergall, W. H. Prepn. and properties of some substituted germanes, 6989*h*.
**Johnson, P.** Detn. of mol. wt. and shape for high polymers in soln., 4857*f*; see Alexander, Albert E.; Campbell, H
——— and Shooter, E. M. Tiselius electrophoresis app., 2660*d*; electrolytic injector in electrophoresis, 3265*f*.
**Johnson, P. D.** Induction furnace for high-temp. ceramic research, 9402*a*.
**Johnson, Peter D.**, and Williams, F. E. Magnetic properties of Mn activated luminescent solids, 7763*b*, crystals of luminescent $ZnF_2$: Mn, 8891*b*
**Johnson, P. H.** See Carr, E. L., Lucas, V. E
——— and Bebb, R. L. Effect of polymerization temp. on properties and structure of polydienes, 8725*f*.
———, Brown, R. R., and Bebb, R. L. Anionic redox activation of butadiene-styrene copolymerization—effect of subzero polymerization on polymer properties, 8729*c*.
**Johnson, P. M.** Bath immersion pyrometer, 7390*b*.
**Johnson, P. R.** See Holland, B. R.
**Johnson, R.** 1,2,3,4-Tetrahydro-1-naphthol, P 1808*d*; 3,4-dihydro-1(2*H*)-naphthalenone, P 3848*c*; vinylnaphthalene, P 5804*h*
**Johnson, R. Bernal**, Hansen, R. G., and Lardy, H. A. Thyroid toxicity (II) effects of desiccated thyroid and antithyroid agents on the plasma and tissue ascorbic acid, 2317*c*
**Johnson, Robert B.** See Craige, A. H., Jr.; Drake, N. L
**Johnson, R. C.** See Comings, E. W.
———, Weidler, R. C., and Williams, D. Intermol. vibration spectrum of water, 4090*h*.
**Johnson, Robert E.**, and Hardy, A. E. Performance characteristics of long-persistence screens, their measurement, and control, 4091*b*.
**Johnson, Robert Ebenezer.** See Eaton, H. D
**Johnson, Robert Eugene.** See Cohen, M. E.
**Johnson, Ruth E.** See Kaunitz, H.
**Johnson, R. L.**, Swikert, M. A., and Bisson, E. E. Friction at high sliding velocities of surfaces lubricated with S as an additive, 1953*c*.
**Johnson, R. M.** See Deuel, H. J., Jr.
——— and Baumann, C. A. Effect of α-tocopherol on the utilization of carotene, 736*h*, storage of vitamin A in rats fed cryptoxanthin and certain other carotenoids with parallel data on absorbability, 8024*f*.
———, Swick, R. W., and Baumann, C. A. Vitamin A activity of certain carotenoids, 7560*e*.
**Johnson, R. S.** See Marvel, C. S.
**Johnson, S.** See Ormsby, A. A.
**Johnson, S. C., & Son, Inc.** (*Patents.*) Water repellent compn., 2443*e*; cane-wax production, 2795*a*; refining of sugar-cane wax, 2795*b*; fractionation of sugar-cane wax, 2795*d*; wax treatment of uncured rubber goods, 2803*a*; refining ouricury wax, 5613*d*; fungicidal wax coatings for preserving perishables, 5900*e*; treating potatoes, 7160*c*; see Colonial Sugars Co.
**Johnson, S. E.** See Beveridge, J. M. R.
**Johnson, T. A.**, and Thompson, H. H. Reclaiming elastomers, 8733*b*.
**Johnson, T. H.**, and Shutt, R. P. High-pressure cloud chamber with intense magnetic field, 4095*b*.
**Johnson, V. A.** Calcn. of the dielec. const. of Te, 4066*h*.
——— and Lark-Horovitz, K. Theory of the Nernst and Ettingshausen effects in semiconductors, 4067*a*.
**Johnson, W.** $ClO_2$ corrects taste and odor, 3545*g*
**Johnson, W. A.** See Hall, H. W.
**Johnson, W. C.** See Beebe, R. A.; Singleton, W. E.
**Johnson, W. E.**, Bachman, C. H., and Zuleon, I. Structure of evapd. Cu films, 4066*a*.
——— and Lark-Horovitz, K. Neutron-irradiated semiconductors, 8858*b*.
**Johnson, W. H.**, Prosen, E. J., and Rossini, F. D. Heats of combustion and isomerization of the six $C_7H_{14}$ alkylcyclopentanes, 5275*f*.
**Johnson, W. L.** Acetylbutyrolactone, P 677*i*
**Johnson, William S.**, Davis, C. E., Hunt, R. H., and Stork, G. J. Stobbe condensation with cyclohexanone, 590*c*.
——— and Glenn, H. J. Tetrahydroacenaphthene and the Mills-Nixon effect, 4250*c*; intramol. acylation (II) inverse Friedel-Crafts method, 4250*h*.
———, Petersen, J. W., and Gutsche, C. D. 10,11-Dihydrophenanthro[2,1-*d*]isoxazoles and its 7-methoxy derivative, P 7054*f*
———, Stromberg, V. L., and Petersen, J. W. Stobbe condensation with 1-keto-2-methyl-1,2,3,4-tetrahydrophenanthrene—approach to β-17-equilenone, 6601*h*
———, Woroch, E. L., and Buell, B. G. Cyclization studies in the quinoline series; synthesis of 4-aminoquinolines, 8386*h*
**Johnson, W. Scott.** Sewage treatment problem in Missouri, 4795*f*.
**Johnson, W. W. A.** See Norman, D. P.
——— and Norman, D. P. Detn. of Cl in textiles, 5956*f*
**Johnson & Johnson.** Filter assembly for clearing cold milk prior to pasteurization, P 329*i*, pressure-sensitive adhesive mass, P 3240*e*
**Johnson & Johnson (Great Britain) Ltd.**, Davis, H. L., and Hervey, L. R. B. Filter media, P 8758*b*
**Johnson & Johnson Ltd.** Thermoplastic cast material, P 5634*a*, adhesive tape for laminating plywood material, P 5643*b*
**Johnson-March Corp.** Compn. for treating coal, etc., P 838*i*.
**Johnson, Matthey & Co., Ltd.**, Chaston, J. C., and Davies, D. A. Joining glass or ceramics to metals, P 5918*b*
———, Chaston, J. C., and Hemmer, H. D. Ag solder alloys, P 2568*i*.
**Johnson Service Co.** Hygroscopic device, P 5237*b*
**John S. Sharpe Research Foundation** of the **Bryn Mawr Hospital.** See Sharpe, J. S., Research Foundation of the Bryn Mawr Hospital.
**Johnsson, E.** See Enebo, L.
**Johnsson, R.** See Hellerqvist, G. R
**Johnston, B. G.** See Osborn, C. J
**Johnston, C. G.**, and Irvin, J. L. Biliary excretion of various bile acids by patients with choledochostomy drainage, and the effects of desiccated bile, 7572*b*
**Johnston, D.** Diazotype light-sensitive materials, P 4165*g*
**Johnston, Francis**, and Willard, J. E. Effect of absorber position on counting rate of collimated and uncollimated β and γ radiation, 3282*a*, max. positron-to-negatron ratio in the decay of $Cl^{36}$, 4118*f*
**Johnston, Franklin** and Hensley, W. H. Vinyl chloride resins plasticized with diester amides, P 7750*h*.
**Johnston, F. A.** See Frenchman, R.
———, Gellman, N., and Strom, J. Detg. the Fe content of milk, 325*i*.
**Johnston, F. A., Jr.** See Sell, H. M.
**Johnston, F. B.** Mg in Canadian crop production, 9326*g*
**Johnston, F. L.** See Howk, B. W
——— and Richter, H. J. Stabilized vinyl fluoride polymers, P 8740*f*.
**Johnston, H. L.** See Amster, A. B.; Carr, E. M.; Daunt, J. G.; Edwards, J. W.; Holden, R. B.; Speiser, R.
**Johnston, H. W.** See Shriner, R. L.
———, Kaslow, C. E., Langsjoen, A., and Shriner, R. L. Isocoumarin, 1045*d*.
**Johnston, H. Wyatt.** Disk refining, 400*d*
**Johnston, J. A.** See Myers, Jack.
**Johnston, J. C.** Citrus fertilization, 3131*i*
**Johnston, J. E.** See Mixner, J. P.
———, Stone, E. J., and Mixner, J. P. Hyaluronidase relation in dairy bull semen, 8409*i*.
**Johnston, J. H. S.** Sepn. of the protein constituents of wort, 3142*c*
**Johnston, K. H.** See Hill, H. B.
**Johnston, MacAllister W.** See Salter, W. T.
**Johnston, Margaret W.** See Conn, J. W.
**Johnston, N. F.** See Favor, H. H.
**Johnston, R. B.**, and Bloch, K. Synthesis of glutathione in cell-free pigeon liver exts., 8480*e*.
**Johnston, R. F.**, and Smithcors, J. F. Ef

fects of estrogen on mammary structure of adrenalectomized and thiouracil treated castrate rats, 8480*g*.
**Johnston, R. K.** See Chapman, A. D.
**Johnston, R. W.** Clinozoisite from Camaderry Mountain, Co. Wicklow, 6119*e*.
**Johnston, R. W. B.**, Appleby, W. G., and Baker, M. O. Detn. of olefins in gasoline—application of infrared spectroscopy, 383*a*.
**Johnston, S. F.** See Burchenal, J. H.
**Johnston, S. S.** History of Sn plate, 6923*a*; electrolytic Sn plate, 6923*b*.
**Johnston, W. B.** Poly(hydroxyalkyl)-amine aldehyde condensation products, P 2633*g*.
**Johnstone, H. F.**, Winsche, W. E., and Smith, L. W. Dispersion and deposition of aerosols, 6039*e*.
**Johnstone, H. G.** See Anderson, Hamilton H.
**Johnstone, K. I.** See Goldie, W.
**Johnstone, W. M.** See Drake, J. G. H.
**Johnstone, W. W.** Polyolefinic hydrocarbons, P 5788*h*.
**Joiner, C. R.** Detn. of pyrogallol in hair dyes, 9368*d*.
**Joiner, R. R.** See Marks, H. C.
**Joiris, E.** See Gratia, A.
**Jokel, W.** Self cleaning filter with reversible liquid flow accomplished automatically and under pressure, P 7760*e*.
**Jokivartio, E.**, and Helve, O. Lipide, P, and sugar content of the blood in chronic alcoholism (I), 2330*c*.
— — and Okko, E. Blood bilirubin, indican, and ketones, and vitamin $B_1$ content in the urine in chronic alcoholism (II), 2330*d*.
**Jolibois, P.**, and Hutter, J. C. Prepn. of P at low temp., 7361*g*.
— — and Spreter, V. C. Decompn. by elec. current of some slightly sol. salts, 8905*d*.
**Joliot, F.** Neutrons and artificial radioactivity, 1644*c*, first French at. pile, 2855*a*.
— —, Joliot-Curie, I., and Grégoire, R. Physique nucléaire (book), 4146*b*.
**Joliot-Curie, F.** Same as Joliot, F.
**Joliot-Curie, I.** γ Radiation of ionium, 3287*g*; see Joliot, F.
**Jolivet, H.** Fe-Cr-Mn alloy, P 7894*d*.
— — and Armand, M. Cracking of 99.5% Al ingots in rolling, 7880*h*.
**Jolles, Z. E.** See Jacobs, B. R.
**Jolley, L. J.** Heat transfer in beds of fluidized solids, 4834*c*; see Booth, N.
— — and Booth, N. Underground gasification of coal (III), 3160*c*.
**Jolley, T. R.** See Toenges, A. L.
**Jollivet, L.** Equil. of complex systems rich in Pb contg. Zn and other elements, 6006*f*, chemistry of dil. intermetallic solns., 8245*e*.
**Joly, E.** See Gairaud, R.
**Joly, M.** Mechanism of the gelling of gelatin and interaction with other substances, 2488*f*, 7787*f*, birefringence of flow of changes in tobacco mosaic virus, 2676*f*; viscosity and mol. structure of protein monolayers, 3689*g*; French work in the field of colloids, 6033*f*; transformations of tobacco mosaic virus by phys. treatments and by interaction with other substances, 8010*f*; transformations of different orders in monolayers, 8796*b*.
**Jona, S.** Chem. nature of the Kayser-Fleischer ring using ultraviolet light, 4762*c*.
**Jonakin, J.**, Cohen, P., Corey, R. C., and Jain, B. Measurement of the reactivity of solid fuels by the crossing-point method, 6805*f*.
**Jonassen, H. B.**, and Dexter, T. H. Inorg. complex compds. contg. polydentate groups (I) complex ions formed between Cu(II) ions and ethylenediamine, 6536*e*.
**Jones, A.** See Morris, S.
— — and Morris, S. Assay of folic acid, 4311*f*, plate method in the assay of aneurine in yeast and yeast products, 8447*h*.
**Jones, A. D.** See Elmore, K. L.
**Jones, A. G.**, and Imperial Chemical Industries Ltd. Purification of fluorspar, P 5913*b*.
**Jones, A. R.** Stabilization of aromatic amines, P 251*e*.
**Jones, A. S.**, Smith, F., and Webb, M. S. Contg. steroid derivs., 7033*h*.
—, Stacey, M., and Webb, M. Autolytic systems of gram-positive microörganisms (I) lytic system of staphylococci, 8431*e*.
**Jones, Albert S.**, and Stackpole, G. P. Lustrous printed patterns on a dull ground, P 1989*c*.
**Jones, A. T.** See Turner-Jones, A.
**Jones, B. E.** Variation in the dry wt., ascorbic acid, and carotene contents of collards, broccoli, and carrots as influenced by geographical location and fertilizer level, 6754*a*.
**Jones, B. M.** See Marks, G. W.
**Jones, C. B.**, and Mecham, D. K. Dispersing keratin proteins and the compn. resulting, P 6465*c*.
**Jones, C. G.** Electrolytic Sn plating app. for continuous steel strip, P 8917*f*.
**Jones, C. L.** Composite solid $CO_2$, P 3985*a*; foam blankets spilled benzene, 5189*d*; foam fire protection for solvent process buildings, 8681*h*.
**Jones, D. B.**, and Weitzel, W. H. Treating water for use in paper mills, 4793*f*.
**Jones, D. Breese.** See Horn, M. J.
— —, Caldwell, A., and Horn, M. J. Availability of DL-lanthionine for the promotion of growth in young rats when added to a cystine and methionine-deficient diet, 2295*d*.
**Jones, D. C. R.** See Jones, W. I.
**Jones, D. G.** 2,5-Dialkoxytetrahydrofurans, P 7512*d*; substitution products of 2,5-dihydrofuran, P 7970*b*, see Bremner, J. G. M.
—— and Bremner, J. G. M. Halogenated pyran compds., P 2239*h*.
— —, Bremner, J. G. M., Keeys, R. K. F., and Imperial Chemical Industries Ltd. Furfuryl alc., P 7049*a*.
— — and Dean, F. γ-Butyrolactone from satd. furans, P 3029*e*; lactones, P 4687*f*.
— — and Imperial Chemical Industries Ltd. Hydrolysis of 2,5-dihydrofurans, P 1808*h*; tetrahydrofuran derivs., P 2643*a*.
**Jones, D. N.** See Neville-Jones, D.
**Jones, D. T.** See Baker, H. R.
**Jones, D. W.** See Matthews, C. H.
**Jones, E.** See Cuttings, H. T.
**Jones, Edgar.** Vitamin $B_{12}$, 4741*e*.
— —, Tillman, C. C., and Darby, W. J. Relapses in pernicious anemia, 3919*h*.
— —, Wyatt, J. L., and Ewers, E. W. Failure of splenectomized rabbits to respond to liver ext. and to pteroylglutamic acid, 1092*h*.
**Jones, Elwyn.** Prevention of gas explosions in chem. manufg. plants, 7230*i*.
— — and Kerr, J. C. Inflammability limits of $NH_3$, $N_2O$, and air, 3618*g*.
**Jones, Emlyn.** See Smith, F. J.
**Jones, E. A.** See Kirby-Smith, J. S.; Woltz, P. J. H.
——, Parkinson, T. F., and Murray, R. B. Infrared and Raman spectra of $ClF_3$, 7821*d*.
**Jones, E. E.** See Pettet, A. E. J.
**Jones, E. H.** See Hearle, J. W. S.
**Jones, E. J., Jr.** Infrared spectrum of native spruce lignin, 4461*d*; ultraviolet absorption spectra of complex hydroxy aromatic compds. and derivs.—lignin, 7680*h*.
**Jones, E. K.** Catalyst absorption, P 2761*a*.
**Jones, E. L.** See Goldtrap, W. A.; Lepsoe, R.
**Jones, E. M.** See Burckhalter, J. H.; Rawlins, A. L.
**Jones, E. N.** Acidizing techniques in sand formations, 5175*g*.
**Jones, E. P.** Centrifugal concn. of latex, P 8194*a*.
**Jones, E. R. H.** See Bader, H., Bide, A. E.; Braude, E. A.; Carter, P. W.; Cutch, J. R.; Glaxo Laboratories Ltd.; Heilbron, I. M., Henbest, H. B.
—— and Sondheimer, F. Acetylenic compds. (XVII) prepn. of substituted 1-acetylcyclohexenes from 4-benzoyl-oxycyclohexanone, 7416*g*.
— — and Wilson, W. Prepn. of some chloroalkylamino compds., 7422*a*.
**Jones, E. T.** Spectral lines and the vibratory electron, 480*c*.
**Jones, E. W.** See Hewitt, E. J.; Kivenson, G.; Lane, M. C.
**Jones, F.** See Reid, A. F.
**Jones, F. C.** See Wilcock, D. F.
**Jones, F. T.**, and Bickoff, E. M. Cryst. characteristics of four carotene isomers, 6881*g*.
—— and Palmer, K. J. Optical, crystallographic, and x-ray diffraction data for limonin and some of its solvates, 7773*f*.
**Jones, F. W.** See Lavender, J. D.; Pumphrey, W. I.
—— and Pumphrey, W. I. Free energy and metastable states in the Fe-Ni and Fe-Mn systems, 9006*d*.
**Jones, Grinnell, Juda, W.**, and Soll, S. Fire-retardant compn., P 1126*h*.
—— and Soll, S. Fire-retardant compn., P 1126*g*.
**Jones, Gwendolyn.** See Lands, A. M.
**Jones, G. A.** See Douglas, R. W.
**Jones, George A.** British progress in photography, 5319*c*.
**Jones, G. C.** See Cellan-Jones, G.
**Jones, G. D.** Compn. of gelatin and polyvinyl urea, P 5231*i*; interpolymers of acrylamides and allyl acetoacetates, P 9531*g*.
**Jones, G. H.**, Mackenzie, J. B. D., Robertson, A., and Whalley, W. B. Chemistry of fungi (II) derivs. of 3,4-dimethoxyphenol, 7460*c*.
**Jones, G. O.** Reversible thermal after-effects in glass at ordinary temps., 4823*b*; what expts. are needed in glass science? 5163*a*; flow properties of glass of very high viscosity, 8625*e*, strength of glass, 9398*i*.
— — — and Larsen, A. H. Design of metal vacuum siphons for low-temp. liquids, 2821*c*.
**Jones, G. W.**, and Scott, F. E. Flammability of methyl alc. vapor-air mixts. at low pressures, 5167*i*.
**Jones, Gary W.** See Van den Akker, J. A.
**Jones, H.** Structural and elastic properties of metals, 9001*f*; see Aiken, J. K.
— — and Miller, A. R. Detonation of solid explosives—equil. conditions in the detonation wave front and the adiabatic expansion of the products of detonation, 4013*i*.
**Jones, Harry.** Temp. sensitivity of the system plasticizer-polymer, 4505*i*.
**Jones, H. A.** See Lindquist, A. W., Madden, A. H., Schroeder, H. O.
— —, McCollough, G. T., and Morton, F. A. Effect of storage on insect repellents, 2362*h*.
**Jones, H. B.** See Dobson, E. L.
**Jones, H. C.** See Barnett, C. E.
**Jones, H. E.** See Corson, B. B., Dodge, D. A., Stahly, E. E.
——, Stahly, E. E., and Corson, B. B. Butadiene from EtOH—reaction mechanism, 8349*g*.
**Jones, Harold E.** Cocoa, P 7606*d*.
**Jones, H. H.** Treatment of materials with a volatile treating agent, P 4449*a*.
**Jones, H. H. M.** Developments in distn. equipment, 2473*f*.
**Jones, H. L.** See Johnson, C. W.
**Jones, H. W.**, Hoerr, N. L., Osol, A., *et al.* Blakiston's New Gould Medical Dictionary (book), 9125*i*.
**Jones, H. W., Jr.**, Meyer, B. J., and Karel, L. Relation of cholinesterase-inhibiting activity to the toxicity of some org. P compds., 1109*h*.
**Jones, I. C.** Relation of the pituitary to the X zone of the mouse adrenal, 740*f*; action of testosterone on the adrenal cortex of the hypophysectomized, prepuberally castrated male mouse, 8492*f*.
**Jones, I. H.** Nutrition and the eye, ear, nose, and throat, 8022*f*.
**Jones, I. M.** Powd. milk and wheat germ compn., P 329*i*.
**Jones, I. R.** See Byers, J. H.
**Jones, J. B.** Wood—its prepn. and measurement, 2767*d*.
**Jones, J. C.** Expts. with DDT, 7628*g*; how to control bats, 7631*i*; mole control in the eastern U. S., 7631*i*; see Anderson, G. W.
**Jones, J. G.**, and Wilson, A. J. C. X-ray diffraction effect shown by some specimens of chrysotile, 38*d*.
**Jones, J. H.**, and Gordon, N. Detn. of Cl and Br in org. compds., 8959*h*.
**Jones, James H.** See Foster, C.
——, Foster, C., and Henle, W. Effect of oxythiamine on infection of mice with the Lansing strain of poliomyelitis virus, 2293*c*.
**Jones, J. I.** Organization of safety precautions in chem. labs., 7159*h*.
**Jones, J. K. N.** Chemistry of cellulose, amylose, and chitin, 4857*e*; chemistry of pectic acid and alginic acid, 4857*e*; see Brown, F.; Flood, A. E.; Halsall, T. G.; Hirst, E. L.; Hough, L.
**Jones, J. O.** See Nicholas, D. J. D.
——, Nicholas, D. J. D., Wallace, T., and Jefferies, A. Control of Mg deficiency in glasshouse tomatoes (II), 2358*a*.
**Jones, J. P.** Vinylcyclopropane, 3646*a*.
**Jones, J. W.** See Halpern, A.; Wiese, G. A.
**Jones, K.** See Roberts, R. P.

**Jones, L. A.**, and Higgins, G. C. Photographic graininess and granularity, 4589*g*.
**Jones, L. D.**, and Barnaby, H. S. Centrifugal separator of solids from gases, P 2476*g*.
**Jones, L. H.** Soil temp. as a factor in the frenching of tobacco, 330*d*
———, Shepardson, W. B., and Peters, C. A. Function of Mn in the assimilation of nitrates, 4735*e*.
——— and Tio, M. A. Unavailability of Fe as a cause of frenching of tobacco, 338*h*.
**Jones, M. A.**, and Pagán, C. Detn. of rotenone in small samples, 7631*d*.
———, Pagán, C., McGovran, E. R., Gersdorff, W. A., and Piquett, P. G. Toxicol. comparison of *Derris* and *Lonchocarpus*, 5150*a*.
——— and Vicente, G. C. Testing vanilla in relation to killing and curing methods—inactivation and vacuum infiltration of vanilla enzyme systems—quality of cured vanilla beans in relation to some natural factors, 7157*f*.
**Jones, M. C.** See Renner, G. F.
**Jones, M. C. K.** Alkylation of isoparaffins with olefins, P 9430*f*
**Jones, M. E.** See Munson, P. L.
**Jones, M. J.** See Tobie, W. C.
**Jones, M. S.** See Renbourn, E. T.
**Jones, N. L.** Al soap, P 5185*h*.
**Jones, O.** Compn. of fresh sausages, 9285*a*.
**Jones, P.** See Quayle, J. C.
**Jones, P. H.** Multiple-stage shale education process, P 4457*a*
**Jones, P. J.** Petroleum Production (book), 2763*a*; oil production by gas and flooding (I), (II), (III) vaporization in oil reservoirs, (IV) displacement of oil by gas, (V) pressure maintenance with gas, (VI) radial reservoir, (VII) declining reservoir pressure, (VIII) displacement of oil by flooding, (IX) dry and wet oil reserve for flooding, (X) water requirements for flooding, 8121*g*.
**Jones, P. R.** Horticultural spray oil, P 9357*b*.
**Jones, R. A.**, and Andrews, A. I. Residual stresses in enameled sheet-Fe specimens, 830*f*.
**Jones, R. E.**, and Townend, D. T. A. Oxidation of coal, 9412*h*.
**Jones, R. G.** Pyrazines and related compds. (I) synthesis of hydroxypyrazines, 3009*e*; imidazole compds. (I) synthesis of imidazoles with functional groups in the 2-position, (II) synthesis of 5-imidazolecarboxylates from glycine and substituted glycine esters, 3410*d*; see Behrens, O. K.; Corse, J., Kornfeld, E. C., Lee, H. M.; Shaw, G. L.; Soper, Q. F.
——— and McLaughlin, K. C. Imidazoles (III) 1-substituted analogs of histidine and histamine, 8381*f*.
———, Soper, Q. F., Behrens, O. K., and Corse, J. Biosynthesis of penicillins (VI) *N*-2-hydroxyethyl amides of some polycyclic and heterocyclic acetic acids as precursors, 3362*g*.
**Jones, R. H.** See Swain, C. G.
**Jones, R. N.** Characterization of sterol hormones by ultraviolet and infrared spectroscopy, 5815*i*; see Cilento, G., Dobriner, K.; Gagnon, P. E., Hirshberg, Y.
———, Gogek, C. J., and Sharpe, R. W. Reaction of maleic anhydride with polynuclear hydrocarbons, 2190*c*.
———, Humphries, P., and Dobriner, K. Steroid metabolism (VI) characterization of 11- and 12-oxygenated steroids by infrared spectrometry, 3019*g*.
——— and Sharpe, R. W. Pyrolysis of carotene, 2172*g*.
——— and Thorn, G. D. Ultraviolet absorption spectra of $HNO_3$ solns., 8273*g*.
———, Williams, V. Z., Whalen, M. J., and Dobriner, K. Steroid metabolism (IV) characterization of carbonyl and other functional groups in steroids by infrared spectrometry, 3018*i*.
**Jones, R. W.** Chem. treatment of cement-contaminated drilling muds, 5175*f*.
**Jones, S.** Alumina-lithia-$Fe_2O_3$ phosphor, 6084*d*.
**Jones, S. B.** See Wang, K.-C.
**Jones, T. C.** Electrolytic precipitator for steam boilers, hot-water systems, evaporators, Diesel installations, etc., P 3550*a*.
**Jones, T. S. G.** Evidence for the multiplicity of the antibiotics produced by *Bacillus polymyxa*, 8445*c*; see Catch, J. R.
**Jones, U. S.** Availability of P in rock phosphate as influenced by K and N salts, lime, and org. matter, 1133*f*; availability of humate K, 2725*a*.
**Jones, V. E.** See Korenchevsky, V.
**Jones, V. J.** See Houston, E. C.
**Jones, V. W.** Evaluation of basic brick in the open hearth, 829*b*.
**Jones, W.** See Shoupp, W. E.
**Jones, W. A.** Detn. of traces of Fe and Cu in culture media prepd. by enzymic digestion of muscle protein, 4321*f*.
**Jones, William A.** Addn. agent for lubricants, P 2423*i*.
**Jones, Wilford D.** See Seymour, G. W.
**Jones, William D.** Synthetic resins from a cresol-HCHO condensate and a monohydric alc. ester of rosin, P 3232*b*.
——— and Robiette, A. G. E. Decarburization of powders contg. carbides, P 2566*g*.
**Jones, W. G.**, Pollard, A. L., and Holtman, D. F. Variations in normal and *Brucella*-immune rabbit serum, 9228*c*.
**Jones, W. G. M.** Synthesis of pteridine, 2624*i*
**Jones, W. H.** Electrostatically charged particles in the detection of minute surface defects in porcelain enamel, 6802*e*; see Cope, A. C.
**Jones, W. I.**, and Jones, D. C. R. Molded articles from coal, P 4449*c*
**Jones, W. J.** See Bowden, S. T.; Forward, M. V.; Grant, W. E.
**Jones, W. M.** Thermodynamic functions for $T_2$ and TH—equil. of $T_2$ and H with TH—dissocn. of $T_2$ and TH, 476*b*
**Jones, W. N.** See Neilson-Jones, W.
**Jones, W. O.**, and Imperial Chemical Industries Ltd. Azamethine dyes for paper, cellulose acetate, etc., P 8166*c*
**Jones, W. R.**, and Williams, D. Minerals and Mineral Deposits (book), 3324*i*
**Jones, W. W.**, and Parker, E. R. Effects of N, P, and K fertilizers and of org. materials on the compn. of Washington navel-orange juice, 9319*g*, feeding trees through leaves—use of urea applied to foliage as a source of N for orange trees, 9172*d*
**Jones-Evans, E.** Screening and rejection tests in relation to the keeping quality of milk, 9279*d*.
**Jones & Laughlin Steel Corp.** Sepn. of pyridine bases, P 3043*d*, purification of 3-picoline, P 3043*i*, concn. of 3-picoline, P 3044*c*, purification of 4-picoline, P 3044*f*.
**Jonevall-Westöö, I.** See Bethge, P. O.
**Jong, A. W. K. de.** Complete extn. of the bases and the acid esters of *l*-norecgonine from coca leaves (II), 5544*b*.
**Jong, D. J. de.** Assay of persulfate by iodometric titration, 2120*i*; see Raven, C. P.
**Jong, G. J. de.** See Backer, H. J.
**Jong, H. G. B. de**, and Berg, H. J. van den. Elastic-viscous oleate systems contg. KCl (I) measurements of the elastic properties—dependence of period and damping on the temp., 2488*b*, (II*a*) period and logarithmic decrement as function of the radius of the sphere for a system contg. 1.2% oleate, in 1.52 *N* KCl + 0.08 *N* KOH, (II*b*) shear modulus and relaxation time as function of temp., (III) elastic properties as a function of the concn. of the oleate at 15° and const. KCl concn., 4080*d*; (IV) flow properties as a function of the shearing stress at 15° and const. KCl concn., 5260*e*.
———, Berg, H. J. van den, and Heer, L. J. de. Elastic viscous oleate systems contg. KCl (V) viscous and elastic behavior compared, 5260*h*.
———, Berg, H. J. van den, and Vreugdenhil, D. Elastic-viscous oleate systems contg. KCl (VI) (*a*) elastic properties as a function of the KCl concn., (*b*) influence of some alcs. and fatty acid anions on the elastic behavior, 6491*f*.
——— and Landsmeer, J. M. F. Changes in diam. of gelled coacervate drops of the complex coacervate gelatin-gum arabic, resulting from a change in the pH, or from neutral salts added to the surrounding medium (III), 3691*b*.
**Jong, J. D. de.** Orbicular diorite from Next Netherlands—origin of orbicular rocks, 4610*b*.
**Jong, L. E. den dooren de.** Strategy of pathogenic bacteria, 5826*a*.
**Jong, R. N. de.** See De Jong, R. N.
**Jonge, A. P. de.** See Hertog, H. J. den.
**Jonge, J. de**, and Dijkstra, R. Decompn. of 2-hydroxy diazonium compds. by light, 4235*d*.
**Jongedyk, R. P.** See Dimitri, M. S.
**Jongen, G. H.** See Berkhout, H. W.
**Jongh, D. K. de**, and Knoppers, A. T. Pharmacol. properties of quinine methochloride, 7132*d*.
**Jongh, S. E. de.** See Gaarenstroom, J. H.; Wieringen, G. van.
**Jonker, G. H.** See Santen, J. H. van
——— and Santen, J. H. van. Properties of Ba titanate in connection with its crystal structure, 7286*f*.
**Jonneret, F.** Installation to sep. and recover material of low d. contained in residual waters, P 2348*d*; gas and fertilizer by fermentation, P 3143*e*.
**Jonsen, J.** See Thjøtta, T.
**Jonxis, J. H. P.** See Davel, J.
**Joos, A.** Impermeable films, P 4489*b*, 4507*e*.
**Joos, G.** Optical properties of solids, 2062*a*.
**Jope, H. M.** See King, E. J.
**Joppich.** Protein in the artificial infant diet 9189*b*.
**Jorczak, J. S.** See Boswell, W. E.
**Jordan, C. B.**, and Duwez, P. Densification of Cu powder compacts in H and in a vacuum, 2556*e*.
**Jordan, E.** See Iordan, E.
**Jordan, E. F., Jr.**, and Swern, D. Prepn. of some polymerizable esters of 10-hendecenoic acid, 8352*e*
**Jordan, J. F.** Extn. of Sn from Fe alloys, P 6965*c*.
**Jordan, J. W.** Alteration of the properties of bentonite by reaction with amines, 6121*f*, see Muller, O. P.
**Jordan, L. A.** Soybean and rubberseed oils, 7718*b*.
——— and Aiken, J. K. Prepn., treatment, and application of resins, P 6863*f*.
———, Gay, P. J., and Whitby, L. Paint and like compns., P 4872*g*.
——— and O'Neill, L. A. Fire retardant coating comps. for org. fibrous material, P 6764*a*
**Jordan, M.** Influence of methylbis(2-chloroethyl)amine on the development of the eggs of *Tubifex*, 6322*b*
**Jordan, M. L.** See Clark, W. G.
**Jordan, O.** Relation between metal and film as the basis of corrosion protection afforded by protective coatings, 2151*d*
**Jordan, P.** Micromethod for the photometric detn. of K, 2118*f*, quantum physics and biology, 6255*f*; see Houtermans, F. G.
**Jordan, P. E.** See Bundy, K. N.
**Jordan, R. A.** See Warren, G. T.
**Jordan, R. H.** See Lutz, R. E.
**Jordan, T. E.**, and Ginsburg, S. 3-Benzyl-5,5-dimethylhydantoin, 6084*h*
——— and Kipnis, F. 3,4-Dichlorotetramethylene sulfone, 5775*g*.
**Jordan, W.** See Dieser, J.
**Jordan, W. H.** See Hoover, J. I.
**Jordão da Rosa, M.**, Bittencourt Machado, R., Tovar Bicudo de Castro, A., and Garriga de Menezes, M. J. Dehydration and polymerization of castor oil, 872*a*.
**Jorden, T. J. W.**, and Snyman, H. L. P. Detn. of S in org. compds., 7866*a*.
**Jores, A.** Grundzuge der inneren Medizin fur Zahnärzte und Studierende der Zahnheilkunde (book), 5112*b*
**Jorgensen, E.** See Rapoport, H.
**Jorissen, W. P.** Centers for research in the history of chemistry, 1618*h*; Franciscus A. H. Schreinemakers, 2477*d*; use of phosphorescent CaS by the bacchantes, 2477*f*.
**Jorpes, J. E.** See Hult, H.
——— and Gardell, S. Heparin monosulfuric acid, 2246*h*.
———, Werner, B., and Åberg, B. Fuchsin sulfurous acid test after periodate oxidation of heparin and allied polysaccharides, 2246*i*.
**Joscelyne, F. M.** See Hedley, A. G. M.
**Jose, F. R.** See Salcedo, J., Jr.
**Jose, P. D.** Spectrum of comet 1948 *l*, 5662*f*; see Swings, P.
**Joseph, G.** See Courtois, J.
**Joseph, G. H.** See Halliday, T. W.
**Joseph, N. R.** See Kaplan, E.
———, Reed, C. I., Kaplan, E., and Steck, I. E. Effect of metabolic inhibitors on membrane potentials in the synovialis, 7116*f*.
**Josephson, E. S.** See Greenberg, Joseph.
**Josephson, G. W.**, and Downey, M. G. S and pyrites, 2127*g*.
——— and Jensen, N. C. Stone, 2127*g*.
——— and Linn, A. Clays, 2127*a*.
——— and Marsh, D. I. Asbestos, 2126*i*
**Josephy, H.** Acid phosphatase in the senile brain, 9211*g*.

**Josepovits, G.** See Baló, J.; Banga, I.
**Josh, G.**, Harriman, L. A., and Hopkins, E. W. Drying eggs, P 3948*b*.
**Joshi, G. D.**, Mhatre, S. H., and Nabar, G. M. Accelerated oxidation of cotton cellulose in presence of reducing substances (I), 8671*g*.
**Joshi, G. G.**, and Shah, N. M. Reduction of nitro group to amino group by hypo in alk. medium, 7438*c*.
**Joshi, K. C.** See Sen, A. B.
**Joshi, K. M.** See Kappanna, A. N.
**Joshi, M. L.** See Verghese, J.
———, Gulati, K. C., and Bhushan, B. Synthetic liquid fuel from molasses, 9422*e*
**Joshi, N. V.** See Biswas, S. C.
**Joshua, W. P.** See Distillers Co., Ltd.
**Josien, M. L.** Action of I on a $H_2SO_4$ soln of $Ag_2SO_4$, 5689*c*; decompn of hypoiodous acid in solns of Ag and I, 8249*i*, reactions of two orders, 8249*g*
——— and Courtial, C. Decompn. of hypoiodous acid in solns. of Ag and I (IV), 8249*h*.
——— and Williams, D. A. Kinetic study of the action of I on $Ag_2SO_4$, 8250*a*, pH of solns. of Ag and I—its influence on the mechanism of reaction, 8250*a*.
**Joslin, E. P.** Diabetic Manual (book), 1104*d*
**Joslyn, M. A.** Calif. wines—oxidation reduction potential at various stages of production and aging, 8091*c*, see Ponting, J. D.
——— and Hohl, L. A. Com. freezing of fruit products, 3555*f*.
**Josselyn, D.** See Teeri, A. E.
**Josserand, A.**, Pichat, P., Viallier, J., and Kalb, J. Effects in normal guinea pigs of hypervitaminosis $D_2$, 5097*e*, action on tuberculosis in guinea pigs of hypervitaminosis $D_2$, 5097*f*
**Josso, É.** Thermomagnetic study of the structural modifications caused by cooling after hypertempering in some ferronickel complexes, 6961*c*, see Bonnard, Y.
**Jost, A.**, and Hatey, J. Influence of decapitation on the glycogen content of the liver of the rabbit fetus, 7104*d*
———, Morel, F., and Marois, M. Fixation of radioactive $I^{131}$ by the thyroid of the rabbit fetus, 7060*b*
**Jost, J.** Ring structure of yohimbine (IV) yohimban, 7491*g*.
**Jost, W.** Fractionating column with rotating band inserts, 4153*d*.
**Jouanneteau, J.** See Meunier, Paul
**Joubert, L.** See Darraspen, E., Goret, P.
**Joukoff.** See Zhukov.
**Joukovski, Joukovsky.** See Zhukovskiĭ
**Joukow.** See Zhukov.
**Journier, E.**, and Perrier, J. Contraction accompanying the drying of ceramic pastes and an app. for recording the Bigot curve, 2389*b*.
**Jouravsky, G.** Mineralogical compn. of cubical arsenides, 2895*b*.
**Jourdan, Ciot, and Terriet.** Dyes for chrome leather, 6853*a*
**Jourdan, F.**, Guérin, L., and Chatonnet, J. Adrenaline content of the adrenal glands in traumatic shock, 4361*f*
**Jouriew, Jourjev.** See Yur'ev.
**Jourkov, S. N.** See Zhurkov, S. N.
**Jouse** See Zhuze.
**Joussellin, A.** See Jacqué, L.
**Joustra, H. W.** See Thoenes, D
**Jouwersma, C.** See Hertog, H. J. den
**Jovanović, S. L.** Temp. dependence of the heat of the enantiomorphic transition of white Sn to gray Sn, 6500*d*.
———, *et al* Lab. installation for pyrogenic distn. of bituminous schists, 6812*i*.
**Jowett, G. H.**, and Sarjant, R. J. Fuel technology, 6389*i*.
**Joy, A. H.**, and Humason, M. L. Faint dwarf star L726-8, 6510*c*.
——— and Wilson, R. E. Stars whose spectra have bright *H* and *K* lines of Ca, 5301*c*.
**Joy, P. C.** See Powell, J. S.
**Joyce, A. W.** See Lecher, H. Z.; Scalera, M.
**Joyce, D.** Blast-furnace operation and the effect of coke quality, 79*b*; elimination of S in the blast furnace, 79*b*, 2555*g*.
**Joyce, J. A.** Colored flame candle, P 8580*d*.
**Joyce, J. R.** Atomization of liquid fuels for combustion, 4443*g*.
**Joyce, R. M., Jr.** Fluorinated hydrocarbons, P 3834*f*; see Cairns, T. L.
———, Hanford, W. E., and Harmon, J. Free-radical-initiated reaction of ethylene with $CCl_4$, 109*e*.
**Joyeux, Y.** See Nicolle, J.
**Joyner, B. F.** See Lamar, W. L.
**Jucker, O.** See Hardegger, E.
**Juda, W.** See Jones, Grinnell.
——— and Carron, M. Equil. and velocity of the Na-H exchange on carbonaceous exchangers in contact with chloride solns., 2848*b*.
**Judd, R. O.** See Brain, R. C.
**Jude, A.**, and Girard, P. Toxicity of DDT—mass poisoning by accidental ingestion, 8058*f*.
**Judelnstein, R.** Increase in tensile strength of vulcanized rubber at the beginning of its aging, 5989*e*.
**Judge, B. E.** See Lampitt, L. H.
**Judkins, W. P.** Relation of leaf color, N, and rainfall to the growth of young peach trees, 8593*g*.
**Jürgens, J.** Hemostyptic effect of histamine and its relation to the function of the stomach, 3106*i*; prothrombin detn., 3871*a*.
**Jugovics, L.** Rocks of eastern Celebes, 8319*i*.
**Juhász, S.** S, dew point, and boiler availability, 6808*e*.
**Juillet, A.** Parthenocarpy of the tomato and growing substances, 9337*f*
**Jukes, T. H.** See Broquist, H. P., Franklin, A. L., Hoffmann, C. E., Hutner, S. H., Stokstad, E. L. R
**Jukovskii.** See Zhukovskiĭ
**Jukow.** See Zhukov.
**Jukowsky.** See Zhukovskiĭ
**Julep Co.** Stable quinoline salt for electrolysis, P 5682*e*.
**Julesz, E. W.** See Winkler-Julesz, E.
**Julesz, M.**, Gábor, G., and Megyesi, P. Vitamin $B_1$ as an antidiabetogenic factor, 9183*g*.
——— and Winkler-Julesz, E. Effect of ketogenic diet on excretion of substances regulating carbohydrate metabolism of the anterior pituitary lobe, 7097*a*
**Julia, M.** 2 Chlorovinyl ketones and their use in the synthesis of quinolines, 7937*d*
**Julian, L. M.** Importance of radioactive isotopes to veterinary science, 7992*g*.
**Julian, P. L.**, Cole, W., Diemer, G., and Schafer, J. G. Conjugated systems (VI) 1,5-anionotropic shifts in the anthracene series, 9059*h*
———, Cole, W., and Schroeder, R. Conjugated systems (VII) resonance hybrid to which a triarylmethyl and a biarylnitrogen are contributing structures, 9060*d*.
———, Karpel, W. J., and Armstrong, J. W. Oxidation of soybean sitosteryl acetate dibromide, P 4706*c*
———, Karpel, W. J., Magnani, A., and Meyer, E. W. Synthesis of ketoyobyrine, 1422*i*.
———, Meyer, E. W., and Printy, H. C. Sterols (VI) 16-methyltestosterone, 1429*i*.
———, Meyer, E. W., and Ryden, I. 17($\alpha$)-Hydroxysteroids, 3430*d*.
**Juliard, A.**, and Cakenberghe, J. van. Automatic conductometric titration, 5695*g*.
———, Rayet, R., and Ludé, A. Dissocn of CO accompanying the reduction of metallic oxides, 4933*b*.
**Julien, P.** See Toutberidze, C.
**Jullander, I.** Treatment of paper with Si esters, 8136*e*; concn. dependence of sedimentation const. for nitrocellulose, 8673*a*.
——— and Blom-Sallin, B. S. Cross linking of nitrocellulose studied with the ultracentrifuge and consistometer, 8673*d*.
——— and Brune, K. Detn. of AcH in monovinyl acetate, 4184*b*.
**Jullien, A.**, and Ripplinger, J. Biol. significance of quant. variations of acetylcholine in *Helix pomatia* following injections of physostigmine and prostigmine, 3580*d*; comparative acetylcholine contents of organs of some marine fishes—variations after injection of eserine, 8560*i*.
**Jullien, J.** See Mousseron, M.
**Jundt, W.** See Grob, C. A.
**Jung, F.** Pathology of the red blood cells (II) action of some metallic salts, 5811*g*; (IV) hemolytic action of arsine, 748*f*; methemoglobin formation (XXIX) chloronitrobenzenes and nitroaniline, 5864*a*; theory of chlorate poisoning (III), 5864*b*; relation of age, hemolytic resistance, and methemoglobin content of erythrocytes, 8497*h*; see Arnold, Herbert; Virenque, J.
——— and Stuhlfauth, K. Poisoning with edible turbantop, 6312*a*.
——— and Witt, P. Methemoglobin formation (XXX) action of polyphenols, 757*e*; action of phenols on blood pressure, 757*f*.
**Jung, H.** Medicinal earths, 2733*i*.
**Jung, J. P.** See Erlenmeyer, H.
**Jung, J. R., Jr.** See Reeves, R. E.
**Jung, K.** Chemische Nachweise (book), 1291*a*; Einführung in die Harnuntersuchung (book), 4312*f*; nomenclature of the D.A.B., 5531*h*; Cu in therapy, 8614*c*.
**Jung, M. I.** See Ibes-Jung, M.
**Jung, W.** See Fischl, S.
——— and Copello, M. A. Detg. alc. content (III) detn. of EtOH in mixts. with essences, 8311*a*.
——— and Garcia de Garrone, V. Detn. of isopropanol in denatured alc., 7377*g*.
——— and Paladini, A. C. Detg. alc. content (I) Mohr-Westphal balances, (II) detn. of the specific wt. of liquids of high alc. content, 8310*h*.
**Jung, W. N.** See Yung, V. N.
**Jung, W. S.** See Schwartzkopff-Jung, W.
**Jungblut, C.** S in machining lubricants, 3999*g*.
**Jungck, E. C.** Failure of estradiol inactivation products to inhibit pituitary gonadotropic content and secretion, 3083*i*.
**Jungeblut, C. W.** Failure of phenosulfazole to influence the course of infection with murine poliomyelitis virus, 4382*h*.
**Jungers, J. C.** See d'Hont, M., Olaerts, E.
**Jungkunz, R.** See Hadorn, H.
**Jungmann, H.** Effect of lactoflavin and organospecific lipoids on the dark adaptation, 3933*i*.
——— and Burchhard, H. Activity of cystine in intermediary protein metabolism, 3498*e*.
**Jungnickel, H.** See Siewert, G.
**Junior, J. K.** See Kobal Junior, J.
**Junkmann, K.** Penicillin (I) com. production of penicillin, (II) pharmacology of penicillin, 819*h*.
**Junnemann, M. de.** Fuel economy in cement manuf., 4825*f*
**Junod, J.** See Erlenmeyer, H.
**Junqueira, L. C.** See Rabinovitch, M
**Junqueira, P. B.**, and Schweigert, B. S. Urinary excretion of nicotinic acid and *N*$^1$-methylnicotinamide by rats fed tryptophan and diets deficient in various B vitamins, 293*f*, effect of food supplements on growth, reproduction, and lactation, 5096*i*.
**Juppenlatz, J. W.** Cast ferrous materials for subzero service, 5716*b*.
**Jurand, A.** Effect of 5-alkyl (benzyl) derivs. of 2-thio-4-methyluracil on the thyroid gland and the bone marrow, 2326*c*.
**Jurawleff.** See Zhuravlev.
**Jurchak, I. Ya.** See Yurchak, I. Ya.
**Jureček, M.** Analysis of chemotherapeuticals (II) identification of *p*-sulfamidobenzylamine, 9374*b*.
**Jurich, H.**, and Eilender, W. Variation of the N content of steel by different methods of blowing in a pilot converter, 980*d*.
**Juriew.** See Yur'ev.
**Jurinka, A.** See Gorbach, G.
**Jurist, A. E.** See Burke, J. C
**Jurjev.** See Yur'ev.
**Jurkow, S. N.** See Zhurkov, S. N.
**Jurney, E. T.** Coincidence expts. on $Sc^{46}$, $Ga^{72}$, $Au^{198}$, and $Rb^{86}$, 1047*a*; coincidence and absorption investigation of the disintegration of $Rh^{106}$, $Sb^{125}$, and $Pr^{142}$, 8267*i*.
——— and Keck, M. R. Coincidence expts. on $Sc^{46}$ and $Au^{198}$, 4094*d*.
**Jurney, R. C., Jr.** Tanning leather with aliphatic hydrocarbon sulfonyl chlorides, 4039*h*.
**Jury, S. H.**, and Ernst, R. C. Approx conditions for the formation of liquid crystals in soln., 6493*d*.
**Juściński, Z.**, and Dobrowolski, J. Satn. without an agitator in the Odmuchów sugar factory, 4502*e*.
**Juse.** See Zhuze.
**Just, J.** Poliomyelitis water purification, 5519*i*.
**Justat, A.** Fluid catalysts and a Polish patent, 8074*d*.
**Justi, E.** Elec. superconduction, 3258*a*.
**Justin-Besançon, J.**, Klotz, H. P., and Borenstein, P. Awakening action of *d*-$\alpha$-methylphenethylamine in barbiturate coma, 7138*c*.
**Justoni, R.**, and Terruzzi, M. Reaction products of $\alpha$-chloro ketones and alkali cyanides (IV) glycidonitriles, (V) action of KCN on chloromethyl alkyl ketones, 2936*f*.
———, Terruzzi, M., and Pirola, C. *p*-Aminosalicylic acid, 2189*g*.
**Justus, K. M.** See Yaffe, L.
**Jutisz, M.** See Fromageot, C.

**Juve, A. E.** See Marvel, C. S.; Schoch, M. G., Jr.
**Juve, R. D.** Effect of oxidation on plasticity and soly. of GR S, 2802*a*
**Juza, R.** Metal amides and nitrides, 3739*h*, see Kölbel, Herbert; Nowotny, H
——— and Hund, F. Metal amides and metal nitrides (XVI) ternary nitrides $Li_3MgN$ and $Li_2ZnN_2$ (XVII) ternary nitrides $Li_3AlN_2$ and $Li_3GaN_2$, 1170*g*
———, Lubbe, H., and Heinlein, L. Sorption of O and Br on charcoal, estd by magnetic measurements, 6038*b*.
——— and Sachsze, W. Metal amides and metal nitrides (XIII) system Co–N, 5322*d*.
**Jwantchewa, E. G.** See Ivancheva, E. G.

**Ka, K.**, and Nagasawa, S Alcoholysis (II) alcs and their selectivity, 1715*f*
**Kaan, G.**, and Cole, W. F Measurement and correction of intensities from single-crystal x-ray photographs, 6509*h*
**Kaars Sypesteyn, W.** Eladinizing fat oils with $SO_2$, P 5215*e*.
**Kabachnik, M. I.** See Divinskii, A. F
——— and Shepeleva, E. S Organophosphorous compds (XI) anomalous course of an organomagnesium synthesis, 5730*e*.
**Kabačnik, M. I.** See Kabachnik, M. I.
**Kabanov, B. N.** See Rozentsveig, S. A.; Siver, Yu. G
**Kabanova, M. F.** See Gutyrya, V. S.
**Kabat, E. A.** See Beiser, S. M.; Benacerraf, B.; Bendich, A.; Fischel, E. E
———, Baer, H., and Knaub, V Immunochem. studies on blood groups (IX) specific pptn of the fucose of hog and human blood group A substances by anti-A, 2314*d*.
——— and Benacerraf, B Passive anaphylaxis in the guinea pig (IV) passive sensitization with nonprecipitable or "univalent" rabbit antiovalbumin, 7574*g*.
———, Glusman, M., and Knaub, V. Immunochem estn. of albumin and γ-globulin in normal and pathol cerebrospinal fluid, 9232*c*
——— and Mayer, M. M Exptl Immunochemistry (book), 1483*a*
**Kabátek, Z.** Czechoslovakian chem. app., 4053*b*.
**Kabatschnik, M. I.** See Kabachnik, M. I.
**Kaberg, R. A.**, and Harris, J. S Emulsifiable oils, P 2733*a*
**Kabler, P.** See Adams, Forrest H
——— and Lundholm, R Culture of tubercle bacilli from specimens of gastric juice, 7546*e*.
**Kabushiki, T.** See Manshu, M
**Kachan, A. A.** See Dain, B. Ya
**Kachanow, L. N.**, *et al* Plastic Deformation, Principles, and Theories (book), 6072*d*.
**Kachlik, K.** Octane no. and its meaning, 3600*f*; catalytic cracking, 3998*d*.
**Kacser, H.**, and Ubbelohde, A. R Thermostatically controlled micropolarimeter tube, 6473*c*.
**Kaczka, E. A.** See Brink, N. G
———, Wolf, D. E., and Folkers, K. Vitamin $B_{12}$ (V) identification of cryst. vitamin $B_{12a}$, 5747*a*.
**Kádár, T.** Influence of the degree of disintegration and alc. concn. of drugs on the content of active substances in tinctures, 8094*d*.
**Kadarmetov, K. N.** C in ferrochrome and ferrosilicochrome, 2553*i*.
**Kadell, A. E.** Production of Sn plate, 7393*f*.
**Kader, G. M.** See Antipov Karataev, I. N.
**Kader, M. M. A.** See Ellinger, P
**Kadlec, F.** Corrosion of plated Duraluminum, 2918*a*.
**Kadmer, E. H.** Fettöle, Wachse, Harze und ihre Verarbeitung-produkte (book), 4876*f*.
**Kägi, H.** See Miescher, K.
**Kähler, K. H.** Preliminary processing of corn—biochem. factors, 5875*g*
**Källe, K. T.** Automatically indicating or regulating the viscosity of liquids or suspensions, particularly cellulose fiber suspensions, P 5950*f*
**Kämmerer, C.** Computation of heats of evaporation from the equation of state, 3700*h*.
**Kämmerer, H.** Reactions of porphyrin, hematin, and hemin, 8497*f*
**Kaempffer, F.** Theory of the ideal Bose-Einstein gas, 4913*h*; thermodynamics of matter waves, 6901*h*; see Leibfried, G.
**Känsig, W.** See Blattner, H.
**Käser, O.** See Eichenberger, Erwin.
**Käsermann, H.** Pharmacopeias, 1527*b*, British Pharmacopeia 1948, 3977*f*; Kommentar zur Pharmacopoea Helvetica (book), 5155*f*; see Blum, C
**Kaesermann, P.** Detinning of metals, P 4964*b*
**Kafka, F. M.** See Joachim, B
**Kafka, L.** See Lanyi, B
**Kaftanov, S. V.** Thirty yrs of the Soviet school of chemistry, 7761*h*
**Kagan, R. N.** See Kremnev, L. Va
**Kagan, Ts. A.** See Ostapenva, P. V
**Kagan, Yu. B.** See Bashkirov, A. N.; Levina, R. Va.; Shostakovskii, M. F
**Kaganoff, S. D.** Halogenated polymers, P 1608*c*
**Kaganov, I. N.** Chem. theory of molasses formation, 6848*b*, soly. of sugar in pure water, 9499*h*.
**Kagy, J. F.**, and McPherson, R. R $C_2H_4Br_2$ as a soil fumigant, P 349*e*
**Kahan.** See also Kagan
**Kahan, T.**, Debresse, J., Champenx, R., and Bigot, H. Detector of at. particles, 1645*i*
**Kahane, E.** Mixts. of $HClO_4$ and $Ac_2O$ (explosions), 1982*i*; see Abramson, E.; Voinovitch, I.
——— and Kahane, M. Hydrolysis of acetylcholine, 3271*h*
——— and Lévy, J Physiol. role of choline in water sol. combinations, 9211*h*
——— and Simenauer, A Detn. of U as a complex acetate, 8306*c*
**Kahane, M.** See Kahane, E.
**Kahlenberg, O. J.** Reliable gage of yolk color, 4782*h*
**Kahler, E. J.** See Bachman, G. B
**Kahler, F.** Electron-microscopic investigation of sintered MgO, 3986*f*, formation of magnesium sulfate cements, 8633*g*
**Kahler, H.**, and Woods, M. W Electron microscope and electrophoretic study of two strains of tobacco mosaic virus, 9178*b*.
**Kahler, H. L.** Protecting systems for transporting media corrosive to metal, P 2568*d*.
**Kahler, W. H.** See Costa, J. L.
**Kahlson, G.** See Carlsten, A
**Kahn.** See also Kan
**Kahn, D. S.** Logarithmic function evidencing a correlation between absorption lines and activation energies, 6894*i*
——— and Groetzinger, G Upper limit for the $(d,H^3)$ reaction in P, 4118*d*
**Kahn, J. M.** Application of a flocculation-type unit in paper mill white water treatment, 1185*d*, see Bringman, R. E.
**Kahn, M. J.** See Kahn, R. J.
**Kahn, N. A.**, and Imbembo, F. A Notch sensitivity of steel evaluated by tear test, 6958*g*
**Kahn, R. H. B.** See Broh-Kahn, R. H
**Kahn, R. J.**, and Kahn, M. J Phosphatizing metals, P 989*d*
**Kahn, R. L.** Universal serologic reaction with lipide antigen (I) in normal persons, (II) in animals, 5109*c*, see Wheeler, A. H.
**Kahn, S. J.** See Davidson, D
**Kahn, S. S.** See Mann, G. V.
**Kahovec, L.** Raman spectrum of trimethylamine oxide, 7345*d*
——— and Kohlrausch, K. W. F Raman spectra of α- and β-benzaldoxime, 7345*e*
**Kaiman, S.** Lattice spacing for glancing angles with Fe x-radiation, 8859*e*
**Kaimoto, S.** Hydrocotarnine sulfate, P 4965*e*.
**Kainarskii, I. S.** Vein quartz as raw material for the production of Dinas, 6800*a*.
——— and Karyakin, L. I. Transfer of silica in the gas phase, 9400*i*
——— and Lesnichenko, S. L. Sintering of fine-grained Dinas masses, 5563*i*
——— and Tsigler, V. D Working properties of Dinas brick in open-hearth furnace roofs, 6800*i*, service characteristics of arch Dinas, 8112*d*
**Kaindl, F.** See Brücke, F. v.
———, Polzer, K., and Schober, W. Change in the action potentials of the inferior right cardiac nerve by pitressin, histamine, and lung emboli, 4763*e*.
**Kainer, F.** Plasticized polyvinyl chloride, 1603*c*; polyvinyl chloride in the packing industry, 8203*e*.
**Kainz, G.** See Galinovsky, F.
**Kaischew, R.** See Kaishev, R.
**Kaiser, A.** See Dilthey, W.
**Kaiser, D. W.** Triazolylene triazines, P 7975*a*.
**Kaiser, E.**, and Svarz, J. J. Prepn. of isomeric cholesterylmalonic acids (III) rearrangement of *i*-cholesterylacetic acid and *i*-cholesterylmalonamide, 3430*b*; perhydrocyclopentaphenanthrene compds., P 6674*g*.
**Kaiser, H.**, and Lang, W. "Horo" lab. boiler, 5236*a*
**Kaiser, Heinrich.** Spectrochem. analysis—emission analysis, 1279*h*; systematic errors in the evaluation of spectrograms by photographic photometry, 2539*f*, influence of background on the form of spectrochem. calibration curves, 2539*i*; photographic photometric calibration of step filters, 8276*e*; see Dehio, H.; Honerjäger-Sohm, M
**Kaiser, H. F.**, Mock, D. L., Berg, O. E., Stevens, D. K., and Harris, W. E. Naval Research Lab. betatron, 2505*g*.
**Kaiser, W. F.** Heavy-metal recovery from scrap material, 529*g*, behavior of Sn and Sb in secondary metal Bessemers, 5712*g*
**Kaiser Co., Inc.** Ingot molding furnace, P 7892*b*.
**Kaishev, R.** Equil. form and the growth and disintegration mechanism of homopolar crystals, 8228*g*
**Kajanski, B. A.** See Kazanskii, B. A
**Kajima, A.** CuCl, P 6375*h*
**Kajimura, T.**, Ito, T. and Taguchi, M Seed disinfectants (III) reaction between $CuSO_4$ and $CaCO_3$ (IV) disinfectant effect of the reaction product, 1138*g*
**Kakabadze, V. M.** P. G Melikishvili (Melikov), 7761*g*.
**Kakeura, M.** Carotene from plant parasitic bacteria, P 6792*d* starches by using plant parasitic fungi, P 6850*b*
**Kakita, Y.** See Goto, Hidchiro
**Kakovskii, I. A.** See Klimenko, Yu. V
**Kalabanovskaya, E. A.** See Smolina, L. B
**Kalachikov, A. T.** Influence of B and Mn on the dynamics of nitrates and soil forms of P in weakly podzolized soils, 8081*f*
**Kalatschikow, A. T.** See Kalachikov, A. T.
**Kalb, J.** See Josefsand, A
**Kalberg, V. N.** See Eisenschimd, O
**Kalbfleisch, H. H** See Rieker, G
**Kalckar, H. M.** See Friedkin, M
**Káldor, I.**, Somos, E., and Raca, I Distribution of Wassermann reagin among the protein fractions of blood serum, 9210*f*
**Kal'e, A. K.** Potentiometric titration (II), 9611*h*
**Kalenichenko, Ya. I.** See Karyakin, A. V.
**Kalevatova, V. S.** See Loshkarev, A. G.
**Kaley, M.** See Donnee, A. L.
**Kalichevsky, V. A.** Solvent refining of lubricating oils (I), (II), 3182*c*, (III) solvent dewaxing processes, 5580*b*, (IV) solvent characteristics estg. yields and qualities of solvent-refined products 5580*b*, (V) solvent extn. processes, 7675*e* lubricating-oil additives (I), 8660*b*, (II) viscosity index improvers, 8660*c*
**Kaliko, M. A.** See Agafonov, A. V
**Kalin, S. H.** See Rickett, R. L.
**Kalinenko, V. O.** Heterotropic bacteria as nitrifiers, 1458*f*
**Kalinnikova, M. N.** Content of riboflavin in the urine and the milk of lactating mothers, 4749*d*
**Kalinovskaya, A. B.** Detn. of the optimum amt. of liquid phase in ceramic materials 3583*i*
**Kalinowska, Z. E.** Stigmata croci—sulfur history and recent advances of biol. science, 8684*i*
**Kalinowski, K.** Detn. of *p*-aminobenzenesulfonamide, 2896*c*, obtaining acid berberine sulfate from the barberry root 7194*i*
**Kalinsky, J.** See Stern, I. L.
**Kalinushkin, M. P.** See Gurinov, B. P.
**Kalish, H. S.** Mounting metallographic specimens at room temp., 3328*a*
——— and Dunkerley, F. J Low temp. properties of Sn and Sn-Pb alloys, 93*g*
**Kalish, J.** See Ritter, J. J.
**Kalishevich, S. V.** See Godnev, T. N
**Kaljuschny, P. F.** See Kalyuzhnav, P. F.
**Kallenberger, A.** See Cerletti, A.
**Kaller, A.** Bromometric I no. detn. with TiCl₃ instead of KI, 2547*g*.
**Kalling, B. M. S.**, and Lilljekvist, G Revolution caused by the introduction of stainless steel, 3608*c*.
——— and Norrö, A. F. Fe and S from sulfide ores, P 9018*d*.
——— and Stalked, J. Manuf. of sponge iron, 7881*f*.
**Kallmann, H.** Luminescent counters, 4110*f*; quant. measurements with scintillation counters, 4112*f*; see Broser, I.
**Kallmann, S.** Analysis of barytes, 8970*f*

**Kallos, P.** Progress in Allergy. Vol. II (book), 5860*b*.
**Kallweit, H.** Mixed crystals of $CaCO_3$-$SrCO_3$, 8271*f*.
**Kalman, C.** See Li, C. H
**Kalmán, N. L.** Sulfurized plasticizers for elastomer compns., P 8732*h*
**Kalnitsky, G.** The formation of citrate by exts. of rabbit-kidney cortex, 9111*a*.
—— and Barron, E. S. G. Inhibition of fluoroacetate and fluorobutyrate of fatty acid and glucose oxidation produced by kidney homogenates, 4709*g*
**Kaloč, J.** Anodal oxidation of Al and of Al alloys, 2914*f*.
**Kalousek, M.** Torsion microbalance for measuring low pressures of monolayers, 7271*c*.
**Kalow, W.** Choleretic action of synthetic compds. (I) quant. and qual effects of phenylmethylcarbinol, (II) comparative physiology and pharmacology of bile secretion, 5493*f*.
**Kaloyéréas, S. A.** Preservation of eggs by freezing, P 6332*i*.
**Kalpers, H.** Oil-free core binders for foundries, 6133*g*; pore-free castings from permanent molds, 7394*f*, autogenous surface hardening of steel, 7396*a*
**Kalsbeek, F.** See Cohen, J. A
**Kalugal, I.** Org dyes for the identification of inorg ions, 6106*d*
**Kaluzhenina, K. F.** See Kreshkov, A P.
**Kalva Corp.** Ext of *Iridophycus flaccidum* as suspension stabilizer for beverages, P 331*e*.
**Kalyanasundaram, A.** See Sahasrabudhey, R. H.
**Kalyuzhnaya, P. F.** See Gratsianskii, N N.
**Kalyuzhnyi, V. A.** Whewellite, in the Southern Timan, 72*i*
**Kamath, G. S.** See Mohanty, S R
**Kamath, M. A.** Pharmacology and Therapeutics with Special References to Tropical Diseases (book), 4777*h*
**Kamazawa, M.** See Akahura, T
**Kamazuka, A.**, and Urushibara, K Saccharification of wood and alc fermentation of sugar (V) compn of the saccharified liquor from fir and birch wood, 2425*g*
**Kambara, S.** Oil resistance of rubber (VIII) relation between the oil resistance and polarity of various synthetic rubbers, (IX) dipole moment of acrylonitrile, 1594*e*, activation of fillers for rubber mixts (II) treatment of $CaCO_3$ with cation soap, 1599*d*, natural and synthetic rubber (I), (II) dielec study of raw rubber, (III) dielec. study of vulcanized rubber, 3223*gh*; (IV) dielec. study on synthetic rubber, (V and VI), studies on natural and synthetic rubber, 5221*f*
—— and Mizushima, H. Rubber derivs. (III) addn. compds. of maleic anhydride and rubber, 1595*a*.
——, Mizushima, H., and Saito, K. Rubber derivs (VI), 1595*g*
—— and Muramatsu, Y. Rubber derivs. (I) prepn. of rubber-HCl from latex, 1594*g*
——, Muramatsu, Y., and Kuroda, S. Rubber derivs. (II) addn. of HCl to stretched rubber thread, 1594*h*.
——, Muramatsu, Y., and Maruyama, T. Rubber derivs. (V) structure of a water-insol substance in the reaction product of natural rubber and peracetic acid, 1595*c*.
——, Muramatsu, Y., and Tokimoto, S. Rubber derivs (IV) reaction of peracetic acid on rubber, 1595*b*.
——, Okita, K., and Muto, C. Structure of vulcanized rubber (II) oxidation of low-mol. S compds. in vulcanized rubber with similar type of S linkage, 5622*b*.
——, Okita, K., and Tajima, S. Structure of vulcanized rubber (III) oxidation of thioketone type S, 5622*c*.
——, Okita, K., Umeda, K., Kamitsu, H., Kuroda, S., and Kobori, Y. Rubber derivs (VII) oxidation products of natural rubber by $H_2SO_4$ and $H_2O_2$, (VIII) condensation [illegible] of rubber with maleic acid, 1595*g*.
—— and Tanaka, N. Synthetic rubber (V) internal structure of butadiene-acrylonitrile copolymer, (VI) butadiene-acrylonitrile copolymer, 1596*d*.
**Kambara, T.** Dissocn. and ionization of hexane, cyclohexane, and $C_6H_6$ (I), (II), 6503*c*.
**Kambli, E.** See Hölzle, K.
**Kamecki, J.**, and **Wolny, J** Conductometric studies (IV) $TlNO_3$ and $Na_2S_2O_3$, 3315*d*.
**Kamel, R.** Measurement of the internal friction of solids, 5252*a*.
**Kamell, S. A.**, and Atkinson, W. B. Effects of ovarian hormones on certain cytoplasmic reactions in the vaginal epithelium, 739*i*.
**Kamen, M. D.** See Gest, H.; Griesstein, M.; Lansing, A. I.; Reimer, J. M., Spiegelman, S.
—— and Gest, H. Nitrogenase system in the photosynthetic bacterium *Rhodospirillum rubrum*, 6698*b*.
——, Kennedy, J. W., and Myers, O. E. Kinetic studies on isotopic exchange reactions—relevance in classification of types of chem bonding, 6894*d*
—— and Spiegelman, S Phosphate metabolism of some unicellular organisms, 4727*d*.
**Kamenetskii, D. A. F.** See Frank-Kamenetskiĭ, D. A
**Kamenichyni, M. S.** Destruction of refractories during the pouring of steel, 5714*e*.
—— and Nazarov, M P Roof life in elec. arc steel furnaces, 4989*c*.
—— and Spektor, N F. Quality and service of stopper tubes, 6383*b*.
**Kamentskaya, S. A.** See Pshezhetskiĭ, S. Ya.
**Kamer, J. H. van de.** See Reith, J F.
——, Humink, H. ten B., and Weyers, H. A Detn. of fat in feces, 4313*i*.
—— and Janssen, N F. Detn of the water content of foods (II) indirect detn of water in potato starch, 9274*h*.
**Kamesaki, T.** See Yamamoto, A.
**Kameyama, N.** Anodic materials for electrolysis of water, 1701*h*, anodic corrosion of steels and Ni in sulfate soln., 1705*f*.
——, Ino, S., and Inoue, Y. $CaC_2$ (IX) m.p. of the $CaC_2$-CaO system, 2082*b*
—— and Inoue, Y. $CaC_2$ (IV) heat of formation of $CaC_2$, (V) m p of the $CaC_2$-CaO system, (VI) m.ps of com. $CaC_2$, (VII) briquetting the waste slaked lime from $C_2H_2$ generator, (VIII) compn and properties of $CaC_2$ and the velocity of $C_2H_2$ formation, 2081*f*
—— and Yamamoto, N D. of the molten salts of the $AlF_3$-NaF-$BaCl_2$ system, 2097*f*.
**Kamibayashi, K.** Anodic plate of Zr, P 6096*b*
**Kamienobrodzki, W.**, and Schroeder, J. Influence of raw materials and distn. app. on the compn of raw alc., 9358*h*
**Kamieński, B.** Dielec theory of selective adsorption, 6883*a*, potentiometric indication of substances in selective adsorption (I), 8911*c*.
—— and Skład, K. Influence of higher alcs. on the electrophoretic deposition of carbonates and oxides exhibiting strong thermoelectronic emission, 8908*e*.
**Kamieński, M.** Limestone rock in the Polish fertilizer industry, 8594*i*.
**Kamiike, O.**, Kodama, T., and Nakano, G. Detn. of nitrate N in nitrocellulose, 1966*h*.
**Kamin, H.** See Handler, P.
**Kamio, S.** See Tomita, S.
**Kamitsu, H.** See Kambara, S.
**Kamiyama, M.** Afterglow spectrum of N in the near infrared region, 2096*d*.
**Kamlet, J.** Air-deodorizing compns., P 3950*f*; *m*-phenylenediamine, P 4694*f*.
—— and Reece, R. P. Animal-feed compn., P 1880*i*.
**Kamm, R.**, Steinberg, M., and Wulff, J. Pb-grid study of metal powder compaction, 981*i*.
**Kammer, W.** Dyeing and impregnating textiles, P 9472*f*; app. for fixing dyes or impregnating agents in textiles, P 9472*h*.
**Kammerling, E. M.** See Meyer, K. A.
**Kammori, O.** See Somiya, T.
**Kamocsay, D.** Changes in the sugar contents of blood in mother and fetus during normal birth and during prolonged parturition, 8030*i*.
**Kamp, E. A.** Device for controlling the removal of sludge from clarification tanks, P 915*a*.
**Kamp, J. R.** Incidence of blindness in the Better Times rose, 5091*f*
**Kamp, J. van de.** See Van de Kamp, J.
**Kamp, R. E.** See Harris, Jay C.
**Kampen, G. R. van.** See Van Kampen, G. R.
**Kampmeyer, P. M.**, and Stahly, E. E. Butadiene from EtOH—improved production processes, 4213*g*.
**Kamps, T. W., Jr.** See Burr, A. C.
**Kan, D.**, Higashi, K., and Isono, M. Mol. structure of vulcanized rubber (I), 1600*a*
**Kan, E. I.** See Freidlina, R. Kh.
**Kan, L. S.**, Lazarev, B G, and Sudovtsov, A I. Measurements at low temps under high pressures (III) supercond of In and Sn in all-sided compression under 1370 and 1730 kg/sq cm, 4069*f*.
**Kanagy, J. R.** See Cassel, J. M.
——, Seebold, R. E., Charles, A. M., and Cassel, J. M. Deterioration of leather under optimum mildew-growing conditions, 7733*i*.
**Kanai, K.** $H_3BO_3$ from Mg-contg. borate ore, P 5555*b*.
**Kanao, Seizo**, and Igi, S Reaction of hypochlorite on $NH_3$, P 7652*b*
**Kanao, Soken.** See Hattori, S
**Kanasugi, Y.** See Mizutani, T.
**Kanazawa, K.** Alumina of high purity from clay, P 6375*d*
**Kanda, Y.** See Imanishi, S.
—— and Imanishi, S Raman spectrum of azobenzene, 8885*d*
**Kandiah, S.** Soil fertility—fixation and availability of phosphates in some Ceylon soils, 2350*f*; see Joachim, A W. R.
**Kane, E. D.** See Estermann, I
**Kane, G. P.** See Dadape, V. V.
**Kane, L. J.** See Singh, A. D.
**Kane, M.** See Fields, M.
**Kaneda, F.** Packing, P 6342*b*
**Kanegabuchi Communications Industries Co.** Electrolytic deposition of Cb and Ta, P 6526*c*; electrolytic deposition of Th, P 6527*c*; electrolytic deposition of Zr, P 6527*e*, 6925*i*
**Kanegabuchi Industries Co.** Hydrocarbons contg much isobutene from *n*-BuOH using alumina as catalyst, P 6217*g*; artificial strong fiber, P 6466*g*; hydroquinone, P 6528*a*; insecticidal and germicidal emulsion, P 6778*e*, halogenated shellac, P 6838*g*.
**Kanegabuchi Textile Co.** Dehydration of ethylene chlorohydrin, P 1435*e*, methyl methacrylate, P 3444*b*; alkylene cyanohydrins, P 3446*c*; $MgSO_4$ from magnesite, P 6376*d*; refining of polyvinyl alc., P 7036*d*.
**Kanegafuchi Boseki K. K.** Same as Kanegabuchi Textile Co.
**Kanegafuchi Kogyo K. K.** Same as Kanegabuchi Industries Co.
**Kanegafuchi Tsushin Kogyo K. K.** Same as Kanegabuchi Communications Industries Co.
**Kaneko, H.** Studies of synthetic rubber by its *n* (I) fundamental measurements, (II) detn. of the purity of monomeric chloroprene, (III) polymerization reaction, 2020*e*; (IV) chain ($\alpha$) polymer, 3225*b*.
—— and Ito, S. Studies of synthetic rubber by its *n* (V) dimer ($\beta$-polymer), 8190*e*.
**Kaneko, K.** See Hayashi, C.
**Kaneko, S.** See Kihara, Y
**Kaneko, Y.** Oxidation of hydrocarbons at low temps (III), (V), 7897*b*.
**Kanemura, H.** See Iwase, E.
**Kanevskii, E. A.** Theory of the electrode potential (I) nature of the electrode potential and the problem of whether abs. potential can be calcd., 2875*e*; hydration energy of ions (I) calcn. of the abs hydration energies of ions from exptl. data, 7318*b*.
**Kang, B. P.** Antistatic films, P 4520*g*.
**Kang, H.** See Sah, P. P. T.
**Kangas, L. R.** See Kouba, D. L.
**Kanhofer, E. R.** Distn of hydrocarbons to remove F compds., P 2764*e*; alkylation app., the liquid catalyst being continuously returned for reuse, P 3604*h*; regenerating dehydrofluorinating catalysts, P 5518*c*.
**Kani, Hidenari**, and Nakada, H. App. for collecting combustible liquid, P 7214*f*.
**Kani, Hiroichi.** Heat-insulating substance, P 7163*f*.
**Kannan, A.** See Iyer, S G.
—— and Basu, K. P. Phosphatase in milk (I) variation in phosphatase content of milk of Indian cows, buffaloes, goats, and sheep, 1475*d*; (II) optimum pH and activation in the milk of cows, buffaloes, goats, and sheep, 9279*h*.
**Kansara, H. P.**, and Shah, N. M. 4-Coumarinacetic acids derived from various substituted phenols, 6206*d*; 7-hydroxy-6-acylcoumarins contg. long-chain acyl groups, 6621*g*.
**Kant, A.** See Newton, A. S.
**Kantaev, G. G.** Vertical crusher mill, P 3250*e*.

**Kanter, J. J.** Diffusion heat-treatment, P 6144*b*; see Guarnieri, G. J.
—— and Sticha, E. A. Stability of steels as affected by temp, 6556*b*.
**Kanter, M.** See Wehrli, S.
**Kantor, J. L.**, and Kasich, A. M. Digestive Diseases (book), 8051*a*
**Kantor, P. B.** See Burdun, G. D
**Kantor, S. W.** See Hauser, C. R.
**Kantorowicz, O.** Protection of bright tools against rust, 6560*g*
**Kantsler, N. Ya.** Apricot drink, P 3144*c*.
**Kantzer, D. L.** See Laforgue-Kantzer, D.
**Kanugo, R. B.** See Subnis, S. W.
**Kanungo, R.**, Srinivasan, M. R., and Ray, S. C. Alkali treatment of skim milk for manuf. of rennet casein, 1406*i*.
**Kanunnikova, Z. A.** Variations in physiol. activity of *Bacterium delbruckii*, 1831*i*
**Kanygina, K. I.** See Ivanov, I. I.
**Kanzaki, S.** See Nakajima, S.
**Kao, H.** See Clark, G. L.
**Kao, S.-K.** See Struve, O.
**Kao, S.-S.** See Liang, S.-C.
**Kao Soap Co., Inc.** Preliminary treatment of paraffin for oxidation, P 3606*h*.
**Kapanadze, P. I.** Microelements and their content in vegetable food sources, 9289*a*
**Kapeller-Adler, R.** Histaminase, 6258*d*, histidinuria, 8525*b*
**Kapitańczyk, K.** Chemistry of $SO_3$, 9393*c*.
**Kapitsa, P. L.** App for analyzing gases and liquids, P 8758*d*.
**Kaplan, A.** See Thompson, H. L.
**Kaplan, A. I.** See Rokhlina, M. L.
**Kaplan, A. M.**, Esselen, W. B., Jr., and Fellers, C. R. Enzyme systems of canned acid foods, 9275*g*.
**Kaplan, D.** See Grosowics, N
**Kaplan, E.** See Joseph, N. R
——, Joseph, N. R., and Sheffler, P. W. Metabolic inhibition by heavy metals, 8063*g*.
**Kaplan, E. P.** See Petrov, A. D.
**Kaplan, I.** See Borst, L. B.
**Kaplan, J.** Collisions of the second kind, 4092*h*.
**Kaplan, N. O.** See Lipmann, F.; Novelli, G. D.; Olson, R. E., Stokinger, H. E., Yagoda, H
—— and Andrus, R. J. Corrosion of metals in red fuming $HNO_3$ and in mixed acid, 986*f*.
—— and Lipmann, F. Acetyl precursor in pyruvate synthesis in *Escherichia coli*, 1829*h*
**Kaplan, S. I.**, Rabinovich, F. E., and Gorbovitskii, I. E. Purification of pyramidone, P 9086*d*.
**Kaplanskaya, S.** See Kaplanskii, S
**Kaplanskii, S.**, and Kaplanskaya, S. Effect of a protein-poor diet on the oxidation of phenylalanine and tyrosine by liver slices of white rats, 6296*e*.
**Kaplovsky, A. J.** See Heukelekian, H.
**Kapnicky, J. A.**, Fairbanks, H. V., and Koehler, W. A. Adherence of molten glass to heated metals, 9399*i*.
—— and Koehler, W. A. Effect of Ce oxide on the spectral transmission of some exptl. glasses, 827*h*.
**Kapoor, L. D.** See Chopra, I. C.
**Kapoustinskij, A. F.** See Kapustinskii, A. F.
**Kapp, F. K.** See Mauer, H.
**Kappanna, A. N.**, and Joshi, K. M. Reaction between Hg and $HNO_3$: kinetic study, 7305*f*.
**Kappelmeier, C. P. A.** Importance of chemistry in the development of the modern varnish industry, 873*b*, analytical chemistry in the field of paint investigation, 3209*g*, macromol chemistry, 5262*f*; evolution of the varnish industry, 6432*e*; analytical chemistry in the field of paints and varnishes, 8175*e*.
——, Goor, W. R. van, and Helden, R. van Chemistry of the dehydration of castor oil, 2450*d*.
**Kapron, J.** Reduction of ester-ketone mixts. by Na in the presence of water and acid—properties of the substances obtained, 2944*c*.
**Kapros, C. E.** See Neill, J. M.
**Kaptsan, O.** See Gerovich, M.
**Kapur, P. L.** See Sarma, H. R.
**Kapur, R. D.** Pharmacol. action of alkaloids of *Rauwolfia serpentina* (II) total alkaloidal exts. of Bihar and Dehra Dun varieties, 2699*d*.
**Kapur, S. L.** See Alfrey, T., Jr.
—— and Daubert, B. F. Component fat acids of some Cruciferae oils, 9487*i*.
**Kapustinskii, A. F.** Thermochemistry and at. structure (I) rule of thermochem logarithmicity, and the heats of formation of halides, (II) rule of thermochem. logarithmicity and the heats of formation of oxides and hydrides, 2827*f*; electronegativity and energy of the crystal lattice, 8230*h*; physicochem. const., the crystallochem electronegativity, 8788*b*.
——, and Lipilina, I. I. Vol. of the uranyl ion in soln., 1242*f*
—— and Yatsimirskii, K. B. Entropy of ions in crystals and the soly. of salts, 1241*i*.
**Kar, B. C.** Circular dichroism and rotatory dispersion (III) measurement of absorption, circular dichroism, and rotatory dispersion of K vanadyl *d*-tartrate, 2830*i*
—— and Roy, S. K. Circular dichroism and rotatory dispersion (IV) measurement of absorption, circular dichroism, and rotatory dispersion of Na vanadyl *d*-tartrate, 2831*a*.
**Kar, K. C.** Scattering of fast particles of spin one by atom nuclei, 2501*h*
**Kar, P. C.** Indian soap industry, 1201*h*; synthetic glycerol, 9488*g*
**Karabasheva, I. N.** See Babich, S. Kh.
**Karabinos, J. V.**, and O'Neill, R. Isolation of 12-tricosanone from moss, 2160*e*
**Karácsonyi, L.** Detn. of extn. degree of cereal flours, etc, 9277*a*.
**Karady, I.** See Foldi, M.
**Karaev, A. G.** Device for preventing scale formation in boilers, P 5140*i*
**Karagunis, G.** Sepn. of polar from non polar mols, 2521*d*.
**Kara-Murza, L. Kh.** Tanning substances in plants attacked by viruses, 279*e*
**Karamyan, A. S.** Sepg nuclear isomers, 7814*h*.
**Karandashova, E. F.** See Gel'man, A. D
**Karandikar, R. V.** Atm. $O_3$ (II) daily measurements of atm. $O_3$ and of $(\delta'-\delta'')$, a measure of atm. turbidity, at Delhi, 3670*i*
—— and Ramanathan, K. R. Vertical distribution of atm $O_3$ in low latitudes, 8220*e*
**Karanth, K. P.** See Karrer, P.
**Karasek, F.**, Poupa, O., and Jelinek, V. Potential toxicity of nicotinic acid, 6291*b*
**Karasik, V. M.** Life and work of A. A. Likhachev, 6477*f*, see Vels, R. A
—— and Nemchinskaya, V. L. Gasometric investigation of the I-azide and the I-bicarbonate reaction, 6951*i*
**Karasoy, L.** See Nitschmann, H
**Karassik, I. J.** Selection of materials for centrifugal boiler feed pumps, 2345*h*, polytropic compression in centrifugal compressors, 7271*h*
**Karassik, V. M.** See Karasik, V. M
**Karataev, I. N. A.** See Antipov-Karataev, I. N
**Karaulova, E. N.** See Gol'dfarb, Ya. L
**Karaus, A.**, and Tabellini, M. T. Structure of the pale chrome yellows—chrome oranges and reds, 4490*i*.
**Karavaev, N. M.**, and Blonskaya, A. I. Chem. compn. of the neutral oil of primary coal tars, 8616*i*
—— and Dolgopolov, N. N. Treating coals from the Sangar region (Yakutsk A.S.S.R.), 7209*d*.
—— and Vener, I. M. Detn. of pyridine bases in products of the coke chem. industry, 3598*g*.
**Karawajew, N. M.** See Karavaev, N. M.
**Karbe, H.** Curare, 5906*g*.
**Karcher, G.** See Grosse-Brockhoff, F.
**Karchmer, J. H.**, and Dunahoe, J. W. Detn. of sulfides, thiosulfates, and sulfites in refinery spent caustic solns., 8123*h*.
**Kardos, F.** Detn. of moisture content on the basis of changes in dielec. consts., 8971*b*.
**Kardoss, E. S.** See Szadeczky-Kardoss, E.
**Kare, M. R.**, and Biely, J. Toxicity of NaCl and its relation to water intake in baby chicks, 1088*a*.
**Karel, L.** Rodenticidal activity of fluoroacetphenylhydrazide and its oral toxicity to several species—toxicity of 64 other candidate rodenticides, 348*e*; see Jones, H. W., Jr.; Weston, R. E.
**Kargeawine, W. A.** See Karzhavin, V. A.
**Karghin, V. A.** See Kargin, V. A.
**Kargin, V. A.** Mechanism of lengthening and shortening of oriented polymers, 2810*f*; see Tager, A.; Zubov, P. I.
——, Mikhailov, N. V., Lepleiskii, I. M., and Platonov, I. D. Hydrocellulose fibers, P 9475*h*.
—— and Slonimskii, G. L. Deformation of amorphous-liquid linear polymers, 1627*i*, detn. of the mol. wt. of linear polymers, 7295*e*.
—— and Sogolova, T. I. Three phys. states of amorphous-liquid linear polymers, 7294*f*; flow in polymers, 7294*i*, viscous flow of polyisobutylene, 7295*c*.
**Karim, A.** Microbiol. decompn. of water hyacinth, 3130*g*.
**Karim, B.** See Nandi, S. K.
—— and Nandi, S. K. Performance of sieve-plate fractionating columns (II) effect of area and size of perforation, (III) effect of plate spacing and submergence, 909*g*.
**Karim, S.** See Parshad, R.
**Karimullah.** See Aggarwal, J. S.
—— and Gopalachari, R. Chem. examn of the dried latex from *Euphorbia tirucalli*, 8704*f*.
**Karitzky, B.**, Raabe, S., and Meisner, G. Detn. of H-ion concn. and titration acidity in sweat, 7537*e*.
**Karjakin.** See Karyakin.
**Karklit, A. K.**, and Gavrilov, A. I. Protective coatings—glazes, 5564*f*
—— and Genzler, M. N. Testing light weight refractories in service, 8631*f*.
**Karl, H. L.**, Koch, J. R., Schneider, H., Buth, W., and Surak, J. G. Synthesis of tris (monofluorophenyl)methane and tris (*p*-difluorophenyl)methane, 9054*i*
**Karle, J.** Isvapn. of polar hydrocarbon monolayers, 7767*d*
**Karlik, B.** Connection between dissoc. energy and nuclear structure of $\alpha$-ray 4125*h*
—— and Bernert, T. $\alpha$-Ray from element 85, 1648*b*, existence of a double mode decompn. of RaA, 4128*h*, strong Ra preps. free of emanation, 4129*g*; fine $\alpha$ rays in the Th and Ac series, 7331*c*.
**Karlin, R.** See Wolff, R.
**Karlina, M. I.** See Tovarnitskii, V. I.
**Karlinger, H.** See Breitenbach, J. W.
**Karlova, A. N.** Carbonic anhydrase in the blood of children in dystrophy, 5486*f*
**Karlson, A. G.** See Feldman, W. H.
**Karlson, E.**, and Karlson, H. E. Recovery of protein residue, dye, and fat from scrap leather, P 4505*a*.
**Karlson, H. E.** See Karlson, E.
**Karlson, K. E.**, Dennis, C., Sanderson, F. and Culmer, C. D. Blood oxygenator with increased capacity multiple vertical revolving cylinders, 7070*g*
——, Dennis, C., and Westover, D. J. Blood oxygenation (I) Kolff apparatus, (II) multiple horizontal rotating cylinder (III) vertical revolving cylinder, (IV) vertical revolving cone, 3870*d*.
**Karlsson, J. L.**, and Barker, H. A. Induced biochem. mutants of *Azotobacter agilis*, 720*f*, biosynthesis of uric acid labeled with radioactive C, 3501*f*, tricarboxylic acid cycle in *Azotobacter agilis* 4726*f*, uric acid decompn. and AcOH synthesis by *Clostridium acidi urici*, 9140*i*
——, Volcani, B. E., and Barker, H. A. Nutritional requirements of *Clostridium aceticum*, 2276*i*.
**Karlsson, P. H.**, and Cooper, R. S. Heat exchanger unit for preheating air by combustion gases from a boiler, P 6874*f*
**Karlsson, W.** Liquid fuels in Fe and steel works, 3591*c*.
**Karman, G.** See Alvarez, J.
**Karmazin, V. I.** See Lyulikov, Yu. S.
**Karmin, B.** See Dogadkin, B.
**Karmo, E.** See Hammer, O.
**Karnaky, K. J.** pH of the vagina associated with an ectropion of the cervix, 3511*f*
**Karnani, B. T.**, De, S. S., and Subrahmanyan, V. Fortification of soybean milk with Ca and study of its availability to young growing rats, 8469*i*.
——, De, S. S., Subrahamanyan, V., and Cartner, D. Relative utilization of Ca from soybean milk and cow milk by growing children, 8470*b*.
**Karnaukhov, G. G.** Mulching the meadow solonchak soils of the Don bottomlands, 7616*e*.
**Karnaukhov, M. M.**, and Morozov, A. N. Soln. of H in liquid Fe and in its alloys with Ti, Cb, and Ta, 2490*a*.
**Karnik, M. G.**, and Devadatta, S. C. Swelling of cellulose (I), 7679*i*.
—— and Sen, D. L. Cellulose-bearing materials for the manuf. of rayon, 2768*g*.
**Karnitskii, V. A.**, and Zatsepina-Dizertinskaya, T. S. Phenomenon of intense motion of Hg drops, 2842*a*.

**Karnofsky, D. A.**, Patterson, P. A., and Ridgway, L. P. Effect of folic acid, 4-aminofolic acid, and related substances on growth of chick embryo, 9186*g*.
**Karnopp, K. W.** Ext. of *Iridophycus flaccidum* as suspension stabilizer for beverages, P 331*e*.
**Karnovsky, M. L.**, and Johnson, M. J. Filter-paper chromatography of penicillin broths, 9366*g*.
——, Lategan, A. W., Rapson, W. S., and Schwartz, H. M. South African fish products (XXIX) compn. of the liver oil of the soupfin shark, 818*f*.
**Karon, M. L.** See Altschul, A. M.; Arthur, J. C., Jr.
—— and Adams, M. E. Hygroscopic equil. of rice and rice fractions, 2707*c*.
—— and Hillery, B. E. Hygroscopic equil. of peanuts, 2000*c*
**Karp, A.**, and Stetten, D., Jr Effect of thyroid activity on certain anabolic processes studied with the aid of D, 8030*f*.
**Karp, D.** Effect of quinine and atebrin on gastric secretory function, 3108*g*; see Babkin, B. P.
**Karpachev, S.**, Rempel, S., and Iordan, E. Anodic overvoltage in molten mixts. of cryolite and $Al_2O_3$, 6519*e*.
**Karpatchev, S.** See Karpachev, S
**Kárpáti, Eugen.** Same as Kárpáti, Jeno.
**Kárpáti, Jeno.** Industrial utilization of gas liquor in connection with the purification of brown-coal generator gas and with the working up of tars, 9416*f*
**Karpel, W. J.** See Julian, P. L
**Karpen, N. V.** See Vasilesco-Karpen, N.
**Karpenko, K. N.** Methemoglobin (I) protective role in the action of some As compds. and narcotics on the isolated heart and intestine, 316*h*.
**Karpenko, M. K.** See Frenkel, G. M.
**Karpinski, J.** Drying by means of hot air, 1617*c*
**Karplus, R.** Energy of a rotating mol., 1619*h*; satn effects in microwave spectroscopy, 8275*a*; satn effects in the microwave spectrum of $NH_3$, 8274*i*.
—— and Sharbaugh, A. H Second-order Stark effect of MeCl, 4141*e*, 5310*c*
**Karpman, M. I.** Quality of raw materials for tanbark, 6449*d*; improving the properties of tanning exts., 6449*f*.
**Karpoff, R.** Granites of Sahara, 6127*c*.
**Karpouchine, Karpuchin.** See Karpukhin, P. P.
**Karpukhin, P. P.**, and Tsypkina, O. Ya. Content of pyrene and other high-boiling compds in coal tar, pitch, and pitch distillates, 6809*b*.
**Karr, A.** Azeotropic distn. of acetonitrile and trichloroacetonitrile, P 4285*d*.
**Karr, C., Jr.** See Corwin, A. H.
**Karr, W. C.**, and Chornock, F. W. Detn. of hemoglobin in plasma, 6691*a*
**Karraker, D. G.** See Reynolds, F. L.
**Karrer, P.** Traité de chimie organique (book), 3022*i*; carotenoid pigments, 7798*c*, progress in the field of the carotenoids and of vitamin A, 7561*f*; see Euler, H. v., Funke, A.; Schmid, H.; Tappi, G.; Viscontini, M
—— and Benz, J. Synthesis of desmethylaxerophtene, 1729*i*; axerophtene (II), 4233*i*.
—— and Davis, P. C. D-*arabo*-3,4,5,6-Tetrahydroxy - 1 - hexene, D-*arabo*-3,4,5,6 - tetrahydroxyhexane, D-divinylglycol, and D-3,4-dihydroxyhexane, 1721*f*
—— and Dutta, P. C. Synthesis of isomeric tocols, 2620*c*.
—— and Eugster, C. H. Isolation of thymine and methylsulfone from *Equisetum palustre*, 6366*f*.
——, Eugster, C. H., and Perl, S. Muconaldehyde and 3,5 - octadiene - 2,7 - dione, 6981*d*.
——, Eugster, C. H., and Rüttner, O Emetine and assocd. alkaloids, 656*a*.
——, Favarger, M., Merz, A., and Milhaud, G. Tocols which contain the coumaran ring, 1764*d*.
—— and Haab, F. Oxidative degradation of α-keto carboxylic acids with peroxyphthalic acid—oxidation with $H_2O_2$ and peroxy acids, 6979*i*; scission of C-C linkages by $H_2O_2$ and peroxy acids, 7434*c*.
—— and Hohl, T. Breakdown of tetrabromo - o - benzoquinone by peroxyphthalic acid to α,β,δ-tribromomuconic acid γ-lactone and its further reaction products, 6981*i*.
——, Karanth, K. P., and Benz, J. Synthesis of isoaxerophthene, 5370*i*; isodesmethylaxerophthene, 6980*f*.
——, Manunta, C., and Schwyzer, R. Purines and a pterin in a species of Asciidiacea, 7594*b*.
—— and Naik, A. R. $\Delta^{3,5}$-Cholestadien-7-one from cattle liver, 1818*g*.
—— and Ochsner, P. Dehydrogenation of β- and α-ionone, 2589*a*.
—— and Portmann, P. Reduction of amino-acid esters to amino ales—proof of configuration of L(—)-proline, 2582*a*; reduction of Me L-tryptophanate with $LiAlH_4$, 7020*a*.
——, Portmann, P., and Suter, M. Reduction of α-amino carboxylic acid esters with $LiAlH_4$, 1723*a*; L-valinol and L-tyrosinol, 6979*a*.
—— and Schwyzer, R. 2-Amino-6-hydroxy - 8 - methylpteridine, 2-amino-6-hydroxy - 9 - methylpteridine, 2 - amino-6 - hydroxy - 8 - (hydroxymethyl)pteridine, and 2 - amino - 6 - hydroxy - 9 - (hydroxymethyl)pteridine, 5404*c*; condensation products of 2,4,5 - triamino - 6 - hydroxypyrimidine with D-glucose and D-fructose, 7028*h*; crystd. methylpteridine red, 9452*h*.
——, Schwyzer, R., and Neuwirth, A. Oxidation of 4-methyl-*o*-benzoquinone to *cis*, *cis*-β-methylmuconic anhydride, 603*b*.
—— and Testa, E. Oxidative breakdown of tetrachloro-*o*-benzoquinone with peroxyphthalic acid—study of the oxidation products, 6981*f*.
—— and Waser, P. Compds. with curare action—derivs. of yobyrine and tetrahyrine, 5406*f*.
**Karrer, W.** Hesperidin and neohesperidin in unripe oranges and in the seed vessels and stigmas of orange flowers, 6328*b*
**Karrman, K. J.** Chlorination of 3-retenol, 2985*d*, retene derivs., P 3464*f*.
—— and Bergkvist, R. Retene investigations (XV) nitration of 9,10-dihydroretene, 4252*d*.
—— and Laakso, P. V. Retene investigations (X) oxidation of retene with $H_2O_2$, 3815*g*.
—— and Varpila, E. Retene investigations (XIV) 3 - hydroxy - retene - 9(or 10)-sulfonic acid, 4251*h*.
**Karshan, M.** See Ziskin, D. E.
**Karskii, N. E.**, and Balakin, V V. Temp.-gradient instrument for investigating the decompn of austenite in alloy steels, 537*a*.
**Karsner, H. T.** Human Pathology (book), 8525*g*.
**Karsten, E.** Drying of fatty oils and its catalytic acceleration, 4875*a*; fatty oils as raw materials for coatings, 5202*h*; empirical or rational approach to coating problems, 7717*h*.
**Karsten, P.**, and Kies, H L Sepn. of Sn (IV) and Sb, 7371*h*.
——, Rademaker, S. C., and Walraven, I. J Influence of the reagent concn on the colorimetric Cu detn with Na diethyldithiocarbamate, and its importance for the detn of Cu in the presence of Fe, 7863*b*.
**Kartachov, A. K.** See Kartashov, A. K.
**Kartaschoff, V.** Tanning agent, P 3223.
**Kartashov, A. K.** Prepn. of titrated soap soln. for the detn. of Ca, 2541*f*
—— and Glukhovskii, I. E. Effect of main defecation, 5614*g*.
**Karthauser, F. B.**, Battcock, W. V., and Ross, F. F. Coal-fired gas turbine, 1548*f*.
**Kartman, L.** Relation of nutrition to pediculosis, 9188*h*.
**Kartsovnik, B. A.** See Lipatov, S M.
**Kartus, S.** See Spies, T. D.
**Karunairatnam, M. C.**, and Levvy, G. A. Inhibition of β-glucuronidase by saccharic acid—enzyme in glucuronide synthesis, 9106*e*.
**Karunakaran, C.**, and Neelakantam, K. U minerals from Nellore district, 2090*b*.
**Karunina, L.** See D'yachenko, P. F.
**Karush, F.** See Eisen, H. N.
—— and Sonenberg, M. Interaction of homologous alkyl sulfates with bovine serum albumin, 5064*h*.
**Karvé, D. D.** Selected Topics from Org. Chemistry (book), 7496*d*; see Mujumdar, G. G.; Phatak, S. S.
**Karvinen, E.**, and Karvonen, M. J. Anoxic suppression of the gastric secretory functions, 4744*i*.
**Karvonen, M. J.** O consumption of sheep maternal and fetal blood, 7108*f*; see Karvinen, E.
—— and Somersalo, O. Comparison of peroral fructose and sucrose tolerance tests, 4744*f*.
**Karyakin, A. V.**, and Galanin, M. D. Life of the excited state in mols. of anthraquinone derivs. in the vapor state and in adsorbates, 6085*d*.
—— and Kalenichenko, Ya. I. Infrared luminescence of adsorbates of anthraquinone derivs., 6085*h*.
—— and Terenin, A. N. Extinction of luminescence and metastable triplet states, 7829*h*.
——, Terenin, A. N., and Kalenichenko, Ya. I Quenching of the fluorescence of vapors and adsorbates of anthraquinone derivs. by nitric oxide, 7828*c*.
**Karyakin, K. I.** See Kalnarskii, I. S.
**Karyakin, Yu. V.** Indicator equil. in a 2-component system, 8813*h*
**Karžavin, V. A.** See Karzhavin, V. A.
**Karzhavin, V. A.** Heat transfer in app. for catalytic synthesis of hydrocarbons and water gas, 2343*a*.
**Karzhavina, E. A.** Detn of org. S compds. in water gas, 1169*b*.
**Káš, V.** Evaluating of composts, 9326*f*.
—— and Hanousek, J. Bleeding of the grapevine, 3889*e*
—— and Kratochvil, V. *Amylobacter* detn. in soils, 9323*b*.
**Kasahara, M.** See Yamamoto, A.
**Kasai, K.** See Tiruma, K.
**Kasakevich, N. P.** See Kazakevich, N P.
**Kasakow, W. A.** See Kazakov, V. A.
**Kasanof, D. R.** Cast iron, 84*e*; see Niederl, J. B.
**Kasanskij, Kasansky.** See Kazanskii.
**Kasarnowski, Kasarnowsky.** See Kazarnovskii.
**Kasatkin, A. G.** Unit Processes and Apparatus of Chem Technology (book), 5236*e*
**Kasbekar, G. S.** Shrinkage of cotton yarn in $ZnCl_2$, 4018*d*.
**Kasdon, S. C.** Mechanism of picrotoxin-induced ovulation, 8055*g*.
**Kasha, M.** Transmission filters for the ultraviolet, 944*f*; fabrication of $H_3BO_3$ glass for luminescence studies, 1659*e*; coloring matter of Chihuahua textiles of pre-Columbian Mexico, 4469*b*; vibrational fine structure in the absorption spectra of uranyl and plutonyl ions in aq soln, 5305*c*.
—— and Nauman, R. V. Metastability of the lowest excited singlet level of naphthalene, 8892*i*.
**Kashtelyan, F. D.** See Slutskil, A. M.
**Kasich, A. M.** Kantor, J. L.
**Kasikhin, A. N.**, and Yatsyna, L. T. Hexachloran against wireworms, 348*c*.
**Kaslow, C. E.** See Johnston, H. W.; Shriner, R. L.
—— and Raymond, S. Condensation of HCHO with 6-quinolinol derivs., 1413*h*.
—— and Stayner, R. D. Substituted quinolines, 645*h*.
**Kasokove, P. B.** Plating racks, 8907*g*.
**Kasparova, S. A.**, and Khristoforova, A. M. Biochem. processes in ascertaining the winter hardiness of clover for Arctic planting, 1084*a*.
—— and Vartanetyan, S. M. Diurnal and seasonal carbohydrate metabolism in Arctic potato plants, 3070*c*.
**Kaspar Winkler & Co.** See Winkler, K., & Co.
**Kasper, J. S.**, McCarty, L. V., and Newkirk, A. E. Na borohydride—disodium diborane, 8937*i*.
**Kass, B. M.** See Hutchens, J. O.
**Kass, J. P.** Polymerization of the unsatd. fat acids, 1997*c*.
**Kassel, L. S.** See Belden, D. H.
**Kassen, M. A.** Elec. iron-ore smelting, 7833*a*.
**Kasser, A.**, and Rossignoli, P. Pulp production from annual plants, 1183*b*.
**Kassil, G. N.**, and Plotitsyna, T. G. Action of metabolites and synthetic hormones of the thyroid on vegetative centers, 7107*b*.
**Kassner, J. L.**, Crammer, H. P., and Ozier, M. A. Detn. of $P_2O_5$ in phosphate rock, 1287*g*.
**Kast, W.** Indications of x-ray diagrams of cellulose fibers, 4460*i*.
—— and Flaschner, L. Detn. of the proportions of cryst. and amorphous substance in cellulose fibers, 4461*a*.
——, Flaschner, L., and Winkler, E. Orientation and strength, of cellulose fibers, 4462*a*.
**Kasteele, R. P. van de.** Kunststoffengebied, chemie, grondstoffen en toepassingen (book), 5630*g*.

**Kastelic, J.** See Phillips, P. H.; Spencer, E. Y.
**Kasten, G. W.** See Vogel, R.
**Kastens, M. L.**, Dudley, J. F., and Troeltzsch, J. Synthetic MeOH production, 1714*g*
——, Hirst, L. L., and Chaffee, C. C. Liquid fuel from coal, 5170*e*.
- and Peddicord, H. Alcs. by Na reduction, 4215*f*.
**Kastler, A.** Contribution of the study of Raman spectra of mol. crystals to problems of the structure and fundamental vibrations of mols., 2511*b*; coupling of the external oscillations by translation and by pivoting in the crystals, 4575*i*; external oscillations of the cryst. lattice of calcite, 4955*f*.
**Kastner, F.** See Rubeš, E.
**Kastning, E. H.**, and Lischer, C. F. Vinyl diacetonalkamine, P 9080*f*
**Kastorskaya, T. L.** See Dorfman, V. A.
**Kasugai, S.**, Kubo, H., and Tsujimura, K. A specific hemin protein in the root nodule of leguminous plants—linkage of O and CO and respiratory acceleration in root nodule bacteria, 1461*c*.
**Kasuya, G.**, Fukushima, S., and Hoshino, T. Chloride of vitamin $B_6$, P 6673*i*
**Kaswell, W. E.**, and Laman, J. R. Coagulation of synthetic rubber latex, P 7744*g*.
**Kaswin, A.** See Bénard, H.
—— and Serfaty, A. Cholinesterase activity of the organs of selachian and teleost fishes, 6324*h*.
**Kaszuba, F. J.** Aliphatic amides in subbing compns., P 3738*i*, ascorbic acid in subbing compns., P 3739*a*; hexose derivs. in subbing compns., P 3739*c*; lactones or hydroxylactones in subbing compns., P 3739*d*; unsatd. lactones in subbing compns., P 3740*a*; formamide and glycerol-α-chlorohydrin subbing compns., P 3740*b*; diphenyl sulfones in subbing compns., P 3740*c*; see Harsh, H. C.
**Kaszuba, Z.** Chlorination of $CH_4$, 2155*i*.
**Katadyn A.-G.** App. for filtration of liquids, P 6*h*; products for the treatment of wounds, P 2738*i*.
**Katai, K.**, and Nokata, S. Fodder (I) value of fodder with sawdust added, (II) value of fodder with bagasse added, 1847*e*.
**Katakura, S.** Treatment for borate ore, P 6562*b*; see Mukoyama, M.
**Katayama, T.** Constitution of solid solns. in binary alloys, 7770*e*, electronic structure of intermediate compds. and superlattice alloys of CsCl type (I), 7770*h*.
**Katchalski, E.**, Grossfeld, I., and Frankel, M. Polycondensation of α-amino acid derivs. (III) polylysine, 575*b*.
**Katchalsky, A.** Swelling and deswelling of reversible gels of polymeric acids by ionization, 8803*c*; see Baniel, A., Kuhn, W.
**Katchenkov, S. M.** Elementary compn. of petroleum ashes, 2139*a*; concn. of Ge in coal, 2754*h*; pigmentation of blue Cambrian clay, 8111*i*; correlation of petroleum by the microelements, 8654*g*.
**Katcoff, S.** See Brown, L. J.; Stanley, C. W.
—— and Brown, L. J. Search for short-lived Y, Zr, and Cb fission products, 7813*a*.
—, Leary, J. A., Walsh, K. A., Elmer, R. A., Goldsmith, S. S., Hall, L. D., Newbury, E. G., Povelites, J. J., and Waddell, J. S. Neutron-absorption cross sections of radioactive La and two stable Ce isotopes, 7813*b*.
**Kates, M.** See Baer, E.
**Katkova, N. S.** K metasomatosis in the formation of Caledonian granitoids, 7385*i*.
**Kato, Jiro.** Electrodialysis of $Na_2SO_4$ in aq. soln. (I) in a double-diaphragmed three-chambered cell, (II) with the Hg cathode, 4587*b*; electrodialysis of soybean protein solns. (I) electrodialysis of alk. protein solns., (II) electrodialysis of protein solns. extd. with various agents, 5257*c*.
**Kato, Jun-ichi.** K salt and H from peat, P 6796*b*; canned fuel, P 6810*g*.
**Kato, K.** See Morikawa, Isao.
**Kato, S.** Explosive oxidation of satd. hydrocarbons (I) isooctane, 7896*i*.
—— and Someno, F. Thermal decompn. and combustion of satd. hydrocarbons, 7895*i*.
**Kato, T.** Thermal decompn. of rubber under high pressure (VI) compn. of gas and light oil produced by cracking, (VII) components of the 106–10° and 134–8° fractions, (VIII) thermal decompn. of the dipentene fraction, (IX) formation of gasoline from rubber, (X) quality of gum gasoline, 5169*c*; thermal decompn. of rubber under high pressure and an application of the cracked products (I) the products, (II) aromatic compds. in the low distillate, (III) thermal change of dipentene fraction, (IV) effect of pressure, temp., and time on the cracking of pale crepe, (V) quality of gasoline fraction produced by the cracking of rubber, 5983*i*; (VI) pyrolysis of waste rubber in the presence of petroleum heavy oil, (VII) decompn. as affected by the kind of waste rubber, (VIII) decompn. as affected by the kind of mixed heavy oils, (IX) effect of pressure and time, (X) effect of temp. and time, (XI) thermal decompn. of the heavy fraction, (XII) refining of gum gasoline by hydrogenation under pressure, (XIII) conclusions, 5981*b*, *d*; see Ando, Kazuo.
**Kato, Y.** AcCl, P 3027*h*, $H_2SO_4$ treatment of difficultly sol. alumina, P 6527*h*; see Sugino, K.
**Katori, K.** Al refining, P 6964*g*.
**Kats, M. L.** Luminescence and distribution of local energy levels in photochemically colored alkali halide crystals, 3719*c*; decay of the luminescence of colored alkali halide crystals, 4144*b*, luminescence of colored single crystals of alkali halides, 5669*e*.
—— and Andryanov, A. S. Thermoluminescence of colored single crystals of KCl in the visible region, 406*h*.
—— and Zhukova, N. V. Influence of the conditions of excitation on the temp. emission of ZnS Cu phosphors, 3720*i*.
**Kats, V. M.** Decrease of lime in beet-sugar production, 7243*e*; detn. of color, 8749*c*.
**Katschan, A. A.** See Kachan, A. A.
**Katscher, E.** See United Domestic Industries Ltd.
**Katsov, B. E.** Optimum running schedule for automatic open-hearth furnaces, 2555*d*; optimum ratio between coking gas-blast furnace gas and gas-air mixts., 4612*g*.
**Katsumura, Y.** See Nakajima, Minoru
**Katsuno, M.** Hydrogenation of furfural and furfuryl alc. (I) catalytic hydrogenation of furfural with Ni catalyst, (II) hydrogenation of furfural with Cu catalysts, (III) hydrogenation of furfuryl alc. and the property of furfuryl alc. as blending fuel for gasoline, 1718*i*; 2-furaldehyde, P 3464*g*; polymerization of isobutylene with $H_2SO_4$ (I) direct polymerization of isobutylene, octane no. of triisobutylene, and isododecane, (II) indirect polymerization of isobutylene, (III) secondary changes in diisobutylene and triisobutylene with $H_2SO_4$ and discussion of the reaction mechanism, 5176*d*.
**Katsuno, S.** Hydrogenation of furfural and furfuryl alc. (IV) synthesis of tetrahydrofurfuryl alc. from furfural by the combination of $CuO$-$Cr_2O_3$ catalyst and Ni-on-kieselguhr catalysts, 1719*d*
**Katsura, Saburo.** See Goodman, I.
**Katsura, Shigehiro,** Tamura, K., Hatori, S., and Maeda, S. Bactericidal and bacteriostatic action of *l*-rhodinic acid, *d*-citronellic acid, and hinokitiol, compared to capric acid and the fatty acids closely related to it, 5906*b*.
**Katsurai, T.** Prepn. of magnetic ppts., 7763*a*; liquefaction caused by the trituration of solid hydrated salts, 7767*c*; see Yamaguchi, Shigeto.
**Katti, P. K.** Colloid optics (I) sol-gel transformation in agar-agar gels, 2488*e*.
**Katz, A.** Glycosides and aglycones (XX) cryst. convallotoxin acetate and convallotoxin acetate acid, 1431*a*; see Goetz, R. H.; Steinegger, E.
—— and Reichstein, T. Glycosides and aglycones (XXIII) adonitoxin, the second glycoside with strong cardiac action from *Adonis vernalis*, 1790*i*.
**Katz, Alexander,** Hall, A. G., and Petersen, R. Lignin and vanillin from *Yucca brevifolia*, 819*e*.
**Katz, D. L.** See Kobayashi, Riki; Unruh, C. H.
—— and Geist, J. M. Condensation on six finned tubes in a vertical row, 446*d*.
**Katz, Irving.** See Taub, A.
**Katz, Isadore.** See Kratz, G. D.
**Katz, J. J.** See Hoekstra, H. R.
—— and Gruen, D. M. Higher oxides of the actinide elements—prepn. of $Np_3O_8$, 7855*a*.
**Katz, L.** See Harrington, E. L.; Haslam, R. N. H.
——, Leverton, W. F., and Woods, S. B. Measuring the ratio of the sp. heats of a gas, $C_p/C_v$ (VI) $CO_2$, $N_2O$, and $CH_4$, 7280*f*
——, Woods, S. B., and Leverton, W. F. Measuring the ratio of the sp. heats of a gas, $C_p/C_v$ (V) (*a*) improved app. for measuring the ratio of the sp. heats of a gas, (*b*) use of electronic counter circuits to measure low frequencies and variable low-frequency oscillator, 7280*e*.
**Katz, L. N.** See Lenel, R.
**Katz, Martin.** See Taub, A.
**Katz, Morris,** and Katzman, J. Detn. of low concns. of CO in air, 1686*e*.
**Katz, S.** See Leininger, E.; Parent, J. D.
——, Kistiakowsky, G. B., and Steiner, R. F. Relative efficiency of various surfaces for the recombination of H atoms, 8251*c*
**Katz, S. L. H.** See Hartough-Katz, S. L.
**Katz, T.**, and Faivre, R. Mechanism of the transformation in solid solns. of PbO between the limits $PbO_{1.33}$ to $PbO_{1.37}$, 6898*i*
——, Siramy, M., and Faivre, R. Prepn. and study by x-ray diffraction of a pseudo cubic Pb oxide of variable compn., 459*h*
**Katzin, L. I.** See Van Winkle, Q.
**Katzman, J.** See Katz, Morris
**Kaudy, J. C.** See Jackson, M. L.
**Kauffman, G.**, Hurst, V., and Turner, C. W. Histological effect of thiouracil on the fetal thyroid, 8543*i*.
**Kauffman, M. E.** See Damschroder, R. E.
**Kauffman, T., Jr.**, and Jacobs, L. J. Refractory compn., P 3161*g*.
**Kauffman, W.** See Stevenson, W. A.
**Kauffman, H. O.** See Shanley, E. S.
——, McEwen, R. L., and Sheldon, F. R. Peroxides in de inking, 5948*c*
**Kauffmann, W.** Influence of small quantities of S and cyanogen compds. on the velocity of oxidation of ferrous ions to ferric ions, 1246*c*.
**Kaufman, A. A.** Trends in design of plastics extrusion machinery and controls, 5988*g*
**Kaufman, David,** and Derderian, S. K. W in low-grade ores—spectrographic detn., 8057*h*.
**Kaufman, Dorothy.** See Perlmann, G. E.
**Kaufman, D. S.** See McLaurin, N. H.
**Kaufman, E. E.** See Elkins-Kaufman, E.
**Kaufman, H. S.**, and Fankuchen, I. X-ray diffraction in analytical chemistry, 2113*e*
——, Sacher, A., Alfrey, T., Jr., and Fankuchen, I. Side-chain crystn. in alkyl polyacrylates, 2064*h*
**Kaufman, Samuel.** Influence of pH on Pb chlorofluoride pptn., 5332*c*.
**Kaufman, Seymour,** and Neurath, H. Inhibition of chymotrypsin by structural analogs of specific substrates, 7531*a*, structural requirements of specific substrates for chymotrypsin (II) analysis of the contribution of the structural components to enzymic hydrolysis, 7990*b*, effect of MeOH on the hydrolysis of acetyl L-tyrosinamide by chymotrypsin, 9112*e*
——, Neurath, H., and Schwert, G. W. Specific peptidase and esterase activities of chymotrypsin, 5055*i*.
**Kaufmann, B. P.**, McDonald, M. R., and Gay, H. Enzymic degradation of ribonucleoproteins of chromosomes, nucleoli, and cytoplasm, 4717*b*
**Kaufmann, C.**, and Hall, R. H. C black, P 1172*d*, 5574*f*.
**Kaufmann, H. P.** Fats (CXVII) (5) biology of the fats (I) conjugate-unsatd. aliphatic acids in natural fats, 136*d*.
—— and Keller, M. Fats (CXVI) significance of conjugate-unsatd. aliphatic acids in the chemistry of the fats (4) purinaric acid and AcOH in the seed fats of the *Balsaminaceae*, 134*i*.
**Kaufmann, O. W.** See Murray, F. J.
**Kaufmann, S.** See Rosenkranz, G.
—— and Rosenkranz, G. Steroidal sapogenins (I) transformation of kryptogenin into diosgenin and pseudodiosgenin, 655*b*.
**Kaufmann, S. G.** See Bender, R. S.
**Kauko, Y.** Slag cements, 3589*c*; detn. of small amts. of $CO_2$ in air, 8308*d*; slag as a substitute for portland cement, 8635*e*.
—— and Holmén, H. $Ca(OH)_2$ in the hardening of slag, 8635*b*.
—— and Hyyryläinen, E. S. Hardening of lime-slag cement, 831*f*.
—— and Komulainen, L. Detn. of carbonate alky., 2892*b*.

**Kaul, H. G.** See Engelhard, H.
**Kaulbersz, J.**, Patterson, T. L., Sandweiss, D. J., and Saltzstein, H. C. Effect of urine ext. from oöphorectomized dogs on gastric secretion, 3502*e*; effect of urine ext from thyroidectomized dogs on gastric secretion, 3502*e*.
**Kaule, H. L.**, See Roth, W A.
**Kaulla, K. N. v.** See Gianella, C. V.
**Kaunits, H.**, Slanetz, C. A., Atkinson, W. B., Johnson, R. E., and Fuhr, A. Estrogen response and pigmentation of the uterus in vitamin E-deficient rats, 4738*h*.
**Kaunitz, P. E.** See Feitelberg, S
**Kauppi, T. A.**, and Currie, C. C. Silicone fluids in hydraulics and lubrication, 3541*i*.
**Kausche, G. A.** See Bielig, H. J., Hahn, Friedrich.
—— and Haardick, H. Uptake of radioactive P by *Escherichia coli*, 8436*b*.
—— and Hahn, F Stoichiometric combination of dyes with tobacco mosaic virus protein, 8107*h*
**Kaushal, R.** Pyrones and related compds. (VII) action of ethyl orthoformate on diacetylacetone, 2585*e*
**Kautter, C. T.** Manufg and processing org glasses and laminated glasses on an acrylic basis, 1214*d*, acrylic resins—production and fabrication methods (I), (II), 7715*g*
**Kauzmann, W. J.** Nature of the glassy state and the behavior of liquids at low temps., 917*i*, see Schachman, H K.
**Kavanagh, F.** See Anchel, M., Goodwin, R. H.
— and Goodwin, R. H Relation between pH and fluorescence of several org compds., 8282*c*
—, Hervey, A., and Robbins, W. J. Antibiotic substances from Basidiomycetes (IV) *Marasmius conigenus*, 9110*d*
**Kaveev, M. S.** Prospecting for oil, 839*e*.
**Kaverzneva, E. D. S.** See Stakheva Kaverzneva, E. D
**Kavtaradze, G. I.** Distribution of I in the water of the Norio oil deposit, 3995*b*.
**Kavtaradze, N. N.** See Andreev, E. A.
**Kawaguchi, M.** See Koide, T
**Kawaguchi, S.** See Inoue, Yoshiyuki.
**Kawaguchi, T.** See Kihara, Y
**Kawaharada, M.** Peptidase activity of swine pancreas macerates, 9089*c*, trypsin activity (IV) enzymically split-products of proteins treated with pancreatic juice, 9089*e*.
**Kawai, Heiji.** Influence of temp. and humidity on the dielec. const and piezoelec modulus of Rochelle salt (I), (II), 8810*c*.
— and Marutake, M. Dispersion of the dielec const. in Rochelle salt crystal, 1061*h*.
**Kawai, Hiromi.** See Mikumo, J.
**Kawai, J.** Decolorization of rice oil by $H_2O_2$, 5611*b*.
**Kawai, K.** Stable vitamin-contg nutrients, P 7198*b*; increasing the efficiency of antioxidant for vitamin A, P 7198*i*
**Kawai, S.** Ester interchange between fatty oils and glycerol (VI) castor oil and sardine oil, 5209*i*; manuf of fatty acids by the oxidation of paraffin (VI) treatment of paraffin with aq alc and its influence on oxidation, 9029*f*, (XX) example of an oxidation expt., (XXII) thermal decompn of oxidation products and crude fatty acids, 9030*g*; see Nobori, H.
—— and Morita, K Manuf. of fatty acids by the oxidation of paraffin (II), 9029*b*.
—— and Nobori, H Direct esterification of higher fatty acids with diglycerol (IX), 5207*b*, manuf. of fatty acids by the oxidation of paraffin (III), (VII) oxidation of fractions obtained by distn. of paraffin, (IX) oxidation of paraffins of high b.ps., (X) oxidation of the mist. of paraffins and fatty acids, 9029*c*; (XI) oxidation of crude fatty acids, (XII) method for the acceleration of the oxidation, (XIII) oxidation of unchanged paraffins and the properties of the fatty acids produced, (XIV) properties of the unsaponifiable compds formed by the oxidation of unchanged paraffins, (XV) oxidation of a mixt of paraffins and fatty acids, (XVI) oxidation of tricosane, (XVII) oxidation of hentriacontane, (XVIII) oxidation of MeOH-insol. fraction of the unsaponifiable portion, (XIX) treatment of raw fatty acid with solvents, (XXI) oxidation of high-boiling fractions of paraffin, 9030*a*.
—, Nobori, H., and Noguchi, M. Manuf. of fatty acids by the oxidation of paraffin (VIII) compn. of fatty acids from oxidation of the middle fraction of paraffin, 9029*h*.
——, Nobori, H, and Yamada, T Direct esterification of higher fatty acids with glycerol (VIII) formation of diglycerides, 5207*a*.
**Kawakami, Y.** Wax from crude rice oil, 5611*c*.
—— and Kinoshita, S. Treatment of rice oil "foot," 5611*h*.
——, *et al.* Hydrogenation of oil, 5610*e*.
**Kawakura, Y.** Laminated board, P 6868*f*.
**Kawamura, A.** See Inoue, Yoshiyuki.
**Kawamura, H.** Evapn. of oxide cathodes, 8286*d*.
—— and Shimazu, J. Bombardment of Th-W by the alkali-metal ions, 7323*b*.
**Kawamura, K.**, and Abe, C Polysulfide synthetic rubber, P 6456*g*.
**Kawamura, M.** See Migita, N
**Kawanaga, K.** Kawahone alkaloids or nupharidine, 7939*d*.
**Kawanaka, T.** Tannins from barks of *Acacia richii*, P 3223*d*, tanning reagent, P 3642*c*.
——, Ando, K, and Yasuoka, H Synthetic tannin materials (I IV), 1589*g*
**Kawasaki, H.** See Oguri, S
**Kawase, K.**, and Nakano, H. Germicidal power of $CaCN_2$ (I) effect on the germination of wheat and the lethal effect on *Tilletia tritici*, (II) $CaCN_2$ treatment and other agricultural chemicals against *Tilletia tritici* applied in exptl. beds, 1137*h*.
**Kawashima, J.** Effect of accelerators on chloroprene rubber, 3225*g*.
**Kawashima, K.** Detn. of nicotinic acid in animal and vegetable tissues, 9139*f*.
**Kawecki, H. C.** $K_2TiF_6$, P 7652*c*
**Kaweeshwar, S. N.** See Bhagwat, W. V.
**Kawenoki, F. B.** See Boyer-Kawenoki, F.
**Kawinski, S.** See Krupkowski, A.
**Kay, H. F.** Prepn. and properties of crystals of $BaTiO_3$, 3261*f*.
——, Wellard, H J., and Vousden, P. At. positions and optical properties of $BaTiO_3$, 6032*h*.
**Kay, H. G. de.** See DeKay, H G
**Kay, K.** Health effects assocd. with Be, 8577*d*
**Kay, L. E.** See Mitchell, H S
**Kaya, S.** Treatment of Si steel plates, 7893*g*.
**Kayan, C. F.** Heat-transfer temp patterns of a multicomponent structure, 1617*a*.
**Kayas, G.** Sepn of Na and K by org. ion-exchangers, 5698*i*, isomorphism of the alkali perchlorates, 7286*d*, sepn. of nuclear isomers, 7332*d*, see Bouchez, R.; Süe, P
**Kay Brothers Ltd.** and Hartley, H. K. Adhesive material, P 7756*b*, adhesives for use upon demolition charges, P 9536*a*.
**Kayden, H. J.** See Rosenberg, B
**Kaye, E.**, and Freeman, M. F., Jr. Porosimeter, 2821*h*
**Kaye, I. A.** 2-Lepidyl substituted diamines, 8389*e*.
—— and Minsky, I. Prepn. of *N*-substituted amino acetals, 6974*b*.
**Kaye, J.** Thermodynamic properties of gas mixts. encountered in gas-turbine and jet-propulsion processes, 446*i*, see Keenan, J. H.
**Kaye, L.** See Fisher, G S.
**Kaye, N.** Brewing (book), 3561*d*.
**Kaye, S.** Acid phosphatase test for identification of seminal stains, 7072*f*; see Foucar, F. H.
**Kaye, W. I.** See Clark, G. L.
—— and Otis, M. V. Isomeric xylene and ethylbenzene mixts.—infrared spectroscopic analysis, 1688*c*.
**Kay-Fries Chemicals, Inc.** Alkyl esters of chloroacetic acid, P 2223*d*.
**Kayser, G. M. A.** Viscose rayon spinning, P 1990*e*; treatment of alkali cellulose, P 6825*e*.
**Kayser, J. F.** Heat-treatment in a magnetic field, 3327*i*.
**Kazakevich, N. P.** See Talts, E. M.
**Kazakov, V. A.** See Vinogradov, A. F.
**Kazakova, Z. S.** See Bogoslovskiĭ, B. M.; Rodionov, V. M.
**Kazal, L. A.**, Spicer, D. S., and Brahinsky, R. A. Isolation of a cryst. trypsin inhibitor-anticoagulant protein from pancreas, 708*d*.
**Kazanovitch, G.** Hot-molded plastic mass and molded articles made therefrom, P 1217*i*.
**Kazanskaya, M. E.** See Belen'kiĭ, L. I.; Rakhlina, S. S.
**Kazanskiĭ, B. A.** Catalytic hydrogenation of hydrocarbons of the cyclopentane series with ring opening, 7906*g*; see Koperina, A. V.
—— and Bulanova, T. F. Catalytic hydrogenation of cyclopentane hydrocarbons with ring opening (X) hydrogenation of cyclopentane with the H set free in simultaneous dehydrogenation of cyclohexane, 155*c*; hydrogenation of cyclopentane in the presence of Ni and Pd, 589*c*.
—— and Gakhanov, F. N. Singly substituted homologs of cyclopentane with branched chain, 5370*g*.
——, Koperina, A. V., and Batuev, M. I. Hydrogenation of cyclopentane hydrocarbons with ring opening (XI) hydrogenation of stereoisomeric 1,2,3-trimethylcyclopentanes, 1332*b*, structure of bicyclo-[2.2.1]heptane, 2191*i*
——, Terent'eva, E. M., and Batuev, M. I. Catalytic hydrogenation of cyclopentane hydrocarbons with ring opening (XII) hydrogenation of isopropylcyclopentane, 5009*i*.
**Kazarinova, V. A.** See Kazarinova-Oknina, V. A.
**Kazarinova-Oknina, V. A.** Detn. of B in , borate ores, 964*e*.
**Kazarnovskiĭ, I. A.**, Nikolskiĭ, G P., and Abletsova, T. A. Oxide of K, 4159*g*.
**Kazeeva, E. V.** See Malevskaya, S. S.
**Kazenko, A.** See Dabrowska, W.
**Kazimirova, V. F.** See Venus-Danilova, E. D.
**Kazitsyna, L. A.** See Terent'ev, A. P.
**Kazunami, M.** See Kubokawa, S
**Kchaletzkiĭ, A. M.** See Khaletskiĭ, A. M.
**Kê, T.-S.** Internal friction and pptn from the solid soln. of N in Ta, 458*f*, grain-boundary model and the mechanism of viscous intercryst slip, 3329*c*, at vacancy and the viscosity of grain boundaries in metals, 4205*f*
**Keane, J.** See Doyle, B. G.
**Kearby, K. K.** Zn aluminate-Group VI metal oxide catalyst, P 7161*i*.
**Kearney, E. B.**, and Singer, T. P. Inactivation of L-amino acid oxidase by inorg. phosphate and arsenate, 7530*i*.
**Kearns, C. W.** See Picard, J. P.
——, Weinman, C. J., and Decker, G. C. Insecticidal properties of some chlorinated org. compds., 6353*b*.
**Kearns, H. G. H.**, Marsh, R. W., and Martin, H. Spraying programs on apples at Long Ashton, 1945, 2362*d*
**Kearns, J. E., Jr.** Propylthiourea in Graves' disease, 1112*g*.
**Kearsley, W. K.**, Winslow, A. F., and Liebhafsky, H. A. Elec. cell operative on immersion in sea water, P 7359*b*.
**Keary, W. V.** See Messing, R. F
**Keating, F. H.** Austenitic stainless steels, 984*b*.
**Keating, F. R., Jr.**, Power, M. H., Berkson, J., and Haines, S. F. Urinary excretion of radioiodine in various states, 8039*g*.
**Keating, R. P.** See Blake, W. D
**Keatinge, G. F.**, and Potter, N. M. Health and environmental conditions in brickworks, 3581*d*.
**Kebrich, L. M.** See Eickhoff, A. J.
**Keck, M. R.** See Jurney, E. T.
**Kedvessy, G.**, and Szilágyi-Trager, L. Detn. of water in fatty substances and ointments, 9366*e*.
**Keeble, J. A.** See Distillers Co., Ltd.
**Keefer, C. E.** Operation of the back river sewage works, Baltimore, Md., 8585*a*.
**Keefer, H.** See Fricke, R.
**Keefer, M. L.** See Helmsworth, J. A.
**Keefer, R. M.** See Andrews, L. J.
—— and Andrews, L. J. Soly. of CuCl in aq. alc. solns., 6889*d*.
——, Andrews, L. J., and Kepner, R. E. Cation complexes of compds. contg. C-C double bonds (III) cuprous chloride complexes of some unsatd. acids, 8940*h*.
**Keeler, B. T.** See Coy, N. H.
**Keeler, J. H.** See Smith, William.
**Keeling, W. O.** Heating coke ovens with enriched fuel gas, P 2408*h*.
**Keen, W. N.** See Catton, N. L.; Mayo, L. R.
**Keenan, A. G.** Relation between the Brunauer-Emmett-Teller and Langmuir multilayer adsorption equations, 2485*b*; Anderson's modifications of the B.-E.-T. equation, 4075*f*.
**Keenan, C.** See Treon, J. F.

**Keenan, G. L.** Microscopic identification of dextrose and lactose in mixts., 3747*a*; microscopic identification of acetylsalicylic acid and salicylic acid, 6783*f*; microcrystallographic properties of rutin, quercitrin, and quercetin, 7195*c*; microscopic characters of some of the cryst sympathomimetic amines, 8611*e*; microscopic characterization of the polymorphic forms of ouabain, 8613*c*; microcrystallographic differentiation of *dl*-amphetamine sulfate and *d*-amphetamine sulfate, 9375*i*; see Haley, T. J.

**Keenan, J. H.,** and Kaye, J Gas Tables (book), 478*g*.

**Keenan, R. G.** See Fairhall, L. T.

——— and Flick, B M. Detn of Co in atm. samples, 3311*b*

**Keener, H. A.** See Colovos, N. F.

———, Colovos, N. F., Morrow, K. S , Foulkrod, G. M., Percival, G. P., and Prescott, J. R. Relative feeding value of a forage preserved by ensiling, mow curing, and field curing, 9366*e*.

———, Percival, G P., and Morrow, K. S. Co tolerance in young dairy cattle, 8534*e*.

**Keepin, G. R.,** and Roberts, J. H Measurement of the energy of fast neutrons by photographic emulsions loaded with enriched $Li^6$, 8853*e*

**Keeser, E.** Cholesterol soln , 9210*i*

**Keeys, R. K. F.** See Jones, D. G.

**Kefauver, D.** See Heckly, R J.

**Kefeli, T. Ya.** See Shorygina, N N

**Kefford, J. F.** Effect of $O_2$ on microbial growth on beef muscle, and on the flavor of beef fat, 781*h*.

**Kegel, J.** Calcd and experimentally detd pH values and corresponding concn. of carbonic acid in natural waters and the explanation of their differences, 3121*d*; HClO in water-works operation—Cl-HClO-hypochlorite equil. in natural waters and in solns. for bacteria control, 7613*a*.

**Keghel, M. de.** Traité général de la fabrication des colles, des glutainants et matières d'apprêts (book), 6463*i*.

**Kehar, N. D.** See Panditteseker, D. G.

**Kehl, G. L.** Principles of Metallographic Lab. Practice (book), 6142*f*.

——— and Church, J. S. Room-temp. casting resin for metallographic mounts, 6861*e*.

**Kehl, R.,** and Molina, C. Procaine interferes with ovulation provoked by gonadotropin, 5864*f*.

**Kehoe, E. J.** At. energy and fire protection, 7688*c*.

**Kehren, L.** Detection of antioxidant activity of oil press cakes from the absorption spectra of vitamin A, 424*e*.

**Kehren, M.** Removal of softeners from yarns and fabrics, 2779*f*; oleic acid, 4873*i*.

**Kehrer, F.** See Wehrli, W.

**Keicher, G.** See Wittig, G.

**Keidel, J.** Pycnometric detn of d. according to the D. A.-B. VI, 6783*d*

**Keiffer, R.,** and Hotop, W. Sintereisen und Sinterstahl (book), 987*i*.

**Keighley, G.** See Borsook, H.

**Keighley Laboratories Ltd.** Mixer and grader of powd. carburizing compds., P 9019*d*.

**Keighton, W. B.** See Mandeville, C. E.

**Keil, B.** See Sorm, F.

**Keil, E.** See Wellinger, K.

**Keil, F.** Changes in granulated slag at 850°, 1546*h*.

**Keil, H.,** Dawson, C. R., and Wasserman, D. Diagnostic agent, P 3571*a*.

**Keil, Harry L.** See Woodward, C. F.

**Keil, Havard L.** See Roundy, Z. D.

——— and Borkenhagen, R. H. Blood product contg. oxidized heme, P 4792*c*.

———, Hills, C., and Ingraham, J. S. Foam stabilizer, P 8075*h*.

**Keil, I. A.** Hydrolysis of cellulose, P 3616*g*.

——— and Kuz'mina, Z. M. Hydrolysis of cellulosic materials, P 5188*b*.

**Keil, W.** Fats from fatty acids with odd numbers of C atoms (VI), 6165*c*; see Appel, H.

——— and Schiller, G. Fats from fatty acids with odd nos of C atoms—addendum to (III), (IV), and (V), 6164*g*.

**Keilen, J. J., Jr.** See Pollak, Arthur.

**Keiles, E. O.** See Orent-Keiles, E.

**Keilholtz, G. W.,** and Bergin, M. J. Micro analysis of gases evolved from metals, 5646*e*.

**Keilin, D., and Hartree, E. F. Activity of the succinic dehydrogenase-cytochrome system in different tissue prepns., 6960*d*.**

**Keilin, J.,** and Schmid, K. Crystn. of whale myoglobin, 1077*h*.

**Keilling, J.,** and Barret, A. Differentiation of casein and lactalbumin, 3533*h*.

———, Casalis, J., Glaser, L., and Mauro, N. Bacterial interference in bread fermentation, 4392*h*.

**Keillor, R. D.** Calorimeter, 5647*i*.

**Keim, H.** See Fischer, Werner.

**Keim, K.** Choice of a screen in papermaking and in dewatering paper pulp, 401*d*.

**Keir, G.** Economy in production—efficient heating of descaling baths, 8999*b*

**Keirns, V. E.** See Alban, E. K

**Keiser, B.** See De Groote, M.

**Keiser, I.** See Henderson, C. F

**Keister, M. L.** See Buck, J. B.

**Keith, C. K.** See Totter, J. R.

———, Broach, W. J , Warren, D., Day, P. L , and Totter, J. R. Xanthine oxidase and tyrosinase in the livers of chicks receiving graded levels of dietary pteroylglutamic acid, 2297*e*.

**Keith, H.** Identification of tylose, 2126*a*

**Keith, M. L.** Sandstone as a source of silica sands in southeastern Ontario, 8319*d*

**Keith, N. M.,** and Osterberg, A E Tolerance for K in severe renal insufficiency, 6726*e*

**Keith, P. C.** Synthetic motor fuel, P 5574*a*, hydrocarbon synthesis, P 7213*c*, conversion of heavy hydrocarbons, P 8663*h*, controlling catalytic exothermic reactions, P 8650*h*.

**Keith, W. P.,** and Whittemore, O J., Jr High-temp lab. kiln, 5560*i*.

**Keitt, G. W.** See Leben, C

**Kékedy, L.** See Szabo, Z

**Kelco Co.** Oil-in-water emulsion, P 1557*f*; algnic acid esters, P 4291*g*; stabilizer for icings, P 6759*b*, alg nate-contg adhesive compns , P 8212*i*

**Kelemen, D.** See Thon, N

**Kelemen, E.** See Koltay, M.

**Kelen, A.,** and McEachern, D. Effects of diisopropyl fluophosphate (DFP) and fluoroacetate on the central nervous system, 8535*e*

**Keler, E.** Shrinkage of clays and grog mixes as a means of improving the firing of grog ware, 8630*c*.

**Keleti, C.** Use of plastics as lining for chem. plant equipment, 1214*e* .

**Kell, R. W.** Minimizing the production of foam in steam generators, P 792*h*.

**Kellam, F. W.** Gray iron in the jobbing foundry, 1296*h*

**Kellar, J. N.** See Hirsch, P. B

**Kellaway, C. H.** Wellcome Research Institution, 915*i*.

**Keller, A.,** and Korosy, F. Volatile cuprous and Ag salts of fatty acids, 1279*a*.

**Keller, A. G.** Detn. of trash in sugar cane, 6445*a*; see Seip, J. J.

**Keller, A. K.** App for washing gluten, P 9294*d*.

**Keller, C.** Adiabatic exponent for gases and vapors, 3677*f*; heat-exchange tubing, P 8347*a*.

**Keller, E.** Stilbene azo dyes, P 8151*a*.

——— and Zweidler, R. Triazine condensation products, P 7242*g*.

**Keller, E. B.,** Rachele, J R., and Vigneaud, V. du. Transmethylation with methionine contg D and $C^{14}$ in the methyl group, 3896*b*

**Keller, E. L.,** and McGovern, J. N. Neutral sulfite semichem. pulping of aspen—certain buffering agents, 9441*d*.

**Keller, F.** See Fink, W. L.

**Keller, F. R.** Electrodeposition of Cu, P 4152*h*.

**Keller, G.** Phys. and chem compn. of the sun, 2508*c*.

**Keller, G. J.** See Underwood, J. C

**Keller, H. B.** See Cork, J. M.

**Keller, J.** Elec. burning of dolomitic rock, P 7838*f*.

**Keller, J. M.** Mesons old and new, 8841*h*.

———, Maetzig, K., and Möglich, F. Kinetics of the photographic development process—rapid-working combined fixing developers, 6927*h*.

**Keller, M.** See Kaufmann, H. P.

**Keller, R.** Ion source of the Penning type, 4945*f*.

**Keller, R. E.** See Tait, H. J.

**Keller, W. D.,** and Foley, R. Missouri River sediments in river water, ocean water, and Na oxalate soln., 7874*i*.

——— and Ungnade, H. E. **Optical crystallographic properties of the 4-phenyl- and 4-cyclohexylcyclohexanols, 7773*c*.**

**Keller, W. E.** Planar structure of the urea mol., 15*h*.

——— and Halford, R. S. Motions of mols. in condensed systems (IV) infrared spectra for $NH_4NO_3$ and $TlNO_3$, 2866*b*.

**Keller, W. O.,** and Morsé, R. A. Fluid-flow mechanism in limestone reservoirs, 8651*g*.

**Kellermann, H.,** Mairold, F., and Weber, F. Vitamin C content of the filaments of the *Verbascum* flower, 8015*d*.

**Kellermann, K.** Comparative tests on the keeping qualities of α-butter and sour-cream butter, 5127*e*.

**Keller-Wylenmann, G.** Three-phase elec. furnace for reduction of ore and its economical rating, 8283*g*.

**Kellett, J., III,** and Rasmussen, H. E Acylation of thiophene, P 2644*a*.

**Kelley, B.,** and Day, H G. Thiouracil and the conversion of carotene to vitamin A, 733*f*

**Kelley, C. S.** Alkylation, P 389*i*

**Kelley, E. G.** See Skoglund, W. C

**Kelley, G. W.** See Drake, N. L

**Kelley, K. K.** See King, R. G.; Shomate, C. H.

**Kelley, O. J.,** Hardm J ] and Jennings, D S Soil-sampling machine for obt ing cores of undisturbed soil, 1509*b*

**Kelley, V. C.** See Glick, D., McDonald, R. K.

——— and McDonald, R K. Effects of altitude anoxia on renal function, 1475*h*.

**Kelley, W. C.** Microcryst wax in tablet polishing (II), 2367*i*

**Kelley, W. F.** Cation Exchange in Soils (book), 2726*b*

**Kellner, A.** See Alvord, E. C.

———, Correll, J W , Ladd, A T., and Alvord, E C Prolonged protection of guinea pigs against histamine by means of pellets of pyribenzamine in beeswax, 1113*b*

**Kellner, H. L.,** Sizelove, R R , Hogaboom, G B , Jr , Hall, N , Cassell, W L , and Hull, R O. Guidebook and Directory for the Metal Finishing Industries (book), 987*i*

**Kellner, L.** Vibrations of an infinitely long chain of $CH_2$ groups and the infrared spectrum of polythene, 7822*c*.

**Kellö, V.** Mol compds between ales , carbonyl compds , etc , indicated by the Ulchla osmometer, 7408*i*; polarity of hydrogens in the benzene ring in hydroxybenzoic acids, 8809*b*; see Stehlik, B

**Kellogg, G. W.** Electroplating Cu-contg. coating, P 4151*j*

**Kellogg, J. L.** Dehydration of food products, P 4785*c*.

**Kellogg, J. L., & Co.** Dehydration of food products, P 4785*c*.

**Kellogg, K. B.,** and Cady, G H. Trifluoromethyl hypofluorite, 2833*c*.

**Kellogg, M. W., Co.** (*Patents*) Catalyst for the reforming of petroleum hydrocarbons, 1561*d*, fractionation of fats, 1585*i*, contact app for gaseous mixts. with finely divided catalyst, 2048*c*; gas sepn. including impurity-removal steps, 3176*d*; alkylation with a double fluoride catalyst, 3435*g*, low-boiling solvent fractionation of oil, 5215*g*; portland cement manuf., 5568*e*; sepn. of oxygenated org. compds., 6643*b*, 7213*e*; fractionating app., 7760*b*

**Kells, E. L.,** and Larsen, D. H. App for measuring the O concn. of a gas by means of its magnetic susceptibility, P 7760*b*.

**Kells, M. C.** Calcn of interaction potentials from collision cross-section measurements, 1640*e*.

**Kelly, A. J.** See Seymour, R. B.

**Kelly, B. K.** See Distillers Co., Ltd.

**Kelly, E. L.** Exptl. detns. of stopping powers using α-particles of 15 to 37 m.e v., 4124*h*; see Hadley, J.

——— and Segrè, E. Excitation function of Bi, 4123

**Kelly, E. J** Sewage-treating assembly, P 8082*a*.

**Kelly, F. M.** See Crawford, M. F.

**Kelly, H. E.,** and Bremner, T. S Malt analysis, 3142*e*.

**Kelly, H. J.** See Skinner, K. S.

**Kelly, J. H., Jr.** Reclaiming elastomers, P 8196*f*.

**Kelly, J. T.** See Bailey, P. S.

**Kelly, J. V.** Rodham Mine Zn and Pb area, Lafayette County, Wis., 4982*b*; high alumina-Fe laterite deposits, Columbia County, Ore., 7878*b*.

**Kelly, K.** See Emerson, E.

**Kelly, K. M.** See Shetlar, M. R.

**Kelly, L. B.** See Louden, W.; Myers, R. J.

**Kelly, L. S.** See Dobson, E. L.
**Kelly, R.** See Landsberg, M. I.
**Kelly, S.** Effect of temp. on the susceptibility of plants to 2,4-D, 8085*i*.
—— and Avery, G. S., Jr. Effect of 2,4-D and other physiologically active substances on respiration, 6290*f*
**Kelly, S. N.** Taste and odor problems at Norwich Waterworks, 1885*b*.
**Kelly, T.** See Straube, R. L.
**Kelly, W.** See Goldberg, A A.; Ward, Blenkinsop, & Co., Ltd.
**Kelly, W., Jr.** See Heimbach, N.
**Kelly, W. C.** See Somers, G. F.
**Kelman, E.** See Bird, M. J.
**Kelsey, F. E.** Internal Geiger counter for the assay of low specific activity samples of $C^{14}$ and other weak $\beta$ emitters in biol. samples, 6088*c*; see Cantrell, W.; Geiling, E. M. K.
**Kelsheimer, E. G.** Org insecticides in the control of earworms attacking sweet corn, 3136*f*.
**Keltch, A. K.** See Crane, R K
**Kemball, C.**, Rideal, E K., and Guggenheim, E A Thermodynamics of monolayers, 8795*d*
**Kemkes, B.** Lactic acid and pathogenic intestinal bacteria, 6277*f*, Leitfaden der medizinischen Mikrobiologie und Parasitologie (book), 8008*g*
**Kemmerer, A. R.** See Davis, R N.
—— and Shapiro, F. Three sources of amino acids for niacin assay, 4725*h*
**Kemmerich, M.** See Haxel, O.
**Kemmnitz, G.** X ray back deflection technique for the detn of deformation and stress, 82*e*.
**Kemp, H. A.** Soil pollution in the Potomac River basin, 8588*d*.
**Kemp, H. S.**, and Pyle, C. Hydraulic gradient across various bubble cap plates, 6173*a*
**Kemp, J. C.** Al-bronze alloys, 541*h*
**Kemp, L. C., Jr.** Motor fuel, P 3174*g*
**Kempf, H.**, and Abresch, K Losses through the use of HCl in the detn of N, 1285*i*.
**Kempf, L. W.** See Hunsicker, H. Y.
**Kempster, H. L.** See Turner, C W
**Kemsley, D. S.** Deformation of single crystals of Sn in solns of oleic acid, 6028*e*
**Kem-Stone Products Co., Inc.** App. for uniformly dissolving detergents and water softeners pressed into disks, P 7242*c*.
**Kenawy, M. R.** See Anrep, G. V.
**Kendal, L. P.** Action of tyrosinase on monophenols, 9105*b*, see Jackson, H.
**Kendall, C. E.** See Gordon, Manfred.
**Kendall, E. C.** See McKenzie, B. F.
**Kendall, F. E.** See Booth, H. S.
**Kendall, J.** Leo H. Baekeland and the development of phenolic plastics, 2049*e*.
**Kendall, J. D.** See Chilton, L. V ; Doyle, F. P ; Edwards, H. D.
—— and Doyle, F. P. Cyanine dyes, P 5[illegible], 7844*b*, cyanine dye intermediates, P 3602*e*, mercaptocyclohexenones, P 6230*h*.
—— and Edwards, H. D. Tri-heterocyclo-substituted methanes, P 5807*f*.
——, Edwards, H. D., and Ilford Ltd. Sensitizing dyes, P 7849*e*.
—— and Fry, D. J. 5-Pyrazolones, P 3042*h*; pyrazolone azo dyes, P 8149*d*.
—— and Mujer, J. R. Trinuclear cyanine dyes, P 2784*c*.
—— and Suggate, H. G. Color photography, P 511*g*.
——, Suggate, H. G., and Wood, H. W. Cyanine dyes for sensitizing photographic emulsions, P 4157*g*; cyanine dyes and their intermediates, P 7844*g*.
**Kendall, J. T.** Bentonite film as a dielectric, 331*g*
**Kendall, K. A.** See Nevens, W. B.
——, Nevens, W. B., and Overman, O. R. Lactation response as limited by feeds produced under two systems of soil fertilization, 1091*e*.
**Kendall Co.** Pressure-sensitive adhesive sheet material, P 2463*f*.
**Kendrew, J. C.** X-ray data for horse and whale myoglobins, 3686*b*; see Roughton, F. J. W.
—— and Perutz, M. F. Comparative x-ray study of fetal and adult sheep hemoglobins, 4360*h*.
**Kendrick, A. B., Swisher, W. P., and Forrest, R. A.** Effect of glucose fermentation products on detn. of mannitol, 5816*h*.
**Keneford, J. R., Morley, J. S., and Simpson, J. C. E.** Cinnolines (XIX) prepn. and reactions of some 8-nitro-4-hydroxy- and 4-hydroxy-8*a*-methylcinnolines, 1761*d*.
—— and Simpson, J. C. E. Cinnolines (XX) 4 - hydroxy - 3 - ethylcinnoline and 3 - (4 - hydroxy - 3 - cinnolyl) - 1 - propanecarboxylic acid, 3012*f*.
**Kenilworth Manufg. Co. Ltd.** and Shaffer, G. Rubberlike materials, P 5991*g*.
**Kennard, D. C.** See Pensack, J. M
——, Bethke, R. M., and Chamberlin, V. D. Built-up floor litter a source of dietary factors essential for hatchability of chicken eggs, 285*d*.
**Kennard, (Sister M. Scholastica)**, and McCusker, P. A. Systems of C halides with dioxane, pyridine, and cyclohexane, 1637*e*
**Kennard, T. G.** See Drake, J. F.
**Kennard, W. C.** See Linde, J. E., Jr.
**Kennaway, E. L.** See Daff, M
**Kennaway, T.** See Hamilton, J.
**Kennecott Copper Corp.** Flotation of sulfide ores with a *N*-dichlorothiocarbanilide, P 2151*h*; froth flotation of sulfide ores with amyl *N*-phenyldithioimidocarbonate, P 4998*h*
**Kennedy, A. B.** See Lerman, F
**Kennedy, B. H.** See Garman, P
**Kennedy, C.** See Calverley, C E
**Kennedy, C. C.**, and Frevel, L K Manuf of ethyl acetoacetate at I. G. Farbenindustrie, 6079*g*
**Kennedy, C. R.** See Brownlee, G
**Kennedy, D. R.** Control of sulfides, 6767*f*.
**Kennedy, E. P.**, and Lehninger, A L. Oxidation of fatty acids and tricarboxylic acid cycle intermediates by isolated rat liver mitochondria, 7520*g*
**Kennedy, E. S.** Textile fabric selvedge treatment, P 856*f*.
**Kennedy, F V., Jr.** See Hanlon, M. E.
**Kennedy, G A.** Testing and performance of centrifugal pumps handling bleached soda eucalypt stock, 6414*a*.
**Kennedy, G. C.** Equil between volatiles and Fe oxides in igneous rocks, 526*g*; see Bishop, P. M F.
**Kennedy, G. T.** See Bryant, K C.
**Kennedy, H. C.** See Diamond, H.
**Kennedy, J. N.** Gas flexibility pays off in industrial porcelain firing, 5917*e*.
**Kennedy, J. S.** See Busvine, J R , Runke, S M.
**Kennedy, J. W.** See Friedlander, G ; Kamen, M. D.
**Kennedy, R. J.** See Wyckoff, H. O.
**Kennedy, R. M.** See Hetzel, S. J.
—— and Hetzel, S. J. Polymerization of olefins, P 1218*e*, 5641*a*.
**Kennedy, R. P.** See Barnett, T. B.
**Kennedy, S. J.** Leather and national defense, 6450*i*, 7246*g*; quartermaster research program on leather, 7733*e*.
**Kennedy, S. R., Jr.** See Sanford, H. N.
**Kennedy, T. A.**, and Thornton, A. W. Control of S in production of pig iron, 5713*h*.
**Kennedy, T. H.** See Griesbach, W. E.
—— and Griesbach, W. E. Thyroxinelike action of tetrabromothyronine, 8056*b*.
**Kennedy, T. J., Jr.** See Berliner, R. W.
**Kennedy, W. B.** See Lukens, F. D W.
**Kennedy, W. D.** See Arons, A. B ; Gearhart, W. M.
**Kennedy, W. K.**, and Unrau, J. Detg. the oil content of safflower and sunflower seeds, 5209*a*.
**Kennedy, W. Q.** Com. mica in Scotland (I) characteristics of com. mica, 6547*b*.
——, Lawrie, T. R. M., and Simpson, J. B. Com. mica in Scotland (II) some occurrences north of the Great Glen, 6547*b*.
**Kenner, G. W.** See Prelog, V.
——, Lythgoe, B., and Todd, A. R. Synthesis of purine nucleosides (XVII) the prepn. of 4-glycofuranosidaminopyrimidines and a synthesis of 9-L-arabofuranosido-2-methylthioadenine, 144*g*.
**Kenner, J.** Theory of detonators, 3617*f*; see Baddeley, G.
**Kenneth, J. H.** Henderson's' Dictionary of Scientific Terms (book), 7808*h*.
**Kenney, R. A.** See Barclay, J. A.
**Kenny, A. W.**, and Maton, W. R. E. Prepn. of pure $Fe^{59}$ of high specific activity, 1260*f*.
**Kenny, G. S.**, and Rubin, S. Proton scattering by Be, 4093*c*.
**Kenny, T. S.** See Curd, F. H. S.
**Kensler, C. J.** Antagonism of curare by Congo red and related compds., 3102*g*; influence of diet on the riboflavin content and the ability of rat-liver slices to destroy the carcinogen *N,N*-dimethyl-*p*-aminoazobenzene, 8524*b*.
**Kent, B. S.** Light O mask of plastic terial, 4509*g*.
**Kent, D. R.** See Larsh, J. E., Jr.
**Kent, D. L.**, and Weaver, P. J. Evaluating plasticizers for polyvinyl chloride, 2465*d*.
**Kent, G. H.** See Lowe, S. P.
**Kent, J. W.** See Hull, D. E.
**Kent, L. E.** Diatomaceous deposits in the Union of South Africa—kieselguhr (I) geology and economic aspects, 1692*f*.
—— and Russell, H. D. Warm spring on Buffelshoek, near Thabazimbi, Transvaal, 8581*c*.
**Kent, N.** Barley proteins, 6253*g*.
—— and Macheboeuf, M. Proteins from the cestode *Monesia expansa* (II) digestibility of different protein fractions by trypsin, 8561*c*.
**Kent, P. J. C.** See Gross, P.
**Kent, P. W.** See Haworth, W. N.
**Kenten, R. H.** See Bowes, J. H.
**Kentie, A.** Vitamin in butter, 8474*b*.
**Kentischer, A.** Cupola-furnace smelting, 2554*h*.
**Kenworthy, H.** Metallurgical investigations of the recovery of Zn and Fe sulfides from the gray Zn-Fe deposit, Galena, Ill., 5711*g*, see Runke, S. M.
——, Calhoun, W. A., and Fine, M. M. Concn sections at the central mill of the Eagle-Picher Mining & Smelting Co., Cardin, Okla., 5349*i*.
**Kenyon, A. S.**, and LaMer, V. K. Light-scattering properties of monodispersed S sols, 4925*h*.
**Kenyon, A. T.**, Knowlton, K., and Landau, R. L. Diminished excretion of 17-ketosteroids during fusting—altered testicular function, and the effect of chorionic gonadotropin in normal men, 7099*e*.
**Kenyon, C.** See Norvall, J. G.
**Kenyon, J.**, and Silberstein, V. Production of glue or gelatin, P 1592*i*; see Anderson, I. G.; Arcus, C. L.
**Kenyon, K. W.** See Sanford, F. B.
**Kenyon, R. L.**, Hasek, R. H., Davy, L. G., and Broadbooks, K. J. Oxidation of cellulose, 2425*f*
——, Wiesner, J. A., and Kwartler, C. E. Chloroquine manuf., 5402*a*.
**Kenyon, W. O.** See Fowler, W. F , Jr.; Minsk, L M.; Reynolds, D. D.; Tong, L. K. J.; Unruh, C. C.
—— and Fowler, W. F., Jr. Oxidized nitrated cellulose, P 6825*f*.
—— and Unruh, C. C. Resinous copolymer of isopropenyl acetate, P 903*g*; copolymers of 1-acyloxy-1,3-butadienes and acrylonitrile, P 3658*f*, oxidation of starch with $NO_2$, P 7244*h*.
—— and Yackel, E. C. Oxidation of cellulose, P 404*f*.
**Keogh, P. P.**, and Bentley, G. A. Pharmacology of monacrine, 2322*d*.
**Kepfer, R. J.** See Boller, E. R.
**Kephart, J. C.** Preservation of pigments in alfalfa, P 6760*c*.
**Kephart, L. W.** Weed control in vegetables, 1139*a*.
**Képinov, L.** Action of adrenaline on the glycogenolytic function of mammalian liver—synergism of adrenaline and the glycogenotropic hormone in perfused rat liver, 8063*a*.
**Kepler, E. J.** See Mason, H. L.
**Kepner, R. E.** See Andrews, L. J.; Keefer, R. M.
——, Winstein, S., and Young, W. G. Allylic rearrangements (XXIV) abnormal bimol. substitution—condensation of butenyl and pentenyl chloride with Na malonic ester, 3351*d*.
**Keppel, G. E.** Detn. of added glycerol in eggs and egg products, 9284*g*.
**Kepple, J.**, and MacFarlane, M. G. Distribution of antitoxin in the tissues of animals immunized with *Cl. welchii* toxin, 4326*b*.
**Kerby, G. P.**, Gowdy, R. A., Dillon, E. S., Dillon, M. L., Czaky, T. Z., Sharp, D. G., and Beard, J. W. Purification, pH stability, and sedimentation properties of the T7 bacteriophage of *Escherichia coli*, 9159*b*.
**Keresstesy, J. C.**, and Rickes, E. Substance extd. from growth medium of *Rhizopus nigricans*, P 8448*f*.
**Kergomard, A. D.** See Duplessis-Kergomard, A.
**Kerkkonen, H. K.** Detn. of the peptide amino N by the Cu method, 6269*i*; see Virtanen, A. I.
**Kerléo, F.** See Goiffon, R.
**Kerley, R. V.** See Frey, F. E.
**Kermack, W. O.** Advances in biochemistry, 1073*a*, 6255*a*.
**Kern, B. D.**, Mitchell, A. C. G., and Zaf-

farano, D. J. Nuclear spectra of $Sb^{126}$, $Te^{125}$, $Cr^{51}$, and $I^{131}$, 6913*b*.
**Kern, C. J.** *p*-Aminobenzoic acid, 4977*f*.
——, Antoshkiw, T., and Maiese, M. R. *p*-Aminobenzoic acid and its Na salt, 1244*i*.
—— and Tabor, J. M. Obtaining fat-sol. vitamin-contg materials in oil, P 5910*c*.
**Kern, D. M. H.**, and Orlemann, E. F. Potential of the U(V), U(VI) couple and the kinetics of U(V) disproportionation in perchlorate media, 8911*h*.
**Kern, E. A.**, and Abbott, R. K., Jr. Polymers and copolymers of 2-vinylfluorene, P 8740*g*.
**Kern, J. G.** Dyeing nylon-acetate mixed fabrics with 3-nitro-4-amino-2′-chlorobiphenyl, P 2442*g*.
**Kern, Walter.** See Mörgeli, E.
——, Sutter, P., Mörgeli, E., and Holbro, T. Anthrimidecarbazole vat dyes for cellulose fiber, wool, silk, and leather, P 8171*b*.
**Kern, Werner.** Autox and Metalautox-catalyzed addn. polymerization, 2810*i*; addn. polymerization under biol conditions, 3052*d*; acceleration of the polymerization of unsatd. compds. by means of oxidation-reduction systems, 4510*f*; activity of Na ions in aq. soln. of the salts with polyvalent acids, 5206*f*.
**Kern, W. P.** See Weisz, P. B.
**Kernan, J. R.** See Glenn, R. D.
**Kernkamp, M. F.** Chem. treatment of soybean seed in relation to nodulation by nodule bacteria, 3133*a*.
**Kernon, D. R.** See Chemical Engineering & Wilton's Patent Furnace Co., Ltd.
**Kerns, Q. A.**, Baker, W. R., Edwards, R. F., and Farly, G. M. High-voltage pulser for 184-in. cyclotron elec. deflector, 3281*c*.
**Kerny, M.** Conessine and its use in the treatment of amebiasis, 8101*a*.
**Kerr, D. I. B.** See Nossal, P. M.
**Kerr, E. G.** See Allen, H. L.
**Kerr, H.** Life of vertical retorts, 6807*f*.
**Kerr, J. C.** See Jones, Elwyn
**Kerr, J. E. D.** Solvents in the rubber industry, 9513*h*.
**Kerr, K. B.** Hexachlorophene as an agent for the removal of *Raillietina cesticillus*, 1104*h*.
**Kerr, L. B.** Bibliography of geology, coal, oil, natural gas, and industrial minerals in the post-Cambrian region of southern Manitoba, 5347*d*.
**Kerr, L. M. H.**, Campbell, J. G., and Levvy, G. A. β-Glucuronidase as an index of growth in the uterus and other organs, 9207*c*.
—— and Levvy, G. A. Sex and organ specificity in the response of β-glucuronidase to extrinsic agents, 701*f*.
**Kerr, P. F.** Tungsten Mineralization in the United States (book), 6954*g*; see Vaes, J. F.
—— and Kulp, J. L. Multiple differential thermal analysis, 8987*g*.
**Kerr, R.** Scale prevention in gas water heaters, 7613*h*.
—— and Withers, S. M. Corrosion of water heaters by flue gases (I) effect of temp. on the corrosion of Sn-Pb coatings, 4022*a*.
**Kerr, R. W.** Stannate treatment of starch, P 0850*c*, see Cleveland, F. C.
**Kerr, T. H.** Ohio coals, shales, and oils, 375*e*.
**Kerr, W. J.** See Kreutzer, F. L.
**Kerrigan, V.** See Banks, A. A.
**Kersanov, M. E.** See Zaks, M. G.
**Kerschbaum, F. P.**, and Stowell, H. T. V from ores, P 5727*b*.
**Kersey, R. C.**, and Porter, J. R. Pantothenic acid and the metabolism of amino acids by bacteria, 1820*i*.
**Kershaw, B. B.** See Tauber, H.
**Kershaw, M. A.** Inspection and control of trade-waste-effluent discharges, 5890*d*.
**Kersten, J. A. H.** Relation between the thermal cond. of rarified gases and the sensitivity range of Pirani gages, 3667*c*; see Wassink, E. C.
—— and Brinkman, H. C. Construction and theoretical analysis of a direct-reading hot-wire vacuum gage with zero-point control, 5235*e*.
**Kersten, M.** Coercivity force, 8767*i*.
**Kerszowski, H.** See Rossmann, B.
**Kertész, D.** Theory of the enzymic monophenol oxidation, 2251*f*.
**Kertess, Z. I.** See Holgate, K. C.; Moyer, J. C.; Robinson, W. B.; Sondheimer, E.
—— and Sondheimer, E. Tests point way to reduce color loss in strawberry preserves, 1500*i*.
**Kerwin, L.** Improved magnetic focusing of charged particles, 3281*a*.
**Kesel, R.** See Orcutt, J. A.
**Kesenikh, V. N.** Structure of the ionosphere, 3701*c*.
**Keskin, H.** See Breusch, F. L.
**Kesler, C. C.**, Black, W. C., Hicks, W. L., and Owen, C. N. Starch-resin reaction product, P 901*e*.
—— and Hicks, W. L. Adhesive from cereal flour, P 4899*b*.
**Kesler, T. L.** Barite deposits at Cartersville, Ga., 8990*c*.
**Kesper, J.** Drying foundry sand, 6133*g*; ore reduction, 6551*d*.
**Kessels, K.** Flow measurement, 5236*b*.
**Kessler, H. D.**, and Hansen, M. Arc-melted Mo-rich Cr-Mo alloys, 8336*i*.
**Kessler, J.**, and Weber, O. Production of serum antipoliomyeliticum, 4756*b*
**Kessler, K. L.**, and Allison, J. R. Growth regulators on lemons in storage, 1516*h*.
**Kester, B. E.** Stabilized jel-type $Ca(OH)_2$, P 6375*f*.
**Kester, E. B.** Minor oil-producing crops of the United States, 2791*f*; *N*-acylated derivs. of glutamic acid, P 3841*g*; see Hunter, I. R.
—— and Preusser, H. M. Glycidyl esters, P 907*h*.
**Kestermann, E.**, and Thöne, H. Phenylurea deriv. of insulin, 8533*g*.
**Kesterson, J. W.**, and McDuff, O. R. Florida citrus oils—properties of essential oils, 3975*i*.
**Kestin, J.** Thermodynamic properties of combustion gases, 834*d*.
**Kesting, F.** See Pyl, G.
**Keston, A. S.** See Eisen, H. N
**Keswani, R.**, and Freiser, H. Elec. moments and structure of substituted thiophenes (I) certain halogenated derivs., 3253*a*; (II) thiotolene derivs., 8223*d*
**Keszthyus, L.** Azo compds. of histamine, 5058*e*; see Went, S.
——, Nikodémusz, S., and Szilágyi, T. Antigenic activity of myosin and actin, 3917*a*.
——, Székely, S., and Szilagyi, T. Influence of feeding dried thyroid on the intestinal movements, 6736*c*
——, Székely, S., Szilágyi, T., and Varga, E. Ferrous ion-adrenaline antagonism, 3931*f*.
**Ketarome Ltd.** Ethylene chlorohydrin, P 2633*a*.
**Ketcham, N. H.** See Cogan, H. D.
**Ketchen, E. E.**, Trumbore, F. A., Wallace, W. E., and Craig, R. S. Dry box for handling alkali metals and other extremely hygroscopic materials, 8216*c*.
**Ketchum, B. H.**, and Ayers, J. C. Action of antifouling paints—effect of nontoxic pigments on the performance of antifouling paints, 1577*d*.
**Ketchum, D. F.** See LaForce, J. R.
**Ketelaar, J. A. A.**, and Bloksma, A. H. Rate of hydrolysis and compn. of tetraethyl pyrophosphate, 2077*f*.
—— and Jibben, B. System S-anthracene, 5273*e*
**Ketelle, B. H.** See Bell, P. R.
—— and Peacock, W. C. Neutron-induced activities in Er, 4096*d*.
**Ketron, K. C.** See Holt, L. E., Jr.; Snyderman, S. E.
**Kett, F. F.** V-bearing solid bitumens of the Argentine, 8126*i*.
**Kett, R.** See Granick, S.
**Kettering, J. H.**, and Kraemer, R. M. Cotton-bleaching processes and their effect on fabrics, 1571*i*.
**Ketterl, H.** Rust films as anchor for coatings, 5202*g*; surface rusting, a method to treat Fe surfaces prior to lacquering, 9015*b*.
**Kety, S. S.** See Grant, F. C.; Shenkin, H. A.
**Keuffel, J. W.** Parallel-plate counters, 6076*g*.
**Keussler, V. v.** Wave-length shifts in the $H^{I}$- and $He^{I}$-like spectra as a consequence of the electromagnetic displacement of the ground term, 8272*i*.
**Keutmann, E. H.** See Kochakian, C. D.; Zaffaroni, A.
**Keuzenkamp, A.**, Steenis, J. van, and Waterman, H. I. Catalytic isomerization of cod-liver oil with $SO_2$, 9380*g*.
**Kevdin, N. A.**, and Romanishina, S. Detn. of the rate of reduction of oxyhemoglobin directly in tissue blood vessels, 3093*f*.
**Keverling Buisman, J. A.** See Buisman, J. A. K.
**Key, A.** Use of O and high pressure in gasification (V) reactions between coke and steam at high pressure, 3170*i*.
—— and Eastwood, A. H. Removal of S compds from coal gas and synthesis gas at atm. pressure, 3169*i*.
**Key, C. W.** Stack gas analysis for total S and $SO_3$, 4601*d*.
**Keyes, D. B.** Training men to appraise and develop markets for chemicals, 3117*f*.
**Keyes, F. G.** See McMurtrie, R. L.
**Keyes, J. J.** Insulated conductor, P 2714*i*.
**Keyes, K. E.** Calcn. of the binding energy of self-trapped electrons in KCl, 4096*a*.
**Keyes, P. H.** Adrenocortical changes in Syrian hamsters following gonadectomy, 8491*b*.
—— and Shourie, K. L. Dental caries in the Syrian hamster (V) effect of three different F compds. on caries activity, 6290*g*.
**Keys, A.** Nutrition, 9190*d*; see Nataf, B.
**Keyser, J. W.** Apparent arginine content of human plasma proteins, 3862*e*.
**Keyvar, C.** Colloidal aspects of the theories of dyeing, 6827*d*
**Keyworth, C. M.**, and Wardle, T. & A., Ltd. Preps. for the destruction of weeds, P 5900*h*.
**Khachadurova, T. M.** See Krotov, I. V.
**Khachaturova, N. B.** See Melik-Zade, M.
**Khachkuruzov, G. A.**, and Todes, O. M. X-ray dispersion analysis of polycryst. materials, 6915*e*.
**Khachvankyan, M. A.**, Repa, A. G., and Daul'chenko, E. P. Drying Na sulfate, 5909*h*.
**Khadyk, M. I.** Syntans from the tech. xylenols of coal tar, 5617*g*
**Khaĭ, D. M.** See Nakhmanovich, M. I.
**Khaĭkin, S. E.** See Lichter, Ya. I.
**Khaĭmovich, R. S.** See Zosimovich, D. P.
**Khairat, O.** See Sobhi, H.
**Khakham, I. B.** State of $NH_3$ in aq. solns. (I) consts. detg. the state of $NH_3$ in aq. solns (II) distribution of $NH_3$, 6891*h*.
**Khalabuda, T. V.** Soil microfloral surveys, 1512*i*
**Khalatnikov, I.** Elec. cond. of strong electrolytes, 4544*b*
**Khaletskiĭ, A. M.**, and Eshman, M. S. Thio analogs of caffeine and caffeidine, 3794*c*.
**Khalif, A. L.** See Losikov, V. V.
**Khalil, F.** See Gracie, D. S.
**Khaltykyan, O. A.** See Chaltykyan, O. A.
**Khamov, N. N.** See Volova, E. D.
**Khan, A. W.** See Chandhri, R. M.
**Khan, G. A.** Adsorption of air on minerals, 3325*f*
**Khan, R. A.**, and Linnell, W. H. Synthetic compds. possessing corticosteronelike activity, 4658*i*
**Khandros, L. G.** See Kurdyumov, G. V.
**Khanin, A. A.** Natural gases in the Sarmatian of the Asovian Sea region, 5710*i*.
**Khanna, K. L.**, and Chacravarti, A. S. Juices of diseased sugar cane, 6144*h*
**Khanna, L. C.** See Hassan, M. U.
**Khanna, M. L.** See Verman, L. C.
**Kharasch, M. S.** Stilbestrol and hexestrol, P 1916*h*; bromine-contg org. compds., P 5789*e*, halogenated dicarboxylic acids, P 6226*d*, polyketones from simpler ketones and diacyl peroxides, P 9081*h*.
—— and Büchi, G. Reactions of atoms and free radicals in soln. (XVII) decompn. of diacetyl peroxide in allyl bromide, 3775*h*.
——, Freiman, M., and Urry, W. H. Reactions of atoms and free radicals in soln. (XIV) addn. of polyhalomethanes to butadiene sulfone, 2986*f*.
—— and Friedlander, H. N. Factors influencing polysulfone formation (II) induction with control of polymer length, 2157*f*; reactions of atoms and free radicals in soln. (XIX) comparative reactivities of double bonds in cyclic olefins toward free radicals, 4636*f*.
——, Friedlander, H. N., and Urry, W. H. Reactions of atoms and free radicals in soln. (XVIII) decompn. of diacetyl peroxide in *cis*-glycols, 3776*a*.
——, Jenson, E. V., and Weinhouse, S. Alkylation reactions of tetraethyllead—synthesis of ethyldichloroarsine and related compds., 6971*b*.
——, Kuderna, B. M., and Urry, W. H. Reactions of atoms and free radicals in soln. (XV) addn. of bromodichloromethane and dibromodichloromethane to olefins—prepn. of 2-alkenals, 3345*a*.
—— and Sage, M. Reactions of atoms and free radicals in soln. (XVI) reaction of allyl bromide with bromotrichlorometh-

ane, 3775*f*; (XXI) relative reactivity of olefin towards a free $Cl_3C$-radical, 9023*i*.
——— and Urry, W. H. Addn. of chlorinated AcOH derivs. to olefins, P 7502*g*.
———, Urry, W. H., and Kuderna, B. M. Reactions of atoms and free radicals in soln. (XX) addn. of aldehydes to olefins, 4637*b*.
——— and Zavist, A. F. Synthesis of sulfonyl chlorides, 559*e*.
**Kharin, A. N.** Ion exchange in fresh and aged hydrosols of $As_2S_3$, 5258*f*; interaction between $H_2S$ and arsenious anhydride in aq. solns., and the stabilizing acids in $As_2S_3$, 5319*i*.
——— and Portasov, P. N. Uptake of substances by granulated C from a stream of soln. (I) dynamics of the sorption of AcOH by C with coarse pores, 1238*e*.
**Kharitonov, V.** See Alikhanyan, A. I.
**Kharlamova, K. N.** See Kudryavtsev, N. T.
**Kharshan, M. E.** See Zaks, M. G.
**Khastgir, H. N.**, and Bhattacharyya, B. K. Friedel-Crafts reaction involving unsatd. ketones, 3373*c*.
**Khatset, F. I.** See Nelmark, I. E.
**Khauts, I.** See Kratzl, K.
**Khavin, Z. Ya.** See Ioffe, I. S.
**Khazan, A. N.** Evaluating the cooling properties of quenching liquids, 534*i*.
**Khazan, V. B.** Iodine disinfection of drinking water in the regions of endemic goiter, 5889*i*; content in water and food products from regions of endemic goiter in Tadzhikistan, 8044*i*.
**Khazanovich, K. K.** Iron deposits in the K F S.S R., 2550*e*.
**Khazhinskaya, G. N.** See Sinel'nikova, A. I.
**Khazit, L. G.** See Moiseev, A. A.
**Khazova, I. P.** See Zal'kind, Yu. S.
**Kheidze, A. M.** Soviet gum-arabic, 5541*h*.
**Khelemskii, M. Z.** Juice extn. plants in the German sugar industry, 4879*h*.
**Khishen, S. A. El.** Detn. of methyl allyl chloride—recovery from fumigated grain, 2123*b*.
**Khitrik, S. I.** Material- and heat-balance of a ferrosilicon-smelting arc furnace, 3296*i*.
**Khitrin, L. N.** Combustion of a spherical C particle—effect of secondary reactions, 5268*a*.
**Khlebnikov, N. I.** Soil sampling in populated areas, 1505*g*.
**Khlebnikov, N. S.**, and Melamid, A. E. Energy-level structure of the Sb-Cs cathode, 3705*c*.
**Khlebnikova, A.** Prepns. of leaven (II) application of the new method, 9283*a*.
**Khlopin, N. Ya.** Detn. of metal aerosols, 64*e*; maximum on the voltage-current curves of As (I), (III) reactions in the electrolysis of As on a dropping-Hg cathode, 3297*f*; $CaCl_2$ as auxiliary electrolyte in polarography, 5327*a*.
———, Rafalovich, N. A., and Aksenova, G. P. Detn. of As, 964*a*; max. on the voltage-current curves of As (II) motions at the cathode observed in the formation of a max. on polarographic curves, 3298*a*.
**Khlopin, V. G.** He in Be, B, and Li minerals, 7875*b*; see Klokman, V. R.
——— and Gerling, E. K. Geochemistry of rare gases, 527*e*.
**Khlopina, M. A. P.** See Pasvik-Khlopina, M. A.
**Khludov, S. V.** See Baranov, S. S.
**Khludtsev, A. E.** Improving the strength and chem. resistance of fibrous materials, P 9476*b*.
**Khodorov, E. I.** Operating conditions of thermal equipment and economy of fuel, 1164*f*; intensifying the work of rotary kilns, 2752*b*.
——— and Diment, P. M. Heat transfer in the chain zone of a rotary kiln, 1545*e*.
**Khokhlov, D. G.** Effect of the physicochem. properties of sinter on blast furnaces, 4196*a*.
**Khokhlov, I. I.** Water in the leather industry, 6447*h*.
**Khokhlov, S. S.** Second blossoming of fruit trees and other peculiarities of plant life in the neighborhood of gas-producing boreholes in the Saratov region, 5830*b*.
**Khokhlova, Z.**, and Mernenko, P. Control in a bone-processing plant, 6751*e*.
**Kholodnyi, N. G.** Action of volatile org. substances on plants, 2677*a*.
**Khomenko, Z. S.** See Rudakov, G. A.
**Khomik, S. R.** Influence of sulfapyridine on formation of agglutinins in active immunization, 4773*e*.
**Khomikovskii, P. M.** Emulsion polymerization—polymerization of vinyl cyanide and of methyl methacrylate in water and in soap solns., 437*e*.
——— and Medvedev, S. S. Emulsion polymerization (I) polymerization of vinyl cyanide in aq. solns., 899*h*.
**Khomutova, M. A.** Detn. of vitamin C, 1822*e*, detn. of MeOH in alc. beverages, 1903*h*.
**Khoodiakow, G. N.** See Khudyakov, G. N.
**Khorana, H. G.** See Beer, R. J. S.; Prelog, V.
**Khorana, M. L.** See Gayatonde, N. S.
——— and Motiwala, D. K. Anthelmintics—calycopterin from *Calycopteris floribunda*, 3565*h*; anthelmintics—anthelmintic activity of kamala and its constituents, 8101*e*.
———, Motiwala, D. K., and Venkataraman, K. Anthelmintics (III) anthelmintic activity of *Calycopteris floribunda*, 3566*a*.
**Khotin, A. A.** Fruit formation and accumulation of essential oils in caraway, 8100*g*.
**Khotkevich, V. I.** See Lazarev, B. G.
**Khouvine, Y.**, and Grégoire, J. Desoxyribonucleoproteins of cancerous tissue, 6304*d*.
**Khrapkin, M. A.** See Gryaznov, N. S.
**Khrimyan, A. V.** See Alikhanyan, A. I.
**Khripach, S. M.** See Tkachenko, N. S.
**Khrisanfova, A. I.** See Kukharenko, T. A.; Onusaltis, B. A.
**Kristeva, L. A.** Influence of humic acid on plants, 3888*g*.
**Khristoforova, A. M.** See Kasparova, S. A.
**Khristov, S. G.** Mechanism of overvoltage at the active H electrode, 8284*h*.
**Khromov-Borisov, N. V.** Sulfonic acid amides, P 4604*h*.
**Khrustaleva, V. A.** Evaluation of the chromate and the Mo methods of Pb detn. in air of industrial establishments, 1888*a*.
**Khudyakov, G. N.** Physicochem characteristics of liquids, 4532*d*, 8759*f*.
**Khunyants, I.** V. M. Rodionov, 1617*i*.
**Khvala, A.** Textile chemistry, 412*i*.
**Khvilivitskii, E. Ya.** See Dertev, N. K.
**Khvostikov, I. A.** Infrared emission of the nocturnal sky and dissocn of N in the ionosphere, 7809*h*.
**Khvostov, G. W.** Analysis of some unsatd. compds. with phthalic peroxide, 6946*g*.
**Khsmalyan, D. M.** See Korneev, V. L.
**Kiar, M.** Polymerization of vinyl esters in emulsions, P 2035*b*.
**Kibardin, S. A.** Age variations in vitamin E in the blood, 4749*g*.
**Kibardina, Kh.** See Tsvetkov, V. N.
**Kibat, D. S.** See Siewerdt-Kibat, D.
**Kibisov, G. I.**, Knyazeva, S. V., and Tarakanova, M. G. Detn. of Cl and Br in the steeloscope, 4179*h*.
**Kibler, C. J.** See Allen, C. F. H.; Weissberger, A.
——— and Weissberger, A. α-(Carbomethoxy)thioacetamide color couplers, P 8924*h*.
**Kibler, D. V.** See Krantz, J. C., Jr.
**Kibler, G. M.**, and Hunt, H. Heats of combustion (V) five N-contg. compds., 7318*c*.
**Kibler, H. H.** See Brody, S.
**Kibre, P.** *Alkimia minor* ascribed to Albertus Magnus, 8761*d*.
**Kibria, M. G.** See Fialka, K. M.
**Kibrick, A. C.** Glutamic acid and pyrrolidonecarboxylic acid, 143*f*; reaction of tryptophan with MeOH which depends on the formation of HCHO, 4185*h*, detn. of lysine, 6085*d*; detn. of protein in serum and in fractions obtained from serum, 9133*c*.
——— and Blonstein, M. Fractionation of serum into albumin and α-, β-, and γ-globulin by $(Na)_2SO_4$, 4316*f*.
**Kicklighter, R. C.** See Kouba, D. L.
**Kidd, D. A.**, and King, F. E. Phthaloyl-L-glutamic acid, 2943*c*.
**Kidd, D. J.** See Smith, F. Gordon.
**Kidd, J. G.** Effects of antibiotic from *Aspergillus fumigatus* on tumor cells and its identity with gliotoxin, 7076*g*.
**Kidder, D. E.** See Clarke, S. G. C.
**Kidder, G. A.** See Fontana, C. M.; Gorin, E.
**Kidder, G. W.**, and Dewey, V. C. Biol. activity of substituted pyrimidines, 4309*c*; biochemistry of *Tetrahymena* (XI) components of factor H of known chem. nature, (XII) pyridoxine, pyridoxal, and pyridoxamine, 9156*e*; (XIII) B vitamin requirements, 9157*c*; (XIV) activity of natural purines and pyrimidines, 3882*b*; antagonism and synergism between amino acids in the growth of *Tetrahymena*, 9164*e*; biol. activity of substituted purines, 9148*h*.
———, Dewey, V. C., Andrews, M. B., and Kidder, R. R. Tryptophan and nicotinamide in the nutrition of *Tetrahymena*, 5873*e*.
———, Dewey, V. C., Parks, R. E., Jr., and Woodside, G. L. Purine metabolism in *Tetrahymena* and its relation to malignant cells, 9251*e*.
**Kidder, R. R.** See Kidder, G. W.
**Kiddoo, G.** Flow in fluidized reaction systems, 4906*d*.
**Kidson, E. B.** See Askew, H. O.
**Kiebler, M.** Org. acids from carbonaceous material, P 3176*a*.
**Kiefer, G. C.** Inorg. insulating coating for elec. steel sheet and strip, P 6145*b*.
**Kieffer, F.** See Pullman, B.
**Kieffer, R.**, and Benesovsky, F. Sinterhardmetal as wear-resistant material, 5352*c*.
——— and Hotop, W. Sintereisen und Sinterstahl (book), 2919*f*; Pulvermetallurgie und Sinterwerkstoffe (book), 4998*a*.
——— and Kölbl, F. W carbide-free hard metals, 2143*i*.
——— and Natter, B. High-temp. elec. furnaces with Mo heating elements, 6517*i*.
**Kieffer, W. F.** Electronic structure in interpreting chem. reactions, 451*b*.
**Kiehl, J. P.** See Forestier, H.
**Kielbasiński, S.** Synthetic rubber from alc., 3644*a*.
**Kielhöfer, E.** Keeping qualities of vineyard stakes, 6351*i*.
**Kielley, W. W.**, and Meyerhof, O. Adenosinetriphosphatase of muscles (II) Mg-activated adenosinetriphosphatase, 2243*h*.
**Kien, L. K. van.** See Turchini, J.
**Kienle, R. H.** Alkyd resins—polymer theory, 5993*a*; see Amick, C. A.
——— and Adams, F. H. Prevention of thinning of carbohydrate printing pastes contg. diazonium salts with olefin carboxylic acid amides, P 3207*a*.
——— and Whitcomb, G. P. Nonionic surface-active agent, P 6439*d*; nonionic stabilizing agent, P 7267*b*.
**Kientz, L.** Notions fondamentales sur les vernis et peintures (book), 1579*c*.
**Kiermeier, F.** Keeping qualities of foodstuffs—tech. biochemistry, 323*c*; combating changes in foodstuffs, 3941*b*; detg. pectase activity, 4311*i*; see Patschky, A.
**Kiersted, W., Jr.** Rotary drum filter, P 6*e*.
**Kiersz, J.** Increase of K in the plasma of preserved blood, 3047*b*.
**Kies, H. L.** See Karsten, P.
**Kiesber, I. S.** See Kizber, I. S.
**Kiese, M.** Verdoglobins (I), (II) constitution of verdoglobin $NO_3$, 256*e*; (III) prosthetic group of verdoglobin S, 9097*h*; detn. of methemoglobin and hemoglobin, 6269*a*; reduction of methemoglobin (IV) catalytic action of dyes on the reduction of methemoglobin in red cells, 6732*c*; (V) acceleration of reduction by increase in the lactic acid concn. in the blood, 309*i*; hemoglobin and Pasteur effect, 7567*c*; pathochemistry of the blood pigments, 8519*d*; see Blömer, K.; Heubner, W.
——— and Schwartzkopff, W. Reduction of methemoglobin (III) metabolism in the red cells, 6732*b*.
**Kieser, M. E.** See Pollard, A.
**Kiess, C. C.** Red and infrared bands of Ti and Zr oxides, 940*d*; wave lengths of the (0,0) band heads in the infrared system of CN, 7338*h*.
——— and Shortley, G. Zeeman effect and *g*-values for neutral N and O, 5304*f*.
**Kiessig, H.** See Hess, K.
**Kiessler, H.** Creep tests with some steels, 1302*a*; see Bollenrath, F.
**Kiessling, R.** Prepg. B of high purity, 4593*g*; binary system Zr-B, 6898*e*.
**Kihara, Y.** Compn. of rice (I) carbohydrates in rice bran and germ, (II) compn. of husk, (III) glucoside from rice bran, 1117*e*.
———, Kawaguchi, T., and Kaneko, S. Compn. of rice (IV and V) utilization of rice bran imported from French Indo-China, 1117*i*.
——— and Sato, T. Table yeast from bran (I), 778*f*.
**Kihlén, G.** See Olsson, N.
**Kihlman, B.** See Fries, N.
——— and Levan, A. Cytological effect of caffeine, 3889*i*.
**Kiker, J. E., Jr.** Diatomite filters for swimming pools, 8584*e*.

**Kikuchi, C.,** and Spence, R. D. Microwave methods in physics (I) microwave spectroscopy, 8841*i*.
**Kikuchi, K.** Na chromate, P 6796*c*.
**Kikuchi, S.,** *et al.* γ-Ray spectra of $V^{52}$ and $Mn^{56}$, 6507*e*.
**Kikuike, R.** High-speed steel for cutting and boring, P 6966*c*.
**Kikuth, W.,** Gonnert, R., and Mauss, H. Miracil, chemotherapeutic compd. against intestinal bilharziosis, 9251*i*.
——— and Mudrow-Reichenow, L. Chemotherapy of malaria, 3523*d*.
**Kilbank, S. C.** See Rush, I. C.
**Kilbourne, F. L., Jr.** Reclaiming synthetic rubber, 3647*e*.
**Kilbride, J. T.** Abrading wheel, P 4442*e*.
**Kilbuck, J. H.** Prune juice, 1121*d*.
**Kilby, B. A.** Alkyl fluorophosphonates and related compds., 9027*i*.
**Kilby, J. A.,** and Cameron, W. C. Steelmaking, 87*h*; steel processing, 9007*i*.
**Kil'disheva, O. V.** See Knunyants, I. L.
**Kilduff, T. J.** See Oehler, R.
**Kilgore, H. F.** See Kilgore, L. B.
**Kilgore, L. B.** Rotenoid solvent, P 350*e*
———, Kilgore, H. F., and Ford, J. H. Insecticide, P 2732*c*.
**Kilham, J. K.,** and Garside, J. E. Heat transfer from flames, 7805*a*.
**Kiligina, M. L.** See Micropol'skiĭ, L. M.
**Killeffer, D. H.** American chem. library, 6875*i*.
**Killian, D. B.** See Callaway, J. B.
**Killian, H.** Penicillins, 3977*d*.
**Killian, J. A.,** and Marsh, M. E. Effect of soap on skin, 6843*c*.
**Killian, J. R., Jr.** Engineering education, 2826*g*.
**Killinger, C. B.,** Stokes, W. E., Clark, F., and Warner, J. D. Peanuts in Florida (I) peanut growing, (II) compn. of the peanut plant, 9322*e*.
**Killingsworth, R. B.** Insect repellent comprising benzyl ethers of ethylene glycol, P 5153*e*.
**Killner, W.** Detn. of dissolved O in deaerated water, 6109*a*; see Lawrence, A. S. C.
**Kilmer, J. W.** See Bellah, J. S.
**Kilnader, A. K.** See Edsall, L. B.
**Kilp, W.** Sulfite alc., 7682*d*.
**Kilpatrick, J. E.,** Beckett, C. W., Prosen, E. J., Pitzer, K. S., and Rossini, F. D. Heats, equil. consts., and free energies of formation of the $C_3$ to $C_8$ diolefins, styrene, and the methylstyrenes, 5275*c*.
**Kilpatrick, M.** Detn. of the dissocn. const. of weak electrolytes in salt solns., 7302*h*.
**Kilpatrick, M. L.** Basic and acid strength of cacodylic acid in water, 7790*d*.
**Kilpatrick, M. O.** Diolefins, P 3023*c*.
**Kimball, A. H.** National Nuclear Energy Series. Div. III. Vol. IV. Bibliography of Research on Heavy H Compds. (book), 7351*b*.
**Kimball, C. S.** See Schoenholz, D.
**Kimball, G. E.** See Cogin, G. E.; Collins, F. C.
**Kimball, M. H.,** Harrel, C. G., and Brown, R. O. Dry salad dressing, P 6333*b*; ingredients for prepg. food mixes, P 6333*d*.
**Kimberlin, C. N., Jr.** Accelerating alumina hydrosol formation by aeration, P 1159*g*; treating hydrosols with fluorides to obtain improved gel catalysts, P 8076*f*; see Hunter, E. A.; Pierce, J. A.
——— and Pierce, J. A. Inorg. hydrogel, P 370*c*.
**Kimbrell, W. B.** See Horner, V.; Varnell, D. S.
**Kimeldorf, D. J.** Excretion of 17-ketosteroids during altered gonadal function, 8037*c*.
**Kimijima, Takeo,** Kinoshita, S., and Tanaka, T. Caking property of coal (I) enchancement of the caking property of coal, (II) action of alkali on the caking property of coal, 1941*a*.
———, Miyagawa, I., and Tsukamoto, E. Polymerization of chloroprene and copolymers (IV) inhibitors for polymerization of chloroprene, 1598*e*.
———, Miyagawa, I., Tsukamoto, E., and Isobe, S. Polymerization of chloroprene and copolymers (III) effect of HCl on the catalyst for the prepn. of monovinylacetylene, 1598*f*.
**Kimijima, Takuso,** and Miyama, S. Thiazole derivs. as vulcanization accelerators (I) reaction of $CS_2$, S, and thiocarbanilide, (II) reaction of aniline, $CS_2$, and S, (III) alk. oxidation of mercaptobenzothiazole, (IV) prepn. of mercaptonaphthothiazoles and their behavior in curing rubber, (VII) di(benzothiazoyl)monosulfide, (VIII) regulation of accelerating power of mercaptobenzothiazole, thiazole derivs. as vulcanization accelerators, (IX) purity and the accelerating activity of mercaptobenzothiazole, (X) acceleration and the accelerating activity of mercaptobenzothiazole, 2021*c*.
———, Miyama, S., and Suzuki, H. Thiazole derivs. as vulcanization accelerators (V) synthesis of nitro compds. of the indole series, (VI) properties of nitro compds. of the indole series in rubber, 2021*i*.
**Kimishima, T.,** Koshiro, I., and Watanabe, H. Rubber derivs. (I), 3224*h*.
**Kimm, R.-H.** Azo derivs. of sulfonamides, 8099*i*.
**Kimmel, A. L.** Anodes for the cathodic protection of water tanks, 6141*g*.
**Kimmel, S. H.** Repair of coke-oven walls, P 8651*c*.
**Kimmell, G. O.** Separator for gas entrained in petroleum oils, P 7222*e*; spray extractor, P 8759*c*.
**Kimmig, J.** Relation of chem. constitution to therapeutic activity, 3096*i*; see Schönfeld, W.
**Kimoto, K.** See Uyeda, R.
**Kimoto, M.** See Horio, M.
———, Horio, M., and Yamashita, S. Japanese red pine pulp (I) cooking with sulfurous acid, 1971*d*.
**Kimura, Katsue.** See Kodama, S.
**Kimura, Kenjiro,** and Ikeda, N. Color reaction between I and the basic acetates of some rare earth elements, 8948*g*.
——— and Kuroda, K. Detn. of Cu in Duralumin, 7863*e*.
**Kimura, K. K.,** Unna, K., and Pfeiffer, C. C. Diatropine derivs. as proof that *d*-tubocurarine is a blocking moiety contg. twin atropine-acetylcholine prosthetic groups, 3929*b*.
**Kimura, Masaichi.** See Maruta, K.
**Kimura, Motoharu.** Variation in scattering and absorption cross sections by resonance neutron energy, 5285*f*. total cross section of C for various resonance neutrons, 5286*b*; scattering of thermal neutrons by solids (III) effect of surface treatment on quartz grain scatterers, (IV) variation in the total cross section near the transformation point of $NH_4Cl$, 5286*f*.
——— and Hashiguchi, R. Scattering of thermal neutrons by solids (V) neutron-scattering cross section of Ni-Fe alloys, 5287*a*.
———, Morishima, J., and Tokikawa, K. Slow-neutron scattering cross section and the resonance levels of Cu, As, and W, 5286*c*.
**Kimura, O.** See Kodama, T.
**Kimura, S.** Menthol, 9381*h*.
**Kimura, T.** See Ueno, Seiichi.
**Kimura, T. E.** Effect of cardiac drugs on phosphorylated intermediates, 2321*g*; influence of cardiac drugs on cholinesterase, 7131*g*.
**Kimura, Y.** See Shikata, M.
**Kinard, F. W.** See Culp, F. B.
**Kinbara, T.** Distribution of vapor d. over the surface of a volatile liquid, 7282*h*.
**Kincses, A.** See Bálint, P.
**Kind, C. A.,** and Herman, S. C. Sterols of marine mollusks (II) periwinkle, 2626*f*.
———, Slater, S. G., and Vinci, A. Sterols of marine mollusks (I) cholesterol in two gastropods, 1048*i*.
**Kind, C. G.** Objects from water-repellent and electrically insulated hydraulic, sheer hard building material, P 6390*d*.
**Kind, W.** Activation of peroxide solns. by hemoglobin, 854*f*.
**Kinder, J. F.,** and Wertzler, R. Mass spectrometer—tool for the petroleum processor, 7673*a*.
**Kindler, K.,** Hedemann, B., and Schärfe, E. Chem. reactions (X) prepn. of phenyl and cyclohexylalkylamines by hydrogenations, 1025*g*.
**Kindred, J. E.** Blood cells and the hemopoietic and other organs of dogs given intravenous injection of 2-chloroethyl vesicants, 7135*c*.
**Kinell, P. O.** Mol.-wt. detns., 4538*f*.
——— and Traynard, P. Electron multiplier tubes in Raman spectrography (I), 4139*e*.
**Kineri, S.** Base for puncture-voltage recorder, P 7230*a*; see Okuno, Haruo.
——— and Ota, H. Recording paper for puncture voltage estn., P 7229*c*.
**Kinert, D. F.,** *et al.* Fouling in marine service, 8755*g*.
**Kinetic Chemicals, Inc.** Pyrethrum aerosols, P 351*e*; sepg. products of $CHCl_3$ fluorination, P 661*g*; sepg. products of $CCl_4$ fluorination, P 662*a*; fluorochloro compds., P 4284*g*; purification of crude dichlorofluoromethane, P 5789*h*; transmitting energy, P 8219*a*.
**King, A. B.** See Sampey, J. R.
——— and Sampey, J. R. Rates of photobromination of fluorene and 2-methylnaphthalene, 7004*g*.
**King, Basil C.** Aplite and pegmatite dikes and veins in the Osi area of the northern provinces of Nigeria, 75*b*.
**King, Burton C.,** and Schwarting, A. E. Occurrence of rutin in *Sambucus canadensis*, 9384*h*.
**King, B. W.** Ti enamels, 2740*a*.
——— and Baumhardt, L. C. Vitreous-enamel opacification, P 5566*f*.
**King, C. C.** Sepn. of oxygenated org. compds., P 6643*b*.
**King, C. G.** Good crops favor food conditions, 1125*c*, nutrition in relation to the glyceride oils, 6296*i*, science of nutrition, 8464*i*, see Allfrey, V.; Prusoff, W. H.
**King, C. R.** Pumice and perlite as industrial materials in Calif., 2901*i*; soda ash and saltcake in Calif., 3574*g*.
**King, C. S.** Noncaking alkali compns., P 6438*l*.
**King, C. V.** See Wolten, G. M.
**King, D. T.** See Goldschmidt-Clermont, Y.
**King, E. E.** See Lehman, R. A.
**King, Everett E.** Nonpressure treatments of round northern white cedar timbers with creosote, 6352*f*.
**King, E. G.** High-temp. heat contents of V carbide and V nitride, 3275*i*; high-temp. heat content of B carbide, 6500*a*.
———, Todd, S. S., and Kelley, K. K. Perlite—thermal data and energy required for expansion, 1293*b*.
**King, Ellis G.** Gaskets and bottle-cap liners, P 2040*b*; sound insulating materials, P 8580*b*.
**King, E. J.** See Abul-Fadl, M. A. M.
———, Gilchrist, M., Wootton, I. D. P., Donaldson, R., Sisson, R. B., Macfarlane, R. G., Jope, H. M., O'Brien, J. R. P., Peterson, J. M., and Strangeways, D. H. Detn. of hemoglobin (V) precision of colorimetric methods, 1076*g*.
——— and Harrison, C. V. Effects of kaolin on the lungs, 3935*i*.
———, Wootton, I. D. P., Donaldson, R., Sisson, R. B., and Macfarlane, R. G. Detn. of hemoglobin (VI) test of the M.R.C. grey-wedge photometer, 5441*a*.
**King, E. L.** Thermodynamic data on the Cd chloride complexes detd. from the soly. of Cd ferricyanide, 3277*a*.
**King, F. E.** See Childs, A. F., Grundon, M. F.; Kidd, D. A.
———, Acheson, R. M., and Spensley, P. C. Benzimidazole analogs of paludrine, 1104*h*.
———, Acheson, R. M., and Yorke-Long, A. B. 7-Aminoalloxazines and -isoalloxazines, 3007*h*.
——— and Felton, D. G. I. 1,3-Cyclohexadione—reagent for the characterization of aldehydes, 1336*c*; organoselenium compds., 7478*i*.
———, Henshall, T., and Whitehead, R. L. St.D. Synthetical and stereochem. investigations of reduced cyclic bases (II) *cis*- and *trans*-decahydroquinolines, 1414*f*.
———, Waley, S. G., and Robinson, R. Pseudoxazolones, P 1809*f*.
**King, George.** H. W. Rowell, 3669*g*; tech. sales manager views advertising, 5131*g*.
**King, Gordon,** and Medley, J. A. D.-c. conduction in swollen polar polymers (I) electrolysis of the keratin-water system, (II) influence of temp. and adsorbed salts on the d.-c. cond. of polar polymer-adsorbate systems, 3689*a*.
**King, G. B.** See Henry, J. L.
——— and Caldwell, W. E. Fundamentals of College Chemistry (book), 2502*b*.
**King, G. E.** Oil separator for waste-water disposal, 7221*c*.
**King, G. S.** Direct and transmitted x-ray effects on growth of tobacco callus, 5095*a*, see Lambou, M. G.
**King, G. W.** See Grady, H. R.; McMahon, H. O.
———, Hainer, R. M., and McMahon, H. O. Infrared absorption spectra of some polymers at liquid-He temps., 6081*f*.
**King, H.** Curare alkaloids (VIII) examn. of *Chondrodendron tomentosum* and *Anomospermum grandifolium*, 2626*b*.
——— and Wright, J. 2-Amino-1,3,4-indotriazine—reaction between isatin and

aminoguanidine, 3428*c*; antiplasmodial action and chem. constitution (IX) carbigolamines derived from 6,7-dimethylquinoline, 4674*f*.
**King, H. D.** See Lewis, M. R.
**King, H. H.** See Mitchell, H. L.; Schrenk, W. G.; Smith, F. M.
**King, H. I.** See Chaudhury, D. N.
———, Holland, R. H., Reed, F. P., and Robertson, A. Analogs of rotenone and related compds. (II) coumarono[2′,3′,3,4]-coumarins, 1771*f*.
**King, H. J. S.** Ammines (X) triammines of bivalent Pt, 2537*i*.
**King, H. L.** See Sherman, F., III.
———, Hutson, R., and Farr, T. H. Control of red-banded leaf roller with parathion, 2729*g*.
**King, J. A.** Amides, P 3027*i*, 3028*b*; oxazolines, P 9388*i*; see McMillan, F. H.; Pidgeon, L. M.
**King, J. C.** Feed-water-treating plant, P 6345*e*.
**King, J. G.** Gas Research Board report, 7665*h*, British gas industry, 8118*h*.
———, Cawley, C. M., and Richards, S. H. H, P 9398*f*
**King, J. H.**, Wolf, J. S., and Calvert, R. R. Motion sickness chewing gum, P 3982*b*.
**King, J. R.** See Griffiths, J. T., Jr.
**King, J. T.** See Casas, C. B.
———, Casas, C. B., and Visscher, M. B. Influence of estrogen on cancer incidence and adrenal changes in ovariectomized mice on calorie restriction, 7573*g*
**King, J. V.**, Campbell, J. J. R., and Eagles, B. A. Mineral requirements for fluorescin production, 5078*g*
**King, J. W.** See Dreyer, N. B.
**King, K. C.**, and Wallace, W. J. L. 1947-1948 college chemistry testing program, 6875*h*.
**King, L. C.** See Pearson, R. G.
———, and Dodson, R. M. 2-Aminothiazoles, P 7512*i*
———, and Miller, F. M. Reaction of diazo ketones with heterocyclic amine salts, 1775*h*; reaction of diazo ketones with thio amide derivs., 2902*e*
**King, L. D. P.**, and Goldstein, L. Total cross section of the $He^3$ nucleus for slow neutrons, 5293*h*.
**King, L. F.** See Sproule, I. W.
**King, N.** Microscopical examn. of milk products, 1874*a*.
**King, N. J.** Irrigation waters of the Bundaburg area, 9317*d*
**King, P.** Transparent and nonreflective film for glass surfaces, P 2394*a*
**King, R.** See Chalmers, B.
**King, R. B.** Relative transition probabilities of the Swan bands of C, 2510*e*.
**King, R. E.** Orifice meters, 2823*c*
**King, R. O.** Oxidation, ignition, and detonation of fuel vapors and gases (VII) oxidation of pentane in varying concn. in air at temps. rising to 700° and the effect of Fe carbonyl on reaction velocity, 2412*a*.
———, Wallace, W. A., and Durand, E. J. Oxidation, ignition, and detonation of fuel vapors and gases (VIII) antiknock property of rich mixts., 7674*d*
———, Wallace, W. A., and Mahapatra, B. Oxidation, ignition, and detonation of fuel vapors and gases (VI) prevention of preignition and detonation in gas engines, 2411*e*
**King, R. R.**, and Wharton, F. W. Oxidation effects in adsorption bleaching of vegetable oils, 5207*i*, vacuum bleaching of vegetable oils, 9489*a*.
———, *et al.* Report of the uniform methods committee, 5975*b*.
**King, T.** See Cuer, P.
**King, T. E.**, and Cheldelin, V. H. Pantothenic acid studies (IV) propionic acid and β-alanine utilization, 3497*e*.
———, Fels, I. G., and Cheldelin, V. H. Pantothenic acid studies (VI) biologically active conjugate of pantothenic acid, 3497*h*.
———, Stearman, R. L., and Cheldelin, V. H. Pantothenic acid studies (V) reversal of 2-chloro-4-aminobenzoic acid inhibition in *Escherichia coli* by pantothenic acid, 3497*f*.
**King, T. J.** See Clemo, G. R.
**King, T. O., and Koppanyi, T.** Antiadrenolytic action of ergotamine, 8553*f*.
**King, V. L.** Rocket propulsion by treating alkyl-substituted mononuclear aromatic amines and nitric acid, P 6811*c*.
———, Bann, R. F., Conn, R. C., Lester, R. E., Stanley, J. E., and Tarvin, D. Relation of stream characteristics to disposal of chem. manufg. effluents, 8587*a*.
**King, W.** See Ewing, D. T.
**King, W. E.**, and Downie, E. Hemachromatosis—incidence and value of liver biopsy in diagnosis, 751*h*.
**King, W. Holmes.** See Smith, H. A.
**King, William B.**, and Schumacher, J. L. Lander phosphate rock deposits, Fremont County, Wyoming, 4609*c*.
———, Soulé, J. H., and Trengove, R. R. Virgin River Mn deposit, Clark Co., Nev., 6125*f*.
**King, W. J.** See Deschamps, I.
——— and Nord, F. F. Prepn. of thiophene-2-aldehyde and some substituted thiophene aldehydes, 9061*h*; thiophene series (III) condensation of thiophenecarboxaldehyde, 9063*g*; (V) Wolf-Kishner reductions, 9064*b*.
**King, W. V.** Insecticides, 9349*a*.
——— and Gahan, J. B. Failure of DDT to control houseflies, 7629*d*.
**Kingan, R.**, and Sadd, J. A. Antidimming material, P 790*a*, 1883*h*.
**Kingdon, K. H.** Distribution in mass and charge of fission products, 8868*f*.
**Kingery, W. D.**, and Hume, D. N. Bi thiocyanate complexes, 8939*f*
**Kingkade, M. J.** See Behrens, O. K.
**Kingsbury, R. M.**, Simmonds, F. A., and Lewis, E. S. Bleaching groundwood pulps, 6410*f*.
**Kingsley, G. R.**, and Reinhold, J. G. Detn. of true glucose in blood, 7072*a*.
**Kingston, J. G.** See Mason, S. H.
**Kinnear, G. U.** See Anderson, D. A.
**Kinnear, R. A.** See Morgan, L. B.
**Kinney, C. R.** See Gauger, A. W., Herbert, S. A.
——— and Splicthoff, W. L. Reactions of polyhaloparaffins with Grignard reagents—1,1,1 trichloropentane, 2925*f*, system correlating mol. structure of org. compds. with their b. ps. (VII) b. ps. for certain paraffins and olefins, 9023*b*.
**Kinney, D. M.** See Weissenborn, A. E.
**Kinney, R. E.**, and Gorin, E. C. black, P 2408*i*.
**Kinney, T. D.** See Hegsted, D. M.
———, Hegsted, D. M., and Finch, C. A. Influence of diet on Fe absorption (I) pathology of Fe excess, 8478*i*.
**Kinnunen, O.** Effect of the sulfonamides and methylthiouracil on blood I and blood cholesterol values, 3527*g*, effect of sulfa preps. and methyl thiouracil on urinary output of vitamin C, 6738*f*
**Kinoshita, Shosaku.** See Kawakami, Y.
**Kinoshita, Sukeo.** See Kimijima, Takeo.
**Kinsel, A.** Detn. of consistency of petrolatum and waxes, 2762*d*.
——— and Phillips, J. Bleeding tendency of petroleum, 842*c*, measurement of light stability of petrolatums and similar products, 3184*c*, measurement of luster of petrolatums and waxes, 7219*h*.
——— and Schindler, H. Adhesion test for microcryst. wax, 3616*c*.
**Kinsell, L. W.**, Michaels, G. D., Barton, H. C., and Weiss, H. A. Protein-balance studies in patients with liver damage (II) lipotropic agents, 1102*g*.
———, Michaels, G. D., Weiss, H. A., and Barton, H. C. Hepatic glycogen storage (I) adrenaline-induced hyperglycemia as an index of liver function, 6727*b*.
**Kinsey, B. B.** Emission of *L* radiation following internal conversion of γ-radiation in heavy elements, 3285*i*, emission of *L* radiation in the disintegration of Th C and Ra D, 3286*b*; 40-e.-kv. transition of Th C″, 4091*h*.
**Kinsey, E. L.** See Benton, A.
**Kinsey, V. E.** Aq. humor/plasma chloride ratios, 2665*a*.
**Kint, J.** See Nolf, P.
**Kinzel, A. B.** Treating agent, P 3768*i*.
——— and Burgess, C. O. Alloy addn. agent, P 9020*h*
**Kip, A. F.** See Arnold, R. D.
——— and Arnold, R. D. Ferromagnetic resonance absorption in a single Fe crystal, 4066*h*.
———, Bousquet, A. G., Evans, R. D., and Tuttle, W. Improved counting rate meter, 2044*a*.
**Kiperman, S. L.** See Balandin, A. A.
**Kipling, J. J.** Adsorption of AcOH and butylamine from aq. solns. by activated charcoals, 2485*d*, behavior of charcoal columns in the adsorption and desorption of AcOH in aq. soln., 3686*i*
**Kiplinger, D. C.**, and Fuller, G. Se studies with some flowering greenhouse plants, 2357*f*.
**Kipnis, F.** See Allcock, H. W.; Jordan, T. E.
———, Levy, I., and Ornfelt, J. Syntheses from acetylheterocycles, 1764*g*; mercaptans from aldehydes, 7014*g*; 5-(mercaptomethyl)furoic acid, 7014*h*.
——— and Ornfelt, J. Furan-2-glyoxal, 1393*c*; α-keto sulfides, 1398*c*; D-glucose thiophene-2-methyl mercaptal, 6986*c*; 2-acetylfuran diethyl mercaptole, 7015*b*; thiophene-2-methylisothiouronium chloride and 2-(thiophene-2′-methylthio)-4-methyl-6-oxypyrimidine, 7030*g*.
———, Soloway, H., and Ornfelt, J. Kojic acid derivs., 1775*a*; 2-(acyloxyacetyl)thiophenes, 2614*h*.
**Kipp, R.** Slime control—regular cleaning prevents slime troubles, 8080*c*.
**Kipphan, K.** Lignins from the saccharification of wood as raw material for synthetic resins, 5630*a*.
**Kiprianov, A. I.**, and Dashevskaya, B. I. Cyanine dyes from isomeric 2-methylhydroxybenzthiazoles, 9453*d*.
**Kipriianow, A. I.** See Kiprianov, A. I.
**Király, I. K.** Manna, 9381*g*.
**Kirano, K.** Theobromine and confectionary raw material from cacao, P 6759*c*.
**Kirby, A. H. M.** Combined action of 2-acetylamidofluorene and sex hormones in the rat, 305*g*; carcinogenesis with azo compds. (III) action of (*a*) four azo compds. in rats fed restricted diets, and (*b*) *N*,*N*-diethyl-*p*-aminoazobenzene in mice, 5109*e*.
**Kirby, C. K.** See Looby, J. P.; Moss, N. H.
**Kirby, D. T.**, and Chain, J. T. Synthetic polymers for noncrocking suede leathers, P 9512*b*.
**Kirby, H.** See Ackermann, W. W.; Blumel, J., Thompson, R. C.
**Kirby, J. E.**, and Sharkey, W. H. Trichloromethyl-substituted thiols—polymerization modifiers, P 8195*e*.
**Kirby, K. S.** Quinamine (III) isoquinamine, 7489*h*; see Goodson, J. A.; Wellcome Foundation Ltd.
**Kirby-Smith, J. S.**, and Jones, E. A. Polytrifluorochloroethylene in infrared and Raman spectroscopy, 8882*f*.
**Kirch, E. R.** See Bergeim, O.
**Kirchmair, H.** Cerebrospinal fluid (I) cerebrospinal fluid blood-sugar relation in normal children and children with tuberculous meningitis, 8041*i*
**Kirchmeyer, F. J.**, and Card, I. R. Streptomycin solns., P 6372*d*.
**Kirchner, F.** See Maier-Leibnitz, H.
**Kirillov, I. P.**, and Sirotkin, G. D. Catalyst for water gas, P 3599*a*.
**Kirillov, V. G.** See Kizber, I. S.
**Kirillova, A. S.** See Korshunov, I. A.
**Kirjalov, N. P.** See Kir'yalov, N. P.
**Kirk, E.** Acid phosphatase concn. of prostatic fluid, 2301*e*, quant. detns. of the skin lipide secretion, 8513*i*; urinary excretion of neutral 17-ketosteroids, 8514*b*; see Chieffi, M., Kountz, W. B.; Kvorning, S. A.
——— and Chieffi, M. Vitamin studies in middle-aged and old individuals (III) thiamine and pyruvic acid blood concns., 8023*f*.
**Kirk, J. S.** Sulfonated polymeric carboxyl-contg. materials for modification of leather, P 1592*h*; compn. of half-ester of styrene-maleic anhydride copolymer and a solvent, P 1711*a*; quinone-resorcinol polymers as tanning agents, P 6452*d*.
**Kirk, P. L.** See Stern, Herbert.
**Kirk, R. C.**, and Fry, A. B. Mg dry cells, 1271*f*.
**Kirk, R. E.**, and Othmer, D. F. Encyclopedia of Chem. Technology. Vol. III. Carbon to Cinchophen (book), 4791*b*.
**Kirk, W., Jr.** See Du Pont de Nemours, E. I., & Co.
——— and Schreiber, R. S. 4,4′-Bis(amino-*tert*-butyl)-substituted aromatic hydrocarbons, P 4296*f*; synthetic linear polycarboxamides, P 7263*d*.
**Kirkbride, C. G.** See Burtis, T. A.; Dart, J. C.
——— and Hopkins, M. C. Desalting crude oils, P 1955*a*.
**Kirkham, D.**, and Feng, C. L. Diffusion theory and laws of capillary flow in soils, 3955*e*.
**Kirkham, E. C.** Identifying alloy steels, 8905*e*.
**Kirkpatrick, A. F.**, and Davis, E. G. Electron microscope goniometry, 3260*c*.

**Kirkpatrick, G. P.** Checking the linearity of an electron-multiplier circuit, 3282*c*; see Byler, W. H.
**Kirkpatrick, H. B.** Zn chromate primers, 8697*d*.
**Kirkpatrick, W. H.** Treatment of crude-oil emulsions, 2758*e*.
——— and Wilson, D. L. Resolving petroleum emulsions, P 1557*b*.
**Kirkpatrick, W. J.** Catalysts from Alloys of Ni and Noncatalytic Metals (book), 932*e*.
**Kirkwood, D. H. W.** See Hanna, G. C.; Pontecorvo, B.
**Kirkwood, J. G.** Influence of hindered mol. rotation on the dielec. polarization of polar liquids, 8769*a*; see Cann, J. R.; Riseman, J.
——— and Buff, F. P. Theory of surface tension, 5256*d*.
**Kirmalova, M. L.** See Topchiev, K. S.
**Kirner, W. R.** Chem biol. coordination, 5551*g*.
**Kirrmann, A.**, and Pourrat, H. Hydrolysis of allyl halides, 8249*d*.
——— and Yvernault, T. Electrochemistry of org. solvents (I) measurements of the potential of the H electrode, 8907*h*.
**Kirsanov, N. V.** Upper-pliocene montmorillonite clays of Sakami, 977*b*
**Kirsanova, V. A.**, and Martynova, R. P. Influence of injections of 20-methylcholanthrene on the mutability of *Drosophila melanogaster*, 9271*f*.
**Kirsch, M.** See Yaffe, L.
**Kirschbaum, A.** See Frantz, M. J., Molander, D. W.
**Kirschbaum, E.** Types of tower packing and their evaluation, 2*d*; heat transfer in evapn. with graphite and porcelain tubes, 448*i*; action of rectifying plates, 2043*h*, performance, pressure drop, and liquid hold-up of rectifying plates, 4902*i*, evaporative drying processes (I) theoretical principles, 4905*h*; liquid and vapor compn. in rectifying columns with different molal heats of vaporization of the individual components, 8839*f*
——— and Lise, J. Evaporative drying processes (II) verification of the validity of the theoretical developments, 4905*i*
**Kirschman, H. D.**, and Pomeroy, R. Detn of oil in oil-field waste waters, 7671*h*
**Kirschner, L. B.**, Prosser, C. L., and Quastler, H. Increased metobolic rate in rats after x-irradiation, 9203*a*.
**Kirsebom, G. N.** Recovering Al, P 2920*d*
**Kirshenbaum, A. D.** See Grosse, A. V.
**Kirshnan, P. S.**, and Nelson, W. L. Isolation of adenosine triphosphate from skeletal muscle, 6252*d*.
**Kirshner, H. A.** See Sobel, A. E.
**Kirsner, J. B.** See Dack, G. M.; Levin, E.; Ricketts, W. E.; Sheffner, A. L.
———, Levin, E., and Palmer, W. L. Failure of an ext. of pregnant mares' urine to influence gastric secretion, 749*f*, effect of dialyzed enterogastrone on 12-hr. nocturnal gastric secretion, 5497*e*.
**Kirssanoff, Kirssanow.** See Kirsanov, N. V.
**Kirst, E.** Disinfection of refrigerator chamber with a sporicide, 6747*e*.
**Kirst, W.** Dyeing with pigments, 411*b*, chemically changed wool, 5955*d*.
**Kirsten, W.** Titration of Cl and Br with mercuric ions in the detn. of halogen, 6539*g*; detn. of O, 6540*b*
**Kir'yalov, N. P.** Components of the essential oil of *Ledum palustre*, 1155*e*.
**Kir'yalova, E. N.** Yeasts of cranberry juice, 3536*f*.
**Kirzner, N. A.** See Grachev, I. V.
**Kisbère, I. S.** See Kizber, I. S.
**Kisch, B.** Intracranial procaine anesthesia, 771*g*; metabolic effects of oxidized suprarenin, 3914*g*.
**Kisch, G.** Cu in org. chemistry, 2923*f*, see Eliassen, R.
**Kisch, G. K.** See Niederl, J. B.
**Kischitz, A. D.**, Gochenour, C. I., and Brailsford, R. E. Fluorinated cyclic hydrocarbons, P 678*g*.
**Kiselev, A. V.** Effect of vol. layering on the shape of the adsorption isotherm of surface-active substances from the gas phase and from liquid solns., 462*c*, basic structural types of adsorbents and their effect on adsorptive properties, 6033*i*; see Boreskov, G. K.; Krasil'nikov, K. G.
———, Kiselev, V. F., Mikos, N. N., Muttik, G. G., Runov, A. D., and Shcherbakova, K. D. Adiabatic calorimeter, 6871*d*.
——— and Mikos, N. N. Detn. of the surface area of adsorbed films on porous adsorbents, 460*h*.
**Kiselev, V. F.** See Kiselev, A. V.
**Kiselev, V. S.** See Tomashov, N. D.
——— and Lubman, A. M. Alkyd resins from xylitol (I) esterification of xylitol by phthalic anhydride, (II) esterification of xylitol by aliphatic and rosin acids, 6859*g*.
**Kiselev, Y. V.** See Konovalova, R. A.
——— and Konovalova, R. A. Alkaloids of Papaveraceae (X) structure of isothebaine, 6207*h*.
**Kiseleva, E.** See Deryagin, B. V.
**Kiseleva, V. L.** See Kuz'min, L. L.
**Kiseleva, V. V.** See Rodionov, V. M.
**Kiselevskii, V. I.** See Bezuglyĭ, D. V.
**Kisfaludy, S.** See Gomori, P.
**Kishi, Y.** Protein and chitin from silkworm pupae, P 8417*h*
**Kishimoto, A.** See Ueno, Seiichi.
**Kisieleski, W.** See Norris, W. P.
**Kisin, E. E.** Pharmacol study of the sweating function of the skin, 2323*a*.
**Kislova, F. F.** See Malinovskiĭ, M. S.
**Kispersky, J. P.**, Hass, H. B., and Holcomb, D. E. 1,5-Dinitropropane, 3352*d*.
**Kiss, A.**, and Csetneky, É. Influence of ionization on the absorption curves of benzene derivs., 7340*d*.
———, Fodor, G., and Lózsa, A. Interaction of several chromophores in the same mol., 8855*h*
———, Molnar, J., and Sandorfy, C. Absorption spectra of phenolic derivs., 2512*g*, 5665*i*.
**Kiss, E.** See Szabó, Z.
**Kiss, I.** See Bodnár, J.
**Kiss, J.** See Bruckner, V., Fodor, G.
**Kisselew.** See Kiselev.
**Kissin, M.** See Litwins, J.
**Kissling, R. E.** See Emmart, E. W.
**Kistemaker, J.** Liquid He, 2058*h*; mass spectrometer, 5234*i*
**Kister, A. T.** See Redlich, O.
**Kistiakowsky, G. B.** See Ambrose, J. F., Katz, S.
——— and Lumry, R. Anomalous temp. effects in the hydrolysis of urea by urease, 7066*g*
**Kitagawa, K.** See Iguchi, K., Shimozaki, Y.
**Kitahara, S.** Detn. of metallic Fe contained in bloom and sponge Fe, 6106*i*
**Kitaĭgorodskiĭ, A. I.** Topological analysis of mol. crystals, 920*e*, crystallochemistry of aromatic compds. (VI) space groups of crystals of org. compds., 929*a*, crystal structure of the naphthylamines, 2061*i*, crystal structure of the naphthols, 2065*d*, packing of mols. in crystals of org. compds., 7773*c*, crystal structure of "globular" proteins, 7990*e*
**Kitaĭgorodskiĭ, I. I.** Ceramic bodies, P 9408*e*, glass-making batch, P 9407*d*.
———, Korolev, S. I., and Koroleva, T. D. App. for drawing sheet glass, P 9407*e*
——— and Kurovskaya, S. M. Alkali-free and weakly alk. tech. glasses, 6380*e*
———, Sentyurin, G. G., and Rishina, V. A. Glass forming in a sulfate charge, 5913*h*, reduction of Na sulfate in glass manuf., 7203*e*, combination reducing mixts. for sulfate charges, 9400*e*
———, Solomin, N. V., Polnikovskaya, A. I., and Volchanov, S. F. Corundum glass—highly refractory material, 6383*f*
**Kitajgorodskij.** See Kitaĭgorodskiĭ.
**Kitamura, N.** See Ishihara, I.
**Kitaura, S.** Condensation reactions of quinolines, 8386*f*; see Ito, R.
**Kitawaki, I.**, Shoji, N., Yamamura, Y., and Fujisaki, T. Synthesis of $C_4H_8$ and toluene from $C_2H_2$ (II) medium-scale industrial production (1) introduction, (2) with the tube 150–240 mm in diam., (3) with the tube 660 mm in diam., 5376*a*.
**Kitay, E.** See Snell, E. E.
———, McNutt, W. S., and Snell, E. E. Nonspecificity of thymidine as a growth factor for lactic acid bacteria, 4334*d*.
**Kitchen, H. B.** Diagnostic Techniques for Soils and Crops (book), 6774*f*.
**Kitchen, L. J.** Terpene phenols and phenol ethers, 1354*h*; alkylated phenol, P 6663*a*.
**Kitchen, R. M.** See Benson, G.
**Kitchener, J. A.** See Bockris, J. O'M.; Kressman, T. R. E.
——— and Alexander, P. Limitations of the "internal" pH concept, 6820*e*.
——— and Bockris, J. O'M. Physicochem. measurements between 1000° and 2000°, 4901*b*.
———, Bockris, J. O'M., and Liberman, A. Activity of S in liquid Fe—influence of C, 4930*f*.
**Kitchin, D. W.** See Blake, J. T.
——— and Dyke, F. R. Cable joint, P 4045*i*.
**Kitchin, R. L.** See Whewell, C. S.
**Kitice, T.** Malleabilization of cast iron, 8997*f*.
**Kitskii, B. P.** Specifications for automotive gasolines, 4838*h*.
**Kitson, R. E.**, and Mitchell, J., Jr. Differential thermometer, 4055*d*.
———, Oemler, A. N., and Mitchell, J., Jr. Menzies-Wright ebulliometer for mol. wt. detns., 4055*e*.
**Kittel, C.** Thermal cond. of glasses, 4070*g*, ultrasonics research and the properties of matter, 4529*e*; see Holden, A. N.; Newton, R. R.
**Kittel, H.** Org. chemistry of Si, 561*g*
**Kittelberger, W. W.** Diffusion of electrolytes through org. membranes (I) equation for caleg. diffusion rates, (II) verification of calcd rates, 6189*i*
——— and Elm, A. C. Effect of various aq. solns. on the reactions at pure Fe anodes and cathodes, 4620*h*.
**Kittleson, A. R.** See Mikeska, L. A.
**Kittrell, F. W.**, and Quinn, J. J. Multipurpose reservoirs aid downstream water supply, 7165*h*
——— and Thomas, F. W. Effect of river system development on water quality in the Tennessee Valley, 8570*i*.
**Kitzberger, D. M.** See Thoma, G. E.
**Kitzmiller, K. V.** See Treon, J. F.
**Kivenko, S.** Formula for normalization of milk, 7599*d*
**Kivenson, G.**, Osmar, J. J., and Jones, E. W. Ultraviolet analyzer, 8884*i*
———, Roth, A., and Rider, M. Construction of spectrographic absorption cells, 6006*i*
———, Steinback, R. T., and Rider, M. Infrared chopped-radiation analyzer, 1616*b*
**Kivimaa, E.** See Murto, J. O.
**Kivin, D. I.** See Kukolev, G. V.
**KixMiller, R. W.** Com chem development 5131*f*
**Kiyomiya, M.** See Inouye, K.
**Kiyota, R.** Agar-agar and paste from sea weeds, P 7161*f*
**Kizber, I. S.** Degradation of fats, P 3219*d*
———, Kurilov, V. G., and Zueva, L. D. Adhesive, P 9535*h*
——— and Zueva, L. D. Adhesive, P 9535*h*.
**Kjaer, A.** 2-Quinoxalinecarboxaldehyde and some derivs., 3125*b*
**Kjaer, B.** See Tovborg-Jensen, S.
**Kjems, H.**, and Wagner, H. Assay of heparin, 2399*f*
**Kjerulf-Jensen, K.** Effect of NaI compared with that of dudotyrosine on the thyroid gland, 2324*h*, lack of antithyroid effect of paraxanthine, 3102*a*.
**K. K. Chigasaki Seisakujo.** Same as Chigasaki Manufg. Co.
**K. K. Edogawa Kogyosho.** Same as Edogawa Industrial Institute, Inc.
**K. K. Hidachi Seisakujo.** Same as Hidachi Manufg. Co.
**K. K. Kobe Seikojo.** Same as Kobo Steel Co.
**K. K. Koitoseisakujo.** Same as Koito Manufg. Co.
**K. K. Morimoto Shoten.** Same as Morimoto Store Co.
**K. K. Nippon Denkai Seitetsujo.** Same as Nippon Electrolytic Iron Mills.
**K. K. Nippon Seikojo.** Same as Nippon Steel Co.
**K. K. Osaka Eiyokenkyujo.** Same as Osaka Institute of Nutrition Science.
**K. K. Sendai Seisakujo.** Same as Sendai Manufg. Co.
**Klaar, L. E.** See Domingo, W. R.
**Klaarenbeek, F. W.** Chem. properties of glass, 2745*h*, 5913*d*.
**Klaassen, W. J.** Colloid mill, P 6011*h*.
**Klärding, J.** Physicochem. equil. investigations for ore reduction, 8323*d*.
**Klärner, C.** See Eger, W.
**Klager, K.** See Reppe, W.
**Klages, F.**, Mergenthaler, E., and Haury, H. Osmotic behavior of chain mols. (V) synthesis and cryoscopy of addnl. compds. with a beaded-chain-mol. structure, 5385*i*
——— and Möhler, K. Osmotic behavior of chain mols. (VI) detn. of the lowering of the vapor pressure of polydepsides, 5386*i*.
**Klages, K. H.** See Erickson, L. C.
**Klahm, G. R.** See Snyder, F. H.
**Klain, P.**, and MacPhail, R. B. Gas-shielded C arc welding of Mg, P 6565*f*.
**Klarer, W.** See Miescher, K.
**Klark.** See Clark.
**Klarmann, E. G.** Disinfection and anti

sepsis (I), (II), 5540*c*; sunburn and suntan, 8618*g*.

——, and Wright, E. S. Testing quaternary ammonium disinfectants, 358*i*; bacteriol. evaluation of 'cationics,' 9387*e*.

**Klassen, C. W.**, and Hasfurther, W. A. Treatment of waste from small packing houses, 3548*a*

—— and Troemper, A. P. Wastes from a whiskey distillery, 4797*d*.

**Klassen, V. I.** Effect of gases on the flotation of minerals, 3*g*, attainments of Soviet science in the theory of flotation, 2140*h*; effect of gas adsorption on the flotability of minerals, 3325*c*.

**Klassen-Neklyudova, M. V.**, Chernysheva, M. A., and Shternberg, A. A. Structure of Seignette salt, 4916*d*.

**Klatchko.** See Klyachko.

**Klauditz, W.** Cellulose content and chem. compn. of red beechwood, 3195*h*

**Klaukens, H.**, and Wolfhard, H. G. Measurements in the reaction zone of a Bunsen flame, 3253*i*.

**Klaz, N. E.** See Zarubin, N. M.

**Klesndr, A.** Electrodes for arc welding, 4208*a*

**Kleber, W.** Tabellen zum Bestimmen von Mineralien nach äusseren Kennzeichen (book), 1604*a*, crystal reactions and petrogenesis, 2551*i*; cuprite, 3747*g*, formation of skeletal crystals—diffusion aureole, 4070*i*; chemistry of meteorites and hypotheses as to the structure of the interior of the earth, 4986*f*, measurement of the elasticity of crystals, 5251*g*, structure of crystals, 6030*b*.

**Klecka, M. E.** See Griswold, J.

**Kleckner, A. L.** See Craige, A. H., Jr

**Kleczkowski, A.** Complex formation in heated protein mixts., 9106*a*

**Klee, L.**, Sair, L., and Hall, L. A. Detn of the cold-water-absorptive capacity of pregelatinized flours, 325*b*

**Kleeck, A. van.** See Van Kleeck, A.

**Kleeman, A. K.** See Morris, M. M

**Kleene, R. D.** *p*-Cyclopentylacetophenone and *p*-cyclopentylbenzoic acid, 5752*b*, dmitration of *p*-bromotoluene, 6992*d*.

**Kleibacker, W. M.** See Skinner, G. S.

**Kleiber, C. E.** See Nicholson, E. W.

**Kleiber, M.**, Smith, A. H., and Ralston, N. P. Secretion in cow milk of intravenously injected radioactive $P^{32}$, 1487*g*.

**Kleibs, G. A.** See Chovnyk, N. G.

**Kleiderer, E. C.** Pharmaceutical industry of Germany, 4809*g*, see Behrens, O. K., Salt, P. P. T.

—— and Kornfeld, E. C. Raney Ni as an org. oxidation reduction catalyst, 191*d*.

**Kleimack, J. J.** See Christensen, H.

**Kleiman, G.** See Bartels, C. R.

**Kleimenova, L. S.** See Ginsburg, A. N.

**Klein, A.** Cotton bleaching, 4018*e*, see Ehod, E.

**Klein, A. J.** See Kögl, F.

**Klein, A. K.** Hg, 7151*i*; Cd, 7862*f*.

**Klein, A. W.** See Winter Klein, A.

**Klein, B.** See Hoak, R. D.

**Klein, B. I.**, and Shur Shul'ts, V. N. Influence of bacteriophage on enzyme systems of bacterial cells, 1831*d*.

**Klein, Daniel**, and Gordon, S. M. Detn of *d*-tubocurarine chloride, 9374*d*.

**Klein, David.** See Lind, D. A.

**Klein, D. X.** Water-in-oil emulsions, P 9494*h*

**Klein, E.** See Fabinyi, M.

**Klein, George.** Antagonistic action of methylthiouracil on the inhibitory effect of thyroxine on serum lipase, 3527*f*.

**Klein, Germain.** Metal alloys, P 4026*c*

**Klein, H.** Dental effects of accidentally fluorinated water (I) dental caries in deciduous and permanent teeth of school age children, 9219*i*; (II) caries reduction among the different types of permanent teeth, 9220*b*.

**Klein, H. A.** See Klemm, W.

**Klein, J.** See Ramart-Lucas, P.

**Klein, J. R.** See Silver, M. L.

**Klein, L.** Detn. of N in sewage sludges, 9308*a*.

**Klein, L. C.** $Cu_2O$, P 7202*d*.

**Klein, Marc.** See Mayer, G.

—— and Mayer, G. Hormonal factors influencing estrus—action of estrogenic, progestative, androgenic, and hyperemic substances, 1098*e*.

**Klein, Morton.** See Pérez, J. E.

—— and Pérez, J. E. Reversal *in vivo* by BAL of inactivation of influenza A virus and *Diplococcus pneumoniae* by $HgCl_2$, 1113*d*.

**Klein, M. W.** See Smakula, A.

**Klein, R.** See Roche Products Ltd.

**Klein, S.** Periodic rhythmic formation of calcite crusts on the lower side of pebbles, 4610*e*

**Klein, Sandor.** See Levine, Rachmiel.

**Klein, W.** Diagnostic value of the blood albumin level, 9237*i*

**Klein, Ya. N.** See Illiminskaya, Y. I.

**Kleinberg, A. T.** Wear of heat-resistant chromomagnesite in the arches of elec. smelters, 6383*g*

**Kleinberg, J.** See Davidson, A. W.; Schechter, W. H.; Stephanou, S. E.; Zingaro, R. A

**Kleiner, I. S.** See Black, M. M.

**Kleinert, R.** Recovery of In from Rammelsberg ore, 4193*c*.

—— and Dreyer, H. Prepn. of pure In from crude In, 1695*i*.

**Kleinert, T.** Adsorption process on lignin substances (III) adsorption of $H_2SO_3$, (IV) adsorption of aldehydes, 5254*h*.

—— and Mössmer, V. Evaluation of pulp for viscose production, 2770*a*

—— and Pospischil, F. Pb corrosion in spinning-bath evaporators, 6824*a*.

—— and Racz, O. Detn. of the Cu viscosity of celluloses, 6824*d*; detn. of $H_2S$ in tech $CS_2$, 6944*c*.

—— and Wincor, W. Detn of Mn in cellulose 6824*e*.

**Kleinguenther, H. G.** See Allen, H. L.

**Kleinheisterkamp, H.** Equil. in the formation of metallurgical speisses, 1696*c*.

**Kleinholz, L. H.**, and Little, B. C. Regulation of blood-sugar concn. in crustaceans (I) normal values and hyperglycemia in *Libinia emarginata*, 8590*e*

**Kleinholz, M. P.** Purification of turpentine, P 1996*i*, $\alpha,\alpha'$-thiodialiphatic acids, P 3840*d*

**Kleinicke, W. E.** Compn. for treating coal, etc., P 838*i*.

**Kleinsorg, H.**, and Loeser, A. Thyroid and renal hypertrophy after unilateral nephrectomy, 7129*f*

**Kleinzeller, A.**, and Bass, A. Metabolism of butyric acid in a soil microorganism, 1833*a*

**Kleijbs, G. A.** See Kleibs, G. A

**Klem, G. G.**, Løschbrandt, F., and Bade, O. Spruce wood in connection with mech. and sulfite pulp cooking expts., 3612*c*

**Klema, F.** Manuf of metallurgical alumina (I), (II), 6371*i*, natural and synthetic rubber, 6855*b*

**Klemenc, A.** Behandlung und Reindarstellung von Gasen (book), 2856*d*.

—— and Heinrich, G. Distribution of A in the earth's atm., 2827*c*

**Klement, F. D.** Nature of infrared extinction in phosphors, 5669*c*; see Popok, S. A.

**Klement, R.** Chemische Übungen für Mediziner (book), 2262*c*, detn of small quantities of Ca, 3310*h*, thioorthophosphoric acids and their salts, 4170*c*.

—— and Becht, K. H. Prepn. and properties of amidophosphoric acid, 2110*d*.

—— and Erler, K. Silicophosphate and the dicalcium orthosilicates, 4073*f*

—— and Koddermann-Gros, E. Oxidation products of cuprous acetylide, 2112*h*.

**Klemm, A.** Infinitely long sepn. tube with end-vols., 6508*a*.

——, Hintenberger, H., and Seelmann-Eggebert, W. Isotopic displacement in Cd by ionic migration in molten $CdCl_2$, 2862*f*

**Klemm, H.** Surface roughness measurement, 95*e*; structure of meteorite Fe, 9005*g*.

**Klemm, L.** See Klemm, W.

**Klemm, W.** As, Sb, and Bi compds., 2105*g*; see Mayr, G.

——, Beyersdorfer, K., and Oryschkewitsch, J. Binary systems of halides (II) behavior of NaCl, KCl, RbCl, NaI, and KI toward the corresponding Mg halides, 2107*b*.

—— and Dinkelacker, F. Compds. of Mg with Ca, Sr, and Ba, 4594*h*.

—— and Ehrlich, P. Metal halides and chalcogenides, 3739*g*.

——, Geiersberger, K., Schaefer, B., and Mindt, H. Univalent Al compds. (II) lower chalkogenides of Al, 3739*i*.

—— and Hartlapp, G. Magnetic susceptibilities of $La_2O_3$ and $CeO_2$, 2053*d*.

—— and Huss, E. Fluoro complexes (I) Fe, Co, Ni, and Cu complexes, 8940*c*.

——, Klemm, L., Holtmann, E., Volk, H., Orlaünder, E., and Klein, H. A. Behavior of the elements of group III with one another and with the elements of group IV, 4058*i*.

—— and Krose, E. Magnetochem. investigations (XLIX) magnetic behavior of Ti trihalides, (I.) magnetic susceptibility of $CrF_3$ and $MnF_3$, 4060*d*; crystal structure of $ScCl_3$, $TiCl_3$, and $VCl_3$, 6031*h*.

—— and Vogt, E. Magnetic properties of nonferromagnetic substances, 2054*a*.

——, Voss, E., and Geiersberger, K. Univalent Al compds. (III) lower halides of Al, 3740*f*

**Klemme, D. E.** See Watkins, G. M.

—— and Poe, C. F. Fermentation of α-methylglucoside, 5082*f*.

**Klemp, N. A.** Sponge polychloroprene rubber, P 2804*i*, 5624*e*.

**Klemperer, F. W.**, Miller, J. M., and Hill, C. J. Inhibition of alk. phosphatase by Be, 9115*d*.

**Klempt, W.** HCN from coke-oven gas, 7666*f*.

**Klenk, E.** Lipoidosis (VI) distribution of neuraminic acid in the brain in the congenital amaurotic idiot and Niemann-Pick disease, 4309*f*.

**Klenk, M. M.** See Jackman, M.

——, Suter, C. M., and Archer, S. Prepn. and properties of some benzohydryl sulfones, 1366*a*

**Klepetko, E.** Resin from coal, 2405*e*.

**Kleppa, O. J.** Ultrasonic velocities of sound in some liquid metals, 8776*b*

**Kleppel, B.** See Foà, P. P.

**Kleshnin, A. F.** Fluorescent lamps for plant illumination, 8014*c*.

**Klesman, V. O.** See Danilov, S. N.

**Kletz, T. A.** See Ashdown, A.

—— and Sumner, A. Intensity of the double-bond valence vibration in octenes, 2095*e*.

**Klevens, H. B.** Effects of temp. on the crit. concns. of anionic and cationic detergents, 2843*e*; micelle concns. as detd. by refraction, 2843*g*; solubilization, 9491*h*, see Mann, D. E.; Platt, J. R.

—— and Platt, J. R. Ultimate liquid transmission limit, 1653*g*; geometry and spectra of substituted anilines, 6918*h*; spectral resemblances of cata-condensed hydrocarbons, 7818*e*.

——, Platt, J. R., and Jacobs, L. E. Ultraviolet spectrum of fluorinated benzenes, 592*c*.

**Klevke, V. A.**, and Tselm, N. K. Effect of some factors on the caking of $NH_4NO_3$ in storage, 2741*i*.

**Klevstrand, R.** See Nordal, A.

**Kliačko, Kliatschko.** See Klyachko.

**Klick, C. C.**, and Maurer, R. J. Optical absorption bands in alkali halide crystals, 4091*b*.

—— and Schulman, J. H. Absence of photocond. in tungstate phosphors, 5312*a*.

**Klieneberger-Nobel, E.** Capsules and mucoid envelopes of bacteria, 1830*g*.

**Klier, E. P.**, and Grymko, S. M. Transformations in β-Cu-Al alloys, 7887*c*.

——, Wagner, F. C., and Gensamer, M. Fracture characteristics of ship plate, 3761*c*.

**Kliewe, Harald.** $H_3PO_4$ in the fluorometric characterization of porphyrins, 6696*f*.

**Kliewe, Heinrich**, Steyskal, K., and Steyskal, F. Chem. and bacteriol. action of heavy metal aerosols, 4326*f*.

**Kliffmüller, R.** Examn. of Al subacetate, 3145*g*.

**Klikasheva, M. N.** See Sharkov, V. I.

**Klima, R.**, and Wengraf, G. Urethan-induced damage of the central nervous system, 5498*c*.

**Klimanova, E. A.** Slag cement, P 3590*g*.

**Klimecký, V.** See Žaček, J.

**Klimenko, N. G.** See Syrokomskii, V. S.

—— and Syrokomskii, V. S. Detn. of pH of the beginning of pptn. of Cb and Ti, 4083*c*.

**Klimenko, V. G.** Detn. of S in biol. material, 5072*a*.

**Klimenko, Yu. V.**, Kakovskii, I. A., Siffina, E. I., and Anufrieva, E. P. Analysis of tech. xanthates, 5343*f*.

**Klimkova, A. F.** See Sapilevskii, P. F.

**Klimova, V. A.** See Korshun, M. O.

**Klimovskaya, M. F.** Analysis of P compds. in coal, 834*e*.

**Klimovskii, D. N.** See Vyatkin, V. V.

—— and Rodzevich, V. I. Hydrolysis of starch by amylase from different sources, 5061*d*.

**Kline, A. A.** See Harris, E. E.

**Kline, B. E.** See Rusch, H. P.

**Kline, D. L.** Effect of alloxan, pancreatectomy, and adrenalectomy on plasma amino N, 752*h*.
**Kline, G. M.** Plastics, 1*c*, 8745*d*; see Weissberg, S. G.
**Kline, H.** Resin supplier, 1567*c*; phenol-furfural varnishes for laminates, 1578*c*.
**Kline, M. H.** See Severy, C. L
—— and Beck, W. A. Chestatee Cu and pyrite deposit, Lumpkin County, Ga., 3321*b*.
—— and Dosh, H. G Scarlet Cu mine, Randolph County, N. C., 6545*c*.
**Klinefelter, T. A.** See Conley, J. E
——, Hancock, R. T., and Hamlin, H. P Testing of clays for lightweight aggregate, 9404*c*.
**Kling, A.** Méthodes actuelles d'expertises employées au lab. municipal de Paris et documents sur les matières relatives à l'alimentation (book), 1148*a*.
**Kling, R.**, and Christophe, J. Velocity of sound in hydrocarbons and its relation to mol. constitution, 6879*a*.
**Kling, W.** Washing process (V), 7693*e*
**Klingelhöffer, K. O.** Action of O on hemopoiesis of umbilical-cord blood, 6719*a*.
**Klingelmann, G.** Jacob Berzelius (book), 6904*e*.
**Klingen, L.** See Woods, H. A.
**Klinger, P.** Detn. of O in steel, 6108*h*.
—— and Koch, W. Sepn of inclusions and constituents in alloy and plain C steels, 3762*e*.
—— and Schliessmann, O. Spectrochem analysis, 7857*f*.
**Klinghoffer, S.** Derivs of *p*-aminobenzenesulfamide, P 1804*i*.
**Klingsberg, E.** See Papa, D
—— and Papa, D. Formation of a disulfide from a sulfide, 7483*i*.
**Klingstedt, F. W.** Pyrolysis of resin acid, 9442*h*.
**Klinkenberg, A.** Evaluation of equations describing transient heat and mass transfer in packed solids, 912*h*
**Klinkenberg, P. F. A.** See Harting, D
**Klinoff, I. J.** See Klinov, I Ya.
**Klinov, I. Ya.**, and Shvarts, G. L. Corrosion of some structural steels, 3766*i*
**Klipp, L. W.** See Reitemeier, R. F
**Klipp, R. W.** See Dinerstein, R. A
**Kljačko, Kljatchko.** See Klyachko.
**Kljatchko-Gourwitch, L.** See Klyachko-Gurwich, L. L
**Klochko, M.** V P. Radishchev, 6477*f*
**Klockmann, R.** Purity tests for thiocyanates, 5539*b*.
**Kločko, M.** See Klochko, M
**Kloek, J. C.** See Raven, C. P
**Kloetzel, M. C.** Reactions of nitro paraffins (II) addn. of nitro paraffins to unsatd esters, 1319*g*, Diels-Alder reaction with maleic anhydride, 2155*f*
**Klokman, V. R.**, and Khlopin, V G Distribution of Ra between a melt and crystals of a nonisomorphous salt, 4917*f*.
**Kloos, K. F.**, and Rotter, W. Spezielle Pathologie (book), 7127*a*
**Klooster, H. S. van.** See Van Klooster, H. S.
**Klopotovskiĭ, B. A.** Relic gypsum solonchak in southern Georgia, the Caucasus, 7386*f*.
**Kloppenburg, C. A.** Sugar recovery from cane molasses, 4502*c*.
**Klopstock, M.**, and Kowarski, A Praktikum der klinischen, chemischen, mikroskopischen, und bakteriologischen Untersuchungsmethoden (book), 5443*c*
**Klosa, J.** Plant substances inhibiting germination of seeds and growth of bacteria, 2679*b*; whey—its importance in pharmacy and nutrition, 5551*c*; antibiotics with antituberculous action, 7548*b*.
**Klose, A. A.**, Hill, B., and Fevold, H. L. Food value of soybean protein, 1494*i*.
——, Hill, B., Greaves, J. D., and Fevold, H. L. Growth-depressing fractions in raw Lima beans, 9195*e*.
**Kłosiński, J.**, and Szuba, J. Coal-gas purification, 3595*h*.
**Klosterman, E. W.** See Brady, L.
**Klotchko, M.** See Klochko, M.
**Klotz, H. P.** See Justin-Besançon, J.
**Klotz, I. M.** See Cowles, P. B.; Melchior, J. B.
—— and Griswold, P. Infrared spectra and the amide linkage in a native globular protein, 4310*g*.
——, Griswold, P., and Gruen, D. M. Infrared spectra of some proteins and related substances, 7062*d*.
—— and Melchior, J. B. Action of sulfonamides (I) binding of $S^{35}$-labeled sulfanilamide by *Escherichia coli*, 9142*g*.
—— and Mellody, M. Inhibition of growth of *Escherichia coli* by some derivs of urea, 6279*i*.
——, Triwush, H., and Walker, F. M. Binding of org. ions by proteins—competition phenomena and denaturation effects, 6241*d*
—— and Urquhart, J. M. Binding of org. ions by proteins—buffer effects, 3860*e*; binding of org ions by proteins—effect of temp., 5433*a*; binding of org. ions by proteins—comparison of native and of modified proteins, 7062*b*.
—— and Walker F M Complexes of lysozyme, 1445*g*
**Klotz, J. R. M.** See Littmann, E R
**Klotz, L. J.**, DeWolfe, T. A., and Zentmyer, G. A. Brown-rot control, 3553*h*
**Klotz, M. O.** See Bird, S.
**Klovers, E. J.** Product screen analyses, 5885*i*
**Kloxin, S.** See Kummerow, F. A
**Kluchesky, E. F.**, and Wakefield, I B Polymerization inhibition and stopping agents, 8727*h*.
**Kluener, R. G.** Estn. of penicillin entities, 4322*e*.
**Klug, E. D.**, and Tinsley, J S Carboxyalkyl ethers of cellulose, P 7685*g*
**Klug, H. L.** See Potter, V R
**Klug, H. P.** See Alexander, L.
——, Alexander, L., and Kummer, E Analysis with the x-ray spectrometer—accuracy and reproducibility, 58*i*
——, Kummer, E., and Alexander, L. Crystal structure of $NH_4$ pentachloroindate monohydrate, 1236*b*
**Klug, T.** Chemische Betriebskontrolle in der Seifen und Waschmittelindustrie (book), 8711*h*.
**Klug, W J., Jr.** Pressure-sensitive tapes, 439*g*
**Kluge, H. D.** See Patterson, J A
—— and Knowles, E C Oxidation inhibitors, P 6406*e*.
—— and Patterson, J A. Oxidation inhibited lubricating oil, P 1170*h*, rust preventive compn., P 1180*b*
**Klugh, B. G.** Desiliconization of ferrophosphorus, P 7893*d*
**Klumb, G. H.** Bacterial reproduction in cation-exchange layers, 9308*i*
**Klupp, H.** Assimilation of glucoreductone, its *p* amino benzoic acid deriv., and *p*-aminobenzoic acid-*N*-glucoside by yeast, 8002*a*
**Klutcharew, S. W.** See Klyucharev, S V
**Klute, C. H.** Effect of die-surface irregularities on the results of the tensile test for vulcanized rubber, 7255*d*.
**Klyachko, V. A.** See Teterkin, E. N.
**Klyachko, Yu. A.** See Kunin, L L.
——, Chepelevetskiĭ, M. L., and Lur'e, Yu. Yu. Analytical chemistry in U S S R, 8941*i*.
—— and Kunin, L. L Surface tension of eutectic alloys, 4203*e*.
—— and Shapiro, M M Detn. of the state of C in steel, 4993*a*
**Klyachko-Gurvich, L. L.** See Bulgakova, T I
——, Bulgakova, T. I., and Gerasimov, Ya I Interaction of Co oxides with S oxides, 6931*g*
**Klyne, W.** See Barton, D. H. R
—— and Barton, D H. R. Configuration at the 20-position in certain steroids, 6210*e*
—— and Newhouse, J. P. *p*-Aminosalicylic acid—detn. in blood and cerebrospinal fluid, 5440*h*.
——, Schachter, B., and Marrian, G. F. Steroids of pregnant mares' urine (I) extn. of steroid sulfates and the isolation of 16-allopregnen-3(β)-ol-20-one sulfate, 6216*i*.
**Klyucharev, S. V.** Chem. compn. and properties of the fixing agents, D. Ts. U., D. Ts. M., and D. Ts. Kh. (I), (II), 3620*g*
**Klyucharov, Ya. V.** Kyanite flotation concentrate, 3579*i*.
**Klyuev, G. M.** Centrifugal app. for mixing liquids, P 4907*d*.
**Knable, N.** See Moyer, B. J.
**Knapp, E. L.** Urinary excretion of Ca (I) in normal persons, 5846*f*.
**Knapp, L. D.** Sewer system operation and maintenance procedures at Milwaukee, 8585*a*.
**Knapp, O.** Glass industry, 8109*i*, producing optical glasses in Hungary, 8111*d*
**Knappeis, G. G.** See Buchthal, F.
**Knappwost, A.** Measuring viscosity at high temps., 1697*g*.
**Knaub, V.** See Kabat, E. A.
**Knauel, G.** See Rienäcker, G.
**Knauer, F.** Residence time of adsorbed alkalies on heated W, 4942*c*.
**Knauft, R. W.** Bonded refractories (I), (II), 9406*a*.
**Knaus, H.** See Mühlbock, O.
**Knaysi, G.** Cytology of bacteria (II), 4339*b*.
—— and Hillier, J. Germination of the endospore in *Bacillus megatherium* and the structure of the spore coat, 8883*b*.
**Knebel, R.** Action of Peripherin on the circulation (I), 1106*f*.
**Knecht, O.**, and Wirth, T. Monoazo pyrazolone dyes, P 7098*e*.
**Knechtel, M. M.** See Oakes, M. C.
**Kneen, E.** See Gates, R. L
—— and Spoerl, J. M Limit-dextrinase activity of barley malts, 8407*b*.
**Kneer, V. R.** See Howson, L R.
**Kniaginichev, M. I.** See Kuyaginichev, M I.
**Knickerbocker, C. J.** Controlling clinker compn., 4826*i*
**Knickerbocker, R. G.** See VanZante, R D
**Knickmann, E.** Industrial waste products for agriculture and forestry, 7171*a*.
**Kniel, L.** Prefractionation of hydrocarbon alkylate to eliminate propane, P 2422*i*, propane recovery by absorption, 2762*e*
**Kniesner, A. H.** See Wehman, H
**Knight, A.**, and Miller, J. Iodine absorption of anayodin, chimofon, diodoquin, and vioform in man, 7586*h*.
**Knight, A. H.** Azo dyes, 4788*i*, Heywood B J, Thomson, R. F.
**Knight, B. C. J. G.** Metabolites and antimetabolites, 5475*d*
**Knight, C. A.** Biochem studies on highly purified prepns of influenza A and B viruses, 1370*e*
**Knight, C. L.** Graphite, 6546*f*, Mn, 6546*f*
**Knight, Claude L.** See Milbdge, A F, Wormell, R L
**Knight, G B.** See Goldin, A S
—— and Macklin, R. L. Half life of U $N_3$ (Th $^{234}$), 1261*a*, radiations of U Y, 3286*h*
**Knight, G. D.**, and Rowland, B W. App for coating continuous strip of porous web, such as paper ribbons and cloth, P 7229*b*
**Knight, H. A.** Plaster technique for Al castings, 9003*e*
**Knight, H. B** See Swern, D
—— and Swern, D Reactions of fatty materials with O (IV) detn of functional groups, 6841*a*
**Knight, H. de B.**, and Hooker, O N Hot-cathode H-filled thyratron, 4941*g*
**Knight, J. D.** See Duffield, R B, Hanson, A O.
**Knight, J. J.** Metastable states of Ni, 8222*f*
**Knight, M. A.** Identification of stones in glass, 2387*e*.
**Knight, O. S.** Quant analysis for chem engineering students, 1619*a*
**Knight, S. B.** See Tyree, S Y, Jr.
**Knight, S. G.** See Fred, R. B
**Knipling, E. F.** Insecticides, 9353*g*, see Lindquist, A W.
**Knipp, J. K.** Capture of electrons by ions 4094*b*
**Kniss, E.** Chemotherapy of worm diseases, 8558*d*
**Kniveton, J.** Annealing furnace for continuous strips, sheets, or wires, P 3340*a*
**Knobloch, H.**, and Schraufstätter, E Benzils (I) action of cyanogen on phenols 1035*d*.
**Knobloch, I. W.** Readings in Biol Science (book), 1820*d*.
**Knodt, C. B.** See Ross, R H.; Swanson, R. G.
**Knoll, H.** See Reuter, B.
**Knop, H. W., Jr.** Emissivity of Fe-W and Fe-Co alloys, 941*e*.
**Knopp, L. O.** See Larsson, E.
**Knopp, W. V.** See Comstock, G. J.
**Knoppers, A. T.** See Jongh, D. K. de.
**Knote, C.** Fly control, 5894*h*.
**Knotnerus, J.** See Backer, H. J.
**Knott, E. B.** Intermediates for photographic sensitizing dyes, P 4164*b*, azamethine dyes, P 7848*a*; see Kodak Ltd., Robinson, F.
—— and Morgan, J. Antiplumming agent for photographic emulsions, P 4155*i*.
—— and Stevens, G. W. W. Multilayer photographic element with a mixed grain emulsion, P 4592*g*.
**Knotz, F.** Org halogen-P compds. as ci

fective insecticides, 9353*f*; production of $PSCl_3$, 9394*h*.
**Knouff, R. A.** See Hartman, F. A.
**Knounjanc, Knounjantz, Knounjanz.** See Knunyants, I. L.
**Knowland, T. M.** Fractionation of rubber-tire scrap, P 4046*i*.
**Knowles, E. C.** See Kluge, H. D.
**Knowles, E. R.** Molding plastics, P 3234*i*.
**Knowles, H. I.** Decolorizing and ash-removal tests, 8649*b*.
**Knowles, R. L.** See Colton, H. S
**Knowles, W.** AgBr grain of photographic emulsions, 4155*f*.
**Knowles, W. H. C.** Variety and fertilizer position of the sugar industry (XIV) report on the sugar expt. stations, 9326*c*.
—— and Cameron, C. Field expts with sugar cane (XVII), 9325*i*.
**Knowlton, A. I.** See Loeb, E. N.
**Knowlton, James W.** Graphite mold assembly for making flat plates of B$_4$C powders, P 7658*d*
**Knowlton, John W.** See Hubbard, W. N.; Waddington, G
**Knowlton, K.** See Kenyon, A. T
**Knox, C. C.** Zn-Pb deposits on extensions of the Miami trough, Ottawa Co., Okla., and Cherokee Co., Kan., 4698*i*; Townsite Zn and Pb mine, Ottawa Co., Okla. 6545*d*
**Knox, J.** See Robertson, T.
**Knox, W. E.** Fatty acid oxidation by the insol. rabbit kidney enzymes, 1149*h*, see Still, J. L.
—, Noyce, B. N., and Auerbach, V. H. Cyclophorase system (III) obligatory sparking of fatty acid oxidation, 2218*h*
**Knox, W. H., Jr.**, Cochran, R. T., Cundup, W. R., and Miller, W. S. Anhyd. mono Ca phosphate, P 3984*f*
**Knox, W. J.** γ Rays from $He^6$ and $F^{19}$ 481*c*; relative cross sect. for clear ddu. ed by high-m light elements, 4114*e*
**Knudsen, E. S.** See Bak, B
**Knudsen, L.** See Horwitz, W
**Knudsen, M.** See Thomsen, H
**Knudsen, P. E.**, and Hanley, J. A. Pigment disperser and mixer, P 1994*b*
**Knuchel, F.** Fibrinogen-fibrin transformation by protein precipitating agents, 9107*h*.
**Knuniane, Knunianz, Knunjanc.** See Knunyants, I. L.
**Knunyants, I. L.**, and Berezovskaya, V. M. Dyes of di- and tripyridylmethane series (I) pyridine analogs of Crystal Violet, (II) pyridine analogs of di- and triphenylmethane dyes and their colors, 409*d*.
—, Kil'disheva, O. V., and Bykhovskaya, E. Reaction of aliphatic oxides with HF (II), 6163*e*
—, Kil'disheva, O. V., and Petrov, I. P. Reaction of aliphatic oxides with HF (I), 6163*b*
— and Shillegodskii, A. K. Vinylogs of malonaldehyde, 2616*h*
**Knuth-Winterfeldt, E.** Micropolishing, 2101*b*.
**Knutson, J. W.** F as a caries-control measure—effect of topically applied fluorides, 7121*f*.
**Knyaginichev, M. I.** Properties of carbohydrase in ripening wheat grain and the synthesis of starch granules outside of the living cell, 7553*i*
**Knyazev, A.** See Razorenov, L.
**Knyazeva, M. A.** See Zin'kov, Z. E
**Knyazeva, S. V.** See Kibisov, G. I
**Kobahashi, E.** See Asai, I.
**Kobal Junior, J.** Electrolytic recovery of Cr, 7834*f*.
**Kobata, Y.** See Ishikawa, F.
**Kobata, Yataro, *et al.*** Base for beerlike beverage, P 7190*e*.
**Kobau, S.** Concg. and drying juices, sirups, and solns., P 8218*d*.
**Kobayashi, A.** Crystal rectifiers, 4101*c*
**Kobayashi, H.** Making artificial wool by utilizing soybean protein (II) (1) spinning of fibers, 4470*e*.
—— and Hayakawa, I. Making artificial wool by utilizing soybean protein (II) (2) posttreatment of the fibers, 4470*f*.
**Kobayashi, I.** Catalytic decompn. of coal light oil, 7064*e*.
**Kobayashi, Kataumi.** See Oshima, Y.
**Kobayashi, Kihei.** See Maeda, H.
**Kobayashi, Kiyoshi.** See Hashimoto, Seiichi.
**Kobayashi, Ko, and Ishihara, M.** Alumina from alunite, P 7202*b*.
**Kobayashi, Kyuhei, and Ishikawa, H.** Catalytic cracking and contact refining of low-temp. tar with Japanese acid clay (I), 7667*h*.
**Kobayashi, M.** Mint and its examn., 9381*i*.
**Kobayashi, Riki**, and Katz, D. L. Methane hydrate at high pressure, 3993*f*
**Kobayashi, Ryonosuke.** See Tanaka, Yoshio
——, Sakurai, T., and Fushimi, T. Pyrolysis of crude rubber (I) components of dry-distn. oil and aromatic oil, (II) contact decompn. of distn. oil, 5619*g*.
**Kobayashi, S.** Antiaging of quenching oil for metals, P 6562*i*, regeneration of quenching oil, P 6562*i*
**Kobayashi, Tatsukichi.** Adhesive, P 6868*b*
**Kobayashi, Tetsu.** Carbohydrates (LXXXV, chondrosin (4) cinchonidine salt A, (LXXXVI) chondrosin (5) cinchonidine salt B, (LXXXVII) chondrosin (6) oxidation and reduction products of chondrosin and *N*-acetylchondrosin, 5008*d*
**Kobe, K. A.** Teaching fundamentals for a varied chem. industry, 2341*e*, thermochemistry for the petroleum industry (I), 3179*a*
—— and Long, F. G. Thermochemistry for the petrochem. industry (II) paraffinic hydrocarbons, $C_1$-$C_8$, 5575*e*, (III) monoolefinic hydrocarbons, $C_2$ to $C_4$, (IV) cycloparaffinic hydrocarbons, 7215*h*, (V) aromatic hydrocarbons, 8654*i*
**Kobeko, P. P.** See Ponomarev, I. T
—— and Moskvina, F. K. Detn. of unsatn. in butadiene synthetic rubber, 2461*g*, 8723*h*.
**Kobel, F.** June drop in apples and pears, 1516*c*
**Kobelt, M.** See Prelog, V.; Ruzicka, L.
——, Bartman, P., Prelog, V., and Ruzicka, L. C rings (XLIX) polymembered cyclanols and cyclanol acetates, 3799*b*, 6988*d*
**Kobernick, S. D.** See More, R. H
**Kobe Steel Co.** Recovering of light metal or light-metal alloy from scraps, P 6563*f*
**Kobjakowa, A. M.** See Kobyakova, A. M.
**Koblic, J.** Plum kernels, oil, coarse meal, and pits as food and feed, 3538*e*, coal-tar colors for coloring foods and utility uses (I), (II), 7595*a*.
**Koblyaeva, T. N.** See Vorokhobin, I. G
**Kobori, Y.** See Kambara, S
**Kobosew, N.** See Kobozev, N. I
**Kobozev, N. I.** Regularities in the entropy of the chem. bond, 475*a*
—— and Monblanova, V. V. Excited state of cathodic H, 2874*h*
—— and Reshetovskaya, N. A. Active ensembles of Pt in oxidation-reduction and hydrogenation processes, 6062*b*
**Kobyakova, A. M.** See Sisakyan, N. M
**Kobylin, A. A.** See Epel'baum, S. E.
**Kobylkin, A. F.** See Krugov, V. V.
**Koçak, H.** See Rosenthaler, L.
**Kočetkov.** See Kochetkov
**Koch, A(lexander).** Same as Koch S(ándor).
**Koch, C. W.**, Simonson, T. R., and Tashman, V. H. Wt. azotometer, 8750*i*
**Koch, D. O.** Vitreous bonding compns., P 3587*b*
**Koch, F. G.** See Munsell, H. E., Streightoff, F.
**Koch, G. B.** Fabric coating with vinyl plastisols, 7693*b*
**Koch, H.** F. Fischer, 7275*e*.
—— and Gilfert, W. Breaking down and building up of hydrocarbons under hydrogenating conditions over the Co catalyst, 7663*i*
**Koch, H. A., Jr.** See Hutchings, L. E., McCarter, R. J.
**Koch, H. C.** Disposal of wastes from the paper industry, 4796*d*.
**Koch, H. P.** Absorption spectra of dicinnamyl and some related compds., 493*b*; coupling reaction of cinnamyl halides—*meso*-α,β-divinylbibenzyl and the phenylvinylmethyl radical, 612*c*; absorption spectra and structure of org. S compds. (I) unsatd. sulfides, (II) disulfides and polysulfides, (III) vulcanization accelerators and related compds., (IV) unsatd. sulfones, 7410*c*, see Bateman, L.; Jeffrey, G. A.
**Koch, H. W.**, and Carter, R. E. Detn. of the energy distribution of bremsstrahlung from 19.5 m.e.v. electrons, 7328*h*.
**Koch, Jørgen.** See Brostrøm, K. J
——, Kofoed-Hansen, O., Kristensen, P., and Drost Hansen, W. Measurements on radioactive Kr isotopes from fission after mass-spectrographic sepn., 8267*c*.
**Koch, Julius.** S in metabolism, 8478*h*; see Diemair, W.
**Koch, J. R.** See Karl, H. L.; Wocasek, J. J.
—— and Cochran, N. Deodorants and antiperspirants, 1906*h*
**Koch, K.**, and Reiser, M. DBS (5,5′-dibromosalicil), a new compd. with bactericidal and fungistatic action, 5540*f*.
**Koch, Lisel.** See Fenner, E.
**Koch, Louis.** Subsidiary dyes in D&C colors. D&C Red Nos. 6 or 7, 7231*e*.
**Koch, L. W.** See Hildebrand, A. A.
**Koch, P. J.** See Rickes, E. L.
**Koch, R.** See Marquardt, P.
**Koch, S.** Pb ore occurrence at Szárhegy, Komitat Fejér, 8989*f*.
**Koch, T.** Amino carboxylic acids from lactams, P 2225*a*; polyamides, P 5967*g*.
**Koch, Walter.** Electrolytic sepn. of carbides in alloy and C steels, 5718*b*, see Klinger, P.
—— and Wiester, H. J. Cause of temp. stability of multiple carbide-contg. steels, 7396*i*; carbides in alloy steels, 7397*f*.
**Koch, Wolfgang.** See Werle, E.
**Kochakian, C. D.** Protein anabolism and its mechanism, 7099*f*, renotropic-androgenic and somatotropic properties of steroids, 8512*a*; see Humm, J. H.
—— and Bartlett, M. N. Effect of cryst. adrenal cortical steroids, DL-thyroxine, and adrenaline on the alk. and acid phosphatases and arginase of the liver and kidney of the normal adult rat, 2253*i*.
——, Bartlett, M. N., and Moe, J. Effect of high-protein and high-carbohydrate diets on the arginase and phosphatases of the liver and kidney of the normal and adrenalectomized rat, 1847*h*.
——, Cohn, L., Quigley, E., and Trybalski, E. Effect of testosterone propionate on N and chloride excretion and body wt. of castrated rats during recovery from fasting, 3090*d*.
——, Garber, E. E., and Bartlett, M. N. Effect of estrogen alone and in combination with testosterone on the body and organ wts. and the arginase and phosphatases of the organs of the mouse, 3089*i*.
——, Humm, J. H., and Bartlett, M. N. Effect of steroids on the body wt., temporal muscle, and organs of the guinea pig, 3088*g*.
——, Kentmann, E. H., and Garber, E. E. Blood arginase, 7529*b*.
—— and Stettner, C. E. Effect of testosterone propionate and growth hormone on the wts. and compn. of the body and organs of the mouse, 3089*d*, effect of testosterone propionate and growth hormone on the arginase and phosphatases of the organs of the mouse, 3089*g*.
**Kochankov, G.** Paraffin coating of cheese, 9283*i*.
**Kochanovská, A.** Splitting of lines which occurs when the back reflection method is used, 6509*d*.
**Kochar, R. K.**, and Dutt, S. Examn. of the fixed oil derived from the seed of *Dodonea viscosa*, 2450*i*.
**Kochelew, W. W.** See Koshelev, V. V.
**Kochendörfer, A.** Particle size and slip in plastically deformed crystals, 2144*f*; kinetic theory for the viscosity of amorphous substances, 2835*h*, see Röhm, F.; Wagner, G.
**Kocher, V.** Detn. of vitamin $B_{12}$ with *Lactobacillus lactis*, 6688*e*; see Brenner, M.
—— and Schindler, O. Desoxyribonucleoside as a growth factor for *Lactobacillus lactis* in $B_{12}$-free nutrient soln., 6276*e*.
**Kochetkov, A.** See Nesmeyanov, A. N.
**Kochetkov, N. K.** See Nesmeyanov, A. N.
**Kochetov, N. N.** Cardiac muscle evolution in vertebrates, 8509*d*.
**Kochi, J.** Detn. of terpene alcs. in essential oils, 5538*i*.
**Kochinashvili, A. V.** Elec. salt bath, P 2881*a*; closed resistance-type furnace for the production of $CaC_2$ and ferroalloys, P 3299*e*.
**Kochkine, N.** See Koshkin, N.
**Kochnev, M. I.** See Gel'd, P. V.
**Kochneva, M. N.** See Manskaya, S. M.
**Kocho, V. S.** Temp. of metal and C content along the depth of an open hearth, 4194*h*, nature of the change of the state of a gas in bubbles rising in a liquid, 6480*i*.
**Kock, P. A.** "Break-twisting angle" as a fiber criterion, 6421*e*.
**Kock, P. C. de.** See De Kock, P. C.

**Kockova-Kratochvilova, A.** Action of $H_3BO_3$ on *Candida*, 7087*g*.
**Kocór, M.** See Prelog, V.
**Kocsán, C.** See Mosonyi, L.
**Kocuuku, A.** Same as Kositski, A. I.
**Kocska, I.** See Bruckner, V
**Koczy, F. F.** Th in sea water and marine sediments, 7386*h*
**Kodaka, I.** Fertilizer from fishes or seeds, P 6774*h*.
**Kodak Ltd.** Film or sheeting, P 849*a*; photographic relief images, P 3738*a*; polymethine dyes for sensitizing photographic emulsions, P 4156*h*; *meso*-alkylmercapto substituted carbocyanine dyes, P 4159*d*; intermediates for photographic sensitizing dyes, P 4164*b*; polyvinyl amine compds., P 5635*e*; *N*-arylthiazolinium quaternary salts, dyes, and the incorporation of *N*-arylthiazolinium dyes in photographic emulsions, P 7843*e*; see Brooker, L. G. S.; Cressman, H. W. J.
———, Gresham, D. C., and Loening, E. E. Photographic stencils, P 3738*b*.
———, Hamer, F. M., and Knott, E. B. Improvements in photographic emulsions and in the manuf. of dyes therefor, P 513*c*.
——— and Knott, E. B. *N*-Substituted 2-aminovinyl derivs. of heterocyclic N compds., P 2642*e*, 4-aryl-5-thiazoleacetic acids and esters, P 5048*d*, 8401*d*, arylaminomethine derivs. of cyclic compds., P 8692*f*
**Kodak, N. V.** Sensitive Ag halide negative emulsions, P 2881*h*, 4592*b*; supersensitizing color-sensitive negative emulsions contg. Ag halide, P 4592*a*; color photography, P 8293*b*.
**Kodama, K.** Nutrition of Japanese, 5837*e*.
**Kodama, S.**, Matsumura, S., Tarama, K., Ando, T., and Yoshimori, K. Physicochem. research on gasoline synthesis (VII) velocity of adsorption of H by Fe, (VIII) by Fe on infusorial earth, (IX) by a composite Fe catalyst, 2412*h*; (X) adsorption of CO on Co, Co-kieselguhr, and Co-kieselguhr-thoria catalysts, (XII) adsorption of CO on Fe, Fe-kieselguhr, Fe-kieselguhr-Cu Mn catalysts, 2413*d*.
———, Tahara, H., Fukushima, I., Iwao, M., Komazawa, S., and Kimura, K. Hydrocarbon synthesis from CO and H under medium pressure (II) characteristics of hydrocarbon synthesis with an Fe catalyst, (III) effect of adding alkali and changes in the reaction temp on the activity of Fe-Cu-Mn-$H_3BO_3$ catalysts, (IV) effect of changing alkali, $H_3BO_3$, and kieselguhr contents on the activity of Fe catalysts, 2397*e*.
———, Tarama, K., Mishima, A., Fujita, K., and Yasuda, M. Synthesis of gaseous hydrocarbons from CO and H (III) influence of Cu, Mn, $K_2CO_3$, and $H_3BO_3$ on Fe catalysts, (IV) influence of the temp. of the synthesis on various promoters in the catalyst, (V) influence of $K_2CO_3$ on Fe catalyst, (VI) influence of $H_3BO_3$ on the Fe catalyst, 2398*b*.
———, Tarama, K., Takazawa, T., Fujita, K., Tejima, T., Ito, S., and Yokomaku, Y. Synthesis of gaseous hydrocarbons from CO and H (VII) effect of temp on synthesis with Co catalysts, (VIII) effect of compn. of the synthesis gas on Fe catalysts, (IX) effect of addn. of diatomaceous earth on Fe catalysts, (X) effect of various carriers on Fe catalysts, (XI) synthesis under normal and other pressures, (XII) effect of pressure, (XIII) effect of temp at const. pressure, (XIV) effect of various carriers and promoters, (XV) summary on synthesis under pressure, 2398*e*.
**Kodama, Tatsuhiko.** See Kamiike, O.
——— and Kimura, O. Ignition temp. of active charcoal, 7668*c*.
**Kodama, Teisuke.** See Torikai, Y.
**Kodani, M.** Na ribonucleate and mitosis—induction of morphological changes in the chromosomes and of abnormalities in mitotic divisions in the root meristem, 1841*c*; protein of the salivary gland secretion in *Drosophila*. 5124*g*
**Koddebusch, H.** See Brintzinger, H.
**Kodera, K.** Chem. studies by means of mol. rays (IX), 2478*d*.
**Kodera, M.** See Ueno, Seiichi.
**Kodicek, E.** Antagonism between unsatd fat acids and other surface-active agents on gram-pos. bacteria, 5822*d*; see Chaudhuri, D. K.; Harris, L. J.
———, Carpenter, K. J., and Harris, L. J. Pellagragenic activity of 3-indolylacetic acid, 2292*b*; pellagragenic action of maize, 7556*f*.
——— and Pepper, C. R. Factors influencing the microbiol. assay of nicotinic acid, 3059*k*; microbiol. estn. of nicotinic acid and comparison with a chem. method, 3060*a*.
——— and Wang, Y. L. Fluorimetric estn. of riboflavin in foods and other biol. material, 8425*h*.
**Koditschek, L. K.** See Stokes, J. L.
**Koebke, K.** See Werle, E.
**Koebner, A.** See Oxley, P.
**Köcke, H. U.** See Weyland, H.
**Köddermann-Gros, E.** See Klement, R.
**Köersner, P. E.** Hippuric acid test in schizophrenia, 2698*g*.
**Koefoed, J.** Thermodynamics of λ-transitions, 28*i*.
**Kögl, F.** Tumor proteins, 9217*i*.
———, Barendregt, T. J., and Klein, A. J. Excretion of D-pyrrolidonecarboxylic acid by rat and dog fed with tumor proteins, 3924*a*.
**Köhler.** See also Keler.
**Köhler, A.** Heating feldspars, 3749*b*; optics of adularia, 4980*d*.
**Koehler, A. E.**, and Hill, E. Mol. microdistn. of cholesterol and cholesterol esters, 6693*a*.
**Köhler, B.** Tanning of white leather, 5219*h*.
**Köhler, E.** See Goubeau, J.
**Köhler, G.** See Olsson, N.
**Koehler, H.**, and Koenig, O. Water-salt metabolism and dermatoses, 299*b*.
**Koehler, J.** See Hammond, A
**Köhler, R.** Rheology and the coatings industry, 5202*e*.
**Köhler, S.**, and Laurell, K. Testing antirust paints on steel—comparison with salt-water spray and tropical chamber tests, 4023*e*, 8701*d*.
**Köhler, V.** Carbohydrate metabolism of Addison's disease, 1480*b*, desoxycorticosterone acetate in normal and pathol carbohydrate metabolism (V) desoxycorticosterone acetate and adrenaline, 8496*i*.
**Koehler, W. A.** See Kapnicky, J. A.
**Koehn, C. J.** See Swain, H. L.
**Koehn, R. C.** Sanitation, 8565*h*; see Cooley, M. L
**Koehne, W.** Grundwasserkunde (book), 7170*c*.
**Koehneke, J. H.** See Fuson, R. C.
**Köiw, E.** See Annersten, S.
**Kölbel, Herbert.** Synthesis of lubricating oil through alkylation of naphthalene, 4451*f*
———, Ackermann, P., Juza, R. and Tentschert, H. Fe catalysts in the hydrogenation of CO(II) reaction mechanism of the Fischer-Tropsch synthesis, 8117*a*.
——— and Engelhardt, F. Reaction mechanism of the Fischer-Tropsch synthesis, 4828*i*.
——— and Fritsch, R. Alkylnaphthalenes as model lubricant components, 9424*e*.
**Kölbel, Hermann.** Accumulation of Rhodamine B, eosin, and neutral red in yeast cells, 8436*c*.
**Kölbl, F.** See Kieffer, R.
**Kölbl, L.** Distribution of heavy minerals in the Tertiary of lower Bavaria, 4986*c*.
**Koelle, E. S.** See Philips, F. S.
**Koelle, G. B.**, and Friedenwald, J. S. Localizing cholinesterase activity, 5437*i*.
——— and Gilman, A. Anticholinesterase drugs, 5866*g*.
**Koelsch, W.** Instrumentation in phys. chemistry, 1619*d*.
**Koelzer, P.** See Vonkennel, J.
**König, Hans.** Structural units of solids, 1234*b*; electron-diffraction studies of Si and its oxides, 2837*a*; lattice-const. detn., 3279*g*; melting of C, 4909*i*; lattice consts. of films of Al from the vaporized metal, 5653*c*; changes in org. prepns. in the electron microscope, 7324*a*; see Winkler, A.
**Koenig, Harold**, and Koenig, R. Production of acute pulmonary edema by $NH_4$ salts, 4382*i*; neuronal changes assocd. with tetany of alkalosis and hypocalcemia, 5489*e*; pathogenesis of $NH_4$ pulmonary edema, 8050*c*.
**König, H. B.** Chemistry of streptomycin, 4333*b*; see Lüttringhaus, A.
**Koenig, J. H.** Ceramics, 1*c*, 8745*c*.
**Koenig, O.** See Koehler, H.
**König, P.** See Glemser, O.
**Koenig, R.** See Koenig, Harold.
**Koenig, V. L.** Ultracentrifugal studies on some porcine plasma protein fractions, 9197*g*
———, Perrings, J. D., and Mundy, F. Electrophoretic analysis of lamb and sheep plasmas and serums, 9204*h*.
**Königstein, M.** See Bergel, F.
**Koepfli, J. B.**, Mead, J. F., and Brockman, J. A., Jr. Alkaloids of *Dichroa febrifuga* (I) isolation and degradative studies, 5405*i*.
**Köppen, N. M.** Twin laws of Fe-bearing wollastonite, 8087*b*.
**Koepsch, H. U.** Material for a new German pharmacopeia (III), 9387*h*.
**Koerner, J.** Surface-active agents—applications in nonferrous metals, 1707*g*.
**Koerner, T. A.**, Getz, H. R., and Long, E. R. Nutrition in tuberculosis—protein in resistance to tuberculosis, 6293*i*.
**Körprich, H.** See Neseni, R.
**Köster, W.** Ternary system Cu-Zn-Mg, 2148*a*; analysis of the quantity $\sigma_i$ which appears in the theory of ferromagnetism, 8768*h*; see Henglein, E.
———, Zwicker, U., and Moeller, K. Microscopic and x-ray investigations in the system Cu-Ni-Al, 92*g*
**Koestler, G.** Acidity of milk, 1495*h*.
**Koets, P.** Urinary 17-ketosteroids, 3505*i*; phase sepn. in aq. colloidal systems, 4540*e*.
**Koffler, H.** See Garson, W.; Liggett, R. W.; Murray, F. J.
**Kofink, W.** Dirac theory of the electron (V) Pauli *B*-matrix, 5660*d*.
**Kofler, A.** M.-p. curves with inflection points and mixt. gaps of the liquid phases in org. binary systems, 3699*d*.
——— and Brandstätter, M. Isomorphous replaceability of H, OH, and Cl—*s*-trinitrobenzene, picric acid, picryl chloride, 3277*g*.
**Kofler, L.** Thermic analysis of org. compds., 3317*a*
**Kofler, M.** See Isler, O.
**Kofman, E. B.** Action of ultraviolet radiation of two sections of the spectrum on solns. of purified egg albumin, 9109*e*.
**Kofoed-Hansen, O.** Recoil in β-decay, 3280*e*, see Horowitz, J. J., Koch, Jørgen.
**Kofrányi, E.** Protein hydrolysis with $SnCl_2$, 6681*a*, see Kraut, H
**Kofron, V. K.** See Cooper, S. S.
**Koft, E.** See Hartough, H. D
**Kogan, A. B.** Chrome exts., P 9512*b*.
**Kogan, B.** See Bogushev, Z
**Kogan, E. A.** Dinas brick from Anzhero-Sudzhen quartzites without admixts., 6800*d*.
**Kogan, I. B.** Warning devices for dangerous concns. of harmful products in air (III) $NO_2$, 6760*g*
**Kogan, L.** See Mogilevskii, M.
**Kogan, L. S.** Standards for cements, 1165*h*, production of special cements in the U.S.S.R., 1935*i*
———, Olevskii, V. A., and Semendyaev, A. F. Rationalization of slurry prepn. from chalk and clay, 2749*c*.
**Kogan, T. M.** See Rotinyan, A. L.
**Kogane-Charles, M.** See André, E.
**Koganovskif, A. M.** See Kul'skii, L. A.
**Kogarko, S. M.**, and Zel'dovich, Ya. B. Detonation of gaseous mixts., 5188*h*
**Koguro, Y.** See Ueno, Senchi
**Kohashi, A.** See Nobori, H.
**Kohata, Y.** Change of elec. cond. of cow milk, 7597*f*
**Kohl, H.** Oral treatment of hemorrhage with glycine-ascorbic acid-Ca—thrombopenia and hemophilia, 3933*f*
**Kohl, H., Jr.** Rose production, 8458*f*.
**Kohl, W. H.** Application of luminescent screens to glass surfaces, 8910*i*.
**Kohlberg, J.** See Clendenin, J. D.
**Kohler, A. R.** See Broschard, R. W.
**Kohler, D.** See Barický, M.
**Kohler, G. O.** See Graham, W. R., Jr.
**Kohler, M.** Friction (viscosity) in moderately rarified gases as a result of delayed distribution of energy among degrees of freedom, 7281*f*; transport phenomena in electron gas, 7324*e*; treatment of nonequil. processes with the help of an extremal principle, 8772*h*; vol. viscosity in ideal gases as a kinetic mol. transport phenomenon, 8774*e*.
**Kohlhauser, R.** See Ziegler, E.
**Kohlmeyer, E. J.** Refining German silver shot—tailings and borings, 4198*a*; see Bunzel, E. G., Spandau, H.
——— and Spandau, H. B. p. of In, 3254*h*.
——— and Sprenger, K. v. Oxidation of Ag-Cu alloys, 4206*i*.
**Kohlrausch, K. W. F.** Ausgewählte Kapitel aus der Physik. T. IV. Elektrizität (book), 2856*e*; see Kahovec,

**Kohlschütter, H. W.**, and Lohnes, K. Prepn. and transformation of $Fe_3N$, 2744*d*.
—— and Pavel, M. Influence of S on the decompn of $Fe_3N$, 2534*h*.
**Kohman, G. T.**, See Walker, A. C.
**Kohman, T. P.** Detg. coincidence corrections of counting instruments, 4091*f*; search for weak natural radioactivities by the method of active-daughter extn., 4094*f*; measurement techniques of applied radiochemistry, 5288*a*; binding energies of $\alpha$-particles in medium-heavy nuclides, 8863*i*.
**Kohn, A.** See Delbart, G.
**Kohn, H.**, and Sponer, H. Absorption spectrum of 1,2,4-trichlorobenzene in the near ultraviolet, 2512*e*.
**Kohn, M.** Reactions of uranyl ferrocyanide, 8299*g*; detection of $H_2O_2$, 8307*i*; pptns. by Cu in presence of alkali cyanides and alkali, 8951*i*; reactions of ferrocyanides and ferricyanides, 8966*e*.
—— and Syrea, E. Derivs. of 1-methyl-2-hydroxy-4 chlorobenzene, 1347*i*.
**Kohn, W.** Nuclear collision problems, 1630*i*
**Kohn-Abrest, E.** Precis de toxicologie (book), 3528*g*, Tl poisoning, 7996*f*.
**Kohno, T.** Rubberlike substance from HCHO (IV) disulfide and monosulfide (1), (V) disulfide and monosulfide (2), (VI) chem structure of disulfide and trisulfide, 2016*d*, high-mol alkylene sulfide as vulcanizing agent (I) vulcanization by the polymerization product of methylene disulfide (1), 3225*i*, (II) vulcanization by the polymerization product of methylene disulfide (2), 3226*a*, (III) vulcanization by high mol. methylene disulfide (3), 3226*b*; (IV) vulcanization by high-mol. methylene disulfide, (V) vulcanization by high-mol. methylene disulfide, (VI) vulcanization by methylene trisulfide polymer, (VII), 8191*g*.
**Kohn-Richards, R.** See Richards, R. K.
**Koide, T.**, Kubota, T., Takai, R., Shimamura, S., Kawaguchi, M., Yokoi, K., and Kondo, J. Treatment of rayon cords for tires (I) past literature and the adhesion test, (II) treating soln. using synthetic resin No. 1 of Mitsui Co., 4014*i*, (III) latex-polyvinyl alc. adhesive, 5622*a*.
— —, Kubota, T., and Taketomi, T. Vulcanization-accelerating properties of the cationic soap, octadecylbromopyridine, 2024*b*.
**Koidzumi.** See Koizumi.
**Koike, K.** See Imaki, T.
**Koito Manufg. Co.** Glass for passage of infrared light, P 6802*f*.
**Koizumi, E.** Soly. of slightly sol salts (I) theoretical, 7207*d*; purification of dioxane, 7938*b*.
**Koizumi, K.**, *et al.* Electrolytic deposition of Cb and Ta, P 6526*c*; electrolytic deposition of Th, P 6527*c*, Zr deposition by electrolysis, P 6527*e*, 6925*i*.
**Koizumi, M.** See Miyake, Y.
**Kojevnikoff, N.** See Dreyfus, C.
**Kojima, G.**, and Hide, K. Genesis of the syenitic aplite found in hornfels at Suyama-Mura, Oda-Gun, Okayama Prefecture, 6549*d*.
**Kok, B.** Quantum yield of *Chlorella* photosynthesis, 8011*c*.
**Kokas, E.** Movement of the intestinal villi and its hormonal regulation, 1851*a*.
**Kokeguchi, T.** ZnS for rubber compounding, P 6859*a*.
**Koketsu, R.**, Shiomi, T., and Ariga, Y. Transpiration, mineral absorption, and ash accumulation in plants (II) behavior at different concns. of the nutrient soln., 5454*c*.
**Kokhanil, I. R.** See Rozhin-Kokhanil, I.
**Kokochashvili, V.** Ignition of $H_2$-$Br_2$ mixts., 4084*e*; theory of the thermal explosion of a reaction having unbranched chains—ignition of $H_2 + Br_2$, 4084*g*.
**Kokorev, A. I.** See Lagunov, L. I.
**Kokurina, A. S.** See Nikitina, E. A.
**Kokusaku Pulp Co.** Pulps of high purity, P 6416*e*.
**Kolachov, P.** See Maude, B. A.; Stark, W. H.
**Kolasinski, R. D.** Arresting stream pollution, 792*e*.
**Kolb, H.** How can St.-John's-bread (carob bean) meal be processed for sizing and finishing purposes? 5590*e*.
**Kolb, H. J.**, and Izard, E. F. Dilatometric studies of high polymers (I) second-order transition temp., (II) crystn. of aromatic polyesters, 6045*c*.
**Kolb, J. J.** Support for weighing on a balance, 3665*e*; analytical extn. of lipides, 5440*e*.
**Kolechkova, A. F.**, and Goncharov, V. V. Heat characteristics of lightweight refractories from the Podol'sk refractory works, 5563*h*.
**Kolesnik, Z. V.** Effect of heteroauxin on callus formation, 2286*b*.
**Kolesnikov, P. A.** Org. peroxide from green leaves, 4730*d*, org. peroxides and glyoxylic acid in the oxidation of chlorophyll, 6286*i*; see Mikhlin, D. M.
**Koletsky, S.**, and Gustafson, G. E. Effect of temporary cessation of renal blood flow, 7572*h*.
**Koliakof, G. E.** See Kolyakova, G. E.
**Kolin, A.** Introduction to Physics (book), 932*e*.
**Kolinsky, M.** See Cohn, C.
**Koljakowa, G. E.** See Kolyakova, G. E.
**Kolkmeijer, N. H.** See Bijvoet, J. M.
**Koll, W.** Pharmakologie und Toxikologie. Tl. A. Org. Substanzen (book), 8064*h*
——, Schaumann, O., Eichholtz, F., and Grab, W. E. Hormones, 1475*b*.
**Koller, F.** See Plattner, P. A.
—— and Frick, P. Influence of factor V on prothrombin detn., 6683*g*.
**Koller, G.** Metabolism of animals, 4740*b*
**Koller, K.**, and Gálócsy, Z. Reduction of Fe ores in the blast furnace, P 2019*i*.
**Koller, M.** See Ercoli, A.
**Koller, Margaret.** See Meyer, K. A.
**Kolling, H.**, and Tramm, H. Controls for batch and continuous-fractionating columns in lab. and pilot-plant operation, 3246*i*.
**Kolloff, H. G.** See Reid, W. B., Jr.; Wright, J. B.
——, Hunter, J. H., Woodruff, E. H., and Moffett, R. B. Antispasmodics (I) pyrrolidylalkyl esters of disubstituted acetic acids, 1387*i*
**Kollonitsch, J.** See Foldi, Z.
**Kollros, J. J.** See Eichelberger, L.
**Kolmer, H. S.**, Smith, E. T., Collins, P., and Greisheimer, E. M. Acid-base condition in tuberculosis, 3509*d*.
**Kolmer, J. A.**, and Lynch, E. R. Improved antigen for the Kolmer complement fixation test for syphilis, 302*g*.
**Kolobnev, I. F.** See Arbuzov, B. A.
**Kolobolotskii, G.** Complex biol. tests for detn. of the sanitary quality of meat, 6751*d*.
**Kolodovkin, A. Ya.**, and Postemeln, N. S. App. for the extn. of ozocerite, P 6404*e*
**Kolodziejski, R.** See Fröhlich, H.
**Kologreeva, A. G.** See Gel'd, P. V.
**Kologrivova, A. Yu.** See Blagoveshchenskii, A. V.
**Kolomiec, B. T.** See Kolomiets, B. T.
**Kolomiets, B. T.**, and Putselko, E. K. Valve photoeffect in Se with admixts of Cd, 4102*f*.
**Kolonits, B.** Pharmacol. investigations with thioseptsulfonate, 2315*a*
**Koloskov, S. P.** See Krasnitski, L. D.
**Kolosova, V. S.** See Dodonov, Va. Va.
**Kolotouchin, I. N.** See Kolotukhin, I. N.
**Kolotti, A. A.** See Dehmarskii, Yu. K.
**Kolotukhin, I. N.** See Povarnin, I. G.
**Kolp, D. G.** See Lange, W.
—— and Thomas, H. C. Rates of water oxidation in ceric perchlorate solns., 8815*g*
**Kolpakova, V. V.** See Zeligson, N. E.
**Kolsky, H.** See Hillier, K. W.
—— and Shearman, A. C. Fractures produced by transient stress waves, 8784*i*.
**Kolsky, M.** See Meidinger, F.
**Kolstad, G. A.**, Schultz, H. L., and Montgomery, C. G. Microwave accelerator for production of high-intensity $\gamma$-rays, 4095*i*.
**Koltashev, N. G.** Dynamic shear resistance in thixotropic suspensions, 6884*i*
**Koltay, M.**, Kovacs, K., Majoros, M., Halmágyi, D., and Kelemen, E. Change of alk. phosphatase activity in the kidneys treated with derivs. of aminobenzoic acid, 9245*f*.
**Kolthoff, I. M.** Beginning course in quant. analysis, 1618*i*; indicators, 2113*g*; physicochem. principles in analytical research, 3669*i*; voltammetry (polarography) and amperometric titrations, 4972*d*; amperometric titrations, 5094*g*; see Hume, D. N.; Lee, T. S.; Medalis, A. I.; Shapiro, I.; Stricks, W.
——, Lee, T. S., and Leussing, D. L. Equil. and kinetic studies on the formation and dissocn. of ferroin and ferriin, 1630*h*.
and Probst, R. L. Detn. of $Sb^{3+}$ in the presence of $As^{3+}$, 8301*f*.
—— and Stricks, W. Solubilization of dimethylaminoazobenzene in solns. of detergents (II) effect of electrolytes in the crit. concn. and the solubilization of dimethylaminoazobenzene, Orange OT, and *trans*-azobenzene in detergent solns., 4876*d*.
**Koltypin, S. G.** See Brusyantsev, N. V.
**Kolyakova, G. E.** Detn. of alc. in tinctures, 6783*f*; detn. of the concn. of EtOH in infusions, 9370*h*.
**Kolyshenkov, P. A.** See Koval'skii, V. A.
——, Koval'skii, V. A., and Kuptsov, I. I. Generating $C_2H_2$, P 3250*g*.
**Komárek, K.** Mikrochemie. Vol. I. Mikroanalysa kvalitativní (book), 3318*d*; mineral springs at the foot of the High Tatra Mts. (I) waters of Slovenská Ves (Wünschendorf), (II) springs at Bierbrunn, Toportz, Ober Rauschenbach, Forbas, and Altschmeck, 7163*i*.
**Komarewsky, V. I.** See Frankenburg, W. G.
—— and Coley, J. R. V oxides, hydrogenation catalysts (II), 2853*b*
——, *et al.* Technique of Org. Chemistry. Vol. II. Catalytic, Photochem., and Electrolytic Reaction (book), 1432*b*
**Komáromy, I.** See Bálint, P.
**Komáromy, J.** See Mosonyi, L.
**Komarov, N.** Specific cold-efficiency of Freon 12, 7282*g*.
**Komarov, S. A.** See Shay, H.; Siplet, H.
— —, Shay, H., and Siplet, H. Secretion of gastric mucin in response to sham-feeding and histamine stimulation, 8512*e*.
**Komarova, L. V.** See Glikman, S. A.
**Komazawa, S.** See Kodama, S.
**Komemochi, J.** $CaC_2$, P 7838*a*.
**Kometani, R.** See Ogata, Y.
**Kominek, E. G.** Treatment of plating wastes, 3548*e*, accelerated waste-treatment, 6768*a*.
**Komiyama, I.** See Iwata, M.
**Komjáthy, A.** Properties of photons and de Broglie waves, 2084*f*
**Komline, T. R.** Drum filter for sewage-filtration plants, P 5549*a*
**Komline-Sanderson Engineering Corp.** Drum filter for sewage filtration plants, P 3549*a*.
**Komlós, E.** See Issekutz, B., Jr.
**Komori, S.** Ores for the chief or accessory catalyst in the prepn. of higher alcs., P 3835*e*, prepn. of unsatd. higher alcs. by catalytic reduction (IX) neg. catalysts for Fe oxide catalyst, 5363*d*; see Ueno, Seiichi.
**Komovskii, G. F.** Construction and operation of a curved crystal x-ray spectrograph, 489*i*; luminescent analysis of minerals, 6933*f*
**Komshilov, N. F.** See Rudakov, G. A.
**Komshilov, N. F.** See Komshilov, N. F.
**Komulainen, L.** See Kauko, Y.
**Komuro, T.** Making artificial wool by utilizing soybean protein (I) (3) viscosity in a dil. soln., (4) viscosity and the estd. mol. sp. vol. and shape, (5) nature of the concd. protein soln., (6) nature of the concd. protein soln. in NaOH, $CS_2$, and urea, 4469*i*; manuf. of artificial wool from protein (I) properties of a concd. soln. of soybean protein, (II) solns. of soybean protein in solns. of NaOH and $CS_2$ and in aq. urea solns., (III) viscosity of dil. soybean protein solns., 4859*e*; (IX) measurement of the viscosity of the soybean protein extd. with solns. of urea, 4861*a*; (XI) soybean protein in fiber, 4861*e*.
—— and Asakura, M. Making artificial wool by utilizing soybean protein (I) (1) soly. of protein from fat-free soybeans in acid and alkali, (2) soly in salts, 4469*g*; manuf. of artificial wool from protein, (IV) viscosity of soybean protein solns and the specific vol. and the shape of the protein mol. in soln., (V) soly in acid and alkali of protein obtained from soybean powder from which the oil has been extd., (VI) soly. of soybean protein in salt solns., 4860*a*.
——, Asakura, M., Sakurai, S., and Tamaki, S. Manuf. of artificial wool from protein (VII) influence of washing liquid on the thermal change in soly. of protein, (VIII) x-ray diagrams of soybean protein and fibers prepd therefrom, 4860*f*.
— and Hayakawa, I. Manuf. of artificial wool from protein (X) combination of soybean protein and HCHO, 4861*c*.
— and Sakurai, M. Manuf. of artificial wool from protein (XII) action of alkali on soybean protein, 4861*f*.

**Kon, G. A. R.** See Brown, Daniel M.; Everett, J. L.
**Kon, S. K.** Milk in human dietetics and the influences of preserving processes on its nutritive value, 6748*i*; see Henry, K. M.
——— and Henry, K. M. Nutritive value of milk and milk products, 8568*a*
**Konĉar-Djurdjević, S.** See Konchar-Durdević, S.
**Konchar-Durdević, S.** Stragari asbestos for the production of silica gel, 6335*h*.
**Konchine, N.** See Konshin, N
**Koncus, A. F.** See Choi, R. P
**Koncz, I.** Electrolytic polishing of metal surfaces, 7880*g*
**Kondakova, M. S.**, and Gol'dfarb, Ya. L. Action of alkyl halides on α- and α'-aminonicotines, 7024*b*
**Kondic, V.**, and Kozlowski, H. J. Characteristics of casting fluidity, 5351*a*
**Kondo, J.** See Koide, T
**Kondo, S.** Insecticide, P 5529*a*.
**Kondo, T.** See Horio, M.
**Kondo Chemical Industries Co.** Alkali alkylxanthates, P 7957*i*
**Kondrat'ev, V. N.** Interaction of neutrons with nuclei, 7809*e*, distribution of active reaction centers in the combustion zone, 8248*d*.
**Kondrat'eva, A. P.** See Shchukina, L. A.
**Kondrat'eva, G. Ya.** See Yur'ev, Yu. K.
**Kondratyev, V. N.** See Kondrat'ev, V. N.
**Konegstein, M.** See Roche Products Ltd.
**Konen, J. C.**, and Schroeder, B. W. Protein-water-paint vehicles with increased wet abrasion-resistance, P 4493*e*.
**Konenko, A.** See Tovbin, M.
**Konevichev, B. N.** See Malinovskiĭ, M. S.
**Kongut, J.** Furfural, 8669*g*
**Konig, G. M.** See Magyar Viscosa R. T.
**Konig, R.** See Foldi, Z.
**Konikov, A. P.** See Bresler, S. E
**Konikova, A. S.** Protein research, 3050*f*, see Yakobson, L. M.
———, Kritsman, M. G., Orekhovich, V. N., Davydova, S. Ya., Ottesen, B. V., Men'shikov, M. I., Gol'din, L. L., and Kukavadze, G. M. Renewal of aminodicarboxylic acids in the blood by heavy $C^{13}$, 8499*e*
———, Kritsman, M. G., Yakobson, L. M., and Samarina, O. P. Synthesis of individual amino acids from $NH_3$ and keto acids, 7546*i*
**Koningsberger, C.** Homogeneous partially chlorinated derivs. of rubber, P 432*a*; what org.-chem. reactions come into consideration for the synthesis of macromol. material? 438*i*, 2809*g*; structure study of macromols., 5731*c*
**Koninklijke Industrieele Maatschappij voorheen Noury & van der Lande N. V** Reductic acid, P 2227*e*, therapeutically active org. As compds., P 4817*a*, chlorinating org. liquids, P 5409*f*
**Konis, E.** Germination inhibitors (VI) inhibiting action of leaf-saps on germination and growth, 8459*d*; see Evenari, M.
**Konishi, Yoshikichi**, and Okamoto, T. Sepn. of Fe from scraps of Al alloy contg. Fe, P 6965*a*.
**Konishi, Yukio.** Influence of hot water on the wet strength of viscose fiber, 5191*h*; see Arimori, T.
**Koniuszy, F. R.** See Brink, N. G.; Folkers, K.; Holly, F. W.; Rogers, E. F.
———, Wiley, P. F., and Folkers, K. Erythrina alkaloids (XVI) constitution of erysodine, erysovine, and erysopine, 4281*b*.
**Konneker, W. R.** See DeBenedetti, S
**Konnerts, F.** See Clusius, K.
**Konnov, L. P.** Chokadam-Bulak quartz deposit, 2134*e*.
**Kono, T.** Influence of sublethal doses of the poisonous gases on insects (I) influence of *sublethal doses on the susceptibility of the* adult rice weevil, *Calandra orysae*, to $CS_2$, 8603*d*.
**Konobeevskiĭ, S. T.** X-ray structure analysis and x-ray spectroscopy, 7809*h*.
**Konobejewsky, S. T.** See Konobeevskiĭ, S. T.
**Konokotina, N.** Detn. of solids in ice cream, 7599*i*.
**Kononov, V. N.** Diln. of water in the detn. of biol. utilization of O, 1505*i*.
**Kononova, M. M.** Cellulosolytic myxobacteria in humifying plant residues (II) biochemistry of humic acid formation, 7085*e*.
——— and Aleksandrova, I. V. Cellulosolytic myxobacteria in humifying plant residues (I) biochemistry of myxobacterial cellulosolysis, 6700*h*.
———, Pankova, N. A., and Bel'chikova, N. P. Changes in content and compn. of soil org. matter, 7617*c*.
**Konopicky, K.** Parallelism of the regularities in ceramics and powder metallurgy, 8627*a*; development of magnesite brick, 8629*b*; see Pranter, H.; Trojer, F.
——— and Trojer, F. Chem. and mineralogical structure of refractory magnesite compns., 3986*g*.
**Konopik, N.**, and Fiala, R. Detn. of Na and its sepn. from Sb, 8956*e*.
——— and Leberl, O. Detn. of pH in the range 10 to 15, 5339*e*.
——— and Schütz, G. $Na_2S$ in aq. soln. (I) d. and soly., 5264*e*.
**Konopinski, E. J.** See Beiduk, F. M.
**Konovalev, P. F.**, and Skue, E. R. Intensification of clinkering by addn. of fluorspar into the raw mix, 2749*e*
**Konovalov, D. S.** Ignition temps. of org. compds. under atm. pressure, 5657*i*
**Konovalov, S. A.** Nutritional value of various N compds. for yeasts, 8446*i*; selectivity in capacity of yeasts to utilize N from amino acids, 9160*f*.
**Konovalova, A. A.** See Konovalova, R. A
**Konovalova, A. B.** See Suprunovich, I. B
**Konovalova, R. A.** See Kiselev, V. V., Rabinovich, M. S.
——— and Danilova, A. Alkaloids of *Senecio* species (VI) structure of seneciphylline, 1427*g*
——— and Kiselev, V. V. Alkaloids of plants of Papaveraceae (IX) structure of oripavine, 238*h*.
——— and Konovalova, A. A. Sepn. of cytisine from an aq. ext. of the seeds of *Thermopsis lanceolata*, P 6371*a*
**Konowalow.** See Konovalov.
**Konshin, V. D.** Balance of N in the Black Lake in Kosina (U. S. S. R.), 7762*d*
**Konstantinov, A.** See Alikhanyan, A. I
**Konstantinova-Shlezinger, M. A.** Luminescence analysis, 6933*h*, (book), 2517*b*; luminescent properties of crystal phosphors and their chem. structure, 5670*e*
——— and Gorbacheva, N. A. Theory of chromatographic analysis, 8945*h*
**Kontorov, B. M.** Welding a hard layer on soft metals, P 6150*a*
**Kónya, A.** See Hoffmann, T. A.
**Konzett, H.** Tannin and adrenaline, 2327*a*; effect of aludrine and adrenaline on the blood pressure, 4762*i*, see Barcroft, H.; Hebb, C. O.
——— and Hebb, C. O. Vaso- and bronchomotor actions of noradrenaline and of adrenaline in the isolated perfused lungs, 4375*e*.
**Kooi, J.** System methylmethacrylate–MeOH–$H_2O$, 4552*g*.
**Kooij, G. W. van B.** Dialyzing, 9140*i*.
**Kooij, J.**, and Nierstrasz, C. A. Vraagstukken over chemische analyse (book), 2548*g*
**Kooij, L. W.** Dyeing of cellulose fibers with direct dyes, 4856*i*
**Kooijman, E. C.**, and Overhoff, J. Unsatd. halogen-contg. nitro compds., P 6646*h*
**Kooijman, P. L.** $H_2O_2$ distn. after removal of org. peroxides, P 3160*a*, prepn. of HCHO by the oxidation of $CH_4$, 7413*g*.
**Kooijmans, J.** Water supply for Amsterdam; pollution and self-purification of the river Vecht, 1127*b*
**Kooijmans, L. H. L.** Removal of Fe and Mn from underground water in Holland, 5137*i*
**Kool, P. B.** Fiberboard, P 9459*b*
**Koon, C. M.**, and Pease, W. F. Control of paper quality (I) basis wt. and moisture content, 6412*e*
**Koones, H. F.** Extn. of rutin, P 3661*i*.
**Koopman, K. H.** Welding flux, P 3344*a*; welding rod, P 7405*e*.
**Koosin, A. M.** See Kuzin, A. M.
**Kootz, T.**, and Gille, G. Converter designs and blow conditions for the production of low-N steel, 3327*a*.
——— and Holtmann, W. N content of pig iron, 979*i*.
**Kooy.** See Kooij.
**Kooyman, E. C.** See Kooijman, E. C.
**Kooyman, J. C.** Serum and tissue Fe, 9133*e*.
**Kooyman, P. L.** See Kooijman, P. L.
**Kooymans, L. H. L.** See Kooijmans, L. H. L.
**Kopacki, A. F.** See O'Hare, G. A.
**Kopaczewski, W.** Electrocapillary analysis of soil, 3126*i*.
**Kopala, J.** See Gurdjian, E. S
**Kopeč, B.** See Šmialowski, M
**Kopec, J. B.** See Fitterer, G. R.
**Kopecki, E. S.** Cupola hot metal for the open hearth, 530*f*; fused ore for the open hearth, 4194*b*; induction stirring in elec.-furnace steelmaking, 8897*f*; see Lloyd, T. E.
**Kopecký, R.**, and Šandera, K. Czechoslovak sugar industry—half century of systematic sugar investigations, 4499*g*.
**Kopelevich, T. V.** Detn. of partial vapor ds. of $NH_3$, $H_2S$, $CO_2$, and $H_2O$ above boiling ammonia liquor, 2480*g*.
**Kopeloff, N.** See Ward, A. A., Jr.
**Koperina, A. V.** See Kazanskiĭ, B. A.
——— and Kazanskiĭ, B. A. 1,2,3-Trimethylcyclopentane, 155*i*.
**Kopf, R.** Effect of K ions on the mono- and diphasic action current of amphibia, 6742*f*, see Fischer, Lena.
———, Loeser, A., and Meyer, G. Action of the S-contg. antithyroid substances, 3101*c*.
**Kopfermann, H.** See Brix, P.
———, Finkelnburg, W., Hoyer, H., Goubeau, J., Schäfer, K., and Forster, T. Electron shells, 3701*h*.
——— and Meyer, D. Hyperfine structure of the W I spectrum, 6510*h*, 8878*d*
——— and Paul, W. Electron accelerator for 6 m e v., 7811*e*
——— and Wessel, G. Isotope displacement in the Ba I spectrum, 6510*i*
**Kopita, R.** Gas and liquid contact app. for cleaning gases, cooling, etc., P 2048*d*
**Kopp, G.**, and Gangneux, R. Disazo pyrazolone dyes for silk and cellulose, P 9463*a*
**Kopp, M.** O requirement of growing plant cells, 7090*a*.
**Koppanyi, T.** Physiology of acetylcholine (III) acetylcholine as a pharmacol. agent 4753*b*; see King, T. O.
**Koppe, H.** The *g*-factor of electron orbital momentum, 2856*i*; degeneracy of an electron gas by pair production, 5660*b*, sp. heat of superconductors, 6069*f*, meson yield by bombardment of light nuclei with α-particles, 6070*h*; cross section of atoms for inelastic scattering of fast electrons, 8847*e*, energy distribution of thermal neutrons, 8854*i*, mesons, 8857*h*.
**Koppel, L.** See Champion, C. H., & Co., Ltd.
**Koppenhoefer, R. M.** Sol. oil for leather and fur processing, P 3224*d*; see Van Horn, H. T.
**Kopper, P. H.** Component enzymes of *Pseudomonas* creatinase, 9125*f*
**Koppers Co., Inc.** (*Patents.*) Adhesive contg. the intercondensation product of a monohydric phenol and a polyhydric phenol, 9536*b*; allylation of dihydroxybenzene, 3037*f*; $(NH_4)_2SO_4$ of large crystal size, 4435*d*, bituminous laminated material, 1568*a*; bituminous mastic coated metal sheet, 6148*f*; carbazole purification, 4450*f*, catalyst for polymerization and condensation of hydrocarbons, 5419*b*, catalyst reactivation in hydrocarbon synthesis, 9420*h*; coke-oven gas treatment, 5928*f*; coke-oven wall repair, 8651*c*, corrosion prevention in catalytic reactions involving the use as catalysts of acids of P, 8349*f*; dehydrogenation process, 5788*d*; dephenolization of ammoniacal liquor, 381*a*; 3,4-dihydro-1(2*H*)-naphthalenone, 3848*c*; elec. discharge app. for the synthesis of nitric oxide from atm. N, 6096*f*; gas purification, 380*ef*, 2408*d*, 4450*c*; guanidine, 3132*i*; guanidine nitrate, 5416*b*; heating coke ovens with enriched fuel gas, 2408*h*, HCN, 2756*f*, Hg acetylide-Ag complex, 5175*b*, 7670*i*, naphthalene refining, 7214*f*; phenothiazine refining, 2740*a*; pyridine recovery by distn. process, 8651*a*; recovery of by-product ether from the manuf. of butadiene, 7950*d*; rendering noncorrosive the products resulting from catalytic alkylation, 9430*g*; sepn. of compds. by crystn., 5236*h*; sepn. of *o*-xylene from isomeric xylenes by fractional distn., 5039*e*; 1,2,3,4-tetrahydro-1-naphthol, 1808*d*; vinylnaphthalene, 5804*h*.
**Kopp Glass, Inc.** Glass compn., P 1934*i*
**Koppitz, E.**, and Moritz, H. Analysis of Zn and Zn alloys, 968*e*.
**Koppius, O. G.** Detection of Pb in air, 4523*c*.
**Koprowski, H.** See Cox, Herald R.
**Koptsik, V. A.** Pyrite from Sargardonsk, Middle Asia, 6115*f*.
**Kopwillem, J.** Höganäs coal-tar oil as a wood preservative, 9339*d*.
**Korablev, L. N.**, Lyubimov, A. L., and Miller, A. V. Cosmic ray showers formed in thick layers of Pb, 4557*i*.

**Korableva, L. I.** Influence of prolonged action of lime on the acidity of podzolized soils, 4409*d*
**Korchemkin, F. I.** See Korchemkin, F. I.
**Korchemkin, F. I.** Methylated substances of the cambium juice of the oak tree, 7554*a*.
**Kordes, E.**, and Becker, H. Spinel mixed crystals of the system $MgAl_2O_4$-$ZnAl_2O_4$, 8296*g*.
**Korecký, J.**, and Pospíšil, R. Rare Metals and Their Tech. Uses (book), 988*a*.
**Korenchevsky, V.**, and Jones, V. E. Effects of progesterone, estradiol, thyroid hormone, and androsterone on the artificial premature climacteric of pure gonadal origin produced by ovariectomy, 2301*e*.
**Koren'kov, M. D.** See Malov, N. V.
**Korenman, I. M.** Instability constant of $CdCl_4^{--}$, 923*h*, theory of org. analytic reagents, 2541*b*; (II) org. reagents for $H_3BO_3$, 5696*c*; (IV) amino acids and compds of analogous analytical behavior, 8947*h*, Air Analysis in Industrial Plants (book), 8074*h*.
—— and Fisher, A. M. Detn of *m*-dinitrobenzene and trinitrotoluene, 4185*d*.
—— and Glazunova, Z. I. Detn. of small amts. of Pb, 5331*i*.
—— and Gutnik, G. B. Detn. of small amts. of Ca, 5320*h*.
—— and Potemkina, V. G. Test for Hg ion, 5701*h*.
—— and Punchik, E. M. Detn. of Co by the vol. of ppt., 5330*d*; detn. of pH by means of mixed indicator, 5701*e*.
—— and Rostokin, A. P. Capillary microburets, 4053*d*.
**Koretko, V. P.** Recovery of caustic on the mercerization machine, 3622*b*.
**Korets, N. P.** See Busev, A. I.
**Korff, S. A.** Ionization measurements of nuclear disruptions produced by cosmic radiation, 6504*a*; see Hoag, J. B.
**Koritnig, S.** Detn. of the variable *ns* in sections of uniaxia and biaxial crystals—detn. of the axial angle 2V, 8311*h*.
**Koritskaya, T. D.** See Sokolov, A. V.
**Koritskii, V. G.**, and Edneral, T. B. Influence of the mass and the dimensions of samples on the results of spectral analysis of steels, 6540*i*.
**Korjus, M.** See Lindeberg, G.
**Korkes, S.**, and Ochoa, S. Adaptive conversion of malate to lactate and $CO_2$, 1830*a*.
**Korman, J.** See Hunter, J. H.
**Kormendi, L.** Separator of starch and gluten, P 1204*d*; see Chemprotin Products.
**Korn, A. H.** See Mellon, E. F.
**Korn, D. S.** See Schachner-Korn, D.
**Kornberg, A.** Nucleotide pyrophosphatase and triphosphopyridine nucleotide structure, 255*g*; inorg. pyrophosphate in the reversible enzymic synthesis of diphosphopyridine nucleotide, 2259*h*; see Horecker, B. L.
—— and Lindberg, O. Diphosphopyridine nucleotide pyrophosphatase, 2250*h*.
**Kornblat, G. D.** See Margolin, S. E.
**Kornblum, N.**, and Eicher, J. H. *meso*-2,5-Dibromohexane, 6969*e*.
—— and Iffland, D. C. Replacement of the aromatic primary amino group by H in aromatic-aliphatic diamines, 9046*h*.
—— and Oliveto, E. P. Thermal decompn. of alkyl nitrites in the liquid phase—pyrolysis of optically active 2-octyl nitrite, 3770*a*.
**Korneev, V. L.**, and Khzmalyan, D. M. Flameless combustion of gases, 7665*i*.
**Kornetzki, M.** Curie temp. and hydrostatic pressure, 8783*i*.
**Kornfeld, E. C.** See Kleiderer, E. C.; Woodward, R. B.
—— and Jones, R. G. Structure of actidione, an antibiotic from *Streptomyces griseus*, 576*h*.
——, Jones, R. G., and Parke, T. V. Structure and chemistry of actidione, an antibiotic from *Streptomyces griseus*, 2998*c*.
**Kornfeld, G.** Herschel effect and the structure and stability of the photographic latent image, 6097*i*.
**Kornfeld, L.** See Wolfe, D. M.
**Kornienko, T. P.** See Polyakov, M. V.
**Kornilov, I. I.** Classification of the soly. of elements in Fe (III) limited solid solns. of Fe, 1300*g*.
**Kornis, J.** Thickening agent for textile printing dyes, P 1988*i*.
**Kornmann, F.** See Funke, A.
**Kornreich, E.** Origin and identification of damage to textile fibers, 7090*g*.
**Korobitsyna, I. K.** See Yur'ev, Yu. K.
**Korobkova, E. I.** Duran-Reynolds spreading factor and plague bacteria, 7126*e*.
**Korolev, A. I.** See Belov, V. N.; Shemyakin, M. M.
——, Lastovskii, R. P., Mikhalev, V. A., Skol'dinov, A. P., and Smolin, D. D. Sulfanilamide and its *N*¹-derivs., P 6661*i*.
—— and Mur, V. Asymmetric synthesis of cyclohexane derivs., 3797*e*.
**Korolev, A. Ya.** Cell for the detg the water permeability of lacquer films, 8702*i*, see Pasynskii, A. G.
**Korolev, S. I.** See Kitaigorodskii, I. I.
**Korolev, V. V.** See Rybakova, V. M.
**Koroleva, A. S.** See Malov, S. I.
**Koroleva, E. I.** See Grodzenskii, D. E.
**Koroleva, T. D.** See Kitaigorodskii, I. I.
**Koroljew.** See Korolev.
**Korosy, F.** See Keller, A.
**Korotkevich, A. V.** Detn of alc. in wines, 353*a*.
**Korotkov, F. S.** Prepn. and use of liquids for hydraulic brakes, 4790*g*.
**Korotkov, I. L.** Accumulation of vitamin C in pine needles, 5453*e*.
**Korotkov, S. Ya.**, Nysenko, N. T., Nikolaev, S. I., Kropotov, V. I., and Feinbrun, R. I. Dyeing wood, P 6390*f*.
**Korovyakov, I.** Genesis of Cu-Ni sulfide ore deposits related to Siberian trap basalts, 3750*b*.
**Korpássy, B.** Liver injury by tannic acid, 8535*a*.
**Korpi, K. J.** See Volz, J. L.
**Korsak, W. W.** See Korshak, V. V.
**Korsakova, O. M. R.** See Rimskaya-Korsakova, O. M.
**Korschun.** See Korshun.
**Korsh, P. D.** See Korzh, P. D.
**Korshak, V. V.** Change of mol. wt of high polymers in the process of chem destruction, 4542*a*; see Chelnokova, G. N.; Rafikov, S. R.
—— and Golubev, V. V. Polycondensation reactions (VII) influence of excess of adipic acid on polycondensation with hexamethylenediamine, 142*c*.
—— and Lebedev, N. N. Friedel-Crafts reaction (VIII) structure of complex compds. of Al halides with alkyl halides, 2930*d*.
——, Lebedev, N. N., and Borisova, K. V. Chlorination of sulfamic acid, 55*g*.
—— and Samplavskaya, K. K. Friedel-Crafts reaction (VII) reaction of vinylidene chloride with $C_6H_6$, 2193*c*.
—— and Zamvatina, V. A. High-mol. compds. (XVI) polydispersity of polyamides, 577*a*.
**Korshujew, P. A.** See Korzhuev, P. A.
**Korshun, M. O.** Apparatura dlya Kolichestvennogo Elementarnogo Mikroanaliza (book), 2476*b*.
—— and Gel'man, N. E. New Methods of Elementary Microanalysis (book), 8312*e*.
—— and Klimova, V. A. Microelementary analysis (I) detn. of C and H in samples contg. C, H, and O, 6936*h*; (II), 8943*b*.
—— and Lavrovskaya, E. V. Detn. of Hg in org. compds., 8955*d*.
**Korshun, Yu.** I. S. Teletov, 3251*d*.
**Korshunov, I. A.** See Malyugina, N. I.
—— and Kirillova, A. S. Detn of Ni and Cu in hydrogenated fat, 1199*h*; polarographic study nitrobenzene, 4585*e*.
—— and Malyugina, N. I. Detn of Zn in piston alloy, 4974*f*.
—— and Rostokin, A. P. Potentiometer for electrometric work, 1270*g*.
——, Ryabov, A. V., Sazanova, L. N., and Kirillova, A. S. Detn. of nitrobenzenes, 4977*a*.
—— and Sazanova, L. N. Analysis of Zn plating baths, 4140*i*; detn. of Cu and Pb in a Ni electrolyte, 4973*e*; reduction of BzH and *p*-dimethylaminobenzaldehyde at a dropping-Hg cathode, 5316*f*.
**Korshunov, V. I.** See Ravich, M. B.
**Korŝounov.** See Korshunov.
**Kortschak, H. P.**, Gill, R. F., Jr., and Payne, J. H. Regeneration of a cation-exchange resin, 6872*e*.
—— and Payne, J. H. Hydrolysis regeneration of an anion-exchange resin, 2067*a*.
**Kortschemkin, F. I.** See Korchemkin, F. I.
**Kortüm, G.** Kolorimetrie und Spektralphotometrie (book), 3278*g*; analysis of nitration acids, 5346*c*; thermodynamics to quantum theory, 5659*b*.
—— and Schöttler, H. Optical detn. of dissocn. consts. of colorless acids by indicators, 6105*h*.
**Korytkowski, J.** Chem. industry in the Soviet Union, 8073*c*.
**Korzenovsky, M.** See Burk, D.; Warburg, O.
**Korzh, P. D.** Thermoelec. method for sorting ferrosilicons, 543*c*.
**Korzhinskii, D. S.** Filtration effect in solns. and its role in geology, 6124*b*.
**Korzhuev, P. A.** Concn. of hemoglobin and intensity of O consumption by erythrocytes of vertebrates, 9271*e*.
**Korzhuk, L. N.** Detn of the permeability of hardened cements and concretes to water, 3987*f*.
**Korzuev, P. A.** See Korzhuev, P. A.
**Kosak, A. I.** See Hartough, H. D.
—— and Hartough, H. D. 2-Acetothienone, 1762*f*; acylation of thiophene, P 2644*b*, 3405*f*, acylation of aromatic alkoxy compds., P 6235*f*; catalytic acylation of phenyl alkyl ethers, P 7960*i*.
**Kosaka, Y.** See Kurozumi, M.
**Koschetkov.** See Kochetkov.
**Koschkin, N.** See Koshkin, N.
**Koscova, A. G.** See Kostsova, A. G.
**Koser, S. A.** Growth factors for microorganisms, 9137*e*.
**Koshelev, V. V.** See Sytnik, V. A.
**Kosherygina, T. V.** See Raikhinshtein, Ts. G.
**Kosheurow, W. A.** See Kozheurov, V. A.
**Koshimizu, Y.** See Sofue, K.
**Koshiro, I.** See Kimishima, T.
**Koshits, B. A. P.** See Poral-Koshits, B. A.
**Koshits, E. A. P.** See Poral-Koshits, E. A.
**Koshits, M. A. P.** See Poral-Koshits, M. A.
**Koshkin, N.** Liquid $CO_2$ production, 7650*h*.
**Koshland, D., Jr.**, and Westheimer, F. H. Fermentation of glucose-1-$C^{14}$, 3969*e*.
**Koshtoyants, Kh. S.** Participation of enzymic permeability factor in nervous excitation, 741*f*.
**Koshurnikov, G. S.** Adsorbed layers as a passivating factor, 28*b*; adsorptive passivation of Fe with protein layers, 8246*c*; thickness of the valence-electron atm. and the electrode potential of metals, 8911*a*.
—— and Mokievskii, V. A. Effect of org. addns. on the crystn. of alkali metal halides, 13*c*.
**Kosikowsky, F. V.** See Dahlberg, A. C.
—— and Dahlberg, A. C. Phosphatase test for cheese, 8570*d*; $Na_2CO_3$-$NaHCO_3$ buffer in the phosphatase test for cheese, 9284*c*.
——, Herrington, B. L., and Dahlberg, A. C. Pasteurization of American Cheddar cheese, 9284*e*.
**Kosior, K. E. A.** Detn. of $H_2S$ in natural gas, 835*e*.
**Kositski, A. I.** Combustion of lignite, 1944*b*.
**Koski, V. M.**, and Smith, J. H. C. Isolation and spectral absorption properties of protochlorophyll from etiolated barley seedlings, 1465*a*.
**Koski, W. S.** Sepn. of nuclear isomers of Br on Ag plates, 4123*c*; diffusion of O in KCl, 8863*c*; see Cohen, V. W.
—— and Thomas, C. O. Scintillations produced by $\alpha$-particles in a series of structurally related org. crystals, 8264*b*.
**Koškine, N.** See Koshkin, N.
**Kosloff, Koslow.** See Kozlov.
**Koslowski.** See Kozlovskii.
**Kosolapoff, G. M.** Synthesis of aromatic phosphonic acids and their derivs. (II) halobenzene derivs., 599*c*; phosphorylation reactions, 1004*g*; synthesis of sym. phosphinic acids, 2967*f*; orientation in aromatic compds. of P (I) nitration of dibutyl benzylphosphonate, 5758*b*; tetraalkyl phenyl triphosphates, P 9356*g*; tetralkyl pyrophosphates, P 9356*i*.
**Kosowski, J.** Curing superphosphate fertilizers, 8595*b*; B as a fertilizer, 9325*i*; see Bobrownicki, W.
**Kossa, G. M.** See Magyary-Kossa, G.
**Kossatz, R. A.** See Munter, P. A.
**Koss-Rosenqvist, A.** See Meyer, S.
**Koster, E.** Synthetic fibers and their dyeing, 411*b*.
**Koster, J. R.** Purifying Mn electrolytes, P 8918*i*; see Webb, P. S.
**Koster, W. R.** Alkali export control, 5157*i*.
**Kosterlitz, H. W.** See Campbell, R. M.
**Kosting, P. R.** See Zagwyn, T. K.
**Kostov, D.** Cytogenetic changes and atypical growth induced by hexachlorocyclohexane, 3891*i*, 4803*g*; atypical growth

abnormal mitosis, polyploidy and chromosome fragmentation induced by hexachlorocyclohexane, 6702*g*.
**Kostov, I.** Dodecahedral chalcopyrite crystals from the Rhodopian Mountains, 8312*g*.
**Kostrikin, Yu. M.** Chemisorbents for analytical purposes (I), (II), 57*i*
**Kostron, H.** Grain coloring and differential etching of Al Cu-Mg alloys, 2147*a*; effect of oscillating temps. on homogenization and diffusion processes in Al alloys, 2915*a*; see Dederichs, R.
**Kostsova, A. G.** Aliphatic sulfonic acids (II) synthesis and properties of acylamides of sulfonic acids, 120*e*; (III) prepn of aryl amides of alkanesulfonic acids, 6568*h*.
**Kosuge, K.** See Nakajima, S
**Kosyakov, K. S.** O and catalase, 4713*d*; ascorbic acid content in gonads of *Triturus vulgaris* in connection with their functional activity, 5875*a*.
**Kosyakova, I. A.** Analysis for detecting quinine in forensic chemistry, 5340*i*.
**Kosyreva, Z. S.** See Budnikov, P. P.
**Koszowa, A. G.** See Kostsova, A. G.
**Kotchneff, M. N.** See Kochneva, M. N.
**Kotecki, W.** See Ahrends, I
**Kotel'nikova, A. V.** Deamination of adenosinediphosphoric acid by the adenylic acid deaminase, 703*c*, phosphomutase of adenosinediphosphoric acid in animal tissues, 6263*h*.
**Kothari, L. S.** See Singwi, K. S
**Kotliarov, I. I.** See Kotlyarov, I. I
**Kotlyarevskiĭ, I. L.** See Nazarov, I N
**Kotlyarov, I. I.** N detn., 711*d*
**Koton, M. M.** Reaction of trimethylamine-HCl with metalloörg compds , 559*i*
—— and Bol'shakova, A A Reaction of dibenzylmercury with phenols (IV), 1740*g*.
**Kotov, E. I.**, and Panin, B M. Comparison of results of flash-roasting Zn concentrate and furnace-roasting with mech rabbling, 1294*f*.
**Kotov, V. I.** Smelting pig iron with high-acidity slags, 2555*i*.
**Kotter, E.** Utilization of wine residues and vine shoots, 6360*i*; waxes, 8709*g*.
**Kotter, R. W.** See Weissler, G. L.
**Kotteras, W. F.** See Kuczyński, W.
**Kottö, I. A.** See Andersson-Kotto, I.
**Kottwitz, F. A.**, and Forman, L. V. Na palconate production, 1959*i*
**Kotusov.** See Kuprina
**Kotyakhov, F. I.** Chlorides in oil-bearing strata, 1951*f*.
**Kouba, D. L.** See Butts, P. G.; Meldrum, W. B., Jr.; Mirel, S. L.
——, Kangas, L. R., and Becker, W. W. Detn of $C_6H_6$ in EtOH, 2123*d*.
——, Kicklighter, R. C , and Becker, W. W. Detn. of nitro N in nitroguanidine and cyclotrimethylenetrinitramine, 1568*g*.
**Koucev, S. S.** See Kutsev, S S
**Kouchkowa, N. K.** See Kushkova, N. K.
**Koudra, O. K.** See Kudra, O K.
**Koudrjachov, B. A.** See Kudryashov, B. A.
**Koukline, N. W.** See Kuklin, N. V.
**Koukoleff, G. W.** See Kukolev, G. V.
**Koulberg, L. M.** See Kul'berg, L. M
**Koulikoff.** See Kulikov.
**Koulkes, M.** See Marszak, I.
**Koumanin, K. A.** See Kumanin, K. A.
**Kountz, W. B.** See Ackermann, Philip
——, Chieffi, M., and Kirk, E Serum protein-bound I and age, 8514*c*.
**Kourbatoff.** See Kurbatov.
**Kourchatow, M. S.** See Kurchatov, M S.
**Kourilsky, R.**, Halpern, B. N , and Martin, J. Choleretic action of a new synthetic S compd., 1489*a*.
**Kourljankine.** See Kurlyankin.
**Kournossowa, L. W.** See Kurnosova, L. V.
**Koursanoff.** See Kursanov.
**Kourssanow, Koursanowa.** See Kursanov, Kursanova.
**Kourtschatov, M. S.** See Kurchatov, M. S.
**Kousine, A. M.** See Kuzin, A. M.
**Kouskova, N. K.** See Kuskova, N. K.
**Kousmin, L. L.** See Kuz'min, L. L.
**Koutecký, J.**, and Brdička, R Equation for the electrolytic current when depending on the formation rate of the depolarizer and the rate of diffusion and its polarographic verification, 48*h*.
**Koutek, J.** Renewed exploitation of the Au-Ag-Pb ore near Velhartic in the Forest of Bohemia, 4187*i*
**Kouwenhoven, W. B.**, and Potter, J. H. Thermal resistance of metal contacts, 538*f*.
**Kouzine, A. M.** See Kuzin, A. M.
**Kouzmine, E.** Application of heating by adiabatic compression to the realization of several chem. syntheses effected at high temp., 6022*e*.
**Kouznecov, Kouznetsov.** See Kuznetsov.
**Kovačević, V. V.** See Vukčević-Kovačević, V.
**Kovách, A. G. B.** See Beznák, A. B. L.; Csáky, T. Z.
——, Beznák, A. B. L., and Gáspár-Rády, Z. Increase in resistance against lethal doses of histamine developed by previous injections of small histamine doses, 9243*h*.
**Kovács, I.** See Budó, A.
**Kovács, J.** See Bruckner, V.
**Kovács, K.** See Koltay, M
**Kovács, L.** See Végh, A.
**Kovacs, O.** See Fodor, G
**Kovalenko, N.** See Zhdanov, A K.
**Kovalenko, N. A.** See Rakovskiĭ, E. V.
**Kovalenko, N. N.** See Flerov, A. F.
**Kovalenko, P. N.** Sepn of Cu from Pb and Cd and their detn , 1282*e*, automatic device for combined electrochem. analysis with controlled min. current, 2043*e*, detn. of Zn in metallic Cd, 7372*c*; see Dmitrieva, V. L.
—— and Dmitrieva, V. L. Detn. of Zn in cathodic Cd, 5699*f*.
**Kovalenkov, K. M.** Action of sympathicomimetic amines in relation to chem. structure (I) action of the nervous system of segmented worms, 316*e*.
**Kovalev, G. A.** Detn of a Crimean mineral of the kaolin group—dickite, 2899*c*
**Kovalev, L. K.** Shaft furnace for glass melting, 6379*d*.
—— and Stepanenko, M. G. Differential glass melting, 9390*h*.
**Koval'skiĭ, V. A.** See Kolyzhenkov, P. A.
—— and Kolyzhenkov, P. A. Acetylene generator, P 3250*h*
——, Kolyzhenkov, P. A , and Kuptsov, I I. Acetylene generator, P 3250*h*.
**Koval'skiĭ, V. V.**, and Chebaevskaya, V. S Co in the feeding of sheep, 8071*a*.
**Kovács, J.** Myosin and actomyosin content of the heart muscle, 7109*e*
**Kovel'man, G. A.** Effect of the nature of the clay component on the drying of ceramic bodies, 1163*a*, vitrification of feldspar in firing ceramic masses, 1163*f*; intermediate expansion of talc, 1542*f*, swelling of ceramic materials, 4823*e*
—— and Alesovetskiĭ, A Kh. Elimination of moisture from Metlach plates, 3586*e*; effect of gas medium on the quality of Metlach plates, 3586*f*.
—— and Gribskiĭ, N. A. Testing ceramic and similar materials and products, P 3588*e*.
**Koverga, A. S.** See Koverga, E. L.
**Koverga, E. L.**, and Koverga, A. S. Detg. the alkaloids of belladonna and thorn apple, 8095*g*.
**Koves, E.** See Domony, A.
**Kovrigina, G. I.** See Mishustin, I. U.
**Kovtun, M. S.** Detn of C in ferrous metals, furnace dust, and slags, 1285*d*.
**Kovtunovich, S. D.** See Litvinov, M. R.
**Kovyazin, N. M.** See Miropol'skiĭ, L. M.
**Kovyrev, I. G.** See Guberniev, M. A.
**Kowal, S. F.** See Chapman, S. S.
**Kowaleff.** See Kovalev.
**Kowalewski, K. P.** See Bastenie, P. A.; Mahaux, J.
**Kowalski, J.**, and Roga, B. Briquetting peat, 8118*e*.
**Kowarski, A.** See Klopstock, M.
**Kowarski, L.** See Broda, E.
**Kowarsik, V. S.** See Schmied-Kowarzik, V.
**Kowitz, A.** See Cheronis, N. D.
**Koyama, T.** Detn. of gases dissolved in water, 8962*a*, see Sugawara, K
**Koyanagi, K.** Manuf. of cement and cast iron, 4825*i*.
**Koyanagi, T.**, and Fujii, O Nutritional value of silkworm pupa (II) testing, 1472*h*.
**Kozhanchikov, I. V.** Seasonal differences of the reaction of gas metabolism to thermal influences, 2332*h*; chances of wintering over of the oak tent caterpillar, 3940*a*; effects of cold on growth of insect embryos, 6748*a*; influence of seasonal changes in the compn. of oak leaves on the feeding and growth of the oak silk worm, 7594*a*.
**Kozharin, K.** Detn. of moisture in butter, 7601*a*.
**Kozheurov, V. A.** Thermodynamics of basic metallurgical slags, 6067*h*; see Esin, O. A.
**Kozich, E. S.** See Drozdov, B. V.
**Kozirev, B. M.** Resonance paramagnetic absorption in $Er^{+3}$ and $Ce^{+3}$ salt solns., 2053*h*.
**Kozlobaev, I. P.** Dispersion and absorption of short electromagnetic waves in glycerol, 3717*b*.
**Kozloff, L. M.** See Putnam, F. W.
**Kozlov, I. N.** Action of coal-tar dyes used in food industry on the animal organism, 1488*e*.
**Kozlov, M. P.** Hypochlorite-chlorite bleaching, 8687*g*.
**Kozlov, V. A.** See Ptitsyn, B. V.
**Kozlov, V. V.** Anthraquinone series (VII) suppression of the catalytic effect of Hg in the sulfonation of anthraquinone, 617*d*; (VIII) mercuration of anthrone, 618*c*; (IX) action of sulfonating agents on Hg-contg. compds. of anthrone, 619*b*; (XI) 1- and 2-Hg derivs. of anthraquinone, 2198*c*, (XIII) action of sulfonating agents on 1- and 2-Hg-substituted compds. of anthraquinone, 3815*a*; hydrolysis of anthraquinonedisulfonic acids, 3400*g*.
—— and Egorova, A A 1-Hydroxyanthraquinone, P 3848*e*.
—— and Kuznetsova, A. G Naphthalene series (XII) reactions of dry salts of 2-naphthol-1-sulfonic acid, 5388*f*.
**Kozlova, A. A.** See Portnov, M. A.
**Kozlova, Yu. V.** See Sichkov, M. F.
**Kozlovich, I. Z.** Oxidizing zone when the blow is O-enriched, 2907*i*
**Kozlovskiĭ, A. L.** See Tartakovskiĭ, V Ya.
**Kozlovskiĭ, M. T.** See Maksimova, N. V
**Kozlovskiĭ, V. S.** Influence of the spleen on migration of Ca and Na from skin and muscle, 8038*b*; see Svershkov, I. V.
**Kozlowski, H. J.** See Kondic, V
**Kozlowski, T.** Tech. and analytical application of organolites, 8946*c*.
**Kozlowski, T. T.** Light and water in relation to growth and competition of Piedmont forest tree species, 7556*a*
**Koz'mina, O. P.** Oxidative action of peroxides of acids, 1085*h*, see Danilov, S. N
**Kožuhar, P.** See Pushin, N. A.
**Kraatz, C. P.** See Gruber, C M.
—— and Gruber, C. M Effect of choline deficiency on uterine activity, 4742*f*
——, Gruber, C M , Jr , Shields, H. L , and Gruber, C M Parpanit, 6733*d*.
**Krabek, W. B.** See Brown, E. A
**Kracklauer, A. C.** Filter for treatment of edible oils and chemicals leaving dry residues, P 3249*f*.
**Krähenbühl, E.** Cu-contg dyes, 6418*i*, printing, dyeing, and finishing brown shades fast to light and washing dischargeable to a good white, 8140*i*; see Casty, R.
**Kraemer, A. J.** Liquid fuels from oil shale 1171*g*.
**Kraemer, L. M.** See Conn, E.
**Kraemer, R. M.** See Kettering, J. H.
**Kraft, M. E.**, and Spencer, G. R. Effect of antibacterial agents on organisms in bovine mastitis, 3880*h*
**Kraft, W. M.** Prepn of indanone derivs by a carbamate-aldehyde reaction, 1389*i*
**Krahler, S. E.** See Benning, A. F.
**Kraiker, H., Jr.** Dispose of pickle liquor at a profit, 4989*h*.
**Krainer, H.** Cryst. slags in the system $CaF_2$-CaO-MgO-FeO, 8630*a*; see Rapatz, F.
—— and Mitsche, R. Carbides in V-alloyed high-speed tool steels, 6135*g*.
——, Swoboda, K., and Rapatz, F Low-alloy hot-working steels, 5351*e*; hardenability test for small plate specimens, 8327*i*.
**Kraitzer, I.**, McTaggart, K., and Winter, G Esters of Ti (I) butyl titanate—paint vehicle, (II) Ti-modified oils and phenolic resins, 2787*b*; prepn and utilization of esters of orthotitanic acid, 9026*i*.
**Krajewski, S.** Mineral resources of Poland, 2900*a*.
**Krakau, C. E. T.** Spasmolytic effect of angostura alkaloids, 3527*i*.
**Krakaur, R. B.** See Taggart, J. V.
**Krakusin, J. S.** See Farnsworth, E. B.
**Kral, H.** See Machek, G.
**Kral, V. E.** Buena Vista Fe deposit, Churchill Co., Nev., 7383*h*.
**Králik, F.** Spectral analysis, 7857*f*; spectral analysis of brasses by Pfeilsticker's intermittent arc, 8307*d*.
**Kramer, A.**, Guyer, R. B., and Smith, H. R. Measuring the color of raw and canned tomatoes, 1122*c*.
—— and Haut, I. C. Ripeness and color studies with raw and canned peaches, 8572*b*.

—— and Smith, H. R. Effect of variety, maturity, and canning procedures on quality and nutritive value of Lima beans, 8537*h*.

**Kramer, B.** See Sobel, A. E.

**Kramer, D. W.** Peripheral Vascular Diseases (book), 4371*g*.

**Kramer, F.** See Barnes, H. M.

**Kramer, I. R.** Nonmagnetic armor, P 554*h*.

——, Toleman, S. L., and Haswell, W. T. Fe-Mn and Fe-Mn-Ni alloys, 8338*e*.

**Kramer, J.** Point counter and counter tube in metallographic investigations of surfaces, 7391*g*.

**Kramer, M.**, and Went, F. W. Auxin in tomato-stem tips, 4733*c*.

**Kramer, M. L.** See Gold, H.; Modell, W.

**Kramer, P. H.** Rectifying a neutral molten salt steel-treating bath, P 6145*a*

**Kramer, P. J.** Plant and Soil Water Relationships (book), 8596*d*, see Wilson, C. C.

—— and Wilbur, K. M. Absorption of radioactive P by mycorrhizal roots of pine, 7550*i*.

**Kramer, R.** See Wintrobe, M. M.

**Kramers, H.**, and Broeder, J. J. Analysis of hydrocarbon oils, 8123*c*

**Kramers, W. J.** See Bennett, John G.

**Krámli, A.** Anodic oxidation of cholesterol derivs., 8908*i*.

—— and Horváth, J. Microbiol. oxidation of sterols, 4333*f*, 4726*i*.

**Krancher, C. G.** Straw paper manuf., 3613*c*.

**Krane, I.** Approach to abs. zero, 7276*e*.

**Kranendonk, J. van.** See Boer, J. de.

**Kraner, H. N.** See Baab, K. A.

**Kranifel'd, V. D.** See Shafranov, B. V.

**Krantz, B. A.** See Nelson, Walter L.

**Krantz, J. C., Jr.** Basic Al salt of aliphatic amino acid, P 8620*a*, aq. theophylline soln., P 9388*e*; see Bell, F. K., Pinschmidt, N. W.

—— and Carr, C. J. Pharmacological Principles of Medical Practice (book), 6320*i*.

Carr, C. J., and Vitcha, J. F. Anesthesia (XXXI) cyclic and noncyclic hydrocarbons on cardiac automaticity, 1111*d*.

—— and Kibler, D. V. Basic Al salt of aliphatic amino acid, P 8620*a*

**Kranzfelder, A. L.** See Cislak, F. E.

**Krapcho, J.** See Vaughan, J. R., Jr.

**Krasil'ščikov, A. I.** See Krasil'shchikov, A. I.

**Krasil'nikov, K. G.**, and Kiselev, A. V. Adsorption isotherms from solns. on layering or crystn.—adsorption of phenol on silica gel from solns. in heptane, 4536*e*.

**Krasil'nikov, N. A.** Do *Azotobacter* occur in lichens? 7085*b*; microbiol. factors in depositing $CaCO_3$ on rocks, 7549*b*; microorganisms in weathering of rocks (I) microflora of rock stratum surfaces, 9160*e*

**Krasil'shchikov, A. I.** Depolarization of O, 6091*h*, see Volchkova, L. M.

**Krasiuk, B. A.** See Krasyuk, B. A.

**Krasnec, L.** Influence of salts of org. bases on the soly. of caffeine, 8803*f*, soly. of caffeine in aq. solns. of Na salts of org. acids, 8803*d*; soly. of caffeine in the water soln. of Na salicylate, 8803*e*; soly. of strychnine and brucine in aq. solns. of Na salicylate, 9363*h*.

**Krasner, A.** See Othmer, D. F.

**Krasnikov, N. P.**, and Pod'elskiĭ, V. S. Na silicate, P 357*bf*; device for horizontal drawing of sheet glass, P 9407*e*.

**Krasnitskiĭ, L. D.**, and Koloskov, S. P. Beneficiation of fuel waste, P 9419*c*.

**Krasnjanskij, L. M.** See Krasnyanskiĭ, L. M.

**Krasnodebski, K.**, and Mlynarski, A. Recovery of $C_6H_6$ from coke oven gas, 6808*h*.

**Krasnova, S.** See Tovbin, M.

**Krasnovskiĭ, A. A.** Oxidation-reduction reactions involving an increase of free energy, photosensitized by chlorophyll and Mg phthalocyanin, 44*a*; see Evstigneev, V. B.

—— and Brin, G. P. Transfer of H from ascorbic acid to codehydrogenase I under action of light, absorbed by chlorophyll, 8410*d*.

—— and Gurevich, T. N. Desorption of gas on wetting powders, 7289*h*.

—— and Voinovskaya, K. K. Photochem. properties of protochlorophyll, 7092*e*.

**Krasnow, S.**, and Grossman, M. I. Stimulation of gastric secretion in man by theophylline-ethylenediamine, 7583*d*

**Krasnowsky, A. A.** See Krasnovskiĭ, A. A.

**Krasny, J. F.** See Schiefer, H. F.

**Krasnyanskiĭ, L. M.** N. I. Lunin, founder of the science of vitamins, 8760*i*.

**Krasnyĭ, L. I.** Geology and Mo content of the southwest part of the Okhotsk Sea basin and lower Amur region, 2132*c*.

**Krasnykh, I. F.** Ferro-alloys industry in U.S.S.R., 4014*c*.

**Krassilnikow.** See Krasil'nikov.

**Krassiltschikow, A. I.** See Krasil'shchikov, A. I.

**Krassnowa, S.** See Krasnova, S.

**Krasyuk, B. A.** Applying thick metallic layers, P 8018*a*.

——, Lazarenko, B. R., and Zolotykh, B. N. Device for depositing metal coatings on conducting material, P 8917*g*.

—— and Shchipletsov, V. A. Deposition of metallic coatings on Al and its alloys, P 8917*h*.

**Kratky, O.** See Fixl, J. O.; Schauenstein, E.

—— and Porod, G. Diffuse small-angle scattering of x-rays in colloid systems, 8255*f*

——, Sekora, A., and Friedrich-Freksa, H. Size and structure of hemocyanin mols. in soln. as detd. by small angle x-ray scattering, 7986*e*.

**Kratochvíl, V.** See Káš, V.

**Kratochvilova, A. K.** See Kockova-Kratochvilova, A.

**Kratz, G. D.**, Young, H. H., Jr., and Katz, I. Action of org. accelerators in vulcanization of rubber, 3647*i*.

**Kratz, H. R.** Principal series of K, Rb, and Cs in absorption, 6510*f*.

**Kratzer, F. H.**, and Williams, D. E. Pantothenic acid requirement of poults, 286*c*.

——, Williams, D. E., and Marshall, B. S. amino acid requirements of turkey poults, 5462*d*.

**Kratzer, J. C.** See Green, D. H.

**Kratzl, K.** Lignosulfonic acid, 604*e*; structure of the side chains in lignosulfonic acids (II) hydrolysis expts. with lignosulfonic acids, lignin preps., and lignin, 5763*i*, syntheses and reactions of the aliphatic-aromatic sulfonic acids, 7890*h*, see Wacek, A. v.

—— and Khautz, I. Structure of the side chains in lignosulfonic acids (I) hydrolysis expts. with model substances, (III) percentage of hydrolyzable lignosulfonic acid in sulfite waste liquor, 5763*b*.

——, ——, and Velopme[illegible] in the Harz Mts., 527*g*.

**Kraupp, O.** Structure of the acetylcholinesterase of horse serum, 6678*a*

**Kraus, A.** Nitrocellulose lacquers, 7718*g*

**Kraus, C. A.** Chemistry of organometallic compds., 3780*c*, interactions in solns. of electrolytes, 7301*e*; see Brown, George L.; Carignan, C. J.; Evers, E. C.; Grieger, P. F.; Hnizda, V. F.; Jacober, W. J.; Van Dyke, R. E.; Young, H. S.

**Kraus, K. A.**, and Nelson, F. Chemistry of aq. U(V) solns. (II) reaction of $UCl_4$ with water—thermodynamic stability of $UO_2^+$—potential of U(IV)(V), U(IV)(VI), and U (V) (VI) couples, 8928*i*.

——, Nelson, F., and Johnson, G. L. Chemistry of aq. U(V) solns. (I) prepn. and properties—analogy between U(V), Np (V), and Pu(V), 8928*f*.

**Kraus, S. D.**, and Hollander, F. Influence of Ca and Mg on eugenol-induced desquamation of mucus epithelium in gastric pouches, 8048*g*.

**Kraus, Werner.** Thermal cond. of glycols, 6409*f*.

**Kraus, Wilhelm.** See Ott, G. H.

**Krause, A.** Oxidation-reduction catalysts (LXVIII), 2079*h*.

**Krause, A. H.**, Scott, H. E., and Susie, A. G. Prepn. and properties of cyclorubber, 1208*c*.

**Krause, A. W.**, and Cunningham, A. M. Interchangeability characteristics of oil gases (I) interchangeability of oil gas with natural gas, 3992*h*, 4831*i*.

**Krause, B.** See Hopkins, R. H.

**Krause, C. A., Jr.** Solvent extn. in dry milling of corn, P 2710*e*.

**Krause, D. P.** See Rogers, L. B.

**Krause, H.** Phosphate titration of other heavy metal ions, 4602*e*; buffing and polishing of Au articles, 8905*i*; porosity testing of metallic and nonmetallic protective coatings, 9481*i*.

**Krause, P.** See Moser, P.

**Krause, R. F.**, and Pierce, H. B. Extrahepatic conversion of carotene to vitamin A, 4745*h*.

**Krausel, W. F.** See Pierce, R. B.

**Krauss, K.** See Mahr, C.

**Kraut, F.** See Caillère, S.

**Kraut, H.**, and Kofrányi, E. Influence of keto acids on anaerobic glycolysis, 6680*i*.

—— and Lehmann, G. Protein requirement of hard worker (I) physiol. and functional protein min., 4740*i*; utilization of yeast as human food stuff (II) metabolism expts., 5101*b*

**Krautwald, A.** Influence of uneven-numbered fatty acids on ketone body excretion of diabetics, 1479*i*.

**Kravets, T. P.** Evolution of the doctrine of energy, 7809*d*.

**Kraybill, H. L.** High-energy atm. showers, 4094*g*; see Ovrebo, P. J.

**Kraybill, H. R.** See Beadle, B. W.

—— and Beadle, B. W. Oxidation inhibitors for fats and oils, P 3637*g*.

——, Dugan, L. R., Beadle, B. W., Vibrans, F. C., Swartz, V., and Rezabek, H. Butylated hydroxyanisole as an antioxidant for animal fats, 9286*a*.

**Krayer, O.** Veratramine, an antagonist to the cardioaccelerator action of adrenaline, 5866*i*; see Goldstein, A.; Wollenberger, A.

——, Aub, J. C., Nathanson, I. T., and Zamecnik, P. Influence of antitoxin on the action of *Clostridium oedematiens* toxin in heart-lung preps., 6740*f*.

**Krchma, I. J.** Purification of Ti tetrachloride, P 4822*c*.

—— and Booge, J. E. $TiO_2$, P 4028*g*.

**Krchma, L. C.** See Donaldson, J. A.

**Kream, J.** See Chargaff, E.

**Kreamalmeyer, K. L.** See Needham, A. B.

**Krebs, E. G.**, and Najjar, V. A. Inhibition of D-glyceraldehyde 3-phosphate dehydrogenase by specific antiserum, 1482*e*.

**Krebs, E. T.**, and Krebs, E. T., Jr. Antitoxic ext. from seeds and grains, P 3571*c*.

**Krebs, E. T., Jr.** See Krebs, E. T.

**Krebs, H.** X-ray investigations of black Se, 4197*i*.

**Krebs, H. A.** Cyclic processes in living matter, 259*b*, detn. of glutamine and glutamic acid, 2662*e*; inhibition of carbonic anhydrase by sulfonamides, 3862*h*; see Stern, J. R.

—— and Eggleston, L. V. Detn. of succinic and α-ketoglutaric acids, 2254*c*; transamination in liver homogenates, 6250*h*

——, Eggleston, L. V., and Hems, R. Synthesis of glutamic acid in animal tissues, 3911*b*; distribution of glutamine and glutamic acid in animal tissues, 6719*c*.

—— and Roughton, F. J. W. Carbonic anhydrase as a tool in studying the mechanism of reactions involving $H_2CO_3$, $CO_2$, or $HCO_3^-$, 3862*i*.

**Krebs, K. G.** Gentian violet as a vermicide, 8099*g*.

**Krebs, M.** See Traverse, P. M. de.

**Krebs, Richard W.** Recovery of Au and Ag from cyanides, P 5357*b*; precious metals recovery, P 8344*d*.

**Krebs, Robert W.** Catalytic hydrocarbon conversion, P 388*c*; prevention of secondary reactions in catalytic processes, P 3191*c*.

**Krebs & Co.** Electrolytic cell with a Hg cathode, P 3733*h*, 6097*a*, alkali sulfides, P 4153*i*, $NaHCO_3$ as by-product of the electrolysis of NaCl, P 6376*i*; soda as by-product from the electrolysis of NaCl, P 6377*a*; $Na_2S$, P 6377*b*; chlorinating hydrocarbons, P 7950*h*, manuf. of $H_2SO_4$ by conversion of $Na_2SO_4$ with HCl, P 9396*d*, manuf. of $H_2SO_4$ with simultaneous formation of NaCl and HCl, P 9396*f*.

**Krebser, A.**, and Hindermann, P. Chromable monoazo pyrazolone dyes, P 4020*f*.

—— and Kuster, W. Acid-chromable monoazo dyes, P 858*b*.

**Krecek, J.** Action of antihistaminic substances, 3102*f*.

**Krechkow, A. P.** See Kreshkov, A. P.

**Krehl, W. A.**, Teply, L. J., Sarma, P. S., and Elvehjem, C. A. Growth-retarding effect of maize in nicotinic acid-low rations and its counteraction by tryptophan, 2680*c*.

**Kreible, J. G.**, and Whitwell, J. C. Viscosity of Newtonian, pseudoplastic, and dilatant liquids—measurement of the D.P. of high polymers, 5261*h*.

**Kreidl, E. L.**, and Utter, J. L. Ceramic bodies, P 3164*c*.

**Kreidl, N. J.** Glass structure, 2383*i*; black glass, P 6802*g*.

—— and Ohliger, L. P. Marking glass, P 5565*e*.

**Kreis, K.** Production of doubly distd. water in a hospital pharmacy, 815*g*.

**Kreisler, O.** See Horwitt, M. K.
**Kreissig, G.** See Peter, H.
**Kreith, F.,** and Summerfield, M. Heat transfer to water at high flux ds. with and without surface boiling, 8753*i*
**Kreitmair, H.** Poison hemlock, 3976*c*, sweet woodruff, 5871*d*; strong-scented lettuce, 5907*c*.
**Kreitman, G.,** and Nord, F. F. Lycopersin, pigment from *Fusarium lycopersici*, 7544*f*.
**Kreitner, G. H.** See Epstein, E.
**Krejci, L. E.** See Zittle, C. A.
——, Ross, M. H., and Sweeny, L. Plasma changes in fowls with a transmissible multiple lymphoma, 5109*h*.
——, Sweeny, L., and Hambleton, J. Mol. wts. of desoxyribonucleic acid polymers, 8415*a*.
**Krejčí, R.** Filtration under reduced pressure, 8745*i*.
**Krekels, J. T. C.** See Krevelen, D. W. van.
**Kremen, A. J.** See Sako, Y.
——, Hunter, S. W., Moore, G. E., and Hitchcock, C. R. Detn. of tracer doses of methionine tagged with radiosulfur in normal and neoplastic tissue, 4368*g*
**Kremen, S. S.** See Lipsitz, P.
——, Matthews, L. M., and Borders, C. R. High-frequency instrumentation for tanning research and control, 8181*g*.
**Kremenak, B.** Accuracy of standard Ra preps., 4951*e*.
**Krements, C. S.** See Cahen, R. L.
**Kremer, K. W.** See Weyland, H.
**Kremer, V. L.** See Goldston, M.
**Kremers, H. C.,** and Johnson, I. E. HF, P 3157*c*.
—— and Price, R. E. Welded AgCl articles, P 1712*a*.
**Kremers, H. E.** Rare earth industry, 8928*f*.
**Kreml, J. F.** Batch electropolishing, 508*d*.
**Kremnev, L. Ya.** Formation of concd. emulsions of high stability, 4923*c*.
—— and Kagan, R. N. Gelatinized emulsions (VI) characterization of the emulsifiers Na, K, Rb, and Cs oleate, 7775*i*.
—— and Soskin, S. A. Gelatinized emulsions (VII) strength of stabilizing layers—free stabilizer soln., 6881*b*; homogenization of highly concd. emulsions, 7775*h*
—— and Zhdanovich, A. I. Emulsions for spun glass, 4435*h*.
**Krems, I. J.** See Whitmore, W. F
**Krenke, A. N.,** and Dubrovitskaya, N. I. Quality and activity of catalase in relation to the age condition of tobacco leaves, 7092*i*.
**Krenkler, K.** Structure of bituminous materials (II) solvation, 4841*d*.
—— and Wagner, R. Structure of bituminous materials (I) colloidal basis of bitumin chemistry, 2754*d*.
**Krenz, F. H.** Effects of high-energy radiations on water and aq. systems, 3709*c*.
**Krepelka, J. H.** Qual. Chem. Analysis (book), 8312*f*.
**Kreps, E. M.** See Verzhbinskaya, N. A.
**Kreps, S. I.,** and Nachod, F. C. Tertiary aliphatic alcs., P 8397*f*.
**Kreshkov, A. P.** See Petrov, G. S
—— and Kaluzhenina, K. F. Types of synthetic rubber and lacquer based on Si, 6855*c*.
—— and Vil'borg, S. S. Tests for thiocyanate, 971*a*; test for ferricyanides, 8966*c*.
**Kreškov, A. P.** See Kreshkov, A. P.
**Kress, B. H.** Trimeric-α-methyl-*p*-methylstyrene, P 1224*f*; solid dimer of α-methyl-*p*-methylstyrene, P 5799*c*.
**Kresser, L.** See Schoenholz, D.
**Kressman, T. R. E.** See Akeroyd, E. I.; Permutit Co. Ltd.
—— and Kitchener, J. A. Cation exchange with a synthetic phenolsulfonate resin (I) equil. with univalent cations, (II) equil. with multivalent cations, (III) equil. with large org. cations, (IV) equil. in presence of nonaq. solvents, 8792*b*.
—— and Permutit Co. Ltd. Cation-exchange resins, P 5517*d*.
**Krestinskaya, V. N.,** and Muratova, N. I. Change of the stability of S sols under the action of mixts. of electrolytes, 4926*d*.
**Kret, A.** Glucose and inorg. phosphate of the blood, 1849*h*.
**Kretschmer, N.** Lipide chemistry, 878*f*.
—— and Barnum, C. P. Chemistry of the liver cytoplasm of normal, fasted, and cirrhotic mice, 3512*g*.
**Kretovich, V. L.** Protein metabolism in higher plants, 3099*f*; Problems Pitkchevol Polnotsennosti Khleba (book), 5512*a*; see Mishustin, E. N.; Prokhorova, A. P.
—— and Bundel, A. A. Detn. of dicarboxylic amino acids, 3746*e*; transamination of aspartic and glutamic acids, 9172*e*.
—— and Drozdova, T. Oxidation of amino acids by plant tissues, 2283*e*.
—— and Evstigneeva, Z. G. Paths of synthesis of asparagine and glutamine, 7092*b*; glutamine in the sugar beet, 7553*g*.
—— and Tokareva, R. Interaction of amino acids and sugars at high temps., 4501*g*.
**Kretschmer, C. B.,** and Wiebe, R. Liquid-vapor equil. of EtOH-toluene solns., 6022*h*; liquid-vapor equil. of EtOH-methylcyclohexane solns., 8813*f*
**Kretschmer, P. M.** Reproduction by means of $H_2O_2$, 1608*b*.
**Kretzschmar, K.** Oil industry in central and eastern Europe, 2449*h*.
**Kreuger, A. P.** See Fong, J.
**Kreulen, D. J. W.** Elements of Coal Chemistry (book), 3174*f*; see Kreulen van Selms, F. G.
—— and Kreulen van Selms, F. G. Influence of glass on the oxidation of low-viscosity mineral oils, 3602*d*, chem. compn. of oxidized mineral oils, 4841*h*.
**Kreulen van Selms, F. G.** See Kreulen, D. J. W.
—— and Kreulen, D. J. W. Air-blast test, 2407*a*
**Kreutz, W.** $CO_2$ content of lower layers of the atm. in relation to climatic factors, 7621*h*
**Kreutzer, F. L.,** Strait, L. A., and Kerr, W. J. Spontaneous myohemoglobinuria, 300*g*
**Krevelen, D. W. van.** N industry, 1536*b*, drying of fertilizer pellets in a rotary drier, 6351*a*.
—— and Hoftijzer, P. J. Kinetics of simultaneous absorption and chem. reaction, 231*i*, kinetics of gas-liquid reactions (I), 1631*i*; drying of granulated materials (I) drying of a single granule, 4906*a*; (II) drying of granules in rotary driers, 5648*b*, gas absorption (V) mass transfer in film reactors, 6053*f*.
——, Hoftijzer, P. J., and Huntjens, F. J. Compn. and vapor pressures of aq. solns. of $NH_3$, $CO_2$, and $H_2S$, 6048*d*.
—— and Hooren, C. J. van. Kinetics of gas-liquid reactions (II), 1632*c*.
—— and Krekels, J. T. C. Rate of soln. of solid substances (I) mass transfer in granular beds, 1630*i*
—— and Loon, W. van. Underground gasification of coal, 4831*c*.
**Krewson, C. F.** See Couch, J. F., Naghski, J.
**Kreyberg, L.** Acute tissue damage due to cold, 6725*f*
**Kreyling, R. L.** Silicate adhesives for corrugated paperboard, 5949*e*.
**Kreškov, A. P.** See Kreshkov, A. P.
**Krichesky, B.** See Davis, C. T.
**Krichevskii, I. R.,** and Efremova, G. D. Phase and vol. relations in liquid-gas systems at high pressures, 469*a*.
**Krider, J. L.** See Johnson, B. C.; Neumann, A. L.
——, Becker, D. E., Van Poucke, R. F., and James, M. F. Cryst. or crude concentrates of B vitamins supplement a corn-soybean meal ration for weanling pigs in drylot, 2680*e*.
**Kridl, A. G.** See Ambrose, J. F.
**Krieble, J. G.,** and Whitwell, J. C. Degree of polymerization as evidence of the damage to cotton in mech. processing, 8685*f*.
**Krieble, R. H.** Organo-Si compds., P 9532*i*; see Elliott, J. R.
—— and Elliott, J. R. Me siloxane gums and elastomers, P 2808*a*.
—— and Holmes, J. B. HCHO manuf. at I. G. Farbenindustrie, 6971*g*.
**Krieg, A.** See Anderson, R. B.
——, Dudash, A. P., and Anderson, R. B. Caustic scrubber, 6872*i*.
**Kriege, H. F.** Mineral aggregates in the chem. and processing industries, 5132*h*.
**Krieger, C. H.** Sabadilla insecticide development, 2363*b*; compd. 42, 5898*f*.
**Krieger, H.,** Storaasli, J. P., Friedell, H. L., and Holden, W. D. Blood vol. in dogs, 710*h*.
**Krieger, H. L.** See Eliassen, R.
**Krieger, K. A.** Punched-card system for chem. literature, 4058*f*; see Heinemann, H.
—— and Heinemann, H. Regeneration of alumina adsorbents by oxidation, P 2422*b*.
**Kriegimeyer, J.** Fermentation of beer, 4423*c*.
**Krifka, O.,** and Schöberl, A. Chrome-magnesite brick for the construction of Siemens-Martin furnaces, 6801*b*.
**Krige, G. J. R.,** and Arnold, R. Aging of aq. suspensions of $Mg(OH)_2$, 8236*c*.
**Krige, L. J.,** and Truter, F. C. Geology of the country south of Ermelo, 526*f*.
**Krige, P. R.** See Dekema, C. J.
**Krijff, A. P.** See Decker, H. C. J. de.
**Krijt, G.** Goat milk as a food, 1496*e*.
**Krilanovich, N. J.** See Astin, A. V.
**Krim-Ko Corp.** Irish moss ext., P 3542*a*; stabilizer from Irish moss residue, P 5132*a*; edible gelling compn. contg. Irish-moss ext., locust-bean gum, and an edible salt, P 5132*b*
**Krimsky, I.,** and Racker, E. Protection of glycolysis in mouse brain homogenates by amides and esters of amino acids, 7520*d*.
**Kring, E. V.** See Vernon, A. A.
**Krings, R.** Soap and detergent prepns., 6135*g*.
**Krings, W.** Viscosity and d. of NaOH solns. to high concn. and at high temps., 2074*d*.
**Krioukov, I. B.** See Kryukov, Yu. B.
**Krioukova.** See Kryukova.
**Krisberg, N. L.,** and Pool, M. L. Radioactive Sc and V, 6507*f*
**Krisch, A.** See Pomp, A.; Pozicha, W.
**Krishna, S.,** and Rao, P. S. Tamarind seed kernel powder, 4018*f*.
**Krishnamoorthy, C.,** Davis, L. E., and Overstreet, R. Ionic exchange equations, 464*g*.
**Krishnamurti, C. R.,** and Giri, K. V. Prepn., purification, and compn. of pectins, 7156*a*
—— and Subrahmanyan, V. Vegetable rennet (I) milk-coagulating enzyme of *Ficus carica*, 1119*c*; (II) vegetable rennet from *Streblus asper* and prepn. of cheese by use of vegetable rennets, 3944*a*, (III) milk-clotting and protease components in fig latex prepn., 6327*a*; (IV) natural activators of the protease in fig latex, 9287*i*
**Krishnamurti, G. V.,** and Seshadri, T. R. Chemistry of *Solanum torvum*, 8617*h*
**Krishnamurty, K. V. S.** Mixed indicators in alkalimetric titration, 4175*a*.
**Krishnan, M. S.** Be, 525*c*, bauxite in the Shevaroy Hills, Salem district, Madras Presidency, 2133*d*
—— and Roy, B. C. Ti, 525*b*
**Krishnan, P. S.** Apyrases (I) purification of potato apyrase by fractional pptn. with $(NH_4)_2SO_4$, (II) properties of potato apyrase, 9123*i*; see Sumner, J. B.
**Krishnan, R. S.** C. V. Raman and crystal physics, 3251*a*; theory of the vibrations and the Raman spectrum of the diamond lattice, 4570*g*
—— and Narayanan, P. S. Vibration spectra of the alk. halides, 4570*e*, Raman spectrum of KBr, 5308*h*.
**Krishnaswamy, K. G.,** and Sreenivasan, A. Sepn. and detn. of the amylose and amylopectin fractions of starch, 2455*g*.
**Krismann, E. H.** See Catton, N. L.
**Kriss, A. E.** Bacteriophage (V) hypothesis of bacteriophage structure, 5825*f*; microorganisms of the tundra and arctic soils, 8593*h*
——, Biryuzova, V. I., and Zolkover, A. M. Drop dialysis—prepg. biol. specimens, 5442*i*
——, Didenko, S. I., and Strel'tsova, E. A. Bacteriophage (IV) phagolytic activity as related to the state of phage particles, 1831*e*.
—— and Rukina, E. A. Microbiology of the Black Sea—depth distribution of microorganisms, 7549*c*; source of $H_2S$ in the Black Sea, 8761*g*.
**Kristensen, P.** See Koch, Jørgen.
**Kristensen, R. K.,** and Steenbjerg, F. Seasonal changes of the P value and H-ion concn. of soils, 339*g*.
**Krister, C. J.** See Eubank, L. D.
**Kristjanson, A. M.** See Van Cleave, A. B.
**Kritchevskii, I. R.** See Krichevskii, I. R.
**Kritchevsky, D.** See Riegel, B.
**Kritchevsky, E. S.,** and Hindman, J. C. Potentials of the U three-four and five-six couples in $HClO_4$ and HCl, 8913*g*.
**Kritchevsky, T. H.** Diacetyl, P 3841*h*; see Dobriner, K.
—— and Gallagher, T. F. Partial synthesis of compds. related to adrenal cortical hormones (XII) preps. of 17-hydroxy-

progesterone and other 17-(α)-hydroxy-20-keto steroids, 7032*d*.
**Kritikos, P. G.** Greek opium, 2372*e*.
——— and Steinegger, E. Heterploidy expts. on drug plants (VI) stoma index for diploid and tetraploid *Lobelia inflata* plants, 5547*i*.
**Kritschewski, I. R.** See Krichevskiĭ, I. R.
**Kritskaya, V. K.**, and Rovinskiĭ, B. M. Distribution of the electron d. in the lattice of metallic Cu, 4100*f*.
**Kritskiĭ, G. A.** Dialyzer for hastening dialysis, 910*g*; prosthetic group of phosphorylase, 3049*e*, 4713*g*.
——— and Kuvaeva, E. B Prepn. of cryst. phosphorylase, 5438*i*.
**Kritskiĭ, V. V.** Kratkiĭ kurs mineralogii (book), 1294*c*.
**Kritsman, M. G.** See Konikova, A. S; Yukobson, L. M.
——, Druzhinina, K. V., and Samarina, O. P. Enzymic oxidation of aspartic acid, 3051*g*.
——— and Samarina, O P Aspartico-alanine aminopherase, 2252*i*.
**Kritzinger, C. C.** Globular proteins of animal skin (IV) optimum conditions for removal of globular proteins from fresh steer hide by 10% NaCl solns., 4038*i*, (V) distribution of globular proteins in fresh steer hide, 7735*c*
**Kriukova.** See Kryukova
**Krivtsov, A.** See Loshkarev, M
**Kriz, V.** See Zadina, R.
**Kriza, K.** See Janeso, T
**Krizenecky, J.**, and Podhradsky, J. Correlations in the compn of milk, 9280*a*
**Krjagova, A. I.** See Kryagova, A. I
**Krjukova.** See Kryukova
**Krjukow, I. B.** See Kryukov, Yu. B
**Krjukowa.** See Kryukova
**Kroch, F. H.** See Meade, Edwin M.
**Kroeber, L.** *Arnica montana*, 5906*f*; pharmacology and therapeutic use of anemonin drugs from Ranunculaceae, 9380*d*.
**Kröger, C.**, and Behr, W. Formation of peroxide in KOH, 2535*a*
——— and Luther, H Removal of paraffin from oils, 8120*c*.
——— and Struber, K Oil synthesis (II) viscosity of resin-solvent systems, 9423*h*.
**Króger, F. A.** Incorporation of U in $CaF_2$, 2869*f*, luminescence of solids, 3722*a*; silicate-titanate phosphors, P 6517*f*; Na and Li as activators of fluorescence in ZnS, 8279*a*, see Botden, T P J, Gisolf, J H; Overbeek, J T G, Smit, N W.
——— and Broos, J Luminescent titanate of Mg, P 2870*i*
——— and Hellingman, J. E Presence of Cl in blue fluorescent ZnS, 3294*h*.
——— and Hoogenstraaten, W. Decay and quenching of fluorescence in willemite, 2869*g*
———, Overbeek, J. T G., Goorissen, J., and Boomgaard, J. van den. Bi as activator in fluorescent solids, 8893*i*
**Kroeker, E. H.** See Neher, H. T.
**Kroell, D. R.** See Critchlow, J P.
**Kröller, E.** Identification of $PbEt_4$ in spirits, 351*g*, detn. of $PbEt_4$ in organs and foods, 4604*a*, detg. $PbEt_4$ in motor fuel, 4604*c*
**Kröner, W.**, and Hönsch, W. Decolorizing starch hydrolyzates with synthetic resins, 5980*d*
**Kröpelin, L.** See Guttenberg, H v.
**Krössin, E.** Detn. of $PbSO_4$, PbS, and PbO in the presence of one another, 2121*b*.
**Kroger Grocery & Baking Co.** Rendering lard, P 2310*d*.
**Krogh, P. M. D.**, and Tooke, F. G. C. Pentachlorophenol solns. in wood preservation, 8066*b*.
**Krogh-Lindberg, Mme. A.** See Lindenberg, B A.
**Krok, W P.** Se rectifier, P 2526*a*.
**Krolik, L. G.** See Lukashevich, V. O.
——— and Lukashevich, V. O. Rearrangements of naphthalene hydrazo compds., 5774*a*.
**Kroll, H.** See Necheles, H.
**Kroll, J.** See Wickert, K.
**Kroll, N M.**, and Lamb, W. E., Jr. Self-energy of a bound electron, 4135*a*.
**Kroll, W. J.** Rare-metal metallurgy—production methods for the less-common elements, 77*b*; metallic Na, P 4209*i*.
——— and Bacon, F. E. Metals sepn., P 1708*d*.
——— and Gilbert, H. L. Melting and casting Zr metal, 8899*c*.
**Kroll[illegible]eifer, F., Hartmann, H., and [illegible] F. Sulfonium salts as intermediate products in the synthesis of thianaphthene deriva., 7474*b*.
**Krolovets, S. M.** See Bondarenko, M. M.
**Kromann, C.** Air-borne sealing of gas retorts, 3594*i*.
**Kromer, A. E.**, and Botti, E. C. Pigmentation of durable colored exterior enamel, 2444*i*.
**Kromrey, G. G.** Location of raw materials used in tube construction, 5708*d*.
**Kronberg, M. L.**, and Wilson, F. H. Secondary recrystn. in Cu, 9004*a*.
**Krone, O. E.** See Ewing, C. O.
**Krone, P. R.**, Grigsby, B. H., Hamner, C. L., and Carlson, R. Chem. weed control on gladiolus, 5145*e*.
**Kroneberg, G.** See Holtz, P
**Kroner, T. D.** See Haugaard, G.
**Kronig, R.** Electronic structure of metals, 8765*c*.
——, Boer, J. de, *et al.* Leerboek der natuurkunde (book), 8842*g*.
**Kronsbein, J.** O efficiency in anodic oxidation of Al, 951*f*.
**Kronstein, M.** Gum elemi, 1993*g*; solubilizing gelatinized oils, P 8712*b*
**Kroó, H.** Action of phenylarsenoxide, 8535*a*
**Krop, S.** Physiology of acetylcholine (I) acetylcholine in conduction, 4753*a*; see McNamara, B P.
**Kropa, E L.** Copolymers of unsatd alkyd resins, I 1219*h*; compd. optical element cemented with a polyester of fumaric acid, P 1221*f*, compd. optical element cemented with a polyester of maleic acid, P 1221*f*; polyester-polyamide condensation products, P 4517*g*; breaking emulsions, P 5232*c*; allyl halo silanes, P 5999*f*; polymerizable emulsified mixts. of unsatd. polyesters with vinyl monomers, P 7264*f*; see Nyquist, A. S.
——— and Nyquist, A. S Unsatd. isocyanates and polymers, P 5422*f*.
**Kropachev, V. A.** See Temnikova, T. I.
**Kropczyński, T.** Inorg industry in Poland, 2711*c*.
**Kropman, M.** See Golberg, L.
**Kropotov, V. I.** See Korotkov, S Ya.
**Kropscott, E. L.**, and Gabel, A. R. Nonmetallic armor, P 4402*g*.
**Krose, E.** See Klemm, W.
**Krotinger, N. J.** See Cave, G. A
**Krotov, I. V.**, and Khachadurova, T. M. Drop corrosion of Al (I) corrosion of Al in contact with drops of salt solns without addn. of free acid, 4996*b*.
**Krotova, N. A.** See Deryagin, B. V.
**Krotova, T. A.** See Palladina, O K
**Krotow, J. W.** See Krotov, I V
**Krotowski, L.**, and Drzewiński, S Polish industry of synthetic fibers in the post war period, 2778*e*.
**Kroufut, D.** See Crowfoot, D
**Kroupa, A. H.** See Hummer-Kroupa, A.
**Krouse, D. H.** Pickling acid measurement and control, 7399*f*.
**Krouskop, N. C.** See Glasgow, A. R., Jr.
**Krsnik, V.**, Tomić, D., and Supek, Z. Medicinal mud of the spa Tuhelyske Toplice, 2246*b*.
**Kruber, O.** Materials from coal tar, 8647*f*.
——— and Lauenstein, H. Phenols of coal-tar heavy oil (III), 1028*f*
——— and Rappen, L. Bases of coal-tar heavy oil (II), 5402*c*.
**Kruckenberg, W.** Detn. of cholesterol in fat, 6095*g*.
**Krueger, G. M.** See Hodson, A. Z.
**Krueger, H. H. A.**, Meneghetti, D., Ringo, G R., and Winsberg, L. Effect of small-angle scattering on neutron cross-section measurements, 4558*g*.
**Krueger, J.** *sym*-Triaminobenzene compds., P 3456*b*.
**Krüger, K.** Calcn. of spinning bath circulation in the viscose industry, 1564*i*; detn. of S in viscose, 1566*e*.
**Krüger, K. J.** See Bodendorf, K.
**Krueger, R.** Detn. of small amts. of glycine in blood, urine, or protein hydrolyzates, 3873*g*; see Wiss, O.
——— and Wiss, O. Free amino acids in liver with various diets (II) glycine and serine, 7562*g*.
**Krueger, W. D.** See Leffler, M. T.
**Krüsl, H. K.** See Lardelli, O.
**Krug, E. E.**, and McGuigan, H. A. Materia Medica and Pharmacology (book), 3112*e*.
**Krugelis, E. J.** See Nickerson, W J
**Kruger, P. G.** See Phillips, J. A.
**Kruglova, E. G.** See Fedot'ev, N. P.
**Kruglyak, A. B.** Filter for removal of HCHO from the exhaust gases of tank motors, 1547*i*.
**Krugov, V. V.**, and Kobylkin, A. F. App. for hot vulcanization of rubber soles on shoes, P 6458*g*.
**Kruh, J.** See Schapira, G.
**Kruilowa.** See Krylova.
**Kruisheer, C. I.** Detn. of the acidity of milk, 1873*e*; see Mulder, H.
———, Herder, P. C. den, Werker, W., and Ginkel, J. G. van. Effect of metals on butter in cold storage, 6750*a*.
**Kruissink, C. A.** See Vloten, G. W. van.
**Krukovsky, V. N.** Ascorbic acid oxidation in milk by preformed $H_2O_2$, 3941*h*; see Guthrie, E. S.; Whiting, F.
———, Guthrie, E. S., and Whiting, F. Lipide deterioration in dairy products—stability of milk fat and fat-sol. vitamins, 780*g*.
———, Loosli, J. K., and Whiting, F. Influence of tocopherols and cod-liver oil on the stability of milk, 3941*e*.
———, Theokas, D. A., Whiting, F., Guthrie, E S., Yager, N., and Mattus, M. A Effects of nordihydroguaiaretic acid, salt, and temp of storage on the stability of fat and fat-sol vitamins in cream and butter, 7600*f*
**Krull, F. B.** Recovery of volatile solvents in the German rubber industry, 6454*g*.
**Krum, J. K.** See Fabian, F. W.
——— and Fabian, F. W. Bacteriology of the freshening process in pickle manuf., 5130*c*.
**Krumbein, W. C.** See Dapples, E. C.
**Krumbhaar, W.** Synthetic resinous esters, P 6464*c*; rosin maleic glycerol esters, P 6464*d*, rosin-modified phenol-HCHO resins of enlarged mol. size, P 9526*f*.
**Krumbholz, G.**, and Wolodkewitsch, W. App. for detg. the rate of respiration of fruit, 4345*f*.
**Krumholz, P.** Formation and decompn. of ferrous α,α′-bipyridyl, 6056*b*.
——— and Stettiner, H. M. A. Acid properties of Fe tetracarbonyl hydride, 8809*g*.
**Krumm, S.** See Stein, R. S.
**Krumm-Heller, C.** See Bargeton, D.
**Krupin, N. V.** Influence of gramicidin S on bacterial morphology and physiology (II) pigmentation in staphylococci, 1831*h*; (III) bacterial respiration, 5448*b*.
**Krupka, G.** See Broschard, R. W.; Porter, J. N.
**Krupkowski, A.** Oxidation of metals, 4991*a*.
——— and Kawinski, S. Anisotropy in annealed polycryst. metals, 6956*e*.
——— and Żemelka, J. Endothermic reactions accompanied by gas evolution, 6060*g*.
**Kruppa, W. J.** See Wolf, C. S.
**Kruppe, G. A.** See Verzal, A. I.
**Kruse, C. W.** Airplane application of DDT for emergency control of common flies, 1519*c*.
**Kruse, H.** Detn. of traces of Fe in water 5139*b*.
**Kruse, I.** See Dam, H.; Glavind, J.
**Kruse, J.** Measurement of C black in rubber, 4887*e*.
**Kruseman, W. M.** Wonderwereld der physica (book), 3702*a*.
**Krushel, L. E.** Refractories from Ukrainian kaolins, 6382*i*.
**Krushevnikova, A. I.** See Chalov, N. V.; Finkel'shtein, D. N.
**Kryagova, A. I.** Compds. formed between Al halides and alkali metal halides, 959*e*.
**Krylova, E. S.** Growth of the luminescence of the ZnS.Cu,Co phosphor, 4579*a*.
**Krylova, V.** See Deryagin, B. V.
**Krynine, P. D.** Origin of red beds, 5523*c*.
**Krynitsky, A. I.**, and Stern, H. Effect of B on the structure and some phys. properties of plain cast irons, 6957*b*.
**Krynitsky, J. A.**, and Carhart, H. W. Pyrolysis and chlorinolysis of some perchlorinated unsatd. hydrocarbons, 4231*h*.
**Krysa, H. F.** See Rothman, S.
**Kryt, G.** See Krijt, G.
**Kryuchkov, N. I.**, Artamonov, N. S., and Izbekov, V. N. Liquid $SO_2$, P 3985*d*.
**Kryukov, Yu. B.** See Bashkirov, A. N.
**Kryukova, A.** See Loshkarev, M.
**Kryukova, N. N.** See Kursanov, A. L.
**Kryukova, T. A.** Glass rings for a small-size Fenske column, 2822*c*; polarographic max. of the second kind and its utilization in analytical chemistry (I), (II), 4971*d*; reduction of persulfate on a dropping-Hg cathode and effect of the elec. field of the surface charges of the electrode on the course of electrochem. reactions, 6052*e*.
——— and Frumkin, A. N. Retardation of tangential movements of the surface of Hg drops by n-butyl alc. solns., 8911*a*.

**Kryukova, Z. I.** See Aleksandrov, V. Ya.
**Krzhevova, R. V.** See Kuzin, A. M.
**Ksenofontova, P. D.** Chlorophenol odor of Tomsk municipal water supply and its elimination, 1886*g*.
**Kshatriya, K. C.**, and Nargund, K. S. Acirdine derivs. as antimalarials (III) 5-amino derivs. of 7-methoxy-2,8-dichloro- and 7-methoxy-2,6-dichloroacridine, (IV) 5-amino derivs of 7-methoxy-8-chloroacridine, (V) derivs. of 2,8-dichloroacridine, 6632*h*.
**Ksycki, (Sister Mary Joecile)**, and Yntema, L. F. Electrodeposition of Mo from aq. solns., 6923*b*.
**Kubach, J.** See Fricke, R.
**Kubacki, V.**, Brown, K. D., and Laskowski, M. Electrophoresis and soly. of chymotrypsinogen B and chymotrypsin B, 9118*a*.
**Kubal, J. V.** Mol. wt. of karaya gum and of locust-bean mucilage, 1626*g*.
——— and Gralén, N. Physiochem. properties of karaya gum and locust-bean mucilage, 21*f*.
**Kubaschewski, O.** Thermodynamics of substances of interest in Fe and steelmaking (I) oxides, 9006*g*, see Weibke, F.
——— and Huchler, O. Glass as electrolyte in e.m.f. measurements on alloys, 6092*a*
——— and Reinartz, K. Elec transport measurements for the heterpolarity of solid intermetallic phases, 6136*a*.
——— and Schneider, A. Measurements on the oxidation resistance of high-melting alloys, 3331*h*.
——— and Speidel, H. Oxidation resistance and some phase relations in the system Cr–Ta–Ni, 3332*d*.
——— and Villa, H. Heat of formation of binary alkali earth compds, 5275*h*.
**Kubassa, F.** See Schmid, H.
**Kubaugh, B. F.** $NH_3$ absorption refrigeration systems, 7272*a*.
**Kubelka, V.**, Masner, L., Míček, K., and Dušánek, V. Sulfide in extn. of bark (II), 9507*c*.
**Kubicek, N. F.** H, P 6398*a*.
**Kubis, J.** Detn. of $Et_4Pb$ in gasoline, 7216*c*.
**Kubišta, V.** See Wenig, K.
**Kubitschek, H. E.** See Lichtenberger, H. V.
——— and Dancoff, S. M. Capture $\gamma$-ray studies, 8861*a*.
**Kubli, H.** See Ingold, W.
———, Hepenstrick, H., and Treadwell, W. D. Series titration of halides with Ag ion, 6942*a*.
**Kubo, H.** See Kasugai, S.
**Kubo, K.**, and Nakajima, M. Metal refining, P 6562*h*.
**Kubo, M.** See Miyake, S.
——— and Miyake, S. Behaviors of metals deposited on crystal surface (III) effect of centers of crystn. on crystal growth in metal films, 7286*a*.
**Kubo, R.** Linear polymers (I) intramol. statistics, (II) elasticity of vulcanized rubber, (III) double refraction, 6855*e*, (IV) effects of hindrance for internal rotation, 8238*h*.
**Kubo, T.**, and Nozuka, N. Transformation of cellulose hydrate into native cellulose (XI) relation between the transition from hydrated to natural cellulose and the mol. chain length and mass distribution function, (XII) aging of hydrocellulose and its mol. compds. in a polar medium, 1962*b*.
**Kubokawa, S.**, and Kazunami, M. Coating compd. for mold, P 6562*h*.
**Kubota, J.**, Rhoades, H. F., and Harris, L. Effects of different cropping and manurial practices on some chem. properties of an irrigated chestnut soil, 2350*a*.
**Kubota, T.** See Koide, T.
**Kubowitz, F.** Crystd. hemoglobin from human blood, 6695*i*.
**Kubsch, F.** See Castle, H.
**Kučera, E.** Choice of wire for thermocouples, 1616*h*; gas d. by means of flow rate measurements, 1946*a*; mixing in combustion calorimetry, 2082*g*; see Simek, B. G.
**Kučera, J. V.**, and Struchlík, A. Anglicko-český slovník technický (book), 8256*d*.
**Kučerová, V.** See Churý, J.
**Kucharenko, T. A.** See Kukharenko, T. A.
**Kucherov, V. F.** Amino derivs. of aryl phosphate esters, 6178*d*.
**Kuchinka, R.** Synthesis of edible fats from coal by Fischer-Tropsch products and air by paraffin oxidation, 5878*a*.
**Kuchinskaya, E. P.** See Ovchinnikov, N. M.
**Kucsera, G.** Effect of brines and smoking on the color of stamps applied on the skin of animals or on meat, 8068*i*.
**Kucsyński, G. C.** Self-diffusion in sintering of metallic particles, 2557*e*.
**Kuczyński, W.**, and Cilewicz, J. Extn. of bitumens from Polish lignites, 1944*c*.
———, Pryzboro, S., and Kotteras, W. F. Polish lignites (II), 9413*g*.
**Kudasov, A. G.**, and Provinteev, I. V. Oxidation of bitumens, P 9434*a*.
**Kuder, J. M.** Feed products from citrus wastes, P 1503*b*.
**Kuderna, B. M.** See Kharasch, M. S.
**Kudinov, K. V.** App. for simultaneous sepn. of HCl and AcOH from their aq. solns., P 3157*c*.
**Kudra, O. K.** See Skobets, E. M.
**Kudravtseva, V. M.** See Kudryavtseva, V. M.
**Kudřiavcev.** See Kudryavtsev.
**Kudriavtseva, V. M.** See Kudryavtseva, V. M.
**Kudrin, S. A.** N contributed by pptn to the soils of the gray zone, 4800*g*.
**Kudrjashov, B. A.** See Kudryashov, B. A.
**Kudrjavtseva, Kudrjawtzewa.** See Kudryavtseva, V. M.
**Kudrjawzeff.** See Kudryavtsev.
**Kudrjawzewa, W. M.** See Kudryavtseva, V. M.
**Kudryashov, B. A.** Vitamins for specific body growth processes, 8028*c*.
**Kudryavtsev, B. B.** Absorption of sound in air exposed to ultraviolet rays, 4913*i*.
——— and Sorokina, E. I. Propagation of supersonic waves in solns., 8792*i*.
**Kudryavtsev, E. A.** Furnace for destructive distn. of wood, P 6398*d*.
**Kudryavtsev, G. I.** See Shilov, E. A.
——— and Shilov, E. A. Catalytic effects in the Cannizzaro reaction, 4651*d*.
**Kudryavtsev, N. T.** Cathodic polarization in zincate electrolytes, 8907*c*; see Loshkarev, M.
———, Lipovetskaya, A. I., and Kharlamova, K. N. Electrolytic Zn plating in zincate electrolytes at high c. ds., 6521*e*.
——— and Nikiforova, A. A. Distribution of metal on the surface of the cathode in zincate electrolytes, 6521*a*.
**Kudryavtseva, V. M.** Luminescence of crystal lattices, 2515*i*, interaction of electronic transitions with thermal fluctuations in a crystal lattice, 5667*c*
**Küch, W.** Detn. of the duration of use of synthetic resin adhesives, 1216*a*.
**Küchenhoff, O.**, and Winz, P. Excretion of creatinine in the urine, 3085*i*.
**Küchmeister, H.** Influence of nicotinamide on MeOH poisoning, 310*a*.
**Kügler, H.** See Lockemann, G.
**Kuehl, F. A., Jr.** See Brink, N. G.; Peck, R. L.
———, Bishop, M. N., Flynn, E. H., and Folkers, K. *Streptomyces* antibiotics (XIX) dihydrostreptosomic acid lactone and configuration of streptose and streptobiosamine, 1329*i*.
———, Clark, R. L., Bishop, M. N., Flynn, E. H., and Folkers, K. *Streptomyces* antibiotics (XXII) configuration of streptose and streptobiosamine, 6580*b*.
———, Peck, R. L., Hoffhine, C. E., Jr., and Folkers, K. *Streptomyces* antibiotics (XVIII) structure of streptomycin, 1329*f*.
**Kühn, A.** Zoologie (book), 8566*c*
**Kühn, H. A.**, and Pichotka, J. Effect of prolonged exposure to a high-O atm. under reduced pressure, 8541*h*, morphogenesis of the lung lesions in O poisoning, 8541*i*.
**Kühn, L.** See Olsen, S.
**Kühn, O.** Metallfärbung (book), 7890*g*.
**Kühne, H.** See Erlenmeyer, H.
**Kühne, Hans.** Development of the gypsum-$H_2SO_4$ process, 7650*g*.
**Kühne, P.** Penicillin nomenclature, 3411*f*.
**Kühnel-Hagen, S.**, Hofman-Bang, N., and Gjertsen, P. Detn. of small quantities of Sn in alloys—isolation by adsorption of stannic acid on $MnO_2$, 2889*h*.
**Kühni, E.** See Steiger, K.
**Kühni, F. & E., vorm. Hans & Fritz Kühni.** Gas-liquid contact surface, P 5650*a*; trays for bringing gases into contact with liquids in rectifier, washing, and reaction columns, P 8218*e*.
**Kühni, Hans & Fritz.** Same as Kühni, F. & E., vorm. Hans & Fritz Kühni.
**Külwein, H.** Substances that promote germination from pollen and stigmas, 5089*g*.
**Küntscher, W.** Welding of sheets of large thickness, 3767*d*.
**Küntzel, A.** Tanning action of simple basic Cr salts, 1591*a*; tannin plants, 2008*b*; influence of complex-active acid radicals on the constitution and tanning action of basic Cr salts, 6851*f*; place of Fe tanning on the system of mineral tannages, 6852*b*
——— and Bosse, R. Evaluation of synthetic tanning materials, 1204*i*.
——— and Melzer, E. Fractionation of pine bark ext. with EtOH, 3040*i*.
**Kuentzel, L. E.** Paint remover, P 9302*b*.
**Künzelmann, E.** See Holtz, P.
**Künzle, O.** See Kuhn, W.
**Küpfmüller, K.** See Druckrey, H.
**Kürbs, E.**, Plieth, K., and Stranski, I. N. Arsenic condensates, 8787*h*.
**Kürschner.** Cold viscometer for motor lubricating oils, 5580*e*.
**Küster, A.** Photographic layers, 6531*b*.
**Kuester, K. E.** See Richards, R. K.
**Kuether, C. A.** See Roe, J. H.
**Kufferath, A.** Sulfohalides for surface treatment, 95*f*; suppression of dust in paint and lacquer plants, 420*d*; sulfohalides in textile finishing, 1571*h*; Co coatings, 2916*i*, electrotinning of Fe and steel work pieces, 6089*g*; surface protection of metal parts in the superphosphate industry, 9014*f*
**Kuffler, S. W.** Physiology of acetylcholine (II) quaternary $NH_4$ ions and Na ions in nerve physiology, 4753*b*
**Kugenev, P.** Amino acid content of milk albumin, 7597*b*.
——— and Alatyrtseva, M. Chem. compn. and microflora of sheep milk, 9280*c*.
**Kuh, E.** See Hultquist, M. E.
——— and Barnaby, H. S. 2,4,5-Triamino-6-hydroxypyrimidine, P 7052*a*.
——— and Clapper, T. W. Chlorination of isocytosine, P 9082*f*.
——— and Neier, W. B. 2-Aminothiazole, P 3466*h*.
——— and Smith, J. M., Jr. Purification of glutamic acid amides of pteroic acid, P 7052*g*.
**Kuhl, J.** Hydraulic lime as a binding material, 2396*b*, anhydrite of Nowy Ladek, 5348*d*
**Kuhlberg, L. M.** See Kul'berg, L. M.
**Kuhlman, W. D.** See Swinehart, R. W.
**Kuhlmann, A. G.** See Kul'man, A. G.
**Kuhlmann, D.** Theory of after-effect phenomena, 8771*i*
———, Masing, G., and Raffelsieper, J. Theory of recovery, 8325*f*.
**Kuhlmann, G.** See Sonntag, F.
**Kuhlmann, T.** Cellulose ethers in the textile industry, 6420*e*.
**Kuhn, A.** Kolloidchemisches Taschenbuch (book), 3278*h*.
**Kuhn, C. S., Jr.** See Dart, J. C.
**Kuhn, H.** Outer dimension of a statistically coiled chain mol. in any direction, 1627*g*, electron gas model for the light absorption of org. dyes (I), 1653*i*; see Bradley, L. C.; Kuhn, W.
**Kuhn, H. A.** Hg chlorine cells, 2097*g*.
**Kuhn, L. P.** Warning to users of acetyl peroxide, 405*g*; ionization of org. esters in $H_2SO_4$ (II) alkyl O fission, 8808*e*.
——— and Corwin, A. H. Behavior of org. acids and esters in sulfuric acid, 568*i*
**Kuhn, L. R.** See Longfellow, D.
**Kuhn, M.** See Weller, S.
**Kuhn, R.** Biochem. genetics, 4309*a*.
——— and Löw, I. Isolation of cryst. rutin, quercetin, isorhamnetin, and transcrocetin dimethyl ester from the gametes of *Chlamydomonas* mutants, 4728*a*; alkaloid glucoside from the leaves of a wild tomato, 5551*a*; crystn. of the copulation inhibiting substance of *Chlamydomonas agametos*, 5832*b*.
——— and Wendt, G. Anhydro-D(+)-ribitol, 5370*a*
**Kuhn, W.** Absorption spectrum of polyenes, 1654*b*; form of threadlike mols. in good and bad solvents, 6887*c*; reversible extension and contraction with change in ionization of a network of multivalent filamentous mols., 8812*f*.
———, Künzle, O., and Katchalsky, A. Behavior of multivalent chain mols. in solns., 2487*h*, 6494*a*.
——— and Kuhn, H. Rigidity of long chain mols. and its detn. from the viscosity and flow birefringence of dil. solns., 19*e*, 2072*d*
**Kuhnholts-Lordat, G.**, and Barry, J. P. Reversal of differentiation by the action of 2-methyl-4-chlorophenoxyacetic acid, 1137*d*.
**Kuhns, R. H.** See Barondes, R. de R.
**Kuhrt, N. H.** See Embree, N. D.

**Kulken, K. A.** See Lyman, C. M.; Prescott, J. M.
——, and Lyman, C. M. Essential amino acid compn. of soybean meals prepd. from 20 strains of soybeans, 3409*d*.
——, Lyman, C. M., and Hale, F. Effect of feeding iso-PrOH-extd. cottonseed meal on the storage quality of eggs, 1497*c*.
**Kuiper, E. J.** See Raven, C. P.
**Kuiper, G. P.** Absorptions in the Uranus atm., 7335*d*.
**Kuitert, L. C.** See Tissot, A. N.
**Kuizenga, M. H.** See Graham, B. E.; Vander Brook, M. J.
**Kukaczka, R.** See Bablik, H.
**Kukade, S. M.** See Trivedy, J. N.
**Kukavadze, G. M.** See Konikova, A. S.
**Kukharenko, T. A.** Detn. of functional groups in humic prepns., 66*c*; substances pptd. from primary peat tars by petr. ether, 6809*d*.
—— and Khrisanfova, A. I. Reduction and oxidation of coal, 4830*f*.
**Kukina, A. I.** See Balandin, A. A.
**Kuklin, N. V.** Barite as indicator in prospecting for Cu and polymetallic ores, 2130*i*.
**Kukolev, G. V.** Furnace app. for continuous firing of dolomite brick, P 3164*g*; tech. properties of clays, 5915*h*
—— and Dolgina, G. Z. Treating Lis'ya Gora dolomites, 5910*h*, properties of difficultly sinterable dolomites of the Abano deposit, 5911*a*.
—— and Kivin, D. I. Dolomite brick in metallurgy, 3581*d*.
—— and Mel'nichenko, L. G. Wet grinding of refractory materials, 5562*b*
—— and Repenko, K. N. Hydraulic additives, P 3166*g*.
—— and Rolzen, A. I. Refractory concrete with improved fire properties, 6384*g*
**Kulash, W. M.** Control of the rice weevil and the Angoumois grain moth, 1898*f*; dust treatments for fall armyworm control, 1899*a*; benzene hexachloride-DDT combination dust for pest control, 2729*e*, insecticides for cotton insect control, 3137*b*
**Kulastic Co., Inc.** Cork gasket substitute, P 6466*i*.
**Kul'berg, L. M.** Sintezy Organicheskikh Reaktivov dlya Neorganicheskogo Analiza (book), 2627*g*; theory of specific groupings, 7368*f*.
—— and Blokh, G. A. Spot tests for control of components of rubber compns., 892*i*
—— and Chechenov, N. I. Identification of plant tanning agents in exts. and in leather, 889*g*
—— and Ivanova, Z. V. Hydroxy- and aminoazonitro compds. (III) characteristic grouping for Mg, 596*i*, detection of some org. acids present in a mixt., 5342*a*, tests for hypochlorites and bromates in the presence of other oxidizing agents, 5700*d*, distinguishing homologs, isomers, and org. compds. of similar structure, 6944*d*
—— and Ledneva, A. M. Formazylcarboxylic acid as analytical reagent, 5696*f*.
—— and Shima, E. I. Detn. of DDT in air and in dry samples, 7869*c*.
—— and Soffer, P. A. Test for incipient spoiling of fats, 5205*h*.
**Kul'bin, I. N.** Bactericidal paper, 9444*i*
**Kul'chitskii, L. A.**, Latyshev, G. D., and Bulyginskii, D. G. Angular correlation of short path α-particles and γ-quanta, 7810*h*
**Kulcsár, L.** Volcano Mezőkaszony, 978*a*
**Kulenkampff, H.** X-rays, 3701*h*
**Kulenok, M. I.** Analysis of drinking water for sanitary purposes, 9308*g*.
**Kuleschа, Z.** Trypsin for extn. of plant growth substances from plant tissues, 3491*e*; transformation of tryptophan under the action of artichoke tissues, 7094*a*
**Kulesza, J.** Plant hormones, 8452*c*.
**Kulhánek, J.** Prepn. and life of acid linings of high-frequency furnaces for melting steel, 6381*h*.
**Kulibin, V. A.** Concn. of ferrous metal ores, 1293*g*; see Yartsev, N. A.
**Kulikov, M. A.** See Bat'kov, A. I.
**Kulikov, S. G.** See Levina, R. Ya.; Rubinshtein, A. M.
**Kulin, S. A.** See Averbach, B. L.
**Kulka, D.**, and Walker, T. K. Influence of *Acetobacter* infection on beer, 2365*i*.
**Kulka, K.** Aromatic aldehydes, 9049*h*.
**Kulka, M.** Recovery of $HSO_3F$ and use as condensing agent in production of DDT, P 2782*g*; see Manske, R. H. F.
**Kulkarni, A. B.** See Plattner, P. A.
**Kulkarni, S. B.** See Jatkar, S. K. K.
**Kulkarni, V. S.** Lab. Hand-Book of Org. Qual. Analysis and Separations (book), 7380*f*
**Kul'kova, N. V.**, and Temkin, M. I. Kinetics of the reaction of conversion of CO by water vapor, 7308*h*.
**Kull, B.** Influence of water and weak acids to make a protective medium, P 4627*b*
**Kull, F. C.** See Eisman, P. C.
**Kullgren, C.** Testing and purification of distd. water, 790*e*; filter paper, 2429*f*
**Kullgren, G. V.** Calender processing equipment, 7251*i*.
**Kulma, C.** Production and use of safety fuses, 4467*c*.
**Kul'man, A. G.** Fizicheskaya i Kolloidnaya Khimiya (book), 5276*h*.
**Kulman, H. M.** Cork gasket substitute, P 6466*i*.
**Kulonen, E.** Correlation between hyaluronidase content and spermogenesis in the testis, 8503*g*, hyaluronic acid and hyaluronidase, 8401*g*.
**Kulp, J. L.** See Holland, H. D.; Kerr, P. F.
——, Wright, H. D., and Holmes, R. J. Thermal study of rhodochrosite, 8081*c*
**Kulp, M. P.** See Detwiler, G. T.
—— and Sisson, W. A. Crimped artificial filaments, P 3627*d*.
——, Vanderburgh, C. D., and Chance, D. C. Forming cellulose xanthate, P 8680*h*
**Kul'skii, L. A.**, and Koganovskii, A. M. Mixed coagulants for drinking water purification, 7612*f*
**Kultiasov, S. V.**, and Dubinkina, R. P. V contg., oellacherite, 6120*e*.
**Kuman, K. G.** Labile thermoregulator, 3275*b*.
**Kumar, S.** See Bhimeswar, B.
**Kumari, C. S.** Raman spectrum of $NaClO_3$, 8880*f*.
**Kumazawa, T.** Action of borax in the coating of coated electrodes, 7401*e*
**Kumetat, K.** Test methods for Milone, 781*g*, albuminous content of fermented beverages from whey, 5154*g*, class of developing agents, 5683*b*.
—— and Demmler, G. Detn. of water in dairy products, 5509*b*
**Kumler, W. D.**, and Daniels, T. C. Sunscreen compds., 7189*a*
**Kummer, E.** See Alexander, L., Klug, H. P.
**Kummer, J. T.**, DeWitt, T. W., and Emmett, P. H. Mechanism studies on the Fischer-Tropsch synthesis using $C^{14}$, 2080*i*
**Kummerow, F. A.** Oil from *Andropogon sorghum*, 2450*f*, see Allen, R. R.; Gish, C. L.; Jackson, A. H., Miller, B. S.
——, Chu, T. K., and Randolph, P. Effects of autoxidation on antiacrodynic potency of fats and linoleic esters, 1105*a*.
——, Hite, J., and Kloxin, S. Fat rancidity in eviscerated poultry (II) effect of variation in diet on the characteristics of the fat extd. from immature turkeys, 1087*h*.
**Kumov, V. I.** See Gusev, S. I.
**Kun, E.** Effect of bacterial endotoxins on glycogen synthesis, 269*h*; bile salts—their influence on mineral metabolism, 2688*a*; see Flesch, P.; Sjoerdsma, A.
—— and Abood, L. G. Estn. of succinic dehydrogenase by triphenyltetrazolium chloride, 6272*e*; action of morphine, urethan, and phenobarbital on the glycogen synthesis from glucose in the rat liver, 7134*c*, mechanism of inhibition of glycogen synthesis by endotoxins of *Salmonella aertrycke* and Type I meningococcus, 7542*h*.
**Kuna, S.** See Molitor, H.
**Kunakov, N. E.** Blast-furnace gas from ferromanganese smelting, 2555*h*.
**Kundu, B. C.** See Rao, N. S.
**Kundu, D. N.**, and Pool, M. L. $Tc^{92}$ and $Tc^{93}$ by relative cross-section measurements, 1647*c*, enriched Mo in cross-section measurements of the $(p,n)$:$(p,\gamma)$ and $(d,n)$ $(d,2n)$ reactions, 2089*c*; $Cb^{96}$, 6507*g*.
**Kundu, N.** See Chakravarti, D.
**Kunert, G.** Detn. of the I no., 423*b*; oil of *Lappa* fruits, 4871*f*; thiocyanogen no. and the pharmacopeia, 5535*f*.
—— and Awe, W. Postonal suppository base, 8093*i*.
**Kung, F. E.** See Bissinger, W. E.
**Kung, H. P.**, and Huang, W.-Y. *Draba nemorosa*—isolation of sinapine iodide, 8452*e*.
**Kung, L.-C.** See Fan, H.
**Kung, S. K.** Lipase activity during epidermal carcinogenesis, 6725*e*.
**Kunii, T.**, Nishimoto, N., Tanifuji, M., and Aira, M. Hydrocarbons contg. much isobutene from *n*-BuOH using alumina as catalyst, P 6217*g*.
**Kunin, L. L.** See Klyachko, Yu. A.
—— and Klyachko, Yu. A. Measurement of the surface tension of liquid metals, 3678g
**Kunin, R.** Ion exchange, 1227*h*, 2113*g*, see Winters, J. C.
—— and Barry, R. E. Equil. and column behavior of exchange resins—carboxylic, weak-acid type, cation-exchange resin, 6489*g*.
—— and McGarvey, F. X. Equil. and column behavior of exchange resins—strong-base anion-exchange resin, 6489*e*
**Kunisaki, T.** Fish and liver oil from the sea in the Southern region (X) liver oil of Hosomezame and Hanazame, 7724*a*.
**Kunitomi, M.** Fused salts (IV) dehydration of alk. earth chlorides, 1278*f*.
**Kunitz, M.** Kinetics and thermodynamics of reversible denaturation of cryst. soybean trypsin inhibitor, 2257*h*; crystn. of salt-free chymotrypsinogen and chymotrypsin from soln. in dil. EtOH, 2258*b*.
—— and McDonald, M. R. Isolation of cryst. ricin, 2256*c*.
**Kunkel, H. G.** See Eisenmenger, W. J.
—— and Ahrens, E. H., Jr. Serum lipides in liver disease, 2307*g*.
—— and Hoagland, C. L. Thymol turbidity test for liver disease, 7372*f*
**Kunkel, H. O.**, and Pearson, P. B. Mg in the nutrition of the rabbit, 1467*e*; requirement of the rat for Mg, 2680*f*.
**Kunkl, S.** See Viale, L.
**Kunsch, W. M.** Sludge-digestion experience with the external heat exchanger, 3123*i*.
**Kunst, E.** Preferential adsorption and diffusion of light by solns. of macromols. in certain binary mixts., 2066*g*.
**Kunstmann, F. W.** Detn. of small amts. of $NH_3$ in small quantities of plant nutrient solns., 7866*d*.
**Kuntz, A.**, and Sulkin, N. M. Lesions produced in rabbits by cholesterol feeding, 7119*d*.
**Kuntze, H.** See Geller, W.
**Kuntze, K.** Detection of MeOH, [pyridine in] denatured alc., and tri-*o*-cresyl phosphate, 3146*a*; see Meyer, F. O. W.
—— and Peyer, W. Testing and assaying of drugs, 7639*a*
**Kunz, L. J.** See Christiansen, G. S.
**Kunze, F.** Relation of the activation heat and the reaction const. for heterogeneous reactions, 2850*i*.
**Kunze, F. M.** See Laug, E. P.
**Kunze, W. G.**, and Evans, R. B. Starch adhesive, P 3223*a*
**Kunzle, L.** See Hostettler, H.
**Kunzmann, T.** Development of the fat industry, 3215*h*; micromethods in the cosmetic industry, 4424*h*.
**Kuo, F.-C.** See Yuan, H.-I.
**Kuo, N. H.** See Co Tui, F. W.
**Kuoch, R.**, and Shanley, E. S. Desensitization of org. peroxides, P 1807*c*.
**Kupchan, S. M.** See Elderfield, R. C.
**Kuper, A. I.** Detn. of ferricyanides in water, 1506*i*.
**Kuperman, G. M.** Electrolyzer, P 4588*c*.
**Kupferberg, A. B.** See Waksman, S. A.
**Kupka, E.** Effect of tortulin on strychnine poisoning, 6736*b*.
**Kupletskaya, E. M. B.** See Bonshtedt-Kupletskaya, E. M.
**Kupletskii, B. M.** Mineralogical compn. of feldspathoid rocks, 2135*g*; melilitic rocks of the alk. complex of the Ensk region of the Kola Peninsula, 8993*a*.
**Kupperman, H. S.**, McShan, W. H., and Meyer, R. K. Gonadotropic hormones and ovarian hyperemia, 8487*e*.
**Kuprina** and Kotusov. Coal ash as hydraulic additive to portland cement, 1936*h*.
**Kupriyanova, L.** See Shurmovskaya, N.
**Kuptsov, I. I.** See Kolyzhenkov, P. A.; Koval'skii, V. A.
**Kura, J. G.**, Jackson, J. H., Udy, M. C., and Eastwood, L. W. Prepn. and casting of Be melts, 8996*i*.
**Kuraitis, S. A.** Fatty emulsions from naphthenic hydrocarbons, 6447*i*.
**Kuraitis, S. N.** Improving the working properties of Russian leather, 6450*f*.
**Kurakin, A. N.** Prepn. of *N,N*-dimethylaniline-*m*-sulfonic acid, 3803*b*; see Shilov, E. A.
**Kurbatov, J. D.** See Barton, G. B.; Emmerich, W. S.; Yu, F.-C.

**Kurbatov, L. N.** Dielec. properties of adsorbed vapors, 2831*g*.
**Kurbatov, M. H.** Rate of adsorption of Ba ions in extreme dilu., by hydrous ferric oxide, 6035*i*.
**Kurbatov, V. Ya.** Heat capacities of liquids (II) temp. dependence of the heat capacity of halogen derivs. of acyclic hydrocarbons, 30*a*.
**Kurčatov, M. S.** See Kurchatov, M. S.
**Kurchatov, M. S.** Coking properties of coal of the Balkan deposits, 8647*f*; coal of the Maritsa basin, 9411*i*.
**Kurdjumow, G. W.** See Kurdyumov, G. V.
**Kurdyumov, G. V.** Diffusionless martensitic transformations, 1235*e*.
——— and Khandros, L. G. Thermoelastic equil. in martensitic transformations, 6880*h*.
——— and Maksimova, O. P. Kinetics of the transformation of austenite into martensite at low temps., 86*e*.
**Kurdyumova, T. N.** See Lukashevich, V. O.
**Kureha Gomukogyo K. K.** Same as Kureha Rubber Industry Co.
**Kureha Rubber Industry Co.** Coating material, P 5608*g*.
**Kurek, F. L.** See Evans, R. J.
**Kurgaev, E. F.** App. for chem. purification of water, P 9310*d*.
**Kurilenko, O. D.** See Dumanskiĭ, A. V.
**Kurimura, R.** See Sakai, W.
**Kurlyankin, A. I.** See Volova, E. D.
**Kurlyankin, F. A.** Tamman-type resistance furnace for glass melting, P 3587*e*.
**Kurnakova, A. G.** Synthesis of inderborite, 2128*g*.
**Kurnosova, L. V.,** and Shulyak, B. A. Formation of cosmic ray showers under thick layers of Pb at various altitudes, 5282*i*.
**Kuroda, E.** See Ishikawa, S.
**Kuroda, K.** Geochem. investigations on the thermal springs of Kusatsu, 4793*c*; see Kimura, Kenjiro; Ouna, S.
——— and Tagaya, T. Geochem. studies on B (II) B content of mineral springs in the northeast region of Japan, 7875*d*
——— and Yokoyama, Y. Equil. of the radioactive elements in the hydrosphere (I), (II), 7814*e*; (III) ratio of Th emanation to Ra emanation in the hydrosphere, 8873*b*; (IV) ratio of Th X to Ra in the hydrosphere, 8873*d*.
**Kuroda, S.** See Kambara, S.
**Kurokawa, M.** Effect of mixing oils on hydrogenation of coal paste, 1944*a*; hydrogenation of coal paste (I) chem. changes in coal paste, (II) activity of catalysts, (III) hydrogenation in the presence of single catalysts, (IV) effect of the varieties of coal paste, (V) hydrogenation in the presence of mixed catalysts, 8640*c*.
——— and Fujiwara, M. Hydrogenation of coal paste (VI) activity of catalysts under high pressure, (VII) effect of reaction temp. and reaction time under high pressure, (VIII) hydrogenation of the paste of coal ext. under high pressure, (IX) fitness of Japanese coal for liquefaction, 8640*i*.
———, *et al.* Liquid fuel from hydrogenation of coal, P 6810*f*.
**Kurokawa, S(hinbu).** Same as Kurokawa, M(atake).
**Kuron, H.** Soil erosion on the black earth of the Magdeburg plain, 338*d*; changes of surface soils by soil erosion, 3125*i*.
**Kurosawa, T.** Relations between the amts. of $H_2SO_4$ used and the properties of the refined petroleum lubricating oil (I) acid refining of lubricating oil, (II) influence of the amt. of the acid used on the general properties of refined oil, (III) degree of refining and stability, (IV) mean mol. wt. and general formula of refined oil and distribution of S, N, and O, (V) special ring analysis of refined oil, (VI) oiliness of refined oil, 2417*c*.
**Kurovskaya, S. M.** See Kitaĭgorodskiĭ, I. I.
**Kurozumi, M.,** Toda, H., Yuasa, N., and Kosaka, Y. Removal of ash from coal (I) oil treatment of an anthracite, (II) factors influencing the agglomeration and the degree of ash removal with the oil treatment, (III) auxiliary measures for oil treatment, 1940*g*.
**Kursanov, A. L.,** Dzhemukhadze, K., and Zaprometov, M. Condensation of tea leaf catechols during oxidation, 728*e*.
———, Kryukova, N. N., and Sedenko, D. Adsorption of org. substances by plants as related to plant respiration, 1084*c*.
———, Kryukova, N. N., and Vyskrebentseva, E. Inositol as an intermediate in the transformation of sugars into polyphenols, 3070*d*.
**Kursanov, D. N.** See Setkina, V. N.
——— and Setkina, V. N. Reaction of quaternary $NH_4$ salts with ethers, 6622*c*.
——— and Shemyakina, O. M. Reaction of allylpyridinium chloride with alcs., 2159*c*.
**Kurssanow.** See Kursanov.
**Kurtenacker, A.** Remigius Fresenius, 3251*d*.
**Kurtepov, M. M.** Cathodic polarization of Mg and its alloys with Pb, 7355*i*.
**Kurteva, A. N.,** and Ruzhentseva, A. K. Detn. of sulfanilamide compds. by titration with hydroxide, 8422*f*; detn. of S in sulfanilamide compds., 9370*a*.
**Kurth, E. F.** Chem. analysis of western woods (II) Douglas fir bark analysis, 4162*g*, see Graham, H. M.; Hubbard, J. K.
**Kurtschatoff, Kurtschatow.** See Kurchatov, M. S.
**Kurtz, D. M.** See Beesing, D. W.
**Kurtz, J.** Porous metallic bodies, P 3769*i*; high-d W-Ni alloy, P 5001*a*; pressed and sintered oxidation resistant Ni alloys, P 6147*a*.
——— and Williams, H. G. High-d refractory metal alloys, P 4999*g*.
**Kurtz, S. S., Jr.,** and Sweely, J. S. Phenol-aldehyde sealing agents, P 2421*d*
**Kurtz, T.** See Melsted, S. W.
**Kurylenko, C.** Discontinuity of K absorption of x-ray and of their fringes, 1262*e*, (book), 1266*c*; rubellite, 6118*i*
**Kuryndin, K. S.** Catalytic reactions of monocyclic terpenes, pinene, and borneol (I), 6185*a*
**Kurzer, F.** Sweeter than sugar—synthetic compds. more potent than saccharin, 5880*c*, see Burton, H.; Dorée, C.
**Kurzrok, R.** See Leonard, S. L.; Perlman, P. L.; Sherber, D. A.
**Kurzsanow.** See Kursanov.
**Kusaka, S.** Influence of extremely low temps on different biol. activities (I) influence on fermentation reactions, (II) influence of low temp. on glycolysis, (III) influence of low temp on cell respiration, (IV) influence of exposure to low temp on the sensitivity of motor nerves and on the pupillary response to adrenaline, 5052*i*; (V) influence of exposure to low temp. on heart and blood vessels, (VI) influence of exceedingly low temps. on the effect of adrenaline on the frog heart, 5053*b*.
**Kusch, P.** Nuclear elec. quadrupole moment of $Li^6$, 4114*c*; elec. quadrupole moment of $Li^7$, 8273*a*; see Taub, H.
——— and Taub, H. The $g_J$ values of the alkali atoms—hyperfine structure of the alkali atoms, 5303*b*.
**Kuschinsky, G.** Treatment of glomerulonephritis with Ca, 1488*a*; see Langecker, H.
——— and Langecker, H. Diuresis, filtration, and secretion by the kidney under the influence of various drugs (I) influence of intravenous infusion of water and NaCl solns. on diuresis, (II) filtration in the kidney under various conditions of loading, (III) influence of atropine on kidney function and esp. the secretion of phenol red, 310*b*.
———, Langecker, H., and Hotovy, R. Diuresis, filtration, and secretion by the kidney under the influence of various drugs (VI) action of testosterone on water and chloride excretion, 310*d*.
**Kushida, M. N.** See Burchenal, J. H.
**Kushimoto, T.** Acid hydrolysis of polysaccharides (I) starch, 5980*d*.
**Kushman, L. J.,** and Beattie, J. H. Production of pops in Spanish and Virginia-type peanuts as affected by nutritional level and balance, 1513*c*.
**Kushner, J. B.** Rinsing (I) with single compartment tank, (II) with multiple compartment tank, 8907*a*.
**Kushner, L. M.,** and Smyth, C. P. Resonance and polarity in the mols. of three colored compds., 4910*g*.
**Kushner, S.** See Broschard, R. W.; Hewitt, R. I.; McKenzie, D.; Safir, S. R.
——— and Brancone, L. M. *N*-Alkyl derivs. of 1-piperazinecarboxamides, P 6245*a*.
———, Dalalian, H., Cassell, R. T., Sanjurjo, J. L., McKenzie, D., and Subbakow, Y. Chemotherapy of tuberculosis (I) substituted nicotinamides, 5025*b*.
**Kusin, A. M.** See Kuzin, A. M.
**Kuskova, N. K.** Detn. of slight amts. of Al in steel, 5696*i*; see Generosov, B. A.
**Kusmin, L. L.** See Kuz'min, L. L.
**Kusnetsov, Kusnesoff, Kusnezow.** See Kuznetsov.
**Kuss, E.** Falling body viscometer for pressures up to 2000 atm., 2821*i*.
——— and Stuart, H. A. Specific viscosities of solns. of leaflike mols. and their temp. dependence, 1629*g*.
**Kussmann, A.,** and Steinwehr, H. E. v. Superstructure phase in the system Pt–Ni, 7888*b*.
**Kuster, W.** See Krebser, A.
**Kustov, B. I.** Gas permeability of refractory brickwork of coke ovens, 8114*h*.
——— and Voloshin, A. I. Detn. of the temp. on the walls of coking chambers and nature of heat transfer to the coking charge, 1169*f*; temp. conditions during the use of brick in coking chambers, 5926*f*.
**Kusu, M.,** Fukushima, M., and Mochiki, M. Sponge ball, P 6859*b*.
**Kusunoki, M.** Permanent magnet from Mo, Sn, Cr, Cu, and Fe, P 5000*i*.
**Kuthan, M.** Undation volcanism of the Carpathian orogeny and volcanological survey of the northern part of the Presov Mountains, 75*e*.
**Kuthanová, H.** Estn. of Fe in fats, 8953*i*
**Kutsaya, B. F.** See Glikman, T. S.
**Kutsev, S. S.,** and Skorobogatova, E. P. Removal of bitter constituents from the juice of walnut leaves, P 3151*g*; removal of bitterness from the juice of green walnut conts; vitamin C, P 3572*i*.
**Kutyanin, G. I.** Electrovalent interaction of tannin with collagen, 6449*d*; bonding of tanning materials from sulfite-cellulose exts. and of syntans with collagens, 6449*e*; combined water-sol. tannin in hides, 6449*i*.
**Kutz, W. M.,** and Corson, B. B. Alkylation of thiophene by olefins and alcs., 1395*b*, alkylation of thiophene by propylene and isobutylene, 5775*a*.
———, Nickels, J. E., McGovern, J. J., and Corson, B. B. Catalytic alkylation of indan and 1,2,3,4-tetrahydronaphthalene by olefins, alcs., and diethyl ether, 2197*e*.
**Kutzaia, B. F.** See Kutsaya, B. F.
**Kutzelnigg, A.** Soly. of Co xanthate in org. solvents, 2122*g*, detection of Fe oxide colors in their mixts., 4023*i*
**Kutzsche, A.** Influence of tumor lipides on tumor transplants, 8516*b*
**Kuvaeva, E. B.** See Kritskiĭ, G. A.; Sisakyan, N. M.
**Kuvarsina, M. V.** See Kuvarzina, M. V.
**Kuvarzina, M. V.** See Nazarov, I. N.
**Kuwata, T.** See Hachihama, Y.; Imoto, M.
**Kuwayama, S.** Castor-oil substitute from rice oil, 5611*c*.
**Kuzell, W. C.** See Gardner, G. M.
———, Gardner, G. M., and Fairley, D. M. Aureomycin in polyarthritis, 9220*c*.
———, Pillsbury, P. L., and Gellert, S. A. Effects of 2,3 dimercaptopropanol on toxicity and excretion of Au, 4765*c*.
**Kuzin, A. M.** Antigens, 7126*f*.
———, Babadzhanov, S. N., and Polyakova, O. I. Chem. nature of the antigens of some helminths, 5110*d*.
——— and Doman, N. G. Oxidation of dihydroxymaleic acid in the green plant leaf, 726*c*.
——— and Krzhevova, R. V. Enzymic activity of the virus from the jaundiced silkworm, 3051*f*.
**Kuz'kin, S. F.** Electrostatic sepn., 3732*a*
**Kuzmick, J. N.** Diamond abrasive binder, P 6868*g*.
——— and Bell, D. Abrasive products, P 832*a*.
**Kuz'min, L. L.,** and Kiseleva, V. L. Electrolytic production and properties of Fe powder, 7833*a*.
**Kuz'mina, N. N.** See Chovnyk, N. G.
**Kuz'mina, Z. M.** See Kell, I. A.
**Kuz'minov, G. P.** Application of O in internal-combustion engines, 5921*d*.
**Kuz'minskiĭ, A. S.** Kinetics of the thermal oxidation of a Na-butadiene polymer, 924*f*.
——— and Shanin, L. L. Oxidation of polydienes (III) change of phys. properties of Na-butadiene rubber during oxidation with $O_2$, 7741*i*.
———, Shanin, L. L., Degteva, T. G., and Lapteva, K. A. Oxidation of polydienes (I) kinetics of oxidation of rubber, (II) changes of the chem. properties of Na-butadiene rubber on oxidation with $O_2$, 7741*c*.
**Kuznecov.** See Kuznetsov.
**Kuznetsov, M. D.** Detn. of absorption-rate coeffs., 3270*c*.

**Kuznetsov, M. I.** Effect of pH, $pCO_2$, and osmotic concn. on the dissocn. curves of oxyhemoglobin, 5814*h*.
**Kuznetsov, S. I.** Problems of autotrophy in microörganisms, 1832*f*, applying microbiol. techniques to the study of org. matter in reservoirs, 8446*d*; bacteria capable of oxidizing hydrocarbons, 8437*b*.
**Kuznetsov, V. I.** Restoration of elasticity of rubber articles, 1593*f*; increase of sharpness of color reactions with org. reagents, 4174*e*; tests for Al, 4175*e*; action of org. reagents employed in inorg. analysis, 5327*e*; test for Te, 5334*d*; color reaction of Sb with Me violet, 6937*g*; color test for Zn with Me violet, 7372*f*, color reactions accompanied by pptn., 7860*b*, color test for detecting small quantities of dissolved inorg. salts, 8965*g*, color reaction for Li, 8954*c*.
**Kuznetsova, A. G.** See Kozlov, V. V.
**Kuznetsova, A. I.** See Nazarov, I. N.
**Kuznetsova, G. A.** See Pigulevskiĭ, G. V.
**Kuznetzow.** See Kuznetsov.
**Kuzolev, A. K.** Concg. table, P 9018.
**Kuzovlev, A. D.** Identification of clay minerals of the montmorillonite group, 2130*a*
**Kuzub, N. N.**, and Moryganov, P. V. Bleaching linen fibers, 8687*e*
**Kuzyak, V. A.** Influence of the moisture content of the wood on the performance of glass furnaces, 6378*i*.
**Kvale, A.** Petrologic and structural studies in the Bergsdalen quadrangle, western Norway (II) petrology, 4610*e*
**Kvalnes, H. M.** Liquid urea HCHO compns., P 5232*a*
—— and Chance, F. S. Wood impregnation, P 3167*a*
**Kvaratskhelia, N. T.** Perennial grasses as a measure of increasing the productivity of subtropical soils, 8082*c*.
**Kvashnina, E. S.** See Sarkisov, A. Kh.
**Kvaskov, A. P.** Prepn. of magnetite for smelting, 529.
**Kvifte, G.** See Vegard, L.
—— and Vegard, L. Emission of the forbidden lines from the metastable ground states $^1S_0$ and $^1D_2$ of the neutral O atom, 4135*h*
**Kvinge, V.** See Mariella, R. P.
**Kvorning, S. A.** See Dalgaard Mikkelsen, S.
—— and Kirk, E. Correlation between the clinical appearance of the skin and the skin lipides secretion in middle aged and old individuals, 8514*a*; serum silica concn. at various ages, 8514*b*.
**Kwan, S. C.** Geology of the Chi-Chang-Hu coal field of Turfen, Sinkiang, 2903*a*, see Sung, S. H., Yeh, L. Y.
**Kwan, T.** S-coated Ni catalysts (II) effect of amines and H pressure on catalytic hydrogenation, (IV) partial hydrogenation of $C_5H_{12}$, 7802*h*.
——, Okada, K., and Matsushita, S. S-coated Ni catalyst (III) catalytic decompn. of iso-PrOH, 7802*i*
**Kwart, H.** See Bartlett, Paul Doughty
**Kwartler, C. E.** See Kenyon, R. L.
**Kwasnik, W.** Chemische Streifzuge (book), 4090*d*.
**Kwit, N. T.** See Gold, H., Modell, W.
**Kwoh, T. C.**, and Tai, A.-P. Prepn. and properties of Cu tartrate crystals, 7287*h*
**Kwong, J. N. S.** See Redlich, O.
——, Adams, J. T., Jr., Johnson, J. F., and Piret, E. L. Energy-new surface relation in crushing (I) of brittle solids, 8751*e*
**Kyame, L.** See Altschul, A. M.
**Kyhl, R. L.** See Strandberg, M. W. P.
**Kyle, R. H.** See Gilman, H.
**Kyles, J.** See Feather, N.
**Kylin, A.** N sources and the influence of Mn on the N assimilation of *Ulva lactuca*, 6289*d*.
**Kylin, H.** Biochemistry of *Claaophora rupestris*, 3495*f*.
**Kymin Osakeyhtiö.** $ClO_2$, P 3159*g*, Cl and $ClO_2$ from solid chlorates, P 6377*f*.
**Kymmene Aktiebolag.** Same as Kymin Osakeyhtiö.
**Kyoritsu Marine Industries Co.** Alkali alkylsulfite of high mol. wt., P 7037*b*.
**Kyowa Chemical Industries Co.** Petroleum from EtOH, P 1955*d*; phosphoric acid catalyst, P 3576*g*; MeOH, P 7036*d*.
**Kyrides, L. P.** 2-(2-Thenyl)-4,5-dihydroimidazoles, P 3042*e*; see Zienty, F. B.
—— and Zienty, F. B. Tertiary amines, P 3038*i*; 3-acetylpropanol and γ-valerolactone, P 3451*e*; *N,N*-dimethyl-*N'*-2-pyridyl-*N'*-furfurylethylenediamine, 1274*d*.
**Kyskova, N. K.** Detn. of Al in steel, 5328*e*.
**Kyuneman, A. G.** See Malchenko, A. L.

**Laake, E. W.** Chlorinated hydrocarbon insecticides for the control of the horn fly on beef cattle, 5895*g*; livestock parasitic control, 8578*h*; see Lindquist, A. W.
**Laakso, J. W.**, and Johnson, L. H. Toxaphene residues (II) on alfalfa, 8690*g*.
**Laakso, P. V.** See Karrman, K. J.
**Laaksonen, T.** See Virtanen, A. I.
**Laatsch, W.** Formation and increase of humus substances, 7617*e*.
**Labalade, M.** See Lacroix, S.
**La Barre, J.** Detn. of digitalis glucosides, 4425*f*
—— and Hanquinet, J. Alloxan diabetes and insulin secretion, 4362*d*; bile secretion during alloxan diabetes, 4364*f*
—— and Thomas, J. Dossage biologique et contrôle des médicaments (book), 1157*g*.
**La Barreda, P. de.** See Barreda, P. de la
**Labarthe Martelli, H.** Citric acid fermentation with *Aspergillus niger*, 3141*c*.
**Labatut, E. N.** Chrysarobin, 4814*c*
**Labaw, L. W.** See Smith, Falconer
**Labby, D. H.**, and Hoagland, C. L. Water storage and the movements of body fluids and chlorides during acute liver disease, 5855*e*.
**LaBelle, C. W.** See Dygert, H. P.; Stokinger, H. E.; Wilson, H. B.
**Labenskii, A. S.**, and Men'shikov, G. P. Alkaloids of *Lindelofia anchusoides* (I) lindelofine and lindelofamine and their structures, 3827*h*.
**Labeyrigue, J.** See Marty, N.
**La Blanchetais, C. H.** See Foëx, M., Trombe, F.
**Labò, G.** Vitamin $B_2$ and blood proteins, 4738*e*.
**Laboon, J. F.** Incineration of liquid sludge proves economical, 2718*g*; sewage disposal program of the Allegheny County Sanitary Authority, 8585*i*
**Laboratoire de recherches et de controle du caoutchoue et de l'amiante.** Regenerating waste rubber, P 8196*h*.
**Laboratoire de recherches industrielles** Treatment of hydrocarbons contg. acidic or phenolic substances, P 5574*a*.
**Laboratoires français de chimiotherapie.** α-Disubstituted derivs. of the aralkyl and hydroaralkyl isocyanate and the aralkyl and hydroaralkylamine group, P 5800*e*, α,α-dialkyl ethylene acids, P 7037*g*, progesterone, P 9088*f*, see Girard, A.
**Laboratorio Abrasivi Cere Affini S.a.r.l. Milano, L.A.C.A.M.** Plastics-polishing material, P 4895*g*.
**Laboratorio Chimico G. Guainazzi.** Pb cyanamide, P 8108*i*.
**Laborey, F.** See Lavollay, J.
**Labriola, R.** See Deulofeu, V.
**La Brosse, E.** See Schwerma, H.
**Labutin, S. V.** App. for feeding drum vacuum filters, P 4906*g*.
**Laca, D. S. R.** See Recalde Laca, D. S.
**LaCamara, M. S. M. de.** See San Miguel de la Camara, M.
**L.A.C.A.M. Laboratorio Abrasivi Cere Affini S.a.r.l. Milano.** See Laboratorio Abrasivi Cere Affini S.a.r.l. Milano, L.A.C.A.M.
**Lacapere, J.** See Bricq, R.
**Lacassagne, A.** See Corre, L.
——, Buu Hoi, Royer, R., Rudali, G., and Zajdela, F. Cancerigenic activity of 2-aminofluorene, 300*b*.
**Lacau, J.**, and Magat, M. Oxidative degradation of GR-S in solns., 5620*i*.
**Lacaz, C. S.** See Mucciolo, P.
**Lacerda, A.** Detn of the Bellier no. (I), 8178*g*.
**Lacey, A. D.** See Chandler, D.
**Lacey, H. T.**, and Brouillard, R. E. Chemiluminescent compn., P 1266*g*
**Lacey, W. N.** See Olds, R. H., Reamer, H. H.; Sage, B. H.
**Lachampt, F.**, Zviak, C., and Rossignol, H. Reactions at interfaces—emulsion saponification, 8795*a*.
**LaChapelle, T. J.** See Hindman, J. C.; Magnusson, L. B.
**Lachenbruch, S. H.** Electron motion in deflecting field of magnetic dipole, 4095*d*.
**Lacher, J. R.** See Park, J. D.
——, McKinely, J. J., Snow, C. M., Michel, L., Nelson, G., and Park, J. D. Reaction heats of org. F compds. (I) heat of chlorination of tetrafluoroethylene, 6070*i*.
——, McKinely, J. J., Walden, C. H., Lea, K., and Park, J. D. Reaction heats of org. F compds. (II) vapor-phase heats of chlorination of fluoroölefins, 6071*c*.
——, Scruby, R. E., and Park, J. D. Diamagnetic susceptibilities of chloro and fluoro derivs. of $CH_4$ and $C_2H_4$, 6016*f*.
——, Walden, C. H., and Park, J. D. Viscosities of binary liquid mixts.—monofluorodichloromethane and acetone, 8777*d*.
**Lachica, A. de.** See Cytronberg, S. S.
**Lachiondo, F. B.** See Bustinza Lachiondo, F.
**Lachman, R. G.** See Waters, K. L.
**Lachman, W. H.** Isopropyl *N*-phenyl carbamate as a selective herbicide, 1893*b*; weed control in vegetable crops, 9351*i*.
**Lack, C.** See Tooley, P. H.
**Lack, H.** See Beadenkopf, W. G.
**Lackey, C. F.** Effect of chem. loosening of seed caps on germination of sugar-beet seed, 6290*h*.
**Lackey, M. D.** See DuBuy, H. G.
**Lackey, R. W.** Toxicity of toxaphene, 7577*i*, percutaneous absorption of toxaphene, 8052*g*, see Bunde, C. A.
**Lacombe, G.** See Roche, J.
**Lacombe, P.** Corrosion in the petroleum industry, 1954*f*, see Chaudron, G.; Chossat, H.; Guinier, A.; Hérenguel, J.
—— and Beaujard, L. Surface imperfections in single crystals of pure Al, 1698*c*.
——, Beaujard, L., and Yannaquis, N. Sub-boundary and boundary structures in high-purity Al, 2911*h*.
—— and Berghezan, A. Existence of small isolated crystals in metallic monocrystals of recrystn. and their orientation relations, 4072*b*.
**Lacombe, R. E.** See Morris, H. E.
**Lacomble, M.**, and Hotot, G. Improvements in the Gotta process—its application to industrial control, 8963*b*.
**Lacour, Mme. F.** See Dux, C.; Guérin, M.
**Lacourt, A.** Horizontal microburet, 911*a*.
——, Sommereyns, G., Degeyndt, E., Baruh, J., and Gillard, J. Separatory power of org. solvents in quant. chromatographic sepns. of inorg. compds. present in γ quantities, 6537*b*; quant. inorg. paper chromatography—sepn. and detn. of Al, Fe, and Ti, 7859*g*.
—— and Timmermans, A. M. Detn. of org. I, 67*a*.
**Lacroix, S.** Complexes and slightly sol. compds. of the ions $Al^{3+}$, $Ga^{3+}$, $In^{3+}$, 4172*c*, see Charlot, G.
—— and Labalade, M. Detn. of Mn and Cr, 8304*c*, detn. of $SiO_2$, 8969*g*.
**Lacrué, M. T.** See Tomeo Lacrué, M.
**Lacy, F. E.** Developments in fats for grease manuf., 5971*g*
**Lacy, G. R.** Vertical lime kiln, 6372*i*.
**Ladame, G. C.** See Hugi, E.
**Ladd, A. T.** See Alvord, E. C., Jr., Kellner, A.
**Ladd, E. C.** Fungicides, P 7632*d*.
—— and Paxton, H. W. Cyanoethylated esters of α-acylsuccinic acids, P 2634*i*.
**Ladefoged, K.** Analysis of the root sap of the birch, 7291*i*.
**Ladenburg, K.**, and Redniss, A. Drying techniques, 1227*d*.
**Ladisch, R. K.**, and Balmer, C. E. Improvement in precision of polarographic analysis, 7857*e*.
**Ladoo, R. B.**, and Stokes, C. A. Industrial C, 1551*e*.
**Ladouceur, B.** See Barre, Roger.
**LaDue, J. S.**, Murison, P. J., and Pack, G. T. Tetraethylammonium bromide as a diagnostic test for pheochromocytoma, 1153*d*.
**Ladyshnikova, N. I.** See Shatenshteĭn, A. I.
**Läpple, H.** See Remy, H.
**Läser, S.** Antagonism of thiamine and acetylcholine on the frog heart, 1093*i*.
**Läuchli, H.** App. for smelting Fe ore, P 2524*d*.
**Lafer, I. M.** See Dvorskiĭ, A. D.
**Lafferty, R. H., Jr.**, Barton, J. C., and Westbrook, J. A. Liquid F-cotton explosion, 406*e*.
**Laffitte, P.** See Elston, J.
**Lafitte, A.** See Hazard, R.
**Lafitte, M.**, and Reis, T. Gas adsorbtion app., 2474*f*; Houdry app. for measurement of cracking catalyst activities, 5176*d*.
**LaFleur, K. S.** Efficiencies of wetting agents on woolen cloth, 5957*d*; wool-damage data, 7692*b*.
**Lafon, M.** Detn. of combined Br—detn. of Br and I in biol. material, 3870*b*; see Fromageot, C.; Roche, J.
—— and Mayol, F. Iodine content of the

scleroproteins forming the horny stems of the Gorgonidae, 1871*a*.

**Lafontaine, A.** Resorption of Ca salts—action of $Mg_3(PO_4)_2$, 3512*c*, see Nélis, P

——— and Nélis, P. Blood Ca and Mg after rectal administration of Ca and Mg salts, 6733*a*.

**LaForce, J. R.,** Ketchum, D F., and Ballard, A. E. Detn. of total C in carbonates, cyanides, and alkali or alk. earth org. salts and mixts., 8306*h*.

**La Forge, F. B.** Insecticide, P 9356*b*, see Schechter, M. S.

——— and Barthel, W. F. Insecticide, P 9356*a*.

———, Green, N., and Gersdorff, W. A. Constituents of pyrethrum flowers (XXII) synthesis and relative toxicity of 2 isomers of cinerin I, 1334*d*.

**La Forge, M.** See Handley, C. A.; Huggins, R. A.

**LaForge, R. A.** See Campbell, K. N

**Laforgue, A.** Isomers of certain ethylene compds., 111*g*, coulombic integrals in the theory of mol. orbits, 7340*b*.

**Laforgue-Kantzer, D.** Interrelation of the phosphates of Na, 8296*d*.

**La France, D. S.** See Hearne, G. W.

**Lagally, P.** Production of wet-strength papers, 7683*f*.

**La Gándara, J. O. de.** See Otero de la Gándara, J.

**Lagarde, C.** See Dubouloz, P.

**Lagarde, L.** Alk. bicarbonates, 2851*d*

**Lagasse, A.** See Groven, L.

**Lagasse, F. S.** See Sell, H. M.

**Lagemann, R. T.** Verdet const. of certain liquid fluorocarbons, 2924*g*; magnetic rotary power of liquid polymers, 8240*a*; see Adams, C. P.

———, Evans, J. S., and McMillan, D. R., Jr. Ultrasonic velocity in org. halides, 1232*g*.

———, McMillan, D. R., Jr., and Woolf, W. E. Temp. variation of ultrasonic velocity in liquids, 7283*h*

———, Nielsen, A. H., and Dickey, F. P. Infrared spectrum and mol. consts of $C^{12}O^{16}$ and $C^{13}O^{16}$, 7342*e*.

———, Woolf, W. E., Evans, J. S., and Underwood, N. Ultrasonic velocity in liquid fluorocarbons, 1232*e*.

**Lagergren, A.,** and Gronwall, A. Thymol and cephalin-cholesterol test in catatonia, 3925*a*.

**Lagerstedt, S.** Protein metabolism of the liver, 7563*b*.

**Lagerström, O.,** Samuelson, O., and Schwalander, A. Silica content of sulfite waste liquor, 4851*d*.

**Laget, P.,** and Lundberg, A Effect of $K^+$ and $Ca^{++}$ on thermal stimulation and spontaneous activity of mammalian nerve fibers, 9206*e*.

**Lagier, A.** See Colonge, J.

**Lagos, D. A.** See Acuna Lagos, D.

**Lagotkin, I. S.** See Malchenko, A. I.

**Lagrange, E.,** and Pronnel, R Poisoning by Me violet and protection against such poisoning, 5495*f*; pulmonary edema, 7132*h*.

**Lagreu, R.** See Vincent, D.

**La Grutta, G.** Insulin convulsions (I) toxic action of insulin and its importance for insulin convulsions, 9247*b*, (II) reaction after massive insulin doses, 9247*d*.

**Lagucheva, E. S.** See Petrov, K. D.

**Lagunov, L. L.,** Bukin, V. N., Prozorovskaya, M. K., Berezin, M T., and Kokorev, A. I. Fat from the liver of fish and marine animals, P 9493*g*.

**Laguntsov, I. N.** Effect of Cu on the forging, rolling, and die-stamping of steel ShKh 15, 532*d*, effect of Cu on the properties of high-C Cr steel, 532*f*.

**Lahey, F. N.** See Hughes, G. K.

——— and Merewether, J. W. T. Lignin of *Eucalyptus regnans* (I) thiolignin, 7225*h*.

**Lahiri, J. K.** See Chatterjee, R.

**Lahiry, N. L.,** Anantakrishnan, C. P., and De, N. N. Ass and cow milk casein, 6302*f*.

**Lahousse, J. E. G.** Detn. of vitamins A and D, 3055*h*.

———, Casati, A. M. L., and Morel, A. J. L. Emulsions, P 4876*h*.

**Laidlaw, G. C.** Effect of $H_2S$ in Winnepeg sewage, 3547*e*.

**Laidler, K.** Tech. and chem. activities of Brit. industry, 1881*b*; analysis of tech. methods for the Third Nitrogeneous Fertilizers Plant in Poland, 9325*c*.

**Laidler, K. J.** Formation of electronically excited O in the CO flame, 4571*i*; kinetic laws of adsorption in surface penetration, 6489*a*; elementary surface reactions, 6897*b*.

——— and Casey, E. J. Electronic state of the methylene radical, 5241*h*.

——— and Hoare, J. P. Mol. kinetics of the urea-urease system (I) kinetic law, 9087*h*.

**Laipply, T. C.** See Roberts, R. C.

**Laissus, J.** Diffusion of Be in special steels with 13% Cr and 18% Cr plus 8% Ni, 1609*g*; diffusion of Be in light and superlight metals and alloys, 2659*e*.

**Laitinen, H. A.** Amperometric titrations, 2113*f*.

———, Bailar, J. C., Jr., Holtzclaw, H. F., Jr., and Quagliano, J. V. Hexamminecobaltic chloride in various supporting electrolytes, 2520*b*.

——— and Blodgett, E. O Reduction of Nd to the bivalent state, 8295*g*

——— and Nyman, C. J Polarography in liquid $NH_3$ (II) electron electrode, 1270*i*.

———, Onstott, E. I., Bailar, J. C., Jr., and Swann, S., Jr. Polarography of Cu complexes (I) ethylenediamine, propylenediamine, diethylenetriamine, and glycine complexes, 6933*a*.

**Laituri, M. J.** See Steffens, J. H

**Lajos, I.** See Straub, F. B

**Lajos, L.,** Méhes, G., and Görcs, J Corpus luteum effect of an ext. of vernix caseosa, 7106*a*.

——— and Szontágh, F Estrus in rats after rubbing their skins with vernix caseosa, 9200*d*.

———, Szontágh, F., and Gorcs, J. Hormonal effects of the vernix caseosa of the newborn, 7105*h*.

**LaJoy, M. H.** See Rowley, F. B.

**Lajtha, A.** P content of myosin, 9095*a*

**Lajtha, L.** Nucleic acids, 4308*a*

**Lajudie, J.** See Pochon, J.

**Lake, G. R.** See Stribley, J. M (nee McDowell).

——— and Stribley, J. M (nee McDowell) Azeotropic distn of hydrocarbon fractions, P 3135*e*; azeotropic sepn. of xylene isomers, P 4007*b*

**Lake, H. J.** See Bray, H. G.

**Lake, R.** See Jobbins, D. M.

**Lake Chemical Co.** $Cu_2O$, P 7202*d*, CuOH and $Cu_2O$, P 7202*f*

**Lakeside Engineering Corp.** Sewage-disposal app., P 4408*d*.

**Lakey, R. T.** Frederick Stearns, 9*a*

**Laki, K.,** and Mihályi, E. Action of thrombin on iodinated fibrinogen, 4358*b*.

**Lakin, H. W.** See Reichen, L. E.

**Lakon, G.** Detg the germinating capacity of seeds, 8018*b*.

**Lakritz, D. E.** Concd. citrus oils, 2736*d*.

**Lakshmanan, S.,** Ram, J. S., and Giri, K. V. Prepn. of amylose by thymol pptn. method, 5219*b*.

**Lal, A. B.,** and Petrow, V. Cyanine dyes from 2,3-dihydro-β-quinindene, 3001*a*

**Lal, B. B.** Photochem. after-effect in decompn. of $H_2O_2$ by K ferrocyanide, 6087*i*.

**Lal, G.** See Singh, D.

**Lal, K. N.,** and Shrivastava, S B in crop production, 2781; crop physiology—nutrient effects on development and vegetative vigor of sugar cane, 6705*f*

**Lalabekov, S. K.** Filling bodies for rectification columns, P 6010*e*.

**Laland, P.** See Dedichen, J

——— and Closs, K. Formation of trivalent Co complexes in protein hydrolyzates, 5432*e*.

——— and Støa, K F. Acetonitrile test for control of thyroid preps., 5437*g*

**Laland, S. G.** Adrenal cortex hormones, 5838*g*.

**La Lande, W. A., Jr.** Invert sugar, P 3222*e*; decolorization of oil with Mg silicate, P 7224*d*.

**La Lau, C.** Analytical application of infrared spectrophotometry, 8297*h*.

**Lal Bose, J.,** and Siddiqui, S. Chem. examn. of mango blossoms, 3070*i*.

**Lalicker, C. G.** Petroleum Geology (book), 7221*f*.

**Lalin, G. S.** Albuminous products as concrete admixts., 4828*a*.

**Lall, S. B.** See Parashar, D. R.

**Lallemand, A.** Photoelec. spectrographic analysis, 5693*g*; electron multiplier tubes, 8259*a*.

**Lalley, J. S.** See Conley, C. L.

**Laloeuf, A.** See Trillat, J. J.

**La-Maestra, A.** Ca and K of blood after administration of sulfonamides, 5121*d*.

**Lamaigre-Voreaux, P.** See Penon, R.

**Laman, J. R.** See Kaswell, W. E.

**Lamanna, C.** Hemagglutination by botulinal toxin, 1826*h*; see Putnam, F. W.

**Lamar, J. E.** Clay and shale resources of southern Illinois, 2902*a*.

**Lamar, R. S.** Development of cordierite bodies with sierralite, 3579*g*.

**Lamar, W. L.** Chem. character of surface waters of N. Carolina, 3120*i*; detn. of color of turbid waters, 7165*d*.

——— and Joyner, B. F. Chem. character of surface waters of N. Carolina, 5137*c*.

**Lamater, E. D. de.** See De Lamater, E. D.

**Lamb, A. B.** Publication—lifeblood of science, 8219*h*; see Emery, A. H.

**Lamb, C. M.** See Petermann, M. L.

**Lamb, F. P.** High B.t.u. oil-gas production, 6394*i*.

**Lamb, G. A.** Economics of coal mining, 6549*i*.

**Lamb, G. G.,** and O'Brien, L. J. Vaporization of liquid hydrocarbon mixts. into air, 2758*h*

**Lamb, J.** Tanker construction, 8127*e*

———, Andreae, J. H., and Bird, R Absorption and dispersion of ultrasonic waves in AcOH, 3681*c*.

**Lamb, M.** Treating industrial wastes, 7614*b*

**Lamb, V. A.** See Seegmiller, R

**Lamb, W. E., Jr.** See Kroll, N. M.

**Lamberg, A. B.** Detn. of the endurance of steel and other metals, 1302*i*

**Lamberger, J.,** and Paris, R. Soly. diagram for water-$Ca(NO_3)_2$-$NH_4NO_3$, 1637*h*

**Lambert, A.,** and Rose, J. D. Alkenesulfonic acids, 7411*e*.

———, Rose, J. D., and Weedon, B. C. L. Aliphatic nitro compds. (XIX) Friedel Crafts reactions with α- and β-nitroolefins, 6993*d*.

**Lambert, F. H.** Moulding of Plastics (book), 3654*b*

**Lambert, J. M.** See Busse, W. F., Schildknecht, C. E

——— and Busse, W. F Testing of colloidal solns by dye solubilization, 6041*h*.

**Lambert, R.,** Delabie, A., Dufrane, A., and Coppin, R Solder, P 992*c*.

**Lambert, R. A.** See Gray, J. D. A

**Lambert, R. S.,** and Andrews, J. T. R Ultraviolet spectrophotometric characteristic of unhydrogenated fish oils, 879*i*.

**Lamberti, J. M.** See Reynolds, T. W

**Lambertsen, C. J.** See Baker, E. S

**Lambertson, W. A.** Slagged high-alumina firebrick from a Naval boiler, 7655*d*, fireside deposits—minerals contained in fireside deposits of oil-fired boilers, 8646*c*.

**Lambeth, V. N.** Nutrient-element balance and time of anthesis in tomato flowers 9322*b*.

**Lambie, D. A.** Detn. of small amts. of As after sepn. as sulfide, 6935*i*, analytic chemistry of W (IV) sepn. of tungstic and arsenic acids, 8057*f*.

**Lambotte, F.** See Bénard, H

**Lambou, M. G.** See Condon, M. Z

———, King, G. S., and Condon, M. Z Effect of chem. treatment prior to storage on viability and growth of cottonseed, 1900*d*

**Lambris, G.,** and Haferkorn, H Detn. of phenols in low-temp. tar and tar oils, 7667*d*.

**Lambros, G. C.** Plating Pd and plating bath, P 7838*h*.

**Lamdan, S.** Prepn. of aromatic mercuri ethers, 4236*f*.

——— and Santa María, H. C Detn. of pyrethrins, 811*i*.

**Lamel, H.** Preserving of foodstuffs, 8572*f*

**Lamensans, A.** See Sanchez, G.

**La Mer, V. K.** Aerosols, P 352*a*; see Kenyon, A. S.; Sinclair, D.; Zaiser, E. M

———, Foss, O., and Reiss, H. Thermodynamic theory, 7317*f*.

——— and Hochberg, S Laws of deposition and the effectiveness of insecticidal aerosols, 6353*g*.

**Laminating Specialties, Inc.** Polyester coating, P 3242*b*.

**Laming, J.** Refractories in the gas industry, 1543*b*; behavior of refractory materials in carbonizing plant, 3583*c*.

**Lamirand, J. B.,** Annequin, R., and Chamfy, C. Chimie des cours complémentaires (book), 6502*a*.

**Lamm, B. A.,** and Rabinovich, I. A Melting of Se-contg. ruby glass, 6380*i*, increasing the quality of pressed goods, 6381*b*.

**Lamm, O.** See Mårtensson, M.

**Lamo, M. A. de,** and Doadrio, A. Detn. of sulfates, 1686*a*.

**Lamond, J.** Detn. of phthalic esters in propellants, 2775*a*.
**Lamont, H. R. L.** Atm. absorption of mm. waves, 4576*a*.
**Lamont, J. L.** See Crafts, W.
**La Monte, G., & Son.** Moisture-sensitive paper, P 1188*g*.
**Lamoreaux, H. F.** Polysiloxane resins, P 6864*c*.
**LaMoreaux, P. E.** Fluoride in the ground water of the coastal plain of Ala., 4403*k*; fluoride in the ground water of the Tertiary area of Ala., 5889*g*.
**Lamotte, M.** Biologie quantitative (book), 2262*c*.
**Lampe, B.** See Drews, B.
**Lampe, W.** Zarys histroii chemii w Polsce (book), 8842*d*.
**Lampert, B. B.** See Bordwell, F G
**Lampi, E. E.** See Blair J. M , Freier, G.
**Lampitt, L. H.** P. F Frankland, 7275*h*.
— — —, Fuller, C H. F., Goldenberg, N., and Green, G H. Fractionation of potato starch (VI) retrogradation of potato-starch fractions, 427*a*.
— — —, Money, R. W., Urie, A., and Judge, B E. Pectin studies (III) $HNO_3$ ester, 466*n*
**Lampman, C. E.** See Petersen, C. F.; Wiese, A C.
**Lamprecht, M. del P. R.** See Rifé Lamprecht, M. del P.
**Lamson, E. R.** See Ferris, S W.
**Lamure, J.** Mercuric oxychlorides and oxybromides, 2110*h*
**Lan, T. H.** See Dounce, A. L
**Lancaster, R. J.** Estn of digestibility of grazed pasture from feces N, 4741*d*.
**Lancaster Processes, Inc.** Reclaiming vulcanized rubber, P 3230*e*, reclaiming waste uncured rubber stock, P 3230*f*; pulverizer and disperser, P 3250*d*, 6012*c*.
**Lanchester, H. P.** See Lane, M. C.
**Lancini, O.** Chlorination of polyvinyl chloride, P 8397*d*.
**Lanciotti, C.** Modification of the curves of Ca and K in blood induced by vitamin $D_2$, 6294*d*, see Coppo, M
**Lancman, M.**, and Lerner, W. Anatase of Capao de Lana, Minas Gerais, 5703*i*
**Land, E. H.** Light-polarizing two-tone image, P 2472*h*, light-polarizing sheet of molecularly oriented transparent linear high polymer dyed with a dichroic substance, P 2819*h*, light-polarizing element protected against heat, P 2820*d*
— — and Grabau, M Film with light-polarizing and nonpolarizing images, P 2820*b*.
— —, Mahler, J , and Hyman, M., Jr. Light-polarizing image, P 2472*i*.
**Land, T.**, and Sugarman, B. Vacuum dilatometer for routine metallurgical investigations, 2559*k*.
**Landa, A.** See Rosenkranz, G.
**Landa, S.** Technologie vody (book), 9310*c*.
**Landabure, P. B.**, Monticelli, A. L., and Alvarez Garcia, N. Realization of a balance between diet and energy, 2297*b*.
**Landahl, H. D.**, and Herrmann, R. G. Sampling of liquid aerosols by wire, cylinders, and slides, and the efficiency of impaction of the droplets, 4975*f*
**Landau, L.** Theory of superfluidity, 4063*i*
**Landau, Max.** See Tobler, J.
**Landau, Milton.** Reaction product of a polyhydric alc. with a trivalent metal sulfate, P 4870*b*.
**Landau, R. L.** Detn. of the 17-ketosteroids, 6270*i*, see Kenyon, A. T.
**Landau, S. W.** See Gay, L. N.
— — and Gay, L. N. Antihistamine substances (I) introduction and Dale expts , 3937*f*.
— —, Marriott, H. J. L., and Gay, L. N. Antihistamine substances (II) activity against histamine intoxication and anaphylactic shock, 3937*h*.
**Landauer, W.** Effect of nicotinamide and α ketoglutaric acid on the teratogenic action of insulin, 4776*h*; effects of adrenal cortical ext. on insulin-induced abnormalities of chick development, 8033*h*.
**Landbeck, H.** See Hauschild, F.
**Landberge, M. J.** See Ferguson, D. M.
**Landecker, M.** Dentifrice, P 5910*d*; adhesive, P 6004*c*.
**Landen, E. W.** See Doyle, W. L. H.
**Lander, J. J.** High-temp. x-ray diffraction techniques, 3289*a*; basic sulfates of Pb, 4668*c*, see Svirbely, W. J.
— — and Germer, L. H. Bridge erosion of elec contacts (I), 1235*a*.
**Landergren, S.** Geochemistry of Mediterranean sediments—distribution of Be, B, and the ferrides in three cores from the Tyrrhenian Sea, 4610*f*; geochemistry of Swedish Fe ores and assocd rocks—iron-ore formation, 5710*b*; formation of apatite-Fe ores, 8317*b*.
**Landes, C. G.** Paper coating, 3614*c*, see Daniel, J. H., Jr.
**Landes, S. H.** See Fryling, C F.
**Landesman, H.** See Benkeser, Ra A
**Landfermann, C. A.** Detg. the total radiation of $CO_2$ and water vapor in industrial furnaces, 378*d*, flame luminosity, 4832*f*, radiation of heat-resistant ceramic materials, 9402*g*
**Landgraf, C. G. v.** See Spengler, O
**Landgraf, F. K.** See Zapffe, C. A.
**Landing, B. H.** See Goldin, A , Shapiro D. M
**Landis, B. J.** See Baker, W. W.
**Landis, E. M.** See Abrams M
**Landis, G. G.**, and Peters, V A lding compns., P 6566*a*
**Landler, I.**, and Magat, M Styrene polymerization initiated by slow neutrons, 6915*b*.
**Landolt, A.** Fluorescent bleaching, 2780*d*, 4471*a*
**Landolt, P. E.**, and Pyne, F R. Li cartridges in treating high-cond Cu and Cu-base alloys, 3704*d*.
**Landon, R. E.** Chlorinator with a measuring device and control, P 6012*b*.
**Landorff, B.** Vapor thermocompressors in sugar refineries, 9499*c*.
**Landquist, J. K.** See Curd, F. H. S.
**Landrin, P.** See Lecoq, R.
**Landrum, F. C.** Ammomacal Cu sulfate in a high-alk pulp to treat contaminated Zn ore in Normetal concentrator, 1293*h*.
**Landry, A. S.** Detn of benzene in the presence of its homologs, 7868*f*.
**Landry, B. A.** See Bailey, A L.
**Lands, A. M.** Pharmacol. activity of adrenaline and related dihydroxyphenylalkylamines, 8546*g*, see Dertinger, B. L.; Hoppe, J. O.
———, Ananenko, E., Jones, G , Hoppe, J. O., and Becker, T. J Antispasmodic action of basic nitriles, 7138*d*
— — —, Hoppe, J. O , Siegmund, O. H , and Luduefia, F P Pharmacol properties of 3 new antihistaminic drugs, 3103*a*.
———, Nash, V L., Dertinger, B L., Granger, H R , and McCarthy, H M Pharmacology of compds structurally related to hydroxytyramine, 317*a*.
**Landsberg, G. S.** Mol. spectrum analysis and its growth in U.S S R., 8884*e*.
——— and Baryshanskaya, F. S. Light scattering in $KH_2PO_4$ and $NH_4H_2PO_4$—theory of seignettoelectrics, 495*b*.
**Landsberg, M. I.**, Kelly, R , and Sinski, D. Correlation of simulated rainfall tests with lab penetration tests, 7690*b*.
**Landsberg, V. de.** Application of the Duhem-Margules equation to the solvent absorption of vapors, 468*h*.
**Landsmeer, J. M. F.** See Jong, H. G. B. de
**Landua, A. J.**, and Awapara, J. Ninhydrin reagent in detn of amino acids, 5440*f*
**Landwehr, G.** See Alexander, B.
**Landy, M.**, and Batson, H C. Virulence enchancement factor in gastric mucin, 8523*e*.
**Lane, C. T.** Resistivity of Au at low temps., 8784*a*; see McGuire, T. R.; Reynolds, C A ; Webber, R. T.
———, Fairbank, H. A., Aldrich, L. T., and Nier, A O. $He^3$-$He^4$ equil. below the λ-point, 3679*e*.
**Lane, E. S.**, Lowe, A. R., Moyse, J. A., and Imperial Chemical Industries Ltd Quaternary ammonium compds as textile-finishing agents, P 2785*i*
**Lane, F. A.** See Poe, C. F
**Lane, J. A.** See Saxton, J. A.
**Lane, J. C.** See Weil, B. H.
**Lane, K. A.**, and Gardner, E. R. Electrically conducting rubber, 1207*h*, 8722*i*.
**Lane, M.**, and Smith, L. G. Solving a clarification problem at Kennebunk, Maine, 9306*c*.
**Lane, M. C.**, Stone, M W , Lanchester, H P., Jones, E W., and Gibson, K. E. DDT as a control for wireworms in irrigated lands, 2362*b*.
**Lane, R. E.** Care of the Pb worker, 9297*e*.
**Lane, R. L.**, and Williams, R. J. Inositol, an active constituent of pancreatic (α) amylase, 3477*h*.
**Lane, S. C.** See Wurth, W. A
**Lane, T.** See Starr, C. E., Jr.
**Lane, W. H.** Detn. of total S, 1685*e*; see Morris, H. E.
**Lanen, J. M. van.** See Van Lanen, J. M.
**Laneres, J.** Finishing treatments modifying the physicochem. properties of wool, 7233*d*.
**Lanford, O. E.**, and Quinan, J. R. Reaction of ferric Fe and citric acid, 1660*b*.
**Lang, A.** See Wooster, W. A.
**Lang, A. H.** Camray U discovery, 4188*g*.
**Lang, A. L.** Phosphate rock for direct application, 1133*h*.
**Lang, C. A.** Action of liver ext. on hemagglutinin, 5105*g*
**Lang, Daniel.** Early Tales of the At. Age (book), 500*a*.
**Lang, Daphne.** See Bensley, E. H.
**Lang, E. Z., Jr.** See Tooke, J. W.
**Lang, F. M.** Effect of $HNO_2$ on the nitration of dimethylaniline in $HNO_3$—detn. of $HNO_2$ in $HNO_3$, 2121*f*.
**Lang, H. de.** See Coster, D.
**Lang, K.** Enzyme rhodanese, 3478*h*.
—— and Cremer, H. D Protein and fat for human nutrition, 3901*f*
**Lang, K. L.** See Linderstrom-Lang, K.
**Láng, Livia.** See Leimdorfer, J.
**Lang, Louis.** Cocoa sugar compn., P 3541*d*.
**Lang, O.** Compn of sericin, 4715*d*; aminodicarboxylic acid pptn. in sericin hydrolyzates, 4715*e*.
**Lang, R.** Ru salt as catalyzer in the detn. of tellurous acid, 3315*i*.
**Lang, S.** (nee Loukamo). See Toivonen, N J
**Lang, W.** See Kaiser, H.; Plattner, P. A.
**Lang, W. A.** Fuel reserves of Alberta, 3989*e*.
**Lang, W. H.** Water treatment for heating and air conditioning, 3121*f*.
**Lange, B.** Photoelec. colorimeter, 7270*h*.
**Lange, C.**, and Harris, A H. Stabilized citrate Au for the colloidal Au reaction, 1905*h*.
**Lange, E.**, and Nagel, K Superposition of activation and concn. polarization in an electrode with excess foreign electrolyte, 5315*e*
**Lange, G.** See Geilmann, W.
**Lange, H.** See Chudoba, K. F.
**Lange, P. W.** See Lindeberg, G.
**Lange, W.**, and Folzenlogen, R. G. Soap, P 6437*g*, bodied oils, P 9484*g*.
———, Folzenlogen, R. G., and Kolp, D. G. Colorless cryst perchloric and hexafluorophosphoric acid salts of sterols—color formation between sterols and perchloric acid, 7494*a*
**Lange, W. H., Jr.**, Carlson, E. C., and Leach, L. D. Wireworms in Lima-bean fields, 5896*g*.
**Langecker, H.** Sulfonamides, 5541*b*; see Kuschinsky, G.
———, and Kuschinsky, G. Diuresis, filtration, and secretion by the kidney under the influence of drugs (IV) influence of atropine on water and chloride excretion under various conditions of loading, (V) diuretic action of org. mercurials in dog, rat, and mouse treated with atropine, 310*d*.
**Langejan, M.** Compn and stability of I-Na carbonate solns., 2893*e*.
**Langelier, W. F.**, and Ludwig, H. F. Flocculation in the clarification of turbid waters, 3122*d*.
**Langemann, H.** Serum phosphatases, 4320*a*.
**Langen, C. D. de.** Porphyrin in serum, 6717*f*; porphyrin in pernicious anemia, 9232*e*.
**Langenau, E. E.** Detn. of thymol and carvacrol in Spanish thyme oils, 8614*a*; see Guenther, E. S.
**Langenbeck, W.** Imidazole group, 2616*h*; org. catalysts (XXVII) catalytic actions of *o*-quinones (2), 4248*g*; Organischen Katalysatoren und ihre Beziehungen zu den Fermenten (book), 5815*d*; acceleration of the $CH_2O$ condensation with org. catalysts, 6159*h*.
**Langenberg, H.** See Gohr, H.
**Langer, A.** Automatic washing app. for ppts., 6006*d*.
—— and Fox, R. E. Mass spectrometer analysis of O-contg. compds., 8944*h*.
**Langer, E.** See Fischer, Robert.
**Langer, F.** Settling in ore dressing, 8995*h*.
**Langer, L. M.** See Cook, C. S.
—— and Price, H. C., Jr. β-Spectrum of forbidden transition, 4563*i*, 8879*h*.
**Langer, N. J.** Metal Statistics (book), 7890*i*.
**Langer, R. E.** Theory of vibration-rotation interaction, 4097*d*.
**Langerak, E. O.** See Mosher, W. A.

**Langermann, M. J.** See Corrigan, J. R
**Langeron, L.**, Paget, M., Nolf, V., and Duriez, J. Na thiosulfate test for measuring glomerular filtration, 5071*i*, influence of the injection of polyvinylpyrrolidone on renal function, 8062*d*
**Langeron, M.** See Dufrenoy, J.; Luteraan, P. J.
**Langevin, H.** See Marty, N.
**Langevin, P.** Mobility analyzer for gaseous ions (I), (II) effect of finite thickness of the housing, 8848*b*
**Langfeldt, E.** Formation of HCl in the gastric glands, 4753*g*.
**Langford, C. T.** See Van Arsdel, W. B.
**Langford, G. S.** Entoma (book), 3558*d*
——— and Gilbert, E. Value of phenyl ethyl acetate as an ingredient in Japanese beetle baits, 5898*f*.
**Langham, M.**, and Davson, H. The lens, 9207*b*.
**Langham, W. H** See Goldblith, S A, Hogness, J. R.; Leifer, E, Nye, J F, Roth, L. J.
**Langhammer, G.** See Bonhoeffer, K. F
**Langhammer, T.** See Fischer, Robert
**Langhurst, L. F.** Distn. system for solvent recovery from oil extn., P 5215*b*
**Langkammerer, C. M.** Synthetic drying oils, P 422*a*; org. compds of Ti, P 1796*d*, salts of adiponitrile sulfonic acid, P 3840*b*; reaction products of 3-hexenedinitrile and certain aldehydes, P 3847*h*
**Langlais, P.**, and Bollinger, L. J. Genesis of natural perfumes and their chem similarities, 4814*b*
**Langlois, D. P.**, and Wolff, H. Pseudo esters of levulinic acid, 140*b*
**Langlotz, A. S.** Brilliant Ag spray, 515*i*
**Langlykke, A. F.** See LeMense, E. H; Perlman, D.
**Langmuir, I.** See Taylor, H. G
**Langner, A. J.** See Newell, W. C
**Langrod, K.** Porous refractory alumina material, P 4441*f*.
**Langsdorf, A. S., Jr.** See Seidl, F G P
——— and Arnold, W. Resonance scattering, 4091*c*.
**Langsjoen, A.** See Johnston, H. W
**Langston, G. T.** See Mushin, W W.
**Langston, M.** See Hober, R.
**Langstroth, G. O.**, Gillespie, T., and Pearce, R. M. Change in av. particle mass during the aging of $NH_4Cl$ smokes, 6039*c*
——— and Hart, K. H. Sp. heat of napalm gasoline gels, 8140*b*.
**Langwell, H.** See Distillers Co, Ltd
**Langwell, W. H.** Solid hypochlorite prepns., P 1158*a*.
**Lanigan, H.** Photochem. degradation of undyed and dyed cellulose irradiated by the Hg spectrum, 412*g*
**Lanik, J.** Reading of the buret in titrations, 3245*b*.
**Laning, S. H.**, and Meulen, P A. van der. Systems $NH_4$ sulfamate–Na sulfamate and Na sulfamate–$NaNO_3$, 3699*d*
**Lanini, G.** See Lehner, F.
**Lankelma, H. P.** See Buck, A. C; Cardon, S. Z.
**Lankenau Hospital.** Cyclic 2,1-azathionium compds., P 5807*b*.
**Lankford, W. T.**, Snyder, S. C., and Bauscher, J. A. Press performance of deep drawing sheets, 8331*b*.
**Lankro Chemicals Ltd.** Recovery of monoesters of polyhydric alcs. with fatty acids and of volatile nonsaponifiable matter from fatty oils and waxes, P 2794*e*; amides, P 4289*a*; see Meade, Edwin M.
**Lannan, J. L.** Processing of Ti enamel direct to Ti steel, 7206*a*
**Lanni, F.** See Sharp, D. G.
——— and Beard, J. W. Interaction of swine influenza virus and egg-white inhibitor of virus hemagglutination, 7569*f*.
——— and Campbell, D. H. Heteroligating antibody, 4758*f*.
———, Sharp, D. G., Eckert, E. A., Dillon, E. S., Beard, D., and Beard, J. W. Egg-white inhibitor of influenza virus hemagglutination (I) prepn. and properties of semipurified inhibitor, 9149*h*.
**Lanning, D. D.** Plasticized hydroxylated polymeric film, P 5640*c*.
**Lansade, M.** Treatment of oat smut, 1137*f*, polychlorobenzenes in the treatment of wheat smut, 5523*e*.
**Lanser, P.** Fused magnesia, 8028*g*.
**Lansing, A. I.**, Blumenthal, H. T., and Gray, S. H. Aging and calcification of the human coronary artery, 8513*g*.
———, Rosenthal, T. B., and Kamen, M. D. Ca-ion exchange in normal tissues and in epidermal carcinogenesis, 1859*e*; effect of age on Ca binding in mouse liver, 6715*a*.
**Lansing, E. S.** Electrolytic clarifier of industrial waste waters, P 2102*c*; see Smiley, L. D.
**Lantermann, H.** See Drews, B.
**Lantz, E. M.** Carotene and ascorbic acid contents of peppers, 2338*f*.
**Lantz, H.** Low-temp. distn of fuels by direct contact with reheated distillate vapors, P 838*h*.
**Lantz, L. A.** See Calico Printers' Association Ltd.
**Lántzky, J.** Production of C electrodes, 8899*d*.
**Lany, B. P. de.** See DeLany, B. P.
**Lányi, B.** Modification of the app for the detn. of S, 8749*e*, anodic mass from Hungarian coal, 8915*b*.
——— and Kafka, L. Detn. of Ag in active C, 6539*b*.
**Lanz, W.** Detn. of sugar in urine, P 4725*e*.
**Lanza, A.** Blood diastase in typhus of children, 3515*i*; see Zangri, G.
——— and Puglisi, L. Carbohydrate metabolism in children with typhus, 2313*d*.
**Lanza, A. J.** Health aspects of air pollution, 7614*c*.
**Lanzl, L. H.** See Skaggs, L. S.
**Lapadu-Hargues, P.** Cu deposits of Bonneterre, 2549*i*; massifs of the Maigernde and Mont Lozère and their borders, 8320*a*
**Lapaine, J.** See Peyron, L.
**LePalme, J.**, and Demers, P. Regression of the latent image of nuclear tracks in the photographic emulsion, 4092*i*
**LaParra, R. de** See Parra, R de la
**Lapi, A.** See Wang, C -F.
**La Piana, F. G.** Warp sizing material, P 3628*c*.
——— and Bosland, H. S Textile emulsion, P 1990*h*.
**Lapides, L. J.** See English, J, Jr
**Lapidus, E. L.** See Pinsker, Z G.
**Lapière, C.** Detn. of benzoic, salicylic, and acetylsalicylic acids, 70*b*.
——— and Coppée, G Curare of an *Erythrina africana*, 3148*h*.
——— and Lenaers, G. Detn of sulfadiazine, sulfamerazine and sulfamethazine, 5538*h*
**Lapin, H.** See Sanne, C
**Lapin, L.**, and Starkey, H. Hyaluronidase inhibitory substance in serums from patients with rheumatic disease, 9234*b*.
**Lapin, V. V.** See Belyankin, D S.
**Lapir, E. S.** See Babaeva, A V
**Lapkin, I. I.**, and Lyubimova, A. V. Steric hindrance in Grignard reactions (VII) prepn. of esters of secondary α-hydroxy acids, 188*a*
**Laplanche, H.** Slagging gas producer for melting foundry iron, 4611*h*, Maurer diagram for cast iron, 5353*b*; structural diagrams for alloy cast irons, 5718*h*.
**Laplante, A. C.**, and Rougerie, G. Pedologic map of the coast area eastwards of the Ivory Coast, 5141*b*.
**Laporta, G.** See Laporta, M.
**Laporta, M.**, Bertolini, A., and Braglia, C. Blood prothrombin at termination of pregnancy and in cord blood, 2693*c*.
———, Gallingani, M., and Laporta, G. Neonatal hypoprothrombinemia, 2693*d*.
———, Lari, G., and Laporta, G Prothrombinemia, 2693*d*
**La Porte, B., Ltd.** Na percarbonate, P 369*d*, see Wood, W. S.
**Laporte, M.** Production of white light by condenser discharges through rare gases, 1664*d*.
**Lapostolle, P.** Accelerators of electrons and particles, 2083*f*.
**Lapp, C.** Elimination of poisons—toxicol. coeffs., 1112*b*.
**Lappin, G. R.** Safety warning—benzoyl peroxide, 405*g*, cyclization of 2-aminopyridine derivs. (I) substituted Et (2-pyridylaminomethylene)malonates, 650*e*; seminiicro distg. tube, 2473*f*.
——— and Summerbell, R. K. Aromatic character of dioxadiene, 3827*e*.
**Lapple, C. E.** Velocity head simplifies flow computation, 4906*c*; compressibility in gas-flow problems, 4906*e*.
**Lapshin, I. M.** See Simonov, K. A.
**Lapshin, N. S.** See Postnikov, V. F.
**Laptev, N. G.** See Titov, A. I.
**Lapteva, K. A.** See Kuz'minskiĭ, A. S.
**Lapushkin, S. A.**, Mevis, F. A., and Bronshvager, V. S. App. for recording the residual deformation of rubber, P 3650*d*.
**Laque, F. E.** See Searle, H. E.
**LaQue, F. L.** Galvanic corrosion in oil- and gas well fluids, 2918*h*.
——— and Clarke, K. H. J. Corrosion in the manuf. of alk. pulp, 4010*h*.
**Laquer, F. O.** See McChesney, E. W.
**Laquer, H. L.**, and Smyth, C. P. Microwave absorption and mol. structure in liquids (II) measurement in org. halides at 3.22-cm. wave length, 4912*c*.
**Laqueur, G. L.** Nodular hyperplasia of thyroid glands induced by thiouracil, 5503*c*.
**Laqueur, W.** See Yücel, T.
——— and Nashat, F. Dietary proteins and $CCl_4$ poisoning, 3497*d*, 4737*c*.
———, Yakar, N., and Haurowitz, F. Goitrogenic action of thiohydantoins and thiourea on the thyroid, 7144*e*.
**Larack, A. M.** See Alfin-Slater, R. B.
**Larambergue, M. de.** Albino specimen of *Arion rufus*, 9271*g*.
**Larchar, A. W.** See Cairns, T. L.
**Lardelli, O.**, Krüsi, H. K., Jeger, O., and Ruzicka, L. Triterpenes (CXXXV) interrelations and transformations of heterolupeol, taraxasterol, faradiol, and arnidiol, 1750*f*.
**Lardy, H. A.** Anderson's Respiratory Enzymes (book), 6683*a*; see Bethell, J. J.; Johnson, R. Bernal; Plaut, G W E, Schultz, L. H.; Wiebelhaus, V. D
——— and Feldott, G. Utilization of ammonium N, 6712*i*
———, Ghosh, D., and Plaut, G W E. Metabolic regulator in mammalian spermatozoa, 4748*c*.
**Largent, E. J.**, and Heyroth, F. F Absorption and excretion of fluorides (III) metabolism of fluorides at high levels of intake, 8052*d*.
**Largey, R. J. de.** See De Largey, R. J
**Larl, G.** See Laporta, M
**Larionov, Yu. A.** See Raines, M M.
**Lark-Horovitz, K.** See Bray, R.; Goldsmith, G. J.; Johnson, V. A., Johnson, W. E.; Scanlon, W. W.
———, Bleuler, E, Davis, R, and Tendam, D. Deuteron-bombarded semiconductors, 4095*g*.
**Larkin, J. E.** See Melcher, N. B
**Larkin, M.** See Dolkart, R E
**Larman, H.** Soaking furnace, P 8760*i*
**Larmour, R. K.** See Walden, C C
**Larner, J.**, Jandorf, B. J, and Summerson, W H Requirement for diphosphopyridine nucleotide in the aerobic metabolism of pyruvate by brain tissue, 4747*h*
**La Roche, F. H.** See Hoffmann La Roche, F.
**Laroche, G.**, and Trémolières, J. N metabolism in typhoid fever, 3011*i*, skin test for the nutritional state and reactive aptitude, 5071*h*
———, Trémolières, J, Sourdeau, R. B Lyon, and Péquignot, G N deficiency in disease, 6295*h*.
**Laroche, R.** Effect of sampling on analytical results, 7365*g*.
**LaRocque, A. P.** See Jacobs, H.
**Laroux, P.** Constitution chimique et activité des molécules thérapeutiques (book), 4777*h*
**Larrabee, C.** See Rothstein, A
**Larrabee, C. P.**, and Snyder, S C Iron, mild steels, and low-alloy steels, 8745*c*.
**Larralde, J.** See Jiménez-Vargas, J., Sols, A.
——— and Ponz, F. Inhibition of alk. phosphatase by alloxan, 8407*d*.
**Larrañeta, R. L.** See Fernandez, O.
**Larrison, M. S.** See Burns, F. B.
**Larsen, A. A.**, Ruddy, A. W, Elpern, B, and MacMullin, M. Dialkylaminoalkyl esters of trisubstituted acetic acids, 3391*i*.
———, Tullar, B. F., Elpern, B., and Buck, J. S. Resolution of methadon and related compds., 2193*e*.
**Larsen, A. H.** See Jones, G. O.
**Larsen, A. W.** See Warming-Larsen, A.
**Larsen, B. M.** See Brower, T. E.
**Larsen, C. D.** Narcotizing agents and pulmonary tumors, 2695*d*; pulmonary-tumor induction with alkylated urethans, 5108*a*.
**Larsen, C. M.** Hereditary variations in the sensitivity of *Avena* coleoptiles to growth substance, 3493*h*.
**Larsen, D. H.** Treatment of oil wells, P 4456*i*; see Kells, E. L.
**Larsen, E. I.** See Hensel, F. R.
——— and Swazy, E. F. Bonding of a W member to a backing member, P 5001*f*.
———, Swazy, E. F., Busch, L. S., and Freyer, R. H. Binary sintered and rolled Ti alloys, 3766*a*.

**Larsen, E. S., Jr.** Memorial of A. C. Lane, 8761*b*.
**Larsen, H. F. H.** See Helweg-Larsen, H. F.
**Larsen, J.**, Witt, N. F., and Poe, C. F. Optical crystallographic identification of amino acids with 2-nitroindan-1,3-dione, 60*g*.
**Larsen, L. V.** Detn. of resins and volatile contents in resins and impregnated papers—resin content, 1567*b*.
**Larsen, N. E.** See Egg-Larsen, N.
**Larsen, P.** Conversion of indoleacetaldehyde to indoleacetic acid in excised coleoptiles and in coleoptile juice, 4348*e*.
**Larsen, R. A.**, Jenness, R., and Geddes, W. F. Effect of heat-treatment of sepd milk on the phys. and baking properties of doughs enriched with dry-milk solids, 6326*f*, effect of heat treatment on the sulfhydryl groups of milk serum proteins, 8412*d*.
**Larsen, R. G.** Drawing lubricant, P 4845*b*, see Diamond, H., Thorpe, R. E.
**Larsen, R. L.** Sugar detector, 6443*g*.
**Larsen, T. H.** See Holst Larsen, T.
**Larsen, V.** Effect on animals of antabuse in combination with ethanol, 4379*g*, see Asmussen, E., Hald, J.
**Larsh, H. W.**, and Anderson, H. W. Bacterial spot of stone fruit—epiphytotics and dissemination of the causal organism, 4345*h*.
**Larsh, J. E., Jr.**, and Fletcher, O. K., Jr. Effect of alc. on immunity to *Trichinella spiralis*, 8516*e*.
——— and Kent, D. F. Effect of alc. on immunity to infection with *Trichinella spiralis*, 9223*h*.
**Larson, A. T.** Carboxylic acids, P 670*l*, polymeric $C_2H_4$ emulsions, P 1222*h*.
**Larson, C. L.** Effect of aureomycin on infection with *Bacterium tularense* 8551*d*.
———, Carle, B. N., and Verder, A. E. Effect of polymyxin in the treatment of brucellosis and tularemia, 8554*i*.
**Larson, E.** Effect of hypnotics on blood sugar and on the reaction of insulin, 8055*i*.
**Larson, E. A.** See Freier, E. F.
**Larson, F. C.** See Erickson, T. C.; Maass, A. R.
**Larson, J.** See Brophy, J. E.
**Larson, J. D.** CO unlimited, 8533*c*.
**Larson, L. M.** See Behrens, O. K.
**Larson, L. P.**, and Calbeck, J. H. Pre war and post war white house paint formulas as compared by Azo Paint-O-Graphs, 8095*a*.
———, Finnegan, J. K., and Haag, H. B. Nicotine in the body (VI) relative rate of elimination, 5866*k*.
**Larson, R.** See Cheronis, N. D.
**Larson, R. D.** See Schmidt, L. H.
**Larson, R. F.**, Liggett, R. W., and Mussulman, W. C. Sauces resembling soy sauce, P 2734*f*.
**Larson, R. G.** See Van Winkle, Q.
**Larson, R. L.** See Sachs, E.
**Larson, T. E.** Corrosion problems in water wells, 1883*i*, synthetic detergents 5213*e*.
**Larson, W. E.**, Allaway, W. H., and Rhoades, H. F. Three soils from the chernozem and chestnut-soil regions of Nebraska, 2721*a*.
**Larsson, A.** See Nelskylä, G.; Sjostrom, G.
——— and Sjöström, G. Production of antioxidative prepns. from whey and their effect in milk and butter, 9279*a*.
**Larsson, E.** Prepn. of tetraethylsilane, 2928*i*, configuration of the monochlorotetraethylsilanes, 2929*a*; triethyl(1-bromoethyl)silane, 2929*d*, optically active [1 - (triethylsilyl)ethyl]mercapto]acetic acids, 5003*h*; oxidation of single function sulfide fatty acid ions with persulfate in alk. soln., 8815*h*.
——— and Knopp, L. O. Br substitution derivs. of tetraethylsilane, 2929*c*.
——— and Mjörne, O. Reaction between triethyl(ethylamino)silane and primary amines, 5739*d*.
**Larsson, L. E.** See Borelius, G.
**Larsson, L. G.** See Sylvén, B.
**Larthe, Y.** See Marriott, R. H.
**La Rubio Pacheco, J. de.** See Rubio Pacheco, J. de la.
**La Rue, H. C.** See Dudley, H. C.
**Lasalco, Inc.** Electroplating assembly, P 509*c*.
**Lasareff.** See also Lazarev.
**Lasareff, V.** Spectrophotometry, 2868*k*.
**Lasarew.** See Lazarev.
**Lascaño Ruiz, I. S.** See Saenz Lascaño Ruiz, I.
**Lascaray, L.** Foam formation of soap solns., 1584*g*; fat splitting, 4873*g*.
**Lascelles, J.** Formic hydrogenase in washed suspensions of *Escherichia coli*, 4341*b*.
**Laschko, N. F.** See Lashko, N. F.
**Lasher, E. A.** Polyamide ester compn., P 9537*f*.
**Lashko, N. F.** See Avakyan, S. V.
**Lashuk, G. I.** Significance of the sep. parts of the root system in alkaloid synthesis by *Nicotiana* species, 4731*b*; influence of root-formation process on alkaloid synthesis in species of *Nicotiana*, 4731*i*.
**Lasich, W. B.** Scattering of fast positrons and electrons in Au, 6911*c*.
**Lasichak, A. G.** See Smyth, C. J.
——— and Levey, S. Glutamic acid and vomiting in dogs—its administration into the portal system and extremity veins, 3104*b*; detn. of HCHO, 8974*h*.
**Laskarev, V.** Artesian well at Ovča, near Belgrade, 5519*h*.
**Laskawski, W.** Polyvinyl resins, 8197*d*.
**Laskey, A.** See Lillie, R. D.
**Laskin, S.** See Dygert, H. P.; Wilson, H. B.
**Laskowski, M.** See Dabrowska, W.; Kubacki, V.
**Laskowski, S. C.** See Clinton, R. O.; Fohlen, G. M.
**Laslett, L. J.** See Jensen, F. N.
**Lasnitzki, I.** See Bach, S. J.
**Lasof, S.** Efficiency of cathodoluminescence as a function of c.d., 1091*b*.
**Lassaigne, L.** Recovering Sn from tinned metals, P 4626*a*.
**Lassalle, P.** See Peaudecerf, M.
**Lassé, R.** Abrasive effect of delustered rayon on steel needles and card pins, 2779*b*.
**Lasséchère, M.** Ion-exchangers in the sugar industry 6441*g*.
**Lassen, N. O.** Disintegration of D by γ-rays from $Na^{24}$, 935*i*, angular distribution of protons from photodisintegration of the deuteron, 4561*e*, energy loss by fission fragments, 6912*i*.
**Lassen, S.**, Bacon, E. K., and Dunn, H. J. Relation of nutritive value of condensed fish solubles to quality of raw material, 8465*h*.
**Lassenius, T.** Manuf. of sulfite alc. in Sweden and Finland, 3969*e*.
**Lasserre, R.** Effect of pH on phthalic anhydride pickling, 1042*a*, see Chambard, P.
**Lassettre, E. N.**, and Dean, L. B., Jr. Electrostatic theory of the potential barriers hindering rotation around single bonds, 5240*b*.
**Lassieur, A.** Precision in chem. analysis, 519*d*, industrial refractometers, 4003*d*; cupferron in analytical chemistry, 6103*g*.
**Lastovskii, R. P.** Transformations in arylureas, 170*e*; Tech. Analysis in the Production of Intermediates and Dyes (book), 5596*i*, see Korolev, A. I.
**Lastra, M. de la.** See Croxatto, H.
**Laszlo, N.** See James, B.
**László, Z.** Osmosis in elec. fields of various frequencies, 7780*h*; effect of an alternating elec. field on the osmotic process, 8235*a*.
**Laszt, L.** See Dhéré, C.
**Latarjet, R.** Production of bacterial mutation by cancerigenic and noncancerigenic substances, 2275*e*.
——— and Ephrati, E. Protective action of certain substance against inactivation of a bacteriophage by x-rays, 2275*g*.
**Latchum, J. W., Jr.** Liquid anhyd. HCl, P 3983*e*; isomerization of hydrocarbons, P 4006*e*; dehydration of HCl-hydrocarbon mixts., P 4007*f*.
**Lategan, A. W.** Chem. technology of soupfin shark-liver oil (I) stability studies and antioxidants, 3567*i*, (II) effects of storage conditions on stability, 9379*h*; see Karnovsky, M. L.
**Latex Fiber Industries, Inc.** Fibrous compns. contg. butadiene-styrene elastomers, P 6860*b*.
**Latham, A., Jr.** Liquid O from air, P 826*i*; vapor compression type still, P 6874*b*; see Campobasso, J. J.
**Latham, G. H.** See Du Pont de Nemours, E. I., & Co.
**Latham, H. H.**, and Morton, J. R. Rendering anionic coating materials adherent to anionic bases, P 5643*h*.
**Lathe, F. E.** Compns. for mineral wool, 6337*b*.
**Lathe, G. H.**, and Peters, R. A. Effects of cold and burns on protein metabolism, 7119*i*; protein sparing effect of carbohydrate in normal and burned rats, 8022*d*.
**Lathrop, E. C.** Wheat straw for improved paper and board products, 4010*f*; see Aronovsky, S. I.; Dunning, J. W.; Williamson, R. V.
——— and Naffziger, T. R. Evaluation of fibrous agricultural residues for structural building-board products (I) methods and equip., 1187*b*; (II) wheat straw fiber, 2769*a*; (III) manuf. of high-grade products from wheat straw, 7681*b*.
——— and Shollenberger, J. H. Corncobs—their compn., availability, farm, and industrial uses, 788*e*.
**Lathrop, T. R.** Water-treatment plants, 1127*f*.
**Laties, G. G.** Limitations of KOH-KCN mixts. in manometric studies, 4320*b*, pyruvate in the aerobic respiration of barley roots, 7095*c*, oxidative formation of succinate in higher plants, 8451*h*.
**Latif, I. A. A.** See Abdel Latif, I. A.
**Latif, N.** See Schonberg, A.
**Latimer, W. M.** Oxidation States of the Elements and their Potentials in Aq. Solns. (book), 2878*b*, chelec. consts. of H-bonded substances, 4529*i*, see Cubicciotti, D. D.
**Latischev, G. D.** See Latyshev, G. D.
**Latmanizova, L. V.** See Vasil'ev, L. L.
**Latour, A.** Paper, 5949*h*; see Schaefer, G.
**Latovo, A.-G.** Enzymes from stomach mucous membranes, P 7991*c*.
**Latta, B. F.** Ground-water supplies at Hays, Victoria, Walker, Gorham, and Russell, Kans., 2715*e*.
**Lattanzi, A.** Bilirubinemia during icterus, 3922*h*, relations between bilirubinemia and bilirubinuria during icterus, 3923*a*, influence of vitamin $B_2$ on Fe metabolism, 9184*i*, influence of vitamin PP on the absorption of Fe, 9185*b*.
**Lattes, C. M. G.** See Burfening, J.
———, Occhialini, G. P. S., and Powell, C. F. Detn. of the ratio of the masses of the π and μ mesons, 3706*a*.
**Lattey, W. T.** Detn. of tannin, 7732*e*.
**Lattre, P. de.** See De Lattre, P.
**Latven, A. R.** See Sloane, A. B.
**Latyscheff, G. D.** See Latyshev, G. D.
**Latyshev, G. D.** See Gel', V. V.; Kul'chitskii, L. A.
———, Gel', V. V., Bashilov, A. A., and Barchuk, I. F. Monochromatic internal-conversion positrons, 4950*i*.
——— ———, Shiv, L. A., Barchuk, I. F., and Bashilov, A. A. Fine structure of line 1414 e.kv. and the multipolarity of its components, 7811*c*.
**Latzenhofer, J.**, and Ruziczka, W. Detn. of I no., 3636*d*.
**Lau, C. la.** See La Lau, C.
**Laubereau, O.** See Dohrn, M.
**Lauchenauer, A.** See Schinz, H.
**Laude, G.**, and Wiemann, J. Transformer oils, 8127*d*.
**Lauder, I.** Hemiacetal formation (I) system AcH–$H_2O$, (II) system AcH–MeOH, 2495*f*, see Allen, J. A.
——— and Green, J. H. Formation of diethyl ether using $O^{18}$ as tracer, 3778*e*.
——— and Rossiter, E. Reactions in liquid $SO_2$, 5689*g*.
**Lauderman, V. A.** Water-base printing ink, P 9483*c*.
**Laue, M. v.** Materiewellen und ihre Interferenzen (book), 1266*f*; Geschichte der Physik (book), 2856*e*; Max Planck, 5239*b*; Röntgenstrahl - Interferenzen (book), 5672*g*; absorption of x-rays in crystals in the interference case, 6509*f*; supercond. and electrodynamic potential, 6878*h*; see Stuart, H. A.
**Lauener, G.** See Buchi, J.
**Lauenstein, H.** See Kruber, O.
**Lauer, B. E.** Faculty members in industry, 1125*b*.
**Lauer, K.**, Jaks, R., and Skark, L. Xanthation of cellulose, 4848*a*.
———, Mansch, W., and Meske, B. Cellulose fibers (IX) elastic properties of cellulose fibers, 9435*e*.
**Lauer, W. M.** See Zaugg, H. E.
**Laufberger, V.** Ferritin, 6291*a*.
**Laufer, S.** See Roberts, M.; Schwarz, Robert.
**Lauffer, M. A.** See Fischer, M. A.; Schachman, H. K.
——— and Robinson, G. Effect of glycerol and aniline on tobacco mosaic virus infectivity, 7550*h*.

—— and Wheatley, M. Destruction of influenza A virus infectivity by HCHO, 9216*h*.
**Lauffer, P. G.** Odor and olefaction, 9387*f*.
**Laufman, H.** See Tuell, S. W.
**Laug, E. P.** Detn. of Bi in biol. material, 2659*b*.
—— and Kunze, F. M. Absorption of phenylmercuric acetate from the vaginal tract, 5865*h*.
**Laugher, A. J.** Correlation of mill and lab. beaters, using bleached eucalypt kraft pulp, 6413*e*
**Laughlin, J. S.** See Skaggs, L. S.
**Laughlin, W. G.** See Graham, H. W
**Laul, K. S.** See Nath, M. C.
**Laundrie, B.** See Bennett, L. L.
**Laundrie, R. W.**, and McCann, R. F. Low-temp. chem rubber, 8723*e*.
**Launer, H. F.** Light sensitive papers as controls for testing textile colorfastness and stability of materials under arc lamp exposure, 1572*g*.
—— and Wilson, W. K. Photochemistry of cellulose—effect of water vapor and O in the far and near ultraviolet regions, 5941*b*
**Launoy, L.** Oral chemoprophylaxis against *Trypanosoma gambiense*, 5502*g*
—— and Chaboud, G. Curative and preventive action of diamidinodiphenoxypentane on infections with *Trypanosoma equinum*, 310*f*.
**Laura, L.** Blood vessel-constricting and -dilating substances and the epileptic abcess from elec. shock, 2327*g*.
**Laurell, C. B.** See Holmberg, C. G
**Laurell, K.** See Köhler, S.
**Laurence, E.** See Wick, A. N.
**Laurence, L. L.**, and Reid, L. S. Gas dehydration at the well head, 5921*i*.
**Laurent, J.** See Dubouloz, P.
**Laurent, Mlle.** See Watrin, J.
**Laurent, P.**, Eudier, M., and Batisse, M. Isothermal recrystn., 7879*f*.
**Laurent, P. A.** Dehydrating amyl alcs., P 6217*h*.
**Lauridsen, M.** See Jensen, K. A.
**Laurie, H. A.** See Rischbieth, J. R.
**Laurie, W.** See Hawking, F.
**Laurila, E.** 50th anniversary of the electron, 1255*b*.
**Lauritsen, C. C.** See Fowler, W. A.; Rasmussen, V. K.; Thomas, R. G., Tollestrup, A. V.
**Lauritsen, M.** See Greenberg, G. R
**Lauritsen, T.** See Chao, C. Y.; Hornyak, W. F.; Rasmussen, V. K.
—— and Christy, R. F. Lens type $\beta$ ray spectrograph, 4093*c*
**Lauro, F. de.** See Arens, K.
**Lauro, G.** Distn. app. and concentrator, P 8218*d*
**Lauro, S. di.** See Di Lauro, S.
**Lausburg, T. A.** See Arens Lausburg, T.
**Lauter, W. M.** See Furter, Max F.
**Lautsch, W.** See Zahn, H.
**Lauver, M. R.** See Lloyd, T. B.
**Lavallée, A.**, and Allmark, M. G. Toxicity of com. brands of sulfarsphenamine sold in Canada, 3148*b*; pigeons for the assay of digitalis products, 8613*a*.
**Lavaur, J.** See Chaboussou, F.
**Lavedan, J. P.** Influence of subtosan given with estrogenic hormone on duration of provoked estrus in castrated mice, 4768*a*; repercussions of aminothiazole on the genital tract of the female rat, 5494*h*.
**La Vega, F. A. de.** See Alvarez de la Vega, F.
**LaVelle, G. A.** See Swanson, C. P.
**Lavender, J. D.**, and Jones, F. W. Banding, 8329*a*.
**Lavergne, E. de.** See Wolff, R.
**Lavery, N. L.** See Jenkins, J. W.
**Laves, F.** See Ernst, T.
**Lavetter, V. E.** See Jaworski, H. E.
**Lavie, D.** See Haskelberg, L.
**La Vietes, J. R.** Bubble compn., P 5216*h*
**Lavigne, J. L. et.** See Loumiet et Lavigne, J.
**Lavine, T. F.** Cyclic 2,1-azathionium compds., P 5807*b*.
—— and Herkness, C. Esterification of primary alcs. by dibasic acid anhydrides, 1324*h*.
**Lavino, E. J., Co.** Treating oxide ores, P 988*e*.
**Lavitola, G.** Biol. investigations with epileptics (I) thyroid efficiency and diuresis, (II) thyroid efficiency in epileptics with mental diseases, (III) glucemia behavior, (IV) convulsions from phenol compds., (V) increase of oxyaromatic substances in blood, 305*c*.
—— and Giannettano, G. Biol. investigations with epileptics (VI) protein content of blood, 305*d*.
**LaVole, E. P.** Size-cooking control system effects 25% saving, 7603*b*.
**Lavollay, J.** See Neumann, J.; Salvá, J. A.
—— and Laborey, F. Antagonistic effects of thiourea and coumarin on germination of barley, 1834*a*.
**Lavrov, I. V.** See Pilonenko, N. E.
**Lavrov, N. V.** Graphical method of gaseous chem. calcns., 5571*c*.
**Lavrovskaya, E. V.** See Korshun, M. O.
**Lavrovskaya, G. K.** See Voevodskii, V. V.
**Lavrovskii, K.**, Mikhnovskaya, A., and Olen'chenko, L. Catalytic alkylation of aniline with *n*-butene, 4644*f*
**Lavrukhina, A. K.** Detn. of Cu, $Cu_2O$, and CuO, 2543*h*
**Law, A. G.** See Comstock, V. E.
**Law, J.**, and Farquharson, G. W. Grit and S emission, 3592*i*
**Law, P. B.** See Olpin, H. C.
**Lawall, W. M.** U. S. government paint specifications, 5190*h*.
**Lawford, E. G.** See Potts, H. R.; Trumbull, R. C.
**Lawhon, L. F.** Analyzing the salinity problem on irrigated lands, 9317*g*
**Lawless, M. C.** See Turner, R. D.
**Lawrance, W. A.** Detn. of the time of passage of pollution in the Androscoggin River and pond, 3124*h*
**Lawrence, A. E.** Bitumen as a paint constituent, 870*e*
**Lawrence, A. J.** Treatment of rennet casein for glue manuf., 4504*h*
**Lawrence, A. S. C.** Breaking of oil emulsions with synthetic detergents, 3178*g*; soap in oil systems, 4455*g*
—— and Killner, W. Emulsions of sea water in Admiralty fuel oil—demulsification, 2419*e*
**Lawrence, C. A.**, Goetchius, G. R., and Gain, J. F. Antibacterial actions of quaternary ammonium sulfonamides, 8414*a*.
**Lawrence, C. H.** See Hodges, G. H.
**Lawrence, E. O.** See Taylor, H. G.
**Lawrence, F. I. L.** Ion-exchange process, P 5238*c*.
**Lawrence, J. H.** Tracer and therapeutic studies with artificial radioactivity, 1258*h*, see Dougherty, E. C.
**Lawrence, R. R.**, and McIntyre, E. B. Polyvinyl chloride compds.—effect of plasticizer structure on properties, 5628*d*
**Lawrence, R. V.** *l* Pimaric acid-maleic anhydride addn. product esters for emulsion polymerization, P 4508*a*; see McKennon, F. L.
**Lawrence, R. W.** Low velocity of detonation in nitroglycerin and other liquid nitric esters, 4467*b*
**Lawrence, W. J.** Carbonic anhydrase contents of the blood of normal Australians, 3508*f*
**Lawrie, J. W.** See Uihlein, E. C.
**Lawrie, T. R. M.** See Kennedy, W. Q.
**Laws, W. D.**, and France, W. G. Differential thermal analysis of proteins, 9137*a*
**Lawshe, W. D.** Torsional viscometer, P 2048*a*
**Lawson, A.**, and Rimington, C. Antithyroid drugs, 4710*f*.
**Lawson, A. W.** Soly. gaps in simple binary systems, 4066*d*.
—— and Tang, T.-Y. High pressure allotropic modification of Ce, 8232*a*.
**Lawson, B. A.** Effect of final deoxidation on low temp. impact strength of cast steels, 4617*a*, 7882*g*.
**Lawson, F.** See Van Middlesworth, L.
**Lawson, H. C.** See Nakamura, Kazuko
**Lawson, H. E.** Battery electrolyte with $H_3PO_4$, P 6530*d*.
**Lawson, J. L.** 88-m e.v. $\gamma$-ray cross sections, 3283*e*.
—— and Perlman, M. L. Cross section for the reaction $C^{12}(\gamma,n)C^{11}$, 484*i*.
**Lawson, J. M.** See Pierce, R. B.
**Lawson, V. A.** See Denton, J. J.
**Lawton, F. E.** See Stones, H. H.
**Lawton, K.** See Cook, Ray L.; Davis, J. F.
——, Robertson, L. S., Cook, R. L., and Rood, P. J. Correlation between rapid soil tests and response of legume hay to P and K fertilization on Michigan soils, 2723*b*.
**Lax, E.** See d'Ans, J.
**Lax, M.** See Feshbach, H.
**Laxminarayana, H.** Resazurin test for assessing the hygienic quality of milk in India, 1873*g*; see Nambudripad, V. K. N.; Singh, Gurbhagwant; Singh, Kaftar.
**Lay, H.** See Helling, W.
**Layer, D. B.**, *et al.* Leduc oil field, Alberta, 8319*g*.
**Layng, E. T.** Hydrocarbons from CO and H, P 4446*g*.
—— and Suman, F. T., Jr. Catalyst for the reforming of petroleum hydrocarbons, P 1561*d*.
**Lazar, O.** See Roubaix, J. de.
**Lazarenko, B. R.** See Krasyuk, B. A.
**Lazarenko, E. K.** Ulexite from gypsum beds of the Artemovsk district, Don Basin, 7381*i*.
**Lazarescu, D.** See Vancea, P.
**Lazarev, A. F.** Formation of hydantoic acid in surviving tissues, 741*g*.
**Lazarev, A. I.**, and Sorokin, M. F. Synthetic resins, 2463*h*.
**Lazarev, B. G.** See Galkin, A. A.; Kan, L. S.
—— and Khotkevich, V. I. Supercond. of Ta, 4070*e*.
**Lazarovits, I.** See Farkas, Andor.
**Lazarow, A.** Development and progression of diabetes, 6301*g*; alloxan diabetes, 7122*f*, see Patterson, J. W.
**Lazarus, A. S.** See Crichton, P. V.
**Lazarus, D.** Elastic consts. of $\beta$ brass, 1621*h*; variation of the adiabatic elastic consts. of KCl, NaCl, CuZn, Cu, and Al 8864*f*
**Lazarus, E.** See Schuler, W.
**Lazarus, M.** See Rogers, W. P.
**Lazerko, G. A.** See Starobinets, G. L.
**Lazier, W. A.** See Du Pont de Nemours, E. I., & Co., Pavlic, A. A.
**Lazovskaya, N. V.** Kinematics of flow of disperse systems in conical tubes, 6872*d*
**Lazzari, G.** Ternary mixts. of ales.-ethers, water and their detn., 5273*g*
**Lazzeroni, G.** Anticryptogamic powder, P 8604*i*.
**Lea, A. C.** Oxidation of SiC refractory materials, 8631*a*.
**Lea, A. J.** Ehrlich's reaction in melanuria, 7119*c*, sex difference in blood cholesterol content, 8037*a*
**Lea, D. E.** Termination reaction in the photolysis of $H_2O_2$ in dil. aq. soln., 5313*c*
**Lea, F. C.** Temp. and metals, 9001*e*.
**Lea, F. M.** Portland cement, 6387*c*, sulfate attack on portland cement, 6387*d*
—— and Davey, N. Deterioration of concrete in structures, 9410*b*
**Lea, H. A. F.** See Gunn, D. L.
**Lea, K.** See Lacher, J. R.
**Lea, W. L.** See Susor, M.
**Leach, L. D.** See Lange, W. H., Jr.
**Leach, S.** Emission spectra of water vapor and heavy water excited by electron collision, 5311*b*
**Leader, S. A.** Molding and thermoplast compns., P 6000*d*.
**Leaderman, H.** Nomenclature for elastic and inelastic behavior of high polymers, 6490*h*.
**Leaf, G.**, and Neuberger, A. Prepn. of homogentisic acid and of 2,5-dihydroxyphenylethylamine, 6599*d*.
**Leaf, R. L., Jr.** See Browning, B. L.; Buchanan, M. A.; Pigman, W. W.
**Leaf, W. B.** Silica removal with Fe shavings, 1127*g*.
—— and Atchison, L. C. Fluid flow, 6871*b*
**Leaffer, M. A.** See Fields, M.
**Leahey, A.** Characteristics of soils adjacent to the Mackenzie River in the Northwest Territories of Canada, 2719*g*
**Leahy, L. J.**, and Butsch, W. L. $\beta$ 17-Ketosteroids in a case of pseudohermaphroditism due to adrenal cortical tumor, 2696*d*.
**Leake, E. M. W.** See Earl, J. C.
**Leakins, E.** See Eyzaguirre, C.
**Leal, A.** Detn. of the chloride ratio between corpuscles and plasma, 8247*a*.
**Leal, A. M.** See Marques Leal, A.
**Leal Prado, J.** See Prado, J. L.
**Leaman, R. H.** See Maylon, C. W.
**Leão, A. T.** See Eichbaum, F. W.
—— and Eichbaum, F. W. Fungistatic and fungicidal action of hexylresorcinol, 1827*a*.
**Leape, C. B.**, and Sattler, F. A., Urea-HCHO-a
**Lear,**
phospha
**Learmonth,**
5971*h*.
**Leary, J. A.** See Katcoff, S.

**Leary, R. E.** Cast synthetic resin with integral sheen, P 9525*h*.
**Leathem, J. H.** Plasma-protein concns. and organ wts. of castrated and testosterone-propionate treated rats, 2303*a*; influence of antithyroid drugs and testosterone propionate on the organ wts. of rats, 3936*d*; influence of testosterone propionate on the plasma and liver proteins of hypothyroid rats, 5475*a*; plasma and liver protein levels in rats fed the carcinogen 2-acetylaminofluorene, 9216*g*; response of the mouse adrenal gland to steroid hormones, 8508*g*.
—— and Seeley, R. D. Plasma and liver protein concns. of hypothyroid rats, 8518*c*
**Leather, A. N.** Ca tartrate crystals in processed cheese, 3944*c*.
**Leatherman, E. W.** Flameproofing compn., P 5232*h*
**Leatherman, M.** Fireproofing coating compn., P 6763*g*; combustion retarding coating compn., P 8075*f*
**Leau, O.** See Schaptra, G.
**Leavenworth, C. S.** See Puchet, G. W., Vickery, H. B.
**Leavenworth, M. H.** Silicones, 2027*i*
**Leavitt, C. P.** See Valley, G. E.
**Leavitt, F. H.** Nitrogation, nitrojection, and soil fumigation, 2723*i*
**Leavitt, J. J.** See Carmack, M.
**Lebach, H. H.** Furfuryl alc.-phenol aldehyde resinous compds., P 6464*b*, see Adams, W. H., Jr.
**Lebacqz, J. V.**, and Andrews, D. H. Properties of $CbN$ at radio frequencies, 4957*c*
**LeBaron, F. N.** See Schaffer, N. K.
**Le Beau, D. S.** Basic reactions occurring during rubber reclaiming (II) influence of solvent naphtha, storage of the reclaim, and aging of the scrap prior to reclaiming, and infrared spectra of natural rubber reclaim 1600*b*, see Hauser, E. A.
**Lebedev, A. F.** Continuous reheating furnace, P 6014*e*.
**Lebedev, A. P.** Facies and chem. types of Jurassic diabases of the Caucasus, 2552*c*
**Lebedev, N.** Lactose seeding in production of condensed milk, 7599*g*
**Lebedev, N. N.** Mechanism of the catalytic action of $AlCl_3$ (the Friedel-Crafts reaction) (I), 2851*e*, see Korshak, V. V.
**Lebedev, V. I.** Density of the elements in the solid state 2827*e*, at heat capacities of elements, 3671*i*
and Rimskaya Korsakova, O. M. Ilmenitization of perovskite, 7379*i*
**Lebedev, Yu. P.** Moundlike solonchak complexes, 7617*i*
**Lebedeva, A. D.** Detn. of free CuO in portland cement clinker, 2749*i*.
**Lebedeva, A. I.** Eletrolytic hydrogenation of dimethylethynylcarbinol and dimethylvinylcarbinol (I) effect of the cathode material, 991*f*
**Lebedeva, L. B.** See Petrova, A. N.
**Lebedeva, T. A.** See Vendt, V. P.
**Leben, C.**, and Keitt, G. W. Antimycin preps. as protectant fungicides, 7180*g*
**Lebedev, B. M.** Polymerization of ethylene compds. under the action of dimethyl sulfate (III) causes of the polymerizing action of dimethyl sulfate, 2569*c*
**Leberknight, C. E.**, and Ostrander, E. C. Glass compn., P 1934*i*.
**Leberl, O.** See Konopik, N.
**Lebet, A.** See Castro, R.
**Le Bihan, H.**, Rayet, P., and Urbain, M. Synthesis of choline derivs., 6977*i*
**Le Bihan, Y.**, and Spanjaard, L. P. Application in the rubber industry of induction heating and of heating by dielec. losses, 2462*c*, 2871*d*.
**LeBlan, L.** Precise measurement of pressure, 6471*e*
**Leblanc, M.** Application of the theory of cond. of semiconductors to crystal detectors, 2085*c*; discharge without electrodes in rarified gases, 2877*g*.
**Leblond, C. P.** Metabolism of thyroxine in the body, 3908*g*; I metabolism, 4710*d*; histological localization of radioactive compds. in tissue with the help of radioiodine, 6716*i*; see Albert, S.
and Grad, B. Thyroxinelike activity of chloro- and bromothyronine derivs., 1109*d*.
and Gross, J. Thyroglobulin formation in the thyroid follicle, 8487*f*.
Stevens, C. E., and Bogoroch, R. Histological localization of newly formed desoxyribonucleic acid, 2683*c*.
**Leboime, R.** See Manguin, E.
**Le Bont, R.** See Roy, M.
**LeBosquet, M., Jr.** International joint commission study of the Detroit River, 8583*a*; see Woodward, R. L.
**LeBot, J.** Microwave spectrum and mol. structure (I) technique of microwaves, 2869*c*; see Freymann, M.
—— and Le Montagner, S. Measurements of dielec. const. and of absorption at 3000 Mc./sec., 4012*h*.
**Le Bras, J.** French Rubber Institute, 3643*f*
—— and Bouvchou, J. G. Cultivation of *Hevea* tissues, 9167*d*.
—— and Salvetti, A. Have mech. stresses any effect on the oxidizability of rubber? 2458*h*, 8721*h*; oxidation of rubber (I) raw rubber, 7247*h*.
**Le Bras, R.** Developments of lubricant-testing methods, 5177*i*.
**LeBrasse, G. J.**, and Francis, H. E. Atomized metal, P 3341*d*
**Le Breton.** See Dérobert, L.
**Le Breton, E.**, and Champougny-Clément, J. Desaturase of higher fat acids, 9090*i*
—— and Moulé, Y. Action of toxic vegetable proteins, esp. ricin, 7137*i*
—— and Pantaléon, J. Cholesterol esterase and a lecithinase in pancreatic juice, 9090*g*
**Lebrón, E. J.**, and Bonatti, A. A. Application of the permanganate titration to Folin's phosphomolybdate detn. of blood sugar, 1820*i*
**LeCaine, H.** See Henderson, W. J.
**LeCaine, J.** See Wallace, P. R.
**Lecat, M.** Azeotropes of ethylurethan and other azeotropes, 2831*e*, azeotropes of a new kind and azeotropes of nitriles, 2834*f*, influence of the aromatic ring on binary azeotropes, 2834*g*, azeotropes of nitrites, 2834*h*, homofunctional azeotropes, 2834*k*, azeotropes of amines, 2834*l*, azeotropes of ketones 2834*l*, azeotropes of ethers, 2835*b*, azeotropes of esters with ethers, 2835*b*, azeotropes of halides and ethers, 2835*c*, orthobaric azeotropes of nitrates, 2835*c*, orthobaric binary azeotropes of ethers with hydrocarbons, 2835*c*; orthobaric binary azeotropes, 2835*d*; homofunctional azeotropes of hydrocarbons, 4063*d*, azeotropes of derivs. of glycols, maleates, and fumarates, 5247*b*, Tables Azéotropiques (book), 8256*c*
**Lecat, P.** Detn. of dehydroascorbic acid in some phanerogams, 8014*f*, distribution of ascorbic acid in 3 plants of the genus *Arum*, 8459*b*
**Lecco, A. M.** See Leko, A. M.
**Lecco, V.** See Bertoli, R., Lovino, M.
**Lechat, P.** See Cheymol, J.
**Lecher, H. Z.** See Eberhart, D. R.
—— and Adams, F. H. Insol. monoazo dye, P 8155*d*
——, Brouillard, R. F., and Baumgarten, E. Phthalocyanine pigments from ω-Cl or ω-Br-substituted *o*-xylenes, P 3215*b*
—— and Eberhart, D. R. α-(Sulfinylamino)anthraquinone, P 9467*i*.
and Hardy, W. B. Compds. of trialkylamine oxides with $SO_2$ and $SO_3$, 2574*f*.
, Parker, R. P., and Long, R. S. 1-Mono- and 1,2-disubstituted 3-cyanoguanidines, P 1799*i*
——, Scalera, M., and Forster, W. S. Flavanthrones, P 8172*e*.
——, Scalera, M., Joyce, A. W., and Forster, W. S. 4-Amino-1,8-naphthalic acid imides, P 7511*d*.
**Lechowski, M.** See Hubicki, W.
**Lechthaler, C. H.**, Payne, J. W., and Valas, P. D. Contacting gases and solids, P 6476*h*.
**Leckie, A. H.** See Cook, J. H.
**Leckie-Ewing, P.** Metallurgy and heat-treatment of cutting tools, 2146*a*.
**LeClaire, C. D.** Stabilization of Cl-contg. resins P 8739*e*.
**Leclerc, E.** Elec. methods of analysis in industrial problems, 5693*c*
—— and Beeckmans, I. Residual water at sugar refineries, 6767*i*, 9307*d*; waste waters of the Fe and steel industries and the coke plants, 7170*b*.
**Leclercq, J.** Lysine and tryptophan in the nutrition of *Tenebrio molitor*, 2334*a*; action of $AsH_3$ on blood, 3104*i*; glucides in the nutrition of the larva of *Tenebrio molitor*, 3114*d*; sterols of *Tenebrio molitor* larva, 3940*d*; carbohydrate requirements of *Tenebrio molitor*, 4387*h*; nutritional requirements of the larvae of *Tenebrio molitor*, 6321*d*.
**Lecocq, J.** See Buu-Hoï.
**Lecoin, M.**, Perey, M., and Pompei, A. Measurement of Act, 7814*a*.
—— —, Perey, M., and Teillac, J. β-Radiation of mesothorium 1 and mesothorium 2, 7331*d*.
**Lecompte, J.** Rayonnement infrarouge (book), 5314*e*; see Heusghem, C.
**Lecompte, P.**, and Rodde, A. Printing ink, P 4872*i*.
**LeCompte, R. M.** Manual of Urology (book), 1104*d*.
**Lecomte, J.** Oxidants and the Lundsgaard effect, 3056*g*; toxicity and metabolism of the semicarbazone of adrenochrome in *Bufo regularis*, 5508*d*; colchicine and radiomimetic poisons on frog muscle, 7127*i*; see Bacq, Z. M.; Fischer, P.; Gernay, J. M.; Herve, A.; Nihoul, E.
—— and Fischer, P. Physiol. properties of quinones and of oxidative derivs. of adrenaline, 3111*d*.
——, Goffart, M., and Bacq, Z. M. Detoxication and the detn. of the Lundsgaard effect, 3056*f*
**Lecomte, Jean.** Methods utilized in the lab. of phys. research at the Sorbonne for the interpretation of mol. spectra (infrared and Raman), 2865*e*; infrared absorption spectra for the detn. of impurities in aliphatic and cyclic hydrocarbons, 3715*h*, crystals in the infrared spectrum, 4671*b*, analytical applications of infrared spectra of powders, of minerals, and of compds. having water of crystn., 7859*c*, see Duval, C., Pacault, A.
—— and Guy, J. Infrared spectra of the cinnamic acids, of chalkone and related compds., 8886*g*
**Lecoq, R.** Folic acid deficiency and pernicious anemia, 288*b*, Ca levulinate and its attenuated acidosic properties, 5502*f*, effects of exts. of thyroid, parathyroid, and thymus on the alkali reserve of the plasma when injected intravenously—action of opotherapic exts. of anterior and posterior hypophysis and corpora lutea on the alkali reserve of the blood when injected intravenously, 8185*b*, see Chauchard, P.
——, Chauchard, P., and Mazoué, H. Chronaximetric antagonism of the vitamins, 284*c*; flour, germ, and sugar mixt. that does not upset the neuromuscular equil., 777*f*; disturbances of neuromuscular excitability during alimentary imbalance and avitaminosis (XXV) vitamin requirements linked with metabolism of lipides and cholesterol, (XXVI) the relation between vitamins and acid-base balance, 1092*e*; detection of scorbutic and rachitic changes in pigeon by measurement of chronaxia, 2290*h*; vitamins antagonizing the action of histamine on the nerves and in anaphylactic shock, 3901*h*; vitamin P activity, 4352*a*.
——, Landrin, P., and Solomidès, J. Comparative bacteriostatic properties of 6 dinitrophenols, 6282*h*
and Solomidès, J. Tuberculostatic activity of penicillin and *p*-aminobenzoic acid used together, 4331*d*; bacteriostatic power of *p*-aminobenzoic acid and its potentiation of penicillin and streptomycin, 6276*c*.
——, Solomidès, J., and Landrin, P. Synthetic antibiotics (I) two propyloxyaminonitrobenzenes, (II) dinitrophenols, 8437*h*
**Lecrone, B. L.** See Nemir, P., Jr.
**Lecture, R. F.** See Rietz, C. A.
**Lecuir, R.** Sintering of pure oxides, 7205*e*.
**Leder, I. G.** See Rosen, F.
**Lederberg, J.** Detection of fermentation variants with tetrazolium, 711*h*.
—— and Zinder, N. Concn. of biochem. mutants of bacteria with penicillin, 2673*i*.
**Lederer, E.** Biochemistry of the natural pigments, 704*d*; chemistry and the biochemistry of some secretions and excretions of mammals (I), 7566*i*; see Asselineau, J.; Boiteau, P.; Ephrussi, B.; Fromageot, C.; Lourau, M.; Ruzicka, L.
—— and Lourau, M. Bivalent cations as inhibitors of an enzyme secreted by gastric mucosa, 5430*c*.
—— and Polonsky, J. Acids of pregnant mares' urine, 2685*k*; synthesis of 4,4'-dihydroxydibenzo-α-pyrone, pigment of the scent glands of the beaver, 5023*d*.
——, Prelog, V., and Schneider, R. Exts. of organs (XIV) ionone derivs. in castoreum, 8499*a*.
**Lederer, E. L.** Detn. of corrections in viscometry, 6024*b*.
**Lederer, M.** Chromatographic sepn. of Sb,

61*e*; paper chromatography of the noble metals, 3743*c*; paper chromatography of inorg anions, 6883*b*; sepn of chloride-group anions by partition chromatography on paper, 8972*h*.
**Ledergerber, E.** Deaths of workers in contact with Hg primer, 5119*a*.
**Lederle, P.** Detn of the Cu requirements of soil, 3956*i*, replacement of the alkali photocell by a Se cell for detg. K and $P_2O_5$, 6871*g*
**Lederle Laboratories, Inc.** Esters of α-formylphenaceturic acids, P 1440*a*; 3,4-bis(*p* - aminophenyl)hexane, P 3464*i*; guanidine derivs, P 5046*e*, blood-clotting accelerator, P 5909*a*; tetrahydrothieno-uracils, P 7052*e*; 2-methyl 3-amino 4-carboxy-5-aminomethylpyridine lactam, P 7972*e*
**Ledford, R. F.** Co-Ni deposition in electrotyping, 6923*h*.
**Ledin, S. H.** Electro filters, P 8019*e*
**Ledingham, A. E.** See Manske, R. H. F
**Ledingham, G. A.** Industrial fermentations on waste sulfite liquor, 7682*d*, see Blackwood, A. C., Illman, W. I.; Wheat, J. A.
**Ledneva, A. M.** See Kul'berg, L. M.
**Ledon, A. C.** See Carrera-Ledon, A
**Ledoux, E.** Absorption des gaz et des vapeurs (book), 7161*h*
**Ledoux, Edward** Dynamic cooling of adsorbent beds, 1253*g*, redistribution of adsorbate by diffusion, 7288*f*.
**Leduc, A.** See Portevin, M.
**Leduc, E. H.** See Wilson, J. Walter.
**Leduc, H.** Glass textiles, 6798*e*.
**Lee, A.** See Stevens, C. D
**Lee, A. E., Jr.** See Page, H. R
**Lee, A. R.** See Hayward, A. T. J
**Lee, C. C.** See Spinks, J. W. T.
**Lee, C. F.** Starfish (IV) thiaminase in starfish, 1879*b*, (V) starfish as fertilizer, 1892*a*.
**Lee, C. O.** See Cahill, G. F.
**Lee, D. B.** Water-supply quality, 9308*f*, see Williams, C. D
**Lee, D. E.,** and Sample, R. D. Asbestos resources of Japan, 1125*e*.
**Lee, E.** See Sutherland, G. B. B. M
**Lee, E. D.,** and Engle, L. S. Tackifier for GR-S, P 3229*d*.
**Lee, E. W.** See Hart, J. A. H.
**Lee, F. A.** Detn. of maturity of frozen Lima beans, 3945*b*, see Sondheimer, E
**Lee, G. F.** See FitzGerald-Lee, G
**Lee, G. L.** See Mahoney, C. H
**Lee, H.** See Holmes, N. L
**Lee, H. C.** See Mahoney, C. H
**Lee, H. E.** See Feddersen, P. C.
**Lee, H. J.** See Marston, H. R.
**Lee, H. M.** See Mills, J.
——— and Jones, R. G. Histamine activity of some 2-aminoethyl heterocyclic N compds., 3520*g*.
**Lee, H. R.,** and Weinmayr, V. 8,9-Benzothiophanthrene, P 9467*g*
**Lee, J.** See Solmssen, U. V.
**Lee, J. A.** Materials handling in plastics processing, 7747*e*.
**Lee, J. C.,** and Pool, M. L. Radioactive $Sn^{121,123,125}$, 8869*c*.
**Lee, J. H.** See Daigle, E. C.
**Lee, J. S.,** and Lifson, N. Recovery of isotopic succinate from urine of rats given isotopic acetate, 5841*f*.
**Lee, J. W.,** and Underwood, E. J. Total P, phytate P, and inorg. P of bread, and the destruction of phytic acid in breadmaking, 4392*f*, total P, phytate P, and inorg. P content of wheat, and its mill products, 5508*g*.
**Lee, K.-H.,** and Wu, H. Distribution of antibody in immune horse and rabbit serums, 8515*e*; isolation of antibody from immune agglutinates by treatment with dil. acid, 8515*d*.
**Lee, L.** See Chesters, J. H.
**Lee, L.-T.** See Franke, W.
**Lee, M. T.** See Wu, L. P.
**Lee, Royal.** Sugar-bearing product. P 1502*i*; dehydrator for citrus fruit peel, pulp, or juice, using $C_2H_2$ as drying gas and $CaC_2$ as drying agent, P 9295*b*
**Lee, Russell,** and Ray, F. E. $H_2O$ content temp correlation in catalyst-regeneration process, P 7222*f*
**Lee, R. D.** See Hull, D. E.
**Lee, R. E.,** and Zweifach, B. W. Vasodepressor responses to morphine following hemorrhagic hypotension, 7146*f*.
**Lee, R. J.** See Wadsworth, F. T.
**Lee, S. B.** Fermentation, 7759*b*.
**Lee, S. W.** S prepn. for treating acne, P 2739*b*; see Milas, N. A.
**Lee, T. D.,** Rosenbluth, M., and Yang, C. N. Interaction of mesons with nucleons and light particles, 4104*a*.
**Lee, T. S.** See Kolthoff, I. M.
———, Kolthoff, I. M., and Leussing, D. L. Reaction of ferrous and ferric ions with 1,10-phenanthroline, (II) kinetics of formation and dissocn. of ferrous phenanthroline, 2078*h*
— —, Kolthoff, I. M., and Mairs, M. A. Detn. of unsatn. of synthetic and natural rubbers, 2461*h*
**Lee, W. M.** See Vaughn, T. H.
**Leech, H. R.** Production of F and its compds., 6531*f*
**Leech, J. L.** See Mariella, R. P.
**Leech, R.** See Bailey, C. C
**Leeds, W. G.** See Baker, W
**Lee Foundation for Nutritional Research.** Sugar bearing product, P 1502*i*; dehydrator for citrus fruit peel, pulp, or juice, using $C_2H_2$ as drying gas and $CaC_2$ as drying agent, P 9295*b*.
**Leeklev, R. M.** Phthalideneacetamides, P 7850*a*
**Leenheer, L. de.** Adsorptive properties of soils and their mineralogical interpretation, 7618*e*
**Leeper, H. M.** See Higuchi, Takeru
**Leermakers, J. A.** See Vanselow, W
**Lees, A** Humidity and the papermaker, 5949*f*.
**Lees, A. D.** Advances in entomology, 1115*h*; passive and active water exchange through the cuticle of ticks, 6323*f*
**Lees, B.** $NH_3$, HCN, and cyanogen in producer gas, 4833*d*; particle size distribution of the dust in producer gas, 8644*a*
**Lees, D. C. G.** Al wire (I) allovs appropriate to wire manuf (IV) heat treatments of Al alloy wire, 5720*a*, hot-tearing - factors controlling its incidence in Al alloys 6959*g*
**Lees, H.** Cu-retaining powers of different cacao soils, 3955*i*, soil percolation technique 4407*h*.
**Leesemann, C. J. G.** Dehydrogenation of hydrocarbons in the presence of a gaseous diluent, P 4682*e*.
**Leeson, D.,** and Reeve, E. B. Testing the purity of corn samples of T-1824 -amts of colored impurities present and the errors in plasma vol estn., 8428*d*
**Leeson, H. J.** See Hawkins, W. W
**LeFebvre, F. J.,** and Sudrabin, L. P. Effect of environment characteristics on cathodic system design, 6093*i*
**Lefemine, D. V.** See Broschard, R. W
**Leferenz, H.** Influence of succinic acid on the blood lactic acid level, 1751*c*
**Lefèvre, P.** Theories of fluid flow—application to petroleum industry, 1954*h*
**Lefevre, P. G.** Sensitization and activation reactions of *Nereis* eggs, 8065*e*
**Le Fèvre, R. J. W.** Dipole Moments (book), 932*f*, see Anderson, J. D. C.; Calderbank, K. E.; Earl, J. C
——— and Northcott, J. Configurations of 1- and 2-naphthalenediazocyanides and other unsubstituted hydrocarbon diazocyanides, 7455*d*
———, Roberts, Mrs. W. P. H., and Smythe, B. M. Polarization of aniline dissolved in benzene, 7763*e*.
— —, Taylor, C. R., and Whittem, R. N. Condensation of benzoin with quinol or resorcinol, 2202*c*.
**LeFevre, W. J.** See Britton, E. C.; Moll, H. W.
——— and Harding, K. G. Polymeric products derived from 1,3-butadiene and styrene, P 2815*h*
**Leffingwell, G.** Synthetic surface-active agents in metal finishing, 4032*e*.
**Leffler, J. E.,** and Sienko, M. J. Styrene polymerization in a magnetic field, 4529*h*.
**Leffler, M. T.** See Fieser, L. F.; Zaugg, H. E.
——— and Hathaway, R. J. Naphthoquinone antimalarials (XIII) 2-hydroxy-3-substituted-aminomethyl derivs., 1384*h*.
——— and Krueger, W. D. Prepn. and properties of tetramethylene sulfones, 2988*g*
— — and Matson, E. J. Carbamate antimalarials, 593*h*.
**Lefort, M.** Oxidization of KI in aq. soln., 4952*e*; see Halasinsky, M.
**Leftwich, W. B.** See Mirick, G. S
———, Mirick, G. S., and Corddry, E. I. Effect of diet on the susceptibility of the mouse to pneumonia virus (I) influence of pyridoxine in the period after the inoculation of virus, 3080*a*.
**Legagneur, F. S.** See Salmon-Legagneur, F.
**Le Gallic, P.** Relation between coat pigmentation and accumulation of hormonal factor A in the body of the rat, 3074*e*; vitamin A activity of Randoin's casein-salad oil diet and a similar egg white-salad oil diet, 9185*h*; see Randoin, L.
**Legatski, H. R.** Heating a dehydrogenation catalyst chamber, P 4151*b*.
**Legatski, T. W.** See Alden, R. C
**Legault, R. R.,** Hendel, C. E., Talburt, W. F., and Rasmussen, L. B. Sulfite disappearance in dehydrated vegetables during storage, 7156*e*.
———, Nimmo, C. C., Hendel, C. E., and Notter, G. K. Tartrates from grape wastes—use of anion exchanges in a chloride-tartrate cycle, 3969*i*
**Leger, J.,** Leith, W., and Rose, B. Effect of adrenocorticotropic hormone on anaphylaxis, 2306*d*
——— and Masson, G. Pharmacol properties of derivs. of $\Delta^4$ androstenediol, 2315*b*
**Leger, J. E.** Granulation of fertilizers, 3958*d*.
**Léger, R.** See Courtel, R.
**Legg, D. A.,** and Cranmer, J. T. Riboflavin, P 3562*e*
——— and Rayman, M. M. Plastic substances from glycerol contg. fermentation stillage and dicarboxylic acids or anhydrides, P 5229*e*
**Leggat, R.** Chlorination of sewage effluents, 2718*e*
**Legge, J. W.** Disturbance of the hemoglobin metabolism of the rat by sulfanilamide, 6313*h*
**Legge, N. R.** See Henderson, D. A.
**Leggett, W. F.** Story of Silk (book), 5597*a*
**Leggieri, G.** Bread alteration by *B. mesentericus*, 5508*h*
**LeGoff, P.** See Goldfinger, P
**Legrand, C.** Action of water on cellulose II, 3976*c*, measurements of the cryst. parameters of cellulose and its derivs. hydration, 1961*f*
**Legrand, G.** Orthodiphenolase and a phenol from the artichoke, 1083*h*; see Belval, H
**Legrand, K.** Relations of thermal e.m.f. and Hall effect to the photoelec. effect for natural galena, 4101*i*
**Legrand, P.** See Doladilhe, M
**LeGrand, P. E.** See Mahoney, C. H.
**Legsdin, A.,** and Schenck, F. L. Calcns. based on graphs of screen analyses grinding efficiencies, 4193*b*
**Lehigh Portland Cement Co.** Light weight aggregate, P 1548*e*
**Lehman, A. J.** Toxicology of agricultural chemicals, 2705*d*, 4411*h*
**Lehman, R. A.** Org. Hg compds., P 9084*a*
— —, Taube, H., and King, F. E. Local toxic action of mercurial diuretics, 5867*a*
**Lehman, T.** See Bodendorf, K
**Lehmann, B.** See Watts, B. M
**Lehmann, E.** Lehrbuch der anorganischen Chemie für Studierende der Landwirtschaft (book), 1280*c*, analysis of tanning liquors, 2455*a*, prepn. of 2,3-dihydro-3-oxobenzisosulfonazole, 2972*e*, genesis of Fe ore deposits of the Lahn type, 8090*i*
**Lehmann, E. B.** See Mandel, E. E
**Lehmann, F. E.,** and Andres, G. Similarity of action of antimitotic quinones, 1861*a*
**Lehmann, G.** Physiology of adrenaline, 4747*e*; Wasserstoffionen-Messung (book), 8842*d*, see Kraut, H
——— and Michaelis, H. F. Protein requirement of hard worker (II) measurements of working capacity in worker groups 4741*b*
———, Randall, L. O., and Hagan, E. Antihistamine, antiadrenaline, and antiacetylcholine action of thephorin, 4764*a*
——— and Stefko, P. L. Action of thephorin on histamine-induced gastric secretion and on gastric ulcer formation, 4386*a*
**Lehmberg, W. H.** See Raymond, J. J
**Lehmstedt, K.** Development of the chemistry of vitamin A, 8478*g*.
**Lehne, I.** Cultivation and N fertilization of different millet varieties on a sandy soil, 7022*c*.
**Lehner, A.** Filaments from viscose, P 5950*e*.
**Lehner, F.,** and Lanini, G. Influence of papanit on cell respiration of striated muscle, 1486*f*.
**Lehning, F. E.,** Benton, B. E., and Serles, E. R. Electrode jellies, 356*d*

**Lehninger, A. L.** Liver fatty acid oxidase system, 1449*g*; esterification of inorg. phosphate coupled to electron transport between dihydrodiphosphopyridine nucleotide and O (II), 6256*e*; metabolism of the lipides, 9205*e*, see Friedkin, M; Kennedy, E. P., Sibley, J. A.
**Lehon Co.** Hard granules of waterproof type for surface covering materials, P 2396*g*
**Lehovec, K.** Elec cond of microcryst hexagonal Se with added Tl, 4068*g*, influence of traces of Tl on Se rectifiers, 6925*e*.
**Lehr, H.** See Christen, F.
——, Guex, W., and Erlenmeyer, H. Dithioamides of pimelic acid, 4067*e*.
**Lehrecke, H. W.** Fe compds and phosphatic fertilizers their chemistry and effects in production and use, 2721*f*
**Lehrer, W. P., Jr.**, Barr, W. F., and Manis, H. C. Odor and taste tests of pork from animals sprayed with benzene hexachloride, 3556*h*
**Lehrman, A.** See Carroll, B.
**Lehwalder, D. C.** See Nixon, A. C.
**Leiberman, A. M.** See Malchenko, A. L.
**Leibfried, G.**, and Kaempffer, F. Calcg partition functions, 8772*e*
**Leibmann, W.** See Seaman, W.
**Leibnitz, H. M.** See Maier-Leibnitz, H.
**Leibowitz, A.**, and Young, R. S. Diamond recovery from drill crowns, 1270*d*, 2521*f*
**Leibson, I. G.** Nervous and humoral regulation of blood-sugar content in ontogenesis (III) effect of ephedrine on blood sugar in chick embryo, 5868*i*
**Leicester, H. M.** Chemistry in early Calif., 6875*d*, Biochemistry of the Teeth (book), 7118*c*
**Leicester, J.** Gelling of concd $H_2SO_4$ and oleum, 3981*e*
**Leichter, M.** Diffusion const for self-diffusion in metals, 2917*b*
**Leidheiser, H., Jr.**, and Meelheim, R. Influence of crystal face in the catalytic of Co on a single crystal of Cu, 6063*a*
**Leidi, G.** See Berti, V.
**Leifer, E.** See Hogness, J. R., Nye, J. F., Roth, L. J., Hogness, J. R., Roth, L. J., Langham, W. H. Utilization of nicotinic acid and its amide by the human erythrocyte 746*f*, ——, Roth, L. J., and Hempelmann, L. H. Metabolism of $C^{14}$-labeled urea, 2302*e*
**Leigh, H. G.** Digested sludge and digester gas for the production of dried grass, 3131*a*
**Leigh, T.** *n*-Amylpenicillin 5908*b*
—— and Imperial Chemical Industries Ltd Penicillin P 3082*a*
**Leighton, R. B.**, and Anderson, C. D. Radial cloud chamber for high-altitude operation, 4094*a*
——, Anderson, C. D., and Seriff, A. J. Energy spectrum of the decay particles and the mass and spin of the meson, 5293*b*
**Leimdorfer, A.**, and Metzner, W. R. T. Analgesia and anesthesia induced by adrenaline, 6744*b*
**Leimdorfer, J.**, and Lang, L. Seasoning agent for food, P 9294*b*
**Lein, H. S.** See Hector, L. G.
**Lein, J.** See Mitchell, H. K.
—— and Lein, P. S. Altered prothrombin produced by dicumarol-treated rabbits, 4777*e*, stabilization of the thromboplastic lipide by hydroquinone, 5431*f*
**Lein, M.** See Albanese, A. A.
**Lein, P. S.** See Lein, J.
**Leininger, E.**, and Chulski, T. Prepn of disodium dihydrogen hypophosphate, 8947*d*
—— and Katz, S. Detn of citric acid, 8977*e*
**Leininger, R. F.** See Johnson, G. L.
**Leininger, R. I.** Stabilized vinyl resin compn., P 8730*d*.
**Leipert, T.** Detn of residual N, 8422*a*.
**Leir, G. W.** See Williams-Leir, G.
**Leirikh, V. E.** Expanding cement, P 3166*e*
**Leise, K. H.** Structure changes of crystal surfaces produced by working--dependence on the hardness, 4071*i*
**Leisegang, E. C.**, and Warren, F. L. *Senecio* alkaloids (II) isatinecine, 7475*e*.
**Leiserson, L.** Surface-active agent, P 3638*h*
—— and Weissberger, A. *p*-Chloroacetylacetanilide, 1734*h*.
**Leite Lopes, J.** Light and heavy mesons, 1255*e*.
**Leiter, J.** See Seligman, A. M.
**Leites, S. M.** Absorption of fats, 8509*a*.
**Leith, C. E.** See Hadley, J.
**Leith, W.** See Leger, J.
**Leithe, W.** Oxidimetric nitrate analysis of fertilizers, etc., 1687*a*
**Leitmeier, H.** Quartz monzonites, 3751*h*
**Leitner, Z. A.** Vitamin A and pityriasis rubra pilaris, 3807*a*.
**Leitz, E. W.** See Waldschmidt-Leitz, E.
**Leitz, F. J., Jr.** See Freed, S.
**Leivo, W. J.** See Estermann, I.
**Leixellard, E.** See Croxatto, H.
**Lejay, P.**, and Lepechinsky, D. Distribution of the field reflected by the ionosphere in the absence of absorption, 4097*b*
**Lejeune, G.** Analysis of K in fertilizers, 342*c*; see Urion, E.
**Lejeune, J. M.** See Coheur, P.
—— and Rosen, B. Spectrum of Cu oxide, 3712*f*
**Lejoeff, Lejoew.** See Lezhoev, V. M.
**Lejwa, A.** Symposia on Nutrition (book), 3080*i*
**Lekareva, T. S.** Sishtof as a substitute for quartz in porcelain mix, 3582*b*
**Leko, A. M.**, and Radosavljević, S. D. Action of Zn on $HNO_3$, 6101*h*, soln. of Zn in $HNO_3$, 6532*i*
**Leland, C. H.** Gas carburizing, 5714*i*
**Leland, H. L.** Sulfurized cutting oils, P 5185*e*; cutting oil, P 5586*d*, see Morway, A. J.
**Leland, M. L.** See Tennent, D. M.
**Lelchouk, Yu. L.** See Lel'chuk, Yu. L.
**Lel'chuk, Yu. L.** See Tananaev, I. V.
**Lell, E.** See Luther, H.
**Lellei, G.** Detn of sugar, 8419*i*
**Lellep, O. G.** Cement kiln, P 6389*b*.
**Leloir, L. F.** See Caputto, R., Cardini, C. E., Paladini, A. C., Trucco, R. E.
—— ——, Trucco, R. E., Cardini, C. E., Paladini, A. C., and Caputto, R. Coenzyme of phosphoglucomutase, 3477*e*.
**Leloup, J.** Blood I and sexual stages in *Torpedo marmorata* -variations in blood Cu during the sexual cycle of *Torpedo marmorata*, 8560*g*.
**Leltchouk, Leltschuk.** See Lel'chuk, Yu. L.
**Lelu, P. A.** See Aschkenasy-Lelu, P.
**Lemaire, A.** See Chabrol, E.
**Lemaire, E.** Treatment of Petsamo Ni ore, 6955*d*, furfural and its use as starting material for the fabrication of nylon, 9458*a*
**LeMaistre, J. W.**, and Seymour, R. B. Reaction of sucrose with $C_2H_4O$, 4635*c*.
**Lemaitre, A.** See Dubourg, J.
**Leman, A.** Hydrolysis of $Ac_2O$ (II) hydrolysis at 4° in the presence of pyridine, 6495*b*.
**LeMar, L.** See Ford, C. L.
**LeMay, M.** See Fischel, E. E.
**Lemay, P.** Désmores and Clément discover and explain catalysis, 8759*h*
**Lemberg, R.** Bile pigments from normal erythrocytes, 5818*g*; see Foulkes, E. C.
**Lemberskil, Ya. Z.**, and Balakhonov, A. D. Chem reactions used for the identification of cicutoxin, 5537*a*
**Lembersky, H. K.** See Silverman, L.
**Lemcke, K.** Garnet-bearing andesite in the Caliman region, eastern Carpathians, 8993*i*
**Lemée, G.** Origin of alpine soils of Monts Dore, France, 6345*g*
**LeMense, E. H.** See Van Lanen, J. M.
——, Sohns, V. E., Corman, J., Blom, R. H., Van Lanen, J. M., and Langlykke, A. F. Grain alc fermentations -submerged mold amylase as a saccharifying agent, 2363*h*.
—— and Van Lanen, J. M. Prepg starch-hydrolyzing enzyme with *Aspergillus*, P 1526*i*
**Lemétayer, E.** Cholesterolemia in infectious anemia of Equidae, 2305*f*
**Le Meur, E.** Mechanics of the pile 2855*i*
**Lemin, D. R.**, and Rattee, I. D. Levelling properties of acid dyes (I) level-dyeing acid dyes, (II) prechromed dyes, 5593*h*.
**Lemley, J. M.** See Rodes, N. D.
**Lemm, F. J.** See Patterson, J. W.
**Lemmens, H. J.** See Dorgelo, E. G.
**Lemmerman, L. V.** See VanderWerf, C. A.
**Lemmermann, O.** P fertilization, 7624*c*.
—— and Rauterberg, E. Behavior of soil phosphates with 1% AcOH, 7623*d*.
**Lemmon, A. B.** Liquid fertilizers, including liquid $H_3PO_4$, 802*b*; bio-assay of economic poisons, 7625*b*; hazards in use of poisons, 8600*e*.
**Lemmon, N. E.** Oil-sol. alkylated aryl sulfonates, P 685*a*; see Bransky, D. W.
**Lemoigne, M.**, Croson, M., and LeTreis, M. Inhibitory action of O on utilization of nitrate N by a strict aerobe, *Bacillus megatherium*, 4325*c*.
——, Hooreman, M., and Croson, M. Formation of acetoin from pyruvic acid and EtOH by *Bacillus subtilis*, 5824*b*.
—— and Péaud-Lenoel, C. Oxidation of β-hydroxybutyric acid by a microbiol. process, 6700*c*.
**Lemon, H. M.**, and Wisseman, C. L., Jr. Acid phosphomonoesterase activity of human neoplastic tissue, 4311*e*.
**Lemon, H. W.** Sepn of isolinoleic acid from hydrogenated linseed oil, 8707*c*.
—— and Cross, C. K. Absorption band at 968 $cm^{-1}$ in the infrared spectrum of Me isolinoleate, 8275*b*.
**Lemon, J.**, Sickels, J. P., Hutchings, B. L., Hultquist, M. E., and Smith, J. M., Jr. Conversion of pteroylglutamic acid to pteroic acid by bacterial degradation, 2275*d*
**Lemon, R. C.**, and Hunsicker, H. Y. Effects of quenching rate and quench-aging on the tensile properties of Al alloy 61S, 8336*b*
**Le Montagner, S.** See Le Bot, J.
**Lemoyne, S.** See Belval, H.
**Lenaers, G.** See Lapière, C.
**Lenaers, R.** See Heusghem, C.
**Lenaerts, J. A.** Water-detecting paste, P 3748*e*.
**Lencastre, A. de Q. V. e.** See Vasconcellos e Lencastre, A. de Q.
**Lenchner, T.** Vitreous colors, 6801*g*.
**Lendi, W.** Liquid adhesive, P 2471*h*
**Lendle, L.** See Hoffmann, I.
**Lenel, P. O.** See Sohn, A. W.
**Lenel, R.** See Rodbard, S.
——, Vanloo, A., Rodbard, S., and Katz, L. N. Paroxysmal ventricular tachycardia induced by adrenaline, 321*e*.
**Lenert, T. F.** See Hobby, G. L.
**Lengel, J. H.** See Bloom, E. G.; Mohler, F. L.; Ratchford, W. P.
**Lenhard, B.** Relations between at. no., effective nuclear charge, and heat of combustion, 8844*h*.
**Lenhart, J.**, and Cosens, K. W. Molds and bacteria curbed in immersion-freezing, 4391*d*
**Lenhart, W. B.** Sink-float process, 4*c*; belt concn system for phosphate fertilizer, 802*b*; spiral concentrators for sand sepn., 3248*g*; manuf of masonry cement, 8115*g*, firing kilns with anthracite coal, 8639*f*
**Lennard, G. J.** Analysis of high-speed tool steels—detn of W, Cr, V, Co, and Mo, 6941*b*
**Lennartz, T.** See Wagner-Jauregg, T.
**Lenner, M.** See Balint, P.
**Lennert-Petersen, O.** Standardization of valerian preps., 2370*e*
**Lennox, F. G.** Shrinkage of collagen, 7113*f*
**Lennox, J. W.** Articles from metal powders, P 4624*h*.
—— and Brewer, G. Porous bronze bearings, 1703*h*.
**Lennuier, R.** See Cojan, J. L.
**Lenoble, A.**, and Manguin, E. Fossil diatoms of the Ranomafana hot springs, Antsirabe, Madagascar, 8994*d*.
**Lenoël, C. P.** See Peaud-Lenoël, C.
**Lenormant, H.** Infrared spectra of deuterated amides, 8274*f*
**Lens, J.** See Homan, J. D. H.; Wijmenga, H. G.
—— and Homan, J. D. H. Purifying heparin, P 4817*b*
**Lensen, S. G.**, Rhian, M., Stebbins, M. R., Backus, R. C., and Peterson, C. E. Inactivation of partially purified poliomyelitis virus in water by chlorination (III) expts with natural waters, 9305*i*.
**Lent, C. P.** Atom (book), 948*b*
**Lenta, (Sister M. Petra).** See Riehl, (Sister M. Agatha).
—— and Riehl, (Sister M. Agatha). Dehydrogenase of tissue from normal and tumor-bearing mice (II) lactic and malic dehydrogenases, 3922*e*
**Lenti, C.** Inhibitors of phenoloxidase in the liver and pancrease, 8405*g*, oxidation of acetoacetic acid by *Escherichia coli*, 9145*b*.
**Lenz, W.** Einfürungsmathematik für Physiker (book), 2502*c*.

**Lenzi, F.**, and Giordano, A Caramelized honey in the diet of diabetic patients, 3515*e*.
**Lenzner, A. R.**, and Bowen, B. D. Lipemia in hemochromatosis, 1858*e*.
**Leon, J.** Ergonovine preceding delivery, 7585*h*.
**León, J. L.** See Lora Tamayo, M
**Leonard, C. S.** See Dreyer, N. B.
**Leonard, E.** See Villee, C A
**Leonard, E. A.**, and Beck, L. Lab method for wool raw stocks detergency, 5976*g*.
——— and Winch, A R Evaluation of textile detergency, 9492*h*
**Leonard, F.** See Tobolsky, A V
**Leonard, J. E.** See Lutz, G A
**Leonard, J. M.**, and Blackford, V L Fungus-inhibiting properties of bromoacetamides, 5081*g*.
**Leonard, M. H.** See Streightoff, F
**Leonard, N. J.**, and Beyler, R. E Resolution of sparteine, 3016*c*.
— — and Felley, D L. Synthesis of pyrrolizidines (III) condensation of nitromethane with ethyl crotonate and subsequent formation of 1-methylpyrrolizidine (heliotridane, pseudohelotridane), 5775*h*; directive influence of the acetylamino group in the Friedel-Crafts acylation of the diacetylaminonaphthalenes, 9058*b*
— — and Hyson, A M Directive influence of the acetylamino group in the Friedel-Crafts acylation of the acetamidonaphthalenes, 6606*c*
— — and Ruyle, W V. Reactions of 4(1 *H*)-quinazolone (IV) replacements at the 3-position, 3424*h*
— —, Ruyle, W V, and Bannister, L C Reactions of 4(1 *H*)quinazolone (III) reaction with secondary amines, 3424*d*
——— and Shoemaker, G L. Addn of nitro paraffins to diethyl glutaconate and diethyl itaconate, 5745*d*
**Leonard, O. A.** See Presley, J T
— —, Anderson W S and Gieger, M Mineral nutrition of the sweet potato, 8082*d*
**Leonard, S. L.** See Perlman, P L
———, Perlman, P L, and Kurzrok, R. Hyaluronidase levels of rat testes as related to age, hypophysectomy, and cryptorchidism, 8035*e*
**Leonardon, H.** See Zermati, M.
**Leonardsen, R.** Olein as wool-oiling agent, 3622*c*
**Leone, A.** Lactoflavin and the basal metabolism, 1096*c*; see Macciotta, G
— — and Murgia, P Lactoflavin action on glycemia and cholesterolemia, 1113*h*
**Leone, E.** Detn of uric acid in blood, 7074*a*; see Saviano, M
— — and Guerritore, D. Metabolism of pentoses—destruction of xylose (I), 3856*d*; (II), 6676*a*.
— — and Manzi, G. Detn. of nuclei acids in human placenta, 3868*g*; detns. of the principal P compds in human placenta, 4314*f*.
**Leone, G.** See Petrosini, G.
**Leone, I. A.** See Prince, A L
— —, Brennan, E. G., Dames, R H., and Robbins, W R. Effects of F on peach, tomato, and buckwheat when absorbed through the roots, 3129*f*.
**Leonidov, N. K.** Construction of blast furnace hearth, 4612*d*.
**Leonis, J.** Reaction of amino groups with $CS_2$ (I) reactivity of amino acids, 2247*g*; *N*-dimethyleucylglycine as a buffer, 2247*i*.
**Leont'ev, I. F.**, and Znamenskaya, M P. Reduced proteins as antigens, 301*a*.
**Leont'eva, A. A.** Linear rate of crystn. in the system albite–anorthite–diopside, 1252*i*; crystn of 2 olivine basalts, 2904*a*; effect of free C on the interfacial tension in the system silicate–FeS, 7795*a*
**Leont'eva, K. D.** See Ravikovich, Kh. M.
**Leontjew, I. F.** See Leont'ev, I. F.
**Leopold, A. C.** Control of tillering in grasses by auxin, 7555*f*.
——— and Thimann, K. V. Effect of auxin on flower initiation, 5456*c*.
**Leopold, B.** See Erdtman, H.
**Le Page, G. A.** Phosphorylated intermediates in tumor glycolysis (I) analysis of tumors, (II) isolation of phosphate esters from tumors, (III) effects of anoxia and hyperglycemia, 1857*b*; glycolysis in tumor homogenates, 2697*e*; effects of phosphate bond energy on nucleic acid stability in tumor homogenates, 5856*d*; see Novikoff, A. B.; Potter, V. R.; Rusch, H. P.; Stoesz, P. A.
——— and Schneider, W. C. Centrifugal fractionation of glycolytic enzymes in tissue homogenates, 2652*b*.
**Lepage, H. S.**, Giannotti, O., and Orlando, A. R B. 1018 insecticide, 4805*i*; control of the migratory locust of South America, 4806*c*.
**Le Paslier, R.** Removal of naphthalene from inlet piping of gasholders, 5926*e*.
**Lepechinsky, D.** See Lejay, P.
**Lepere Laboratories, Inc.** 3,4-Bis(*p* aminophenyl)hexane, P 3464*c*
**Lepeschkin, E.** See Hueber, E F v
**Lepeschkin, W. W.** Chlorophyll in chloroplasts, 2290*d*; mol. wt detn. of high-mol. substances, 4538*g*; effect of ultrasonic waves on serum proteins, 5433*h*
**Lepeshkin, I. P.**, and Vostokov, A. I. Carbonation of lime water, P 4821*g*.
**Lepetit, F.** Thermosensitivity of latex (III) process of heat sensitization of latex which has been degraded biochemically, 4883*f*
**Lepetit Società anon.** Tannin from sumac, P 8721*e*
**Lepkovsky, S.** See Chernick, S S, Heidelberger, C
**L'Eplattenier, G.** See S I C. Société industrielle du caoutchouc S A
**Leplelskil, I. M.** See Kargin, V A
**Le Poole, J. B.** See Poole, J B le
**Lepore, A.** Compds of Cu, 7361*h*
**Leporskii, A. M.**, and Frolov, S S Stability of finishes, 3624*c*
**Lepow, I. H.** See Foster Joseph F
**Lepp, H.** Gases and metals, 1638*a*; thermodynamics and metallurgy of Sn bronzes, 7877*a*
**Lepper, H. A.**, and Hillig, F Succinic acid in decompd egg products, 6750*e*
**Lepper, W.** Sulphonate content of 58 varieties of potatoes, 6754*c*, agricultural value of runs, 7173*i*
**Leprêtre, R.** Synthetic insulating materials, 1604*h*
**Leprevost, A.** Analyses of the minerals of Paraná (I) clay and kaolin, (II) steatite and talco schist, 2136*d*
**Lepri, G.** Activity of *p*-aminosalicylic acid on some bacteria which cause ocular infections, 8001*i*, entrance and persistance of streptomycin in the aq. humor after subconjunctival injections, 8057*i*
**Leprince-Ringuet, L.** Nucleus of the atoms, 1639*e*; photographic evidence for the existence of a very heavy meson, 5284*i*.
**Lepsius, R.** Chemistry of plastics, 8198*b*.
**Lepsoe, R.**, and Jones, E. L. Filtering app for sepg molten Sn from Fe admixts, P 554*d*
**Le Quang Phu.** See Phu, Le Q
**Le Quang Trong.** See Trong, Le Q.
**Le Quesne, W. J.**, and Young, G T Glutamyl peptides, 6978*g*
**Leraas, M. A.** See Munro, J A.
**Lerberghe, K. van.** See Loomans, J
**Le Riche, F. J. H.** See Riche, F J H. le.
**Lerma, B. de.** See De Lerma, B
**Lerman, F.**, Kennedy, A. B., and Loshin, J Countercurrent liquid solid extn.—Kennedy continuous pilot plant, 912*a*.
**Lerner, A. B.**, Fitzpatrick, T. B, Calkins, E, and Summerson, W. H Mammalian tyrosinase—prepn and properties, 5057*a*.
**Lerner, H.** See Bird, M J
**Lerner, L. L.** Condensation products of stearyl stearate with polyethylene glycols, P 9080*e*
**Lerner, M. E.** See McCavack, J
———, *et al* Bibliography of Rubber Literature (book), 2462*i*
**Lerner, S. R.** See Entenman, C.
— —, Chaikoff, I. L., and Entenman, C. Fat emulsion for intravenous feeding, 5098*b*.
———, Chaikoff, I. L., Entenman, C, and Dauben, W. G. Oxidation of parenterally administered $C^{14}$-labeled tripalmitin emulsions, 3507*g*, 4769*f*.
**Lerner, W.** See Lancman, M.
**Le Roi, E. J.** Regeneration of fluid catalysts with cooling of flue gases by water injection, P 1956*c*.
**LeRosen, A. L.** See Roth, Walter A.
——— and May, A. Chromatographic behavior of some aldehydes, 2067*g*.
——— and Rivet, C. A., Jr. Rate of movement of a chromatographic zone as a function of temp., 2067*h*.
**Leroux, H.**, and Heitzmann, M. F. Blood and spinal fluid Ca in normal and spasmophilic infants, 5487*a*.
**Le Roux, R.** See Cabarat, R.
**Leroy, A. M.**, and Charlet, P. V. Influence of proportion of digestable protein in lamb rations on wool strength, 7090*c*.
**Leroy, C.** See Boulanger, Charles.
**LeRoy, D. J.** See Batke, T. L.; Hodgins, J. W.; Tollefson, E. L.
**Leroy, E.** Water of constitution and moisture, 1625*c*.
**Lesage, M.** See Rogozinski, A
———, Rogozinski, A., and Voisin, A. Construction of metallic Geiger-Müller counters, 8852*b*.
**Leschen, J. G.** Plastic after-effects, 7394*e*; see Carreker, R. P.
———, Carreker, R P., and Hollomon, J. H. Nucleation of slip bands, 84*d*.
**Leschi, J.** Results obtained on negroes after ingestion of K salts and injections of desoxycorticosterone, 2687*e*.
**Leschoeff, V. M.** See Lezhoev, V. M.
**Lescoeur, L.** Detn. of total cation concn by an absorption-permutation method—application to biol fluids, 2658*c*
**Lesein, E.** See Chalvet, O; Daudel, P.
**Leser, T.** See Fehling, H R
**Lesfaurles, P.**, and Rumpf, P Dissocn. consts of benzene phosphonic and benzene phosphinic acids, 6051*a*
**Lesford, J. M.** See Rowlinson, H. R
**Lesher, M.**, Robinson, A R, Brody, J K, Williams, H H, and Macy, I G Metabolism of women during the reproductive cycle (XVI) effect of multivitamin supplements on the secretion of vitamin A in human milk, 290*a*
**Leskov, G. D.** Control of fish quality by fluorescence, 1120*a*
**Leslie, I.** See Davidson, J N
**Leslie, J. D.** See Blackwood, A C; Wheat, J A
**Leslie, M. L.** See Hillyer, J C
**Leslie, S. H.** See Stueck, G H, Jr
**Lesniak, F G.** Thickener for fibrous stock, P 406*b*
**Leśniański, W.** Ignacy Moscicki, 2825*e*
**Lesnichenko, S. L.** See Kainarskii I S
**Lesohin, I. G.** See Lesokhin, I G
**Lesokhin, I G.** See Zhuravlev, V F
**Lesokhina, G. F.**, Gol'bert, K A., and Zlnk hovitskii, A A Adsorption from solns of partially miscible liquids, 461*d*
———, Podurovskaya, O M, and Gol'bert K A Adsorption of vapor mixts by porous adsorbents, 461*a*
**Lespagnol, A.** See Mercier, F
— — and Bar, D Detn. of quinine and its salts, 8098*h*
— —, Mercier, J, and Dupas, J. Antiepileptic agents, 1405*i*
— —, Rotru, F, and Vanderenberghe, J Antihistaminic activity of derivs of piperazine, 1484*g*
**Lessen, W. van.** See Mellinghoff, K.
**Lesser, A. J.**, Winzler, R J, and Michaelson J. B Effect of iodide on thyroid glands of rats kept at low temp., 5497*c*
**Lesser, M. A.** Laundry blungs, 414*a* laundry bleaches, 855*a*, cellulose derivs in drugs and cosmetics, 1529*i*; ale in medicine, 1909*e*, developments in the use of glycerol and alkyd resins in coatings 2446*g*, laundry starches and related products, 2456*b*, ophthalmic ointments 2734*h*, soot removers, 3117*h*, expanding role of vitamin K, 3496*d*; air deodorants 3542*g*; glycerol's role in paper progress 3615*d*; neostigmine, 4127*g*; radiator cleaners, 5214*a*, vitamin E, 5457*d*, plasticizing action of glycerol for the proper conditioning of wood, 5920*i*; quaternary $NH_4$ compds., 6365*a*; moth products, 8089*b*; hypochlorites as sanitizers, 8099*a*, vitamin $B_{12}$, 8465*a*, animal repellants, 9353*b*; aureomycin, 9385*h*; mildew preventives, 9349*d*; glycerol's contributions to better enameling, 9482*c*, washroom sanitation specialties, 9493*c*; glycerol in the rubber industry, 9512*h*
**Lesser, M. F.** See Abrams, M.
**Lessing, R.** Natural coal dust, 375*h*
**Lessler, M. A.** Feulgen reaction for desoxyribose nucleic acid, 2659*h*.
**Lesslie, C.**, Hagan, L., and Guthrie, J D Detn. of wax content of raw cotton fiber 2439*c*.
**Lessmann, O.** See Ensslin, F.
**Lester, C. T.** See Scalera, M.
———, Donaldson, R. E., and Oswald, J C *p*-Cymene (II) isomeric aldehydes derived from *p*-cymene, 5015*a*.
——— and Proffitt, J. R, Jr. 3-Methyl-3 ethyl 2-hexanone, 6974*i*.

—— and Suratt, E. C. Ketones, carbinols, and hydrocarbons contg. the *p*-xylyl group, 6990*f*.
**Lester, D.**, and Greenberg, L. A. Measurement of the respiratory exchange, 2265*h*.
**Lester, R. E.** See King, V. L.
**Lestrange, Y. de.** Phenol ethers of quaternary $NH_4$ bases possessing curarizing properties, 6365*b*.
**LeSuer, W. M.** See Campaigne, E. E.
**Lesuk, A.** Stabilized cholinesterase, P 7069*b*.
**L'Etat français.** See Etat français, L'.
**Lethersich, W.** Rheological properties of dielectrics, 6469*a*.
**Letort, M.** See Cahen, P.; Goldfinger, P.
**Letort, Y.** Silicates, 1542*h*, refractory products industry, 1543*b*.
**LeTreis, M.** See Lemoigne, M.
**Letsinger, R. L.**, and Traynham, J. G. Reaction of allylsodium with 2-bromooctane, 558*d*.
**Letsky, B. M.** Wood finishing, 1993*f*.
**Lettré, H.** Cancerigene action of aromatic hydrocarbons, 302*f*; biochemistry of tumors, 3918*a*.
—— and Lettré, R. Prevention of the effect of mitose poison, 3478*i*; inhibition of the toxic effect of metal org. compds. on mitosis, 4773*b*.
**Lettré, R.** See Lettré, H.
**Letulle, R.**, and Mathé, G. Detn. of prothrombin, 3485*h*.
**Letzig, E.** Sol. high mol. carbohydrate in sauerkraut brine, 1490*f*.
**Leuallen, E. E.**, and Osol, A. Soly. of theophylline in aq. amine solns., 8611*a*.
**Leuchtenberger, C.** See Pollister, A. W., Schrader, F.
**Leucutia, T.** Hyaluronidase, 5051*r*.
**Leukel, R. W.** Cooperative tests of cereal and seed treatments, 7180*b*, see Clayton, E. E.
—— and Webster, O. J. Sorghum seed-treatment tests, 2355*e*.
**Leulier, A.**, Dreyon, B., and Bernard, A. Detn. of metallic ions in lipides, 5431*c*.
— and Revol, L. Précis de pharmacie chimique (book), 820*i*.
**Leum, L. N.** See Ciapetta, F. G.
**Leupin, E.**, Vogth, W., and Verzár, F. Action of adrenocortical steroids on carbohydrate metabolism of isolated mammalian muscles, 9201*r*.
**Leupold-Löwenthal, H.** See Ginzel, K. H.
**Leuret, F.** Memento de pharmacologie (book), 9268*i*.
**Leuser, J.** Characteristics of precious metal alloys in the jewelry trade, 9014*a*.
**Leussing, D. L.** See Kolthoff, I. M., Lee, T. S.
**Leuthardt, F.** See Frei, J.
—— and Mauron, J. Influence of Ca and nicotinamide on oxidation of fumarate in liver homogenate, 3894*e*.
——, Muller, A. F., and Nielsen, H. Action of glutamine and α ureidoglutaric acid in the biol. synthesis of citrulline, 1818*h*, 7113*i*.
**Leuthardt, F. M.** See Greenstein, J. P.
**Leutner, F. S.** See Flory, P. J.
**Leutscher, J. A., Jr.** See Goldston, M.
**Leutwein, F.** Analysis for metallurgical mining and refining industries, 2120*e*, see Schneiderhohn, H.
**Leva, M.** Fluid flow through packed beds, 4906*d*, see Weintraub, M.
——, Weintraub, M., and Grummer, M. Heat transmission through fluidized beds of fine particles, 8753*g*.
——, Weintraub, M., Grummer, M., and Pollchik, M. Fluidization of an anthracite coal, 6805*i*.
**Levaditi, C.** Curative effects of thiosemicarbazone tuberculosis, 8060*g*.
—— and Henry-Eveno, J. Morphological and tinctorial modification of microorganisms by antibiotics and bacteriophages, 3023*a*; subtilin—its action, 8004*e*.
——, Vaisman, A., and Henry-Eveno, J. Antibiotic polymyxin, 7079*f*.
——, Vaisman, A., and Lévy, P. Comparison of antituberculous activities of sulfetrone and promin, 5865*c*.
**Levan, A.** See Kihlman, B.
**LeVan, W. I.** See Cunningham, G. L.
**Levando, E. P.** Montmorillonite clay from the Chitin region, 2899*g*.
**Levas, E.** Condensation of butoxyethylene with phenol and the cresols, 3783*d*; catalytic properties of $BF_3$—condensation of cyclohexene and epichlorohydrin with phenols, 6173*g*; condensation of butoxyethylene with aliphatic acids—prepn. of esters of a hemiacetal, 7425*i*.
**Levasseur, A.** Corrected pH scale for solns. contg. low concns of water, 8244*h*.
**Levavasseur, G.** See Audonin, A.; Mathieu Sicaud, A.
**Levay, A. D.** Physiology (book), 3915*b*.
**Levčenko, V. V.** See Levchenko, V. V.
**Levchenko, V. V.** Effect of renewal of the Hg of the cathode on the electrolytic reduction of org. compds., 955*b*, electrolytic reduction of quinaldine (II) in alk. soln., 955*g*.
**Leve, N. F.**, and Sandomirskaya, S. S. Analysis of nonmetallic inclusions in C steels, 4600*d*.
**Levedahl, B. H.**, and Samuels, L. T. Effect of testosterone and methyltestosterone on guanidoacetic acid, creatine, and creatinine in plasma and urine, 2301*g*.
**Levedev, A. V.** See Zhukov, I. I.
**LeVeen, H. H.**, and Hallinger, L. Peptic ulcer inhibitory substances and HCl in normal subjects and in the production of peptic ulcers, 6726*a*.
**Levenbook, L.**, and Wang, Y. L. Succinic acid in the blood of the larva of *Gastrophilus intestinalis*, 1872*e*.
**Levene, H. D.** See Hirst, L. L.
**Levenson, B. H.** Vinyl plasticizer extender, P 1218*a*.
**Levenson, C. G.** See Eaton, M. D.
**Levenson, G. I. P.** Elon hydroquinone developer (I), 1276*f*, (II), (III), 4589*h*, spray processing, 4590*h*, see James, T. H.
**Leventhal, L.**, and Garner, C. S. Thermal exchange expts. with radioactive Zn, 4967*e*.
**Lever, J.**, Miltenburg, J., and Oordt, G. J. van. Effect of a short treatment with thiourea on the fish thyroid gland, 5508*e*.
**Lever, S. A.** See Hultgren, R.
**Lever Brothers Co.** Rendering fats in the presence of hydrated silica, P 1585*h*; shortenings of high penetration from fats of low solid-to-liquid ratio, P 1586*a*; fractionation of unsatd. glyceride oils, P 3216*a*, soap product contg. guanidine stearate, P 4033*d*, bleaching dark colored oils and fats, P 5612*i*, hydrogenation of oils, P 5613*a*, dustless powd. soaps, P 6437*i*.
**Lever Brothers & Unilever Ltd.** Retarding the development of rancidity in detergents, P 886*g*, bleaching of very dark fats and greases, P 3219*d*, alcoholysis of low grade fatty materials, P 3637*d*.
**Leverenz, H. W.** Dark trace screen, P 948*f*, luminescent screen and method of developing light, P 1268*a*, luminescent screen, P 1266*i*, luminescent materials for elec. discharge devices, P 1662*e*, luminescent materials, P 6518*a*, phosphor materials, P 7831*c*, phosphors, P 7831*f*, high-efficiency blue emitting Zn Cd sulfide selenide phosphor, P 7832*b*.
**Leverick, F.** Sepn. of liquids by evapn., P 1618*a*.
**Leverin, H. A.**, and Cameron, J. R. Peat and peat mosses in Nova Scotia (II), 5348*f*.
**Levering, D. R.**, and Lieber, E. Promoter effect of platinic chloride on Raney Ni, 6498*a*.
**Leverton, W. F.** See Katz, I.
**Levey, S.** Effect of ascorbic acid, D-iso-ascorbic acid, and glucoascorbic acid on Co polycythemia, 8478*f*; see Lasichak, A. G.; Patterson, J. W.; Smyth, C. J.
**Levi, A. A.** Penicillin—analysis of the crude product by means of a modified partition chromatogram (I) theory and use of the chromatogram, 2737*b*; see Boon, W. R.
**Levi, D. L.** Comparison of entropy and energy changes in diffusion and dielec. relaxation processes, 6020*i*; see Cottrell, T. L.; Gross, P.
——, McEwan, W. S., and Wolfenden, J. H. Thermochemistry of solns. (VII) heats of ionization of some substituted $NH_4$ ions, 6904*b*.
**Levi, F.** Generalizations of the force-deformation law for elastic-viscous solids, 7768*a*.
**Levi, G. R.** Chimica per i medici (book), 7990*f*.
**Levi, H.**, and Ussing, H. H. Exchange of Na and chloride ions across the fiber membrane of the isolated frog sartorius, 3940*e*.
**Levi, L. I.** Melting in the cupola with O-enriched blast, 5713*c*.
**Levi, P.** See Seppilli, A.
**Levi, R.** Oxide insulating coating for Ni Cr resistance wire, P 4153*e*.
**Levi, S. M.** Modulus of elasticity and period of relaxation of wheat gluten, 7595*g*.
**Levieil, F.** See Limasset, P.
**Leviel, R.** Sand filters, 791*a*.
**Levin, A. N.**, and Slobodchikov, B. D. Production of phenol-formaldehyde extrusion powders, 4047*d*.
**Levin, B. E.** See Elyutin, V. P.
**Levin, B. Ya.** See Zhurkov, S. N.
**Levin, E.** See Kirsner, J. B.
——, Kirsner, J. B., and Palmer, W. L. Nocturnal gastric secretion in patients with benign gastric ulcer, 6302*b*.
——, Kirsner, J. B., Palmer, W. L., and Butler, C. Nocturnal gastric secretion—normal subjects and patients with gastric ulcer and gastric carcinoma, 303*a*.
**Levin, E. M.** See Wells, L. S.
—— and McMurdie, H. F. System $BaO$-$B_2O_3$, 4438*g*.
**Levin, H.** Petroleum, 3179*c*, microchemistry in petroleum industry, 6813*e*.
**Levin, L.** α-Estradiol in the urine of stallions—identification and isolation, 5474*a*.
——, Carr, D. T., and Heitman, F. R. Distribution of dihydrostreptomycin in various body fluids, 3519*a*.
—— and Jailer, J. W. Effect of induced secretory activity on the cholesterol content of the immature ovary, 8486*e*.
**Levin, M. B.**, and Watt, J. Y. C. Benzidine test for the occult blood in feces, 7993*f*.
**Levin, M. M.** See Cox, G. J.
**Levin, N. I.** Development of lining for the sintering zone of rotary kilns, 1166*c*; selection of refractories for lining the sintering zone of rotary kilns, 1933*i*.
—— and Il'ina, N. V. Change of phys. properties of cement mixes on calcining, 3165*b*.
**Levin, N. R.** See Warren, G. H.
**Levin, R. H.** See McIntosh, A. V., Jr.; Spero, G. B.
——, Spero, G. B., McIntosh, A. V., Jr., and Rayman, D. E. Steroid acids and their transformation products (IV) epimeric 24-phenyl-5-cholen-3(β),24-diols and related compds., 3433*b*.
— and Thompson, J. L. Dimercaptoles of dehydroisoandrosterone, 658*g*.
**Levin, V. I.** Analysis of processes on non-homogeneous surfaces, 3264*a*.
**Levin, Ya. M.**, and Rappoport, D. G. Chevrette, P 3642*b*.
**Levina, M. I.** See Tananaev, I. V.
**Levina, R. Ya.** See Tatevskii, V. M.
——, Faizul'berg, A. A., and Shusherina, N. P. Synthesis of olefin and paraffin hydrocarbons with iso structure (V) 2,4-dimethyl-1,3-pentadiene in the synthesis of hydrocarbons with a quaternary C atom, 3344*g*.
——, Kulikov, S. G., and Bedov, Yu. A. Decalin series (IV) (*cis*-2-methyldecalin, 6607*e*.
——, Skvarchenko, V. R., Kagan, Yu. B., and Treshchova, E. G. Synthesis of olefin and paraffin hydrocarbons (VI) diene hydrocarbons in the synthesis of olefins with centrally located double bond, 6152*f*.
——, Viktorova, E. A., and Elkhfel'd, V. I. Isomerization of unsatd. hydrocarbons in contact with metal oxides (VIII) isomerization of 1-hexyne on Cr oxide on $Al_2O_3$, 6153*h*.
**Levine, A. A.** See Rogers, A. O.
**Levine, B. S.**, and Black, L. A. Analysis of the Standard Methods blue stain and advantages of the polychrome and acid-and-water-free stains in the direct microscopic examn. of milk, 9280*a*.
**Levine, C.** See Chargaff, E.
**Levine, D. I.** See Barondes, R. de R.
**Levine, H.**, Oyaas, J. E., Wasserman, L., Hoogerheide, J. C., and Stern, R. M. Riboflavin production by *Candida* yeasts, 9141*f*.
**Levine, H. D.** Abnormal rapid rhythms assocd. with digitoxin therapy, 1112*a*.
**Levine, I. E.** Oxidation of org. compds., P 7510*b*.
—— and Claussen, W. H. Dicarboxylic acid anhydrides, P 7046*j*.
—— and Toland, W. G., Jr. Methyl vinyl ketone, P 4287*h*.
**Levine, J.**, Garlock, E. A., Jr., and Fischbach, H. Chem. assay of aureomycin, 9371*g*.
**Levine, M. D.** See Dudley, H. C.
**Levine, M. G.**, and Hoyt, R. E. Serum cholinesterase, 3092*h*.

**Levine, M. L.** See French, D.
**Levine, M. M.** Copolymerization of polyesters and vinyl compds., P 1220*b*.
**Levine, P. P.,** and Barber, C W. Efficiency of some coccidiostatic agents against infection with *Eimeria tenella*, 8061*h*.
**Levine, Rachmiel.** See Cohn, C.; Wolfson, W. Q.
——, Goldstein, M., Klein, S., and Huddlestun, B. Action of insulin on the distribution of galactose in eviscerated nephrectomized dogs, 8053*a*
**Levine, Robert.** See Farrar, M W.; Harris, S. R.; Hauser, C R., Heid, J. V.; Zellars, G. R.
——, Heid, J. V., and Farrar, M W. Acylation of thiophene and furan in the presence of $BF_3$ complexes, 6204*a*.
**LeVine, R. Y.** See Logan, R P.
**Levine, S.** Interaction of colloidal particles (II) basis of theory, 3687*i*
**Levine, Seymour,** and Novak, M. Effect of fatty acids on the O uptake of *Blastomyces dermatitidis*, 3883*i*.
**Levine, W. S.** See Serfass, E. J.
**Levinger, J. S.** Analysis of neutrons in extensive showers, 5283*g*; photoelec disintegration of the deuteron, 8862*a*.
**Levinson, I.** Pipe putty, R4403*c*
**Levinson, J.** See Crawford, M F.
**Levinstein, Henry.** Growth and structure of thin metallic films, 5352*d*.
**Levinstein, Herbert.** Raw materials for rayon, 413*e*; George Douglas, 6477*g*
**Levis, I. B.** Lecithin-metal compds., P 5155*i*; see Stecher, R M.
**Levitan, B. A.** Rutin in histamine shock, 3155*b*; inhibition of testicular hyaluronidase activity by rutin, 740*a*; action of vitamin P on the stability of connective tissue ground substance, 7100*g*.
**Levitina, A. L.** Building materials from slag cement, P 9411*h*
**Levitina, M. V.** See Gaisinskii, I. E
**Levitman, S. Ya.,** and Ermolenko, N F. Variation of the *n* in the system AcOH–water, 6900*h*
**Leviton, A.** Sepn of proteins from milk products, P 3116*i*, MeOH extn of lactose and sol proteins from skim-milk powder, 7599*e*, microbiol production of riboflavin, P 8106*d*.
**Levitskaya, S. V.** See Bochvar, D A
**Levitskaya, V. V.** Comen of lactic acid, P 5036*h*.
**Levitskii, L. M.** See Budagyan, F. E.
**Levitt, J.** Active water absorption in auxin-induced water uptake by aerated potato disks, 282*i*.
**Levitt, M. F.** See Gaudino, M
**Levkoev, I. I.** See Vompe, A. F
——, Sveshnikov, N. N., Belostotskaya, T. V., and Zhilina, L. D. 9-Alkyl-4,5,4′,5′-dibenzothiocarbocyanines, P 8926*b*.
——, Sveshnikov, N N., and Rozvadovskaya, L. V. 4-Hydroxythiazoline-2-thione, P 6670*a*.
**Levkojev, Levkoyev.** See Levkoev, I I
**Levochkina, O. L.** See Gershenzon, S M
**Levreault, R.** See Nielsen, L
**Levshin, V. L.** See Antonov-Romanovskii, V. V.; Zhevandrov, N. D
——, Antonov-Romanovskii, V V., Morgenshtern, Z L., and Trapeznikova, Z A. Alk. earth phosphors, characterized by a high sensitivity to infrared rays, 4142*b*.
**Levshin, V. L.** See Levshin, V I.
**Levvy, G. A.** See Karaunairatnam, M. C.; Kerr, L. M H.
—— and Storey, I. D E Measurement of glucuronide synthesis by tissue prepns., 9103*h*.
**Levy.** See also Levi
**Levy, Anthony L.** See Chatterjee, R.; Heilbron, I M.
**Levy, Arthur L.** See Harned, H. S
**Levy, B.,** and McLaren, A D Phenylpropionyl-DL-alanine and phenylbutyryl DL-alanine, 5765*c*.
**Levy, B. B.** See Brodie, B. B.; Soberman, R.
**Levy, B. M.** Effects of pantothenic acid deficiency on the mandibular joints and periodontal structures of mice, 7098*i*
**Levy, C.** Synthetic vanilla flavor, P 332*b*.
**Levy, E. F.** See Jacobs, T. L.
**Levy, G.** Luminescent screen, P 7832*h*.
**Levy, G. B.,** Fergus, D., and Caldas, J. M. Benzylpenicillin content of broth, 7532*c*
——, Shaw, D., Parkinson, E. S., and Fergus, D. Detn. of penicillin G, 2370*c*
**Levy, Harold,** and Daniels, R. Esters of (2,3-epoxypropyl)malonic acid derivs., P 4291*h*.
**Levy, Hilton.** See Schade, A. L.; Wallerstein, J S
——, Schade, A. L., Bergmann, L., and Harris, S Respiration of the white potato (II) terminal oxidase system of potato tuber respiration, 2280*h*.
**Levy, H. A.** Remodeling a lab. for radiochem instruction of research, 2505*f*; see Tompkins, P C
**Levy, I.** See Kipnis, F
**Lévy, Jeanine.** See Cailleau, R.; Kahane, E.
—— and Jacquot, R Polymerization and digestibility—influence of grinding on the digestibility of starch, 1093*e*
**Levy, Joseph.** See Rotax Ltd
**Levy, L., II.** See Howard, J. P.
**Lévy, L. W.** See Walter Lévy, L.
**Lévy, Marianne.** Choline as a lipotropic factor, 1467*a*
**Levy, Maurice.** Cholesteryl oleate in the mesomorphic state, 453*d*, action of a magnetic field at low temps on the natural rotation of Ni sulfate hexahydrate, 7277*e*, action of a longitudinal elec field on the rotatory power of cryst Rochelle salt, 8771*g*
**Lévy, Max,** Mignon, S., and Carpéni, G Glass electrode for measurement of blood pH, 4316*b*.
——, Sapir, M., and Mignon, S Massive doses of vitamin $D_2$ in adult humans, 8468*g*
**Levy, Milton,** and Young, N F. Chemistry of the chick embryo (V) accumulation of cytochrome oxidase 4712*d*
**Levy, M. B.** See Balaban, I E
**Levy, M. E.** Identifying high temp. alloys, 7866*b*
**Levy, N.,** Scaife, C W and Bryson, D S T. Nitro paraffins, P 2220*a*
——, Scaife, C W., Bryson, D S T., and Imperial Chemical Industries Ltd Dinitro paraffins, P 2630*c*
**Lévy, P.** See Levaditi C
**Levy, P. W.,** and Creuling, F Radiations from 2.7 day $Au^{198}$, 4950*e*
**Levy, R. M.,** and Bennan, J I Catalytic bleaching, P 8176*a*, 9418*a*.
**Levy, S.,** and Perry, H A Phenylpyruvic acid factor in mental deficiency and mental illness, 9234*g*
**Levy, W. J** See Myles, J R
**Levykin, V. V.** Combustible Shales of the Baltic (book), 4456*d*
**Lew, H.** Hyperfine and quadrupole moment of $Al^{27}$, 1264*a*
**Lew, W** See Jameson, E
**Lewandowski, A.** Chem properties and classification of natural ferric hydroxides, 1291*c*.
**Lewandowski, T.,** and Martin, G J Antibody responses to antigens in oil, 4369*a*
**Lewenstein, M. J.** (Auromercapto)acetanilide, P 1913*i*
**Lewin.** See also Levin
**Lewin, M.** See Farkas, L
**Lewin, V. H.** Routine estn of biochem O demand, 7167*f*
**Lewis, A. D.** See Schwarzkopf, O.
**Lewis, A. E.** Hepatic clearance, 296*d*.
**Lewis, A. H.** Synergists, P 351*d*
—— and Ettling, A C. Sulfonated detergent, P 9495*i*
**Lewis, A. J.** Paints from soybean oil, 1195*e*
——, Cowan, J C., and Schieltz, N C CaO-soybean oil paints having reduced tack and increased durability, 9479*a*
**Lewis, B.** Explosives, explosions, and flames, 6826*i*, see Brinkley, S R., Jr., Scott, F E
—— and Von Elbe, G Combustion, 7759*b*
**Lewis, Charles.** See Alfrey, T., Jr
**Lewis, Colette.** See Belval, H.
**Lewis, C. E.** Metallizable benzimidazole azo dyes, P 9460*a*.
**Lewis, C. H.** See Gas Light & Coke Co
**Lewis, C. J.** Dry lime treatment of waste pickle liquor, 2142*f*; waste acid treatment, 6337*d*; see Hoak, R D
**Lewis, D. G.** See Heilbron, I M.
**Lewis, E. B.** Blackening Cu alloys, P 2567*f*
**Lewis, E. E.** Laminated glass and plastic, P 3235*e*
**Lewis, E. S.** See Kingsbury, R. M.
**Lewis, F. A.** How to braze Al, 6561*a*.
**Lewis, F. G.** See Edwards, A R.
**Lewis, F. J.** Water movement in leaves, 1464*g*.
**Lewis, F. J. W.** See Hobson, W.
**Lewis, F. M.** See Mayo, F. R.
—— and Matheson, M. S. Decompn. of aliphatic azo compds., 3354*g*.
**Lewis, G.,** and Mann, F. J Ferdinand Braun—inventor of the cathode-ray tube, 1229*e*.
**Lewis, G. T.,** Bloom, W. L., and Smart, C. W. Recombination of nucleic acids with a tissue polypeptide, 4716*g*.
**Lewis, H. B.** Protein metabolism, 8516*f*; see Chu, A. Y.-H.; Cohen, S.; Dziewiatkowski, D. D.
——, Fajans, R. S., Esterer, M. B., Shen, C.-W., and Oliphant, M. Nutritive value of some legumes—lathyrism in the rat—*Lathyrus odoratus*, *Lathyrus sativus*, *Lathyrus cicera*, and some other species of *Lathyrus*, 1090*b*.
—— and Schulert, A. R. Lathyrism, 8546*i*
**Lewis, H. C.** DDT on citrus, 1522*c*; see Dimitri, M S
**Lewis, H. F.** See Van den Akker, J. A.
**Lewis, H. W.** Meson production, 8857*g*.
**Lewis, I. C.** See Wilson, W M
**Lewis, J.** Temp control in acid Bessemer operation—application to the Duplex process, 6552*d*
**Lewis, J. A.** See Arden, T. V.
**Lewis, J. B.,** and Rogers, C Lignite Japan, 378*c*.
**Lewis, J. C.** See Chu, Y.-C.; Dimick, K P.
**Lewis, J. E.** Canada's largest steam plant reports on 5 yrs feedwater experience, 8584*a*
**Lewis, J. J.** Diabetes and the insulin administration problem, 6314*i*, see Hollinger, N
**Lewis, J. P.** See Clifford, I L., Hilbert, K. W
**Lewis, John Reed.** Development of tolerance in rats to synthetic analgesics, 673*i*, action of 1-methyl-4-(3-hydroxyphenyl)-4-piperidyl ethyl ketone on the gastrointestinal tract, 6734*f*, analgesia—analysis of analgesimetric methods and the evaluation of 1-methyl-4-(3-hydroxyphenyl)-4-piperidyl ethyl ketone, 9248
**Lewis, John Richard,** Reynolds, R. J W and Imperial Chemical Industries Ltd Stabilizing terephthalic acid polyesters, P 4052*e*
**Lewis, K. F.** See Weinhouse, S
**Lewis, K. G.** Reproducibility of W carbide in the milling of cast iron, 3757*b*
**Lewis, L. A** See Page, I H
—— and Page, I H Protective power of adrenal ext and steroids against toxic agents, 8054*f*
**Lewis, L. G.,** and Hayden, R J Mass spectrograph for radioactive isotopes, 9341
**Lewis, L. W.** Pump, 1488
**Lewis, M. N.,** and De Maria, F Bioassay of heparin, 9372*f*
**Lewis, Margaret N.** See Stephens, W I
—— and Paul, M. C$^{14}$ $\beta$ ray spectra, 4096*d*
**Lewis, M. R.,** King, H D., Aptekman, M., and Sethert, F B Oncolysis—tumor immunity, 2698*e*
**Lewis, P.** See Black, George
**Lewis, P. R.** See Hinshelwood, C N
—— and Hinshelwood, C. N Adjustment in bacterial reaction systems (I) reducing power of *Bacterium lactis aerogenes* under various conditions, 1458*b*.
**Lewis, R.** See Van Slyke, K K
**Lewis, R. A.** See Wilkins, L.
**Lewis, R. K.,** and Smith, W Analytic characters of iodinated proteins and dried thyroid, 702*i*.
**Lewis, T.,** and Woodward, E F. 4427*g*.
**Lewis, U. J.** See Register, U D
——, Register, U. D., and Elvehjem, C A Vitamin $B_{12}$ content of various organs and tissues, 8469*b*
**Lewis, V. M.** Gas microanalysis, 6006*f*
**Lewis, W.** Light Metals Industry (book), 8343*g*
**Lewis, W. K.,** Gilliland, E. R., and Bauer, W. C Characteristics of fluidized particles, 6474*g*.
——, Gilliland, E. R., and McBride, G T., Jr. Gasification of C by $CO_2$ in fluidized powder bed, 6807*h*.
——, Gilliland, E. R., and Reed, W A Reaction of $CH_4$ with CuO in fluidized bed, 7199*b*.
—— and Mickley, H. S. Internal energy problems, 7764*d*.
**Lewis, W. K., Jr.** Heat removal from fluidized solid reactor beds, P 6478*g*
——, Whaley, B. R., Adams, W. S., and Biggs, W. A., Jr. Insecticidal oil-base paints with high toxicity, 9345*h*

**Lewis, W. R.**, and Quackenbush, F. W. Polarograph to distinguish between the perpoxide structures in oxidized fats, 2789*i*.
——, Quackenbush, F. W., and De Vries, T. Org. peroxides in nonaq. solns., 7355*d*.
**Lewkoew, I. I.** See Levkoev, I. I.
**Lewon, J.**, and Dobrowolski, J. Ca saccharate or semi-saccharate, 4035*e*.
**Lewschin, W. L.** See Levshin, V. L.
**Lewtchenko, W. W.** See Levchenko, V. V.
**Lewthwaite, R.** See Smadel, J. E.
**Lex, A.** See Ferri, M. G.
**Lexow, S. G.**, Maneschi, E. P. P., and Sa, A. M. Presence of U in living things in Argentine, 3285*h*.
**Ley, H. L., Jr.** See Smadel, J. E.
**Ley, J. de.** Metabolism of mol. H by microorganisms, 5445*c*; respiration of N-deficient bacteria, 7083*f*, see Massart, L.
**Leygonie, R.** See Givandon, J.
**Leyton, G. B.** Effects of slow starvation, 292*c*.
**Lezhoev, V. M.** Cement production, 1165*a*.
**L'Héritier, P.** Sensitivity to $CO_2$ in *Drosophila*, 1778*i*.
**L'Hermite, R.** Measurement of mech. properties of plastic materials, 1603*a*
——— and Baumgarten, P. Elasticity, plasticity, and internal friction of chem. plastics, 1601*h*, mech. properties of a laminated thermoplastic, 1602*h*.
**Lhoste, J.** See Ravault, L.
**Lhoste, P.** See Fleury, G.
**Li, C.-F.**, and Stacey, M. Feulgen nucleal reaction—acid degradation of sperm deoxyribonucleic acid, 5071*e*.
**Li, C. H.** Pituitary lactogenic hormone (XIII) amino acid compn. of the hormone from whole sheep pituitary glands, 5474*d*, biochemistry of adrenocorticotropic hormone, 8040*g*, effects of adrenocorticotropic hormone on a normal human subject, 8041*d*, see Bennett, L. L., Fraenkel-Conrat, J., Gordan, G. S., Ingle, D. J., Wang, Y. L., Whitney, J. P.
——— and Evans, H. M. Biochemistry of pituitary growth hormone, 6716*b*
———, Evans, H. M., and Simpson, M. E. Crystn. of hypophyseal growth hormone, 1853*a*
———, Geschwind, I., and Evans, H. M. Effect of growth and adrenocorticotropic hormones on the amino acid levels in the plasma, 3084*f*, effect of growth hormone on the inorg. P levels in the plasma, 8489*b*
———, Ingle, D. J., Evans, H. M., Prestrud, M. C., and Nezamis, J. E. Effect of adrenocorticotropic hormone on liver fat and urinary P in normal force-fed rats, 5472*g*
———, Ingle, D. J., Prestrud, M. C., and Nezamis, J. E. Lack of effect of lactogenic hormone on organ wts., N and P balance, and the fat and protein content of liver and carcass in male rats given lactogenic hormone, 8493*a*
———, Kalman, C., and Evans, H. M. Effect of hypophysectomy, adrenocorticotropic hormone, and adrenal cortical ext. on the glucose uptake and glycogen synthesis by the isolated diaphragm with and without insulin, 9255*g*
——— and Moskowitz, M. Ultracentrifugation of hypophyseal growth hormone, 4356*b*
———, Simpson, M. E., and Evans, H. M. Isolation of hypophyseal growth hormone, 2245*i*, influence of growth and adrenocorticotropic hormones on the body compn. of hypophysectomized rats, 8489, isolation of pituitary follicle-stimulating hormone, 8509*i*; influence of growth and adrenocorticotropic hormones on the fat content of the liver, 9197*b*.
**Li, C.-P.** Chem. Arts of Old China (book), 2084*a*
**Li, L.** See Lin, K.-H.
**Li, L.-T.** See Hsing, C.-Y.
**Li, M. S.** Fe deficiency and Fe treatment for tuberculosis, 3509*g*.
**Li, P.-M.** See Sah, P. P. T.
**Li, S. H.** See Lu, C. H.
**Li, T. K.** See Whistler, R. L.
**Li, T.-T.** See Sah, P. P. T.
**Li, Y.-M.**, and Coull, J. Vapor-liquid equil. for ternary mixts. from the data of binary systems, 2058*c*.
**Li, Y.-Y.** Quasi-chem. theory of order for the Cu-Au alloy system, 7770*i*; see Yang, C. N.
**Lialikoff.** See Lyalikov.
**Lian, T. S.** Agar-agar, P 7164*e*, 8580*g*.
**Liander, H.**, and Ericson, G. Effect of inhibitors on the oxidation of transformer oil, 3855*b*.
——— and Wallgren, P.-Å. Melamine-resin-bonded paper laminates, 433*g*.
**Liang, C.-K.** Yatanoside (1) isolation and compn., 9377*f*
**Liang, S.-C.** Suction filtration, 8213*c*.
——— and Ann, T.-W. Detn. of S as Ba sulfate (III) effect of Al ions, 7374*h*
——— and Chang, K.-N. Compn. of some early Chinese bronzes, 8335*f*; estn. of Ni with dimethylglyoxime in the presence of Cu, 8955*g*.
——— and Kao, S.-S. Sensitivity of tests for group I cations in qual. analysis, 8973*a*
———, Wu, Y., and Chang, T.-C. Detn. of S as Ba sulfate (II) elimination of chromic ion interference, 7374*g*
——— Wu, Y., and Shih, P. J. Detn. of S as Ba sulfate (IV) elimination of trivalent Cr interference, 7374*h*
**Liao, S. J.** Specificity of the agglutination-reaction with autoclaved hemolytic streptococci—group-specific polysaccharide in the reaction, 5084*h*.
**Liardet, J.** See Roche, J.
**Libbey, F. W.** Chem. resources of Oregon, 9295*d*
**Libbey-Owens-Ford Glass Co.** (*Patents.*) Coating by evapn. metals 104*c*, Si compds. in producing quartz coatings, 1935*c*, dispersing a solid polymerization catalyst in a polymerizable thermosetting sirup, 2031*f*, protection of portions of articles during formation of mirrors, 3120*c*; reduction of halogenated silanes, 3141*h*, dicyandiamide derivs., 3843*c*; urea HCHO resin catalyst, 4512*i*, thermosetting urea HCHO compn., 5232*b*; organosilicon compns. contg. rapidly polymerizable olefinic double bonds, 5035*b*, $B_2O_3$ in the production of quartz coatings *in vacuo*, 5919*a*, coating articles with quartz, 5919*b*, sol thermosetting resins, 6863*h*, protection of glass surfaces, 7657*b*, resinous articles, 7752*b*, dicyandiamide resins, 9526*b*, *N*-substituted aromatic sulfonamide polymers, 9530*b*.
**Libbrecht, L.** Cholinesterase and arterial pressure, 4760*i*, see Daeninck, L.
**Libby, C. E.** See Casey, J. P.
**Libby, J. W., Jr.** See Sparks, C. E.
**Libby, L. H.** See Henderson, L. F.
——— and Henderson, L. F. Rendering fats, P 1585*h*.
**Libby, W. F.** See Engelkemeir, A. G.
———, Anderson, E. C., and Arnold, J. R. Age detn. by radiocarbon content—worldwide assay of natural radiocarbon, 3288*a*.
**Liberman, A.** See Kitchener, J. A.
**Liberman, A. L.** See Patrikeev, V. V.
**Liberman, C.** See Liberman, D.
**Liberman, D.**, and Liberman, C. Bacteriostasis a la fisiopatologia por los senderos de la quimica (book), 8061*h*.
**Liberman, S.** Food-fat extn., 7602*e*
**Libermann, D.** Interaction of thionyl chloride and hydroxy compds., 3780*e*; formation of chelate complexes between thouracils and heavy-metal salts, 9040*a*.
——— and Boyer, F. Increase in bacteriostatic activity of sulfa drugs in the presence of antithyroid substances, 1106*e*.
——— and Grundland, I. Increase of vitamin A in fish liver oils by the action of Rh—spectrophotometric study, 4815*g*
———, Himbert, J., and Hengl, L. Thiazolidione as starting material in a synthesis of substituted thiopyruvic and thioglyoxylic acids, 3819*h*.
**Liberthson, L.** Cuprammoniacal petroleum mahogany sulfonates, P 2424*h*.
——— and Faust, J. Viscosity reduction of petroleum mahogany sulfonate hydrocarbon solns., P 6822*e*.
**Liberti, A.** See Sartori, G.
**Libinson, R. E.** Effect of ornithine and citrulline on urea formation during a low-protein diet, 9209*i*.
**Libkind, L. I.** Purification of beet juices, 6444*a*.
**Libman, D. D.** HCl generator, 2043*b*.
**Libmann, G.** Same as Métayer, G. (nee Libmann).
**Libmann-Métayer, G.** Same as Métayer, G. (nee Libmann).
**Libsch, J. F.**, Chuang, W.-P., and Murphy, W. J. Effect of alloying elements on the transformation characteristics of induction-heated steels, 8332*a*.
**Licata, F. J.** Al soap grease, P 1178*i*; stearates in the protective coatings industry, 4492*f*.
**Licchocherstow, M. W.** See Likhosherstov, M. V.
**Lichačjova, O. A.** See Likhacheva, O. A.
**Lichoscherstow, Lichoserstow.** See Likhosherstov, M. V.
**Lichstein, H. C.** Existence of a coenzyme form of biotin, 3047*f*; action of biotin, 6699*c*; see Billen, D.
——— and Christman, J. F. Biotin and adenylic acid in amino acid deaminases, 706*a*.
**Licht Akt.-Ges. Vereinigte Glühlampenfabriken.** Applying metals to incandescent light bulbs, P 2155*a*.
**Lichtenberger, H. V.**, Nobles, R. G., Monk, G. D., Kubitschek, H., and Dancoff, S. M. B absorption of resonance activation, 4091*a*
**Lichtenberger, J.**, and Faure, C. Derivs. of sulfonic acid esters of $\alpha$-hydroxy acids, 2941*g*.
——— and Lichtenberger, R. Diol sulfates, 2934*c*.
——— and Martin, L. Quaternary pyridinium salts of chloromethyl ethers of polyols on regenerated cellulose, 4010*b*.
**Lichtenberger, R.** See Lichtenberger, J.
**Lichtenberg-Strunk, G.**, and Wiemer, H. Metallographic investigation of sintered Cu-Pb, 9000*i*
**Lichtenstein, H. J.** See Distillers Co., Ltd.
——— and Twigg, G. H. Hydration of $C_2H_4$ oxide, 4549*b*.
**Lichtenstein, N.** Proteolytic enzymes of insects (I) proteases of the silkworm, 2332*a*.
———, Dobkin, J., and Heimann-Hollaender, E. Reaction between resorcinol and glycine, 2973*g*.
**Lichtenwalner, H. K.** See Lovell, W. G.
**Lichter, Ya. I.**, and Khafkin, S. E. Effect of rapid changes of the temp. and the pressure on the elec. resistance of an electrolyte, 3692*i*.
**Lichtman, S. S.** Diseases of the Liver, Gallbladder, and Bile Ducts (book), 4762*g*.
**Lichty, J. G.** *N*-Isopropylmethacrylamide, P 433*a*, tetrahydrofurfuryl $\alpha$-chloroacrylate, P 3465*i*; polymerization of propiolates, P 4514*g*, copolymers of butadiene and alkyl esters of $\alpha,\beta$-dichloroacrylic acid, P 5638*e*.
——— and Seegar, N. V. Polymeric materials from isocyanates and isothiocyanates with acrylic acids, P 4516*e*; diallyl dicarbamate, P 7263*b*.
**Lichty, L. J.** Pb, P 7358*f*.
**Lickerish, L. A.** See Ripper, W. E.
**Lickley, J. D.** Gastro-Enterology (book), 3091*d*.
**Liddel, U.** Effect of inorg. ions on the hindered rotation of water, 7342*c*.
**Liddell, H. F.** See Aldridge, W. N.
**Liddle, G. W.** See Abreu, B. E.
**Lidén, K.** See Edlén, B.
**Lidman, W. G.** See Deutsch, G. C.; Hamjian, H. J.
**Lidwell, O. M.** Aerial bactericidal action, 4798*f*.
——— and Lovelock, J. E. Air disinfection by chemicals, 4797*f*; hypochlorites for air disinfection, 4797*f*; disinfectant vapors after dispersal in air, 4798*d*.
———, Lovelock, J. E., and Raymond, W. F. Propylene glycol as an air disinfectant, 4797*h*; lactic acid as an air disinfectant, 4798*a*.
**Lieb, F.** Biology of the phenol-splitting microörganisms, 8432*g*.
**Liebe, H.** Theory of narcosis—reaction of several narcotics on the ion permeability of red blood cells—permeability theory of narcosis, 7143*h*.
**Liébecq, C.**, and Peters, R. A. Toxicity of fluoroacetate and the tricarboxylic acid cycle, 7985*i*.
**Liebel, C. R.** See Wilson, P. J., Jr.
**Lieber, E.** See Levering, D. R.
——— and Cashman, A. F. Wax esters of aliphatic sulfonic acids, P 3193*b*; low-pour lubricant, P 5585*d*; condensing fatty acid halides with aromatic acid halides, P 5586*b*.
——— and Cashman, E. P. Antioxidant pour-depressant additive for lube oils, P 2424*b*.
———, Cashman, E. P., and Dean, R. M. Pour-point depressant, P 5585*f*.
——— and Dean, R. M. Pour depressant, P 7680*c*.
——— and Sadlon, M. M. Lubricant, P 5183*f*.
**Lieberman, S.** See Dobriner, K.

———, Brazeau, P., and Hariton, L. B. Spiro (steroid) thiazolidines, 659*b*.
——— and Dobriner, K. Steroid excretion in health and disease (I) chemistry, 6716*h*.
———, Dobriner, K., Hill, B. R., Fieser, L. F., and Rhoads, C. P. Steroid metabolism (II) ketosteroids isolated from urine of healthy and diseased persons, 5067*a*.
**Lieberman, S. V.** See Mueller, G. P.
**Liebermann.** See also Liberman.
**Liebermann, L. N.** Bulk viscosity of liquids, 4060*e*; second viscosity of liquids, 5249*e*, 8780*a*
**Liebert, Erhard.** Detg. water-vapor permeability of papers and other packaging materials, 3614*i*.
**Liebert, Erich.** See Horwitt, M. K.
**Liebert, J. L.** See Pette, J. W.
**Liebhafsky, H. A.** X-ray absorption in analytical chemistry, 2113*e*; liquidus curve for Al in Hg, 6066*f*, see Balis, E. W.; Kearsley, W. K.; Zemany, P. D.
——— and Bronk, L. B. Recovery of Ag from residues, P 6562*g*.
**Liebl, K.** Evaluation of lubricating greases, 5936*i*
**Liebmann, A. J.**, and Scherl, B. Change in whiskey, 8092*h*
**Liebmann, H.**, Price, J. W., and Thompson, S. R. Detn. of coating wts. of electrolytic Sn plate, 8283*i*
**Liebowitz, B.** Low-energy radiation, 4096*e*, composite steel plate, P 6966*f*
**Liebson, S. H.** Br-filled radiation and particle counters, P 8284*b*, halogen counters, 8853*a*.
**Liebster, J.** See Ettel, V
**Liechti, H. W.** See Signer, R.
**Lief, P. A.** See Brodie, B. B; Papper, E. M; Rosenberg, B.
**Liégeois, F.**, and Derivaux, J. Dietary Ca-P ratio and blood Ca-P balance—hyperparathyroidism of alimentary origin, 6708*g*.
**Liempt, J. A. M. van.** Flashlight, P 4966*c*.
**Lien, A. P.**, and Evering, B. L. Desulfurizing aromatic hydrocarbon, P 4295*i*.
**Lienau, G.** See Bode, Hans
**Liener, I. E.**, and Fevold, H. L. Effect of the soybean trypsin inhibitor on the enzymic release of amino acids from autoclaved soybean meal, 7981*b*.
**Lieneweg, F.** Elec polarograph, 4904*i*; d.-c. amplifier with resistance electrodes for pH measurements, 6525*f*.
**Liepatoff, S.** See Lipatov, S. M
**Lier, K. L. van.** See Genderen, H. van.
**Lierde, J. van.** Metingen over de Thermodiffusie en de Inwendige Wrijving in enkele Gasmengsels bij Lage en Zeer Lage Temperaturen (book), 5658*h*
**Liere, E. J. van.** See Van Liere, E. J
**Lietz, G.** DDT in insect control, 2727*i*.
**Lietz, W. T.** Performance of the Ten Section oil field, San Joaquin Valley, 8652*e*.
**Lietzke, M. H.**, and Holt, M. L. Codeposition of W and Fe from an aq. ammoniacal citrate bath, 45*h*.
**Lieutier, J.** See Vignoli, L.
**Liffa, A.**, and Csajaghy, G. Occurrence of ungvárit, 2130*c*.
**Lifshits.** See also Livshits.
**Lifshits, I. M.**, and Obrelmov, I. V. Twinning of calcite, 72*h*.
**Lifshits, M. A.** Furnace for firing metallurgical dolomite, 5911*e*.
**Lifson, N.** See Lee, J. S.
———, Gordon, G. B., Visscher, M. B., and Nier, A. O. Utilized mol. O and the source of the O of respiratory $CO_2$, studied with the aid of heavy O, 9212*f*.
———, Lorber, V., Sakami, W., and Wood, H. G. Acetate and butyrate C in rat liver glycogen by pathways other than $CO_2$ fixation, 5099*h*.
**Liga.** "Grex-" numbering system in the U.S.A., 4470*i*.
**Ligabue, L.** See Barbanti-Silva, L.
**Liger, A. W.** Electrodeposition of Pb, P 6526*f*.
**Liger, J.** Ag-plating steel, 2872*f*.
**Ligeti, C. H.** See Hoch-Ligeti, C.
**Ligett, W. B.**, McBee, E. T., and Lindgren, V. V. Perhalotoluenes, P 3033*e*; aromatic fluorocarbon, P 3845*c*.
**Liggett, R. W.** See Arnold, R. T.; Larson, R. F.
——— and Koffler, H. Corn steep liquor in microbiology, 1459*c*.
**Light, A. E.** See Elion, G. B.
**Light, A. K.**, and Russell, L. E. Detn. of metallic Al in Al pigments, 870*g*.
**Light, D. W.** Aq. emulsions of mixed phthalic glyceride and melamine-formaldehyde resins, P 6434*c*.
**Light, J. O.** See Wilder, A. B.
**Light, L.** Russian Science Readings. Chemistry, Physics, and Biology (book), 5276*h*.
**Lightbody, H. D.** See Dimick, K. P.
**Lightbown, I. E.**, and Beekley, N. S., Jr. Tie-gum compns., P 5224*a*.
**Lightfoot, L. H.**, and Coolidge, T. B. Collagen in the guinea pig, 1825*e*.
**Lightfoot, W. J.**, and Prutton, C. F. Equil. in satd. solns. (III) system $CaCl_2$-$MgCl_2$-KCl-$H_2O$, 2854*d*; (IV) system $CaCl_2$-$MgCl_2$-KCl-$H_2O$, 6067*e*.
**Ligon, E. W., Jr.** Recording siphon, 6471*b*.
**Ligonniere, G.**, Creveaux, H., and Guillaud, C. High-frequency induction furnace, 4581*e*.
**Ligoti, M. G.** See Angelico, R.
**Liguori, G.**, and Camba, R. Quant. variations of glycogen and glucose after death, 9219*e*.
**Lihl, F.** Crystallographic processes at the upper yield point of steel—strength of steel, 9008*i*
**Likhacheva, O. A.** See Boreskov, G. K.
**Likhatchewa, O. A.** See Likhacheva, O. A
**Likhocherstow, M. W.** See Likhosherstov, M. V.
**Likhosherstov, M. V.** Reaction of *N*-haloamides with thio ethers, 172*d*.
**Likhtman, V. I.** See Veller, S. Ya
——— and Venstrem, E. K. Effect of the dimensions of metal single crystals on the shape of the strain-stress diagram and on the strength lowering influence of adsorption, 7768*a*
——— and Zakoshchikova, E. P. Effect of surface active substances on small deformations of single crystals of Sn, 8230*e*
**Likover, B.** See Ecker, E. E.
**Lile, W. J.**, and Menzies, R. C. Trimethylplatinic group, 6536*d*, covalency, coordination, and chelation (II) complex-formation by the trimethylplatinic group, 8941*g*
**Lileev, O. V.** Wet processing of precious metal ores, P 3339*e*
**Lilejeff, O. W.** See Lileev, O. V.
**Lilienthal, D. E.**, *et al* At.-energy development, 5659*f*.
**Lilienthal, J. L., Jr.** See Eyzaguirre, C.
———, Zierler, K. L., and Folk, B. P. Volumeter for measuring the O consumption, 5442*i*.
**Liljegren, E. J.** See Webster, S. H.
**Liljestrand, A.** Curative action of neoarsphenamine, 4812*c*; antihistamine and respiration, 9258*b*; see Bondeson, W.
**Lilleland, O.** See Brown, J. G.
**Lilley, H. S.** Monoreactive phenol ales. as models for the general polymerization of phenol resin systems, 433*e*.
———, Darling, J. W., and Imperial Chemical Industries Ltd. Coating compns., P 7720*a*.
**Lillie, R. D.** Histopathologic Technic (book), 4371*g*.
———, Greco, J., and Laskey, A. Malt diastase—partial sepn. of the fractions destroying cytoplasmic basophilia and the metachromasia of cartilage, 8406*a*.
**Lillie, R. J.** See Haque, M. E.
——— and Bird, H. R. Breed difference in feather pigmentation of vitamin D deficient chicks, 8465*i*.
———, Denton, C. A., and Bird, H. R. Relation of vitamin $B_{12}$ to the growth factor in cow manure, 2298*b*.
**Lilligren, B. L.** See Thompson, P. E.
**Lilljekvist, G.** See Kalling, B. M. S.
**Lilly, E., & Co.** (*Patents.*) Acridines, 254*g*, 1067*fh*, 1068*b*, 3472*h*, 4703*g*; aldehyde derivs. of 2-aminoalkanes, 3025*b*; allyl(1-methylbutyl)thiobarbituric acid, 4692*d*; antimalarial salts, 697*i*; culture medium for the production of penicillin, 3573*f*; derivs. of β-(3-hydroxypolyhydrocyclopentaphenanthrene) - $\Delta^{\alpha,\beta}$ - butyrolactones, 4818*f*; 4-(dialkylaminoalkylamino)-6-methoxy quinoline, 1812*c*; diethyl malonate, 3031*a*; 3-(2,6-dimethyl-1-piperidyl)propyl salicylate, 7509*b*; diphenylacetonitrile, 6666*b*, 7954*d*; isothioureides of aliphatic sulfides, 4291*i*; 3 - (2 - methyl - 1 - piperidyl)propyl *p*-butoxybenzoate, 7509*c*; penicillin salts, 4433*f*; *N*-(2-phenylacetoxyethyl)phenylacetamide, 4697*h*; *N*-phenylacetyl amino acid esters, 4697*i*; *N*-phenylacetyl amino acids, 4698*d*; *N*-phenylacetylated amino ales. and ethers, 4697*f*; polyketones from simpler ketones and diacyl peroxides, 9081*k*; propanediamines and acridine compds. thereof, 2242*a*; quinacrine, 4703*b*, 5427*c*; quinolines, 253*e*; quinolines and their intermediates, 253*e*; stilbestrol and hexestrol, 1916*f*; thiobarbituric acids, 4092*f*; tubocurare purification, 3153*b*; vitamin compns., 9391*a*.
**Lilly, J. H.** See Beck, S. D.; Noland, J. L.
**Lilly, R. C.** See Parmley, T. J
**Lim, K.** See Chang, Hsi-C
**Lima, F. W.** Relation among the various additive-constitutive phys. properties 2057*i*.
**Lima-Hamilton Corp.** Mixing and extruding app. for thermoplastics, P 7262*g*.
**Lima Romero, J. J.** See Molina Pichardo, G
**Limasset, P.**, Levieil, F., and Sechet, M. Influence of a phytohormone on the development of viruses X and Y in tobacco, 728*a*
**Limaye, N. S.**, and Bhide, B. V. Derivs of phosphamic acid, 1737*e*.
**Limontschew, W.** See Dischendorfer, O
**Lin, K.-H.**, Li, L., and Huang, Y.-T. Synthesis of α amino acids based on the Hofmann degradation, 2166*i*
**Lin, R. C. Y.** See Feldberg, W.
**Lin, T.-M.** See Chang, Hsi-C.
**Lin, T.-Y.** See Chang, Hsi-C.
**Linacre, E. T.** Viscosity—survey of the viscometry of molten Fe C alloys, 531*d*.
**Linares, R. C.** See Carreras Linares, R
**Linch, A. L.** Inhibition of spontaneous ignition of tetraalkyl Pb compds absorbed on sludges, P 7676*i*
**Lincke, H.** See Bernhard, K
**Lincoln, B. H.**, and Byrkit, G. D. Compounded lubricating oil, P 2765*b*; halogenated foots oil, P 5184*b*.
**Lincoln, F. C.** New Dale Rundell Zinc Mine, Iowa Co., Wis., 2550*a*
**Lincoln, J.** Polymeric materials, P 3449*h* see Fisher, J. W.
———, Ellis, B., and Richardson, G. G. β,β-(Alkylenedumino)dipropionitrile and derivs. thereof, P 5114*e*
**Lincoln, R.** Artificial aging of rum, 3970*e*
aloe fiber, 4345*b*
**Lincoln Electric Co.** Arc-welding compns. P 6566*a*
**Lind, A. C.** Trickling filter for clarification systems, P 4406*h*
**Lind, C. J.**, and Witte, M. Carboxylic acid arylides, P 8399*e*
**Lind, D. A.** Geiger counter for γ-radiation 5663*g*, see DuMond, J. W. M.; Watson, B. B
———, Brown, J., Klein, D., Muller, D., and DuMond, J. W. M. Precision measurements of γ rays from $I^{131}$, 5296*e*
**Lind, H. E.** Standardization of test methods for cationic surface active agents, 1492*i*
**Lind, S. C.** See Beebe, R. A.
——— and Vanpee, M. Effect of Xe ions in chem. action by α-particles, 6921*g*.
**Lindahl, I.**, Davis, R. E., and Shepherd, W. O. Application of the total available carbohydrate method to the study of carbohydrate reserves of switch cane, 4735*a*
**Lindahl, O.** Changes in the chloride content of patellar cartilage and intervertebral disks assocd with degeneration—Cl - content of human muscle and skeletal tissue—degeneration of cartilage, 9238*a*.
**Lindahl, P. E.**, and Lundin, J. Thermal activation of the dehydrogenase systems of the unfertilized and fertilized eggs of the sea urchin, 4778*g*.
**Lindahl, R. G.** See Gripenberg, J.
**Lindaw, A. C.** See Davis, A. R.
**Lindberg, B.** Action of strong acids on acetylated glycosides (I) transformation of some aliphatic tetraacetyl-β-glucosides to the α-form, (II) synthesis of tetraacetyl-α *tert*-butylglucoside, 3795*d*; nitration of phenyl tetraacetyl β-glucoside, 5007*h*; glucosides of ginosylin and its monomethyl ether, 5017*e*.
**Lindberg, J.**, and Gralén, N. Measurement of friction between single fibers (IV) influence of various oxidizing and reducing agents on the frictional properties of wool fibers, 4857*i*.
——, Philip, B., and Gralén, N. Thin membranes in the structure of wool, 2778*g*.
**Lindberg, Mme. A. K.** See Krogh-Lindberg, Mme. A.
**Lindberg, N. J.** See Pehrson, S. O.
**Lindberg, O.** Turnover of adenosinetriphosphate in the sea-urchin egg, 2332*f*; see Bakay, L.; Hummel, J. P.; Kornberg, A.; Möllerström, J.

——— and Ernster, L. Carbohydrate metabolism in homogenized-sea urchin eggs, 2708*c*.
——— and Hummel, J. P. Measurement of radioactivity, from paper chromatogram, 4951*c*.
**Lindblad, G.** Industry and applied research, 7159*fg*.
——— and Zimdahl, H. Central lab. of Höganäs-Billesholms AB, 8112*b*.
**Linde, A. van der.** See Hertog, H. J. den.
**Linde, J. E., Jr.,** and Kennard, W. C. Effects of waxing on weight loss and keeping quality of apples, 9287*g*.
**Linde, J. O.** Theory of the elec. resistance of metallic solid solns., 2836*d*.
**Linde Air Products Co.** Thermochem. removal of metal with a flux-forming powder in the O-cutting stream, P 1033*c*; transferring measured quantities of liquefied gas, P 1229*b*, refining Cu alloys, P 1307*g*; scarfing of hard metal surfaces, P 4210*c*; desulfurization of molten ferrous metal, P 6143*c*, compressed O, P 6378*a*, coating with an electron-emissive material to improve inert gas-shielded refractory-electrode a.-c. arc welding, P 6506*c*, inert gas arc welding, P 6967*b*, arc welding Al alloys, P 7405*d*.
**Lindeberg, G.** Properties of the catecholases of litter-decomposing and parasitic hymenomycetes, 3886*a*; tensile strength and chem. compn. of the middle lamella of the flax fiber, 4016*g*
—— and Korjus, M. Gallic acid for growth of *Marasmius foetidus*, 8460*f*
—— and Lange, P. W. Middle lamella of the flax fiber, 7690*i*
**Lindeboom, G. A.** Hyperglobulinemia and pregnancy, 2687*f*, hypochloremic uremia during pregnancy and puerperium, 5110*d*
**Lindegren, C. C.,** and Lindegren, G. Gene-controlled combinations of carbohydrate fermentations in yeast hybrids, 1330*a*
**Lindegren, C. R.,** and Niemann, C. Apparent ionization consts. of acethydrazide and glycylhydrazide, 5741*b*
**Lindegren, G.** See Lindegren, C. C.
**Lindeke, W. A.** See Nebergall, W. H.
**Lindeman, G.** See Euler, H. v.
**Lindeman, V. F.** Alk. and acid phosphatase activity of the embryonic chick retina, 8495*a*.
**Lindemann, B.** Osmotic hemolysis and the structure of erythrocytes, 8497*g*.
**Lindemann, R.** X-ray investigations of thin sheets, 4198*c*, destruction-free material testing, 8215*h*.
**Lindemuth, L. B.** Cupola furnace for remelting scrap, P 4209*g*
**Linden, A. C. van der.** Microbiol. assays using lactic acid bacteria, 7997*h*; see Groot, E. H.
**Linden, G. B.** See Jacobs, T. L.
**Linden, H. E.** Sweden's shale oil industry, 8655*a*
**Linden, H. R.,** and Othmer, D. F. Air flow through small orifices in the viscous region, 8751*g*.
**Lindenbaum, A.** See Armstrong, W. D.
——, Schubert, J., and Armstrong, W. D. Wet combustion method for C detn.—isotopic C, 1285*f*.
**Lindenberg, B. A.,** Polonovski, M., and Krogh-Lindberg, Mme. A. Diffusion of nonelectrolyte org. substances into the tissue water of fishes (II) diffusibility of heavy water, methanol, and acetone into fish and frog, 4387*f*.
**Lindenmann, A.** 1-(3,4-Dimethoxybenzyl)-5,6-dimethoxyisoquinoline, 4277*e*.
**Lindenwald, H. v. C.** See Czetsch-Lindenwald, H. v.
**Linder, G. C.,** Bull, G. M., and Grayce, I. Hypophosphatemia glycosuric rickets (I) acid base balance and amino acid excretion, 6713*d*.
**Linder, P. J.,** Brown, J. W., and Mitchell, J. W. Movement of externally applied phenoxy compds. in bean plants in relation to conditions favoring carbohydrate translocation, 6705*e*.
**Linder, S. M.** See Finkelstein, J.
**Linderholm, H.** See Edlund, T.
**Linderstrøm-Lang, K.** See Egg-Larsen, N.; Frédéricq, E.; Güntelberg, A. V.
——— Ottesen, M. Plakalbumin from ovalbumin, 4717*d*.
**Lindewald, T. W.,** and Gruben, S. Egg substitute from casein, P 5512*e*
**Lindgren, B. O.** See Abrahamson, B.
**Lindgren, D. L.,** Bliss, D. E., and Barnes, D. F. Insect infestation and fungus spoilage of dates—their relation and control, 4417*d*.
**Lindgren, F. T.** See Gofman, J. W.
**Lindgren, H. O.** Producing butter by cooling cream of high concn., P 3117*c*, purifying sugar juice, P 8718*b*.
**Lindgren, R. M.,** and Henry, B. W. Controlling root disease and weeds in a southern pine nursery, 7179*e*
**Lindgren, V. V.** See Ligett, W. B.
**Lindhard, J.** See Horowitz, J. J.
**Lindlar, H.** Unsatd. aldehydes, P 1800*h*.
**Lindley, C. E.** See Colby, R. W.
**Lindley, H.** See Cockburn, R.
**Lindner, A. F.,** and Brieskorn, C. H. Detection and injuriousness of MeOH, 3869*g*
**Lindner, E.** Polamidon, 8611*f*
**Lindner, G.** Klinisch chemische Untersuchungsmethoden (book), 9140*g*
**Lindner, G. F.,** Schmeidle, A. F., and Wehmer, F. Oil-resistant adhesives, 7261*d*
**Lindner, Károly.** Petrographic analysis of the muds of some thermal springs of Budapest, 8994*e*
**Lindner, Kurt.** Detergents and their compn., 6436*b*
**Lindner, M.** See Cunningham, B. B., Seaborg, G. T.
**Lindner, M. W.** Lappa species, burdock varieties, 8017*a*.
**Lindner, R.** Sepn. of rare earths by radiometric absorption analysis, 6101*b*, sepn. of radioactive rare earths by ionic diffusion, 8295*e*.
**Lindquist, A. W.** See Fairchild, H. E., Madden, A. H., Schroeder, H. O. Kupling, L. F., Jones, H. A. and Laake, E. W. Blow fly control with DDT sprays, 3139*d*.
——, Roth, A. R., and Yates, W. W. DDT as a prehatching treatment for control of snow-water mosquitoes, 808*e*
——, Shillcutt, F. R., Madden, A. H., and Williams, J. E. Screening tests for materials to increase the effectiveness of a DDT-pyrethrum formula, 7183*i*.
**Lindquist, C. A., Jr.,** and Campbell, R. M. Thin wall tile, 8113*b*.
**Lindquist, F.** Biochemistry of human semen (III) viscometric detn. of hyaluronidase, 4721*b*.
**Lindquist, G.** Influence of wool fat on the healing of wounds, 765*f*
**Lindquist, K. M.,** and Rowe, L. W. Antidiuretic activity of the posterior pituitary and its quant. evaluation, 8613*g*.
**Lindqvist, I.** Formulas of Na and $NH_4$ paramolybdate, 960*d*, structure of salt monohydrates, 3301*f*
**Lindroth, S.** Glass batch melting by radioactive tracing, 5913*d*.
**Lindsay, D. D.** Vapor-compression seawater still, P 2347*e*
**Lindsay, D. S.** See Crawford, A. G.
**Lindsay, J. G.,** McElcheran, D. E., and Thode, H. G. Isotope effect in the decompn. of oxalic acid, 8859*e*
**Lindsay, R. A.** See Badger, W. J.
**Lindsey, A. J.** See Harris, E. D.
**Lindsey, R. V., Jr.** Hydrocarbometallic halides, P 7953*d*.
**Lindskag, C. E.** See Alley, R. D.
**Lindsley, C. H.,** and Yoe, J. H. Detn. of CO in air, 4974*i*.
**Lindström, B.** See Engström, A.
**Lindström, G.** See Siegbahn, K.
**Lindstrom, E. S.,** Burris, R. H., and Wilson, P. W. N fixation by photosynthetic bacteria, 9155*c*.
**Linduska, J. P.,** and Surber, E. W. Effects of DDT and other insecticides on fish and wildlife, 1523*i*.
**Lindvall, S.,** and Carsjö, A. Cholesterol during sea-urchin egg developments, 2331*b*.
**Lindwall, H. G.** See Dickerman, S. C.
**Line, D.,** and Sheffer, H. $CoCl_2$ method for detg. combined water, 5701*b*.
**Linetskaya, Z. G.,** and Sapozhnikova, N. V. Kinetics of the hydrolysis of the sulfochloride group in some aromatic compds., 926*f*.
**Linevskii, A. A.** Viscometer, P 2826*a*.
**Lineweaver, H.** See Fraenkel-Conrat, H.; Jansen, E. F.
———, Fraenkel-Conrat, H., and Bean, R. S. Detn. of trypsin in the presence of egg-white trypsin inhibitor and demonstration of absence of trypsin from egg white, 6688*h*.
———, Jang, R., and Jansen, E. F. Isolation of polygalacturonase, P 9126*a*; specificity and purification of polygalacturonase, 9110*a*.
**Linford, A.** Temp. measurement in metallurgical industries, 5351*f*.
**Linford, H.,** and Baral, W. J. Purification of naphthenic acids, P 8130*g*.
**Linford, H. B.** See Jelinek, R. V.; Webb, R. E.
**Ling, D. S., Jr.,** and Falkoff, D. L. $\gamma$-$\gamma$ Angular correlation in $Pd^{106}$, 8867*h*.
**Lingafelter, E. C.** Aq. solns. of paraffin-chain salts, 4543*c*; see McKenna, F. E., Minor, J. E., Shuck, G. R.
**Lingane, J. J.** Polarographic theory, instrumentation, and methodology, 2113*f*; developments in electroanalytical chemistry, 4173*g*; multipurpose electroanalytical servo instrument, 5647*d*; polarograms by an "undamped" polarograph, 7835*f*; controlled potential electroanalysis, 8946*d*.
—— and Niedrach, L. W. Polarography of Se and Te (I) the −2 states, 2873*e*; (II) +4 states, 3269*e*
——— and Pecsok, R. L. Detn. of nitrate ion by reduction with chromous ion, 5340*g*; polarographic hydrolysis current on chromic ion, 5676*c*
——— and Small, L. A. Polarography of the various oxidation states of W, 5676*g*, detn. of halide ions, 8972*b*.
—— and Vandenbosch, V. Ti—detn. in clays and clay products, 5699*b*.
**Lingen, A. W.** English-German Dictionary of Technical Words, Paper, Printing, and Official Correspondence (book), 5658*h*.
**Linggood, F. V.** See Worwod, A. J.
——— and Worwod, A. J. Application of paper partition chromatography to the production of diphtheria toxin, 4325*f*
**Lingo, S. P.** Nitroalkyl sulfites, P 6222*i*
**Lingren, V. C.** Secondary school science teaching, 6478*g*
**Linizan, Y.** See Sans, M.
**Link, F.** Exploration of the high atm. with the aid of lunar eclipses (I) photometric theory, 1651*e*, (II) numerical basis of the photometric theory and comparison of theory, 4133*i*
**Link, H. L.,** and Pancoast, H. M. Antiseptic cooling retains top quality in perishables, 9288*g*
**Link, K. P.** See Stahmann, M. A.
**Linke, A.** $CdSO_4$ reaction with blood sedimentation, the Takata reaction, the protein centrifugation reaction, the coagulation band of Weltmann, and the formol gel test, 7569*h*.
—— and Steckert, H. Formol-gel reaction in plasma and serum, 4759*b*.
**Linker, M. J. A.,** and Rogers, F. T., Jr. Straggling of $^{35}S$ $\beta$-particles in glass, 8867*c*.
**Linley, A.** See Darwins Ltd.
**Linn, A.** See Josephson, G. W.
**Linn, B. F.** Sublingual application of a soln. of oxalic and malonic acids to decrease clotting time in oral surgery, 7140*a*.
**Linn, C. B.** Removal of org. fluorides from hydrocarbons, P 1557*g*, liquid HF catalyst, P 5939*d*, treatment of a hydrocarbon mixt. contaminated by org. F compds., P 6643*c*.
——— and Schmerling, L. Fluoroalkanes, P 2628*f*.
**Linn, H. W.** Occult blood in feces—benzidine test, 9139*b*.
**Linn, L. E.** See Baker, R. H.
**Linn, M. B.** Tomato fungicide expts., 9328*d*
**Linnell, W. H.** Chem. substances of the 1948 Brit. Pharm., 4428*g*; see Abouzeid, Y. M.; Clark, E. R.; Khan, R. A.
——— and Said, F. Synthetic compds. related to cardiac glycosides (I), (II) *p*-hydroxyphenyl-$\Delta^{\alpha,\beta}$-butenolide glucoside, 4654*i*.
——— and Smith, M. J. H. Optical configuration in biologically active substances, 2943*f*; *N*-9-acridylalanines as antibacterial substances, 3826*b*.
——— and Stenlake, J. B. Chlorohydroxytriphenylmethane dye, 5387*d*.
**Linnenbom, V. J.,** and Wahl, A. C. Exchange reactions between Ce(III) and Ce(IV) and between Fe(II) and Fe(III), 8272*a*.
**Linnett, J. W.** See Frost, W. E.; Heath, D. F.; Sherratt, S.
——— and Wheatley, P. J. Mol. force fields (VI) distortions of bond-forming orbitals and the effect on mol. vibrations, (VII) application of the concept of orbital following to $CH_4$ and the deuteromethanes, 5242*f*.

**Linnikova, M. A.** See Sokolova, N. M.
**Linnman, N.** Variation in hemocyanin from *Helix pomatia*, 1871*e*.
**Linoleum SALPA Società per azioni.** Linoleumlike compn., P 4874*f*.
**Linsenmeier, K.** Damage in textile finishing (II), 414*d*.
**Linsk, J.** See Newman, M. S.
**Linsley, E. G.** See Smith, R. F.
**Linstead, R. P.** Chem research lab., Teddington, 9*e*; influence of chemistry in Britain, 2827*b*; see Arden, T. V.; Burstall, F. H.
**Lint, H.** Color-fastness in the textile industry, 852*h*.
**Lintner, K.** See Jentschke, W.
**Linz, A.** Alloy addn. agents, P 6145*e*
**Lion, K. S.,** and Gould, B. S Effect of high-frequency elec fields on some microorganisms, 9150*e*.
**Lionetti, F.** See Dunn, C. G.
**Lion Oil Co.** Alkylated aromatic hydrocarbons, P 3606*d*.
**Lioubimova.** See Lyubimova.
**Lioznyanskaya, S. G.** See Barteuev, G. M.; Botvinkin, O N.
**Lipatov, S. M.** Phys Chemistry of Colloids (book). 2502*e*, 30 yrs. of colloidal science in the U S S.R , 5455*e*
—, Kartsovnik, B A , and Babich, L. V. Structure of starch (I) gelatinizing, 8715*f*
—— and Meerson, S I. Thermodynamic properties of polymer solns (V) difference between the fractions of gelatin, 8837*f*.
**Lipatow, S.** See Lipatov, S M
**Lipilina, I. I.** See Kapustinskiĭ, A F
**Lipin, S. V.** Pyrrhotite and troilite, 6115*e*
**Lipkin, H. J.** β Ray spectra, 8879*i*
**Lipkin, M. R.** Sepn. of hydrocarbons, P 2763*d*
—— and Hirschler, A. E. Sepg aromatic hydrocarbons from a hydrocarbon mixt., P 386*d*.
——, Mills, I. W., Martin, C. C , and Harvey, W T. Pycnometers for oils, 5647*c*
**Lipman, C.** See Cocker, W.
**Lipmann, F.** See Barker, H A ; Kaplan, N. O , Loomis, W F ; Novelli, G. D , Soodak, M.
—— and Kaplan, N O. Intermediary metabolism of P compds , 9205*e*.
**Lipner, H. J.** See Barker, S. B
**Lipovetskaya, A. I.** See Kudryavtsev, N. T.
**Lipovich, I. M.** See Sergievskaya, S I.
**Lipowitch, I. M.** See Lipovich, I M
**Lippay, F.,** Mitchell, G. G., and Potter, B J Reaction of perfusion fluids in long-lasting expts , 3868*c*.
**Lippi, M.,** and Argiolas, L. Variations in blood cholesterol, 9198*e*.
**Lippi-Boncambi, C.** Soil of Mt Martani Italy, 1507*i*, soil of Umbria, 1507*i*; soil of Mt. Malbe, Perugia, Italy, 1508*i*; Gli indirizzi moderni della pedologia applicati allo studio dei terreni dell' alta valle del tevere (book), 3554*a*.
—— and Marimpietri, L. Dolomite sands of Mt Terminillo and Mt. Salbe, Italy, 1542*g*.
**Lippincott, S. B.** Esters, P 7951*eh*.
**Lippincott, S. W.,** Ellerbrook, L. D., Rhees, M., and Mason, P. Distribution and fate of Sb when used as tartar emetic and fuadin against *Schistosomiasis japonica*, 6740*a*.
**Lippman, A., Jr.,** Comstock, R. L , Benjamin, E. B. Chem seasoning of lumber with salt mixts., P 1168*a*.
**Lippman, R. W.** Proteinuria-- effect of parenteral bovine albumin injections on hemoglobin excretion in rats, 1870*e*; simultaneous clearance detns. in the rat, 3090*g*; proteinuria (II) identity of urinary proteins following parenteral injection, 8547*b*.
**Lips, H. J.,** Grace, N. H., and Hamilton, E. M. Canadian erucic acid oils (II) edible use of rape and mustard-seed oils, 2001*a*.
——, Grace, N. H , and Jegard, S. Canadian erucic acid oils (III) shortenings from rape and mustard seed oils, 5127*i*.
**Lipschitz, R.,** and Frank, S. Apyrases in adult frog tissues, 7150*e*.
**Lipschitz, W. L.** Increase and decrease in toxicity of aromatic nitro compds., 5493*d*.
**Lipschütz, A.,** Iglesias, R., Bruzzone, S., Fuenzalida, F., and Riesco, A. Antitumorigenic action of steroid hormones, 8532*f*.
——, Iglesias, R., Bruzzone, S , Humerez, J., and Peñaranda, J. M. Progesterone and desoxycorticosterone in the steroid control of the gonadotropic function of the hypophysis, 8035*e*.
**Lipscomb, G. J.** Clarifier for sugar-cane juice, P 9506*c*.
**Lipscomb, R. D.** See Adams, R.
**Lipscomb, W. N.** See Collin, R. L.; Taylor, N. W.
**Lipsett, M. B.,** and Winzler, R. J. Effects of vitamin A deficiency on thyroid function studied with radioactive I, 7560*h*.
**Lipshits, V. V.** See Frenkel, G. M
**Lipsitz, P.,** Kremen, S S , and Lollar, R M Vegetable tannage (VII) tanning potential of purified lignosulfonates and true tannins, 7732*h*; (VIII) fixation of com and purified vegetable tanning materials, 8183*f*
——, Lollar, R M., and O'Flaherty, F. Tanning potential of lignin derivs , 7732*h*
**Lipson, H.** Indexing powder photographs of orthorhombic crystals, 6510*a*.
—— and Taylor, C A Photoelec device for the evaluation of structure factors, 6470*e*
**Lipson, L. B.** Method and app for physicochem analysis, P 4456*f*
**Lipson, M.,** and Speakman, J B Polymers in wool, 8142*d*
**Lipton, B.** Comprns for destroying rats, P 814*c*
**Lipton, M. M.** Application of the falling-drop technique to the detn of precipitin, 2668*d*
**Lipton, S. H.,** and Strong, F. M Synthesis of compds related to pantothenic acid, 7426*e*
**Liquidometer Corp.** Weatherproofing transmitter resistors, P 5644*g*
**Lirman, N. M.** Variation of carbonic anhydrase content in childrens' blood in pneumonia, 4760*e*
**Lisanti, L.** See Bottini, O.
**Lischer, C. F.** See Kastning, E H.
**Lise, J.** See Kirschbaum, E
**Lisi, F.,** and Binazzi, M Environment influences on the regulation of the glucose level in blood samples, 9201*a*
**Lisitsyn, M. A.,** and Aleksandrovskaya N. S Large-block structure of proteins, 5812*f*
**Lisk, G. F.** Sulfonation, 7759*c*.
**Liska, J. W.** See Scholl, A W.
**Lison, L.** See Mutsaars, W.
**Lissak, K.** Conduction of excitations in the nerves, 9200*g*, see Angyan, A
**Lissitzin, M. A.** See Lisitsyn, M A.
**Lissitzky, S.** See Cristol, P.
**List, G. M.** See Newton, J. H.
**Lister, B. A.** See Duncan, J F.
— and Smith M. L. Fractionation of Ce (III) and Nd mixts on an ion-exchange column, 6535*e*
**Lister, G. H.** Adsorption of acid and chrome dyes by wool, 4015*e*.
**Liston, R. L.** See Shearon, W H , Jr
**Litchfield, J. T., Jr.,** and Wilcoxon, F. Evaluating dose-effect expts , 7070*f*
**Litsanu, C.** Oxidation of glucose with HgO and the prepn. of Ca gluconate, 3147*f*; prepn of KI, 4169*f*; see Bena-Medean, V.
**Litchiser, R. R.,** and Barbee, J. F. Air-entrainment decreases scaling in highway pavements, 9409*f*.
**Litmanowitsch, M.** See Halban, H. v.
**Littauer, F.** Control of diplodia stem-end rot and molds in Shamouti oranges with NCl$_3$, 9339*a*
**Littell, N.** Yeast and vitamin B products, P 1906*f*; yeast and vitamin concentrates from cultured material, P 9362*f*.
**Litter, M.** Equil. between adrenaline and effector cells (I) analysis and concn.-action curve on the isolated intestine, 3101*g*; (II) analysis and concn.-action curve on isolated rabbit uterus, (III) analysis and dosage-response curve on arterial pressure in the dog, 5492*f*.
**Little, A.,** and Mitchell, K. A. Tablet Making (book), 7197*h*.
**Little, A. D., Inc.** Still with means of injecting fresh feed into the down-comer, P 7*d*; liquid O from air, P 826*i*; gas-treating app , P 914*g*; O, P 1160*h*; ceramic bodies, P 8104*c*; S-set furfuryl alc. resins, P 5630*i*; vapor-compression-type still, P 6874*b*; treatment of wool, P 9476*d*.
**Little, B. C.** See Kleinholz, L. H.
**Little, C. C.** See Hummel, K. P.
**Little, E. L., Jr.** See Morton, A. A.
**Little, H. N.** Properties of the red pigment from soybean nodules, 8461*d*.
**Little, J. D.** See Du Rose, A. H.
**Little, J. E.** See Sproston, T., Jr
——, Sproston, T., Jr., and Foote, M W. Synthesis and antifungal action of 2-methylmercapto-1,4-naphthoquinone, 4248*f*
**Little, J. M.** Two fractions of specific cholinesterase in homogenized normal mouse brain, 297*d*, distribution of the 2 fractions of cholinesterase in homogenates of portions of the dog brain, 2692*f*
——, Green, H D., and Bumgarner, J. I. Heat lability of a depressor substance present in human urine—effects of section of vagus nerves, ligation of carotid artery, and of autonomic blockade on depressor response, 4754*d*.
**Little, K.,** Axon, H. J., and Hume-Rothery, W. Constitution of Al-Mg-Zn-Cr alloys at 460°, 91*e*
**Little, K. B.,** and Burton, J J Crystallization of DDT, P 1526*e*
**Little, L. L.** Mixed hydroxy and fatty acid glycerol ester emulsifiers, P 9493*i*
**Little, N.** Liquid base for food products, P 3540*a*
**Little, P. A.** See Oleson, J J.; Porter, J. N.
—, DeMello, G., Tanzola, F , and SubbaRow, Y. Comparison of mouse-prote te id chick sts of over 600 chemicals against *Pasteurella multocida*, 275*e*.
——, Oleson, J J., and SubbaRow, Y. Effect of nutrition on the tumor response in Rous chicken sarcoma, 735*g*
——, Sampath, A , and SubbaRow, Y Use of antagonists of pteroylglutamic acid in controlling Rous chicken sarcoma 763*f*
——, and SubbaRow, Y Detg the inhibitory effect of chemicals on *Vibrio cholerae*, 275*f*.
**Littlejohn, J. M.** See Singal, S A
**Littlejohn, W. R.** Benchenes, 1529*g*
**Littmann, E. R.,** and Klotz, I R M Color of distd naphthenic acids 7674*h*.
**Littmann, I.** See Goth, Ludre
**Littmann, M. F.** Thin Si steel with high magnetic permeability and low core loss, P 6144*g*
**Litton, C. V.** Reducing brittleness of carburized W wire, P 102*b*
**Litton, F. B.,** and Gonser, B W Ti and Ti alloys—composition structure, and properties of iodide titanium, 3765*f*
**Litvak, I. M.** Detg optimal technological conditions in diffusers, 6144*g*
**Litvakovskiĭ, A. A.** Elec heating in the production of sheet glass, 7653*h*
**Litvinenko, P. M.** See Tsvang, I M
**Litvinov, M. R.,** and Kovtunovich, S. D. Liming of hides, 6418*g*
**Litwinowicz, F. J.** See Scripture, E. W , Jr.
**Litwins, J.,** Vesell, H , Kissin, M , Cohen I , and Paul, A Effect of dicoumarol on the erythrocyte sedimentation rate, 9258*f*
**Lityński, T.** Władysław Vorbrodt 8761*b*
— and Zimny, F Detn of the lime requirement of the soil, 7622*e*
**Litz, L. M.,** Garrett, A B , and Croxton, F C. Prepn. and structure of the carbides of U, 3685*e*
**Litzenberger, S. C.** Susceptibility to *Helminthosporium victoriae* and resistance to *Puccinia coronata* in Victoria oats, 7090*f*
**Liu, C.** See Wang, Y. L.
**Liu, S.-C.,** and Wu, H. Excretion of protein antigens in the urine, 8515*f*
**Liu, T. C.** See Ho, C. S
**Liu, T.-K.,** and Duncan, A. B. F. Absorption spectrum of ethylene oxide in the vacuum ultraviolet, 5305*g*.
**Liu, Y.-C.** See Hibbard, W. R., Jr.
**Liu, Y. H.** See Owen, E. A
**Liu, Y. M.,** Hsu, C. H., and Feng, T. P Elec. potential change accompanying the development of rigor in iodoacetate poisoned muscle, 5121*d*.
**Livengood, S. M.** Guide to humectant selection, 3541*i*.
**Livental, V. E.** Fixation of sands in areas adjacent to an oil well, P 6402*d*.
**Livermore, A. H.** See Carpenter, F. H ; Sealock, R. R.
——, Carpenter, F. H., Holley, R. W , and Vigneaud, V. du. Cryst. *dl*-benzylpenicillenic acid, 221*d*.
**Livesey, D. L.** See Gibson, W. M.
—— and Wilkinson, D. H. Neutrons produced in the deuteron-deuteron reaction, 4118*c*.
**Livingston, A.** See Heslop, R. N.; Irving F.
**Livingston, H. K.** Adjusting the pH of

synthetic elastomer latexes, P 1600*i*; S-PbEt$_4$ interaction in motor fuels, 5579*c*.

**Livingston, J. W.** Cold rubber development, 9515*a*.

**Livingston, L. E.** See Montgomery, J. A.

**Livingston, M. S.** Design for a 10-b e.v. proton synchrotron, 4095*h*

**Livingston, Ralph.** See Gordy, W.

— —, Gilliam, O. R., and Gordy, W Nuclear spin and quadrupole moment of $I^{129}$, 8879*d*.

**Livingston, Robert.** See Franck, J.; Watson, W. F.

— —, Watson, W. F., and McArdle, J. Activation of the fluorescence of chlorophyll solns., 6922*a*.

**Livingstone, D. F.** See Drever, H. I.

**Livingstone, H.** See Rogers, R. R.

**Livingstone, W.** App for uniformly dissolving detergents and water softeners, P 7242*c*.

**Livkina, E. G.** Soap as a bactericidal agent, 7126*f*

**Li Voti, P.** Influence of methylthiouracil on the adrenals, 5869*f*, see Cadili, G

— — and Mutolo, V. Diethylstilbestrol (I) toxic reactions, 5491*i*, (III) action on adrenal glands, 4455*i*

**Livshic.** See Livshits

**Livshits, D. A.** See Gerchuk, M. P.

**Livshits, G. L.** Steel for dies, 88*a*

**Livshits, I. I.**, Lykhina, E. T., and Erenburg, G. S. Retention of aerosols in respiration, 5434*a*

**Livshits, R. S.**, Agul'nik, Yu. M., and Preobrazhenskii, N. A. Isoquinoline compds. quaternary derivs. of hydrocotarnine, 2212*i*

**Livšic, Liwchitz.** See Livshits.

**Liwerant, J.** Nutrition of the peach tree (III) variations in the chem. development of flower buds, 8457*h*

**Liwschitz.** See Livshits

**Ljalikov.** See Lyalikov

**Ljaśćenko, W. D.** See Lyashchenko, V. D.

**Ljashenko, S. W.** See Lyashenko, S. V.

**Ljubimow.** See Lyubimov

**Ljubomudrow, W. N.** See Lyubomudrov, V. N.

**Ljungberg, E.** Behavior of the blood glutathione, esp. during insulin shock therapy, 2330*b*

**Llamas, R.** Urinary elimination and use of thiamine, 8467*i*

**Llarena Chave, J. L.** Adsorption of color on textile fibers, 2777*b*

**Lleras, H. P.** See Parra Lleras, H.

**Lleras Codazzi, R.** Geol. regions of Columbia, 8994*a*

**Llewellyn, D. R.** See Dostrovsky, I.

**Llewellyn, F. J.**, and Whitmore, F. E. Crystal structure of *s*-bismtrammoethane, 2839*i*

**Llopis, J.** See Rius, A.

**Llorca, F.** See Candela, J. L. R.

**Llorente, T. A.** See Albiñana Llorente, T.

**Lloyd, A.** See Goodlass Wall & Lead Industries Ltd.

**Lloyd, D. J.** Chemistry of the skin proteins, 1203*f*, curing and soaking of hides and skins, 1203*g*, deliming and bating, 1203*g*

— — and Balfe, M. P. Chem. basis of tanning, 1204*e*

— — and Garrod, M. Structure of protein fibers—thermal shrinkage of the collagen fiber, 468*b*

— —, Humphreys, F. E., and Paukhurst, K. G. A. Effect of cure on the ease of soaking of dry-salted goatskins and the appearance of greasiness on glace kid, 7736*f*.

**Lloyd, D. M. G.** See Read, J. H.

**Lloyd, D. P. C.**, and McIntyre, A. K. Bio elec. potentials in the nervous system and muscle, 5838*g*.

**Lloyd, E.** See Schales, O.

**Lloyd, G. P.** See Benford, F.

**Lloyd, H.** Optical methods for examn. of metals, 7880*g*.

**Lloyd, Hazel.** See Havens, W. P., Jr.

**Lloyd, L. E.** See Crampton, E. W.

**Lloyd, M. D.**, Reed, C. A., and Fritz, J. C. High-protein diets, 8465*e*.

**Lloyd, N. C.** Insecticidal control of potato moth, 3964*i*.

**Lloyd, P. E.** See Adams, R. V.; Rau, R. R.

— —, Rau, R. R., Anderson, C. D., and Adams, R. V. Electron showers at 30,000-ft. elevation, 4093*i*.

**Lloyd, R. B.** MgO, P 7202*h*.

**Lloyd, S. J.**, and Cleere, M. C. Org. U compd., 1717*h*.

**Lloyd, T. B.**, Lauver, M. R., and Hovorka, F. Effect of ionic addn. agents on the polarization of electrodeposition of Cu, 950*e*.

**Lloyd, T. E.**, and Kopecki, E. S. Cold extrusion of steel, 7882*h*.

**Lloyd, W. R.** See Ruiz Munguia, R.

— — and Schafer, G. H. Solvent extn. in dry milling of corn, P 2710*e*.

**Llusiá, J. B.** See Botella Llusiá, J.

**Loach, B. G.** See Mullett, L. B.

**Loach, O. C. de.** See De Loach, O. C.

**Loasby, G.** Nylon yarn and its properties, 6829*f*

**Lobato Guimarães, J.** Action of quinine and quinidine on the min. vol. of the heart influence of Ca, 3108*b*.

**Lobay, W.** See McElroy, L. W.

**Lobene, R.** See Flagg, J. F.

**Lobitz, W. C.**, and Mason, H. L. Chemistry of palmar sweat (VI) uric acid, 738*c*, (VII) Cl, urea, glucose, uric acid, ammonia N, and creatinine, 8481*h*

**Lobosco, R. R.** Coating work with an electron-emissive material to improve inert gas shielded refractory-electrode a.-c. arc welding, P 6566*c*, inert gas arc welding, P 6967*b*

**Locatelli, P.** Oxidized glutathione in tissue, 739*d*.

**Lochet, R.**, and Clastre, J. Monochromator with catadioptric objective of large aperture for obtaining Raman spectra of cryst. powders, 7346*d*

**Lochhead, A. G.** See Wallace, R. H.

**Lochner, K. H.** See Brintzinger, H.

**Lock, G.**, and Gergely, G. Steric influences on cyclization reactions, 3815*i*

**Lock, J. A.** See Goodson, J. A.

**Lock, R. H.** See Howards & Sons Ltd.

— — and Adcock, L. H. Acyloxy carboxylic acids and salts thereof, P 6224*a*

— — and Heap, R. Acyloxy carboxylic acids, P 6761

**Locke, C.** Factors controlling slag vol., 1267*g*.

**Locke, J. L.** See Crawford, M. F., Welsh, H. L.

**Lockemann, G.** Robert Wilhelm Bunsen, 7761*a*

— and Kugler, H. Nitrobenzoyl compds. and processes in their reduction (III) reduction processes in nitrobenzoyl compds. of tolylhydrazines and toluidines, 1343*i*.

— and Rein, H. Nitrobenzoyl compds. and processes in their reduction (IV) reduction processes in the nitrobenzoyl compds. of benzylidenephenylhydrazines, 1344*i*.

— — and Wittholz, W. Nitrobenzoyl compds. and processes in their reduction (V) reduction processes in nitrobenzoyl compds. of naphthylhydrazines and naphthylamines, 1346*a*.

**Lockenvitz, A. E.** See Morris, F. J.; Schmitt, R. W.

**Lockett, M. F.** Isolation of bases from urine concentrates, 7070*h*

**Lockhart, R. W.**, and Martinelli, R. C. Correlation of data for isothermal two-phase, two component flow in pipes, 2046*a*

**Lockheed Aircraft Corp.** Cementing methyl methacrylate plastics, P 2466*i*, polysulfide sealing compds., P 4508*fh*.

**Lockie, L. D.**, and Sprowls, J. B. Diffusion of I and sulfathiazole from ointments, 8609*g*

**Lockwood, J. A.** See Schultz, H. L.

**Lockwood, L. B.** Pentonic acids from pentoses, P 3972*i*

— — and Moyer, A. J. Itaconic acid, P 4424*c*.

**Lockwood, W. H.** See Detrick, S. R.

**Locqueneux, R.** See Cuer, P.

**Locquin, M.** Bacteriologically pure cultures of myxomycetes, 7085*h*; definition of the genus *Coprinus*, 917— terminology of antibiotics, 9385*g*.

**Loden, H. D.**, and Lund, H. O. Chlorinated camphene and parathion to control the cotton boll weevil and cotton aphid, 2729*h*.

**Loder, D. J.** Isocyanates of hydrolyzed ethylene vinyl ester interpolymers, P 1219*e*; 2-imidazolidone, P 7513*e*; see Gray, A. G.

**Lodge, F.** See Coffey, S.; Imperial Chemical Industries Ltd.

**Lodge, F. S.** World N shortage, 1125*c*.

**Lodone, G.** See Giordano, A.

**Loe, J. B.** See Condon, M. Z.

**Loe, L. Y. S.** See Harris, R. S.

**Loeb, C.**, Chabert, J., Banderet, A., and Meybeck, J. Detn. of chloride in the presence of alkali hypochlorite, chlorite and chlorate, 3316*c*.

**Loeb, C. M., Jr.** See Archer, R. S.

**Loeb, E. N.**, Knowlton, A. I., Stoerk, H. C., and Seegal, B. C. Pregnant rat injected with nephrotoxic rabbit anti-rat placenta serum and desoxycorticosterone acetate, 3517*c*.

**Loeb, L. B.** Analysis of the mechanisms of pos. and neg. coronas in air, 1255*c*; see English, W. N.

**Loebenstein, W. V.** Quant. prediction of the combustion of C adsorbents, 8648*f*.

— —, Gleysteen, L. F., and Deitz, V. R. Kinetic study of the reaction of C adsorbents with O, 4546*h*.

— — and Pennington, N. L. Reaction of O with C adsorbents, 8839*g*.

**Löffler, I.** See Fricke, R.

**Loeffler, M. C.**, and Moore, W. J. Dissocn. pressures of some org. hydrates, 2082*f*

**Loeffler, O. H.** See Gibson, R. E.

**Löfgren, N.** Local anesthetics (I), 1021*e*; isolation of plant alkaloids, 2736*c*, sepn. of *m*-xylene from crude xylene, 2066*f*; Centaur X and Centaur Y two unknown substances in *Centaurea* species, 7094*d*; see Lundqvist, B.

— — and Fischer, I. Local anesthetics (III) minimum of alkaloids and synthetic org. bases as a pharmacodynamic group, 1023*a*.

— — and Lundqvist, B. Local anesthetics (II), 1022*d*

— —, Takman, B., and Hedström, H. Antibiotic from *Agaricus* (*Clitocybe*) *nebularis* active against mycobacteria, 7517*c*

— — and Widmark, G. Local anesthetics (IV), 1024*f*

**Löfgren, O.** See Olsson, O.

**Löhberg, K.** Crystal formation in binary alloys, 4619*d*, cast Zn alloy, 7880*f*

**Löhnis, M. P.** Action of Mn on the development of *Aspergillus niger*, 1827*f*; Microorganismen in het dagelijks leven (book), 8008*g*

**Loenen, W. F. van.** See Van Loenen, W. F.

**Loening, E. E.** See Gresham, D. C., Kodak Ltd.

**Lööv, U.** See Euler, H. v.

**Løschbrandt, F.** See Klem, G. G.

**Loeschcke, G.**, and Loeschcke, H. H. Exchange of lactic acid between arterial blood and brain tissue and changes in the lack of O, 7111*g*

**Loeschcke, H. H.** See Doring, G.; Heerhaber, L.; Loeschcke, G.

**Loesecke, H. v.** See Von Loesecke, H. W.

**Loeser, A.** 1,3-Butylene glycol, 8558*b*; see Bickenbach, W.; Bornmann, G.; Fischer, Lena; Kleinsorg, H.; Kopf, R.

**Lötzbeyer, E.** See Diemair, W.

**Loeuille, E.** Exponent of the no. of atoms in the expression for the intensity of emission of a spectral line, 8272*d*.

**Loeve, N. F.** See Leve, N. F.

**Løvens Kemiske Fabrik** ved **A. Kongsted.** Estradiol mixts., P 365*e*, monoglucosides of dihydroxy derivs. of polyhydrocyclopentaphenanthrenes, P 1533*a*; esterifying steroid diols and triols, P 1533*d*, 2-methylimidazolines, P 2238*e*; glycosides of polyhydrocyclopentaphenanthrenes, P 2376*h*; 4,4′-dihydroxy-3,3′-diaminoarsenobenzene and its formaldehydesulfoxylate, P 6231*i*, esters of diols and triols of polyhydrocyclopentaphenanthrenes, P 6247*b*.

**Löw, B.** See Edman, P.

**Loew, E. R.** See Stone, C. A.

— — and Micetich, A. Adrenergic blocking drugs (I) comparisons of effectiveness in decreasing adrenaline toxicity, 311*a*; (II) antagonism of histamine and adrenaline with *N*-(2-haloalkyl)-1-naphthylmethylamine derivs., 2319*i*; (IV) antagonism of adrenaline and histamine with 2-(2-biphenyloxy)-2′-chlorodiethylamine derivs., 6309*a*.

**Loew, G.** Deacidification of olive oil by alc., 5208*f*.

**Löw, I.** See Kuhn, R.; Wieland, T.

**Loewe, L.** See Arndt, F.

**Loewe, N. F.** See Leve, N. F.

**Loewe, S.** Laxative activity of triphenyl methane derivs. (I) relation between structure and activity of phenolphthalein congeners, 2319*c*; see Adams, R.

**Löwenbach, P.** Procedure to free the cell of fermentable material, P 3143*f*.

**Löwenthal, H. L.** See Leupold-Löwenthal, H.

**Loewi, O.** Antagonism between pressor and depressor agents in the heart, 8056*e*.

**Lofgreen, G.** See Nelson, Walter L.
**Lofgren, E. J.** See Bradt, H. L.; Freier, P.
———, Ney, E. P., and Oppenheimer, F. App. for cloud-chamber investigations with free balloons, 3281*f*.
**Loftfield, R. B.** See Zamecnik, P. C.
**Logan, C. A.** Limestone in Calif., 2901*h*; mines and mineral resources of Tuolumne County, Calif., 3750*a*.
**Logan, H. L.**, and Hessing, H. Stress corrosion tests on high strength Al alloy sheet, 98*c*
**Logan, M. A.** See Byers, S. O.
**Logan, R. P.**, and LeVine, R. Y. Lime treatment of cranberry packing wastes, 1508*e*
**Logan, T. S.** Presentation of acids and bases in textbooks, 3251*g*.
**Logemann, H.** Emulsion polymerization of butadiene at lower temps., 4505*h*.
—— and Becker, W. Activation of butadiene in emulsion polymerization, 7253*a*.
**Loginov, A. G.** See Vyatkin, V. V.
**Logozzo, A. W.** Plating of bright Ni and decorative Cr without reracking, 6923*e*
**LoGrippo, G. A.**, Earle, D. P., Jr., Brodie, B. B., Graef, I. P., Bowman, R. L., and Ward, R. Lack of effect of Na phenosulfazole on virus infections, 5496*g*
**Logue, L. H.** Gravity settling app., P 3250*g*
**Lohausen, K. A.** Infrared drying of lacquers, 9481*f*.
**Lohman, S. W.** See Williams, C. C.
**Lohmann, K.** Physiologischchemischen Praktikum (book), 7990*i*.
**Lohn, R. N.**, and Nevitt, H. G. Seal coating, 5920*h*.
**Lohnes, K.** See Kohlschutter, H. W.
**Lohr, I. O.** See Ochsenfeld Lohr, I.
**Lohr, J. M.** Elec. resistance element, P 2878*g*
**Lohrisch, F. W.**, and Bureau, A. C. Production and application of coal water gas, 2405*c*
**Lohse, F.** Mg furnace feed, P 7838*c*
**Loibl, K.** See Harrer, G.
**Loiselear, J. E. J.** See Holereck, F. H. L.
**Loiseleur, J.**, and Walen, R. J. Helicoidal reflection for observation of electrophoretic displacement of proteins, 2487*c*
——, *et al.* Techniques de biochimie (book), 6273*b*.
**Loisil, L.** Substitutes for wheat flour being used in Morocco, 4391*g*.
**Loisy, E. A.** See Beja, M.
**Lokar, M.** See Weber, K.
**Loker, F. F.** See Wise, W. D.
**Lokre, R. J.** O capacity of blood detd. by Cu sulfate method, 7984*h*.
**Lolkema, J.** Ethers and esters of carbohydrates, P 2456*e*, see Möller, F. A.
—— and Meer, W. A. van der. Molding powders contg. starch, P 1611*a*.
**Lollar, R. M.** See Buechler, P. R., Gapuz, D. B.; Lipsitz, P.
—— and O'Flaherty, F. Polarography as a tool for leather chemists, 4037*h*
**Lomako, P. F.** Soviet nonferrous metallurgy, 2140*i*.
**Lomas, H.** Nature of wetting and dispersion, 1196*c*; surface-active agents in aq. and nonaq. media, 5213*g*.
**Lomas, J.** Refractories, 7655*g*.
**Lomasney, E. P.** Detn. of a sludge index for engine oils, P 1179*c*.
**Lomax, J.** Textile Testing (book), 9458*e*.
**Lomax, K. L.** See Clegg, L. F. L.
**Lombard, L.** See Morgan, B. B.
**Lombard, R.** Prepn. and properties of resinic esters, 2447*e*; speed of isomerization of levopimaric and dextrosapinic acids in abietic acid under the influence of HCl, 3809*e*.
—— and Frey, J. M. Prepn. and properties of pure abietic acid, 5768*c*.
**Lo Monaco Croce, T.** Elementi di Fisiologia e Patologia dell'uomo in volo (book), 6683*b*.
**Londergan, T. E.** Halogenated alcs. and formals, P 3835*g*.
**London, F.** Mol. theory of supercond., 12*g*, rare isotope of He, $He^2$—key to the strange properties of ordinary liquid He, $He^4$, 6878*i*.
—— and Zilsel, P. R. Heat transfer in liquid He II by internal convection, 1620*d*.
**London, I. M.**, Shemin, D., West, R., and Rittenberg, D. Heme synthesis and red blood cell dynamics in normal humans and in subjects with polycythemia vera, sickle-cell anemia, and pernicious anemia, 6723*g*.
**Lone Star Steel Co.** Sepn. of magnetic and nonmagnetic materials, P 6011*d*.
**Long, A. B. Y.** See Yorke-Long, A. B.
**Long, A. O.** See Hensley, J. W.
**Long, B.** Tech. progress of the glass industry, 1539*c*.
**Long, C. J.** See Johnson, C. W.
**Long, C. N. H.** Adrenal gland, a regulatory factor, 4710*g*.
**Long, E. A.**, and Meyer, L. Anomalous adsorption of He at liquid He temps., 8777*i*.
**Long, E. G.** Equation for optimum pipe size with viscous flow, 3668*g*, see Kobe, K. A.
**Long, E. R.** See Koerner, T. A.
**Long, F. J.** See Gadsby, J.
—— and Sykes, K. W. Steam-C reaction, 3694*e*
**Long, G. W.** See Lowe, S. P.
**Long, H. K. de.** See De Long, H. K.
**Long, J. A.** See Anderson, Evelyn.
**Long, J. D.** Extractive distn. of butanes and butenes with acetone solvent, P 913*i*.
—— and Rhys, C. O., Jr. Tower for countercurrent contact of gaseous hydrocarbons with water, P 3023*a*.
**Long, J. R.** Sintered and worked Ti-Ni alloys, 3766*b*; see Graham, T. R.
——, Graham, T. R., and Roberson, A. H. Fe-Mn alloys—properties of cold-worked and normalized alloys contg. 26 to 48% Mn, 8338*c*
——, Hayes, E. T., Root, D. C., and Armantrout, C. E. Tentative Ti-Ni diagram, 3766*b*.
**Long, John R.** See Clifford, A. M.
**Long, L., Jr.** Sugar and sugar by-products in the plastics industry, 3653*g*
**Long, L. H.** Definitions of bond-energy in phys. chemistry, 10*c*, vapor pressure and heat of sublimation of graphite, 457*c*.
—— and Norrish, R. G. W. Strengths of covalent metal bonds, 5242*b*
**Long, Leighton M.** Smelting and refining nonferrous scrap, P 4209*d*.
**Long, Loren M.** 1-Allyl-5-phenylhydantoin, P 4818*b*; see Troutman, H. D., Truitt, P.
——, Miller, C. A., and Chen, G. Prepn. of 1-R-5-(2-thienyl)hydantoins, 3426*e*
**Long, M. D. C.** See White, Lawrence M.
**Long, N. B.** See Boon Long, N.
**Long, P. H.** Polymyxin, chloromycetin, and aureomycin, 5551*g*
——, Schoenbach, E. B., Bliss, E. A., Bryer, M. S., and Chandler, C. A. Use of polymixin, chloromycetin, and aureomycin, 4766*h*
**Long, R.** See Roberts, A. L.
**Long, R. A.**, Ross, O. B., MacVicar, R. W., and Deewall, O. Effect of breed, age, and season on the level of blood constituents of beef cattle, 6711*f*
**Long, R. H.** Demonstrations for general chemistry, 8220*d*
**Long, R. S.** See Lecher, H. Z.
**Long, S. G.** See Reed, R. F., Ltd.
**Long, W. A. de.** See DeLong, W. A.
**Long, W. B. de.** See DeLong, W. B.
**Longchambon, J. F.** See Longchambon, L. J. M.
**Longchambon, L. J. M.**, and Longchambon, J. F. Detergent, P 4877*i*.
**Longchamp, M. H. de.** See Franke, I.
**Longchamp, R.**, and Gautheret, R. J. Destruction of weeds in fields of grain by means of growth-regulating agents, 9351*e*.
**Longcope, W. T.** See Goldston, M.
—— and Luetscher, J. A., Jr. British anti-Lewisite (BAL) in treatment of poisoning by As, Hg, and other metals, 8408*a*.
**Longe, K. A. de.** See DeLonge, K. A.
**Longenecker, L. S.** Regenerative glass melting tank furnace, P 3587*a*.
**Longenecker, W. H.** See Smith, Maurice I.
**Longfellow, D.**, Cary, S. G., and Kuhn, L. R. Maxted's streptomyces filtrate for extg. carbohydrates from hemolytic streptococci, 9155*b*.
**Longini, R. L.** Outgassing photocells contg. Sb, P 1666*e*; effect of atm. on the outgassing and evapn. rates of Sb, 4066*h*; optical characteristics of sheets of scattering materials, 7783*d*.
**Longino, F. H.**, Chittum, J. R., and Grimson, K. S. Effects of a quaternary base capable of blocking functions of the autonomic nervous system, 5496*e*.
**Longley, K. D.** Derivs. of parabanic acid, P 4024*a*.
**Longley, R. I., Jr.** See Emerson, W. S.
**Longmire, C. L.** Virtual excited state of the $Be^9$ nucleus, 1646*f*; simultaneous $\beta$-$\gamma$ emission from nuclei, 3280*c*; see Bethe, H. A.
—— and Brown, H. Screening and relativistic effects on $\beta$-spectra, 3280*f*.
——, Wu, C. S., and Townes, C. H. Spin and $\beta$ spectrum of $Cl^{38}$, 8870*d*.
**Longmuir, N. M.** See Crane, E. E.; Davies, R. E.
**Longo, G.** Action of the aq. ext. of *Lupinus albus* on the movements of the isolated uterus, 8532*c*
**Longo, L.** Application of stain removers in nonaq. solns., 3542*h*.
**Longo, O. W.** See Alves Ferreira, B.
**Longo, V.**, and Sorrentino, F. Cholinesterase activity of blood serum compared to arterious pressure, 1074*b*
**Longsworth, L. G.**, and Jacobsen, C. F. Electrophoretic study of the binding of salt ions by $\beta$-lactoglobulin and bovine serum albumin, 3860*h*.
**Longuet-Escard, Mme. J.** Reaction in the solid state at low temps., in the presence of water, 6531*j*; see Forestier, H.
**Longuet-Higgins, H. C.** Excited electron levels in conjugated mols. (II) symmetry and multiplicity of electronic states, 3713*c*, electronic structure of thiophene and related mols., 5392*c*, see Coulson, C. A., Price, W. C.
**Longwell, B. B.** See Holtkamp, D. E., Sinden, J. A.
**Longwell, J. E.** Carbides in powder metallurgy, 2142*e*
**Lonsdale, K.** Indexing of Laue photographs of cubic crystals, 1261*h*, Crystals and X Rays (book), 4582*b*, extinction in x-ray crystallography, 4918*h*, neutron diffraction by crystals, 7809*e*
**Lontz, J. F.** Plant nutritive compn. consisting of 2,4-dichlorophenoxyacetic acid or its salts, P 7187*c*
**Lonza Electrical and Chemical Works A.-G.** See Lonza Elektrizitätswerke und chemische Fabriken A.-G.
**Lonza Elektrizitätswerke und chemische Fabriken A.-G.** (*Patents*) $\alpha$-Acetoxypropionitrile 5035*g*, $C_2H_5$ from carbide 916*a*, acrylic acid esters, homologs, and substitution products, 5030*a*, adhesives, 4517*d*, alc. motor fuel, 4446*f*, ammonium sulfate 3575*e*, antifreeze, 8070*h*, artificial wood with single threads of various fineness 2785*d*, calcination of carbonate rock 8110*f*; CaCN$_2$ crystals, 4821*e*, Ca(NO$_3$)$_2$ 1821*f*, Ca nitrate solns., 4436*f*, 5556*b* cementing polyvinyl chloride layer, 4898*i*, dialkyl acetals, 5034*g*, dimeric crotonic acid esters, 5792*g*, emulsion polymerization of vinyl compds., 4895*e* 6465*h*; ethylidene dichloride, 5410*h*, $C_2H_4$ from $C_2H_2$, 5030*b*, $C_2H_4$ and ketene prepn., 6643*e*, formed structures and recovery, 4898*f*, formic acid, 1443*d*, 3020*a*, granular nitrophosphates, 5160*g*, 7176*b*, isolation of ales from hydration of olefin 5410*g*; methacrylamide, 6726*b*, mixed fertilizers, 3132*dg*, 7176*e*, mixts. of resins with plasticizers, 3656*e*, molding plastic 5229*f*, motor fuels contg. stabilized paraldehyde, 8130*b*; nitrophosphate of low water content, 6374*h*; nonflammable plastic, 4895*d*; org. compds. from $C_2H_2$ 6643*g*; pentaerythritol, 2224*a*; powd. and granular phosphate fertilizer, 3132*e* producing a strongly crimped textile filament in one operation, 9474*g*; staple yarn from continuous rayon filaments, 9471*e*; superphosphate, 2356*a*; thickening emulsions, 4898*k*, thickening solns., 4898*k* vinyl chloride, 6644*i*; vinyl chloride contg. artificial substances, 4898*c*; vinyl chloride isolation, 4898*a*; vinyl compds., 6643*e* vinyl esters, 4288*h*, 5036*b*, 6651*b*; ZnO catalysts, 6338*d*.
**Lonza (Usines électriques & chimiques) Soc. anon.** See Lonza Elektrizitätswerke und chemische Fabriken A.-G.
**Loo, K. J. van de.** Al (book), 2919*g*.
**Loo, M. van.** See Van Loo, M.
**Looby, J. P.**, and Kirby, C. K. Use of hyaluronidase with local anesthetic agents in dentistry, 7139*f*
**Loofbourow, D. G.**, Galbraith, A. L., and Palmer, R. S. Effect of the rice diet on the level of the blood pressure in essential hypertension, 8476*g*.
**Loofbourow, J. R.** See Harrison, G. R.
**Loojnaia, N. P.** See Luzhnaya, N. P.
**Look, A. T.** Saran—raw materials, production methods, and textile uses, 5953*g*.
**Loomans, J.**, and Lerberghe, K. van. Ethyl silicate paints, 8695*d*.
**Loomis, E. C.**, Ryder, A., and George, C. B. Fibrinolysin and antifibrinolysin—biochem. concn. of antifibrinolysin, 8409*f*

**Loomis, E. J.** See Donaldson, J. A.
**Loomis, T. A.** Response of the duodenum to morphine, 761*f*; antithrombin and heparin in human blood, 7121*h*.
**Loomis, W. E.** See Bennett, Norah; Franck, J.; Peterson, M. L.; Staniforth, D. W.
**Loomis, W. F.**, and Lipmann, F Inhibition of phosphorylation by azide in kidney homogenate, 7979*a*.
**Loon, J. van.** Analysis of Bremen green (II), 5605*a*.
**Loon, M. van.** Lubricant, P 8131*e*
**Loon, W. van.** See Krevelen, D. W. van.
**Loonam, A. C.** Mg-Li alloys, P 1307*h*; see Jackson, J. H.
**Loop, W.** See Tschesche, R.
**Loorje.** See Lur'e.
**Loos, R.** See Ruyssen, R.
**Loose, G.** Manufg. steel, 9007*c*
**Loose, W. S.** Mg industry, 6335*b*.
**Looser, E.** Sintered carbides for tools and working implements, P 2923*a*
**Loosjes, R.** Coated cathode for elec. discharge tubes, P 2104*g*; see Veenemans, C F
—— and Vink, H J Alk earth metal oxide cathode fo . . . disch . . . tube , . 4151*c*, electron emission and conduction mechanism of oxide-coated cathodes, 8856*i*
**Loosjnaja, N. P.** See Luzhnaya, N P
**Loosli, C. G.** See Beadenkopf, W G
**Loosli, J. K.** See Gall, L. S., Krukovsky, V N ; Nelson, Walter L ; Whiting, F ; Willman, J. P.
—, Williams, H. H , Thomas, W E , Ferris, F. H , and Maynard, L. A. Synthesis of amino acids in the rumen, 8474*i*
**Lopashov, G. V.** Self-oriented evolution of cell systems, 8414*g*
**Lopatin, K. I.** See Pavlov, K F
**Lopes, J. L.** See Leite Lopes, J
**Lopes, M. B. S. R.** See Marques Leal, A.
**Lopetegui A., M.** See Honorato C , R
**López, A. C.** See Caballero López, A
**López, A. I.** See Inclán López, A
**López, F. B.** See Barquin López, F
**Lopez, G. G** See Garcia Lopez, G
**López, H.** See Bruzzone, S
**López, J. L.** See López López, J
**López, J. P.** See Perez López, J.
**Lopez, R. C.** See Casares Lopez, R
**López-Botet, E.**, and Ruperez Pérez, J A Antihistamines and pruritis, 1486*a*
**López Candal, J. G. de.** See Asenjo, C F
**López Capont, F.** Swelling and corrosion in canned fish, 1498*d*.
**López de Azcona, J. M.** Radioactivity and at energy, 3285*g*; geophys interpretation of the isotopic values of the common leads, 8322*a*, β-radioactivity in the first group in the periodic table, 8268*b*; see Dean Guelbenzu, M , Santos, R. A.
and Camuñas Puig, A Variations in the intensity of spectrum lines emitted by alloy electrodes during heat treatment, 5694*e*.
**Lopez de Ines, V.** See Iranzo Rubio, V
**Lopez García, A.**, and Zelasco, J. F. Index of hepatic function, 301*g*
**López Gómez, P.**, and Herrán Riva, L. Purification of water with Cl, 3121*f*.
**López Gracia, D. R.** See Recalde Lacu, D. S.
**López López, J.** See Comenge, M.
**Lopez Lorenzo, P.** Action of alloxan on the glycogen reserves of the liver, heart, and muscles, 8537*f*.
**López Madrazo, M. A.** Local anesthetics, 3524*d*.
**López-Rubio, F. B.** See Blasco López-Rubio, F.
**Lopez Toca, R.** See Spies, T. D.
**Lopoukhin, V.** See Lopukhin, V. M.
**Lopukhin, V. M.**, and Ugarov, V. A. Artificial production of mesons, 7809*d*.
**Lorain, S. H.**, and Hundhausen, R. J Minah Pb-Ag mine, Jefferson County, Mont., 73*i*.
**Lorain Products Corp.** Se rectifier, P 2526*a*.
**Lorand, E. J.** Sepn. of polyhydric alcs., P 3839*g*, see Bishop, W. T
**Lóránd, L.** Soly. of fibrin clots in urea, 9096*e*; see Bagdy, D.; Mihályi, E.
**Loranger, W. F.** See Yohe, G. R.
**Lora Tamayo, M.** Electronic interpretation of org. reactions—hyperconjugation, 556*i*; addn. of maleic anhydride to anethole, 2970*c*; Angel del Campo Cerdán, 6874*i*; see González Ramos, J.
and González Ramos, J. Hydrogenation product of *o*-cyanocinnamic acid, 2189*a*.
—— and Infiesta, J. L. Conjugation of an olefinic bond with an aromatic nucleus (VI) reaction of methoxypropenylbenzene with maleic anhydride—use of polymerization inhibitors, 1757*a*.
—— and León, J. L. Condensation of 2,3 dimethyl - 1,3 - butadiene and *p* - benzoquinone, 1756*g*, conjugation of a double bond in an aromatic nucleus (XVIII) dienometry with *p*-benzoquinone, 2181*e*.
—— and Pérez A. Ossorio, R. Conjugation of a double bond with an aromatic nucleus (XIX) (phenylallyl)succinic acids, 2181*g*
**Lorber, V.** See Feil, G H.; Lifson, N ; Shreeve, W W.; Wood, H. G.
**Lord, F. T.** Spray programs on the fauna of apple orchards in Nova Scotia (II) oyster-shell scale, 7630*d*
**Lord, J. J.**, and Schein, M Creation of a "σ" meson by a highly ionizing nucleus in the cosmic radiations, 4104*d*
——, Schein, M., and Vidale, M Nuclear disintegration produced by a very high-energy α particle of the cosmic radiation, 8848*i*
**Lord, J. O.** Alloy Systems (book), 4998*b*
**Lord, K. A** Sorption of DDT and its analogs by chitin, 2254*g*; decompn. of DDT by basic substances, 3697*d*, contact toxicity of a no of DDT analogs and of four isomers of benzene hexachloride to *Macronyphoniella sanborni* and *Oryzaephilus surinamensis*, 9343*a*, effect of insecticides on the respiration of *Oryzaephilus surinamensis*—speeds of action of DDT analogs, 9342*g*, see Tattersfield, F.
—— and Johnson, C. G. Production of dermatitis by pyrethrum and attempts to produce a nonirritant ext , 3557*b*.
**Lord, R. C** See Harrison, G R
**Lordat, G. K.** See Kuhnholtz-Lordat, G
**Lorente, L.** See Arjona, E , Jimenez Díaz, C , Perianes, J.
**Lorente de Nó, R.** Physiology of acetylcholine (II) quaternary $NH_4$ ions and Na ions in nerve physiology 4753*h*, effect of certain quaternary $NH_4$ ions on frog nerve (I), (II), 8502*i*
**Lorentso, R. V.** See Avramenko, L I
**Lorenz, E.**, and Stewart, H L. Tumors of alimentary tract in mice fed carcinogenic hydrocarbons in mineral oil emulsions, 8040*c*
**Lorenz, E. P.** Undeveloped mineral reserves of the Turkish Republic, 1291*f*
**Lorenz, K.** See Epstein, E
**Lorenz, L.** See Duthie, E S.
**Lorenz, P. B.** See Parpart, A. K.
**Lorenz, W.** Prepn of 1,1-bis(4-nitrophenyl)ethanes, 4658*a*.
**Lorenzi, F. J.** See Meek, J. S.
**Lorenzo, P. L.** See Lopez Lorenzo, P.
**Lorenzo Luáces, E.** See Luáces, E I
**Lorenzo Velázquez, B.** Narcosis, 5492*e*, pharmacology of Na glycerophosphate, 6308*a*.
**Loret, M.** Improvements in equipment used in the rubber and plastic industries, 3643*e*.
**Loria, A** See Bassi, P.
**Loria, E. A.** Isothermal transformation of austenite in two alloy steels, 4992*i*.
**Loriente, E.** Same as Loriente González, E.
**Loriente González, E.** See Buscarós Ubeda, F.
**Lories, R.** See Mund, W.
**Lorig, C. H.** See Jackson, J. H
**Lorig, E. T.** Electrolytic tin-plating app., P 3209*e*.
**Lorinczy, E.**, and Nádor, K Chemistry of human saliva, 4356*f*
**Loring, H. S.** See Fairley, J. L., Jr.; Luck, J. M.; Pierce, J. G.; Ploeser, J M.
——, Ordway, G. L , and Pierce, J. G Assay for cytidine and uridine by means of a pyrimidine-deficient strain of *Neurospora*, 2074*d*
—— and Ploeser, J. M. Deamination of cytidine in acid soln. and the prepn. of uridine and cytidine by acid hydrolysis of yeast nucleic acid, 4716*h*.
**Lormeau, S.** See Audubert, R.
**Lorrain, P.** Source of electrons and its inversion as a source of ions, 3704*e*.
**Lorusso, G.** See Amati, G.; Cicconardi, A.
—— and Cicconardi, A. Potassemia in benzene poisoning treated with adrenaline, 4377*d*.
**Losana, L.** Mg alloys contg. Be, 2916*b*; existence of compds. in fused slags, 6553*a*; deoxidation of Cu by Be, 6555*c*.
**Lošcarev, L.** See Loshkarev.
**Loschkin, L. P.** See Lozhkin, L. P.
**Loseva, S. S.** See Zelikman, A. N.
**Loshin, J.** See Lerman, F.
**Loshkarev, A. G.**, and Kalevatova, V. S. Kinetics of the soln. of Cu and of Ag in $NH_4$ persulfate solns , 1245*c*
**Loshkarev, M.**, Krivtsov, A., and Kryukova, A. Chem. polarization (II) exptl. proof of existence and study of the properties of adsorption layers, 5316*c*.
—— and Kryukova, A Polarization and surface adsorption phenomena of electrodes, 503*g*; lower limiting current in the discharge of Sn ions, 1269*b*, effect of the concn. of surface-active substances on the limiting current in the cathodic deposition of Sn, 1269*e*, chem. polarization (I) cathodic deposition of metals on Hg in the presence of addns , 5315*i*
—— and Mark, I Electrolytes for Pb refining and plating (I) effect of surface-active substances on the kinetics of the cathode process and the structure of the deposit, 501*d*
, Ozero , A., and Kudryavtsev, N Disperse deposits of metals at high c d , 5674*h*.
**Loshkin, L. P.** See Lozhkin, L. P
**Losikov, V. V.**, Khalif, A L , and Aleksandrova, L. A Use of rust inhibitors in lubricating oils, 811*h*
**Loska, S. J., Jr.**, and Shellenberger, J. A Deta of the pentosans of wheat and flour and their relation to mineral matter, 4781*c*
**Loškarew.** See Loshkarev
**Loskutov, F. M.** Complex utilization of nonferrous-metal raw materials in foreign plants, 1293*c*.
**Loskutova, E. N.** See Agroskin, A A.
**Losowskij, I. M.** See Lozovskii, I M
**Lossberg, L. G. von.** See Von Lossberg, L G
**Lossewa, S. S.** See Loseva, S S.
**Lossier, H.** Self-shrinking of concretes by expansive cements, 5567*h*.
**Lossikov, V. V.** See Losikov, V. V.
**Lossing, F. P.** See Morrison, G O ; Thode, H G
**Losson, F. J., Jr.** See Bloodgood, D. E
**Loth, V.** See Guerbet, A
**Lothian, G. F.** Absorption Spectrophotometry (book), 6088*h*.
**Lothring, H.** Biology of plasmolysis, 1835.
**Lothrop, W. C.**, and Handrick, G. R. Performance and constitution of pure org explosive compds , 6416*g*.
**Lotsmanov, S. N.** Flux for welding Al, P 2923*d*.
**Lotspeich, W. D.** Insulin in the metabolism of amino acids, 6712*d*.
**Lott, F. S.**, and Backus, H C black, 2127*a*, natural gas, 2127*e*
—— and Coumbe, A T. Natural gasoline and liquefied petroleum gases, 2127*e*.
—— and Culver, I S Petroleum refineries, including cracking plants, 9423*c*.
**Lott, M. H.** See Huffman, M. N.; Stimmel, B F.
**Lott, W. A.**, Bernstein, J., and Stearn, B. Glycolamides of 2,6-diaminopyridines and derivs , P 3853*a*.
—— and Shaw, E. N Analogs of aspergillic acid (II) various antibacterial heterocyclic hydroxamic acids, 2997*g*.
——, Yale, H L., Sheehan, J. T., and Bernstein, J Derivs. of alkylene-bridged 5,6-dihydroxyquinoline, 1413*d*.
**Lott, W. L.** Mg injection in muscadine grape vines, 5091*e*.
**Lotteri, A.** See Padovani, C
**Lottermoser, A.** Kurze Einfuhrung in die Kolloidchemie (book), 5658*i*.
**Lotz, R. G. A.** See Giersberg, H.
**Loubatières, A.** Polyvinylpyrrolidone—demonstration in the depancreatized dog, 1863*f*, papillary muscle of the heart can be used to study the cardiotonic activity of digitalis substances, 2318*g*; intravenous injection of polyvinylpyrrolidone produces severe and prolonged shock, 5494*d*; cardiac action of synthetic 6-amino-2-methyl-2-heptanol, 6732*i*; cardiac action of certain heptanols and chloroheptanes related to 6-amino-2-methyl-2-heptanol, 9248*e*.
—— and Arnaud, A. Pos. inotropic and neg chronotropic actions of ouabain, 2318*h*.
**Loubman, A. M.** See Lubman, A. M.
**Loucenko, A. V.** See Lutsenko, A. V.
**Loucks, C. E.**, and Elliott, K. B. Disposal of captured chem. warfare material, 3947*g*.
**Loucks, C. M.**, and Groom, C. H Chem

cleaning of heat-exchange equipment, 913*a*, 8755*b*.
**Loucks, K. W.** See Hopkins, E. F.
**Louden, W.**, and Kelley, L. E. Paper resins, 848*f*
**Loudon, J. D.** Thomas Stewart Patterson, 7761*d*; see Buchanan, G. L.; Patterson, T. S.
**Louf, R.** See Darraspen, E
**Loughborough, W. K.** Impregnating compns. for the chem. seasoning of wood, P 1940*d*, chem seasoning—its effectiveness and present status, 4007*i*
**Loughlin, M. E.** See Phillips, T. G.
**Loughrey, J. H. C.** Vinegar, 7187*i*.
**Louis, L.** See Miller, C. D.
**Louis, L. H.** See Conn, J. W.
**Louis, M.** Continuous high-vacuum still, 1615*f*
**Louisiana State University** and **Agricultural** and **Mechanical College.** Preservation of eggs by freezing, P 6333*a*
**Loukachewitch, W. O.** See Lukashevich, V. O.
**Loukianov.** See Luk'yanov.
**Loukine, A. M.** See Lukin, A. M.
**Loukjanov.** See Luk'yanov
**Loumiet, J.** Distilling tar, P 1552*g*, centrifugal separator of oil from steam, P 7273*d*.
**Loumiet et havigne, J.** Same as Loumet, J
**Loundine.** See Lundin.
**Lounsbury, M** See Mathieu, J. P
**Lourau, M.** See Lederer, E
——— and Lederer, E Phenomena of antagonism in hematopoiesis, 5462*f*
**Lourdes Queiroga, M. de.** See Queiroga, M. de L.
**Lourie.** See also Lur'e
**Lourie, E. M.** See Seaton, D. R
**Lourjé.** See Lur'e.
**Loury, M.**, and Stora, C. Crystal habits of some long chain aliphatic esters of cholne and the nonexistence of their cryst complexes with cholesterol, 7940*a*
**Loustalot, A. J.** See Childers, N. F.; Pagan, C.
——— and Fernandez Pol, R Effect of harvesting citronella and lemongrass at three heights on yield and oil content, 8448*i*
——— and Pagan, C. Drug crops, 3975*h*
———, Pagan, C., and Winters, H. F. Cinchona chemistry—quinine and alkaloid content of different parts of the tree, 3975*g*.
———, Telford, E. A., and Cernuda, C. F. Physiological studies—acid medium favored kudzu growth, 3552*g*; mineral-deficiency symptoms induced in tropical kudzu—P fertilization beneficial to tropical kudzu in poorly drained Mucara soil—chlorosis in tropical kudzu assocd. with low K/Ca ratio—tropical kudzu increased value of grasses when grown together, 3552*h*.
———, Winters, H. F., and Childers, N. F Cinchona physiol. studies—growth and compn. of cinchona under three soil moisture levels, 3975*f*
**Loustau Gómez de Membrillera, J.** Structure of living matter, 2251*g*
**Louviere, W. H.**, and Varnau, B. H. Conventional kiln operations, 8648*h*.
**Louw, J. D.**, and Naudé, S. M Spurious counts in Geiger counters and the pretreatment of the electrodes, 8853*d*.
**Louw, P. G. J.** Cardiac glycosides, rubellin, and transvaalin, from South African species of *Urginea*, 3150*a*.
**Louyot, P.** Sel en biologie (book) 1451*b*; see Watrin, J.
**Lovati, A.**, Mura, A., Salvini, G., and Tagliaferri, G. Nuclear interactions of the particles produced in cosmic ray bursts, 7810*g*
**Love, K. S.** See Allison, F. E.
**Love, R. H.** See Bessey, O. A.
**Love, R. M.** Removing olefins from aromatic hydrocarbons, P 1558*c*.
**Love, S. K.** Water analysis, 3121*d*.
**Loveland, R. P.** Color photomicrography in the lab., 6097*h*.
———, Menihan, H. M., and Trivelli, A. P. H. Analysis of the particle-size distribution of the grains producing a photographic image, 1276*b*.
**Loveland, T. A., Jr.** Pb-plating bath, P 4963*g*.
**Loveless, A.** See Goldacre, R. J.
**Loveless, D. L.** Stainless steel, P 1307*d*, 4210*e*.
**Lovell, A. C. B.** Meteoric ionization and ionospheric abnormalities, 4560*a*.
**Lovell, C. L.** See Hilinski, F. A.; Strohmaier, A. J.
**Lovell, J. B.**, and Fuqua, M. C. Purification of halogenated hydrocarbon solvents, P 5940*h*.
**Lovell, W. G.** Knocking characteristic of hydrocarbons, 839*h*, 1554*b*, see Beatty, H. A., Frey, F. E.
———, Miller, V. A., Mulligan, M. J., and Lichtenwalner, H. K Reactive lime, P 7200*g*.
———, Mulligan, M. J., and Lichtenwalner, H. K Olefins, P 1432*e*.
**Lovelock, J. E.** Aliphatic α hydroxycarboxylic acids as air disinfectants, 4797*i*, aerial disinfection by substances vaporized at room temps., 4798*c*, estn. of chem. bactericides in low aerial concn., 4798*g*, see Dumbell, K. R.; Ladwell, O. M
——— and Raymond, W. F Airborne bacteria in a mess room, and disinfection by Lactic acid, α hydroxy α methylbutyric acid, and ultraviolet light, 4798*e*.
**Lovera, G.** See Alivertì, G
**Lovera, Giuseppe**, and Anglesio, G. Dipole moments of solvents and the absorption spectra of I solns., 7817*g*.
**Loverde, A.** Mercaptans, P 3160*d*
**Lovering, T. S.**, Sokoloff, V. P., and Morris, H. T. Heavy metals in altered rock over blind ore bodies, East Tintic district, Utah, 8989*i*.
**Lovern, J. A.** Fish oils, 8179*b*; chemistry of the lipides, 9123*a*.
**Loving, W.** C black, P 3178*a*
**Lovino, M.**, and Lecco, V. Antihistaminic action of vitamin B$_1$, 4352*g*, antianaphylactic action of vitamin B$_1$, 4352*h*
**Lovisato, L.** Modification in the technique and reading of the Takata Ara reaction, 1075*c*
**Low, B. W. R.** See Rogers Low, B. W.
**Low, F.** Ground state of the deuteron, 3279*d*
**Low, F. S.** Recovery of Cl from HCl, P 4964*h*, Cl cell, P 6926*d*
**Low, J. A.** See Hindley, N. C.; Roche Products Ltd
**Low, J. R., Jr.** See Schwartzbart, H
**Low, P. F.**, and Black, C. A Phosphate-induced decompn. of kaolinite, 1511*i*
**Low, S.** See Malcolm, V. T.
**Low, W.**, and Townes, C. H. $O^{17}$ and $S^{33}$ in the rotational spectrum of OCS, 4141*c*
**Lowde, R. D.** See Bacon, G. E.
**Lowdell, D. P.** Decompn. of emetine in emetine BiI$_4$, 1530*c*
**Lowden, W. P.** Impregnating compn. comprising coumarone indene resin, cetyl acetamide, and ethylcellulose, P 2033*d*.
**Lowdin, P.-O.** Étude théorique de quelques propriétés des cristaux ioniques (book), 6904*f*.
**Lowe, A. R.** See Baird, W., Cook, J. G.; Lane, E. S
——— and Imperial Chemical Industries Ltd Polyester fibers, P 7236*i*
**Lowe, B.** See Overman, A.
**Lowe, E. H.** Improved continuous extractor for detn. of theobromine in cocoa, 2709*d*.
**Lowe, R. E.** See Morgan, John D
**Lowe, S. P.**, Long, G. W., Kent, G. H., and Downes, K. W. Electrolytic production of Zn, P 5680*f*
**Lowe, Wesley G.** Gelling polyvinyl alc., P 1670*c*, polyvinyl alc coatings, P 1670*f*
——— and Tarkington, R. G Sensitized photographic cellulose ester Ag halide emulsion, P 53*d*.
**Lowe, William G.** See Daly, A. J.
**Loweke, G. P.** Evaluation of Reynolds no., 4*h*.
**Lowell, F. C.** Immunologic studies in insulin resistance (III) measurement of an insulin antagonist in the serum of an insulin-resistant patient, 5487*g*; see Ingelfinger, F. J.; Schiller, I. W.
———, Curry, J. J., and Schiller, I. W Isuprel in spontaneous and induced asthma, 2326*g*.
**Lowell, J. B.** Butadiene extn., P 7496*f*.
**Lowell, S. J.** See Gilman, L.
**Lowen, A. M.** See Bonner, T. G.
**Lowen, I. S.**, and Tralli, N. Magnetic multipole internal conversion, 4108*e*.
**Lowen, L.** Gluten compn., P 3241*h*.
**Lowenbein, A.** 7-Dehydrocholesterol and its esters, P 700*f*.
**Lowenhaupt, E.** Absence of renal lesions in rats receiving a synthetic diet low in protein, 4737*d*; splenic lymphosarcomas in rats bearing intrasplenic implants of butter yellow, 4762*b*; see Brodie, D. C.
**Lowenheim, F. A.** Electroplating of Sn, P 6527*e*; electroplaters' metals of the future, 8904*c*.
**Lowens, M.** See Villee, C. A.
**Lowenstein, B. E.** See Bruger, M.
**Lower, E. S.** Wool-grease distn. products (I), (II), 2449*d*, chemistry of phytosterols, 7645*b*; compounding lipsticks and rouges, 9365*c*.
**Lower, G. W.** See Zettlemoyer, A. C.
**Lowers, H. R.** See Blackburn, A. R.
**Lowey, F. J.** Powd.-metal friction material, 80*b*.
**Lowry, C. E.** See Stanton, G. W.
——— and Stanton, G. W Ternary polymers of vinylidene chloride and butadiene, 2017*e*
**Lowry, E. F.** Long-term deterioration in certain phosphors exposed to the low-pressure Hg arc, 5311*h*.
——— and Mager, E. L. Life and lumen maintenance of fluorescent lamps, 2877*e*.
**Lowry, E. L.** See Elster, S. K.
**Lowry, H. H.** Coke ash and coke S in the blast furnace, 3598*e*
——— and Epstein, B Breakage of coke, 7667*i*
**Lowry, M. T.** See Olson, W. J
**Lowry, O. H.** See Bessey, O. A. Burch, H. B.
**Lowry, R. A.** See Birch, S. F
**Low Temperature Carbonisation Ltd.** Refining of tar acids, P 6398*b*.
**Lowy, A.**, and Baldwin, W. E. Lab Book of Elementary Org. Chemistry (book) 4283*c*.
**Lowy, P. H.** See Borsook, H.
**Lowy, R. S** See Sprince, H
**Loy, H. W., Jr.** Detn. of riboflavin, 9137*c*
**Loy, J. W.** Catalyst chambers for cracking of hydrocarbons, P 843*h*
**Loyd, D. B.** See Patterson, M. E
**Loza, V. M.**, and Vechet, A. S Clarifying wine with bentomites, 453*e*
**Lozac'h, N.** Ethylene glycols, 6162*i*
**Lozana Hube, E.** See Salazar Mallén, M
——— and Salazar Mallén, M Critical study of penicillin detn., 7993*c*.
**Lozano, Z. N.** See Noriega Lozano, Z.
**Lozgachev, P. M.** Oil thief, P 3603*i*.
**Lozhkin, L. P.** See Polyakov, I. S.
**Lozina-Lozinskii, L. K.** Influence of salts on resistance of infusoria to cold, and uses of death by freezing, 8561*h*
**Lozinskii, L. K. L.** See Lozina-Lozinskii, L. K
**Lozinskii, M. G.** Behavior of steel in rapid heating with high-frequency currents 4616*h*
**Lozovskii, I. M.** See Sud'ya, P. A.
**Lózsa, A.** See Kiss, Á.
**Lu, C. H.**, and Chen, M. H Geology of the Tzuyao coal field, Tsingyuan, Kansu, 2902*f*, geology of the coal field between Shichishuei and Talapia, Chingtai, Kansu 2902*h*, geology of the Sung-Lu Tang coal field, Chingtai, Kansu, 2902*h*
——— and Li, S. H. Geology of the Fu Yang Kou coal field, Min-Hsien, Kansu, 2902*i*
**Lu, G.** Sparteine as a diuretic, 4763*f*.
**Lu, W. C.** See Waldo, J. F
**Luáces, E. L.** Ion-exchange resin, P 3119*f*, wrinkle coating compn., P 5206*a*; uncooked wrinkle compn. contg. elastomer and conjugated-double bonded oil, P 5972*e*.
**Lubahn, J. D.** Creep of metals, 7391*e*, simultaneous aging and deformation in metals, 9002*a*; see Carreker, R. P
**Lubatti, O. F.** See Page, A. B. P
———, Russell, J., and Porter, J. S Fumigation of agricultural products (I) fumigation chamber for onion seeds, 3139*i*
——— and Smith, B. Detn. of fumigants (X1X) sorption of MeBr by onion seed, 3962*g*; (XX) sorption of MeBr by potatoes, 3963*b*.
**Lubbock, I.** See Asiatic Petroleum Co., Ltd.
——— and Bowen, I. G. Gas turbine and its combustion problems, 1167*e*.
**Lubin, B. O.** See Lyubin, B. O.
**Lubman, A. M.** See Kiselev, V. S
**Lubri-Zol Corp.** Oiliness agent, P 845*f*; compounded lubricating oil, P 2765*b*; halogenated foots oil, P 5184*i*; oxidation of hydrocarbons to alcs., aldehydes, and ketones, P 7949*h*.
**Lubri-Zol Development Corp.** See Lubri-Zol Corp.
**Luca, Gastone de.** See De Luca, Gastone.
**Luca, Guido de.** See De Luca, Guido.

**Lucas, E. H.**, Felber, I. M., Hammer, C. L., and Sell, H. M. Effect of buffers on the growth-inhibiting property of Na 2,4-dichlorophenoxyacetate, 9174*d*.
**Lucas, G. H. W.** See Farmilo, C. G., Ferguson, J. K. W.
**Lucas, H. J.**, and Pressman, D. Principles and Practice in Org. Chemistry (book), 8397*h*.
**Lucas, P. R.** See Ramart-Lucas, P.
**Lucas, P. S.** Dairy cleaners, 3941*e*, see Brunner, J. R.
**Lucas, V. E.**, Johnson, P. H., Wakefield, L. B., and Johnson, B. L. Dilatometric measurement of mol. regularity in polymers, 8728*e*.
**Lucas, Victor E.** See Emerson, W. S.
**Lucas Gallego, J.** See Santos Ruiz, A.
**Luce, E. N.** See Marquardt, R. P.
**Luce, F.** S balance on a low-protein diet, 8022*e*.
**Luce, R. L.**, and Breejen, A. D. App. for reclaiming foundry sand, comprising a hydraulic classifier and scrubber, P 9018*e*.
**Luce, S. B.** Reducing viscosity of cellulose nitrate with morpholine, P 4853*i*.
**Luce, W. A.** See Fontana, M. G.
**Lucena Conde, F.** See Burriel, F.
**Lucentini, L.** See De Ritis, F.
**Lucia, S. P.** See Brereton, H. G.
**Lucien, H. W.**, and Mason, C. T. Prepn. and properties of some branched chain alkyl bromomethyl ethers, 2926*a*.
**Lucius, M.** Metalliferous deposits of Oesling, 1692*e*; Luxembourg minette formation and the younger Fe ore deposits, 2143*b*; explanation of the geol. map of Luxemburg, Gutland, 2550*e*.
**Luck, J. M.** See Cook, H. A.; Duggan, F. L., Griffin, A. C., Jaganmat[illegible], V.; Teresi, J. D.
—, Loring, H. [illegible] d Mackinn[illegible] Annual Review [illegible]chemistry [illegible] 1820*e*.
— and Schmit, A. S. Combination of serum albumin with org. compds. (V); expts. with hydroxy substituted aromatic acids, 4708*b*.
**Lucké, B.**, and Schlumberger, H. G. Neoplasia in cold blooded vertebrates, 6746*e*.
**Lucken, B.** Physiologie (book), 8515*e*.
**Luckner, H.** Temp. coeff. of anion exchange of erythrocytes, 9196*i*.
**Luckwill, L. C.** Estn. of growth substances based on the response of tomato ovaries to known amts. of 2-naphthoxyacetic acid; hormone content of the seed in relation to endosperm development and fruit drop in the apple, 1081*a*.
**Luco, J. V.** See Altamirano, M., Orrego, P., and Goth, F. Synaptic fatigue and chem. mediators of postganglionic fibers, 9760*b*.
— and Marcom, J. Effects of tetraethyl ammonium bromide on the parasympathetic neuroeffector system, 3929*f*.
—, Thomsen, J., and Thomsen, P. Several physiol. and pharmacol. properties of muscles from which the tendon had been cut, 7666*b*.
**Ludány, G.**, Suto Nagy, G., and Cservény, I. Effect of intravenous $CaCl_2$ injection on absorption of sugar from intestines, 5466*j*.
**Ludé, A.** See Juliard, A.
**Luder, W. F.** Contemporary acid-base theory, 451*e*.
**Ludewig, S.** See Chanutin, A.
— and Chanutin, A. Adrenal cholesterol and ascorbic acid contents after injury, 7138*a*; cholesterol studies of adrenals and plasma in partially hepatectomized and partially nephrectomized rats after injection of tris(β-chloroethyl)amine (HN3), 7580*f*.
**Ludkiewicz, A.**, Bucko, E., and Pniak, S. Slag control in the ba[illegible] open-hearth furnace process, 6134*e*.
**Ludlum, S. D.** Physiol. pathology of insanity, 9232*h*.
**Ludmila, J.** App. for coal carbonization under pressure, 1948*c*; thermal treatment of coal, 4444*i*, see Šimek, B. G.
**Ludowieg, J.** Prepn. of β-chloroalkylamines, 1005*e*.
**Ludt, R. W.**, and DeWitt, C. C. Flotation of Cu silicate from silica, 2139*g*.
**Ludtke, M.** Relation between the chem. compn. and the quality of flax fiber, 4858*d*.
**Luduefia, F. P.** See Lands, A. M.
—, Ananenko, E., Siegmund, O. H., and Miller, L. C. Comparative pharmacology of the optical isomers of arterenol, 3929*d*.
**Ludwick, M. T.**, and Murray, W. S. Indium bearing solders, P 4211*f*.
**Ludwig.** From the British to the German Pharmacopeia (V) substitute prepns. in the new Pharmacopeia, 5551*i*.
**Ludwig, E. E.** Corrosion-resistant masonry construction, 3165*i*.
**Ludwig, F. H.** Instrumentation of a kraft mill, 1181*e*.
**Ludwig, H.** Repertorium Pharmaceutischer Spezialpraparate, Sera und Impfstoffe (book), 3570*i*; see Bode, H.
**Ludwig, H. F.** See Langelier, W. F.
**Ludwig, M. I.** See Harris, P. L.
**Ludwig, N.** Sharp decrease in impact strength of Zn alloys, 7886*e*, impact bending and notched-bar impact testing of Zn alloys, 7886*g*.
**Ludwig, N. C.** Slow-setting cement, P 5920*f*, 6389*a*.
**Lübbe, H.** See Juza, R.
**Lubimowa.** See Lyubimova.
**Lübke, A.** Artificial production of fat—synthetic production of fat from coal, 6327*h*.
**Lübken, W.** Does adenosinetriphosphoric acid affect the diabetic metabolism? 2698*f*; influence of insulin on intraocular pressure and on bleb resorption time, 1106*i*; scientific basis of modern remedies (II) insulin and insulin substitutes, 5907*i*, see Mohnike, G.
**Lücke, K.**, and Masing, G. Theory of recrystn., 1697*i*.
**Luecke, R. W.** See Sarkar, B. C. R.
——, McMillen, W. N., Thorp, F., Jr., and Bonnice, J. R. Effect of vitamin $B_{12}$ concentrate on the growth of weanling pigs fed corn soybean diets, 8027*e*.
— —, Thorp, F., Jr., McMillen, W. N., and Dunne, H. W. Pantothenic acid deficiency in pigs fed diets of natural feedstuffs, 8467*f*.
**Luecke, Richard W.** See Sell, H. M.
— —, Hammer, C. L., and Sell, H. M. Effect of 2,4 dichlorophenoxyacetic acid on the content of thiamine, riboflavin, nicotinic acid, pantothenic acid, and carotene in stems and leaves of red kidney bean plants, 8021*e*.
**Lüdde, C.** Evaluation of polishing wax and shoe cream, 3219*b*.
**Lüdde, E. D.** See Ther, L.
**Lüdde, H.** See Ziegler, E.
**Lude, R.** Gewinnung von Fetten und fetten Ölen (book), 8180*g*.
**Lüder, E.** Brazing and soft soldering, 3767*g*.
**Lüderitz, O.** See Dimroth, K.
**Ludy, F.** Same as Ludy-Tenger, F.
**Ludy-Tenger, F.** Microchem. procedures from practice, 5535*c*; glycerol suppositories, 8094*c*.
**Lüers, H.** Formation of flavor substances in fermentation, 1903*e*, proteins and tannin in wort boiling, 5153*i*. Die Hefe (book), 7550*d*.
——, Diemair, W., and Gergs, W. Horse chestnuts, 1498*h*.
**Lüpfert, H.** Metallische Werkstoffe (book), 3338*h*.
**Luerssen, G. V.** See Post, C. B.
**Lüscher, E.** Ammonium sulfate, P 3575*b*.
**Luetscher, J. A., Jr.** See Longcope, W. T.
**Lüttringhaus, A.**, Konig, H. B., and Bottcher, B. Trithiones (II) constitution and new prepns., 1042*i*.
**Luff, P.** See Needham, C. E.
**Lufkin, J. E.** See Cavanaugh, R. M.
**Luft, B. D.** See Urazovskii, S. S.
**Luft, R.** See Goldberg, Leonard.
**Lugan, M.** Fortified sweet wines, 8606*g*, wine in the diet, 8476*e*.
**Lugg, J. W. H.**, and Overell, B. T. One- and two-dimensional partition chromatographic separations of org. acids on an inert sheet support, 6946*i*.
**Lugovoy, J. K.** See Natelson, S.
**Lugovtsov, M. V.**, and Sigov, A. A. Deleterious effect of Zn in the Kuznetsk plant, 2907*e*.
**Lui, C. K.** See Nagy, R.
**Lui, P.** See Sah, P. P. T.
**Luikov, A. V.** See Lykov, A. V.
**Luirink, H. L.** See Coops, J.
**Luisada-Opper, A. V.**, and Ter Horst, W. P. Recovery of protein from proteinous materials, P 333*e*.
**Luis Heredia, J.** See Heredia, J. L.
**Lukaševič, V. O.** See Lukashevich, V. O.
**Lukashevich, V. O.** Reduction of aromatic nitro compds., 7918*f*; see Krolik, L. G.
—— and Krolik, L. G. Formation of 2,2′-diaminobiphenyl in rearrangement of hydrazobenzene, 3809*i*.
—— and Kurdyumova, T. N. Rearrangement of azoxy compds., 3800*f*.
**Lukashevich-Duvanova, Yu. T.** Sulfides in C steels, 4180*h*, detn. of carbides and slag occlusions in steel, 6111*b*.
**Lukasiewicz, S. J.**, and Sachanen, A. N. Lubricants, P 9432*h*.
**Lukens, F. D. W.** See Dohan, F. C.; Wheeler, J. E.
—— and Kennedy, W. B. Lesions of the islands of Langerhans produced by a styryl quinoline deriv., 3522*a*.
**Lukens, H. C.** See Potter, F. V.
**Lukes, G. E.**, and Swann, R. C. Unsatd. ketones, P 3442*a*.
**Lukes, J.** See Simek, B. G.
**Lukeš, R.**, and Šorm, F. Electrolytic reduction of some keto acids (II), 3792*b*.
**Lukianov.** See Luk'yanov.
**Lukin, A. M.** Reactive forms of $H_2SO_4$ and its simplest derivs.—sulfonation, 171*g*.
**Lukirskii, P. I.**, and Perfilov, N. A. Effect of the elec. field on the no. of nuclear fissions observed in photographic plates, 2861*e*, mesotron-induced fission, 2861*f*.
**Lukjanow.** See Luk'yanov.
**Lukomski, H.** Use of plastic materials in quenching elec. arcs, 8734*f*.
**Lukomskii, S. M.** Heat exchange in boiling $CO_2$ in tubes under high pressure, 5*c*.
**Lukovnikov, A. F.** See Ionin, V. D.
**Luk'yanov, I. K.** Chlorination of drinking water in Kazan, 1886*h*.
**Luk'yanov, P. M.** Istoriya Khimicheskikh Promyslov i Khimicheskoi Promyshlennosti Rossii do Kontsa XIX (History of Chem. Crafts and Industry in Russia up to the 19th Century) T. I (book), 1125*h*, production of potash in Russia, 8621*h*.
**Luk'yanov, S. Yu.** Fotoelementy (Photoelements) (book), 7830*i*.
**Luley, A. H.** See Othmer, D. F.
**Lulla, B. S.** Bacterial amylases (I) effect of different forms of N on the formation of amylase in bacteria, 722*d*, (II) C as a determinant in amylase formation by *B. subtilis*, 2278*e*.
**Lum, J. C.** Application of phosphate protective coatings to nonferrous metals, P 556*e*.
**Lum, J. H.** Molding powder of phenol-AcH resin contg. Manilkara wood flour, P 9528*g*.
**Lumbroso, H.** Detn. of the polar moments of thiophene and of some ethylene carbides, 4061*f*, dipole moments of several unsatd. hydrocarbons—exptl. verification of the Starring process, 7279*g*.
**Lummer, H. D.** See Bergstermann, H.
**Lummus Co.** Catalytic conversion app. for hydrocarbons, P 388*e*, catalyst-transfer system, P 1230*b*, hydrocarbon coking, P 1952*b*, prefractionation of hydrocarbon alkylate to eliminate propane, P 2422*i*; styrene distn., P 3454*d*, halogenation of aromatic hydrocarbons, P 5799*a*, catalysis, P 6762*f*, high-vacuum distn. app., P 6874*d*.
**Lumry, R.** See Eyring, H.; Kistiakowsky, G. B.
**Lumsden, D. V.**, and Smith, F. F. Growth responses by kalanchoes to DDT and other synthetic compds., 1898*a*.
**Lumsden, E. G. S.** See Sita-Lumsden, E. G.
**Lumsden, J.** Thermodynamics of Pb-Zn alloys, 4935*b*.
——, Derham, L. J., and the National Smelting Co. Ltd. Purification of Zn, Cd, and Mg by volatilization, P 554*i*.
**Luna, S. M. de.** Extn. of kojic acid by adsorption, 6275*a*, see Gillissen, G.
**Lunaev, A. A.** Cu-base alloy, P 5000*c*.
**Lunbeck, R. J.** See Boer, J. de.
**Lund, Aage.** Biol. control and microorganisms in breweries, 353*i*.
**Lund, Alf.** Metabolism of MeOH and $HCO_2H$—excretion of MeOH and $HCO_2H$ after MeOH consumption, 2317*e*; fluorimetric detn. of adrenaline in blood (I) isolation of the fluorescent oxidation product of adrenaline, 5816*b*.
**Lund, C. G.**, and Pedersen-Bjergaard, K. Osmotic activities of Na penicillins F, G, K, and X, 6043*f*.
—, Pedersen-Bjergaard, K., and Rasmussen, E. B. Prepn. of solns. isoösmotic with blood, tears, and tissue (II), 5903*f*.
**Lund, E. W.** See Hassel, O.
**Lund, H. O.** See Loden, H. D.

**Lund, L.** Detn. of Na and K in silicate minerals and rocks, 520*i*.
**Lund, L. H.**, and Vineyard, G. H. Interparticle interference effects in the small-angle x-ray scattering from fine powders, 6030*c*.
**Lund, L. K.** See Bastiansen, O.
**Lund, W.** Agglomeration of taconite concentrate, 4611*e*.
**Lundbaek, K.** Influence of previous diet on the effect of glucose in periodic paralysis, 3919*g*.
—— and Goranson, E. S. Increased muscle phosphorylase activity, 3079*i*; effect of fasting on muscle phosphorylase activity, 6710*a*.
**Lundberg, A.** See Laget, P.
**Lundberg, A. H.** Acid Making in the Sulphite Pulp Industry (book), 4013*b*.
**Lundberg, L. A.** Anion-active resins prepd. from alkylene polyamines and hydroxy-substituted aliphatic polyhalides, P 6339*a*, removing anions from liquids, P 6339*d*, see Dudley, J. R.
—— and Dudley, J. R. Removing anions from liquids, P 6339*d*.
**Lundberg, W. O.** Oxidation of esters of linoleic acid by O, 5365*h*.
—— and Chipault, J. R. Prepn. of several fatty acid esters for film studies, 3631*a*.
——, Chipault, J. R., and Hendrickson, M. J. Mechanism of the autoxidation of Me linoleate, 3634*g*.
**Lundblad, G.** Plasmin (I) proteolytic activity of plasmin, 8415*e*.
**Lundblad, K.** Estg. the lime requirement in org. soils, 4409*a*, see Stenberg, M.
——, Svanberg, O., and Ekman, P. Availability and fixation of Cu in Swedish soils, 7615*f*.
**Lundby, A.** See Bunyan, D. E.
**Lundbye, A. E.** Ni powder, P 3733*d*.
**Lunde, M. N.** See Riedel, B. B.
**Lundegårdh, H.** Active movement of water and solutes through plant roots, 1464*b*.
**Lundell, G. E. F.**, *et al.* Report of the Committee on At. Wts., 2478*c*, 5239*g*.
**Lundgren, H. P.** Dispersion of proteins in aq. detergents, P 2785*b*.
—— and Ward, W. H. Chemistry of amino acids and proteins, 9123*b*.
**Lundgren, K. D.**, and Swensson, A. Occupational poisoning by alkyl Hg compds., 8073*d*.
**Lundgren, P.**, and Canback, T. Detn. of alkyl nitrates in pharmaceutical preps., 358*a*.
**Lundholm, L.** Effect of DFP on respiration, blood pressure, and muscular function, 4775*c*.
—— and Mohme, E. Effect of adrenaline and ergotamine on the O consumption, 4775*f*.
**Lundholm, R.** See Kabler, P.
**Lundin, H.** Amylases of barley and malt, 353*f*; see Enebo, L.
**Lundin, J.** See Lindahl, P. E.
**Lundin, N. P.** Ostwald's pycnometer, 909*b*.
**Lundquist, R. H.** See Anderson, A. E.
**Lundqvist, B.** See Borei, H.; Lofgren, N.
——, Lofgren, N., Persson, H., and Sjögren, B. Metal ions as a cause of swelling after local anesthesia in dental practice, 2702*a*.
**Lundqvist, D.** Crystal structure of SiC and its content of impurities, 2063*i*.
**Lundsted, L. G.** Hydrogenation of Na bicarbonate to Na formate, 3304*c*.
**Lung, P. H.** See Smith, F. F.
**Lunge**, Berl, d'Ans, *et al.* Metodos de análisis quimico industrial (book), 2584*i*.
**Luniak, B.** Untersuchung der Textilfasern (book), 8689*d*, Unterscheidung der Textilfasern (book), 9458*e*.
**Lunt, H. A.** Forest soils of Conn., 3955*b*.
**Lunt, P., & Co. Ltd.** and Lush, E. J. Synthetic resins, P 4894*d*.
**Lupi Nogueira, R.** Brominated and acetylated derivs. of the sulfamides, 7642*e*.
**Lur'e, S. I.** Condensation of tertiary amines with halo anhydrides of carboxylic acids (II) application of the resonance theory in the chemistry of org. compds. (II), 4240*h*.
**Lur'e, Yu. S.** Cement industry in Germany (I) general characteristics, (II) equipment, 1938*d*.
**Lur'e, Yu. Yu.** See Ginzburg, L. B.; Klyachko, Yu. A.
—— and Ginzburg, L. B. Detg. Bi, 5329*a*.
—— and Nikolaeva, Z. V. Detn. of small concns. of cyanides in the presence of interfering substances, 2547*a*.
**Lurié, Lurjé, Lurye.** See Lur'e.
**Luschinsky, H. L.**, and Singher, H. O. Identification and assay of monamine oxidase in the human placenta, 4745*g*.
**Lush, E. J.** See Lunt, P., & Co. Ltd.
**Lushbaugh, C. C.** See Green, J. W., Jr.; Tobias, J. M.
—— and Hackett, A. Infiltrating adenomatous lesion of the colon of rats ingesting motor lubricating oil (S.G.F. No. 1 oil), 8016*b*.
—— and Storer, J. B. Synergistic necrotizing action of urethan and chloroform, 7135*a*.
**Lusk, F. E.** See Sawyer, F. G.
**Lusskin, R. M.**, and Winston, L. Ultraviolet absorption spectra in the methylionone series, 8893*c*.
**Lustig, E. S. de.** See Sacerdote de Lustig, E.
**Lustig, H.** See Neuberg, C.
**Lustman, B.** Oxidation-resistant alloys, 2149*a*.
**Luten, D. B., Jr.**, and De Benedictis, A. Stabilization of cracked gasolines, P 9428*a*.
**Luteraan, P. J.**, and Langeron, M. Immersion of yeastlike fungi in solid culture media, 5827*c*.
——, Langeron, M., and Mery, J. Diverse morphol. and physiol. reactions of fungi produced by the action of O, 5076*i*.
**Luthardt, W.** "Leached" wood obtained by means of artificially cultured wood-inhabiting fungi, 8669*i*.
**Luther, G. G.**, Hartbower, C. E., and Roach, D. B. Weldability of low-alloy high-tensile steel, 6963*h*.
**Luther, H.** Analysis of mineral oils, 6398*i*, Raman spectra of monoalkylnaphthalenes, 8888*e*, relation between viscosity and d. of the hydrocarbons (I), 8775*i*; see Kröger, C.
—— and Lell, E. Application of Raman analysis in the investigation of mineral oils, 4456*b*.
**Luthy, N. G.** See Goetz Luthy, N.
**Lutjen, D.** See Brady, L.
**Lutokhin, S. N.** Influence of B on the formation of fruit on the watermelon, 6286.
**Lutsenko, A. V.** See Buvanov, N. V.
**Lutskii, A. E.** Intramol. H bond and the dipole moments of org. compds., 6020*g*.
**Luttinger, J. M.** Magnetic moments of the neutron and proton, 3703*h*, magnetic moments of the nucleons in vector meson theory, 4941*a*.
**Lutton, E. S.** See Jackson, F. L.
—— and Jackson, F. L. Polymorphism of [illegible]-70*f*.
——, Jackson, F. L., and Quimby, O. T. Polymorphism of the mixed triglycerides of palmitic and stearic acids, 570*c*.
**Luttrell, C.** See Smith, W. K.
**Luttrell, C. B.** Glazes for zircon porcelains, 9406*c*.
**Luttrell, J. R.** See Green, J. E.
**Luttringhaus, H.** Application of leuco esters of vat dyes to wool, 3621*a*.
**Lutwak, L.** See Strong, F. M.
**Lutwak-Mann, C.** See Mann, T.
**Lutz, A.** Bacillus of the genus *Mycobacterium* (I) 2 methyl-4-amino-5-aminomethylpyrimidine as a growth factor, 269*c*, 2-methyl-4-amino-5-aminomethylpyrimidine as a growth factor for a strain of timothy bacillus 2-methyl-4-amino-5-aminomethylpyrimidine as a growth factor for a strain of *Mycobacterium rubrum*, 716*a*; 2 methyl-4-amino-5-aminomethylpyrimidine as a growth factor for a strain of *B. paratuberculosis*, 1457*g*, 4331*e*, action of *p*-aminosalicylic acid on some paratuberculous bacteria, 5144*f*.
**Lutz, G.** Gewerbehygiene (book), 8074*i*; see Glemser, O.
**Lutz, G. A.**, Bearse, A. E., Leonard, J. E., and Croxton, F. C. Methylcyclopentane series (I) prepn. and reactions of methylcyclopentyl monochlorides, (II) prepn. and reactions of methylcyclopentenes, 2171*d*.
**Lutz, J. M.** Firming the canned product made from cured and stored Porto Rico sweet potatoes, 9289*h*, see Martin, W. J.
**Lutz, R. E.**, and Jordan, R. H. Ring-chain tautomerism of α-(2-hydroxyethylamino) ketones (II) ring-chain tautomerism of α-(ethylethanolamino)acetophenone, 4239*g*.
—— and Murphey, R. S. Agents causing necrosis in tumors (II) substituted amino ketones and alcs. related to 4,4′-dichlorobenzoin, 3368*i*.
**Lutzkiy, A. E.** See Lutskii, A. E.
**LuValle, J. E.** Oxidation processes (XXII) some biol. implications in autoxidation mechanism, 595*c*.
——, Glass, D. B., and Weissberger, A. Oxidation processes (XXI) autoxidation of the *p*-phenylenediamines, 594*c*.
—— and Goddard, D. R. Enzymic oxidations and reductions, 1447*e*.
**Lux, E.** Exothermic process for the extn. of metal, P 2566*f*.
**Luz, H.** Reactions in fused masses (IV) equil. alkali oxide–metaphosphate–orthophosphate, (V) solv. of Cu oxide, (VI) equil. in the system $Na_2O$–$TiO_2$, 5323*e*.
——, Cordón, J., and Frey, R. Investigations of silicate melts with the aid of $Cr^{III}/Cr^{VI}$ indicators, 5322*g*.
—— and Frey, R. Alkali nitrate melts, 5687*c*.
—— and Maltzan, J. F. v. Investigations of fluoride melts with the aid of color indicators (II), 5687*f*.
—— and Proeschel, E. Cr oxide (II), 5322*b*, investigations of fluoride melts with the aid of color indicators (I), 5687*d*.
**Luxema, Soc. anon., Sté. Holding Luxembourgeoise.** Nicotinic acid, P 3979*b*, double camphorate, P 4295*f*.
**Luyken, R.** Detn. and excretion of lactoflavin, 7100*i*, lactoflavin deficiency and bone structure, 7101*a*.
**Luyken, W.** Magnetizing roasting of Fe sandstone and Fe ores, 1209*b*.
**Luz, E.** See Heyl, D.
**Luzhnaya, N. P.** Microdisperse solid solns. in the system $NH_4Cl$–$FeCl_3$·$H_2O$, 6902*d*.
**Luzina, G. S.** See Berkovich, M. P.
**L'vov, N. A.** Electric gas analyzer for det. H in gases, P 3249*g*.
**Lwoff, A.** Hematins considered as growth factors—antihematins, 5144*d*.
——, Ionesco, H., and Gutmann, A. Metabolism of starch in a flagellate without chlorophyll and incapable of utilizing glucose, 4386*i*.
—— and Monod, J. $CO_2$ in bacterial metabolism, 9161*b*.
—— and Schaeffer, P. Decolorization of *Euglena gracilis* by streptomycin, 1388, structural analogy between streptomycin and chlorophyll, 6281*c*.
**Lwow, N. A.** See L'vov, N. A.
**Lyalikov, K. S.** Complex Ag bromide, 4971*a*.
**Lyalikov, Yu. S.** Fiziko khimicheskie Metody Analiza (book), 2548*b*.
—— and Karimuzin, V. I. Dipping solid electrode and its use in polarography, 8940*i*, application of the dipping solid electrode to the analysis of fused salts, 8947*b*.
**Lyall, J. D.** Screening and molding assembly for producing insulating blocks from slurries of mineral wool, paper pulp, and asphalt fibers, P 7900*b*.
**Lyamina, A. N.** See Grum Grzhimailo, S. V.
**Lyashchenko, V. D.**, and Sokolova, I. V. Reaction of diketene with aromatic amines, 1217*d*.
**Lyashenko, S. V.** Furnace for hardening steel products, P 6144*c*.
**Lybing, S.** See Borei, H.
**Lyden, C. J.** Gold placers of Montana, 2900*d*.
**Lydersen, D.** Analysis with solid electrodes, 8947*d*.
**Lykhina, E. T.** See Livshits, I. I.
**Lykken, L.** Photoelec. measurement of a color index of liquid petroleum products, 1553*g*, see Brooks, F. R., Parks, F. D.
—— and Rae, J., Jr. Detn. of relative color ds. of liquids, 6934*i*.
**Lykov, A. V.** Kinetics of the process of drying of colloidal capillary-porous bodies, 7272*b*.
**Lyle, A. K.** See Allen, A. G.
**Lyle, C.**, and Fortune, I. An imported fire ant (and its control), 1897*e*.
**Lyle, O.** Heavy boiling, 5613*a*.
**Lyle, R.** See Blake, J. T.
**Lyman, C. M.** See Kuiken, K. A.; Prescott, J. M.
—— and Kuiken, K. A. Amino acid compn. of meat and other foods (I) arginine, histidine, isoleucine, leucine, lysine, methionine, phenylalanine, threonine, tryptophan, and valine, 3534*e*.
—— and Prescott, J. M. Sepn. of the growth factors for *Leuconostoc citrovorum* and *Lactobacillus leichmannii* by means of electrolysis, 5084*f*.
**Lyman, C. P.** Oxygen consumption and temp. regulation of hibernating hamsters, 8563*a*.

**Lyman, E. M.** See Clark, O. H.
**Lyman, R. A.** American Pharmacy (book), 6798*c*.
**Lyman, T.** Designation of phases in alloy systems, 1704*g*.
**Lynam, C. G.**, and Weil, H. Chromatographic sepn., P 2048*f*.
**Lynam, T. R.** Mech. firing (III) application of automatic stoker firing to silica kilns, 2391*f*
——— and Nicholson, A. Estn of alumina in silica bricks and rocks, 2389*b*.
**Lynch, A. A.** Pilot-plant design and construction—organization, 1613*c*
**Lynch, A. C.** See Bechmann, R
**Lynch, C.** Ocher mining in Australia, 1196*d*, bentonite in Australia, 1292*h*.
**Lynch, C. C.** See Crowe, G. A., Jr.
**Lynch, C. S.** See Schulze, W. A.
**Lynch, E. L.** See Christensen, H. N
**Lynch, E. R.** See Kolmer, J. A
**Lynch, J. P.** See Gaensler, E. A.
**Lynch, W. F.** Acceleration and retardation of the onset of metamorphosis in two species of Bugula from the Woods Hole region, 8563*g*
**Lynd, J. Q.** Diagnosis of plant nutrient deficiencies by means of soil tests—plant tissue tests and foliar analysis, 9318*i*.
**Lynd, L. E.** See Robinson, A. D
**Lyne, J. A.** See Dake, G. E.
**Lyne, R. R.** Aq. solns. of polyvinyl acetate derivs., P 444*f*
**Lynen, Feodor**, Bayer, H., and Holzer, H. Desmotropy of oxalosuccinic acid, 6579*f*
——— and Lynen, Frieda. Biol. degradation of AcOH (IV) formation of oxalic acid by *Aspergillus niger*, 6701*f*
——— and Scherer, H. Prepn of oxalosuccinic acid and its enzymic decarboxylation, 1013*h*.
**Lynen, Frieda.** See Lynen, Feodor
**Lyness, W. I.** See Emerson, W. S
**Lynn, E. V.** Org. Chemistry (book), 1019*c*
**Lynn, J. E.**, and Fluck, L. A., Jr. Shrinkage control of textiles, P 4869*b*
**Lynn, J. M.** Sulfonamide toxicity, 3519*g*
**Lyon** See Laroche, G
**Lyon, A. L.** Hydrogeology of the Coventry district, 4793*b*
**Lyon, D. N.** See Giauque, W. F
——— and Giauque, W. F. Magnetism and the third law of thermodynamics—magnetic properties of $FeSO_4 \cdot 7H_2O$ from 1° to 20° K.—heat capacity from 1° to 310° K., 6017*g*
**Lyon, J. A. M.**, and Williams, C. F. Alkali metal alloys for cathodes of power electronic tubes, 4962*f*
**Lyon, J. P., Jr.** See Schulze, W. A
**Lyon, K. C.** Effect of rinsing on chem. durability of a container glass, 3578*i*
**Lyon, L. R.**, Feigan, R. A., Jr., and Manley, H. B. Elk Basin [Wyoming] conservation project, 8119*c*
**Lyon, W. S.** See Hudgens, J. E., Jr
**Lyons, C.** See Mayerson, H. S., Nieset, R. F., Parson, W.
**Lyons, J. V.** See Pumphrey, W. I
**Lyons, L. E.** Zn mirrors, 147*i*
**Lyons, L. R.** Hydrocarbon synthesis, P 7213*a*
**Lyons, R. H.** See Hoobler, S. W
**Lyons, W. J.** Dynamic properties of filaments, yarns, and cords at sonic frequencies, 4016*d*.
**Lyons, W. R.** See Thyberg, W. G.
**Lyophile-Cryochem Corp.** Desiccating lemon and lime juices, P 5882*b*; desiccating orange juice, P 5882*b*
**Lyra, P. M.** See Motta Lyra, P.
**Lyse, I.** Deterioration of concrete in storage tanks for refrigeration plants, 8637*c*
**Lysenko, T. D.** Science of Biology Today (book), 1074*i*
**Lythgoe, B.** Pyrimidine and purine chemistry, 7487*f*, see Davoll, J.; Holland, A.; Kenner, G. W.
**Lytle, B.** See Carter, H. E.
**Lytle, L. D.** Gray vat dyes, P 7706*f*, s Cullinan, J. F.
**Lyttle, D. A.** Dipotassium nitroacetate a powerful explosive, 4855*a*.
**Lyttleton, D. V.**, and **Traxler, R. N.** Flow properties of asphaltic emulsions, 2420*d*.
**Lyubavskii, K. V.** Influence of surface oxides on the formation of pores in welding under flux, 4623*f*
**Lyubimov, A. L.** See Azimov, S. A.; Korablev, L. N
**Lyubimov, A. P.**, Mandel'shtam, S. L., Filimonov, L. N., and Fokin, N. A. Portable stereoscope, P 3249*a*.
**Lyubimov, I. M.** See Ivanova, V
**Lyubimov, V. I.** See Roginskaya, Ts. Z.
**Lyubimova, A. V.** See Lapkin, I. I.
**Lyubimova, M. N.**, and Popova, G. M. Actin and creatine phosphopherase, 7063*c*.
**Lyubimova, T. Yu.**, and Rebinder, P. A. Increase of the hardening of metals by periodic deformation under the influence of surface-active substances, 2144*g*.
———, Rebinder, P. A., and Shreiner, L. A. Development of the zone of plastic deformation and cold working in the deformation of metals in the presence of surface active substances, 2145*c*
**Lyubin, B. O.** See Nakhmanovich, M. I
**Lyubomudrov, V. N.** B aluminate as a bond in abrasives, 6801*i*.
**Lyubov, B. Ya.** Calcn of the rate of growth of the ferrite grain in the isothermal decompn. of austenite, 86*a*.
**Lyutyi, A. I.** Electrolyzer for the production of chlorine, P 2880*g*

**Ma, C. C.** See Fink, C. G
**Ma, C. K.** Dermal elastic and collagenic tissue during epidermal carcinogenesis, 9229*h*
**Ma, R. M.** See Fontaine, T. D
——— and Fontaine, T. D. One- and two-dimensional paper-partition chromatographic app., 8747*e*
**Ma, S. T.** Relativistic formulations of the quantum theory of radiation, 4097*a*
**Maack, H. W.** See Eckman, H. A
**Maas, W. K.** See Davis, B. D
**Maass, A. R.**, Larson, F. C., and Gordon, E. S. Distribution in normal tissues of radioactive S fed as labeled methionine, 3084*i*
**Maass, E. A.**, and Johnson, M. J. Penicillin uptake by bacterial cells, 5446*i*, relations between bound penicillin and growth in *Staphylococcus aureus*, 9155*h*.
**Maass, H.** Value of processes involving hydrolyzed pectin in the milk and whey industries, 6749*a*.
——— and Noert, H. Removing protein from whey (I), 1393*e*
**Maass, O.** See Mason, S. G
**Maassen, B.** See Spruyt, J. P.
**Maassen, G.** Detn. of Pb, Sb, Fe, and Zn in bronze and red brass, 6539*a*
**McAdam, D. J., Jr.** Fracture stress of metals as affected by plastic deformation—stress system and size, 7394*e*
———, Geil, G. W., and Cromwell, F. J. Low temp. properties of 18-8 stainless steel, 5384*k*, 1700*a*
**MacAdam, D. L.** Analysis of dye mixts., 2775*f*, measurement of the influence of local adaptation on color matching, 6007*f*
**McAdams, W. H.** Developments in heat transfer, 5*e*
———, Pohlenz, J. B., and St. John, R. C. Transfer of heat and mass between air and water, 1521*d*.
**McAfee, H. D.** Inhibited acid cleans heating coils, 4905*e*
**McAlear, J. M.** Instrument applications in the sulfate mill, 1184*e*
**McAleer, W. J.** See Stone, R. W
**McAllister, J. A.** See Havens, R., Hussey, S. J
**McAllister, J. F.**, and Ruiz, F., C. Geology of W deposits in north central Chile, 4982*g*.
**McAllister, R. A.** See Tompsett, S. L
**MacAllister, R. V.**, Harmon, K. M., and Niemann, C. Hydrolysis of *N*-benzoyl-DL-tyrosylglycinamide, *N*-acetyl-L-tyrosylglycinamide, and *N*-acetyl-DL-tyrosylglycinamide by chymotrypsin, 5055*g*.
**McAllister, S. H.** Isononanes for aviation fuels, P 1957*b*; see Anderson, John, Cheney, H. A., Peters, L. M., Ross, W. W.
———, Anderson, J., and Peterson, W. H. Gasoline, P 2763*g*.
**McAllister, W. G.** Insect repellents as cosmetics, 9335*g*.
**Macallum, A. B.** Potentiation of insulin by sulfones, 5491*g*
**McAlpine, H. T.** See Browne, J. S. L
**McAlpine, R. K.** Changes in pH at the equivalence point, 2542*d*; iodometric titration of As in alk. solns., 6538*f*.
——— and Soule, B. A. Qual. Chem. Analysis (book), 2548*k*.
**McAndrews, M. G.** See Gilbert, C. M.
**McArdle, E. H.** Aromatic nitro compds. and amines, P 1561*f*.
**McArdle, J.** See Livingston, Robert.
**McArdle, M.**, Garrett, L. C., and Bemgnus, P. C. Indirect Aroclor heater for unit chem. operations, 6869*h*.
**Macarovici, C. G.**, and Macarovici, M. Combination of sulfamides with metallic salts, 3803*h*.
**Macarovici, M.** See Macarovici, C. G
**McArthur, D. S.**, and Smith, E. A. Oxidation of *trans*-decahydronaphthalene, 5389*b*
**McArthur, E. A.** Detn. of heavy metals in colored solns., 8301*b*.
**MacArthur, I.**, Mongar, J. L., and Wassermann, A. Ion exchange and fiber contraction, 8237*g*.
**MacArtor, F.** See Cheronis, N. D
**Macatee, W. R.** Effect of jet heat on airport pavements, 1547*c*.
**McAuliff, J. P.** See McChesney, E. W.
**McAuliffe, C. D.** Detn. of radiophosphorus in plant material by soln. counting, 9135*g*.
———, Hall, N. S., Dean, L. A., and Hendricks, S. B. Exchange reactions between phosphates and soils—hydroxylic surfaces of soil minerals, 1131*f*
**McBain, J. W.** See Chandler, R. C.; Cushman, A.; Mysels, K. J.; Thuman, W. C.
——— and Dunn, R. C. Sorption from soln. by active Mg oxide, 17*a*
——— and Hoffman, O. A. Lamellar and other micelles and solubilization by soaps and detergents, 3688*c*
——— and McHan, H. (nee Huff). Soap micelles that solubilize dimethyl phthalate, a liquid insol. in water and in hydrocarbon, 1625*g*, changes in solubilizing power with concn. for various detergents, 7780*d*.
———, McHan, H. (nee Huff), and Brady, A. P. Penicillin G as electrolyte and colloidal electrolyte, 4926*i*
——— and Marsden, S. S., Jr. Structural types of aq. systems of surface-active substances and their x-ray diffraction characteristics, 3289*e*.
——— and Robinson, J. V. Surface properties of oils, 6814*d*
———, Robinson, J. V., Woods, W. W., and Abrams, I. M. Attempts to defoam existing oils by processing, 6816*a*.
——— and Ross, S. Variations in concn. of glycerol and Aerosol OT on foaming vol. of oil at room temp., 6814*k*.
———, Ross, S., and Brady, A. P. Analysis of properties of foam, 6815*f*
———, Ross, S., Brady, A. P., and Dean, R. B. Control of foaming by adding known mixts. of pure chemicals, 6815*b*
**McBee, E. T.** See Ligett, W. B., Newcomer, J. S.; Stemberg, G. M., Truce, W. E
——— and Baranauckas, C. F. Hexachlorocyclopentadiene, 5370*h*.
——— and Bechtol, I. D. Satd. perfluoro polycyclic hydrocarbons, P 4300*f*, hexachlorotrifluoromethyl)cyclohexane, P 4693*f*
——— and Bolt, R. O. Aryloxyalkenes, P 9084*e*.
——— and Devaney, L. W. Hexachlorobutadiene, P 2218*b*, chlorination and chlorinolysis of propane, 5361*e*, propane chlorination, P 6644*b*; liquid-phase chlorination, P 6644*e*.
——— and Frederick, M. R. Chlorination of bis- and chlorobis(perfluoroalkyl)benzenes, 6174*e*.
———, Hass, H. B., Burt, W. E., and Neher, C. M. Chlorination of hydrocarbons—chlorination of ethane, 5361*b*.
——— and Hatton, R. E. Hexachlorobutadiene, 5361*i*.
———, Hill, H. M., and Bachman, G. B. Polymerization of vinylidene fluoride and 1,1-dichloro-2,2-difluoroethylene, 2465*c*.
——— and Pierce, O. R. Chloriuolysis of cyclic compds., P 4296*a*, fluorinated dialkylbenzenes, P 5040*i*, halogenation, 7759*e*
——— and Truchan, A. Grignard reagent from 3-chloro-1,1,1-trifluoropropane, 5588*b*.
——— and Weesner, W. E. Fluorinated ethers, P 2219*e*.
——— and Welch, Z. D. Fluorination of $CCl_4$, P 6606.
——— and Wiseman, P. A. Perfluoroadipic acid and esters, P 2035*c*; 1,2-dichloroperfluorocycloalkenes, P 3844*d*.
**McBee, R. H.** Culture and physiology of a thermophilic cellulose-fermenting bacterium, 7206.
**Macbeth, A. K.** See Gillespie, D. T. C.; Human, J. P. E.
**Macbeth, R. A.**, and Noble, R. L. Metabolic response to thyroid depressant drugs in animals in a cold environment, 5868*h*

**McBride, B. V.** Paste for phosphatic coating, P 4209*f*.
**McBride, C. B.** See Burdock, J. L.; Watson, J. E
**McBride, G. A.** See Green, W. H.
**McBride, G. T., Jr.** See Lewis, W. K.
**McBride, O. C.** See Fi n, R. A
**McBride, R.** Pu ification of HF, P 5555*c*.
**McBride, R. S.** Low-temp. coking plant, 7212*c*.
**McBryde, W. A. E.**, and Yoe, J. H. Detn. of Au as bromoaurate —sepn. of small amts. of Au by solvents extn., 1283*b*
**McBurney, D.** Semistiff collar, P 4870*c*.
**McBurney, L. F.** Oxidative stability of cellulose derivs.—heat stability of ethylcellulose, 5943*a*, see Evans, E. F.
**McCabe, C. G.** See Sims, C. E.
**McCabe, C. L.**, and Warner, J. C. Kinetics of the reaction between the ethylene halohydrins and hydroxyl ion in water and mixed solvents, 2848*c*.
**McCabe, J. C.** Keeping fuel burning equipment smoke free, 3990*i*
**McCabe, M.** See Green, D. M.
**Maccacaro, G.** Action of lactic enzymes, 718*d*.
**McCahan, R. H.**, MacKinnon, C. E., and Swalheim, D. A. Diaphragm tanks to eliminate roughness in Cu plating, 8899*g*
**McCaleb, J. D.** See Cave, G. A
**McCall, E. R.**, Crino, V. O., Stark, S. M., Jr., and Guthrie, J. D. Org. acid content of samples of raw cotton fiber in relation to ash alky. and leaching, 853*f*
**McCall, P. J.** See Munson, P. L.
**McCalla, A. G.** Nitrogenous constituents of plants, 9171*b*; see Colvin, J. R., Wetter, L. R.
**McCallum, G. E.** U. S. Public Health Service Drinking Water Standards for Use on Common Carriers, 6312*e*.
**McCallum, J.** Formal oxidation potential of the ceric-cerous sulfates, 4585*c*
**McCallum, K. J.** Prepn. and use of neutron sources, 6908*c*, see Hoshowsky, S. A.
——— and Trainor, H. M. Effect of $CO_2$ on the inflammability limits of HCN, 8218*g*; effect of phosgene on the inflammability limits of hexane, 8248*i*
**McCammon, D. F.** Chem. analysis of research results, 5691*i*
**McCammon, J. F.** See Finney, K. F.
**McCance, R. A.** See Barlow, A
**McCandless, E.** See Cook, E. T
——— and Dye, J. A. Effects of alloxan administration, 6305*d*, 8061*f*
———, Woodward, B. A., and Dye, J. A. Alloxan diabetes under fasting and nonfasting conditions, 753*b*
**McCann, D. L.** See Faulconer, F. M.
**McCann, E. P.** See Nolan, T. J.
**McCann, G. D., Jr.**, and Wilts, C. H. Application of elec.-analog computers to heat-transfer and fluid flow problems, 8217*i*
**McCann, H. G.** Stabilization of $SO_3$, P 2745*g*.
**McCann, R. F.** See Laundrie, R. W.
**McCants, J. F.** Refining of crude MeOH by azeotropic distn., P 7274*h*.
**McCarran, P.** Domestic Ag production, 6551*a*.
**McCarrell, J. D.** See Flinker, M. L.
**McCarter, J. A.** See Young, L.
——— and Steljes, E. L. Detn. of the distribution of radioactive P among the P-contg. constituents of tissues, 4323*c*.
**McCarter, R. J.**, Stutzman, L. F., and Koch, H. A., Jr. Temp. gradients and eddy diffusivities in turbulent fluid flow, 6474*f*.
**McCarter, W. S. W.** Dehumidification of fluids, P 4907*c*; drying ales, P 6362*b*, adsorbent and decolorizing properties of Georgia-Florida fuller's earth, P 7609*a*, adsorbent cleaning material, P 9298*g*.
**McCarthy, B. D.** Open-hearth charge and feed oxides, 980*g*.
**McCarthy, H. M.** See Lands, A. M.
**McCarthy, J.** See Yeager, E.
**McCarthy, J. A.** Treatment of wool scouring wastes, 8080*c*.
**McCarthy, J. J.** See Brown, S. C.
**McCarthy, J. L.** See Aggarwala, J. C.; Felicetta, V. F.
——— and Hibbert, H. Multistage bleaching of kraft pulp, 4463*h*.
**McCarthy, M. D.** See Bruner, H. D.; Rosenthal, O.
**McCarthy, P. R.** Rust-preventive compns., P 102*f*, 5940*d*; grease compns., P 1179*a*, 2425*d*.
**McCarthy, R. L.** See Schultz, H. L.
**McCartney, J. S.** Effects of 1-naphthaleneacetic acid on prolongation of rest in the Latham raspberry, 9351*c*.
**McCartney, M. G.**, and Shaffner, C. S. Chick thyroid size and incubation period as influenced by thyroxine, thiouracil, and thyroprotein, 8531*f*
**McCarty, C. N.** See Stites, J. G., Jr.
**McCarty, K. S.** High-speed tissue homogenizer, 7073*c*
**McCarty, L. V.** Distn. of mixts. contg. diborane and the identification of two azeotropes, 5247*b*, see Kasper, J. S.
——— and Balis, E. W. Contamination of liquid N by O of the air, 9450*d*.
**Maccary, R. R.**, and Fey, R. F. Thick-walled pressure-vessel shells, 7271*g*; pre d shells fo ds 8216*a*
**McCaskell, W.** Rotary alternating, pressure, and vacuum-filter assembly for handling low concn. slurries, P 2821*a*
**McCasland, G. E.** See Carter, H. E
——, Clark, R. K., Jr., and Carter, H. E. Stereochemistry of cyclic amino ales.—inversion, retention, and participation, 3372*g*
**McCaslin, L. S., Jr.** Cold rubber, 9515*a*.
**McCatty, S. A.** See Pidgeon, L. M.
**McCaulay, C. J.** See Samuels, L. T
**McCauley, R. B.** Abrasion- and corrosion-resistant alloy, P 3342*i*
**McCay, R. C.** See Weiland, J. H., Jr.
——, Seely, D. H., Jr., and Gardner, F. T. Distribution of gaseous solutes between aq. and liquid hydrocarbon phases—$CO_2$, 7297*f*
**McChesney, E. W.** Levvy method for As, 8302*c*
——, Auerbach, M. E., McAuliff, J. P., and Eckert, H. W. Detn. of homosulfanilamide hydrochloride—absorption in dogs and man, 9132*a*
——, McAuliff, J. P., and Blumberg, H. Hyperglycemic action of some analogs of adrenaline, 8057*a*
——, Nachod, F. C., Auerbach, M. E., and Laquer, F. O. Chemistry and pharmacology of the *Digitalis purpurea* glycosides, 3566*h*
**Macciotta, G.**, and Leone, A. Lactoflavin actions, 1096*d*
**McClain, H. K.** See Mills, V.
**McCleary, C. D.** Emulsion polymerization of 1,3 butadienes, P 2806*a*.
**McCleary, H. R.**, and Rover, G. L. Shrinkage control of wool by melamine resins (II) torsional rigidity and elastic properties of single fibers, 7691*h*.
**McCleary, R. F.**, and Roberts, S. M. Lubricating-oil additive, P 845*a*
**McCleery, W. L.** Bentonite secondary clarification of sugar juice, 2797*a*
**McClellan, G.** Standard $K_2CrO_4$ solns., 8969*e*, detn. of constituents of cosmetic powders, 9368*i*
**McClellan, W. D.** See Clayton, E. E
———, Cristie, J. R., and Horn, N. L. Efficacy of soil fumigants as affected by soil temp. and moisture, 7186*d*.
**McClelland, C. P.**, and Bateman, R. L. Carbowax compds. in pharmacy, 4812*i*
**McClelland, E. H.** Fe and steel literature, 4615*h*.
**McClelland, L.** See Graham, A. E.
——— and Van Rooyen, C. E. Effect of some aromatic amidines and other chem. compds. on the growth of influenza virus, 8536*b*.
**McClendon, J. F.**, Foster, W. C., and Cavett, J. W. Action of Lugol's soln. in exophthalmic goiter, 7580*a*
**McCleskey, C. S.** Bacteriol. examn. of water, 2716*h*
**McClinton, L. T.**, and Schubert, J. Toxicity of some Zr and Th salts, 312*g*.
**McCloskey, C. M.** See Combs, E. E
**McClosky, W. T.** See Smith, Maurice I.
**McClung, L. S.** See Bard, R. C.; Clark, P. F.
**McClure, D. S.** Rules for singlet-triplet perturbations in polyat. mols., 8890*d*.
**McClure, F. J.** F and other trace elements in nutrition, 3900*c*; F in foods, 8473*e*, 9190*b*; see Zipkin, I.
**McClure, H. B.**, and Bateman, R. L. Com. chem. development—which develops first, the chemical or the market? 3541*e*.
**McClure, L. E.** See Dunn, M. S.
**McCluskey, J. A. G.** See Bishopp, D. W.
**Maccoll, A.** Reduction potentials of conjugated systems, 3270*b*; reactive structures of hydrocarbons and catalytic hydrogenation, 3775*c*; see Coulson, C. A.
**McCollough, G. T.** See Jones, H. A.
**McCollum, O. H.** Acceleration of fine furnace-black compds., 2800*i*.
**McComas, W. H.** See Seaman, W.
**McComb, E. A.** Detn. of moisture in some protein materials—Karl Fischer reagent, 1824*b*
**McConaghie, V. M.**, and Nielsen, H. H. Infrared spectra of $AsH_3$, $AsD_3$, and $PH_3$, 3293*d*; high-frequency fundamental bands in the spectrum of $AsH_3$ and $AsD_3$, 4139*g*.
**McConnachie, E. W.** See Bishop, A.
**McConnaughey, B. H.** See Fox, D. L.
**McConnell, A. M.** Estn. of coal dust in foundry sand, 5714*a*
**McConomy, H. F.** See Hunter, J. B.
**McCool, M. M.** pH values of sawdusts and sawdust soil mixts., 3139*d*
**McCord, C. P.**, and Witheridge, W. N. Odors (book), 3054*b*.
**McCord, F. A.** See Buck, G. S., Jr.
**MacCormac, M.** Production of peak load gas by the partial combustion of oil, 3171*f*, see Gas Light & Coke Co.
**McCormack, R. B.** See Greene, R. D., Plaut, G. W. E.
**McCormack, W. B.** See Wilds, A. L.
**McCormick, C. D.** How can the waste from a plating room be decreased? 1796*i*
**McCormick, H.** See Brown, R. C.
**McCormick, H. M.**, and Young, I. I. Effect of ammophylline on plasma prothrombin and Ac globodin in dogs, 5117*e*
**McCormick, I. G.** See B. L. S., R. H.
**MacCorquodale, D. W.** See Doisy, E. A.
**McCoskey, R. E.** See Hoge, H. J.
**McCoubrey, A.**, and Mathieson, D. W. Chemistry of isoquinolines (I) synthesis of diamino 1 phenylisoquinoline methiodides in a search for new trypanocides, nitration of 1 phenylisoquinoline, 7485*h*
——— and Webster, W. Chemistry of synthetic antimalarials (VII) reaction between alloxan and 1-amino-3,4 diethylamino 1 methylbutylammonium iodide, 1780*h*
**McCourtney, E. J.** See Spadaro, J. J.
**McCown, D. A.** See Woodward, E. I.
———, Woodward, L. I., and Pool, M. L. Radioactive isotopes of Ge and Ge, 936*b*, radioactive As isotopes, 936*d*
**McCoy, E. F.** Slime control, 3615*c*
**McCoy, E. H.** Plating Ni on Al, P 6095*e*
**McCoy, J. F.** See Heuser, Emil
**McCoy, L. R.** See Vaughn, F. H.
**McCoy, R. H.**, McKibben, J. N., Axelrod, A. E., and Hofmann, K. Oxynorm metabolism (I) deposition of oxybiotin in tissues, (II) oxybiotin and biotin balance, 3073*d*
**McCoy, W. J.** Lightweight aggregate, P 1548*b*
**McCracken, E.** See Grohskopf, J. G.
**McCracken, J. H.**, and Crandall, G. S. Dinitroparaffins, P 6646*g*
**McCrea, J. F.** Nonspecific serum inhibition of influenza hemagglutination, I. of mucins and mucoids in relation to influenza virus action (II) isolation and characterization of the serum mucoid inhibitor of heated influenza virus, 7221*a*, see Anderson, S. G.
**McCready, M. H.** See Tolksdorf, S.
**McCready, N. W.** Thermodynamic properties of Na silicate, 2082*e*.
**McCready, R. M.** See Maclay, W. D.
**McCreary, R. L.** See Barnes, S. W.
**McCreery, G. L.** Improved mount for powd. specimens used on the Geiger counter x-ray spectrometer, 4566*i*
**McCrone, W. C.** Fusion methods in chem. microscopy, 6498*c*.
——— and Cheng, P. T. Grain growth in octachloropropane, 2839*a*.
**McCubbin, K.**, and Monical, C. E. Deodorization of oils, P 3638*a*.
**McCue, C. F.** See Evans, E. B.
**McCue, J. B.**, *et al.* Clays of W. Va., 71*h*
**McCullagh, D. R.** See Tolksdorf, S.
———, Cassidy, J. W., Valentine, F. and Tolksdorf, S. Stability and stabilization of testicular hyaluronidase, 8408*h*
**McCullen, B. V.** See Freeman, N. E.
**McCulloch, A.** See Gregory, J.
——— and Sherlock, E. Alberta coals, 5922*e*
**McCulloch, E. N.**, and Waterhouse, D. F. Mosquito repellents, 3140*a*.
**McCulloch, W. S.** See Ward, A. A., Jr.
**McCullough, J. D.**, and Barsh, M. K. Dissocn. consts. of some unsymmetrically substituted diphenylselenium dibromides, 8809*i*.

—— and Bromley, L. A. Crystal structure of $ZrOS$, 3261*b*.
—— and Gould, E. S. Dissocn. consts. of some monosubstituted benzeneselenic acids, 6050*a*.
**McCullough, J. H.** See Bent, R. D.
**McCullough, J. P.**, and Walton, J. S. Catalytic dehydrogenation of ethane by selective oxidation, 7898*a*.
**McCune, L. K.**, and Wilhelm, R. H. Mass and momentum transfer in solid-liquid system—fixed and fluidized beds, 6475*d*.
**McCurdy, W. N., Jr.** See Butler, R. C.
**McCusker, C. A.** Laminated mirror, P 5565*g*.
**McCusker, C. B. A.** See Jánossy, L.
**McCusker, P. A.** See Kennard, (Sister M. Scholastica).
**McCutchan, A.** See Van Duzer, R. M., Jr.
**McCutcheon, D. M.** Cathodic vacuum etching of metals, 5679*h*, radioisotopes Co and Se, 7814*i*.
**McCutcheon, F. G.** Recovery of Cd, P 6964*h*.
**McCutcheon, R. J.** See Sell, H. S.
**McCutcheon, R. S.**, Arrigoni, L., and Fischer, L. Phytochem. investigation of the kelps *Cymathaere triplicata*, *Hedophyllum sessile*, and *Egregia menziesii*, 8616*e*.
—— and Plein, E. M. Identification of some barbiturates by means of xanthydrol, 8612*e*.
**McCutcheon, T. P.** See Wrigley, A. N.
**McDaniel, L. L.** Morenci smelter, 2554*e*.
**McDaniels, G. R.** See Came, J. B.
**McDearman, S. C.**, and Cottrell, J. F. Specificity of cardiolipin antigen in tests for syphilis, 3920*i*.
**McDermid, A. J.** See Cullen, H. F., Merrill, C. W.
**McDermott, E.** See Wheeler, A. H.
**McDermott, E. E.** See Bentley, H. R.
**McDevitt, (Sister Mary of Lourdes).** See Suter (Sister M. St. Agatha).
**McDonagh, J. E. R.** Universe in the Making (book), 348*e*.
**Macdonald, Adam D.** Analgesics, 9250*h*.
**MacDonald, Alexander D.**, and Brown, S. C. High frequency gas discharge breakdown in He, 4101*e*.
**McDonald, A. S.** See Wilson, R. W.
**MacDonald, D. K. C.** See Birch, A. J.
**McDonald, E. A.** See Davis, M. M.
**McDonald, E. J.** Invert formation in sucrose solns., 8714*h*, detn. of reducing sugars, 8979*i*.
—— and Turcotte, A. L. D and *ns* of lactose solns., 469*c*.
**McDonald, F. G.** See Bills, C. E.
**Macdonald, F. J.** F. p. of bulk milk, 3114*g*.
**Macdonald, G. A.** Petrography of Iwo Jima, 75*g*.
**McDonald, H.** See Brown, A. W. A.
**MacDonald, H. A.** See Embleton, T. W.
**McDonald, H. J.** See Draynieks, A., Mech, R. D., Schaschl, E.
—— and Marsh, G. A. Pulse polarizer in corrosion, 7401*b*.
—— and Waber, J. T. Cathodic protection in the control of stress corrosion cracking, 6084*a*.
**McDonald, I. R.** See Robertson, P. W.
**McDonald, I. W.** See Marston, H. R.
**McDonald, J. C.** Tensile, creep, and fatigue properties at elevated temps. of some Mg-base alloys, 9013*i*.
**MacDonald, L. H.** See Bond, G. C.
—— and Himelick, R. E. Effect of particle size, type of base, and a wetting agent on three antiseptic ointments, 3562*h*.
**McDonald, M. R.** Proteolytic contaminants of cryst. ribonuclease, 2256*e*; prepn. of protease free cryst. ribonuclease, 2604*a*, see Kaufmann, B. P.; Kunitz, M.
**McDonald, N. D.** See Bolliger, A.
**MacDonald, N. S.** See Milas, N. A.
**McDonald, R. K.** See Kelley, V. C.
—— and Kelley, V. C. Effects of altitude anoxia on renal function, 1475*f*.
**MacDonald, R. N.**, and Rothrock, H. S. Polyhaloprene-halogenated polyethylene blends for coating fabric, P 4508*e*.
**McDonnell, F. R. M.**, and Wilson, C. L. Group sepns. in inorg. qual. analysis (II) sulfide and potential sulfide ion reagents, 5325*c*; (III) inorg. reagents, 6537*a*.
**McDonnell, H. E.** C hearth and tapping hole, 7389*h*.
**MacDonnell, L. R.** See Jansen, E. F.
**McDonough, M. T.** Effect of metal depth on slag vol. in elec. furnace, 1267*h*.
**MacDougall, D. P.** Detonation velocities in high explosives, 4467*a*.
**McDougall, E. I.** Ruminant saliva (I) compn. and output, 2689*f*; Cu, Fe, and Pb contents of a series of livers from normal fetal and newborn lambs, 4361*c*; immune globulin fraction from bovine precolostrum, 8226*g*.
**MacDougall, F. H.** See Parker, J. V.
**McDougall, W. A.** Control of wireworms in cane fields with gammexane, 2720*e*.
**Macdowall, F. D. H.** Effects of inhibitors of photosynthesis on the photochem. reduction of a dye by isolated chloroplasts, 8019*e*, see Van Norman, R. W.
**McDowell, C.** Hydrated lime for stabilizing roadway materials, 3165*h*.
**McDowell, C. A.** See Brian, R. C.
—— —, Emblem, H. G., and Moelwyn-Hughes, E. A. Detn. of the structures of the isomeric (2-chlorovinyl)dichloroarsines, 916*h*.
—— —— and Thomas, J. H. Initiation of the oxidation of AcH in the gas phase, 8820*e*.
**McDowell, J.** See Shaw, E. N.
**McDowell, J. M.** See Stribley, J. M. (nee McDowell).
**MacDowell, L. G.**, Moore, E. L., and Atkins, C. D. Fruit juice concentrates, P 3541*c*.
**McDowell, R. L.** See Peterson, R. F.
**McDuff, O. R.** See Cotton, R. H.; Kesterson, J. W.
**Mace, H. W.** Emulsifier and emulsified hair-waving compn., P 8621*e*.
**McEachern, D.** See Brophy, D.; Cone, W. V., Kelen, A., Tower, D. B.
**Macek, T. J.**, Hanus, E. J., and Keller, B. F. Stability of penicillin G Na in aq. soln., 2737*e*.
**McElcheran, D. E.** See Lindsay, J. G.
**McElgin, J. A.** Liquid salt baths (I), (II), 4990*h*.
**McElhill, E. A.** See Roberts, J. D.
**McElhinney, J.**, Hanson, A. O., Becker, R. A., Duffield, R. B., and Diven, B. C. Photonuclear reactions, 4115*d*.
**McElhinney, T. R.**, and Gibbens, W. J., Jr. Resins from lignocellulose material and phenol, P 1217*a*.
**McElroy, A. D.** See Davidson, A. W.
**McElroy, L. W.** See Spencer, E. Y.
——, Clandinin, D. R., Lobay, W., and Pethybridge, S. J. Nine essential amino acids in pure varieties of wheat, barley, and oats, 5450*g*.
**McElroy, W. D.** See Miller, H.
—— and Strehler, B. L. Response of the bioluminescent reaction to adenosine triphosphate, 9101*e*.
**McElvain, S. M.** Acyloins, 2155*h*.
—— and Carney, T. P. 3-(2-Methyl-1-piperidyl)propyl *p*-butoxybenzoate and salts thereof, P 694*g*, 3-(2-methyl-1-piperidyl)-propyl phenylacetate and salts thereof, P 694*i*, 3-(2,6-dimethyl-1-piperidyl)-propyl salicylate and salts thereof, P 695*a*.
—— and Curry, M. J. Ketene acetals (XIX). 2-methylene-1,3-dioxolanes and -1,3-dioxanes, 1403*i*.
—— and McMahon, R. E. Piperidine derivs. (XXI). 4-piperidone, 4-piperidinol and certain of their derivs., 4275*a*.
—— and Pryde, E. H. 2,2,5,5-Tetramethylpiperazine and derivs., 3015*d*.
—— and Schroeder, J. P. Ketene acetals (XX). prepn. and properties of cyano ketene acetals—benzylation reactions, 3356*f*, ortho esters and related compds. from malono- and succinonitriles, 3359*h*.
—— and Stork, G. J. Acylated amino esters, P 4687*i*.
—— and Vozza, J. F. Piperidine derivs. (XX). prepn. and reactions of 1-methyl-3-piperidone, 1274*e*.
**McElwain, J. W.** Pump for volatile or toxic liquids in viscometers, 2475*b*.
**McEntee, J. C. H.** See Hedley, A. G. M.
**MacEwan, D. M. C.** Complexes of clays with org. compds. (I) formation between montmorillonite and halloysite and certain org. liquids, 463*c*, nomenclature of the halloysite minerals, 2130*b*; interlamellar adsorption (I) natural adsorbent, 5254*i*; adsorption by montmorillonite, and its relation to surface adsorption, 7774*c*.
—— and Talib-Uddeen, O. Adsorption complexes of $\alpha$-$Zn(OH)_2$, 3308*c*; interlamellar adsorption (II) artificial adsorbents, 5255*a*.
**McEwan, W. S.** See Levi, D. L.
**McEwen, R. L.** Bleaching wood fibers, P 4854*d*; treatment of groundwood pulp, P 4854*f*; see Kauffmann, H. O.; Rudolph, H. A.
**McEwen, W. E.**, and Hazlett, R. N. Acid catalyzed formation of aldehydes from Reissert compds., 9072*a*.
**McEwen, W. K.** See Eiler, J. J.
**Macey, A.** See Bourne, E. J.
**Macey, H. H.** Clay consolidation, 1163*a*; plasticity (III) alternating stresses, (IV) "backlash," (V) behavior of clays in the tensional expt.—"local elongation" or "necking," 2389*d*.
**Macey, R.** See Höber, R.
**McFadden, G.**, and Ricketts, W. C. Asphalt paving mixts. for military installations, 7659*d*.
**McFadden, G. H.** Rubberlike articles, P 6456*h*, see Horney, A. G., Marvin, J. T.
——, Lyman, J. F., and Horney, A. G. Rubberlike articles, P 6456*h*.
**McFadden, T.** Ionization of Hg vapor by slow electrons, 7324*f*.
**McFadzean, A. J. S.**, nd Davis, L. J. Nature and significance of stippling in Pb poisoning with reference to the effect of splenectomy, 4384*g*.
**McFarland, D. M.** $NH_4NO_3$ explosive, P 6828*a*.
**MacFarland, H. N.**, and Horwood, J. H. Photoelec. turbidimeter, 1616*g*.
**MacFarland, M. L.**, and McHenry, E. W. Lipotropic need for inositol, 2295*g*.
**McFarland, R.** Combating corrosion with rubber lining, 2918*h*.
**McFarland, W. A.** See Angell, H. W.
**McFarland, W. I.** Water-treatment plant at Edmonton, 7166*a*.
**McFarlane, A. S.** Biochem. applications of stable and radioactive isotopes, 7069*d*.
**Macfarlane, E. W. E.**, and Schmock, N. G. Colchicine and colchicinelike reaction—enzymic poisoning, 2678*h*.
**MacFarlane, M. G.** See Keppie, J.
**McFarlane, R. A.** Processing and Finishing of Rayon Fabrics (book), 1574*a*.
—— and Wilcock, C. C. Prepn., dyeing, and finishing of Fibro fabrics, 5190*h*, control of quality in a rayon piece-dyeing and finishing works, 7689*b*.
**Macfarlane, R. G.** See Biggs, R.; King, E. J.
—— and Pilling, J. Fibrinolysis—plasminogen, plasmin, and antiplasmin content of human blood, 2681*e*.
**MacFarlane, W. V.** See Eccles, J. C.
**McFeely Brick Co.** Vitrified refractory, P 4825*b*.
**McFerrin, W. B.** Metallurgy for the steel-mill engineer, 979*i*.
**McGanity, W. J.**, McHenry, E. W., Van Wyck, H. B., and Watt, G. L. Effect of pyridoxine on blood urea in human subjects, 5498*e*.
**McGarry, R. J.** See Edmister, W. C.
**McGarvey, F. X.** See Kunin, R., Thompson, J.
**McGaughey, C. A.**, and Chu, H. P. Egg-yolk reaction of aerobic sporing bacilli, 3060*b*.
**McGavack, J.** Minor-element content of rubber and rubber plants, 2799*d*.
——, Davis, C. C., Lerner, M. E., Gable, D. E., Burger, V. I., and Wilson, T. L. Bibliography of Rubber Literature (book), 5624*b*.
**McGaveren, W. R.** Raw-material handling in Liberty's automatic batch plant, 6377*i*.
**McGeachin, R. L.** See Frank, R. L.
**McGeady, L. J.** See Stout, R. D.
**McGeary, R. K.**, Stanley, J. K., and Yensen, T. D. Detn. of O in metals, 8215*g*.
**MacGee, A. E.** Extn. naphthas, 4496*h*.
**McGee, C. G.** Al monolaurate and proposed structures for Al soaps, 3218*d*.
**McGee, E. F.** Sweet chocolate, P 787*a*.
**McGee, J. P.** See Schmidt, L. D.
**McGeoch, S. N.**, and Imperial Chemical Industries Ltd. Globulin products derived from peanuts, P 1884*f*.
**McGeorge, W.**, and Milner, F. H. Ca Mg carbonate, P 2745*c*.
**McGeorge, W. T.** Soil analysis, 2719*f*; N problems in semiarid irrigated lands, 6349*c*.
**McGhie, J. F.** See Dorée, C.
**McGill, J. H.**, and Imperial Chemical Industries Ltd. Sheet material comprising polyvinyl chloride, P 4052*b*.
**MacGillavry, C. H.** See Bijvoet, J. M.; Brink, C.
——, Hoogschagen, G., and Sixma, F. L. J. Crystal structure of glutaric and pimelic

acid—alternation of properties in the series of dicarboxylic acids, 2838*e*.
**McGillicuddy, A. J.** Vinyl plasticizer extender, P 1218*a*
**McGilvray, W.** See Princi, F.
**McGinley, R. P.** Hydrafiner treatment of rag stock, 400*f*.
**McGinnis, J.** See Graham, W D.
——, MacGregor, H. I, and Carver, J S. Wood-sugar molasses as a feedstuff, 329*d*.
**McGinnis, R. A.** Continuous carbonation, 6445*h*
**McGinty, D. A.** I absorption and utilization under the influence of certain goitrogens, 3918*a*; see Glazko, A J; Wilson, M. L
—— and Wilson, M. L. Comparative activities of thiouracil and other antithyroid compds., 8544*f*
——, Wilson, M. L., and Rodney, G Ulcer-inhibiting action of pyrogens, 4770*f*.
**McGinty, L.** α-Fluoroacrylic esters and polymers, P 2223*f*.
**McGlashan, J.** Aconitic acid in the manuf. of cane sugar, 6846*f*
**McGlenn, R. C.** Fire extinguishing powder, P 6418*g*.
**McGoldrick, F.** See Smith, O
—— and Smith, O. Killing potato vines, 1517*i*.
**McGookin, A.** Reactive methylene groups (I) stilbene formation, 9055*a*.
**McGovern, J. J.** See Kutz, W. M.
**McGovern, J. N.** See Keller, E. L.
——, Mackin, G E., and Chidester, G H Liner boards from jack pine and hardwood, semichem pulps, 4464*h*
**McGovran, E. R.** See Jones, M A; Mayer, E. L
——, Mayer, E. L., and Talley, F B Nicotine-phthalonitrile compns., P 351*c*
**McGowan, F. K.** See DeBenedetti, S
——, DeBenedetti, S., and Francis, J E, Jr Measurement of short-lived isomers of nuclei, 6911*d*
**McGowan, J. C.** Relation between certain dissocn consts., 2074*h*; see Bailey, E J G, Brian, P W.
——, Brian, P. W., and Hemming, H G Fungistatic activity of ethylenic and acetylenic compds (I) effect of the affinity of the substituents for electrons on the biol activity of ethylenic compds., 9333*i*.
**McGowan, J. F.** Abrading wheel, P 4442*e*.
**McGowen, N. C.,** *et al.* Natural gas reserves, 3992*g*
**McGrath, H.** See Greenberg, L D
**McGrath, H. G.,** Passino, H. J., and Rubin, L. C Sepn of oxygenated compds from the reaction products of hydrogenation of CO, P 7213*e*.
**McGraw, J. J., Jr.** See Strumia, M M.
**Macgregor, A.** Smoke and public health, 3592*i*.
**McGregor, G. H.** Refining sulfate turpentine, P 2774*i*.
**MacGregor, H. I.** See McGinnis, J
**MacGregor, J. H.** Acetone-sol cyanoethyl ethers of cellulose, P 404*h*, dyeing of textile fibers, P 868*e*; dyeing nylon, P 2442*h*, see Happey, F
**McGregor, M. A.** See Bedford, C L., Fincke, M L.
—— and Bedford, C L. Ascorbic acid and thiamine in fresh and frozen Lima beans and soybeans, 1121*f*
**MacGregor, R. A.** Estn of temp. in Fe and steel-making processes—crystn in steel ingots, 6552*e*, estn of the temp of molten steel, 6552*e*.
**McGregor, R. R.** See Speier, J L
—— and Warnick, E L. Organosilicon polymers, P 2469*e*; liquid polymeric dimethyl silicones, P 2813*b*, condensing organosilicols, P 2815*d*; hexadecamethylcycloöctasiloxane, P 5791*e*
**MacGregor, W. S.** Rearrangement of phenylethynylcarbinol, 1348*i*.
**McGrew, F. C.** Methylolmelamine ethers, P 3473*h*; see Ford, T. A
—— and Sharkey, W. H Dyeing nylon with acid dyes of limited soly., P 9473*a*
**McGrogan, J. F.** Grease compn., P 2426*c*
**MacGuffie, J.** Ti pigments in house paints, 1577*f*.
**McGuigan, H. A.** See Krug, E. E.
**McGuire, J. M.** See Davis, W W
**McGuire, P. J.** Oliver-Morton continuous diffuser, 4880*i*.
**McGuire, T. E.,** and Lane, C. T. Magnetic susceptibility balance for use at liquid-He temps., 8747*g*.
**Machacek, J. E.,** and Greaney, F. J. Treatment of flax seed, 1138*c*.
**Machado, B.** See Jiménez Díaz, C.
**Machado, R. B.** See Bittencourt Machado, R.
**Machamer, H. E.** See Stone, R W.
**McHan, H.** (nee Huff). See Brady, A. P., McBain, J. W.
**McHargue, J. S.** See Gross, W G.
**McHarness, R. C.** See Benning, A. F.
**Machatschki, F.** Supplies and Distribution of Mineral Raw Materials (book), 1503*h*; crystallography and chem. formula of långbanite, 2129*d*; structure of crystals, 3260*b*
**McHatton, R. L.** Carbonaceous deodorizer, P 5516*i*
**Mache, H.** Equation of state and the second law, 4062*i*
**Macheboeuf, M.** Lipide protein synapses complexes in blood plasma, 9090*g*, prepn of thrombokinase, 9091*b*, see Barbu, E, Beljanski, M, Blass, J, Gros F.; Kent, N, Polonovski, J.
—— and Polonovski, J. Delipidation of lipide-protein cenapses by cationic detergents, 8420*f*
**Machek, G.,** Buch, M., Gruner, H., Kral, H and Novak Arienti, M Dihydroxydi-tolyl sulfones (I), 6994*f*
**Machemer, H.** Analytical control of air-fractionation plants, 4972*d*
**McHenry, D.** See Blanks, R F
**McHenry, E. W.** See Hawkins W W, MacFarland, M L, McGarrity, W J
**McHenry, J. R.** See Garey, C L
**Macher, F.** See Mika, J
**Machinefabriek Reineveld N. V.** See N. V. Machinefabriek Reineveld
**Machinenfabrik Oerlikon.** Electrolysis cell, P 4587*i*
**Machinskaya, I. V.** See Rodionov, V M
**Machlett, R. R** Accelerator column for 2 to 6 m v., 8850*g*
**Machlis, S.** See Eisenberger, S
**Machlowitz, R. A.** Polishes for Al aircraft surfaces, 3336*b*
**Machne, X.** Action of 2 (1-naphthylmethyl)imidazoline-HCl on the circulation, 9242*e*; see Arduini, A
**Macht, D. I.** Thromboplastic action of galenical preprns., 5533*h*
—— and Ostro, M Pharmacol reactions of serums and drugs irradiated with Röntgen rays, 5862*a*.
**Macht, M. L.** Molding hollow articles from plastic materials, P 9528*i*
**Machu, W.** Pickling with Zn, galvanized and rusted sheet Fe, 94*c*; Metallische Ueberzuge (book), 3768*a*, Chemie und chemische Technologie (book), 4940*d*, effect of colloids on the corrosion in hot water supply and heating systems, 6141*h*, Phosphatierung (book), 7890*h*; kinetics of the destruction and of the formation of covering layers on metallic surfaces, esp phosphate coatings, 9014*g*
**Maciorewicz, Z.** Reaction of Mg with ethyl bromoacetate, 2973*i*
**McIlroy, A. P.,** Axelrod, A. E., and Mellon, R R Influence of Na acetate on the dissocn of a strain of hemolytic streptococcus, 719*e*.
**McIlroy, R. J.** Hemicellulose of *Plectranthus tenax* (II) constitution of the aldotrionic acid, 5589*a*; see Dalley, O. T; Halliburton, G J.
**McIlvaine, R. L.** See Christensen, A C
**McIlwain, H.** Prepn of cell-free bacterial exts with powd alumina, 3050*f*; enzymic degradation of cozymase in living organisms, 5432*g*, metabolic changes which form the basis of a microbiol assay of nicotinic acid, 6270*g*, assimilation of pantothenate by hemolytic streptococci, 9163*c*; see Roper, J A
—— and Hughes, D. E Decompn and synthesis of cozymase by bacteria, 2670*e*
—— and Rodnight, R Breakdown of cozymase by a system of nervous tissue, 9105*d*.
——, Stanley, D. A., and Hughes, D. E. Behavior of *Lactobacillus arabinosus* towards nicotinic acid and its derivs., 6278*a*.
**McIndoe, K. G.** See Spangler, G. P.
**McIndoe, W. C.** Western balance—rayon, 8577*b*; chem. plant locations, 9295*c*.
**MacInnes, C. A.** See Strouts, C. R N.
**MacInnes, D. A.** See Ray, B. R
**McInroy, E. E.,** Murer, H. K., and Thiessen, R., Jr. Effect of autoclaving with dextrose on the nutritive value of casein, 8478*a*.
**Mačinskaja, I. W.** See Machinskaya, I. V.
**McInteer, B. B.** See Reynolds, C. A.
——, Aldrich, L. T., and Nier, A. O. Concn. of $He^3$ by thermal diffusion, 489*d*.
**McIntire, O. R.** Cellular thermoplastic product, P 3235*d*; liquid styrene-butadiene interpolymers, P 7258*f*; see Goggin, W. C.
**MacIntire, W. H.** See Hardin, L. J.
——, Hardin, L. J., and Johnson, H. S., Jr. Development of magnesia—reactivity of concd. superphosphate in mixts. with olivine, serpentine, magnesite, and their calcines, 5142*c*.
——, Shaw, W. M., and Robinson, B Migrations of P and other elements from phosphated soils, 7624*a*.
——, Winterberg, S. H., Clements, L. B., and Sterges, A. J. Phosphate migration in limestoned and dolomited soils, 2723*e*.
——, Winterberg, S. H., Hardin, L. J., Sterges, A. J., and Clements, L. B. Effectiveness of blast-furnace and elec.-furnace slags in greenhouse expts., 1135*i*, evaluation of synthetic org. phosphates in relation to their fertilizer effectiveness, 3131*b*.
——, Winterberg, S H, Sterges, A J., and Clements, L B. Olivine, serpentine, magnesite, dolomite, and selectively calcined dolomite as sources for Mg for red clover, 9320*g*
**McIntosh, A. O.** See Matthews, F W.
—— and Matthews, F W Hydrates of $Na_2B_4O_7$, 8933.
**McIntosh, A. V., Jr.** See Levin, R H, Spero, G B
——, Meinzer, E M, and Levin R H Steroid acids and their transformation products (III) desulfurization of thiol esters of 3(β)-hydroxy-5 cholenic and bisnor 5 cholenic acids, 3432*e*
**McIntosh, B J.** See Gerling E M K
**McIntosh, C. H.** See McLaurin, N H
**MacIntosh, F. C** Anticoagulants, 6365*i*
**McIntosh, F. K.** Hamme W district, Vance Co., N C and Mecklenburg Co., Va 1292*d*
**McIntosh, R. L.** See Benson, G C
**McIntyre, A. K.** See Lloyd, D P C
**McIntyre, A. R.** Curare, 3938*g*, see Dunn, A. L
**McIntyre, E B.** See Lawrence, R R
**McIntyre, F. J.** Algae control, 5140*i*
**MacIntyre, W. J.** Decay of scintillations in $CaF_2$ crystals, 5292*e*; measurement of a $2.3 \times 10^{-8}$ second metastable state of $Hg^{198}$, 8868*a*.
**Mack, D. E.,** and Marriner, R A Correlating agitator performance, 8751*b*
**Mack, E., Jr.,** Garrett, A B Haskins, J. I and Verhoek, F H Textbook of Chemistry (book), 5276*i*
**Mack, G. P.** Emulsion polymerization, P 5991*d*
**Mack, H. B.** Vitamin E, 6709*h*
**Mack, P. B.,** Brown, W N, Jr and Trapp H D Evaluation of bone d., 8419*b*
**Mack, W. B.** See Thomas, W.
**McKail, J. E.** See Campbell, N
**McKay, A. F.** Alkyl substituted styrene polymers, P 4051*c*, prepn of N substituted-$N^1$ nitroguanidines by the reaction of primary amines with N alkyl-N-nitroso $N^1$ nitroguanidines, 9035*d*; see Chute, W J.
——, Buchanan, M N., and Grant, G. A Reaction of primary amines with 2 nitro amino $\Delta^2$-1,3-diazacycloalkenes, 4273*a*
——and Manchester, D. F. Nitration products of some substituted 2 nitramino 1,3-diaza-2 cycloalkenes, 9065*g*.
——, Richmond, H H., and Wright, G F Nitrolysis of hexamethylenetetramine (II) nitrolysis of 1,5-endomethylene-3,7-dinitro-1,3,5,7-tetrazacycloöctane (DPT), 9072*i*
—— and Wright, G. F. Nitration products of 2 - nitramino - $\Delta^2$ - 1,3 - diazacycloalkenes, 2203*d*.
**McKay, A. S.** See Brown, William W.
**McKay, D. G.** See Gaensler, E. A.
—— and Robinson, D. Fluorescence, birefringence, and histochemistry of the human ovary during the menstrual cycle 8033*e*.
**McKay, E. A.** See Seed, J. C.
**MacKay, E. M.** See Bartlett, G. R; Clark, W. G.; Wick, A. N.
—— and Pecka, E. F., Jr Pulmonary edema (I) from *l*-adrenaline and *l*-noradrenaline, 9250*b*.
**Mackay, I. F. S.** See Davies, R. E.
**Mackay, J. H. E.** Foliage symptoms of acute phosphate deficiency in tomato plants, 8453*b*.

**Mackay, J. S.** Guanidine sulfates, P 4292*f*; guanidine phosphates, P 5796*e*.
——— and Paden, J. H. 2,4-Diamino-*s*-triazines, P 3046*e*.
**Mackay, K.** See Chapman, R. A.
**McKay, K. G.** Electron-bombardment cond. in diamond, 2085*c*; see Newton, R. R.
**Mackay, M. H.**, and Melville, H. W. Rate coeffs in the polymerization of Me methacrylate (I), 6460*f*.
**McKay, R. S.** Latex-foam industry, 5983*h*.
**Mackay, W. B. F.**, and Dowdell, R. L. High-strength wrought Al alloys, 7886*a*
**McKeag, A. H.** See Jenkins, H. G.
——— and Ranby, P. W. ZnS phosphors activated by P, 7826*g*; $Cd_3(PO_4)_2$ phosphors, P 7831*i*
**McKee, H. S.** N metabolism, 8454*g*.
**McKee, J. H.**, and Adams, A. M. Electricity from coal, 1664*h*.
**McKee, M.** See Day, P. L.; Totter, J. R.
**McKee, R. H.** Removing shine from fabrics, P 2786*i*
**McKee, R. L.** See Goodale, G. M
**McKee, R. W.** See Ball, E. G.; Doisy, E. A.
**McKee, S. A.**, and Fritz, A. R. Stability test for additive-treated motor oils, 5937*c*.
——, Swindells, J. F., White, H. S., and Mountjoy, W. Lab. wear tests with automotive-gear lubricants, 5177*i*
**McKee, W. N.** Slime control chem. toxicants for slime, 8680*b*
**McKeen, C. L.** See Allen, J. G
**McKeen, W. E.** See Hildebrand, A. A
**McKeever, C. H.** Carboxylic acid-alkylenediamine resins, P 5997*d*, Co carbonyl, P 8107*i*, 9397*d*
**McKellar, A.** Polyat. mols. in the atm. of late N-type stars, 939*d*, far-violet region in the spectra of the cool C stars, 2508*g*, 1,0 isotope $C^{13}N$ band of the red CN system in spectra of classes R and N, 3711*f*; see Swings, P.
**MacKellar, D. G.** See Greenspan, F. P.
**McKellin, W. H.** See Bordwell, F. G.
**McKelvey, J. J.**, and Parker, D. New Insecticides (book), 3558*f*
**McKelvey, J. M.** See Stout, I. E.
**McKelvey, J. P.** See Rank, D. H.
**McKenna, F. E.**, Lingafelter, E. C., and Tartar, H. V. Peroxide formation in propionaldehyde, 6071*h*
——, Tartar, H. V., and Lingafelter, E. C. Hemiacetal formation in alc.-aldehyde systems (I) cryoscopic studies, 5740*c*.
**MacKenna, R. M. B.** Modern Trends in Dermatology (book), 3517*i*
**McKennis, H., Jr.** See Stevens, C. M. and Gaffney, G. W. Allocholesterol and epiallocholesterol, 243*g*
**McKennon, F. L.**, Johanson, A. J., Field, F. T., and Lawrence, R. V. Emulsifiers for GR-S from resin acid derivs., 7252*h*
——— and Lawrence, R. V. Salts of *l*-pimaric acid maleic anhydride addn. product for emulsion copolymerization, P 4508*c*.
**McKenzie, A. E. E.** General Physics (book), 932*f*
**MacKenzie, A. J.** See Dean, L. A.; Hall, N. S., Nelson, Walter L.
**McKenzie, B. F.**, Mattox, V. R., and Kendall, E. C. Steroids from bile acids (VIII) catalytic hydrogenation of methyl 3(α)-hydroxy-12-keto-$\Delta^{9,11}$-cholenate and related compds., 3433*f*
**MacKenzie, C. A.** See Jeremias, C. G
**McKenzie, D.** See Kushner, S
——, Malone, L., Kushner, S., Oleson, J. J., and SubbaRow, Y. Effect of nicotinic acid amide on tuberculosis, 6728*g*.
**McKenzie, D. A.** Bacterial faults of milk, 5509*c*
**McKenzie, H. A.** Polarographic current-time curves, 2100*i*; effect of the viscosity of the medium on polarographic diffusion currents, 4929*i*; see Dwyer, F. P.
**Mackenzie, H. A. E.**, and Winter, E. R. S. Kinetic studies in the solvents AcOH and $Ac_2O$ (III) thiele acetylation of benzoquinone and toluquinone, 26*e*.
**Mackenzie, J.** Changes in blast-furnace stove refractories, 2302*b*; see Andrews, K. W.; Chesters, J. H.
**MacKenzie, J. B. D.** See Foster, R. T.; Jones, G. H.
——— and Robertson, A. Chemistry of fungi (I) synthesis of 6-hydroxy-3,4-dimethoxyphthalic acid, 7459*h*.
**Mackenzie, J. E.** Marc Tiffeneau, 7761*e*.
**Mackenzie, J. T., Jr.** See Rickett, R. L.
**MacKenzie, K. R.**, Schmidt, F. H., Woodyard, J. R., and Wouters, L. F. Design of the radiofrequency system for the 184-in. cyclotron, 4108*i*.
**Mackenzie, Kenneth R.** See Friedman, S. M.
**McKenzie, M. G.** See Nightingall, R. V.
**MacKenzie, P. B.** See Bowman, F. T.
**Mackenzie, R. C.** Complexes of clays with org. compds. (II) ethylene glycol-water-montmorillonite, 463*f*.
**McKenzie, T. M.** See Christensen, H. N.
**McKeown, C. G.** Filter arrangement for air-washing app., P 913*e*.
**McKercher, B. H.** Oil and vitamin A content of the livers of flat fish, 2373*d*
**McKern, H. H. G.** See Penfold, A. R.
——— and Smith-White, S. Distn. app. for the detn. of the essential-oil content of plant material, 7191*i*
**McKernan, E. J.** Spray-wax aerosols, 8087*h*.
**McKesson & Robbins, Inc.** Penicillin mixt., P 3573*f*, insect-repellent stick, P 4421*a*, purifying and concg. sesamin exts., P 5151*b*, extn. of sesamin, P 5151*c*.
**MacKey, J.** See Gustafsson, A.
**McKibben, J. N.** See McCoy, R. H.
**McKibbin, J. M.** See Westerfeld, W. W.
———, Ferry, R. M., Jr., and Stare, F. J. Parenteral nutrition (II) utilization of intravenous emulsified fat, 2679*a*.
——— and Taylor, W. F. Nitrogenous constituents of the tissue lipides (I) extn., purification, and hydrolysis of tissue lipides, (II) detn. of sphingosine in tissue lipide exts., 4724*e*
**Mackie, A.** Benzylidene deriv. of 3-keto-6,7-dimethoxy-2,3-dihydrobenz-1,4-thiazine, 8393*i*
**Mackie, H. B.** See Davis, Harold
**Mackie, W. Z.**, Chatterjee, B., and Jackson, M. L. Mineral crystal forms in soils (I) single-component clays and synthetic mixts., 1129*a*.
**Mackievič, J.** Al and its alloys, 2915*c*
**Mackin, G. E.** See McGovern, J. N.
**McKinlay, D. N.** See Ross, K. B.
**McKinlay, P. F.** See Park, C. F., Jr.
**McKinley, C.** See Busse, W. F.
**McKinley, J. B.** Destructive hydrogenation of heavy hydrocarbon oils, P 9431*a*
**McKinley, J. J.** See Lacher, J. R.
**McKinley, T. D.** Sintered B articles, P 3731*f*
**McKinley, W. A., Jr.**, and Feshbach, H. Coulomb scattering of relativistic electrons, 1642*c*.
**Mackinney, G.** See Hass, V. A., Luck, J. M., Mrak, E. M.
——— and Temmer, O. Deterioration of dried fruits (IV) spectrophotometric and polarographic studies, 1121*a*
**McKinney, G. R.** Effect of a N mustard on certain synthetic reactions, 7139*b*
**McKinney, L. L.** Protein-formaldehyde dispersions, P 3120*a*.
——— and Sollars, W. F. Extn. of soybean protein with $H_2SO_3$, 5133*a*.
———, Sollars, W. F., and Setzkorn, F. A. Prepn. of soybean protein free from P, 5062*a*
**McKinnis, A. C.** Azeotropic distn., P 3187*a*
**MacKinnon, C. E.** See McCahan, R. H.
**MacKinnon, J. C.**, and Hickler, W. R. Structural material for aircraft, P 2472*d*.
**McKinstry, D. W.** Antibacterial properties of cyanine, 8444*d*.
**McKinstry, H. E.** Structural geology of Canadian ore deposits, 1291*f*
**McKinstry, R. G.** Automatic control from a combustion engineering viewpoint, 2386*i*
**McKittrick, D. S.** Interrelations of choline and glycine betaine in the growth of the chick, 1470*b*
**Mackie, H.** Influence of impurities in the rate solvent on the induction periods, and rate of formation, of Grignard compds., 3780*d*.
——— and Ubbelohde, A. R. Thermochem. evaluation of the bond strengths in some C compds. (I) (methyl C)-I and (methyl C)-Mg, 991*g*.
**Mackler, B.** See Rapoport, S.
——— and Guest, G. M. Urinary excretion of amino acids during alloxan-induced diabetes in rats, 8057*b*.
**Macklin, P. A.** See Goldin, A. S.
**Macklin, R. L.** $U^{235}$ γ-radiation, 8872*f*; see Knight, G. B.
**McKnight, C. M.** Treating oil wells, P 1557*a*.
**McKnight, F.** Finishing of motors at Westinghouse, 874*b*.
**Mackowsky, M. T.** Coals, cokes, and graphites (I) coal classification, 7661*f*, see Dahme, A.
**McKusick, B. C.** Methylene- and ethylidenedithiophene derivs., P 6238*a*; see Dauben, H. J., Jr.
**McLachlan, D., Jr.** Detn. of relative phases of Fourier coeffs. from x-ray diffraction data, 3709*f*, incorporating into the Fourier equations for x-ray studies previously established structural information, 4083*e*
——— and Christ, C. L. Projection of crystal structure factors on the reciprocal lattice, 8858*g*.
**McLachlan, E. A.** See Gardner, L. I.
**McLachlan, T.** Fire risk and flash point, 2373*h*.
**McLafferty, F. W.** See Pagel, H. A.
**Maclagan, N. F.** See Henderson, J.
**McLamore, W. M.** β-(Allylamino)propionitriles, P 2226*g*; see Woodward, R. B.
**McLane, C. K.** $H_2O_2$ in the thermal H-O reaction (I) thermal decompn. of $H_2O_2$, 7305*h*.
**McLaren, A. D.** Derivs. of 3,5-dimethylhexanoic acid, 5740*f*, adhesion of high-polymers to cellulose—influence of structure, polarity, and tack temp., 8133*d*; see Cutler, J. A., Levy, B., Mandl, I., Seiler, C. J.
——— and Pearson, S. Photochemistry of proteins (V) effect of pH and urea on ultraviolet light inactivation of cryst. pepsin, 7982*f*
——— and Schachat, R. E. Beckmann rearrangement of aliphatic ketoximes—comparison of the influence of reagents on the course of the rearrangement, 5740*d*.
——— and Seiler, C. J. Adhesion (III) adhesion of polymers to cellulose and Al, 8206*f*
**McLaren, B.** See Chang, I.
**McLaren, H. D.** Porcelain enamel as a protective finish, 5917*d*
**McLaughlin, A. I. G.**, Rogers, E., and Dunham, K. C. Talc pneumoconiosis, 9518*a*
**McLaughlin, D. B.** Emission band structures of Nova Persei 1901 and Nova Geminorum 1912, 938*c*; spectrum of ζ-Aurigae during eclipse, 1263*h*; transition stage of Novae, 5302*a*; spectrum of Nova Persei 1901, 8877*c*.
**McLaughlin, J. L.** Evaluating adherence of blue sheet-iron ground coats, 5165*a*.
**McLaughlin, K. C.** See Jones, R. G.
**McLaughlin, R. R.** Liquid-liquid extn. of waste sulfite liquor, 7682*e*.
——— and Aziz, D. Adsorption of gases by solids, 8232*i*.
**MacLaurin, D. J.**, and Van Allen, A. M. Performance of a whole log chipper and assocd. equipment, 1182*b*.
**McLaurin, N. H.**, McIntosh, C. H., and Kaufman, D. S. Hydroforming and thermal reforming operations on straight-run naphthas, 7218*f*
**Maclay, W. D.**, and Owen, H. S. Pectinate films, 6747*f*
——, Shepherd, A. D., McCready, R. M., and Graham, R. P. Low-methoxyl pectinic acids from Al-pectin compns., P 3842*a*.
**McLean, A.** See Fort, G.; Marrian, S. F.; Zentfman, H.
——— and Marrian, S. F. Flameproofing cellulosic materials, P 5604*c*, 6428*h*.
**McLean, A. C.** See Howard, G. A.
**MacLean, A. F.** Melamine, 1068*i*; see Paden, J. H.
**McLean, D.** See Trotter, J.
**MacLean, D. B.**, Morton, M., and Nicholls, R. V. V. Compositional heterogeneity of copolymers—effect on viscosity and fractionation, 8728*h*.
**Maclean, D. J.** Stabilization of soils, 3955*e*.
**McLean, D. M.** Sclerotinia stalk rot in cabbage seed plants in Skagit Co., Wash., 7179*h*.
——— and Bjornseth, E. H. Control of anthracnose on cannery tomatoes, 2356*e*.
**McLean, E. O.** See Marshall, C. E.
**McLean, E. R.** Molding compn., P 4051*a*.
——— and Jenkins, D. M., Jr. Zn and high-Zn alloy dyeable corrosion-resistant surfaces, P 7894*i*.
**McLean, F. C.** See Bloom, W.; Urist, M. R.
**McLean, R.**, Moritz, A. R., and Roos, A. Thermal injury (VI) hyperpotassemia caused by excessive heat, 7109*f*.
**Maclekilde-Pedersen, E.** App. for removing $CH_4$ from soil water, 3951*e*.

**McLendon, V. I.** See Furry, M. S.
**McLeod, C.** See Garson, W.
**MacLeod, C. M.** Evaluation of Chemotherapeutic Agents (book), 8619*b*; see Austrian, R.
**MacLeod, D.** See Gouge, M. G.
**MacLeod, F. L.** See Williams, D. E.
**MacLeod, G.** See Taylor, C. M
**McLeod, H.** Scrap Fe and steel in Canada, 1296*h*
**McLeod, H. M., Jr.** See Bridger, G. L.
**MacLeod, J.**, Swan, R. C., and Aitken, G. A., Jr. Li—its effect on human spermatozoa, rat testicular tissue, and on rats *in vivo*, 7144*i*
**McLeod, N. W.** See Baskin, C. M
**MacLeod, P.** See Anderson, E. O.
**MacLeod, R. A.**, and Snell, E. E. Effect of related ions on the K requirement of lactic acid bacteria, 1828*f*.
**McLeod, R. H.** Corrosion problems in water wells, 1884*i*, cathodic-protection application and installation to pipe lines, 3336*e*.
**McLester, J. S.** Nutrition (book), 5103*b*
**McLoud, E. S.** Refining of sugar-cane wax, P 2795*h*
**McMahon, E. K.** See Jelinek, R. V.
**McMahon, E. M.** See Hasche, R. L.
——, Roper, J. N., Jr., Ulrmnohlen, W. P., Jr., Hasek, R. H., Harris, R. C., and Brant, J. H. Prepn and properties of Et vinyl ketone and of Me isopropenyl ketone, 564*g*
**MacMahon, H. E.**, and Thannhauser, S. J. Xanthomatous biliary cirrhosis, 3095*f*.
**McMahon, H. O.** See King, G. W.
——, Hamer, R. M., and King, G. W. Low temp. infrared transmission cell, 8750*f*
**MacMahon, J. D.** See Vincent, G. P.
**McMahon, R. E.** See McIlvain, S. M., Roberts, J. D.
**McMahon, T. M.** See Hutchens, J. O.
**McMahon, W.** Insulating paper, 2342*i*.
**McManus, D. K.** See Schultz, A. S.
**McManus, E. C.** See Scheidy, S. F.
**McMaster, R. C.** Org. coatings for the prevention of premature corrosion-fatigue failures in steel, 6560*e*
**McMasters, M. M.** See Wolf, M. J.
**McMath, R. R.** See Goldberg, L., Mohler, O. C.
——, Mohler, O. C., and Goldberg, L. Developments in infrared solar spectroscopy, 939*e*, telluric bands of $CH_4$ in the solar spectrum, 3714*f*.
**McMichael, S. C.**, and Brinkerhoff, L. A. Cottonseed-treatment tests at the U. S. Cotton Field Station, Shafter, Calif., 803*e*
**McMillan, D. R., Jr.** See Lagemann, R. F.
**McMillan, E. B.**, and Straubel, D. F. Laminated structures for enclosing antennas, P 9535*f*
**McMillan, E. M.** See Cook, L. J.
**McMillan, F. H.**, and Albertson, N. F. Di-*kl* N-benzyl-DL-aspartate and related compds., 1352*c*
—— and King, J. A. Willgerodt reaction (VI) primary thiol oxidation, 2187*g*.
**McMillan, G. C.** See Duff, G. L.
**McMillan, G. W.** Purification of penicillin solns., P 8106*h*.
**MacMillan, J.** See Buchanan, G. L.
**MacMillan, J. A.**, and Smith, G. V. Susceptibility to graphitization of modified Mo steel, 3759*i*.
**MacMillan, R. L.** Action of dicoumarol, 2086*d*.
**McMillan, W. D.** Montezuma and Chinati Zn-Pb deposits, Shafter districts, Presidio County, Tex., 6950*g*; Alfred Davis soapstone deposits, Gillespie Co., Tex., 6953*d*; see Huseman, G. W.
—— and Gerhardt, A. W. Vermiculite deposits, Llano Co., Tex., 6953*e*
—— and Wilson, A. O. Central Kansas clay deposits, 2134*f*.
**Macmillan, W. G.** See Bhattacharjee, H. P.
**McMillen, W. N.** See Luecke, R. W.
**McMorran, H.** Gristing balance, 3623*d*
**McMorris, W. B.** How to avoid oil-waste pollution, 9309*b*.
**MacMullen, C. W.**, and Ozar, C. G. Na silicates in metal cleaning, 3766*e*.
**McMullen, J.** See Monks, J. A.
**McMullen, J. C.** Fused cast alumina refractory, P 6804*b*.
**McMullin, H. L.**, *et al.* After-pptn. from treated water—cause and prevention, 3547*b*.
**McMullin, J. G.**, and Norton, J. T. Structure of Au-Ag-Cu alloys, 2562*c*.
**MacMullin, M.** See Larsen, A. A.
**McMullin, R. B.** See Wood, Joseph L.
**McMurdie, H. F.** Microstructure of bone char, 8649*h*, see Levin, E. M.
—— and Golovato, E. Modifications of $MnO_2$, 3303*e*
**McMurray, L. G.**, Roe, J. H., and Sweet, L. K. Plasma protein studies (I) plasma protein values for normal full term and normal premature infants, (II) use of coned. normal human serum albumin in treatment of premature infants, 3086*a*.
**McMurray, L. L.** Starch caustic in apatite ilmenite froth flotation, P 4624*b*.
**McMurry, H. L.** See Beu, K. F.
**McMurtrie, R. L.**, and Keyes, F. G. Measurement of the diffusion coeff. of $H_2O_2$ vapor into air, 2056*i*
**McNab, J. G.**, and Bartlett, J. H. Lubricating-oil compn., P 1458*f*
——, McNulty, G. M., and Cross, T., Jr. Lubricating oil compn., P 9431*g*.
——, and Rovers, D. T. Stabilization of crankcase lubricants, P 5184*f*
**McNabb, A. R.** See Johnson, A. C.
**McNabb, W. M.** See Cooke, W. D., Devlin, J. A., Freeman, J. H., Martin, E. W.
**McNabney, R.** See Burkard, P. N.
**MacNair, D.** See Hannay, N. B.
**MacNair, J. L. P.**, and Genders, R. Steel, P 5729*d*
**Macnair, P. M.** Ingot structures in a series from rimmed to killed steels, 2908*f*, electrotinning, 8900*e*
**McNair, R.** Cleaning—prepn. of metals prior to electrodeposition, 94*h*, barrel plating—plant—processes—electrolytes, 2098*i*.
**McNally, J. F.** See Rochen, F. J.
**McNally, J. G.** See Dickey, J. B.
—— and Dickey, J. B. Dyes, P 7694*b*
**McNally, J. R., Jr.** Spectra of U isotopes, 4567*a*
——, Molnar, J. P., Hitchcock, W. J., and Oliver, N. F. High members of the principal series in Cs, 2509*g*
**McNamara, B. P.** See Philips, F. S.
—— and Krop, S. Influence of delta and gamma benzene hexachloride on the O uptake of brain, 5113*g*
**Macnamara, J.** See Thode, H. G.
——, Collins, C. B., and Thode, H. G. Mass spectrometer detn. of the half life of $Xe^{129}$, 1120*g*
**McNamee, R. W.** See Guest, H. R.
**McNaught, K. J.** Co, Cu, and Fe in the liver in relation to Co-deficiency ailment, 8163*e*
**McNaughton, R. A.** See Zeller, E. A.
—— and Zeller, E. A. Specificity and differentiation of cholinesterases, 3857*h*
**McNaughton, R. R.**, Weldon, T. H., Hargrave, J. H., and Whiton, L. V. O enriched air in the metallurgical operations of Commco at Trail, B. C., 8090*e*
**McNeal, F. H.** Effect of 2,4-D on Federation wheat, 1894*f*
**McNeal, J. H.** See Skinner, G. S.
**McNeely, W. H.** See Steiner, A. B.
**McNeer, R. D., Jr.** See Scherer, P. C.
**McNeil, G. C.** See Hoffman, W. S.
**McNeil Bros. Inc.** Flotation app. adapted to sepn. of coke and cinder, P 1172*b*
**McNeill, H. L.** Flotation process, P 4057*d*
**MacNevin, W. M.** Administrative and teaching problems of large classes in quant. analysis, 1619*b*.
—— and Martin, G. L. Electrolytic oxidation of trivalent As in acid soln., 3728*c*
—— and Tuthill, S. M. Electrolytic sepn. of Rh from Ir at controlled cathode potential, 8956*c*.
**McNew, G. L.** See Burchfield, H. P.
**MacNicol, N.** Refuse collection and disposal practice in Canadian municipalities, 3547*f*
**MacNider, W. de B.** Intravenous use of glucose in an intoxication by U nitrate, 2699*i*.
——, Trott, J. C., Jr., and Bruce, M. D. Inability of 2,3-dimercaptopropanol (BAL) to prevent or to modify the acute renal injury induced by uranyl nitrate, 1110*f*
**McNitt, R. J.** Electrolytic cell for fused NaCl bath, P 50*i*.
**MacNulty, B. J.** See Cooper, K. A.
**McNulty, G. M.** See McNab, J. G.
**McNulty, H. P.** See Dittmer, K.
**McNutt, J. E.** See Gangler, J. J.
**McNutt, W. S.** See Kitay, E.; Snell, E. E.
**Mácola, B. A.** See Fazio, C., C.
**McOmie, J. F. W.** See Pollard, F. H.
**McOmie, W. A.** Toxicities of methacrylonitrile and acrylonitrile, 7577*g*.
—— and Anderson, H. H. Comparative toxicologic effects of some isobutyl carbinols and ketones, 7140*c*; toxicity of dicyclohexylamine nitrite, 7140*e*.
——, Anderson, H. H., and Estess, F. M. Toxicity of certain *tert* butyl substituted cresols and xylenols, 8554*a*.
**Macormac, A. R.** See Merrill, G. R.
**Macorra, L. de la.** Na perborate in diseases of the mouth, 8614*c*.
**Macovski, E.** Permeability of living membranes (XIII) toxicity of different concns. of sea water on *Daphnia magna*, 4392*a*.
—— and Bachmeyer, C. *N*-(α-1-Piperidyl-benzyl)benzamide, 1408*g*; benzylidene-1-piperidyl-*N*-benzamides, 3805*e*; transformation of some groups in the ortho position during the stilbene synthesis (II), 3811*i*
—— and Georgescu, J. Condensation of 3-methyl-6-nitrobenzonitrile and 3-methyl-6-nitrobenzamide with benzaldehyde, 3805*c*, transformation of certain groups situated in the ortho position during the synthesis of stilbenes (III) transformation—a new intramol. rearrangement, 3812*d*; stereochem. considerations in estrogenic activity, 3909*d*
—— and Jivănescu, A. Artificial gills as an aid in studies on the permeability of living membranes (VI) penetration of methyl violet through a cellophane membrane, 4361*b*
—— and Opreanu Dumitresco, Z. Substitution of K ferricyanide and $CCl_4$ for trichloroacetic acid and K sulfate in the Kowarsky method, 3484*d*
—— and Zinca, V. Artificial gills as an aid on the permeability of living membranes (V) penetration of BuOH through a cellophane membrane, 4361*a*
**McPhail, M. K.** See Jarowski, C. I.
**MacPhail, R. B.** See Klain, P.
**McPhee, K. H.** M. p. chart, 19*g*
**McPhee, W. D.** See Hurd, C. D.
**Macpherson, C. D.** Metal stamping die, P 5318*g*
**McPherson, D.** See Brown, D., & Sons (Huddersfield) Ltd.
**MacPherson, D. B.** Cr plating in industry, 950*d*
**McPherson, D. J.**, and Fontana, M. G. Melted and forged Ti-Cr alloys, 3766*b*
**MacPherson, D. R.** Grinding hydraulic cement, P 9410*g*
**McPherson, J. B., Jr.** See Frank, R. L.
**Macpherson, M. G.**, and Young, F. G. Chem. compn. of marine algae, 7094*f*
**Macpherson, O. M.** NaF for the treatment of round worms in pigs, 7186*i*
**McPherson, R. R.** See Kagy, J. F.
**McPherson, W. H.** See Pigman, W. W.
**MacPhillamy, H. B.** See Winterstemer, O.
—— and Scholz, C. R. Synthesis of 17-(methyl-$C^{11}$)-testosterone and 21-$C^{14}$-progesterone, 5029*a*, introduction of double bonds into steroids by the use of the Hofmann degradation, 9076*g*
**McQuary, W. A.** See Wallach, A.
**McQue, B.** See Staffl, W. H.
**McQueen, D. M.** Photographic antihalation elements, P 4166*c*; *m*-acylaceto-amidobenzaldehyde acetals of alkanols, P 4299*e*; azomethine dyes, P 8161*h*.
—— and Weaver, C. Photographic elements having antihalation layers, P 54*b*, water-permeable polycarbonamide layers for binding Ag salts, P 8025*f*
**MacQueen, J. M.** See Boyd, T. F.
**McQueeney, A. J.**, Ashburn, L. L., Daft, F. S., and Faulkner, R. R. Tissue changes and Na balance in pantothenic acid deficient rats, 7098*g*.
**McQuillan, A. D.** Allotropic transformation in Ti, 7770*h*.
**McQuillin, F. J.** See Cardwell, H. M. E.
**McQuire, R. C.** Electrodeposition of Ni, P 2880*a*.
**McRary, W. L.** Vitamin A content of the liver of the frilled shark, 3150*d*.
**McRaynolds, A. W.** Plastic deformation waves in Al, 2557*g*.
**McReynolds, H.**, and Barron, J. M. Thermal cracking of fluid-catalytic-cycle gas oils, 7218*e*.
**McReynolds, L. A.** See Trimble, H. M.
**Macri, B. P.** See Boroff, D. A.
**Macris, C. G.** See Matthaiopoulos, G.
**McRoberts, L. H.** Mold inhibitors, propionates, 7151*f*, 9278*b*.
**McShan, W. H.** See Davis James S.; Kupperman, H. S.; Meyer, R. K.
—— and Meyer, R. K. Gonadotropic ac-

tivity of granules isolated from rat pituitary glands, 9203*b*.
**McShane, W. P.** See Fleischmann, W.
**McSkimin, H. J.** See Bozorth, R. M.; Mason, W. P.
**MacSwain, J. W.** See Smith, R. F.
**Macsween, J. C.** See Wellcome Foundation Ltd.
**Mactaggart, E. F.** Drying machinery and its development, 2823*f*
**McTaggart, K.** See Kraitzer, I.
**McTigue, F. H.** See Bergmann, W.
**Macuga, S. J.** See Ciapetta, F. G.
**McVey, W. H.** See Connick, R. E.
**MacVicar, R.** N compn of cereal grasses (I) principal N fractions, 7595*e*; see Moyer, F.
——— and Burris, R. H. Translocation studies in tomato using $NH_4$ sulfate labeled with $N^{15}$, 1465*c*, studies on N metabolism in tomato with use of isotopically labeled $(NH_4)_2SO_4$, 1841*a*.
**MacVicar, R. W.** See Long, R. A.; Ross O. B., Stephens, D. F.
**McVickar, M. H.** Progress in agricultural research with radioactive materials, 1134*g* see Rich, C. I.
**McWhirter, L.** See Overcash, J. P.
**McWhorter, C. J.** See Barnaby, H. I.
**McWhorter, P. L., Jr.** Furfuryl alc. resin P 6163*f*
**McWilliams, H. B.** See Ershoff, B. H.
**Macy, I. G.** See Coryell, M. N.; Lesher M., Moyer, E. Z.
**Madan, M. L.** See Hoon, R. C.
**Madansky, L.** Measurement of lifetimes of short lived metastable states, 4559*g*, see Pidd, R. W.
——— and Wiedenbeck M. L. Measurement of the decay time of short lived metastable states 4091*g*
**Madaras, G. W.** Catarole process—chemicals from petroleum in the dyestuff and textile industries, 1172*h*
**Maddams, W. F.**, and Schnurmann, R. Ultraviolet absorption spectra of phenanthrene, 2861*g*.
**Madden, A. H.** See Lundquist, A. W.
Lundquist, A. W., and Jones, H. A. Fly larvicide tests, 3555*h*.
**Maddern, I. M.** Measuring steam condensate by orifice, 1615*a*.
**Maddigan, S. E.** Crystn. of polymorphous substances from the vapor phase (II), 1431*f*
**Maddin, R.**, Mathewson, C. H., and Hibbard, W. R., Jr. Origin of annealing twins in brass, 7887*g*, active slip systems in the simple axial extension of single crystals of α-brass, 9003*a*
**Maddison, L.** See Hibitich, T. P.
**Maddock, A. G.** Detn of radioactive and stable tracer isotopes—measurement of activity, 2861*g*, see Emeléus, H. J.
**Maddock, W. O.**, and Heller, C. G. Gonadotropic hormone—protection against insecticidation 7566*a*.
**Maddocks, W. R.**, and Turkdogan, E. T. Effect of $Na_2O$ additions to steelmaking slags. (I) use of soda to dephosphorize pig iron 7878*h*.
**Maddox, G. E.** See Dudley, H. C.
**Maddox, R. A.** Anhydrous $NH_3$ and N solns as fertilizer, 797*a*
**Maddy, K. H.**, and Silvehem, C. A. Growth of mice fed rations contg. free amino acids, 5097*b*.
**Mader, W. J.** See Szalkowski, C. R.
——— and Frehani, H. A. Detn of folic acid, 831*g*
**Madge, E. W.** See Murphy, Edgar A.
**Madigan, J. C.** See Smith, H. S.
——— and Adams, J. W. Latex incorporated carbon black for synthetic rubber, 894*c*.
——— Howland, I. H., Burns, E. R., and Bawn, C. V. Low-water-absorption copolymers—nonstaining superior processing type, 2017*b*.
**Madinaveitia, J.** See Francis, J.
——— and Raventós, J. Antimalarial compds as antagonists of adenosine, 7590*h*.
**Madison, K. K.** See Elliott, D. R.
**Madjerek, Z.** See Harris, A. S.
**Madono, O.** Gray cast Fe for piston rings, 7394*g*
**Madorsky, S. L.** See Brewer, A. K.
———, Brandt, P., and Straus, S. Concn. of isotopes of Hg in countercurrent mol. stills, 1430*h*,
———, Straus, S., Thompson, D., and Williamson, L. Pyrolysis of polyisobutene (Vistanex), polyisoprene, polybutadiene, GR-S, and polyethylene, 7742*e*.
**Madow, B.** See Maron, S. H.
**Madrazo, M. A. L.** See López Madrazo, M. A.
**Madrid S., C.** Soil in tropical regions, 1129*b*.
**Madsen, C. B.** See Huus, T.
——— and Venkateswarlu, P. Energy straggling of protons, 3280*d*.
**Madsen, E.** See Bak, B.
**Madsen, F.** Testing of watered milk, 1495*g*.
**Madsen, L. L.** Nutritional diseases of farm animals, 8022*b*, see Harris, J. R.
**Madsen, P. B.** See Bastrup-Madsen, P.
**Madueño Box, M.** Influence of N fertilizers on some varieties of *Stramonium* and the alkaloid content, 2724*b*.
**Maeda, H.** Lignosulfonic acid (I) surface activity, (II) tanning function, 1972*d*.
——— and Kobayashi, K. Sulfite cooking process (I) difficulty of pulping larch heartwood and chem. compns. of heart- and sapwood, (II) penetration of bisulfite liquor into wood and the difficulty of sulfite cooking of larch heartwood, (III) hindering effect of larch heartwood resin on sulfite cooking process, (IV) sulfonation of lignin and effect of larch heartwood resin on sulfite cooking process, (V) effect of the penetration of cooking liquor on the hindering action of resinous matters in the sulfite cooking of Japanese larch, (VI) functions of polysaccharides contained in the heartwood and effects of water extn. in the sulfite cooking of Japanese larch, 2432*h*
**Maeda, M.** Metallic W, P 6065*e*.
**Maeda, Sadamasa.** See Katsura, Shigehiro.
**Maeda, Sentaro.** 1-Phenyl-3,4-dimethyl-4-dimethylamino-5-pyrazolone, P 3467*b*.
**Maeda, Y.** See Nunn, O.
**Maeder, H. G., Jr.**, and Day, M. R. Container closure, P 2025*e*
**Maeder, R.** Absorption spectrum of diat S in the Schumann region, 1264*a*.
**Maekawa, G(iro).** Hydrates of alk. earth aluminates (I) thermal decompn of $3CaO\cdot Al_2O_3\cdot 6H_2O$, (III) of the hydrates of Ba aluminates, (IV) of $2CaO\cdot Al_2O_3\cdot 9H_2O$ and $4CaO\cdot Al_2O_3\cdot 12H_2O$, (V) hydrates of Sr aluminate and its thermal decompn., (VI) conclusion, 1277*e*
**Maekawa, Y(oshiro).** Same as Maekawa, G(iro).
**Maestra, A la.** See La Maestra, A.
**Maetz, H.** See Oelsen, W., Wentrup, H.
**Maetzig, K.** See Keller, J. M.
**Maeyama, T.** See Hatoyama, M.
**Maffei, F. J.** Velocity of the inversion of saccharose by tartaric, citric, and phosphoric acids, 4503*d*, see Hoffmann, A.
——— and Wasicki, R. App for micro and macro m.-p. detns., 2473*d*
**Maffei, S.** See Crippa, G. B.
**Maffi, M.** Detection and detn of chlorinated hydrocarbons in the atm. and in organs 973*f*
**Maffitt, D. L.**, Goit, L. E., Pracy, G. W., and Wertz C. F. Cement as a jointing material, 8635*e*
**Magalhães Pecego,** Intoxicat pigs by Zn lactate in whey, 1501*a*
**Magasanik, B.** See Chargaff, E.
——— and Chargaff, E. Structure of cyclohexose from D-inositol by hal. oxidation, 153*b*; oxidation of D-quercitol by *Acetobacter suboxydans*, 4726*g*.
**Magat, M.** Dielec. dispersion of water, 7279*c*, see Carter, W. C., Lacau, J., Landler, L.; Moureu, H.; Scott, R. L.; Vaillard, R.
**Magdalena, V. A.** Detn. of Au, using oxalic acid as reducing agent, 4597*i*.
**Magee, M. Z.**, and Hofmann, K. Curtius reaction in the polymerization of triglycine, 5743*c*.
**Magee, R. J.**, and Wilson, C. L. Physicochem methods in microchemistry (III) stabilization of the micro-Beckmann thermometer in detns. of mol wt, 1687*c*.
**Mager, E. L.** See Lowry, E. F.
**Maget, K.** See Feitknecht, W.
**Maggio, G. di.** See Di Maggio, G.
**Maggiolo, A.** See Elderfield, R. C.
**Maggioni, G.** Detn. of salicylic acid in org. liquids and tissues, 8419*h*.
**Maggiora-Vergano, T.** See Cattaneo, Piero.
**Maggs, F. A. P.** See Bond, R. L.
**Magidson, O. Yu.** See Fedosova, V. M.; Sokolova, V. N.
——— and Fedotova, N. Ya. 2-Amino-4,6-dimethylpyrimidine, P 3854*f*.
**Magie, E. O.**, and Miller, H. N. Controlling storage rot of gladiolus, 3961*f*.
**Maginnity, P. M.**, and Cloke, J. B. App for detn. of groups active to the Grignard reagent, 1226*h*.
**Magistretti, L.** Gold of the Ticino River, Italy, 2130*f*; pegmatite dikes near Mount Legnoncino, near Lake Como, 4600*h*, octahedrite from Val Malenco and other Italian localities, 4979*f*
**Maglio, M. M.** Antiseptic soaps, 1201*g*.
**Magnan, C.** Proton microscope, 5660*a*.
**Magnani, A.** See Julian, P. L.
**Magnani, M.** Mineral compn. of river sands of Ethiopia, 2129*e*; Sn ores of Comeghians, Italy, 2133*h*.
**Magnavox Co.** Condensers with titanate dielectrics, P 510*c*, 2106*a*; porous electrode for electrolytic cells, P 6097*e*.
**Magnée, I. de.** Occurrence of loellingite ($FeAs_2$) in the Sn-bearing pegmatite of Manono, Katanga, 6543*e*
**Magnel, G.** Applications of prestressed concrete, 9410*a*.
**Magnéli, A.** Crystal structures of $Mo_5O_{14}$ ($\beta'$-Mo oxide) and $Mo_8O_{23}$ ($\beta$ Mo oxide), 3261*a*, crystal structure of $Mo_4O_{11}$ ($\gamma$-Mo oxide), 4072*h*, x-ray studies on the system Mo trioxide–W trioxide, 8248*e*.
**Magnes, J.** See Bessman, S. P.
**Magnesium Elektron Ltd** Mg-Zr alloys, P 1308*a*, Mg alloy, P 3311*h*; flux for Mg, P 4209*e*, Mg base alloys, P 4211*c*
**Magnesium Metal Corp. Ltd**, and Carter, A. G. Hydrogen by conversion of CO with steam, P 840*b*.
**Magness, R. M.** See Jacob, K. D.
**Magnet Cove Barium Corp.** Preventing fluid loss through porous walls, P 8662*f*
**Magnétos Lucifer, S. A.** Anodic oxidation of Al and Al alloys, P 5681*f*
**Magnus, P. v.** See Gard, S.
**Magnusson, L. B.** See Hindman, J. C.
——— and LaChapelle, T. J. First isolation of element 93 in pure compds and a detn. of the half-life of $_{93}Np^{237}$, 2089*g*
**Magoffin, R.**, Anderson, D., and Spink, W. W. Therapy of *Brucella* infection in the chick embryo (IV) therapy with aureomycin, 7589*b*
**Magrini, A.**, and Furbetta, D. Catalase activity of human excretions—urine, gastric juice, bile, spinal fluid, 6257*c*.
**Magrini, G.** Insol. and transparent adhesive, P 4899*d*
**Magro, F. M. y, Jr.** See Mas y Magro, F., Jr.
**Magruder, R. S.** Roberts grinder in manufg. groundwood, 2772*c*
**Maguidson, O.** See Magidson, O. Yu.
**Maguire, J. B.**, and Gould, D. F. Sulfonation of benzene, P 3457*b*
**Magyar, I.**, and Foldi, M. Adrenal cortex and phosphorylation, 1851*a*
——— and Resofszky, P. Effect of thiamine on the utilization of carbohydrates by the tissus, 2294*f*, 9184*a*.
**Magyar Állami Vas- Acél- és Gépgyárak.** Agglomeration of fine-grain iron ores or industrial wastes contg. Fe, P 1708*f*
**Magyar Amerikai Olajipari R. T.** App for detn. of hydrocarbons in the strata of deep wells, P 1955*a*
**Magyar Vegyimuvek R. T.** Dihydric alcs. —butylene glycol, P 2223*h*
**Magyar Viscosa R. T.** Sol. cellulose glycol ethers, P 9446*a*
——— , Móri-Konig, G., and Nemes, L. Neutralization of alkalies in the etherification of cellulose, P 9446*c*.
——— and Sándor, G. Sol. cellulose ethers, P 9445*i*.
**Magyar Waggon és Gépgyár R. T.** and Rimamurany-Salgótarjani Vasmu R. T. Armor plate, P 1709*g*
**Magyary-Kossa, G.** See Csáky, T. Z.
**Mahadevan, A. P.** See Hodgson, H. H.
**Mahadevan, C.**, and Sastry, G. Optically positive cordierite from the khondalites of Pachipenta, Vizagapatam District, 976*h*.
**Mahajan, L. D.**, and Mathur, O. C. Purity of milk, 8067*d*
**Mahan, J. E.** *N*-Substituted amides, P 8598*f*, see Schulze, W. A.
**Mahan, W. A.** Detg. residual Cl in water, 5139*a*.
**Mahapatra, B.** See King, R. O.
**Mahar, J. F.** See Tamele, M. W.
**Mahaux, J.**, and Kowalewski, K. P. Action of diethylaminoethyl ester of phenylcyclopentanecarboxylic acid (parpanit) on basal metabolism and on the thyroid, 4373*i*.
**Mahdihassan, S.**, and Bakshi, V. M. Standardizing liver exts., 7076*c*.
**Mahé, J.**, Rollet, J., and Willemart, A.

Prepn. of the double Li Al hydride, 8936*d*.

**Maher, G. G.** Semimicrodetn. of uronic acids, 8977*e*.

**Mahl, G. F.** Effect of chronic fear on the gastric secretion of HCl, 5852*f*.

**Mahl, H.** Electron-microscope photographs, 6073*f*, see Dudek, M.; Jakob, A.

**Mahler, E.** Measuring the hardness of cosmetic products, 2369*c*.

**Mahler, G. T.** See Handwerk, E. C.

**Mahler, H. R.** See Speer, R. J.

**Mahler, J.** See Land, E. H.

**Mahlman, G. W.** Work functions and cond. of oxide-coated cathodes 2857*g*.

**Mahn, F.** Attack of the fluorides and oxides of the rare earths by liquid Mg, 6101*a*, magnetic properties of Ce-Mg alloys, 6960*g*, Ce-Mg alloy system, 9011*i*

**Mahoney, C. H.**, and Lee, G. L. Alloying Mn with Mg, P 65646.

——, Lee, H. C., Tarr, A. L., and LeGrand, P. E. Grain refining Mg alloys, P 105*g*

**Mahoney, J. F.** See Bassford, H. H., Jr.

**Mahoney, S. R.** See Allsman, P. T.

**Mahoux, A. P.** See Mastagh, P.

**Mahr, C.**, and Krauss, K. Detg. sulfate, 3316*b*.

**Maienschein, F.** See Meem, J. L., Jr.

**Maier, C.**, Volkmann, M., Wiesinger, K., Bubb, W., Fischer, F., and Mully, K. Gas analysis of blood from heart and arteries in heart disease, 9136*d*.

**Maier, E.** See Schaefer, Hans.

**Maier, M. S.** Mirror with low thermal expansion support, P 4441*e*

**Maier, R. E.** Cellular plastic articles, P 3234*h*

**Maier, W.** Asterism, 8311*h*.

**Maier-Leibnitz, H.** See Beinert, H.

——, Houtermans, F. G., Kirchner, F., Gentner, W., Salow, H., Paul, W., Danzer, H., Ewald, H., Marschall, H., and Walcher, W. App. and methods in nuclear physics, 3701*e*

——, Schmeiser, K., and Schwaiger, M. Radioactive rays from thorotrast deposits in living tissue, 9100*f*.

**Maiers, R. E.** See Orcutt, J. A.

**Maiese, M. R.** See Kern, C. J.

**Maignon, F.** Treatment of microbial disease based on the enzyme theory of anaphylaxis and immunity, 1855*a*

**Maillard, Albert.** See Calvet, É.

**Maillard, Alfred**, and Hilfiger, J. P. Physico-chem. study of insol. compds. with active dissociable groups, 7302*e*.

**Maillard, M. J.** Soybean milk, 5126*a*

**Maillot, E. E.** See Boos, M. F.

——, Boos, M. F., and Mosier, M. Black Mountain beryl deposit, Oxford Co., Me., 4190*d*.

**Main, E. R.** See Neuman, W. F., Orcutt, J. A.; Wills, J. Henry.

**Main, T. C.** Control of particle size of Fe catalysts in synthesis of hydrocarbons, P 3832*i*.

**Mainardi, L.**, and Pesenti, G. Biol. actions of butyl gallate, 2253*g*

**Mainini, C. G.** See Galli Mainini, C.

**Mainz, H.**, and Schwarzmann, H. Swelling properties of coal, 377*d*

**Mainzer, F.** Subclinical vitamin B hypovitaminoses, 1091*f*.

**Mair, B. J.** See Epstein, M. B.; Rossini, F. D.

**Mairold, F.** See Kellermann, H.

**Mairs, M. A.** See Lee, T. S.

**Maisin, J.** Cancer. Vol. II. Radiations, Virus, Environment (book), 4762*g*.

**Maison, G. L.** See Stutzman, J. W.

**Maistre, J. W. le.** See LeMaistre, J. W.

**Maitland-Edwards, J.** Elementary Plastics (book), 8738*f*.

**Maixel, B.** Treatment of liquid yeast products, P 816*d*

**Maizus, Z. K.**, Markovich, V. G., and Nelman, M. B. Effect of an addn. of O on the thermal decompn. of butane, 7309*f*.

**Majer, F.** See Simek, B. G.

**Majer, J. R.** See Kendall, J. D.

**Majer, V.** Mikrochemické rozbory (book), 2548*h*.

**Majnarich, J. J.** See Norris, E. R.

**Major, F.**, and Pearman, R. W. Shark-liver oil from Trinidad, 3567*g*

**Major, R. M.** Device for injecting measured quantities of HCl to make-up water in water-cooling towers, P 3250*g*.

**Major, R. T.** Science and industry in the development of the antibiotics, 3066*d*; Selman Waksman, 7275*g*.

**Majoros, M.** See Koltay, M.

**Majors, F. H.** See Allsman, P. T.

**Majumdar, K. K.** Identification of different types of graphite, 4180*f*; colloidal graphite (I) prepn. in water from Indian raw materials, 5159*d*, analysis of colloidal graphite, 5159*e*; beneficiation of graphite from Mysore State, 6373*e*.

**Majumdar, N. C.** Raman spectra at low temps. (*a*) $Ph_2S$, (*b*) $CH_2Ph_2$, and (*c*) $S_2Cl_2$, 5309*g*.

**Majumdar, R. C.**, and Apte, A. S. Meson field and equations of motion of point particles, 31*c*.

**Majumdar, S.** See Majumdar, S. K.

**Majumdar, S. K.**, and Basu-Chaudhury, G. P. Glass system—magnetic susceptibility of Au dispersed in borax glass, 2053*b*

——— and Majumdar, S. Glass system—magnetic susceptibility of alkali sulfates dissolved in borax glass and in aq. soln., 2052*i*

**Majumdar, V. D.**, and Oka, V. S. Adsorption of some gases in the light of revised viscosity detns., 8774*f*

**Makádi, J.** See Csuros, Z.

**Makai, E.** High valent Mn as activator of luminescence, 4142*a*

**Makar, R.** See Boothroyd, A. R.

**Makara, F.** Patents—their procurement and significance, 3118*h*; initial protection of inventions, 4790*h*

**Makar'eva, S. P.**, Bezzubik, Z. G., and Proskurnin, M. A. Amperometric detn. of Cl, 8959*f*

**Makarevskaya, E. A.**, Vasilevskaya, L. M., and Chirlashvili, N. N. Changes occurring in plants in chlorosis, 8012*a*

**Makar'in, A.** Butter production from cream, 7600*h*

**Makar'in, K. I.** Evaporator concentrator, P 3218*i*.

**Makarjeva, S. P.** See Makar'eva, S. P.

**Makarov, E. S.** Stroenie tverdykh faz s peremeunym chislom atomov v elementarnoi vacheike (book), 2502*e*

**Makarov, G. N.** See Rikovskii, E. V.

**Makarov, N. V.** See Dervagin, B. V.

**Makarov, S. Z.**, and Itkina, L. S. Drying of sulfate, 1540*e*

**Makarova, A. N.** See Rudakov, G. A.

**Makarova, M. M.** Pigmented coccus, 7549*g*

**Makarova, R. F.** See Chernukhov, Yu. A.

**Makarova-Zemlyanskaya, N. N.** Same as Shorygina, N. N.

**Makas, A. S.** See West, C. D.

**Makayama, I.** Orientation of quartz crystals in a tectonite, 6519*f*

**Makino, T.** Powd. diuretic from corn, P 6791*c*.

**Makinson, K. R.** Frictional difference of the wool fiber, 413*a*.

**Makinson, R. E. B.**, and Treaey, P. B. Ionization manometer of high sensitivity, 447*d*

**Makrái, L.** Hungarian melanterite, 8985*g*

**Maklyaev, F. L.** See Bruker, A. B.

**Makó, I.** Changes in the pH values of meat and their measurement, 8068*h*

**Makosky, R.** See Henry, R. A.

**Maksenkov, V. G.** See Ovchinnikov, L. N.

**Maksić, D.** DDT as anthelmintic for horses, 5503*e*.

**Maksimenko, M. S.** See Trots, A. A.

**Maksimov, N. A.**, and Genkel, P. A. Growth stages and their significance in plant physiology, 6704*g*

**Maksimova, A.** See Bogdanov, V.

**Maksimova, E. P.** See Assonov, V. A.

**Maksimova, N. V.**, and Kozlovskii, M. T. Compn. of the P-V-Mo complex obtained in the detn. of P, 7374*d*.

**Maksimova, O. P.** See Kurdyumov, G. V.

**Makulec, M.** See Miłobędzki, T.

**Makushinskaya, N. S.** See Chernyaev, D. A.

**Malatesta, L.** Prepn. of Si sulfide, 2884*e*; org. derivs. of silicic acid from $SiS_2$, 4630*e*, alcoholysis, transesterification, and disproportionation reactions of esters of silicic acid, 5737*h*.

**Malatesta, P.**, Scuro, L. A., and Sorice, F. Antibacterial action of iodoacetamide, 5824*a*

**Malchenko, A. L.** Fermenting starchy substances, P 9362*d*.

——, and Chistyakov, M. P. Cooking and saccharification of ground mash for distn., P 6362*f*; app. for malting and distribution of mash, P 6362*g*, app. for cooking and transferring of starch and similar materials, P 6448*f*.

——, Chistyakov, M. P., and Kyuneman, A. G. Mash-distn. app., P 9362*e*.

——, Fremel, V. B., Vyatkin, V. V., and Lagotkin, I. S. Oil from vegetable oil bearing raw material, P 6437*b*.

——— and Leiberman, A. M. Fermentation app. for starchy mashes, P 9362*cde*.

**Malcher, J.**, and Medal, C. K. Investigations with hormones on plants grown for use in the production of alc., 1839*d*.

**Malcolm, J.**, Griesbach, W. E., Bielschowsky, F., and Hall, W. H. Hyperplasia of the parathyroids assocd. with osteitis fibrosa in rats treated with thiouracil and related compds., 7135*f*

**Malcolm, V. T.** Stainless steel production in an elec. furnace, P 4151*e*.

——— and Low, S. Structural stability of several cast low-alloy steels, 537*g*

**Maldonado del Castillo, A.** See Botella Llusia, J.

**Malek, A. A.** See Abdel Malek, A.

**Malek, I.**, and Šterzl, J. Nuclear substances of tubercle bacilli, 3488*c*.

**Malevskaya, S. S.**, and Kazeeva, E. V. Rosin acids of the conifers (VI) autoxidation of rosin acids, 6185*d*.

**Malhado Filho, J.** Urobilin and urobilinogen, 8484*e*.

**Malherbe, H. W.** See Weil Malherbe, H.

**Malherbe, I. de V.** Soil Fertility (book), 3960*d*

**Malich, C. W.** See Evans, J. E.

——— and Risser, J. R. γ-Rays and neutrons from Be bombarded by deuterons, 4093*f*

**Malikov, A. D.** App. for automatic control of rapid flow evaporators, P 4908*b*.

**Malin, K. M.** $H_2SO_4$ industry in the 30 yrs. of Soviet rule, 4433*i*

**Malin, R. B.** See Cannen, M. N., Dunn, M. S.

**Malinovskii, M. S.** Condensation of vinyl chloride with $C_6H_6$ in the presence of $AlCl_3$, 591*h*, cleavage of aromatic ar. me. by acyl halides with $AlCl_3$, 6178*b*

——— and Barabasheva, G. K. Chlorination of *p*-cymene by sulfuryl chloride, 3799*i*

——— and Kislova, F. F. Synthesis of alkaryl ketones by the Friedel-Crafts reaction, 2601*a*

——— and Konevichev, B. N. Prepn. of alcs. by Grignard method from olefin oxides (I) synthesis of propylisopropylcarbinol, isopropylisobutylcarbinol, and isopropylbutylcarbinol from isoamylene oxide, 3776*d*

——— and Medyantseva, N. M. Action of $PCl_5$ on methyl cymyl and butyl ketones, 6595*f*

——— and Moryganov, B. N. Reaction between $C_2H_4O$ and $H_2S$ on $AlCl_3$, 1491.

———, Volkova, E. E., and Morozova, N. M. Prepn. of alcs. by the Grignard method from olefin oxides (II) synthesis of 3,3-dimethyl-1-butanol and 4,4-dimethyl-1-pentanol from ethylene oxide and 2-heptanol, and 5-methyl-5-hexanol from propylene oxide, 6155*b*.

**Malinowskij, M. S.** See Malinovskii, M. S.

**Malischew, W. I.** See Malyshev, V. I.

**Malissard, G.** See David, Eugene.

**Malluga, D.** See Malyuga, D. P.

**Malizia, E.** See Biozzi, G.

**Malkemus, J. D.** Synthetic detergent compns., P 4034*a*; see Allen, H. D.

———, Ramsay, J. R., and Potter, D. J. Catalyzed sulfamic acid sulfation, P 3024*g*.

**Malkin, T.** See Clarkson, C. E.

——— and Wilson, B. R. X-ray and thermal examns. of the glycerides (X) sym. monooleoyl and monoelaidoyl disatd. triglycerides, 7425*f*.

**Mal'kova, T. V.** See Borodkin, V. F.

**Mallamaire** and Roblot. Use of hexachlorocyclohexane and polychlorocyclane sulfate against termites in French Sudan, 5147*d*

**Mallard, P. A.** See Morris, R. E.

**Mallardi, G.** See Buonsante, A.

**Mallarmé, J.**, and Messerschmitt, J. Cahiers d'hématologie (book), 9215*i*.

**Mallasén Ornat, M.** Essential oils, 2372*a*

**Mallemann, R. de**, and Suhner, F. Magnetic rotatory power of vaporized $TiCl_4$; rotativities of vaporized $SiCl_4$, 453*b*; and of cyclohexane, 2053*e*.

**Mallén, M. S.** See Salázar Mallén, M.

**Maller, R. K.** See Dey, B. B.

**Mallett, B. J.** See Callender, S. T. B.

**Mallette, M. F.** See Cain, C. K.

——— and Dawson, C. R. Highly purified mushroom tyrosinase prepns., 9119*e*

**Mallik, A. K.** See Ramdas, L. A.
——— and Mazumdar, A. K. 5,6-Benzoquinaldinic acid as an analytical reagent, 6935*c*.
**Mallikarjunappa, P.** Influence of ageing under an ozohizer discharge on the Joshi effect in high-pressure Cl, 1641*e*.
**Mallinckrodt Chemical Works.** Carbalkoxylation of org. compds., P 2225*g*; injectable therapeutic suspensions, P 9388*c*
**Mallol, A.** Kjeldalization by the combined catalytic action of Se and perchloric acid, 59*g*
**Mallory, E. B.** Waste and sewage purification, P 2348*d*.
**Mallory, P. R., & Co., Inc.** Additive to Ag or Cu alloys used in vaporization deposition, P 102*c*, porous metal bodies, P 103*i*; bonding of a W member to a backing member, P 5001*f*, Ru compns for elec. contacts, P 5357*e*; electrodeposition of Pb-Sn-Sb alloys, P 6526*i*.
**Malm, C. J.,** and Crane, C. L. Pptn of cellulose triacetate, P 5592*g*
and Hiatt, G. D. Enteric coatings, P 2739*i*
———, Nelson, H. B., and Hiatt, G. D. Cellulose acetate butyrate strip coating compns., 5945*b*
**Malm, F. S.** Hard rubber, Li; compn comprising org. peroxide-cured glycol-dicarboxylic acid polyester and red oxide of Fe, P 132*d*
**Malm, J. G.** See Hutchison, C. A., Jr.
**Malm, M.** Permeability of yeast cells and the plasma changes caused by HF, 268*a*
**Malmberg, E. W.** See Trueblood, K. N.
**Malmburg, T. G.** Counter electrode for Se rectifier, P 2526*b*
**Malméjac, J.** Nutrition of airmen, 4737*i*
Cruck, S., and Enrich, S. Influence of the parathyroids on circulating fibrinogen, 5471*i*
Cruck, S., Neverre, G., and Naurais, F. Changes in the blood protein picture after ablation of the parathyroids, 29*b*
**Malmgren, B.,** and Hedén, C. G. Nucleotide metabolism of bacteria, 9164*b*
**Malmgren, H.** Phys. chemistry of colloidal metaphosphates, 2070*b*, see Ingelman, B.
**Malmquist, L.** Temp. measurements in high velocity gas streams, 2475*b*
**Malmqvist, D.** Muonomalusta Fe meteorite and a method of detg. the orientation of lamellae in octahedrites, 4980*g*
**Malmström, G.** Pre-excitation during capillaroscopic test, 6717*e*
**Malnar, M.** See Cerkovnikov, E.
**Malomakhova, T. A.** See Tvulin, A. F.
**Malone, E. J.** Growing crystals, P 6013*a*
**Malone, L.** See McKenzie, D.
**Maloney, J. H.** See Bunnett, J. F.
**Maloney, J. O.** Centrifugation, 1227*g*
**Maloney-Crawford Tank & Manuf. Co.** App. for breaking crude-oil emulsions, P 7224*i*
**Maloof, C. C.** See Skinner, J. B.
**Malorny, G.** Behavior of electrolytes of the blood and tissues during the breathing of air with increased $CO_2$ content, 8541*i*
**Malov, N. V.,** and Koren'kov, M. D. Standardization of the consumption of chem. raw materials, 3621*c*.
**Malov, S. I.** Sepn. of nonmetallic inclusions in high temp. resisting and acid-resisting steels, 970*f*
———, Pen'kova, E. F., and Koroleva, A. S. Detn. of Ce in steels, 1282*d*
**Malowan, L. S.** Detn. of ergotamine, 7640*g*
**Malpress, F. H.** Estn. of stilbestrol, hexestrol, and their glucuronides in urine, 2662*i*
**Malquori, A.** Clay minerals and the fixation of $H_3PO_4$ in the soil, 6347*f*; see Borzini, G.
**Maltaner, F.** Immunologic phenomena in neoplasia: serum proteins of normal, tumor-bearing, and immunized chickens, 1177*f*
**Maltbie Chemical Co.** 1-Allyl-1,6-dihydro-6-oxonicotinic acid, P 7973*f*.
**Malton, S. D.** See Moe, G. K.
**Mal'tsev, V. F.,** Gertsman, F. M., and Temnenko, T. P. Photoelec. detn. of N in steel, 6108*f*.
———, Gertsman, F. M., and **Zheldak, M. P.** Activated lubricants for cold drawing of tubes, 3846*h*
**Maluf, N. S. R.** Renal shut-down from lysed erythrocytes, 8042*b*.
**Malumbres, J. L. M.** See Marín Malumbres, J. L.
**Maluquer, J. J.** Átomo y la energía atomica (book), 2097*a*.
**Malvano, R.** Paramagnetic resonance of the alums of Cr and K, 7763*d*.
**Mal'vinskii, V. V.** Loss of Pb by the glaze of ceramic articles, 1543*e*.
**Malyshev, V. I.,** and Shishkina, M. V. Raman spectra of higher alcs. and the H bond, 7345*f*
**Malyuga, D. P.** Chem. compn. of soils and plants as indicators in prospecting for metals, 3549*e*; detn. of Co, 7370*a*.
**Malyugina, N. I.** See Korshunov, I. A.
——— and Korshunov, I. A. Detn. of furfural, 7377*e*.
**Malzeff, W. F.** See Mal'tsev, V. F.
**Maman, A.** Hydrocarbons of high mol. wt., 1172*g*, 5003*c*.
**Mamiofe, S. M.** See Sergievskaya, S. I.
**Mamykin, P. S.** Destruction of the bottom of basic open-hearth furnaces, 6134*f*
——— and D'yachkov, P. N. Kaolin refractories from raw materials of the Urals, 8114*a*
**Man, E. B.** See Winkler, A. W.
**Man, E. M., Jr.** See Robinson, Howard A.
**Man, T. J. de.** Distribution of N in *Lolium perenne*, 1835*h*; carbohydrates of *Lolium perenne*, 6281*h*
——— and Grashuis, I. Vitamins in animal foods, 1123*d*
——— and Heus, J. G. de. Carbohydrates in grass (I) sol. carbohydrates, 4347*g*.
**Man, W. de,** Steenis, J. van, and Waterman, H. I. Prepn. and some properties of diethylsilazanes, 6971*e*
**Manago, M. G.** See Grunberg-Manago, M.
**Manahan, W. A.** See Nolan, T. J.
**Manalo, A. D.** See Sanford, F. B.
**Mañas Bonví, J.** See Inclan Lopez, A.
**Manbre** and **Garton Ltd.,** Baker, B. P., and Pryce, N. A. C. Zein and sols. thereof and zein-contg. prolamines, P 6332*e*
**Manchester, D. F.** See McKay, A. F.
**Manchester, M.** See Englis, D. T.
**Manchester Oil Refinery Ltd.** and Weinberg, V. Water-sol. inorg. salts, P 1926*d*.
**Manchurian Empire.** Hydrocotarnine sulfate, P 4965*f*
**Manchurian Light Metal Manufg. Co.** Artificial cryolite, P 6378*b*.
**Mancini, N.** Energia universale e reazione della materia (book), 6502*a*.
**Mancini, R. E.** Renal glycogen in human and exptl. diabetes, 8518*d*; see Etcheverry, M. A., Foglia, V. G., Villamil, M. F.
——— and Villamil, M. F. Benzidine reaction for peroxidases in human goiter, 8044*f*
**Mande, B. A.** See Gajjar, I. M.
———, Andreasen, A. A., Sreenivasava, M., and Kolachov, P. Fermentation of *Bassia* flowers, 8605*d*
**Mandel, E. E.,** Lehmann, E. B., Dorin, R., and Schmelzle, L. Estn. of blood creatinine and glucose in one procedure, 7072*d*
**Mandel, H. J.** Primary cell of the Zn-$H_2SO_4$-Pb peroxide type, P 4156*a*
**Mandel, L.** See Mandel, P.
**Mandel, P.** See Bieth, R., Fontaine, R.
———, Jacob, M., and Mandel, L. Behavior of the two nucleic acids of muscle, in prolonged protein inanition and in atrophy by nerve section, 5848*a*.
——— and Mandel, L. Variations produced by folliculin in certain chem. constituents of the pigeon liver—protein phosphorus and nucleic acid phosphorus, 1474*d*.
———, Metais, P., and Bieth, R. Nucleic acids of erythrocytes of birds and man, 3502*g*
———, Nordmann, J., and Zimmer, J. Nucleic acid of cristallin, 6262*e*
**Mandels, G. R.** See Stahl, W. H.
**Mandel'shtam, S. L.** Spectrum analysis in U.S.S.R., 8944*c*, see Lyubimov, A. P.
**Mandelstam, S. L.** See Mandel'shtam, S. L.
**Manders, H.** See Schmidt, R.
**Manders, T. J. J. A.** Infra-rood stralers (book), 5672*g*
**Manderscheid, G.** See Diemair, W.
**Mandeville, C. E.** Radiations of $Pr^{142}$, 4122*b*; neutrons from the disintegration of Na by deuterons, 8853*f*; see Swann, C. P.
——— and Scherb, M. V. Nuclear disintegration schemes and the coincidence method, 1258*i*.
———, Scherb, M. V., and Keighton, W. B. Radiations from $Pt^{193}$ and $Au^{199}$, 36*i*, radiations from $Cb^{93}$, $Re^{188}$, $Os^{193}$, and $Os^{192}$, 487*b*; radiations from $Cd^{115}$, $In^{116}$, and $Hf^{181}$, 4122*a*.
——— and Shapiro, E. Characteristics of $Sb^{128}$, 4121*a*, disintegration scheme of $Ce^{141}$, 6013*h*.
———, Woo, Y. H., Scherb, M. V., Keighton, W. B., and Shapiro, E. Radiations from $Ge^{77}$ and $Ge^{71}$, 5295*e*.
**Mandikos, G. J.** Effect of moisture content and other factors on water-resistance tests—comparison of the more common water resistance test methods, 1193*c*
**Mandiratta, M. R.,** and Dutt, S. Fixed oil derived from the seeds of *Abrus precatorius*, 4495*i*.
**Mandl, A. M.** See Boscott, R. J.
**Mandl, I.** See Neuberg, C.
——— and McLaren, A. D. Photochemistry of proteins (VII) quantum yield for the inactivation of ficin by ultraviolet light, 7983*b*
———, and Neuberg, C. Effect of amino acids (II) interaction of nitrogenous polycarboxylic acids (N substituted amino acids) and insol. metal sulfides and mercaptides, 9090*f*
**Mandle, H. H.** Metallic pigment progress — Au, bronze, Al powder, 2444*h*
**Mandlekar, M. R.** See Daruwala, E. D.
**Mandoki, J. J.** Action of acetylcholine on the refractory period and elec. excitability of the ventricle of the turtle and the frog, 1117*b*
**Mandour, A. M. M.** See Dhar, M. L., Hughes, E. D.
**Manecke, G.** See Helberger, J. H.
**Manegold, R. L.,** and Wynne, I. H. Sintering furnace with magnetized grate bars, P 2152*g*.
**Manes, M.,** and Scheraga, H. A. Degassing low-boiling liquids by liquid-phase condensation, 8622*g*
**Maneschi, E. P. P.** See Lexow, S. G.
**Manfred, O.** Colloid chemistry and modern pharmaceutical production, 2733*h*
**Manfredi, F. G.** See Royer, M.
**Manfredini, A.** See Bernardini, G.; Cortimi, G.
**Mangan, J. L.** See Briggs, L. H.
**Manganese Products, Inc.** Recovery of Mn, P 1708*a*, oxides of Mn, P 2746*a*
**Manganiello, L. O. J.** See Figge, F. H. J.
**Mangano, T. S.** See Salvato-Mangano, T.
**Mangenot,** Sachet, Dalbert, Renaud, A., and Saulquin, A. Refining of wood pulps, 6410*e*.
**Mangin, A.** Chem. cleansing in the United States, 2917*a*.
**Mangler, K. H.** See Bergstermann, H.
**Mangliers, G.** See Schmalfuss, H.
**Mangold, R.** See Wittig, G.
**Mangual, J. C.** See White, D. G.
**Manguin, E.** See Lenoble, A.
——— and Leboime, R. Presence of marine diatoms in basins of fresh water in the alpine garden of the museum of natural history, Paris, 8416*a*
**Mangun, G. H.** See Hartman, F. W.
**Manhas, K. M. S.** See Singh, B. K.
**Manheimer, L. H.** See Seligman, A. M.
——— and Seligman, A. M. Histochem. demonstration of alk. phosphatase and its use in a study of normal and neoplastic tissues, 8046*e*.
**Maniere, B.,** and Barchewitz, P. Infrared and Raman spectra, 932*h*.
**Manis, H. C.** See Lehrer, W. P., Jr.
**Manita, M. D.** Detg. Pb in solder in the presence of Fe and brass, 8954*a*.
**Mankiewicz, E.** Lipidolytic enzymes of larvae of *Galleria mellonella*, 8411*i*.
**Mankowich, A.** Throwing power of electroplating solns. (II), 2099*d*.
**Manley, H.** Fungicidal impregnants, 5891*i*.
**Manley, H. B.** See Lyon, L. R.
**Manly, R. S.,** and Bilsby, B. G. Substances decreasing the acid soly. of tooth enamel, 6310*g*
**Mann, C. A.,** Ceaglske, N. H., and Olson, A. C. Dielec. drying, 8752*i*.
**Mann, C. L.** See Lutwak-Mann, C.
**Mann, C. W.** See Cordon, T. C.
**Mann, D. E.** See Wheland, G. W.
———, Platt, J. R., and Klevens, H. B. Spectral resemblances in azulene and naphthalene, 7818*h*.
**Mann, D. J.** See Miller, L. E.
**Mann, F. C.** See Miller, John R.
**Mann, F. D.** Cothromboplastin assay—study of abnormalities of blood coagulation, 9135*f*; see Mann, J. D.
———, Hurn, M., and Mathieson, D. R. Platelets as foci in the coagulaton of blood, 8512*c*.

**Mann, F. G.** Advances in stereochemistry, 105*i*; see Brown, F.; Cookson, R. C.
——— and Beeby, M. H. Synthesis of 2,7-disubstituted - 1,2,3,4 - tetrahydroisoquinolines, 616*b*
——— and Watson, J. Conditions of salt formation in polyamines and kindred compds —salt formation in the tertiary 2-pyridylamines, -phosphines, and -arsines, 1045*g*
**Mann, F. J.** See Lewis, G.
**Mann, G. E.** See Schales, O.
**Mann, G. V.** See Stare, F. J.
———, Kahn, S. S., and Stare, F. J. Influence of DL-tryptophan on blood-sugar levels, 8063*f*
——— and Stare, F. J. Nutrition and exptl. diabetes (I) diabetic response of weanling rats to alloxan, 749*i*.
**Mann, H. C.** See Chemical Engineering & Wilton's Patent Furnace Co., Ltd., Jaffe, L. D.
**Mann, H. D.** See Carter, R. H.
**Mann, I.**, Pirie, A., and Pullinger, D. B. Treatment of lewisite and other arsenical vesicant lesions of eyes of rabbits with Brit. antilewisite (BAL), 4372*b*
**Mann, J.** Rubber research (IV) infrared spectroscopy in relation to rubber, 3613*g*; infrared spectroscopy, 8044*h*
——— and Thompson, H. W. Infrared spectra and the solid state—measurements with polarized radiation, 3715*a*
**Mann, J. B.** See Heidt, L. J.
**Mann, J. D.**, Mann, F. D., Bollman, J. L., and Van Hook, E. Hypoprothrombinemia due to loss of intestinal lymph, 8513*f*.
**Mann, J. G. de.** See DeMann, J. G.
**Mann, K. C.**, and Ozeroff, M. J. γ Rays of Ru (B + C), 8269*f*
**Mann, L. C.** Finishes for light metal transportation equipment, 420*e*.
**Mann, L. S.**, and Welker, W. H. Toxemia as a stimulative factor in the production of antibodies—precipitin production in the dog (I) use of egg white, (II) use of ricin, 9223*d*
**Mann, M. J.** See Behrens, O. K.
**Mann, M. P.** See Storer, F. I.
**Mann, P. F. E.** See Padmanabhan, T. S. A.
**Mann, P. J. G.** See Dion, H. G.
**Mann, R. J.** See Mellor, A.
**Mann, T.** See Humphrey, G. F.
———, Davies, D. V., and Humphrey, G. F. Fructose and citric acid assay in the secretions of the accessory glands of reproduction as indicator tests of male sex hormone activity, 5843.
——— and Lutwak-Mann, C. Metabolism of semen (IV) aerobic and anaerobic utilization of fructose by spermatozoa and seminal vesicles, 2689*h*
**Mann, T. B.** Chick rearing (IX) storage of vitamin A and carotenoid pigments by chicks from birth to six weeks, 2291*g*
**Mann, W.**, Bale, W. F., Hodge, H. C., and Warren, S. L. Distribution in rabbit tissues of I as shown by the radioisotope $I^{130}$, 3083*h*
**Mann, W. B.** Standardization of $Co^{60}$, 7812*i*; see Hawkings, R. C., Hunter, R. F.
——— and Parkinson, G. B. Geiger-Müller counting unit and external quenching equipment for the estn. of $C^{14}$ in $CO_2$, 3281*h*
**Mannbro, N. V.** See Nelson, B. A.
**Manneback, C.** See Coulson, C. A.
**Manneck, H.** Synthetic resins in the soap industry, 2793*i*, production of molded or cake detergents, 6436*f*
**Manners, M.**, and Partridge, J. H. Refractive index as a control of the quality of Pb glass, 8625*g*
**Mannetti, C.** See Cervini, C.
**Mannheims, J.** See Viermann, H.
**Mannherz, K. H.** Detn. of pH and alkali reserve in ammotic fluid, 7985*a*
**Manning, A. B.** Coal sampling, 3168*f*
**Manning, G. B.** See Horrocks, R. H.
**Manning, G. K.** See Udy, M. C.
**Manning, J.** See Clifford, I. L.
**Manning, J. A.** See Mudge, G. H.
**Manning, R. B.** See Dustin, G. F.
**Manning, R. D.** See Hodge, J. M.
**Manning, R. N.** See Hessey, R. W. G.
**Manoe, N. E.** See Fletcher, R. D.
**Manollov, S. E.** Enzymic synthesis of compds. of nucleic acid and adenine with amino acids, 8410*g*
**Manon, G.** See Mousseron, M.
**Manov, G. G.** Measurement of pH with the glass electrode, 8255*d*
**Manpo, K.** See Ueno, Suichi.
**Manrique, R. P.** See Paredes Manrique, R.
**Mans, A. E.** See Tendeloo, H. J. C.
**Mansch, W.** See Lauer, K.
**Mansell, R.** Pre-treatments for galvanized iron prior to painting, 544*e*; corrosion retarding of Al alloys, 549*c*; properties of luminescent pigments, 871*c*; nitrocellulose lacquers, 873*c*, consistency of coating materials, 873*f*, manuf. of luminous pigments, 1195*h*; electrodeposited Zn coatings, 1268*f*, surface treatments for Mg alloys, 2143*d*; finishing Al, 2143*g*; lacquer materials in wood finishing, 5205*a*; prepn. of Al for painting, 7237*e*; removing mill scale from steel, 7884*e*, electroplated finishes on Al, 8903*g*
**Mansfield, W. R.** See Boughton, W. A.
**Manshard, E.** Detn. of the Ca requirements of soils, 7171*g*
**Manshu, M.**, and Kabushiki, T. Mg, P 989*b*
**Manskaya, S. M.** Participation of oxidases in lignin formation, 2282*d*
——— and Kochneva, M. N. Lignins of various plant groups, 2282*i*
**Manske, R. H. F.** 2,4-Dichlorophenoxyacetic acid, P 7509*i*, alkaloids of papaveraceous plants (XLII) *Dendromecon rigida*, 8616*g*.
——— and Kulka, M. Synthesis of some isoquinolines 5783*g*, synthesis of some pyridocarbazoles, 6631*i*
——— and Ledingham, A. E. Anomalous reactions of phenylmagnesium chloride, 5768*h*
**Manson, N.** Structure of so-called "helicoidal" explosion waves in gaseous mixts., 2435*i*, Propagation des détonations et des déflagrations dans les mélanges gazeux (book), 8140*d*
——— and Ferrié, F. Enthalpy-entropy diagram for air and its use in the study of thermodynamic cycles of turbo-reactors (I), 2753*f*, 4089*e*
———, Guénoche, H., and Salé, R. Velocity of flame propagation in gas mixts., 8248*h*.
**Manson, R. K.** See Baird, N. C.
**Mansour, T. E.** See Chance, M. R. A.
**Mansour-Bek, J. J.** Proteolytic and lipolytic enzymes in the stomach juice of some Lamellibranchia, 2332*d*
**Mansur, C. I.** See Bishop, E. L.
**Manteifel, A. Ya.**, Bogdanova, V. A. and Chetverikova, I. Relations between nutrient and energy-supplying metabolic processes in heterotropic bacteria (I) *Bacterium formicum*, 7548*i*
**Mantel, W.** Detn. of the O content of solid fuels, 7661*c*
**Mantell, C. L.** Production of electrolytic Mn, 45*f*, Tin (book), 4998*b*
**Manten, A.** See Gerretsen, F. C.
**Manteuffel, A.** See Cocroft, R.
**Manuel, S.** See Chevallier, A.
**Manullov, P. N.** See Zal'kind, I. Ya.
**Manunta, C.** Nitrogen metabolism in the silkworm (II) blood allantoic and uric acid during maturing of various races and crossbreeds, 2331*d*, carotenoid content of some holothuriae, 2334*a*, see Karrer, P.
**Manwell, R. D.**, and Feigelson, P. Glycolysis in *Plasmodium gallinaceum*, 5445*i*
**Manz, E.**, and Graser, F. Prepn. of suppositories, 3972*i*
**Manzi, G.** See Leone, E.
——— and Guerritore, D. Absence of uricaciduse in human placenta, 4307*i*
**Manzini, R. D.** Concentrator, P 7760*g*.
**Manzitti, C.** Concentrator, P 7760*a*
**Manzoni-Ansidei, R.** Mol. diamagnetism of paraffin hydrocarbons with normal and side chains, 8767*g*, mol. diamagnetism of dimethylfurazan and of dimethyloxadiazole, 8767*h*
——— and Ghe, A. M. Magnetochem. investigation of pyridine, naphthalene, quinoline, and their derivs., 8767*e*.
**Manzotti, M.** See Bissi, A.
**Mapother, D.**, and Maurer, R. Self-diffusion of Na in NaCl, 4067*a*.
**Mapson, L. W.** See Harris, L. J.
**Mapstone, G. E.** Detection of diphenylamine in com. gasoline, 2760*f*; calcn. of the "percentage spent" of caustic solns. used to absorb $CO_2$ and (or) $H_2S$, 3157*a*, thermal decompn. of Pb mercaptides, 4839*f*, chem. control in the shale oil industry, 7215*b*; direct titration of mercaptans in gasoline, 7216*g*, hydrolysis of $CS_2$, 7429*e*; theoretical aspects of the max. recovery in absorption or stripping operation, 8213*i*
——— and Beckmann, P. Detn. of olefins in cracked gases, 383*c*; efficient gas absorber, 6471*e*; detection of tar acids in gasoline, 7216*f*
**Maquestiau, G.** Vermicidal wax polish, P 1202*i*.
**Mar, L. le.** See LeMar, L.
**Marañ, B.** Influence of beech undergrowth on forest soil properties, 3553*b*; influence of undergrowth on the relative humidity of the air at the surface levels, 8084*a*; resorption of nutrients in the stands on the rendzinas, 8455*g*
**Maranca, G.** Detinning scrap, P 4026*a*.
**Marangoni, P.** Factors which protect vitamin C in fruit of *Hippophae rhamnoides*, 3887*h*; see Gastaldi, E.; Mascherpa, P.
**Marans, N. S.** See Sommer, L. H.
**Marathon Corp.** Heat sealable labels, P 1188*f*
**Maraux, C.** See Boutaric, A.
**Marbaix, M. de.** Defecation of diffusion juice in calcocarbonic processes, 6444*f*.
**Marbaker, E. E.**, Saunders, H. S., and Baumer, L. N. Effects of some electrolytes on color value of enamels, 9406*g*
**Marberg, C. M.** Color comprns. for application of glass fabrics, P 4156.
**Marboe, E. C.** Gas evolution from supersatd. liquids, 6890*d*, see Roman, M. E., Weyl, W. A.
——— Smiley, W. D., and Weyl, W. A. Adhesion phenomena involving glasses, metals, and fused salts, 2062*h*.
——— and Weyl, W. A. Release of gas supersatn. from liquids by solid surface, 2068*b*, studying the forces between metals and some substances, 2485*f*
**Marcacci, G.** Colloid and crystalloid origin of auriferous quartz veins, 4980*h*
**Marceau, F.** Action of $BaCl_2$ on the frog heart, 758*f*
**Marcelin, A.** Boundary films, 8799*d*
**Marcet Riba, J.** Eruptive periods in the province of Gerona -petrographic provs. of Gerona, 8322*c*.
**March, B.** See Halpern, G. R.
**March, R. B.**, and Metcalf, R. L. DDT resistant houseflies in Southern California, 9344*i*
**March, R. E.** Effect on pulp quality of the stepwise removal and replacement of the hemicellulose from aspen holocellulose, 399*i*
**Marchak.** See Marshak.
**Marchal, J. G.** Inhibition of chemotherapeutic and antibiotic substances in the bacteriol. lab., 5826*a*, P. E. Pinoy, 6477*i*, action of ultraviolet rays on bacteria, 9165*i*.
——— and Nicot, R. Preservation of alexin, 5858*a*
**Marchand, J.** See Roudier, A.
**Marchand, E. J.** See Stevenson, D. S.
**Marchand, M.** MeOH poisoning, 5497*i*
**Marchand, R. J.** See Rose, R. M.
**Marchant, C.** What the chemist and engineer should know about patents, 1603*f*
**Marcheani, O.**, and Schober, H. Action of lactoflavin on color vision, 7144*a*
**Marchetti, G.**, and Bertola, G. White distemper, P 5206*e*.
**Marchiaro, E.**, Mostardini, R., and Orzalesi, G. Treatment of wood waste, P 3618*i*
**Marchissio, A. A.** See Etcheverry, M. A.
**Marchlewska-Szrajerowa, J.** Manuf. of woodpulp and paper, 3195*h*
**Marciante, A.**, and Giulio, U. Mixts. of modified glycero-phthalic resins and of polyvinyl acetate, 5226*f*.
**Marcio Trindade, F.** Oil of tea, 1878*e*.
**Marco, A. di.** See Di Marco, A.
**Marcoli, G. L.** Impermeable paper board for building or road construction and other uses, P 1168*b*.
**Marcon, P. E. E.** Pure H from low-grade gas, P 4836*f*.
**Marconcini, E.** Action of nicotinamide on the optic nerve of rabbits poisoned by quinine-HCl, 4771*d*.
**Marconi, J.** See Luco, J. V.
**Marconi, R.**, and Passera, G. Sulfonamides and scar formation of wounds, 317*h*.
——— and Zino, E. Dizionario inglese-italiano per le scienze mediche (book), 6288*k*
**Marconi's Wireless Telegraph Co. Ltd.** Morpholine salts of azo dye components, 3300*i*.

**Marcus, H.**, and Joffe, J. R. Nitrate methemoglobinemia, 5121*b*.
**Marcus, J. A.** Magnetic susceptibility of Zn at liquid H temps., 8766*i*; temp. dependence of susceptibility of Zn, Cd, and γ-brass, 8767*b*.
**Marcus, Sidonie.** Antibacterial activity of fuscin, 4335*f*
**Marcus, Stanley.** See Fulton, J. K.
**Marcuse, S.** Optimum allocation and variance components in nested sampling with an application to chem. analysis, 8943*g*
**Marcy, L. F.** See Swift, R. W.
**Mardashev, S. R.** Amino acid compn. of the proteins of the skin, epidermis, and dermis, 743*i*
——— and Etingof, R. N. Aspartic acid decarboxylase, 1073*f*; amino acid decarboxylases from bacteria grown on solid media, 3065*d*
———, Etingof, R. N., and Balyasnaya, A. I. Amino acid oxidases of some decarboxylating bacteria, 6281*d*
———, Etingof, R. N., and Murmadevskaya, L. Ya. Influence of pH of the medium on bacterial decarboxylase formation, 8446*f*
———, Semina, L. A., Etingof, R. N., and Balyasnaya, A. I. Decompn. of L-aspartic acid by bacterial aspartic acid decarboxylase, 5061*e*
**Mardones, J.** See Boris, F., Medina, A., Rojas, A., Sepulveda, M.
**Mare, P. B. D de la.** See De la Mare, P. B. D.
**Mareček, V.** Soup seasoning and its products, 1194*i*; formation of urea and its intermediate products, 2946*i*, malt exts., 9290*i*
**Marek, L. F.** Gas treating app., P 914*c*, oxidation, 7756; see Fogler, H. B.
**Marel, H. W. van der.** Mineralogical compn. of a heath podzol profile, 6760*b*.
**Marelli, S.** See Aghardi, N.
**Maren, T. H.** Fate of two arsenoxides in the dog, 7995*b*; see Sawyers, J. L.
**Marencik, W. J.**, and Ahlf, R. E. Preventing scaling, P 2155*d*
**Marenzi, A. D.** Detn. of methionine, 2965*b*
**Mares, J. R.** Polystyrene-chlorinated *m*-diphenylbenzene compn., P 1610*d*
**Mareš, L.** Influence of nonmverted reducing substances on the formation of color during the heating process, 4501*e*
**Maresh, C.**, and Rover, G. L. Shrinkage control of wool by melamine resins (I) microscopical observations, 7691*f*
**Marev, R.** See Cobonge, J.
——— and Thomas, G. Syntheses organiques Vol II (book), 6643*a*
**Marfori, L.** Vitamin $B_1$ and acetone bodies, 5012*e*
**Margaria, R.** Absorption of $CO_2$ in the blood of *Tethys cristatus*, 5123*e*
**Margenau, H.** Pressure broadening in the inversion spectrum of $NH_3$, 7339*e*
——— and ———. Physics (book), 4090*d*
**Margival, F.** Curages (book), 7725*b*
**Margolin, S. E.**, and Kornblat, G. D. Development of the pharmaceutical industry in the U.S.S.R., 5532*h*
**Margolina, Yu. L.** See Slonimskii, G. L.
**Margolis, F. G.** See Dubovitskii, A. M.
**Margolis, J. M.** See Froehlich, H. C.
**Margolis, L.** See Abreu, B. E.
**Margolis, L. Ya.** See Butyagin, P. Yu.
——— and Todes, O. M. Catalytic oxidation of oils, complex in flow, 927*d*.
**Margot, A.** See Martin, Henry.
**Margot Corp.** Liquid printing ink contg. lignin compd., P 878*a*
**Margulies, H.**, and Barker, N. W. Coagulation time of blood in silicone tubes in patient receiving dicumarol, 7112*e*
**Margulis, H.**, and Crane, J. Action of aluminum on arsenous acid, 8592*i*.
**Maria, F. de.** See De Maria, F.
**Maria, G. de.** See De Maria, G.
**Maria, G. di.** See Di Maria, G.
**Maria, H. C. S.** See Santa Maria, H. C.
**Marian, J.** Artificial resin glue film for wood working, 4042*i*.
**Mariani, A.**, and Tentori, L. Fluorimetric detn. of estrogenic substances—estrone, 6687*i*
**Mariani, E.** See Bonino, G. B.; Rolla, M.
**Mariat, F.** Action of the constituents of thiamine on the development of orchid embryos, 1834*b*
**Marick, L.** Electrically conducting panel, P 2526*f*.
**Mariella, R. P.**, and Kvinge, V. Condensation of unsym. ketones (II) competition between methylene groups, 643*g*.
——— and Leech, J. L. Synthesis of some isomeric dimethyl(hydroxymethyl)pyridines—3,4-didesoxypyridoxine, 2995*a*
**Marijan, N.** See Cerkovnikov, E.
**Mariller, C.** Cours de distillerie (book), 1148*a*; continuous rectification of wines from sugar-beet juices, 3144*f*, heat balance in the distillery, 6361*a*; Manuel du distillateur (book), 6476*g*
——— and Roche, M. Org. acids in alc. from sugar beets, 3141*e*
**Marimpietri, L.** See Gisondi, A.; Lippi-Boncambi, C.; Moram, V.
**Marin, J.** See Sauer, J. A.
——— and Hardenbergh, D. E. Creep of laminates in tension, bending, and torsion, 2811*e*
**Marina, C.** See Jiménez Díaz, C.
**Marinangeli, A. M.** See Rolla, M.
**Marine Chemical Industries Co.** Vitamins, P 3572*h*.
**Marinelli, L. D.** See Rawson, R. W.
**Marine Magnesium Products Corp.** Mg compds., P 827*c*; purified MgO from brines, P 2745*d*, $MgCO_3$, P 6795*g*, MgO, P 8624*b*
**Mariner, T.**, and Bleakney, W. Mass spectrometer employing crossed elec. and magnetic fields, 5647*g*.
**Marini-Bettòlo, G. B.** $HgCl_2$ in org. syntheses—prepn. of substituted phthaleins, 183*g*, solubilization of org. medicinals, 3561*f*, rendering org. compds. sol., 1627*c*, chem. examn. of Chilean algae (I) polysaccharides of *Durvillea utilis*, 4728*i*, chem. researches on components of *Polycladus abietinus*, 8101*h*, anticryptogam, P 8604*h*, see Borzini, G.; Oliverio, A.
———, Ballio, A. and Baroni, G. $HgCl_2$ in org. syntheses (I) prepn. of carbonyl compds., 183*a*.
——— and Baroni, G. Complex compds. formed by $CdCl_2$ and org. compds., 7000*g*
——— and Borzini, G. Fungistatic action (I) biol. action of some quinoid dyestuffs with a reversible oxidation reduction system, 8435*e*
——— and Bañez, J. Chem. compn. of Chilean algae (II) carrageenin from algae—polysaccharides in *Chondrus canaliculatus* and in *Gigartina chamisso* (III) agar from Chile algae—polysaccharide of *Gracilaria lemaneiformis*, 4728*i*.
**Marinin, V.** See Tsvetkov, V. N.
**Marin Malumbres, J. L.** See Buscaróns Ubeda, F.
**Marinoni, J.** Distribution of acid sol. hematic P (between plasma and red-blood cells and the inorg. and org. forms) in infantile tetany, 4363*h*
——— and Fabrani, M. Phosphatemia of normal children, 4356*e*
**Marion, A. P.** Sealing electrodes in capillary tubing, 3665*f*, electrolysis microapp., 6525*a*; titrating immiscible liquids, 6537*g*
**Marion, L.** See Robertson, R. F.
——— and Chaput, M. *dl* Methylhsopelletierine, 6625*d*
——— and Cockburn, W. F. Papilionaceous alkaloids (V) *Baptisia minor*, 650*b*
——— and Fenton, S. W. Papilionaceous alkaloids (VI) *Lupinus pusillus*, 3428*i*.
——— and Ouellet, J. Papilionaceous alkaloids (III) identity of rhombinine and monolupine with anagyrine, 649*f*
——— and Turcotte, F. Papilionaceous alkaloids (IV) *Baptisia perfoliata*, 649*i*
**Mariotti, E.** Dulcin, P 4786*b*, quenching fluorescence and color of oils, P 4843*a*
**Mariotti, V.** Anticryptogam, P 3558*e*
**Marisic, M. M.** Heat treatment of plural oxide gels, P 370*b*, spheroidal aerogel pellets, P 3986*b*.
———, Denton, W. I., and Bishop, R. B. Nitriles, P 3439*f*, 4285*i*
——— and Griest, E. M. Zirconia gel, P 5133*i*
——— and Rutledge, T. F. Porous catalytically active metal, P 2103*g*
——— and Schmitt, A. C. Forming low pH hydrogel beads, P 4004*c*.
**Mark, D.** See Truitt, P.
**Mark, H.** Trends in polymer chemistry, 3230*i*, submicroscopic structure of wood constituents, 3607*c*; light scattering in polymer solns., 4527*a*; see Badgley, W. J.; Blout, E. R.; Hohenstein, W. P.; Miller, Edward; Muthana, M. S.
**Mark, I.** See Loshkarev, M.
**Mark, L. C.** See Rosenberg, B.
**Markarian, M.** See Ross, Sidney D.
——— and Peck, D. B. Aryl ethers, P 6234*f*
**Markee, J. E.** See Everett, J. W.; Sawyer, C. H.
———, Sawyer, C. H., and Hollinshead, W. H. Adrenergic control of the release of the luteinizing hormone from the hypophysis of the rabbit, 5839*i*.
**Markees, D. G.**, and Burger, A. Antitubercular compds.—bis(aminoaryl)cyclopropane derivs. (I) 1-(2-amino-4-thiazolyl) - 2 - (4 - aminophenyl)cyclopropane, 6355*c*; (II), 9042*a*
**Markees, S.** See Fromherz, K.
**Markelova, N. N.** See Medoks, G. V.
**Marker, R. L.** Grease, P 1960*b*
**Markert, C. L.** Effects of thyroxine and antithyroid compds. on the synthesis of pigment granules in chick melanoblasts, 745*a*
**Markevich, A. M.** Role of the surface in the thermal reaction of Cl and H, 474*b*
**Markewich, Markewitsch.** See Markevich, A. M.
**Markham, A. E.** See Felicetta, V. F.
**Markham, E. C.** See Shreve, O. D.
**Markham, F. S.** See Wolfe, D. M.
**Markham, J. J.**, and Miller, P. H. Effect of surface states on the temp. variation of the work function of semiconductors, 4555*f*
——— and Seitz, F. Binding energy for a self-trapped electron in NaCl, 1641*d*.
**Markham, M. C.** See Hannan, M. C.
**Markham, R.** Nature of viruses, 8416*e*.
———, Mathews, R. E. F., and Smith, K. M. Specific cryst. protein and nucleoprotein from a plant virus having insect vectors, 280*h*
——— and Smith, J. D. Chromatography of nucleic acid derivs., 4723*e*
——— and Smith, K. M. Virus of turnip yellow mosaic, 9172*g*.
**Markina, G. V.** See Pigulevskiĭ, G. V.
**Markina, Z. V.** See Nelman, M. B.
**Markley, K. S.**, and Jenkins, D. W. Oil-palm resources of the American hemisphere, 5974*b*.
**Markova, O. A.** See Bork, A. K.
**Markova, Yu. V.** See Berlin, A. Ya.
**Markovets, M. P.** Detg. resistance to destruction, 1299*c*
**Marković, D.** Anthraquinone derivs. in microsublimates of drugs, 4810*g*.
**Marković, L.** See Gaia, J.
**Markovich, V. G.** See Malzus, Z. K.
**Markovits, J. A.** Coal hydrogenation—equipment used in demonstration plant at Louisiana, Mo., 6391*c*, see Hirst, L. L.
——— and Gardner, G. D. Bureau of Mines builds coal hydrogenation plant, 8642*g*
**Markowitsch, V. G.** See Markovich, V. G.
**Markowitz, D.** See Othmer, D. F.
**Marks, B. M.** Casting compns. comprising methyl methacrylate and glycol dimethacrylates, P 6467*b*, cast synthetic resin with integral pattern effects, P 9525*f*; cast synthetic resin with integral sheen, P 9526*a*
**Marks, E. K.** See Jacobson, L. O.
**Marks, G. W.**, and Jones, B. M. Detn. of Be, Cd, Zn, and In in ore samples, 1281*i*.
——— and Potter, E. V. Detn. of Ag in ore samples, 2118*i*, detn. of Tl in ores, concentrates, dusts, and chemicals, 5334*g*.
**Marks, H. C.** Bacterial reproduction in cation-exchange layers, 9308*i*; ammonium bactericides, P 9390*a*; see Strandskov, F. B.
——— and Joiner, R. R. Detn. of residual Cl in sewage, 1887*g*.
——— and Strandskov, F. B. Disinfection of swimming pools and water supplies, P 3126*d*.
**Marks, J.** Marchiafava Micheli syndrome, 7573*c*
**Marks, J. L.** See Bunnett, J. F.
**Marks, M.** Protective light-transmitting media, P 9537*a*.
**Marks, M. E.** Wt. loss of plastic films and sheets on heating, 8198*g*.
**Marks, M. H.**, Bear, R. S., and Blake, C. H. X-ray diffraction evidence of collagen-type protein fibers in the Echinodermata, Coelenterata, and Porifera, 8563*i*.
**Markstein, G. H.** Cell structure of propane flames burning in tubes, 7282*c*.
**Markus, H.** See Fawcett, C. C.
**Marle, F.** Fe industry in Sweden, 79*e*.
**Marley, W. G.** Production of radioactive isotopes, 2855*i*; safety precautions in handling radioactive isotopes, 7159*i*.
**Marlies, C. A.** See Schmidt, A. X.

**Marling, P. E.** Oil-modified alkyd resin, P 9485*h*.
**Marlow, H. W.** 16-Ketosterone in the Kober reaction, 7535*a*.
**Marmalevskaya, L. Ya.** See Mardashev, S. R.
**Marmier, P.** See Blaser, J. P.; Boehm, F. ——, Blaser, J. P., Preiswerk, P., and Scherrer, P. Spectroscopic measurements of x-rays from radio-elements, 6908*i*.
**Marmor, R. A.** See Moyer, W. W. —— and Moyer, W. W. Phosphatides, P 3948*c*.
**Marnay, C.** See Raoul, Y.
**Marner, I. L.** Thymol reaction as a liver test, 2661*c*; thymol turbidity test, Takata-Ara's test, and Gros' test in icteric conditions, 9226*a*.
**Marnet, C.** See Eymann, C.
**Marois, M.** Action of progesterone on the uterine horn and relaxation of the symphysis pubis of the guinea pig, 5840*d*, see Courrier, R.; Jost, A.; Morel, F.
**Marolli, G.** Dizionario tecnico (book), 8256*e*.
**Maron, F. W.** See Prosen, E. J.
**Maron, S. H.,** and Bowler, W. W. Electrophoretic mobility of type III GR S latex, 2013*g*.
— ——, Madow, B., and Trinastic, J. C. Tensile strengths of type III latex films, 2009*b*
— ——, Moore, C., Kingston, J. G., Ulevitch, I. N., Trinastic, J. C., and Borneman, E. H. Coneg latex—concn. of type III GR S latex with NaCl, 2007*i*
— ——, Ulevitch, I. N., and Elder, M. E. Fatty and rosin acids, soaps, and their mixts.—conductometric and potentiometric analysis, 7239*h*
**Marossero, F.** See Paghardi, E.
**Marouchjane, G. M.** See Marukyan, G. M.
**Marousek, A. A.** See Becker, E. R.
**Marpillero, P.** "Noble" cellulose and its production, 5587*d*
**Marple, K. E.** Glycidyl ethers, P 2633*i*, synthetic rubber compns., P 0859*c*; see Finch, H. de V., Peters, L. M.
—— and Borders, B. Stabilization of unsatd nitriles, P 2220*d*.
**Marple, S., Jr.** See Beattie, J. A.; Gelus, E.
**Marquardt, D. N.,** Porter, R. H., and Wakefield, L. B. Polymerization of monomers in Buna S 3 system, 8189*a*
**Marquardt, P.** Anabolism and catabolism of adrenaline, 2686*e*, adrenaline breakdown products and their investigation, 3107*b*; adrenoxine, 5906*e*, competition phenomena as the basis of pharmacol. action, 8558*a*
—— and Koch, R. Problems regarding theophylline, 318*i*, action of protocatechualdehyde, protocatechuic acid, and vanillin on blood pressure, 757*h*
**Marquardt, R. P.,** and Luce, E. N. Detn. of unsatn in dehydrogenated diethylbenzene by use of $Hg(OAc)_2$, 70*g*.
**Marquardt, R. R.** See Harris, E. E.
**Marqués, I. R.** See Ribas Marqués, I.
**Marques Leal, A.,** and Filipe, M. A. R. Identification of sulfonamide tablets, 1153*i*.
—— and Lopes, M. B. S. R. Differentiating *p*-aminosalicylic, salicylic, and *p*-aminobenzoic acids, 8977*i*.
—— and Ribeiro, M. R. C. Identification of sulfonamides, 3973*i*.
**Marquette, M. M.** See Garber, M.
**Marquez, L.** See Orth, D. A.
**Marquez, R. C.** See Cordova Marquez, R.
**Marquina, J. M. G.** See Garcia Marquina, J. M.
**Marquis, M.** See Binet, L.
**Marrazzi, A. S.** Physiology of acetylcholine (IV) mode of action, 4753*b*
**Marrian, D. H.** See Friedmann, E.
**Marrian, G. F.** See Klyne, W.; Sommerville, I. F.
**Marrian, S. F.** See McLean, A. —— and McLean, A. Polypentaerythritols, P 5036*f*.
**Marriner, R. A.** See Mack, D. E.
**Marriott, H. J. L.** See Landau, S. W.
**Marriott, R. H.** Rheological methods of control (III) in the pharmaceutical and cosmetical industries, 8750*d*.
——, Morris, S., and Larthe, V. Use of Rotifera for testing analgesics, narcotics, and similar drugs, 358*g*.
—— and Myddleton, W. W. Reaction of stilbestrol with camphor, P 6666*d*
**Marrison, L. W.** Infrared spectroscopy in the chem. industry, 1639*g*; infrared spectroscopy in the aero and motor fuel industry, 2759*a*; analysis of mixts. of the stereoisomers of hexachlorocyclohexane by means of infrared spectroscopy, 8601*g*.
**Marroc, G.,** and Sisley, J. P. Deglycerination with alkylaryl sulfonic acids, 2579*i*.
**Marroquín, A. S.** See Sánchez-Marroquín, A.
**Marsal, A.** Phosphatases in biology and medicine, 3478*i*
**Marsaudon, A.** See Tribot, A.
**Marsaule, S.** See Barlot, J.
**Marschall, F.** See Vogt, C. G.
**Marschall, H.** See Maier-Leibnitz, H.
**Marschik, J.** Intermediate products of the org. chem. industry, 9027*i*
**Marschner, R.** Water-purification plants and filter problems in Fe- and Mn removal plants, 791*d*
**Marschner, R. F.,** and Cropper, W. P. Hydrocarbon azeotropes of toluene, 7916*d*.
**Marsden, A. W.** See Jacobs, S. E.
**Marsden, C.** See Emblem, H. G.
**Marsden, E.** Oil absorption, 3630*g*, 6837*a*; see Schonland, B. F. J.
**Marsden, J.,** and Roedel, G. F. Methyl silicone elastomers, P 5624*h*
**Marsden, R. J. B.** Cryst. and amorphous regions in fibers, 4857*g*
**Marsden, S. S., Jr.** Na palmitate in org. liquids as studied by x-ray diffraction, 2793*a*, see McBain, J. W.
— ——, Mysels, K. J., Smith, G. H., and Ross, S. X-ray diffraction of Al soaps, 1584*c*
**Marsh, A.** Smoke prevention in Great Britain, 3990*g*, see Silver, V.
**Marsh, D. F.** Pharmacology of *p*-fluorophenethylamine and *p*-fluorophenethylmethylamine, 759*d*, pharmacology of the isomeric heptylamines, 1110*a*, pharmacol. activity of 1-phenyl-2-butylamine, 2320*f*
—— and Herring, D. A. Pharmacology of the N-alkyl-1-(*p*-hydroxyphenyl)-2-aminoethanols, 7128*d*
——, Herring, D. A., and Sleeth, C. K. Curariform activity of N-methyloxycanthine, 3103*f*
—— and Van Liere, E. J. Effect of adrenergic blocking agents on the vasoconstriction produced by acute O lack, 1109*i*
**Marsh, D. I.** See Johnson, Bertrand L.; Josephson, G. W.
**Marsh, D. L.** See Geiger, L. M.
**Marsh, G. A.** See McDonald, H. J.
**Marsh, H.** Toxaphene residues (III) feeding of toxaphene treated alfalfa to cattle and sheep, 8600*g*
**Marsh, J. B.** See Scalie, W. C.
**Marsh, J. K.** Lanthanon-$Na_2SO_4$ pptns., 7856*a*
**Marsh, J. S.** O-enriched open-hearth furnaces, 7389*b*
**Marsh, J. T.** Textile Bleaching (book), 3624*h*.
**Marsh, K.** Remelting furnace for light metal scrap of varying wt., P 4209*a*.
**Marsh, M. E.** See Killian, J. A.
**Marsh, P. B.,** and Bollenbacher, K. Fungi concerned in fiber deterioration (I) their occurrence, 5953*g*
——, Bollenbacher, K., Butler, M. L., and Raper, K. B. Fungi concerned in fiber deterioration (II) their ability to decomp. cellulose, 9456*f*. (Original j. ref. should read Vol. **19** (1949))
**Marsh, R.** Bottoms up! 5969*h*.
**Marsh, R. W.** See Kearns, H. G. H.
**Marshak, A.** Nuclear precursor of ribo- and desoxyribonucleic acid, 5435*a*
——, Schaefer, W. B., and Rajagopalan, S. Antibacterial activity of *d*-usnic acid and related compds. on *Mycobacterium tuberculosis*, 5445*d*.
**Marshak, F. M.** Fractionation of fine polydisperse powders by an air current, 7290*c*.
**Marshak, R. E.** Neutral meson, 4094*g*, $\beta$-decay of $Be^{10}$ and theory of $\beta$-decay, 4116*c*, mesons $\pi$ and $\mu$, 8259*g*; see Ashkin, J.; Foldy, L. L.
—— and Wightman, A. S. Absorption of neg. $\pi$ mesons by protons, 6908*f*.
**Marshall, A. W.** See Bolton, M. E.
**Marshall, B.** See Kratzer, F. H.
**Marshall, C. D.** See Snyder, H. R.
**Marshall, C. E.** Electrochem. properties of mineral membranes (VIII) theory of selective membrane behavior, 2069*g*, Colloid Chemistry of the Silicate Minerals (book), 6550*h*.
—— and McLean, E. O. Activities of Ca and K ions as related to concn. and drying in clay suspensions, 1133*a*.
**Marshall, C. V.** Sepn. of Cu from oil spray, 6777*d*.
**Marshall, C. W.,** and Gallagher, T. F. 3(α),12(α)-Dihydroxy-16-etiocholanone, 7493*g*.
**Marshall, D. F.,** and White, H. C. Conversion to oil firing of the open-hearth furnaces at Park Gate Works, 4613*e*.
**Marshall, D. S.** See Gyrisco, G. G. ——, Newsom, L. D., Gyrisco, G. G., and Schwardt, H. H. Control of the clover root borer, 8599*e*.
**Marshall, E. K., Jr.** Distribution of 3,4-dimethyl-5-sulfanilamidoisoxazole in the body, 321*h*; detn. of *p*-aminosalicylic acid in blood, 710*g*.
—— and Blanchard, K. C. Antidiuretic effect of 3-hydroxycinchoninic acid derivs., 3929*g*
**Marshall, F. J.** See Gilman, H.; Pohland, A.
**Marshall, G. E.** Control of insect pests and diseases of peaches, 4417*a*
**Marshall, H.** See Dack, G. M.
**Marshall, H. B.** Industrial utilization of waste sulfite liquor, 7682*e*, see Johnson, A. M.
**Marshall, H. I.** Geology of Midlothian Township, 8315*a*.
**Marshall, I.,** Harris, I., Garrett, K. P. and Imperial Chemical Industries Ltd. Polymerization of compds. contg. the ethylene double bond, P 5641*b*
**Marshall, J.** Oil spray investigations in British Columbia, 1524*d*, Skin Diseases (book), 1859*h*.
**Marshall, J. E.** See Cullen, G. V.
**Marshall, L.** α Particles from fission as recorded by photographic emulsions, 5295*a*., see Fermi, E.
**Marshall, L. M.,** Orten, J. M., and Smith, A. H. Detn. of fumaric acid in animal tissues, 9127*f*
**Marshall, M. R.** See Moe, G. K.
**Marshall, P. B.** Glucose metabolism of *Plasmodium gallinaceum* and the action of antimalarial agents, 3099*b*, glucose metabolism of *Trypanosoma evansi* and action of trypanocides, 3099*d*, aerobic respiration in *Leptospira icterohaemorrhagiae*, 9151*g*, see Bryan, G.
—— and Rogers, E. W. Detn. of quinine degradation product in blood, and its absorption in the chick, 4321*a*
**Marshall, R. E.** See Penniman, J. G.
**Marshall, R. P.** Lab. control of electroplating, 1661*i*
**Marshall, S. P.,** Becker, R. B., Arnold, R. H. D., and Sanders, D. A. Stilbestrol on udder development, pelvic changes, lactation, and reproduction, 9192*d*
**Marshall, W. P.** Sealing material, P 3242*a*
**Marshall, W. R., Jr.** See Friedman, S. I.
**Marsico, F.** See De Francisci, P. — —— and De Francisci, P. Fe in blood of dogs after injection of histamine, 6730*g*
—— and Polosa, P. Folic acid in anemia caused by benzene poisoning, 8969*b*
**Marsili, G.** See Tarantino, C.
**Marsland, J. E.** See Johnson, A. J.
**Marson, H. W.** See Vaughan, J. R., Jr.
**Marsovszky, E.** Leather or rubber substitute, P 2040*a*
**Marston, H. R.** Nutritional factors involved in wool production by Merino sheep (I) influence of fodder intake on the rate of wool growth, 4859*a*.
—— and Lee, H. J. Nutritional factors involved in wool production by Merino sheep (II) influence of Cu deficiency on the rate of wool growth and on the nature of the fleece, 4859*c*.
——, Lee, H. J., and McDonald, I. W. Co and Cu in the nutrition of sheep (I), (II), 4354*e*.
**Marszak, I.,** and Marszak-Fleury, A. Cleavage of esters of amino acids, during catalytic hydrogenation, 131*c*.
——, Marszak-Fleury, A., and Koulkes, M. Catalytic hydrogenation and hydrogenolysis of acetylenic and ethylenic esters and amino esters, 6977*g*.
**Marszak-Fleury, A.** See Marszak, I.
**Martell, A. E.** See Smith, Roscoe
—— and Bersworth, F. C. Amino acids as chelating agents, 2536*b*, 8049*b*.
**Martelli, G. M.** Hexachlorocyclohexane for controlling the Argentine ant, 7185*d*
**Martelli, H. L.** See Labarthe Martelli, H.
**Martelli, M.** See Servadei, A.
**Martens, F. H.** Differential counting with reversible decade counting circuits, 7327*e*.

**Martens, H.** See Inhoffen, H. H.
**Martens, P. H.** Soly. of phosphates and the analysis of phosphate fertilizers, 3958*h*.
**Mårtensson, J.** Citric acid content of the serum after glucose and galactose tolerance tests, 9226*e*; hypercitricemia in Addison's disease, 9226*c*.
**Mårtensson, M.,** and Lamm, O. Radioactive emanating power and ultrasonic treatment, 7815*c*.
**Marth, P. C.,** and Mitchell, J. W. Apparent antagonistic effects of growth regulators, 6289*a*; volatility of various forms of 2,4-D, 6775*g*.
———, Toole, E. H., and Toole, V. K. Effect of 2,4-D on seed development and germination in cereal and grass crops, 1517*g*.
**Marthaler, F.** See Schönholzer, G.
**Marti, T.** Freon poisoning, 2711*d*.
**Martin,** Vallaud, A., and Champeix. Silicosis and its prevention in the French fossil silica industry, 3543*c*.
**Martin, A. E.** See Wain, R. L.
**Martin, A. J.** Au, Ag, Cu, Pb, and Zn in Colo., N. Mex., S. Dak., Tex., and Wyo., 2127*i*, Au, Ag, Cu, Pb, and Zn in the central and eastern states, 2127*i*.
**Martin, Andrew J.** Catalyst for isobutylene-nitrosyl chloride (or bromide) addn., P 7050*e*.
**Martin, A. J. P.** See Consden, R.
——, and Mittelmann, R. Analysis of amino acid mixts. on paper partition chromatograms, 2665*f*.
**Martin, B. F.** See Jacoby, F.
**Martin, C. C.** See Lipkin, M. R.
**Martin, D. G.** See Garcia Martin, D.
**Martin, D. G. E.,** and Richardson, H. O. W. Nuclear $\beta$ spectra of Th B → C and C → C′ and the intensities of some $\beta$-ray lines of Th (B + C + C″), 4950*g*.
——, Richardson, H. O. W., and Hsu, Y. K. $\beta$ Ray spectrum of Th C″D, 3708*b*.
**Martin, D. L.** See Newkirk, J. B.
**Martin, D. R.** See Booth, H. S.
**Martin, E. L.** [5,6,7,8-Tetrahydro-1-hydroxy-2-(and 3)-naphthoylamino]benzaldehydes and their acetals with lower alkanols and 1,2- and 1,3-alkanediols, P 7511*f*, quinoneimine dyes from hydroxybenzamidobenzaldehyde and hydroxyphenylsulfonamidobenzaldehyde acetals, P 8167*g*.
**Martin, E. P.,** and Pink, R. C. Soly. of Zn soaps in org. solvents, 4539*a*.
**Martin, E. W.,** Hixson, A. N., and McNabb, W. M. Detn. of dichromates in satd. solns. of chromates and dichromates, 1086*c*.
**Martin, F. M.** See Moreno Martin, F.
**Martin, G.** New form of rubber, 891*c*.
**Martin, Georges.** See Société anon. des matieres colorantes et produits chimiques de Saint Denis.
**Martin, G. J.** Biochem. studies of salicylic acid and a series of its derivs., 756*g*, see Alpert, S., Avakian, S.; Beiler, J. M., Lewandowski, T., Moss, J. N., Urist, H. R., and Avakian, S. ✦ 4 [[(2-Amino-4-hydroxy-6-pteridyl)methyl]amino]benzenesulfonylamide and salts thereof, P 8105*i*.
——, Brendel, R., Beiler, J. M., Moss, J., Avakian, S., Urist, H., Tolman, L., and Alpert, S. Pteroylglutamic acid-displacing agents, 257*c*.
——, Graff, M., Brendel, R., and Beiler, J. M. Effect of vitamin P compds. on the action of histidine decarboxylase, 8464*b*.
——, and Moss, J. N. Effects of metabolite displacers on *Pseudomonas aeruginosa*, 8001*b*.
——, and Swayne, V. Vitamin-P compds. in counteracting anticoagulant action of dicoumarol, 3931*d*.
——, and Urist, H. *N*-(γ-Hydroxybutyryl)-taurine, P 4818*d*; 2-acetoxybenzyl acetylsalicylate, P 7647*e*; chemotherapeutic agents, P 8619*c*; oxyfolic acid, P 9389.
**Martin, G. L.** See MacNevin, W. M.
**Martin, G. R.** See Chackett, K. F.
**Martin, G. W.** See Gray, W. D.
**Martin, Hans.** Ion migration in a counter-flowing electrolyte as basis for an electrochem. exchange process, 6091*f*.
——, and Albers, A. Coördination compds. of $UF_6$ with fluouranates(VI), 6102*d*.
**Martin, Henry.** See Hirt, R.
——, and Gysin, H. Acylglycinamides, P 2489.
——, Gysin, H., **Zaeslin,** H., and **Margot, A.** Dicarboxylic acid diamides, P 1797*e*.
——, and **Margot, A.** Basic esters of aliphatic tertiary carboxylic acids, P 3443*d*.
**Martin, Hubert.** Insecticide research, 2725*h*; organo-P insecticides, 5897*b*, 6776*e*; nut-weevil of hazelnuts, 6777*d*; see Kearns, H. G. H.
**Martin, H. E.,** and Wertman, M. Serum K, Mg, and Ca levels in diabetic acidosis, 5855*a*.
**Martin, H. K.** Flowsheet for taconite concn. at Babbitt, 7388*i*.
**Martin, H. S.** See Goldsbarry, A. W.
**Martin, H. Z.** Stripping app. for spent finely divided catalyst, P 2764*c*; see Gohr, E. J.; Murphree, E. V.
**Martin, I.** See And'yan, A.
**Martin, J.** See Kourilsky, R.; Vallery-Radot, P.
**Martin, James B.,** and Doty, D. M. Detn. of inorg. phosphate—modification of iso-BuOH procedures, 8967*b*.
**Martin, John B.** Chlorinated rubber coatings, 875*g*, 4493*b*.
**Martin, J. H.** See Anderson, Elna.
**Martin, J. J.** Calibration of rotameters, 4903*i*.
**Martin, J. K.** Building brick, 4437*d*.
**Martin, J. P.** Effect of fumigation, fertilization, and other soil treatments on growth of orange seedlings, 3130*c*.
**Martin, J. R.,** and Burrell, F. B. Sp. gr. recorder, P 8*a*.
**Martin, J. T.** Pest control, 4789*c*.
**Martin, K.** Skin effect, 5679*g*.
**Martin, L.** See Lichtenberger, J.
**Martin, Léopold.** At. energy in therapeutics, 3524*b*.
**Martin, L. H.,** Bower, J. C., Dunbar, D. N. F., and Hirst, F. Angular distribution of $\alpha$-particles from the $Li^7$ $(p,\alpha)He^4$ reaction, 8863*g*.
**Martin, M.** Mol. diagrams of mesomerism in the study of cyclic N derivs., 4670*f*, see Daudel, P.
——, Yang, J.-T., and Daudel, P. Radioactivity in the study of chromatographic analysis—fixation of halide ions, 8271*d*.
**Martin, M. E.** Phenolated calamine lotion, 358*f*.
**Martin, M. L.** See Gratch, I.
**Martin, N. H.** Effect of albumin adminis tration, 2696*f*; prepn. and properties of serum and plasma proteins (XXI) interactions with bilirubin, 5433*g*.
**Martin, O.** Paint finish for domestic goods, 3627*i*.
**Martin, P. L.** Formulas giving the flow of liquids in piping, bends, etc., 8751*h*.
**Martin, R. B.** Flotation of sulfide ores with a *N*-dichlorothiocarbamide, P 2151*h*, see Chamberlain, N. S.
**Martin, R. L.** Flames in disinfecting reservoirs, 2717*c*.
**Martin, R. P.** See Dittmer, K.; Russell, R. S.
**Martin, R. W.** Estn. of ethylenes, 8975*b*.
**Martin, S. L.** See Friedenstein, H.
**Martin, S. M.** Engineering planning in the plating department, 8907*h*.
**Martin, S. R. W.** See Albert Products Ltd.
**Martin, S. W.** See Robison, H. F.
**Martin, W.** Mg, 979*g*.
**Martin, W. B.** See Tuell, S. W.
**Martin, W. G.** Ceramic enamel sheeting, P 5506*g*; assembly for enameling continuous thin metal sheet without impairing its tensile strength during fusion of the coating, P 7240*e*.
**Martin, W. H.** Science in the land, 9313*a*; see Chilson, W. H.; Claydon, T. J.
**Martin, W. J.,** Lutz, J. M., and Ramsey, G. B. Control of black rot in washed, uncured sweet potatoes, 7180*f*.
**Martin, W. S.** Vertical multiple-hearth calcining kiln, P 6874*g*.
**Martin, W. W.** See Dunn, C. G.
**Martín Casamada, R. S.** See San Martín Casamada, R.
**Martindale, J. G.** Physics in the processing of textiles, 4857*h*.
**Martindale, W. E.** See Totter, J. R.
**Martinec, T.,** Pavlík, M., and Cetl, I. Buffering value of natural waters and its importance for the fishery, 9303*f*.
**Martinelli, E. A.** See Panofsky, W. K. H.
**Martinelli, R. C.** See Lockhart, R. W.
**Martinenghi, G. B.** Soap industry, 2793*c*; Chimica e tecnologia degli oli, grassi e derivati (book), 6843*e*.
——— and Quirici, G. Extn. app., P 4524*h*.
**Martinengo, L.** $CHCl_3$ action on liver, 3527*b*.
**Martinet, J.** Précis de chimie d'après les théories modernes (book), 6904*f*.
——— and Deshays, M. Se rectifiers, P 8290*h*.
**Martinet, M.** Lux permeameter, an instrument for measuring degrees of sizing of book and writing papers, 4852*c*.
**Martinet, N.,** and Bogdanoff, C. $Al_2(SO_4)_3$, P 8107*h*.
**Martinet, R.** See Morane, R.
**Martinetto, G.** See Binda, B.
**Martínez, A. O.** See Ortuño Martínez, A.
**Martínez, A. S.** See Soler Martínez, A.
**Martínez, C.** Increase in tissue sulfhydryl groups by treatment with thiouracils or cysteine, 5118*c*, see Houssay, B. A.
**Martínez, E.** See Fernández, O.
**Martínez, J. B.** See Beltrán Martínez, J.
**Martínez, L. R.** See Recalde Martínez, L.
**Martínez, R.** See Tomeo Lacrué, M.
**Martínez, S. J.** See Cardwell, P. H.
**Martínez Garza, H.** See Sodi Pallares, E.
———, Díez de Urdanivia, I., Aguirre, H., and Sodi Pallares, E. Secondary amines, 7906*b*.
**Martínez Moreno, J. M.** Deacidification of olive oil by alc., 4031*d*.
——— and Paniagua, C. Phase diagram of the ternary system, neutral palm oil-fat acids-MeOH, at 50°, 8834*g*.
**Martínez Oller, B.** See Torres, C.
**Martín Guzmán, G.** Semimicromethods of ter Meulen and Heslinga for quant. elemental org. analysis, 6105*d*.
**Martini, A.** See Bredereck, H.
**Martinius, J.** Tri-*o*-tolyl phosphate, 6365*h*.
**Martino, C.** See Colonna, M.
**Martin-Péridier, Y.** See Mousseron, M.
**Martín Retortillo, M.** See Poggio Mesorana, F.
**Martín Retortillo, N.** Peats of Spain, 2349*b*.
**Martin Rico, F.** Oxidation of an org. compd. by $H_2O_2$, 7311*d*.
**Martín Rodriguez, M.** Riesenfeld test, 1679*d*, peroxy salts, 7855*c*.
**Martín S., S.** See Césarman y Vitis, T. E.
**Martins da Silva, J.** Iron ore deposits in southern Portugal, 5708*c*.
**Martinson, L. E.,** and Sun, K.-H. Silver-coating org. surfaces, P 4520*d*.
**Martinuzzi, E. A.** See Fester, G. A.
**Martinuzzi, P. F.** Development of high capacity compression, 4903*e*.
**Martín Vivaldi, J. L.** See Gutiérrez Ríos, E.
**Martius, C.** Interruption of the citric acid cycle by fluoroacetic acid, 7984*c*.
**Martjanoff, N. S.** See Mart'yanova, N. S.
**Marton, L.** Electron microscopy, 4556*f*; electron microscope and its applications, 4930*g*; Advances in Electronics, Vol. I (book), 4958*i*.
**Martos, K.** See Fischer, Antal.
**Martraire, M.** See Perard, J.
**Marty, A.** Pitch paints, 5966*b*.
**Marty, C.,** and Prentki, J. Absorption of heavy mesons by the deuteron, 2857*a*; meso disintegration of the deuteron, 7329*b*.
**Marty, N.,** Labeyrigue, J., and Langevin, H. $\beta$-Spectrum and γ-radiations of $As^{76}$, 6910*i*.
**Mart'yanova, N. S.** See Povarnin, I. G.
**Martyntcewa, S. S.** See Silberman-Martyntcewa, S.
**Martynenko, E. A.** See Mezhennil, Ya. P.
**Martynoff, M.** Absorption spectra of some *p*-quinones, 5665*f*; see Ramart-Lucas, P.
**Martynov, V. M.** Emulsions, 5256*f*, dependence of surface tension on the radius of curvature of the interface, 6040*a*, crit. dispersity of highly concd. emulsions, 7776*a*.
**Martynova, R. P.** See Kirsanova, V. A.
**Marukyan, G. M.** See Balandin, A. A.
**Marullo, G.** Synthetic alc. purification, P 5032*e*.
**Marushkin, M. N.** See Balandin, A. A.
**Maruta, K.,** Seta, K., and Kimura, M. Relation between the basal metabolism or the blood I content and the post-operative Basedow reaction, 5852*b*.
**Marutake, M.** See Kawai, Heiji.
**Marutyan, S. A.** See Sisakyan, N. M.
**Maruyama, C.** See Willett, E. L.
**Maruyama, G. M.,** and Phillips, P. H. Reproduction and lactation studies with rats fed natural and purified rations, 1091*c*.
**Maruyama, J.** Vanadium and Ti from sand Fe, P 7838*b*.
**Maruyama, S.** See Takeshita, Y.
**Maruyama, T.** See Kambara, S.
**Marvel, C. S.** Polymers contg. polymeric chain C atoms to which are attached carbocyclic ring-contg. radicals, P 9529*f*.
——— and Brace, N. O. Dimer of 2-cyano-1,3-butadiene, 2574*a*.
———, Brace, N. O., Miller, F. A., and Johnson, A. R. Benzoyl cyanide dimer and

the addn. of benzoyl cyanide to aromatic aldehydes, 2974*g*.

——, Inskeep, G. E., and Deanin, R., Hein, D. W., Smith, P. V., Young, J. D., Juve, A. E., Schroeder, C. H., and Goff, M. M. Copolymers of butadiene with alkyl, aryl, alkoxyl, and phenoxyl styrenes, 1597*d*.

—— and Johnson, R. S. 1-Dodecanesulfinic acid, 2572*d*.

and Moore, A. C. 1-Cyano-2,6-diphenyl-4-hydroxycyclohexane and related compds., 2963*e*.

—— and Williams, J. L. R. 2-Alkyl-1,3-butadienes, 1311*d*; copolymers of 1,3-butadiene and 2,3-dimethyl-1,3-butadiene, 8190*a*.

**Marvell, E. N.** See Alexander, E. R.

**Marvin, G. G.** See Chapman, F. W., Jr.

**Marvin, H. N.** See Awapara, J., Wells, B. B.

**Marvin, J. F.**, and Moore, G. E. Localization of brain tumors with radio dyes (II) evaluation of the phys. limitations, 1856*g*.

**Marvin, J. T.**, and McFadden, G. H. Latex foam, P 8194*b*.

**Marwedel, G.** Wetting of pigment powders, 8697*h*.

**Marwedel, H. J.** See Jebsen-Marwedel, H.

**Marx, A.** Coal-tar phenols, 7667*b*.

**Marx, E.** See Marx, R.

**Marx, H.** Arzt und Laboratorium (book), 1451*b*.

**Marx, L.** See Marx, W.

**Marx, R.** See Baverle, H.

—— and Bayerle, H. Antithrombokinase activity of the blood, 3863*i*, blood-clotting system in scurvy (II), 3900*b*, carbonic acid in blood coagulation, 5842*b*

——, Bayerle, H., and Marx, E. Blastokolin and rhizocalin action of some coumarin derivs. of 3,3′-methylenedi(4-hydroxycoumarin), the specific inhibitor of prothrombin formation in mammals, 9107*i*

——, Bayerle, H., and Skibbe, I. Complement and prothrombin and the effects of the antithrombins dicoumarol and heparin, 8543*g*

**Marx, W.** Influence of normal and cancer blood on tyrosinase activity, 4762*a*, see Winebrenner, L. E.

——, Marx, L., Meserve, E. R., Shimoda, F., and Deuel, H. J., Jr. Effects of a vitamin E concentrate and of cholesterol and bile salt on the aorta, 7097*g*

**Mar'yanchik, V. L.** Filter press, P 6009*i*

**Maryott, A. A.**, Hobbs, M. E., and Gross, P. M. Elec. polarization of carboxylic acids (III) assocn. of some carboxylic acids in $C_6H_6$ soln., 6493*h*.

**Marzetti, G. B.** Rubber wastes regeneration, P 4892*b*

**Marzorati, C.** See Cambi, L.

**Mas, R.** Properties of Cu arsenates with reference to their prepn., 2885*b*, see Guérin, H., Viel, G

**Masada, K.** Treatment for nuts or acorns, P 6844*d*.

**Masamune, H.**, and Osaki, S. Carbohydrates (LXIX) prepn. of pure chondrotinsulfuric acid, 3483*h*

—— and Yasuoka, T. Carbohydrates (LXXXIX) how in natural glycoproteins are itin and itinsulfuric acid linked with protein? 5103*i*.

——, Yasuoka, T., Takahashi, M., and Asagi, Y. Carbohydrates (LXXXVIII) does mucoitin exist in the animal body combined with $H_2SO_4$? (3) Itmacoitinsulfuric acid from mucus-mucin of snail and constitution of this glycoprotein, 5103*g*.

**Mascherpa, P.** Adrenalmelike drugs, 1489*b*, pulmonary nucleoproteins are among the factors detg. induced organotropism of Cu for the lung, 3928*a*; proteins and nucleoproteins of lungs and liver as factors conferring on Co and Cu an organotropism for the lungs and liver, 6732*h*, Farmacologia e farmacognosia (book), 8004*i*.

—— and Marangoni, P. Vitamin C in *Hippophae rhamnoides*, 5510*d*, vitamin C in mixts. of hips and *Hippophae rhamnoides*, 5510*e*.

**Maschhaupt, J. G.** Soil investigations in the Dollard region, 3549*c*.

**Maschinenfabrik Oerlikon.** Insulating tube for connecting cells with circulating electrolytes, P 2525*f*; induction furnaces, P 3732*h*; light metal castings of high elec. cond., P 5358*b*; corrosion prevention in solns. contg. Cl ions, P 5360*a*; bipolar electrolysis, P 6098*a*; equipment for heat-treating materials, especially for calcining cement and alk. earth carbonates, P 7276*a*.

**Maschka, A.** See Schmid, H.

**Maschowetz, V. P.** See Mashovets, V. P.

**Mascré, M.** Denis Bach, 6013*i*.

—— and Deysson, G. Mitoclastic action of camphor, 6704*b*; mitoclastic properties of eserine, 8462*i*.

**Masdupuy, E.** See Gallais, F.

**Masera, A.** Oxidation-reduction potential of the medium and the course of lysis of bacterial colonies by amino acids and bacterial exts., 715*g*.

**Masereel, G.** Styrenated oils, 8701*b*

**Mashbits, M. M.** Production of sulfidine in the U.S.S.R., 5378*f*

**Mashovets, V. P.**, Cherdyntsev, V. V., and Neustrueva, M. V. Resistance of an electrolyte soln. in the electrolytic bath as a function of shape, dimensions, and disposition of the electrodes (III) combination of a plane and a cylindrical electrode, 2874*b*.

**Masi, A.**, and Giusti, M. Blood changes during treatment with vitamin A, 3499*b*.

**Masilun, W. J.** See Gittings, H. T.

**Masing, G.** Polarization potential of Al in aq. solns. of NaCl, 503*c*; annealing colors of metals 5714*i*, can a metal be melted by plastic deformation? 5715*a*; theory of hardening by plastic deformation, 8787*d*; see Cahour, J. A., Ergang, R.; Kuhlmann, D., Lucke, K.

**Masing, L. A.** See Mazing, L. A.

**Masior, S.** Hydrolysis of potato starch with water under pressure, 9505*a*

**Mašková, J.** Phytohormones as selective herbicides, 9351*c*

**Maslakovets, Yu. P.** See Dunaev, Ya. A.

**Maslakovetz, J.** See Maslakovets, Yu. P.

**Maslenikov, M. S.** Slag formation in the pits of lampblack furnaces, 6396*c*

**Maslianskiĭ, G. N.** See Maslyanskiĭ, G. N.

**Maslov, A. S.** Cyclotron, P 8898*c*

**Maslov, T. N.** See Grom, V. A.

**Maslov, Y. G.** Fermentation of soybeans and similar materials, P 3562*b*

**Maslow, H. L.** See Heimer, C. B.

**Maslyanskiĭ, G. N.**, and Veltitsova, M. V. Butylenes and butanes, P 3187*g*

**Masner, L.** See Kubelka, V.

**Mason, A. C.** See Chisholm, R. D.

**Mason, A. S.**, and Oliver, R. Urinary excretion of radioactive I as a diagnostic aid in thyroid disorders, 9227*f*

**Mason, B.** Laumontite at Bluff, Southland, New Zealand, 2549*e*, oxidation and reduction in geochemistry, 6550*f*

**Mason, C. L.** NaOCl in the control of peach diseases, 9347*f*

**Mason, C. M.** See Elmore, K. L.

—— and Culvern, J. B. Elec. cond. of $H_3PO_4$ and of Na and K dihydrogen phosphates at 25°, 8809*c*

**Mason, C. T.** See Lucien, H. W.

**Mason, C. W.** Microscopist in the tech. organization, 4785*e*.

**Mason, D. E.** See Garlick, G. F. J.

**Mason, D. F. J.** See Mushin, W. W.

**Mason, D. O.** Handling of chemicals, 9207*e*.

**Mason, E. A.** See Gilliland, E. R.

**Mason, E. J.** See Petermann, M. L.

**Mason, E. N., & Sons Ltd.** and Norman, D. J. Sensitized cloths for photoprinting and photographic processes, P 4594*d*.

**Mason, F. D.** See Stephenson, S. T.

**Mason, H. L.** Urinary steroids in adrenal disease and the metabolism of adrenal hormones, 6716*i*, see Lobitz, W. C., Schneider, J. J.

——, Kepler, E. J., and Schneider, J. J. Metabolism of dehydroisoandrosterone in a woman before and after removal of an adrenocortical tumor, 6727*d*.

—— and Sprague, R. G. Isolation of 17-hydroxycorticosterone from the urine in Cushing's syndrome assocd. with severe diabetes mellitus, 302*a*.

**Mason, H. S.**, and Wright, C. I. Melanin (V) oxidation of dihydroxyphenylalanine by tyrosinase, 9115*a*.

**Mason, J. B. M.**, and Clegg, L. Heat balances in practice, 1548*i*.

**Mason, J. F.**, and Beebe, A. H., Jr. Electrolytic sealing of anodized Al surfaces, P 5317*f*.

**Mason, J. F., Jr.** Resistance of alloys to corrosion during the processing of some foods, 777*c*.

**Mason, J. H.** See Harley-Mason, J.

**Mason, L. S.** See Davis, W. D.

——, Offutt, W. F., and Robinson, A. L. Heats of diln. of aq. solns. of our amino acids at 25°, 6070*b*.

**Mason, N. H.** Prevention of lab. accidents, 7159*i*.

**Mason, P.** See Lippincott, S. W.

**Mason, R. B.** Oxide coatings on Al, P 3772*b*; etching Al, P 6147*f*.

**Mason, R. C.** Properties of gas discharges used as spectral sources, 6083*e*.

**Mason, R. W.** See Prener, J.

——, Hiskey, C. F., and Ward, R. Radioactive tracers in study of activator distribution in infrared-sensitive phosphors, 4579*c*.

**Mason, S. G.** Flocculation of cellulose fiber suspensions, 1181*f*; see Tuck, N. G. M.

—— and Maass, O. Critical opalescence of ethylene, 1231*i*

**Mason, W. P.** Electrostrictive effect in Ba titanate ceramics, 2054*h*; electrooptical light valve of $NH_4H_2PO_4$, P 5082*g*; see Bozorth, R. M.

——, Baker, W. O., McSkimin, H. J., and Heiss, J. H. Errata and addenda—mech. properties of long-chain-mol. liquids at ultrasonic frequencies, 3256*b*; measurement of shear elasticity and viscosity of liquids at ultrasonic frequencies, 4065*c*.

—— and McSkimin, H. J. Energy losses of sound waves in metals due to scattering and diffusion, 1233*d*, 2836*i*

—— and Matthias, B. T. Theoretical model for explaining the ferroelec. effect in Ba titanate, 2055*d*.

**Masonite Corp.** Thickener for fibrous stock, P 4064*a*, lignocellulose die stock, P 3197*i*, recovery of sugar precursors, P 5593*a*

**Masonyi, L.** See Ducks, G.

**Masoro, E. J.** See Zilversmit, D. B.

—, Chaikoff, I. L., and Dauben, W. G. Lipogenesis from glucose in the normal and hyperthyroid animal as studied with $C^{14}$-labeled glucose, 8509*g*

**Maspes, P. E.** See Fuortes, M. G. F.

**Masquelier, C.** See Smets, G.

**Masquelier, J.** Pigments of the peanut (III) tannoid and the phlobaphene, 3491*i*, see Tayeau, F.

—— and Blanquet, P. Pigments of the peanut (II) flavanone, 7841*i*, 3491*b*.

**Masriera, M.** Hypothesis of the 96 elements (I) theory of the at. nucleus, 4709*c*

**Massa, C.** Device for anodic oxidation in mass of small articles of Al or its alloys, P 3300*d*

**Massa, F.** See Sorgato, I.

**Massa, V.** See Diacono, H.

**Massarani, E.** See Cavallini, G.

**Massari, S. C.** Graphitizing behavior of white Fe, 6134*f*

**Massart, L.** Metabolites and their antagonists, 1851*a*, antagonism between basic compds. (spermine, streptomycin) and basic bactericidal substances, 3058*a*, antagonism between trypaflavine and La ions, 7133*e*, antagonism between chemotherapeutic agents and different ions, 7134*b*, enzymic inhibition as a basis for chemotherapy, 8413*a*, see Peeters, G.; Stricht, A. F. van der.

——, Daelen, P. van den, and Nayer, H. de. Influence of salts on the inhibition of the respiration of *Escherichia coli* by acriflavine, 4325*e*

——, Ley, J. de, Nayer, H. de, and Verceuteren, R. Uptake of acridines by *Escherichia coli*, 4325*e*.

—— and Vanderhoeven, D. Basophily of casein, 5054*h*.

**Massatsch, C.** Glycerophosphates and detn. of glycerophosphoric acid, 785*d*, synthetic waxes—oxide wax, I. G. wax, Nibren wax, ozocerite wax, and similar products, 3219*a*; adulterated butylene glycol as glycerol substitute, 5540*i*, detn. of the sweetening agent in sol. saccharin and similar compds., 6785*g*, results of analyses (I) evaluation of triethanolamine for tech. and pharmaceutical uses, (II) adulteration of bitter almond oil, 6789*i*, see Meyer, F. O. W.

**Masse, L.** See Biserte, G.

**Masset, J. L.** Action of some antiseptics on molds, 714*h*.

**Massey, F. C.** Tyrothricin, 3061*a*

**Massey, H. S. W.** See Bates, D. R.; Burhop, E. H. S.

**Massie, D. S.** See Casado, F. L.

**Massie, S. P.** See Gilman, H.

**Massieu, G.** See Cravioto, R. O.

——, Guzmán, J., Cravioto, R. O., and Calvo, J. Detn. of essential amino acids in Mexican foodstuffs, 7602*b*

**Massignon, D.** See Arnous, E.

**Massil'on, T. K.** See Tovarev, V. V.

**Masslow.** See Maslov.

**Masson, C. R.,** and Melville, H. W. Osmometry of high polymer solns. (I) osmometer and membranes, (II) osmotic measurements using bacterial cellulose membranes, 7782*d*.

**Masson, D. J.** See Beitler, S. R.

**Masson, G.** See Barsantini, J. C.; Corcoran, A. C.; Hoffman, M. M.; Leger, J. —— and Barsantini, J. C. Inhibition of lacteal secretion—gonadomammary relationships, 743*b*.

**Masson, J.** See Guérin, H.

**Masson, J. M.** See Waldo, J. F.

**Massonet, R.** See Grangaud, R.

**Massot, G.** Electronic controls in the paper industry, 404*e*.

**Mast, W. C.** Coating compns., P 1611*c*; see Wrigley, A. N.
-- and Fisher, C. H. Prepn. of acrylic rubber—curing methods and properties of the vulcanizates, 3646*h*; lactoprene EV elastomer—effect of plasticizers, 4885*c*; emulsion polymerization of acrylic esters and other vinyl monomers, 5227*e*; prepn. and vulcanization of unsatd. acrylic elastomers (I), (II), 5988*h*.

**Mastagli, P.,** and Mahoux, A. P. Action of oscillating magnetic fields on mols., 6087*e*.
-- and Métayer, M. Hydrogenation of nitrogenous compds. (I) Raney Ni and nitrogenous compds., 5738*i*

**Master Builders Co.** Grinding hydraulic cement, P 9410*g*.

**Mastercole, M.** Annealing furnace, P 7760*g*

**Mastercole, P.** Annealing furnace, P 7760*g*

**Masterman, S.** See Dhar, M. L.

**Masters, H.** See Tinkler, C. K.

**Masters, R. E.** See Altman, K. I

**Mastin, R. G.** Turbine oils, P 1178*d*

**Mastrobattista, A.** Testing of stabilizers in vinyl films, 5226*i*

**Masuelli, F. J** See Scherer, P. C.

**Masuko, T.** Permanently magnetic steel, P 6806*g*

**Masurova, A. I.** FOKO photocolorimeter and a lab. galvanometer for the analysis of ferrous metals, 911*c*; detn. of Ni in steel, 6950*i*

**Más y Magro, F., Jr.** Modification of the benzidine-ferric alum color test for peroxidases, 7533*h*.

**Mata, J. M.** Ibanez, R.

**Mata, M** Detn of blood lipides, 3871*i*.

**Matagrin, A.** Manuel du savonnier (book), 8868*i*, protection of timber—stabilization of shape and dimensions—protection against rodents, insects, and shipworms, 5685*i*.

**Matalon, R.** Reversible and irreversible characteristics of thin films—return curve, 9214*i*, formation and stability of thin laminae—laminometer, 8795*g*
-- and Schulman, J. H. Mech. properties of penetrated monolayers, 4076*g*.

**Matavuli, P.** See Pushin, N. A.

**Matchet, J** See Bridge, W.

**Mateer, J. G.** Liver-function tests, 2660*c*.

**Matei, I.,** and Cocea, E. Oil from the needles of the conifers of Rumania, 6366*i*

**Mateos, J. P.** See Pérez Mateos, J.

**Mateo Tinao, A.** See Bernal Nievas, J.

**Mateo Tinao, M.,** and Idoipe Gómez, F. J. Pharmacology of Na fluorescein—actions on isolated frog heart, 309*g*.
-- and Zubiri Vidal, A. Pharmacology of Na fluorescein (uranin), 309*e*.
--, Zubiri Vidal, A., and Zubiri Vidal, F. Action of $Na_2S_2O_4$ and carbonate in arsenobenzene poisoning, 3108*d*; toxicity of arsenious oxide and chloride, 5120*a*.

**Mater, H. L. van.** See Van Mater, H. L.

**Materna, J. J.** 100 yrs. of public water supply for Boston, 8579*i*.

**Materanskaya, N. P.** See Drozdov, N. S.

**Materials Engineering Corp.** Light weight coated aggregate, P 3990*b*.

**Matériel téléphonique (Soc. anon.),** and Menteau, C. Piezoelec. crystals, P 5135*d*.

**Matesanz Rojo, A.** See Gaspar y Arnal, T.

**Matet, A.,** Matet, J., and Friedenson, O. Action of *dl*-α-tocopherol on hepatic necrosis provoked in rats by feeding raw soybeans, 7098*f*.

**Matet, J.** See Matet, A.
--, Montagne, R., and Buchy, A. Food value of the rapeseed press cake, 6757*a*.

**Matakill, A. I.** Structure of wool fiber, 3621*h*.

**Mateu Amengual, B.** See Dalma, G.

**Mathai, A. O.,** Varier, N. S., and Moudgill, K. L. Retting of coconut husks (II) tensile strength of coir fiber, 1985*d*.

**Mathé, G.** See Letulle, R.

**Mather, K. B.** Latent-image formation in a photographic emulsion, 1667*c*; applications of the photographic pressure effect, 1667*f*; surface reproduction, 7393*g*; spectroscopic characteristics of ordinary Acheson graphite, 8276*b*; fading of proton tracks in vacuum, 8854*b*.

**Matheron, E. J.** Controlling carnation diseases, 9338*e*.

**Mathers, A. P.** Detection of tartaric acid and tartrates in wines, 7189*a*.

**Mathers, F. C.,** and Griess, J. C., Jr. Electrodeposition of Pb from Pb *p*-toluenesulfonate solns., 46*d*.

**Mathes, K. N.** Bonding mica pieces, P 2750*b*; laminated elec. insulating panel, P 5644*h*.

**Mathes, R. A.** Salts of dithiocarbamic acids, P 5224*e*.
——, Stewart, F. D., and Swedish, F., Jr. Synthesis of amine salts of thiocyanic acid, 578*f*.

**Matheson, G. L.,** Herbst, W. A., and Holt, P. H., 2nd. Fluid-solid systems, 6805*g*.

**Matheson, L. A.,** and Boyer, R. F. Vinylidene chloride light stabilizers, P 4520*d*.

**Matheson, M. S.** See Hart, E. J.; Lewis, F. M.
——, Auer, E. E., Bevilacqua, E. B., and Hart, E. J. Rate consts. in free radical polymerizations (I) methyl methacrylate, 4934*f*.

**Matheson, R. S.** Yellowdine Au mine, Mt. Palmer, Yilgarn goldfield, 6122*h*; red ocher deposits, 6124*h*; Yinniethara mica project, Lyons district, North-West Division, 6125*i*.

**Mathew, P. K.,** Nair, P. V., Ramakrishnan, T. A., and Sreemulanathan, H. Deodorization of shark-liver oil, 1531*b*

**Mathews, J., Jr.,** and Diehl, H. Reaction of ferrous Fe with nioxime, 6932*a*.

**Mathews, M. B.** Reduction of cozymase by Na borohydride, 2249*b*, see Mattoon, R. W.

**Mathews, M. M.** See Finck, H. F.

**Mathews, R. E. F.** See Markham, R.

**Mathews, R. R.** Development of lubricating greases, 5579*g*

**Mathews, W. H.** See Watson, K. D.

**Mathewson, C. H.** See Maddin, R.

**Mathewson, W. E.** Qual. dye analysis, 2437*i*.

**Mathias, M.** Two olivines from South African melilite-basalts, 6119*c*.

**Mathias, S.** Refractivity of aliphatic sulfides, 2835*g*.

**Mathiesen, E.** Improving the taste of canned fish, P 3540*g*, Norwegian canning industry, 8069*d*

**Mathieson, A. M.,** and Robertson, J. M. Structure of polysulfides and sulfonyl sulfides (III) crystal structure of bisphenylsulfonyl sulfide, 6881*d*

**Mathieson, D. R.** See Mann, F. D.

**Mathieson, D. W.** See McCoubrey, A.

**Mathieson Alkali Works.** Name changed to Mathieson Chemical Corp.

**Mathieson Chemical Corp.** (*Patents*) Mg-Li alloys, 1307*h*; preserving caustic soda from contamination in metal containers, 1882*i*; elimination of tastes and odors in water, 1888*d*, $ClO_2$, 1928*i*, 1929*c*, 8107*i*; stabilization of vinyl aromatic compds., 2037*g*; inhibition of polymerization of styrene and *ar*-chlorinated styrenes, 2806*b*; flux for Mg-Li alloy, 2922*a*; bleaching cellulosic material, 3198*b*, 5200*c*; inhibition of polymerization of vinyl aromatic compds., 3454*c*; treating shrimp, 3541*a*; simultaneous production of $ClO_2$ and NCl$_3$, 3575*g*; trichlorostyrene and polymers thereof, 4514*f*; breadmaking, 4784*f*; stabilization of nuclear chlorostyrenes, 6001*i*; bleaching of glycerides with $ClO_2$, 6844*a*; vinyl chloride, 7496*h*; $Na_2S$, 7652*d*; anhyd. fusions contg. Mg-Cl$_2$, 8919*e*.

**Mathieu, G.** See Bordas, J.

**Mathieu, J. P.** Induced dissymmetry and optical activity of inorg. complexes, 2538*d*; see Couture-Mathieu, L.; Dufraisse, C.
—— and Lounsbury, M. Variation of the Raman spectrum with the concn. of aq. solns. of nitrates, 8887*e*.

**Mathieu, K.** Elongation behavior of some austenitic steels at low temps., 1303*c*; see Neerfeld, H.

**Mathieu, L.** See Dubuisson, M.

**Mathieu, M.** See Petipas, T.

**Mathieu, S.** See Chevallier, R.

**Mathieu-Sicaud, A.** Pptn. of $NH_4$ paratungstate in an alc.-water medium, 8938*a*.
—— and Levavasseur, G. Ultrasonic dispersion of clay suspensions—results with an electron microscope, 4538*b*.

**Mathis, A. L.** See Davis, R. H.

**Mathis, M.** See Chrétien, A.

**Mathur, K. B. L.** See Nanda, G. S.

**Mathur, O. C.** See Mahajan, L. D.

**Matille, P.** Crystallizing $C_6H_6$ from aromatics, P 1437*a*.

**Matinyan, G. V.** See Bunyatyan, G. Kh.

**Matiu, A. I.** See Ionescu-Matiu, A.

**Matlack, W. W.** See Hickey, G. M.

**Matoltsy, A. G.** Effect of 3,4-benzopyrene on amphibia, 9243*a*; see Fábián, G.; Gerendas, M.
—— and Fábián, G. Measurement of photodynamic effect of cancerogenic substances by biol. indicators, 7149*i*.
--- and Gerendás, M. Cross striation, 9094*d*.

**Maton, W. R. E.** See Kenny, A. W.

**Matos, A. R. de,** and Figueiredo, A. C. Fermentation of muscovado sugar, 9501*g*.

**Matossi, F.,** and Rauscher, E. Pressure dependence of total absorption in infrared band spectra, 6919*h*.

**Matsen, F. A.** Mol. orbitals for methane and ethane, 4094*c*, see Hastings, S. H., Robertson, W. W.
---, Myers, J., and Hackerman, N. Pre-Medical Phys. Chemistry (book), 2502*c*.

**Matskanova, M. A.** See Vanag, G. Ya.

**Matskov, F. F.** Extra-radical nutrition of plants, 7093*a*.

**Matson, A. F.,** and Dufour, R. E. Hazards and nature of the products formed when chlorobromomethane is applied to fires, 1983*a*.

**Matson, E. J.** Majuba Hill Cu-Sn mine, Pershing County, Nev., 1693*i*; Little Castle Creek chromite deposit, Shasta County, Calif., 6951*e*; Rush Creek Pb-Zn deposit, Mono County, Calif., 8321*e*.

**Matson, Edward J.** See Fieser, L. F.; Leffler, M. T.

**Matson, F. R.** Hygroscopicity of soda-lime-silica container glasses, 4435*i*

**Matsuda, K.** Cottonlike fibers from rice straw, P 6833*c*; see Svirbely, W. J.

**Matsuda, S.** See Ueno, Seuchi

**Matsuda, T.,** Ueno, A., Minakami, S., and Watakami, M. Resin from polyvinyl butyral, P 7262*i*.

**Matsui, M.** 4,6-Dihalo-4-methyl-1-hexene, P 7496*i*, 1,2,4,6-tetrahalo-4-methylhexane, P 7496*i*; 1,2,6-trihalo-4-methyl-4-hexanol, P 7497*f*; 6-halo-4-methyl-1-hexene-4-ol, P 7497*h*; see Nagase, M.
—— and Yamamoto, R. 1,1,3-Trimethyl-2-(3,7-dimethyl-9-chloro-3-hydroxy-1,5,7-nonatrienyl)-2-cyclohexene, 7041*b*.

**Matsui, Y.,** See Tanaka, Yoshio.

**Matsumae, S.** See Nukiyama, H

**Matsumaru, H.,** and Uya, K. Sorbitol, P 5794*g*.

**Matsumoto, E.** Artificial grindstone, P 7206*f*.

**Matsumoto, G.** Improving weak wine, P 5902*e*.

**Matsumoto, T.** Washing powder from whale oil, P 6844*g*.

**Matsumura, M.** Sulfonamide prepns. and the action mechanism (II) direct action of prontosil (1) germicidal action of prontosil added to organ exts. and human urine, (III) direct action of prontosil (2) germicidal action of organ exts., blood, and urine of a rabbit treated with prontosil, (IV) germicidal test, (V) influence of prontosil on the antibody formation, (VI) influence of the function of the reticuloendothelial system on the effect of prontosil, 1115*a*; see Inazuka, S.

**Matsumura, S.** See Kodama, S

**Matsunami, N.,** *et al.* Alkali cellulose, P 6825*d*.

**Matsuno, S.** $MnO_2$ for dry cells (II) relation between the size of a single crystal and the e.m.f. of the dry cell, (III) observations by the high-temp. balance, (IV) explanation of properties of pyrolusite and psilomelane from the standpoint of the crystal structure, 1663*e*.

**Matsuoka, A.** See Mikumo, J.

**Matsushima, M.** See Furukawa, Takehiko.

**Matsushima, S.** Elec.-insulating coating, P 6763*f*.

**Matsushima, T.** See Matsuyama, Y.

**Matsushita, W.** See Ishii, K.

**Matsushita Elec. Instruments Co.** Mn electrolyte, P 6096*i*.

**Matsuura, R.** Prepn. of metallic Mg with $CaC_2$ as the reducing agent (VI), (VII) reaction mechanism of solid MgO +

$CaC_2$ + Mg + CaO + 2C, (VIII) larger-scale expts. on the reduction of MgO, 1925*c*.

**Matsuura, T.** See Ishino, N.

**Matsuyama, Y.**, and Matsushima, T. Hitakol, 2015*e*.

**Matsuzaka, S.** Succinic acid from glutamic acid or its ester, P 3451*h*

**Matsuzaki, I.** Cyclic diamine compds., P 6926*d*.

**Matsuzawa, H.** Influence of the water content of rice on the multiplication of the small rice weevil, 5874*b*.

**Matt, M.** See Hill, T. J

**Matta, G.** Protein hydrolyzates, 356*i*.

**Mattair, R.** See Sisler, H. H.

**Mattano, L. A.** Binding between sulfadiazine and serum proteins, 4308*b*.

**Mattauch, J.** See Hintenberger, H.

——— and Flammersfeld, A. Isotopic Report. Tabular Survey of the Properties of Atomic Nuclei (book), 6922*g*.

**Mattei.** Humoral reactions and hemolytic tests in man and horse, 7560*b*

**Matteo, M. de.** See De Matteo, M

**Matter, O.** Explosives, P 2437*d*, nitrogenous tar-oil products, P 4151*e*; mixt for use as a black-powder substitute or in priming compns., P 4468*f*, wood impregnants, P 4808*e*, cotton dye, P 5602*a*.

**Mattern, J.** See Sharbaugh, A. H

**Mattern, R. P.** Coating of lenses, prisms, etc., to reduce Fresnel reflection, P 1165*a*.

**Matterson, L. D.** See Eaton, H. D; Singsen, E. P

**Matteson, E. A.** Electrolytic pickling for galvanizing and terne lines, 6138*c*.

**Matthaes, K.** Locating defects in steel, 984*d*, tests for light metal sheets, 6956*gh*; app. using electrolytic potential for identification of materials, 7352*h*

**Matthaiopoulos, G.**, and Macris, C. G. Microscopic characteristics of canned tomatoes, 784*a*.

**Matthes, K.** See Gross, F

**Matthews, A. F.** Minerals yearbook, 1946, 2125*i*; minor metals, 2127*h*; U and Th, 2127*h*.

——— and Pehrson, E. W. Review of the mineral industries in 1946, 2125*i*

**Matthews, C. H.**, and Jones, D. W. Breaker waste reclamation by froth flotation, 9411*g*.

**Matthews, C. S.** See Souders, M., Jr

**Matthews, D. E.**, and Pool, M. L. X-ray emission from radioactive Ce, Pd, and Ca, 4090*i*

**Matthews, E.** See Atkinson, H. F

**Matthews, F. W.** See McIntosh, A. O

——— and McIntosh, A. O. Hydrates of Ca sulfite, 3302*h*

**Matthews, F. W. H.** Beaker-corrosion test for lubricating oils, 8126*b*

**Matthews, G. E.** Photoprogress in 1948, 3301*a*, 5319*c*

**Matthews, J. I.** See Walker, S. M.

**Matthews, J. L.**, Peiser, H. S., and Richards, R. B. X-ray measurement of the amorphous content of polythene samples, 6485*h*

**Matthews, L. M.** See Kremen, S. S.

**Matthews, N. A.** See Avery, H. S

**Matthews, O.** "Fluosolids" roasting of arsenopyrite concentrates at Cochenour Willans, 6132*h*

**Matthews, P. T.** Application of Dyson's methods to meson interactions, 8857*i*

**Matthews, R.** See Robinson, H. W.

**Matthias, B. T.** Ferroelec crystals, 8783*g*, ferroelec properties of $WO_3$, 8783*h*, see Danielson, G. C.; Mason, W. P., Richardson, J. M

— —, Breckenridge, R. G., and Beanmont, D. W. Single crystals of Ba titanate, 4066*d*.

**Matthijsen, H. L.** Control methods of lubricants used by the Netherlands railways, 4840*i*.

**Matthis, A. R.** Leo H. Backeland, 1617*h*

**Matthysse, J. G.** See Schwardt, H. H

**Matti, J.** See Ramart Lucas, P

**Mattick, A. T. R.** See Hirsch, A

**Mattiello, J. J.**, and Parekh, H. V. Synthetic drying oils, 6432*b*.

**Mattill, H. A.** See Heinrich, M. R., Miles, (Sister Mary Carolanne)

**Mattin, H.** Pearl essence, 5970*i*

**Mattler, J.** See Destriau, G

**Mattner, M. E.** See Wood, J. G.

**Mattock, G.** See Holness, H

**Mattocks, A. M.** See Prusak, L. P

——— and Holtan, S. D. Inhibition of acid phosphatases of sheep brain 7060*d*

——— and Hutchison, O. S. Sympathomimetics—2,3-diphenylpropylamines, 596*g*; local anesthetics—*N*-dialkylaminoalkyl imides of naphthalic and diphenylmaleic acids, 617*b*.

**Mattocks, E. O.** Safe practices for liquefied petroleum gas, 2412*d*; sampling and analyzing liquefied petroleum gases, 6813*f*.

**Mattoon, R. W.**, and Mathews, M. B. Micelles in nonaq. media, 7780*h*

**Mattos, A. Ramos de.** See Ramos de Mattos, A

**Mattos, A. Roseira de.** See Roseira de Mattos, A

**Mattoso, I. V.** See Chaves, J. M.

**Mattox, V. R.** See McKenzie, B. F

**Mattson, F. H.** Site of conv. of carotene to vitamin A, 2682*b*

**Mattson, G. W.** See Dorksy, J.

**Mattson, L. N.**, and Holt, W. L. Detn. of barbiturates in pharmaceutical preps., 8612*b*

**Mattus, M. A.** See Krukovsky, V. N.

**Maturo, D.** Limiting equation of state for dil. gases 8774*c*, third law of thermodynamics, 8838*c*

**Matus, J.** Activity of pectinase, 7059*c*.

**Matuszak, M. P.** Alkylation process, P 1174*g*, motor fuel by alkylation, P 7677*e*

**Matuszewski, Z.** Nitrating aliphatic hydrocarbons, P 3352*e*

**Matutano, J. R. B.** See Barceló Matutano, J. R

**Matveenko, N. V.** Experiences of the Balkhash concn. plant, 2140*f*

**Matveev, I. K.** See Yurchak, I. Ya

**Matveev, M. A.** Increasing the water-impermeability of molded gypsum, P 6389*d*.

**Matveeva, K. A.** Detn. of P in cast Fe, 4180*e*

**Matvejew, Matveyeff, Matwejeff.** See Matveev

**Matyáš, Z.** Energies of electrons in Al, 4131*a*.

**Matytskaya, V. S.** Fight against dust in manuf. of glass fibers, 1161*g*

**Matz, K. B.** Celestite from the magnesite deposits of Oberdorf on the Lamming, Upper Styria, 3749*a*; native As from the Huttenberg deposit, Carinthia, 6115*c*.

**Matzke, O.** See Fuchs, L.

**Maubeuge, P. L.** Oolithic suprahassic iron ore deposits of upper Saone and upper Marne, 6124*i*, ferriferous deposits in Lorraine at the narrows of Langres, 6951*f*.

**Mauer, H.**, and Kapp, F. K. Effect of synthoidin on albumin turnover, 7587*h*.

**Mauersberger, H. R.** See Merrill, G. R

**Maugis, P.** Petroleum in the Aquitanian basin, 1951*d*

**Maume, L.**, and Dulac, J. "Presumably assimilable" phosphoric acid and truly assimilable phosphoric acid of vineyard soils, 5141*i*

**Maumenee, A. E.**, and Scholz, R. O. Physiology, biochemistry, and cytopathology of the cornea in relation to injury by mustard gas and allied toxic agents (III) histopathology of the ocular lesions produced by the S and N mustards, 767*f*.

**Maun, E. K.**, and Swift, E. H. Iodometric detn. of Zn, 6940*d*

**Maun, M. E.** See Dunning, W. F.

**Maurah, A. A.** See Maurakh, A. A.

**Maurakh, A. A.** Retorts for dry distn. of fuel in detn. of semicoking products, 2403*c*

**Maurel, A.** Detg. methyl anthranilate and indole in essential oils, 3146*b*, bitter orange and oil of neroli, 4815*c*.

**Maurer, E.** See Connert, W.

**Maurer, J. K.** Leather pigment finishes and their use, 9510*g*

**Maurer, K.** See Westphal, O

**Maurer, R.** See Mapother, D

**Maurer, R. J.** See Klick, C. C.

**Maurer, W.** $Cl^{35}(n,p)S^{35}$ reaction, 8266*b*; see Shubert, G

**Maurer, W. C.** Detn. of CbC in stainless steel, P 522*h*, detn. of TiC in stainless steel, 7870*g*

**Mauri, G.** Concn. of food and drug products, P 4781*c*; Na silicate, P 8024*g*, 9397*g*.

**Maurice, L.** Radiometallography—presentation of graphs and algebraic formulas of exposure times, 8921*e*.

**Maurin, A. J.** Corrosion of underground pipe lines, 986*h*

**Mauro, N.** See Keilling, J

**Mauron, J.** See Leuthardt, F.

**Maury, P. B.** See Bonét-Maury, P.

**Mauss, F.** See Widmaier, O.

**Mauss, H.** Basically substituted xanthone and thiaxanthone derivs.—miracil, a new chemotherapeutic agent, 224*f*; see Kikuth, W.

**Mauthe, G.** Chemie für den Gerber (book), 5221*a*.

**Mauzin, A.** Superfinish—exptl. and scientific study, 3766*h*.

**Maver, M. E.**, Dunn, T. B., and Greco, A. Catheptic activities of the tumors and tissues of tumor-bearing rats, 5108*b*.

**Mavica, A.** Alloy for fast welding, P 7896*c*.

**Mavity, J. M.** Branched-chain hydrocarbons catalyzed by Friedel-Crafts catalysts modified by $H_3BO_3$, P 6217*e*; sulfonic acid recovery from sulfonating agent, P 7224*a*.

— —, Pines, H., Wackher, R. C., and Brooks, J. A. Isomerization of pentane—effect of additives, 1712*d*.

**Mavor, J. W.** Brief Biology (book), 1820*e*, Lab. Manual for a Brief Course in Biology (book), 7076*a*.

**Mavrocordatos, C.** See Russell, T. F

**Mavrodi, G. E.** Org. peroxide explosive, P 6418*c*.

**Mavrodineanu, R.** See Grigorovici, R.

**Maw, G. A.** Detection of creatine and creatinine, 2268*g*, fate of ingested creatinine in the rat, 2294*h*; see Cooper, K. A., Dhar, M. L., Hughes, E. D.

— — and Vigneaud, V. du. Biol. behavior of the S analog of choline, 2682*e*; compds. related to dimethylthetin as sources of labile methyl groups, 2682*e*

**Mawson, E. H.**, and Thompson, S. Y. Estn. of vitamin $B_1$ in urine, 2662*a*

**Max, F.**, and Randall, D. I. Anthrimide carbazoleacridone vat dyes for cotton, P 9469*a*, anthrimidecarbazolethiaxanthone dyes for vegetable fibers, P 9468*h*

**Maxey, G. B.**, and Jameson, C. H. Well data in Las Vegas and Indian Spring Valleys, Nevada—geology and water resources of Las Vegas, Pahrump, and Indian Spring Valleys, Nevada, 4463*e*

**Maxfield, H. L.** Alc. motor fuel, P 6396*g*

**Maxia, Carlo**, and Basso, U. Action of *p*-aminobenzoic acid (vitamin $H'$) on germ cells, fertilization, embryonic and larval forms of *Paracentrotus lividus*, 9269*c*

**Maxia, Carmelo.** Geol. observations in the Geremeas territory, southeast Sardinia, Italy, 978*c*

**Maxim, N. N.**, and Petrascu, S. Action of cyclohexyl methyl ketone on isatin, 1411*d*

**Maximos, H.** See Cordier, P.

**Maximow, N. A.** See Maksimov, N. A

**Maxson, G. J.** Nitrogen atm., P 1411

**Maxted, E. B.** Detoxication of catalyst poisons (VI) use of a revivable filter column, 1536*e*.

— — and Walker, A. G. Detoxication of catalyst poisons (VII) self-poisoning effect in the hydrogenation of pyridine, 1536*i* (VIII) thionaphthene and the thiophthenes, 3407*e*

**Maxwell, A. A. F.** EtOH, P 6645*d*

**Maxwell, B.**, and Rahm, L. F. Rheological properties of polystyrene below 80° C., 9523*c*.

**Maxwell, G. E.** See Smith, William T., Jr.

**Maxwell, J.** Diseases of the Chest (book), 755*h*

**Maxwell, M. C. C.** See Allen, L. A

**Maxwell, R. D.** See Garrison, W. M

**May, A.** See LeRosen, A. L

**May, A. N.** See Elliott, L. G

**May, C. E.** See Becker, C. E

**May, D. R.** See Dixon, J. K

**May, E. L.** and Mosettig, E. Reactions of amidone 191*h*.

**May, F. H.** Tetraborates of K and of Na, P 1927*i*; absorbing $CO_2$ from gases, P 8121*d*

**May, I.**, and Hoffman, J. I. Dithizone as a reagent for In, 1679*h*.

**May, J.** Fluorescent microscope as a means of differentiating living and dead bacteria with acridine-orange stain, 7083*b*, pseudohemoglobin, 4751*e*

**May, J. C.**, and Hewitt, R. L. Basement complex in well samples from the Sacramento and San Joaquin Valleys, Calif., 2904*g*.

**May, K.** Shrinkage and expansion in sintering of metals, 7391*b*.

**May, M.** See Felsing, W. A

**May, M. le.** See Le May, M.

**May, P.** Heterocyclic halogenated hydroxybenzamides, P 693*a*; see Sandoz Ltd.

**May, R.** See Hatton, J. P.

**May, R. M.** Microchem. studies of the nervous system (VI) water and the S.

and N-contg. fractions of the brain of the newborn and adult mouse, 5476*i*; (VII) cholesterol and total proteins of nerve undergoing degeneration, 4308*c*.

**May, S.** See Daudel, P.

**May, T. P.** See Burwell, R. L., Jr.

——, Gordon, G. S., and Schuldiner, S Anodic behavior of Zn and Al-Zn alloys in sea water, 6093*g*.

**May, W.** See Tiedema, T. J.

——, Tiedema, T. J., and Burgers, W. G. Inclusions in Al crystals, 4918*d*

**Mayacos, D.** See Fabre, L. A

**Mayants, A. D.** Effect of admixts in melting Al alloy shavings, 2147*c*.

**May & Baker Ltd.** Amidines, P 688*f*; amino-substituted acridines, P 698*d*.

-, Barber, H. J., and Wragg, W. R. Therapeutically valuable quinoline derivs., P 5050*f*; anhyd hydrazine, P 6798*a*

--, Ewins, A. J., Ashley, J. N., Self, A. D. H., and Harris, J. O Amidines, P 821*e*, 1064*g*

**Maybee, G. R.** Chemistry in the cocoa, chocolate, and confectionery industry, 8573*h*

**Maycock, R. L.** Rotary contactor for catalytic reactions of hydrocarbons, P 7676*i*.

**Mayence, J.** See Romand, J

——, Romand, J., and Vodar, B. Absorption spectrum of NO in the Schumann region, 7339*b*

**Mayer.** See also Mujer

**Mayer, A.** Nutrition of the world population and social economy, 7563*h*.

**Mayer, E.** Metal salts of ether-carboxylic acids, P 9536*c*

**Mayer, E. L.** See McGovran, E. R.

--, McGovran, E. R., Talley, F. B., Smith, C. R., Saunders, D. H., and Woodward, C. F. Nicotine insecticides (V) search for synergists, 5893*f*

**Mayer, F. X.** Analytical applications of the measurement of light absorption, 7858*i*.

**Mayer, G.** See Klein, Marc, Pautrizel, P.

and Klein, M Physiology of lactation (I) factors which control the morphological development of mammary tissue, 1474*a*, development of the mammary glands of the rabbit during a phase of pseudopregnancy obtained and maintained by subcutaneous implantation of estrogen, 5840*i*

**Mayer, G. G.**, and Sobotka, H Derivs of 1,3 butanediol, 6975*i*

**Mayer, Hans**, and Widmer, W. Disazo dyes P 8155*i*, disazo dye from dihydroxy benzidine, P 8157*a*, asymmetrical polyazo dyes, P 9461*f*

**Mayer, Herbert.** Photoelec. properties of alkali layers of at. thickness (III) K on quartz proof of the photoelec. surface effect, 1102*b*; multiple-layer photocell—increasing the yield of a photocell by two orders of magnitude, 4102*e*

**Mayer, Hermann.** App for the detn. of elec. properties of insulating materials, 1100*e*

**Mayer, M. G** See Goeppert-Mayer, M

**Mayer, Malvin J.** Calcn of brewhouse yields, 9361*b*

**Mayer, Max J.** Seed for production of $TiO_2$, P 8021*b*

**Mayer, M. M.** See Kabat, E. A.

--- Croft, C. C., and Gray, M. M. Kinetic studies on immune hemolysis (I) method, 7534*d*

**Mayer, R.** See Craenny, C.

--, Viand, P., and Appell, F. (*p*-Aminophenylsulfonamido)thiadiazoles, P 5042*e*.

**Mayer, R. L** See Eisman, P. C.

**Mayer, S.** See Deltour, G. H.

**Mayer, S. E.** Present position regarding chem. pretreatments for Mg alloys, 3334*e*

**Mayer, W.** Detection of self-inflicted injuries by chem. means, 4183*d*.

**Mayer, Walter.** See Schmidt, O. T.

**Mayer-Gross, W.**, and Walker, J. W. Effect of L-glutamic acid and other amino acids in hypoglucemia, 6313*e*.

**Mayers, D. E.** See Mrose, M. E.

**Mayerson, H. S.** See Nieset, R. T.; Parson, W

--, Lyons, C., Parson W., Nieset, R. T., and Trautman, W. V., Jr. Measurement of red blood cell vol., 3057*a*.

**Mayfield, E. E.** Emulsifying agents and emulsions, P 4846*b*.

**Mayfield, H. L.**, and Hedrick, M. T. Effect of canning, roasting, and corning on the biol. value of the proteins of western beef, finished on either grass or grain, 5510*b*; effects of various levels of thiamine and riboflavin intake on the utilization of casein, supplemented with methionine, 5833*g*.

**Mayfield, O. J.** See Morehouse, N. F.

**Mayfield, P. B.** Detg. the sludging characteristics of oil-type wood-preserving solns., 2731*e*.

**Mayhall, M.** See Axelrod, A. E.

**Mayhew, R. L.** Phthalocyanine polyhydroxyalkylsulfonamides, P 8168*h*.

**Mayland, B. J.** See Poettmann, F. H.

—— and Hays, G. E. Thermodynamic study of synthesis-gas production from $CH_4$, 7200*a*.

**Maylon, C. W.**, and Leaman, R. H. Plastics (book), 8207*g*.

**Maynard, E. A.** See Haven, F. L.; Hodge, H. C.

——, Randall, C., Hodge, H. C., and Scott, J. K. Effects of feeding U nitrate hexahydrate in the diet of breeding white rats, 5495*g*.

**Maynard, L. A.** See Loosli, J. K., Smith, S. E.

**Mayne, J. E. O.**, and Evans, U. R. Problems of corrosion (XIII) painting of wet steel surfaces, 9479*f*

—— and Pryor, M. J Inhibition of corrosion of Fe by chromic acid and $K_2CrO_4$, 9015*c*.

**Maynert, E. W.** See Price, C. C.

—— and Dyke, H. B. van Metabolism of barbiturates, 8546*f*

**Mayo, A. F.** Tank heating in the electroplating industry, 4583*c*.

**Mayo, F. R.** Chain transfer in the polymerization of styrene (IV) effect of chain length on the reaction of styrene and $CCl_4$, 1340*c*; see Gregg, R. A.; Walling, C.; Wilzbach, K. E.

— -- and Hurwitz, M. D. Catalytic reduction of bromobenzene to biphenyl, 4242*f*

—, Lewis, F. M., and Walling, C. Copolymerization—effects of structure on the reactions of ethylenic bonds with free radicals, 5733*a*.

and Wilzbach, K. E. Configurations of radicals derived from cis and trans isomers, 1214*f*

**Mayo, L. R.**, Grillin, R. S., and Keen, W. N Accelerated aging of Neoprene compds.—effect of Cu, 894*f*

**Mayol, F.** See Lafon, M

**Mayor, A. R.**, and Boissonnas, C. G. Variation of the sp. heat of rubber as a function of elongation, 3642*f*

**Mayor, J.** Soil-disinfectant compn., P 9357*b*

**Mayor, Y.** Hydrocarbonized flames, 1231*g*; evolution of the org. chem. industry—relations to the production of combustibles and hydrocarbons, 2155*f*.

**Mayoral de Asenjo, A. G.** See Asenjo, C. F.

**Mayoral Girauta, C.** See Gutiérrez de Celis, M.

**Mayorcas, R.** Gas temp. measurement above 1500°, 6394*c*.

**Mayr, G.**, and Klemm, W. Effect of the magnetic field on the crystn. of Co-Cu alloys, 5718*g*

**Mays, J. M.** See Dailey, B. P.; Townes, C. H.

**Mayumi, H.** See Uzumasa, Y

**Mayumi, K.**, and Wada, H Condensation products from sugar derivs. (I) ester of saccharolactonic acid, 7904*g*.

**Mazaeva, M. M.** Soil conditions conducive to Mg fertilization, 5142*b*

**Mazankin, E. A.** See Antonov, V. A.

**Maze, R.**, Fréon, A., Daudin, J., and Auger, P Extensive and penetrating atm. showers, 4558*b*

**Mazee, W. M.** Detn. of the oil content of waxy oils, 4032*c*, properties of paraffin wax in the solid state, 4841*c*.

**Mazenot, G.** Lignites of Bresse—lignite basin of Chaumergy, 8319*f*.

**Mazing, L. A.** Water softening in wofatit filters, 9444*i*.

**Mazoué, H.** See Chauchard, B.; Chauchard, P.; Lecoq, R

**Mazover, Ya. G.** Dihexyldihydroxy-fluorane and its dibromo derivs., 3806*d*; *p*-nicotinylaminobenzoic acid, 6622*f*

**Mazoyer, R.** See Gouny, P.

**Mazumdar, A. K.** See Mallik, A. K.

**Mazur, A.**, and Shorr, E. Hepatorenal factors in circulatory homeostasis (IX) identification of the hepatic vasodepressor substance (VDM) with ferritin, 1855*g*; physiol. and chem. characteristics of a hepatic vasodepressor (VDM) involved in circulatory regulation, 2251*h*.

**Mazur, J.** Influence of low temps. on the austensite-martensite transformation, 87*b*.

**Mazur, P. P.** App. for automatic d. control of sirups at evapn. station, 7243*a*.

**Mazurak, A. P.** See Bodman, G. B.

**Mazurek, J.** See Hubicki, W.

**Mazyukevich, V. A.** See Palladina, O. K.

**Mazzanti, L.** Antithyroid substances (VI) action of methylthiouracil, rhodanine, and intramine on lupine plants, (VII) action of rhodanine, intramine, and α-naphthylisothiocyanate on metamorphosis of tadpoles, (VIII) action of intramine, rhodanine, and α-naphthylisothiocyanate on the wt. and creatinuric curve, and consumption of O in the guinea pig, 7136*d*; ustilagin of the corn smut (I) the active principles, 9239*f*

**Mazzella, H.** See Heymans, C.

—— and Migliaro, E Dimethylcarbamate of (2-hydroxy-5-phenylbenzyl)trimethylammonium bromide (NU683) and curare, 7132*b*; effect of hydroxyphenylbenzyltrimethylammonium dimethylcarbamate (NU683) on the sensitivity of the carotid body to acetylcholine, 7134*i*

**Mazzetti, G.** See Passerini, M

**Mazzoleni, R.** Carbonization furnace, P 4837*d*.

**Mazzoni, C.** See Mazzoni, G

**Mazzoni, G.**, and Mazzoni, C. Soap manuf. app., P 7726*b*.

**Mazzulli, H. R.** See Valentinuzzi, M.

**Mchedlov-Petrosyan, O. P.** See Avgustinik, A. I.; Budnikov, P. P.

—— and Gogicheva, Kh. I. Prepg. dolomite and forsterite products from raw materials, 6790*e*.

**Mead, J. C.** See Stanley, A

**Mead, J. F.** See Davis, R. H.; Koepfli, J. B

**Mead, T. H.**, Stack, M. V., and Smith, E. L. Penicillin, P 1533*c*

**Meade, E. M.**, and Woodward, F. N Reactions of ethylene sulfide and a method of prepn. of vicinal dithiols, 2935*e*.

**Meade, Edwin M.** Recovery of monoesters of polyhydric alcs. with fatty acids and of volatile nonsaponifiable matter from fatty oils and waxes, P 2794*e*, amides, P 4289*a*

--, Lankro Chemicals Ltd., and Kroch, F. H Ricinoleic esters, P 6222*a*.

**Meade, R. E.** See Hanson, A. M.

—— and Clary, P. D., Jr Lacteal food products, P 4781*g*, novel products from whey, P 4785*a*

—— and Stringham, J. M Whey food products, P 4784*h*

**Meader, A. L., Jr.** See Wilds, A. L.

**Mead Johnson & Co.** and Ramsey, A. R. J. 2-Amino-3-carboxylpyrazines, P 6244*h*

**Meadowcroft, A. E.**, Shaw, C., and Smith, W. E Organosilicon compds., P 1794*i*, 8208*d*.

**Meadows, G. W.** See Evans, A. G.

**Meagher, W. R.** See Stout, P. R.

**Meaker, C. L.**, Wu, C. S., and Rainwater, L. J. Geiger counters filled with Pb tetramethyl vapor, 4095*b*

**Meakins, R. J.** Dielec. relaxation times of solid solns. of aliphatic long-chain esters and ketones in paraffin wax and hexacosane, 3676*g*; treatment of textile materials with Me Si amine to give improved resistance to the penetration of moisture, 4858*i*; dielec. absorption in cryst. long-chain ketones, 8223*f*.

**Meals, R. N.** See Appling, J. W.; Gilliam, W. F

**Means, P. B.** See Brunner, A. H.

**Meara, M. L.** See Baliga, M. N.

**Mears, R. B** Cathodic protection, 1706*a*; unified mechanism of passivity and inhibition, 2076*d*.

—— and Bialosky, J. M. Detg. the c. d. required for cathodic protection, 6092*e*.

—— and Snyder, S. C. Fe, mild steels, and low-alloy steels, 1*c*.

**Mears, T. W.** See Cadwallader, E. A.

**Measamer, S. G.**, Sweeney, O. R., and Arnold, L. K. Solvent extn. of soybean oil by mixts. of trichloroethylene and EtOH, 1999*e*.

**Meath, W. B.** $CH_2O$, P 3837*g*.

**Meatyard, R.** See Cullinane, N. M.

**Mech, E. D.** Hygienic evaluation of working conditions of operators with radioactive materials, 8876*e*.

**Mecham, D. K.** See Fraenkel-Conrat, H.; Jones, C. B.

**Mecheels, O.** Textile chemistry and physiology, 8141*h*.

**Mecherly, P. A.** See Elofson, R. M.

**Mečíř, E.** Microbiol. methods in analytical chemistry, 1070*e*.

**Mecke, R.** Thermodynamics of the H bond, 8765*k*; see Schupp, R. L.

—— and Zeininger, H. Elec. conductance of assocd. compds., 8772*b*.

**Mecklenburgh, C. K.** Solid shades on wool-nylon mixts., 7689*b*.
**Meckling, G. W.** Kelowne sewage-treatment plant, 3547*b*.
**Meckstroth, G. A.** See Winston, J. R.
**Meda, E.** See Alella, A.
**Medal, C. K.** See Malcher, J.
**Medalia, A. I.,** and Kolthoff, I. M. Redox recipes (I) reaction between ferrous Fe and peroxides, 8829*c*.
**Medean, V. B.** See Bena-Medean, V.
**Medeiros, A. C. de.** See Cândido de Medeiros, A.
**Medem, F. G.** See Bielig, H. J.
**Medi, E.** Antonio Lo Surdo, 7275*h*.
**Medicus, G.** Secondary electron production in mol. gas discharges, 4941*i*.
**Medina, A.,** and Mardones, J. Action of glycosides of *Digitalis lanata* on isolated rat intestine, 5872*d*.
**Medina, H.** Leishmaniasis (III) leishmaniasis of guinea pigs as a means of testing specific drugs, 2329*i*.
**Medina, M. A.** See Alia Medina, M.
**Medler, J. D.** See Chen, J. L.
**Medler, J. T.,** and Thompson, H. E. Toxicity of DDT-sabadilla mixts.—synergistic action, 7629*a*.
**Medley, J. A.** See King, Gordon.
**Mednikyan, G. A.** Snake venom, 8533*c*.
**Medoks, G. V.,** and Markelova, N. N. Detn. of Mn as tetraphenyl phosphonium permanganate, 5332*d*.
**Médoxe, G. W.** See Medoks, G. V.
**Medvedev, S. S.** See Gantmakher, A. R.; Khomikovskiĭ, P. M
**Medvedev, Z.** See Zhukovskiĭ, P. M
**Medvedeva, G. A.** Precious metal sulfides, 7362*h*.
**Medvedeva, P. A.** See Ushakov, S. N.
**Medwedew, Medwedjeff.** See Medvedev.
**Medyantseva, N. M.** See Malinovskiĭ, M. S.
**Medzhibozhskiĭ, M. Ya.** App. for slags in the open-hearth furnace, 980*i*; intensification of open-hearth process by blowing air into the bath, 4194*e*.
**Mee, S.** Carboxylase in soybean sprouts, 7554*e*.
**Meehan, E. J.** Variation of monomer pressure with degree of conversion in emulsion polymerization of butadiene and of butadiene-styrene, 5222*g*.
**Meehan, J.** See Henry, J. P.
**Meehanite Metal Corp.** White Fe castings, P 2153*a*
**Meek, D. C.** See Swift, R. W
**Meek, J. M.** See Craggs, J. D.
**Meek, J. S.** See Cristol, S. J.
——, Lorenzi, F. J., and Cristol, S. J. Condensation of 1-phenyl-1,3-butadiene with acrylic acid and acrolein, 8363*a*.
**Meelheim, R.** See Leidheiser, H., Jr.
**Meem, J. L., Jr.,** and Maienschein, F. Coincidence and absorption measurements on $Cs^{134}$, $I^{124}$, $Au^{199}$, and $Ca^{45}$, 8268*d*.
**Meen, R. H.** See Aristoff, E.; Chute, W. J.
**Meenen, F. E.,** and Timmons, F. L. Herbicides in production of buffalo grass seed, 5525*d*.
**Meer, S. van der.** Vulcanization of rubber with phenol-formaldehyde derivs.—inapplicability of the chromane theory, 431*h*; see Salomon, G.
**Meer, W. A. van der.** See Lolkema, J.
**Meerburg, W.** See Bosma, G. S. K.
**Meerdink, G. J.** Regeneration of activated C by inorg. liquid treatment, P 1552*h*.
**Meerkämper, B.** Diaversal reversal paper, 6099*c*.
**Meerson, S. I.** See Lipatov, S. M.
**Mees, C. E. K.** Samuel Edward Sheppard, 1229*g*; color photography, 4965*g*.
**Meetham, A. R.** Measurements of atm. pollution, 3592*i*; work of D.S.I.R. on atm. pollution, 5927*f*.
**Meeuse, B. J. D.** Enzymic action of maple and birch saps, 8455*a*.
**Mégennij, J. F.** See Mezhennīĭ, Ya. P.
**Meggers, W. F.** Emission spectroscopy in anal. chemistry, 2113*e*.
**Megregian, S.** Prepn. of Cl-demand-free water, 333*f*.
**Megyesi, P.** See Julesz, M.
**Méhes, G.** See Lajos, L.
—— and Szekeres, L. Effect of thymine in anemias, 6736*e*.
**Méhes, J.** Same as Méhes, G.
**Mehl, E.** Sepg. films—successful electroplating, 5674*c*.
**Mehl, J. W.** See Glick, D.; Winzler, R. J.
——, Pacovska, E., and Winzler, R. J. Amt. of Cu bound by protein in the biuret reaction, 4305*i*.
**Mehl, R. F.** See Wells, C.
**Mehlenbacher, V. C.** Analysis of com. fats and oils, 6837*i*; see Pohle, W. D.
**Mehlich, A.** Detn. of cation- and anion-exchange properties of soils, 3127*i*.
—— and Reed, J. F. Effect of cation-exchange properties of soil on the cation content of plants, 3128*c*.
**Mehlig, J. P.,** and Durst, D. Triethanolamine for the detn. of Cu in ores, 62*b*.
—— and Shepherd, M. J., Jr. Spectrophotometric detn. of Fe in ores with kojic acid, 8303*f*.
**Mehlman, B.** See Von Brand, T.
**Mehltretter, C. L.** Polyesters of dimethylene D-gluconic acid, P 2816*h*; see Cowan, J. C.
——, Rist, C. E., and Alexander, B. H. D-Glucosaccharic acid, P 7506*c*.
**Mehnert, K.** Testing of corrosion protection of cans by nonconducting lacquers, 3213*d*; see Schulz, G.
**Mehnert, K. R.,** Rein, G., and Wimmenauer, W. Allanite and cordierite as characteristic minerals for the development of the rocks of the Black Forest, 8993*e*.
**Mehra, S. L.** See Ahmad, B
**Mehring, A. L.** Consumption and compn. of tobacco fertilizers, 7624*e*.
**Mehring, E.,** and Selbach, H. Buffering capacity of brain tissue after insulin and metrazole shock, 9212*b*.
**Mehrotra, R. C.** Congo red as an adsorption indicator, 61*a*; resorcinol succinein and its bromo derivs as adsorption indicators, 7369*c*; dyes derived from succinic and maleic acids and their derivs. as adsorption indicators, 7369*d*, resorcinol aconitein and tricarballylein as adsorption indicators in argentometric titrations, 7369*e*; argentometric titrations of thiocyanate ions with adsorption indicators, 8300*b*, tetrabromophenolsulfonphthalein as adsorption indicator (I) volumetric estn. of Tl, (II) volumetric estn of Ag and Tl, 8300*c*; effect of surface-active agents on acid-alkali indicators, 8949*a*.
**Mehta, A. M.,** Jadhav, G. V., and Shah, R. C. Chromones (I) nitration of some 7-hydroxychromones and their Me ethers, 9067*a*.
**Mehta, D. R. S.** Fireclay deposits in the Raniganj and Jharia coalfields, Bengal and Bihar, 8992*a*.
**Mehta, G. K.** See Tawde, N. R.
**Mehta, P. M.** Mildew in cotton textiles, 7233*g*.
**Mehta, T. N.** See Daruwala, E. D.
**Mei, J. Y.** See Holmes, J. E. R.
**Meidinger, F.,** and Kolsky, M. Action of Na thiomalate in hepatic insufficiency, 1486*e*
**Meier, H. H.** Polycyclic aromatics, P 7676*e*.
**Meier, J.** See Viscontini, M.
**Meier, K.** See Brüderlin, A.
**Meier, Rebecca.** See Rothstein, A.
**Meier, Rolf.** See Gross, F.; Rickenbach, K.; Tripod, J.
——, Gross, F., and Eichenberger, E. Differentiation of the circulatory action of sympathomimetic substances—derivs. of the phenethylamine, phenylpropylamine, and imidazoline series, 9249*c*.
——, Tripod, J., and Wirz, E. Continuous measurement of the beat vol. of the heart—influence of coramine and adrenaline on the work output of the rabbit heart, 8421*e*.
——, Yonkman, F. F., Craver, B. N., and Gross, F. Imidazoline deriv. with marked adrenolytic properties, 6309*f*.
**Meier, R. L.,** and Elwell, W. E. Vinyl pyridine copolymers, P 5231*a*.
**Meier, W. H. D.,** and Shoemaker, L. M. Essentials of Biology (book), 1075*a*.
**Meijer.** See also Meyer.
**Meijer, H. W.** Glucose by the conversion of starch in aq. acid medium, P 2006*g*; removal of impurities of an org. nature from aq. solns. of sugars, P 4882*f*, 5981*b*.
**Meijer, R. R.** Absorption of slow neutrons by Rh, 4121*b*.
**Meijering, J. L.** Retrograde soly. curves in binary systems, 29*a*, 7315*e*; hardening of metals by internal oxidation, 2911*e*.
**Meijer's, O. J., Dextrinefabrieken N. V.** Glucose by the conversion of starch in aq. acid medium, P 2006*g*; removal of impurities of an org. nature from aq. solns. of sugars, P 4882*f*, 5981*b*.
**Meiji Seito K. K.** Same as Meiji Sugar Refining Co.
**Meiji Sugar Refining Co.** Invert sugar from sucrose, P 7244*g*.
**Meijlink, J. A.** Resistance of rubberlike materials to inorg. chemicals, 5621*b*; resistance of rubberlike materials to org. chemicals, 5621*b*.
**Meikle, W. J.** See Butts, P. G.
**Meiklejohn, G.** See Brainerd, H. D.
**Meillon, B. de.** See Golberg, L.; Thorp, J. M.
——, Thorp, J. M., and Hardy, F. App. for the rapid screening of drugs for chemotherapeutic control of ectoparasites, 4414*f*.
——, Thorp, J. M., Hardy, F., and Mentz, N. J. Relation between ectoparasite and host (III) development of *Cimex lectularius* on vitamin A-deficient rabbits—effect of Ca, 4739*h*.
**Meiman, N.** Theory of concn. polarization at a dropping-Hg electrode (I), 2873*f*.
**Meinck, F.** Improvised detoxication of chromic acid-contg. waste waters, 6344*g*.
**Meincke, E.** Scarfing of hard metal surfaces, such as stainless steel and cast iron, P 4210*c*.
**Meincke, E. R.** Pest control, P 7634*d*
**Meincke, H. D., Jr.** Portable filtering unit for obtaining potable water from the sea, P 2347*d*.
**Meincke, H. D., Sr.** Portable filtering unit for obtaining potable water from the sea, P 2347*d*.
**Meinel, A. B.** Near-infrared spectrum of the night sky and aurora, 1651*c*.
**Meiners, E. P., Jr.** Angular distribution of photo-neutrons from D, 8264*f*.
**Meiners, S.** Influence of adenosinetriphosphate on the blood vessels of frogs, and its effect in the presence of acetylcholine, 8482*b*.
**Meinhard, J. E.,** and Hall, N. F. Surface chromatography, 2114*i*
**Meinhart, W. L.** See Ziegler, N. A.
**Meinicke, U.** See Sabalitschka, T
**Meinke, W. W.,** Ghiorso, A., and Seaborg, G. T. Three addnl. collateral $\alpha$-decay chains, 4126*g*.
**Meinke, Wilmon W.** See Holland, B. R
——, Holland, B. R., and Richardson, L. R. Chinese tallow nut protein (II) nutritive value, 8474*f*
**Meinken, M. A.** See Stevens, C. D
**Meinzer, A. E.** Light-wt. cellular slag aggregate from molten slag, P 832*i*.
**Meinzer, E. M.** See McIntosh, A. V., Jr.
**Meio, R. H. de.** See De Meio, R. H
**Meisel, E. M.** See Schopf, C.
**Meisel, H.,** Rybicka, I., and Meisel, P. Influence of penicillin on the growth of clostridia, 4310*b*; influence of penicillin on the production of hemotoxic substance in some clostridia cultures, 4340.
**Meisel, M. N.** Applications of luminescent microscopy in biology, 7987*i*; yeast cell structure, 8447*b*, see Elizarova, S. S
——, Pomoshchnikova, N. A., and Trofimova, N. P. Biol. synthesis of panthothenic acid from $\beta$-alanine and some of its derivs., 9166*c*.
—— and Umanskaya, V. P. Action of quaternary $NH_4$ compds. on microbe cells, 6700*f*.
—— and Zavarzina, N. B. Microfluorescence observations with living cells of microörganisms (I) yeast and yeastlike microörganisms, 8436*h*
**Meisel, P.** See Meisel, H
**Meisel, S. L.** See Hartough, H. D
**Meisels, A.,** Jeger, O., and Ruzicka, L. Triterpenes (CXXXIX) constitution of $\alpha$-amyrin and its relation to $\beta$-amyrin, 6602*h*.
**Meisenburg, E.** See Ott, M
**Meisinger, E. E.** See Schmerling, L.
**Meisner, G.** See Karitzky, B.
**Meissel, M. N.** See Meisel, M. N.
**Meissl, T.** Carburizing of case-hardening steels in molten salt baths, 8327*h*.
**Meissner, H. P.** Crit. consts from parachor and molar refraction, 2833*f*.
—— and Merrill, E. W. Coalescence behavior of some high polymers, 4892*f*.
—— and Mickley, H. S. Removal of mists and dusts from air by beds of fluidized solids, 6475*b*.
**Meissner, K. W.,** and Mundie, L. G. Structure of the D terms of Li, 4092*b*.
——, Mundie, L. G., and Stelson, P. H. Structure of the $^2D$ terms of the arc spectrum of Li, 491*c*, 4135*g*.
**Meissner, W.** Detn. of the viscosity of glycerol, triethylene glycol, butylene glycol, tritolyl phosphate, trihexyl phosphate, and tri-2-ethyl butyl phosphate at different temps., 4915*g*.
—— and Schubert, G. U. Supercond., 2062*g*.

**Meister, A.** Acylpyruvase activity of normal and neoplastic tissues, 3094*f*; metabolism of 3,5-diketohexanoic acid and its δ-lactone by tissue homogenates, 5842*i*; enzymic degradation of triacetic acid lactone detd. by a spectrophotometric method, 9211*a*.
——— and Greenstein, J. P. Enzymic hydrolysis of 2,4-diketo acids, 705*g*.
**Meister, A. G.** See Ziomek, J. S.
——— and Cleveland, F. G. Vibrational spectrum of diiodoacetylene, 4572*f*
**Meister, Herbert.** See Reppe, W.
**Meister, Hermann.** Regeneration of spent fuller's earth, P 7609*b*.
**Meites, J.**, and Chandrashaker, B. Effects of induced hyperthyroidism and hypothyroidism on the response to a constant dose of pregnant mare's serum in immature male rats and mice, 8492*b*.
——— and Reed, J. O. Effects of restricted feed intake in intact and ovariectomized rats on pituitary lactogen and gonadotropin, 5471*e*.
**Meites, L.** Polarographic detn. of Fe, 1283*e*.
——— and Colichman, E. L. Polarographic method for Cu, Pb, and Fe, 5698*c*.
——— and Meites, T. S. Removal of O from gas streams, 1619*i*.
**Meites, T. S.** See Brenner, Abner, Meites, L.
**Meitzner, E. F.**, and Hester, F. Diphenyldihaloethanes, P 4300*a*
**Meixner, H.** Mineral finds (idocrase, apophyllite) from the serpentine region of Lojane, southern Serbia, 8986*i*.
**Meixner, J.** Galvano-magnetic, thermomagnetic, and thermoelec effects, 2062*g*.
**Mekler, L. A.** See Gerhold, C. G.
**Melamed, S.** See Drake, N. L.; Fuson, R. C.
**Melamid, A. E.** See Khlebnikov, N. S.
**Melampy, R. M.** Cytochem. studies on the chicken erythrocyte (I) amino acid content and distribution, 744*b*.
**Melancon, T. J.** Solder, P 1712*b*.
**Melander, B. O.**, and Askelof, E. E. A. 2-Methylimidazolines substituted in the methyl group by aromatic radicals, P 3467*a*.
**Melander, L.** Detn. of radioactive H, 3287*h*; Szilard-Chalmers reaction on Sb, 4121*e*; substituents in the aromatic nucleus—exploration of its mechanism by means of isotopic H, 1644*d*, nitration of the aromatic nucleus, 5754*g*
——— and Slatis, H. Prepn. and radiation of $U^{237}$, 4561*h*.
**Melaney, R.**, Doak, J. H., and Olinger, S. T. Brazing practice 1304*h*.
**Melankholin, N. M.** Two types of coloring of ferruginous feldspars, 5231*f*.
**Melaven, A. D.**, and Whetsel, K. B. Detn. of Re, 1284*d*.
**Melcher, N. B.** Ferro-alloys, 2127*b*; Fe ore, 2127*c*; Fe and steel, 2127*c*, Mn, 2127*d*; see Merrill, C. W.
——— and Larkin, J. E. Fe and steel scrap, 2127*c*.
**Melchers, G.** Phytopathogenic virus, 1838*e*
**Melchior, J. B.** See Klotz, I. M.
——— and Klotz, I. M. Action of sulfonamides (II) rate-controlling processes in growth studies with *Escherichia coli*, 9143*b*.
**Melchior, N. C.** See Calvin, M., Morris, R. C.
**Meldrum, R. S.** Rotproofing of leather, 7247*a*.
**Meldrum, W. B., Jr.**, Clarke, R. A., Kouba, D. L., and Becker, W. W. Detn. of $KClO_4$ in smokeless powder, 1507*h*.
**Mele, V.** See Travia, L.
**Melik, J. S.** See Ries, H. E., Jr.
**Melikadze, L. D.**, and Eliava, T. A. Caustobiolites contg. high polymers, 5350*a*.
**Melik-Gaikazyan, V. I.**, and Dolin, P. I. Measurement of the polarization capacity of the Hg electrode in a broad frequency range, 6522*g*.
**Melikhov, S. A.** Dyeing of knitted cotton and viscose fabrics at low temps., 6419*h*.
**Melik-Sarkisyan, S. S.** See Yakobson, L. M.
**Melik-Zade, M.**, and Ivanova, T. M. Detn. of quality of C black, 3993*h*.
———, Ivanova, T. M., Ul'yanova, N. T., and Khachaturova, N. B. Yield of naphthalene from intermittent and continuous pyrolysis, 3999*b*.
**Melin, B.** Thread trap for worsted yarn ring-spinning machines, 845*h*.
**Melin, M.** See Oncley, J. L.
**Melis, A.** Need for attacking the carpophagous generation of the olive moth, 4416*a*; controlling beet insects with DDT, hexachlorocyclohexane, and As compds., 9346*h*; controlling wheat insects, 9352*b*.
**Melkonian, E.** Slow-neutron cross sections of O, N, A, and the proton in methane, ethane, butane, ethylene, and 1,3-butadiene, as measured with a neutron-beam spectrometer, 4096*b*.
**Mellanby, E.**, *et al.* Effectiveness of the vitamins, 1847*f*.
**Mellander, O.** Chem. and nutritive differences in the casein from breast milk and from cow milk, 3900*h*; chemistry of human casein, 9122*g*.
**Mellen, G. L.** Flow of low-pressure gases, 4906*e*.
**Mellers, E. V.** See Fallows, L.
**Mellin, A.** See Erbacher, O.
**Mellinghoff, K.** K and Ca content of human blood during prolonged fasting, 8471*c*; Mg metabolism in starvation, 8497*i*.
——— and Lessen, W. van. Mg and Ca balance in inanition, 8471*e*.
**Mellink, J. H.** See Gorter, C. J.
**Mellis, O.** Coarse-grained horizons in the deep-sea sediments from the Tyrrhenian Sea, 2904*i*; fabric of parallel-fibrous gypsum, 4980*a*.
**Mello, G. de.** See De Mello, G.
**Mello, M. I.** See Guimarães Villela, G.
**Mello, R. P. de.** See Pimenta de Mello, R.
**Mellody, M.** See Klotz, I. M.
**Mellon, E. F.**, Korn, A. H., and Hoover, S. R. Water absorption of proteins (III) peptide group, 467*b*; (IV) effect of phys. structure, 7787*h*.
**Mellon, M. G.** Quant. analysis, 1618*i*; light absorption spectrometry in analytical chemistry, 2113*e*; see Boltz, D. F.; Elving, P. J.; Patterson, G. D., Jr.; Rider, B. F.
**Mellon, R. R.** See McIlroy, A. P.
**Mellon Institute of Industrial Research.** Hydroxyethylation of org. compds., P 673*f*; recovery of Mn from Mn ores, P 3339*f*.
**Mellor, A.**, and Mann, R. J. Textile fabric having the two sides in differing colors, P 8693*a*
———, Mann, R. J., Finlayson, D., and Morledge-Hadfield, A. W. Coated translucent textiles, P 9178*f*
**Mellor, D. P.** Producing diamond in the lab., 6178*g*
**Mellor, G. A.**, and Ridley, R. W. Creep strength at 200° of some Mg alloys contg. Ce, 5356*c*.
**Mellors, R. C.** See Adair, F. E.; Blout, E. R.
**Mel'nichenko, L. G.** See Kukolev, G. V.
**Melnick, D.** Protein hydrolysis, P 1880*e*.
**Melnick, J. L.** See Havens, W. P., Jr.
**Melnicov.** See Mel'nikov.
**Mel'nikov, F. I.** See Glebov, S. V.
**Mel'nikov, N. N.** See Cherkasova, E. M.; Nametkin, S. S.
———, Sukhareva, N. D., and Arkhipova, O. P. Structure and germicidal activity of org. compds. (III) esters of betaine hydrochlorides, (IV) amides and esters of betaine hydrochlorides, 6976*h*.
**Melnikov, O. A.** Characteristics of the interstellar gas, 3710*f*.
**Meloche, C. C.** Value of error problems in the teaching of quant. analysis, 4909*g*.
**Melodia, G.** Protein content of blood and sedimentation velocity in tuberculosis of children, 2313*a*.
**Mélon, J.** See Brasseur, H.; Dallemagne, M. J.
**Melsted, S. W.**, Kurtz, T., and Bray, R. H. $H_2O_2$ as an O fertilizer, 5142*d*.
**Melstrom, D. S.** See Evans, T. W.; Gilman, H.
**Mel'teva, N. N.** See Zal'kind, Yu. S.
**Melton, G.** See Hobart, F. G.
**Melton, J. W.** See Henze, H. R.
**Melville, C.** Origin of Johore ipecacuanha, 3566*f*.
**Melville, D. B.**, Pierce, J. G., and Partridge, C. W. H. Prepn. of $C^{14}$-labeled biotin and a study of its stability during $CO_2$ fixation, 9066*a*.
**Melville, H. W.** Elastomers, 4044*e*; see Burnett, G. M.; Grassie, N.; Mackay, M. H.; Masson, C. R.; Robb, J. C.
——— and Watson, W. F. Inhibition and retardation in polymerization reactions, 4547*h*.
**Melville, J.** Chemistry of plants, 6703*a*; see Reifer, I.
**Melville, K. I.** Antifibrillatory action of coronary dilator drugs, 758*h*; antifibrillatory and coronary dilator actions of diethylaminoethoxy - 2 - diphenyl HCl (F1262), 3109*a*.
——— and Caplan, H. Influence of lung distention on response of the bronchioles to adrenaline and to histamine, 759*c*.
**Melville, R.** See Wokes, F.
——— and Pyke, M. Effect of specific variability and the environment on the vitamin C content of British rose hips, 4736*a*.
**Melvin, R.** Effects of dusts on the performance of tetraethyl pyrophosphate, 2730*a*.
——— and Earle, H. H., Jr. New evaluation method for acaricides using the red spider mite, 2730*e*
**Melzer, E.** See Kuntzel, A.
**Membrado, J. E.** See Elio Membrado, J.
**Membrillera, J. L. G. de.** See Loustau Gómez de Membrillera, J.
**Menaker, W.** Buffer equilibria and reabsorption in the production of urinary acidity, 706*i*.
**Menard, H. W. Jr.** Synthesis of sand mixts., 7874*h*
**Menary, J. W.**, Ubbelohde, A. R., and Wright, M. J. Propagation of reaction chains in the polymerization of styrene, 3377*d*.
**Mench, J. W.** See Dietz, A. A.
**Menchikoff, Menchikow.** See Men'shikov.
**Mende, S. de**, and Vergnolle, J. Marking of meniscuses and measurement of the cond. in every point of an electrophoretic diagram, 2876*i*.
**Mendel, B.** See Hawkins, R. D.; Myers, D. K.
———, Hawkins, R. D., and Nishikawara, M. Cholinesterase levels in plasma and tissues, 1818*i*.
———, Rudney, H., and Bowman, M. C. Rhodanese and the Pasteur effect, 2649*f*.
**Mendeloff, A. I.** Fluorescence of intravenously administered Rose Bengal appears only in hepatic polygonal cells, 5496*i*.
**Mendelssohn, K.** Supercond., 4540*e*; see Bowers, R.; Daunt, J. G.
**Mendenhall, H. E.** Secondary emission from conducting films of Sn oxide, 4092*a*.
**Mendes, E. G.** Metabolism of CO in animal tissues, 4753*h*.
**Mendes França, J.** See Schmiegelow, E.
**Mendes Ribeiro, J.**, and Correia Ralha, A. J. Legal reaction in the photocolorimetric detn. of cardiotonic glycosides (I) digitoxin, 1152*a*.
**Mendez, H. E. D.** See Diaz Mendez, H. E.
**Méndez, R.**, and Pisanty, J. Pharmacology and chemistry of substances of vascular activity (II) action of a new, synthetic ester of glycerol, 5862*f*.
**Mendez, R. O.** Thermomolding materials of casein, 439*i*.
**Mendez, V. P.** See Perez-Mendez, V.
**Mendizza, A.** See Compton, K. G.
**Mendlina, N. G.** Corrosive action of sulfite-cellulose liquors, residues, and exts. on Fe, 6141*e*.
**Mendonça Pinto, C.** Detn. of tungstic acid and Mo in scheelite, 2893*c*, 6541*g*; see Benedito de Araujo, J.
**Mendoza, H. C.** See Castro-Mendoza, H.
**Mendoza, M.** See Beech, W. F.
——— and Imperial Chemical Industries Ltd. Azo wool dye suitable for the metachrome process, P 414*h*; trisazo dyes for chrometanned leather, P 428*h*; azo dye, P 5222*b*.
**Mendoza, M. P.** Microchem. analysis, 5172*c*.
**Mené, G.** See Biozzi, G.
**Mene, P. S.**, and Pande, R. K. Examn. of some coking coals of Central Provinces (II), 1949*e*.
**Meneely, G. R.** See Rodes, N. D.
**Meneghetti, D.** See Krueger, H. H. A.; Winsberg, L.
**Meneghini, D.** Chimica applicata ed industriale. Vol. II (book), 4791*a*.
**Meneghini, P.** Presence of mast cells in the bone marrow (I) mast cells, antithrombin, platelet formation, and thromboplastin in disease and in exptl. research, 3528*c*.
**Menéndez, E. B.** See Braun Menéndez, E.
**Menezes, M. J. G. de.** See Garriga de Menezes, M. J.
**Meng, C. Y.** See Strandberg, M. W. P.
**Meng, H. C.**, and Early, F. Complete parenteral alimentation on dogs, 9189*c*.
**Meng, H. M.** Meneghinite of Pingtoushan, Chungshan, Kuangsi, 1291*b*; magma and ore, 1291*e*.
———, Chang, H. C., Hsü, S. C., Teng, Y. S., and Shü, C. A. Geology of the Tung-

chuan district, northeastern Yunnan, 8315e.
**Meng, K. H.** Chromatographic adsorption process and app., P 6013c.
**Menghini, G.** Ca-like activity of Sr in blood coagulation—Mg in blood coagulation—Ba in hemocoagulation, 4378b, anticoagulant action of Na penicillin, 4378f
—— and Angelucci, R. Adaptation of the photometric method of Cleghorn and Jendrassik for incoagulable N to fractional detn. of plasma proteins, 4314g.
**Mengisen, W.** See Erlenmeyer, H.
**Menihan, H. M.** See Loveland, R. P.
**Menin, L. G.** Arsenic poisoning by drinking water, 1887b
**Menke, J. R.** Application of nuclear radiation to industry, 6501d; see Harrison, W. B.
**Menker, H. E.**, and Garner, C. S. Thermal exchange expts. with radioactive Cr, 4967c.
**Menkin, V.** Effect of necrosin on spontaneous tumors in mice, 2306c, 5866g, leucopenia with inflammation—addnl leucopenic factor found in alk exudates, 4756d
**Mennella, C.** L'atomistica (book), 3726d.
**Menon, M. G. K.** See Tawde, N. R.
**Menon, V. K. N.**, Nagarna, B., and Bai, K. J. Plasma proteins in peptic ulcer, 5107d.
**Menozzi, C.** Animali e vegetali dannosi alla barbabietola da zucchero e mezzi per combatterli (book), 8090d
**Mense, E. H. le.** See Le Mense, E. H.
**Men'shikov, G. P.** Alkaloids of *Cynoglossum viridiflorum* (I) viridiflorine and its structure, 2625b; see Labenskit, A. S
**Men'shikov, M. I.** See Konikova, A. S
**Menšikov.** See Men'shikov.
**Ment, J. de.** See De Ment, J
**Menteau, C.** See Matériel téléphonique (Soc anon.)
**Mentha, J.**, Vogth, W., and Verzar, F. Influence of desoxycorticosterone on glycogen metabolism during work in isolated diaphragms of normal and adrenalectomized rats, 3904f
**Mentz, N. J.** See Meillon, B. de.
**Mentzer, C.** Folic acid, 1471d, test for evaluating phytohormonal activity, 1833f, relation between chem. structure and phytohormonal activity (I) comparison with vinyl homologs in the study of growth substances, 2676d; synthetic compds. with antivitamin K activity and the biol. significance of results obtained in animals, 5462g, see Molho, D.
—— and Billet, D. Prepn. of 3,4-dihydro-1(2*H*)-naphthalenone and cryst. 1,2,3,4-tetrahydro-1-naphthol, 614f, synthesis of 6-thymmecarboxylic acid, 4634e
——, Molho, D., and Dat Xuong. Condensation of ketones with phenolic ethers, 2970e
**Menusan, H., Jr.** See Heal, R. E.
**Menza, A. di.** See Di Menza, A.
**Menze, C.** See Ruska, H.
**Menzel, A. E. O.**, Moore, M., and Winterstein, O. Streptomycin (XII) streptamine isomers from *meso* inositol, 6581b
**Menzel, D. H.** Our Sun (book), 8842e
**Menzel, E.** Directed growth of $Cu_2O$ on Cu single crystals, 2063h.
**Menzer, G.** Ambiguity of crystal-structure detn., 6078f
**Menzi, K.** See Erlenmeyer, H.
**Menzies, A. C.**, and Skinner, J. Raman spectra of monocrystals of alk. halides, 2865h; polarization of second-order Raman effect, 3716f.
**Menzies, C.** Radiant heated salt bath furnace, P 7274g
**Menzies, J. T.** See Addis, T.
**Menzies, R. C.** See Lile, W. J.
**Menzl, O.** Cl content of pptn., 6876c.
**Meoni, P.** See Pegni, U.
**Mer, V. K. la.** See La Mer, V. K.
**Mérac, M. L. du.** See Paris, R.
**Mérat, P.** Hydrogenated whale oil its use in industry, 4875h.
**Mercer, C. H. H.** Abstraction of water supplies from rivers, 4793a.
**Mercer, E. H.** Orientation and hardening of keratin in the hair follicle, 7113d.
**Merchant, M. E.** Friction (II) max. shear strength of solids in relation to the thermodynamics of melting, 4066e; see Field, M.
**Merchante, F. R.** Comparative value of biol. reactions for early pregnancy diagnosis, 264f.
**Mercier, F.**, Lespagnol, A., and Mercier, J. Antispasmodic action of 1,4-dibenzylpiperazine—antihistaminic action of dibenzylpiperazine and some derivs., 310g
—— and Mercier, J. Action of benzedrine on isolated rabbit intestine—action of 3,4-dimethoxybenzedrine on isolated rabbit intestine—antinarcoleptic action of 3,4-dimethoxybenzedrine, 758a; antispasmodic action of dihydropapaverine, 2700c.
——, Mercier, J., and Sestier, M. R. Spasmolytic action of some carboxyl derivs. of papaverine and dihydropapaverine, 6732f
**Mercier, J.** Action of cupric ion on isolated intestine of rabbit and dog, 310i, camphorsulfonic acid color reaction, 1151c; see Cain, J.; Lespagnol, A., Mercier, F.
—— and Cain, J. Influence of tridione (trimethyloxazolidinedione) on audiogenic spasms, 2699f.
**Mercier, J. D. P. E.** See Morrison, G. O.
**Mercier, M.** See Compte, H.
**Merck & Co., Inc.** (*Patents.*) α-Acetamido-β,β-dimethylacrylic acid, 3030b, *N*-acylamino acid esters, 3030a, alkyl acyloxyacrylates, 3448e; alkylation of phenolic hydroxyl groups in alkaloids, 6074c; 2-alkylidene 3-keto-4 acylaminotetrahydrothiophenes, 1809d; amino acids and their intermediates, 7956b, amino acid soln., 4430f, α amino-β-(carboxymethylmercapto)propionic acid from cystine, 3451c; 2- and 4-aminoquinazolines, 4704a; antibiotics, 1158f, ascorbic acids, 3151g, 7505d, biotin intermediates, 6668i, biotin synthesis, 3467f; bis(*p*-chlorophenyl)trichlorethane, 6237c, 2-(4-carboxybutyl)-3,4-di(acylamino)-4,5-dihydrothiophene and its esters, 3040n; corrosion inhibitors, 8349b, dehydration of compds. by distn. with hydrophobic oil, 6477c, drying penicillin, 6791b; esters of α-formylphenaceturic acid, 9084i, hydrogenolysis of thiol esters, 3445c, α-hydroxy-β,β-dimethyl-γ-butyrolactone, 1056g, 7038i, iodized salt compn. 1926e, lactones of 2-methyl-3-hydroxy(and alkoxy)-4-carboxy-5-(hydroxymethyl)-pyridine, 1067d, 6671e, penicillamine esters and ester hydrochlorides, 7039e, penicillin, 1158h, 7640b, penicillin producing culture, 2278f, pregnene compds. 1442c, propionic acid 7038g, pyrazine derivs., 698g, pyridine derivs., 4702h; reducing carbonyl compds. to the corresponding methylene compds., 7509e, riboflavin amide, 9088a, riboflavin recovery, 7188e, sepn. of isomers of amino acids, 3029h, stabilization of DDT, 7634a, streptomycin complex salts, 7504f, streptomycin prepn. of reduced toxicity, 6472e, streptothricin and streptomycin aryl azosulfonates, 3151g, streptothricin complex salts, 6792a, 7501k, substance extd. from growth medium of *Rhizopus nigricans*, 8418e, substance having the physiol. activity of folic acid, 3490e, 2- and 4-sulfanilamidoquinazoline, 7042g, DL-threonine, 4088g, tryptophan and intermediates therefor, 2643d
**Merckel, F. G.** Color-test device, P 450e
**Merckx, P. R.** Color development in the presence of couplers, 7841a; color production in photographic images with color couplers, P 8924e
**Mercoulova.** See Merkulova.
**Meredith, D.** See Hall, T. D.
**Meredith, R.** Properties depending on the amorphous regions of fibers, 4857g.
**Meredith, W. J.** See Dale, W. M.
**Mérei, I.** Semicoke briquet factory at Dorog, 8118d.
**Mérei, K.** Lecture demonstrations of electrochem. processes, 8762e.
**Meretoja, A.** Indicator studies (II) color changes and dissocn. consts. of neutral red and bromothymol blue in aq. alkali chloride solns., 3307i; Kemiallisia laskutehtäviä (book), 6072d; electrolyte and solvent influence on the reaction between persulfate and iodide (II) reaction entropies and heats of activation, 8236f.
—— and Tommila, E. Kinetics of the Cannizzaro reaction—free energy, heat content, and entropy of activation, 2848e.
**Merewether, J. W. T.** Lignin of *Eucalyptus regnans* (II) hydroxyl groups and the presence of the carbonyl group in thiolignin, 7226a; see Lahey, F. N.
**Mergard, E. G.** See Deichmann, W. B.
**Mergen, S.** See Constable, F. H.
**Mergenthaler, E.** See Klages, F.
**Merian, E.** See Fierz-David, H. E.
**Merian, R.**, and Schlittler, E. Occurrence of embelin in the Myrsinaceae, 1838e.
**Mériaux, S.** See Caillère, S.
**Mérigoux, R.** Particles of limited penetrability—fields of surface and interfacial forces, 8794e.
**Merikanto, B.** See Ringbom, A.
**Méring, J.** Reactions of montmorillonite, 7205c.
**Merino, A. S.** See Santos Merino, A.
**Merion, H. D.** See Detwiler, G. T.
**Meritz, H.** Analysis of impurities in metals and solns. in plating establishments, 8901h.
**Meriwether, H. T.** See Smith, H. A.
**Merk, R.** See Heilmeyer, L.
**Merkel, E.** See Wiegand, C.
—— and Wiegand, C. Ultraviolet absorption and mol. structure of biphenyl in 3 states of aggregation and several related compds., 942e; relation between ultraviolet absorption and mol. structure, 4569a
**Merker, R. L.** Grease, P 1960b.
**Merkin, M.** See Burns, T. W.
**Merklen, F. P.** Distribution of As between blood plasma and erythrocytes, 4705f
—— and Goudal, H. Prolonged action of a penicillin-procaine complex suspension prepd. extemporaneously in the patient's own citrated blood, 9248h.
**Merkulov, L. G.**, and Speranskava, E. N. Physiology of longitudinal and transverse musculature of small intestine (II) analysis of two phase action of adrenaline on smooth musculature of the intestine, 7106f
**Merkulova, E. N.** See Yakubovich, A. Ya.
**Merkulova, M. S.** See Antipov-Karataev, I. N.
**Merkur'ev, A. V.** Hg mineralization in the Ural, 2130h.
**Merley, R. W.** Detection of barbituric acid derivs. in urine, 1076i.
**Merlin, L.**, and Carassia, R. Impianti industriali chimici (book), 7759f.
**Merlin, M.** Vapor pressure of materials for high vacuum, 3677h.
**Merlis, N. M.** See Rudakov, G. A.
**Merman, R. G.** See Weston, R. E.
**Mernenko, P.** See Khokhlova, Z.
**Merola, G. V.** See Hessler, L. E.
**Merrell, W. S., Co.** Substituted pyridinium and piperidinium germicidal compds., P 695i.
**Merriam, F. C.** Modification of Hershberg m.-p. app. for internal heating and silicone fluid, 1225g
**Merriam, H. F.** Sulfuric acid, P 6371b.
**Merrick, E. W.**, Smyers, F. C., and Warner, F. L. Pb refined electrolytically at the East Chicago plant, 78c
**Merrifield, R. B.** See Dunn, M. S.
**Merrill, A. J.** Salt and water retention in heart failure, 4366d
**Merrill, A. T.** See Ruskin, S. L.
**Merrill, C. W.**, Melcher, N. B., and McDermid, A. J. Scrap metals, 6551a
—— and Meyer, H. M. Cu, 2127b; Au and Ag, 2127c
**Merrill, D. G.** Heating rates of food in glass and other containers, 1401i.
**Merrill, D. R.**, and Perry, W. A. HCN, P 9396g
**Merrill, E. W.** See Meissner, H. P.
**Merrill, G. R.**, Macormac, A. R., and Mauersberger, H. R. Am. Cotton Handbook (book), 8143e
**Merrill, H. B.** See Adams, R. S.
——, Cameron, D. H., Ellison, H. L., and Wrixton, C. H. Equil. between collagen and vegetable tannin in aq. org. solvents, 4040d.
**Merrill, J. F.** See Perkins, A. T.
**Merrill, L. G., Jr.** See Driggers, B. F.
**Merrill, P. W.** Displacements of certain He lines in stellar spectra, 490h, Balmer series in the spectrum of HD 45910, 2509e, stars having shell spectra, 3711h, spectrum of HD 187399, 8882b.
**Merrill, R. C.** Soly. study of an aq. K laurate-K silicate system, 1637a; Na silicates in the textile industry, 5596d; industrial applications of the Na silicates, 6335c.
—— and Getty, R. K silicates in soaps, 2002e.
—— and Spencer, R. W. Spectral changes of some dyes in sol. silicate solns., 2093g.
**Merrill, T. W.** Alloys and the steel industry, 5718a, V data sheet—V tool steels (II), 6558s; effect of alloys on the properties of steel, 7397e, V alloy steels, 7399c; weldability and mech. properties of Mn V plate steel (I), 7890c
**Merrill Co.** Recovery of precious metal values, P 8344e.
**Merrington, A. C.** Viscometry (book), 6072d.

**Merritt, F. R.** See Holden, A. N.; Townes, C. H.; Yager, W. A.
**Merritt, H. H.** Therapeutic agents used in neurologic conditions, 8408*c*.
**Merry, E. W.** Decontamination of leather from war gases, 1203*i*.
**Merten, Kh.** Substitute chemicals in physiol. analysis, 5074*e*.
**Merten, R.** Catheptic proteinase in human and animal urine, 1479*g*.
**Mertens, A.** See Prigogine, I.
**Mertens, O.**, and Rein, H. Intrapulmonary oxidation, 7564*e*.
**Mertz, E. T.**, Beeson, W. M., Waltz, R. H., Jr., and Caudry, R. Effect of the amino acid hexahomoserine on growth and hemapoiesis in swine, 2203*f*.
**Mertz, R. V.** See Bellah, J. S.
**Merva, M. D.** See Escoffery, C. A
**Mervel, R. V.** Detn. of Al in Be salts, 5097*a*.
**Merville, R.**, and Dequidt, J. Detn of AsH$_3$, 1286*g*.
**Merwe, C. W. van der.** See Van der Merwe, C. W.
**Merwin, W. J.** See Teter, J. W.
**Mèry, J.** See Luteraan, P. J.
**Merz, A.** See Karrer, P.
**Merz, E.** See Gross, F.
**Merz, E. H.** Fractionation of polycyclohexyl methacrylate, 6861*b*
**Merz, J. H.**, and Waters, W. A. Oxidation of ales with Fenton's reagent, 5269*h*
**Merz, K. W.** Grundlagen der Pharmakologie fur Apotheker, Chemiker, und Biologen (book), 1870*h*
**Merz, O.** Deutsch englisches und englisch-deutsches Fachworterbuch für Fachausdrucke aus dem Lack- und Farbengebiet (book), 876*c*, tasks and problems in the coatings industry, 4028*d*; acceleration of soln. by increased agitation, 4965, 5204*i*
**Merz, W.** See Blattner, H.
**Merz, W. J** Dielec behavior of BaTiO single domain crystals, 4061*d*
**Merz, W. R** Testosterone propionate in tumors of the female, 9223*g*
**Merzari, A. H.**, and Molina, J. S. Darkening of the brine of green Spanish type olives, 5511*i*.
**Merzbacher, C. F.** Correlation between the freshman testing program and first semester chemistry at San Diego State College, 7762*b*.
**Mershanian, A. S.**, and Stoev, K. D. Coordinated action of invertase and amylase in the grape vine, 8455*h*
**Meschenny, J. F.** See Mezhennil, Ya. P
**Meschter, E. E.**, and Seiter, K. W. Preventing crystn. of argols in grape products, P 9295*a*
**Mescolini, G.** See Frascarelli, R.
**Meserve, E. R.** See Marx, W.
**Meshchaninova, E. A.** See Golotina, Z. S
**Meshenny, J. F.** See Mezhennil, Ya. P
**Meshew, M. H.** On hatching of chicken and turkey eggs at high altitudes, 8482*a*
**Meshkov, N. V.** Toxic products formed in podzolized soils on heating, 7616*f*; influence of *Azotobacter* on the yield of cultivated plants in relation to the exudation by roots, 9149*f*.
**Meske, B.** See Lauer, K
**Mes'kin, V. S.** Processes in steels for permanent magnets, 2560*f*, precision alloys in the Soviet Union, 4614*c*
**Mesorana, F. P.** See Poggio Mesorana, F.
**Mesrobian, R. B.** Chain reactions in addn. polymers, 1247*c*
— — and Tobolsky, A. V. Effect of chem. agents on heat deterioration of GR-S, 8188*f*
**Messeid, M. F.** See Fahmy, I. R.
**Messel, M. J.** Asbestos mining and milling practice, 2343*d*
**Messenger, J. U.** Alumina-gel pellets, P 6338*b*; see Oblad, A. G.
**Messenger, P. S.** See Smith, R. F.
**Messenger, T. H.** See Dawson, T. R.
**Messer, W. E.** See Howland, L. H.
**Messerschmitt, J.** See Mallarmé J.
**Messing, E. F.**, and Keary, W. V. Phenol (I) capacity and consumption, (II) cost of production, 2180*e*.
**Messinger, W. J.**, and Steele, J. M. Relation of human body sp. gr. to body fat and water content, 4746*h*.
**Messkin, W. S.** See Mes'kin, V. S
**Messner, G.** Recovery of Al by the Hg process, 7392*g*.
**Mester, L.** Detection and detn. of tetrazine, 8079*b*.
**Mestern, J.** See Slobody, L. B.
**Meston, G. C.** Photo-Engravers Research, Inc., 5683*i*.
**Mészáros, K. B.** See Bugár Mészáros, K.
**Metacek, B.** See Trimble, H. M.
**Métais, P.** See Duquénois, P., Mandel, P
**Metal Hydrides Inc.** LiH, P 1159*a*; metal nitrides, P 5160*d*; TiN, P 5162*a*, TaN$_3$, P 5162*b*; ZrN, P 5162*d*; LiAlH$_4$, AlH$_3$, P 5556*d*.
**Metallo-chimique, Soc. anon.** P$_2$Cu$_3$, 825*d*
**Metallurgical Processes Co.** Metallurgical furnace of the pit or vertical type, P 2152*h*.
**Metals & Controls Corp.** Corrosion-resisting thermostat metal, P 3342*f*; thermostatic bimetallic wire, P 5357*h*, composite metal, P 6966*b*.
**Metal & Thermit Corp.** Nongassing Fe-Mn for welding electrodes, P 3344*c*; welding electrodes, P 4212*f*; electroplating of Sn, P 6527*e*; silicone resins for weld coatings, P 7896*e*; caustic soda, P 8109*b*.
**Métayer, G.** Nicotine, 757*c*, 6789*d*.
**Métayer, M.** Leuckart reaction, 3373*e*, see Mastagli, P.; Palfray, L.
**Metcalf, D.** See Hucker, G. J.
**Metcalf, R. G.** See Barnett, T. B.
**Metcalf, R. L.** Acaricidal properties of org. compds. related to DDT, 3137*e*; action of org. insecticides, 5146*d*; see March, R. B
——, Carlson, R. B., and Murphy, U. E. Pest-control insecticides, 1518*c*.
**Metcalf, R. W.**, and Downey, M. G. Slate, 2127*g*
—— and Holleman, A. B. Abrasive materials, 2126*r*; feldspar, 2127*b*.
**Metcoff, J.** Influence of protein nutrition on infection, 7099*a*.
**Metello Metto, J. M.**, and Pinto de Figueiredo, A. Color tests for the identification of thiouracil and some of its derivs., 8311*c*.
**Meter, J. C. van.** See Van Meter, J. C.
**Meter, R. van.** See Van Meter, R.
**Metropolis, N.** See Feynman, R. P.
**Metropolitan-Vickers Electrical Co. Ltd.** See Buchanan, W. K
**Metto, J. M. M.** See Metello Metto, J. M.
**Metz, C. B.** Agglutination of sea urchin eggs and sperm by basic proteins, 5506*h*
**Metz, C. W.** See Bozeman, M. L
**Metz, K.** Geology of the talc deposits of Moutern in the Liesing Valley, 8319*a*
**Metz, L.**, and Roedig, A. Spontaneous decompn. of trichloroethylene by Al, 6515*f*.
**Metzger, E. F.**, and Favarger, P. Cholesterolesterase system of rat liver, 1849*b*.
**Metzger, E. M.** Prevention of chicken cholera, P 1913*d*.
**Metzger, F.** See Deutsch, M. and Deutsch, M. Disintegration scheme of $^{131}$I, 2089*f*
**Metzger, F. J.** Aldol P 3451*a*, glycols, P 6080*f*
**Metzger, G.** See Woll, K. L.
**Metzger, J.** Relation between the naphthalenoid character of polyheterocyclic aromatic compds. and the mol. distances of their mobile bonds, 3814*b*; see Cherrier, C., Courtot, C., Pullman, A.
— and Cherrier, C. Raman and infrared investigation of benzothiazole and its 2-alkyl homologs, 3716*d*; variation of the mol. refraction as a function of the temp.—application to 2-alkyl benzothiazoles, 7281*f*
— and Pullman, A. Electronic structure and chem. reactivity of 4-methylthiazole, 5777*b*
**Metzger, N.** See Baumann, E. J.
**Metziger, M.** Na$_2$HPO$_4$·2H$_2$O, P 5556*e*.
**Metzner, A. B.**, and Taylor, J. A. Natural gas as an admixt. for propane, 4831*c*.
**Metzner, E. K.** Distn. app. for the recovery of EtOH from pomace, P 2734*e*; plate construction for use in a distn. column, P 3249*a*.
**Metzner, W. R. T.** See Leimdorfer, A.
**Meulen, J. B. van der.** Etiology and the prophylaxis of milk-fever and grass tetany in cattle, 1843*d*.
**Meulen, J. H. van der.** Permanganometric studies (III) detn. of azides and hydrazoic acid with KMnO$_4$, 1288*e*; chlorates—detn. of chlorate, chloral, chloride, and alkali in the presence of one another, 3745*b*
**Meulen, J. ter.** Kaolin from Paramam, 5349*g*.
**Meulen, P. A. van der.** See Laning, S. H.
**Meunier, J.** Oxidation reactions of methane, 2923*h*.
**Meunier, Paul.** Action of antivitamins K in animals 5462*h*; see Molho, D.
— — and Ferrando, R. Biol. activity of the compd. absorbing at 560 mμ in Sb trichloride, obtained by the oxidation of axerophthol with permanganate, 8468*f*.
— —, Ferrando, R., and Chenavier, P. Blood tocopherols of the sheep, and effect of cod-liver oil, 758*f*.
——, Ferrando, R., Jouanneteau, J., and Thomas, G. Influence of vitamin A on the detoxification of Na benzoate, 5837*a*.
—— and Jouanneteau, J. Investigation of cis trans isomerism in the vitamin A series, 288*a*.
**Meunier, Pierre.** See Danzin, A.
**Meur, E. le.** See Le Meur, E
**Meuron, H. J.** Prepn. of butter samples, 8509*h*
**Meurs, G. J. van**, and Baudet, H. P. Beknopt overzicht der scheikunde (book), 4940*e*.
**Meutémédian, A.** See Bernfeld, P
**Mevis, F. A.** See Lapushkin, S. A.
**Meybeck, J.** See Loeb, C.
**Meyer, Adolf.** Shaft furnace for producing combustion gases at high pressure for driving gas turbines and the like, P 4449*g*.
**Meyer, André**, and Bouchet, G. Products of the condensation of 4-chloroquinaldine with active methylenes, 228*i*
—— and Pastour, P. Condensation products of acetylacetanilide and its derivs. with aromatic aldehydes, 5013*g*.
**Meyer, Armin**, and Jeger, O. Triterpenes (CXXXVI) identity of α-viscol with β-amyrin and β-viscol with lupeol, 1751*c*.
**Meyer, A. E.**, and Greenberg, J. Value of Ca hypophosphite and other Ca compds. as Ca supplements in Ca-low diets, 5835*b*.
**Meyer, A. F.** Sanitary engineering in the occupied zone of Germany, 9308*e*.
**Meyer, A. W.** Effects of polymerization temp. on structure, 8725*c*; see Hart, E. J.
**Meyer, B. J.** See Jones, H. W., Jr.
**Meyer, C. F.** See Herman, R. C.
**Meyer, David.** Combustion-tube lining, P 2750*a*.
**Meyer, Dietrich.** See Kopfermann, H.
**Meyer, D. K.** Physiol. adjustments in chloride balance of the goldfish, 1116*f*.
**Meyer, Erich.** See Braun, Hans.
**Meyer, Erwin.** Abrasive wheel, P 7206*d*.
**Meyer, E. W.** See Julian, P. L.
**Meyer, F.** App. for the examn. of drugs by microsublimation without the use of gas, 1148*h*.
**Meyer, F. J.** Preservation of cellulosic materials, P 1146*c*; protecting cotton against microorganisms, P 8694*c*.
**Meyer, F. L.**, Hirshfeld, J. W., and Abbott, W. E. Metabolic alterations following thermal burns (VII) effect of force-feeding, methionine, and testosterone propionate on N balances in burns, 7110*c*.
**Meyer, F. O. W.** Digitalis prepns.—genuine glycosides from *Digitalis lanata*, 2734*h*; cardioactive glycosides from squill, 3977*d*, protection of the surface of Zn and Zn alloys, 5724*b*, increasing the effectiveness of kola prepns., 5903*d*; storage of potatoes with a chem. preservative, 6329*g*; adulteration of bitter almond oil, 6789*g*, tech. polymers, esp. polyvinyl alc., in medicine and pharmacy, 8615*c*.
——, Massatsch, C., and Kuntze, K. Glycols—laws against their use and detection, 818*b*.
**Meyer, F. W.** See Boulin, R.
**Meyer, Georg.** What should gasworks know about the standardization and calibration of gas meters? 6395*b*.
**Meyer, Gerda.** See Kopf, R.
**Meyer, Gerhard.** Handbuch der Arzneispezialitäten (book), 8104*d*.
**Meyer, G. H.** Drum degreasing light leathers, 7736*i*.
**Meyer, H.** See Bondi, A.; Erlenmeyer, H.; Schütz, F.
**Meyer, H. A.** Theory of internal conversion, 479*c*.
——, Schwachheim, G., Wataghin, A., and Wataghin, G. Nature of mesons in penetrating showers, 4102*i*.
**Meyer, Helena M.** See Merrill, C. W.
—— and Mitchell, A. W. Pb and Zn pigments and Zn salts, 2127*d*, Hg, 2127*d*
**Meyer, Herbert M.** Two ways of aging, 4205*f*.
**Meyer, Johannes**, and Mogensen, E. Formation of calculi in the urinary tract of patients with osteoarticular tuberculosis, 2698*a*.
**Meyer, Julius.** Einführung in die Chemie für Studierende technischer Berufe (book), 5276*i*.

——— and Holowatyj, M Telluric acid, 517*i*.
**Meyer, Karl.** Highly viscous Na hyaluronate, 3859*d*; from the British to the German pharmacopeia (I) Brit. Pharmacopeia 1948, 5551*h*, (VIII) British Pharmacopeia 1948, 6790*a*.
**Meyer, Kuno.** Chem. constitution of cardiac-active toad poisons, 2626*i*
**Meyer, Kurt.** Seed of medicinal plants and plants yielding condiments, 6305*h*.
**Meyer, K. A.** See Steigmann, F.; Stein I. F., Jr.
———, Kammerling, E. M., Amtman, L., Koller, M., and Hoffman, S. J. pH studies of malignant tissues in human beings, 5109*g*.
**Meyer, K. H.** Constitution and texture of starch, and its enzymic degradation and synthesis, 8181*d*
———, Bernfeld, P., Boissonnas, R. A., Gürtler, P., and Noelting, G. Starch solns. and pastes and their mol interpretation, 5218*h*.
——— Bernfeld, P , and Gürtler, P. Glycogen, 5431*b*.
———, Bernfeld, P., Rathgeb, P , and Gurtler, P. Starch (XLI) degradation of amylopectin by β-amylase, 2006*b*
———, Fischer, E H , Bernfeld, P and Duckert, F. Purification and crystn. of human pancreatic amylase, 1070*h*.
———, Fischer, E. H., Staub, A., and Bernfeld, P. Amylolytic enzymes (X) isolation and crystn. of α-amylase from human saliva, 7980*a*.
——— and Fuld, M Starch (XLIV) glycogen of the golden bantam variety of *Zea mays*, 6849*b*.
———, Odier, M, E , and Siegrist, A E. Constitution of chondroitinsulfuric acid, 148*c*.
——— and Rathgeb, P. Starch (XL) potato amylose, (XLII) detn of acids formed during oxidation of polyols by periodate, (XLIII) detn. of terminal groups in starch and glycogen, 2006*a*, (XLV) terminal group analysis of polysaccharides and oligosaccharides by periodate, 6849*d*
**Meyer, K. W.** See Wuhrmann-Meyer, K
**Meyer, L.** See Band, W ; Long, E. A
**Meyer, L. M.** See Sawitzsky, A.
**Meyer, L. S.** See Howald, A. M.
**Meyer, L. W. A.** See Gearhart, W. M
**Meyer, M.** Bodying of drying oils at temps above 300°—continuous bodying—simultaneous dehydration and bodying of castor oil in continuous operation, 5970*g*, plastic material for use in photoelastimetry, 6862*a*.
**Meyer, M. W.** See Wuhrmann-Meyer, M.
**Meyer, R.** Mikrobiologisches Praktikum (book), 6283*h*.
**Meyer, R. E.** See Otto, F. P
**Meyer, R. H. M.** See Nie, W. I. J de.
**Meyer, R. K.** See Boyarsky, L L , Davis, James S ; Kupperman, H S ; McShan, W. H.; Stafford, R. O
— —, Soukup, S. K., McShan, W H , and Biddulph, C. Succinic dehydrogenase in rat ovarian tissues during pregnancy and lactation, 7565*c*.
**Meyer, S.** Standard Ra prepns., 7331*a*; origin and abundance ratios of the chem. elements, 8261*d*.
——— and Koss Rosenqvist, A Genesis of chem elements, 7807*i*, can elements of at. wt. divisible by four be considered as built-up from He particles? 7809*b*, scheme of chem. elements, 7809*c*
**Meyer, T. A.**, Prutton, C F , and Lightfoot, W. J. Equil. in satd salt solns (V) system $CaCl_2$ $MgCl_2$–KCl NaCl $H_2O$ at 35°, 6067*f*.
**Meyer, T. M.**, and Schmid, H Constitution of eugenin, 1775*g*.
**Meyer, W. G.** Corn proteins now utilized to make glutamate, 5507*i*
**Meyer, W. R.** Coloring Cu alloys, P 3341*f*; compd. for blackening Cu and its alloys, P 3341*g*; rendering Al and Al-alloy surfaces corrosion-resistant, P 3342*h*
**Meyer, W. W.** Cholesterol crystal embolism of small organ arteries and its consequences, 1479*d*.
**Meyer-Balzer Fuel Unit, Inc.** Combustion-tube lining, P 2750*a*.
**Meyer-Delius, M.** See Richtzenhain, H.
**Meyeren, W. v.** Conduction of electricity in insulators, photoelec cond.—conduction of electricity and photoelec. effect in semiconductors—semiconductor-rectifiers and -photocells, 2083*e*, movable probe for investigations on gas discharges, 6905*i*.
**Meyerhans, K.** See Perold, G. W.; Preiswerk, E.
**Meyerhof, O.** See Kielley, W. W.
——— and Green, H. Synthetic action of phosphatase (I) equil. of biol. esters, 6266*b*.
——— and Wilson, J. R. Enzymic system of tumor glycolysis (I) glycolysis of free sugar in homogenates and exts. of transplanted rat sarcoma, (II) rat and mouse tumor homogenates, 7575*h*; glycolysis of brain prepns (V) affinity of hexokinase for glucose and fructose, 8484*b*; glycolysis and the adenosinetriphosphatase activity in tissue homogenates, 9090*d*.
**Meyerhof, W. E.** See Bowe, J C.
**Meyering, J. L.** See Meijering, J. L.
**Meyerott, R. E.** See Breit, G
**Meyer-Rässler, E.** Changes in the properties of pressure-cast Zn alloys at room temp , 7888*b*.
**Meyers, C. H.** Table of thermodynamic properties and Mollier chart for ammonia below 60°F., 1231*g*; see Hoge, H J.
**Meyers, C O.** Catalytic isomerization of hydrocarbons, P 844*f*
**Meyers, D. B** See Nadkarni, M V.
—, Nadkarni, M V., and Zopf, L. C Absorption and penetration of therapeutic agents from a Carbowax vehicle, 8600*f*
**Meyers, J. M.** See Passino, H. J
**Meyers, L.** Blood fibrinogen in myocardial infarction, 4772*h*.
**Meyers, R.** See Ehrenhaft, J L.
**Meyers, S. L.** Effects of $CO_2$ on hydrated cement and concrete, 2395*h*.
**Meyersburg, R.**, Pomper, S , and Cutler, V. M , Jr. Detection of presumptive biochem. mutants, 4722*f*
**Meyerson, S.** See Meerson, S. I.
**Meylink, J. A.** See Meijlink, J. A.
**Meyrat, A.**, and Reichstein, T Glycosides and aglucones (XL) degradation of ouabagenin (I), 1792*d*, euonoside, a cardioactive glycoside from the seeds of *Euonymus europaeus*, 2371*h*
**Meyst, M.** See Arkel, C G van
**Meystre, C.** See Miescher, K , Wettstein, A
— —, Tschopp, F , and Wettstein, A Steroids (LXXXI) 11 dehydroprogesterone the most active gestagen, 1783*e*
— — and Wettstein, A Steroids (LXXXII) simpler degradation of the bile acid side chain (13) $\Delta^{13}$ anhydrocorticosterone acetate, 3430*g*
**Meyton, E.** See Wachsmuth, H.
**Mez, A. G. du.** See Du Mez, A G
**Mezhennii, Ya. P.** Dioxanate of pyrosulfuric acid thermal analysis of the system dioxane-pyrosulfuric acid, 6901*c*, see Dumanskii, A V
— and Martynenko, E A Cryoscopic investigation of solns of $SO_3$ in dioxane, 2490*h*.
**Mezhennyĭ, Ya. P.** See Mezhennii, Ya P.
**Mezzetti, O.** Subterranean gasification expts at the Colle dell'Oro Mine, 3594*g*
**Mhatre, S. H.** See Joshi, G. D., Preston, J M
**Mi, T. H.** See Yao, H H
**Miall, L. M.** See Miall, S
**Miall, S.**, and Miall, L. M New Dictionary of Chemistry (book), 8842*g*.
**Miami Boiler & Machine Co., Inc.** Fish-residue processing plant for installation aboard ships, P 6437*c*
**Miani-Di-Angoris, G.**, Miani Di-Angoris, L , and Miani-Di-Angoris, O Emulsifier, P 4846*b*.
**Miani-Di-Angoris, L.** See Miani-Di-Angoris, G
**Miani-Di-Angoris, O.** See Miani Di-Angoris, G.
**Mibashan, A.** Influence of ions on plants and soils, 8453*b*
**Mibashan-Sharaga, L.** Isotherms of a monomol film of lauric acid, 4537*f*, Gibbs adsorption law, 4921*i*; see Guastalla, J.
**Micaelli, O.** See Desnuelle, P.
**Micafil A.-G. Werke für Elektro-Isolation und Wicklerei-Einrichtungen.** Drying and degassing oil, P 3946*b*, 3186*c*.
**Mica Patents Trust.** Composite bonded sheet insulating material, P 1612*c*.
**Míček, K.** See Kubelka, V.
**Micélovskiĭ, E. S.** See Mitselovskii, E. S.
**Micetich, A.** See Loew, E. R.
**Michael, K.** See Müller-Stoll, W. R.
**Michael, S. E.** Biochemistry of micro-organisms (LXXIX) fuscin (I) prepn., properties, and antibacterial activity, 4335*e*; see Therapeutic Research Corp. of Great Britain Ltd
**Michael, T. H. G.** Alkyd resins, 8971.
**Michaelis, H. F.** See Lehmann, G.
**Michaelis, L.** Oxidation-reduction, 8406*i*.
——— and Wollman, S H. Semiquinone radical of tocopherol, 4570*b*.
**Michaelis, M.**, Arango, N S., and Gerard, R. W. Inhibition of brain dehydrogenases by anticholinesterases, 7066*e*.
**Michaelis, R.**, and Peak, D. A. Purification of streptomycin, P 6791*i*.
**Michael Reese Research Foundation.** Carboxymethyl cellulose-alkali salt antacid prepn , P 8104*f*.
**Michaels, A. S.** See Hauser, E. A.
**Michaels, G. D.** See Kinsell, L. W.
**Michaels, I.** Sterilization of $NaHCO_3$ solns , 1150*h*; see Berry, H.
— — and Munzel, K. Infusion solns., 5903*c*
**Michaelson, J. B.** See Lesser, A. J.
**Michailoff, Michaïlow, Michajlow.** See Mikhailov.
**Michalek, J. C.** Trichlorostyrene and polymers thereof, P 1514*f*, see Switzer, John I.
**Michalik, J.** See Śmiałowski, M
**Michałowska, J.** Lubricating oils, 1154*f*, 7219*c*
**Michaud, M.** Emission factors at high temp of refractory products contg. silica and alumina, 6082*h*, see Beauseigneur, G.
**Michaylov.** See Mikhailov
**Micheel, F** Toxic proteins, 3861*g*
——— and Emde, H Antigens and cancer (VIII), 4369*g*.
**Michel, A.** Fiehe's reaction as applied to heated grape juice, 783*e*; Br as a normal trace element in pineapples, 784*a*, see Pouillard, E
——— and Pouillard, E. Synthetic neutral ferrous titanate or ilmenite, 2108*f*, new family of cubic Fe sesquioxides, 8934*d*
**Michel, E.** See Simonnet, H
**Michel, G.** See Duyckaerts, G
**Michel, L.** See Lacher, J. R
**Michel, R.** See Deltour, G H , Dertien, Y , Gell, P. G. H.; Roche, J.
**Michelazzi, L.** Metabolic activity in some tissues during autolysis, 2260*f*, influence of certain bacterial filtrates on oxidation of ascorbic acid, 8434*i*
**Michelbacher, A. E.**, Middlekauff, W. W , and Akesson, N B Caterpillars destructive to tomato and their control, 3556*f*
**Michell, G. de.** See De Michell, G.
**Michell, M.** Gli aerosol terapeutici (book) 3151*i*
**Michell, F. B** Mineral dressing, 6552*b*
**Michelman, J.** Theory of tanning, 9510*b*
**Michelotti, L.** Plasticized phenol-urea resins for metal varnishing, P 8739*c*.
**Michels, A.**, and Wassenaar, T Isotherms of a N-H mixt between 0 and 150° up to 340 atm , 6021*d*.
**Michelson, A. M.** See Baddiley, J.
**Michelson, M.** See Mikhel'son, M Ya
**Michoner, H D.**, and Snell, N Antifungal substances from *Bacillus subtilis*, 9116*e*
———, Snell, N , and Jansen, E. F Antifungal activity of hop-resin constituents and isolation of lupulon, 1525*f*
**Michener, J.** See Hammond, A
**Michener, J. W.** See Fitch, E B
**Michenko, K. P.** See Mishchenko, K. P
**Michi, K.** See Funabashi, S
**Michiels, J. L.** See Blackman, M.
**Michiels, P. M.** See Hambourger, W. E
**Michlin, D. M.** See Mikhlin, D. M
**Michon, R.** See Sans, M
**Michoustine.** See Mishustin.
**Mickelsen, O.** See Nataf, B.
**Mickley, H. S.** See Lewis, W. K.; Meissner, H P.
——— and Trilling, C A. Heat-transfer characteristics of fluidized beds, 6475*a*.
**Miconi, C.** Wine treatment with K ferrocyanide, 4809*a*, 6780*d*; detn. of total acids in musts and wines, 6779*a*.
**Micsa, M.** See Vancea, P.
**Micu.** See Urechia, C. I.
**Micucci, D. D.** See Bachman, G. B.
**Miczaika, G. R.** Atm. of γ Pegasi, 938*f*; H and He in the atm. of O-stars, 938*g*; Balmer lines in B-, A-, and F-stars, 6917*a*; H absorption in stars of spectral classes B to F, 6917*c*.
**Middelbeek, A.** See Wijmenga, H. G.
**Middendorf, L.** "Postonal" as a base for pills, 6365*g*.
**Middlebrook, G.**, and Dubos, R. J. Speci-

fic serum agglutination of erythrocytes sensitized with exts. of tubercle bacilli, 1103*g*.
**Middlebrook, W. R.** Irreversible combination of $CH_2O$ with proteins, 6257*f*; hydroxylysine and lysine in wool, 9457*c*.
**Middlekauff, W. W.** See Michelbacher, A. E.
**Middleswarth, E. T.** See Roy, R.
**Middlesworth, L. van.** See Van Middlesworth, L.
**Middleton, A. B.** Sintered precious metal products, P 7403*a*.
——, Pfeil, L. B., and Rhodes, E. C. Pure Pt of high recrystn. temp, produced by powder metallurgy, 4197*b*.
**Middleton, H. H.** See Middleton, S.
**Middleton, J. B.** Mixing alkylation reactants, P 1229*c*; alkylation process, P 1230*a*.
**Middleton, S.**, Middleton, H. H., and Toha, J. Adrenergic mechanism of vagal cardiostimulation, 8511*g*.
**Mider, G. B.**, Sherman, C. D., Jr., and Morton, J. J. Effect of Walker carcinoma 256 on the total lipide content of rats, 5488*i*.
**Midgley, A. R.**, and Dunklee, D. E. B for Vermont soils and crops, 3956*a*.
**Midlam, K.** Economy in production—annealing for machinability, 8999*a*
**Mid-States Gummed Paper Co.** Remoistening adhesive compn., P 5982*d*.
**Miduno, S.** See Takayama, Y.
**Midvale Co.** Ferrous alloys and rotor forgings for gas turbines, P 990*i*
**Midwest Rubber Reclaiming Co.** Reclaiming scrap contg. natural rubber and GR-S, P 6458*g*.
**Midwinter, E. L.** Polythene, 437*a*
—— and Richards, R. B. Polythene compns contg. $CaCO_3$, P 1897*g*.
**Mieckeley, A.** Fe-Cr tanning, 6851*f*
**Miedel, H.** Latex and latex concentrates, 6453*c*
**Miedreich, A.** See Richtzenhain, H
**Mielecki, T.** Detg. moisture in peat and brown coal, 6807*h*
**Mielenz, R. C.** See Rhoades, R
**Mielke, K. H.** See Siechtling, H. J
**Miers, J. C.** See Jeanes, A
**Mies, H.** Vorlesungen über Pathologische Physiologie (book), 1859*h*
**Miescher, E.** See Chrétien, M.
**Miescher, K.** Estrogenic hormones, 2300*h*; dotsynolic acids, a class of estrogens, 3085*d*, relation of activity to constitution in the sexogens—dotsynolic acids, 6710*h*; see Anner, G., Billeter, J., Hoffmann, K., Wieland, P.
—— and Anner, G. 1,2-Dialkyl 7-hydroxy-1,2,3,4 - tetrahydro - 2 - phenanthrenecarboxylic acids and their esters, P 3849*g*.
——, Frey, H., Meystre, C., and Wettstein, A. Degradation of the steroid side chain, P 3474*g*.
——, Heer, J., and Billeter, J. R. 1,2-Dialkyl - 7 - hydroxy - 1,2,3,4 - tetrahydro - 2 - phenanthrenecarboxylic acids and their esters, P 3848*f*.
—— and Kägi, H. Steroids (LXXXV) color reaction of 17(α)-hydroxy steroids, 7941*d*.
—— and Klarer, W. Imidazolines, P 6924
—— and Rometsch, R. Sepn. of racemic isomers of natural 7-methylbisdehydro dotsynolic acid, P 5805*a*.
**Miettinen, J. K.** See Virtanen, A. I
—— and Virtanen, A. I. Paper chromatography, 8298*i*.
**Mietzsch, F.** See Domagk, G.
**Migeotte, M. V.** Identifications in the infrared solar spectrum, 939*f*; CO at 4.7 μ in the solar spectrum, 4568*g*.
—— and Chapman, R. M. Atm. $NH_3$, 5308*c*.
**Mighorst, J. C. A.**, Stolte, L. A. M., Roo, P. H. M. de, and Creutzberg, F. Melanophore reaction in *Rana esculenta* as a pregnancy test, 6720*e*.
**Mighton, C. J.** Vinyl sulfone-diene interpolymers, P 7266*g*; see Du Pont de Nemours, E. I., & Co.; Mochel, W. E.
**Migicovsky, B. B.**, and Emslie, A. R. G. Interaction of Ca, P, and vitamin D (III) mode of action of vitamin D using $Ca^{45}$, 8470*g*.
**Migita, N.**, and Kawamura, M. Lignin (II) relation between the conditions of sepg. lignin sulfate and the relative yields of sol. and insol. lignin sulfates, 733*a*.
**Migliaccio, A. V.** See Hager, H. F.
**Migliaro, E.** See Heymans, C.; Mazzella, H.
**Mignolet, J. C. P.** Hg cut-offs for the controlled introduction of gas, 5646*h*.
**Mignon, Mme. H. M.** See Moyse-Mignon, Mme. H.
**Mignon, S.** See Lévy, Max.
**Mignot, J.** See Aschkenasy, A.
**Miguel, E. J.** Alk. blood phosphatase in rachitic Uruguayan children, 4737*g*; see Ramón-Guerra, A. U.
**Miguel Andreu, S.** Electrocardiographic changes produced by acetylcholine and adrenaline—influence of other pharmacol. agents, 1489*c*.
**Miguel Arribas, A. S.** See San Miguel Arribas, A.
**Miguel de la Camara, M. S.** See San Miguel de la Camara, M.
**Mihályi, E.** Lipoproteid from beef liver and spleen, 4723*d*; effect of bile salts on fibrinogen and its clotting, 9096*b*; see Annau, E.; Bagdy, D.; Laki, K.; Zathureczky, Z. v.
—— and Lóránd, L. Clotting of fibrinogen with $CH_2O$ and quinone—interactions between $CH_2O$ and thrombin, 9097*a*.
**Mihaylov.** See Mikhallov.
**Mihelich, J. W.** See Hill, R. D.
**Mihu, V. P.** Absorption of energy of high-frequency currents in ionized H, 480*f*.
**Mika, J.** Plant control by chem. methods, 8944*d*.
——, Macher, F., and Vorsatz, B. Low-tension spark as light source in quant. spectral analysis, 8297*e*.
**Mikajloff.** See Mikhallov.
**Mikeska, L. A.** Phosphorus acid esters of petroleum phenols, P 907*i*; Ca organometallic compds., P 4460*c*; mercaptans, P 4683*d*, glutaric acid, P 4689*g*; lubricating-oil additive, P 5939*i*; lubricant, P 7678*h*, see Irby, L. T.
—— and Arundale, E. 1,3-Diols, P 673*c*
——, Kittleson, A. R., and Smith, W. M. Lubricating compns., P 1175*h*
**Mikhailov, B. M.** Syntheses of polycyclic compds., (XIII) Li-org. compds. of anthracene, 208*g*.
**Mikhailov, I.** Vitaminized ice cream, 7599*i*.
**Mikhailov, I. G.** Velocity and absorption of supersonic waves in some vitreous solids, 158*a*
—— and Gurevich, S. B. Absorption of supersonic waves in liquids, 7765*b*
**Mikhailov, N. V.** Detn. of the fluidity of cementing materials and other bitumens, P[3590*h*, see Kargin, V. A
**Mikhailov, V. V.** Cement, P 6388*i*
**Mikhailova, E. G.** See Fogel'son, E. I
**Mikhailova, L. V.** Metabolism in plants, 5453*c*.
**Mikhal'chenko, V. A.** Vol. change of various forms of silica on treatment with lime soln., 7777*f*.
**Mikhalev, V. A.** See Korolev, A. I
**Mikheev, V. I.** α-, β- and γ-Domeykite, 6116*c*; see Smirnov, S. S.
**Mikhel'son, M. Ya.** Influence of narcotics on cholinesterase activity (IV) comparison of narcotic strengths of narcotics with their hindering activity on cholinesterase activity, 7142*d*; cholinesterases, 7989*f*.
**Mikhlin, D. M.**, and Bronovitskaya, Z. S. Detn. of polyphenoloxidase and peroxidase, 9136*h*.
—— and Kolesnikov, P. A. Respiratory systems of plants, 728*f*.
—— and Pshennova, K. V. Oxidation of amino acids, 6263*g*.
**Mikhnovskaya, A.** See Lavrovskii, K
**Mikkelsen, D. S.** See Toth, S. J.
—— and Toth, S. J. Detn. of the Mg status of plants, 8449*d*.
——, Toth, S. J., and Prince, A. L. Detn. of Mg, 3744*b*.
**Mikkelsen, V. H.** Detn. of small quantities of glycerol, 2895*a*; detn. of glycerol in galenical prepns., 6783*g*
**Mikkelson, S. D.** See Dalgaard-Mikkelson, S.
**Mikkola, T.**, and Wiik, H. B. Petalite, 1691*a*.
**Miklashevskii, A. I.** See Berkman, A. S
—— and Viro, S. E. Nature and measurement of the instability of porcelain mixes, 3581*f*.
**Miklouchine, G. P.** See Miklukhin, G. P.
**Miklukhin, G. P.** Exchange reactions of H isotopes, 7809*f*; see Fomenko, A. S.; Gragerov, I. P.
**Miklyutin, V. N.** Softening of water with natural coal, 5139*h*.
**Mikos, N. N.** See Kiselev, A. V.
**Mikumo, J.**, Kawai, H., and Matsuoka, A. Surface-active compds. (I) properties of Na oleamidoethyl sulfate, (II) properties of Na sulfosuccinic acid dioctyl ester, (III) impregnating properties of surface-active substances, (IV) higher Na anthates, 8710*f*.
**Mikus, F. F.** Improved app. for the distn. of miscible binary liquid systems, 4902*h*.
—— and Poss, F. J. Equil. between $NH_3$ and $H_2Se$, 6053*a*.
**Mikusch, J. D. v.** Thiocyanometry of linoleic and linolenic acids, 2449*c*; empirical SCN value, 7719*e*; viscosity of sand oils, 8700*h*; ALM varnish, 8701*e*.
**Milan, J. W.** See Aull, J. C.
**Milanes, F.** See Spies, T. D.
**Milas, N. A.** Ethers of 5-hydroxy-3-methyl-3-penten-1-yne, P 1793*h*; ethers of vitamin A, P 3152*d*; derivs. of aliphatic terpenes, P 6219*d*.
——, Brown, R. J., and Phillips, O. Synthesis of diethynyl glycols and their condensation with ketones, 3359*c*.
——, Lee, S. W., Sakal, E. H., Wohlers, H. C., MacDonald, N. S., Grossi, F. X., and Wright, H. F. Synthesis of products related to vitamin A (IV) application of the Darzens reaction to β-ionone, 1337*e*.
——, Lee, S. W., Schuerch, C., Jr., Edgerton, R. O., Plati, J. T., Grossi, F. X., Weiss, Z., and Campbell, M. A. Synthesis of products related to vitamin A (V) 1-(2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-3,7 - dimethyl - 10 - alkoxy - 1,3,5,7 - decatetraene, 1338*c*
——, Sakal, E. H., Plati, J. T., Rivers, J. T., Gladding, J. K., Grossi, F. X., Weiss, Z., Campbell, M. A., and Wright, H. F. Synthesis of products related to vitamin A (VI) biologically active vitamin A ethers, 1338*h*.
——, Stahl, L. E., and Dayton, B. B. Reactions of free hydroxyl radicals with org. compds., 6149*h*.
—— and Winnick, C. N. Reaction of HBr with di-*tert*-butyl peroxide, 3345*e*.
**Milazzo, G.** Absorption spectra of heterocyclic compds. (III) ultraviolet absorption of thiophene, 2094*g*, 8274*e*; absorption spectrum of irradiated benzopyrene, 3713*g*, detn. of Au, 3743*i*, 8303*e*; automatic regulator for control of temp. or other properties which can be measured with needle instruments, 6871*i*, oxidizing power and symbol $r_H$, 8245*c*.
**Milbourn, M.** Accuracy in spectrographic analysis, 2539*f*.
—— and Hartley, H. E. R. Spectrographic analysis by spark excitation of metallic oxides, 2540*e*.
**Mildner, J.** See Bodendorf, K.
**Miles, A. A.** Biol. standards, 1451*h*.
**Miles, A. E. W.** End-point of decalcification of histological specimens, 8424*a*.
**Miles, B. J.** See Robinson, A. D.
**Miles, C. B.** See Gorin, E.
**Miles, D. L.** Cleaning bath for Zn and Zn-base alloys prior to electroplating, P 3299*g*.
**Miles, F. D.**, and Smith, D. Auto-siphon meter, 6471*a*.
**Miles, G. D.** Nondusting soap compn., P 1587*a*.
**Miles, G. L.** See Emeléus, H. J.
**Miles, G. W.** See Smith, D. V.
**Miles, H. H. W.** See Finesinger, J. E.
**Miles, H. V.** Purifying insulating oil, 385*a*.
**Miles, I. E.** Exchangeable K in soils, 7172*e*.
**Miles, J.**, and Miles, J., & Partners (London) Ltd. Removal of S from coke or iron ore, P 5574*d*.
**Miles, J., & Partners (London) Ltd.** See Miles, J.
**Miles, J. W.** See Englis, D. T.
**Miles, K. R.** Limestone prospects—Commonwealth land south of Fremantle—sampling Douro Road limestone quarry, 6126*h*.
**Miles, (Sister Mary Carolanne)**, Erickson, E. M., and Mattill, H. A. Tocopherol *vs.* tocopherol acetate as a sparer of vitamin A, 3894*f*.
**Miles, T. K.** Asphalt emulsion for use in ground fixation, P 4828*d*; see Tymstra, S.
**Miles, T. R.** See Stringfield, R. B.
**Miles, W.** Sir Kenelm Digby, 8759*i*.
**Miles Laboratories, Inc.** Fermentation process, P 7638*b*.
**Milhaud, G.** Plasma proteins with thymol, 9093*b*; see Karrer, P.
**Militz, R. O.** See Brophy, J. E.
**Militzer, W.**, and Sallach, J. Metabolism of ether acids, 8484*e*.
**Milla, E.**, and Grumelli, E. Estrogenic sub-

stances and glucide metabolism—action of the disulfuric ester of 4,4'-dihydroxydiethylstilbene on glycemia and the glycemic curve after intravenous and oral glucose, 4378*a*.
**Millar, M. J.** See Noble, R. L.
**Millar, W. T.** Magnetite deposits at Star Lake, St. Lawrence Co., N. Y., 7384*f*.
———, Hammond, H. O., and Sanford, R. S. Red-Back magnetite mine, Sterling Lake, Orange Co., N. Y. 5708*b*.
——— and Sanford, R. S. Suffern graphite deposits, Rockland Co., N. Y., 4609*a*.
**Millard, A.** See Preston, R. D.
**Millard, F.** Laminated textiles and similar materials—detn. of interply adhesion, 8687*a*.
**Millares, R.** See Ruiz Munguia, R.
——— and Davis, S. G. Detn. of tryptophan and lysine in microvols. of protein hydrolyzates, 4338*d*.
——— and Fellers, C. R. Amino acid content of chicken, 1497*e*.
**Millen, D. J.** See Gillespie, R. J.
**Millendorf, A. J.** See Beck, R. A.
**Miller, A. A.**, and Willard, J. E. Exchange reaction between Br and bromotrichloromethane, 4548*d*
**Miller, A. C.** Insecticidal aerosols, 8087*b*.
**Miller, A. D.** Addn of amines to synthetic rubber latex, P 8194*f*.
**Miller, A. E.**, and Deutsch, M. Decay scheme of $Sc^{46}$, 4091*i*.
**Miller, Alvin J.** Low-temp. fractional analysis of liquid hydrocarbons, 8652*h*.
**Miller, Arthur J.**, and Armstrong, G. M. Ammonium diuranate, P 4820*i*.
——— and Fleisher, J. W. Improved blocking layer in Se rectifiers, P 2526*e*.
**Miller, Arthur John.** See Brophy, G. R.
**Miller, A. K.**, Verwey, W. F., and Wilmer, D. L. Repository dosage forms of penicillin, 4770*d*.
**Miller, A. L.** See Weisberg, S. M.
**Miller, A. M.**, and Dorfman, R. I. Metabolism of the steroid hormones—isolation of etiocholane 3(α), 17(α)-diol from human urine, 8043*c*.
**Miller, A. R.** Monolayers adsorbed on metal surfaces, 3263*g*, phase transition in the pure He isotope of mass 3, 4530*e*, Theory of Solns of High Polymers (book), 4554*e*, entropy of diln of a polymer-solvent system, 6888*a*, liquid state at abs. zero and the third law of thermodynamics, 8776*f*; see Jones, H.
**Miller, A. R., Jr.** HCHO from HCHO polymers, P 3026*e*.
**Miller, Arthur R.** See Spilhaus, A. F.
**Miller, A. T., Jr.** See Nichols, J.
**Miller, A. V.** See Korablev, L. N.
**Miller, A. W.** Removing alcohol-sol stains from fabrics, P 4870*c*.
**Miller, B.** Laminar-film hypothesis, 4938*i*.
**Miller, B. L.**, and Wolf, J. M. Acceleration of electrons by cylindrical cavities in $TM_{01n}$ modes, 4094*d*
**Miller, B. S.** Detn. of proteolytic activity of flour and other proteolytic enzyme-contg materials, 9277*i*, see Dirks, B. M.
——— and Kummerow, F. A. Lipase and lipoxidase in baking and the effect of their reaction products on consumer acceptability, 2336*b*.
**Miller, C. D.**, Louis, L., and Yanazawa, K. Vitamin values of foods in Hawaii, 9276*f*
**Miller, C. E.** Fuel situation and its relation to the manuf. of refractories, 2392*a*.
**Miller, C. F.** Printing cellulose esters with direct and acid dyes, P 5199*e*
**Miller, C. J., Jr.**, and Sorenson, B. E. Ketones, P 4494*d*.
**Miller, C. O.** See Prutton, C. F.
**Miller, Charles P.** Mixer and grader of powd. carburizing compds., P 9019*d*.
**Miller, C. Phillip.** Bacterial resistance to antibodies, 1459*b*.
**Miller, C. R.**, and Elson, W. O. Dithiocarbamic acid derivs. (I) relation of chem. structure to antibacterial and antifungal activity against human pathogens, 3883*e*.
**Miller, D. C.**, and Everett, J. W. Ascorbic acid concn. and cholesterol storage in the corpus luteum of the pregnant rat, 8033*d*.
**Miller, D. D.**, and Golding, N. S. Gas requirements of molds (V) min. O requirements for normal growth and the min. O requirements to permit germination of 6 mold cultures, 4332*i*.
**Miller, D. J.** Detn. of quinine, 9369*d*.
**Miller, D. L.** Electromagnetic pump, P 7274*d*.
**Miller, D. R.** See Cunningham, B. B.; Seaborg, G. T.
**Miller, E.** See Barton, D. H. R.
**Miller, Edward.** Fankuchen, I., and Mark, H. Polymerization in the solid state, 6488*b*.
**Miller, E. B.** See Mote, R. H.
**Miller, E. C.** See Price, J. M.
———, Miller, J. A., Sandin, R. B., and Brown, R. K. Carcinogenic activities of certain analogs of 2-acetylaminofluorene in the rat, 9238*e*.
———, Miller, J. A., Sapp, R. W., and Weber, G. M. Protein-bound aminoazo dyes formed from 4-dimethylaminoazobenzene and its C-monomethyl derivs., 8048*a*.
**Miller, E. J.** See Harrison, J. S.
**Miller, Elroy J.** See Neal, A. L.; Shirley, R. L., Waldron, D. R.; Sell, H. M.
**Miller, E. V.**, Winston, J. R., and Cubbedge, R. H. Physiol study of postharvest abscission in Pineapple oranges, 9287*b*
——— and Wolken, J. J. Effect of radioactive phosphorus ($P^{32}$) in the culture medium on growth and viability of *Phomopsis citri* and *Diplodia natalensis*, 5825*b*
**Miller, E. W.**, Arnold, A. P., and Astle, M. J. Polarographic investigation of the pseudo acid properties of nitroparaffins, 2849*f*.
**Miller, F. A.** See Crawford, B. L., Jr., Marvel, C. S.
**Miller, F. D.** Spectrum of comet 1948 *g*, 3711*e*.
**Miller, F. J.** Device for introducing dropwise an alk. soln. into a steam service pipe, P 4408*c*.
**Miller, F. M.** See King, L. C.
**Miller, Franklin R.**, and Turner, D. L. Myelokentric acid and lymphokentric acid in Hodgkins disease, 9233*a*
**Miller, Fred R.** Problems in Physics (book), 7808*d*.
**Miller, F. T.** See Miller, P. L.
**Miller, George.** Oil-base drilling fluid and mixing oil, P 8128*i*.
**Miller, Gerald**, and Batson, H. C. Na azide to control bacterial destruction of Rh agglutinating antibodies, 269*i*.
**Miller, Grant**, and Sweo, B. J. Reactions of enamel and Fe, 2749*b*
**Miller, G. D.** See Seath, D. M.
**Miller, G. H.** Noncorrosive Friedel-Crafts type catalysts, P 5582*i*.
**Miller, G. L.** Metal powders, 79*d*
——— and Murex Ltd. Alloys contg. Mo, and the production of Mo oxide masses, P 7404*g*
**Miller, G. M.** See Huggins, C.
**Miller, H.** See Nathanson, M. H.
———, Farghaly, A.-H., and McIlroy, W. D. Recovery of bio-chem. mutants in luminous bacteria, 7082*a*
**Miller, H. A.**, Russell, H. D., and Crabtree, J. I. Direct-positive processing of the Kodak blue-base reversal films, 8292*i*
**Miller, Henry C.** Unsatd. esters of benzenediacetic acids and their polymers, P 3661*d*, vitamin compns., P 9391*a*, see Gall, J. F.
——— and Pratt, B. C. Reactions of inorg. polyisocyanates and polyisothiocyanates, P 908*a*
**Miller, Herbert C.**, Hamilton, T. R., Wise, G. W., and Wenner, H. A. Effect of normal saline soln., Ringer's lactate soln., and distd. water on the lungs of dogs and rabbits, 5121*f*.
**Miller, H. F.** See Flowers, R. G.
**Miller, H. H.** See Rogers, L. B.
——— and Rogers, L. B. Quinquevalent Mn, 3303*d*
**Miller, H. J.** Slide-germination method of evaluating fungicides including the use of *Venturia inaequalis* and *Phytophthora infestans*, 7176*g*.
**Miller, H. N.** See Magie, R. O.
**Miller, H. S.** Vinyl chloride, P 1433*e*
**Miller, I.**, and Beiser, A. L. Reclaiming plastic scrap, P 6865*b*.
**Miller, I. L.** See Wolfrom, M. L.
**Miller, J.** See Andrews, G. W. S.
——— and Rowley, D. Antibiotic from *Bacillus mesentericus*, 4326*a*
**Miller, James.** See Guarmeri, G. J.
**Miller, Jeanne.** See Knight, A.
**Miller, Jessie.** See Haven, F. L.
**Miller, J. A.** See Miller, E. C.; Mueller, G. C.; Price, J. M.
**Miller, J. G.** See Gordon, Maxwell
**Miller, J. I.** See Witten, B.
**Miller, J. Martin.** See Harger, R. N.
**Miller, Joseph M.** See Klemperer, F. W.
———, Favour, C. B., Wilson, B. A., and Umbarger, M. A. Plasma factor responsible for lysis of leucocytes by tuberculoprotein, 5851*b*, 8044*c*.
**Miller, J. R.** See Willson, R. A.
**Miller, John R.**, Herrick, J. F., Mann, F. C., Grindlay, J. H., and Priestley, J. T. Resistance of explanted gastric mucosa to various chem. and phys. agents, 9101*a*.
**Miller, J. W. H.** Unfired bonded ceramic articles, P 3164*b*.
**Miller, Leonhard.** Temp. effects in the diffusion of real gases, 8773*b*.
**Miller, Lila**, Searle, O. M., and **Sempere**, J. H. Enzymic hydrolysis of soybean protein, 7981*h*.
**Miller, L. A.**, and Burton, H. B. Ascorbic acid value of some extra foods, 3538*b*.
**Miller, L. B.** Process water for the manuf. of alk. pulps, 6410*b*.
**Miller, L. C.** See Ludueña, F. P.
——— and Alexander, E. B. Biologic assay of senna, 9373*h*
**Miller, L. E.**, Neave, A. S., Jr., Szosz, G. E., and Wiedermann, L. H. Succinoylation of 1-acetamido-6-methoxynaphthalene and 1-acetamido-8-methoxynaphthalene, 7011*f*
———, Staley, H. B., and Mann, D. J. Prepn. of phenylmaleic anhydride, 2974*h*.
**Miller, L. L.** Nutritional factors affecting the toxicity of halogenated hydrocarbons, 733*h*, see Cantarow, A.
**Miller, L. R.** Device for introducing dropwise an alk. soln. into a steam service pipe, P 4408*c*
**Miller, L. S.** See Gilman, H.
**Miller, L. W.** Insect pests of tomatoes, 4414*f*
**Miller, M. C.** Elec. instruments for corrosion investigations and cathodic protection, 6092*d*
**Miller, M. E.** See Gelus, E.
**Miller, M. F.** Soil N and org. matter maintenance, 9319*i*
**Miller, M. J.** See Abbott, G. A.
**Miller, N.** Oxidation of ferrous ions in aq. soln. by x- and γ-radiation, 2508*a*
**Miller, N. B.** See Burshtein, R. Kh.
**Miller, N. F.** Phosphorescent pigment, P 2517*i*
**Miller, O. N.** See Olson, R. E.
**Miller, P.** See Thompson, H. L.
**Miller, P. A.** See Mueller, H.
**Miller, P. H., Jr.** See Markham, J. J.
**Miller, P. J.**, and Cuthbertson, J. W. Sn-Zn alloy plating, 7834*d*
**Miller, P. L.**, and Miller, F. T. Drier of textile fabrics, P 2443*d*
**Miller, P. R.** See Clayton, E. E.
——— and O'Brien, M. Warning service in 1948 for blue mold—potato and tomato late blight—cucurbit downy mildew, 27 *c*, *d*
**Miller, R.** See Hi[illegible] W.
**Miller, R. D.**, and Russell, M. B. Pneumatic autodetector for infrared gas analysis, 8210*g*
**Miller, R. F.** See Guilbert, H. R., Robertson, E. I.
**Miller, R. F. E.** Practical Photomicroscopy (book), 28*b*
**Miller, R. L.** Citrus by-products in the feed industry, 8575*c*, see Weissenborn, A. E.
**Miller, R. R.** See Temple, J. W.
**Miller, S.** See Coryell, M. N.
**Miller, Samuel A.**, and Groombridge, W. H. Unsatd. org. compds., P 2220*f*, 6220*b*
**Miller, Shelby A.** Filtration, 1227*h*.
**Miller, S. G.** See Morrison, P. R.; Skinner, J. C.
**Miller, S. P.** Azeotropic distn. of xylene oil with MeOH, P 3454*b*.
**Miller, V.** See Allen, G. L.
**Miller, V. A.** See Lovell, W. G.
**Miller, W. B.** Arc welding Al alloys, P 7405*d*
**Miller, W. C.** See Schillinger, E. J., Jr.
———, Hare, G., Strain, D. C., George, K. P., Stickney, M. E., and Beckman, A. O. Spectrophotometer employing a glass Fery prism, 5310*i*.
——— and Waldman, B. Investigation of bremsstrahlung by means of the nuclear isomerism of In, 4121*f*.
**Miller, W. H.** Chemist and the public, 9*f*.
——— and Roblin, R. O., Jr. Pantoyltauramides, P 3450*c*.
**Miller, W. J.**, and Andrews, J. T. R. Detn. of K in soap and mixed caustic dye, 5976*c*.
**Miller, W. S.** See Knox, W. H., Jr.
**Miller, W. T., Jr.** See Bernstein, J.; Prober, M.
——— and Bernstein, J. Relative reactivities of some substituted benzyl fluorides, 2079*a*.
**Miller, W. W.** See Zwiebel, N.

**Miller, Z.** See Orcutt, J. A.
**Millet, F.** See Pinte, J.
**Millett, H. C.** Manuf. of contact $H_2SO_4$ from arsenical pyrites, 3153*i*; see Dent, F. J.
**Millett, M. A.** See Stamm, A. J.
**Millett, W. E.** Focusing in crossed fields of charged particles at relativistic energies, 1641*b*.
**Milleville, H. P.** Volatile-flavor recovery process, P 3541*a*
**Millidge, A. F.** See Wormell, R. L.
——— and Knight, C. L. Stabilized alk vegetable protein solns., P 3627*c*.
**Millien, A.** See Anglo-Iranian Oil Co. Ltd.; Fawcett, E. W. M.
**Milligan, J. L.,** and Briggs, G. M. Replacement of pantothenic acid by panthenol in chick diets, 8466*d*.
**Milligan, W. B.** See Brooks, F. R.
**Milligan, W. O.,** and Rachford, H. H., Jr. Sorption-desorption hysteresis characteristics of the system $SiO_2$-$H_2O$ below the bulk f. p. of water, 1237*f*.
———, Rachford, H. H., Jr., and Watt, L. M. In orthovanadate, 4079*b*.
———, Watt, L. M., and Rachford, H. H., Jr. X-ray diffraction study of heavy metal orthovanadates, 6033*a*.
**Millikan, R. A.** Atom-annihilation hypothesis, 3701*e*; at. energy—its release, utilization, and control, 7319*b*.
**Milliken, T. H., Jr.** Cleaning zirconia gel production equipment, P 1162*c*.
——— and Mills, G. A. $SiO_2$-$ZrO_2$ catalysts, P 8665*c*.
——— and Welinsky, I. H. Catalysts, P 3160*i*
**Millington, R. H.** See Wemhouse, S
**Millis, K. D.** See Gagnebin, A. P.
**Millis, N.** See Skerman, V. B. D.
**Millman, G. H.,** and Raymond, R. C. Absorption of microwaves in gases, 6022*c*.
**Millner, T.** Chem. bonds interpreted by means of quantum mechanics, 5763*i*.
——— and Neugebauer, J. Volatility of the oxides of W and Mo in the presence of water vapor, 5707*i*.
**Millosevich, F.** Pozzuolanic tuffs of the Aniene valley, 2135*g*
**Millot, F.** See Jacqué, L.
**Millot, G.** Secondary sedimentation clays, 3162*i*.
**Mills, C. L., Jr.** See Mowry, D. J.
**Mills, E. W.** See British Insulated Callender's Cables Ltd.
**Mills, G. A.** Supported Na catalyst, P 1932*c*; activating kaolin clay for catalysts, P 8129*h*, catalytic conversion of hydrocarbons, P 9428*g*; see Milliken, T. H., Jr., Shabaker, H. A.
**Mills, G. B.** Biochem study of *Pseudomonas prunicola* (I) pectin esterase, 9153*a*.
**Mills, G. T.** β-Glucuronidase activity of ox spleen and the assay of β-glucuronidase preprns., 2255*b*.
**Mills, I. W.** See Lipkin, M. R.
**Mills, J.** Diphenylacetonitrile, P 6660*b*.
———, Rohrmann, E., Dunwiddie, W. G., and Lee, H. M. Antihistaminic agents derived from diphenylmethane, 7134*h*
**Mills, J. A.** See Gillespie, D. T. C.; Human, J. P. E.
**Mills, J. H.** Deodorant aerosols, 8087*b*.
**Mills, M. B.,** Damron, C. M., and Roe, J. H. Ascorbic acid, dehydroascorbic acid, and diketogulonic acid, 6328*a*.
**Mills, V.** Fatty acids, P 2003*g*; hydrolysis of fats, P 5612*f*, concn. glycerol, P 5612*h*.
——— and McClain, H. K. Fat hydrolysis, 9487*d*.
**Mills, W. G. B.** Factory hazards in the paint or allied industries, 3210*e*; what is the future of marine finishes? 8695*g*.
**Millson, H. E.** Wool dyeing—effect of metals on tippy dyeing, 5953*b*.
——— and Mooradian, S. Dyeing animal fibers with metallized dyes, P 9472*a*.
**Milnar, B. A.** Utilizing citrus and pineapple products in resin compns., P 9526*i*.
**Milne, A. A.** See Barwell, F. T.
**Milne, I. H.** Chloritoid from Megantic Co., Quebec, 8987*f*.
**Milner, C. J.,** and Watts, B. N. PbSe photoconductive cells, 4962*c*.
**Milner, D. W.** See Yorkshire Tar Distillers Ltd.
**Milner, F. H.** See McGeorge, W.
**Milner, H. W.** Fatty acids of *Chlorella*, 2679*c*; see Spoehr, H. A.
**Milner, M.,** and Geddes, W. F. Grain storage (IV) biol. and chem. factors involved in the spontaneous heating of soybeans, 2334*i*.
**Milnes, A.** Effect of condensate and air on output, quality, and steam consumption of paper machine driers, 7084*g*.
**Milnes, B.** See Bensley, E. H.
**Milnor, J. P.** See Ray, C. T.
**Milobedzki, T.,** and Makulec, M. Oxidation of white P with moist air, 8930*b*.
**Milone, C. R.** Allyl and substituted allyl esters of allyl carbonate derivs. of aliphatic hydroxy acids and their polymers, P 3152*d*, β-cyano vinylacetic acid esters, P 6651*c*.
**Milosavliévitch, D. M.** See Milosavljević, D. M.
**Milosavljević, D. M.** Equation of state of matter, 2055*h*
**Milovanova, N. V.** See Stromberg, A. G.
**Milovidov, P.** Polyploidy in *Crepis capillaris* caused by colchicine, 3889*d*, fluence of yperite and lewisite on the plant cell, 8013*f*
**Milovidova, M. K.** See Podrabinik, G. M.
**Milovidova, N. V.** See Tulicheev, M. D.
**Milowanowa, N.** See Milovanova, N. V.
**Milowiz, L.** See Ziegler, E.
**Milprint, Inc.** Plastic-coated paper blackboard, P 1612*b*, thermoplastic coating compn., P 2037*b*
**Milsom, D.,** Jacoby, W. R., and Rescorla, A. R. Analysis of gaseous hydrocarbons combining infrared and mass spectra, 6105*a*.
**Milt, C. de.** See De Milt, C.
**Miltenburg, J.** See Lever, J.
**Milton, R.,** and Wiesner, B. P. Reducing substances in cervical mucus, 5476*e*.
**Milton, R. F.** Estn. of F, 3744*e*
——— and Waters, W. A. Methods of Quant. Micro-Analysis (book), 3748*e*.
**Milyaeva, N. A.** See Raf, S. Ya.
**Milyutina, L.** Sour cream production, 9280*e*.
**Mina, V. N.** $CO_2$ in the atm. of forest soils, 5141*f*.
**Minačev, Ch. M.** See Minachev, Kh. M.
**Minachev, Kh. M.** See Rubinshtein, A. M.
**Minaev, P. F.** See Babskii, E. B.
**Minajew, P. F.** See Minaev, P. F.
**Minakami, S.** See Matsuda, T.
**Minakata, T.** See Sugimoto, S.
**Minakawa, O.** Construction of Geiger-Muller counters (I), (II), (III), 5288*f*, discharge process in Geiger-Muller counters (I), (II), (III), (IV) after-effect of counter discharge, (V) pulse size and counting characteristics, (VI) timer interval of the after-discharge, (VII) development of a discharge, (VIII) extinction of a discharge, (IX) dead time, (X) variation of characteristics with different gases, 5289*b*.
**Minangoy, R.** See Aumeras, M.
**Minarcik, E. J.** See Jaffee, R. I.
**Minard, F. N.,** and Fox, S. W. Antipodes (VI) synthesis of some derivs. of enantiomorphs of valine, 5743*e*.
**Minari, T.** Mixed ketones, P 7037*f*.
**Minato, H.** Scorodite group, 6513*i*.
——— and Takano, Y. Hydrozincite from Sennodani, Nakatatsu Mine, Fukui Prefecture, Japan, 6543*h*
**Minatoya, S.,** and Furukawa, T. Properties of the $CHCl_3$ ext. of reclaimed rubber (II) analytical study, 3226*f*
——— and Sugino, K. Vulcanization by *m*-dinitrobenzene (III) optimum compounding and vulcanization conditions and the properties of the vulcanizates, 2023*a*; retarding aging of vulcanized rubber by using nitro compds. and peroxides (V) effect of inorg. ingredients, (VI) effect of simultaneous use of stabilizer of *m*-dinitrobenzene, 3226*d*; (VII) effect of purity of *m*-dinitrobenzene, 8193*d*.
**Minc, S.** Influence of ultraviolet irradiation on nitrocellulose sols in acetone, 2427*f*.
**Mincher, E. L.** See Safford, M. M.
**Minchilli, M.** Doebner reaction with glyoxal (XV), 5025*g*.
**Minchin, L. T.** Long-distance distribution of gas in the Netherlands and Belgium, 4445*e*, coke ovens at Kiel, 6809*f*; flat flames and flat jets—their application to burners for town gas and hydrocarbon gases, 8645*i*.
**Mincieli, V. J.** Metal-spraying plaster of Paris articles, P 5168*f*.
**Minck, A.** See Minck, R.; Tulasne, R.
**Minck, R.** See Tulasne, R.
——— and Minck, A. Constitution of diphtheria bacillus—nuclear app. and metachromatic granulations, 6277*d*.
**Mindalev, L. A.** Laws of existence of isotopes, 1648*d*.
**Mindell, F. M.,** Agnew, A. L., and Caldwell, M. L. Action of pancreatic amylase—hydrolysis of waxy maize starch, 5811*c*.
**Minder, W.** Design of a biol. clarifier, P 7614*h*.
**Mindler, A. B.** Operation of ion-exchange beds, P 6448*d*; see Beohuet, H. L.
**Mindt, H.** See Klemm, W.
**Mine, M.** See Sawai, Ikutaro
**Miner, C. S.** Science *vs.* starvation, 4525*g*
**Miner, C. S., Jr.,** and Weil, C. M. Application of spectrophotometric methods to the detn. of glycerol color, 5974*i*.
**Miner, M. L.** See Harris, J. R.
**Minerals Beneficiation, Inc.** Three-product heavy-media sepn. process for beneficiation of ores, P 5726*c*.
**Minerals and Metals Corp.** Metals, P 1708*h*.
——— and Stevens, A. H. Fe and steel products, P 554*g*.
**Minerals Separation North American Corp.** Concn. of phosphate minerals, P 3160*bd*, 3986*a*, concn. of nonsulfide, nonsilicate ores with $HNO_3$-treated fatty acids, P 3768*f*, concn. of nonsulfide ores, P 5725*d*
**Minett, F. C.** Pathogenesis of blackquarter (II) influence of nutrition and muscular exercise, (III) effect of chilling agencies, 3072*e*.
**Mingo, M. de.** See Fernández, O.
**Mingoia, Q.** *p*-Aminobenzoic acid, 4812*f*.
——— and Taglianetti, M. J. Prepn. of *p*-aminosalicylic acid, 606*h*.
**Minich, A.,** and Goll, M. Cu naphthenate as a wood-preserving chem., 2731*f*.
——— and Nowak, M. Long-chain amine salts as fungicides and bactericides, P 6357*g*.
**Minieri, P. P.** See Ritter, J. J.
**Mining Process and Patent Co.** Gravity settling app., P 3250*g*
**Minjat, B.** See Pichat, P.
**Minkh, A. A.** Detn. of food quality, 5129*c*.
**Minkoff, G.** See Distillers Co., Ltd.
**Minkoff, G. J.** Radical $HO_2$ in the gas phase, 5246*g*; see Bunton, C. A.; Everett, A. J.
**Minkowski, R.** Emission nebulae (III), 1651*h*.
**Minkus, A. J.** Operation of the slow-sand filter plant of the metropolitan district, Hartford, Conn., 335*h*
**Minlon, H.** See Huang-Minlon.
**Minne, J. L. van der.** Lubricating-oil compn., P 6405*d*.
**Minneapolis-Honeywell Regulator Co.** Coating of lenses, prisms, etc., to reduce Fresnel reflection, P 1165*a*; soldering to a Ni alloy coil, P 5732*a*.
**Minnear, F. L.** Thermoset laminated sheet products, 1209*e*.
**Minnesota Mining & Manufg. Co.** Fe oxide pigments, P 1994*d*, sol. and infusible synthetic resins, P 2031*b*; pressure-sensitive adhesive sheet, P 3240*c*, 8741*c*; fluorocarbons, P 3834*g*, 3844*b*; glass beads, P 4440*cd*.
**Minnesota and Ontario Paper Co.** Refining sulfate turpentine, P 2774*i*.
**Minnhagen, L.** See Bøggild, J. K.
**Minnick, L. J.** Hydrated lime product, P 1929*g*; fly ash and boiler slag uses, 2911*c*.
**Miñón, J. L. R.** See Rodríguez Miñón, J. L.
**Minor, H. B.** See Walters, E. L.
**Minor, J. E.,** and Lingafelter, E. C. Long spacings of some soap hemihydrates, 5253*i*.
**Minor, J. T.,** Hawkins, G. F., Vander Werf, C. A., and Roe, A. Synthesis of 2- and 6-fluoronicotinamides, 4266*i*.
**Minot, A. S.,** Frank, H., and Dziewiatkowski, D. D. Occurrence of pentose- and P-contg. complexes in the urine of patients with progressive muscular dystrophy, 8518*h*.
**Minsk, L. M.,** and Kenyon, W. O. Water-sol. polyacrylamide, P 5793*b*.
**Minsky, I.** See Kaye, I. A.
**Minssieux, J.** Induction furnaces in the foundry of various metals and alloys, 1268*f*.
**Minster, J. T.** Detn. of Si in Ni alloys, 2892*a*.
**Minter, H. F.** Resins and conductors insulated therewith, P 3656*c*.
**Mintz, T. L.** Detn. of intracryst. liquation, 489*h*.
**Mintz, B.** Testosterone propionate min. for induction of male development in anurans—comparative data from other vertebrates 1492*c*.

**Minué, F. R.** See Royo Minué, F.
**Minz, B.** Reaction of effector cells to chem. transmitters, 261*g*; Transmission chimique de l'influx nerveux (book), 7568*b*.
——— and Thibault, O. Diphasic action of adrenaline on intestine pretreated with thyroxine—thyroxine and adrenochrome, 5494*e*; action of adrenochrome and cocarboxylase on the tone of thyroxine-treated intestine, 7578*g*.
**Miolati, A.** Glyoxal, formaldehyde, and the aldehydic function, 6150*g*.
**Miquel, J. A. S.** See Salvá Miquel J. A.
**Mir, J.** Same as Mir Amorós, J.
**Miraglia, A.** See Ajello, T.
**Mir Amorós, J.** Br from K salts, 1920*h*.
**Miranda, F. de P.** See Guzman G., J.
**Miranda C., J. E.** Phytochem. study of *Cestrum hediondinum*, 2279*h*.
**Mirčev, A.** Afining ability of raw sugars, 4499*h*.
**Mirchandani, P.** See Jain, B. C.
**Mirchandani, T. J.**, and Dabadghao, P. M. Fodder value of *Setaria palmaefolia*, 7159*b*.
**Mirel, S. L.**, Kouba, D. L., and Becker, W. W. Detn. of small amts. of benzene in $Et_2O$, 2123*e*.
**Mirev, D.** Desulfurization in Fe metallurgy, 8326*b*; reduction of $H_2SO_4$ by S and use of this reaction for prepn. of pure $SO_2$, 9393*a*; soly. of $Mg(HCO_3)_2$ in presence of $Na_2CO_3$ in relation to extn. of basic Mg carbonate, 9394*c*.
**Mirick, G. S.** See Leftwich, W. B.; Ratnoff, O. D.
——— and Leftwich, W. B. Effect of diet on the susceptibility of the mouse to pneumonia virus of mice (II) influence of pyridoxine administered in the period before as well as after the inoculation of virus, 3080*d*.
**Mirimanoff, A.** See Bolle, A.; Bouchardy, M.; Haller, H.; Sieffert, L.
**Mirimanyan, Kh. P.** "Light colored" soils of Dokuchaev, 795*h*.
**Mirimanyan, V. A.** Physiol. action of 1-naphthylacetic acid on the lemon plant, 7093*c*.
**Mirolyubov, V. N.** Khot'kov tripoli for making hollow blocks, 6383*c*.
**Mirolyubova, E. V.** See Polyboyarinov, D. N.
**Miron, S.**, and Richter, G. H. Sulfonation of 2-pentene by chlorosulfonic acid, 3352*i*.
**Mironov, A. T.** See Begirov, I. T.
**Miropol'skaya, G. L.** See Miropol'skiĭ, L. M.
**Miropol'skiĭ, L. M.** Upper Kasanian (Permian) sediments of Tataria, 3752*c*; Ufa sediments of Tataria, 6954*c*.
——— and Cerasimova, E. T. Fluorite in the Lower Artinsk layers of Tataria and Chuvashiya, 7381*c*.
——— and Miropol'skaya, G. L. Iron ore concns. in Motmos-Doschatoe on River Oka, Gorkov Dist., 4189*d*.
———, Timergazin, K. R., Solontsov, L. F., Kovyazin, N. M., and Kiligina, M. L. Devonian oölitic iron ores in Western Bashkiria and Eastern Tataria, 6951*h*.
**Miró - Quesada - Cantuarias, O.** Cancer (III) changes of the adrenal cortex in chem. carcinogenesis, 8042*h*.
**Mirov, N. T.** Terpenes in relation to the biology of the genus *Pinus*, 726*i*.
——— and Haagen-Smit, A. J. Compn. of gum turpentine of knobcone pine, 8703*i*.
———, Haagen-Smit, A. J., and Thurlow, J. Compn. of gum turpentine of *Pinus lambertiana*, 9383*e*.
———, Wang, T. H., and Haagen-Smit, A. J. Compn. of gum turpentines of *Pinus strobus*, *P. cembra*, *P. taeda*, *P. radiata*, and *P. virginiana*, 8703*h*.
**Mirrlees Watson Co. Ltd.** Clarification and sedimentation app., P 6011*a*.
**Mirski, A. S.** See Swiatopolk Mirski, A.
**Mirsky, A. E.** See Daly, M. M.; Ris, Hans.
——— and Ris, H. Components of chromosomes, 7522*g*.
**Mirsky, I. A.** See Broh-Kahn, R. H.
———, Broh-Kahn, R. H., Perisutti, G., and Brand, J. Inactivation of insulin by tissue exts. (I) distribution and properties of insulin inactivating exts., 6252*f*.
**Misani, F.** See Chargaff, E.
**Miščenko, K. P.** See Mishchenko, K. P.
**Misch, P.** Metasomatic granitization of batholithic dimensions (I), 4985*a*; (II) static granitization in Sheku area, China, 6548*i*.
**Misch, R. D.**, Waber, J. T., and McDonald, H. J. Bibliographic Survey of Corrosion (book), 4998*c*.
**Mischer, R.** See Wallbaum, H. J.
**Mischtschenko, K. P.** See Mishchenko, K. P.
**Miserocchi, S.** See Randi, G.
**Mishchenko, K. P.** See Baron, N. M.; Volova, E. D.
**Mishima, A.** See Kodama, S.
**Mishkin, E. A.** See Myshkin, E. A.
**Mishler, D. H.**, Carrick, C. W., and Hauge, S. M. Methionine, choline, betaine, and fish products in simplified ration, 8405*d*.
**Mishustin, E. N.** C nutrition of *Urobacillus*, 8445*g*.
———, Kretovich, V. L., and Bundel, A. A. Fermentation test as a diagnostic method for toxic hibernated grain, 1117*d*.
——— and Prokoshev, V. N. Changes in soil microflora resulting from prolonged use of fertilizers, 6350*b*.
**Mishustin, I. U.** Increasing the stability of rubber soles to thermal aging, 6854*d*; innovations in the manuf. of rubber parts for shoe bottoms, 6854*f*.
——— and Kovrigina, G. I. Pencils for the control of temps. of equipment in rubber factories, 6853*h*.
**Miskel, J. J.** See Dombrow, B. A.; Richter, Richard.
——— and Dombrow, B. A. Sepn. of capryl alc. from methyl hexyl ketone, P 1793*f*.
**Miskella, W. J.** Dryer for granular materials, P 7274*f*.
**Miskidzh'yan, S. P.**, and Trifonov, N. A. Physicochem. analysis of the system AcOH–$HNO_3$ (II) surface tension and refraction of the system, 922*i*; (III) elec cond., 923*c*.
**Miskijian, S. P.** See Miskidzh'yan, S. P.
**Misra, C. V.** See Fox, C. S.
**Misra, G. S.** See Hey, D. H.
**Misra, M. L.**, and Henry, E. C. Indian clays, 5559*f*.
——— and Hummel, F. A. Properties of Indian clays and Indian whiteware bodies, 6798*i*.
**Misra, U. C.**, and Patwardhan, V. N. Nutritive value of hydrogenated vegetable oils—digestibility of ground-nut oil hydrogenated to different degrees of hardness, 3073*a*.
**Misra, V. S.** See Sen, A. B.
**Misrahy, G.** See Anrep, G. V.
**Missenard, A.** Kinetics of soln. phenomena, 4726*b*.
**Missiroli, M.** See Antoniani, C.
**Mississippi Valley Research Laboratories, Inc.** Plasticizable org. compds. plasticized with an alkoxyalkyl ether of a halonitrophenol, P 1062*d*, 5421*e*.
**Mist, S. H.** See Ungar, G.
**Mistarz, J. E.** Washing app. for brewer's pitching yeast, P 3560*b*.
**Mistchenko, K. P.** See Mishchenko, K. P.
**Mistretta, V. F.** See Mottern, H. O.; Schneider, H. G.
**Mistry, S. P.** See Gajjar, I. M.; Rao, M. R. R.
**Misutsch, K.** See Mizuch, K. G.
**Mita, S.** See Nishimura, H.
**Mitasov, V. I.** See Berezhnoĭ, A. S.
**Mitchell, A. C. G.** See Brolley, J. E., Jr.; Kern, B. D.; Peacock, C. L.
——— and Peacock, C. L. $Cs^{137}$ disintegration scheme, 3707*h*.
**Mitchell, A. D.** Brit. Chem. Nomenclature (book), 2502*d*.
**Mitchell, A. E.**, Hammer, C. L., and Toenjes, W. Effect of 2-methyl-4-chlorophenoxyacetic acid in preventing preharvest drop of apples, 8086*a*.
**Mitchell, A. G.** See Cossor, A. C., Ltd.
**Mitchell, A. W.** See Meyer, Helena M.
**Mitchell, B. W.** See Goodacre, C. L.
**Mitchell, D. F.**, and Shafer, W. G. Effects of caries-producing diets initiated at various stages of pre- and postnatal development of the hamster, 9187*i*.
**Mitchell, D. G.** See Hanlon, M. E.
**Mitchell, D. W.** Heat contents and heat of formation of Mg nitride—high-temp. measurements, 8830*h*.
**Mitchell, G. G.** See Lippay, F.
**Mitchell, G. L., Jr.** See Papageorge, E.
**Mitchell, H. H.** Adult growth in man and its nutrient requirements, 7562*e*; see Bricker, M. L.; Mukherjee, R.
———, Hamilton, T. S., and Haines, W. T. Dermal excretion under controlled environmental conditions of N and minerals in human subjects—Ca and Fe, 4739*e*.
**Mitchell, H. K.** See Houlahan, M. B.; Nyc, J. F.
——— and Lein, J. *Neurospora* mutant deficient in the enzymic synthesis of tryptophan, 270*d*.
———, Nyc, J. F., and Owen, R. D. Utilization by the rat of 3-hydroxyanthranilic acid as a substitute for nicotinamide, 202*a*.
**Mitchell, H. L.** Detn. of carotene in sweet potatoes, 4395*e*.
——— and Parrish, D. B. Detn. of carotene in silage, 3946*e*.
———, Schrenk, W. G., and King, H. H. Prepn. and storage of carotene concentrates, 3971*h*.
**Mitchell, H. S.**, Kay, L. E., Hartanov, A. S., and Ramsbottom, J. M. Protective coating for fresh frozen meats, P 3540*f*.
**Mitchell, J.**, and Gollmar, A. Gas purification, P 380*c*, 4450*c*.
**Mitchell, J., Jr.** Microscopic identification of org. compds., 6105*d*; see Kitson, R. E.
——— and Smith, D. M. Aquametry (book), 522*g*.
**Mitchell, J. A.** See Morton, G. A.
**Mitchell, J. E.**, Burris, R. H., and Riker, A. J. Inhibition of respiration in plant tissues by callus-stimulating substances and related chemicals, 5456*i*.
**Mitchell, Joseph E.** Org. sulfonates, P 9496*i*.
**Mitchell, J. H.** See Cooper, H. P.
———, Van Blaricom, L. O., and Roderick, D. B. Effect of canning and freezing on the carotenoids and ascorbic acid of peaches, 3535*h*.
**Mitchell, J. H., Jr.**, Hutchison, O. S., Skipper, H. E., and Bryan, C. E. Carbamates in the chemotherapy of leukemia (VII) catabolism of urethan in normal and neoplastic mice, 9251*b*.
**Mitchell, J. J.**, and Coleman, F. F. Hydrocarbon-ion appearance potentials, 3288*d*.
**Mitchell, J. M.**, Spolsky, R., and Williams, H. L. Alternative activators in 41°F polymerization recipes, 8727*e*.
——— and Williams, H. L. Low-ratio butadiene-styrene copolymers, 6856*e*.
**Mitchell, J. W.** Sensitivity of AgBr grains, 1669*f*.
**Mitchell, John W.** See Linder, P. J.; Marth, P. C.
———, Ezell, B. D., and Wilcox, M. S. Effect of *p*-chlorophenoxyacetic acid on the vitamin-C content of snap beans following harvest, 3962*e*.
———, Wirwille, J. W., and Weil, L. Plant growth-regulating properties of some neotinium compds., 9123*d*.
**Mitchell, K. A.** See Little, A.
**Mitchell, L.** See Gardner, J. A. F.
**Mitchell, N.** See Gitman, L.
**Mitchell, P. E.** Bermuda's unique water system, 6341*e*.
**Mitchell, R. L.** Spectrographic Analysis of Soils, Plants, and Related Materials (book), 1136*i*; see Tošić, J.
——— and Scott, R. O. Applications of chem. concn. by org. reagents to spectrographic analysis, 2541*e*.
**Mitchell, R. W.**; and Cleveland, F. F. Raman spectrum of hexamethylethane, 4094*b*.
**Mitchell, S.** See Bensley, E. H.
**Mitchell, T. F.** See Hussey, S. J.
**Mitchell, W.** Oil of *Melaleuca bracteata* from Kenya, 3560*g*; glacial AcOH—odorous impurities, 6364*b*; see Deane, H.
———, Tresarden, F. H., and Wood, S. A. Analysis of pyrethrum flowers, 2894*a*.
**Mitchell, W. A.** See Bell, A. P.
**Mitchell, W. B.** Tyrothricin, P 4342*g*.
**Mitchener, A. V.** Chlorinated camphene, chlordan, DDT, and Cu arsenate compared for control of the Colorado potato beetle, 5897*e*.
**Mithal, B. M.** See Basu, N. K.
**Mithel, B. B.** See Dhingra, D. R.
**Mitkalev, B. A.** See Butkov, N. A.
**Mit'kevich, G. P.** Syneresis of foams, 456*b*; foaming properties and the dimensions of the bubbles, 456*c*; Duboscq colorimeter for use in nephelometry, 3665*h*.
**Mitolo, M.** Mitolo's reaction for proteins, 5073*f*.
**Mitra, B. N.**, and Ram, R. $NH_4NO_3$ suitable for Amatol production, 6417*b*.
**Mitra, S. K.** See Das, B. M.
**Mitra, S. N.**, Saha, H. L., and Bhar, A. Effect of milling on the nutritive value of rice, 7595*b*.
**Mitra, S. S.** See Chatterjee, A.
**Mitrofanov, P. P.**, and Severin, S. E. Textbook of Phys. and Colloid Chemistry (book), 5276*i*.

**Mitrofanov, S. I.** Testing nonferrous and rare metal ores for their capacity to concentrate in heavy suspensions, 1294*d*; flotation of sphalerite, P 9018*c*.
**Mitrofanova, E. V.** See Petrov, A. D.
**Mitsche, R.** Systematics of alloys, 2149*h*; fixed fuels, 8637*g*; see Krainer, H.
**Mitscherlich, E. A.** $P_2O_5$ and K absorption of plants, 3492*d*; size of plots in field expts., 4408*g*.
**Mitselovskii, E. S.** See Shemyakin, F. M.
**Mitsengendler, S. P.** See Ushakov, S. N.
**Mitsubishi Chemical Industrial Co.** Cl gas from sea water, P 5317*g*; caustic soda from sea water, P 5317*i*, 6926*c*; magnesia cement, P 5568*h*; water softening, P 6770*c*; alkylated aromatic amines from alkylanilines, P 7041*h*; alkylated aromatic amines from aniline and alcs. of the aliphatic series, P 7041*h*; resin from polyvinyl butyral, P 7262*i*.
**Mitsubishi Cotton Industries Co.** Purification of $NiSO_4$, P 6376*f*.
**Mitsubishi Heavy Industry Co.** Oil removal from boiler feed waters, P 7170*d*.
**Mitsubishi Industrial Co.** Ti removal from Ta, P 6965*e*.
**Mitsubishi Jukogyo K. K.** Same as Mitsubishi Heavy Industry Co.
**Mitsubishi Kaseikogyo K. K.** Same as Mitsubishi Chemical Industrial Co.
**Mitsubishi Kogyo K. K.** Same as Mitsubishi Industrial Co
**Mitsui Chemical Industrial Co.** Alkyl polyethyleneglycol ethers, P 3839*d*; monoacetyl-*p*-phenylenediamine, P 3845*i*; treatment for weathered mica, P 5556*h*; recovery of $SO_3$ by Zn compds., P 6797*b*, benzanthrone vat dyes, P 7236*b*.
**Mitsui Kagaku Kogyo K. K.** Same as Mitsui Chemical Industrial Co.
**Mitsui Kozan K. K.** Same as Mitsui Mining Co.
**Mitsui Mining Co.** Diazonium salts, P 5420*d*, ZnS for rubber compounding, P 6859*a*.
**Mittasch, A.** Chemie zur Philosophie (book), 7808*e*.
**Mittelman, L.** Water compatibility of SAE cooperative grease samples, 5936*g*.
**Mittelman, N.** See Trucco, R. E.
**Mittelmann, R.** See Harkins, W. D.; Martin, A. J. P.
**Mitten, R. G.**, and Hyde, G. R. Measurement of water penetration through light leathers—static and dynamic methods, 8721*c*.
**Mitter, M. C.**, and Dutta, P. C. Synthesis of alicyclic systems related to steroids (I), 2585*i*.
**Mitter, R. P.**, and Rajagopalan, K. S. Tribasic acid character of H mica, 7302*f*.
**Mitter, S. K.** Same as Mitra, S. K.
**Mitton, H. E.** See Wheat, J. A.
**Mitton, R. G.** Phys. properties of leather (III) heavy leather, 1203*h*, microscopic assessments and the rates of abrasion of sole leathers, 1592*b*, see Hall, R. H.
——, *et al.* Phys. testing of leather, 4503*f*.
**Mitts, M. L.** See Hanning, F.
**Mitulski, J. D.** See Banks, C. K
**Mitz, M.** See Axelrod, A. E.
**Mitzenguendlere, S. P.** See Mitsengendler, S. P.
**Miura, Yoshiaka.** See Shibata, S
**Miura, Yoshie.** See Iryo, M
**Miwa, M.**, and Watanabe, Y. Structure of Ag sulfide and Ag-As alloy grown on Ag crystals, 4071*d*.
**Miwa, T.** Vinyl chloride, P 3835*b*.
**Mixner, J. P.** See Johnston, J. E.
—— and Johnston, J. E. Adaptation of a standard curve to the turbidometric method of assay of hyaluronidase in bull semen, 8423*a*.
**Mya, T. S.**, and Holck, H. G. O. Effect of the rate of injection of digitalis upon its lethal dose in guinea pigs, 8552*c*.
**Miyagawa, I.** See Kimijima, Takeo.
**Miyagawa, T.** Cu and Hg from the mixt. of their sulfides, P 6964*g*.
**Miyaji, K.** Nutrient from waste vegetables, P 6834*f*.
**Miyake, I.** See Isobe, H.
**Miyake, K.** See Shibata, Katsutaro.
**Miyake, S.** Effect of external stress on x-ray intensity reflected from Rochelle salt crystals, 6880*b*; structure of Rochelle salt and x-ray reflection, 7771*i*; see Kubo, M.
—— and Kubo, M. Electron-diffraction study on behaviors of metals deposited on crystal surfaces (I) on galena, (II) diffusion phenomena of metal atoms on galena, 6483*e*.
—— and Ueda, R. Phase transformation of $BaTiO_3$, 8832*h*.
**Miyake, Y.**, and Abe, T. Foaming of sea water (I), 2050*h*.
—— and Koizumi, M. Viscosity coeff. of sea water, 2050*h*.
—— and Sugiura, Y. Chem. compns. of the eruptives of volcanoes in New Britain, Pacific Ocean, 8992*e*.
**Miyama, S.** See Kimijima, Takuzo.
**Miyamoto, M.** See Tatsuoka, S
**Miyamoto, T.** Function of the spleen on lactic acid metabolism, 5844*b*.
**Miyasaka, T.** Reinforcing effect of domestic C black (I), 3225*a*.
**Miyauchi, D. T.** See Sanford, F. B.
**Miyazawa, K.** See Sanada, Y.
**Miyazima, T.** Interaction between elementary particles, 7809*i*.
**Miyoshi, S.**, and Sayama, S. Soybean protein glue (VI) change of cystine in prepd. glues, 1604*f*
—— and Takai, K Soybean protein glue (I) denaturation of soybean protein by methanol, 1604*a*; (II) treatment of oil-free flakes of soybean by ethanol contg. org. acid, (III) adhesive power of protein prepd. from oil-free flakes of soybean produced by using various reagents in extg. oil, 1604*b*.
**Miyoshi Chemical Industries Co.** Higher alcs., P 7951*h*.
**Mizetskaya, I. B.** Detn. of small quantities of Pb, 6939*b*; see Tananaev, I. V.
**Mizokami, K.** See Baba, M.
**Mizouč, K. G.** See Mizuch, K. G.
**Mizuch, K. G.** Alkylation of organo-Mg compds., 3819*b*.
**Mizukami, K.** Reducing of metal salt, P 6794*i*
**Mizuma, M.** See Ide, K.
**Mizuno, H.** See Sahashi, Y.
**Mizuno, K.** Evaluation of the particle size of Japanese C blacks for rubber compounding, 1599*i*, see Yamada, Tetsuzo
**Mizuno, M.** Adsorbent, P 6762*e*.
**Mizushima, H.** See Kambara, S.
**Mizushima, S.** See Nakamura, Shizuo; Shimanouchi, T.
——, Morino, Y., and Shimanouchi, T. Product rule for rotational isomers, 8872*i*.
——, Morino, Y., Watanabe, I., and Shimanouchi, T. Energy difference between the rotational isomers of 1,2-dichloroethane, 8872*g*
——, Morino, Y., Watanabe, I., Shimanouchi, T., and Yamaguchi, S. Raman effect, infrared absorption, dielec. const., and electron diffraction in relation to internal rotation, 8880*d*.
——, Ono, H., and Sakura, T. Isomerization of hexane by the Raman effect, 2078*b*.
—— Shimanouchi, T. Raman frequencies of *n*-paraffin mols., 5309*ad*.
——, Tobiyama, T., and Shirakawa, H. Studies on gasolines by the Raman effect (III), 8124*a*.
**Mizutani, T.**, and Kanasugi, Y Powd. $Al_2O_3$ of high purity, P 6794*g*.
**Mjörne, O.** See Larsson, E.
**Mladenović, M.**, and Balenović, K. Double bonds in elemic acids, 7463*d*.
**Mladentseva, O. I.** Detn of Zr in Mg alloys, 1285*c*.
**Mlejnek, V. J.** Fritz Hubert Small, 3251*e*.
**Mlynarski, A.** See Krasnodebski, K.
**Mnookin, N. M.** Recovering glycerol from fermentation concentrates, P 8608*f*.
**Moacyr V. Coutinho, J.** See Coutinho, J. M. V.
**Moak, C. D.** See Hoover, J. I.
—— and Dabbs, J. W. T. Neutron capture $\gamma$-rays from $Cd^{113}$, 6910*i*.
**Moakes, R. C. W.** Rubber research (V) works problems, 3643*g*; see Hammond, G. L.
—— and Soden, A. L. Effect of prolonged storage of unvulcanized stock on the properties of the vulcanizate, 2462*c*.
**Mobley, R. L.** Earthworms a nuisance in sewage-disposal plants, 2718*f*.
**Moburg, H. W.** Methylenedioxyphenyl compd. as insecticide and pyrethrin synergist, P 1526*b*.
**Mochel, J. M.** Electrically conducting refractory body, P 5919*d*.
**Mochel, W. E.** See Hanford, W. E.
——, Nichols, J. B., and Mighton, C. J. Structure of Neoprene (I) mol.-wt. distribution of Neoprene, type GN, 7254*a*.
—— and Peterson, J. H. Structure of Neoprene (II) detn. of end-groups by means of radiosulfur, 7254*c*.
——, Salisbury, L. F., Barney, A. L., Coffman, D. D., and Mighton, C. J. Elastomers from fluoroprene, 1598*g*.
**Mochiki, M.** See Kusu, M.
**Mochinaga, H.** See Hashimoto, Kiyotaka
**Mochulsky, M.**, and Tobolsky, A. V. Chemorheology of polysulfide rubbers, 2012*i*.
**Mock, D. L.** See Kaiser, H. F.
——, Waddel, R. C., Fagg, L. W., and Tobin, R. A. Photo-induced reaction at 20 m e.v., 936*e*.
**Mockrin, I.** Functions of cryolite, 6381*a*.
**Mócsy, J.** Contact poisons, 8087*c*.
**Modderman, A. S. T.** Geest der chemie (book), 2502*d*.
**Modell, W.** See Gold, H.
——, Kwit, N. T., Dayrit, C., Shane, S. J., Zahm, W., Kramer, M. L., and Gold, H Purified digitalis glycosides (VI) thevetin, a glycoside with unusual speed of action, 313*f*.
**Moder, J. J.** See Chu, J. C.
**Modin, S. O.** See Hultgren, A. G. E.
**Modlinger, R.** See Howard, F.
**Mo och Domsjo Aktiebolag.** See Mo och Domsjo Aktiebolag.
**Modrone, N. V. di.** See Di Modrone, N. V.
**Moe, D.** See Owen, G. E.
——, Owen, G. E., and Cook, C. S. $\gamma$-Radiation from $I^{131}$, 4948*e*.
**Moe, G. K.** See Gruhzit, C. C.; Hoobler, S. W.
——, Capo, L. R., and Peralta R., B. Action of tetraethylammonium on chemoreceptor and stretch receptor mechanisms, 321*f*.
——, Malton, S. D., Rennick, B. R., and Preyburger, W. A. Role of arterial pressure in the induction of idioventricular rhythms under cyclopropane anesthesia, 1111*f*.
——, Peralta R., B., and Seevers, M. H. Central impairment of sympathetic reflexes by 8-aminoquinolines, 4769*h*.
——, Rennick, B. R., Capo, L. R., and Marshall, M. R. Tetraethylammonium as an aid in the study of cardiovascular reflexes, 6744*e*.
—— and Shideman, F. E. Pharmacology, 5861*a*.
**Moe, J.** See Kochakian, C. D.
**Moe, O. A.** Starch esters, P 4038*b*; see Warner, D. T.
—— and Warner, D. T. 1,4-Addition reactions (I) the addition of acylaminomalonates to acrolein, 143*a*, (III) addn. of cyclic imides to $\alpha,\beta$-unsatd aldehydes—$\beta$-alanine hydrochloride, 6169*g*.
**Moe, O. W.** Cyanoethyl ethers of galactomannan and glucomannan gums, P 4504*d*
**Moed, H. D.** See Backer, H. J.
**Moede, J. A.**, and Curran, (Brother Columba). Dielec. properties and ultraviolet absorption spectra of addn. compds. of $SO_2$ and $SO_3$ with tertiary amines, 5241*a*.
**Möglich, F.** See Keller, J. M.
—— and Rompe, R. "Plasma oscillations" as the cause of supercond., 6026*a*.
**Moehl, A.** See Borchers, R.
**Möhler, K.** See Klages, F.
**Möllenstedt, G.** Electron interference at high potentials, 7324*b*.
**Møller, A.** See Tovborg-Jensen, A.
**Møller, C.**, and Rasmussen, E. World and the Atom (book), 6517*d*.
**Möller, E.** Weighting of silk and the chem.-analytical tests on the kind and degree of weighting, 5192*a*.
**Möller, E. F.** Microbiol. detn. of growth factors in milk from animals on silage and nonsilage rations, 3893*h*; see Weygand, F.; Wieland, T.
——, Weygand, F., and Wacker, A. Folic acid as a growth factor for different bacteria—new folic acid test with *Staphylococcus aureus*, 8441*d*; nutrition of staphylococci—riboflavin and pantothenic acid as required growth factors for different staphylococcus strains, 8441*i*; relations between sulfonamides and folic acid—sulfonamide conditioned folic acid requirement of bacteria, 8442*f*.
**Möller, E. O.** Solvents, fuels, and lubricants from wood waste, P 6416*e*.
**Möller, F. A.**, and Lolkema, J. Starch compns. capable of forming water-sol. derivs., P 1590*d*.
**Moeller, K.** See Köster, W.

**Møller, K. O.** Antihistaminics (I), 1104*f*, 2735*i*; see Dalgaard-Mikkelson, S.
**Moeller, S.** See Reichert, I.
**Moeller, T.,** and Fritz, N. D. Chemistry of Th—estn of Th, 1284*g*.
——— and Schweitzer, G. K. Chemistry of Th—estn. of Th, 3312*f*.
**Møller, V.** See Astrup, T.
**Möllers, A.** See Brintzinger, H.
**Möllerström, J.,** Lindberg, O., and Holmgren, H. App. for measuring radioactivity in histological prepns., 5818*c*.
**Moelter, G. M.,** and Schweizer, E. Heat softening of cellulose acetate—effect of plasticizers, 5944*d*.
**Moelwyn-Hughes, E. A.** Influence of the solvent on the kinetics of reactions between ions and polar mols., 5270*a*; ionic hydration, 8243*h*, see McDowell, C. A.
**Mönch, E.** Spatial stress-optics with phenol synthetic resin with application of a protective envelope, 1213*d*.
**Moench, F.** Finishing of cloth with a high content of recovered wool and zellwolle, 6830*h*.
**Mönch, J.** See Franke, W.
**Mönnig, H. O.** Veterinary Helminthology and Entomology (book), 778*a*
**Mørch, P.** Sulfathiazolø for injections, 1528*f*; detn. of the basicity constant of sulfathiazole, 2093*i*.
**Mörgeli, E.** See Kern, Walter
——— and Kern, W. Vat dye, P 870*b*.
**Moers, H.** Ca in the treatment of exptl. glomerulonephritis, 8534*b*
**Moersch, G. W.** See Swendseid, M. E
**Moersch, George W.,** and Whitmore, F. C. Hydrocarbons (IX) 2,2,4-trimethylheptane, 2,2,4-trimethyloctane, 2,2,4,6-tetramethylheptane, and 2,2,4,5,5-pentamethylhexane, 4212*h*
**Mörtsell, S.** Flotation app for lab use, 4608*i*; accuracy of sieve analyses, 6007*b*
**Moeschlin, S.** Action of urethan, 9263*d*
**Mössmer, V.** See Kleinert, T
**Moewus, F.** Bound- and free growth hormones in the potato tuber, 3493*e*; blastokolins, 3888*f*; noncopulating *Chlamydomonas* cells, 5831*i*; effect of auxins and antiauxins on the cress root, 5893*a*; cress root test for auxins, 7553*a*; see Wieland, T.
**Moffat, J.** See Hurd, C. D.
**Moffatt, E. M.** Minimizing errors in the measurement of high temps in gases, 4905*c*.
**Moffatt, J.** See Thonemann, P. C
**Moffett, E. W.** Coating compn comprising an amide-aldehyde resin and a polyester of 2-ethyl-1,3-hexanediol, and a dicarboxylic acid as a plasticizer, P 2814*a*, coating compn. comprising an amide-aldehyde resin and a polyester of an α-alkyl ether of glycerol and a dicarboxylic acid as a plasticizer, P 2814*c*; plasticizers for melamine and urea resins, P 4513*c*.
**Moffett, R. B.** See Kolloff, H. G
**Moffitt, W. E.** Structure of CO, 3712*i*; residual affinity of conjugated and resonating hydrocarbons, 6512*b*; bonds in the P mol., $P_4$, 7276*f*; see Coulson, C. A
——— and Coulson, C. A. Positions of nodes in at. wave functions, 492*b*; electronic structure and bond lengths of coronene and pyrene, 3672*i*
**Moga, V.** See Rădulescŭ, D.
**Moga, V. I.** See Rădulescŭ, F. D.
**Mogensen, E.** See Meyer, Johannes
**Mogey, G. A.** See Glock, G. E.
**Moggio, W. A.** Storage studies on kraft mill wastes, 6768*d*.
**Moghul, H. K.,** Singh Verma, I. P., Paul, T. M., and Anantakrishnan, C. P. Feed effects on the compn. of milk fat, 3943*g*.
**Mogilevskaya, O. Ya.** Prevention of occupational poisoning and ailments during the National War in enterprises of the Moscow district, 1881*h*.
**Mogilevskiĭ, G. A.** Soil analysis for bacterial oil prospecting, P 3185*c*; app. for taking gas samples from a clay suspension, P 5179*g*.
——— and Dianova, E. V. Analysis of hydrocarbons and similar gases, P 6114*f*.
**Mogilevskiĭ, M.,** and Kogan, L. Effect of electrolytes on the viscosity of hyaluronic acid, 1073*i*
**Mohamed, A. F.** Distribution of org matter in sediments from the Northern Red Sea, 4191*h*.
**Mohamed, A. H.** See Soliman, H. S.
**Mohamed, M. S.** Crystn. of liver esterase, 4711*f*; liver arginase (I) crystn. by Bach, 4711*f*.
**Mohanty, S. R.** Heat cond. and mol. complexity of water (II), 475*i*; production of the Joshi effect in O under silent elec. discharge (III) studies under the visible and the quartz ultraviolet, (IV) influence of temp., 8847*c*.
——— and Kamath, G. S. Production of the Joshi effect in O under silent elec. discharge (I) influence of the exciting potential and the gas pressure, (II) influence of intensity and frequency of the incident radiations, 5281*f*.
**Mohl, H.** See Theilacker, W.
**Mohler, F. L.** See Bloom, E. G.
———, Bloom, E. G., Lengel, J. H., and Wise, C. E. Mass spectra of some cyclic and straight-chain fluorocarbons, 3288*f*.
———, Bloom, E. G., Wells, E. J., Jr., Lengel, J. H., and Wise, C. E. Doubly charged ion spectra in mass spectra of hydrocarbons, 8259*b*
——— and Dibeler, V. H. Mass spectrometer analysis of $C_3H_2$, $C_3D_2$, and $C_3DH$, 4183*f*
**Mohler, H.** Effect of power station construction on the properties of ground water, 8077*d*.
**Mohler, J. B.** Electroplating alloys from cyanide baths, 1268*i*, see Schaefer, R. A
——— and Sedusky, H. J. Analytical methods in plating baths, 961*g*
**Mohler, O. C.** See Goldberg, L.; McMath, R. R
———, McMath, R. R., and Goldberg, L. Excited-state bands of atm. $CO_2$, 4139*e*
**Mohlman, F. W.** Sewage and industrial wastes, 3548*d*.
**Mohme, E.** Effect of dihydroergotamine (DHE) on the O consumption, 8539*b*, see Lundholm, L.
**Mohnike, G.,** and Lubken, W. Influence of cellucren on carbohydrate metabolism, 310*a*
**Mohr, E.** See Hansen, G.
**Mohr, K.,** and Reichstein, T. Isolation of convallatoxin from the leaves of *Convallaria majalis*, 3976*d*
**Mohr, P. H.** See Audrieth, L. F.
——— and Audrieth, L. F. Hydrazine-water system, 6900*b*
**Mohr, W.,** and Hasing, J. Detn of fat in dry milk and baby foods, 3943*d*
——— and Pestemer, M. Automatic sampling on the milk balance, 5127*a*, development of continuously working flow-sampling devices, 5127*c*
——— and Wellm, J. Viscosity measurements of highly concd cream, 781*a*
**Mohr, W. C.** See Russell, R., Jr.
**Mohr, W. J.** Pressure-sensitive adhesive sheeting, P 8744*c*.
**Mohrberg, W.** See Jayme, G.
**Mohrman, H. W.** Cast melamine resins, P 6861*d*.
**Mohs, F. E.** Lack of extractable carcinogens in the skin of patients with multiple precancerous keratoses of actinic origin, 3921*e*
**Moignard, L. A.** Removal of S from town gas, 5571*e*, see Dent, F. J
**Moilanen, M.** See Enkvist, T
**Moillet, J. L.** See Fordham, S.
**Moir, R. J.** See Johanson, R
**Moir, R. Y.** See Gardner, J. A. F.
——— and Purves, C. B. Polyoxyphenol series (IV) *N*-ethyl-3,4 dimethoxyaniline from guaiacol, 2177*h*
**Moise, J. E.** See Nicholson, E. W.
**Moiseev, A. A.,** Pavlov, N. S., Shvartsberg, M. B., Khazit, L. G., and Semenkovich, Yu. A. Filter press, P 4906*h*
**Moisejev, Moisseev, Moissejew.** See Moiseev, A. A
**Moisset de Espanés, E.** See Giscafré, L.; Taleisnik, S.
**Moister, F. C.** See Freis, E. D.
**Mojen, H. P.** See Gothan, W
**Mokievskiĭ, V. A.** See Koshurnikov, G. S.
**Mokrouschine, S. G.** See Mokrushin, S. G.
**Mokrushin, S. G.** Laminar systems (XVIII) formation of thin films on the surface of Ni tetraammoniate solns., 7770*e*.
**Mokuzen, R.** Graphite flotation, P 7204*b*.
**Molaison, L. J.** See Arthur, J. C., Jr.
**Molander, D. W.** Absorption of fat and carotene from the gastrointestinal tract, 9211*h*.
——— and Kirschbaum, A. Altered glucose tolerance with histologically normal islets following repeated small doses of alloxan, 8544*c*.
**Molano, P. A.** See Booker, W. M.
**Molby, F. A.** *n* and coeffs. of expansion of optical glasses at low temps., 7204*f*.
**Molchanov, N. G.** Smelting phospho-alloys in a blast furnace, 1296*i*.
**Molchanova, A. F.,** and Granzhaĭa, A. V. Protection of elec. contacts against oxidation and improvement of their electrotech qualities, 7837*g*
**Molchanova, O. P.** Proteins in nutrition, 1844*i*; proteins in the life activity of organisms, 3076*g*
**Mold, J. D.** See Riegel, B.
**Moldavskiĭ, B. L.** See Zharkova, V. R.
**Moldawskiĭ, B.** See Moldavskiĭ, B. L.
**Molé, R.** See Hocart, R.
**Mole, R. H.** Fibrinolysin and the fluidity of the blood post mortem, 4367*b*.
**Molho, D.** Prepn of anisylidene-3,4-dihydro-1(2*H*)-naphthalenone, and sepn of crystd. 1,2,3,4-tetrahydro-1-naphthol, 2971*g*, see Mentzer, C
——— and Mentzer, C. Halogen migration in bromocoumarins, 5024*c*.
——— Moraux, J., and Meunier, P. Anti vitamins K. (V) hemorrhagic activity of 2-methoxy-1,4-naphthoquinone and related compds., 4379*a*
**Molière, K.** See Hongmann, B., Stranski, I. N.
——— and Stranski, I. N. Structural deviations in the surface of ionic crystals (II), 4072*d*
**Molina, A. F. de.** See Jiménez Díaz, C
**Molina, C.** See Kehl, R.
**Molina, J. S.** See Merzari, A. H.
——— and Spaini, L. S. Colloids produced by aerobic decompn of cellulose and their influence on soil structure, 8082*f*
**Molina Pichardo, G.,** and Lima Romero, J. J. Tetraphosphoglucosate and in crustations in evaporators, 9580*h*
**Molinari, E.** See Gabba, L.
**Molini, C. P.** See Piazza Molini C
**Molitor, H.** Toxicologic evaluation of antibiotic agents, 4330*i*
——— and Kuna, S. Pharmacol studies of the neurotoxic properties of streptomycin (I) neurotoxic effects, 4763*h*
**Molitor, J. B.** Industrial by products from sugar cane, 9501*f*
**Moll, H. W.** Di(2-chlorocyclohexyl)sulfide as insecticide, P 6358*b*
——— and Britton, E. C. Polymeric vinylidene chloride compns contg a light stabilizer, P 7265*h*
——— and Lebevre, W. J. Some "temp Young's modulus" relations for plastics, 2027*i*
**Molland, J.** Antivitamins, antihormones and antienzymes, 1069*e*
**Molle, R. D. J.** See Degard, C. J. H. M
**Molloy, E.** Electro-plating and Anodising, Covering Au, Ag, Ni, Cu, Cr, Cd, Sn, Pb, and Zn Plating (book), 956*d*
**Molloy, E. L.** See Birch, S. F
**Molloy, E. W.,** and Beckman, A. O. Modern radiation-detection instruments for health protection, 7326*e*
**Molnár, A.** Detn of water in emulsions and ointments contg emulsions, 9374*e*
**Molnar, E. J.** Alginate impression material, P 1881*g*.
**Molnár, F.** See Feuer, G
**Molnar, G. D.** Hunter, G
**Molnár, J.** See Kiss, A
**Molnar, J. P.** See McNally, J. R., Jr.
**Molnár, M.** Biuret reaction in the detn. of protein, 9129*b*
**Molnar, N. M.** Mothproofing larvicide, 9348*i*.
**Molodovskiĭ, V. A.** See Neiman, M. B
——— and Neĭman, M. B. Oxidation of diisopropyl ether in liquid phase, 4085*b*.
**Moloney, W. C.,** Egan, W. J., and Gorman, A. J. Afibrinogenemia in pregnancy, 5110*c*
**Molotkova, A. S.,** and Zolotukhin, V. K. Detn of free acid in solns. of Sn salts, 972*c*.
**Molstad, M. C.** See Hariu, O. H.
**Moltchanowa, Moltschanowa.** See Molchanova
**Momin, A. U.** Cathode-ray spectrograph for studying emission and absorption spectra, 7810*e*.
**Momiyama, N.** See Yoneda, K
**Monaci, A.** See Poggi, A. R
**Monaci, V.** Strain of micrococcus endowed with antibiotic properties (I), 5077*g*; antibiotic property of a strain of *Bacillus mesentericus*, 5077*i*.
**Monack, A. J.** Glass-to metal seals in electronic components and applications, 4823*c*.
**Monaco, A. R.** See Spicer, S. S.; Von Oettingen, W. F.

**Monaco Croce, T. lo.** See Lo Monaco Croce, T.
**Monaghan, H. F.** See Pyke, H. G.
**Monaghan, J.** See Smith, W. A.
**Monahan, E. P.** See Silver, M. L.
**Monasterio, G.**, and Gigli, G. Digestion and absorption of lipides (IV) lipide digestion and absorption in parenchymatous icterus, 2296*e*, lipides of feces, 2658*e*; detn. of total lipides in blood, 5073*g*.
**Monastyrskaya, M. S.** Approx formula for the calcn. of the quantities of gas evolved from powd. materials, 6851*g*.
**Monath-Hansson, H.** See Borei, H.
**Monbiot, M. F.** Moistureproofing coating compns, P 9449*a*.
**Monblanova, V. V.** See Kobozev, N. I.
**Moncada, F.** See Camposortega, C.
**Monceaux, P.** Synthesis of $CH_2O$ by oxidation of the gas of Saint-Marcet by O at atm. pressure, 6159*a*, oxidation of $CH_4$ to $CH_2O$, 6159*b*.
**Monche, J.** Structure of 2 sulfanilamido-4-alkyl(or aryl)thiazoles, 3785*d*, see Sols, A., Vidal Sivilla, S.
**Monche Escubós, J.** Same as Monche, J.
**Monciu, L.** See Ionescu-Matiu, A.
**Moncrieff, R. W.** Ketones, 1909*b*, sweetness of synthetics, 2339*a*, soap substitutes in the worsted industry, 2451*g*, influence of orientation of mols on fiber structure, 5190*i*, odors of steroids, 6788*h*, methoxychlor, 7175*g*. Chemistry of Perfumery Materials (book), 7646*i*, aroma of tea, 8574*b*, farnesal, 9375*h*. genesis of synthetic fibers 9456*a*, leaf alc., 9375*h*, wool-shrinkage control, 9457*b*, see Dreyfus, H.
—— and Pool, W. Extrusion of fused filament-forming compns., P 5067*g*, 6832*i*.
**Mond, T. C. du.** See Du Mond, T. C.
**Mondiez, A.** Laws relative to combustion on grates, 833*i*.
**Mond Nickel Co. Ltd.** Improvements relating to Ni anodes and to the electro deposition of Ni, P 6527*b*, Co alloys, P 7404*d*, Ni and Co alloys, P 9020*g*.
—— and Rhodes, E. C. Soldering and brazing, P 5732*b*.
——, Townshend, S. C., and Wallis, A. E. Fe carbonyl, P 7652*c*.
**Mondolfo, H.** Folic acid and sulfadiazine, 4337*d*.
—— and Houme, E. Bactericidal substance extracted from the caramelization products of glucose, 3147*d*.
**Mondon, A.** See Grewe, R.
**Mondy, N. I.** See Rabinowitz, J. C.
**Monecke, O.** Discovery of the heavy meson, 6503*g*.
**Money, R. W.** See Lampitt, L. H.
**Money, W. L.** See Zarrow, M. X.
**Moneypenny, H. K.** App. for the measurement of the cond. of electrolytes, 5234*d*.
**Monfils, A.** See Duchesne, J.
**Monforte, F.**, and Faraone, G. Identification of metol, 71*d*, toxicological tests for metol, 72*a*.
**Mongar, J. L.** See MacArthur, I.
**Monge C., C.** See Monge M., C.
**Monge M., C.**, Contreras, L., Velasquez, T., Reynafarje, C., Monge C., C., and Chavez, R. Physiol. adaptions of inhabitants of the tropics with regard to changes in altitude, 8484*i*.
**Monical, C. E.** See McCubbin, K.
**Monier, J. C.** See Hocart, R.
**Monier-Williams, G. W.** Public-health aspects of metallic contaminants in food, 2705*i*, Trace Elements in Food (book), 2710*a*.
**Moniz de Bettencourt, J.**, and Abecasis, L. Thiaminase and the action of acetylcholine on the heart, 4767*h*.
—— and Rodrigues Cardoso, M. Thiamine and the inhibition of cholinesterase by eserine, 4767*h*.
**Monk, C. B.** Conductance of K iodate at 25°, and the conductances of salts of oxyacids, 1630*c*; cond. of $Na_2CO_3$ solns. at 25°, 6050*h*; condensed phosphoric acids and their salts (II) pyrophosphates, (III) polyphosphates, and general summary, 6534*g*; see Davies, C. W.
**Monk, G. D.** See Lichtenberger, H. V.
**Monk, G. W.**, and Werner, G. K. Trochotron design, 4109*b*.
**Monkhouse, F. C.** See Jaques, L. B.
**Monks, J. A.**, and McMullen, J. Molten salt descaling by the Efco-Virgo process, 552*b*.
**Monnier, A. M.** Fixation of Ca by the tissues—its function role in nerve activity, 1475*b*.
—— and Chouteau, J. Demonstration of alk. earth complexes by electrophoresis, 4970*f*.
**Monnier, D.** Acidity potentials, oxidation-reduction potentials, and the potentials of solns of complexes, 3270*a*; polarographic analysis, 4961*b*; see Rusconi, V., Wenger, P. E.
— —, Pardova, I., and Wenger, P. E. Detn of Cu, 62*a*.
**Monnot, G.** See Vichnievsky, R.
**Monod, J.** Phenomenon of enzymic adaptation (and its bearing on problems of genetic and cellular differentiation), 1447*f*; specific genetic and chem. factors in the synthesis of bacterial enzymes, 9158*g*; see Lwoff, A.; Torriani, A. M.
— —, Torriani, A. M., and Gribetz, J. Lactase extract from a stock of mutable *Escherichia coli*, 267*g*.
**Monro, H. A. U.** Durra stem borer, 2727*i*
—, Beaulieu, A. A., and Delisle, R. DDT residues —their toxicity to houseflies on various surfaces and materials, 9344*e*.
**Monroe, A. G.** See Eggersgluess, W.
**Monroe, E.** See Britton, E. C.
**Monroe, G. S.** See Ipatieff, V. N.
**Monroe, K. P.** Alkylation of dihydroxybenzene, P 3037*f*.
**Monroe, R. A.**, and Turner, C. W. Metabolism of thyroxine, 771*f*, oral effectiveness of DL-thyroxine in crystn., monosodium and disodium forms, 6319*i*.
**Monroy, A.** Physiology of fertilization in *Pomatoceros triqueter*, 776*g*.
— and Runnstrom, J. Chem changes occurring at the formation of the fertilization membrane of sea urchin egg, 775*e*.
**Monsalve Flores, M.** Formulario metalurgico (book), 3338*i*.
**Monsanto Chemical Co.** (*Patents*) acetophenone BzOH distn., 2639*e*
*p*-acetylphenyl acetate, 3461*f*.
3-acetylpropanol and γ-valerolactone, 3451*e*
acrolein-phenol resin, 3654*d*
alkyd resins, 9485*h*
aluminum sulfate, 1926*g*.
amines (tertiary), 3038*i*
aminoplasts, 2467*e*, 4894*e*.
ammotriazine and derivs., 2436*f*, 2648*e*
ammeline, 5809*i*
asphalt molding compns., 6004*e*
bracetyl, 1797*c*.
black glass, 6802*g*
bromination of 2-aminothiazole and derivs., 3012*b*
butadiene polymer preservation with acetals of hydroxy aldehydes, 5625*g*
carbazole synthesis from *o*-aminobiphenyl with $Al_2O_3$ as tar inhibitor, 9086*a*
catalysts for acid-curing thermosetting resins, 5631*f*, 6002*h*
catalysts for aminoplast, 5230*b*, 5633*b*
cellulose esters stabilized by means of benzyl benzoate, 1979*e*.
cellulose nitrate, reducing viscosity with morpholine, 4853*i*
2-(chloromethyl)thiophene, stabilizers or, 3041*a*
chlorophenols in fermentation of carbohydrates, 6782*e*
desiliconization of ferrophosphorus, 7893*d*.
detergents for dentifrices, mouthwashes, etc., 3151*e*.
3,6-diamino-1,4-dihydro-1,2,4,5-tetrazine, 9088*i*
3,5-diamino-4-dihydro-thiadiazine-1-dioxide, 9528*a*
diaminothiadiazine derivs., 2648*e*
3,5-diamino-4*H*-thiatriazine 1-dioxide resins, 9034*d*.
2,5-dichlorostyrene and its polymerization products, 2636*h*.
3,5-dihydroxy-1,2,6-4*H*-thiadiazine 1,1-dioxide, 6674*a*.
dixanthic disulfides as vulcanizing agents, 4509*c*
emulsifiable oils, 2733*a*
ethylene oxide, 3446*a*.
fumaronitrile, 7498*h*.
fungusproofing compns., 1902*a*, 7632*f*
hydrogen halide addn. to olefins and acetylenes, 2629*a*
(hydroxyalkyl thiomercapto)succinic acids and esters, 7957*b*.
(hydroxyethyl)-2,5-dichlorobenzene, 688*a*.
1-(4-isopropylbenzyl)piperazine as a fungicide and bactericide, 3558*f*.
melamine resins, 6804*d*.
methacrylate compns. contg. colloidal silica, 5634*e*.
mineral supplements, 9296*a*.
molding powder of PhOH-AcH resin contg. Manilkara wood flour, 9528*g*.
*N*-monoformyl-*N*,*N*'-disubstituted ethylenediamines, 3028*e*.
octachlorobiphenylquinone, 813*c*.
phenylacetaldehyde, 3461*f*
1-phenylethylidenemalononitrile, 3461*a*
phenyl ethyl sulfones, 5801*e*
phthalic anhydride recovery, 2640*d*.
pickling of stainless steel, 6147*e*.
plasticized rosin compns., 4513*e*.
polymerizable compn., 2469*g*.
polymerization of piperylenes and unsatd. nitriles, 4807*f*.
polymerization of styrene, 3238*f*.
polymerization of styrene, dialkyl sulfosuccinates as anticrazing agents in, 7264*a*.
polymerization of vinyl compds in an aq. dispersion, 8742*g*.
polymer of styrene and a phenyl-vinyl acetate, 7264*d*
polymers of vinyl acetate, vinyl benzoate, and an alkyl acrylate, 9532*e*.
polymers of vinyl aromatic compds., 7753*h*.
polymers of vinyl halides, 6002*b*.
1-propenyl-2-hydroxy-3-ethoxybenzene, 3037*d*
reaction products of 2-mercaptobenzothiazole and HCHO, 6239*d*.
rubber accelerators, 2024*f*.
rubber antioxidants, 5626*e*.
rubber (synthetic), 2025*i*, 2026*a*, 5625*g*, 9520*h*.
styrene-3-benzylidenephthalide copolymers, 7754*a*.
styrene-benzylidenephthalimidine copolymers, 7754*a*.
styrene-chlorinated *m*-diphenylbenzene compn., 1610*d*
tetraalkyl phenyl triphosphates, 9356*g*.
tetraalkyl pyrophosphates, 9356*i*.
tetramethylthiuram monosulfide, 2227*a*.
textile finishing or sizing, 5603*c*
2-(2-thenyl)-4,5-dihydroimidazoles, 3042*e*
thiourea-modified hexamethylolmelamine, 2444*c*.
vinyl-acetal compn., 4898*i*, 5632*h*.
vinyl-acetal plasticizers, 1606*d*, 2467*f*.
vinyl-acetal resins, 3655*g*.
vinyl alkoxybenzoates, 5045*b*.
vinyl aromatic molding compn., 3239*h*.
vinyl aromatic polymers contg. colloidal silica, 5636*e*.
vinylbutyral compn., 2467*g*
vinyl chloride compns., 2037*i*, 2468*b*, 3239*a*, 9530*h*
vinyl chloride resin stabilizer, 4049*h*.
vinyl compds, stabilization of monomeric, 2468*i*.
vinyl ester compns contg. colloidal silica, 5229*c*.
vinyl halobenzoates, 5041*i*.
vinyl resin compn., 8739*d*.
viscometer (torsional), 2048*a*.
vulcanizing rubber, 1212*e*, 5992*g*.
**Monsanto Chemicals Ltd.** See Gardner, J. A.
**Monson, E. M.**, and Dennis, C. Therapeutic effect of choline chloride with fat emboli produced by bone marrow curettage, 4768*g*.
**Monson, L. T.** Breaking emulsions, P 5937*g*, removing mud sheaths from oil wells, P 5938*b*; preventing and(or) removing accumulations of solids from oil wells and pipe lines, P 5938*d*.
**Montag, M.** See Wright, H. N.
**Montagna, W.** See Noback, C. R.
—— and Noback, C. R. Histochemistry of preputial gland, 2649*a*.
**Montagne, R.** See Matet, J.
**Montagner, S. lo.** See Lo Montagner, S.
**Montalbetti, R.** See Henderson, W. J.
**Montalenti, G.**, and De Nicola, M. Effect of karyoklastic poisons on alk. phosphatases, 3483*b*.
**Montanari, F.** See Colonna, M.
**Montaner, R. de.** Iodo sulfonamides, P 685*k*.
**Montavon, R. M.** See Hardegger, E.
**Montcel, F. T. du.** Dust in Saare gas mains, 8119*f*.
**Montclair Research Corp.** (*Patents.*) Alginate impression material, 1884*g*; alkyd compn., 2471*g*; dehydration of hydroxylated oils, 2790*a*; water-dispersible chem. products capable of imparting hydrophobic properties to textile fibers, 3628*e*; drying-oil acid esters, 4029*e*; drying oils, 4873*b*; treatment of wool, 5602*e*; wool-shrinkproofing baths contg. a chloroprene polymer, 6429*c*; interpolymers from

isoölefins and unsatd. ketones, 6458*b*; alkyd resin-oxidized butadiene polymer emulsion, 6859*e*, quaternary $NH_4$ compds., 7728*h*; unsatd. polymerizable liquid, 9537*e*; resin esters, 9485*f*.
——— and Ellis-Foster Co. Oil-sol. resin, P 2031*a*; aldehyde-polycyanoacetamido-compd. condensation products, P 6003*a*.
**Monte-Casoni, D. dal.** See Dal Monte-Casoni, D.
**"Montecatini" Società Générale per l'industria mineraria chimica.** Crystn. of extremely small crystals from salt solns., P 4525*a*, synthetic alc. purification, P 5032*e*, recovery of waste gases from urea synthesis, P 7957*h*, $NH_4NO_3$, P 8623*i*.
**Monteggia, G.** See Piontelli, R.
**Montell, S.** See Graf, R.
**Montequi, D.**, and Montequi, R. Consts. of a fish oil, 1584*a*.
**Montequi, R.** Analytical control of the alteration of fish, 782*a*, see Montequi, D.
**Montero, V.** Structure of alumina films on Al, 2481*h*.
**Montes, L. M. G.** See González-Montes, L. M.
**Montezemolo, R. di.** See Di Montezemolo.
**Montfort, C.** Utilization of green light in brown cells with regard to the energy conversion by the fucoxanthin protein complex, 1834*g*.
**Montgareuil, P. G. de.** See Servigne, M.
**Montgomerie, J. A.** See International Bitumen Emulsions Ltd.
**Montgomery, A.** Mineralogy of the Ag ores of Gowganda, Ontario, 2549*h*.
**Montgomery, C. G.** See Kolstad, G. A.
——— and Montgomery, D. D. Atm. showers of cosmic rays, 4091*e*, coincident bursts in small ionization chambers, 4110*e*.
**Montgomery, C. W.** See Ayres, E.
——— and Horne, W. A. Catalytic dealkylation of aromatics and paraffins, P 5584*a*.
**Montgomery, D.** See Hillig, F.
**Montgomery, D. D.** See Montgomery, C. G.
**Montgomery, D. J. X.** Cosmic Ray Physics (book), 2097*b*.
**Montgomery, E. M.**, Weakley, F. B., and Hilbert, G. E. Isolation of G[α-D-glycopyranosyl]-D-glucose (isomaltose) from enzymic hydrolyzates of starch, 5748*d*.
**Montgomery, H.** See Ormsby, O. S.
**Montgomery, J. A.**, and Livingston, L. E. Sewage-disposal app. with a combined aeration and settling chamber, P 4408*d*.
**Montgomery, J. B.** See Hoffmann, A. N.
**Montgomery, J. C.** Black finishes for photographic equipment, 420*g*.
**Montgomery, R.**, See Overend, W. G.
——— and Wiggins, L. F. Anhydrides of polyhydric alcohols (XII) reaction between mannitol and hydrochloric acid, 2940*a*.
**Montgomery, Rex.** Chem. production of lactic acid from sugar, 3785*f*.
**Monti, L.**, and Pacini, C. Thiopyrimidine derivs., 3012*g*.
**Monticelli, A. L.** See Landabure, P. B.
**Monticelli, M.** See Panseri, C.
**Montignie, E.** Te compds., 3304*a*.
**Montigny, P.** See Delassus, M.
**Montonna, R. E.**, Reyerson, L. H., and Amdur, E. Prepg. fibers and yarns, P 6833*a*.
**Montoro, V.** Electrodeposition of alloys, 2872*g*.
**Montoulieu, E. I.** Metallurgical and industrial supply of Cuban laterites, 4608*i*.
**Montreal Paint & Varnish Production Club.** Pigment vol. concn. in oil conserving and pre-war vehicles, 3211*e*.
**Monzen, K.** Disease-resistant plant nutrient, P 6774*g*.
**Mónzini, P.**, and Bassani, B. Antibacterial action of sulfonamides in fresh and inactivated blood, 3879*e*; unknown factors in blood which aid the activity of antibiotics (I), 3879*f*, 8532*a*.
——— and Citterio, L. Antibacterial activity of amino acids (I), (II), 3879*g*.
**Monzoni, P.**, and Paiva Azevedo, L. H. Action of some drugs on germination of seeds, 2357*e*.
**Mo och Domsjo Aktiebolag.** Treatment of lignocellulosic material with supersonic vibrations to aid in sepn. of cellulose, P 4045; vinyl copolymers, P 1224*f*, sulfite cellulose, P 3197*g*; products from lignin-contg. materials, P 3198*a*; artificial resins, artificial rubber, etc., P 3232*c*; alkali cellulose, P 4018*c*; $ClO_2$, P 5556*b*.
**Moody, H. J.** See Haslam, R. N. H.
**Moore, C. A.**, Washko, J. B., and Young, J. B. Effect of wheat straw, *Lespedeza sericea* hay, and farmyard manure, as soil mulches, on the conservation of moisture and the production of nitrates, 3130*a*; effect of straw mulch on recovery of N from $NaNO_3$ and $(NH_4)_2SO_4$ applied as top-dressing, 3552*c*.
**Moog, F.** See Hall, T. S.
**Mookerjee.** See Mukerjee.
**Mookerji.** See Mukerji.
**Mookherjee.** See Mukherjee.
**Mookherji.** See Mukherji.
**Moolten, S. E.**, and Vroman, L. Adhesiveness of blood platelets in thromboembolism and hemorrhagic disorders by glass wool filters (I) measurement, 9228*a*.
———, Vroman, L., and Vroman, G. M. S. Adhesiveness of blood platelets in thromboembolism and hemorrhagic disorders by glass wool filters, (II) diagnostic and prognostic significance, 9228*b*.
**Moon, H. H.** See Harley, C. P.
**Moon, N. S.** 2-Chlorobenzothiazole, P 6670*c*.
**Moon, P.**, and Spencer, D. E. Modern terminology for physics, 9*g*.
**Mooney, M.** Melvin Mooney E. C. Bingham Medalist (II) acceptance, 6013*h*.
**Mooney, R. C. L.** Crystal structures of a series of rare earth phosphates, 154*d*, crystal structure of element 43, 918*d*, crystal structure of tetragonal $BiAsO_4$, 918*f*, crystal structure of $ThCl_4$ and $UCl_4$, 7773*a*.
**Moor, H.** Stabilizing fruit juices, P 8397*d*.
**Mooradian, A. J.** Marking glass tubing of all sizes, 3665*f*.
**Mooradian, S.** See Millson, H. E.
**Mooratch, N. N.** See Murach, N. N.
**Moore, A. A.** Effect of speed of testing on Mg-base alloys, 9013*e*.
**Moore, A. C.** Prepn. of ethyl β (bromomethyl)cinnamate, 7002*d*, see Marvel, C. S.
**Moore, A. E.**, Stock, C. C., Sugiura, K., and Rhoads, C. P. Inhibition of development of sarcoma 180 by 4-amino-N¹⁰-methylpteroylglutamic acid, 5106*a*.
**Moore, A. M.** See Reiff, O. M.
**Moore, A. R.** See Dean, R. B.
**Moore, Arnold R.** Rugged gaseous discharge triodes, P 956*g*.
**Moore, A. V.** Effect of quaternary $NH_4$ sanitizers on milk, 8575*h*.
**Moore, B. H.** See Wilson, R. W.
**Moore, B. P.** Synthesis of cumoline derivs., 7938*f*.
**Moore, Barry P.** See Haworth, R. D.
**Moore, C.** See Maron, S. H.
**Moore, C. E.** Factors affecting spalling of fireclay bricks, 6799*d*.
**Moore, Carl E.** Detn. of vitamin C as a means of teaching iodimetry, 2548*b*.
**Moore, Charlotte E.** Al energy levels as derived from the analyses of optical spectra, 8883*e*.
**Moore, C. G.** Oil-acid modified alkyd, P 2815*e*, 3216*c*.
**Moore, C. H., Jr.** Chem. bond in the metalloids, 2051*i*, formation and properties of single crystals of synthetic rutile, 6482*h*, see Zerfoss, S.
**Moore, C. V.** See Grinstein, M.; Innes, J.
**Moore, D. C.** See Pumphrey, W. I.
**Moore, Donald C.**, and Brode, R. B. Low-energy mesotrons at high altitudes, 4092*i*.
**Moore, D. G.** See Harrison, W. N.
———, Richmond, J. C., and Harrison, W. N. High-temp. attack of various compds. on 4 heat-resisting alloys, 541*d*.
**Moore, Dan H.** Effect of reciprocal steroid treatment on the electrophoretic patterns of fowl serums, 8034*e*; see Glick, D.
——— and Harris, T. N. Hyaluronidase inhibitors in fractions of electrophoretically sepd. serum, 6680*c*.
——— and White, J. U. New compact Tiselius electrophoresis app., 448*c*.
**Moore, Donald H.** See Sarlis, M. P.
**Moore, E. E.** See Fieser, L. F.; Moore, M. B.
**Moore, E. L.** Supplementary sirup ratios for use as approximations in the concg. of citrus juices, 8571*g*; see MacDowell, L. G.
**Moore, E. M.**, and Hobbs, M. E. Elec. moments of some org. mols. in the vapor state, 6020*f*.
**Moore, E. S.** Lakemount property, Township 28, Range XXIV, 8315*g*.
——— and Armstrong, H. S. Fe deposits in the district of Algoma, 8318*c*.
**Moore, E. W.**, Morris, J. C., and Okun, D. A. Detn. of dissolved O in water and sewage, 3123*a*.
**Moore, F. D.** See Cope, O.
———, Evans, R. D., and Ball, M. R. Histochemistry of burned human skin—base exchange in traumatized tissue, 1477*b*.
**Moore, F. J.**, and Pevere, E. F. Safety fuel, P 5174*c*.
**Moore, F. W.** Utilization of pyridine by microörganisms, 4329*h*.
**Moore, G. A.** See Sims, C. E.
**Moore, G. E.** See Boyack, G.; Cummerow, R. L.; Kremen, A. J.; Marvin, J. F.
**Moore, G. S.** Last ounce of speed, 1275*g*.
**Moore, H.** Domestic glassware industry of Germany—postwar investigations, 2383*e*; fracture of solids (II) fracture of glass, 3578*e*, physics in glass technology, 4823*a*; see Allen, H. S.
**Moore, H. B.** Retardation of heat-induced strength loss in cotton yarns by liquid $NH_3$ treatment, 1570*c*.
**Moore, H. N.** Bating studies (I) development of some research tools and techniques, 7735*e*.
**Moore, J. B., Jr.** Curing bright-leaf tobacco, P 7650*b*.
**Moore, J. K.** See Hoffmann, A. N.
**Moore, J. W.** See Bridger, G. L.
**Moore, L. A.** See Shepherd, J. B.; Sykes, J. F.; Thomas, J. W.
**Moore, L. P.**, and Bricks, W. P. Mercaptoethylbiguanides, P 1799*b*.
**Moore, M.** See Menzel, A. E. O.; Winterstemer, O.
**Moore, Maxine.** Effect of alloxan diabetes on hyaluronidase level of the testis, 1479*a*.
**Moore, M. B.** See Fieser, L. F.; Wright, H. B.
——— and Moore, E. L. Biotin intermediates, P 6669*a*.
**Moore, M. C.** Hydrophilic-organophilic pigments, P 1994*i*.
**Moore, M. E.** See De Ritter, E.
**Moore, M. H.** See Shaw, H.
**Moore, M. L.** See Corrigan, J. R.
——— and Corrigan, J. R. (Hydroxyphenyl)alkanolamines, P 3460*b*, *m*-hydroxy-α-methylaminoacetophenone, P 3460*c*.
**Moore, R. C.** See Flory, W. S., Jr.
**Moore, R. E.** See Reitemeier, R. F.
**Moore, R. F.** Downward translocation of P in sepd. maize roots, 5093*h*.
**Moore, R. G. D.** Relief valve for hazardous vacuum distns., 1*h*.
**Moore, R. J.** See Greensfelder, B. S.
——— and Greensfelder, B. S. Hydrocarbon conversion, P 7677*b*.
**Moore, R. L.**, and Trimble, R. A. Tetrahydrothiophene, P 7512*d*.
**Moore, R. S.** Effect of O on refractories in the basic open hearth, 8115*a*.
**Moore, Somers.** Tetraphospho glucosate as a scale inhibitor, 6145*i*.
**Moore, Stanford.** See Stein, W. H.
——— and Stein, W. H. Photometric ninhydrin method for use in the chromatography of amino acids, 2267*c*, chromatography of amino acids on starch columns—solvent mixts. for the fractionation of protein hydrolyzates, 5818*d*.
**Moore, T.** See Harris, L. J.
**Moore, T. E.** See Selwood, P. W.
**Moore, T. G.** Recovery of rubberlike polymers from purge water, P 9519*h*.
**Moore, W. A.**, Smith, R. S., and Ruchhoft, C. C. Efficiency studies of a shallow recirculating sewage filter, 8079*a*.
**Moore, W. F.** Flame-failure control, 5648*c*.
**Moore, W. H.**, and Blewett, J. P. Magnetic circuit for a proton synchrotron, 4095*h*.
**Moore, W. J.** See Castellan, G. W.; Frey, H. J.; Hughes, E. W.; Loeffler, M. C.; Zachary, J. B.
**Moorjani, M. N.**, and Narwani, C. S. Influence of heat on the chem. compn. and phys. properties of gum arabic, 6849*a*.
**Moos, J.** Detn. of asphalt in crude oil and crude oil products, 9421*h*; see Feichtinger, H.
**Moosad, C. R.** See Murti, K. S.
**Mooser, H. W.** Cement, P 6388*gh*; portland-cement flue dust, P 8116*h*.
**Mora, A.** See Palacios, J.
——— and Blasco Santiago, E. Gasoline from shale oil (II) chem. treatment of Puertollano gasoline and gum formation, 5576*h*; (V) identification of conjugated dienes in Puertollano gasoline, 5578*c*.
———, Blasco Santiago, E., and Doblas, J. Gasoline from shale oil (IV) catalytic

aromatization of Puertollano gasoline, 5577g.
—— and Infiesta, J. L. Plastic materials derived from furfuraldehyde, 6861i.
—— and Vian, A. Voltolysis of olive oil, 4875c; utilization of low-grade mineral oils as aviation lubricants (II) voltolysis of Puertollano shale oil, 5580i.
**Mora, J. de la.** See Hope, P. H.
**Mora, L. C.** See Castillón Mora, L.
**Moraes, J. C. de.** See Costa de Moraes, J.
**Morales, M. F.** See Hutchens, J. O.
**Morales, R. P.** Pedology, 3953i.
**Morales-Otero, P.,** and González, L. M. Prepn. of a readily sol. form of purified *Brucella* protein antigen, 8518d
**Moral Querol, J.** See Guixá, J. O.
**Moran, J. C.** See Bachmann, W. E
**Moran, T.** $NCl_3$ and canine hysteria, 7096h; see Bentley, H. R.
**Moran, W. J.** See Cramer, B. J; Jarowski, C. I.
**Moran, W. T.** See Gilliland, J. L.
**Morand, M.** See Cuer, P.
——, Cuer, P., and Moucharafyeh, H. Conditions and the consequences of the production of real mesons, 931i.
**Morando, G. C.,** and Floré L Elimination of citric acid by the action of vitamin $B_6$, 8022e
**Morane, R.,** and Martinet, R Pelletting app. for nonferrous alloys, P 2154f
**Morani, V.,** and Marimpietri, L. Sweetening agent, P 5881d.
**Morano, M.** Action of prostigmine on the eye, 4772a.
**Morato Castaño, V. G.** See García-Morato Castaño, V.
**Moraux, J.** See Molho, D.
**Moraw, H. O.** Detn of methylene blue in compd tablets, 9371c
**Morcillo, J.** See Foz Gazulla, O R
**Morcom, A. J.** See Nagelschmidt, G
**Morduchow, M.** Surface-fitting in three variables, 6015f
**Moré, J.** See Yvernault, T.
**More, R. H.,** and Waugh, D Diffuse glomerulonephritis produced by massive injections of bovine serum γ globulins, 5859b
——, Waugh, D., and Kobernick, S D Cardiac lesions produced by massive injections of bovine serum γ globulin, 5859c
**Moreau, F.** Alcaloides et plantes alcaloifères (book), 1531i
**Moreau, L.** Detn of O in steels, 8962i, see Chaudron, G
**Moreau, M.** See Guérin, H
**Moreaux, P. E. la.** See La Moreaux, P E
**Morehouse, M. G.** See Cheng, A L S
**Morehouse, N. F.** Control of coccidiosis, P 9388h
—— and Mayfield, O J Poultry treatment compn., P 368a
**Morel, A. J. L.** See Lahousse, J. E. G
**Morel, C.** Formulating a cream shampoo, 8093h; interesterification, 8179e, component balance in perfumes, 9364e
**Morel, F.** Antagonistic actions of folliculin and progesterone, 5116b; see Courrier, R.; Jost, A.
—— and Marois, M. Permeability of the capillaries to Na as measured with the aid of radioactive Na, 5470e
**Morel, T.** Pressing of *Aleurites montana* seed with the help of a Krupp expeller, 4871g.
—— and Verkade, P. E Synthesis of furan derivs. (I) introduction, 1391e.
**Moreland, R. E.** See Burdick, M D.
**Morell, D. B.** See Slater, E. C
**Morelle, G.** See Cornubert, R
**Morelli, A.** See Salvi, P.
**Morelli, E.** See Dansi, A.
**Morelli, M. J.** See Alberto Videla, C
**Moreno, J. M. M.** See Martinez Moreno, J. M.
**Moreno Alcaniz, E.** Universo y el átomo (book), 5314e.
**Moreno Martín, F.** Persistent ring test for detection of F, 968i; detn. of the F in calcined $CaF_2$ and in fluorite, 8960c; see Casares, J.
—— and Ramos Boned, J. Detn. of lactose in urine, 1077f.
**Morette, A.** Sepn. of U with phosphoric acid—application to the recovery of U, 7865e.
**Moretti, A.** Ervenik phosphate deposit of Dalmatia, Yugoslavia, 2134c.
**Moretti, J.** Catalytic dehydrogenation of fatty acids, 3357c.
**Morey, G. H.** Unsatd. alcs., P 2629c; *N*-alkyl-4-amino-4-methylvaleramides, P 3450b; 1,2,3,4,5,6-hexachlorocyclohexane, P 6778f; substituted 3-carbamyl-2-piperidones, P 7051c; see O'Kane, W. C.
—— and Taylor, R. F. Halogenated olefins, P 2218b.
**Morey, G. W.** Presentation of the Arthur L. Day medal to George W. Morey—response, 6013h.
**Morgan, A. F.** See Heidelberger, C.
—— and Watts, B. M. Dehydrated meat scrapple, P 1880g.
**Morgan, B. B.** Precipitin and skin reactions of *Trichomonas foetus* (protozoa), 3514a.
——, Lombard, L., and Pierce, A. E. Chemotherapy of *Trichomonas foetus* infection, 4382d.
**Morgan, C. E.,** and Gellhorn, A. Detection of drugs in horse saliva, 7074d.
**Morgan, E. N.** See Birkinshaw, J. H.
**Morgan, F. H.** See Haddad, R. E.
**Morgan, G. W.** Surveying and monitoring of radiation from radioisotopes, 4129a
**Morgan, H. D.** Denture, P 5644e.
**Morgan, H. R.** See Wagley, P. F.
——, Enders, J. F., and Wagley, P F. Hemolysin assocd. with the mumps virus, 1103e
**Morgan, J.** See Knott, E B.
**Morgan, Jack D.** See British Resin Products Ltd.; Distillers Co, Ltd.
**Morgan, John D.,** and Lowe, R. E Sealing compds, P 1883c; flushing compn for engine-lubricating systems, P 6406d
**Morgan, J. D., Jr.** Domestic mining industry of the U.S. in World War II—economic mobilization of the mineral base of national power, 4789e
**Morgan, Jack F.** Pyridazones, P 2242h
**Morgan, Joseph F.,** and Parker, R. C Use of antitryptic agents in tissue culture (I) crude soybean trypsin-inhibitor, 9098i
**Morgan, L. B.** Polymerization theory of interest in synthetic rubber production, 8725b; see Bacon, R G. R; Habgood, B. J
——, Russell, P., Gibson, A A., Kinnear, R A, and Heyes, R G Plasticizing polyvinyl chloride compns, P 4514c.
**Morgan, O. M.,** and Walter, J E Low-temp. wool-piece-goods scouring with a synthetic org. detergent—lab. evaluation, 5956d.
**Morgan, P.** See Arnold, R T.
**Morgan, P. F.** Detn. of the type and degree of treatment required for an industrial waste problem, 4796c; pilot-plant treatment of de-inking waste, 8587g
**Morgan, P. W.** Moisture permeability of plastic laminations, 6862d; see Izard, E F.
**Morgan, R.,** and Myers, R. D. Chemically deposited Ag mirrors, 2387f
**Morgan, R. A.,** and Hummel, F. A. Reactions of BeO and $SiO_2$—synthesis and decompn. of phenacite, 8114e.
**Morgan, R. L.** See Nolan, K G
**Morgan, R. S.** See Ambache, N.
**Morgan, S. O.** Principles detg the structure of some complex ionic crystals, 2483i
**Morgan, W.** See Betteridge, W.
**Morgan, W. L.** Plasticized prolamine-base proteins, P 2033h.
—— and Faelten, C. R Plasticized prolamine-base proteins, P 2033fi.
**Morgan, Willard L.** Coating articles with quartz, P 5919b, see Verhoek, F. H.
**Morgan, W. M.** Accelerators for reënforcing furnace black stocks (I) scorch problem, 7743i; see Gudgeon, H.
**Morgan, W. R.** See Hursh, R. K.
**Morgan, W. T. J.** See Aminoff, D.
**Morgans, M. E.** Toxic effects of thiourea, thiouracil, methylthiouracil, and aminothiazole on thyreotoxicosis, 5854f.
**Morgans, W. M.** Recent developments in pigments, 1195d.
**Morgenshtern, Z. L.** See Antonov-Romanovskii, V. V.; Levshin, V. L.
**Morgulis, N. D.** See Borzyak, P. G.
——, Borzyak, P. G., and Dyatlovitskaya, B. I. Optical and photoelec. properties of Sb-Cs cathodes, 32h.
**Morgulis, S.** See Florkin, M.
**Mori, K.** See Kambara, S.
**Mori, Marcel.** See Cherbuliez, E.
**Mori, Masakazu.** See Shibata, Katsutaro.
**Mori, Seichi.** Borax substitute to be used for graphite crucible, P 6803f.
**Mori, Shigehide.** See Sato, Kyuji.
**Mori, Shigeki.** Changes of protein of fat-free soybeans, 732h, 785a.
**Mori, Shoichi.** Restoration of blood protein and colloid-osmotic pressure (I) restoration of blood protein and colloid-osmotic pressure after plasmaphoresis with erythrocytes suspended in various solns., 4310e; (II) influence of sulfonamide prepns. on the restoration of blood protein and colloid-osmotic pressure after plasmaphoresis, 4310f; (III) influence of an As prepn. on restoration of blood protein and colloid-osmotic pressure after plasmaphoresis, (IV) influence of vitamins $B_1$ and C on restoration of blood protein and colloid-osmotic pressure after plasmaphoresis, 6262i.
**Moriguchi, N.** Mannitol, P 3639e.
**Morikawa, Ikuo.** Prevention of oxidation of gasoline (I) antioxidant power of phenols, aromatic amines, and aminophenols, (II) antioxidant power of tar distillate from needle-leaved trees, (III) effect of purification of gasoline, 2414d.
**Morikawa, Isao,** Takashima, S., Abe, N., and Kato, K. Mineral oils (II) prepn. of cold-weather-proof mobile oil from Fushun shale light oil on a semi-industrial scale, (III) examn. of the Höppler viscometer, (IV) ring analysis of mobile oils for winter use, (V) relation between the compn. and the viscosity index of mobile oils for winter use, 2418i
**Morikawa, Kiyomitsu,** and Onda, K. Covering compd. for elec. welding rods, P 6763e.
**Morikawa, Kiyoshi.** See Ishiguro, T.; Sato, F.; Watanabe, Susumu.
**Morikawa, M.** See Nakamura, Shizuo.
**Morikawa, R.** See Sato, F.
**Móri-Konig, G.** See Magyar Viscosa R T.
**Morimoto Store Co.** Gas purifier for combustion engines, P 6397c.
**Morin, C.** Detn of two halogens, 7866a; detn. of piperazine, 7869a.
**Morin, H.** See Quevauviller, A.
**Morinaga Yakuhin K. K.** Theobromine and confectionery raw material from cacao, P 6759c.
**Moring-Claesson, I.** Frontal analysis studies on the adsorption of cryst. egg albumin and its cleavage products, 2650h.
—— and Claesson, S. Adsorption analysis of high-mol. substances, 4066g.
**Morino, Y.** See Mizushima, S.
—— and Iwasaki, M. Estn. of the hindering potential barrier of hexachloroethane by electron diffraction investigation, 4527e.
**Morishima, J.** See Kimura, Motoharu.
**Morisson, B.** Manuf. of rubber soles, butts and heels, 4884g
**Morita, E.** See Ueno, Seiichi.
**Morita, K.** See Kawai, S.
**Morita, Naohiko.** See Ueno, Seiichi.
**Morita, Noriyoshi,** and Yamamoto, I. Effect of pressure on the concn. of heavy O by fractional distn. of water, 7764g.
**Morita, Shigeru.** See Eguchi, T.
**Morita, Shuji.** Radioactivity of soils measured by means of a counting tube, 5298d.
**Morita, T.** See Sakurada, I.
**Moritz, A. R.** See McLean, R.; Roos, A.
**Moritz, H.** Polarographic equipment and experience in works labs., 3307h; see Koppitz, E.
**Moritz, R. & J., Entreprise.** Superphosphate and compd. fertilizers, P 4412e.
**Moriwaki, Y.** Micromethod (XXVII) detn. of milk fat, (XXVIII) estn. of the I no of human milk fat, 8567e; detn. of diastase in human milk, 4724g; peroxidase reaction (CLXXI) diastase content of human milk and its relation to the Arakawa reaction, 4755h; (CLXXV) influence of vitamin B on Arakawa's reaction and diastase content of human milk, (CLXXVI) fat content of human milk and Arakawa's reaction, 9214i; (CLXXX) qual. change of human milk fat in $B_1$-avitaminosis of lactating mothers—relation between Arakawa's reaction and I no. of human milk fat, (CLXXXI) daily variation of the I no. of human milk fat and influence of vitamin $B_1$ on the I no. and Arakawa reaction, 9215d.
**Moriya, Y.,** Okagami, T., and Sato, S. Concn. of dispersed phase of solid colloid, P 7164b.
—— and Sato, S. Solid colloid from blood serum, 7198a.
**Morlan, H. B.** See Dent, J. E.
**Morledge-Hadfield, A. W.** See Mellor, A.
**Morley, F. H. W.** See Shanahan, G. J.
**Morley, J. F.** Detn. of resistance to abrasive wear (VIII) influence of softeners in tests

with the Akron-Croydon and Du Pont machines, 8729*h*.

**Morley, J. S.** See Keneford, J. R.

—— and Simpson, J. C. E. *Bz*-Substituted 3-nitroquinolines, 3420*c*.

—, Simpson, J. C. E., and Stephenson, O. Derivs. of 2,4-dinitrophenylacetone, 1742*b*.

**Morley, W. M.**, and Vand, V. Crystal structure of Sr laurate, 4536*b*.

**Morning, J. L.** See Stephens, W. W.

**Morofsky, W. F.** See Muncie, J. H.

**Morokhovets, T. N.** See Boreskov, G. K.

**Morosow.** See Morozov.

**Moroy, J.** Characteristics of Kirsch, 7635*d*, specific characteristics of liqueurs from stone fruits, 7635*d*; see Bonis, A.

**Moroz, L. M.**, and Frenkel, Ya. I. Hydrodynamics of drops of a suspension falling in pure dispersion medium, 7291*b*.

**Morozov, A. I.** See Chumakov, A. A.

**Morozov, A. N.** See Karnaukhov, M. M.

**Morozov, I. R.** Bonding agent for molding sands, P 6340*d*.

**Morozov, V. M.** See Alikhanyan, A. I.

**Morozova, N. M.** See Malinovskii, M. S.

**Morpeth, J. C.** Compn. of concd. tomato purée and the estn. of the tomato content of tomato ketchup, 3116*a*.

**Morra, F.** Adaptation of *Staphylococcus aureus* Oxford to penicillin, 5078*c*, see Schiavini, A. C.

**Morral, F. R.** Isothermal heat-treatment (I), 1699*d*.

**Morreall, H. W., Jr.** See Duerr, H. H.

**Morrell, C. E.** See Bannon, L. A., Yowell, H. L.

—— and Robey, R. F. Ethyl alcohol, P 7035*i*.

—— and Slotterbeck, O. C. Substituted styrenes, P 680*e*.

—— and Swaney, M. W. Sepn. of $C_4$ unsaturates, P 1793*b*, recovery of diolefins from hydrocarbon mixts., P 1955*g*, removal of acetylenes from diolefins, P 3436*e*; diolefin extraction, P 6217*i*.

**Morrell, E.** See Williams, D. E.

**Morrell, K. E.** See Wilcox, E. B.

**Morrell, S. H.**, Pickering, G. B., and Smith, J. C. Alkylnaphthalenes (II) Me, Et, and Pr naphthalenes, 2608*b*.

**Morrell, W. E.** Exptl. basis for the study of at. structure, 451*c*.

**Morrill, H. L.** See Dvornikoff, M. N.

**Morrill, W.** Improved Si irons (elec. steels) for elec. equipment, 536*d*.

**Morrione, T. G.** Collagen content in cirrhosis, 5110*i*.

**Morris, C. S.**, and Edwards, M. A. Limitations of the colony-count test for assessing the total no. of viable bacteria in raw and heated milk, 6748*h*.

**Morris, D. P.** See Owen, E. A.

**Morris, D. S.** See Baxter, R. A.; Hey, D. H.

**Morris, E. D.**, and Griess, G. A. Rosin styrene interpolymers, P 5638*i*.

**Morris, F. J.**, and Lockenvitz, A. E. Distribution of Po on thin Ag and Bi films, 4093*h*.

**Morris, H. D.**, and Pierre, W. H. Effect of Ca, P, and Fe on the tolerance of lespedeza to Mn toxicity in culture solns., 3067*f*; min. concns of Mn necessary for injury to various legumes in culture solns., 7088*b*.

**Morris, H. E.**, Lacombe, R. E., and Lane, W. H. Detn. of elemental S in aromatic hydrocarbons, 1685*d*.

——, Lane, W. H., and Stiles, R. B. Analysis of hydrocarbon mixts., 8973*g*.

**Morris, H. P.** Chem. changes in pyrolyzed lard and biol. effect produced in rats ingesting heated fats, 5102*i*; see Dalton, A. J.

——, Dunn, T. B., and Dubnik, C. S. Two transplantable carcinomas induced with *N*-acetyl-2-aminofluorene, 8046*h*.

—— and Westfall, B. B. Distribution of *N*-acetyl-2-aminofluorene following a single feeding, 3107*e*.

**Morris, H. T.** See Lovering, T. S.

**Morris, J. C.** See Conant, G. H., Jr., Fair, G. M.; Moore, E. W.; Weil, I.

**Morris, J. I.** Basic problems in gas dehydration, 836*h*.

**Morris, J. P.**, and Williams, A. J., Jr. Effect of Si on the activity of S in liquid Fe, 4991*i*.

**Morris, J. S.** NaH-descaling of stainless and clad steels, 551*h*.

**Morris, J. W.** See Griswold, J.

**Morris, K. B.**, and Davidson, E. M. Detn. of $N_2O$, 6110*a*.

**Morris, K. R. S.**, and Morris, M. G. Use of traps against tsetse in W. Africa, 7629*g*.

**Morris, L.** Multiple vitamin concentrates in turkey breeding rations, 9193*e*.

**Morris, L. C.** Solvents, P 1883*e*; corrosion-preventing compn. and method of applying, P 8349*d*.

**Morris, M. G.** See Morris, K. R. S.

**Morris, M. K.** See Arbogast, A. H.

**Morris, M. M.**, and Kleeman, A. K. Detergent compn., P 6438*e*.

**Morris, M. S.** See Gosting, L. J.

**Morris, N.** Lowering the temp. of Dry-Ice refrigerated chamber, P 915*a*.

**Morris, P. G.** See Tolansky, S.

**Morris, R. C.** See Shokal, E. C.; Snider, A. V.

—— and Horowitz, R. M. Sulfolanyl carbamates, P 6668*b*.

—— and Melchior, N. C. Hydrogenation of unsatd. cyclic sulfones, P 1065*e*.

—— and Shokal, E. C. Alkenyl sulfolanyl and sulfolenyl carbonates, P 690*i*, sulfolanyl esters, P 1441*e*, sulfolanyl sulfones, P 2237*c*, preventing ice formation on surfaces, P 5135*i*.

——, Shokal, E. C., and Van Winkle, J. L. Esters of sulfolene halohydrins, P 3466*b*.

—— and Snider, A. V. Amino trimethyl hexenoic acids and their lactams, P 3451*b*, secondary sulfolanylamines, P 3851*a*.

——, Snider, A. V., and Bishop, E. T. Methylpentadiene-aralkenyl copolymers, P 6458*d*.

—— and Van Winkle, J. L. Hydrogenated polyhexadienes, P 2038*g*, sulfolene halohydrins, P 3851*e*, monochlorocyclic sulfones, P 5185*g*; adducts of unsatd. acids with cyclic polymers of hexadienes—production and utilization, P 5637*b*.

——, Van Winkle, J. L., and Shokal, E. C. Alkenyl 3-sulfolanyl sulfides, P 3851*g*.

**Morris, R. E.**, and Hollister, J. W. C black dispersion in rubber—effect of fatty acids, 1599*f*.

——, Hollister, J. W., and Mallard, P. A. Comparison of cements for bonding nitrile rubber to steel, 1215*h*.

——, James, R. R., and Seegman, I. P. Effect of accelerators on the phys. properties of nitrile-rubber vulcanizates, 3649*b*.

**Morris, S.** See Jones, A., Marriott, R. H.

——, Herwig, G., and Jones, A. Assay of vitamin $B_6$, 4311*i*.

**Morris, S. G.** Prepn. of gentisic acid and its fatty acid esters, 7006*i*.

**Morris, T. B.** Economy in production—furnace management, 8999*a*.

**Morris, T. M.** See Schlechter, A. W.

**Morrish, A. H.** See Allen, J. S.

**Morrison, A.** Stray-radiation measurement with x-ray film, 189*g*.

—— and Morton, F. Photomicrography of tracks in nuclear research emulsions, 7328*b*.

**Morrison, A. L.** See Bergel, F.; Roche Products Ltd.

**Morrison, E. J.** See Seigmund, O. H.

**Morrison, F. B.** See Willman, J. P.

**Morrison, F. R.** See Penfold, A. R.

**Morrison, G. A.** See Dagley, S.; Higginbotham, R. S.

—— and Hinshelwood, C. N. N utilization and growth of coliform bacteria (I) adaptation to growth in $NH_4$ salt media, (II) relation between growth and deaminase activity, (III) N utilization and lag phase, 7083*g*.

**Morrison, G. O.**, Lossing, F. P., Heatley, A. H., and Germain, J. F. L. M. Polyvinyl acetal, P 3240*g*.

—— and Shaw, T. P. G. Sticking together layers of flexible sheet material, P 7756*e*.

——, Shaw, T. P. G., Mercier, J. D. P.-E., and Collins, H. M. Polyvinyl acetate emulsion adhesive, P 3240*d*.

**Morrison, J. D.**, Binnie, W. P., and Robertson, J. M. Effect of H atoms on intensities of x-ray reflexions, 2507*e*.

**Morrison, J. L.** See Nay, M. A.

**Morrison, James L.**, and Farrar, C. H. Effect of $NEt_4Br$ on adrenal medulla, 6734*b*.

**Morrison, L. M.**, and Rossi, A. Absorption of aortic atherosclerosis by choline feeding, 1478*g*.

**Morrison, P. R.** See Singer, M.

——, Ridsall, J. T., and Miller, S. G. Plasma proteins (LXIX) prepn. and properties of serum and plasma proteins (18) sepn. of purified fibrinogen from fraction I of human plasma, 746*h*.

—— and Singer, M. Products of human plasma fractionation (XXXV) persistence of fibrin film in tissues and its modification by heat, 7110*i*.

**Morrison, R. I.** See Freeman, G. G.

**Morrison, T. J.**, and Billett, F. Measurement of gas solubilities, 5264*d*.

**Morrisroe, J. J.**, and Newhall, R. G. Evaluation of ternary mixts.—synthetic detergent-soap builder, 3635*i*.

**Morrogh, H.**, and Grant, J. W. Nodular cast irons, their production and properties, 535*b*, 4990*a*.

**Morrow, C. H.** Water-treating device, P 4406*g*.

**Morrow, H. C.** Quality control in tin-plate production, 6923*a*.

**Morrow, K. S.** See Erb, R. E.; Keener, H. A.

**Morrow, L.** 15 min. pig iron, 2517*h*.

**Morrow, R. W.**, and Parsons, J. L. Removal of volatile substances from aq. dispersions of elastomeric materials, P 9518*f*.

**Morse, C. K.** Electrified riffleboard, screen, and trap for demulsifying oil mixts., P 8760*b*.

**Morse, E. E.** Anthrone in estg. low concns. of sucrose, 5613*f*.

**Morse, E. H.** Electrified riffleboard, screen, and trap for demulsifying oil mixts., P 8760*b*.

**Morse, G. O.** See Bowes, J. H.

**Morse, I. H.** How to prevent sugar losses in the La. cane fields, 125*e*.

**Morse, L. M.** See Heussner, C. E.

**Morse, M.** See Goldner, M. G.

**Morse, M. L.**, and Carter, C. E. Synthesis of nucleic acids in cultures of *Escherichia coli*, strains B and B/r, 9155*d*.

**Morse, R. A.** See Huggins, R. A., Keller, W. O.

**Morse, R. D.** Fluidization of granular solids—fluid mechanics and quality, 6174*h*.

**Morse, R. E.** Triphenyltetrazolium chloride as an indicator for blanching, 8496*i*.

**Morse, R. S.** High vacuum dehydration and distn., 81*a*.

**Morse, W. G.** Cleaning and Cleaning Materials (book), 1585*g*.

**Morse, W. I., II.** See Conley, C. L.

**Mort, J. H.** Sheet and tinplate manuf.—pickling process, 2916*i*.

**Mortara, P.** Sorbitol in the wines of the province of Alessandria (Italy), 8607*b*.

**Mortarino, M.** DDT, P 1808*b*.

**Mortenson, C. W.** Polyvinyl ale. plasticizers, P 1514*a*, mixed esters of polyhydric ales. with mercaptocarboxylic and drying oil acids, P 9081*f*.

**Mortimer, R. H.** See Ballard, S. A.; Winkler, D. E.

**Morton, A. A.** Alkenyl alkali metal compds., P 1795*b*.

—— and Little, F. L., Jr. Polymerization (X) metalation of alkylaryl hydrocarbons and their use in the polymerization of butadiene, 3346*d*.

—— and Ramsden, H. E. Polymerization (VIII) action of metalating reagent on rubber, 429*g*.

——, Welcher, R. P., Collins, F., Penner, S. F., and Coombs, R. D. Polymerization (IX) metalation during alfin polymerization of butadiene and the formation of gel, 3345*i*.

**Morton, B. B.** Destruction of an Admiralty tube bundle by stress corrosion in the presence of Hg, 6142*a*, metallurgical means of struggling with corrosion in the petroleum refineries, 8127*i*.

**Morton, C.** Feedback potentiometer for the measurement of pH values and oxidation reduction potentials, 2044*i*.

**Morton, F.** See Morrison, A.

**Morton, F. A.** See Jones, H. A., Travis, B. V.

**Morton, G. A.**, and Mitchell, J. A. Performance of 931 A type multiplier as a scintillation counter, 6076*f*.

—— and Robinson, K. W. Coincidence scintillation counter, 4111*f*.

**Morton, J. J.** See Mider, G. B.

**Morton, J. R.** See Latham, H. H.

**Morton, M.** See MacLean, D. B.

—— and Nicholls, R. V. V. Catalytic action of Al silicates (III) conversion of 1,1-diphenylethane to styrene over Morden bentonite, 1251*c*.

**Morton, R. A.** See Glover, J., Scott, M.

**Morton, R. K.**, and Vincent, J. M. Influence of time and temp. of storage on dye-reduction tests in milk, 2337*b*.

**Morton, T. H.** Diffusion of dyes in cellulose, 3199*g*, see Cameron, W. G.

**Morton, W. E.**, and Permanyer, F. Torque-

twist relations in single and multiple rayon filaments, 6421*i*.
**Morton Chemical Co.** Rendering anionic coating materials adherent to anionic bases, P 5643*h*
**Morway, A. J.** High-temp. grease, P 5940*f*; gear lubricant, P 8132*a*.
——— and Daniels, C. R. Grease compn., P 5940*g*.
——— and Leland, H. L. Transparent metal fabricating lubricant, P 9433*b*.
——— and Young, D. W. Oil-insol. lubricant, P 5184*a*.
——— and Zimmer, J. C. Lubricating grease, 3918*b*, 1562*d*, 5183*h*; sol. cutting-oil base, P 6406*b*.
**Moryganov, B. N.** See Malinovskiĭ, M. S.
**Moryganov, P. V.** See Kuzub, N. N.
**Moščinskaja, N. K.** See Moshchinskaya, N. K.
**Moscowitz, A.** Lubricants for textile materials, P 2424*f*, viscosity reduction of petroleum mahogany sulfonate hydrocarbon solns., P 6822*d*.
**Moseley, H. M.**, and Roseu, N. Neutron-proton interaction, 4089*h*.
**Moseley, V.**, and Chornock, F. W. Intubation studies of the small intestine (XXV) absorption of galactose from intestine of normal individuals and thyrotoxic patients, 2684*a*.
**Moser, A.** Clausius Clapeyron equation, 8774*i*.
**Moser, H.** Fermentation problems in galenical pharmacy, 5901*i*, see Hoffmann-Ostenhof, O.
**Moser, H. A.** See Dutton, H. J.
**Moser, P.**, and Krause, P. Influence of drugs on the "easily-split" Fe of blood, 8051*c*.
**Moses, A. L.** Fungicide tests, 3961*d*
**Moses, F. L.**, and Rodde, A. L. Testing of GR-S polymers for pigmenting, discoloring, and staining properties 1209*h*
**Moses, G. B.**, and Puddington, I. E. Flow properties of dispersions of Ca soaps in hydrocarbon oil, 8710*i*.
**Moses, G. L.** Silicone insulation extends magnet coil temp limitations, 4018*g*
**Moses, M. J.** Nucleoproteins and the cytological chemistry of *Paramecium* nuclei, 9148*a*
**Moses, S. G.** See Friedenwald, J. S.; Herrmann, H.
**Moses, W. B., Jr.** Maintenance of hypochlorinators, 6704*g*
**Mosesman, M. A.** Fe oxide alkali metal pyroantimonate cat lyst, P 1950*e*, 4448*d*, Fe oxide alkali metal ferrate catalyst, P 1950*f*, 6338*g*
**Mosettig, E.** See May, E. L.; Tabor, H. and Mozingo, R. Rosenmund reduction of acid chlorides to aldehydes, 2155*i*.
**Mosharrafa, A. M.** Metric of space and mass deficiency, 4097*a*.
**Moshchinskaya, N. K.** See Silin, N. I.
**Mosher, A.** See Bonner, W. A.
**Mosher, H. S.** See Adams, R. R.; Goetz, Luthy, N.
**Mosher, R. E.** See Willard, H. H.
———, Boyle, A. J., Bird, E. H., Jacobson, S. D., Batchelor, T. M., Iseri, L. T., and Myers, G. B. Use of flame photometry for the detn. of Na and K in plasma and urine, 5441*g*
**Mosher, W. A.** Education for professional training, 5650*c*
——— and Langerak, E. O. Oxidation of some aliphatic ales. with chromic acid, 2925*i*.
**Moshkin, P. A.** See Danilovich, A. I.
**Mosier, M.** See Boos, M. F., Botsford, C. B.; Hermance, H. P., Maillot, E. E., Stampe, J. A.
——— and Thomas, M. L. Anson Betts Mine, Hampshire County, Mass., 4981*a*
**Mosig, A.** Pharmakologie in der Zahnheilkunde (book), 8064*i*
**Moskowitz, M.** See Li, C. H.
**Moskowitz, S.** Safety for lab technicians, 1613*b*, see Smith, A. R.
**Moskvin, A. V.** Decay of luminescent materials excited by cathode rays, 5670*a*.
**Moskvina, E. K.** See Kobeko, P. P.
**Moskwine, A. W.** See Moskvin, A. V.
**Mosmieri, L.** Abrasive, P 3164*i*.
**Mosna, E.** Resistance of *Culex pipiens autogenicus* to DDT and control with Octa-Klor and hexachlorocyclohexane, 2360*d*; efficiency of DDT aq. solns., 6355*c*.
**Mosnier, M. M.** 2-(*p*-Acetamidophenylsulfonyl)guanidines, P 4298*a*; see Bouvier, M. E.
**Mosolov, I. V.** N metabolism by plants in the absence of Cu in the soil, 3888*h*.
**Mosonyi, J.**, and Hermann, S. V. Influence of compds. related to adrenaline on carbohydrate metabolism, 5493*h*.
**Mosonyi, L.**, Held, R., and Kocsán, C. Diffusion of penicillin, 4714*c*.
——— and Oblatt, E. Changes in the glutathione content of the blood during treatment with penicillin and their role in the mechanism of penicillin action, 9245*h*.
———, Oblatt, E., and Surján, M. G. Diminishing penicillin excretion by a diet promoting synthesis of hippuric acid, 9244*e*.
———, Pálos, L. A., and Komáromy, J. Penicillin and blood coagulation, 4378*h*.
——— and Porszász, J. Digitalis sensitivity of persons treated with penicillin, 8547*h*.
———, Surján, M. G., and Szécsey, G. Effect of penicillin treatment on the bacterial flora of the digestive system, 9245*c*.
——— and Szendei, Á. Effect of penicillin on the frog heart, 9245*d*
**Mosqueda Suárez, A.** See Andrade, J. L.
**Mosqueira Toribio, A.** Heat of Cr-Ni steel in a basic 8 metric-ton Demag elec. furnace, 5018*b*, glyceryl esters of $H_3PO_4$, 7902*b*.
**Moss, A. R.** See Bergel, F.; Roche Products Ltd.
**Moss, C. J.** Plastic bonding for composite wood and metal structures, 2029*g*; synthetic resin for surface coating and filling irregular surfaces, 7259*f*.
**Moss, D. G.** See Gillam, A. E.
**Moss, H. V.**, and Wells, L. E., Jr. Mineral supplements, P 9295*b*
**Moss, J. N.** See Avakian, S.; Martin, G. J.
——— and Martin, G. J. Inhibition of lysozyme activity, 8405*h*
———, Urist, R., and Martin, G. J. Pantothenic acid analogs, 2680*h*.
**Moss, N.** Prepn of B-coated ion chambers, 4560*g*.
**Moss, N. H.**, Schafer, R. L., and Kirby, C. K. Anticoagulant effect of dicoumarol at various prothrombin levels, 761*e*.
**Moss, P. H.** See Cook, E. W.
——— and Cook, E. W. Aliphatic amide-substituted propyl quaternary $NH_4$ compds., P 2630*i*.
**Moss, S. A., Jr.** See Detwiler, G. T.
**Moss, W. C.** See Fitton, A.
**Moss, W. H.** Hollow articles from cellulose-deriv compns., P 4899*g*; coating of reinforced glass substitutes, P 5952*a*.
**Mossel, D. A. A.** Derivs. of folic acid and their role in the pharmacotherapy of macrocytic anemia, 5100*b*; Water Bonding and Water Determination in Foods (book), 5130*f*, see Reith, J. F.
**Mostardini, R.** See Marchiaro, E.
**Mostek, J. L.** β-Chloromethacrylonitrile, P 3837*b*.
**Mosto, O.**, and Cavanna, A. M. Detn. of glucose and urea in blood, 4317*h*.
**Mostovetch, N.** See Darmois, E.
**Mosyagina, M. A.** See Babueva, A. V.
**Moszew, J.**, Buczkówna, B., and Smoliński, S. Synthesis and reactions of 2-aryl-4-arylaminoquinoline, 3002*e*.
——— and Famielcowna, H. Reaction of thiocarbanilide with phenylacetaldehyde, 3003*f*.
**Motáček, D.** See Žáček, J.
**Motawi, M. M.** See Arwady, M. M. E.
**Mote, D. C.** See Fairchild, H. E.
**Mote, R. H.** Sb, As, Bi, Cd, 2126*i*; Pb, 2127*d*.
——— and Miller, E. B. Zn, 2127*h*.
**Motegi, K.** Detn. of blood sugar, 5819*f*.
**Motiramani, D. P.** See Das, S. C.
**Motiwala, D. K.** See Khorana, M. L.
**Motohashi, S.** See Nagai, R.
**Motokawa, K.**, Narita, T., and Endo, N. Skin potential and oxidation in skin at different H-ion concns., 4707*c*.
**Mott, N. F.** Latent-image theory, 2527*g*; theory of liquid He (II), 4063*h*; oxidation of metals, 6896*a*; mech. properties of metals, 8325*a*; semiconductors and rectifiers, 8910*h*.
——— and Gurney, R. W. Electronic Processes in Ionic Crystals (book), 4582*b*.
——— and Sneddon, I. N. Wave Mechanics and its Applications (book), 2517*b*.
**Mott, N. S.** High temp. characteristics of heat-resistant alloys, 9010*e*.
**Mott, R. A.** Coal assessment, 1549*a*; coking coals, 7667*h*.
**Motta Lyra, P.** Measurement of blood Na, 5438*a*.
**Mottern, H. O.**, and Archibald, F. M. Alcohol production from olefins, P 5901*g*; distn. of alc. from hydrolyzed mixts. of alkyl sulfates and sulfuric acid, P 6645*f*.
——— and Mistretta, V. F. Unsatd. ketones, P 2222*g*
**Mottershaw, F. G.** Fleximer materials for the building industry—natural rubber latex-cement compns., 7208*d*.
**Mottier, M.** Phosphatase in milk—detection of pasteurization of milk and milk products by the phosphatase reaction, 5876*i*.
**Mottram, V. H.** Human Nutrition (book), 3902*i*.
——— and Graham, G. Hutchinson's Food and the Principles of Dietetics (book), 4390*f*.
**Mottram, W.** Gas washers, and $C_6H_6$, $NH_3$ and like stills, P 5649*c*.
**Motzok, I.** See Hill, D. C.
——— and Branion, H. D. Vitamin D requirements of growing ducks, 285*e*.
——— and Slinger, S. J. Ca and P requirements of broad-breasted bronze turkeys, 285*f*.
**Moualim, R. J.**, and Peters, A. T. Anthraquinone series (II) nitro- and amino-*tert*-butyl- and butylanthraquinones and derived blue acid dyes, 1761*a*.
**Moubasher, R.** Estn. of α-amino acids in pure solns., in blood, and in urine, 265*a*; reaction of *peri* naphthindan-2,3,4-trione hydrate with L-ascorbic acid and other enediol compds., with a note on the isolation of dehydro-L-ascorbic acid, 2667*d*; indene derivs. (VI) derivs. of triketoindan hydrate (ninhydrin), 7012*h*; see Schönberg A.
——— and Awad, W. I. Microestn. of α-amino acids, 7378*h*
——— and Ibrahim, M. Indene derivs. (V), 7012*f*
——— and Sina, A. Detn. of α-amino acids in pure solns.—its use in blood and urine, 9137*i*.
**Moucharafyeh, H.** See Morand, M.
**Mouchiroud, A. F. G.**, and Trillat, J. A. App for dry-spinning of vinyl polymers, P 7753*e*.
**Moudgill, K. L.** See Mathai, A. O.; see Varier, N. S.
**Mouflard, M.** See Chossat, H.
**Moulder, P. V.** See Allen, J. G.
**Moulé, Y.** See Le Breton, E.
**Moulin, M.** See Gnaetz, A.
**Moulton, H. R.** Reflection reducing $SiO_2$ coatings, P 6803*a*.
——— and Tillyer, E. D. Reflection-modifying coatings, P 4900*c*.
**Moulton, J. E.** See Carlson, R. F.
**Moulton, R. W.** Oxides of Mn, P 2746*a*; elec.-furnace fertilizer—Ca Mg phosphate, 7175*d*.
**Mouneyrat, A.** Pure sulfonamides, P 3042*b*.
**Mountford, N. D. G.** See Clayton, H. R.
**Mountjoy, W.** See McKee, S. A.
**Moura, J. E. da C.** See Costa Moura, J. E. da.
**Moura Gonçalves, J.** See Pereira, L. R.
**Mouratch, N. N.** See Murach, N. N.
**Mouratowa, N. I.** See Muratova, N. I.
**Moureau, P.**, Heusghem, C., Collard, A., Xhenseval, P., and Quinet, L. Legal medicine and the biol. and chem. modifications connected with pregnancy, 8496*g*.
———, Quinet, L., and Heusghem, C. Acute poisoning by seconal Na, 3104*h*.
**Moureu, H.**, Süe, P., and Magat, M. Raman spectra and mol. structure of some compds of the type ACl, 2513*i*.
**Moureu, Henri**, Dodé, M., and Dodé, H. Prepn. of diethylene glycol, 6163*a*.
**Mourgue, M.** Guanidine groups of insulin, 2650*e*, see Roche, J.
**Mouriquand, G.** Vitamin A hypervitaminosis, 9189*c*; see Abderhalden, E.
———, Dauvergne, M., and Edel, V. Lemon juice as a stimulant of osteoclast formation in dietary deficiencies—antivitamins or dietary toxins, 6295*a*.
——— and Dechavanne, D. Effect of a single dose of vitamin D in infantile rickets, 8027*c*.
——— and Edel, V. Defective osseous calcification in rickets and in scurvy, 6295*b*.
———, Edel, V., Chelmo, K., and Zathurecky, J. Latent dystrophies, alimentary deficiencies and hematopoietic disturbances, 1471*h*.
———, Edel, V., and Chighizola, R. Nicotinic acid, nicotinamide, and vestibular chronaxia, 4351*i*; vitamins and alimentary deficiencies—B complex and vestibular

chronologic index, 4740g; duration of alc. action and chronaxie, 5499i.
——, Rollet, J., and Edel, V. Avitaminosis A in pigeons, 2681b.
**Mouromtsev, V. S.** See Muromtsev, V. S
**Mousa, A. A.** See Tourky, A. R.
**Moussakine, A. P.** See Musakin, A. P.
**Mousseron, M.** See Winternitz, F.
——, Jullien, J., and Winternitz, F. Alicyclic series (XXIII) compds. with extranuclear substitutions, 588d.
—— and Manon, G. Reactions of several derivs. of cyclohexene—action of H halides and of *N* bromosuccinimide, 2173g, action of diazomethane on alicyclic ketones, 2965i.
——, Winternitz, F., Martin-Péridier, Y., and Vincent, M. Sulfanilamide derivs., 1028a.
**Moustardier, G.** See Carrére, L.
**Mouton, M. J.**, and Borezée, R Na chlorite in the fat industry, 8705f
**Mouzon, J. C.** Simple temp. controller, 448f
—— and Dyer, C. A. Low-temp radiation pyrometry in industry, 4056g
**Mowat, J. H.** Substituted pyridine lactone, P 3045b; 2-methyl 3 amino-4-carboxy-5-aminomethylpyridine lactam, P 7972e; see Angier, R. B, Hutchings, B. L.
—— and Boothe, J. H. Desoxyisoxanthopterins, P 7052h
**Mowat, J. M.** S in the basic elec.-arc furnace, 4581h
**Mowery, D. F.** Alkylmercury derivs. of sulfonamides, P 1805c.
**Mowry, A. L.** See Norton, J. T.
**Mowry, D. T.** 1-Phenylethylidenemalononitrile, P 3461a; styrene 3 benzylidine phthalide copolymers, P 7754a
—— and Craig, A. B. Synthetic rubber, P 2026a
—— and Ham, G. E. Vinyl halobenzoates, P 5014r; vinyl alkoxybenzoates, P 5015b
—— and Mills, C. L., Jr. Copolymer of styrene and a phenyl-vinyl acetate, P 7264d.
——, Ringwald, E. L., and Renoll, M. W. Vinyl aromatic compds. (VI) alkylidenephthalides and related compds., 2974a.
—— and Yanko, W. H. Fumaronitrile, P 7498h.
**Moxness, J. B.** Curing controls speed block-making, 9409g.
**Moy, J. A. E.** Production of aromatic hydrocarbons for aviation fuels by solvent extn. (I) prepn. of 75 and 95% concentrates, (II) plant operation at Abadan, 2761d
**Moya, F.**, Prado, J. L., Rodríguez, R., Savard, K., and Selye, H. Effect of the dietary protein concn. on the secretion of adrenocorticotropin, 8035g.
—— and Selye, H. Effect of desoxycorticosterone on hypophyseal corticotropin production, 315a.
**Moyer, A. J.** Penicillin, P 6283h; see Lockwood, L. B.
**Moyer, A. W.** See Cox, Herald R.
**Moyer, B. J.** See Bratenahl, A.; Janney, C. D.; Parmley, T. J.
——, Hildebrand, R., Knable, N., Parmley, T. J., and York, H. Character of the radiation field and shielding at the 184-in. cyclotron, 4092g.
**Moyer, E. Z.**, and Macy, I. G. Nutritional reconditioning of children, 3498b.
**Moyer, F.**, Davis, V. E., MacVicar, R., Staten, H. W., and Heller, V. G. Vitamin content of small grain and annual ryegrass clippings, 8574c.
**Moyer, J. C.** See Holgate, K. C.; Robinson, W. B.
——, Robinson, W. B., and Kertesz, Z. I. Conserving vitamin C in peas during processing, 5129f.
**Moyer, R. C.** See Smith, G. T.
**Moyer, S. P.** Flotation sepn. of apatite from Ti minerals, P 5727d
**Moyer, W. W.** Sauces resembling soy sauce, P 2734f, corn steepwater, P 8106e; see Marmor, R. A.
—— and Marmor, R. A. Treating glyceride oils with activated MgO, P 2452c
**Moyle, C. L.** See Britton, E. C.
**Moyle, V.** Nitrogenous excretion in chelonian reptiles, 9270i.
**Moynahan, E. J.**, and Watson, D. Failure of antihistamine drugs to inhibit hyaluronidase, 4383c.
**Moyse, A.** Biologie et physico-chimie (book), 3054c; nitrogenous nutrition and metabolism of detached leaves, 3891b; see Plantefol, L.
**Moyse, J. A.** See Lane, E. S.
**Moyse-Mignon, H.** See Paris, R.
**Moyson, F.** Ca content of pus, 3512d.
**Mozgova, K. K.** See Zhevandrov, N. D.
**Mozgovaya, R.** Gains from packing house cooked feeds, 5464h.
**Mozingo, A. K.** See Henderson, L. M.
**Mozingo, R.** Hydrogenolysis of thiol esters, P 3445c; see Folkers, K.; Harris, S. A.; Holly, F. W.; Mosettig, E.
——, Folkers, E., and Folkers, K. α-Acetamido-β,β-dimethylacrylic acid, P 3030b.
**Mrak, E. M.** See Williams, O. B.
——, Phaff, H. J., and Mackinney, G. Test for carotinoid pigments in yeasts, 5446g.
**Mravec, J. G.** Effects of refractories on cleanliness of steel, 1301d.
**M. & R. Dietetic Laboratories, Inc.** Low-ash crude lactose, P 5130i; stabilizing evapd. milk, P 7601i, high-grade crude lactose, P 8072c.
**Mrose, M. E.**, Mayers, D. E., and Wise, F. A. Adamite from Ojuela Mine, Mapimi, Mexico, 8985i.
**Mrowca, B. A.** See Ivev, D. G.; Witte, R. S.
**Mrozowski, S.** Structure of the Hg band λ 2540, 4094i.
**Mubag Mühlen- & Backerei-Produkte A.-G.** Baking aid contg. lactic acid, P 4396g.
**Mucciolo, P.**, Assis Ribeiro, P., and Bonoldi, V. Detn. of peroxide value in cottonseed oil, lard, and butter, 2450c
——, Lacaz, C. S., and Assis Ribeiro, P. Penicillosis in cheese—action of the Na ethylmercurithiosalicylate in preventing alterations produced by *Penicillium* sp., 2337c.
**Muckenhirn, R. J.**, Whiteside, E. P., Templin, E. H., Chandler, R. F., and Alexander, L. T. Soil classification and the genetic factors of soil formation, 6769f
**Muckerheide, V. J.** See Myers, L. D.
**Mudge, G. H.**, Foulks, J., Gilman, A., Wenk, J., and Eberhardt, A. Effect of urea diuresis on renal excretion of electrolytes, 8512g
——, Manning, J. A., and Gilman, A. Na acetate as a source of fixed base, 6309h.
**Mudra, A. E.** See Feaster, J. F.
**Mudrák, O.** See Hamous, J.
**Mudrow-Reichenow, L.** See Kikuth, W.
**Mudzhiri, K. S.** Periplocin, P 5811b
**Mühe, R.** Anemone oil, 6366b
**Mühlbock, O.**, Knaus, H., and Tscherne, F. Weiblichen Sexualhormone in der Pharmakotherapie (book), 6745g
**Mühleder, Hans.** Activation of combustion of gaseous, liquid, or solid fuels by use of $O_3$, P 4835e.
**Mühleder, Herbert.** See Bruderlin, A.
**Mühlemann, H.** Anthraquinone and anthraquinone glycosides, 2981g; (II) chrysazin glycoside, (III), 5019g, see Ingold, H.
—— and Schenkegger, W. Biol. evaluation of saponins with the aid of Tubifex worms, 3001; prepn. of Primula ext., 1907a
**Mühlendyck, W.** Utilization of benzene fore-runnings, 1550a
**Muehlhause, C. O.** See Goldhaber, M.; Hibsdon, C. T.
**Muehlhause, W.** See Emery, A. H.
**Muehlhausser, C.** See Dawsey, L. H.
**Mühlmann, R.** See Brockmann, H.
**Müller, Adelheid.** See Schwartz, W.
**Müller, Adolf.** Structural analogs of carcinogenic compds., 7013b
—— and Schneyder, J. 4-Hydroxy-3-coumarinacetic acid, 7935f.
**Mueller, Alexander.** Absorption spectra of steroid-$SbCl_3$ reaction products, 5307g; binding of atoms in org. chemistry (I), 7895i
**Müller, Aloys.** Transport of O through thin layers of water and hemoglobin solns., 255c.
**Müller, A. B.** See Brieghel-Muller, A.
**Müller, A. F.** See Leuthardt, F.
**Müller, D.** Dead storage tissue in living seeds, 726a, Plantefysiologi (book), 3496c; see Dalbro, S.
—— and Holm, F. Respiration of the endosperms of grasses, 1834i.
**Müller, Dagobert.** See Vincke, E.
**Müller, Ernst.** See Heinz, E.
**Müller, Erwin.** See Petersen, S.
**Müller, E. G.** See Schikore, W.
**Müller, Friedrich.** See Hove, H. v.
——, Eilender, W., and Wagner, K. M. Hard chrome plating with superimposed high frequency a.c., 8904g.
—— and Reuther, H. Behavior of Cu plate in Hg salt solns. of various $Hg^+$ concns., 6520e.
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**Müller, F. Horst.** App. method for establishing tension-stretch diagrams of single fibers under extreme conditions, 9456c
**Mueller, Frank H.** App. for quenching armor-piercing steel projectiles, P 2153f.
**Mueller, F. P.** Analyses and tests, 6393i.
**Mueller, F. W. H.** Control of contrast with aromatic diamine color developers, P 4591g; Au treatment of photographic Ag halide emulsions, 5682i, 7842c
—— and Bayley, A. Photographic color-forming dyes, P 513i.
**Müller, G.** Nachweis von Keimen der Typhus-Paratyphusgruppe im Wasser (book), 8080g.
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**Mueller, G. C.**, and Miller, J. A. Metabolism of 4-dimethylaminoazobenzene by liver homogenates, 2306g.
**Müller, G. O.** Praktikum der qualitativen anorganischchemischen Analyse (book), 1292a.
**Mueller, G. P.** See Dauben, H. J., Jr.
—— and Pelton, W. S. Prepn. of 2-nitro-3,4-xylenol, 5758e.
——, Stiller, E. T., and Lieberman, S. V. Nordihydroguaiaretic acid and intermediates, P 7047e.
**Müller, H. F.**, and Muller, I. Behavior of phenol, cresol, and xylenol in the condensation with $CH_2O$, 1603e.
**Müller, H. H.** Diphenylarsine chloride as poison of mitosis, 7576d.
**Müller, I.** See Muller, H. F.
**Müller, Joachim.** Enol-keto rearrangement of the leuco compds. of the anthraquinone vat dyes, 3199g, light fastness through the use of Indanthrene Olive Green B and other vat dyes—relation to light-fastness, 7687g.
**Mueller, Justin.** Colored substances and dyes, 942b
**Mueller, J. H.** Device for regulating pressure or vacuum, 6007i
—— and Miller, P. A. Inhibition of tetanus toxin formation by α-serine, 5826h.
**Müller, K. H.** Prepn. of collodion, 1565d.
**Müller, K. R.** See Rudy, H.
**Müller, M.** See Erlenmeyer, H.; Staub, H.
**Mueller, M. B.** Oxidation of heterocyclic aromatic N compds., P 697c; see Teeters, W. O.
**Müller, Olav.** Chemistry of beech wood (IV) changes of genuine beech lignin in its isolation, 154d, beech wood, 6407a.
**Müller, Oskar.** See Englehard, H.
**Müller, O. A.** Tanning material from sulfite waste liquor, P 5982g
**Müller, O. H.** See Heyrovský, J.
**Müller, P.** See Urech, P.
**Müller, P. B.** Detn. of the stability of vitamin A, fats, and oils, and the action of antioxidants, 1583g.
**Müller, R. H.** Instrumentation [in anal. chemistry], 2113g.
—— and Clegg, D. L. Automatic paper chromatography, 8776i
**Müller, R. M.** Prepn. of Mg minerals for the production of Mg, 2553c.
**Müller, Sándor.** Same as Mueller, Alexander.
**Müller, U.** See Pailer, M.
**Mueller, W.** Al *vs.* steel alloys, 6135g.
**Mueller, W. S.** Stabilization of butter, P 7160a.
**Mueller Co.** App. for quenching armor-piercing steel projectiles, P 2153f.
**Müller-Hester, H.** Friedrich Wilhelm Adam Sertürner, discoverer of morphine, 7275f.
**Müller-Hillebrand, D.** Formation of explosive vapor/air mixts. with blends of hydrocarbons and their true flashpoints, 5187f.
**Müller-Stoll, W. R.** Effect of the nutrient supply on the assumption of xeromorphic forms by plants of high moorlands, 5089a; roots of bracken *Pteridium aquilinum* and their utilization for food and fodder, 5880g.
—— and Michael, K. Storage of reserve materials in the rhizome of the female fern *Pteridium aquilinum*, 7551h.
**Müller-Uri, G.** Spectral-analytical investigations of sand-cast and chill-cast alloys of type Al, Si, and Cu, 8307e.

**Müller, K.** See Maier, C.
**Münch, G.** Model solar atm., 4094*a*; formation of absorption lines by noncoherent scattering, 5301*f*.
**Münchinger, R.** See Hegglin, R.
**Münster, A.** Statistical mechanics of regular and irregular solns., 2844*i*; thermodynamics and statistics of solns. contg. large mols. (I), 4544*a*; (II), 6887*h*; principles and results of the statistical theory of macromol. solns., 5262*b*; theory of soln. for high polymeric substances (V) properties of linear mols. in soln. (4) statistical theory of solvation, 6044*d*.
—— and Haas, H. Rapid splitting bonds in the cellulose mol., 5587*e*.
**Münzel, K.** Water-in-oil ointments (V) influence of the fatty phase on the degree of dispersion and stability of w/o ointments, 356*f*; prepn. of pills with oleophilic liquids, 1149*h*; see Michaels, I
**Muers, M. M.,** and House, M. A. Ether peroxide as a possible source of error in the Röse-Gottlieb butter-fat test, 5509*d*
**Muether, H. R.** See Sherr, R.
**Müting, D.** Compn. of paraproteins, 9097*f*
**Muganlinskaya, D.** Vitamin A content of the waste and edible by-products of the Bakin meat combine named Beriya, 9285*d*.
**Mugdan, M.** See Bramwyche, P. I. ; Distillers Co., Ltd.
**Mugnaini, E.** See Quilico, A.; Simonetta, M.
**Muhina, Z. S.** See Mukhina, Z. S.
**Muhr, A. C.** Fatty acids with dehydrated castor oil with so-called vitamin F activity, 1472*e*
**Muir, A.** Carbohydrate metabolism and gastric secretory activity, 9229*d*.
**Muir, N. M.,** Thomas, B I., and Sanford, R. S Mt. Eielson Zn-Pb deposits, Mount McKinley National Park, Alaska, 7383*a*.
**Muir, R. M.** See Wildman, S. G.
—— , Hausch, C., and Gallup, A. H. Growth regulation by org. compds., 8017*f*.
**Muirhead, E. E.** See Vanatta, J.
**Muirhead, H.** See Brown, R.; Camerini, U ; Goldschmidt-Clermont, Y.
**Muirhead Thomson, R. C.** See Thomson, R. C. M.
**Mujica, A. C.** Inhibiting acids and their industrial importance, 4199*h*.
**Mujumdar, G. G.,** Dole, K. K., and Karve, D. D. Kinetics of consecutive reactions—hydrolysis of nitriles (I), 3696*i*.
**Mukerjee, A. N.** See SenGupta, S. R.
**Mukerjee, K.,** and Mukerjee, K. L. Ascorbic acid content of garden rose hips, 4342*h*.
**Mukerjee, K. L.** See Mukerjee, K.
**Mukerji, B.** Interdependence of medicine and chemistry, 1905*g*.
**Mukerji, P.** See Agarwal, R. R.
**Mukerji, U. N.** Mishaps with vat-colored dyed goods, 6827*g*.
**Mukharji, P. C.** Same as Mukherji, P. C.
**Mukherjee, B.** Cathodoluminescence spectra of Indian calcites, limestones, dolomites, and aragonites, 2516*c*; detn. of Ga in Indian bauxite, 3743*h*; cathodoluminescence of rare earths in coal ash, 6087*f*.
—— and Dutta, R. Ge in Indian coal-ash, 8118*c*.
—— and Sarkar, P. B. Cathodoluminescence spectra of Indian calcite, dolomite, and aragonite, 947*b*; cathodoluminescence spectra of Indian fluorites contg. rare earths, 4576*d*.
**Mukherjee, J. N.,** Chatterjee, B., and Ray, A. Liberation of H, Al, and ferric ions from pure clay minerals on repeated salt treatment and desatn., 372*c*.
**Mukherjee, P. N.,** and Das-Gupta, H. N. Volatilization of P as halides, 515*e*.
**Mukherjee, R.** See Parthasarathy, D.
—— and Mitchell, H. H. Comparative enhancement of the basal metabolism and of the endogenous N metabolism in exptl. hyperthyroidism, 5484*e*.
—— and Parthasarathy, D. Digestible nutrients of certain cereal grains, 6292*h*; biol. values of the proteins of poultry feeds, 6380*g*.
**Mukherjee, S.** Cinchona alkaloids of newly cultivated plants of Assam, 3566*d*.
—— and Bhattacharya, S. Effect of chem. treatments on activated charcoal, 6306*c*.
**Mukherjee, S. K.,** and Gupta, S. L. Base-exchange capacity of soils and clays, 9316*a*.
**Mukherjee, S. L.** 5 - Chloro - 7 - iodohydroxyquinoline, P 697*h*.
**Mukherjee, S. M.** Sterols and bile acids, 1335*b*; sesquiterpenes (II) synthesis of zingiberene, 2605*c*.
**Mukherjee, S. N.** Gum jeol (IV) electrodialysis, 2797*e*.
—— and Bhowmik, A. C. Properties of concd. solns. of arabic acid and the influence of temp. on some of these, 8806*e*
—— and Chakravarti, S. C. Gum jeol (III) aldobionic acid, 1589*d*.
—— and Ghosh, K. B. Influence of concn. on the properties of arabic acid soln., 8809*d*.
—— and Rohatgi, K. K Gum jeol (V) dependence of viscous and electrochem properties of the aq. soln. on its concn , 2797*f*; (VI) influence of neutral salts on some electrochem. and viscous properties, 8717*f*.
**Mukherji, A.,** and Das, S. Coincidence expts. on 5.3-yr. $Co^{60}$, 2506*g*.
**Mukherji, B. K.** Modification of cane molasses, 5615*e*.
—— and Das-Gupta, H. N. Activation of gangetic silt, 9395*e*.
**Mukherji, D.** Rational synthesis of Perkin and Thorpe's yellow Na compd $C_{14}H_{12}Na$, 1335*f*; synthesis of santenone, 3796*h*; see Swaminathan, R.
—— and Burdhan, J. C. Terpene compds. (V) synthesis of (±)-β-fenchocamphorone, (VI) synthesis of (±)-isofenchone, 7462*f*
**Mukherji, P. C.** Steroid compds (II) Michael condensation of 1-acetyl-3,4-dihydronaphthalene and acetoacetic ester, (III) route to the synthesis of stereochemically homogeneous steroid ketones, 2200*a*; synthesis of cadinene, 3807 *f*
**Mukherji, S.** See Goswami, M.
—— and Goswami, M. Rancidity of butter-fat, 2337*d*.
**Mukherji, S. M.** See Birch, A. J , Green, S. J.
**Mukhina, Z. S.** Detn of Cu in light alloys, 62*f*; detn. of In in Pb bearings, 965*g*; detn of Pb in Sn bronzes, 4178*d*; detn. of Zn and Ni in Al alloys, 1971*g*.
**Mukhopadhyay, B. K.,** and Parthasarathy, C. Papaverine from Indian opium, 5548*c*.
**Mukoyama, M.,** and Katakura, S. Inorg., artificial fibers, P 5888*c*.
**Mukundan, R.,** and Sastri, B. V R. Removal of interfering substances in the estn. of thiamine in urine, 8422*e*.
**Mulay, L. N.** See Dixit, V. M
**Mulcahy, M. F. R.** Susceptibility of nitroglycerin to explosion by impact in the presence of various gases, 4468*a*; labile mols. in the kinetics of hydrocarbon reactions (IV) oxidation of lower paraffins, 5269*g*; oxidation of hydrocarbons 7708*e-f*; see Barrow, R. F.
**Mulder, B.** See Hertog, H. J. den.
**Mulder, D.** See Smittenberg, J
**Mulder, E. G.** N nutrition of pea plants, 800*d*; microbiol. estn. of Cu, Mg, and Mo in soil and plant material, 8083*e*.
**Mulder, H.,** Kruisheer, C. I , Herder, P. C den, and Ginkel, J. G van Effect of Cu, Fe, and Mn salts on butter, 6750*c*.
**Mulders, E. M. J.** Temperatuurregeling van ovens ten behoeve van de thermische analyses (book), 7759*g*.
**Muldrew, W. E.** See Weitzel, H R.
**Mulè, F.** Action of streptomycin, 2701*e*; action of antibiotics, 4340*b*.
**Mul'gina, V. M.** See Chikurov, I F
**Mulhern, N.** See Fawcett, E W. M.
**Mulholland, J. H.** See Co Tui, F. W , Shafiroff, B. G. P.
**Mull, E. K.** See Hartley, J. C.
**Mullady, D. J.** Increasing flow of wells, P 5179*d*
**Mullen, J. E. C.** See Aschaffenburg, R
**Mullen, J. W., II.** Burners for supersonic ram-jets, 9411*c*.
**Muller, D.** See Lind, D. A.
**Muller, F. M.** Microbiol. method for the estn. of the digestibility of fodder cellulose and similar roughage, 8574*h*; see Gerretsen, F. C.
**Muller, J.** See Silverman, Leslie.
**Muller, O. P.,** Jordan, J. W., and Brancato, J. J. Bentonite flatting and gelling agents, 8704*d*.
**Muller, R. F.,** and Gortner, R. A., Jr. Influence of sugar content and pH on decalcification of molar teeth by acid beverages, 9220*i*.
**Muller, Sándor.** Same as Mueller, Alexander.
**Mullett, L. B.** See Fry, D. W.
—— and Loach, B. G. Corrugated waveguides and assocd. components for linear accelerators, 4945*e*.
**Mulley, R.** See Galinovsky, F.
**Mulligan, M. J.** See Lovell, W. G.
**Mulligan, P. B.** See Ervin, C. E.
**Mulligan, R. M.** See Hill, Robert M.
**Mulliken, R. S.** Mol. orbital method and mol. ionization potentials, 942*c*.
——, Rieke, C. A., Orloff, D., and Orloff, H. Overlay integrals and chem. binding, 7762*f*.
**Mullin, C. J.** See Guth, E.
—— and Guth, E. Angular distribution of photoneutrons from $Be^9$, 8855*c*.
**Mullinger, L. W.** See Amphlett, C. B.
**Mullins, B. P.** Combustion in vitiated atm. (III) effect of O concn. on ignition induction period, 8638*e*; see Barr, J.
**Mullins, J. F.** See Hill, W. L.
**Mullins, L.** Rubber research (II) dynamic properties of rubber, 3643*g*; permanent set in vulcanized rubber, 5990*a*; see Fisher, D. G.
**Mullins, L. J.** See Nickerson, W. J.
**Mullins, P. V.,** and Wilson, R. W. Prospective benefits from removing excess N from natural gas, 6393*f*.
**Mullison, W. R.** Nematode control in nutriculture, 4804*i*.
**Mulqueen, M.** Recovery of animal fibers from hides, P 8722*d*.
**Mulrennan, J. A.** See Taylor, D. J.
**Mulryan, B. J.** See Neuman, W. F.
**Mulvaney, J. F.** See Howson, M.
**Mulvany, H. A.** Recovery and purification of water from exhaust gases on aircraft, P 9310*i*.
**Mulvey, R. R.** See Royer, A. E.
**Muma, M. H.,** and Hixson, E. Effects of weather, sanitation, and chlorinated chem residues on house and stable fly populations on Nebraskan farms, 5895*f*.
**Mumford, C. W.** See Skoglund, W. C.
**Mumford, H. E. G.** Emulsions of sea water in Admiralty fuel oil—their demulsification, 4837*f*.
**Munch, J. C.** ANTU, 3556*a*; see Sloane, A. B.
**Munch, N.** See Cox, Herbert R.
**Munch-Petersen, A.** Effect of adenosine triphosphate on monolayers of myosin, 2654*f*; see Buchthal, F.
**Munch-Petersen, J.,** and Hauser, C. R Condensation (XLI) acylations of certain α-alkoxy and α-aryloxy ketones and esters, 4248*c*.
**Muncie, J. H.,** and Morofsky, W F Nitroacetate and nitrodithioacetates as potato sprays, 4413*h*.
**Mund, W.,** Lories, R., and Huyskens, P. Reaction of at. H with $CH_4$ and $C_6H_6$, 3725*c*.
**Munday, C. W.** Tautomerism of penicillic acid, 5745*b*.
**Munday, G. L.** See Friedenstein, H.
**Munday, J. C.** Primary alkyl halides, P 662*g*; Mg, P 3340*f*, device for building-up pressure on finely divided catalyst in oil-cracking processes, P 6403*f*.
**Munday, J. W.** See Wilson, C.
**Mundet Cork Corp.** Mg oxychloride coating material, P 3948*i*.
**Mundie, L. G.** See Meissner, K. W.
**Mundorff, M. J.** Geology and ground water in the Greensboro area, N. Carolina, 2715*d*.
**Mundt, E.** See Vargas, L.
**Mundy, C. W. A.** Drying oils, 1197*f*.
**Mundy, F.** See Koenig, V. L.
**Munerati, O.** Establishing the industrial value of the beet, 6440*i*.
**Munger, C. G.** Plastic coatings and corrosion, 421*c*, 2028*e*.
**Munguia, R. R.** See Ruiz Munguia, R.
**Munising Paper Co.** Impregnated paper for protecting adhesive tape or sheets, P 908*f*.
**Muñiz, A. L.** See Asenjo, C. F.
**Muñiz, J. Z.** See Zavala Muñiz, J.
**Munk, F.** Optical properties of white pigments and coatings, 6431*f*, photosensitivity of ZnS, 8697*g*.
**Munk, M. M.** Substitution flows in theoretical gas flow, 4066*a*; supersonic flow patterns, 6022*b*.
—— and Prim, R. C. Canonical form of the equations of steady motion of a perfect gas, 2055*h*.
**Munkelt, S.** See Brintzinger, H.
**Munn, G.** See Fuson, R. C.
**Muñoz, C.** See Rojas, A.; Sepulveda, M.
**Muñoz, C. R.** See Rodriguez Muñoz, C.
**Muñoz, J. R.** See Ramírez-Muñoz, J.
**Muñoz, M. S.** See Sanz Muñoz, M.
**Munoz Taboadela, M.** See Albareda Herrera, J. M.
**Munro, T. A.** -

W. D. Biology and control of the sweet clover weevil, 8599*b*.
**Munroe, E. H.** Sludge-dewatering methods, 3547*f*.
**Munsell, H. E.** See Streightoff, F.
——, Streightoff, F., Bendor, B., Orr, M. L., Richardson, M. E., and Koch, F. G. Effect of large-scale methods of prepn. on the vitamin content of food (III) cabbage, 9288*b*.
**Munsey, V. E.** Detn. of BzOH in flour, 9277*g*; detn of milk solids and butterfat in bread, 9278*a*.
**Munshi, S. K.**, Tilak, B. D., and Venkataraman, K. Sulfanilamides (I) salts with sulfonic acids, 173*h*.
**Munsi, N. K.** See Biswas, H. G.
**Munson, C. S.** Chem. review—chem. production maintains upward climb, 1125*b*.
**Munson, J.** See Clements, H. F.
**Munson, P. L.**, Jones, M. E., McCall, P. J., and Gallagher, T. F. Estn. of dehydroisoandrosterone and its application to urine exts., 2266*a*.
**Munter, C. J.** Retarding the reversion of alkali-metal phosphate glass in aq solns., P 6793*i*.
**Munter, P. A.**, Aepli, O. T., and Kossatz, R. A. Partial-pressure measurements on the system HF–water, 7315*c*.
**Muntoni, F.** Interference in the reaction between Al and aurintricarboxylic acid $NH_4$ salt (II) method of differentiating microscopically between Al and Be in ppts. contg. both, 2117*c*; reaction for maltol in cooked legumes and cereals, 4391*f*.
**Muntwyler, E.** See Harkness, D. M.; Seifter, S.
**Muntz, J. A.** See Barron, E. S. G.
**Muntzer, E. J.** Tar emulsions, P 5174*h*.
**Mur, V.** See Korolev, A. I.
**Mura, A.** See Lovati, A.
**Muraca, R.** See Wendland, R. T.
**Murach, N. N.** Calcn. of metallothermic batches, 1296*g*; Metallurgiia olova (book), 1306*c*.
**Murahashi, S.**, and Takizawa, T. α,ω-Polymethylenedisulfonic acid derivs. and linear high-mol. compds. contg sulfonamide linkages (I) prepn of α,ω-polymethylenedisulfonyl chlorides and of polysulfonamides by reaction with diamines, (II) synthesis of polyamide-polysulfonamide, (III) synthesis of ε-aminocapronitrile, 4857*a*; (IV) synthesis of the bis(*p*-nitrophenyl) ester of α,ω-polymethylenedisulfonic acids and the synthesis of polysulfonamide by condensation with hexamethylenediamine, 4857*d*.
**Murai, K.** See Terada, K.
**Murakami, K.** See Naito, H.
**Murakami, S.** Arctose, a hexasaccharide from the dried roots of *Arctium lappa*, 8451*c*, carbohydrates of the Scrophulariaceae (II) veronicin, a polyfructosan from the roots of *Veronica spuria*, 8451*e*.
**Murakawa, K.**, and Suwa, S. Isotope effect in the spectrum of Ne (II), 941*b*, quadrupole moment of $Sb^{121}$ and $Sb^{123}$, 8879*d*.
**Murakoshi, Y.** See Nishimura, Minoru.
**Muralt, A. v.** See Cottier, H.
**Muralt, G. v.**, and Hirsiger, W. Prothrombin level of human blood on high mountains, 3504*b*.
—— and Notter, B. Blood proteins on high mountains, 3504*c*.
—— and Stettler, A. Behavior of blood cholinesterase on high mountains, 3504*d*.
**Muramatsu, Y.** See Kambara, S.
**Muranaka, A.**, and Yamazaki, Y. Prepn of polymerized oil from higher unsatd fat acids (I) self-esterification of the hydroxy acid of perilla oil, 4872*d*
**Murano, K.** Influence of supersonic waves on dyes (I) effect on the germicidal action, 1460*i*.
**Murányi, A.** See Issekutz, B., Jr.
**Muraoka, S.** C electrode from raw or waste rubber, P 5992*f*.
**Muraour, H.** Poudres et explosifs (book), 852*b*, qual exptl verification of the change of burning rate of rocket powders with radiation path length, 9449*i*.
—— and Aunis, G. Laws of combustion of colloidal powders—law: $V = a + bP$, 5189*c*; relation between the potential and the velocity of combustion of colloidal powders, 8681*e*.
**Murasaki, M.**, *et al.* Acetaldehyde, P 7501*b*.
**Murasawa, I.** See Takano, T.
**Muraschi, T. F.**, and Tompkins, V. M. Pooled sheep cells for use in the hemolytic system of the complement fixation test, 3920*e*.
**Murase, S.** Alkoxyadiponitrile and β-carboxyadipic acid, P 3031*g*.
**Murasheva, V. I.** See Tananaev, N. A.
**Murata, J.** Monovinylacetylene, P 7950*i*.
**Murata, K.** See Sato, Masayoshi.
**Murata, Y.**, Nakagawa, M., Tashiro, E., and Umemura, T. Synthesis of gasoline from CO and H (LXIV) methods of prepg. Fe catalysts, (LXV) reduction by H and heat-treatment of Fe catalysts, (LXVI) reduction of Fe catalysts, 2400*h*.
——, Sawada, Y., and Takezaki, Y. Synthesis of gasoline from CO and H (LVIII) mutual influence of $H_3BO_3$ and alkali in promoting activities of Fe-Cr catalysts, 2399*i*.
——, Tatsuki, Y., Yamada, H., and Sawada, Y. Synthesis of gasoline from CO and H (LVII) effect of some added substances on Fe-Cu catalysts, 2399*g*.
——, Yashiro, R., and Tashiro, E. Synthesis of gasoline from CO and H (LX) effect of Cu on Fe catalysts, 2400*b*.
—— and Yasuda, M. Synthesis of gasoline from CO and H (LIX) activation of Fe-Cu catalyst by B, 2400*a*.
——, Yoshioka, Y., Oji, G., and Saito, S. Synthesis of gasoline from CO and H (LXI) reaction temp. and durability of Fe catalysts, (LXII) durability of Fe catalyst and the compn of gas used in the synthesis, (LXIII) Fe catalysts and the compn of gas used in the synthesis, 2400*c*.
**Muratore, F.**, and Putignano, T. Histolog. modifications and salicylate content of tissues after treatment with Na salicylate and with Na salicylate plus *p*-aminobenzoic acid, 9242*h*, variations in Na salicylate in the blood induced by sulfamide prepns., 9242*i*.
**Muratova, N. I.** See Krestinskaya, V. N.
**Muravelskaya, G. S.** See Chernyaev, I. I.
**Murayama, N.** See Ri, T.
**Murdison, M. E.**, and Roberts, J. S. Effects of laundering and storage on cotton cloth, 8688*b*
**Murdoch, J.**, and Webb, R. W. Minerals of Calif., 71*f*.
**Murdoch, P. G.** Multicomponent distn.—const. volatility ratio and const. reflux—derivation and application of basic algebraic equations to 3- and 4-component systems, 415*f*
**Murdock, H. R., Jr.**, and Nasset, E. S. Secretion of intestinal juice during hypercalcemia, 8050*f*
**Muren, A.** See Emmelin, N.
**Murer, H. K.** See McInroy, F. E.
**Muresanu, P. L.** See Boden, C.
**Murex Ltd.** See Miller, Geo. L., Seeley, E. A.
**Murex Welding Processes Ltd** See Clarke, E. J.
**Murgatroyd, F.**, and Woodruff, A. W. Lolasts treated with hetrazan (banocide), 8540*g*
**Murgatroyd, J. B.** Delayed elastic effect in glass fibers and the constitution of glass in fiber form, 2387*a*.
**Murgin, P.** See Leone, A.
**Murison, P. J.** See LaDue, J. S.
**Murley, W. R.**, Jacobson, N. L., Wise, G. H., and Allen, R. S. Filled milks for dairy calves (II) effects of various types of soybean oils and of butter oil on health, growth, and certain blood constituents, 8473*c*.
**Muromtseva, V. S.** Film forming material, P 3617*a*, see Sharkov, V. I.
**Murotani, K.** Prepn. of pulp from bagasse (I–II) two-stage pulping method (soda-Cl method), 1970*a*.
**Murphey, C. H.** See Spadaro, J. J.
**Murphey, R. S.** See Lutz, R. E.
**Murphree, E. V.** Aviation gasoline, P 389*f*; butadiene, P 662*i*; controlling reaction temps., P 2763*e*.
——, Tyson, C. W., Campbell, D. L., and Martin, H. Z. Control of reaction temp., P 7608*d*, 9298*c*.
**Murphy, A.** See Beecher, H. K.
**Murphy, A. J.**, Wood, P., and Malcolm, R. J. Mg alloy, P 3341*h*.
**Murphy, C. G.**, and Sermattei, J. P. Strippable coating compn comprising a polychloroprene and stripping agent, P 3659*f*; strippable coating compn. comprising a polychloroprene and C black, P 3659*h*.
**Murphy, C. M.**, Romans, J. B., and Zisman, W. A. Viscosities and ds. of lubricating fluids from −40° to 700° F., 6399*e*.
**Murphy, E. A.**, Temp.-measuring systems, 912*h*; continuous measurement and control of pH in industry, 1881*g*; instrumentation—factor in achieving max. chem. recovery, 2773*i*; engineered washer instrumentation contributes to max. chem recovery, 4465*e*; flow and level measurements of sulfate black and white liquors, 6413*i*; increasing chem. recovery by efficient multiple effect and disk evaporator operation, 8677*b*.
—— and Sholl, H. A. Application of instrumentation to sulfate digesters, 848*h*; paper-dried control, 5949*g*
**Murphy, Edgar A.**, Madge, E. W., and Pounder, D. W. Coagulation of preserved latex by Na fluosilicate, 5983*b*.
**Murphy, Edward A.** See Dunu, M. S.
**Murphy, E. J.** Dielec. breakdown, 2342*i*.
**Murphy, E. K.**, and Davis, H. G. High-speed coating of reproduction papers, 7682*h*.
**Murphy, G. W.** See Hood, G. C., Jr.
**Murphy, H. W.**, and Goodyear, J. M. Vitamin B$_{12}$—stability of thiamine-HCl in aq., solns., in the presence of I and KI, 8476*i*.
**Murphy, J. B.**, and Sturm, E. Effect of diethylstilbesterol on the incidence of leukemia, 4761*g*.
**Murphy, J. R.** Use of graphite in metal-finishing operations, 3336*c*.
**Murphy, M. K.** See Wooley, J. G.
**Murphy, N.** See Stokinger, H. E.
**Murphy, N. F.**, and Streicher, M. A. Acid ratio in phosphatization of steel, 9008*h*.
**Murphy, P.** See Fitzgerald, O.
**Murphy, R. C.**, and Seegers, W. H. Concn. of prothrombin and Ac-globulin in various species, 7466*a*
——, Ware, A. G., and Seegers, W. H. Stability of serum Ac-globulin, 1815*e*
**Murphy, R. K.**, and Reuter, F. H. Lab. prepn. of phosgene, 6930*i*
**Murphy, R. T.**, Baker, L. M., and Reinhardt, R., Jr. Flex life of passenger tires—relation of rayon tire-cord dip-pickup and cord adhesion, 2012*g*.
**Murphy, R. W.** See Hughes, H. K.
**Murphy, U. E.** See Metcalf, R. L.
**Murphy, Walter J.** See Emery, A. H.
**Murphy, William J.** See Tibsch, J. F.
**Murray, A.** Photosensitive piperine compds., P 8212*e*.
**Murray, A., III**, and Ronzio, A. R. Microsyntheses with tracer elements (I) cyanamide–urea labeled with $C^{14}$, 7814*g*
**Murray, A. G.** See Curd, F. H. S.
**Murray, C. A.** Corrosion reports by refinery analytical chemist (II), 385*c*.
**Murray, C. W.** See Tint, H.
**Murray, F. J.**, Petrault, P. A., Kaufmann, O. W., Koffler, H., Peterson, D. H., and Colingsworth, D. R. Circulin, an antibiotic from an organism resembling *Bacillus circulans*, 5081*i*
**Murray, G. S.**, and Watson, W. H. Lignin as a stabilizer for GR-S, 3611*a*
**Murray, G. W.**, and Thayer, C. D. Block grease, P 1960*c*.
**Murray, H. C.** Effect of insulin, adrenal cortical hormones, salt, and DL alanine on carbohydrate metabolism in scurvy, 1471*b*; see Chang, I.
**Murray, H. D.** Selection and maintenance of tanks in sulfide areas, 4452*i*.
**Murray, J. F.** See Altmann, A.
**Murray, J. R.** See Huston, M. J.
**Murray, M.**, Hoffmann, C. R., and Scroggins, F. R. Action of metrazole in convulsive doses, 8553*c*.
**Murray, M. A.**, and Whiting, A. G. Effect of 2,4-dichlorophenoxyacetic acid on root development, 6352*i*.
**Murray, M. J.** Total phenols in gasolines and in cresylic acids, 9422*i*; see Hervert, G. L.
— and Gallaway, W. S. Steric inhibition of resonance in 1-methyl-2-isopropenylbenzene, 5666*b*.
**Murray, M. M.** Fluorosis and nutrition in Morocco—dental studies in relation to environment, 8473*h*.
**Murray, O. W.** X-ray film, P 4166*d*.
**Murray, P.**, and White, J. Kinetics of the thermal dehydration of clays, 6799*c*, equil relations in systems contg. FeO and their bearing on the problem of the constitution of liquid open hearth-slags, 4930*c*
**Murray, P. E.** See Ingols, R. S.; Weil, B. H.
**Murray, R. B.** See Jones, R. A.
**Murray, R. C.** See Taylor, N. W.
**Murray, R. L.** Liquid Cl explosion, 405*h*.
**Murray, S. M.** See Hall, T. D.

**Murray, T. F., Jr.**, and Sharrard, G. F. Heat-sealing adhesive tape, P 908*d*.
**Murray, W. M., Jr.** See Wearn, R. B.
**Murray, W. S.** Indium bearings, P 4211*e*; see Benning, A. F.; Ludwick, M. T.
**Murthy, G. K.** See Trivedy, J. N.
**Murti, K. S.**, and Moosad, C. R. S. India vetiver root study, 9384*i*.
**Murti, V. V. S.**, Ranguswami, S., and Seshadri, T. R. Chem. investigation of the India fruits (V) constitution of auranetin, 3822*i*.
—— and Seshadri, T. R. Nuclear oxidation in the flavone series (XI) nobiletin, 4263*g*.
**Murto, J. O.**, and Kivimaa, E. Chipping of pulpwood (II), 1566*b*.
**Murty, G. V. L. N.**, and Seu, N. C. Estn. of Si in steels, 4180*h*.
**Murza, L. Kh. K.** See Kara-Murza, L. Kh.
**Musabekov, Yu. S.** A. M. Butlerov—120th anniversary of his birth, 7761*b*
**Musaev, I. A.** Catalytic reactions of pentamethylenic hydrocarbons with H under pressure, 6566*i*, selective hydrogenation of unsatd. hydrocarbons in artificial mixts., 7673*h*.
**Musajo, L.** Analysis of olive husks, 4875*d*; quinolinic compds. in metabolism, 5817*g*
**Musakin, A. P.** See Alekseevskii, E. V.
**Musante, C.** Salts of hydroxamic acids (I) detn. of Cu, Co, and Ni, 2116*b*
—— and Berretti, R. Salts and derivs. of 3,5-diiodo-4(1 *H*)-pyridone-1 acetic acid, 5780*a*.
—— and Giraldi, P. Action of chloral on biphenyl and its derivs. in the presence of $AlCl_3$ (I), 2979*f*.
—— and Parrini, V. Synthesis of biphenylyl DDT, 7927*e*
**Muscari-Tomajoli, F.** See Wittka, F.
**Muschlitz, G. D.** Immersion gas tube process of descaling bar steel, 552*e*.
**Muset, P. P.** See Puig Muset, P.
**Musfeld, W.** Action of $CuSO_4$ on the blood-sugar level, 3523*i*
**Musgrave, A. J.** Entomology and the leather industry, 1201*e*.
**Musgrave, F. F.** See Prutton, C. F.
**Musgrave, S. D.** See Bratton, R. W.
**Musha, S.** Application of liquid amalgam on internal electrolysis (VII) sepn. and detn. of Cu in the presence of Ni, Co, Be, Zn, Ce, Mo, and Ti, 7863*h*, see Goto, Hidehiro
—— and Suzuki, Y. Application of liquid amalgams for internal electrolysis (VI) sepn. and detn. of Cu in the presence of Al, Mg, Fe, Cd, Ti, and Cr, 7863*g*
**Musher, S.** Processed-oat fraction, P 4784*d*; comminuting oats to produce a stabilizing material, P 4784*e*.
**Musher Foundation Inc.** Processed-oat fraction, P 4781*d*, comminuting oats to produce a stabilizing material, P 4784*e*.
**Mushett, C. W.** See Silber, R. H.
——, Stern, K. G., and Silber, R. H. Hematologic and electrophoretic study on blood regeneration in dogs subjected to repeated phlebotomy, 7112*g*
**Mushin, W. W.**, and Rendell-Baker, L. Intravenous procaine, 5501*f*
——, Wien, R., Mason, D. F. J., and Langston, G. T. Curarelike actions of tri(diethylaminoethoxy)benzene triethyliodide, 5501*g*
**Mushran, S. P.** Transparent jellies of Al molybdate, 4929*d*, see Prakash, S.
**Musil, A.** Margules' relations between partial pressures, 8252*i*
**Muskat, M.** See Coggeshall, N. D.
**Musselil, F. E.** See Borchers, R.
**Musselman, A. D.** See Eagle, H.
**Mussenbrock, A.** See Beach, G.
**Musser, D. M.** Cellulose ethers of 3,4-epoxy-1-butene and their oxidation products, P 1970*d*.
**Musser, H. B.** Effects of soil acidity and available P on population changes in mixed Kentucky blue grass-bent turf, 1130*e*.
**Mussgnug, Günter.** Curare and curare-like substances—pharmacology and clinical use, 5871*c*; cytostatic substances, 8064*d*.
**Mussgnug, Gustav.** Utilization of granulated dump slag in the manuf. of hydraulic binders, 8636*g*.
**Mussulman, W. C.** See Larson, R. F.
**Mustafa, Ahmed.** Chemistry of spiropyrans, 2994*e*; photochem. action of ethylorthoformate, 6515*d*; reduction of 2,3-diphenylbutadiene to *cis*-dimethylstilbene by reaction with picric acid, 7006*c*; action of aromatic nitroso compds. on 1,3-diphenylisobenzofuran, 7017*i*; action of diazomethane and of diphenyldiazomethane on nitro anils, 7022*a*; methylthio derivs. of benzophenone, tetraphenylethylene, and related substances, 7467*f*; see Fahim, H. A., Schönberg, A.
—— and Gad, A. M. Action of Grignard solns. on naphthosultone, tolylene-3,4-sulfonylthio, and *N,N'* bis(arylsulfonyl) derivs. of dianthranilide, 7006*d*.
**Mustafa, Akila** (Mrs. Said). See Schönberg, A.
**Mustard, M. J.** Ascorbic acid content of a no. of vegetables produced in southern Fla., 3945*a*.
**Musumi, K.** Analysis of oil using $HIO_4$, 8709*d*.
**Mutel, I. T.** See Tavares Mutel, I.
**Muthana, M. S.**, and Mark, H. No.-av. mol. wt. of AcH polymer, 7292*e*, osmotic measurements of isomeric polyvinyl isobutyl ethers, 8802*e*; soly. of polyethylene in xylene, 8801*h*.
**Muto, C.** See Kambara, S.
**Muto, T.**, and Nogami, M. Spin-inversion of electrons in ferromagnetic crystals, 7767*h*; sticking probability of fast neutrons in nuclear reactions, 8261*h*
—— and Yamashita, J. External photoelec. effect in semiconductors (I) BaO, SrO, $Cu_2O$ semiconductors (I) behavior of the photosensitivity near the threshold, (II) colored alkali halides, 8840*c*.
**Mutolo, V.** See Li Voti, P.
**Mutruz, S.** See Glasson, B.
**Mutsaars, W.**, and Lison, L. Antagonistic actions of protamine sulfate and cellulose sulfate on alexin, 1100*i*; antagonistic effect of streptomycin on the reaction between alexin and cellulose sulfuric ester, 5485*b*
**Mutt, V.** Bound Cl in casein and in tissue proteins, 9238*a*.
**Mutter, W. E.** Rectification characteristics of an oxide cathode interface, 4092*a*, see Waring, C. E.
**Muttik, G. G.** See Kiselev, A. V.
**Muxart, R.** See Bouchez, R., Daudel, P.
**Muylder, E. de.** Diuresis induced by intravenous injections of isotonic solns., 4373*f*; diuretic and antidiuretic action of pituitrin during intravenous injections of isotonic solns., 4763*i*, renal function and the concn. of ions in plasma, 7127*i*.
—— and Reul, R. Na, K, and chloride clearances, 4764*b*, hypochloremia and renal function, 7127*g*.
—— and Sonnet, J. Hypochloremic anuria, 7127*h*.
**Muzyka, I. D.** See Fialkov, Ya. A.
**Muzzo, G.** K aluminate (and alumina), P 4821*h*.
**Myddleton, W. W.** See Marriott, R. H.; Synthetic Oils Ltd.
**Myers, A. T.** See Shear, C. B.
——, Dyal, R. S., and Borland, J. W. Flame photometer in soil and plant analysis, 1130*f*
**Myers, C. G.** See Hansford, R. C.
**Myers, C. S.** Polyethylene lubricants, P 4520*g*.
**Myers, D. K.**, and Mendel, B. Eserine for the differentiation of mammalian esterases, 7984*a*.
**Myers, D. R.** See Weisblat, D. I.
**Myers, G. B.** See Boyle, A. J.; Mosher, R. E.
**Myers, G. S.** See Aristoff, E.; Chute, W. J.; Richmond, H. H.
—— and Wright, G. F. Nitrolysis of hexamethylenetetramine (IV) cyclonite homolog, 9073*i*
**Myers, J.** See Matsen, F. A.
**Myers, Jack.** Sewage lagoons, 1508*d*; see Cramer, M.
—— and Cramer, M. Metabolic conditions in *Chlorella*, 2285*e*.
—— and Johnston, J. A. C and N balance of *Chlorella* during growth, 2289*c*
**Myers, J. D.** Hepatic blood flow and splanchnic O consumption of man—this estn. from urea production or bromosulfaphthalein excretion during catherization of the hepatic veins, 8030*e*.
**Myers, J. F.**, Crabtree, E. H., and Zimmerly, S. R. Mineral beneficiation, 3753*d*.
**Myers, L. A.** See Herrmann, C. V.
**Myers, L. D.** See Fitzpatrick, J. D.
—— and Fitzpatrick, J. D. Plasticized prolamines, P 6000*c*; plasticizers from esterification of the oxidation products of fatty acid nitriles and esters, P 7504*a*.
—— and Muckerheide, V. J. Cutting-oil base, P 4845*f*.
—— and Ritz, J. W. Drying oils, P 9483*e*.
**Myers, O. E.** See Kamen, M. D.
**Myers, R. D.** See Morgan, R.
**Myers, R. H.** Sintering of electrolytic Ta powder, 5310*b*; mech. working of Ta, 9830*b*; constitution and properties of alloys contg. Ta and Cb, 21486.
**Myers, R. J.** See Rider, D. K.
—— and Kelly, L. E. Wet-strength development with neutral water-sol. polymers, 403*d*.
**Myers, R. L.** See Snyder, H. R.
**Myers, V. W.** Forces between $NH_3$ mols. and the 2nd virial coeff. for $NH_3$, 5278*h*; see Arnold, G. P.
—— and Wattenberg, A. Cross-over transitions in $Cl^{38}$, $Co^{60}$, $Br^{82}$, and $Sb^{124}$, 4119*b*.
**Myers, W. A.**, and Hall, W. A. Fluid catalyst regeneration, P 1539*a*.
**Myers, W. B.**, and Everhart, D. L. Hg deposits of the Guerneville district, Sonoma County, Calif., 2900*e*.
**Myers, W. I.** See Day, E. E.
**Myhre, J.**, and Nesbitt, S. Alc. and pancreatitis—serum amylase detns. in normal individuals following ingestion of alc., 7592*d*.
**Myles, J. R.** See Bowman, A.
——, Levy, W. J., and Imperial Chemical Industries Ltd. Anion-exchange resins, P 6338*i*.
——, Snowden, I. and Imperial Chemical Industries Ltd. Transparent products, P 2039*a*
**Myles, M.** See Feldman, J.
**Myles, W. J.** Stabilized ethylcellulose, P 4853*e*; bis(trialkyl citrate)sulfites, P 5796*c*.
—— and Prichard, J. H. Stabilized cellulose esters and ethers, P 4852*i*.
**Mylon, E.**, and Goldstein, P. Influence of protein reserves on nephrectomized and renal artery ligated dogs, 1474*d*
—— and Heller, J. H. Renal glutaminase, 1819*a*.
**Myrbäck, K.** Structure of starch, 2455*d*; Schardinger dextrins (II) calcn. of the acid hydrolysis, 7906*e*; nonoxidative, nonproteolytic enzymes, 9123*a*, see Elander, M.
—— and Järnström, T. Schardinger dextrins (I) oxidation of the β-dextrins with metaperiodic acid—acid hydrolysis, 6986*h*.
—— and Sihlbom, E. Action of malt amylase on low-mol. hydrolysis products of starch, 5219*a*
—— and Sillén, L. G. Amylopectin and glycogen—products of irreversible and reversible synthesis, 6251*h*, equil. state of a branched mol., 8815*a*.
—— and Willstaedt, E. Action of *Bacillus macerans* amylase, 4711*d*.
**Myschkin, E. A.** See Myshkin, E. A.
**Mysels, K. J.** Napalm—mixt. of Al disoaps, 8179*h*; see Marsden, S. S., Jr.; Smith, G. H.
—— and McBain, J. W. Variability and inhomogeneity of Al dilaurate, 4081*f*.
——, Pomeroy, H. H., and Smith, G. H. Control of throughput, temp., and purity of solvent in Soxhlet extn., 4*b*.
**Myshkin, E. A.** Demulsification of Kokaitin crude, 1553*c*
**Myshlyaev, I. V.** See Pirozhkov, N. A.
**Myskowski, E. T.**, and Dunphy, R. P. Nodulizing alloy, 7885*b*, 8336*c*.
**Myslivček, J.** Influence of thromboplastin and vitamin K on the heparinocytes, 3928*f*; coagulation of oxalated plasma without Ca following neutralization of heparin by ludine blue, 7109*d*

**Nabar, G. M.** See Bhujang, K. S.; Joshi, G. D.
—— and Rathod, J. A. Hypochlorite oxidation of cotton cellulose in presence of mixts. of vat dyes (I), 8071*i*.
**Nabarro, F. R. N.** Mech. effects of C in Fe, 2912*a*; deformation of crystals by the motion of single ions, 3250*d*; alloying theory of slip, 5714*i*; dislocation theory of slip, 9002*i*.
**Nace, H. R.** See Cope, A. C.
**Nachasel, V.** See Neiger, R.
**Nachlas, M. M.**, and Seligman, A. M. Histochem. demonstration of esterase, 6678*f*.
**Nachmanowitsch, M.** See Nakhmanovich, M. I.
**Nachmansohn, D.** Physiology of acetylcholine (I) acetylcholine in conduction, 4753*a*; difference between drug effects on axonal conduction and synaptic transmission, 9261*h*; see Augustinsson, K. B.; Feld, E. A.; Rothenberg, M. A.
——, Hestrin, S., and Voripaleff, H. Enzymic synthesis of a compd. with acetylcholinelike biol. activity, 9092*e*.

**Nachod, F. C.** Ion Exchange (book), 3278*h*; see Jackman, M.; Kreps, S. I.; McChesney, E. W.; Steck, E. A.
——, Hinkel, E. T., Jr., and Zippin, C. Detn. of estrone, equilin, and equilenin by infrared spectrophotometry, 8613*b*.
——, Steck, E. A., and Ewing, G. W. Absorption spectra of 4-(4-diethylamino-1-methylbutylamino) - 7 - phenoxyquinoline and 4-(4-diethylamino-1-methylbutylamino)-7-ethoxy-3-methylquinoline, 2209*f*.
—— and Wood, W. Cation-exchange materials, P 5517*b*.
**Nachod, J. E.**, Rideout, O. W., and Shapleigh, J. H. HCl, P 9396*c*.
**Nachtigall, E.** Powder metallurgy of the light metals, 2141*a*.
**Nachtman, J. S.** Brightening electrolytic Sn plate, P 2525*c*; heat-treating app. of electroplated coatings such as Sn or other low-melting alloys, P 4210*i*.
**Nachtrieb, N. H.** See Cox, E. M.; Hirt, R. C.
—— and Conway, J. G. Extn. of $FeCl_3$ by iso-Pr ether (I), 2489*g*.
—— and Fryxell, R. E. Extn of $FeCl_3$ by iso-Pr ether (II), 2489*i*
—— and Steinberg, M. Characteristics of the dropping-Hg electrode in fused salts, 5314*h*.
**Nacturk, H. M.** See Francis, J.
**Nadeau, G.**, and Gaudry, R. Syntheses of amino acids using hydantoins as intermediates—DL-serine and DL-cystine, 7903*e*.
**Nadeau, G. F.** See Eastman Kodak Co
—— and Starck, C. B Subbing layer for hydrolyzed cellulose acetate emulsion, P 2106*c*.
**Nadelman, A. H.** De-inking of printed papers, 5948*a*; see Bailey, H. P.
**Nadkarni, M. V.** See Meyers, D. B
——, Meyers, D. B., and Zopf, L. C. Effects of surface-active agents on the crystallinity of Carbowax compds, 8609*e*.
**Nádor, K.** See Lorinczy, E.
**Näbauer, M.** Elec. resistivity measurements on Na $NH_3$ solns., 8780*i*.
**Näsänen, R.**, and Tamminen, V Equil of cupric hydroxy salts in mixed aq solns. of cupric and alkali salts, 7789*b*
**Naeser, G.** Oxide-film theory for production of high-grade basic steel, 980*b*; detg O in soft Fe, steel, and other metal powders, 6108*f*.
—— and Engels, G. Radiation measurements of liquid steel, 7396*f*.
—— and Pepperhoff, W. Radiation properties of heat-resistant bricks and slags and their effect on heat transfer, 9404*i*
——, Steffe, H., and Scholz, W Pig iron-scale (R-Z) process for the production of Fe powder, 4611*f*.
**Naevestad, R.** Intoxication by DDT and nitrobenzene, 8525*i*
**Nafe, J. E.** See Nelson, E. B.
**Naff, M. B.** See Christensen, B. E
**Naffa, P.** See Dupont, G
**Naffziger, T. R.** See Lathrop, E. C.
**Nagaeda, S.** Durability of glasses of the high Ba and high Pb series (I), (II) effect of temp. on the formation of thin films on the glass surface by the action of acids, (III) relation between the time of formation of thin film on a glass surface and the concn. of acid, (IV) action of several org and inorg. acids on the formation of thin films on glass surfaces, 2384*i*, (V) effect of mixed acid, addn. of salt solns, and treatments of glass surfaces by acidic and alk solns. and water before contact with the acidic solns., (VI) velocity of formation of thin films on glass surfaces—changes on the surfaces, (VII) analysis of substances dissolved in acid after various intervals of immersion, etc., (VIII) expts. with standard buffer soln., (IX) acid-proof characteristics, 2385*f*.
**Nagai, Hiroshi.** Polymerization of butadiene (I) vol. change during the polymerization reaction, (II) polymerization reaction with metallic Na as catalyst, (III) polymerization reaction with metallic K as catalysts, 1596*i*; (IV) polymerization of butadiene at 80° with an alk.-earth metal peroxides, and org. compds as catalysts, (V) polymerization catalysts and the polymerization curve, 1597*a*; manuf. of butadiene from 1,3-butylene glycol by vapor-phase dehydration (III) effect of temp on dehydration, using the mixed catalyst, 2015*f*; (IV), (V), 2015*f*, 5359*i*; (VI), (VII), (VIII), 2016*a*, 5359*i*; (IX), (X), 4045*a*, 5359*i*; (XI) catalysis by kaolin mixed with $Fe_2O_3$ and KOH, 5359*i*.
**Nagai, Horoyuki.** See Ogura, Toyojiro
**Nagai, M.** See Ichiba, A.
**Nagai, R.**, Motohashi, S., and Nawata, I Dehydration of $MgCl_2$, P 7201*a*.
**Nagai, S.** Nepheline-syenite in Korea (III), 1925*g*.
—— and Imaoka, M. Complex salts of urea, 1279*b*.
**Nagai, Y.** Refining of shale oil, P 3186*a*.
**Nagaki, D.** See Anzai, H.
——, Haga, T., and Yajima, T. Antituberculosis antibiotics obtained from a spore-bearer (I) antibiotic produced by a sporulating bacillus against *Mycobacterium tuberculosis avium*, (II) action of the antibiotic substance obtained from a spore-bearer against the human tubercle bacilli, 9162*h*.
**Nagamiya, T.**, and Yomosa, S. Phase transition and the piezoelec. effect of $KH_2PO_4$, 2832*c*.
**Naganna, B.** Inhibition of erythrocyte pyrophosphatase by veronal-acetate buffer, 9109*e*; see Menon, V. K. N
**Nagano, M.** Mech. properties of cellulose and its derivs (I) relations between fatigue and the degree of polymerization of the natural and hydrated celluloses, (II) relations between the degree of polymerization and the elasticities or viscosities of rayon fibers, 1961*h*.
**Nagao, K.** Propenylbenzene, P 2228*c*
**Nagao Research Institute.** Vitamin $B_2$, P 1917*a*.
**Nagasawa, Shin.** Prepn. of hydrazine, 9395*a*; see Arii, K.
**Nagasawa, Shunzo.** See Ka, K.
**Nagasawa, Sumio.** Lethal effect of the diatomaceous earth against the asuki-bean weevil, 1142*e*, see Ohsawa, W
——, Uchida, S., and Toshima, N. Testing insecticides, 5893*e*.
**Nagase, M.**, and Matsui, M Dry-distn. product from pyrethrum (I) separation of a ketone and its structure, 8128
**Nagase Kao Soap Co.** Alcs. from paraffin by oxidation, P 2219*a*.
**Nagel, F. J.** Polyhydroxybenzene-HCHO resinous compns., P 9525*c*
**Nagel, J. S.** Thermal insulating building material, P 4414*c*
**Nagel, K.** See Lange, F
**Nagelschmidt, G.**, Donnelly, H. F., and Morcom, A. J. Anatase in sedimentary kaolin, 6117*g*
**Nagelstein, E.** See Givaudon, J.
**Nager, U.** See Plattner, P. A.
**Nagerova, E. I.** Chem analysis of cements 1165*i*
**Naghski, J.** See Couch, J. F
——, Feuske, C. S., Jr., Krewson, C. F., and Couch, J. F Detn. of rutin, 9477*f*
**Nagibina, T. D** See Nazarov, I. N
**Nagle, P. I.** Etching metals with stencils, P 3734*g*.
**Nagle, W. M.** Na hydroxylamine sulfonates, P 3110*j*
**Nagy, D. E.** 1,5-Diarylbiguanides from aromatic amines and dicyanamide, P 1799*f*, 1-aryl-5-alkylbiguanides, P 2229*f*, see Redmon, B. C
—— and Redmon, B. C Alkali metal salts of dicyanamide, P 1532*d*
**Nagy, E.** Optical and elec properties of $ZnSiO_4$ phosphors, 2515*k*, see Szigeti, G
**Nagy, G.** See Wilkinson, A. W
**Nagy, G. S.** See Suto-Nagy, G.
**Nagy, J.** See Hartmann, I
**Nagy, R.**, Wollentin, R. W., and Lau, C. K. Ca halophosphate phosphors, 4577*d*
**Nagy, T. V.** See Valyi-Nagy, I
**Nagybátony-Ujlaki Egyesult Iparmüvek R. T.** Dielec material and elec. condenser, P 1883*g*.
**Naidu, M. G. C.** Amesite from Devarnarsipur, Bhadravathi, Mysore, 4606*j*.
—— and Channabasappa, K. C Pigeonite in certain dolerite dykes near Robertsonpet, Kolar, 523*d*.
**Naik, A. R.** See Karrer, P.
—— and Jadhav, G. V. Nitration of Me 7-methoxy - 4 - methyl - 6 coumarincarboxylate, 1045*c*, nitration of some coumarin derivs., 2621*f*.
**Naik, K. G.**, and Desai, C. M. Sulfation and sulfonation of Indian vegetable oils, 4031*a*.
**Nail, N. R.** See Urbach, F
——, Urbach, F., and Pearlman, D. Superlinear luminescence, 8280*d*.
**Naiman, B.** Debye-Hückel theory in the teaching of quant. analysis, 6014*i*
**Nair, K. A.** See Verman, L. C.
**Nair, K. M.** See Wilson, J. K.
**Nair, P. V.** See Mathew, P. K.
**Naismith, S.** Prepn. of Mesabi ore for a blast furnace, 980*g*.
**Naito, H.**, Ishimaru, K., Hamaoka, S., Ooeda, M., Ikeda, T., Shimura, J., and Ninomiya, C. Brewing wines (III), 7635*f*.
——, Ishimaru, K., Hamaoka, S., Ooeda, M., Ikeda, T., Shimura, J., Ninomiya, C., and Murakami, K. Enzymes in fruits and vegetables (XIV) vitamin C content in oranges, 7603*g*.
——, Ishimaru, K., and Ikeda, T. Enzymes in fruits and vegetables (X) relation between hesperidin and ascorbic acid in orange peel, 7603*e*.
——, Ishimaru, K., and Ooeda, M. Enzymes in fruits and vegetables (IX) ascorbic acid in peaches, (XI) estn. of reduced ascorbic acid and the activity of peroxidase in pears, (XII) estn. of reduced ascorbic acid in grapes, 7603*b*.
**Naito, S.** Manuf. of an eraser, 3225*a*.
**Najand, A.** See Paquot, C
**Najjar, V. A.** Phosphoglucomutase, 4712*h*; see Krebs, E. G
**Najmr, S.** Pedochem. investigation of primary soils on Algonkian clay-slate in the Pruhonice region, 8590*e*; org. matter in genetical soil types, 9314*g*.
**Nakabe, S.** Sb oxide from Sb sulfide ore, P 7202*c*
**Nakada, H.** See Kani, Hidenari.
**Nakado, N.** Insecticide and germicide, 5529*f*.
**Nakae, T.** Perfumes from bovine urine, 2374.
**Nakagaki, M.** Foams (I) foaminess and foam stability of liquid mixts., 7775*g*, (II) foam formation and the vol. contraction of liquid mixts., 8779*c* see Murata, Y
**Nakagawa, Shigeo.** Existence of excited state of the deuteron, 6073*i*
—— and Sumoto, I Measurement of $\gamma$ ray energies by the anticoincidence counting method (II), (III), 5282*a*
**Nakagawa, Shikazo**, Arai, Y., and Ikeno, S Prepn. of $NaNO_3$ from sea salt (I) double decompn. of NaCl and $Pb(NO_3)_2$, (II) double decompn. of $PbCl_2$ and $(NH_4)_2CO_3$, 1917*g*
**Nakagawa, T.**, and Suzuki, K Hesperidin, P 6794*g*
**Nakahama, T.**, and Ozawa, J. Microbes concerned with fermentive refining of plant fibers (I) useful aerobic bacteria, 7241*i*.
**Nakahara, S.** See Sueta, H
——, Sueta, H., and Yamamura, T. Cl gas from sea water by use of ion-exchange resin, P 5417*g*.
**Nakai, T.** Whale meat (III) effect of H-ion concn. on decrease in freshness and titration curve of whale meat with HCl, 9285*b*
**Nakajima, K.** See Fujikawa, F.
—— and Hashimoto, T Refining of alumina using basic $AlCl_3$ as intermediate, P 6794*h*
**Nakajima, Masayasu.** See Kubo, K.
**Nakajima, Minoru.** See Suzuki, M.
——, Suzuki, M., Katsumura, Y., and Okubo, T. Insecticides and fungicides (II) quant. analysis of $\gamma$-isomer of 1,2,3,4,-5,6-hexachlorocyclohexane, 8602*b*.
**Nakajima, S.**, and Kosuge, K. Distn. of coconut oil in high vacuum to obtain a substitute for cacao fat, 5810*i*; deodorization and acid removal from fat and oil in highly evacuated state (II), 8705*h*.
——, Kosuge, K., and Kanzaki, S. Deodorization of fats and oils in highly evacuated state (I) decrease of acid content, 5609*c*.
**Nakamaru, T.** Formation of steel layer by use of Fe sand, P 5358*c*.
**Nakamiya, J.** Detn. of uroporphyrin, 7998*g*.
—— and Koizumi, K. Detn. of vitamin D (V) effect of maleic anhydride and citraconic anhydride treatment on the extinction coeff. of vitamin D, 7992*c*.
**Nakamoto, I.** Extn. of egg oil, P 3540*d*.
**Nakamura, Kasuko**, Saunders, P. R., Webb, J. L., Lawson, H. C., and Thienes, C. H. Metabolism of the heart in relation to drug action (IV) effects of various substrates on the isolated perfused rat heart, 9267*i*.
**Nakamura, Kimitoshi.** See Iwai, Masayoshi.
**Nakamura, Kohei.** Fixation of natural or synthetic rubber with metals, esp. with Fe, P 6858*g*.
**Nakamura, M.** Condensation of cyclohex-

anone and cyanoacetic ester, P 7507*d*; secsAnzai, H.
**Nakamura, Seitaro.** See Taketani, M.
**Nakamura, Shizuo,** and Mizushima, S Studies on gasolines by the Raman effect (IV), 8124*b*.
——, Mizushima, S., and Morikawa, M. Studies on gasolines by the Raman effect (V), 8124*c*.
**Nakanishi, G.** See Iguchi, M.
**Nakanishi, T.** See Asai, I.
**Nakanishi, Y.** See Yamada, Tokuo.
**Nakano, G.** See Kamiike, O.
**Nakano, H.** See Kawase, K.
**Nakano, T.,** and Oguri, S. Japanese paper (III), 1975*a*.
**Nakano, Y.** See Umeda, Kwai.
**Nakao, K.** Substitute for sugar-coated tablets, P 6791*d*.
**Nakao, S.** See Tomiyama, T.
**Nakashima, S.** Changes of the compn. of rice with the degree of rice cleaning, 5126*f*.
**Nakayama, A.** See Sahashi, Y.
**Nakayama, M.** See Hachihama, Y.
**Nakayama, T.** See Yamaguchi, Shigeto
**Nakazono, T.** Recovering of $SO_2$, P 7201*f*.
**Nakhimov, D. M.** Detection of residual tensile stresses in quenched steel, 536*e*, 1699*e*.
**Nakhmanovich, M. I.,** Lyubin, B O, and Khaf, D M Detn. of the crystallizability of xylose sirups, 5979*i*
**Nalbandov, A. V.,** and Baum, G. J. Stilbestrol-inhibited males as test animals for gonadotropic hormones, 8188*c*.
**Nalbandov, O. G.** See Wilde, S. A
**Nalbandyan, A. B.** Photochem. oxidation of $CH_4$, 2848*d*; Hg-sensitized photochem. oxidation of $C_2H_6$, 6516*a*; see Fok, N. V
—— and Voevodskii, V V Mechanism of the Oxidation and Combustion of H (book), 8256*e*.
**Naldi, F.** Concn. of fat acids or their salts from dild solns, P 3637*i*.
**Namari, J.** Reaction solder for Al soldering (I) reaction solders composed of $ZnCl_2$ and chlorides of alkali and heavy metals, (II) reaction solders composed of $ZnCl_2$ and chlorides of light metals and alk.-earth metals, 1707*f*
**Nambudripad, V. K. N.,** Laxminarayana, H., and Iya, K K Bactericidal efficiency of $H_2O_2$ (I) influence of different concns. on the rate and extent of destruction of bacteria of dairy importance, 9159*h*
**Name, F. W. van, Jr.** See Van Name, F W., Jr.
**Nametkin, S. S.,** Mel'nikov, N N, and Baskakov, Yu. A. Halonaphthoxyacetic and halonaphthoxybutyric acids, 3813*f*
——— and Pokrovskaya, E S Synthesis and the derivs. of cyclopentyl- and cyclohexyl-substituted aromatic hydrocarbons, 2957*f*.
—— and Sosnina, A S. Mercaptans from Ishimbaevsk petroleum, 2759*f*
——— and Volodina, M. A Isomeric transformations (VII) dehydration of diphenylcyclopentylcarbinol and diphenylcyclohexylcarbinol, 3797*a*
**Namjetkine, Namjotkin.** See Nametkin, S. S.
**Nan, K. S.** Energy d. of nuclear liquid, first order approximation, 3702*g*.
**Nance, J. F.** Role of O in nitrate assimilation by wheat roots, 1465*g*; inhibition of salt accumulation in excised wheat roots by 2,4-D, 6288*a*.
**Nance, J. P.** Comparison of carbohydrate loss and $CO_2$ production during fermentation by barley roots, 4808*h*.
**Nance, J. T.** See Guthrie, F. C.
**Nanda, G. S.,** and Mathur, K. B L. Partially hydrogenated argemone oils in relation to their value as lubricating oils, 841*e*.
——, Mathur, K. B. L., and Speers, P. C. Taramira oil as a lubricating oil in relation to rape oil and its stabilization, 841*f*
**Nandi, S. K.** See Karim, B.
—— and Karim, B. Performance of sieve plate fractionating columns (I) effect of distn. rate and concn., 909*e*
**Nandy, N. K.** Influence of lime on soil potash, 9318*a*.
**Nanni, V.** Sewage digestion in rivers and in the sea and its degree of purification, 2346*f*.
**Nans, E. H., Jr.** See De Becze, G. I.
**Naoumov, A. A.** See Naumov, A. A.
**Napier, H.** Lightwt. material, P 1939*e*.
**Napier, M. J.** Fish-residue processing plant for installation aboard ships, P 6437*e*.
**Nara, T.** Refining of electrolyte soln. to be used for making $H_2O_2$ from acid $(NH_4)_2SO_4$, P 6528*d*.
**Narain, K.,** Goswami, S., and Das Gupta, P. N. Indian vetiver oils, 9370*e*.
**Narain, P.** See Aggarwal, J. S.
**Narakawa, T.** See Asaoka, T.
**Narasimhachari, N.,** Row, L. R., and Seshadri, T. R. Nuclear oxidation in the flavone series (VIII) 7,8-dihydroxyflavone and -flavonol, 640*a*.
——— and Seshadri, T. R. Synthetic expts. in the benzopyrone series (IX) partial demethylation of chalcones—synthesis of sakuranetin, 7935*a*.
**Narasimhan, K. I.** See Preston, J. M.
**Narasimhasastri, M.** Catalysis of the reaction between vanadate and aromatic amines catalyzed by the oxalate ion, 4549*a*.
——— and Ramanjaneyulu, J V. S. Influence of hydroxycarboxylic acids on the reaction between α-naphthylamine and dichromate and α-naphthylamine and vandate, 4977*e*.
——, Ramanjaneyulu, J. V. S., and Rao, G G Vanadiametry (II) estn of ferrous salt in the presence of phenols, 7376*b*.
**Narasingarao, C.** See Ramanaiah, S. V
**Narayan, P.** Unsaponifiable matter in some Indian hydrogenated oils, 1201*f*
**Narayana Menon, V. K.** See Menon, V. K. N.
**Narayanamurti, D.,** and Dagg G D. Adhesives (X) adhesives from castor cake and its proteins, 2811*g*.
—— and Pande, J N. Durability trials on glues and plywood, 3611*c*; storage life of adhesives (I) tego-glue film, 4049*a*.
———, Purushotham, A., and Pande, J. N Preservative treatment of bamboos (I) treatment of green bamboos with inorg. preservatives, 3553*i*.
—— and Ranganathan, V. Resistance of wood to corrosive chemicals, 3632*d*.
———, Ranganathan, V., and Agarwal, O P Adhesives (XII) cresol-formaldehyde and cresol-casein-formaldehyde adhesives for plywood, 2812*a*
**Narayanan, P. I. A.** Beneficiation of chromite ores of India, 1695*d*; beneficiation of phosphatic ores of India, 2378*i*; beneficiation of a S ore from Koh-i-sultan, Baluchistan, 2379*i*; see Fleming, J.
—— and Robottom, H. H. Beneficiation of a flake graphite ore from Kalahandi State, Eastern States Agency, India, 2379*a*.
**Narayanan, P. S.** Photometry of Raman spectra of crystals, 4956*c*, Raman spectrum of $NH_4H_2PO_4$, 4956*e*; see Krishnan, R S
**Narayanaswamy, P. K.** α-β Transformation in quartz, 4956*b*.
**Náray-Szabó, I.,** and Horváth, J I. Theory of mixed crystals, 8782*g*.
——— and Tobias, C. W. X-ray powder patterns of B-coated Mo and W filaments, 6133*i*.
**Narbond, J.** See Prigogine, I.
**Narcus, H.** Metalization of nonconductors, P 1274*b*; deposition of metals on plastics employing reduced Cu films, 8901*b*.
**Nardelli, M.** See Ferrari, Adolfo.
**Nardo, G. di.** See Di Nardo, G
**Nardo, J. B. de.** Metalurgia física y sus aplicaciones industriales (book), 4623*h*.
**Nargund, K. S.** See Chaudhari, M B.; Irani, K. R.; Kshatriya, K. C.; Patel, S R.; Shah, G. D.
**Narici, E.** Ethylene polymers, 437*a*; vinylidene chloride and its derivs., 5227*b*.
**Narins, L.** See Simon, N.
**Narita, S.** See Shishido, K.
**Narita, T.** See Motokawa, K.
**Narracott, E. S.** See Anglo-Iranian Oil Co., Ltd ; Fawcett, E. W. M.
**Nartowski, B.** Synthetic fuels in Poland, 3591*d*.
**Narula, B. L.,** and Chawla, B. R. Ca lactate from cane molasses, 2366*d*.
**Narwani, C. S.** See Moorjani, M. N.
**Nasarenko.** See Nazarenko.
**Nasarow.** See Nazarov.
**Nascimbene, A.** See Gialdi, F.
—— and Prezioso, A. Therapeutic activity of norvaline in streptococcic infection, 5443*h*.
**Nascimento, A. C.** Estn. of N in fertilizers, 3551*h*.
**Nascimento, R. do.** Titration of ascorbic acid with FeCl₃, 7868*c*.
**Nash, C. W.** Centrifugal sepn. of mouse liver cell nuclei and the estns. of their relative amts. of nucleic acids, 5073*i*.
**Nash, H. A.,** Quackenbush, F. W., and Porter, J. W. Structure of ζ-carotene, 1311*g*.
**Nash, J. P.** Elimination of suction roll noise, 7684*i*.
**Nash, L. K.** See Clarke, G. L.
**Nash, L. M.,** Taylor, T. I., and Doering, W. v. E. Mass spectrometric examn. of the isomerization of *n*-propyl chloride, 5734*c*.
**Nash, V. L.** See Chen, G.; Lands, A. M.
**Nashat, F.** See Laqueur, W.
**Nashua Gummed and Coated Paper Co.** Temp.-sensitive adhesive, P 3662*i*.
**Nasini, A. G.,** Poli, G., and Rava, V. Selective ion-permeability of membranes and its application to varnish films, 8702*f*.
——— and Rava, V. Adhesion of varnish films on glass and metal surfaces, 8702*i*.
**Nasio, J.** Effect of the antitoxic principle on hepatobilinary diseases, 1860*c*.
**Nason, A.** Tryptophan-niacin relation, 6287*h*.
**Nasonov, D. N.** Contractures of transversely striped muscle under action of iso-AmOH, 3861*d*.
——— and Rozental, D. L. Contractions of striated muscle caused by quinine-HCl, 4773*c*.
**Nassau, J. J.,** and Albada, G. B. van. Study of M-type stars in Cygnus, 939*c*, 7334*g*
**Nasset, E. S.** See Anderson, Joseph T.; Jaenike, J. R ; Murdock, H. R., Jr.; Watman, R. N.
**Nassi, L.** Treatment of tuberculosis with vitamin $D_2$, 3527*c*; hyperglycemic action of sol. prepns. of vitamin K, 8479*g*.
—— and Ragazzini, F. Glycogenolytic action *in vivo* of vitamin K, 8479*f*.
—— and Ulivelli, A. Variations in no. of leucocytes, reticulocytes, and the leucocytic formula after injection of streptomycin, 4378*e*.
**Nast, R.** Biarsine, 1277*a*; see Hieber, W.
**Nastuk, W. L.,** and Beatty, C. H. Standardization of hemorrhagic shock, 5819*h*.
**Nastyrukova, O. K.** See Alpatov, V. V.
**Natadze, G. M.** C-vitamin activity of human milk, 7562*a*.
**Nataf, B.,** Mickelsen, O., Keys, A., and Petersen, W. E. Cholesterol content of cow milk, 1097*e*.
**Natale, A. de.** See De-Natale, A.
**Natanson, E. M.** Prepn. of metal organosols in hydrocarbons, 4926*a*; coagulation of colloidal solns. in contact with immiscible liquid phases, 4926*g*; interaction of cupric chloride with disperse Zn in nonaq. solvents, 6886*b*.
**Natanson, G. L.** Electrification of drops in the spraying of liquids as a result of fluctuation of the ionic distribution, 6039*g*.
**Natarajan, S.** See Bami, H. L.
**Natelson, S.** See Custer, J J.; Zuckerman, J. L.
———, Pincus, J. B., and Lugovoy, J. K. Microestn. of citric acid—reaction for pentabromoacetone, 4724*c*.
———, Lugovoy, J. K., and Pincus, J. B. Detn. of adrenaline, 9372*c*.
**Nath, B. V.** See Viswanath, B.
**Nath, H.** See Derse, P. H.
———, Barki, V. H., Elvehjem, C. A., and Hart, E. B. Alleged growth-promoting property of vaccenic acid, 1468*h*.
———, Barki, V. H., Sarles, W. B., and Elvehjem, C. A. Microörganisms in the cecal contents of rats fed various carbohydrates and fats, 2276*i*.
**Nath, M. C.** Antimellitus principle, P 366*i*.
———, Chakraborty, C. H., Hatwalne, V. G., and Laul, K. S. Species difference in the biosynthesis of vitamin C and response to diabetogenic substances, 3501*h*.
**Nath, N. S. N.** Vibrations of a finite linear lattice and Born's cyclic lattice hypothesis, 5251*f*.
—— and Roy, S. K. Vibrations of an infinite linear lattice consisting of two types of particles, 6030*e*.
**Nath, R.** See Chatterji, A. C.
**Nathans, M. W.** Selection rules for ions in cryst. surfaces, 7760*b*.
**Nathanson.** See also Natanson.
**Nathanson, I. T.** See Aub, J. C.; Krayer, O.; Zamecnik, P. C.
**Nathanson, M. H.,** and Miller, H. Effect of isopropyladrenaline on the rhythmic property of the human heart, 5866*i*.
**National Agrol Co. Inc.** Tobacco compn., P 3152*a*; tobacco products, P 3152*b*

**National Alfalfa Dehydrating and Milling Co.** Preservation of pigments in alfalfa, P 6760*c*.

**National Aluminate Corp.** Minimizing the production of foam in steam generators, P 792*h*; inhibiting foaming in steam boilers, P 5890*g*.

**National Carbon Co., Inc.** Elec. contact brush, P 511*a*; electrode for vacuum discharge app., P 1274*e*, conducting chem. reactions, P 2478*a*.

**National Cash Register Co.** 3,3 Bis(4-dimethylamino - 3 - methylphenyl)-phthalide, P 252*c*; 2 - [4,4' - bis(dimethylamino)benzhydryl] - 5 - dimethylaminobenzoic acid, P 3463*c*.

**National Dairy Research Laboratories, Inc.** Alkyl lactates, P 6224*c*; devitaminized cascin by solvent extn, P 8072*e*.

**National Distillers Products Corp.** Mixer and converter of cereal mashes, P 816*b*

**National Drug Co.** (*Patents*) *p*-(Dialkyl-1-pyrryl)benzoates, 690*g*; *N*-[4-(4-quinazolylamino)benzoyl] glutamic acid, 1914*b*; *N*-salicyloyl-β alanine, 1914*f*; benzoic acid derivs., 3461*c*; pantoylsulfanilamide derivs., 4817*f*, *N* (γ-hydroxybutyryl)taurine, 4818*d*, 2-acetoxybenzyl acetylsalicylate, 7647*e*, 4-[(2-amino-4-hydroxy - 6 - pteridyl)methyl] aminobenzenesulfonylamide and salts, 8105*i*; chemotherapeutic agents, 8619*c*, oxyfolic acid, 9389*a*.

**National Foam System, Inc.** Stabilized foam-forming compn., P 5594*f*

**National Lead Co.** (*Patents*) Basic Pb sulfate pigment, 2789*d*; purifying and bleaching fatty oils, 2791*f*, textile waterproofing, 3628*d*; welding flux, 4212*c*; refractory mold compn., 5167*a*; alk.-earth titanate dielec. compns., 5566*b*; dielec. material, 5918*i*; expander material for storage battery, 8020*f*, corrosion-resistant coating, 9022*h*; hydrous $V_2O_5$, 9398*a*; inorg. bond for chlorination charge, 9398*c*; anticorrosive paint, 9482*f*; composite Pb sulfate-Pb silicate pigment, 9482*h*.

**National Oil Products Co.** Name changed to NOPCO Chemical Co.

**National Smelting Co.** Purification of Al and Mg, P 7403*e*.

**National Smelting Co. Ltd.** Recovery of Zn, P 3768*g*, 6965*f*, condensation of Zn vapors in gaseous mixts., P 6563*h*, see Lumsden, J.

—— and Robson, S. Recovery of metallic Zn, P 4210*a*

——, Robson, S., Woods, S. E., and Derham, L. J. Zn, P 9019*e*.

**National Starch Products Inc.** Starch ester derivs., P 3222*h*; $NH_4$ salts in animal glue jellies, P 6453*a*.

**National Steel Corp.** Testing plating solns. for the ratio of Sn to fluoride, P 6527*f*.

**National Sugar Refining Co.** Cocoa sugar compn., P 3541*d*.

**National Tank Co.** Salt water filtering and disposal assembly connected to oil-well pumping system, P 2763*h*; dehydrator for oil-water emulsions, P 7274*c*.

**National Technical Laboratories.** Glass electrode, P 4441*b*.

**National Tube Co.** Blowing in blast furnaces, P 6965*f*

**Natta, G.** Solid-state reactions in the formation and the aging of catalysts, 6897*c*; see Società anon. Industrie Chimiche Dr Bashni

—— and Baccaredda, M. Ultrasonic velocity in macromols., 7782*h*, 8780*e*, velocity of propagation of ultrasonic waves and the form of the mols. of high polymers, 8239*c*

—— and Russo, F. Petrolatum substitute, P 8743*e*.

**Natter, B.** See Kieffer, R

**Nattrass, E. F.** Chrome tanning and its ancillary processes including fat liquoring, 1204*f*; pigment finishes and other surface coatings for leather, 1204*g*, leather, 4789*c*

**Natusch, H. G.** See Halse, T.

**Natuss-Andreev, V. A.** App. for spray drying of solns., P 6014*a*, emulsion for treating burns, P 6370*h*, ointment, P 9388*d*.

**Natzmer, G. v.** Atomenergie (book), 500*b*

**Nau, C. A.** See Dernehl, C. U.

**Nauclér, J. O.** See Persson, A. R.

**Naudé, C. P.** Production of nicotine sulfate from S. African waste tobacco, 2372*g*.

**Naudé, S. M.** See Louw, J. D.

**Naudet, M.** See Desnuelle, P.

—— and Desnuelle, P. Analysis and synthesis of peptide-fatty acid condensation products, 3217*e*; relative affinity of a fatty acid chloride for the different functions of the natural amino acids, 5368*g*.

**Naugle, J. J.** Activated MgO, P 3640*e*; siliceous Mg contg. bleaching medium, P 5982*b*.

**Nauman, R. V.** See Debye, P.; Kasha, M

**Naumann, C.** Producer gas units as source of fuel supply, 2400*e*

**Naumann, H. N.** Schlesinger's test for urobilin in the presence of riboflavin and other fluorescent compds., 264*d*

**Naumann, K.** See Gad, G.

**Naumenko, A. S.** Lime-slag cement, 1546*f*

**Naumoff, A. A.** See Naumov, A. A.

**Naumov, A. A.** See Zhdanov, G. B.

**Naumova, Z. K.** See Vansheidt, A. A

**Naunton, W. J. S.** Rubber research, investigations, and empiricism, 1593*b*.

**Naurais, E.** See Malnéjac, J.

**Nauroy, A.** Polyurethans, 2465*g*

**Nauta, W. T.** See Coops, J.

**Navalkar, B. S.**, and Bharucha, F. R. Ecology of mangroves. H-ion concn. of the sea water, soil soln., and the leaf cell-sap of the mangroves, 1086*b*

**Navarro de Palencia, J.** Lavándula vera en españa (book), 8104*d*

**Naves, Y. R.** Optically inactive menthyl oxalate, 589*f*; nerolidol from *Myoxylon peruiferae*, 1530*h*; perfume of jasmine, 1531*e*, com. nerolidols and farnesols, 2370*h*, constitution of the α isone of the iris and the synthesis of α-irones, 2372*a*, volatile plant substances (LXIX) tetrahydroirones, (LXX) presence of neo α-irone in iris, (LXXII) 4 *p* menthanol, m. 53°, (LXXIII) *cis*(2,6)-*d*-γ irone whose 4 phenylsemicarbazone m. 178.9°, (LXXIV) ultraviolet absorption spectra of iso octane solns. of irones, 3374*a*, (LXXX) irone thiosemicarbazones, (LXXXI) *cis*-(2,6) - α - irones, (LXXXII) *p* bromophenylhydrazones of irones, 5519*b*, (LXXXIII) presence of carvone and eugenol methyl ether in Bulgarian rose oil, (LXXXIV) trivial nomenclature of the irones, (LXXXV) isomerizations of the α and of the γ-irones in the course of production of the essential oils of iris, (LXXXVI) presence of a mixt. of ionones and of dihydroionones in the essential oil of costus root, (LXXXVII) evaluation of the γ irones and their derivs. by ozonolysis 5550*b*, (LXXXIX) semicarbazones of irones, (XC) presence of apoecvin in the essential oil of iris, 7643*g*, structure and synthesis of irones, 6265, see Champerier, A

—— and Ardizio, P. Volatile plant substances (LXVIII) ultraviolet absorption of derivs. of ionones and irones, 1909*h*, (LXXI) absorption spectra of 2,4-dinitrophenylhydrazones of citrals and ionones, 3374*e*, (LXXV) synthesis of tetramethylcyclohexenecarboxaldehyde with a view to the prepn. of isorones, (LXXVI) synthesis of irone isomers, 3375*i*, (LXXVII) dihydroionones, (LXXVIII) hydrogenation of eucarvone with Raney Ni, 4637*e*; (LXXXVIII) absorption spectra of 2,4-dinitrophenyl hydrazones of ionones and irones, 7644*e*.

—— and Bachmann, P. Phenylsemicarbazone of β-ionone, 5010*g*, volatile plant substances (LXXIX) Raman spectra and structure of irones and their derivs., 5549*a*, α-ionone 4-phenylsemicarbazone, 5753*a*

**Navoy, T.** See Tuttle, B. S

**Nawata, I.** See Nagai, R

**Nay, M. A.**, and Morrison, J. L. Mol. adsorption areas of hydrocarbon gases on charcoal, 6488*f*

**Nayar, B. K. K.** See Singh, B. K.

**Nayar, M. R.**, and Pande, C. S. Formation of complex compds. between Pb nitrate and alkali nitrates (III) system $Pb(NO_3)_2$–$NH_4NO_3$–$H_2O$, (IV) e.m.f. measurements, (V) transport no. measurements, 518*g*.

—— and Srivastava, L. N. Iodic acid (IV) rheochor, parachor, and mol. refraction, 1082*d*.

**Nayer, A. N.**, and Hossfeld, R. L. H bonding and the swelling of wood in various org. liquids, 8763*i*

**Nayer, H. de.** See Massart, L.

**Naylor, R. F.** Reaction of S with S compds. with olefinic substances (II) mechanism of the reaction of $H_2S$ with monoolefins, diisoprenes, and rubber, 999*d*; see Davis, A. R.

**Nazarenko, G. F.** See Zakharov, I. P.

**Nazarenko, M. F.** Abrasive compn., P 9408*h*.

**Nazarenko, V. A.** Detn. of small amts. of Sb in Hg, 5328*h*, test for Hg, 5332*f*.

——, Shvartsburd, L. E., and Solferman, I. A. Detn. of Sn in ores, 6939*i*.

—— and Spivak, F. G. Application of complex-forming substances in analysis of sulfates and chlorides in the salts of tungstic and molybdic acids, 5338*c*.

**Nazarov, I. N.**, and Azerbaev, I. N. $C_7H_8$ derivs. (LXIII) reversible rearrangements of allylic systems—action of HCl on 1,1- and 3,3-dimethylallylcarbinols and isomeric transformations of 1,1- and 3,3-dimethylallyl chlorides in exchange reactions, 113*i*.

——, Azerbaev, I. N., and Rakcheeva, V. N. $C_7H_8$ derivs. (LXII) rearrangements of allylic system—isomerization of dialkylvinylcarbinols in etherification reactions—methyl ethers of 1,1- and 3,3-dialkylallyl alcs., 113*b*; (LXIV) rearrangements of allylic system (4) action of HCl on methylpropylvinylcarbinol and 3 methyl-3-propylallyl alc. and isomerization of the corresponding chlorides in exchange reactions, 114*h*.

—— and Bakhmutskaya, S. S. $C_5H_8$ derivs. (LXXI) hydration and cyclization of dienynes (15) hydration and cyclization of 2,5 dimethyl - 1,5 - heptadien - 3 - yne, 1332*g*.

—— and Ishzarova, A. N. $C_7H_8$ derivs. (LXXX) chemistry of divinyl ketones (14) addn. of HCl to 5-methyl-1,4-heptadien-3 one, 2576*a*.

—— and Fisher, I. B. $C_7H_8$ derivs. (LX) reversible rearrangements of the 1,3-diene system in exchange reactions—chlorides of 1,3 diene alcs., 112*a*, (LXI) rearrangements of 1,3 diene system (3) reversible isomerization of 1,3 hexadiene-5-ol into 2,4-hexadiene 1-ol (sorbic alc.) and the rearrangement of the corresponding chlorides in an exchange reaction, 112*f*, (LXXXI) rearrangement of 1,3-diene system (4) irreversible isomerization of 5-phenyl - 1,3 - pentadien - 5 - ol into 5-phenyl 2,4 pentadien 1-ol, 2576*d*

—— and Gotman, F. I. $C_7H_8$ derivs. (LXXIX) chemistry of divinyl ketones (13) addn. of Br to 2,2 dimethyldivinyl ketone and transformations of the corresponding tetrabromide, 2163*g*

—— and Kotlyarevskii, I. L. $C_7H_8$ derivs. (LXVIII) mechanism of hydration and cyclization of dienynes (13) hydration and cyclization of 2 *tert* butyl 1,5-hexadien 3-yne, 117*h*, (LXIX) transformations of methylphenylvinylethynylcarbinol, (LXX) mechanism of hydration and cyclization of dienynes (14) hydration and cyclization of 5 phenyl-1,5 heptadien 3 yne, 118*d*, (XC) hydration and cyclization of dienynes (19) hydration and cyclization of 5,6 diphenyl 1,5-hexadiene-3-yne, 6624*f*

—— and Kuvarzina, M. V. $C_7H_8$ derivs. (LXXIV) chemistry of divinyl ketones (12) stepwise hydrogenation of substituted divinyl ketones and vinyl allyl ketones, 2161*a*; (LXXXIII) chemistry of divinyl ketones (15) condensation of 2-(formyloxy)butadiene, 2 methoxybutadiene, and chloroprene with divinyl ketones, 2957*i*; (XCI) chemistry of divinyl ketones (16) addn. of HCN to 2,2-dimethyldivinyl ketone, 6625*a*.

—— and Kuznetsova, A. I. Addn. of $H_2S$ to divinyl ketones, 2944*h*.

——, Kuznetsova, A. I., and Gurvich, I. A. $C_7H_8$ derivs. (LXXVIII) addn. of $H_2S$ to 1 - methoxy - 5 - alkyl - 4 - hexen - 3 - ones, 2163*d*.

—— and Nagibina, T. D. $C_5H_8$ derivs. (LXXIII) polycyclic compds. (1) diene condensation with 1,3-dimethyl-1-cyclopenten - 5 - one—polycyclic ketones contg. a cyclopentanone nucleus with angular Me group, 1333*h*.

—— and Pinkina, L. N. $C_5H_8$ derivs. (LXVI) mechanism of hydration and cyclization of dienynes (11) hydration and cyclization of 4-Me-1-vinylethynyl-1-cyclohexene, 116*h*; (LXVII) mechanism of hydration and cyclization of dienynes (12) hydration and cyclization of 5-methyl-1-vinylethynyl-1-cyclohexene, 117*d*.

—— and Ralgorodskaya, V. Ya. $C_5H_8$ derivs. (LXXXV) (6) synthesis of 4-ethynyl - 4 - hydroxypiperidines by condensation of $C_5H_8$ with 4-piperidones, 2960*c*.

——, Ralgorodskaya, V. Ya., and Rudenko, V. A. $C_5H_8$ derivs. (LXXXVI) heterocyclic compds. (7) synthesis of 4-vinylethynyl - 4 - hydroxypiperidines by condensation of vinylacetylene with 4-piperidones, 6622*h*.

——, Rakcheeva, V. N., Ralgorodskaya, V. Ya., and Azerbaev, I. N. $C_4H_6$ derivs (XLVI) stepwise hydrogenation of acetylenic alcs.—synthesis of vinylcarbinols, 6969*h*.

—— and Rudenko, V. A. $C_5H_8$ derivs. (LXXXIV) heterocyclic compds. (5) action of $NH_3$ and methylamine on vinyl allyl ketones—synthesis of γ piperidones, 2958*h*.

——, Terekhova, L. N., and Torgov, I. V. $C_4H_6$ derivs. (LXXXIX) transformation of 2-butyne-1,4-diol, 6624*c*.

—— and Torgov, I. V. $C_7H_8$ derivs (LXXV) hydration of dimethyl(vinylethynyl)carbinol, (LXXVI) transformations of 2,2-dimethyl - 4 - (vinylethynyl)tetrahydropyran - 4 - ol, 2161*d*; (LXXVII) dehydration and isomerization of (vinylacetylene)glycols, 2162*g*

—— and Verkholetova, G. P. $C_5H_8$ derivs. (LXXII) (16) hydration and cyclization of 1,7 - dimethyl - 3,7 - decadiene - 5-yne, 1333*b*.

——, Verkholetova, G. P., and Bergel'son, L. D. $C_5H_8$ derivs (LXXXII) dimerization and structure of the dimers of 2 methoxy - 1,3 - butadiene and 2-(formyloxy)-1,3 butadiene, 2576*i*.

—— and Zaretskaya, I. I. $C_5H_8$ derivs. (LXV) mechanism of hydration and cyclization of dienynes (10) hydration and cyclization of 5 methyl-1,5 octadien-3-yne and 5 - ethyl - 1,5 - heptadien - 3 - yne, 115*f*, (LXXXVII) dehydration and cylization of dienynes (17) hydration and cyclization of 5 propyl 1,5-octadien-3-yne, (LXXXVIII) hydration and cyclization of dienynes (18) hydration and cyclization of 5-methyl 1,5 tetradecadien-3-yne, 6623*c*.

**Nazarov, M. P.** See Kamenichnyĭ, M. S.

**Nazarova, L. M.**, and Syrkin, Ya. K. Dipole moments of compds of the furan group, 4913*a*.

**Nazarova, N. M.** See Freidlin, L. Kh.

**Nazzewski, M.** See Ross, Sidney D.

**Neal, A. E. T.** See Dunlop Rubber Co. Ltd.

**Neal, A. L.**, Barr, C. G., Gardner, V. R., Rasmussen, E. J., and Miller, E. J. Influence of oil wax emulsion sprays on the size of Montmorency cherries, 1161*i*.

**Neal, A. M.**, and Vincent, J. R. Attack of O on rubber, 8721*h*.

**Neal, H. A.**, and Ames, C. B. Catalytic reforming operations at McCarthy Chemical Co., 8124*e*.

**Neal, P. A.** See Spicer, S. S.

**Neal, R. A.** See Goodson, J. A.

**Neal, R. E.** See Linn, J. A.

**Neal, W. B., Jr.** See Ducoff, H. S., Straube, R. L.

**Neale, S. M.** Macromol. structure, 4857*e*, swelling and dispersion, 1857*f*; diffusion of dyes through cellophane—anomalous salt effect, 7778*i*.

**Neander, G.**, and Vahlquist, B. Absorption of Fe (II) serum Fe level in the portal vein during Fe-absorption tests, (III) serum Fe curve in rabbits following Fe in massive doses, 6737*i*.

**Nearpass, D. C.**, Drosdoff, M., and Brown, R. T. Effect of fertilizing tung trees with potash and other materials on the exchangeable cation content of Red Bay fine sandy loam, 1136*f*.

**Neave, A. S., Jr.** See Miller, L. L.

**Nebarov, V. N.** Prepn. of flannel in imitation of wool without emulsification, 3621*i*.

**Nebbia, G.** See Ciusa, W.

**Nebbia, L.** See Ubaldini, I.

**Nebeker, H. R.** See Brooks, F. R.

**Nebel, I. U.** See Inhoffen, H. H.

**Nebergall, W. H.** See Johnson, O. H.

—— and Lindeke, W. A. Nomograph for percentage of ionic bond character, 5240*b*.

**Nechaeva, A. S.** Glutathione in dried yeasts, 6700*i*.

**Nechaeva, N. B.** Microbacteria which oxidize $NH_3$ to nitrites, 8437*a*; varieties of $CH_4$-oxidizing mycobacteria, 9160*d*.

**Nechayeva.** See Nechaeva.

**Necheles, H.** See Sinaiko, E. S.

—— and Kroll, H. Carboxymethyl cellulose-alkali salt untacid prepn., P 8104*f*.

**Neddermeyer, S. H.** Ultra-fast counters, 4092*e*.

**Nederbragt, G. W.** Gas-liquid equil. in hydrocarbon systems, 6052*i*.

**Nederlandsche Centrale Organisatie** voor **Toegepast Natuurwetenschappelijk Onderzoek.** Ketogulonic acid, P 6225*b*.

**Nederlandsche Kjellberg Electroden Fabriek (Nekef) N. V.** Coated welding electrode, P 1308*i*, 1309*a*

**Nederlandsche Organisatie** voor **Toegepast-Natuurwetenschappelijk Onderzoek** ten behoeve van **Nijverheid, Handel en Verkeer.** Colored ceramics, P 5166*f*.

**Nedogovorov, D. I.** Sepn. of scheelite and cassiterite by flotation, 2139*i*.

—— and Zhukov, A. L. Flotation of scheelite and sulfides, P 9018*b*

**Nee, J. W.** Formulation of corrosion-resistant paint, 1198*a*.

**Needham, A. B.** Mica deposits at the Victory, Jack Rabbit, Rainbow, and Midas mines, Custer Co., S. Dakota, 6953*b*, see Bishop, O. M.

—— and Kreamalmeyer, K. L. Alice Zu mine, Ozark Co., Mo., 6951*b*.

**Needham, C. E.**, and Luff, P. Au, Ag, Cu, Pb, and Zn in Arizona, Idaho, Montana, Utah, and Washington, 2127*h*

**Neefe, J. R.**, and Reinhold, J. G. Photosensitivity as a cause of falsely pos. cephalin cholesterol flocculation tests for liver disease, 2304*e*

**Neel, A. V.** Cell and protein contents of cerebrospinal fluids—examn. of the proteins, 3517*e*.

**Néel, L.** Permanent oxide magnets, P 3770*d*, magnetic properties of the rhombohedral sesquioxide of Fe, 5685*f*, 8221*d*, theory of ferromagnetism, 6877*c*.

**Neelakantam, K.** Detn. of Mn with 8-hydroxyquinoline, 8951*i*; see Karunakaran, C.

**Neely, J. W.** See Boatner, C. H.

**Neerfeld, H.**, and Mathieu, K. Mechanism of the γ-α transformation in Fe, 4615*i*, 7881*i*.

**Neesby, T. E.** Stable solns. of polythionates and polythionic acids, P 7651*f*

**Neff, A. W.**, Parrish, D. B., Hughes, J. S., and Payne, L. F. Vitamin A in eggs, 7601*h*.

**Neff, B. J.** See Cutting, W. C.

**Neff, J. M.** Ceramics for aircraft power plants, 1163*h*.

**Neff, L. L.** See Buckmann, J. P.

**Neginskiĭ, M. S.** Calcg. the output of raw-material mills, 154*h*

**Negoescu, A.** See Arventi, B.

**Negovorov, B. A.** See Gromov, B. V.

**Nègre, L.** See Calmette, A.

**Neher, A.** Fluorescent product P 2517*d*.

**Neher, C. M.** See Dorsky, J., McBee, E. T.

**Neher, H. T.** See Croxall, W. J., Glavis, F. J.

—— and Bauer, L. N. Acrylic resin laminations, P 4893*g*.

——, Kroeker, F. H., and Croxall, W. J. Allyl diglycolate of allyl glycolate, P 7754*d*

**Neher, H. V.** Discharge characteristics of Geiger-Muller counters, 4092*i*.

**Neher, M.** See Wood, R. H.

**Nehrenberg, A. E.** See Payson, P.

**Neiburger, M.**, and Wurtele, M. G. Nature and size of particles in haze, fog, and stratus of the Los Angeles region, 6039*b*.

**Neidhardt, H. W.** See Dernehl, C. U.

**Neidig, C. P.** See Burrell, H., Hersberger, A. B.

**Neier, W. B.** See Denton, J. J.; Kuh, E.

**Neiger, R.**, and Nachazel, V. Bleached keratin meal for making molded plastics, P 8186*d*

**Neil, J. C.** See Putnam, F. W.

**Neiland, T. A.** See Ginzburg, S. L.

**Neilands, J. B.**, and Strong, F. M. Enzymic liberation of pantothenic acid, 2249*f*.

**Neill, J. M.**, Castillo, C. G., Smith, R. H., and Kapros, C. E. Capsular reactions and sol. antigens of *Torula histolytica* and of *Sporotrichum schenckii*, 2674*b*.

**Neill, R. G.** Aids to Biology (book), 7069*a*.

**Neilson-Jones, W.** Growing Plant (book), 3496*i*.

**Neiman, M. B.** See Alvazov, B. V.; Dobrinskaya, A. A.; Dzantiev, B. G.; Ionin, V. D.; Malzus, Z. K.; Molodovskiĭ, V. A.; Zaborenko, K. B.

—— and Gerber, M. I. Detn. of satd. and unsatd. aldehydes, 5702*h*.

—— and Markina, Z. V. Detn. of acetone and methyl ethyl ketone, 4183*h*.

——, Molodovskiĭ, V. A., and Bogdarin, G. A. Retardation of the oxidation of diisopropyl ether and amylene fraction by inhibitors, 6157*a*.

—— and Nesmeyanov, A. N. Radioactive indicators in analytical chemistry, 7858*i*.

——, Plotnikov, A. Ya., Razuvaev, G. A., and Ryabov, A. V. Magnetic susceptibility and structure of reduced dihydrophenarsazine, 4675*f*.

—— and Shubenko, M. A. Detn. of methacrylic ester, 1289*g*

**Neĭman, O. V.**, and Neĭman, R. E. Viscometric characteristics of soap solns., 4938*e*, coeff. of temp. cond. of gels, 6888*i*

**Neĭman, R. E.** See Neĭman, O. V.

**Neĭman, R. S.** Filtration of viscose through quartz, 4010*a*

**Neĭmark, I. E.**, Khatset, F. I., and Sheĭnfain, R. Yu. Sorption properties and structure of silica gels, 824*h*.

—— and Sheĭnfain, R. Yu. Effect of the type of porosity of silica gel catalyst on the reaction of vapor phase hydrolysis of chlorobenzene, 7313*e*.

**Neĭmark, V. E.** See Brik, S. D.

——, Piletskaya, I. B., and Entin, R. I. Effect of Ti and of combined B, V, and Ti on the crystn. of steel, 532*a*.

**Neimeyer, W. I.** Precision casting with frozen Hg patterns—Mercast process, 3333*c*.

**Neipert, M. P.** See Blue, R. D.

**Neish, A. C.** 2,3-Butanediol (XXX) detn. of the fermentation acids by partition chromatography, 4807*i*; see Illman, W. I.; Robertson, F. M.

**Neish, R. A.** See Donelson, J. G.

**Neish, W. J. P.** Chemistry of 2-aminofluorene (I) reaction of 2-aminofluorene with pyruvic acid, (II) reaction with dihydroxymalonic ester, 193*a*; reaction between 5 - aminoacenaphthene and pyruvic acid, 193*j*; metabolism of fluorene in the rabbit, 3919*f*; urethan and diureide derivs. of 1,2-diarylethylamines, 7008*c*.

**Neiswander, R. B.** Grape mealybug on *Taxus* in Ohio, 5526*e*; see Rodriguez, J. G.

**Neitzert, K.** Methods with drying cabinets, 3532*g*.

**Neiva, J. M. C.** See Cotelo Neiva, J. M.

**Nekhoroshev, N. P.** $H_2S$ therapy in shock states and collapse, 8062*c*.

**Neklutin, V. C.** See Howland, L. H.

**Neklyudova, M. V. K.** See Klassen-Neklyudova, M. V.

**Nekola, W.** Caustic differential in bottle soakers, 2451*h*.

**Nekrasov, B. V.** Course in General Chemistry (book), 2081*a*

**Nekrasov, V. V.** Kinetics of hydration of cements of various types, 6000*b*.

**Nekrasova, L. F.** Seasonal dynamics of stored carbohydrates in desert plants of the Karsakpaisk Plateau, 6703*b*

**Nekrasova, V. A.** See Vvedenskiĭ, A. A.

**Nekrassoff, Nekrassow.** See Nekrasov.

**Nekryach, E. F.** See Dumanskiĭ, A. V.

**Nekrytyĭ, S. S.** Effect of Mo on the properties of Fe castings, 84*e*, effect of Cu on the phys. and mech. properties of pig-iron castings, 1296*e*.

**Nélis, P.** See Lafontaine, A.

—— and Lafontaine, A. Bactericidal activity of $NH_4$ sulfoichthyolate on *Clostridium oedematiens*, *Cl. perfringens*, *Eberthella typhosa*, and *Salmonella* species, 3488*d*; action of weak concns. of HCHO on Jenner's virus, 3916*e*; purification and attenuation of vaccine virus pulp by NaClO, 4759*h*; action on bacterial multiplication of penicillin inactivated by the penicillinase of *Bacillus subtilis*, 5822*f*.

**Nellen, A. H.**, Dunlap, W. B., Jr., and Glaser, C. J., Jr. Power consumption studies on natural and synthetic rubber compds., 5984*g*.

**Nellenstein, F. J.** See Nellensteyn, F. J.

**Nellensteyn, F. J.** Dispersions of extraneous materials in asphaltic bitumen, 5178*e*.

—— and Baart, M. Surface tension rule for asphaltic bitumen, 6816*i*

**Nelsen, F. M.** See Brooks, F. R.

**Nelskyla, G.**, and Larsson, A. Teknisk och kemisk varukannedom för handel och industri (book), 5133*g*.

**Nelson, A.** Plants of the Coal Measure period, 4347*b*; Introductory Botany (book), 5095*e*.

**Nelson, A. A.** See Fitzhugh, O. G.

——— and Fitzhugh, O G. Chloroquine (SN 7618)—pathol. changes observed in rats which had been fed various proportions for two years, 7134*i*.
**Nelson, B. A.**, and Mannbro, N. V. Recovering solids from sulfite cellulose waste lyes, P 3617*b*.
**Nelson, B. J.**, and Sager, G. F. Liquid soly. of Mn in a Mg-Al-Sn alloy, 6558*d*.
**Nelson, C. A.**, and Whitecotton, W. M. Midvale Pb smelter for company and custom ores, 78*b*.
**Nelson, C. I.** See Eleveth, D. F.
**Nelson, C. R.** See Weber, M. K.
**Nelson, E. B.**, and Nafe, J. E. Hyperfine structure of T, 4953*e*.
**Nelson, E. C.** See Godfrey, D.
**Nelson, F.** See Kraus, K. A.
**Nelson, F. E.** See Baker, R. J.; Collins, E. B.
**Nelson, F. L.** See Albright, R. E.; Smolak, M.
**Nelson, G.** See Lacher, J. R.
**Nelson, H. A.** See Ford, J. H.
**Nelson, H. B.** See Malm, C. J.
**Nelson, H. D.** See Yust, H. R.
**Nelson, H. E.** Coated printing paper, P 4014*g*.
**Nelson, H. W.** See Purdy, J. B.
**Nelson, J. F.** Incorporating antioxidants into isobutylene elastomers during manuf., P 3652*b*; stabilized polymers, P 5992*b*, see Bornstein, J.; Brown, Anita
**Nelson, J. H.** Vacuum deposition, 1697*h*.
**Nelson, J. W.** See Barr, Martin, Cullick son, T. W.
**Nelson, K. E.**, Hewitt, W. B., and Break, R. A. Arsenite spray injury to grape canes through leaf scars, 3135*a*.
**Nelson, L.** See Barron, E. S. G.
**Nelson, L. B.** Coordination of cathodic protection installations to avoid interference with adjacent structures, 6092*h*, see Pritchett, W. L.
**Nelson, M. M.**, and Evans, H. M. Effect of succinylsulfathiazole on folic acid deficiency during lactation, 1092*a*, beneficial effects of biotin on lactation in the rat, 2292*h*, folic acid and reproduction, 6291*h*.
**Nelson, M. R.** Casting, forging, and heat-treating cast-iron grinding balls, P 3342*d*.
**Nelson, N.**, Palmes, E. D., Park, C. R., Weymouth, P. P., and Bean, W. B. Absorption, excretion, and physiol effect of I in normal human subjects, 5846*i*
**Nelson, O. J.** Cupola furnace for producing molten slag for use in rockwool, P 103*i*.
**Nelson, P. M.**, and Gantz, E. St. C. Relative stability of some Cu(II) complexes, 4971*a*.
**Nelson, Richard C.** Direct recording of spectra in the region 1.2 $\mu$ to 3 $\mu$ using the PbS photoconductive cell, 2515*b*.
———, Plyler, E. K., and Benedict, W. S. Absorption spectra of $CH_4$ in the near infrared, 3293*f*.
——— and Wilson, W. R. High resolving power infrared recording spectrometer, 6513*b*.
**Nelson, Richard Carl.** Pectin product from citrus fruit peel, P 1502*g*
**Nelson, R. D.** See Gilman, H.
**Nelson, R. H.** Evaluating DDT residues, 5895*e*, see Chisholm, R. D.
———, Fulton, R. A., Fales, J. H., and Yeomans, A. H. Low-pressure aerosols—their efficiency in relation to particle size, 6777*e*.
———, Gersdorff, W. A., and Gertler, S. I. Toxicity to houseflies of DDT and two DDT analogs, 5147*e*.
**Nelson, R. T.** See Wood, R. R.
**Nelson, V.** Phys. properties of evapd. milk—surface tension, grain formation, and color, 9281*d*.
**Nelson, W. B.** See Thomas, H. E.
**Nelson, W. E.** See Chapman, S. S., Robinson, H. W.
**Nelson, W. H.** See Gay, L. N.
**Nelson, Walter L.** Effect of N, P, and potash on certain lint and seed properties of cotton, 8592*f*; see Dean, L. A., Kirshnan, P. S.
———, Krantz, B. A., Colwell, W. E., Woltz, W. G., Hawkins, A., Dean, L. A., MacKenzie, A. J., and Rubins, E. J. Radioactive tracer technique in studies of phosphatic fertilizer utilization by crops (II) field expts., 1135*a*.
———, Loosli, J. K., Lofgreen, G., and Yager, N. Carotene retention in alfalfa meal—effect of blanching, packaging, and storage temp., 2339*d*.
**Nelson, Wilbur L.** Petroleum Refinery Engineering (book), 5937*f*; see Rahmes, M. H.
**Nelson, William L.**, and Sinnig, O. R. Pressure-sensitive adhesive mass, P 3240*e*
**Nelson, W. O.** See Heller, C. G.
——— and Heller, C. G. Testis in human hypogonadism, 6716*i*.
**Nemchinskaya, V. L.** See Karasik, V. M.
**Němcová, A.** See Churý, J.
**Němec, A.** Biochemistry of *Taxus baccata*, 1836*e*
**Němec, B.**, and Pastýrik, L. General Botany (book), 8463*a*
**Nemec, P.** Antibiotic properties of fungi, 8004*d*.
**Nemes, L.** See Magyar Viscosa R. T.
**Németh, L.** See Seller, C.
**Nemilov, Yu. A.** Energy of protons formed in the bombardment of Al and Si by deuterons, 8265*h*.
——— and Funshtein, B. L. Angular distribution of protons in the reactions $O^{16}$ $(d,p)$ $O^{17}$ and $Al^{27}$ $(d,p)$ $Al^{28}$, 8861*h*.
——— and Gedeonov, L. I. Protons formed in bombardment of Mg with deuterons, 4117*g*.
**Nemir, P., Jr.**, Hawthorne, H. R. and Leerone, B. L. Increase of serum lipase in induced appendical peritonitis, 8522*h*.
**Nemir, R. L.** See Holt, L. E., Jr.
**Nemirovskaya, O. I.** Action of sulfonamides on the activity of blood carbonic anhydrase, 772*d*
**Nemirovskaya, S. I.** Influence of Na salicylate, aminopyrine, and ascorbic acid in blood carbonic anhydrase activity, 4773*g*
**Nenadović, M.** See Pushin, N. A.
**Nenitzescu, C. D.**, and Bucur, C. Sweet-tasting compds. of the *m*-nitroaniline series, 2592*b*.
**Nenryo Kenkyujocho.** Same as Fuel Research Inst.
**Neogi, S.**, and Rajagopal, K. Carotene concentrate from water hyacinth, 9364*b*
**Neoustroueva, M. V.** See Neustrueva, M. V.
**Nepomniashchaia, Z. A.** See Nepomnyashchaya, Z. A.
**Nepomnyashchaya, Z. A.** See Valyashko, N. A.
**Nepoux, G.**, and Bourlot, I. Evolution in the use of drying oils, 2415*a*.
**Nepveux, F.** See Geuffon, R.; Verne, J.; Walter, H.
**Nero, W. J.** See Clutton, E. Q.
**Nesbett, F. B.** See Deane, H. W.
**Nesbitt, S.** See Myhre, J.
**Neseni, R.** Proteins in butter, 781*d*
——— and Korprich, H. Serum N in normal milk, 780*b*
**Nesmelanow, Nesmejanow.** See Nesmeyanov, A. N.
**Nesmeyanov, A. N.** See Balandin, A. A., Jomn, V. D., Nelman, M. B.
——— and Borisov, A. E. Conservation of the stereochem. configuration in reactions of electrophilic and radical substitution at an olefinic C atom, 560*b*.
———, Freidlina, R. Kh., and Kochetkov, A. Quasicomplex compds. of Pb, 1710*h*.
——— and Kochetkov, N. K. Organomercury compds. (XLII) addn. of $HgCl_2$ to acetylenic alcs., 7412*h*, (XLIII) quasi-complex compd. of phenylethynyl methyl ketone with $HgCl_2$, 7413*d*.
——— and Reutov, O. A. Organomercury compds. (XL) synthesis of aromatic Hg-org. salts through aryldiazocarboxylic salts, 171*b*.
**Nesmoen, S.** See Hvidsten, H.
**Ness, A. T.** See Endicott, K. M.
**Ness, H. J.** See Thomas, C. E.
**Ness, W. E.** Lakes of basic dyes for printing inks, P 4494*b*
**Nésmméjanow, A. N.** See Nesmeyanov, A. N.
**Nesterova, Yu. S.** See Shadlun, T. N.
**Nestle, R. F.** See Schultz, O. R.
**Nészáros, J.** Producing foods contg. ascorbic acid, 8069*i*
**Neter, E.** Medical Microbiology for Nurses (book), 1342*i*
**Neth, A.** Precision lattice-const. detn., 2863*b*
**Netnerton, L. E.**, and Holt, M. L. Electrodeposition of Re from aq. solns., 5675*f*.
**Neto, A. S.** See Sacco Neto, A.
**Netsvetaev, M. A.**, and Stukachev, A. V. Sepn. of mixts. of ferromagnetic materials, P 3339*a*.
**Nettlenbusch, L.** Pyridine recovery from crude light oil, 7664*i*.
**Nettleton, M. R.** See Ives, D. J. G.
**Neu, H.** See Diemair, W.
**Neu, J. T.**, and Gwinn, W. D. Raman spectra of $GeCl_4$ and $PbCl_4$, 1657*g*.
———, Ottenberg, A., and Gwinn, W. D. Polarization of Raman lines of *s*-dichloroethane, 42*f*.
**Neu, R.** Wax constituents of *Galium verum*, 424*h*; synthetic detergents, their power of detergency, and influence on the fiber in comparison with soap, 3219*a*; acid-sensitive glucosides and other plant substances (I), 8616*a*.
**Neubauer, E. T. P.** Nuclear power-plant engineering, 8850*b*.
**Neubauer, H.** Detn. of N in the soil and in compost soils, 340*e*.
**Neubauer, M.** Di- and polyglycerol, P 4033*b*, monoses, P 4037*f*; see Hofmann, H.
**Neuberg, C.** See Mandl, I.
——— and Lustig, H. Amino acids, P 3841*r*.
———, Lustig, H., and Dresel, R. Dismutation in the heterocyclic series—dismutation of furfural by yeast and related problems, 4726*a*
——— and Mandl, I. Unknown effect of amino acids, 4710*a*.
——— and Roberts, I. S. Properties of nucleic acids and nucleotides, 8416*a*.
**Neuberger, A.** Synthesis and resolution of 2,5-dihydroxyphenylalanine, 6597*i*, metabolism of proteins and amino acids, 9265*d*, see Leaf, G.
**Neubert, A. M.** Froth flotation process for cleaning vined green peas, 9289*d*.
**Neuburger, W.**, and Weil, R. Ext. for the prepn. of syrupus balsami tolutani, 1527*h*
**Neuenburg, G. J.** Effects of rotation of objectives on the optical properties of opaque minerals in polarized light, 8981*e*.
**Neuert, H.** Relations between the disintegration energies of light radioactive nuclei, 2857*c*, generation of ionic beams in a high frequency discharge, 2857*i*, contact potential measurements on irradiated metal oxide surfaces, 6073*i*
**Neufeld, L.** See Bach, I.
**Neufeld, O. E.** Holder for urine tubes, 6476*b*
**Neugebauer, H.** Cardioactive substance of *Crataegus*, 5906*f*, constituents of *Echinacea*, 5906*g*, components of *Passiflora* with sedative action, 6788*g*, effect of *Crataegus*, 8558.
**Neugebauer, J.** See Millner, I.
**Neuhart, F. C.** Solid-bed catalyst regeneration, P 513*b*.
**Neuhaus, A.** Effect of the shapes of org. mols. and their arrangement in the crystal on their susceptibility to oriented deposition (IX), 1237*a*, oriented overgrowths of org. compds. on inorg. lattices, 2484*h*, nature of the binding forces in oriented overgrowths of org. substances on inorg. carrier lattices, 4918*i*, colorimetric reaction for calamine Zn, 5335*b*; partially isomorphous systems (X) oriented sepns. of cane sugar, 8238*f*
**Neuhaus, J. W. G.**, and Reuter, F. H. Esters of *l*-citronellic acid, 4633*f*, minor constituents of the wood oil of *Callitris glauca*, 7238*e*.
**Neukom, H.** Secondary valence gels of polyvinyl alc., 8210*d*, see Deuel, H.
**Neukomm, S.** Physicochem. control of sclerema, 9209*b*, see Daudel, P.
**Neuman, J. V., Jr.** See Duriez, L. H.
**Neuman, M. W.** See Dounce, A. L., Neuman, W. F.; Orcutt, J. A.
——— and Neuman, W. F. Deposition of U in bone (II), 1114*f*
**Neuman, W. F.** See Dounce, A. L.; Flagg, J. F., Neuman, M. W.
——— and Allen, R. P. Failure of 2,3-dimercaptopropanol to affect acute systemic U poisoning, 6309*d*.
———, Neuman, M. W., Main, E. R., and Mulryan, B. J. Deposition of U in bone (III) effect of diet, 1114*h*, (IV) adsorption, (V) ion-exchange, (VI) ion-competition, 8481*c*.
———, Newman, M. W., and Mulryan, B. J. Deposition of U in bone (I) animal studies, 1114*d*.
**Neuman, W. K.**, and Slosberg, H. M. Gas sampling device adapted to testing canned food, P 2339*f*.
**Neumann.** See also Nelman.
**Neumann, A. L.** See Johnson, B. C.
———, Krider, J. L., James, M. F., and Johnson, B. C. Choline requirement of the baby pig, 7558*i*.
**Neumann, F. E.** Resorcinol carbonamides

as coupling agent for diazo prints, 5320e.
**Neumann, G. L.** See Hermance, H. P.
**Neumann, H.** Dependence of the pH optimum of the phosphomonoesterase I on the substrate concn. and on inhibitors and activators, 5063h; see Ruyter, J. H. C.
**Neumann, Henrich.** Mineralogy and geochemistry of Zn, 6132a; apoanalcite, 8313i; hydrothermal differentiation, 8319i.
**Neumann, J.** See Salvá, J. A.
——— and Lavollay, J. Production of substances reducing 2,6-dichlorophenolindophenol by *Aspergillus niger* in the presence of *p*-aminobenzoic acid, 1457e.
**Neumann, P.** See Thomas, K
**Neumann, S.** Pregummed paper, fabric, and other materials, P 9448b.
**Neumark.** See Nelmark.
**Neumayr, A.,** and Schmid, J. Gastric mucus and ulcer genesis (I), 4385e.
**Neumeier, F. M.** See Omohundro, A. L.
**Neupauer, E.** See Fischer, Robert
**Neurath, H.** See Elkins-Kaufman, E.; Knufman, Seymour, Snoke, J. E.
**Neuroth, L.** See Schöpf, C.
**Neuss, J. D.** See Colon, A. A
——— and Frediani, H. A. Detn. of reduced Fe in vitamin enrichment mixts., 8066g
**Neustrueva, M. V.** See Mashovets, V. P.
**Neuville, P.** Law of multiple effect evapn., 6847f.
**Neuwald, F.** Antiphlogistic action of camomile fluid ext., 1490a, preps. of folia digitalis and an explanation of the cause of efficiency, 7644a
**Neuweiler, W.** Vitamin E of human milk, 10046, placental interchange, 3506e
——— and Schwab. Thrombokinase content of the placenta, 3913e
**Neuwirth, A.** See Karrer, P.
**Neva, A. C.** See Youngken
**Nevell, T. P.** See Hughes, G.
**Nevens, W. B.** See Kendall, K. A.
———, Harshbarger, K. E., and Kendall, K. A. Legumes and grasses for silage, 3539a.
**Nevenzel, J. C.,** Shelberg, W. E., and Niemann, C. Apparent ionization consts. and ultraviolet spectra of *o*-, *m*-, and *p*-chloro- and *p*-sulfamyl DL-phenylalanine, 8810b.
**Neverre, G.** See Malmejac, J.
**Neveux.** Manuf. of artificial fibers with a viscose base, 2778b
**Neville, O. K.** $C^{14}$ tracer studies in the rearrangement of unsym. α-diketones—phenylglyoxal to mandelic acid, 608b
**Neville Co.** Water dispersible phenothiazine, P 3572b, alc.-sol. phenol modified coumarone-indene resin, P 5631b.
**Neville-Jones, D.,** and Peters, R. A. Proteolytic enzymes in rat skin, 2654
**Nevison, J. A.** Surface active polyoxypolybenzenesulfonate, P 7730c; see Griesinger, W. K.
**Nevitt, H. G.** See Lohn, R. N.
**Nevitt, I. H.** Sewage sludge digestion at the North Toronto sewage plant, 3124e.
**Névot, A.** Food poisoning, 4780f, see Bonnet, H.
**Nevrell, T. H.** By-products of the sulfite industry, 3613c.
**Nevyadomskii, M.** See Yakubovich, A. Ya.
**New, A. A.,** Foord, S. G., and Beckwith, D. R. Elec. insulating material, P 2343h
**New, R. G. A.** See Burgoine, E., Huggill, H. P. W.
**Newberg, R. G.** Protective films from S-polymers—thermoplastics for molding and extrusion, 5988e, see Young, D. W.
———, Young, D. W., and Evans, H. C. Polyisobutylene - polyethylene blends, 9522g.
**Newberry, A. W.,** Roos, A., Robertson, A. F., Dahners, L. A., and Cohen, C. J. Virgilina Copper district, Virginia and North Carolina, 2131d.
**Newbery, G.** See Berg, S. S.
**Newbery, G. R.** Microwave linear electron accelerator, 8850f.
**Newbold, G. T.** See Baxter, R. A.; Dunn, G.; Howard, G. A.
——— and Sprug, F. S. Hydroxamic acids (I) cyclic hydroxamic acids derived from pyridine and quinoline, 2907b; 2-amino pyridine 1-oxide, 8380b.
———, Spring, F. S., and Sweeny, W. Pyrazine derivs. (V) synthesis of aminopyrazine derivs., 3005c; (VIII) synthesis of acylaminopyrazines from aminomethyl ketones, 7487f.
**Newburger, S. H.** Analysis of lanolin-hydrocarbon mixts., 7380c; analysis of castor oil in lipstick, 9367e.
**Newbury, E.** See Chronis, N. D.
**Newbury, E. G.** See Katcoff, S.
**Newby, M. P.** Gas and fluid flow in a side-blown converter model, 7878f.
**Newby, W.** See Gulino, E. A.
**Newcombe, H. B.,** and Hawirko, R. Mutation to streptomycin resistance and dependance in *Escherichia coli*, 6280g.
**Newcomer, E. H.,** and Wallace, R. H. Chromosomal and nuclear aberrations induced by ultrasonic vibrations, 5094i.
**Newcomer, E. J.** See Carlson, F. W.
———— and Dean, F. P. Orchard acaricides, 1523a.
**Newcomer, J. S.,** and McBee, E. T. Chem. behavior of hexachlorocyclopentadiene (I) transformation to octachloro-3a,4,7,7a-tetrahydro - 4,7 - methanoindene - 1,8-dione, (II) condensation with trichloroethylene, 4230e
**Newell, D. A.** See Chinard, F. P.
**Newell, G. W.** See Gershoff, S. N.
———, Erickson, T. C., Gilson, W. E. Gershoff, S. N., and Elvehjem, C. A. Effect of feeding agene-treated food materials to animals and to human beings, 3532h, human subjects receiving highly agenized food materials, 5102a.
———, Gershoff, S. N., Erickson, T. C., Gilson, W. E., and Elvehjem, C. A. Effect of feeding moderate levels of commercially agenized flour to dogs, 1843b.
———, Gershoff, S. N., Suckle, H. M., Gilson, W. E., Erickson, T. C., and Elvehjem, C. A. Feeding tests with $ClO_2$-treated flour, 5101g.
**Newell, I. L.** Blackening Cu and Cu alloys, P 7401f, see Edson, A. P.
**Newell, T. B.** Oxidation of cellulose with $NO_2$, 9138a
**Newell, W. C.** Oxygen, 3755b; see Harrison, J. L.
———, Langner, A. J., and Parsons, J. W. Ladle desulfurizing pig iron, 5311d, 4990a.
**New England Paint & Varnish Production Club.** Primers for ferrous metals in an atm. exposure, 3212a, standardization of methods of measuring viscosities of nitrocellulose lacquers, 3213c
**Newey, H. A.** See Davis, H. S.
**Newhall, J. F. P.** Treating potatoes, P 7160c.
**Newhall, R. G.** See Morrisroe, J. J.
**Newhouse, J. P.** See Klyne, W.
**Newing, M. J.** See Gregory, J. N.
**Newitt, D. M.,** and Haselden, G. G. Production of O, 9395d
———— and Weale, K. E. Soln. and diffusion of gases in polystyrene at high pressures, 2811d.
**New Jersey Zinc Co.** Zn-Fe-Cd alloys, P 1065b, phosphorescent pigment, P 2517f, Zn smelting in a vertical retort, P 2920h, condensing Zn vapor, P 2921a, melting Zn dust, P 2921g, high Mn brass alloys, P 8348c, Cu coating Fe particles, P 9022d
**Newkirk, A. E.** Resolution of azeotropic mixts. of trimethylchlorosilane with $SiCl_4$, P 1051d, vinyl fluoride polymers, P 9530d, see Kasper, J. S.
**Newkirk, J. B.** See Geisler, A. H.
———, Geisler, A. H., and Martin, D. L. Ordering reaction in Co-Pt alloys, 9011f
**Newkirk, T. F.,** and Tooley, F. V. Effect of cation concn. and size on He permeability of alkali silica glasses, 9401c.
**Newkirk, T. H.,** and Handelman, M. Triple-pass countercurrent ion-exchange system, 4882b.
**Newling, W. B. S.** See Gas Light and Coke Co., Plant, J. H.
**Newman, A. S.** Effect of certain plant growth-regulators on soil microorganisms and microbial processes, 1514d.
———, De Rose, H. R., and De Rigo, H. T. Persistence of iso-Pr *N*-phenylcarbamate in soils, 3961a.
**Newman, B. M.** Vitalized General Biology (book), 7991a.
**Newman, C. D.** Semimuffled firing of Dresden China, 7655f.
**Newman, E.,** Grossman, M. I., and Ivy, A. C. Effect of liver regeneration in partially hepatectomized rats, 7100f.
**Newman, E. V.** Physiology of the kidney, 8484c; see Eagle, H.
**Newman, F. C.** See Brayshaw Furnace & Tools Ltd.
**Newman, H. W.,** and Cutting, W. C. Effect of insulin on rate of metabolism of EtOH, 2321b.
**Newman, L. L.** See Wright, C. C.
**Newman, M.,** Hayworth, C. B., and Treybal, R. E. Dehydration of aq. MeEt ketone, 8753c.
**Newman, M. S.** Reaction in org. chemistry, 2993b; see Hussey, A. S.; Renoll, M. W.
——— and Beal, P., III. Prepn. of aromatic diazoketones, 5761f.
———, Craig, R. A., and Garrett, A. B. Behavior of oxygenated org. compds. in acid media, 4215d.
——— and Linsk, J. Steric hindrance in the Stobbe condensation, 4247e.
——— and Smith, A. S. Reactions of Grignard reagents at low temps., 565d.
——— and Wotiz, J. H. Prepn. of the six *n*-octynoic acids, 6571d.
**Newman, S. B.** Butyl methacrylate in leather microscopy, 9510h.
**Newman, W. A. C.** British coinage and coinage alloys, 3335h.
**Newmark, N. M.** See Bruckner, W. H.
**Newport Industries, Inc.** Zn resinate, P 3634c, 5206f.
**Newsom, L. D.** See Gyrisco, G. G.; Marshall, D. S.
**Newsome, J.** Secretin test of pancreatic function and its use in steatorrhea, 9233d.
**Newton, A. C.** See Doll, E. R.
**Newton, A. S.** • U deuteride, P 948c; fission of Th with α-particles, 4127a; formation of $U^{232}$ by He ions on Th, 4127c; artificial radioelements as tracers in the study of the adsorption of eosin and erythrosin on AgBr, 4536i; see Spedding, F. H.; Warf, J. C.
———, Warf, J. C., Spedding, F. H., Johnson, O., Johns, I. B., Nottorf, R. W., Ayres, J. A., Fisher, R. W., and Kant, A. U hydride (II) radiochem. and chem. properties, 7853d.
**Newton, B. L.** See Clark, D. G. C.
**Newton, E. P.** Substituted benzhydryl ethers, P 1064d.
**Newton, J. H.,** and List, G. M. Codling moth and mite control in Colorado, 7630b
**Newton, R. C.** Organization of research personnel, 3117d.
**Newton, R. G.** Meaning of the term "covulcanizable" plasticizer, 1208f; hardness testing of vulcanized rubber (XIII) accuracy, 1210i; Mullins effect—has it a bearing on reënforcement? 9513i; see Fisher, D. G.
——— and Scott, J. R. Detn. of resistance to abrasive wear (X) durability of a bonded abrasive wheel on the Du Pont machine, 8729i
———, Scott, J. R., and Willott, W. H. Detn. of resistance to abrasive wear (XI) type of abrasive, 8729i.
**Newton, R. H. C.** See Jenkins, R. O
**Newton, R. R.** Space-charge effects in bombardment cond. through diamond, 3279i; pos.-ion transient in Townsend discharge tubes, 4091g.
———, Ahearn, A. J., and McKay, K. G. Ferro-elec. Barkhausen effect in Ba titanate, 4068d.
——— and Kittel, C. Detg. the thickness of the transition layer between ferromagnetic domains by a neutron polarization expt., 2085b.
**New Wrinkle, Inc.** Flexible wrinkle finish, P 2447h; air-dry wrinkle finish, P 2448a; flexible material with wrinkle-textured coating, P 2790c; cellulose compd. wrinkle compn., P 2790e; wrinkle flexible material with rubber-soln. coating, P 5608h; uncooked wrinkle compn. contg. elastomer and conjugated-double-bonded oil, P 5972e; wrinkle-coating compns. consisting of a mixt. of conjugated double-bonded oil and aq. emulsion of polyvinyl acetate resin, P 9485d.
**New York Paint & Varnish Production Club.** Methods for measuring drying time, 3210h; pigment dispersion (II), 6835i.
**Ney, E. P.** See Bradt, H. L.; Freier, P.; Lofgren, E. J.
**Ney, J.** Chimie (book), 5277a.
**Ney, M.** Detg. Zn in wines, 7636c; detn. of Th in poison baits, 8086i.
**Ney, P. W.** See Deas, C. P.; Tarr, H. L. A.
**Ney, W. O., Jr.** Inhibitors for *N*-vinylpyrrole, P 2037f; see Barnes, C. E.
**Neyman-Pilat, E.** Catalytic cracking, 2760h; aniline point and the soly. of mineral oils in industrial solvents, 3602f.
**Neymark.** See Nelmark.
**Nesamis, J. E.** See Ingle, D. J.; Li, C. H
**Nguyen-Hoán.** See Buu-Hoï; Caussé, R.; Corre, L.

**Nguyen-Quang-Trinh.** Dielec properties of the γ-glycols and their derivs., 11*c*.
**Nguyen-Thien-Chi.** Size analysis by sedimentation—powder metallurgy, 1696*h*.
**Nguyen-Van-Thoai.** See Abul-Fadl, M. A. M.; Roche, J.
——— and Chevillard, L. Thiamin phosphorylating proteins, 2654*h*, 7060*a*.
**Niagara Research Corp.** Purification of native S, P 3160*g*
**Nial, O.** X-ray studies on binary alloys of Sn with transition metals (I) binary systems of Sn with Fe, Co, Ni, Mn, Re, and Cr, 6136*h*; (II) binary systems of Sn with Pt metals, (III) structure types, 6137*f*.
**Niazi, S.,** and State, D. Diphenylamine reaction of human serum, 5488*b*.
**Nicaro Nickel Co.** $NH_3$ recovery from ore tailings pulp, P 2919*h*; reduction of ores contg. Ni, P 6562*e*
**Nicaud, P.** See Hazard, R.
**Niccolini, P.** Pharmacology of sparteine mono- and di(phenylethylbarbiturate) (III), 764*h*, see Poggi, A. R.
**Niccolini, Z.** See Poggi, A. R.
**Nicewander, D. A.** See Hillyer, J. C
**Nichik, M. S.** Priority of A. N. Shchukarev in establishing the law of the kinetics of soln., 8819*e*.
**Nichol, C. A.** See Robblee, A. R
———, Dietrich, L. S., Cravens, W. W., and Elvehjem, C. A. Activity of vitamin $B_{12}$ in the growth of chicks, 3074*h*.
———, Harper, A. E., and Elvehjem, C. A. Effect of folic acid, liver ext., and vitamin $B_{12}$ on hemoglobin regeneration, 5835*a*
———, Robblee, A. R., Cravens, W. W., and Elvehjem, C. A. Distribution of an unidentified chick growth factor, 284*f*, growth response of chicks to antipernicious anemia prepns., 3895*i*
**Nichol, J. C.** See Deutsch, H. F.
**Nicholas, D. J. D.** Expts. on correcting Mg deficiency in greenhouse tomatoes, 801*c*, tests in diagnosis of mineral deficiencies in potato plants, 2675*e*, detn. of mineral status of plants, 2677*g*; see Jones, J. O., Quastel, J. H., Thomas, W. D. E.
———, Jones, J. O., and Wallace, T. Control of Mg deficiency in glasshouse tomatoes (III), 2358*b*.
**Nicholas, H.** See Du Pont de Nemours, E. I., & Co
**Nicholas, J. S.** Problems of organization, 4710*g*; see Boell, E. J
**Nicholas, S. D.** See Cooper, E. A
——— and Smith, F. Friedel-Crafts reaction between succinic anhydride and 1,2 diphenylethane, 7004*b*
**Nicholl, L.** See Bitler, W. P
**Nicholls, G. A.** See Briggs, L. H.
**Nicholls, J. R.** Techniques in analytical chemistry, 2539*b*
**Nicholls, R. J.** See Bide, A. E., Glaxo Laboratories Ltd.
**Nicholls, R. V. V.** Introduction to Practical Org. Chemistry (book), 5109*e*, see Allenby, O. C. W.; MacLean, D. B., Morton, M.; Warrington, C. J. S
**Nicholls, R. W.** Excitation probability functions of at. and mol. energy levels, 3291*d*.
**Nichols, C. W., Jr.** See Wolff, J.
———, Chaikoff, I. L., and Wolff, J. Relative growth of the thyroid gland in the bovine fetus, 8493*i*.
**Nichols, E. H.,** and Beyard, R. M. Aggregates, P 3989*d*.
**Nichols, F. S.** See Oxley, H. F.
**Nichols, H. J.,** Young, K. B., and Nolan, M. J. Welding of Mo, 6063*c*.
**Nichols, J.** Quant. analysis of the adrenal glands of wild Norway rats, 740*i*, effects of electrolyte imbalance on the adrenal gland, 7102*h*
——— and Miller, A. T., Jr. Excretion of adrenal corticoids in the sweat, 2299*h*, effects of cyanide anoxia on adrenal gland, 3931*c*.
**Nichols, J. B.** Regenerated cellulose film, P 1567*d*, see Mochel, W. E
**Nichols, K. D.** Education for nuclear engineering, 6908*c*, 7319*i*
**Nichols, M. H.** See Herring, C
**Nichols, M. L.,** and Ingram, B. L. Artificial color standards for methyl yellow and methyl orange, 1280*d*.
**Nichols, P. L., Jr.** See Riemenschneider, R. W.
——— and Hamilton, R. M. Allyl starch plastics, P 2028*b*.
——— and Smith, L. T. Resinous compns. of starch ethers with other resins, P 2466*e*
**Nichols, P. R.** Features of the sintering plant at Wisconsin Steel Works, 7388*i*
**Nicholsen, R.,** and Formo, M. W. Segregation of fatty acids by preferential neutralization, 6830*h*.
**Nichols Engineering & Research Corp.** Scrubber and classifier of reconditioned foundry sand, P 9019*a*.
**Nicholson, A.** See Lynam, T. R.
**Nicholson, D. E.** Development of paper chromatograms, 7377*d*.
**Nicholson, D. G.** Purification of Ti halides by treatment with metal hydrides and distn., P 3158*c*; see Posner, H., Jr.; Worthington, E. A.
**Nicholson, E. E.,** and Collins, R. B. Photographic emulsions, P 5128
**Nicholson, E. W.,** Morse, J. E., and Hardy, R. L. Fluidized solid pilot plants, 1613*e*
———, Moise, J. E., Segura, M. A., and Kleiber, C. E. Pilot plants - butene dehydrogenation, 3644*b*
**Nicholson, T. F.** Effect of high blood urea on the acid-base balance of serum, 3911*f*
**Nickel, E.** Hybrid rock of the Eckschenbach type and its position in the Rastenberg plutonics, 8320*c*, petrography of the Odenwald (IV) variable relations among diorites, granites, and schists in the western Odenwald, 8320*b*, plagioclase inclusions in sanidine crystals of the nevadite from the Cerros Alifragas, Spain, 8313*f*
**Nickell, L. G.** See Burkholder, P. R.
**Nickels, C. B.** DDT and other insecticides to control the pecan nut casebearer, 7630*i*.
**Nickels, J. E.** See Kutz, W. M
———, Eineman, M. A., and Wallace, W. E. X-ray diffraction studies of NaCl-NaBr solid solns., 6041*i*
———, Webb, G. A., Heintzelman, W., and Corson, B. B. Dehydrogenation of isopropylbenzene to α-methylstyrene, 1234*d*
**Nickerson, Margaret.** See Jager, B. V
**Nickerson, Mark.** Pharmacology of adrenergic blockade, 5866*g*, results obtained with dibenamine, 8490*i*, see Wang, Chuan Y.
———, Bullock, F., and Nomaguchi, G. M. Effect of dibenamine on renal hypertension, 311*h*.
——— and Nomaguchi, G. M. Dibenamine protection against cyclopropane-adrenaline cardiac arrhythmias, 2700*i*
**Nickerson, W. J.** Biology of Pathogenic Fungi (book), 4727*g*, dependence, in yeasts, of phosphate uptake and polymerization on the occurrence of glucose polymerization, 9115*e*.
———, Krugelis, I. J., and Andrésen, N. Localization of alk. phosphatase in yeast, 275*g*
——— and Mullins, L. J. Riboflavin enhancement of radioactive phosphate exchange by yeasts, 270*g*
——— and Reij, N. J. W. van. Effect of sulfhydryl compds., penicillin, and Co on the cell division mechanism of yeasts, 8431*h*
——— and Zeralin, K. Accumulation of radioactive Co by dividing yeast cells, 8432*e*
**Nickols, D. G.** Vacuum furnace for high-temp. microscopy, 2908*i*
**Niclause, M.** Homogeneous gas-phase pyrolyses of org. substances, 7805*h*, see Goldinger, P.
**Nicod, J. L.** See Danchakov, V.
**Nicodemi, E.** Detn. of blood catalase, 3868*i*
**Nico ten Kuile en Zonen N. V.** Water repellent textile material, P 3209*a*.
**Nicol, A.** Action of heat on $PbI_2$ in a vacuum or in the presence of O, 6533*e*
**Nicol, J.** Multiplier photocells—characteristics—their application in spectrographic analysis, 3245*h*.
**Nicola, M. de.** See De Nicola, M.
**Nicola, P. de.** See De Nicola, P.
**Nicolaew.** See Nikolaev.
**Nicolai, E.** See Preston, R. D
**Nicolaides, N.** See Westheimer, F. H
**Nicolas, L.,** and Calvet, E. Refinements in the interferometer method of measuring sedimentation and vertical diffusion in liquids, 4537*g*.
**Nicolau, J. del C.** See Castillo Nicolau, J. del.
**Nicolău, Q. R. B.** See Brayna Nicolău, Q. R.
**Nicolaus, R. A.** Nitration of phenylcinnamic acid, 5772*g*.
**Nicolet, M.** See Swings, P.
**Nicolini, L.** See Rossi, G
**Nicoll, F. H.** Forming low-reflecting surfaces on optical elements, P 6802*i*; cascade phosphor screen, P 7832*d*.
**Nicolle, J.,** and Joyeux, Y. Optical antipodes of alanine, valine, leucine, and isoleucine as sources of N for various bacteria, 3063*i*, optical isomers of histidine as sources of C and N for various bacteria, 7080*g*.
**Nicolson, M. M.** See Cross, L. E.
**Nicolson, P.** See Jánossy, L.
**Nicot, R.** See Marchal, J. G.
**Nicoud, G.** See Paquot, C.
**Nie, W. L. J. de.** Stabilizing macromol. org. compds contg. halogen, P 664*i*; vinyl chloride polymers, P 5230*i*; bonding halogen-contg. polymers on a base, P 7265*b*; vinyl chloride, P 7951*b*, polymerization of vinylidene compds., P 8212*c*; vinyl copolymers, P 8740*h*; see Rumschedt, G. E.
——— and Meyer, R. H. M. Manuf. of isobutylene contg. copolymers by emulsion polymerization, P 8741*b*.
——— and Noover, C. N. J. de. Solns., sheets, and other formed objects from copolymers of vinyl halides and vinylidene halides, P 7265*d*.
**Niebergall, W.** Refrigeration in the rayon industry, 1968*g*
**Niebling, K. F. J.** Impregnating agents and impregnation for making textiles water-repellent, 3624*a*
**Niederhauser, J. P.** See Skrutkowski, E.
**Niederhauser, W. D.** Araliphatic nitriles, P 7968*c*, see Bruson, H. A
**Niederl, J. B.** See Weiss, Philip
——— and Dexter, M. L. N analogs of hexestrol synthesis of *N*,*N*′ dimethyl α,α′-bis(4 hydroxyphenyl)ethylenediamine and derivs., 6114*d*.
———, Kasanof, D. R., Kisch, G. K., and Rao, D. S. Detn. of mol. wt., 6878*c*
——— and Rao, D. S. Diaryldiaminoalkane diols, 3800*b*
———, Sieger, G. M., Jr., and Stirn, F. E. Bactericidal phenolic invert soaps, 7923*e*.
——— and Silverstein, R. M. Synthetic estrogens—cyclohexyl dienestrol and hexestrol, 3812*b*
——— and Weiss, P. Synthetic estrogens—tetraalkyl substituted analogs of dienestrol and hexestrol, 613*h*.
**Niedermeier, W.** See Bills, C. E
**Niedrach, L. W.** See Lingane, J. J
**Nieft, M. L.** Cholesterol esterases (II) characterization of the hydrolytic system from intestinal mucosa, 3047*i*
——— and Deuel, H. J., Jr. Cholesterol esterase (I) enzyme systems in rat tissues, 3047*g*
**Niel, C. B van.** See Van Niel, C. B
**Nield, C. H.** See Cramer, B. J
**Nielsen, A. H.** Automatically recording grating spectrograph for the infrared, 4089*g*, see Lagemann, R. T.
**Nielsen, A. L.** Glucosuria (II) factors affecting the appearance and duration of glucosuria, 2308*f*
**Nielsen, A. T.** See Powell, S. G.
**Nielsen, B. S.** See Schmidt Nielsen, B.
**Nielsen, C.** Corrosion control, 2151*e*, evaluating alkali cleaners, 2451*g*.
**Nielsen, E. J.** See Bjerrum, J
**Nielsen, E. R.** Vapor-phase oxidation of furfural, 3792*i*, catalysts for oxidizing furfural, P 1700*h*.
**Nielsen, H.** See Leuthardt, F
**Nielsen, H. H.** Anomalies in the microwave spectrum of MeCN and MeNC, 7346*f*, see McConaghie, V. M.; Stewart, H. B
**Nielsen, J. K.** See Oswald, R. J.
**Nielsen, J. R.** See Richards, C. M
——— and Berryman, L. H. Mol. symmetry coordinates, 8846*h*
———, Bruner, L., and Swanson, K. Phenyl and cyclohexylcoronenes—infrared absorption spectra, 4637*h*
**Nielsen, K. S.** See Schmidt Nielsen, K.
**Nielsen, L.,** and Levreault, R. Dynamic mech. properties of polymer-plasticizer system, 9524*b*
**Nielsen, P. B.** See Bonnen Nielsen, P
**Nielsen, R. R.** See Rask-Nielsen, R.
**Nielson, E. D.** See Bartholomew, J. W.
**Niemann, C.** See Bennett, E. L.; Carter, H. E.; Cleland, G. H.; Harmon, K. M., Lindegren, C. R.; MacAllister, R. V.; Nevenzel, J. C., Peterson, J.; Rinderknecht, H.; Thomas, D. W.
**Niementowksi, S.** Propane for desasphalting and dewaxing in the Polish petroleum industry, 3996*h*.

**Nier, A. O.** See Aldrich, L. T.; Bernas, R. H.; Lane, C. T.; Lifson, N.; McInteer, B. B.; Reynolds, C. A.; Taconis, K. W.
**Niermeyer, H.** Material and design problems of steam and gas turbines, 7392*c*.
**Nierstrasz, C. A.** See Kooij, J.
**Nies, A. W.** Cr complexes of pyrazolone azo dyes, P 8150*g*.
**Niesen, H.**, Impact tester, 3653*e*; testing of lacquers for conserve cans, 6432*e*
**Nieset, R. T.** See Mayerson, H. S.
——, Porter, B., Trautman, W. V., Jr., Bell, R. M., Parson, W., Lyons, C., and Mayerson, H. S. Detn. of circulatory red blood cell vol., 3056*h*.
**Niessen, P. F.** Diarylamine derivs for Neoprene compounding, P 2026*b*
**Niessner, M.** Identification of Al alloys, 2120*f*.
**Nieświatowski, S.** Polish fertilizer industry, 8504*g*.
**Niethammer, A.** Technische Mykologie, Hefen und Schimmelpilze (book), 5449*f*, see Bernhauer, K
**Nietsch, B.** Detn. of pyridine, 8979*b*.
**Nieuwenburg, C. J. van.** Analytical chemistry and chem. analysis, 5691*h*
—— and Uitenbroek, G. Detection of Al, 61*c*.
**Nieuwenhuis', G. J., Confijterij N. V.** Candy, P 6334*d*.
**Nieuwenhuysen, J. L. van.** Drying green fodder, P 6334*f*.
**Nieva, F. S.** See Sánchez Nieva, F.
**Nievas, J. B.** See Bernal Nievas, J.
**Niezoldi, O.** Ausgewählte chemische Untersuchungsmethoden für die Stahl- und Eisenindustrie (book), 9018*a*.
**Nifontova, E. S.**, and Pototskaya, G. V. Economizing Ag consumption in making mirrors, 1541*d*.
**Nigam, R. G. S.**, and Pandya, K. C. Condensation of aldehyde with amides (XVII) 5-chloro- and 3,5-dichlorosalicylaldehydes, 6182*b*
**Nigam, S. D.** Development of turbulent liquid motion over an infinite plate, 4903*h*, turbulent liquid motion outside a circular boundary, 4903*h*.
**Nigenik, A. T.** See Nizhnik, A. T.
**Nigg, C.** See Hilleman, M. R.
**Niggli, P.** Gesteine und Minerallagerstatten (book), 3324*i*, geometrical basis of the selection rules of the proper vibrations and term splittings in mol. and crystal compds. (I), (II), 7339*i*; (III) detn. of the degrees of freedom corresponding to the vibrations, 8765*h*, Probleme der Naturwisseuschaften (book), 8842*e*, see Brandenberger, E
**Nighman, C. E.**, and Trought, M. E. Al, 2126*i*, Mg, 2127*d*
— and Umhau, J. B. Sn, 2127*g*.
**Nightingale, E.** Highet Physics (book), 3702*a*
**Nightingale, G. T.** N nutrition of green plants (II), 2678*d*
**Nightingall, C. M. G.** See Nightingall, R. V.
**Nightingall, R. V.**, Old, A. M., Nightingall, C. M. G., Aitken, J. B., and McKenzie, M. G. Coated ferrous metal surfaces, P 3342*e*
**Nightingall, V. C. J.** Coated ferrous metal surfaces, P 3342*e*
**Nigra, G.** Laundry soap contg. ultramarine, P 5614*e*.
**Nigrelli, R. F.** See Goldsmith, E. D
**Nihei, Y.** Proteins of bone marrow (I) protein fractions of the bone marrow of normal, anemic, and hyperthyroidic rabbits, (II) changes in the protein fractions of bone marrow produced by kidney and liver damage, 4359*i*; (III) changes in the protein fractions of bone marrow by extensive administration of As and Fe, (IV) influence of x-rays on the protein fractions of bone marrow, 6262*f*.
**Nihlén, H.** See Eeg-Olofsson, R.
**Nihon Chissohiryo K. K.** Same as Nippon Nitrogenous Fertilizer Co.
**Nihon Kinzokukagaku K. K.** Same as Nippon Metallurgical Chemical Co.
**Nihon Sekiyu K. K.** Same as Nippon Petroleum Co.
**Nihon Soda K. K.** Same as Nippon Soda Co.
**Nihoul, E.** See Welsch, M.
——, Fischer, P., and Lecomte, J. Destruction of adrenochrome semicarbazone by intestinal bacteria, 5822*f*.
**Niimi, O., Akazawa, H., and Maeda, Y.** Effect of Sb prepns. on tissue culture growth, their toxicity, and therapeutic efficacy on protozoiasis, 277*b*.
**Niininen, S.** (nee Tommila). See Toivonen, N. J.
**Niinobe, S.** Amino compds. with local anesthetic properties (VII) 4-diethylaminobenzylphenylalkyl amines, 9974*h*.
**Nijboer, B. R. A.** X-ray, ultraviolet, and visible spectra of ion crystals, 5659*g*.
**Nijboer, L. W.** Plasticity as a Factor in the Design of Dense Bituminous Road Carpets (book), 1548*b*, detn. of the plastic properties of bitumen-aggregate mixts. and the influence of variations in the compn. of the mix, 5919*g*.
**Nijhawan, S. D.**, and Dhingra, L. R. Soil aggregates in cultivated soils of Punjab, India, 795*b*.
— and Olmstead, L. B. Effect of sample pretreatment on soil aggregation in wet sieve analysis, 793*d*.
**Nijhoff, F. W.** See Doornenbal, P.
**Nijland, L. M.** See Wibaut, J. P.
**Nijnik, A. T.** See Nizhnik, A. T.
**Nijveld, H. A. W.** See Hoekstra, J.
**Nikiforoff, C. C.** Stony soils and their classification, 3549*e*, weathering and soil evolution, 6709*e*
**Nikiforova, A. A.** See Kudryavtsev, N. I.
**Nikiforova, N. M.** See Bruker, A. B.
**Nikiphorowa.** See Nikiforova.
**Nikitenko, M. D.** See Dubrov, N. F.
**Nikitenko, M. N.** Detg. Si in C steels, 1286*f*.
**Nikitin, A. A.** Cu fungicides, P 1901*g*, 3558*e*, 5151*g*.
**Nikitin, L. V.** Acoustical electrochem. effects, 508*g*
**Nikitin, N. I.** Wood and cellulose chemistry, 815*h*, Soviet forest chemistry, 3193*h*
——, Plekhanova, A. M., and Rudneva, T. I. Low-substituted fibrous products of the alkylation of cellulose, 2426*g*
——, Rudneva, T. I., Zaitseva, A. F., and Chocheva, M. M. Chem. compn. of wood pulp of oak according to types, 7226*d*
**Nikitin, S. N.**, and Tabakova, E. G. Prepg. alundum sheaths for thermocouples, 912*f*
**Nikitin, V. M.** Products of thermal isomerization of α pinene (XV) allocimene direct from turpentine, 609*g*.
**Nikitin, V. N.** Biochemistry of lactation, 8040*a*, synthesis and degradation of protoplasm during ontogenesis in the organism, 8414*h*; cellulose and its derivs. by means of infrared absorption spectra, 8886*h*; infrared absorption spectra of cellulose nitrate solns., 8887*c*.
**Nikitin, V. V.** See Gagarin, G.
**Nikitina, E. A.**, and Kokurina, A. S. Structure of heteropolyacids by the data on K silicotungstates, 8938*b*.
**Nikitina, E. I.** Microchem. detn. of small amts. of Zn by dithizone in Al alloys, 968*d*; quant. analysis in sorting alloys, 1279*e*, detn. of small amts. of Sb in Cu and Sn alloys, 2543*a*.
**Nikitina, M. D.** See Golubitskaya, Z. M.
**Nikitina, V. I.** See Pudovik, A. N.
**Nikitskaya, E. S.** See Fel'dman, I. Kh.
**Nikodémusz, S.** See Kesztyus, L.
**Nikolaev, A.** Detn. of milk acidity, 7597*a*, pasteurization of milk in cheese manuf., 9283*h*.
**Nikolaev, A. V.** Physicochem. Study of Native Borates (book), 7876*d*.
**Nikolaev, G.** Geol. study of the central Balkans between Botevgrad Pass and Zlatitza Pass, 4191*a*
**Nikolaev, S. I.** See Korotkov, S. Ya.
**Nikolaev, V. A.** See Smirnov, S. S.
**Nikolaev, V. I.**, and Tverdova, E. N. Utilization of Aral sea sulfate, 1920*e*.
**Nikolaeva, M. A.**, and Preis, E. M. Aggregative stability of metal organosols (II) autocoagulation of organosols of some metals, 7292*a*
**Nikolaeva, T. A.** Focal point of endemic fluorosis, 8582*i*.
**Nikolaeva, Z. V.** See Lur'e, Yu. Yu.
**Nikolaieff, Nikolajeff, Nikolajew, Nikolayev.** See Nikolaev.
**Nikol'skaya, N. N.** See Borodkin, V. F.
**Nikol'skii, B. P.**, and Grigorov, O. N. Dependence of the absorption of Ba ions by silica gel on the pH and the concn. of the soln., 2498*f*.
**Nikolskii, G. P.** See Kazarnovskii, I. A.
**Nikol'skii, S.** See Dobrotin, N. A.
**Nikonorov, K. V.** See Arbuzov, A. E.
**Nikonova, M. P.** See Poluektov, N. S.
**Nilsby, I.** Chronic $C_6H_6$ poisoning among shoe workers, 8525*h*; see Alwall, N
**Nilson, H. W.** See Sanford, F. B.
**Nilsson, G.** Active Fe in alk. solns., 1704*i*; iron reagents for alk. solns., 2115*d*.
**Nilsson, H.** See Baddiley, J.
**Nilsson, R.**, and Alm, F. Adenylpyrophosphatase in alc. fermentation and on the occurrence of trehalose during fermentation with maceration juice, 7066*a*.
**Nilsson, T.** See Agren, G.
**Nimkar, M. V.** See Preston, J. M.
**Nimmo, C. C.** See Legault, R. R.
**Nimmo-Smith, R. H.** See Hebb, C. O.
**Nims, L. F.** Radiation, 5811*e*; see German, W. J.; Tepperman, J.
**Nineham, A. W.** See Childs, A. F.
—— and Raphael, R. A. Compds. related to penicillic acid (IV) synthesis of a phenyl analog, 7459*a*.
**Ninni, M.** Leucolysin, 1480*f*.
**Niño, F. C.** See Cámara Niño, F.
**Ninol Development Co.** Diacetyl, P 3841*h*.
**Ninomiya, C.** See Naito, H.
**Niosi-Cusimano, G.** Drugs of the pantopon type, 6307*c*; toxicity of sulfanilamides for the isolated toad heart, 6307*d*; action of Ca guaiacol glycolate on the white blood corpuscles, 6307*g*; action of an antihistaminic drug on the isolated uterus of guinea pigs, 6732*a*
**Nipa Laboratories, Ltd.** Compns. resistant to or active against microörganisms, P 352*d*.
**Nippon Alumina Industry Co.** Refining of impure Al-Si alloy, P 6966*h*.
**Nippon Bandokogyo K. K.** Same as Nippon Alumina Industria Co.
**Nippon Carbide Industries Co.** Monovinylacetylene, P 3023*f*.
**Nippon Cement Co.** $H_3BO_3$ from Mg-contg. borate ore, P 5555*b*.
**Nippon Chemical Alloys Co.** Au alloy, P 6563*h*.
**Nippon Chemical Fibers Research Institute.** Synthetic resins, P 3231*h*.
**Nippon Chemical Products Industries Co.** Alkali hydroxide-sol. sulfate dyes, P 1988*e*; sulfanilamide derivs., P 3846*a*.
**Nippon Chissohiryo K. K.** Same as Nippon Nitrogenous Fertilizer Co.
**Nippon Denchi K. K.** Same as Nippon Electric Battery Co.
**Nippon Electric Battery Co.** Sn-Ca-Pb alloy, P 1665*b*, coating compd. for mold, P 6562*h*.
**Nippon Electrolytic Iron Mills.** Permanently magnetic steel, P 6966*fg*.
**Nippon Industrial Co.** 2-Diethylaminoethyl *p* aminobenzoate HCl, P 3847*b*.
**Nippon Iron Industries Co.** Electrolytic Fe from sand Fe, P 6526*d*.
**Nippon Keikinzoku K. K.** Same as Nippon Light Metal Co.
**Nippon Kinzokukagaku K. K.** Same as Nippon Metallurgical Chemical Co.
**Nippon Light Metal Co.** Alumina from alunite, P 7202*b*.
**Nippon Metallurgical Chemical Co.** Carotene from plant parasitic bacteria, P 6792*d*; starches by using plant parasitic fungi, P 6850*b*.
**Nippon Nitrogenous Fertilizer Co.** Addn. of H, P 3032*e*; $BaCl_2$, P 7200*i*; hydrazine, P 7202*a*.
**Nippon Petroleum Co.** Butylene and liquid hydrocarbons from ketones, P 7496*h*.
**Nippon Seikojo K. K.** Same as Nippon Steel Co.
**Nippon Sekiyu K. K.** Same as Nippon Petroleum Co.
**Nippon Shatetsu Kogyo K. K.** Same as Nippon Iron Industries Co.
**Nippon Shika Gokin K. K.** Same as Nippon Chemical Alloys Co.
**Nippon Soda Co.** Acetone and BuOH by fermentation, P 6362*e*
**Nippon Steel Co.** Antiaging of quenching oil for metals, P 6562*f*, regeneration of used quenching oil, P 6562*i*; nonaging steel, P 6563*f*.
**Nippon Synthetic Petroleum Co.** Printing ink from waste oil used for absorption of coal gases, P 5607*h*.
**Nippon Tire Co.** Fixation of natural or synthetic rubber with metals, esp. with Fe, P 6858*g*.
**Nippon Volatile Oil Co.** High-mol. unsatd. hydrocarbons from high, mol. paraffins, 1433*a*; contact treatment of hydrocarbon oil, P 3605*a*.
**Nippon Zinso Sekiyu K. K.** Same as Nippon Synthetic Petroleum Co.

**Nisbet, H. B.** Anesthetics, 8102*i*.
**Nisbet, J. S.** Pressure controller sensitive to $10^{-4}$ mm. of Hg, 8750*h*.
**Nischnik, A. T.** See Nizhnik, A. T.
**Nisell, O.** Effects of O and $CO_2$ on the circulation of isolated and perfused lungs, 3910*d*.
**Nishida, Kotaro.** Chem. studies on the dye for Oshima pongee (I) compn of the bark of dye plant *Raphiolepis umbellata*, 851*i*; catechol from *Raphiolepis umbellata* (I), 1086*g*.
**Nishida, Kozo.** Electrolytic refining of Al, P 3299*h*
**Nishida, M.** See Furukawa, J.
**Nishida, S.** Formation of the alloxazine nucleus, 7938*c*.
**Nishihashi, T.** See Okita, T.
**Nishikawa, S.,** and Shodo, S. Treatment of dried fish or shell fish for preserving, P 6758*f*.
**Nishikawa, Y.** See Hayashi, D.
**Nishikawara, M.** See Hawkins, R. D.; Mendel, B.
**Nishimoto, N.** See Itomi, H.; Kunii, T.
**Nishimoto, Y.** See Nishimura, Minoru.
**Nishimura, E. T.** See Creech, H. J.
**Nishimura, H.,** Iwashima, T., and Mita, S. Relation between reactivity and caking properties of cokes, 1949*i*.
**Nishimura, J.** Estn. of S of CS group of certain aromatic thioureas, 4600*c*.
**Nishimura, Masakichi.** Hot springs (XII), Usubetsu, Koganeyu, and Jozankei hot springs in Hokkaido, 7611*f*.
**Nishimura, Minoru.** Dewaxing of rice oil (I), (II), 5611*f*.
——— and Murakoshi, Y. Higher alcs. and high melting products from reduction of crude rice wax at high pressure, 8709*g*.
——— and Nishimoto, Y. Cage pressing of rice polishings, 5610*b*.
**Nishina, S.** See Nukiyama, H
**Nishiwaki, N.** See Shirahama, K.
**Nishiyama, A.** Deterioration of margarine (I) change of margarine fat during storage, 327*d*.
**Nishiyama, H.** Rice cleaning (I) changes in the chem compn. of rice bran, (II) changes of phys. and chem. properties of rice bean oil, 5120*g*.
**Nishizuka, T.** See Yamagata, S
**Nisman, B.** See Cohen-Bazire, G., Rosenberg, A. J.
**Nisnevich, E. A.** Joining rubber and leather, P 3227*b*.
**Nisovkina, T. V.** See Nizovkina, T. V.
**Nissan, A. H.** See Baddeley, A. R. W., Garner, F. H.; Grunberg, L.; Tadayyon, J.
**Nissan Chemical Industries Co.** Insecticidal Mn arsenate, P 6358*a*; $H_3PO_4$, P 6374*b*; sol K salts from insol. K silicate material, P 6375*b*; treatment of cocoons, P 6833*d*; nicotine insecticide, P 7632*i*.
**Nissan Kagakukogyo K. K.** Same as Nissan Chemical Industries Co
**Nissim, J. A.** See Robson, J. M
——— and Robson, J. M. Prepn. and standardization of saccharated Fe oxide for intravenous administration, 5534*d*.
**Niswander, R. E.,** and Davidson, R. H Toxicity of insecticides to the German roach, 1519*h*
**Nitami, K.** See Inoue, Yukihiko.
**Nito, H.** Whale gelatin (I) prepn. of gelatin from the blue whale skin, 1206*f*.
**Nitsch, W.** Protein content of human blood serum, 6297*f*.
**Nitsche, R.,** and Heering, H. Polyplasts, 1214*d*.
**Nitschke, G.** Coloristic studies on the vat-dyeing of wool, 3203*f*; principles of oiling technique, 3203*b*.
**Nitschmann, H.** Detn. of the electron-microscopic size of Ca caseinate particles in cow milk, 7537*c*.
———, Karasoy, L., and Signer, R. Effect of aftertreatment with HCHO and Cr on the wet strength of casein fibers, 6421*h*.
**Nitshe, G. A., Jr.** See Cohen, P. P.
**Nitti, F. B.** See Bovet-Nitti, F.
**Nitto Industrial Co.** Inorg., artificial fibers, P 5888*c*.
**Nitto Kogyo K. K.** Same as Nitto Industrial Co.
**Nivard, R. J. F.** See Brink, C; Havinga, E.
**Niven, C. F., Jr.** See Duck, G. M.
**Niven, J.** World survey of U, 2855*i*.
**Niwa, S.** $Mg(OH)_2$ from sea water or brine, P 6795*i*.
**Nixon, A. C.** See Shiras, R. N.
——— and Davis, O. L. $Al_2O_3$ catalysts, P 1161*c*.
———, Lehwalder, D. C., and Cheney, H. A. Distn. of olefin-hydrogen halide mixts., P 6010*b*.
**Nixon, E. K.** Petroleum industry in Kansas, 1952*e*.
**Nixon, I. G.,** and N. V. de Bataafsche Petroleum Maatschappij. High-octane aviation fuels, P 4835*a*.
**Nixon, I. S.** See Hutchison, H. P.
**Nixon, P. P.,** and Smith, G. E. Weed control for tomato plants, 8085*h*.
**Nizen'kov, N. P.** App. for observing soil temp., P 3554*b*.
**Nizet, A.** Folic acid, liver exts., and reticulocytes of pernicious anemia, 734*c*.
**Nizhnik, A. T.** Recovery of In from Zn production waste, P 6143*f*.
**Nizkovskaya, D. K.** See Rakitin, Yu V.
**Nizovkina, T. V.** See Dolgov, B. N.
**Njeustrujeva, M. V.** See Neustrueva, M V.
**Nó, R. L. de.** See Lorente de Nó, R.
**Noback, C. R.** See Montagna, W.
——— and Montagna, W. Mast cell—alk. phosphatase and cytochrome oxidase, 2649*c*, basophilia, lipase, and phosphatases in the mammalian pancreas and salivary glands, 7057*f*.
**Nobel, E. K.** See Kheneberger-Nobel, E.
**Nobis, J. F.** See Gilman, H
**Noble, A. H., Jr.** Effect of temps on finishing compds., 1193*b*, 2779*g*
**Noble, E. I.** Wet processing of woolens and worsteds, 7692*e*.
**Noble, I.,** and Gordon, J. Thiamine and riboflavine retention in bacon, 1783*c*
———, Gordon, J., and Catterson, L. Thiamine and riboflavin retention in beef tongue, 1497*d*, thiamine and riboflavin retention in pork sausage, 4783*d*
**Noble, J. A.** High-potash dikes in the Homestake Mine, Lead, S. Dakota, 751*i*.
——— and Harder, J. O Stratigraphy and metamorphism in a part of the northern Black Hills and the Homestake Mine, Lead, S Dakota, 76*d*
**Noble, R. L.** Adaptation to motion sickness, 1869*j*, effect of barbiturates and other substances on motion sickness, 9239*b*, see Macbeth, R. A., Taylor, N. B
——— and Millar, M. J. Carcinogenic action of urethan, 305*a*
**Nobles, R. A.** See Coon, J. H.
**Nobles, R. G.** See Lichtenberger, H. V
**Nobori, H** Chinese vegetable tallow, 5205*i*, fatty acids in babassu oil, 5207*e*, Sumatra palm oil, 5208*c*, properties and compn. of almond and pistachio oil, 5208*g*; see Hirose, S.; Kawai, S.
——— and Akabane, H. Oil of vegetables grown in the southern areas (VI) oil of candlenut produced in Celebes, 5203*h*.
——— and Kawai, S Manuf of fatty acids by the oxidation of paraffin (XXIII) oxidation of high melting paraffins, 9031*b*.
——— and Kobashi, A. Reduction of citronella, 2160*a*.
**Nock, J. A., Jr.** See Fink, W. L
**Nockolds, S. R.,** and Vincent, H. C. G. Tilleyite and its assocd. minerals from Carlingford, Ireland, 5347*a*
**Noda, I.** Same as Noda, T.
**Noda, L.** See Griffin, A C.
**Noda, T.,** Daimon, N., and Toyoda, H Synthesis of B mica, 6544*d*
——— and Sugiyama, S. Temp of crystn of synthetic mica from silicate melts (I), 5159*a*; compn. of fused F-contg silicates and the crystn temp. of mica (IV) the phlogopite-K silicate-Mg fluoride system, (V) the phlogopite-orthoclase-Al fluoride system and the phlogopite-orthoclase-K fluosilicate system, 6544*c*, chem. compns and optical properties of synthetic micas, 6544*e*.
**Noda Institute for Nutrition Research.** Nutrient rich in vitamins and enzymes from koji for making shoyu, P 5132*d*.
**Noe, F. E.,** and Guilherme de Carvalho, J. Utilization of pyrite in domestic Brazilian coal (I) concng. coal contg. pyrite, 7209*a*.
**Noe, H. A.** See Goldin, A.
**Noé, Mme. P.** See Proix-Noé, Mme.
**Nöcker, J.** Protein-rich substitute foods used in the treatment of alimentary edema, 8471*i*.
**Noel, E. B.** Bending app. for glass tubes, P 5565*b*.
**Noel, R. H.** Pharmaceutical applications of statistical sampling plans, 8611*f*.
**Noell, W. K.** See Blinn, K. A.
**Nöller, H. G.,** Oetjen, G. W., and **Jaeckel, R.** Production and measurement of an intense H mol. beam, 8259*e*.
**Noelting, G.** See Meyer, K. H.
**Noering, M.** Qual. test for porphyrin, 7570*f*.
**Noerr, H.** See Maass, H.
——— and Classen, H. Properties and application of ready-made chrome-tanning compds., 6849*h*.
——— and Hees, W. Resin tannage, 1205*i*.
**Noeske, H.** See Brintzinger, H.
**Noether, H. D.** See Irany, E. P.
**Nöthlich, F.** Effect of the effluents of the City of Hamburg on the O balance of the Lower Elbe, 7613*b*.
**Noffsinger, C. A.** See Quattlebaum, W. M., Jr.
**Nogaki, F.** Metal cutting and washing compd., P 7103*e*.
**Nogami, M.** Scattering of neutrons by $_2He^4$, 8261*g*; see Muto, T.
**Noggle, G. R.,** and Watson, S. A. Relation of riboflavin and ascorbic acid to carbohydrate and N fractions in immature oat plants as influenced by mineral deficiencies, 4734*c*.
**Noguchi, C.** Nonhydrolyzable dolomite clinker, P 7206*c*.
**Noguchi, M.** See Hirose, S.; Kawai, S
**Noguchi Research Institute Inc.** Treatment of polyvinyl alc. soln., P 2713*a*, refining of polyvinyl alc., P 2713*b*
**Nogueira, R. L.** See Lupi Nogueira, R.
**Noguès, A. E.** Androgens in the treatment of carcinoma of the genitals and the mammary gland, 1481*d*; mode of action of estradiol benzoate in oil soln. and of aq. suspension of Telan in the castrated woman, 1486*b*
**Nokata, S.** See Katai, K.
**Nokes, M. C.** Glass Working and Lab Technique (book), 7759*g*.
**Nolan, A.** Latex in the manuf. of pneumatic tires, 4881*f*
**Nolan, K. G.** See Jayne, D. W., Jr
———, Morgan, R. L., and Fletcher, J. H Fungicidal prepn., P 4419*g*.
**Nolan, L. S.** Multiple-extn. app., 8756*a*, see Pucher, G. W.
**Nolan, M. J.** See Nichols, H. J.
**Nolan, M. O.** See Von Brand, T
——— and Berry, E. G Field trials with lab.-tested molluscacides, 8086*d*.
**Nolan, N.** See Nolan, T. J.
**Nolan, P. J.,** and Pollak, L. W Calibration of a photoelec nucleus counter, 2087*i*
**Nolan, T. J.,** Algar, J., McCann, E. P., Manahan, W. A., and Nolan, N Chem constituents of lichens found in Ireland — *Buellia canescens* (III) diploicin, 6084*d*
**Nolan, W. J.** Profit realized from industrial waste treatment, 9309*g*.
**Noland, J. L.,** and Baumann, C. A Requirement of the German cockroach for choline and related compds., 3939*h*, effects of azo dyes on the cockroach, 8089*a*
———, Lilly, J. H., and Baumann, C. A. Vitamin requirements of the cockroach, 8066*b*
**Noland, T. T.** See Berger, H. G.
**Nold, T.** See Heller, M. E.
**Nolf, P.,** and Kint, J. Oxalated plasma and its ability to coagulate, 3054*a*.
**Nolf, V.** See Langeron, L.
**Noll, A.** Stamping inks for the marking of packages, 1992*c*; detn. of the components of tall oil varnish, 3212*i*; regeneration of shaving soaps from wastes, 3977*e*; sulfate turpentine, 7681*i*, detn. of the oil-wettability of paper, 7683*d*.
**Noll, H.** See Erlenmeyer, H.
———, Sorkin, E., and Erlenmeyer, H. Action of radioactive $S^{35}$ labeled 2-(*p*-aminophenyl)thiazole on cultures of tubercle bacillus (I), 6282*d*.
**Noll, H. D.** See Carney, W. M.; Hornaday, G. F.; Peavy, C. C.
**Nolle, A. W.** Measuring dynamic mech. properties of rubberlike materials, 3643*c*; temp. dependence of the dynamic modulus of rubber, 4505*d*; elec.-field modulation of ultrasonic signals in liquids, 6025*b*.
**Noller, C. R.** App. for lecture demonstration of optical activity, 6015*a*; app. to demonstrate Walden inversion, 6478*f*; lecture demonstrations in elementary org. chemistry, 8762*c*; see Bills, J. L.; Jensen, W. L.; Seeley, M.
——— and Baliah, V. Prepn. of some piperidine derivs. by the Mannich reaction, 1409*i*.
——— and Hearst, P. J. Prepn. of methanesulfonyl chloride, 1313*f*.

**Nolte, E.,** and Bandt, H. J. Biol. sewage treatment with activated sludge in the presence of cyanogen, 2366*b*.
**Nolte, W. A.,** Edwards, M. A., and Grubb, T. C. Bactericidal action of O-liberating substances on oral microörganisms (II) oral spirochetes, 9159*e*.
**Nolting, J. P.** See Price, P. H.
**Nomaguchi, G. M.** See Nickerson, Mark.
**No-Mercury Felt Corp.** and Triggs, W. W. Dry-carroting fur, P 5969*a*.
**Nomoto, O.** Schaefer-Bergmann's diffraction diagrams of vibrating quartz crystals, produced when they are observed in directions not parallel to any of the crystallographic axes, 4073*c*.
——— and Okui, S. Relation between the intensity and the action of ultrasonic waves, 4084*i*.
**Nonaka, J.,** and Okada, A. Prepg. smoked meat, P 5881*h*.
**Noned Corp.** Bacteriostatic base for pharmaceuticals, P 3978*d*.
**Nonhebel, G.** Progress in dust and S oxide removal, 3593*a*; control of water treatment for high-pressure and low-pressure boilers using softened water and process condensate as make-up, 4404*h*, 8583*g*.
———, Arnold, M. H. M., and Imperial Chemical Industries Ltd. CO, P 2407*i*.
**Nonura, E.** See Hirabayashi, S.
**Noonan, E. C.** Soly of salts in $D_2O$, 1242*b*; activity in $CdI_2$ in $D_2O$, 3693*b*.
**Noonan, T. R.** See Altman, K. I.; Boyd, G. A.
**Noorduyn, J.** Cracking and reforming of hydrocarbons, P 843*e*.
**Nooyer, C. N. J. de.** See Nie, W. L. J. de.
**NOPCO Chemical Co.** (*Patents*) Oxidation of hydroxylated fatty substances, 676*h*; rubberoid tall-oil polymers, 895*f*; Al soap grease, 1178*i*, sepn of capryl alc from methyl hexyl ketone, 1793*f*; treatment of oil-bearing vegetable meals, 2712*a*, $\alpha$-hydroxy-$\beta,\beta$-dimethyl-$\gamma$-butyrolactones, 3448*g*, 4291*c*, vitamin-fortified meals, 3542*b*, antioxidants for fatty materials, 3637*fg*; plasticizer, 4507*f*; stable fat-sol. vitamin-contg. products, 4818*g*.
**Nopitsch, M.** Damage to wool blends by microörganisms, 413*d*.
**Nora, O. de.** See De Nora, O.
**Norberg, B.** See Bergstrand, A.
**Norberg, E.** See French, D.
**Nord, F. F.** Food compn. contg fusaria, P 329*g*; mechanism of methyl *p*-methoxycinnamate formation by *Lentinus lepideus* and its significance in lignification, 9172*a*, see Bier, M.; Crowe, B. F.; Deschamps, L.; Hernandez, L.; King, W. J.; Kreitman, G.; Schubert, W. J.; Timasheff, S. N.; Weiss, S.
**Nord, M.** Reflux-product splitter for condensate streams contg. water, 1615*a*
**Nordal, A.,** and Jermstad, A. Detection of HCN in *Cystopteris montana*, 3148*g*
——— and Klevstrand, R. Sol carbohydrates of *Hypholoma capnoides*, 5827*g*.
**Nordberg, B.** Economical operation and uniform kiln feed with grinding system, 831*h*; concrete and cement, 2395*i*.
**Nordberg, M. E.** Fibrous glass articles, P 3987*c*.
**Norden, A.** Agglutination of sheep erythrocytes sensitized with histoplasmin, 3916*d*.
**Nordengren, S.** Double superphosphate and wet $H_3PO_4$ processes, 8595*c*.
**Nordfeldt, S.** Crude fiber—its chem. nature, appearance in plants, and detn., 4848*h*.
———, Svanberg, O., and Claesson, O. Analysis of crude fiber, 7152*g*.
**Nordhammar, G.** Temp. and humidity in the Fade-Ometer, 8685*d*.
**Nordheim, L. W.** Spins, moments, and shells in nuclei, 6905*c*; see Feenberg, E.; Richards, J. A., Jr.
**Nordin, N. M.,** and Haslam, R. N. H. Vibrational consts. of $C_2H_3$, 2512*b*.
**Nordio, C.** See Usuelli, F.
**Nordiske Fabriker De-No-Fa, A/S** and Holmboe, C. F. Hydrogenation of fatty acids and(or) their glycerides, P 5977*e*.
**Nordlander, B. W.** Unsatd. alkyd resin-diallyl tetrachlorophthalate copolymer, P 3233*a*.
——— and Cass, W. E. Modified wax-compatible ethylene glycol-tetrachlorophthalate resins, P 3654*i*.
**Nordmann, J.** See Mandel, P.
**Nordmeyer, K.** See Schmidt, P.
**Nordsiek, F. W.** How processing affects nutritive values of grain foods, 7154*a*.
**Nordström, L.,** and Hultin, E. Dextranase, an enzyme from mold, 3050*i*.
**Nordström, O.** Roasting sulfide ores, P 5727*h*.
**Noren, T. M. I.** See Hultgren, A. G. E.
**Noriega Lozano, Z.** Prepn. of Ag proteinate and its comparison with foreign products, 2371*a*.
**Norin, R.** Mineralogical compn. of some clays from the Rhaetic and Liassic beds of N.W. Scania, Sweden, 7382*c*.
**Norman, A. G.** See Weintraub, R. L.
**Norman, D. J.** See Mason, E. N., & Sons Ltd.
**Norman, D. P.** See Johnson, W. W. A.
———, Johnson, W. W. A., and Johnson, N. S. Treated textiles, 3292*i*.
**Norman, E. van.** See Van Norman, E.
**Norman, J. E.** Treatment of $BaSO_4$ with carbonates, P 6402*g*; see Dasher, J.
**Norman, N.** See Finbak, C.
**Norman, R. H.** See Fisher, D. G.
**Norman, R. W. van.** See Van Norman, R. W.
**Norman, W. S.** Dehydration of EtOH by azeotropic distn —vapor-liquid equil. data for the system EtOH–$C_6H_6$–water, 2058*e*; design calcns. for azeotropic dehydration columns, 8217*i*
**Normand, X.** Processing of petroleum products, 8657*a*.
**Normander, N. R.** Name changed to Nilsson, R.
**Normant, H.** Dihydrofurans, 214*d*; prepn. and reactions of 2,3-dihydrofuran, 3816*c*; see Quennehen, F.
**Noro, L.** Trotyl and tetryl poisoning, 405*e*.
**Norris, C. A.** Molding thermosetting materials—closed mold method, 435*a*.
**Norris, D. O.** Failure with DDT and success with Gammexane in control of culture mite, 2361*h*.
**Norris, E. R.,** and Majnarich, J. J. Effect of xanthopterin and other pteridines on the rate of cell proliferation in tissue-cell cultures—effect of pteridines and blood serum on neoplastic cell culture—effect of pteridines and blood serums on human bone marrow cells, 261*i*; effect of normal blood serum and blood serum from neoplastic disease on cell proliferation in bone marrow cultures, 307*h*; cell proliferation accelerating and inhibiting substances in normal and cancer blood and urine, 4364*i*; cell proliferation accelerating and inhibiting substances in blood serum during pregnancy, 5841*b*, action of enzymes on vitamin $B_{12}$ and pteridine, 9196*b*; vitamin $B_{12}$ and cell proliferation, 9195*i*.
**Norris, F. A.** Stabilization of oleaginous materials, P 3540*e*.
**Norris, F. G.** O, H, and S in steelmaking, 87*i*.
**Norris, F. W.** Vitamins in brewing materials and beer, 354*d*.
**Norris, L. C.** See Daniel, L. J.; Gillis, M. B.; Peeler, H. T.; Scott, M. L., Yacowitz, H.
**Norris, R. F.** See Tomarelli, R. M.
**Norris, S. E.,** Cross, W. P., and Goldthwait, R. P. Water resources of Montgomery Co., Ohio, 789*d*.
**Norris, W. C.** Styrenated alkyds, 4492*g*.
——— and Bacon, J. C. Chemistry and application of urea and melamine resins for surface coatings, 2446*i*.
——— and Barlow, G. W. Formulation and testing of high-solids furniture lacquers, 8703*e*.
**Norris, W. H. H.** See Hodgson, H. H.
**Norris, W. L.** See Baxter, R. A.; Childs, A. F.; Goldsworthy, L. J.
**Norris, W. P.** Radiobiochem. labs., 2505*f*.
——— and Kisieleski, W. Comparative metabolism of Ra, Sr, and Ca, 4755*d*.
**Norrish, R. G. W.** Quenching the flames of exhaust gases from internal-combustion engines, P 1984*c*; see Axford, D. W. E.; Bengough, W. I.; Bevington, J. C.; Harding, A. J.; Long, L. H.
——— and Patnaik, D. Effect of light on the combustion of hydrocarbons, 7825*e*.
——— and Porter, G. Structure of methylene, 5732*i*.
**Norrö, A. F.** See Kalling, B. M. S.
**Norsk Aluminium Co.** Same as Aktieselskapet Norsk Aluminium Co.
**Norsk Hydro-Elektrisk Kvaelstofaktieselskab.** Recovery of K salts, P 1159*e*; organolites and $CO_2$ in the prepn. of carbonates, P 6374*d*; base-exchange processes, P 6378*g*; raising the concn. of heavy water, P 7359*a*; macromol. azo compds., P 7508*b*.
**Norsk Sulfo A/S.** Stable solns. of polythionates and polythionic acids, P 7651*f*.
**Norström, A.,** and Sillén, L. G. Partition of uranyl nitrate between $Et_2O$ and aq. $HNO_3$, 3267*b*.
**North, J. P.** Sewage clarifier adapted to the recovery of milk solids from industrial waste, P 792*i*.
**North American Cement Corp.** Lightweight aggregates, P 9410*i*.
**Northcote, K. H.,** and Tucker, B. M. Soil survey of the Hundred of Seddon and part of the Hundred of MacGillivray, Kangaroo Island, S. Australia, 6770*g*.
**Northcott, J.** See LePèvre, R. J. W.
**Northcott, L.** Dendritic structures of columnar crystals of 1% Al-Cu alloy, 2147*f*.
**Northdurft, O.** Chemisches Experimentierbuch (book), 8256*f*.
**Northern, H. T.** See Bjorn, M. K.
**Northey, E. H.** See Hultquist, M. E.; Smith, J. M., Jr.
——— and Hultquist, M. E. Morpholinoalkanol esters, P 9086*g*.
**Northrop, J. H.** Enzymes and the synthesis of proteins, 4710*f*.
——— and Goebel, W. F. Cryst. pneumococcus antibody, 9227*a*.
**Northup, D. W.** See Stickney, J. C.; Van Liere, E. J.
———, Stickney, J. C., and Van Liere, E. J. Effect of $CO_2$ on intestinal motility, 8041*f*.
**Northway, H. S.** See British Insulated Callender's Cables Ltd.
**Northwestern Paint & Varnish Production Club.** Tall-oil varnishes, 3212*h*.
**Northwestern Univ.** Photocell, P 500*f*
**Norton, A. J.** Western balance—synthetic-resins, 8577*b*.
**Norton, C. L.** See Erb, R. E.
**Norton, C. L., Jr.** See Harter, I.
**Norton, F. H.** See Coughanour, L. W.
**Norton, F. J.** Mass spectrometer, 2474*h*; isotopic wt. doublet in the $B_{11}D_9$ and $O_2$ mass spectrum, 7333*e*; see Burkhard, C. A.; Hurd, D. T.
**Norton, J. A.** Chlorination of hydrocarbons, P 681*g*.
**Norton, J. T.** Detn. of texture of sheet metals, 2145*g*; see McMullin, J. G.
———, Blumenthal, H., and Sindeband, S. J. Structure of diborides of Ti, Zr, Cb, Ta, and V, 8933*a*.
——— and Mowry, A. L. Soly. relation of the refractory monocarbides, 3163*d*.
**Norton, L. B.** See Sun, Y.-P.
**Norton Co.** Plasticizing and vulcanization of butadiene-acrylonitrile copolymer, P 898*f*. 2034*c*; improving water-resistant characteristics of resins, resinous articles, etc., P 2033*a*; graphite mold assembly for making flat plates of B carbide powders, P 7658*d*; diamond abrasive, P 8116*e*.
**Norton Grinding Wheel Co., Ltd.** Abrasive articles, P 6804*d*, 7658*e*.
**Norvall, J. G.,** and Kenyon, C. Detn. of some nitrophenolic proofing agents in felt, 1194*b*.
**Norwegian Fisheries Research Laboratory** and Research Laboratory of the Norwegian Canning Industry. Fat detns. of herring used in the Norwegian canning industry, 8069*c*.
**Norwitz, G.** Electrolytic detn. of Cu in brasses and bronzes, Sn-base alloys, and Al alloys by use of $H_3PO_4$, 4973*c*.
**Norwood, A. F. B.** Treating Au and Ag ores, P 2151*i*.
**Nosawa, R.** Electronic functions in ionic crystals, 4568*h*.
**Nosawa, T.** Rotation spectrum of water vapor (II), 8273*f*.
——— and Toyoda, T. Rotation spectrum of water vapor (I), 8273*f*.
**Nosek, J.** See Ettel, V.
**Nosek, Z.** Czechoslovakian inorg. chem. industry, 4397*f*.
**Noskov, M. M.,** and Skornyakov, G. P. Reflecting power of some Ag alloys in the near ultraviolet, 4919*a*.
**Noskova, G. L.** Causes of death of yeast on freezing, 8437*c*.
**Nosov, A. K.** See Dshumaev, O. M.
**Nosova, N.** See Tishchenko, D.
**Nossal, P. M.** Metabolism of erythrocytes (II) decarboxylation of oxalacetate by blood, 3903*e*; oxalacetate decarboxylation by Fe and Cu, 5839*d*; decompn. of oxalacetic acid by metal compds., 6497*b*.
——— and Kerr, D. I. B. Metabolism of erythrocytes (III) identification of one blood decarboxylation system, 3903*g*.

**Nostdahl, W. D.** See Munro, J. A
**Nosyreva, S. S.** Measurement of the diffusion of H in steel, 2559*i*.
——— and Chufarov, G. I. Metal phosphatizing soln., P 2922*g*
**Nothdurft, H.**, and Fassbinder, W. Nutrition and motor activity (IV) increased activity in mice du to lowered protein intake, 6296*h*.
**Nottaris & Wagner.** Sterilizing the soil to increase the yield, P 9327*a*.
**Notter, B.** See Muralt, G. v.
**Notter, G. K.** See Legault, R. R.
**Nottingham, W. B.** Detg. the optical properties of phosphors, 8277*g*.
**Nottorf, R. W.** See Newton, A. S.; Spedding, F. H
**Nouhuys, H. L. van.** Improving the adsorption of $CS_2$ contained in gaseous mixts. from the manuf. of rayon, P 5603*b*
**Nouvion, F. de.** Méthodes actuelles de l'industrie des carburan carburants de synthese (book), 1170*d*.
**Novadel-Agene Co.** $ClO_2$, P 3159*f*.
**"Novag" Akt.-Ges.** Detergents, P 2452*i*, 2705*h*.
**Novak, A. G.** See Vil'komirskiĭ, I. E.
**Novak, H.** Elasticity in gas manuf., 835*h*.
**Novak, L.** See Bodnar, J., Churý, J
**Novak, L. J.** See Gorcica, H. J
**Novák, L. T.** See Torbagyi Novák, L
**Novak, M.** See Levine, Seymour
———, Goldin, M., and Taylor, W. I. Tetanus prophylaxis with penicillin procaine G, 5497*d*.
**Novák, V.** Formations of soil—specific features of soil genesis, 9311*a*
**Novak-Arienti, M.** See Machek, G
**Novales Serrano, J.** Vulcanization accelerators, 6857*g*
**Novarese, M.** Origin at depth of the solid bitumens of the central Apennines, Italy, 977*i*.
**Novel, E.** Chlorination and canalization, 2716*g*.
**Novella, E. C.** See Costa Novella, E
**Novelli, G. D.**, Flynn, R. M., and Lipmann, F. Coenzyme A as growth stimulant for *Acetobacter suboxydans*, 6699*e*.
———, Kaplan, N. O., and Lipmann, F. Liberation of pantothenic acid from coenzyme A, 3047*e*.
**Nover, I.** Vitamin $B_1$ content of the retinal tissue of different vertebrates, 8511*i*
**Novic, B.** See Harkness, D. M
**Novick, A.**, and Sparrow, A. H. Effects of N mustard on mitosis in onion root tips, 4348*b*.
**Novikoff, A. B.**, Potter, V. R., and LePage, G. A. Phosphorylated intermediates in tumor glycolysis (IV) glycolysis in tumor homogenates, 1857*e*.
**Novikov, A. N.** See Voronin, N. I.
**Novikov, A. V.**, and Polikarpov, V. P. Drum for continuous extn. of rubber, P 3650*d*.
**Novikov, S. S.**, Rubinshtein, A. M., and Shulkin, N. I. Stability of the catalytic properties and of the structure of platinized C in heat-treatment, 1249*e*
**Novikov, V. N.** Detn. of layer sepn. and workability of building mixes and concrete, P 3590*i*.
**Novikova, A. V.** Genesis of the soils in the flood-plain of the Don, 7616*d*
**Novikova, E. M.** See Solovevchik, L. S.
**Novikova, N.** See Dogadkin, B.
**Novitskiĭ, K. Yu.** See Yur'ev, Yu. K
**Nóvoa, S.** See Ribas Marques, I
**Novogrudskiĭ, D. M.** Mycorrhiza and planned forestation, 9176*e*.
**Novoselova, A. V.** BeO from beryl, P 3576*c*; see Vorob'eva, O. I
**Novosiolova, Novossjolova.** See Novoselova, A. V.
**Novotel'nov, N. V.**, and Deeva, V. E. Two stage enzyme decompn. of pectin, 9108*i*
**Novo Terapeutisk Laboratorium A/S.** Insulin derivs., P 1434*b*.
**Novotny, E. E.** Molding thermoplastic and thermosetting plastic materials, P 5633*f*.
**Nowacki, W.** Application of punched-card machines for Fourier and Patterson syntheses of crystals, 6509*d*
**Nowak, L.** Catalysis in polymerization processes, 8190*c*.
**Nowak, M.** See Cheftel, H., Minich, A
**Nowak, R.**, Jeger, O., and Ruzicka, L. Triterpenes (CXXXVIII) dehydration and sapon. velocity of the epimeric 2-lupanols, 3808*h*
**Nowikoff, M.** Biologischen Theorien (book), 7991*a*.
**Nowlan, N. V.** See Belton, J. G
**Nowlin, G.** See Bailey, P. S.
**Nowogrudsky, D. M.** See Novogrudskiĭ, D. M.
**Nowosselowa, A. W.** See Novoselova, A. V.
**Nowotny, E.** See Bamann, E.
**Nowotny, F.** $H_3PO_4$ in starch from potatoes grown at various levels of phosphate fertilizer, 9323*i*.
**Nowotny, H.** Structure of Al-rich alloys in the system Al-Si Be, 92*b*, structure of Mg-rich alloys in the system Mg-Mn Hg, 93*b*, crystal structure of $Co_2P$, 2064*e*; see Henglein, E.
——— and Henglein, E. Ternary P alloys, 5719*a*.
——— and Juza, R. Co reduced in H, 2883*b*
———, Schubert, K., and Dettinger, U. Structure and crystal chemistry of a few noble metal systems (Pd-Pb, Pd-Sn, Ir-Sn, Rh-Sn, Pt-Pb), 15*b*
**Noya, J. R.** See Ron Nova, J
**Noyce, B. N.** See Knox, W. E
**Noyce, W. K.** Formation of acetone from acetates, 6015*b*, Dumas N app., 8750*a*
**Noyes, W. A., Jr.** See Beebe, R. A
**Noyons, E. C.** Detn. of sugar in blood, 7075*i*
**Nozaki, H.** See Shishido, K
**Nozaki, K.** Reactivity of free radicals in polymerization reactions, 5731*i*
——— and Bartlett, P. D. Rate consts. of the steps in addn. polymerization (I) induction period in the polymerization of vinyl acetate, 2497*a*
**Nozari, M.** See Amerio, A
**Nozdrev, V. F.** Velocity of supersonic waves in org. liquids in the crit. region, 1620*d*
**Nozoe, T.** Specific hydroxy fatty acids from wool fat, P 3219*h*, synthetic wax, P 3220*i*
**Nozuka, N.** See Kubo, T
**Nudenberg, R.** See Coleman, K. D
**Nuernberger, H.** Mg uses grow in textile equipment field, 7693*e*
**Nuffield, E. W.** Mineral thio salts (XII) linoppite and zinkenite, 2897*a*. see Phoenix, R.
**Nugent, L. E., Jr.** Emerged phosphate islands in Micronesia, 74*h*
**Nukiyama, H.**, Nishina, S., and Matsumae, S. Magnetic alloy, P 3558*d*
**Numajiri, S.** Hard rubber reactions (XI) exothermic reaction with the single and combined use of org. accelerators, (XII) exothermic reaction and evolution of $H_2S$, (XIII) influence of the ingredient on the excess vulcanization coeff., (XIV) hard rubber vulcanization with tetramethyl thiuram disulfide used in the place of S (XV) max. addn. of S for the exothermic reaction, 2011*a*
**Nunes Pimenta, A.** Operation of water purification plants in Brazil, 6341*i*
**Nunn, G.** See Wokes, F
**Nunn, J. R.**, and Rapson, W. S. Cyclic conjugated polyenes (II) 4,5-benzazulene, 9042*h*
**Nunn, W.** Grape-seed oil, 1027*g*
**Nunno, R. de.** See De Nunno, R.
**Nuodex Products Co., Inc.** Oil sol. metal-salt compns. as driers, P 3216*a*, long chain amine salts as fungicides and bactericides, P 6357*g*, oil sol. drying salts for admixt. to paints, catalysts, lubricants, etc., P 7240*d*
**Nuret, H.** Bakery problems related to addn. of cereals, legumes, and potato products to wheat flour, 4303*a*
——— and Dubois, M. Detn. of water in grain, 8565*g*.
**Nurse, T. J.** See Wormwell, F
**Nury, G.** See Forestier, H
**Nusbaum, R. E.** See Sihvonen, V. T
**Nuss, W. F.** See Dunn, T. H
**Nussbaum, F. S.** See Igelman, W. O
**Nussbaumer, G.** Effect of "vitamin I complex" in the treatment of growth disturbances, 8025*i*
**Nussbaumer, N. L.** Pilot plant for treatment of phenol still coke wastes, 3126*b*.
**Nussberger, F. E.** Sewage purification system by activated sludge, P 4408*d*.
**Nuttall, E. D.** Bird air detector, 7757*g*.
**Nuttall, R. L.** See Harned, H. S
**Nutten, A. J.** Sepn. of mercurous Hg in qual. microanalysis, 63*c*.
——— and Sabiston, L. Sepn. of the phosphate ion, 6042*f*.
**Nutting, G. C.** See Whittenberger, R. T.
**Nutting, M. D. F.** See Jansen, E. F.
**Nuyens, M.**, and Grosjean, C. Diffusion of thermic neutrons, 7322*g*.
**Nuzhdin, N. I.** Influence of heterochromatin on mosaicism (II) multiple relations in mosaicism, 8564*e*
**N. V. Algemeene Kunstzijde Unie.** See Algemeene Kunstzijde Unie N. V.
**N. V. Algemeene Norit Maatschappij.** Purifying sugar solns. and other liquids, P 4907*d*.
**N. V. de Bataafsche Petroleum Maatschappij.** (*Patents.*)
acetylene alcs., 5410*h*.
addn. products of compds. with aliphatic double bonds and peroxy carboxylic acids, 7503*d*.
alkylation of an aliphatic and an aromatic hydrocarbon by means of alkenes, 5040*b*.
alkylation of aromatics, 5039*i*.
alkylation of aromatics and isoalkanes with alkenes, 5409*i*
alkylation of hydrocarbons, 3189*b*.
alkylation of isoalkane with an alkene, 5174*f*.
alkyl ketone peroxides, 668*f*.
aluminum oxide contg. $SiO_2$, 4702*a*
application of finely divided contact materials, 8665*e*
aromatization of aliphatic hydrocarbons, 3453*i*.
ascorbic acid, 5157*c*
asphalt coatings, 5186*d*.
asphalt emulsions, 5180*i*.
bauxite used with oil, regeneration of, 5180*i*.
bonding halogen contg. polymers on a base, 7265*b*
bringing fluids and fluidized materials into contact, 8218*i*
burning gasoline coke, 1846*g*
burning liquid fuel, 379*g*
carbon monoxide removal from gases, 1537*i*
catalyst regeneration, 3188*i*, 8665*h*.
catalysts contg. $Al_2O_3$ and $MoO_3$ for dehydrogenating hydrocarbons, 4791*g*
catalysts contg. $AlCl_3$, 3162*c*
catalysts for converting hydrocarbons, 5181*i*.
catalysts (molybdena alumina), 8579*e*
chloral, 5412*c*
chlorine-contg. polymer stabilization, 2034*e*
conversion of butane into isobutane, 660*e*, 1285*d*
conversion of hydrocarbons by molten halides contg. Friedel-Crafts catalysts, 1843*i*.
conversion of hydrosulfides to neutral S substances, 8604*d*
cyclohexane, 3163*g*, 7959*a*
decolorizing aq. solns. of satd. $H_2SO_4$ esters, satd. sulfonic acids, or their salts, 7242*b*
dehydrogenating catalysts, 5410*a*
dehydrogenating hydroaromatics, 1890*h*
dehydrogenating hydrocarbons, 5039*g*
desulfurizing and dehalogenizing gasoline and the like, 390*c*
diisopropylsalicylic acid, 2253*k*.
diketones, 6654*h*.
diolefins, 663*i*
diphenylamine from aniline, 682*c*
di- or trichloroacetaldehyde, or their acetals, 5412*g*
exothermic vapor phase catalytic reactions, 4007*d*
extn. of hydrocarbons, 5409*g*.
gas samples, app. for taking substrata, 1842*f*.
glycerol esters, substituted or not by alkyl, aryl, or aralkyl radicals, 5036*d*.
heterocyclic six membered ring compd. with one N atom, 5426*i*.
insulating material, 3194*b*
isobutylene copolymers, 1224*e*, 8741*b*
isomerizing alkanes with liquid catalysts, 3190*c*.
isomerizing hydrocarbons by Friedel Crafts catalysts, 5174*e*.
isophorone, 7507*e*.
ketogulonic acid esters, 5415*g*.
mercaptan removal from an acid hydrocarbon distillate, 4844*b*.
metallic soap suspensions in mineral oils, 5186*e*.
nitrocellulose lacquers, 9487*b*.
oxidation of aromatic hydrocarbons or their alkyl or halo derivs., 5421*i*.
oxidation of satd. alicyclic hydrocarbons or their halo derivs., 5422*b*.
oxidation of satd. aliphatic hydrocarbons and their partially halogenated derivs., 7502*a*.
oxidation of unsatd. hydrocarbons, 5409*h*
plastic yarns and films, 4890*g*.
polymerization of diallyl phthalate, 5641*d*

polymerization of olefins, 8666*d*.
reaction products of high-mol. unsatd. substances contg. more than one unsatd. grouping with inorg. acids or acid anhydrides, 2804*c*.
regenerating alkali lye-contg. mercaptides, 5182*h*, 6646*f*.
stabilizing macromol. org. compds. contg. halogen, 664*c*.
toluene from naphthenic oil fractions, 5186*h*.
β,γ-unsatd. alcs., 7497*g*.
vinyl chloride polymers, 906*g*, 5230*i*.
vinyl copolymers, 8740*h*.
vinyl halides and vinylidene halides, solns., sheets, and other formed objects from copolymers of, 7265*d*.
water in oil wells, 1174*b*
wells, removing acid sol. earth from oil, 1174*a*.
wetting fibrous material, 6429*f*.

**N. V. de Bataafsche Petroleum Maatschappij.** See Nixon, I. G.
——, Bloot, J. F. T., and Alexander, P. Bituminous compns. contg. mineral aggregates, P 3990*c*.
**N. V. Carton- en Papierfabriek voorheen W. A. Scholten.** Paper and cardboard from straw, P 1568*c*.
**N. V. Chemische Fabriek "Naarden."** Alkyl halides, P 2627*i*; shaving prepn., P 5158*e*; monoacetoneketogulonic acid esters, P 6654*f*; gallic esters and gallic acid chloride, P 6665*d*
**N. V. Eerste Nederlandsche Cement Industrie.** Portland cement flue dust, P 8116*h*.
**N. V. H. Hartog's Fabrieken.** Extg. carotene from vegetables, P 5158*b*.
**N. V. Industrieele Maatschappij voorheen Noury & van der Lande.** Name changed to Koninklijke Industrieele Maatschappij voorheen Noury & van der Lande N. V.
**N. V. Internationale Koolwaterstoffen Synthese Maatschappij.** Catalytic hydrogenation of CO, P 1172*a*, 4836*g*
**N. V. Koninklijke Industrieele Maatschappij voorheen Noury & van der Lande.** See Koninklijke Industrieele Maatschappij voorheen Noury & van der Lande N. V.
**N. V. Koninklijke Nederlandsche Zoutindustrie.** Chlorites from $ClO_2$, P 2380*b*, 3159*i*, peroxide compds., P 2380*f*, Cu oxychloride, P 5161*d*.
**N. V. Koninklijke Pharmaceutische Fabrieken voorheen Brocades-Stheeman & Pharmacia.** Microbicidal and growth-inhibiting compns., P 7197*i*.
**N. V. Kunstzijdespinnerij Nyma.** Viscose-spinning auxiliaries, P 850*c*
**N. V. Machinefabriek Reineveld.** Reaction tank for purifying water, P 1508*h*.
**N. V. Nederlandsche Kjellberg Electroden Fabriek (Nekef).** See Nederlandsche Kjellberg Electroden Fabriek (Nekef) N. V.
**N. V. Nieuwe Octrooi Maatschappij.** Sepn. of cracking fractions, P 4813*a*.
**N. V. O. J. Meyer's Dextrine Fabrieken.** Purification of sugar solns., P 9305*d*
**N. V. Onderzoekingsinstituut Research.** See Onderzoekingsinstituut Research N. V.
**N. V. Organon.** (*Patents.*) Purifying heparin, 4817*b*; therapeutically active derivs. of diphenylamine, 5156*f*; aldehydes of the vitamin A series and alkyl- or aryloxyethenes as starting material, 5417*h*, unsatd. aldehydes from carbonyl compds. having two C atoms less, 5418*c*; ketones related to vitamin A, 5418*g*; intermediate for vitamin A, 5418*i*; ammoalkylbiphenyl derivs., 5423*g*; vitamin A, 6371*d*
**N. V. Philips' Gloeilampenfabrieken.** (*Patents.*) Accumulator, 51*a*; elec. conductor to be fused in glass, 1274*f*; applying metal coatings, 1611*d*; luminescent titanate of Mg, 2870*i*, rotating drum for cleaning or pickling, etc., 4525*c*; luminescent silicate, 4582*c*; airtight fastening of the glass parts of elec. vacuum app., 4590*d*; magnetic ferrous material, 4625*e*; pure Se, 5162*g*; insulating material from wood, 6340*d*; 7-dehydro sterol esters, 6074*f*; coating of vacuum tubes with active Ba, 8284*c*; hardening of alloys, 8347*c*; magnetic ferrite material and coil with magnetic core, 9300*h*.
**N. V. Polak & Schwarz's Essencefabrieken.** 2-Alkyloxy- or alkenyloxy-5-nitroanilines and their salts, P 5799*g*.
**N. V. Veenendaalsche Sajet en Vijfschachtfabriek voorheen Wed. D. S. van Schuppen en Zoon.** Sterols and addn. products, P 1158*e*.
**N. V. Vereenigde Vorstenlandsche Cultuur-Maatschappij.** Evapg. crude sugar juices, P 4882*e*
**N. V. W. A., Scholten's Aardappelmeelfabrieken.** Improving the color of proteins from potatoes, P 4786*a*.
**N. V. W. A. Scholten's Chemische Fabrieken.** Starch compns. capable of forming water-sol. derivs., P 1590*d*; molding powders contg. starch, P 1611*b*.
**N. V. Werkspoor.** See Werkspoor N. V.
**N. V. Wessanen's Koninklijke Fabrieken.** See Wessanen's Koninklijke Fabrieken N. V.
**N. V. Zwanenberg's Fabrieken.** See Zwanenberg's Fabrieken N. V.
**Nyburg, S. C.** See Jeffrey, G. A.
**Nyc, J. F.** See Mitchell, H. K.
——, Haskins, F. A., and Mitchell, H. K. Metabolic relation between the aromatic amino acids, 9143*i*.
——, Mitchell, H. K., Leifer, E., and Langham, W. H. Isotopic C in a study of the metabolism of anthranilic acid in *Neurospora*, 7541*h*
**Nydahl, F.** Detn. of Mn by the persulfate method, 8304*a*.
**Nyden, S. J.** Changes in ascorbic acid metabolism of the rat during infection with *Trypanosoma hippicum*, 1478*e*.
**Nye, J. F.** Glide bands in AgCl, 7772*f*.
**Nye, L. E.** Cellular resin, P 3656*a*.
**Nye, P. B.** Co, 6546*h*
**Nye, R. D.,** and Demorest, D. J. Concn. of U and V from their ores, P 5727*c*.
**Nye, W. N.** See Griffin, A. C.
**Nygaard, B.** See Jensen, K. A.
**Nyholm, R. S.** See Dwyer, F. P.
**Nyman, C. J.** See Laitinen, H. A.
**Nyman, E.** Effect of some vasodilators in angina pectoris, 2702*b*
**Nyman, M. A.,** and Chargaff, E. Lipoprotein particles of yeast cells, 9166*e*.
**Nyquist, A. S.** See Kropa, E. L.
—— and Kropa, E. L. Treatment of H-donor textile materials and products, P 6428*h*, glass mold release agent, P 8633*b*.
**Nyquist, B.** Diffusion app. for the treatment of cellulose pulps, P 9447*e*.
**Nyrop, J. E.** Effecting chem. processes in gaseous media by elec. means, P 2880*i*.
**Nys, J.** See Dormael, A. van.
**Nysenko, N. T.** See Korotkov, S. Ya.
**Nystérakis, F.** Influence of substances secreted by an aphid on activity of the growth layers of plum twigs, 5088*c*
—— and Berducou, J. Relative quantities of chlorophyll in different *Euonymus japonicus* and *Aucuba japonica* tissues, 3890*g*.
**Nyström, A. E.** Health hazards in the chloroprene rubber industry and their prevention—chloroprene and its oxidation and polymerization products, 4885*h*.
**Nyström, E. H. B.** Vinyl esters, P 3414*d*.
**Nystrom, R. F.,** and Brown, W. G. Reduction of org. compds. by $LiAlH_4$ (III) halides, quinones, miscellaneous N compds., 1312*c*.
**Nyveld, H. A. W.** See Nijveld, H. A. W.

**Oakes, L. F.** Electrophoretic coating of metal articles, P 4151*g*.
**Oakes, M. C.,** and Knechtel, M. M. Geology and mineral resources of Haskell Co., Okla., 5348*f*
**Oakes, W. G.,** and Richards, R. B. Dielec. properties of chlorinated polythenes at radiofrequencies, 6019*g*.
**Oakley, C. L.,** Warrack, G. H., and Warren, M. E. Kappa and lambda antigens of *Clostridium welchii*, 4367*f*.
**Oakley K. P.** Brit. phosphates (III) lower Cretaceous phosphorites, (IV) phosphate in pre-Cretaceous rocks, 6547*c*.
**Oakseshott, G. B.** See Tucker, W. B.
**Oakwood, T. S.** See Stone, R. W.
**Oana, S.** Heavy water in the thermal water of Kusatu, 2862*d*; see Sugawara, K.
—— and Kuroda, K. Radium spa Masutomi and springs alien to their environment (III) significance and detn. of the trace element, 5889*b*.
**Obata, Y.** Utilization of silkworm pupae (II) prepn. of an adhesive, 1604*g*; food flavor, 1878*h*.
**Obdell, F. H.** High-speed cutting tool, P 990*d*.
**Obenshain, S. S.** See Rich, C. I.; Smith, G. K.
**Oberdisse, K.,** and Hering, H. W. Glycogen formation in the isolated perfused liver, and the action of a synthetic adrenocortical prepn. on glycogen deposition, 3520*a*.
**Oberfell, G. G.** Petroleum industry continues record-breaking pace, 1125*c*.
**Oberg, M.** See Freeman, M. E.
**Obergfell, P.** $SO_2$ extn. process, 7220*d*; treatment of light distillates by the $SO_2$ extn. process, 7674*g*.
**Oberholtzer, J. E.** Natural gas industry of Alberta, Can., 5924*b*.
**Oberle, T. L.** See Edlund, D. L.
**Oberly, J. J.** See Burstein, E.; Durand, E.
**Obermanns, H. E.** Paper chemistry and technology, 8680*d*.
**Obermayer, S., Co.** Refractory compn., P 3164*g*.
**Obermer, E.** Wartime rationing and nutrition and pregnancy (I), 1845*e*; Ca and P metabolism in pregnancy (VI) postnatal findings, 8464*h*.
**Oberright, E. A.** Mineral oil additives, P 2766*a*, see Reiff, O. M.
**Obert, E. F.** Compressibility chart and the ideal reduced vol., 2475*e*.
**Oberwerger, K. H.,** Seymour, D. E., and Simmonite, D. *p*-Aminosalicylic acid (I) analytical and pharmaceutical studies, 1154*c*.
**Obidowicz, L.** Removal of deposits from gas conduits, 3597*c*.
**Oblad, A. G.** See Dart, J. C.; Gorin, E.
—— and Messenger, J. U. Catalytic isomerization of olefinic hydrocarbons, P 5939*c*.
**Oblatt, E.** See Mosonyi, L.
**Obleukhova, O. S.** Grease for hypoid gears of automobiles, 4840*h*.
**Obolencev, R. D.** See Obolentsev, R. D.
**Obolentsev, R. D.** "Order" of the contact-catalytic reaction of aromatization of heptane on Cr catalysts, 6062*e*; reactions of olefinic hydrocarbons in the presence of metal silicate catalysts (II) depolymerization of triisobutylene on aluminosilicate catalysts, 6151*a*.
**Obookhow, P. F.** See Obukhov, P. F.
**Oborin, V. I.** Cracking processes on alumina catalysts in the light of the multiplet theory of catalysis, 1250*c*.
**Obouchow, Oboukoff.** See Obukhov, P. F.
**Obrador, S.** See Elio Membrado, J.
**Obré, A.,** and Campan, F. Biologie animale et végétale (book), 1075*a*.
**Obregón García, J. G.** Tests for the identification and for the purity of simple substances and their combinations which must be included in the program of inorg. pharmaceutical chemistry, 3563*h*.
**Obrelmov, I. V.** See Lifshits, I. M.
——, Prikhot'ko, A. F., and Rodnikova, I. V. Dispersion of anthracene crystals in the visible part of the spectrum, 8781*d*.
**Obreimow, J. W.** See Obrelmov, I. V.
**O'Brien, D. P.** Explosive, P 1190*c*.
**O'Brien, J. C.** Mines and mineral resources of Siskiyou County, 2901*f*.
**O'Brien, J. R. P.** See King, E. J.
**O'Brien, L. J.** See Lamb, G. G.
**O'Brien, M.** See Miller, P. R.
**O'Brien, W. J.** Ti pigment industry, 870*i*; adhesive for surgical tape, P 1610*i*.
**O'Brien, W. P.** Toluidine Blue soln. for intravenous administration, 9364*f*.
**Obrucheva, A. D.,** and Rubinshtein, I. L. Polarization capacity of the iridized electrode, 2521*i*.
**Obryadchikov, S. N.** Khimicheskaya pererabotka uglevodorodnykh gazov (book), 3185*b*; Mekhanizm i khimizm kataliticheskogo krekinga (book), 3185*c*; high-octane fuel, P 3604*e*.
**Obuchoff, P. F.** See Obukhov, P. F.
**Obukhov, P. F.** Food characteristics of *Equisetum arvense*, 5129*e*.
**Obukhovskii, Ya. M.** Detn. of the cause of lowered coke strength, 2755*e*.
**Ocampo, H. E.** See Estrada Ocampo, H.
**Occasione, J. F.** See Ilacqua, A. F.
**Occhialini, G. P. S.** Effects in emulsions contg. a borate, 2527*b*; see Lattes, C. M. G.
—— and Powell, C. F. Production of mesons by cosmic radiation, 33*d*.
**Ocean Salts (Products), Ltd.,** Adams, B. A., and Barker, R. C. Gellike monohydric phenol-HCHO condensation products, P 5888*b*.
**Očenášek, F.** See Görlich, B.
**Ochoa, A. G.** See González Ochoa, A.
**Ochoa, S.** See Korkes, S.; Stern, Joseph R.
**Ochotin, M. W.** See Okhotin, M. V.

**Ochse, T.** Blood citric acid in rickets, 5464*f*.
**Ochsenfeld-Lohr, I.** See Schauenstein, E.
**Ochsner, P.** See Karrer, P.
**Ochwadt, B.** Excretion of bicarbonate and the $CO_2$ system of urine during acute hypoxia, 6727*a*.
**Ocón García, J.** See Rius, A
**O'Connell, P. W.,** and Stotz, E. Biol. oxidation of phospholipides by rat liver homogenates, 5472*d*.
**O'Connor, B.** Silica gel percolation—application to synthol, 1169*e*.
**O'Connor, P. R.** See Cunningham, B. B.; Seaborg, G. T.
——— and Seaborg, G. T. High-energy spallation and fission products of U, 488*i*.
**O'Connor, R. J.** Effect of acridine compds. on mitosis and O consumption in the isolated brain of the embryonic chick, 7135*g*.
**O'Connor, R. T.** See Hoffpauir, C. L.; Swift, C. E., Williams, P. A.
———, Heinzelman, D. C., and Jefferson, M. E. Application of the line-width method to the spectrochem. analysis of oils, fats, and related substances, 878*g*.
**O'Connor, W. J.** Hypothalamus and urine secretion, 3602*d*.
**Oda, H.** See Horio, M.
**Oda, Katsukichi.** Elec. furnace to be used for refining Fe sand or powd. ore, P 6925*h*.
**Oda, Kenzo.** See Sato, F.
**Oda, R.** See Ogata, Y.; Tokura, N.
**O'Daniel, H.,** and Tscheischwili, L. Structure of $NaBeF_3$ and $\beta$-$CaSiO_3$, 5253*a*; structures of gehlenite, $Ca_2AlSiAlO_7$, akermanite, $Ca_2MgSi_2O_7$, and their model substance, $Na_2LiBeF_7$, 5253*c*.
**O. D. Chemical Corp.** Nondusting detergent compns., P 4034*e*.
**Oddie, T. H.** Analysis of radio-I uptake and excretion curves, 5839*c*.
**Oddo, F. G.** Antispirochetic antibodies in human syphilities, 8525*c*.
**Oddy, H. G.,** and Dodson, V. H. Thionyldiacetic acid, 9032*g*.
**Odeblad, E.** See Aldman, B
**Odelhog, S. O. B.** $NH_3$ from H and N, P 1536*i*.
**O'Dell, B. L.,** Whitley, J. R., and Hogan, A. G. Relation of folic acid and vitamin A to incidence of hydrocephalus in infant rats, 1471*a*.
**Odell, F.** See Duwez, P.
**Odell, L. B.** Paint industry in Texas, 5603*h*
**Odell, L. D.,** and Burt, J. C. $\beta$-Glucuronidase activity in female genital cancer, 8048*i*.
**Odendaal, W. A.,** and Theron, J. J. Nutritional value of food yeast, 2298*h*
**Odier, C.** See Chambon, Y.
**Odier, M. E.** See Meyer, K. H.
**Odinga, T.** See Heberlein, Georges.
**Odland, L. M.,** Otto, D. M., and Parsons, H. T. Influence of pteroylglutamic acid administration on fecal riboflavin values, 5098*f*.
**Odland, M. L.** See Dills, L. E.
**Odlaug, T. O.** Effects of stabilized and unstabilized sulfite waste liquor on the Olympia oyster, 8136*b*.
**O'Doherty, K.** See Bosshardt, D. K.
**O'Donnell, I. J.** See Heymann, E.
**O'Donnell, R. T.** 2,3-Dichloro-1,3-butadiene, P 7035*g*.
**O'Donoghue, J. R.** Viscosity and other properties of dextrin-borax-alkali sols, 9500*b*.
**O'Donoghue, R.** Printing inks, 5948*c*.
**Odor, D. L.,** and Blandau, R. J. Water content of rat uterus and oviducts during proestrus and at end of heat, 5471*h*.
**Öbrink, K. J.** See Winberg, H.
**Oechsel, G.** See Chrétien, A.
**Ögland, N. J.** Swelling and shrinkage of fiberboard (I), 1978*f*; (II), 8679*c*; heat-treatment of hard fiberboard, 8679*b*.
**Oehler, R.,** and Kilduff, T. J. Treatment of leather with synthetic resins, 7247*b*.
**Ölander, A.** Enpony and enchresy, 1637*i*; see Brosset, C.
**Oel & Chemie-Werk A.-G.** Nitrocellulose lacquer emulsion, P 1995*g*; printing vehicle, P 4028*s*; carboxymethylcellulose, P 4854*a*; binding agent for core sand, P 5888*i*; washing agents, P 5978*a*; plasticizer for nitrocellulose or polyvinyl chloride, P 6002*d*; alkali-metal salts of the glycollic acid ether of cellulose, P 7686*b*
**Oelsen, W.,** and Göbbels, P. Electrolytic potentiometric analyses, 6537*d*.
——— and Maetz, H. Metallurgy of the converter process, 1295*c*; metallurgical principles of the blast-furnace process (I) behavior of S (A) desulfurization of pig iron over gaseous SiS, 4612*b*.
——— and Wever, F. Influence of the elements on the polymorphism of Fe, 1636*c*.
**Oemler, A. N.** See Kitson, R. E.
**Ørskov, J.** Chloroform-fat reactions with diphtheria bacteria, 1830*d*.
**Örström, Å.** See Borell, U.
**Oesper, R. E.** Alwin Mittasch, 9*a*; Adolf Butenandt, 2477*c*; John Read, 3251*c*; Erich Pietsch, 4907*i*; Wilhelm Prandtl, 6875*b*.
**Österberg, L. E.** See Dahlbom, R.
**Østergaard, E.** See Hamburger, C.
**Oesterle, H.,** and Oesterle, R. A. Vitreous enamel opacification, P 6801*e*
**Oesterle, P.** From the British to the German pharmacopeia (VII) German pharmacopeia and developments in sterilization, 6790*a*.
——— and Held, H. Performance of high-pressure and very high-pressure Hg-vapor lamps for the sterilization of drinking water, 6342*f*.
**Oesterle, R. A.** See Oesterle, H
**Österlind, S.** Growth conditions of the alga *Scenedesmus quadricauda*—inorg. C sources, 6705*h*.
**Oesterling, M. J.** See Rose, W. C
**Oestermann, G.** Trichlorodiazoacetone, 6160*b*; chlorocrotonic acids, 6161*f*
**Oesterreichische Brown, Boveri-Werke A.-G.** See Aktiengesellschaft Brown, Boveri & Cie.
**Oetjen, G. W.** Absorption measurements in solns. of Nd salts, 7337*e*, see Jaeckel, R.; Nöller, H. G.
**Oetjen, R. A.,** Ward, W. M., and Robinson, J. A. Cell for spectroscopic examn. of volatile liquids, 6472*i*.
**Oetringhaus, H. G.** See Grosse-Oetringhaus, H.
**Oettingen, W. F. v** See Von Oettingen, W. F.
**Özek, Ö.** Plant substances which inhibit bacterial metabolism, 9165*a*.
**O'Farrell, M.** Compression-ignition applied to the Otto cycle—"Ring" process, 2420*b*
**Ofelt, C. W.,** and Evans, C. D. Aq. zein dispersions, 5133*b*.
**Offe, J.** See Dammers, B. G
**Offenhauer, C. M.,** and Collins, J. F. Effects of Zr in cast iron, 8325*h*
**Offer, E. S.** See Storari-Offer, E.
**Offermans, H.,** and Stackelberg, M. v. Electrodeposited W-Co, W-Ni, and W-Fe alloys, 7834*b*.
**Officine Meccaniche Vigevanesi M. O. V.** Hollow plastic objects, P 1607*e*, coloring objects made of vinyl plastic or molded rubber, P 1607*f*.
**Offutt, W. C.,** Fogel, M. C., and Beuther, H. Utilization of refinery gases by the polyform process, 2759*h*; polyform distillate—phys. properties and characteristics, 3600*i*.
**Offutt, W. F.** See Mason, L. S
**O'Flaherty, F.** Leather technology, 3223*b*, see Lipsitz, P.; Lollar, R. M.
**Ofner, P.** See Walton, E.
———, Thorp, R. H., and Walton, E. Analgesic drug analogous to isoamidone, 5860*d*
**Oftedahl, C.** Deformation of quartz conglomerates in central Norway, 76*f*.
**Oftedal, I.** Minerals of Norway, 4605*a*, V. M. Goldschmidt, 6875*a*.
**Ogata, K.** Isotopic wts. of medium elements, 4129*h*.
**Ogata, N.** Emulsion to be used for hair waving, P 5554*b*.
**Ogata, T.,** and Isa, T. Detection of methylpyridine and aniline in pyridine, 1689*d*, synthesis of infrared-sensitive dyes (XV) synthesis of nonamethinecyanines, 8291*b*.
——— and Takida, H. Testing the purity of pyridine, 1689*e*.
**Ogata, Y.,** Kometani, R., and Oda, R. Decompn. of Bz *p*-toluenesulfonate, 7797*g*; Fries rearrangement, 7924*c*.
———, Kometani, R., Tsunemitsu, K., and Oda, R. Decarboxylation of $\beta$-halo derivs. of fatty acids, 7901*f*.
——— and Oda, R. Dechlorination of some org. compds. with Fe powder as dechlorinating agent, 2194*d*; decarboxylation of the derivs of malonic acid, 7904*d*, nitration of some org. compds in $H_2SO_4$ (I), (II) detn. of specific velocity consts by simultaneous nitration of anthraquinone and various aromatic compds., 7918*g*.
**Ogawa, K.** Influence of the body substances of typhoid bacilli on the content of liver glycogen (I), 5851*e*.
——— and Kikuchi, K. Influence of the body substances of the typhoid bacilli on the content of liver glycogen (II), 5851*h*.
**Ogden, E.,** and Hall, C. E. Peripheral circulation, 5838*i*.
**Ogg, C. L.** See Willits, C. O.
———, Brand, R. W., and Willits, C. O. Micro and semimicro detn. of N in heterocyclic N ring compds. by a Kjeldahl method, 7373*i*.
**Ogihara, K.** See Takizawa, M.
**Ogilvie, A.** See Sturtevant Engineering Co., Ltd.
**Ogle, R. S.** See Black, C. R.
**Ogle, W.** See Conklin, R. L.
**Oglesby, G.** See Schuhardt, V. T.
**Ogloblin, K. A.** Action of $H_2SO_4$ on dimethylisopropenylcarbinol, 3777*d*.
**Ogloblina, L. S.** Antihyaluronidase in antiperfringens serum, 7087*a*.
**Ognev, S. I.** Zoologiya (book), 5508*e*.
**Ogorzaly, H. J.** Hydrogenation of CO, P 3175*f*, stripping zone for fluid catalyst used in catalytic cracking of hydrocarbons, P 6403*h*.
**Ogston, A. G.** Expts. on metabolic processes, using isotropic tracer elements, 3481*g*, see Bailey, K.; Cecil, R.; Coulson, C. A.; Gutfreund, H.
**Oguchi, H.** See Hata, T.
**Ogura, Toshio.** See Ueno, I
**Ogura, Toyojiro,** and Nagai, H. Reaction between $CH_4$ and $CO_2$, 1944*h*.
**Oguri, S.** See Nakano, T
——— and Kawasaki, H. Japanese paper (II) cell and structure of *Hibiscus manihot*, 1974*h*.
——— and Tomachi, K. Japanese paper (IV) netlike structure of the mucus of roots of *Hibiscus manihot*, (V) chem compn. of the mucus of roots of *Hibiscus manihot*, 1975*b*.
**O'Hagan, E.** See Trautman, C. E.
**O'Halloran, D. M.** See Smith, Howard E
**Ohama, A.** See Ikeshita, T.
**O'Hare, G. A.,** Hess, P. S., and Kopacki, A. F. Oxidation and polymerization of linseed oil, 9480*h*.
**Ohashi, S.** Detn. of Cu by the polarographic method, 8051*b*.
**Ónegyi, G.** See Fodor, G
**Ohio Ferro-Alloys Corp.** Ferroalloys, P 2878*c*; alloying of gray iron in the cupola, P 8347*f*.
**Ohio State University Research Foundation.** Compounding sponge rubber, P 4890*c*, rubberlike articles, P 6456*h*, see General Motors Corp.
**Ohle, R. L.** See Witt, P. R., Jr
**Ohliger, L. P.** See Kreidl, N. J.
**Ohlinger, H.** See Hopff, H
**Ohlmeyer, P.** Phosphatase, 9108*h*
**Ohlrogge, A. J.** See White, J. L.
**Ohlson, M. A.,** Brewer, W. D., Cederquist, D. C., Jackson, I., Brown, E. G., and Roberts, P. H. Protein requirements of women, 1467*b*.
**Ohlsson, O. A.** Operation of gas producers, P 7669*b*.
**Ohman, M. F.** See Sawyer, F. G
**Ohnesorge, G.** See Tillmanns, J.
**Ohsawa, W.,** and Nagasawa, S. Biol. assay of insecticides (I) effectiveness of insecticides and methods of its indication, 1140*f*; (IV) testing the larvicidal effect of the household insecticidal emulsions against the larvae of the housefly, (V) lethal effects of the household pyrethrum emulsion to the pupa of the common house mosquito, 8602*d*; vital resistance of ants (I) statisticophysiol. analysis of the lethal action of water, kerosene, and pyrethrin against the worker of *Crematogaster brunnea matsumurai*, 5895*a*.
**Ohsol, E. O.** See Waterman, W. W.
——— and Patterson, J. A. Distn. of ethylbenzene from styrene, P 5040*f*.
**Ohta, Y.** Inhibition of aminoxidase by various phenylalkylamines (I), 1817*g*.
**Ohtsuki, T.,** and Imai, M. Penicillin-producing mold (II) consumption of carbohydrates, (III) N source, 3060*d*.
**Oil Base, Inc.** Oil-base drilling fluid and mixing oil for the same, P 8128*i*.
**Oil Well Chemical and Materials Co., Inc.** Treatment of drilling fluids, P 5179*h*.
**Oishi, J.** 0° and 100° isotherms of He, H, Ne, A, air, and $CO_2$ at pressures below 2 atms., and the abs. temp. of 0°C., 8772*d*.

**Oiwa, M.** See Hachihama, Y.
**Oiwa, T.** Lethal effect of 1,2-dichloropropene, 2,2-dichloropropane, and their mixt., 5898*e*.
**Ojala, O. O.** Paper and pulp industry in Finland, 3615*f*.
**Ojeda, E.** See Comenge, M.
**Oji, G.** See Murata, Y.
**Oji Seishi K. K.** Refining of sulfite pulp, P 5950*h*.
**Oka, S.**, and Okawa, A. Change of phys. properties in the softening interval of glasses, esp. of chain-forming high polymers, 6029*b*.
**Oka, V. S.** See Majmudar, V. D.
**Okabe, M.**, Hatsuda, Y., and Ueda, Z. Production of flavin by *Eremothecium ashbyii* (I) extn. of flavin and its physicochem. nature, (II) extn., 1833*c*.
**Okáč, A.** Qual. sepn. of cations without $H_2S$, 7860*d*.
—— and Pech, J. Color test for alk. earths, 1679*e*; reaction of the alk. earths with pyrogallol carboxylic acid, 5337*e*.
—— and Polster, M. Quadrivalency of Ni, 3740*g*; oxidation of the Ni salt of dimethylglyoxime, 3740*i*.
**Okada, A.** See Nonaka, J
**Okada, I.** Polarographic studies of vitamin C (I) detn., (II) effect of pH, (III) vitamin C content of canned fruits, 1454*g*.
**Okada, S.**, and Yoshizawa, S. H overvoltage reactions (I) general form of the current-voltage curve, 1663*c*.
**Okada, Y.** See Shikata, M.
**Okagami, T.** See Moriya, Y.
**Okamoto, K.** See Hayashi, C.
**Okamoto, S.** Variation of some chem. components in the muscle as the effect of phys. training—carrier pigeon, 5480*a*.
**Okamoto, Toshisuke.** See Imanishi, Y.
**Okamoto, Tsuneyoshi.** See Konishi, Yoshikichi.
**Okamoto, Y.** Minerals of Beppu, Oita Prefecture, 5703*g*.
**Okamura, T.** See Sato, F.
**O'Kane, D. J.** See Umbreit, W. W.
—— and Gunsalus, I. C. Pyruvic acid metabolism—factor required for oxidation by *Streptococcus faecalis*, 718*i*.
**O'Kane, W. C.**, and Morey, G. H. Fungicidal compns., P 4419*a*.
**Okanenko, A. S.**, and Tabentskiĭ, D. A. Formative action of 2,4-dichlorophenoxyacetic acid on beets, 2283*c*.
**Okawa, A.** Crystallite theory of liquids (I) sp. heat, 6879*c*; see Oka, S.
**Okawahira, M.** $V_2O_5$ from V extd. from vanadiferous ores with mineral acids, P 5162*c*; ammonium vanadate from plumbiferous and vanadiferous ores, P 6795*a*; Na uranate from uraniferous and vanadiferous sandstone, P 6796*e*; $V_2O_5$ from uraniferous and vanadiferous sandstone, P 6796*f*; Na uranate and $V_2O_5$ from uraniferous and vanadiferous sandstone, P 6796*g*.
**Okayama, T.** Mesic charge, 3279*c*
**Okazaki, A.** Refraction and Faraday effect of rare earth ions in aq. solns., 8242*h*.
**O'Keeffe, A. E.**, Russo-Alesi, F. M., Dolliver, M. A., and Stiller, E. T. Inhomogeneity of heparin, 5506*b*.
**O'Kelly, G. D.**, and Wilcox, H. E. Application of the cathode-ray oscillograph to polarography, 4149*e*.
**Okhotin, M. V.** Detn. of $\eta$ of glass from nomograms, 3578*c*; calcn. of the $\eta$ of glass of given compn., 4435*f*.
**Okhremenko, N. S.** Wine-production problems, 7635*e*.
**Oki, T.** Fine grains of cellulose from viscose, P 6825*d*.
**Okie, J. P.** See DeLargey, R. J.
**Okita, K.** See Kambara, S.
**Okita, T.** Causes of the aging of vulcanized rubber, 2023*f*; synthetic rubber of the polysulfide series (II) compounding test of polysulfide rubber prepd. from polythiodiglycol, 4043*b*.
—— and Nishihashi, T. Detg. free C in rubber, 8187*d*.
—— and Shiiba, Y. $H_2S$ evolved from rubber (IV) change of the amt. of $H_2S$ evolved in the case of compounding cupric oxide into rubber, 5620*g*.
**Okko, E.** See Jokivartio, E.
**Oknina, V. A. K.** See Kazarinova-Oknina, V. A.
**Okolov, F. S.** Activity of catalase as an evaluation index of freshness of meat and meat products, 1119*i*.
**Okon, K.** Synthetic tanning materials, 3900*s*.
**O'Konski, C. T.** See Gucker, F. T., Jr.
**Oks, R. S.** See Shiryaeva, T. M.
**Okuba, T.** See Harada, T.
**Okubo, T.** See Nakajima, Minoru.
**Okuda, H.** Effect of heavy metallic salts on the autoxidation of fruit juice vitamin C, 9286*f*.
**Okuda, M.** See Sasaki, S.
**Okui, S.** See Nomoto, O.
**Okumura, S.** Fat-splitting reagents (III), (IV) hydrolysis of oil with alkanesulfonic acids, 8707*e*.
—— and Tsuchiya, T. Fat-splitting reagents (VI), (VII), (VIII), 7719*h*.
**Okun, D. A.** See Moore, E. W.
**Okunaga, S.** Toluene from terpenes, P 1437*a*.
**Okunev, N. V.**, and Blagorazumova, M. A. Cholesterol-protein complexes and the amt. of cholesterol in cryst. serum albumin, 9233*c*
**Okuno, Haruo**, and Kineri, S Recording paper for puncture-voltage estimation, P 7229*c*.
**Okuno, Hisateru.** F in the mineral springs, 9303*i*
**Okuno, T.** See Sakai, W
——, Imada, F., and Yoshida, K C (XI) (4) C mixts in air-dry cells, 5572*g*
**Okunuki, K.** See Tazawa, Y
**Oladko, A.** Modern quality control applied to compounding, 5988*g*.
**Olaerts, E.**, and Jungers, J. C. Photolysis and photooxidation of org. iodides in the liquid state, 5313*e*.
**Olafson, J. H.** See Chistensen, C. M.
**Olalde, A.** See Rosenkranz, G.
**Olalla, R.** See Fernández, O.
**Olaszek, A.** See Blicharz, S.
**Olbrich, O.** See Robson, J. S.
**Olcese, O.**, and Pearson, P. B. Destruction in the gastro-intestinal tract of orally ingested riboflavin and pantothenic acid, 1094*c*; urea in the diet, 1843*c*.
**Olcott, E. L.** Alloy steel, P 4210*f*; forgeable high-temp. alloys, P 5729*f*.
**Olcott, H. S.** See Fraenkel-Conrat, H. L
—— and Fraenkel-Conrat, H. L. Gramicidin, P 1534*a*.
**Old, A. M.** See Nightingall, R. V.
**Old, A. N.** Geologic sources of the commoner chem. elements, 4192*f*.
**Old, B. S.** See Eaton, S. E.
**Oldach, C. S.** Gas-purification process, P 7669*e*.
**Ol'dekop, Yu. A.** See Petrov, A. D.; Razuvaev, G. A.
**Oldenberg, O.** At Physics (book), 2097*b*
**Oldershaw, C. F.** See Heitz, R. G.
**Oldfield, J. H.** Spectrographic examn. of localized heterogeneity in metals, 2540*h*.
**Oldham, G.** Recent technol. and research work on coal, 5922*b*; review of metallurgy for 1948—dense media sepn. process—geochemistry in 1948, 6552*b*
**Oldroyd, J. G.** Pressure gradients in laminar flow of nonNewtonian liquids through tubes, 6008*b*.
**Olds, E. G.**, and Wells, C. Evaluating the quality of certain wrought steel products, 8331*c*.
**Olds, H. F.** See Cragg, L. H.
**Olds, R. H.**, Reamer, H. H., Sage, B. H., and Lacey, W. N. Phase equil. in hydrocarbon systems—butane-$CO_2$ system, 3274*c*.
——, Sage, B. H., and Lacey, W. N. Volumetric and viscosity studies of oil and gas from a San Joaquin Valley field, 2760*a*.
**Olea Gomez, J.**, and Gaspar Romero, J. Org. reagents in the detn. of Sb, 4972*f*.
**O'Leary, J.** See Haven, F. L.
**Olen'chenko, L.** See Lavrovskiĭ, K.
**Oleson, J. J.** See Bernstein, S.; Hutchings, B. L.; Little, P. A.; McKenzie, D.; Ritter, H. B.; Van Meter, J. C.
—— and Little, P. A. Effect of pteroylglutamic acid and vitamin $B_{12}$ on growth of Rous tumor implants, 7120*c*.
—— and Van Meter, J. C. Inhibition of ergostanyl acetate by 7-dehydrocholesteryl bromide, 9241*g*.
**Olevskiĭ, V. A.** Concn. of cement raw materials by flotation, 1546*e*; preferred size of balls for ballmills, 3247*g*; see Kogan, L. S.
**Oliensis, G. L.** Reaction to "partial solvents" as a criterion of structure in bitumens, 7660*a*.
**Olifson, L. E.** Antiparasitic formulations based on xanthates, 1518*d*.
**Olin, J. F.** Condensation of nitriles with amides and the production of $\beta$-alanine, P 3841*d*; see Robinson, C. N., Jr.
**Olinger, S. T.** See Melaney, R.
**Oliphant, M.** See Lewis, H. B.
**Oliphant, M. L.**, *et al.* Atomic Age (book), 8898*b*.
**Oliva, G.** Sideremia e il recambio del ferro in condizioni normali e patologiche (book), 8041*h*.
**Oliva, J. B.** See Bravo Oliva, J.
**Oliva, V.** See Sagastume, C. A.
**Olivari, G.** *Salmonella typhi* and tetraiodophenolphthalein, 5078*e*.
**Oliver, A. P.** Fatty acid compn. of *Hemideina thoracica*, 8562*b*.
—— and Shorland, F. B. New Zealand fish oils (V) compn. of the fats of the school shark, 2451*b*.
**Oliver, D. A.** Sigma phase in stainless steels, 4092*f*.
—— and Harris, G. T. High-creep-strength austenitic gas-turbine forgings, 2565*c*.
**Oliver, E. H.**, and Van Berg, C. F. Catalytic dehydrogenation of olefinic hydrocarbons while maintaining the K content of the catalyst, P 2764*f*.
**Oliver, G. D.** See Huffman, H. M.; Scott, D. W.; Waddington, G.
**Oliver, H. G.** See Cabal, A. V.
**Oliver, J.** See Baird, W.
—— and Preston, C. Estn. of nonionic detergents, 8710*e*.
**Oliver, N. F.** See McNally, J. R., Jr.
**Oliver, R.** See Mason, A. S.
**Oliver, T. A.** Ore minerals of the Berens River Mine, 6949*e*.
**Olivereau, M.** See Fontaine, M.
**Oliver-González, J.**, and Bueding, E. Reduction in the no. of adult *Trichinella spiralis* in rats after treatment with naphthoquinones, 2700*i*.
—— and González, L. M. Release of the $A_2$ isoagglutinogenlike substance of infectious organisms into human blood serum, 9222*f*.
**Oliverio, A.**, and Bargellini, G. Flavonic derivs. of 1,2,3,5-tetrahydroxybenzene (II), 1772*i*; flavonic derivs. of 1,2,3,4-tetrahydroxybenzene, 1774*c*.
——, Marini-Bettòlo, G. B., and Bargellini, G. Flavonic derivs. of 1,2,3,5-tetrahydroxybenzene (I), 1772*b*.
**Oliver Ruiz, J.**, and Velasco, J. R. Velocities of simultaneous reactions of alcs and water with acyl chlorides, 6057*d*.
**Oliver United Filters, Inc.** Rotary drum filter, P 7273*d*.
**Oliveto, E. P.** See Kornblum, N.
**Olivier, C. P.** Aggie Creek meteorite, 8988*f*.
**Olivotto, V.** Furnace of liquid resistivity for melting metals in crucibles, P 2878*d*.
**Ol'khov, I. I.** See Borok, B. A.
**Ol'khov, N. P.** Metallurgy of Pb and Zn in the U.S.S.R., 2140*i*.
**Ollard, E. A.** Surface reflectometer for evaluating polished surfaces, 2095*h*.
**Oller, B. M.** See Martínez Oller, B.
**Ollis, W. D.** See Baker, W.
**Ollivier, M. C.** Passage of current through solns., 5676*a*.
**Olmedo, R. G.** See Casares Lopez, R.
**Olmo, H. P.** Ruby cabernet and emerald riesling—two table-wine grape varieties, 3560*f*; Perlette and Delight, two early maturing seedless table grape varieties, 6328*f*; Scarlet, a grape variety for fresh juice and jellies, 6328*g*.
**Olms, J.** Gluing with synthetic resins in the production of laminated wood, 5627*b*.
**Olmstead, F.** See Short, H. N.
**Olmstead, L. B.** See Nijhawan, S. D.
**Olofsson, R. E.** See Eeg-Olofsson, R.
**Olphen, H. van.** Grease, P 5185*c*; stable suspensions of metallic soap in mineral oils, P 5186*e*.
**Olpin, H. C.** See Wesson, A. J.
—— and Law, P. B. Cellulose ester and ether products colored with a dinitrophenoxazine or dinitrophenothiazine, P 4488*d*.
——, Law, P. B., and Gibson, S. A. Fixation of pigments on textile materials, P 7712*i*.
—— and Wesson, A. J. Dyeing of resins with polyhydroxy alc. assistants, P 3206*f*.
**Olpiński, W.** Detn. of spontaneous ignition of coal, 9411*e*.
**Olsen, A. G.** Food technology, 5880*b*.
**Olsen, B. B.** See Buchmann-Olsen, B.
**Olsen, C.** Adsorptively bound K in beech leaf cells, 1463*g*.
**Olsen, H. B.** See Brueniche-Olsen, H.
**Olsen, J. W.**, and Bechle, C. W. Flame-resistant compn., P 334*c*.
**Olsen, N. S.** See Sutherland, E. W.
**Olsen, O.** See Gollan, F.
**Olsen, R. T.** See Huntress, E. H.

**Olsen, S.** Br dehydrogenation of simple cyclohexane derivs., 158*e*; formaldehyde-olefin reaction in the anabolism of plants, 5090*b*.
——— and Enkemeyer, E. M. Hexahydrobenzhydrazide, 4232*i*.
———, Kuhn, L., and Friedberg, C. D. 3-C series and synthesis of glycerol, 5367*c*
**Olsen, W. H.** See Hougs-Olsen, W.
**Olshaker, B.**, Ross, S., Recinos, A., Jr., and Twible, E. Aureomycin in the treatment of pneumonia in infants and children, 9259*d*.
**Ol'shanskii, Ya. I.** Velocity of crystn. of solid colloids at high temps., 1236*e*; high fluidity of sulfide melts and its possible importance for geology, 3257*b*.
**Olson, A. C.** See Mann, C. A.
**Olson, A. R.**, and Simonson, T. R. Salt effects on ionic equil., 5265*h*.
**Olson, B. H.**, and Johnson, M. J. High yeast yields in synthetic media, 5081*b*.
**Olson, C. M.** Hydrolysis of Ti solns., P 1579*c*.
**Olson, F. C.** See Gullickson, T. W.
**Olson, G. R.**, and Beezley, H. V. Corrosion control on gas transmission lines, 7400*h*.
——— and Evans, C. W. Relative merits of various cathodic-protection sources, 6093*b*
**Olson, K. J.** See Vander Brook, M. J.
**Olson, O. C.** Relations between soil depth and accelerated erosion on the Wasatch Mountains, 7615*f*.
**Olson, O. E.**, Fager, E. E., Burris, R. H., and Elvehjem, C. A. Use of a hog-kidney conjugase in the assay of plant materials for folic acid, 1075*e*
**Olson, R. A.**, Brackett, F. S., and Crickard, R. G. O-tension measurement by a method of time selection using the static Pt electrode with alternating potential, 9135*d*.
**Olson, R. E.**, and Kaplan, N. O. Effect of pantothenic acid deficiency on the coenzyme A content and pyruvate utilization of rat and duck tissues, 293*d*
———, Miller, O. N., Topper, Y. J., and Stare, F. J. Effect of vitamin deficiencies on the metabolism of cardiac muscle (II) effect of biotin deficiency in ducks with observations on the metabolism of radioactive C-labeled succinate, 293*b*.
———, Pearson, O. H., Miller, O. N., and Stare, F. J. Effect of vitamin deficiencies on the metabolism of cardiac muscle (I) effect of thiamine deficiency in rats and ducks, 292*i*.
**Olson, R. V.** Fe soly. in soils as affected by pH and free Fe oxide content, 1133*c*.
**Olson, R. W.** See Bunnell, D. G.
**Olson, W. J.**, Lowry, M. T., and Dickson, A. D. Effect of NaCl in the extn. of malt at 20° and 30° on α-amylase and diastatic-power values, 8092*e*
**Olsson, N.**, Kihlén, G., and Kohler, G. Maintenance of carotene in carrots and young red clover during artificial drying, wet preserving, and subsequent storage, 4395*i*.
**Olsson, O.**, and Lofgren, O. Hyaluronidase as a factor hastening the spread and absorption of water-sol radioopaque substances deposited intracutaneously, subcutaneously, or intramuscularly, 8418*f*.
**Olsson, T.** Influence of the treatment of the cream on the hardness and consistency of butter, 1874*e*.
**Olszak, W.** Expansive cements, 2395*a*.
**Oltman, R. E.** See Scott, G. C.
**Olwin, J. H.** See Fahey, J. L.
**Olynyk, P.**, Camp, D. B., Griffith, A. M., Woislowski, S., and Helmkamp, R. W. Synthesis of DL-lysine with $C^{14}$ in the ε-position, 1007*b*.
**O'Mahony, E. D.** See Wood, L. A., Jr.
**O'Malley, C. M.** See Choi, R. P.
**Ome, K. B. de.** See DeOme, K. B.
**Omohundro, A. L.**, Fanto, E. C., and Reich, I. Purifying and concg. sesamin exts., P 5151*a*; extn. of sesamin, P 5151*c*.
———, Golden, M. J., and Neumeier, F. M. Pencillin mixt., P 3573*f*.
———, Neumeier, F. M., and Zeitlin, B. R. Insect-repellent stick, P 4420*i*.
**Omori, K.** Prosthetic group of metal-protein enzymes, 6267*e*
**Omori, Keiichi.** Internal structure, color, and luster of oyster pearl of Japan, 6543*g*
**Omori, S.** See Inoue, K.
**Omoto, T.** See Fujikawa, F.
**Oncley, J. L.**, Jensen, C. C., and Gross, P. M., Jr. Dielec.-constant studies of zein solns., 3690*g*.
———, Melin, M., Richert, D. A., Cameron, J. W., and Gross, P. M., Jr. Plasma proteins (LXXIII) prepn. and properties of serum and plasma proteins (19) sepn. of the antibodies, isoagglutinins, prothrombiu, plasminogen, and β1-lipoprotein into subfractions of human plasma, 3925*g*.
**Onda, K.** See Morikawa, Kiyomitsu
**Ondarza, R.** See Roca, J.
**Onderzoekingsinstituut "Research" N. V.** Connecting cellulose threads and rubber, P 417*c*; stabilizing solns. of urea and HCHO, P 417*e*; improving wool with synthetic resins, P 5200*a*, hydrated cellulose yarn, P 6429*a*.
**Ondovilla, A. G.** See Gimeno Ondovilla, A.
**Ondratschek, K.** Growth substance requirements of heterotropic algae (III), 1835*c*.
**O'Neal, A. M.** Soil characteristics significant in evaluating permeability, 7619*h*
**O'Neal, E. J.**, and Fluke, C. L. Tests with DDT against active nymphs of oyster shell scale, 3139*f*.
**O'Neil, F. V.** Nontoxic colors, 3629*d*.
**O'Neil, H. T.** Reflection and refraction of plane shear waves in viscoelastic media, 4067*b*
**O'Neil, J. B.** See Spuks, J. W. T.
**O'Neil, T. A.** Removing surface impurities from Pb-plated metal, P 8346*c*
**O'Neill, A. N.** See Fordham, J. W. L.
**O'Neill, L. A.** See Jordan, L. A.
**O'Neill, R.** See Karabinos, J. V.
**O'Neill, T. F.** Hydrothermal alteration of feldspars at 250° to 400°, 831*d*
**O'Neill, W. R.** See Gassmann, A. G.
**Oneto, J. F.** See Chao, J.; Sah, P. P. T.
——— and Sah, P. P. T. Prepns. of vitamin K3 from vitamin K1, 8103*d*.
**Ong, E. R. de.** See DeOng, E. R.
**Ong, S. G.** Inhibitory action of metals on the growth of *B. tuberculosis* (VII) Mn and Re, 1830*c*
**Oniga, T.** See Schiel, F.
**Onillon, L.** $C_2H_2$ generator, P 4526*c*.
**Oniščenko, A. S.** See Onishchenko, A. S.
**Onishchenko, A. S.** N. Ya. Demyanov classic of Soviet chemistry, 7761*c*
**Onitchenko, A. S.** See Onishchenko, A. S.
**Ono, F.**, and Toyama, N. Highly unsatd. acid in oil (IV) sepn. of equiv. mixts. of linoleic acid and linolenic acid and of linolenic acid and highly unsatd. fish oil fatty acid, 7721*f*
**Ono, H.** See Mizushima, S.
**Ono, Kashichi.** 1-Propyl 3,4-dihydroxybenzene monocarbonate, P 4299*a*, ore flotation, P 6964*f*
**Ono, Kenichi.** See Taketani, M.
**Ono, Kenji.** Refining of impure Al-Si alloy, P 6966*h*.
**Ono, Kimiyoshi.** Structure of sphingosin (IV), 6267*c*.
**Ono, M.** See Hamada, M.; Takano, T.
**Ono, S.** Statistical thermodynamics of crit. and surface phenomena, 5247*e*, pptn. from a soln. (I), 5265*i*, radial distribution function in liquid A, 8840*g*
**Ono, T.** See Imada, F.
**Ono, Y.** See Takeshita, Y.
**Onoguchi, S.** See Tanaka, Yoshio
**Onozawa, T.** Paste, P 6868*f*.
**Onsager, L.** Effects of shape on the interaction of colloidal particles, 7292*b*.
**Onstott, E. I.** See Laitinen, H. A.
**Onuki, T.** Cement, P 6804*h*
**Onusaitis, B. A.** Colloidal properties and clinkering mechanism of coal, 4830*c*
——— and Khrisanfova, A. I. Changes in the colloid-chem. structure of coal during oxidation, 3593*b*.
——— and Yur'evskaya, N. P. Formation of microstructure of coke, 4831*d*.
**Ooeda, M.** See Naito, H.
**Ooishi, K.** Does the suprarenal cortex of cats contain the adrenaline, 3505*f*.
**Oom, B.** Plasts and plast materials, 2809*g*.
**Oordt, G. J. van.** See Lever, J.
**Oosterbaan, J. W. A.** Over de physische gasanalyse volgens de warmtegeleidingsmethode (book), 8312*f*
**Oosterhuis, H. K.** Antibiotics from molds, 8003*g*.
**Oosterkamp, W. J.** See Dorsten, A. C. van
**Oparin, A. I.** Proteins as the basis of living processes, 3050*b*.
——— and Bezinger, E. N. High-mol. N compds. of champagne, 7636*f*.
——— and Yurkevich, V. V. Adsorption of enzymes by yeast cells, 8003*d*.
**Oparina, M. P.** Sepn. of codeine and morphine, P 3572*d*.
**Opatowski, I.**, and Christiansen, A. M. Herbicidal actions, 2727*a*.
**Opechowski, W.** See Santen, J. H. van.
**Openshaw, H. T.** See Basford, F. R.; Bartersby, A. R.
——— and Robinson, R. Constitution of strychnine and the biogenetic relation of strychnine and quinine, 2626*d*.
——— and Smith, G. F. Aspidospermine, 5407*i*
**Opfer-Schaum, R.** Detection of glycerol, 68*c*, detection of volatile alkaloids and bases, 817*c*, microsublimation in toxicological analysis, 3869*d*, instrument for micro m. p. detn. and microsublimation, 5233*e*, see Goldbach, H. I.
**Opie, E. L.** Movement of water in tissue removed from the body and its relation to movement of water during life, 3091*a*; movement of water in tumor tissue removed from the body, 3096*b*.
**Opie, J. W.** See Smith, L. I.
**Opieńska-Blauth, J.** Prepn. and detn. of parathyroid hormone, 3056*e*
**Opitz, K.** Effect of K fertilization on the soly. of phosphates in soils and in fertilizers, 7623*f*.
——— and Egglhuber, E. Reaction of cereal types with different degrees of N fertilization, 7174*f*
**Oplatka, G.** Sugar milling practice, 8713*g*
**Oppelt, W. H.** See Burr, A. C.
**Oppenheimer, F.** See Bailey, C.; Bradt, H. L., Freier, P., Lofgren, E. J., Panofsky, W. K. H.
**Oppenheimer, H.** See Harkins, W. D.; Heller, W.
**Oppenheimer, M. J.** Liver-function studies plasma alk. phosphatase levels following partial hepatectomy, 3091*f*, see Robinson, H. W.
**Oppikofer, F.** *Allium sativum* from a therapeutic and chem. viewpoint, 3975*f*
**Opreanu Dumitrescu, Z.** See Macovski, E.
**Oprée, F.**, and Speer, E. Lehrbuch der Physik für die Grundschule (book), 6502*b*
**Oprescu, G. M.** See Atanasiu, I. A.; Cerchez, V.
**Opsahl, R.** Mass poisoning by MeOH and antifreeze solns., 3099*g*
**Optimus Equipment Co.** Degreasing tank, P 6967*a*
**Orahovats, P. D.** See Allen, T. H.
**d'Orazi, G.** Diffusion, 6441*c*
**Orcel, J.** Memorial of Alfred Lacroix, 8761*a*
**Orchin, M.** See Bergmann, E.; Feldman, J.; Columbic, C.; Wender, I.; Woolfolk, E. O.
———, Goldbach, G. L., Wolak, M., and Storch, H. H. Coal hydrogenation effect of variations in the coal-to vehicle ratio, 6806*b*
——— and Wender, I. App. for measuring gas absorption or evolution during org. reactions, 8749*h*
———, Wender, I., and Friedel, R. A. Detn. of D in water, 8965*a*.
———, Woolfolk, E. O., and Reggel, L. Aromatic cyclodehydrogenation (VIII) expts. with 2 benzyl 5,6,7,8 tetrahydronaphthalene, 4249*a*.
**Orcutt, J. A.** See Haven, F. L., Stokinger, H. E.
———, Maiers, R. E., and Smith, N. B. Toxicology of compds. of U following application to the eye, 8529*f*.
———, Neuman, M. W., Smith, N. B., Maiers, R. E., Aldridge, C. E., Orcutt, F. H., Main, E., Guptill, B., Kesel, R., and Miller, Z. Toxicology of compds. of U following application to the skin, 8529*a*.
**Orcutt, J. H.** See Bounce, A. L.; Orcutt, J. A.
**Ordal, E. J.** Henrici's Biology of Bacteria (book), 725*e*, see Henrici, A. T.; Rucker, R. R.
**Ordanik, M.** See Salle, A. J.
**Orden, L. J. van.** See Van Orden, L. J.
**Order, R. B. van.** See Van Order, R. B.
**Ordin, P. M.** See Reynolds, T. W.
**Ordway, G. L.** See Loring, H. S.
**Ore, A.**, and Powell, J. L. Three-photon annihilation of an electron-positron pair, 6501*f*, 8854*d*.
**Orechović, Orechowitsch.** See Orekhovich, V. N.
**Orefraction, Inc.** Electrostatic separator of particles of different elec. potential, P 2106*a*.
**O'Reilly, J.**, and Christy, R. F. Rates of the C reactions in the sun, 4093*c*.
**Orekhovich, V. N.** Cryst. proteins, 7990*d*; see Konikova, A. S.
——— and Tustanovskii, A. A. Microdetn. of

ureides (citrulline, etc.) and tryptophan in natural proteins, 8423*g*.

——, Tustanovskiĭ, A. A., and Plotnikova, N. E. Isolation of cryst. proteins of a new type (procollagen) from various organs of the vertebrates, 259*d*.

**Orel, R.** Heat of combustion and chem. compn of cellulosic material, 7225*e*.

**Orelup, J. W.** Amino alc.-fatty acid ester surface-active agents with amphoteric properties, P 3638*h*; alkyl amine inhibitors in fuels contg. aromatic amines, P 4003*d*, colored smoke compn., P 8683*c*.

**Orem, H. P.**, Adams, F. H., and Goulding, J. P. Amides of 3-hydroxy-2-naphthoic acids and azo dyes derived from them, P 8151*h*, azo dyes, P 8152*b*.

**Orent-Keiles, E.** See Callison, E. C.

**Oreshko, V. F.** Estn of the tendency of coal to self-inflammation, 2754*f*.

**Oreste, D.** See Ragno, M.

**Organe, G.** Decamethonium iodide in anesthesia, 6739*g*.

- - , Paton, W. D. M., and Zaimis, E. J. Trials of bistrimethylammonium decane and pentane dnodide (C10 and C5) in man, 3525*d*

**Organick, E. I.**, and Studhalter, W. R. Thermodynamic properties of $C_6H_6$, 476*e*

**Oriani, R. A.** See Skow, N. A.

——— and Smyth, C. P. HF dipole moment and the structure of the dimer, 2051*d*

**Orians, B. M.** See White, M. F.

**Orias, O.** See Allende, I. L. C. de.

**Oriel, J. A.** Place of liquid fuel in British economy, 2402*f*, see Asiatic Petroleum Co., Ltd

**Oriental Ceramic Industries Co.** Guanidines, P 3813*i*

**Oriental High Pressure Industries Co.** HCHO, P 7500*i*, recovery of methylal in the manuf. of HCHO, P 7501*a*

**Oriental Textile Mills, Inc.** Superior mixed *benz*-2,2′-dihydroxydibenzanthrone dyes for building paints as a substitute for a single dye of the kind difficult to refine, P 2788*i*, isobutylene from BuOH, P 7035*a*

**Orinik, M. T.** Polymeric *N*-vinylpyrrole compd and $CHCl_3$, P 2035*b*

**Orito, I.** $C_6H_6$ and toluene from $C_2H_4$ (I) lab expt (1) without packing in the reaction tube, 5376*a*

— and Yamaguchi, Y. $C_6H_6$ and toluene from $C_2H_4$ (I) lab expt (2) with a packed reaction tube (II) medium-scale industrial production (4) compn. and purification, 5376*b*.

**Orito, Y.** See Ueno, Saizo.

**Orlamünder, E.** See Klemm, W.

**Orlando, A.** See Lepage, H. S.

**Orlemann, E. F.** See Kern, D. M. H.

**Orliac, M.** Detection of minerals in ores—application to the study of their mineralogical aspects, 4602*a*; detn of small amts of Cd in minerals, 5697*b*

**Orloff, D.** See Mulliken, R. S.

**Orloff, H.** See Mulliken, R. S.

**Orloff, M. J.**, Williams, H. L., and Pfeiffer, C. C. Timed intravenous infusion of metrazole and strychnine for testing anticonvulsant drugs, 4316*e*.

**Orlov, A. I.** See Gurevich, D. A.

**Orlov, N. I.** Poisoning by *Cicuta* roots, 5499*c*, toxicity of dulcine, 5499*d*.

**Orlov, V. I.**, Gar, K. A., and Gabrielova, M. G. Development of the agricultural economic poisons industry, 3959*e*

**Orlova, A. I.** See Genel, S. V.

**Orlovskiĭ, N. V.** See Verner, A. R.

**Orlowa, A. I.** See Orlova, A. I.

**Orlowski, N. V.** See Orlovskiĭ, N. V.

**Orman, A. C.** Prevention of sprouting in potatoes—investigation in New South Wales, 7181*e*.

**Ormea, F.** Has penicillin any action on the menstrual cycle? 6729*b*; thiosemicarbazones in the therapy of tuberculosis, 7576*h*.

**Ormondt, J. van.** See Boer, J. H. de.

**Ormont, B. F.** Chem. compds and phases of constant and of variable compn. (I), 2479*e*; see Epel'baum, V. A.

——— and Ormont, N. N. Stone casting, P 3166*i*.

**Ormont, N. N.** See Ormont, B. F.

**Ormsbee, R. A.**, Henriques, F. C., Jr., and Ball, E. G. Reaction of mustard gas with skin proteins, 7989*g*.

**Ormsby, A. A.**, and Johnson, S. Method for the detection of lactose in urine, 5075*a*.

**Ormsby, L.** Alloy-steel bits tested at Morenci, 6135*i*.

**Ormsby, O. S.**, and Montgomery, H. Diseases of the Skin (book), 1859*h*.

**Ornat, M. M.** See Mallasén Ornat, M.

**Ornfelt, J.** Decaffeinated sol. coffee, P 6334*d*; see Allcock, H. W.; Kipnis, F.

**Orning, A. A.** See Ergun, S.

**Orochko, D. I.** See Zhunko, V. I.

**Orosco, E.** Metallography of Al alloys—Al-Ni, 4203*i*.

**Oroshnik, W.** α-Ethynyl-β-ionol, P 6657*c*.

**Orotschko, D. I.** See Orochko, D. I.

**Orovecz, B.**, and Budvari, R. Investigations of the alc. content of blood after street accidents, 8547*d*.

**Orozco, G. H.**, and Henrichs, J. A. Lubricating metal surfaces during cold working, P 6405*i*.

**Orr, C. P.** Wire-drawing lubricants, 5178*b*

**Orr, J. B.** $U^{235}$ in thucholite, 8868*d*.

**Orr, J. W.** Induction of pulmonary adenomata in mice by urethan, 307*b*.

— and Price, D. E. Hepatoxic action of the carcinogen *p*-dimethylaminobenzene, 4381*d*.

- - , Price, D. E., and Stickland, L. H. Glycogen content of rat liver after poisoning with large doses of *p*-dimethylaminoazobenzene, 6316*d*

**Orr, M. L.** See Munsell, H. E.; Streightoff, F.

**Orr, W. C.** See Bonner, N. A.

**Orr, W.** Blending fibers at drawing process, 1571*d*

**Orr, W. L.** Demonstration reagent for corrosion of Al, 6015*c*.

**Orrego, P.**, and Luco, J. V. Effect of some drugs on fast and slow muscles, 5872*g*

**Orsag, J.** Spectral analysis applicable to traces of impurities in metals, 2540*g*; direct-reading spectrograph, 5666*h*.

**Orshansky, G.** See Zohary, M.

**Orsi, A.** Thibierge Weissenbach syndrome—sclerodermia with calcareous concretions, 5485*c*.

**Orskov, J.** See Orskov, J.

**Orsolini, L.** See Illari, G.

**Orsoni, L.** See Facchini, U.

**Orstand, C. E. van.** See Van Orstand, C. E.

**Orszagh, A.** Less known synthetic resins, 8197*g*.

**Ortali, V.** See Di Raimondo, F.

**Ortega, J. A. y.** See Arteaga y Ortega, J.

**Ortega, L. G.** See Schoenbach, E. B.

**Ortega, M.** See Portillo, R.

**Orten, J. M.** See Buccero, M. C.; Marshall, L. M.

— and Buccero, M. C. Effect of cysteine, histidine, and methonine on the production of polycythemia by Co, 1843*h*

**Orth, D. A.**, Marquez, L., Heiman, W. J., and Templeton, D. H. Radioactive Tl isotopes produced from Au, 4564*e*.

**Orth, E.** Methylation of bleaching earths, 7607*e*.

**Orth, H.** Kunststofftafel Der Aufbau der Kunststoffe und deren wichtigste Anwendungen (book), 7750*f*

**Orth, O. S.** Use of dihydroergotamine and dihydroergocornine to prevent cardiac irregularities during cyclopropane anesthesia, 4763*g*, see Bennett, W. D.

**Orth, W.** Wood as raw material for tannins, 5981*f*

**Orthner, L.**, Balle, G., Schild, H., Schürmann, M. O., Brodersen, K., and Quaedvlieg, M. Artificial fibrous materials, P 5967*e*

**Orthner, R.** Drie Grundphänomene der Physik und ihre Deutung (book), 7808*e*

**Ortho Pharmaceutical Corp.** α-Ethynyl-β-ionol, P 6657*c*.

**Ortí, E.** See Vivanco, F.

**Ortiz, J. M. de la H. y.** See Helguera y Ortiz, J. M. de la

**Ortiz, L.** See Erdós, J.

**Ortiz Fornaguera, R.** Introduccion al estudio de la mecánica cuántica (book), 2517*b*.

**Ortman, G.** See Ril, N.

**Ortoleva, G.** Vitamin F (IV) linoleic acid and tuberculin allergy in guinea pigs with tuberculosis, 2296*b*; linoleic acid and crisis from histamine in guinea pigs, 2327*h*.

— and Allegra, G. Unsatd. fat acids and allergy from infection, 5857*d*.

**Orton, C. R.** Through research to better farming, 9313*f*.

——— and Jenny, G. Research powers of the farm, 9313*h*.

**Ortuño, A. V.** See Vian Ortuño, A.

**Ortuño Martínez, A.** See Solet Martínez, A.

**Oryschkewitsch, J.** See Klemm, W.

**Orzalesi, G.** See Marchiaro, E.

**Osadchev, B. Ya.** Giant quartz crystal from Volhynia, 6118*b*.

**Osaka Iiyokenkyujo.** Same as Osaka Institute of Nutrition Science.

**Osaka Godo Co.** Substitutes for petrolatum, P 3153*e*; treatment of pine-root tar, P 3176*h*; mordants, P 3206*d*.

**Osaka Ilmenite Industrial Co.** $TiO_2$, P 3576*f*

**Osaka Industrial Testing Laboratory.** Monovinylacetylene, P 7950*i*.

**Osaka Institute of Nutrition Science.** Food prepn., P 6758*e*, vitamin B and C concentrate, P 6792*c*

**Osaki, K.** See Ishino, E.

**Osaki, S.** Carbohydrates (LXXXII) detg. glucuronic acid in glycoproteins, 5071*c*; (LXXXIII) mucoids of sclera, 3506*b*, 5103*e*; see Masamune, H.

— — and Hasegawa, T. Biochem. studies on carbohydrates (LXX) application of the formalin method to glycoproteins for sepn. of acid polysaccharides, 3484*b*.

——— and Tsurumi, K. Biochem studies on carbohydrates (LXXIX) form of acetyl attached to hexosamine in the glycoprotein mol., 3480*d*.

**Osame Synthetic Chemical Industries Co.** Alkyd resin, P 2030*g*.

**Osawa, S.**, Tei, H., and Hayashi, M. Growth-producing substances of microbes (II) germinating principle, 1460*i*.

**Osberg, E. V.** See Brock, L. W.

**Osborn, A. B.** See Carpenter, L. G.

**Osborn, C. J.**, Scotchbrook, A. F., Stout, R. D., and Johnston, B. G. Comparison of notch tests and brittleness criteria, 3760*g*, compn and property variation of two steels, 6958*h*, effect of plastic strain and heat treatment, 8330*b*

**Osborn, E. F.** Cellular structures in glass as related to structures in lava, 6548*a*; see Roy, R.

**Osborn, G.** Concepts of acids from early times until now, 1618*h*.

**Osborn, G. H.** Electrolytic estn. of Cd in $H_2SO_4$ or $HClO_4$ solns, 7352*i*, see Jewsbury, A.

- ——— and Jewsbury, A. Detn of Al by the $NH_4$ benzoate method—factors affecting the sepn and estn. of Al and Be, 8301*c*.

**Osborn, R. A.** Detn of water-insol solids of fruits and fruit products, 8572*a*.

**Osborn, S. B.** Radioactive materials and their medical uses, 6501*d*.

**Osborne, D. W.**, Weinstock, B., and Abraham, B. M. Comparison of the flow of isotopically pure liquid $He^3$ and $He^4$, 4130*a*.

**Osborne, F. F.**, and Archambault, M. Chromiferous chlorite from Mount Albert, Que., 4606*g*.

**Osborne, F. H.** Synthetic fiber paper, P 9448*g*.

**Osborne, G. E.** See Cahill, G. F.

**Osborne, M.** See Daum, K.

**Osborne, M. F. M.** Bose-Einstein condensation for thin films, 8225*e*; Bose-Einstein condensation for charged particles in a magnetic field, 8257*a*.

**Osborne, T. M.** Coal gasification unit completed at Missouri gas synthesis plant, 6393*d*.

**Osborne, W. S.** Fungicidal lacquer, P 6434*b*.

**Osborn Manufg. Co.** Filter for the sepn. of flue dust from furnace gases, P 6009*i*.

**Osburn, M. R.** Parathion for control of the little fire ant, 7627*g*.

**Oser, B. L.** Vitamins, 1095*e*; food [review of analytical chemistry], 2705*h*; Morton and Stubbs correction of vitamin A absorption curves, 5817*h*.

**Osgood, W. V.** See Strain, D. E.

**Osherovich, A. L.** See Rodionov, S. F.

**Oshibuchi, T.** Sulfide method of pulping (I) action of NaHS during boiling, 1183*e*.

——— and Tanemura, I. Pulp manufg. from Manchurian Dahurica-Karamatsu (III) pulp manuf. expts. by soda and sulfate processes, 1970*f*.

- ——, Tani, M., and Tanemura, I. Pulp manufg. from Manchurian Dahurica-Karamatsu (I) morphological research and chem. analysis, (II) pulp manufg. expt. by sulfite process, 1970*c*

**Oshima, K.** Fungicide from peat, P 6778*g*; germicide from peat, P 6794*b*.

**Oshima, M.** Hydrazine, P 7202*a*.

**Oshima, Y.**, Hara, T., and Kobayashi, K. Prepn. of 2-furaldehyde from bagasse (I) extn. of pentosan by chloride solns., esp. brine, and the nature of the residue, (II) prepn. of 2-furaldehyde from the brine ext. and the nature of pulp made from the residue, 628*h*.

**Oshry, H. I.**, and Åkerlöf, G. C. Dielec. const. of water at very high temps., 6480*d*.

**Osinski, E. D.**, and Bucklin, G. W. Pre-

servative for photolithographic plates, P 4166*g*

**Osipov, K. A.** Relation between the high-temp. strength and the melting temps. of alloys, 90*f*; fundamental principles of alloying of hot-strength metallic alloys, 1298*c*; high-temp. strength of heterogeneous metallic alloys, 2564*a*.

**Osipova, O. P.**, and Timofeeva, I. V. Proteins of the chloroplasts, 8012*f*.

**Osipova, R. S.** Two-stage dyeing processes, 3619*h*.

——— and Rakhlina, S. S. Methods of study and control of dyeing, 3619*g*.

**Oskay, J. J.** See Rake, G.

**Osler, A. G.**, and Heidelberger, M. Quant. studies of complement fixation (III) homologous and cross reactions in pneumococcal type III and type VIII systems, (IV) homologous and cross reactions in chicken- and duck-egg-albumin systems, 1103*a*, 9238*i*.

**Osmar, J. J.** See Kivenson, G.

**Osnitskaya, L. K.** Decompn. of naphthenic acids and napthenic hydrocarbons by microörganisms, 3181*g*.

**Osnos, M.** See Dische, Z.

**Osoba, J. S.** Forbidden transition of $Y^{91}$ and $Cs^{137}$, 8266*i*.

**Osol, A.** See Jones, H. W., Leuallen, E. E.; Turner, A., Jr.

**Osoling, S.** See Deutsch, Alfred.

**Oss, J. F. van.** Wårenkennis en Technologie (book), 789*b*.

**Osserman, H. A.** Molding compn., P 8740*a*.

**Ossipow, K. A.** See Osipov, K. A.

**Ossorio, R. P. A.** See Pérez A.-Ossorio, R.

**Osswald, E.** Sol aromatic coffee ext., P 5512*h*, 5513*a*.

**Osswald, Eugen.** Microradiographic studies of light metal alloys, 4203*h*, see Sauerwald, F.

**Ostapenya, P. V.**, and Kagan, Ts. A. Hygienic evaluation of subterranean waters in connection with the effect of underground peat beds, 9303*d*.

——— and Shapiro, D. K. Application of hexachloroethane for control of fly larvae in sewage, 5526*f*.

**Ostenhoff, O. H.** See Hoffmann-Ostenoff, O.

**Oster, G.** Scattering of light and its applications to chemistry, 932*i*.

**Oster, K. A.**, and Golden, M. J. Alc.-sol. fungistatic and fungicidal compds (III) evaluation of the antifungal properties of quinones and quinolines, 8615*f*; (IV) treatment of dermatophytosis pedis with 8-hydroxyquinoline, 4425*c*.

**Osterberg, A. E.** See Keith, N. M.

**Osterberg, H.** Vacuum coating of optical elements, P 8633*a*.

**Osterhof, H. J.** See Borders, A. M.

**Osterhout, W. J. V.** Movements of water in cells of *Nitella*, 4751*h*.

**Osteux, R.** See Boulanger, P.

**Osthaus, B. B.** Silicate analysis (II) detn. of Zn, 8111*c*.

**Ostow, M.**, and Garcia, F. Effect of curare on cortical responses evoked by afferent stimulation, 9261*d*.

**Ostrander, E. C.** See Leberknight, C. E.

**Ostro, M.** See Macht, D. I.

**Ostrogorskaya, L. I.** See Vladimirov, G. E.

**Ostrolenk, M.**, and Brewer, C. M. Bactericidal spectrum of some common organisms, 8444*c*.

**Ostroukhov, M. Ya.** Behavior of dense coke in blast furnaces, 4195*d*.

**Ostroumov, E. A.** Analytical methods with pyridine, $\alpha$-picoline, and hexamethylenetetramine, 962*b*; sepn. of Ce from rare earths, 5697*c*.

——— and Ivanov-Emin, B. N. Detn. of pyritic S in the presence of sulfates, 6937*c*.

**Ostroumov, G.** Transference nos. in borax glasses, 5656*a*.

**Ostroverkh, G. A.** Improvement of working conditions in smelting and pouring of Pb bronze, 6559*b*.

**O'Sullivan, J. B.** Conductance of electricity through cellulose (V) effect of temp., 1181*d*.

**Oswald, K.** Influence of weather on the development and structure of the heads in hops, 8455*i*.

**Oswald, A.** Glycerol substitute, P 5416*a*.

**Oswald, E. J.**, and Nielsen, J. K. Stability of streptomycin in soln., 4428*f*.

**Oswald, F. G.** Resinous mixed esters contg. a pentaerythritol, P 4511*h*.

**Oswald, J. C.** See Lester, C. T.

**Oswald, M. V.** Electrodes for elec. arcs, P 6097*d*.

**Oswin, C. R.** Kinetics of package life (IV) diffusivity, 3615*a*; see British Cellophane Ltd.

**Ota, B.** See Tatsuoka, S.

**Ota, E.** See Horio, M.

**Ota, H.** See Kineri, S.

**Ota, J.** Inhibition of amine oxidase by benzedrine derivs., 9118*c*.

**Ota, Kaizo.** Oil-resistant coating material from polyvinyl alc., P 6838*b*.

**Ota, Keichi.** Nonaging steel, P 6563*f*.

**Ota, N.** Water gas by the reaction of $CH_4$ and $CO_2$ (I) catalysts, (II) methods of preventing C formation on the catalyst, 1944*f*, 4445*g*.

**Ota, T.** $NH_4$ soaps (I) prepn. of $NH_4$ soaps and their stability, 5212*h*

**Ota, Y.** See Ueno, Seiichi

**Otani, M.** See Akiyama, K.

**Otero, E.** Same as Otero Aenlle, E.

**Otero, M. M.** See DeCarlo, J. A.

**Otero, P. M.** See Morales-Otero, P.

**Otero Aenlle, E.** Análisis de grasas, ceras y sus mezclas comerciales (book), 6436*i*

——— and García Fernández, S. Frothing of aq. soap solns., 7721*f*

**Otero de la Gándara, J.** See Enríquez de Salamanca, F., Poggio Mesorana, F.

**Othmer, D. F.** See Aries, R. S.; Berman, S.; Kirk, R. E.; Linden, H. R., Savitt, S. A., Schmutzler, A. F.

——— and Gilmont, R. Correlating vapor compns. and related properties of solns.—use of crit. consts., 3602*b*

——— and Lulev, A. H. Refining sugar by solvent, 4035*h*, 7729*e*

———, Savitt, S. A., Krasner, A., Goldberg, A. M., and Markowitz, D. Compn. of vapors from boiling binary solns.—systems with *m*- or *p*-cresol as one component, 4063*e*

——— and Serrano, J., Jr. Solv. study of ternary liquid systems—$H_2O$–AcOH–higher boiling homologous acids, 5657*h*

——— and Silvis, S. J. Correlating b. p. elevations of sugar solns. as a function of pressures, concns., and per cent purity, 5979*c*.

**Othmer, M. E.** Vegetable-oil processing, 1201*f*.

**Otis, A. B.** See Rahn, H.

———, Rahn, H., and Chadwick, L. F. Effects of adding $CO_2$ to inspired O on tolerance to high altitudes, 5431*g*

**Otis, M. V.** See Kaye, W. I.

**Otsuka, S.** See Tange, U.

**Otsuka, Y.** Prepn. of Be from beryl (I) sepn. of Be from Al, (II) compn. of beryl, (III) decompn. of beryl, (IV) prepn. of Be oxide from beryl by the $Na_2CO_3$ fusion method, (V) $H_2SO_4$ required in obtaining the max. yield of Be oxide by the $Na_2CO_3$ method, (VI) extn. of the $Na_2CO_3$ melt of beryl with water, 1919*g*.

**Ott, G. H.** Araldit lacquer resins for the protection of metal surfaces, 2029*f*, 4891*g*, melamine-base resins, synthesis and use in the varnish industry, 2163*i*

——— and Kraus, W. Phenol oxide resin lacquers, P 2448*c*.

**Ott, L. B.** See Balmer-Ott, L.

**Ott, M.**, and Meisenburg, E. Interference of ferrous salts in the detn. of ascorbic acid, 1076*d*.

**Ott, W.**, and Dannegger, K. Adhesive compn., P 6004*b*.

**Ott, W. H.** Report of the committee on pharmacol. assays, 4425*g*, quant. assay method for pyrogens, 8613*i*, see Seeler, A. O.

**Ottar, B.** See Hassel, O.

**Ottaviano, G.** Effect of Zn on the hyperglycemia produced by glucose injection, 2327*i*.

**Ottenberg, A.** See Neu, J. T.

**Ottenhoff, P.** Neoprene in special applications, 1209*f*.

**Ottensooser, F.** Chemotherapy of gaseous gangrene, 757*d*.

**Ottenweller, J. H.** Catalysts for catalytic cracking, 8124*d*.

**Otter, H. P. den.** Soap from synthetic fatty acids (III), 7241*e*.

**Ottesen, B. V.** See Konikova, A. S.

**Ottesen, M.** See Egg-Larsen, N.; Linderstrøm-Lang, K.

**Otting, H. E.** Ion-exchange applications in milk products, 3942*g*.

———, Chrysler, L. H., and Almy, E. F. Stabilizing evapd. milk, P 7604*h*.

**Ottke, K. C.** Ergosterol in *Neurospora crassa*, 9143*g*.

**Otto, C. E.** Prepn. of $(NH_4)_2S$ from ammonium polysulfide, 2531*i*.

**Otto, D. M.** See Odland, L. M.

**Otto, F. P.** Synthetic lubricating oils, P 7678*f*; see Reiff, O. M.

——— and Meyer, R. E. Products obtained by the reaction of $P_2S_5$ with sulfurized ketones, P 3441*a*.

**Otto, G.** Tannage with mixed inner complexes of Fe, 7245*a*.

**Otto, H. L.** See Gold, H.

**Otto, M. M.** See Cislak, F. E.

**Otto, W. M.** See Johnson, Charles R.

**Ottolenghi, L.** See Steele, R.

**Ottoman, R.** See Winsor, T.

**Otton, E. G.** Geology and ground-water resources of the London area, Ky., 3543*h*.

**Ottonello, P.** Nicotine and the nervous system, 1114*d*.

**Ottoson, A.** Magnetic purification of glass sand, 371*a*.

**Ottoson, K. G.** See Tomlinson, W. R.

**Otvos, J. W.** Ionization by $C^{14}$ radiation in the ionization chamber, 4093*d*; see Beeck, O.; Wagner, C. D.

**Ouchakow, S. N.** See Ushakov, S. N.

**Ouchi, I.** See Horiuchi, J.

**Ouchi, K.** See Hayashi, Kozo

**Ouchterlony, Ö.** Antigen antibody reactions in gels, 9227*h*, (II) factors detg. the site of the precipitate, 5485*h*; (III) time factor, 5485*i*

**Oudovienko, Oudowenko.** See Udovenko, V. V.

**Ouellet, J.** See Marion, L.

**Oufimcev, Oufimtsew.** See Ufimtsev, V. N.

**Oughton, C. D.** See Schaffert, R. M.

**Oulton, T. D.** Pore size-surface area distribution of a cracking catalyst, 3180*g*

**Oumanski.** See Umanskii

**Ourasovsky, Ourazovskij.** See Urazovskii, S. S.

**Ousakov, S. N.** See Ushakov, S. N.

**Ousbey, J. H.** Cellulose Spraying (book), 8680*f*

**Ouschakoff, S. N.** See Ushakov, S. N.

**Oussanovic, Oussanowitsch.** See Usanovich, M.

**Outa, M.** Detn. of S in rubber mixts., 3643*h*

**Outokumpuoy.** Electrolytic purification of Ni from Ni mat, P 8919*h*

**d'Ouville, E. L.** See D'Ouville, E. L.

**Ovando, P.** See Dumm, M. E.

**Ovary, Z.** See Biozzi, G.

**Ovcharkov, K. E.** Application of growth substances for combating *Orobanche aegyptiaca*, 3134*h*, see Rakitin, Yu. V.

**Ovchinkin, I. P.** App. for chlorination of pit wells, 1507*h*; see Iz'yurova, A. I.

**Ovchinnikov, A.**, and Vedyashkin, P. Detn. of Ca in cheese, 9283*h*.

**Ovchinnikov, L. N.** Spectroscopic detection of Co and Ni, 6938*e*, elementary mixts. in replacement deposits, 8322*b*.

——— and Maksenkov, V. G. Filtration effect in solns., 8213*d*.

——— and Tsimbalenko, M. N. Manganallanite from the Vishnevye Mts., 3320*b*

**Ovchinnikov, N. M.**, and Kuchinskaya, E. P. Action of Bi prepns. on penicillin, 3932*g*.

**Ovenden, M. W.** Advances in astronomy, 6071*g*

**Ovenston, T. C. J.** Identification and estn. of mineral jelly in propellant explosives, 1979*i*; chromatography in an explosives lab., 5593*d*, chromatographic examn. of propellant explosives, 8138*i*.

——— and Parker, C. A. Reaction between ferric and thiocyanate ions, 8310*f*.

**Overath, W.** Chem. coatings for improving cold-forming of steel, 2913*b*.

**Overbeck, F.** Moor development in lower Saxony and the detn. of the degree of humification in studies by pollen analysis, 5143*c*.

**Overbeck, R. L.** See Chu, J. C.

**Overbeck, W.** Losses of cellulose and wood sugar in cellulose processing of beechwood, 6407*c*.

**Overbeek, G. A.** Adrenals and fatigue (I), (II) cholinesterase activity of serum, brain, and muscle in normal and adrenalectomized rats, 7102*f*.

**Overbeek, J. Th. G.** Dissocn. and titration const. of polybasic acids, 2073*a*; interaction of electrochem. double layers—stability of hydrophobic colloids, 3265*i*; luminescent silicate, P 4582*c*; La silicate phosphor, P 4959*a*; see Hermans, J. J.; Kröger, F. A.

——— and Kröger, F. A. Fluorescent material and elec. discharge device, P 7832*g*.
**Overbeek, J. van.** See Van Oberbeek, J.
**Overberger, C. G.** See Alfrey, T., Jr.
——— and Saunders, J. H. *m*-Chlorostyrene, 1733*c*.
———, Saunders, J. H., Allen, R. E., and Gander, R. (*m*-Chlorophenyl)methylcarbinol, 1741*h*.
**Overcash, J. P.**, and McWhirter, L. Ascorbic acid content of 9 strawberry varieties in Miss., 9173*i*.
**Overell, B. T.** See Lugg, J. W. H.
**Overend, W. G.** See Gregory, H.; Gulland, J. M.; Homer, R. F.; Wiggins, L. F.
———, Montgomery, R., and Wiggins, L. F. Anhydrides of polyhydric alcs. (XI) action of $PBr_3$ on 1,4,3,6-dianhydromannitol and -sorbitol—chloro derivs. of 1,4,3,6-dianhydrosorbitol, 2939*f*.
——— and Stacey, M. Mechanism of the Feulgen nucleal reaction, 5071*f*.
**Overhauser, A. W.** Clustering of ions and the mobilities in gaseous mixts., 8224*b*.
**Overhoff, J.** Glycerol esters, substituted or not by alkyl-, aryl-, or aralkyl radicals, P 5036*d*; see Kooijman, E. C.
——— and Huyser, H. W. Ketogulonic acid, P 6225*b*.
**Overman, A.**, Lowe, B., and Shannon, W. J. Changes in a fat with prolonged storage and the palatability of doughnuts cooked in it, 1497*h*.
**Overman, O. R.** See Kendall, K. A.
**Overman, R. S.** Detn. of prothrombin clotting time, 3487*d*.
**Overman, W. J.** See Ray, C. T.
**Overstreet, R.** See Krishnamoorthy, C.; Stout, P. R.
———, Jacobson, L., and Stout, P. R. Evidence for a new isotope of K, 4118*d*.
**Overzier, C.** Hunger edema, 1479*e*.
**Ovrebo, P. J.**, and Kraybill, H. L. High-energy cosmic-ray air showers, 4091*e*.
**Ovrutskii, M. Sh.** Use of masking reagents in the chrome tanning of hides, 6450*a*; chrome tanning ext., P 6452*c*.
**Owades, J. L.** See Sobel, A. E.
**Owades, P. S.** See Sobel, A. E.
**Owen, A. F.** Fibrous comps. contg. butadiene-styrene elastomers, P 6860*b*.
**Owen, B. B.**, and Brinkley, S. R., Jr. Extrapolation of apparent molal properties of strong electrolytes, 7298*a*.
**Owen, C. N.** See Kesler, C. C.
**Owen, E. A.**, and Liu, Y. H. Thermal expansion of AuCu, 542*j*; x-ray study of the equil. diagram of the Fe-Ni system, 9006*d*.
———, Liu, Y. H., and Morris, D. P. Behavior of stressed Al at room temp., 4197*d*.
——— and Sim, G. M. Superlattice formation, 542*f*.
**Owen, E. C.** Effect of thyroxine on the metabolism of lactating cows (I) general results and N metabolism, (II) Ca and P metabolism, 2295*a*.
**Owen, G. E.** See Braden, C. H., Moe, D.; Slack, L.
———, Moe, D., and Cook, C. S. Evidence for a complex disintegration of $I^{131}$, 3285*c*.
——— and Primakoff, H. Apparent shapes of monoenergetic conversion lines and of continuous $\beta$-spectra in a magnetic spectrometer, 1259*d*.
**Owen, H. B.** Mica—vermiculite, 6540*e*.
**Owen, H. S.** See Maclay, W. D.
**Owen, J.** See Anglo-Iranian Oil Co., Ltd.
**Owen, J. J.** S removal from gases for the synthesis of hydrocarbons, P 7214*c*; drying hydrogel catalysts, P 9300*d*.
**Owen, J. V.** See Vallance-Owen, J.
**Owen, L.** Origin and evolution of petroleum, 2409*c*.
**Owen, L. N.** Olefinic acids (III) isopropylidene-isopropenyl isomerization in the reaction of $\alpha$-bromo-$\beta,\beta$-dimethylacrylic acid with alkoxides, 6975*a*; see Clarke, M. F.; Evans, R. M.; Simonsen, J. L.
——— and Robins, P. A. Alicyclic glycols (II) derivs. of 1,4-cyclohexanediol, (III) 4-(hydroxymethyl)cyclohexanol, 7435*e*.
——— and Simonsen, J. L. Terpene chemistry, 3807*c*, 5768*c*.
**Owen, O.**, and Rees, P. Available K and phosphate in tomato soils, 6774*b*.
**Owen, R. D.** See Mitchell, H. K.
**Owen, R. M.** Tensile strength with a modified Mullen tester, 4012*a*.
**Owen, R. V.** Soap, P 4266; see Crosfield, J., & Sons.
**Owen, W. L.** Fermentation characteristics of deteriorated cane blackstrap, 5615*c*; Microbiology of Sugars, Syrups, and Molasses (book), 8181*e*.
——— and Bienvenu, R. J. Sucrose losses in sugar manuf., 4879*g*; substrate for enumeration of mold fungi in sugar, 6446*c*.
**Owens, G. E.** Acrolein-phenol resin, P 3654*d*.
**Owens, R. G.** See Ellis, D. E.
**Owens-Corning Fiberglas Corp.** Glass fibers, P 3987*b*; reinforced plastics, P 8208*h*.
**Owens-Illinois Glass Co.** Bonded structures, P 3184*e*; heat-insulating materials, P 5918*e*; furfuryl alc. resins, P 6863*i*; urea-HCHO molding compds., P 6865*d*.
**Ownby, F. D.** See Aull, J. C.
**Owren, P. A.** Fifth coagulation factor (Factor V)—prepn. and properties, 2255*c*.
**Owrutsky, M. Sh.** See Ovrutskii, M. Sh.
**Owtschinnikow.** See Ovchinnikov.
**Oxaal, F.** See Sörensen, N. A.
**Oxford, W. F., Jr.** Drilling fluid, P 1556*h*.
**Oxholm, M. L.**, and Williams, D. Infrared absorption by homonuclear diat. mols., 8884*d*.
**Oxley, C. L.** See Barnes, S. W.
**Oxley, H. F.**, Thomas, E. B., and Nichols, F. S. Butylamine, P 3440*g*.
**Oxley, P.** See Boots Pure Drug Co., Ltd.; Short, W. F.
———, Peak, D. A., and Short, W. F. Amidines (X) amidines from substituted amides, a sulfonyl chloride, and an amine, 2595*d*.
———, Robson, T. D., Koebner, A., and Short, W. F. Sulfone-substituted benzonitriles, P 3846*a*.
——— and Short, W. F. Amidines (IX) substituted amidines from ketoxime sulfonates and $NH_3$ or amines, 2593*g*, (XI) amidines by ammonolysis of *N*-arylamidinium salts, 7444*b*.
**Oxley, T. A.** Movement of heat and water in stored grain, 324*d*, Scientific Principles of Grain Storage (book), 786*d*.
**Oya, J. C. de.** See Grande Covián, F.; Jiménez Díaz, C.
**Oyaas, J. E.** See Levine, H.
**Oyaert, W.** See Peeters, G.
**Oyama, Y.** Addn. agents for photographic emulsions and developers (I) relation between chem. constitution and photographic properties of org. addn. agents, (II) properties of derivs. of mercaptobenzimidazole as addn. agents, (III), 7361*d*.
**Oyler, R. W.** Electroplating hazards and nuisances, 2099*b*; disposal of waste cyanides by electrolytic oxidation, 6924*c*.
**Ozaki, M.** See Ide, K.
**Ozaki, Y.** Treatment of Fe sand and titanic Fe ore by wet process (I) manufg. Ti oxide, (II) manuf. of $V_2O_5$, 1924*e*.
**Ozar, C. G.** See MacMullen, C. W.
**Ozawa, C.** 2,3,4,5-Tetramethylhexane from isoamyl alc. or oil contg. isoamyl alc., P 3833*e*; trimethylethylene from isoamyl alc. or an oil contg. isoamyl alc., P 3834*a*.
**Ozawa, Ikuzo.** See Sekizawa, Y.
**Ozawa, Isozo,** *et al.* Sulfonamide compds., 7508*c*.
**Ozawa, J.** See Nakahama, T.
**Ozburn, E. E.** See Western, O. C.
**Ozeki, I.** Molten $Al_2O_3$ of white or brown color, P 6925*h*.
**Ozeroff, M. J.** See Mann, K. C.
**Ozerov, A.** See Loshkarev, M.
**Ozhiganov, I. N.** Detg. total hardness of $H_2O$ with Na phosphate, 1128*c*; stabilizing the carbonate hardness of $H_2O$ in heat exchangers and similar units, P 6346*f*.
**Ozier, M. A.** See Kassner, J. L.
**Ozimov, B. V.** Photonephelometer for turbidimetry in test tubes, 9139*b*; see Flerov, K. V.

**Paal, H.** Nebenniere, B-Vitaminkomplex und Zuckerstoffwechsel (book), 9125*i*.
**Paauw, F. van der.** Absorption, assimilation, and structural distribution of phosphate and N in potatoes, 2722*i*.
**Pabst, A.**, and Sawyer, D. L. Tincalconite crystals from Searles Lake, San Bernardino County, Calif., 8984*d*.
**Pacault, A.**, and Carpentier, S. Dehydrogenation of cyclohexane to $C_6H_6$, 4343*b*.
——— and Lecomte, J. Infrared absorption and carcinogenic activity, 3915*d*.
——— and Stoltz, M. Magnetochemistry of the perchlorates of the alkalies and the alkali earths, 5689*e*.
**Pace, B. S.** See Eliot, T. Q.
**Pace, E.** Vitamins (book), 8080*i*.
**Pace, J.** See Bentley, H. R.
**Pace, N.** Adsorption in the visible range of the spectrum of I solns., 8884*g*.
**Pacella, B. L.** See Fabrykant, M.
**Pacheco, J. de la R.** See Rubia Pacheco, J. de la.
**Pacific Mills.** Cellulose ethers of 3,4-epoxy-1-butene and their oxidation products, P 1979*d*.
**Pacilli, E.** See Peyronel, G.
**Pacini, C.** See Monti, L.
**Pack, D. H.** See Cook, M. A.
**Pack, G.** See Zinke, A.
**Pack, G. T.** See LaDue, J. S.
**Packer, D. M.** Front-surface reflector, P 3735*a*.
**Packhauser, E.** Histochem. detection of vitamin C in the ganglion cells, 3902*e*.
**Packie, J. W.**, and Glazier, E. M. Butadiene estn., P 3023*e*.
**Packman, D. F.** See Campbell, W. G.
**Pacovskya, E.** See Mehl, J. W.
**Padda, L.** Forni industriali a combustione (book), 6009*f*.
**Paddle, L. H.** See Telephone Manufg. Co. Ltd.
**Paddock, E. F.** Effects on tomatoes of field application of two hormone-insecticide-fungicide mixts., 9337*e*.
**Paddock, L. S.** Tenderizing liver, P 5512*d*; see Ramsbottom, J. M.
**Paden, J. H.** See Mackay, J. S.
——— and MacLean, A. F. Dicyandiamide hydrochlorides, P 9082*b*.
**Paden, W. R.** Response of cotton and changes in chem. properties of soil from various sources of N fertilizers, 2354*f*.
**Padfield, D. G.** Tensor forces and the neutron-proton interaction, 2857*b*.
**Padget, L. J.** See Henderson, C. F.
**Padmanabhan, T. S. A.**, Sud, L. R., Mann, P. F. E., Ranganathan, S. K., and Subramanian, T. S. Alkali-sensitive linkages in irradiated cellulose, 6407*i*.
**Padmanabhan, V. M.** Raman spectra of Na and K tartrates, 4956*f*; Raman spectrum of ethylenediamine tartrate, 4956*g*.
**Padmos, A. A.**, and Verwey, E. J. W. Resistance elements, P 5682*f*.
**Padoa, E.**, and Vegni, M. T. Ambisexual action of folliculin at various dosages in differentiating gonads of *Rana esculenta*, 7104*b*.
**Padovani, C.** Chem. utilization of solid fuels in Italy, 3167*b*; gaseous olefins, P 8129*f*.
———, Buttazzoni, A., and Lotteri, A. Desulfurization of illuminating gas, 3172*i*.
——— and Salvi, G. Oxidation of paraffin, 4000*f*.
**Padowicz, H. N.** Compounding rosin, rosin oil, and polyisobutylene, P 7810*h*.
**Padurov, N. N.** Morphological singularities of quartz twins, 4980*c*; etch figures of SiC, 8311*i*; striations and oscillatory combinations on the prism faces of quartz, 8986*f*.
**Pääbo, K.** See Bergström, S.
**Paes Barreto Cavalcanti, M. da C.** Oil of the cotia chestnut (II) extn., phys. and chem. characteristics, 8700*e*.
**Pätiälä, J.** See Siintola, S.; Pätiälä, R.
**Pätiälä, R.** See Siintola, S.
———, Pätiälä, J., Siintola, S., and Heilala, P. Effects of *l*-usnic acid on tuberculosis, 9267*d*.
**Paetsch, H.** C black in the rubber industry, 6454*g*; gelatinization of different types of Igelite, 6454*i*.
**Pafumi, A.**, and Caltabiano, G. B. Folliculin, prehypophysis, and vitamin E in Gierke's disease, 3923*e*; folliculin and liver glycogen, 3937*a*.
**Pagán, C.** Toxicological assay of derris and *Lonchocarpus* roots, 2730*i*; toxicities of rotenone plants—assaying derris and *Lonchocarpus* roots—toxic rotenoid isolated from 3-months-old derris root, 3966*d*; see Jones, M. A.; Loustalot, A. J.
——— and Hageman, R. H. Effect of root diam. on chem. and biotoxic constituents of derris, 7631*f*.
———, Hageman, R. H., and Loustalot, A. J. Effect of sun, shade, and oven drying on the toxicol. and chem. values of derris root, 7631*e*.
——— and Loustalot, A. J. Estg. toxicity of derris root, 1522*d*; comparison of chem. values with the toxicological rotenone equiv. of derris and *Lonchocarpus* roots, 5150*c*.
———, Loustalot, A. J., and Hageman, R. H. Chem. investigations—estg. toxicity of derris root—total $CHCl_3$ extractives give indication of toxicological value of derris

root—blendor speeds detn. of total $CHCl_3$ extractives, 3966*f*.
——— and White, D. G. Rotenone content of derris roots detd. from total $CHCl_3$ extractives, 3966*f*, 6354*a*.
**Pagani, D.** Catalytic effect of vinoleates on the drying of linseed oil, 8699*e*; drying catalysts for linseed oil, 8699*h*.
**Pagano, J. E.** Deduction of the formula of mucic and saccharic acids from aldohexoses, 6982*h*.
**Pagano, J. F.** See Buswell, A. M.
**Page, A. B. P.,** and Lubatti, O. F. Effects of fumigants on food. 2338*a*; application of fumigants to ships and warehouses (VII) fumigation of dried fruit with MeBr, 9346*i*.
———, Lubatti, O. F., and Russell, J. Application of fumigants to ships and warehouses (VI) fumigation of dried fruit with MeBr, 8603*e*.
**Page, A. C., Jr.** See Stokstad, E. L. R.
**Page, E. W.** See Fulton, L. D.
**Page, F. M.** See Balley, E. J. G; Denbigh, K. G.; Stead, B.
**Page, G. A. le.** See Le Page, G. A.
**Page, G. R.** Insulated tinsel conductor, P 5518*f*.
**Page, H. R.,** and Lee, A. E., Jr. Development of the Zn retort in the United States, 2554*g*.
**Page, I. H.** See Corcoran, A. C; Lewis, L. A., Rapport, M. M
——— and Green, A. A. Vascular refractoriness produced by benadryl and BAL, 6320*b*.
——— and Lewis, L. A. Influence of protein, carbohydrate, and salt on arterial pressure of dogs with exptl. renal hypertension, 6297*c*.
——— and Taylor, R. D. Variations of vascular reactivity in normal and hypertensive dogs, 6320*d*
**Page, J. B.** Pressure pycnometer for measuring the pore space in soils, 794*c*.
**Page, J. E.,** Somers, G. F., and Fielding, M. E. Pharmacology of diethylamine 3,5-diiodo-4-pyridone-*N*-acetic acid, 762*b*
——— and Waller, J. G. Detn. of thiomersalate, 8098*s*.
**Page, N. R.** See Cooper, H. P.
**Page, R.** See Hammond, A. R.
**Page, T.** Spectra of double galaxies, 938*b*, spectrum of comet Bester (1947 k), 938*e*; see Swings, P.
**Page, W. R.** See German, W. J.
**Pagel, H. A.,** Toren, P. E., and McLafferty, F. W. Tributyl phosphate for sepn. AcOH from HCl, 8948*s*.
**Paget, M.** Antivitamins, 7561*f*, see Langeron, L.
——— and Dhellemmes, G. Action of different agents on the pseudocholinesterasic activity of human serum (I) action of the principal sulfonamide derivs. and of *p*-aminobenzoic acid, 1484*i*.
——— and Huc, M. Procaine esterase and butelline esterase activities of human serum; detn. and results, 8049*e*
——— and Servantie, I. Diagnostic biol. methods applied to icterus, 8522*i*.
**Pagliani, G.** Gadolinite of Baveno, Italy, 2129*f*; zeolites in Baveno granite, 3320*d*, optical and chem. study of the gneiss of Pianasca (Villadossola), 4985*e*.
**Pagliardi, E.,** and Marossero, F. Fats and cholesteremia in thromboanginitis obliterans, 299*c*.
——— and Penati, F. Diazotization reaction in direct reaction with bilirubinemic serums, 1853*e*, color curve of the diazo compds. in icteric serums during the diazo reaction, 8516*c*.
**Pagones, J. N.** See Ershoff, B. H.
**Pai, B. R.** See Dey, B. B.
**Paice, E. S.** Wetting and detergency, 1202*a*.
**Paller, M.** Structure of emetine (II), 2624*c*; see Späth, E.
——— and Bilek, L. Hofmann degradation of quaternary $NH_4$ compds., 2624*c*.
——— and Müller, U. Constitution of photodimeric stilbene, 5020*e*.
**Paillard, H.** See Briner, E.
——— and Susz, B. E. Briner, 2825*c*.
**Pailleux, Mme. O.** See Gordon, E.
**Paine, C. F. H. S** Curd 5239*b*.
**Paine, S. W.** Pasteurization of beer, 3143*b*.
**Paine, T. F., Jr.,** Collins, H. S., and Finland, M. Bacteriologic studies on aureomycin, 274*e*.
**Painter, E. E.,** and Brues, A. M. Radiation syndrome, 6262*c*.
**Painter, H. A.,** and Zilva, S. S. Influence of bactericidal agents and of the absence of L-ascorbic acid on the accumulation of hydroxyphenyl compds. in the large intestine of guinea pigs after the consumption of high doses of L-tyrosine, 3898*h*
**Painter, J. H.,** Drosdoff, M., and Brown, R. T. Responses of bearing tung trees on Red Bay fine sandy loam to K and N, 9324*h*.
**Paist, W. D.** Stabilized ethylcellulose compns., P 4853*d*; see Baum, S. J.
——— and Berardinelli, F. Stabilized cellulose ether, P 6414*f*.
**Paiva, G. de.** See Guimarães, D.
**Paiva Abreu, A. de.** Recovery of pyrite from coal in the United States, 2907*a*; utilization of pyrite in domestic Brazilian coal (II) pyrites from coals at Santa Catarina and Paraná, 7209*c*.
**Paiva Azevedo, L. H.** See Monzoni, P.
**Pajenkamp, H.** Prepn. and Raman spectrum of cyclobutane, 5309*e*.
**Pake, G. E.** See Gutowksy, H. S
——— and Gutowsky, H. S. Nuclear relaxation in ice at −180°, 496*b*.
**Pál, A.** History of firemaking and match production, 8681*g*.
**Pal, A. B.** Stabilization of breakdown voltage and measurement of some crit. currents in a glow tube, 5235*g*
**Pal, B. C.,** and Das, B. M. Al tannage, 8720*c*.
**Pal, H. K.** Energy distribution of scattered x-rays, 2507*g*.
**Pal, J. C.** Estn. of traces of Mn and Cu in tonic preprns., 2735*e*.
———, Thakurta, S. R. G., and Basu, G. K. Assay of cryst. penicillin 5537*e*.
**Palache, C.** See Frondel, C.
**Palacios, G.** See Bhat, J. V.
**Palacios, J.** Termodinámica y mecanica estadistica (book), 8842*f*, see Salcedo, R.
———, Mora, A., and Infiesta, J. L. Piezoelec. indicator as a detector of detonation in internal-combustion engines, 5931*g*
**Palacios, J. M.** See Vivanco, F.
**Palacios Costa, N.,** Cioc, M., and Iravzoz, J. F. Early diagnosis of pregnancy based on the detn. of blood Fe, 3086*c*.
**Palade, R.** See Ripan, R.
**Paladini, A. C.** Measurement of surface tension, 5647*g*; see Caputto, R., Cardini, C. E; Jung, W., Leloir, L. F., Trucco, R. E.
———, Caputto, R., Leloir, L. F., Trucco, R. E, and Cardini, C. E. Synthesis of glucose 1,6-diphosphate, 9119*e*.
**Palafox, A. L.** Fresh green koa haole leaves in chick rations, 286*g*.
**Palandri, G.** Measurement of hysteresis and dynamic elastic modulus of textile yarns and cords, 2439*e*.
**Palasí, V. V.** See Villar Palasí, V.
**Palatnik, L. S.** See Urazovskii, S. S.
**Palazzo, F. C.** Derivs. of fulminic acid (I) substituted formoximes, 6983*b*, behavior of diazomethane, 7412*a*.
**Palazzo, G.** See Fusco, R.
**Palczewska, W.** See Tomassi, W.
**Palencia, J. N. de.** See Navarro de Palencia, J.
**Paleni, A.** Solvent extn. of oils from oleaginous seeds, 2450*e*.
**Palermiti, F. M.,** and Curran (Brother Columba). Molar refraction and H bonding, 604*g*.
**Palevskaya, S. D.** See Ryss, I. G.
**Palevsky, H.** See Hanson, A. O.
**Palfray, L.,** and Métayer, M. Prepn. of dimethylsalicylic acids, 2972*g*.
**Palin, A. T.** Estn. of free Cl and chloramine in water, 3545*b*.
**Palin, D. E.,** and Wadsworth, K. D. Structure of Cl, 7851*g*.
**Palisca, A.** See Berta, R.
**Palit, S. R.** High-polymer research, 437*a*, electronic interpretation of org. chemistry (III) effect of substituents on the strength of org. bases, 470*e*; see Sen-Gupta, Ranajit
**Paliwoda, M. A.,** and Duncan, G. W. Rust preventive, P 6148*i*.
**Palkin, V. A.** Ternary system $KNO_3$–$KClO_3$–KCl, 6902*g*.
**Palladin, A. V.** Antihemorrhagic agent, P 3153*a*.
**Palladina, O. K.,** Krotova, T. A., Mazyukevich, V. A., and Anoshkina, A. A. Normal acidophilic amylolytic intestinal flora, 1832*a*.
**Palladino, A. J.** De-inking of printed papers—waste disposal, 5948*d*.
**Pallan, L.** Synthetic aliphatic industry in America, 6335*b*.
**Pallanch, R. A.** Concn. at the Midvale mill, 77*h*.
**Pallan-Raschik, L.** See Späth, E.
**Pallares, E. S.** See Sodi Pallares, E.
**Pallaud, R.** Detn. of EtOH, 6946*b*.
**Pallay, N.** Water content of wood—effect of hygroscopic and fixed water on the tech. properties of woods, 8638*a*.
**Pallemaerts, F. A. F.** Underground gasification of solid fuels, P 1170*g*.
**Pallister, H. D.,** and Thoenen, J. R. Flake-graphite and V in Clay, Coosa, and Chilton Counties, Ala., 1694*f*; Cu-bearing pyrite ores, Pyriton, Clay County, Ala., 6949*h*.
**Pallister, P. R.** Sp. heat and resistivity of high-purity Fe up to 1250°, 2559*b*.
**Pallmann, H.,** and Deuel, H. Sol. methylene pectins of high-mol. wt., P 5887*h*; sol. pectic acid derivs., P 8072*g*.
———, Deuel, H., and Eichenberger, E. Pectins of definite combining wts., from pectins of high combining wts., P 4308*a*.
**Palluel, P.** Secondary emission from solids, 5660*g*.
**Palm, E.** Phosphate exchange between the blood and the eye, 1473*g*, penetration of various substances from the blood to the central nervous system and the eye, 1847*h*; see Emmelin, N
**Palm, J. H.** Yielding and aging of mild steel (I) yield phenomenon, (II) strain-aging of steel, 4200*c*
**Palm, J. W.** See Wirges, M. F.
**Palm, O.** See Predga, A.
**Palm, W. E.** See Hansen, J. R.
**Palma, E. de.** N elimination in pregnancy, 1848*b*.
**Palmatier, E. D.** See Brown, William W.
**Palmer, A.** See Bell, D. J.
**Palmer, D. H.** Germicides, Antiseptics, and Disinfectants for Hospital Use (book), 3978*a*, soap or synthetic 9492*b*
**Palmer, E. W.,** Irwin, J. P., and Fogg, C. C. Analysis of Cu-base alloys, 8952*a*
**Palmer, F. A.** Polymerization of isobutylene in the presence of controlled amts. of promoters, P 5991*c*; Butyl rubber polymerization reactor design, P 6859*d*
**Palmer, F. G.** Industrial stoving enamels (I), (II), 3213*f*
**Palmer, G., Jr.** Excess air in tunnel-kiln operation increases brick output, 372*g*.
**Palmer, G. D.** See Ham, W. S., Jr.
**Palmer, H. F.** Oxidized isoprene polymer as tackifier for synthetic rubber, P 2804*b*
**Palmer, K. J.** See Jones, F. T.
**Palmer, L. S.** See Gullickson, T. W.
**Palmer, R. C.** Effects of salts on sol ionized monolayers, 8796*h*
**Palmer, R. S.** See Loofbourow, D. G.
**Palmer, W. L.** See Kirsner, J. B; Levin, E., Ricketts, W. E., Sheffner, A. L.
———, Ricketts, W. E., and Hamann, A. Effect of achlorhydria on the course of chronic peptic ulcer, 8519*a*
**Palmes, E. D.** See Nelson, N.
**Palmisano, A.** App. for registering contractions of uterine muscle, 9198*f*; determinism of birth (I) presence of a uterokinetic substance in the uterus and ovular appendages (II) extn. and purification eutocin, 9198*g*.
**Palmiter, D. H.** Sooty blotch disease of pears and its control, 9348*b*; see Roberts, E. A.
**Palo, A. de.** See De Palo, A.
**Palóc, G.** Examn. of the blood serum in allergy, 9218*i*
**Palócz, I.,** and Solymár, J. Detn. of alc. and acetone in the blood, 7073*c*.
**Paloheimo, L.** Detn. of starch, 4036*h*.
**Pálos, L. A.** Effect of heparin on the inactivation of thrombin by heat, 8495*d*; effect of inhalation narcosis on the inactivation of thrombin, 8548*c*; effect of heparin on the oxidation of thrombin, 9199*e*; respiration and blood coagulation, 9206*a*; see Mosonyi, L.
**Palotai, G.,** and Sándor, G. Printing of fabrics of natural or regenerated cellulose, P 9473*h*.
**Pals, D. T. F.,** and Hermans, J. J. Concn. dependence of the viscosity of Na pectinate in solns. of NaCl, 7783*a*.
**Palti, J.** See Reichert, I.
**Palumbo, M.** Color reaction between *cis*-aconitic anhydride and tertiary amines, 3145*c*; color reactions of textile fibers and synthetic resins contg. tertiary amines, 8685*b*.
**Pal'velev, V. T.** Sorption of $CH_4$ on active C under high pressures, 1237*h*.
**Pamfilov, A. V.** See Devyatykh, G. G.; Starobinets, G. L.

—— and Ivancheva, E. G. Transformations of paint films (II) interaction between the pigment and the oil, 1991*b*.
—— and Pel'tikhin, S. V. Pigment properties of $TiO_2$, 5970*d*.
**Pamm, G.** See Briner, E.
**Pampana, E. J.** Malaria control by residual indoor spraying with DDT—testing residual toxicity and results, 9345*b*.
**Pamphiloff, A. W.** See Pamfilov, A. V.
**Pamukcu, A. M.** Pathology of nutritionally induced muscular dystrophy, 4351*h*.
**Pan, S.-C.** See Cliffton, E. E.
—— and Gardner, W. U. Carcinomas of the uterine cervix in estrogen- and androgen-treated hybrid mice, 2310*i*.
**P'an, S. Y.** Effect of sulfamethazine on the testes and accessory glands of normal and hypophysectomized rats, 759*i*.
**Pan American Refining Corp.** Desalting crude oils, P 1955*a*; alkylation process, P 4458*a*; vinyl resins plasticized with polyalkylnaphthalenes, P 9528*d*.
**Panarin, A. P.** Metallurgical powder from Satkinsk magnesite, 5714*f*
**Panas, J.** Urea-HCHO resins, 8197*e*.
**Panashchenko, A. D.** Content of lipoid P in the liver and the blood of rabbits in dependence on exogenous dietary factors (I) lipoid P content in various regions of the same portion of the liver, 5463*h*, cardio-aortal reflexogenous zone in the action of nitrites on respiration and blood pressure, 7142*f*; see Barbas, M. I
**Panassjuk, W. G.** See Panasyuk, V. G.
**Panasyuk, V. G.**, and Podobaeva, L. V Carbohydrates of cotton-plant husks by step-wise hydrolysis, 7225*b*.
**Panattoni, M.** Action of 3,5-dibromo-l-tyrosine on metamorphosis of amphibians, 7149*g*.
**Panchenkov, G. M.** Viscosity of liquids, 6024*c*.
**Pancirolli, F.** See Centola, G.
**Pancoast, H. M.** See Link, H. L.
**Pandalai, K. M.** See George, M.
—— and George, M. Action of penicillin, 5492*c*.
**Pandalai, N. G.** Bacteriology (book), 7087*i*.
**Pande, C. S.** See Nayar, M. R.
**Pande, J. N.** See Narayanamurti, D
**Pande, R. K.** See Mene, P. S
**Panditteseker, D. G.**, Ray, S. C., and Kehar, N. D. Utilization of by-products of starch manuf. from maize as cattle feeds (I) nutritive value of maize husk, (II) nutritive value of maize-oil cake, 6330*d*.
**Pandolfi, C.** See Belli, R.
**Pandolfo, G.** See Repetto, O. M
**Pandya, K. C.** See Gupta, R. C.; Nigam, R. G S.
—— and Bhandari, R. R. Condensation of aldehydes with amides (II) addendum—condensation of cinnamaldehyde with *n*-heptamide, 2600*g*; (XIII) dihydrocinnamaldehyde, 2000*h*.
**Paneth, F. A.** Exchange of ions between crystal surfaces and solns., 6047*e*; see Chackett, K. F.
**Paneth, H. R.** See Allen, J. S.
**Panessi, L.** See Quilico, A
**Panfilova, A. L.** Preventing wood rot, P 6357*c*.
**Pangalos, G. C.** Penicillin grown from a nutrient medium prepd. from chestnuts, 4340*e*.
**Pangborn, M. C.** Prepn. of cardiolipin and lecithin—cardiolipin, 1321*h*; cardiolipin, P 1914*a*.
**Pani, P.**, Bonetti, A., and D'Alessandro, A. Underground gasification expts. at the Valdarno lignite fields, 7210*f*.
**Paniagua, C.** See Martinez-Moreno, J. M.
**Paniagua, G.** See Jiménez Díaz, C.
**Paniagua, J. A.**, and Candela, J. L. R. Alloxan diabetes (VIII) influence of thiouracil on glycogen deposits in animals suffering from alloxan diabetes, 2304*f*.
**Panijel, J.** Effect of bile salts on gram-pos. protein complexes, 269*d*.
**Panin, B. M.** See Kotov, E. I.
**Panina, O. K.** See Dolgov, B. N.
**Panisset, M.** Chemotherapy of tuberculosis and new tuberculocidic and tuberculostatic substances, 3528*c*.
**Panissi, L.** See Quilico, A.
**Pankhurst, K. G. A.** Hard cure brought about by alk. curing salts, 8184*g*; formation of complexes between gelatin and Na alkyl sulfates, 8801*g*; see Ellis, S. C.; Innes, R. F.; Lloyd, D. J.
**Pankopf, R.** See Drekter, L.
**Pankova, L. L.** See Yatsimirskii, K. B.
**Pankova, N. A.** See Kononova, M. M.
**Pankow, T.** See Schikore, W.
**Pannain, L.** Chimica organica (book), 7496*d*.
**Pannell, E. V.** Mg (book), 2151*h*.
**Pannell, J. H.** See Gaudin, A. M.
**Pannetier, G.** Inhibitory action of $SO_2$ in the formation of C during combustion by reactions between free radicals, 4145*a*; action of $H_2S$ in the combustion of $C_2N_2$, 6053*i*; gas-phase combustion, 7663*d*.
**Panofsky, W. K. H.**, and Martinelli, E. A. Magnetic deflector for mesons produced in the 184-inch cyclotron, 5663*c*.
—— and Phillips, R. *p,d* Reaction in C, 1646*g*.
——, Richman, C., and Oppenheimer, F. Control of the field distribution in the linear accelerator cavity, 4093*b*.
**Pansements Brevetés Corbière.** Disubstituted amides of dicarboxylic acids, P 5038*a*.
**Panseri, C.** L'alluminio e le sue leghe. Vol. I. Metallurgia e metallografia, 4998*b*; Vol. II. Caratteristiche fisico-meccaniche e tecnologiche (book), 4998*b*.
—— and Monticelli, M. Influence of V on the properties of Al, 533*h*.
**Pansy, F. E.** See Rake, G.
**Pantaléon, J.** See Le Breton, É.
**Pantanelli, E.** EtOH from *Urginea maritima*, 5092*d*
**Pantchenkow, G. M.** See Panchenkov, G M.
**Panteleev, A. S.** See Yung, V. N
**Panteleyev, A. S.** See Panteleev, A. S
**Pantlitschko, H.**, Benger, H., and Schmid, J. Detn. of antistine in biol. materials, 8422*c*.
**Pantsios, A. A.** See Truhlar, J.
**Panuš, K.** See Přistoupil, V.
**Pany, J.** See Barrenscheen, H. K.
**Panzer, F.** See Pearson, P. B.
**Paola, G. di.** See Di Paola, G.
**Paolantonio, U.**, and D'Eramo, N. Vitamin-C action in leucocytosis from splenectomy, 7099*i*
**Paoletti, M.** See Tarantino, C.
**Paolino, W.**, and Vergnano, F. Action of folic acid on gastric secretion, 8051*i*.
**Paolis, P. F. de.** See De Paolis, P. F.
**Paoloni, A.** Production of Ba compds. in the elec furnace, 6519*a*, 7351*d*; phosphatic fertilizer, P 8596*e*.
**Paoloni, C.** Insecticide, P 8090*e*.
**Paouchkine, J. M.** See Paushkin, Ya. M.
**Papa, D.** X-ray diagnostic agents—2-(3,5-diiodo-4-hydroxybenzyl)benzoic acid, 9376*b*; see Klingsberg, E.; Schwenk, E.; Sperber, N.
—— and Schwenk, E. Hydrogenation of naphthalene compds., P 7510*i*
——, Schwenk, E., and Breiger, H. Reductions with Ni-Al alloy and aq alkali (VI) naphthalene and its substitution products, 7010*g*
——, Schwenk, E., Villani, F., and Klingsberg, E. β-Aroylacrylic acids, 606*i*.
**Papageorge, E.**, and Mitchell, G. L., Jr. Effect of oral administration of rutin on blood, liver, and adrenal ascorbic acid and on liver and adrenal cholesterol in guinea pigs, 5834*c*.
**Papaleksi, N. D.** Kurs fiziki (book), 2502*f*.
**Pape, M.** See Soehring, K.
**Papernov, L. Z.** See Bogdanov, I. F.
**Paper Patents Co.** Panel facings for wood surfaces, P 1188*d*; chalk, P 4821*b*; poplar mech. or groundwood pulps contg. rot in high-grade book paper, P 6826*f*.
**Papierfabrik Cham, A.-G.** Hollander beater, P 3198*c*.
**Papini, P.** See Passerini, M.
**Papko, S. I.** Oxidation of aq. solns. of $NH_3$ by ozonized O, 8825*d*.
**Papo, R.** See Weizmann, M.
**Papp, E.**, and Pogány, J. Changes of chem. equil. of solns. of $K_2CO_3$ and $KHCO_3$, 8806*d*; titration of hypochlorites, 8967*a*.
**Papp, F.** See Balyi, K.
**Papp, G.** See Bay, Z.
**Papp, S.** Calcn. of pH values of Ca H carbonate solns. of various concns. free from $H_2CO_3$, 9806*f*.
**Pappalardo, A.** Nozioni di chimica generale ed inorganica (book), 478*g*; Analisi chimica quantitativa (book), 7870*g*; Chimica organica (book), 7949*b*; Chimica organica e industriale (book), 7949*e*.
**Pappalardo, G.** See Aiello, T.
**Pappalardo, P.** See Platania, S.
**Pappas, A. C.** 1,2-Diiodoethene, 6568*a*, use of porous materials to store dissolved $C_2H_2$ in bottles, 7212*c*; purification of Ca, 7851*d*.
**Pappenheimer, A. M., Jr.** Chemistry and pharmacology of bacterial toxins, 3879*b*.
**Papper, E. M.** See Shaw, Wallace M.
——, Brodie, B. B., Lief, P. A., and Rovenstine, E. A. Pharmacol. properties of procaine and diethylaminoethanol, 315*i*.
**Papulova, I. N.** See Epshtein, D. A.
**Paquette, D. G.** See Edson, A. P.
**Paquette, R. B.** Reforming of hydrocarbons in water-gas sets (II) reforming of natural gas, 6393*e*; reforming of natural gas produces plant expense problems, 7666*c*.
**Paquin, A. M.** Reaction products of urea with aldehydes and $NH_3$ or amine bases, 1782*d*; reactions and compds. of sulfamide, 2573*c*; urea and sulfamide resins (II), 5995*g*.
**Paquot, C.** See Bouquet, F.; Perron, R; Reutenauer, G
—— and Najand, A Extn. of sesame oil by selective solvents, 4032*b*.
—— and Nicoud, G. Esterification of mannitol with lauroyl chloride in pyridine, 5741*a*.
—— and Perron, R. Action of HCHO upon fatty acids in aq soln. at high temps., 567*c*, detn of sapon no of waxes, 5211*h*.
—— and Richet, H. Hydrolysis of triglycerides, 2793*b*.
**Paradiso, F.**, and Roccuzzo, M. Ca content of blood and liver function in visceral leishmaniasis of children, 2313*e*.
**Paraffine Companies, Inc.** Asbestos-Al coating comps., P 8706*a*.
**Paramonova, G. D.** See Sharkov, V. I
**Paranho, U.** Tartar emetic, 451*e*.
**Parant, M.** See Vincent, D.
**Parashar, D. R.**, Shanker, K., and Lall, S. B Chem compn. of raw juice and behavior in sulfitation plants in India (I), 6846*g*.
**Parche, M. C.** Chemistry of SiC, 8897*g*.
**Pardee, A. B.** O uptake under controlled pressures of $CO_2$, 8750*b*
—— and Pauling, L. Serological properties of simple substances (XIV) reaction of simple antigens with purified antibody, 3516*f*.
—— and Potter, V. R Inhibition of succinic dehydrogenase by oxalacetate, 2259*b*; malonate inhibition of oxidations in the Krebs tricarboxylic acid cycle, 5064*c*.
—— and Swingle, S. M. Degree of assocn. of some simple antigens, 3266*a*.
**Pardee, J. T.** See Gibson, R.
**Pardillo Vaquer, F.** Kaliborite from Salent (Barcelona), 8984*g*.
**Pardo, E. G.** See Del Pozo, E. C
**Pardon, M.** See Schockaert, J. A.
**Pardova, I.** See Monnier, D.
**Pardue, L.** See Hoover, J. I.
**Paredes, C. H. de.** See Hérnández de Paredes, C.
**Paredes Manrique, R.** See Hérnández de Paredes, C.
**Pareira, M. D.**, and Probstein, J. G. Glucose assimilation during anesthesia and surgery, 5850*c*.
**Parekh, H. V.** See Mattiello, J. J.
**Parekh, V. M.** See Daruwala, E. D.
**Parencia, C. R., Jr.** See Ewing, K. P.
—— and Ewing, K. P. Control of the cotton fleahopper by chlorinated camphene, DDT, and S, 1143*f*.
**Parent, J. D.** Storage of natural gas as hydrate, 1946*c*.
—— and Katz, S. Equil. compns. and enthalpy changes for the reactions of C, O, and steam, 2076*g*.
**Paretti, E. A.** Variables affecting countercurrent decantation, 6132*i*.
**Parfenov, A. M.** Magnetizing roast of Fe ores, 3326*e*.
**Parfenov, E. G.** See Bobrik, I. P.
**Parfentjev, I. A.** Modified protein, P 6757*g*.
—— and Schleyer, W. L. Influence of histamine on the blood sugar level of normal and sensitized mice, 8518*g*.
—— and Weil, A. J. Toxins and toxoids, P 3066*i*.
**Parfianovich, I. A.** Penetration of Pd ions into rock salt crystals, 3684*c*; luminescence of the NaCl-Ni phosphor, 5070*d*.
**Pargal, H. K.**, and Dutt, S. Chem. examn. of the fixed oil derived from the seeds of *Setaria italica*, 4496*f*.
**Parham, B. A.** See Burton, G. W.
**Parham, W. E.** See Arnold, R. T.

—— and Anderson, E. L. Protection of hydroxy groups, 2203*h*.
—— and Reed, L. J. Ethyl (ethoxymethylene)malonate, 1725*b*.
**Pariaud, J. C.** Phys. properties of solns. of camphor in $CCl_4$, 4543*d*.
—— and Chapas, G. Optical activity of camphor in anhyd. and hydrous solvents, 8813*a*; optical activity of derivs. of camphor, 8813*e*.
**Parihar, D. B.**, and Dutt, S. Chem. examn. of the essential oil of *Artemisia scoparia*, 1155*a*.
**Paris, A. S.** See Cuttino, J. T.
**Paris, J.** See Barthe, R.
**Paris, R.** Blackening of *Globularia alypum* leaves, 6704*c*; *Erythrophleum* from Indo-China, 8101*a*; curare (I) history and botanical origin, 9378*c*; rutin prepn. from various species of buckwheat cultivated in France, 9384*c*; see Lamberger, J.; Rosset, J.
—— and Mérac, M. L. du. Resin content and physiol. activity of hemp grown in the region of Paris, 9377*i*.
—— and Moyse-Mignon, H. *Fagara viridis* and *Fagara parvifolia*, 5546*e*; chem. and pharmacodynamic study of a Loganiaceae of Gabon—*Mostuea stimulans*, 9381*e*.
and Vairel, C. Effect of iboga and ibogaine on the muscle chronaxie, 4772*e*.
**Paris, S. K.** See Collier, H. O. J.
**Pariser, E. R.** See Sulzbacher, M.; Weizmann, C.
**Parish, H. J.** Bacterial and Virus Diseases (book), 755*h*.
**Parisot, A.** Constantes et données numériques des corps purs de la chimie des corps gras (book), 6843*f*.
**Parisot, J.** C blacks, 8648*c*.
**Park, C. F., Jr.**, and McKinlay, P. F. Geology and ore deposits of Red River and Twining districts, Taos County, N. Mexico, 1691*i*.
**Park, C. R.** See Nelson, N.
**Park, D.**, and Epstein, H. T. Planck radiation formula, 8842*i*.
**Park, G. S.** See Crank, J.
**Park, H. F.** Stabilized polyvinyl chloride, P 2468*a*.
**Park, J. D.** See Benning, A. F.; Lacher, J. R.
——, Sharrah, M. L., and Lacher, J. R. Addn. of HBr to fluorinated olefins, 7407*b*; action of an alc. on perfluorocyclobutene, 7418*f*.
**Park, J. G.** Fundamentals of market research, 3117*f*.
**Parkash, O.** Temp. dependence of counter characteristics in self-quenching G.-M. counters, 8863*c*.
**Park Chemical Co.** Rectifying a neutral molten salt steel-treating bath, P 6145*a*.
**Parke, T. V.** See Davis, W. W.; Kornfeld, E. C.
**Parke, Davis & Co.** (*Patents.*) Antianemia vitamin product, 364*e*; thiosemicarbazide, 1057*d*; aryl amines, 1061*i*; acridine derivs., 1068*b*, 7516*a*; benzhydryl amino ethers, 2234*i*, 5803*g*; *N*-alkyldiaminodiphenyl sulfones, 2637*f*; quaternary $NH_4$ halides, 2640*g*, 5045*h*; 5-alkoxyalkyl, 5-cyclohexyl hydantoins, 3452*f*; substituted benzhydryl ethers, 3462*f*; quaternary $NH_4$ derivs. of benzhydryl ethers, 3462*i*; dialkylaminoalkylbenzhydryl ethers and their salts, 3463*c*; (aminomethyl)phenols, 4695*h*; 2-amino-4-(aminoalkylamino)pyrimidines, 4704*b*; 1-allyl-5-phenylhydantoin, 4818*b*; 5,5-di-2-thienylhydantoin, 5805*i*; 4-morpholinylalkyl diphenylacetates, 6673*c*; cellulosic products, 6792*i*; carboalkoxy alkylcarboalkoxy sulfides, 7504*d*; quinoline compds., 7514*b*, 9085*g*; stabilization of aromatic compds., 7647*d*; acylaminothiazolyl phenyl sulfides, 9086*c*; injectable penicillin compns., 9390*c*.
**Parker, C. A.** Sepn. of *N*-nitroso-*N*-ethylaniline and some of its nitro derivs. from propellant explosives, 3617*d*; reaction of $HNO_2$ with alc. α-naphthylamine-HCl and its application to the detn. of nitrites, 5338*b*; see Ovenston, T. C. J.
**Parker, C. F.** Cold-mix bituminous concrete, 7660*e*.
**Parker, C. M.** Steel compns. and specifications, 4994*g*; research and quality in the steel industry, 9007*g*.
**Parker, D.** See McKelvey, J. J.
**Parker, D. W.** See Robinson Brothers Ltd.
**Parker, E. A.** Barrel Au plating, 6924*g*.
**Parker, E. D.**, and Goldblatt, L. A. Identifying isobutylene, 8975*b*.
**Parker, E. R.** See Boodberg, A.; Jones, W. W.; Stewart, W. S.
**Parker, F., Jr.** See Robbins, S. L.
**Parker, G. W.** See Cohn, W. E.
**Parker, H. C.** Multi-tray water clarifier with skimming and recycling arrangement, P 7615*b*.
**Parker, H. K.** Application of Dyox to flour, 6325*e*.
**Parker, H. M.** Health-physics, instrumentation, and radiation protection, 4710*c*.
**Parker, J. A.** See Hazel, F.
**Parker, J. E.**, and Barton, O. A. Feeding of laying hens, 9192*h*.
**Parker, J. H.** Polyallylamine, P 2468*h*.
**Parker, J. M., III.** New Jersey's potential feldspar resources, 74*g*.
**Parker, J. R.** Insecticides for grasshopper control, 7185*f*; toxaphene residues (I) applications to alfalfa for the study of residues and their effects on livestock, 8600*f*.
**Parker, J. V.**, Hirayama, C., and MacDougall, F. H. Equil. in solns. of Ag monochloroacetate in water and in 10% alc., 7793*e*.
**Parker, K.**, and Wagner, E. F. Recent developments in Al stearates, 9425*b*
**Parker, L. D.** Rotary kiln for burning cement, ore, etc., P 8116*i*
**Parker, M. E.** Food-Plant Sanitation (book), 1502*a*.
**Parker, M. W.**, and Borthwick, H. A. Growth and compn. of Biloxi soybean, 8017*e*.
**Parker, P. T.** Oxidation of ethers to aldehydes, P 8398*d*; see Vanderbilt, B. M.
**Parker, R. C.** See Morgan, Joseph F.
**Parker, R. G.** Mech. firing (I) application of automatic underfeed stokers to a salt-glaze rectangular kiln, 2391*f*
**Parker, R. P.** See Lecher, H. Z. and Denton, J. J. Alkenoxyaminodiphenylamines, P 856*d*
, Reeves, R. E., and Conn, R. C. Acyl nitro arylides, P 3033*h*
**Parker, W. A.** Plasma concns. of salicylate, 765*h*, 6311*c*.
**Parker, W. G.** See Eggersgluess, W.; Wolfhard, H. G.
**Parker Appliance Co.** Antiseize and sealing compn., P 1221*c*; coating Mg and Mg alloys, P 2567*g*
**Parker Rust Proof Co.** Accelerating phosphate coating with indigosol compds., P 3772*c*; phosphatic coatings of metals, P 7895*c*.
**Parkersburg Rig & Reel Co.** Oil and water separator for oil-well fluids, P 385*h*
**Parkes, A. E.** Detn. of available $CO_2$ in baking powders, etc., 7153*g*.
**Parkes, G. D.** Substitution in 3,4-dialkylphenols, 3385*f*.
—— and Farthing, A. C. Derivs. of 2,4,6-trinitrotoluene—monoreduction of polynitro compds., 592*d*
**Parkhomovskii, I. A.**, and Shur, M. F. Fourcault boat (debiteuse) for horizontal drawing of sheet glass, P 6386*e*.
**Parkin, E. A.** DDT impregnation of sacks for the protection of stored cereals against insect infestation, 347*d*.
**Parkinson, A.** See Imperial Chemical Industries Ltd.
**Parkinson, D.** Reënforcing furnace blacks, 7251*i*.
—— and Blanchard, A. F. Configuration of C particles in rubber, 8722*i*.
**Parkinson, E. S.** See Levy, G. B.
**Parkinson, G. B.** See Mann, W. B.
**Parkinson, T. F.** See Jones, E. A.
**Parkinson, W. W., Jr.**, and Williams, F. E. Vacuum ultraviolet monochromator for absorption and photocond. measurements on luminescent solids, 8281*e*.
**Parks, G. S.** History of thermochemistry, 4909*a*.
**Parks, L. M.** See Chatterjee, A.; Poetsch, C. E.
**Parks, R. D.** Examination and Valuation of Mineral Property (book), 4986*g*.
**Parks, R. E., Jr.** See Kidder, G. W.
**Parks, R. Q.** See Reitemeier, R. F.
**Parks, T. D.**, Johnson, H. O., and Lykken, L. Errors in the use of a model 18 Perkin-Elmer flame photometer for the detn. of the alkali metals, 59*h*.
—— and Lykken, L. Sepn. and microdetn. of Al, 1281*e*.
**Parks, T. H.** See Cutright, C. R.
**Parks, W.**, and Richards, R. B. Effect of pressure on the vol., thermodynamic properties, and crystallinity of polythene, 5249*i*.
**Parks, W. G.**, *et al.* Conditions affecting the application of vat colors, 3620*e*.
**Parlato, A.** See Deleo, E.
**Parlin, R. B.** See Eyring, H.
and Eyring, H. Binary solns. of imperfect liquids, 4542*i*.
**Parmeggiani, L.** See Capellini, A.
**Parmelee, A. H.** See Glaser, K.; Hoffman, W. S.
**Parmelee, C. W.** Ceramic Glazes (book), 8632*h*.
**Parmer, L. G.**, and Cottrill, C. W. Distribution of emetine in tissues, 7592*b*.
**Parmerter, S. M.** 1,2-Diphenylcyclohexane, 4233*c*.
**Parmington, S. L.** See Adolph, E. F.
**Parmley, T. J.** See Moyer, B. J.
——, Moyer, B. J., and Lilly, R. C. Radioactivities of some high-mass isotopes of Co, 4119*i*.
**Parnes Rossia, T.** See Sacerdote de Lustig, E.
**Parodi-Delfino, B.** See Bombrini Parodi-Delfino
**Paronetto, L.** Acid content changes during must concn., 6779*b*; wine manuf. with pectolytic enzymes, 6780*d*.
**Parpart, A. K.** Chemistry and Physiology of Growth (book), 3867*i*.
——, Gregg, J. R., Lorenz, P. B., Parpart, E. R., and Chase, A. M. Whole blood preservation—general physiology—analysis of storage, 6690*f*.
——, Lorenz, P. B., Parpart, E. R., Gregg, J. R., and Chase, A. M. Osmotic resistance of human red cells, 7110*a*.
**Parpart, E. R.** See Parpart, A. K.
**Parr, R. G.**, and Crawford, B. L. Certain integrals useful in mol. orbital calcns., 451*f*.
**Parra, R. de la.** See Croxatto, H.
**Parra Lleras, H.** See Sarmiento Soto, R.
**Parravano, G.** Sepn. of stable isotopes, 7319*d*; stable isotopes, their analysis and utilization, 7319*d*.
**Parrini, V.** See Musante, C.
**Parris, G. K.**, and Stover, L. H. Spraying grapes for disease control in Florida, 3133*f*
**Parrish, D. B.** See Chilson, W. H.; Mitchell, H. L.; Neff, A. W.
——, Wise, G. H., Hughes, J. S., and Atkeson, F. W. Properties of colostrum of the dairy cow (II) effect of prepartal rations upon the nitrogenous constituents, 740*h*.
**Parrod, J.** α-Keto-β-(benzylmercapto)propionic acid, 607*h*; formation of *p*-iodophenylmercapturic acid from admin. istered α-oxo-β(*p*-iodophenylmercapto)-propionic acid, 3527*e*.
**Parrot, J. L.** Fixation of histamine by tissues of the guinea pig, and its liberation by a diamine, 1108*a*; see Burstein, M.
**Parry, C. B. W.** See Vane, J. R.; Walker, J. M.
**Parry, G. S.**, and Pitt, G. J. Derivation of atomic coördinates from planar and linear Fourier syntheses, 7816*d*.
**Parry, V. F.** Reducing Fe ores, P 5727*f*.
——, Goodman, J. B., and Wagner, E. O. Drying coals in the entrained and fluidized state, 3991*g*.
**Parsegian, V. L.**, Titone, L. V., and Van der Merwe, C. W. Cross-section measurements using fast continuous-energy neutrons, 4096*c*.
**Parshad, R.** Supersonic waves in $H_2O$-alc.-NaCl mixt. and analysis of its intermol. action, 5652*c*.
—— and Karim, S. Decrease of an elec. discharge by external radiation, 8862*f*.
**Parson, W.** See Mayerson, H. S.; Nieset, R. T.
——, Mayerson, H. S., Lyons, C., Porter, B., and Trautman, W. V., Jr. Effect of the administration of adrenaline on the circulating red cell vol., 5122*a*.
**Parsons, A. B.** Seventy-five Years of Progress in the Mineral Industry (book), 1503*i*.
**Parsons, C. S.**, *et al.* Canadian mineral industry, 3749*h*.
**Parsons, D.** See Revertex Ltd.
**Parsons, D. S.** See Fisher, R. B.
**Parsons, E. H.**, Gildea, E. F., **Ronzoni, E.**, and Hulbert, S. Z. Comparative lymphocytic and biochem. responses of patients with schizophrenia and affective disorders to electroshock, insulin shock, and epinephrine, 3924*d*.
**Parsons, H. L.** Handbook of Textile Technology. No. 4. Jute (book), 4019*d*; alk. scouring of dry spun flax yarns—effect on phys. properties of yarn and fabric, 7691*e*.

**Parsons, H. T.** See Garber, M.; Odland, L. M.
**Parsons, J. A.** See Baker, Guy A.
**Parsons, J. H.** Diseases of the Eye (book), 755*h*.
**Parsons, J. L.** See Morrow, R. W.
**Parsons, J. R.** Dense products from cement material, P 374*d*; manuf. of light weight products, P 374*g*.
**Parsons, J. S.** See Hafford, B. C.
**Parsons, J. W.** See Newell, W. C.
**Parsons, John W.** See Gay, L. N.
**Parsons, L. D.** See Barakan, T. H.
**Parsons, R.** See Bockris, J. O'M.
**Parsy, G.** Tannin analysis, 8719*c*.
**Parthasarathy, C.** See Mukhopadhyay, B. K.
**Parthasarathy, D.** See Mukherjee, R.
—— and Mukherjee, R. Mn content of poultry feeds, 6331*a*.
**Parthenon, A.** 5,7 - Dichloro - 8 - hydroxyquinaldine, P 6242*b*.
**Partington, J. R.** Thermodynamics, 475*h*; alchemy and early chemistry, 2049*f*; T. Thomson, 7761*g*.
—— and Whynes, A. L. Action of nitrosyl chloride on metals and their compds., 3305*g*
**Partington, R. G.** Labile mols in the kinetics of hydrocarbon reactions (II) rates of thermal decompn. of satd. hydrocarbons, 5269*d*.
—— and Danby, C. J. Thermal decompn of hexane, 6056*a*.
**Parton, W. J.** Application of screening and classification for anthracite recovery, 2404*f*; anthracite, 6550*i*.
**Partridge, C. W. H.** See Melville, D. B.
**Partridge, E. D.** Teaching aids for science, 6015*c*.
**Partridge, E. G.,** and Hansen, M. E. Drying of latex rubber deposits, 1207*a*.
**Partridge, E. P.** Phosphates—nomenclature, 3251*h*.
—— and Texter, C. R. Calgon—chem. development from a nonchem. background, 4058*f*.
**Partridge, G. B.** Mg castings and Britain's industrial recovery, 9006*c*.
**Partridge, H. W.** Manufacturer and dyer in tech partnership, 9455*a*.
**Partridge, J. H.** See General Electric Co. Ltd.; Manners, M.
**Partridge, M. W.** See Boots Pure Drug Co., Ltd.; Evans, W. C.; Short, W. F.
**Partridge, S. M.** Chemistry of connective tissues (I) fate of combination of chondroitin sulfate in cartilage, 3910*h*, displacement chromatography on synthetic ion-exchange resins (III) fractionation of a protein hydrolyzate, 8807*b*.
—— and Brimley, R. C. Displacement chromatography on synthetic ion-exchange resins (II) sepn. of org. acids and acidic amino acids, 8807*a*.
—— and Westall, R. G. Displacement chromatography on synthetic ion-exchange resins (I) sepn. of org. bases and amino acids, 8806*h*.
**Partridge, W. A.,** and Alty, H. J. Additive for stabilizing leaded gasolines, P 2423*d*.
**Partridge, W. S.** See Stover, C. N., Jr.
**Parvis, D.** Ascorbic acid and heat regulation, 736*c*.
**Pasargiklian, M.** Effect of insulin on ketone metabolism, 6727*i*.
**Pascal, M. W.** Recovery of proteins from castor beans, P 4899*e*; solvent extn. of vegetable oils, P 5214*f*; solvent extn. of castor oil, P 5214*i*.
**Pascal, P. V. H.** Chimie générale. T. I. Atomistique (book), 6904*f*.
**Paschke, R. F.** See Cowan, J. C.
—— and Wheeler, D. H. Polymerization of unsatd. fatty esters—normal methyl linoleate, 5974*g*.
**Paschkis, K. E.** See Cantarow, A.; De Meio, R. H.; Rupp, J.
——, Cantarow, A., and Peacock, W. C. Influence of estrogens on thyroid function as measured by uptake of radioactive I, 295*c*.
——, Cantarow, A., and Stasney, J. Influence of thiouracil on carcinoma induced by 2-acetaminofluorene, 1857*i*.
**Paschkis, V.** Heat-flow research in the glass industry and the ceramic industry, 828*e*.
**Pascoe, T. A.** See Bringman, R. E.
**Pascual, J.** See Pascual Vila, J.
**Pascual, J. A.** *p*-Hydroxybenzenearsonous acid, P 1804*d*; Na 4,4′-dihydroxy-3,3′-diaminoarsenobenzenemethanesulfoxylate, P 1804*e*.
**Pascual Talavera, M.** See Hoyos de Castro, A.
**Pascual Teresa, J. de.** Reaction of org. sulfides with $AuCl_3$, 5323*b*; (II) prepn. of auro dialkyl sulfides, 1313*c*.
**Pascual Vila, J.,** and Ballester, M. Esters of *o*-dicarboxylic acids—differential reaction with normal isomeric esters, 8368*f*.
**Pasdermadjian, H.** Mineral position of ECA nations (IX) Denmark, 3118*g*.
**Pasechnik, M. V.** See Gel, V. V.
**Pasfield, G.** DDT for thrips on tomatoes—effect on incidence of spotted wilt, 7184*b*.
—— and Bryden, J. D. Codling-moth control—DDT, "666," and Pb arsenate, 3965*b*.
**Pashaeva, K.** See Gauzer, E.
**Pasini, C.** See Dansi, A.
**Paskhina, T. S.** See Braunshtein, A. E.
**Paslier, R. le.** See Le Paslier, R.
**Pasquale, F. de.** See De Pasquale, F.
**Pasquier, M. A.** Ca content of the serum and whole blood, 8510*g*; see Urbain, A.
**Pasquinelli, F.** Significance of $NH_3$ in the human placenta, 3086*g*; see Tarantino, C.
**Pasquini, V.** See Caniggia, A.
**Passal, F.** Articles having fissured Cr surface electrodeposits, P 2878*i*.
**Passalacqua, F.** Name changed to Passal, F.
**Passau, G.** Mineral deposits under the basalt of Kivu (Belgian Congo), 1291*h*.
**Passelecq, G.** Electrolysis of alkali metals, P 3733*g*.
**Passera, G.** See Marconi, R.
**Passerini, M.,** Mazzetti, G., Donatelli, L., and Terni, M. Caffeic acid extd. from *Helichrysum italicum* and its antibacterial properties, 4327*g*.
—— and Papini, P. Caffeic acid in plants and their exts., 2283*g*.
**Passerini, R.** See Colonna, M.
**Passino, H. J.** Solexol process, 2787*g*; alkylation with a double fluoride catalyst, P 3435*g*; see McGrath, H. G.
—— and Meyers, J. M. Low-boiling solvent fractionation of oils, P 5215*g*.
**Passitschnik, M. V.** See Pasechnik, M. V.
**Passos Guimarães, J. E.,** Alves Ferreira, R., and Fabio Barbosa, A. Limestones in the south of the state of São Paulo, 3324*b*.
**Pasynskii, A.** See Pasynskii, A. G.
**Pastac, I. A.** Methodology of agrochem. research, 3551*f*.
**Pastant, R.** See Bolfa, J.
**Pasternack, D. S.** See Clark, K. A.
**Pasternak, E.** See Zawadzki, J.
**Pasternak, R.** Complex formation of benzil with $H_3BO_3$—equil. and reaction-velocity detns. with the polarograph, 6894*a*.
**Pastonesi, G.** Production of H from $CH_4$, 9415*g*.
**Pastor, L. C.** See Caballero Pastor, L.
**Pastore, G.,** and Andreae, D., & Co. Thread of vinyl polymer and silk, P 4489*a*.
**Pastore, S.** Economy in the tech. production analytical lab., 6103*g*.
**Pastour, P.** See Meyer, André
**Pastýřik, L.** See Němec, B.
**Pasuinski, A.** See Pasynskii, A. G.
**Pasvik-Khlopina, M. A.** See Antipov-Karataev, I. N.
**Pasynskii, A. G.** Reactions of proteins with nonelectrolytes and org. electrolytes, 3050*d*; see Chernyak, R.; Dogadkin, B.
—— and Korolev, A. Effect of nonelectrolytes on the isoionic point of proteins, 6888*e*.
——, Talmud, B. A., and Talmud, D. L. Globulin proteins (V) synthesis of protein-like substances in the globulin condition, 6170*e*.
**Pat, Y.** Dichlorophenoxyacetic acid as an herbicide, 9338*g*.
**Patai, S.** See Weizmann, M.
**Pataky, I.** Effect of thiourea derivs. on the O uptake of yeast cells, 4725*g*.
**Patat, F.,** and Weidlich, P. Catalytic formation of vinyl chloride on contact with metal salts, 6969*g*.
**Pate, B. D.** See Holness, H.
**Pate, L. A.** Filter with removable core for oil lubrication systems of internal combustion engines, P 4458*e*.
**Patek, A. J., Jr.,** Pellegrino, E., Colcher, A., and Domanski, B. Diurnal excretion of urobilinogen in the urine, 3081*d*.
**Patel, B. M.,** and Ray, S. C. Cottonseed feeding of milch animals (II) quality of ghee from buffalo fed on cottonseed in combination with dry or green fodder, 6330*e*.
**Patel, B. N.,** Jenkins, G. L., and DeKay, H. G. Infrared drying of tablet granulations (I), (II), 8609*a*.
**Patel, C. S.** Water in textile industry, 6829*c*.
**Patel, D. K.,** and Viswanath, B. Indian soils (XI) phosphate fixation capacities of soils, 9312*c*.
**Patel, D. M.** See Anand, N.
**Patel, S. R.,** and Nargund, K. S. Acridine derivs. as antimalarials, (I) 5-amino derivs. of 3,7-dimethoxyacridine, (II) 5-amino derivs. of 3,7-dimethoxy-6-chloro- and 3,7 - dimethoxy - 8 - chloroacridine, 6632*h*.
**"Patelhold," Patentverwertungs- & Elektro - Holding A. - G.** (*Patents.*) High-frequency elec. discharges producing chem. reactions in a flowing gas, 2881*c*; piezoelec. oscillating crystal, 3735*a*, 6098*f*; surface hardening of metal parts, 4625*b*, 8290*a*; vacuum-tight joining of ceramic bodies, 4824*f*; growing crystals, 5236*g*, 7760*ef*; evapn. of the carrier liquid in fine dispersion and suspensions, 6012*g*; cyclotron design, 7351*c*.
**Patent and Licensing Corp.** Thickening latex, P 3227*a*; bituminous emulsions, P 5186*g*; dispersions of Butyl rubber, P 9519*i*.
**Paterson, E.,** Gilbert, C. W., Gallagher, U. M., and Hendry, J. A. Metabolism of the estrogen triphenylbromoethylene, 7106*h*.
**Paterson, E. V.** Progress in lubrication, 2416*a*, 8659*a*; improvements in modern lubricating oils, 7219*a*.
**Paterson, G. R.,** and Spencer, E. Y. Factors affecting the cyanogenetic content of flax, 8015*g*.
**Paterson, J. S.,** and Pirie, N. W. Chem. and biol. properties of antigenic fractions from *Brucella abortus*, 9236*h*.
**Paterson, S.** Reflection of a plane shock wave at a gaseous interface, 3677*e*.
**Pates, A. L.** Precipitin reactions in histoplasmosis and blastomycosis, 752*c*.
**Pathak, A. N.** See Shrikhande, J. G.
**Pathak, B.,** and Ghosh, T. N. Organoarsenical compds. (II) synthesis of *p*-guanylbenzenearsenous acid, 7449*e*.
**Pathak, S. P.** See Hilditch, T. P.
**Patiño Salazar, R.** See Pimenta de Mello, R.
**Patnaik, D.** See Norrish, R. G. W.
**Patnode, W. I.** Solid porous contact mass, P 5517*b*; organopolysiloxanes, P 6220*f*.
**Paton, W. D. M.** Pharmacology of curare and curarizing substances, 6497*h*; see Organe, G.
**Patow, C. F. v.** Einführung in die allgemeine Biologie für Tierzüchter (book), 2656*c*.
**Patrick, H.** See Williams, D. E.
**Patrick, J. C.** Polyacetal polysulfide polymers, P 6001*e*.
—— and Ferguson, H. R. Polysulfide polymer, P 5636*h*.
**Patrick, R.,** and Wright, J. F. H. Detn. of aneurine in pharmaceutical products, 8095*c*.
**Patrick, R. F.,** and Sosman, R. B. Effects of Zn and CO on fire-clay refractories, 4437*b*.
**Patrick, T. M., Jr.** See Emerson, W. S.
—— and Emerson, W. S. Unsatd. long-chain aliphatic esters—catalytic oxidation, 3611*f*.
**Patrick, W. A.,** and Wagner, H. B. Complete deoxygenation of water, 6481*d*.
**Patrie, J.** Hard-chromium-plating on light alloys, 2872*c*.
**Patrikeev, N. N.,** and Shapiro, I. S. Kerch iron ore basin, 3751*b*.
**Patrikeev, V. V.** Detn. of petroleum bacteria in soil samples, P 3185*d*.
—— and Liberman, A. L. High catalytic activity of Pt catalyst prepn., 475*c*.
**Patrikejew.** See Patrikeev.
**Patro, A. P.** See Biswas, S.
**Patschky, A.,** and Kiermeier, F. Recovery of volatile materials from natural products by extn. and by distn., 4521*h*.
**Patt, H. M.** See Straube, R. L.; Tobias, J. M.
**Pattanaik, S.** Catalase activity of the petals and leaves of *Hibiscus rosasinensis*, 9174*i*.
**Pattee, E. C.** Mixer and converter of cereal mashes, P 816*b*.
**Patten, S. H.,** and Williams, F. E. Emission spectrum of Mn-activated Mg germanate, 8281*b*.
**Pattenden, W. C.** See Sproule, L. W.

**Patterson, C. F.** Glue in the paint industry, 4489*e*.
**Patterson, E. K.**, Dackerman, M. E., and Schultz, J. Peptidase activities of exts. of salivary glands of *Drosophila melanogaster*, 6746*c*; peptidase increase accompanying growth of the larval salivary gland of *Drosophila melanogaster*, 7150*g*.
**Patterson, E. M.** Teschenite picrite sill of Saltcoats, Ayrshire, 3751*i*; ignition compns., P 9450*i*.
**Patterson, G. D., Jr.**, and Mellon, M. G. Classification of methods in quant. chem. analysis, 7762*c*.
**Patterson, G. H.** Aliphatic sulfonyl chlorides for tanning leather, 4039*f*.
**Patterson, J. A.** Sepn. of $C_8$ hydrocarbons, P 3453*b*; purification of alcs., P 5790*d*; see Kluge, H. D.; Ohsol, E. O.
——— and Kluge, H. D. Rust- and oxidation-inhibited lubricating oils, P 1177*a*.
**Patterson, James H.**, and Banks, C. V. Detn. of Zn in Th, 1285*b*.
**Patterson, J. Hunter.** Relative inflammability of Indian coal dusts, 6806*e*.
**Patterson, J. R.** Silicone resins in finishes, 1214*a*.
**Patterson, J. W.**, Lazarow, A., Lemm, F J., and Levey, S. Alloxan and dialuric acid—their stabilities and ultraviolet absorption spectra, 4306*d*; reactions of alloxan and dialuric acid with the sulfhydryl group, 4306*f*.
**Patterson, M. C.** See Blood, D W
**Patterson, M. E.**, and Loyd, D B. Operational difficulties encountered with a kraft recovery unit, 8676*b*.
**Patterson, P. A.** See Karnofsky, D. A.
**Patterson, T. L.** See Kaulbersz, J.
**Patterson, T. S.**, and Buchanan, C Crystal form of Na ammonium *d*- and *l* tartrate, K *d*- and *l*-tartrate, *K* ammonium *d*- and *l*-tartrate, and K racemate—isomorphism of K and K ammonium tartrates, 7287*f*.
———, Loudon, J. D., and Cook, A O M Robertus Vallensis' De Veritate et Antiquitate Artis Chimicae, 5649*h*
**Patterson, W. B.**, and Stetten, D., Jr. Gastric HCl formation, 4360*c*.
**Patterson, W. I.**, and Williamson, M. B. Antioxidant from rice bran, P 1586*b*, see Ramsey, L. L
**Patton, A. R.** Controlling potato chip color, P 331*d*.
——— and Foreman, E. M. Glycine reagent for paper chromatograms, 4978*a*.
———, Hill, E. G., and Foreman, E M. Effect of browning on the essential amino acid content of soy globulin, 3482*i*
**Patton, B. W.** See Tepperman, J
**Patton, C. C.** Conducting bearing, P 7895*g*.
**Patton, E. L.** See Shearon, W. H., Jr
**Patton, H. D.** Effect of autonomic blocking agents on sweat secretion in cats, 5496*d*.
**Patton, J.** Application of aureomycin (I), 6368*i*.
**Patton, R. L.** See House, H. L
**Patton, T. B.**, Ware, A. G., and Seegers, W. H. Clotting of plasma and silicone surfaces, 3485*i*.
**Patton, T. C.**, and Smith, M. K. Tetrafunctional graph for appraising plasticizer performance in vulcanized rubbers, 3648*d*.
**Patty, F. A.** Industrial Hygiene and Toxicology (book), 789*b*, 1882*h*
**Patty, R. E.** See Harris, John O
**Patushinskaya, F. P.**, and Filina, E I. Vitamin $B_1$ in painless childbirth, 4740*c*.
**Patvag Aktiengesellschaft** für **Biochemie.** Production of water-acid mixts., particularly for wood-saccharification processes, P 6012*i*.
**Patwardhan, N. K.** Lime sludge as a stabilizer in earth construction, 5167*c*
**Patwardhan, V. N.** See Misra, U C
**Patzelt, K.** Fluorescence of the luminous substance X (vitamin A) in liver and adrenals in icterus, diabetes, and uremia, 7570*h*.
**Patzelt, V.** Mikroskopischen Untersuchungen (book), 8256*f*.
**Patzer, W. A.** Economy in production—precision castings, 8999*b*
**Paul, E. B.** See Jelley, J. V
**Paul, G. T.**, and Wilhelm, R H. Radiation drying of textiles, 414*b*
**Paul, H.**, and Tramm, H Fischer-Tropsch synthesis for coal improvement and power generation, 7212*b*.
**Paul, J.** Bone char in the sugar industry—adsorption of lime salts, 6145*g*.
**Paul, K. G.** Oxidation reduction potential of cytochrome c, 5065*h*; stability of cytochrome c at extreme pH values, 7522*b*; stability of dried cytochrome c, 7522*e*.
**Paul, M.** See Lewis, Margaret N.
**Paul, P. T.** Delayed vulcanization of rubber, P 3230*c*; di(*o*-acylaminoaryl) disulfide softeners for rubbers, P 6858*h*; di-(*o*-acrylaminoaryl) disulfide softeners for isoölefin-diolefin copolymers, P 6858*i*; 2,2′-dithiobis[propionanilide] softener for rubbers, P 6858*i*.
——— and Tewksbury, L. B., Jr. 2,2′-Dithiobis[(*N*-aryl carbamic ester)] softeners for rubbers, P 6858*h*.
**Paul, R.**, and Tchelitcheff, S. β-Diethylenic hydrocarbons (II) synthesis of 3,5-dihydroxy-1-substituted piperidines from 1,4-pentadiene, 2208*f*; (III) mobility of the methylene H in 1,4-hexadiene and 1,4-undecadiene, 3774*c*
**Paul, T. M.** See Moghul, H. K.; Singh, P. G. R.; Singh Verma, I. P.; Varma, K. ——— and Anantakrishnan, C. P. End lactation milk fat, 9280*f*; storage of curd and acidity of ghee, 9283*c*.
———, Rao, V. R. B., and Anantakrishnan, C. P Storage of ghee in different types of container, 6327*f*
———, Rao, V. R. B., Anantakrishnan, C. P., and Rangaswamy, M. C. Component fatty acids of high-acid ghee, 1579*h*
**Paul, W.** Detn of isotope ratios, 1129*r*, see Kopfermann, H.; Mairr Leibnitz, H
——— and Wessel, G. Measurement of d. and mean mol. velocity in an at beam 8765*c*
**Paul, W. J.** See Bosshardt, D K.
**Paula, R. D. de G.** See Descartes de Garcia Paula, R.
**Paula e Silva, A. S. de.** Fermentation of Prato cheese, 1497*a*.
**Pauley, R. D.** Sepn of bark fiber from comminuted bark, P 1188*a*
**Pauli, W.** Color and constitution of colloidal Au, 6885*g*
**Pauli, W. F.** World of Life (book), 7991*a*
**Pauling, L.** Modern theory of valency, 1230*j*, valences of the transition elements, 2830*f*, antibodies and specific biol forces, 3925*i*; electronic structure of excited states of simple mols., 4368*h*; chem properties of hemoglobin in terms of its mol. structure, 4715*c*; valence state energy of the bivalent O atom, 6511*g*, chemistry and the world of today, 8219*g*, resonating-valence-bond theory of metals, 8764*a*; see Itano, H. A., Pardee, A B.
——— and Sheehan, W F., Jr Dissocn energy of CO and the heat of sublimation of graphite, 8254*g*
——— and Soldate, A M. Nature of the bonds in the FeSi and related crystals, 918*i*
**Paulissen, J.** Glue for wallpaper, P 4808*i*, cleaning compd., P 4877*f*
**Pauls, J. T.**, and Goode, J F Application of the immersion-compression test, 7208*b*.
**Paulssen, P.** Detn. of As in medicines, 4125*e*
**Paulus, W.** Distribution of Tl in fatal poisoning, 6308*g*.
**Pauly, Hans.** Detn. of the *n*s of minerals, 8311*g*, calcite and skarn minerals in the gneisses of the Holstenborg district, West Greenland, 8313*c*; petrogenesis of the gneiss complexes between Sukkertoppen and Christianhaab, West Greenland, 8320*c*
**Pauly, Hermann.** Sepn of lignin components (II) adducts with maleic acid, 4850*b*.
**Pauritsch-Piller, J.** See Schauenstein, E
**Pausacker, K. H.**, and Robinson, R. Strychnine and brucine (L) expts. with pseudostrychnine, dihydropseudostrychnine, and neostrychnine, 2390*b*.
——— and Schubert, C. I. Fischer indole synthesis, 4256*i*
**Paushkin, Ya. M.** Physicochem. nature and catalytic activity of $BF_3$ compds., 5657*e*; see Topchiev, A. V.
——— and Topchiev, A V. Alkylation of $C_6H_6$ with propene, 1732*e*; alkylation of isopentane with $C_2H_4$ in the presence of $BF_3$ catalysts, 3773*b*
**Pauson, P. L.** See Haworth, R. D.
**Pautrizel, R.**, and Bailenger, J. Hemotoxin of *Ascaris lumbricoides*, 5873*g*.
——— and Mayer, G. Cutaneous symptoms produced in guinea pigs by intradermal injection of exts. of intestinal worms—action of an antihistaminic on the cutaneous symptoms, 5495*c*.
**Pavel, M.** See Kohlschütter, H. W.
**Pavlas, P.** Purification of water from the beet-slice presses, 9502*i*.
——— and Häuslerová, O. Compn. of beets and juices, 4501*a*; influence of activated C on the detn. of invert sugar in molasses, 8715*a*.
**Pavlenko, Yu.** Fibrolite from portland cement, 9409*b*.
**Pavlic, A. A.** Thiols, P 5418*d*; 3,5,5-trimethylhexanoic acid, P 7501*f*.
———, Lazier, W. A., and Signaigo, F. K. Synthesis of vicinal dithiols and their derivs., 3783*f*.
**Pavlik, M.** See Martinec, T.
**Pavlinova, A. V.** Detn. of $Fe^{+3}$ in the presence of tartrates, 966*a*; tartrate compds of $Fe^{+3}$, 5745*f*
**Pavljučenko, M. M.** See Pavlyuchenko, M M.
**Pavloff.** Chlorides in bread and bakery products, 4392*e*.
**Pavloff, M. A.** Development of pig-iron production, 4611*f*.
**Pavlov, F.** Classification of by-products, 6751*a*, see Babin, G.
**Pavlov, K. F.** Khimicheskaya Tekhnologiya (Chem Technology) (book), 8074*i*.
——— and Lopatin, K. I Stability of industrial Cu ammoniacal solns., 1533*i*.
**Pavlov, M. A.** See Pavloff, M. A.
**Pavlov, N. S.** See Moiseev, A. A
**Pavlov, S. A.** See Strakhov, I. P
——— and Shestakova, I. S Chem reactions which characterize the quality of the raw materials for leather and sheepskin, 5617*c*.
**Pavlov, V. P.** See Vinogradov, G. V.
**Pavlova, M. V.** See Aron, Ya B.
**Pavlova, Z. I.** See Ioffe, I. S.
**Pavlović, S.** Discovery of a rare mineral, chalcophanite, in Yugoslavia, 4979*g*
**Pavlovski, A.**, and Vilaseca, G. C Treatment of Hodgkin's disease with N mustard, 7143*e*
**Pavlushenko, I. S.** See Romankov, P G
**Pavlushina, A. Ya.** See Polyakov, M V
——— and Polyakov, M. V. Effect of the surface on the polymerization of vinyl acetate, 2028*f*
**Pavlyuchenko, M. M.** Reactions involving solids in the absence of any catalytic action of the reaction products, 8820*i*, equation of topochem reactions which are not catalyzed by the solid reaction product, 8820*d*.
**Pavolini, T.**, and Gambarin, F. *p*-Dimethylaminobenzylidenethiobarbituric acid and its derivs in the investigation of noble metals, 8300*g*, trithiobarbituric acid in the investigation of Ag and Cu, 8300*h*.
**Pawel, G. W.** Ferronickel, P 5726*h*.
**Pawlenko, Yu.** See Pavlenko, Yu
**Pawlinowa, A. V.** See Pavlinova, A. V.
**Pawloff, Pawlow.** See Pavlov
**Pawlowski, F.** Brautechnischen Untersuchungsmethoden von Pawlowski und Doemens (book), 2734*e*
**Paxton, H. W.** See Ladd, E. C
**Payman, L. C.** See Bowman, A.
**Payne, B. R., Jr.** See Haythorne, P A.
**Payne, C. R.** Cements, Ic, 8745*c*.
**Payne, J. H.** See Kortschak, H. P.
**Payne, J. W.** App. for bringing gases into contact with a solid material, P 6010*g*; bringing gases into contact with a solid material, P 6010*h*; heat-treating particle-form solid adsorbents, P 6339*i*; see Bodkin, E. A.; Lechthaler, C. H.
———, Hornberg, C. V., and Drew, R. D Sepn. of vapors from a contact mass, P 914*f*
———, Simpson, T. P., and Butzner, J. I. Alkali free hydrogel catalyst, P 1930*d*.
**Payne, L. F.** See Gish, C L.; Neff, A. W.
**Payne, M. A.** Olefin extn., P 4682*b*.
**Payne, N. M. C.** Insecticidal use of fluoroacetamide, P 6357*i*.
**Payne, R. J. M.** See Murphy, A. J.
**Payne, T. P. B.**, and Cruickshank, A. H. Antibody formation in alloxan diabetes—precipitin response to egg albumin of normal rabbits and of rabbits with alloxan diabetes, 1481*a*
**Payne, W. A.** HCHO, P 5701*i*.
**Payno, S.** Cr salts and $H_2CrO_4$, P 6794*e*.
**Payson, P.** Steel for plastic mold dies and articles made therefrom, P 8346*i*.
——— and Nehrenberg, A. E. Steel features high strength and high toughness, 536*h*.
**Pazdro, Z.** Carpathian bituminous shales, 3995*h*.
**Pazur, J. H.** See French, D.
**Pchelin, V. A.** Surface properties of proteins, 2842*b*.

**Pchelintsev, D. A.** Detn. of sulfate ion in the presence of Ca, 972*g*; detn. of Zn in bronze, 5336*c*.
**Pchelkina, A. A.** See Talyzin, F. F.
**Peabody, C. O.** See Smith, B. S.
**Peabody Engineering Corp.** Gas and liquid contact app., P 2018*de*.
**Peach, P. A.** Decrepitation geothermometer, 8981*h*; liquid inclusions in geothermometry, 8981*i*; see Smith, F. Gordon.
**Peacock, C. L.** See Beach, L. A.; Mitchell, A. C. G.
—— and Mitchell, A. C. G. Disintegration of $Cs^{137}$, 4949*f*
**Peacock, M. A.** Mineralogy, 8981*b*; see Forman, S. A.
—— and Berry, L. G. Mineral thio salts (XIII) polybasite and pearceite, 2128*l*
**Peacock, W. C.** See Gibson, J. G., 2nd; Ketelle, B. H.; Paschkis, K. E.; Ross, J. F.
**Peacocke, A. R.**, and Hinshelwood, C. N. Adaptation of bacteria to acridine derivs.—influence of pH, 718*b*, 3058*h*, changes induced in *Bacterium lactis aerogenes* by irradiation with ultraviolet light, 1828*b*, absorption of 2,8-diaminoacridine and methylene blue by cells of *Bacterium lactis aerogenes*, 6274*b*
**Peak, D. A.** See Michaelis, R.; Oxley, P.
**Peake, C. B.** Machine printing of textile fabrics, 5953*d*
**Peake, J. S.**, and Robbins, F. E. Treatment of Mg-base alloys, P 6563*i*.
**Peakes, G. L.** Report indexing by punched cards, 4058*f*
**Peale, L. F.** See Spring, S.
**Pearce, A. W.** Catalytic cracking for gasoline production, 6811*c*.
**Pearce, G. W.** See Chapman, P. J.
**Pearce, J. A.** Fluorescence development in egg powder and in glucose-glycine mixts., 7151*f*
—— and Jegard, S. Measuring the solids content of honey and of strawberry jam with a hand refractometer, 5879*b*.
—— and Thistle, M. W. Dried whole egg powder (XXVIII) reproducibility and interrelation of methods of assessing quality, 5510*a*
**Pearce, J. G.** Acicular cast irons, 2a59*a*
**Pearce, L.** Hereditary osteopetrosis of the rabbit (II) x-ray, hematologic, and chem. observations, 1482*g*
—— and Brown, W. H. Hereditary osteopetrosis of the rabbit (I) general features and course of disease—genetic aspects, 1482*g*.
**Pearce, L. O. G.** Prolamines, P 6466*f*.
**Pearce, M.**, and Schuftan, P. M. Air sepn., 2821*c*
**Pearce, R. H.** See Watson, E. M.
—— and Watson, E. M. Mucopolysaccharides of human skin, 7060*g*.
**Pearce, R. M.** See Langstroth, G. O.
**Pearce, S. F.** See Brookman, E. F.
**Pearl, I. A.** Utilization of sulfite waste liquor, 398*i*; vanillic acid, P 1439*i*, 3039*f*; lignin and related products (I) oxidation of basic Ca lignosulfonate with HgO and with $Ag_2O$, 6823*c*; reactions of vanillin and its derived compds. (VIII) ultraviolet absorption of vanillic acid and related acids and their esters, 7455*f*
—— and Beyer, D. L. Reactions of vanillin and its derived compds. (VII) esters of vanillic acid and related acids, 4241*i*
—— and Wise, L. E. Phenolic materials from lignin, P 9446*h*
**Pearlman, D.** See Nail, N. R.; Urbach, F.
——, Goddard, P. E., and Urbach, F. Lenard phosphors, 8280*g*.
**Pearlman, H.** See Amdur, I.
**Pearlman, S.** See Hill, T. J.
**Pearlman, W. H.**, and Cerceo, E. Isolation of pregnanol - 3($\alpha$) - one - 20, pregnanediol - 3($\alpha$),20($\beta$), and etiocholanediol - 3($\alpha$),17($\beta$) from the bile of pregnant cows, 1824*g*.
- and DeMeio, R. H. Metabolism of $\alpha$-estradiol, 8509*h*.
and Rakoff, A. E. Estrogens in the bile of pregnant women, 8490*e*.
**Pearlman, W. M.**, and Banks, C. K. Substituted chlorodiamino - *s* - triazines, 1425*i*; alkoxy-*s*-triazines (II), 4269*c*.
**Pearlson, W. H.** See Simons, J. H.
**Pearman, R. W.** See Major, F.
**Pears, J.** See Tasker, H. S.
**Pearsall, C. S.** Joining nonmetallic materials to metals, 0561*c*; see Strandberg, M. W. P.
**Pearsall, W. H.** Advances in botany, 1082*a*, 7092*a*.
**Pearse, A. G. E.** Cytochemistry of the gonadotropic hormones, 2299*i*.
**Pearse, L.**, *et al.* Sewage treatment: port of the sanitary engineering division, 1508*d*; sludge lagoons, 3124*b*; oxidation ponds, 3124*c*.
**Pearse, R. W. B.** Comets, meteors, and meteorites, 4560*a*.
—— - and Feast, M. W. Emission spectrum attributed to $CdF_2$, 6918*c*.
**Pearson, A.** Temp. coeff. of resistance of Na-$NH_3$ solns., 4066*g*.
**Pearson, A. M.** See Burnside, J. E.; Cunha, T. J.
**Pearson, A. O.** Instruments in industrial waste treatment, 5890*d*.
**Pearson, C. S.** See Sherman, H. C.
**Pearson, D. E.**, and Ball, F. Beckmann rearrangement—substituted acetophenone oximes in $H_2SO_4$, 4650*h*
— - and Greer, C. M. Rearrangement of hydrazones, 5769*e*.
**Pearson, F. G.** Acrylonitrile-vinylidene chlorofluoride copolymers, P 3239*b*.
**Pearson, G. L.** Physics of electronic semiconductors, 1641*g*.
— — and Bardeen, J. Elec. properties of pure Si and Si alloys contg. B and P, 4068*f*.
**Pearson, H. E.** Effect of water quality on ornamental plants, 4793*e*; see Huberty, M. R.
**Pearson, I. A.**, Hammer, J. M., Corrigan, K. E., and Hayden, H. S. Behavior of fungi in the presence of radioactive isotopes, 273*j*
**Pearson, J.** Reduction of nitro compds. at the dropping-Hg cathode (I) nitrobenzenes and nitrotoluenes, (II) nitrophenols, 2520*d*; (III) nitroresorcinols, 5379*a*.
- — and Bullough, W. Thiocyanate porosity test for tin plate, 2917*a*, 8339*g*.
- - and Howard, A. J. Estn. of inorg. nitrates in propellants, 6417*h*
—— and Toye, R. Detn. of moisture in producer gas, 3171*h*, 8119*i*.
**Pearson, J. H.** See Calfee, J. D.
**Pearson, J. W.** Pressure-sensitive adhesive sheet, P 3240*c*
**Pearson, O.** Basic open-hearth-operating rates, 7390*a*
**Pearson, O. H.** See Christensen, W. R.; Cobb, S.; Olson, R. E.
— —, Hastings, A. B., and Bunting, H. Metabolism of cardiac muscle—utilization of $C^{14}$ labeled pyruvate and acetate by rat heart slices, 8513*b*.
— —, Hsieh, C. K., Dutoit, C. H., and Hastings, A. B. Metabolism of cardiac muscle—utilization of $C^{14}$ labeled pyruvate and acetate in diabetic rat heart and diaphragm, 8513*a*.
**Pearson, P. B.** See Barron, G. P., Kunkel, H. O.; Oleese, O.; Reiser, R.; Simpson, R. E.
—, Gray, J. A., and Reiser, R. Ca, Mg, and K contents of the serum of ewes fed high levels of K, 3496*h*
- and Panzer, F. Effect of fat in the diet of rats on their growth and their excretion of amino acids, 7559*i*
— -, Perlzweig, W. A., and Rosen, F. Metabolism of niacin in ruminants, 9195*c*.
- - — and Sparks, P. High levels of dietary K and Mg and growth of rats, 294*b*.
**Pearson, P. C., Jr.** See Bludworth, J. E.
**Pearson, R. G.** Alkylation of malonic ester, 9034*f*
——, Subluskey, L. A., and King, L. C. Formation of cholesterylisothiuronium salts from 3-cholesteryl Me ether, 659*h*.
—— and Tucker, J. Base strength of urea and thiourea in MeOH, 3366*i*.
**Pearson, S.** See McLaren, A. D.
**Pearson, T. F.**, Baker, W. A., and Child, F. C. Gas porosity in Ni-Ag castings, 79*f*.
**Peart, T. B.** Lime kiln instrumentation, 1535*d*.
**Pease, R. N.** See Budin, E. J.
**Pease, W. F.** See Koon, C. M.
**Peaslee, D. C.** Deuteron-induced reactions, 1640*i*.
**Peat, S.** See Bourne, E. J.
**Peaudecerf, M.**, and Lassalle, P. Carbonization furnace, P 4837*d*.
**Peaud-Lenoël, C.** See Lemoigne, M.
**Peavy, C. C.** See Burtis, T. A.; Hornaday, G. F.
——, Weinrich, W. W., Hornaday, G. F., and Noll, H. D. Houdriflow catalytic cracking, 8656*g*.
**Pecáková, L.** See Hais, I. M.
**Pečar, M.** See Plotnikov, I.
**Pecego, R. M.** See Magalhães Pecego, R.
**Pech, J.** See Okáč, A.
**Péchard, C.** See Troost, L.
**Peche, W.** Food preservation, P 5882*c*.
**Pechkovskaya, K.** See Dogadkin, B.
**Pechkowa, W. M.** See Peshkova, V. M.
**Pechmann, E. v.** See Werle, E.
**Pechnik, E.** See Chaves, J. M.
**Pechukas, A.** $TiO_2$, P 1200*c*, polymers of chloroformates of unsatd. alcs., P 5230*f*; vinyl esters of polycarboxylic acids, P 7957*g*.
**Peck, C. E.** Controlled-atm. elec. furnaces, 45*c*; controlled atm. for annealing gas, 3327*g*.
**Peck, D. B.** See Markarian, M.
**Peck, D. R.** Alkali stability of the insecticide E 605, 1139*h*; stability of TEPP and HETP insecticides, 5526*b*.
**Peck, E. B.** Distn. of oil shale under fluidized conditions, P 1171*c*; two-zone fluidized destructive-distn. process, P 9126*i*.
—— and Tomkins, D. G. Distn. of fluidized shale, P 6818*c*
**Peck, E. R.** See Sittner, W. R.
**Peck, F. B.** Insulin mixts. and modifications, 8618*c*.
**Peck, J. L.**, and Thomas, L. Hemolysis of human erythrocytes by homologous complement in the presence of tannic acid, 5490*i*.
**Peck, R. L.** Complex salts of streptothricin, P 6792*a*, see Kuehl, F. A., Jr.
——, Hoffhine, C. E., Jr., Gale, P., and Folkers, K. Streptomyces antibiotics (XXI) linkage of mannosidostreptobiosamine to streptodone in mannosidostreptomycin, 6580*a*; (XXIII) isolation of neomycin A, 7087*b*.
——, Kuehl, F. A., Jr., Hoffhine, C. E., Jr., Peel, E. W., and Folkers, K. Streptomyces antibiotics (XVII) heptabenzoylstreptidine from streptomycin, 1328*h*.
**Peck, R. M.** See Drake, N. L.
**Peck, S. M.** Evaluation of antifungicidal chemicals, 5083*h*.
**Pecka, E. F., Jr.** See MacKay, E. M.
**Peckham, R. H.** Measurement of the luminescence of fluoroscopic x ray screens, 8281*h*.
**Pecora, L.** Hematology in P poisoning treated with hipocaic, 5120*e*, changes in the blood in TNT poisoning, 5120*g*.
**Pecora, W. T.**, and Fahey, J. J. Corrego Frio Pegmatite, Minas Gerais—scorzalite and souzalite, 8986*c*
**Pecsok, R. L.** See Langane, J. J.
**Peddicord, H.** See Kastens, M. L.
**Pedersen, Carl J.** Neutralization products of phenol-HCHO condensates, P 6235*c*.
**Pedersen, Charles J.** Stabilization of mercaptans, P 1794*a*; inhibition of deterioration of cracked gasoline during storage, 5932*a*; see Hamilton, L. A.
— — and Downing, F. B. Condensation products of pentaerythrityltetramine with $\beta$-diketones and $\beta$-hydroxymethylene ketones, P 4687*e*.
**Pedersen, E. E.**, and Jensen, K. A. Prepn. of optically active phenyl-*p*-tolylmethanesulfonic acid and its racemization by Na ethoxide, 3810*c*.
**Pedersen, E. M.** See Maclekilde-Pedersen, E.
**Pedersen, K. J.** Catalysis by certain metal ions in the bromination of 2-carbethoxycyclopentanone, 3273*c*; cupric ion catalysis in the bromination of Et acetoacetate, 4642*d*; vapor pressures and solubilities of hydrates, 5267*a*.
**Pedersen, K. O.** See Blix, G.; Derrien, Y.
—— and Synge, R. L. M. Diffusion expts. on gramicidin S, tryocidine, and gramicidin, 6043*c*.
**Pedersen, V.** Iodometric detn. of penicillin (I), 3146*f*.
**Pedersen-Bjergaard, G.**, and Pedersen-Bjergaard, K. Sex hormone analyses (III) estrogenic and gonadotropic substances in the urine from a woman with normal menstrual cycles and normal pregnancies, 3508*b*.
**Pedersen-Bjergaard, K.** See Lund, C. G.; Pedersen-Bjergaard, G.
— and Tønnesen, M. Sex hormone analyses (II) excretion of sex hormones by normal males, impotent males, polyarthritics, and prostatics, 2687*g*; influence of esterification on the biol. activity of estradiol, 3508*d*; influence of rat liver in

perfusion expts. on penicillins F, G, K, and X, 5862*i*.
**Pederson, C. E.** Insecticides increase legume seed, 3466*a*.
——— and Sherman, F., III. Control of spittle bugs in Michigan, 1521*f*.
**Pederson, C. S.** See Holgate, K. C.
——— and Beattie, H. G. Concn. of fruit juices by freezing, 3944*f*.
——— and Hucker, G. J. Bacteria in sugar mills, 885*i*.
**Pederzini, A.** Choline and accumulation of vitamin A in the liver, 9181*e*; see Gualandi, G.; Reggiani, E.
**Pedotova, O. Ya.** See Petrov, G. S.
**Pedreira, L. S.** See Silveira Pedreira, L.
**Pedro, S. de.** See Echeverria, I.
**Peebles, W. C.** See Hofer, L. J. E.
**Peech, M.,** and Young, T. W. Chem. studies on soils from Florida citrus groves, 9314*e*.
**Peed, W. F.** See Burkhart, L. E.
———, Spitzer, E. J., and Burkhart, L. E. *L* spectrum of element 61, 8268*f*.
**Peel, E. W.** See Peck, R. L.
**Peeler, H. T.** See Daniel, L. J.
———, Daniel, L. J., Norris, L. C., and Heuser, G. F. Unidentified factors required by *Lactobacillus casei* (III), strepogenin activity, 4338*a*.
**Peer, E. S.** $NH_4$ alum from acid liquors, P 5161*a*.
**Peeters, G.,** Coussens, R., and Oyaert, W. Physiology of the cistern of the bovine mammary gland, 7102*g*.
———, Coussens, R., and Sierens, G. Physiology of the nerves in the bovine mammary gland, 7129*e*.
———, Massart, L., and Coussens, R. Influence of Ca on the isolated mammary gland, 3101*a*.
———, Massart, L., Coussens, R., and Vandeplassche, M. Implantation of synthetic estrogens in the udder of heifers, 7128*f*.
**Peeters, L.** See Gastellier, S.
**Peevers, R. W.** See Bide, A. E.
**Peevy, F. A.,** and Campbell, R. S. Poisoning southern upland weed trees, 6352*h*
**Peffly, R. L.** See Gahan, J. B.
——— and Gahan, J. B. Residual toxicity of DDT analogs and related chlorinated hydrocarbons to house flies and mosquitoes, 6354*g*.
**Pegazzano, F.,** and Faldi, G. Org. chlorinated insecticides for controlling *Dacus oleae*, 9349*f*.
**Pegni, U.** Hypoglycemia from Cu, 3515*g*
——— and Befani, A. Hexamethyleneamine and the permeability of the hematoencephalic barrier to sulfonamide compds., 2328*c*.
——— and Meoni, P. Lipolytic potency and the quinine- and atoxyl-resistant lipases detd. simultaneously in the blood and fluids of inflammatory processes, 2607*i*.
**Pegushina, L. V.** See Shchukin, P. A.
**Peham, A.** Chemie des Lebens (book), 5005*f*.
**Pehrman, G.** Cristobalite from a smelting furnace, 2910*g*; gahnite from Rosendal in Kimito, southwest Finland, 4605*d*; mineral druses in Västanfjärd, southwest Finland, 5345*h*.
**Pehrson, E. W.** See Matthews, A. F.
**Pehrson, S. O.,** and Lindberg, N. J. Control of microörganisms in pulp and paper mills (II) sorption of phenylmercuric ions on fibers, 2429*g*.
**Peierls, R. E.** See Barker, F. C.
**Peifer, N. P.** Current required for cathodic protection, 6092*f*.
——— and Costanzo, F. E. Measurement of galvanic currents around an underground structure, 99*g*.
**Peillon, P.** Welding under oil, P 2156*d*.
**Peirce, W. M.** See Bunce, E. H.
———, Waring, R. K., and Fetterolf, L. D. Titaniferous material for producing $TiO_2$, P 9482*i*.
**Peisakhodina, S. L.** See Velikovskiĭ, D. S.
**Peiser, A. M.** See Golden, S.
**Peiser, H. S.** See Brown, C. J.; Matthews, J. L.
**Peiss, C. N.,** and Field, J. Influence of 2,4-dinitrophenol on succinate oxidation in rat brain slices and homogenates, 3927*e*.
———, Field, J., and Hall, V. E. Cholinesterase activity in normal and febrile rabbit brain, 2692*d*.
———, Field, J., Hall, V. E., and Goldsmith, M. Respiration and glycolysis in the brains of normal and febrile rabbits, 7146*i*.
———, Hall, V. E., and Field, J. Influence of antipyrine on respiration, glycolysis, and cholinesterase activity in rat brain, 7147*b*; influence of Mg on respiration, glycolysis, and cholinesterase activity in rat brain, 7588*d*.
**Pekar, S. I.,** and Delgen, M. F. Quantum states and optical transitions of the electron in polarons and in crystal color centers, 3717*d*.
**Pekerman, F. M.** See Vavilov, S. I.
**Pekkarinen, A.** Detn. of $CO_2$ pressure of solns., 333*g*; pH detn. of natural waters, 333*i*; carbonate alky. of natural water, 4403*g*; chem. detn., occurrence, and metabolism of adrenaline in the animal organism, 6689*a*.
**Peklo, J.,** and Satava, J. Fixation of free N by bark beetles, 3531*e*.
**Pelcik, J.** See Perna, F.
**Pelczar, M. J., Jr.** See Cleverdon, R. C.; Doetsch, R. N.; Warner, G. S.
——— and Doetsch, R. N. Direct fermentation of maltose, 9457*i*
**Peleato, M. P.** See Peleato Peleato, M.
**Peleato Peleato, M.** Isomerization of pinene, 188*f*
**Pelek, K.** Fodder substitute, P 1504*a*.
**Pelipetz, M. C.** See Savich, T. R.; Weller, S.
**Pellshenko, I. A.** See Vladimirov, G. E.
**Pell, E. M.** See Tombouhian, D. H.
**Pellam, J. R.** Pulsed second sound in liquid HeII, 4915*d*; correlations in measurements on superfluidity in liquid He II, 8780*a*.
**Pellegrini, U.,** and Rabaglia, T. Detn. of salicylic acid in blood serum, 9131*a*.
**Pellegrino, E.** See Patek, A. J., Jr.
**Pellerat, J.** Histamine and synthetic antihistaminic compds., 1101*f*; see Brion, A.
**Pelloux, A.** Mineralogy of Aosta Valley, 2128*a*; minerals of Tuscany, 2128*b*; brochantite of Mt. Ramazzo, Genoa, Italy, and of Sardinia, 2129*c*, minerals and radioactive waters of Lurisia, Italy, 2129*c*.
**Pell-Walpole, W. T.** See Harding, J. V.
**Pelnář, R.** Dangers of fires and explosions in a sugar establishment, 8714*f*
**Pelosio, C.** See Travia, L.
**Pelou, M.** Aciers de fabrication française (book), 6964*e*
**Peltier, G. L.,** and Schroeder, P. R. Relation between proteolytic and amylolytic enzyme production of the *Bacillus subtilis* group, 4336*d*
**Peltier, S.** Detn. of Na as disulforesorcinate, 4508*i*.
———, Dupuis, T. (nee Duval), and Duval, C. Reactions of the cations (I) Ni, 3313*f*
——— and Duval, C. Thermogravimetry of analytical precipitates (XIII) detn. of Tl, 63*g*.
**Pel'tikhin, S. V.** See Pamfilov, A. V.
**Pelton, E. L.,** and Hutchenreuther, C. O. Indigosol compn., P 8692*b*
**Pelton, W. S.** See Mueller, G. P.
**Pelzel, E.** Surface tension of liquid metals and alloys, 1300*c*, (II), 3763*a*, residual melts in light-metal alloys, 2149*f*, liquidus and solidus curves in the Zn-Al system between 30 and 70% Al, 6961*e*
**Pelzer, H.** See Austen, A. E. W.
**Pemberton, E. S.** *N*-Arylacetamides, P 3845*f*.
**Peñaranda, J. M.** See Lipschutz, A.
**Penas Goas, D.** Bark of *Rhamnus frangula*, 4736*d*.
**Penati, F.** See Paghardi, E.
**Pence, F. K.** Texas white-firing bentonite, 2390*g*.
**Pence, R. J.** See Jefferson, R. N.
**Peneloux, A.** Thermodynamics of the decompn. of nitrites (II), 8250*b*; see Dodé, M.
**Penfield, W.** See Elliott, K. A. C.
**Penfold, A. R.** Grass tree resin—gum accroides, 8704*c*.
——— and Morrison, F. R. Occurrence of *Eucalyptus citriodora*, 1155*d*; essential oil of *Boronia ledifolia*, 3148*e*.
———, Morrison, F. R., and McKern, H. H. G. *Melaleuca viridiflora*—source of nerolidol and linaloöl, 1530*g*; Myrtaceae and their essential oils (I) seasonal variations in yield and cineole content of *Melaleuca alternifolia*, (II) plant populations—*Eucalyptus citriodora*, 6787*h*; physiol. forms of the Myrtaceae (I) *Leptospermum citratum*, (II) *Melaleuca alternifolia*, 6788*b*.
**Penick, J. E.** See Dart, J. C.
**Penick, S. B., & Co.** Extn. of rutin, P 366*i*; tyrothricin, P 9390*d*.
**Penick & Ford, Ltd., Inc.** Starch-resin reaction product, P 901*e*; adhesive from cereal flour, P 4899*b*.
**Peniston, Q. P.** See Felicetta, V. F.
**Pen'kova, E. F.** Detn. of Si in W alloys, 6936*d*; see Malov, S. I.; Yakovlev, P. Ya.
**Penman, F.** Soil investigations in the Nyah-Woorinen district, 4799*ef*.
**Penman, H. L.** Evapn. in nature, 4529*e*.
**Penn, W. S.** Viscometry in the paint industry, 4489*g*; low-temp. polymerization, 9524*a*.
**Penna, M. C.** See Castillo Penna, M.
**Pennekamp, B.** See Waterman, H. I.
**Penneman, R. A.,** and Audrieth, L. F. Detn of hydrazine, 2125*c*; ternary system–hydrazine–water–NaOH, 6498*i*.
**Pennenkamp, O.** Spinning of paper yarns, 5591*b*.
**Penner, S. E.** See Morton, A. A.
**Penner, S. S.** Melting and evapn. as rate processes, 1233*i*; maintenance of near equil. during isentropic expansions through a nozzle, 6021*h*; flow through a rocket nozzle with and without vibrational equil., 6021*i*; verification of the change of burning rate of rocket powders with radiation path length, 9449*i*; see Altman, D.
**Penney, G. W.,** and Hewitt, G. W. Electrostatic gas-cleaning dust precipitator, P 7760*c*.
**Penney, M.** See Bradfield, A. E.
**Penniman, J. G.,** and Marshall, R. B. Water-thinned paints, P 3214*d*
**Pennington, D.** Periodate in microbiol. staining, 4721*i*.
**Pennington, N. L.** See Loebenstein, W. V.
——— and Deitz, V. R. Detn of the carbonaceous residue in bone char, 8648*d*
**Pennington, R. J.** Growth inhibitors as tools in metabolic investigations, 3893*e*
**Pennington, R. P.** See Jackson, M. L.; Willis, A. L.
——— and Jackson, M. L. Segregation of the clay minerals of polycomponent soil clays, 2721*d*
**Pennington, W. A.** Detn of water in Freon 12, 6943*e*, see Reed, W. H.
**Pennsylvania Industrial Chemical Corp.** Synthetic rubber plasticized with aromatic hydrocarbon oil, P 896*c*, elastomer plasticizing compn., P 896*g*, styrene resin, P 1605*f*; stabilizers for coumarone indene resins, P 4511*e*, indene-resin stabilizers, P 4511*f*, chewing gum base, P 5232*i*
**Pennsylvania Salt Manufg. Co.** 2,2-Bis (*p*-chlorophenyl) - 1,1,1 - trichloroethane, P 1808*c*; dibasic Ca hypochlorite, P 1927*a*, purification of $SF_6$, P 3575*g*, electrochem. process for polishing Ta, P 4963*i*, Ca(OCl)$_2$, P 5555*k*, laundry-sour compn., P 6438*c*; solid pentachloropropane, P 8397*c*
**Penny, E. E.** See Rofiev, F.
**Penon, R.,** and Lemaigre-Voreaux, P. Electrode coating process, P 6529*a*.
**Penot, M.** Ultramarines, 3029*e*
**Penrod, K. E.** See Grossman, M. S.
**Penrose, R. P.** See Bagguley, D. M. S.; Bleaney, B.
**Pensa, Z.** See Calistri, U.
——— and Calistri, U. Cu removal from Pb-Sb and(or) other alloys, P 4626*e*, removal of Sb from Pb, P 8344*i*.
**Pensabene, R.** "Green stone," an amphibolite of Italy, 3323*e*.
**Pensack, J. M.,** Bethke, R. M., and Kennard, D. C. Properties of an unidentified growth factor in fish products, 5462*a*.
**Penther, C. J.,** and Pompeo, D. J. App. for electrolysis at controlled potential, 2473*c*
**Pentz, E. I.** See Engel, F. L.
**Pentzer, W. T.** See Barger, W. R.
**Peoples, R. S.** See Pray, H. A.
**Pepinsky, R.,** and West, H. I., Jr. Micro photometer for x-ray diffraction diagrams, 4095*a*.
**Pepkowitz, L. P.** Detn. of microgram quantities of acid-sol. S, 1685*g*.
——— and Proud, E. R. Detn. of H, 8904*f*.
**Peppel, W. J.** Unsatd. alcs., P 1063*c*.
**Pepper, C. R.** See Kodicek, E.
**Pepper, D. C.** Friedel-Crafts polymerizations (I) effect of solvent on the polymerization of olefins by $SnCl_4$, (II) kinetics of polymerization of styrene by $SnCl_4$, 6462*d*.
**Pepper, P. M.** Coexistence relations of $n + 1$ phases in $n$-component systems, 8833*c*.
**Pepper, T. P.** Yields of the D-D reactions at low energies, 8264*a*.
**Pepperhoff, W.** See Naeser, G.

**Péquignot, G.** See Laroche, G.; Trémolières, J.
**Peralta R., B.** See Moe, Gordon K.
**Peran, D. F.** See Fernando Peran, D.
**Perard, J.**, Dupont, H. F., Grimaud, G., and Martraire, M. Distillerie de Betterave. Vol. I (book), 3561*d*.
**Perch, M.**, and Russell, C. C. Coal classification and its application to the coking properties of coal, 6806*f*.
**Perchet, R.** Activated alumina as an adsorbent, 9296*d*.
**Perciabosco, N.** Decompn. of chlorosulfonic acid, P 8075*c*.
**Percival, E. G. V.**, and Ross, A. G. Estn. of alginic acid in seaweed specimens, 2120*c*; cellulose of marine algae, 2285*i*.
**Percival, G.** Blue water gas plants, P 9419*g*.
**Percival, G. P.** See Keener, H. A.
**Percy, J. H.** Photocatalytic reactions, P 3726*e*.
**Perédy, J.** See Jáky, M.
**Peregudova, L. E.**, and Voyutskiĭ, S. S. Conjugate soln. of benzene in Na oleate solns., 5260*b*.
**Pereira, A.** See Stoll, A.
**Pereira, F. B.** See Bello Pereira, F.
**Pereira, L. R.**, and Moura Gonçalves, J. Denaturation of egg albumin by heat, 1446*c*.
**Pereira Pinto, F. F.** Superstructures of the cryst. state, 9001*h*.
**Perek, M.** See Sulman, F.
**Perelli-Cippo, F.**, and Carcassoli, G. $CuSO_4$, P 8624*a*.
**Perello, J. M.**, and Serrano, M. Action of sulfonamides on germination and growth of *Ricinus communis*, 2677*c*.
**Perel'man, V. I.** Kratkiĭ Spravochnik Khimika (book), 5277*a*.
**Perel'man, Ya. M.** Detn. of sulfidine and sulfazole, P 6114*h*.
**Peremyslova, E. S.** See Smirnov, A. S.
**Perényi, G.** Lipase content of blood in pulmonary tuberculosis, 9218*h*.
**Perényi, L.** Differences of colloid lability of the Cd test—measurement of positivity of the Cd test, 9129*i*.
**Perepelitsa, A. A.** Dewatering of mirabilite, P 4526*a*.
**Perepelova, T. M.** See Glikman, S. A.
**Perera, C. A.** May's Manual of Diseases of the Eye (book), 8051*b*.
**Perera, G. A.**, and Pines, K. L. Adrenal cortical ext. and desoxycorticosterone—effects on blood pressure of hypertensive patients, 8057*d*.
**Peretti, E. A.** Roasting reactions, 4988*g*; analysis of the converting of Cu mat, 4988*h*.
**Peretti, G.** Liberation of active substance during direct elec. stimulation of *Bufo vulgaris* heart—action of atropine and of P 933, 7118*d*.
**Peretti, L.** Silicosis producing quality of mineral silicates as related to the solv. of the silica, 8577*e*; free and combined silica in rocks and minerals, 8993*e*.
**Peretz, W. L.** See Zambito, A. J.
**Percy, M.** See Lecoin, M.; Rosenblum, S.
**Pereyra, S. del R.** See Rosario Pereyra, S. del.
**Perez, A. R.** See Rodríguez Perez, A.
**Pérez, C.** See Courtois, J.
**Perez, F. P.** See Pino Perez, F.
**Pérez, J. A. R.** See Ruipérez Pérez, J. A.
**Pérez, J. B.** See Baralt-Pérez, J.
**Pérez, J. E.** See Klein, Morton.
Baralt-Pérez, J., and Klein, M. Reversal *in vivo* by BAL of $HgCl_2$-inactivated influenza A virus in the chick embryo, 8551*c*.
**Pérez, J. J.** Crystn. of horse-serum albumin in a neutral or alk. soln., 3481*c*.
**Perez, S. S.** See Senent Perez, S.
**Pérez A.-Ossorio, R.** See Lora Tamayo, M.
**Pérez Argüllés, V.** BAL—its manuf. and applications, 331*h*.
**Perez López, J.** Sugar industry in Spain, 425*d*.
**Pérez Mateos, J.** Mineralogical study of sand, 6550*c*.
——— and Gárate Coppa, M. T. Geochem. study of Cu sulfides, 6543*d*.
**Perez-Mendez, V.** See Brown, Harold.
——— and Brown, H. $\beta$-Spectrum of $O^{15}$, 8883*g*.
**Pérez Rodríguez, M.** Potentials of metals in foreign ions—spontaneous formation of the potential, 2874*i*; see Brú Villaseca, L.
**Perez Silioso, R.** See Gallagher, D.
**Pérez Vásquez, A.** N balance of *Aspergillus niger* in the medium of Raulin, 7547*i*.
**Perfilov, N. A.** See Lukirskiĭ, P. I.
**Perlanes, J.** See Arjona, E.; Jiménez Díaz, C.
———, Arjona, E., Jiménez Díaz, C., Lorente, L., and Aguirre, M. Histamine in blood and tissues (II), 4759*d*.
**Péridier, Y. M.** See Martin-Péridier, Y.
**Perilstein, W. L.** See Boord, C. E.
**Perin, J.** Sterilization of wines, 353*b*; pH measurements in wine making, 3560*e*; Fe in wines and ciders, 5532*b*; Ag in sterilization of wines, 8092*a*.
**Perincíolo, M.** Fireproof wood, fabrics, etc., P 8138*c*.
**Perisutti, G.** See Broh-Kahn, R. H.; Mirsky, I. A.
**Perkin, H. A.** Fungicides in medicine and pharmacy, 9386*i*.
**Perkins, A. T.** Phosphate soly. in relation to cations and pH—Mg, 1511*g*; reactions of muscovite, bentonite, and their treated residues, 3957*f*.
and Merrill, J. F. Mineral mixed feeds—detn. of I, 9291*c*.
——— and Schrenk, W. G. Analysis and characteristics of selected Kansas soils, 337*h*.
**Perkins, B. A.** Ethylene polysulfide polymer lubricant, P 7679*d*.
**Perkins, D. H.** Nuclear capture of $\mu$-mesons, 6909*f*; see Hodgson, P. E.
**Perkins, E.** See Jernstrom, P.
**Perkins, F. T.** See Horrex, C.
**Perkins, H. A.** Basic College Physics (book), 6502*a*.
**Perkins, N. E.** Insecticide, P 8604*e*.
**Perkins, R. F.** See Britton, E. C.
**Perkins, R. N.**, and Ackley, H. A. Diat. Filter Design (book), 5648*h*.
**Perktold, F.** Calcn. of the degree of oxidation and detn. of the oxidation no. of nitrous gases in $H_2SO_4$ and $HNO_3$ plants, 2494*i*.
**Perl, S.** See Karrer, P.
**Perley, G. A.** Compn. of pH-responsive glasses, 4083*c*; glasses for measurement of pH, 4083*f*; pH response of glass electrodes, 6051*f*.
**Perlman, A.** See Scherf, D.
**Perlman, D.** Effect of minor elements on the physiology of fungi, 4339*b*, production of penicillin on natural media, 5076*d*; growth and metabolism of *Polyporus anceps* in submerged culture, 5094*b*; detn. of mannosidostreptomycin, 9128*d*.
——— and Langlykke, A. F. Mannosidostreptomycinase, 1460*d*.
——— and Woodruff, H. B. Citric acid production by *Aspergillus niger*, 9165*h*.
**Perlman, E.** Detn. of antihistaminic compds. contg. the pyridine radical, 6686*c*; see Baker, E. E.
**Perlman, I.** See Chubbuck, J. B.; Cunningham, B. B.; Goeckermann, R. H.; Seaborg, G. T.
———, Ghiorso, A., and Seaborg, G. T. $\alpha$-Decay systematics of the heavy elements, 1647*i*; relation between half-life and energy in $\alpha$-decay, 4125*e*.
**Perlman, M. L.** Photonuclear reactions, 4116*a*; see Lawson, J. L.
**Perlman, P. L.** See Leonard, S. L.
Leonard, S. L., and Kurzrok, R. Liberation of hyaluronidase from testes homogenate and spermatozoa, 7521*f*.
**Perlmann, G. E.** Electrophoretic properties of plakalbumin, 5065*c*; see Goebel, W. F.
——— and Kaufman, D. Effect of AcOH on the stability of serum proteins, 6261*h*.
**Perlmutter, B.** See Farkas, L.
**Perloff, W. H.** Hormones in human aality, 8498*h*.
**Perlotto, T.** See Riccoboni, L.
**Perls, T. A.** Rotation of electrolytes in a magnetic field, 4066*b*.
**Perlstein, A.** Applications of the Ge crystal diode in precision measuring technique, 6094*c*.
**Perlzweig, W. A.** See Pearson, P. B.; Rosen, F.
**Permanente Metals Corp.** (*Patents.*) Electrophoretic separator of Mg dust from liquid hydrocarbon, 7*h*; powd. Mg, 104*b*; Mg refining, 1708*hi*, 3340*e*; protective surface treatment of Mg-base alloys, 2525*b*, 8348*e*; vulcanization of butadiene-styrene rubbery copolymer, 2808*f*; Sorel cement, 4828*c*; Mg furnace feed, 7838*c*; Mg explosive compn., 8682*g*; app. for cooling gaseous media, 8759*b*.
**Permanyer, F.** See Morton, W. E.
**Permutit Co.** Salt-level indicator for zeolite water-softening tanks, P 4407*b*; ion-exchange process, P 5238*c*; cation-exchange materials, P 5517*c*; treatment of water, P 6345*c*; operation of ion-exchange beds, P 6448*c*.
**Permutit Co. Ltd.** Cation-exchange materials, P 337*c*; removal of dissolved salts from sea water, P 3954*d*; anion-exchange or acid-removing resins, P 7609*d*; see Kressman, T. R. E.
———, Kressman, T. R. E., and Holmes, L. E. Cation-exchange resins, P 2814*i*, 3954*e*.
**Perna, F.**, and Pelcík, J. Estn. of naphthalene in tars, 2755*c*.
**Pernoux, É.** Electron microscope examn of kieselguhr, 8831*a*.
**Perold, G. W.**, and Jeger, O. Diterpenes (LVIII) partial dehydrogenation of fichtelite, 6601*f*.
———, Meyerhans, K., Jeger, O., and Ruzicka, L. Triterpenes (CXL) degradation reactions of friedelin, 7925*i*.
**Péronnet, M.** Impurity of $CHCl_3$ liable to interfere with the detn. of cholesterol, 5442*c*; detn. of adrenaline, 5538*d*.
**Perov, I. S.** See Grom, V. A.
**Perov, S. S.** Colloidal properties of purified casein albumin protoacid in an active acid medium, 3053*i*; pure plant food proteins, 3537*a*; loss in wt. of purest albumin protoacid, 3860*c*.
**Perov, V. A.** Concn. of Fe ores in heavy suspensions, 1294*d*.
**Perperot, H.** Detn. of Mo in catalysts, 7864*c*.
——— and Delavet, J. Detn. of different compds. resulting from action of S on Cu, 7863*i*.
**Perphillow, N. A.** See Perfilov, N. A.
**Perra, A.** See Giua, A.
**Perrault, M.**, and Vignalou, J. Synthetic antihistamines in therapy, 1104*g*.
**Perret, A.**, and Riethmann, J. Reaction of C with Ca, Ba, and Mg nitrides and their relations with the cyanide-cyanamide equil., 8930*d*.
——— and Woringer, J. NaCN, P 4821*i*.
**Perret, R.** Fonderie des alliages légers (book), 3338*i*.
**Perreu, J.** Heats of adsorption of $NH_3$ gas and of $C_2H_4$ gas on active charcoal, 4939*d*; measurement of the heat of adsorption of gases and vapors on active C, 6903*g*; heats of adsorption of $C_2H_2$ and $H_2S$ on active C, 7317*c*; heats of adsorption of Me oxide and the heats of wetting of different liquids on activated charcoal, 8835*e*.
**Perri, G. C.** Antianemic principle (II) action of liver ext. and folic acid on hematopoiesis in the chick embryo, (III) specific test for antianemic activity, 3869*a*; detn. of antipernicious anemia activity, 9131*e*.
**Perri, J. M.** Stabilized foam-forming compn., P 5594*f*.
**Perrier, J.** See Joumier, E.
**Perrier de la Bathie, H.** See Bathie, H. P. de la.
**Perrin, J.** Principios de la quimica fisica (book), 1640*c*; Atomes (book), 6922*h*.
**Perrin, M.** Reduction with H of Ni Fischer catalysts, 26*i*; see Trambouze, Y.
**Perrings, J. D.** See Koenig, V. L.
**Perrins, L. E.** See Charlton, W.
**Perron, R.** See Paquot, C.
——— and Paquot, C. Formation of sym. ethers derived from long-chain satd. aliphatic alcs., 5003*d*, 6156*e*.
**Perrot, E.**, and Fabre, R. Manuel de phytopharmacie (book), 3151*d*.
**Perry, E.** See Hauser, E. A.; Reese, F. E.
**Perry, E. S.** Talc, graphite, vermiculite, and asbestos in Montana, 4984*d*; see Biehler, R. M.
**Perry, F. C.** See Gunn, D. L.
**Perry, G. L.** Lubricant compn., P 4459*c*; see Barnum, E. R.
**Perry, H. A.** See Levy, S.
**Perry, H. J.** Manuf. of groundwood, 2771*h*; groundwood mills, 4010*h*; neutral sulfite semichem. pulping process, 5590*g*.
**Perry, J. A., Jr.** Crit. flow through sharp-edged orifices, 8752*b*.
**Perry, J. W.** ACS Punched Card Committee—interim report, 3251*h*; see Schwartz, A. M.
**Perry, K. M. A.** See Agate, J. H.
**Perry, L. H.** Solvent polymerization of isoprene and styrene-isoprene, 8190*h*.
**Perry, L. M.** Temp.-sensitive adhesive, P 8662*i*.
**Perry, M. H.** See Dervoort, G. van; Serfass, E. J.
**Perry, S. F.** Isomerization, 7759*c*.
**Perry, S. H.** See Henderson, E. P.

—— and Henderson, E. P. Livingston, Tenn., meteorite, 8988e.
**Perry, S. V.**, Reed, R., Astbury, W. T., and Spark, L. C. Electron microscope and x-ray study of the syneresis of actomyosin, 3867b.
**Perry, W. A.** See Merrill, D. R
**Perry, W. E.** See Arnold, M. H. M.
**Perry, W. F.** Effect of ill health on the excretion of 17-ketosteroids, 6299b, see Cosgrove, J. B. R.
**Perry, W. L. M.** See Hawking, F.
**Perryman, J. H.** See Hall, V. E.
**Persell, R. M.** See Gastrock, E. A.; Spaduro, J. J
**Pershin, G. N.** Sulfonamide action—catalase activity of bacteria, 724a.
**Persianinov, L. S.** Action of acetylcholine on contractile activity of the uterus, 1488d.
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—— and Addis, T. Food protein consumption in glomerulonephritis—effect on proteinuria and the concn. of serum protein, 2697b, increased rate of urea formation following removal of renal tissue, 8512d.
**Persin, S. A.** See Pyatnitskii, G. K.
**Persoz, B.** See Desalme, R.
**Persson, A. R.**, and Nauclér, J. O. Sepg. gases in mixts., P 8758e.
**Persson, B. H.** Effect of gonadectomy, pregnancy, and administration of estradiol on the lymphatic tissue of the spleen, 6720h.
**Persson, G.** See Johansson, C. H.
**Persson, H.** See Lundquist, B.
**Persson, J. A.** See Erasmus, H. D.
**Perti, O. N.** See Singh, B. K
**Perti, S. L.**, Ranganathan, S. K., Subramanian, T. S., and Sud, L. R. Metallic oxides as barrier treatments for prevention of attack by light on cellulose, 8133h
**Pertierra, J. M.** Calcn. of thermodynamic functions from spectral data, 8838g, (I), 6068e; (II) systematics of partition functions, 8838h
**Pertuiset, B.** See Barbizet, J.
**Pertusi, C.** Coroso di chimica e mineralogia (book), 1255a.
**Pertzoff, V.**, and Gemmill, C. L. Effect of anesthetics on uptake of radioactive P by human erythrocytes, 3103g.
**Perutz, M. F.** X ray studies of cryst. proteins, 3049b; x-ray study of horse methemoglobin (II), 5064e; see Kendrew, J. C
**Perveev, F. Ya.** Isomeric transformations of ketones and aldehydes of the acetylene series (II), 3355a.
**Peschanski, D.** Soln. of S in aq. solns. of $Na_2S$, 2493f, see Souchay, P.
—— and Valensi, G. Normal potentials and constitution of aq. polysulfide solns., 2493h.
**Peschard, M.** Ignition pressure of hydrocarbons and the temp., 7209f.
**Peschkowa, W. M.** See Peshkova, V. M.
**Pesenti, G.** See Mainardi, L.
**Pesez, M.** Detn. of water, 2893a; utilization of *trans*-dehydroandrosterone in the detn. of urinary ketosteroids, 4316b, detection of N in org. mols., 5336f, detection of AcH in ether, 5341d; color reactions in the steroid series (II) calciferol and precalciferol, 8312b, see Velluz, L.
**Peshekhonov, A. A.** See Petrov, G. S.
**Peshkov, I. A.** Soly. of Rh hexanitrite and of Rh triammine nitrite, 6047f
**Peshkov, V. P.**, and Zinov'eva, K. N. Second sound in He II under higher pressures, 3680g.
**Peshkova, V. M.**, Vedernikova, M. I., and Gontaeva, N. I. Ni 1,2-cyclohexanedione dioxime, 8938g.
**Peski, A. J. van.** Polymerization of olefins in the presence of N compds., P 8666g.
**Peski, C. C. J. van.** Polymerization of olefins in the presence of N compds., P 8666g.
**Peskin, A. L.** Regenerating of retting liquors, P 3628b.
**Peskind, S.** Liberation of autogenous neural lipides in polio-infected animals to effect virus inactivation—lipoid approach to the chemotherapy of poliomyelitis, 3526f, (book), 8051b.
**Peskov, N. P.**, and Preis, E. M. Course of Colloid Chemistry (book), 5277a
**Pesonen, P. E.** Waukon Fe deposit, Allamakee Co., Iowa, 6125a; see Jahn, W. F.
——, Tullis, E. L., and Zinner, P. Missouri Valley Mn deposits, S. Dak. (I) investigations, stratigraphic studies, and tonnage and grade estimates, 4189c; (II) drill-hole logs and sections, 4608f.
**Pessel, L.** Metallizing nonmetallic bodies, P 1274a; plating tank for electrodeposition of Mn, Fe, etc., P 4151k, improving the corrosion resistance of magnetic cores, P 9022h.
**Pesson, M.** Synthetic pterins (IV) isomerism of 8,9-diaryldihydropteridines, 3010a.
**Pest Control Ltd.** 2,4-Dinitro-6-cyclohexylphenol, P 6230g.
**Pestelli, V.** See Venturello, G.
**Pestemer, M.** See Mohr, W.
**Pestov, N. E.** Physicochem. Properties of Granular and Powdery Chemicals (book), 7808e.
**Petat, J. M.** See Enselme, J
**Pete, R. H.** See Reichert, J. S
**Petelin, G. I.** See Ramsey, G. S.
**Peter, H.** Detn. of the Ca requirements of soils, 7171g.
—— and Kreissig, G. Flame photometer—substitution of other $NH_4$ salts for $NH_4$ acetate and $NH_4$ oxalate for detg. K, 6871f.
**Peter, R.** Thermocompression in sugar refineries, 9499b.
**Peter, R. C.** See United Domestic Industries Ltd
**Peter, W.**, and Fischer, W. A. Diagram of state and mech. properties of Fe-Cb and Fe-Ti alloys, 1299g.
**Peterburgskii, A.** Plant nutrition at the expense of adsorbent ions, 279a
**Peterfalvi, M.** See Jequier, R., Plotka, C.
—— and Jéquier, R. Physostigminelike properties of a synthetic curariform drug, 1486d.
**Pétéri, R.** Lab. paper tests, 3614d, use of the electron microscope in studying paper and cellulose, 3615d.
**Petering, H. G.** See Schmitt, J. A
—— and Delor, R. A. Inability of thymine and adenine to substitute for pteroyl glutamic acid in the folic acid deficient rat, 8463e
——, Stubberfield, L., and Delor, R. A. Guinea-pig factor of Wulzen and Van Wagtendonk, 2680g.
**Peterlin, A.**, and Stuart, H. A. Eucken, Arndol, Hand und Jahrbuch der chemischen Physik Bd 8, Doppelbrechung, insbesondere Kunstliche Doppelbrechung (book), 6088h
**Petermann, M. L.** See Alfin Slater, R. B.; Brown, G. B., Tagnon, H. J
—— and Lamb, C. M. Nucleohistone of beef spleen, 2251c.
—— and Mason, E. J. Nucleic acid content of chromosomes of normal and leukemic mouse spleen, 2306c.
**Peters, A. T.** See Brodrick, C. I., Contractor, R. B., Monahm, R. J
—, Rowe, J. M., and Brodrick, C. I. Reaction of certain diazosulfonates derived from 2-naphthol-1-sulfonic acid (XXVI) phthalazine and isoindolinone compds. derived from aniline, 237g.
**Peters, B.** See Bradt, H. L.
**Peters, B. G.** Potato root eelworm, DD, and soil sterilization (I), (II), 9337a.
**Peters, C.** See Brill, R.
**Peters, C. A.** See Jones, L. H.
—— and Shaw, F. R. Ti and Al in bees, 5874k.
**Peters, F. E.** See Bolliger, A.
**Peters, G.**, and Selbach, H. Buffering capacity of brain tissue—changes after concussion, 9212d
**Peters, G. A.** See Wakim, K. G.
**Peters, H.** Hard rubber, 8716d.
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**Peters, J. G.** See Smith, Herschel G.
**Peters, J. H.** See Hoberman, H. D.
**Peters, J. P.** Serum Na, 8181i, see Hald, P. M.
**Peters, J. T.** Detn. of serum and urine salicyl levels during treatment with salicyl drugs, 3054i.
**Peters, L.**, Bueding, E., Valk, A. D., Jr., Higashi, A., and Welch, A. D. Antifilarial action of cyanine dyes (I) against *Litomosoides carinii* and the cotton rat, 3930b.
—— and Speakman, J. B. Combination of wool with acids. Donnan theory of membrane equil., 3202c; limitations of the "internal pH" concept in textile chemistry, 6820c.
**Peters, L. M.** See Van de Griendt, G. H.
——, Marple, K. E., Evans, T. W., McAllister, S. H., and Castner, R. C. Pilot-plant design and construction—methacrylonitrile and acrylonitrile—production by oxidation of methallyl- and allylamine, 1613g
**Peters, M. C.** Paint reclamation, 2443f.
**Peters, R. A.** Pharmacology and biochem. lesions, 3519h; see Buffa, P.; Lathe, G. H., Liébecq, C.; Neville-Jones, D.
—— and Wakelin, R. W. Toxicity of vesicants and other compds. to the pyruvate oxidase system, 7590c.
——, Wakelin, R. W., and Cecil, R. Effect of thiol compds. on trypsin, chymotrypsin, and chymotrypsinogen, 2254f
**Peters, R. H.**, and Vickerstaff, T. Adsorption of direct dyes on cellulose, 8234a.
**Peters, V.** See Landis, G. G.
**Petersen, A. M.** See Munch-Petersen, A.
**Petersen, C. F.** See Wiese, A. C
——, Wiese, A. C., and Lampman, C. E. Effect of several protein supplements on hatchability when fed to hens in open pens and batteries, 285d.
**Petersen, E. M.** See Gore, R. C.
**Petersen, F. A.** See Friedberg, A. L.
**Petersen, G.** Theory of the NO-process for the manufg. of $H_2SO_4$, 1533i
**Petersen, H. I.**, and Staple, C. Testing of chem. pest control agents against plant disease and injurious animals (II) several preps. of DDT, 807g.
**Petersen, J. M.** See Munch Petersen, J.
**Petersen, J. W.** See Johnson, William S.
**Petersen, K. D.** See Dorph-Petersen, K.
**Petersen, M. S.** See Schumann-Petersen, M.
**Petersen, O. L.** See Lennert-Petersen, O.
**Petersen, P. E.** Intermittent discharge induction furnace, P 4151c.
**Petersen, P. V.** See Bing, J.
**Petersen, R.** See Katz, Alexander
**Petersen, S.** Org. fluorescent dyes, 1015b.
—— and Muller, E. New group of sweet substances, 108c
**Petersen, W. E.** Hormonal control of lactation 5839i, see Nataf, B.
**Petersen Oven Co.** Metal melting furnace with an inclined rotary melting chamber, P 2152i
**Peterson, C. A.** Degranulation of β cells of the rat pancreas by glucose correlated with alterations in glucose tolerance, 4769e.
**Peterson, C. E.** See Lensen, S. G.
**Peterson, D. F., Jr.** See Reeve, R. C.
**Peterson, D. H.** Hair wave creams, P 3574i, see Garson, W.; Murray, F. J.
**Peterson, E. A.** See Ballard, S. A., Winnick, T.
**Peterson, E. V.** See Deleng, W. B.
**Peterson, J.**, Harmon, K. M., and Niemann, C. Dependence of the specific activity of urease on the ab. enzyme concn., 2249f
**Peterson, J. A.** See Templeton, C. C.
**Peterson, J. B.** Ca linkage in soil granulation, 794h
**Peterson, J. H.** $TiO_2$, P 369e, see Mochel, W. E.
**Peterson, J. M.** See King, E. J.
**Peterson, Jack M.** See Cook, L. J.; Helmholz, A. C.
**Peterson, L. E.** See Dart, S. L.
**Peterson, M. J.** See Gabriel, A.
**Peterson, M. L.**, and Loomis, W. E. Effects of photoperiod and temp. on growth and flowering of Kentucky bluegrass, 2287h
**Peterson, N. R.** Styrenated oils, 1577i; see Hooker, G. W.
**Peterson, R.** See Rose, D.
**Peterson, R. E.** See Adair, R. K.; Bockelman, C. K.; Robinson, C. V.
**Peterson, R. F.**, McDowell, R. L., and Hoover, S. R. Continuous-filament casein yarn, 1570g.
**Peterson, S.** Rare elements in freshman chemistry, 6015b.
**Peterson, V.** See Gardner, E.
**Peterson, W. H.** Penicillin, 4339d; see Agarwal, P. N.; Bowden, J. P.; Chang, W. S.; Higuchi, K.; Hodgson, R.; Shull, G. M.; Singh, Kartar; Thorne, C. B.
**Peterson, Walter H.** See Anderson, John McAllister, S. H.
**Pethica, B. A.**, Roberts, E. R., and Winter, E. R. S. $NH_2OH$ in biol. fixation of N, 6273i.
**Pethybridge, S. I.** See McIlroy, L. W.
**Peticolas, M. A.** See Chow, B. F.
**Petit, A.** See Velluz, L.

**Petit, D.** Free-expansion oven, 378*h*; varying turbulence Cowper stove, 2908*c*.
**Petit, G.** Detn. of aldehydes and ketones by *p*-nitrophenylhydrazone, 68*e*.
**Petit, J.** Prepn. of monoglycerides manuf of modified alkyd resins, 1213*f*, 2463*h*, chem. structure of stand oil, 1577*i*.
**Petitcolas, P.**, Sureau, R., Frenkiel, J., and Goupil, R. Prepn. of some α-acetylacetamido derivs. of the thiazole series, 5776*b*.
**Petitjean, C.** See Wehrli, W.
**Petito, N. J.** See Finks, A. J
**Petitpas, G.** Detn. of carboxy groups in chains of the glucosidic type, 4641*g*; absorption of Congo red by cellulose, 4848*f*; see Roudier, A.
**Petitpas, T.** Empty structure of dinitrocellulose, 2427*f*; influence of phys. treatments on the structure of cellulose and of mercerized cellulose, 4849*f*.
——— and Mathieu, M. Solid-state reactions of org. polymers, 6061*a*.
**Petitpierre, C.**, and Volet, B. Improvement of the nutritive value of wheat by different amino acids, 9186*b*.
**Petke, F. E.** Polyamine resinous compn. and ink made therefrom, P 3215*d*
**Petkov, P.** Grignard synthesis with lupanine, 1047*h*; 5 aminohydroquinchonine, 6035*a*.
**Petracchi, G.** Interpretation of the corrosion process by cavitation, 6962*a*.
**Petrascheck, W.** Volcanic tuffs in the young Tertiary on the eastern border of the Alps, 527*b*; metamorphosis of C and its effect on the discernible components, 6395*d*.
**Petrascu, S.** See Maxim, N. N
**Petrašen, V. I.** See Petrashen, V. I.
**Petrashen, V. I.** Qual Chem Analysis (book), 5316
**Petreni, D.** See Brogi, Giulio
**Petrescu, M. V.** See Valeriu-Petrescu, M
**Petrescu, P.** Salt springs of Predeal, 2344*i*
**Petrianov, I.** See Petryan- I
**Petrich, K** See Bitsker, J
**Petrie, W.** Excitation of H and He in the upper atm., 3280*h*
**Petrillo, F** See Boscardi, F
**Petrillo, V. C.** Chem analysis of heat-treating salts, 2546*i*, filtration at low temps., 3665*h*
**Petrina, N.** Diffusion factor in normal and pathol gall bladders, 1480*g*
——— and Di Maggio, C. Behavior of blood elements after transfusion of heterogeneous blood, 3927*g*
**Petrini, M.** Resistance to heat of antibodies H, O, and Vi, 3511*a*
**Petrino, S. A.** Chem treatment of water-gas tar emulsion, 837*d*; de-emulsification of water gas tar emulsions and oil-gas tar emulsions, P 4451*f*
**Petrjanoff, I.** See Petryanov, I.
**Petrocarbon Ltd.** Solvent extn of penicillin, P 9390*b*, see Gray, Vincent L.; Wakeford, L. L.
**Petrochenko, E. I.** See Prokoshev, S. M.
**Petrolite Corp. Ltd.** (*Patents*) Polycarboxy esters of dimerized 9,11-linoleodrimenolenin, 67*hd*, polyhydric alc. esters, 843*d*, 1955*b*; breaking emulsions, 1557*e*, 5180*b*, 5937*g*, 6818*d*, 7221*i*; corrosion inhibitors, 5001*h*, 6406*g*, removing mud sheaths from oil wells, 5938*c*, preventing and(or) removing accumulations of solids from oil wells and pipe lines, 5938*d*; oxyalkylated diol esters for use as wetting agents, 6663*d*; carbonic acid amides of substituted glyoxalidines, 9427*a*.
**Petronelli, A.** Effect of methylthiouracil on anaphylactic and histamine shock before and after thyroidectomy, 4376*g*; influence of methylthiouracil on the local phenomenon of Arthus and on the production of pptg. antibodies, 9216*c*.
**Petronio, G.** See Stefanelli, S.
**Petrosini, G.** Vitamin C in vegetables, 5511*a*; (II) peppers, (III) tomatoes, 5879*c*; soils of Sele's plain, 8589*h*.
——— and Leone, G. Fertilization of wheat varieties and their nutritive value, 5524*a*.
**Petrosyan, O. P. M.** See Mchedlov-Petrosyan, O. P.
**Petrov, A. A.** Structure of the condensation product of piperylene with acrolein, 1731*b*; influence of the acid-base nature of the catalyst on the order of addn. of alcs. to divinyl oxide, 2079*d*, 6157*c*.
——— and Frost, A. V. Redistribution of H in octenes on alumino-silicate catalysts, 6150*g*.
——— and Sapozhnikova, A. F. Compn. of the amylene-piperylene fraction of the condensate formed in the catalytic decompn. of EtOH, 558*c*.
— and Sopov, N. P. Conjugated systems (XXXVI) condensation of diene hydrocarbons with methacrylic acid and methyl methacrylate, 3373*f*.
**Petrov, A. D.** Reaction of iso-PrMgBr with esters of hydroxybenzoic acid and of iso-BuMgCl with esters of BzOH, 2604*a*
— —, Chel'tsova, M. A., and Batuev, M. I. Hydroisomerization of *n*-octene to 2,2 dimethylhexene, 6152*c*.
— —, Erzyutova, E. I., and Batuev, M. I. Destructive hydrogenation of isobutylene polymers, 4627*i*.
——— and Kaplan, E. P. Grignard reaction (I) reaction of Grignard reagents with carbonyl compds., 1718*c*; reaction of BuMgBr with diethyl oxalate, 5368*f*.
——— and Mitrofanova, E. V. Synthesis of γ-acetylene glycols, 569*f*.
——— and Ol'dekop, Yu. A. Synthesis and properties of higher isoparaffin hydrocarbons of compn. $C_{20}$ $C_{36}$, 107*d*
**Petrov, B. I.** See Gukhman, B. S
**Petrov, G. A.**, and Salita, A. M. Gas-mask filter, P 5133*h*.
**Petrov, G. L.** Electropyrolytic gas, 4838*f*.
**Petrov, G. S.**, Kreshkov, A. P., and Saenko, A. D. Urea-formaldehyde resins, P 4894*c*
——— and Pedotova, O. Ya. Thermo-reactive phenol-aldehyde resins, P 3234*a*.
— —, Peshekhonov, A. A., and Vygodskaya, M. B. Thermo-reactive resins, P 3234*b*.
**Petrov, I. P.** See Knunyants, I. L.
**Petrov, K. D.**, and Lagucheva, E. S. Reactions of silico anhydrides of org. acids (IV) prepn. of aromatic and alkaryl ketones, 1742*i*
**Petrov, V. P.** Leucitic minerals of the Transcaucasian region, 5708*i*
**Petrova, A.** See Tsvetkov, V. N
**Petrova, A. N.** Chem. properties and separn. of amylose isomerase from muscle, 6264*a*.
———, Rozenfel'd, E. L., Lebedeva, L. B., and Spitsina, L. N. Prepn of highly purified muscle phosphorylase, 7986*i*
**Petrova, A. S.** See Ivanova, A. A
**Petrova, L. N.** Detn of Br nos. of unsatd carbonyl compds., 6510*e*.
**Petrovich, G. G.** Cement for abrasives, P 9408*h*
**Petrow, V.** Naphthyridones, P 6242*c*, see Edwards, W. G. H., Ellis, B., Hollingsworth, B. L., Holt, S. J., Lal, A. B., Therapeutic Research Corp of Great Britain Ltd.
——— and Rewald, E. L. Derivs. of 2-keto 1,2 - dihydro - 1 - oxa - 8 - azaphenanthrene, 7027*i*.
——— and Saper, J. 5-Azaquinoxalines and 4-azabenzimidazoles, 1425*c*
**Petryanov, I.**, and Rozenblyum, N. Contact angles of small drops, 17*f*.
**Petrźela, L.** Properties of bentonite of Braňany, Czech., 4990*e*.
**Pett, L. B.**, and Hanley, F. W. Nutrition survey of a Nova Scotia island, 9194*i*.
**Pette, J. W.**, and Liebert, J. L. Gaseous fermentation in processed cheese, 5877*g*
**Petterson, O.** See Forbes, J. C.
**Pettersson, H.** Geochronology of the deep ocean bed, 8761*i*.
**Pettet, A. E. J.**, and Jones, E. E. Waste waters from farm premises, 3953*e*.
**Pettijohn, F. J.** Sedimentary Rocks (book), 4192*h*.
**Pettinga, F. L.** See Stutzman, J. W.
**Pettingell, W.** Extn. of benzene and S compds., 4833*g*.
**Pettingill, O. H.** See De Groote, M.
**Pettkó, E.** See Feuer, G.
**Petty, B. K.** DDT studies—agricultural pests, 346*g*; residual toxicity of chlorinated hydrocarbon insecticides, 5146*h*; see Ripley, L. B.
**Petty, D. S.**, Wright, E. P., and Garner, F. H. Combustion in Germany, 2753*d*.
**Petukhova, V. P.** Recovery of Ag with the aid of cationite, 3306*b*.
**Petzold, R. F.** See Singer, S. J.
**Pevere, E. F.** See Moore, F. J.
**Pevný, A.** Structure and property of glass, 9398*i*.
**Pew, J. C.** Flavonone from Douglas-fir heartwood, 395*d*, 3195*c*; membranous substances in common heartwoods, 3194*i*.
**Pew, P. F.** Diatomite filter unit with air-bump wash, P 6009*g*.
**Peychès, I.** Elec. melting of glass, 5163*b*.
**Peyer, W.** See Kuntze, K.
**Peynaud, E.** Detn. of glycerol in wine, 7635*i*; see Génevois, L.
**Peyron, L.**, and Lapaine, J. Synthesis of primary sulfenamides, 2934*a*.
**Peyron, M.** See Bernard, R.
**Peyronel, G.**, and Pacilli, E. Cu-Fe-S system, 1637*f*.
**Peyrou, C.** Luminescence of Zn-Cd sulfides, electronic transitions without emission of light, and the multiple-impact theory, 8894*g*.
**Peyssou, J.** Electrolytic phenomena in glass, 6379*e*.
**Peyton, G.** Geology and mineral resources of Georgia, 2130*d*
**Pezold, F. A.** Relation of cocarboxylase to free thiamine in the blood and urine, 1480*d*.
**Pezzuoli, G.** See Bracci, U.
**Pfaff, M. L.** See Seibert, F. B.
**Pfahler, B.** See Sisler, H. H
**Pfann, H. F.**, and Dixon, J. K. Piperazine, P 2242*g*.
**Pfann, W. G.**, and Scaff, J. H. Microstructures of Si ingots, 9002*e*.
**Pfanner, H.** Valuation of solvent naphtha for use in paints, 4489*h*.
**Pfannstiel, K.** See Bruntzinger, H
**Pfeffer, E. C., Jr.** Glass cloth spotting material, P 1935*a*.
**Pfefferkorn, G.** Structure of Pb azide, 6031*c*.
**Pfeifer, S.** Stability of 0.1 *N* $Na_2S_2O_3$ solns., 2888*i*.
**Pfeiffer, A.** See Cheymol, J.
**Pfeiffer, C. A.** Development of leiomyomas in female rats with an endocrine imbalance, 5856*g*, gonadotrope effects of exogenous sex hormones on the testes, 7565*d*, effects of bone ext. injected into the testis, 8041*b*.
——— and Allen, E. Producing cancer in rhesus monkeys with carcinogenic hydrocarbons and estrogens, 304*a*
**Pfeiffer, C. C.** See Kimura, K. K.; Orloff, M. J.
**Pfeiffer, E. L.** What size cooling towers? 4902*c*.
**Pfeiffer, H. H.** Dependence of optical polarization measurements in chromatin and thymonucleic acid gels on temp., 261*b*; birefringence and orientation rate of the leptones of protoplasm, 2653*b*; orientation of rodlike nucleic acids of the chromosomes in salivary glands, 9092*g*.
**Pfeiffer, J. E.** Enzymes, 9100*g*
**Pfeiffer, P.**, Jennung, W., and Stöcker, H. Autoxidation phenomena (VI), 7471*f*.
**Pfeil, E.** Sandmeyer reaction (I) formation of phenols and halogenated benzenes through the decompn. of diazonium halides, 4649*d*.
**Pfeil, L. B.** Spark plug electrodes, P 1712*b*; see Middleton, A. B.
**Pfister, E.** See Pfister, H.
**Pfister, H.**, and Pfister, E. Impregnating substances for paper, P 2436*e*
**Pfister, K., III.** See Wolf, F. J
———, Howe, E. E., Robinson, C. A., Shabica, A. C., Pietrusza, E. W., and Tishler, M. Synthesis of DL-threonine (I) from α-bromo-β-methoxybutyric acid and derivs., 4224*g*.
— —, Robinson, C. A., Shabica, A. C., and Tishler, M. Synthesis of DL-threonine (II) interconversion of DL-threonine and DL-allothreonine, 4225*b*.
**Pfizer, C., & Co., Inc.** Itaconic acid, P 2366*g*.
**Pfundt, O.**, and Jander, G. App. for visual conductometry, 3245*h*.
**Phadke, B. N.** Chapters in Phys. Chemistry (book), 7319*a*; History of Dyes and Dyeing in the Bombay Presidency (book), 7694*a*.
**Phadnis, K. D.**, Rege, A. V., Pishawikar, D. G., and Shah, S. V. Oils from the seeds of *Luffa aegyptiaca*, *Benincasa ceriferra*, and *Allium cepa*, 6842*d*; oil from the seeds of *Mesua ferrea*, 8708*e*; oil from the seeds of *Ipomoea muricata*, 8708*g*.
**Phaff, H. J.** See Mrak, E. M.
**Phalnikar, N. L.** See Gokhale, V. G.; Ingle, T. R.; Irani, K. R.
**Pharmaceutical Organics Inc.** Ascorbosalicylate double salts, P 1914*e*.
**Phatak, S. S.**, Dole, K. K., and Karve, D. D. Cryoscopic studies in Indian edible oils and fats, 6840*b*.
**Phebus, R. L.** See Zapffe, C. A.
**Phéline, J. M.** See Castro, R.
——— and Castro, R. Detn. of low B concns.

in steel, 2546*a*; plate calibration for quant. spectrochem. analysis, 5695*a*.
**Phélise, J.** See Cornubert, R.
**Phelps, A. J.** See Findlay, G. M.
**Phelps, A. S.** Riboflavin, P 6702*e*.
**Phelps, E. B.** Public Health Engineering. Vol. I (book), 1129*a*.
**Phelps, G. W.** Nonceramic uses for clay, 2380*a*.
**Phelps, H. D.** Exploration of the Copper Butte Mine, Mineral Creek Mining District, Pinal Co., Ariz., 2131*c*.
**Phelps, S. M.** Properties of refractory materials, 3584*e*.
**Pheofilov, P. P.** See Feofilov, P. P.
**Phibbs, M. K.**, and Darwent, B. de B. Active Me radicals in the photolysis of $Me_2Hg$, 7825*d*.
**Philadelphia Inquirer Co.** Gravure plate, P 7852*b*.
**Philadelphia Paint & Varnish Production Club.** Stability of yellow pigments, 3211*f*.
**Philadelphia Quartz Co.** Hydrated polysilicate, P 826*d*; adhesive, P 2471*i*.
**Philbrick, F. A.**, and Holmyard, E. J. Text Book of Theoretical and Inorg. Chemistry (book), 8256*g*.
**Philco Corp.** Luminescent screen, P 7832*h*.
**Philinis, J.** See Schwab, G. M.
**Philip, A. R.** See Chesters, J. H.; Halliday, I. M. D.; Howes, R. S.
**Philip, B.** See Lindberg, J.
**Philip, J.** White-pigment production (I), 1195*f*.
**Philip, T. B.** See Distillers Co., Ltd.
**Philip Carey Manufg. Co.** See Carey, P., Manufg. Co.
**Philipov.** See Filippov.
**Philipp, K.**, and Rehbein, F. Energy problems with artificially radioactive As, 4120*a*.
**Philippoff, W.** Viscosity of colloids, 2487*a*.
**Philippot, E.** See Bacq, Z. M.; Charlier, R.; Dallemagne, M. J.
**Philippovich, A.** Betriebsstoffe für Verbrennungskraftmaschinen (book), 9419*a*
**Philippowa, W. N.** See Filippova, V. N
**Philips, F. S.** See Hunt, C. C.; Thiersch, J. B.
——, Gilman, A., Koelle, E. S., McNamara, B. P., and Allen, R. P. Water and electrolyte balance in dogs intoxicated with N mustard, 3112*a*.
—— and Thiersch, J. B. Action of 4-amino pteroylglutamic acid, 4768*b*.
**Philips Laboratories, Inc.** Oxide insulating coating for Ni-Cr resistance wire, P 4153*e*.
**Phillipp, L. S., Jr.** Electrically-fired kiln for manufg. portland cement, 3589*d*.
**Phillips, A.** See Brick, R. M.
**Phillips, A. M., Jr.** Vitamin B requirement of trout, 5465*a*.
—— and Brockway, D. R. Niacin and biotin requirement of trout, 9271*c*.
**Phillips, A. N.**, Rosen, L., and Taschek, R. F. Upper limits of the fission cross sections of Bi, Pb, Hg, Au, Ir, and W for 14-m.e.v. neutrons, 4127*d*.
**Phillips, A. P.** Condensation of aromatic aldehydes with 4-picoline methiodide, 7483*d*; see Baltzly, R.
**Phillips, B., Jr.** Reaction of enol esters with anhydrides, P 7038*c*.
**Phillips, C. G.** Preheating with steam in molding plastics, 7747*b*.
**Phillips, D. M. P.** See Butler, J. A. V.
—— and Stephen, J. M. L. Chromatography of dinitrophenyl derivs. of amino acids and peptides, 138*a*.
**Phillips, E. W.** Sensitivity to gonadotropins in allergic women, 3919*h*.
**Phillips, G. C.** See Bonner, T. W.; Harris, J. C.
—— and Harris, J. C. Scattering of fast neutrons by Hg, 4093*h*.
**Phillips, G. L.** See Bryant, J. M.
—— and Bodenstein, W. G. MeBr fumigation of bulk cottonseed for pink bollworm control, 1900*f*.
**Phillips, H.** See Chilton, L. V.
**Phillips, H. W. L.** See Brommele, N. S.
**Phillips, John.** See Albert, Adrien.
**Phillips, Joseph.** Stability of petroleum waxes, P 393*g*; see Kinsel, A.
**Phillips, J. A.**, and Kruger, P. G. Energy of $\gamma$-rays emitted during the reaction, $F(p,\alpha)O$, 4091*b*.
**Phillips, J. G.** Extension of the Swan system of the $C_2$ mol., 940*b*, 2510*f*; Fox-Herzberg system of the $C_3$ mol., 8883*h*; see Herzberg, G.
**Phillips, J. K.** Testing cotton-fiber strength, 1191*f*; fiber tensile values obtained on the Pressley tester and Scott IP-4 at different test speeds, 5191*c*.
**Phillips, J. N.** See Cavill, G. W. K.; Gore, P. H.
**Phillips, J. W.** See Vavruch, I.
**Phillips, L. B.** See Rogers, A. O.
**Phillips, M. A.** Flavine series of antiseptics, 2370*h*; 3,5-dinitro-4-hydroxybenzenearsonic acid, 2436*i*.
**Phillips, N. A.** Effect of Fourdrinier machine operating variables as related to formation of sulfite papers, 848*a*.
**Phillips, N. E.** See Quimby, F. H.
**Phillips, O.** See Milas, N. A.
**Phillips, P. H.** See Bowland, J. P.; Hansen, R. G.; Maruyama, G. M.; Pope, A. L.; Weir, W. C.; Whitehair, C. K.
——, Kastelic, J., and Hart, E. B. Effect of mixed tocopherols on milk and butterfat production of the dairy cow, 1468*a*.
**Phillips, R.** See Panofsky, W. K. H.
**Phillips, Ralph F.** See Huntress, E. H.
**Phillips, Richard F.** *N*-Acylamino acid esters, P 3030*a*.
**Phillips, S. H.** Aircraft finishing, 1304*i*.
**Phillips, T. G.**, and Loughlin, M. E. Compn and digestible energy of hays fed to cattle, 6755*e*.
**Phillips, Miss W. M.** Estn. of Cl in polymeric materials, 1684*f*.
—— and Wake, W. C. Detn of unsatn., 7368*c*.
**Phillips, W. M.**, and Clifton, F. L. Judging the quality of plated parts, 8901*f*
**Phillipson, A. T.** See Elsden, S. R
**Phillips Petroleum Co.** (*Patents.*)
alkylation, 389*i*, 1174*g*, 4458*d*.
alkylation, control of catalyst viscosity in, 4005*g*.
alkylation of paraffins in presence of HF, 1559*b*.
aluminum halide recovery from Al halide-hydrocarbon complex, 4005*i*
aromatic hydrocarbon recovery, 4002*g*
aromatic hydrocarbons, alkenyl and alkyl derivs. of, 7507*f*.
azeotropic distn of $C_4$ acetylenes from 2-butene, 4682*a*
carbon, 3177*d*.
carbon black, 1172*c*, 2409*b*, 5930*a*.
carbon black agglomeration, 2803*d*
carbon disulfide, 5555*f*.
catalyst chambers for cracking of hydrocarbons, 843*h*
catalyst regeneration, 5134*i*, 9420*d*.
conversion processes, prevention of siliceous deposits in, 1558*h*
corrosion-preventing compn. and method of applying, 8349*d*
corrosion-resistant valve lubricant, 846*a*.
dehydration of HCl-hydrocarbon mixts., 4007*f*.
dehydrofluorination, 661*a*.
dehydrogenation, 5030*e*
dibasic acids, 2225*h*
dicyclopentadiene, 4693*e*.
diolefins, 3023*c*
drilling fluids, 5179*g*.
drilling-mud removal from oil wells, 5582*d*.
elec. heating app. for heating a dehydrogenation catalyst chamber, 4151*b*.
ethylene diformate from dioxane, 7503*a*.
Fischer-Tropsch synthesis gas from oil shale, 1170*f*.
foam prevention in extractive distn of hydrocarbons with furfural solvent, 914*b*.
fuel for motors, 4834*i*, 7677*e*.
furfural, inhibiting polymerization and corrosiveness by mercaptobenzothiazole of, 9430*i*.
furfural polymerization, inhibition of, 7969*i*.
GR-S polymerization promoter, 6457*h*.
hydration of olefins, 3438*f*.
hydrocarbon purification, 2421*e*.
hydrocarbon sepn., 7223*d*.
hydrocarbons from CO and H, 839*c*.
hydrocarbon treatment, 6403*b*.
hydrogen chloride (liquid anhyd.), 3983*f*.
hydrogen fluoride recovery, 914*c*, 3189*h*.
hydrogen fluoride storage, 6373*i*.
hydrogen sulfide purification, 9390*i*.
iron sulfate pretreatment in emulsion polymerization, 6457*i*.
isomerization and hydrogenation of hydrocarbons, 1561*a*.
isomerization of hexane, 4007*a*.
isomerization of hydrocarbons, 844*f*, 3833*c*, 4006*e*.
isomerization of olefins, 1175*g*.
isomerization of paraffins, 3833*a*, 4006*h*.
lubricating-oil additives, 1176*d*.
molding polysulfone resins, 1217*d*.
nitrogen sepn. from natural gas, 7670*b*.
polymerization catalyst, 5788*e*.
polymerization (emulsion), 3650*h*.
reaction of an $C_2H_2$ with HF to produce vinyl fluoride and(or) difluoroethane and homologs thereof, 6645*c*.
refining oils, 4003*a*.
resins from $SO_2$ and unsatd. org. compds., 1217*b*.
silica-alumina catalyst, 1932*a*, 5887*b*.
silicon fluoride removal from HF alkylate, 4006*b*.
sodium sepn. from high-mol. polymers, 2469*e*.
solvent extn. of mercaptans, 2423*e*.
solvents, 1883*e*.
*N*-substituted amides, 8398*f*.
sulfides and mercaptans, 2219*h*.
sulfur compds., 5232*e*.
tertiary-base olefins, 5186*i*.
thiol esters, 3444*i*.
treatment of materials with a volatile treating agent, 4449*a*.
unsatd. nitriles, 4286*b*.
**Phillips Petroleum Co.** See Stevens, A. H.
**Phillpotts, G. C.** See Bennett, J. G.
**Philpot, F. J.** See Chain, E.
**Philpot, J. S. L.** See Coulson, C. A.
**Phipps, G. S.** See Bouton, G. M.
**Phipps Products, Inc.** Impregnating agent for metal-wool cleaning pads, P 9497*b*.
**Phoenix, R.**, and Nuffield, E. W. Canerinite from Blue Mountain, Ont., 8986*i*
**Photo-Positive Corp.** Reproducing drawings on blanks, P 2532*e*.
**Photo-Produits Gevaert S. A.** See Gevaert Photo-Producten, N. V.
**Phu, Le Q.**, Trong, Le Q., and Duquénois, P. Smoke of Indo-Chinese opium and its morphine content, 8101*g*.
**Pi, C. C.** See Schaeffer, M.
**Pi, J. F.** See Folch-Pi, J.
**Piacentini, G.** Antiseptic and disinfectant power of bergamot, orange, and lemon essences in water soln. against spore-bearing organisms, 4811*f*.
**Piacenza, M.** See Codignola, F.
**Piana, F. G. la.** See La Piana, F. G.
**Piana, G.** See Usuelli, F.
**Piankow, W. A.** See Pyankov, V. A.
**Piatnitsky, Piatnizky.** See Pyatnitskii
**Piatti, E.** Anodic oxidation of Al, etc., P 4588*c*.
**Piatti, L.** Development of the industry of $C_2H_2$ polymers, 557*d*
**Piazza, J.** Contact surface and temp. gradient in a new fractionator, 2*g*; distn of mixts by heating the liquid-vapor interface, 7297*i*.
**Piazza Molini, C.** See Velasco, J. R.
**Picard, F.** Optimum octane no., 8655*g*; see Thaler, L.
—— and Thaler, L. Combustion engine, 8126*g*.
**Picard, J. P.**, and Kearns, C. W. Analysis of the essential structural features of DDT—toxicity of closely related compds., 7628*f*.
**Piccioni, O.** Photons from meson capture, 1642*d*.
**Picciotto, E.** Effect of pH on the development of photographic plates contg. borax or uranyl nitrate, 7328*d*; influence of pH in the treatment of photographic emulsions for nuclear research, 7841*a*; double photographic emulsion in nuclear chemistry, 8263*f*.
**Piccolo, P.** See Scuderi, F.
**Pichardo, G. M.** See Molina Pichardo, G.
**Pichat, L.** See Colonge, J.
**Pichat, P.** See Josserand, A.
——, Viallier, J., and Minjat, B. Action of vitamin $D_3$ on Koch's bacillus in homogeneous cultures, 5097*f*; influence of vitamin $D_3$ on bactericidal activity of human serum and urine on Koch's bacillus, 5097*g*.
**Pichelmayer, H.** See Zinke, A.
**Pichler, A. A. B.** See Benedetti-Pichler, A. A.
**Pichler, H.** Gasoline synthesis in the U.S., 7664*c*.
**Pichon, M.** Rubber-yielding Apocynaceae of Madagascar, 6221*d*.
**Pichotka, J.** See Kühn, H. A.
**Pichugin, E.** See Deryagin, B. V.
**Pick, E.** Salt-level indicator for zeolite water-softening tanks, P 4407*b*.
**Pick, H.** Prepn. of reflecting deposits by chem. reactions, 8823*g*.
**Pickands Mather & Co.** Treatment of titaniferous Fe ores, P 6142*k*.
**Pickard, G. L.**, and Simon, F. E. Liquefying

He, 3247*e*; at. heats of Pd, Na, and Hg at low temps., 3700*f*.
**Pickard, H. B.** See Svirbely, W.
**Pickard, P. L.** Charging the Poth $CO_2$ generator, 8755*i*.
**Pickel, F. D.**, Fass, J. I., and Chodroff, S. Resolution of racemic α-hydroxy-β,β-dimethyl-γ-butyrolactone, P 3448*g*.
**Pickens, R. A.** See Booth, R. B.
**Pickering, E. T.** See Rhead, T. F. E.
**Pickering, G. B.** See Bailey, A. S.; Morrell, S. H.
**Pickering, R. W.**, Abreu, B. E., Bohr, D. F., and Reynolds, W. F. Effects of meperidine on gastroenteric, extrahepatic biliary, and cardiovascular activity, 8552*h*.
——, Abreu, B. E., Chen, J. Y. P., Burnett, R. C., and Bostick, W. C. Pharmacology of 2 - (1 - piperidyl)ethyl α - (3 - thenyl)-phenylglycolate-HCl, 3521*e*.
**Pickering, V. L.** See Pratt, R.
**Pickert, H.** See Gülzow, M.
**Pickett, A. D.** Insect chem. control, 5893*d*
**Pickett, E. E.** See Derfer, J. M.
—— and Ungnade, H. E. H bonding in 4-substituted cyclohexanols, 6174*b*.
**Pickett, T. A.** Storage effects on the proteins of peanuts, 329*a*.
**Pickett, W. J.** See Friedell, M. T.; Schaffner, F.
**Pickford, G. E.**, and Thompson, E. T. Effect of purified mammalian growth hormone on the killifish, 8563*f*.
**Pickholz, S.**, and Dickenson, H. G. Sulfonamides, P 6660*f*.
**Pickles, F.** Defects in textile fabrics, 854*f*, 3201*c*.
**Pickrell, K. L.**, and Cecil, A. Prevention of chem. sloughs—procaine, alc., ether, $H_3BO_3$, and other colorless solns. used, 3563*c*.
**Pickup, E.**, and Voyvodic, L. Cosmic stars in electron-sensitive emulsions, 8863*b*.
**Picon, M.** Surface tension of blood serum—adsorption, 7128; interfacial tensions of blood serum—flocculation and the compn. of lipoprotein complexes, 1823*d*; purification, sepn., and detn. of thiophene homologs from the pyrolysis of bituminous limestones, 4841*g*, 8127*b*; pyrogenation of bituminous limestone generators of thiophene and its homologs, 8126*i*.
**Picton, L.** Nutrition and the Soil (book), 5838*d*.
**Picus, N.**, and Spoerri, P. E. Bridge-substituted hemicyanines, 633*a*.
**Pidacks, C.** See Broschard, R. W.
**Pidd, R. W.**, and Madansky, L. Properties of the parallel-plate spark counter (I), 4946*d*.
**Pidgeon, L. M.** See Aust, K. T.
—— and King, J. A. Vapor pressure of Mg in the thermal reduction of MgO by ferrosilicon, 4932*d*.
—— and McCatty, S. A. Production of metallic Ca by thermal reduction of lime, P 3769*d*.
**Piédrola Gil, G.** Recientes adquisiciones y técnicas del empleo del DDT (book), 2363*g*; insecticides and repellents, 8086*h*.
—— and Bravo Oliva, J. DDT for control of *Ornithodoros erraticus*, 7629*c*.
—— and Ramos Escudero, A. Evaluating the newer insecticides in the lab. and in disinfected locales, 7626*d*.
**Pien, J.** $H_2O_2$ in the dairy industry, 778*h*; microdetn. of biacetyl in butter, 7601*b*.
**Piening, J. R.** See Cheney, L. C.
**Piepenbrink, H. F.** See Schmitz-Dumont, O.
**Pieper, J.** See Windeck-Schulze, K.
**Pierce, A. B.** See Zahm, E. L. E.
**Pierce, A. E.** See Morgan, B. B.
**Pierce, C.** See Smith, R. Nelson.
—— and Smith, R. N. Heats of adsorption (I), 1638*h*.
——, Wiley, J. W., and Smith, R. N. Capillarity and surface area of charcoal, 6036*g*.
**Pierce, F. T.**, and Field, J. Effect of 2,4-dinitrophenol on hexokinase and glycogenolysis, 9268*e*.
**Pierce, H. B.** See Krause, R. F.
**Pierce, H. C.** Exploration of Spirit Mountain Ni prospect, Canyon Creek, Lower Copper River Region, Alaska, 2131*f*.
**Pierce, J.** See Stokstad, E. L. R.
**Pierce, J. A.** Clay catalysts, P 7162*a*; silica gel, P 8578*d*; see Kimberlin, C. N., Jr.; Richardson, Roger W.; Spicer, W. E.
—— and Kimberlin, C. N., Jr. Spherical gel particles, P 1506*a*, 7608*f*, 8578*d*; drying hydrogel cracking catalysts by distg. with butanol, P 1555*f*.
**Pierce, J. G.** See Loring, H. S.; Melville, D. B.
—— and Loring, H. S. Purine and pyrimidine antagonism in a pyrimidine-deficient mutant of *Neurospora*, 1826*g*.
**Pierce, N. C.** See Drickamer, H. G.
**Pierce, O. R.** See McBee, E. T.
**Pierce, R. B.**, Krausel, W. F., and Lawson, J. M. Processing sour crude oil at Globe Oil and Refining Co.'s Lemont, Ill., Refinery, 1171*f*.
**Pierce Laboratory, Inc.** Sulfurized plasticizers for elastomer compns., P 8732*h*.
**Pierotti, G. J.** Extractive distn., P 2048*h*.
**Pierre, V. de.** See DePierre, V.
**Pierre, W. H.** Plant growth master key—P in human and animal food, 9273*f*, see Morris, H. D.
**Pierret, J.** See Graef, H. de.
**Pierrey, J.** Dilation at high temp., 8253*g*.
**Pierson, E.**, and Tishler, M. α-Amino-β-(carboxymethylmercapto)propionic acid from cystine, P 3451*c*.
**Pierucci, M.** Elec. cond. of split crystals, 6026*b*.
—— and Cremaschi, P. Anomalous spectroscopic inhibition, 7338*a*.
**Pieruccini, R.** Minerals of Cu ores of Calabona, Italy, 6949*b*, detn. of Cu in serpentines of northern Tuscany and in the ophiolitic rocks of Poggio Caprona, Leghorn, 6954*b*; see Carobbi, G.; Rodolico, F.
**Pieschkowa, W. M.** See Peshkova, V. M.
**Pietenpol, W. J.**, and Rogers, J. D. Microwave absorption spectrum of $CH_3Br_2$, 8880*a*.
**Pieters, H. A. J.** Analytical procedures (IV) detn. of Mg in water, 4793*g*; (V) analysis of pyrites, 4602*b*; (VI) detn of $NH_3$, 8308*a*; analysis of boiler water, 5140*b*, standardization of analytical procedures, 5692*i*; see Arens, J. F.
—— and Dam, J. W. Gas analysis, 6104*i*.
—— and Hanssen, W. J. Detn. of the degree of satn. with O of blood, 7535*d*; detn. of CO in blood, 7535*f*; detn. of traces of O in water, 7865*g*.
——, Hanssen, W. J., and Geurts, J. J. Detn. of Mg, 63*b*, detn. of Ni, Cr, and Mn in steel, 4598*e*.
—— and Hovers, J. W. J. Coal-dust explosions, 405*i*.
**Pieters, J. A. L.** Furnace for wood products, peat, or shape, P 8122*e*.
**Pietra, S.** See Crippa, G. B.
**Pietrogrande, V.** See Garaci, C.
**Pietrowski, J. J.** See Graessle, O. E.
**Pietrusza, E. W.** See Howe, E. E.; Pfister, K., III.
**Pietsch, H.** See Huckel, W.
**Piette, M.** Anemias by trioxymethylene, 1865*h*; see Poullain, P.
**Piettre, M.** Behavior of colloids at low temps., 4928*h*.
**Pietzsch, K. F.** Fractional condensation of phthalic anhydride, P 1228*f*.
**Piganiol, P.** Statistical calcns. and elasticity of high polymers, 438*b*; $CaC_2$ as a basic material for the chem. industry, 2871*c*.
**Piggot, A. P.** See Howell, T. H.
**Piggott, H. A.** See Heath, Royden L.
**Pighini, G.** Detn. of cholesterase activity of the nervous system, 712*h*.
**Pigman, W. W.** See Browning, B. L.
——, Browning, B. L., McPherson, W. H., Calkins, C. R., and Leaf, R. L., Jr. Oxidation of D-galactose and cellulose with $HNO_3$, $NHO_3$, and N oxides, 6823*d*.
—— and Csellak, W. R. Kraft color, 1184*g*.
**Pignedoli, A.** Thermodynamic state of an air mass, 7281*a*; wave formulation of the laws of thermodynamics, 7281*b*; van der Waals' equation—theorem of corresponding states, 7281*c*; diffusion of thermal neutrons, 7810*b*.
**Pignotti, L.** See Caniggia, A.
**Pigott, E. C.** Steelmaking for castings, 9007*i*.
**Pigoulewskij, G. W.** See Pigulevskil, G. V.
**Pigulevskil, G. V.**, and Kuznetsova, G. A. Secretion of the resinous runner roots of *Prangos pabularia*, 3416*b*.
—— and Markina, G. V. Asymmetric synthesis in linaloöl derivs., 4628*h*.
**Pigulewsky, G. W.** See Pigulevskil, G. V.
**Pijoan, M.** Insect repellents, 2363*c*.
**Pika, L.** App. for distg. glycerol and fatty acids, 2449*b*; app. for the distn. of glycerol, 7758*d*.
**Pike, E. D.** Sepn. of chlorides from $K_2CO_3$, P 828*b*; extg. potash from wyomingite, P 1927*e*; magnesia, P 6376*c*.
—— and Schoder, J. Electrolytic Fe, P 4158*c*.
**Pikovskaya, R. I.** Phosphate mobilization in soils—life processes of some microörganisms, 5521*h*.
**Pilar Rifé Lamprecht, M. del.** See Rifé Lamprecht, M. del P.
**Pilat, E. N.** See Neyman-Pilat, E.
**Pilcher, R. W.** See Cameron, E. J.
**Pilet, P. E.** Effect of K α-naphthacetylglycinate on the development of *Salvinia natans*, 8010*h*.
**Piletskaya, I. B.** See Nelmark, V. E.
**Pilger, A. C., Jr.** Field testing of motor oil and gasoline, 839*i*.
**Pilgrim, A. F.** See Gray, F. V.
**Pilgrim, F. J.** See Snyder, H. R.
**Pilipchuk, B. I.** Calcn. of temps. with a Pt resistance thermometer, 6499*c*.
**Pilipenko, A. T.** See Babko, A. K.
**Pilkington, E. S.** Recovery of $KIO_3$ in the iodate method for detn. of Th, 6930*h*.
**Pillai, S. C.**, and Subrahmanyan, V. Treatment of alk. water for reeling silk, 6422*e*.
**Pillay, A. P.** Disorders of Sex and Reproduction (book), 755*i*.
**Pillemer, L.** See Dunn, M. S.; Wartman, W. B.; Wittler, R. G.
**Piller, J. P.** See Pauritsch-Piller, J.
**Pillet, F. F.** Sewage-treatment plants, 2718*c*.
**Pilling, J.** See Biggs, R.; Macfarlane, R. G.
**Pilling, N. B.** See Gagnebin, A. P.
**Pillsbury, P. L.** See Kuzel, W. C.
**Pillsbury Mills, Inc.** Dry salad dressing, P 6333*b*; ingredients for prepg. food mixes, P 6333*d*.
**Pil'nik, R. S.**, and Sycheva, A. A. Detn. of volatile compds. with gaseous diffusion, 3745*d*.
**Pils, G. P.** See Zuidema, H. H.
**Pils, H.** See Wickert, K.
**Pimbley, G. H.** Phosphate and colored plastic coatings, 890*c*.
**Pimenova, Z. M.** Absorption of HCl in air analysis, 8971*d*.
**Pimenta, A. N.** See Nunes Pimenta, A.
**Pimenta de Mello, R.** See Cruz, W. O.
—— and Patiño Salazar, R. Normal and pathol. protoporphyrin content of erythrocytes, 1474*i*.
**Pimentel, G. C.**, and Sheline, R. K. Fermi gas model applied to the thermal e.m.fs. of Sn, Pb, and In, 8846*f*.
**Pimentel Imbert, M. F.** Bacteriología para enfermeras (book), 3066*h*.
**Pinaton, J.** See Revol, L.
**Pinching, G. D.** See Bates, R. G.
**Pinchussowitsch, L. L.** See Pinkhusovich, L. L.
**Pinck, L. A.** See Allison, F. E.
**Pinckard, J. H.** See Zechmeister, L.
**Pinckard, P. M.** By-product coke oven, P 2758*a*.
**Pincus, A. G.** Glass technology, 6377*i*; (II), 7203*d*; (III) phys. properties of glass, 9397*h*.
**Pincus, G.** See Hoskins, R. G.
——, Hoagland, H., Freeman, H., Elmadjian, F., and Romanoff, L. P. Pituitary-adrenocortical function in normal and psychotic men, 5852*h*.
——, Pirie, N. W., and Chang, M. C. Effects of hyaluronidase inhibitors on fertilization, 8483*h*.
——, Schenker, V., Elmadjian, F., and Hoagland, H. Responsivity of schizophrenic men to pituitary adrenocorticotropin, 8498*i*.
—— and Thimann, K. V. Hormones—Physiology, Chemistry, and Applications (book), 1099*i*.
**Pincus, J. B.** See Natelson, S.
**Pincus, P.** Enamel protein in some animals, 8411*f*; human enamel protein, 8411*g*.
**Pine, P. R.**, and Ray, E. C. Extruded Fe oxide catalysts, P 3162*d*.
**Pineau, R.** See Quelet, R.
**Pineda, M. D. G.** See García Pineda, M. D.
**Pinelli, R. W.** See Flood, R. G.
**Pines, B.** See Rabinovitch, J.
**Pines, B. Ya.** Calcn. of the simplest equil. diagrams of binary alloys, 7314*g*.
**Pines, H.** See Ipatieff, V. N.; Mavity, J. M.
——, Aristoff, E., and Ipatieff, V. N. Isomerisation of satd. hydrocarbons (VI) effect of $C_6H_6$ on the isomerization of methylcyclopentane, 3871*g*.

——— and Ipatieff, V. N. Purification of cyclic olefinic ketones, P 5039*c*.
———, Weizmann, A., and Ipatieff, V. N. H transfer (II) reaction of diisopropyltoluene and isopropylcyclohexyltoluene with methylcyclohexene, 1339*f*.
**Pines, K. L.** See Goldenberg, M.; Perera, G. A.
**Pinevich, G.** Viscosity of $H_2O$-$NH_3$ solns. and liquid $NH_3$, 8813*e*.
**Pingard, G.** See Urison, J.
**Pini, H.** See Brockmann, H.
**Pink, R. C.** See Martin, E. P.
——— and Ubbelohde, A. R. Properties of cyclooctatetraene in relation to structure, 2479*f*.
**Pinkerton, H.** See Clark, P. F.
**Pinkerton, H. L.** Current reversal devices for PR plating—mech. timing, 2100*c*; see Graham, A. K.
**Pinkham, E.** See Conn, J. W.
**Pinkhusovich, L. L.,** and Uskova, O. N. Quality and service of rails of Siemens-Martin steel, 4201*i*.
**Pinkina, L. N.** See Nazarov, I. N
**Pinkney, P. S.** Modification of mono-olefin-CO polymers, P 3236*g*.
**Pinkus, A. G.** See Alexander, E. R.
**Pinner, W. L.** Electrolytic sheet-metal anode, P 6097*b*.
**Pino, F.** Same as Pino Perez, F.
**Pinoir, R.** See Farnell, G. C.
**Pino Perez, F.** See Burriel, F.
——— and Acosta Rodríguez, J. Detn. of ferrous Fe in silicates and rocks, 6110*b*.
**Pinschewer, J.** Coloring films, P 5686*b*.
**Pinschmidt, N. W.,** and Krantz, J. C., Jr. Pharmacology of 5-nitroguaiacol, 8553*a*.
**Pinsent, A. J.** See Herbert, D.
**Pinsent, B. R. W.** See Everett, D. H.
**Pinsker, Z. G.,** Lapidus, E. L., and Tatarinova, L. I. Electronographic study of the structure of kaolinite, 481*i*.
**Pinta, M.** See Servigne, M.
**Pinte, C.,** and Goujet, M. Products called "alipols," 4028*a*.
**Pinte, J.,** and Millet, J. Influence of destructive factors on the photochem. degradation of dyes, 4015*c*.
**Pintner, I. J.** See Schatz, A.
**Pinto, C. M.** See Mendonça Pinto, C.
**Pinto, E. H.** Wood Adhesives (book), 8207*g*.
**Pinto, F. F. P.** See Pereira Pinto, F. F.
**Pinto, M. da S.** See Silva Pinto, M. da.
**Pinto C., E. I.** Phytochem. study of *Apium dissectum*, 2280*a*
**Pinto de Figueiredo, A.** See Metello Metto, J. M.
**Piontelli, R.** Passivity of metals, 1697*c*; electrodeposition of alloys (IV), 2872*f*; influence of basis metal in electroplating, 4148*e*, recovery of Ag from thiosulfate solns., P 4153*h*; electrochem. behavior of metals, 4959*g*, 7351*e h*, reactions between sulfides and Ag solns (I) galena, 6090*f*, action of Sb as an inhibitor in the soln. of Fe in acids, 6140*h*.
——— and Canonica, L. Autodisplacement of Pb (II), 2846*f*, alloy deposition from sulfamate baths, 4148*a*.
———, Canonica, L., and Monteggia, G. Autodisplacement of Pb (I), 2845*i*.
——— and Fracchia, P. Reactions involving the displacement of Sn by Ni and the inhibitory action of Sn, 8215*g*; displacement reactions of As by Ni and the inhibitory action of As, 8903*a*.
——— and Poli, G. Cathodic depolarization, 1663*d*, cathodic and anodic behavior of metals (I), (II), (III), 8287*f*; (IV), 8913*i*.
——— and Simonetta, M. Behavior of metals in concn cells (I), (II), (III), (IV), 8286*e*; (V), 8908*a*; reactions involving the displacement of Sn by Fe, and the inhibitory action of Sn (IV), 8913*d*.
———, Simonetta, M., and Batacchi, A. Reactions involving the displacement of Sn by Fe, and the inhibitory action of Sn (II), 8912*i*.
———, Simonetta, M., and Bonacina, R. Reactions involving the displacement of Sn by Fe, and the inhibitory action of Sn (III), 8913*b*.
**Piore, E. R.** Investment in basic research, 451*e*.
**Pipenberg, K. J.** See Clark, G. L.
**Piper, C. S.,** and Beckwith, R. S. Detn. of small amts. of Mo in plants, 2893*i*.
**Piper, G. H.** Latex in the stocking industry, 7252*b*.
——— and Scott, J. R. Plasticization of natural and synthetic rubbers (II) GR-S, 9513*b*.
**Piper, R. W.** Dry type drawing compds. for the deep drawing of sheet steel, 7397*c*.
**Pipes, G. W.,** and Turner, C. W. Retention of goitrogens in the blood and tissues of several domestic animals, 5502*c*.
**Pipkin, M.** Revolutionary development in incandescent lamps, 3299*b*.
**Pippard, A. B.** High-frequency skin resistance of metals at low temps., 8768*a*; high-frequency resistance of superconductors, 8771*f*.
**Pipparelli, E.** See Romano, R. V.
**Pippin, C. A.** App. for transferring molten Mg or its alloys from a flux-covered melt without contaminants, P 6143*h*.
**Piquet, J.** See Herschberg, A. D.
**Piquett, P. G.** See Carter, R. H.; Jones, M. A.
**Piquott, E. C.** Ferrous metallurgical analysis techniques, 1686*a*.
**Pirani, M.** See Bennett, J. G.; Hutton, R. S.
——— and Smith, W. D. Utilization of fly ash, 4444*i*.
**Pirazzi, R.** See Biaggi, N
**Pirelli Società per Azioni.** Decorative printing on vinyl chloride plastics, P 4895*f*
**Piret, E. L.** See Hall, M. W.; Kwong, J. N. S.
**Pirie, A.** See Mann, I
**Pirie, J. M.** Rh plating, 3726*h*.
**Pirie, N. W.** See Paterson, J. S.; Pincus, G.
**Pirila, V.** Occupational disease of the skin among paint factory workers in Finland, 3627*h*
**Pirlot, G.** Quant. spectrophotometric analysis in the infrared, 7366*h*, purification of solvents for spectroscopic use, 7817*g*, detn. of vitamin $D_2$ in irradiation products of ergosterol by infrared spectrophotometry, 7997*e*; see Duyckaerts, G.
**Pirogov, A. A.,** Tseltlin, L. A., and Rakina, V. P. Coatings for hot repairs of Dinas brickwork in coke ovens, 5916*i*
**Pirogova, M. V.** See Gololobov, Ya. K.
**Pirola, C.** See Justoni, R.
**Piron, J.** Ca aluminate, P 1159*h*.
**Pirona, M.** See Tappi, G.
**Pirotte, E.** Lab for applications, an economical factor for the industry, 4400*g*
**Pirozhkov, N. A.,** and Myshlyaev, I. V. Production of residues in the lampblack industry, 6396*b*
**Pirro, C.** See Cardoso, H T.
**Pirson, A.** Metabolism of plants, 1838*e*.
**Pirwitz, J.** See Heilmeyer, L.
**Piryatinskil, A. L.** See Bardyshev, I. I.
———, Bardyshev, I. I., and Fefilov, V. V. Varnish resins, P 9485*e*.
**Pisanty, J.** Action of some substances which interrupt the intermediate glucose metabolism of the heart and striated muscle, 8550*b*; see Méndez, R.
**Pisapia, N. de.** See De Pisapia, N.
**Pisarenko, A. P.,** and Emel'yanova, A. P. Substitute sole leather, 6451*a*.
**Pisarevskil, M. B.** 30 yrs. of Soviet coke chem. industry, 4833*i*.
**Pishawikar, D. G.** See Phadnis, K. D.
**Piskac, Y.,** and Smiley, R. E. Removing insulation from metallic elec. conductors, P 7905*b*.
**Piskur, M. M.** Fats, oils, and soaps (I), 4495*i*; (II), 5205*h*.
——— and Higgins, J. W. Antioxidant for fats, P 3948*e*.
**Pissarenko, A. P.** See Pisarenko, A. P.
**Pista, S. A.** Purification of water, P 7614*f*.
**Pister, L.** See Bergold, G.
**Pistor, A. F.** Evaluation of present-day protective-coating systems for steel and concrete, 6835*f*.
**Pistor, H. J.,** and Plieninger, H Synthesis of polycarboxylic acids, esp. pimelic acid, 7428*c*.
**Pisu, I.** Synergistic antibiotic action of *p*-aminobenzoic acid and vitamin K in tuberculosis, 8060*a*.
——— and Barengo, E. Antibiotic activity of biol. regulators, 8003*i*.
**Pitacoste, R.** See Jiménez Díaz, C.
**Pitel'man, B. S.** See Fokina, N. S.
**Pitha, J. J.,** and Ward, R. Doubly activated infrared phosphors, P 3296*f*.
**Pitkethly, T. E.** See Crowther, J. R.
**Pitrot, A. R.** Basic Pb sulfate pigment, P 2789*d*; see Stewart, A.; Williams, F. J.
**Pitt, A. A.** See Scheidy, S. F.
**Pitt, G. J.** Crystal structure of 4,6-dimethyl-2-hydroxypyrimidine (I), 920*a*; see Parry, G. S.
**Pittaluga, G.** Vitaminas y sangre (book), 1847*g*.
**Pittam, W.** Effect of $SO_2$ concn. on rate of sulfite pulping, 2771*d*.
**Pittenger, J. T.** See Shenstone, A. G.
**Pittman, E. B.** Refining of sugar, P 890*a*.
**Pittman, G. A.,** and Thornley, E. R. Dynamic compression test for adhesion of rubber to cord fabric, 9514*g*.
**Pittman, R. W.** Photochemistry of Se (II) kinetics of the oxidation of $H_2Se$, 8895*e*.
**Pittoni, A.** Polarographic study of Me red, 7368*h*; behavior of Me orange at dropping-Hg electrode, 7835*g*; polarographic reaction of serum in malignant tumors, 8042*f*.
**Pitts, R. F.** See Jahan, I.
**Pittsburgh Corning Corp.** Cellular glass, P 7657*a*.
**Pittsburgh Paint & Varnish Production Club.** Soybean oil-tung oil combinations, 3212*d*.
**Pittsburgh Plate Glass Co.** (*Patents.*) Complex esters and their polymers, 901*c*; treatment of fibrous and other porous materials, 902*b*, carbonic acid esters, 1057*d*, $TiO_2$, 1200*c*; water-dispersible coating vehicles, 1995*a*, 4493*f*; coating compn resin, 2814*d*; sealing material, 3242*d*; pigment disperser and mixer, 4494*b*; plasticizers for melamine and urea resins, 4513*c*; vinyl ethers, 4683*b*; polymers of chloroformates of unsatd. ales., 5230*f*; polyvinyl butyral, 5634*b*; polymerization with peroxydicarbonate catalysts, 5641*f*, carbonate-haloformates of glycerol, 6652*h*; polysulfone resins plasticized with esters of org. sulfonic acid, 7751*c*, vulcanized copolymers of drying oils and diene hydrocarbons, 7754*b*; vinyl esters of polycarboxylic acids, 7957*g*; maleic anhydride copolymers, 9532*h*
**Pitzer, J. C.** Paper properties influencing quality of laminates, 8679*e*.
**Pitzer, K. S.** See Beckett, C. W.; Epstein, M. B.; Kilpatrick, J. E.; Rathjens, G. W., Jr.; Westrum, E. F., Jr
**Pitzl, G.** Melamine-HCHO resin dispersion, P 1607*d*
**Pizarro C., G.,** and Righetti S., C. Reaction in the hydrometallurgy of Cu—pptn from solns of cupric sulfate-chloride by $SO_2$, recovery of CuCl from solns of $CuSO_4$ by $SO_2$, 3326*f*.
**Pjankoff, Pjankow.** See P'yankov.
**Pjatnitzkij.** See Pyatnitskif
**Placak, O. R.** See Ruehlhoft, C. C.
**Plackett, R. L.,** and Hewlett, P. S. Joint action of poisons, esp. insecticides (I) toxicity of a mixt. of poisons, 4135*i*.
**Plaichinger, I.** See Wessely, F.
**Plaksin, I. N.** Oprobovanie i probirnyi analiz (book), 2806*b*, causes of the natural hydrophobism of sulfide minerals in flotation, 7875*e*
——— and Bessonov, S. V. Change of the wettability of metals and sulfides under the action of gases, 2185*h*, effect of adsorption and chem. action of O on the flotation properties of Au, Ag, and Cu, 7875*f*
———, Sinel'nikova, A. I., and Efremova, K. A. Protective action of thiocyanate in flotation of pyrite and arsenopyrite, 979*e*.
———, Suvorovskaya, N. A., and Astaf'eva, A. V. Treatment of Au bearing Se ores, P 4998*f*
**Plambeck, L., Jr.** Pptg. polymer from aq. emulsion, P 2469*d*; vinyl halide polymerization, P 4896*b*, hydrolyzing vinyl ester polymers, P 5230*g*.
**Planche, O.** *Psorospermum guineense* of French Guinea, 8101*i*.
**Planel'es, Kh. Kh.** Advances in chemotherapy (excluding antibiotics) of bacterial infectious diseases, 7148*g*.
**Plank, C. J.** Porous glass catalysts, P 7162*b*
——— and Socolofsky, J. F. Alkylation of phenol by alkyl halides catalyzed by finely divided gels of certain drying oils, P 3030*g*
**Plank, E(ugen).** Same as Plank, J(eno)
**Plank, H. K.** Bamboo powder post beetle · chem control—DDT for the protection of freshly harvested culms, 3967*e*; life history, habits, and control of the coconut rhinoceros beetle, 9350*d*.
——— and Seguinot Robles, P. Miscellaneous insects—DDT produced good control of bean insects, 3967*e*.
——— and Winters, H. F. Insect and other animal pests of cinchona and their control, 9340*f*.

**Plank, J.** Detn. of Ce, 8950*b*.
**Plank, R.** Theory of cold-storage diseases of fruit, 782*f*; complementary characters of German and American ways, 5649*i*.
—— and Riedel, L. Course of the vapor pressure curve at the crit. point, 4063*b*
**Plankenhorn, W. J.** Factors affecting reproducibility of flow-button test for enamel frits, 15446.
**Planovskii, A. N.** Soviet org. synthesis industry, 3773*a*.
**Planquier.** See Baisset, A.
**Plant, D. A.** Complex formation in Cr sulfate solns, 6103*a*.
**Plant, J. H. G.,** and Newling, W. B. S. Catalytic removal of org. S compds. from coal gas, 3172*e*.
**Plant, S. G. P.** See Bannister, B; Childs, A. F.; Goldsworthy, L. J.
**Plantefol, L.,** and Moyse, A. Gas extn app. with manometer, 1075*g*.
**Plantfeber, J. M.** See Woods, H. A.
**Plapinger, R.** See Woods, G. F.
**Plasencia, H. T.** See Tellez Plasencia, H.
**Plassat, H. L.** Industrial oils and sol. fats, 5609*h*.
—— and Plassat, P. R. Coal-tar oils, P 4837*c*; lubricants from mixts. of castor oil and coal-tar oils, P 4845*a*
**Plassat, P. R.** See Plassat, H. L.
**Platania, S.,** and Pappalardo, P. Activity of serum cholinesterase and blood sugar, 2311*c*.
**Plate, A. F.** V. V. Markovnikov, 7761*d*; Catalytic Aromatization of Paraffin Hydrocarbons (book), 8307*b*.
**Plate, W.** See Raub, E.
**Plati, J. T.** See Milas, N. A.
—— and Wenner, W. Heterocyclic amines, P 5808*f*; reaction of acetophenone with $CH_2O$ and methylamine hydrochloride, 9050*b*
**Platner, W.** Body Mg and temp., 9260*f*; see Brody, S.
**Platon, J. G.** Deoxidation of steel by Al, 3330*c*
**Platonov, I. D.** See Kargin, V. A.
**Platonova, A. F.** See Popova, N. M.
**Platt, B. C.** 2-Hydroxy- and 2-amino derivs. of 6- and 7-methylquinoxaline, 1426*e*, see Wellcome Foundation Ltd.
—— and Sharp, T. M. *N*¹-Sulfanilamides derived from aminoquinoxalines and aminomethylquinoxalines, 3381*e*.
**Platt, C. S.** Grass silage and green feed in the poultry diet, 3946*b*.
**Platt, E. J.** See Horning, E. C.
**Platt, F. R.** See Smith, R. F.
**Platt, J. B.** See Zuzzo, S. G.
**Platt, J. R.** Classification of spectra of cata-condensed hydrocarbons, 7819*a*, see Jacobs, L. E.; Klevens, H. B.; Mann, D. E., Rector, C. W.
——, Klevens, H. B., and Price, W. C. Absorption intensities of ethylenes and acetylenes in the vacuum ultraviolet, 7818*d*.
**Plattner, P. A.** See Furst, A.; Günthard, H. H.; Heilbronner, E.
——, Furst, A., Koller, F., and Lang, W. Steroids and sex hormones (CLIV) prepn. of epicholesterol and 3(α), 5-dihydroxycholestane, 1784*a*
——, Heilbronner, E., and Weber, S. Sesquiterpenes and azulenes (LXXXV) distribution of azulene between mineral acids and org. solvents, 5768*f*.
——, Heusser, H., and Feurer, M. Steroids and sex hormones (CLVII) reductive scission of steroid epoxides with $LiAlH_4$ (2) synthesis of the corticosteroids J and O, 1787*b*; (CLXI) reductive cleavage of steroid epoxides with $LiAlH_4$ (4) expts. with α and β-cholesterol oxide, 5408*f*.
——, Heusser, H., and Herzig, P. T. Steroids and sex hormones (CLIX) synthesis of 17-methylprogesterone, 3830*h*.
——, Heusser, H., and Kulkarni, A. B. Steroids and sex hormones (CLV) 3(α),5-dihydroxycoprostane and two epimeric 3,4-dihydroxycholestanes, (CLVI) reductive scission of steroid epoxides with $LiAlH_4$ (1) synthesis of 3(β),5-dihydroxycoprostane, 1785*b*; (CLVIII) reductive cleavage of steroid epoxides with $LiAlH_4$ (3) simplified syntheses of derivs. of 5-hydroxycoprostane, 3830*e*; (CLXII) α-oxides of allocholesterol and of epiallocholesterol, 6040*h*.
—— and Nager, U. Wilting agents and antibiotics (X) structure of enniatin A, (XI) analysis and characterization of the enniatins—behavior of *N*-methyl amino acids in a paper chromatogram, 3788*a*.
**Platunov, K. M.,** and Sara'eva, L. A. Phys.-mech. properties of polyvinyl substitutes for leather for boots and shoes, 5981*h*.
**Plaut, A.** See Sobel, H.
—— and Sobel, H. Human sebum as vehicle for methylcholanthrene, 5856*c*.
**Plaut, G. W. E.** See Lardy, H. A.
—— and Lardy, H. A. Oxalacetate decarboxylase of *Azotobacter vinelandii*, 9110*h*.
—— and McCormack, R. B. Sepn. and detn. of streptomycin types, 7102*d*.
**Plaut, N.** Unfruitful Valencia orange trees, 9338*h*.
**Plaxine, I. N.** See Plaksin, I. N.
**Plaza, G. R.** See Rivera Plaza, G.
**Plazhek, E.,** and Rikhter, Yu. Phenyl sulfonamido derivs. of pyridine, 1738*c*.
**Plazin, J.** See Hiller, A.
**Plein, E. M.** See McCutcheon, R. S.
**Plekhan, M. I.,** and Gavrilov, N. I. Spectrophotometry of biuret complexes as a method of studying proteins (V) prepn. of a hexapeptide (dialanyl triglycylglycine) and its biuret complex, 6249*f*
**Plekhanova, A. M.** See Nikitin, N. I.
**Plenk, H.** Lupe zum Elektronenmikroskop (book), 500*b*.
**Plentl, A. A.** Synthesis of prolycysteinyltyrosine, 5016*d*.
**Plesch, J.** Blood Pressure and its Disorder (book), 3926*a*.
**Plesch, P. H.** Friedel-Crafts polymerizations, 6149*f*, see Appleton, E. V.
**Plescia, O. J.** See Cann, J. R.
**Pleskov, V. A.** Abs. electrode potential, 4586*h*.
—— and Ershler, B. V. Calcn. of single electrode potentials from spectroscopic and thermochem. data, 4586*h*.
**Plessey Co. Ltd.** and Stubbs, H. V. G. Spark gaps, P 1666*d*.
**Plessis, A.** See Bréchot, P.
**Plessner, K. W.** Elec. strength of dielec. films, 3731*c*.
——, and Richards, R. B. Dipole orientation in solns. of esters in polyisobutene and polythene, 6019*i*.
**Pleteneva, N. A.,** and Rebinder, P. A. Effect of the surface activity of the liquid medium on processes of cutting and machining of metals, 2001*h*.
——, Shreiner, L. A., and Rebinder, P. A. Hardening of Al in cutting in an inactive and in a surface-active medium, 2001*e*
**Pleyer, W.** Polychromatic pictures, P 5684*s*, 5686*b*.
**Plichet, A.** Synthetic antihistamines, 3934*c*.
**Plieninger, H.** See Pistor, H. J.
**Plieth, K.** See Kürbs, E.
**Plimmer, H.** See Bradford, L.
**Plitt Hardy, T. M.** See Hardy, T. M. P.
**Ploeser, J. M.** See Loring, H. S.
—— and Loring, H. S. Ultraviolet absorption spectra of the pyrimidine ribonucleosides and ribonucleotides, 4707*e*.
**Plöttner, D.** Preserving of sweet whey with $H_2O_2$, 6326*i*.
**Ploetz, T.,** and Pogacar, P. Specificity of β-glucanases, 6081*g*.
**Plomley, R. F.** See Higgins, H. G.
**Plotegher, F.** Gum in gas, 5925*a*.
**Plotho, O. v.** Pigment formation of *Actinomycetes*, 5823*c*.
**Plotica, G. K.** Vat dyes applied to alkali-sensitive fibers by acid reduction, P 414*h*.
**Plotitsyna, T. G.** See Kassil, G. N.
**Plotka, C.** See Jéquier, R.
—— and Jéquier, R. Action of thiamine triphosphoric ester on the isolated frog heart, 1860*f*.
—— and Peterfalvi, M. Antifibrillation action of thiamine triphosphoric ester on the heart, 1860*g*.
——, Peterfalvi, M., Jéquier, R., and Velluz, L. Action of a phosphorylation deriv. of thiamine on the heart—thiaminetriphosphoric acid, 8557*h*.
**Plotnikov, A. Ya.** See Nelman, M. B.
**Plotnikov, I.,** and Pecar, M. Loss of I on passing gas through KI-free solns., 5234*e*.
**Plotnikov, I. V.** Relation of the degree of impregnation of kersey of different laminations to specific wear, 6830*g*.
**Plotnikova, N. E.** Isolation of cryst. procollagens from skin and organs of man, 8500*a*; see Orekhovich, V. N.
**Plotnitskaya, A. M.** See Drobintseva, A. V.
**Ploug, J.** See Jensen, K. A.
**Ploum, H.** Evaluation of $Ag_2S$ sols for the detn. of water- and alkali-sol. sulfides—detn. of As, 5338*g*.
**Plouvier, V.** Biochem. study of some Oleaceae, 1840*e*; HCN of some Rosaceae—*Spiraea*, 3493*g*.
**Pluciński, F.** Extn. of naphthalene from gas, 3597*a*.
**Pluháček, R.,** and Slaviček, E. Influence of the shape of diffusion cells and irregularities of filling on the extn. of sugar, 8714*e*.
**Plum, C. M.** See Christensen, B. G.
**Plum, F.** See Reed, L. J.
**Plumat, M.** Evolution of S compds. of Na during fusion of glass, 7653*f*.
**Plumb, G. H.** See Dimond, A. E.
**Plumel, M.** See Courtois, J.
**Plumhoff, C. F.** See Franklin, L. U.
**Plumlee, C. H.,** and Pollard, A. L. Bromoxidizable S-contg. compds. in mold metabolism, 5446*f*
**Plummer, C. C.** See Woglum, R. S.
**Plummer, H.** See Siebenmann, C. O.
**Plummer, N.,** and Hladik, W. B. Ceramic railroad ballast and constructional aggregates from clays and silts, 2391*d*.
**Plump, R. E.** Solid pentachloropropane, P 8397*c*.
**Plumpton, B. P.** See Bagguley, D. M. S.
**Plungian, M. B.** Solubilization of rutin with methylglucamine, P 1800*g*.
**Plunkett, M. A.** See Gilman, H.
**Plunkett, R. J.** $PbEt_4$, P 8398*b*.
**Plusjé, M. H. R. J.** Treatment of crude phosphate rock with $HNO_3$, 4553*a*, (book), 3983*e*.
**Pluut, J. M.** See Decker, H. C. J. de.
**Pluvinage, R. I. L.** See Hoffer, P. F. A.
**Plyler, E. K.** Infrared prism spectrometry from 24 to 40 microns, 42*c*; vibrational bands measured with a Tl bromide-iodide prism, 42*c*, infrared absorption spectra of org. compds., 4573*f*; see Burstein, E.; Nelson, Richard C.; Tilton, L. W.
—— and Acquista, N. Infrared absorption spectra of cyclohydrocarbons, 8890*a*.
—— and Ball, J. J. Infrared absorption of deposited blacks, 944*b*.
—— and Humphreys, C. J. Flame spectrum of acetylene from 1 to 5 microns, 7822*s*.
**Pniak, S.** See Ludkiewicz, A.
**Pobeguin, T.** Ca oxalates in vegetables, 8414*d*, see Hiltz, P.
**Poblete, R.** See Huidobro, F.
**Pochil, P. F.** See Pokhil, P. F.
**Pochivalov, V. P.** App. for metering and mixing solids and liquids, P 2826*b*.
**Pochon, J.,** Chalaust, R., and Tchan, Y.-T. Inoculation of soil with *Azotobacter*—fixation of N and growth of vegetation, 3130*f*.
—— and Lajudie, J. Effect of some nematocidal and insecticidal substances on the normal microflora of the soil, 1139*d*.
——, Rose, A., Tchan, Y.-T., and Augier, J. Formation of gypsum—deteriorations of the stones in monuments, 4727*b*.
—— and Tchan, Y.-T. Précis de microbiologie du sol (book), 3132*c*; C nutrition of *Azotobacter*, 5821*b*.
**Pocovi, A. S.** Petrography of the soils in the province of Santa Fé, 2719*e*.
**Podar, S. R. A.** Silk industry of India, 1192*e*.
**Podbel'skii, G. N.** Detn. of the comparative degree of oxidation of coal, P 9419*b*.
**Poddubnaya, N. A.,** and Gavrilov, N. I. Spectrophotometry of biuret complexes as a method of studying proteins (VI) absorption spectra of solns. of Cu complexes of some amides, (VII) absorption spectra of solns. of Cu complexes of amino acids, 6249*i*.
**Poddubnyi, I. Ya.** See Zhukov, I. I.
**Pod'elskii, V. S.** See Krasnikov, N. P.
**Podeša, J.** Treating crop plants in the spring with hormones, 1838*h*; phytohormones against undesirable potato sprouting, 8597*d*.
**Podgaits, V. V.** See Gurvits, S. S.
**Podgoretskii, M. I.** See Barit, I. Ya.
—— and Shcherbakova, M. N. Counts produced by cosmic rays in proportional counters, 1644*g*.
**Podhradsky, J.** See Krizenecky, J.
**Podhradszky, L.** See Greiner, A.
**Podlubnaya, E. T.,** and Bukharov, P. S. Detn. of sugar, 7878*d*.
**Podobaeva, L. V.** See Panasyuk, V. G.
**Podol'skii, M. A.** See Spektor, Sh. Sh.
**Podolsky, B.** See Hutchens, J. O.
**Podrabinik, G. M.,** and Milovidova, M. K.

Balance of Ca and P in hypotropic children on various food rations, 735*i*.

**Podraszko, J.** Fat economy in Poland and Czechoslovakia, 2789*g*.

**Podurovskaya, O. M.** See Lesokhina, G. F.

**Podval'naya, E. L.** See Alimarin, I. P.

**Poe, C. F.** See Castle, R. N.; Edson, F. G.; Johnson, C. C.; Klemme, D. E.; Larsen, J.; Wyss, A. P.

—— and Lane, F. A. Combination of catalysts on the detn. of N (III) meat products, 7154*i*.

—— and Van Vleet, E. M. Action of org. acids on stainless steel, 2707*a*.

——, Witt, N. F., and Snodgrass, A. S. Derivs. of evipal, alurate, and phanodorn, 9375*a*.

**Pöhls, P.** Chemotherapeutic effectiveness of 4,4'-diaminodiphenyl sulfone and its derivs., 6310*i*.

**Pool, W. E.** Effect of anoxic anoxia on myoglobin concn. in striated muscle, 5480*d*.

**Pöll, H.** Selective mineral-oil refining by the SNP-process, 8657*i*.

**Poellmitz, G. S.** See Zemany, P. D

**Pölnitz, W. v.** See Siedel, W.

**Pöpel, F.** Production of gas and loss of substance during the decompn. of sewage sludge, 3953*d*.

**Pöppinghaus, G.** See Hölscher, B.

**Poet, R.** See Brodie, B. B.

**Poethke, W.** Veratrin intoxication in insects—toxicology of the alkaloids, 1490*b*; detn. of 8-hydroxyquinoline, 6113*g*.

**Poetsch, C. E.**, Higuchi, T., and Parks, L. M. Sabadilla alkaloids (II) alkaloidal components of the petroleum ether ext., 9384*e*.

—— and Parks, L. M. Sabadilla alkaloids (I) extn. of total alkaloids, 9384*d*.

**Poettmann, F. H.**, and Mayland, B. J. Equil. consts. for high-boiling hydrocarbon fractions of varying characterization factors, 8658*a*.

**Pogacar, P.** See Ploetz, T.

**Pogány, É.** See Erdey-Grúz, T.

**Pogány, J.** See Papp, E.

**Poggi, A. R.** Salts of 8-camphorsulfonic acid, 1355*e*; mastic tree and its utilization, 9380*e*; lignin problem (I), (II), 9438*e*.

—— and Niccolini, P. Na camphorsulfonates, 1106*a*.

——, Polverini, A., Niccolini, P., and Niccolini, Z. Chemistry and pharmacology of some salts of camphorsulfonic acid, 764*f*.

——, Serchi, G., Adembri, G., and Monaci, A. Halochromism of some ketonic compds. (I), 7910*h*.

——, Serchi, G., Monaci, A., and Adembri, G. Halochromism of some ketonic compds. (II), 7911*c*.

**Poggi, N. E. G. de.** See Genovese de Poggi, N. E.

**Poggio, F.** Same as Poggio Mesorana, F.

**Poggio Mesorana, F.** See Enríquez de Salamanca, F.

—— and Martín Retortillo, M. Absorption spectra of olive oils in the ultraviolet region, 3713*g*, 6919*g*.

—— and Otero de la Gándara, J. Absorption relation in the ultraviolet of the isomers of copro- and uroporphyrin, 2094*f*

—— and Sáenz Bretón, A. Using the electrode support as a reference element in spectral analysis of solns., 6537*e*.

—— and Sanz Muñoz, M. Absorption spectra of saffron dyes, 2093*h*.

**Pogodin, S. A.** Nikolai Nikolaevich Efremov, 5239*b*; thirty years of Soviet chem. literature, 7761*h*; see Anosov, V. Y.

**Pogonya, Ya. F.** See Barsanov, G. P.

**Pogossian, M. Ter.** See Ter-Pogossian, M.

**Pogosyants, E. E.** See Billig, E. S.

**Pogrund, R. S.**, and Steggerda, F. R. Influence of gaseous transfer between the colon and blood stream on percentage gas compns. of intestinal flatus, 298*c*.

**Pohl, R. W.**, and Stöckmann, F. Secondary electrons in photoelec. conduction, 6074*i*.

**Pohland, A.** See Price, C. C.

——, Marshall, F. J., and Carney, T. P. Optically active compds. related to methadon, 3390*e*.

**Pohle, W. D.**, Rockwood, B. N., and Mehlenbacher, V. C. Free glycerol in soap, 6842*i*.

**Pohlenz, J. B.** See McAdams, W. H.

**Poinsard, L.**, and Dugay, R. Energy of activation and knock in the internal-combustion engine, 4167*d*.

**Poinot, R.** Thermal processing of copal resins, 6837*g*.

**Poirier, R. H.** See Marquardt, D. N.; Willis, J. M.

**Poitevin, E.** See Tanton, T. L.

**Poitras, H. A.**, and Snow, J. E. Purification of tripentaerythritol, P 675*i*

**Poittevin, M.** Micro tar meter, 5926*h*; electrostatic pptn., 8283*i*; elec. detarring, 1551*b*.

**Pokats, A. I.** Oxidizing smelting of sulfide ores of nonferrous metals in an elec. furnace, P 6094*f*

**Pokhil, P. F.** Cracking petroleum and similar raw materials, P 3187*i*

**Pokhno, M. T.** See Volgunov, G. P

**Pokidin, V. K.** See Zhuze, T. P

**Pokrovskaya, E. S.** See Nametkin, S. S.

**Pokrovskaya, L. A.** Total alky. in phenolates, 974*d*, see Agranenko, N. P.

**Pokrovskii, A. L.** See Fertman, G. I.

**Pokrovskii, N. L.**, and Galanina, N. D. Properties of metallic solns (IV) surface tension of Sn and Sn Na alloys, 6023*c*.

**Pokrovskii, P. V.** $NH_4Cl$ crystals from the soft coals of Khamarin-Khural-Khid, Mongolian S.S.R., 6116*i*.

**Pokrovskii, V. A.** Lab. rheometer, 6469*g*; see Razumovskii, V. V., Zimakov, P. V.

**Pol, R. F.** See Fernandez Pol, R.

**Polaczkowa, W.**, and Böhm, J. Ludwik Szperl, 8761*c*.

**Polak, F.** Manuf. of EtOH, 1903*e*, adsorption on $CaCO_3$, 8791*h*

**Polak, J. F.** Brazing alloy, P 2156*b*.

**Poland, F. F.** Recovery of Zn from mxts. contg Fe, P 2021*g*, 3768*i*, distn of Zn from Cu base alloys and galvanizer drosses, 9011*f*

**Poland, H. R.** Butane refining, 382*g*

**Polański, A** Evaluation of the chem compn of the earth, 2137*d*

**Polanyi, M** Chem reactions, 3694*a*

**Polaroid Corp.** (*Patents*) Emulsion for vectographic images, 2106*b*, light-polarizing image, 2472*h*, light polarizing sheet of molecularly oriented transparent linear high polymer dyed with a dichroic substance, 2819*h*, film with light-polarizing and nonpolarizing images, 2820*b*, light-polarizing element protected against heat, 2820*d*, hot-water treatment of vinyl resin light-polarizing sheet, 3242*c*; glare-reduction filter, 8076*a*; 7-hydroxyisoquinoline derivs., 9086*e*, prepg several dye images in a single photographic emulsion layer, 8924*i*

**Polatnick, J.** See Anchel, M

**Polder, D.** Theory of ferromagnetic resonance, 4099*i*, theory of the electron states in solids, 5659*f*

**Poldervaart, A.** Relation of orthopyroxene to pigeonite, 5346*h*; subcalcic ferrosugite from Mt. Arthur, East Griqualand, 5347*a*, graphic representation of chem. analyses of igneous rocks, 8992*f*; see Walker, F

**Polesickij, A. E.** See Polesitskii, A. E

**Polesitskii, A. E.** Radioactive indicators in analytical chemistry, 2541*h*

**Polessitsky, A. E.** See Polesitskii, A. E

**Poletaev, A. V.** See Tsukervanik, I. P.

**Poletaiew, A. W.** See Poletaev, A. V.

**Poli, C.** Albumin-globulin equil. in schizophrenia, 2305*e*.

**Poli, G.** See Nasini, A. G.; Piontelli, R

—— and Rossi, C. R. Influence of the liver on cardiac activity, 7118*d*.

**Poliakoff, Poliakov, Poliakow.** See Polyakov.

**Policard, A.** Diagnosis of silicosis on exhumed organs, 3920*f*; harmfulness of metallic Al dust, 3936*c*.

**Polikarpov, V.P.** See Novikov, A. V.

**Polinard, E.** Geology of the Bushimae Basin, Belgian Congo, 6550*d*, arborescent configurations in the limestones of Bushimae, Belgian Congo, 7386*f*.

**Polinkovskaya, A. I.** See Kitalgorodskii, I. I.

**Politi, I.** Lactic acid from molasses by fermentation of *Lactobacillus sili*, 6359*f*; see Arnaudi, C.

—— and Treccani, V. Wine fermentation, 5901*f*.

**Politis, J.** Chlorogenic acid in plants and its distribution, 4342*h*.

**Poljakoff.** See Polyakov.

**Poljakowa.** See Polyakova.

**Polkanova, L. N.** See Dobrinskaya, A. A.

**Pollacci, L. G.** Pharmacology of *Leonurus cardiaca* and *Leonurus marrubiastrum*, 3566*f*.

**Pollack, H. L.** See Seifriz, W.

**Pollack, M. A.** Thioglycol esters, P 3662*b*.

**Pollak, Alfred.** Metallogenesis in Thuringia, 3750*f*.

**Pollak, Arthur.** See Aries, R. S.

——, Kellen, J. J., Jr., and Drum, L. F. Recovery of lignin from concd. black liquor, P 4466*f*.

**Pollak, F. F.** Recovering albumin adhering to egg shells, P 788*b*.

—— and Fassel, J. Waterproof and water-repellent noninflammable fibrous materials, P 4022*h*.

**Pollak, J. E.** See Friedheim, E. A. H.

**Pollak, L. W.** See Nolan, P. J.

**Pollak, M. B. T.** See Turova-Pollak, M. B.

**Pollak, R.** Cod-liver oil, P 5158*c*.

**Pollard, A.**, Kieser, M. E., and Bryan, J. D. Compn. of the tomato, 1877*d*; apple as a source of vitamin C, 2338*c*.

**Pollard, A. G.** Agriculture and horticulture, 4788*h*.

**Pollard, A. L.** See Draper, O. J., Jones, W. G.; Plumlee, C. H.

**Pollard, C. B.** See Harmon, R. W., Prigot, M.

**Pollard, E. C.** Prikladnaia iadernaia fizika (book), 1266*f*, see Alburger, D. E., Davison, P. W.

—— and Alburger, D. E. Large-angle scattering of $Na^{24}$ γ-radiation, 481*h*.

—— and Davison, P. W. Energy levels of $A^{40}$, 4095*b*.

——, Sailor, V. L., and Wyly, L. D. Particle groups from the bombardment of Al by deuterons, 4118*a*.

**Pollard, E. F.** See Booth, H. S.; Busey, H. M.; Porges, N.; Spadaro, J. J.

**Pollard, F. H.**, McOmie, J. F. W., and Elbeih, I. M. Inorg. paper chromatography and detection of cations by fluorescence, 5702*b*

—— and Woodward, P. Growth of Ti nitride on hot filaments, 2885*f*.

**Pollard, J.**, Sutton, R. W., and Alexander, P. Single-stage vapor vacuum pump, 3247*d*.

**Pollard, M.**, Connolly, J., and Fromm, S. Pptg. effect of MeOH on viruses, 8136*f*.

**Pollard, T. A.** See Elfrink, E. B

**Pollatschek, P.** Protein- and vitamin-rich yeast ext., P 5902*g*.

**Pollchick, M.** See Leva, M

**Polli, E.** See Cova, N.

**Pollister, A. W.**, and Leuchtenberger, C. Nucleotide content of the nucleolus, 6248*g*.

**Polljak, V. V.** See Pollyak, V. V.

**Pollock, A. F.** Gas coke, 3593*a*.

**Pollock, D. H.** See Edmister, W. C.

**Pollock, G. H.** Central inhibitory effects of $CO_2$ (I) *Felis domesticus*, 9261*e*, see Bain, J. A.; Gyarfas, K., Silver, M. L.; Stein, S. N.

——, Stein, S. N., and Gyarfas, K. Central inhibitory effects of $CO_2$ (III) man, 4770*c*.

**Pollock, M. W.** See Gradsten, M. A.

**Pollock, W. A.** Fuel performance at Port Washington station, 2397*a*

**Pollok, F.** See Taylor, J.

**Polly, O. L.** Carboxylic acid purification, P 2222*i*.

**Pollyak, V. V.** See Buneeva, L. I.

**Polonetz, J. W.** See Engstrand, E. R.

**Polonovski, J.** See Bertrand, D.; Macheboeuf, M.

——, Faure, M., and Macheboeuf, M. Ppt formed during aging of serum, 8508*d*.

**Polonovski, M.** See Bénard, H.; Lindenberg, B. A.

—— and Issartel, R. Detg. free methionine and methionine in proteins—application to blood proteins, 263*d*

**Polonsky, J.** See Boiteau, P.; Lederer, E

**Polosa, P.** See Marsico, F.

**Poloubojarinow, D. N.** See Poluboyarinov, D. N.

**Polovchenko, I. G.**, and Semikin, I. D. Construction of blast-furnace hearth, 4612*e*.

**Polovinkina, Yu. I.** Na metasomatosis in the formation of ferriferrous quartzite deposits, 6129*h*.

**Polson, A.** Partition chromatography and the compn. of *E. coli*, 3875*g*; chromatography of amino acids belonging to homologous series, 7996*a*.

—— and Shepard, C. C. Diffusion rates of bacteriophages, 7064*i*.

—— and Wyckoff, R. W. G. Amino acid content of bacteriophage, 3877*g*.

**Polster, M.** See Okáč, A.

**Poluboyarinov, D. N.**, and Miroiyubova, E. V. Enriched ash of Moscow coal in the production of lightweight refractories, 5563*f*.

—— and Popil'skil, R. Ya. Sintering, and some properties of mullite synthesized from refractory clay and tech. alumina, 3580*a*; high-alumina refractories on the basis of the synthesis of mullite, 6383*h*.
—— and Trokhimovskaya, I. P. Refractory coatings—glazes, 6385*i*.
**Poluektov, N. S.**, and Nikonova, M. P. Solid reagents for analyzing ores and minerals in the field, 6935*a*; detn. of Ce and total rare earths in ores and minerals, 8950*f*.
**Polukarov, M. N.** Electrolysis of aq. solns. of $CuSO_4$, 950*g*; effect of Te on the hydrogenation of steel in its cathodic polarization in $H_2SO_4$ solns., 952*b*.
**Polvani, G.** See Bernardini, G.
**Polverini, A.** See Poggi, A. R.
**Polya, J. B.** See Good, A. L.
—— and Spotswood, T. M. Amides (II) acylation of amides to diacylimines, 4220*h*; sepn. and assay of some diacylimides, 7075*f*.
—— and Tardrew, P. L. Amides (I) prepn. of diacetamide, 128*c*.
**Polyak, E. V.** See Sergeev, S. B.
**Polyak, S. S.** See Shtern, V. Ya.
**Polyakov, I. S.**, Rysakov, M. V., Sosnovskii, N. P., Blelkhman, S. O., Puchkov, V. G., and Lozhkin, L. P. Elec. dehydrator for petroleum and its products, P 6402*h*.
**Polyakov, M. V.** Heterogeneous-homogeneous reactions, 8250*i*; see Pavlushina, A. Ya.
——, Pavlushina, A. Ya., and Kornienko, T. P. Polymerization of vinyl acetate, 438*c*.
**Polyakov, Yu. A.** Thermodynamics of exchange adsorption of K and $NH_4$ ions in soils, 7621*b*
**Polyakova, A. M.**, and Vereshchagin, L. F. Influence of pressure on hydrolysis of 2,5-diketopiperazine and formation of peptide bonds, 5403*i*
**Polyakova, O. I.** See Kuzin, A. M
**Polyanskaya, A. A.** See Proskuryakov, N. I.
**Polymerisable Products Ltd.** Trihalogenated alcs., P 664*l*, 4284*h*; carboxylic acids, P 2632*f*, condensation products, P 6664*g*
**Polynov, B. B.** Elements of the biosphere in the evolution of organisms, 5060*a*
**Polytechnic Institute of Brooklyn.** Doubly activated infrared phosphors, P 3296*f*.
**Polzer, K.** See Kaindl, F.
**Pomerance, H.** See Hoover, J. I.
—— and Hoover, J. I. Thermal neutron absorption cross sections of sepd. isotopes, 4096*c*
**Pomeranchuk, I.**, and Shmushkevich, I. Radiation accompanying proton-fast neutron collisions, 8261*e*.
**Pomerantchuk, I.** See Pomeranchuk, I.
**Pomerants, M. A.** Absorption in C and Pb of cosmic-ray particles at very high altitudes, 4095*g*
**Pomerat, C. M.** See Thomas, T. B.
**Pomeroy, H. H.** See Mysels, K. J.
**Pomeroy, R.** See Kirschman, H. D.
**Pomes, A. F.** See Arthur, J. C., Jr.
**Pomey, J.** Friction and wear, 6816*f*.
—— and Chateau, M. Prepn. of atms for gaseous carburization, 1698*h*.
**Pommer, H.** See Inhoffen, H. H.
**Pomoshchnikova, N. A.** See Meisel, M. N.
**Pomp, A.**, and Krisch, A. Creep tests with some unalloyed converter steels and high-alloy heat-resisting steels at 500 to 900°, 5353*h*.
**Pompei, A.** See Lecoin, M.
**Pompeo, D. J.** See Penther, C. J.
**Pomper, S.** See Meyersburg, R.; Schultz, A. S.
**Pond, M. A.** Water resources and the nation's health, 8077*a*.
**Ponder, E.** Permeability of human red cells to cations after treatment with resorcinol, butyl alc., and similar lysins, 2664*s*; tonicity-vol. relations for systems contg. human red cells and the chlorides of univalent cations, 3087*b*; tonicity-vol. relations for human red cells subjected to the action of heat, 3087*c*; Haemolysis and Related Phenomena (book), 4361*g*; loss of K from human red cells in systems to which lysins have not been added, 4715*f*.
**Pondo, C. S.** See Flackbarth, C. T.
**Pondrom, W. L.**, and Robertson, W. W. Electronic intensity regulator for a H discharge tube, 9436.
**Pongratz, A.** Sintering phenomena on V catalyzers and their detection by electron-optical exposures, 7803*a*.
**Poni, M.**, and Cernătescu, R. Simple and complex salts of 2-hydroxynaphthoic acid, 2538*g*.
**Poniecki, J.** Addn. of lime in defecation, 4035*i*.
**Ponomarenko, N. I.** See Rabotnova, I. L.
**Ponomarev, L. T.**, Kobeko, P. P., and Aleksandrov, A. P. Horulike material, P 8241*g*.
**Ponomarev, V. D.** Bleaching of flax, 4470*i*.
**Ponomareva, S. I.** Formation of calcite by earthworms in the soil, 341*e*.
**Ponosov, V. I.** See Groshev, A. V.
**Ponsart, L.** See Heusghem, C.
**Ponse, K.** Paradoxical actions of the genital glands, 2302*c*.
**Pont, E. G.** Keeping quality of unwashed butter, 8568*h*.
**Pontani, U.**, and Quarra, R. Metallic colloids, 5654*c*.
**Ponte, G.** See Silvestri, S. C.
**Pontecorvo, B.** Neutrino and the recoil of nuclei in $\beta$ disintegrations, 4559*i*; see Hanna, G. C.; Hincks, E. P.
——, Kirkwood, D. H. W., and Hanna, G. C. Nuclear capture of $L_I$-electrons, 6076*a*.
**Pontecorvo, G.** Auxanographic techniques in biochem. genetics, 4329*d*.
**Ponting, J. D.**, and Joslyn, M. A. Ascorbic acid oxidation and the browning in apple-tissue exts., 6252*a*.
**Pontius, R. G.** See Baker, E. S.
**Ponz, F.** Intestinal secretion of phosphatases, 7593*f*, see Larralde, J.
**Poo, L. J.** See Addis, T.
**Pool, M. L.** See Coleman, K. D.; Hinshaw, R. A., Krisberg, N. L., Kundu, D. N.; Lee, J. C.; McCown, D. A.; Matthews, D. E., Woodward, L. L.
**Pool, W.** See Dreyfus, H.; Moncrieff, R. W.
**Poole, G. G. T.** Ca carbide at Kenfig, 2517*g*.
**Poole, H. J.** See Roffey, F.
**Poole, J. B.** See Fontaine, T. D.
**Poole, J. B. le.** See Dorsten, A. C. van.
**Poole, J. H. J.** Abundance of K and A in the earth's surface-materials, 3709*a*.
—— and Bremner, J. W. Distribution of the radioactive elements in rocks, 4565*e*.
**Poole, J. P.** Viscosity of alkali silicate glasses at annealing temps., 1161*f*; empirical treatment of viscosity data and its application to quality control in the glass industry, 2383*g*; glass sand beneficiation, 7653*b*; glass-melting furnace, 7653*d*; low-temp. viscosity of alkali silicate glasses, 7654*b*; measuring viscosity of glasses in annealing range of temp., 7654*d*.
—— and Gensamer, M. Effect of oxide constitutents on viscosity of silicate glasses at annealing temps., 7654*e*.
**Poole, R.** Design, testing, and calibration of a combustible-gas detector, 4522*f*.
**Poole, S. W.** Deoxidation and deoxidation products in elec.-furnace steel, 1301*d*.
**Poole, V. D.** See Baker, W.
**Poor, E. N.** Nonfibrous raw materials, 5948*h*; see Barthel, J. C.
**Poor & Co.** Compds. of gelatin and aldonic acids for use in alk. Zn cyanide electroplating baths, P 2102*h*; Zn electroplating, P 6096*e*; electroplating bath and electrodeposition of Zn, P 8917*d*.
**Poos, F. W.** See Shepherd, J. B.
——, Potts, S. F., Anderson, L. D., and Brooks, J. W. Tests with mist blowers to control various insects with DDT, 807*i*.
**Poos, G. I.** See Snyder, H. R.
**Popa, G. G.** See Danielopolu, D.
**Pope, A. L.** See Dicke, R. J.; Weir, W. C.
——, Phillips, P. H., and Bohstedt, G. Vitamin A and C concns. in the blood plasma of ewes, their milk, and in the blood plasma of their lambs, 3496*i*.
**Pope, C. G.** See Wellcome Foundation Ltd.
—— and Stevens, M. F. International standard and unit for penicillin (VIII*e*) assay, 3569*c*.
**Pope, C. L.** See Everitt, W. T.
**Pope, F.** Japanese chem. plants, 6335*a*.
**Pope, F. B.** See Bralley, J. A.
**Pope, H.** Growth inhibition of tubercle bacilli by analogs of phenylalanine, 8440*a*.
**Popel, A. A.** See Toropova, V. F.
**Popel, S. I.** See Rau, O. A.
See Danielopolu, D.
See Ionescu-Matiu, A.
**Popham, F. J. W.** See British Rubber Producers' Research Association.
**Popil'skii, R. Ya.** See Poluboyarinov, D. N.
**Popischil, F.** See Kleinert, T.
**Popkin, A. H.** Sulfonamides, P 685*f*; triphenylmethane dye, P 861*d*; aminobiphenylsulfonanilide, P 4297*f*.
**Popoff, A.** See Bastien, P.
**Popoff, C. C.** Limestone deposits near Arlington, Snohomish County, Wash., 4190*f*; silica deposits near the Skagit River, Skagit County, Wash., 6126*d*; Whitehorse limestone deposits, Snohomish County, Wash., 6953*e*.
**Popoff, K.** Nernst theorem and the theory of real gases, 8773*d*.
**Popok, S. A.**, and Klement, F. D. Effect of infrared rays on the excitation of luminescence of the CaS-Pb phosphor, 4576*g*.
**Popov, A. D.** Elderberry pigments and other foreign natural and synthetic coal-tar dyes in red wine, 8091*f*.
**Popov, G. M.** Kristallografiya (book), 2502*d*
**Popov, I. S.** Seed cake as fodder for milk cattle, 9292*g*.
**Popov, M. A.** Use of 1-naphthylamine in the detection of Au, 963*d*; use of methyl violet in quant. analysis, 963*e*, 4175*c*; detn. of small amts. of Mo, 966*g*; analysis of W ores—detn. of W, 969*g*; amination of butyl alcs. in the presence of catalysts, 1004*i*; detn. of F in ores and minerals, 4180*a*.
**Popov, M. Z.** Dynamics of K and Ca in the blood of glaucoma patients under action of addnl. irritants, 6310*i*.
**Popov, P. V.** Tertiary amines in acetylation of cellulose by AcCl, 2769*d*; insecticidal and fungicidal effect of lime-S mixts., 8085*a*
**Popov, T. T.** See Agranovich, B. D.
**Popov, V. I.**, and Vorob'ev, A. L. Hemihydrate in the desert deposits of Middle Asia, 2897*h*.
**Popova, E. M.** Bilberry as wine material, 1903*i*.
**Popova, G. M.** See Lyubimova, M. N.
**Popova, I. A.** See Shkol'man, E. E.
**Popova, L. A.** See Bokii, G. B.
**Popova, N. M.** Detn. of the chem. compn. of Fe carbide in steel, 6134*i*.
—— and Platonova, A. F. Detn. of Cr and Fe carbides in Cr-Ni austenite steels, 965*c*; detn. of carbide in chrome-Ni steel contg. Mo and W, 6110*c*.
—— and Rybina, M. F. Detn. of the carbide phase in C steels, 4181*d*; isolation of the carbide phase under const. conditions, 4992*c*.
**Popova, T. V.** Action of caffeine and bromides in weakened and well-established conditional reflex polypnea, 2823*a*.
**Popovici, G. G.** See Brânisteanu, D.
**Popow.** See Popov.
**Popowsky, M.** See Fogo, J. K.
**Poppe, W.** See Schmid, G.
**Popper, E.** Detn. of Zn, 3744*s*; see Ripan, R.
**Popper, H.** See De la Huerga, J.; Steigmann, F.
——, Dubin, A., Steigmann, F., and Hesser, F. P. Plasma tocopherol levels in various pathologic conditions, 7121*i*.
——, Steigmann, F., Dubin, A., Dyniewicz, H. A., and Hesser, F. P. Significance of vitamin A alc. and ester partitioning under normal and pathol. circumstances, 289*d*.
—— and Volk, B. W. Intestinal absorption of vitamin A from aq. and oily menstruum, 734*d*.
**Poprocki, S. J.** See Eckel, E. J.
**Poral-Koshits, B. A.**, and Efros, L. S. Azo dyes from 5-amino-1-naphthol and its derivs. (VI) potentiometric titration of azo dyes, 4467*h*.
—— and Grachev, I. V. Structure and reactions of diazo compds., 1737*b*.
**Poral-Koshits, E. A.** See Toropov, N. A.
**Poral-Koshits, M. A.** X-ray investigation of the Structure of K Tetranitropalladite (book), 8256*g*; see Bokii, G. B.
**Poraly-Koshits, Poraj-Košic.** See Poral-Koshits.
**Porat, B. v.** See Agner, K.
**Porath, J.** Optical antipodes of phenethylsuccinic acid, 5380*d*.
**Porcelain Insulator Corp.** Insulator, P 3587*a*.
**Porcsalmy, I.** Tannin in the tobacco leaf during its drying and fermentation, 9616*c*.

**Porejko, S.** Styrene, 8197*i*; Polish nomenclature in the field of plastics materials, 8198*b*.
**Porges, N.**, Pollard, E. F., and Spadaro, J. J. Rubber from goldenrod leaves, P 1211*e*.
**Porocel Corp.** Al fluoride gels, P 1930*a*; acetals, P 2222*b*; regeneration of alumina adsorbents by oxidation, P 2422*b*.
**Porod, G.** Dependence of small-angle x-ray scattering on the shape and size of colloidal particles in dil. systems (IV), 4925*d*; dependence of small-angle x-ray scatterings on the shape and arrangement of the colloid particles in densely packed systems (I) lamellar packet, 8272*e*; see Kratky, O.
**Porolko, V. A.**, and Rabinovich, A. I. Oxidation processes in rheumatism in children, 3093*g*.
**Porritt, B. D.** See Dock, E. H.
——— and Scott, J. R. Durability tests of rubberized cotton and cellulose acetate fabrics, 1572*g*.
**Porro, A.** See Santi, R.
**Porszász, J.** See Mosonyi, L.
**Porte, W. S.** See Culpepper, C. E. W.
**Porteous, J. W.**, and Williams, R. T. Detoxication (XIX) metabolism of benzene (1) (*a*) detn. of phenol in urine with 2,6-dichloroquinone chloroimide, (*b*) excretion of phenol, glucuronic acid, and ethereal sulfate by rabbits receiving benzene and phenol, (*c*) observations on the detn. of catechol, quinol, and muconic acid in urine, (XX) metabolism of benzene (2) isolation of phenol, catechol, quinol, and hydroxyquinol from the ethereal sulfate fraction of the urine of rabbits receiving benzene orally, 6312*h*.
**Porter, B.** See Nieset, R. T.; Parson, W.
**Porter, C. A.** Plasticizing polyvinyl alc., P 5632*h*, 9533*c*; polyvinyl alc., furfural, formamide reaction product, P 6804*e*.
**Porter, C. C.** See Silber, R. H.
——, Clark, I., and Silber, R. H. Effect of B vitamin deficiencies on tryptophan metabolism, 1470*a*.
**Porter, C. W.**, and Stewart, T. D. Essentials of Org. Chemistry (book), 1049*c*.
**Porter, F. R.** Special steels and their prepn. for enameling, 7656*i*.
**Porter, G.** See Norrish, R. G. W.
**Porter, H. D.** See Graham, Bruce
——— and Weissberger, A. 1-Phenyl-3-amino-5-pyrazolone, 1766*g*.
**Porter, J. D.** Free H in $H_2S$ generated from FeS, 5319*i*.
**Porter, J. N.**, Broschard, R. W., Krupka, G., Little, P., and Zellat, J. S. Isolation and production of polymyxin, 8414*f*.
**Porter, J. R.** See Kersey, R. C.
**Porter, J. S.** See Lubatti, O. F.
**Porter, J. V.** See Anderson, L. V.
**Porter, J. W.** See Nash, H. A.
**Porter, K. B.**, and Weiss, M. G. Effect of polyploidy on soybeans, 1079*b*
**Porter, L. B.** Deionization and beet-sugar production, 6443*c*.
**Porter, R. H.** Developments in seed technology, 5092*g*.
**Porter, T.** See Frazier, E. I.
**Porter, W. B.** See Forbes, J. C.
**Porter, W. E.** See Scrimshaw, N. S.
**Porter, W. L.**, Dickel, D. F., and Couch, J. F. Detn. of added rutin in urine, 7992*e*.
**Portéres, R.** Culture of cinchona trees in Overseas France, 5543*h*.
**Porterfield, V. T.** See Heppel, L. A.
**Portessis, M.** Detn. of metallic Fe in powd. minerals, 8303*e*
**Portevin, A. M.** Refining by the Ugine-Perrin method, 4200*a*; H in metals, 6553*b*.
——— and Dannenmuller, M. Segregation and liquation of alloys and their application to nonferrous metallurgy, 9010*e*
**Portillo, R.**, and Ortega, M. Polarographic studies with Heyrovsky's dropping electrode (IV) protein index in human serums, 9216*f*.
**Portmann, P.** See Giovannini, E.; Karrer, P.
**Portner, C.** Calcn. of bond energies, 8764*b*.
**Portnov, A. I.** Application of aromatic As compds. in chem. analysis (I), (II) detn. of Co, (III) detn. of Pb in the presence of alk. earths, 57*b*.
**Portnov, M. A.**, and Kozlova, A. A. Analysis of cations (I) detn. of the Cu and Fe subgroups, 7376*e*.
——— and Povelkina, V. P. Analysis of cations (II) detn. of the As subgroup, 7377*a*.
**Portnoy, M.** See Valentinuzzi, M.
**Portolés, J. L. A.** See Amorós Portolés, J. L.
**Portsmouth, G. B.** Effect of Mn on C assimilation in the potato plant, 7091*a*; see Bolas, B. D.
**Portz, F. G.** Disintegrated newsprint-boric acid insulation compn., P 5518*g*
**Porutskii, G. V.** Influence of purine bases on N assimilation by pea plants, 4730*f*.
**Porvari, R.** See Tikka, J.
**Poscher, W.** See Glemser, O.
**Posey, L. R., Jr.**, and Barker, E. F. Infrared absorption spectrum of monodeuterioethane under high resolution, 4572*d*
**Posin.** See also Pozin.
**Posin, D. Q.** Mendeleyev (book), 478*g*
**Poskitt, R. L.**, and Irby, G. S., Jr. Mesubstituted polysiloxanes, P 6807*b*.
**Posner, A. M.**, and Alexander, A. E. Detn of dynamic surface tensions, 8790*e*.
**Posner, H., Jr.**, and Nicholson, D. G. Drying linseed-oil paint, 2787*e*.
**Posokhov, E. V.** $CaCl_2$ lakes of central Kazakhstan, 7164*i*.
**Pospechow, D. A.** See Pospekhov, D. A.
**Pospekhov, D. A.** Formation of metal carbonyls, 56*j*; Schutzenberger's ether bromide, 1313*b*; polymers of metal carbonyls, 2535*f*; catalysts for MeOH synthesis, 3351*i*; pyrophoric metals, 5250*j*.
——— and Atamanenko, N. N. Action of Al on EtBr, 924*b*.
**Pospelova, K. A.** Induced soly. of benzene in water and of water in benzene, 7297*e*
**Pospíšil, R.** See Korecký, J.
**Poss, F. J.** See Mikus, F. F.
**Poss, H. L.** Magnetic moments of $C^{14}$, $F^{19}$, $Tl^{203}$, and $Tl^{205}$, 4114*g*.
**Post, C. B.** Austenitic steel having high hot hardness, P 6144*f*, see Fetzer, M. C.
——— and Eberly, W. S. Glass-sealing alloy, P 6145*h*.
——— and Luerssen, G. V. Interaction of liquid steel with ladle refractories, 2517*i*
——— and Schoffstall, D. G. Temp measurement in basic arc furnace, 8756*i*.
**Post, H. W.** Silicones and Other Org. Silicon Compds. (book), 2215*g*, see Jenkins, J. W.
**Post, O.** See Craig, L. C.
**Postel, S.** See Bovarsky, L. L.; Tobias, J. M.
**Postemeln, N. S.** See Kolodovkin, A. Ya.
**Posternak, J. M.** See Brink, F.
**Posternak, T.** Cyclitol series (X) isoinositol, 2175*d*, see Schopfer, W. H.
**Posternak, T. Z.** See Sutherland, E. W.
**Postma, N.**, Vetter, W. L., and Witmer, J. H. M. Strength of the carbohydrases in the crop juice of *Helix pomatia*, 4778*b*
**Postman, B. F.** Is it necessary to ventilate all degreasing installations? 7220*c*.
**Postnikov, V. F.**, and Lapshin, N. S. Analysis of cyanamide and nitride of Cu, 1287*b*
**Postovskii, I. Ya.** Phenothiazine, 5540*h*.
**Postowskij, I. Yu.** See Postovskii, I. Ya.
**Potapenko, G.**, and Wheeler, D., Jr. Anomalous dispersion and absorption of ultrashort electromagnetic waves in some fatty acids, 1092*i*.
**Potapov, G. Ya.** Tinning of metals, P 9022*c*.
**Potaszkin, R.** See Delbart, G.
**Potau, M.** Adsorption of salts by Hg, 4922*h*.
**Potemkina, V. G.** See Korenman, I. M.
**Pototskaya, G. V.** See Nifontova, E. S.
**Potter, A. L.**, and Hassid, W. Z. Starch (I) detn. of amylose and amylopectin, 888*g*; (II) mol. wts. of amyloses and amylopectins from starches of various plant origins, 1331*i*.
**Potter, B. J.** See Lippay, F.
**Potter, C.** Tetraethyl pyrophosphate as an insecticide, 3556*b*; see Tattersfield, F.
**Potter, D. J.** See Malkemus, J. D.
**Potter, E. V.** See Marks, G. W.
———, Lukens, H. C., and Huber, R. W. Transformation of $\gamma$ to $\alpha$ Mn, 6555*h*.
**Potter, G. F.** See Brown, R. T.
**Potter, G. J. C.** Sulfite process, 4010*i*.
**Potter, G. M.**, and Havens, R. Concn. of oxide Mn ores from the Adams and Woody properties, Coconino County, near Peach Springs, Ariz., 4987*b*.
**Potter, G. V.**, and Armstrong, C. E. Spectrophotometric detn. of Fe and Ti in cathode Ni, 2118*a*.
**Potter, J. H.** See Kouwenhoven, W. B.
**Potter, N. M.** Dry battery characteristics and applications, 2877*b*; see Keatinge, G. F.
**Potter, Richard D.**, and Grant, N. J. W-Mo thermocouples, 3668*d*.
**Potter, Robert D.** Young People's Book of At. Energy (book), 9486.
**Potter, R. I.** Antidetonant injection in a high-compression-ratio engine, 383*h*.
——— and Gillett, H. Internal-combustion engine conditioning compds., P 6406*e*.
**Potter, R. S.** Ascorbic acid in some Queensland fruits, 3944*f*.
**Potter, V. R.** Biochem. action of cocarcinogens, 2695*c*; see Novikoff, A. B.; Pardee, A. B.; Schneider, Walter C.
——— and Heidelberger, C. Biosynthesis of asymmetric citric acid, 7990*e*.
——— and LePage, G. A. Metabolism of oxalacetate in glycolyzing tumor homogenates, 4369*h*.
———, LePage, G. A., and Klug, H. L. Assay of animal tissues for respiratory enzymes (VII) oxalacetic acid oxidation and the coupled phosphorylations in the isotonic homogenates, 5059*g*.
———, Welch, H., Green, H. D., and Ivy, A. C. Methods in Med. Research, Vol. I. (book), 2268*c*.
**Potterat, M.** See Fellenberg, T. v.
——— and Hogl, O. Detn. of Zn in foodstuffs and commodities (I), 1683*h*.
**Potts, A. M.** See Dorfman, R. I.
**Potts, H. R.**, and Lawford, E. G. Recovery of S from smelter gases by the Orkla process, 4987*g*.
**Potts, J. E., Jr.**, and Amis, E. S. Alk. hydrolysis of ethyl acetate from the standpoint of ion-dipole theory, 8827*d*.
**Potts, R. H.** Nitriles from fatty acids, P 666*f*, distn. of fatty acid-contg. stock, P 671*ad*.
**Potts, S. F.** See Poos, F. W.
**Potts, W. M.** See Huang, P.-T.
**Pouchine, N. A.** See Pushin, N. A.
**Poucke, R. F. van.** See Van Poucke, R. F.
**Poučkov.** See Puchkov.
**Pough, F. H.** Herbert P. Whitlock, 8761*b*.
**Pouillard, É.** See Michel, A.
——— and Michel, A. Definite compds. and solid solns. which may be formed from $TiO_2$ and the oxides of Fe, 8296*i*.
**Poujade, A.**, and Poujade, L. Dressing leather, P 1206*h*; tanning skins, P 5221*b*.
**Poujade, L.** See Poujade, A.
**Poullain, P.**, and Piette, M. Detn. of human blood vol., 3869*a*
**Poulof, C. S.** See Saint Poulof, C.
**Poulsen, J. F.** Phosphate fertilizers (I) Thomas phosphate, (II) fertilizer values of some ferric phosphates and Al phosphates, 708*d*.
**Poulter, S. R. C.** See Harrison, V. G. W.
**Poulton, F. C. J.** See Bauminger, B. B.
**Poulverel, A. A.** Charcoal fuels, P 4835*c*.
——— and Roquerbe, P. Iodine, vitamins, and algae extd. from sea weeds, P 4792*e*.
**Poumeau-Delille, G.** Artificial vaginal and suprarenal cycle, 5476*l*.
**Pound, G. S.** Effect of air temp. on virus concn. and leaf morphology of mosaic infested horseradish, 5088*d*
**Pound, R. V.** Radiofrequency spectrometer for the detection of resonance absorption by nuclear moments, 4091*i*, effects of nuclear elec. quadrupole moments in nuclear paramagnetic resonance absorption, 4095*e*.
**Pounder, D. W.** See Murphy, Edgar A.
**Poupa, O.** Antihistaminics and circulation of the brain, 3520*c*; see Karasek, F.
**Poupko, S. L.** See Pupko, S. L.
**Pouradier, J.** See Abribat, M.
——— and Abribat, M. Surface films of gelatin, 2487*b*, 8798*f*.
——— and Dubois, A. Recording device to follow changes in surface tension, 8215*d*.
**Pourbaix, M.** Corrosion, passivity, and passivation from the thermodynamic point of view, 4207*a*.
——— and Rorive-Bouté, C. M. Graphical study of metallurgical equil., 4931*h*.
**Pourrat, H.** Reaction of Mg with 2 allyl dichlorides, 5734*h*; see Kirrmann, A.
**Pousitskii, K. W.** See Puzitskii, K. V.
**Poussel, H.** Toxic activity of the isomers of hexachlorocyclohexane, 7175*g*.
**Poutochine, N. I.** See Putokhin, N. I.
**Pouyet, J.** HCl as a substitute for ribonuclease in localization of ribonucleic acid in cells of higher animals as well as in bacteria, 4720*b*.
**Povarnin, I. G.** Nitrocellulose lacquers, P 6434*b*.
——— and Adamanis, L. I. Khranenie i perevozkaii, zhidkikh kislot i shchelochei (book), 2744*h*.
——— and Kolotukhin, I. N. Alc.-sol. varnishes, P 5206*d*.

——— and Mart'yanova, N. S. Film-forming substance, P 5206*c*.
**Povkh, G. S.** See Povkh, G. S.
**Povelites, J. J.** See Kateoff, S.
**Povelkina, V. P.** See Portnov, M. A.
**Povkh, G. S.** See Gonikberg, M. G.
**Pow, J.** Electrolytic polishing of Fe and steel, 5673*d*.
**Powarnin, I. G.** See Povarnin, I. G.
**Powell, A. K.** See Weigert, F.
**Powell, A. S.** See Dennis, S. F.
**Powell, C. E.,** and Chen, K. K. Action of dolophine on the animal uterus, 8551*g*.
——— and Swanson, E. E. Oxytocic evaluation of posterior pituitary solns., U.S.P.—guinea-pig uterus, 9373*d*.
**Powell, C. F.** Developments in our knowledge of mesons, 2855*h*; see Brown, R.; Camerini, U.; Lattes, C. M. G.; Occhialini, G. P. S.
**Powell, G. M., 3rd,** and Quarles, R. W. Coatings—vinylite resin dispersions, 4510*i*
**Powell, H.** See Gordon, R. R.
**Powell, H. M.,** and Rayner, J. H. Clathrate compd. formed by $C_6H_6$ with an $NH_3$-Ni cyanide complex, 5753*f*
**Powell, J. L.** Bremsstrahlung produced by protons, 4099*e*; see Broyles, A. A., Orc, A.
**Powell, J. S.** Odor and deodorization of Mid-Continent natural gas, 7666*b*.
——— and Joy, P. C. Detn. of small quantities of O in hydrocarbon gases, 3314*g*.
**Powell, R. E.** See Eyring, H.
**Powell, R. H.** Lab app., 6552*c*.
**Powell, R. L.** See Houston, E. C.
**Powell, R. W.** Bidwell's intercept relation and the thermal cond. of liquid metals, 2062*e*; metal physics (II) thermal conductivities of molten metals and alloys, 7880*e*; anisotropic properties of Ga, 8781*g*; see Borst, L. B.
**Powell, S. G.,** and Nielsen, A. T. Condensation of butanal with 4-heptanone and 3-hexanone and attempted condensation of 2-ethyl-2-hexenal with 4-heptanone, 1317*f*.
**Powell, S. T.,** and Von Lossberg, L. G. Removal of $H_2S$ from well water, 1127*d*, corrosion in high-pressure boilers, 3546*c*, relation of water supply to chem. plant location, 5131*a*
**Powell, W. M.** Cloud chamber study of the particles in the neutron beam of the 184-in. cyclotron, 4092*d*, recoil protons in the neutron beam of the 184-in. cyclotron, 4093*e*, 22-in. Wilson cloud chamber in a magnetic field of 21,700 gausses, 7326*g*, see Brueckner, K., Hartsough, W.
**Power, M. H.** See Hamilton, C. F., Keating, F. R., Jr.
**Powers, D. H.,** and Rossin, E. H. Finishing or sizing textiles, P 5603*c*.
**Powers, J. H.** See Christensen, H. N.
**Powers, J. L.** National Formulary IX, 4809*f*, 8103*a*; see Deahl, N. L.
**Powers, P. O.** Research yields new plastics uses, 1125*b*, linoleum surface covering, P 2448*g*; soly. of polystyrene in hydrocarbons, 2465*f*, oxidation of drying oils, 2787*g*, see Weber, K. H.
**Powers, T. C.** Nonevaporable water content of hardened portland cement paste—its significance for concrete research and its detn., 6387*e*.
**Powers, T. J.** Sewage-treatment app., P 9310*h*.
**Powers, T. M.** See Day, D.
**Powles, J. G.** Dielec. properties of titanates, 2054*e*, 2877*g*; measurement of absorption in liquids at 1.2 cm. and 0.8 cm. wave length using a wave-guide absorption cell operating in the $H_{01}$ mode, 2514*g*; effect of mol. inertia on dielec. absorption, 3676*f*; see Jackson, W.
**Powling, J.** Detn. of low burning velocities and limits of inflammability, 2404*a*, see Egerton, A. C.
**Powney, J.** Internal wetting of fibers as a factor in detergency, 8087*h*.
——— and Feuell, A. J. Detergency evaluation, 8180*b*.
**Powrie, J. K.** See Riceman, D. S.
**Pozdnyak, F.** High-quality casein, 9282*a*.
**Posin, M. E.** Theory of chem. absorption (VIII) coeff. of rate of absorption, 23*g*; (IX) theoretical foundations of scrubber absorption, 3270*g*.
——— and Flerinskaya, E. M. Pressure of N oxides over nitrose, 917*b*.
**Pozo, A. del.** See Del Pozo, A.
**Pozo, E. C. del.** See Del Pozo, E. C.
**Pozzani, U. C.** See Dygert, H. P.
**Pozzi, F.** See Bolcato, V.
**Pozzi-Escot, E.** App. for easily evapg. to dryness and calcining silica, etc., 912*d*.
**Pracanica, G.** Glycemia in suppurative processes, 2312*f*.
**Pracy, G. W.** See Maffitt, D. L.
**Prada, N.** Effect of benzopyrene on regeneration in amphibia, 5123*a*.
**Pradhan, V. L.** Notes on Inorg. Quant. Analysis (book), 7380*f*.
**Pradier, J. J.** See Prat, J.
**Prado, F., Jr.** Action of exts. of *Jacaranda decurrens, Nectandra pichury,* and *Simaruba officinalis* on *Endamoeba histolytica*, 8550*f*
**Prado, J. L.** See Moya, F.
**Prado, L. C. do.** See Cintra do Prado, I.
**Praetorius, E.** Uricase and British antilewisite—is uricase a Zn proteid? 3865*e*; enzymic conversion of uric acid—spectrophotometric analysis, 3865*g*.
**Prager, F. D.,** and Welter, R. Water-clarification assembly, P 4406*h*.
**Prager, W.** Developments in the math. theory of plasticity, 3257*a*.
**Prakash, O.,** Sharma, T. R., and Athawale, D. V. Dehydration of castor oil and its application in paints and varnishes (I), (II), 872*f*
**Prakash, S.,** and Mushran, S. P. Prepn. of ferric succinate jellies, 7787*b*.
**Prandtl, L.** Surface tension, 5247*c*.
**Prandtl, W.** Chem. portraits on medals and plaques, 3251*e*, Humphry Davy—Jons Jacob Berzelius (book), 4940*e*, chem. lab. of the Bavarian Academy of Sciences in Munich, 8759*h*.
**Prang, P. J.** See Serfass, E. J.
**Prange, I.** See Dam, H.
**Pranter, H.,** and Konopicky, K. Alumina in refractories, 6801*g*.
**Prasad, B.** Theory of viscosity and thermal conductance of liquids and highly compressed gases, 4064*g*, Irany's temp. function of viscosity, 4064*h*.
**Prasad, B. B.** Joshi effect in the aerial current under elec. discharge in Cl, 8289*a*.
**Prasad, B. N.** Comparison of the Joshi effect with a vacuo-junction and diode detection, 2523*h*; inhibitive influence of the applied potential on Joshi effect and its enhancement in high-frequency component of the discharge current, 2858*d*, production of the Joshi effect in Hg vapor, 8258*a*
**Prasad, K. B.** See Doja, M. Q.
**Prasad, M.** See Hattiangdi, G. S.
——— and Dange, G. V. Plant and wood ashes: potential source of com. potash, 2377*h*.
———, Dhar-matti, S. S., and Biradar, N. S. Law of additivity of magnetic susceptibilities in hydrates, 4528*e*.
——— and Doss, K. D. V. Scattering of light during the process of gel formation, 7785*b*.
**Prasad, S.** Effect of pruning and exfoliation on the growth and alkaloidal content of *Datura metel*, 3067*h*, historical survey of Indian drugs of vegetable origin, 8616*a*.
**Prasad, S. M.** See Hodsman, H. J.
**Prat, H.** Histophysiol. gradients and plant organogenesis, 9176*e*.
**Prat, J.** Sepn. and detn. of tertiary arsines in mixts. of As trichloride, primary, secondary, and tertiary arsines, 4975*d*; see Coutier, L.
——— and Pradier, J. J. Analysis of a mixt. of Lewisites and $AsCl_3$, 6111*e*.
——— and Vaganay, J. Detn. of triphenylarsine in a mixt. of $AsCl_3$, $C_6H_5AsCl_2$, $(C_6H_5)_2AsCl$, and $(C_6H_5)_3As$, 6114*d*.
**Prát, S.** Peroxidase reactions in algae and in soil samples, 1837*c*, reactions of the nucleus of algae with polyphenols, 1837*i*.
——— and Retovský, R. Polarographic reactions of albumins in buffer solns., 1821*i*.
**Pratelli, A. M.** Double integral relative to normal distributions, 5105*i*.
**Prater, J. D.** See Schlain, D.
**Prater, L. S.** Beneficiation tests on ore from the Sun Valley barite mine, Blaine County, Idaho, 4611*b*; chem. resources of Idaho, 9295*d*.
**Pratesi, G.** See Zacco, M.
**Pratesi, P.,** Raffa, L., and Arpesella, L. Diphenyl disulfide derivs. of spirocheticidal action, 2180*e*.
**Prather, E. M.** Chem. market data, 3117*g*.
**Prati, G.** See Zanussi, C.
**Pratolongo, U.** Chem. characteristics that differentiate fermentation vinegar from artificial vinegar, 8573*b*.
**Pratt, B. C.** Pigment compns., P 1579*f*; satd. near polyesters of mercapto dicarboxylic acids with dihydric alc., P 3633*b* polyhydric alc. mixed esters, P 4290*c*; coating compns. using polyethylene coated pigments, P 6838*d*; see Miller, Henry C.
**Pratt, H.** See Robinson, F.
**Pratt, H. K.,** Young, R. E., and Biale, J. B. Identification of $C_2H_4$ as a volatile product of ripening avocados, 283*f*.
**Pratt, H. R. C.,** and Glover, S. T. Liquid-liquid extn.—removal of $Me_2CO$ and AcH from vinyl acetate with water in a packed column, 2042*e*.
——— and Imperial Chemical Industries Ltd. Acetonitrile, P 1050*c*.
**Pratt, J. J., Jr.,** and House, H. L. Analysis of the amino acids in royal jelly, 7149*e*.
**Pratt, M. G.,** and Archer, S. Amides of 4,6-diaminoquinaldine, 1777*i*.
**Pratt, R.** *Chlorella vulgaris* (XI) surface tension and accumulation of chlorellin, 1465*h*; see Chao, J.; Chase, C. R., Jr., Dufrenoy, J.
——— and Dufrenoy, J. Cytochem. mechanisms of penicillin action (VIII) involvement of ribonucleic acid derivs., 3883*a*.
———, Dufrenoy, J., Sah, P. P. T., and Pickering, V. L. Enhancement of penicillin activity *in vitro* by vitamin $K_5$, 8444*b*.
**Pratt, V.** See Turner, K. B.
**Pratt, W. E.,** and Collinsworth, F. T., Jr. Galvanic action of Pb, Worthite, and other acid-resistant alloys in $H_2SO_4$, 2151*b*.
**Pratt, W. W.** See Jensen, E. N.
**Pratt, Y. T.** Dehydroabietic acid derivs., P 6665*f*
**Pratz, M.** Zinc yellow, 8697*f*.
**Prause, H.** Decompn. and working of salt-type lattice ores, 528*h*.
**Pray, H. A.,** Peoples, R. S., and Dalrymple, R. S. Testing the corrosion resistance of gas appliances, 6963*a*.
**Pray, W. F.** Askania thin-stock consistency regulator, 1184*a*.
**Precup, E.** See Bodea, C.
**Predojević, M.** See Cerkovnikov, E.
**Pree, L. de.** See De Pree, L.
**Preece, I. A.** Problems in brewing science, 2365*f*; enzymes, 5814*b*.
——— and Shadaksharaswamy, M. Reducing group production from starch by the action of $\alpha$- and $\beta$-amylases of barley malt, 9103*g*
**Pregnolatto, W.** Isomorphic substitution of halogens and pseudohalogen groups in the ortho and para positions of benzoic acid, 187*g*
**Preigerson, G. I.** See Simonov, K. A.
**Prein, N. G.** See Fel'dman, I. Kh.
**Preis, E. M.** See Nikolaeva, M. A.; Peskov, N. P.
**Preis, H.** Prepn. of finely divided oxides of Ti and Zr, P 421*g*.
**Preisler, P. W.,** and Hunter, F. E., Jr. Biol. oxidations, 9122*h*.
**Preisman, L.** $CS_2$ and $H_2S$, P 7201*i*.
——— and Hobson, C. F. $H_2S$, P 7201*h*.
**Preiswerk, E.,** Meyerhans, K., and Denz, E. Resins provide practical bonding agents for metals, 9521*d*.
**Preiswerk, P.** See Boehm, F.; Marmier, P.
**Prell, G.** See Schneiderhöhn, H.
**Prelog, V.** See Kobelt, M.; Lederer, E.; Protiva, M.; Ruzicka, L.
——, Barman, P., and Zimmermann, M. C rings (LI) validity limits of Bredt's rule—variation of Robinson's synthesis of cyclic unsatd. ketones, 7907*b*.
——, Battegay, J., and Taylor, W. I. Strychnos alkaloids (IX) reconversion of isostrychnine into strychnine, 1783*b*.
——— and Frick, H. Violet perfumes (XXVIII) ketotetrahydroionone, 4813*c*.
———, Fuhrer, J., Hagenbach, R., and Schneider, R. Organ exts. (XIII) isolation of jonone derivs. from the urine of pregnant mares, 3798*f*.
——— and Kobelt, M. C rings (L) dependence of the dissocn. consts. of the ring-homologous cyclanone cyanohydrins upon the size of the ring, 7906*h*.
———, Kocor, M., and Taylor, W. I. Strychnos alkaloids (X) dehydrostrychninolone and dehydrostrychninone, 6637*c*.
———, Wiesner, K., Ingold, W., and Häflinger, O. C rings (XLVIII) influence of the size of polymembered rings on the properties of 2,6-polymethylene-4-nitrophenols, 161*c*.
———, Wiesner, K., Khorana, H. G., and Kenner, G. W. Erythrina alkaloids (I) erythraline and erysodine, the chief alkaloids of *Erythrina abyssinica*, 5544*i*.
**Prendergast, M. G.** See Gresham, T. L.
**Prendergast, W. A.** See Herbst, M.
**Prener, J.,** Mason, R. W., and Ward, R.

Activator distribution in infrared phosphor systems—effect of Sr oxide, 6508*g*.
**Prengle, H. W., Jr.**, Greenhaus, L. R., and York, R., Jr. Thermodynamic properties of butane, 476*d*.
**Prentice, W. E.** Chemistry in textile processing, 6829*b*.
**Prentki, J.** See Marty, C.
**Preobragenskij, Preobrajenski, Preobraschensky.** See Preobrazhenskiĭ.
**Preobrazhenskaya, G. P.** Detn. of Si in Si spring steel, 4974*h*.
**Preobrazhenskiĭ, M.** Comparison of solvents used in oil factories, 8179*d*.
**Preobrazhenskiĭ, N. A.** See Dankova, T. F.; Dryamova, N. A.; Livshits, R. S.
—— and Rubtsov, I. A. Vitamin A (III) syntheses of β-ionylideneacetaldehyde, 2585*g*.
**Prescott, F.** See Hobson, J. A.
**Prescott, J. M.** See Lyman, C. M.
——, Schweigert, B. S., Lyman, C. M., and Kuiken, K. A. Effect of D-tryptophan on the utilization of the L isomer by some lactic acid bacteria, 6697*c*.
**Prescott, J. R.** See Colovos, N. F.; Keener, H. A.
**Prescott, W. G.**, Akeroyd, E. I., and Holmes, E. L. Treatment of water, P 6345*c*.
**Present, R. D.**, and DeBethune, A. J. Sepn. of a gas mixt. flowing through a long tube at low pressure, 4062*c*.
**Presley, J. T.**, and Leonard, O. A. Effect of Ca and other ions on the early development of the radicle of cotton seedlings, 283*c*.
**Presnell, A. K.** Detn. of color of glyceride oils, 2000*a*.
**Presnell, M. W.** See Archdeacon, J. W.
**Pressley, T. A.** Dyeing of leather, 1204*g*, processing of sheep skins in the wool, 1204*g*; textile and other industrial leathers, 1204*g*; chamoising process, 1592*d*; chrome tanning (II) properties of leather tanned in $CrCl_3$ and NaCl, 2799*c*, protein chemistry—dyeing of leather and wool, 6828*d*; prechromed hide powder for the analysis of vegetable tannins, 7731*i*.
**Pressman, D.** See Lucas, H. J.
**Presstite Engineering Co.** Compn. of matter for sealing spot-welded joints, P 7896*d*.
**Pressure-Jet Systems, Inc.** Device for introducing dropwise an alk. soln. into a steam service pipe, P 4408*c*.
**Preston, C.** See Oliver, J.
**Preston, D. A.** Bacterial canker of cowpeas, 6775*d*.
**Preston, F. W.** Solid liquids—meaning of undercooled liquid or supercooled liquid, 2063*a*; laws of chance (I) Poisson series in the glass industry and elsewhere, 6797*d*, see Glathart, J. L.
**Preston, G.** See Hatton, J.
**Preston, J. M.** Fiber science, 4857*e*, (book), 6832*d*.
——, Mhatre, S. H., and Narasimhan, K. I. Dyeing of viscose rayon (III) vol. swelling, 3200*h*.
—— and Narasimhan, K. I. Viscose rayon fibers (II) orientations of skin and core, 5954*b*.
—— and Nimkar, M. V. Measuring the swelling of fibers in water, 7690*e*.
—— and Saha, S. Froth flotation of fibers, 6420*i*.
**Preston, J. S.** Photoelec. cells—progress in photometry and radiometry, 482*b*.
**Preston, M. A.** Electrostatic interaction and low-energy particles in α-radioactivity, 4126*d*.
**Preston, R. D.** Movement of solns. in plants, 1463*i*; fine structure of the wall of the conifer tracheid (III) dimensional relations in the central layer of the secondary wall, 2676*g*; organization of the cell wall in plants in relation to the structure of fibers, 4857*g*.
——, Nicolai, E., Reed, R., and Millard, A. Cellulose in the wall of *Valonia ventricosa*, 1961*d*.
**Preston, R. S. J.** Form of accelerated atm.-corrosion test, 2918*f*.
**Preston, W. M.** See DeBenedetti, S.
**Prestrud, M. C.** See Ingle, D. J.; Li, C. H.
**Prestwood, R. J.**, and Wahl, A. C. Kinetics of the Tl(I)-Tl(III) exchange reaction, 8817*f*.
**Pretl, K.** Lipoid and lipoprotein metabolism of the human prostate, 5473*c*.
**Pretorius, P. J. C.** Detn. of B in steel, 8302*f*.
**Preucil, F.** Color-correction methods (I), 6099*b*.
**Preuss.** See also Preis.
**Preuss, H.** Splitting of urea as a criterion in the diagnosis of pathogenic intestinal bacteria, 8000*e*; tetrathionate enrichment, 8000*g*.
**Preusser, H. M.** See Kester, E. B.
**Preussler, H.** See Breitenbach, J. W.
**Previtera, A.** Amino acid behavior in milk treated with pure electrolytic 39% $H_2O_2$ soln., 3115*c*; influence of NaCl on the growth of some bacteria, 3490*b*.
**Prevost, C.** 2-Amino-4-methylpyrimidine, P 698*g*.
**Prévost, P.** Evolution of motor fuels, 2753*b*.
**Prévot, A.** Detection and detn. of Re by means of x-ray emission spectrum, 8304*e*.
**Prévot, A. R.** Titration of antibiotics using Janus Green, 4339*h*.
—— and Enescu, M. Reduction of nitrates to nitrites by anaerobic bacteria, 8447*c*.
**Prevot, P.** Mineral nutrition during growth of the peanut, 5452*c*.
**Prey, V.** See Beran, F.
**Prezioso, A.** See Nascimbene, A
**Prianischnikow, A. A.** See Pryanishnikov, A. A
**Priaulx, A. W.** Weyerhaeuser chemists develop valuable products from bark, 2767*c*
**Přibyl, F.** 1918-1949 season in Czechoslovakia (sugar beets), 9502*f*.
**Price, C. C.** Influence of structure on the relative reactivity of free radicals in polymerization systems, 5629*f*, relative monomer reactivity factors, 8238*c*.
——, Jackson, W. G., and Pohland, A. Radiation induced fluorescence and fluorescence spectra of certain quinoline derivs., 1659*i*
——, Maynert, E. W., and Boekelheide, V. 4,8-Diaminoquinolines, 7027*a*
——, Read, D. H., Bardos, T. J., and Chen, C. Isolation of a substance with Rh hapten activity, 753*h*.
—— and Roberts, R. M. 4,7-Dichloroquinoline, 1777*d*.
—— and Schilling, G. H. (6-Chloro-2-naphthyl)methylcarbinol, 6-chloro-2-vinylnaphthalene, and related compds., 1756*b*.
—— and Stacy, G. W. *p*-Aminophenyl disulfide, 1741*a*; *p*-nitrophenyl sulfide, 1741*a*.
—— and Voong, S.-T. 4-Nitro-1-naphthylamine, 1755*h*, prepn. of several chlorinated 1-vinylnaphthalenes, 3813*a*
—— and Zomlefer, J. Synthesis of vinylpyrimidines, 5784*i*
**Price, C. W.**, Randall, W. A., Welch, H., and Chandler, V. L. Combined action of antibiotics and sulfonamides, 4333*e*.
**Price, Donald**, and Sprules, F. J. Oxidation of hydroxylated fatty substances, P 676*h*.
**Price, Donna.** Compn. of rosin size ppt.—effect of heat and oxidation on compn., 6432*g*.
**Price, D. E.** See Orr, J. W.
**Price, E. G.** Acid Bessemer process in the manuf. of pipe, 530*f*, killed Bessemer steel of high quality, 1701*a*.
**Price, F.** See Setter, L. R.
**Price, F. P.** See Zemany, P. D
**Price, H. C., Jr.** See Cook, C. S.; Langer, L. M.
**Price, J. D.** See Bertholf, W. M.
—— and Bertholf, W. M. Coal washing, 3992*a*.
**Price, J. M.**, Miller, E. C., Miller, J. A., and Weber, G. M. Intracellular compn of livers from rats fed various aminoazo dyes (I) 4-aminoazobenzene, 4-dimethylaminoazobenzene, 4′-methyl-, and 3′-methyl-4-dimethylaminoazobenzene, 7123*c*.
——, Miller, J. A., Miller, E. C., and Weber, G. M. Intracellular compn. of liver and liver tumor from rats fed 4-dimethylaminoazobenzene, 4761*i*.
**Price, J. R.** See Hughes, G. K.
**Price, J. W.** See Liebmann, H.
**Price, L. E.** See Bucknall, E. H.
**Price, P. B.** See Seavers, R.
**Price, P. H.**, and Nolting, J. P. Salt resources of West Virginia, 6373*d*.
**Price, R. E.** See Kremers, H. C.
**Price, R. H.** See Bannister, L. C.
**Price, T.** Refractory alloys of Mo, W, and Cr, P 6146*h*.
**Price, V. E.** See Fodor, P. J.; Gilbert, J. B.; Greenstein, J. P.
—— and Greenstein, J. P. Enzymic hydrolysis of analogous satd. and unsatd. peptides, 258*c*; acetylated dehydroamino acids, 3857*a*.
**Price, W. C.** See Platt, J. R.
——, Longuet-Higgins, H. C., Rice, B., and Young, T. F. Vibrational spectra of some metal borohydrides, 4573*a*.
—— and Tetlow, K. S. Infrared Christiansen filter effect in slurries of org. crystals, 1657*d*.
**Price, W. E.**, and Bruce, G. H. Chemistry and Human Affairs (book), 5659*a*.
**Price, W. H.** See Clark, P. F.; Herriott, R. M.
**Price, W. J.** Ultrasonic measurements on Rochelle salt crystals, 4071*f*.
**Price, W. John.** See Argyle, A.
**Price, W. V.** See Calbert, H. E.
**Price Brothers & Co., Ltd.** Method of concg. waste sulfite liquor with recovery of $SO_2$, P 1188*b*.
**Prichard, J. H.** Casting solns. of Et cellulose, P 5592*de*; see Myles, W. J.
**Prichard, W. W.** Hydroquinone diacetate, 1741*h*; amines, P 2630*g*.
**Prichodko, N. E.** See Prikhod'ko, N. E.
**Pridham, A. M. S.** 2,4-Dichlorophenoxyacetic acid reduces germination of grass seed, 2727*g*.
**Pridham, E. S.** Condensers with titanate dielectrics, P 510*c*, 2106*a*.
**Prien, C. H.** Pyrolysis of coal and shale, 7759*c*.
**Priest, E. H.** See Chemical Engineering & Wilton's Patent Furnace Co., Ltd.
**Priest, G. L.** See Schumb, W. C.
**Priest, H. F.**, and Schumb, W. C. W fluorides and related compds., 1671*d*.
**Priester, M. U.** Plating-mill wastes, 6769*d*.
**Priestley, J. J.** Liquid purification—problems involved in plant design and operation, 3172*c*; liquid purification of coal gas, 7211*e*
**Priestley, J. P.** See Douglas, C. G.
**Priestley, J. T.** See Miller, John R.
**Prieto Calderon, F. E.** Capture of neg. mesotrons by protons, 4093*i*
**Prigent, J.** Thermistors made of oxides of U, 7346*h*.
**Prigogine, I.** Surface tension of a regular soln., 2491*c*; validity of the thermodynamics of irreversible phenomena, 8246*e*.
—— and Garikian, G. Model of the liquid state of Lennard-Jones and Devonshire, 8775*f*
—— and Mertens, A. Hypothesis of equil. in the theory of abs. reaction rates, 2847*d*
—— and Narbond, J. Surface tension of a regular soln., 2491*c*
**Prigot, M.**, and Pollard, C. B. Derivs. of piperazine (XXII) piperazinium salts for utilization in identification of org. acids, 235*c*.
**Prijs, B.** See Christen, F., Erlenmeyer, H.
**Prikhid'ko, N. E.** See Grigorov, O. N., Zaprometov, B. G.
**Prikhot'ko, A. F.** See Obrelmov, I. V.
**Prilégaewa, Prilejaieffa, Prileshajewa, Prilezaieva, Priležajeva, Priležajewa.** See Prilezhaeva, E. N.
**Prilezhaeva, E. N.**, Shapiro, E. S., and Shostakovskiĭ, M. F. Hydrolysis of vinyl alkyl ethers in water-dioxane solns., 3272*a*.
**Prill, E. A.** (3,4-Methylenedioxyphenyl)-propylene compd., P 1902*h*, α-ethylpiperonyl ethers, P 2639*c*.
——, Barton, L. V., and Solt, M. L. Effects of some surface-active agents on the growth of wheat roots in solns., 6703*g*.
**Prim, R. C.** Substitution principle for steady gas flow, 6021*f*, see Munk, M. M
**Primakoff, H.** Momentum distribution of the decay electrons from neg. mesons, 479*e*, see Owen, G. E.; Slack, L.
**Primm, E.** See Rice, E. E.
**Primosigh, J.** See Schramm, G.
**Primo Yúfera, E.** See Santa-Pau Votá, A.
**Prina, C.**, and Barbieri, L. Influence of vitamin C on absorption of Fe (I), 8468*c*.
—— and Tentoni, F. Influence of cancerigenic hydrocarbons on the formation of bone callus, 9239*f*.
**Prince, A. B.** See Bear, F. E.
**Prince, A. E.** See Frear, D. E. H.
**Prince, A. L.** See Bear, F. E.; Mikkelsen, D. S.; Toth, S. J.
—— and Bear, F. E. P needs of New Jersey soils, 3956*c*.
——, Bear, F. E., Brennan, E. G., Leone, I. A., and Daines, R. H. F—its toxicity to plants and its control in soils, 9319*i*.
**Prince, A. T.** High-temp. phase equil. studies in ceramics, 1933*e*.
—— and Bradfield, F. C. Ceramics at the Bureau of Mines, Ottawa, 6799*f*.

**Prince, F. S.**, and Blood, P. T. Effects of 2,4-D on potato tops and tubers when sprayed at the full bloom stage, 7181*a*.
**Prince, J. E.** See Fardon, J. C.
**Prince, V. E.** See Weinberger, J. H.
**Princi, F.**, Church, F., and McGilvray, W. Animal-dusting app., 7532*g*.
**Prine, G. B.** See Butts, P. G.
**Pringle, A. V.** Theory and practice of flax spinning processes, 7232*f*.
**Pringle, E. M.** See Barott, H. G.
**Pringle, R. W.** See Feather, N.
**Pringsheim, E. G.** Fe bacteria, 5080*d*, filamentous bacteria, *Sphaerotilus*, *Leptothrix*, *Cladothrix*, and their relation to Fe and Mn, 7080*d*.
**Pringsheim, P.** Fluorescence and Phosphorescence (book), 8898*b*.
**Prins, D. A.** Reduction of sugar epoxides to desoxysugars, 1327*f*, see Bolliger, H. R.
——— and Jeanloz, R. Chemistry of the carbohydrates, 147*c*.
**Prins, H. J.** Syntheses of polychloro compds. with $AlCl_3$ (VII) autocondensation of 1,2,3,3-tetrachloropropene, 5361*h*.
**Printy, H. C.** See Julian, P. L.
**Prior, P. H.** Nature and practice of science, 4900*f*.
**Priporova, G. P.** Effect of stress on the Hall e.m.f. in Fe-Ni alloys with pos. striction, 3765*e*.
**Přistoupil, V.**, and Panuš, K. Estn. of the catalytic effect in the manuf. of contact $H_2SO_4$, 8021*f*.
**Pritchard, A. E.**, and Beer, R. E. Parathion for the control of pests of ornamental and flowering plants, 8088*h*.
**Pritchard, F. W.** See British Cellophane Ltd.
**Pritchard, G. J.** See Ward, Blenkinsop, & Co., Ltd.
**Pritchard, J. A.** Failure of xanthopterin to influence hematopoiesis and growth in rats, 1470*h*; erythrocyte age and cholinesterase activity, 7990*d*.
**Pritchard, J. E.** See Crouch, W. W.
**Pritchard, L. R.** Application of flame photometer to portland cement analyses, 373*f*.
**Pritchett, E. G. K.** Chemistry of the phenol-aldehyde condensation, 5379*a*
**Pritchett, W. L.**, Black, C. A., and Nelson, L. B. Mineralizable N in soils in relation to the response of oats to N fertilization, 2352*g*.
**Pritz, L. G.** Ferroalloys, P 2878*c*
**Pritzker, L.** Process for obtaining decorative crackle finishes, P 4874*d*.
**Privat de Garilhe, M.** See Fromageot, C.
**Prjanischnikoff, Prjanischnikow.** See Pryanishnikov, A. A.
**Prober, M.**, and Miller, W. T., Jr. Thermal polymerization of hexafluorobutadiene, 3345*f*.
**Probey, T. F.** Attempt to produce an arsenic-resistant strain of *Spirocharta pallida* in exptl. syphilis, 3513*f*
**Probst, R. L.** See Kolthoff, I. M.
**Probstein, J. G.** See Pereira, M. D.
**Processed Surfaces, Inc.** Hardened silicone-surfaced cooking implement, P 5634*d*.
**Procházka, J.** Polyamide waste in the manuf. of fibers, casings, coatings, etc., 1571*a*; polymerization of substituted ε-caprolactams (III), (IV), 8735*h*
**Procházka, V.** McLeod gage without rubber tubing, 1616*e*.
**Procházka, Z.** See Fucik, K.
**Próchnik, S.** Analysis of K cyanate, 971*c*.
**Procofieff, M.** See Bert, L.
**Procopio, M.** Principi di chimica organica, con esperimenti e riferimenti al compo applicato (book), 3022*f*; storage of fruit juices, 5510*c*; simplifying and standardizing the Kleiber - Wiegner - Magasanik method for the detn. of volatile acids in wines, 6779*f*; detn. of sugar content of sweet wines from their d., 6780*b*; detn of volatile and lactic acids in fresh ensilages, 8575*g*; examn. of soil in thin layers, 9316*h*.
**Procopiu, S.** Termodinamică (book), 2084*b*.
**Procter, J. T.** See Sturtevant Engineering Co., Ltd.
**Procter & Gamble Co.** (*Patents.*) Fatty acids, 3003*g*; carotenoid concentrates from palm oil, 2794*i*; detergent comps., 2795*h*; satd. mono- and(or) diglycerides, 4877*b*; hydrolysis of fats, 5612*f*; concn. of glygerol, 5612*h*; soap, 6437*g*; wetting, sudsing, and detergent agent, 6844*h*; bodied oils, 9484*h*.
——— and Abbey, A. Alcs., P 4284*h*.
——— and Williams, W. P. Altering the compn. of fats and fatty oils for food, etc., P 883*i*.
**Proctor, B. E.** See Goldblith, S. A.
——— and Goldblith, S. A. Effect of high-voltage x-rays and cathode rays on vitamins, 328*g*; radar energy for rapid food cooking and blanching and its effect on vitamin content, 1493*a*; effect of supervoltage cathode rays on the nonenzymic browning reaction of dried fruits and on chem compds. pertaining thereto, 5878*e*.
**Proctor, W. G.** Magnetic moment of $Tl^{203}$, 4114*h*, magnetic moments of $Sn^{117}$, $Sn^{119}$, and $Pb^{207}$, 8871*c*.
**Produits chimiques de Ribécourt.** Melamine, P 699*a*; diaminotriazines, P 5427*f*.
**Produits Jaguar.** Petrifiable surfacing for the renovation and waterproofing of surfaces, P 1167*b*.
**Proebsting, E. L.** Effect of N on nonirrigated prunes, 8592*h*, see Hansen, C. J.
**Proell, W. A.** Theory of at. rocket fuels, 5661*f*; see Shoemaker, B. H.
**Proeschel, E.** See Hieber, W.; Lux, H.
**Proffitt, J. R., Jr.** See Lester, C. T.
**Progil (Soc. anon.)** Basic Cu salts, P 5161*c*.
**Prohl, C.** See Stelzner, G.
**Proisy, P.** Variation with depth of the compn and refractive index of the sun's atmosphere, 4134*a*
**Proix-Noé, Mme.** Mineralization of a superficial water level in a heterogeneous terrain, 8581*a*
**Prokhorov, F. G.**, and Yankovskii, K. A. Dynamic activity of cationites towards cations, 3268*d*.
**Prokhorova, A. P.**, and Kretovich, V. L. Respiratory gas exchange in grain masses in elevators and in storage, 2335*g*.
**Prokhovnik, S. J.** See Turnbull, N. H.
**Prokof'ev, A. A.** Regularities of rubber synthesis in plants, 8013*d*
**Prokof'eva-Bel'govskaya, A. A.** Structure of chromosomes, 3050*e*
**Prokofiev, Prokofyev.** See Prokof'ev, A. A.
**Prokop'eva, A. G.** See Berezhnaya, A. A.
**Prokop'eva, A. N.**, and Tayanov, K. I. Analysis of thin Ni wires and foils, 6108*e*.
**Prokoshev, S. M.**, and Petrochenko, E. I. Interrelation of protein and ascorbic acid in potato tubers, 270*h*.
——— and Saval'eva, O. N. Citric acid in potato, 1083*a*
**Prokoshev, V. N.** See Mishustin, E. N.
**Promel, R.** See Lagrange, L.
**Promisel, N. E.** Sintered and rolled Ti, 3766*a*.
**Promyslov, M. Sh.** Changes in the N metabolism in the brain in some pathol. processes, 7122*b*
**Pronina, M. V.** Adsorption analysis applied to the sepn of aldehydes and ketones, 5311*c*.
**Proom, H.**, and Hemmons, L. M. Drying and preservation of bacterial cultures, 4328*d*.
**Pro-phy-lac-tic Brush Co.** Molecularly oriented copolymers of acrylonitrile, 1,3-butadiene, and diethyl maleate, P 2470*d*; vulcanizable copolymers of a vinyl aryl compd., butadiene, and maleic esters, P 3230*d*; vulcanizable copolymers of acrylonitrile, butadiene, and maleic esters, P 3239*c*.
**Proscournin, M. A.** See Proskurnin, M. A.
**Prosen, E. J.** See Johnson, W. H.; Kilpatrick, J. E.
———, Maron, F. W., and Rossini, F. D. Heat of isomerization of the two butadienes, 5274*f*.
**Proshenkova, N. N.** See Syrokomskiĭ, V. S.
**Proske, G. E.** Additives which suppress maxima in the polarographic analysis of brass, 4181*h*; formulation of synthetic-rubber mixts. (II), (III), 5985*c*; rubber-metal bonding through brass plating, 8191*f*.
**Proske, O.**, and Blumenthal, H. Analyse der Metalle (book), 4604*g*.
**Proskournin, M. A.** See Proskurnin, M. A.
**Proskurnin, M. A.** See Makar'eva, S. P.
**Proskuryakov, N. I.**, and Polyanskaya, A. A. Active groups in prepns. of α-amylase, 260*b*.
**Prosser, C. L.** See Kirschner, L. B.
**Protasov, P. N.** See Kharin, A. N.
**Protiva, M.**, and Borovička, M. Antihistamine substances (VII) methylbenzhydryl 2-(1-piperidyl)ethyl ethers, 3810*h*.
——— and Prelog, V. Hexahydrojulolidine, 5784*d*.
——— and Šorm, F. Attempt to prep. the lactam of *cis*-3-amino-cyclohexaneacetic acid, 1730*c*.
**Protopopov, V. N.** Detn. of intensity ratios of x-ray lines, 490*a*; constructing blackening curves for x-rays (II), (III), 6079*d*.
**Protsenko, E. V.** See Dobrinskaya, A. A.
**Protserov, B. M.** Leucocytes in milk, 9280*e*.
**Protsman, T. F.** Transition temps. of Me methacrylate polymers at ultrasonic frequencies, 6046*c*.
**Proud, E. R.** See Pepkowitz, L. P.
**Proudley, C. E.** Sampling of mineral aggregates, 5167*f*.
**Proulx, L. J.** Engineering control of an industrial Be exposure, 5883*f*.
**Prout, F. S.** See Cason, J.; Riegel, B.
——— and Cason, J. Branched-chain fatty acids (VIII) synthesis of two acids contg. a 3-pentyl symmetrical end-grouping, 3780*f*.
**Prouvost, J.** Transformation of several natural metallic sulfides, 4145*h*.
**Provan, A. L.**, and Jenkins, D. I. Milk quality, 3943*e*.
**Provasoli, L.** See Hutner, S. H.
———, Hutner, S. H., and Schatz, A. Streptomycin-induced chlorophyll-less races of *Euglena*, 1461*i*.
**Provinteev, I. V.** See Kudasov, A. G.
**Provisor, H.** See Bloche, E.
**Provost, A.** Moisture detns. in tobacco, 9382*f*.
**Provost, R. C., Jr.** See Woodward, C. F.
**Provvedi, F.** Nitrate detn. in potable water, 3951*i*.
**Prozorovskaya, M. K.** See Lagunov, L. L.
**Prozzo, E.** See Serafini, U.
**Prue, J. E.** See Ackermann, H.; Bell, R. P.
**Pruett, J. R.** $H^2$ and the mass of the neutrino, 4094*d*.
**Pruna, M.**, Faivre, R., and Chaudron, G. Kinetic study by isothermal expansion of the transformation of aragonite into calcite, 24*d*, 6494*f*
**Prunty, F. T. G.** Adrenocorticotropin in testing for adrenal insufficiency, 8517*h*.
**Prusak, L. P.**, and Mattocks, A. M. Efficacy of cetyltrimethylammonium bromide in a series of ointment bases, 8609*d*.
**Prusoff, W. H.**, Teply, L. J., and King, C. G. Influence of pteroylglutamic acid on nucleic acid synthesis in *Lactobacillus cases*, 4328*b*, 6697*b*.
**Prutton, C. F.** See Lightfoot, W. J.
——— and Asseff, P. A. Hypoid-gear lubricants, 6400*b*.
———, Miller, C. O., and Craig, W. G. Oxidation of hydrocarbons to alcs., aldehydes, and ketones, P 7949*h*.
——— and Musgrave, F. F. Petroleum lubricants—chem. market, 2761*g*.
**Pruvost, P.** Geodes contg. liquid hydrocarbons in the carboniferous limestone of Aniche, 2903*e*.
**Pryanishnikov, A. A.** Sepn. of methyl isopropyl ketone, P 6650*d*.
**Pryce, M. H. L.** Paramagnetic resonance in $CuSO_4$—theory, 3293*h*.
**Pryce, N. A. C.** See Manbre and Garton Ltd.
**Pryde, E. H.** See McElvain, S. M.
**Pryor, C. C.** Shell cycling plant designed for high-pressure absorption, 2412*e*.
**Pryor, M. G. M.** See Hackman, R. H.
**Pryor, M. J.** See Evans, U. R.; Mayne, J. E. O.
**Prytherch, J. P.** See Ward, W. C.
**Prytherch, W. E.** Mg, P 5728*i*.
**Przhevolotskaya, S. M.** See Cherkashin, E. E.
**Przibram, K.** Flame excitation of the blue Eu (II) bands, 7816*i*; light emitted by Eu compds., 7816*i*.
**Przyboro, S.** See Kuczyński, W.
**Psacharopulo, G.** Lesions of the various organs in poisoning with mustard gas, pathol. atomical observations, 2317*b*.
**Pschejeski, Pshejetskii.** See Pshezhetskiĭ, S. Ya.
**Pschelin, V. A.** See Pchelin, V. A.
**Pshennova, K. V.** See Mikhlin, D. M.
**Pshezhetskiĭ, S. Ya.** See Temkin, M. I.
——— and Kamentskaya, S. A. Kinetics of oxidation of iso-PrOH to acetone on a Ag catalyst, 5272*e*.
**Pticyn, B.** See Ptitsyn, B. V.
**Ptitsyn, B. V.**, and Kozlov, V. A. Oxidation-reduction potential of the system thiosulfate-tetrathionate and the limits of the tetrathionate region of thiosulfate oxidation, 6034*d*.
**Ptschelin, V. A.** See Pchelin, V. A.

**Publicker Commercial Alcohol Co.** Name changed to Publicker Industries Inc
**Publicker Industries Inc.** Reaction of $C_2H_2$ and KOH, P 1928*e*, riboflavin, P 3562*d*; plastic substances from glycerol-contg fermentation stillage and dicarboxylic acids or anhydrides, P 5229*e*.
**Pucci, R. E.** Variations in blood Ca and Mg during diphtheria intoxication, 1100*d*
**Puccinelli, V.** British anti lewisite, 6761*b*
**Puceiko, E. K.** See Putseiko, E. K.
**Pucher, G. W.,** Leavenworth, C. S., and Vickery, H. B Detn. of starch in plant tissues, 65*g*.
——, Vickery, H. B., Ginter, W. D., Nolan, L. S., and Leavenworth, C. S. Metabolism of the org. acids of tobacco leaves (I) effect of culture of excised leaves in solns of org. acid salts, 5455*c*
**Pucher, S.** See Zinke, A
**Puchkov, N. G.** See Fuks, G. I
**Puchkov, V. G.** See Polyakov, I. S
**Puchmajerová, M.** Peats in "Třeboň" basin, 9413*d*.
**Puck, T. T.** Reversible transformation of T1 bacteriophage, 7082*i*, see Robertson, O. H.
**Puckov.** See Puchkov.
**Puddefoot, L. E.** Rubber adhesives in industry, 4884*k*, see B. B. Chemical Co. Ltd.
**Puddington, I. E.** Hg manometer, 447*f*, stopcock lubricant, 4455*b*; detn of heavy water, 4582*g*; mol. wts from micro quantities of materials, 6048*c*; see Moses, G. B
**Pudovik, A. N.** Allylic rearrangements (VI) catalytic isomerization of methoxychloropentenes in the presence of halogen salts of metals, 130*f*, (VII) addn of 1,2-dichlorodiethyl ether to divinyl and the action of alc. alkali on the products, 2158*i*; (VIII) action of KOH and Na alkoxide (of *tert*-Bu alc.) on isomeric methoxy chloropentenes and ethoxy dichlorohexenes in *tert*-Bu alc., 5737*a*.
——, Nikitina, V. I., and Algistova, S. Kh. Addn. of α-halo ethers to butadiene, 6568*b*.
—— and Sinaĭskiĭ, G. M. Detn. of aliphatic alcs. by oxidation with $K_2Cr_2O_7$ in the presence of some org. substances, 5702*e*
**Pudovkina, O. I.** See Vil'nyanskiĭ, Ya. E
**Puell, H.** See Heering, H.
**Püngel, W.** Compressed air as coolant in patenting of steel wire, 8335*d*.
**Puertas, P. G.** See García Puertas, P.
**Puetzer, B.** See Cramer, B. J.
**Puffe, E.** Representation and evaluation of sieve analyses on the basis of the Rosin-Rammler equation, 2069*h*
**Puffeles, M.** Clay detn. in some soils of Palestine, 8590*b*.
**Pugh, B.,** and Court, J. M. A Fuels and Lubricating Oils (book), 5928*b*
**Pugh, L. H.** Effect of gonadal hormones on infection of rats with *Brucella abortus*, 740*c*.
**Pugh, N. J.** Treatment of doubtful waters for public supplies, 3122*a*, 3544*h*.
**Pugliese, C.** Bilirubinemia in leishmaniasis of children and the Sb treatment, 2313*f*
**Puglisi, L.** See Lanza, A
**Pugsley, L. I.** Application of the principles of statistical analysis to the biol assay of hormones, 7541*e*; see Bird, S., Wills, C. G.
—— and Rampton, S. Assay of insulin, 7641*a*.
**Puig, A. C.** See Camuñas Puig, A.
**Puig, J. B.** Agua en la industria textil (book), 1086*b*.
**Puig Muset, P.** See García-Valdecasas, F.
**Puig Pujol, M.** Oil palm, 2792*c*; comparison of fat splitting by the Twitchell process and the high-pressure process, 6839*f*.
**Pujol, M. P.** See Puig Pujol, M.
**Pulaski, E. J.,** and Baker, H. J. Effects on gram-neg. bacteria of streptomycin combined with penicillin and(or) sulfadiazine, 4336*g*.
——, Reichel, H., and Voorhees, A. B., Jr. Effects of adrenoxyl on blood-coagulation mechanism and vasomotor response, 5117*h*.
**Pulkki, L. H.,** and Puutula, K. Distribution of nicotinic acid in grain, 5875*e*.
**Pullen, A. N. D.** See British Aluminium Co. Ltd.
**Pulley, G. N.** Treatment of citrus waste press water, P 5881*i*.
**Pullinger, D. B.** See Mann, I
**Pullman, A.** Electronic structure of several heterocyclic compds contg. more than one N atom, 2095*a*, electronic structure of some free radicals, 5732*f*, see Baldock, G.; Coulson, C. A., Metzger, J.
—— and Berthier, G Electronic structure of free radicals and biradicals, 2511*i*, electronic structure of azulene, 2831*e*.
—— and Metzger, J. Electronic structure and chem. reactivity of thiazole, benzothiazole, and their Me derivs., 2511*g*.
—— and Pullman, B. Distribution of the electron cloud and chem. reactivity in fused aromatic hydrocarbon systems, 6905*h*.
—— , Pullman, B., and Rumpf, P. Electronic structure of fulvene and benzofulvene (II) method of mol. orbitals, 10*e*
**Pullman, B.** See Berthier, G., Pullman, A
—— and Berthier, G Electronic structure and chem. properties of hydrocarbons with cumulative double bonds (allene type), 5733*c*.
——, Rumpf, P., and Kieffer, F Isotope exchange reactions and the electronic structure of aromatic hydrocarbon derivs., 7809*f*.
**Pullman, T. N.,** *et al* Prophylactic, curative, and suppressive activity of SN-11,437 (metachloridin) [*N*1-(5-chloro 2-pyraimidyl) metanilamide] in standardized infections of vivax malaria, 9266*a*
**Pulver, R.** Species specific effects of irgamide and other sulfanilamide derivs., 2665*d*.
**Pumphrey, W. I.** See Jones, F. W
—— and Jennings, P. H High-temp tensile properties of cast Al Si alloys and their constitutional significance, 1701*f*, nature of brittleness at temps. above the solidus in castings and welds in Al alloys, 1702*a*
—— and Jones, F. W Austenite break down, 3761*e*
—— and Lyons, J. V Behavior of crystal boundaries in Al and its alloys during melting, 8336*e*
—— and Moore, D. C Nature of brittleness at temps. below the solidus in castings and welds in Al alloys, 1702*f*, effects of Si on the tendency to cracking in Al-Cu-Mg alloys of high purity, 3718*i*
**Punchik, E. M.** See Korenman, I. M
**Pupko, S. L.** Al oxide films as carriers for Frimer, A. I
**Purcell, E. M.** See Brown, R. M.
**Purcell, W. R.** Capillary pressures, their measurement, 3666*h*, see Bartell, F. E
**Purdue Research Foundation.** (*Patents.*) Fluorination of $CCl_4$, 660*b*, condensation of ketenes with keto esters or diketones, 1436*b*, hexachlorobutadiene, 2218*b*, fluorinated ethers, 2219*e*, perfluoroadipic acid and esters, 2635*e*, fluorodinitroethanes, 3024*i*, perhalotoluenes, 3033*e*, nitro alcs., 3438*h*; 1,2-dichloroperfluorocycloalkenes, 3844*d*, aromatic fluorocarbons, 3845*d*, chlorinolysis of cyclic alcs., 4296*d*, halogenation of cyclic hydrocarbons, 4300*g*, hexachloro(trifluoromethyl)cyclohexane, 4693*f*, fluorinated dialkylbenzenes, 5040*i*, *dl*-menthone, 5045*f*, propane chlorination, 6644*b*, liquid phase chlorination, 6644*c*, C-acetylated and O-acetylated compds., 6654*i*; enol acetates, 7505*d*, azo compds. from 1-dibutylamino 2-nitrobutane, 8153*i*, azo compds. from 1-*N*-morpholino 2-nitropropane, 8154*a*, aryloxyalkenes, 9084*e*.
**Purdy, J. B.,** and Nelson, H. W. Evaluation of the performance of 33 residential stoker coals, 6806*g*.
**Purdy, R. W.** See Eldridge, E. F
**Pure Oil Co.** (*Patents.*) Paint remover, 334*a*, sepn. of olefins from hydrocarbon mixts., 1432*h*; polymerization of olefinic hydrocarbons, 1559*c*; sulfonation products of aromatic hydrocarbons substituted with hydroaromatics, 1562*h*, rust preventive slushing compd., 1563*a*; alkyl halides, 2628*b*; breaking emulsions, 3186*ce*; unsatd. ketones, 3442*a*, alkylation of hydrocarbons, 5181*g*, cementing earth bores, 5568*g*; haloalane treatment of oil-bearing formations, 5582*b*, dehydrogenation of hydrocarbons, 6401*b*, glass distg. head, 6874*b*, fractionally distg. in alternate heating and cooling zones, 8218*d*, activated $Al_2O_3$-BeO catalyst, 9299*f*; lubricating-oil oxidation inhibitor, 9432*f*, 9432*g*.
**Puri, A. N.,** and Bhariloke, G. Soils and theory of colloidal behavior (I) insol. acids and bases, 9316*i*.
**Purim, Ya. A.** Degreasing of furs, 6424*a*; chrome tanning of hide, 6450*a*.
**Purkaln, M. M.** See Andreev, K. K.
**Purkayastha, B. C.** Complementary series and conjugate fragments in U fission, 1647*g*; fission of at. nuclei (I) transuranium elements, 4096*i*; (II), 4554*g*.
**Purlia, P. L.** See Gratch, I.
**Purrmann, R.** Pterins, 4710*h*.
**Purser, B. J.** Estn. of $C_2H_2$ in air, 6943*g*
**Pursglove, J., Jr.** Coal carbonization, tar refining, and coal gasification, 5923*d*.
**Purss, A.,** and Anderson, H. Comparison of the properties of various tanneries—*E. sieberiana* and *C. calcarata*, 5219*f*.
**Purtova, A. M.** See Bozhenkova, T. A.
**Purushotham, A.** See Narayanamurti, D
**Purves, C. B.** See Gardner, J. A. F., Grassie, V. R.; Harwood, V. D.; Moir, R. Y., Tasker, C. W.
**Purves, H. D.** See Griesbach, W. E
—— and Griesbach, W. E. Thyrotropic hormone in thyrotoxicosis, malignant exophthalmos, and myxedema, 7119*e*.
**Purvin, R. L.** Injection nozzle for catalytic reactors used in the production of Butyl rubber, P 9522*b*.
**Purvis, E. R.** See Evans, H. J.
—— and Hanna, W. J. Electrodialysis of solns in dil. $H_3BO_3$ soln., 3957*h*.
**Purvis, S. E.** See Axelrod, A. E
**Puryear, O. P.** See Ashburn, H. V., Herbst, M.
—— and Ashburn, H. V. Li-base grease, P 391*i*
**Puschin, N. A.** See Pushin, N. A
**Pushin, N. A.** Limits of the cryst. and the liquid state of matter, 6065*a*, binary systems composed of halides of Si, Ti, Sn, As, Sb, and Bi with org. compds., 6899*h*, mixts. of allyl and phenyl isothiocyanates, 6900*a*, see Bastić, B. I
—— and Altarac, S. Heat of mixing of naphthalene with *m*-dinitrobenzene in acetone, 6070*i*, heats of mixing of picric, oxalic, and citric acids with amines, camphor, and cinnamic acid in acetone and in aq. soln., 6070*i*
—— and Dimitrijević, D. M. p diagrams of binary systems of ethylenediamine with diphenylamine, pinacol, diphenylcarbinol, triphenylcarbinol, and salicylaldehyde, 2082*c*.
——, Durković, O., Smiljanić, M., and Stojković, D Mixts. of allyl and phenyl mustard oil with amines, 6176*i*
—— and Kožuhar, P. Melting diagrams of binary systems with picric acid, 6066*d*
——, Matavulj, P., Rikovski, I. I., and Nenadović, M. *n* of liquid mixts (V) systems with formic acid, 3678*f*.
—— and Rikovski, I. I Mixts. of camphor with acetic, monochloroacetic, and dichloroacetic acids, 6198*h*
**Pushinkova, N. A.** Riboflavin content in a variety of child foods, 4393.
**Pušin, N. A.** See Pushin, N. A
**Pusitsky, K. V.** See Puzitskiĭ, K. V.
**Pustynskiĭ, A. F.** Dewatering fibrous masses, P 8759*a*.
**Putignano, T.** See Muratore, F
**Putman, H. M.** Clays and their sedimentation, 372*f*.
**Putman, J. L.** Analysis of spurious counts in Geiger counters, 1945*i*; background rate in Geiger-Müller counters, 7811*i*.
—— and Cooke-Yarborough, E. H. Measurement of dead time in Geiger-Müller counters, 4560*e*.
**Putman, W. L.** *p*-Dichlorobenzene in insect boxes, 4806*i*; testing codling-moth insecticides, 7181*h*; see Dustan, G. G.
**Putnam, F. W.,** and Kozloff, L. M. Virus phosphorus, 721*i*.
——, Kozloff, L. M., and Neil, J. C. Biochem. studies of virus reproduction (I) purification and properties of *Escherichia coli* bacteriophage T6, 7081*d*.
——, Lannanna, C., and Sharp, D. G Physicochem. properties of crystl *Clostridium botulinum* type-A toxin, 1829*e*.
**Putnam, T. J.** See Zimmerman, F. T.
**Putney, D. H.** Centrifugal separator for sepg. entrained solid particles from gas, P 914*e*; catalytic conversion app. for hydrocarbons, P 1174*g*; cyclone separator for removing finely divided catalyst from the vapors leaving the reactor, and from flue gases leaving the generator, P 7273*e*.
**Putochin, N. I.** See Putokhiu, N. I.
**Putokhin, N. I.,** and Egorova, V. S. Isomeric transformations of the thiophene ring (II), 3817*a*.

**Putov, N. M.** Production of acetaldehyde, 2939*h*.
**Putschkow.** See Puchkov.
**Putselko, E. K.** Photoelec. sensitivity of photographic sensitizers, 1275*d*; measurement of the photocond. of solid powders, 6074*c*; detn. of the sign of the carriers of photoelec current, 8895*i*; see Kolomiets, B. T.
—— and Terenin, A. N. Photosensitization of the internal photoeffect in Zn oxide and other semiconductors by adsorbed dyes, 7349*d*.
**Putseyko, E. K.** See Putselko, E. K.
**Putz, E.** See Hoffmann-Ostenhof, O.
**Putzer, H.** Oölitic limonite deposits of the Kertsch Peninsula, Crimea, 8991*b*.
**Puutula, K.** See Pulkki, L. H.
**Puxkandl, H.** See Schauenstein, E.
**Puzicha, W.**, and Krisch, A. Influence of the speed of testing on the tensile strength and elongation of austenitic steels, 5717*h*
**Puzitskii, K. V.** See Eldus, Ya. T.
**Py, G. H.** See Hurel-Py, G.
**P'yankov, V. A.** Kinetics of the reaction between Hg vapor and $O_3$, 6054*a*, oxidation and evapn. of liquid Hg, 6058*c*, paths of Hg penetration through protective clothing, 7606*i*.
**Pyatnitskii, B. A.** Temp quenching of the phosphorescence of benzoic acid, 198*d*, influence of isomerism on the phosphorescence of phenols, 4957*h*
**Pyatnitskii, G. K.**, and Persin, S. A. Agro chem. and chem. measures against wireworms, 347*h*.
**Pyatnitskii, I. V.** Solv. of some salts of phenylnitrosohydroxylamine, 2488*g*; stability of Pb tartrate complexes, 8940*e*
**Pyatnitskii, M. P.**, and Yur'eva, A. F. Detg. malic acid, 7579*c*.
**Pye, C. R.** Synthetic enamels for Cu wire, 1993*a*, protective coatings, P 3214*f*.
**Pyenson, H.** See Smith, G. Frederick.
**Pyzel, R.** Portland cement manuf., P 5568*e*.
**Pyke, H. G.**, and Monaghan, H. F. Influence of sawdust size and moisture on the back-pressure thrown by oxide sawdust mixts., 4833*c*, 5173*e*
**Pyke, M.** See Melville, R.
**Pyl, G.**, and Kesting, F. Isolation of complement fixing antigens of foot and mouth disease, 1102*i*.
**Pylaev, A. V.** Test for small quantities of hydrocarbon halo derivs., 974*e*
**Pylaeva, T. I.** See Tsyskovskii, V. K.
**Pyle, C.** See Kemp, H. S.
**Pyle, J. J.** Alkenyl silane interpolymers, P 1223*c*.
**Pyne, F. R.** See Landolt, P. E.
**Pyne, G. T.** Measurement of alk. earth ion concns., 7790*f*.
**Pyridium Corp.** Sulfonation of heterocyclic compds., P 696*i*, aminopyridine derivs., P 3470*g*, 2-[*p* methoxybenzyl(2-dimethylaminoethyl)amino] pyrimidine and its hydrochloride, P 6244*d*, nicotinamide, P 7513*i*, 3-pyridinesulfonic acid and its salts, P 7514*b*, benzylideneammo compds. of pyridine, P 7972*g*
**Pyriki, C.** Evaluating fermented oriental tobaccos, 1908*g*; compn. of tobacco resin, 1910*g*.

**Qasilbash, N. A.** Indian santonica, 1154*i*, Indian *Ephedra*, 1910*c*.
**Quacci, G.** See Colli, A.
**Quackenbush, F. W.** Carotene, 7152*d*, 9276*b*, see Lewis, W. R., Nash, H. A.
**Quackenbush, G. A.** See Cox, Herbert R.
**Quadrat, O.**, and Beránek, M. Oxides of Fe in the burning of magnesite, 6955*c*.
**Quadt, R. A.**, and Adams, J. J. Effect of Mg on Al-Cu-Si casting alloys, 6557*i*
**Quaedvlieg, M.** See Orthner, L.
**Quagliano, J. V.** See Laitinen, H. A.
**Quagliariello, G.** Action of some enzymes—contributions of the Lab. of Biol. Chemistry of the Univ. of Naples, 259*c*.
**Quaife, M. L.** Nitrosotocopherols—their use in the chem. assay of the individual tocopherols in a mixt. of the $\alpha$, $\beta$, $\gamma$, and $\delta$ forms, 4977*g*.
—— and Harris, P. L. Chem. assay of foods for vitamin E content, 1878*a*.
**Quaker Chemical Products Corp.** Derivs. of parabanic acid, P 4024*a*.
**Quaker Oats Co.** Furnaric acid, P 1436*d*, furfuryl alc.-phenolic resins, P 1605*i*, condensation of polymerized furfuryl alc. with a hydroxybenzene, P 2037*a*; catalysts for oxidizing furfural, P 4700*h*; see American Dairies Inc.
**Quam, S. N.** See Horneman, H. C.
**Quang-Trinh, N.** See Nguyen-Quang-Trinh.
**Quarendon, R.** Infrared absorption analysis, 960*h*, 1279*g*, 5666*e*, 6471*f*.
**Quarles, J. F.** See Hull, D. C.
**Quarles, R. W.** Vinyl copolymer, 2470*e*, see Powell, G. M., 3rd.
—— and Spessard, C. I. Dispersion of vinyl chloride resins, P 3233*c*.
**Quarra, R.** See Pontani, U.
**Quartieri, C.** Pigments in spines of various Echinoidea, 5875*a*
**Quastel, J. H.**, Hewitt, E. J., and Nicholas, D. J. D. Control of Mn deficiency in soils (I) effects of S and thiosulfates on crops growing on Mn deficient soils, 4802*a*
—— and Webley, D. M. Effects of addn. to soil of alginic acid and of other forms of org. matter on soil aeration, 6771*b*.
**Quastler, H.** See Kirschner, L. B.
**Quattlebaum, W. M., Jr.**, and Noffsinger, C. A. Acylation with enol esters, P 5795*g*, 7037*h*, 7953*h*
**Quayle, J. C.**, and Jones, P. High frequency electrodes for a heat treating app., P 4151*d*
**Quebec Iron and Titanium Corp.** Titaniferous material for producing $TiO_2$, P 9482*i*
**Quecke, K.** See Bottner, H.
**Queiroga, L. T.** See Guimarães Villela, G.
**Queiroga, M. de L.** See Guimarães Villela, G.
**Queiroz Vasconcellos e Lencastre, A. de.** See Vasconcellos e Lencastre, A. de Q.
**Quelet, R.**, Allard, J., Duffaud, N., and Pineau, R. Formation of oxidized acids in soap stocks, 5212*e*.
—— and Golse, R. Synthesis of derivs. of 3,6 dimethoxy-4 octyne, 128*h*.
**Queneau, A. L. J.** Reduction of Zn oxides, P 3340*i*
**Queneau, P. E.**, Borland, J. H., and Renzoni, L. S. Treatment of Ni contg. ores, P 8343*h*.
**Quennehen, F.**, and Normant, H. Properties of $\beta$ halogenated heterocyclic acetals, 5774*g*
**Querner, H.** See Buelig, H. J.
**Queroix, M.** Tanning analysis, 8183*a*.
**Querol, J. M.** See Moral Querol, J.
**Querol, M. C. A.** See Alvarez Querol, M. C.
**Querry, M. V.** See Baker, B. R.
**Quesada Cantuarias, O. M.** See Miro Quesada Cantuarias, O.
**Quesne, W. J. le.** See Le Quesne, W. J.
**Questel, D. D.** See Gertler, S. I.
—— and Connin, R. V. Sprays for control of the European corn borer, 1890*e*
—— ——, Connin, R. V., and Gertler, S. I. Toxic or repellent action to the European corn borer of corn plants grown in soil treated with various compds., 9336*d*.
—— and Gertler, S. I. Toxicity of some org. compds. to the European corn borer, 7182*f*.
**Quevauviller, A.**, Chabrier, P., and Morin, H. Diethylaminoethyltheophylline iodomethylate, 8537*b*.
**Quick, A. J.** Detn. of prothrombin, 3487*c*.
—— and Stefanini, M. Changes in the prothrombin level of the blood (IV) relation of vitamin K deficiency to the intensity of dicumarol action and to the effect of excess vitamin A intake—vitamin K assay, 290*c*, chem. state of the Ca reacting in the coagulation of blood, 2664*f*.
**Quig, J. B.** "Orlon" acrylic fiber, 7232*i*
**Quigley, E.** See Kochakian, C. D.
**Quilichini, R.** Transformation of reserve substances during germination of some leguminous seeds, 1081*e*.
**Quilico, A.**, and Fusco, R. Nitration of cyclohexane in the aq. phase, 1018*i*.
——, Panuzzi, L., and Di Modrone, N. V. Citric fermentation with induced mutants of *Aspergillus niger*, 8433*e*.
——, Panuzzi, L., and Mugnaini, E. Chem. studies of *Aspergillus echinulatus* (III) structure of flavoglaucin and of auroglaucin, 7913*a*, structure of flavoglaucin and auroglaucin, 7913*a*.
**Quill, L. L.** See Stites, J. G., Jr.
**Quimby, E. H.** 50 years of Ra, 1639*e*; see Werner, S. C.
**Quimby, F. H.** Organ wts. of rats receiving hormone supplements during recovery from chronic starvation, 8035*h*.
——, Phillips, N. E., and White, I. U. Chronic inanition, recovery, and metabolic rate of young rats, 1472*f*.
**Quimby, O. T.** See Lutton, E. S.
**Quin, D. C.** See Distillers Co., Ltd.; Gasson, E. J.
**Quin, J. I.** See Hoflund, S.
**Quinan, J. R.** See Lauford, O. E.
**Quinby, W. C., Jr.**, Wagley, P. F., and Sizer, I. W. Falling-sphere method for studying clotting in systems of purified blood components, 6269*c*.
**Quinet, L.** See Moureau, P.
**Quinlin, P. M.** See Ray, Francis E., Stevens, C. D.; Weisburger, E. K.
**Quinn, A.**, Ray, R. G., Seymour, W. L., Chute, N. E., and Allen, W. B. Geology and ground water resources of the Pawtucket quadrangle, Rhode Island, 8321*a*.
**Quinn, F. H.** See Bowes, J. H.
**Quinn, J. J.** See Kittrell, F. W.
**Quinn, J. L.** Modified polymethylmethacrylate, P 4051*f*.
**Quinn, R. W.** Antihyaluronidase content of human blood serum, 4310*i*.
**Quinquaud, A.** Limit of the protective action of yohimbine against anaphylactic serum shock, 300*a*; yohimbine and histamine shock, 1107*i*; see Cheymol, J.
**Quintana, J. S. de la.** See Semprún de la Quintana, J.
**Quintana, M. L.** See Asenjo, C. F.
**Quintin, M.** Conductometric study of the pptn. of $CdSO_4$, 6050*g*.
**Quiram, E. R.** See Wear, G. E. C.
**Quirici, G.** See Martinenghi, G. B.
**Quiring, H.** Metallischen Rokstoffe. Hft. 8. Arsen (book), 3338*i*; Geschichte des Goldes (book), 4554*e*.
**Quirk, R. F.** See Vanselow, W.
**Quiroga, J. J.** See Carvajal, R.
**Quisenberry, B. F.** See Gjullin, C. M.
**Quisno, R. A.**, Foter, M. J., and Rubenkoenig, H. L. Quaternary $NH_4$ germicides—evaluation, 4425*a*.
**Quittkat, G.** Fine grinding of mineral raw materials in wet drum mills and its application to ore dressing, 4193*a*
**Quivy, D.** Evaluation of an excess of thrombin, 5070*b*, blood coagulation after injection of protamine, 5494*g*, effect of toluidine blue in presence of an excess of anticoagulant, 5865*b*, see Bertrand, I., Cuny, L.; Gayet Hallion, T.
**Qvarfort, I.**, and Sillén, L. G. Electrometric investigation of equil. between Hg and halogen ions (VII) complexes between $Hg^{++}$ and $I^-$, and some equil involving solid Hg(I) iodide and Hg(II) iodide, 7857*a*.

**Raab, E. L.** See Clark, Frank M.
**Raabe, S.** See Kantzky, B.
**Raasch, M. S.** Fluorohydracrylic acids and their esters, P 2224*b*; satd. polyhaloalkyl sulfides, P 6645*i*; see Arthur, P., Jr.; Coffman, D. D.
**Raaschou, F.** Chronic Pyelonephritis with Special Reference to the Kidney Function (book), 9239*a*, see Iversen, Kurt.
**Raaz, F.** Morphological descriptions of crystals, 4071*a*.
**Rabaglia, T.** See Pellegrini, U.
**Rabald, E.** Dechema Werkstoff-Tabelle Ausgabe 1948 (book), 5236*e*, chem. cleaning of kettles, pipelines, warm-water installations, etc., 7399*g*.
**Rabaté, H.** Basic Zn chromate as a corrosion-inhibiting pigment, 6836*d*, 8097*e*.
**Rabbeno, A.** Effect of adrenaline on the heart of cold-blooded animals (I) review, (II) inhibitory and stimulatory effects on isolated frog heart and their frequency, 6744*h*.
**Rabbitts, F. T.** App. for rapid electrodeposition, 950*e*
**Rabe, P.** Protective action of $Na_2H_2P_2O_7$ on dyes when dyeing in the presence of Fe, 4856*g*.
——, Dussel, K., and Teske-Guttmann, R. 1,2-Hydramines (III) splitting of alkyl halides of quinine alkaloids in ethylene oxides, 5027*i*.
——, Hochstatter, W., Cohausz, F., Scheel, K.-C., Dussel, K., Haeuszler, H., Walther, H., Teske-Guttmann, R., and Cauer-Wilhelm, L. Effect of $PBr_3$ on cinchona alkaloids—rearrangement to hetero-cinchona alkaloids—expansion and rearrangement of the quinuclidine ring, 4676*d*.
——, Schuler, W., Suszka, G., and Federer, E. 1,2-Hydramines (II) relation between strength and action of acids, (III) an opposite action of strong and weak acids, 2318*b*.
**Rabek, T.** Ion exchangers, 7757*c*, synthetic resins as insulation materials, 8197*h*.
**Raber, B. F.**, and Hutchinson, F. W. Detn.

of heat-transfer film coeff. for $CO_2$ vapor, 2476*a*.
**Rabes, I.**, and Schenck, R. Adkins' Cu chromite catalysts and their action, 6336*a*.
**Rabinovich, A. L.** See Porolko, V. A.
**Rabinovich, F. E.** See Kaplan, S. I.
**Rabinovich, I. A.** See Lamm, B. A.
**Rabinovich, M. S.**, and Konovalova, R. A. Alkaloids from *Dipsacus azureus*, 2213*c*.
**Rabinovich, S. A.** Detn. of the viscosity of glazes, 3585*e*.
**Rabinovitch, J.** See Décombe, J. and Pines, B. Effect of heparin and penicillin in thrombophlebitis, 3108*f*.
**Rabinovitch, M.**, Junqueira, L. C., and Fajer, A. Acid phosphatase, 6685*a*.
**Rabinowitsch.** See Rabinovich.
**Rabinowitz, J. C.** See Snell, E. E.
**Rabinowitz, H. M.** Antispasmodic, P 3571*d*.
**Rabinowitz, J. C.**, Mondy, N. I., and Snell, E. E. Vitamin $B_6$ group (XIII) detn. of pyridoxal, 291*a*.
——, and Snell, E. E. Vitamin $B_6$ group (XIV) distribution of pyridoxal, pyridoxamine, and pyridoxine in some natural products, 3075*h*; (XV) urinary excretion of pyridoxal, pyridoxamine, pyridoxine, and 4-pyridoxic acid in human subjects, 4352*a*.
**Rabjohn, N.** Chlorination of isophthaloyl and terephthaloyl chloride, 609*e*; ethyl azodicarboxylate, 1725*g*; see Flory, P. J.
**Rabold, C. N.** Dyeing and finishing methods in Germany, 6827*f*.
**Rabotnova, I. L.**, and Ponomarenko, N. I. Symbiotic bacteria on meadow foxtail, 6701*a*.
**Rabson, S. R.** See Rees, J. P.
**Race, E.** Degradation of cotton during atm. exposure, 3608*e*, see Hopf, P. P.
**Race, J.** 40 yrs. of chlorination, 9305*c*.
**Rachele, J. R.** See Keller, E. B.; Reed, L. J., Stevens, C. M.; Wood, John L.
**Rachford, H. H., Jr.** See Milligan, W. O
**Rachinger, W. A.** See Wood, W. A.
**Rachinskii, F. Yu.** See Slobodin, Ya. M.
**Rachinskii, V. V.** See Ivanenko, D. D.
**Rachkowane, B. A.** See Rashkovan, B. A.
**Rachlina, S. S.** See Rakhlina, S. S.
**Rachmilewitz, M.**, and Rosin, A Effect of thiouracil and thiourea on the blood and bone marrow, 9263*h*.
**Rachner, M.** Vulcanization, vulcanization accelerators, activators, antiscorching agents, and poisons of rubber, 6456*a*.
**Racine, J.** Action of $CH_4$ on metallic chlorides (II) action on the chlorides of some metals of the second group of the periodic table, 5734*e*.
**Racker, E.** Aldehyde dehydrogenase, a diphosphopyridine nucleotide - linked enzyme, 6056*b*; see Krimsky, I.
**Rácz, I.** See Káldor, I.
**Racz, O.** See Kleinert, T.
**Raczyńska, K.** Chromatographic analysis, 8298*h*.
**Radaell, G.** Bloch's dopa-reaction relations to the action of adrenaline, 5460*f*.
**Radavich, J. F.** Study of grain boundaries with the electron microscope, 6553*g*.
**Radcliff, R. R.** See Stangor, E. L.
**Radcliffe, M. R.** Heat-stabilization of vinylidene chloride resins, P 3233*e*.
**Radeleff, R. D.** Toxaphene poisoning—symptomatology and pathology, 9265*f*; see Bushland, R. C.; Carter, R. H.
**Rademaker, S. C.** See Karsten, P.
**Raden, D. J.** See Coffin, O. T.
**Radford, D. E.** Prepn. of active oxide from burnt pyrite cinder by $Na_2CO_3$ fusion, 3596*b*; prepn. and use of pelleted oxide, 4832*i*.
**Radhakrishnan, T.** Thermoöptic behavior of mica, 8787*a*.
**Radi, L. J.** Rubber cement, P 3229*e*.
**Radiamant, A.-G.** Hard metals, P 7895*a*, 8347*i*; manuf. of metal articles by sintering a powd. mixt., P 9019*b*.
**Radice, J. C.**, and Herraiz, M. L. Histologic study of the fluorescence of organs accumulating vitamin A in animals with avitaminosis E, 2296*i*.
**Radin, V. V.** See Strelets, V. M.
**Radio Corp. of America.** (*Patents.*) Cd pyrophosphate phosphor, 6518*a*, cascade phosphor screen, 7832*d*; dark trace screen, 948*f*; dehydrator for concg. effervescent liquids, 7273*h*; 4,4′-divinylbiphenyl, 5803*c*; electroforming Cu deposits, 8918*b*; electrolytic recording, 2881*de*, 4156*bc*; forming low-reflecting surfaces on optical elements, 6802*i*; gas analyzer, 6010*f*, hardened optical coatings by electron bombardment, 4824*e*; high-efficiency blue-emitting Zn Cd sulfide selenide phosphor, 7832*b*; impregnating compn. comprising coumarone indene resin, cetyl acetamide, and ethylcellulose, 2033*d*; improving the corrosion resistance of magnetic cores, 9022*h*; luminescent materials, 1662*e*, 6518*c*; luminescent screen, 1266*i*; luminescent screen and method of developing light, 1268*a*; metal-glass seals, 1935*c*; metallizing nonmetallic bodies, 1274*a*; mixing shellac with a hot filler, 9536*e*; morpholine salts of sulfonated-azo-dye components, 3300*g*; phosphor materials, 6517*e*, 7831*cef*; plating tank connected to a vacuum pump for electrodeposition of Mn, Fe, and other easily oxidizable metals, 4151*h*; polymer of styrene and 2,2′,5,5′-tetrachloro-4,4′-divinylbiphenyl, 6001*i*; polymers of styrene and 4,4′-divinylbiphenyl, 4516*i*; rugged gaseous discharge triodes, 956*g*; vinyl copolymer resin compns., 9532*a*.
**Radley, J. A.** Biol. applications of fluorescence analysis, 2265*a*, starches, 4788*h*.
**Rado, G. T.** Domain interactions in the theory of ferromagnetic resonance, 4061*b*, 5244*f*.
**Rado A., A.** Detn. of amylase in normal blood, 2658*i*.
**Radogna, L.** See Buogo, G.
**Radomski, J. L.**, and Woodard, G. Pharmacol. studies on the causative agent of canine hysteria, 5495*i*.
**Radosavljević, S. D.** Action of Cd on $HNO_3$, 6102*a*, 6532*h*, see Leko, A M.
**Radot, P. V.** See Vallery Radot, P
**Radsma, W.** Inleiding tot de Physiologische Chemie (book), 2262*c*
**Radt, F.** Elsevier's Encyclopaedia of Org Chemistry. Vol. XII B Naphthalene (book), 1703*b*
**Rădulescu, D.**, Moga, V., Rădulescu, F. D., and Berivoie, A Valuable products from the masses of reeds of the lower Danube Valley, 9501*h*
**Rădulescu, F. D.** See Alexa, G., Rădulescu, D
——— and Moga, V I. Complex salts of ethyl 1,3-dioxo-2 indancarboxylate, 3397*h*.
**Radushkevich, L. V.** See Dubinin, M M
**Radutskaya, K. A.** See Aksel'rod, R. S.
**Rády, Z. G.** See Gáspar-Rady, Z
**Rae, J.** Action of propylene glycol on enzymes, 1070*d*; spiritus ammoniae aromaticus, 4809*h*; propylene glycol solns of ascorbic acid, 5534*i*.
**Rae, J., Jr.** See Lykken, I
**Rae, J. J.** See Dentay, J. T.
**Rae, W. N.** See Reilly, J
**Rämmal, K.**, and Ström, G. Rate of lactate utilization in man during work and at rest, 8504*c*.
**Rässler, E. M.** See Meyer-Rässler, E.
**Raether, H.** Structure and oxidation of electrolytically polished Al surfaces, 2871*f*; structure of mechanically worked surfaces and their properties, 4199*a*; decrease of neutron d. near a boundary, 4944*d*; theory of electron interferences by small crystals, 8858*i*.
**Rätz, R.** See Thilo, E.
**Raf, S. Ya.** Relation of rate of production and purity of glass to the method of feeding the furnace, 6378*i*; adding $Al_2O_3$ to Fourcault sheet glass, 9401*h*; improving the quality of the charge and of the glass, 9400*d*.
——— and Milyaeva, N. A. Relation of the rate of glass melting to the method of feed, and the grain size of the batch, 1539*d*.
**Rafalovich, N. A.** See Khlopin, N. Ya.
**Raff, P.** See Wittig, G.
**Raff, R. A. V.** Lignins—their nature and applications, 2767*f*.
———, Tomlinson, G. H., II, Davies, T. L., and Watson, W. H. Oxidized lignin as a reënforcing agent for rubber, 1599*a*.
**Raffa, L.** See Pratesi, P.
**Raffaelli, D.** DDT detn. on sprayed walls, 6354*i*; detn. of hexachlorocyclohexane in com. products, 7868*h*; physicochem. characteristics of the water bodies in the province of Latina in relation to the nature of the soil, 8580*i*.
**Raffauf, R. F.**, and Reichstein, T. Glycosides and aglucones (XLI) degradation studies with ouabagenin (2), 1792*f*.
**Raffel, S.**, Arnaud, L. E., Dukes, D., and Huang, J. S. Role of the "wax" of the tubercle bacillus in establishing delayed hypersensitivity (II) hypersensitivity to a protein antigen, egg albumin, 7125*i*.
——— and Forney, J. E. Role of the "wax" of the tubercle bacillus in establishing delayed hypersensitivity (I) hypersensitivity to picryl chloride, 755*b*.
**Raffelsieper, J.** See Kuhlmann, D.
**Rafferty, J. A.** Chem. industry of yesterday and of tomorrow, 2341*d*.
**Raffold Process Corp.** Treatment of $CaCO_3$ pigment, P 422*h*, 1994*c*; treatment of $CaSO_3$, P 1568*b*.
**Raffy, A.** See Colonge, R. A.
**Rafikov, S. R.** See Chelnokova, G. N.
——— and Korshak, V. V. Kinetics of polyesterification reactions, 4547*c*.
———, Korshak, V. V., and Chelnokova, G. N. High-mol. compds. (XVII) mol. wt. distribution of polyesters, 4228*a*; (XVIII) mol. wt. of mixts. of polymer homologs, 6578*b*.
**Ráfols, W. de.** Kok-saghyz, 2457*e*.
**Rafter, J. R.** Adhesion of rubber to Mg, P 2807*f*; see Carr, E. L.
**Rafton, H. R.** Treatment of $CaCO_3$ pigment, P 422*g*, 1994*c*; treatment of $CaSO_3$, P 1568*b*.
**Raga, J. V.** See Vericat Raga, J.
**Ragan, M. S.** See Sherman, H. C.
**Ragazzini, F.** See Nassi, L.
**Raghavan, M.**, Iyer, B. H., and Guha, P. C. Benzene-1,4-disulfonic acid esters, 2967*h*; 1,4-benzenedisulfonamides, 4237*d*; Schiff bases of 4,4′-diaminodiphenyl sulfide, 4426*i*; synthesis of *p*-aminosalicylic acid, 5766*i*.
**Raghavan, V. S.** See Visvanathan, K. S.
**Ragheb-Hanna, N.** See Raoul, Y.
**Ragno, M.**, and Oreste, D. Formazyls (IV) 4260*i*.
**Ragoss, A.** See Hofmann, U.
**Ragsdale, A. C.** See Brody, S.
**Ragsdale, J. W.** See Cristol, S. J.
**Rahm, L. F.** See Maxwell, B.
**Rahmes, M. H.**, and Nelson, W. L. Viscosity blending relations of heavy petroleum oils, 8125*i*.
**Rahn, E. M.**, and Heuberger, J. W. Sol solids content of cantaloupes as affected by certain fungicides, 1515*i*.
**Rahn, H.** Mean alveolar air and the ventilation—bloodflow relations during pulmonary gas exchange, 8511*e*; see Otis, A. B.
——— and Otis, A. B Man's respiratory response during and after acclimatization to high altitude, 7117*h*
**Rahn, O.** See Van Eseltine, W. P
——— and Van Eseltine, W. P. Quaternary ammonium compds., 275*a*.
**Raichinstein, Z. G.** See Raikhinshtein, Ts G
**Raigorodskaya, V. Ya.** See Nazarov, I N
**Raikhinshtein, Ts. G.**, and Kocherygina T. V. Detn of As, 6935*g*.
**Raimondi, A.** Detn. of alkaloids of belladonna, 5536*c*
**Raimondo, E.** Dry purification of coal gas (I) technique, (II) exptl. research on lab samples of purifying masses, 8644*i*.
**Raimondo, F. di.** See Di Raimondo, F.
**Rainalter, H.**, and Ensor, D. A. Purification of $Ac_2O$ with $NaNO_2$, P 4288*i*.
**Rainbow, C.** *p*-Aminobenzoic acid—growth factor for certain brewer's yeasts, 3488*i*, see Hopkins, R. H.
**Raine, P. A.** Detn. of small quantities of Al 7862*a*.
**Raineau, A.** See Audibert, E.
**Raines, M. M.** Detn. of water in liquid HF, 971*g*.
——— and Larionov, Yu. A. Detn. of Al hydroxyquinolate, 2548*a*.
**Rainey, J. L.** See Bock, L. H.
**Rainey, R. C.** Development of the cotton boll—changes in susceptibility to pests and diseases, 9350*f*.
**Rainwater, J.** Interaction of slow neutrons with matter, 4946*f*.
**Rainwater, L. J.** See Havens, W. W., Jr., Meaker, C. L.; Ruderman, I. W.
**Raisin, C. G.** See Hsü, S. K.
**Raisinghani, G. S.** Bottle silt sampler, 2045*d*.
**Raison, C. G.** Stability of aminobenzyl quaternary salts, 5755*h*; see Curd, F. H. S.
**Raison, M.** Chem. compn. of Na oleate foams, 8794*g*.
**Raistrick, H.** See Birkinshaw, J. H.
——— and Vincent, J. M. Biochemistry of microörganisms (LXXVII) fungal metabolism of inorg. sulfates, 2671*a*.
**Ralt, J. R.** Basic refractories—their chemistry in relation to their performance, 8632*f*; see Wood, G.

——, *et al.* Manuf. of elec. steel in Gt. Brit., 4959*d*.
**Raisiss, G. W.**, Severac, M., and Clemence, L. W. Syphilotherapy arsenical agent, P 8105*c*.
**Rajagopal, K.** See Neogi, S.
**Rajagopalan, K. S.** See Mitter, R. P.
**Rajagopalan, S.** See Dey, B. B.; Fieser, L. F.; Marshak, A.
——, Rao, K. V., and Seshadri, T. R. Nuclear oxidation in the flavone series (III) synthesis of primetin, 637*h*; (VI) synthesis of calycopteretin and 6,8-dihydroxyquercetin, 639*f*.
——, Rao, P. R., Rao, K. V., and Seshadri, T. R. Synthesis of some important partial Me ethers of flavonols, 5398*a*.
—— and Seshadri, T. R. Nuclear oxidation in the flavone series (IX) oxidation of related chalcone, 640*e*, nuclear oxidation in the flavones and related compds (XIV) constitution of quercetagitrin, 4265*b*
**Rajam, P. C.** See Dziewiatkowski, D. D
**Rajan, M. R. D.** See Deva Rajan, M. R.
**Rajzman, P.** 1-Cyclohexene-1 acetic acid and its derivs., 3797*i*.
**Rakcheeva, V. N.** See Nazarov, I. N
**Rake, G.**, Pansy, F. E., Jambor, W. P., and Donovick, R. Dihydrostreptomycins, 3518*g*.
——, Pansy, F. E., and Oskay, J. J. *Donovania granulomatis*, 7079*c*.
**Rakestraw, N. W.**, and Carritt, D. E. Seasonal chem. changes in the open ocean, 4910*a*
**Rakhlina, S. S.** See Ostpova, R. S.
—— and Kazanskaya, M. E. Consumption of $Na_2S$ and NaOH in the reduction of S colors, 3619*f*
**Rakina, V. P.** See Pirogov, A. A.
**Rakitin, D.**, and Stashkov, G. Investigation of genetically related impulses by the method of proportional counters, 2860*a*
**Rakitin, Yu. V.**, and Ovcharov, K. E. Influence of adenine and nicotinic acid on growth and productivity of the cotton plant, 3402*b*.
——, Ovcharov, K. E., and Nizkovskaya, E. K. Formative changes in cotton plant under action of 2,4-dichlorophenoxyacetic acid, 805*a*.
—— and Troyan, A. V. Retardation of sprouting of potato tubers by chem. substances, 7092*d*.
**Rakoff, A. E.** See De Meio, R. H., Fried, P. H., Pearlman, W. H.
**Rakoto-Ratsimamanga, A.** See Ratsimamanga, A. R.
**Rakov, A. A.**, Borisova, T. I., and Ershler, B. V. Double ionic layer on an oxidized metal, 2523*h*.
**Rakovskii, E. V.**, and Kovalenko, N. A. Formulas relating the caloric value of solid fuels with their elementary compn., 2753*h*.
—— and Makarov, G. N. Formation of coal tar in the coke oven, 6808*i*
**Rakowski, Rakowskij.** See Rakovskii, E. V.
**Raleigh, D. M.** Developments in liquid-proof protective clothing, 9458*a*
**Raleigh, G. J.** Effects of the Na and of the chloride ion in the nutrition of the table beet in culture solns., 1133*b*.
**Ralha, A. J. C.** See Correia Ralha, A. J.
**Rall, D. P.** See Wells, J. A.
**Rall, W.** Packing fraction of Zr, 4094*f*
**Ralli, E. P.** See Dumm, M. E.; Irwin, L.; Stueck, G. H., Jr
**Ralph, F. E.** App. for recovery of Cu from mine water, P 7890*i*.
**Ralph, I. C.** Oil isolate from *Eucalyptus dives*, 2371*g*.
**Ralph, S. J.** See Aluminium Plant & Vessel Co. Ltd.
—— and Dummett, G. A. Sepn. by azeotropic distn. of complex hydrocarbon mixts., P 7*e*.
**Ralston, A. W.**, and Brake, A. E. Transference nos. of dodecylammonium chloride in water-org. solvent systems, 4925*f*.
——, Broome, F. K., and Harwood, H. J. Influence of *N*-methylation on the elec. cond. of dodecylammonium chloride, 5677*g*.
—— and Corley, H. M. Compds. modified by abietic nitriles, P 3228*g*.
——, Crews, L. T., and Colt, E. W. Purifying fatty acid nitriles, P 3836*h*.
—— and Eggenberger, D. N. Conds. of alkylammonium chlorides in aq. solns. of their homologs, 1243*g*; elec. behavior of dodecylammonium chloride in water-org. solvent systems, 4079*h*.
——, Eggenberger, D. N., and Broome, F. K. Effect of inorg. electrolytes on the cond. of aq. solns. of dodecylammonium chloride, 8810*d*.
——, Eggenberger, D. N., and Harwood, H. J. Elec. conds. of tris(hydroxyalkyl)-alkylammonium chlorides, 6041*a*.
**Ralston, N. P.** See Kleiber, M.
**Ralston, O. C.** See Fraas, F.
**Ram, J. S.** See Lakshmanan, S.
**Ram, R.** See Mitra, B. N.
**Ram, S.** Tungstic acid pptn. of protein from physiol. fluids, 9132*e*.
**Ramachandran, B. V.** Prepn. of N-free $H_2SO_4$, 2886*a*.
**Ramachandran, G. N.** See Wooster, W. A.
**Ramachandran, K.** See Hockenhull, D. J. D.
**Ramachandrarow, L.** See Row, L. R.
**Ramadanoff, D.** Elec. contact brush, P 511*a*.
**Ramage, A. S.** Conversion of hydrocarbons, P 5181*b*, EtOH, P 6045*d*.
**Ramage, G. R.**, and Imperial Chemical Industries Ltd. Pyrimidine derivs., P 9087*c*
**Ramage, W. D.** Treating hydrophilic colloids to avoid swelling during washing, P 7164*c*; see Howard, L. B
**Ramaih, S.** See Bhagwat, W. V.
**Ramakrishnan, T. A.** See Mathew, P. K.
**Ramamoorthy, B.** Same as Ramamurthy, B.
**Ramamurthy, B.**, and Viswanath, B. Indian soils (IX) minor or trace element status of Indian soils—estn. of B contents, 6311*h*.
**Ramamurti, K.**, and Banerjee, B. N. Indian edible oils—ground-nut oil, 8178*i*.
**Raman, V. V.** See Sitaraman, M. V.
—— and Sitaraman, M. V. Electrolytic prepn. of azo dyes (II) effect on dye yield of duration of electrolysis, 4961*e*.
**Ramanaiah, S. V.**, and Narasingarao, C. $K_2CrO_4$ as a deleading agent for the detn. of Clerget's sucrose, 8311*f*.
**Ramanamurti, M. V.** Kinetics of the development of the Joshi effect in Cl under silent elec. discharge, 2085*e*
**Ramanathan, K. G.** Dynamical theory of the vibration spectra of crystals (V) fluorospar structure, (VI) ZnS structure, 4570*h*, evaluation of the acoustic wave velocities in diamond, 4955*e*.
**Ramanathan, K. R.** See Karandikar, R. V
**Ramanathan, V. S.** See Dey, B. B
**Ramanjaneyulu, J. V. S.** See Narasimhasastri, M.; Rao, G. G.
**Rama Rao, B.** See Rao, B. R.
**Ramarao, G.** Passivity of Mg, 2076*e*.
**Ramart-Lucas, P.**, and Hoch, J. Deformation of the electronic orbits of N by cyclization, 4570*e*.
—— and Klein, J. Deformation of the electronic orbits of N in org. compds. (phenylhydrazone series), 7340*g*.
——, Martynoff, M., Grumez, M., and Chauvin, M. Isomerism of nitrosophenols as evidenced by their absorption spectra (II), 5378*g*.
——, Matti, J., Guilmart, T., and Grumez, M. Structure, absorption, and chem. behavior in the phenanthrene series, 4663*e*.
**Ramasarma, G. B.**, Henderson, L. M., and Elvehjem, C. A. Purified amino acids as a source of N for the growing rat, 7558*f*.
**Ramasastry, C.** Ultraviolet bands of $ZnI_2$ (III), 1264*d*; ultraviolet bands of Hg iodide (IV), 3291*b*.
**Ramaseshan, S.** Faraday effect and magneto-optical anomaly of some cubic crystals, 5251*d*.
**Ramaswamy, A. S.** See Bami, H. L.
**Ramaswamy, T. S.**, and Banerjee, B. N. Ghee aroma-producing constituent in butter, 3943*h*; storage of ghee—influence of the method of prepn. and acidity on the keeping quality, 8569*f*; vitamin A destruction in shark-liver oil and the effect of adding antioxidants, 9385*c*.
**Rambaud, R.** See Boudet, R.
**Ramberg, E. G.** See Zworykin, V. K.
**Ramberg, H.** Radial diffusion and chem. stability in the gravitational field, 74*i*; sapphirine-bearing rocks in the vicinity of Sukkertoppen (West Greenland), 4191*e*; facies classification of rocks—origin of quartz-feldspathic massifs and veins, 6548*h*.
**Ramdas, L. A.**, and Mallik, A. K. Soils (III) effect of concn. of some salts in aq. soln. on capillary ascent, dispersion, and assocd. phenomena in the black cotton soils, 337*d*.
**Ramdohr, P.** Cotunnite and galena, 975*d*; Klockmanns Lehrbuch der Mineralogie (book), 1694*a*; identity of hatchite with gratonite, 2128*f*; guanajuatite and paraguanajuatite, 4979*c*; myrmekitic intergrowths of ore minerals, 7869*i*.
**Rameau, J. T. L. B.**, Reith, J. F., and Deys, W. B. Microdetn. of Pb in plant material, 7997*i*.
**Ramini, M.** Serpentine of Rossena (Reggio Emilia, Italy), 5709*d*.
**Ramírez, F.** See Bachmann, W. E.
**Ramírez L., R.** See Erdös, J.
**Ramírez-Muñoz, J.** See Burriel, F.
**Ramírez Silva, F. J.** Colloidal bentonite as a clarifying agent, 1587*h*, 5613*i*.
**Ramler, E. O.** Esters of *p*-bis(ω-hydroxyalkoxy)benzenes, P 4512*b*.
**Ramm, V. M.** Heat Exchange App. (book), 5236*e*.
**Ramm, W.** Absorption of thermal neutrons as a function of neutron velocity, 8854*g*.
**Ramon, G.** 25th anniversary of the discovery of anatoxins (I) principle, discovery, and consequences, (II) diphtheria anatoxin and its application to immunization against diphtheria, (III) tetanic anatoxin and vaccination against tetanus, (IV) assocd. vaccinations with combined vaccines, 7120*f*
—— and Richou, R. Evaluating the antidotic properties of filtrates of cultures of antagonist organisms, 3884*b*
——, Richou, R., and Thiéry, J. P. Complications of Jennerian vaccination—post-vaccinal encephalitis—attenuation of virulence and bacterial purification of vaccine by action of formaldehyde and temp. (I), 3916*f*; latex of *Hevea brasiliensis* as adjuvant and stimulant in antitoxic immunity, 3916*i*.
**Ramon de la Torre, J.** See Torre, J. R. de la.
**Ramón-Guerra, A. U.**, and Miguel, E. Humoral syndrome in rickets and in rickets with tetany, 1854*e*.
**Ramont, R. E.** Antisticking coating for fruit, P 7605*e*.
**Ramos, J. G.** See González Ramos, J.
**Ramos, M. Y. E.** See Esteves Ramos, M. Y.
**Ramos Boned, J.** See Moreno Martín, F.
**Ramos de Mattos, A.** Producing alc. by fermentation, P 815*e*.
**Ramos Escudero, A.** See Piédrola Gil, G.
**Rampton, H. C.** Hydrocarbon-type compn. of cracked gasolines, 3998*d*; see Howes, D. A.
**Rampton, S.** See Pugsley, L. I.; Wills, C. G.
**Ramsauer, R.** Phys. problems of frictional resistance (II) energy considerations, 6879*d*; see Gauditz, I. L.
—— and Wolf, K. L. Effect of the lubricant on the energy and material losses in boundary lubrication, 7675*g*.
**Ramsay, D. A.** Infrared spectrum and structure of trioxane, 42*e*; infrared spectrum and structure of diazomethane, 8890*d*; see Bernstein, H. J.; Cilento, G.
**Ramsay, J. A.** F.-p. detn. for small quantities, 8429*f*.
**Ramsay, J. R.** See Malkemus, J. D.
**Ramsbottom, J. M.** See Mitchell, H. S.
—— and Paddock, L. S. Enzymic tenderizing of animal tissue, P 1502*c*.
**Ramsden, H. E.** See Morton, A. A.
**Ramser, J. H.** Viscosity-temp. characteristics of lubricating oils, 9423*f*.
—— and Hickey, J. W. Catalyst loss recorder for catalytic cracking units, 7217*e*.
**Ramsey, A. R. J.** See Mead Johnson & Co.
**Ramsey, G. B.** See Martin, W. J.
**Ramsey, G. S.**, and Petelin, G. I. Neoprene-AC resin cements, 7743*h*.
**Ramsey, L. L.**, and Patterson, W. I. Sepn. of the satd. straight-chain fatty acids $C_{11}$ to $C_{18}$, 69*d*.
**Ramsey, M. P.** See Wearn, R. B.
**Ramsey, W. E.** See Danforth, W. E.
**Ramsey, W. H.** Schwinger's theory of nuclear forces, 4940*h*; scattering of protons by protons, 4941*b*; constitution of the terrestrial planets, 5300*f*.
**Ramseyer, C. F.**, and Brassert, H. A. App. for reducing finely divided metal oxides or sulfides, as well as nonferrous metals, P 988*i*.

**Ramsfjell, T.** Comparison between $HgCl_2$ and trichlorodinitrobenzene as control agents for cabbage club root, 801*h*.
**Ramshorst, J. D. van.** Adsorption of diphtheria toxoid on Al phosphate, 6300*b*.
**Ramsthaler, K.** Effect of applying a drafting process to viscose fiber during spinning, 9439*a*.
**Ränby, B.** Examn. of cellulose and cellulose derivs. in the ultracentrifuge, 3195*e*, see Bryde, Ø.
**Ranby, P. W.** See Jenkins, H. G.; McKeag, A. H.
**Rand, R.** Chem. resources of Colorado, 9295*d*.
**Randall, A. IV,** and Randall, J. P. Prothrombin deficiency of the newborn, 3916*c*.
**Randall, C.** See Haven, F. L.; Maynard, E. A.
**Randall, D.** See Antonoff, G.
**Randall, D. I.** See Max, F.
**Randall, H. M.** See Thompson, H. W.
**Randall, J. A.** See Estermann, I.
**Randall, J. P.** See Randall, A. IV.
**Randall, J. T.** See Brown, Geoffrey L.
**Randall, L. O.** Spasmolytic activity of synthetic drugs, 1481*c*, see Grunberg, E., Lehmann, G.
——— and Sevringhaus, E. L. Effect of vitamin P-like substances on capillary resistance in thrombocytopenic purpura, 7560*g*.
**Randall, R.** See Babcock, C. J.
**Randall, R. F. Y.** See Andrade, E. N. da C.
**Randall, R. L.** Reclaiming scrap contg. natural rubber and GR-S, P 6458*g*, see Ball, J. M.
**Randall, R. V.,** and Seeler, A. O. BAL, 1882*c*.
**Randall, W. A.** See Price, C. W.
**Randavel, C.** Same as Vendrely, C. (nee Randavel).
**Randerath, E.** Pathol. anatomy of amyloid nephrosis—general amyloidosis as a paraproteinosis, 1479*b*.
**Randhawa, G. S.,** and Thompson, H. C. Growth and fruiting of tomato plants, 2725*i*; effect of hormone sprays on yield of snap beans, 5144*h*.
**Randi, G.,** and Miserocchi, S. Bilirubin in urine, 7992*g*.
**Randle, S. B.** Control problems assocd. with bulk distribution of fertilizers to the farms, 802*c*.
**Randles, J. E. B.** Cathode-ray polarograph (I), (II) current-voltage curves, 502*g*.
**Randoin, L.** Biol. assay of vitamins, 1824*d*.
——— and Causeret, J. Physiopathologic effects of large doses of niacinamide on the young rat, 1093*c*, action of liver or of pantothenic acid-folic acid mixts. on the physiopathologic effects caused in rats by ingestion of large amts. of niacinamide, 1093*d*; suppression of the inhibiting effect of large doses of niacinamide on *Lactobacillus arabinosus* by pantothenic acid, 1457*f*; will a supplement of methionine prevent retardation in growth produced by an excess of nicotinamide? 6296*e*; cereals and their derivs. in human nutrition, 7153*f*.
——— and Le Gallic, P. Vitamin A and vitamin A activity, 1092*g*.
**Randolph, M. L.** Balancing of sedimentation by electrophoresis in the ultracentrifuge, 4066*f*.
**Randolph, P.** See Kummerow, F. A.
**Randolph, T. G.** Corn starch as an allergen—sources of contact in food containers, 1122*g*.
**Raney, M.** Air-stable Ni powder, P 3340*c*.
**Ranganathan, S. K.** See Padmanabhan, T. S. A.; Perti, S. L.
**Ranganathan, V.** See Narayanamurti, D.
**Rangappa, K. S.** Refractive const. of whole and skim milk, 326*b*, *n* of milk (III) detection of adulteration in milk, 3114*h*.
——— and Achaya, K. T. Chemistry and Manuf. of Indian Dairy Products (book), 5130*f*.
——— and Banerjee, B. N. Storage of native [Indian] butter, 1119*f*.
**Rangaswami, S.** See Murti, V. V. S.
——— and Reichstein, T. Glycosides and aglucons (XXXXV) glycosides of *Nerium odorum* (2) constitution of odoroside A and odoroside B, 7034*b*, 9380*e*.
**Rangaswamy, M. C.** See Paul, T. M.; Singh Verma, I. P.
**Rangier, M.,** Traverse, P. M. de, and Bonvallet, M. Utilization of pentoses by the animal organism, 3904*f*.
**Rangnekar, Y. B.,** De, S. S., and Subrahmanyan, V. Soybean ascorbicase, 8452*h*; stability of vitamin C in soybean milk as compared to cow milk, 8568*d*, vitamin C in soybean and soybean milk, 8568*f*.
**Rank, D. H.** See Aston, J. G., Axford, D. W. E., Douglas, A. E.
——— and Douglas, A. E. Light scattering in optical glass, 9456*b*.
——— and McKelvey, J. P. Modified Rayleigh scattering, 8816*a*.
———, Sheppard, N., and Szasz, G. J. Rotational isomerism (II) Raman spectra of polyeryst. hydrocarbons at low temps., 2866*g*.
———, Shull, E. R., and Axford, D. W. E. Hypersonic velocity in acetone at low temps., 8226*b*.
**Rankin, J. J.** See Havenhill, R. S.
**Rankin, M. J.** See Griffith, D. L.
**Rankin, R.** See Teago, F. J.
**Ran'ko Yu. O.** Micromeasure of dimensions of dust particles, 5255*f*.
**Ranney, R. E.,** Entenman, C., and Chaikoff, I. L. Lecithin, cephalin, and sphingomyelin contents of plasma and liver of the fowl—their metabolic interrelations, 9214*e*.
**Ranshaw, G. S.** Manufacturer's Practical Recipes (book), 2712*f*.
**Ransley, C. E.** See Brittain, F. H.; General Electric Co. Ltd.
——— and Williams, S. V. Ni-Cr-W composite metal body, P 1740*a*.
**Ransmeier, R. E.** See Brooks, V. B.
**Ransom, J. W.** pH indicator, P 6114*g*.
**Ransome, A. L.** Mineral industry of Alaska, 2127*h*, Au, Ag, Cu, Pb, and Zn in California, Nevada, and Oregon, 2127*i*.
**Ranzani, G.** See Coury, T.
**Ranzi, S.** Protein mols. extd. from cellular elements, 3477*f*.
———, Tamm, L., and Stotari-Offer, E. Alterations of amphibian embryo's development by various substances, 6322*a*.
**Rao, A. J.** See Jogarao, A.
**Rao, B. L.** See Rao, T. V. S., Viswanathan, K. S.
**Rao, B. R.** An investigations in Mysore, 2130*f*.
**Rao, B. S.** See Subrahmanyu, R. S.
**Rao, B. S. V. R.** See Venkataramannah, M.
**Rao, D. S.** See Niederl, J. B.
**Rao, D. V. R.,** and Sarma, B. K. Influence of exciting potential, gas pressure, frequency of a.-c. supply, and light intensity on the Joshi effect in Cl under full-ozonizer and semiozonizer excitation, 7323*a*.
**Rao, G. G.** See Narasimhasastri, M.
——— and Ramanjaneyulu, J. V. S. Vanadametry (I), 6107*g*.
——— and Rao, V. B. Vanadametry (II) estn. of ferrocyanide ion, 7376*a*.
**Rao, G. K.** Assay of kurchi Bi iodide, 3561*e*.
**Rao, G. S. K.,** Rao, K. V., and Seshadri, T. R. Formation of quinones by oxidative demethylation and the effect of methylating agents, 181*f*, effect of H bond formation (chelation) (II) constitution of despediceilin, dihydropediceilin, and isopediceilin, 5306*b*.
**Rao, K. Venkateswara.** Light absorption by I vapor under conditions productive of Joshi effect, 8883*a*.
———, Rao, K. Visweswara, and Seshadri, T. R. Nuclear oxidation in the flavone series (II) synthesis of norwogonin and isowogonin, 636*i*, (V) synthesis of wogonin, 638*h*.
**Rao, K. Visweswara.** See Rajagopalan, S.; Rao, G. S. K., Rao, K. Venkateswara.
——— and Seshadri, T. R. Nuclear oxidation in the flavone series (I) synthesis of gossypetin and 8-hydroxygalangin, 636*a*, (IV) synthesis of herbacetin and hibiscetin, 638*c*, nuclear oxidation in flavones and related compds. (XII) constitution and synthesis of pedicin and its allies, 4264*a*.
——— and Viswanadham, N. 7,8-Dimethoxyflavone, 7935*c*.
**Rao, M. B. R.** Geophys prospecting for graphite near Mavinahalli, Mysore district, 2134*b*.
**Rao, M. R. L.** See Singh, Gurbhagwant.
**Rao, M. R. R.,** Mistry, S. P., and Sreenivasaya, M. Industrial enzymes (VI) growth factors in enzyme-free, moldy bran exts., 1147*a*.
**Rao, M. S. S.,** and Sreenivasaya, M. Rate of reduction of sulfate by *Vibrio desulfuricans*, 6273*c*.
**Rao, N. K. S.,** and Basu, U. P. Chemotherapy of *Vibrio cholerae*, 7077*c*.
———, Chandran, K. R., and Basu, U. P. Activity of certain hydroxy sulfones against *E. typhosa*, 9376*a*.
**Rao, N. P.** Fish poison from the wood of *Adina cordifolia*, 8016*e*.
**Rao, N. S.,** and Kundu, B. C. Effect of gammexane on the root tips of *Corchorus capsularis*, 7094*h*.
**Rao, P. R.** Estn. of aldehydes in essential oils, 3145*f*; see Rajagopalan, S.
——— and Seshadri, T. R. Hibiscitrin (I), 1408*a*.
**Rao, P. S.** Aromatic principle of *Tylophora indica*, 3567*f*; see Krishna, S.
**Rao, P. Seshagiri.** See Seshagirirao, P.
**Rao, P. T.** $MnCl_2$ emission bands, 492*c*.
**Rao, R. B.** See Reddi, K. K.
**Rao, R. R.** Inorg. constituents of wheat bran ext. in streptomycin production, 6369*a*.
——— and Venkataraman, P. R. Prepn. and compn. of groundnut cake—*Arachis hypogaea* hydrolyzate, 9377*e*.
**Rao, R. V. G. S.** Elastic consts. of alumina, 8228*b*, elastic consts. of $NaClO_3$ and $NaBrO_3$, 8228*c*, detn. of elastic consts. of crystals, 8787*b*.
——— and Balakrishnan, T. S. Elastic consts. of $NH_4Cl$ and $NH_4Br$, 8787*c*.
**Rao, S. L.** Occurrence of road metals and lesser minerals in Kunigal Taluk, Tumkur district, 2134*h*.
**Rao, S. N.** Synthetic surface active agents, 4032*d*, sizing of viscose filament rayon and spun fiber, 6830*i*.
**Rao, S. R. A.,** Bhimeswar, B., and Sreenivasaya, M. Strain of yeast for the production of high concn. washes in distillery practice, 3560*h*.
**Rao, T. V. S.,** George, I. A., Rao, B. L., and Desikachar, N. Palmarosa oil (I), 4427*d*.
**Rao, V. B.** See Rao, G. G.
**Rao, V. R. B.** See Paul, T. M., Trivedy, J. N.
——— Venkatappiah, D., and Anantakrishnan, C. P. Relative rates of absorption of different oils and fats, 1842*d*, component of fatty acids of butterfats, hydrogenated groundnut oils and mustard oil, 1997.
**Rao, Y. N. R.** Pelsite rocks near Marconahalli, Tumkur Distrct, 2136*e*.
**Raoul, Y.** Substitution and antagonism in domain of the pellagra preventive vitamin, 5841*h*.
——— and Marnay, C. Double deficiency of nicotinic acid and tryptophan, 2681*a*, nicotinic (acid and amide) deficiency in *Lactobacillus*, 3885*h*.
——— and Ragheb Hanna, N. Biol. assay of vitamin K utilizing rats, 3894*c*; Ca in blood coagulation, 4747*c*.
**Rapala, R. T.** See Fieser, L. Zaugg, H. E.
**Rapaport, G. H.** Synthetic spice, P 787.
**Rapatz, F.** Lining of smelting furnaces and quality of steel, 3755*c*; see Kraimer, H.
———, Kraimer, H., and Swoboda, K. Hardness, behavior and cutting properties of steels with 9 to 13% Cr, 5354*d*.
**Rapean, J. C.,** and Ross, W. B. Catalyzed oxidation processes, P 2219*i*.
**Rapela, C. E.** See Houssay, B. A.
**Raper, K. B.** Biochem. activity and taxonomy in *Aspergillus* and *Penicillium*, 9163*d*, see Marsh, P. B.
**Raper, R.** See Anker, H. S.; Clemo, G. R.
——— and Shaw, J. Amino acids in the hemolymph of the dragon-fly nymph, 3114*d*.
**Rapetti, R.** Li stearate in the manuf. of insol. lubricating greases of high m.p., 3999*i*.
**Raphael, A.** Court-noué or vine degeneration—can it be attributed to a cellulolytic action in which Cu, in an ammoniacal or amine medium, forms the active agent? 803*b*.
**Raphael, R. A.** Compds. related to penicillic acid (III) synthesis of penicillic acid, 1721*i*; mold metabolic products, 5080*d*; see Nineham, A. W.
**Rapin, J.** Wheat bunt, 3553*e*.
**Rapisarda, A.** See Buscaino, G. A.
**Rapkine, L.,** Shugar, D., and Siminovitch, L. Reactivation of triosephosphate dehydrogenase by heat, 6267*h*.
**Rapoport, H.** Structure studies in morphine—degradation of dihydrocodeine to N-free compds., 4280*b*.
——— and Jorgensen, E. Cuscohygrine, 9064*i*.

—— and Williams, A. R. Synthesis of dibenzocycloheptadiene, 8377*d*.
**Rapoport, I. A.** Mutations under the influence of unsatd. aldehydes, 1115*h*.
**Rapoport, S.** See West, Clark D.
— —, Brodsky, W. A., West, C. D., and Mackler, B. Urinary flow, excretion of solutes, and osmotic work during diuresis of solute loading in hydropenia, 1858*h*, 6721*g*.
—— and Wing, M. Dimensional, osmotic, and chem. changes of erythrocytes in stored blood (I) blood preserved in Na citrate, neutral, and acid citrate-glucose mixts., (II) evaluation of several acid and neutral preservation mixts.—effects of storage at 25° in Alsever's soln., (III) dilns. of acid citrate-glucose soln., (IV) cells sepd. from plasma, 6090*a*.
**Rapp, R.** Capacities of American extruding machines for plastics, 9521*f*
**Rapp, V.** See Eston, T.
**Rapp, W.** See Hopff, H.
**Rappaport, F.**, and Eichhorn, F. Lab. improvements in microbiochemistry, 5065*g*
**Rappaport, J.** See Dooley, M. S.
**Rappaport, R.** Rapid Microchem. Methods for Blood and Cerebrospinal Fluid Examns. (book), 4312*f*
**Rappen, L.** See Kruber, O.
**Rappoport, B. Ya.** Effect of digestive juices on erythro- and thrombo cytopoiesis, 3085*h*
**Rappoport, D. G.** See Levin, Ya. M.
**Rappoport, M. A.** See Fuks, N. A.
**Rapport, D.** See Canzanelli, A.
**Rapport, M. M.**, Green, A. A., and Page, I. H. Cryst. serotonin, 742*k*, enzymic inactivation of serum vasoconstrictor, 1075*i*, serum vasoconstrictor (serotonin) (III) chem. inactivation, (IV) isolation and characterization, 2259*e*
**Rapson, W. S.** See Karnovsky, M. L.; Nunn, J. R.
**Rapuano, R. A.** Ultrasonic absorption in liquids from 100 to 225 mc. sec., 4066*b*.
**Raquet, D.** See Caron, H.
**Rarita, W.** Deuteron and tritin methods, 2502*h*, tensor force, and the binding energy of the triton, 4096*d*, see Feshbach, H.
**Rasch, G.** See Hamburger, C.
**Raschig, M.** Effect of lowering the heating value of gas on fuel utilization in gas works, 1831*i*
**Raschik, L. P.** See Pallan-Raschik, L.
**Rascio, V. J. D.** Hydrothermal shrinkage and chem. compn. of sole leather in the different stages of tanning, 4040*a*
**Rashevsky, N.** Math. Biophysics (book) 709*i*.
**Rashkovan, B. A.**, and Fitingof, S. A. Galvanometric study of the phases of concd. emulsions, 7290*e*
**Raskin, N. M.** See Barzakovskii, V. P.
**Raskin, Sh. Sh.** Low-frequency Raman spectra of cryst. and of liquid diphenylmethane and phenol, and the origin of the wings of the Rayleigh line, 494*g*
— —, Sechkarev, A. V., and Skripov, F. I. Dynamics of mol. crystal lattices, 8783*a*
**Rask-Nielsen, R.** Development of tumors in various tissues in mice following application of a carcinogenic hydrocarbon, 3095*c*.
**Raškovane, B. A.** See Rashkovan, B. A.
**Rasmussen, E.** See Møller, C.
**Rasmussen, E. B.** See Lund, C. G.
**Rasmussen, E. J.** See Neal, A. L.
**Rasmussen, H. E.**, and Anderson, J. A. Fermentation cabinet for 100-g. doughs, 325*d*
**Rasmussen, Herbert E.** See Hansford, R. C., Kellett, J., III.
—— and Hansford, R. C. Thiophene and its alkyl derivs., P 1067*a*.
**Rasmussen, K. V. G.** See Grove-Rasmussen, K. V.
**Rasmussen, L. B.** See Legault, R. R.
**Rasmussen, R. S.** See Smith, C. W., Thompson, H. W.
—— and Brattain, R. R. Infrared spectra of some carboxylic acid derivs., 4574*g*
——, Tunnicliff, D. D., and Brattain, R. R. Infrared and ultraviolet spectroscopic studies on ketones, 4575*b*.
**Rasmussen, V. K.** See Chao, C. Y.
——, Hornyak, W. F., and Lauritsen, T. γ-Radiation from deuteron bombardment of $Be^9$, 8876*b*.
——, Lauritsen, C. C., and Lauritsen, T. Doppler broadening of a γ-ray line, 4117*b*.
**Rasmussen, W. C.** Ground water in the deposits of ancient Lake Dakota, 8581*i*.
**Rasoumowa, Z. A.** See Razumova, Z. A.
**Rasoumowskij.** See Razumovskiĭ.
**Rasouwaeff, Rasouwaev, Rasowvajew.** See Razuvaev, G. A.
**Raspino, G.** Moth-controlling liquid, P 4808*c*.
**Rasuvaiev, Rasuwajeff.** See Razuvaev, G. A.
**Ratchford, H. L.** Electrode for electron-discharge devices, P 6530*a*.
**Ratchford, W. P.** See White, J. W., Jr.
— —, Lengel, J. H., and Fisher, C. H. Prepn. of *N*-alkylacrylamides and methacrylamides by pyrolysis of the corresponding acetoxy amides, 3358*d*
**Ratchinskij, F. J.** See Rachinskiĭ, F. Yu.
**Ratcliffe, J.** See Hodgson, H. H.
**Ratcliffe, S. W.** Ceramics, refractories, and cements, 4789*a*
**Raterink, H. R.** See Bruson, H. A.
— — and Bruson, H. A. 2-Acyl 2-(2-cyanoethyl)cycloalkanones, P 7040*f*.
**Rath, H.**, and Agster, A. Flax pectin and flax treatments, 2778*e*.
—— and Sanchez, A. Detection of Mg, 4598*a*.
**Rathbone, R. J.** See Hamer, F. M.
**Rathbun, J. C.** Hypophosphatasia, 5853*c*.
**Rathenasinkam, E.** "Acid Beam" test, 3564*c*.
**Rathenau, G. W.**, and Wit, H. de Indicator for small amts. of O in reducing furnace atm., 7393*c*.
**Rather, J. B., Jr.** See Wiberley, J. S.
**Rather, L. J.** See Ambrose, A. M.
**Rathgeb, P.** See Meyer, K. H.
**Rathje, E.** See Schlubach, H. H.
**Rathjens, G. W., Jr.**, and Pitzer, K. S. Solns. of $B_2H_6$ in $NH_3$, 8241*h*
**Rathod, J. A.** See Nabar, G. M.
**Ratliff, E. K.** See Wise, L. E.
**Ratliff, F. T.** Correlation between hemicelluloses and the phys. properties of bleached kraft pulps, 9441*a*.
**Ratner, E. I.** State of K in plant tissues, 2282*e*, distribution of water and mineral substances in plants and the absorptive capacity of the roots, 5452*d*.
**Ratner, Z. I.** See Belyaev, A. F.
**Ratner, Z. M.** See Simonenko, Ya. P.
**Ratnikov, E. F.** Gravity pneumatic mill, P 3250*e*
**Ratnoff, O. D.** Proteolytic enzyme in human plasma (III) some factors controlling the rate of fibrinolysis, 708*i*.
—— and Mirick, G. S. Influence of sex on the lethal effects of a hepatotoxic alkaloid, monocrotaline, 8555*h*.
**Ratsbaum, E. A.** Prevention of loss in spectroscopic analysis, 6101*g*
**Ratschow, M.** Therapeutic action of cystine, 4774*c*.
**Ratsimamanga, A. R.** See Boiteau, P.
**Ratte, H.** Thermodiffusion in the sepn. tube, 8774*d*.
**Rattee, I. D.** See Lemin, D. R.
**Ratti, G.** See Cova, N.
**Ratti, H. J.** See Fox, V. W.
**Rau, D. W.** Reclamation of Se rectifier cells, P 6530*g*
**Rau, G. C.** Blood hypertensinogen in early hemorrhage hypotension, 6305*f*.
**Rau, R. R.** See Adams, R. V.; Lloyd, P. E.
— —, Anderson, C. D., Adams, R. V., and Lloyd, P. E. Heavily ionizing cosmic-ray particles at 30,000 ft. altitude, 4093*a*.
**Rau, R. S. J.**, and Sreenivasan, A. Influence of pH on the diastatic activity of fungal and malt amylases, 8414*e*
**Rau, W.** Heat conductance of refrigerating salt solns., 5655*i*
**Raub, A.** See Werle, E.
**Raub, E.** Edelmetalle und ihre Legierungen (book), 988*a*, effect of Ag on the transformations in the Au-Cu system, 4618*d*; Ag-Pb alloys for bearing materials, 6961*e*.
—— and Engel, M. Alloys of Al with In and Tl, 906*i*.
—— and Plate, W. Sintered Ag powders, 6955*i*, sintering of Au and Ag powders with powders of other metals, 7879*a*.
—— and Wolff, K. Thermal expansion measurements of binary alloys having reversed solubilities and of metals having strong lattice interferences, 6959*i*.
—— and Wullhorst, B. Structure of galvanically pptd. alloys, 7887*a*; electrodeposition of metals from solns. contg. complex ions, 8901*a*.
**Raub, G. R., Jr.** See Raub, G. R., Sr.
**Raub, G. R., Sr.**, and Raub, G. R., Jr. Compn. for removing decalcomanias, P 9301*a*.
**Rauch, J.** See Bernhauer, K.
**Rauch, W.** Isolation of sericin and some of the phys.-chem. properties of sericin sols, 853*d*
**Raucourt, M.**, and Ventura, E. Effect of the temp. on the efficacy of contact insecticides, 9333*f*
**Raudebaugh, R. J.** See Eisenberg, R.
**Rauen, H. M.** Intermediate metabolism of fat acids, 290*g*, manufg. control in the canning industry (II) quality indexes of tomato concentrates, 2709*b*.
—— and Buchka, M. Ashing period in the microdetn. of N, 521*d*.
— — and Stamm, W. Countercurrent distribution, 8808*b*.
**Raunio, E. K.** See Sunde, C. J.
**Rausch, Franz.** Cystine and N metabolism, 8472*b*.
**Rausch, Fritz.** See Brintzinger, H.
**Rausch, K.** Sb single crystals in a transverse magnetic field—elec. and thermal resistance—thermal e.m.f., 5243*f*
**Rauscher, E.** See Matossi, F.
**Rauscher, W. H.**, Goldstein, J. S., and Breslau, M. Reaction of diethanolamine with nitriles and KCN, 2579*c*
**Rausser, E.** Solid metallic joint of metal parts, P 1274*d*.
**Rautanen, N.** Formation of amino acids and amides in green plants, 1462*s*, see Virtanen, A. I.
**Rauterberg, E.** See Lemmermann, O.
**Rauth, A.** Aging of the dielectrics in impregnated paper, 4464*f*
**Rava, V.** See Nasini, A. G.
**Ravault, L.**, and Lhoste, J. Weed-killing in crop plants, 5144*i*.
**Ravazzoni, C.** Action of 2,4-dichlorophenoxyacetic acid on the phosphate enzyme systems of plants, 8009*a*
**Ravel, J. M.** See Shive, W.
**Raveleau.** See Dervillée, P.
**Raven, C. P.** Embryology of *Lymnaea*, 4778*a*.
——, Kloek, J. C., Kuiper, E. J., and Jong, D. J. de Influence of concn., duration of treatment and stage of development in the Li effect on the development of *Limnaea stagnalis*, 3114*b*.
—— and Rijven, A. H. G. C. Induction of head malformations in *Limnaea stagnalis* by Li treatment in advanced cleavage stages, 3111*c*.
— — and Simons, M. A. Specificity of the Li effect on the development of *Limnaea stagnalis*, 2706*e*.
—— and Wit, S. D. de Influence of LiCl on the eggs of *Limnaea stagnalis*, 3039*e*
**Ravenhall, D. G.** See Barker, F. C.
**Ravenna, F.** See Cavallini, G.
**Raventós, J.** See Madinaveitia, J.
**Ravery, M.** See Delbart, G.
**Raveux, R.** Formation of lipides by *Sterigmatocystis nigra* (I) quant. study, 269*e*, (II) qual. study, 269*f*
**Ravich, G. B.**, and Vol'nova, V. A. Temp. dependence of the polymorphic transition of single crystals of stearic acid, 6482*d*
**Ravich, M. B.**, and Korshunov, V. I. Briquetting fines of semicoked peat, P 5174*g*.
**Ravikovič.** See Ravikovich.
**Ravikovich, Kh. M.** Absorption spectra of myosine complex with polysaccharides, 8885*k*.
— —, Setkina, O. N., and Leont'eva, K. D. Changes of the spectral properties of structural proteins of the muscle in the presence of adenosinetriphosphoric acid, 259*g*.
**Ravikovich, S. D.** See Golik, A. Z.
**Ravindranath, T.** Ultrasonic velocity in liquids at high frequencies, 4065*h*.
**Ravitz, S. F.** See Schlain, D.
**Ravve, A.** See Williams, L. R.
**Rawikowitsch.** See Ravikovich.
**Rawitsch.** See Ravich.
**Rawles, M. E.** Origin of melanophores and their role in development of color patterns in vertebrates, 2690*c*.
**Rawley, J.** See Hunter, Francis R.
**Rawlings, F. N.**, Jacobs, R. T., and Cole, E. B. Ion exchange in the beet-sugar industry, 6440*i*.
**Rawlins, A. L.** *N*-Alkyldiaminodiphenyl sulfones, P 2637*f*; see Burckhalter, J. H.
——, Holcomb, W. F., Jones, E. M., Tendick, F. H., and Burckhalter, J. H. (Aminomethyl)phenols, P 4095*h*.
**Rawlins, T. E.** See Takahashi, W. N.

**Rawlins, W. A.** See Sun, Y.-P.
———, Staples, R., and Davis, A. C. Wireworm control, 9340*e*.
**Rawlinson, H. E.**, and Hankinson, H. W. Stainable Fe deposits in the epithelium of the mammary gland, 738*b*.
**Rawn, A. M.** Eradication of sludge flies, 7629*g*, water from wastes, 9307*e*.
———, Asce, M., and Candel, E. J. Effects of anaerobic digestion on sewage sludge, 3124*d*.
**Rawson, R. W.** Physiol. reactions of the thyroid-stimulating hormone, 3909*b*.
———, Skanse, B., Marinelli, L. D., and Fluharty, R. G. Radioactive I—its use in studying certain functions of normal and neoplastic thyroid tissues, 5490*f*.
**Ray, A.** See Mukherjee, J. N.
**Ray, B. R.**, and MacInnes, D. A. App. for detg. the effect of centrifugal force on the potentials of galvanic cells, 3728*d*.
**Ray, C. T.** See Reaser, P. B.
———, Threefoot, S. A., Burch, G. E., Reaser, P. B., Overman, W. J., Gordon, W. H., Milnor, J. P., and Cronvich, J. A. Regression of a radioactive mercurial diuretic from the plasma, 5861*h*.
**Ray, E. C.** See Pine, P. R.
**Ray, Francis E.** See Rieveschl, G., Jr.
——— and Geiser, C. R. 2-Acetylamino-9-$C^{14}$-fluorene, 3917*d*.
——— and Hull, C. F. Fluorene oxazoles, 7020*e*.
——— and Quinlin, P. M. Compds. for cancer research (II) 2-fluorenecarboxamidine, 3811*a*.
——— and Rieveschl, G., Jr. 2-Acetylfluorene, 1753*f*
———, Weisburger, E. K., and Weisburger, J. H. Compds for cancer research (III) derivs. of 9,9′-bifluorene, 3811*c*.
**Ray, Frederick E.** See Lee, Russell.
**Ray, G. K.** See Basu, N. M.
**Ray, H. N.**, and Harbans, S. Effect of pantothenic acid on the infection of *Trypanosoma evansi* in rats, 6729*a*
**Ray, M.** Flow of a liquid from a reservoir over a plane-boundary layer theory, 4064*h*.
**Ray, N.** Measurement of the activity of proteolytic enzymes, 5442*e*; optical specificity of protein hydrolyzates, 6265*b*; see Bose, A. N.
**Ray, N. H.** See Buckley, G. D.
**Ray, P.**, Bhaduri, A., and Sarma, B. Magnetochem. studies in valency and mol. constitution (III) heteropoly molybdates and tungstates with multivalent metal atoms in the complex, 4165*i*.
——— and Dutt, R. K. Complex compds of biguanide with bivalent metals (IX) ampholytic inner-metallic Cu and Ni complexes with 1-(2-sulfo-1-naphthyl)-biguanide, 1-(*p*-sulfophenyl)biguanide, and their salts, 7365*c*, complex compds of biguanide with trivalent metals (XIII) ampholytic inner-metallic cobaltic complexes with 1-(2-sulfo-1-naphthyl)biguanide, 1-(*p*-sulfophenyl)biguanide, and their salts, 7365*f*.
——— and Ghosh, N. N. Complex compds. of biguanide with bivalent metals (X) two modifications of Cu *N*-diethylbiguanide, 8941*b*.
——— and Sarma, B. D. Complex compds of biguanide with trivalent metals (XIV) cobalt(ic) and Cr *m*-phenylenedibiguanide complexes, 8941*d*.
——— and Sarma, B. Magnetochem. studies in valency (IV) tetrapos. Ni as alkali Ni periodates, 4167*e*.
——— and Sen, D. N. Magnetochem. studies in valency (V) valency of Ni, and nature of the bond in arsenical Ni ores, 4167*e*; (VI) bond-type and stereochemistry of four-coördinated Cu complexes, 8222*a*.
**Ray, P. A.** Velocity-reducing hood orifices for controlling primary air, 2753*g*.
**Ray, R. C.** See Sinha, P. C.
**Ray, R. G.** See Quinn, A.
**Ray, S.** Zonal metamorphism in the eastern Himalaya and some aspects of local geology, 1692*h*.
**Ray, S. C.** See Guriye, K. V.; Kanungo, R.; Panditteseker, D. G.; Patel, B. M.; Talapatra, S. K.
**Ray, S. N.** See Goswami, M.
**Ray, T. W.** See Deysach, L. J.
**Raybestos-Manhattan, Inc.** Abrasive products, P 832*a*; diamond abrasive binder, P 6868*g*.
**Raychaudhuri, D.** See Chaudhuri, D. R.
**Rayet, P.** See Le Bihan, H.
**Rayet, R.** See Juliard, A.
**Rayman, D. E.** See Levin, R. H.
**Rayman, M. M.** See Legg, D. A.
**Raymond, A. L.**, and Schroeder, E. F. Synthesis of some iodo-sugar derivs., 150*d*.
**Raymond, B. W.** See Conabere, G. O.
**Raymond, J. J.**, and Lehmberg, W. H. Microporous sheet material, P 6834*d*.
**Raymond, L.** See Albright, R. E.
**Raymond, M. J.**, and Treadwell, C. R. Lipotropic activity of various compds. under standardized conditions, 3103*i*.
**Raymond, R. C.** See Millman, G. H
**Raymond, S.** See Kaslow, C. E.
**Raymond, V.**, and Vallaud, A. Benzolisme (book), 5133*g*.
**Raymond, W. F.** Levulinic acid as an aerial disinfectant, 4798*b*, see Lovelock, J. E.
**Raymond-Hamet.** Alstonine, 648*f*; cinchonamine and quinamine, 4678*i*; pharmacol properties of corynanthine tartrate, 6319*d*, sympathicolytic activity and toxicity of corynantheine and corynanthine, 7584*d*, corynantheine and corynantheidine, 9378*b*.
**Raymond Laboratories, Inc.** Hair-wave creams, P 3574*e*
**Raynaud, J.** Absence of effect of cholesterol on the submaxillary tubular glands, 5116*d*
——— and Rebeyrotte, P. Difference in the (salivary) amylase activity of male and female mice, 4747*b*, effect of castration on the amylase activity of the saliva of the male mouse, 5839*a*, differences in the amylase activity of the submaxillary glands of male and female mice, conditioned by the androgenic hormones, 8403*d*.
**Raynaud, M.** Detn of $NH_3$ in biol fluids, 4316*c*, extn of exotoxins from bacteria, 6275*b*; see Cohen-Bazire, G.
**Rayner, D. S.** See Chapman, H. D.
**Rayner, J. H.** See Powell, H. M
**Raynor, G. V.** Forms of the $\beta$ phase regions in certain ternary alloys of Cu, 2915*f*, detn of equil diagrams, 3759*a*, equil relations in ternary alloys, 6961*a*; lattice spacings of substitutional solid solns., 8782*a*; see Douglas, A. M. B.; Wakeman, D. W.
——— and Frost, B. R. T. System Ag-Mg-Sn—theory of ternary alloys, 6558*e*.
——— and Waldron, M. B. Constitution of the Al rich Al-Co-Fe alloys—transitional elements in alloy formation, 3763*g*
**Rayonier Inc.** Chemically treated wood pulp and a cellulosic product, P 1980*e*.
——— and Fairweather, H. G. C. Processing of refined chemical pulp into viscose, P 4014*d*.
**Raysser.** See Reiser
**Raytheon Manufg. Co.** Flaw detection, P 5359*b*; cathode for a magnetron, P 7357*i*.
**Razis, A.** Soap, P 426*a*
**Razmyslov, A. A.** Water-clarification installation, P 6345*b*
**Razorenov, L.**, and Knyazev, A. Discharges caused by wide atm showers in two ionization chambers, 1644*h*
**Razouk, R. I.** See Gregg, S. J.
——— and Salem, A. S. Adsorption of water vapor on glass surfaces, 1623*d*
**Razumovskii.** See Razumovskii.
**Razoumowa, Z. A.** See Razumova, Z. A.
**Razous, P.** Phases of artificial drying, 2046*f*.
**Razouwaev, G. A.** See Razuvaev, G. A.
**Razubaiev, G. A.** See Razuvaev, G. A.
**Razumova, Z. A.** See Grinberg, A. A.
**Razumovskii, G. S.** See Balezin, S. A.
**Razumovskii, V. V.** Theory of electron tautomerism (III) electronic structure and polymerizability of org. compds., 1633*f*; intramol. mutual influence of atoms, 8220*g*.
——— and Fridenberg, A. E. Prepn. of 1-chloro-2-fluoroethane, 6154*c*.
——— and Pokrovskii, V. A. Bivinyl, P 5410*d*.
**Razuvaev, G. A.** See Nelman, M. B.
——— and Ol'dekop, Yu. A. Photochem. reactions of Hg org. compds. in soln., 4579*e*; (I) reactions of diphenyl-Hg, 8805*a*.
**Re, P.**, and Sicuteri, F. Variations in blood Fe in typhoid infection, 9224*f*.
**Read, C. L.** Decompg. acid sludge, P 5182*i*.
**Read, D. H.** See Price, C. C.
**Read, H. H.** Rutley's Elements of Mineralogy (book), 3754*a*.
**Read, H. J.** Brazing of a hard cutting tip to the iron or steel shank of a cutting tool, P 3343*a*; see Smith, William.
——— and Hall, R. W. Current reversal devices for PR plating in the lab.—device with electronic timing, 2100*c*.
**Read, J.** Specialization and culture in chemistry, 1230*f*; chem. personalities a century ago, 2827*b*; lateral distribution of ions across the track of an ionizing particle (I) present picture and its implications, 8854*c*.
**Read, J. H.**, and Lloyd, D. M. G. Thermal cond. of org. materials near the m.p., 2501*e*.
**Read, J. T.** See Brown, Ray K.
**Read, M. G.** Compn. of processed sausages, 9284*i*.
**Read, N. J.** See Goodlass Wall & Lead Industries Ltd.
**Read, S. C.** What industry is doing about Pittsburgh's smoke, 3990*e*.
**Read, W. T.** See Shockley, W.
**Reading, G. R.**, and Vineyard, R. E. Recovery of HF by distn. with an olefin, P 914*b*.
**Reagan, W. J.** See Wright, C. C.
**Reale, G.** Mechanism of procaine action, 2328*b*.
**Reali, A.** Crystn. of extremely small crystals from salt solns., P 4525*a*.
**Reamer, H. H.** See Olds, R. H.
———, Sage, B. H., and Lacey, W. N. Phase equil in hydrocarbon systems—volumetric behavior of propane, 3274*a*.
**Reamer, T. E.** Chlorinated paraffin wax amines as fungicides and bactericides, P 349*h*
**Reams, D. C.** See Dodge, B. F
**Reardon, M. J.** See Grimson, K. S.
**Reardon, R. T.** Surface treatment of dynamoelec machine core, P 2154*g*
**Reaser, P. B.** See Burch, G. E.; Ray, C. T., Threefoot, S.
——, Burch, G. E., Threefoot, S. A., and Ray, C. T. Thermal sepn. of radio-Hg from radio-Na, 3870*h*.
**Reaugh, M. A.** See Reed, H.
**Reaume, S. E.**, and Tatum, E. L. Spontaneous and N mustard-induced nutritional deficiencies in *Saccharomyces cerevisiae*, 9157*h*.
**Reavell, F. R.** See Carpenter, L. G.
**Reay, G. A.** Spoilage of fresh fish and its control, 2337*i*.
**Rebelein, H.** See Briegleb, G.
**Reber, H.** See Halpern, B. N.; Vallery-Radot, P.
**Rebeyrotte, P.** See Raynaud, J.
**Rebinder, P. A.** See Epifanov, G. I.; Lyubimova, T. Yu.; Pleteneva, N. A., Segalova, E. E.; Serb Serbina, N. N., Veller, S. Ya.; Yampol'skii, B. Ya.
——— and Semenenko, N. A. Characterization of structure-mech. properties of viscoplastic bodies, 4928*i*.
**Reboul, G.** See Reboul, J.
**Reboul, J.**, Reboul, G., and Dargent, M. Polarographic study of serum from persons with neoplastic disease, 3514*h*.
**Rebuffat, A.** Hydration in cement, 3587*i*
**Recalde Laca, D. S.**, and López Gracia, D. R. Gran industria Quimica (book), 6337*i*.
**Recalde Martinez, L.** Influence of harmine on the growth of wheat seedlings, 4350*i*; utilization of *Nicotiana glauca*, 4815*d*.
**Rechenberger, J.** See Schairer, E.
——— and Schairer, E. Liver and spleen Fe in various infections, 5106*i*.
**Rechka, J.** Ensiling of alfalfa, 8574*i*.
**Rechmann, H.** See Hacker, W.
**Rechtspersoon Indonesië.** Stable palatable prepns. of *Cucurbita moschata*, P 7198*d*.
**Recinos, A., Jr.** See Olshaker, B.
**Reckmeyer, V. H.** Light-filter films, P 2871*a*.
**Reconstruction Finance Corp.** Grain-refining Mg alloys, P 105*h*.
**Record, B. R.** Ultracentrifugal and diffusion characteristics of methylated glycogen, 3687*i*.
——— and Stacey, M. Phys. properties of the specific polysaccharides from the types I, II, and III pneumococci, 3879*i*.
**Recoules, A.** Detn. of hemoglobin, 7998*d*, see Fleury, P.
**Rector, C. W.**, Schaeffer, O. W., and Platt, J. R. Substituted borasole spectra—gain and loss of aromatic character, 7818*b*.
**Rector, L. L.**, and Cron, C. L. Sealing compns., P 5519*d*.
**Rector, N. K.** Fractionator instruments-

tion for natural gasoline plant control, 7673f.
**Redd, J. B.** See Sokoloff, B.
**Redder, A. M.** See Somers, G. F.
**Reddi, K. K.,** and Giri, K. V. Influence of variety, manuring, and germination on vitamin $B_1$ content of groundnut, 6284b; nutritive and vitamin value of groundnut (I) vitamin $B_1$ content as affected by variety, (II) free and combined forms of vitamin $B_1$, (III) physiol. availability of vitamin $B_1$, (IV) influence of germination on the vitamin $B_1$ content, (V) influence of manuring on vitamin $B_1$ content, 6329h.
——, Giri, K. V., and Das, R. Thiaminase system in fresh-water mussel, 2651d.
—— and Rao, R. B. Influence of variety on the protein content of groundnut, 7158b.
**Reddi, P. B. V.** See Feuge, R. O.
**Redding Manufg. Co., Inc.** Latex coating of single or stranded metallic wire, P 2464d.
**Reddish, G. F.** Testing antiseptics, 8095f
**Redemann, C. E.,** Chaikin, S. W., Fearing, R. B., Rotariu, G. J., Savit, J., and Van Hoesen, D. Vapor pressures of 41 F-contg. org. compds., 8840i.
——, Wisegarver, B. B., and Alles, G. A. Characterization of certain alkaloids from *Fagara coco*, 4280g.
——, Wisegarver, B. B., and Icke, R. N. Synthesis of certain compds. related to α-fagarine, 2212a.
**Redemann, M. A.** See Alles, G. A
**Redfarn, C. A.** Thermosetting resins and plastics, 4788f
**Redfern, D. V.** Phenol-aldehyde reaction product, P 3230d; synthetic resin adhesive base from cresylic acid and furfural, P 5643d.
**Redfield, A. H.** Asphalt and related bitumens, 2127a.
**Redington, L. E.** Diacyl peroxides as polymerization initiators -rate of polymerization of styrene in relation to rate of decompn. of 4 org peroxides, 7311g.
**Redini, R.** W in Mn minerals, and the age of some Tertiary formations of northern Sardinia, Italy, 975f.
**Redlich, G.** See Schikore, W
**Redlich, O.** Thermodynamics and mol. structure of solns., 4544a.
—— and Kister, A. T. Thermodynamics of solns. (IV) detn. of liquid vapor equil., 5272i.
—— and Kwong, J. N. S. Thermodynamics of solns. (V) equation of state—fugacities of gaseous solns., 8241i
**Redman, C. C.** Juices from Dorr clarifiers, 6846i.
**Redmon, B. C.** Acrylic acid, P 6221h, see Griffin, G. R.; Nagy, D. E.
—— and Griffin, G. R. Alkali metal hydracrylates, P 2634f; extn. of hydracrylic acid, P 3029g, acrylic acid esters, P 4288f.
and Nagy, D. E. Substituted cyanoguanidine, P 2635i.
**Redmond, J. C.** See Toffhey, W. O.
**Redmond, J. W.** See Hibbs, R. F
**Redniss, A.** See Ladenburg, K.
**Reebel, D.** Ingot to coiled hot strip in 6 min., 6552e.
**Reece, H. A.** Predetd. phys. constitution in Fe, P 4625g.
**Reece, R. P.** See Kamlet, J.
**Reed, C. A.** See Lloyd, M. D.
**Reed, C. F.** Milkweed-seed oil, P 9494h.
**Reed, C. I.** See Joseph, N. R.; Silver, A. F.
**Reed, C. S.,** and Schutte, A. H. Catalytic conversion app. for hydrocarbons, P 388e.
——, Schutte, A. H., and Bowles, V. O. Catalyst-transfer system, P 1230b.
**Reed, D. F.** Albright farm Pb-Zn deposit, 4188f; Talladega gray iron ores, 4608g; Pickering Creek Pb-Zn deposits, 5347i.
—— and Cohen, C. J. Redford-Clayburg magnetite district, 5348b; Star Lake magnetite deposits, 7384h.
**Reed, E. L.** See Jaffe, L. D.
**Reed, F. R.** Synthetic liquid fuels, 5921b.
**Reed, F. P.** See King, H. I.
**Reed, F. T.** See Woods, G. F.
**Reed, G. B.** A. T. Cameron, 4908i.
**Reed, G. C.** Sheep Creek Fe deposits, [illegible]
**Reed, R.,** and Berg, C. Shale-oil retorting, 1553c; shale and air counter-flow in continuous retort, 3177h; recovery of oil shale, 7671d.
——, Reaugh, M. A., and Stribley, A. F., Jr. Petroleum industry and smog, 7672f.
**Reed, I. F.** See Jamison, V. C.
**Reed, J. F.** See Hanna, W. J.; Mehlich, A.
—— and Brady, N. C. Time and method of supplying Ca as factors affecting production of peanuts, 1513h.
**Reed, J. J.** Optical properties and chem. compn. of vivianite deposited on wood, 2549b; granitization in New Zealand (I) emplacement of the bluff norite, 8314e.
**Reed, J. O.** See Meites, J.
**Reed, K. J.** Photographic color developing, 6099a.
**Reed, L. J.** See Parham, W. E.
——, Cavallini, D., Plum, F., Rachele, J. R., and Vigneaud, V. du. Conversion of methionine to cystine in a human cystinuric, 9221a.
**Reed, M. C.,** and Harding, J. Plasticizers in vinyl chloride-acetate resins, 5627c.
**Reed, R.** See Astbury, W. T.; Perry, S. V.; Preston, R. D.; Sykes, J. A.
**Reed, R. E.,** Beste, M. D., and Humoller, F. L. Permanent [hair] waving, 8103c.
——, Tenenbaum, D., and Beste, M. D. Hair-wave creams, P 3574e.
**Reed, R. F., Ltd.** and Long, S. G. Benzylamine and its acyl derivs., P 5800d.
**Reed, R. I.** See Gillespie, R. J.
**Reed, R. M.** Sepn. of acidic constituents of gases, P 4450a
—— and Liriksen, A. H and synthesis gas production, 378e.
**Reed, S. L.** See Skinner, G. S.
**Reed, W.** See Hobby, G. L.
**Reed, W. A.** See Lewis, W. K
**Reed, W. H.,** and Pennington, W. A. Increasing refrigeration, P 8580e.
**Reed, W. L.** See Bemis, W. A
**Reedy, P. M.** Polysulfide sealing compd., P 4508h
**Reekie, J.,** and Hutchison, T. S. Effect of cold working on the magnetic properties of pure metals, 80h
**Rees, A. L. G.** Relation between covalent and packing radii of atoms, 9h.
**Rees, D. S.** See Reiss, M.
**Rees, H. G.,** and Salway, A. H. Nutritive value of meat ext., 4394i.
**Rees, H. L.,** and Anderson, D. H Detn. of BzH in benzyl alc., 8978c.
**Rees, J. P.,** and Rabson, S. R. Konimeter, 2821h, 3668a.
**Rees, L.** See Richter, D.
**Rees, P.** See Owen, O.
**Rees, W. H.** Heat of absorption of water, 1180h
**Rees, W. J.** Salt relations of plant tissues (IV) effect of the prepn. of storage tissue on its subsequent absorption of Mn chloride, 3068b; see Ford, W. F
**Rees, W. P.** See Gifkins, R. C.
——, Burns, B. D., and Cook, A. J. Fe Ni-Cr alloys at 650° to 800°, 7887i.
**Reese, D. J.** Nodular graphite cast iron, 6957d.
**Reese, E. T.,** and Eisenberg, G. M. Polymyxin—assay procedures, 9373d.
**Reese, F. E.,** and Perry, E. Pilot-plant design and construction—polymerization units for thermosetting resins, 1613f.
**Reese, J. E.** See Bishop, W. T.
**Reestman, A. J.** Aneurine content in Dutch potato varieties, 1500f.
**Reeve, C. G.** Application of insulator heating to electrostatic tar precipitators, 7211g.
**Reeve, E. B.** See Leeson, D.
**Reeve, K. D.** See Israel, G. C.
**Reeve, L.** Magnetic concn. expts. on Fe ores used in North Lincolnshire practice, 2554c; ingot surface defects in structural steels, 2908g.
**Reeve, R. C.,** Allison, L. E., and Peterson, D. F., Jr. Reclamation of saline-alkali soils by leaching (Delta area, Utah), 3549i.
**Reeves, A. A.** Continuous collector sample gases in proportion to main line flow, 1611.
**Reeves, E. J.,** and Turkleson, R. E. Cycle washing of percolation filters, 7218b.
**Reeves, R. E.** Ph β-D-galactopyranoside derivs., 1327b; cuprammonium-glycoside complexes (II) angle between hydroxy groups on adjacent C atoms, (III) conformation of the D-glucopyranoside ring in soln., 3368e; titration of *cis*-glycols, 6946f; see Hoffpauir, C. L.
—— and Giddens, J. E. Stabilization of nitrocellulose, P 5950d.
—— and Jung, J. R., Jr. Cuprammonium-glycoside complexes (I) conductometric measurements, 3368d.
**Reeves, R. F.** See Parker, R. P.
**Refalt, E.** See Vincent, D.
**Refiners Ltd.,** Scott, T., and Baddeley, G. Resins, P 4049f.
**Refining Unincorp.** Purification of glyceride oils, P 3638b, 9494f; electronic drying of foots, P 6438b; refining of animal and vegetable oils, P 7241h.
**Refn, I.** See Veibel, S.
**Regan, C. J.** J. H. Coste, 5649f.
**Regan, L. J., Jr.,** and Hughes, A. W. Fractured reservoirs of Santa Maria district, Calif., 2903g.
**Regan, M. A.** See Stokstad, E. L. R.
**Regato, J. A.** See Ackerman, L. V.
**Rege, A. V.** See Phadnis, K. D.
——, Airan, J. W., and Shah, S. V. Aromatic sulfides and their derivs., 2599g.
—— and Shah, S. V. Reactions with 2-propionyl-1-naphthol, 7010c; action of Cl and Br on 2-acetyl-1-naphthol and of Br only on 2-hydroxy-3-naphthoic acid, 7010e.
**Regeimbal, L. O.** See Harley, C. P.
**Regel, C.** Useful plants of central Europe, 7604f.
**Regener, E.** Otto Hahn on his seventieth birthday, 4907h.
**Régent, M.** See François, M. T.; Reutenauer, G.
**Regestad, S. O.,** and Samuelson, O. Neutralization curves of high-mol. sulfonic acids, 4083b.
**Reggel, L.** See Orchin, M.
**Reggiani, E.,** and Pederzini, A. Modifications of percentage of vitamin A in the liver in ethereal narcosis, 9181f.
**Reggiani, M.** See Dansi, A.
**Reggianini, O.** Toxic action of various eosins, 8532d; changes in the antiphotodynamic power of serum under the influence of vitamins, 9185d.
**Regier, R. B.,** and Blue, R. W. Prepn. of 1-butene labeled with $C^{14}$ in the 4 position, 9023g.
**Register, U. D.** See Lewis, U. J.
——, Lewis, U. J., Thompson, H. T., and Elvehjem, C. A. Variations in the vitamin $B_{12}$ content of selected samples of pork and beef muscle, 3894h.
——, Ruegamer, W. R., and Elvehjem, C. A. Improved assay for a growth factor in liver exts., 3499e.
**Regna, P. P.** See Solomons, I. A.
**Regner, A.** Al-Si alloys, P 3771d; sepn. of alloy constituents, P 6145d.
**Régnier, J.,** David, R., and Vertadier, P. Influence of surface activity of their constituents on the surface tension of salts—formation of salts of *p*-aminobenzoate of diethylaminoethanol, 6891d; interfacial tensions, at the boundary water-olive oil, of aq. solns. of salts of *p*-aminobenzoate of diethylaminoethanol, 7290d.
**Régnier, M. T.** See Fabre, R.
**Regno, F. del.** See Del Regno, F.
**Regoli, A.** Dolantin in ophthalmology, 4771f.
**Rehbein, F.** See Philipp, K.
**Rehberg, C. E.** Cellulose ester or ether plasticized with ethyl 1-(carbethoxyethoxy)ethyl carbonate, P 2435d; see Dixon, M. B.; John, H. J.
—— and Fisher, C. H. Cellulose ether plasticizers, P 2034b; polymerization of furfuryl acrylate, P 2034i; acrylic esters of ether alcs., P 3030f; acrylates of olefinic alcs. and polymers thereof, P 4686b; esters of α-acyloxycarboxylic acids, P 5036i; acrylic esters of secondary alcs., P 6650i; polyalkyl-cyclohexanol acrylates, P 7754g.
**Rehberg, C. H.,** and Schlossmacher, K. Color of chrysoprase, 5305d.
**Rehbinder, P. A.** See Rebinder, P. A.
**Rehder, J. E.** Mg addns. and desulfurization of cast irons, 9005c.
**Rehnelt, K.** Action of *Nerium oleander* exts. on *Daphnia*, 3149g; effect of vegetable cardiotoxins on Daphniae, 9616f.
**Rehner, J., Jr.,** and Flory, P. J. Plasticizers for Butyl rubber, P 4046d.
**Rehner, T.** See Hayek, E.
**Reiberger, R.** See Tschamler, H.
**Reich, Erno.** Fabrication of oxidizable materials at high temps., P 1618e.
**Reich, Ernst.** See Felix, F.
**Reich, G. T.** C, P 3695; recovery of sludge acids, P 3607a; treating fermentable materials, P 3972a; treatment of molasses with solvents, 6445c.
**Reich, I.** See Omohundro, A. L.; Snell, F. D.
—— and Snell, F. D. Diphase metal clean-

ers—relation of emulsion stability to cleaning efficiency, 1705*a*.
**Reich, J.** Dental metal alloys, P 2922*d*.
**Reich, J. G.** See Asmus, E.
**Reich, L.,** and Becker, E. I. Diene synthesis of 1-phenyl-1,3-butadiene with acrylonitrile and Me vinyl ketone, 8364*d*.
**Reich, M.** See Riemschneider, R.
**Reichard, H.** Flexible molds from vinyl compds., 2028*h*.
**Reichard, P.** Partition chromatography on starch of ribonucleosides, 3794*i*; prepn. of ribonucleosides from small amts. of ribonucleic acid, 7520*c*; N turnover in purines from polynucleotides detd. with glycine $N^{15}$, 8030*b*; turnover of purines and pyrimidines from polynucleotides in the rat detd. with $N^{15}$, 8510*e*; see Abrams, R., Arvidson, H.; Bergstrand, A., Bergström, S.; Edman, P.
**Reichardt, F. E.** See White, D. L.
**Reichardt, P.** Effect of blast furnace top diam. on the behavior of dust, 7393*a*.
**Reichel, H.** See Pulaski, E. J.
**Reichen, L. E.,** and Lakin, H. W. Detn. of Zn in plants, 2890*i*.
**Reichenbach, H.,** and Reichenbach, M. Philosopische Grundlagen der Quantin mechanik (book), 7830*i*.
**Reichenbach, M.** See Reichenbach, H.
**Reichenow, L. M.** See Mudrow-Reichenow, L.
**Reichert, B.,** and Baege, H. Splitting of hexamethylenetetramine addn. compds. of *N*-haloacetylated substituted anilines by means of $SO_2$, 6586*g*.
—— and Schwebs, U. Detn. of total ammonia in sulfonated shale oils, 1171*h*; detn. of urea in the blood and urine, 6270*b*.
**Reichert, F. L.** See Entenman, C.
**Reichert, I.,** Palti, J., and Moeller, S. Spraying and dusting trials for tomato disease control, 9338*i*.
**Reichert, J. S.,** and Pete, R. H. Peroxide bleaching of groundwood—developments and com. status, 3614*b*.
**Reichertz, P. P.,** and Farnsworth, H. E. Inelastic scattering of low speed electrons from a Cu single crystal, 6907*g*.
**Reichhold, H. M.** See Hodge, J. M.
**Reichhold Chemicals, Inc.** Aq. urea-formaldehyde resin, P 2466*a*.
**Reichinstein, Z. G.** See Raikhinshtein, Ts. G.
**Reichstein, T.** (*Patents*) α-Substituted side-chain ketones of the polyhydrocyclopentaphenanthrene series, 1918*e*, Δ⁴-pregnene-17,21-dion-3,20-diol, 3474*e*, compds. of the polyhydrocyclopentaphenanthrene series, 3980*a*; hydroxy aldehyde of the perhydrocyclopentaphenanthrene series, 4433*a*; compds. in the polyhydrocyclopentaphenanthrene series, 5428*e*, dehydrocorticosterone, 5812*a*, desoxycorticosterone, 7056*h*; pregnadienedione, 7977*h*, unsatd. steroid ketones, 8402*f*, see Blindenbacher, F., Blome, W., Doebel, K.; Euw, J. v.; Hauenstein, H.; Helfenberger, H., Huber, H.; Katz, A., Keller, M.; Meyrat, A., Mohr, K.; Raffauf, R. F.; Rangaswami, S.; Šantavy, F., Schmutz, J., Steinegger, E., Tamm, C., Wendler, N. L.
**Reid, A. A.** Al for spot welding, P 4212*e*.
**Reid, A. F.,** and Jones, F. Production of therapeutic fractions of human blood serum—removal of salts with ion-exchange resins, 3486*a*.
**Reid, C. S. W.** See Pastier, F. N.
**Reid, E. E.** Esterification, 7759*b*, see Hartough, H. D.
**Reid, G. W.** See Weil, B. H.
**Reid, H. A.** Detg. moisture 6413*g*.
**Reid, J. C.** See Calvin, M.; Hughes, D. Tolbert, B. M.
**Reid, J. David.** See Hamalainen, Schuyten, H. A.
—— and Daul, G. C. Water-absorbent and rot-resistant cotton textiles, P 418*a*.
**Reid, J. Douglas.** See Abbott, L. D., Jr.
**Reid, J. T.** Relation of nutrition to fertility in animals, 7097*i*.
—— and Huffman, C. F. Phys. and chem. properties of bovine saliva which may affect rumen digestion and synthesis, 4358*g*.
**Reid, K. K.** See Horst, R. L.; Verink, E. D., Jr.
—— and Horst, R. L. Corrosion control by light metal anodes (II), 6962*i*.
**Reid, L. S.** See Laurence, L. L.
**Reid, R. J.** See Groten, F. J., Rowland, G. P., Jr.
**Reid, E. L.,** Franklin, M. C., and Hallsworth, E. G. Utilization of phytate P by sheep, 5098*i*.
**Reid, S. E.** Effect of pancreatic juice on the gall bladder, 8507*b*.
**Reid, T. J.,** and Ubbelohde, A. R. Effect of metallic impurities in Mg on the formation of Grignard compds., 1717*f*.
**Reid, W. B., Jr.,** and Hunter, J. H. Prepn. of diphenylacetonitrile, 611*c*.
——, Wright, J. B., Kolloff, H. G., and Hunter, J. H. Histamine antagonists (II) *N*-(pyrrolidylalkyl) phenothiazines, 631*d*.
**Reid, W. D.** Control of halo-blight of beans, 8595*h*.
—— and Brien, R. M. Grease-spot control on passion vine, 7179*i*, control of anthracnose of dwarf beans, 7180*e*.
**Reid, W. S.** Concn. of the $SO_2$ content of Dwight-Lloyd sintering machine gas by recirculation, 3753*h*.
**Reid, W. T.,** and Foster, J. F. Fusibility of ash and its relation to clinkering in water-gas generators, 6394*e*.
**Reid Engineering Co.** Al for spot welding, P 4212*e*.
**Reif, A. E.** Lumped coke, 378*i*.
**Reif, E.** See Bredereck, H.
**Reif, G.** Action of Al, Al alloys, and stainless steel on the vitamin C content of milk, 3533*e*, ethylene glycol in tobacco smoke using 2-naphthol, 5905*e*.
**Reif, O.** See Wentrup, H.
**Reifenberg, A.** Influence of salt solns. on the intake of ions by barley seedlings, 7554*h*.
**Reifenstein, E. C., Jr.** See Albright, F.
—— and Albright, F. Metabolic effects of steroid hormones in osteoporosis, 5487*i*.
**Reifer, I.,** and Melville, J. Source of ammonia in plant tissue exts. (II) influence of urea, 5455*f*.
**Reiff, F.,** and Haas, H. Chem. compn. of wood substance, 6407*c*.
**Reiff, O. M.,** and Andress, H. J., Jr. Mineral oil lubricants, P 9432*i*, multifunctional lubricating oil additive, P 9432*e*.
—— and Hartough, H. D. Polyalkylbenzyl phenols, P 4457*e*.
——, Hartough, H. D., and Andrews, H. J., Jr. Low pour-point lubricant, P 9433*a*.
—— and Moore, A. M. Sepg. alkylbenzenes from admixt. with paraffins and naphthenes, P 3841*f*.
——, Otto, F. P., Giammaria, T. J., and Oberright, E. A. Alkyl substituted aromatic-aliphatic carboxylic acids, P 7967*e*.
**Reig, A. A.** See Aznar Reig, A.
**Reignier, M.** $NH_3$ in circulating water, its inconvenience and remedy, 6343*d*.
**Reihlen, H.** Carboxy acids as complex salt constituents (I) Cu alkali tartrates and the Schweitzer reagent, 5324*f*.
—— and Sablatnig, A. Carboxy acids as complex salt constituents (II) optical rotation of Cu alkali tartrates, 8242*i*.
**Reik, R.** Recovery of Mg from magnesia-bearing ores, P 103*g*.
**Reiller, R.** Variations of the potential of Fe in corrosion, 8906*d*.
**Reilly, D.** John Wm. Mallet, 1617*h*, Wm. James MacNeven, 8759*g*.
**Reilly, J.,** and Rae, W. N. Physico-Chem. Methods (book), 932*i*.
——, Teegan, J. P., and Carey, M. F. Diazo reaction in the tetrazole ring, 1769*h*.
**Reilly Tar & Chemical Corp.** Carbazole, P 1808*g*, 2,4-lutidine and 2,5 lutidine, P 1811*a*, catalytic oxidation of nicotine, P 1811*b*, sepn. of *m*-cresol, P 3459*c*; sepn. of isomeric xylenols, P 3459*c*; 2-amino 5-methylpyridine, P 7050*i*.
**Reimers, F.** Identification of org. substances, 67*d*; rancidification of fatty materials, 1581*d*, detn. of alkaloid in solanaceous drugs and prepns., 1908*c*.
**Rein, G.** See Mehnert, K. R.
**Rein, Herbert.** Polyacrylonitrile fibers, 413*i*, 7232*h*; see Lockemann, G.
**Rein, Hermann.** Einführung in die Physiologie des Menschen (book), 9216*a*; see Mertens, O.
**Reinacher, G.,** and Scheil, E. Modulus of elasticity and damping capacity of single Zn crystals, 83*i*.
**Reinartz, K.** See Kubaschewski, O.
**Reinartz, L. F.** Production of open-hearth steel, 2142*a*.
**Reincke, H. W.** Lecithin and other phospholipides, 4400*g*.
**Reinders, W.** $NaHCO_3$ and $NH_4Cl$, P 2381*e*.
**Reinders-Gauwentak, C. A.,** and Bing, F. Action of naphthaleneacetic acid on flower and fruit failure of the tomato and its effect on the abscission layer of the pedicels, 3494*g*.
**Reindorf, H.** Enthalpy-entropy diagram (combustion gas-kerosene), 373*i*.
**Reinebeck, L.** See Schüler, H.
**Reineck, E. A.** See Dunlop, A. P.
**Reinecke, R. M.** See Samuels, L. T.; Stutzman, F. L.
——, Holland, C. R., and Stutzman, F. L. Homeostatis of K in the extracellular fluid of the dog during removal by vivo dialysis, 6268*a*.
**Reinecken, W.** Influence of the shape of the notch and of the working on the impact toughness of steel at low temps., 4610*d*.
**Reinefeld, E.** See Schneider, Ferdinand.
**Reineke, E. P.** Formation of thyroxine in iodinated proteins, 3908*h*; see Turner, C. W.
**Reiner, J. M.** Inhibition of enzyme formation and N assimilation by arsenate, 2275*c*.
——, Gest, H., and Kamen, M. D. Effect of substrates on the endogenous metabolism of living yeast, 9141*a*.
**Reiner, M. E.** Liquid $SO_2$ stops scale in cooling water systems, 8584*c*.
**Reiner, P. J.** See Camien, M. N., Dunn, M. S.
**Reiner, S.** Postwar problems in the German rubber industry, 6454*h*, natural and synthetic high polymeric substances as protective agents against corrosion, 6455*e*.
**Reinert, H.** Occurrence of bihydohn-type spectra in human feces, 3094*b*.
**Reinert, J.** See Weyland, H.
**Reines, M. M.** See Raines, M. M.
**Reingold, L.** Theoretical study of combustion in internal combustion engines, 1167*d*.
**Reinhard, C. E.** See Graham, A. K.
**Reinhardt, P. W.** Portable instrument for the detection of fast neutrons in the presence of γ radiation, 4089*i*.
**Reinhardt, R., Jr.** See Murphy, R. T.
**Reinhart, F. M.** See Digges, T. G.
**Reinhart, R. W.** See Schade, A. L.
**Reinhold,** Compn., effect, and valu. of the com. fertilizer "Nettolin," 3131*h*, detn. of the H ion concn. in soils in NaCl soln., 7171*i*.
**Reinhold, J. G.** Direct-reading photocolorimetry, 5440*a*, see Kingsley, G. R., Neefe, J. R.
**Reinhold, O. F.** Al solder, P 5002*e*.
**Reinié, L.** See Beaugnon, R.
**Reininger, H.** Structure of sprayed metal coatings, 7888*e*, properties of sprayed metal coatings (I), (II), 7888*e*; steel scrap reduction to foundry Fe, 8323*i*.
**Reinschreiber, J. E.** See Englis, D. T.
**Reio, L.** See Ehrensvärd, G.
**Reis, T.** Fluidized catalyst systems, 8830*i*, see Lantte, M.
——, Andlade, R., Robillard, J., and Rigault, J. Electronic microscopy in the petroleum industry, 7216*e*.
**Reiser, K.** See Revertex Ltd.
**Reiser, M.** $CuSO_4$ method for the rapid detn. of protein in blood and other body fluids, 3054*h*, see Koch, K.
**Reiser, R.** Peroxidizing and carotene-bleaching substances in bacon adipose tissue, 3633*g*, see Pearson, P. B.
—— and Pearson, P. B. Influence of high levels of fat with suboptimal levels of riboflavin on the growth of chicks, 7559*h*.
**Reisinger, F. F.** See Chester, A. E.
**Reisler, A. V.** Direction of scientific work in food hygiene, 8565*d*.
**Reisner, D. B.** See Horning, E. C.
**Reisner, E. H., Jr.,** and West, R. Effect of thymine desoxyriboside on pernicious anemia, 9250*a*.
**Reiss, H.** See LaMer, V. K.
—— and Wilson, I. B. Effect of surface on m.p., 2061*g*.
**Reiss, M.,** Badrick, F. E., and Halkerston, J. M. Influence of pituitary on P metabolism of brain, 8505*b*.
——, Badrick, F. E., Halkerston, J. M. and White, J. H. Recording of radioactive tracer concns. from various body regions simultaneously, 6270*h*.
—— and Rees, D. S. Pituitary and carbohydrate metabolism of the brain, 7566*f*.
**Reitemeier, R. F.,** Christiansen, J. E., Moore, R. E., and Aldrich, W. W. Effect of gypsum, org. matter, and drying on infiltration of a Na water into a fine sandy loam, 1511*d*.

——, Holmes, R. S., Brown, I. C., Klipp, L. W., and Parks, R. Q. Release of non-exchangeable K by greenhouse, Neubauer, and lab methods, 1132*d*.
**Reiter, M.** Methemoglobin formation as an effect of *p*-nitro-*o*-toluidine, 5115*c*.
**Reiter, R.** Isotope elements in medicine, 9110*d*.
**Reiter, S. F.** See Hibbard, W. R., Jr.
**Reith, E.** Detn. of protein, hemoglobin, and hematocrit. value in blood, 5442*h*
**Reith, J. F.** See Heggen, M. H. M.; Rameau, J. T. L. B.
——, Mossel, D. A. A., and Kamer, J. H. van de. Detn of the water content of foods (I) indirect detn., 4391*c*.
**Reith, K.** Production and use of Mg alloy castings, 543*e*.
**Reithel, F. J.** Reaction of org. trisulfides, 6542*f*.
—— and Wither, R. P. Reaction between ascorbic acid and formaldehyde, 6079*h*
**Reitmaier, G.** See Hoffmann-Ostenhof, O.
**Reitsema, R. H.** Rearrangement of a piperidine ring, 7019*g*
—— and Hunter, J. H. Histamine antagonists (III) derivs. of 4-aminopiperidine, 2207*a*, synthesis of 7-chloro-4-[1-methyl-4-(1-pyrrolidyl)butylamino]quinoline, 3420*h*; synthesis of 3-aminopiperidines, 6206*i*.
**Reitstötter, J.** Franz Skaupy, 3251*c*
**Reitz, A.** Mensch und Metall (book), 988*b*, Spuren des kleinsten Lebens (book), 3066*h*
**Reitz, H. C.** Gluten sulfate and salts thereof, P 6332*c*, see Arnow, L. E.
**Rejneke, E. P.** See Reineke, E. P.
**Rekers, P. E.** See Field, J. B.
**Relier, J.** Utilization of sugar factories and distilleries for the manuf. of cellulose between campaigns, 6409*d*
**Reller, A.** See Buchi, J.
**Relman, A. S.**, and Epstein, F. H. Effect of tetraethylammonium on venous and arterial pressure in congestive heart failure, 3103*h*
**Remaggi, P. L.** Gli aerosoli nella practica clinica (book), 5506*e*
**Remen, R. E.** See Vol'fkovich, S. I.
**Remer, R. K.** Food casing, P 7605*c*, sausage casing, P 7605*c*
**Remick, A. E.** Factors detg. the reduction-oxidation reactions, 4085*d*. Electronic Interpretations of Org. Chemistry (book), 5409*e*
**Remin, V. P.** Processes in the hearth of a ferrosilicon furnace, 4195*a*
**Remington, J. S.** Pigments (book), 6433*a*.
**Remington, J. W.**, Wheeler, N. C., Boyd, G. H., Jr., and Caddell, H. M. Protective action of dibenamine after hemorrhage and after muscle trauma, 761*g*
**Remington Arms Co., Inc.** Soldering flux, P 5360*i*
**Remmer, H.** Changes in the protein distribution of the plasma (serum) in chronic protein deficiency, 3076*i*.
**Remmey, G. B.** Upper useful limits of com. superrefractories, *1543*c*; alumina-silica refractories, 8630*i*
**Rempel, E. A. D.** See Druyan-Rempel, E. A.
**Rempel, S.** See Kurpachev, S.
**Remy, H.**, Lapple, H., and Blanck, A. Removal of vapors from flowing air by capillary condensation, 2744*b*
—— and Rickmann, C. F. Hydrates (VII) examn. of various membranes in regard to their suitability in fixing the center points of electrolyte solns. on passage of an elec. current, 8245*a*.
**Remy, T. P.** Chlorinated GR-S, P 6457*h*.
**Remy-Gennetè, P.** Treatment of high-silica bauxites for the production of alumina, 3156*d*
**Renard, A.** Classical and conical refiners, 7684*h*.
**Renard, G. A.** Efficiency of $\gamma$-ray counters, 935*a*; possibility of *K* capture as a mode of disintegration of the $_{79}Au^{198}$ nucleus, 4564*b*; methods of selective absorption and selective reflection in the study of the nonexistence of *K* capture as a mode of disintegration of $Au^{198}$, 4564*c*.
**Renard, M.** Absorption app. in the micro-detn of C and H, 2*f*.
**Renard, S. H.** See Chabrier, P.; Hazard, R.
**Renaud, A.** National raw materials and automatic management in the paper industry, 5586*i*; see Mangenot.
**Renault, H.** See Gulliot, M.
**Renault, L.** Hard steel, P 989*i*; heat-treating steel, P 989*i*; hydraulic fluids, P 4791*f*; W carbides, P 4822*d*; portable furnace for wood carbonization, P 4838*a*; acetals, P 5034*ef*.
**Renault, P.** Faults in ceramic products, 9403*g*.
**Renbourn, E. T.**, Angus, T. C., Ellison, J. McK., Croton, L. M., and Jones, M. S. Measurement of domestic ventilation—$CO_2$ as a tracer substance, 9309*h*
**Rendell-Baker, L.** See Mushin, W. W.
**Rendig, V. V.** Detn. of the base-exchange capacity of soils, 2721*g*
**Rendle, R. S.** Poole waterworks, 3953*a*
**Renes, L. E.** Industrial hygiene in the ferrous foundries of Illinois, 8997*i*
**Renfrew, A. G.**, and Cretcher, L. H. Partially hydrolyzed dextran, 8552*f*.
**Renfrew, E. E., Jr.** Carbalkoxy amino-anthraquinone sulfonamides, P 7709*h*.
**Renfrew, M. M.** Photopolymerization, P 444*a*, see Fletcher, D. A.
**Renfrow, W. B., Jr.**, and Walker, G. B. Prepn. of ketones from $\alpha,\alpha'$-disubstituted acetoacetic esters, 1317*b*.
**Rengarten, N. V.** Phosphorites from the Datsk and Paleocene sediments of the eastern slope of the Urals, 3322*g*
**Renieri, L.** See Fusco, R.
**Renner, G. F.**, and Jones, M. C. Indexing tech. literature at Aluminum Laboratories Ltd., 8762*d*
**Renner, R. W.** See Frank, R. H.
**Rennerfelt, E.** Thujaplicin, a fungicidal substance in the heartwood of *Thuja plicata*, 3551*f*
**Renngarten, N. V.** See Rengarten, N. V.
**Rennick, B. R.** See Moe, G. K., Woods, L. A.
**Renoll, M. W.** Rubbery copolymers of (trifluoromethyl)vinyl aromatic compds., P 5625*f*, see Mowry, D. T.
—— and Newman, M. S. *dl*-Isopropylideneglycerol, 1720*i*.
**Renouard, P.** Application of spectrographic analysis to analytical control in the light alloys industry, 5694*c*, phys. and ch. processes for controlling light alloys during their making and finishing, 6959*f*
**Renshaw, W. G.** Maintenance of stainless steel equipment in refineries (I) types and their applications, welding, intergranular corrosion, 5720*c*.
**Rentschler, H. C.** Improved ultraviolet lamp, P 5319*b*.
**Rentschler, M. J.** See Booth, H. S.
**Rentz, E.** Action of some plant drugs active on the liver and on bile secretion, 5115*d*
**Renvall, S.** See Borei, H.
**Renwick, M. O.**, and Zinner, P. Winskell Andrews-Lyne Zn deposits, 6950*d*.
**Renz, J.** See Stoll, A.
**Renzoni, L. S.** Electrolytic Ni anodes for bath operating at a high pH, P 2104*f*, see Queneau, P. E.
**Repa, A. G.** See Khachvankyan, M. A.
**Repenko, K. N.** See Kukolev, G. V.
**Repetto, O. M.**, and Pandolfo, C. Elimination of the neutral 17-ketosteroids in typhoid fever, 1103*d*
**Repko, A. J.** See Deutsch, G. C.; Whitman, M. J.
**Repossi, E.** Talc of Parma's Apennine, 2136*c*, minerals of the Val d'Ala, 4980*b*
**Reppe, W.** Developments in the chemistry of $C_2H_2$ and CO, 4211*i*; Neue Entwicklungen auf dem Gebiete der Chemie des Acytelens und Kohlenoxyde (book), 7034*g*; Acetylene Chemistry (book), 9078*d*
——, Schlichting, O., Klager, K., and Toepel, T. Cyclizing polymerization of acetylene (I) cyclooctatetraene, 6194*g*
——, Schlichting, O., and Meister, H. Cyclizing polymerization of acetylene (II) hydrocarbons $C_{10}H_{10}$, $C_{16}H_{16}$, and azulene, 6201*c*
—— and Sweckendiek, W. J. Cyclizing polymerization of acetylene (III) benzene, benzene derivs., and hydroaromatic compds., 6202*a*.
**Republic Steel Corp.** Pb-plating bath, P 4963*g*.
**Research Corp.** (*Patents*) Physiologically active pyridoxine derivs., 725*c*, 3154*d*, 7648*e*; ethers of 5-hydroxy-3-methyl-3-penten-1-yne, 1793*k*; alkenyl alkali metal compds., 1795*b*; *N*-substituted pantoylamines, 2224*c*; laminated envelope structure for electron discharge devices, 2518*c*; ethers of vitamin A, 3152*d*; pantothenic acid and other growth-promoting compds., 3152*g*; flexible films, filaments, etc., 3242*h*; lactone from pantothenic acid, 5037*h*; protein fractionation, 5136*i*; two-stage elec. precipitator, 6098*a*; 2-aminothiazoles, 7512*i*; tissue ext., 8621*b*.
**Rescorla, A. R.** See Milsom, D.
**Research Laboratory of the Norwegian Canning Industry.** See Norwegian Fisheries Research Laboratory.
**Resende, F.** Histochem. constitution of nuclear oligherozone, 1815*h*.
**Reshetov, V. D.** App. for measuring the humidity of air, P 3249*g*.
**Reshetovskaya, N. A.** See Kobozev, N. I.
**Resinous Products & Chemical Co.** Coreaction products from drying oils and copolymers of cyclopentadiene and styrene, P 4029*a*, copolymers of cyclopentadiene and styrene, P 4029*d*; anion-exchange units, P 9310*f*.
**Resistoflex Corp.** Plasticized polyvinyl alc. compns., P 440*g*, 3632*h*, 9583*e*, polyvinyl alc., furfural, formamide reaction product, P 6864*e*.
**Resnick, I.** See Fraser, W. R.
**Resnick, W.**, and White, R. R. Mass transfer in systems of gas and fluidized solids, 5646*i*
**Resnik, B. E.** See Reznik, B. E.
**Resnikowa, A. I.** See Reznikova, A. I.
**Resofszky, P.** See Magvar, I.
**Resow, H.** 12% Mn cast steel, 4993*f*.
**Ressia, T. P.** See Parnes Ressia, T.
**Restrepo, G. B.** See Botero Restrepo, G.
**Resuggan, J. C. L.** Chem. sterilization, 7166*d*, how effective are the quaternary $NH_4$ germicides? 7192*g*.
**Retallack, J. G.** Measurements on the mass of the mesotron, 4092*f*
—— and Brode, R. B. Mass of cosmic-ray mesotrons, 6503*h*
**Retondo, N.** See Tobias, J. M.
**Retortillo, M. M.** See Martín Retortillo, M.
**Retortillo, N. M.** See Martín Retortillo, N.
**Ředovský, R.** Fucoxanthin, zeaxanthin, and carotene from the mass cultures of *Vaucula*, 3878*g*, see Prát, S.
**Rettaliata, J. T.** Low-alloy steels in the elec. industry, 89*h*
**Retterer, E.** Clarification procedures and flat taste of wine, 8092*a*
**Retzer, J. L.** Soils developed from basalt in western Colorado, 3549*b*
**Reuber, R.** See Arnold, Herbert.
**Reucassel, W.** Waterproof wrappings, P 3198*g*.
**Reul, R.** See Muylder, E. de.
**Reumele, T.** Perfume selection and soap protection, 6780*i*.
**Reuning, H. T.** Tannery waste treatment, 3548*c*.
**Reuschle, W.** Schmierung (book), 7221*f*.
**Reuse, J.** Effect of the synthetic antihistamine 10-(2-dimethylaminopropyl)-phenothiazine on the lethal action of adrenaline in guinea pigs, 1108*c*; see Halpern, B. N.
**Reuss, Mrs. I. S.** See Simon-Reuss, Mrs. I.
**Reutenauer, G.** Transesterification of China wood oil with colza oil or curcas oil, 1992*f*, oxidation and ignition of hydrocarbons of mol. wt. in the range of gas oils and of mixts. of these hydrocarbons, 7209*i*.
—— and Paquot, C. Prepn. of cyanides and amines from fatty acids, 4629*f*.
—— and Régent, M. Detn. of the I no. of oils, 1583*a*.
—— and Sicard, P. Phys. properties of surface-active products, 8711*a*.
**Reuter, B.** Oxidation of univalent Tl sulfide (II) formation of Tl sulfoxylate by the oxidation of $Tl_2S$, 8932*g*; see Rüdorff, W.
—— and Knoll, H. Oxidation of $Tl_2S$, 8296*e*
**Reuter, F.** Gas "value no." of coal and its relation to mixed gas yield, 2404*i*; coal evaluation, 7661*e*
**Reuter, F. H.** Alkaloids of a sample of very bad Australian-grown tobacco, 5548*a*; prepn. of "acaprin," 7025*d*; see Hunt, C. H., Murphy, R. K., Neuhaus, J. W. G.
**Reuter, L. F.** Vulcanization of vinyl resin, P 901*i*; purification of nuclear chlorinated bis-phenols, P 1807*i*.
**Reuter, W. A.** See Rolter, V. A.
**Reuther, H.** Stability of aerosols, 5255*g*; see Müller, F.
**Reuther, W.** See Smith, P. F.
——, Gardner, F. E., Smith, P. F., and Roy, W. R. Phosphate fertilizer trials with oranges in Florida (I) effects on yield, growth, and leaf and soil compn., 9324*a*.
**Reuting, R.** See Corcoran, A. C.

**Reutner, T. F.**, and Gruhzit, O. M. Surital Na, an anesthetic and hypnotic, 1483*c*; methadon, an analgesic—combination with thiobarbiturate anesthesia, 1483*d*.
**Reutov, O. A.** See Nesmeyanov, A. N.
**Reutter, J. G.** See Hungerford, C.
**Revallier-Warffemius, J. G.** See Dam, B. van.
**Revere Copper & Brass Inc.** Recovery of Zn from mixts. contg. Fe, P 2921*g*, 3768*i*; Zn-base alloys, P 6147*c*.
**Revertex Ltd.**, Bondy, C., and Reiser, K. Organosilicon polymers, P 4896*f*; organo-substituted Si compds., P 5033*d*.
——, Bondy, C., Reiser, K., and Campbell, A. H. Organo-substituted Si compds., P 4286
and Campbell, A. H. Si polymers, P 2221*b*.
—— and Parsons, D. Cellular structures, P 4890*h*.
**Revol, L.** See Leulier, A.
—— and Pinaton, J. Detection and detn. of nicotine in a com. insecticide, 4417*d*.
**Rewald, E. L.** See Petrow, V
**Rex, H. J.** Mill for easier operation, 981*h*.
**Rexford, D.** See Johnson, F. H.
**Rey, A.** Filtering app., P 7228*h*.
**Rey, M.** Industrial manuf. of nicotine, 4427*h*, 8617*a*.
**Rey, Maurice.** Detn. of the thermodynamic activity of fused systems from solidification curves, 4551*h*, thermodynamic activity and miscibility gaps, 4552*b*, thermodynamic activity of $SiO_2$ and of oxides in silicate melts, 4981*a*.
**Rey-Bellet, G.** See Spiegelberg, H.
**Reyerson, L. H.** Place of colloids in the chemistry curriculum, 2050*d*, see Montonna, R. E
—— and Wertz, J. E. Adsorption of the oxides of N (I) adsorption of NO-$NO_2$ by rutile and silica gel—magnetic susceptibility measurements of the adsorbed layers, 6034*h*.
**Reyes, M.** See Croxatto, H.
**Reymann, F.** Sensitivity of *Hemophilus ducreyi* to penicillin, streptomycin, and sulfathiazole, 5080*f*, biochem. reactions of *Hemophilus ducreyi*, 5080*g*.
**Reymond, E.** Cu deposits of Natagaima, 525*g*.
**Reymond, J. C.** See Boltansky.
**Reyn, A.** Serological studies on gonococci (II) cross absorption expts and factor serum detn., (III) thermostability and biochem. nature of gonococci antigens—durability of the factor serums, 5083*b*.
**Reynafarje, C.** See Monge, M., C.
**Reyniers, J. A.** Solubilizing protogenous substances, P 2339*g*.
**Reynolds, B.** See Alcino, J. F.
**Reynolds, C. A.** Polarographic method for Cu, Pb, and Fe, 5698*c*; see Rogers, L. B
——, Fairbank, H. A., Lane, C. T., McInteer, B. B., and Nier, A. O. Heat flush method of $He^3$ sepn., 7283*b*
—— and Rogers, L. B. Polarographic method for Cu, Pb, and Fe, 5698*a*.
**Reynolds, D. A.**, and Wolfson, D. E. Coal carbonization—$(NH_4)_2SO_4$ yields from coals of various regions of the U.S., 8639*a*.
**Reynolds, D. D.**, and Kenyon, W. O. Acrylic ester amides and polymers, P 3446*h*; unsatd. derivs. of ethylenediamine and polymers, P 3447*a*; polyvinyl amine compds., P 5635*e*.
—— and Van Campen, J. H. Acrylic diester-propionamides and polymers, P 3447*c*; *N*-allyl derivs. of acrylic ester amides and polymers, P 3447*d*
**Reynolds, F. L.**, Karraker, D. G., and Templeton, D. H. Mass-spectrographic assignment of Rb isotopes, 4122*e*.
**Reynolds, F. M.** Occurrence of V, Cr, and other unusual elements in certain coals, 1941*c*.
**Reynolds, G. A.** See Hauser, C. R.
**Reynolds, G. T.** Effect of Pb above app. for the detection of low-energy mesons, 6504*h*.
**Reynolds, J. E.** See Eppelsheimer, D. S.
**Reynolds, J. H.** See Hayden, R. J.
**Reynolds, J. M.** See Webber, R. T.
**Reynolds, M. S.** See Steele, B. F.
**Reynolds, P. W.** See Bremner, J. G. M.
—, Grudgings, D. M., and Imperial Chemical Industries Ltd. Desulfurization of gases or vapors, P 4450*d*; W catalyst for formation of alcs. from olefins, P 8397*h*.
—— and Imperial Chemical Industries Ltd. Catalysts and their use, P 6762*f*.
**Reynolds, R. A.** See Green, E. A.
**Reynolds, R. J. W.** Synthetic fiber-forming polymers, 4857*f*, 4857*h*; see Cook, J. G.; Dickson, J. T.; Ellery, E.; Harper, D. A.; Lewis, John Richard.
**Reynolds, T. W.**, Ebersole, E. R., Lamberti, J. M., Chanan, H. H., and Ordin, P. M. Synthesis of 1,2,3-trimethylbenzene, 1-ethyl-3-methylbenzene, and *m*-xylene by dehydrogenation of corresponding cyclohexene intermediates, 164*f*
**Reynolds, W. B.** Emulsion polymerization, 4057*i*; see Beu, K. E.
**Reynolds, W. F.** See Pickering, R. W.
**Reynolds Metals Co.** Electrolytic production of Al, P 1273*d*; enriching the alumina content of recirculated cryolite fusions in Al production, P 1273*f*; Al-covered glass thread, P 3988*b*; electrolytic sealing of anodized Al surfaces, P 5317*f*, high-strength corrosion-resistant Al alloy sheets, P 6146*a*; treatment of Al foil for bonding, printing, and coloring, P 9022*b*.
**Rez, I. S.** See Arbuzov, B. A.
**Rezabek, H.** See Kraybill, H. R.
**Reznik, B. E.**, and Fedorova, G. P. Detn. of Mg in dolomites, 7370*h*.
**Reznikova, A. I.** See Golotina, Z. S.
**Rhame, G. A.** Detn. of first stage O demand, 7613*d*.
**Rhaney, M. C.** Carbohydrate metabolism of the king snake, 4387*b*.
**Rhead, T. F. E.**, and Pickering, E. T. Coke for use in open fires from continuous vertical retorts, 3174*b*.
**Rhedaza, N. V.** Licking stone for cattle, P 1504*b*
**Rhees, M.** See Lippincott, S. W
**Rheinboldt, H.** Chemische Unterrichtsversuche (book), 7319*a*.
**Rheinboldt, Heinrich**, and Giesbrecht, E. Sulfenyl selenocyanates, 8366*g*.
**Rhenania-Ossag Mineralölwerke A.-G.** Regenerating active earths used in purifying oils, P 4844*d*
**"Rhéo-France" Compagnie Internationale des Rhéolaveurs à France.** Ore classification, P 3339*b*
**Rhian, M.** See Leusen, S. G.
**Rhind, D.**, and Tim, U. Deleterious effects of nitrogenous dressings on Burma paddy soils, 2352*e*
**Rhinelander Paper Co.** Wax-polyamide-pinene resin coating compn., P 5632*d*, lactic acid, P 6826*a*
**Rhines, C. E.** Synthetic rubber latexes having large av. particle size, P 9521*a*
**Rhoades, D. A.** App. for cooling gaseous media, P 8759*b*.
**Rhoades, H. F.** See Andrew, L. E.; Kubota, J.; Larson, W. E.
**Rhoades, R.**, and Mielenz, R. C. Petrographic and mineralogic characteristics of aggregates, 5167*d*
**Rhoads, A. S.** Decay in balsa life floats and the value of brush and dip treatments with chlorinated phenol for its prevention, 5143*i*
**Rhoads, C. P.** Neoplastic abnormal growth, 4710*g*, pharmaceutical industry and cancer research, 8093*d*; see Burchenal, J. H.; Dobriner, K.; Lieberman, S.; Moore, A. E.
**Rhoads, J. P.** Treatment plant handles sewage and industrial waste, 2346*h*, sewage-treatment plant uses high-rate recirculation, 7613*i*
**Rhoden, E.** See Boyland, E.
**Rhoderick, E. H.** Inelastic scattering of protons by Mg and Al, 8260*i*.
**Rhodes, A.** See Doxey, D.
**Rhodes, A. J.**, and Van Rooyen, C. E. Textbook of Virology (book), 7576*c*.
**Rhodes, D.** See Austin, L. W.
**Rhodes, E. C.** Powd. metal Pt alloys, P 7894*g*; see Middleton, A. B.; Mond Nickel Co. Ltd.
**Rhodes, E. O.** German low-temp. coal-tar industry, 3093*g*.
**Rhodes, H.** See Daum, K.; Tuttle, W. W.; Wilson, M.
**Rhodes, P. H.** Adhesive contg. the intercondensation product of a monohydric phenol and a polyhydric phenol, P 9536*b*.
**Rhodes, W. W.** Pyrethrum aerosols, P 351*e*.
**Rhodiacéta.** See Société Rhodiacéta.
**Rhodin, T. N., Jr.** Oriented arrangements of thin Al films on ionic substrates, 8786*h*.
**Rhys, C. O., Jr.** See Long, J. D.
**Ri, K. C.** Ferric oxide catalysts (I) activation energy of the water-gas reaction with various catalysts, (II) effect of a small quantity of $H_2S$ on the water-gas reaction, 1945*e*.
**Ri, S.** See Sasaki, S.
**Ri, T.**, and Murayama, N. Quantum-mech. calcn. of bond moments, 5240*h*.
**Riabčikov, D. I.** See Ryabchikov, D. I.
**Riba, J. M.** See Marcet Riba, J.
**Ribas Marqués, I.**, and Domínguez Rodríguez, J. Oil from rye ergot (III) high optical activity of this oil, 9490*i*.
and Scoane, E. Detn. of As, 61*i*.
——, Scoane, E., and Nóvoa, S. Chemistry of cork (VI) bleaching of cork with hypochlorite and oxalic acid, 5585*i*.
**Ribaud, G.** Research in the French gas industry, 8119*a*.
—— and Brun, E. Transmission de la chaleur. Vol. I. Rayonnement thermique (book), 6476*g*.
**Ribeiro, J. A.** See Assis Ribeiro, J.
**Ribeiro, J. M.** See Mendes Ribeiro, J.
**Ribeiro, M. R. C.** See Marques Leal, A.
**Ribeiro Franco, R.** Albite from Conselheiro Pena, Minas Gerais, 2549*c*.
**Ribereau-Gayon, J.** Traite d'oenologie (book), 5532*e*, see Génevois, L.
**Riblett, E. W.** See Jenny, F. J.
**Ricards, H. A., Jr.** See Beerbower, A.
**Ricca, B.**, and D'Amore, G. Decompn. of alk. cyanides in aq. soln., 8821*b*, effect of NaCl on the decompn. of NaCN in aq. soln., 8821*c*.
—— and Faraone, G. Reaction of the ferric ion with hydrazone, thiocyanate, and acetic ions (III), 8935*b*.
**Ricci, C.** See Bonsignore, A.
**Ricci, M.** DDT action on *Blatta orientalis*, 6355*c*.
**Riccoboni, L.** Polarometric titrations, 6933*i*, see Foffani, A.; Semerano, G.
——, Foffani, A., and Perlotto, T. Detn. of Cu in Al-use of the synchronized double spark, 8953*d*.
——, Foffani, A., and Vecchi, E. Chemkinetics of autoxidation processes in the dil. phase (II) autoxidation of $Na_2SO_4$, 8823*i*.
—— and Zotta, M. Direct synthesis of phenylchlorosilanes, 1027*h*
**Rice, A. P.** Differential thermal analysis studies in silicate systems, 7827*i*.
**Rice, B.** See Price, W. C.
**Rice, C. N.** Lab. for radioactive org. compds., 2505*f*
**Rice, E. E.**, Primm, E., and Coombes, A. I. Estn. of vitamin A in margarine, 7154*b*.
**Rice, F. A.** See Beadenkopf, W. G.
**Rice, F. O.**, and Teller, E. Structure of Matter (book), 500*b*.
**Rice, H. H.** See Russell, R., Jr.
**Rice, H. L.** Effects of polarity on polyvinyl butyral, 2029*d*.
**Rice, O. K.** Crit. phenomena in binary liquid systems, 4531*g*.
**Rice, P. J.** See Schultz, H. L.
**Rice, P. K.** Compressed O, P 6378*a*.
**Rice, R. B.** Calorimeter for sp. heat measurements, 4523*g*
**Rice, W. D.** See Erspamer, A. S.
**Rice, W. G.** Silicone treated needles in blood transfusion, 266*c*.
**Riceman, D. S.** Mineral deficiency in plants on the soils of the 90-mile plain in South Australia (II) effect of Zn, Cu, and phosphate on subterranean clover and alfalfa growth on Laffer sand, near Keith, (V) effect of growth and removal of a crop treated with Zn and Cu on pasture established subsequently on Laffer sand, near Keith, (VI) establishment of mixed pasture sown with Zn and Cu on Laffer sand, near Keith, 8591*a*.
—— and Powrie, J. K. Mineral deficiency in plants on the soils of the 90-mile plain in South Australia (III) differences in the behavior of the Dwalganup and later-flowering varieties of subterranean clover, 4801*g*.
**Ricerche Industriali ing. Pier Paolo Vaccarino & ing. Cesare Vigna.** Wool-fat purification, P 4876*g*.
**Rich, A.** See Villec, C. A.
**Rich, A. B.** See Albright, P. N.
**Rich, A. R.**, Berthrong, M., and Germuth, F. G., Jr. Development of cirrhosis of the liver, 8519*b*.
**Rich, C. I.**, Obenshain, S. S., and McVickar, M. H. Relation of certain soil P factors in Dunmore silt loam to fertilizer treatment and crop yields, 1892*b*.
**Rich, S.** See Horsfall, J. G.
**Richards, A. G.** Arthropod cuticle (III) chitin of *Limulus*, 6746*h*.
—— and Fan, H. Y. Arthropod cuticle (V) variation in permeability of larval cuticles of the blowfly, 8561*h*.
**Richards, A. W.** See Eley, D. D.

**Richards, C. E.**, and Bull, R. L. Adhesion of polythene to metal, 3651*g*.
**Richards, C. M.**, and Nielsen, J. R. Additivity of Raman spectra of dioxane-benzene mixts., 8890*h*.
**Richards, E. T.** Stripping of Cu, brass, and bronze coatings from scrap, 3297*b*.
**Richards, G. A.** See Tuba, J.
**Richards, H. T.** See Smith, Raymond V.; Williamson, R. M.
——— and Smith, R. V. Argon and Ne ($p$,$n$) thresholds, 4116*i*.
**Richards, I.** Prepg. steel for painting, 5441*f*; spray-on Zn-coating methods, 5466*c*; prevention of corrosion on steel, 5506*e*, causes of steel corrosion, 5506*h*, finishing galvanized surfaces, 8736*g*
**Richards, J.** See Caspari, E.
**Richards, J. A., Jr.**, and Nordheim, L. W. Energy distribution in cosmic-ray showers, 1645*d*.
**Richards, J. H.**, Robertson, A., and Ward, J. Synthesis of rotenone and its derivs. (XV), 1770*h*.
**Richards, J. T.** How to heat treat Be Cu, 3334*a*.
**Richards, L. M.** Catalyst for photopolymerization, P 2818*g*, iodoso diacylate catalysts of addn. polymerization processes, P 5231*c*
**Richards, R. B.** Dielec. properties of high polymers, 6020*b*, see Hawkins, S. W., Hunter, E., Matthews, J. L., Midwinter, E. L., Oakes, W. G., Parks, W.; Plessner, K. W.
**Richards, R. E.** Thermodynamic functions of the vinyl halides, 1553*c*, see Hartwell, E. J.
——— and Thompson, H. W. Infrared spectra and state of aggregation (II), 4140*d*, infrared spectra of compds. of high mol. wt. (IV) silicones and related compds., 4140*f*.
——— and Tomlinson, M. I. Structure of *O*-trimethylbrazilone, 2868*a*
**Richards, R. K.** See Everett, G. M.; Roth, L. W.
——— and Kueter, K. F. Antagonism of rutin to capillary effects of Na bisulfite and procaine, 1861*h*
**Richards, R. R.** Responses of representative fungi to certain growth-regulating substances, 6704*h*
**Richards, S. H.** See King, J. G.
**Richards, T.** Peeling and detaching of Ni plates (II), 7833*i*
——— and Sudek, G. M. El. Fatty acids produced in butterfat by the action of micro-organisms, 8569*d*
**Richards, T. L.** See Chadwick, R.
**Richardson, A. P.** See Fieser, L. F.
**Richardson, C. A.** See Zasada, Z. A.
**Richardson, D. N.** See Ashworth, R. de B., Birtwell, S.; Crowther, A. F., Curd, F. H. S.
**Richardson, E.** See Gollan, F.
**Richardson, F. D.** Constitution and thermodynamics of liquid slags, 4935*h*
——— and Jeffes, J. H. E. Thermodynamics of substances of interest in Fe and steel making from 0 to 2400° (I) oxides, 2907*c*, 9006*g*.
**Richardson, G. G.** See Lincoln, J.
**Richardson, H., & Co., Ltd.** See Stuttevant Engineering Co., Ltd.
**Richardson, H. K.** Burners for high speed glass forming, 3578*c*
**Richardson, H. M.** Fe cordierite in blast-furnace linings, 5705*c*; mixing and extruding app. for thermoplastics, P 7262*g*, see Rigby, G. R.
———, Hall, F., and Rigby, G. R. Action of Fe oxides on aluminosilicate refractories, 3582*d*, 3583*a*; action of mixts. of Ca and ferrous oxides on aluminosilicate refractories, 3582*i*.
**Richardson, H. O. W.** See Feather, N., Martin, D. G. E.
**Richardson, J. D.** See Bowler, R. G.
**Richardson, J. F.** See Burgoyne, J. H.
**Richardson, J. H.** Mineral position of ECA nations (V) Portugal, 3118*g*.
**Richardson, J. M.** See Danielson, G. C.
——— and Matthias, B. T. Dielec. behavior of $BaTiO_3$, 453*h*.
**Richardson, J. R.** Lifetime of the heavy meson, 2085*h*.
**Richardson, L. R.** Southern peas and other legume seeds as a source of protein, 1089*b*, see Meinke, Wilmon W.
**Richardson, M. E.** See Munsell, H. E., Streightoff, F.
**Richardson, R. S.**, and Schwarzschild, M. Stellar model for red giants of high central temp., 2508*f*.
**Richardson, R. W.** See Heilbron, I. M.
**Richardson, Roger W.**, Johnson, F. B., and Robbins, L. V., Jr. Fluid catalyst cracking with silica-magnesia, 8656*c*.
——— and Pierce, J. A. Cl, P 1160*f*.
**Richardson, U. F.** Veterinary Protozoology (book), 5112*b*.
**Richardson, W. H.** Sand cast Ni alloys for corrosion- and heat-resisting service, 5356*c*
**Richardson, W. R.** Paper-beating pulp into an industry, 5949*i*.
**Richardson Co.** Hard rubber, P 2462*i*; furfuryl alc. resin, P 3232*f*; rubber-coated, resin-satd. sheet, P 4490*a*.
**Riche, F. J. H. le.** Synthesis of ascorbic acid in the guava (*Psidium guajava*), 3889*b*.
**Riche, N.** See Couture-Mathieu, L.
**Richebé, H.** Analysis of cosmetics, 3973*a*.
**Richer, A.** See Guerillot-Vinet, A.; Guerillot-Vinet, J.
**Richer, A. C.** See White, J. W.
**Richert, D. A.** Proteolytic activity of hemophilic plasma, 5106*d*; see Oncley, J. L., Westerfeld, W. W.
——— and Bass, A. D. Effect of 2,3-dimercaptopropanol (BAL) on toxicity of 2-methyl-1,4 naphthoquinone, 2700*g*.
**Riches, J. P. R.** Analysis of plant material, 8454*d*.
**Richet, H.** Halogen derivs. of 2,2,5,5-tetramethyltetrahydro-3-furanone, 1392*d*; see Paquot, C.
**Richey, J. E.**, and Anderson, J. G. C. Scottish slates, 4985*f*
**Richman, C.** See Panofsky, W. K. H.
**Richmond, H. H.** 1,3-Bis(*o*-xenyl)triazene, P 897*h*; see McKay, A. F.
———, Myers, C. S., and Wright, G. F. Reaction between HCHO and $NH_4$, 1316*d*
——— and Tomiuk, M. Sym. xenyltriazenes in making gas-expanded org. plastics, P 897*d*.
**Richmond, J. C.** See Moore, D. G.
——— and Francisco, A. C. Evaluation of surface finish of porcelain enamels, 5105*d*, 7656*h*.
**Richmond, John L.** Isomerization of paraffins, P 3833*a*.
**Richmond, Joseph L.** See Du Pont de Nemours, E. I., & Co.
**Richmond, J. T.** See British Aluminium Co. Ltd.
**Richmond, M. T.** See Vander Brook, M. J.
**Richmond, R.** See Grant, P. J.
**Richou, R.** Coagulation of oxalated horse plasma by staphylocoagulase, 7120*g*; treatment of staphylococcic infections with specific anatoxin therapy alone or in combination with penicillin therapy, 7139*h*; see Groulade, P.; Ramon, G.
**Richter, A.** Behavior of various staple rayons toward the HCHO reaction, 1571*f*.
**Richter, Anthony F.** Ionization potentials of the *K* and *L* electrons, 4131*d*.
**Richter, Antonin F.**, and Hess, V. F. Folin reaction, 6683*e*
**Richter, C. P.** Effect of galactose on the utilization of fat, 737*b*; nutritive value of fructose for rats and effects produced on its utilization by thiamine, 1846*i*, physiology and endocrinology of the toxic thioureas, 5862*e*.
**Richter, D.**, and Dawson, R. M. C. Brain metabolism in emotional excitement and in sleep, 745*h*; $NH_3$ and glutamine content of the brain, 2302*e*.
———, Dawson, R. M. C., and Rees, L. $NH_3$ and glutamine content of the cerebrospinal fluid, 9235*g*.
**Richter, F. P.** Grignard reagent from chlorinated petroleum wax, P 4008*g*.
——— and Fuller, E. W. Lubricating-oil additives, P 9432*a*.
**Richter, G., Vegyészeti Gyár R. T.** Halo aliphatic esters of 2-methyl-1,4-naphthalenediol, P 4300*e*.
**Richter, G. A.** Drying process for sheeted cellulose pulp for acetylation, etc., P 9445*h*.
**Richter, G. H.** See Miron, S.
**Richter, H. J.** Vinyl resin stabilizer, P 2032*b*; see Johnston, F. L.
**Richter, Hartmut W.** Caustic soda, P 8109*b*.
**Richter, Herman W.** Felted water-resistant sheet fiberboard, P 5594*b*.
**Richter, Johan.** Hydrolysis of cellulosic materials, P 3197*f*; development of bleaching, 3614*b*; continuous cooking of kraft, 7681*h*.
**Richter, John.** See Arnold, R. T.
**Richter, K.**, and Barfod, B. New "daylight-device" for titrations, 4054*c*.
**Richter, L.** See Grimmel, H. W.
**Richter, M.** See Benedek, L.
**Richter, Richard.** Effect of certain quinoline compds. on the nervous system of monkeys, 9207*b*.
——— and Miskel, J. J. Rubberoid tall-oil polymers, P 895*f*.
**Richter, Rob.** 1,3-Cyclopentanediones and isomeric enol-lactones (I), 7910*a*.
**Richter, S. U. K. A.**, and Berndtsson, B. S. Maleic anhydride, P 6227*d*; recovery of maleic acid from wash liquors in the gas-phase catalytic oxidation of naphthalene, P 6655*e*.
**Richtmyer, N. K.** Functional derivs. of the antimalarial 9-(2-diamylamino-1-hydroxyethyl) - 1,2,3,4 - tetrahydrophenanthrene (SN 1796), 7469*h*; see Hann, R. M., Stewart, L. C.
**Richtmyer, R. D.**, and Teller, E. Origin of cosmic rays, 6501*h*.
**Richtzenhain, H.** Enzymic expts. on the formation of lignin (III) dehydrogenation of 5 allylpyrogallol 1,3-di-Me ether, 1029*c*.
——— and Meyer-Delius, M. Estrogenic stilbene and diphenylethane derivs., 196*c*.
——— and Miedreich, A. Substitution reactions with metalloörg. compds. (III) synthetic expts. in the phenylnaphthalene series, 205*b*.
**Rick, A. W.** Roofing paints, 419*e*; bituminous coating materials, 2446*a*; bitumen—concept, properties, and working, 3603*b*.
**Rickard, T. A.** Homeric metallurgy, 6131*f*.
**Ricke, R.** Action of acid and alk. solns. on ceramic bodies, 5164*d*.
**Ricken, T.** Werkstoffe. T. I. Eisen und Stahl (book), 988*b*.
**Rickenbach, K.**, and Meier, R. Analysis of the action of morphine and 10b-diethylaminoethyl - 1,2,3,10b - tetrahydrofluoranthene on respiratory movements through study of effects on stimulation of the vagus nerve, 3929*a*.
**Ricker, G.**, and Kalbfleisch, H. Allgemeinpathologische Schriften. Bd. VI. (book), 7127*a*
**Ricker, H., & Sons.** Cocoa, P 7606*d*.
**Ricker, S.** See Jermain, G. D.; Sanborn, W. C.
**Rickes, E. L.** See Brink, N. G.; Keresztesy, J. C.; Stokes, J. L.
———, Koch, P. J., and Wood, T. R. Addnl. observations on the rate of growth of *Lactobacillus casei*, 4334*h*.
**Rickett, R. L.**, Kalin, S. H., and Mackenzie, J. T., Jr. Recrystn. and microstructure of Al-killed deep-drawing steel, 3760*a*.
**Ricketts, H. P.**, and Austin, D. E. Maintenance and repair of controllers and loss of head and flow gages, 6344*c*.
**Ricketts, W. C.** See McFadden, G.
**Ricketts, W. E.** See Palmer, W. L.
———, Kirsner, J. B., and Palmer, W. L. Secretory response to histamine in individuals with a normal and abnormal gastric mucosa, 6302*e*.
**Rickles, N. H.** See Crampton, A. B.
**Rickless, P.** See Brown, R.
**Ricklin, S.**, and Eckstrom, H. C. Industrial chemistry at Brown University, 2049*g*.
**Rickmann, C. F.** See Remy, H.
**Ricks, M.**, and Hoskins, W. M. Toxicity and permeability (II) entrance of arsenic into larvae of the flesh fly, *Sarcophaga securifera*, 806*d*.
**Rico, F. M.** See Martin Rico, F.
**Ridbo Laboratories, Inc.** Methylation of methyl 6 - hydroxydehydroabietate, P 3462*b*.
**Riddell, G. E.** See Brenner, Abner.
**Riddick, T. M.** Industrial waste-control policy of Westchester County, N. Y., 8580*f*.
**Riddle, E. H.** Construction of firebrick hearth and operation of blast furnace, 7389*g*.
**Rideal, E. K.** Work of the Royal Institution in phys. chemistry in Great Britain, 2827*c*; solvation of colloids, 6490*g*; see Davies, J. T.; Frankenburg, W. G.; Kemball, C.
——— and Robertson, A. J. B. Sensitiveness of solid high explosives to impact, 4855*b*.
**Ridenour, G. M.** Effect of alkali-chlorinated cyanide, case-hardening, Cu- and Zn-plating wastes on aerobic and anaerobic sewage-treatment processes, 3125*e*; see Armbruster, E. H.; Ingols, R. S.
——— and Armbruster, E. H. Bactericidal

effect of $ClO_2$, 5522*c*; carryover and effect of quaternary ammonium compds. in the standard swab rinse test, 8006*g*.
———, Ingols, R. S., and Armbruster, E. H. Sporicidal properties of $ClO_2$, 7613*g*.
**Rideout, O. W.** See Nachod, J. E.
**Rider, B. F.**, and Mellon, M. G. Colorimetric detn. of Th, 4599*a*.
**Rider, D.** See Woodall-Duckham (1920) Ltd.
——— and Chadder, W. J. Stripping and rectifying unit of benzine-contg. wash-oil, P 6403*c*.
**Rider, D. K.**, Sumner, J. K., and Myers, R. J. Properties of plasticized polyvinyl chloride compns., 5629*a*.
**Rider, M.** See Kivenson, G.
**Rider, S. H.** See Scott, M. J.
**Ridge, D.** See Bassett, E. A.
——— and Emblem, H. G. Prepn. of contact catalysts, 8074*e*.
——— and Todd, M. Wurtz-Fittig reactions involving $SiCl_4$, 7463*i*.
**Ridgewood, Inc.** Apple-juice concentrate as milk modifier, P 7864.
**Ridgway, J. A., Jr.** Standard designs for pilot unit equipment, 5645*d*.
**Ridgway, J. W.**, Baldyge, W. V., and Scarba, M. Spray drying of distillers' solubles, 4809*b*.
**Ridgway, L. P.** See Karnofsky, D. A.
**Ridley, E.** See Wyngaarden, J. B.
**Ridley, R. W.** See Mellor, G. A.
**Ridolfo, A. S.**, and Guth, E. P. Modification of the U.S.P. method of assay for belladonna ext., 8612*g*.
**Ridyard, H. N.** High-accuracy and high-speed pipets and assocd. app., 3665*d*; detn. of aneurine in uncooked wheat products, 4396*c*.
**Riebsomer, J. L.** 2-Phenyl-2,1,3-triazole and derivs., 2619*f*.
——— and Sumrell, G. 2-Phenyl-2,1,3-triazole - 4 - carboxaldehyde and derivs., 2618*i*.
**Riedel, B. B.**, and Lunde, M. N. Effect of some sulfonamides on trichinosis, 9254*h*.
**Riedel, B. E.** See Huston, M. J.
——— and Huston, M. J. Effect of amytal on skeletal muscle, 8535*c*.
**Riedel, L.** Refraction and f.p. of fruit juices in relation to their concn., 6752*b*, see Plank, R.
**Riedemann, A.** Behavior of the components of cellulose in the processing of pulp to viscose, 1564*h*.
**Riediger, B.** Brennstoffe Kraftstoffe Schmierstoffe (book), 5173*i*.
**Riefler, F.**, and Schmid, J. Gastric mucus and ulcer genesis (II), 4385*f*
**Riegel, B.** See Beebe, R. A.; Dodson, R. M.
——— and Prout, F. S. Synthesis of progesterone-21-$C^{14}$, 4680*f*.
——— and Sherwood, L. T., Jr. Resolution of chloroquine, SN 7618, 4276*b*.
———, Siegel, S., and Kritchevsky, D. Synthesis of 3-alkyl-1,2-cyclopentenophenanthrenes, 621*f*.
———, Stanger, D. W., Wikholm, D. M., Mold, J. D., and Sommer, H. Paralytic shellfish poison (IV) bases accompanying the poison, (V) primary source of the poison, the marine plankton organism, *Gonyaulax catenella*, 3053*c*.
**Riegelman, S.** See Swintosky, J. V.
**Riego, A. F. del.** See Fernandez del Riego, A.
**Riehl, N.**, and Trubetzkoy, N. Diffusion of dissolved substances through semipermeable walls, 2486*g*.
——— and Waschiczek, K. Diffusion of org. dyes through semipermeable membranes, 2486*f*.
**Riehl, (Sister M. Agatha).** See Lenta, (Sister M. Petra).
——— and Lenta, (Sister M. Petra). Dehydrogenase of tissue from normal and tumor-bearing mice (I) total dehydrogenase activity, 3922*a*.
**Riehs, C.** Sulfonated phenol-HCHO condensates as auxiliaries for skin and hide soaking, P 6451*i*.
**Rieke, C. A.** See Mulliken, R. S.
**Riemenschneider, R. W.**, Herb, S. F., and Nichols, P. L., Jr. Isolation of pure natural linoleic and linolenic acids as their Me esters by adsorption fractionation on silicic acid, 6839*i*.
**Riemschneider, R.** Contact insecticides—modern prepns. for the control of pests—death of bees from contact insecticides? 344*i*; constitution and effect of insecticides, 345*c*, 9331*g*; insecticides contg. P, 3965*d*; toxicology of contact insecticidal substances, 7627*g*.
——— and Gerischer, W. Influence of halogenated hydrocarbons on strains of yeast and bacteria, 3885*d*.
——— and Reich, M. Halogenated diarylalkanes and diarylalkenes, 6186*d*.
**Rienäcker, G.**, and Knauel, G. Detn. of Tl in the presence of Fe and the potentiometric macrotitration in toxicology, 3312*d*.
——— and Sairy, B. Catalytic research on alloys (XII) parahydrogen conversion on Cu-Pt mixed crystals, 4088*b*
**Riener, K.** Extn. and utilization of pyrites from coal seams, 5911*h*.
**Riener, T. W.** Improved lab. prepn. of Cu-Cr oxide catalyst, 6062*i*; see Bruson, H. A.
**Rienzo, J. B. di.** See Di Rienzo, J. B.
**Riep, F. E.** Comparison of linseed oils prepd. by hot and cold pressing, 5970*e*.
**Ries, H. E., Jr.**, Johnson, M. F. L., and Melik, J. S. Adsorption-desorption isotherm studies of catalysts (III) N and stearic acid adsorption by supported catalysts and their components, 6897*g*
**Ries, K. G.**, Goepfert, G. J., and Easter, G. J. Abrasive article, P 8116*c*
**Riesco, A.** See Lipschutz, A.
**Riesen, W. H.** See Hankes, L. V., Hou, H. C.
**Riesenfeld, F. C.**, and Frazier, H. D. Detn. of water dew point in hydrocarbon gases, 6398*f*, 9422*h*
**Riesser, O.** Acetylcholine and the transmission of stimulus from nerve to muscle, 5469*i*.
———, Weeke, H., and Ther, L. Opposing actions of insulin and adrenaline or adrenochrome on glycogen formation in isolated rat diaphragm, 5470*b*
**Riester, W. F.** Pumping high viscosity liquids with centrifugal pumps, 8718.
**Riesz, C. H.** Catalytic cracking of hydrocarbons, 6814*b*.
**Riesz, E.** Chloride of *p*-thionylaminobenzoic acid and its autocondensation, 1744*c*; electronic interpretation of the action of proteolytic enzymes, 1818*b*, interpretation of the photochem transformation of carbonic acid by means of chlorophyll, 1839*h*.
**Riet, R. van.** See Hemptinne, M. de.
**Riethmann, J.** See Perret, A
**Rietti, V.** See Gitter, S
**Rietveld, B. J.** See Deinum, H. W.
**Rietz, C. A.** Water-set typographic ink, P 6433*e*
——— and Lecture, R. F. Press-stable water-set printing ink, P 5205*f*
**Rietz, E. G.**, Chapman, R. D., and Fernandez, J. B. Dimercaptoles of acetonylacetone, 561*f*
**Rietz, T. du.** See Du Rietz, T.
**Rieveschl, G., Jr.** Benzhydryl amino ethers, P 2234*i*, 5803*g*; quaternary ammonium halides, P 2641*b*; quaternary ammonium derivs. of benzhydryl ethers, P 3462*i*, dialkylaminoalkylbenzhydryl ethers and their salts, P 3463*c*, quaternary ammonium halides of benzhydryl ether derivs., P 2640*g*, 5045*h*, see Ray, Francis E.
——— and Ray, F. E. Fluorenone 2-carboxylic acid, 1753*g*
**Riezler, W.** Excitation functions of certain nuclear reactions, 4560*e*, see Schubert, G.
**Rifé Lamprecht, M. del P.** Derivs. of rosin—reaction of abietic acid with NaClO, 9481*i*.
**Riff, T.** Anesthetization of lamellibranchs by stovaine, 1492*c*, see Defretin, R.
**Rigat, L.** See Sotesina, C.
**Rigau, A.** Elaboración y refinado del aceite de oliva (book), 7725*i*.
**Rigaudy, J.** Autoxidation of enolizable ketones, 4642*e*; autoxidation of 10-phenylanthrone—simultaneous formation of two peroxides, 620*a*, see Dufraisse, C.
**Rigault, J.** See Reis, T.
**Rigberg, Ya. L.**, Ivashchenko, M. S., and Gal'perina, S. A. Manuf. of grog and grog-SiC shapes for tubular recuperators, 5915*i*
**Rigby, G. R.** Thin-Section Mineralogy of Ceramic Materials (book), 1931*f*, silica inversions (III) mineralogy and crystal chemistry of various forms of silica, 2390*g*; application of crystal chemistry to ceramic materials, 3985*i*; scaffolds in blast furnaces, 4613*b*; see Clements, J. F.; Richardson, H. M.
——— and Green, A. T. Refractory materials in the foundry industry, 5915*i*.
——— and Richardson, H. M. Occurrence of artificial kalsilite and allied K Al silicates in blast-furnace linings, 5705*g*.
**Rigby, G. W.** See Coffman, D. D.; Du Pont de Nemours, E. I., & Co.; Schroeder, H. E.
**Rigdon, R. H.** See Fletcher, D. E.
——— and Ruskin, A. Lethal effects and electrocardiographic changes produced by quinine di-HCl in malaria-infected monkeys, 9256*e*.
**Rigg, J. G.**, and Skerrey, E. W. Priming paints for light alloys, 870*d*, 4489*i*.
**Riggins, H. M.**, and Gearhart, R. P. Antibiotic and chemotherapy of tuberculosis, 3509*d*.
**Riggs, C. H.** Petroleum engineering study of Atlanta oil field, Columbia County, Ark., 6397*e*.
**Riggs, T. R.** See Hegsted, D. M.
——— and Hegsted, D. M. Acetylation of *p* aminobenzoic acid in the rat, 5835*h*.
**Righini, G.** Emission spectrum of the solar corona, 1650*i*.
——— and Vivarelli, S. Spectrographic detn. of Fe in glass, 3161*g*.
**Rigney, J. A.**, and Blaser, R. E. Sampling Alyce clover for chemical analyses, 7158*c*.
**Rigo, H. T. de.** See De Rigo, H. T.
**Rigotti, J. P.** See Alvarez, J.
**Rigterink, M. D.** See Christensen, C. J.
**Riherd, P. T.** Newer insecticides for the control of the red harvester ant, 7627*f*.
**Riisfeldt, O.** Origin of hyaluronidase in the rat testis, 8011*e*.
**Rij, N. J. W van.** See Nickerson, W. J.
**Rijven, A. H. G. C.** See Raven, C. P.
**Rikagaku Kenkyujo.** Same as Institute for Physical and Chemical Research, Tokyo
**Riker, A. J.** See Hildebrandt, A. C.; Hodgson, R.; Mitchell, J. E.; Struckmeyer, B. E.
**Riker, O. P.** Mineral position of ECA nations (XI) Greece, 3118*g*
**Riker, W. F., Jr.**, and Wescoe, W. C. Cholinesterase inhibition and function in a neuroeffector system, 5866*d*
**Rikert, I. E.** Improved drying of green brick with $SO_2$, 1931*i*
**Rikhter, Yu.** See Plazhek, F.
**Rikovski, I. I.** Refractive indexes of mixts. of phenyl isothiocyanate with triethylamine, 6024*a*, see Pushin, N. A.
**Ril, N.** Temp. dependence of the efficiency of luminescence and its connection with other properties of ZnS, 7825*i*
——— and Ortman, G. Luminescence of ZnS, 6514*a*, penetration of Cu into luminescent ZnS, 7318*b*
**Riley, D. F.** Paste and powder mixing, 2043*g*.
**Riley, D. P.** See Schulman, J. H.
——— and Segnit, E. R. Optical and x-ray examn. of silvocarnotite, 6120*a*.
**Riley, F. R.**, and Urquhart, H. B. Powell River's new newsprint machine, 1465*h*.
**Riley, G. M.** Essentials of Gynecologic Endocrinology (book), 3915*b*.
**Riley, H. K.**, and Daigle, C. J. Spray tests for azalea petal blight, 1891*i*
**Riley, H. L.** Structural aspects of C oxidation, 26*c*, fuel, 4788*d*, at energy, 5659*i*, carbides, nitrides, and carbonitrides of Fe, 7361*h*; macromol. structure of bituminous coal, 8638*h*, see Blayden, H. E., Iley, R., Turner & Newall Ltd.
**Riley, J. F.** Retardation of growth of a transplantable carcinoma in mice fed basic metachromatic dyes, 1856*i*.
**Riley, J. M.** Compn. for patching metallic bodies, P 3771*h*
**Riley, J. P.** See Dunn, H. C.
**Riley, R. F.** See Berger, F. M.
——— and Berger, F. M. Metabolism of myanesin (3 - (*o* - toloxy) - 1,2 - propanediol), 2702*h*
**Riley, R. V.** Abrasion resisting metals of interest to clay workers, 2748*i*; acid-resisting Si Fe, 9005*e*; see Hurst, J. E.
**Riley, R. W.** Supercalender operation and equipment at the West Linn, Oregon, Division of Crown Zellerbach Corp., 7685*a*.
**Rimamurány - Salgótarjáni Vasmu R. T.** See Magyar Waggon- és Gépgyár R. T.
**Rimington, C.** See Gray, C. H.; Lawson, A.; Rocha e Silva, M.
**Rimskaya-Korsakova, O. M.** See Lebedev, V. I.
**Rimsky, A.** See Rose, A. J.
**Rin, S. S.** Influence of hormones on the growth of tissue culture (I), (II), 1099*f*.
**Rinaldi, F.** See Bargone, A.

**Rinaldi, L. M.** Effect of chronic inanition on the gonadotropic content of the pituitary gland, 5835*g*.
**Rinck, E.** Transition probabilities for radiant and nonradiant processes in cryst. $Eu_2(SO_4)_3.8H_2O$, 3290*b*.
**Rinck, E.**, and Brouardel, J. Distribution of elements in plants—I in *Laminaria flexicaulis*, 4342*i*.
**Rinderknecht, H.** See Bergel, F., Roche Products Ltd.
——— and Niemann, C. Esterification of acylated α-amino acids, 1323*j*.
**Rindi, G.** See De-Caro, L.
**Rinehart, J. F.** See Greenberg, I. D.
———, Friedman, M., and Greenberg, I. D. Neuropathology of thiamine deficiency in the rhesus monkey—frequent occurrence of degeneration in the basal ganglion, 9192*a*.
——— and Greenberg, I. D. Arteriosclerotic lesions in pyridoxine-deficient monkeys, 6297*a*.
**Ring, H.** See Gordy, W.
**Ring, M. F.** See Irving, H.
**Ringbom, A.** Volumetric detn. of Al, 8949*c*.
——— and Merikanto, B. Titrimetric detn. of Ca, 7862*g*.
——— and Wilkman, B. Amperometric titrations with indicators, 7861*e*.
**Ringler & Co., A.-G.** Electroplating rotary printing cylinders, P 7358*g*.
**Ringler, B. I.** See Hauser, C. R.
**Ringo, G. R.** See Krueger, H. H. A.
**Ringrose, R. C.** Nutritive properties of torula yeast for poultry, 8465*f*.
**Rings, R. W.**, and Weaver, C. R. Effects of benzene hexachloride and DDT on parasitization of the oriental fruit moth, 1144*a*.
**Ringström, E.**, and Apler, N. H. Swelling and floating tendency of pulp sheets during steeping in the viscose process, 2770*f*.
**Ringuet, L. L.** See Leprince Ringuet, L.
**Ringwald, E. L.** See Mowry, D. T.
**Rink, M.** See Winterfeld, K.
**Rinkenbach, W. H.**, and Clear, A. J. Soldering flux, P 6150*c*, 7406*e*.
**Rinman, K.** See Teichert, W.
**Rinne, D.** See Hobby, G. L.
**Rinse, J.**, and Bokhout, B. [Films from] esters of itamic acid, 7239*b*.
**Rio, A.** Effect of air entraining and dispersion promoting agents on the mech. properties and the mixing of cement concrete, 2751*h*.
**Rio, G.** See Dufraisse, C.
**Rio, J. del.** See Castro-Mendoza, H.
**Rio, L. F. del.** See Fierro del Rio, L.
**Riobé, O.** Application of 2-alkyl-3-chlorotetrahydropyrans to the prepn. of 2-alkyldihydropyrans and γ-ethylene alcs., 2994*h*.
**Río M., A. del.** The limestone deposit between Corrales and Nobsa, Boyaca department, Colombia, 526*d*.
**Riordan, F. S.** See Cunningham, W. K.
**Rios, B. R.** See Rodriguez Rios, B.
**Ríos, E. G.** See Gutiérrez Ríos, E.
**Riott, J. P.** Reduction accelerator for the sponge-Fe rotary-kiln process, P 3769*a*.
**Rioux, J.** See Guilhon, J.
**Ripa, O.**, and Speakman, J. B. Mechanochem. methods for use with animal fibers, 5955*a*.
**Ripan, R.** Structure of heteropolyacids—interpretation of the basicity of heteropolyacids, 56*h*.
——— and Duca, A. Constitution of heteropoly acids (VI) periodic acids, 3741*e*.
——— and Palade, E. Chemistry of Te (I) hexachloro- and hexabromotelluric acids, 4107*h*.
——— and Popper, E. Constitution of heteropoly acids (V) 12-tungstosilicic acid, 3741*c*.
**Ripich, J. J.** Heat-resistant low-alloy steels, P 4625*i*; crucible for light metals, P 9018*h*.
**Ripley, L. B.**, Petty, B. K., and Hepburn, G. A. Soil insecticides for the citrus snout-beetle, 5149*e*.
**Ripling, E. J.** Tensile properties of a heat-treated low-alloy steel at subzero temps., 8329*b*.
——— and Tuer, G. App. for tensile testing at subzero temps., 1613*h*.
**Rippel-Baldes, A.** Grundriss der Mikrobiologie (book), 5820*d*.
**Ripper, W. E.**, Greenslade, R. M., and Lickerish, L. A. Chem. and biol. control of insects, 6776*c*.
**Ripperton, J. C.** See Takahasha, M.
**Ripplinger, J.** See Jullien, A.
**Riquelme, M.** Same as Riquelme Sánchez, M.
**Riquelme Sánchez, M.** Agenda del químico-tin-torero y estampador (book), 1574*a*; Química aplicada a la industria textile (book), 1986*b*.
**Ris, H.**, and Geigy, J. R. Protection of wool against mites, 812*f*.
**Ris, Hans.** See Mirsky, A. E.
——— and Fox, J. P. Cytology of rickettsiae, 5827*a*.
——— and Mirsky, A. E. State of the chromosomes in the interphase nucleus, 4715*i*.
**Říša, W.** Artificial fibers in Czechoslovakia, 4469*d*, 8141*i*.
**Risch, C.** Evaluation of tinctures, 818*a*; prepn. of tinctures, 4424*g*.
**Risch, K.** See Heberlein, Georges.
**Rischbieth, J. R.** Evaluating the results of weathering tests on paint films, 2787*b*.
———, Lauric, H. A., and Bussell, K. R. Modified nomograph for the evaluation of paint exposure panels, 5969*g*.
**Risdon, E. J.** See Irving, H.
**Riseman, J.** See Eirich, F.
——— and Kirkwood, J. G. Rotatory diffusion constants of flexible molecules, 7781*d*.
**Riser, W. H., Jr.** See Skipper, H. E.
**Rishina, V. A.** See Kitaigorodskiĭ, I. I.
**Rishkevich, E.** See Ryschkewitsch, E.
**Risler, T.** See Glemser, O.
**Risley, H. A.** See Ames, S. R.
**Risolo, A.** See Franchi, G.
**Rison, D. E.** See Stockdale, J.
**Riss, I. G.** See Ryss, I. G.
**Risseghem, H. van.** Oxidation of 2-methyl-2 pentene with free O, 108*d*.
**Risser, J. R.** See Evans, J. E., Malich, C. W.
**Rist, C. E.** Batter process makes wheat flour a source of gluten and starch, 9505*c*, see Mehltretter, C. L.; Wolf, M. J.; Wolff, I. A.
**Ristich, S. S.**, and Schwardt, H. H. Biology and control of the seed corn maggot on beans, 5896*h*.
**Ritchey, N. F.**, and Bruno, C. Al brazing, 553*e*.
**Ritchie, A. W.** See Beeck, O.
**Ritchie, E.** See Anet, E.; Gascoigne, R. M.
**Ritchie, M.** Thermal diffusion in gaseous and liquid systems, 2480*i*, see Docherty, A. C.
**Ritis, F. de.** See De Ritis, F.
**Ritschl, R.** Luminescent excitation of ZnS-Cu by light of long wave length, 5311*e*.
**Ritson, D. M.** See Brown, R., Camermi, U., Collie, C. H., Goldschmidt-Clermont, Y.
**Rittenberg, D.** Isotope technique in the study of the metabolism of glycine, 5482*e*, see London, I. M., Sprinson, D. B.
**Rittenburg, S. C.** See Zobell, C. E.
**Rittenhouse, R. C.** See Wise, L. E.
**Ritter, A. B.** Emergency chlorination of wells and reservoirs, 6313*b*.
**Ritter, E.** Mixing basic Bessemer and elec.-furnace steels, 8324*e*.
**Ritter, E. de.** See De Ritter, E.
**Ritter, E. J.** Thiocarbamyl chlorides, P 5038*b*.
**Ritter, F.** Surface treatment of the light metals, 2143*b*.
**Ritter, G. J.** Microstructure of wood and wood fibers, 2767*b*.
**Ritter, H.** See Zerweck, W.
**Ritter, H. B.** See Bernstein, S.
——— and Oleson, J. J. Acute lesions in weanling rats fed 4-aminopteroylglutamic acid, 7097*f*.
**Ritter, H. S.** Microscopic location of waxes in impregnated fibrous materials, 65*d*.
**Ritter, J. J.** Prepn. of dimethylneopentylcarbinol, 1715*e*; see Sokol, H.
——— and Kalish, J. Reaction of nitriles (II) synthesis of *t*-carbinamines, 2165*i*.
——— and Minieri, P. P. Reaction of nitriles (I) amides from alkenes and mononitriles, 2165*c*.
——— and Sokol, H. Prepn. of certain mercaptothiazoles and thiazolyl derivs., 633*f*.
**Ritter, L. G.** See Boreskov, G. K.
**Rittner, E. S.** See Hutner, R. A.
———, Hutner, R. A., and Pré, F. K. du. The work of polarization in ionic crystals of the NaCl type (I) polarization around a single charge in the rigid lattice, 4535*d*.
**Ritz, B. L.**, and Johnson, H. L. Tackifier for synthetic rubber, P 8194*g*.
**Ritz, J. W.** See Myers, L. D.
**Ritz, N. D.** Diffuse melanosis, precordial effusion, and melanuria associated with malignant melanoma—case report with autopsy findings, 3095*g*.
**Ritzhaupt, H.** See Zelle, K.
**Ritzmann, O. F.** Process control by infrared spectrometry, P 6873*f*.
**Rius, A.**, Baltá, J., and Beltrán Martinez, J. Electrolysis with high-frequency current, 6520*c*.
——— and Calleja, J. Anodic polarization of Pt in solns. contg. Cl ions (V) c.d.-potential curves in HCl solns., with various addns., at high c.ds., 2100*e*, (VI) theoretical, 3727*i*.
——— and Castro, R. de. Potentials of oxidizing substances (II) permanganate ion, (III) I, (IV) ferricyanide ion, (V) theoretical considerations, 4586*e*.
——— and Coronas, J. M. Reaction between Mo(VI) and Mo(III) in HCl soln., 5686*i*, cathodic polarization of a Pt electrode in acid solns. of $NH_4$ paramolybdate, 6091*a*.
——— and Gutiérrez Jodra, L. Soly. diagrams for solvent extn. of free fat acids from fish oil, 7724*b*.
——— and Llopis, J. Anode potential *vs.* c.d. in the electrolysis of alk. NaOCl, 6519*h*.
——— and Ocon García, J. Anodic current efficiencies (II) anodic decompn. of $H_2O_2$, (III) theoretical considerations, 5677*e*.
——— and Terol Alonso, S. Different types of anodic polarization of Pt, 2100*g*; anodic oxidation of thiocyanides (I), (II) polarization in an alk. medium, 6524*c*.
——— and Zulueta, C. Detn. of Caro acid, $H_2O_2$, and persulfuric acid, 2121*h*.
**Riva, L. H.** See Herrán Riva, L.
**Riva, R.** See Comolli, E.
**Rivas, H. Z.** See Zapata Rivas, H.
**Rivas, S.** See Borrallo, P.
**Rivera, A. S.** See Soto-Rivera, A.
**Rivera Plaza, G.** Mineralogical nomenclature and glossary of mining terms, 6543*c*.
**Rivers, J. T.** See Milas, N. A.
**Rivers, R. P.** Oxidation of diiodotyrosine derivs., 2256*a*, action of antithyroid substances on the formation of acetylthyroxine from acetyldiiodotyrosine, 6298*d*.
**Rivers, T. M.** Viral and Rickettsial Infections of Man (book), 4371*h*.
**Rivet, C. A., Jr.** See LeRosen, A. L.
**Rivett, D. E. A.**, Swain, G., and Todd, A. R. Synthetic expts. leading to formation of methyl-1,2-benzanthraquinones, 8375*e*.
**Rivier, D.** Eliminating infinities in quantized field theory—application to the magnetic moment of the neutron, 6903*i*.
——— and Stueckelberg, E. C. G. Convergent expression for the magnetic moment of the neutron, 479*c*.
**Rivière, A.** Granulometric studies in sedimentation, 2905*f*.
**Riviere, J. C.** See Bayliss, N. S.
**Rivkina, D. E.** See Ryvkina, D. E.
**Rivoal, G.** Tyrothricin, 3881*e*.
**Rivoir, L.** See Abbad, M.
**Rix, W.** See Dawihl, W.
**Rizeries Anversoises, anciennement Mercenier & Tassoul, Soc. anon.** Treatment of barley used in brewing, P 1148*g*.
**Rizza, V.** See Solarino, G.
**Rizzini, E.** Colori e colorificio (book), 2788*h*.
**Rizzo, P.** See Davis, R. M.
———, Davis, R. M., and Smith, A. H. Effect of heat on the nutritive value of lactalbumin—chem. and morphological changes, 7097*h*.
**Rizzoli, C.** See Ciusa, W.; Dessi, P.
**Rjabtschikoff, D. I.** See Ryabchikov, D. I.
**Roach, A. E.** Load-carrying ability of hydrodynamic oil films, 3999*e*.
**Roach, D. B.** See Luther, G. G.
**Roach, F. E.** Detection of atm. Na, 8877*e*; see Barbier, D.
——— and Barbier, D. Height to upper-atmosphere emissions, 5302*c*.
**Roach, J. R.** Polyallyl ether compns. contg. an orthosilicic acid ester, P 9538*a*.
**Roach, W. A.**, and Hoblyn, T. N. Mn deficiency in mangolds, 2353*e*.
**Roaf, D.** See Thonemann, P. C.
**Roake, W. E.** See Burwell, R. L., Jr.
**Roald, B.** See Flood, H.
**Robapharm Laboratoriums A.-G.** Drying heat-sensitive materials, as animal matter, P 4058*c*.
**Robards, C. F.** See Gangler, J. J.
**Robb, C. M.**, and Schultz, E. M. Diphenylacetonitrile, 1752*i*.
**Robb, J. C.**, and Melville, H. W. Measurement of fast reactions of at. H, 6053*e*.

**Robb, J. S.** Heart, 5838*h*.
**Robbins, E. B.** See Henderson, F. G.
**Robbins, E. H.** Dispersions of Butyl rubber, P 9519*i*.
**Robbins, F. E.** See Peake, J. S.
**Robbins, F. S. R.** See Robscheit-Robbins, F. S.
**Robbins, L. V., Jr.** See Richardson, Roger W.
**Robbins, S. L.**, and Parker, F., Jr. Use of the male North American frog in the diagnosis of pregnancy, 7998*g*. reaction of male frogs to adrenaline, 8566*a*.
**Robbins, W. E.** See Joachim, W. F.
**Robbins, W. J.** See Anchel, M.; Kavanagh, F.
——— and Stebbins, M. Growth of excised tomato roots, 5086*i*.
**Robbins, W. R.** See Haynes, J. L.; Leone, I. A.
**Robbins, W. W.** Control of weeds, 6352*g*.
**Robblee, A. R.** See Nichol, C. A.
———, Nichol, C. A., Cravens, W. W., Elvehjem, C. A., and Halpin, J. G. Effect of hen diet and chick diet on the need of chicks for an unidentified growth factor, 284*h*.
**Robelet, A.** See Bizard, G.
**Roberson, A. H.** See Graham, T. R., Hayes, E. T.; Long, J. R.
**Robert, D.** See Tabone, J.
**Robert, L.** Analysis of hydrocarbon mixts. by physicochem. methods—Raman spectroscopy, 2083*i*; example of infrared spectral analysis, 3715*d*.
**Robert, M.** Ion-exchangers in the sugar industry, 6441*e*.
**Robert, M. J.** Dietetic pharmaceuticals, 9363*e*.
**Robertis, E. de.** See De Robertis, E.
**Roberton, L. F.** Disposal of sludge in liquid form for use as a fertilizer, 3547*h*
**Roberts, Ammarette.** See Clopton, J. R.
**Roberts, Arthur.** See Edgell, W. F.
**Roberts, A. G.** Diphenylamine test for nitrates in mixts. of cellulose esters, 8907*i*.
**Roberts, A. L.** See Grimshaw, R. W.
——— and Grimshaw, R. W. Clay-quartz system (III) burning of clay-quartz mixts., 3582*d*.
——— and Long, R. Radiant heating, 3170*c*.
**Roberts, C. C.**, and Vogelsang, C. A. Thermoelec. pyrometry, 6499*d*, 7762*e*.
**Roberts, E.** See Dygert, H. P.
**Roberts, Elmer,** Eisenstark, A., and Alberts, J. O. Effect of Na sulfamerazine on *Salmonella pullorum*, 7543*a*.
**Roberts, Eugene.** Estn. of arginase activity in homogenates, 2263*f*; see Dounce, A. L.
———, Caldwell, A. L., Clowes, G. H. A., Suntzeff, V., Carruthers, C., and Cowdry, E. V. Amino acids in epidermal carcinogenesis, 8048*h*.
——— and Frankel, S. Arginase activity and N content in epidermal carcinogenesis in mice, 5489*a*; urea and $NH_3$ content of mouse epidermis, 8496*g*.
——— and Tishkoff, G. H. Distribution of free amino acids in mouse epidermis in various phases of growth as detd. by paper partition chromatography, 3514*e*.
**Roberts, E. A.**, and Southwick, M. D. Electron microscope—relation of chromoplasts to carotene bodies and carotene bodies to vitamin A, 731*d*.
———, Southwick, M. D., and Palmiter, D. H. Microchem. examn. of McIntosh apple leaves showing relation of cell-wall constituents to penetration of spray solns., 283*g*.
**Roberts, E. A. H.** See James, W. O.
**Roberts, E. C.** Differentiating immunologic types of the poliomyelitis virus, 4365*c*.
**Roberts, E. J.** See Ambler, J. A.
———, Ambler, J. A., and Curl, A. L. Itaconic acid from aconitic acid and alk.-earth aconitates, P 678*b*.
**Roberts, E. N.** Lubricating oil, P 4007*h*.
**Roberts, E. R.** Measurement of stable isotope abundance ratios, 2861*h*; see Pethica, B. A.; Thorne, P. C. L.
**Roberts, F. M.** See Fife, H. R.
**Roberts, G. A.** See Blickwede, D. J.; Grobe, A. H.
and Grobe, A. H. Prealloyed steel powders, 3756*c*.
and Sawyer, C. F. Production of tool steel, 2913*d*.
**Roberts, G. L.** See Winston, J. R.
**Roberts, H. P.** See Burdette, J.
**Roberts, I. S.** See Neuberg, C.
**Roberts, J.** Oxidation and preheating systems of coal carbonization, 3168*i*; ignitibility and combustibility of solid fuels, 5921*h*.
**Roberts, J. C.** Reactive Me groups of heterocyclic tertiary bases, 6206*g*.
**Roberts, J. D.** Solvolytic reactivities of some secondary alkyl chlorides, 7307*i*; see Wilson, K. W.
———, Armstrong, R., Trimble, R. F., Jr., and Burg, M. Use of $C^{14}$ in the detn. of the structure of aldoketene dimers, 4220*e*.
———, Bennett, W., Holroyd, E. W., and Fugitt, C. H. Measurement of $C^{14}$, 1684*e*.
———, McElhill, E. A., and Armstrong, R. Elec. effect of the trimethylsilyl group, 8222*i*.
———, (Roberts, J. D., omitted by mistake in C.A.), McMahon, R. E., and Hine, J. S. Rearrangement of C atoms in alkyl derivs., 6969*b*
——— and Trumbull, E. R. Reaction of *N*-bromosuccinimide with camphene and α-pinene, 5768*a*.
**Roberts, J. E.** See Buchanan, A. R.
———, Robinson, B. E., and Buchanan, A. R. Oxygen consumption correlated with the thermal reactions of young rats to ergotoxine, 5871*d*.
**Roberts, J. F.**, Bibby, B. G., and Wellock, W. D. Effect of an acidulated fluoride mouthwash on dental caries, 1101*d*.
**Roberts, J. H.** See Keepin, G. R.
**Roberts, J. K.** Liquids from CO and H, P 3175*d*, see Burse, E. A. B.
**Roberts, J. P.**, and Watt, W. Detn. of the bend strength and bend creep of ceramic materials, 9402*g*.
**Roberts, J. S.**, and Skinner, H. A. Dissocn. energies of C bonds, and resonance energies in hydrocarbon radicals, 6479*h*.
**Roberts, Jessie S.** See Murdison, M. E.
**Roberts, J. T.** Spot test for chem. resistance of enameled surfaces, 8115*b*
**Roberts, K. C.** Factice and sulfurized oils, P 895*f*, see British Rubber Producers' Research Association
**Roberts, L. G. M.** See Dent, F. J.
**Roberts, L. M.** See Delargey, R. J.
———, Beaver, C. E., and Blessing, W. H. Operating experiences with Cottrell precipitators on sulfate-recovery furnace gases, 8477*c*.
**Roberts, M.**, Laufer, S., and Stewart, E. D. Air in beer (II) detn. of air dissolved in wort and storage beer, (III) detn. of air and O in storage and finished beer, 354*f*
**Roberts, M. H.** Photoelec. pyrometer of rapid response, 447*g*
**Roberts, P. H.** See Ohlson, M. A.
**Roberts, R.** Addition of cellulose to Cd salts used in prepn. of alkaline cells, P 510*a*; chemistry in the Office of Naval Research, 6015*c*.
**Roberts, R. B.**, and Aldous, E. Recovery from ultraviolet irradiation in *Escherichia coli*, 5082*c*.
**Roberts, R. C.**, Crockett, K. A., and Laipply, T. C. Effects of salicylates and benadryl on anaphylactic hypersensitive vascular and cardiac lesions, 3523*b*.
**Roberts, R. G.**, Hilker, D. M., and Gastor-Russell, A. Hemochromogens and related compds. in liquid ammonia, 702*d*.
**Roberts, R. H.**, and Johnsen, S. E. J. Mass spectra of some org. compds., 1639*g*.
**Roberts, R. L.** See Hunter, L. R.
**Roberts, R. M.** See Price, C. C.
**Roberts, R. O.** Amblygonite and associd. minerals from the Mbale mine, Uganda, 8985*c*.
**Roberts, R. P.**, and Jones, K. Bonding cellulose surfaces, P 5950*i*.
**Roberts, R. R.** See Rollason, E. C.
**Roberts, R. T.** Corrosion from flue gases, 100*d*.
**Roberts, Shepard.** Microwave phenomena in liquids and solids, 2342*i*; dielec. constant of Ba titanate at high temps., 4061*e*.
**Roberts, Sidney.** See Szego, C. M.
———, Adams, E., and White, A. Influence of immunization on the relation between the development of tissue titers and the release of hemolysins, 7575*a*.
——— and Samuels, L. T. Influence of previous diet on metabolism during fasting, 8028*g*.
——— and White, A. Biochem. characterization of lymphoid tissue proteins, 4762*e*; origin of the serum proteins, 8523*a*.
**Roberts, S. J.** Filtration of sedimented sewage dild. with bacteria bed effluent, 3953*b*.
**Roberts, S. M.** See McCleary, R. F.
**Roberts, W. G.** Ceramic capacitors, 7205*a*.
**Roberts, Walter O.** Assocn. of corona with prominence, 2509*f*.
**Roberts, Winifred O.** Combined mineral deficiencies in fruit trees, 2722*g*; prevention of mineral deficiency by soaking seeds in nutrient soln., 4801*i*; see Thompson, S. G.
**Roberts, W. P. H.** See LeFevre, R. J. W.
**Roberts Chemical Co.** Coloring matters of the phthalocyanine series from phthaloyl halides, P 8169*a*.
**Robertson, Alan,** and Waters, W. A. Autoxidation of 1,2,3,4 - tetrahydronaphthalene (I) investigation of autoxidation products, (II) decompn. of 1,2,3,4-tetrahydronaphthalene hydroperoxide, (III) interpretation of the kinetics of autoxidation, 2196*d*.
**Robertson, Alexander.** See Beer, R. J. S.; Cartwright, N. J.; Chaudhury, D. N.; Clarke, J. R.; Dean, F. M.; Foster, R. T., Jones, G. H., King, H. I.; Mackenzie, J. B. D.; Richards, J. H.
**Robertson, A. E.** Stabilization of xylidene and other alkarylamines, P 6231*c*, sepn. of hydrocarbons, P 7223*c*
**Robertson, A. F.** See Newberry, A. W.; Roby, R. N.
**Robertson, A. J. B.** Thermal decompn. of pentaerythritol tetranitrate, nitroglycerin, ethylenediamine dinitrate, and $NH_4NO_3$, 405*c*, thermal decompn. of explosives (I) ethylenedinitramine and tetryl, 2775*b*, (II) cyclotrimethylenetrinitramine(cyclonite) and cyclotetramethylenetetranitramine, 5187*h*, decompn., boiling, and explosion of TNT at high temps., 7687*a*, see Rideal, E. K.
**Robertson, B. P.** High-temp. extreme-pressure lubricant, P 1959*f*.
**Robertson, C. R.** See Grossman, M. I.
**Robertson, D. W.** See Whitney, R. S.
**Robertson, E. C.**, and Galloway, M. E. Vitamin C content of diets of lower-income Toronto families, 9195*a*
**Robertson, E. I.**, Miller, R. F., and Heuser, G. F. Relation of energy to fiber in chick rations, 1087*i*.
**Robertson, F. L.**, and Thring, M. W. Statistical analysis of an open-hearth furnace, 8324*b*
**Robertson, F. M.**, and Neish, A. C. 2,3 Butanediol (XXVII) cryst. esters suitable for identification and estn. of the isomeric 2,3 butanediols, 3782*b*.
**Robertson, F. S. B.** Accumulations of vitamin C during germination in peas, 3888*e*.
**Robertson, G. G.** Reactions of normal ovaries to injections of stilbestrol, 9203*e*
**Robertson, H. H., Co.** Cu additive to oxychloride cement, P 833*a*, brazing of a hard cutting tip to the iron or steel shank of a cutting tool, P 3343*a*, coated steel sheets, P 6148*b*.
**Robertson, J. A.** Prepn. of oximes and *N*-alkylhydroxylamines by hydrogenation of α chloro nitro compds., 156*h*, azodisulfonic acid salts as polymerization catalysts, P 5642*b*, see Alderson, W. L., Jr.
**Robertson, J. B.** See Brown, D. R.
**Robertson, J. K.** Radiology Physics (book), 9488*b*.
**Robertson, J. M.** See Abrahams, S. C., Binnie, W. P.; Dawson, I. M.; Mathieson, A. M.; Morrison, J. D.
**Robertson, J. W.** Modified alkyd compn. P 2471*f*.
——— and Rust, J. B. Alkyd resin-oxidized butadiene polymer emulsion, P 6859*e*.
**Robertson, L. S.** See Cook Ray L., Lawton, K.
**Robertson, M. E.** Microörganisms in leather manufacture, and their control, 1203*g*.
**Robertson, N. C.** MeCOEt purification, P 9079*i*.
**Robertson, O. H., Puck, T. P.**, and Wise, H. Glycol vaporizer with photoelectric cell control of glycol-vapor concn. in the air, P 6370*g*.
**Robertson, P. W.** See Rothbaum, H. P.
———, Dixon, R. M., Goodwin, W. G. M., McDonald, I. R., and Scaife, J. F. Kinetics of halogen substitution (V) halogen addn. (14) catalysis by electrolytes in AcOH soln., 7408*f*.
**Robertson, R. E.**, and Marion, L. Na-initiated polymerization of diolefins, 1714*b*.
**Robertson, S.** See Courtaulds Ltd.
**Robertson, T.**, Knox, J., and Anderson,

J. G. C. **Limestones of Scotland (VII) northern and northwestern Scotland, 4986b.**

**Robertson, W. D.** See Clarke, S. G. C.

—— and Uhlig, H. H. Elec. properties of the intermetallic compds. $Mg_2Sn$ and $Mg_2Pb$, 474*i*; chem. properties of the intermetallic compds. $Mg_2Sn$ and $Mg_2Pb$, 7363*h*.

**Robertson, W. K.,** and DeLong, W. A. Potassium status of eastern Canadian soils, 1131*h*.

**Robertson, W. T.,** and Stamper, H. N. Katy Gas-Cycling Plant, 1550*g*.

**Robertson, W. W.** See Pondrom, W. L.

——, Matsen, F. A., and Seriff, A. J. Effect of O-deuteration and substitution on the ultraviolet absorption spectrum of phenol, 4094*b*.

**Robeson, C. D.** See Baxter, J. G.

**Robeson, M. O.** See Bludworth, J. E.

**Robey, R. F.** Concn. of piperylene, P 3023*f*, see Morrell, C. E.

——, Fedirko, J., and Barnett, A. E. Stabilization of hydrocarbons, P 3866.

—— and Wiese, H. K. Analysis of refinery $C_4$ hydrocarbon fractions, 8123*d*.

**Robie, N. P.** Abrasive paper or cloth, P 1544*d*.

**Robiette, A. G. E.** See Birmingham Electric Furnaces Ltd.; Jones, William D.

—— and Hancock, P. F. Austenitic cast Fe, P 5728*g*.

**Robillard, J.** See Reis, T.

**Robin, E. D.** Reaction of vitamin A with Liebermann-Burchard reagent, 2656*i*; see Dury, A.

**Robin, M. J.,** *et al.* Caoutchouc dans la literature anglo-americaine de 1940 a 1946 (book), 5990*f*.

**Robin, S.** See Vodar, B.

**Robinow, C. F.** Cytological observations on bacteria, 9164*c*; see Bunting, M. I., Welshimer, H. J.

**Robins, O.** Measurement of *ns* of the feldspars, 4605*i*

**Robins, P. A.** See Heilbron, I. M.; Owen, L. N.

**Robinson, A. D.** See Spencer, E. Y.

——, Lynd, L. E., and Miles, B. J. Distribution of thiamine and riboflavin in wheat, oats, and barley at successive stages of plant growth, 3492*f*, thiamine and riboflavin content of Manitoba-grown wheat, oats, and barley of the 1946 crop, 6747*g*

**Robinson, A. L.** See Mason, L. S.

**Robinson, A. M.** Piezoelec crystal with moistureproof coatings, P 1066*f*

**Robinson, A. R.** See Gerbasi, F. S., Lesher, M.

**Robinson, Betty.** See Dounce, A. L.

**Robinson, Brooks.** See MacIntire, W. H.

**Robinson, B. E.** See Roberts, J. E.

**Robinson, C.,** Topp, N. E., and Beakbane, M. E. Penetration of leather by water and water vapor, 3639*g*.

**Robinson, C. A.** See Pfister, K., III, Sheehan, J. C., Wolf, F. J.

**Robinson, C. N.** "Meet the Plastics (book), 4893*g*.

**Robinson, C. N., Jr.,** and Olin, J. F. Polyamines, P 2633*d*, amino alcs., P 9081*b*.

**Robinson, C. V.,** and Peterson, R. E. Ether-A Geiger-Müller counters, 3281*g*.

**Robinson, D.** See McKay, D. G.

**Robinson, E.** See Brown, R.; Burchenal, J. H.

**Robinson, E. A.** Water-softening detergent, P 6138*g*.

**Robinson, E. B.** See Bradford, L.

**Robinson, E. L.** Some 1000 F. steam-pipe materials, 534*f*.

**Robinson, F.,** Knott, E. B., Pratt, H., Robinson, W., and Tomlin, A. Manuf. of Agfa photographic papers at the I. G. Farbenindustrie factory at Leverkusen, 1276*g*.

——, Pratt, H., and Tomlin, A. Manuf. of support for photographic papers at the F. Schoeller factory at Osnabruck, 51*f*.

**Robinson, F. A.** Vitamins—progress in 1948 (I), (II), 5463*a*.

**Robinson, F. J.** See Goth, Andres.

**Robinson, G.** See Lauffer, M. A.

**Robinson, G. M.** See Heaton, T. B.

**Robinson, Harold A.** Compn. for descaling ferrous metal, P 3772*d*; Mg galvanic anodes, 6093*d*.

**Robinson, Howard A.,** and Man, E. M., Jr. Viscosity of glass, 4435*f*

**Robinson, H. G.** See Shulman, E. H.

**Robinson, H. R.** Effect of the size and shape of columnar retorts on the heating of granular materials, 8648*i*.

**Robinson, H. W.,** Greisheimer, E. M., Oppenheimer, M. J., Nelson, W. E., and Matthews, R. Alkali therapy of $NH_4Cl$ acidosis, 1869*h*.

**Robinson, I. R.** See Wolfe, K. J. B.

**Robinson, J. A.** See Oetjen, R. A.

**Robinson, J. C.** Detg. serum Cu, 9127*e*.

**Robinson, J. D.** Modified urea-HCHO resins, P 8738*i*.

**Robinson, J. E.** See Sydoriak, S. G.; Ter-Pogossian, M.

——, Ter-Pogossian, M., and Cook, C. S. $\gamma$ Rays from $Na^{24}$ and $V^{48}$, 4503*c*.

**Robinson, J. K.** See Ferguson, L. N.

**Robinson, J. V.** See McBain, J. W.; Woods, W. W.

—— and Woods, W. W. Selecting foam inhibitors, 7100*i*.

**Robinson, J. W.** Trichloromethyldiarylmethanes, P 4420*c*.

**Robinson, K.** See Brindley, G. W.

**Robinson, K. W.** See Morton, G. A.

**Robinson, M.** See Eagle, H.

**Robinson, P.** See Burnham, J.

—— and Dorst, S. O. Elec. conductors, P 9536*i*.

**Robinson, P. L.** See Dodd, R. E.

**Robinson, R.** Structure and biogenesis of emetine, 2623*d*; development of electrochem. theories of the cause of reactions of C compds., 2827*c*, 6875*f*; address of the president [biochemistry], 6255*e*; see Clarke, H. T.; King, F. E.; Openshaw, H. T.; Pausacker, K. H.

—— and Stephen, A. M. Vomipyrine, 3421*h*.

**Robinson, R. A.** See Stokes, R. H.

—— and Selkirk, R. C. System HCl-dioxane-water at 25°, 1637*g*.

—— and Stokes, R. H. Hydration in the Debye-Huckel theory, 7301*h*

**Robinson, R. C.** See Berman, J. E.; White, E. T.

**Robinson, R. D.** Typhoid control, 6314*d*; see Royer, G. L.

**Robinson, R. H.** Harvest analyses of DDT residues, 1898*b*.

**Robinson, R. R.** Drying of ceramic wares, 6798*h*, see Dimsdale, W. H.

**Robinson, R. S.** See Beck, Koller & Co. (England) Ltd., Bevan, E. A.

—— and Humburger, E. L. Maleamic acid, P 3842*i*.

**Robinson, S. A.** See Hart, R. T.

**Robinson, S. C.** Synthesis of Pb thioantimonites, 8936*h*; identity of falkmanite and yenerite with boulangerite, 8983*c*; owyheeite, 8983*b*

**Robinson, S. P.** Purification of $H_2S$, P 9396*i*.

**Robinson, T.** Sonic pulverizer and disperser, P 3250*d*, pulverizer and homogenizer, P 6012*c*.

**Robinson, W.** Delay in the appearance of palpable mammary tumors in C3H mice following the ingestion of pollenized food, 3094*c*; see Robinson, F.

**Robinson, W. B.** Effect of sunlight on the ascorbic acid content of strawberries, 6284*i*; see Moyer, J. C.; Smith, Frederick G.

—— and Holgate, K. C. How ripe is a ripe plum? 9286*h*.

——, Moyer, J. C., and Kertesz, Z. I. Thermal maceration of plant tissue, 4735*i*.

**Robinson, W. D.** See Block, W. D.; Fulton, J. K.

**Robinson, W. O.** Green color of plant ash due to Mn, not to Co, 2279*g*; presence and detn. of Mo and rare earths in phosphate rock, 3311*h*.

**Robinson Brothers Ltd.,** Parker, D. W., and Ford, I. A. M. Removal of $CS_2$ from hydrocarbon liquids, P 6707*b*.

**Robison, H. E.,** and Martin, S. W. Beaker-type centrifugal sedimentation of subsieve solid-liquid dispersions (II), 6870*i*.

**Robles, P. S.** See Seguinot Robles, P.

**Roblin, R. O., Jr.** See Miller, W. H.

**Roblot.** See Mullamaire.

**Robottom, H. H.** See Fleming, J.; Narayanan, P. I. A.

**Roboz, E.,** and Haagen-Smit, A. J. Mucilage from *Aloe vera*, 888*d*.

**Robscheit-Robbins, F. S.,** and Whipple, G. H. Dietary effects on anemia plus hypoproteinemia in dogs (I) proteins further the production of hemoglobin and other plasma protein production, (II) findings with milk products, wheat, and peanut flours as compared with liver, 3500*c*.

**Robshaw, W. A.** Tetramethylthiuram monosulfide, P 2227*a*.

**Robson, D. A.** Old Red sandstone volcanic suite of eastern Forfarshire, 3323*e*.

**Robson, J. E.** See Jacobs, T. L.

**Robson, J. M.** Electron multiplier as a counter for 10-e.kv. protons, 3282*b*; see Höhn, E. O.; Nissim, J. A.; Tadros, W.

—— and Nissim, J. A. Progress in pharmacology, 7144*c*; new analgesics, 8099*c*.

**Robson, J. S.,** Ferguson, M. H., Olbrich, O., and Stewart, C. P. Detn. of the renal clearance of inulin in man, 8418*e*.

**Robson, S.** Condensing Zn vapor, P 2921*f*; condensation of Zn vapors in gaseous mixts., P 6563*b*; Zn, P 6965*f*; see National Smelting Co. Ltd.

—— and Derham, L. J. Recovery of Zn, P 3768*g*.

**Robson, T. D.** See Oxley, P.

**Roby, R. N.** Cu-Ni deposits of the Stillwater Complex, Stillwater and Sweetgrass Counties, Mont., 4982*a*; Running Wolf Fe deposits, Judith Basin County, Mont., 5348*a*.

—— and Robertson, A. F. Whiteware clay deposit, Fergus County, Mont., 4436*i*.

**Roca, J.,** and Ondarza, R. Enzymic activity during germination (I) saccharogenic and proteolytic activity in the kidney bean, 8451*i*.

**Rocchetti, G.** Org. matter in the soils of tropical regions, 5141*c*.

**Rocchietta, S.** Synthetic curare prepn., 8099*g*.

**Rocchini, A. G.** Oil compns., P 2765*f*; detergent-type lubricant, P 5585*c*.

**Rocco, L.** See Baldassi, G.

**Roccuzzo, M.** Liver function and carbohydrate metabolism in kala-azar in children, 3515*h*; Mg in blood during kala-azar, 3923*d*; see Paradiso, F.

**Rocha, O. da.** Macauba palm, 1837*b*.

**Rocha, V. S.** See Wilson, I. F.

**Rocha de Almeida, J.,** and Valsecchi, O. Fermentation of banana, 5153*g*; fermenting the fruit of the mamoeira, 8089*i*.

**Rocha e Silva, M.,** and Beraldo, W. T. Dynamics of recovery and measure of drug antagonism—inhibition of smooth muscle by lysolecithin and antihistaminics, 311*c*.

——, Beraldo, W. T., and Rosenfeld, G. Bradykinin, a hypotensive and smooth-muscle-stimulating factor released from plasma globulin by snake venoms and by trypsin, 5814*b*.

—— and Rimington, C. Activation and purification of blood fibrinolysin, 2663*c*.

**Rochas, P.** See Colonge, J.

**Rochat, R. J.** Detn. of Au in cyanide baths, 8904*d*.

**Roche, J.** See Abul-Fadl, M. A. M.; Bouchilloux, S.; Deltour, G. H.; Derrien, Y.; Fromageot, C.; Jaffray, J.

—— and Abul-Fadl, M. A. M. Amino groups and enzymic activity of phosphatases, 1445*i*, 3478*b*.

—— and Bouchilloux, S. Hydrolysis and synthesis of phosphorylcholine and phosphorylcolamine by phosphatases, 9091*d*.

——, Bouchilloux, S., and Roger, M. Mg and Zn contents of alk. phosphatase, 3478*c*.

——, Derrien, Y., and Michel, R. Thyroglobulin, 2658*c*.

——, Girard, H., and Lacombe, G. Presence of a glycocyaminase in a strain of *Pseudomonas*, and the characteristics of this deguanidase, 2275*h*; arginine dihydrolase and bacterial creatininase, 7527*a*.

——, Girard, H., Lacombe, G., and Mourgue, M. Degradation of glycocyamine by *Pseudomonas ovalis*—bacterial glycocyaminase and arginine dihydrolase, 3061*g*.

——, Giraud, P., Coignet, J., Lafon, M., and Liardet, J. Lactation-stimulating action of iodinated proteins in women, 2685*c*.

—— and Lafon, M. Iodine, tyrosine, and I-contg. amino acid contents of the gorgonins—mechanism of iodination—specificity of these proteins, 6254*a*; I and I-contg. amino acid contents of gorgonins, 7983*d*.

—— and Michel, R. Formation of thyroxine by the action of I on peptides contg. tyrosine, 1069*h*, 6253*h*.

——, Michel, R., and Lafon, M. Formation of thyroxine and its precursors by iodination of proteins, 1070*c*.

——, Michel, R., and Sadhu, D. P. Iodination of peptic peptones, 3478*g*.

—— and Mourgue, M. Nitration of proteins and the reactivity of the guanido group of arginine, 256*g*.

——, Nguyen-Van-Thoai, and Bernard, L. de. Characteristics of adenylpyrophosphatase of muscle, 8403e.
—— and Sarles, H. Specificity of the organ and affinity of alk. phosphatases for the substrate, 2250d.
**Roche, M.** Detn. of aldehydes, 2894g; see Mariller, C.
**Rochebillard, R.** See Chambon, M.
**Roche Products Ltd.** (*Patents.*) Pentaenes, 679b; electrolytic reduction of polyhydroxycarboxylic acid lactones, 1273h, α-chloro-α-acetyl-γ-butyrolactone, 2224d; 4-(4-carboxybutyl)-3a,4,6,6a-tetrahydro - 1*H* - thieno[3,4]imidazol - 2(3*H*)-one, 2645a; vanillin, 4431d; pyridinium compds., 4702e, condensation products from α,β-unsatd. ketones, 5798b; β-alanine, 6926f; 3,4 bis(*p*-hydroxyphenyl) - 3,4 - hexanediol, 7510e, esters of 3-pyridylcarbinol, 8105h; vitamin A $Me_2O$, 9391b, pentaene compds. related to vitamin A, 9082f, 9083e.
——, Bergel, F., Cohen, A., Haworth, J. W., Hughes, E. G., and Silk, J. A. Vitamin $B_6$ intermediates, P 697e.
——, Cohen, A., and Rinderknecht, H. Antibacterial substance, P 2742f.
——, Cohen, A., and Silk, J. A. Formamide derivs., P 3445d.
——, Low, J. A., and Smith, R. J. 5-Acetoxy-3-chloro 2 pentanone, P 677g.
——, Morrison, A. L., and Konegstein, M. Ether-esters of α hydroxy acids, P 3462e
——, Morrison, A. L., and Rinderknecht, H. Amino-substituted tertiary carbinols, P 5417c, 7513f.
——, Moss, A. R., and Klein, R. Riboflavin, P 4433c.
**Rocher, H. L.,** and Tingaud. Recklinghausen disease, 8523g.
**Rochester, G. D.** Penetrating particles in cosmic-ray showers, 4558d
—— and Butler, C. C. Penetrating particles in cosmic-ray showers (I) heavily ionizing particles, (II) lightly-ionizing penetrating particles, 4943a.
**Rochkowan, B. A.** See Rashkovan, B. A
**Rochow, E. G.** Dimethylgermanium dichloride, P 2631d, alkylhalosilanes, P 3025d, chemistry tomorrow, 4908h, tetramethyl silicate, P 6647c.
**Rochow, T. G.,** and Rowe, F. G. Resinography of some consolidated separate resins, 6459h.
—— and Stafford, R. W. Coatings [review of analytical chemistry], 3212g.
**Rochow, W. F.** Preshaped and grooved refractory bricks for furnace walls, P 3588c; refractories for glass furnaces, 5562b.
—— and Brashares, C. A. Recent developments in refractories and their applications, 830d.
**Rock, S. M.** See Gifford, A. P.
**Rockenmacher, M.** Relation of catalase activity to virulence in *Pasteurella pestis*, 6275c.
**Rockland, L. B.,** and Dunn, M. S. Growth studies on *Tetrahymena geleii*, 7593d, sepg. amino acids by filter-paper chromatography, 8777f.
**Rockwell, F. V.,** and Diethelm, O. Dibenamine therapy in certain psychopathologic syndromes, 9262f
**Rockwell Manufg. Co.** Ethylene polysulfide polymer lubricant, P 7679d.
**Rockwood, B. N.** See Pohle, W. D
**Rockwood, N. C.** Aggregates and concrete, 2396a; concrete, 4827a.
**Rockwood & Co.** Chocolate coating, P 2340h.
**Rodbard, S.** See Lenel, R.
—— and Lenel, R. Paroxysmal secondary blood pressure rise and tachycardia occurring after the injection of epinephrine, 4374b.
**Rodd, E. H.** Frederick Maurice Rowe, 1891–1946, 2477d.
**Rodda, H. J.** See Human, J. P. E.
**Rodda, J. L.** See Farnsworth, M.
**Rodde, A.** See Lecompte, P.
**Rodde, A. L.** See Moses, F. L.
**Rodden, C. J.** Inorg. volumetric analysis, 2113h; detn. of naturally occurring radioactive elements, 5287f.
**Roddy, W. T.,** and Gapuz, D. B. Water resistance of shoe upper leather (II) stuffing mixt. components and their influence on water resistance of leather, 4041f
——, Jacobs, J., and Junsing, J. Water resistance and other characteristics of an army upper leather—pasted *vs* toggled and hung drying processes, 7733f.
**Rode, L. J.** See Schuhardt, V. T.
**Rodebush, W. H.** Nuclei in evapn. and condensation, 6047i.
**Rodeck, H.** Action of ethylurethan on heart frequency and electrocardiogram, 5493e; effect of Ca on the action current of the heart of amphibians, 6742e; Ca-K-ion antagonism of the electrocardiogram at const. Ca-K proportions, 6742g.
**Roderick, D. B.** See Mitchell, J. H.
**Roderick, H. F.,** and Zorn, F. M. Ca silicate pigment, P 5991a.
**Roderick, J. W.** Plasticity—elements of simple theory, 4078f.
**Rodes, N. D.,** Lemley, J. M., Dale, A. B., Stephenson, S. E., Jr., and Meneely, G. R. Extracellular water content of the heart in dogs subjected to hemorrhagic shock measured with the radioactive isotope of Na, 7125d.
**Rodés, R. C.** See Calvo Rodés, R.
**Rodewald, C. W.** See Alfrey, T., Jr.
**Rodewald, W.** Influence of hematoporphyrin on the action of convulsive poisons (coramine, metrazole, strychnine), 7137a
**Rodgers, C. H.** Multi-stage evaporative cooler, 1616g
**Rodgers, J.** Phosphate deposits of the former Japanese Islands in the Pacific, 8991e
**Rodgers, N. E.** See Hanson, A. M.
**Rodgers, T. T., Jr.** Aq. lubricant, P 6821a
**Rodgers, T. T., Sr.** Aq. lubricant, P 6821a.
**Rodhe, W.** Environmental requirements of fresh-water plankton algae—exptl. studies in the ecology of phytoplankton, 1343g
**Rodichev, D. D.** Centrifugal casting of uniform wall glass products, P 6386d
**Rodie, E. B.** Corrosion prevention for water works, 4795d.
**Rodier, G.** App. for the approximate calcn. of certain definite integrals in problems of structure, 38e; see Amiel, J.
**Rodigin, N. M.** Rate of transformation of lamellar pearlite into austenite in eutectic steels during elec. heating, 85e
**Rodionov, S. F.,** and Osherovich, A. L. Spectrophotometer with secondary-electron amplifier for ozonometric measurements, 6918d
**Rodionov, V. M.,** Bogoslovskii, B. M., and Kazakova, Z. S. Derivs. of 3-hydroxythianaphthene, 2200d, 6204f, (II) 2-(nitrophenyl)-3-hydroxythianaphthenes, (III) prepn. of 2 methyl-3 hydroxythianaphthene, 3816f
—— and Fedorova, A. M. Interaction of mono-, di-, and trichloroacetic acids with dimethylaniline, 5361f
—— and Kiseleva, V. V. Reaction of β-phenyl-β alanine and hypobromite—synthesis of 4-phenyl 2 imidazolidone and its acyl derivs., 3821d, tetrahydropyrimidine compds. (II) synthesis of derivs. of 1 phenyl-6-oxotetrahydropyrimidine, 3821f
——, Machinskaya, I. V., and Belikov, V. M. Prepn. of esters of α nitro carboxylic acids (I) ethyl nitroacetate, 127c.
—— and Urbanskaya, O. S. β-Amino acids—synthesis of β-guanidino acids and their transformation into hexahydropyrimidines, 3793b.
—— and Zvorykina, V. K. Syntheses in the pyrimidine series, 235g; transformation of amides of β alkyl(aryl)-β carbethoxyaminopropionic acids into β-ureido acids, 6597g
**Rodney, G.** See McGinty, D. A
——, Swendseid, M. E., and Swanson, A. L. Pteroylglutamic acid in tyrosine oxidation by liver tissue, 9098h.
**Rodnight, R.** See McIlwain, H.
**Rodnikova, I. V.** See Obreimov, I. V
**Rodnikova, V. V.** Heat transfer by radiation in heated glass, 8626e
**Rodolico, F.,** and Pieruccini, R. Be in the differentiation of selagitic magma, 2137h
**Rodrigues, L. D.** See Duarte Rodrigues, L.
**Rodrigues Cardosa, M.** See Moniz de Bettencourt, J.
**Rodrigues Dantas, C.** Clay of the state of Amapá, 4609e
**Rodriguez, A. E.** Approx. equation of state, 7764b; see Born, M.
**Rodriguez, C.** Same as Rodríguez Muñoz, C.
**Rodriguez, H.** See Sánchez-Marroquín, A.
**Rodriguez, J. A.** See Acosta Rodriguez, J.
**Rodriguez, J. D.** See Dominguez Rodríguez, J.
**Rodriguez, J. G.,** and Neiswander, R. B. Effect of soil-sol. salts and cultural practices on mite populations on hothouse tomatoes, 5892e.
**Rodriguez, M. M.** See Martín Rodriguez, M.
**Rodríguez, M. P.** See Pérez Rodríguez, M.
**Rodríguez, R.** See Moya, F.
**Rodrigues Cabo, J., Jr.** See Trask, P. D.
**Rodríguez Gallego, S.** See Aznar Reig, A.
**Rodríguez-Miñón, J. L.** Histopathology of the pancreas in alloxan diabetes, 1100f; see Jiménez Díaz, C.
**Rodríguez Muñoz, C.** Colored suspensions of inulin, 8801b
—— and Claver Aliod, M. Polyphenols in the seed of the carob bean, 8452d.
**Rodríguez Perez, A.** See Barceló Matutano, J. R.
**Rodrigues Rios, B.** See Beltrán Martínez, J.
**Rodsiewitsch, V. I.** See Rodzevich, V. I
**Rodwell, A. W.** See Gale, E. F.
**Rodygin, P.** Detn. of butyric bacteria in milk, 9280d.
**Rodzevich, V. I.** See Klimovskii, D. N
**Rodziewicz, W.** Changes in arrangement of elements in the last period of the natural system, 2051c.
**Roe, A.** See Cheek, P. H. Minor, J. T.
—— and Hawkins, G. F. Prepn. of heterocyclic F compds. (II) monofluoroquinolines, 5783e
**Roe, E. T.** See Scanlan, J. T.
—— Scanlan, J. T., and Swern, D. Fatty acid amides (I) prepn. of amides of oleic and the 9,10 dihydroxystearic acids, 8353e, epoxy compds. (IX) epoxidation of oleamide and *N*-substituted oleamides with peracetic acid, 8354a
**Roe, F. C.** "Wide band" air-diffusion system, 3123b
**Roe, J. H.** See McMurray, L. G. Mills, M. B.; Smith, B. W.
——, Epstein, J. H., and Goldstein, N. P. Detn. of inulin in plasma and urine 6680a.
——, Kuether, C. A., and Zimler, R. G. Distribution of ascorbic acid in the blood 5847a
**Roeben, F. J.,** and McNally, J. F. Removal of films of silicone lubricants on glass app., 1226d
**Roebuck, A. K.** See Adkins, H.
—— and Adkins, H. *trans* 1,2 Cyclohexanediol, 1730a.
**Roebuck, D. S. P.** See Scott, W. D.
**Roeckel, B.** Disparity in concn. between palisade cells and sieve tubes, 7552a
**Roedel, G. F.** Detn. of functionality in methylsilicone systems, 138g, reactivities of (chloromethyl)trimethylsilane and (chloromethyl) pentamethyldisiloxane, 2929e, see Hurd, D. T., Marsden, J.
**Roedel, M. J.** Oxime catalysts for polymerizing olefins, P 4514i; coating compns. and articles coated therewith, P 9535d, $C_2H_4$ polymerization with Grignard type compds., P 9537c
**Roeder, D.** Metabolism by tooth enamel of radioactive P, 4748a
**Roeder, F.** P-32 in Nervensystem (book), 4361h.
**Roeder, G.** Adjustment of the butyrometric fat detn. according to Gerber, 1874i.
**Roeder, K. D.** Physiology of acetylcholine (V) effect of anticholinesterases and related substances on nervous activity, 4753c
—— and Weiant, E. A. Effect of DDT on sensory and motor structures in the cockroach leg, 3964i.
**Roedig, A.** Synthesis of some polychloropolyenes and the atropisomerism of octachlorohexatriene, 3346c, Allgemeine und anorganische Chemie (book), 7319a, see Metz, L.
**Röe, O.** Ganglion cells of the retina in cases of methanol poisoning in human beings and exptl. animals, 1850i.
**Roegiers, M.** Vapor pressure, viscosity, surface tension, and equil. proportions of ideal mixts., 6878d
**Röhm, F.,** and Kochendörfer, A. Latent strengthening in distorted Al crystals, 4991e.
**Roehm, J. C.** High-Ca limestone deposits in southeastern Alaska, 8319c.
**Röhm & Haas Co.** Name changed to Rohm & Haas Co.
**Roehrich, V. H.** Basic Al salt solns., P 3158b.
**Roelig, H.** See Fromandi, G.
**Roemer, G. B.** Biochem. properties of human pathogenic streptococci and their serological grouping, 1459i.
**Römer, K. H.** Antibioticum Penicillin (book), 9166g.

**Roemmelt, J. C.** See Westerfeld, W. W.
**Römpp, H.** Chemie der metalen (book), 988*b*; Anorganische Chemie (book), 3742*h*.
**Roesch, E.** See Eichholtz, F.
**Roeser, G. P.** See Conwell, Y.; Tobolsky, A. V.
**Roesler, H.** Porosity tests for coatings, 5202*g*
**Rössing, P.** Silicoses—silicogenic action of dust mixts., 4497*b*
**Rössler, F.** Flow phenomena in rubber samples, 3642*h*.
**Roesti, H.** Dyeing glass fibers, P 4410*g*
**Roetheli, B. E.** Multiple stage regeneration of spent catalysts, P 370*h*
—— and Scharmann, W. G. App. for the dehydrogenation of butylene, P 3436*e*
**Roethlisberger, M.** Collection of fuel gas evolved by org. matters in decompn., P 4837*a*.
**Röttger, H.** Detn. of creatinine and creatine in urine and serum, 8426*b*
**Roever, W.** See Zerle, K.
**Roey, G. van.** See Clerck, J. de
**Roff, W. J.** See Derry, R. L.
**Roffey, F.**, Ashmore, S. A., and Penny, L. E. Xylene and toluene, P 1059*a*
——, Poole, H. J., Allmand, A. J., Style, D. W. G., and Drake, C. F. Explosives, P 5952*g*
**Roga, B.** Coke industry in Poland, 2755*e*, see Kowalski, J.
**Rogalev, I. E.** Action of K on the content of bound and free water and water retention ability of plants, 8012*e*
**Roger, H.**, and Simonin, R. Poisoning with MeBr, 1188*i*
**Roger, J.** Fluorescent tube and the luminescent lamps, 4163*a*, application of x rays to paleontological studies, 8994*d*
**Roger, M.** See Bouchilloux, S., Roche, J.
**Rogers, A. O.** Reaction between ClH₂C·CHCN and reactive methylene compds., P 3446*g*
——, Emmick, R. D., Tyran, L. W., Phillips, L. B., Levine, A. A., and Scott, N. D. Synthesis of DL lysine from dihydropyran 835*a*
**Rogers, A. W.** Diatomaceous deposits in the Union of South Africa—kieselguhr (II) diatom flora, 1692*f*
**Rogers, C.** See Lewis, J. B.
**Rogers, C. E.** See Ely, P. G.
**Rogers, C. H.** Pharmaceutical Chemistry (book), 821*a*, nontoxic germicide, 3615*c*.
**Rogers, D. C.** Cast synthetic resin with integral sheen, P 9526*a*
**Rogers, D. T.** See McNab, J. G.
—— and Bartlett, J. H. Synthetic lubricant, P 2764*h*
**Rogers, E.** Open-hearth furnace instrumentation 2908*i*, see McLaughlin, A. I. G.
**Rogers, E. F.**, Komuszy, F. R., Shavel, J. Jr., and Folkers, K. Plant insecticides (I) ryanodine, an alkaloid from *Ryania speciosa*, 812*d*
**Rogers, E. W.** See Marshall, P. B.
**Rogers, F. T., Jr.** Effect of scattering on exptl. detns. of $\lambda R$ for high-energy particles, 4089*g*, minimization of some effects of scattering in detns. of $\lambda R$ for high-energy particles, 4094*c*, see Byatt, W. J., Linker, M. J. A., Waltner, A.
**Rogers, H. W.** Wood chipper, 1182*b*
**Rogers, J.**, Watts, R. J., and Williams, D. Detection methods for microwave spectra, 4094*h*
**Rogers, J. C.** Hard Cr plating of plastic and rubber molds, 3727*c*
**Rogers, J. D.** See Pietenpol, W. J.
**Rogers, J. S.** Tannin from northeastern barks, 4847*c*, see Beebe, C. W., Cordon, T. C.
**Rogers, J. V.** Chem. resources of Washington, 9295*d*
**Rogers, J. W.** See Choppin, A. R.
**Rogers, L. B.** Electrosepn. of technetium from Re and Mo, 6522*i*, see Coe, R. H., Griess, J. C., Jr., Miller, H. H., Reynolds, C. A., Smith, G. H.
——, Krause, D. P., Griess, J. C., Jr., and Ehrlinger, D. B. Electrodeposition behavior of traces of Ag, 2875*f*
——, Miller, H. H., Goodrich, R. B., and Stebney, A. F. Automatic recording of polarographic data obtained with Pt electrodes, 7355*f*
—— and Reynolds, C. A. Interaction of pyrophosphate ion with certain multivalent cations in aq. solns., 8935*f*.
—— and Stebney, A. F. Electrodeposition behavior of a simple ion, 2875*i*.
**Rogers, L. H.** Detn. of exchangeable bases, 1130*g*
**Rogers, M. M.** Redetn. of the nuclear magnetic moment of Na, 4089*h*; see Bell, P. H.
**Rogers, Mrs. L. E.** See Dwyer, F. P.
**Rogers, R. R.**, and Boyd, M. L. Electrodeposition of metallic coatings on Mg alloys, 4147*h*.
—— and Stewart, W. R. G. Cathodic protection of steel in various chem. solns., using Mg, Zn, and Zn-Li anodes, 6525*b*.
——, Tetu, D. A., and Livingstone, H. Corrosion resistance of Mg and certain of its alloys under various accelerated atm. conditions, 2118*i*
—— and Viens, G. E. Production of Li metal, 1300*f*.
**Rogers, S. S.** Vanderbilt Rubber Handbook (book), 895*a*
**Rogers, T. H.** Promotion and acceleration of metallic corrosion by microorganisms, 98*d*
**Rogers, T. H., Jr.** Synthetic rubber sponge, P 5991*h*
—— and Vickers, R. D. Modifying vinyl chloride-vinylidine chloride copolymers with phenol-HCHO resins, P 3239*d*; thermoset copolymer with vinyl chloride and vinylidene chloride, P 5637*h*.
**Rogers, W. F.**, and Williams, R. H. Cholesterol of the human adrenal gland—its significance in relation to adrenal function and structure, 7118*h*
**Rogers, W. P.** Respiratory metabolism of parasitic nematodes, 5874*e*
—— and Lazarus, M. Uptake of radioactive P from host tissues and fluids by nematode parasites, 9269*h*, glycolysis and related P metabolism in parasitic nematodes, 9270*d*.
**Rogers-Low, B. W.** See Crowfoot, D.
**Rogerson, J.** See Dunlop Rubber Co. Ltd.
**Rogerson, W. A.** See Sowter, P. F. C.
**Rogge, R. H.** Dextrose from corn starch, 8716*d*.
**Roghinsky, C. Z.** See Roginskiĭ, S. Z.
**Rogick, L. A.** See Amaral Rogick, L.
**Roginskaya, Ts. Z.**, and Lyubimov, V. I. Lysin in *Actinomyces griseus* cultures, 7548*c*.
**Roginskiĭ, S. Z.** Electronic properties of solids and their catalytic activity, 8251*d*
——, Tret'yakov, I. I., and Shekhter, A. B. Electron-microscope study of the surface of working catalysts (I) application of the method of shadow replicas to studying variation of catalysts as a result of the catalytic reaction, 4087*c*.
—— and Tseliuskaya, T. F. Supersatn. theory (III) low-temp. oxidation reactions on nickelous oxide, 2498*h*.
**Rogosa, M.** Fermentation of lactose by yeasts, 275*b*
**Rogovin, S.** See Rogovin, Z. A.
**Rogovin, Z. A.**, Zhukov, B. P., Sudakova, G. N., Arkhipova, M. F., Taubkin, S. I., and Blekhman, F. A. Nonflammable linoleum substitutes, P 3216*c*
**Rogozinski, A.** See Bouchez, R., Lesage, M.
—— and Lesage, M. Differential spectra of mesons of low energy, 2504*h*
**Rohan, J.** See Fields, M.
**Rohan Barondes, R. de.** See Barondes, R. de R.
**Rohatgi, K. K.** Quenching of fluorescence in some nonaq. solvents, 3295*f*, see Mukherjee, S. N.
**Rohde, G.** Mineral contents of male and female organisms, 3492*d*
**Rohdewald, M.** Phosphorylase of leucocytes, 3479*b*
**Rohloff, E.** Heating and cooling of the anode flame of the C arc, 4145*e*; streaming velocity of the anode flame of the C arc, 8914*i*.
**Rohman, A.** Paint drying at the Lincoln-Mercury assembly plant, 5969*a*
**Rohm & Haas Co.** (*Patents.*) Acetals, 1433*h*, acrylic ester addn. products, 2031*d*, acrylic resin laminations, 4893*g*; acylated suberates and azelates, 6225*i*; 2-acyl-2-(4-cyanobutenyl)cycloalkanones, 6230*c*, 2-acyl-2-(2-cyanoethyl)-cycloalkanones, 7040*f*, allyl diglycolate of allyl glycolate, 7754*d*, amides from acyclic unsatd. compds., 2233*b*, araliphatic nitriles, 7968*c*; 2-(2-carboxyethyl)-2-cyclohexenylcyclohexanone, 6230*e*; cation-exchange resins, 1216*i*; 1-chloro-2-acyl-1-cyclohexenes, 6230*a*, Co carbonyl, 8107*i*, 9397*d*; γ,γ-dialkylbutyronitriles 3440*a*, diamine from dimeric octadecadienenitrile, 3447*e*; diphenyldihaloethanes, 4300*a*; ester lactones, 3032*f*; fungal lipase, 8417*g*; fungicide and insecticide, 1901*e*; fungicides from dithiocarbamates mixed with Zn salts and lime, 4418*h*; halogen-substituted acetals, 6649*i*; halophenyl acetals, 3968*a*; hydraulic fluid, 1960*g*; HCN, 9396*g*; hydroxycarboxylic acids, 3039*d*; impregnation of regenerated cellulose staple fibers, 9476*b*; insecticidal compns. [illegible], nitriles, 2220*d*; phenol-HCHO polymers with surface-active properties, 1587*f*; polycyclopentadiene, 5231*f*; polymeric quaternary ammonium salts, 1587*d*; residue carboxylic acid-alkylenediamine resins, 5997*d*; resinous linear polyesters in crumblike form, 2032*e*; sulfophthalic anhydride-xylene resin, 3233*f*; surface-active linear polyesters, 1588*b*; treatment of cellulosic textiles with strong hydroxide and acrylonitrile, 6428*e*; urea resins contg. ammoalkoxy substituents, 6464*f*; zirconia opacifiers, 1580*a*; see Standard Oil Development Co.
**Rohn, K.** Prepn. of thin metal and salt layers by evapn. in a vacuum, 8785*b*.
**Roholt, K.** Microbiol. methods with particular consideration for the detn. of the B vitamins, 9157*f*.
**Rohr, E.** See Endres, G.
**Rohr, L.** See Bamann, E.
**Rohrback, G. H.** Calcn. of the energy of vaporization of perfluorocyclopentane from intermol. forces, 8814*g*.
—— and Cady, G. H. Fluorination of periodic acid, 518*f*, surface tensions and *n*s of the perfluoropentanes, 8225*g*.
**Rohrbaugh, W.** See Garnatz, G.
**Rohrig, I. A.** See Van Duzer, R. M., Jr.
**Rohrlich, F.** Configurations $d^2sp$, $d^3p$, and $d^7p$, 1652*a*, classification of the odd terms of Ti I, 1652*b*.
—— and Eisenstein, J., Neutron-proton and neutron-neutron scattering at high energies, 4107*g*
**Rohrmann, E.** Aldehyde derivs. of 2-aminoalkanes, P 3025*b*, isothioureides of aliphatic sulfides, P 4291*i*; see Mills, J.; Sah, P. P. T.
**Rohwer, S. A.** Toxaphene—common name for chlorinated camphene, 5897*d*; lindane, a coined name for the pure γ isomer of benzene hexachloride, 7625*f*; see Fulton, R. A.
**Roi, E. J. le.** See Le Roi, E. J.
**Roich, I. L.** See Roĭkh, I. L.
**Roig, R.** See Berrens, C.
**Roĭkh, I. L.** Emission of photographically active particles in atm. corrosion of metals, 2869*i*
**Roine, P.** Effect of oxidation-reduction potential on the stability of ascorbic acid in milk and in fermented milk, 1118*e*.
——, Booth, A. N., Elvehjem, C. A., and Hart, E. B. Potassium and Mg in nutrition of the guinea pig, 6293*h*.
**Roisin, L.** See Roizin, L.
**Roiter, V. A.** Ideas of L. V. Pisarzhevskiĭ in the field of catalysis, 7701*i*.
**Roizen, A. I.** See Kukolev, G. V.
**Roizin, L.** See Ferraro, A.
**Rojas, A.**, Muñoz, C., and Mardones, J. Effect of acetylcholine and of Ba on rabbit isolated small intestine paralyzed by phlorizin, 5872*e*.
**Rojo, A. M.** See Matesanz Rojo, A.
**Rojter, W. A.** See Roĭter, V. A.
**Rokhlenko, E. I.** See Zamkova, M. A.
**Rokhlina, M. L.**, Frid, A. I., Kaplan, A. I., and Chkoniya, E. A. Biol. action of citral and β-ionone, substances related to vitamin A, 1488*g*.
**Rokityanskiĭ, I. V.** Polymerization of bivinyl with Na in the presence of CO, 2019*i*.
**Roland, J. R., Jr.** See Hanford, W. E.
**Rolf, D.** See White, H. L.
**Rolfe, R. T.** Dictionary of Metallography (book), 5357*a*.
**Roll, F.** Rust protection of insulator caps of temper castings, 6139*b*.
**Roll, K. H.** Decorative finishes for Pb, 1705*b*; phys. and corrosion characteristics of Pb in the chem. industry, 7400*b*; see Ziegfeld, R. L.
**Roll, L. v., A.-G. für kommunale Anlagen.** Acceleration of sludge decompn. in a sewage plant, P 4408*d*; continuous drying, P 3238*g*; pptn. of soot, ash, and dust from furnace gases, P 5573*f*, sepn. of soot, ash, and dust from combustion gases, P 5573*f*;

settling plant, P 6345*f*; clarifying biologically purified sewage, P 6346*b*; mech. and biol. purification of domestic and industrial waste water, P 7170*e*; plant for mech. and biol. purification of sewage, P 9310*g*; see C I B A Ltd.
**Roll, P. M.** See Di Carlo, F. J.; Getler, H.
**Rolla, M.** Thermodynamic studies of the phenomenon of chelation (I) H bond and intermol. reactions, 1243*a*; structure of $K_2Zn(CN)_4$, 8939*e*; see Bonino, G. B.
——— and Carassiti, V. Synthetic org. dielectrics—application of the Wagner theory, and the utilization of relative parameters in the tech characterization of polychloronaphthalenes, 8766*f*; kinetic action of the salts in the reaction between KI and $K_2S_2O_8$ in the presence of alkali and alk. earth chlorides, 8817*e*.
and Chiorboli, P. Raman spectrum and mol. assocn of *p*-acetylphenol in soln. in dioxane, 6920*b*; mol. assocn of *p*-hydroxybenzaldehyde in soln. in MeOH and dioxane, 8814*e*; Raman spectrum of 2-furaldehyde in various solvents, 8888*a*; aspect of the Raman spectrum due to oscillations of the furan nucleus, 8888*i*.
———, Fontana, P., and Marinangeli, A. M. Mol. configuration and dipolar elec moment in isomeric hexachlorocyclohexanes, 8770*i*.
——— and Mariani, E. Theory of concd solns of strong electrolytes (V) calcn. of the lowering of the f. p. of concd. solns of KCl and NaCl, 6892*e*.
——— and Marinangeli, A. M. Thermodynamic studies of the phenomenon of chelation (II) H bond in some *o*-phenol derivs., 7300*h*; elec. mol. moment of sesamin, 8769*g*.
**Rollason, E. C.** Coated weld rod, P 2924*c*; nongassing Fe-Mn for welding electrodes, P 3344*c*.
———, Sharratt, E., and Roberts, R. R. Characteristics of metallographic polishing powders, 7884*h*.
and Someren, E. H. S. van. Silicone resins for weld coatings, P 7896*e*.
**Rolle, C. J.** See Fischer, E. K.
**Rollefson, G. K.** See Dodgen, H. W.
**Roller, P. S.** Ba aluminate, P 6795*c*.
**Rollet, A. P.** Rectification by heating the liquid phase and by cooling the vapor phase, 913*a*.
——— and Cohen-Adad, R. Cryoscopy in the eutectic mixt ice-urea, 469*e*.
**Rollet, J.** See Mahé, J.; Mouriquand, C.
**Rollier, M. A.** Giuseppe Bruni, 3669*f*, see Bruni, Giuseppe.
**Rollin, B. V.** See Darby, J. F.
**Rollin, G.** Pneumatic micromanometer, 910*d*.
**Rollins, H. A.** See Griggs, W. H.
**Rollman, W. F.** Drying gases, P 7274*d*.
**Rolls-Royce Ltd.** Al-Cu alloy, P 2567*e*.
**Rollwagen, W.** Emission spectral analysis—review of German publications 1939–1946, 8297*g*.
**Rolnick, H. A.** See Hoster, H. A.
**Roma, F.** Plant for the low-temp. distn of fuels, 375*b*.
**Roma, M.** See Eichelberger, L.
**Romagnolo, A.** See Galeone, A.
**Romaine, M., III.** See Hanlon, L. W.
**Romaine, W., Jr.** Detergent rubber compds., P 4890*e*.
**Roman, C.** Composite wood product, P 1188*d*.
**Román, E.** Parenteral application of vitamin D, 9183*d*.
**Roman, M. K.**, Marboe, E. C., and Weyl, W. A. Influence of heavy metal ions on the hygroscopicity of a glass surface, 2069*e*.
**Roman, W.** Estn. of butadiene in the presence of isobutene, 6399*c*.
**Romand, J.** See Mayence, J.
——— and Mayence, J. Absorption spectra of $N_2O$ in the Schumann region, 5305*f*.
**Romanet, R.** Resistance thermometers of Pt for ordinary lab. usage, 5*a*.
**Romani, E.** See Fusco, R.
**Romanini, M. G.** Histochem. methods for vitellogens of *Distoma hepaticum*, 3529*d*; amphibolitic gabbro inclusion in the argillaceous formation near Zebedasse, 5709*f*.
**Romanishina, S.** See Kevdin, N. A.
**Romankov, P. G.**, and Pavlushenko, I. S. Calcn. of power consumption of mixers, 3666*i*.
**Romann, P.** Observation errors with the McLeod gage, 5235*b*.
**Romano, G.** Elimination of antihistaminic compds. through the kidneys, 4774*f*.
**Romano, M. J.** See Schultz, O. R.
**Romano, R. V.**, Pipparelli, E., and Gnisci, S. Hydrates of natural gases (I) humidity of the gases and constitution of the hydrates, 8643*d*.
**Romanoff, A. J.** See Romanoff, A. L.
**Romanoff, A. L.** Chem. and physiol sex differences in newly hatched chicks, 2955*a*.
——— and Romanoff, A. J. Avian Egg (book), 1118*b*.
**Romanoff, L. P.** See Pincus, G.
**Romanoff, M.** See Denison, I. A.
**Romanov, A.** Cascin and the technological production regime, 7599*b*.
**Romanov, S. N.** Influence of the duration of stimulation of nerve cells on the degree of their binding of dyes, 742*a*; changes in sorptive properties of nerve cells in rabbits under traumatic shock, 8523*i*.
**Romanov, V. A.** See Dubovol, V. Ya.
**Romanova, T. F. B.** See Borovik-Romanova, T. F.
**Romanovskii, V. V. A.** See Antonov Romanovskii, V. V.
**Romans, F.** See Sure, B.
**Romans, J. B.** See Murphy, C. M.
**Romariz, C.** Unusual carotenoids in young leaves (I), 1836*i*.
**Romberg, F.** See Barnes, V. E.
**Romeo, Adolfo.** Bipolarity of the atom, 4059*d*.
**Romeo, Aurelio.** Prepn. of 4-amino-2-hydroxybenzoic acid, 3392*g*.
**Romeo, J. M.** See Jiménez Díaz, C.
**Romer, W.** Resolution of photographic negatives, 8922*d*.
**Romero, J. G.** See Gaspar Romero, J.
**Romero, J. J. L.** See Lima Romero, J. J.
**Romero, M. S.** See Santos Romero, M.
**Rometsch, R.** See Meischer, K.
**Romeyn, F. C.** See Haayman, P. W.
**Romijn, C.** Specificity of the hemoglobin in cows, 1850*i*.
**Romine, H. E.** See Eckel, J. C.
**Rominger, E.** See Heinz, E.
**Rominski, R.** See Ewing, D. T.
**Romo, A. H.** See Huerta Romo, A.
**Romo Aldama, E.**, and Fernández de la Calle, F. Action of desoxycorticosterone acetate on prolonged insulin coma, 8550*d*.
**Rompe, R.** See Moglich, F.
**Romslo, T. M.** Keystone and St George Cu-Zn deposits, Cochise County, Ariz., 6949*h*.
**Romwalter, A.** Removing ash-forming ingredients of coals, 8118*c*.
**Ron, J.** Same as Ron Noya, J.
**Ronco, A.** See Isler, O.
**Ronco, J. J.** Br recovery industry—technology and basic coeffs. in the desorption of Br, 1535*h*, Br-recovery industry—basic coeffs. in the absorption of Br in $Na_2CO_3$, 2378*d*.
———, *et al.* Extn. of Br in Argentina (V) the "Los Gauchos" Spring, 4819*i*.
**Ronda, E.** Beading of plastic sheet, 6862*c*.
**Rondestvedt, C. S., Jr.** See Bordwell, F. G.
**Rondoni, P.**, and Bassi, M. Action of carcinogenic substances on proteolytic enzymes, 3176*g*.
**Roney, O.** How to produce white cement easily, 2393*c*.
**Ronk, S. O.**, and Hunter, L. R. Emulsifier and emulsified hair waving compn., P 8621*e*.
**Ronneberg, C. E.** Arrhenius theory in proper perspective, 8761*e*.
**Ron Noya, J.** See Charro Arias, A.
**Ronold, O. A.** See Fossan, K.
——— and Taarland, T. Tomato paste used in the Norwegian canning industry, 8070*g*.
**Ronov, A. B.** Distribution of carbonate rocks, 3323*i*.
**Ronzio, A. E.** See Gittings, H. T., Murray, A., III.
**Ronzoni, E.** See Parsons, E. H.
**Ronzoni, L. S.** Electrolytic recovery of Ni, P 8919*a*.
**Roo, P. H. M. de.** See Mighorst, J. C. A.
**Rood, C. T.** Water-repellent compn., P 2443*e*.
**Rood, M. H.** See Eaton, S. E.
**Rood, P. J.** See Cook, Ray L.; Lawton, K.
**Rood, R. M.** See Daniels, F. W.
**Rooksby, H. P.** Structure of Ni oxide at subnormal and elevated temps., 919*a*; x-ray diffraction techniques in the industrial lab., 4556*f*.
**Rooney, J. H.**, Sharphouse, J. H., and Hawtin, P. R. Polyvinyl formal coating, P 2037*c*.
**Rooney, T. E.** Gases and nonmetallics (IV) Mn-Mo steel, (V) Ni-Cr steel, (VI) distribution of nonmetallic inclusions in billets from a mild steel ingot, 2907*g*.
**Roos, A.** See McLean, R.; Newberry, A. W.
———, Weisiger, J. R., and Moritz, A. R. Thermal injury (VII) physiol. mechanisms responsible for death during cutaneous exposure to excessive heat, 7109*h*.
**Rooster, J. de.** Methods and app. used in the Bureau of Physicochem. Standards (XII) investigation nuclei of crystn., 3277*i*.
**Root, D. C.** See Long, J. R.
**Root, E. M.** Hydrapulper cooking and pulping of cereal straws, 3613*d*.
**Root, H. F.** See Sinder, R. H.
**Root, L. A.** See Glikman, S. A.
**Root, M. A.** See Goldstein, A.
**Root, W. S.** See Allison, J. B.
**Rooth, G.** Inhalation of liquid aerosols—their production, penetration, and deposition, and the excretion of inhaled sulfonamide, penicillin, and streptomycin, 8538*e*.
**Rootsi, N.** Sp. gr. and dry-matter content of tomatoes, 8070*g*.
**Rooyen, C. E. van.** See Van Rooyen, C. E.
**Rope, B. W.** See Johnson, C. C.
**Roper, E. R.** See Jackson, R. C.
**Roper, G. H.** Instrumental plant control, 6469*e*.
**Roper, J. A.**, and McIlwain, H. Prepn. and antibacterial action of some compds. structurally related to glutamic acid—their application in microbiol. detn. of small quantities of glutamine, 2674*g*.
**Roper, J. N., Jr.** See McMahon, E. M.
**Ropp, G. A.**, and Coyner, E. C. Reactions of 1-phenyl-1,3-butadiene with acrylic acid, ethyl acrylate, and Me vinyl ketone, 8363*g*.
**Roquerbe, P.** See Poulverel, A. A.
**Roques, H.** Color reaction of squill heterosides and its biol. importance, 2372*e*, presence of lecanorin A, in a lichen, *Lecanora exulata* and its biol. importance, 5451*d*, 7041*h*, heterosides isolated from squill seed, 5530*g*, 7195*f*.
**Rorive-Bouté, C. M.** See Pourbaix, M.
**Rorschach, R. L.**, and Gardner, F. T. Distribution of gaseous solutes between aq. and liquid hydrocarbon phases—$H_2S$, 7297*g*.
**Roš, M.** Mclocol glues of Ciba A.-G., Basle, 3655*f*.
**Rosa, A.** Structure of stellar atms. (I) ionization of stellar material—relation between gas pressure $P_g$ and electron pressure $P_e$—effective mol. wt. $\mu$, 6916*c*.
——— and Unsold, A. Structure of stellar atms. (II) sp. heat ($c_p$ as a function of pressure and temp., 6916*d*.
**Rosa, M. J. da.** See Jordão da Rosa, M.
**Rosaire, E. E.** Exploration by soil analysis, P 5581*h*.
**Rosamilia, P. L.** See Caplan, S.
**Rosanoff, Rosanow.** See Rozanov.
**Rosario, L. del.** See Del Rosario, L.
**Rosario Pereyra, S. del.** Identification of strychnine in quantities of about one γ, 1153*g*.
**Rosas da Silva, D. J.**, and Cotelo Neiva, J. M. Montmorillonite in granitic pegmatites and the problem of montmorillonitization, 5709*h*.
**Rosati, S.** See Croxatto, H.
———, Croxatto, H., and Croxatto, R. Plasma antitryptase in tourniquet shock, 5857*h*.
**Rosdahl, K. G.** *p*-Aminosalicylic acid—chemotherapeutic agent, 8099*c*, see Jensen, K. A.
——— and Degerholm, E. Chemotherapeutics for tuberculosis, P 6236*c*.
**Rose, Adolphe.** See Pochon, J.
**Rose, Arthur.** Distn. [in analytical chemistry], 2113*g*.
**Rose, A. D. D.** Agronomic criterion relating to the irrigation of flax, 2286*f*.
**Rose, A. H. du.** See Du Rose, A. H.
**Rose, A. J.**, and Rimsky, A. Summation of Fourier series—polar coördinates, 6078*e*.
**Rose, B.** γ-Rays from the disintegration of B by slow neutrons, 3283*h*.
**Rose, Bram.** See Jackson, I. J.; Leger, J.
**Rose, B. A.**, Davis, G. J., and Ellingham, H. J. T. Thermodynamics of metallurgical reduction processes, 4931*e*.
**Rose, C. L.** See Henderson, F. G.
**Rose, C. S.** See György, P.
——— and György, P. Effect of boric acid on biol. activity of alloxan, 5851*b*.
**Rose, D.**, and **Peterson, R.** Influence of the amino acid-dextrose reaction on growth of lactic acid bacteria, 8445*e*.

**Rose, E.** See Weil, A. J.
**Rose, F. L.** See Ainley, A. D.; Ashworth, R. de B.; Basford, F. R.; Birtwell, S.; Crowther, A. F.; Curd, F. H. S.
**Rose, F. W., Jr.** Butadiene sulfone, P 663*a*.
**Rose, G. R. F.** See Bayley, C. H.; Weatherburn, A. S.
**Rose, H. E.,** and French, C. C. J. Extinction coeff.—particle-size relation for fine mineral powders, 2843*c*
**Rose, H. J.,** and Rowan, M. K. Butadiene polymerization, P 7257*i*.
**Rose, H. E. de.** See De Rose, H. R.
**Rose, J. D.** See Lambert, A.
——, Weedon, B. C. L., and Imperial Chemical Industries Ltd. Diacetylene diamines, P 5794*b*.
**Rose, K.** Shot blasting replaces pickling on some steel-cleaning applications, 545*c*, secondary metals now accepted as of high quality, 1697*f*; cemented carbides, 2141*f*, thermosetting plastics, 5226*i*
**Rose, K. E.** Pattern materials, P 5888*i*, see Schutte, A. H.
**Rose, M. E.** Production of nuclear polarization, 4100*i*, scattering and absorption of neutrons by polarized nuclei, 4100*l*, nuclear physics and low temps., 4108*g*, electron-neutrino correlation in heavy elements, 5277*i*; internal pair formation, 8855*d*.
**Rose, R. C.** See Appleton, E. V., Cefoil Ltd.
**Rose, R. M.,** and Marchand, R. J. Recovery following an overdose of pyrithyldione (presidon), 8510*e*
**Rose, W.** Evaluation of relative permeability, 6811*i*.
——— and Bruce, W. A. Evaluation of capillary character in petr[illegible] reservoir rock, 6811*j*.
**Rose, W. C.** Amino [illegible] its of man, 7561*e*.
——, Oesterling, M. J. [illegible] I. We[illegible]s, M. Comparative growth [illegible] g. 10 and 19 amino acids—glutar[illegible]ispar tic acids, 1843*i*
**Rose, W. G.** Ammoethyl esters of diacylglycerophosphoric acid, P 1652*i*
**Roseira de Mattos, A.** Adsorption of thiocyanate on trichloroacetic[illegible] tion, 6682*a*
**Rosen, A. L. le.** See Le Rosen, A. L.
**Rosen, B.** Predissocn. and the rule of [illegible] intersection of pot. and energy [illegible] the same species, 2511[illegible] see Dels[illegible], Lejeune, J. M.
**Rosén, C. O.** See Duding, N. Å.
**Rosen, E.,** and Black, G. Chrom[illegible] surfaces—applications, 980*a*
**Rosen, F.** See Pearson, P. B.
——— and Perlzweig, W. A. Effect [illegible]latin on the transformation of tryptophan in rats on low casein diet, 3400*a*
———, Perlzweig, W. A., and Leder, I. G. Fluorometric method for th[illegible]in, of the 6-pyridone of N¹-methylnicotinamide in urine, 6693*h*
**Rosen, G. U.** See Erickson, R. O.
**Rosen, H. H.** See Witten, B.
**Rosen, L.** See Curtis, B. R., Froman, D. Phillips, A. N.
**Rosen, L. J.** See Bartlett, Paul Doughty.
**Rosen, N.** See Bowers, W. A.; Eisner, M. Moseley, H. M.
**Rosén, O.** See Bondeson, W.
**Rosen, R.** See Zimmer, J. C.
——— and Sparks, W. J. Lubricant additive P 5585*b*
**Rosenbaum, A.** See Studer, F. J.
**Rosenbaum, B. M.** X-ray diffraction investigation of minor phases of 20 high temp. alloys, 540*f*.
**Rosenbaum, E. J.** Ultraviolet absorption spectrophotometry [in analysis], 2115*c*, spectrophotometer for continuous analysis of diolefin mixts. in the ultraviolet range, P 6012*e*.
**Rosenberg.** See also Rozenberg.
**Rosenberg, A. A.** Serologic activity of dipalmitylecithin, 7575*f*; see Bossak, H. N.
**Rosenberg, A. J.** Influence of *l*- and *d*-inositol and some pyrone derivs. on cultures of *Clostridium saccharobutyricum* inhibited by malonate, 716*c*.
——— and Nisman, B. Action of amino acid oxidase of *Clostridium sporogenes* and of *Clostridium saccharobutyricum* in the presence of O, 8430*g*.
**Rosenberg, C. C.** See Elderfield, R. C.
**Rosenberg, E. F.** See Wolfson, W. Q.
**Rosenberg, H. R.** Nicotinamide, P 694*f*; mussel provitamin D, P 7648*c*
**Rosenberg, I. N.** See Gould, R. G.; Hastings, A. B.
**Rosenberg, J. E.** Vitreous coating, P 5168*a*.
**Rosenberg, J. L.,** and Beckmann, C. O. Use of metal membranes for fractionating high polymers, 2042*b*.
**Rosenberg, L. L.** See Clark, W. M.
**Rosenberg, R.** See Skinner, G. S.
**Rosenberg, R. L.** See Fröhlich, H.
**Rosenberg, T.** Accumulation and active transport in biol. systems (I) thermodynamic considerations, 261*a*, thermodynamic investigation on the racemization of tartaric acid, 4543*e*, thermodynamic relation between phase equil. in 2 component systems, 5266*i*; see Aldman, B.
**Rosenberger, K.** See Hauser, W.
**Rosenblad, C. F.** Evapg. strongly foaming liquids, P 8760*g*.
**Rosenblatt, A. D.** See Boyarsky, L. L.
**Rosenblatt, D.** Isothermal heat treatment of large steel castings, 6556*e*
**Rosenblatt, D. H.** See Spaeth, E. C.
**Rosenblatt, E. F.** Supported Pt metal catalyst, P 7609*h*
**Rosenbloom, L.** See Bernhard, A.
**Rosenblum.** See also Rozenblyum.
**Rosenblum, A. A.** Silica aerogels, 4789*g*.
**Rosenblum, C.** See Anderson, L. T.
**Rosenblum, E. D.,** and Wilson, P. W. Fixation of isotopic N by *Clostridium*, 5446*i*
**Rosenblum, H.,** Goldman, R., and Feldman, H. Detn. of the stability of adrenaline by optical rotation, 8610*f*
**Rosenblum, S.** $\alpha$ Ray spectroscopy, 3701*g*
——, Valadares, M., and Perey, M. Spectrum of $\alpha$ radiation emitted by RTh + ThX, 4564*i*
——, Valadares, M., and Vial, J. Fine structure of the magnetic spectrum of the $\alpha$ rays of ionium, 3287*f*.
**Rosenbluth, M. N.** Nuclear capture of $\mu$ mesons, 4103*h*, see Lee, T. D.
**Rosendahl, F.** Recovery and disposal of waste $H_2SO_4$ (acid resin) from petroleum and benzene purification, 2762*g*
**Rosene, L.** See Johansson, W. I.
**Rosenfeld.** See also Rozenfel'd.
**Rosenfeld, D.** See Bird, M. J.
**Rosenfeld, G.** See Rocha e Silva, M.
**Rosenfeld, I.,** and Beath, O. A. Metabolism of Na selenate and selenite by the tissues, 1743*h*
**Rosenfeld, L.** Nuclear Forces. Sect. II. (book), 2097*b*, two-nucleon problem, 5659*g*
**Rosenfeld, M.** See Jailer, J. W.
**Rosenfelder, W. J.** See Barton, D. H. R.
**Rosengart.** See Rozengart.
**Rosenheim, M. L.** See Arnold, P.
**Rosenkranz, G.** See Kaufmann, S.
———, Kaufmann, S., Landa, A., Coronu, I. J., and Oladde, A. Steroidal sapogenins (II) new derivs. of kryptogenin, 655*e*.
**Rosenmund, H.** Assay of estrogenic hormones (I) action of protective substances in the hydrolysis of conjugated estrogens, (II) extn. and assay of total estrogens, 1848*d*.
**Rosenmund, K. W.,** and Vogt, H. Kleine Einführung in die pharmazeutische und medizinische Chemie. T. I. Allgemeine und anorganische Chemie (book), 5552*d*.
**Rosenqvist, A. K.** See Koss-Rosenqvist, A.
**Rosenqvist, I. T.** Co ore mines of the Modum District, southern Norway (I) fahlband ores, 8316*d*, see Isachsen, F.
——— and Garwick, J. Diffusion coeffs. of Pb in some radioactive minerals, 7379*h*.
**Rosenqvist, S. O.** Yeast, P 3144*e*.
**Rosenqvist, T.** Thermodynamic investigation of the system Ag-Ag$_2$S, 8834*b*; see Barth, T. F. W.
**Rosenqvist, U.** See Holmberg, J.
**Rosenstiel, R. G.** Life history and control of the orange tortrix in Oregon, 5148*b*.
**Rosenthal.** See also Rozental.
**Rosenthal, F.** Copolymers of styrene and 4,4-divinylbiphenyl, P 4516*i*; phenolic molding comps., P 5633*h*; 4,4'-divinylbiphenyl, P 5803*c*; copolymer of styrene and 2,2',5,5'-tetrachloro-4,4'-divinylbiphenyl, P 6001*i*.
**Rosenthal, M. H.** See Cuttino, J. T.
**Rosenthal, N.** See Stats, D.
**Rosenthal, O.,** and McCarthy, M. D. Plasma nonprotein N distribution and [illegible]
**Rosenthal, R.** Principles and applications of electrolytic cond., 6892*d*.
**Rosenthal, S. M.** Estn. of aceto-AcOH in the blood, 9128*a*.
**Rosenthal, S. R.,** and Sonnenschein, R. R. Histamine as the possible chem. mediator for cutaneous pain, 3111*f*.
**Rosenthal, T. B.** See Lansing, A. I.
**Rosenthaler, L.** Source of errors in certain acidimetric titrations, 519*f*, detection of elements in org. materials, 521*e*; identification of org. compds., 521*f*, 1289*a*, 2548*a*, 8974*b*; Dakin's soln., 815*h*; comparative plant chemistry, 3490*i*; salts of salipyrine, 5540*i*, ampuls of KI in bromo-iodometric detns., 9371*e*; Cu salicylate, 9376*a*.
——— and Bayrektar, S. Syrupus iodotannicus, 1528*c*.
——— and Capuano, L. Use of Tl compds. in org. chemistry, 522*a*; reaction between salipyrine and diazomethane, 5541*b*.
——— and Kocak, H. Incompatibilities (II) chem. reactions in powder mixts., 816*i*; opium tincture, 2368*b*, Turkish opium, 5548*f*
**Rosenwald, R. H.** Sepn. of alkyl-alkoxyphenol mixts., P 3187*e*, alkylation of phenols, P 6235*b*, P 7966*c*.
——— and Hoatson, J. R. Inhibitor concn. and stability, 5570*f*.
**Roseveare, G. H.** See Wilson, Eldred D.
**Rosh, R.** See Co Tui, F. W.
**Roshchina, R. N.** See Chernikhov, Yu. A.
**Roshkov, E. M.** See Rozhkov, E. M.
**Rosin, A.** See Rachmilewitz, M.
**Rosin, J.** See Schwarz, F. L.
**Roske, K.** Pressure loss in straight pipe, 2045*e*
**Rosnati, L.** Derivs. of chlorosilanes (I) amines, 1005*g*
**Ross, A. G.** See Percival, E. G. V.
**Ross, C. A.,** and Elman, R. Deposition of protein in the liver following intravenous injection of an amino acid mixt. (hydrolyzed protein) and glucose, 766*g*.
**Ross, C. P.** Geology of the Borah Peak quadrangle, Idaho, 6954*a*.
**Ross, D. M.,** Stapley, J. H., and Cockbill, G. F. Wireworm populations in relation to crop production (V) failing and successful plots, 9346*b*.
**Ross, E.** See Dorfman, R. I.
**Ross, F.** High-temp. lubrication, 5177*f*.
**Ross, F. A.,** Crawford, J., and B. B. Chemical Co. Ltd. Plastic compns. of a puttylike nature, P 6804*h*.
**Ross, F. F.** See Karthauser, F. B.
**Ross, H. E.,** Warren, M. E., and Barnes, J. M. *Clostridium welchii* iota toxin—its activation by trypsin, 4329*i*.
**Ross, H. F.** Carbonate removal from cyanide plating solns., 6520*g*.
**Ross, H. U.** Mesabi taconite problem, 979*a*; Fe ore sintering, 4611*e*.
**Ross, J.** Bromination of org. compds., P 2232*f*; bromination of unsatd. compds., P 2628*i*; see Dreger, E. E.; Gebhart, A. I.; Shedlovsky, L.
———, Gebhart, A. I., and Gerecht, J. F. Autoxidation of Me oleate, 3357*d*.
**Ross, J. F.,** Finch, C. A., Peacock, W. C., and Sammons, M. F. Preservation and post-transfusion survival of stored blood, 6691*c*.
**Ross, J. H.** See Bailey, P. S.
**Ross, J. S.** Synthetic resin, P 9525*c*.
**Ross, K. B.,** and McKinlay, D. N. Integrations of operations in a large petroleum refinery, 3996*h*.
**Ross, L. E.,** Van Wagtendonk, W. J., and Wulzen, R. Steroid compd. in cane juice possessing antistiffness activity, 9384*f*.
**Ross, L. R.** See Willits, C. O.
**Ross, M. A. S.** See Zajac, B.
——— and Zajac, B. Range-energy and other relations for electrons in Kodak nuclear plates, 8851*e*.
**Ross, M. H.** See Ely, J. O.; Krejci, L. E.
**Ross, O. B.** See Harper, H. J.; Long, R. A.; Stephens, D. F.; Whitehair, C. K.
———, Darlow, A. E., MacVicar, R. W., Thomas, O. O., and Stephens, D. F. Relation of nutrition and age at first calving to lifetime performance of beef cows, 6711*i*.
———, Gallup, W. D., Stephens, D. F., Chamberlain, C. C., and Campbell, W. D. Phosphorus studies of range beef cattle, 6711*d*.
———, MacVicar, R. W., Stephens, D. F., Van Arsdell, W. J., Campbell, W. D., and Darlow, A. E. Management and protein supplements for a com. cow herd, 6711*h*.
———, Stephens, D. F., Darlow, A. E., MacVicar, R. W., and Campbell, W. D. Sub-

stitutes for corn and cottonseed cake in fattening beef calves, 6712b.
—, Watts, A. B., and Darlow, A. E. Carotene supplementation of cattle wintered under range conditions, 6712a.
**Ross, R. H.**, and Knodt, C. B. Effect of supplemental vitamin A on growth, blood plasma carotene, vitamin A, inorg. Ca, and P of Holstein heifers, 2293i.
**Ross, R. M.** Effect of heat and Na sand on Na polybutadiene, 4214b.
**Ross, Sidney.** See Olshaker, B.
**Ross, Sydney.** Phys. adsorption (II) estg. surface areas of cryst. solids, 2066b; (IV) multilayer adsorption, 6034b, see McBain, J. W.; Marsden, S. S., Jr.
—— and Secoy, C. H. Phys. adsorption (III) equation of state at high pressures and its application to surface films on liquids and solids, 6034a.
**Ross, S. D.** Liquid-level measurement in chem. processing, 1613g, nondestructive measurement of wall thickness in chem. process equipment, 4901f, distn. pilot plant features centralized control, 6873b, see Bruno, G. L.
—— and Cabot, H. Instrumentation of Federal Bureau of Mines' coal-hydrogenation process at Louisiana (Missouri) demonstration plant, 7064c.
**Ross, Sidney D.** Steric inhibition of resonance in chlorinated benzoic acids, 2188i, see Bartlett, Paul Doughty.
——, Markarian, M., and Nazzewski, M. Pentachlorophenyl derivs. (III) effect of temp. on the compn. of the product in the chlorination of ethylpentachlorobenzene, 3377g.
**Ross, S. G.** Fish poisoning at Canning Island (Central Pacific), 327f.
**Ross, S. W.** Electrolytic Zn at Risdon, Tasmania, 4145f.
**Ross, W.** See Willett, E. L.
**Ross, W. C. J.** Derivs. of 4-styrylpyrimidine, 650h, aryl-2-haloalkylamines (I), 7442g; derivs. of etiocholenic acid, P 7519a, see Brown, Daniel M., Goldacre, R. J.
**Ross, W. E.** See Rapean, J. C.
**Ross, W. W.**, McAllister, S. H., and Anderson, J. Catalytic alkylation process, P 7677e.
**Rossbach, D. O.** Prepn. of Folin-Ciocalteu's phenol reagent using 30% $H_2O_2$, 4721g.
**Rosselet, F.** See Steyn, A. P.
**Rossem, A. van.** Rubber research in the Netherlands: work and organization of the institutes, 3613f, importance of Prof. Dr. O. de Vries to rubber science and rubber culture, 8760h; see Hoekstra, J.
—— and Hoekstra, J. Mastication of rubber (I), 7737d.
**Rosset, J.**, and Paris, R. Variation in the properties of cellulose acetates in the course of their homogeneous deacetylation by ammonia, 6423a.
**Rossi, A.** See Fleck, A.; Morrison, L. M.; Schinz, H.
—— and Schinz, H. Constitution of the enolic ethers of ethyl acetonoxalate, 2168d.
**Rossi, B.** Electrons and photons in cosmic rays, 6501f, see Bridge, H. S.; Foschini, A.; Froman, D.
—— and Williams, R. W. Cosmic-ray induced nuclear disintegrations at 11,500 ft., 4091d.
**Rossi, Carlo.** Removing corrosion products from surfaces contg. heavy metals, P 6149c.
**Rossi, Corrado.** Vinyl chloride from dichloroethane in the gaseous phase, 4628h.
**Rossi, C. A.** Hypovitaminosis due to hyperthyroidism, 9217g.
**Rossi, C. R.** See Poli, G.
**Rossi, G.**, and Nicolini, L. Syneresis (IV), (V), (VI), 8793e.
—— and Strocchi, P. M. Chlorocupric complexes, 5324d.
**Rossi, G. F.** Influence of thyroidectomy on the amt. and activity of the ale. dehydrogenase of liver—modification by presence of lactoflavin and thiamine, 6708l; bacterial filtrates and the oxidation of adrenaline, 7086i.
**Rossi, L.** Drop test reactions. Bi—$A_g$, 8949g.
**Rossi, O. A.** Miguel Puiggari, 1229g, stability of solns. of Hg salicylarsinate, 7637h.
**Rossi, S.** See Fusco, R.
**Rossi, U.** Acceleration of the fermentation of tobacco by a new process, 1910h.
**Rossier, P. H.** See Wiesinger, K.
**Rossi Fanelli, A.** See Fanelli, A. R.
**Rossignol, H.** See Lachampt, F.
**Rossignoli, P.** See Kasser, A.
**Rossin, E. H.** See Powers, D. H.
**Rossini, F.** Sulfur extn., P 7652h.
**Rossini, F. D.** Fraction, analysis, and purification of hydrocarbons, 4972e; see Epstein, M. B.; Glasgow, A. R., Jr.; Johnson, W. H.; Kilpatrick, J. E.; Prosen, E. J.; Streiff, A. J.
——, Mair, B. J., and Glasgow, A. R., Jr. Hydrocarbons isolated from one representative petroleum, 9422f.
**Rossini, R.** Unsaturated fat acids of blood serum in nervous diseases, 5110g.
**Rossiter, E.** See Lauder, I.
**Rossiter, R. J.** Plasma protein level and disappearance of Evans blue from the blood stream, 3871d, see Johnson, A. C.
—— and Wong, E. Esterase of rabbit polymorphonuclear leucocytes, 9124i.
**Rossman, E. C.**, and Stamforth, D. W. Effects of 2,4-D on inbred lines and a single cross of maize, 2727d.
**Rossman, R. P.** HCHO, P 5792b.
**Rossmann, B.** Fat losses in prepn. of foods: (I) prepn. of egg pancakes, 5508i; (II) prepn. of potato pancakes, 6751f.
—— and Kerczowski, H. Changes in milk during heating, 5876g.
**Rossmann, R.** Light material of construction, P 6466i.
**Rosso, G.** See Beghelli, G.
**Rosso, Silvio.** Purine substance in the aq. humor, 3503f, behavior of ocular tension and retinal arterial pressure in acetylcholine shock, 6723a.
**Rosso, Stefano.** See Cattaneo, R.
**Rossow, A. G.** See Adkins, H.
**Rossteutscher, F.** Phosphate coatings, 6138d.
**Rossum, J. R.** Estn. of Na in water supplies, 2716d; accuracy of water analyses, 6765g.
**Rossum, L. van.** See Cuer, P.
**Rost, C. O.** See Dunn, L. E.
**Rost, F.** Application of the a.-c. arc between C electrodes to quant. spectrographic analysis, 4971h, spectra analysis in mineralogy and geochemistry, 5345g, spectral analytical detn. of Fe in Zn blende, 8303g.
**Rostagni, A.** Universal vacuum manometer, 3666f, see Drago, A.; Filosofo, I.
**Rosti, P.** Action of dicumarol on thrombo-plastic activity of the rabbit brain, 3519f, see De Nicola, P.
**Rostler, F. S.**, and Rostler, K. S. Plasticizer-filler mixts. and their dispersion in rubber, 2458e.
—— and Sternberg, H. W. Compounding rubber with petroleum products—correlation of chem. characteristics with compounding properties and analysis of petroleum products used as compounding ingredients in rubber, 4044f.
**Rostler, K. S.** Application of punched cards to indexing rubber compds., 9513c, see Rostler, F. S.
**Rostoker, W.** Magnetic properties of sintered Fe and Fe base alloys, 536a.
**Rostokin, A. P.** See Korenman, I. M.; Korshunov, I. A.
**Rostorfer, H. H.** Methods for measurement of avian hemoglobin, 9138d.
**Rostovskii, E. N.** See Ushakov, S. N.
**Rostovtsev, V. E.** Rational formulation of a bleaching process, 3622b; dissolving of Azotols, 3624b.
**Rostovtseva, V. K.** See Afanas'ev, A. S.
**Rostripenko, I. A.** Increased production of low grade centrifugals, 9503d.
**Rot, L. N.** Prepn. of oxalic acid, 142a.
**Rotariu, G. J.** See Redemann, C. E.
**Rotax Ltd.** and Levy, J. Lubricant, P 814g.
**Rote, F. B.** Treatment of lead-contaminated cast iron, P 5358a.
**Rote, J. G.** Container closure, P 8744f.
**Roth, A.** See Kivenson, G.
**Roth, A. R.** See Lindquist, A. W.
**Roth, B.** See Smith, J. M., Jr.
—— and Smith, J. M., Jr. Phenacylpyrimidines, 3395f.
**Roth, E.** See Shafiroff, B. G. P.
**Roth, Hans.** Influence of *p*-aminobenzoic acid and of sulfonamides on Schardinger's enzyme and the peroxydase of milk, 5429d.
**Roth, Hubert.** Microanalytical practice, 521a.
**Roth, J. S.** See Bernstein, J.
—— and Allison, J. B. Effect of feeding excess glycine, L-arginine, and DL-methionine to rats on a casein diet, 4739b.
**Roth, L.** Fluorescence of anthracene excited by high-energy radiation, 4111g.
**Roth, L. J.** See Hogness, J. R.; Leifer, E.
——, Leifer, E., Hogness, J. R., and Langham, W. H. Metabolism of radioactive nicotinic acid and nicotinamide, 2295e, metabolism of radioactive pentobarbital, 6306k.
**Roth, L. W.**, Richards, R. K., and Shepperd, J. M. Potential antigenicity of parenterally administered cytochrome c, 3512f.
**Roth, M.** Pipet washing made easy, 3665g.
**Roth, P.** Action of sexual hormones on the metamorphosis produced by thyroxine in the axolotl (I), 324a, (II) antagonistic action of estrogenic substance on the metamorphosis of amphibians, 9213b, see Dumm, M. E.
**Roth, R.** Permian Pease River group of Texas, 2345a.
**Roth, W.** Furnaces for light metal ingot foundries, 981d, scattering of ultrasonic radiation in polycryst. metals, 1233f.
**Roth, W. A.** Calorimetric measurements, 1638b, thermochemistry of Na, 3276e, Thermochemie (book), 5277a.
—— and Kaule, H. L. Thermochemistry of Na, 2082k.
**Roth, Walter A.**, and Rosen, A. L. Characterization of Ca hydroxide-celite mixts. for chromatography, 2068a.
**Rothamel, L.** See Jayme, G.
**Rothbard, S.** See Dole, V. P.
**Rothbaum, H. P.**, Ling, I., and Robertson, P. W. Kinetics of halogen addn. to unsatd. compds. (XIII): α,β unsatd. ketones and quinones, 1633a.
**Rothchild, I.**, and Fraps, R. M. Interval between normal release of ovulating hormone and ovulation in the domestic hen—induction of ovulating hormone release from the pituitary of the domestic hen, 8480i.
**Rothchild, S.** See Bockelheide, V.
**Rothe, H.** See Taufel, K.
**Rothe, L. B.** See Steiner, A. B.
**Rotheli, R.** Stuffing box for rotary acid and alkali pumps, P 1526b.
**Rothemann, K.** Modern cosmetics, 9363c.
**Rothen, A.** Long range forces in immunologic and enzymatic reactions, 1179f.
—— and Hanson, M. Optical properties of surface films (II), 3258c.
**Rothenberg, M. A.** See Feld, E. A.
—— and Feld, E. A. Rate of penetration of electrolytes into nerve fibers, 1741a.
——, Sprinson, D. B., and Nachmansohn, D. Action of acetylcholine, 9259a.
**Rothermel, D.** See Donner, A. L.
**Rothermel, J. J.** See Dygert, H. P.
——, Sun, K. H., and Silverman, A. Phosphate glass—PbO-WO$_3$-P$_2$O$_5$ system, 5163a.
**Rothery, W. H.** See Hume-Rothery, W.
**Rothkegel, W.** See Huckel, W.
**Rothlin, E.** Biol. standardization of cardioactive prepns., 1907i, analysis of the blood pressure action of the natural and the dehydrogenated ergot alkaloids, 4776a, alk. diods from ergot, 8616i, pharmacology of the natural and dehydrogenated alkaloids of ergot, 8538a, see Cerletti, A.; Freudiger, A.; Suter, E.
**Rothman, C. L. C. de.** See Couto de Rothman, C. L.
**Rothman, M.** Disturbances of the pancreas and the use of the amylase test, 8517g.
**Rothman, S.** See Flesch, P.
——, Krysa, H. F., and Smiljanic, A. M. Inhibitory action of human epidermis on melanin formation, 2684g.
**Rothmann, S. C.** Uses of Atomic Energy (book), 7831a.
**Rothrock, H. S.** See Cupery, M. E.; MacDonald, R. N.
—— and Wayne, W. J. Fatty oil acid glyceride vinyl resin coating compns., P 9485a.
**Rothrock, J. W.** See Carter, H. E.
**Rothschild, B. F.** See Templeton, C. C.
**Rothschuh, K. E.** Excitation of heart muscle fibers by K concns. equal to those of muscle tissue, 6742c; metabolism during the lag of O for a short time, 7111e.
—— and Bruns, M. Salt contractures of the heart muscle of cold-blooded animals, 5867i.
—— and Fenger, H. Salt contractures of the heart muscle of cold-blooded animals—effect of the Hofmeister ion series, 5867g.
**Rothstein, A.** See Berke, H.; Dygert, H. P.
—— and Berke, H. Amino aciduria in U

poisoning (I) use of the amino acid N to creatinine ratio in "spot" samples of urine, 7581*h*.

———, Frenkel, A., and Larrabee, C. Relation of the cell surface to metabolism (III) certain characteristics of the U complex with cell surface groups of yeast, 5434*i*.

——— and Larrabee, C. Relation of the cell surface to metabolism (II) cell surface of yeast as the site of inhibition of glucose metabolism by U, 5434*f*

——— and Meier, R Relation of the cell surface to metabolism (I) phosphatases in the surface of living yeast cells, 2253*e*

**Rothstein, J.** Hg-type arcs with hot refractory cathodes, 2523*g*.

**Rothstein, M.** See Adams, R

**Rotilant de Franch, M.** See Santos Ruiz, A.

**Rotinjane, A. L.** See Rotinyan, A. L.

**Rotinyan, A. L.** Current efficiency in the electrolysis of fused salts, 949*i*, kinetics of the swelling of hard coal in pyridine, 8815*d*; velocity of the reaction between $H_2S$ and certain metal oxides, 8817*i*, see Drozdov, B V

- , Drozdov, B V, and Kogan, T. M. Kinetics of the displacement reaction on Raney Ni and nature of the activity of a skeleton catalyst, 928*e*

**Rotolo, B** See Blank, E. W.

**Rotru, F.** See Espagnol, A.

**Rotter, W.** Pathologisch histologischer Kurs (book), 6728*e*, see Kloos, K. F

**Rottersman, H** See Crane, E. V.

**Rottschaefer, B. W.** Carbazole purification, P 3465*i*.

**Roubaix, J. de,** and Lazar, O Respiratory metabolism of the sugar beet (II) respiration of the root and stalk during two yrs of vegetation, 3890*i*

**Roubault, M.** See Bolfa, J

**Roubcov, I. A.** See Rubtsov, I A.

**Roubine.** See Rubin.

**Roubinek, J.** Chem control of sugar factories during the 1947–48 season, 4499*g*, grading of sugar quality, 1499*i*

**Roubtzow, I. A.** See Rubtsov, I A

**Roudakov.** See Rudakov.

**Roudenko, V. A.** See Rudenko, V A.

**Roudier, A.** Analysis of raw materials for papermaking, 1185*b*, 1565*a*.

- , Bouvin, M, Petitpas G., Marchand, J, Saulquin, A, and Hertbach, P Refining of linters, 1847*a*

**Roudier, A. J.** See Hirst, E L

**Roudnewa, I. L.** See Rudneva, T L.

**Rougenceva, A. K.** See Ruzhentseva, A K

**Rougerie, G.** See Laplante, A C

**Roughton, F. J. W.** See Krebs, H A

- and Kendrew, J C. Hemoglobin (book), 5850*a*.

**Roulet, F.,** and Zeller, E A Enzymes of *Mycobacterium tuberculosis* and other acid-fast bacteria (III) enzyme decompn. of L peptides by acid fast bacteria, 4324*i*

**Rouller, P.** Photometrically evaluating the complement-fixation reaction, 1075*h*

**Round, A. A.** See Dunlop Rubber Co Ltd

**Roundy, Z D.,** and Keil, H. L. Accelerating the ripening of cheese by the use of zymogens, P 3304*a*.

**Rous, P.** See Smith, William E

**Rousanova, A. I.** See Rusanova, A I.

**Rouse, B. P.** See Scherer, P C

**Rouse, G. P.** See Corson, E F.

**Roussanow, A. K.** See Rusanov, A K.

**Rousseau, E.** Detn of the fusibility of the ash of fuels in reducing atm, 1941*g*.

**Rousseau, J.** Action of growth substances on root elongation in germinating barley during the first growth stages, 8015*f*

**Rousseau, P.** Histoire de l'atome (book), 4090*e*.

**Rousselot, A.** Congealing gelatin sols, 6191*i*

**Rousset, A.** Thermal agitation in org crystals (I) external Raman rays, (II) specific heat of naphthalene and benzene at low temps., 2866*f*.

**Routh, J. I.** Fundamentals of Inorg., Org, and Biol. Chemistry (book), 6072*d*.

**Routson, W. G.** Corrosion inhibitor, P 1308*f*.

**Roux, A.** Color reaction of penicillin (Na salt), 5551*d*.

**Roux, R.** Pyrophosphoric acid esters of aneurine, P 5156*i*.

———, Teysseire, Y., and Duchesne, G. Prepn. of polyphosphoric esters of thiamine—identification of the polyphosphoric esters of thiamine, 2264*a*; (II) characterization of the polyphosphoric esters of thiamine, 4315*i*.

**Roux, M.,** Jacquot, G., and Huguenard, P. Prolonged anesthesia with pentothal and subtosan, 4812*i*.

**Roux, R. le.** See Le Roux, R.

**Roux, R. M.** See Schales, O.

**Rouy, A. L. M. A.** Photoelec. colorimeter, P 7759*h*.

**Rouzier, J.** See Desnuelle, P.

**Rovatti, B.** Action of methyl polygalacturonates, 4378*c*; Ochsner's phlebothrombosis and its treatment with dicumarol, 5861*c*.

**Rovello, F.** Cu in the blood in Grave's disease, 7571*c*.

**Rovenstine, E. A.** See Papper, E. M.; Shaw, Wallace M.

**Roversi, T.** Separator for removing $H_2SO_4$ from sulfurous gases in contact-process plants, P 8623*c*

**Rovery, M.** See Desnuelle, P.

——— and Desnuelle, P. Acetylation of phenolic groups in proteins with ketene, 3864*g*

**Rovinskiĭ, B. M.** See Kritskaya, V. K.

**Row, L. R.** See Narasimhachari, N.

———, Sastry, V. D. N., Seshadri, T. R, and Thiruvengadam, T. R. Oroxylin A and synthesis of its diethyl ether, 5397*d*.

**Row, Y. S.** See SubbaRow, Y.

**Rowan, M. K.** See Rose, H. J.

**Rowan, T. J.** See Dyer, J. R., Jr.

**Rowden, E.** Mech stokers in the heavy clay and refractories industries, 2392*a*; power in relation to process requirements in the heavy clay and refractories industries, 2748*h*.

**Rowe, E. H.** See Willson, E. A

**Rowe, F. G.** See Rochow, T. G.

**Rowe, F. M.** See Brodrick, C. I.; Peters, A T.

**Rowe, L. W.** See Lindquist, K. M.

**Rowe, P. J.** CuOH and $Cu_2O$, P 7202*f*.

**Rowe, R.** Fatty acids for soaps, 8178*f*.

**Rowe, R. G.,** and Bona, G. B. Endless belts useful as sound-recording media, P 6468*a*.

**Rowe, V. K.,** Spencer, H C., and Bass, S. L. Toxicol studies on com silicones and hydrolyzable silane intermediates, 1866*i*.

**Rowell, S. W.** See Clifford, I. L.

**Rowen, J. W.** See Camposortega, C.

——— and Simha, R. Interaction of polymers and vapors, 6491*c*.

**Rowen, M.** See Sawitzsky, A.

**Rowinski, B. M.** See Rovinskiĭ, B. M.

**Rowland, B. W.** See Knight, G. D.

**Rowland, D. H.** Insulator, P 3587*a*.

**Rowland, G. P., Jr.,** and Reid, R. J. Stabilization of dichlorobutadiene resins, P 440*g*.

**Rowland, J.** Atoms, Electrons, and Rays (book), 2517*c*.

**Rowland, K. J.** See Anglo-Iranian Oil Co., Ltd.

**Rowland, S. J.** See Bartlett, S.

**Rowland, S. P.** Cation-exchange resins, P 1216*i*; sulfophthalic anhydride-xylene resin, P 3233*f*.

**Rowlands, S.,** Rowley, D., and Stewart, H C. Absorption and excretion studies with radioactive penicillin, 1111*h*.

**Rowledge, H. P.,** and Haton, J. D. Be minerals from Londonderry, 4185*i*.

**Rowley, D.** See Cooper, P. D.; Miller, J.; Rowlands, S.

———, Steiner, H, and Zimkin, E. Solvent extn of penicillin, P 9390*b*.

**Rowley, D. A.** See Benditt, E. P.

**Rowley, F. B.,** and LaJoy, M. H. Detg. resistance of structural insulating board to impact and concd. loads, 403*c*.

**Rowley, R. D.** Highly stable cellulose triesters, P 7685*g*; see Arntzen, C. E.; Dreyfus, C.

——— and Thompson, R. F. Ripening cellulose esters, P 3616*i*.

**Rowlinson, H. R.,** and Lesford, J. M. Effect of diet on sensitivity of mice to insulin, 734*i*

**Rowlinson, J. S.** Transport properties of nonpolar gases, 2833*a*; heat capacity of methanol vapor, 3275*g*.

**Roxburgh, A. C.** Common Skin Diseases (book), 755*i*.

**Roy, B. C.** Vanadium, 525*c*; see Krishnan, M. S.

**Roy, D. J. le.** See Le Roy, D. J.

**Roy, H. B.** See Chatterjee, N. N.

**Roy, M.,** and Le Bont, R. Specific heats, enthalpies and entropies of air, of combustion products of kerosene, and of mixts. of these gases, 3671*d*.

**Roy, R.** Decompn. and resynthesis of the micas, 6120*c*.

———, Middleswarth, E. T., and Hummel, F. A. Mineralogy and thermal behavior of phosphates (I) Mg pyrophosphate, 8822*f*.

——— and Osborn, E. F. System Li metasilicate–spodumene–silica, 7804*d*.

**Roy, R. R.** Emission of protons from B and A on bombardment with Po $\alpha$-particles, 6910*a*; see Champion, F. C.

**Roy, S. K.** See Huston, H. W.

**Roy, Sanat K.** See Kar, B. C.; Nath, N. S. N.

**Roy, Sharat K.,** and Wyant, R. K. Navajo meteorite, 8314*c*.

**Roy, S. R.** Manufg. rayon fabrics in India, 3202*f*; rayon—its properties, analysis, and identifications, 6830*c*.

**Roy, W. F.,** and Russell, H E. Concd and then quick-frozen orange juice retains its vitamin C, 3535*f*

**Roy, W. R.** See Cotton, R. H., Reuther, W.

**Royal, H. F.** See Decker, A. R.; Foster, W. R.

**Royals, E. E.** Synthesis of terpinyl ethers from *d*-limonene, 8368*i*.

**Royen, A. van.** See Gorter, E.

**Royer, A. E.,** Bertramson, B. R, and Mulvey, R. R. Soil-fertility levels as influenced by long-time differential fertilization practices, 1129*d*.

**Royer, G. L.** Chem. microscopy in dyeing and finishing, 6420*b*, see McCleary, H. R.; Maresh, C, Zimmerman, C. L.

———, Zimmerman, C. L., Walter, H. J., and Robinson, R. D Dyeing studies at elevated temps.—use of temps. between 200° F. and 300° F., 411*c*

**Royer, M.,** and Manfredi, F G. Resistance of the sphincter of Oddi (III) action of anesthetics, 5867*f*

**Royer, R.** See Bun-Hoï, Lacassagne, A.

**Royer, V.** See Verbestel, J.

**Royo Iranzo, J.,** and Veldhuis, M. K. Compn of Florida citrus molasses, 9504*i*.

**Royo Minué, F.** Photometric detn of Zn with dithizone, 64*a*.

**Roys, P. F.** Chem resources—Montana, 9295*d*.

**Royster, P. H.** Treatment of titaniferous Fe ores, P 6142*h*.

**Royston, G.** Drier for cryst. $(NH_4)_2SO_4$, P 8760*f*.

**Rozanov, A.** Lactose production, 8569*b*; tablet chemical for plant labs., 9279*f*.

**Rozanov, A. N.** Cultivated-irrigation sediments, 7620*g*.

**Rozanova, V. D.** Physiol. mechanisms which det the peculiarities of course of acute cyanide intoxication in various age periods, 7142*g*.

**Rozdon, O. N.** See Batra, P. C.

**Rozenberg, A. I.** Change of stability of blood proteins in mixing and transfusion, 8499*g*.

**Rozenberg, L. M.** Dehydrogenation of indan, 6608*h*.

**Rozenberg, M. A.** L. V. Pisarzhevskiĭ, 7761*i*.

**Rozenberg, T. S.** See Vol'fkovich, S. I.

**Rozenblyum, N.** See Petryanov, I.

**Rozenfel'd, E. L.** Hydrolyzability of various glycogens by enzymes, 2252*b*; see Petrova, A. N.

**Rozenfel'd, I. L.,** and Akimov, G. V. Anticorrosion protection of Fe by chromates—effect of K dichromate in water on the electrode potential of Fe, 8340*e*.

**Rozengart, M. I.** Hg sealing bulb closures for gas analyzers, 4054*h*.

**Rozengart, V. I.** See Zakharova, A. V.

**Rozental, D. L.** Contraction of transversely striped muscle caused by $CaCl_2$, $BaCl_2$, $MgCl_2$, 3861*c*; see Nasonov, D. N.

**Rozental, I. S.** Influence of prolonged application of NaBr, 772*a*.

**Rozental, K.,** and Ershler, B. V. Kinetics of electrode reactions by means of a.c.—discharge of Hg ions—formation of an adsorption layer of chlorine and O on a Hg electrode—formation of Hg oxide (II), 2523*a*.

**Rozentsveig, S. A.,** and Kabanov, B. N. Passivation of Fe and cathodic reduction of $Fe(OH)_2$, 1270*b*.

**Rozet, D.,** Campbell, H. C., and Thomas, R. D., Jr. Effect of weld-metal compn. on the strength and ductility of 15% Cr 35% Ni welds, 552*f*.

**Rozheen-Kokhaniĭ, Rozhin-Kochanyj.** See Rozhin-Kokhaniĭ, I.

**Rozhin-Kokhaniĭ, I.** Effects of Röntgen rays on protein mols. and microörganisms, 7528*d*.

**Rozhkov, E. M.** See Barkov, B. N.

**Rozhkova, V. V.** Synthetic materials, 3624*a*.
**Rozina, V. S.** See Bezzubets, M. K.
**Rozoum, J. S.** See Rozum, Yu. S
**Rózsa, G.,** and Staudinger, M. Electron-microscope investigation of muscle protein, 3052*e*.
**Rozsa, J. T.** Analytical control for silica brick, 829*d*.
**Rozsa, P.** See Schulek, E.; Vastagh, G.
**Rozum, Yu. S.** See Valyashko, N. A.
**Rozvadovskaya, L. V.** See Levkoev, I. I.
**Rubach, A.** See Hulf, H. J.
**Rubanov, A. S.** App. for sampling coal in a drill hole, P 6397*b*.
**Rubaschew, A. B.** See Rubashev, A. B.
**Rubashev, A. B.** Genesis of water-stable structure in soil productivity, 7619*i*.
**Rubatex Products, Inc.** Vulcanization of expanded rubber, P 2027*b*.
**Rubber-Stichting.** Homogeneous partially chlorinated derivs. of rubber, P 432*a*, isoprene from rubber, P 1211*f*, 3228*c*; aq dispersions of rubber hydrohalides, P 5223*e*; tire or balloon for compressed gas, P 5224*c*; depolymerizing by heat, P 5231*e*
**Rubbo, S. D.** Mode of action of 8-hydroxyquinoline (oxine), 9163*i*.
**Rubcov, I. A.** See Rubtsov, I. A.
**Rubek, D. D.** Application of solvents in the paint industry, 8693*i*.
**Ruben, S.** Se rectifier, P 2104*i*; dry cell, P 2526*g*; primary cell with permanganate depolarizer, P 3733*i*, dry cell with a solid electrolyte, P 4154*h*; depolarizer cathode for an alk. dry cell, P 4155*a*; primary cell, P 7360*c*.
**Rubenkoenig, H. L.** See Quisno, R. A
**Rubenstein, L.,** and Campbell, B. $PbN_6$ detonators, P 6828*b*.
—— and Imperial Chemical Industries Ltd. Pb salts of 2,4-dinitroresorcinol, P 5190*b*
**Ruberoid Co.** Laminated boards, P 7208*f*.
**Rubeš, E.** Phys. properties of affined solns., 6817*d*.
—— and Kastner, F. Tests with domestic spodia, 4504*b*.
**Rubesin, M. W.** See Johnson, H. A.
**Rubia, J. de la.** Same as Rubia Pacheco, J. de la.
**Rubia Pacheco, J. de la,** and Blasco López-Rubio, F. Gaspar's reagent for the detn. of K in fertilizers, 342*e*, soil analysis, 2347*g*; detg. the oxidizing power of Na bismuthate, 3745*h*; analysis of waters for agricultural uses, 8077*h*.
**Rubin, B. A.** See Artsikhovskaya, E. V
—— and Artsikhovskaya, E. V. Sucrose in the carbohydrate metabolism of plants, 278*h*; biochemistry of resistance to microorganisms by plants, 8015*e*.
——, Artsikhovskaya, E. V., and Ivanova, T. M. Oxidative processes in stability of citrus products, 328*b*; respiratory gas exchange in the citrus plants—stability of the fruit, 8153*e*.
—— and Sokolova, V. E. Role of enzyme app. in adaptability reactions of plants in respect to environment, 4731*g*.
**Rubin, B. L.** See Dorfman, R. I.
**Rubin, L.** See Seifter, S.
**Rubin, L. C.** See McGrath, H. G.
**Rubin, M.** See Bird, H R.
**Rubin, S.** See Kenny, G. S ; Thomas, R. G.
**Rubin, S. H.** Relative stability and physiol. utilization of panthenol and pantothenic acid, 4742*h*, 8176*i*; see De Ritter, E.; Drekter, L.
**Rubins, E. J.** See Nelson, Walter L.
**Rubinshtein, A. M.** Complex compds. of Pt with isohexylamine, 1676*c*; Alekseĭ A. Balandin, 7761*a*; see Novikov, S. S.
—— and Kulikov, S. G. Polymorphism and catalytic properties of $TiO_2$, 8828*a*
——, Minachev, Kh. M., and Shukin, N. I. Hydrogenation of $C_6H_6$ on platinized C of low Pt content, 1249*g*; blocking of the active centers of platinized C by products of deep decompn. of hydrocarbons, 7802*b*.
**Rubinshtein, I. L.** See Obrucheva, A. D.
**Rubinshtein, M.** Insecticides made from *Anacydus pyrethrum*, 5527*f*.
**Rubinshtein, R. N.** See Zhukhovitskiĭ, A. A.
**Rubinson, W.** Equations of radioactive transformation in a neutron flux, 8873*h*.
**Rubinstein, D.** See Young, H. H.
**Rubinstein, H., Inc.** Cosmetic cake product, P 4434*g*.
**Rubinstein, I. N.** See Stafford, R. O.
**Rubinstein, L.** Photographic oxidizers and resists for local reduction and the production of half-tone screens, P 5320*f*.
**Rubio, F. B. L.** See Blasco López-Rubio, F.
**Rubio, J. H.** See Hernández Rubio, J.
**Rubio, V. I.** See Iranzo Rubio, V.
**Rubissow, G. A.** Impregnation of skins and hides with rubber to prevent hair shedding, P 6452*a*.
**Rubtsov, I. A.** See Preobrazhenskiĭ, N. A.; Shchukina, M. N.
**Rubzow, I. A.** See Rubtsov, I. A.
**Ruchhoft, C. C.** See Ettinger, M. B., Moore, W. A.
—— and Ettinger, M. B. Tastes and odors in water resulting from industrial wastes, 4794*c*
——, Placak, O R, and Ettinger, M. B. Correction of B O D velocity consts. for nitrification, 3123*d*
**Ruchlis, H.** See Bidinoff, M. L.
**Rucker, J. T.** Corrosion retarder, P 3772*f*
**Rucker, R. R.,** Johnson, H E, and Ordal, E J. Bactericidal action and fish toxicity of two homologous quaternary $NH_4$ compds., 4780*b*.
**Ruckstuhl, K.** Ionizing app , P 6697*a*
**Rudakov, G. A.,** Borisova, N P, Emel'yanova, O A, Iroshevskiĭ, I G., Komshilov, N F, Mukarova, A N, Merlis, N M, and Khomenko, Z S Irreversible catalysis and catalytic dehydrogenation of some hydrocarbons on activated C, 5656*h*
**Rudakov, K. I.** Agricultural microbiology, 9322*i*.
**Rudali, G.** See Lacassagne, A
**Rudd, K. H.** Molding compn comprising a polyvinyl resin and a cracked petroleum residuum, P 9538*d*, see Doyle, P C
**Rudder, B. de.** Discovery of rickets-preventing agents, 3568*d*.
**Ruddy, A. W.** See Larsen, A A.; Suter, C M
**Rudeanu, A.** See Damelopolu, D.
**Rudek, M.** See Seemann, H J
**Rudenberg, F. H.,** Cowing, R F., and Spalding, C K Measurement of $P^{32}$ and $I^{131}$ radiations with dental film, 4118*g*
**Rudenco, A.** See Cornea, I.
**Rudenko, V. A.** See Nazarov, I. N , Yakubovich, A Ya
**Ruderman, I. W.,** and Fettes, E M. Condensation reaction of thiols with phenol ales , 7000*e*.
——, Havens, W. W , Jr , Taylor, T. I , and Rainwater, L J Scattering of slow neutrons by paramagnetic crystals, 4106*c*.
**Rudge, A. J.** Prepn , properties, and handling of elementary F, 5554*h*.
**Rudge, E. A.** See Dickinson, H O ; Williamson, J.
**Rudkjøbing, M.** See Struve, O
**Rudneva, T. I.** See Nikitin, N I
**Rudney, H.** Inhibition of glucolysis by glyceraldehyde, 9119*h*, see Mendel, B
**Rudnickiĭ, Z. A.** See Rudnitskiĭ, Z. A
**Rudnitskiĭ, Z. A.** Detn of tanning substances in oakbark exts., P 3224*b*; detn. of tanning substances in bark exts. of willow, fir, etc , P 3224*c*.
**Rudnitzkij, Rudnizki.** See Rudnitskiĭ, Z. A.
**Rudolfo, E.** $Mg(OH)_2$, P 1160*a*.
**Rudolfs, W.,** and Trubnick, E. H Compressed yeast waste treatment (I) materials and phys.-chem treatment, 3126*b*; (II) biol. treatment in lab. pilot units, 8080*b*, (III) pilot plant digestion, (IV) trickling filter, 8588*a*
——, *et al.* Sewage and waste treatment and stream pollution, 8586*d*
**Rudolph, E. R.** See Bruhl, P T.
**Rudolph, G. G.,** and Samuels, L. T Effects of testosterone propionate on the seminal vesicles of castrate rats, 8490*d*.
**Rudolph, H. A.,** and McEwen, R. L Acetyl peroxide, P 3444*f*.
**Rudolph, W.** Vitamine der Hefe (book), 4354*h*; supravitamin T, 5836*h*.
**Rudolphi.** $CaS_2O_3$, 3934*c*.
**Rudorf, G.** See Dickie, W. A.
**Rudorff, D. W.** Analysis of furnace heat radiation, 1617*d*.
**Rudulph, E. A.** Corrosion from flue gases, 100*a*.
**Rudy, H.,** and Müller, K. E. Phosphate detn. in cooling process waters, 1887*c*; process cooling water treatment with the phosphate-seeding process, 5139*d*.
**Rue, H. C. la.** See La Rue, H. C.
**Rückert, A.** See Wittig, G.
**Ruedi, A. F.** Refractory concrete, P 5168*g*.
**Rüdiger, O.** Theory of the magnetization of an elastically distorted 25% Cr-Fe alloy, 9013*b*.
**Rüdorff, G.** See Hofmann, U.; Rüdorff, W.
**Rüdorff, W.** C compds , esp. graphite compds., 2105*h*; saltlike compds. of graphite with HF, 2534*a*.
——, Hofmann, U., Rüdorff, G., Endell, J., and Ruess, G. L. Disturbances at the graphite anode in the electrolytic prepn. of F, 2871*h*.
—— and Reuter, B. Structure of the Mg and Zn-V spinells, 4171*b*; compds. of V(III) oxide and V(IV) oxide with some divalent basic oxides, 4171*i*.
—— and Rüdorff, G. Catalytic influence of HF acid on the formation of CF, 2107*d*; tetracarbon monofluoride, 2107*f*; structure of C monofluoride, 2108*a*.
——, Ruston, W. R , and Scherhaufer, A. Crystal structure of NaCrSe, 919*e*.
**Ruedrich, P. M.** Oil-sol. petroleum sulfonates, P 4400*d*.
**Ruedy, R.** Wiedemann Franz-Lorenz ratio for Cu alloys, 4205*e*.
**Rüe, E. A. de la.** See Aubert de la Rüe, E
**Rüegg, R.** See Schinz, H.
—— and Jeger, O Triterpenes (CXXXIII) synthesis of 1-methyl-3-isopropyl - 2 - cyclopentene - 1 - carboxylic acid, 1749*d*
**Rueff, C. G.** See Grezes-Rueff, C
**Rueff, F. A. G.** See Grezes Rueff, F. A.
**Ruegamer, W. R.** Occurrence of an unidentified rat-growth factor in cottonseed meal, 9179*i*, see Register, U D
——, Brickson, W. L , Torbet, N. J., and Elvehjem, C. A. Response of dogs to liver exts contg. the pernicious anemia factor, 1088*h*.
**Ruegg, R.** Disazo dyes for wool, P 7701*i*
**Rügge, H.** See Franke, W
**Rueggeberg, W. H. C.** Al soaps and other fuel thickeners in gelling gasolines, 3901*i*
**Ruehle, G. D.** See Tisdale, W B
**Rueman, E.** See Ruhemann, E
**Ruemele, T.** Surface chemistry in perfumery, 1531*f*, utilizing tall oil in soaps, 9492*e*.
**Ruère, J. G. de.** See Ferriere, P J. J F de
**Rüsberg, E.** See Jander, G
**Ruess, G. L.** Formula of oxides of graphite 5007*c*, see Hofmann, U ; Rudorff, W
**Ruete, A.** See Heim, F
**Rüttner, O.** See Karrer, P.
**Rufer, H.** Control of cleanliness of heating surfaces of tubes by means of elec cond , 6009*a*.
**Ruff, G. A.** Application of nomography to the leather industry (I) nomograph for calcg. the nontannins in powd. chestnut ext , 4037*h*
**Ruffo, A.** Competitive inhibition in chemotherapy and new substances with cancerolytic action, 7576*h*.
—— and Tartaglione, V. Biol synthesis of vitamin C, 6265*c*.
**Rufilanchas, F. A.** See Arguello Rufilanchas, F.
**Ruga, A. S.** Medium temp. repair of tank furnaces, 9399*a*
**Ruger, M.** See Woodruff, H. B.
**Rugge, U.** Theory of cell elongation and of growth by elongation, 1871*d*, activation of auxin by respiration, 5089*d*; substances that promote germination, 5828*f*.
**Rugh, R.** See Schreiman, E.
**Ruhemann, E.** Production and uses of $CH_4$ gas from waste vegetation, 5925*c*
**Ruhl, O.,** Allen, S. A., and Holt, S P Zn-Pb ore reserves of the Tri-State district, Missouri-Kans.-Okla., 6949*i*.
—— and Ballinger, H. J. Zn-Pb deposits in horizons below the Grand Falls chert Galena District, Cherokee Co., Kansas, 3322*d*.
**Ruhnke, G. N.** Org. matter, 9319*b*.
**Rui, D.** Control of *Anomala vitis* with DDT, 7184*a*.
**Ruimonte, F. G.** See Gomez Rumimonte, F.
**Ruipérez Pérez, J. A.** See López-Botet, E
**Ruiz, A. S.** See Santos Ruiz, A.
**Ruiz, A. T.** See Torres Ruiz, A.
**Ruiz, I. S. L.** See Saenz Lascaño Ruiz, I
**Ruiz, J. O.** See Oliver Ruiz, J.
**Ruiz Capillas, A. F.** See Alvarez de la Vega, F.
**Ruiz F., C.** See McAllister, J. F.
**Ruiz Munguia, R.,** Millares, R., Gurley, N. F., and Lloyd, W. R. Fixed oils of Mexico (II) Cacoba, (III) Habilla de San Ignacio, (IV) Napahuite, (V) Mamey, 7722*c*.

**Ruiz-Seiquer Gallego, J.** Rutinosides, 3369*f*.
**Ruka, R.**, and Willard, J. E. Detn. of the soly. of AgBr in $HNO_3$ soln, 6492*d*.
**Rukeyser, M.** Josiah W. Gibbs, 4057*f*.
**Rukina, E. A.** See Kriss, A. E
**Ruksha, N. P.** See Tananaev, N. A.
**Rulka, A. S.** See Schwartzwalder, K.
**Rulon, O.** Control of reconstitutional development in planarians with Na thiocyanate and Li chloride, 773*h*.
**Rumbold, J. S.** Increasing particle size of synthetic rubber latexes, P 5223*c*, 7744*h*, creaming of rubber latexes, P 9518*c*.
**Rumford, F.** Chem. engineering, plant, and machinery, 4788*d*.
**Rumianca Società per Azioni.** Insecticide, P 8090*e*.
**Rumjanceiva, V. V.** See Rumyantseva, V. V.
**Rummel, W.** Permeability and glycolysis, 4764*a*; see Driesen, W.
**Rummelsburg, A. L.** Foundry core or mold, P 106*d*, terpene isomerization, P 5423*f*; terpene phenols, P 6237*a*; condensates of rosin with unsatd acyclic hydrocarbons, P 9486*a*; condensates of rosin with unsatd. heterocyclic compds., P 9486*f*; terpene-PhOH condensation, P 9085*c*.
**Rumpel, W.** Tall oil as raw material in the chem. industry, 8676*d*
**Rumpelt, H.** Drying of dyestuffs and pigments, 8685*a*.
**Rumpf, P.** See Lesfauries, P, Pullman, A.; Pullman, B.; Schaal, R.
**Rumscheidt, G. E.**, and Nic, W. J. de. Filamentary rubbery polymers, P 5625*f*
**Rumyantseva, V. V.** Reagent for developing brass microstructure, 3761*f*
**Rundle, R. E.** Interstitial compds.-metallic carbides, nitrides, and oxides of compn MX, 918*c*, see Baenziger, N. C., Wilson, A. S.
—— and Wilson, A. S. Structures of some metal compds of U, 7770*d*
**Runge, G. B.** See Bruns Runge, G.
**Runge, P. A.** Testing the disintegration of tablets and pills (I), (II) examn. of coated pills, tablets, and capsules, 5532*h*
**Runk, R. H.** See Foster, N. C
—— and Jerabek, R. D. Synthetic resin and members produced therefrom, P 3232*a*.
**Runke, S. M.**, Howe, E. G., Kennedy, J. S., and Kenworthy, H. Pilot-plant concn. of Arkansas Al ores, 4611*c*.
**Runkel, R. O. H.** Production of wood pulp by means of $NaClO_2$, 4463*g*.
**Runnalls, O. J. C.** See Corbett, P. M.
**Runnels, H. A.** See Wilson, J. D.
**Runnels, R. T.** Phosphate-bearing shales in eastern Kansas, 8320*d*
—— and Dubins, I. M. Fort Hays chalk in Kansas, 3753*a*
**Runner, D. G.** References on minerals and related subjects, 8981*r*.
**Runnström, J.** Action of trypsin and chymotrypsin on the unfertilized sea-urchin egg—formation of the fertilization membrane, 774*h*; membrane formation in different stages of cytoplasmic maturation of the sea-urchin egg, 775*i*, see Monroy, A.
**Runov, A. D.** See Kiselev, A. V.
**Runov, E. V.** Distribution of streptococcal bacteriophage in cheese, 7154*d*, microbiology of water, 9305*b*.
**Runyan, I. V.** Mixt. of phenol-$C_5H_8$ resin and polyvinyl ether, P 9526*f*; see Bates, J. E.
**Ruperto Sanz, D.** El Petróleo. Memorias instituto geolgóico y minero de españa (book), 7676*e*.
**Rupp, J.**, Paschkis, K. E., and Cantarow, A. Influence of thyroxine on protein metabolism, 8544*d*.
**Rupp, W. H.**, and Harding, C. L. Supported $AlCl_3$ catalysts, P 1931*b*
**Ruppert, A.** See Dirr, K.
**Ruppol, E.** Constituents of the unsaponifiable portion of ergot oil, 6367*c*; constituents of *Penicillium notatum*, 6368*i*.
**Rusanov, A. K.** See Itsikson, M. I., Volnar, A. O.
**Rusanova, A. I.** See Bundel, A. A.
**Rusch, H. P.** Antioxidant effect of carcinogenic agents, 1859*c*; see Boutwell, R. K.
—— and Kline, B. E. Influence of interrupted carcinogenic treatment on tumor formation, 749*e*.
—— and LePage, G. A. Biochemistry of carcinogenesis, 760*h*.
**Rusche, E.** German dolomite plant, 5554*e*.
**Ruscior, C.** See Cişman, A.
**Rusconi, Y.** See Wenger, P. E.
——, Monnier, D., and Wenger, P. E. Detn. of Mg, 2118*d*.
**Rush, I. C.**, and Kilbank, S. C. Effect of moisture variations on curing rate of GR-S, 2014*e*.
**Rush, J. H.** See Sponer, H.
**Rush, W. F.**, and Gamson, B. W. Correlation for equation of state applicable to all phases, 3254*f*.
**Rushbrooke, G. S.** See Bradburn, M.; Coulson, C. A
**Rushchuk, G. M.** Standard for phys. and mech. tests of cements, 1165*i*.
**Rushton, F.** See Brayshaw Furnace & Tools Ltd
**Rushton, J.** See Goldsworthy, L. J.
**Rushton, J. H.** Mixing, 1227*i*.
—— and Downs, C. R. Production and use of O, 823*i*.
**Ruska, H.** Fixation of $HgCl_2$ on bacteria and virus, 715*h*; potentiation of bacteriophage solns. by extreme foaming, 4337*b*; influence of defoaming of tobacco-mosaic virus solns. on the length of virus mols., 4732*c*.
—— and Menze, C. Size of typhoid bacteriophage by the filtration endpoint method and ultramicroscope pictures, 4726*d*.
**Ruskin, A.** See Rigdon, R. H.
—— and Decherd, G. Effects of strophanthidin and quinidine on conduction and elec. systole on the isolated rabbit heart, 314*i*.
**Ruskin, F. R.** Medicinal prepn. contg available Ca and P, P 8619*e*.
**Ruskin, S. L.** Medicinal prepn. contg. available Ca and P, P 8619*e*.
—— and Merrill, A. T. Cryst. form of Na ascorbate, 2735*i*
**Rusoff, I. I.** See Barnes, R. H.
**Rusoff, L. L.** See Seath, D. M.
**Russ, A.** See Hofmann, U.
**Russ, S.** See Jennings, W. A.
**Russ, W. R.**, Hoffman, C., Schweitzer, T. R., and Dalby, G. Fungicide, P 7647*c*.
**Russanow, A. K.** See Rusanov, A. K.
**Russek, A.** See Shamos, M. H.
**Russel, A. N.** Paper machine, P 3198*d*.
**Russell, Alfred.** Lignin (II) synthesis of further analogs of spruce lignin, 397*e*.
——, Batty, J. H., and Smith, H. E. Lignin (III) synthesis and polymerization of stable monomers, 4009*h*.
**Russell, Arthur.** Rashleighite, a new mineral from Cornwall, intermediate between turquoise and chalcosiderite, 4605*f*.
**Russell, A. G.** See Gasior-Russell, A.
**Russell, A. L.** Dental effects of exposure to fluoride-bearing Dakota sandstone waters (I) permanent teeth of children who used such water, 6766*d*
**Russell, A. S.** Diffusion of H through Al tubes, 6021*e*.
**Russell, B. E.** See Sherwood, N. P.
—— and Sherwood, N. P. Streptococci (II) hyaluronidase in streptococcal infection, 9150*g*
**Russell, C. C.** Selection of coals for manuf. of coke, 837*e*; see Perch, M.
**Russell, D.** See Chen, G.
**Russell, E. R.** See Schubert, J.
**Russell, H. D.** Stabilizing developed photographic images, P 4592*i*, 4593*a*; see Kent, L. E.; Miller, H. A.
—— and Crabtree, J. I. Stop-bath acidity indicator, P 4186*f*.
**Russell, H. E.** See Roy, W. F.
**Russell, J.** See Lubatti, O. F.; Page, A. B. P.; Shorland, F. B.
**Russell, J. A.** See Wilhelmi, A. E.
—— and Cappiello, M. Relation of temp. and insulin dosage to the rise in plasma amino N, 8055*e*; effects of pituitary growth hormone on the metabolism of administered amino acids, 8491*h*.
**Russell, J. J.** Detn. of traces of B, 4596*i*.
**Russell, L.** See Steele, S. D.
**Russell, Lawrence E.** Pulp-bleaching processes, 4463*h*.
**Russell, Loreen E.** See Light, A. K.
**Russell, M. B.** See Miller, R. O.; Thorne, M. D.
**Russell, N. B.** See Bond, D. C.
**Russell, P.** See Morgan, L. B.
**Russell, P. B.** See Falco, E. A.; Hitchings, G. H.
——, Elion, G. B., Falco, E. A., and Hitchings, G. H. 4-Amino-2-thiolpyrimidines, 8394*g*.
——, Elion, G. B., and Hitchings, G. H. Condensed pyrimidine system—*p*-oxazino-[2,3-*d*]pyrimidines, 3423*b*.
**Russell, P. L.** Steeple Rock Zn-Pb district, Grant Co., N. Mex., 6950*e*.
**Russell, P. S.** See Huggins, C.
**Russell, R., Jr.**, Mohr, W. C., and Rice, H. H. Casting characteristics of clays (II) influence of slip prepn. methods on properties of cast ware, 4437*a*.
**Russell, R. S.**, and Martin, R. P. Radioactive P in plant nutrition, 4344*i*.
——, Sanders, F. K., and Bishop, O. N. Distribution of $P^{32}$ in plant tissues, 5827*h*.
**Russell, T. F.**, and Mavrocordatos, C. Isothermal transformations, 4962*a*.
**Russell, W. C.** See Stern, Joel R.
—— and Taylor, M. W. Growth efficiency of essential amino acids alone and in combination with casein, 1468*f*.
**Russell, W. E.** See Briggs, L. H.
**Russell, W. F.** Drilling mud contg. gelatinized starch and monoethanol $NH_4$ 2-benzothiazyl sulfide, P 6402*e*.
**Russell, W. S.** Accelerating phosphate coating with indigoid compds., P 3772*c*.
**Russo, F.** See Natta, G.
**Russo, H. F.** See Beyer, K. H.
**Russo-Alesi, F. M.** See O'Keeffe, A. E.
**Rust, E.**, and Ebert, A. Unfalle Beim Chemischen Arbeitn (book), 7161*h*.
**Rust, F. F.** See Dickey, F. H.; Vaughan, W. E
——, Seubold, F. H., and Vaughan, W. E. Reaction of di-*t*-butyl peroxide and benzaldehyde, 612*h*; formation of secondary alcs. in the free radical decompn. of aldehydes, 1715*d*.
—— and Vaughan, W. E. Controlled catalytic oxidation of org. compds., P 2215*h*; controlled oxidation of paraffinic hydrocarbons, P 2223*d*
**Rust, G. M.** See Andreasen, A. A.
**Rust, J. B.** Dehydration of hydroxylated oils, P 2790*a*; drying-oil acid esters, P 4029*d*; modified drying oils, P 4873*b*; treatment of wool, P 5602*e*; aldehyde-polycyanoacetamido-compd. condensation products, P 6003*a*; wool-shrinkproofing baths contg. a chloroprene polymer, P 6429*c*; interpolymers from isoölefins and unsatd. ketones, P 6458*b*; quaternary $NH_4$ compds., P 7728*h*; see Coon, John M.; Robertson, J. W.
—— and Canfield, W. B. Oil-sol. resin, P 2031*a*; unsatd. polymerizable liquid, P 9537*e*; rosin esters, P 9485*f*.
**Rustia, A.** Coeffs. for the EtOH yield from grape musts or sweet wines, 5901*b*.
**Ruston, W. R.** See Hofmann, U.; Rüdorff, W.
**Rustum Maluf, N. S.** See Maluf, N. S. R.
**Rusznyák, István.** See Bálint, P.; Foldi, M.
**Rusznyák, Stefan.** Same as Rusznyák, István.
**Ruszowski, J.** Carbide furnace, 8898*i*.
**Rutenburg, A. M.** See Abrams, M.; Schweinburg, F. B.; Seligman, A. M.
**Rutenburg, E. B.** See Charova, A. M.
**Rutgers, A. J.** Physische Scheikunde (book), 932*f*; electrokinetics of the phase boundary, 3265*g*.
**Ruth, E. F.** See Heriberto Guerrero, A.
**Rutherford, A.** See Brand, J. C. D.
**Rutledge, E. K.** See Hill, Robert M.; Holtkamp, D. E.
**Rutledge, F. A.** Rainy Creek Hg prospect, Bethel district, Kuskokwim region, southwestern Alaska, 74*a*; see Heide, H. E.; Sanford, R. S.; Webber, B. S..
**Rutledge, M. M.** See Coryell, M. N.
**Rutledge, R. C., Jr.** See Heideman, M. L., Jr.
**Rutledge, T. F.** See Marisic, M. M.
**Rutledge, W. C.** See Cork, J. M.
**Rutman, D. S.** Glass furnace multigrog blocks, 8113*e*.
**Rutman, R.**, Dempster, E., and Tarver, H. Genetic differences in methionine uptake by surviving tissue, 7107*i*.
**Rutt, A. H.** Conditioning of paper, 2429*d*.
**Rutten, A. M. G.** Vanillin, 2736*a*.
**Rutter, C. M.** Adaptation of drainage cables to control of pipe corrosion, 9016*g*.
**Rutter, L.** Streaming potential in paper chromatography, 6040*c*.
**Ruyle, W. V.** See Leonard, N. J.
**Ruyssen, R.**, and Loos, R. Adsorption on liquid surfaces—saponin films, 3264*g*; electrokinetic potentials of aged $BaSO_4$ crystals, 4925*b*, 6091*b*.
**Ruyter, J. H. C.**, and Neumann, H. Alk. phosphomonoesterase, 5074*f*.
**Ruzhentseva, A. K.** See Kurteva, A. N.

—— and Vinogradova, M. E. Detn. of *meso*-Cl in the acridine series, 7373*e*.
**Ruzicka, L.** Contribution of perfume chemistry to org. chemistry, 6364*i*; see Dürst, O.; Jeger, O.; Kobelt, M.; Lardelli, O.; Meisels, A.; Nowak, R.; Perold, G. W.
——, Gutmann, H., Jeger, O., and Lederer, E. Triterpenes (CXXXII) relation of oleanolic acid to the triterpene ambrein and the diterpenes abietic acid and manoöl, 1748*e*.
——, Kobelt, M., Häfliger, O., and Prelog, V. Multimembered heterocyclic compds. (XII) polymethyleneimines, 5399*i*.
——, Prelog, V., and Battegay, J. Steroids and sex hormones (CLIII) benzoperhydrocyclopentenophenanthrene derivs., 244*b*.
——, Zwicky, R., and Jeger, O. Diterpenes (LVII) agathenedioic acid, 1751*h*.
**Ruziczka, W.** See Latzenhofer, J.
**Ryabchikov, D. I.** Detn. of noble metals by titration, 2542*e*.
—— and Strelkova, Z. G. Detn. of Ce, 8950*d*.
—— and Tereut'eva, E. A. Complex formation of rare earth elements, 4969*d*
**Ryabenko, A. Ya.** N industry—national economy, 3983*a*.
**Ryabinin, A. A.** Structure of the alkaloid from *Smirnovia turkestana*, 238*f*.
**Ryabov, A. V.** See Korshunov, I. A., Nelman, M. B.
**Ryadinskaya, N. M.** See Ushakov, S. N.
**Ryall, A. L.** See Barger, W. R.
—— and Godfrey, G. H. Dip and gas treatments for the reduction of post harvest decay in Texas lemons, 3134*a*.
**Ryan, A. O.** Latex coating of single or stranded metallic wire, P 2464*d*.
**Ryan, D. E.** See Haines, R. I.
—— and Fainer, P. Org. reagents for Pt metals (I) detn. of Pd, 4974*b*.
**Ryan, E.** See Djerassi, C.
**Ryan, F. J.** Germination of conidia from biochem. mutants of *Neurospora*, 1078*g*.
—— and Schneider, L. K. Mutation during the growth of biochem. mutants of *Escherichia coli* (I) pattern of adaptation of histidineless cultures, 2671*i*; (II) inhibition of histidine-independent bacteria in unshaken cultures, (III) inhibition of histidine independent bacteria by histidineless bacteria in aerated cultures, (IV) inhibition of histidine-independent bacteria by histidineless bacteria, 8439*e*.
**Ryan, J. D.** See Erickson, A. M.
**Ryan, J. E.** How to reduce adverse effects of fabricating on magnetic properties of steels, 3329*h*.
**Ryan, J. F.** See Daily, J. M.
**Ryan, L. F.** Dyeing nylon hosiery, P 8692*c*.
**Ryan, L. W.** See Fischer, F. K.
**Ryan, M. E.** See Ultermohlen, W. P., Jr.
**Ryan, V. J.** See Hickinbotham, A. R.
**Ryan, W. H.,** and Walworth, V. K. Prepg. several dye images in a single photographic emulsion layer, P 8924*i*.
**Ryan, W. J.** Preventing corrosion in air-conditioning system, 8342*b*.
**Rybak, B.** Conditions and nature of the transformation of the mucin of *Phytomonas tumefaciens*, 6282*g*; see Gros, F.
—— and Gros, F. Basic properties of streptomycin, 2668*i*.
**Rybak, B. M.** Naftenovye Kisloty (book), 4002*c*; see Tsyskovskii, V. K.
**Rybakova, V. M.,** Korolev, V. V., and Shikher, M. G. Sizing cotton warp yarn, P 3208*b*.
**Rybalko, F. P.,** and Yakutovich, M. V. Plasticity of steel and the fineness of surface prepn., 5717*b*.
**Rybicka, I.** See Meisel, H.
**Rybina, M. F.** See Popova, N. M.
**Rybnikov, V. A.** Low porosity multigrog, 1163*e*; diaspore ore for glass melting refractories, 3584*c*; debiteuse, P 3588*c*, diaspore for high-alumina refractories, 7655*g*; high alumina refractory, P 9408*f*.
**Rybnikova, A. I.** See Adamovich, V. I.
**Rybolt, C. H.,** and Swigert, T. C. Org. peroxide catalysts for polyesters, 4892*h*.
**Rychener, E.** See Hostettler, H.
**Rychkova, T. N.** See Babko, A. K.
**Ryckewaert, A.** See Hamburger, J.
**Ryden, I.** See Julian, P. L.
**Ryder, A.** See Loomis, R. C.
**Ryder, S. E. A.** Operation of a gas-fired enameling furnace, 3585*h*.
**Rydon, H. N.** Synthetic bacterial inhibitors with structures similar to those of essential metabolites, 5078*i*.
**Ryer, A. I.** See Tarpley, W. B., Jr.
**Ryf, H., & Sohn.** Clarifying sewage, P 7170*g*.
**Rygg, G. L.** Acidity in relation to quality in the date fruit, 4345*b*.
**Rykala, A. J.** See Sarkar, B. C. R.
**Ryk-Bogdaniko, M. G.** Hexachlorocyclohexane fumes for extermination of flies and mosquitoes, 9341*i*.
**Ryland, L. B.,** and Tamele, M. W. Cracking catalysts, 5181*a*, 5583*b*.
**Rylands, J. R.,** and Jenkinson, J. R. Corrosion of heating surfaces in boiler plants, 1305*g*, 4622*f*.
**Ryle, J. A.** Natural History of Disease (book), 755*i*.
**Ryman, B. E.** See Bray, H. G.; Elks, J.
**Rymer, T. B.** Radioactive tracer technique, 4553*h*.
**Rynasiewicz, J.** Electrolysis with a type of Hg cathode cell, 7354*d*.
**Rynders, G. F.** See Faick, C. A.; Hubbard, D.
——, Grauer, O. H., and Hubbard, D. Electrode function (pH response) of the soda-silica glasses, 827*d*.
**Ryš, R.** See Hubicki, W.
**Rysakov, M. V.** See Polyakov, I. S.
**Ryschkewitsch, E.** Oxydkeramik der Einstoffsysteme vom Standpunkt der Physikalischen Chemie (book), 5917*g*.
**Ryshkov, V. L.** See Ryzhkov, V. I.
**Ryss, I. G.** Properties of the transition elements, 7762*b*.
——, Slutskaya, M. M., and Palevskaya, S. D. Equil. of formation of tetrafluoroboric acid in mixts. of HF and $H_3BO_3$, 2494*b*
**Rysselberghe, P. van.** See Van Rysselberghe, P.
**Rytand, D. R.** Albuminuria (proteinuria), 4759*d*.
**Rytina, A. W.,** Schiessler, R. W., and Whitmore, F. C. Prepn. and properties of *cis* bicyclo[3.3.0]octane 3371*f*
**Rytz, A.** Spark counter, 4946*b*.
**Ryu, N.** See Shimohara, K.
**Ryvkin, S. M.** See Zhuze, V. P.
**Ryvkina, D. E.** Chem. mechanism of stimulus transfer in afferent nerves, 4749*a*
**Ryzhanov, S. G.** Internal photoelec. effect in Ag halide crystals, 6074*h*
**Ryzhik, Z. M.** Soldering with Cu P instead of Ag, 4623*e*.
**Ryzhkov, V. L.,** and Smirnova, V. A. Influence of O excess or deficiency on necrotic effects in *Nicotiana glutinosa* and on accumulation of virus protein in tobacco-mosaic disease, 8459*h*
**Ryznar, J. W.,** and Green, J. Evaluating corrosion inhibitors, 97*f*.
**Rzhanitsyn, A. P.** Changeability of the condition of strain with time, 6029*d*
**Rzymkowski, J.** Color development, 1273*i* reducing powers of vitamin C and *l* adrenaline, 2655*b*, coloring and stabilization of water-in-oil emulsions by org. dyes, 5975*g*; reducing power of iso vitamin C and of *l*-adrenaline, 7841*a*.

**Sá, A. M.** Identification of small amts. of Pd, 7371*e*; see Lexow, S. G.
**Saavedra Zavaleta, A. C.** Paint paste, P 877*d*
**Sabalitschka, T.** Danger to health through careless use of glycerol substitutes and Weichgelit tubing and stoppers, 818*d*; fungicidal action of fats and oils, 4413*c*.
—— and Memicke, U. Fungus showing good development in high H-ion concns., 7548*b*
**Sabavin, V. I.** See Zabavin, V. I.
**Sabetay, S.** Training of the perfumery chemist, 1911*f*
**Sabinina, L. E.,** and Zolotukhina, A. P. Detn. of Sb, 6937*i*.
**Sabiston, L.** See Nutten, A. J.
**Sablatnög, A.** Glass extn. app. for large quantities of mixts., 8747*b*; detn. of $SO_2$, Cl, and HCl in mixts., 8970*c*, see Reihlen, H.
**Sabo, C. W.** See Coy, N. H.
**Sabon, F.,** and Grignon, H. Identification of local anesthetics with styphnic acid (I), sulfonamide derivs., (II) antergan, (III), 1151*f*.
**Saboz, E.** See Wiesinger, K.
**Sabrodina, A. S.** See Zabrodina, A. S.
**Sacca, G.** DDT resistant flies, 6355*b*.
**Sacca, J. D.** Myelogenous leukemia resulting from benzene poisoning, 332*g*.
**Saccardi, P.** Insecticide and anticryptogamic compd., P 8604*g*.
**Saccharoff, I. P.** See Zakharov, I. P.
**Sacco Neto, A.** Candlenut oil, 872*i*; specifications for crude Brazilian tung oil, 3212*e*.
**Sacconi, L.** Indirect colorimetry (II), 58*g*; (III) colorimetric consts. of (α-aminobenzal) - 4 - nitrophenylhydrazine and its 2-methyl deriv. as acid-base indicators with double color change, 3747*d*; inorg. chromatographic adsorption (I), 2542*a*; (II) buffer action of active $Al_2O_3$ surfaces, (III) influence of ionic hydration on chromatographic adsorption—chromatography of complex cobaltiamminic compds., 8293*i*; surface buffer action of $Al_2O_3$ in inorg. chromatography, 8234*d*.
**Sacerdote de Lustig, E.,** Chiodi, H., and Parnes Ressia, T. Action of Pb on cultures of rabbit bone marrow, 1860*h*.
**Sachanen, A. N.** Conversion of Petroleum (book), 2421*c*, see Caesar, P. D.; Hunsford, R. C.; Henderson, D. S.; Lukasiewicz, S. J.
**Sacharow, I. P.** See Zakharov, I. P.
**Sacher, A.** See Kaufman, H. S.
**Sachet.** See Mangenot.
**Sachs.** See also Zaks.
**Sachs, E.,** and Larson, R. L. Cancer and the lens, 7488*b*.
**Sachs, G.** Reaction between mercuric acetate, ethylene, and amines, 7449*c*
**Sachs, R.** 1 (*m* - Hydroxyphenyl) 2 aminoethanol, P 5013*c*, hydroxyaryl monethyl ketones, P 5014
**Sachs, R. G.** Theory of exchange currents in nuclei, 5278*d*, see Avery, R.
**Sachse, E.** Language of the paintman, 8693*h*
**Sachse, H.** Properties of elements other than C, 2051*d*
**Sachsse, H.** Chem. processing of coking gas (I), 3595*a*, (II), 5571*h*.
**Sachsze, W.** See Juza, R.
**Sack.** See also Zak.
**Sack, B. H.** See Truce, W. E.
**Sack, E.** Development of the production of dyes, 6417*i*
**Sack, H. A.** Disperse phase in pitch and coal tar, 8617*d*
**Sack, R. A.** Frequency dependence of the dielec. const. (ε) in dipolar solids, 8770*b*
**Sack, T.** See Gibson, J. G. 2nd
—— and Seligman, A. M. Chem. alteration of polysaccharide from *Serratia marcescens* (II) effects of iodopolysaccharide in patients with malignant tumors, 6736*i*
**Sackett, W. J.** See Demmerle, R. L.
**Sacks, J.** Mechanism of phosphate transfer across cell membranes, 5436*g*, filtration app. for radioactive tracer expts., 8746*c*.
**Sacks, L. E.,** and Barker, H. A. Influence of O on nitrate and nitrite reduction, 8438*d*
**Sackur, O.** Detn. of heterocyclic N compds., 6512*g*.
**Sacy, G. de.** See Blazot Guénot, S.
**Sadana, J. C.** Carotenoids of loquat, 8450*f*
—— and Ahmad, B. Carotenoid pigments of different varieties of oranges, 2708*i*, metabolism of carotenoid pigments in plant leaves, 5453*i*, carotenoid pigments of Indian fruits, 5830*g*.
**Sadauskis, J.** See Jesse, W. P.
**Sadd, J. A.** See Kingan, R.
**Saddy, J.** Statistical distribution of the phosphorescence traps in ZnS, 8277*g*.
**Sadek, G. M. El.** See Richards, T.
**Sadgopal.** Compn. of milk fat of various species of animals, 1475*e*.
**Sadhu, D. P.** Growth and development domestic animals (LXII) specific dynamic action of nutrients—effects of vitamins and hormones, 4353*d*, see Roche, J.
—— and Truscott, B. L. Hypervitaminosis A and the distribution of body I, 8486*c*.
**Sadler, A. M.** Gas-solids fluidizing for transport, 4906*d*.
**Sadlon, M. M.** See Lieber, E.
**Sadokova, A.** Oat protein in melted cheese production, 7601*e*.
**Sadov, F. I.,** and Artemova, V. S. Influence of insol. azo dyes on the destructive action of sunlight on cotton threads, 3622*f*; destruction of cotton fibers under the influence of sunlight, 3622*g*.
**Sadovnikova, E. A.** See Fomenko, A. S.
**Sadovskii, V. D.** See Chuprakova, N. P.
——, Shtelnberg, M. M., Baranchuk, S. L., and Bogacheva, G. N. Preventing acicular fracture in Hadfield steel, 4201*b*.
**Sadowsky, M.** Prepn. of luminescent screens, 3732*d*.
**Sadrasil, F.** See Eilender, W.
**Sadron, C.** Relation of intrinsic η of

polymer solns. to degree of polymerization and temp., 8238*i*; phys properties of solns. of macromols., 8814*h*, see Benoit, H.
**Sadtler, P.** Textile analysis by infrared technique, 3201*c*.
**Sadykov, A.** O-ethers of lupinine, 6210*b*.
**Saechtling, H.** Manuf. of building boards, 3196*f*
——— and Mielke, K. H. Synthetic-resin adhesives and their application, 1216*c*.
**Säfsten, K. M.** See Borelius, G.
**Saeland, E.** See Sue, P.
**Saenger, E.** Jet-reaction flight (I), 4828*g*.
**Saenko, A. D.** See Petrov, G. S.
**Saenko, N. F.,** and Solov'eva, L. A. Gypsum in the production of sherry, 1904*i*.
**Sáenz Bretón, A.** See Poggio Mesorana, F.
**Saenz Lascaño Ruiz, I.** Application of chromatographic sepn to the analysis of mixts. of synthetic dyes, 777*c*.
**Saether, E.** Investigations in Fensfelt, 4191*c*.
**Säurefabrik Schweizerhall.** Regeneration of solid adsorption materials, P 5887*f*; solidification of S, P 5914*b*; purification of crude, volatile metal chlorides prepd by chlorination of oxidic ores, P 6374*e*, pure metal oxides, P 6374*f*, removal of foreign metal chlorides from raw $TiCl_4$ obtained by chlorination of $TiO_2$-contg. ores, P 7652*e*.
**Säverborn, E.** See Sandegren, E.
**Sävhagen, R.** See Gustafson, T
**Safetee Glass Co.** Laminated mirror, P 5565*g*
**Saffiotí, W.** See Bekkedahl, N
**Saffir, J. A.** Compns for molding dentures, P 9538*f*
**Safford, H. W.** See Stragand, G. L.
**Safford, M. M.** Dimethyl silicone gums, P 2036*f*, org Pb salt stabilizers for vinyl halide resins, P 4512*e*.
——— and Mueller, E. L. Stabilizer for vinyl halide resins, P 2032*e*
**Safford, R. W.** Probability of meson track endings in a high-pressure cloud chamber, 4095*b*
——— and Thorndike, A. M. Cosmic-ray particle of charge two or greater, 4104*i*.
**Saffran, J.** See Albert, S
**Saffran, M.,** and Denstedt, O. F. Detn. of citric acid, 4603*h*
**Safir, S. R.** See Hewitt, R. I.
———, Kushner, S., Brancone, L. M., and SubbaRow, Y. Chemotherapy of trypanosomiasis (II) prepn. of compds related to *p*-phenylenediguanidine, 5014*a*
**Safronchik, V. I.** See Vol'nov, Yu. N.
**Sagal, E. L.,** and Wolff, L. Digitalis bigemmy, 5121*c*.
**Sagal, J.** See Emerson, E
**Sagane, R.** See Hayashi, C
**Sagastume, C. A.,** and Oliva, V. Detn. of urea in blood, 1821*a*.
**Sage, A. M.** See Ingleson, H.
**Sage, B. H.** See Farrington, P. S., Glanville, J. W.; Hough, E. W., Olds, R. H., Reamer, H. H.
——— and Lacey, W. N. Behavior of binary, ternary, and multicomponent systems at states similar to those in condensate fields, 6498*d*.
**Sage, C. M.** Pigmented coating compns. exhibiting resistance to pigment flotation, P 5206*c*
**Sage, Marvin.** See Kharasch, M. S.
**Sage, Max.** Analysis of the allotropic varieties of Co utilizing x-rays, 4177*a*.
**Sagebiel, W.** Dextrose metabolism of the diphtheria bacterium, 8000*d*
**Sager, G. F.** See Nelson, B. J.
**Sager, H.** Blood collections of the Swiss Red Cross, 6361*h*.
**Sager, O. S.** See Sanders, G. P.
**Sagerson, R. P.** See Dexter, L
**Saggers, L.** See Alexander, Albert E.
**Sagorodskich, D. M.** See Zagorodskikh, D. M.
**Sagoschen, J. A.** Utilization of tannery waste products, 6853*a*; tannery materials, 9505*i*, theory of tanning, 9510*a*.
**Sah, P. P. T.** Hydrazides (XV) 3,5-dinitro-*p*-toluhydrazide as reagent for the identification of aldehydes and ketones, 6972*c*; see Anderson, Hamilton H.; Chao, J.; Oneto, J. F.; Pratt, R.; Tolbert, B. M.
——— and Chen, S.-C. Azides (XXIV) *m*-iodobenzazide as a reagent for the identification of amines, 7447*h*.
———, Daniels, T. C., Chen, K. K., and Kleiderer, E. C. Derivs. of bis(4-aminophenyl) sulfone (I) vitamin C derivs. of bis(4-aminophenyl)sulfone and related sulfa drugs, 5541*c*.
———, Gih, Y.-W., Kang, H., and Fu, S.-C. Azides (XXIII) phenyl-, 1-naphthyl-, and 2-naphthylallophanates as characteristic derivs. for the identification of phenols, 7447*b*.
———, Li, P.-M., Tsung, C.-H., and Wang, C. Azides (XXV) azide of 3-nitro-*p*-toluic acid as reagent for the identification of amines and phenols, 7448*b*.
——— and Li, T.-T. Hydrazides (XVIII) *m*-iodobenzohydrazide as reagent for the identification of aldehydes and ketones, 6973*d*
——— and Liu, P. Hydrazides (XVI) 4-nitro-3,5-dimethylbenzohydrazide as reagent for the identification of aldehydes and ketones, 6972*g*.
———, Oneto, J. F., Rohrmann, E., and Kleiderer, E. C. Derivs of bis(4-aminophenyl)sulfone (II) condensation of bis(4-aminophenyl) sulfone with some aromatic aldehydes, 5541*f*.
——— and Wang, H.-M. Hydrazides (XIV) oxalomonophenyldihydrazide as a reagent for the identification of aldehydes and ketones, 6971*e*.
——— and Wang, W.-T. Hydrazides (XVII) 3-nitro-*p*-toluhydrazide as reagent for the identification of aldehydes and ketones, 6972*i*.
———, Yang, J.-M., Chin, H.-C., and Wang, C. Hydrazides (XX) hydrazides of the naphthyloxamic acids as reagents for the identification of aldehydes and ketones, 6973*g*.
———, Yü, C.-W., Chia, H.-M., Chen, T.-L., and Chao, C. Azides (XXII) phenyl-, *p*-tolyl-, 1-naphthyl and 2-naphthylbiurets as characteristic derivs. for the identification of amines, 7446*d*.
**Saha, A.** Oxidation of fatty oils on textile fibers, 4857*f*
**Saha, A. K.,** Ghoshal, S., and Das, S. Nuclear energetics and $\beta$ activity (II) groups I = 7 to 1 = 20, 5288*d*.
**Saha, H. L.** See Mitra, S. N
**Saha, N. N.** Soda cellulose from jute fiber, 2429*c*, see Sirkar, S. C
**Saha, S.** See Preston, J. M.
**Sahade, J.** Spectrum of AR Pavonis, 7335*d*.
**Sahama, T. G.,** and Torgeson, D. R. Olivines and orthopyroxenes, 3700*i*, stability relation of geikielite and ilmenite in rocks, 4187*g*.
**Sahashi, K.,** *et al.* Xylidine from condensation of bis(chloromethyl) ether and nitrotoluene, P 7507*i*.
**Sahashi, Y.,** Nakayama, A., Akamatsu, S., Suzuki, H., and Mizuno, H. Vitamin $B_1$ and its allied compds. (I) prepn of vitamin $B_1$ chloride hydrochloride, 5102*b*.
———, Nakayama, A., Uchida, M., Inoue, J., and Mizuno, H. Vitamin $B_1$ and its allied compds. (II) promoting effect of 4-methylthiazole-5-acetamide on plant germination, 5102*c*.
**Sahasrabudhey, R. H.,** and Kalyanasundaram, A. Interaction of CO and H under silent discharge—HCHO, 1272*c*.
**Sahney, R. C.,** Barucha, R., and Sarma, H. R. Dielec. polarization and the dipole moments of enantiomers, 2054*g*.
**Sahni, M. R.** Abrasives and grinding materials, 525*c*.
**Sahu, B.** Lime content of soil in relation to crop response to Mg, 9320*d*.
**Sahyun, M.** Metabolism and nutritive importance of tryptophan, 733*g*; decompn of tryptophan in hot acidified solns, 3855*c*; protein hydrolyzates contg. essential amino acids, P 6683*c*; methionine, 8405*i*, relation of amino acids to the nutritive value of proteins, 8465*c*.
———, Bull, H. B., *et al.* Outline of the Amino Acids and Proteins (book), 1075*a*.
**Saibara, S.** See Hori, S.
**Said, F.** See Linnell, W. H.
**Said, H.** Effect of P on the hydrolysis and absorption of sucrose by plant cells, 1086*c*.
——— and Fawzy, H. Sucrose inversion and synthesis by carrot and radish root slices, 6286*g*.
**Said, Mrs.** Same as Mustafa, Akila.
**Saida, T.** See Ueno, Seiichi.
**Saidel, H. F.** See Chargaff, E.
**Saier, E. L.** See Grauer, R. C.
——— and Coggeshall, N. D. Infrared analysis of org. mixts. using C—H band structure resolved by a LiF prism, 8973*i*.
**Sailer, E.** See Brenner, M.
**Sailor, V. L.** Energy levels in $Ca^{41}$ and the mass difference between $A^{40}$ and $Ca^{40}$, 6507*b*; see Pollard, E. C.
**Sailors, H. R.** See Hepp, H. J.
**Sainderichin, N.** See Folliet, A.
**Saini, G.** See Venturello, G.
**St. Clair, H.** Apple juice concentrate as milk modifier, P 786*h*.
**St. Clair, H. W.** See Spendlove, M. J.
——— and Blue, D. D. Recovery of Al from crude Al-Si alloy, 9003*b*.
**Saintenoy, G. F.** Recovery of by-products from carbonization of wood, P 1952*b*.
**St. Groth, S. F. de.** See Fazekas de St. Groth, S.
**St. John, C.** Prime coating Al sheet, 2787*i*.
**St. John, C. V.** Detn of procaine in procaine penicillin G, 3146*g*.
**St. John, J. L.** See Evans, Robert J.
——— and Huey, E. E. Mineral constituents of mixed feeds, sample prepn. for Ca and P in feeds with $HNO_3$-$HClO_4$ acid, 9291*b*.
**St. John, R. C.** See McAdams, W. H.
**St. John, W. M.** See Fryling, C. F.
**Saint Johnston, J. H.** See Johnston, J. H. St
**St. Joseph Lead Co.** Refining of Pb, P 3340*d*.
**St. Louis University.** Vitamin K compds P 1917*d*
**Saint-Poulof, C.** See Bamberger, R
**Sainz, A. F.** Graphite and additives in lubricating oils, 7675*f*
**Sair, L.** See Gunther, J. K.; Klee, L.
**Saita, G.** Dinitrophenol poisoning, 6335*e*; see Vigliani, E. C.
**Saito, Kazuo.** Extn. of Ge and Ga from germanite, 7854*b*.
**Saito, Kunio.** See Kambara, S.
**Saito, M.** Vitamin B and C concentrate, P 6792*c*.
**Saito, N.** Reactions of cellulose and its derivs (I) detn of the gross heat of reaction of acetylation of cellulose in fibrous state, (II) analysis of total heat of acetylation excluding initial heat of reaction, (III) thermal analysis of the acetylation reaction of cellulose in fibrous state, 1963*e*.
**Saito, Shigeru.** See Murata, Y.
**Saito, Shohei.** Weathering tests of raw and compounded rubber, 3223*i*.
**Saito, T.** See Watanabe, T.
**Saito, Torao.** See Yamada, Teikichi.
**Saito, Tsuyoshi,** and Shimizu, M. Anticorrosive coating on the surface of steel, P 6565*a*.
**Saitta, L.** See Balbi, R.
**Saitzev, Saizev.** See Zaitsev, B. D.
**Sajfertová, D. D.** See Dykyj-Sajfertová, D.
**Sajner, J.** Histological analysis of the action of several steroids, 8530*g*.
**Sajzewa, A. F.** See Zaitseva, A. F.
**Sakaguchi, S.** See Ueno, Seiichi.
**Sakai, S.,** Tsurumi, M., Eno, Y., and Inukai, F. Salireposide, 7924*b*.
**Sakai, Takuzo,** and Ishihara, A. Rubber-like elasticity, 4079*g*
**Sakai, Tooru.** Hydrolysis of casein and gelatin by crepsin-free swine liver cathepsin, 9089*c*.
**Sakai, W.,** Hukuyama, H., and Okuno, T. Catalytic powers of Mn oxides (I) compn. and thermal decompn. of Mn oxides, (II) adsorption equil. of $CO_2$ by Mn oxides, (III) adsorption velocity of $CO_2$ by Mn oxides, 1023*f*.
———, Kurimura, R., and Okuno, T. Catalytic powers of Mn oxides (IV) adsorption equil. of O by Mn oxides, (V) heat of adsorption and adsorption velocity of O by Mn oxides, 1624*a*.
**Sakal, E. H.** See Milas, N. A.; Spence, L. U.
**Sakami, W.** Conversion of formate and glycine to serine and glycogen, 3859*f*; conversion of glycine into serine, 4748*a*; formation of the $\beta$-C of serine from choline Me groups, 7564*h*; see Lifson, N.
**Sakellarios, E. J.** Purification of *N*-(hydroxymethyl)phthalimide through a mol. compd. with pyridine, 6184*h*.
**Sakhanov, A. N.** Same as Sachanen, A. N.
**Sakharov.** See also Zakharov.
**Sakharov, B. A.,** and Durynina, L. I. Catalytic oxidation of methanized city gas, 2403*d*.
**Sakharov, P. S.** Production of cold-rolled strip of Fe-Cr-Al alloys, 4206*a*.
**Sakimura, K.** Residual toxicity of hexachlorocyclohexane incorporated in soil, 1522*i*.
**Sako, Y.,** Kremen, A. J., and Varco, R. L. N retention after intravenous and oral administration of protein hydrolyzate and

native protein enterally—N retention after injection of protein hydrolyzate into the portal and systemic veins, 288*e*.
**Sakryd, C. H.** See Scripture, E. W., Jr.
**Saksena, B. D.**, and Srivastava, K. G. Structure and morphology of α quartz, 6881*b*; calcg. the piezoelec consts. of α-quartz, 8781*b*; variation of the piezoelec. consts. of α-quartz with temp., 8781*d*.
**Sakuma, I.**, Chin, H, and Sodeyama, K. Bleaching of Japan wax (XII), 5211*f*.
**Sakura, T.** See Mizushima, S.
**Sakurada, I.**, Taniguchi, M, and Morita, T. Prepn. of primary acetone-sol. acetylcellulose in fibrous form, 1963*a*.
**Sakuragi Pharmaceutical Co.** Powd. diuretic from corn, P 6791*c*.
**Sakuragi Seiyaku K. K.** Same as Sakuragi Pharmaceutical Co.
**Sakurai, K.** Alkali refining of rice oil, 5610*i*; vitamin E prepn. from rice oil, 5907*h*; decolorization of rice oil by acid, 8709*a*; lubricating oil for watches from polymerized soybean oil, 9424*c*.
**Sakurai, M.** See Komuro, T.
**Sakurai, T.** See Kobayashi, Ryonosuke
**Sakurai, Y.**, and Aoyagi, Y. Effect of vitamins on restricted feeding (II) vitamin $B_2$ and $B_6$, (III) fasting animals, 8022*a*
——, Aoyagi, Y, and Seimiya, M. Effect of vitamins on restricted feeding (I) excess vitamins, 8021*i*.
—— and Hori, H. Adsorption capacity of acid clay (I) adsorption of vitamin $B_1$, (II) elution of vitamin $B_1$, 7771*d*
**Sala, O.** See Adair, R. K., Bowe, J. C.; Herb, R. G.
**Saladin, O.** Battery electrodes, P 7360*e*.
**Salamanca, F. E. de.** See Enríquez de Salamanca, F.
**Salamandra, G. D.** See Tsukhanova, O A.
**Salas, E. de.** See De Salas, E.
**Salassa, R. M.**, Bollman, J L., and Dry, T. J. Effect of *p*-aminobenzoic acid on the metabolism and excretion of salicylate, 2328*h*.
**Salathiel, R. A.** Drilling fluid for heaving shale, P 6817*h*, 6818*b*.
**Salau, H. J.** Wear and tear reduction in screenless ball mills, 533*e*
**Salauze, J.** Baths for the electrolysis of Cu, 2872*g*.
**Salazar, R P.** See Patiño Salazar, R.
**Salázar Mallén, M.** See Lozana Hube, E.
—— and Lozana Hube, E Penicillin detn (II) detn of penicillin by chem and physicochem methods, 1075*f*
**Salázar P., V.** See Castañeda-Agulló, M.
**Salcedo, J., Jr.**, Carrasco, E. O, Jose, F. R., and Valenzuela, R C. Beriberi in an endemic subtropical area, 1090*e*.
**Salcedo, R.**, and Palacios, J. E. m. fs. due to adsorption, 4586*i*.
**Salé, B.** See Manson, N.; Vichnievsky, R.
**Salem, A. S.** See Razouk, R I.
**Salem Engineering Co.** Conveying and quenching device for heat treated shells, billets, etc., P 8*g*.
**Salerno, P. R.** See DuBois, K P.
—— and Coon, J. M. Pharmacol comparison of hexaethyl tetraphosphate and tetraethyl pyrophosphate with physostigmine, neostigmine, and diisopropyl fluophosphate, 3930*g*.
**Salfeld, H.** Perspiration, 8618*g*
**Salibi, B. S.** See Dziewiatkowski, D D.
**Salice, P. G. G.** See Gurgo-Salice, P G.
**Salimbeni, G. B.** Iodine extn , P 8626*c*.
**Salinas, L. T.** See Tapia Salinas, L
**Salis, T. v.** Disinfecting soln contg. paraffin oil, ephedrine, phosphatides, and cholesterol, P 1532*a*.
**Salisbury, L. F.** Hg-treated charcoal catalyst, P 1932*d*; fluorohydrocarbons, P 7035*e*; see Coffman, D. D.; Griffing, J. M.; Mochel, W. E.
**Salita, A. M.** See Petrov, G. A.
**Salivar, C. J.**, Grenfell, T C., and Brown, E. V. Naturally occurring penicillins (II) pptn. of cryst. $NH_4$ penicillins, 1911*b*.
**Salk, J. E.** Ca phosphate adsorbed influenza virus, 3925*c*
**Salkind.** See Zal'kind.
**Salkovitz, E.** See Hammond, A.
**Sallach, J.** See Militzer, W.
**Salle, A. J.** Lab. Manual on Fundamental Principles of Bacteriology (book), 1461*d*
——, Jann, G. J., and Ordanik, M Lupulon, an antibiotic extd from the strobiles of *Humulus lupulus*, 5444*i*.
**Salley, D. J.** See Dixon, J K.; Stock, C. R.
**Sallin, B. S. B.** See Blom-Sallin, B. S.
**Sallmann, R., and Gränacher, C.** Amide derivs. and process of making, P 1434*d*.
**Salm, (Sister Eleanor Marie).** See Campbell, K. N.
**Salmang, H.** Prepn. and calcination of pure MgO, 3156*d*, changes in length of refractories during heating, 3163*d*
**Salmanson, E. S.** See Zalmanzon, E. S.
**Salminen, I. F.** See Allen, C. F. H.; Weisberger, A.
**Salmon, J. E.** See Vandervell Products Ltd
**Salmon, W. D.** See Schaefer, A E.
**Salmon-Legagneur, F.** 2,2-Diphenylbutanoloic isomers and their olides, 3396*g*.
**Salmony, A.**, and Thews, E R. Co plating, 7833*i*.
**Sal'nikov, I. E.** Periodic progress of homogeneous chem. reactions (II) thermokinetic autovibrational model, 6055*h*; crit conditions of chem kinetics, 6894*f*; thermokinetic model of homogeneous periodic reactions, 6894*f*.
**Salo, M.** Coating compn for moisture-proofing by hot melt coating, P 4028*e*
**Salo, T. P.** Degradation of collagen into a parent gelatin, 6888*h*
**Salomon, A. N.** See Wainer, E
**Salomon, G.** Reactivity and structure of dienes and their polymers (I) reactivity of π-complex compds , (II) synthetic and natural rubber, 2017*a*, prepn and properties of rubberlike high polymers (V) influence of nitrile groups on the properties of copolymers, 2461*f*, influence of structure on polymer-liquid interaction (II) influence of nitrile groups, 2461*f*, (III) swelling and mech properties of some partly crystd polymers, 7730*b*, 8728*h*.
——, Boonstra, B B S T, Meer, S van der, and Ultee, A J Prepn and properties of rubberlike high polymers (VI) polymerization and dimerization of isoprene, 5021*c*.
**Salomon, K.** See Altman, K. I.; Boyd, G A ; Gabrio, B W
——, Gabrio, B W , and Thale, T Mescaline in human subjects, 5865*g*
**Salomon, M.**, and Smith, J B Effect on soil of long continued use of nitrate of soda and sulfate of $NH_3$ as single N sources, 2352*b*
**Salomone, G.** Fractionation of linseed oil, 3212*f*
**Salova, A. S.** See Stakheeva-Kaverzneva, E D
**Salow, H.** See Maier Leibnitz, H
**S A L.P.A. Società anon. Leuciti Potassa Alluminio.** See Società anon Leuciti Potassa Alluminio S A L P A
**Salsbury's Laboratories.** Poultry treatment compn , P 368*a*, control of coccidiosis, P 9388*h*.
**Salt, F. E.** See Distillers Co , Ltd , Gasson, E I , Stanley, H. M
**Salt, F. W** Detg coating thickness on tinplate, 2893*g*, overvoltage in metal deposition and dissoln (I) Ni, 5671*d*
**Salter, W. T.** Metabolic circuit of the thyroid hormone, 3907*i*
—— and Johnston, M W Iodine—radioactive and stable in normal and cancerous tissues, 8518*i*
**Salton, M. R. J.**, and Alexander, A. E Estn of soaps and ionized detergents, 5976*e*.
**Saltonstall, R. B.** Maintenance in the plating room, 2099*b*; temp coeff of the cericerous electrode, 4961*b*
**Saltonstall, W.** See Hansch, C.
**Saltzman, A.** See Snapper, I
—— and Snapper, I Delay in the formation of hippuric acid from benzoic acid in patients with liver damage, 3093*b*.
**Saltzstein, H. C.** See Kaulbersz, J.
**Saluste, E.** See Ehrensvärd, G
**Salvá, J. A.**, Neumann, J , and Lavollay, J. Substances which increase capillary resistance and their effect on adrenaline hypertension, 4376*b*.
**Salvador, U. J.** See Clinton, R O.
**Salvadori, B.** Stilbenes (II) hydroxymetalloidal color reactions of certain org. solvents with K pyroantimoniate, 8975*f*
**Salvage and Marine Co. of Egypt.** Welding under oil, P 2156*d*
**Salvá Miquel, J. A.** Detn. of *p*-aminobenzoic acid, 2621*i*, see Glanzmann, S.
**Salvat, J. V.** See Vollaire-Salvat, J.
**Salvato-Mangano, T.** Physiology of olfaction, 4355*i*.
**Salvatore, C. A.** See Alberto Salvatore, C.
**Salvatori, D. P.** See Tormey, H. J
**Salvesen, J. R.**, and Hogan, D. Analysis of sulfite waste liquor and lignosulfon detn. of neutralized solids and wet oxidation for detn. of total S and cations, 1182*h*.
**Salvetti, A.** See Le Bras, J.
**Salvi, G.** Selective adsorption—theory, methods, and applications for the sepn. of hydrocarbons, 2839*i*; synthetic fatty acids from paraffin, 3633*e*; see Padovani, C.
**Salvi, P.** See Angrisani, D.; De Lerma, B
—— and Di Chiro, G. Vitamin inhibitors of cholinesterase (II) action of vitamin K on serum cholinesterase, 2258*f*.
—— and Giordano, G. G. Specificity of the tributyrinase of the cerebrospinal fluid, 7065*a*
—— and Morelli, A. Vitamin inhibitors of cholinesterase (III) nicotinic acid and choinesterase of blood serum, (IV) bile salts, serum cholinesterase, and sympathico-parasympathic equil , 2258*g*.
**Salvin, S. B.** Cysteine and related compds. in the growth of the yeastlike phase of *Histoplasma capsulatum*, 9152*a*.
—— and Hottle, G. A. Histoplasmin formation, 719*g*
**Salvin, V. S.** See Seymour, G W.
**Salvini, G.** Spherical Geiger-Müller counter, 4945*f*, see Lovati, A
**Salvini, M** , and Feruglio, F. S Bilirubin extractable with $CHCl_3$ from bile, 5853*g*.
—— and Fracasso, A Spleen reduction by nicotinic acid 8468*a*; hematologic variations immediately after intravenous injection of Na nicotinate, 8468*b*
—— and Gonzato, P Conditions of relative validity of the Jendrassik method in detn of bilirubinemia, 6683*i*
**Salvinien, J.** See Taboury, F. J.
**Salvis A.-G.** Elec heating elements, esp for glowing and smelting furnaces, P 3732*i*, kiln for ceramics, P 6386*h*
**Salway, A. H.** See Rees, H. G.
**Salzberg, P. L.** Vinyl cyanide, P 8398*a*.
—— and Signaigo, F K Polyvinyl boronates, P 2631*i*
**Salzer, W.**, Timmler H, and Andersag, H. Compds active against avian malaria, 1415*c*.
**Salzman, C. F., Jr.** See Christ, C L.
**Salzmann, G.** Sepn of coarse grain in heavy sludge in the dressing of Ramsbeck Pb-Zn ore, 1694*i*, lining of ball mills, 3326.
**Samaan, K.**, Hoosein, A M., and Fahim, I. Visamnin and khellinin action on the heart, 7584*b*
**Samans, C H.** See Ham, W R
**Samarina, O. P** See Konikova, A. S., Kritsman, M G
**Same, E. W.** See Stokinger, H. E
**Samec, M.** See Blinc, M
**Sammons, M F** See Ross, J F
**Samodurov, P. S** , and Sedletskiĭ, I D Mineralogy of refractory clays from Shis Mt in the Northern Caucasus, 977*d*, halloysite character of refractory clays from Uchkeken, Northern Caucasus, 4187*d*, mineralogy of refractory shales in the Baksan River Valley, North Caucasus, 6121*c*
**Samoilov, B. N.** Absorption and luminescence spectra of uranyl salts at the temp. of liquid He, 4138*d*
**Samoilov, O. Ya.** Nature of the secondary max on the radial distribution curves of atoms in liquids, 454*i*
**Samoilov, S** , and Dyatkina, M Configuration of polyphenyls and triphenylmethyl, 2606*h*.
**Samoilov, V. M.** Impregnating thread, P 6128*b*.
**Samoilova, E. E.** Pain relief in childbirth with vitamin $B_1$, 4740*d*
**Samoilova, S. A.** See Tueva, O. P.
**Samojlov.** See Samoilov.
**Sampaio, P. A.** See Amazonas Sampaio, P.
**Sampaolo, G.** See Wiesinger, K.
**Sampath, A.** See Little, P. A
**Sampedro, A.** See Santos Ruiz, A.
**Sampey, J. R.** Chem. research in liberal-arts colleges, 4909*b*, see King, A. B.
—— and Cox, J M. Reduction of anthracene and phenanthrene with Li Al hydride, 5774*e*.
—— and King, A. B. Replacement of Br by I in reaction of bromocarbons with NaI in $Me_2CO$, 4628*e*.
**Samplavskaya, K. K.** See Korshak, V. V.
**Sample, M. B.** See Holland, B. R.
**Sample, R. D.** See Lee, D E.
**Sampson, J E., and Blankenship, F.** $CCl_3$ hydrate, 2570*b*.
**Sampson, M. B.** See Brolley, J. E., Jr.
**Sampson, R. J.** See Tucker, W. B.

**Sams, R. H.** See Baker, C. L.; Wills, John H.
**Samson, H. R.**, and Wadsley, A. D. MnO mineral from Buchan, Victoria, 8983*e*.
**Samson, R.** Macaroni products, P 786*g*.
**Samsonov, G. V.** Effect of H-ion concn. and nature of the buffers in the change of vol. during hydrolysis of proteins, 6263*e*.
**Samsonova, O. A.** Bleaching of linen fibers, 3621*h*; see Burdin, S. F.
**Samsonova, V. I.** See Zaborenko, K. B
**Samuel, R.** Does a semipolar double bond exist? 5650*f*.
**Samuel, R. L.** Metallic coatings on Fe and steel, P 555*g*, 7404*i*.
**Samuels, C. E.**, and Wiegand, E. H. Radio-frequency blanching of cut corn and freestone peaches, 783*h*
**Samuels, L. T.** See Levedahl, B. H., Roberts, Sidney, Rudolph, G. G.; Sweat, M. L.
——, Gilmore, R. C., and Reinecke, R. M. Effect of diet on the ability of animals to do work during subsequent fasting, 1091*g*
——, Sellers, D. M., and McCaulay, C. J. Source of excess creatine following Me testosterone, 4373*a*.
**Samuelsen, E.** See Sörensen, N. A
**Samuelson, O.** Influence of cellulose properties on filterability of viscose, 397*a*, chemistry of the sulfite process (III) comparison between the S content and the amt. of sulfonic acid groups in lignosulfonic acid, 1182*i*; chemistry of the viscose process, 3611*a*; constitution of Graham's salt, 6929*h*; xanthation of cellulose by emulsified $CS_2$, 9436*g*; see Lagerstrom, O.; Regestad, S. O.
—— and Westlin, A. Chemistry of the sulfite process (II), 398*e*, sulfite cellulose, P 3197*g*.
**Samuelsson, E. G.** See Hansson, E.
**Sanabria, A.** See Granier-Doyeux, M.
**Sanada, Y.**, and Miyazawa, K. K chloride from waste liquor of seaweed boiling (I) treatment of seaweed with common salt soln., 1919*f*.
**Sanadi, D. R.**, and Greenberg, D. M. Effect of amino acid deficiencies on incorporation of radioactive C-labeled amino acids into animal tissue proteins, 734*h*.
**Sanahuja, J. C.** See Claudio Sanahuja, J.
**Sanborn, F. J.** Spontaneous ignition of pyroxylin triangles, 7687*b*
**Sanborn, N. H.** Treatment of cannery wastes, 4406*c*.
**Sanborn, W. C.**, and Ricker, S. French Hill chromite mine, Del Norte Co., Calif., 74*d*.
**Sanchez, A.** See Rath, H.
**Sanchez, G.**, and Lamensans, A. Detn. of penicillin and streptomycin, 7076*a*
**Sánchez, J. A.** Luis Rossi, 1229*f*, life and work of Prof. George Denigès, 5649*d*, identification of plasmochin and its salts (I), 8098*d*.
—— and Carnevale Bonino, R. C. d'A. de Detection of *N*-methyl groups in xanthine bases by HCHO formation, 1689*a*.
**Sanchez, J. V.** See Vazquez Sanchez, J.
**Sanchez, L. H.** See Herrero Sanchez, L.
**Sánchez, M. C.** See Chaves Sánchez, M.
**Sánchez, M. R.** See Riquelme Sanchez, M.
**Sánchez, R. D.** See Dominguez Sanchez, R.
**Sánchez-Marroquín, A.** Microbiology of pulque (II) utilization of *Lactobacillus* species in the fermentation of hydrolyzed aguamiel, 5531*e*.
—— and Arciniega, L. Microbiology of pulque (III) dextran production by *Leuconostoc* of aguamiel, 5531*f*.
—— and Gavarrón, F. F. Amylase of *Endomycopsis fibuliger* (IV) characteristics of its action on com. starch, 3857*c*.
—— and Rodríguez, H. Microbiology of pulque (IV) serological properties of two dextrans from *Leuconostoc*, 5532*a*.
**Sánchez Nieva, F.** See Gordon, S. A.
**Sánchez Serrano, E.** See Barcia Goyanes, C.
**Sandage, C.**, and Stark, O. K. Action of substances which enhance bacterial invasiveness, 9222*e*.
**Sandberg, C. R.** See Elfrink, E. B.
**Sandberg, E.** See Zandberg, E. Ya.
**Sandberg, F.** Pharmacol. properties of some N-substituted barbituric acid derivs., 9257*i*.
**Sandberg, S. W.** See Bruckner, W. H.
**Sandberg, T. R.** Western balance—pharmaceuticals and biologicals, 8577*c*.
**Sandegren, E.**, and Säverborn, E. Foam-stabilizing and foam-destroying substances in beer, 6781*a*.
**Sandegren, E.** Swedish geol. literature, 6543*c*.
**Sandell, E.** Stability tests for oils and fats, 2791*d*; oxidation of fats in pharmacy, 3976*g*; see Bondeson, W., Elvius, P.
**Sandell, E. B.** Ga content of igneous rocks, 2906*e*; detn. of Be in silicate rocks, 8302*d*.
**Sandell, O. W.**, and Sönnerskog, S. H. Products from lignin-contg. materials, P 3198*a*.
**Sandell, W. G.**, Bauerle, L. C., and Dean, K. C. Beneficiation of oxide Sn ores from the States of Zacatecas and Guanajato, Mex., 6551*b*.
**Sander, A. J.** See Adams, A. M.
**Sander, F.** Darmflora in der Physiologie, Pathologie und Therapie des Menschen (book), 5086*e*.
**Šanders, K.** See Kopecký, R.
**Sanderman, L. A.** See Utterback, C. L.
**Sandermann, W.** Tech. recovery of tall-oil sterols, 2771*b*; sterols and their cosmetic and pharmaceutical application, 3568*c*; chem. analyses in the wood-using industry, 5585*h*; chem. utilization of stumps, 6407*d*; resins—specific color reaction for dehydroabietic acid and its application in analysis of tech. resins, 6837*e*.
**Sanders, C.** Corrections for gamma changes due to variations in exposure and development, 961*f*
**Sanders, D. A.** See Marshall, S. P.
**Sanders, F. K.** Cytochem. differentiation between pentose- and desoxypentosenucleic acids in tissue sections, 2656*h*; see Russell, R. S.
**Sanders, G. P.**, and Sager, O. S. Heat inactivation of milk phosphatase in dairy products, 779*a*, preservation of dairy products for the phosphatase test, 3941*i*.
**Sanders, J. H.** Calorimeter for the detn. of the intensity of a beam of accelerated particles, 3706*e*, see Thonemann, P. C.
**Sanders, J. W., Jr.** Examn. of foods for extraneous matter, 4780*e*
**Sanders, M. D.** What can be done with whey? 4782*d*, flotation of bone particles, P 1124*i*
**Sanders, M. E.** Embryo development in four *Datura* species following self and hybrid pollinations, 1086*d*
—— and Burkholder, P. R. Influence of amino acids on growth of *Datura* embryos, 2280*b*.
**Sanders, P. A.** Effect of light on Neoprene (I) discolorations of GR-M vulcanizates by direct sunlight, 7254*f*.
**Sanders, V.** Cellular-glass insulation for low temp. equipment, 371*h*.
**Sanderson, C. F.** Selection of heat exchangers, 5236*b*, see Glendening, A. S.
**Sanderson, D.** See Karlson, K. E.
**Sanderson, J. J.**, and Hauser, C. R. Base-catalyzed polymerization of styrene, 5754*d*.
**Sanderson, L.** Materials for molds for plastics (II), 7259*g*.
**Sanderson, R. T.** Vacuum Manipulation of Volatile Compds. (book), 449*b*; viscosity-temp. characteristics of hydrocarbons, 3601*h*, relative viscosity-temp. no., 3602*b*, correlation of viscosity, temp., and pressure, 6024*d*; viscosity, temp., and pressure of lubricating oils, 9423*f*
**Sanderson, T.** Coke for blast furnaces, 9417*d*.
**Sanderson, T. F.** See Harris, G. C.
**Sandin, R. B.** See Miller, E. C.
**Sandke, R.** See Clar, E.
**Šandl, Z.** See Tomíček, O.
**Sandler, O. E.** Erythropoietic effect of yellow-bone marrow exts. and batyl alc., 6737*g*.
**Sando, W. J.** See Couch, J. F.
**Sandomirskaya, S. S.** See Leve, N. F.
**Sandor, Georges.** Three humoral immune functions and the three globulin fractions bearing them, 1101*b*.
—— and Skrobisz, C. Serum globulin systems and immunity (I) fractionation of horse immune serums, 2305*f*; (II) three humoral immune fractions and the three globulin fractions bearing them in horse serum, 6722*h*.
**Sándor, Gyorgy.** Sol. cellulose glycol ethers, P 9446*a*; see Hermann, L.; Magyar Viscosa R. T.; Palotai, G.
**Sándorfy, C.** Absorption spectra and mol. diagrams of mono- and dihydroxybenzenes, 2512*d*; acenaphthylene and fluoranthene, 3252*d*; Me-substituted aliphatic linear chains with conjugated double bonds, 5733*d*; mol. diagrams of some methylated hydrocarbons, 5733*e*; see Chalvet, O.; Kiss, Á.
**Sandoval, M. de los A.** See Angeles Sandoval, M. de los.
**Sandoval Vallarta, M.** See Forbush, S. E.
**Sandow, A.** Muscle, 5838*h*.
**Sandoz, A.-G.** Same as Sandoz Ltd.
**Sandoz Ltd.**
(*Patents.*)
2-(*o*-acetoxybenzamido)thiazole, 3467*d*.
aluminum powder coloring, 7720*c*, 8345*g*.
anthraquinone dyes, 860*f*, 1986*e*, 2782*i*, 2783*g*, 3205*a*, 4482*h*, 4483*f*, 4867*e*, 5197*ab*, 6832*e*, 7235*h*, 7703*c*, 8164*d*.
aromatic amides, 6239*a*
azo dyes, 3204*h*, 4475*g*, 4482*g*, 4867*a*, 5196*h*, 5597*f*, 5598*bc*, 5960*h*, 8689*h*.
azo dyes contg. metals, 4481*f*, 5598*d*, 9460*e*.
azo pyrazolone dyes, 7698*e*.
capillary-active compds., 7242*f*.
6-chloroanthraquinone dye, 9467*c*, 9467*d*.
colored materials, 7267*c*.
condensation of 3,5-dihalosalicyloyl chloride with aminothiazoles, aminopyridine, and aminoantipyrine, 7513*b*.
2 - (3,5 - dibromo - 2 - hydroxybenzamido)-4 methylthiazol, 6239*f*.
dihydroergocristine, 3474*d*.
dihydroergosine, 3474*d*.
dihydroergotamine tartrate, 3151*i*.
dihydroergotoxine, 3151*h*.
dihydroisolysergic acid hydrazide, 5427*h*
1,1′-dihydroxyazo dyes, 3626*c*.
2,2′-dihydroxyisopropyl amide of *d*-lysergic acid, 2242*i*
disazo dye, 5195*c*, 5598*i*, 8156*g*, 8157*i*, 8689*i*.
disulfuric acid ester of 1,4-bis(2-hydroxyethylamino - 6 - chloroanthraquinone 4483*i*.
ethoxyurea-$CH_2O$ condensation product, 1610*h*.
formaldehyde condensation product, 4050*e*.
glycosides crystallized from senna leaves and pods, 2376*a*.
halogenated naphthoquinone imines, 1440*e*
heterocyclic amine, 6246*e*
high-mol. aliphatic alcs., 7497*c*
hydroxyalkylguanidine condensation products with aldehydes, 3206*c*.
*d*-1-hydroxy-2-butyl amide of *d*-lysergic acid, 2242*i*.
mercerizing liquor, 9477*f*.
1-methylglycocyamidine deriv., 4431*f*
phthalocyanine aryl thio ethers, 4487*e*, 7710*d*.
pigments, 5607*f*, 7705*c*.
sepg. and purifying the alkaloids of ergot 2740*g*
surface-active agent, 3222*b*.
tanning agents, 3223*f*, 5618*g*, 9511*d*.
tetrakisazo dyes, 8161*a*.
trisazo dyes, 7701*g*, 7702*i*.
yellow wool dyes, 4867*g*, 5600*h*.
**Sandoz Ltd.** and May, P. Naphthoquinoneimide dyes, P 8166*i*.
**Sandoz Soc. anon.** Same as Sandoz Ltd.
**Sandréa, A.** Na-Mn variety of tourmaline in the pegmatite vines from the environs of Roscoff, 5706*b*
**Sandri, G.** Detn. of $Hg^+$ salts, 5339*c*.
**Sands, G. A.** Transportation and storage of strong $HNO_3$, 367*c*.
**Sands, J. E.** See Campbell, K. S.
**Sandstrom, W. M.** See Brink, D. L.
**Sandweiss, D. J.** See Kaulbersz, J.
**Sandy, H. R.** See Frost, D. V.
**Sane, S. C.**, and Telang, M. S. Mg—alkalimetric detn. in Ca and Mg carbonate ores, 5329*g*.
**Sanesi, M.** Melamine and melamine resins, 2463*i*.
**Sanetra, F.** Product and cost control in the fertilizer industry, 8594*g*.
**Sanford, F. B.**, Kenyon, K. W., and Scheffer, V. B. Vitamin A in liver of the Alaskan fur seal, 9380*a*.
—— and Manalo, A. D. Extg. vitamin A and oil from fishery products (II) solvent extn. of low-fat livers, 9286*e*.
—— and Miyauchi, D. T. E value ratios for some com. vitamin A oils, 9188*e*.
—— and Nilson, H. W. Vitamin A and D potencies of the liver oil of Pacific cod, 9380*b*.
**Sanford, H. N.**, Butler, S., and Kennedy, S. R., Jr. Action of intravenous injections of histamine on the blood, 5869*b*.

**Sanford, R. F.** High-dispersion spectrograms of T Coronae Borealis, 4134*g*.
**Sanford, R. S.** Certain high-alumina clays of central Penna., 4434*i*; see Burgess, R. J.; Burton, S. E.; Ewoldt, H. B.; Hermance, H P.; Millar, W. T.; Muir, N. M.
——, Apell, G A., and Rutledge, F. A. Muir Inlet or Nunatak Mo deposits, Glacier Bay, southeastern Alaska, 4189*a*.
—— and Cole, J W. Claim Point chromite deposits, Kenai Peninsula, Alaska, 4608*d*.
**Sanger, F.** Peptides from insulin, 1074*b*; fractionation of oxidized insulin, 6259*c*.
**Sanguinetti, P. A.** See Buehler, C. A.
**Sanin, P. I.** Mech. properties of synthetic greases, 842*e*
**Sanjana, J.** Temp. control of molten metal, 6552*d*.
**Sanjurjo, J. L.** See Kushner, S.
**anka, S.** Absorption of $C_2H_2$ by means of water (I) overall coeff of packed towers under atm pressure, 1939*f*.
**ankaranarayanan, Y.** Lac-linseed oil varnishes (II) lac-linseed oil-glycerol, 3213*a*; (III) lac-linseed oil-lime, 8701*e*.
**Sankey, C. A.,** and Cowan, B. Materials sepn. on a Fourdrinier paper machine, 404*c*.
**Sankey, J., & Sons, Ltd.** Elec. insulating material, P 8075*e*.
**Sankowsky, N. A.** Pyrethrin concentrate, P 5150*i*
**Sankyo Co.** 3-Indoleacetonitrile, P 2230*g*, 2 - methyl - 3 - hydroxy - 4,5 - bis(hydroxymethyl)pyridine hydrochloride, P 2645*g*; ascorbic acid, P 3841*i*, 2-methyl-4-amino - 5 - aminomethylpyrimidine - HCl, P 6528*c*.
**Sanmartin, A. G. y.** See Gimenez y Sanmartin, A.
**San Martín Casamada, R.** Acclimated species of exotic medicinal plants, 1910*a*; introduction of *Thevetia nereifolia* to pharmacognosy and pharmacology, 4764*h*, pharmacognostical data on the hybrid resulting from a cross between *Atropa belladonna* (male) and *Atropa belladonna* (female), 4814*c*.
**San Miguel Arribas, A.** Volcanic eruption in the Prat zone of Compte-Pauls, Tarragona, 6548*f*, see San Miguel de la Cámara, M.
**San Miguel de la Cámara, M.,** and San Miguel Arribas, A Eruptive and metamorphic rocks of the Priorato and Campo areas of Tarragona, 6548*g*.
**Sanna, G.** α-Keto aldonitrones of the indole series (II), 4256*a*
**Sannié, C.,** and Lapin, H Labile *N*-glucosides of aminobenzoic acid and their esters, 3805*i*.
—— and Sosa, A. Heteroside of *Citrus trifoliata*, 4669*h*, 6582*g*
—— and Vincent, M. Influence of glucose on the physiol. action of procaine, 758*e*.
**Sans, M.,** Linzan, Y., and Michon, R. Resinous molding powders, P 5229*a*.
**Sansome, F. W.** See Halsall, T G.
**Sansone, G.** Phosphatemia and whooping cough—vitamin $D_2$ therapy, 1481*i*.
**Santagati, U.** See Travia, L.
**Santa María, H. C.** See Landau, S.
**Santana, D.** Structure of $TlIO_3$, 3685*f*.
**Santangelo, M.** See Festa, C.
**Santa-Pau Votá, A.,** Costa Novella, E., and Primo Yúfera, E. Photometric evaluation of cardiac glucosides, 2735*b*.
**Šantavý, F.** Detn of colchicine, 3973*b*.
—— and Buchníček, J. Variability of the content of colchicine in seeds of colchicum, 5544*c*.
—— and Reichstein, T. Glycosides and aglucones (XXXVIII) evonoside, cryst cardiac glycoside from *Euonymus europaeus* (2), 1791*g*; isolation of cymarin from *Adonis amurensis*, 2371*b*.
**Santen, J. H. van.** See Jonker, G. H., Verwey, E. J. W.
—— and Boer, F. de. High *ns* of Ba titanate and other heteropolar Ti compds., 8766*c*.
—— and Jonker, G. H. Temp. dependency of the *n* of heteropolar solids, 2830*b*.
—— and Opechowski, W. Generalization of the Lorentz-Lorenz formula, 3683*a*.
**Santendo Co.** 1-Phenyl-2-ureidopropane, P 2230*b*.
**Santi, R.** See Benigno, P
—— and Porro, A. Reaction and transformation of aminothiazole in the body, 8029*d*.
—— and Serembe, M. Concn. of streptomycin in organs and autolysis, 9144*i*.
**Santiago, E. B.** See Blasco Santiago, E.
**Santiago Stevenson, D.,** Suárez, R. M., Jr., and Marchand, E. J. BAL in heavy metal poisoning—antimonial intoxication, 3523*h*.
**Santini, F.** See Hérenguel, J.
**Santoro, O.,** and Jaskot, E. Stabilized cellulose compd., P 849*e*.
**Santos, J. L. G. dos.** See Guimãraes dos Santos, J. L.
**Santos, M.** See Gaspar y Arnal, T.
**Santos, T. D. de S.** See Souza Santos, T. D de.
**Santos Merino, A.** See Santos Ruiz, A.
**Santos Romero, M.** Analytical application of Ba thiosulfate in the detn of Mo in normal molybdates, 63*c*.
**Santos Ruiz, A.** See Albareda Herrera, J. M.; Deán Guelbenzu, M., Villar Palasí, V.
—— and Deán Guelbenzu, M. Respiratory oligoelements, 1816*f*.
——, Lopez de Azcona, J M., and Sampedro, A Oligoelements in Spanish foods of animal origin (I) mammals, 7602*d*
——, Lucas Gallego, J, and Arguello Rufilanchas, F Physiopathology of glutathione, 3509*g*, (II), 7659*a*
—— and Rotllant de Franch, M. Detn of glutathione, 7531*g*
—— and Santos Merino, A Latex from *Euphorbia canariensis*, 4883*d*.
——, Villar Palasí, V., and Andres Irigoyen, P. Biochemistry of proteins (III) amino acids of the leucine group and the hydroxy acids of the seeds of *Lathyrus sativus*, 1449*f*.
**Santos-Ynigo, L. M.** Jetafe Cu deposits, Bohol, 7872*f*
**Santra, D. K.** See Wallis, T E
**San-Tsiang, T.** See Tsien, S T.
**Santy, P.,** and Dargent, M Unfavorable influence of testosterone in early cancer of the breast, 8047*f*
**Sanyal, P. K.** See Wallis T E
**Sanyo Seed Oil Co** Lubricating oil from $AlCl_3$ sludge, P 6820*i*
**Sanyo Yushi K. K.** Same as Sanyo Seed Oil Co
**Sanz, D. R.** See Ruperto Sanz, D
**Sanz, M. C.** Five lb.-thrust liquid monopropellant rocket, 833*i*
**Sanz Domínguez, F.** See Villar Palasí, V
**Sanz Muñoz, M.** See Poggio Mesorana, F.
**Sao Soap Co., Inc.** Organogel, P 9299*a*
**Saper, J.** Polish cement industry, 2391*d*, see Petrow, V.
**Sapilevskiĭ, P. F.,** Zil'pert, L. V., and Klimkova, A F. Polyvinyl resins as materials for the shoe industry, 6459*b*.
**Sapir, A. D.** See Bogdanchenko, A G.
**Sapir, M.** See Lévy, Max
**Šapiro.** See also Shapiro
**Sapiro, R. H.** Adhesive mixt for transparent sheets of regenerated cellulose or viscose, P 1221*e*
**Sapiro, S. I.** Surface phenomena in metallurgical processes, 2553*f*.
**Sapirstein, L.** See Shimkin, M. B
**Sapogenikow, Sapojnikoff, Sapojnikow.** See Sapozhnikov, D I.
**Sapozhnikov, D. I.** Carotene detn., 711*c*.
**Sapozhnikova, A. F.** See Petrov, A. A.
**Sapozhnikova, E. V.** Diastatic activity of different kinds of flour, 7596*d*
**Sapozhnikova, N. V.** See Linetskaya, Z. G
**Sapožnikov, D. I.** See Sapozhnikov, D. I.
**Sapp, R. W.** See Miller, E C.
**Sappington, T. S.,** and Bockus, H. L. N balance studies in chronic peptic ulcer disease, 8522*f*, N metabolism in chronic idiopathic colitis, 8522*f*.
**Saprometoff, Saprometov.** See Zaprometov.
**Sapronov, I. T.** Testing bituminous materials, P 5186*f*.
**Šapšinskaya, L. A.** See Shapshinskaya, L. A.
**Saracini, M.** Use of tall oil in varnish manuf., 9481*e*.
**Sara'eva, L. A.** See Platunova, K. M.
**Saraga, L. M.** See Mihashan-Saraga, L.
**Sarasqueta, P. A. de.** Poultry nutrition, 3499*b*.
**Sarbach, D. V.** Rubber softener, P 3230*a*.
**Sarber, R. W.** Effect of benadryl-HCl on the tuberculin reaction, 3518*e*.
**Sard, R. D.** See Benade, A. H.; Cool, R. L.
—— and Althaus, E. J. Search for delayed photons from stopped sea-level cosmic-ray mesons, 1257*c*.
**Sarett, H. P.** Indoleacetic acid studies 2293*e*; vitamin interrelations in lactobacilli, 7542*e*.
—— and Goldsmith, G. A. Tryptophan and nicotinic acid studies, 307*Ab*.
**Sarett, L. H.** Pregnene compds., P 4432*c*; stereoisomeric substituted 11-keto-20-hydroxypregnanes (I), (II), (III), 6211*b*; prepn. of pregnane-17(α),21-diol-3,11,20-trione 21-acetate, 7493*h*.
**Saretzkaja, I. I.** See Zaretskaya, I. I.
**Sarfas, D. T.** See Glassman, J.
**Sargent, B. W.** See Yaffe, L.
**Sargent, D. E.** Alkamine esters of pyrroledicarboxylic acids, P 4302*f*; polymers from $C_2H_2$ and $CO_2$, P 4515*d*; bis(dialkylaminoalkyl) esters of 1-methyl-2,5-diaryl-3,4-pyrrole dicarboxylic acids, P 4700*i*; see Sickels, J. P.
—— and Hanford, W. E. Olefin polymers, P 6000*i*.
**Sargent, L. J.** *N*-Acylation of *N*-(4-methoxyphenyl) - 4 - chloroanthranilic acid, 7002*b*.
—— and Small, L. F Amino carbinols derived from 2-acetylfluorene, 193*i*, acridine series (V) amino carbinols derived from 10,*x*-diacetyl-9,10 dihydroacridine, 233*d*.
**Sargent, M. C.** Nutritive value of weed, 8022*f*
**Sarich, P.** See Harte, R. A.
**Sarjant, R. J.** Fuel technology, 8637*f*; Jowett, G. H.
**Sarjeant, R. L.** Evapn. losses of gasoline at marketing installations, 5931*g*.
**Sarkar, B. C. R.,** Luecke, R. W., Duncan, C. W., Ely, R. E., Watson, G. I., and Rykala, A. J. Amino acid compn. of bovine colostrum and milk, 7598*a*.
——, Wittwer, S H., Luecke, R W., and Sell, H M. Estn. of some amino acids in sweet corn pollen, 9177*i*.
**Sarkar, N. K.** Isolation of cardiotoxin from cobra venom, 3019*i*
**Sarkar, P. B.** Yellowing of bleached jute, 6422*b*, see Mukherjee, B
—— and Chatterjee, H Jute bags for the storage of sugar, 2707*c*
**Sarkar, P. K.** See Das, B M
**Sarkar, S. N.** Isolation from argemone oil of dihydrosanguinarine and sanguinarine—toxicity of sanguinarine, 361*d*
**Sarkisov, A. Kh.,** and Kvashnina, E S. Toxico-biol. properties of *Fusarium sporotrichoides*, 2670*d*
**Sarkisov, E. S.** Calcn of interat distances of inert gases in the cryst state, 3071*e*
**Sarkissow, E. S.** See Sarkisov, E. S
**Sarkisyan, S. S. M.** See Melik Sarkisyan S. S
**Sarles, H.** See Roche, J
**Sarles, W. B.** See Johansson, K R., Nath, H
**Sarlis, M. P.,** Dove, W E., and Moore D. H. Toxicity and irritation tests on animals with piperonyl butoxide, 9266*h*.
**Sarló, K.** Chem. evaluation of mineral waters, 8077*a*
**Sarma, B.** See Ráy, P
**Sarma, B. D.** See Ráy, P.
**Sarma, B. K.** See Rao, D V. R
**Sarma, P. L.** Relative optical and heat absorption by certain inorg. salts in aq soln., 7821*i*.
**Sarma, P. S.** See Krehl, W. A.
**Sarmiento Soto, R.,** and Parra Lleras, H Phosphate deposits in the Soatá municipio, Boyacá, Colombia, 526*c*.
**Sarna, H. R.** See Sahney, R. C.
—— —, Kapur, P L., and Charanjit. He filled Geiger-Müller counters, 8851*i*.
**Saroff, H. A.** See Hughes, W. L., Jr.
**Sarradin, J.** See Beauvillain, A.
**Sarry, B.** See Rienacker, G.
**Sarsfield, N. F.** Fluorocarbons, P 7035*d*.
—— and Imperial Chemical Industries Ltd. Purification of fluorocarbons, P 7497*b*.
**Sarten, P.** See Schutz, F.
**Sartori, E.** Hepatic and muscular glycogen in rabbits after thymectomy and thymus implantation, 2307*i*; concn. of some sulfonamide compds. in the blood and spinal fluid, 2323*g*; detn. of inorg. P in blood, 6687*b*.
**Sartori, G.** See Caglioti, V.
—— and Liberti, A. Polarographic study of the system alloxan–dialuric acid, 7835*c*.
**Sartori, M. F.** See Hunt, M.
**Sarubin, N. M.** See Zarubin, N. M.
**Sarudi, I.** (nee Stetina). Analysis of galena, 5338*h*; detn. of $H_3PO_4$ as $NH_4$ phosphomolybdate, 5340*b*.
**Saruno, R.** Mg bisulfite from bittern or sea

water to be used for pulp cooking, P 6798*a*.
**Sarx, H. F.** Raw-material problems in the coating industry, 2787*i*; alkyd resins, 4891*e*.
**Sarzana, G.**, and Infantellina, F. Mechanism of hemoglycoregulation, 2693*c*.
**Sasakawa, T.** See Hamada, M
**Sasaki, K.** See Tsurumi, K., Yasuoka, T
**Sasaki, M.** See Taketani, M.
**Sasaki, N.** Ion microscope with a transverse magnetic field, 1256*e*; light-spectral microscope, 5281*a*.
**Sasaki, R.** Milk casein for adhesive, P 6868*e*.
**asaki, S.**, and Okuda, M. Analysis of Ryokuto protein, 5125*a*.
—— and Ri, S. Org. reduction with Al amalgam, 5367*a*.
**Sasim, P. S.** Iceland spar in the south of the Krasnoyarsk district, 2897*f*
**Saslaw, O.** Se contact rectifier, P 2104*h*; Se paste—use in elec. rectifiers, P 7360*a*.
**Saslaw, S.** See Campbell, C. C.
and Campbell, C. C. Demonstrating antibodies in rabbit serums against histoplasmin by the collodion agglutination technique, 300*e*, comparison between histoplasmin and blastomycin by the collodion agglutination technique, 4365*f*
**Saslawsky, I. I.** See Zaslavskii, I. I
**Sass, L. C.** See Funkhouser, H. J.
**Sass, M.** See Shoib, M. O
**Sass, S.** See Goldenson, J
**Sassi, D.** Action of phenanthrene on bone regeneration, 5111*i*
**Sass-Kortsák, A.**, Wang, F. C., and Verzár, F. Comparative influence of desoxycorticosterone, 17-hydroxy 11-dehydrocorticosterone, and whole ext. of adrenal cortex on glycogen formation in the liver and muscles of adrenalectomized rats, 9202*a*
**Sasslawski, I. I.** See Zaslavskii, I. I
**Sastri, B. V. R.** See Mukundan, R
**Sastri, G.** Geology and petrology of Pachipenta Zamindari, Vizagapatam district, Madras Presidency, 5709*c*, see Mahadevan, C.
**Sastry, P. S.** See Solanki, D. N
**Sastry, V. D. N.** See Row, L. R
**Sastry, V. V. K.**, and Viswanath, B. Indian soils (X) B and Mn content of Indian soils, 9312*b*
**Satava, J.** See Peklo, J
**Šatenstein, A. I.** See Shatenshtein, A. I.
**Sathe, P. K.** See Dadape, V. V.
**Sato, F.**, Morikawa, K., Morikawa, R., Okamura, T., and Oda, K. Thermal reactions and high-pressure hydrogenation of coal (XIV) correlation between the coal rank and the actions of catalysts and vehicles, (XV) hydrogenation of oxidized anthracite, (XVI) behavior of O in coal in the course of liquefaction, 1943*a*.
**Sato, Hiroshi.** Theory of formation of ferromagnetic superlattice alloys, 4061*a*
**Sato, Hisaki.** See Fujikawa, F
**Sato, Kazuo.** Dewaxing of rice oil, 5611*g*
**Sato, Kyuji.** Emulsified lubricant or antiknock compd., P 5939*i*
—— and Mori, S. Insol. oily substance from waste liquor of soda washing of petroleum, P 5938*h*, 5938*i*.
**Sato, Masao.** Heat-treatment of silicon steel, P 6563*e*.
**Sato, Masayoshi**, and Murata, K. Tanning materials from Hokkaido, 889*e*.
**Sato, Miyeko.** See Tanaka, Kazuhiko.
**Sato, Sadakichi.** Water-resistant adhesive from soybean casein and urea resin, P 6868*e*; hard rubber, P 7257*a*; kaolin-base plastic, P 7262*h*.
**Sato, Shozo.** See Moriya, Y.; Sueda, H
**Sato, Shunichi.** Heat capacity and chem. constitution, 4089*c*; (II) calcn. of the heat-capacity curves of solid org. compds., 7316*i*; heat capacities of some nitrates and the at. heat of N, 7316*i*.
**Sato, T.** See Kihara, Y.
**Sato, Y.** See Jacobs, W. A.
—— and Jacobs, W. A. Veratrine alkaloids (XXIX) structure of rubijervine, 7939*e*
**Satozaki, K.** See Suginuma, B.
**Satterfield, C. N.** See Hottel, H. C.
**Satterly, J.** Geology of Michaud Township, 8315*c*.
—— and Armstrong, H. S. Geology of Beatty Township, 8315*b*.
—— and Hewitt, D. F. Pitchblende occurrence at Theano Point, Lake Superior, Ontario, 2131*g*.
**Sattler, F. A.** See Leape, C. B.
**Sattler, L.** See Clark, G. L.
—— and Zerban, F. W. Dreywood anthrone reaction as affected by carbohydrate structure, 66*f*; unfermentable reducing substances in molasses—volatile decompn. products of sugars in melanoidin formation, 7730*h*.
**Satyanarayana, K. V. S.**, Swaminathan, K., and Viswanath, B. Indian soils (VII) C and N status of Indian soils and their profiles, 9311*d*.
**Sauberlich, H. E.** See Steele, B. F.
—— and Baumann, C. A. Factor required for the growth of *Leuconostoc citrovorum*, 1828*i*, detn. of alanine, 4342*b*, excretion of amino acids by mice fed certain deficient diets, 8470*e*.
**Sauchelli, V.** Evolution in fertilizer phosphate industry, 7174*g*, see Shoeld, M.
**Sauer, H.** See Glemser, O
**Sauer, J. A.**, Marin, J., and Hsiao, C. C. Creep and damping properties of polystyrene, 6461*e*.
**Sauer, J. C.** Synthetic drying oils and coating compns., P 877*a*, synthetic drying oils, P 1995*e*.
**Sauer, R. O.**, and Hadsell, E. M. Azeotropes of $Me_2SiCl_2$ and $SiCl_4$, 1716*f*, thermal transformations of methylchlorosilanes, 2575*a*.
—, Scheibel, W. J., and Hadsell, E. M. Hydrocarbon by-products from the MeCl Si reaction, 1716*e*
**Sauerborn, E. P.** Metal contact rectifiers, P 3734*h*.
**Sauerlandt, W.** Growth substance effect of org. fertilizers, 3131*f*; humus and nutrient content as well as the growth substance-effect of liquid manure and urine, 3131*i*, exchange capacity of manure, 3132*a*
**Sauerwald, F.** Detg. H, esp in Mg, 2119*g*, Mg-Zr compn. diagram, 4080*a*; influence of Zr on the solidification of Mg alloys and some properties of cast Mg alloys contg. Zr, 4619*d*; solv. and retention of H in liquid and solid Mg and Mg alloys, 5355*i*, Mg alloys with Zr, 8338*a*.
— and Osswald, E. Rontgenographic investigation of fused metals and alloys (II), 6031*c*
**Saul, K. H.** See Jamche, W
**Saulino, A. J.** Bonding metal to rubber P 5625*i*
**Saulnier, A.** Structural evolution of tempered Al-4% Cu alloys, 2561*a*, 8336*f*.
**Saulquin, A.** See Mangenot, Roudier, A
**Saunders, B. C.** See Chapman, N. B., Cook, H. G.; Heap, R
—— and Clark, R. E. D. Order and Chaos in the World of Atoms (book), 2084*b*.
— and Stacey, G. J. Toxic F compds. contg. the C—F link (I) methyl fluoro acetate and related compds., 2932*i*.
—— and Worthy, T. S. Radioactive diisopropyl fluorophosphonate, 6508*e*
**Saunders, D. H.** See Mayer, E. L.
**Saunders, D. R.** α-Haloacrylic esters, P 6640*i*.
**Saunders, D. W.**, and Trelour, L. R. G. Flow phenomena in rubber (I) flow curves for natural rubber, 1207*f*, 8721*f*.
**Saunders, H. L.**, Butler, G. B., and Tweedy, J. M. Blast furnace, 8999*f*
—— and Wild, R. Distribution of materials in the blast furnace (II) compensated charging, 8324*d*.
**Saunders, H. S.** See Marbaker, E. E.
**Saunders, J. B.** See Tool, A. Q.
**Saunders, J. H.** See Overberger, C. G
—— and Slocombe, R. J. Chemistry of the org. isocyanates, 1014*e*.
—, Slocombe, R. J., and Hardy, E. E. Prepn. of α,α,α-trifluoro-*p*-phenylacetophenone, 3394*c*.
**Saunders, J. W.**, and Sinclair, J. D. Effects of changes in ionic environment on action potential of a sympathetic ganglion, 9208*g*
**Saunders, K. H.** Aromatic Diazo Compds. and Their Tech. Applications (book), 7496*e*.
**Saunders, P. R.** See Nakamura, Kazuko; Webb, J. L.
**Saunders, R.** Bitumen—for the nonspecialist, 3165*i*.
**Saunders, W. P.** See Hibbard, W. R., Jr.
**Saurat, A. H.** Theory of corrosion, 7220*i*.
**Saurin, E.** Geol. studies in central Annam, 2135*c*.
**Saussaman, J. D.** Sintering practice at Fontana, Calif., 7388*i*.
**Sausville, J. W.** See Glockler, G.
**Sauter, E.** Detection of small amts. of water, 3816*a*.
**Sauter, F., Co., Inc.** Immersion thermostat, P 4526*b*.
**Sauter, H.** Constricting action of various ecbolics on the uterine blood vessels, 9264*a*.
**Sauter, O.** See Hesse, G
**Sauvage, G. L.**, Berger, F. M., and Boekelheide, V. Conversion of β-ethyroidine to derivs. of the desmethoxy series and some pharmacol. properties of apo-β-erythroidine, 6729*f*
—— and Boekelheide, V. 3-(o-Methylbenzyloxy) - 1,2 - propanediol and 2,2-dimethyl - 4 - [o - methylbenzyloxymethyl]-1,3-dioxolane, 7000*f*.
**Sauvenier, H.** Mechanism of solarization, 1668*c*, solarization, 7841*d*; AgBr emulsions (III) influence of excess KBr, 7841*f*, influence of the conditions of prepn. on the spectral sensitivity of pure AgBr emulsions, 7841*i*; see Hautot, A.
—— and Winand, L. Herschel effect on α-particle tracks in photographic emulsions, 8922*i*.
**Savage, A. R.** See Swinehart, R. W.
**Savage, D. A.**, and Heller, V. G. Nutritional qualities of range forage plants in relation to grazing with beef cattle on the Southern Plains Exptl. Range, 1501*d*.
**Savage, J.** See Heal, H. T.
**Savage, J. P.** See Gridgeman, N. T.
**Savage, J. V.** Camas kraft pulp bleaching plant, 7682*h*.
**Savage, L. H. W.**, and Brancker, A. V. Application of dry coke cooling plants to integrated Fe and steel works, 2555*i*.
**Savage, P. S.** Blending of coals to improve coke and extend coking-coal reserves, 3902*b*, production of metallurgical coke, 5172*h*
**Savage, R. L.** See Stoner, G. G.
**Savage, R. T.** See Dart, J. C.
**Savagnone, L.** Antiallergic action of amino acids, 6730*e*
**Saval'eva, O. N.** See Prokoshev, S. M.
**Savard, K.** See Moya, F.; Schatz, A.
— and Homburger, F. Thymic atrophy and lymphoid hyperplasia in mice bearing sarcoma 180, 3092*h*.
**Savarino, S.** Action of streptomycin with *p*-aminosalicylic acid against tubercle bacilli, 8000*h*.
**Savaritskii, V. A.** Metamorphism of the pyrite deposits of the "Third Internationals" (San-Donato) in the Middle Urals, 5707*h*
**Savary, P.** Prepn. of partial esters of polyalcs. and fatty acid, 137*d*; prepn. of monoglycerides and monoesters of polyalcs. 6842*h*
**Savchuck, W. B.**, and Armstrong, W. D. Stability of aq. solns. of NaF, 6363*c*.
**Saveanu, T.** Calcg. water evapd. in the evaporator of sugar refinery, 5217*h*.
**Savell, W. L.** See Benson, F. R.
**Savelsberg, W.** See Weitzel, G.
**Saverio Zanon, F.** NaCl in the atm. dust of Venice, 5239*c*.
**Saviano, M.**, and Leone, E. Alloxan and uric acid metabolism (III) tests on hens, 4378*c*.
——, Leone, E., and De Franciscis, P. Action of cysteine and relation between cysteine and the activity of alloxan on uricacidemia and glycemia in pigeons, 4378*d*.
—— and Vacca, C. Alc. and glucose in blood after adrenaline injection and under low barometric pressure, 2691*c*.
**Savich, T. R.**, Pelipetz, M. G., Budy, W. A., Clark, E. L., and Storch, H. H. Stripping of coal-hydrogenation heavy oil slurry, 5171*f*.
**Savickij.** See Savitskii.
**Saville, A. K.** Short aging processes for the printing of synthetics, silk, and wool, 6420*c*.
**Savin, F. D.** See Vernov, S. N.
**Savit, J.** See Redemann, C. E.
**Savitskii, E. M.** Plasticity of intermetallic phases, 2836*g*; alloy casting, P 9021*a*.
—— and Baron, V. V. Diagram and mech. properties of the system Mg-Zn, 5719*d*.
—— and Ivanov, O. S. Electrochem. alloying, P 8918*e*.
—— and Tylkina, M. A. Properties of alloys of the system Al-Mg, 2147*h*; structure of some Al-Mg alloys, 7398*f*.
**Savitskii, M. A.** See Bobrik, I. P.
**Savitt, S. A.** See Othmer, D. F.
—— and Aries, R. S. Cresylic acid an industrial chemical, 5927*d*.

——, Goldberg, A. M., and Othmer, D. F. Analysis of *m*- and *p*-cresol in their mixts. 5343*e*.
**Savolainen, T.** Growth-inhibition of certain anaerobic bacterial strains by org. compds., 6275*f*.
**Savoy, M.** Breaking water-in-oil emulsions, P 3186*c*; see Bond, D. C.
**Šavriguine, Šavryguine.** See Shavrygin.
**Savur, G. E.,** and Sreenivasan, A. Comparison of the gel-setting properties of polyose from tamarind seed with fruit pectins, 785*g*.
**Savvin, L. A.** Beet sugar, P 6448*b*.
**Sawachika, K.** See Hata, T.
**Sawada, Y.** See Murata, Y.
**Sawai, Ikujiro.** Influence of vitamin C on tetanus toxin, 1460*f*; anaerobic culture in a medium contg. vitamins $B_1$ and C, 1460*g*.
**Sawai, Ikutaro,** Miue, M., and Shishido, H Spinning glass fibers (VI) nonuniformity of the fiber diam. and its relation to spinning velocity, (VII) variation in the diam. of fiber during spinning, 5164*b*.
**Sawai, K.** See Hachihama, Y.
**Sawitsky, A.,** Rowen, M., and Meyer, L. M. Cholinesterase activity in the blood of patients with hematologic disease, 4366*g*
**Sawyer, A. K.** See Douglass, I B
**Sawyer, C. F.** See Roberts, G. A., Wells, C.
**Sawyer, C. H.** See Everett, J. W.; Markee, J. E.
——, Everett, J. W., and Markee, J. E. Neural factor in the mechanism by which estrogen induces the release of luteinizing hormone, 8490*f*.
——, Markee, J. E., and Hollinshead, W. H. Inhibition of ovulation in the rabbit by the adrenergic blocking agent dibenamine, 7579*b*.
——, Markee, J. E., and Townsend, B. F. Cholinergic and adrenergic components in the neurohumoral control of the release of luteinizing hormone, 7579*c*.
**Sawyer, C. N.,** and Anderson, E. J. Aerobic treatment of rum wastes, 3547*i*
**Sawyer, D. L.** See Pabst, A.
**Sawyer, D. W.** See Stillson, G H
**Sawyer, F. G.** Anhyd. $NH_3$ as fertilizer, 3422*b*; rocket chemistry at Inyokern, 7229*f*; western chem. information, 9295*c*
——, Ohman, M. F., and Lusk, F. E. Iodine from oil well brines, 8622*i*.
**Sawyer, K. F.** See Axford, D. W. E.
**Sawyer, R. A.** Spectroscopy, 4096*e*.
**Sawyer, T.** See Smith, E. S C.
**Sawyer, W. H.** Speculum plating, 4148*b*
**Sawyers, J. L.,** Burrows, B., and Maren, T. H. Condensation of 2,3-dimercaptopropanol with oxophenarsine-HCl, 3931*b*.
**Sax, K. J.** See Bernstein, S.
**Saxena, B. B. L.** See Sen Gupta, S. R.
**Saxena, R. C.** See Bhagwat, W. V.
**Saxon, D.,** and Heller, R B. γ-Rays following $Au^{198}$ β-decay, 4122*i*.
**Saxon, D. S.,** and Hutner, R. A. Electronic energy levels in simple crystal models, 4092*g*; electronic properties of a one-dimensional crystal model, 6026*f*.
**Saxton, J. A.** Dielec. properties of water vapor at very high radiofrequencies, 6019*h*.
—— and Lane, J. A. Absorption of 12.5-mm. wave length electromagnetic radiation in supercooled water, 7823*b*.
**Sayadyan, A. G.** App. for chlorination of $C_6H_6$, P 6658*d*.
**Sayama, S.** See Miyoshi, S.
**Sayama, Y.** Vapor pressure of the $Cs_2O$ photocathode, 7767*f*.
**Sayer, F. G.** See Berger, F. M.; Bradley, W.; British Drug Houses Ltd.
**Sayers, G.** See Burns, T. W.; Cheng, C.-P.; Sayers, M. A.; Wilhelmi, A. E.
—— and Cheng, C.-P. Adrenalectomy and pituitary adrenocorticotropic hormone content, 3084*b*.
—— and Sayers, M. A. Pituitary-adrenal system, 5839*g*.
**Sayers, M. A.** See Burns, T. W.; Sayers, G.
——, Sayers, G., and Woodbury, L. A. Assay of adrenocorticotropic hormone, 7994*e*.
**Sayko, A. F.** See Gessler, A. M.
**Sayles Finishing Plants, Inc.** Rendering textiles water-repellent, P 2444*a*.
**Saylor, W. A.** Ingot molding furnace, P 7892*b*; see Drake, J. F.
**Sayre, E. L.** Eve Mills Zn deposit, Monroe Co., Tenn., 4188*e*; see Clayton, A. B.
—— and Clayton, A. B. Idol and Dalton Zn deposits, Grainger Co., Tenn., 6545*e*.
**Saytzeff, M.** See Zaitsev, M.
**Saz, A. K.** Effect of long-chain C compds., esp. hydrocarbons, on the metabolism of tubercle bacilli, 9141*c*.
**Sazanova, L. N.** See Korshunov, I. A.
**Sázavský, V.** Sugar industry in Czechoslovakia, 8713*e*; sugar technology (II) heat economy, 9499*c*.
**Sazynski, J.** See Cork, J. M.
**Scaff, J. H.** See Pfann, W. G.
—— Theurerer, H. C., and Schumacher, E E. P-type and n-type Si and the formation of the photovoltaic barrier in Si ingots, 9002*c*.
**Scaife, C. W.** See Levy, N.; Wilder Smith, A. E.
—— and Imperial Chemical Industries Ltd. Org. N compds., P 6651*d*, 5411*d*.
——, Wilder Smith, A. E., and Baldock, H. Nitro olefins, P 3438*h*.
**Scaife, J. F.** See Robertson, P. W.
**Scalera, M.** See Eberhart, D. R; Lecher, H. Z.
—— and Forster, W. S. Isodibenzanthrone, P 6237*g*; 4-amino-1,8-naphthalimide disulfonic acids, P 7710*f*.
—— and Joyce, A. W. Acylaminodianthrimideacridones, P 8651*d*, aminodianthrimideacridones, P 8661, benzanthronyl aminodianthrimideacridones, P 7708*g*, diaminodianthrimideacridones, P 9469*d*.
——, Lester, C T, and Hardy, E M 4-Alkylmorpholine-$SO_3$ compds., P 2242*f*
**Scales, J. T.** Use of Durestos for orthopedic appliances, 2029*g*
**Scalettar, R.** See Snell, A H
**Scalfi, L.** See De Ritis, F
**Scallet, B. L.** Calcn of water uptake in the acid hydrolysis of starch, 888*f*
—— and Eble, O Detn of dry substance in concd corn steep water, 5217*i*
**Scanavy-Grigoriewa, M. S.** See Skanavi-Grigor'eva, M S
**Scanga, F.** Monographic study on antibiotics, 1828*d*.
**Scanlan, J. T.** See Roe, E T
——, Stirton, A J., Swern, D., and Roe, E T. Effect of various surface-active agents on the penetrating power and stability of Ca hypochlorite and bleaching powder solns., 7233*i*
**Scanlan, P. G.** See Bainbridge, J R.
**Scanlon, W. W.,** and Lark-Horovitz, K Elec behavior of vacuum-evapd Te, 4066*c*, galvanomagnetic and thermomagnetic effects in Te, 4066*i*
**Scaparone, M.** See Bramerd, H D
**Scaramuzzi, G.** See Ciferri, R
**Scarba, M.** See Ridgway, J W
**Scarinci, V.** See Chistoni, A.
**Scarisbrick, R.** Hematin compds. in plants, 4710*e*.
**Scarpa, C.** Modification of Tillmans and Alt's method for tryptophan, 9128*e*
**Scarpa, O.** Ni-Cd and Fe-Ni-Cd storage batteries, 3730*i*; corrosion of metallic membranes by a.c. and their redeposition by continuous current, 4621*d*, passage of cathodic $H_2$ through thin metal films, 4913*i*, corrosion caused by leakage current from tramway tracks and elec. railways and an app. for the inspection of rail joints, 4995*h*; electrochem corrosion of underground pipes of steel, cast iron, galvanized iron, and Pb, effected by a.c., 6962*c*.
**Scarponi, F.** Action of P, N, and K fertilizers in the production of sugar beets, 9326*b*.
**Scarsdale, O. M.** See Dickinson, J. T.
**Scartazzini, H.** See Cuenlleron, J.
**Scarzella, M.,** and Bellatti, R. Etiopathogenesis of gingivitis after treatment with Na diphenylhydantoinate, 5861*g*
**Scatchard, G.** Equil. in nonelectrolyte mixts., 4542*i*, attractions of proteins for small mols. and ions, 7519*c*.
—— and Black, E. S. Effect of salts on the isoionic and isoelec. points of proteins, 3690*a*.
**Scatturin, V.** See Bezzi, S.; Croatto, U.
**Ščeglova.** See Shcheglova.
**Scerb, L.** See Townend, P. P.
**Ščerbak, M. M.** See Shcherbak, M. M.
**Ščerbakov.** See Shcherbakov.
**Ščerbakova.** See Shcherbakova.
**Ščerbina, V. V.** See Shcherbina, V. V.
**Schaad, R. E.** See Bloch, H. S.
**Schaaf, K. H.,** and Spoerri, P. E. Synthesis in the pyrazine series: proof of the structure and the reactions of 2,6-dibromopyrazine, 8394*b*.
**Schaaf, S. A.,** and Cyr, R. R. Response time in vacuum gages, 4055*f*; time consts. for vacuum-gage systems, 8748*f*.
**Schaaffs, W.** Velocity of sound in liquids as a function of their structure, 3256*c*.
**Schaafsma, A.** Regenerating spent engine lubricating oil, P 8668*d*.
**Schaal, R.,** and Rumpf, P. Electrometric titrations in nitrobenzene, 5346*a*.
—— and Souchay, P. Mangani- and nickelimolybdates, 8207*c*.
**Schaarwächter, C.** Processes for the recovery of the plating metal from Cu- and brass-plated scrap Fe, 6090*c*.
**Schabelitz, E. J.** Bituminous coal, P 1950*h*, 1950*i*.
**Schachat, R. E.** See McLaren, A. D.
**Shachinger, L.** Detg. the concn. of sugar solns and fruit juices, 5880*d*.
**Schachman, H. K.,** and Kauzmann, W. J. Viscosity and sedimentation studies on tobacco mosaic virus, 4346*i*.
—— and Lauffer, M. A. Hydration, size, and shape of tobacco mosaic virus, 3891*e*.
**Schachner-Korn, D.** Metamorphic ore fabric, 8315*g*
**Schachoff, G. A.** See Shakhov, G. A.
**Schachter, B.** See Klyne, W.
**Schachter, M.** Anesthesia and gastric secretion, 5871*i*.
**Schachtschabel, P.** See Scheffer, F.
**Schack, J. A.,** and Goldbaum, L. R Analeptic effect of Na succinate in barbiturate anesthesia, 7582*f*.
**Schade, A. L.** See Burk, D.; Hearon, J. Z., Levy, Hilton; Wallerstein, J. S
——, Reinhart, R W., and Levy, H. $CO_2$ and O in complex formation with Fe and siderophilin, the iron-binding component of human plasma, 9211*c*.
**Schade, R.** See Weil-Malherbe, H.
**Schächter, O.** See Farkas, L
**Schaedel, M. L.,** and Schlenk, F. Adenosine and adenosine deaminase, 8409*d*.
**Schädler, M.** Automatic control of stock d. in paper pulp suspensions, 8136*h*.
**Schädlich, H.** Felt manuf., 5192*b*.
**Schaefer, A. E.** See Whitehair, C K.
——, Salmon, W. D., and Strength, D. R. Interrelation of vitamin $B_{12}$ and choline (I) effect on hemorrhagic kidney syndrome, (II) effect on growth, 6708*h*.
**Schaefer, A. O.** Ferrous alloys and rotor forgings for gas turbines, P 9901.
**Schaefer, C.** Einfuhrung in die theoretische Physik Vol IV (book), 4781, development of the laws of radiation since Kirchoff, 5659*b*.
—— and Bergmann, L. Grundaufgaben des physikalischen Praktikums (book), 5277*b*
**Schaefer, C. F.** See Schwartzwalder, K.
**Schäfer, E.** Waste heat boilers in gas works operation, 837*c*.
**Schäfer, E. L.** Lipophilic dystrophy, 8474*g*.
**Schaefer, G.** Papermaking, 5949*h*.
—— and Latour, A. Paper trade before the invention of the paper-machine, 5949*h*.
**Schaefer, H.** See Felix, K.
**Schaefer, Hans.** Blood cholinesterase 6679*d*.
—— and Mauer, E Cholinesterase detns. in blood, 9108*b*.
**Schäfer, Harald.** Change in the titer of ferrous salt solns. and a way to keep the titer const., 4601*h*; titration of free acid in the presence of Fe salts, 4603*d*; purification of Cb prepns., 5688*h*; water vapor pressure and soly. measurements on hydrated ferrous chlorides, 6066*f*.
**Schaefer, Heinz.** Ca detn. in blood serum, 8038*c*.
**Schaefer, H. L.** Vinylidene chloride compns., P 8741*f*; vinylidene chloride copolymer, P 8741*g*; vinylidene chloride copolymer stabilizers, P 8741*h*.
—— and Havens, C. B. Vinylidene chloride compns., P 8741*g*.
**Schäfer, K.** Max Planck, 2477*d*; problems of kinetic gas theory, 4530*c*; detn. of the displacement and splitting of the normal frequencies of the $SO_4$ ion in various anhydrous alkali sulfates, 5304*i*; calcns. of force consts. and vibration configurations of mols., 6478*i*; see Kopfermann, H.
—— and Wicke, E. Raman spectrum, symmetry, and thermodynamic properties of $ClF_3$, 8887*d*.
**Schäfer, K. H.** Influence of the allergic process on the serum Fe, 5483*h*; significance of cholesterol metabolism in hemolytic diseases, 9237*a*.
**Schaefer, R. A.** Friction material, P 5518*i*.
—— and Mohler, J. B. Electrodeposition of Pb-Sb-Sn alloys, P 6094*i*.

**Schaefer, V. J.** Ge films, P 3340*b*; formation of ice crystals in the lab. and the atm., 6039*b*.
**Schäfer, W.** Meson species, 6075*c*.
**Schaefer, W.** Color reactions of some current accelerators, 6856*g*.
**Schaefer, W. B.** Antigenic structure of tubercle bacilli and serological identification of bovine type bacilli, 8050*b*, see Marshak, A.
**Schäffeler, K.** Influence of boiling time and temp. of the water in the blood sugar detn. of Hagedorn and Jensen, 3483*g*.
—— and Flury, M. Glucose tolerance on high mountains, 3504*a*.
—— and Herrmann, F. U. Fasting blood sugar on high mountains, 3503*i*.
**Schaeffer, A.** All-synthetic fibrous materials, 6421*h*; mercerizing and kindred cotton refining processes, 6423*f*.
**Schaeffer, B. B.** Alkanolamine salts of hydroxy fatty acids, P 1052*i*; see Ault, W. C.; Stirton, A. J.
**Schaeffer, G. W.** See Rector, C. W.
—— and Anderson, E. R. Prepn. of trimethylamine-borine, *N*-trimethylborazole and *N*-dimethylaminoborine, 7856*g*
**Schaeffer, M.**, Silver, F. F., and Pt, C. C. Chemotherapy of virus infections (I) anesthetics and other drugs ineffective against virus infections, 9264*d*.
**Schaeffer, P.** See Lwoff, A.
**Schaeffer, W. D.**, Smith, W. R., and Wendell, C. B. Adsorption of He on C black at liquid He temps., 6037*b*.
**Schaefgen, J. R.**, and Flory, P. J Synthesis of an octabasic carboxylic acid, 1335*h*.
**Schaeler, B.** See Klemm, W.
**Schälich, H.** Felt manuf., 5192*b*
**Schaepdryver, A. de.** Action of drugs on the lungs of normal and anaphylactic guinea pigs, 7130*i*.
**Schaepdryver, L. de.** See Ensslin, F
**Schaeppi, Y. D.** See Dorta Schaeppi, Y.
**Schär, M.** See Schindler, O.
**Schaerer, A.** Water-sol., sulfonated vegetable oil for drilling metallic articles, P 1307*a*
**Schaerer, A. A.** See Stewart, H.
**Schärer, O.** Corundum, P 6096*c*.
**Schaerer, P.** Influence of various substances on leucocyte motion, 9263*c*.
**Schärfe, E.** See Kindler, K.
**Schafer, B.** See Hesse, P. R.
**Schafer, E. R.** See Hyttinen, A.
—— and Hyttinen, A. Groundwood pulping of 5 common northeastern farm woodland species, 9440*g*.
**Schafer, G. H.** See Lloyd, W. R.
**Schafer, J. G.** See Julian, P. L.
**Schafer, R. L.** See Moss, N. H.
**Schaffel, G. S.** Insulating resins, P 5998*a*.
**Schaffer, N. K.**, LeBaron, F. N., and Walker, B. S. Detn. of urethan as ethyl alc. in blood, 5437*h*.
**Schaffer, Z.** See Fazekas, J.
**Schaffert, R. M.**, and Oughton, C. D. Xerography—principle in photography and graphic reproduction, 1666*h*.
**Schaffner, F.** See Friedell, M. T.
——, Friedell, M. T., Pickett, W. J., and Hunmon, I. F., Jr. Radioactive isotopes in the study of peripheral vascular disease (II), evaluation of various forms of treatment, 6723*c*.
**Schafranovsky, I. I.** See Shafranovskiĭ, I. I.
**Schafroth, R.** Coeff. of internal conversion for magnetic multiple radiation, 3703*f*.
**Schaible, P. J.** Compn. of hybrid and open-pollinated maize varieties and their performance in poultry rations, 2339*b*.
**Schain, P.** Detergents for fat detns. (I) in milk, 8007*i*.
**Schairer, E.** See Rechenberger, J.
—— and Rechenberger, J. Liver and spleen Fe in men and women at various ages, 5106*g*; comparative investigations on the Fe content of liver and spleen by chem. and microchem. detns., 5106*h*.
**Schakenbach, L. T.** Economy in production—more accurate castings, 8998*i*.
**Schakin, A. N.** See Shakin, A. N.
**Schalch, W. R.** See Bircher, R.
**Schales, O.**, and Hill, B. R. Inhibition of enzymic proteolysis (II) effect of carbonyl group reagents on the activity of kidney cathepsins, 9101*c*.
—— and Mann, G. E. Gramicidin derivs. (II) toxicity—effect of proteins on hemolytic and bacteriostatic activity—antibacterial effect, 1105*c*.
——, Suthon, A. M., Roux, R. M., Lloyd, E., and Schales, S. S. Inhibition of enzymic proteolysis (I) carbonyl group reagents—effect of hydrazine on peptic hydrolysis, 4709*i*.
**Schales, S. S.** See Schales, O.
**Schallamach, A.** Dielec. relaxation of mixts. of dipolar liquids, 6020*b*.
—— and Thirion, P. Dielec. loss in swollen rubber, 9514*c*.
**Schallek, W.** See Wiersma, C. A. G.
—— and Wiersma, C. A. G. Effects of anticholinesterases on synaptic transmission, 5123*g*.
**Schaller, F. W.** B content and requirements of W. Va. soils, 3550*c*.
**Schallis, A.** Stabilization of insol. S, P 3160*i*; see Walcott, R. H
**Schaltenbrand, G.**, and Schorn, J. Injuries of the nervous system after the feeding of synthetic fats, 9195*g*.
**Schamschikowa, G. A.** See Shamshikova, G. A.
**Schane, P., Jr.** Evaluation of steel cleanliness, 1301*d*.
**Schantz, E. J.** See Warshowsky, B.
**Schapira, F.** See Dreyfus, J. C
**Schapira, G.** See Dreyfus, J. C.
——, Dreyfus, J. C., and Kruh, J. Specificity of proteins, 7537*g*.
——, Dreyfus, J. C., and Leau, O. Biochemistry of muscle in hypothyroidism, 8518*b*.
**Schaposchnikoff, Schaposchnikow.** See Shaposhnikov.
**Schapowalenko, S. G.** See Shapovalenko, S. G
**Scharer, A.** Arc welding of Al and its alloys, 3337*c*.
**Scharff-Goldhaber, G.** See Bowe, J. C.; Friedlander, G.; Hill, R. D.
**Schargorodsky, S. D.** See Shargorodskiĭ, S. D.
**Scharkow, W.** See Sharkov, V. I.
**Scharmann, W. G.** Hydrocarbons from CO, P 1171*b*; hydrocarbons from CO and H, P 4447*c*, 5928*b*; purifying gases, P 7669*c*, see Roetheli, B. E.
**Scharow, V. S.** See Sharov, V. S.
**Scharrer, K.** Detn. of traces of B and of Cu, 3310*e*.
**Schaschl, E.**, and McDonald, H. J. Low-temp liquid $SO_2$ cell, 954*g*
**Schatenstein, A. I.** See Shatenshteĭn, A. I
**Schatter, C.**, and Holmberg, C. V. Treatment of regenerated cellulose thread, P 2785*g*.
**Schatz, A.** See Provasoli, L.
——, Savard, K., and Pintner, I. J. Ability of soil microörganisms to decomp. steroids, 8438*e*.
**Schatz, L. W.** Coating textile materials, P 3208*g*.
**Schauenstein, E.** See Fixl, J. O.
——, Fixl, J. O., and Kratky, O. Dependence of the ultraviolet absorption and chromophores on direction in oriented silk fibroin, 6422*b*.
——, Ochsenfeld-Lohr, I., Puxkandl, H., and Stampfer, M. Absorption spectra of L-ascorbic acid (I), 6080*de*.
——, Pauritsch-Piller, J., and Uhlen, G. Absorption spectra of L-ascorbic acid (II), 6081*a*.
**Schauer, O. E.** See Holtuna, A., Sr.
**Schaufelberger, W. F.** Drying-oil residues, P 3215*e*.
**Schauff, E.** Effect of continuous furnace annealing on the mech. properties of deep-draw steels of various origins, 6135*a*
**Schaul, M. C.** Food from potatoes and similar tubers, P 5882*f*; potato processing, P 5882*g*.
**Schaum, R. O.** See Opfer-Schaum, R.
**Schaumann, O.** Analgiphoric group in morphine, 9208*b*; see Ehrhart, G.; Koll, W.
—— and Schmidt, L. Influence of salyrgan on the effects of oxytocin and vasopressin on salt diuresis, 5115*e*.
**Schawlow, A. L.** See Crawford, M. F.
**Schay, G.** Relaxation of rubber, 2459*d*; catalytic decompn. of $NH_3$ on Cu and Pt surfaces, 8827*g*.
**Schcherbakoff.** See Shcherbakov.
**Schdanoff, Schdanow.** See Zhdanov.
**Schechter.** See also Shekhter.
**Schechter, L.** Unsatd. acid esters, P 3634*a*.
**Schechter, M. S.**, Green, N., and LaForge, F. B. Synthesis of cyclopentenolones of the type of cinerolone, 5751*h*.
**Schechter, W. H.** Chlorate candles for O, P 5886*c*; see Stephanou, S. E.
——, Thompson, J. K., and Kleinberg, J. Oxidation of Na in liquid $NH_3$, 6533*h*.
**Schechtman, A. M.** Developmental physiology, 5467*a*; see Shapiro, A. B.
**Schecter, J. H.** See Aurilio, J. M.
**Schedl, H. P.** See Denton, J. J.
**Schedler, J. A.** See Clayton Aniline Co. Ltd.
**Scheel, K. C.** See Rabe, P.
**Scheele, F.** Positioning of the lanthanides and actinides in the periodic table, 8765*g*.
**Scheele, W.**, Fredenhagen, M., and Timm, T. Sulfonamide resins (I), 5995*d*; (II), 8197*d*.
**Scheen, W. L.** See Clay, J.
**Scheer, B. T.** See Hurt, W. W.
**Scheer, W.** Chemistry and technique of thermical cracking, 1172*g*.
**Scheer, W. E.** See Cohen, S. J.
**Scheff, G. J.**, and Awny, A. J. Lecithinase activity in splenic dyscrasia, 7571*d*.
—— and Thatcher, J. S K as cause of death in trypanosomiasis, 9251*f*.
**Scheffer, F.**, and Schachtschabel, P. Structure and sorption of soil colloids, 7171*a*.
**Scheffer, F. E. C.** See Diepen, G. A. M.
**Scheffer, V. B.** See Sanford, F. B.
**Scheibel, E. G.** Fractional liquid extn. (II), 2*g*; activity coeff. correction factor nomograph, 5656*c*; principles of extractive distn., 7758*f*.
**Scheiber, H. E.** Poisons—or use of chemotech. fundamentals? 6335*d*.
**Scheiber, J.** Copal problem, 1198*g*; aq. solns. of resin soaps, 1584*b*; film formation, 3631*b*, thermally formed oil films, 5203*e*, dehydrated castor oils and ricinenic oils, 6431*f*
**Scheiber, W. J.** See Sauer, R. O.
**Scheibling, G.** Spectral analysis, 2887*g*.
**Scheid, K. F.**, and Scheid, L. Pathol. physiology of cerebrospinal fluid (I) electrophoretic sepn. of the proteins of the cerebrospinal fluid in inflammatory diseases of the nervous system—pathol. physiology of meningeal and cerebral blood vessels, 9235*a*; (II) sepn. of small from large mols. in cerebrospinal fluid by microdialysis, (III) electrophoretic investigation of the proteins of the cerebrospinal fluid in patients with tumors of the central nervous system, 9235*c*; (IV) colloidal chem. mechanism and pathophysiol. significance of the mastic reaction and a modification thereof, 3870*g*.
——, Scheid, L., and Schneidt, W. Pathol. physiology of the cerebrospinal fluid (V) comparative investigations of the colloid reactions, their colloidal chem. mechanism, and their practical use in diagnosis, 3877*a*.
**Scheid, L.** See Scheid, K. F.; Zöllner, N.
**Scheidecker, M.** See Hérenguel, J.
**Scheidegger, W.** See Muhlemann, H
**Scheidy, S. F.**, McManus, E. C., Tillson, E. K., and Pitt, A. A. Blood concns. following the administration of sulfamerazine and sulfamethazine, 7589*h*.
**Scheier, S. L.**, and Christin, R. E. Economy in production—drop forge dies, 8998*i*.
**Scheifele, B. F. H.** Oil-free coatings for wood, 420*i*; rust removers and rust inhibitors, 4995*i*; refining and paint application of tall oil, 5005*h*.
**Scheil, E.** Calcn. of the eutectic crystn. velocity in samples of pearlite, 81*c*; effect of addns. of small amts. of foreign metals on the decrease in f.p. of binary eutectic alloys, 7885*d*, see Reinacher, G.
—— and Zimmermann, R. Refining silumins, 4205*c*.
**Scheil, M. A.** Spotting Fe contamination on stainless surfaces, 4178*b*; see Schmitz, H. A.
**Schein, M.** Primary cosmic radiation, 4095*a*; see Fahy, E. F.; Lord, J. J.
**Scheindlin, S.** Folic acid in liquid prescriptions, 355*g*.
**Scheineman, F. W.** Exothermic catalytic reactions, P 8664*i*.
**Scheiner, H.** Influence of acetylcholine on excitability of fatigued muscle, 2685*b*.
**Scheiner, J.** See Drekter, L.
**Scheinker, N. S.** See Sheĭnker, N. S.
**Schellenberg, H.** See Hoffmann, K.
**Schellinger, A. E.**, and Shepard, O. C. Simultaneous grinding and flotation, 1294*f*.
**Scheludjko, Scheludko.** See Shelud'ko.
**Schemiakine, Schemjakine.** See Shemyakin.
**Schemm, F. R.** Application of water balance principles to heart and kidney disease, 3095*e*.

**Schenck, F. L.** See Legadin, A.
**Schenck, H. J.** See Gordijenko, A.
**Schenck, M.** Anomalous amino N values, 4323*g*, detn. of the bile acid derivs., 4323*h*.
**Schenck, R.** See Rabes, I.
**Schenck, U.** See Jayme, G.
**Schenk, D.** Detection of MeOH in spirits, 817*g*; Pharmazeutisch-chemisches Praktikum (book), 8104*e*
**Schenk, M.** Corrosion-resistant surface on articles of Al and Al alloys, P 8350*b*.
**Schenk, M. E.** See Schenk, P. W.
**Schenk, P. W.,** and Schenk, M. E. Photolysis of ZnS, 2516*g*.
——— and Sterner, S. Reaction between Cl and $H_2S$, 7799*a*.
**Schenkel, H.** Electron d and polarity of $C_6H_6$, $C_6H_{10}$, and anthracene, 2093*a*.
**Schenker.** See also Sheinker.
**Schenker, E.** Acetylene generator, P 5238*g*.
**Schenker, F. A.,** and Shaun, T. A Expansive cement, P 4443*e*.
**Schenker, V.** See Pincus, G.
**Schepartz, B.,** and Gurin, S Intermediary metabolism of phenylalanine labeled with radioactive C, 8550*g*
**Scheraga, H. A.** See Manes, M.
——— and Hobbs, M. E Kinetics of the thermal chlorination of benzal chloride, 1246*h*.
**Scherb, L. P. W.** See Widerkehr-Scherb, L. P.
**Scherb, M. V.** See Mandeville, C. E.
**Scherbakoff, Scherbakov.** See Shcherbakov.
**Scherbaum, O.** Detn. of the d. of liquids, 6878*a*.
**Scherer, G. A.** Aids for teaching the periodic law, 2820*e*, general-chemistry expt. in radioactivity, 3251*g*, models of a spiral periodic chart, 4057*h*.
**Scherer, H.** See Lynen, Feodor
**Schérer, M.** See Blanc, D
**Scherer, P. C.,** and McNeer, R D, Jr. Mech properties of high polymers as functions of the shape of the distribution curve (II) controlled fractionation of Et cellulose, 8672*h*.
——— and Masuelli, F. J. Solv of cellulose nitrate as a function of the degree of polymerization, 3611*c*.
——— and Rouse, B P. Mech properties of high polymers as functions of the shape of the distribution curve (I) controlled fractionation of cellulose nitrate, 1965*c*
**Scherer, R.** See Connert, W
**Schereschewsky, P.** Catalysis in the gas industry, 5924*g*.
**Scherf, D.,** Perlman, A , and Schlachman, M. Effect of dihydroergocornine on the heart, 7583*f*.
**Scherhaufer, A.** See Rudorff, W
**Schering Corp.** Steroid keto hydroxy acids and polybasic esters, P 700*h*, *N*-acylsulfanilamides, P 1804*g*, hydrogenation of naphthalene compds , P 7510*i*, derivs of sulfonic acid amides, P 8399*i*.
**Scherl, B.** See Liebmann, A. J
**Schermann, V.** New method n the big chem. industries, 8072*i*.
**Scherp, H. W.,** and Fitting, C Growth of *Neisseria meningitidis* in simple chemically definited media, 8138*b*
——— and Syverton, J T. Chem investigation of keratin and carcinomas deriving from papillomas, 3921*h*.
**Scherrer, P.** See Marmier, P.
**Schery, R. W.** Manicoba and mangabeira rubbers, 9512*i*.
**Scherzer, O.** Theoretical resolution limit of the electron microscope, 2503*c*, spherical and chromatic correction of electron lenses, 6073*g*.
**Shestakowa, I. S.** See Shestakova, I. S.
**Schettler, G.** Cholesterol metabolism (I) effect of various fats and oils, without added cholesterol, on the blood and organ cholesterol content, 8506*f*, see Schmidt Thomé, J.
**Schetty, G.** Naphthalene derivs. (III) halomethylation of 1,8-naphthosultone, 203*d*; 4-halomethyl-1,8-naphthosultones, P 2641*f*; sultones of 2-hydroxybiphenyl 2′-sulfonic acids, 4249*b*; see Conzetti, A
**Scheunemann, B.** Analysis of drugs in the post-war years, 1911*e*.
**Scheunert, A.** Vitamins, 1471*c*, daily requirement of the adult for vitamin C, 6294*i*.
**Scheweljoff, G. N.** See Shevelev, G. N.
**Schexnailder, R. E., Jr.,** and Hunter, E. A. Cracking catalyst, P 7162*d*.
**Schiavinato, G.** Chem. and petrological investigations on Mt. Berici, Italy, 2135*h*.
**Schiavini, A. C.,** and De Blasis, M. Blood and fluid concns. of methylated derivs. of sulfadiazine, 5114*c*.
——— and Morra, F. Permeability of the hemato-encephalic barrier to penicillin, 5114*b*.
**Schibbye, L. B.** Heat exchanger of the helical screw type, P 8*g*; app. for dewatering, washing, and sorting of cellulosic suspensions and the removal therefrom of small particulate impurities, e.g., resins, P 6415*e*.
**Schick, J. W.** See Hartough, H. D.
**Schideler, P.,** and Davis, C. P. Hexamethylenetetramine, P 2223*i*.
**Schidrowitz, P.** [Rubber-] latex sponge and its competitors, 7252*a*
**Schiefer, H. F.,** Crean, L. E., and Krasny, J. F. Improved single-unit Schiefer abrasion testing machine, 5193*e*.
**Schieffelin & Co.** Alkyl-1,3-dihydroxyphenylpropanes and derivs., P 4699*g*
**Schiel, F.,** and Omga, T. Dust analysis, 6112*g*.
**Schieltz, N. C.** See Clark, G. L.; Jeanes, A ; Lewis, A. J
**Schiessler, R. W.** See Rytina, A. W.
——— and Eldred, N. R. Oxidation of a methylene group with hypochlorite, 1367*h*
**Schiff, L. I.** Quantum Mechanics (book), 1661*d*, spontaneous decay rate of heavy mesons, 8260*c*.
**Schifferli, J.,** and Schramm, A T. Acetates, carbonates, halides, and sulfates in certified coal-tar colors, (detn. of) NaOAc in FD&C Blue No 1, 9452*b*.
**Schikore, W.,** and Muller, E G. Adsorptive purification in phosphorescence chemistry (I), 1659*d*.
——— and Pankow, T Adsorptive purification in phosphorescence chemistry (II) removal of traces of Mn from $ZnSO_4$ solns , 5688*g*.
——— and Redlich, G Luminescence of spinels, 4958*a*.
**Schikorr, G.** Atm corrosion of metals, 3337*f*, 5722*e*, weather resistance of cold phosphate-coated steel, 6138*e*; atm rusting of Fe, 6138*g*; atm corrosion of metallic coatings, 7399*h*; corrosion resistance of phosphatized steel, 7400*d*, corrosion of Zn bath furnaces, 9017*b*, corrosion conditions in the exhaust lines of combustion motors, 9016*i*.
——— and Wassermann, G Effect of atm exposures on the stress corrosion of Al alloys, 7885*h*.
**Schild, E.,** and Huymann, M V Reductones in brewing—influence of malt on the rH-poise of wort and beer, 7637*a*.
**Schild, H.** See Orthner, L
**Schild, H. O.** Release of histamine by $NH_3$, 8495*f*
**Schildknecht, C. E.** See Zoss, A. O.
——, Gross, S T , Davidson, H R , Lambert, J. M., and Zoss, A O. Polyvinyl isobutyl ethers, 2028*h*.
———, Gross, S T , and Zoss, A O Isomerism in vinyl and related polymers, 9523*f*.
**Schilfarth, H.** See Engelhard, H.
**Schilin, D. M.** See Shilin, D. M.
**Schill, F.** See Fanderlik, M.
——— and Trenz, F. Slovak dolomites in the manuf. of thermos bottles, 9401*b*.
**Schill, G.** F.p. of chloral hydrate, 6065*c*; see Bergefors, L.
**Schiller, G.** See Appel, H., Keil, W.
**Schiller, I. W.** See Lowell, F. C.
———, Lowell, F. C., Franklin, W., and Denton, C Orthoxine in bronchial asthma—clinical evaluation, 9259*b*.
**Schiller, J. C.** Fe oxide-alkali metal trioxalatoferrate (III) catalysts, P 4448*d*.
**Schiller, S.** See Engel, F. L.
——— and Dorfman, R. I. Metabolism of the steroid hormones—androsterone administration, 8036*i*.
**Schilling, F. J.,** and DeNatale, A. Naturally occurring anticoagulants and accelerator substance in blood, 7123*a*.
**Schilling, G. H.** See Price, C. C.
**Schilling, J. A.** See Dent, C. E.
**Schilling, K.** See Glavind, J.
**Schilling, K. F.** Concn. of nonsulfide ores, P 5725*d*.
**Schillinger, E. J., Jr.,** Waldman, B., and Miller, W C. Scintillation counting with chrysene, 4111*h*.
**Schiloff, Schilov.** See Shilov.
**Schimert, G., Jr.** Influence of prostigmine on blood circulation of the stomach, 5864*d*.
**Schimmels, M.** See Tust, P.
**Schimoda, I.** See Simoda, I.
**Schindler, Hans.** Sulfonation products of aromatic hydrocarbons substituted with hydroaromatics, P 1562*h*; see Kinuel, A.
——— and Anderson, P. T. Rust-preventive slushing compd., P 1563*a*.
**Schindler, Hellmuth.** Death of protoplasm caused by heavy metal salts (I) Cu salts, (II) Co and Ni salts, 8015*b*.
**Schindler, Herbert.** Vitali reaction for atropine, 713*d*; adulteration of *Adonis vernalis* with *Adonis aestivalis*, 2368*f*, opalescence reactions as a means of identifying homeopathic tinctures, 4425*i*; *Agaricus muscarius*, 6744*h*.
**Schindler, O.** Abnormal bromination with *N*-bromosuccinimide, 3792*a*; 2-benzylamino-4-methylthiazole, 4669*f*, isolation of desoxyribonucleosides, 7091*e*; see Kocher, V.
———, Schär, M., and Staehelin, D. Thyreostatic action of tetramethylthiourea (basthioryl), 2315*i*.
**Schinz, H.** See Fleck, F , Rossi, A., Zobrist, F.
———, Lauchenauer, A , Jeger, O , and Ruegg, R. 1-Methyl-3-isopropyl-2-cyclopentene-1-carboxylic acid, 1751*g*
——— and Rossi, A. α-Keto γ-lactones and the thermal splitting of those with alkyl groups in the γ position, 4221*e*
**Schinz, H. R.** See Brandenberger, E.
**Schinzinger, A.** See Schneiderhohn, H
**Schisler, P.** Normal and provoked blood alloxan, 5468*h*.
**Schipper, E.** See Hazel, F.
**Schlachman, M.** Unusual toxic reaction to a mercurial diuretic, 3105*i*, see Scherf, D
**Schlachter, F. J.** See Collins, I. F.
**Schläpfer, P.,** and Bukowiecki, A. Corrosion by motor fuel components, 980*d*
**Schläpfer, R.** 3-Pyridylcarbinol as solubilizer, P 1904*b*
**Schlain, D.,** Prater, J D , and Ravitz, S F Electrolytic refining of Sb bullion, 3725*i*, distribution of impurities in crystn of ammonium and K alums, 5553*e*
**Schlamb, K. F.,** and Winter, A R Evaluation of dried distillers feedstuffs fed to chickens throughout their life cycle (I) during the starting and growing period, (II) during the early reproduction period, 285*g*.
**Schlamowitz, M.** See Flagg, J F., Stokinger, H E
**Schlapfer, P.,** and Bukowiecki, A. Corrosion by motor fuels, 8128*e*
**Schlapmann, H.** See Hecht, H
**Schlattman, R. H.** Polyvinyl chloride compns stabilized with o sulfobenzimide or its derivs , P 3238*i*
**Schlau, L. S.,** and Unna, K Effects of myanesin in psychiatric patients, 6739*b*
**Schlechter, A. W.,** and Morris, T. M Mineral dressing, 6550*i*
**Schlechter, P.** Enzyme activity of diphtheria toxin, 9152*i*
**Schleef, M. L.** Economics of fodder yeast from sulfite waste liquor, 3561*a*
**Schlegel, F. M.,** and Johnson, F. H. Influence of temp and hydrostatic pressure on the denaturation of methemoglobin by urethans and salicylate, 5813*h*.
**Schlegel, J. U.** Seasonal variations in the choline content of human serum, 5472*d*
**Schlehr, W. R.** Glass melting and drawing furnace, P 4439*i*, app. for drawing glass fibers, 9407*f*
**Schleicher, A.** Elektroanalytische Schnellmethoden (book), 2548*i*, electrolytic processes, 3725*h*; quant analysis by internal electrolysis, 8946*d*, history of Hungarian Ni metallurgy and of Ni furnaces at Losone, 8999*e*.
**Schleicher, H. M.** Carteret zircon—a versatile ceramic, 6385*h*.
**Schlener, W.** See Doty, P.
**Schlenk, E. J.** Chlorinated rubber, P 895*a*
**Schlenk, F.** Detn. of codehydrogenase I in tumors, 2303*h*; see Schaedel, M. L , Waldvogel, M. J.
**Schlenk, H.** Polyene diketones, 187*a*.
**Schlesinger, A. H.** See Winstein, S.
**Schlesinger, E. B.,** Drew, A. L., and Wood, B. Applications of myanesin in neurology, 9262*h*.
**Schlesinger, H. I.,** and Brown, H. C. Borohydrides and alkoxyborohydrides, P 4684*e*.
**Schlesinger, W.,** and Becher, P. Noncorrosive hydraulic fluid, P 5519*b*.
**Schlesman, C. H.** Gelation process involving supersonic treatment, P 1884*c*; mass spectrometer adapted to analysis of hydrocarbon fractions, P 6873*c*; see Francis, A. W.

——, Denton, W. I., and Bishop, R. B. Catalytic oxidation of benzene to produce phenol, P 1805*e*.
**Schleyer, W. L.** See Parfentjev, I. A.
—— and Schnitzer, R. J. Inhibition of the antitrypanosomal activity of arsenoso compds. and acridines by esters and amides of org acids, 319*i*.
**Schlichting, O.** See Reppe, W.
**Schliessmann, O.** See Klinger, P.
**Schlittler, E.** See Merian, R.; Speitel, R.; Uffer, A.
—— and Alleman, T. Ring skeleton of yohimbine, 8396*b*.
—— and Speitel, R. Ring structure of yohimbine (II) ketoyobyrine, 234*d*
**Schlitz, J., Brewing Co.** Stabilizing beer against radiation deterioration, P 1526*g*
**Schlögl, F.** Calcn of some effective cross sections for Be, 6073*e*
**Schloen, J. H.** See Clark, C. W.
**Schlosser, H.** See Schwabe, K.
**Schlosser, P. H.**, and Gray, K. R. Chemically treated wood pulp and cellulosic product, P 1980*e*.
**Schlossmacher, K.** Application of the Se microphotocelement to absorption measurements, 3667*i*, combinations of mineral colors, 8275*g*, see Rehberg, C. H
**Schlubach, H. H.**, and Huchting, L. Fructose anhydrides (XXV) pyrosin, 5749*a*
—— and Rathje, E. Fructose anhydrides (XXVI) kritesin, 5750*b*.
**Schlumberger, H. G.** See Lucké, B.
**Schmäh, H.** See Fricke, R.
**Schmalfuss, H.** Detn. of the degree of spoilage of fats, 1907*a*; see Wernet, H
—, Mangliers, G., Godescheit, M., and Schramm, H. Detection of traces of $N_2O$ application to prove nonformation of $N_2O$ in air irradiated by ultraviolet light, 2121*d*.
**Schmalfuss, K.** Grundlagen der Botanik (book), 7556*c*.
**Schmalgemeier, D. M.** See Winbury, M. M.
**Schmehl, F. L.** See Smith, N. L.
**Schmeidler, G. A.** See Barton, D. H. R.
**Schmeiser, K.** See Maier-Leibnitz, H.
**Schmeisser, M.** See Staudinger, Hansjurgen
—— and Gregor Haschke, E. Nitryl chloride, 2534*d*
**Schmelzer, C.** Dielec properties of solids, 2054*c*.
**Schmelzle, A. F.** See Lindner, G. F.
**Schmelzle, L.** See Mandel, E. E.
**Schmerl, E.**, and Stemberg, B. Diencephalon in regulating ocular tension, 755*d*
**Schmerling, L.** Catalysts for hydrocarbon reactions. $AlCl_3$ solns in nitro paraffins, 108*c*, methylation of aromatic hydrocarbons, P 679*h*, halogenated bicycloparaffins, P 689*f*, polymerization of $C_2H_4$, P 1218*i*, condensation of satd halides with unsatd compds (V) condensation of cycloalkyl halides with ethylene and with vinyl halides, (VI) condensation of alkyl and cycloalkyl chlorides with vinylidene chloride, 3371*i*, methoxyacetic acid, P 3448*d*; alkyl norcamphanyl ethers, P 3462*a*, dehydrohalogenation of alkyl halides obtained from alkanes and alkenyl halides, P 4681*h*; haloalkylated alicyclics from alkenyl halides, P 4693*h*; olefin polymerization, P 5640*f*, see Ipatieff, V. N.; Linn, C. B.
—— and Meisinger, E. E. Condensation of satd. halides with unsatd compds (VII) condensation of neopentyl chloride with ethylene, 3372*f*
—— and West, J. P. Peroxide-induced condensation of satd hydrocarbons with polychloroethylenes, 9024*e*.
**Schmid, E.** Kunststoffen, Kunstharzen, und Kautschuken (book), 8738*f*
**Schmid, G.**, and Poppe, W. Frequency dependency in the ultrasonic degradation of macromols., 5263*i*.
**Schmid, H.** Constituents of *Eugenia caryophyllata* (III) isolation and constitution of eugenitin, 6621*i*; nicotine synthesis in the tobacco plant, 7089*c*, see Meyer, T. M.
—— and Grob, E. γ-Bromocrotonaldehyde diacetate, 4219*a*.
——, Hochweber, M., and Halban, H. v. Photochemistry of tetrabenzoylethylene (IX) two forms and the hydrogenation of tetrabenzoylethylene, 4580*a*
—— and Karrer, P. Synthesis of racemic and optically active forms of sulforaphane, 1725*c*; reduction of quaternary cyclic $NH_4$ salts with Li Al hydride, 6631*a*.
——, Kubassa, F., and Herdy, R. Kinetic investigation of the dimerization of cyclopentadiene, 4934*h*.
—— and Maschka, A. Action of $N_2O_4$ on cyclohexanone and tetrahydrofuran, 7912*g*.
—— and Serrano, M. Nicotine formation in tobacco, 278*a*.
**Schmid, J.** See Neumayr, A.; Pantlitschko, H.; Riefler, F.
**Schmid, K.** Electrophoretic properties and analysis of whale myoglobin, 6248*d*, compn. of whale myoglobin, 7536*i*; see Keilin, J.
**Schmid, R.** See Blum, F.; Gero, L.
**Schmidlein, J. A.** See Jefts, A. W.
**Schmidt.** See also Shmidt.
**Schmidt, Alexander.** Chemie für Molkereifachleute (book), 3946*i*
**Schmidt, Arthur.** Sphene from Kragerö, Norway, 3719*g*.
**Schmidt, A. X.**, and Marlies, C. A. High-Polymer Theory and Practice, Fibers, Plastics, Rubbers, Coatings, Adhesives (book), 900*f*.
**Schmidt, C.** See Werner, S. C.
**Schmidt, C. F.** See Grant, F. C.
**Schmidt, E.** Detn. of tackiness, 2012*b*
**Schmidt, Erich**, Striewsky, W., and Hitzler, F. Aliphatic arbodiimides (IV), 1015*c*.
**Schmidt, E. G.** Urinary phenols (IV) detn of phenol and *p*-cresol in urine, 6693*i*
**Schmidt, E. H.** Low-temp notch impact of annealed and sensitized 18-8 stainless steel, 539*a*.
**Schmidt, F.** See Krollpfeiffer, F.
**Schmidt, F. C.**, and Vallencourt, D. C. Changes in the blood following exposure to gaseous $NH_3$, 1852*d*.
**Schmidt, F. H.** See MacKenzie, K. R.
**Schmidt, Gerhard**, Hecht, L., and Thannhauser, S. J. Effect of K ions on the absorption of orthophosphate and the formation of metaphosphate by bakers' yeast, 6697*d*.
**Schmidt, Gerrit.** Cathode for elec discharge tubes, P 8021*b*.
**Schmidt, Hans.** Development of chemotherapeutically active Sb compds., 1909*h*; Bakteriologie und Immunitätsforschung (book), 2675*a*; group of org. P compds., 5377*h*; see Domagk, G.; Jander, G., Westphal, O.
—— and Westphal, O. Immunochemistry, 3918*a*
——, Wittko pf, L., and Jander, G. Electrolysis in $(Ac)_2O$, 2876*f*
**Schmidt, Harry.** Stereoisomerism in the pinane series (VI) *cis*- and *trans*-δ-pinene, 188*i*.
**Schmidt, H. R.** See Hackerman, N.
**Schmidt, H. Walter.** Dinitro-o-cresol and plant-protecting agents prepd. from it, 2728*f*.
**Schmidt, H. Willumsen.** See Veibel, S.
**Schmidt, I.** See Gebhardt, E.
**Schmidt, J. L.** See Chase, H. F.
**Schmidt, L.** See Schaumann, O.
**Schmidt, L. D.** See Albright, C. W., Graham, H. G.
——, McGee, J. P., and Slone, M. C. Pilot plant for gasifying powd. coal entrained in O and steam, 378*a*.
**Schmidt, L. H.**, Genther, C. S., Fradkin, R., and Squires, W. Development of resistance to chloroguanide (paludrine) during treatment of infections with *Plasmodium cynomolgi*, 4769*g*.
——, Walley, A., and Larson, R. D. Influence of the dosage regimen on the therapeutic activity of penicillin G, 8545*b*.
**Schmidt, M.** Refining of Zn and Zn alloys, 6551*i*.
**Schmidt, O. T.**, Heintzeler, M., and Mayer, W. Natural tannins (II) chebulinic acid (1), 1341*f*
—— and Hüll, G. Natural tannins (I) tannins of the chestnut (1) occurrence of catechol in chestnut shells, 1341*b*
**Schmidt, P.**, and Nordmeyer, K. Influence of tensioning processes upon the wet strength of rayon fabrics, 1571*d*.
**Schmidt, P. L.** Special oxide film on steel provides elec. insulation, 4201*c*.
—— and Campbell, J. A. Coating magnetic sheets, P 4402*d*.
**Schmidt, R.** Useful variant of the two-line method for calibration of photographic emulsions, 2105*b*; accuracy of plate calibration in spectrographic analysis (I) comparison of the specific precision of different methods of calibration, 5694*a*; inherent precision of spectrochem. computation methods, 8276*f*; application of phys. method for the analysis of inorg pigments, 8697*a*.
——, Manders, H., and Wijk, G. J. van. Use of the rotating-step sector in combination with intermittent light sources in spectrochem. analysis (III), 2887*h*.
——, Manders, H., Wijk, G. J. van., and Verkerk, B. Accuracy of plate calibration in spectrographic analysis (II) comparison of several methods of integral calibration, 5694*a*.
**Schmidt, S.**, Hansen, A., and Holm, P. Immunizing effect of irradiated foot- and mouth-disease virus alone and combined with Al(OH)$_3$, 4757*i*; irradiation of the virus of foot and mouth disease with ultraviolet rays, 5108*i*.
**Schmidt, U.** See Dawihl, W.
**Schmidt, W.** Refining metal scrap with Hg as sepg. agent, 7880*f*.
**Schmidt, W. A.** See Sprung, J. A.
**Schmidt, Werner H.** See Ziels, N. W.
**Schmidt, William H.** International standard and unit for penicillin (VIIIC) assay, 3569*b*.
**Schmidt, W. J.** Homogeneous and sphaeritic calcification for different types of bone tissue, 5844*f*.
**Schmidtmann, E.** See Eilender, W.
**Schmidt-Nielsen, B.** See Schmidt-Nielsen, K.
——, Schmidt-Nielsen, K., Brokaw, A., and Schneiderman, H. Water conservation in desert rodents, 5476*b*.
**Schmidt-Nielsen, K.** See Schmidt-Nielsen, B.
——, Schmidt-Nielsen, B., and Brokaw, A. Urea excretion in desert rodents exposed to high protein diets, 5476*a*.
——, Schmidt-Nielsen, B., and Schneiderman, H. Salt excretion in desert mammals, 298*h*.
**Schmidt-Thomé, J.** Antibacterial action of 6-aminonicotinic acid, 3884*d*.
——, Schettler, G., and Goebel, H. Comparison of blood cholesterol, 7115*c*.
**Schmidt-Wetter, R.** Vademekum für Pharmazeuten (book), 1157*h*
**Schmied-Kowarzik, V.** See Weygand, F.
**Schmiegelow, E.**, and Mendes França, J. Resistance to traction and chem. compn. of gray cast Fe, 5353*a*.
**Schmillen, A.** See Hanle, W.
**Schmit, A. S.** See Luck, J. M.
**Schmiterlöw, C. G.** Specific histamine antagonizing and nonspecific antispasmodic effect of various substances on isolated intestine, 3934*d*; pressor and depressor substances in exts. from blood vessels, 4750*c*.
**Schmith, K.** See Jensen, K. A.
**Schmitt, A. C.** See Marisic, M. M.
**Schmitt, E. A.**, and Voigt, O. D. Two-story flocculation-sedimentation basin for the Washington aqueduct, 8584*h*.
**Schmitt, F. O.** Mol. morphology and growth, 4710*f*.
—— and Gross, J. Electron microscopy of collagen, 4041*a*.
**Schmitt, H.** Manuf. of building plasters, 2396*d*.
**Schmitt, J.**, and Seilert, J. Formal antagonists of 2-methyl-1,4-naphthoquinone and phthiocol, 6612*c*.
**Schmitt, J. A.**, and Petering, H. G. Xanthine oxidase in livers receiving purified and stock diets, 8469*h*.
**Schmitt, J. B.** See Barber, G. W.; Hansens, E. J.
**Schmitt, R. W.**, Hatfield, T. N., and Lockenvitz, A. E. Relative mol. stopping powers of $_1H^1$ and $_1D^2$, 4094*a*.
**Schmitt, V.** Production of sole leather with the help of Fe tanning, 6852*g*.
**Schmitter, E.** See Fries, C., Jr.
**Schmitz, G.** Temp. distribution in free-burning C arc lamps, 8915*a*.
**Schmitz, H. A.**, and Scheil, M. A. Application of alloy steel linings to tanks storing corrosive pulp cooking liquor, 7400*e*.
**Schmitz, M.** See Halse, T.
**Schmitz, O.** See Hofmann, W.
**Schmitz, P. M. E.** Nitro paraffins, source of numerous valuable org. compds., 120*e*; progess of the petroleum industry, 1553*e*.
**Schmitz, R. E.** Chloretone, 3971*h*.
—— and Hill, J. S. Bi subnitrate-tragacanth incompatibility, 355*d*.
**Schmitz, W. R., Jr.** See Bradshaw, W. H.
**Schmitz-Dumont, O.** P compds., 2105*i*.
—— and Broja, G. Heavy-metal amides (IV) prepn. of V(III)amides—production of K V(III) diimides, 6101*g*.
——, Broja, G., and Piepenbrink, H. F.

Y(OH)$_3$, 2064*d*; crystal structure of Sc(OH)$_3$ and In(OH)$_3$, 4072*i*.
**Schubert, Max.** Immedial dyes, 851*f*; see Zerweck, W
**Schubert, Maxwell.** See Schreiber, F G
——, Goldberg, E, and Schreiber, F G. Comparison of several antimonials in the treatment of exptl schistosomiasis mansoni, 9266*f*
**Schubert, R.**, and Wiegandt, K Reciprocal relations between serum, periston, and Congo red, 6311*h*
**Schubert, W. J.**, and Nord, F F. Enzyme action (XXXV) relationship between ergosterol formation in *Lentinus lepideus* and lignification, 9125*b*
**Schubert, W. M.** See Smith, L I
**Schuchardt, G. S.** See Bever, K H.
**Schuchovitskii, Schuchowitzky.** See Zhukhovitskii
**Schuck, C.** See Chen, S D
**Schudel, H.**, Eder, R, and Buchi, J Detn of the melting point, 1147*i*
**Schükarew, S. A.** See Shchukarev, S A.
**Schueler, F. W.**, and Gross, E G Effect of two new analgesic agents on O consumption of bram, 2700*h*.
——, Gross, E G, and Holland, H Chem constitution and analgetic action, 8552*d*
**Schüler, H.** Mol field mechanism in disubstituted benzenes, 2863*i*
——, Woeldike, A, and Remebeck, L. Phosphorescence of org compds 8282*b*
**Schüler, K.** Relation of vitamin K to the prothrombin metabolism, 1844*e*
**Schüller, A.** Petrogenetic study of the granulite problem on rocks of the Munchberg massif, 7874*e*
**Schüller, H. A.** Weltmacht Atom (book), 3702*a*.
**Schümann, H. J.** Comparative study of the action of adrenaline, arterenol, and epinine on blood pressure, spleen vol, intestine, and blood sugar, 8542*e*, see Holtz P
**Schümmelfeder, N.** Blood cholinesterase after exptl trauma (I) detn and influence of narcosis, operative interference, and bleeding, (II) behavior of cholinesterase in whole blood and serum in exptl chilling, (III) behavior of cholinesterase in blood of fatally burned dogs, (IV) behavior of cholinesterase in blood serum after local burning, 299*e*, acetylcholine in the blood, 1851*e*, behavior of serum cholinesterase in collapse after bleeding and in traumatic shock, 8042*i*
**Schürch, A.** Coloring of paper, 5949*h*, Uvitex RS obtaining improved white on paper, 7227*e*
**Schuerch, C., Jr.** See Milas, N A
—— and Huntress, E H Schmidt reaction (I) conditions and reaction mechanism with primary, secondary, and tertiary aliphatic acids, (II) rearrangement during degradation of triethylacetic acid, 9027*b*.
**Schürch, O.**, Viollier, G, and Sullmann, H Electrophoretic study of synovial fluid, 9202*b*.
**Schürger, G.** Influence of adrenal cortical hormone on the fatigability and muscle metabolism of the heart, 1851*f*
**Schürmann, H. M. E.** Egyptian rocks (VIII) geology of the northern part of the eastern Arabian Desert of Egypt, (IX) granitic pre Hammat rocks of northern Ethai, 6548*e*, (X) Nubian-Arabian shield, (XI) chem compn of the porphyries and porphyrites of the pre-Hammamat series, (XII) radioactivity of some rock samples, 7873*i*.
**Schürmann, M. O.** See Orthner, L.
**Schuette, H. A.**, and Ihde, A. J Maple sugar—bibliography of early records (II), 3538*i*.
**Schütz, A.** Moisture detn in butter, 6749*d*
**Schütz, E.** Physiology (book), 2694*f*
**Schütz, F.** Cyanate, 5430*g*, see Bader, R, Dirnhuber, P, Holtham, S B
——, Sarten, P., and Meyer, H. Wood chemistry (III), 3194*i*
**Schütz, G.** See Konopik, N.
**Schuetz, R. D.** See Dillehay, E. R
**Schütza, H.** Behavior of active Co towards $H_2O$ in the Fischer [Tropsch] catalyst, 6497*a*.
**Schütze, O. H.** Sb plant of the Herzog Julius Refinery, 1695*c*
**Schützner, W.** See Halla, F
**Schuffelen, A. C.** Growth substance and ion absorption, 804*g*, soil factors influencing the cation absorption of plants, 1835*i*, plant growth, ion absorption, and ion ratio, 1836*b*; see Edelman, C H
**Schuftan, P. M.** See Pearce, M.
**Schuh, H. v.** See Bredereck, H.
**Schuhardt, V. T.**, Rode, L. J., Foster, J. W., and Oglesby, G. Antibacterial factor in peptones, 3882*h*.
**Schuhknecht, W.** Quant spectrochem analysis in the industrial lab, 2114*e*, spectrographic analysis in chem industry, 5693*e*.
**Schuikin, N. I.** See Shukin, N I
**Schuit, G. C. A.** See Spijker, P van't
**Schukarev, A. N.** See Shchukarev, A N.
**Schuldiner, J. A.** Identification of amidone, 4424*h*, color reactions for copalquin bark ext, 8616*b*
**Schuldiner, S.** See May, T P.
**Schulek, E.** Detn of iodide or bromide ion, 65*i*
—— and Rozsa, P Thermal waters of Budapest, 9302*h*
—— and Somogyi, Z Constitution and indicator properties of azo dyes, 3309*a*
**Schuler, R. H.** See Hamill, W H, Williams, Russell R, Jr
**Schuler, W.** Action of antibacterial substances, 4339*e*
——, Heinrich, P, and Lazarus, K Detn of small quantities of adrenaline, 9131*e*
**Schuler, Wilhelm.** See Rabe, P
**Schulert, A. R.** See Lewis, H B
**Schuller, M.** See Fontaine, R
**Schulman, E. L.** See Foster, N C
—— and Beiler, A C Resistance thermometer, P 6011*b*
—— and Jerabek, R D Electrically insulating material, P 3544*a*
—— and Johnson, J S Elec insulation (resin), P 9536*c*
**Schulman, F.** See Harwood, J J
**Schulman, J.**, **Jr.**, and Falkenheim, M Radiotracer studies, 1258*h*
**Schulman, J. H** Water protecting properties of cuticles 6043*b*, see Matalon R
—— and Riley, D P X-ray investigation of the structure of transparent oil-water disperse systems (I), 18.
**Schulman, Jack H** See Stafford Allen & Son, Ltd
**Schulman, James H** Ca Cd silicate phosphor, P 6089*a*, Ca silicate phosphors, P 6517*e*, polarograms by an ultrapid polarograph 7831*f*, see Klick, C C
——, Claffy, E W, and Gunther, R J Crystn of silicic acid, 8934*h*
——, Gunther, R J, and Claffy, E W Mn activated Zn Be germanate phosphors 7827*f*
**Schulman, M. P.** See Greenberg, D M
**Schulman, S.** Fluorene derivs for cancer research 7001*i*
**Schulte, E. V.** $(NH_4)_2SO_4$ of large crystal size, P 1435*d*
**Schulte, M. J.** Detn of bilirubin in blood, 4722*e*.
**Schultén, K. af.** Bleaching of sulfite pulp, 4851*g*
**Schultz.** See also Shultis
**Schultz, A. S.** See Di Carlo, F J
—— and Atkin, L. Utility of bios response in yeast classification and nomenclature, 1340*f*
——, McManus, D K, and Pomper, S Amino acids as C source for the growth of yeasts, 9157*i*
—— and Pomper, S Ammo acids as a N source for growth of yeasts, 1825*i*
**Schultz, E. M.** See Robb, C M
—— and Arnold, R T Isoquinoline series, 8390*a*
**Schultz, E. W.** See Danz, F J
**Schultz, H. L.** See Kolstad, G A
, Lockwood, J A, McCarthy, R L, and Rice, P J Operation of the Yale linear electron accelerator, 4095*i*.
**Schultz, H. P.** See Volles, S
**Schultz, Jack.** See Patterson, E. K.
—— and Caspersson, T. Nucleic acids in *Drosophila* eggs, and Y chromosome effects, 4387*g*
**Schultz, Julius.** Labile protein (I) cathepsin II activity of the liver and kidney of the fed and fasted rabbit, 4752*d*
**Schultz, L. H.**, Smith, V, R, and Lardy, H. A. Effect of various fatty acids on the blood-ketone levels of ruminants, 9188*e*
**Schultz, M. L.** Absorption spectra of some double salts contg. bivalent Co, 5305*a*
**Schultz, O. E.** Galenic plant preprns with total or partial active ingredient content, 6783*e*
**Schultz, O. R.**, Nestle, R. F., and Romano, M J. Gravure plate, P 7852*b*
**Schultze, A. B.**, and Davis, H. P. Effect of thyroxine on O consumption of bovine spermatozoa and semen, 741*d*; effect of thyroxine on fertility of bovine semen, 5473*f*.
**Schultze, G.** Residues from the oxidation of paraffin—versatile German lacquer raw material, 1993*a*.
**Schultze, Werner.** See Hörmann, H.
—— and Hormann, H Colors obtainable with mixts of the Agfacolor pos. dyes, 6099*b*.
**Schultze, Willi.** See Hanson, Horst
**Schulz.** See also Shul'ts
**Schulz, F. N.** Grundriss der Chemie für Mediziner (book), 478*h*.
**Schulz, G.**, and Mehnert, K. Cold strength of synthetic materials, 8198*i*
**Schulz, Gerhard.** Therapeutic effect of homatropine in ointment, soln., or viscous emulsion, 8093*e*
**Schulz, G. V.** Chain reactions and polymerization in the condensed state, 1711*e*; see Hengstenberg, J
**Schulz, H. B.** Low-C Cr steels, P 2153*g*.
**Schulz, J. A.**, and Thomas, B. H Biol. value of the proteins of corn germ and wet-milled 3078*a*, biol value of corn protein fractions, 5101*e*
**Schulz, M. E.** Sp gr and an content of butter, 781*i*
**Schulz, P** Elec discharge in inert gases at high pressures (I) discharge characteristics and spectral properties of high pressure discharges in inert gases, (II) spectral line, continuous, and total radiation as functions of pressure and current strengths, 5279*a*, influence of pos ions on electron mobility (I) electron mobility in a high-pressure plasma, 5660*e*
**Schulze, Albert.** Perlon and its manuf, 1469*d*, perlon-nylon in the manuf of hosiery, 1469*e*
**Schulze, Alfred** Resistance alloy of the Cu Mn group for standard resistors, 3334*a*
**Schulze, A. P.** Electropolishing stainless steel, 508*d*, rfa etu fo hnishing Al 1705*b*, production line processing of Al for painting, 5199*i*
**Schulze, B.** Preservatives and repellents used against wood destroying insects and fungi (II) basis HF 8003*c*, see Becker, G
and Becker, G Fungistatic and insecticidal action of fractions and of the individual compon of cal 4417*h*
**Schulze, E.** Urethan, therapeutic use and mechanism of action 5906*a*
**Schulze, F.** Photographic elements having light sensitive and water insol vinylpyridine polymer layers, P 51*e*
**Schulze, G.** Energy metabolism of poikilotherm muscles in traumatic tetanus, 8516*h*
**Schulze, H.** Unusual light absorption of several simple indophenol dyes, 7231*i*
**Schulze, J.** Detn of the f p in urine and blood serum, 3091*a*
**Schulze, K. W.** See Windeck-Schulze, K
**Schulze, R.** Biologically active components of the radiation climate, 6256*b*
**Schulze, W A.**, and Crouch, W W Compn of butadiene-styrene copolymers from Na-catalyzed polymerization, 1340*b*, sulfides and mercaptans, P 2219*h*, S compds, P 5232*e*, Gt S polymerization promoter, P 6457*h*
, Crouch, W W, and Lynch, C S. Butadiene-styrene elastomers from Na-catalyzed copolymerizations, 3645*g*
, Lyon, J P, Jr, and Short, G. H Synthesis of tertiary alkyl mercaptans, 1715*g*
—— and Mahan, J E Unsatd. nitriles, P 4286*b*
, Tucker, C M, and Crouch, W W Low-temp polymerizations—emulsifiers of alkyl aromatic sulfonate type, 8725*c*.
**Schulze, W. M. H.** Insulation materials for ultra-short waves, 3118*h*.
**Schumacher, A.** Transport of material in the sieve tube system of higher plants, 5828*h*.
**Schumacher, E.** Gasenergie (book), 2756*b*, see Clusius, K
**Schumacher, E. E.** See Bouton, G. M, Scaff, J. H.
**Schumacher, H.** Utilization of blast furnace slag, 9000*a*.
**Schumacher, H. J.** Kinetics of photochem. reactions in gases, 1639*h*.
**Schumacher, J. C.** Electrolytic cell for producing perchlorates, P 7840*b*.
**Schumacher, J. L.** See King, William H.
**Schumacher, R.** Nomograph for the detn of capillary flow meters, 5*b*; heat transfer

to gases in packed and contact tubes, 6006*b*.
**Schuman, S. C.** Carbides of Fe in the Fischer-Tropsch synthesis, 1636*a*.
**Schumann, F.** Prevention of rust in water tanks, 6343*g*.
**Schumann, H.** Effect of relatively strong selective absorption on conoscopic figures, 4979*c*; microscopic differentiation of the minerals of the carbonate group, 8313*b*.
**Schumann-Petersen, M.** See Gessner, F.
**Schumb, W. C.** Stability of concd. $H_2O_2$ solns., 5553*g*, see Priest, H. F.
——, Gamble, E. L., and Banus, M. D. Lower iodides of B, 8931*f*.
——, Trump, J. G., and Priest, G. L. Effect of high voltage elec. discharges on $SF_6$, 7354*i*.
**Schumm, O.,** and Beckermann, F. Porphyrin content of the blood in disease and after administration of hematoporphyrin or protoporphyrin, 3512*b*.
**Schumpelt, J.** FeO pigments—their manuf. and application, 5200*i*, 8697*d*.
**Schundler, F. E., & Co., Inc.** Lightweight material, P 1939*c*.
**Schunk, J.** See Herken, H.
**Schuphan, W.** Gemuschau auf ernährungswissenschaftlicher Grundlage (book), 7624*f*.
**Schupp, R. L.** Dielec precision measurements in solns. of assocd substance (III) dielec. const and polarization of phenol at high concns., 6480*d*
—— and Mecke, R. Dielec precision measurements in solns. of assocd substance (I) measuring app., (II) polarization and dipole moments of monomeric phenol and water, 6480*a*.
**Schurer, H.** Origin of the word "caoutchouc," 6453*b*.
**Schurkow, S. N.** See Zhurkov, S. N.
**Schurr, P. E.** See Henderson, L. M.
**Schuster, F.** Combustion characteristics of gases, 6394*b*.
**Schuster, K. H.** See Turba, F.
**Schutte, A. H.** Hydrocarbon coking, P 1952*b*; see Reed, C. S.
—— and Offutt, W. C. Continuous contact coking, 9425*h*.
—— and Rose, K. E. Emulsion deoiling of cryst. waxes, 5581*e*.
**Schutz, P. W.** See Jebnek, R. V.
**Schutze, H. G.** Al halide catalyst, P 5134*h*; olefin dimers as promoters in low-temp. polymerization, P 9530*b*.
**Schuurmans, D.** Expts with iodinated casein, 8474*d*.
**Schuyten, H. A.,** Weaver, J. W., and Reid, J. D. Index of the water-repellency of textiles from the surface tension of aq. solns., 5957*c*.
**Schuyten, M. C.** Bruck's periodicity in the series of at. wts., 5239*i*.
**Schwab.** See Neuweiler, W.
**Schwab, A. O.** Rule for limiting repetitions in physicochem measurements, 2050*i*
**Schwab, A. W.** See Cowan, J. C.; Dutton, H. J.
**Schwab, G. M.** Handbuch der Katalyse Bd II. Katalyse in Lösungen (book), 3278*i*; Bd. VII. Katalyse in der organischen Chemie (book), 478*h*, strength of alloys, 6136*d*.
—— and Ghosh, A. N. Chromatographic sepn and x-ray identification of Pt metals, 8304*d*.
—— and Philinis, J. Decompn. of pyrites, 3696*b*.
—— and Schwab-Agallidis, E. Selective catalysis, 6497*h*.
**Schwab, H.** Degradation of fats in the organism, 1475*e*.
**Schwab-Agallidis, E.** See Schwab, G. M.
**Schwabe, K.** Detn. of γ-hexachlorocyclohexane in the presence of its isomers, 2896*f*; pH indication on Bi electrodes, 8900*c*.
——, Fiedler, H., and Schlosser, H. S recovery from sulfite waste liquors, 3196*a*.
—— and Hahn, E. Detg. reducing substances in sulfite waste liquor and in prehydrolyzates, 401*i*.
—— and Schade, W. Bi electrode for pH measurements run in rapid succession, 8900*a*.
**Schwachheim, G.** See Meyer, H. A.
**Schwachtgen, E. C.** See Brown, H. E.
**Schwager, P. G.,** and Jaques, L. B. Detn. of prothrombin times, 9139*a*.
**Schwahn, C.** Rezept- und Werkstattbuch für den Gold- und Silberschmied (book), 3768*a*.
**Schwaiger, M.** See Maier-Leibnitz, H.
**Schwan, H.** Detn. of sedimentation, 4721*a*.
**Schwander, H.** See Signer, R.
**Schwank, G.** Bunsen burners that do not strike back, 2047*c*.
**Schwardt, H. H.** See Gyrisco, G. G.; Marshall, D. S.; Ristich, S. S.
—— and Matthysse, J. G. Sheep tick—control, 6776*i*.
**Schwarting, A. E.** See Ballentine, K. D.; King, Burton C.
**Schwarting, V. M.** Action of gastric contents on tubercle bacilli, 3878*c*.
**Schwartz, A. M.** Principles of detergency and their application in textile processing, 5213*c*.
—— and Perry, J. W. Surface Active Agents (book), 2793*e*.
**Schwartz, C.** See Borenstein, M. K.
**Schwartz, C. M.,** Austin, A. E., and Weber, P. M. Pos.-replica technique for electron microscopy, 2858*e*.
**Schwartz, F. F.** Stable colloidal solns of S and metal sulfides, P 826*g*, regenerating used paper, P 1188*i*, colloidal $As_2S_3$, P 7104*d*.
**Schwartz, F. G.,** Gooding, R. M., and Eccleston, B. H. Superfractionation naphtha from Santa Barbara, Venezuela, crude oil, 1555*a*.
**Schwartz, G. I.** Outline Text in Biology (book), 1075*a*
**Schwartz, G. M.** Geology of the Duluth metropolitan area, 6548*d*.
**Schwartz, H.** Structural boards from cedar barks, 6409*e*.
**Schwartz, Harry.** See Siegel, H.
**Schwartz, H. A.,** and Guiler, G. M. Donaldson's method for detg. combined C in malleable Fe, 8962*e*.
**Schwartz, H. M.** See Karnovsky, M. L.
**Schwartz, I. L.** See Gaudino, M.
**Schwartz, J. H.** See Talley, E. A.
**Schwartz, J. R.** See Wheland, G. W.
**Schwartz, L.** Dermatitis from new fabrics, dyes, and finishes, 5131*f*, 7693*f*.
—— and Birmingham, D. J. Causes of occupational dermatitis, 7605*i*.
**Schwartz, M.** See Castberg, T.
**Schwartz, M. C.** See Bills, C. E.
**Schwartz, W.,** and Muller, A. Petroleum bacteriology, 2409*h*.
**Schwartz, W. B.** Effect of sulfanilamide on salt and water excretion in congestive heart failure, 3526*c*.
**Schwartzbart, H.,** and Low, J. R., Jr. Yielding and strain-aging of carburized and nitrated single crystals of Fe, 7881*e*.
**Schwartzkopff, W.** See Heubner, W.; Kiese, M.
**Schwartzkopff-Jung, W.** Same as Schwartzkopff, W.
**Schwartzman.** See also Shvartsman.
**Schwartzman, L. H.** See Woods, G. F.
**Schwartzmann, L. A.** See Shvartsman, L. A.
**Schwartzwalder, K.,** Rulka, A. S., and Smith, R. W. Resistor for temp. indicators, P 9407*h*.
—— and Schaefer, C. F. Sealing means and method for spark plugs, P 5166*h*.
**Schwarz.** See also Shvarts.
**Schwarz, C. V.** O in refining processes, 3755*b*, development of refining with O in open-hearth and elec.-arc steel furnaces (I), (II), 8323*i*.
**Schwarz, E.** Photoconductive cells, 2858*f*.
**Schwarz, E. H.** Heat and acid-resistant steel alloys, P 3770*g*; electric battery, P 4590*f*, Cr-W-Co-Mo steel, P 4999*f*.
**Schwarz, E. R.** See Broadfoot, H. H.
**Schwarz, F. L.,** and Rosin, J. Ca salts of fruit acids, P 1880*h*.
**Schwarz, George.** Ag impregnation, P 2712*h*.
**Schwarz, Georges,** and Smet, P. de. Sensitizing dyes for photographic emulsions, P 8293*e*.
**Schwarz, H.** Calcn. of the mineral compn. of portland cement, 5919*g*.
**Schwarz, H. W.** Pilot-plant design and construction—dehydration of heat-sensitive materials, 1613*e*; see Schroeder, A. L.
**Schwarz, M. v.** Cleavage of Fe, 4991*h*.
**Schwarz, Robert.** Halogen compds., 2105*h*; N compds., 2106*f*; Si and Ge compds., 2106*f*, peroxynitric acid, 2110*c*.
—— and Danders, C. Some new halides of Si (VII), 8931*a*.
—— and Laufer, S. Compn. and character of American beers before, during, and after World War II, 354*g*.
**Schwarz, Rudolf,** and Vavřínová, M. Mineral. and geol. bibliography of the Czechoslovak Republic, 8981*d*.
**Schwarz, S.** See Benford, F.
**Schwarz, W.** See Tödt, F.
**Schwarz-Bergkampf, E.** Producer gas from run-of-mine coal, 6393*e*; Fe alloy, 8337*i*.
**Schwarze, P.** Packing for an absorption tower or similar equipment, P 4526*b*
**Schwarze, W. K.,** and Gunther, E. Vitamin C detn. in plant material, 4721*e*.
**Schwarzenbach, G.** Position of the H ion, 4096*f*, complexons (XIII) chelate complexes of Co with and without attached groups, 7364*e*; see Ackermann, H.; Chemische Fabrik Uetikon; Willi, A.
—— and Gysling, H. Oxidation-reduction equil. purpurate ⇆ dibarbiturylamine, 7304*i*; metal-ion indicators (I) murexide as an indicator for Ca and other metal ions; complex formation and light absorption, 7369*a*.
**Schwarzer, F.** Explosive, P 2437*c*.
**Schwarzfischer, F.** Chem processes at the subsidence of rigor mortis, 7124*i*
**Schwarzkopf, O.,** Cahnmann, H. J., Lewis, A. D., Swidinsky, J., and Wuest, H. M. Synthesis of vitamin A (I) direct prepn. of vitamin A of high biol. potency, 5374*b*.
—— and Lewis, A. D. Esters of 1-methyl-3-(acyloxypropyl)-α halomalonic acids, P 4689*i*.
**Schwarzkopf, P.** Theory of sintering, 982*b*.
**Schwarzl, F.** See Urban, P.
**Schwarzman, Schwarzmann.** See also Shvartsman.
**Schwarzmann, A.** Au-gum arabic-peptone complex, P 8104*h*; Au-peptone-agar complex, P 8619*h*
**Schwarzmann, G.** Composite non-Keplerean orbits [application to Bohr's at. model], 4089*a*, nuclear mass defect, 4092*c*; cosmic rays as products of radioactivity, 4092*f*, light *vs* matter, 4096*d*, actual mass and inert mass, 4096*e*
**Schwarzmann, H.** See Mainz, H.
**Schwarzschild, M.** See Richardson, R. S.
**Schwarzweiss, H.** See Tomcsik, J.
—— and Tomcsik, J. Physicochem. properties of the antigens in erythrocyte stromata, 2309*i*; isolation of the heterogenetic mononucleosis antigen from the stroma of erythrocytes, 3092*e*.
**Schwebs, U.** See Reichert, B.
**Schwegler, C. C.,** and Tennant, F. M. Alkyl halides, P 6218*e*.
**Schweiger, L. B.,** and Snell, R. L. Fermentation process, P 7638*b*.
**Schweigert, B. S.** Nutritional requirements of the cotton rat, 288*g*; amino acid content of foods, 1493*d*, availability of tryptophan from various products for growth, 2292*i*; enzymic conversion of 3-hydroxyanthranilic acid to nicotinic acid, 6266*g*; folic acid metabolism studies (II) effect of dietary intake on the concn. of free and combined vitamin in the blood, 6714*i*; see Brown, S. O.; German, H. L.; Henderson, L. M.; Junqueira, P. B.; Prescott, J. M.; Simpson, R. E.
**Schweinburg, F. B.,** and Rutenburg, A. M. Nu 445 (3,4-dimethyl-5-sulfanilamidoisoxazole) in the treatment of urinary infections due to gram-neg. bacilli, 5867*d*.
**Schweinler, H. C.** See Weinberg, A. M.
**Schweisheimer, W.** Health hazards with paint removers, 4024*i*; miners' furunculosis—occupational skin hazards of mine workers, 5513*d*; hazards of Be, 8577*e*.
**Schweitzer, G. K.** Radioactive Tracer Techniques (book), 5672*g*; measurement of radioactivity in soln., 8261*d*; see Moeller, T.
**Schweitzer, T. R.** See Hoffman, C.; Russ, W. R.
**Schweizer, E.** Fluorescent materials, P 2517*c*; see Dieser, J.; Moelter, G. M.
**Schweizer, W.** Millon's reaction in plasma after tyrosine injections in patients with liver damage, 7129*d*.
**Schweizerische Lokomotiv- & Maschinenfabrik.** Hollow cast objects, P 4624*e*.
**Schweizerische Osola-Werke, Breitenbach.** Paper for electrotech. purposes, P 3198*e*.
**Schweizer Schmirge und Schleif-Industrie A.-G.** See Sia Schweizer Schmirge und Schleif-Industrie A.-G.
**Schweiz. Serum- & Impfinstitute.** Dehydrated water sol. serum as blood substitute, P 1534*d*.
**Schweiz. Sprengstoff-Fabrik A.-G.** Highly brisant explosive having a low sensitivity to shock, P 2438*a*; dye, P 5958*e*; S dye, P 7705*b*.

**Schwemer, W.** See Frost, A. A.
**Schwen, G.** Chem. syntheses in the service of the detergent industry, 3636*c*.
**Schwenk, E.** See Hershberg, E B.; Papa, D.; Sperber, N; Tolksdorf, S.
——— and Papa, D. α-Bromination of dicarboxylic acids, 1325*b*
**Schweppe, J. S.** See Zeller, E. A.
**Schwerdle, A.** Recovering unsatd org. compds from aq liquors, P 3031*b*, see Sowa, F J.
**Schwerin, P.** See Bessman, S P.
**Schwerma, H.**, Ivy, A C., Friedman, H, and La Brosse, E Resuscitation from the juxtalethal effects of exposure to CO, 756*i*.
**Schwert, G. W.** Mol size and shape of the pancreatic proteases (I) sedimentation studies on chymotrypsinogen and on α- and γ-chymotropsin, 7067*h*, see Kaufman, Seymour, Snoke, J E
——— and Eisenberg, M A Kinetics of the amidase and esterase activities of trypsin, 7068*a*
**Schwetzow, Schwezow.** See Shvetsov
**Schwidde, J. T.** See Wilkins, D S
**Schwimmer, E.** Active agents of *Rhizoma rhei* and *Radix rhapontici*, 8102*c*
**Schwimmer, S.**, and Balls, A K. Cryst α-amylase from barley malt 1820*a*, starches and their derivs as adsorbents for malt α amylase, 9504*i*
**Schwinner, R.** Where are U and Th concd with relation to structures? 6123*g*, mountain formation, magmatic cycles, and ore deposits in the eastern Alps 8314*h*
**Schwitzer, M. K.** Solvent extn of oil crops, 6841*g*, see Bamag Ltd.
**Schwope, A. D.**, Smith, K F, and Jackson L R. Comparative creep properties of several types of com coppers 6555*f*
**Schwyzer, A.** Use of myristyl γ picolinium chloride in surgery, 315*f*
**Schwyzer, R.** See Karrer, P
**Schygol, M. B.** See Shchigol, M B
**Sciascia, M.** See Farber, E
**Science Associates Inc.** Mixt of nucleotides contg predominantly adenosinetriphosphate, P 6372*a*
**Scintilla A.-G.** Combining metal surfaces, P 2154*h*.
**Sciurevici, E. C.** See Cozubschi Sciurevici, E.
**Sckotz-Hansen, K.** Glarmesterhåndbogen (book), 9407*c*.
**Sclar, R. N.** Analysis of coal tar colors, 7231*e*, 9452*i*, testing of coal tar colors identification of fluorescein colors, 9453*a*
**Scobey, R. R.** Poliomyelitis and the paralysis produced by injections of normal homologous and heterologous nervous tissues, 1101*c*.
**Scofield, F.**, and Edwards, L Drying oils index, 4491*f*
**Sconce, J. S.**, and Johnson, A N Photochem chlorination of hydrocarbons, P 7497*a*
**Scotchbrook, A. F.** See Osborn, C J
**Scott, Albert B.** See Ward, W C
**Scott, Allen B.** Magnetic study of S vapor, 8768*b*
——— and Cromwell, T M. Magnetic susceptibility of at I, 2831*f*
**Scott, A. D.** See Edisbury, J R
**Scott, B. A.** Detn of Ni and Zn in secondary Al alloys, 1683*f*
**Scott, D. A.**, and Fisher, A M Estn of insulin from pancreas glands, P 4431*a*, chemistry of insulin, 8411*f*
**Scott, D. S.** See Tomkins, R V, Wheat, J A.
**Scott, D. W.** See Waddington, G
———, Gross, M E, Oliver, G D, and Huffman, H. M Cyclooctatetraene low temp heat capacity, heat of fusion, heat of vaporization, vapor pressure, and entropy, 6500*b*
**Scott, E. J.** Measurement of the β-ray spectra of Sc and P, 4563*d*
**Scott, E. M.**, and Verney, E L Self selection of diet (IX) appetite for thiamine, 5458*e*.
**Scott, E. R.** Vitreous enameling, 3585*i*
**Scott, F. E.** See Jones, G W.
———, **Burns**, J J., and Lewis, B Explosive properties of hydrazine, 5187*i*
**Scott, F. R.**, Thompson, R H, and Ellickson, R. T. Inertia effects in infrared-sensitive phosphors, 2515*d*.
**Scott, G. C.**, and Oltman, R E Treatment of vegetables, P 5882*e*
**Scott, G. P.** See Arnstein, H R V.
**Scott, G. R.** Cathodic protection for water storage tanks, 6342*i*
**Scott, G. W.** See Barrows, R. S.
——— and Walker, H. W. Viscosity changes in chloroprene emulsion polymerization, 2019*c*.
**Scott, G. W., Jr.** See Erb, R. E.
**Scott, H.**, and Gordon, R. B. High-strength, creep-resistance austenitic alloys at elevated temp., P 7894*a*.
**Scott, H. E.** See Krause, A. H.
**Scott, H. M.** See Singsen, E P
**Scott, J. K.** See Maynard, E A
**Scott, J. R.** Ebonite (XXXV) influence of the S ratio, 4316, 8729*h*, (XXXVIII) ebonites contg reclaimed rubber, 7256*f*, expressing hardness of vulcanized rubber (II), 2462*d*, hardness testing of vulcanized rubber (VII) influence of thickness of rubber tests with various indentors, (VIII) hardness tests with a conical indentor, (IX) influence of thickness of rubber in hardness testing (X) choice of size and form of ball indentor, (XI) influence of gage spring pressure and friction in the indentation hardness test, (XII) comparison of tests using a 1-in ball and a ½-in ball, 2462*e*, cooperation in rubber research, 3643*e* comparison of tensile data from ring and dumbbell test pieces, and calcn of true tensile strength from ring data 1885*d*, S and accelerator formulation in mixes contg vulcanized rubber crumb, 1888*i*, detn of resistance to abrasive wear (IX) grain in tire-tread rubber, 8729*i*, (XII) comparison of Akron and Du Pont abrasion machines value of an abrasive index 8729*i*, see Church H F, Fisher, D G, Newton, R G, Piper, G H; Porritt, B D
**Scott, K. G.** See Crowley, J F
———, Axelrod, D J, Fisher, H Crowley, J F, and Hamilton J G Metabolism of Pu following intramuscular injection, 1483*i*
———, Axelrod, D J, and Hamilton, J G Metabolism of Cm, 3098*b*
———, Copp, D H, Axelrod D J, and Hamilton, J G Metabolism of Am, 744*f*
**Scott, L. E.** See Hagler, T B
**Scott, M.**, Glover, J, and Morton, R A Conversion of cholesterol to provitamin $D_3$, 5100*b*
**Scott, M. J.** Derivs of ammotriazine, P 2136*f*, ammoplasts, P 2467*e*, 4894*e*, cat alysts for ammoplasts, P 5230*b*, 5633*b*, catalyst for acid-curing thermosetting resins, P 5631*f*
and Rider, S H Thiourea modified hexamethylolmelamine P 2144.
**Scott, M. L.** See Damel, J I
, Heuser, G F, and Norris, L C Turkey nutrition using a purified diet 1088*d*, energy protein and unidentified vitamins in poult nutrition, 1088*e*
——— and Norris, L C Adequacy of human milk and artificial human milk for the rat, 5461*h*
**Scott, M. T.** See Graham, N P H
**Scott, N.** See Farmer, L M.
**Scott, N. D.** See Rogers, A O.
**Scott, N. W.** See Hass, G
**Scott, P. A. A.** See Atkinson, R O
**Scott, R B.** See Woolley, H W and Cook J W Simon type He hqueflet with transfer siphon, 2044*g*
**Scott. R. B., Jr.** Prevention of foaming in the concn of surface active agents, P 3638*i*
**Scott, R. L.** Soly of fluorocarbons, 3266*h*, thermodynamics of high-polymer solns (IV) phase equil in the ternary system - polymer liquid 1 liquid 2, (V) phase equil in the ternary system--polymer 1 polymer 2 solvent, 5273*h*
, Carter, W C, and Magat, M Vis cela for various synthetic rubbers, 3646*f*
**Scott, R. O.** See Mitchell, R L
**Scott, S. L.** Modified monoolefin CO polymers P 2816*g*; see Whitman, G M.
**Scott, T.** See Refiners Ltd
**Scott, T. R.** Source of error in the colorimetric estn of U, 6539*f*, see Dixon, P.
**Scott, Thomas R.** See Crooks, D A
**Scott, W.** Treatment of rubber, P 3650*d*
**Scott, W. D.**, and Roebuck, D S. P Chem structure and performance of detergents, 2002*h*
**Scott, W. J.** See Swann, C. P
**Scott, W. M.** Developments in cotton research at the Southern Regional Research Lab., 6829*g*.
**Scott, W. T.** Distribution of arc-chord differences in scattered particle tracks, 6505*e*; correlated probabilities in multiple scattering, 8845*a*; see Goudsmit, S. A.; Snyder, H. S.
——— and Snyder, H. S. Correlated probabilities in multiple scattering, 4096*a*.
**Scott Bader & Co. Ltd.** and Bryson, H. C. Synthetic resins, P 6863*e*.
**Scott Blair, G. W.** Rheological methods of control (I) industrial applications of rheology, 8750*c*
——— and Caffyn, J E. Application of the theory of quasi-properties to the treatment of anomalous strain-stress relations, 4509*i*
**Scott-Dodd, A.** Detn of poisonous metals (Cu, Pb, and Zn) in edible gelatin, 5510*g*
**Scotti, G.** Digestion and absorption of lipides (II) blood lipides after glyceride and bread administration, 2296*i*.
**Scotto, M.**, and Carandente, A. Metabolism of glycine (IV) transformation of glycine into oxalic acid, 9198*i*
**Ščoukina, L. A.** See Shchukina, L A
**Ščoukine, P A.** See Shchukin, P A.
**Scouloudi, H.** See Alexopoulos, K
**Scouten, C. E.** See Hector, L G
**Scoville, L. P.** See Watson, Claude W
**Scribner, A. K.**, and Wilder, F W. Resins from SO₂ and unsatd org. compds., P 1217*b*
**Scribner, B. F** Present status of quantitative spectrographic analysis, 5326*d*
**Scribner, B W.** Developments in testing of paper and paperboard 1185*f*
**Scrimshaw, M W.** See Scrimshaw, N S
**Scrimshaw, N. S.**, Goodland, R L., and Hutt F B Variation in the ascorbic acid blood level, 8173*i*
Porter W E and Scrimshaw, M W Distribution of thiamine in the embryonated hen egg (I) content of the whole embryo (II) content of the embryonic tissue, 7559*e*
**Scripture, E. W., Jr.**, and Litwinowicz, F I Air entrainment, 2751*d*
and Sokryd, C H Cor ast te of the th without metallic aggregate 2752*e*
**Scroggie, A E**, and Jaques, L B Release of histamine and heparin from the isolated perfused liver of the sensitized dog, 7574*h*
**Scroggin, P** See Day, P L
**Scroggins, F R** See Murray, M
**Scruby, R E.** See Tacher, J R
**Scudder, J.** See Turner, F P
**Scuderi, F** Adrenaline and agglutinins 5857*e*, glycerol and ketogenesis 8559*d*
and Piccolo P Acetone bodies in exudates and transudates 2694*b*
**Scuderi, G** Action of β-phenylisopropylamine in the human eye, 1772*e*, actions of amphetamine, ephedrine and adrenaline on the retinal arterial pressure, 6735*a*
**Scudi, J. V** See Duesel, B F
and Woodruff, H B Assay of penicillins 1815*a*
**Ščukarev, S. A** See Shchukarev, S A
**Scull, R. S** Stainless steel and Cr plating for the food industry 2706*i*
**Scully, S. A.** Disazo benzidine pigments, P 8178*b*
**Scupin, L.**, and Wiese, J v Storage of cabbage varieties in regard to morphological and analytical detns, 8070*d*
**Scuro, L. A.** See Malatesta, P.
**Scurti, F.** Cultivated soils of the Piedmont from the agricultural and soil chem standpoints, 3125*i*, differentiating ale vinegars from artificial vinegars 4422*h*, more biocatalysts for vegetation and some evils of large scale agriculture, 4803*d*, storage for feedstuffs, 5875*a*, frozen fruits and vegetables, 5878*g*, Piedmont's soils, 5891*b*, morg biocatalyzers of plants, 6287*b*
**Scurti, J.** Cytological and microchem characteristics of frozen cauliflower, 5878*h*, cytological and microchem characters of frozen spinach, 5878*i*, cytological and microchem characters of frozen asparagus, 5878*i*
**Scześ, T.** See Hertyk, K
**Sdanowski, A. B.** See Zdanovskii, A. B.
**Seabold, E. J.** See Copper, W. B.
**Seaborg, G. T.** Transuranium elements, 2083*g*, see Cunningham, B. B., Garner, C S; Meinke, W. W, O'Connor, P R, Perlman, I., Street, K., Jr.
———, Cunningham, B B., Hopkins, H. H, Lindner, M, Miller, D. R., O'Connor, P. R, Perlman, I., and Thompson, R C. Transmutation with high-energy He ions in the 184-in cyclotron, 4092*e*.

—— and Perlman, I. Table of isotopes, 3279*b*.

**Seabright, L. H.** Economy in electroplating with solder, 8999*a*.

**Seagram, J. E., & Sons, Inc.** Recovery of dextrins from stillage sirup, P 816*c*; clarifying mash, P 3144*d*, distn vapor loss detector, P 5236*f*, microbial fermentation of acid-hydrolyzed carbohydrate mashes, P 6782*a*.

**Séailles, J. C.** $SO_2$, alumina, and cements starting from $CaSO_4$ and materials contg alumina and silica, P 825*i*, dissolving crude Ca aluminates, P 1537*h*, manuf of cement and other products, 2395*e*, recovering $Al_2O_3$ and a residue rich in Fe from bauxites, P 4435*h*; manuf of Fe, Al, hydraulic cement, and other products, P 6143*d*.

**Sealock, R. R.** See Carter, H. E., Clegg, R. E.

—— and Davis, N. C. Activating effect of *m*-nitroaniline on thiamine destruction by the Chastek paralysis enzyme, 5056*f*.

—— and Goodland, R. L. Oxidation of L-tyrosine by guinea pig liver exts., 6249*e*.

—— and Livermore, A. H. Action of aminobenzylthiazolium salts on thiamine destruction by the Chastek paralysis enzyme, 5055*a*.

**Seaman, G. R.** Growth and lipide synthesis in *Colpidium campylum*, 8560*f*, tricarboxylic acid cycle in the ciliate *Colpidium campylum*, 8560*e*.

**Seaman, J.** Fat-splitting, 8177*e*, modern soap works, 9492*e*.

**Seaman, W.**, Hugonet, J. J., and Leibmann, W. Detn. of choline chloride and choline citrate, 1184*h*.

——, McComas, W. H., Jr. and Allen, G. A. Detn. of water by Karl Fischer reagent, 4975*e*.

**Seamless Rubber Co.** Adhesive for surgical tape, P 1610*i*.

**Searcy, A. W.** Strength of the H bond in water, 4527*e*.

**Searle, A. B.** Refractories for Furnaces, Kilns, Retorts, etc. (book), 1164*h*, Glazer's Book (book), 5561*i*, Clayworker's Handbook (book), 8632*h*.

**Searle, G. D., & Co.** Aminoalkyl 9,10-dihydroanthryl ketones, P 365*g*, aminoalkyl ethers, P 6671*e*.

**Searle, G. W.**, and Annegers, J. H. Correction of steatorrhea in bile fistula dogs, 7105*d*.

**Searle, H. E.**, Laque, F. E. and Dohrow, R. H. Metals in the prepn. of wines, 7188*h*.

**Searle, N. E.** Org. thiocyanates and isothiocyanates, P 3843*d*, (trichloromethyl)-bis(*p*-chlorophenyl)methane, P 4299*h*, ω-thiocyanoalkyl esters and insecticidal comps., P 5152*h*, see Arnold, H. W.

**Searle, O. M.** See Miller, Lila.

**Searle, V. H.** Physics Revision Course (book), 3278*h*.

**Searles, S., Jr.** See Arnold, R. T.

**Searls, F., Jr.** Geology and ore deposits of Goldfield, Nev., 73*g*.

**Sears, F. W.** Principles of Physics (book), 932*g*.

**Sears, G. W.** See Hopke, L. R.

—— and Hopke, E. R. Vapor pressure of benzotrifluoride, 1620*a*, vapor pressures of naphthalene, anthracene, and hexachlorobenzene, 6481*g*, vapor pressures of the isomeric trichlorobenzenes, 8225*a*.

**Sease, J. W.** Fluorescent silica gel mixts. in the chromatography of colorless compds., 1711*d*.

**Sease, V. B.** Du Pont's new color film, 7361*b*.

**Seastone, C. V.** See Fahlberg, W. J.

**Seath, D. M.**, Rusoff, L. L., Miller, G. D., and Branton, C. Sweet potatoes as feed for dairy cattle, 3946*f*.

**Seaton, D. R.**, and Lourie, E. M. Acquired resistance to proguanil in *Plasmodium vivax*, 4384*a*.

**Seaton, M. Y.** Finely powd. $C_2Cl_6$, P 5031*d*.

**Seavers, R.**, and Price, P. B. Effect and fate of blood transfusions, 8541*d*.

**Seay, W. A.**, and Weeks, M. E. Fractionation and properties of clays from the surface soils of the Pearman and Maury Series, 705*d*.

**Sebald, J. F.** Zeolite water softener, P 2720*b*; detn. of dissolved O in deaerated boiler feedwaters, 3546*a*; water clarifier, P 4406*g*.

**Seborg, R. M.** See Stamm, A. J.

**Sebrell, W. H.** Anemias caused primarily by malnutrition, 7561*e*; I—food essential, 8473*h*.

—— and Hundley, J. M. Anemia induced by indole in niacin-deficient dogs, 8470*i*.

**Secchi, G.** Detn. of vitamin E, 7069*h*; detn. of tryptophan in farinaceous foods, 7153*d*; detn. of amide-N in proteins, 7531*e*.

**Séchet, J.** Influence of vernalization on the carbohydrate content of cereal seeds, 4343*a*, see David, Roger.

**Sechet, M.** See Limasset, P.

**Sechkarev, A. V.** See Raskin, Sh. Sh.

**Sechter, A.** See Shekhter, A. B.

**Secker, J.** Influence of ovarian hormones on the transmission of the activity of the sympathetic nerves, 747*i*.

**Seckfort, H.** Metal olic and pharmacol. basis of intravenous choline therapy, 9268*e*, see Goebel, A.

**Secondi, A.**, and Calviño, C. Celosul factory for cellophane, synthetic cotton, and synthetic sponge, 7681*g*.

**Secor, G. E.** See White, Lawrence M.

**Secor, R. B.** Acid-activated clay, P 6403*g*, evaluation of catalysts for catalytic cracking, 8124*d*, see Gary, W. W.

**Secoy, C. H.** System uranyl sulfate-water (I) temp.-concn. relations below 300°, 1636*h*, see Ross, Sydney.

**Sédallian, P.**, and Bertove, A. Sensitivity of the incubated egg to diphtheria toxin and detn. of the $L_+$, $L_0$, and min. lethal doses, 8618*b*.

**Seddon, F.** See Blenkinsop, C. H.

**Šedenko, D.** See Kursanov, A. L.

**Šedivý, L.** See Šorm, F.

**Sedlak, V. A.** See Glasgow, A. R., Jr., Streiff, A. J.

**Sedletskiĭ, I. D.** See Samodurov, P. S.

**Sedlezki, I.** See Sedletskiĭ, I. D.

**Sedoff, A.** See Berman, S.

**Sedov, L. I.** Equations of kinetic of gaseous reactions, 6894*e*.

**Sedusky, H. J.** See Mohler, J. B.

**See, M. J.**, and Baibe, J. C. Gel catalyst, P 1930*b*.

**Seebeck, E.** See Stoll, A.

**Seebold, J. E.** Corrosion prevention, P 102*i*, temp. regulation in catalytic conversion, P 6819*e*, $C_2H$ polymerization process, P 8742*e*.

**Seebold, R. E.** See Kanagy, J. R.

**Seed, H. B.** Shrinkage of portland cement, 2393*d*.

**Seed, J. C.** See Sweet, W. H.

—— and McKay, E. A. Inhibition by piperidinomethyl-3-benzodioxan of adrenaline vasopressor blockade produced by dibenzyl-β-chloroethylamine, 5497*h*.

**Seedorf, R. F.** Felt-base material for adhesive attachment to surfaces and coating comps. for same, P 3242*e*.

**Seegal, B. C.** See Loeb, E. N.

**Seeger, D. R.** See Hultquist, M. E., Hutchings, R. L.

**Seeger, N. V.** 2-Chloromdone, P 7018*d*; see Anderson, L. C., Lichty, J. G.

**Seegers, W. H.** Two-stage prothrombin detn., 3870*e*, see Fahey, J. L.; Murphy, R. C., Patton, T. B., Ware, A. G.

—— and Ware, A. G. Prothrombin, 3481*i*, protein equil. reactions in blood clotting, 3867*e*.

**Seegman, I. F.** See Morris, R. E.

**Seegmiller, R.** See Brenner, Abner.

—— and Lamb, V. A. Reoxidation of trivalent Cr in chromic acid plating baths, 8901*e*.

**Seekles, L.**, and Havinga, E. Soln. of Ca borogluconate for injection, 1907*e*.

**Seel, F.** Regularities in substitution reactions with substituted benzenes and pyridine, 2589*d*; calcn. of the lowest singlet and triplet states of butadiene, hexatriene, and their isomers, 2863*i*, position of the second substitution in the benzene ring, 2966*d*, free C radicals and biradicals, 3773*f*, constitution and reaction mechanism of B hydrides, 4059*g*, light absorption of aromatic hydrocarbons, 4569*g*; theory of substitution in naphthalene and biphenyl, 4661*d*, application of valence theory to the problem of hydrocarbon biradicals, 6604*e*.

—— and Bauer, H. Electrolytes in liquid $SO_2$, 8935*g*.

**Seel, H.** Pharmacology, the bridge between medicine and pharmacy, 5503*f*.

**Seeler, A. O.** See Randall, R. V.

—— and Ott, W. H. Effect of deficiencies in vitamins and in protein on avian malaria, 1087*g*.

**Seeley, E. A.**, and Murex Ltd. Shaped articles of sintered metals, P 7402*i*.

**Seeley, J. G.** Response of greenhouse roses to O concns. in the substratum, 8014*b*.

**Seeley, M.**, and Noller, C. R. Constitution of chlorogenin, 1788*h*.

**Seeley, R. D.** See Leathem, J. H.

**Seeley, W. L.** Design and construction of Alaskan airfields, 7659*i*.

**Seelich, F.** Adsorption at the interface of 2 liquids (I) detn. of the adsorption from concd. solns. of surface-active substances according to the Gibbs equation, (II) interfacial tension between water and paraffin solns., 8250*g*.

**Seelig, R. P.** Heat-treatment of tool steels, 7883*f*.

**Seeliger, R.** Use of the electron microscope to study surface conditions of metals, 7879*i*.

**Seelkopf, K.** See Auterhoff, H.

**Seelmann-Eggebert, W.** Disintegration products of U (Ra, Rh, and Ag), 3286*i*; see Hahn, O., Hintenberger, H., Klemm, A.

—— and Gotte, H. At. fission, 2083*h*.

**Seelmeyer, G.** Prevention of rust damage and boiler scale in heating plants (II), 6138*h*.

**Seely, C. I.** See Erickson, I. C.

**Seely, D. H.** See McCay, R. C.

**Seeman, A.** See Benard, H.

**Seemann, H. J.** See Dudek, M.

—— and Dudek, M. Structure of the Mn-contg. phase in com. Al alloys, 1701*e*, electrode materials for elec. resistance welding, 8342*e*, testing of Al-Cu-Mg bonding sheets for Cu diffusion, 9011*e*.

**Seens, W. B.** See Grange, R. A.

**Seevers, M. H.** See Coehn, J., Moe, G. K., Woods, L. A., Wyngaarden, J. B.

**Seewann-Albert, H.** Raman spectra of some derivs. $ClCH_2CH_2COX$ of β-chloropropionic acid, 7345*b*.

**Segadas, R.**, and Bayma de Araujo, E. Cardiacea, 5862*i*.

**Segal, G.** Hops treatment, P 6782*i*.

**Segal, G. H.** Polymerization of 4-vinylcyclohexene dioxide, P 2817*b*.

**Segal, J.** Abnormal absorption of certain dyes in the far red region of the visible spectrum, 2864*h*, effect of the ionic dissocn. on the absorption of coloring materials in the red end of the visible spectrum, 3711*e*.

**Segal, L.**, Tripp, R. C., Tripp, V. W., and Conrad, C. M. Detn. of cellulose, 6411*e*.

**Segal, V.** See Simonnet, H.

**Segal, W.**, and Wilson, P. W. Hydroxylamine as a source of N for *Azotobacter vinlandii*, 4336*c*.

**Segaloff, A.** Metabolism of some chem. degradation products of estrogens—Westerfeld's lactone, bisdehydrodoisynolic acid, estrololactone, and β-estradiol, 8034*c*; effect of partial hepatectomy on activation of triphenylchloroethylene, 8036*h*.

**Segalova, E. E.**, and Rebinder, P. A. Structure mech. properties and thixotropy in oleocolloidal systems, 7779*e*.

**Segnit, E. R.** See Riley, D. P.

**Segond, R.** See Herenguel, J.

**Segool, H. D.** See Gilbert, E. E.

**Segrè, E.** See Hadley, J., Johnson, G. L.; Kelly, E. L.

—— and Helmholz, A. C. Nuclear isomerism, 5659*d*.

—— and Wiegand, C. E. Effect of at. electrons on the decay const. of $Be^7$, 3283*d*.

**Segretain, G.** See Drouhet, E.

**Séguin, M.** Magnetic study of diols and of their derivs., 4911*d*.

**Seguinot Robles, P.** See Childers, N. F.; Plank, H. K.

**Segura, M. A.** Catalyst for reduction of oxides of C with H, P 8076*g*, regeneration of sintered Fe catalyst, P 9420*b*, see Nicholson, E. W.

**Seguy, J. D.** Conversion of hydrocarbons, P 387*d*.

**Seibel, R. E.** See Dexter, L.

**Seibert, F. B.** See Lewis, M. R.

——, Pfaff, M. L., and Seibert, M. V. Serum polysaccharide in tuberculosis and carcinoma, 1100*b*.

——, Seibert, M. V., Atno, A. J., and Campbell, H. W. Protein and polysaccharide content of serums in tuberculosis, sarcoidosis, and carcinoma, 2695*f*.

**Seibert, H. F.** See Tabor, J. M.

**Seibert, M. V.** See Seibert, F. B.

**Seibert, W.** Kishner-Wolff-Staudinger reaction (I), 122*e*, (II), 1026*g*.

**Seidel** and Tauscher. Isothermal hardening, 5351*f*.
**Seidel, E.** Where do we [Germany] stand today on lithopone? 1195*g*.
**Seidel, M. P.** Influence of resin bonds on the water immersion stability of paper-base laminates, 8733*i*.
**Seidenberg, S.** See Fischer, Roland.
**Seidenfaden, W.** Diazotization, 595*f*, dyes, 7687*e*.
**Seidl, F.** Dispersing, colloidal, biol., and medicinal action of high-frequency sound, 5901*h*.
**Seidl, F. G. P.** Resonance scattering of neutrons by Co in terms of the Breit-Wigner equation, 5295*a*.
———, Harris, S. P., and Langsdorf, A. S., Jr. Resonance scattering of neutrons by $Mn^{55}$, 4091*c*.
**Seidl, R. J.** Resin-treated papers for plywood overlays and for honeycomb core materials, 1186*f*.
**Seifer, A. L.** Softening temps. of metal stearate oleogels, 8801*d*.
**Seifert, H.** Gliding of mica, 8313*i*; anomalous mix-crystal system cryolite–thenardite, 8787*e*; see Goubeau, J.
**Seifert, H. S.** See Tangren, R. F.
**Seifert, J.** Czechoslovakian plastics in dustry, 4509*f*.
**Seifriz, W.** Toxicity and the chem properties of ions, 8448*d*.
——— and Pollack, H. L. Colloidal interpretation of biol. stimulation and depression, 3932*i*; toxicity and mol structure of xanthines and barbiturates, 7591*d*.
**Seifter, J.** See Bruce, W. F., Ehrich, W. E., Warren, C. H.
**Seifter, S.** See Harkness, D. M.
———, Harkness, D. M., Rubin, L., and Muntwyler, E. Nicotinic acid, riboflavin, D-amino acid oxidase, and arginase levels of the livers of rats on a protein-free diet, 2297*h*.
**Seigel, L. G.**, Bryan, W. I., and Huppert, M. C. Heat-transfer rates for refrigerant boiling in horizontal-tube evaporators, 2475*g*.
**Seigle, L. L.** See Gagnebin, A. P.
**Seigmund, O. H.**, and Morrison, E. J. Amino acid therapy in canine practice, 7097*h*.
**Seikel, M. K.** Acetylation of 3,5 dichloro sulfanilamide, 601*e*.
**Seiler, C. J.** See McLaren, A. D.; Skow, N. A.
——— and McLaren, A. D. Theories of adhesion as applied to the adhesive properties of high polymers, 2029*h*.
**Seilert, J.** See Schmitt, J.
**Seim, H. J.**, and Holt, M. L. Attempts to electrodeposit Ta, 6023*d*.
**Seimiya, M.** Sakurai, Y.
**Seip, J. J.**, and Keller, A. G. Declining sugar recovery in La., 7243*a*.
**Seiter, K. W.** See Meschter, E. E.
**Seith, W.** Analysis of recast Al for traces of Cd, Ni, Pb, and Sn, 3743*d*.
**Seits, I. F.** K and $NH_4$ ions in the transfer of phosphate from phosphopyruvic acid to the adenylic system, 6281*f*.
——— and Engel'gardt, V. A. Pasteur effect and phosphorylation, 7063*e*.
**Seitz, A.** See Fricke, R., Schubert, K.
**Seitz, F.** Contribution of modern physics to metallurgy, 979*h*, theory of vacancy diffusion in alloys, 1622*e*, see Falk, C. E.; Markham, J. J.
**Seitz, K.** See Buchi, G.
**Seitz, W.** Detn. of total serum protein content, 3485*e*.
——— and Vogel, K. Pptn. of serum proteins with Congo blue and Congo violet, 9236*e*.
**Seivard, L. L.** See Southwick, P. L.
**Sejersted, G. W.** Oljen, jordens flytende guld (book), 3603*h*.
**Sejersted, J.** See Sem, M.
**Sejncis, O. G.** See Sheintsis, O. G.
**Séjourné, T.** See Fromageot, C.
**Sekera, A.** See Chabrier, P.
**Seki, S.** See Chihara, H.
**Sekigawa, J.** App. for making salt, P 6477*b*.
**Sekino, M.** Detn. of As in Fe and steel, 7865*f*.
**Sekiya, M.**, and Imaida, M. 2-Methyl-4-amino-5-(acylaminomethyl)pyrimidine, P 6673*h*; *N* (4-amino-2-methyl-5-pyrimidylmethylene)-4-amino-2-methyl-5-pyrimidylmethylamine, 7051*g*, 2-methyl-4-amino-5-(hydroxymethyl)pyrimidine, 7051*h*; 2-methyl-4-amino-5-pyrimidinecarboxaldehyde, 7051*i*.
**Sekisawa, Y.**, and Ozawa, I. α-(Chloromethyl)naphthalene, P 7511*c*.
**Sekora, A.** See Kratky, O.
**Selas Corp. of America.** Annealing furnace for continuous strips, sheets, wires, etc., P 3340*a*; SiC refractories, P 4441*g*; firing of kilns to produce glasslike surfaces on work pieces, P 7657*c*.
**Selbach, H.** See Mehring, E.; Peters, G.
——— and Trappe, W. Detn. of very small amts. of free and esterified cholesterol in cerebrospinal fluid in different nervous and mental diseases, 9139*d*.
**Seldin, D. W.** See Sims, E. A. H.
**Selegari, A.** See Ferrari, Adolfo.
**Seletkova, N. I.** See Shvedov, V. P.
**Seleznova, N. A.** See Bresler, S. E.
**Self, A. D. H.** See May & Baker, Ltd.
**Self, E. S.** Oil-base drilling fluid, P 3185*g*, see Dyke, M.
**Seligman, A. M.** See Ashbel, R.; Fieser, L. F.; Friedman, O. M.; Gibson, J. G., 2nd; Manheimer, L. H.; Nachlas, M. M.; Sack, T.
———, Frank, H. A., Alexander, B., and Finc, J. Traumatic shock (XV) carbohydrate metabolism in hemorrhagic shock, 6720*a*.
———, Gofstein, R., and Rutenberg, A. M. Prepn. of a radioactive iodotetrazolium salt and its distribution, 8060*h*.
——— and Manheimer, L. H. Histochem demonstration of acid phosphatase, 7996*d*.
———, Rutenburg, A. M., and Friedman, O. M. Distribution studies following the intravenous injection of diethyl β-iodoethyl amine HCl prepd. with radioactive I, 8059*e*.
———, Shear, M. J., Leiter, J., and Sweet, B. Chem. alteration of polysaccharide from *Serratia marcescens* (I) tumor necrotizing polysaccharide tagged with radioactive I, 6736*g*.
**Seligman, B.** See Anderson, R. B.
**Seligman, H.** Application of radioisotopes in industry, 5513*c*.
**Seligman, H. M.** See Shils, M. E.
**Seligmann, E.**, and Wassermann, M. Action of chloromycetin on *Salmonella*, 6734*c*.
**Selkirk, R. C.** See Robinson, R. A.
**Selkurt, E. E.**, Hall, P. W., and Spencer, M. P. Response of renal blood flow and clearance to graded partial obstruction of the renal vein, 7116*a*.
**Sell, H. M.** See Lucas, E. H., Luecke, Richard W.; Sarkar, B. C. R.
———, Johnston, F. A., Jr., and Lagasse, F. S. Changes in chem. compn. of tung fruit and its component parts, 2279*d*.
———, Luecke, R. W., Taylor, B. M., and Hamner, C. L. Changes in chem. compn. of the stems of red kidney bean plants treated with 2,4 dichlorophenoxyacetic acid, 4735*b*.
———, Taylor, B. M., and Miller, E. J. Fatty acids of the fat from a N. American black bear, 879*g*.
**Sell, H. S.**, and McCutcheon, R. J. Impact resistant resin-rubber blends, 892*f*.
**Sell, K.** See Bohme, H.
**Selle, W. A.** Liver tumors, 8518*c*.
**Sellei, C.** See Fischer, A.; Gráf, F.
———, Fischer, A., and Weisz, R. Kidney tubules in pathology (I) physiology of tubulary resorption, 9218*c*.
——— and Németh, L. Effect of mustard gas on cancer, 8548*f*.
——— and Weisz, R. Kidney tubules in pathology (II) pathology of tubular function, 9218*e*.
**Sellerio, A.** Fisica tecnica. Vol. I. Termodinamica (book), 6904*g*.
**Sellers, D. M.** See Samuels, L. T.
**Sellers, E. A.** Effect of lipotropes on cirrhosis, 2696*e*, dietary factors and hepatic injury, 9195*b*.
**Sellers, F. B.** Catalytic conversion of hydrocarbons from CO and H, P 4448*a*.
**Sellers, J. E.**, and Davis, J. L. Organo Si compds., P 1051*b*.
**Sellers, J. P., Jr.** Influence of earth's gravitation on the requirements of the vertical trajectory rocket, 833*f*.
**Sellers, K. C.** See Eden, E.
——— and Alexander, F. Fate of sulfonamide, Na sulfacetamide, in the incubating egg, 1473*d*.
**Sellier, H.** Colloidal constitution of caramel solns., 7781*f*.
**Sello, H.** Kinetics and mechanism of pinacol rearrangements, 8815*d*.
**Selmeczi, B.** Metallurgical expts. with bauxite, 8997*d*.
**Selms, F. G. K. van.** See Kreulen van Selms, F. G.
**Selton, B.** See Childs, A. F.; Goldsworthy, L. J.
**Seltzer, B.** See Beck, L. V.
**Selverstone, B.** See Solomon, A. K.; Sweet, W. H.
——— and Solomon, A. K. Radioactive isotopes in the study of intracranial tumors, 9232*e*.
**Selwood, J. L. B.** Rocket-motor cooling design, 1619*h*.
**Selwood, P. W.** Structure of solid catalysts and the phenomenon of valence induction, 6807*e*, see Hill, E. N.; Spooner, R. B.
———, Eischens, R. P., Ellis, M., and Wethington, K. Disperse structure of Mn oxides and a magnetic method for studying depolarizer action in the Leclanché cell, 8917*a*.
———, Ellis, M., and Wethington, K. Supported oxides of Fe, 8831*g*.
———, Moore, T. E., Ellis, M., and Wethington, K. Supported oxides of Mn, 5654*b*.
**Selye, H.** Hypertension as a disease of adaptation, 6717*a*, see Berman, D., Henriques, O. B., Henriques, S. B.; Moya, F.; Skelton, F. R.
——— and Stone, H. Influence of methyltestosterone on the endocrine kidney, 5843*e*, influence of the diet on the nephrosclerosis, periarteritis nodosa, and cardiac lesions produced by the endocrine kidney, 8043*d*.
**Sem, M.**, Sejersted, J., and Bockmann, O. Development of the Soderberg system in Al furnaces, 45*e*.
**Semat, H.** Physics of the Modern World (book), 6904*g*.
**Semb, J.** See Angier, R. B., Hutchings, B. L.
**Semechkina, A. F.** See Shorygina, N. N.
**Semegen, S. T.** Curing acrylic ester polymers, P 442*f*.
**Semenchenko, V. K.** Mol. theory of surface phenomena in solns. (II) adsorption in multicomponent systems, 6884*f*.
——— and Shakhparonov, M. I. General equation of solv. (II), 1241*f*.
**Semendyaev, A. F.** See Kogan, L. S.
**Semenenko, N. A.** See Rebinder, P. A.
**Semeniuk, G.** See Gilman, J. C., Illman, W. J.
**Semenkovich, Yu. A.** See Moiseev, A. A.
**Semenov, N.** Liquids for hydraulic brakes of automobiles, 1790*g*.
**Semenova, N. V.** Effect of N on the structure and properties of steel EI 319, 2912*i*.
**Semenova, V. A.** See Shaposhnikov, V. N.
**Semerano, G.**, Riccoboni, L., and Foffani, A. Chem. kinetics of autoxidation processes in the dil. phase (I), 8823*f*.
**Semik, I. P.** Viscosity of blast-furnace slag of the North West plant, 4196*d*.
**Semikin, I. D.** See Polovchenko, I. G.
**Semina, L. A.** See Mardashev, S. R.
**Semishin, V. I.** Manual of General Chemistry (book), 5278*a*.
**Semmens, C. S.** Theory and technique of cyto microchemistry (III), 3071*a*.
**Semmens, E. S.** Hydrolysis of starch grains by polarized infrared radiation, 5979*i*.
**Semon, A. L.** Air-filtering device for pneumatically operated tools, P 6009*h*.
**Semon, W. L.** High vacuum distn. app. for *film* distn. of vitamin and pharmaceutical oils, P 3572*g*, α-cyano esters, P 4288*g*.
**Semonský, M.** See Ettel, V.
**Semoto, S.** Ink for mimeographing, P 7239*f*.
**Semovskikh, O. L.** See Sukhenko, F. T.
**Sempels, G.** Analysis of traces in nonferrous metals—applications of the spectrographic method after chem. concn., 2546*e*.
**Sempere, J. H.** See Miller, Lila.
**Sempio, C.** Enzymic activities during bean rust, 1463*c*, resistance against *Oidium* produced by Cd on wheat plants, 1463*d*, isomerization of carbohydrates and the development of bean rust, 1463*f*.
**Semple, W. L.** Detn. of wool damage, 2438*g*.
**Semprún de la Quintana, J.**, and Tobío, J. M. Fleece oil in Spain (II) projected industrial installation, 4875*h*.
**Sen, A.** See Sen Gupta, U. N.
**Sen, A. B.**, and Bhargava, P. M. Insecticides (I), 1895*h*; synthesis of substituted dinitrophenyl ketones and phenylacetic acids (III), (IV), 2183*i*; (V), 7452*g*.
——— and Joshi, K. C. Org. fungicides (I) synthesis of dibromoacetamides, 6975*g*.
——— and Misra, V. S. Fries rearrangement (I), 2187*b*.
——— and Sidhu, G. S. Synthesis of piperidine derivs. (II), 4674*d*; synthesis of 4-quinazolinols (I), 4675*i*.

**Sen, B. N.** Physicochem. evidence of the bivalency of Ag, 10*a*; formation of Liesegang rings in the presence of ppts., 1628*h*; reduction of $KClO_3$ by hypophosphorous acid, 1672*h*; detg. glucose, 1688*d*; oxidation of carbohydrates by a mixt. of borax and $HgCl_2$, 1729*g*.
**Sen, D. L.** See Karnik, M. G.
**Sen, D. N.** See Ray, P.
**Sen, K. C.**, and Dastur, N. N. Milk and milk products in India, 3943*b*.
**Sen, K. S.** See Talapatra, S. K.
**Sen, N. C.** See Murty, G. V. L. N.
**Sen, N. K.** N metabolism in rice leaves, 2279*f*.
**Sen, N. R.**, and Burman, U. R. Compn. of stars of small masses, 3289*g*.
**Sen, R.** See Chakravarty, K. M.
**Sen, R. K.** Extra reflections from $NaClO_3$ single crystals, 6484*c*.
**Sen, S.**, and Das-Gupta, H. N. Recovery of elementary S from fuel gases, 4833*e*.
**Sen, S. N.** Structure of anthraquinone, 2484*i*; see Das, B. M.
**Sena, L. A.** Collisions between Electrons and Gaseous Ions and Atoms (book), 8283*d*.
**Senatoroff, N. K.** Application of external corrosion mitigation methods to a high pressure natural-gas-transmission line, 99*a*.
**Senba, T.**, Fuchino, H., and Aoe, I. Reclaimed rubber for the insulation of outdoor telephone wires, 2021*b*.
**Sen Chaudhury, P. K.** See Chaudhury, P. K. S.
**Sendai Manufg. Co.** Heat- and elec.-resistant alloy, P 656*3g*
**Sendai Sesakeyo K. K.** Same as Sendai Manufg. Co.
**Senderikhina, D. P.** Detn. of acrolein in air, 1289*h*.
**Senderoff, S.** See Brenner, Abner
**Senent, S.** Same as Senent Perez, S
**Senent Pérez, S.** See González Barredo, J. M.
**Seneviratne, R. D.** Redistribution of body fluids in dysenteric toxemia, 6302*i*
**Senftle, F. E.** Effect of K in prospecting for radioactive ores, 937*i*.
**Senftleben, H.**, and Gladisch, H. Effect of elec. fields on heat transfer in gases, 6068*f*, heat transfer in gases between coaxial cylinders, 6902*i*; detn. of the sp. heat, the internal friction, and the thermal cond. of gases, 6903*a*.
**Sen-Gupta, P.**, Chakraborti, K. K., and Bhattacharyya, B. K. Synthesis of the diethyl ester of the dicarboxylic acid, $C_{19}H_{30}O_4$—degradation product of the sesquiterpene, guaiol, 2584*h*
**Sen Gupta, R.** Man-made fibers, 3201*g*.
**Sen-Gupta, Ranajit.** See Dutta, J
——— and Dutta, P. C. Cyclopentane series (III) synthesis of Wieland's $C_{19}$-acid in proper stereochem. forms, 7911*e*.
——— and Palit, S. R. K. persulfate initiator of polymerization in soln., 8199*b*.
**Sen Gupta, S. B.** Compn. of Kurchi Bi iodide, 8094*f*
——— and Das, B. K. Specification of Indian medicinal plants (I) asafoetida-*Ferula foetida*, 2736*b*.
———, Dutta, A. P., and Banerjee, S. Specification of Indian medicinal plants (II) *Andrographis paniculata*, 3565*g*.
——— and Gupta, H. N. Specification of Indian medicinal plants (III)—kaladana (*Ipomoea hederacea*), 3565*g*; (IV) *Aloe vera*, 5542*c*; soly. of riboflavin in water, 8102*d*; decompn. and prepn. of ascorbic acid soln. for parenteral use, 8610*e*.
**Sen Gupta, S. R.**, Saxena, B. B. L., and Mukerjee, A. N. Coir fiber—structure and identification of damage, 5595*c*.
**Sen Gupta, U. N.**, Sen, A., Ukil, A. C., and Viswanath, B. Indian soils (VI) depth distribution of water sol. salts in the profile, 9311*c*.
**Seniff, R. W.** Foaming and carry-over in boilers, 1128*f*.
**Senior, G. A., Jr.** Sulfonic acid-catalyzed oil-sol. phenol-aldehyde resins, P 9526*d*.
**Seniów, S.** See Bojanowski, J.
**Senjawin, M. M.** See Senyavin, M. M.
**Senkus, M.** Nitroalkylcyclic amines, P 813*a*; 5-nitrotetrahydro-1,3-oxazines, P 1068*g*; 2-nitro amines, P 5424*g*; pure alkali metal salts of penicillin, P 5553*c*.
**Sensel, E. E.** See Beck, R. A.
**Sentell, G. W., Jr.** See Hurd, D. T.
**Senter, G. W.** See Hill, C. M.
**Senti, F. R.**, and Warner, R. C. X-ray mol. wt. of β-lactoglobulin, 1623*c*.
**Sentien, P.** Production of multinucleated unsegmented triton eggs by influence of antimiotic substances, 5873*f*.
**Sentjurin, G. G.** See Sentyurin, G. G.
**Sentyurin, G. G.** See Kitalgorodskiĭ, I. I.
**Senyavin, M. M.** Chromotographic adsorption analysis, 7859*d*.
**Senyota, N. K.** See Bezuglyĭ, D. V.
**Seoane, E.** See Ribas Marqués, I.
**Sépéleva, E. S.** See Shepeleva, E. S.
**Seppelin, D. K.** See Hoppe, J. O.
**Seppilli, A.** F and teeth caries, 1482*a*; hypofluorosis from the hygienic point of view—importance of F for the hygiene of the teeth and skeleton (I), 9217*e*.
———, Levi, P., and Fontana, W. Hypofluorosis—importance of F for the hygiene of the teeth and skeleton (II) F and *Lactobacillus acidophilus* in the mechanism of production of dental caries, 9217*f*.
**Sepulveda, M.**, Munoz, C., and Mardones, J. Effect of atropine and papaverine on the contractions of isolated rabbit intestine induced by cardiac glycosides, 5872*f*
**Sequeiros, C.** Same as Sequeiros Bores, C.
**Sequeiros Bores, C.** H by fractionation of gases, 7651*a*; see Garcia Gonzalez, F.
**Serafini, U.** Hyperpotassemia and K content of ascitic fluid, 2312*g*.
**Serbenyuk, Ts. V.** See Smirnov, G. D.
**Serber, R.** Beam dynamics in the linear accelerator, 4093*b*; see Fernbach, S.
**Serbina, N. N. S.** See Serb Serbina, N. N.
**Serb-Serbina, N. N.**, and Rebinder, P. A. Structure formation in aq. suspensions of bentonite clays, 5257*i*.
**Serchi, G.** See Poggi, A. R.
**Serdiutschenko, Serdjutchenko.** See Serdyuchenko, D. P.
**Serdyuchenko, D. P.** Chem. constitution of chlorites, 524*d*, chem. constitution of saponites and chloropheites, 2899*e*, chem. compn. and constitution of Mn andalusite, 6119*f*; chlorites from the diabases of Timan, 6120*h*
**Serebrennikov, N. N.** See Gel'd, P. V.
**Serebrennikova, T. A.** See Berlin, A. Ya.
**Serebryakov, A. M.**, and Berezina, V. A. Increasing the fastness of wool fibers to the action of light and weather, 3622*h*.
**Serembe, M.** See Santi, R.
**Seren, L.** See Vought, R. H.
———, Friedlander, H. N., and Turkel, S. H. Radio isotope of Ta produced by slow neutron irradiation, 4090*i*.
**Serfass, E. J.** See Chamberlin, A. C., Theis, E. R.
——— and Levine, W. S. Detn. of impurities in electroplating solns. (X) traces of Al in Ni-plating baths, 2803*c*.
———, Levine, W. S., and Davis, R. M. Detn. of impurities in electroplating solns. (XI) traces of $NH_4$ in Ni plating baths, (XII) traces of Cr in Ni plating baths, 4148*f*.
———, Levine, W. S., Prang, P. J., and Perry, M. H. Detn. of impurities in electro plating solns. (XIII) traces of Zn in Ni plating baths, 8904*a*.
———, Wilson, C. D., and Theis, E. R. Spectrophotometric investigations of Cr salts (V) penetration compds. formed with acetic, hydroxyacetic, monochloroacetic, and aminoacetic acids, 8883*c*
**Serfaty, A.** See Kaswin, A.
**Sergaeva, L. I.** See Topchiev, A. V.
**Sergeant, S. V.** Foam in the paper mill—frothing of wood pulp suspensions, 8679*e*
**Sergéef.** See Sergeev.
**Sergeev, G. K.** Superchlorination of snow water, 1886*i*.
**Sergeev, S. V.**, and Polyak, E. V. Viscosity of Al alloys, 1701*h*.
**Sergeeva, Z. I.** See Zakharova, A. I.
**Sergeiva, Z. I.** See Sergeeva, Z. I.
**Sergejev.** See Sergeev.
**Sergent, A.** See François, M. T.
**Sergent, Edmond**, and Sergent, Étienne. Toxicity of DDT for mice and rats, 347*f*.
**Sergent, Étienne.** See Sergent, Edmond
**Serger, H.** Tin-free cans for vegetable and fruit preserves, 7603*a*.
**Sergienko, S. R.**, and Zelinskiĭ, N. D. Catalytic reactions of 2-o-tolyl-2-butene, 5012*d*.
**Sergievskaya, S. I.**, and Lipovich, I. M. Prepn. and structure proof of β-(1-ethoxy-5,6,7,8 - tetrahydro - 4 - naphthoyl)propionic acid, 2195*g*.
——— and Mamiofe, S. M. 4-Nitro-5,6,7,8-tetrahydro - 1 - naphthalenecarboxylic acid and some of its derivs., 202*b*; 3-nitro- and 3-amino-5,6,7,8-tetrahydro-1-naphthalenecarboxylic acids, their simplest derivs. and alkylamino esters, 202*f*; 4-nitro- and 3-nitro-5,6,7,8-tetrahydro-1-naphthalenecarbothiolic acids, their derivs., and alkamino esters of 4- and 3-amino-5,6,7,8 - tetrahydro - 1 - naphthalenecarbothiolic acids, 6192*g*.
**Sergueff.** See Sergeev.
**Serguijevskaja, S. J.** See Sergievskaya, S. I.
**Seriff, A. J.** See Leighton, R. B.; Robertson, W. W.
**Serijan, K. T.**, Hipsher, H. F., and Gibbons, L. C. *o*-, *m*-, and *p*-*tert*-Butyltoluenes, 4234*a*.
———, Wise, P. H., and Gibbons, L. C. Phys. properties of five isomeric methyl *tert*-butylcyclohexanes, 6989*c*.
**Serin, F.** Cyanogen compds. from amino acids as a factor in chloramine-T poisoning, 5114*h*; see Alwall, N.
**Serles, E. R.** See Lehning, F. E.
**Sermattei, J. P.** See Murphy, C. G.
**Sernagiotto di Casavecchia, E.** Dai miti alla bomba atomica (book), 4582*c*, $SO_3$, P 8110*a*, 8623*d*.
**Serniuk G. E.** Emulsion polymerization, P 2819*f*.
**Serono, C.**, and Di Montezemolo, R. Accelerator substances in exptl. production of tumors with benzopyrene, 750*c*.
**Serpinskiĭ, V. V.** See Bering, B. P.
**Serra, A.** Coloring principles in colored minerals, 6116*g*; spectroscopic study of colored mineral F compds., 7381*b*; augitic andesite from Otistano, 7874*b*.
**Serrano, E. S.** See Sánchez Serrano, E.
**Serrano, J., Jr.** See Othmer, D. F.
**Serrano, J. N.** See Novales Serrano, J.
**Serrano, M.** Formation of nicotine in the genus *Nicotiana*, 1463*h*; formation of alkaloids in the *Nicotiana* species (II) roots as the site of nicotine formation in tobacco plants, 3891*c*; see Percllo, J. M.; Schmid, H.
**Serri, F.** Influence of *p*-aminobenzoic acid on the growth of some dermatophytes, 1826*e*; flocculation reaction with Mazzini's cholesterolized antigens in serodiagnosis of syphilis, 3915*g*, antidiffusion activity of synthetic antihistaminics, 3927*h*.
**Sertl, B. J.** See Fletcher, J. H.
**Servadei, A.**, and Martelli, M. CaCN$_2$ and DDT for controlling *Hoplocampa brevis*, 6355*d*.
**Servais, P. C.** See Young, C. W.
**Servant, M.**, and Valantin, G. Fat acid compn. of the solid and liquid glycerides of palm oil, 4031*g*.
**Servantie, L.** See Paget, M.
——— and Chaboux, R. Male toad and male frog as test objects in the diagnosis of pregnancy, 4357*d*.
**Servel, Inc.** Device for injecting measured quantities of HCl to make-up water in water-cooling towers, P 3250*g*.
**Servigne, M.** Several luminous sources for absorption, 2514*i*.
———, Pinta, M., and Montgareuil, P. G. de. Detn. of vitamin A in oils, 3055*b*.
**Seshacharyulu, E. V.** See Dhar, N. R.
**Seshadri, T. R.** Flavones in plant drugs, 771*i*; nuclear oxidation in the flavones and related compds. (XIII) discussion of results, 3823*f*, coloring matter of *Tambul* seeds, 7092*a*; see Balakrishna, K. J.; Krishnamurti, G. V.; Murti, V. V. S., Narasimhachari, N.; Rajagopalan, S., Rao, G. S. K., Rao, K. Venkateswara, Rao, K. Visweswara; Rao, P. R.; Row, L. R.
——— and Venkateswarlu, V. Synthesis of 5-hydroxyflavonols, 1407*f*.
**Seshagiri Rao, P.**, and Giri, K. V. Mechanism of β-amylase inhibition by vitamin C, 2655*c*.
**Sessa, F. B.** See Coppa, S.
**Sessions, F. L.** See Henning, L. G.
**Sestier, M. R.** See Mercier, F.
**Seta, K.** See Maruta, K.
**Setälä, K.** Effects of radiation on the mobile visible lipides in human blood, 4311*i*; tumor production with polyethylene glycols as carriers for carcinogenic hydrocarbons, 5108*g*; influence of androgen and estrogen administration on chemically induced albino rat sarcoma, 5489*f*; fluorescence studies on carcinogens dissolved in ethylene glycols, 8525*c*; see Ekwall, P.
**Seth, B. D.**, Biswas, B., and Dhingra, D. R. Kaus in the manuf. of paper and allied products, 2768*i*.
**Sethna, K.** See Bhat, J. V.

—— and Bhat, J. V. Irradiation for preserving mawa, 6327e.
Setin, Hall & Co. Coated printing paper, P 4014g.
Setkina, O. N. See Gol'dfarb, Ya. L.; Ravikovich, Kh. M.
——, Danyushevskiĭ, Ya. L., and Gol'dfarb, Ya. L. Ultraviolet absorption spectra of some derivs. of pyridine and nicotine (II), 4137i.
Setkina, V. N. See Kursanov, D. N.
—— and Kursanov, D. N. Exchange reactions and cleavages of the quaternary $NH_4$ salts (II) reaction of quaternary $NH_4$ salts of type $ROCH_2N$-X with carboxylic acids and their salts, 6161h.
Setkowicz, W. Regeneration of cresol from cresol waters, 3601e; production of normal ligroin, 4839i.
Sette, D. Ultrasonic lenses of plastic materials, 7747c; absorption of ultrasonic waves in liquids, 7765a
Setter, L. R., Price, F., Grossman, C., and DeGrazia, C. Photoelec estn. of suspended solids in sewage, 8079a.
Setterlind, A. N. Aspirating device for Natl. Bur. of Standards CO indicating tubes, 5646i.
Settle, J. See Hansch, C.
Setzkorn, E. A. See McKinney, L. L.
Seubold, F. H. See Rust, F. F.
Seurin, G. Principles and accomplishments of infrared technique, 8756g
Sevag, M. G. See Gots, J. S.; Steers, E.; Straughn, W. R.
—— and Gots, J. S. Enzymic studies of the mechanism of the resistance of pneumococcus to drugs (II) inhibition of dehydrogenase activities by drugs—antagonistic effects of riboflavin to inhibitions, (III) alteration in enzyme proteins assocd. with the development of resistance to drugs, 2672g
Sevast'yanov, N. G., Zhdanov, G. S., and Umanskiĭ, M. M. Crystal structure of dinitronaphthalenes (III) structure of the 1,5 - dinitronaphthalene crystal ($C_{10}H_6N_2O_4$), 1236h.
Sevchenko, A. N. Luminescence of uranyl glasses and crystals, 5671d, see Sverdlov, Z. M.
Ševčík, A. Oscillographic polarography with periodical triangular voltage, 953f
Sève, R. Brightness of papers, 3614h
Severac, M. See Raizss, G. W.
Severi, R., and Bergamini, L. Influence of ascorbic acid on anaphylactic shock and histamine shock, 2305c
Severin, C. F. Biology (book), 3867i.
Severin, H. Absorption spectra of some hydrated Er salts, 5301a, absorption spectrum and radiation fields of the $Ho^{+++}$ ion in solid salts—spectrum of solid Er sulfate, 6917h.
Severin, I. S. See Botvinnik, M. M.
Severin, S. E. See Mitrofanov, P. P.
Severocceske Tukove Zavody Rarodri Podnik. Purification of alkyl sulfonates, P 6844i.
Severy, C. L., Kline, M. H., and Allsman, P. T. Thompson Mg well, Grand Co., Utah, 6952g
Sevick, J. See Brewer, G. E. F.
Sevón, J. W. Furfural, P 4424b
—— and Sundman, F. V. Cl and $ClO_2$ from solid chlorates, P 6377f
Sevringhaus, E. L. See Randall, L. O.
Seward, J. M. See Hill, H. B.
Sewell, D. C. See Cook, L. J.
——, Henrich, L., and Vale, J. Operating phenomena assocd. with the 184-in. cyclotron, 4092d.
Sewell, P. See Hawking, F.
Sewerin. See Severin.
Sexl, T. Vorlesungen über Kernphysik (book), 3296d.
Sexton, A. R., and Britton, E. C. Synthesis and identification of propylene glycol Ph ethers, 1348c.
Sexton, G. E. W. Oils, fats, and surface-active agents, 4595f.
Sexton, W. A. Prevention and destruction of weeds, P 6778c, see Ainley, A. D.; Davies, W. H.
—— and Imperial Chemical Industries Ltd. Prevention and destruction of weeds, P 2734a; (2,4,5-trichlorophenyl)acetic acid, P 7046e.
——, Slade, R. E., and Templeman, W. G. Prevention and destruction of weeds, P 1526e.
——, Slade, R. E., Templeman, W. G., and Imperial Chemical Industries Ltd. Prevention and destruction of weeds, P 1904d.
—— and Spinks, A. Hydroxymethyl deriv. of 2-mercaptobenzothiazole, 1767d.
——, Templeman, W. G., and Imperial Chemical Industries Ltd. Destruction of weeds, P 1904c.
Seydel, P. V. Cotton warp sizing (XX), 1571e; (XXI), 4018e; Cotton Slashing (book), 8689d.
Seyer, W. F., and Yip, C. W. Conversion rate of *cis*- to *trans*-decahydronaphthalene, 3271g.
Seyfried, W. D. Removal of catalyst poisons from steam, P 7950g, synthesis, properties, and identification of S compds. in petroleum, 8123h, see Anderson, J. A., Jr., Thomas, B. W.
Seyfried, W. R. Extn. of $Al_2O_3$ from clay, 1531r.
Seyler, C. A., and Edwards, W. Coal petrography, 5922.
Seymour, D. See Jacobs, P. L.
Seymour, D. E. See Goodacre, C. L., Herts Pharmaceuticals Ltd., Oberwerger, K. H.
Seymour, G. W., and Duke, M. Lubrication and conditioning of cellulosic textile materials, P 8694a
—— and Salvin, V. S. 4-Chloro-3-nitrobenzenesulfonamide, P 5042d, treatment of a polynitrohydroxyanthraquinone with a primary amine, P 9468a.
——, Salvin, V. S., and Heserman, C. F. Anthraquinone dyes, P 8162i
——, Salvin, V. S., and Jones, W. D. Dye, P 8143f
——, White, B. B., and Barabash, E. Mixed satd.-unsatd. esters of cellulose, P 1979c.
——, White, B. B., and Bellucci, A. J. Ripening and stabilizing of cellulose esters, P 5592b
Seymour, H. J. Irish meteorites in the National Museum, Dublin, 6122g.
Seymour, R. B. Rubber accelerators, P 2024f, copolymers of fumarodinitrile and styrenes, P 4516f, copolymerization of piperylenes and unsatd. nitriles, P 4897f, vinyl ester compns. contg. colloidal silica, P 5229b, polyvinyl acetals contg. colloidal silica, P 5632h, methacrylate compns. contg. colloidal silica, P 5634e, vinyl aromatic polymers contg. colloidal silica 5636e, see LeMaistre, J. W.
——, Agnew, W., Crumley, J. A., and Kelly, A. J. pH control of dyeing, 411a
—— and Branum, I., Jr. Surface reactions of copolymers—methyl methacrylate and α,β-unsatd. carboxylic acids, 8202e
——, Branum, I., Jr., and Hayward, F. W. Surface reactions of copolymers—methy methacrylate and maleic anhydride, 8202b
—— and Butler, J. M. Copolymers of vinyl aromatic compds., P 7753h.
——, Harris, F. F., Jr., and Branum, I., Jr. Copolymers of vinyl compds. and maleic anhydride, 8202h.
—— and Schroder, G. M. Bonded fabrics, 4470h.
Seymour, W. G. See Gunn, D. L.
Seymour, W. L. See Quinn, A.
Seysenegg, A. v. T. See Tschermak-Seysenegg, A. v.
Sezary, A. Dermatologie (book), 6305g
Sfiras, J. Lavender research and its industrial applications, 4427c
Sfortunato, T. See Steele, R.
Sforza, M. Trichloroacetic acid as a means to demonstrate agglutinability and specific antigenic power of *Brucella paramelitensis*, 9152i.
Shabaker, H. A. Acid-activating kaolin clay, P 8129g
——, Mills, G. A., and Denison, R. C. Clay catalysts, P 4843a.
Shabalin, K. N. See Averbukh, Ya. D.
Shabanova, M. V. Thiamine and its fractions in the blood and urine in healthy and sick children, 4749e.
Shabica, A. C. Sepn. of isomers of amino acids, P 3029h, DL-threonine, P 4688g, see Pfister, K., III, Wolf, D. E.
Shachoff, G. A. See Shakhov, G. A.
Shackleton, J. See Ford Motor Co., Ltd.
Shacter, B. Increase of yeast respiration in presence of several steroids and diethylstilbestrol, 9144b
—— and Shmukin, M. B. Carbonic anhydrase content of normal and neoplastic tissues, 8045i
Shadaksharaswamy, M. See Preece, I. A.
Shadid, J. N. See Veal, J. R.
Shadlun, T. N., and Nesterova, Yu. S. Phosphoscorodite from Blyav, Southern Ural, 2898b.
Shady, H. A. See Abu-Shady, H.
Shafer, H. M. See Wolthuis, E.
Shafer, W. G. Caries-producing capacity of starch, glucose, and sucrose diets in the Syrian hamster, 8474h; see Mitchell, D. F.
Shaffer, C. F. See Chapman, D. W.
Shaffer, G. See Kenilworth Manufg. Co. Ltd.
Shaffer, J. M., and Spink, W. W. Therapy of *Brucella* infection in the developing chick embryo (III) synergistic action of streptomycin and sulfadiazine, 1113e.
Shaffer, M. C. See Flory, P. J.
Shaffer, P. A., Jr., Briglio, A., Jr., and Brockman, J. A., Jr. Instrument for automatic continuous titration, 8748h.
Shaffer, W. H. See Herman, R. C.
Shaffner, C. S. See Haque, M. E.; McCartney, M. G.
Shafiroff, B. G. P., Baron, H. C., and Roth, E. Intravenous infusions of a combined fat emulsion into dogs, 1487h.
——, Mulholland, J. H., Roth, E., and Baron, H. C. Intravenous infusions of a combined fat emulsion into humans, 4768h; O consumption studies with intravenous infusions of combined fat emulsion, 6733h.
Shafranov, B. V., Kranifel'd, V. D., Glebova, L. F., and Tarataita, E. S. Decentralized ventilation in spinning plant of a viscose rayon factory, 8134i.
Shafranovskiĭ, I. I. Statistical distribution of the lateral faces of crystals, 6032c, see Smirnov, S. S.
Shagan, I. B. Nephelometer for detn. of concn. and dimensions of smoke particles in the atm. of industrial plants, 7271a
Shah, G. D., and Nargund, K. S. Substituted diphenylaminecarboxylic acids, 6175a
Shah, K. R. Textile finishes, 4471a
Shah, N. H. Bleaching process, P 4187 Textone in the textile industry, 5596f, Cl bleaching, 7233i
Shah, N. M. See Amin, G. C., Joshi, G. G., Kausara, H. P.
Shah, R. C. See Chandrashekhar, T. R., Javeri, A. F., Mehta, A. M.; Thakor, V. M.
Shah, S. V. See Phadnis, K. D.; Rege, A. V.
Shaheen, J. Water impermeable coating for inductive devices P 2104i
Shahrokh, B. K., and Chesbro, R. M. Microdetn. of I in materials with high org. content, 8960i
Shainin, V. E. Pegmatites on Red Hill, Rumford, Me., 8319a
Shakhnovskiĭ, M. A. Increasing the output of reverberatory Cu smelting furnaces, 2142b.
Shakhov, G. A. Metallurgiya (book) 1306c
Shakhparonov, M. I. See Semenchenko, V. K.
Shakhtakhtinskiĭ, G. B., and Efendiev, T. D. Arsenate method of iodometric detn. of Cu, 8951d
Shakieva, V. G. Hydraulic binder, P 3590h.
Shakin, A. N., and Vinogradov, N. V. By-products of the sugar-beet industry and their use, 6445c.
Shalamov, P. G. Instrument for the uniform distribution of cossettes in diffusion cells, 9503f.
Shaler, A. J. See Udin, H.
Shalimova, K. V. Intensity of distribution in the photoluminescence spectrum of the sublimate phosphor KI + Tl, 407g, temp. quenching of the photoluminescence of the sublimate phosphor KI + Tl, 3717f; dependence of the absorption, excitation, and photoluminescent spectra of the sublimate phosphors KI + Tl on the concn. of the activator, 6514h; photoluminescence of the sublimate phosphor NaI + Tl, 7348h.
Shallcross, R., and Wells, S. D. Chem requirements of pulping processes, 2774c
Shamolin, I. S. Intensification of paper-machine operations, 9444g.
Shamos, M. H., and Russek, A. Range of decay electrons from mesons, 1256f.
Shamrai, F. I. Ternary system Al–Mg–Li (III) projection of the liquidus surface, isotherms at 400° and 20°, and the process of crystn., 2500f.
Shamray, F. I. See Shamrai, F. I.
Shamshikova, G. A., and Ioffe, A. L. Detn. of glutathione in the presence of cysteine, 713b; employment of L-5-oxo-2-

pyrrolidinecarboxylic acid in the biosynthesis of glutathione, 5061*g*.
**Shamy, H. K. El.** See Tourky, A. R.
**Shanahan, C. E. A.** Method of analysis for the ternary system toluene–butyl alc–water, 2895*h*.
**Shanahan, G. J.** Benzene hexachloride and mushroom pests, 7184*f*; benzene hexachloride for prevention of body strike in sheep, 7184*h*.
——— and Morley, F. H. W. Poll strike in rams—BHC as a preventive—trials at Nyngan and Trangie, 7184*g*; jetting with BHC—expts. at Trangie and Bellata, 7184*h*.
——— and Shelton, A. B. Cheese-mite control—dichloroethyl ether as fumigant, 7186*h*.
**Shand, S. J.** Rocks of the mid-Atlantic ridge, 6548*c*.
**Shand, W. C.** See Wingard, M. R.
**Shand Kydd Ltd.** Pregummed paper, fabric, and other materials, P 9448*b*.
**Shands, H. L.** See Dickson, A. D.
**Shane, S. J.** See Gold, H.; Modell, W.
**Shanes, A. M.,** and Hopkins, H. S. Effect of K on "resting" potential and respiration of crab nerve, 9274*a*.
**Shanfield, H.,** and Smith, E. A. Hydrogenation of 1-methylnaphthalene, 3813*i*.
**Shanin, L. L.** See Kuz'minskiĭ, A. S.
**Shanker, K.** Clarification efficiency, 6847*a*; see Parashar, D. R.
**Shankland, R. V.** See Brown, H. T.
**Shanklin, W. M.** See Djanian, A. Y.
**Shankman, S.** See Dunn, M. S.
**Shanley, E. S.** Dry acetyl peroxide, 3199*d*, see Hyatt, H. G.; and Kauffmann, H. O. Peroxide-glycerol explosive, P 1190*e*.
**Shanley, W. B.** Polymerization of olefinic hydrocarbons, P 5939*b*.
**Shann, T. A.** See Schenker, F. A.
**Shannon, A. F.** *n* and ether extn. methods for oil and avocados, 9285*g*.
**Shannon, A. L.** See Stokinger, H. E.
**Shannon, J. A.** See Jailer, J. W.
**Shannon, W. J.** See Overman, A.
**Shantz, E. M.** Isolation of pure vitamin A, 2659*f*.
**Shapiro, A. B.,** and Schechtman, A. M. Effect of adrenal cortical ext. on the blood picture and serum proteins of fowl, 5471*d*.
**Shapiro, B.** See Wertheimer, E.
**Shapiro, D. K.** See Ostapenya, P. V.
**Shapiro, D. M.** See Goldin, A. ———, Goldin, A., Landing, B. H., Bergner, A. D., Farman, F., and Goldberg, B. Cancer chemotherapy—analysis of results of different screening techniques with N-mustard analogs, 5505*c*.
**Shapiro, E.** See Mandeville, C. E.
**Shapiro, E. S.** See Prilezhaeva, E. N.
**Shapiro, F.** See Kemmerer, A. R.
**Shapiro, Herbert.** Diminution of rate of cell division by reversible dyes coincident with enhancement of oxidations, 773*e*, change in osmotically inactive fraction produced by cell activation, 2256*f*.
**Shapiro, Hymin.** See Calngaert, G.
**Shapiro, I.,** and Kolthoff, I. M. Aging of ppts. and coppt'n. (XLII) aging of AgBr in the dry state, 2071*a*.
**Shapiro, I. S.** See Frank, I. M.; Patrikeev, N. N.
**Shapiro, L.** Urea-HCHO resins for textile finishing, 6423*g*, shrinkage control and durable mech. effects with urea HCHO resins, 8142*g*.
**Shapiro, L. B.** Problems of a lab. in a sugar factory, 4033*e*.
**Shapiro, M. A.** Detection of nonuniformity of cast iron, 3757*g*.
**Shapiro, M. M.** Detn. of carbides in alloy steel, 4181*b*; see Klyachko, Yu. A. ——— and Grabarovskaya, R. E. Analysis of nonmetallic inclusions in alloy steel, 6110*f*.
**Shapiro, Maurice M.,** and Barnes, J. R. Application of $Li^6(n,\alpha)$ and $B^{10}(n,\alpha)$ to slow-neutron monitoring, 4095*c*.
**Shapiro, R. L.** See Snell, F. D.
**Shapiro, Shepherd.** See Unger, P. N.
**Shapiro, Sumner.** See Stone, D. ——— and Hoagland, H. Flame-photometer detns. of Na and K in relation to possible interference by phosphate, 266*f*.
**Shapiro, S. B.** See Ioffe, Ya. S.
**Shapiro, S. K.** See Browning, H. C.; Johansson, K. R.
**Shapleigh, J. H.** See Nachod, J. E.
**Shaposchnikoff, V. N.** See Shaposhnikov, V. N.
**Shaposhnikov, V. N., and Semenova, V. A.** Material requirements in the nutrient and energy relations of bacterial metabolism, 7548*g*. ——— and Tauson, T. A. Biochem. properties of proteolytic bacteria, 5448*e*.
**Shapovalenko, S. G.,** and Gloriozov, P. A. Teaching Methods of Chemistry in Secondary School (book), 5278*b*.
**Shapovalov, M. A.** Blowing metal in converters, P 6143*i*.
**Shappirio, S.** Modified hydrocarbon compn. and petroleum distillates, P 3193*d*.
**Shapshinskaya, L. A.** See Abramov, V. S.
**Sharaf, A. E. A.** Chem. investigation of the Egyptian plant, *Euphorbia peplus*, 9241*a*.
**Sharaga, L. M.** See Mibashan-Sharaga, L.
**Sharbaugh, A. H.** Microwave detn. of the structure of chlorosilane, 1658*d*, 5241*d*; dielec. trends in 1947, 2342*h*, see Bragg, J. K.; Karplus, R. ——— and Mattern, J. Microwave spectrum of MeBr, 1575*a*.
**Sharefkin, J. G.** Perspectives in org. chemistry instruction, 4909*g*.
**Shargorodskiĭ, S. D.** See Fialkov, Ya. A.
**Sharif, M.** Water relations of the larva of *Xenopsylla cheopis*, 9260*g*.
**Sharing, D. N.** See Hatfield, H. R.
**Sharkey, A. G., Jr.** See Friedel, R. A.
**Sharkey, W. H.** Thiol ester modification of synthetic rubbers, P 2805*c*, see Kirby, J. F., McGrew, F. C.
**Sharkov, V. I.,** and Efimov, V. A. Chem. compn. of wood pulp (IX) hemicelluloses of pine pulp, (X) hemicellulose of foliate cellulose, 5946*d*. ———, Muromtseva, V. S., and Paramonova, G. D. Cellulose hydrolysis (I), 5941*d*. ———, Paramonova, G. D., and Klikasheva, M. N. Cellulose hydrolysis (II) content of easily hydrolyzable fraction in cellulose specimens, 5941*i*.
**Sharlit, H.** Cosmetic cake product, P 4434*g*.
**Sharma, H. D.,** Ghosh, A. B., and Dutt, S. Esterification with water insol. alcs.—esterification of butyl and amyl alcs., 1319*e*.
**Sharma, J. N.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*.
**Sharma, T. R.** See Prakash, O.
**Sharman, C. F.** See Iles, W. G.
**Sharon Steel Corp.** Stainless clad steel, P 3770*f*.
**Sharov, V. S.** Rate of diffusion of adsorbed cations in a suspengel of clay, 7777*h*.
**Sharova, A. K.,** Chufarov, G. I., and Shnee, M. S. Tungstic anhydride, P 5159*f*.
**Sharp, C. E.** See Considine, D. M.
**Sharp, D. B.** Mechanism for the cleavage of certain phenylhydrazones by Br, 4247*h*.
**Sharp, D. G.** See Kerby, G. P.; Lanni, F.; Putnam, F. W., Weil, M. L. ———, Lanni, F., Dillon, E. S., and Beard, J. W. Elec. pptn. of egg-white inhibitor of influenza virus hemagglutinin, 7569*g*. ——— and Wolf, F. A. Virus of tobacco leaf-curl, 5080*i*.
**Sharp, F. L.** See Worthington, H.
**Sharp, H. J.,** and Ince, J. F. R. Formation and properties of emulsions of fuel oil and water, 5929*h*.
**Sharp, L. K.** Conversion of $\alpha,\alpha,\alpha$-tribromoquinaldine to $\alpha,\alpha$-dibromoquinaldine and production of quinaldaldehyde, 6207*g*.
**Sharp, S. S.** Toxicity of azobenzene and certain related compds. to insects, 2727*b*.
**Sharp, T. M.** See Goodson, J. A.; Goodwin, L. G., Platt, B. C.; Wellcome Foundation Ltd.
**Sharp, W.,** and Spring, F. S. Pyrazine derivs. (VII) prepn. of hydroxypyrazine derivs., 3006*b*.
**Sharp & Dohme, Inc.** Substituted cyanoacetic esters, P 1436*e*; secondary alkylamino alc. esters of aryl-substituted aliphatic acids, P 2639*f*, secondary alkyl aminoalkyl esters of *p*-dialkylaminobenzoic acids, P 2640*b*; alkylamine esters of *p*-aminobenzoic acid, P 3038*f*, clear aq. solns. of tyrothricin, P 6372*f*.
**Sharpe, A. G.** See Emeléus, H. J. ——— and Emeléus, H. J. Chemistry of the inter halogen compds. (I) reaction of Br trifluoride with metallic halides, 3739*e*.
**Sharpe, D. B.** Abrasives, P 3164*i*.
**Sharpe, J. S., Research Foundation** of the **Bryn Mawr Hospital.** Modified globin, P 2739*d*.
**Sharpe, M. E.** Biochem. characteristics of group D streptococci isolated from infant feces—their tyrosine decarboxylase activity, 5080*b*.
**Sharpe, R. W.** See Jones, R. N.
**Sharpenak, A. E.** Quality of proteins in human nutrition, 3076*g*.
**Sharphouse, J. H.** See Rooney, J. H.
**Sharples Chemicals Inc.** Chlorination of starch, P 428*c*; polyamines, P 2633*d*, condensation of nitriles with amides and the production of $\beta$ alanine, P 3841*d*, mercaptans, P 4683*c*, 5790*h*, tetraethyl thiuram disulfide, P 4690*i*; thiocarbamyl chlorides, P 5038*b*; aliphatic amines and diamines, P 5412*a*; amino alcs., P 9081*b*.
**Sharples Corp.** Soap, P 1586*h*, 2004*a*, centrifugal separator of solids from gases, P 2476*g*.
**Sharpless, G. R.** See Cox, Herald R.
**Sharrah, M. L.** See Park, J. D.
**Sharrard, G. F.** See Murray, T. F., Jr.
**Sharratt, E.** Industrial control of size grading, 2388*h*, see Rollason, E. C.
**Shass, E. Yu.,** and Varlakov, M. N. Yarrow, 5541*h*.
**Shatenshtein, A. I.** Acids and bases in liquid $NH_3$, 7851*a*, Theory of Acids and Bases; History and Modern Status (book), 8256*h* ———, Izrailevich, E. A., and Ladyshnikova, N. I. Measuring the viscosity of liquefied gases, 6024*b*.
**Shatillo, V. A.** See Ugaĭ, Ya. A.
**Shatin, H. S.,** and Boyd, W. C. Use of adjuvants in the production of Rh antiserums in animals, 7575*d*.
**Shatrova, E. S.** Detn. and rating of the fastness of dyeing, 3619*f*.
**Shaub, B. M.** Do stylolites develop before or after the hardening of the enclosed rock? 7874*g*.
**Shaumyan, V. A.** Screw for molding ceramic and similar products, P 6386*i*.
**Shavel, J., Jr.** See Rogers, F. F.
**Shaver, F. W.** See Gresham, T. L.
**Shaver, J. R.** See Brachet, J.
**Shavoronkov, N. M.** See Zhavoronkov, N. M.
**Shavrygin, A. I.** 4-Propylbornylene, 1354*e*; transformation of tertiary propylborneol into secondary 4 propylborneol in connection with the mechanism of camphene rearrangement, 1747*i*.
**Shavrygin, P. I.** Soil soln. of saline soils, 7619*a*.
**Shaw, A. C.** See Wokes, F.
**Shaw, A. E.** Mass deposition of completely resolved Sm isotopes, 489*f*; ion source for isotopic mass comparisons, 4094*e*, measurement of the packing fractions of the Ni isotopes, 4130*i*.
**Shaw, B. W.** See Holden, W. D.
**Shaw, C.** Silicon esters and fireproofing compns. prepared from them, P 1050*b*; see Emblem, H. G.; Gluck, B.; Meadowcroft, A. E. ——— and Smith, W. E. Fireproofing of rubber, P 895*b*. ———, Smith, W. E., and Emblem, H. G. Organosilicon polymers, P 1607*h*.
**Shaw, D.** See Levy, G. B.
**Shaw, E. N.** Analogs of aspergillic acid (I) tautomerism of the hydroxypyridine *N*-oxides, 2097*e*; see Huntress, E. H.; Lott, W. A. ——— and McDowell, J. Analogs of aspergillic acid (III) synthesis of cyclic hydroxamic acids with a five-membered ring, 8382*g*.
**Shaw, F. B., Jr.** Plastics for the chem. corps, 4047*f*.
**Shaw, F. R.** See Ingold, C. K.; Peters, C. A. ———, Bailey, J. S., and Bourne, A. I. Biology and control of a *Lecanium* attacking cultivated blueberries, 1524*g*.
**Shaw, G.** See Cook, A. H.
**Shaw, G. E.** Microbiol. analysis, 711*a*; vitamin B complex content of com. liver exts., 1156*i*; *Lactobacillus lactis* for the assay of vitamin $B_{12}$, 8007*f*; see Callender, S. T. E.
**Shaw, G. L.,** and Jones, R. G. Quinacrine, P 4703*b*.
**Shaw, H.,** and Moore, M. H. Mercurated Pb arsenate, 2350*g*.
**Shaw, J.** Isothermal annealing, 536*d*.
**Shaw, John.** See Raper, R. ——— and Beadle, L. C. Ultramicro Kjeldahl method for the estn. of protein and total N in fluid samples of less than one microliter, 8429*e*.
**Shaw, J. A.** Treatment of coke-oven gas, P 5928*f*. ——— and Fisher, E. Hg-acetylide-Ag complex, P 5175*a*; Hg acetylide-$AgNO_3$ complex, P 7670*f*.

**Shaw, J. D.** See Comstock, G. J.
**Shaw, J. G.** See Woglum, R. S
**Shaw, J. H.**, Sutherland, G. B. B. M., and Wormell, T. W. $N_2O$ in the earth's atm., 493*f*.
**Shaw, James H.** Ineffectiveness of certain essential nutrients in prevention of tooth decay in cotton rat molars, 5462*i*, nutrition and dental caries 7098*h*, carious lesions in cotton rat molars (III) effect of the particle size and the consistency of the purified ration on the incidence and type of carious lesions, 8022*g*.
——— and Greep, R. O. Relation of diet to the duration of survival, body wt., and compn. of hypophysectomized rats, 8168*h*.
**Shaw, P. F. D.**, and Collie, C. H. Comparison of weak neutron fluxes by using EtI, 8871*f*.
**Shaw, R.** Bituminous paints and compns., 6833*g*.
**Shaw, T. P. G.** See Morrison, G. O
**Shaw, W. E.** See Eickhoff, A. J.
——— and Hawke, D. L. Elec measurements on metal-protective paints, 6833*h*
**Shaw, W. H. C.** Detn. of procaine in procaine penicillin, 8098*g*.
**Shaw, W. M.** Detn of the sulfide-S content of Ca silicate slags in relation to their neutralization value, 6773*h*; detn of exchangeable H and lime requirement of soils, 7171*c*, see MacIntire, W. H
**Shaw, Wallace M.**, Papper, E. M., and Rovenstine, E. A. Influence of dibenamine on circulatory reactions to ephedrine and neosynephrine in normal man, 7140*i*
**Shawcross, O. L.** Chemically coating Al. P 5001*d*.
**Shawcross, R.** Same as Shawcross, O. L.
**Shawinigan Chemicals Ltd.** Nitriles P 666*e*; C black, P 1172*d*, 5571*i*, polymerization vinyl esters in emulsions, P 2035*b*; $C_2H_2$, P 2408*b*, polyvinyl acetate emulsion adhesive, P 3240*b*, polyvinyl acetal, P 3240*g*, sticking together layers of flexible sheet material, P 7750*e*.
**Shawinigan Resins Corp.** Stable aq. dispersions of polyvinyl butyral, P 2028*b*, stable polyvinyl acetate dispersions, P 7267*a*.
**Shay, D. E.** F-poliomyelitis relation, 9231*f*.
**Shay, H.** See Komarov, S. A., Siplet, H.
———, Gruenstein, M., Siplet, H., and Komarov, S. A. Protection of gastric mucosa of the rat against ulceration by prefeeding with protein hydrolyzates, 5098*a*.
**Shcheglova, A. P.** See Balandin, A. A
**Shcheglova, O. A.** See Ermolaeva, F. Ya
**Shchegolev, K. V.** Purification of acid waste water, P 6345*e*.
**Shchekin, Z. Ya.** Reducing the amts. of fresh rubber in rubber compds., 6853*d*
**Shcherbachev, D. M.** Rhizome of the male fern, 5543*b*
**Shcherbak, F. I.** Elements of zonality in the soils of Cherkesia, 7615*e*.
**Shcherbakov, A. P.** Effect of Ca and Mg on the chlorophyll and yellow pigment content in soybean leaves, 9174*h*.
**Shcherbakov, B. I.** Influence of light of various spectral regions on vitamin C synthesis in plants, 8012*e*.
**Shcherbakova, K. D.** See Kiselev, A. V
**Shcherbakova, M. N.** See Podgoretskiĭ, M. I.
**Shcherbakova, M. P.** See Fizhenko, N. V.
**Shcherbina, V. V.** Concn and dispersion of chem. elements in the earth's surface as a result of oxidative and reductive processes, 8906*c*.
**Shcherbov, D. P.** Use of salts of diphenylaminesulfonic acid, 963*c*.
**Shchigol, M. B.** Microvolumetric detn. of Bi, 964*c*, test for Bi ion, 5340*d*; detn. of chlorides in the presence of bromides and iodides in ammoniacal medium, 6943*a*, see Birnbaum, S. M
——— and Birnbaum, S. M. Potentiometric detn. of oxalate and chloride in ammoniacal soln., 5337*i*.
——— and Burchinskaya, N. B. Detn. of thiocyanate in the presence of halogens, 4182*f*; detn of manganate and permanganate ions in presence of one another, 4183*b*, 7376*c*.
**Shchipletsov, V. A.** See Krasyuk, B. A.
**Shchukarev, S. A.** 80 yrs. of Mendeleev's periodic law, 6876*d*.
**Shchukin, P. A.**, and Pegushina, L. V. Construction of the W-graphite thermocouple, 6474*a*.
**Shchukina, L. A.** See Shemyakin, M. M., Shvetsov, Yu. B.
———, Kondrat'eva, A. P., and Shemyakin, M. M. Oxidative and oxidative-hydrolytic transformations of org. mols. (II) 1,4-naphthoquinone and 2-alkyl-1,4-naphthoquinones, (III) 2-methyl-3-hydroxy-1,4-naphthoquinone, 4660*d*; (IV) 2-methyl-1,4-naphthoquinone oxide, 6191*c*; (VI) Hooker's reaction, 7008*e*.
——— and Shemyakin, M. M. Oxidative and oxidative-hydrolytic transformations of org. mols. (V) 2-methyl-1,4-naphthoquinone oxide, 6191*g*.
**Shchukina, M. N.** Structure and properties of $\alpha,\beta$ dibromoalkyl ethers, $\beta$-bromovinyl ethers, and alkoxyacetylenes, 2158*b*; chlorination and bromination of AcH and lower homologs, 2575*b*.
——— and Rubtsov, I. A. Syntheses through ethoxyacetylenemagnesium bromide, 2570*h*.
**Shchurov, K. A.** See Budagyan, F. E
**Shdanov.** See Zhdanov
**Shdanovich, A. I.** See Zhdanovich, A. I
**Shea, G. B.** See Higgins, R. V.
——— and Higgins, R. V. Hot-water process for sepg hydrocarbons from surface deposits of bituminous sandstones near Edna, Calif., 381*f*
**Shea, J. A.** Blast furnace brick disintegration test equipment, 7655*e*
**Shea, P. J., Jr.** See Holden W. D.
**Shea, R. C.** See Anslow G. A
**Shead, A. C.** Gravimetric calibration of micrometers, 1521*d*
**Shealy, A. L.** See Burnside, J. E., Cunha, T. J
**Shear, C. B.**, Crane, H. L., and Myers, A. T. Nutrient-element balance application of the concept of the interpretation of foliar analysis, 1462*f*
**Shear, G. M.** Effect of nutrition on the compn of Winesap apple foliage, 9321*f*.
——— and Horstall, F. L., Jr. Color as an index of N content of leaves of York and Staymanapples, 9173*d*
**Shear, M. J.** See Schgiman A. M.
**Sheare, E. J.** Instrument applications in the sulfite mill, 1181*f*
**Shearer, A.** Sugar-cane wax: extn., deashing, and bleaching, 7730*g*.
**Shearer, A. P.** See Anglo Iranian Oil Co., Ltd
**Shearer, H. E.** Vinyl resin fibers in papermaking, 1186*a*.
**Shearer, J.** Effect of refraction on accuracy in x-ray powder diffraction patterns, 2863*e*
**Shearman, A. C.** See Kolsky, H
**Shearon, W. H., Jr.** Cl and alkali production in the Southwest, 308*g*
———, Chrencik, F., and Dickinson, C. L. Modern production of Cl and caustic soda, 1158*i*
——— and Gee, O. F. Carotene and chlorophyll com chromatographic production, 5543*f*
———, Hall, H. E., and Stevens, J. E., Jr. Fine chemicals from coal, 9413*b*.
———, Liston, R. L., and Duhig, W. G. Paint and varnish manuf., 6833*g*.
———, Patton, E. L., and Shingler, G. P. Distn of gum turpentine, 1187*e*
**Sheavyn, G. W. I.** Improvements in the production of condensation polymers, P 6865*e*
**Shebalina, N. Ya.** Shaft furnace for calcining of rock gypsum to make patent plaster, P 3592*a*
**Shedlovsky, L.**, Ross, J., and Jakob, C. W. Effect of certain impurities on the surface and interfacial tensions of aq. solns. of Na dodecyl sulfonate, 3267*d*.
**Sheehan, J. C.** See Bachmann, W. E.
——— and Frank, V. S. Synthetic route to peptides, 8356*e*.
——— and Robinson, C. A. Synthesis of triazole analogs of histamine and related compds., 6620*f*
**Sheehan, J. J.** See Hennion, G. F.
**Sheehan, J. P.** See Baeyertz, M.
**Sheehan, J. T.** See Lott, W. A.
**Sheehan, W. F., Jr.** See Pauling, L.
**Sheets, D. G.** See Blicke, F. F.
**Sheets, J.** See Hermanson, J. L.
**Sheets, W. D.** Tannin interference in dissolved O detns., 6770*a*.
**Sheffer, H.** See Line, D.
——— and Hadow, H. J. Matching factors of Beckman spectrophotometer cells, 5310*i*.
———, Waldock, K. T., and Ferguson, J. B. Testing of activated charcoals, 4536*d*.
**Sheffer, M. L.** Gas-absorbing material, P 8578*b*.
**Sheffler, P. W.** See Kaplan, E.
**Sheffner, A. L.**, Kirsner, J. B., and Palmer, W. L. Amino acid excretion in man (II) amino acids in feces, 1852*h*.
**Sheft, B. B.**, Griswold, R. M., Tarlowsky, E., and Halliday, E. G. Nutritive value of canned foods—effect of time and temp. of storage on vitamin content of commercially canned fruits and fruit juices, 1877*g*.
**Sheidin, I. A.** See Val'dshteĭn, A. Kh.
**Sheinberg, A. F.** Construction of blast-furnace hearth, 4612*f*.
**Sheinfain, R. Yu.** See Nelmark, I. E.
**Sheinker, N. S.** App for rapid detn. of diffusion coeffs. in colored solns., 3667*g*, assocn of palmitic acid in polar solvents by viscosity and diffusion measurements, 5259*e*; equation of diffusion through porous membranes and its practical utilization, 7778*d*
**Sheintsis, O. G.** See Gapchenko, M. V.
**Shekhter, A. B.** See Echeistova, A. I.; Rogınskiĭ, S. Z.
**Shekoldin, N. G.** See Anurov, S. A.
**Shelanski, H. A.** Toxicity of quaternaries, 7591*i*
**Shelberg, W. E.** See Nevenzel, J. C.
**Sheldak, M. P.** See Zheldak, M. P.
**Sheldon, F. R.** See Kauffmann, H. O.
**Sheldon, V. L.**, Blue, W. G., and Albrecht, W. A. Diversity of amino acids in legumes according to the soil fertility, 342*a*.
**Sheldon, W.** Celiac disease—dietary starch and fat absorption, 8026*b*
**Sheldon, Z. D.** See Dorfman, L. M.
**Shelechnik, M. M.** Thermal effect of the decompn of $CaC_2$ by water, 4940*a*
**Shelest, I. G.** See Bublik, V. F
**Shelford, V. E.** Termite treatment with aq. soln of chlordan, 7628*d*
**Sheline, R. K.** See Pimentel, G. C
**Shell, H. R.** Chem analysis of clay, 8628*d* chem analysis of sillimanite kyanite, and related Al silicate refractories, 9405*i*
**Shellard, A. D.** See Bradley, R. S.
**Shell Development Co.** (*Patents.*)
acetal resins, 5228*e*
*n*-acetoxy propionic acid, 6223*i*
acrylic acid, 3026*i*
adducts of unsatd. acids with cyclic polymers of hexadienes, 5637*b*
adipic acids, unsatd. esters of, 1217*g*.
alcohols (unsatd.), 5790*f*, 7952*b*
1,3-alkanediol esters, 7503*g*.
alkenyl 3 (alkenoxy)alkanoates, 5037*a*
alkenyl sulfolanyl and sulfolenyl carbonates, 690*i*
alkenyl 3 sulfolanyl sulfides, 3851*g*
alkyd resins, 1216*g*.
alkylated aromatic compds., 4005*b*.
alkylation, 7677*e*.
alkylation of phenols, 687*e*.
$\beta$ (allylamino)propionitriles, 2226*g*.
allyl glycidyl mixed diether of 2,2-bis(4 hydroxyphenyl)propane and polymers thereof, 5046*h*
allyl glycolate polymer, 4896*d*.
alumina, removal of alkali from, 9397*a*
ammotrimethylhexanoic acids and their lactams, 3450*i*
asphalt emulsion for use in ground fixation, 4828*e*
bis(glycidyloxy)benzenes, 5421*h*.
bitumens for mineral aggregate, adhesivity of, 7662*a*
bricks, inhibiting acid attack on, 6387*i*
carbon remover and metal-surface cleaning compn., 6439*b*.
carbonyl compds. (unsatd.), 2222*f*.
catalyst ($Al_2O_3$), 1161*c*, 1931*e*.
catalyst (autoregenerative), 370*e*.
catalyst for cracking, 5181*a*, 5583*b*.
catalyst for dehydrogenation, 7610*b*.
catalyst ($Fe_2O_3$), 5135*b*.
catalyst (Li-Al), 6762*i*.
catalyst (metal sulfide), 844*e*.
catalyst (molybdena), 1931*g*, 6763*d*.
chlorocyclic sulfones, 5185*g*.
condensation products from ketones and aralkyl compds., 2036*h*.
conversion of alicyclic aldehydes, 5416*c*.
conversion of hydrocarbons, 1174*e*, 7677*b*.
conversion of hydrosulfides to neutral S substances, 7223*g*,*h*.
conversion of vinyl-type halides to aldehydes or ketones, 9078*h*.
corrosion inhibitor, 1308*f*.
corrosion prevention in HF catalytic org. reactions, 3190*a*.
corrosion-testing elements, 7839*g*.
cracking and reforming of hydrocarbons, 843*e*.

cyclic ethers, 3042*h*.
cyclohexane, 5798*f*.
dehydrogenation of naphthenic hydrocarbons, reactor for, 7678*b*.
dialkylcyclohexyl glycols and derivs, 1058*d*.
dicyclohexylammonium nitrite, 1058*a*.
Diesel fuels, 5173*i*.
dinitro alcs., 7952*h*.
distn. column regulation, 4524*h*.
distn. of olefin-H halide mixts., 6010*b*.
drilling fluids, 3185*g*, 8661*i*.
drilling fluids, reclamation of, 8662*c*.
extn. of olefins from hydrocarbon mixts., 386*b*.
extractive distn., 2048*h*.
fungicides and bactericides, chlorinated paraffin wax amines as, 349*h*
gasoline, 2763*g*, 9428*a*.
glycidyl ethers, 2633*i*.
grease, 3606*d*, 5185*c*, 5940*e*
halogenation of alkylated acrylonitriles, 7498*g*.
halogenation of unsatd ethers, 4682*g*
halogenation of unsatd. org compds, 3436*h*
horticultural spray oil, 9357*b*
hydrogen, 6398*a*.
hydrogenated polyhexadienes, 2038*g*.
hydrogenation, 5794*a*
hydrogenation of nitro compds, 3454*e*
hydrogenation of unsatd cyclic sulfones, 1065*e*
hydrogen peroxide distn after removal of org peroxides, 3160*a*
ice prevention on surfaces, 5135*i*
insecticidal and fungicidal compn, 5152*e*
insecticides, 4420*b*, 5153*i*
isomerization of cycloparaffins of non-hydroaromatic structure, 3605*f*
isononanes for aviation fuels, 1957*b*
laminated resinous sheets, 5626*b*
lithium soap greases, 9433*d*
lubricating compns., 2765*d*, 4459*c*, 4841*g*, 4845*h*, 6405*d*, 7680*b*, 8131*e*
lubricating oil, regeneration of, 8668*d*
mercaptans and thio ethers, 691*g*
methylpentadiene aralkenyl copolymers, 6458*d*
4-methyl-1,3-pentadiene copolymers, 4046*d*
nitriles (unsatd.), stabilization of, 2220*d*
olefine-diolefine polymers, 1795*d*
oxidation, 2219*c*
oxidation of org compds, 669*a*, 2215*h*
oxidation of paraffinic hydrocarbons, 2123*i*
polyallyl alcs, 6219*a*, 6645*h*
polyallylamine, 2468*h*
polyallyl levulinate, 9081*g*
polymeric aldehyde diesters, 8741*i*
polymerization inhibitors for butadiene, 8195.
polymerization of allyl esters, 8212*bh*, 8742*d*
polymerization of esters of unsatd. alcs., 443*f*
polymerization of olefins in the presence of N compds, 8666*g*
polymerization of unsatd org. compds., 905*d*.
polymerization of vinylidene compds, 8212*c*.
polymers of glycidyl allyl phthalate and related esters, 8740*c*
polymers of unsatd glycidyl ethers, 903*i*.
polymers of vinyl(allyloxy)acetate, 2817*a*.
pyrimidines, 1813*f*.
reaction products of tertiary org hydroperoxides with aldehydes or ketones, 2629*e*
regenerating spent aq alk. soln. [contg. mercaptans], 1793*i*
resins, 7750*g*.
roads compn. for the construction of, 6805*a*.
rotary contactor for catalytic reactions of hydrocarbons, 7678*i*.
rubber compns., 6859*c*.
rubbery polymers, 5625*f*.
sepn. of hydrocarbon mixts., 8669*e*.
sulfolanyl amines, 3851*b*.
sulfolanyl carbamates, 6668*b*.
sulfolanyl esters, 1441*e*.
sulfolanyl sulfones, 2237*c*.
sulfolene halohydrin esters, 3466*b*.
sulfolene halohydrins, 3851*e*.
tetrahydrothiophene, 7512*e*.
thioketones, 350*a*.
thiophenols from cyclohexenones, 1062*i*.
toluene, 4008*h*.
(trihaloalkylidene)amines, 7499*c*.
2,4,5-trihalophenyl ethers of glycerol and derivs., 675*e*.
unsatd. halogenated hydrocarbons, 663*e*, 1433*d*.
unsatd halogen-contg nitro compds, 6646*h*.
ureas, 9082*c*.
vinyl chloride, 663*i*, 7951*b*.
vulcanizing agent, 898*d*.
waterproof plastic compn, 3234*i*.
water, removing oil from, 6770*d*.

**Shellenberger, J. A.** See Finney, K. F., Johnson, J. A.; Loska, S. J., Jr.
——— and Schrenk, W. G. Mineral analysis of Peruvian wheat, 2335*e*
**Shellmar Products Corp.** Laminated polymetnyl methacrylate, P 2468*g*; polymerization method, P 3238*c*, adhesive and coating compn., P 3240*b*
**"Shell" Refining and Marketing Co. Ltd.** See Airs, R. S.
**Shelor, E.** See Woodroof, J. G.
**Shelton, A. B.** See Shanahan, G. J.
**Shelton, F. K.** See Churchward, R. E.
**Shelton, G. R.**, Bunting, E. N., and Creamer, A. S. Development and properties of some ceramic dielectrics, 5164*h*
**Shelton, J. P.** See Bevan, D. J. M.
**Shelton, J. R.** Oxygen-absorption methods, 8721*i*; see Winn, H.
**Shelton, R. S.** See Christenson, G. L.; Tilford, C. H., Van Campen, M. G., Jr.; Wheeler, K. W.
——— and Van Campen, M. G., Jr. Substituted pyridinium and piperidinium germicidal compds., P 6951
**Shelud'ko, M. K.** Cr and Cr-Al coating of pipes, 2916*i*.
**Shema, B. F.** Detn of the resistance of paper and paperboard to penetration by fungi, 1187*b*, preservation of groundwood pulp during storage, 5948*a*, slime control, 7684*h*, see Heuser, Emil
———, Anderson, J. B., and Appling, J. W. Slime control in a groundwood mill, 404*a*
——— and Appling, J. W. Detn of bacterial degradation of woolen fibers, 2773*d*
**Shemiakin.** See Shemyakin
**Shemin, D.** Biosynthesis of porphyrins, 4718*d*, see London, I. M.; Wittenberg, J.
**Shemyakin, F. M.** Rhythmic pptn during reactions in the gas phase, 7788*g*
——— and Mitselovskii, E. S. Sepn of cations with the aid of *o*-hydroxyquinoline, β-naphthoquinoline, and cupferron, 8973*b*.
**Shemyakin, M. M.** See Bamdas, E. M.; Belov, V. N.; Bochvar, D. A.; Shchukina, L. A.; Shvetsov, Yu. B., Vinogradova, E. I.
——— and Korolev, A. I. Vladimir M. Rodionov, 3251*a*
——— and Shchukina, L. A. Oxidative and oxidative hydrolytic transformations of org. mols. (I) quinones, 1660*a*
**Shemyakina, O. M.** See Kursanov, D. N.
**Shen, C.-W.** See Lewis, H. B.
**Shen, T. C. R.** Function of Zn (I) influence of $ZnSO_4$ on the action of acetylcholine compared with vitamin $B_1$ and other substances, (II) relation of Zn to the action of carbonic anhydrase, 3903*a*, interaction between trace elements and vitamin or hormones (I) effect of $CuCl_2$ plus vitamin C on the isolated intestine of rabbits and rats, (II) effect of $CuCl_2$ plus vitamin C on the isolated uterus of rabbits and rats, 3903*c*
**Shenkin, H. A.** See Grant, F. C.
———, Woodford, R. B., Freyhan, F. A., and Kety, S. S. Effects of frontal lobotomy on cerebral blood flow and metabolism, 3937*d*.
**Shenstone, A. G.**, and Pittenger, J. T. Cd spectra, 4136*d*.
**Shepard, C. C.** See Polson, A.
——— and Hottle, G. A. Compn. of the livetin fraction of the yolk of hen eggs, 6679*h*.
**Shepard, J. G.** See Holt, S. P.
**Shepard, O. C.** See Schellinger, A. K.
**Shepardson, W. B.** See Jones, L. H.
**Shepeleva, E. S.** See Kabachnik, M. I.
**Shepherd, A. D.** See Maclay, W. D.
**Shepherd, B. F.** Accuracy of isothermal diagrams, 9001*e*.
**Shepherd, D. A.** See Ingle, D. J.
**Shepherd, D. M.** See Walters, A. J.
**Shepherd, G. R.** See Westinghouse Electric International Co.
**Shepherd, H. R.** See Beck, L.
**Shepherd, J. B.**, Moore, L. A., Carter, R. H., and Poos, F. W. Effect of feeding alfalfa hay contg. DDT residue on the DDT content of cow milk, 8575*a*.
**Shepherd, L. R.** β-Spectra of active isotopes produced by slow-neutron bombardment of Ce, 3707*i*.
——— and Hill, J. M. Decay of $Ba^{139}$, 1260*h*
**Shepherd, M.** See Hipple, J. A.
**Shepherd, M. J., Jr.** See Mehlig, J. P.
**Shepherd, N. R.** Moth-product aerosols, 8087*c*.
**Shepherd, R. G.** Specific analytical method for certain pyrimidines, 4186*a*; see Bell, P. H.
———, Stansly, P. G., Winterbottom, R., English, J. P., Fellows, C. E., Ananenko, N. H., and Guillet, G. L. Chem studies on polymyxin (I) isolation and purification, 1454*c*
**Shepherd, T.** See Harrison, G. D.
**Shepherd, W.** See Brodie, J.
**Shepherd, W. O.** See Lindahl, I.
**Shepler, P. R.** See Coffin, L. F., Jr.
**Sheppard, J. R.** See Braendle, H. A.
**Sheppard, L. R.** Pipe-line corrosion by sour crude oil, 5581*g*; detection and measurement of currents other than stray current, including magnetic earth currents, 6092*g*
**Sheppard, N.** Assignment of the vibrational spectra of the $C_4$ hydrocarbons butyne-1, butene-1, and vinyl acetylene to the normal modes of vibration of these mols., 2867*f*; assignment of the vibrational spectra of ethyl mercaptan and the ethyl halides and the characterization of a SH deformation frequency, 2867*g*; interpretation of the vibrational spectra of the $C_5$ hydrocarbons 2,2-dimethylbutane, 2,2-dimethyl 3-butene, and 2,2-dimethyl-3-butyne, 7822*a*, infrared spectrum and the assignment of the fundamental modes of vibration of thioacetic acid, 8882*d*; see Aston, J. G., Rank, D. H.; Szasz, G. J.
——— and Sutherland, G. B. B. M. Infrared spectrum of vulcanized rubber and the chem. reaction between S and rubber, 1211*b*, 3648*c*; infrared analysis of the reaction of certain olefins with $H_2S$, 3743*b*
——— and Szasz, G. J. Spectroscopic studies of rotational isomerism (III) normal paraffins in the liquid and solid states, 2866*i*
**Shepperd, I. M.** See Roth, L. W.
**Sherber, D. A.**, Birnberg, C. H., and Kurzrok, R. Viscometric detn. of the hyaluronidase content of spermatozoa, 7534*i*
**Shere, L.** Disinfecting properties of hypochlorites and quaternaries, 724*c*.
**Sheremetieva-Brunst, E. A.** See Brunst, V. V.
**Shereshefsky, J. L.** A course in colloid chemistry, 2049*i*
**Shereshevskii, A. I.** See Belopol'skii, A. P.
**Sheridan, E.** See Engle, L. S.
**Sherif, M. A. F.** See Farrag, H. F.
**Sherk, P. M.** Bound electron creation in the decay of T, 4112*e*
**Sherlin, S. M.** See Berlin, A. Ya.
**Sherlock, E.** See McCulloch, A.
**Sherlock, M.** See Sperber, N.
**Sherlock, S.** Carbohydrate effects of adrenaline infused into the femoral vein, carotid artery, aorta, and portal vein of rats, 6743*f*
**Sherman, A. I.** See Haskins, A. I., Jr.
**Sherman, C. D., Jr.** See Mider, G. B.
**Sherman, F., III.** See Pederson, C. E.
——— and King, H. L. Tests in 1947 against the two-spotted spider mite, 1523*c*.
**Sherman, F. G.**, and Chase, H. B. Effects of ionizing radiations on enzyme activities of yeast cells (I) relation between anaerobic $CO_2$ production and colony production at intervals after x-radiation, 7081*h*.
**Sherman, G. D.**, Tom, A. K. S., and Fujimoto, C. K. Origin and compn. of pyrolusite concretions in Hawaiian soils, 6345*h*.
**Sherman, H. C.** Food Products (book), 1123*f*; advances in the chemistry of nutrition, 6707*f*.
———, Campbell, H. L., and Ragan, M. S. Analytical and exptl. study of the effects of increased protein with liberal Ca and riboflavin intakes—complete life cycles, 5461*f*.
——— and Pearson, C. S. Nutritional life history as influenced by dietary enrichments (III) full-life data, 5099*b*.
——— and Ragan, M. S. Effects of different protein and riboflavin contents of diet on the chem. compn. of the body, 287*e*.
——— and Trupp, H. Y. Expts. with vitamin A in relation to aging and to length of life, 5096*a*; long-term expts. at or near the optimum level of intake of vitamin A, 5833*e*.
**Sherman, Martin.** Relative toxicity of the isomers of $C_6H_6Cl_6$ to several insects, 1140*c*.

**Sherman, Milton.** Detn. of Cu in Sn- and Pb-base alloys, 1282*h*; detn. of Fe in brass and bronze, 2889*e*; detn. of Al in Zn-base die-casting alloys, 3310*a*; detn. of Sn in Cu-base alloys, 3313*a*.
**Sherman, Monroe.** Ag brazing alloy contg. In, P 2156*b*; brazing alloy, P 2156*c*.
**Sherman, N. N.** See Gregor, H. P.
**Sherman, W. F.** Alloy steels in the automotive industry, 89*i*.
**Sherman, Ya. I.** Casting properties of ceramic masses, 6383*e*.
**Sherr, R.,** Muether, H. R., and White, M. G. Radioactivity of $C^{10}$ and $O^{14}$, 3284*c*.
**Sherrard, S. S.** See Whitmore, L. M.
**Sherratt, J. G.** Experience in silica-assisted coagulation of polluted surface water, 7169*e*.
**Sherratt, S.,** and Linnett, J. W. Detn. of flame speeds in gaseous mixts., 2406*c*
**Sherrick, P. H.** Principles and limits of accuracy in polarographic analysis, 5326*c*.
**Sherrill, M.** Thermal expansion of cryst. sucrose, 6439*h*.
**Sherry, A. B.** See Chavannes, M. A.
**Shersby-Harvie, R. B. R.** Traveling wave linear accelerators, 4945*d*; see Fry, D. W.
**Shershul'skaya, L. V.** See Andres, A. G.
**Sherwin, C. W.** Neutrinos from $P^{32}$, 6506*h*.
**Sherwin, D. S.** Multicomponent rectification—calcn. of theoretical trays under conditions of variable molal overflow, 4902*d*.
**Sherwin, K. A.,** and Steventon, J. W. Granulation of compound fertilizers, 3958*b*.
**Sherwin-Williams Co.** Resinous esters of polyhydric alcs. with polymers of styrene and resin acids, P 2448*e*; styrene-oil-sol. natural resin-drying oil interpolymer, P 2448*f*; recovery of proteins from castor beans, P 4899*e*; solvent extn. of vegetable oils, P 5214*f*, solvent extn. of castor oil, P 5214*i*; *p*-phenylphenol resins, P 5228*e*.
**Sherwood, I. R.** Industrial fermentations, 3969*e*.
**Sherwood, L. T., Jr.** See Bruner, W. M.; Hurd, C. D.; Riegel, B.
**Sherwood, N. P.** See Russell, B. E.
———, Russell, B. E., Jay, A. R., and Bowman, K. Streptococci (III) antibiotic substances produced by β hemolytic streptococci, 9150*i*.
**Sherwood, P. W.** World's first synthetic glycerol plant, 1584*i*; $C_2H_2$ from petroleum gases, 2760*d*, design of water gas-conversion plants, 5571*b*, ethylene glycol by air oxidation of ethylene, 6076*b*, from synthetic fuels, what chemicals, 8616*f*; primary long-chain alcs.—petrochemical, 8654*c*, ethylene glycol via ethylene chlorohydrin, 9031*d*.
**Sherwood, R. M.** See German, H. L.
**Sheshunoff, V.** See Whitfield, M. G.
**Shestakova, I. S.** See Pavlov, S. A.
**Shetlar, C. L.** See Shetlar, M. R.
**Shetlar, M. R.,** Foster, J. V., Kelly, K. H., and Everett, M. R. Serum polysaccharide level in the normal state, 2685*d*
———, Foster, J. V., Kelly, K. H., Shetlar, C. L., Bryan, R. S., and Everett, M. R. Serum polysaccharide level in malignancy and in other pathol. conditions, 9230*c*.
**Shettles, L. B.** See Dische, Z.
**Shevandin, D. K.** Improvement of the operation of evaporators, 9504*a*.
**Shevandin, E. M.** Investigation of the stress-strain diagram at low temps., 1301*a*.
**Shevelev, G. N.** See Ioffe, Ya. S.
**Sheveleva, B. I.** See Zhuravlev, V. F.
**Sheves, G. S.** See Epel'baum, S. E.
**Shevlin, T. S.** See Blackburn, A. R.
**Shewan, J. M.** Estn. of $SO_2$ in fish muscle, 1877*b*.
**Sheybany, H. A.** Structure of mixed alkali-silicate glasses, 5555*i*, see Dietzel, A.
**Shiang, C. S.** Manuf. of paper from reeds in north China, 398*h*.
**Shiao, T.-H.** See Chen, H.-K.
**Shibata, E.,** and Takanaka, J. D. temp. relation of benzene, 7283*g*, ds. of the system $KNO_3$–$NaNO_3$ in the molten state, 7803*f*.
**Shibata, Katsutaro,** and Miyake, K. HCHO, P 7500*i*.
——— and Mori, M. Recovery of methylal as a by-product in the manuf. of HCHO, P 7501*a*.
**Shibata, Keita,** Hayashi, K., and Isaka, T. **Anthocyanins (XIV)** H-ion concn. of the juice of plant organs yielding anthocyanins—explanation of variation in the color of flowers (1), (XVI) ash content of flowers—explanation of variation in color of flowers (2), 8450*b*.
**Shibata, M.** See Tanaka, Minoru.
**Shibata, S.,** Ukita, T., Miura, Y., and Tamura, T. Antibacterial properties and chem. constitution of usnic acid and its derivs., 6697*i*.
**Shibayama, K.** Isobutylene-rich gas from BuOH, P 3833*h*.
**Shibler, B. K.** See Agey, W. W.
——— and Snedden, H. D. Beneficiation of oxide and silicate Mn ores from Crook, Albany, and Washakie Counties, Wyo., 4987*a*.
**Shida, S.** Recombination reaction of free atoms by the thermal analysis of the Budde effect (I) recombination of H atoms, 8819*h*
**Shideman, F. E.** Influence of chronic morphine poisoning on growth and metabolism of the albino rat, 5867*e*, see Moe, G. K.
**Shidlovskaya, A. N.,** and Syrkin, Ya. K. Dielec. polarization of binary systems, 454*a*
**Shields, H. L.** See Kraatz, C. P.
**Shields, J. R.** See Barnebey, H. L.
——— and Barnebey, H. L. Alkali metal salts, P 5159*i*
**Shifrin, M. G.** See Zikeev, T. A.
**Shiga, I.** Acid-alkali testing paper from a dye extd. from *Perilla nankinensis* leaves, P 3318*e*.
**Shigei, T.** See Umezawa, H.
**Shigorin, D. N.** Optical study of the H bond of acetylacetone and its derivs., 7343*c*.
——— and Syrkin, Ya. K. Vibrational spectra of amidines, 6081*h*
**Shih, P.-J.** See Liang, S.-C.
**Shiher.** See Shikher.
**Shiho, D.** Alkylation of amines (III), 7921*c*.
**Shiiba, Y.** See Okita, T.
**Shiina, S.** Higher dibasic fatty acids (III) test of fiber-softening power of the glyceride of Japan wax dia. fatty ad., 5206*i*
**Shikata, M.,** Tachi, I. Kimura, Y., and Okada, Y. Utilization of tropical forest products (I) pulping of wattle wood, a tanning material, 847*a*
**Shikher, A. G.** Det. of stability of nitrocellulose, P 3197*h*
**Shikher, M. G.** See Rybakova, V. M.
**Shikher, O. S.** See Sobolevskii, S. I.
**Shildneck, P. R.** α Hydroxy acids from α-amino acids, P 3811*a*
**Shilin, D. M.** Cordierite norites of the Kok-Arche Mts. in the Southern Altai, 2901*d*.
**Shillcutt, F. R.** See Lindquist, A. W.
**Shillegodskii, A. K.** See Knunyants, I. L.
**Shiller, I.** See Fife, L. C.
**Shilov, E. A.** Synthesis of 2-chloroethanol (IV) theory of formation of bis(2-chloroethyl) ether—method of analysis of the reaction mixt., 119*e*, org. liquids in argentometric titration, 8947*f*, see Kudryavtsev, G. I., Smirnov-Zamkov, I. V.
——— and Bogdanov, M. N. Carboxylation and analogous reactions, 1351*h*.
——— and Kudryavtsev, G. I. Kinetic equations of the Cannizzaro reaction, 4547*a*.
——— and Kurakin, A. N. Theory of sulfonation of aromatic amines, 3803*e*.
——— and Slyadnev, A. I. Kinetics and mechanism of reactions of active chlorine with org. compds. (VII) oxidation of $HCO_2H$ in acid solns., 2495*i*
——— and Solodushenkov, S. N. Synthesis of 2-chloroethanol (V) use of higher pressures, 3783*i*.
**Shilovich, M.** Sol. food casein, 7598*f*
**Shils, M. E.** See Goldwater, L. J.
——— and Goldwater, L. J. Nutritional factors affecting the toxicity of some aromatic hydrocarbons with special reference to benzene and nitrobenzene compds., 8052*i*.
———, Seligman, H. M., and Goldwater, L. J. Pantothenic acid and conjugation reactions (I) effect of pantothenic acid and thiamine deficiencies on the ability of the rat to acetylate sulfanilamide, 5460*e*.
**Shima, E. I.** See Kul'berg, L. M.
**Shimada, T.,** and Ito, T. App. for buta-diene detn., 7757*i*
**Shimada, Yoshifusa.** Prepn. of anthraquinone vat dyes by alkali fusion (I) influence of amts. of added soybean protein on the formation of indanthrone, (II) influence of temp., time, proportion of NaOH to KOH and water on the indanthrene fusion, (III) function of soybean protein as an addn. agent in the indanthrene fusion, 5189*g*.
**Shimada, Yoshihide.** See Iguchi, K.
**Shimamura, K.** See Hamai, S.
**Shimamura, S.** See Koide, T.
**Shimanouchi, T.** Normal vibrations of polyat. mols. as treated by Urey-Bradley field, 5307*h*; see Mizushima, S.
——— and Mizushima, S. Intramol. rotation and the structure of high polymers (I) structure of polypeptide chain, 8843*a*.
**Shimazu, J.** See Kawamura, H.
**Shimizu, H.** See Fujiwara, Motonori.
**Shimizu, K.** Repairing of used graphite crucibles, P 6801*a*.
**Shimizu, Masao.** See Saito, Tsuyoshi.
**Shimizu, Michiyuki.** Bile acids and pancreatic lipase, 6267*d*.
**Shimizu, S.** See Imaki, T.
**Shimizu, T.** Bile acid formation, 5848*c*.
**Shimkin, D. B.** U deposits in the U.S.S.R., 3322*e*.
**Shimkin, M. B.** Breast cancer in mice, 3511*i*, see Shacter, B.
———, Sapirstein, L., Goetzl, F. R., Wheeler, P. M. and Berlin, N. I. Blood histamine in leukemia and erythremia, 6725*c*.
**Shimoda, F.** See Marx, W.
**Shimshelevich, Ya. B.** See Iofa, Z. A.
**Shimura, J.** See Naito, H.
**Shimwell, J. L.,** and Horwood, M. Fermentation industries, 4788*h*.
**Shine, H. J.,** and Turner, E. E. Five new tertiary carbinols and four new aliphatic hydrocarbons, 6967*i*.
**Shingler, G. P.** See Shearon, W. H., Jr.
**Shinkarenko, A. L.** See Volkova, O. Yu.
**Shinno, T.** See Fukagawa, K.
**Shinohara, K.,** and Ryu, N. Polarization of electrons, 6907*a*
**Shinowara, G. Y.** Enzyme studies on human blood (III) effect of plasma proteins on coagulation, 5811*h*.
——— and Everhart, M. B. Enzyme studies in human blood (IV) interrelation of heparin and fibrinogen fractions, 6268*c*.
**Shinoyama, H.** and Baba, G. Maleic acid, P 7096*a*
**Shinozaki, Y.,** and Kitagawa, K. Utilization of fat oil (III), 1596*h*
**Shinra, K.** $HNO_3$ pulping process (II) action of dil. $HNO_3$ on the cellulose in wood, (VI) consumption of alkali, (XII) cause of formation and utilization of nitrophenols in the waste liquor of $HNO_3$ cooking, (XIII) reaction of dil. $HNO_3$ on lignin, 1973*b*
——— and Shinra, Y. $HNO_3$ pulping process (V) microscopic study of wood digestion, (VII) oxidation of nitrolignin by nitrobenzene, (VIII) formation of azobenzene derivs. from lignin, 1973*f*, (IX) synthesis of 3-bromo-4-hydroxybenzaldehyde from 3-nitro-4-hydroxybenzaldehyde, which is obtained from the waste liquor of $HNO_3$ digestion, (X) synthesis of protocatechualdehyde from 3-bromo-4-hydroxybenzaldehyde, (XI) mechanism of generation of HCN gas in $HNO_3$ cooking, 1974*a*
——— and Tze, Y. P. $HNO_3$ pulping process (I) action of dil. $HNO_3$ on cellulose, (III) consumption of $HNO_3$ in cooking beech wood, (IV) comparison of amt. of $HNO_3$ consumed in cooking various materials, 1973*a*
**Shinra, Y.** See Shinra, K.
**Shintani, G.** See Inoue, Yoshiyuki.
**Shinto Ceramic Co.** Emulsion paint, P 5607*d*
**Shinto Toryo K. K.** See Shinto Ceramic Co.
**Shiokawa, T.** Detn. of metals by tannin, Pb by molybdate, and Al by phosphate, 1681*i*, applied rare elements analysis (I) microdetn. of W with the Pulfrich photometer (catalytic analysis VII), (II) titration of W and V with ceric sulfate, (III) gravimetric analysis with the aid of the thermobalance—ignition of W ppts., 1684*b*
**Shiomi, T.** See Koketsu, R.
**Shiomi, Y.,** and Yokokawa, T. Flotation of sludge-form graphite, P 7204*b*.
**Shionogi Drug Manufg. Co.** Quaternary N compds., P 2228*i*, alkyldecahydroquinolines, P 2241*c*; 2-alkoxy-6-halo-9-aminoacridines, P 2242*d*; 5-chloro-8-hydroxyquinoline, P 2646*a*; cyclohexenylmethyl nitrilomonomethylbarbituric acid and its ester, P 3463*g*; 2-methylnaphthalene, P 3848*b*; 6-methoxy-8-(diethylamino-1-methylbutylamino)quinoline, P 7051*f*; benzotriazolium derivs., P 7971*a*.
**Shionogi Seiyaku K. K.** Same as Shionogi Drug Manufg. Co.

**Shipley, F. W.** See Farmer, E. H.
**Shipley, M. A.,** and Headley, F. B. Nutritive value of wild meadow hay as affected by time of cutting, 3946*c*.
**Shipley, R. A.** See Dorfman, R. I.
**Shipman, J. D., Jr.,** Howland, B., and Schroeder, C. A. Diode coincidence circuit, 4091*f*.
**Shipner, J. R.** Stabilization of fatty materials, P 2793*e*
**Shippy, B. A.** Detn. of Ti and Fe—control detn. of both in same sample, 6107*f*.
**Shipstead, H.** Vacuum treatment of milk powder, P 1124*a*.
**Shirahama, K.,** Watanabe, T., and Nishiwaki, N. Utilization of fermentation products from seaweeds (I) org. acid fermentation, 1145*i*.
**Shirai, K.** See Sugino, K.
**Shirai, S.** Oxidation of the thin single-crystal film of Cu, 6880*f*.
**Shirakawa, A.** Extractive agents of tannins from kaki shibu, P 2008*e*
**Shirakawa, H.** See Mizushima, S., Terada, K.
**Shiras, R. N.,** and Cannon, C. W. Regulating distn. columns, P 4524*h*
——, Nixon, A. C., and Deal, C. H., Jr. Isomerization of cycloparaffins of nonhydroaromatic structure, P 3605*f*.
**Shirck, F. H.** See Douglass, J. R.
**Shires, G. A.** Tech information service in the rubber industry, 2157*d*.
**Shires, L. B.** See Botkin, C. W.
**Shirley, D. A.** 2,2-Bis(4-methylthiophenyl)-1,1,1-trichloroethane, P 7187*d*, 2,2-bis(4-methoxyphenyl)-1,1,1-trichloroethane, P 9085*d*; see Gilman, H.
**Shirley, H. T.,** and Truman, J. E. Corrosion resistance of high-alloy steels to an industrial atm., 2917*i*
**Shirley, R. K.** S, 6550*i*
**Shirley, R. L.** Use of radioactive P in tooth-metabolism studies of caries resistant and caries-susceptible strains of albino rats, 9220*b*
——, and Benne, E. J. Detn. of Na in plants, 8956*f*
——, Benne, E. J., and Miller, F. J. Cd in biol. materials and foods—dithizone method, 4597*d*, detn. of Zn in plants, 8959*b*.
**Shirshova, A. N.** See Favorskaya, T. A.
**Shiryaeva, T. M.,** and Oks, R. S. Photocolorimetric detn. of small quantities of Fe in $AlNH_4$ alums and finely dispersed Al oxide, 5431*h*
**Shishacow, N. A.** See Shishakov, N. A.
**Shishakov, N. A.** Texture of the $\gamma$-$Fe_2O_3$ $H_2O$ crystals which are formed during corrosion of Fe, 101*h*, see Dankov, P. D.
**Shishido, H.** See Sawai, Ikutaro
**Shishido, K.,** and Narita, S. Natural resin (I) compn. of bird glue, 5205*i*
——, and Nozaki, H. Prepn. of synthetic estrogens. (III) new isomer of 3 (*p*-methoxyphenyl)-3,4-hexanediol, 6031*i*
——, Nozaki, H., and Iwako, T. Prepn. of synthetic estrogens (IV) condensation of biacetyl with phenols, 8370*d*
**Shishido, S.** Electrolytic conduction of fused salts (VI) Lindemann's rule of melting, (VII) viscosity of a simple liquid, (VIII), (IX) viscosity of solns., 12*d*, high viscosity, 7299*f*.
——, and Yagi, R. Viscosity of solns. (II) 7299*f*
**Shishikura, Y.** Detn. of aromatic hydroxyl and amino compds. (II) fractional detn. of IB reaction pos. compds., (III) fractional detn. of IB reaction pos. compds. in urine, 5819*b*
**Shishkina, M. V.** See Malyshev, V. I.
**Shisterman, K. A.,** and Ustalova, Z. A. Detg. the basicity of martensitic slags, 2120*h*
**Shiu, R.** See Tatsuoka, S.
**Shive, W.** See Ackermann, W. W.
——, Ravel, J. M., and Harding, W. M. Interrelation of purines and vitamin $B_{12}$, 4432*e*
——, and Snell, E. E. *N*-Substituted pantoylamines, P 2224*c*.
**Shively, R. F.** See Bricker, M. L.
**Shiver, H. E.** Pentosan concentrate from cottonseed hulls, 5208*i*.
**Shiyanagi, C.** Treatment of cocoons, P 6833*d*
**Shkitin, V. P.** Azo dyes (I), 6948*a*
**Shklover, D. A.** Spectral and color characteristics of fluorescent lamps and methods of control, 6921*c*.
**Shklyar, B. S.,** and Voloshina, I. Ya. Blood cholinesterase in liver disease, 7126*a*.
**Shklyarevich, I. A.** Prepn. of raw materials for the North-West Metallurgical Plant, 1203*d*.
**Shkol'man, E. E.,** and Popova, I. A. Detn. of free phthalic anhydride in glyptal resins, 6542*f*.
**Shkol'nikov, M. G.,** and Chernyak, Ya. A. Glass beads, P 5166*d*.
**Shlesinger, M. A. K.** See Konstantinova-Shlesinger, M. A.
**Shlosberg, E. M.** See Trapeznikov, A. A.
**Shlyakhter, I. A.** App. for rapid analysis of gases, P 4907*d*.
**Shlyakhter, R. A.** See Broun, A. S.
**Shlyapintokh, I. Ya.** See Zel'dovich, Ya. B.
**Shmanenkov, I. V.** See Belopol'skii, A. P.
**Shmatova, E. G.** See Verzhbinskaya, N. A.
**Shmatova, M. I.** See Sychev, N. A.
**Shmidl, A. J.** Maleic acid by oxidation of cyclohexane, P 7039*h*
**Shmidt.** See also Schmidt.
**Shmidt, L. L.** See Volova, E. D.
**Shmidt, N. E.** See Chernyaev, I. I.
**Shmueli, E.** Water balance of some plants of the Dead Sea salines, 8459*f*.
**Shmuk, A.** Prepn. of meotinic acid, 1775*f*.
—— and Guseva, A. R. Synthesis of water sol. analog of vitamin K, 5906*d*
**Shmulevich, E. Ya.** Semimicrochem. method of detn. of K in cast iron, 969*b*.
**Shmundak, D. E.** Alkali reserve of the blood in uterine fibromyoma, 4365*i*.
**Shmushkevich, I.** See Pomeranchuk, I.
**Shnaider, E. E.** See Benin, G. S.
**Shnee, M. S.** See Sharova, A. K.
**Shneerov, Ya. A.** Diminishing the heterogeneity of rimmed steel, 4200*f*.
**Shneerson, B. L.** Dust collecting and gas purification in nonferrous metallurgy plants, 1293*e*
**Shneider, Yu. I.** Etiology of brown (green) mottling on cucumbers, 6704*e*
**Shnidman, L.** See Yeaw, J. S.
**Shnitser, I. S.** Effect of B vitamins on stomach acidity, 7101*b*.
**Shobayashi, G.** Compounding ingredients (I) inorg. accelerators and their stearates, 3225*f*, (II) activating power of various metallic oxides in the compds. using mercaptobenzothiazole as vulcanization accelerator, (III) amt. of ZnO to be used as an activator of org. accelerators (1) results of vulcanization tests, (IV) amt. of ZnO to be used as an activator of org. accelerators (2) calcn. from the compounding formula, 8192*c*, phys. tests of vulcanized rubber, 3226*c*, evaluation of reclaimed rubber as a substitute for raw rubber (I, III), 4889*c*
**Shobert, E. I., II** See Holm, E.
**Shock, D. A.,** and Hackerman, N. Extn. of polar constituents from hydrocarbon solns., field application in natural gas condensate wells, 1951*i*, corrosion of steel in S producing tubes, 9015*i*
**Shock, N. W.** See Smith, L. E.
**Shockley, W.** Electronic polarizability of O in presence of $Ti^{++++}$, 4096*d*; dislocation theory, 7394*d*, see Haynes, J. R.; Heuser, Emil.
—— and Read, W. T. Quant. predictions from dislocation models of crystal grain boundaries, 4072*a*.
**Shodo, S.** See Nishikawa, S.
**Shoeld, M.** Granulated superphosphate, P 828*c*.
——, Wight, E. H., and Sauchelli, V. Rock-acid ratio in superphosphate manuf., 7175*b*
**Shoemaker, B. H.** Isomerization of paraffin hydrocarbons, P 1957*f*
——, Adams, C. E., and Proell, W. A. Mercapto alc. esters, P 3447*f*.
**Shoemaker, D. P.** Method for calcg. the energy of a Bloch wave in a metal, 8784*g*.
**Shoemaker, F. C.** See Bender, R. S.
**Shoemaker, G. L. L.** See Leonard, N. J.
**Shoemaker, J. H.** Salt bath cleaning of castings prior to hot-dip coating with Pb, P 2154*f*; salt-bath cleaning of metals to replace pickling, P 2154*i*; electrolytic cleaning of metal, P 5080*d*.
**Shoemaker, L. M.** See Meier, W. H. D.
**Shoenberg, D.** See Désirant, M.
**Shofer, N.** Corrosion problems in a fluid-catalytic cracking and fractionating unit, 6401*f*
**Shogam, S. M.,** and Trushkina, N. I. Physicochem. properties of Ca arsenates, 5324*a*.
**Shohan, J. B.** Totaquine, P 4431*b*.
**Sholb, M. O.,** Coldwater, L. J., and Sass, M. Hg exposure, 9265*c*.
**Shoji, H.** Ultramicroscopic uneveness of slip planes in crystals, 7767*i*.
**Shoji, N.** See Kitawaki, I.
—— and Fujisaki, T. Synthesis of $C_8H_8$ and toluene from $C_2H_4$ (I) lab. expt. (3) spiral Al plate for packing, 5376*b*.
**Shokal, E. C.** See Evans, T. W.; Morris, R. C.; Wagers, J. K.; Whitehill, L. N.
—— and Bent, F. A. Catalytic polymerization of allyl esters, P 8212*bh*.
—— and Morris, R. C. Dialkylcyclohexyl glycols and derivs., P 1058*c*
—— and Schroeder, C. W. Increasing the rate of polymerization of diallyl phthalate, P 5641*d*
—— and Whitehill, L. N. Allyl glycidyl mixed diether of 2,2-bis(4 hydroxyphenyl)-propane and polymers thereof, P 5046*h*; insecticidal and fungicidal compn., P 5152*e*
——, Whitehill, L. N., and Schroeder, C. W. Polymerization of unsatd. org. compds., P 905*d*.
——, Whitehill, L. N., and Wittenwyler, C. V. Polymers of glycidyl allyl phthalate and related esters, P 8740*c*.
**Shokhin, S. P.** See Abramov, V. S.
**Shokhor, I. N.** See Slobodin, Ya. M.
**Sholes, M. L.** See Eheart, M. S.
**Sholl, H. A.** Machine room instrumentation, 1181*f*, continuous measurement of sheet moisture, 1186*g*, see Murphy, E. A.; Snyder, A. G.
—— and Zimmerman, G. D. Bleach-plant instrumentation, 1184*g*
**Shollenberger, J. H.** See Lathrop, E. C.
**Shomate, C. H.,** and Kelley, K. K. Heat capacities at low temps. and entropies of V carbide and V nitride, 3275*h*.
**Shome, S. C.** Detn. of Fe, 1283*f*
**Shonle, H. A.,** and Van Arendonk, A. M. 4-Dialkylaminoalkylamino-6-methoxyquinolines, P 1812*c*.
**Shoor.** See Shur.
**Shooter, E. M.** See Johnson, P.
**Shopmyer, C. B.** Measuring the effect of die shape and the use of various lubricants in nonferrous wire drawing, 384*c*.
**Shoppee, C. W.** Steroids and the Walden inversion (III) derivs. of 6-ketocholestane—direct proof of the stereochem. orientation of the hydroxy group in cholesterol, (IV) derivs. of 6-ketositostane and 6,17-diketoandrostane, 245*h*, Sommelet reaction, 3800*a*, steroids and related compds., 5003*a*, Serini reaction, 5028*c*; see Boscott, R. J.
**Shor, N. I.** See Terent'ev, A. P.
**Shorb, M. S.,** and Briggs, G. M. Effect of dissocn. in *Lactobacillus lactis* cultures on the requirement for vitamin $B_{12}$, 3062*a*.
**Shore, R. I.** Unit operations in name-plate manuf., 7397*c*
**Shorland, F. B.** Research on fats and related constituents by New Zealand workers, 6433*h*, see Oliver, A. P.
—— and Russell, J. Oil content of New Zealand fresh-water eels, 1201*g*.
**Shorr, E.** Hepatorenal vasotropic factors in cirrhosis, 4363*i*; see Furchgott, R. F.; Mazur, A.
——, Carter, A. C., Smith, R. W., Jr., and Taussky, H. Citric acid excretion in the human, 7591*e*.
**Shorsher, I. N.** Flotation of smithsonite, P 9018*c*
**Short, A. M.** Dehydrating alumina in the production of Al, P 3733*a*.
**Short, A. R.,** *et al.* Synopsis of Physiology (book), 1477*a*.
**Short, C. A., Jr.** See Gray, H. K.
**Short, E. I.** See Brownlee, G.
**Short, F. A.** See Sroog, C. E.
**Short, G. H.** See Schulze, W. A.
**Short, G. R. A.** Essential oils, isolates, and derivs., 4789*d*.
**Short, H. G.,** and Dutton, W. L. Detn. of rare earth elements and yttrium in U compds., 1281*a*.
**Short, H. N.,** and Olmstead, F. Alkylated aromatic compds., P 4005*b*.
**Short, O. A.** See Carlisle, P. J.
**Short, W. F.** See Boots Pure Drug Co. Ltd., Cymerman, J.; Oxley, P.; Stevenson, Herbert A.
—— and Hobday, G. I. Dienestrol, P 4699*f*.
——, Hobday, G. I., and Oxley, P. Sulfonic acid salts of biguanides, P 7040*d*.
—— and Oxley, P. Substituted carboxyamides, P 688*i*; amidines, P 2230*e*; 2-amino pyrimidines and 2-amino glyoxalines, P 7050*d*.
—— and Partridge, M. W. Amidines, P

1062*h*; compds. contg. amidine groups, P 3456*e*.
**Short, W. S.** See Clemo, G. R.
**Shorter, A. J.** Measurement of the heat required in firing clays, 2391*i*.
**Shorter, J.**, and Stubbs, F. J. Strengths of the chloroacetic acids, 4082*i*; additive effect of substituents on the strength of BzOH, 8811*d*.
**Shortley, G.** See Kiess, C. C.
**Shorvon, L. M.** Radiation sickness with particular reference to its treatment by pyridoxine, 3477*e*.
**Shorygin, P. P.** Spectra of combination scattering of naphthalene derivs., 494*a*; spectra of combination scattering and special features of the structure of org. compds., 2868*d*.
**Shorygina, N. N.**, and Kefeli, T. Ya. Reaction of lignin with metallic Na in liquid $NH_3$ (II), 3609*i*.
——, Kefeli, T. Ya., and Semechkina, A. F. Reaction of lignin by metallic Na in liquid $NH_3$, 5589*h*.
**Shostakovich, N.** See Asatiani, T.
—— and Asatiani, T. Penetrating showers produced in Pb, 8200*g*.
**Shostakovskiĭ, M. F.** See Gershteĭn, N. A.; Prilezhaeva, E. N.
—— and Gershteĭn, N. A. Synthesis of unsatd. acetals (IV), 124*f*.
—, Gershteĭn, N. A., and Gorban, A. K. Reaction of vinyl alkyl ethers with halohydrins, 6159*c*.
——, Sidel'kovskaya, F. P., and Kagan, Yu. B. Degree of purity of vinyl alkyl ethers in polymerization processes—polymerization of vinyl butyl ether in the presence of O-contg. org. compds., 995*a*.
**Shostenko, Yu. V.**, and Shtandel, A. E. Analysis of mixts. of isomeric xylenes, 6947*f*.
**Shotwell, R. L.** Comparative effectiveness of poisoned bait and sprays for grasshopper control in Lyman County, S. Dakota, 7185*h*.
**Shoukova.** See Zhukova.
**Shoupp, W. E.** Precision studies of nuclear physics using the electrostatic generator, 8850*c*.
and Hill, J. E. Thresholds for fast-neutron fission in Th and U, 4127*e*.
Jennings, B., and Jones, W. Abs calibration of the $Li^7(p,n)$ threshold voltage, 8805*i*.
—, Jennings, B., and Sun, K. H. Threshold and resonances in $C^{14}(p,n)N^{14}$ reaction and energy levels of $N^{15}$, 4114*i*.
**Shour, V. M.** See Grachev, I. V.
**Shourie, K. L.** See Keyes, P. H.
**Shovers, J.** See Butts, P. G.
**Showa Denko K. K.** Same as Showa Electric Industries Co.
**Showa Electric Industries Co.** Na uranate, P 6377*c*; Na chromate, P 6796*c*.
**Showa Mineral Refinery, Inc.** $TiO_2$ from slag contg. low-grade Ti, P 6790*i*.
**Shpak, A. I.** See Tsyskovskiĭ, V. K.
**Shpeier, L. F.**, and Bogunets, N. P. Acyl derivs. of Sovarsen (3-amino-4-hydroxyphenylarsenoxide), 6178*i*.
**Shpeisman, V. M.**, and Elenevskaya, E. V. Detn. of graphite in malleable cast iron, 970*b*.
**Shpilev, F. S.** Removal of Cu from cognac alc., 5901*c*.
**Shpol'skiĭ, E. V.** See Baranov, S. S.
——, Il'ina, A. A., and Bazilevich, V. V. Fluorescence spectra of anthracene, 1,2-benzanthracene, and some of their derivs., 498*a*.
**Shportenko, P. I.** Prepn. of ammonium molybdate from ferromolybdenum, 4819*c*.
**Shrader, R. E.** Temp. dependent structure of the emission spectra of two cryst. forms of the Zn silicate-Mn phosphor, 8281*a*.
**Shrager, A. M.** Elementary Metallurgy and Metallography (book), 6562*b*.
**Shralbman, S. S.** Corrosion of brine-carrying equipment in Cl plants, 2743*h*
**Shreder, V. N.** Biochemistry of leucocytes and wounds, 8045*a*.
**Shreeve, W. W.**, Feil, G. H., Lorber, V., and Wood, H. G. Distribution of fixed radioactive C in glucose from rat liver glycogen, 3476*g*.
**Shreffler, R. G.** See Cork, J. M.
**Shreiner, L. A.** See Epifanov, G. I.; Lyubimova, T. Yu.; Pleteneva, N. A.
**Shreve, O. D.**, and Markham, E. C. Effect of EtOH in the electroreduction of *p*-nitroaniline at the dropping-Hg electrode, 8908*b*.
**Shreve, R. N.** Alkylation, 7759*b*.
**Shrikhande, J. G.** Assimilation of P during the decompn. of plant materials, 4802*e*; biol. decompn. of green manures (II) effect of naturally occurring tannins on decompn., 9323*e*; (III) chem. character of humus in compost heaps, (IV) loss of lignin during aerobic fermentation, 2724*c*; developments in sugar chemistry and by-products research, 6439*g*; chem. compn. of humus in composts, 9326*e*.
—— and Dev, R. Use of Br in the detn. of aldoses, 1290*d*; deodorization of sirup from Khandsari molasses and gur, 4879*h*
—— and Pathak, A. N. Earthworms and insects in relation to soil fertility, 9323*a*
**Shriner, R. L.** See Howard, E. G.; Johnston, H. W.; Smith, Walter T., Jr.
——, Johnston, H. W., and Kaslow, C. E. Isobenzopyrylium salts (I) prepn. and reactions of 1-phenyl-2-benzopyrylium salts, 5778*a*.
**Shrivastava, D. L.**, Singh, G., and Ahuja, M. L. Immunochem. studies of *Vibrio cholerae*, 8518*f*.
**Shrivastava, R. K.** See Hilditch, T. P.
**Shrivastava, S.** See Lal, K. N.
**Shropshire, R. F.** Extn. of oils from fish material, P 6844*c*.
**Shropshire, W. W.** App. for deznicking Zn-Pb ores with Cl, P 3339*g*
**Shroyer, J. H.** See Clausen, D. F.
**Shtandel, A. E.** Density formula for intermittent exposures on photographic plates, 4155*f*, nonequil. states in chem. reactions, 5266*b*, quant. absorption spectrographic analysis, 6933*f*; nonequil. states arising in microheterogeneous systems, 8801*f*; see Shostenko, Yu. V.
**Shteinberg, D. M.** Insect hormones, 8066*f*
**Shteinberg, L. M.** See Zil'berfarb, M. I.
**Shteinberg, M. M.** Hardening and dehardening of binary Fe alloys, 1618*h*; see Sadovskiĭ, V. D.
**Shtenberg, A. I.** Arsenic in plant and animal tissues and the effect of tissue arsenic on the organism of warm blooded animals, 5871*a*.
**Shtern, E. A.** Serological properties of *Azotobacter*, 5448*h*
**Shtern, V. Ya.** See Fok, N. V.
—— and Polyak, S. S. Cold-flame and upper-temp. oxidation of propylene, 5268*e*, branched-degenerate nature of the oxidation of propylene, 6058*i*.
**Shternberg, A. A.** See Klassen-Neklyudova, M. V.
**Shternina, E. B.** Calcn. of the soly. of calcite in aq. solns., 2073*d*, calcn. of soly. of $CaSO_4$ in aq. solns. of salts, 6889*e*.
**Shtifman, L. M.** Electrocapillary curves of Hg in the presence of multivalent ions, 4545*c*.
**Shtshukin, P. A.** See Shchukin, P. A.
**Shturm, L. D.** Sulfate reduction by facultative aerobic bacteria, 5448*c*.
**Shu, P.**, and Johnson, M. J. Interdependence of medium constituents in citric acid production by submerged fermentation, 813*i*.
**Shubenko, M. A.** See Nelman, M. B.
**Shuck, G. R.**, and Lingafelter, E. C. Sulfonates (X) Na triisopropylbenzenesulfonate as a colloidal electrolyte, 6041*e*.
**Shü, C. A.** See Meng, H. M.
**Shükarev, S. A.** See Shchukarev, S. A.
**Shugam, E. A.**, Umanskiĭ, M. M., and Zhdanov, G. S. Cryst. structure of dinitronaphthalenes (IV) structure detn. of 2,6-dinitronaphthalene crystals, 4075*a*.
**Shugar, D.** See Rapkine, L.
**Shukin, N. I.** See Novikov, S. S.; Rubinshteĭn, A. M.
**Shukla, J. P.** Yeast for vitamin B complex—production from molasses (II), 328*i*
**Shukla, S. O.** See Bhagwat, W. V.
—— and Bhagwat, W. V. Application of Hammick and Andrew's equation to ternary mixts. (III), (IV), 2854*c*.
**Shull, C. G.** See Wollan, E. O.
—— and Siegel, S. Neutron-diffraction studies of order-disorder in alloys, 4130*i*.
**Shull, E. R.** See Rank, D. H.
**Shull, F. B.** $\beta$-Ray spectra of Eu and W, 486*g*; design of a magnetic double-focusing $\beta$-ray spectrometer and the $\beta$ spectra of Eu and W, 4559*h*, see Braden, C. H.; Slack, L.
—— and Feenberg, E. Interpretation of the $K^{42}$ radioactivity, 8859*h*.
**Shull, G. M.**, Thoma, R. W., and Peterson, W. H. Amino acid and unsatd. fatty acid requirements of *Clostridium sporogenes*, 7083*e*.
**Shull, H.** Vibrational analysis of the 3400 A. triplet-singlet emission of benzene, 5306*a*.
**Shulman, E. H.**, and Robinson, H. B. G. Salivary citrate content and erosion of the teeth, 1101*e*.
**Shulman, S.** See Ferry, J. D.
**Shul'ts, G. E.** Influence of mineral diet on the flowering rate of the cotton plant, 3492*c*.
**Shul'ts, O. R.** Prepn. of naturally fortified Soviet wine, 7635*h*.
**Shul'ts, V. N. S.** See Shur-Shul'ts, V. N.
**Shul'tsev, G. P.** Detn. of blood protein, 5817*i*.
**Shultz, R. C.** Hydrogenolysis as a method for detg. chloroguanide(paludrine), 8612*h*.
**Shulyak, B. A.** See Kurnosova, L. V.
**Shulz.** See Shul'ts.
**Shumilin, A. A.** Mech. strength of unfired magnesite brick, 5560*d*
**Shupe, I. S.**, and Hansen, H. L. Control problems in protection of ampul drugs, 4809*g*
**Shur, A. S.** See Bulnov, N. N.
**Shur, M. F.** See Parkhomovskiĭ, I. A.
**Shuraev, G.** See Bogushev, Z.
**Shuravlev, V. F.** See Zhuravlev, V. F.
**Shurcliff, W. A.**, and Stearns, E. I. New "offset" method of interpreting spectrophotometric curves, 2515*c*.
**Shurmovskaya, N.**, and Kupriyanova, I. Method of detn. of water vapor and O in gases contg. no oxy compds., 971*i*
**Shur-Shul'ts, V. N.** See Klein, B. I.
**Shuse.** See Zhuze.
**Shusherina, N. P.** See Levina, R. Ya.
**Shute, E. V.** See Shute, W. E.
**Shute, W. E.**, Shute, E. V., and Vogelsang, A. Physiol. and biochem. basis for the use of vitamin E in cardiovascular disease, 6296*d*
**Shutt, R. P.** See Johnson, T. H.
**Shuttleworth, R.** See Chalmers, B.
—— and Bailey, G. L. J. Spreading of a liquid over a rough solid, 1240*a*
**Shuttleworth, S. G.** Conductimetric Titrations of Mixed Electrolytes (book), 2126*h*
Cr complex formation by dibasic acids and their salts, 6102*i*, titration app., 7270*i*, cationic Cr complexes, 8183*i*, conductometric elucidation of complex Cr salts, 8939*d*, (IX) Cr sulfate complexes, 6102*g*
**Shvarts, G. L.** See Klinov, I. Ya.
**Shvartsberg, B. V.** Bonding agent for sand in making casting ores, P 9300*h*.
**Shvartsberg, M. B.** See Moiseev, A. A.
**Shvartsburd, L. E.** See Nazarenko, V. A.
**Shvartsman, L. A.** See Temkin, M. I.
**Shvarzman, L. A.** See Shvartsman, L. A.
**Shvedov, E. P.** See Gantman, L. V.
**Shvedov, V. P.** Detn. of Ca and Mg (II) sulfate method, 8950*a*.
——, Gol'dshteĭn, E. O., and Seletkova, N. I. Detn. of Pb in the presence of cations of the second analytical group, 7370*e*.
**Shvetsov, Yu. B.** See Bochvar, D. A., Vinogradova, E. I.
——, Shchukina, L. A., and Shemyakin, M. M. Oxidative and oxidative-hydrolytic reactions of org. mols. (VIII) hydrolytic transformations of hydroxy and acetoxy triketones of the tetrahydronaphthalene series, 7009*g*.
—— and Shemyakin, M. M. Oxidative and oxidative hydrolytic reactions of org. mols. (VII) hydrolytic transformation of a chloro triketone of the tetrahydronaphthalene series, 7009*b*.
**Shwartzman, G.**, and Strauss, L. Vitamin $B_6$ deficiency in the Syrian hamster, 7558*a*.
**Shwedoff, Shwedow.** See Shvedov.
**Sia Schweizer Schmirgel- und Schleif-Industrie A.G.** Flexible abrasive material, P 4826*b*.
**Sibley, J. A.**, and Lehninger, A. L. Detn. of aldolase in animal tissues, 5075*c*; aldolase in the serum and tissues of tumor-bearing animals, 6724*i*.
**Sibley, R. L.** Preservation of butadiene polymers with acetals of hydroxy aldehydes, P 5625*g*.
**Sica, A. J.**, Allgeier, (Sister Ann Miriam), and Cerecedo, L. R. Effect of pteroylglutamic acid and of xanthopterin on reproduction and lactation, 1091*i*.
**Sicard, P.** See Reutenauer, G.
**Sicari, S.** See Fradà, G.
**Sicaud, A. M.** See Mathieu-Sicaud, A.
**Sicé, J.** See Bernard, P.
**S.I.C.E. Società Italiana Commercio Estero.** See Società Italiana Commercio Estero, S.I.C.E.

**Šicha, M.** Microanalytical detn. of Al in steel, 4175*c*.
**Sicha, W. E.** See Fink, W. L.
**Šichéro.** See Shikher.
**Sichikov, M. F.**, Zakharov, B. P., and Kozlova, Yu. V. Detn. of the yield point of high-Cr stainless steels, 539*c*.
**Sickels, J. P.** Alkamine esters of pyrrole-3,4-dicarboxylic acids, P 4302*h*; see Lemon, J.
—— and Sargent, D. E. Alkamine alkyl esters of pyrrole-3,4-dicarboxylic acids, P 4302*g*.
**S.I.C. Société industrielle du caoutchouc S.A.** and L'Eplattenier, G. Reclaiming rubber, P 4510*c*.
**Sicuteri, F.** See Re, P.
**Sidaras, A. P.** Detn. of C black in chocolate, 7158*a*.
**Siddhanta, S. K.** Imperfect complexes (I) study of complexes by Job's method of continued variation, (II) modification of Job's method of continued variation — study of imperfect complexes by calorimetry, 7317*d*.
**Siddiqui, S.** Mosquito-repellent compns., P 352*b*; see Bose, A. K.; Bose, J. L.; Gopalachari, R.
**Sidel'kovskaya, F. P.** See Shostakovskiĭ, M. F.
**Sidenari, R.** See Vanzetti, G.
**Sideris, C. P.**, and Young, H. Y. Growth and chem compn of *Ananas comosus* in soln. cultures with different Fe-Mn ratios, 8018*g*.
**Sidhu, G. S.** See Sen, A. B
**Sidhu, S. S.** See Winsberg, L.
**Sidorenko, V. V.** See Divinskiĭ, A. F.
**Sidorenko, Yu. P.**, and Tomash, K. K. Production of Dinas brick for the arch of open-hearth furnace, 6382*d*
**Sidorenkov, G.** See Deryagin, B. V
**Sidorov, S. K.** Compact electromagnet, 912*b*.
**Sidorova, E.** Lactose production in butter factories, 8569*a*
**Sidorova, N. G.**, and Vdovtsova, E. A. Alkylation of $C_6H_6$ in the presence of $Cl_2AlHSO_4$, 6582*h*
**Sidwell, R.** Sediments at the southern termination of the Sangre de Cristo anticlinorium, 2137*b*.
**Siebel, F. P., Jr.** See Becker, Kurt.
**Siebel, G.** Grain refinement of Mg casting alloys, 6558*b*, stress corrosion studies of Hv 43 and Igedur in different acids, 6961*f*, surface-protection methods for Mg alloys, 7399*b*; solv. of Cr, V, Ti, Mn, and Zr in Al alloys, 7886*i*
—— and Vosskühler, G. H. Development in the heterogenization process for improving the stress corrosion resistance in Al Mg alloys, 8340*h*.
**Siebenmann, C. O.**, and Plummer, H. Gas gangrene—septicum infection, 9164*d*.
**Siebert, G.** From the British to the German pharmacopeia (VI) proposal for the D.A.-B. VII, 5551*i*.
**Siebert, H.** See Goubeau, J.
**Siedel, W.**, Polnitz, W. v., and Eisenreich, F. Bilifuscine and mesobilifuscine as natural decompn. products of blood pigment, 5844*f*.
**Siedlecki, S.**, and Wieser, T. Porphyry in the Czernka Valley, 8320*a*.
**Sieffert, L.** Antirachitic materials, P 2740*d*, 3979*b*.
——, Simond, R., Bouchardy, Mlle., and Mirimanoff, A. Influence of molds on the oxidation of ascorbic acid in aq. solns., 355*c*.
**Siegbahn, K.** Radiation for 225 day $Ag^{110}$, 4949*e*; see Slätis, H.
—— and Ghosh, A. Disintegration of $Ni^{65}$, 7812*g*, 8867*e*.
—— and Hedgran, A. γ-Radiation from $Au^{193}$, 4124*g*.
—— and Lindström, G. Magnetic moments of D, $I^{127}$, and $F^{19}$, 4567*i*.
—— and Slätis, H. Instrument for energy detn. of β- and γ-radiation, 6505*c*.
**Siegel, A.** Phthalocyanine pigments, P 1994*h*
**Siegel, B. M.** Structure of cellulose in the electron-microscope range, 3607*d*.
**Siegel, H.**, and Schwartz, H. Pos. MeOH reactions in the tissues of a young person dying in diabetic coma, 9226*i*.
**Siegel, M. B.**, and Friedman, A. J. Fatal mercurialism due to prolonged intravenous administration of a mercurial diuretic, 8541*c*.
**Siegel, Samuel.** See Riegel, B.
**Siegel, Sidney.** Effect of neutron bombardment on order in the alloy CuAu, 6915*a*; see Shull, C. G.
**Siegel, Stanley.** See Ekstein, H.
**Sieger, G. M., Jr.** See Niederl, J. B.
**Siegert, A. J. F.** See Frerichs, R.
**Siegfried, W.** Creep testing in the light of gas-turbine construction, 2916*d*.
**Siegl, W.** Detection of montmorillonite, 1287*h*; glassy material in the upper Bavarian Molasse formation and its relation to bleaching clay, 4985*g*; gymnite, a cryptocryst. serpentine, 8314*b*.
**Siegler, E. H.**, and Gertler, S. I. *N*-Substituted *m*-nitrobenzamides against the codling moth, 1144*i*; aliphatic *N*-substituted *p*-nitrobenzamides against the codling moth, 5897*g*.
**Sieglinger, J.** See Webster, James E.
**Siegmund, O. H.** See Lands, A. M., Ludueña, F. P.
**Siegrist, A. E.** See Meyer, K. H
**Siehrs, A. E.** See Hess, M. P.
**Siekevitz, P.**, and Greenberg, D. M. Biol. formation of serine from glycine, 9124*f*.
**Sieling, D. H.** See Swenson, R. M.
**Sienko, M. J.** Effects of NaI on the phase sepn. in the system Na–$NH_3$, 8253*b*; see Leffler, J. E.
**Sierens, G.** See Coussens, R.; Peeters, G.
**Siering, O.** Cantharidin drug, 3566*c*.
**Sierp, E.** See Strohecker, B.
**Sierra Jimenez, D. F.** Physicochem. study of hydrolytic adsorption from the viewpoint of chem. analysis, 6882*g*.
**Siesholtz, H. W.**, and Cohan, L. H. Ca carbonate extender pigments, 6836*b*.
**Sievenpiper, F. L.** 1,4-Dihydroxyanthraquinone, P 8692*d*.
**Sievers, A. F.**, and Clarke, I. D. Drying sumac, 9507*c*.
**Sievers, O.** Nonspecific serologic reactions in syphilis, 1856*d*
**Siewerdt, D.** See Siewerdt-Kibat, D
**Siewerdt-Kibat, D.** See Franke, W.
**Siewert, G.**, and Jungnickel, H. Ion exchange in com. Al oxides, 4076*c*.
**Sifford, R. H.** Acid hydrolysis of proteins, P 3054*c*.
**Siffert, R. S.** Demonstration of $P^{32}$ in bone by radioautography, 713*f*.
**Sigalovskaya, K. K.** See Gurevich, V. G.
**Siggel, A.** Katalog der Arabischen Alchemistischen Handschriften Deutschlands (book), 8256*h*.
**Siggia, S.** Quant. Org. Analysis via Functional Groups (book), 4604*g*
—— and Edsberg, R. L. Iodometric detn. of vinyl alkyl ethers, 68*i*, detn of alkyl sulfides and disulfides, 1289*d*
—— and Hanna, J. G. Detn of org. isocyanates and isothiocyanates, 2125*f*; analysis of three-component systems contg. two mutually immiscible components, 8832*i*.
**Sigismund, P.** Two interesting occurrences of magnetite in Val Malenco, 4979*e*.
**Sigmon, H. E.** See Treon, J. F
**Sigmond, A. A. J. de.** Principles of Soil Science (book), 6352*c*.
**Sigmund, R.** Czechoslovak regulations on industrial EtOH, 5530*h*.
**Signaigo, F. K.** Cleaving the -S- group in dialkyl disulfides, P 1794*c*; cellulose oxazolidone ethers, P 3196*h*; 2,3-bis[(acylaminomethyl)mercapto]propanols, P 3571*g*; 2,3 - bis(benzamidomethylmercapto)propanol, P 6223*a*, see Du Pont de Nemours, E. I., & Co.; Pavlic, A. A.; Salzberg, P. L.
**Signal Oil and Gas Co.** Corrosion protection, P 2150*a*.
**Signer, R.** Dry-spinning albuminous masses, P 4021*c*; removing the air contained in casein solns. of high viscosity, P 4021*d*; rendering insol. and hardening threads, ribbons, films, and other filaments obtained from aq. solns. of protein, P 6833*e*; sepn. of substances by dialysis, P 8758*g*; see Nitschmann, H.
—— and Liechti, H. W. Detn. of polydispersity of nitrocellulose from flow birefrigence, 5588*i*.
—— and Schwander, H. Isolation of high-mol.-wt. nucleic acid from calf thymus, 6675*f*.
**Signer, R. J.** Acrylonitrile copolymer film, P 2470*c*.
**Sigov, A. A.** See Lugovtsov, M. V.
**Sigurgeirsson, T.**, and Yamakawa, K. A. Electron-emitting power of stopped mesons, 6504*g*.
**Sigworth, E. A.** Taste and odor control, 9304*i*.
**Sihlbom, E.** See Myrbäck, K.
**Sihlbom, L.** Retene field (I) detn. of the structure of 4-nitro-3-acetaminoretene, (II) structure of 3-hydroxy-9-nitroretene and some of its derivs., 7470*d*.
**Sihtola, H.**, and Svedberg, T. Method to det. the degree of solvation of macromols., 3266*c*.
**Sihvonen, Y. T.**, Fry, D. L., Nusbaum, R. E., and Baumgartner, R. R. Spectrographic analysis of high-Co (Vitallium) alloys, 4181*g*.
**Siintola, S.** See Pätiälä, R.
——, Heilala, P., Pätiälä, J., and Pätiälä, R. Usnic acid and its possible use in medicine, 1353*c*.
**Sikdar, J.** See Basu, U. P.
—— and Ghosh, T. N. Prepn. of 5,5-diphenylhydantoin, 1045*a*.
**Sikeev, Sikejew.** See Zikeev.
**Sikkema, C. P.** Disintegration of N by fast neutrons, 2088*h*.
**Sikora, S.** K fertilizer materials, 8594*f*.
**Silber, R. H.** See Mushett, C. W.; Porter, C. C.
——, Howe, E. B., Porter, C. C., and Mushett, C. W. Growth and maintenance of dogs fed amino acids as the source of dietary N, 5833*a*.
—— and Porter, C. C. Urinary excretion of amino acids and peptides by dogs fed protein hydrolyzates or amino acids, 7558*b*.
**Silberberg, M.**, and Silberberg, R. Age factor in estrogen-induced breast cancers of mice, 2305*i*; role of age in estrogen-induced lymphoid tumors of mice, 7119*d*
——, Silberberg, R., and Hulbert, B. Effect of 20-methylcholanthrene on the transplantability of the skin of mice, 7135*a*.
**Silberberg, R.** See Silberberg, M.
**Silbereisen, H.** Compressing complex metal powders, 4614*b*, sintering of metal powders, 7390*c*; see Bernstorff, H
**Silberfarb, M. I.** See Zilberfarb, M. I.
**Silberman, H.** Prepn. of hydrazine hydrate, 6930*i*.
—— and Silberman-Martyncewa, S. Prepn. of 8-octadecenedioic acid, 5369*e*, compn. of the Et ester of Na formylacetate, 5745*a*.
**Silberman-Martyncewa, S.** See Silberman, H.
**Silberstein, L.** See Bertrand, G.
**Silberstein, V.** See Kenyon, J.
**Silcox, A.** See Bowles, R. F.
**Silcox, W. D.** See Birsch, E. T.
**Siliceo, R. P.** See Perez Siliceo, R.
**Silin, N. F.**, and Moshchinskaya, N. K. Na *p*-nitrophenolate in analytical chemistry, 6935*c*.
**Silin, P. M.** Detn. of the technol. value of sugar beet, 4033*f*; color detn. of sugar, 6439*g*.
**Silina, E. I.** See Klimenko, Yu. V.
**Siliprandi, D.** See Siliprandi, N.
**Siliprandi, N.** See Casella, C.
——, Bonanomi, A., and Simone, N. Detn. of alloxan in blood and tissues, 3868*f*.
—— and Siliprandi, D. Behavior of alloxan *in vitro* in presence of glutathione, cysteine, and nicotinic acid—behavior *in vivo*, 9242*b*.
**Silk, J. A.** See Roche Products Ltd.
**Sillani, L. S.** Total fats, lipoid P, and acetone bodies in human blood under prolonged anoxia, 2302*a*.
**Sillars, R. W.** Electronic semiconductors, 2083*c*; see Hamilton, A.
**Sillén, L. G.** See Berglund, U.; Bethge, P. O.; Biedermann, G.; Myrbäck, K.; Norström, A.; Qvarfort, I.
**Sillers, F., Jr.** Electrolytic Mn in acid elec steel foundry practice, 5714*c*.
**Silliman, H. F.** See Christensen, A. L.
**Silliman, L. R.** Yields and surface quality of rimmed and semikilled steel, 7389*d*; effect of Mn sulfide alloy on surface quality of billets, 7390*b*.
**Sillitto, R. M.** Extension of Kapitza's theory of δ-radiation, 3702*h*.
**Silman, H.** Bright-Ni-plating practice, 4147*a*; Pb-plating of bronze bearing surfaces for high-pressure fuel pumps, 4147*h*.
**Silov, E. A.** See Shilov, E. A.
**Sil's, R. Kh.** See Gindin, L. G.
**Silson, J. E.** Screening test for urinary Pb, 2660*g*.
——, Benjamin, L. P., and Wilson, S. C. Use of Be in N. Y. State, 9265*e*.
**Silva, A. S. de P. e.** See Paula e Silva, A. S. de.
**Silva, D. J. R. de.** See Rosas de Silva, D. J.

**Silva, E. M. da.** See Cruz, W. O.
**Silva, F. J. R.** See Ramirez Silva, F. J.
**Silva, J. M. da.** See Martins da Silva, J.
**Silva, L. B.** See Barbanti-Silva, L.
**Silva, M. R. e.** See Rocha e Silva, M.
**Silva Carvalho, J. L. da.** See Costa Moura, J. E. da.
**Silva Pinto, M. da.** Alkali industry in Brazil, 6793*c*.
**Silveira Pedreira, L.** Química orgânica (book), 7034*g*.
**Silver, A. F.** Cholesterol and capillary permeability, 745*g*
——— and Reed, C. I. Vitamin D and the disappearance of T-1824 from the blood, 737*c*
**Silver, Francis F.** See Schaeffer, M.
**Silver, Frank F.** Splicing Butyl rubber, P 5624*g*.
**Silver, F. P.** Curlator—its application to high-yield newsprint sulfite, 3613*f*.
**Silver, H. F.** Multiple-stage diffusion app. for processing of beet soccettes, P 6448*c*.
**Silver, I.** Shear-impact and shear-tensile properties of adhesives, 4893*a*.
**Silver, M.** See Smith, G. B. L.
**Silver, M. L.** $CO_2$, cerebellum, chloramines, and convulsions, 3106*d*
———, Monahan, E. P., Klein, J. R., and Pollock, G. H. Canine epilepsy caused by flour bleached with $NCl_3$, 9234*a*.
——— and Pollock, G. H. $CO_2$ and the hindbrain in agene-induced canine epilepsy, 1869*e*.
**Silver, R. S.** Calcn. of air entrainment in gas burners, 2823*h*; temp. and pressure phenomena in the flow of satd. liquids, 3668*f*; method of calibration for the Hales radiometer, 6871*g*.
**Silver, V.**, and Marsh, A. Grit and S emission, 3592*i*.
**Silverman, A.** See Rothermel, J. J.
**Silverman, Leslie**, Whittenberger, J. L., and Muller, J. Physiol response of man to $NH_3$ in low concns., 7577*a*.
**Silverman, Louis.** Detn. of Al and Ti in high-temp. alloys, 61*d*; cerate procedure for pentaerythritol, 72*c*; detn. of Pb in high-grade Cu, 1283*h*, analysis of Cd-$(CN)_2$ plating solns., 4972*h*.
——— and Lembersky, H. K. Detn. of Ni in Co-base alloys, 8055*g*.
**Silverman, M.** Metal antagonism of the antibacterial action of atebrin and other drugs, 1826*a*, interactions of atebrin, thiamine, and cocarboxylase, 5057*g*.
**Silverman, S.** Emissivity of Globar, 944*d*; see Herman, R. C.
——— and Herman, R. C. Infrared emission spectra of the oxy-H and oxy-D flames, 4141*i*.
**Silvernail, L. H.** Thickening various latexes with Methocel and other water-sol. materials, 6411*a*.
**Silverstein, R. M.** See Niederl, J. B.
**Silverstone, H.** Levels of carcinogenic azo dyes in the livers of rats fed various diets contg. *p*-dimethylaminoazobenzene—relation to the formation of hepatomas—effect of rice diets on the formation of induced and spontaneous hepatomas, 2310*d*; see Tannenbaum, A.
**Silvestri, N.** Bases and emulsifying agents in the manuf. of ointments and creams, 356*e*; detn. of caffeine, 1680*f*, assay of $HgCl_2$ tablets, 9372*g*.
**Silvestri, S. C.**, and Ponte, G. Thermal changes in lava fumaroles of Etna, 7385*e*.
**Silvette, H.**, Britton, S. W., and Armentrout, C. E. Acceleratory effects on renal function, 3088*e*.
**Silvey, G. A.** See Brown, D. R.
**Silvis, S. J.** See Othmer, D. F.
**Sim, G. M.** See Owen, E. A.
**Simakoff, D. P.** See Simakov, D. P.
**Simakoff, P. V.** See Zimakov, P. V.
**Simakov, D. P.** Automatic feeder for glass-melting tanks, P 9407*f*.
**Simanov, Yu. P.** See Bulgakova, T. I.; Gerasimov, Ya. I.; Gryaznov, V. M.
**Simanová, M. D.** See Drachovská-Simanová, M.
**Simanow, I. P.** See Simanov, Yu. P.
**Simanton, W. A.** Sesame ext. synergized insecticides, P 3969*b*.
**Simek, B. G.**, Coufalik, F., and Choura, J. Crucible coking test, 1947*e*.
———, Coufalik, F., and Stadler, A. Ge content in coals of the Ostrava-Karvina Basin, 2138*h*.
——— and Kučera, E. Improved carbonization test, 1947*a*; app. for the measuring of x-ray spectrographs, 2090*i*.
——— and Ludmila, J. Stability of semicoke during briquetting, 5173*a*.
———, Ludmila, J., and Edinger, J. Carbonization of subbituminous coal under reduced pressures, 1948*a*; influence of pressure on the yields from low-temp. distn. of coal, 5569*i*.
——— and Lukes, J. Expts. on the efficiency of phenol extn. from aq. soln., 1948*g*.
———, Winter, F. K., and Majer, F. Carbonization of coal briquets, 1948*e*.
**Simenauer, A.** See Kahane, E.
**Siméon, S.** See Ferrière, P. J. J. F. de.
**Simha, R.** See Rowen, J. W.
——— and Budge, M. Research in the field of high polymers, 8734*g*.
——— and Wall, L. A. Copolymerization, 2850*g*.
**Siminovitch, D.** See Briggs, D. R.
——— and Briggs, D. R. Chemistry of the living bark of the black locust tree in relation to frost hardiness (I) seasonal variations in protein content, 9167*f*.
**Siminovitch, L.** See Rapkine, L.
**Simionesco, Mlle.** See Damelopolu, D.
**Simionescu, C.** See Alexa, G.
**Simkovics, G.** See Vályi-Nagy, T.
——— and Korossy, S. Substances produced by microorganism inhibiting the action of antibiotics, 8434*h*
**Simmens, L.**, and Urquhart, A. R. Structure of textile fibers (I) why are fibers fibrous? 2779*b*.
**Simmonds, F. A.** See Kingsbury, R. M.
**Simmonds, S.**, and Fruton, J. S. Microorganism exhibiting a growth requirement for peptides, 7079*g*; utilization of amino acids and peptides by mutant strains of *Escherichia coli*, 9148*c*.
**Simmonds, W. J.** See Courtice, F. C.
**Simmonite, D.** Bromination of *p*-aminosalicylic acid, Na *p*-aminosalicylate, and *m*-aminophenol, 7379*e*, see Oberwerger, K. H.
**Simmons, D. N.** See Dunlop Rubber Co. Ltd.
**Simmons, J. W.** Microwave spectra of $CD_3Cl$ and $CD_3I$, 8889*a*, see Smith, Alex G.
**Simmons, L. M.** Display of electronic configuration by a periodic table, 2478*d*
**Simmons, P.**, Fisher, C. K., and Tyler, J. G. Apache wasp in California and its control, 3556*b*
**Simmons, R. H.** Developments in the graphic arts, 403*c*
**Simmons, R. T.** See Jakobwicz, R.
**Simmons, S. A.** Botrytis corm rot, 3961*h*
**Simmons, S. W.** See Tay, R. W.
**Simmons, W. H.**, Forster, A., and Bowden, R. C. Manuf. of R D.X. in Great Britain, 2435*h*
**Simo, M. de.** See De Simo, M.
**Simon, A.** See Abreu, B. E.
**Simon, E.** See Hamilton, W. F.
——— and George, M. F., Jr. Cementing methyl methacrylate plastics, P 2466*i*.
**Simon, E. W.** See Beevers, H.
**Simon, F. E.** Sampling the upper atm., 8215*c*; see Pickard, G. L.
**Simon, F. T.** Spectrophotometer as an aid to dyeing, 6827*e*, 8685*a*.
**Simon, H.** See Grunder, W.
**Simon, I.** Pharmacol. research on bis-tetraethylammonium phosphate, 5499*f*.
**Simon, K.** See Hahn, Fritz.
**Simon, L. E.** Variation in materials, testing, and sample sizes, 5515*f*.
**Simon, M.** Control of sugar-beet nematodes, 3134*d*, 5525*f*
**Simon, N.**, and Narins, L. Effect of hyaluronidase on the absorption of a subcutaneously deposited radiopaque substance, 3477*d*.
**Simon, S. E.** See Fantl, P.
**Simon, T.** See Góth, Endre.
**Simon, V.** See Tomíček, O.
**Simon, W. H.** Manuf. of electrodes, 8899*b*
**Simón Arias, R.** Continuous still for oil-extn. units, 7269*h*.
**Simoncelli, F. L.** See Di Stefano, F.
**Simoncini, E.** Evolution of the tannins in Italy, 5617*d*; leather substitutes made with leather fibers, 5618*c*; neutralization of chrome leather, 9510*e*.
——— and De Pisapia, N. Surface tension of aq. solns. of tanning exts., 4503*g*.
**Simond, R.** See Sieffert, L.
**Simonds, F. C.** Heat exchanger, P 6874*e*.
**Simonds, H. R.**, Weith, A. J., and Bigelow, M. Handbook of Plastics (book), 4893*g*.
**Simone, N.** See Siliprandi, N.
**Simonen, A.** Petrology of the Aulanko area in southwestern Finland, 3323*f*.
**Simonenko, Ya. P.**, Gol'dman, V. Ya., and Ratner, Z. M. Smelting acid-proof steel EYa1T in a 30-ton elec. furnace, 4581*e*.
**Simonetta, M.** See Piontelli, R.
——— and Mugnaini, E. Liquid-vapor equil. for the systems water-propargyl alc. and benzene-propargyl alc., 930*h*.
**Simonin, R.** See Roger, H.
**Simonis, W.** Assimilation of $CO_2$ and the production of dry matter of plants grown under dry conditions, 5088*h*; hindrance of photosynthesis by NaF at various light intensities, 9176*f*.
**Simonnet, H.**, Michel, E., and Segal, V. Cholesterol content of adrenals of normal and castrated male rats—action of testosterone propionate on the cholesterol contents of rat adrenals and testicles, 1098*c*.
**Simonov, E. V.** App. for taking samples of liquid from drillholes, P 3603*i*.
**Simonov, K. A.**, Tverskaya, S. S., Lapshin, I. M., Ignatiev, A. M., and Preigerson, G. I. Extn. of rubber and guttapercha from grassy and bushy rubber-bearing plants, P 6456*f*.
**Simonova, L. K.** Vladimir Mikhailovich Rodionov, 6477*e*.
**Simon-Reuss, I.** See Friedmann, E.
**Simons, E. N.** See Gregory, E.
**Simons, F. L.** Moisture-sensitive paper, P 1188*g*.
**Simons, H. P.** Fluorocarbon background, 7407*a*, see Albright, C. W.
**Simons, J. H.** C, P 3177*d*, fluorocarbons, P 3834*g*, 3844*b*; see Hart, H.
———, Pearlson, W. H., and Wilson, W. A. Fluorocarbon vapor balance, 1225*g*
———, *et al.* Electrochem. process for the production of fluorocarbons, 2876*d*
**Simons, J. K.** Dicyandiamide derivs., P 3843*c*, dicyandiamide resins, P 9520*b*.
**Simons, M. A.** See Raven, C. P.
**Simons, P.** See Schmitz Dumont, O.
**Simonsen, D. R.** See Fordyce, C. R.
**Simonsen, J. L.** Sesquiterpene ketones, 1354*h*, see Owen, L. N., Vethel, S.
——— and Owen, L. N. Terpenes. Vol. II. Dicyclic Terpenes and Their Derivs. (book), 7949*c*.
**Simonsen, S. H.** See Fischer, R. B.
**Simonson, T. R.** See Koch, C. W., Olson, A. R.
**Simonyi, J.**, and Szentgyörgyi, D. Effect of acetedron and thyroxine on the body temp., 7133*f*.
**Simpkinson, T. V.** Elec.-arc steelmaking (II), 1267*e*.
**Simpson, A. D., Jr.** Mitigation of corrosion on city gas distribution systems, 2150*h*.
**Simpson, F. J.** See Blackwood, A. C.; Tomkins, R. V.
**Simpson, G. K.** Viscosity study of nitrocellulose lacquer emulsions, 5606*g*
——— and Cavanagh, J. P. Stability of nitrocellulose lacquer emulsions, 5606*i*
**Simpson, H. S.** Reclaiming foundry sand, P 1709*b*.
**Simpson, J.** Dehydrator for natural gas prior to its admission into distributing pipes, P 9419*h*.
**Simpson, J. A., Jr.** Properties of ion counters operating at low potentials, 4091*e*.
**Simpson, J. B.** See Fruechtenicht, H. L., Kennedy, W. Q.
**Simpson, J. C. E.** See Keneford, J. R.; Morley, J. S.; Schofield, K.
——— and Wright, P. H. Derivs. of 4-chloro- and 6-nitroquinolines, 1776*g*, nitration of 4-aminoquinoline, 3002*a*.
**Simpson, J. E.** See Vaughn, T. H.
**Simpson, J. H.** Charge distribution and energy levels of trapped electrons in ionic solids, 5311*d*.
**Simpson, J. R.** Champion process for machine coating, 4404*a*.
**Simpson, Marion E.** See Hessler, L. E.
**Simpson, Miriam E.** See Li, C. H.
**Simpson, M. I.** See Challenger, F.
**Simpson, O.** Effect of room-temp. radiation on the infrared response of Pb telluride photoconductors, 4140*d*.
**Simpson, O. C.**, and Thorn, R. J. Detn. of heats of sublimation of slightly volatile substances, 8754*c*.
**Simpson, R.** See Haun, J. C.
**Simpson, R. E.**, and Schweigert, B. S. Folic acid metabolism studies (I) blood conjugases, 6714*h*.
———, Schweigert, B. S., and Pearson, P. B. Effect of succinylsulfathiazole on urinary excretion of folic acid, 5117*i*.
**Simpson, R. W.** Tissue-paper waste treated by save-all closed system, 3548*d*.

**Simpson, S. A.** See Bartlett, S.
—— and Wilder Smith, A. E. Excretion of synthetic estrogens as ethereal sulfates and monoglucuronides, 8506*a*.
**Simpson, S. L.** Major Endocrine Disorders (book), 756*a*.
**Simpson, T. P.** Regeneration of contact material, P 2764*b*, see Payne, J. W
—— and Evans, L. P. App. for hydrocarbon conversion, P 2422*a*
—— and Hornberg, C. V. Multistage regeneration of a moving-bed catalyst, P 3162*e*.
**Simpson, V. G.** See Douglass, I. B.
**Simpson, W.** See Buchanan, W. K.
**Simpson, W. J.**, and Finlayson, D. Stabilized cellulose acetate, P 1979*g*.
**Simpson, W. T.** Electronic states of org. mols., 1653*f*, two simple amidinium vinylogs, 3359*f*.
**Sims, C. E.**, and Banta, H. M. Development of weldable high-strength steels, 6963*e*
——, Case, S. L., and McCabe, C. G. Detg. the solidification time of a casting, P 4624*e*
——, Moore, G. A., and Williams, D. W. Effect of H on the ductility of cast steels, 537*d*, H and N contents of steel during com. melting, 1302*a*
**Sims, E. A. H.** Creatinuria from guanidoacetic acid ingestion and its relation to the site of action of methyltestosterone, 7117*e*, see Hoberman, H. D
and Seldin, D. W. Reabsorption of creatine and guanidoacetic acid by the renal tubules, 7115*g*.
**Sims, G. T.** See Volk, G. M.
and Volk, G. M. Compn. of Florida-grown vegetables (I) mineral compn. as affected by treatment, soil type, and locality, 9289*e*
**Sims, J. L.** See Brown, John W.
**Sims, R. J.** See Hurd, C. D.
**Sina, A.** See Moubasher, R.
**Sinaiko, E. S.**, and Necheles, H. Liver damage by desoxycorticosterone, 9267*e*
**Sinaiskii, G. M.** See Pudovik, A. N.
**Sinclair, D.**, and La Mer, V. K. Light scattering as a measure of particle size in aerosols—production of monodisperse aerosols, 6039*d*
**Sinclair, E. L.** Catalytic contact app. for hydrocarbon conversion, P 2763*i*, see Utterback, E.
**Sinclair, J. D.** See Saunders, J. W.
**Sinclair, J. W.** Avoiding contamination of products, 3179*f*
**Sinclair, R. G.** Prepn. of egg lecithin, 3868*e*
**Sinclair Refining Co.** (*Patents*) Purification of turpentine, 1996*i*, 3212*b*; dehydrogenating satd. nitriles, 2220*e*, 2630*d*, app. for catalytic cracking of hydrocarbon gases, 3188*a*, distn. of aq. alc. exts. of mahogany sulfonates, 3194*e*; β-chloroethacrylonitrile, 3837*b*, α,α′ thiodiglutaric acids, 3840*d*, $NH_3$ recovery, 5160*h*, anticorrosion additive for petroleum oils, 5582*f*, lubricating-oil compn., 5584*h*, nitriles, 7498*c*; α,α′ dithiocarbonodiglutaric acid, 7955*f*, α,α′ trithiocarbonodiglutaric acids, 7955*g*; turbine oil, 8130*h*
**Sindeband, S. J.** Properties of CrB and sintered CrB, 3303*b*; see Norton, J. T.
**Sinde da Cunha, J. D.** Detg. hydroxymethylfurfural in port wine, 3559*a*
**Sinden, A. D.** Classifier of materials 10 100-mesh size, 6011*c*.
**Sinden, J. A.**, and Longwell, B. B. Effect of alloxan diabetes on fertility and gestation, 5106*i*.
**Sinder, R. H.**, Tullis, J. L., and Root, H. F. Serum K levels in diabetic coma, 4369*b*.
**Sindlinger, C. J.** See Hoak, R. D
**Sinel'nikov, A. S.** See Vol'pe, G. S
**Sinel'nikova, A. I.** See Plaksin, I. N.
—— and Khazhinskaya, G. N. Oxidation in alk. medium in selective flotation of sulfide ores, 1293*f*.
**Sinel'shchikova, G. P.** See Tomashov, N. D.
**Sinelstschikowa, G. P.** See Sinel'shchikova, G. P.
**Sinex, F. M.** See Gould, R. G.
**Singal, S. A.**, Sydenstricker, V. P., and Littlejohn, J. M. Tryptophan in the nutrition of dogs on nicotinic acid-deficient diets, 3075*b*; effect of some amino acids on the growth and nicotinic acid storage of rats on low-casein diets, 3075*d*; nicotinic acid content of tissues of rats on corn rations, 3075*f*.
**Singer, C.** Earliest Chemical Industry (book), 8578*b*.
**Singer, L.** See Comar, C. L.
**Singer, M.** Plum kernels as raw material for oil production, 2702*f*, see Dempsey, E. W., Morrison, P. R.
—— and Morrison, P. R. Influence of pH, dye, and salt concn. on the dye binding of modified and unmodified fibrin, 411*f*
**Singer, P. A.**, and Deobald, H. J. Corn germ removal, P 8718*d*
**Singer, R. J. R.** Photoelastic examn. of films of oil varnishes and of stand oils, 8701*f*
**Singer, S. J.**, and Petzold, R. F. Shadow-cast replica technique, 8846*i*
**Singer, T. P.** See Barron, E. S. G., Kearney, E. B.
—— and Hofstee, B. H. J. Wheat germ lipase (I) estn., purification, and general properties of the enzyme, (II) kinetics, 1070*i*.
**Singh, A. D.**, and Kane, L. J. Fluid devolatilization of coal for power-plant practice, 835*b*.
**Singh, B. K.**, and Manhas, K. M. S. Dependence of optical activity on chem. constitution (XXVIII) camphor-β-sulfonates (*d*-, *l*-, and *dl*-) of 2-aminopyridine, 2-aminothiazole, 2 sulfanilamidopyridine, and 6-methoxy-8-aminoquinoline, (XXIX) camphor β sulfonates (*d*-, *l*-, and *dl*-) of *o*-, *m*-, *p*-aminobenzoic acids, *p*-aminoazobenzene, and 4-*o*-tolylazo-*o*-toluidine, 609*i*
—— and Nayar, B. K. K. Dependence of optical activity on chem. constitution (XXX) rotatory dispersion of camphorearboxylic acids, camphors, and 1-borneol, 610*f*, racemic modification of optically active compds. (VIII) degree of dissocn. of racemic camphorcarboxylic acid at its m.p., 6055*e*.
——, Perti, O. N., Singh, M., and Aggarwal, S. L. Phys. identity of enantiomers (VIII) magnetic susceptibilities of *d*-, *l*-, and *dl* forms of camphor β sulfonates of N bases, 8768*d*
**Singh, C.** See Bhargava, M. P.
**Singh, D.**, and Lal, G. Kankar compn. an index of the nature of soil profile, 9314*i*.
**Singh, Gurbakhsh.** See Woodward, R. B.
—— and Singh, M. Synthesis in the acridine series (VI) *N*-substituted 2-chloro-7-nitro-9-aminoacridines, 7937*g*
**Singh, Gurbhagwant**, Rao, M. R. L., and Laxminarayana, H. Resazurin test for milk, 1118*h*.
**Singh, Gurkirpal.** See Shrivastava, D. L.
**Singh, H.** See Biswas, S. C.
**Singh, I.** Tonus and inhibition in unstriated muscle, 7985*b*
**Singh, I. P.** See Singh Verma, I. P.
**Singh, Kartar**, Agarwal, P. N., and Peterson, W. H. Influence of aeration and agitation on the yield, protein, and vit. amin content of food yeasts, 1123*a*
—— and Laxminarayana, H. Growth of starter organisms in abnormal milk, 1196*b*
**Singh, Kesar**, and Johnson, M. J. Evaluation of the precursors for penicillin G, 272*i*
**Singh, M.** See Singh, B. K., Singh, Gurbakhsh.
**Singh, P. G. R.**, Paul, T. M., and Anantakrishnan, C. P. Variations of acidity, alc. test, and phosphate no. in samples of fresh buffalo milk, 1495*i*.
**Singh, Sohan.** Ultraviolet absorption of some rare earth compds.—optical orientation, 2092*i*.
**Singh, Sucha.** See Greulach, V. A.
**Singh, Surjit**, and Chaudhri, J. R. Antiseptics of the acridine series (II) effect of changing Cl atom in *N*-substituted 3-methoxy 9-amino-acridine from position 5 to 7 and 8, 7549*h*.
**Singhania, P.** Handbook of Textile Industry (book), 6424*e*
**Singher, H. O.** See Luschinsky, H. L.; Wakeman, S. A.
**Singh Verma, I. P.** See Moghul, H. K.
——, Paul, T. M., Anantakrishnan, C. P., and Rangaswamy, M. C. Influence of dietary fat on the yield and compn. of butterfat, 1874*f*
**Singleterry, C. R.** See Arkin, L.
**Singleton, F. G.**, and Jenkins, P. W. Coated steel sheets, P 6148*b*.
**Singleton, G.** Purifying fruit juice of peel oil and fatty acids, P 331*c*.
**Singleton, H. M.** Coating for Butyl rubber, P 9520*a*.
**Singleton, H. P.** See Ensminger, M. E.
**Singleton, M. T.** Anaerobic digestion of wool scouring wastes, 8586*i*.
**Singleton, R. H.**, and Spinks, J. W. T. Direct and indirect radioactive methods for detg. the surface area of a Sr sulfate ppt., 6490*c*.
**Singleton, W. F.**, and Johnson, W. C. Moisture-resistant coatings for metal, 5606*c*.
**Singleton, W. S.** Phase investigations of fats (III) systems contg. oleic and palmitic acids and an org. solvent, 6839*a*
**Singsen, E. P.**, Scott, H. M., and Matterson, L. D. Effect of sulfaquinoxaline on growth rate and feed efficiency of chicks, 287*c*.
**Singule, E.** See Brunner, O.
**Singwi, K. S.**, and Kothari, L. S. Viscosity and thermal cond. of mixts. of $He^3$ and $He^4$, 8224*h*.
**Sinha, A. C.** See Ghosh, B. N.
**Sinha, M. S.** Photograph of a shower produced by a π meson and π-μ-decay, 6907*e*.
**Sinha, P. C.**, and Ray, R. C. Pyridine complexes of metallic perchlorates (II) dissocn. pressures and pressure-compn. isothermals of Cu pyridine perchlorates, 3699*f*, (III) compn. and stability of Cu pyridine perchlorates in aq. soln., 2114*a*
**Sinha, S. P.** Flame spectrum of CuCl, 192*e*, ultraviolet bands of $Li_2$, 3712*a*; ultraviolet bands of Na-K, 3712*b*; blue and ultraviolet bands of $K_2$, 3712*c*
**Siniakova, S. I.** See Sinyakova, S. I.
**Siniramed, C.** Ash detns. in Sulcis coal, 3169*b*.
**Sinitskaya, I. G.** See Primer, A. I.
**Sinjakova, S.** See Sinyakova, S. I.
**Sinner, F. v.** See Schönholzer, G.
**Sinnig, O. R.** See Nelson, William L.
**Sinohara, K.** See Shinohara, K.
**Sinovyeva, K. N.** See Zinov'eva, K. N.
**Sinowjew, Yu. M.** See Zinov'ev, Yu. M.
**Sinski, D.** See Landsberg, M. I.
**Sinyakova, S. I.** Polarographic detn. of In, Cd, Pb, and Cu in sphalerites and other minerals, 5330*i*.
**S.I.P.C.A.M. Società Italiana Prodotti Chimici** e per l'**Agricoltura.** Same as Società Italiana Prodotti Chimici e per l'Agricoltura (Milano).
**Siplet, H.** See Komarov, S. A.; Shay, H.
——, Komarov, S. A., and Shay, H. Estn. of mucin in gastric juice, 2264*e*.
**Sippel, A.** Changing the tensile strength and degree of polymerization of artificial fibers by irradiation, and the relation of these phenomena to the mol. fine structure, especially of cellulose derivs., 9456*e*.
**Siramy, M.** See Katz, T.
**Sircar, S. M.**, and De, B. N. Physiology of rice (IV) effect of photoperiodic induction on N metabolism of winter paddy, 3495*a*.
**Sirco, A.-G.** Plant-protective agent for viniculture, P 5528*f*; active Cu oxychloride pesticide, P 6096*h*, purification of waste Cu, P 7358*a*, electrolytic cell for the prepn. of Cu compds., P 7359*d*.
**Sirl, W. E.** Isotopic Tracers and Nuclear Radiations (book), 8898*c*.
**Sirk, H.** Mathematik für Naturwissenschaftler und Chemiker (book), 478*i*.
**Sirkar, S. C.**, and Bishui, B. M. Origin of extra spots in Laue photographs, 8875*e*.
—— and Ghosh, S. F. Production of mesons by nonionizing agents in cosmic rays, 8848*f*.
—— and Saha, N. N. Structure of hydrated cellulose obtained from raw jute fiber, 4009*e*.
**Sirkin, J. K.** See Syrkin, Ya. K.
**Sirochenko, I. A.** See Vlasyuk, P. A.
**Sirota, J.** Detn. of the attack characteristics on a lacquer coating on a plastic base, 4028*b*.
**Sirota, J. H.** See Brod, J.
**Sirota, N. N.** Causes of the metastable system Fe–cementite, 6067*i*.
**Sirotenko, A.** Repetitorium aus der allgemeine Chemie für Mediziner (book), 478*h*.
**Sirotina, O. N.**, and Spirina, A. P. Poisoning by potato solanine, 5129*i*.
**Sirotkin, G. D.** Deterioration in service of V catalysts used for oxidation of $SO_2$, 2744*e*; see Kirillov, I. P.
**Sirsikar, S.** See Deshmukh, G. S.
**Sišakow, N.** See Shishakov, N. A.
**Sisakyan, N. M.**, and Chamova, K. G. Dehydrogenases of plastids, 8454*a*.
—— and Filippovich, I. I. Cytochrome oxidase of isolated plastids, 8454*c*.
—— and Kobyakova, A. M. Prevailing

direction of enzyme action as an index of drought resistance in cultivated plants (VI) adsorption of invertase by tissues of withering plants, 728*d*; phosphorylase in isolated plastids, 3050*a*; enzymic activity of protoplasmic structures, 5061*h*.
——— and Kuvaeva, E. B. Polyphenoloxidase and peroxidase activity of isolated plastids, 1083*c*.
——— and Murutyan, S. A. Sucrose in grapes, 280*e*.
**Sisani, L.** Chem. and microbiol. investigations on vinsanto, an Italian natural sweet wine, 6780*c*.
**Siskin, D. E.** See Ziskin, D. E.
**Siškina, M. V.** See Shishkina, M. V.
**Sisler, H. H.** Why should theoretical principles be used in teaching elementary chemistry? 451*d*.
———, Batey, H. H., Pfahler, B., and Mattair, R. Phase studies of some Group IVa tetrachloride-aliphatic ether systems, 2535*a*.
———, Bush, J. D., and Accontius, O. E. Addn. compds. of $CrO_3$ with some heterocyclic N bases, 2534*b*.
——— and Mattair, R. Phase studies on the binary systems of diethyl ether with the methyl chlorosilanes, 2499*i*.
———, Pfahler, B., and Wilson, W. J. Addn. compds. of the Group IVa tetrachlorides with AsCl$_3$, 2534*i*.
———, Vander Werf, C. A., and Davidson, A. W. General Chemistry (book), 7808*f*.
———, Wilson, W. J., Gibbins, B. J., Batey, H. H., Pfahler, B., and Mattair, R. Phase studies of some Group IVa tetrachloride-aromatic ether systems, 2535*b*.
**Sisley, J. P.** Compds. without active ions—their use in the textile industry, 4016*c*, 5953*e*, 7600*a*, see Marroc, G.; Thiele, M.
**Sisson, R. B.** See King, E. J.
**Sisson, W. A.** Crimped artificial filaments, P 3627*e*, see Kulp, M. P.
**Sister Mary Martinette.** Subcompds., 3672*d*, research projects for senior chemistry students, 8219*h*
**Sita-Lumsden, E. G.** Phenobarbital poisoning—treatment with picrotoxin, 3525*f*.
**Sitaraman, M. V.** See Raman, V. V
——— and Raman, V. V. Electrolytic prepn. of roccelin, 2876*c*.
**Sitch, D. A.** Isolation and fraction of white-birch holocellulose, 3609*g*.
**Sites, J. W.** Internal fruit quality as related to production practices, 1135*d*, 2726*a*
**Sit'ko, P. O.** See Gershenzon, S. M.
**Sitschev.** See Sychev.
**Sitte, K.** Regularities in the disintegration energies of $\beta$-emitters, 6076*i*; contaminated cloud chamber, 7812*c*.
**Sittenfield, M.** Economics of petroleum chem. plant location, 5175*h*.
**Sittig, M.** Processing of acetylene, 3169*e*; catalytic cracking, 5579*g*.
**Sittner, W. R.,** and Huxford, W. S. Infrared spectra of A, Kr, and Xe between 1.15 and 2.25 $\mu$, 4092*b*.
——— and Peck, E. R. Spectra of A, Kr, and Xe between 1.2 and 2.2 $\mu$, 6079*g*.
**Sitton, B. G.** Response of bearing tung trees to N, P, and K fertilizers, 9324*f*.
**Sitton, E. R.** Expansion problems in heat insulation of process vessels, 5236*a*.
**Sitzler, R. R.** High-tenacity cellulose-deriv. yarns, P 9470*c*.
——— and Dennison, G. E. Fluorescent cellulose-acetate filaments, P 7713*e*.
**Siu, R. G. H.** See Stahl, W. H.
———, Darby, R. T., Burkholder, P. R., and Barghoorn, E. S. Specificity of microbiol. attack on cellulose derivs., 7692*g*.
**Sivadjian, J.** Chimie des vitamines et des hormones (book), 4718*h*; see Champetier, A.
**Sivaraman, C.** See Dey, B. B.
**Siver, Yu. G.,** and Kabanov, B. N. Limiting current, concn. polarization, and diffusion coeffs., 6052*a*.
**Sivilla, S. V.** See Vidal Sivilla, S.
**Sivori, E. M.** Plant hormones, 5452*c*.
**Sivori, P. N.** Pharmacol. classification of medicaments, 1531*d*.
**Sivory, G.,** and Czolgos, E. P. Mottled enameled finishes obtained by pptn. of various color-producing salts, 6802*c*.
**Sixman, F. L. J.** See MacGillavry, C. H.; Wibaut, J. P.
———, Wibaut, J. P., Suyver, J. F., Bloem, G., and Loon, M. van. Effect of temp. on the substitution type in the bromination and chlorination of aromatic compds. in the gas phase, 7471*d*.
**Sixtus, K.** See Fahlenbrach, H.
**Sizelove, R. R.** See Kellner, H. L.
**Sizer, A. W.** Extractor of oil from vegetables, as well as from fish meal, P 6437*c*.
**Sizer, I. W.** Inactivation of invertase by tyrosinase, 704*d*; oxidative inactivation of poison ivy allergens and related products by laccase, 6298*f*, enzyme kinetics, 9100*g*, regulation of enzyme activity, 9100*h*; see Quinby, W. C., Jr.
**Sizoo, G. J.** Kernphysica (book), 2517*c*; see Hoogteijling, P. J., Spaa, J. H.
**Sjöberg, S. G.** $V_2O_5$ poisoning, 8525*h*.
**Sjögren, B.** See Lundquist, B.
**Sjöman, P.** Basic-coated and deep-penetration welding electrodes, 4208*c*.
**Sjoerdsma, A.,** and Kun, E. Pharmacol. relation between digitoxin and histamine, 313*i*.
**Sjöstrand, T.** Detn. of carboxyhemoglobin concns., 4320*h*, detn. of the total hemoglobin content of the body, 4320*h*; see Dahlström, H.
**Sjöström, G.** Fe in milk and its distribution, 326*a*; influence of fat solvents on the phosphatase activity of skim milk and buttermilk, 326*d*; harmful fermentations in cheese, 327*d*, see Hansson, E., Larsson, Å.
——— and Larsson, Å. Effect of pasteurization on reduction ability of whole milk, skim milk, and cream, 9278*i*
**Sjöström, L. B.** See Crocker, E. C.
**Sjogren, C. N.,** and Deal, J. M. A petroleum refinery lab., 7673*a* (J. is *Ind. Eng. Chem.* instead of *Anal. Chem.*)
**Sjothun, I. J.,** and Cole, O. D. Processing and tire service characteristics of cold rubber, 8726*d*
**Skadovskiĭ, S. N.** Ca in formation and transformations of the org. matter of lake sediments, 7612*c*.
**Skaggs, L. S.,** Laughlin, J. S., and Lanzl, L. H. External beam of electrons from the betatron, 4094*f*
**Skahen, J. G.,** and Green, D. M. Desoxycorticosterone action (IV) relation of fluid intake and pressor responses to output of antidiuretic factor, 3090*i*
**Skalozubov, M. F.** Sulfatation of storage-battery plate pastes, 7836*c*.
**Skanavi, G. I.** High dielec. const. of crystals, 3673*g*, dielec. const. of alkali halide crystals, 3674*f*.
——— and Demeshina, A. I. Dielec. polarization and dielec. losses in polycryst. dielectrics, 3501*a*
**Skanse, B.** Radioactive I—its use in studying the urinary excretion of I by humans in various states of thyroid function, 2308*e*; see Rawson, R. W.
**Skaperdas, G. T.** Heat transfer, 1227*h*
**Skapski, A. S.** See Cox, E. M.
**Skark, L.** Free Cl in bleach liquors, 401*f*; moistening and elongation of flat fibrous structures, esp. fiberboards, 5591*e*, see Lauer, K.
**Skarzyński, B.** D vitamins, 1846*b*; L. P. Marchlewski, 2825*e*, see Czekalowski, J. W.
**Skau, E. L.** See Burleigh, E. G., Jr.
**Skaupy, F.** Metallkeramik (book), 7890*h*.
**Skebel'skaya, Yu. B.** See Eskin, I. A.
**Skeen, J. R.** Refined naphthalene, 200*c*; anhyd. $NH_3$, 367*f*, $CH_2O$, 563*i*, Na silicate, 1157*i*, maleic anhydride, 1325*c*; aniline, 1342*h*, soda ash, 1535*e*, polymer fractionation, P 4046*h*; $CCl_4$, 5158*i*; see Chaney, N. K.
**Skeggs, H. R.** See Wright, L. D.
———, Huff, J. W., Wright, L. D., and Bosshardt, D. K. Assay of the animal protein factor, 3887*d*.
**Skell, P. S.** See Cowan, J. C.
**Skellon, J. H.,** and Spence, J. W. Metallic compds. of unsatd. acids—their prepn. and properties—influence of the acidic group in autoxidation, 1997*i*.
**Skelly Oil Co.** HCHO, P 2221 refining of crude MeOH, P 7274*h*.
**Skelton, F. R.,** Fortier, C., and Selye, H. Chem. and morphological changes elicited in the adrenal by stilbestrol and a lyophilized anterior pituitary prepn., 7582*g*.
**Skelton, W. E.** Synthetic fuel, P 5180*i*.
**Skempton, A. W.** London clay (II) stability of cuttings and retaining walls, 3163*a*.
**Skerman, V. B. D.** Detection and estn. of sulfide S in bacterial cultures, 6279*d*
——— and Millis, N. Detn. of O concn. and O consumption rates in bacterial culture media, 6279*e*.
**Skerrey, E. W.** See Rigg, J. G.
**Skibbe, I.** See Marx, R.
**Skibniewski, L.** Chem. problems in agricultural utilization of sewage, 5143*c*.
**Skiffington, R. E.** See Brown, E. A.
**Skinner, C. E.** See Sletten, O.
**Skinner, E. M.** Alkylation, P 389*h*.
**Skinner, G. B.** See Campbell, A. N.
**Skinner, G. M.** See Gaines, J. M.
**Skinner, G. S.,** Anderson, R., and Bogart, R. F. Condensation of $\alpha$-carbethoxy-$\alpha$-butyrolactones with amidines and guanidine, 6172*i*.
———, Kleibacker, W. M., Rosenberg, R., Gladner, J. A., and Reed, S. L. Reaction of Br with arylcyanopyruvic esters, 1746*f*.
——— and McNeal, J. H. Decompn. of elastomers at high temps., 2015*a*.
**Skinner, H. A.** Bond dissocn. energies in polyat. mols. of the type $MX_n$, 5242*h*; see Carson, A. S.; Roberts, J. S.
——— and Springall, H. D. Definitions of bond-energy in phys. chemistry, 10*c*.
**Skinner, J.** See Menzies, A. C.
**Skinner, J. B.,** and Maloof, C. C. Medical hazards assocd. with the fish industry in Mass., 2711*e*.
**Skinner, K. S.,** and Kelly, H. J. Ceramic tests of clays from 7 Pacific Northwest deposits, 5559*b*.
**Skinner, L. C.** See Hirst, L. L.
———, Dressler, R. G., Chaffee, C. C., Miller, S. G., and Hirst, L. L. Thermal efficiency of coal hydrogenation, 2754*e*
**Skipper, H. E.** See Bryan, C. E.; Mitchell, J. H., Jr.
——— and Bryan, C. E. Carbamates in the chemotherapy of leukemia (III) chem. structure and antileukemic action of a series of urethan derivs., 6737*a*.
———, Bryan, C. E., Riser, W. H., Jr., Welty, M., and Stelzenmuller, A. Carbamates in the chemotherapy of leukemia (II) chem. structure, leukopenic action, and acute toxicity of a group of urethan derivs., 3107*b*
——— and Chapman, J. B. Carbamates in the chemotherapy of leukemia (VI) influence of urethan and blood acid-base equil. on mouse chloroleukemia 1394, 4385*c*.
**Skirrow, G.** See Barrer, R. M.
**Škitine, V. P.** See Shkitin, V. P.
**Skład, K.** See Kamieński, B.
**Sklenar, W. F.** Reverberatory furnace, P 6965*g*
**Skobec, E. M.** See Skobets, E. M.
**Skobets, E. M.** See Delimars'kiĭ, Yu. K.
——, Berenblyum, L. S., and Atamanenko, N. N. Solid electrodes in polarography (II), 8946*f*.
——— and Kudra, O. K. Polarograms in the absence of a background, 2873*a*.
**Skobets, E. M.** See Skobets, E. M.
**Skoglund, W. C.,** Tomhave, A. E., Mumford, C. W., Kelley, E. G., and Wall, M. E. Carotene from vegetable leaf waste compared with vitamin A in laying rations, 8466*f*.
**Skogsägarnas Oljeaktiebolag.** Retene derivs., P 3461*f*.
**Skogseid, A.** Organolites and $CO_2$ in the prepn. of carbonates, P 6374*d*.
**Skol'dinov, A. P.** See Korolev, A. I.
**Skolnik, M.** Wallboard compn., P 374*f*.
**Skolnik, S.** See Henry, R. A.
**Skoning, J. H. S.** Molds of Al alloy for casting resins, P 9020*d*.
**Skoog, F.,** and Tsui, C. Chem. control of growth and bud formation in tobacco stem segments and callus, 3071*h*.
**Skopintsev, B. A.** Products of acidic hydrolysis of org. matter of natural waters, 789*e*; org. matter in water of Podmoskov'e, 789*i*.
**Skopinseff, B. A.** See Skopintsev, B. A.
**Skornyakov, G. P.** See Noskov, M. M.
**Skorobogatova, E. P.** See Kutsev, S. S.
**Skouby, A.** Variations in aortic pressure during exercise under the influence of selected drugs and by aortic insufficiency, 4775*h*.
**Skow, M. L.** See Conley, J. E.
**Skow, N. A.** Thermosetting plastic laminates (I), 2028*d*; (II), 3651*d*; (III), 7747*b*.
———, Seiler, C. J., Oriani, R. A., and Whitaker, J. S. Adhesive compns., P 3663*a*.
**Skrabal, A.** Chain reactions, 5266*d*.
**Skramlik, E. v.** Concns. necessary to arouse sensations of smell and taste, 7112*a*.
**Skramstad, G.** Luting compo., P 4824*h*.
**Skramtaev, B. G.** Sulfate resistance of cement, 2750*f*.
**Skrebowski, J.** Electron diffraction from anthracene, 4586*d*.

**Skripov, F. I.** Influence of crystal symmetry on the character of the limiting vibrations of mol. lattices, 8783*c*; see Raskin, Sh. Sh.
**Skrobisz, C.** See Sandor, Georges.
**Skrutkowski, E.**, and Niederhauser, J. P. Decompn. of direct dyes during the dyeing of half-wool fabrics, 851*h*.
**Skudrzyk, I.** See Barrenscheen, H. K.
**Skudrzyk, E.** Internal friction in gases and liquids and the absorption of sound, 6878*f*.
**Skue, E. R.** See Konovalev, P. F.
**Skulari, P.** Röntgenography of metals and alloys, 2914*c*, quenching of steel, 3759*c*.
**Skvarchenko, V. R.** See Levina, R. Ya.; Tatevskii, V. M.
**Slabaugh, W. H.** Lecture demonstration of nuclear energy, 2501*h*; lecture demonstrations, 8762*b*.
**Slack, E. P.** See Hausmann, E
**Slack, L.** See Braden, C. H.
——, Braden, C. H., and Shull, F. B Forbidden $\beta$-decay of $Sr^{89}$, 8860*f*.
——, Owen, G. E., and Primakoff, H. Max $\beta$-energy release in tritium, 5293*d*.
**Slack, R.**, and Waters, W. A. Oxidation with chromic acid (II), 2103*i*, (III) glycol fission with chromic acid and chromyl chloride, (IV) kinetics of the initial reaction, 7418*h*.
Slade, R. E. See Brauscombe, D. J; Sexton, W. A.
**Sladick, F., Sr.** Concrete compn., P 6804*a*.
**Slatis, H.** Increasing the efficiency of $\gamma$ counters, 4110*d*, 7327*g*; see Melander, L., Sieghahn, K
and Sieghahn, K Disintegration of $Hg^{203}$, 1125*d*, 7330*f*
Slagh, H. R. Acid inhibitors, P 5730*d*
**Slagle, K. H.**, and Bowman, R. S. Sepn. of pyridine bases, P 3043*d*, concn. of 3-picoline, P 3044*c*
Slagsvold, L. See Brattain, K
**Slanetz, C. A.** See Kaumtz, H
**Slanetz, L. W.**, and Brown, F. A Bacteria in the mouth and their reduction by oral antiseptics, 6698*h*.
**Slankis, V.** Sugars as carbohydrate sources for excised roots of *Pinus sylvestris*, 3494*c*, influence of exudates of *Betula variegata* on the dichotomatic branching of excised pine rootlets, 3891*a*.
**Slansky, P.** Drying and aging of linseed-oil films—formation of volatile compds., 4871*b*
Slater, C. R. See Davis, C. T
Slater, C. S. See Bendixen, T. W.
—— and Hopp, H. Action of frost [repeated freezing] on the water stability of soils, 0771*f*.
Slater, E. C. Cytochrome c1 of Yakushiji and Okunuki, 5060*k*; respiratory catalyst for the reduction of cytochrome b by cytochrome c, 8408*g*; measurement of the cytochrome oxidase activity of enzyme prepns., 9104*a*
—— and Morell, D. B Klett photoelec. fluorimeter, 6472*d*.
Slater, N. B. Unimol. reaction rates, 4084*d*.
Slater, R. Bituminous road surfaces, 1547*e*
Slater, R. B. A. See Alfin-Slater, R. B
Slater, S. G. See Kind, C. A.
Slater, S. N. See Campbell, A. D
Slater, V. W., and Wood, W. S. Na percarbonate, P 369*d*.
**Slatkin, A. D.** Fe or steel base for Ag plating, P 50*e*.
Slattery, M. C. See Cooil, B. J.
Slattery, R. V. See Beadenkopf, W. G
**Slavicek, E.** Math. theory of the diffusion method employed at Tirlemont Refinery, 426*e*; countercurrent leaching, 7272*a*, see Pluháček, R.
**Slávik, J.**, and Borůcek, R. Pptn. of org. substances from sulfite waste liquors, 7227*d*, 8677*h*.
**Slavin, G.** Penicillin in animals, 4339*i*.
**Slavyanskii, A. K.** App. for pyrolysis of wood in an org. solvent, P 9447*b*.
**Slavyanskii, V. T.** Tesla set-up for testing vacuum systems, 911*f*; viscosity of undercooled salol and thymol and their mixts. at different temps., 917*g*.
**Slawson, H. H.** Soaps *vs.* synthetics for hospital laundering, 5976*f*.
**Slawson, I. E.** See Snell, A. H.
**Slawter, P. B., Jr.** Advertising man's viewpoint, 5131*g*.
**Slaybaugh, E. H.** Compn. for fluoroscopic observation and röntgenography, P 3153*g*.
**Sleator, W., Jr.** See Blair, J. M.; Freier, G.
**Sleeth, C. K.** See Marsh, D. F.
**Slegten, J. A.** Defective concrete, 373*e*; cement grinding mill liners, 3589*g*.
**Sleightholm, P.** See Gadsby, J.
**Sleightholme, J. J.** See Armitage, F.
**Slepian, J.**, and Brubaker, W. M. Ambipolar diffusion of ions and electrons 4091*g*.
**Slepian, M. E.** See Slepyan, M. E.
**Slepyan, M. E.** Doubling textiles, P 5200*b*.
**Slesarev, P. A.** Steel for bits for rope drilling, 1303*b*.
**Sletten, O.**, and Skinner, C. E Fungi capable of growing in strongly acid media and in concd. $CuSO_4$ solns., 720*g*.
**Sletzinger, M.**, and Dawson, C. R. Cashewnutshell liquid (IV) heterogeneous nature of the monophenolic fraction of cashewnutshell liquid—structure of the monoolefinic component, 9050*a*.
**Slife, F. W.** See Bever, W. M.
**Slifer, E. H.** Changes in grasshopper egg coverings during development, 5124*e*, isolation of a waxlike material from the shell of the grasshopper egg, 6323*c*; variations during development in resistance of the grasshopper egg to a toxic substance, 8087*d*
**Slifkin, S. C.** Dry developing negative, P 2531*g*, diazotype sensitized papers having cellulose ether sizing, P 8294*g*, see Botkin, C.
**Slimowicz, C. E.**, and Degering, E. F Prepn. and properties of certain alkyl azamalonates, 4228*f*.
**Slinger, F. H.** See Coffey, S.
——, Tatum, W. W., and Imperial Chemical Industries Ltd. Anthraquinone dyes, P 8690*g*
**Slinger, S. J.** See Barlow, J. S.; Motzok, I.
**Sliv, L. A.** See Lavyshev, G. D., Volkhanskii, M. E.
**Sliva, V.** Reformation of natural gas, 3591*f*
**Sliwinski, V. X.** See Hill, E. H
**Sloane, A. B.**, Latven, A. R., and Munch, J. C. *Viburnum* (XVI) rate of extn. of uterine sedative potency, 9385*a*.
**Sloane, R. H.**, and Watt, C. S Emission of neg. ions from oxide-coated cathodes, 8847*i*.
**Sloane-Stanley, G. H.** Tyrosine apodecarboxylase of *Streptococcus faecalis* for the estn. of codecarboxylase, 9135*a*, substrate specificity of the tyrosine decarboxylase of *Streptococcus faecalis*, 9153*f*, see Blaschko, H
**Slobodchikov, B. D.** See Levin, A. N
**Slobodin, Ya. M.**, and Gol'dman, M. M. Soly. of nicotinic and isonicotinic acids, 6207*f*.
——, Rachinskii, F. Yu., and Shokhor, I. N. Polymerization - depolymerization (IV) dimerization of bivinyl, (V) tetramer of bivinyl, 1017*h*.
—— and Shokhor, I. N. Structure of Gustavson's hydrocarbon, 991*d*
**Slobodine, J. M.** See Slobodin, Ya. M.
**Slobody, L. B.**, Benson, R. A., and Mestern, J. Vitamin C in mothers and their newborn infants, 2292*a*.
——, Willner, M. M., and Mestern, J. Vitamin $B_1$ levels in mothers and their newborn infants, 8501*c*.
**Slocombe, R. J.** See Saunders, J. H
—— and Hardy, E. E. Carbamyl chloride, P 2635*h*.
**Slone, M. C.** See Schmidt, L. D.
**Slonim, N. B.** See Smith, Emil L.
**Slonimskii, G. L.** See Kargin, V. A.
——, Vogutskii, S. S., and Margolina, Yu. L. Terminology of the viscometry of dil. solns. of high-polymer substances, 6887*i*.
**Sloogland, A. C.**, and Swoope, C. C. Polymer recovery from low-temp. polymerization of olefinic material, P 442*g*.
**Slosberg, H. M.** See Neuman, W. K.
**Sloss, L. L.** See Dapples, E. C.
**Slotnick, M.**, and Heitler, W. Charge d. and magnetic moments of the nucleons, 7321*a*.
**Slotnik, I.** See Stokinger, H. E.
**Slotter, E. L.**, and Tuomy, J. M. Wheat-starch recovery, P 8718*g*.
**Slotterback, O. C.** Safety fuel ingredients, P 7222*c*; see Morrell, C. E.
**Slottman, G. V.** Movable O blower for decarburizing molten steel, P 7404*a*.
**Slouka, V.** See Churý, J.
**Slovin, D. G.** Coagulation of Neoprene latex, P 1601*e*.
**Sluckaja, Sludskaja.** See Slutskaya, M. M.
**Slutskaya, M. M.** See Ryss, I. G.
**Slutskii, A. M.**, and Kashtelyan, F. D Casting ceramic products, P 3588*f*; app. for continuous casting and drying of ceramic ware, P 9408*b*; collapsible mold for simultaneous casting of several ceramic objects under vacuum, P 9408*b*.
—— and Vasil'ev, N. V. Vacuum chamber for molds for casting ceramic objects, P 9408*b*.
**Slutskaia, M.** See Slutskaya, M. M.
**Slyadnev, A. I.** See Shilov, E. A
**Slyke, D. D. van.** See Van Slyke, D. D.
**Slyke, K. K. van.** See Van Slyke, K. K
**Smadel, J. E.**, Jackson, E. B., and Cruise, A. B. Chloromycetin in rickettsial infections, 7588*i*.
——, Jackson, E. B., Ley, H. L., Jr., and Lewthwaite, R Comparison of synthetic and fermentation chloromycetin in rickettsial and viral infections, 3522*f*.
**Smakula, A.**, and Klein, M. W. Plastic deformation and crystal orientation of Tl halides, 6029*f*.
**Smales, A. A.** Monazite from Bodmin Moor, Cornwall—geochronology (II) analysis of Bodmin Moor monazite for Pb, Th, and U, 4980*b*
—— and Wilson, H. N. Detn. of dimethylamine in aq. solns. contg. $NH_3$, mono- and trimethylamine, 696*b*.
**Small, J.** Parsley seed, 8573*d*.
—— and Jackson, T. Buffer index values in relation to soil-pH tolerances, 2288*e*.
**Small, J. O.** Resins designed specifically for lacquers, 3631*d*
**Small, K. W.** See Small, P. A.
**Small, L. A.** See Lingane, J. J
**Small, L. F.** Chemistry of natural and synthetic analgesics, 1909*f*, see Sargent, L. J.
**Small, P. A.**, Small, K. W., and Cowley, P Vapor pressures of some high-boiling esters, 3677*i*.
**Smalley, O.** White Fe castings, P 2153*a*.
**Smallman, B. N.** Residual insecticides for the control of spider beetles in cereal warehouses, 2729*a*
**Smart, C. L.**, and Whistler, R. L. Stress-strain characteristics of guaran triacetate, 7750*a*
**Smart, C. W.** See Lewis, G. T.
**Smart, G. N. R.**, and Wright, G. F. Triethylenetetranitramine, 569*i*.
**Smart, J. O.** See Burrage, L. J.
**Smart, J. S.** Formation of shielded isobars by the nuclear photoeffect, 3703*b*, effects of nuclear stability on the formation of the chem. elements, 5277*h*; computed binding energies of some light nuclei, 8869*e*.
**Smart, W. A.** See Distillers Co., Ltd.
**Smarzewska, K.** See Hazard, R.
**Smatko, J. S.** See Fink, C. G.
**Smedslund, T. H.** Dimethyl sulfoxide, P 3438*g*.
**Smeeton Leah, A.** Dissocn. and unreleased energy in CO explosions, 849*i*; influence of water vapor on flame temps. in CO explosions, 851*d*
**Smekal, A. G.** Mech. strength and the structure of glass, 5163*d*.
**Smeljansky, I. S.** See Smelyanskii, I. S.
**Smelt, J. A. M.** See Gier, J. de.
**Smelyanskii, I. S.**, and Tsigler, V. D. Coke oven Dinas with Mn binder, 5916*e*.
**Smerha, J.** Detoxication of the solanine in sprouting potato tubers, 8538*c*.
**Smet, A.** Continuous-diffusion method employed at Tirlemontoise Refinery, 2005*d*.
**Smet, G. de.** Pratique des traitements thermiques des métaux industriels (book), 6964*d*.
**Smet, P. de.** See Schwarz, Georges
**Smetak, E. M.** See Albanese, A. A
**Smetana, O.** See Büchle, K.
**Smethurst, P. C.** Dye process for line or half-tone images, 5683*h*, behavior and misbehavior of process fish glue, 7737*c*.
**Smetkin, A. I.** Chem. control of the compn. of feed water and calcn. of condensate return in steam boilers, 6343*e*; increasing coeffs. of extn., 6450*g*.
**Smets, G.**, Masquelier, C., and Tornout, F. van. Soln.- and bulk-polymerization of methyl methacrylate, 8189*d*.
**Smialowski, M.**, Kopeć, B., and Michalik, J. Cracking of soft steel in $NH_4NO_3$ solns. as a result of intercrystn. corrosion, 5722*a*.
**Smidth, F. L., & Co. A/S.** Portland cement, P 2753*a*; app. for filtering suspensions, P 2824*a*; concn. of dolomite and magnesite ores, P 3160*e*; fractional air sepn. of slurry components, P 3249*c*;

Mn salts, P 6375*a*; 2-keto-L-gulonic acid and L-ascorbic acid, P 8919*f*
**Smidth, L.** Forming granulated synthetic resins compns., P 3231*h*; urea-HCHO molding compn., P 5633*h*.
**Smigelskas, A.**, and Barrett, C. S. Preferred orientation in rolled and recrystd. Be, 2557*i*.
**Smihorski, E.** Shear tests of the adhesion of electrodeposited Cr to steel, 2099*g*
**Smiles, F. A.** Alkyd resins in trim and trellis paints, 1579*a*.
**Smiles, J.** See Elford, W. J.
**Smiley, L. D.**, and Lansing, E. S. Electrolytic clarifier of industrial waste waters, P 2102*c*.
**Smiley, R. E.** See Piskac, Y.
**Smiley, W. D.** See Marboe, E. C.
**Smiljanic, A. M.** See Rothman, S.
**Smiljanić, M.** See Pushin, N. A.
**Smilyanitch.** See Smiljanić.
**Smirenskii, V. V.** Detn. of rate of evapn., 6048*b*.
**Smirnov, A. S.**, and Peremyslova, E. S. Sorption of acids on anionites, 1238*b*.
**Smirnov, G. A.**, and Smirnova, T. A. Fe quartzite in a profile of the Proterozoic in the Middle Urals, 527*d*.
**Smirnov, G. D.**, and Serbenyuk, T. V. Content of acetylcholine and cholinesterase in heart tissues, 2686*i*.
**Smirnov, M. N.** See Antipin, P. F.
**Smirnov, N. S.** Prepg. highly concd. aerosols, 7775*e*.
**Smirnov, O. K.** See Graevskaya, R. I.
**Smirnov, S. G.** Detn. of ascorbic acid in vitamin infusions and concentrates, P 6371*a*.
**Smirnov, S. S.** Ore deposits, 73*f*
——, Mikheev, V. I., and Shafranovskii, I. I. Crystals of bipyramidal quartz from the Pb-Zn ore deposits of Tetyukhe, 2898*h*.
——, Shafranovskii, I. I., Mikheev, V. I., Nikolaev, V. A., and Grigor'ev, D. P. Anatoli K. Boldyrev, 5649*g*
**Smirnov, V. A.** Hemicelluloses, 8674*e*
**Smirnov, V. I.** Varvakandi glass works, 9398*h*.
**Smirnov, V. S.** Detn. of fracture strength of metals, 1697*e*.
**Smirnova, K. A.** See Berzon, S. A.
**Smirnova, T. A.** See Smirnov, G. A.
**Smirnova, V.**, and Zueva-Vinimp, L. Defatting bone liquor for prepn. of standard glue, 4504*g*.
**Smirnova, V. A.** See Ryzhkov, V. L.
**Smirnov-Zamkov, I. V.**, and Shilov, E. A. Spatial orientation of the addn. reaction to a multiple bond, 8824*f*.
**Smit, A. J. H.** See Haagen-Smit, A. J.
**Smit, J.** Microbiology of drinking water and sewage, 9305*c*
**Smit, J. A.**, and Vendrik, A. J. H. Ionization of metal vapors in a flame, 5303*g*
**Smit, N. W.**, and Kroger, F. A. Luminescence of ZnS activated by Pb, 8278*h*.
**Smit, W. M.** Application of adsorptive percolation to the analysis of hydrocarbon mixts., 7868*d*.
**Smith, A.** New and Nonofficial Remedies (book), 5552*e*.
—— and Herrick, A. D. Drug Research and Development (book), 2738*e*.
**Smith, A., Jr.** Underground leaks *vs.* cathodic protection, 1705*i*.
**Smith, A. C.**, and Stanbly, J. L. 2,2-Bis-(*p*-chlorophenyl)-1,1,1-trichloroethane, P 1808*c*.
**Smith, A. C., Jr.** Reducing air in beer, 9359*h*.
**Smith, Albert E.**, and Beeck, O. β-Alumina catalysts, P 1931*d*; Li-Al catalyst, P 6762*i*.
**Smith, Allen E.** See Hoffmann, O. L.
**Smith, A. E. W.** See Wilder Smith, A. E.
**Smith, Alex. G.**, Gordy, W., Simmons, J. W., and Smith, W. V. Microwave spectroscopy in the region of 3-5 mm., 4141*a*.
**Smith, Andrew G.** Effect of acriflavine and phosphine GRN on lysis of bacteria by bacteriophage, 3066*c*.
**Smith, A. H.** See Edwards, A. H.
**Smith, Allen H.** Temp. dependence of the work function of semiconductors, 4555*d*.
**Smith, Arthur Hamilton.** See Kleiber, M.
—— and Douglass, J. R. Insect respirometer, 5124*d*.
**Smith, Arthur Henry.** See Davis, R. M.; **Marshall**, L. M.; Rizzo, P.
**Smith, A. I.** Gum inhibitor for motor fuel, P 3193*e*.
**Smith, A. K.**, and Johnsen, V. L. Sunflower-seed protein, 2335*c*.
**Smith, A. L.** Control of cotton wilt and nematodes, 3134*f*.
**Smith, A. Lee**, and Fassel, V. A. Detn. of impurities in Be and its compds., 8949*f*.
**Smith, Arthur L.** Influence of fluxes on the cathodo-luminescence of ZnS phosphors, 7826*g*
**Smith, Arthur Levern.** See Clapham, H. F.; Frishman, D.
**Smith, A. N.** Structure of Pb bisilicate frits, 3577*i*, effect of $NH_4Cl$ on some glazes, 3986*i*.
**Smith, A. O., Corp.** Ceramic enamel sheeting, P 5566*g*, enameling continuous thin metal sheet, P 7210*e*
**Smith, A. Q.** Processing varnish and enamel, 7718*d*
**Smith, A. R.** Hazards of industrial exposure to MeBr, 2341*f*
——, Goldwater, I. J., Burke, W. J., and Moskowitz, S. Hg exposure in the fur felt hat industry, 8688*g*
—— and Moskowitz, S. Urinary excretion of Hg, 4018*i*
**Smith, A. S.** Detoxification of cyanide contg. industrial waste liquors, P 3126*f*, extn. of aromatic hydrocarbons, P 8670*b*, see Newman, M. S.
**Smith, A. U.** Antigenic properties of mammalian spermatozoa, 6299*i*
**Smith, A. V.** Cathodic protection in min. current data expts., 7400*g*
**Smith, B.** See Lubatti, O. F.
**Smith, B. O.** See Carlisle, S. S.
**Smith, B. S.**, Carmichael, H., Steljes, J. F., Peabody, C. O., and Craig, D. S. Chalk River ion chambers, 4091*i*
**Smith, B. T.** See Hess, W. C.
**Smith, B. W.**, and Roe, J. H. Detn. of α-amylase in blood and urine, 6691*e*.
**Smith, C.** See Fleming, A.
**Smith, C. B.** See Thomas, W.
**Smith, Clifford E.**, and Blankenship, F. Partial molal vols. in the systems MeOH-$H_2O$ and nitromethane-water at 30°, 2500*a*
**Smith, Clifton E.** See Courtney, A. L., Vaughn, T. H.
**Smith, C. G.** Colloidal behavior of Ca acetate, 5654*d*
**Smith, C. H.** See Wendland, R. T.
**Smith, C. L.** Transient creep in metals, 4615*i*
**Smith, Charles Lea**, and Chevney, L. E. Variability of a typical commercial sta synthetic rubber, 3645*b*
**Smith, Charles Loren.** Chlorinated hydrocarbon insecticides for control of the horn fly, 3135*g*, see Carter, R. H.
**Smith, C. N.** See Travis, B. V.
—— and Burnett, D. Repellents and toxicants as clothing treatments for protection from fleas and ticks, 9349*i*
**Smith, C. R.** Metal mesoxime double sulfates, 8297*a*, double salts of mesoxi 8605*b*, see Mayer, F. L.
**Smith, C. S.** Blowing bubbles for Bragg's dynamic crystal model, 6029*i*, see Farnsworth, M., Ikeuye, K. K.
**Smith, C. S., Jr.** Secretin, P 2104*i*
**Smith, C. W.** Esters of 1,3-alkanediols, P 7503*g*, secondary dinitro ales., P 7952*h*, see Snyder, H. R.
—— and Rasmussen, R. S. Structure of 2-phenyl-4,4-dimethyl-5(4*H*)-oxazolone hydrobromide, 4262*h*
——, Rasmussen, R. S., and Ballard, S. A. Assignment of amide structures to the supposed 2,3-dihydro-2-benzimidazolols and their acylation products, 1273*f*.
**Smith, Dale.** Survival of ladino and common white clover, 7088*f*
—— and Graber, L. F. Influence of top growth removal on the root and vegetative development of biennial sweet clover, 1134*a*.
**Smith, David.** See Miles, F. D.
**Smith, Dean A.** See Barakat, M. R.
**Smith, Delmas A.** See Fisher, E. J.
**Smith, D. A. D.** See Derrett Smith, D. A.
**Smith, D. C.** See Amberson, W. R.
**Smith, D. E.** See Straube, R. L.
**Smith, Donald Milton.** See Mitchell, J. Jr.
**Smith, Donald Murgatroyd**, and Wiggins, G. M. Analysis of high-purity materials, 2539*c*, analysis of rare earth oxides (I) persistent line in arc spectra of rare earth elements, (II) suppression of cyanogen bands in C arc spectra of rare earth oxides, 5337*g*.
**Smith, Douglas M.** See Ferris, S. W.
**Smith, D. P.** H in Metals (book), 988*b*, Pd-H and cognate systems, 4070*h*.
**Smith, D. S.** See Summers-Smith, D.
**Smith, D. V.**, and Miles, G. W. Papermaking machine, P 7686*ef*.
**Smith, E. A.** Sampling liquids, 2043*f*.
**Smith, Ernest A.** See McArthur, D. S.; Shanfield, H.
**Smith, E. F.**, and Dienes, G. J. Improved low-temp. brittleness test, 1208*i*, 8723*d*.
**Smith, Everet F.** Methylamines, P 3440*g*.
**Smith, E. H.** See Anderson, L. T.
**Smith, E. L.** Water supply and its effects on development in the Gold Coast, 6341*e*.
**Smith, Edwin L.**, and **Huggins, R. A.** Effect of dibenamine on blood flow and cardiac output, 6309*g*
**Smith, Emil L.** Isolation and properties of the immune proteins of bovine milk and colostrum and their role in immunity, 300*h*, dipeptidases (II) properties of the glycyl-L leucine dipeptidases, (III) hydrolysis of methylated peptides, Co in the action of glycylglycine dipeptidase, 2249*i*, action of carboxypeptidase on peptide derivs. of L tryptophan, 4712*i*, action of the metal peptidases, 4717*i*, proteolytic enzymes, 9122*i*, see Cartwright, G. E.; Gerlough, T. D., Hanson, H. Theo.; Jager, B. V.
——, Brown, D. M., Fishman, J. B., and Wilhelmi, A. E. Sedimentation, diffusion, and mol. wt. of cryst. pituitary growth hormone 3048*i*
——, Brown, D. M., and Hanson, H. T. Sedimentation behavior and mol. wt. of pancreatic carboxypeptidase, 9117*e*
—— and Hanson, H. T. Pancreatic carboxypeptidase metal protein, 3859*h*, chem. nature and action of pancreatic carboxypeptidase, 7068*d*
—— and Slonim, N. B. Specificity of leucine aminopeptidase, 2245*e*
**Smith, Ernest L.** See Glaxo Laboratories Ltd., Mead, T. H.
—— and Bide, A. E. Penicillin, P 7649*a*
**Smith, E. S. C.**, Fox, A. H., Sawyer, T., and Austin, H. R. Applied At. Power (book) 8898*e*
**Smith, Ella T.** Exploring Biology (book), 1451*i*
**Smith, Ellis T.** See Kolmer, H. S.
**Smith, E. W.** See Hodgson, H. H.
**Smith, F.** Constitution of carob gum, 581*a*, prepn. of mannose, 2171*i*, org. compds. of F, 5002*i*, see Cunneen, J. I.; Jones, A. S., Nicholas, S. D.
—— and Webb, M. Reaction of ketocholanic acids with bromoacetic ester and cyanoacetic ester, 1431*b*
**Smith, Falconer**, and Labaw, L. W. Detg. the rate of diffusion of inert gas through living tissue, 5439*i*.
**Smith, F. A.** See Dounce, A. L.; Flagg, J. F.
**Smith, F. B.** See Thompson, L. G., Jr.
**Smith, F. D.** Octachlorobiphenylquinone, P 813*c*.
**Smith, F. E.** See Cook, H. G.
**Smith, Frank E.** Gravity separator and classifier of washed coal, P 9419*d*.
**Smith, Fred E.** Filter-plant operation at Cambridge, Mass., 335*f*, sludge disposal at water purification plants in New England, 2346*e*
**Smith, F. F.** DDT and other synthetics for control of gladiolus thrips, 5148*g*; see Carter, R. H., Lumsden, D. V.
—— and Boswell, A. L. Control of gladiolus thrips, 5148*i*.
——, Brierley, P., and Fulton, R. A. Responses of some plants to DDT, hexaethyl tetraphosphate, and parathion applied as aerosols, 1523*e*.
——, Fulton, R. A., and Lung, P. H. Control of greenhouse pests by liquefied-gas aerosols, 1523*g*.
——, Lung, P. H., and Fulton, R. A. Parathion in aerosols for the control of pests on greenhouse ornamentals, 810*g*; insecticides and control for pests of greenhouse vegetables, 1141*a*.
**Smith, F. Gordon**, and **Kidd, D. J.** Hematite-goethite relations in neutral and alk. solns. under pressure, 8983*d*.
—— and Peach, P. A. Ore, 8321*f*.
**Smith, Frederick G.**, Robinson, W. B., and Stotz, E. Detn. of peroxidase in plant material, 7074*h*.
—— and Stotz, E. Detn. of phenol oxidase in plant material, 7074*g*; detn. of cytochrome oxidase, 7075*a*.
**Smith, F. J.**, and **Jones, E.** Scheme of Qual. Org. Analysis (book), 3318*d*.
**Smith, F. M.**, **Schrenk, W. G.**, and **King, H. H.** Detn. of B in plant tissue, 1682*c*.

**Smith, Geoffrey.** Mineral position of ECA nations (XII) Sweden, 3118*g*.
**Smith, Gordon.** Detn. of trichloroethylene, 9371*b*.
**Smith, G. B.** Fe oxide pigments, P 1994*d*.
**Smith, G. B. L.** See Henry, R. A.; Schneller, G. H.
——, Silver, M., and Becker, E. I. Reaction between morpholine and chloral, 1780*d*.
**Smith, G. E.** See Nixon, P. P.
**Smith, Gordon E.,** and Hunter, W. Aliphatic acid anhydrides, P 3839*c*.
**Smith, G. E. P., Jr.** See Ambelang, J. C.; Carr, E. L.
—— and Carr, E. L. Thiazylsulfenamide [delayed action] accelerators, P 4508*i*.
**Smith, G. F.** See Openshaw, H. T
**Smith, G. Frederick.** $HClO_4$ in research and industry, 5883*d*.
—— and Brandt, W. W 5,6-Dimethyl-1,10-phenanthroline, 8979*d*.
—— , Fritz, J. S., and Pyenson, H. Detn of butterfat in ice cream, 780*e*.
**Smith, G. H.** See Marsden, S S., Jr., Mysels, K J.; Wilson, J. W.
——, Rogers, L B., and Mysels, K. J Al soap hydrocarbon systems—effect of additives and metathesis, 3633*i*.
**Smith, G. H., Jr.** See Alexander, K.
**Smith, G. K.,** and Obenshain, S S Effect of fertilizer and manure treatments on the exchangeable K in the surface and subsoil of Dunmore silt loam, 2351*h*
**Smith, G. N.** Lipoxidase (IV) effect of changes in temp and pH on lipoxidase activity as detd. by spectral changes in Me linoleate, 4709*f*.
—— and Stocker, C. Detn of amylase activity in pharmaceutical preps , 7639*f*, inhibition of cryst lysozyme, 7980*i*.
—— and Sumner, J B. Activation of lipoxidase, 4709*e*
**Smith, G. S** Polarography with slowly forming Hg drops 3728*e*
**Smith, G. T.,** and Mover, R C Cd recovery at the Donora Zinc Works, 9003*i*
**Smith, G. V.** Strain hardening, 7394*c*; see Fitzgerald, R C , MacMillan, J A
——, Dulis, E J , and Houston, E. G Creep and rupture of several Cr-Ni austenitic stainless steels, 8332*i*
**Smith, Gilbert W.** Analysis of MgO—detn of loss on ignition, silica, Fe, $Al_2O_3$, Ca, Mn, and P, 1287*c*
**Smith, Grant W.** Stable vinyl resin latex, P 3232*d*, construction of titration graphs, 5965*g*, Ag-$NH_3$ ion as promotor for vinyl polymerization in emulsion, P 7264*h*, Ay oxalate ion as promotor for vinyl polymerization in emulsion, P 7265*a*.
**Smith H.** See Gulland, J. M
**Smith, Hindley.** See Hindley Smith
**Smith, H. A.** See Fuzek, J F
—— and Fuzek, J F Catalytic hydrogenation of furan and substituted furans on Pt, 5057*d*
—— and King, W. H. Configuration of isomeric 1,2- and 1,3-dichloropropenes, 558*g*
—— and Meriwether, H. T. Catalytic hydrogenation of the benzene nucleus (V) hydrogenation of benzene, the cyclohexadienes, and cyclohexene, 5752*e*.
—— and Stanfield, J. A. Catalytic hydrogenation of the benzene nucleus (IV) hydrogenation of methyl-substituted benzoic acids, 2904*b*
**Smith, H. B.** AcH from aldol, P 2221*e*.
**Smith, Herbert E.** See Russell, Alfred
**Smith, Howard E.,** Creager, J. E , Weir, R D , and Ward, J. Org. coatings for Mg, 876*b*.
—— and O'Halloran, D. M. Insulating coating having high dielectric strength, P 4873*f*.
**Smith, Herschel G.** See Cantrell, T. L.; Hill, M. L.
—— and Cantrell, T. L. Mineral-oil compns resistant to foaming, P 1501*h*; additive and mineral oil lubricants contg. it, P 1502*a*; lubricating-oil compn., P 7078*d*.
——, Cantrell, T. L., and Hill, M. L. Primary aliphatic amine salts of dialiphatic substituted monothiophosphoric acids, P 665*f*.
——, Cantrell, T. L., and Peters, J. G. Antioxidants for mineral-oil lubricants, P 2424*e*, lubricating-oil additive, P 6405*a*; lubricant, P 7078*i*.
**Smith, H. Grayson.** See Grayson-Smith, H.
**Smith, H. L., Jr.** Thermal compression evaporation, 8677*b*.
**Smith, H. M.** Torchbearers of Chemistry (book), 3702*a*.
**Smith, H. N.** Protecting fixtures and patterns in open storage, 6862*f*.
**Smith, H. O.** See Goldthwait, C. F.
**Smith, H. R.** See Kramer, A.
**Smith, H. S.,** Werner, H. G., Madigan, J. C., and Howland, L. H. GR-S latex polymerized at low temps., 8724*h*.
**Smith, H. W.** See Bell, R. G
**Smith, I. R.** Factors in judging Se rectifiers, 7837*a*.
**Smith, J.** Automatic underfeed stokers applied to down-draft kilns burning salt-glazed sanitary pipes, 2391*g*.
**Smith, Jay A.** See Foá, P P.
**Smith, Jennings A.** Chewing gum contg. Ag bactericides, P 8107*c*.
**Smith, Joseph A.** See Smith, P. T.
**Smith, James B.** See Wilhelm, R. H.
**Smith, John B.** See Salomon, M.
**Smith, J. C.** See Bailey, A. S , Diaper, D. G M ; Morrell, S H ; Waddington, G.
**Smith, Jack C.** See Ballou, J. W.
**Smith, Julian C.** Nitration- Biazzi process, 1711*e*
**Smith, J. Doyle.** See Abbott, L. D., Jr.
**Smith, John D.** Symbiotic microorganisms of aphids and fixation of atm. N, 8562*e*, see Markham, R.
**Smith, J. E.** See Bacon, O C.
**Smith, J. F.** Documentation—government and private, 2826*h*, textile chemistry, 9451*b*
**Smith, J. H. C.** Protochlorophyll, precursor of chlorophyll, 8009*h*; see Koski, V. M.
**Smith, J. J.** Medical approach to the problem of drinking, 9231*c*.
**Smith, J. M.** See Bunnell, D. G ; Hall, R E ; Turner, A A.
**Smith, J. M., Jr.** See Hultquist, M. E.; Kuh, E.; Lemon, J ; Roth, B
——, Stewart, H W., Roth, B , and Northey, E. H. *a*-Aminophenacylpyridines and quinolines, 2207*f*.
**Smith, Janice M.** See Bricker, M. L.
**Smith, J. N.,** and Williams, R. T Detoxication (XXII) metabolism of phenacetin in the rabbit and a further observation on acetanilide metabolism, (XXIII) aniline in the rabbit, (XXIV) metabolism of *p*-phenetidine with some observations on the anisidines, 6314*c*.
**Smith, J. O.** See Bird, M. L.
**Smith, J. R.** See Ball, J S.; Campen, W H
**Smith, J. S. K.** See Kirby-Smith, J. S
**Smith, J. W.** Advances in general and phys. chemistry, 922*f*, 2490*g*, 6015*d*, 6894*c*; see Few, A. V.
—— and Cleverdon, D. Extrapolating dielec polarization data to infinite diln. and recalcn of the apparent mol. polarization and dipole moment of nitrobenzene in various solvents, 5245*c*.
**Smith, K. A.,** and Watson, K. M. High-pressure vapor-liquid equil.—activity coeffs for ideal systems, 8776*c*.
**Smith, K. F.** See Schwope, A D.
**Smith, K. M.** Textbook of Agricultural Entomology (book), 1146*b*; Plant Viruses (book), 2290*f*; see Markham, R.
**Smith, L.** See Tasman, A.
**Smith, Luther.** See Hayden, B.
**Smith, L. A.** Fluoridation at Madison, Wis , 4793*i*; see Stark, W. H.
**Smith, Lee B.** See Calfee, J D.
**Smith, Leighton B.** See Gardiner, K. W.
**Smith, Lloyd B.** See Sweetser, S. B
**Smith, Lynwood B.** See Smith, Marshall E.
**Smith, L. D.** See Zittle, C. A.
**Smith, L. E.,** and Shock, N. W. Intravenous glucose-tolerance tests in aged males, 8558*f*
**Smith, L. E., Jr.** Pos. temp. coeff. of the soft component of cosmic rays, 4093*e*.
**Smith, L. G.** Infrared spectrum of $C_3H_8$, 4572*a*; see Lane, M.
**Smith, L. I.,** and Opie, J. W. *o*-Aminobenzaldehyde, 1742*a*.
—— and Schubert, W. M. Polyalkylbenzenes (XXXIV) reaction between polymethyl-*p*-methoxyanilines and HCHO, 180*b*.
**Smith, L. M.** See Brookman, E. F.; Goldsworthy, L. J.
**Smith, L. N.** Electrodeposition of Ni, P 50*b*.
**Smith, L. T.** Tetrallylpentaerythritol copolymers, P 3658*e*; see Nichols, P. L., Jr.
**Smith, L. W.** See Johnstone, H. F.
**Smith, Lawrence W.,** and Gault, E. S. Essentials of Pathology (book), 756*a*.
**Smith, M. A.** Hg vacuum still, P 7*c*; see Webb, G. M.
**Smith, Margaret E.** See Turner, F. P.
**Smith, Marshall E.,** and Smith, L. B. Piperazine-2 HCl and glycylglycine as nontoxic buffers in distd. water and in sea water, 8419*e*.
**Smith, Maynard E.** See Heidt, L. J.
**Smith, M. F.,** and Greider, H. W. Treating asbestos paper with HF, P 6340*e*
**Smith, Maurice I.,** and Emmart, E. W. Metabolism of the tubercle bacillus (I) production of riboflavin, 5084*i*.
——, Emmart, E. W., and McClosky, W. T. Streptomycin in exptl. guinea-pig tuberculosis, 3878*b*.
——, Jackson, E. L., Chang, Y. T., and Longenecker, W. H. Metabolic fate of 4,4′-diaminodiphenyl sulfone and its isolation from urine, 5817*a*.
**Smith, Melvin I.** See Hixon, A. W.
**Smith, M. J. H.** See Linnell, W. H.
**Smith, M. K.** See Patton, T. C.
**Smith, M. L.** See Lister, B A.
**Smith, M. R.** See Wood, W. B.
**Smith, M S.** Persistence of DDT and benzene hexachloride in soils, 9343*f*
**Smith, N.,** and Speakman, J. C. Acid salts of monocarboxylic acids as pH standards—K hydrogen benzoate and phenylacetate, 8812*g*
**Smith, N. B.** See Orcutt, J. A.; Stokinger, H E.
**Smith, N. H.** See Brubach, H. F.
**Smith, N. L.,** and Schmehl, F. L Catalytic hydrogenation of aryl-substituted aliphatic acids, 2175*e*.
**Smith, N. R.,** and Wenzel, M. E. Soil microorganisms are affected by some of the new insecticides, 1896*h*.
**Smith, O.** See Ellison, J. H.; McGoldrick, F.
——, Ellison, J H., and McGoldrick, F Growth of potato sprouts retarded by 2,4,5-trichlorophenoxyacetic acid, 1893*f*.
**Smith, O. M.** See Friedenberg, E. Z.
——, Burrows, J. A., and Thelan, H Semimicro techniques for general chemistry, 5239*g*.
**Smith, O. W.** Importance of type of Zn used in Zn-HCl hydrolysis of urine, 8430*d*.
**Smith, P. A. S.** See Dice, J R.
**Smith, P. D. P.** Tensor field equations in a region of variable *n*, 6026*f*.
**Smith, P. F.** See Reuther, W.
——, Reuther, W., and Gardner, F. E. Phosphate fertilizer trials with oranges in Fla (II) effect on fruit qualities, 9324*b*
——, Reuther, W., and Specht, A W. Influence of rootstock on the mineral compn. of Valencia orange leaves, 3491*g*, 8019*e*.
**Smith, P. I.** Specialty soap lines, 4256, fat liquor ingredients for fine grain chrome uppers, 3223*c*, detergents in the fur industry, 5213*e*; chemicals in tanning—depilation, 6449*f*.
**Smith, P. K.** See Gimble, A. I.
**Smith, P. L.** See Burstein, E.
**Smith, P. T.,** and Smith, J. A. Electrodeposition of Rh, P 3300*b*.
**Smith, P. V.** See Frank, R. L.; Marvel, C. S
**Smith, Robert.** Reddish chestnut soils of the U S. with the red-brown earths of Australia, 6770*f*.
**Smith, Roscoe,** Bullock, J. L., Bersworth, F. C., and Martell, A. E. Carboxymethylation of amines (I) prepn. of ethylenediamine tetraacetic acid, 9031*h*.
**Smith, Russell.** See Chanutin, A.
**Smith, R. A.** Glare-reduction filter, P 8076*a*; see Diamond, H. W.
**Smith, Ralph B.** Soaps for the laundry, 4032*d*.
**Smith, Reading B.,** and Dresser, T. Distn. calcns. in ideal and nonideal systems, 2*c*.
**Smith, R. D.** See Bell, R P.
**Smith, R. Deverell.** See Deverell-Smith, R.
**Smith, Roland D.,** and Corbin, P. E. Attack of glasses by alk. solns., 5914*g*.
**Smith, R. F.,** Fullmer, O. H., and Messenger, P. S. DDT residues on alfalfa hay and seed chaff, 1898*d*.
——, Hoskins, W M., and Fullmer, O. H. Secretion of DDT in milk of dairy cows fed low-residue alfalfa hay, 1501*b*.
——, MacSwain, J. W., Linsley, E. G., and Platt, F. R. Effect of DDT dusting on honeybees, 2729*b*.
**Smith, R. H.** See Neill, J. M.
**Smith, R. H. N.** See Nimmo-Smith, R. H.

**Smith, Richard J.** Sized glycol terephthalate yarn, P 3628*a*.
**Smith, Robert J.** See Roche Products Ltd.
**Smith, Raymond L.**, Beck, J. V., and Anderson, E. J. Effect of pollen on the sporulation of *Bacillus larvae*, 5081*a*.
**Smith, Robert L.**, Crowley, D. J., and Waldo, P. G. Wetting agents, P 3639*b*.
**Smith, R. M.**, and Browning, D R. Influence of drying on soil buffering in relation to aggregation and other factors, 7620*c*.
**Smith, R. Nelson.** See Pierce, C.
——— and Pierce, C. Heats of adsorption (II), 1638*h*.
**Smith, Ronald N.** See Bray, R.
**Smith, R. P.** See Darken, L. S
**Smith, R. R.** See Cheney, L. C.
**Smith, R. S.** See Moore, W. A.
**Smith, Raymond V.** See Richards, H. T
——— and Richards, H. T. D (*pn*) thresholds, 3282*i*.
**Smith, R. Vincent.** See Eilerts, C. K.
**Smith, R. W.** Sutherland refiners—construction, operation, and performance, 6410*c*.
**Smith, R. W., Jr.** See Shorr, E.
**Smith, Robert W.** See Schwartzwalder, K.
**Smith, S.** Injection molding of thermoplastics, 4344*i*.
**Smith, Sydney**, and Fiddes, F. S. Forensic Medicine (book), 7380*g*.
**Smith, S. C.**, and Wender, S. H Sepn. of xanthine and guanine, 1326*b*
**Smith, S. E.**, Williams, M. A., Bauer, A. C., and Maynard, L. A. Wrist-stiffness syndrome, 6292*f*.
**Smith, S. G.** Mg-K antagonism, 9267*g*.
**Smith, T. B.** Combustible coke—condensable and noncondensable hydrocarbons, P 9421*a*.
**Smith, T. L.**, Ferry, J. D., and Schremp, F. W. Measurements of the mech. properties of polymer solns., 2809*i*.
**Smith, T. R.** See Woolf, D. O.
**Smith, V. F.** See Swift, R. W.
**Smith, V. M.** Enzyme action (XXXVI) dehydrogenation studies on *Merulius lacrymans* and *Marasmius chordalis*, and the mechanism of oxalic acid formation, 9160*h*.
**Smith, Vaughn R.** See Hampton, W. H.
——— and Stevens, D. E Leafing-paint compn., P 3214*d*.
**Smith, Vearl R.** See Schultz, L. H.
**Smith, V. T.** Detg. available $P_2O_5$ in high-lime soils, 1511*c*.
**Smith, W.** See Lewis, R. K.
**Smith, William**, Keeler, J. H., and Read, H J Grain orientation in Ni plate as related to brightness—x-ray diffraction study, 6923*e*.
**Smith, Wilson**, and Westwood, M. A. Factors involved in influenza hemagglutination reactions, 7119*g*.
**Smith, W. A.**, Monaghan, J., and Hay, W. Estn. of slag basicity, 2911*b*.
**Smith, Walter C.**, and Bannister, F. A. Ganophyllite from the Benallt mine, Rhiw, Carnarvonshire, 4606*d*.
——— and Claringbull, G. F. Pyrophanite from the Benallt mine, Rhiw, Carnarvonshire, 5704*h*
**Smith, William C.** Hydrogenation process, P 5794*a*, see Carpenter, D C.
**Smith, Winthrope C.** Rubber plasticizer for low temps., P 5624*h*; adhesion of Butyl rubber to metal, P 6457*a*.
**Smith, W. D.** See Pirani, M.
**Smith, William E.**, and Rous, P. Neoplastic potentialities of mouse embryo tissues (IV) lung adenomas in baby mice as result of prenatal exposure to urethan, 1103*i*.
**Smith, William Edwin.** See Emblem, H G.; Gluck, B.; Meadowcroft, A. E; Shaw, C.
**Smith, Walter F.** See Cook, J. G.
——— and White, H. G. Mixt. of polyvinyl acetal with a diisocyanate-modified polyester or polyester-amide, P 3661*a*
**Smith, William F.** See Stauffer, R. E.
——— and Stauffer, R E. Fog inhibitor for photographic emulsions, P 6099*h*.
——— and Trivelli, A. P. H. Sensitizer for photographic emulsions, P 53*c*; fog inhibitor for photographic emulsions, P 6099*g*.
**Smith, W. K.**, Dodge, P., Luttrell, C., and Feldmahn, A. Site of action of chem. agents in diminishing normal and excessive muscle tension, 8053*b*.
**Smith, W. L.** Thickener with an overload alarm operating discharge controls and means to increase high-pressure water supply to the discharge pipe, P 6011*b*.
**Smith, W. M.** See Mikeska, L. A.
**Smith, Walter R.**, and Beebe, R. A. Heats of adsorption and relative adsorbability of some gaseous hydrocarbons—silica gel and C black adsorbents, 8254*h*; see Schaeffer, W. D.
**Smith, William R.** See Glassmire, W. F.
**Smith, Walter T., Jr.**, and Shriner, R. L. Volumetric analytical methods for org. compds., 2113*h*.
**Smith, William T., Jr.** Detn. of Tl with tetraphenylarsonium chloride, 1284*e*.
——— and Maxwell, G. E. Salts of perrhenic acid (II) Fe family and Mn, 5688*d*.
**Smith, Wendell V.** Kinetics of styrene emulsion polymerization, 1634*c*.
**Smith, William V.** See Smith, Alex. G
**Smith, William W.** Fly control in a small city by use of DDT-oil mist—reduction of fly indexes by use of DDT residual sprays, 1519*f*.
**Smith, Willie W.** See Blount, H C., Jr
**Smithburn, K. C.** See Dick, G. W. A.
**Smithcors, J. F.** See Johnston, R. F.
**Smithells, C. J.** App for handling and heating glass, P 3164*a*, oxidation of $NH_3$ to oxides of N, P 5160*i*, Metals Reference Book (book), 5724*a*.
**Smith-Johannsen, R.** Expts. in the freezing of water, 2061*a*.
**Smith, Kline & French Laboratories.** Secondary cyclohexylalkylamines and their salts, P 1802*c*; vasoconstrictor compn, P 4429*d*, aminoalkyl benzoates, P 4696*g*, aminophthalidylalkanes, P 7510*c*.
**Smithson, F.** Microscopic study of ceramic glazes, 2392*e*; application of phase-contrast microscopy to mineralogy and petrology, 4603*i*.
**Smithuysen, W. C. B.**, and Eerbeek, C. D. F. Chloral, P 5412*c*.
**Smith-White, S.** See McKern, H. H G.
**Smits, D. W.** Folic acid, 1471*d*.
**Smits, G.** See Florijn, E.
——— and Florijn, E Aneurine pyrophosphate content of red and white blood corpuscles, in various states of anemine provision and in disease, 5102*e*.
**Smittenberg, J.** Analysis of gaseous hydrocarbons, 2122*c*.
——— and Mulder, D. Relations between *n*, d., and structure of series of homologous hydrocarbons (I) empirical formula for *n* and d. at 20° of *n*-alkanes and *n* alpha-alkenes, (II) *n* and d at 20° of *n*-alkylcyclopentanes, -cyclohexanes, and -benzenes, 6023*e*
**Smock, G. E.** Solvents, 4788*g*.
**Smock, R. M.** Controlled atm. improve refrigerated storage, 4779*g*.
——— and Southwick, F W. Air purification in apple storage, 3537*d*.
**Smoke, E. J.** Thermal endurance of some vitrified industrial compns, 9403*h*
**Smoker, E. H.** See Chaney, N K.
**Smola, A.** Calcn. of the practical efficiency of a dephlegmator, 6008*h*, basicity of the org amines and their salt formation with weak acids, 6157*h*; acylation of aromatic amines with volatile acids, 6586*b*.
**Smolak, M.**, and Nelson, F. L. Diesel fuel additives, 384*f*
**Smoley, E. R.** Lube oils, 384*c*.
**Smolik, L.** Influence of $(NH_4)_2SO_4$ on the hygroscopicity of the soils, 8593*f*.
**Smolin, D. D.** See Korolev, A. I
**Smolina, L. B.**, and Kalabanovskaya, E. A. Swelling of rubber in the systems: benzene–naphthalene and benzene–alc., 8187*e*.
**Smoliński, S.** See Moszew, J.
**Smoluchowski, K.** Dehydration of coke gas and removal of naphthalene, 6808*g*.
**Smoluchowski, R.** Regularities in the properties of metallic elements, 4066*e*; impingement and stimulation in grain growth, 4205*e*; see Goldman, J. E.
——— and Burgess, H. Vacancies and diffusion in NiAl, 8231*h*.
——— and Turner, R W. Influence of magnetic field on recrystn., 8768*a*.
**Smolyarenko, D. A.**, and Efanov, N. I. Production reserves of large open-hearth furnaces, 4194*d*.
**Smorgonskiĭ, L. M.** Textbook of Org. Chemistry (book), 5409*f*.
**Smorodin, Yu. A.** See Baradzeĭ, L. T.
**Smulikowski, K.** Petrological notes from the Archean areas of Korczyk and Slucz valleys in Volhynia, 1293*a*.
**Smull, K.** See Altman, K. I.
**Smuskowicz, E.** See Farah, A.
**Smyers, F. C.** See Merrick, E. W.
**Smyers, W. H.** Insulated conductor, P 5518*f*; see Young, D. W.
**Smyth, C. J.**, Lasichak, A. G., and Levey, S. Effect of administration of amino acid mixts. on voluntary food consumption, 6710*e*.
**Smyth, C. P.** Dipole moment, resonance, and mol. structure, 4527*a*; see Carter, W. C.; Hennelly, E. J.; Heston, W. M., Jr., Hoffman, J. D.; Kushner, L. M.; Laquer, H. L.; Oriani, R. A.
**Smyth, F. S.** Metabolic effects of renal insufficiency, 3512*a*.
**Smyth, G. M.** Sulfonated triaminodianthrimides for dyeing wool, P 3627*b*.
**Smyth, H. F., Jr.** Range-finding tests—toxicol. control in new product development, 5131*g*.
——— ———, Carpenter, C. P., and Weil, C. S. Range-finding toxicity data, 4401*e*.
**Smythe, B. M.** See LeFevre, R. J. W.
**Smythe, C. V.**, and Drake, B. B. Fungal lipase, P 8417*g*.
**Smythe, J. A.** Chem. analysis of ullmannite from New Brancepeth Co., Durham, 5345*g*.
——— and Dunham, K. C. Ankerites and chalybites from the northern Pennine orefield and north-east coalfield, 5704*i*.
**Smythe, L. E.** Soil science in Fiji (I), (II) examn of soils, 3551*e*.
**Snape, W. J.** See Cantarow, A.; Friedman, M. H F.
**Snapp, O. I.** Insecticides for control of plum curculio on peach, 1143*g*; (II), 5527*a*, control of sucking bugs that cause deformed peaches, 1143*i*
**Snapper, I.** See Saltzman, A
——— and Saltzman, A. Excretion of glucuronates after ingestion of benzoic acid or cinnamic acid as a test of liver function, 2322*h*.
**Snavely, C. A.**, and Vaughan, D. A. Unit-cell dimension of face-centered cubic Cr hydride and space groups of two Cr hydrides, 3260*i*
**Sneddon, H. D.** See Shibler, B. K.
**Sneddon, I. N.** See Mott, N. F.
——— and Touschek, B F. Excitation of nuclei by electrons, 4098*e*; production of mesons by electrons, 5293*c*.
**Sneddon, R.** Dry Ice from natural gas, 2343*b*.
**Snedecor, J. G.** Effects of sex hormones on the embryonic reproductive system and comb of the white leghorn chick, 5478*f*.
**Sneep, J.** Biochemistry of parasitism, 1827*h*
**Snell, A., Jr.** See Friedenwald, J. S.
**Snell, A. H.**, Goodman, C., Abelson, P. H., Scalettar, R., Branch, G. M., Slawson, I. E., and Stanley, W. E. Criticality studies of the enriched-U heavy-water chain-reaction system, 4091*d*.
**Snell, E. E.** Physiologically active pyridoxine derivs., P 725*c*, 3154*d*, 7648*e*; see Carter, H. E.; Cravens, W. W.; Herbst, E. J; Holden, J T.; Kitay, E; MacLeod, R. A.; Rabinowitz, J. C.; Shive, W.; Williams, William L.
——— and Broquist, H. P. Identity of several unidentified growth factors, 9144*c*.
———, Kitay, E., and Hoff-Jørgensen, E. Carbohydrate utilization by a strain of *Lactobacillus bulgaricus*, 2669*h*.
———, Kitay, E., and McNutt, W. S. Thymine desoxyriboside as an essential growth factor for lactic acid bacteria, 270*b*.
——— and Rabinowitz, J. C. Microbiol. activity of pyridoxylamino acids, 723*a*.
**Snell, F. D.** Soap *vs.* synthetic detergents, 6843*c*; see Reich, I.
——— and Reich, I. Dispersing powers of detergents, 6436*e*.
——— and Shapiro, R. L. Water sterilizer, P 4406*i*.
**Snell, F. D., Inc.** Water sterilizer, P 4406*i*, resin-wax compn., P 9495*a*.
**Snell, N.** See Michener, H. D.
**Snell, R. L.** See Schweiger, L. B.
**Snelling, H. B. W.** Overshoe lining, P 2716*b*.
**Snellman, O.** See Erdos, T.
——— and Erdos, T. Analysis of crystd. myosin, 3866*e*; electron microscopic study of myosin, actin, and actomyosin, 3867*a*.
——— and Tenow, M. Ultracentrifugal studies of the myosin solns. of Greenstein and Edsall, 2650*g*.
**Snelson, J. T.** Mothproofing, 7186*d*.
**Snetsler, A.** Detection of poison gas, P 5237*h*.
**Snider, A. V.** See Morris, R. C.
——— and Morris, R. C. Aminotrimethylhexanoic acids and their lactams, P 3450*i*.

**Snider, G. G.** See Hoagland, R.
**Snipes, B. T.,** Cooper, R. S., and Clark, S. W. Effectiveness of variations in spray pressure, rotenone concn., S content, diluents, and application methods in cattle grub control, 1520*f*.
**Snipper, L. P.** See Bunnett, J. F.
**Snodgrass, A. S.** See Poe, C. F.
**Snoek, J. L.** Developments in ferromagnetic materials, 6016*i*; low-loss, high-resistance magnet core, P 1306*f*; magnet core with high permeability, P 1306*i*; magnet cores with small loss at low inductance, P 1307*a*.
**Snoke, J. E.,** and Neurath, H. Structural requirements of specific substrates for chymotrypsin (I) contribution of the secondary peptide group, 7989*i*.
———, Schwert, G. W., and Neurath, H. Specific esterase activity of carboxypeptidase, 4712*b*.
**Snook, G. F.** See Ellis, B.
**Snow, A.** See Brimley, R. C.
**Snow, C. M.** See Lacher, J. R
**Snow, D.** Influence of humidity on the growth of molds which cause deterioration of stored feeding stuffs, 9275*f*.
**Snow, E. A.** Pine bark as a source of tannin, 7732*c*.
**Snow, G. A.** See Coor, T.; Francis, J.
**Snow, J. E.** See Barth, R. H.; Poitras, H. A.
**Snowden, L.** See Myles, J. R.
**Snowdon, S. C.** See Herb, R. G.
**Snyder, A. G.,** and Sholl, H. A Instrumentation—crux of sulfite-mill process control, 3608*b*.
**Snyder, E.** Protection of nonferrous metal surfaces, P 1710*i*; material for increasing the corrosion resistance of ferriferous metals, P 5730*g*; prepg. surfaces of ferriferous metals for the reception of a siccative finishing coat, P 5730*i*; treating surfaces of Fe, Zn, and alloys of each, P 8315*h*
**Snyder, F. H.,** Klahm, G. R , and Werner, H W. Metabolism of 2-[α-(2-dimethylaminoethoxy) - α - methylbenzyl]pyridine succinate (Decapryn succinate), 8551*e*
**Snyder, F. M.** See Cross, H F.
——— and Cross, H. F. Field tests of uniforms impregnated with mite toxicants (II) stopping time studies, 3555*a*
**Snyder, H. E.,** and Culbertson, J. W. Pigment nephropathy in battle casualties, 751*g*
**Snyder, H. R.** See Tishler, M
——— and Brewster, J H. Amine exchange reactions of Mannich bases, 2183*f*, stereochem course of amine replacement reactions—reactions of *d*(+)-trimethyl(1-phenylethyl)ammonium iodide, 2967*a*, reaction of β-dimethylaminopivalophenone and its methiodide, 4239*a*; amine replacement reactions of 1-(dimethylaminomethyl)-2-methoxynaphthalene, 4249*i*.
——— and Eliel, E. L. Synthesis of 1-methyltryptophan, 1397*e*; amine exchange reactions of 1-methylgramine, 1763*c*; C alkylations with 1-methylgramine and its methiodide, 3405*b*.
———, Howe, E. E., and Zambito, A. J. Tryptophan intermediates, P 2643*d*.
——— and Pilgrim, F. J. Prepn of 3-indoleacetic acid—synthesis of tryptophol, 1397*c*; synthesis of 6-methylindole and DL-6-methyltryptophan, 1397*g*.
——— and Poos, G. I. 1-Cyano-1,3-butadienes (II) C structure of the adduct formed by the Diels-Alder condensation of 1-cyano-1,3-butadiene with 1,3-butadiene, 4218*a*; (III) dimer of 1-cyano-1,3-butadiene, 6172*e*.
——— and Smith, C. W. Tryptophan and intermediates therefor, P 2643*d*.
———, Stewart, J. M., and Myers, R. L. 1-Cyano-1,3-butadienes (I) cis and trans isomers of 1-cyano-1,3-butadiene, 4217*g*.
——— and Tishler, M. Improvements relating to the prepn of amino acids and their intermediates, P 7956*b*.
———, Walker, H. G., and Werber, F. X. Synthesis of β-carbolines (V) 1-amino-β-carboline, 3416*f*.
———, Weaver, C., and Marshall, C. D. Prepn. of 3,3'-dibromobiphenyl and its conversion to organometallic compds., 2979*c*.
**Snyder, H. S.** Fluctuations for proportional counters, 4091*e*; cascade theory, 4099*b*; see Scott, W. T.
——— and Scott, W. T. Multiple scattering of fast charged particles, 8845*d*.
**Snyder, J.** See Witter, R. F.
**Snyder, J. C.** See Bovarnick, M. R.
**Snyder, J. E.** Delustering copolymer filaments, P 8693*e*.
**Snyder, J. N.** See Furry, W. H.
——— and Furry, W. H. Perturbation theory as applied to collision stimulated processes, 8257*c*.
**Snyder, P. E.** See Huff, G.
**Snyder, R. M.** Coating compn. for containers holding bituminous substances, P 907*g*.
**Snyder, S. C.** See Lankford, W. T.; Larrabee, C. P.; Mears, R. B.
**Snyder, Walter E.** Emulsifying agents work, 9281*g*.
**Snyder, William E.** Responses of plants to 2,3,5-triiodobenzoic acid, 4733*a*.
**Snyderman, S. E.** See Albanese, A. A.; Holt, L. E., Jr.
———, Ketron, K. C., Carretero, R , and Holt, L. E., Jr. Conversion of tryptophan into nicotinic acid, 5472*a*.
**Snyman, H. L. F.** See Jorden, T. J. W.
**Soares, M.** See Jacobsohn, K. P.
**Soares Coelho, I.** Fibrous tourmaline from "Mina do Cruzeiro," Santa Maria do Suassui, Minas Gerais, 2549*d*.
**Sobe, T.,** and Ito, A. Alkylated aromatic amines from alkylanilines, P 7041*h*; alkylated aromatic amines from aniline and alcs of the aliphatic series, P 7041*h*.
**Sobel, A. E.** See Heimer, C B.
———, Besman, L , and Kramer, B. Vitamin A absorption in the newborn, 6710*b*.
——— and Hanok, A Calcification of teeth (I) compn in relation to blood and diet, 2681*e*.
———, Hanok, A , Kirshner, H. A , and Fankuchen, I Calcification of teeth (II) comparison of some properties of human and rat teeth, 6715*g*, (III) x-ray diffraction in relation to changes in compn , 6294*f*
———, Owades, P. S., and Owades, J. L. Sulfate esters as intermediates in the formation of 7-dehydrocholesterol and dicholesteryl ether, 6641*c*
**Sobel, G.** See Diemair, W
**Sobel, H.** See Plaut, A.
——— and Plaut, A. Assimilation of cholesterol by *Mycobacterium smegmatis*, 5082*d*.
**Sobels, F. H.** Influence of thiourea on the development of *Limnaea stagnalis*, 1116*d*.
**Sober, H. A.** See Block, R. J.
**Soberman, R.** Comparison of total body water in rabbits, 7995*d*, see Brodie, B B.
———, Brodie, B B , Levy, B. B., Axelrod, J., Hollander, V., and Steele, J. M. Total body water in man, 6693*d*
**Sobhi, H.,** and Khairat, O. Puerperal septicemia due to *Pseudomonas pyocyanea* treated with streptomycin, 5826*e*.
**Soboleva, I.** See Dogadkin, B.
**Sobolevskii, M. V.** See Arbuzov, B. A
**Sobolevskii, S. I.,** and Shikher, O. S. Decolorization of Pb glass, 6380*h*.
**Sobotka, H.** See Maver, G G.
——— and Chanley, J. D Analogs of vitamin A, 1336*h*.
**Società anon. Ammonia Nova.** See Ammonia Nova Società anon.
**Società anon. Celdit-Cellulosa d'Italia.** See Celdit-Cellulosa d'Italia, S. A.
**Società anon. Industrie Chimiche.** Activated charcoal, P 7672*b*.
**Società anon. Industrie Chimiche Dr. Baslini** and Natta, G C black, P 8652*b*.
**Società anon. Italiana Ferro.** Metallic agglomerate, P 7892*f*.
**Società anon. Lepetit.** See Lepetit Società anon.
**Società anon. Leuciti Potassa Alluminio, S.A.L.P.A.** Alum calcination, P 7651*i*.
**Società anon. Officine di Villar Perosa.** Hard steel alloy, P 990*f*.
**Società anon. Prodotti Cano** per l'**Agricoltura.** Oxidation inhibition of oils and fats, P 4876*g*.
**Società anon. Vetrocoke.** See Vetrocoke Società anon.
**Società a R. L. Galvana.** Metal-polishing soln., P 4620*h*.
**Società A.S.F.A.** See Ferrari, P. V.
**Società Elettrica ed Elettrochimica del Caffaro.** HCl, P 8623*b*; purification of NaCl, P 8624*f*.
**Società Italiana Commercio Estero, S.I.C.E.** Soaps with sulfonamides, P 3638*c*; DDT soap, P 4808*c*.
**Società Italiana Pirelli.** See Pirelli Società per Azioni.
**Società Italiana Prodotti Chimici e per l'Agricoltura (Milano).** Insecticide and parasiticide, P 8604*i*.
**Società Italiana Prodotti Guidi.** Glycerol, P 3561*e*.
**Società del Linoleum S.p.A.** Filler composed of bituminous-oil-distillate base and synthetic resins, P 5632*f*.
**Società per az. MIKOVA Industria Chimica e Polveri Metalliche.** Sulfides and polysulfides, P 8623*c*.
**Società Paravinil.** Sheets and articles from resins, P 4511*i*; bricks and plates from synthetic resins, P 4512*a*; inks for writing on sheets of chloroethylene polymers, P 4872*i*
**Société anon. Afico.** See Afico S. A.
**Société anon. des appareils centrifuge.** Automatic feed for $H_2SO_4$ in purifying oils, P 4845*f*.
**Société anon.** pour les **applications de l'électricité** et des **gaz rares, etablissements Claude-Paz & Silva.** Purification of tungstic acid, P 3157*e*.
**Société anon. des ateliers de constructions mécaniques Escher Wyss.** See Escher Wyss Maschinenfabriken A.-G.
**Société anon. des avions Caudron.** Plasticizing resins, P 4894*d*.
**Société anon. brevets aéromecaniques.** See Brevets Aéro-Mecaniques Soc. anon.
**Société anon. Brown, Boveri & Cie.** See Aktiengesellschaft Brown, Boveri & Cie.
**Société anon. dite: Cires Sultanes.** See Cires Sultanes.
**Société anon. Electroverre Romont.** See Electroverre Romont Soc. anon.
**Société anon. des établissements Roure-Bertrand Fils.** See Établissements Roure-Bertrand Fils.
**Société anon. d'innovations chimiques dite: Sinnova ou Sadic.** Aliphatic sulfonic acids, P 2220*c*, 3220*i*; higher mol. alcs , P 3835*f*.
**Société anon. John Cockerill.** Converter production of steel with a low N content, P 990*b*.
**Société anon. Krebs & Co.** See Krebs & Co.
**Société anon. des manufactures des glaces et produits chimiques de Saint-Gobain, Chauny & Cirey.** Polymerization of vinyl compds., P 2817*g*; resinous molding powders, P 5229*b*; vinyl chloride, P 5790*b*, solvents and plasticizers for vinyl resins, P 5999*a*.
**Société anon. de matériel construction.** See Boulanger, Charles.
**Société anon. de matières colorantes et produits chimiques Francolor.** Azoic dyes, P 3203*f*, disazo pyrazolone dyes for silk and cellulose, P 9463*a*.
**Société anon. des matières colorantes et produits chimiques de Saint-Denis.** See Claudin, J.
——— and Martin, G. Protecting vines against mildew, P 4807*a*.
**Société anon. métallurgique d'Espérance-Longdoz.** Conditioning granular blast-furnace slag, P 1167*a*.
**Société anon. des produits Cira.** Regeneration of lubricating oils, P 5183*d*.
**Société anon. Sandoz.** See Sandoz Ltd.
**Société anon. Textile "Texis."** See "Texis" Soc. anon. Textile.
**Société anon. des usines de Melle.** See Usines de Melle.
**Société anon. Vitex.** Esters of acids from wood, P 1200*e*.
**Société auxiliaire de l'institut français du caoutchouc.** Molding rubber latex, P 5223*b*.
**Société belge de l'azote et des produits chimiques du Marly.** Antiparasitic agents, P 3978*g*.
**Société belge de condensation et de mécanique.** Removal of silica from water, P 4800*b*.
**Société carbochimique (Soc. anon.).** Alkanolamines, P 4290*c*, 5036*c*.
**Société le Carbone-Lorraine.** See Carbone-Lorraine.
**Société chimique de la grande Paroisse (Azote & produits chimiques).** Low-temp. distn. of fuels, 838*h*; crystg. $C_6H_6$ from aromatics, P 1437*a*.
**Société d'électrochimie, d'électrométallurgie et d'aciéries électriques d'Ugine.** Removal of Fe from Cr ores, P 103*f*, 6143*d*; production from oxide ores of Mn or Cr ferroalloys, P 2152*d*; alkali metal chromates, P 3157*g*; permanent oxide magnets, P 3770*d*; $Na_2CO_4$, P 4822*e*; hard facing welding electrode, P 6565*d*; Fe-Cr-Mn alloy, P 7894*d*.
**Société électro-metallurgique du Planet.**

Production of Mg by condensation, P 2920*f*.

**Société établissements Lambiotte frères.** See Établissements Lambiotte frères

**Société d'études et applications industrielles.** Preservation of aroma in dry, sol exts. of roasted coffee substitutes, P 5884*a*, preservation of aroma in dry, sol. exts. of black tea, Paraguay tea, and herb teas, P 5884*b*.

**Société pour l'exploitation des Procédés Ab-Der-Halden.** Purifying naphthalene, P 3194*a*; rectification of phenols, P 5802*d*.

**Société française des charbonnages du Tonkin.** Metal from oxide ores, P 2152*b*.

**Société française de constructions mécaniques.** Purifying sugar juices, P 8181*f*.

**Société française Duco.** Higher alkyl ethers of dimethylolurea, P 1200*f*.

**Société française radio-électrique.** Rapid-fusion glass, P 5564*i*, glasses having a low coeff of expansion, P 5917*g*

**Société générale des huiles de pétrole.** Condensation resin, P 5228*f*

**Société générale métallurgique de Hoboken.** Sepn. of Cb, Ta, and similar metals, P 976*b*, Na, P 1160*i*

**Société Henkel & Cie. G.m.b.H.** See Henkel & Cie G m b H.

**Société pour l'industrie chimique à Bâle.** Now known as CIBA Ltd

**Société industrielle du caoutchouc S. A.** See S. I. C Société industrielle du caoutchouc S. A.

**Société industrielle et commerciale des comburants économiques.** Catalyzing combustion, P 4835*f*.

**Société d'innovations chimiques.** Same as Société anon d'innovations chimiques dite: Sinnova ou Sadic

**Société lumière.** See Valette, J

**Société nouvelle des établissements Silvestre.** Complex Cu-ammonium salt for vine spraying, P 5152*d*

**Société Novacel.** Sponge-forming compns., P 6868*a*.

**Société N. V. Onderzoekingsinstituut Research.** See Onderzoekingsinstituut Research N V

**Société parisienne de constructions.** App. for elec control of electrolysis baths, P 4587*i*.

**Société de participation à l'industrie cuprique S. A.** Metal-recovery procedure, P 5681*c*; insecticide, P 9350*c*

**Société des produits chimiques de Clamecy.** Dry $SnCl_4$, P 4822*b*, purifying industrial Cl, P 4822*f*, chlorobenzenes, P 5040*h*.

**Société de produits chimiques des terres rares.** Hot-working Mg alloys, P 991*c*, corrosive resistant Mg alloys, 992*a*, CeO in opaque glazes, P 1166*c*, Zr compds in ceramic glazes, P 1166*d*; double Na Zr sulfates, P 2381*f*.

**Société des produits peroxydés.** App for obtaining peroxy compds by electrolysis, P 956*f*.

**Société pyrénéenne de carburants et solvants.** Liquid org. compds from vegetable materials, P 668*g*, attack of org. materials by bases, with subsequent pyrogenation, P 2222*d*.

**Société Rhodiacéta.** Dyeing polyvinyl resins, P 1217*d*, ketene from AcOH, P 5413*d*; app for dry-spinning of vinyl polymers, P 7753*e*.

**Société suisse ses explosifs.** Fusible $NH_4NO_3$ explosive, P 2437*e*, detonating fuse, P 2438*d*.

**Société des tanins produits chimiques "Sotac."** Solubilizing and(or) improving tanning exts., tanning process, and leather obtained thereby, P 4042*g*.

**Société des usines chimiques Rhône-Poulenc.** (*Patents.*) 2-(*p*-Acetamidophenylsulfonyl)guanidines, 4298*a*; (*p* acylamidophenylsulfonyl)guanidines, 1060*g*; alkyl esters of *N*-(alkoxyethyl)-*N*-(dimethylaminoethyl) 2-aminopyridine, 3471*c*; alkyl silicones, 7752*i*, 2-amino-4-methylpyrimidine, 698*g*; (*p*-aminophenylsulfonamido)thiadiazoles, 5042*e*, (*p*-aminophenylsulfonyl)thiourea, salts, 686*i*; 1-(*p*-chlorophenyl) 5-isopropylbiguanide, 7507*b*; cyclopentanone or derivs. as solvent for polyvinyl chloride, 1126*d*; diamines, 682*b*, *N*-(dimethylaminoalkyl)anilines, 822*c*; ditertiary diamines, 1437*f*, 2229*d*; emulsions, 4876*i*, fluorescent sulfides, 948*g*; heterocyclic aminoalkylamines antihistamine derivs, 3471*h*; 1,2,6-hexanetriol, 1435*f*; insulin preps., 6791*g*; 2-[*p*-methoxybenzyl(2-dimethylaminoethyl)]amino pyridine, 3470*e*; monamide derivs. of 4,4'-diaminodiphenyl sulfone, 5041*i*; organosilicic oils, 8130*i*; penicillin soln, 1915*e*; pentaerythrite, 4290*i*; phenothiazine derivs., 2647*f*; pimelic acid esters, 7505*e*; primary amines, 5033*c*, pyrazine, 1813*d*; reaction of $C_2H_2$ and AcOH, 5035*h*, sepn. of isomeric quinolinecarboxylic acids and esters, 2646*d*, 4303*e*, sulfonamides, 2637*g*; thermosetting chlorosilane resin, 6464*g*; vinyl chlorides, 2817*f*; vinyl formals, 4894*b*

**Socolofsky, J. F.** See Berger, H. G; Plank, C. J.

**Socony Vacuum Oil Co., Inc.** (*Patents.*) acylation of aromatic alkoxy compds., 6235*f*.
acylation of furans, 3464*i*, 3465*a*.
acylation of phenyl alkyl ethers, 7966*f*
acylation of thiophene, 2643*g*, 2644*ab*, 3465*f*
aerogel spheroidal pellets, 3986*b*
alkylation, 389*h*, 1230*a*, 5583*b*, 5939*a*.
alkylation, mixing reactants for, 1229*c*.
alkylation of phenol by alkyl halides catalyzed by finely divided gels of certain drying oils, 3036*g*
alkylation of thiophene, 691*c*, 6667*d*.
alkylation products in HF alkylation, 5583*f*
alkylation with water as catalyst, 3604*g*.
alkyl benzenes, 1175*c*
alkylbenzyl phenols, 4457*f*.
alkyl substituted aromatic-aliphatic carboxylic acids, 7967*e*
alkylthiophene-aldehyde resins, 2031*i*.
alumina gel pellets, 6338*b*
app for conducting reactions in the presence of a contact mass, 6819*g*
aromatic hydrocarbons from $CH_4$ and natural gas, 5928*i*.
block grease, 1960*c*
bringing gases into contact with a solid contact material, 6010*h*, 6476*h*
bringing gases into contact with a solid material, app for, 6010*g*
carbon black, 2408*i*
catalyst (alkali-free hydrogel), 1930*d*.
catalyst (bead-form), 1931*a*
catalyst (porous glass), 7162*b*
catalyst (porous metal), 2103*g*
catalyst regeneration, 2764*b*, 3162*e*, 6012*a*, 6819*h*, 9428*c*.
catalyst-regeneration, $H_2O$ content-temp. correlation in, 7222*f*
ceramic ware decoration, 8115*e*
chloretone, 3836*b*.
chlorination of paraffinic hydrocarbons, 2217*f*
conversion of dimethyl ether into liquid hydrocarbons, 3435*f*.
conversion of hydrocarbons, 387*g*, 3188*b*, 6403*i*.
conversion of hydrocarbons, app. for, 843*h*, 2422*ab*, 2763*i*, 9429*d*.
conversion of hydrocarbons, product recovery from, 3604*d*.
conversion of hydrocarbons, reactor for, 7222*f*.
core oils, 5727*i*
cracking hydrocarbons, 386*f*.
cyclohexene, 6656*c*.
desiccants, 3986*d*
diaryl dithiophosphoric acids and salts, 7224*g*.
dinitroparaffins, 6646*g*.
dithiophosphoric acid esters of an alkyl-substituted phenol, 1803*d*.
drying oil treatment, 9484*a*
esters of product obtained by the reaction of pentaerythritol and thiodiglycol, 9081*e*.
filaments (thin), 5318*d*.
gaseous reactions in the presence of solid moving particles, 8663*b*.
gelation process involving supersonic treatment, 1884*c*
gels (oxide) stabilized against wetting, 2746*c*.
geochem prospecting, 1556*g*.
geophys prospecting, 1556*f*, 4456*e*.
Grignard reagent from chlorinated petroleum wax, 4008*g*.
haloalkylation of aromatic hydrocarbons, 5583*e*.
heat transfer with granular solids, 388*g*.
heat-treating solid adsorbents, 6339*i*, 7608*h*.
heat-treatment of plural oxide gels, 370*b*.
hydrogel beads with low pH, 4004*c*.
insecticidal spray oil contg. lecithin, 4420*e*.
insect repellent comprising benzyl ethers of ethylene glycol, 5153*e*.
isomerization of olefinic hydrocarbons, 5939*c*.
leather and fur, oil for sol. processing, 3224*d*.
lubricant for spark-plug threads, 4459*f*.
lubricants, 4458*i*, 7678*f*, 8131*d*, 9432*h*, 9433*a*.
lubricating-oil additives, 9432*ac*.
mass spectrometer adapted to analysis of hydrocarbon fractions, 6873*c*.
mercaptan removal from hydrocarbons, 8667*g*.
mercaptans and disulfides, 1557*h*.
mineral-oil additives, 2766*a*.
mineral-oil compns., 1177*g*, 1561*i*, 9432*i*.
nitriles, 3439*a*, 4285*f*.
olefin sepn, 4283*g*.
org compds contg P or S, 666*a*.
oxidation of $C_6H_6$ to produce PhOH, 1805*e*.
oxidation of $H_2SO_4$ heavy alkylate, 5584*c*.
phosgene, 3160*a*.
polymerization of thiophene and butadiene, 5231*b*.
pyrrole stabilization with a biguanide, 4701*b*.
reaction products from $P_2S_5$ and sulfurized ketones, 3441*a*
rubberlike polymer, 8194*i*
rust inhibiting greases, 1177*e*.
sepg alkylbenzenes from admixt. with paraffins and naphthenes, 3844*f*
sulfonation of aromatic hydrocarbons in the presence of acetonitrile, 394*d*.
thiodiacetic acid monoesters, 6224*e*.
thiol removal from alkylphenols, 6235*a*.
thiophene-aldehyde resins, 2031*g*.
thiophene and butadiene, 1066*e*
thiophene and its alkyl derivs, 1066*f*
thiophene, carboxylic acid or aldehyde derivs of, 4302*b*.
thiophene removal from aromatic hydrocarbons, 3605*c*
vapor removal from a contact mass, 914*f*.
wetting agents, 3639*b*
zeolytic alkali from gels, 9299*b*
zirconia gel, 5133*i*

**Soda, T.,** and Terayama, H Micro-estn method of the amino group, 7867*f*

**Soday, F. J.** Hydrocarbon resins, P 903*a*, O-treated hydrocarbon resins and compns contg the same, P 903*b*, decolorization of hydrocarbon resin, P 3233*g*, stabilized indene resins, P 4511*d*, resin blend, P 5228*h*; diesters of glycols of nuclear-substituted styrenes, P 6663*g*, prepn and properties of GR-S, 7252*f*; plasticized polystyrene, P 8209*c*.

**Soden, A. L.** Rubber research (III) development of hardness tests, 3643*g*, see Moakes, R C. W.

**Soder, R.** Silicone (book), 900*g*.

**Soderberg, F. A.** Com. development of slimicides, 2774*a*.

**Sodeyama, K.** See Sakuma, I.

**Sodi Pallares, E.** See Martínez Garza, H
—— and Martínez Garza, H. Isolation of L-lyxoflavine from the human myocardium, 7532*i*; structure of the pigment of macpalxochitl, 7935*h*.
——, Martínez Garza, H., Aguirre, H., and Díez de Urdanivia, I. Content of folic acid in normal and diseased human hearts, 7568*g*

**Soeda, M.** See Hosoya, S.

**Söderlundh, S.** See Bondeson, W.; Diding, N Å

**Soehring, K.** Procaine (I) pharmacology and toxicology with exclusion of the effects on the central nervous system and spinal nerves, (II), 8558*e*; see Bethge, J., Tschesche, R.
—— and Pape, M. Procaine in body fluids, 6272*i*.
—— and Wiedow, H. Inhibition of acetylcholine contracture of the frog rectus abdominis muscle by gravitol, 8543*d*.

**Søndergaard, E.** See Dam, H.

**Sönnerskog, S. H.** Gelation of aq. solns. of ethylcellulose on heating, 3611*d*; see Sandell, O. W.

**Sørensen, H. R.** See Døssing, J.

**Sörensen, N. A.,** and Hougen, F. Azulene from oil of elemi, 3566*e*.
——, Samuelsen, E., and Oxaal, F. Synthesis of bis(ω-phenylpolyene) diketones, 3812*e*.

**Sørensen, P. D.** See Damsgaard-Sørensen, P.

**Sørvoll, S.** See Hvidsten, H.

**Sofier, L. J.** Diseases of the Adrenals (book), 756*a*.
——, Gabrilove, J. L., and Jaller, J. W. Adrenals in uptake of $I^{131}$ by the thyroid

following parenteral administration of adrenaline, 7566*g*.
**Sofronyuk, L. P.** Cleaning the vacuum pan used for low-grade products, 6446*d*.
**Sofue, K.**, Yano, R., and Koshimizu, Y. Growing cellulose fiber (I) change in *n* during the growing period of cotton cell, 1462*b*.
**Sogabe, Y.** See Umemoto, J.
— — and Inokuchi, K Soybean protein (II) wet method, 4790*a*.
**Sogolova, T. I.** See Kargin, V. A.
**Soh, H.-P.** Force as a fictitious idea, 451*f*.
**Sohm, M. H.** See Honerjager-Sohm, M.
**Sohn, A. W.** Reductic acid as a component in acid wood hydrolyzates, 6821*h*.
— — and Lenel, P. O. Reaction products of a mild partial hydrolysis of wood, 5945*b*.
**Sohns, V. E.** See LeMense, E. H.
**Sohr, H.** Lactoflavin and nicotinic acid as constituents of the vitamin B group, 9196*f*
**Soibel'man, B. I.** Semimicro detn of sulfates, 8068*d*.
**Soifer, P. A.** See Kul'berg, L. M.
**Soifer'man, I. A.** See Nazarenko, V. A
**Soisalo, P.** Blood I and thyroid function, 6300*i*.
**Sokalski, Z.** Losses of light hydrocarbons in petroleum, 2759*i*.
**Sokol, H.** Trioxane, P 5809*i*, see Ritter, J J
— — and Ritter, J J Reaction of thioglycolamide with halomethyl ketones, 607*i*
**Sokoloff.** See also Sokolov
**Sokoloff, B.** Study on Vitamin P (book), 5465*h*
— — and Redd, J B Health angle in the consumption of canned orange juice, 8571*i*
**Sokoloff, V P.** See Lovering, T S.
**Sokolov, A A** Detn of dimensions of the cooling section of tank furnaces, 1161*i*, convection of glass mass in tank furnaces, 5777*e*, app for automatic control of open hearth melting, P 6143, German glass technology, 9597*h*, see Ivanenko, D D
**Sokolov, A S.** Combination lining of rotary kilns 1160*i*
**Sokolov, A V**, and Koritskaya, T D Movement of phosphates in the soil, 5141*g*
**Sokolov, D F.** Org P compds in the soil, 1409*i*
**Sokolov, N D** Relation between the rate of discharge of H ions and the overpotential, 18*a*
Sokolov, N P. See Bobrova, M I
**Sokolov, S I.** Device for control of liquid levels of strips, P 9388*i*
**Sokolov, S Ya.** Absorption of supersonic vibrations by single crystals, 4535*b*
**Sokolov, V. A.** Thermal nature of the emission of light in the oxidation of Zn and the absence of candoluminescence in Zn oxide, 6085*i*, see Chernyaev, I I
**Sokolov, V. I.** Supercentrifuge sedimentation analysis, 3692*e*, purging of massecuites, 6446*e*, fractionation of colloidal particles by supercentrifuges, 7778*e*
**Sokolova, N. M.**, and Lunnikova, M. A Ascorbic acid and growth of tuberculous cultures in liquid medium ascorbic acid and insulin and camphor shock in tuberculous animals, 7101*e*
**Sokolova, T. A.** See Lyashenko, V. D.
**Sokolova, V. E.** See Rubin, B A
**Sokolova, V. N.**, and Magidson, O. Yu. Thouraeil, P 5039*e*.
**Sokova, K M.** See Ivanov, V I
**Solanki, D. N.**, and Sastry, P S. Electrolysis of $MgSO_4$ in the presence of $H_2SO_4$, 5673*e*.
**Solar, F.** Eloxal process, 2521*h*.
**Solarino, G.**, and Rizza, V. Nicotinic acid in the healing of fractures, 1472*a*.
— — and Tripodo, C. Hematic plasma lipase and means of defense of the organism (I) action of hematic tributyrin lipase during artificial vaccination, 6722*f*.
**Solberg, P.**, and Hansson, E. Influence of Ca salts on cream vol. as obtained with a separator or on standing, 326*e*.
**Soldate, A. M.** See Pauling, L.
**Soldi, A.**, and Claudi, M. A Phosphatidecerebroside fraction of nervous tissue — extn, compn, and prepn. of injectable exts., 703*h*, prepn. of rice polishings ext., 323*h*, fractions from urine of leukemic patients influencing hematopoiesis, 3095*b*; prepn of *meso*-inositol from Fe inositol hexaphosphate, 4815*e*.
**Solem, A.** Mineral position of ECA nations (XIII) Norway, 3118*h*.
**Soler Martínez, A.**, and Ortuño Martínez, A. Metabolism of some fungi toward pectin substrates, 276*g*.
**Solet, I. S.** See Svirbely, W. J
**Solhjell, I.** See Brickson, W. L.
**Soliani, M.** See Grifoni, V.
**Soliman, H. S.**, and Mohamed, A. H. Effective agent against scorpions, 4416*c*.
**Soll, S.** See Jones, Grinnell
**Sollars, W. F.** See McKinney, L. L.
**Sollers, H.** See Bishopp, F. C.
**Sollmann, T.** Correlation of the aquarium goldfish toxicities of some phenols, quinones, and other $C_6H_6$ derivs. with their inhibition of autoxidative reactions, 9271*a*.
**Sollo, F. W., Jr.** See Buswell, A. M.
**Sollogub, A. A.** Bleaching of first-product massecuite with water without steam, 9501*d*.
**Solmssen, U. V.** See Wuest, H. M.
— — and Lee, J, Salts of tocopheryl phosphoric acid esters, P 4702*d*.
— — and Wenis, E. Estrogenic phenylindan derivs., 1757*h*.
**Solodkii, F. T.** Treatment of coniferous needles, P 6371*f*
**Solodkov, P. A.** See Izmail'skii, V. A.
**Solodkowska, W.** See Euler, H. v.
**Solodushenkov, S. N.** See Shilov, E A
**Solomidès, J.** Bacteriostatic action of cod-liver oil and its distillate, 4726*i*, bactericidal and mycocidal properties of distillates of castor oil and peanut oil, 8436*e*, see Lecoq, R
**Solomin, N. V.** Heat resistance of refractory materials, 6385*f*, superresistance of corundum refractories, 9405*g*, see Kitaigorodskii, I I.
**Solomina, V. V.** See Gugel, B. M.
**Solomon, A. K.** Wirum Atomzertrum merung? (book), 1146*b*; see Anfinsen, C B, Ball, E G, Gould, R. G.; Hastings, A B, Selverstone, B; Sweet, W H.
— — and Foster C A Hood for work with radioactive isotopes, 3706*d*
— —, Selverstone, B, and Sweet, W H Isotopes in study of the nervous system, 9208*i*
**Solomon, D H.**, Gardella, J W, Fanger, H, Dethier, F M, and Ferrebee, J W. Nephrotoxic nephritis - glomerular origin of the kidney antigen, 8524*g*
**Solomon, M. E.** Conditions under which mites raise moisture content of foods, 9275*d*.
**Solomon, W.** Complex org. Sb compds, P 7500*g*, see Goodson, J A
**Solomons, I. A.**, and Regna, P. P Cryst dihydrostreptomycin sulfate, 6369*c*
**Solontsov, L. F.** See Mtropol'skii, L M
**Solotuchin, W.** See Zolotukhin, V K.
**Solovelchik, L. S.**, and Balandina, V A Detn of acetate and butyrate groups in acetobutyrates of cellulose, 1289*e*; detn. of butyral groups in polyvinyl butyral, 4184*e*
— — — and Novikova, E. M. Analysis of polyvinylformal, 6946*e*
**Solovejčik, L. S.** See Solovelchik, L. S.
**Solov'ev, N A.** See Sosnitskii, G G.
**Solov'ev, V. E.** Joining sheets and films of polychlorovinyl, P 5231*h*.
**Solov'ev, Yu. S.** Listvenites from the ore deposits of Pyshma Klyuchevsk, 8316*c*.
**Solov'eva, L. A.** See Saenko, N F.
**Solov'eva, Z. I.** See Trufanov, A V.
**Soloviev, Soloview, Solovjew.** See Solov'ev.
**Solovyeva.** See Solov'eva.
**Soloway, H.** See Kipnis, F.
**Soloway, S.** See Friedheim, E. A. H.
**Solowiew.** See Solov'ev.
**Sols, A** Phosphatases, 7985*g*; detn. of total cholesterol in serum, 9139*a*.
— — and Monche, J. Synthesis of chromogenic substrates, 8420*c*.
——, Vidal, S., and Larralde, J. Effect of insulin on intestinal glucose absorption in alloxan diabetic rats, 317*d*.
**Solt, M. L.** See Barton, L. V; Prill, E. A.
**Sol'ts, L. M.** See Fialkov, Ya. A.
**Solvay & Cie.** (*Patents*) Activation of chlorite solns., 1160*d*e*f*, alkali chlorites, 1159*d*, anhyd metal chlorides, 4820*d*, aryloxyacetic compds, 4299*h*, basic $Ca(ClO)_2$ and $CaCl_2$ from solns. contg both $Ca(ClO)_2$ and $CaCl_2$, 5555*g*, benzene hexachloride of very low m p 5798*a*, bleaching cellulosic materials, 4022*a*; cell for production of highly coned hydroxides, 3986*a*; chlorination of aromatic hydrocarbons, 1437*b*; chlorobenzenes, 1437*c*, crude hexachlorocyclohexane and the pure γ-isomer, 1436*k*; decompn of alkali amalgams, 510*b*; dehydrochlorination of chlorinated hydrocarbons and distn. of resulting compds., 7759*k*; electrolytic manuf of alkali hydroxides, 3733*g*; glycol, 6652*f*, 7955*b*, hexachlorocyclohexane, 1436*g*, 4295*g*; oxidation of substances with solns of chlorites, 1160*d*; plant growth process and product, 3967*i*; polarization anode, 3734*b*; polymerization, 1218*a*; protection of metals against corrosive action of chloride solns., 992*b*; removal of S, P, and As from gases, 2381*i*, 2382*a*, sepn. of binary mixts. of penta- and hexachlorobenzene, 1437*d*; solns. of $Ca(ClO_3)_2$ low in chloride, 3984*d*; vinyl chloride, 1793*d*, 3437*g*.
**Solymár, J.** See Palocz, I.
**Som, M. L.**, Schneierson, S. S., and Sussman, M. L. Enhancement of penetration of penicillin into inflamed and normal mucous membrane by hyaluronidase, 3104*d*
**Soma, C.** Coagulable mold, P 6804*h*.
**Somekawa, E.** Production of seborrhea by feeding with whale oil (VII) wax esters excreted in the feces of the rat fed on whale oil and the production of seborrhea by feeding with synthetic wax esters, (VIII), 8026*f*
**Someno, F.** Catalytic transformation of chem bonds (I) dehydration and isomerization of butanol, 7899*b*; thermal decompn and combustion of monohydric alcs., 7899*d*, see Kato, S
**Someren, E. H. S. van.** See Rollason, E. C.
**Somers, G. F.** See Edge, N. E.; Page, J. E, Sumner, J B
——, Kelly, W C, Thacker, E. J, and Redder, A M Erroneous ascorbic acid values resulting from interference by anthocyanins, 7534*a*
**Somers, I. I.** Detergents for food-plant cleaning, 1497*d*
**Somersalo, O.** See Karvonen, M J.
**Somerville, A. R.** See Cook, James W
**Somin, B. E.** Effect of Al and B on the hardenability of steel, 3329*a*
**Somiya, T.** Detn. of gases in Al (I), (II), 2120*d*
—— —, Kammori, O, and Huruya, M Sparking app. for quant. spectrum analysis (I), 1616*i*.
—— —, Miyazaki, M, and Honda, T. Detn. of gases in Al (III), 2120*e*.
**Somló, F.** See Zotta, M
**Sommaruga, C.** Ba ores of Candoglia, Italy, 2134*a*
**Sommen, J. vander.** Factors affecting the internal stress in electrolytically deposited Cu, 4147*f*
**Sommer, A. L.** See Wear, J. I.
**Sommer, H.** See Riegel, B.; Thomas, Harold A.
**Sommer, H. J.** Adhesivity of bitumens for mineral aggregate, P 7662*a*; see Endersby, V. A.
**Sommer, K.** See Gebauer, K.
**Sommer, L. H.** See DiGiorgio, P. A.; Gold, J. R.; Tyler, L. J.
——, Bailey, D. L., and Whitmore, F. C. Organosilicon compds (XVI) β-eliminations involving Si, 561*h*
——, Gold, J R, Goldberg, G M., and Marans, N S Polar effects of organosilicon substituents in carboxylic acids, 5003*f*.
——, Tyler, L J., and Whitmore, F. C. Organosilicon compds (XVII) reactions of allyltrimethylsilane, 562*b*.
**Sommereyns, G.** See Lacourt, A.
**Sommerfeldt, W. P.** V. M. Goldschmidt, 6875*a*
**Sommeria, J.** High-voltage equipment of the atm synthesis lab., 4561*a*.
**Sommers, A. H.** See Campbell, K. N.
**Sommers, H A.** Location factors in heavy-chem plants, 5157*h*.
**Sommers, S C.** See Warren, S
**Sommerville, I. F.**, Marrian, G. F., and Clayton, B E Effect of diethylstilbestrol on urinary excretion of pregnanediol and endogenous estrogen during pregnancy, 5176*h*
**Somogyi, J. C.** Inactivation of thiamine by ext of carp intestine, 9186*e*.
**Somogyi, M.** Arterio-venous differences in blood sugar (III) effect of insulin administered intravenously in the postabsorptive state, 8038*i*, (IV) effect of intravenous insulin and simultaneous glucose feeding, 9204*e*
**Somogyi, Z.** See Schulek, E.
**Somos, E.** See Küldor, I.
**Sonder, R. A.** Frequency of atoms and

structural periods in the nuclear constitution, 31*d*.

**Sondern, C. W.**, and Breivogel, P. J. *N,N*-Dimethyl-*N'*-benzyl-*N'*-2-thiazolylethylenediamine, P 1914*c*.

**Sondheimer, E.** See Kertesz, Z. I.

——— and Kertesz, Z. I. Anthocyanin of strawberries, 731*i*.

——— and Lee, F. A., Color change of strawberry anthocyanin with D-glucose, 5087*f*.

**Sondheimer, F.** See Braude, E. A.; Heilbron, I. M.; Jones, E. R. H.

**Sondhelm, W. S.** Fiber maturity of cotton differential dyeing test, 7689*e*.

**Sondhi, H. K.** See Verghese, J.

**Sonenberg, M.** See Karush, F.

**Soni, P.** See Aggarwal, J. S.

**Sonne, L. M.** See Georg, J.

**Sonneborn, L., Sons., Inc.** Light stability of petroleum waxes, P 393*g*; alk.-earth-metal petroleum sulfonates, P 1950*h*; lubricants for textile materials, P 2424*f*, cuprammoniacal petroleum mahogany sulfonates, P 2424*h*; viscosity reduction of petroleum mahogany sulfonate hydrocarbon solns., P 6822*d*.

**Sonnenschein, R. R.** See Rosenthal, S. R.

**Sonnet, J.** See Muylder, E. de

**Sonntag, F.**, and Kuhlmann, G. Homeopathic triturations, 357*b*; comparative examn. of drugs and detn. of hydroxymethylanthraquinone in *Rheum palmatum*, 6784*e*.

**Sonoco Products Co.** Fibrous conduit, P 9448*i*.

**Sons, M.** See Brunerie, G.

**Sonsbeek, J. J. M. van.** See Arkel, C. G. van.

**Sontag, H. R.** See Francis, D. H

**Soodak, M.**, and Lipmann, F. Enzymic condensation of acetate to acetoacetate in liver exts., 1816*i*

**Soos, E.** Prepn. and stability of digitalis infusions, 1149*f*; ointment prepn in the pharmacy, 7637*h*.

**Soper, F. G.** See Hurst, F. B

**Soper, Q. F.** See Behrens, O. K., Corse, J.; Jones, R. G.

———, Whitehead, C. W., Behrens, O. K., Corse, J., and Jones, R. G. Biosynthesis of penicillins (VII) oxy- and mercaptoacetic acids, 3364*d*

**Sopov, N. P.** See Petrov, A. A

**Sorel, J.** Manuf. of P and its products, 3157*a*.

**Soreni, E. T.** See Szorényi, E. T.

**Sorenson, B. E.** See Miller, C. J., Jr.

**Soresina, C.**, and Rigat, L. Ether no., 3855*f*.

**Sorg, L. V.** Transporting petroleum distillates, P 6402*i*; see Dickey, R. E

——— and Dickey, R. E. Color contamination of petroleum products transported by pipe line, 1553*f*.

**Sorgato, I.** Distn. calcns., 3247*a*; plastic properties of lignin, 8198*b*; crystn. of anhyd. dextrose, 8716*g*; cellulose and other constituents of sorghum cane, 9501*e*.

——— and Massa, F. Crystn of anhyd. dextrose, 9499*i*.

**Soriano, S.**, and Trucco, R. E. Moldy bran in the alc. fermentation of corn, 5901*b*.

**Soriano M., M.** Extn. of adrenaline, 2373*i*.

**Sorice, F.** See Malatesta, P.

**Soriguine, Sorjgin.** See Shorygin, P. P.

**Sorkin, E.** See Binswanger, L. A.; Erleumeyer, H.; Noll, H.

——— and Hinden, W. 3,1,4-Benzothiazines, 4277*i*.

**Sorkin, M.** See Ernst, W.

**Sorm, F.** Oxidation of cholesterol acetate, 3018*c*; see Lukeš, R.; Protiva, M.

——— and Arnold, Z. Synthesis of pyrrolizidine (1-azabicyclo[3.3.0]octane), 214*h*.

——— and Brandejs, J. Prepn. and reduction of 3-(2-furyl)propylamine, 2988*c*.

——— and Dolejs, L. Synthesis of keto dicarboxylic acids, 7904*i*.

——— and Dykova, H. β-Norcholesterol, 1789*a*.

——— and Herout, V. Terpenes (V) terpenic constituents of the essential oil of sweet-flag, 3807*h*.

——— and Keil, B. Synthesis of sparteine and isosparteine, 3828*a*.

——— and Šedivý, L. Prepn. of pyridine carbinols, 2996*f*.

——— and Urbánek, L. Terpenes (VI) carotol II, 3808*b*.

**Soroker, V. I.** Lime-slag cements, 8633*i*.

**Sorokin, M. F.** See Lazarev, A. I.

**Sorokina, E. I.** See Kudryavstev, B. B.

**Sorokina, N. I.** See Vansheidt, A. A.

**Sorokina, N. N.** See Buyanov, N. V.

**Sorotchinsky, C.** See Gastellier, S.

**Sorrels, J. H.** See Holland, B. R.

**Sorrentino, F.** See Longo, V.

**Sorum, C. H.** Semimicro Qual. Analysis (book), 8980*f*

**Šoryguine, P. P.** See Shorygin, P. P.

**Sós, J.**, Galambos, J., and Áts, M. Lactoflavin content of human milk, 9200*d*.

**Sosa, A.** See Sannié, C

**Sosa-Bourdouil, C.** Comparative biochemistry of pollens and spores of vascular plants, 8010*f*; chemism of tetraploidic *Sinapis* seeds, 8459*a*.

**Sosinskii, M.** See Tsvetkov, V. N

**Soskin, S.** Endocrines in Diabetes (book), 756*a*; metabolism of the foods in diabetes, 8523*h*.

**Soskin, S. A.** See Kremnev, L. Ya.

**Sosman, R. B.** See Patrick, R. F

**Sosnina, A. S.** See Nametkin, S. S

**Sosnitskii, G. G.**, Gershtikovich, E. N., and Solov'ev, N. A. Electrolytic Zn coating, P 8917*i*.

**Sosnovskii, N. P.** See Polyakov, I. S.

**Sossimovitsch, Sossimowitsch.** See Zosimovich, D. P.

**Sota, A. H. de la.** See Herrera de la Sota, A.

**Sotelo P., M.** Classification of anions, 4975*g*.

**Sotier, A. L.** See Vaughn, T. H.

**Sota, R. S.** See Sarmiento Soto, R

**Soto-Rivera, A.** Relation between protein osmotic pressure and d. in plasma from cats, dogs, and humans, 7983*i*

**Sotti, L.** Therapy of arterial hypertension with thiocyanates and vitamins A and K, 8052*b*

**Soucek, B.** See Trisinger, J.

**Souchay, P.** Polarography of periodates, 64*h*, condensation phenomena in inorg. chemistry (IV) changes of pH with dilu., 5685*d*, analytical problems of polarography, 5695*f*, development of polarographic analysis, esp. in the field of metallurgy, 6933*c*, see Schaal, R

——— and Faucherre, J. Detn. of Co and Fe with the aid of base solns. of Triton, 8303*a*

——— and Peschanski, D. Condensation phenomena in inorg. chemistry (III) light absorption measurements, 1669*h*.

**Souders, M., Jr.** Hydrogenation of nitro compds., P 3454*e*; see Johnson, A. J.

——— and French, F. A. Extn. of oil(s) from hydrocarbon mixts., P 386*b*

———, Matthews, C. S., and Hurd, C. O. Relation of thermodynamic properties to mol. structure—heat capacities and heat contents of hydrocarbon vapors, 6066*i*; entropy and heat of formation of hydrocarbon vapors, 6069*b*.

**Soueid, I.** Colloidal alumina, P 4820*i*.

**Soujkine, N. I.** See Shuikin, N. I.

**Soukup, S. K.** See Meyer, R. K.

**Soulairac, A.** Action of alloxan diabetes on the alk. phosphatase of rat intestine and kidney; effect of insulin, 2318*c*; localization of alk. phosphatase in the digestive tract and kidney; action of riboflavin on the alk. phosphatase of the intestine and kidney of the adrenalectomized rat, 3083*b*; see Desclaux, P.

——— and Thibault, C. Activated phosphatase in the mammalian genital tract (I) localization, 296*c*; localization of phosphatase activity in the genital tract of mammals—action of certain steroid hormones, 5840*g*.

**Soule, B. A.** See McAlpine, R. K.

**Soule, J. H.** Capitan Fe deposits Lincoln Co., N. Mex., 8990*f*; see King, William H.

**Soule, L. F.** See Streiff, A. J.

**Souprounovič, I. B.** See Suprunovich, I. B.

**Sourdeau, R. B.** See Laroche, G.

**Sourkes, T. L.** Transmethylation of guanidoacetic acid in beef liver autolyzates, 8481*a*.

**Southam, F. W.** See Heidt, L. J.

**Southern, H. N.** Persistence of HCN in rabbit burrows, 9353*c*

**Southern, R. G.** See Stokes, E. A.

**Southern Research Laboratories, Inc.** Chewing gum contg. Ag bactericides, P 8107*c*.

**Southern Shell Fish Co. Inc.** Preserving canned crustacean meat, P 786*i*.

**Southern Wood Preserving Co.** App. for cleansing and dehydrating contaminated creosote, P 7632*c*.

**Southgate, B. A.** Treatment and Disposal of Industrial Waste Waters (book), 1130*a*; media for percolating filters, 1225*e*; flax retting with aeration, 2438*i*; sanitation and water purification, 4789*d*; treatment of industrial effluents, 6344*g*.

**South-Manchurian Railway Co.** 8-Amino-1-naphthol-3,6-disulfonic acid, P 3464*f*; BuOH and higher alcs. from lower alcs., P 3835*d*.

**Southwell, B. L.** See Burton, G. W.

**Southwick, C. E., Jr.** Polyethylene, 8136*g*.

**Southwick, F. W.** Influence of Me α-naphthaleneacetate on ripening of apples and peaches, 8013*i*; see Smock, R. M.

**Southwick, M. D.** See Roberts, E. A.

**Southwick, P. L.**, and Seivard, L. L. Ring closure of *N*-alkoxyalyl-β-anilinopropionic acids, 8380*b*.

**Southworth, J.**, and Bentley, T. L. J. Photographic Chemicals and Chemistry (book), 1276*h*.

**Soutif, M.** See Grivet, P.

**Souto Candeira, J.** See Jiménez Díaz, C.

**Soutter, R. R.** See Courtaulds Ltd.

**Souza, A. H. de.** See Henrique de Souza, A.

**Souza Santos, T. D. de.** Pb-refining furnace heated by wood, 8999*d*.

**Sova, V.** Effect of some conditions on acetone EtOH fermentation, 4421*i*.

**Soveri, U.** Chem. compn. of some varieties of Finnish peat and its influence on their calorific value, 3594*d*.

**Sowa, F. J.** Casehardening metals, P 2153*e*; cycloalkanoic acids, P 2234*e*, recovering unsatd. org. compds. from aq. liquors, P 3031*b*, elemental B, 5162*d*, fungicide, P 5528*g*, insect-affecting compns. contg. esters of bicyclo dicarboxylic acid, P 7633*e*, fungicidal compn. comprising a phenyl Hg salt and excess lactic acid, P 9355*g*.

——— and Schwerdle, A. Cycloalkanoic acids, P 2234*e*; insect affecting compns. contg. esters of bicyclo dicarboxylic acid, 7633*e*

**Sowden, E.** See Gordon, J. J.

**Sowden, J. C.** 1-$C^{14}$-D-glucose and 1-$C^{14}$-D-mannose, 3795*c*; synthesis of D-erythro-2-desoxypentose, 5747*e*, condensation of $C^{14}$-nitromethane with D-arabinose; prepn. of 1-$C^{14}$-D-glucose and 1-$C^{14}$-D-mannose, 9040*i*.

**Sowter, P. F. C.** Artificial filaments, P 3207*b*, stretching cellulose acetate filaments, P 8175*b*

——— and Rogerson, W. A. Cyclopentadiene, P 4292*i*

**Soye, C.** Complex of U and choline, 8297*b*

**Soyka, C.**, and Wilson, H. F. Butyl acetylricinoleate, 6861*g*.

**Sozzi, J. A.** Luis Rossi, 1229*f*

**Spaa, J. H.**, and Sizoo, G. J. Pos tracks on Wilson photographs, 8262*a*.

**Spada, A.** Br extn. from dild. solns., 5515*e*

**Spadaro, J. J.** See Gastrock, E. A.; Porges, N.

———, Persell, R. M., Murphey, C. H., Vix, H. L. E., McCourtney, E. J., Hecker, J. L., Pollard, E. F., and Gastrock, E. A. Pilot plant fractionation of cottonseed (I) disintegration of cottonseed meats, 423*d*

**Spadoni, M. A.** See Fabriani, G.

——— and Tecce, G. Action of urinary phosphatase on thiamine pyrophosphate, 6265*e*

**Späth, E.**, and Pailer, M. Structure of emetine (I), 2624*a*

——— and Pallan-Raschik, L. Derivs. of acetaldol and crotonaldehyde (XVII) dimeric formisobutyraldol and some tetraline-like derivs., 6577*h*.

**Spaeth, E. C.**, and Roseublatt, D. H. Partition chromatography of anthocyanidins, 9359*c*.

**Späth, W.** Rebound hardness, 7741*a*, shore hardness and modulus of elasticity of rubberlike materials, 7741*a*; indentation hardness of rubber and synthetic materials, 7742*c*, rebound resilience tests of elastic rubberlike materials, 9516*f*

**Spaht, J. F.** Boiler detention trough, P 3386

**Spaini, L. S.** See Molina, J. S.

**Spakowski, A. E.**, and Freiser, H. Isoquinoline as a reagent in inorg. analysis, 8947*i*.

**Spalding, C. K.** See Rudenberg, F. H.

**Spalding, S. C., Jr.** See Stevens, P. G.

**Spalton, L. M.** Pharmaceutical Emulsions and Emulsifying Agents (book), 9388*b*.

**Spampinato, V.** Precocious insurgence of sarcomas after microdoses of 3,4-benzopyrene during stilbene treatment, 6722*g*, influence of 4-methyl-2-thiouracil on anaphylaxis, 6730*i*.

**Spandau, H.** See Jander, G.; Kohlmeyer, E. J.

——— and Kohlmeyer, E. J. SnO and its properties at high temps., 2108*b*.

**Spangenberg, K.** Binding of water in the alums, 8936*f*.
—— and Baldermann-Fiola, M. Measurements of the vapor pressures and decompn. temps. of alums, 8785*h*.
**Spangler, G. P.**, and McIndoe, K. G. Full-spiral tapping of *Hevea brasiliensis*, 5983*b*.
**Spanjaard, L. P.** See Le Bihan, Y.
**Spark, L. C.** See Astbury, W. T.; Perry, S. V.
**Sparkler Manufg. Co.** Filter for treatment of edible oils and chemicals leaving dry residues, P 3249*f*.
**Sparks, C. E.**, Libby, J. W., Jr., and Trepagnier, J. H. Green tetrakisazo dyes, P 860*i*.
**Sparks, J.** See Harris, G. C.
**Sparks, P.** See Pearson, P. B.
**Sparks, W. J.** See Rosen, R.; Young, D. W.
—— and Field, D. C. Additive for the improvement of viscosity index and pour point of lubricating oils, P 390*e*.
—— and Thomas, R. M. Isobutylene copolymers, P 8211*h*.
—— and Young, D. W. Lubricant additive, P 2765*i*, olefinic polymers, P 4515*d*; plasticizers from "Oxo" alcs., 5627*h*; synthetic polymers, P 6465*e*.
**Sparrow, A. H.** See Novick, A.
**Sparrow, D. B.** See Cohen, S. G.
**Sparrow, G. T.** Digester operates as Imhoff tank during first-stage development, 7168*d*.
**Sparrow, S.** See Hiatt, E. P.
**S.p.A. Stabilimenti di Ponte.** See Stabilimenti di Ponte, S. p. A.
**Spatz, R.** Technically pure C, P 1172*e*.
**Spatz, W. D. B.** See Hughes, D. J.
—, Hughes, D. J., and Cahn, A. Photoneutrons produced in $D_2O$ and Be by fission product γ rays, 4090*i*.
**Speakman, J. B.** Chemistry of keratin fibers, 4857*g*, combination of wool with acids and acid dyes, 7687*h*, see Alginate Industries Ltd.; Capp, C. W., Cunningham, G. E.; Farnworth, A. J.; Jagger, L.; Lapson, M.; Peters, L., Ripa, O. —, Chamberlain, N. H., and Cefoil Ltd. Alginic yarns, P 5967*i*, fabrics from alginic materials, P 5968*a*; artificial films or filaments having a basis of alginic material, P 7755*e*.
**Speakman, J. C.** Crystal structures of the acid salts of some monocarboxylic acids, 2481*f*, see Smith, N.
**Spear, F. G.** See Tansley, K.
**Specht, A. W.** See Smith, P. F.
**Speck, J. C., Jr.** Sepn. of monoethanolamine from diethanolamine and triethanolamine by azeotropic distn., P 671*c*.
**Speck, J. F.** Effect of cations on the decarboxylation of oxalacetic acid, 5057*f*; see Vennesland, B.
**Speck, M. L.** See Doetsch, R. N.
**Spedding, F. H.** At. energy problem, 2083*h*; see Newton, A. S.; Warf, J. C.
——, Newton, A. S., Warf, J. C., Johnson, O., Nottorf, R. W., Johns, I. B., and Daane, A. H. U hydride (I) prepn., compn., and phys. properties, 7852*i*.
**Speed, F. E.** See Cuckow, F. W.
**Speer, E.** See Oprée, F.
**Speer, J. H.** Medicinal prepns., 3973*i*.
**Speer, R. J.**, and Mahler, H. R. Phenoxyacetaldehyde, 4240*b*.
**Speers, P. C.** See Nanda, G. S.
**Spees, R. B.** See Buehler, C. A.
**Speeter, M. E.**, Byrd, W. M., Cheney, L. C., and Binkley, S. B. Analgesic carbinols and esters related to amidone, 3390*h*.
**Speidel, H.** See Kubaschewski, O.
**Speier, J. L.** Synthesis of (alkoxymethyl)-trimethylsilanes, 1716*g*; (chloromethyl)-methylpolysiloxanes, 2929*i*; sym bis(chloromethyl)tetramethyldisiloxane, P 7500*f*.
——, Daubert, B. F., and McGregor, R. R. (Acetoxymethyl)- and (hydroxymethyl)-disiloxanes, 6158*f*.
**Speight, G. E.** Gases and nonmetallics (II) detn. of O in liquid steel, 2907*f*; Fe and steel, 4788*i*.
—— and Cook, R. M. Gases and nonmetallics (III) detn. of H in liquid steel, 2907*g*.
**Speilman, E.** See Cohan, L. H.
**Speira, L.** Metal optics at centimeter wavelengths (I), 2869*d*.
**Speiser, E.** See Edwards, J. W.; Holden, R. B.
—— and Johnston, H. L. Detg. vapor pressure of metals, 8780*h*.
——, Ziegler, G. W., Jr., and Johnston, H. L. Regulation of temp. in the application of high frequency induction heating to thermodynamic measurements, 7272*h*.
**Speitel, R.** See Schlittler, E.
—— and Schlittler, E. Ring structure of yohimbine (III) acylation of norharman, 6627*c*.
**Spek, J. van der.** Fe in soil (I), (II), 338*f*.
**Spektor, A. Ts.** Dilatometric investigations on thin samples with a specially designed holder, 2822*i*.
**Spektor, N. F.** See Kamenichnyĭ, M. S.
**Spektor, Sh. Sh.** Compounding oil and other petroleum products, 3906*i*.
—— and Podol'skiĭ, M. A. Compounding aviation gasoline, 3908*i*.
**Spelman, A. F.** See Holmes, A. D.
**Spence, H. R.**, and Hooker, H. W. Treating ferrous metals before drawing through dies, P 8346*a*.
**Spence, J.** See Carroll, B. H.
**Spence, J. A.**, and Degering, E. F. Condensation of ketenes with keto esters or diketones, P 1436*b*; C-acetylated and O-acetylated compds., P 6654*i*.
**Spence, J. W.** See Skellon, J. H.
**Spence, L. U.**, and Sakal, E. H. Methacrylonitrile and α-chloroisobutyronitrile, P 4285*c*.
**Spence, P., & Sons, Ltd.**, Chatt, J., Crundall, S. F. W., and Cullinane, N. M. 2-Methylnaphthalene, P 3040*a*.
**Spence, R. D.** See Kikuchi, C.
**Spencer, A. M.** Post hypoglycemic encephalopathy in Sakel's insulin treatment, 3937*e*.
**Spencer, C. C.** Effect of Mn ore on slag vol., 1267*i*.
**Spencer, D. A.** Materials for applied photography, 511*g*, see Coppin, F. W.
**Spencer, D. E.** See Moon, P.
**Spencer, E.** Ice in chem. processing, 1882*c*.
**Spencer, E. Y.** See Cox, R. H.; Paterson, G. R.
——, Robinson, A. D., McElroy, L. W., and Kastelic, J. Analysis of wheat, oats, and barley for thiamine and riboflavin, 7153*i*.
**Spencer, G. A.** Forming fine filaments, P 8743*g*.
**Spencer, G. R.** See Kraft, M. E.
**Spencer, H. C.** See Rowe, V. K.
**Spencer, H. M.** Empirical heat-capacity equations of gases and graphite, 1638*c*.
**Spencer, H. S.**, and Campbell, W. B. Com. variance in Schopper folding tests, 7683*c*.
**Spencer, J. F.** See Bedwell, M. E.
**Spencer, J. G.** See Courtaulds Ltd.
**Spencer, L. F.** Cold forming stainless steels, 4199*i*; nitriding, 6958*b*; controlled atm. for metals, 9001*d*, how to Ag braze and solder stainless steel, 9017*f*.
**Spencer, L. J.** Biographical notices of mineralogists, 4525*e*; catalog of mineralogies and bibliographies, 4605*a*, catalogs of meteorite collections, 6122*f*.
**Spencer, M. P.** See Selkurt, E. E.
**Spencer, O. F.** See Stephens, M. M.
**Spencer, P. L.** Cathode for a magnetron, P 7357*i*.
**Spencer, R. S.** Vol.-temp.-time relations for polystyrene, 6461*h*; see Dreisbach, R. R.
—— and Dillon, R. E. Viscous flow of molten polystyrene (II), 6461*b*.
—— and Gilmore, G. D. Equation of state for polystyrene, 6040*b*.
**Spencer, R. W.** See Merrill, R. C.
**Spencer-Strong, G. H.** De-enameling, 5564*g*.
**Spendlove, M. J.**, and St. Clair, H. W. Low-pressure distn. of Zn from Al-Zn alloy, 7886*d*.
**Spengler, H.**, and Jaeggi, A. Identification of peanut oil in olive oil, 1152*h*.
—— and Weisflog, G. Extractum chamomillae fluidum, 1527*f*.
**Spengler, O.**, and Landgraf, C. G. v. Stability of raw beet sugars during storage, 2454*d*.
**Spensley, P. C.** See King, F. E.
**Speranskaya, E. N.** See Merkulov, L. G.
**Sperati, C. A.** See Anderson, A. W.
—— and Wintermute, G. E. Emulsions of glycol diesters, P 9533*g*.
**Sperber, E.** See Abrams, R.; Ehrensvärd, G.
**Sperber, N.**, and Papa, D. Quaternary C compds. (II) *N,N*-dimethyl-*N'*-(2,2-dibutylhexyl) - *N'* - 2 - pyridylethylenediamine and the diethyl homolog, 4265*f*.
——, Papa, D., and Schwenk, E. Quaternary C compds. (I) trialkylacetic acids as antispasmodic agents, 568*b*.
——, Papa, D., Schwenk, E., and Sherlock, M. Pyridyl-substituted alkamine ethers as antihistaminic agents, 4265*h*.
**Sperberg, L. R.**, and Svetlik, J. F. Low-temp. chem. rubber in mech.-goods applications, 1209*b*.
——, Svetlik, J. F., and Bliss, L. A. Rubber reinforcing properties of high-abrasion furnace black, 8722*i*.
**Sperduto, A.** See Buechner, W. W.
**Sperlich, H.** See Bergner, K. G.
**Spero, G. B.** See Levin, R. H.
——, McIntosh, A. V., Jr., and Levin, R. H. Steroid acids and their transformation products (V) 24-phenyl-5,23-choladien-3(β)-ol and derivs., 4281*h*.
**Sperry, L. B.**, and Caldwell, M. R. Destruction of cyanide Cu solns., 6924*c*.
**Sperry, P. R.** See Beck, P. A.
**Sperry, R. L.** Bis(hydroxymethyl)dithiobiuret, P 3032*b*, acylguanylthioureas, P 4292*d*, 2-(thioureido)-4-methylthiazole hydrochloride, P 5425*i*.
**Sperry-Braude, M.** See Bloch, R. G.
**Sperski, B.** Mixing of coal gas with natural gas, 4831*e*.
**Spessard, C. I.** Inks for printing on vinyl plastics, 1197*d*, see Quarles, R. W.
**Speyer, F. B.** Adhesive and coating compn., P 3240*b*.
**Speyer, K. N.** See Attenburrow, J.; Dupré, D. J.
**Speziale, A. J.** See Fuson, R. C.
**Spicer, D. S.** See Kazal, L. A.
**Spicer, S. S.** Effect of *p*-aminobenzoic acid on the oxidation of hemoglobin, 8527*c*.
—— and Clark, A. M. Substrate utilization in mammalian erythrocytes, 8509*e*.
——, Hanna, C. H., and Clark, A. M. Methemoglobin reduction in dog erythrocytes, 3018*f*.
——, Highman, B., and Monaco, A. R. Effects of xylidine in the fasting and nonfasting states, 3930*g*.
—— and Neal, P. A. Effect of hypoxia on the formation of methemoglobin by aniline and nitrite, 5496*c*.
—— and Thompson, E. C. Heinz body formation *in vivo* a property of methylene blue, 8527*d*.
**Spicer, W. E.** See Voorhies, A., Jr.
—— and Pierce, J. A. Catalytic cracking of hydrocarbon oils, P 8662*i*.
**Špička, A.** Soil types in the district of Městec Králove, 8587*i*.
**Spiegel, E. A.** See Spiegel-Adolf, M.
**Spiegel-Adolf, M.**, Wycis, H. T., and Spiegel, E. A. Chem. analysis of findings in the cerebrospinal fluid, 5468*b*.
**Spiegelberg, H.** Electrolytic reduction of pentonic acid lactones, P 2104*b*.
—— and Rey-Bellet, G. 2-Amino-6-hydroxy - 8 - (hydroxymethyl)pteridine, P 3473*f*.
**Spiegelhoff, W.** See Gnann, G.
**Spiegelman, S.** See Kamen, M. D.
——, Kamen, M. D., and Sussman, M. Phosphate metabolism and the dissocn. of anaerobic glycolysis from synthesis in the presence of Na azide, 1826*c*.
**Spiegl, C. J.** See Dygert, H. P.
**Spiegler, K. S.** See Bobtelsky, M.
**Spielman, A. A.** See Eaton, H. D.
**Spielman, M. A.** See Close, W. J.
——, Geiszler, A. O., and Close, W. J. Anticonvulsant drugs (II) acylureas, 2169*c*.
**Spielmann, W.** See Arnold, Herbert.
**Spierkel, J.** Mineral position of ECA nations (VII) Luxembourg, 3118*g*.
**Spiers, J. A.** Scattering of slow neutrons by D gas, 6506*e*.
**Spies, J. R.** Derivs. of L-tryptophan, 1397*i*; see Coulson, E. J.
**Spies, T. D.** Vitamins, 1095*f*; see Dreizen, S.; Scholz, E.
——, Stone, R. E., Garcia Lopez, G., Milanes, F., Lopez Toca, R., and Aramburu, T. Thymine, folic acid, and vitamin $B_{12}$ in nutritional macrocytic anemia, tropical sprue, and pernicious anemia, 1095*g*; vitamin $B_{12}$ by mouth in pernicious and nutritional macrocytic anemia and sprue, 9227*d*.
——, Suarez, R. M., Garcia Lopez, G., Milanes, F., Stone, R. E., Lopez Toca, R., Aramburu, T., and Kartus, S. Vitamin $B_{12}$, 5101*c*.
**Spijker, P. van't**, and Schuit, G. C. A. Converting butane into isobutane, P 660*e*.
**Špilev, F. S.** See Shpilev, F. S.
**Spilhaus, A. F.**, and Miller, A. R. Sea sampler, 4904*f*.

**Spiller, D.** Toxicity of some metallic sulfates to the common house borer, 8598*d*; toxicity of $H_3BO_3$ to the common house borer, 8598*g*
**Spillsbury, J. F.** Nutritional requirements of *Streptomyces griseus*, 1156*i*
**Spinatelli, C. J.** Photochemistry Simplified (book), 948*c*
**Spindt, R. S.**, and Stevens, D R. Aliphatic carboxylic acids, P 7501*c*
**Spink, J. A.** Structure of mol. films of stearic acid on Cu, 7769*f*
**Spink, W. W.** See Magoffin, R.; Shaffer, J. M
——— and Ferris, V Penicillin-resistant staphylococci—development of resistance, 6699*h*.
**Špinka, J.** Biocatalysis and fertilizing of plants, 3070*a*.
**Spinks, A.** Detn. of antrycide, 8611*i*; see Sexton, W. A.
**Spinks, J. W. T.** Halogen-sensitized photoreactions, 3725*c*; see Singleton, R H.
———, Lee, C. C., and O'Neil, J. B. $P^{32}$ labeled glycerophosphate in the study of yolk phospholipides, 8483*c*
**Spinner, C. C.** Liquid camphor-phenol prepns., P 2375*b*.
**Spira, L.** Fluorosis, 6743*a*.
**Spirhansl, J.** Pedology in the vicinity of Turnov, 8081*c*.
**Spiridonova, N. S.**, and Chazova, V V. Variability of biochem indexes in potato tubers, 7092*g*
**Spiridonova, S. I.** Detn. of the concn. of solns. by a system of two solvents (V) analysis of binary mixts. of acetone, MeOH, and AcOMe by titrating them with water in the presence of furfural, 6946*c*
**Spirig, H.**, and Casparis, P. Vegetable drugs (III), 361*c*.
**Spirina, A. P.** See Sirotina, O N.
**Spiro, D.** See Cotlove, E
**Spiro, N. S.** See Akhumov, E I.
**Spiro, P.** Hard Ni electroformed molds, 2028*d*; electroformed molds for plastics and die castings, 4149*b*
**Spiron, G.** Agglomerating fuels of high calorific value, P 1170*e*.
**Spiselman, J. W.** Dust-collecting compns., P 3120*f*.
**Spisni, D.** Amino acid content of proteins, 7525*f*, uncombined arginine and histidine in the rumen contents, 8041*d*
——— and Bogogna, G. Arginine in blood serum, 6720*e*.
**Spitaler, P.** Development of Al and Mg alloys, 2147*g*.
**Spiteri, J.** Detecting peanut oil in olive oil, 9490*e*.
**Spitsina, L. N.** See Petrova, A N.
**Spitz, E. B.** See Grant, F C.
**Spitz, J.**, and Bas, J. A. Modification of the bioassay of natural estrogens, 264*e*, 7074*d*
**Spitz, W.** See Schneiderhöhn, H.
**Spitzer, E. J.** See Burkhart, L. E., Peed, W. F.
**Spitzer, L., Jr.** Distribution of interstellar Na, 1263*b*; temp of interstellar matter (II), 7334*d*; upper limits on the abund ances of interstellar Li and Be, 7334*e*, cosmic-ray particles, 8849*f*.
**Spitzer, R. R.** See Whitehair, C. K
**Spitzner, R.** Detn. of F in potable waters, 2345*c*.
**Spitzy, H.** See Flaschka, H
**Spivak, F. G.** See Nazarenko, V. A
**Spivakovskii, N. D.** Influence of different forms of N on the growth of apple trees and the formation of fruit buds, 8083*b*.
**Spivey, M.** See Everson, G.
**Spiwak, F. G.** See Spivak, F. G.
**Splitthoff, W. L.** See Kinney, C. R
**Splittgerber, A.** Feedwater treatments, 9306*h*; substitution of Na salts by K salts in the treatment of water, 9306*i*.
**Splittgerber, G. H.** Refining turpentine, P 3212*b*.
**Spoehr, H. A.**, and Milner, H. W Chem. compn. of *Chlorella*—effect of environmental conditions, 2289*f*
**Spoerl, J. M.** See Kneen, E
**Spörri, H.** Hormone therapy in veterinary medicine, 3505*i*
**Spoerri, P. E.** See Fibel, L. R., Picus, N.; Schaaf, K. H.
**Spoerry, M.** Corundum, P 6096*c*.
**Spokes, R. E.** Polymerized cashew-nutshell liquid in friction elements, P 2715*b*; see Bennett, R. B.; Blume, W. A.
**Spolek pro chemickou a hutní vyrobu narodní podnik (United Chemical and Metallurgical Works National Corp.).** Sepn. of alloy constituents, P 6145*d*.
**Spolenak, B.** See Blinc, M.
**Spolidoro, K.** Colchicine in agriculture, 6287*a*.
**Spolsky, B.** See Mitchell, J. M.
**Spolverini, L.** Ascorbic acid content of cerebrospinal fluid in diseases from poliomyelitis virus, 3923*a*.
**Sponable, C. M.** See Fletcher, H G., Jr.
**Sponer, H.** See Franck, J, Kohn, H.
——— and Hall, M. B. Analysis of the near-ultraviolet absorption spectra of some trisubstituted benzenes (I) 1,3,5-trichlorobenzene, 2864*b*.
——— and Rush, J. H. Near ultraviolet absorption spectra of the isomeric picolines, 8889*e*.
——— and Stallcup, M J Analysis of the near-ultraviolet absorption spectra of some trisubstituted benzenes (II) 1,3,5-trimethylbenzene, 2864*c*
**Sponge Rubber Products Co.** Reticulated resilient compn., P 2463*e*.
**Spooner, R. B.**, and Selwood, P. W Nuclear induction and the structure of catalytically active solids, 8831*i*
**Spoor, W. A.** Dropping-Hg electrode for the continuous measurement of dissolved O in flowing water, 2045*c*.
**Sporzyński, A.** Stabilizing HCN P 1536*h*
**Spotswood, T. M.** See Polya, J B.
**Spotts, E. K.** See Hoffman, C.
**Spotz, E. L.** See Hirschfelder, J O
**Spragg, W. T.** See Burton, W G
**Sprague, C. F.**, and Bellamy, W. D. Detn. of galactose by differential fermentation, 4342*c*.
**Sprague, G. F.** See Frey, K J
——— and Brimhall, B Quant inheritance of oil in the corn kernel, 2675*b*
**Sprague, G. F., Jr.** See Dygert, H P.
**Sprague, O. F.** $Na_2S$, P 7652*d*
**Sprague, R. G.** See Mason, H L.
**Sprague, R. H.** See Brooker, L. G S
**Sprague Electric Co.** Aryl ethers, P 6231*f*, elec conductors, P 9536*i*
**Sprague Specialties Co** Polymers of halogenated diphenylethylene as insulator for elec conductors and dielectrics for condensers, P 6866*a*
**Spratt, N. T., Jr.** Nutritive requirements of the early chick embryo (I) utilization of carbohydrate substrates, 5165*c*
**Sprauer, J. W.** $Ca(OCl)_2$, P 5555*h*
**Spray, G. H.** See Callender, S T E.
**Sprechler, M.** Corticosteroids—urinary excretion in normal and pathol. cases, 5490*a*
**Sprenger, K. v.** See Kohlmeyer, E J.
**Sprent, J. F. A.** Toxic and allergic manifestations produced by the tissues of fluids of *Ascaris* (I) effect of different tissues, 9222*a*.
**Spreter, V. C.** See Jolibois, P
——— and Briner, E. Electrolytic reduction of nitroguanidine to aminoguanidine and of nitrourea to semicarbazide - influence of the cathode, 1150*b*
**Spretnak, J. W.**, and Busby, C. C Prebore quench for hollow cylinders, 8329*i*.
——— and Wells, C Analysis of quench cracking in steel, 8329*h*.
**Sprince, H.**, Gilmore, E. L., and Lowy, R. S Unidentified factor in pancreas essential for the sustained growth of *Trichomonas vaginalis*, 9158*a*
**Spring, F. S.** See Baxter, R. A.; Dunn, G.; Elvidge, J A., Howard, G A.; Newbold, G T.; Sharp, W
**Spring, O.** $C_2H_2$, P 5174*i*
**Spring, S.**, and Peale, L. F. Oil compn. in alk cleaning, 1304*d*
**Spring, W. S.** Deltamax—magnetic core material, 3764*f*.
**Springall, H. D.** See Skinner, H. A.
**Springer, A.** Nomenclature of high polymers, 6460*b*
**Springer, H. B.** Scale prevention, 887*f*.
**Springer, H. S.** See Tuve, R. L.
**Springer, R.** Whey yeast, 8574*b*.
**Springer, Richard.** Electrophosphatization, 3730*h*, degreasing and cleaning (I), (II), (III), 7399*f*, pickling, etching, pretreating, descaling, and rust preventives, 7888*f*, 9014*f*, developments in galvanotechnique, 8908*d*
**Springuel, J.** See Verbestel, J.
**Sprink, L.**, and Sprink, M. T. (nee Roussel). Chem. action in an electrostatic field, P 4587*h*.
**Sprink, M. T.** (see Roussel). See Sprink, L.
**Sprinson, D. B.** Utilization of the α-C atom of glycine for the formation of acetic and aspartic acids, 5482*h*; see Rothenberg, M. A.
——— and Rittenberg, D. Rate of interaction of the amino acids of the diet with the tissue proteins, 9187*c*; rate of utilization of $NH_3$ for protein synthesis, 9187*a*.
**Spriskow, A. A.** See Spryskov, A. A
**Spronck, S. J. H.** See Verhorst, G. F.
**Sproston, T., Jr.** Vermont apple scab and control, 4413*e*, see Little, J. E.
———, Little, J E., and Foote, M. W. Antibacterial and antifungal substances from Vermont plants, 3885*b*.
**Sproule, L. W.** See Gurd, G W.
——— and King, L. F. Extreme-pressure lubricant, P 5585*b*, rust-inhibiting lubricants, P 9433*c*.
——— and Pattenden, W C. Factors affecting the structure of Ca soap lubricating grease, 3602*i*
**Sprowls, J. B.** Isotonic dilg. solns., 8093*h*; see Lockie, L. D
**Spruance, F. P., Jr.** Coated Al, P 6564*e*.
——— and Thirsk, J. H. Coating Al, P 6147*i*
**Spruit, C. J. P.** Oxidation-reduction potentials and resonance, 6893*g*, naphthindazolequinones with antibacterial properties, 7019*d*, absorption spectra of quinones (I) naphthoquinones and naphthohydroquinones, (II) anthraquinones and heterocyclic analogs, 7341*e*
**Spruitt, D.** See Janssen, C.
**Sprules, F. J.** See Price, Donald
**Sprung, J. A.**, and Schmidt, W. A. Diazo dyes, P 7846*d*
**Sprung, M. M.** Di Me silicone gums, P 6464*h*
**Spruyt, J. P** See Hoff, J J.
——— and Maassen, B Influence of oxidases on vitamin C in fruit juice, 1121*c*.
**Spryskov, A. A.** Sulfonation reaction (VI) equil consts of the sulfonation of $C_{10}H_8$, 471*c*, (VIII) heat effect of sulfonation of naphthalene, (IX) prepn of 2 naphthalenesulfonic acid under pressure, (X) polysulfonation of naphthalene, 1368*e*, (XI) prepn of monosulfonic acid by sulfonation of benzene with oleum, 2178*e*, see Fedorov, B P.
**Spurgeon, W. M.** Soly of inorg compds and polarization of ions, 4542*h*
**Spurlin, H. M.** Polymer solns., 7293*i*, see Johnson, Harold E.
**Spurr, C. L.** See Howe, G W.
**Spurrell, W. R** See Hunt, J N.
**Squeglia, N.** See Halpern, A
**Squibb, E. R., & Sons.** (*Patents*) Vitamin K-active compds, 1533*b*, *d* chondocurarine halides, 1914*g*, riboflavin solns., 2741*g*, streptomycinlike antibiotic, 2742*e*, 3490*f*, curare preps., 3153*b*, cryst Na penicillin G, 3154*f*, glycolamides of 2,6-diaminopyridines and derivs., 3853*a*, alkylaminoalkyl *p*-alkoxybenzoates as local anesthetics, 4430*e*; long-acting *d* tubocurarine preps, 7198*g*
**Squibb, E. L.**, Cannon, C. Y., and Allen, R S. Effect of raw soybeans and soybean-oil meal on the vitamin A and carotene concns in the blood plasma and milk of lactating cows, 8479*d*
**Squire, E. N.** See Baker, R. H.
**Squire, J. R.** See Cruickshank, C. N. D
**Squires, F.** Flooding with re-used water, 4452*i*.
**Squires, R. M.** Geophys. prospecting, P 1556*f*, see Stevens, N. P.
**Squires, W.** See Schmidt, L. H.
**Squitieri, E.** See Huff, G
**Sreekantan, B. V.** See Chatterjee, S. K.
**Sreemulanathan, H.** See Mathew, P. K.
**Sreenivasan.** See also Srinivasan.
**Sreenivasan, A.** See Krishnaswamy, K. G.; Rau, R S. J.; Savur, G. R.
———, Harper, A. E., and Elvehjem, C. A Conjugase preps in the microbiol. assay of folic acid, 3872*i*.
**Sreenivasaya, M.** See Gajjar, I. M.; Mande, B. A.; Rao, M. R. R.; Rao, M. S S., Rao, S. R. A.
**Sreerangachar, H. B.** Fermentation of Ceylon tea (VIII) relation of tea fermentation to normal respiration, 5879*i*.
**Srere, P. A.** See Chernick, S. S.
———, Chaikoff, I. L., and Dauben, W. G. Synthesis of cholesterol from acetate by surviving adrenal cortical tissue, 2245*c*.
**Srikantan, B. S.** Metal oxide distribution in Mg powders, 982*a*; limits of supersatn. and the particle size of the solute, 8241*f*; see Jayaraman, A.

**Srinivasan.** See also Sreenivasan.
**Srinivasan, M. R.** See Guriye, K. V.; Kanungo, R.
**Srinivasan, R.,** and Hazra, G. D. Catalytic production of butadiene from EtOH (I), (II), 7898*c*.
**Srivastava, B. P.** See Gupta, C. N.
——— and Gupta, C. N. Prepn. of substitutes of patent medicines, 5533*a*.
**Srivastava, K. G.** See Saksena, B. D.
**Srivastava, L. N.** Variation of rheochor with temp., 4063*d*; see Nayar, M. R.
**Srivastava, T. N.** See Gopal, R.
**Sroka, K.** Occupational diseases of textile workers, 1573*h*.
**Sroog, C. E.** See Woodburn, H. M.
———, Chih, C. M., Short, F. A., and Woodburn, H. M. Reduction of chloro acid derivs. by Li Al hydride—synthesis of dichloroethanol, 5765*a*.
**Ssacharow.** See Sakharov.
**Ssamarina, O. P.** See Samarina, O. P.
**Ssanin, P. I.** See Sanin, P. I.
**Ssapojnikowa.** See Sapozhnikova.
**Ssawitsch, T. R.** See Savich, T. R.
**Sseitleine, L. A.** See Tseitlin, L. A.
**Ssementschenko, W. K.** See Sementchenko, V. K.
**Ssentjurin, G. G.** See Sentyurin, G. G.
**Sserebrennikow, N. N.** See Serebrennikov, N. N.
**Ssergejeff.** See Sergeev.
**Ssergijenko, S. R.** See Sergienko, S. R.
**Ssergijewskaja, S. I.** See Sergievskaya, S. I.
**Ssergueev, Ssergueiew, Sserguéjew.** See Sergeev.
**Sserguejewskaja, S. I.** See Sergievskaya, S. I.
**Sserpinskij, W. W.** See Serpinskiĭ, V. V.
**Ssoverin, Ssewerin.** See Severin.
**Ssidorow, S. K.** See Sidorov, S. K.
**Ssidorowa.** See Sidorova.
**Ssigalowskaja, K. K.** See Sigalovskaya, K. K.
**Ssilina, E. I.** See Silina, E. I.
**Ssimonow.** See Simonov.
**Ssinjakowa, S. I.** See Sinyakova, S. I.
**Ssolobodine, J. M.** See Slobodin, Ya. M.
**Ssokolow.** See Sokolov.
**Ssolodki, F. T.** See Solodkiĭ, F. T.
**Ssoloweitchik, L. S.** See Soloveĭchik, L. S.
**Ssolowjeff.** See Solov'ev.
**Ssorkin.** See Sorkin.
**Ssorokin, M. F.** See Sorokin, M. F.
**Ssultanow, A. D.** See Sultanov, A. D.
**Ssurgutow, W.** See Surgutov, V.
**Staatsmijnen in Limburg.** Washing gases, P 1552*f*.
**Stahel, W. M.** Thermocompression installation of the Aarberg Refinery, 9503*i*.
**Stahentheiner, W.** See Dialer, K.
**Stabile, J. N.** See Babcock, C. J.
**Stabilimenti di Ponte Lambro, S. p. A.** High resistance low-wt. water-repellent fabrics composed of nylon or other synthetic fibers, P 1578*a*.
**Stace, H. C. T.** Detn. of Mg in soil exts., 8590*i*.
**Stacey, G. J.** See Saunders, B. C.
**Stacey, M.** Fluorocarbon chemistry, 2157*a*; sugar, 4789*c*, see Gilbert, V. E.; Haworth, W. N., Jones, A. S.; Li, C.-F., Overend, W. G., Record, B. R.
——— and Swift, G. Structure of dextran synthesized from sucrose by a strain of *Betacoccus arabinosaceous*, 1331*b*.
**Stach, E.** Kohlenmikroskopie (book), 8120*f*.
**Stach, O. R.** See Geiger, C. F.
**Stachejewa-Kawerznewa, E. D.** See Stakheeva-Kaverzneva, E. D.
**Stack, M. V.** See Mead, T. H.
**Stack, S. S.** Dew point recorder, 3732*f*.
**Stackelberg, M. v.** X-ray investigations of inner complex Cu salts, 4073*d*; see Offermans, H.
——— and Strucke, W. Behavior of unsatd. and halogenated hydrocarbons, 8916*f*.
**Stackpole, G. P.** See Jones, Albert S.
**Stacy, G. W.** See Carpenter, F. H.; Price, C. C., Vigneaud, V. du.
**Stacy, I.** See Boyd, T. F.
**Stacy, R. W.** See Hunter, J. A.
**Stadie, W. C.** Reducing properties of serum from subjects with malignant disease, 303*c*, fat metabolism, 1476*g*.
——— and Haugaard, N. Hexokinase reaction in tissue exts., 4369*i*.
——— and Marsh, J. B. Effect of cytochrome c on the metabolism of rat tissues, 6710*i*.
**Stadler, A.** See Simek, B. G.
**Stadler, H.** Gas from sewage, 8586*c*.
**Stadler, H. P.** Cell dimensions and space-group of pinnoite, 2128*f*; see Bannister, F. A.; Cox, E. G.
**Stadtherr, J. J.** Catalytic polymerization of olefinic hydrocarbons, P 1559*c*.
**Stadtman, E. R.** See Haas, V. A.
———, Stadtman, T. C., and Barker, H. A. Synthesis of valeric and caproic acids by *Clostridium kluyverii*, 7077*h*.
**Stadtman, F. H.** Deterioration of dried fruits (III) sepn. of carbonyl compds as 2,4-dinitrophenylhydrazones, 1120*i*; see Haas, V. A.
**Stadtman, T. C.** See Stadtman, E. R.
——— and Barker, H. A. $CH_4$ fermentation (VII) tracer expts. on $CH_4$ formation, 7187*g*.
**Staege.** Quality and keeping quality of butter, 5877*e*.
**Staeger, R.** Plastic mass, P 4895*b*.
**Stäglich, H.** Medical uses for *Rheum palmatum* and *Rheum undulatum*—comparative pharmacology of laxatives, 1156*c*.
**Staehelin, D.** See Schindler, O.
——— and Vögtli, W. Glycogen phosphorylation by muscle and liver of adrenalectomized cats and rats, 1098*f*.
**Staehle, H. C.** Laminating photographic images to plastic in single-step operation, P 2467*d*; ceramic color photograph design, P 8634*b*; see Eastman Kodak Co.
**Ställberg-Stenhagen, S.** Optically active higher aliphatic compds. (III) structure of tuberculostearic acid—synthesis of D(−)- and L(+)-10 methyl- and DL-9-methyloctadecanoic acids, 6160*c*; (IV) degradation of D(+)-3-methylheptacosanoic acid to D(−)-2 methylhexacosanoic acid, 7900*g*.
**Stämpfli, R.** See Beutler, F.; Gaudy, J. P.
**Staesche, M.** Mg fluoride protective coating on Mg alloys, 2148*d*.
**Staff, C. E.** Cyclopentadiene and its homologs, P 3032*c*.
**Stafford Allen & Sons Ltd.,** West, T. F., Hurst, H., and Schulman, J. H. Larvicidal prepns., P 7633*g*.
**Stafford, G. H.** High-pressure H-filled ionization chamber, 5292*i*.
**Stafford, R.** Use of $Ca(OCl)_2$ soln. for slime control, 4012*h*.
**Stafford, R. O.,** Rubinstein, I. N., and Meyer, R. K. Effect of testosterone propionate on phosphatases in the seminal vesicle and prostate, 8037*i*.
**Stafford, R. W.** See Rochow, T. G.
**Stage, H. H.** See Bishopp, F. C.
**Stagg, H. E.** Detn. of N¹-(*p*-chlorophenyl)-N⁵-isopropylbiguanide, 6364*g*.
**Stahl, B. F.** What can you learn with a pilot plant?, 4796*a*.
**Stahl, E.** See Hershberg, E. B.
**Stahl, H. A.** Thermal behavior of evapd. layers in vacuum devices, 2482*b*, structure of thin layers evapd. in kinetic vacuum systems, 2482*d*.
**Stahl, L. E.** See Miles, N. A.
**Stahl, W.** See Straumanis, M. E.
**Stahl, W. H.,** McQue, B., Mandels, G. R., and Siu, R. G. H. Microbiol. degradation of wool (I) S metabolism, 8142*b*.
———, McQue, B., and Siu, R. G. H. Decompn. of cystine and wool, 4306*b*.
**Stahle, D. C.** See Ervin, C. E.
**Stahle, J.** Variations in the 24-hr. rhythm of the hepatic glycogen in the rabbit following hypophysectomy, 6302*g*.
**Stahler, N.** See Terzian, L. A.
**Stahly, E. E.** See Corson, B. B.; Jones, H. E.; Kampmeyer, P. M.
———, Jones, H. E., and Corson, B. B. Butadiene from EtOH—utilization of by-product AcOEt, 1713*i*.
**Stahmann, M. A.** See Cope, A. C.
——— and Link, K. P. Diesters of 3,3′-methylenebis(4-hydroxycoumarin), P 1067*c*; 4-hydroxycoumarins, P 4701*d*, 6671*c*.
**Stainsby, G.,** and Alexander, A. E. Soap solns. (I) fatty acid soaps and their hydrolysis in aq. solns., 8179*f*.
**Stainsby, W. J.** Detn. of linoleic acid in edible fats, 3215*h*.
**Stair, R.** Winter measurements of $O_3$ over the Organ Mountains, N. M., 5239*d*, ultraviolet absorption spectra of seven substituted benzenes, 7819*c*; see Florence, J. M.
**Stakheeva-Kaverzneva, E. D.,** Ivanov, V. I., and Salova, A. S. Synthesis of 6-desoxycellulose, 9437*d*.
**Stakman, E. C.,** Daly, J. M., Gattani, M. L., and Wahl, I. Variation induced by U nitrate in corn smut and the cultivated mushroom, 1839*g*.
**Staley, A. E., Manufg. Co.** (*Patents.*) Treating glyceride oils with activated MgO, 2452*c*; sauces resembling soy sauce, 2731*f*; deodorization of oils, 3638*a*; α-hydroxy acids from α-amino acids, 3841*a*, phosphatides, 3948*c*; modification of starch, 4037*f*; decolorization of phosphatides contg. lecithin, 5552*i*; corn products, 6332*a*; starch paste, 6850*d*; refining of inositol solns., 7041*c*; corn steepwater, 8106*e*.
**Staley, H. B.** See Miller, L. E.
**Staley, H. R.,** and Greenfeld, S. H. Surface areas of quicklimes, 3988*g*.
**Stalked, J.** See Kalling, B. M. S.
**Stallcup, M. J.** See Sponer, H.
**Stallings, J. W.** Treatment of cellulosic textiles with strong hydroxide and acrylonitrile, P 6428*e*.
**Stallman, O.** See Du Pont de Nemours, E. I., & Co.
**Stallworth, H.** See Wittwer, S. H.
**Stam, P. B.** See White, H. J., Jr.
**Stamatoff, G. S.** Stabilizing polyvinylbutyral, P 2467*i*; glass laminate, P 9407*g*; polyvinyl alc., P 9533*d*.
**Stambaugh, R. P.** See Duggan, F. W.
**Stamberger, P.** Plasticizers from vulcanized polyethylene glycol esters, P 3242*g*.
**Stamm, A. J.** Destructive distn. of solids in a liquid bath, P 3175*g*; passage of water through the capillary structure of wood, 3607*d*, passage of materials through wood, paper, cellulosic membranes, and fabrics, 5941*a*, wood, 8745*d*.
———, Seborg, R. M., and Millett, M. A. Compressed wood product, P 3168*a*.
——— and Tarkow, H. Wood, a limited-swelling gel, 4929*e*.
**Stamm, H.** S compds., 2106*g*; see Goehring, M.
**Stamm, J. C.** Rosin-soap grease, P 4008*d*.
**Stamm, R. F.,** Halverson, F., and Whalen, J. J. Vibrational frequencies and thermodynamic functions for vinylacetylene, thermodynamic functions for HCN, and thermodynamics of synthesis of acrylonitrile, 2830*d*.
**Stamm, W.** See Rauen, H. M.
**Stammers, D. W.** Unsym. cyanines, P 6099*g*.
**Stampe, J. A.,** and Mosier, M. Magnetic surveys of certain magnetite deposits in New Jersey (II) Morris, Passaic, Sussex, and Warren counties, 4608*h*.
**Stamper, H. N.** See Robertson, W. T.
**Stampfer, M.** See Schauenstein, E.
**Stanbery, G. W.** Detn. of Cu in tanning materials, 4039*d*.
**Stanbridge, H. H.,** and Allen, W. A. "Simplex" surface aeration plant at Epsom sewage works—improving its performance, 7168*e*.
**Stanchich, I.** See Zsolnai, T.
**Standard Brands, Inc.** Sepn. of hydroxy org. acids, P 6653*a*.
**Standard Catalytic Co.** High-pressure H, P 369*g*; asphalt antistripping agent, P 3193*g*.
**Standard française des pétroles.** Anthracene oil, P 4846*d*.
**Standard Oil Co.** Purifying products from cracking oils, P 1174*a*.
**Standard Oil Co. of Indiana.** (*Patents.*) Alcs. from H, CO, and olefinic substances, 5032*a*; app. for catalytic cracking and reforming of hydrocarbons, 9428*b*; catalyst gel, 1930*b*, 3161*d*; catalysts, 1161*b*; catalytic conversion system, 4457*h*, 9429*d*; corrosion prevention, 102*i*; desulfurizing aromatic hydrocarbon, 4295*i*; exothermic catalytic reactions, 8665*a*; hydrocarbon isomerization, 5182*d*; hydrocarbons from CO and regeneration of synthesis catalyst, 1551*h*; hydrocarbon synthesis, 3175*c*, 7213*a*, 8120*i*; inhibited mineral oil, 1179*f*, isomerization of paraffins, 1559*h*, 1957*f*, ketones, 3441*i*; liquids from CO and H, 3175*d*; lubricating oil, 4007*h*; mercapto alc. esters, 3447*f*; microspherical silica gels, 2746*f*; mineral castor oil, 2764*i*, oil-sol. alkylated aryl sulfonates, 685*a*; oxidation of hydrocarbons, 2236*f*, oxidation-resistant org. substances, 4459*h*; polymerization of $C_2H_4$, 8742*ef*; purification of silica sol, 2746*e*; recovery of oxygenated products from hydrocarbon synthesis, 8649*h*; recovery of sulfonic compds. from $H_2SO_4$ sludge, 9434*a*; regeneration of hydrocarbon syn-

thesis catalyst, 3994e; rosin-soap grease, 4008d; spheroidal gel particles, 5134b; stabilized org. S-contg. compn., 8132b; sulfonation of alkyl aromatic hydrocarbons, 394f; temp. regulation in catalytic conversion, 6819c; transporting petroleum distillates, 6402i.

**Standard Oil Co. of Ohio.** (*Patents.*) Isomerization catalyst for normal paraffins, 660f; catalysts for hydrocarbon reactions, 844c; recovery of fluorides, 1159f; copptd. gel catalyst, 1930e; alkylation process, 3189a; N-methylaniline, 3454g; arylamines, 3454h; grinding-oil compn., 3606c; internal-combustion-engine-conditioning compds., 6406e; lubricant additives, 5940c, 7680a, 8668c; molding compn. comprising a polyvinyl resin and a cracked petroleum residuum, 9538d; plastic compn. of a polyvinyl chloride resin and an asphaltic material, 8208f.

**Standard Oil Development Co.** (*Patents.*) acetylene removal from diolefins, 662f, 3436f.
acid treatment of siliceous diluents for Fe catalysts in hydrocarbon synthesis, 7214e.
acrylate ester polymers, 5585e.
adsorbent particles (spherical), 1506a.
adsorptive sepn. of straight chain from branched-chain paraffins 2215h.
alcohol distn from mixts of alkyl sulfates and acid, 5790c, 6645f
alcohols from olefins, 5901g, 6645g.
aldehydes and ketones, 2632b.
alkylation, 5181d, 6404b.
alkylation of isoparaffins and olefins, 390a, 1175c, 1956e, 3189g, 9430f
alkyl cyanides, 666h.
alkyl halides, 662g, 2628c
alkyl phenol sulfide salts, 390i.
alumina hydrosols, 1159g, 5555e.
aluminum chloride catalysts, 1931b.
aluminum halide catalyst, 5134h
antioxidant incorporation into isobutylene elastomers during manuf., 3652b.
aromatic amines, stabilization of, 251e, 5799f.
aromatic nitro compds. and amines, 1561f.
aromatization, 3605e, 6818g.
asphalt, increasing adhesivity to calcareous aggregate, 5168h.
boiler detention trough, 338b.
bonding Alfin-type polymers to metal or rubber, 5625i.
bringing solid particles and gaseous fluids into contact, 389.
building compns. (fibrous), 6389f
butadiene, 662i, 2217c, 2627i, 3023e, 7496f.
butadiene polymerization, 7257i.
butane distn., 913i, 2423b.
Butyl rubber adhesion to metal, 6457a.
Butyl rubber, coating for, 9520b.
Butyl rubber for pressure working, P 3228d.
Butyl rubber, plasticizers for, 4046d.
Butyl rubber polymerization reactor design, 6859d.
Butyl rubber, tertiary aliphatic mercaptans for reclaiming, 6459a.
Butyl rubber vulcanization retarder, 8195g.
calcium organometallic compds., 4460c.
carbon disulfide, 8623i.
carbonic acid, suppression of corrosive action of, 5730f.
catalyst, 3161b.
catalyst activation, 2381b.
catalyst, app. for building-up pressure on finely divided, 6403f.
catalyst, app. for stripping contaminated hydrocarbon, 389a.
catalyst (clay), 1162c, 7162n.
catalyst for alkylation, 8666b.
catalyst for cracking, 7162d.
catalyst for hydrocarbon conversion, 843i.
catalyst for isomerization, 5886f.
catalyst for reduction of oxides of C with H, 8076g.
catalyst (gel), 8076f.
catalyst poison, removal from steam, 7950g.
catalyst regeneration, 370h, 1956c, 3994i, 6811b, 9420b, 9300b.
catalyst removal from product streams, esp. in catalytic hydrocarbon conversions with metal halides of Friedel-Crafts type, 7222h.
catalyst, removal of wax contaminants from, 3994f.
catalyst (sintered metal), 9419i.
catalyst (sulfide), 1932f.
catalytic processes, prevention of secondary reactions in, 3191c.
centrifugal sepn. of finely divided catalyst from gaseous carriers, 2421g.
chlorine, 1160f.
chlorohydrins, 4687b.
coagulation of emulsion polymers, 2026e.
coating compns. for metallic surfaces, 2507i.
condensing fatty acid halides with aromatic acid halides, 5586b.
conduits for corrosive fluids, 3669e, 3670a
contact reactions of fluidized solids with gases, app. for, 6873g
container for packaging rubberlike materials, 1212d.
controlling multicomponent sepn. process in accordance with light-absorption characteristics, 3191d.
conversion of hydrocarbon oils, 9420a
conversion of hydrocarbons, 388c, 844a, 2636e, 8664g, 9429a.
core-porosity analysis, 4842g
corrosion inhibition in oil wells, 3185h, 7221g, 8662e.
corrosion preventive, 7896b.
cracking hydrocarbon oils, 8662i.
cracking hydrocarbons, app for, 3187i
cracking hydrocarbons with suspended catalyst, 9427f.
cutting oils, 5586d, 5185e, 6406b, 9433b.
decomposing acid sludge, 5182i.
dehydration of methyl ethyl ketone by pressure distn., 2048i
dehydrogenation of ales., 6650e
dehydrogenation of butylene, app for, 3436e.
dehydrogenation of hydrocarbons in the presence of a gaseous diluent, 4682e
dehydrogenation of olefinic hydrocarbons while maintaining the K content of the catalyst, 2764f
desulfurization of triisobutylene, 5584d
diethyl sulfate solns., dilu. and hydrolysis of, 7498a.
2,3-dimethyl 1,3 butadiene from pinacol, 3834c
2,3-dimethyl 1,3 butadiene sepn from methylpentadiene, 3436g.
diolefin polymerization, 3228f, 8742h.
diolefin recovery from hydrocarbon mixts., 1955g, 2216f, 6218a, 6643f
1,3-diols, 673c.
distn process, two zone fluidized destructive, 9426i.
distn. tower for washing, scrubbing, and refluxing of petroleum vapors, 7224i
drilling fluid for heaving shale, 6817h, 6818a
drying gases, 7274d
drying hydrogel catalysts, 1558f, 9300d
elec. cable compn., 5135g
esters, 7951h.
esters of secondary and tertiary alcs., 7951e.
ethyl alc., 7036a.
ethylbenzene distn from styrene, 5040f.
fogging app., 450f
fractionation column with control device governing the feed rate of liquid stock and of vapors from the reboiler, 6403d
frost removing compn., 3949f.
froth, inhibiting formation of, 4002d.
fuels for motors, 1457g, 6810e, 7222c, 8667d
gases contg. H, 4836b.
gasification of carbonaceous materials and manuf of water gas, 5928d.
gasoline, 3994b
gasoline (aviation), 389f.
gas purifying, 7669c.
gel particles (spherical), 7608f, 8578d
gels, 9298h
generating power, 9419d
glutaric acid, 4689g
grease compns., 5940fg
heat control in an exothermic reaction, 4908c.
heat-exchange media, 6222g.
heat removal from fluidized solid reactor beds, 6478a
hydrocarbon-oil concentrates of metal sulfonates, 3192i.
hydrocarbons, sepn of, 7223c.
hydrocarbons stabilization, 386e.
hydrocarbon synthesis, 1171b, 4447acf, 4448i, 5928b, 6810hi, 7213d, 8120g, 8121a, 9420f.
hydrocarbon synthesis, control of particle size of Fe catalysts in, 3832i.
hydrocarbon treatment with solid catalyst, 2764d.
hydrogel (inorg.), 370c.
hydrogenation of aromatic nitro compds., 681i.
hydrogenation of CO, 3175f.
hydrogenation of triisobutylene, 4007e.
hydrophilic coagulating surface, treatment of, 7676g.
hydroquinone as inhibitor against Pb pptn., 4003e.
injection nozzle for catalytic reactors used in the production of Butyl rubber, 9522b.
iron catalysts, 6397a, 6762h.
iron oxide-alkali metal ferrate catalyst, 1950f, 6338g.
iron oxide-alkali metal pyroantimoniate-catalysts, 1950e, 4448d.
iron oxide-alkali metal trioxalatoferrate-(III) catalysts, 4448d.
isobutylene extn., 5582g.
isobutylene polymers, 8211h, 9519c.
isomerization of normal paraffins, 1957e, 4006g.
isoolefin polymers, 4051b, 6865i.
ketones (unsatd.), 2222g.
latex creaming, 4046a.
lubricant additives, 2424a, 2765i, 5184e, 5584e, 5585b, 5939i.
lubricants, 1175h, 2764h, 2765f, 5183fh, 5184af, 5585b, 7678h, 8132a, 8668f.
lubricants (rust inhibiting), 9433c.
lubricating grease, 391b, 1562d, 8668i.
lubricating oil antioxidant, 3606f, 6405f
lubricating oils, 4008e, 4458f, 6404e, 9431g.
magnesium, 3340f.
maleic acid by oxidation of cyclohexane, 7039h.
mercaptans, 4683d, 6646e.
mercaptans and sulfides, 664h.
metals from their ores, 2566c.
methylation of aromatic hydrocarbons, 1058h.
mineral-oil concentrate, 4460e.
mixts of butadiene-acrylonitrile copolymer with polyvinyl acetate polymers, 6860a.
naphthas, catalytic hydroforming of, 1958f
nonfoaming oil compns., 846c.
oil resistant compn., 6457g
oils (solidified), 1960f.
oily compn., 1564a.
olefin extn., 385i, 1557i, 4682b.
olefinic polymers, 4515d.
olefin polymerization of, 3605h.
olefin removal from aromatic hydrocarbons, 1558c.
oxidation of ethers to aldehydes, 8398d.
oxidation (partial), 6338f.
oxygen compd. removal from hydrocarbon mixts., 3435h.
penetration oil, 5187a.
1-pentene sepn. from other $C_5$ olefins, 4283e
permeability measurement, 450c.
petroleum catalyst, 3188f.
petroleum emulsion resolving, 1557c.
petroleum phenols, phosphorus acid esters of, 907i.
piperylene concn., 3023g.
plasticization of synthetic elastomers 4891b.
polyamide-hydrocarbon resin blend, 5229d
polycyclic aromatics, 7676e.
polymer finishing, 6002i.
polymerization at low temps., 2034h, 6866f
polymerization (delayed-action), 5230d.
polymerization emulsifier, hydrogenated tallow soap as, 5991e.
polymerization (emulsion), 2819f.
polymerization of isobutylene in the presence of controlled amts. of promoters, 5991c.
polymerization, olefin dimers as promoters in low-temp., 9530b.
polymer recovery from low-temp. polymerization of olefinic material, 442g.
polymers, 5992b, 6465e.
polymers of the isoölefins with thiophene sulfones, 3651b.
polymers of vinyl ethers and polyolefins, 3660d.
pour-point depressants, 390e, 2424b, 5585df, 6821d, 7680c.
prospecting method, 3854k.
purification of alcs., 5790d.
purification of concd. oil solns. of multivalent metal sulfonates, 9434d.
purification of solvents, 4682c, 5940h.
pyrethrin concentrate, 5150k.

reactions (high-pressure), 6811*d*.
rubberlike polymer recovery from purge water, 9519*h*.
rubber plasticization, 4890*d*, 5624*h*.
rubber, resistant to sunlight, 4045*h*.
rubber softened with $SO_2$ and Cl-treated polyisobutylene reacted with $NH_3$, 3227*b*.
rubbery polymers of normal olefins with diolefins, 8195*a*.
rust preventive, 6148*i*, 7224*f*.
sand consolidation, 8129*b*.
sepn. of $C_3$ hydrocarbons, 2824*a*, 3453*c*.
sepn. of $C_4$ unsaturates, 1793*c*.
shale distn. under fluidized conditions, 1174*c*, 6818*c*.
silica-alumina catalyst, 6338*d*.
silica-alumina gel, 7608*g*.
silica-$Al_2O_3$-$SiO_2$-MgO catalyst, 3188*h*.
silica gel, 8578*d*.
silica-metal oxide hydrogel catalyst, 7162*e*
soda ash, 3159*e*.
specific gravity recorder, 8*a*.
stripping app. for spent finely divided catalyst, 2761*c*.
stripping of polymer latexes, 895*e*, 3229*b*.
stripping vessel for fluidized solid catalyst used in hydrocarbon conversion, 7677*d*.
stripping zone for fluid catalyst used in catalytic cracking of hydrocarbons, 6403*h*
styrenes, 680*e*
sulfur, 7652*f*
sulfur removal from gases for hydrocarbon synthesis, 7214*c*.
temp. control, 2703*e*, 7608*d*, 9298*c*
thioethers, 6646*c*.
tower for countercurrent contact of gaseous hydrocarbons with water, 3023*a*
unsatd. hydrocarbons, 8663*f*
vinylacetylenes, 2216*f*
viscosity detn. for grease, 2766*i*
viscous oil by copolymerization of aromatic olefin with monoolefin, 8130*d*
wax esters of aliphatic sulfonic acids, 3193*h*
xylidene and other alkarylamines, stabilization of, 6231*c*.
zinc aluminate-Group VI metal oxide catalyst, 7161*i*
zinc aluminate spinel catalyst, 7222*f*

**Standard Oil Development Co.** and Rohm & Haas Co. Solvent treatment of mineral oils, P 3191*i*.

**Standard Pharmaceutical Works Ltd.** Glucose, P 427*d*

**Standard Telephones & Cables Ltd.** Dimeric-$\alpha$-methyl $p$ methylstyrene, P 1224*g*., halogenated polymers, P 1608*c*, hydrogenation of dimeric $p,\alpha$ dimethylstyrene, P 4518*e*, solid dimer of $\alpha$ methyl-$p$ methylstyrene, P 5799*c*, Se paste, 7360*h*. Se rectifiers, P 8920*e*.

**Standard-Vacuum Oil Co.** Al soap, P 2185*h*

**Standell, A. E.** See Shtandel, A. F.

**Standen, J. H.** See Stewart, W. D.

**Standil, S.** See Yaffe, L.

**Standing, H. A.,** and Warwicker, J. O. Effect of the carboxy groups in viscose sheet on the equil. absorption of Chrysophenine G, 4015*h*.

**Stanfield, J. A.** See Smith, H. A.

**Stanfield, K. E.** See Hubbard, R. L.

——— and Frost, I. C. Assaying oil shale, 6797*h*.

**Stanford, G.** Fixation of K in soils under moist conditions and on drying in relation to type of clay mineral, 1132*a*

——— and English, L. Flame photometer in soil tests for K and Ca, 9318*e*.

**Stange, W. J., Co.** Prepd. pepper condiment, P 2342*b*.

**Stanger, D. W.** See Riegel, B.

**Stangor, E. L.,** and Radcliff, R. R. Peptization of low temp. GR-S, 8723*i*.

**Stanier, J. E.** See Gunther, M.

**Stanier, R. Y.** See Englesberg, E.

——— and Tsuchida, M. Active enzymic patterns in the bacterial oxidation of tryptophan, 8005*d*.

**Staniforth, D. W.** See Rossman, E. C.

——— and Loomis, W. E. Surface action in 2,4-D sprays, 7180*h*.

**Stanin, T. E.** See Dickey, J. B.

**Stan'kov, Kh. Z.** See Vyatkin, V. V.

**Stankovianskiy, S.** Application of multicapillary tube Hg electrode in polarography, 8946*f*.

**Stanley, A.** Sintering characteristics of minus 65- and 20-mesh magnetite, 6133*b*.

——— and Mead, J. C. Sintering characteristics of minus 65- and 20-mesh magnetite, 6553*e*.

**Stanley, C. W.** See Burgus, W. H.

——— and Katcoff, S. Properties of 86-second $I^{136}$, 8872*f*.

**Stanley, D. A.** See McIlwain, H.

**Stanley, E. C.** Welding of plastic materials, 7717*c*.

**Stanley, G. H. S.** See Sloane-Stanley, G. H.

**Stanley, G. M.** See Stuart, W. T.

**Stanley, H. B. T.** Surface sizing of paper with starch on the paper machine, 6410*h*.

**Stanley, H. M.** See Distillers Co., Ltd.

———, Salt, F. E., and Williams, J. F. Removing halogen from coumarone-indene polymers, P 904*g*.

**Stanley, J. E.** See King, V. L.

**Stanley, J. K.** Metallurgy and Magnetism (book), 5724*g*; magnetic and mech. properties of Fe-Co alloys, 8338*a*; diffusion and soly. of C in $\alpha$-Fe, 9004*d*; see McGeary, R. K.

**Stanley, J. P.** Numerical calcn. of the internal conversion in the $K$-shell, 6073*d*; see Griffith, B. A.

**Stanley, M. M.,** and Astwood, E. B. Accumulation of radioactive iodide by the thyroid gland in normal and thyrotoxic subjects and the effect of thiocyanate on its discharge, 7579*g*, response of the thyroid gland in normal human subjects to administration of thyrotropin, 8055*c*; 1 - methyl - 2 - mercaptoimidazole—antithyroid compd highly active in man, 8056*c*, detn. of the relative activities of antithyroid compds in man using radioactive I, 9241*i*

**Stanley, N. F.** *Listeria monocytogenes* (I) isolation of a monocytosis-producing agent, (II) *Listeria* in infectious mononucleosis, 6279*a*.

**Stanley, O. B.** See Hylander, C. J.

**Stanley, R. H.** See Wilder Smith, A. E.

**Stanley, W. E.** See Snell, A. H.

**Stanley, W. L.** See Cason, J.

**Stannard, J. N.** See Clark, R. T.

**Stannett, V.** Cellulose acetate plastics (VIII) manuf. of cellulose acetate film, (IX) manuf. of sheeting, (X) extrusion methods of sheet production, (XI) manuf. of molding powder, (XII) extrusion process, (XIII) injection molding, (XIV) weathering and aging properties, (XV) general properties, (XVI) mech. properties of cellulose acetate, 2027*e*

——— and Whitfield, R. Cellulose acetate plastics (XVII) flow properties, 9522*e*, (XVIII) fabrication from sheet, (XIX-XX) container fabrication, (XXI) printing and decorative finishing, (XXII) chem. tests, (XXIII-XXIV) applications, 9522*e*

**Stansbury, E. E.** See Jetter, L. K.

**Stansby, M. E.** Fat in fish meal, 1877*a*, 7155*c*, see Dassow, A.

**Stansfield, R.** See Crowther, J. R.; Howes, D. A.

**Stansly, P. G.** See Shepherd, R. G.

——— and Ananenko, N. H. Candidulin—antibiotic from *Aspergillus candidus*, 9241*b*.

**Stanton, G. W.** See Lowry, C. E.

——— and Lowry, C. E. Vulcanizable thermoplastic copolymers, P 2035*i*, vinylidene chloride - butadiene - isobutylene interpolymers, P 7259*b*, vinylidene chloride-butadiene-vinyl acetate interpolymers, P 7259*c*; vinylidene chloride-butadiene-vinyl chloride interpolymers, P 7259*d*, vinylidene chloride-butadiene-$\alpha$-methylstyrene interpolymers, P 7260*a*; vinylidene chloride-butadiene-ethylacrylate interpolymers, P 7260*c*.

**Stanton, J. R.** See Freis, E. D.; Wilkins, R. W.

**Stanton, R. B.** Blowing techniques in molding plastics, 2027*h*

**Stanton, R. H.** Rubber recovery, P 599*b*.

**Stanworth, J. E.** Co in glass, 2092*g*; transformation range in glass, 2383*h*; silica inversions (II) cristobalite inversion in a glass stone, 2390*e*; structure of glass, 2837*e*, 5163*f*; see Dale, A. E.

**Stapel, C.** See Petersen, H. I.

**Staples, R.** See Rawlins, W. A.

**Stapley, J. H.** See Ross, D. M.; Dillon-Weston, W. A. R.

**Star, D. E.** Performance testing of paints, 4480*f*.

**Starck, C. B.** See Nadeau, G. F.

**Starck, H. P.** Worked Examples in Chemistry (book), 3278*h*.

**Starck, W.** Org. polyvinyl esters, 1215*g*.

**Stare, F. J.** See Geyer, R. P.; McKibbin, J. M.; Mann, G. V.; Olson, R. E.

———, Mann, G. V., Geyer, R. P., and Watkin, D. M. Fat in intravenous feeding, 4741*g*.

**Stareck, J. E.,** and Corless, L. M. Compns. for producing surface-conversion coatings on Zn, P 5681*e*.

**Starik, B. Ya.** See Chovnyk, N. G.

**Stark, B. V.,** and Filippov, S. I. Passivity and resistance of Cr alloys, 2561*c*.

**Stark, C. N.** See Gall, L. S.

**Stark, F. C., Jr.** Hormone materials to set fruit, 1139*c*.

**Stark, F. L., Jr.** Chloropicrin as a soil fumigant, 3960*f*

**Stark, L. E** and Bishop, C. R. Corrosion resistance of powder-cut stainless steels, 3767*b*

**Stark, O. K.** See Sandage, C.

**Stark, S., Jr.** See McCall, E. R.

**Stark, T. H.** See Emmart, E. W.

**Stark, W. H.** Adams, S. L., Kolachov, P., and Willkie, H. F. 2,3-Butylene glycol from grain, 9358*a*.

———, Kolachov, P., Smith, L. A., Blankmeyer, H. C., and Willkie, H. F. Alc. production from grain mash, 9359*b*.

**Starke, K.** Phys. chem. effects in nuclear transmutations, 1639*f*, stable and radioactive atoms as indicators, 3860*c*.

——— and Schubert, G. Applications of nuclear physics, 3701*f*.

**Starkey, F.,** and Brenner, J. G. M. Furfuryl alc., P 1064*i*

———, Brenner, J. G. M., and Imperial Chemical Industries Ltd. Tetrahydrofurfuryl alc., P 4700*f*.

**Starkey, H.** See Lapin, L.

**Starkey, R. L.** Sulfate-reducing bacteria, 1455*e*.

——— and Wight, K. M. App. for measuring the pH and $E_h$ values of soils, P 1137*b*

**Starkey, W. E.** See Grauer, R. C.

**Starling, S. G.** See Duncan, J.

**Starnes, W. R.,** and Teague, R. S. Metabolism of synthetic estrogens—urinary S partitioning after estrogen administration, 7114*c*

**Starnes, X. B.** Exploration for fluorite in Ky. (I) Moore Hill Fault Vein, 2551*c*.

**Starobinec, G. L.** See Starobinets, G. L.

**Starobinets, G. L.** See Devyatykh, G. G.

———, Panfilov, A. V., Devyatykh, G. G., and Lazerko, G. A. Adsorption layers in nonaq. systems (III) fatty acids at the boundary of diphenylamine and air, 1238*i*.

**Starodubtsev, S. V.** Electron emission of thin layers of $B_2O_3$ under the impact of pos. ions, 1256*f*.

——— and Timokhina, N. I. Conglomeration of crystals, 1622*a*.

**Starosta, O.** See Zampach, J.

**Starr, B.** Making the most from corn, 8716*d*.

**Starr, C. E., Jr.,** and Lane, T. Accuracy and precision of analysis of light hydrocarbon mixts., 5930*g*.

**Starr, M. P.** Nutrition of phytopathogenic bacteria (III) gram-pos. phytopathogenic *Corynebacterium* species, 5081*d*.

**Starr, R. W., III** See Berry, L. J.

**Starrabba, F. S.** Distribution of metallic ores of Mt. Peloritani, 3322*a*.

**Stasevskil, P. I.** Processing frozen and rotted beets, 4033*i*; causes of the increase of purity of fodder molasses and methods of decreasing it, 4036*c*.

**Stashkov, G.** See Rakitin, D.

**Stasiw, O.,** and Teltow, J. Prepn. of AgBr emulsions, 4155*d*; AgBr-Ag-O system, 4969*a*; vacant-site phenomena in Ag halides with replacement, 5252*g*; photochemistry of the Ag halides, 6927*a*; disorder phenomena in Ag halides with addns. of foreign ions, 7772*e*.

**Stasney, J.** See Cantarow, A.; Paschkis, K. E.

**State, D.** See Niazi, S.

**State, H. M.** Elementary quant. analysis in a small liberal arts college, 1619*b*.

**Stateman, M. J.** Se rectifiers, P 2525*h*, 5318*g*; electroforming rectifier elements, P 2526*d*; high inverse-voltage Se rectifiers, P 4589*f*.

**Staten, H. W.** See Heller, V. G.; Moyer, F.

——— and Heller, W. G. Winter pasture for more and better feed, 6331*d*.

**Statham, F. S.** See Baldwin, A. W.

**Stather, F.** Gerbereichemie und Gerbereitechnologie (book), 5221*a*.
**Stather, G.** Medizinish-chemische Untersuchungsmethoden (book), 4312*g*
**Stats, D.**, Wasserman, L. R., and Rosenthal, N. Hemolytic anemia with hemoglobinuria, 302*h*.
**Staub, A.** See Bernfeld, P.; Meyer, K. H.
**Staub, H.** Detn. of cholesterol, 7531*f*; see Baur, H.; Bluntschli, H. J.
———, Viollier, G., and Muller, M. Viscometric, eletrophoretic, and immunological study of the proteins of calf blood plasma after denaturation by $CH_2O$, 1815*c*.
**Staubly, J. L.** See Smith, A. C.
**Staud, C. J.** See Carroll, B. H.
**Staudinger, Hansjürgen.** Natural glycogen, 3052*f*.
——— and Schmeisser, M. Detn. of adrenal cortical hormones, 6095*b*.
**Staudinger, Hermann.** Structure of natural and synthetic fibers, 3621*d*.
**Staudinger, H. P.** Same as Staudinger, J. J. P.
**Staudinger, J. J. P.** Emulsifying agents in polymerization, 438*i*; see Cooke, M. D.; Distillers Co., Ltd.; Hutchinson, H. M.
———, Faulkner, D., and Cooke, M. D. Stabilized vinyl copolymers, P 6866*c*.
———, Faulkner, D., and Wright, G. T. Plasticized vinylidene chloride copolymers, P 2817*h*.
**Staudinger, M.** See Rózsa, G.
**Staudt, A. W.** Nylon finishing problems, 852*i*.
**Stauffer, A.** Biology (book), 6683*c*.
**Stauffer, R. A.** Vacuum metallurgy, 77*f*.
**Stauffer, R. E.** See Smith, William F.
——— and Smith, W. F. Photographic emulsion, P 2105*e*, fog inhibitor for photographic emulsions, P 6099*h*.
**Stauffer Chemical Co.** $SO_3$, P 369*d*; stabilization of insol. S, P 3160*i*, 3575*h*.
**Stavanger Electro-Staalverk Aktieselskap.** Sepg. metals, P 5727*e*.
**Staveley, L. A. K.** Transitions in solids and liquids, 6481*f*.
——— and Gupta, A. K. Semimicro low-temp. calorimeter, and a comparison of some thermodynamic properties of MeOH and MeOD, 5276*a*.
**Stavely, H. E.**, and Fried, J. Streptomycin (IX) stepwise degradation of mannosido streptomycin, 3307*c*.
**Stawitzke, A. A.** See Stirton, A. J.
**Stayner, R. D.** See Kaslow, C. E.
**Stcherbakoff.** See Shcherbakov.
**Stcherbatchow, D. M.** See Shcherbachev, D. M.
**Stchigol, M. B.** See Shchigol, M. B.
**Stchoukarew, Stchukarew.** See Shchukarev, S. A.
**Steacie, E. W. R.** Photosensitization, 1639*h*; photosensitized reactions, 3725*c*, see Darwent, B. de B.; Gunning, H. E.
——— and Cambron, A. Chemistry division of the Natl. Research Council of Can., 4909*c*.
———, Darwent, B. de B., and Trost, W. R. Elementary reactions involving the lower paraffins, 5270*e*.
**Stead, B.**, Page, F. M., and Denbigh, K. G. Method for use in chem. kinetics and in the study of transient intermediates, 5267*b*.
**Steadman, A.** See Tidik, S.
**Steadman, L. T.** See Flagg, J. F.
**Steadman, T. R.** See Gresham, T. L.
——— and Feazel, C. E. Acrylic acid esters, P 5035*i*.
**Stealy, G. W.** See Zienty, F. B.
**Stearman, R. L.** See King, T. E.
**Stearn, B.** See Lott, W. A.
**Stearner, S. P.** Effects of folic acid on the anemia induced by x-irradiation, 2681*c*
**Stearns, C. R., Jr.** Use of deflocculators when combining neutral proprietary Cu compds. with oil sprays, 9353*i*; see Griffiths, J. T., Jr.; Thompson, W. L.
———, Thompson, W. L., and Griffiths, J. T., Jr. Effect of methods of application on Cu, S, and oil deposits obtained by spraying and dusting, 8597*b*.
**Stearns, E. I.** See Shurcliff, W. A.
**Stearns, J. C. H.** See Holdeman, G. E.
**Stearns, R. H.** Magnetic separator, P 3249*b*, 6964*f*.
**Stearns Magnetic Manufg. Co.** Magnetic separator, P 3249*b*, 6961*f*.
**Stearns-Roger Manufg. Co.** Casting, forging, and heat-treating cast-iron grinding balls, P 3342*d*.
**Stebbins, M.** See Robbins, W. J.
**Stebbins, M. R.** See Lensen, S. G.
**Stecher, P.** Fused riboflavin amide, P 9088*a*.
**Stecher, R. M.**, Bedell, H. M., and Levis, I. B. Analysis of blood and tissue fluids, 7071*g*
**Steck, C. T.**, and Wiedmer, H. Prosthetic plastic, P 7262*h*.
**Steck, E. A.** See Nachod, F. C.
——— and Ewing, G. W. Absorption spectra of heterocyclic compds. (II) amino derivs. of pyridine, quinoline, and isoquinoline, 1655*c*
———, Ewing, G. W., and Nachod, F. C. Absorption spectra of heterocyclic compds. (IV) *bz* halo-4-aminoquinoline derivs., 1655*g*, (V) substituted 4-quinolones, 2865*c*.
——— and Hallock, L. L. Quinolines (VII) 3-methylquinolines, 4276*b*
———, Hallock, L. L., and Suter, C. M. Quinolines (VI) 4-aminoquinoline derivs., 1776*a*.
———, Nachod, F. C., and Ewing, G. W. Absorption spectra of heterocyclic compds. (VI) polysubstituted 4-aminoquinoline derivs., 8886*a*
———, Nachod, F. C., Ewing, G. W., and Gorman, N. H. Absorption spectra of heterocyclic compds. (III) benzimidazole derivs., 1655*d*.
**Steck, H.** Ore dressing, 7387*h*
**Steck, I. E.** See Joseph, N. R.
**Steck, M.** Cork substitute, P 6004*d*, plastic, P 7262*h*
**Steckert, H.** See Lunke, A.
**Stedham, S. B.** Mech. firing (II) mech. stokers for continuous kilns, 2391*f*
**Steding, A.** Warmetechnik der Gaserzeugungsofen (book), 7668*f*
**Stedman, D. F.** Structure of B hydrides, 959*c*
**Stedman, R. F.** See Friedman, B. S.
**Stedman, R. L.** See Gershenfeld, L.
**Steedly, J. W., Jr.** Absorption spectra of some *p*-aminoarylidiazoninm derivs., 8880*b*
**Steegmuller, F.** Alkylation of aromatic hydrocarbons in the presence of anhyd. $AlCl_3$, 2966*d*
**Steel Brothers & Co., Ltd.** Refining of crude wax, P 1179*e*
**Steele, B. F.**, Sauberlich, H. E., Reynolds, M. S., and Baumann, C. A. Media for *Leuconostoc mesenteroides* P-60 and *Lactobacillus arabinosus* 8081, 1333*h*
**Steele, J. M.** See Messinger, W. J., Rosenberg, B.; Soberman, R.
**Steele, R.**, Sfortunato, T., and Ottolenghi, L. Detn. of the nucleic acids, 4313*b*
**Steele, S. D.**, and Russell, L. Detn. of Cu in Ni-bearing and cast irons, 5330*e*
**Steel Ingot Production, Inc.** Cupola furnace for remelting scrap, P 1209*e*
**Steen, E.** Satellitism in a corynebacterium, 6278*i*.
**Steenberg, B.** Paper quality, 3615*e*, behavior of paper under stress and strain, 4012*h*.
**Steenbjerg, F.** See Dorph Petersen, K., Kristensen, R. K.
——— and Boken, E. Cu in soil and cultivated plants (III) Cu content and Cu deficiency in types of Jutland soil, 6772*b*.
**Steenis, J. van.** See Keuzenkamp, A., Man, W. de
——— and Waterman, H. I. Alkylation of isopentane with isopentene in the presence of concd. $H_2SO_4$, 1551*f*
**Steenken, W., Jr.** See Wolinsky, E.
——— and Wolinsky, E. Tuberculostatic effect of subtilin, 5447*e*.
**Steensholt, G.** Optical specificity in methylation processes, 2254*b*, 6573*i*; polarizability and the diamagnetic susceptibility of the H mol., 3252*g*; heat of evapn. and the calcn. of Trouton's const., 3255*c*; transformation of histidine to creatine by animal tissue, 3861*g*, 9102*h*; effect of heparin on histaminase, 5863*c*.
**Steeples, G. L., Jr.**, and Jensen, H. Effect of the blood-glucose level on the secretion of the adrenal cortex, 7117*g*.
**Steere, G. R.** Wager gas production unit, P 7212*f*
**Steers, E.**, and Sevag, M. G. Detn. of tryptophan in bacteria and proteins, 6692*d*
**Stefanelli, S.**, and Petromo, G. Serum cholinesterase activity and blood acetylcholine in labor and child bed—influence of histamine, pituitrin, folliculin on the cholinesterase activity, 9201*e*.
**Stefanini, M.** Influence of alloxan diabetes on coagulability of the blood, 1478*h*; hyperbiliruhinemic effect of Na nicotinate, 9255*i*; see Quick, A. J.
**Stefano, F. di.** See Di Stefano, F.
**Stefanovits, P.** Humus of a steppe soil from Kecskemét, Hungary, 8081*d*; Kisbalaton peat, 8643*a*.
**Steffanson, S. W.** Sewage treatment works, 6767*b*
**Steffe, H.** See Naeser, G.
**Steffee, C. H.** See Benditt, E. P.
**Steffen, H. C.** Compounding and processing of a cold rubber-tire tread, 5984*e*; see Braendle, H. A.
**Steffen, R. M.** See Boehm, F.
———, Huber, O., and Humbel, F. Internal conversion of γ-radiation and x-rays in *K*-capture by heavy nuclei, 6911*g*.
**Steffens, J. H.**, Zimmerman, M. U., and Laituri, M. J. Correlation of operating variables in catalytic polymerization, 4839*e*
**Steffens, W.** Developments in the field of drinking and industrial waters, 6342*e*
**Steffensen, E. V.** See Dunham, L. S.
**Steffes, N.** Rosin and turpentine in the domestic manuf. of paints and varnishes, 5971*c*.
**Stefko, P. L.** See Lehmann, G.
**Stegeman, G.** See Davis, W. D.
**Stegemeyer, L. A.** Oleonitrile, P 4286*c*.
**Steggerda, F. R.** See Pogrund, R. S.; Weber, R. P.
**Stehlík, B.** Mol. compds. of carboxylic acids with monohydric alcs. by the Ulehla osmometer, 7409*b*, orthotelluric acid, 8931*i*, phosphorous acid $O:PH(OH)_2$, 8931*h*, osmotic study of $NH_3$, 8807*g*, structure of $H_3AsO_4$, 8934*g*, structure of silicates, 8934*d*.
——— and Balák, I. Crystal structure of $TeO_2$, 8781*f*
——— and Kello, V. Osmotic phenomenon for the proof of the intramol. H bond in *o*-nitrophenol and salicylic acid, 8766*a*
——— and Tkáč, A. Osmotic phenomenon of some acids and sugars, 7300*e*
**Stehman, C. J.** See Heider, R. L.
———, Cook, N. C., and Whitmore, F. C. Grignard reaction (XIX) prepn. of 2,4,4-trimethyl-3-pentanone, 5004*f*.
**Stehney, A. F.** See Rogers, L. B.
**Stehr, K.** Reconditioning deteriorated machinery, 3336*d*
**Steidlitz, M.** See Goldfinger, G.
**Steiger, K.**, and Kuhni, E. Volatility of urethan, 3975*a*
**Steiger, N.** Zn mercaptides, P 1438*b*.
**Steigerwaldt, F.** Evaluation of the state of carbohydrate metabolism (I), 5832*d*
**Steigleman, F. E.** Repair of dentures, P 6468*i*
**Steigmann, A.** Sensitization with Au salts, 8292*g*, detn. of traces of labile S in photographic gelatin, 8923*i*, Ammann technique for characterizing photographic gelatins, 8923*i*.
**Steigmann, F.** See Popper, H.
———, Meyer, K. A., and Popper, H. Severe interference with bile flow in primary hepatitis, 8522*g*.
**Stein, C.** Coal tar colors, FD&C Yellow No. 6 and C. I. No. 26, 9451*e*.
**Stein, E.** Production statistics of the German ceramic industries, 9402*f*.
**Stein, G.** See Bloch, R., Ziskin, D. E.
**Stein, G. A.**, and Tishler, M. Stabilization of DDT, P 7634*a*.
**Stein, I.** Vegetable amylases, 9102*c*.
**Stein, I. F., Jr.**, and Meyer, K. A. Effect of urecholine on the stomach, intestine, and urinary bladder, 8540*a*.
**Stein, K. F.** Effect of cortical ext. and other agents on eosinophilia of mice infected with *Trichina spiralis*, 7105*b*.
**Stein, L.** See Bockmuhl, M.
**Stein, P. R.** See De Hoffmann, F.
**Stein, R. S.** See Alfrey, T., Jr.
———, Krumm, S., and Tobolsky, A. V. Relation between polymer structure and mech. properties (III) thermodynamic and optical analysis of the behavior of polyethylene, polyvinyl chloride, and Lactoprene, 2801*b*.
**Stein, S. J.** See Doty, P.
**Stein, S. N.** See Bain, J. A.; Gyarfas, K.; Pollock, G. H.
——— and Pollock, G. H. Central inhibitory effects of $CO_2$ (II) *Macacus rhesus*, 4770*b*.
**Stein, W. H.** See Moore, Stanford.
——— and Moore, S. Chromatography of amino acids on starch columns—sepn. of phenylalanine, leucine, isoleucine, meth-

ionine, tyrosine, and valine, 2266*g*; amino acid compn. of β-lactoglobulin and bovine serum albumin, 5812*i*.
**Steinbach, H. B.** Temp. coeffs. of muscle apyrase systems, 7064*d*; Ca and apyrase system of muscle, 9123*g*.
**Steinback, R. T.** See Kivenson, G.
**Steinbeck, A. W.** Na sulfite albumin fraction of human plasma, 4745*d*.
**Steinberg.** See also Shteinberg.
**Steinberg, A.** Cholesterol-desoxycholic acid—stable antigen for use in a flocculation test for liver dysfunction (I) comparison with the Hanger cephalin-cholesterol test, 9225*b*.
**Steinberg, B.** See Dietz, A. A.; Schmeil, E.
**Steinberg, G. M.,** Hass, H. B., and McBee, E. T. Aliphatic analogs of the sympathomimetic amines, 131*f*.
**Steinberg, M.** See Kamm, R.; Nachtrieb, N. H.
**Steinberg, R. A.** Symptoms of amino acid action on tobacco seedlings in aseptic culture, 7551*e*.
——— and Clayton, E. E. Chem. soil treatment for black root rot of tobacco in the greenhouse, 3133*d*.
**Steinberg, R. H.,** and Belic, H. J. Silica refractories—analysis with the d.-c. arc and high voltage spark, 7655*d*.
**Steinberger, A. J.** See Schneider, G.
**Steinberger, J.** Range of the electrons in meson decay, 4943*g*.
**Steinbiss, H. K.** See Almond, L. H.
**Steinhock, S. R.** Vegetable-oil processing, 881*h*.
**Steinbuch, W.** Synthesis of pteridines, 2212*f*.
**Steinegger, E.** Biol. and medicinal importance of the flavones, 1154*f*. heteroploidy in medicinal plants (I), (II) artificial production of tetraploid *Lobelia inflata*, (III) cultivation and properties of tetraploid plants of *Lobelia inflata* and comparison with diploid *Lobelia*, (IV) artificial production of tetraploid *Lobelia syphilitica*, (V) artificial production of polyploid *Lobelia urens*, 4347*c*, see Kritikos, P. G.
——— and Katz, A. Glycosides and aglucons (XVII) degradation of glucosides with chromic acid, 213*d*.
——— and Reichstein, T. Lunariue, the cryst alkaloid from *Lunaria biennis*, 1047*c*.
**Steinemann, A.** Detn. of the $CO_2$ content of flue gases, P 914*h*.
**Steiner, A.** Cholesterol in coronary arterio sclerosis, 749*h*.
**Steiner, A. B.** Oil-in-water emulsion, P 1557*f*, see Clark, D. E.
——— and McNeely, W. H. Alginic acid esters, P 1291*f*.
——— and Rothe, L. B. Stabilizer for icings, P 6759*h*.
**Steiner, H.** See Gray, Vincent R.; Rowley, D. Wakeford, L. E.; Weizmann, C.
——— and Watson, H. R. Relative reaction rates of Cl atoms with primary, secondary, and tertiary H atoms in hydrocarbons, 5270*c*.
**Steiner, L. E.** Chem. education at Oberlin College, 9*f*.
**Steiner, P. E.** See Falk, H. L.
**Steiner, R.** Pretreatment of bauxite, P 9398*f*.
**Steiner, R. F.** See Katz, S.
**Steiner, S.** Adhesive tapes, 9296*h*.
**Steinert, G.** See Browning, B. L.
**Steinfeld, S. T.** See Taubes-Steinfeld, S.
**Steinhäuser, M. H.** See Harders-Steinhauser, M.
**Stein, Hall & Co.** Formation of carbohydrate derivs., P 678*e*; textile emulsion, P 1990*h*; warp sizing material, P 3628*e*, coated printed paper, P 4014*f*; waterproof adhesive for laminated and corrugated paper board, P 5633*d*; stabilized Na diacetate, P 7006*e*.
**Steinhauser, H. H., Jr.** Thermodynamic analysis of nonideal vapor-liquid equil., 4914*g*.
**Steinitz, E. W.** Blending techniques—use of temp.-viscosity and blending charts, 2415*f*.
**Steinitz, R.** Permanent magnets from pure Fe powder, 2556*f*; magnetic properties of Fe compacts in relation to sintering temp., 7390*g*.
**Steinkraus, W. C.** Hot-melt coating compn., P 1222*g*.
**Steinmetz, H.** Celestite occurrences the northern Alps, 8313*d*.
**Steinschlaeger, M.** Gas mixts. contg. CO and H, P 4935*h*.
**Steinwedel, H.** See Jensen, J. H. D.
——— and Jensen, J. H. D. Equation of state at high temps. and pressures, 4914*e*.
**Steinwehr, H. E. v.** See Kussmann, A.
**Steinzeugfabrik Embrach A.-G.** für **Kanalisation** und **Chemische Industrie.** Ceramic products, P 831*b*, 0386*i*.
**Stekol, J. A.** Synthesis of *S*-benzylthiopyruvic acid and its conversion to *N*-acetyl - *S* - benzyl - L - cysteine—unavailability of thiopyruvic acid to rats for growth purposes, 1845*a*.
——— and Weiss, K. Availability of *S*-bis(3-amino - 3 - carboxypropyl) sulfide in S metabolism, 4739*d*, conversion of $S^{35}$-homolanthionine to $S^{35}$-cystine, 6712*c*; growth inhibition by D-, L-, and DL ethionine in the rat and its alleviation by the S-contg amino acids and choline, 8177*d*; availability of the diketopiperazines of cystathionine, homolanthionine, and methionine to rats for growth purposes, 8477*f*.
**Steldt, F. A.** Tubocurare purification, P 3153*b*.
**Steljes, E. L.** See McCarter, J. A.
**Steljes, J. F.** See Smith, B. S.
**Stelling, O.** Treatment of rubber fillers with organosilicon compds., P 6457*f*.
**Stelson, P. H.** See Meissner, K. W.
**Stelzenmuller, A.** See Skipper, H. E.
**Stelzner, G.,** and Prohl, C. Influence of tardy N fertilizing on the rate and the yield of protein in potatoes, 8083*c*.
**Stelzner, R.** Literatur-Register der organischen Chemie (book), 1432*b*.
**Stemp, L. F.** Trade effluent, 792*e*.
**Stempel, B.** Detn. of phenylmethylamine and (hydroxyphenyl)methylamine derivs., 168*b*; water content of narcotic exts of the D. A. -B. VI, 815*i*.
**Stenberg, M.,** Ekman, P., Lundblad, K., and Svanberg, O. Cu content of soils and crops and long term fertilizing expts. with Cu, 4410*f*.
**Stenberg, T. R.** Friction material, P 334*b*.
**Stender, V. V.** Diafragmy dlya elektroliza vodnykh rastvorov (book), 2524*d*.
**Steneck, W. B.** See Brockman, F. G.
**Stenger, H.** Water in the textile industry and for steam boiler use, 8688*e*.
**Stenhagen, E.** Unsatd higher carboxylic acids—synthesis of $\Delta^{22}$ tricosenoic, $\Delta^{23}$-tricosynoic, and $\Delta^{22,24}$-tricosynoic acids, 7414*c*.
**Stenhagen, S. S.** See Ställberg-Stenhagen, S.
**Steninger, M.** See Hedlund, I.
**Stenkhoff, G.** Leitfaden der Chemie für Landwirte (book), 7624*g*.
**Stenlake, J. B.** See Linnell, W. H.
**Stenlid, G.** Effect of Na azide, 2,4-dinitrophenol, and *o*-phenanthroline on O consumption in green leaves, 8460*d*.
**Stenvik, K. J.** Properties of olivine and its use for refractories and molding sands, 5165*b*.
**Stenzel, A.** See Schramek, W.
**Stenzel, H. B.** See Weissenborn, A. E.
**Steopoe, A.** Mortars for walls and bricks, 5568*a*, detn. of the residue of portland cement insol. in HCl, 9407*i*.
**Stepan, A. H.,** and Hamilton, C. S. Synthesis of phenanthridine derivs., 7487*a*.
**Stepanenko, B. N.** Color reaction of polysaccharides with I, 7870*d*.
——— and Afanas'eva, E. M. Interaction of I with glycogens and apoglycogens, 9109*b*.
**Stepanenko, M. G.** See Ashkinazi, G. M.; Kovalev, L. K.
——— and Tomashevich, I. O. Glass-melting furnaces of the SKP type, 1539*g*, 6379*c*.
**Stepanov, A. V.** Acidproof coating, P 6389*f*.
**Stepanov, I. I.** See Dankova, T. F.
**Stepanova, E. I.** See Zhitomirskaya, E. Z.
**Stephan, F.** Sizing paper with a paraffin emulsion, 400*g*.
**Stephanou, S. E.,** Schechter, W. H., Argersinger, W. J., Jr., and Kleinberg, J. Absorption of O by $Na_2O_2$—prepn. and magnetic properties of Na superoxide, 7363*f*.
**Stephen, A. M.** See Robinson, R.
**Stephen, J. M. L.** See Butler, J. A. V., Phillips, D. M. P.
**Stephen, V. A.** Fluorimeter for estn. of thiamine, 8215*g*.
**Stephen, W. E.** See Imperial Chemical Industries Ltd.
**Stephens, D. F.** See Ross, O. B.
———, Ross, O. B., Campbell, W. D., MacVicar, R. W., and Darlow, A. E. Feeding and breeding test with sheep, swine, and beef cattle, 6711*c*.
**Stephens, D. S.** See Curtis, C. A.
**Stephens, F. F.** Heterocyclic compds. from Schiff bases, 9065*d*.
**Stephens, H. N.** Industry's concept of coöperative research, 7605*h*.
**Stephens, J. L.** See Burton, G. W.
**Stephens, J. P.** Equipment and processes for manufg. higher B.t.u. gases, 5571*a*.
**Stephens, M. M.,** and Spencer, O. F. Natl. Gas Engineering Vol. III (book), 1170*d*.
**Stephens, R. E.** See Tilton, L. W.
**Stephens, S. J.** See Vassel, B.
**Stephens, W. E.** See Franzen, W.
——— and Bottoms, A. M. Absorption curve of $Be^{10}$ β-rays, 4096*d*.
——— and Lewis, M. N. High-energy limit of the $C^{14}$ β-ray spectrum, 4091*h*.
**Stephens, W. W.,** and Morning, J. L. Pilot-plant production of steel from sponge Fe, 9007*b*.
**Stephenson, E. F. M.** Derivs. of 2-styrylfluorene, 7168*c*.
**Stephenson, J. N.** Integrated industry at Gatineau, 4465*h*.
**Stephenson, M.** Bacterial Metabolism (book), 4727*g*.
**Stephenson, M. L.** See Zamecnik, P. C.
**Stephenson, O.** See British Drug Houses Ltd., Morley, J. S.
**Stephenson, R. J.** Estn. of grease in sewage sludge, 7169*b*.
**Stephenson, R. L.** Production of sound ingots, 1295*f*.
**Stephenson, R. M.** See Hopkins, A. C., Jr.
**Stephenson, R. P.** Pharmacol. properties of conessine, isoconessine, and neoconessine, 1868*h*.
——— and Dutta, N. K. Comparison of the irritant action of conessine, isoconessine, and neoconessine, 2327*d*.
**Stephenson, S. E., Jr.** See Rodes, N. D.
**Stephenson, S. T.,** and Mason, F. D. Vacuum x-ray spectrometer, 4092*f*, continuous x-ray spectrum from 8A to 14A, 6508*i*.
**Stephenson, W. T.** Cold-stretching polyvinylidene chloride tubing, P 2026*g*.
**Štěpina, V.** Oxidation test of mineral oils, 3182*b*; estn. of nitrobenzene in mineral oils after selective refining, 4837*i*.
**Sterba, M. J.** See Haensel, V.
**Sterges, A. J.** See MacIntire, W. H.
**Stergiopoulos, C. G.** See Buechner, W. W.
**Sterin, Kh. E.** Fine structure of scattering lines in benzene-toluene mixts., 496*d*.
**Sterling, E.** See Bowring, J. R.
**Sterling, L. D.** See Allison, F. E.
**Sterling Drug, Inc.** Polyamine resinous compn. and an ink made therefrom, P 3215*d*, (hydroxyphenyl)alkanolamines, P 3460*b*, *m*-hydroxy-α-methylaminoacetophenone, P 3460*e*; salt substitute, P 5556*f*; protein hydrolyzates contg. essential amino acids, P 6683*c*; stabilized cholinesterase, P 7069*b*; 9-aminoacridine, P 7974*d*.
**Stern.** See also Shtern.
**Stern, E. S.** See Braude, E. A.; Cook, A. H.
**Stern, F.** Phosphorescent pigment, P 7832*c*, see Beevers, C. A.
**Stern, G.** Phys. properties of reduced Fe powder plus graphite and Cu, 3755*i*.
**Stern, Harry.** See Krynitsky, A. I.
**Stern, Herbert,** and Kirk, P. L. Microgram analysis (I) detn. of glucose and its application to the detn. of sucrose, (II) solid-liquid extractor and its application to extn. of sugars from plant materials, 4313*e*.
**Stern, I. L.,** Kalinsky, J., and Fenton, R. A. Gas evolution from weld metal deposits, 8342*i*.
**Stern, J. R.** $CO_2$ fixation in animal tissues, 3912*e*.
———, Eggleston, L. V., Hems, R., and Krebs, H. A. Accumulation of glutamic acid in isolated brain tissue, 9206*i*.
**Stern, Joel R.,** Taylor, M. W., and Russell, W. C. Relation of vitamin $B_{12}$ to liver basophilia, 5098*g*.
**Stern, Joseph R.,** and Ochoa, S. Enzymic synthesis of citric acid by condensation of acetate and oxalacetate, 6680*e*.
**Stern, Karl,** Askonas, B. A., and Cullen, A. M. Influence of electroconvulsive treatment on blood sugar, total no. of leucocytes, and lymphocytes, 3924*g*.
**Stern, Kurt.** See Davidsohn, I.
**Stern, K. G.** See Mushett, C. W.
**Stern, M.** Preserving hides, P 1592*g*.

**Stern, M. O.** Masses of the heavy isotopes 7330*h*.
**Stern, N. R.** See Hawk, C. O.
**Stern, O.** See Estermann, I.
**Stern, P.** See Cerkovnikov, E.; Ivančević, I.
**Stern, R.** Lubricating-oil compn., P 4844*g*.
**Stern, R. L.** Li chloride poisoning with complete recovery, 3935*e*.
**Stern, R. M.** See Levine, H.
**Stern, W.** See Grodzinski, P.
**Sternberg, H. W.** See Rostler, F. S.
**Sterne, M.** See Wentzel, L. M.
**Sterner, J. H.** See Hodge, H. C.
**Sterner, S.** See Schenk, P. W.
**Sternheimer, R. M.** Compressibility of metallic Cs, 4068*d*.
**Šterzl, J.** Morphological variability of the nuclear substance and genetic changes induced by colchicine in *Escherichia coli*, 3062*d*; see Malek, I.
**Stetina, I.** See Sarudi, I. (née Stetina).
**Stetson, C. A., Jr.** See Thomas, L.
**Stetson, R. A.** Stove polishes, 3632*c*; crack fillers, 7659*c*.
**Stettbacker, A.** Sprengstoffe und Schiesstoffe (book), 2437*c*.
**Stetten, D., Jr.** Study of pathol. processes with the aid of isotopic H, 8519*c*; see Karp, A.; Patterson, W. B.
**Stetter, H.** Enzymic microanalysis of F ions, 5065*i*; see Helferich, B.
**Stettiner, H. M. A.** See Krumholz, P.
**Stettler, A.** See Muralt, G. v.
**Stettner, C. E.** See Kochakian, C. D.
**Steuart, D. W.** Nutritive value of fruit products, 4395*c*.
**Steubing, W.** Lower limit of the linear Stark effect of H, 6920*f*.
**Stevels, J. M.** Fusibility and expansion coeff. of glass, 371*b*.
**Steven, G.** See Troy, W. C.
**Steven, W.** Hardenability of constructional steels, 4616*f*.
**Stevens, A. H.** Recovery of guanidine salts, P 1436*e*, metal ammine salts, P 1928*h*; alkylene cyanohydrins, P 6647*g*, sepg. solid and liquid triglycerides, P 7726*a*; see Atlas Powder Co., Finkl, A., & Sons Co.; International Polaroid Corp., Minerals and Metals Corp., University of Texas.
——— and Phillips Petroleum Co. Monoalkylation of $C_6H_6$, P 3844*i*
**Stevens, A. N.** Education of the chemist for professional responsibility, 5650*e*.
**Stevens, C. B.,** Whewell, C. S., and Yegenaga, H. T. Raising of dyed fabrics, 6828*g*.
**Stevens, C. D.,** Lee, A., Stewart, P. H., Quinlin, P. M., and Gilson, P. R. Distribution of radioactivity in tumor-bearing mice after injection of radioactive iodinated trypan blue, 4368*b*.
———, Stewart, P. H., Quinlin, P. M., and Meinken, M. A. Distribution of radioactive I in rats with and without Walker tumor 256 after injection of radioactive NaI, 9229*i*.
**Stevens, C. E.** See Leblond, C. P.
**Stevens, C. M.** See Carpenter, F. H.; Wood, John L.
——— and Halpern, P. E. Detn. of α-amino-β-hydroxyisovaleric acid, 6694*b*.
———, McKennis, H., Jr., and Vigneaud, V. du. Effect of mustard-type vesicants on the phenol color reaction of proteins, 708*a*
———, Wood, J. L., Rachele, J. R., and Vigneaud, V. du. Acid hydrolyzates of vesicant-treated insulin, 707*h*.
**Stevens, D. E.** See Smith, Vaughn R.
**Stevens, D. G.** Alkylation process, P 3189*a*.
**Stevens, D. K.** See Kaiser, H. F.
**Stevens, D. R.** See Spindt, R. S.
**Stevens, G. W. W.** Selective development of fission tracks in an electron-sensitive emulsion, 3287*b*; see Knott, E. B.
**Stevens, H.** See Coulson, E. J.
**Stevens, H. H.,** and Thompson, J. B. Effect of shortening stability on commercially produced army-ration biscuits (II) development of oxidation during storage, 778*c*.
**Stevens, J. A.** Detn. of F in water, 3545*d*.
**Stevens, J. E., Jr.** Components found in wood oil, 8648*c*, see Shearon, W. H., Jr.
**Stevens, J. R.** See Emling, B. L.; Gardner, J. H.; Wolf, F. J.
**Stevens, L. C.,** and Boots, B. P. Production from condensate reservoirs, 7672*d*.
**Stevens, M. F.** See Pope, C. G.
**Stevens, N. P.,** and Squires, R. M. Geochem. prospecting, P 1556*g*.
**Stevens, P. G.,** and Spalding, S. C., Jr. Synthesis of the cyclopentane ring—biol. origin of terpenes and sterols, 5751*a*.
**Stevens, W.** See Backer, H. J.
**Stevens, W. H.** Latex processes and potentialities (V) modified latex, 891*d*, (VI) latex thread, 3641*g*; (VII) equipment and techniques, 7247*g*; see Hawkings, R. C.
**Stevenson, A. C.** Ammonolysis, 7759*b*.
**Stevenson, A. H.** Water-quality requirements for recreational uses, 8583*b*.
**Stevenson, C. H.** Treatment of a hydrophilic coagulating surface, P 7676*g*.
**Stevenson, D. P.** Effect of temps. on mass spectra, 2862*i*; analyses of isotopic propanes, 4093*c*; see Beeck, O.; Wagner, C. D.
——— and Beeck, O. Isomerization of cyclohexane and methylcyclopentane in the presence of Al halides (I) catalyst, 587*b*.
**Stevenson, D. S.** See Santiago Stevenson, D.
**Stevenson, H. A.** Combustion safeguard control to avoid explosions in industrial furnaces, 3617*f*.
**Stevenson, Herbert A.** See Boots Pure Drug Co., Ltd
——— and Short, W. F. Therapeutic acridine, P 8104*i*.
**Stevenson, J. K.** See Emerson, W. S.
**Stevenson, L. T.** Future of research in the paper industry, 2774*b*.
**Stevenson, W. A.,** and Kauffman, W. Benzene hexachloride and other insecticides to control cotton insects, 1143*d*
**Stevenson, W. H.** Chlorinated rubber, P 2024*e*
**Stevenson, W. W.** Report of the gases and nonmetallics subcommittee (I) introduction, 2907*f*.
**Steventon, J. W.** See Sherwin, K. A
**Steward, E. G.** Measurement of small differences between lattice spacings of two solid solns., 3710*e*.
**Steward, J. S.** Reduced anthelmintic effect of tetrachloroethylene in oily soln., 2699*f*
**Steward, P.** See Byrne, J. F
**Stewart, A.,** Pitrof, A. R., and Willihnganz, E. Expander material for storage battery, P 8920*f*
**Stewart, A. W.,** and Graham, H. Recent Advances in Org. Chemistry. Vol. II (books), 1432*c*, 5030*a*.
**Stewart, C. P.** See Robson, J. S.; Wilkinson, A. W.
——— and Dunlop, D. M. Clinical Chemistry in Practical Medicine (book), 5443*d*.
**Stewart, C. W.** Trash measurements in Louisiana factories, 887*d*.
**Stewart, E. A.** Sponge Fe, P 7403*f*.
**Stewart, E. D.** Adenine compds., their chem., physiol., and therapeutic properties, 8552*b*, see Gutcho, S., Roberts, M.
**Stewart, F. D.** See Mathes, R. A.
**Stewart, F. H.** Expts. on adaptive variation and rejuvenation—*Bacillus dysenteriae*, grown on media contg. sulfanilamide, acriflavine, argyrol, neoarsphenamine, and no drug, 1830*e*.
**Stewart, F. S.,** and Hardy, V. R. Coated metal structure, P 6457*b*.
**Stewart, F. W.** See Guss, L. W
**Stewart, G. A.** Assay of oxytocic hormone in posterior pituitary lobe preps., 7070*g*; see Foster, G. E.
**Stewart, H.,** and Schaerer, A. A. Sepn. of hydrocarbon mixts., P 8669*e*.
**Stewart, H. B.,** and Nielsen, H. H. Infrared bands in the spectrum of difluoromethane, 4139*i*
**Stewart, H. C.** See Rowlands, S.
**Stewart, H. L.** See Lorenz, E.
**Stewart, H. W.** 1-Carbethoxy-4-methylpiperazine and salts, P 6671*e*, see Smith, J. M., Jr.
**Stewart, J.** Casting resin and plaster by aid of hot-melt molds, 9521*e*.
**Stewart, J. H.** Reduction of Fe oxides, P 7403*g*.
**Stewart, J. M.** See Snyder, H. R.
**Stewart, J. R.** Measuring wear resistance of man-made fibers, 7232*i*.
**Stewart, J. S.** Inverting standard furnace increases smelter profits, 5713*b*.
**Stewart, L.** See Thornton, A. W.
**Stewart, L. A.** Apache Fe deposits, Navajo Co., Ariz., 7383*g*.
**Stewart, L. C.,** Richtmyer, N. K., and Hudson, C. S. Trehalose from yeast, 6986*g*.
**Stewart, M.** See Jaques, L. B.
**Stewart, P. H.** See Stevens, C. D.
**Stewart, R. N.** See Chargaff, E.
**Stewart, R. S.** Ti metals, 6555*a*.
**Stewart, T. D.** See Porter, C. W.
**Stewart, T. J.** See Wilcox, F. A.
**Stewart, W. C.** See Williams, W. Lee.
——— and Williams, W. L. Effects of inclusions on the endurance properties of steels, 2146*g*.
**Stewart, W. D.** Catalysts for the polymerization of 1,3-butadiene hydrocarbons, P 2025*h*; pesticidal compn. of polyethylene polysulfide and nicotine sulfate, P 5528*i*; polyethylene polysulfide emulsion, P 5992*e*; creatine and creatinine as catalysts for polymerization of butadiene, P 6859*c*.
——— and Standen, J. H. Fly spray comprising a diaryl disulfide, P 9358*d*.
**Stewart, W. R. G.** See Rogers, R. R.
**Stewart, W. S.** Effects of 2,4-D and 2,4,5-T on citrus fruit storage, 1517*a*.
——— and Condit, I. J. Effect of 2,4-dichlorophenoxyacetic acid and other plant-growth regulators on the Calimyrna fig, 5893*c*.
——— and Hield, H. Z. 2,4-D—use of 2,4-D sprays to increase orange and grapefruit fruit size, 8597*i*.
——— and Parker, E. R. Sprays to reduce fruit drop from grapefruit trees, 1518*b*.
**Steyaert, G.** See Cazier, J.
**Steyn, A. P.,** and Rosselet, F. Detn. of biphenyl in orange peel, 5345*c*.
**Steyskal, F.** See Kliewe, Heinrich.
**Steyskal, K.** See Kliewe, Heinrich.
**Stezynski, G. J.** Centrifuge for sepg. whey from cheese constituents, P 3540*d*.
**Stich, W.** See Bingold, K.
**Sticha, E. A.** See Kanter, J. J.
**Stichting Brandstofonderzoek.** Hydrolyzing cellulose or analogous materials by HCl gas, P 6415*a*
**Stickland, L. H.** Activation of phosphoglucomutase by metal ions, 6258*i*; see Orr, J. W
**Stickney, J. C.** See Northup, D. W.; Van Liere, E. J.
———, Northup, D. W., and Van Liere, E. J. Blood-sugar and dextrose tolerance during anoxia, 2302*i*.
**Stickney, M. E.** See Miller, W. C.
**Stiehler, R. D.** See Bekkedahl, N.
**Stiff, H. A., Jr.** Detn. of serum protein, 4313*g*.
**Stiffel, C.** See Halpern, B. N.
**Stiglitz, P.** See Chassevent, L.
**Stigzelius, H.** Mineral position of ECA nations (XIV) Finland, 3118*h*.
**Stilbert, E. K.** Synthetic latexes as pigment binders in clay-coated papers, 1186*a*, development of latex as a paper-coating adhesive, 4464*a*, see Young, A. E.
**Stiles, J. B.** Metal spraying, 8339*i*.
**Stiles, R. B.** See Morris, H. E.
**Stiles, W.** Plant physiology, 1082*a*, 6285*i*.
**Still, J. L.,** Buell, M. V., Knox, W. E., and Green, D. E. Cyclophorase system (VII) D-aspartic oxidase, 7059*h*.
**Still, W. F.** See Goldenson, J.
**Stille, U.** Heat equiv. and caloric energy units, 8835*b*; quantities and energy units in at. physics, 8842*h*.
**Stiller, E. T.** See György, P.; Jarowski, C. I.; Mueller, G. P.; O'Keeffe, A. E.; Szabo, J. L.
**Stillman, N.** See Wachter, A.
**Stillman, R. C.** Rept of the spectroscopy comm. on fats and oils, 7722*a*; see Thomson, P.
**Stillson, G. H.,** and Sawyer, D. W. 2,6-Di-*tert*-butylphenol, P 3459*e*.
**Stilmar, F. B.** Anthraquinonyloxadiazole vat dyes, P 4484*a*.
**Stimmel, B. F.** Effect of Zn-HCl hydrolysis on the estrogens in human urine, 5438*e*
———, Grollman, A., Huffman, M. N., Lott, M. H., and Ashmore, J. Conversion of 16-ketoestrone to estriol, 2301*d*.
**Stimpson, E. G.** See Weisberg, S. M.
**Stimson, H. F.** International temp. scale, 5274*b*.
——— and Cragoe, C. S. Triple point of water as a fixed point on the international temp scale, 4066*b*.
**Stimson, (Sister Miriam Michael).** Ultraviolet absorption spectra of some pyrimidines—chem. structure and the effect of pH on the position of $\lambda_{max.}$, 5307*c*.
**Stinchfield, R. M.** See Folger, H. H.
**Stirling, B.** Availability of roasted pyrite and of red silt obtained in the working up of bauxite ores for Fe metallurgic purposes, 4997*a*; Hungarian chem. industry, 8073*b*.
**Stirn, F. E.** See Niederl, J. B.

**Stirrett, J. E.** Discovery of pitch blende at Great Bear Lake, 977*f*.
**Stirton, A. J.** See Scanlan, J. T.
——, Schaeffer, B. B., Stawitzke, A. A., Weil, J. K., and Ault, W. C. Aryl stearic acids from oleic acid—variables affecting the yield and properties, 9028*e*.
**Stites, J. G., Jr.** Rare earth metals and their compds.—normal and modified acetylacetonates, 8928*e*.
——, McCarty, C. N., and Quill, L. L. Rare earth metals and their compds. (VIII) synthesis of some rare earth acetylacetonates, 2106*g*.
**Stitt, L. L.,** and Eide, P. M. Insecticides for cabbage-maggot control in western Washington, 3136*h*.
**Stitt, W. D.** Evaluation or the loss caused by slime in paper mills, 848*c*.
**Stiven, D.** Phosphatase test for milk, 6749*b*.
**Stjernholm, R.** See Ehrensvärd, G
**Stobbe, H. R.** Petrology of volcanic rocks of northeastern N. Mex., 6128*c*.
**Stober, K. E.** Colored extruded articles from vinyl aromatic resins, P 5632*c*.
**Stober, W.** See Eichler, O.
**Stocher, E.** See Babey, C.
**Stock, C. C.** See Burchenal, J. H.; Moore, A. E.
**Stock, C. R.** See Barnes, R. B.; Taxwood, V. C.
—— and Salley, D. J. Methylated melamine-HCHO resin in controlling shrinkage of woolens, 2779*c*.
**Stock, D. I.,** and Davies, C. W. Second dissocn. const. of $Mg(OH)_2$, 4544*f*, colorimetric measurement of pH and the dissocn. consts. of the malonates of some bivalent metals, 8809*a*.
**Stock, E.** Taschenbuch für die Farben- und Lackindustrie sowie für einschlägigen Handel (book), 1994*a*, Soligen-Iron as a drier in Fe paints, 6432*a*
**Stock, F. E.** Tetraethylammonium bromide in renal cortical ischemia, 1111*i*
**Stock, J. T.** Electrolytic cond., 58*f*, 1687*b*, amperometric titration (IV) use of 8-hydroxyquinoline, 8952*b*; polarography of quinoline derivs. (II) reduction of 8-hydroxyquinoline at the dropping Hg cathode, (III) reduction of 8-quinolinecarboxylic acid at the dropping-Hg cathode, 7484*f*
—— and Fill, M. A. Miscellaneous microchem. devices (XV) testing gases, 445*g*, (XVI) fusion capsules for treating insolubles, 1613*h*, (XVII) complex assemblies, 4053*i*, (XVIII) 2 microburets 4904*b*, (XIX) adjustable support for light app., 7209*b*, (XX) control of swings in semimicro weighing, 8745*f*, diaphragm pump for air and other gases, 3666*b*, microblowpipe, 5233*f*; transmitting manometer for micro O-uptake expts., 5233*g*; rotary stirring devices for micro titration, 7209*c*
**Stockbarger, D. C.** Artificial fluorite, 9395*h*
**Stockdale, J.,** and Rison, D. E. Insulated elec resistances, P 6098*f*.
**Stockell, A. K.** See Woodruff, C. W.
**Stocken, L. A.** See Ennor, A. H.
—— and Thompson, R. H. S. Reactions of British antilewisite with As and other metals in living systems, 6739*b*.
**Stocker, C.** See Smith, G. N
**Stockfleth, A.** See Happoldt, W. B., Jr.
**Stockholms Superfosfat Fabriks Aktiebolag.** Vinyl esters, P 3444*d*, *trans*-1,2 dichloroethylene, P 6218*i*.
**Stocking, C. R.** See Weier, T. E.
—— and Weier, T. E. Stability of carotenoids in ground dehydrated carrots, 7156*i*
**Stockings, G. T.** Metabolic Brain Diseases and their Treatment in Military and Civilian Practice (book), 5491*e*.
**Stockley, G. M.** Geology of the country around Mwanza Gulf, 75*h*; geology of north, west, and central Njombe district, Southern Highlands Province, 5347*e*.
**Stockman, L.,** and Hägglund, E. Sprucewood polyoses and their behavior on hydrolysis, 395*f*.
**Stockmayer, W. H.** Soly. of heterogeneous polymers, 8804*e*.
**Stockton, G. W.** Elec. insulating material, P 8075*e*.
**Stockwell, G. E.** See Emblem, H. G.
**Stoddard, A. E.** See Cork, J. M.
**Stoddard, E. D.** See Dickinson, E. M.
**Stoddard, E. M.** X disease of peach and its chemotherapy, 9347*f*; see Dimond, A. E.
—— and Dimond, A. E. Chemotherapy of plant diseases, 5830*d*.
**Stodola, F. H.** Action of hydrazine hydrate on oxazolones, 4669*a*; see Benedict, R. G
**Støa, K. F.** See Laland, P.
**Stoeck, G.** See Inhoffen, H. H.
**Stöcker, H.** See Pfeiffer, P.
**Stoeckhert, K.** American synthetic materials, 4047*e*; synthetics in the U.S.A. in chem. app. manuf., 5233*b*; synthetic materials in the construction of dairy equipment, 5877*c*, plastics in the rayon and textile industry, 9457*h*.
**Stöckmann, F.** Selective boundary-layer photoeffect for alkali metals, 7325*a*; see Pohl, R. W.
**Stoerk, H. C.** See Loeb, E. N
—— and Emerson, G. A. Complete regression of lymphosarcoma implants following temporary induction of riboflavin deficiency in mice, 5834*i*
**Stössinger, S.** See Hutzel, O.
**Stoesz, P. A.,** and Le Page, G. A. Glycolysis in liver homogenates, 8508*b*
**Stoev, K. D.** Dynamics of carbohydrates of grape vine in connection with the direction of formation and decompn. of di- and poly-saccharides, 3069*a*, synthesis and hydrolysis of starch in the grape vine, 5091*h*, see Merzhanian, A. S
**Stohr, J. A.** Compressed tablets of $UO_2$, 2856*i*.
**Stoian, C.** Ewe butter, 3533*i*.
**Stoicescu, L.** See Gheorghiu, C. V
**Stoicovici, E.,** and Gliszczynski, S. v Druses in the granite of the Drăganului Valley, Rumania, 5709*a*.
**Stoikoff, S.** Sunflower pectin, 1498*f*.
**Stojkovic, D.** See Pushin, N. A
**Stoker, R. I.** Phytotoxicity of DDT and of benzene hexachloride, 5147*i*, see Tattersfield, F.
**Stoker, R. L.** Erosion due to dust particles in a gas stream, 6475*d*
**Stokes, A. J.** Measuring the film strength of liquids, P 6764*d*.
**Stokes, A. R.** Numerical Fourier analysis method for the correction of widths and shapes of lines on x-ray powder photographs, 4952*g*
**Stokes, C. A.** See Dannenberg, E. M., Ludoo, R. B.
—— and Dannenberg, E. M. C blacks—comparison of a fully reinforcing furnace black and easy processing channel black, 6855*a*
**Stokes, E. A.** Filter assembly of finlike disks, P 6*g*
—— and Southern, R. G. Filter for a centrifugal gas scrubber, P 6009*h*.
**Stokes, J. H.,** and Taylor, J. B. Dermatology and Venereology for Nurses (book), 5112*c*.
**Stokes, J. L.** Substance having the physiol. activity of folic acid, P 3490*e*; fermentation of glucose by suspensions of *Escherichia coli*, 5080*i*
——, Koditschek, L. K., Rickes, E. L., and Wood, T. R. Factors affecting the rate of growth of *Lactobacillus casei*, 4334*g*.
**Stokes, R. G.** See Zerfoss, S
**Stokes, R. H.** Thermodynamic study of bivalent metal halides in aq. soln. (XVII) revision of data for all 2:1 and 1:2 electrolytes, 22*i*, see Robinson, R. A.
—— and Robinson, R. A. Standard solns. for humidity control, 8812*h*.
**Stokes, S. C.** See British Rubber Producers' Research Association
**Stokes, S. H.** Producer-gas diln. of coke oven gas, 6808*f*.
**Stokes, W. E.** See Killinger, G. B.
**Stokesberry, P. W.** Stable quinoline salt for electrolysis, P 5082*c*.
**Stokinger, H. E.** See Dygert, H. P., Wilson, H. B.
——, Eriksen, N., Andur, B., Shannon, A. L., Glover, N., Kaplan, N. O., Schlamowitz, M., Hoch, P., Murphy, N., LaHelle, C. W., Orcutt, J. A., Smith, N. B., Same, E. W., and Slotnik, I. Toxicity following inhalation of F and HF, 8530*i*.
**Stokland, K.** Thermal decompn. of disilane and trisilane, 2078*e*.
**Stokley, J.** Elettroni al lavoro (book), 2098*a*.
**Stoklosa, M. J.** Soly. of phenol in liquid petrolatum, 3616*b*; lemon syrup, 1528*d*.
**Stokstad, E. L. R.** See Angier, R. B.; Broquist, H. P.; Franklin, A. L.; Hoffman, C. E.; Hutner, S. H.
——, Hoffmann, C. E., Regan, M. A., Fordham, D., and Jukes, T. H. Unknown growth factor essential for *Tetrahymena geleii*, 6274*e*.
—— and Jukes, T. H. Sol. vitamins, 9190*c*.
——, Jukes, T. H., Pierce, J., Page, A. C., Jr., and Franklin, A. L. Multiple nature of the animal protein factor, 9181*a*.
**Stolbovoi, F. K.** Continuous operation centrifuge, P 8759*a*.
**Stolkowski, J.** Inhibition of carbonic anhydrase by sea water, 7524*b*; see Fauré-Fremiet, E.
**Stoll, A.** Plant biochemistry, 7193*f*.
——, Hofmann, A., and Troxler, F. Ergot alkaloids (XIV) isomerism of lysergic and isolysergic acids, 7031*g*
——, Pereira, A., and Renz, J. Cardiac glycosides (XXI) cardiac active glycosides and aglucones of *Coronilla glauca*, 4679*f*
—— and Seebeck, E. Allium compds. (II) enzymic degradation of alliin and the properties of alliinase, 3482*d*; (III) specificity of alliinase and synthesis of compds. related to alliin, 6576*g*
**Stoll, H. C.** Atropine and related compds., 2324*f*
**Stoll, H. W.** Fluid-flow measurement in pipe sizes below two in., 2045*h*
**Stoll, M.** Products of musklike odor, and the evolution of megacyclic chemistry, 2374*c*
—— and Commarmont, A. Syntheses of macrocyclic products of a musk odor (XII) reduction of β-methylcyclopentadecanoin to muscone and 4-methylcyclopentadecanone, 163*f*, 3-hexen-1-ol, 5364*c*; citral and ε-methylcitral from linalool and 5-methyllinalool—prepn. of farnesal, 7900*d*.
**Stoll, R.** See Bieth, R
**Stoll, R. G.** Abrasion tester and its application for the evaluation of the wear resistance of textiles, 6831*c*
**Stoll, W. R. M.** See Müller Stoll, W. R
**Stolte, F.** See Hartstein, S. R
**Stolte, L. A. M.** See Muhorst, J. C. A
**Stoltenberg, H. A.** O-concn. effect on flood water Fe pickup, 1951*e*
**Stoltenhoff, E.** Suggestions for the D. A. R. VII, 8103*d*.
**Stoltz, G. E.,** Erbe, J. R., and Geiselman, R. A. Electroplating unit for moving metal strip with control means for coordinating cell and speed of the process, P 6926*a*
**Stoltz, M.** See Pacault, A
**Stolz, R. R.** Electromes in the rubber industry, 3643*h*
**Stone, C. A.,** and Loew, F. R. Adrenergic blocking drugs (III) effects of two halogenated ethylamines on pressor responses to adrenaline, nicotine, and adrenergic nervous reflexes, 2320*c*; effect of various drugs on adrenaline-induced pulmonary edema, 7582*i*
**Stone, D.,** and Hechter, O. Splenic lymphocyte discharge induced by adrenal cortical hormones under *in vivo* conditions, 8036*b*.
—— and Shapiro, S. Free and bound K in rat brain and muscle, 3088*a*
**Stone, E. J.** See Johnston, J. E.
**Stone, F. H.** Precise fractionation of light hydrocarbons, 2414*a*.
**Stone, F. S.** See Garner, W. E.
**Stone, G. D.** O in steel-producing furnaces, 8323*i*
**Stone, G. L. L.** Hematite milling plant at Marampa, Sierra Leone, 4611*a*
**Stone, H.** See Selye, H.
**Stone, H. G.** Producing β-lactones at reduced pressure, P 5795*d*.
**Stone, I.** See Atkin, L.
—— and Gray, P. P. Silica and tannin in worts and beers, 1905*f*, 3142*e*.
**Stone, J.** See Hucker, G. J.
**Stone, J. D.** See Anderson, S. G.
**Stone, K. G.** See Furman, N. H
—— and Furman, N. H. Polarography of certain substances related to anthraquinone, 2520*h*.
**Stone, M. W.** See Lane, M. C
**Stone, P. V.** See Brenson, T. E.; Dudley, J. E., Jr.
**Stone, R.** Benzocaine soln., P 1914*d*.
**Stone, R. E.** See Spies, T. D
**Stone, R. W.,** Machamer, H. E., McAleer, W. J., and Oakwood, T. S. Fermentation of tyrosine by marine bacteria, 9146*g*.
**Stone, S.** Therapeutic and prophylactic administration of wheat-germ oil (vitamin E), 6294*h*.
**Stone, W. A.,** Woodside, V., Vogel, E. K., and Wilson, J. C. Bleaching high-d.

sulfite pulp with a mixt. of hypochlorite and $ClO_2$, 847*g*.
**Stone, W. E.** See Gershoff, S. N.; Gurdjian, E. S.
**Stonehill, A. A.** See Davis, H. L.
**Stoner, E. C.** Ferromagnetism, 4529*e*.
**Stoner, G. G.**, and Savage, R. L. Polymerization of $C_2H_4$ with ester catalysts, P 8742*f*
**Stoner, H. B.** See Green, H. N.; Wayne, E. J
——— and Green, H. N. Effect of fatal cutaneous burns on the adenosine equiv. of the blood, 9208*b*; effect of limb ischemia on the Mg content of plasma, 9208*a*.
———, Green, H. N., and Threlfall, C. J. Bodily reactions to trauma—nucleotides in cardiac ischemia, 4756*g*.
**Stoner, R. J.** Inspection and control work at sheet asphalt plants, 6401*c*
**Stones, H. H.**, Lawton, F. E., Bransby, E. R., and Hartley, H. O. Effect of topical applications of K fluoride and of the ingestion of tablets contg. NaF on dental caries, 8474*a*
**Stookey, R. H.** See Teter, J. W
**Stookey, S. D.** Photosensitive glass, 4965*g*; coloration of glass by Au, Ag, and Cu, 8111*f*; see Hyde, J. F.
**Stoppani, A. O. M.** Inhibition of the activity of cytochrome oxidase by azides, 7981*d*; succinic oxidase inhibition, 9099*b*, see Cicardo, V. H
**Stora, C.** Patterson-Fourier analysis of the iodides of palmityl- and stearyl-choline, 7288*a*; see Loury, M.
——— and Genin, H. Reactivity of some org. substances contg. tertiary N towards mustard gas, 6336*h*.
**Storaasli, J. P.** See Krieger, H.
**Storari-Offer, E.** See Ranzi, S.
**Storch, H. H.** See Orchin, M.; Savich, T. R.
**Storer, E. H.** See Clarke, J. S.
**Storer, J. B.** See Lushbaugh, C. C.
**Storer, T. I.**, and Mann, M. P. Rodent control and bibliography of ANTU, 2362*g*.
**Storey, I. D. E.** See Levvy, G. A
**Stork, G. J.** See Johnson, William S.; McElvain, S. M
**Storm, A.** See Cope, O. B.
**Storm, R. G.** See Hodge, J. M.
**Storms, W. R.** Diamond drilling of potash reserves in Eddy Co., N. Mex., 7385*c*.
**Storrow, J. A.** Fractionation of binary mixts in a wetted-wall column, 1614*g*.
——— and Willson, B. D. Fractionation of binary mixts. in packed columns, 4053*f*.
**Storvick, C. A.** See Fincke, M. L
**Story, C. F.** Lignocellulose die-stock, P 3197*c*.
**Story, E. B.** See White, F. W.
**Storz, H.** Effect of caffein on the digitalized heart, 8051*g*.
**Stott, V. H.** See Hilliard, A.
——— and Hilliard, A. Zircon refractories, 5563*f*
**Stotz, E.** Biol. synthesis of fatty acids, 7065*i*, see Connors, W. M.; O'Connell, P. W.; Smith, Frederick G., Witter, R. F.
**Stotz, N. I.** Selection and heat-treatment of cutting tools, 4207*a*.
**Stouff, L.** Stouff furnace for intensive combustion in an aerodynamic suspension, 3991*d*.
**Stout, J. W.** Second-order transformation of two-component systems—applications to solns. of $He_3$ in $He_4$, 22*h*
——— and Griffel, M. Paramagnetic anisotropy of $MnF_2$, 8222*i*.
**Stout, L. E.**, Chamberlain, D. F., and McKelvey, J. M. Factors influencing vegetable oil bleaching by adsorption, 3635*c*.
**Stout, M.** Relation of oxidation-reduction potential, respiration, and catalase activity to induction of reproductive development in sugar beets, 6288*f*, see Fort, C. A.
——— and Fort, C. A. Simulating large-pile conditions in cooling and storing sugar beets, 6443*f*.
**Stout, O. C.** Rhubarb juice, P 2710*g*.
**Stout, P. R.** See Overstreet, R
——— and Meagher, W. R. Mo nutrition of plants with radioactive Mo, 2286*h*
———, Overstreet, R., Jacobson, L., and Ulrich, A. Radioactive tracers in plant-nutrition, 1079*f*.
**Stout, R. D.** Metallurgy of arc welding in steel, 6964*a*; see Osborn, C. J.
——— and McGeady, L. J. Notch sensitivity of welded steel plate, 3760*d*.
**Stout, R. W.** Radioactivity of $K^{40}$, 4563*e*.
**Stovall, E. J., Jr.** See Erickson, K. W.
**Stover, C. N., Jr.**, Partridge, W. S., and Garrison, W. M. Gas microanalyzer, 8749*g*.
**Stover, L. H.** See Parris, G. K.
**Stover, O. H.** Intrathecal use of pitressin for the prolongation of spinal anesthesia, 315*g*.
**Stover, W. A.** Alkylation with water as catalyst, P 3604*g*; alkylation, P 5583*c*.
**Stow, F. S., Jr.**, Horowitz, K. H., and Elliott, J. H. Application of the rising-column capillary viscometer to the high-viscosity range, 6472*h*.
**Stowell, H. T.** Recovery of V from ores, P 5727*b*, see Kerschbaum, F. P
**Stowell, R. E.** Nucleic acids and cytological changes in regenerating rat liver, 4355*f*, alterations in nucleic acids during hepatoma formation in rats fed *p*-dimethylaminoazobenzene, 5190*b*
**Stoyev, K. D.** See Stoev, K. D
**Stoykovitch, D.** See Stojkovic, D
**Straaten, L. M. J. U. van.** Authigenic feldspar in nonmetamorphic sediments, 73*e*.
**Strachan, C.** Dependence of $\beta$-decay on the sign of the change in nuclear spin, 4098*g*
**Strachan, C. C.** See Atkinson, F. E
**Strachan, C. E.** See Baronde, R. de R
**Strachoff.** See Strakhov.
**Strack, E.** Enteral diffusion animal metabolism, 4359*e*, endogenous portion of fecal N, 8025*e*
**Stracke, W.** See Stackelberg, M. v
**Strada, M.** See Tarantola, C.
**Strader, J. E.** Soldering flux, P 6150*d*
**Stradiot, S.** See Schoep, A
**Strålfors, A.** Microbiology of caries (II) acid fermentation in the dental plaques *in situ* compared with lactobacillus count, (III) buffer capacity of the dental plaques, 1101*f*
**Strafford, N.**, and Stubbings, W. V. Detn. of carbazole in anthracene, 3747*b*
**Stragand, G. L.**, and Safford, H. W. Micro detn. of S in org. compds., 6109*g*.
**Strain, D. C.** See Miller, W. C
**Strain, D. E.**, and Osgood, W. V. Working of polyethylene, P 5533*b*
**Strain, F.** Polymerization with peroxydicarbonate catalysts, P 5611*i*, carbonate haloformates of glycerol, P 6652*h*, maleic anhydride copolymers, P 9532*h*
**Strain, H. H.** Chromatographic separations, 2113*g*, enzyme oxidation of unsatd. fats and carotenoid pigments, 8406*b*
**Strain, W. H.**, and Dee, J. N-2 Hydroxyethyltetraiodophthalimide, P 1534*c*.
**Strait, E. N.** See Buechner, W. W
**Strait, L. A.** See Kreutzer, F. L
———, Hrenoff, M. K., and DeOme, K. B. Influence of solvents on the effectiveness of carcinogenic agents, 1857*h*
**Straker, T. W.** See Bracewell, R. N
——— and Bracewell, R. N. Sudden phase anomaly, 1919, Feb. 11, 5301*h*
**Strakhov, I. P.** Properties of Cr compds. in hides from two-bath tanning, 6450*d*, influence of the type of bond with the albumin in hides in chrome tanning on the final tanning with vegetable exts., 6450*f*
——— and Pavlov, S. A. Effect of the type of chrome tanning on the character of the bonds between the protein and the Cr compd., 6450*e*.
**Strakhov, N. M.** Regularity and the mechanism of sedimentation from the sea (I) Black Sea, 5709*a*; bacteria in the formation of carbonate rock, 8994*b*.
**Straley, J. W.** See Eisner, M.
**Strandberg, M. W. P.** See Wentink, T., Jr.
———, Meng, C. V., and Ingersoll, J. G. Microwave absorption spectrum of O, 5310*a*.
——— Pearsall, C. S., and Weiss, M. T. Elec. dipole moment and vibrational states of $H_2B^{10}CO$, 7821*f*.
———, Wentink, T., Jr., and Hill, A. G. Microwave spectrum of OCSe, 4141*c*
———, Wentink, T., Jr., and Kyhl, R. L. Rotational absorption spectrum of OCS, 3294*a*
**Strandskov, F. B.** See Marks, H. C.
———, Marks, H. C., and Horchler, D. H. Application of a residual Cl method to effluent chlorination, 8078*i*.
**Strang, L. C.** $SO_2$ from petroleum fractions, P 2423*g*, 5159*i*
**Strangeways, D. H.** See King, E. J.
**Straniero, D.** See Christie, J. C.
**Stranski, I. N.** See Honigmann, B.; Kürbs, E.; Moliére, K.
——— and Moliére, K. Structural deviations in the surface of ionic crystals (I), 4072*d*.
——— and Suhrmann, R. Electron emission from cryst. metal surfaces and its relation to the crystal structure (I) pure metal surfaces, (II) single crystal surfaces with adsorbed impurity atoms, 6492*e*.
——— and Wolff, G. Forced condensation of arsenic oxide—theory for the rate of vaporization from crystals, 5250*c*.
——— and Wurster, A. Relative frequence of formation of plane, edged, and angled nuclei in NaCl crystal cubes, 2063*g*.
**Strasheim, A.** Purification of electrode carbons—comparison between the methods of Standen and Kovack, and Stand and Ruehle, 5336*i*.
**Strassburg, R. W.** 2-Propenyl esters of $\alpha$-halogenated aliphatic acids, P 2632*h*
**Strassburger, J. H.** Tonnage O versatile aid for increasing Fe and steel output, 79*e*
**Strasser, F.** Solder for Al or Al alloy sheet and foil, P 8350*f*
**Strassheim, F. W.** Concentrically corrugated filter formed of metal powder, such as bronze powder, P 4056*i*.
**Strassmann, F.** See Hahn, O.
**Stratford Development Corp.** Centrifugal separator for sepg. entrained solid particles from gas, P 914*e*, catalytic conversion app. for hydrocarbons, P 1174*g*, cyclone separator for removing finely divided catalyst from the vapors leaving the reactor, and from flue gases leaving the generator, P 7273*e*
**Strating, J.** See Backer, H. J.
**Stratta, R.** See Airoldi, R
**Stratton, R. J.** Autoclave indicators, 4056*d*
**Straub, B. F.** Isotopes in biochemistry, 9097*f*
**Straub, E. E.** See Deuel, H. J., Jr., Zechmeister, L.
**Straub, F.**, and Brassel, J. Azo benzidine dyes, P 8148*e*.
———, Widmer, W., and Schneider, H. Metallizable azo dyes, P 7698*a*
**Straub, F. B.** See Feuer, G.
———, Feuer, G., and Lajos, I. Effect of drugs on actin, 704*e*
**Straub, J.** Expts. on harmony, 7781*cd*.
——— and Adler, F. Fluoride satn. rate of human enamel, 7105*g*
——— and Hekker, T. Membrane potential and oxidation-reduction potential, 6893*f*
**Straube, R. L.** See Ducoff, H. S.
———, Neal, W. B., Jr., Kelly, T., and Ducoff, H. S. Biol. studies with $As^{76}$ (I) prepn. by pile irradiation of cacodylic acid, 1650*d*.
———, Patt, H. M., Tyree, E. B., and Smith, D. E. Influence of level of adrenal cortical steroids on sensitivity of mice to x-irradiation, 8109*c*.
**Straubel, D. F.** See McMillan, E. B.
**Straughn, J. L.** See Corwin, A. H.
**Straughn, W. R.**, and Sevag, M. G. Histamine and other imidazole compds. as bacterial growth stimulators, 8436*g*.
**Straumanis, M. E.** Na W bronzes (I) chem. properties and structure, 5719*g*, detn. of the soundness of crystals from x-ray and d measurements, 6482*f*; rate of soln. of high-purity Al in various bases, 7305*d*; x-ray detn. of Avogadro's no., 8765*a*, av. and mol. wt. detns. by means of x-rays, 8764*h*; detn. of lattice consts., 8859*a*; see Jirgensons, B.
——— and Brakss, N. Rate of soln. of highest-purity Al in NaOH solns., 3271*i*, velocity of dissoln. of pure Al and its binary alloys in alkalies (I), 7398*b*.
——— and Dravnieks, A. Na W bronzes (II) elec. cond. of the bronzes, 5719*h*.
——— and Stahl, W. Reciprocal solubilities in the ternary system Cd, Co, and Zn thiocyanatomercurates (III) binary solid solns.—ternary system, 7803*i*.
**Straumann, E.** Ni-Fe alloys for a thermally compensated recording pen, P 2922*b*; Ni-Fe alloys adapted for springs in thermocompensated oscillating systems, P 4626*e*.
**Straus, M. B.** Pyridine and allergenic *Rhus* exts., P 1913*g*.
**Straus, S.** See Madorsky, S. L.
**Strauss, D., and Imperial Chemical Industries Ltd. Penicillin and similar fungus decompn. products, P 816*a*.**
**Strauss, F. A. Mixed esters of fatty acids, P 5792*e*; aq. polyvinyl acetate emulsion**

contg. a dichromate of a trivalent metal, P 6001*d*.
**Strauss, J.** See Edlund, D. L.
**Strauss, J. L.**, and Grizzard, A. L. Effect of Ca, Mg, and K on peanut yields, 2722*c*.
**Strauss, K.** Degasification and grain refining of Mg, P 3340*e*.
**Strauss, L.** See Schwartzman, G.
**Strauss, M. B.** Acute renal insufficiency due to lower-nephron nephrosis, 1112*f*.
**Strauss, P.** Detn. of the developing agents in metol-hydroquinone developers, 8921*g*.
**Strauss, S. D.** Outlook for nonferrous metals, 6549*i*.
**Strauss, U. P.** See Fuoss, R. M.
—— and Fuoss, R. M. Polyelectrolytes (V) osmotic pressures of poly-4-vinyl-1-butylpyridinium bromide in EtOH, 8242*b*
**Strauss, W. T.** Antihistamine therapy, 3099*a*.
**Strausser, H.** See Hober, R.
**Strausz, I.** Effect of penicillin on blood clotting, 9244*d*.
**Streatfield, E. L.** Anthracite as a water filter medium, 5139*e*, water treatment, 6765*a*.
**Streatfield, H.** Laundry aids, 9493*d*
**Street, H. E.** N metabolism of plants, 8454*g*, see Chesters, C. G. C.; Dormer, K. J.
**Street, J. C.** See Cool, R. L.; Whittemore, W. L.
**Street, K., Jr.**, and Seaborg, G. T. Ion-exchange sepn of Zr and Hf, 4169*b*.
**Street, O. E.** See Couch, J. F.
**Street, R.** Variation with magnetization of Young's modulus for Co, 3328*e*
**Streeter, H. W.** Standards of stream pollution, 8079*h*
**Strehler, B. L.** See McElroy, W. D
**Streicher, J. A.** See Christensen, H. N
**Streicher, M. A.** Soln of Al in NaOH solns (I) effect of gelatin and $KMnO_4$, 5264*j*, (II), 8936*b*, see Murphy, N. F.
**Streiff, A. J.**, Zimmerman, J. C., Soule, L. F., Butt, M. T., Sedlak, V. A., Willingham, C. B., and Rossini, F. D. Purification, purity, and f. ps. of 30 hydrocarbons, 2924*f*
**Streightoff, F.** See Munsell, H. E.
—, Bendor, B., Munsell, H. E., Orr, M. L., Ezekiel, S. R., Leonard, M. H., Richardson, M. E., and Koch, F. C. Effect of large-scale methods of prepn on the vitamin content of food (IV) corn, (V) spinach, 9288*d*.
**Strelcova, E. A.** See Strel'tsova, E. A.
**Strelets, V. M.** See Glebov, S. V.
— and Radin, V. V. Two-layer cups for pouring steel, 8113*c*.
**Strelkov, S. A.** Detg. the coeff. of molar extinction, P 8760*b*.
**Strelkova, E. I.** See Dragunov, S. S.
**Strelkova, Z. G.** See Ryabchikov, D. I.
**Strelov, K. K.** Movement of material in a cell-type drying drum, 5235*h*.
**Strel'tsov, I. G.** See Averbukh, M. M.
**Strel'tsova, E. A.** See Kriss, A. E.
**Strelzoff, S.** $Fe_2O_3$ and HCl from $FeCl_2$, P 6375*i*.
**Strelzowa, E. A.** See Strel'tsova, E. A.
**Streng, F.** Printing on rayon, 6829*a*
**Strength, D. R.** See Schaefer, A. E.
**Streshinskii, M. O.** Antagonism between *Penicillium notatum* and *Bacillus subtilis*, 7085*c*.
**Stretton, J. W. A.** Industrial problems at Coventry, 3571*c*.
**Stribley, A. F., Jr.** See Farkas, Adalbert, Reed, H.
**Stribley, J. M.** (nee McDowell). See Lake, G. R.
— and Lake, G. R. Sepn of close-boiling naphthenes by azeotropic distn., P 3670*b*.
**Stricht, A. F. van der**, and Massart, L. Fate of arginine during brewing, 5901*f*
**Strick, E.**, and Ter Haar, D. Production of $\pi$-mesons by high-energy nucleons, 8260*b*.
**Stricker, K.** Math. and graphical treatment of photographic development, 5319*c*.
**Strickland, W. B.** See Cotton, R. T.
**Strickland-Constable, R. F.** Kinetics and mechanism of the oxidation of C, 1632*g*; synthesis of $CH_4$ from CO and H on a Ni catalyst, 7666*h*.
**Strickler, H. S.** Thermal cond. of gases and aggregate matter, 7316*g*.
**Stricks, W.** See Kolthoff, I. M.
— and Kolthoff, I. M. Detn. of the mol. wt. of serum albumin by its effect on the diffusion current of Me orange, 6043*g*.
**Strieby, J. G.** Detection and control of tester error, 6412*d*.
**Striewsky, W.** See Schmidt, Erich.
**Strigaleva, N. V.** See Dobryanskii, A. F.
**Strigaljewa, N. W.** See Strigaleva, N. V.
**Strigilone, A.** Cellulose derivs. sol. in dild. alkalies, P 8138*a*.
**Strijevsky, I. I.** See Strizhevskii, I. I.
**Strijk, B.** See Vloten, G. W. van
**Stringer, A.** Relation between bioassay systems and the values found for toxicity of DDT, 9344*a*.
**Stringer, J.** Metering of liquid fuel flow—accuracy in orifice flowmeters, 8756*g*
—— and Gay, A. F. Metering of liquid fuel flow—lab. tests on metering pumps for heavy fuel oil, 8214*f*
**Stringer, W. J.** Dispenser for microbiol. media, 3055*c*; see Tullo, J. W.
**Stringfield, R. B.**, and Miles, T. R. Translucent sheet for reproduction purposes, P 980*c*.
**Stringham, J. M.** See Meade, R. E.
**Stringham, L. K.** Welding for porcelain enameling, 987*d*
**Striplin, M. M., Jr.** St. P 5358*g*, production of $H_3PO_4$, 7649*e*
**Stripling, J. B.** See Daigle, E. C.
**Strizevskii, I. I.** See Strizhevskii, I. I.
**Strizhevskii, I. I.** Detg. $C_4H_2$ in gaseous mixts in air, 971*g*
**Strmiska, F.** Assimilation of green leaves, 9172*i*.
**Strobel, H. A.** See Cole, R. H.
**Strobino, L. J.**, and Farr, L. E. Relation to age and function of regional variations in N and ash content of bovine bones, 5844*h*.
**Strocchi, P. M.** Complex compds of Hg, Cd, and Zn (I), 6892*h*, (II), 8939*g*, see Rossi, G.
**Ströder, J.** Detn. of small amts. of N in aq. soln., 1616*f*
— and Stuttgen, G. Blood cholinesterase in disease in pediatrics and adult medicine—vegetative regulation, 5857*e*
**Ström, G.** Influence of anoxia on lactate utilization in man after prolonged muscular work, 8425*b*; see Jogi, P.; Rammal, K.
**Strøm, K. M.** Concn. of U in black muds, 7875*a*
**Strömbeck, J. P.** See Ekman, B.
— and Ekman, B. Effect of 2-acetaminofluorine in inducing tumors of the bladder, 6315*f*
**Strömgren, B.** Intensity distribution and chem. compn. of the interstellar gas, 1263*h*.
**Strogonov, B. P.** Adaptation of the cotton plant to high salt concns. in the soil, 3889*g*, influence of $CO_2$ on growth of higher plants during heterotropic feeding, 7093*d*
**Stroh, G. v.** See Von Stroh, G.
**Strohal, D.** Detn. of coke conducted in the Rose pot with a current of $CO_2$, 9417*h*
**Strohecker, B.**, and Sierp, E. Volatility of metals in a stream of steam, 3314*a*
**Strohmaier, A. J.**, and Lovell, C. L. Clarifying mash, P 3144*d*.
**Strohmeier, W.** See Briegleb, G.
**Stroink, J. B. A.**, Bendel, H. J., and Beerens, D. A. Cottonized bast fiber (V) chemism of flax decompn., 3201*h*.
**Strom, J.** See Johnston, F. A.
**Stroman, J. L.** Metal-melting furnace with an inclined rotary melting chamber, P 2152*f*.
**Stromberg, A. G.**, and Bykov, I. E. Cd complexes, 5691*d*.
—, Dityatkovskaya, R. V., and Milovanova, N. V. Detn. of Cu and Ni in steel, 2544*a*.
**Stromberg, V. L.** See Johnson, William S.
**Strong, F. G.** Air displacement with Dry Ice in iodometric titrations, 7368*d*.
**Strong, F. M.** See Ahmad, K.; Lipton, S. H., Neilands, J. B.
—, Lutwak, L., and Farooqee, M. A. Insol. nicotinic acid esters, 1469*h*.
**Strong, G. H. S.** See Spencer-Strong, G. H.
**Strong, J. D.** Si compds. in producing quartz coatings, P 1935*e*; see Hoover, J. I.
**Strong, L. E.** See Surgenor, D. M.
**Strong, M. C.** Fungicides for tomatoes, 4413*a*.
**Strong, R. W.** See Jenkins, H. G.
**Stross, W.** Spekker absorptiometer—detn. of Si in Al alloys, 2474*g*; analysis of light metals and alloys, 7369*f*.
**Stroukow, I. T.** See Strukov, I. T.
**Stroupe, J. D.** X-ray diffraction study of the Cu chromites and of the Cu-Cr oxide catalyst, 5653*i*; see Hurd, L. C.
**Strouse, G. C.** 1,3-Benzodioxan azo dyes, P 8149*a*.
**Strouts, C. R. N.**, and Macinnes, C. A. Detn. of $HNO_3$ in mixed and refuse acid—reference half-cell for use in titrations with ferrous ammonium sulfate, 2547*e*.
**Struchlik, A.** See Kučera, J. V.
**Struck, R. L.** See Gauger, A. W.
**Struckmeyer, B. E.**, Hildebrandt, A. C., and Riker, A. J. Histological effects of growth-regulating substances on sunflower tissue of crown-gall origin, 8597*g*.
**Strudel, G.** See Wolff, Etienne.
**Strüber, K.** See Kröger, C.
**Strugger, S.** Physiology of plant cells and protoplasm, 1838*d*; vital fluorochromation of protoplasm, 5844*e*.
**Strugovshchikov, D. P.** Deoxidation of low-C steel for any deep drawing, 89*f*.
**Struk, S.** Dynamite, 4467*b*.
**Strukov, I. T.**, and Diskina, L. S. Methylcaffeine, P 3152*e*
**Strumia, M. M.**, Blake, A. D., Jr., McGraw, J. J., Jr., Dolan, M., and Colwell, L. Acid citrate dextrose soln. with low water vol. and low dextrose concn., 6690*i*.
—, Blake, A. D., Jr., Wicks, W. A., Donnelly, K., Dolan, M., and Colwell, L. Preservation of whole blood—preservation of erythrocytes left over from plasma preservation, 6690*h*.
— and Chornock, F. W. Modified globin, P 2739*d*.
**Strumza, M. V.** See Binet, L.
**Strunk, G. L.** See Lichtenberg Strunk, G.
**Strunz, H.** Crystallography of steenstrupine, 3749*g*; dimorphism of braunite and langbanite, 3750*e*
**Struve, O.** Spectrum of the cluster-type variable CY Aquarii, 5663*a*.
— and Kao, S.-K. Spectrum of 27 Canis Majoris, 2509*d*.
— and Rudkjøbing, M. Stellar spectra in the region of the obscuring clouds of Ophiuchus and Scorpius, 939*b*, 4134*h*.
**Struyk, C.** See Young, C. B. F.
**Strzemieński, K.** Soil phosphate uptake as influenced by phosphatic fertilizer, 8084*f*.
**Stscherbakoff, Stscherbakow.** See Shcherbakov.
**Stschigol, M. B.** See Shchigol, M. B.
**Stschoukareff, S. A.** See Shchukarev, S. A.
**Stschoukina.** See Shchukina.
**Stuart, A. H.** Adhesion of paint films, 869*c*, see Tallman, R. C.
**Stuart, C. A.**, Feinberg, Robert, and Feinberg, Richard. Unusual type O agglutination, 3036*b*.
**Stuart, H. A.** Detn. of the shape of macromols., in filar mols., 1627*d*, mol. theory of the viscosity of solns. of small mols., 1629*b*; models of vaporization, condensation, vapor tension, and crit. point filmed for instruction, 4062*h*; see Kuss, E.; Peterlin, A.
— and Laue, M. v. Electron shells and the structure of mols. by other than spectroscopic methods, 3672*f*.
**Stuart, J. G.** See Badin, E. J.
**Stuart, K. B.** Prepg. a phosphate-impregnated acid treated activated charcoal, P 4452*d*.
**Stuart, L. S.** Testing disinfectants, 4425*d*; see Warner, G. S.
**Stuart, N. W.** See Emsweller, S. L.
**Stuart, S. R.** Color in the paint industry, 8176*f*.
**Stuart, W. T.**, Theis, C. V., and Stanley, G. M. Ground-water problems in the Iron River district, 9301*g*
**Stubberfield, L.** See Petering, H. G.
**Stubbings, R. L.**, and Theis, R. R. Animal skin proteins (VIII) basic and acidic amino acid content of collagen and the effect of depilation on such acids, 7734*d*; (IX) layerwise basic and dicarboxylic acid content of animal skin collagen, 7734*h*.
**Stubbings, W. V.** See Strafford, N.
**Stubblebine, W.** Tall oil-cellulose ether compns., P 2435*g*; floor and wall covering, P 2448*i*.
**Stubblefield, B. M.** Production of pig iron, 8997*c*.
**Stubblefield, C. J.** See Edwards, W.
**Stubbs, F. G.** See Billings, H. P.
**Stubbs, F. J.** See Shorter, J.
—, Williams, C. D., and Hinshelwood, C. N. Kinetics of aromatic sulfonation reactions—sulfonation by $H_2SO_4$ in nitrobenzene soln., 1633*d*.
**Stubbs, H. V. G.** See Plessey Co. Ltd.
**Stubbs, J. J.** See Dimick, K. P.
**Stubbs, J. L.** See Fleischmann, W.
**Stubbs, L.** See Cormack, S. B.
**Stubbs, L. W.** Application of phosphates to water treatment, 2345*f*.
**Stubenrauch, W.**, and Huber, L. Detn. of

p-hydroxyphenylpyruvic acid in urine, 6685h.
**Stuckey, R. E.** Absorption spectra and ionic dissocn. of thiouracil derivs, 6081d; absorption spectra of org compds contg N (II) benzylidene derivs of hydantoin and thiohydantoin, 6984c.
**Stucki, D.** Hydrolysis of novocaine as a test of liver function in pregnancy, 3922f.
**Studener, O.** Electroösmotic components of turgor and chem and concn potentials of plant cells, 5829b.
**Studer, A.** Influence of vitamin A on leucopenia, 2296a.
**Studer, F. J.** See Fonda, G. R.
——— and Fonda, G. R. Optical properties of Ca silicate phosphors, 8278c
——— and Rosenbaum, A. Phosphorescence decay of halophosphates and other doubly activated phosphors, 8280a.
**Studer, M.** See Wyk, A. J. A. van der.
**Studhalter, W. R.** See Organick, E. I.
**Studier, M. H.,** and Hyde, E. K. Radioactive series—Pa series, 37b.
**Studio Tecnico Industriale.** Regeneration of rubber, P 8734a.
**Studitskii, A. N.** Tissue participation in morphogenetic processes, 8509b.
**Stueck, G. H., Jr.,** Leslie, S. H., and Ralli, E. P. Antidiuretic substance recovered from the urines of patients with cirrhosis of the liver, 8043a
**Stueckberg, E. C. G.** See Rivier, D.
**Stümbke, H.** Antiknock value of fuels, 7673i.
**Stüttgen, G.** See Stroder, J.
**Stuhlfauth, K.** See Jung, F.
**Stuhlman, O., Jr.** Limits of visibility and the max. brightness of continuous spectra at various color temps., 4089h
**Stuhlmann, M.** See Heubner, W
**Stuivenberg, J. H. M. van.** Application of growth substances in potato storage, 1499i.
——— and Veldstra, H. Vapor-form growth substances in inhibition of potato sprouting, 1500b.
**Stukachev, A. V.** See Netsvetaev, M. A
**Stuke, B.** Computation of the heat exchange in regenerators with cylindrical and spherical packings, 1227f.
**Stukenbroeker, G.** See Burkhart, L. E.
**Stull, D. R.** Thermodynamics of $CS_2$ production, 8838a.
**Stull, J. W.,** Herreid, E. O., and Tracy, P. H. Nordihydroguaiaretic acid in dairy products (II) its antioxygenic properties in cream, 1873b
**Stumper, R.,** and Classen, F. Kinetics and catalysis of the reaction $Ca(HCO_3)_2 + Ca(OH)_2 = 2CaCO_3 + 2H_2O$, 4086i, kinetics and catalysis of the reaction $CaSO_4 + Na_2CO_3 \rightleftharpoons CaCO_3 + Na_2SO_4$ in aq. soln., 7311f.
**Stumpf, P. K.** Carbohydrate metabolism in higher plants (I) pea aldolase, 1840f.
**Stumpp, K.** Characteristic and properties of fireproofing agents, 9298a.
**Stunz, D. I.** See Harwood, P. D.
**Stupfel, M.** See Drevon, B.
**Stupochenko, E. V.** Oxidation of $SO_2$ caused by impacts of slow electrons, 6087h.
**Sturbelle, L. C.** Prepn. of Mg from its ores, P 3209i
**Sturdy, M.** See Crang, A
**Sturgis, B. M.** Aq. dispersions of phenyl-2-naphthyl amine, P 4892a; stabilized aromatic isocyanates, P 8732c, see Du Pont de Nemours, E. I., & Co
——— and Trepagnier, J. H. Vulcanization of butadiene elastomers, P 8196c.
**Sturgis Products Co.** Tumbling-barrel finishing, P 3771g.
**Sturkie, P. D.** See Booker, E. E.
**Sturm, E.** See Murphy, J. B.
**Sturtevant, B. F., Co.,** and Jennings, H W. K. Vulcanization of rubber, P 7746f.
**Sturtevant Engineering Co., Ltd.,** Richardson, H., & Co., Ltd., Procter, J. T., and Ogilvie, A. Superphosphates, P 8623g.
**Sturz, O.** Method for detn of chloride for manuf. control in the fish industry, 5878b, see Bohm, E.
**Stutz, L.** Storage of drinking water in closed reservoirs, 6342h
**Stutzman, F. L.** See Reinecke, R. M
——— and Reinecke, R. M. Reduction of plasma K concn. by vivodialysis and its restoration in nonvisceral regions, 7117e.
**Stutzman, J. W.,** Pettinga, F. L., Frugiero, E. J., and Maison, G. L. Enhancement of adrenaline-induced cardiac arrhythmias by tetraethylammonium chloride, 321i.
**Stutzman, L. F.** See Brown, G. M.; Hutchings, L. E.; McCarter, R. J
——— and Brown, G. M. Low-temp. vapor-liquid equilibria (I) phase equil. in natural gas at low temps., 2833g
**Style, D. W. G.** See Dyne, P. J.; Roffey, F
**Styles, H.** See Waksman, S. A
**Stzerbakov.** See Shcherbakov.
**Su, M.-T.** See Chao, M.
**Su, T. L.** Antibiotic-producing organisms in feces and sewage, 4326i; micrococcin —antibacterial substance formed by a strain of *Micrococcus*, 4326d.
**Suarez, A. F.** See Fester, G. A.
**Suárez, A. M.** See Mosqueda Suárez, A
**Suárez, R.** See Burriel, F.
**Suarez, R. M.** See Spies, T. D.
**Suárez, R. M., Jr.** See Santiago Stevenson, D.
**Suarez, S. N.** See Andrade, J. L.
**Suarez Hoyos, V.** Geol reconnaissance of mineral deposits in Santander, Colombia, 525e
**Suarez y de Cardenas, M. G.** Destruction of bacterias by disinfectants, 4799a.
**Subba Rao, D.** See Rao, D. S
**Subba Rao, T. V.** See Rao, T. V. S.
**SubbaRow, Y.** See Angier, R. B.; Bernstein, S.; Hewitt, R. I.; Hutchings, B. L.; Kushner, S., Little, P. A., McKenzie, D.; Sahr, S. R.
**Subkow, P.** Inhibitor, P 7223g
**Subluskey, L. A.** See Pearson, R. G
**Submarine Signal Co.** Extn. of oils from fish material, P 6814c.
**Subnis, M. V.** See Bhagwat, W. V.
**Subnis, S. W.,** Bhagwat, W. V., and Kanugo, R. B. Application of mixt. law to rheochor (II), 7283a
**Subrahmanya, R. S.,** Doss, K. S. G., and Rao, B. S. Depolarization of light scattered by sols, 7783f
**Subrahmanyan, V.** See Desikachar, H. S. R.; Karnam, B. T., Krishnamurti, C. R., Pillai, S. C.; Rangnekar, Y. B
**Subramaniam, M. K.** See Duraiswami, S
**Subramanian, T. S.** See Padmanabhan, T. S. A., Perti, S. L.
**Subramanian, Toppur S.,** and Imperial Chemical Industries Ltd. Aromatic derivs. of 1,1,1-trichloroethane, P 5046d
**Suchenko.** See Sukhenko
**Suchina, A. F.** See Sukhina, A. F.
**Suchowsky, G.** Spectrophotometric behavior of the aldehyde condensation products of some pyrroles, 8886d.
**Suchy, C. T.** Metallization of electrically nonconducting fabrics, fibrous materials, etc., P 6528g, see British Insulated Callender's Cables Co. Ltd
**Suchy, J. F.** See Hamor, G. H
**Suckle, H. M.** See Newell, G. W.
**Suckling, C. W.** See Brown, Joseph H.
**Sucksmith, W.** Metal physics (III) principal work in ferromagnetism, 8768f.
**Sud, L. R.** See Padmanabhan, T. S. A.; Perti, S. L.
**Suda, M.** Notatin, 3060h.
**Sudakova, G. N.** See Rogovin, Z. A.; Zhukov, B. P.
**Sudo, T.** Alteration of country rocks of ore deposits (II) x-ray powder photographs of clay minerals, 6544g.
**Sudovtsov, A. I.** See Kan, L. S.
**Sudrabin, L. P.** See LeFebvre, F. J.
**Sud'ya, P. A.,** and Lozovskii, I. M. Gasification coal for coking, 2755a
**Süchting, H.** Nutrient ratios of the forest (X) effect of sol. Al of two forest soils on the pine, 7172b.
**Sueda, H.,** Nakahara, S., and Yamamura, T. Caustic soda from sea water by use of ion-exchange resin, P 5317h, 6926c
——— and Sato, S. Water softening, P 6770.
———, *et al.* Magnesia cement, P 5568h.
**Süe, P.** Dix ans d'application de la radioactivité artificielle (book), 1661d; ions formed in the course of $(n,\gamma)$ reactions in Na arsenite, arsenate, and cacodylate, 7333c; see Chastel, R.; Courrier, R.; Moureu, H
——— and Kayas, G. Behavior of certain Co complexes in Szilard and exchange effects, 7364c.
——— and Saeland, E. Chem. effect of different radiations on org. iodides and the evaluation of this effect based on the I liberated, 8871i.
**Süllmann, H.** Biochemistry of the eyes, 4305b; see Schürch, O.
——— and Viollier, G. Albuminoid of the eye lens, 1815d.
**Suer, W. M. le.** See Le Suer, W. M.
**Süs, O.** Penicillin series (II) attempts to synthesize the penicillin framework, 4667e.
**Suess, H. E.** Isotope exchange equil., 1639f; cosmic nuclear abundance and natural $\beta$-activity, 4945a; relative cosmic abundances of chem. elements, 8856a; see Harteck, P., Haxel, O.; Jensen, J. H. D.
——— and Jensen, J. H. D. Isotope exchange equil., 6077i.
**Süssbrich, F.** Reinforced concrete pressure water main with steel lining, 551d.
**Sueta, H.** See Nakahara, S.
**Sugano, T.** Alloy to be used for thermocouple, P 6966i.
**Sugár, L.** See Fekete, L.
**Sugar Creek Creamery Co.,** and Cherry-Burrell Corp. Butter, P 5131a; dairy process, P 5131a.
**Sugarman, B.** See Land, T.
**Sugarman, N.** Short-lived halogen fission products, 2861d; characteristics of the fission product $Cs^{138}$, 5296g.
**Sugasawa, S.** ($\alpha$-Alkoxy-$\beta$-nitroalkyl)-benzene derivs., P 2232h, carboxyamides and -imides, P 3452b.
**Sugawara, K.,** Oana, S., and Koyama, T. Chemistry of the aq. inclusion in nepheline basalt from Nagahama, Hamada-si, Simane Prefecture (I), 5349e.
**Sugden, S.** See Baddar, F. G.; Evans, C. C., Hilal, O. M. M
——— and Tailby, S. R. Magnetic susceptibilities of the rare earth elements (II) Sm, (III) Gd, (IV) Tm, 6479i.
**Sugden, T. M.** See Audrew, E. R.; Axford, D. W. E.
**Suge, K.** Japan lacquering, P 6838e.
**Suggate, H. G.** See Kendall, J. D
**Suggitt, R. M.,** Aziz, P. M., and Wetmore, F. E. W. Surface tension of aq. $H_2SO_4$ solns. at 25°, 5655g
**Sugi, K.** Plagioclase with apparently small optical angle, with special reference to the plagioclase in olivine-dolerite from Fu-Shun, Manchuria, 6118d, basaltic rocks from Sanin and Kyūshū, Japan (I) rocks from Hagi, western Sanin, 6128a
**Sugimoto, A.** $\alpha$ Activity of Bi bombarded with deuterons, 7813e
**Sugimoto, S.,** and Minakata, T. Reclaimed rubber (VI) effects of raw materials 3226e
**Sugimoto, T.,** and Tsukiba, S. Raw material for road paving from oil contg. alluvial sand, P 5568i
**Sugino, Kenji.** Softeners for types of reclaimed rubber, 8191f; see Minatova, S
**Sugino, Kiichiro.** 2-Aminothiazole, P 2644f
——— Shirai, K., and Kato, Y. Cryst. cyanamide from Ca cyanamide, P 5556.
——— and Yamashita, M. Derivs. of Ca cyanamide (XIII), (XIV) prepn. of guanidine carbonate, 1278h; aminoguanidine salt from nitroguanidine by electrolytic reduction, P 6096g
**Suginuma, B.** See Tonosaki, K.
——— and Satozaki, K. Vapor pressure of Ni carbonyl, 2057d.
**Sugita, A.** See Sugita, Y.
**Sugita, S.** See Sugita, Y.
**Sugita, T.,** *et al.* Film of polyvinylacetal, P 6807d
**Sugita, Y.** Prowazek bodies and other inclusions, 4371b.
———, Sugita, S., and Sugita, A. Prowazek bodies and other inclusions, 4371d
**Sugiura, A.** Vitamin $B_1$ metabolism in pulmonary tuberculosis, 8465a.
**Sugiura, K.** Carcinogenicity of certain compds related to p-dimethylaminoazobenzene, 3801e; see Moore, A. E.
**Sugiura, Y.** See Miyake, Y.
**Sugiyama, S.** Fused F-contg. silicates and the crystn. temp. of mica (VI) phlogopite-K fluosilicate system, (VII) phlogopite orthoclase-cryolite system and phlogopite cryolite system, 6544d; see Noda, T.
**Sugiyama, Y.** Same as Sugiyama, S.
**Suhner, F.** See Mallemann, R. de.
**Suhr, H. B.** See Johnson, A. K.
**Suhrmann, R.** See Stranski, I. N.
**Suit, R. F.** Melanose control—org. fungicides and dormant sprays, 3553g.
**Sujishi, S.** See Brown, H. C.
**Šujkin, N. I.** See Shulkin, N. I.
**Sukharev, G. M.** Temp. conditions in the Tertiary deposits of the Trans-Terek plain as a clue to the possible occurrence of oil and gas, 1951e.
**Sukhareva, N. D.** See Mel'nikov, N. N
**Sukhenko, F. T., and Semovskikh,** O. L. Transformation of nitrogenous substances

of the culture medium and decompn. of gelatin by molds of a type of *Fusarium*, 7546*g*.
**Sukhenko, K. A.**, and Yakovleva, N. P. Spectral detn. of C in steels and cast irons, 6540*c*.
**Sukhina, A. F.** See Ioffe, I. S.
**Sukhov, L. V.** See Belovitskiĭ, G. E.
**Suknarowski, S.** Polish refining industry, 2762*g*.
**Sula, L.** Reduction of K tellurite by Mycobacterium tuberculosis, 3877*g*.
**Sulcer, H. T.** Vapofier as standby equipment for tunnel kilns, 2391*g*.
**Sulkin, N. M.** See Kuntz, A.
**Sullivan, B.** Oxidation and reduction of flour, 2707*f*; evaluation of methods and equipment in cereal labs., 8565*h*.
**Sullivan, C. D.**, and Archdeacon, J. W. Effects of a large dose of *p*-aminobenzoic acid on the body and endocrine-gland wts. of rats—toxic manifestations, 7579*a*.
**Sullivan, C. J.** Be, 6540*g*; pigment minerals, 6546*h*.
**Sullivan, F.** See Burns, K.
**Sullivan, G. R.** See Faul, H.
**Sullivan, J. D.** Metals and minerals, 3329*c*.
**Sullivan, J. H.** See Davidson, N.
**Sullivan, T. G.**, and Watjen, H. H. Dispersed org. colors in rubbers, vinyls, and other plastics, 5985*a*.
**Sullivan, W. H.** Artificially produced radioisotopes of W and Re, 8871*b*.
**Sullivan, W. N.** See Fulton, R. A.
**Sully, A. H.** Metallic Creep (book), 8343*g*.
——, Cale, G. N., and Willoughby, G. Creep of metals subjected to compression stress, 82*c*.
**Sully, J.** Mg alloys, 5355*h*.
**Sulman, F.**, and Perek, M. Influence of thiouracil on the basal metabolic rate and on molting in hens, 7500*h*.
**Sulphite Products Corp.** Vanillic acid, P 1439*a*, 3039*f*.
**Sulser, H.** Tenacity testing app. for fabrics, paper, etc., 3202*a*.
**Sultanov, A. D.** Clay bearing Nodules in the productive oil layer, 978*e*.
**Sulzbacher, M.** Sepn. of acetone and BuOH from fermented mash by activated charcoal, P 6782*d*, see Bergmann, E., Wertmann, Ch.
—— and Pariser, E. R. Selective extn. and adsorption (II) isolation of ethylene chlorohydrin by adsorption, 6*b*.
**Sulzberger, M. B.**, and Baer, R. L. Year Book of Dermatology and Syphilology (book), 3926*a*.
**Sulzberger, R.** See Urech, P.
**Sulzer freres Soc. anon.** App. for mixing two gases of different temps., P 2477*a*; process and arrangement for concn. of thickening of liquids, P 3669*b*, stirring in autoclaves, P 5236*g*, rotating autoclave, P 6014*d*.
**Suman, F. T., Jr.** See Layng, E. T.
**Sumarokova, T.** See Usanovich, M.
**Sumerford, S. D.** Acid treatment of siliceous diluents for Fe catalysts in hydrocarbon synthesis, P 7214*e*.
**Sumi, R.** Improvement of fire-resistant lumbers, P 6764*c*.
**Sumiki, Y.**, and Yaita, M. Utilization of chitin (I) prepn. of tartaric acid from glucosamine, 578*d*.
**Sumitomo Chemical Industries Co.** Fertilizer from apatite, P 3554*c*.
**Sumitomo Communic. Indust. Co.** Mo, P 3339*g*, W, P 3340*g*; $MoO_3$, P 3576*e*.
**Sumitomo Industrial Co.** Sb oxide from Sb sulfide ore, P 7202*d*.
**Sumitomo Kinzokukogyo K. K.** Same as Sumitomo Metal Industry Co.
**Sumitomo Kogyo K. K.** Same as Sumitomo Industrial Co.
**Sumitomo Metal Industry Co.** Antioxidant for Cu annealing, P 6966*a*; alloy to be used for thermocouple, P 6966*b*.
**Summer, J. B.**, and **Somers, G. F.** Lab. Expts. in Biol. Chemistry (book), 7991*b*.
**Summerbell, R. K.** See Lappin, G. R.
**Summerfield, M.** See Kreith, F.
**Summers, F. M.** Resistance to basic Pb arsenate by the peach twig borer, 5149*b*.
**Summers, J. E.** Desoxycorticosterone acetate and blood pressure on a high NaCl intake, 7455*i*.
**Summerson, W. H.** See Larner, J.; Lerner, A. B.
**Summers-Smith, D.** Small mills for mixing powder, 4614*a*.
**Sumner, A.** See Kletz, T. A.
**Sumner, J. B.** See Smith, G. N.
—— and Krishnan, P. S. Estn. of coenzyme I with apode hydrogenases, 2659*i*.
**Sumner, J. K.** See Rider, D. K.
**Sumner, K. G.** See Chadwick, R.
**Sumner, R. J.** Coloring matters of the phthalocyanine series from phthaloyl halides, P 8169*a*.
**Sumoto, I.** See Nakagawa, Shigeo.
**Sumrell, G.** See Riebsomer, J. L.
**Sumtsov, B. M.** Properties of bound ascorbic acid, 3079*b*; bound form of ascorbic acid in the organism, 7107*f*.
**Sun, C. N.** See Yin, H. C.
**Sun, C. P.** See Woo, Y. H.
**Sun, K. H.** See Shoupp, W. E.
**Sun, Kuan-H.** Fluoborate glass, P 4440*b*, 5165*i*; aluminate glasses, 5163*g*; fluoride glass, P 5165*g*; beryllo-aluminate glass, P 5166*a*, optical glass, P 8633*dc*; see Martinson, L. E.; Rothermel, J. J., Sun, L. L.
—— and Callear, T. E. Fluoride glass, P 5165*f*; borate optical glass, P 5166*b*.
**Sun, L. L.**, and Sun, K.-H. X-ray absorbing and transmitting glasses, 2091*d*.
**Sun, Y.-P.**, Norton, L. B., and Rawlins, W. A. Factors affecting toxicity in formulating chlordan emulsions, 1899*g*.
**Sunahara, A.** See Akiyama, K.
**Sun Chemical Corp.** Sulfonamides, P 685*f*; triphenylmethane dye, P 861*d*; regeneration of ion-exchange material, P 3119*f*, removal or replacement of electrolytes in serums, P 3153*h*, aminobiphenylsulfonanilide, P 4297*f*; treatment of textiles orthosilicates, P 8175*c*; container closure, P 8744*f*.
**Sunday, M. L.** See Bartleson, J. D.; Hughes, E. C.
**Sundbeck, B.** See Askelof, E. E. A.
**Sundberg, A. I.** See Ingelman Sundberg, A.
**Sundberg, R. L.** See Combs, E. E.
**Sundblad, G.** Pulping industry in Sweden, 3615*h*.
**Sunde, C. J.**, Erickson, J. G., and Raunio, E. K. Diels-Alder reactions of quinone imine and quinone diimine hydrochlorides with cyclopentadiene, 4619*g*.
**Sunde, M. L.** See Couch, J. R.
**Sunderman, F. W.** Measurement of total base, and estn. of serum Na—improved conductivity assembly, 7539*h*.
**Sundet, S. A.** Terminating diene polymerizations, P 5991*f*.
**Sundgrén, A.** Extn. of peat, and manuf. of wax and resinous substances from the peat bitumin obtained, 5570*f*.
**Sundholm, N. K.** See Adams, R.
**Sundman, F. V.** See Sevon, J. W.
**Sundström, E. O. A.** See Brannstrom, P. G. L.
**Sundstrom, R. W.** See Broadhurst, W. L.
——, Cromack, G. H., and West, N. N. Ground-water resources of Matagorda County, Texas, 6311*e*.
**Sundt, C. G.** Treatment of arsenical poisoning with British antilewisite, 1104*e*.
**Suneson, S.** Influence of B on the development and photosynthesis of marine algae, 8016*f*.
**Sung, S. H.**, and Kwan, S. C. Layer of grossularite, epidote, and calcite, occurring at Kumush, Hoso, Sinkiang, 3323*h*.
**Sun Oil Co.** (*Patents.*) Sepn. of hydrocarbons, 386*d*, 679*a*, 2763*d*, 6011*f*, purification of naphthenic hydrocarbons, 678*i*, 4458*e*, 9431*f*; densitometer for drilling muds, 843*b*; polymerization of olefins, 1218*e*, 5641*a*, drilling fluid, 1556*h*, 9426*g*, phenol-aldehyde sealing agents, 2421*f*, conversion of $C_3H_4$, 3843*g*, 5640*i*; polymer fractionation, 4046*h*; vinylcyclohexene, 5231*i*; spectrophotometer for continuous analysis of diolefin mixts. in the ultraviolet range, 6012*e*, catalysis, 7609*e*; app. for catalytic conversion of hydrocarbons with a stationary catalyst bed, 7760*i*, 8130*a*; tackifier for synthetic rubber, 8194*g*; alkylation of isoparaffins, 9430*e*.
**Suntseff, V.** See Carruthers, C.; Roberts, Eugene.
**Suolahti, O.** Lab. tests on the effect of submersion in water on decay of pine, 1565*i*.
**Suomalainen, E. T.** See Therman-Suomalainen, E.
**Suomalainen, H.**, and Toivonen, T. Fermentability of fructofuranose, 1145*g*.
**Supek, Z.** See Krsnik, V.
—— and Tomić, D. Pharmacol.-chem. investigation of barberry, 9246*a*.
**Supino, O.** Production of $H_2SO_4$ in small plants, P 5555*d*.
**Supper, H. L.** See Argy, M.
**Suppo, C. P.** Electrolytic Ni plating, P 7838*g*.
**Suprunovich, I. B.**, and Konovalova, A. B. Detn. of Cu in steel by means of dithizone, 4177*h*.
**Suprunovitsch, I. B.** See Suprunovich, I. B.
**Sur, F. J.** Exploration of Bishop Cap Fluorspar Project, Dona Ana County, New Mexico, 2133*i*.
**Surak, J. G.** See Karl, H. L.
**Suratt, E. C.** See Lester, C. T.
**Surber, E. W.** See Linduska, J. P.
**Surber, W. H., Jr.**, and Crouch, G. E., Jr. Dielec. measurement methods for solids at microwave frequencies, 2523*d*.
**Surchek, J. G.** Rust preventives help maintain steel structures, 4996*g*.
**Surdin, M.** Control panel, 2855*i*.
**Sure, B.**, and House, F. Relative biol. values of the proteins in cereal grains, 1090*i*, protein utilization of various dried food yeasts, 6292*g*.
—— and Romans, F. Influence of the concn. of mixts. of various components of the vitamin B complex on biol. value of casein and on economy of food utilization, 1468*d*.
**Sureau, R.** See Petitcolas, P.
**Surface Combustion Corp.** Annealing furnace for metal strip in coils, P 9018*g*.
**Surgenor, D. M.**, Strong, L. E., Taylor, H. L., Gordon, R. S., Jr., and Gibson, D. M. Sepn. of choline esterase, mucoprotein, and metal-combining protein into subfractions of human plasma, 5433*d*.
**Surgutov, V.** Accelerated chrome tanning with the use of masking reagents, 5617*e*.
**Surján, M. G.** See Mosonyi, L.
**Surkov, A. S.** Absorption vessel for gas analyzers, P 3249*g*, elec. gas analyzer, P 6010*g*.
**Surland, C. C.** See Van Buskirk, E. C.
**Surmatis, J. D.** Resolution of racemic tartaric acid, P 3031*d*.
**Surrey, A. R.** Synthesis of *N*-3-methoxybenzyl-*N*-methyl-3-methoxy-4,5-methylenedioxyphenethylamine, 602*c*, prepn. of 2,3-disubstituted 4-thiazolidones (II) 3-alkyl(and aralkyl)-2-aryl derivs., 1767*a*.
**Suryanarayana, D.** See Bhagavantam, S.
**Susa, F.** See Thornton, A. W.
**Susanna, V.** Pharmacologic activity of alc. and ether exts. of Indian cannabis, 6730*f*.
**Susanov, E. Ya.** Combined process of distn. and cracking of crude oil in two-furnace cracking plants, 3601*f*.
**Susie, A. G.** See Krause, A. H.
—— and Wald, W. J. High-styrene resins in rubber compounding, 7743*c*.
**Susor, M.**, and Lea, W. L. Chlorinated hydrocarbon-hydrocarbon solvent mixts., 7160*g*.
**Sussenbach, P.** Compn. of matter for sealing spot-welded joints, P 7896*d*.
**Sussex, A. G.** Corrosion inhibitors, 1706*f*.
**Sussky, W. C.** See Bliss, H.
**Sussman, M.** See Spiegelman, S.
**Sussman, M. L.** See Som, M. L.
**Sussman, S.** Ion exchange in the sugar industry, 644*1f*.
**Sussmeyer, L.** Bodied linseed oils, 8700*e*.
**Susz, B.** See Paillard, H.
**Suszka, G.** See Rabe, P.
**Susztek, L.**, and Végváry, J. Emulsifying, processing, and softening agent for the treatment of textiles and leather, P 1989*i*.
**Sutcliffe, D. A.** See Bickerdike, R. L.
**Sutcliffe, F. K.** See Balaban, I. E.
**Suter, A.** Electrolyzer, especially for the prepn. of O compds. of Cl, P 3733*c*; alkali sulfides, P 4153*i*; sulfonation product which serves as a wetting agent, a dispersant, or as a detergent, P 9495*d*.
**Suter, C. M.** Research efforts intensified, 1125*c*; medicinal and pharmaceutical developments, 3971*f*; see Albertson, N. F.; Klenk, M. M.; Steck, E. A.; Truce, W. E.
—— and Ruddy, A. W. 1-(Dihydroxyphenyl)-2-amino-1-butanol and its intermediates, P 6664*d*.
**Suter, E.** Antagonistic action of serum and serum albumin toward tuberculostatic compds., 3880*g*; see Binswanger, L. A.
——, Rothlin, E., and Bircher, R. Effects of glycosides on the electrocardiogram and myocardium (III) effects of repeated administration of toxic and therapeutic doses, 4380*h*.
**Suter, G. M.** See Barnett, T. B.
**Suter, M.** See Karrer, P.

**Suter, (Sister M. St. Agatha),** and McDevitt, (Sister Mary of Lourdes). Effect of beef-spleen ext. on respiration of normal liver and dbrB adenocarcinoma during storage at 4°, 3095*h*.
**Sutheim, G. M.** Functionality, a new tech. term, 4048*f*
**Sutherland, E. W.,** Cori, C. F., Haynes, R., and Olsen, N. S. Purification of the hyperglycemic-glycogenolytic factor from insulin and from gastric mucosa, 9212*g*.
——— and De Duve, C. Origin and distribution of the hyperglycemic-glycogenolytic factor of the pancreas, 7446*d*.
———, Posternak, T. Z., and Cori, C. F. Action of phosphoglucomutase and phosphoglyceric acid mutase, 6680*g*.
**Sutherland, G. B. B. M.** See Astbury, W. T.; Brownlie, I. A.; Cripwell, F. J.; Dainton, F. S.; Shaw, J. H.; Sheppard, N.
——— and Lee, E. Infrared region of the spectrum, 4559*i*.
**Sutherland, G. L.** See Henze, H. R.
**Sutherland, K. L.** Detn. of the surface energies of solids, 5250*f*.
**Sutherland, L. H.** See Clark, J. H., Vaughan, J. R., Jr.
———, Eberlin, S. L., Forsythe, J. D., Halverstadt, I. F., Vaughan, J. R., Jr., and Clapp, R. C. Antihistamine agents (V) 2-substituted ethylamines, 5782*g*
**Sutherland, M. D.** Ds and *n*s of the terpenes, 6023*d*
**Sutherland, P. B.** See Diamond, R. W.
**Sutherland, R. E.,** and Doegey, J. L. Economics of alkylation and polymerization, 8654*c*.
**Sutherland, V.** See Abreu, B. E.
**Suthon, A. M.** See Schales, O.
**Suto-Nagy, G.** See Ludány, G.
**Sutra, G.** Ion hydration, 4930*d*
**Sutra, R.** Action of amylases in relation to the constitution of starch, 1589*d*.
**Sutter, P.** See Kern, Walter.
**Sutter, T.** See Widmer, C.
**Sutton, D. A.** Congo copal (I) source, properties, and sub-division of the raw resin, 9051*h*.
**Sutton, G. J.** Ethylenediamine compds. of In, 6932*g*; addnl. In-N coördination compds. and salts, 6932*h*.
**Sutton, G. P.** Rocket Propulsion Elements (book), 1984*b*.
**Sutton, H.** Metallurgical problems of importance to aircraft, 1696*e*.
**Sutton, H. C.** Rn purification app., 4950*h*.
**Sutton, L. E.** See Coates, G. E.; Cottrell, T. L.; Hill, R. A. W.
**Sutton, M.,** and Bond, A., Jr. Votator heat exchanger in the paint and varnish industry, 4869*h*, 6432*e*.
**Sutton, R. L.,** and Sutton, R. L., Jr. Handbook of Diseases of the Skin (book), 4371*g*.
**Sutton, R. L., Jr.** See Sutton, R. L.
**Sutton, R. W.** See Pollard, J.
**Sutton, T. S.** See Esh, G. C.; Fischer, J. E.; Warner, R. G.
**Suvorovskaya, N. A.** See Plaksin, I. N.
**Suwa, S.** See Murakawa, K.
**Suyver, J. F.** See Sixma, F. L. J.; Wibaut, J. P.
**Suzanne, Y.** See Dubouloz, P.
**Suzdal'skaya, I. P.** Contractions of transversely striped muscle from the action of NaOH, 4748*g*.
**Suzor, F.** Penetration of U fission fragments in various materials, 8270*i*
**Suzuki, B.,** and Ashida, A. Polyhydric alcs. by reduction of sugars, P 7505*c*.
**Suzuki, C.** Cold pressing-out of oil from soybeans, P 3220*c*.
**Suzuki, Heihachi.** See Kimijima, Takuzo.
**Suzuki, Hideyo.** See Sahashi, Y.
**Suzuki, Hiroshi.** Biochem studies on carbohydrates (LXVIII) enzymic study of the carbohydrate in ovomucoid, 3181*d*.
**Suzuki, Kaeko.** See Nakagawa, T.
**Suzuki, Kakuo.** Crystn. of sugar with the addn. of Mn salts, 2005*e*; prepn. of sugar candy with the addn. of Mn salt (II) prepn. of candy using a galvanized Fe dish, 2005*f*.
**Suzuki, Kan.** H, Cl, and $Mg(OH)_2$ by electrolysis of sea water, P 6026*b*; caustic soda and Cl directly from sea water, P 7840*c*.
**Suzuki, Keizô.** Configuration of chain mols. (I) Normal paraffin, 7762*i*, (II) effect of intramol. interaction on the apparent vol. of the flexible long-chain mol., 8844*e*.
**Suzuki, Kinjiro.** See Yamazaki, K.
**Suzuki, M.** See Nakajima, Minoru.
——— and Nakajima, M. Insecticides and fungicides (I) quant. analysis of γ-isomer of hexachlorocyclohexane, 5896*b*.
**Suzuki, Sachiro.** See Umezawa, H.
**Suzuki, Shunhei.** See Iwata, M.
**Suzuki, Takamura.** Extn. of $Al_2O_3$ from aluminous raw materials (XI) calcination of the raw materials in the soda-lime process with a small rotary kiln, (XII) production of $Al(OH)_3$ from the clinker, (XIII) extn. of alumina from high-aluminous clay by calcination with caustic alkali, (XIV) extn. of alumina by calcination with caustic alkali and lime, (XV) plant-scale equipment, (XVI) calcining test with a com. rotary kiln, (XVII) production of alumina from clinker, (XVIII) loss of alkali in calcination of clinker in soda-lime process, (XIX) influence of moisture and weathering on the properties of clinker, (XX) carbonation of Na aluminate soln. and the properties of $Al(OH)_3$ produced, (XXI) discontinuous carbonation of Na aluminate, 1921*g*.
**Suzuki, Takashi,** and Hagisawa, H. Detn. of the dissocn. const. of thiocyanic acid by means of a glass electrode, 2074*g*
**Suzuki, Y.** See Musha, S.
**Svanberg, O.** Contribution of J. J. Berzelius to the Royal Academy of Agriculture and to the development of agricultural science, 2347*f*, see Lundblad, K.; Nordfeldt, S.; Stenberg, M.
**Svarz, J. J.** See Kaiser, E.
**Švasta, J.,** and Vlasak, F. Tracing the content of Ni in ore deposits, 5698*f*
**Svechnikov, V. N.,** and Alferova, N. S. Effect of small addns. on the properties of high-Cr heat-resistant steel, 1297*e*
**Švecov, Yu. B.** See Shvetsov, Yu. B.
**Sveda, M.** Improved DDT, P 3970*a*, silica for floor wax (II), 7721*c*, see Beachell, H. C.
**Svedberg, T.** Studies at Uppsala on the phys. chemistry of high polymers, 2071*i*, structure and polymolecularity of cellulose, 8670*i*, see Sihtola, H.
**Svedmyr, A.** Factor in normal allantoic fluid inhibiting influenza virus hemagglutination occurrence, physicochem. properties, and action—virus inhibitor interaction 4756*e*, accurate pipetting instrument for serological use, 7559*i*, see Gard, S.
**Svendsen, E. C.,** and Clayton, W. J. Reducing odor and surface tack of Neoprene objects, P 6456*i*.
**Svendsen, M. B.** See Bonnevie Svendsen, M.
**Svenska Aeroplan Aktiebolaget.** Chromic acid from chromic acid or chromate solns., P 2880*h*
**Svenska Cellulosa Aktiebolaget.** Heat exchanger of the helical screw type, P 8*g*, app. for dewatering, washing, and sorting of cellulosic suspensions and the removal therefrom of small particulate impurities, e.g., resins, P 6415*e*, cellulose ethanesulfonic acid and its salts, P 9446*d*, recovery of hydrocarbons and alcs. from the phytosterins of sulfate soap, P 9447*g*; recovery of phytosterins from sulfate soap, P 9447*h*, removal of nonsaponifiables from sulfate soaps, P 9447*i*
**Svenska Cellulosaföreningens Centrallaboratorium.** Recovering solids from sulfite cellulose waste lyes, P 3617*b*
**Svenska Jästfabrika Aktiebolaget.** Yeast, P 3144*e*
**Svenska Mejeriernas Riksförening.** Reducing or preventing oxidation of oils and fats, P 9294*d*
**Svenska Mjölkprodukter Aktiebolag.** Egg substitute from casein, P 5512*f*
**Svenska Oljeslageriaktiebolaget.** Maleic anhydride, P 6227*e*, recovery of maleic acid from wash liquors in the gas phase catalytic oxidation of naphthalene, P 6655*e*.
**Svensson, B.** See Johansson, C. H.
**Svensson, H.** Behavior of weak electrolytes in moving boundary systems (I) moving boundary equation, 4082*f*, see Brattsten, I.
**Svensson, J.** Detn. of the specific surface of finely divided materials according to the gas-permeability method, 4076*h*.
**Svensson, N. E.** Reduction of powd. metal oxides, P 9019*c*.
**Sverdlov, S. M.** Electrophysiol. observations of the nervous tissue of *Anodonta cygnea* (III) elec. nerve reaction under influence of veratrine, 7150*d*.
**Sverdlov, Z. M.** See Brumberg, B. M.
——— and Sevchenko, A. N. Long photoluminescence of uranyl compds. at −185° 497*d*.
**Svershinskaya, E. A.** Chem. compn. of monazite from the pegmatite at the Alakurti station on the Kirov railway, 6118*a*.
**Svershkov, I. V.,** Kozlovskii, V. S., and Tostunovskaya, A. A. Toxicity of Mikrobin, food preservative, 5129*i*.
**Sveshnikov, B. Ya.** Kinetics of the phosphorescence of org. materials, 7828*a*.
——— and Dikun, P. P. Duration of phosphorescence of org. luminophors as a function of the viscosity of the solvent, 2516*f*
**Sveshnikov, N. N.** See Levkoev, I. I.
**Sveshnikova, I. A.** Testing beer, 1147*b*.
**Svešnikov, B. G.** See Sveshnikov, B. Ya.
**Svetlik, J. F.** See Sperberg, L. R.
**Svirbely, W. J.,** Eareckson, W. M., III, Matsuda, K., Pickard, H. B., Solet, I. S., and Tuemmler, W. B. Phys. properties of some org. insect repellents, 5150*d*.
——— and Lander, J. J. Dipole moments of diethyl sulfite, triethyl phosphate, and tetraethyl silicate, 2832*b*.
**Svirin, V. G.** Rotary flotation cell "Pena," 3325*b*
**Svistunov, A. I.** See Antipin, P. F.
**Swadesh, S.** See Hillyer, J. C.
——— and Dunlop, A. P. By-products from hydrogenation of furfuryl alc., 9061*b*
**Swain, A. J.** Estg. the H content of wrought Al alloys, 7373*g*
**Swain, C. G.** See Bartlett, Paul Doughty
——— and Eddy, R. W. Concerted displacement reactions (II) termol displacement reactions of methyl halides in $CeH_6$ soln., 1247*h*.
———, Esteve, R. M., Jr., and Jones, R. H. Organosilicon chemistry hydrolysis of triphenylsilyl fluoride and triphenylmethyl fluoride in 50% water-50% acetone soln., 5377*e*.
**Swain, G.** Synthesis of *dl*-desthiobiotin and some related compds., 1769*b*, see Rivett, D. E. A.
**Swain, H. L.** See Schor, H. C.
———, Toth, F. M., Consolazio, F. C., Fitzpatrick, W. H., Allen, D. L., and Koehn, C. J. Food consumption of soldiers in a subarctic climate, 6292*c*
**Swain, L. A.** Stability test for vitamin A in fish oil, 1908*i*, chromatographic analysis of the unsaponifiable matter of marine animal oils, 3635*a*.
**Swain, M. L.,** and Brice, B. A. Formation of traces of conjugated tetraenoic and trienoic constituents in autoxidized linolenic and linoleic acids and vegetable oils during alkali-isomerization, 5974*c*
———, Eisner, A., Woodward, C. F., and Brice, B. A. Ultraviolet absorption spectra of nicotine, nornicotine, and some of their derivs., 5306*f*
**Swain, P. W.** Stack smoke and dust as a community problem, 3090*i*.
**Swaine, D. J.** Action of "chromic acid" on Zn coatings, 5466; H-evolution method for the detn. of the coating wt. of galvanized sheets, 2893*h*.
**Swainson, S. J.** See Walker, G. B.
**Swalheim, D. A.** See McCahan, R. H.
**Swallow, J. C.** See Arkel, A. E. van.
——— and Gourlay, J. S. High vacua in the paint and plastics industries, 419*f*.
**Swalm, J. M.** See Glenn, R. D.
**Swamer, F. W.** See Hauser, C. R.
**Swaminathan, K.** See Satyanarayana, K. V. S.
**Swaminathan, R.,** Mukherji, D., and Bardhan, J. C. Terpene compds. (IV) synthesis of *cis*- and *trans*-(+) isofenchocamphoric acid, 7462*a*.
**Swan, D. R.** Cleaning compds., 882*i*; polyvinyl butyral, P 5634*a*.
**Swan, G. A.** Fission of nonenolizable ketones by K *tert*-butoxide, 1349*b*; see Clemo, G. R.
**Swan, J. B.** See Darby, J. F.
**Swan, J. C.** See Fahlberg, W. J.
**Swan, R. C.** See MacLeod, J.
**Swan, T., & Co., Ltd.** Amidoamino soap for use in paving compns., P 5614*c*.
**Swanberg, H.** Source of the histaminolytic enzyme in the blood of pregnant women, 2688*f*.
**Swaney, M. W.** See Morrell, C. E.; Yowell, H. L.
**Swanezy, E. F.** See Weijlard, J.
**Swan-Finch Oil Corp.** Binder compn. for sand cores, P 4624*g*.
**Swank, R. L.** Synchronization of spontane

ous elec. activity of cerebrum by barbiturate narcosis, 9261c; see Denny-Brown, D.
——— and Watson, C. W. Effects of barbiturates and ether on spontaneous elec. activity of dog brain, 9261c.
**Swann, C. P.** See Hereford, F. L.; Hudspeth, E. L.
——, Scott, W. J., Hudspeth, E. L., and Mandeville, C. E. Thin target yield of the γ-rays from the disintegration of Be by deuterons, 4093g.
**Swann, G.,** and Cripwell, F. J. Catalytic isomerization of camphene, 2975d.
**Swann, M. H.** Detn. of fungicides in varnishes and wood sealers, 9331e.
**Swann, R. C.** See Lukes, G. E.
**Swann, R. V.** Spectrophotometric detn. of rutin and quercetin in mixts., 5538c.
**Swann, S., Jr.** Bibliography of electroörg chemistry (I), 4961d; see Hammer, R. S.; Lattinen, H. A.
**Swann, W. F. G.** Cosmic rays, 4556e.
**Swanson, A. F.** See Tanner, F. W., Jr.
**Swanson, A. L.** See Rodney, G.
**Swanson, C. O.** See Diamond, R. W.
**Swanson, C. P.,** LaVelle, G. A., and Goodgal, S. H. Ovule abortion in *Tradescantia* as affected by aq. solns. of 2,4-dichlorophenoxyacetic acid, 5094a.
**Swanson, E. E.** See Powell, C. E.
——, Henderson, F. G., and Chen, K. K. Dimethylether of *d*-tubocurarine iodide, 5129g.
**Swanson, J. W.** Methylation of guar polysaccharide, 5009f.
**Swanson, K.** See Nielsen, J. R.
**Swanson, M. A.** See Artom, C.
**Swanson, P.** See Everson, G.
**Swanson, R. G.,** and Knodt, C. B. Feeding low levels of thyroprotein to dairy cows for a period of fifty two weeks, 3896h.
**Swart, E. A.** See Hutchison, D.
**Swart, G. H.** See Brock, L. W.
**Swartout, J. A.** Research with low levels of radioactivity, 2505f.
**Swartz, J. C.** How to apply Ti enamel to Ti steel, 1931d.
**Swartz, J. H.** Elements of Medical Mycology (book), 8008g.
**Swartz, V.** See Kraybill, H. R.
**Swartzman, E.** Progress in coal prepn., 8638a.
**Swarup, D.,** and Iyer, V. G. Wet concn. of the V occurring in the Fe ores of Mayurbhanj, 6551b.
**Swaryczewski, A.** Crystn. of $NH_4Cl$ with cadmium chloride (II) space group of $4NH_4Cl$ $CdCl_2$, 1623a.
**Swayne, V.** See Martin, G. J.
**Swazy, E. F.** See Larsen, E. J.
**Sweat, M. L.,** and Samuels, L. T. Relation of diphosphopyridine nucleotide and citrate to the metabolism of testosterone by liver tissue, 296b.
**Sweatt, H. B.** Properties of animal glue, 2457a.
**Sweckendiek, W. J.** See Reppe, W.
**Swedberg, B.,** and Widstrom, G. Treatment of tuberculosis in mice and guinea pigs with *p*-aminosalicylic acid (PAS) and streptomycin, 2324f.
**Swedin, B.** Polarographic study on the catalytic effect of catalase, peroxidase, and cytochrome c on the cathodic reduction of $H_2O_2$, 3052h; see Arner, O.
**Swedish, F., Jr.** See Mathes, R. A.
**Swedlow, D. A.** Laminated polymethyl methacrylate, P 2468g; polymerization method, P 3238e.
**Sweely, J. S.** See Kurtz, S. S., Jr.
**Sweeney, O. R.** See Measamer, S. G.
——— and Arnold, L. K., Moisture relations in the manuf. and use of cornstalk insulating board, 9443f.
———, Arnold, L. K., and Hollowell, E. G. Extn. of soybean oil by trichloroethylene, 9491b.
**Sweeney, W. J.** Prospecting method, P 385h.
**Sweeny, L.** See Krejci, L. E.
**Sweeny, W.** See Newbold, G. T.
**Sweep, E.** Selective extn. of hydrocarbons, P 5409g.
**Sweet, B.** See Seligman, A. M.
**Sweet, H. S.** Phys. and chem. tests of mineral aggregates and their significance, 5167h.
**Sweet, L. A.** See Banks, C. K.
**Sweet, L. K.** See McMurray, L. G.
**Sweet, R. D.** See Dearborn, C. H.
——— and Havis, J. R. Pre- and post-emergence chem. weeding of several vegetables, 1894a.
**Sweet, W. H.** See Solomon, A. K.
———, Cotzias, G. C., Seed, J. C., and Yakolev, P. Gastro-intestinal hemorrhages, hyperglycemia, azotemia, hyperchloremia, and hypernatremia following lesions of the frontal lobe, 3925c.
———, Solomon, A. K., and Selverstone, B. Formation, diffusion, and absorption of cerebrospinal fluid (I) preliminary studies on $Na^{24}$, 9208z.
**Sweeten, J. L.** See Branch, A. C.
**Sweeting, O. J.** See Englert, R. D.
**Sweetman, H. L.** Biol. Control of Insects (book), 3558d; see Burgess, A. F.
**Sweeton, F. H.** See Jenks, G. H.
**Sweetser, S. B.** Hydrocarbons from CO, P 1170f; regeneration of Fischer-Tropsch catalyst, P 6811b.
——— and Smith, L. B. Heat control in an exothermic reaction, P 4908e.
**Sweiger, R. L.** See Baker, A. W.
**Sweitzer, C. W.** See Braendle, H. A.
———, Goodrich, W. C., and Burgess, K. A. C black gel complex in cold-rubber reenforcement, 9515d.
**Swendseid, M. E.** See Barnes, R. H., Rodney, G.
———, Wittle, E. L., Moersch, G. W., Bird, O. D., and Brown, R. A. Hematologic effect of pteroylglutamic acid, 8555e.
**Swensen, A. D.,** and Weaver, W. E. Org. fungicides (III) prepn. of some α,α-dichloroacetamides, 1719i.
**Swensen, A. W.,** and Glockler, G. Polarographic reduction of Pr, 6524b.
**Swenson, F. A.** Geology and ground water resources of Iwo Jima, 757f.
**Swenson, H. A.** Chem. character of ground water in the Republican and Frenchman River valleys, Nebraska, 789d.
**Swenson, O. J.** Fractionation of sugar-cane wax, P 2795d; refining sugar-cane wax, P 4037d.
**Swenson, R. A.,** and Wenkamp, A. W. Mineral castor oil, P 2764i.
**Swenson, R. E.** Parenteral vitamin B as an agent for detg. arm-to-tongue circulation time (I), 5465h; see Curtis, G. M.
**Swenson, R. M.,** Cole, C. V., and Siehng, D. H. Fixation of phosphate by Fe and Al and replacement by org. and inorg. ions, 3957d.
**Swensson, A.** See Lundgren, K. D.
**Sweo, B. J.** See Miller, Grant.
**Swerdloff, W.** See Gorin, M. H.
**Swerdlow.** See also Sverdlov.
**Swerdlow, M.** See Hattangdi, G. S.
**Swern, D.** Org. peracids, 8552e; see Jordan, E. F., Jr., Knight, H. B., Roe, E. T., Scanlan, J. T.
——— and Ault, W. C. Purified oleic acid and esters, P 3837i.
——— and Billen, G. N. 1,2-Epoxides, P 3446d, polymerized 9,10-epoxyoctadecanols, P 3660j.
———, Billen, G. N., and Knight, H. B. Chemistry of epoxy compds. (VIII) reaction of allyl alc. with unsym. oxirane compds.—electronic interpretation, 5741d.
——— and Dickel, G. B. Copolymers of unsatd. esters of 9,10-dihydroxystearic acid, P 8211f.
——— and Findley, T. W. Ammo fatty derivs., P 2224f.
**Sweschnikow.** See Sveshnikov.
**Swiatopolk Mirski, A.** See González Gómez, C.
**Swiba, M.** Improving cement, mortar, and concrete by use of Plastiment, 2395i.
**Swick, R. W.** See Johnson, R. M.
**Swidinsky, J.** See Schwarzkopf, O.
**Świętosławski, W.** Ethylbenzene purity test, 1688b, purification of carbazole, P 4451b, distn. and crystn. as completing methods of purification, 8225d; dilatometric cryometer, 8748e, Michal Chorązy, 8760i, binary solid solns. formed by a series of homologs with one component, 8812i; binary eutectics formed by two series of homologs, 8833d; purity test of $C_6H_6$, 8977i.
——— and Anderson, J. R. Sepn. of compds. by crystallization, P 5236h.
——— and Tomassi, W. Detg. the coeffs. of the change of the melting temp. with pressure, 8836f.
**Swift, A. H.** See Concannon, C. C.
**Swift, C. E.,** O'Connor, R. T., Brown, L. E., and Dolleur, F. G. 2-Decen-1-ol, 2-hendecen-1-ol, 2-decenal, 2-hendecenal and derivs., 5736h; aldehydes produced during the autoxidation of cottonseed oil, 5973b.
**Swift, E. H.** See Brown, Raymond A.; Hammock, P. W.; Maun, E. K.
**Swift, G.** See Stacey, M.
**Swift, L. J.** Tangerine seed oil, 7723f.
**Swift, M. N.** See Tobias, J. M.
**Swift, R. W.** See Black, A.; Bratzler, J. W.
———and Black, A. Fats in relation to caloric efficiency, 4741h.
———, Bratzler, J. W., James, W. H., Tillman, A. D., and Meek, D. C. Effect of dietary fat on utilization of the energy and protein of rations by sheep, 5130d.
———, James, W. H., Marcy, L. F., Elliott, R. F., Smith, V. F., and Higbee, H. W. Monthly yields and compn. of herbage composed of Kentucky bluegrass, and white clover as affected by fertilizer treatments, 1516a.
**Swift, S. R.** See Thomson, R. H. K.
**Swift, W. E., Jr.,** and Beardsley, F. A., Jr. Effect of a 42-day course of treatment on the sensitivity of the tubercle bacillus to streptomycin, 7547h.
**Swift & Co.** Flotation of bone particles, P 1124i, enzymic tenderizing of animal tissue, P 1502c, nicotine and β,β-dichloroethyl ether insecticide, P 2732f; protective coating for fresh frozen meats, P 3540f; antioxidant for fats, P 3918e; tenderizing liver, P 5512d, modified gelatin using negatively charged multivalent ions, P 8186i, coating material, P 8570e, detergent compn., P 9495f.
**Swigert, T. C.** See Rybolt, C. H.
**Swikert, M. A.** See Johnson, R. L.
**Swinarski, A.** Optimum conditions of absorption in Gay-Lussac towers for chamber method manuf. of $H_2SO_4$, 9392g.
**Swindells, J. F.** See McKee, S. A.
**Swineford, A.** See Tolsted, L. L.
**Swinehart, R. W.,** Savage, A. R., and Kuhlman, W. D. Methyl carboxymethylcellulose, P 9445e.
**Swingle, S. M.** See Pardee, A. B.
**Swings, P.,** and Jose, P. D. Infrared spectra of the planetary nebulae BD + 30° 3639, NGC6572, and NGC6543, 8877d.
——— and McKellar, A. Polyat. mols. in late-type stars, 2508k.
——— and Nicolet, M. Comparison of the Na and $N_2^+$ flashes at twilight and dawn, 5301a.
——— and Page, T. Spectrum of comet 1947n, 2508i.
**Swinnerton, A. A.** New Brunswick oil shales (IV) analytical methods and results, 3996c.
**Swinney, C. M.** See Fox, P. F.
**Swintosky, J. V.,** Riegelman, S., Higuchi, T., and Busse, L. W. Pharmaceutical powders and the state of subdivision (I) application of low-temp. N adsorption isotherms to the detn. of surface areas, 8610b; (II) surface area measurements of some pharmaceutical powders by the low-temp. N adsorption isotherm technique, 8610d; (III) evaluation of pharmaceutical dispensing techniques employed to increase the specific surface areas of powders, 9363f.
**Swinyard, C. A.** See Cheng, C.-P.
**Swinyard, E. A.** Effect of extracellular electrolyte depletion on brain electrolyte pattern and electroshock seizure threshold, 5849b, lab. assay of clinically effective antiepileptic drugs, 8611h, see Goodman, L. S.
**Swire, W. H.** See B. B. Chemical Co. Ltd.
**Swisher, W. P.** See Kendrick, A. B.
**Swislowsky, J.** Name changed to Swiss, J.
**Swiss, J.** Stabilized org. silicon polymers, P 5999g.
**Swiss Locomotive and Machine Works.** Design of horizontal autoclave, P 2477b.
**Switzer, G.** Svanbergite from Nevada, 8985i.
**Switzer, John L.,** and Michalek, J. C. Preserving caustic soda from contamination in metal containers, P 1882i.
**Switzer, Joseph L.** See Switzer, R. C.
——— and Switzer, R. C. Leak detection, P 5673h; fluorescent device, P 7832e.
**Switzer, M. H.** Org. coating hardness 3632b.
**Switzer, P. K.** See Aull, J. C.
**Switzer, R. C.** See Switzer, Joseph L.
——— and Switzer, Joseph L. Fluorescent flaw detection, P 3339i.
**Swjeschnikowa, I. A.** See Sveshnikova, I. A.
**Swoboda, K.** See Krainer, H., Rapatz, F.
**Swoboda, T. J.** See Wall, F. T.
**Swoope, C. C.** See Sloogland, A. C.
**Swoope, E. L.** See Grote, H. W.

**Swyer, G. I. M.** Detn. of urinary pregnanediol—comparison of two methods, 3871*c*; see Emmens, C. W.
**Swyngedauw, J.** See Boulanger, P.
**Sycev.** See Sychev.
**Sychev, M. M.** See Zhuravlev, V. F.
**Sychev, N. A.**, and Shmatova, M. I. Discoloration of solns. contg. xylose with Ca oxide, 8714*g*.
**Sycheva, A. A.** See Pil'nik, R. S.
**Sycheva, M. S.** See Tsvetkov, V. N.
**Sydenstricker, V. P.** See Bowles, L. L.; Fowell, D. M.; Singal, S. A.
**Sydnor, A. R., Jr.** See Voorhies, A., Jr.
**Sydoriak, S. G.** Anomalous magnetic susceptibilities of Zn single crystals at 4.2°K., 4066*h*; see Grilly, E. R.
——, Grilly, E. R., and Hammel, E. F. Condensation of pure $He^4$ and its vapor pressures between 1.2° and its crit. point, 3679*d*.
——— and Robinson, J. E. Magnetic susceptibility of Zn at liquid He temps., 4060*g*.
**Sykes, C.**, and Wright, D. Cb-contg. steel, P 9019*h*.
**Sykes, J.** See Enfield Rolling Mills Ltd
**Sykes, J. A.**, and Reed, R. Control of swarming of *Proteus vulgaris* by boric acid, 4329*b*.
**Sykes, J. F.** See Thomas, J. W.
——, Wrenn, T. R., Moore, L. A., and Thomas, J. W. Effect of energy intake on heart rate in hyperthyroidism induced by feeding thyroprotein, 293*h*.
**Sykes, K. W.** See Gadsby, J.; Long, F. J.
**Sykut, K.** See Hubicki, W.
**Sylov, E. A.** See Shilov, E. A.
**Sylvan, S.** See Atwell, N.
**Sylvania Electric Products, Inc.** Nonactinic fluorescent lamp, P 1268*c*, water impermeable coating for inductive devices, P 2104*i*, fluorescent products, P 2870*f*; Ba Mg Pb silicate phosphor, P 1959*b*, pickling metal contact surfaces, P 6147*d*, Ca silicate phosphors, P 6517*g*, electrode for electron discharge devices, P 6530*a*.
**Sylvania Industrial Corp.** Pigmented fibrous material, P 856*a*, 2443*d*; paper products, P 9448*f*.
**Sylvén, B.** Biol. aspects of the physiology of hyaline cartilage, 7118*c*.
——— and Larsson, L. G. Mast cell reaction in mouse skin to some org. chemicals, (III) early effect of aromatic hydrocarbons, 3109*e*.
**Sylvén, N.** Improvement of forest trees, 3607*b*.
**Sylvest, O.** Decrease of renninogenuria in pernicious anemia and its diagnostic value in liver treated patients, 8521*c*; detg. the renninogen in urine, 9133*h*.
**Sylvester, A. E.** Future of gas research, 5172*b*.
**Sylvester, G. E.** See Wilson, H. B.
**Sylvester, J. C.** See Behrens, O. K.
**Sylvester, M.** See Berman, D.
**Sylvestre, J.** See Horeau, A.
**Sym, E. A. T.** Org. metabolism of *Mycobacterium tuberculosis*, 9164*g*.
**Symington, R.** See Himsworth, F. R.
**Symington, T.**, and Goodall, A. L. Salt-active corticoids in hypertension, 8180*g*.
**Symonds, N.** See Flint, H. T.
**Symons, C. P.** See Wood, J. G.
**Symons, G. E.**, Fynn, G. F., and Brown, H. Industrial waste pollution abatement program for Buffalo, N.Y., 3124*f*.
**Symons, H. H.** Western balance-non metallic minerals, 8577*c*.
**Symons, R.** Mining and milling Sb ore at Consolidated Murchison Goldfields, Transvaal, 2139*c*.
**Synan, J. F.** See Vincent, G. P.
**Synben Akt.-Ges.** Production from $C_nH_2$ of aromatic hydrocarbons and of satd. and unsatd. hydrocarbons, P 7959*f*.
**Synerholm, M. E.** Piperonyl chrysanthemumate, P 2732*h*.
**Synge, A. D.** See Way, M. J.
**Synge, R. L. M.** Synthesis of some dipeptides related to gramicidin S, 4641*c*; see Pedersen, K. O.
——— and Tiselius, A. Adsorption expts. with amino acids and peptides, esp. compds. of tryptophan, 7066*b*.
**Synthetic Oils Ltd.**, Myddleton, W. W., and Aicher, A. A. Hydrocarbon oils from gaseous mixts. of H and CO, P 4835*g*.
**Syre, R.** See Chevigny, R.
**Syreia, E.** See Kohn, M.
**Syrkin, Ya. K.** See Gur'yanova, E. N.; Nazarova, L. M.; Shidlovskaya, A. N.; Shigorin, D. N.
——— and Belova, V. I. Diamagnetic susceptibility of complex compds. of Pt, 7277*g*.
**Syrkine, J. K.** See Syrkin, Ya. K.
**Syrokomskii, V. S.** See Klimenko, N. G.
——— and Klimenko, N. G. Detn. of Cb in the presence of Ti, 4177*c*.
——— and Proshenkova, N. N. Volumetric method for detn. of Rh, 5698*f*.
**Syskov, K. I.** Gas permeability of charging-skip coke and the efficiency of blast furnaces, 4195*h*.
**Syssakyan, N. M.** See Sisakyan, N. M.
**Sytchev, N. A.** See Sychev, N. A.
**Sytnik, V. A.**, and Koshelev, V. V. Building plates, P 6390*c*.
**Syverton, J. T.** See Scherp, H. W.
**Szabo, A. J.** Sewage sludge as fertilizer, 2346*g*.
**Szabó, G.** See Foldi, M.
**Szabó, I. N.** See Naray-Szabó, I.
**Szabó, János.** See Erdey-Grúz, T.
**Szabó, József.** Drug against skin diseases, P 1532*h*.
**Szabo, J. L.**, and Stiller, E. T. Reaction of mercaptans with unsatd. compds., 1321*a*.
**Szabó, Z.** Cu and halogen-ion catalysis of soln. of Cu, 6496*f*; actinide series and the periodic table, 8765*f*.
——— and Csányi, L. Detn. of chromate ion, 8972*b*.
——— and Kékedy, L. Swelling of charcoal, 6881*f*.
——— and Kiss, E. Reaction mechanism of the oxidation of HBr, 7800*d*.
**Szádeczky-Kardoss, E.** Graphic representation of water analyses and the chief types of Hungarian waters, 9303*g*.
**Szalay, A.** Th and U content of the Velence Mts., Hungary, 2552*h*.
——— and Csongor, E. Nuclear processes induced in Mg by polonium $\alpha$-particles, 1616*h*, detn. of radioactive content of rocks by means of Geiger Müller counters, 1565*d*.
**Szalay, L.** See Frohlich, P.
**Szalay, T.**, and Földvári, A. U- and Th-bearing rocks in Hungary, 8996*b*.
**Szalkowski, C. R.**, Mader, W. J., and Fredrani, H. A. Analysis of diisopropylfluorophosphate in oil soln., 8613*f*.
**Szamborska, W.** See Zawadzki, J.
**Szarvas, P.** Valence in modern chemistry (V) complex compds., 7763*a*; see Gerendás, M.
**Szasz, G. J.** See Aston, J. G.; Rank, D. H.; Sheppard, N.
——— and Sheppard, N. Spectroscopic studies of rotational isomerism (IV) 2 methyl butane and 2,3-dimethylbutane, 2867*e*.
**Szász, O.** Cokability of Hungarian brown coals, 8118*b*, coke production from Hungarian brown coals, 9417*e*.
**Szász, R.** Conservation of alimentary products by ascorbic acid, 9275*a*.
**Szczeniowski, J.** Continuous metallic recuperators and their applications in siderurgy, 979*h*.
**Szebehelyi, J.** See Fabinyi, M.
**Szécsey, G.** See Mosonyi, L.
**Szego, C. M.**, and Roberts, S. Influence of ovariectomy on the chem. compn. of regenerating rat liver, 5815*g*, detn. of protein-bound blood estrogen, 7034*f*.
——— and White, A. Influence of growth hormone on fasting metabolism, 8490*b*.
**Szégö, E.** Large, little-known industry—corn starch, 1589*c*.
**Szekely, G.** Evaporator for therapeutic, insecticidal, or sterilizing liquids, P 7273*i*.
**Székely, S.** See Kesztyus, L.
**Szekeres, L.** Derivs. of *p*-aminobenzenesulfamide, 2967*i*; org. compds. of Hg, 7921*f*; see Méhes, G.
**Szelényi, T. Z.** Detn. of the mass of $^{17}N^{16}$ by means of interpolation, 4565*h*.
**Szendei, Á.** See Mosonyi, L.
**Szent-Gyorgyi, A.** Free-energy relations and contraction of actomyosin, 6247*g*; mixt. of nucleotides contg. predominantly adenosinetriphosphate, P 6372*a*; see Bíró, N. A.; Borbíro, M.
**Szentgyorgyi, D.** See Simonyi, J.
**Szentmiklósi, I.** See Jancsó, T.
**Szép, O.** See Bodnár, J.
**Széplaky, S.** See Vályi-Nagy, T.
**Szerémi, K.** Is the oxidizability test of urine characteristic and is the oxidimetric detn. of sugar reliable? 9120*g*.
**Szigeti, B.** Polarizability and dielec. const. of ionic crystals, 5244*f*.
**Szigeti, G.**, and Nagy, E. Luminescence and dielec. losses of Zn silicate, 947*a*.
**Szilágyi, D. E.** See Follin, L. S.
**Szilágyi, T.** See Keszthyus, L.
**Szilágyi-Trager, L.** See Kedvessy, G.
**Szilvágyi, I.** See Jáky, J.
**Szmant, H. H.** Styrene-benzylidenephthalimidine copolymers, P 7754*a*.
——— and Halpern, A. Ascaridole in oil of *Chenopodium* (III) characterization of ascaridole, 4242*d*.
**Szmaragd, S.**, and Briner, E. Electrolytic hydrogenation of pyridine to piperidine—energy differences between electrolytic hydrogenation and reduction, 5677*h*; electrolytic hydrogenation of quinoline and hydroxyquinolines, 7355*a*.
**Szmuszkovicz, J.** See Bergmann, Felix, Fieser, L. F.
**Szonntag, J.** Detn. of $CH_2O$ in milk and bisulfites needed for its exact neutralization, 8067*e*.
**Szontágh, F. E.** Menotoxin, 8031*b*; capillary permeability, serum proteins, and hematocrit values in normal pregnancy, 9209*e*.
**Szonyi, G.** Prepn. of a catalyst with the aid of ion exchangers, P 4791*i*.
**Szorenyi, E. T.**, Dvornikova, P. D., and Degtyar, R. G. Isolation in the crystalline state and some properties of adenosine triphosphate-arginine transphosphorylase, 8410*i*.
**Szosz, G. E.** See Miller, L. E.
**Szpakowska, J. G.** See Gepnerowna Szpakowska, J.
**Szrajerowa, J. M.** See Marchlewska-Szrajerowa, J.
**Sztrókay, K.** Microscopic study of ore from Recsk, Hungary, 1980*h*, meteorite in Hungary, 8988*i*; wehrlite, 8982*g*.
**Szuba, J.** See Klosiński, J.
**Szucs, L.** Coffee-oil soap for recovery of cholesterol from wool fat, P 1202*d*.
**Szukiewicz, W.** Butadiene, P 2627*h*.
**Szulmajster, J.** See Aubel, E.
**Szwarc, M.** High frequency factors of "unimol." reactions, 3271*e*, kinetics of the thermal decompn. of propylene, 5270*g*, kinetics of the thermal decompn. of isobutene, 5270*h*, resonance energy of the benzyl radical, 5506*e*, *p*-quinodimethane mol., 5759*f*, dissocn. energy of the first N—H bond in ammonia, 7797*i*, C—C bond energy in ethylbenzene, 8250*e*.
**Szymanek, F.** Bulrush as a textile plant, 3621*d*.
**Szyszakow, N. B.** Production of municipal gas by gasification of solid fuel, 4831*f*.

**Taarland, T.** See Ronold, O. A.
**Taat, W. J.** Synthetic resins based on furfural, 6850*f*.
**Tabachnick, J.**, and Vaughn, R. H. Characteristics of tartrate fermenting species of *Clostridium*, 273*i*.
**Tabakova, E. G.** See Nikitin, S. N.
**Tabarés, L. G.** See Garcia Tabarés, L.
**Tabary, A.** See Dague, G.
**Tabbert, T. D.** See Ames, C. B.
**Tabellini, M. T.** See Karaus, A.
**Tabentskii, D. A.** See Okanenko, A. S.
**Taber, A. P.**, Thorlin, J. F., and Wallace, J. F. Influence of compn. on temper brittleness in alloy steels, 8329*d*.
**Taber, S.** An crystals from the southern Appalachians, 8982*c*.
**Tabershaw, I. R.** Industrial medicine 3047*i*.
——, Dustan, C., and Goldwater, L. J. Medical control of Be poisoning, 8073*f*.
**Tabey, A. M. E.**, and Cruess, W. V. Oxidase of the apricot, 4735*g*.
**Taboadela, M. M.** See Munoz Taboadela, M.
**Tabone, J.**, Robert, D., and Troestler, J. Application of paper-strip chromatography to the analysis of biol. arylamines, 4315*h*.
**Tabor, D.**, and Tingle, E. D. Surface attack of metals by fatty acids and the formation of lubricating layers, 8799*g*.
**Tabor, H.**, and Mosettig, E. Isolation of acetylhistamine from urine following oral administration of histamine, 8413*b*.
**Tabor, J. M.** See Kern, C. J.
——, Seibert, H. F., and Frohring, P. R. Conditioning a hard soap for solvent extraction, P 3220*e*; powd. soap, P 5614*a*.
**Taboury, F. J.**, and Salvinien, J. AgBr gelatin photography, 6927*b*.
**Tachi, I.** See Shikata, I.
——— and Watanabe, H. Utilization of tropical forest products (II) pulping of wattle wood by the kraft method, 8475*b*.
**Tachimori, M.** Gelation of tung oil (XXI)

degree of polymerization when temp. changes exponentially with time, 5204*d*.
—— and Ito, K. Gelation of tung oil (XVIII) effect of various sardine oils, (XIX) effect of maleic anhydride and glycerol, (XX) degree of polymerization when temp. increases linearly with time, 5204*b*.
**Tacoma Powder Metals Co., Inc.** Electrolytic Fe, P 4153*c*.
**Taconis, K. W.** Properties of the liquid He film, 3254*e*.
——, Beenakker, J. J. M., Nier, A. O., and Aldrich, L. T. Measurements concerning the vapor-liquid equil. of solns. of $He^3$ in $He^4$ below 2.19°K., 8775*b*.
**Tacvorian, S.** Sintering, 6337*d*.
**Tada, S.** Boundary surface-active agents, P 8712*d*.
**Tadayyon, J.**, Hardiman, E. W., and Nissan, A. H. Rational basis for the viscosity index system (II), 3997*b*.
**Tadenuma, H(ideo).** Same as Tadenuma, S(ueo).
**Tadenuma, S.** See Araki, T.
**Tadros, W.** Synthetic estrogens related to triphenylethylene (II), 7469*d*.
—, Farahat, K., and Robson, J. M. Synthetic estrogens related to triphenylethylene (I), 7469*a*.
**Taecker, R. G.**, and Hougen, O. A. Heat, mass transfer of gas film in flow of gases through com. tower packings, 3248*d*.
**Taufel, K.** Compds. with three C atoms in the chem. transformation of fatty acids and fats, 421*i*; citric acid content of cow milk, 8566*a*.
— and Freimuth, U. Acrolein formation from fats, 5971*h*
— — and Rothe, H. Chemistry of the autoxidation of olefinic fats, 4493*g*.
**Taft, E.** See Apker, L.
—— and Apker, L. Photoelec detn. of the Fermi level at amorphous As surfaces, 4942*g*
**Taft, G. H.** Composite article—polyvinyl chloride coating on rubber, P 895*i*
**Taft, R. W., Jr.** Substitution vs. addn in the low temp. nonactivated chlorination of olefins—argument for an ionic substitution mechanism, 1715*a*.
**Taganov, K. I.** See Prokop'eva, A. N.
**Tagaya, T.** Geochem. studies on B (I) B content of mineral springs of Japan, 7875*c*; see Kuroda, K.
—— and Asari, T. Geochem studies on B (III) B content of mineral springs in the Hatimandai region, Akita Prefecture 7876*a*.
**Tage-Hansen, E.** See Jansen, K. F.
**Tager, A.**, and Kargin, V. A. Swelling of rubberlike high-mol. substances—high mol isoparaffins and isooctane, 8187*f*.
**Tager, M.**, Hales, H. B., and Danowski, T. S. Suppression of fungus growth by thiourea (III) effects of protein fractions, amino acids, and thiol compds., 9152*c*.
**Taggart, J. V.** See Cross, R. J.
—— and Krakaur, R. B. Cyclophorase system (V) oxidation of proline and hydroxyproline, 5055*d*.
**Taggart, W. G.**, and Forbes, I. L. Research in agriculture, 6773*i*.
**Tagliaferri, G.** See Lovati, A.
**Taglianetti, M. J.** See Mingoia, Q.
**Tagnon, H. J.**, and Petermann, M. L. Activation of protoplasmin by a tissue fraction, 4746*i*.
**Taguchi, M.** See Kajimura, T.
**Taguchi, R.** Photoperiodic changes of the H-ion concn. of plant press juices, 5454*e*.
**Tahara, H.** See Funasaka, W.; Kodama, S.
**Tahmisian, T. N.** See Barron, E. S. G.; Cluff, C. L.
**Tai, A.-P.** See Kwoh, T. C.
—— and Chu, C.-M. Ca tartrate gels (II) effect of salts on the time of set, 6889*a*.
**Tai, W. S.**, and Thackeray, A. D. Spectrum of $\rho$ Cassiopeiae in 1939, 1262*f*.
**Tailby, S. R.** See Sugden, S.
**Tainter, M. L.**, and **Buchanan, H. O.** Comparison of certain actions of demerol and methadone, 3519*g*.
**Tait, H. J.**, and **Keller, R. E.** Shock-resistant glass, P 3164*a*.
**Tait, J. F.**, and **Haggis, G. H.** Demountable Geiger-Müller counter using filling gases at atm. pressure, 8853*c*.
**Tait, W.** Wagner furnace, 5947*e*.
**Taits, E. M.**, and **Kazakevich, N. P.** Phys. characteristics and coking properties of coal, 5172*d*.
**Tais M. M.** See Taits, E. M.
**Tajder, M.** Albite dolerite from Nakop Brook in Pozega Mt., 4191*b*; appearance of quartz in olivine basalt from Kutjevo, 4191*c*.
**Takács, L.**, and Fekete, A. Effect of methylthiouracil on hormonal thermoregulation in cold environment, 9244*b*.
**Takács, P.** Extn. expts. with Durog Paleocene coal, 8642*h*.
**Takagi, Sadashige.** Flow of gases through porous media (I), (II), 7288*c*.
**Takagi, Shunsuke.** Vulcanized fiber, P 6820*e*.
**Takahara, S.**, Tamura, T., and Tsuda, T. Oil removal from boiler-feed waters, P 7170*d*.
**Takahasha, M.**, and Ripperton, J. C. Koa khoale—its establishment, culture, and utilization as a foliage crop, 9292*d*.
**Takahashi, E.**, Ito, N., and Yamanishi, T. Oxidation of ascorbic acid (I) effect of ethereal sulfides on the contact oxidation of ascorbic acid by Cu, 1096*i*.
**Takahashi, H.** See Tange, U.
**Takahashi, J.** See Tsukamoto, T.
**Takahashi, Kazumaro.** Insecticide, P 6778*d*.
**Takahashi, Kiyooki**, Hirota, K., and Inoue, Y. Seed disinfectants (V) prepn. of nicotine sulfate, 1138*h*.
**Takahashi, M.** See Masamune, H
—— and Yasouka, T. Carbohydrates (LXXXIV) does mucoitin exist in the animal body combined with $H_2SO_4$? (2) mucoitin from gastric mucosa of pig, 5103*f*.
**Takahashi, N.** Electrolytic polishing (II) brass, 7354*a*.
**Takahashi, T.** Utilization of fish protein (III) relation between the state of protein and hydrolysis, (IV) extn. of protein with alkali, 4790*b*.
—— and Hikawa, F. Synthesis of butanol from ethanol in gaseous phase, 5363*c*.
—— and Ikui, S. Prepn of fatty acid ethyl ester from coconut oil, 881*e*.
**Takahashi, W. N.**, and Rawlins, T. E. Effect of washing frozen mosaic leaves on the length of tobacco mosaic virus particles, 3889*h*; length of tobacco mosaic virus particles from juice and from leaf residue, 9107*c*.
**Takai, K.** See Miyoshi, S
**Takai, R.** See Koide, T.
**Takai, Y.** See Miyoshi, S.
**Takanaka, J** See Shibata, E
**Takano, T.**, Murasawa, I., and Ono, M Mosquitocide incense made of pyrethrum mixed with synthetic org. compds (II) mosquitocide incense made of pyrethrum mixed with benzophenone, (III) mosquitocide incense made of pyrethrum mixed with $C_6H_5Cl_6$, 8602*g*.
——, Ueda, M., Murasawa, I., and Ono, M Mosquitocide incense made of pyrethrum mixed with benzophenone, 1144*c*.
**Takano, Y.** See Minato, H.
**Takaoka, M.**, Ishihara, Y., and Hirayama, T. Organs of marine animals (I) utilization of fish eggs, 327*g*.
——, Tomita, T., and Chino, W. Vitamin $B_1$ in the eyes of fishes from Hokkaido, 1117*a*.
**Takashima, S.** See Morikawa, Isao.
**Takata, S.** Synthetic pungent materials, 1878*h*.
**Takats, G. de.** See De Takats, G.
**Takayama, Y.**, and Miduno, S. Amino acids and related compds. (XVI) formation of L-methionine sulfone and $\beta$-(methylsulfonyl)propionic acid from L-methionine by electrolysis, 6577*g*.
**Takasawa, T.** See Kodama, S.
**Takebayashi, M.**, and Yamada, S. Polymerization of isosafrole (II), 7024*a*.
**Takeda, M.** See Hachihama, Y.
**Takeda Co.** Same as Takeda Drug Industries Co.
**Takeda Drug Co.** Same as Takeda Drug Industries Co.
**Takeda Drug Industries Co.** (*Patents.*) Hydroxydiphenyl ethers, 2231*i*; 2-nitro-4-methyl(or 2-nitro-4,5-dimethyl)(hydroxyalkyl)aniline, 2637*c*; quaternary N compds., 3034*b*, 8620*c*; thiazole derivs., 3041*i*; sorbitol, 5794*g*; 2-methyl-4-amino-5-(acylaminomethyl)pyrimidine, 6073*h*; *N*-(4-amino-2-methyl-5-pyrimidylmethylene)-4-amino-2-methyl-5-pyrimidylmethylamine, 7051*g*; 2-methyl-4-amino-5-(hydroxymethyl)pyrimidine, 7051*h*; 2-methyl-4-amino-5-pyrimidinecarboxaldehyde, 7051*i*; disinfectants from a tar base, 8623*d*; sepn. of protein, 9390*d*.
**Takeda Kagaku Yakuhin, K. K.** Same as Takeda Drug Industries Co.
**Takeda Yakuhin K. K.** Same as Takeda Drug Industries Co.
**Takegami, Y.** See Tarama, K.
**Takehara, S.** Pentosans in raw cellulose materials (I) distn. conditions for the estn. of pentosans, (II) estn. of xylose in the mixt. of xylose and glucose, (III) generation of volatile matter from cellulose, (IV) detn. of hydroxymethylfurfural, (V) mechanism of distg. hydroxymethylfurfural from materials of cellulose series, (VI) behavior of pentosan during the preliminary treatment under pressure, (VII) behavior of pentosan of white birch in the process of preliminary treatment under ordinary pressure, (VIII) pentosan in the process of pretreatment of soybean straw under normal pressure, (IX) change of amt. of pentosan in the soda cooking and bleaching process, (X) reaction of alkali on pentosan in pulp, (XI) effect of pentosan on xanthation of cellulose, 1975*g*.
**Takei, S.** See Imaki, T.
**Takei, Takeshi**, *et al.* Misch metal, P 6925*h*.
**Takei, Toshiro.** Extn. of fat and oil from entrails or egg, P 5977*d*.
**Takenaka, Y.** Destructive hydrogenation of synthetic petroleum (I) effect of catalyst, (II) effect of reaction conditions, 2415*f*.
**Takeshita, Y.**, and Maruyama, S. Effect of heating and agitation of solvent during the extn. of rice polishings, 5610*d*.
——, Maruyama, S., and Ono, Y. Improvement of efficiency of extn. of oil from rice polishings (I) effect of drying on the yield of oil, 5610*c*.
**Taketani, M.**, Nakamura, S., Ono, K., and Sasaki, M. Two-meson theory, 7320*d*.
**Taketomi, N.** Invertase (VII) influence of temp and pH on the action of invertase, (VIII) applications of invertase, (X) influence of inorg salts on the action of yeast invertase, (XI) influence of org. compds. and ultraviolet rays on the action of yeast invertase, 1817*b*.
—— and Tanemura, T. Invertase (IX) carbohydrate in invertase, 1817*d*.
**Taketomi, T.** See Koide, T.
**Takeuchi, K.** Vitamin A from fish-liver oil, P 6792*b*
**Takeuchi, Takashi.** Bitter substance produced in black-rotted sweet potatoes, 8453*c*.
**Takeuchi, Tomio.** See Umezawa, H.
**Takezaki, Y.** See Murata, Y.
**Takhtareva, N. K.** See Vvedenskiĭ, A. A.
**Takida, H.** See Ogata, T.
**Takizawa, M.** Gasoline from coal-distn. products (VI), 8641*f*, (IX) characteristics of coal-tar vapor generated by pyrolysis, (XI) pH of water evolved during the low-temp. carbonization of subbituminous and bituminous coal, (XII), (XIII), (XIV), 8641*h*; see Isobe, H.
—— and Ogihara, K. Gasoline from coal-distn products (VIII), 8641*g*.
—— and Yoshinaga, G. Gasoline from coal-distn. products (VII), 8641*g*.
**Takizawa, T.** See Murahashi, S.
**Takman, B.** See Löfgren, N.
**Taksić, A.** Loess in eastern Croatia, 4407*g*.
**Takuma, T.** Compn. of bile of polar bear and Japanese bear, 6298*a*.
**Talalay, A.** Reticulated resilient compn., P 2463*e*.
**Talalay, N.** Artificial aq. dispersions of rubbers and rubberlike substances, P 2463*a*.
**Talalay, P.** See Huggins, C.
**Talapatra, S. K.**, Ray, S. C., and Sen, K. C. Estn. of oxalic acid in biol. materials and the oxalic acid content of Indian feeding stuffs, 6685*e*.
**Talavera, M. P.** See Pascual Talavera, M.
**Talbot, F.**, and Imperial Chemical Industries Ltd. 2-Methyl-4-chlorophenoxyacetic acid, P 7634*c*.
**Talbot, H. L.** Electrolytic Co from a Cu-Co flotation concentrate, 8996*g*.
**Talbot, T. H.** See Warner, A. J.
**Talbot, W. F.**, and Buchdahl, R. Detg. mileage characteristics of ink, P 8706*d*.
**Talburt, W. F.** See Legault, R. R.
**Taleisnik, S.** Pharmacol. action of $\alpha$-fagarine in the toad, 7583*g*.
and Moisset de Espanés, E. Toxic action of $\alpha$-fagarine, 7584*a*.
**Talen, H. W.** See Dooper, R.
**Talenti, M.** Idrologia generale e cronologia (book), 9310*c*.

——— and Borgioli, N. Hyperthermal waters of Mt. S. Antonio (Rosapepe) in Contwisi (Salerno), 3121c, analyses on the waters of Sangemini, 8582e.
**Talesnik, J.** See Hoffmann, Francisco.
**Taliaferro, L. G.** See Taliaferro, W. H.
**Taliaferro, W. H.**, and Taliaferro, L. G. Spleen and lymphoid-macrophage system in the quinine treatment of gallinaceum malaria (III) action of quinine and of immunity on the parasite, 9254b.
**Talib-Uddeen, O.** See MacEwan, D. M. C.; Schofield, R. K.
**Talibuddin, O.** Same as Talib-Uddeen, O.
**Talipov, Sh. T.**, and Teodorovich, I. L. Titration of fluorides, 6942b.
**Taljaard, J. J.** See Gunn, D. L.
**Tallada Cuellar, F.** Water gas and its industrial manuf., 5571b.
**Tallan, H. H.**, Cliffton, E. E., and Downie, G. R. Spectrophotometric method for assay of serum antiprotease, 5816g.
**Tallant, J. D.** Use of probability paper for estg. the mean and standard deviation of normally distributed textile test data, 5191c.
**Talley, E. A.**, Hamilton, R. M., Schwartz, J. H., Brown, C. A., and Yanovsky, E. Prepn. of allyl starch, 2455b.
**Talley, F. B.** See McGovran, E. R.; Mayer, E. L.
**Tallman, G. B.** See Crocker, E. C.
**Tallman, R. C.**, and Stuart, A. H. Alkyl-1,3-dihydroxyphenylpropanes and derivs., P 4690g.
**Tallon, G.** See Molinier, R.
**Talmage, R.** Sintering of metal powders, 3327f.
**Talmage, R. V.** Influence of estradiol on alk. phosphatase activity in the genital tract of the rat, 5841d
**Talmood, Talmoude.** See Talmud.
**Talmud, B. A.** See Pasynskiĭ, A. G.
**Talmud, D. L.** Structural transformations of the protein mol., 3050c; see Pasynskiĭ, A. G.
**Talpay, B.** See Fehér, F.
**Tal'roze, V. L.** See Voevodskiĭ, V. V.
**Talyzin, F. F.**, and Pchelkina, A. A. Stability of the poison—in dried toad skin, 8059c.
**Tama, Manuel**, Tama, Mario, and Hoff, J. L. Producing metal alloys in a submerged resistor-type induction furnace, P 6094f.
**Tama, Mario.** Zn Al alloys, P 4964d; see Tama, Manuel.
**Tamarin, M. D.** App. for making shaped glass, P 3587a; gasification of peat with coal in an AVG gas generator, 3594h; heating and cooling of Dinas in glass-melting furnaces, 9399g; prepn. of charges for sheet glass, 9400c.
**Tamarit Torres, J.** Kinetic study of insulin hypoglycemia and action of insulin deduced from such study, 6741i.
**Tamaru, K.** Substitute Au dust for painting, 4489h.
**Tamayo, M. L.** See Lora Tamayo, M.
**Tamburello, G.** Influence of the vitamin B complex on the mammary gland, 4352i.
**Tamele, M. W.** Nature of inorg. gels, 4527a; see Ryland, L. B.
———, Irvine, V. C., and Mahar, J. F. Molybdena catalysts, P 1931g, 6763d; removal of alkali from alumina, P 9397a
**Tamelen, E. E. van.** See Van Tamelen, E. E.
**Tamini, E.** See Ranzi, S.
**Tamiya, H.**, and Hujishige, H. Effect of O on the dark reaction of photosynthesis, 8406h.
**Tamm, C.** Desoxy sugars (XXIII) further synthesis of D-digitalose and prepn. of crystallized digitalose acetate, 4635i.
——— and Reichstein, T. Desoxy sugars (XVII) synthesis of 2-desoxy-D-fucose 3-methyl ether and its identification with D-diginose, 1727a.
**Tamm, I. E.** Mezon (book), 1266g.
**Tamminen, V.** See Näsänen, R.
**Tamura, K.** See Katsura, Shigehiro.
**Tamura, Takashi.** See Tatsuoka, S.
**Tamura, Tomie.** See Shibata, S.
**Tamura, Toshio.** See Takahara, S.
**Tamura, Y.** Coating material, P 5608g.
**Tanabe, U.**, and Furukawa, K. Desalting, P 7170c.
**Tanabe Drug Co.** Sulfapyridine derivs., P 3458g; piperidine derivs., P 3471g; *p,p'*-dichlorodiphenyltrichloroethane, P 5530g; alkyl 2-methylindandione-2-acetate, P 7048e; quaternary ammonium compds., P 7960b.
**Tanabe Seiyaku K. K.** Same as Tanabe Drug Co.
**Tanago, J. G. del.** See Gonzalez del Tanago, J.
**Tanaka, I.**, and Hiraki, S. Fire- and waterproof board, P 7230b.
**Tanaka, J.** Mol. distribution of rubber (I), (II) mol. distribution of natural rubber, (III) mol. distribution of Perbunan, (IV) change in mol. distribution of natural rubber by milling, (V) change in mol. distribution of Neoprene in rolling, (VI) change in mol. distribution of Perbunan by milling, (VII) reproducibility of the mol. distribution curve, 1593g
**Tanaka, Katsu.** Cathode for Al electrolysis, P 6926b
**Tanaka, Kazuhiko.** See Isobe, H.
———, Yabuki, S., and Sato, M. Catalytic dehydrogenation of cyclohexane (II) dehydrogenation activity of $MoS_2$ catalysts and various catalyst carriers, 7912a
**Tanaka, Masaya**, and Fuchino, K. Reaction of NaOH and cellulose (III) 8132g
**Tanaka, Minoru**, Ashizawa, T., and Shibata, M. Chromatography for inorg. compds., 8945h
**Tanaka, N.** See Kambara, S.
**Tanaka, S.** See Tanaka, T.
**Tanaka, T.** See Kimpuna, Takeo.
——— and Tanaka, S. Polymerization of chloroprene and copolymers (III) effect of HCl on the catalyst for the prepn. of monovinylacetylene, 1598d
**Tanaka, Yoshio.** Ultraviolet absorption spectrum of NO-mol (II), 6511e
——— and Kobayashi, R. Manuf. of gasoline and lubricant by hydro-cracking of rubber, 3648g
———, Kobayashi, R., Onoguchi, S., and Hara, Y. Synthetic lubricating oil (I) lubricating oil by hydrogenation of the condensation product of chlorinated paraffin wax and $C_6H_6$ (II) mean mol. structure of the aviation lubricating oil prepd. by the condensation of chlorinated paraffin wax and $C_6H_6$ 2416g.
———, Matsui, Y., Hirano, S., and Ueki, K. Butylene and liquid hydrocarbons from ketones, P 7496b
**Tanaka, Yutaka.** Mg carbonate for transparent vulcanized rubber, 2023i, relation between Mg carbonate and the transparency of vulcanized rubber, 2023d
**Tananaev, I. V.** Physicochem. analysis of systems of significance in analytical chemistry (XIV) system $K_2PdCl_4$-KI-$H_2O$, 8943d
——— and Derichman, E. N. Properties of $BeF_2$ in soln. (II), 6019h
——— and Lel'chuk, Yu. I. Physicochem. analyses of systems of significance in analytical chemistry - system $AlF_3$-NaF-$H_2O$, 5695e.
——— and Levina, M. I. Physicochem. analysis of systems of significance in analytical chemistry - system $NiSO_4$-$M_4Fe(CN)_6$-$H_2O$, 5326f, (XIII) system $CoSO_4$-$K_4Fe(CN)_6$-$H_2O$, 960i, detg. Ni with K ferrocyanide, 5333e
——— and Mizetskaya, I. B. Physicochem. analysis of systems of significance in analytical chemistry—soly. in system $PbSO_4$-$MSO_4$-$H_2O$, 2530h
**Tananaev, N. A.** Analyzing ferrous, nonferrous, and precious alloys without chipping, 970f, drop method for detecting Pt, Pd, Ir, Rh, and Au in precious alloys without using shavings, 5334b; qual. phase analysis of Cu and its oxides and sulfides, 5697f
——— and Murasheva, V. I. Detn. of Se in steel, 969c.
———, Ruksha, N. P., and Verkhornbova, A. N. Drop method for detecting Ir, Pd, Pt, Tl, and Cu, 8955i.
**Tananaev, V. N.** Detn. of $CO_2$, CaO, and MgO in dolomites, 4601f
**Tananajev, Tananajeff, Tananajev, Tananayev.** See Tananaev.
**Tandberg, J.** Corrosion tests, 5721b.
**Tandon, B. L.** Isoöleic acids in some Indian hydrogenated fats, 2449e
**Tandon, R. K.** Response of flax to rates and formulations of 2,4-dichlorophenoxyacetic acid, 6773c
**Taneda, S.** Hypersthene and hornblende from the volcanic rocks from Haruna, 6119d; variations in compn. and optical properties in orthorhombic pyroxenes, 6119d; ground mass pyroxene of the hornblende-andesite, 6119e; relations between chem. compns. and optical properties in hornblende and biotite, 6119i; volcanic rocks from Haruna, Japan, 6127g; volcanic rocks from Japan—hornblende-andesite, 6127h; lava of the volcano Sakurajima, 6548d.
**Tanemura, I.** See Oshibuchi, T.
**Tanemura, T.** See Taketomi, N.
**Tang, T.-Y.** See Lawson, A. W.
**Tang, Y. W.**, and Bonner, J. Enzymic inactivation of indoleacetic acid (II) physiology of the enzyme, 1465e.
———, Bonner, J., and Zechmeister, L. Red yeast polyenes, 7544e
**Tanganelli, G.** See Gardenghi, G.
**Tangari, G.** Blood vitamins behavior in acute peritonitis (I) ascorbic acid, (II) aneurine, 10966.
**Tange, U.**, and Otsuka, S. Nutritive effects of various supplements on polished rice diets, 8028d.
——— and Takahashi, H. Effect of vegetable protein and Ca on the nutrition of growing rats, 7556d; influence of various vitamin B factors on nutritional hindrance from a high cod liver diet, 8021h; vitamin $B_2$ factors in powd. tea and sea weed, 8021h.
**Tangen, R.** Resonance phenomena in nuclear reactions, 4115b
**Tangredi, G.** Lipases of blood in smallpox, 1099e
**Tangren, R. F.**, Dodge, C. H., and Seifert, H. S. Compressibility effects in 2-phase flow, 7271f
**Tani, A.** See Cavallaro, L.
**Tani, K.**, and Tani, S. Molded product from short asbestos fibers, P 7164a
**Tani, M.** See Oshibuchi, T.
**Tani, S.** See Tani, K.
**Taniewski, M.** Problems of raw materials in the Polish lacquer industry, 2787h
**Tanifuji, M.** See Kunii, T.
**Taniguchi, M.** Detn. of acetyl value of primary acetylcellulose, 1977i, free $H_2SO_4$ produced in the course of drying acetylcellulose, 2127d; see Sakurada, I.
**Tanikawa, Y.** Lifetime of the neutral meson, 7810f
**Tannanaeff.** See Tananaev.
**Tannenbaum, A.**, and Silverstone, H. Effect of NaF, dinitrophenol, and low environmental temp. on formation of spontaneous mammary carcinoma, 2695a, genesis and growth of tumors (IV) effects of varying the proportion of protein (casein) in the diet, 4368f, effect of low environmental temp., dinitrophenol, or NaF on the formation of tumors, 7123f
**Tanner, C. B.**, and Jackson, M. L. Nomographs of sedimentation times for soil particles, 793c
**Tanner, C. C.**, and Imperial Chemical Industries Ltd. Org. processes involving the reaction of metallic Na, P 5030b, triphenylarsine, P 5041g.
**Tanner, E. M.** See Bryant, K. C.; Vago, E. E.
**Tanner, F. W.** Paper and paper board in the food industry—public health aspects, 3113i.
**Tanner, F. W., Jr.** See Scholfield, C. R.
———, Swanson, A. F., and Curtis, J. J. Breeding for niacin content in a sorghum cross, 8456g.
**Tanno, T.** Invert sugar from sucrose, P 7214g.
**Tanret.** See Boltansky.
**Tansley, J. A.** Roughening metallic surfaces, P 103a.
**Tansley, K.**, Gray, L. H., and Spear, F. G. Some biol. effects of α-radiation on the frog tadpole, 1445a.
**Tanteri, B.** Wines from grapes grown in gypseous soils, 2365a.
**Tanton, T. L.** Radioactive nodules in sediments of the Sibley series, Nipigon, Ont., 4564g.
——— and Poitevin, E. Occurrence of B minerals at Silver Harbour, Lake Superior, 4606c.
**Tantrum, A. D. S.** See Dent, F. J.
**Tantsyrev, I. N.** See Titov, N. G.
**Tanturi, C. A.**, and Wetzel, N. C. Relation between plasma antithrombin and heparin (I) influence of plasma antithrombin on prothrombin time, 5477i.
**Tanz, S. S.** See Hartley, J.
**Tanzariello, R.** Intraocular tolerance of Al and some of its modern industrial alloys, 6735b.
**Tansola, F.** See Little, P. A.
**Tao, H.**, and Young, V. S. Comparison of Ca utilization of bone-meal and bone-ash, 8463b.

**Tao, Y.-C.** Synthetic resin in the plywood industry, 433*c*.
**Tapadinhas, J.** See Jacobsohn, K. P.
—— and Bello Pereira, F. Influence of folic acid on activity of cholinesterase, 3497*a*.
**Tapernoux, A.,** and Jochem, G. Mammary elimination of sulfapyridine in the goat, 758*g*.
**Tapia Salinas, L.** Cu-bearing regions of Pachacama, Ica, and Pullo, 6545*a*; Cu-bearing region of Huitor, 6545*b*
**Tappi, G.,** and Karrer, P. Carotenoids of the anthers of *Lilium candidum*—*cis*-antheraxanthin, 4233*d*; isorhamnetin from the anthers of *Lilium candidum*, 4233*h*.
—— and Pirona, M. Biosynthesis of sterols by the action of some strains of *Penicillium* (III) sterols from a strain of *P. citrinum*, 8133*f*.
**Tapsell, H. J.** See Johnson, A. E.
**Taquini, A. C.** See Fasciolo, J. C.
—— and Fasciolo, J. C. Partial ischemia and renin content of the kidneys, 8503*b*.
**Tarakanova, M. G.** See Kibisov, G. I.
**Tarama, K.** See Kodama, S.
——, Tatsuki, Y., Kasai, K., and Takegami, Y. Synthesis of gasoline from CO and H (LXVIII) analysis of the synthetic oil by fractional distn. (2), 2401*f*
**Tarantino, C.,** Marsili, G., and Paoletti, M. Oxidation-reduction potential of human gastric mucosa after irradiation with small doses of x rays, 5469*i*
—— and Pasquinelli, F. Synthesis of urea in the human placenta, 9205*c*
**Tarantino, E.** See Biocca, E.
**Tarantola, C.** Detn. of volatile acids of wines in the presence of $SO_2$, 6779*g*; unfermentable reducing substances in wines, 6780*e*
—— and Strada, M. Detn. of cider addn. to wine and the sorbitol content of some Italian wines, 6778*h*
**Taras, M.** Indicator for the titration of $NH_3$ in $H_3BO_3$, 1280*i*; photometric detn. of Mg in water with Brilliant Yellow, 2345*d*; indicator for carbonate alky., 5519*i*
**Tarasevich, L. M.** Gram staining, 8446*e*
**Tarasevich, N. I.** Detn. of Cu with *o*-phenylenediamine, 8951*g*.
**Tarasov, L. P.** Microhardness of carbides in tool steels, 984*e*.
**Tarasova, Z.** See Dogadkin, B.
**Tarassow, L. P.** See Tarasov, L. P.
**Taratuta, E. S.** See Shafranov, B. V.
**Tarbell, A.** See Flagg, J. F.
**Tarbell, D. S.** See Arnstein, H. R. V.; Berger, F. M.; Craig, L. E.; Frank, H. R., Harnish, D. F.; Huang, H. T.
**Tarbet, J.** See Cannon, M. N.
**Tardini, A.** Reaction of the peroxidase in Kupffer cells, 5054*i*.
**Tardrew, P. L.** See Polya, J. B.
**Tardy, H.** Spectrophotometry of ultraviolet absorption, 2515*a*.
**Tarjan, A. C.** Inefficacy of ethylene chlorobromide as a therapeutic agent in the treatment of gardenias infested with the root-knot nematode, 1139*e*
**Tarján, I.** Photoelec. behavior of alkali halide crystals contg. colloidal alkali, 6907*d*.
**Tarkington, R. G.** See Lowe, Wesley G.
**Tarkow, H.** Swelling and shrinking of wood, paper, and cotton textiles and their control, 5941*b*; see Stamm, A. J.
**Tarlowsky, E.** See Sheft, B. B.
**Tarlton, E. A.** Algae control, 6767*a*.
**Tarn, W.** See Anderson, R. B.
**Tarnavskii, N. D.** See Gershenzon, S. M.
**Taroh, O.-U.** Carbohydrates (XCI) nature of the proteins which participate in making up natural glycoproteins (2) content of hexone bases and cystine, (XCII) (3) tyrosine and tryptophan in these amino acid groupings, 7062*g*.
—— and Utsushi, M. Carbohydrates (XC) quant. relations of mucoitin and chondroitinsulfuric acid with free basic groups of protein in tissue, 5104*e*.
**Tarpey, W.** See Cason, J.
**Tarpley, W. B., Jr.,** and Ryer, A. I. *N*¹-Acylsulfanilamides, P 1804*g*.
**Tarr, A. L.** See Mahoney, C. H.
**Tarr, H. L. A.** Control of rancidity in fish flesh (II) phys. and chem. methods, 1498*b*; see Deas, C. P.
—— and Deas, C. P. Action of sulfa compds., antibiotics, and nitrite on growth of bacteria in fish flesh, 1498*d*; utilization of fish wastes—bacteriol. peptones from fish, 1827*d*
—— and Ney, P. W. Effect of flesh acidity on bacterial nos. and trimethylamine in spoiling fish, 5128*e*.
**Tarrant, P.** See Young, J. A.
**Tarsitano, F.** Poisoning with DDT, 2316*f*
**Tartaglione, V.** See Ruffo, A.
**Tartakovskii, V. Ya.,** and Kozlovskii, A. L. Pencil leads, P 9536*f*.
**Tartar, H. V.** See McKenna, F. E.
**Tartaron, F. X.** Fe ore beneficiation, 6651*a*.
**Tarte, P.** Adsorption of amino acids by $BaSO_4$, 3687*a*.
**Tarver, H.** Methionine as an indicator of protein formation, 2252*a*; see Rutman, R.
**Tarvin, D.** See King, V. L.
**Tary, R.** See Brody, S.
**Tasch, P.** Diogenes of Apollonia and Democritus, 8761*d*.
**Taschek, R. F.** Technique for observing nuclear disintegrations and scattering in small gas volumes, 934*g*; see Barschall, H. H., Gittings, H. T., Phillips, A. N.
——, Argo, H. V., Hemmendinger, A., and Jarvis, G. A. Neutron-H mass difference from the $T^3(p,n)He^3$ reaction threshold, 8264*h*.
—— and Gittings, H. T. Naphthalene scintillations caused by tritium $\beta$-rays, 1259*i*.
——, Jarvis, G. A., Argo, H. V., and Hemmendinger, A. Neutron-H mass difference from the $H^3(p,n)He^3$, 4947*b*
——, Jarvis, G. A., Hemmendinger, A., Fverhart, G. G., and Gittings, H. T. Interaction of protons with tritium, 5293*e*
**Taschenberg, E. F.** Evaluation of spray programs for the control of the grape berry moth, 9340*c*
—— and Avens, A. W. DDT residue studies of fresh grapes, juice, and jam, 6328*h*.
**Tashinian, V. H.** See Koch, C. W.
**Tashiro, E.** See Murata, Y.
**Tashjian, E.** See Weyland, J.
**Tasker, C. W.** Urea as a solvent aid for cellulose textile sizes, 8687*c*.
—— and Purves, C. B. *p*-Tolylsulfonyl and iodo derivs. of the 3 lower polyethylene glycol monoethyl ethers, 3784*b*, *p*-tolylsulfonyl chloro and iodo derivs. of an alkali-sol. hydroxyethyl cellulose, 3784*g*
**Tasker, G. J. H.** Tubular reactors (II) calcn. of heat transfer and reaction rate in catalyst beds—application of theory to phthalic anhydride pilot-plant data, 6007*e*
**Taskor, H. S.,** and Pears, J. Fluorescent materials, P 500*g*
**Tasman, A.,** and Smith, I. Sugar detn. according to Luff, 5827*d*; detn. of AcOH and propionic acid in bacteriol. culture media, 7545*c*
**Tassel, R. van.** Copaiba from Vedrin, Belgium, 72*h*.
**Tastaldi, E.** Vitamin synthesis by microbes, 9184*i*
**Tata Iron and Steel Co. Ltd.** Steels, P 105*a*.
**Tatar, J. E.** Detn. of residual $CO_2$ in baking powders, 9278*d*
**Tatarenko, A. N.,** and Tsukervanik, I. P. Condensation of aromatic compds. with alcs. in the presence of $AlCl_3$ (XIV) amyltetralins, 1369*g*.
**Tatarinova, L. I.** See Pinsker, Z. G.
**Tatarinova, N.** Detn. of vitamin $B_1$ in milk, 7597*d*
**Tatévosjan, Tatevossian Tatévossjane.** See Tatevosyan, G. T.
**Tatevosyan, G. T.,** and Tuteryan, M. T. 5-Alkyl-5-(3-chloro-2-butenyl)barbituric acids, 1725*h*.
—— and Vardanyan, A. G. Polycyclic hydroaromatic ketones (II) 3-keto-7-methyl-1,2,3,9,10,10a-hexahydrophenanthrene, (III) 3-keto-1,2,3,11,12,12a-hexahydrochrysene, 6609*b*.
**Tatevskii, V. M.** See Tilicheev, M. D.; Treshchova, E. G.; Yur'ev, Yu. K.
——, Treshchova, E. G., Skvarchenko, V. R., and Levina, R. Ya. Spectra of combination scattering of alkadienes with an isolated or conjugated system of double bonds, 7345*i*.
**Tatlock, M. W.** Treatment of yeast products wastes, 4797*c*.
**Tatomer, H. N.** Bleaching cellulosic material, P 3198*b*.
**Tator, K.** Org. linings for chem. equipment, 2465*a*.
**Tatsuki, Y.** See Murata, Y.; Tarama, K.
**Tatsumi, M.** See Horio, M.
**Tatsuoka, S.,** Miyamoto, M., Shiu, R., and Tamura, T. Penicillin (I) synthesis of *dl*-*S*-benzyl-*N*-benzoylpenicillamine, 2618*c*.
——, Ota, B., and Ueyanagi, J. Penicillin (II) synthesis of 2-phenyl-4-(alkoxymethylene)-5(4*H*)-oxazolones, 2618*d*.
**Tattersall, H. J.** See Berger, L., & Sons, Ltd.
**Tattersfield, C. P.** Effect of phys. pretreatment on the ease of sapon. of cellulose acetate rayons and films, 854*d*.
**Tattersfield, F.,** Potter, C., Lord, K. A., Gillham, E. M., Way, M. J., and Stoker, R. I. Insecticides derived from plants, 3556*i*
**Tatting, B.** See Cartwright, G. E.
**Tatum, E. L.** Amino acid metabolism in mutant strains of microorganisms, 7079*a*; see Reaume, S. E.
——, Barratt, R. W., and Cutter, V. M., Jr. Chem. induction of colonial paramorphs in *Neurospora* and *Syncephalastrum*, 6276*a*
**Tatum, W. W.** Aminoanthraquinone sulfonic acids, P 9468*d*; see Coffey, S.; Slinger, F. H.
—— and Imperial Chemical Industries Ltd. Anthraquinone dyes, P 3626*h*, 8163*b*; sulfonated anthraquinone dyes for wool, P 8164*b*.
**Taub, A.** Medicated gauze, P 3978*i*.
——, Katz, I., and Katz, M. Stability of thiamine-HCl and thiamine-$NO_3$ and in parenteral vitamin B complex and Fe solns., 8610*i*.
**Taub, D.** Safe purification of benzoyl peroxide, 1570*a*.
**Taub, H.** See Kusch, P.
—— and Kusch, P. Magnetic moment of the proton, 5303*c*.
**Taub, R.** See Welsh, J. H.
**Taube, Harry.** See Lehman, R. A.
**Taube, Henry.** Catalysis by manganic ion of the reaction of bromine and oxalic acid—stability of manganic ion complexes, 2497*h* see Dodgen, H. W.
**Taube, M.** See Tomassi, W.
**Taubenhaus, M.,** and Amromin, G. D. Influence of steroid hormones on granulation tissue, 8492*a*.
**Tauber, E.** See Heyns, K.
**Tauber, F. W.,** Davis, A. J., and Goldman, M. "Poly" wrap seen filling many packaging needs, 9522*f*.
**Tauber, H.** Chemistry and Technology of Enzymes (book), 709*i*; color test for tryptophan and related compds., 4314*a*.
——, Kershaw, B. B., and Wright, R. D. Growth inhibitor fraction of Lima beans and isolation of a cryst. heat-stable trypsin inhibitor, 8477*h*.
**Tauber, W.,** *et al.* Cyclopedic Medical Dictionary (book), 5437*f*.
**Taubes-Steinfeld, S.** See Baker, G. W.
**Taubkin, S. I.** See Rogovin, Z. A.
**Taurog, A.** See Chaikoff, I. L.
—— and Chaikoff, I. L. Circulating thyroid hormone, 2300*a*.
——, Chaikoff, I. L., and Tong, W. Monoiodotyrosine in the thyroid gland, 6714*c*.
——, Tong, W., and Chaikoff, I. L. Fractionation of thyroid I, 8417*i*.
**Tauscher.** See Seidel.
**Tauson, T. A.** See Shaposhnikov, V. N.
**Taussky, H.** See Shorr, E.
**Tavares, A.,** and Duarte Rodrigues, L. Stability of vitamin $B_1$ in the presence of certain anions and cations, 1156*i*.
**Tavares Mutel, I.** Thyroid insufficiency, glutathionemia, cholesterolemia, and basal metabolism, 3096*f*.
**Tavartkiladze, E. K.** See Areshidze, Kh. I.
**Tavasci, B.** Structure of the pozzuolana of Segni, Italy, 2750*g*; structure of mortar from lime and Segni pozzuolana, 2751*a*; see Inzigneri, M.
**Taverne, N. J. A.** Het nieuwe Chemieboek voor Jongens (book), 1255*a*.
—— and Went, N. B. van. Anorganische scheikunde (book), 960*f*.
**Taverner, L.** See Bruhl, P. T.
**Tavernier, G. C.** See Capron, P.
**Tavernier, J.** Two curious cases of the formation of metallic sulfides, 924*d*.
—— and Jacquin, P. Pasteurization of apple juice in bottles, 782*i*; defecation of apple musts and ciders for the chem. or polarimetric detn. of the sugars, 3116*f*.
**Távora, E., Jr.** Symmetry of kermesite, 8983*a*.
**Tavora Filho, E.** Same as Távora, E., Jr.
**Tavyné, ——** International patents, 8577*i*.

**Tawde, N. R.** Dissocn. energy of $C_2$, 8877*f*.
—— and Desai, V. D. Characteristics of the first pos. N bands in a high temp. source, 8878*a*.
—— and Gopalkrishnan, K. Intensity, frequency, and amt. of irradiation in Joshi effect, 6074*g*.
—— and Husain, A. G. Excitation of a band system from a metal and its oxide, 8878*b*.
—— and Mehta, G. K. Spectral characteristics of the pos. column of a Na vapor lamp, 8877*h*.
——, Menon, M. G. K., and Mehta, G. K. Initial level of the high-pressure bands of C, 8877*g*.
—— and Unvala, H. A. Measuring relative spectral intensities—its technique and use in line and band spectra, 1652*f*
**Tawney, P. O.** Copolymers of 2,5-dimethyl-1,5-hexadiene and acrylic esters, P 2035*f*; 1,2,4-butanetricarboxylic acid, P 2635*b*; allylic *o*-benzoylbenzoates, P 3847*e*; plasticized polyvinyl chloride compns., P 7755*c*.
**Taxwood, V. C.,** and Stock, C. R. App. for automatic uniform controlled rise of temp., 4524*a*.
**Tay, R. W.,** Buckner, A. J., and Simmons, S. W. Evaluation of DDT—residual effectiveness against houseflies, 9342*f*.
**Tayeau, F.,** and Masquelier, J. Pigments of the peanut (I) chromogen, 641*a*, 3490*i*.
**Taylor, A.** Calibration of a thermocouple, 3668*e*.
**Taylor, Alfred,** and Carmichael, N. Male mice tolerate dosages of pteroylglutamic acid lethal to females, 8547*c*.
**Taylor, A. D.** Plating step in clad steel manuf., 4148*i*.
**Taylor, A. E.** See Taylor, N. B.
**Taylor, A. G.** Organosilicon compds., P 6867*b*; see Albright & Wilson Ltd.
**Taylor, A. H.** Phototube characteristics as influenced by small amts. of gas, 5678*e*.
**Taylor, A. H. J.** Prepn. of injection of penicillin, 4423*i*.
**Taylor, A. M.** Sp. gr. and wt. per ml. of essential oils, 8100*b*.
**Taylor, A. W. C.** See Bremner, J. G. M.
**Taylor, B. M.** See Sell, H. M.
**Taylor, C. A.** Factors affecting germination of celery seed, 2288*h*; see Lipson, H.
**Taylor, C. B.,** and Collins, V. G. Development of bacteria in waters in glass containers, 4328*f*.
**Taylor, C. F.** See Gould, E.
**Taylor, C. L.** British made C black—manuf. of Seval, 2407*b*, 3598*h*.
**Taylor, C. M.,** and MacLeod, G. Rose's Lab. Handbook for Dietetics (book), 8029*e*.
**Taylor, C. R.** See Le Fevre, R. J. W.
**Taylor, C. W.** Gasoline-resistant coated fabric, P 3208*i*.
**Taylor, D.** Radiation monitors for use in labs. handling radioactive isotopes, 7159*i*; see Hickling, A.
**Taylor, D. B.** See Holmes, P. E. B.
**Taylor, D. J.,** Mulrennan, J. A., and Thurman, D. C. Duration of the effect of residual DDT spray in houses in Fla., 3139*c*.
**Taylor, D. S.** Detn. of borax in mixed fertilizers, 7175*e*.
**Taylor, E. C., Jr.** See Cain, C. K.
—— and Cain, C. K. Hydrolysis of amino groups in certain 2,4,5,6-tetrasubstituted pyrimidines, 8395*f*.
**Taylor, E. J.** Philadelphia ozonation plant, 5520*h*; ozone plant to treat 36 million gal. daily at Philadelphia, 6343*a*
—— and Bean, E. L. $O_3$ in quantity—how it is produced, 7354*f*.
**Taylor, E. W.** Plastic deformation of optical glass, 5558*d*.
**Taylor, F. H. L.** See Dameshek, W.
**Taylor, F. M.** Liquefied petroleum gas, 8655*b*.
**Taylor, F. S.** Inorg. and Org. Theoretical Chemistry (book), 4090*e*; Overwinning op de Bacteriën (book), 5449*g*, Alchemists (book), 6072*e*.
**Taylor, G. B.** Fractionation of polyamides, P 7266*f*.
**Taylor, G. G.** Control of white butterfly and diamond-back moth on cabbages, 2358*d*.
**Taylor, H.** See Bacon, R. G. R.
—— and Imperial Chemical Industries Ltd. Pulverulent prepns. of rubberlike condensation products, P 6860*d*.
**Taylor, H. E.** Additive effects of certain transforming agents from some variants of *Pneumococcus*, 5085*d*, reciprocal transformations of forms R and ER in *Pneumococcus*, 5824*c*.
**Taylor, H. F. W.** Hydrothermal reactions involving Tl, 8932*b*
**Taylor, H. G.,** Lawrence, E. O., and Langmuir, I. Couches moléculaires (book), 2856*f*.
**Taylor, H. L.** See Surgenor, D. M.
**Taylor, H. S.** Physicochem. aspects of antioxidants, 1249*b*; applications of mol. geometry in the field of reaction mechanism, 4527*a*; see Wright, M. M.
**Taylor, I.** Pumping liquids, 4903*f*.
**Taylor, J.** See Whetstone, J.
—— and Cook, J. H. Operation of the ballistic mortar for detg. the power of high explosives, 9449*e*.
—— and Imperial Chemical Industries Ltd. Plastic detonating explosives, P 1190*d*.
—— and Pollok, F. Effect of various chemicals, esp. $NaHCO_3$, on the ignition of cellulose, coal dust, and activated charcoal, 4468*c*.
—— and Whetstone, J. Gas-generating compns., P 852*d*.
**Taylor, J. A.** See Metzner, A. B.
**Taylor, J. B.** See Stokes, J. H.
**Taylor, J. E.** Detonation meter, model 501, 8656*h*.
**Taylor, J. H.** Mesozoic ironstones of England—petrology of the Northampton sand ironstone formation, 5317*g*.
**Taylor, J. L.** See Duwez, P.
**Taylor, J. R.** $NH_3$ recovery in soda-ash production, P 6375*e*
**Taylor, J. W.** See Couch, J. F.
**Taylor, K. L.** Preservation of sawn timber with $H_3BO_3$, 5149*e*
**Taylor, M.** See Bugbee, J. C.
**Taylor, M. H.** See Healy, J. J., Jr.
**Taylor, M. M.** Distinguishing factors in weavability—comparing the weaving properties of warps from the viewpoint of the rayon producer, 5192*i*
**Taylor, M. W.** See Russell, W. C.; Stern, Joel R.
**Taylor, N. B.,** and Noble, R. L. Pharmacol. properties of Na ethyl 3,3 dimethylallylbarbiturate, 5862*b*
—— and Taylor, A. E. Stedman's Medical Dictionary (book), 7991*b*.
**Taylor, N. W.,** and Lipscomb, W. N. Crystal chemistry since Goldschmidt, 2063*d*
—— and Murray, R. C. Glass beads, P 4440*d*
**Taylor, Ralph.** Ascorbic acid dentifrice, P 5552*g*
**Taylor, Ruth.** See Van Slyke, K. K.
**Taylor, R. C.,** and Cross, P. C. Light absorption of aq. $H_2O_2$ solns. in the near ultraviolet region, 8884*f*.
**Taylor, R. D.** See Corcoran, A. C.; Page, I. H.
**Taylor, R. F.** See Morey, G. H.
**Taylor, R. H.** Caking compn., P 4900*a*.
**Taylor, R. J.** Activation of alumina, 3981*i*.
**Taylor, R. K.** Closed-circuit seals in glass-blowing, 5558*g*
**Taylor, R. L.,** *et al.* Chem. Industries Buyers Guide Vol. LXIII. No. 6 Pt. 2 (book), 2343*f*
**Taylor, R. O.** See Dudley, H. C.
**Taylor, R. S.** See Fletcher, D. A.
**Taylor, S. H.** Initiation and development of the gall of *Avlax glechomae* on *Nepeta hederacea*, 5094*g*
**Taylor, S. J. G.** "Ring balance" flow meter, 4522*e*.
**Taylor, T. B.** See Fernbach, S.
**Taylor, T. G.** Detn. of the air content of mortars, 1938*d*
**Taylor, T. I.** See Dibeler, V. H.; Nash, L. M.; Ruderman, I. W.
**Taylor, V. T.,** and Hebden, D. Breakage of coke, 3174*b*.
**Taylor, W. E.** See McKibbin, J. M.
**Taylor, W. G.** Flavor reversion in hydrogenated soybean oil (I) effect of double-degumming, (II) effect of unsaponifiable matter, 7723*b*.
**Taylor, W. H.** J. A. R. Newlands—pioneer in at. nos., 7762*a*.
**Taylor, W. I.** See Novak, M.; Prelog, V.
**Taylor, W. J.** Classification of symmetry coördinates, 1621*i*; application of the method of least squares to x-ray crystal structure analysis, 4096*a*.
**Tazawa, Y.** Anhyd. cleavage of egg albumin by heating in ethylene glycol, 8406*d*.
——, Okunuki, K., and Urushima, N. *Penicillium* proteinase, 3060*e*.
**Tchan, Y.-T.** Bacteria oxidizing thiosulfate in soil, 5821*d*; see Pochon, J.
**Tchelintsef, Tchelintsew.** See Chelintsev, G. V.
**Tchelitcheff, S.** See Paul, R.
**Tcheltzowa, M. A.** See Chel'tsova, M. A.
**Tcheng, M.-L.** See Dufay, J.
**Tchentzowa, L. G.** See Chentsova, L. G.
**Tcherdintzev, V. V.** See Cherdyntsev, V. V.
**Tchernichev, A. B.** See Chernyshev, A. B.
**Tchernichewa, M. A.** See Chernysheva, M. A.
**Tchernijchev, Tchernijshev.** See Chernyshev, A. B.
**Tchernjak.** See Chernyak.
**Tchistiakov, M. P.** See Chistyakov, M. P.
**Tchitchibabine, A.,** and Bertougelf, M. Pyridine derivs., P 5050*b*.
**Tchoubar, B.** 1-Cyclohexyl cyclohexane carboxylic acid by the alk. dehalogenation of 1-chloro dicyclohexyl ketone, 5010*h*.
—— and Welvart, Z. Grimm's law of hybrid displacements and the oil soly. of salts of Bi (I) soly. of the Bi salts of the acids $RCH(OR')COOH$, 2488*i*.
**Tchoulkov.** See Chulkov.
**Tchourbakow, A. N.** See Churbakov, A. N.
**Tchrelachivili, M. N.** See Chrelashvili, M. N.
**Teago, F. J.,** Rankin, R., and Gill, J. F. Mercury Arcs (book), 7357*c*
**Teague, R. S.** See Starnes, W. R.
**Teas, H. J.** See Cameron, J. W.
**Teasdale, J. G.** See Gurevitch, M.
**Tebboth, J. A.** See Booth, N.
**Tecce, G.** Mineral substances in fruits, 5878*d*, vitamin content of fruits, 5878*g*, see Spadoni, M. A.
**Technical Specialties Co.** White writing ink, P 3215*c*
**Technicolor Motion Picture Corp.** Dis azo dyes, P 7846*g*.
**Technique chimique belge, Soc. anon.** Hexachlorocyclohexane, P 1436*g*; odorless derivs. and compns. from tech. hexachlorocyclohexane, P 1436*i*.
**Technique chimique belge "Técébel."** Repellent for the protection of grain and seeds, P 3967*i*; insecticidal and antiparasitic product, P 4807*d*; beauty prepn., P 4820*b*
**Technochemie A.-G.** App. for melting tallow *in vacuo*, deodorizing and deacidifying fats, and evapg. excessively foaming liquids, P 7242*a*; see Böhm, Egon
**Tecnochimica Violini.** Binding material, P 9538*c*.
**Tedeschi, C. G.** Exptl. liposarcoma—growth under low and under high caloric intake, 7119*b*; see Howe, C. W.
**Teegan, J. A.** Photographic technique in nuclear physics, 3281*e*; progress in industrial and university research, 6015*c*
**Teegan, J. P.** See Reilly, J.
**Teeple, H. O.** Selection of valve material for petroleum applications, 83*f*.
**Teeri, A. E.** See Colovos, N. F.
—— and Josselyn, D. Effect of certain sulfonamides on *Lactobacillus arabinosus* in a nicotinic acid-restricted medium, 3062*e*.
**Teeter, H. M.** See Cowan, J. C.
——, Bachmann, R. C., Bell, E. W., and Cowan, J. C. Reactions of *tert*-butyl hypochlorite with vegetable oils and derivs.—soybean oil, 5204*f*.
**Teeters, W. O.** Phosphonic acid esters, P 7969*d*; pyridine carboxylic acids, P 8402*d*.
—— and Mueller, M. B. Oxynitration of aromatic compds., P 1805*i*.
**TeGrotenhuis, T. A.** Coagulation, P 7*b*; reinforcing org.-polysulfide rubbery material with C black, P 2464*a*; heterogeneous mixts. of rubbery polymers, P 2806*f*.
**Tei, H.** See Osawa, S.
**Tei, I.** See Yatagawa, S.
**Teich, N.** See Whytlaw-Gray, R.
**Teichert, W.** Na metaphosphate (II), 4088*g*.
—— and Bonnevie-Svendsen, M. Na metaphosphate (III), 4088*i*.
—— and Hansson, O. Wet carbonization of peat (III), 5924*a*.
—— and Rinman, K. Na metaphosphate (I), 4088*f*.
**Teichner, S.** Development of the specific surface of Fischer catalysts during reduction, 27*b*; effect of thermal treatment on the texture and the structure of a montmorillonite, 463*h*; surfaces of montmorillonites activated by acid treatment, 464*c*; kieselguhr as support for Fischer catalysts, 6850*b*.

**Teikoku Jochugiku K. K.** Same as Imperial Pyrethrum Co.
**Teikoku Seni K. K.** Same as Imperial Cellulose Co.
**Teikoku Zinsokenshi K. K.** Same as Imperial Rayon Co.
**Teillac, J.** Electron radiation of ionium, 2859*d*; see Lecoin, M.
**Teis, R. V.** Isotopic compn. of fossil ices, 2050*f*.
**Teisinger, J., and Soucek, B.** Absorption and elimination of $CS_2$ in man, 7576*i*.
**Teiss, R. W.** See Teis, R. V.
**Teisseire, P.** See Crabalona, L.
**Teitel, R. J., and Cohen, M.** Be-Fe system, 3763*h*.
**Teitel, S.** See Goldberg, M. W.
**Teitel'baum, B. Ya.** Surface layering in binary liquid systems, 5247*h*; detn. of surface tension of liquids from the max. pressure of bubble formation, 7766*e*.
**Teitelbaum, H. A., and Gantt, W. H.** Intravenous (cerebral sinus) injection of drugs from a distance, 9136*c*.
**Teitell, L.** See Cordon, T. C.
**Tejima, T.** See Kodama, S.
**Tejo, A. J.** See Valentinuzzi, M.
**Tekko Co., Inc.** $MnO_2$, P 6376*e*.
**Telang, M. S.** Interpretation of the parachor, 6481*b*; revision of the parachor, 6481*b*, viscosity of liquids, 8778*f*; see Sane, S. C.
**Teleki, G.** Bauxite ores of the Zagorje Plateau, 7873*d*.
**Telephone Manufg. Co. Ltd. and Paddle, L. H.** Metallic alloys, P 555*c*.
**Telford, E. A.** See Loustalot, A. J.
**Telford, J.** See Handley, C. A.
**Telford, R. J.** See Finucane, K. J.
**Telford, T. M.** See Gunn, D. L.
**Teller, E.** See Feynman, R. P.; Goldhaber, M.; Rice, F. O.; Richtmyer, R. D.
**Tellez-Plasencia, H.** Formulas of interpolation for the detn. of numerical values of some at. consts., 7815*d*, measuring x-rays, 8844*c*.
**Teltow, J.** See Stasiw, O.
**Temirenko, T. P.** See Mal'tsev, V. F.
**Temkin, B. S.** Thermal stability of mirror reflectors, 1161*h*, detn of the microgeometry of the ground surface of glass, 3578*g*
—— and Burshtein, I. N. Protecting polished surfaces of glass prisms against alkali spotting, 1162*f*.
**Temkin, M. I.** Energy of activation of the discharge of *H* ions, 954*a*; see Kul'kova, N. V
—— and Pshezhetskii, S. I. Sbornik rabot po khimicheskoi khimii (book), 1256*a*
—— and Shvartsman, L. A. Activity of C in austenite, 7314*h*.
**Temme, J.** Transformation of $CaCN_2$ in the soil, 797*b*.
**Temmer, G. M.** Excitation functions for $(\alpha,n)$, $(\alpha,2n)$, and $(\alpha,3n)$ reactions on In, 8867*i*
**Temmer, O.** See Mackinney, G.
**Temmerman, J.** Inhibitor blocks salt corrosion, 7401*a*.
**Temmerman, M. C. T. de.** Synthetic sugar, P 7840*n*.
**Temney, R. I.** Alkyl aryl sulfonates improve bottle washing, 3636*g*.
**Temnikova, T. I., and Kropachev, V. A.** α-Keto oxides (II) prepn. and hydrogenation of *tert*-butyl styryl ketone oxide, 130*c*
**Tempel, M. van den.** Patents on the Manufg. of Sponge Rubber and on Heat-sensitized Latex (book), 7744*f*.
**Tempel'man, R. G.** See Zhuravlev, V. I.
**Temple, J. W., Cuthbertson, G. R., and Miller, R. R.** Treatment of guayule, P 5624*c*.
**Temple, R. B.** See Ambrose, E. J.; Elliott, A.; Thompson, H. W.
**Temple, S.** Vinyl chloride-contg. polymers having a high stability against thermal decompn., P 9530*e*.
**Temple, S. M.** Evaluation of pulps in the lab. and in the mill, 6413*c*.
**Templeman, W. G.** See Sexton, W. A.
**Templeton, C. C.** Distribution of rare earth nitrates between water and hexyl alc. at 25°, 8807*h*.
—— and Peterson, J. A. Fractionation of La and Nd nitrates by solvent extraction, 4169*e*.
——, Rothschild, B. F., and Hall, N. F. $Th(NO_3)_4$ (III) distribution of $Th(NO_3)_4$ between water and certain esters and the nature of the distribution equil., 6890*a*.
**Templeton, D. H.** Radioactive isotopes, 4096*f*; see Orth, D. A.; Reynolds, F. L.
**Temple Univ.** Solubilization of rutin with Me glucamine, P 1800*g*.
**Templin, E. H.** See Muckenhirn, R. J.
**Templin, R. L.** Al, 5711*h*.
**Ten Bokkel Huinink, H.** See Huinink, H. ten B.
**Ten Broeck, W. T. L., Jr.** Vinyl chloride-alkyl ester of unsatd. dicarboxylic acid copolymer sponge compn., P 3239*f*; porous compns., P 9535*a*.
**Ten Broeke, J. A.** Bearing corrosion in turbo-generators, 548*g*.
**Ten Cate, G.** See Cate, G. ten.
**Ten Cate, J.** See Cate, J. ten.
**Tendam, D.** See Lark-Horovitz, K.
**Tendeloo, H. J. C.** S. C. J. Olivier, 6013*h*.
——, Mans, A. E., and Hoogh, C de. Titration of adsorbed acids, 5343*a*; (III), 6883*b*.
**Tendick, F. H.** See Burckhalter, J. H.; Rawlins, A. L.
**Tenenbaum, D.** See Reed, R. E.
**Tenenbaum, M.** Desulfurization in the basic open-hearth furnace, 7390*a*
**Teng, Y. S.** See Meng, H. M.
**Tenger, F. L.** See Lüdy-Tenger, F.
**Ten Have, J.** See Have, J. ten.
**Ten Have, P.** See Bolland, J. L.
**Tennant, F. M.** See Schwegler, C. C
**Tennent, D. M., and Leland, M. L.** Detn. of 4-aminosalicyclic acid in blood and in urine, 5070*e*.
**Tenner, D. D.** Use of flotation for concg. limestone, 1938*f*.
**Tennessee Copper Co.** Cu fungicides, P 1901*g*, 3558*e*, 5151*g*.
**Tennessee Eastman Corp.** Regenerative furnace with carborundum bricks as regenerative mass, P 7357*d*; multistage conversion of hydrocarbons, P 7670*h*; $C_2H_2$ black, P 9422*a*
**Tennessee Valley Authority.** Alumina, P 1926*e*; Si, P 5358*g*; defluorinating phosphate rock, P 7652*i*; purification of red P, P 8110*e*.
**Tennevin, J.** See Guinier, A.
**Tenney, R. I.** See Wilcox, F. A.
**Tennøe, A.** Permanence of stabilized and unstabilized tinctura iodi at different temps., 356*i*.
**Tennyson, T. A., Jr.,** *et al.* Stream pollution from sludges and wastes on railway property, 3547*g*.
**Tenow, M.** See Snellman, O
**Tenow, O.** See Benedicks, C
**Tentoni, F.** See Prina, C.
**Tentori, L.** Spleen and metabolism, 2684*h*; N metabolism during the reconstruction period after fasting in normal and splenectomized rats, 2684*i*; see Bettini, S.; Mariani, A.
—— and Vivaldi, G. Pteroylglutamic acid and its conjugated compds., 1780*h*.
**Tentschert, H.** See Kölbel, Herbert
**Teodorovich, I. L.** See Talipov, Sh. T.
**Teorell, T.** Membrane electrophoresis in relation to bioelec. polarization effects, 4923*i*; permeability, 5839*a*.
**Teot, A. S.** See Griess, G. A.
**Teplitz, I.** Shrinkage-control must be based on fiber characteristics, 3623*b*; dyehouse problems, 5952*i*; continuous bleaching of cotton jersey in dye becks, 7693*e*; factors in dyehouse operation, 8685*c*, dyeing the new textile fibers, 9454*g*.
**Teply, L. J.** See Allfrey, V.; Krehl, W. A.; Prusoff, W. H.
**Tepper, E. Z.** Microörganisms in the aerobic decompn. of oat straw and the formation of humuslike substances, 8002*e*.
**Tepperman, H. M.** See Tepperman, J.
**Tepperman, J., and Bogardus, J. S.** Attempts at pharmacologic blockade of the secretion of adrenocorticotropin, 8055*a*.
—— and Tepperman, H. M. Effect of gonadotropins on cholesterol content of testes of immature rats, 7566*b*.
——, Tepperman, H. M., Patton, B. W., and Nims, L. F. Effects of low barometric pressure on the chem. compn. of the adrenal glands and blood of rats, 8032*i*.
**Terada, K., Murai, K., and Shirakawa, H.** Dehydration of $MgCl_2$, 7852*h*.
**Terayama, H.** See Soda, T.
**Terekhova, L. N.** See Nazarov, I. N.
**Terem, H. N., and Akalan, S.** Thermal decompn. of Na and K phosphates and microcosmic salt, 6534*i*; thermal dissocn. of $H_3PO_4$ and the $NH_4$ phosphates, 7307*g*.
**Terenin, A. N.** Splitting of mols. under the action of light, 7809*i*; see Karyakin, A. V.; Putselko, E. K.; Yaroslavskii, N. G.
**Terent'ev, A. P., and Kazitsyna, L. A.** Sulfonation and the sulfonic acids of acidophobic compds. (I) sulfonation of furan, 214*e*; (II) sulfonation of furan homologs, 7015*d*.
—— and Shor, N. I. Detn. of active H by Grignard reagents in an atm. of $CO_2$ (VI), 8964*d*.
—— and Yanovskaya, L. A. Prepn. of di-Et diacetylsuccinate, 1324*e*; sulfonation and the sulfonic acids of acidophobic compds. (III) sulfonation of pyrrole and its homologs, 7015*i*.
**Terent'eva, E. A.** See Ryabchikov, D. I.
**Terent'eva, E. M.** See Kazanskii, B. A.
**Terent'eva, I. V.** See Tsukervanik, I. P.
**Terentjev, A. P.** See Terent'ev, A. P.
**Terentjewa.** See Terent'eva.
**Terentyev, A. P.** See Terent'ev, A. P.
**Teresa, J. de P.** See Pascual Teresa, J. de.
**Teresi, J. D., and Luck, J. M.** Combination of org. anions with serum albumin (VI) quant. studies by equil. dialysis, 2250*d*.
**Ter Haar, D.** Origin of the chem. elements, 2049*f*, verification of the statistics of $He^3$, 5246*h*; can we account for the observed abundances of the chem elements? 8761*d*; see Strick, E.
—— and Wergeland, H. Viscosity of mixts of $He^3$ and $He^4$, 4062*b*.
**Terhal, H. J. J.** Algemene dierkunde (book), 5112*d*.
**TerHorst, W. P.** See Opper, A. V. L
**Ter Meulen, J.** See Meulen, J. ter
**Ternan, W.** See Hoge, A. W.
**Terner, C.** See Davies, R. E.
**Terni, M.** Action of caffeic acid, 4327*h*, see Davoli, R.; Passerini, M
**Terol Alonso, S.** See Rius, A
**Terp, P.** Alkaloid content of smoke from stramonium powders, 3119*i*.
**Ter-Pogossian, M.** See Robinson, J. E.
——, Robinson, J. E., and Cook, C. S. Disintegration of $Se^{79}$, 4120*c*.
——, Robinson, J. E., and Townsend, J. Pressure-regulated thin window Geiger Müller counter, 5663*h*
**Terrell, N. J., Jr.** Pair production spectrometer for γ-rays, 4093*f*.
**Terres, E.** Selective solvent extns. of mineral oils, 7673*c*.
**Terrier.** See Jourdan.
**Terrier, J. C.** See Wakim, K. G
**Terrill, R. L.** See Schroeder, H. M.
**Terrill, S. E.** Detn. of high *ns*, 4187*g*.
**Terrisse, H.** Bis(thionocarbethoxy)tetrasulfide, P 7040*a*.
**Terroine, T.** Control of amino acid metabolism by vitamins of group $B_2$, 3500*h*; feed value of nonprotein N (urea, amide, $NH_3$), 4737*i*; formation of nicotinic acid in germination—role of tryptophan, 5092*e*; see Cailleau, R.; Creveaux-Bourgeat, J.; Jacquot, R.
——, Creveaux-Bourgeat, J., Adrian, J., and Jacquot, R. Tryptophan intake and the niacin content of tissue—niacin intake and the storage of tryptophan, 1093*f*.
**Terruzzi, M.** See Justoni, R.
**Terry, B. F.** Forming printing plates, P 3302*c*.
**Terry, D. E., and Wheeler, D. H.** Epoxy derivs. of unsatd. fat acids and related compds., P 3030*d*.
**Terry, M. L.** See Gardner, L. I.
**Terry, R. A.** See Ferguson, W. S.
**Terry, S. L.** Plant needs det. chlorination practice, 4794*b*.
**Terskikh, V. I.** Hemolytic test for investigation of animal and plant fats, 1119*g*.
**Tertian, R.** See Beauvalet, G.
**Tertsch, H.** High-temp. optics of plagioclase, 3749*a*; theoretical verification of plagioclase optics, 3749*b*; Schlüssel zum Aufbau der Materie (book), 5659*a*; Geheimnis der Kristallwelt (book), 6072*e*; Festigkeitserscheinungen der Kristalle (book), 6904*g*.
**Terui, G.** Lactic acid fermentation, P 9362*b*.
**Terzaghi, R. D.** Concrete deterioration due to carbonic acid, 8636*i*.
**Terzian, L. A., Stahler, N., and Weathersby, A. B.** Action of antimalarial drugs in mosquitoes infected with *Plasmodium gallinaceum*, 9253*k*.
**Tesch, E. T. A.** Reduction of metal oxides, particularly Fe ores, P 5727*f*.
**Tesch, T. A., Aktiebolag.** Reduction of metal oxides, particularly Fe ores, P 5727*f*.

**Tesche, O. A.** Scale formed on Fe between 400° and 700°, 8326*f*.
**Teske-Guttmann, R.** See Rabe, P.
**Tesluk, H.** See Tishkoff, G. H.
**Tess, R. W.** See Bradley, T. F.
**Testa, E.** See Karrer, P.
**Testoni, F.** Action of 2-imidazolenylmethylbenzhydryl ether in acute adrenaline pulmonary edema, 6729*c*.
**Teter, J. W.** Dehydrogenating satd. nitriles to unsatd. nitriles, P 2220*e*; nitriles, P 7498*c*.
——— and Merwin, W. J. Dehydration of satd. nitriles, P 2630*d*.
——— and Stookey, R. H. $NH_3$ recovery, P 5160*h*.
**Teterkin, E. N.** Clarifying industrial water, 336*h*.
——— and Klyachko, V. A. Water-softening installation, P 6345*b*.
**Tetlow, K. S.** See Price, W. C.
**Tetrault, P. A.** See Garson, W.; Murray, F. J.
**Tettweiler, R.** Heat of coking in high-temp. carbonization in intermittently operated gasworks ovens, 4834*b*.
**Tetu, D. A.** See Rogers, R. R.
**Tetzner, H.** Luminescence of artificially prepd. Si carbide, 5311*d*.
**Teuber, H. J.** Respiration and metabolism effect of quinoid brucine derivs., 3523*f*.
**Teucher, M.** See Houtermans, F. G.
**Teuchmann, J.** Action of diallylbarbituric acid and of scopolamine on the spinal reflexes of the decapitated, the decerebrated, and the decorticated cat, 7131*b*.
**Teunissen, P. H.** Distribution of chain lengths of the cellulose and viscose filtration, 2427*a*; detn. of pentosans in cellulose, 6824*f*.
**Teunisson, D. J.** See Hall, H. H.
**Teves, J. S.** See Irving, E. M.
——— and Gonzales, M. L. Investigation of rock phosphate and other mineral possibilities of Bohol, 7874*f*.
**Tewari, C. N.**, Das Gupta, S. C., and Bera, B. C. Estn. of 2,4-dinitro-1-naphthol and Martius Yellow in woolen fabrics, 5956*a*.
**Tewes, K.** Stahl und Eisen beim Schweissen (book), 8343*g*.
**Tewin Industries, Inc.** Treatment of aq. liquids, P 5890*f*; proofing proteinaceous fibers against biol. attack, P 9475*g*
**Tewksbury, C. I.**, and Haendler, H. M. Metal fluorides as fluorinating agents, 8364*g*.
**Tewksbury, L. B., Jr.** Vulcanization accelerators, P 8195*h*; see Paul, P. T.
——— and Howland, L. H. Reclaiming aid, P 5992*f*.
**Texaco Development Corp.** Fractional sepn of fatty oil substances, P 884*f*, 2,3-dimethylbutane, P 1049*d*, manuf. of high antiknock synthesis gasoline, P 3994*b*; alkylation of hydrocarbons, P 4004*h*; recovery of liquefiable hydrocarbons from fluids flowed from high-pressure distillate or condensate wells, P 8662*h*.
**Texas Co.** (*Patents.*) Alkylation, 1559*b*, 3189*d*, alkylation of isobutane with $C_3H_4$, 2422*h*; Ba-soap greases, 391*f*; catalyst activity in synthesis of hydrocarbons, 4448*f*; catalytic conversion of hydrocarbons from CO and H, 4447*h*; conversion of synthetic hydrocarbons contg. oxygenated compds. to hydrocarbons of high octane value, 2421*g*, electrolytic regeneration of $AlCl_3$ catalyst, 3733*e*; fat acid sepn., 2793*i*; hydrocarbon alkylation, 7223*a*; hydrogenation of CO in the presence of desiccants, 1171*c*; isomerization and alkylation, 5583*h*; liquid level measurement and control, 2049*a*; Li-base grease, 391*i*, 392*c*; lubricating oils, 845*a*, 1176*h*; motor fuel, 3174*g*; noncorrosive Friedel-Crafts type catalysts, 5582*i*; oxidation inhibitors, 6406*e*; rotary drum filter, 6*e*; rust- and oxidation-inhibited lubricating oils, 1177*b*; rust-preventive compn., 1180*b*; safety fuel, 5174*c*; shear-resistant grease, 392*i*; synthetic fuel, 5180*i*; water gas, 3176*f*.
**Texera, D. A.** See Alberto Texera, D.
**Texin, H.**, Williams, H., and Ward, R. Effect of activator concn. on the infrared-sensitive phosphor, Sr selenide-S Eu, 8277*f*.
**"Texis" Soc. anon. Textile.** Artificial material [filament or film], P 3207*c*; sizing textiles with cuprammonium - cellulose solns., P 3208*c*.
**Texter, C. R.** See Partridge, E. P.
**Textillabor Kft.** Improvement of textile materials, P 1989*e*.
**Textron, Inc.** Recovery of spent dye liquors, P 8174*f*
**Teysseire, Y.** See Roux, H.
**Teysseyre, J.** See Desclaux, P.
**Texenas du Montcel, F.** See Montcel, F. T. du
**Thacker, C. M.** Alkylation of hydrocarbons, P 5181*g*; dehydrogenation of hydrocarbons, P 6404*c*; activated $Al_2O_3$-BeO catalyst, P 9299*f*
**Thacker, E. J.** See Somers, G. F.
——— and Ellis, G. H. Liver damage and growth in the rabbit, 1090*f*.
**Thackeray, A. D.** Spectrum of ρ Cassiopeiae 1946–1947, 1262*g*; see Tai, W. S.
**Thackeray, E. R.** Absorption spectrum of at. Na, 6510*d*.
**Thain, E. M.** See Cosgrove, D. J.
**Thakor, V. M.**, and Shah, R. C. Addn. products of anils with metallic chlorides, 4227*h*.
**Thakur, B.** See Green, S. J.
**Thakurta, S. R. G.** See Pal, J. C.
**Thale, T.** See Salomon, K.
**Thaler, L.** Road octane no. of motor fuels and the octane-no. requirements of French cars, 8655*d*, see Picard, F.
——— and Picard, F. National Research Station "Claude Bonnier," 8123*a*
**Thannhauser, S. J.** See MacMahon, H. E., Schmidt, Gerhard
**Thatcher, J. S.** See Scheff, G. J.
———, Houghton, B. C., and Ziegler, C. H. Effect of adrenalectomy and adrenal cortical hormone on formation of antibodies, 8043*i*
**Thau, A.** Coal distn. under pressure, 5570*e*.
**Thayer, C. D.** See Murray, G. W.
**Thayer, M. E.** Rendering materials water repellent, P 6759*d*
**Thayer, R. H.** See Heller, V. G.
——— and Heller, V. G. Maintaining the carotene in poultry feeds, 3538*h*
**Thayer, R. M.** Transferring measured quantities of liquefied gas, P 1229*b*.
**Thayer, S. A.** See Doisy, E. A.
**Thaysen, E. H.** Differentiation of β-staphylolysin in two antigenically different components, 751*d*
**Theer, L.** Pharmakologische Methoden (book), 6745*h*
**Theilacker, W.** Effective radii of bonded atoms, 3252*b*
———, Gerstenkorn, L., and Gruner, F. Beckmann rearrangement of oxime-O ethers, 7465*a*
——— and Mohl, H. Stereochemistry of haloimines (II) Beckmann rearrangement of ketone chloroimines, 7461*e*
**Theiler, C. R.** Toothpaste without mineral ingredients, P 9392*a*
**Theilheimer, W.** Synthetische Methoden der organischen Chemie. Rept. 3 (book), 7949*i*
**Theil Nielsen, A.** Detn. of dehydroandrosterone in pure solns., 2265*c*; colorimetric assay of testosterone, 3874*c*
**Theimer, O.** Influence of cations on the intensities of Raman spectra of powd. salts, 4956*i*; Raman-spectral analysis, 8297*g*.
**Theis, C. V.** See Stuart, W. T.
**Theis, E. R.** See Serfass, E. J., Stubbings, R. L.
——— and Serfass, E. J. Protein axial movement (I) design of instruments, 9505*f*.
**Theis, K.**, and Horn, W. Use of humic acids in medicine, 362*f*.
**Theissen, K.** Use qualities of staple rayon, 4469*f*; curling behavior of different staple rayons in the manuf. of yarn in the cotton spinning mill, 5101*i*; waste products of the viscose industry and their utilization, 6408*g*.
**Thelan, H.** See Smith, O. M.
**Thellung, A.** See Villars, F.
**Theobald, C. W.** See Frank, C. E.
**Théobald, N.** Fe ores in the various phases of the Aalenian and Bajocian in the middle Rhine Valley, 8318*b*.
**Theodorowitch, I. L.** See Teodorovich, I. L.
**Theokas, D. A.** See Krukovsky, V. N.
**Theorell, H.** Hematin-contg. enzymes, 7060*a*
**Ther, L.** Scientific bases of new remedies (I) ergot prepns., 1155*d*, variable action of drugs (I) reversal of actions of Ba and papaverine on smooth-muscle organs, 5863*i*; Pharmakologische Methoden (book), 7592*i*; see Riesser, O.
——— and Lüdde, E. D. Action of hydroquinone and its oxidation products on isolated rabbit intestine, 5863*d*.
**Therapeutic Research Corp. of Great Britain Ltd.** Penicillin, P 1533*c*, 7649*a*; naphthyridones, P 6242*c*.
———, Birkinshaw, J. H., and Michael, S. E. Therapeutic material, P 7646*i*.
———, Heilbron, I. M., and Cook, A. H. Alkyl and arylcysteine, P 692*f*.
———, Heilbron, I. M., Cook, A. H., and Catch, J. R. β,β-Dimethylcysteine derivs., P 4688*c*.
——— and Petrow, V. Decarboxylation of 1,3 - dialkylpyridofluorenone - 4 - carboxylic acids, P 5809*a*.
**Thérien, M.** See Dugal, L. P.
**Theriot, H.** Using anhyd. $NH_3$ on sugar cane, 9501*g*
**Therman-Soumalainen, E.** Heterochromatin and nucleic acid, 259*c*.
**Thermit Corp.** Coated weld rod, P 2924*c*.
**Theron, J. J.** Lysimeter expts., 6771*g*; see Odendaal, W. A.
**Théry, R.** Detn. of Ca in Al and its alloys, 8949*h*, see Bertiaux, L.
**Theuerer, H. C.** Si material, P 5556*g*; see Scaff, J. H.
**Thewlis, B. H.** See Hammic, D. L.
**Thews, E. R.** Attack of Fe Zn alloy in hot-dip galvanizing, (II) effect of dipping time, temp., and amt. of Fe-Zn formed, 95*g*, (III) effect of construction and firing of Zn pots of Fe-Zn alloy formation, 3336*a*, metallurgical treatment of chips and borings (I) sources of material, drying, de oiling, iron removal, and briquetting, (II) briquetting, baling sepn., and crucible melting, 530*g*; melting and refining fluxes—properties, purposes, and effects of modern reducing agents, 1696*f*, Metallurgische Verarbeitung von Altmetallen und Rückständen. Bd. I. Altweissmetalle (book), 5357*a*; removal of Bi from Cu by melting, 6551*d*, reclaiming of storage-battery residues, 7387*i*; electropolishing of stainless steels and German Ag, 8902*h*, Mo, W, and Cr plating of Cu, Fe, and steel alloys by thermal decompn., 8903*h*, see Salmony, A.
**Thibault, C.** See Soularue, A.
**Thibault, N. W.** α SiC, type 51R, 8785*c*
**Thibault, O.** Action of thyroxine on the inhibiting effect of adrenaline on isolated rabbit intestine, 2318*a*, 5115*g*; hormonal factors of chem. thermoregulation of homeotherms, 8507*f*, see Minz, B.
**Thibon, H.** Alumina hydrate pptd. from solns. of Na aluminate, 55*e*; see Calvet, É.
**Thiebaut, J.** Contacts of metamorphosed limestone and pegmatites in the Fort National region, Grand Kabylie (Algeria), 6129*e*.
**Thiébaut, R.** Textiles (book), 8689*d*.
**Thiegs, B. J.** See Dieter, C. E.
**Thiel, F. D.** See Ford, W. W.
**Thiele, H.** Directed coagulation of anisotropic colloids, 922*c*; directional effect of ions on anisotropic colloids, ionotropy, 4539*e*; viscosity and formation of graphitic acid, 4530*f*, biol. decompn. of graphitic acid, 6283*f*, double refraction of soap sols, 8793*g*; see Brintzinger, H.
**Thiele, M.**, and Sisley, J. P. Lecithin from colza oil in the leather industry, 5220*g*.
**Thielsch, H.** Bulge testing of sheet metal, 6553*d*.
**Thiem, H.** Differential effect of DDT, gammexane, and E605 (obituary of H. H. Velbinger), 6776*i*; controlling wireworms and *Agrotis* on crop plants, 8599*a*.
**Thiemann, H. A.** New insecticides and rodenticides and their health aspects, 9353*a*.
**Thieme, R. I.** See Coster, N. W.
**Thien-Chi, N.** See Nguyen-Thien-Chi.
**Thienes, C. H.** See Nakamura, Kazuko, Webb, J. L.
——— and Haley, T. J. Clinical Toxicology (book), 8559*g*.
**Thiersch, J. B.** See Philips, F. S.
——— and Philips, F. S. Effects of 4-aminopteroylglutamic acid in dogs with special reference to megaloblastosis, 8057*e*.
**Thiéry, J. P.** See Ramon, G.
**Thiesse, K.** See Fournier, M.
**Thiessen, P. A.** Characteristics of various effects at ultramicroscopic boundaries, 6489*e*.
**Thiessen, R., Jr.** See McInroy, E. E.
**Thieulin, G.**, and Vuillaume, R. Éléments pratiques d'analyse et d'inspection du lait (book), 7259*e*.

**Thijm, G. A. M. A.** Synthetic resins from furan derivs., P 1605*c*.
**Thill, J.**, and Delporte, G. Artificial stone-like product imitating marble, P 1167*a*.
**Thilo, E.** Anorganische Chemie in Frage und Antwort (book), 7306*f*.
—— and Rätz, R. Condensed phosphates and arsenates (I) constitution of Na trimetaphosphate $Na_3[P_3O_9]$, 6103*b*.
**Thimann, K. V.** Plant growth hormones, 4710*f*, 8451*i*; see Christiansen, G. S.; Gunckel, J. E.; Leopold, A. C.; Pincus, G.
—— and Bonner, W. D., Jr. Growth and inhibition of isolated plant parts (II) action of several enzyme inhibitors on the growth of the *Avena coleoptile* and on *Pisum internodes*, 5094*c*; inhibition of plant growth by protoanemonin and coumarin, and its prevention by BAL, 8462*g*
—— and Edmondson, Y. H. Biogenesis of the anthocyanins (I) general nutritional conditions leading to anthocyanin formation, 7550*e*.
**Thinius, K.** Plasticizers for linear polycondensates, 1211*i*; use of linear polycondensates as synthetic raw materials, 1211*i*, working up high polymer substances in activated nonsolvents in the absence of volatile true solvents, 1603*d*, linear polycondensation products, their prepn., properties, and coating application, 5996*e*; adhesiveness between layers of different polymers, 5996*f*, use of water in organosols of certain hydrophobic eucolloids, 6041*d*; linear polymers, 6161*b*.
**Thiokol Corp.** Animal-feed compn., P 1881*a*, polysulfide polymers, P 4516*a*, 5036*h*, polysulfide polymer coating mpn P 6001*f*, polyacetal polysulfide polymers, P 6001*e*.
**Thiollet, R.** Rubber reinforcing agents other than gas black, 1209*b*
**Thirion, P.** Surface-active substances in the latex industry, 4881*g*; see Colin, G.; Schallamach A
**Thirring, H.** Possible spread of radioactive infection by the fission products of $U^{235}$, 4951*d*
**Thirsk, J. H.** See Sprunance, F. P., Jr
**Thiruvengadam, T. R.** See Row, L. R.
**Thistle, M. W.** See Pearce, J. A
**Thjøtta, T.**, and Jonsen, J. Influence of complement on agglutination, 5108*i*, *Brucellae* (III) investigations and discussion of methods, 9154*i*
**Thoai, Nguyen-Van.** See Nguyen Van Thoai
**Thode, H. G.** Variations in abundances of isotopes in nature, 4553*g*, see Lindsay, J. G., Macnamara, J.
——, Macnamara, J., and Collins, C. B. Natural variations in the isotopic content of S and their significance, 6508*i*
——, Macnamara, J., Lossing, F. P., and Collins, C. B. Natural variations in the isotopic content of B and its chem. at. wt., 1291*b*.
**Thodos, G.** Pelleting C black, P 2409*b*; see Hobson, M.
—— and Weinaug, C. F. Foam prevention in extractive distn. of hydrocarbons with furfural solvent, P 914*b*
**Thöne, H.** See Kestermann, E
**Thoenen, J. R.** See Pallister, H. D.
**Thoenes, D.**, and Joustra, H. W. Detn. of humus in sand, 9318*f*.
**Thörn, N.** See Bondeson, W.
—— and Ågren, A. Quant. detn. of pseudomorphine in morphine, 3973*e*.
**Tholander, E.** Cycle annealing in quality-steel production, 983*i*.
**Thoma, G. E.**, and Kitzberger, D. M. Detn. of urinary bilirubin, 711*b*
**Thoma, P. J.** Moisture content of paper and its effect on printing, 1186*g*.
**Thoma, R. W.** See Shull, G. M.
**Thoman, R.**, and Gilman, H. H. Rubber-rayon adhesion, 9514*c*.
**Thomas, Albert.** Synthesis of HCN from mixts. of $NH_3$, air, and $CH_4$, 9391*g*.
—— and Furnal, J. Technique of mud fluids in the Autonomous Petroleum Bureau from 1944 to 1949, 8652*f*.
**Thomas, André.** See Vila, A.
**Thomas, Bert.** Prepn. of solns. contg. Mersolat for spray drying, 5211*e*.
**Thomas, Bioletta.** See Deuel, H. J., Jr.
**Thomas, Brynmor, and Thompson, A.** Ash content of some grasses and herbs on the Palace Leas hay plots at Cockle Park, 4347*i*.
—— and Trinder, N. Ash components of some moorland plants, 281*e*.
—— and Walker, H. F. Inactivation of thiamine by bracken, 4737*f*.
**Thomas, B. H.** See Schulz, J. A.; Yoder, L.
**Thomas, B. L.** See Muir, N. M.; Webber, B. S.
**Thomas, B. W.**, and Seyfried, W. D. Mass spectrometer analyses of oxygenated compds., 8974*d*.
**Thomas, C. A.** Wilt-inducing polysaccharide from *Fusarium solani*, 7090*i*.
**Thomas, C. D.** Pulse shape of self-quenching counters, 4094*g*.
**Thomas, C. E.**, Felter, J. S., and Ness, H. J. Metallurgical furnace of the pit or vertical type, P 2152*h*
**Thomas, C. L.** Catalytic cracking of hydrocarbons, P 386*i*; silica hydrogel catalysts, P 3604*a*; core oil, P 5728*b*
—— and Huensel, V. Alkylation of aromatics, P 680*a*.
**Thomas, C. O.** See Koski, W. S
**Thomas, D. B.** See Griffith, F. R., Jr.
**Thomas, D. C.** Metaldehyde against slugs, 9339*h*.
**Thomas, D. E.** Precision measurement of crystal lattice parameters, 4535*f*
**Thomas, D. W.**, and Niemann, C. Prepn. of L-leucine and its behavior in some nonaq solvents, 3360*f*
**Thomas, E. A.** Investigations of the Limmat from Zürich to Wettingen, 1943–44, 2715*f*.
**Thomas, E. B.** See Oxley, H. F
**Thomas, E. E.** Modern supercalender, 9445*a*.
**Thomas, E. H.** See Hornby, F. P
**Thomas, E. W.** Syphilis (book), 9239*a*
**Thomas, F. J. D.** Insecticides gammexane and DDT, 4805*b*
—— and Imperial Chemical Industries Ltd. Insecticidal compns., P 2732*d*
**Thomas, F. W.** See Kittrell, F. W.
**Thomas, Georges.** See Colonge, J.; Hackspill, L., Marev, R
**Thomas, Georgette.** See Meunier, Paul.
**Thomas, G. D.** See Bremner, J. G. M.
**Thomas, G. W.** See Wingo, C. W.
**Thomas, H.** See Williams, G
**Thomas, H. A.** Dyeing rayon packages, 6828*f*, package and piece goods dyeing with pigment colors, 7689*e*
**Thomas, H. A., Jr.** Pollution load capacity of streams, 336*i*
**Thomas, Harold A.** See Hipple, J. A.
——, Driscoll, R. L., and Hipple, J. A. Measurement of the proton moment in abs. units, 4107*d*; detn. of $e/m$ from recent expts. in nuclear resonance, 4107*f*
—— and Huntoon, R. D. Amplitude bridge for detection of nuclear resonance, 8851*h*
——, Sommer, H., and Wall, R. Mass spectrometer type leak detector utilizing a cold cathode ion source, 8216*f*
**Thomas, H. C.** See Kolp, D. G.
—— and Underwood, N. Counter for low-energy ionizing particles, 935*h*
**Thomas, H. E.**, and Nelson, W. B. Ground water in the east shore area, Utah (I) Bountiful district, Davis County, 3951*b*
**Thomas, H. M.** Thyroid gland in health and disease, 3092*e*.
**Thomas, H. W. G.** See Graesser-Thomas, H. W.
**Thomas, I.** See Haven, F. L.
**Thomas, Jacques.** See La Barre, J.
**Thomas, Joan.** See Hodge, H. C.
**Thomas, J. E.**, and Friedman, M. H. F. Digestive system, 5838*g*
**Thomas, J. E. L.**, and Traill, D. Viscous aq. solns. of proteins, P 4021*g*.
**Thomas, J. F.** See Harris, R. J. C.
**Thomas, J. G. N.** See Heal, H. G.
**Thomas, J. H.** See McDowell, C. A.
**Thomas, J. R.**, and Gwinn, W. D. Rotational configuration and dipole moments of 1,1,2-trichloroethane and 1,1,2,2-tetrachloroethane, 8770*h*.
**Thomas, J. W.** See Sykes, J. F.
——, Moore, L. A., and Sykes, J. F. Effects of feeding thyroprotein to dairy cows during their first lactation, 5463*a*.
**Thomas, K.** Franz Knoop, 4908*i*; see Weitzel, G.
—— and Weitzel, G. Isolation of succinic acid from urine, 5069*f*; succinic acid in the urine after eating synthetic fat, 5097*c*.
——, Weitzel, G., and Neumann, P. Metabolism studies with higher monoalkyl succinic acids, 5469*c*.
**Thomas, L.** See Peck, J. L.
—— and Stetson, C. A., Jr. Inhibition of the Shwartzman phenomenon by local application of bromobenzene and other solvents, 2320*h*; Shwartzman phenomenon, 5858*h*.
**Thomas, L. A.** Ferroelec ceramics—structure and properties of Ba titanate, 9402*f*.
**Thomas, L. F.** See Amphlett, C. B.
**Thomas, Leo H.** Viscosity and mol. assocn (I), (II) relation between viscosity and vapor pressure of assocd. liquids, 2059*e*.
**Thomas, Llewellyn H.** See Cape, A. T.
**Thomas, M.** See Butlin, K. R.
**Thomas, M. D.** Autometer for detg. the total of volatile S compds. in the air, P 3249*g*.
**Thomas, M. H.**, Brenner, S., Eaton, A., and Craig, V. Effect of electronic cooking on nutritive value of foods, 4779*d*.
**Thomas, M. J.** Refining of inositol solns., P 7041*c*.
**Thomas, M. L.** See Mosier, M
**Thomas, N.** See Burgoyne, J. H.
**Thomas, O. O.** See Ross, O. B.
**Thomas, R.** Org. materials in the West, 875*f*
**Thomas, R. B.** See Bowman, F. T
**Thomas, R. D., Jr.** Constitution diagram applicable to stainless weld metal, 9017*f*; see Rozet, D
—— and Comstock, G. F. Welding flux, P 4212*c*.
**Thomas, R. G.**, Fowler, W. A., and Lauritsen, C. C. Be-proton reactions and scattering, 4093*c*.
——, Rubin, S., Fowler, W. A., and Lauritsen, C. C. Be-proton reactions and scattering, 5294*b*.
**Thomas, R. M.** See Sparks, W. J.
—— and Reynolds, H. C. Synthetic rubbery copolymers of normal olefins with diolefins, P 8195*a*.
——, Young, D. W., and Calfee, J. D. Delayed-action polymerization, P 5230*c*.
**Thomas, R. N.** Emission lines at high kinetic temps., 5662*d*, superthermic phenomena in stellar atms. (III) chromospheric radiation field, (IV) Wolf-Rayet atm., (V) emission lines at high kinetic temp., 8876*i*
**Thomas, R. W.** Corrosion resistant alloy, P 9021*d*
**Thomas, T. B.**, Pomerat, C. M., and Frieden, E. H. Cellular reactions in *Haemobartonella* infected rats with anemia produced by antiblood immune serum, 9221*h*.
**Thomas, T. S. E.** Distortion in manometer and oscillograph records, 447*g*.
**Thomas, W.**, Mack, W. B., and Fagan, F. N. Foliar diagnosis—mineral nutrition of peach trees—bacterial leaf spot, 9173*b*.
——, Mack, W. B., Smith, C. B., and Fagan, F. N. Zn content of young apple trees, 9321*b*.
**Thomas, W. D. E.**, and Nicholas, D. J. D. Radioactive P in biochem. research, 6270*b*.
**Thomas, W. E.** See Loosli, J. K.
**Thomas, W. J.**, and Fowler, W. A. Tech. problems influencing production economy in the rolling of Al, 9003*h*.
**Thomas, W. L.** See Clark, E. W.
**Thomason, P. F.** See Davenport, W. H., Jr.
**Thomé, J. S.** See Schmidt Thomé, J.
**Thomé, K. E.** Formol titration and its applicability to the adjustment of the fat content of cheese milk, 3533*a*; maturation process in hard rennet cheese, 4394*d*.
——, Bergman, T., and Hoff, S. Low-temp. storage expts. with cheese, 1875*d*.
**Thommen, E. W.** Dyeing wool with chromatable dyes in the presence of Cr salts, 2776*i*.
**Thommen, W.** See Babey, C.
**Thommeret, J.** Detn. of the U content of minerals by radioactivity measurements, 8269*h*.
**Thompkins, R. W.** CO hazard, 8527*c*.
**Thompson, A.** See Thomas, Brynmor; Wolfrom, M. L.
**Thompson, A. H.** See Butjer, L. P.
**Thompson, A. M.** Falling-sphere viscometer for use with opaque liquids, 4522*d*.
**Thompson, C. B.** Purification of arginase, 4719*d*.
**Thompson, C. H.** Case of corrosion involving cinders, 4621*e*.
**Thompson, C. J.** See Brody, S.
**Thompson, C. R.** Carotene content of alfalfa, 8574*e*; see Warren, M. R.
—— and Werner, H. W. Toxicity studies on decapryn succinate, 2315*h*.

**Thompson, D.** See Madorsky, S. L.
**Thompson, D. H.**, and Tracy, A. W. Influence of compn. on the stress-corrosion cracking of some Cu-base alloys, 2562*a*.
**Thompson, E. C.** See Spicer, S. S.
**Thompson, E. T.** See Pickford, G. E.
**Thompson, F. C.** See Jepson, M. D.
**Thompson, F. L.** See Cohen, P. P.
**Thompson, G. P.** Zoology Laboratory Studies (book), 778*a*.
**Thompson, H.** Defects in steel, 3760*c*.
**Thompson, H. C.** See Randhawa, G. S.
**Thompson, H. E.** See Medler, J. T.
**Thompson, Harry H.** See Johnson, T. A.
**Thompson, Helen H.** See Woodroof, J. G.
**Thompson, H. L.**, Miller, P., Dole, F. H., and Kaplan, A. Properties of $(NH_4)$-$HPO_4$ fertilizer, 3958*i*.
**Thompson, H. T.** See Register, U. D.
**Thompson, Henry T.** Vinyl ethers and polymers, P 9080*a*.
——— and General Aniline & Film Corp. Vinyl methoxymethoxyethyl ether, P 1051*g*.
**Thompson, H. W.** See Armstrong, G. P.; Barer, R.; Bell, R. P.; Drayton, L. G.; Hartwell, E. J.; Mann, J.; Richards, R. E.; Whiffen, D. H.
———, Brattain, R. R., Randall, H. M., and Rasmussen, R. S. Infrared spectroscopic studies of penicillin, 8891*f*.
——— and Temple, R. B. Vibrational spectra and thermodynamic properties of chlorofluoromethanes, 1650*e*; infrared spectra of fluorinated hydrocarbons (II) methyl fluoroform, (III), 1656*g*.
——— and Whiffen, D. H. Infrared examn. of some terpenoid substances, 1657*a*.
**Thompson, J.**, and McGarvey, F. X. Backwashing of ion exchangers, 5139*g*.
**Thompson, J. B.** See Stevens, H. H.
**Thompson, J. F.** Al, P 5357*d*
**Thompson, J. G.** Hemolysis in fresh blood films, 296*f*.
**Thompson, J. H., Jr.**, and Dodd, M. C. HCHO-resistant *Corynebacterium diphtheriae*, 9155*e*.
**Thompson, J. K.** See Schechter, W. H.
**Thompson, J. L.** See Levin, R. H.
**Thompson, J. R.** Steel wool, P 104*i*.
**Thompson, J. V.** Treatment of arsenical Au ores, P 7891*b*.
**Thompson, L. G., Jr.**, and Smith, F. B. Org. matter in Florida soils, 9314*g*.
**Thompson, L. M.**, and Black, C. A. Effect of temp. on the mineralization of soil org., P 2351*d*.
**Thompson, L. V. R.** Introduction to Microorganisms (book), 5820*d*.
**Thompson, Marvin R.** Sulfa drug mixts., P 4430*a*.
**Thompson, Maurice R.** See Gabbard, J. L.
**Thompson, N. J.** Fire tests on rubber tire storage, 6454*f*.
——— and Cousins, E. W. Explosion tests on glass windows—effect on glass breakage of varying the rate of pressure applications, 9402*a*.
**Thompson, P. E.**, and Lilligren, B. L. Chemotherapy of *Endamoeba histolytica* infection, 9265*g*.
**Thompson, Q. E.** See Adkins, H.
**Thompson, R.** See Addison, C. C.
**Thompson, R. B.** Intermol. condensation of arylalkanes, P 1440*b*.
——— and Chenicek, J. A. Stabilization of org. compds., P 3604*f*.
**Thompson, R. C.** See Cunningham, B. B.; Seaborg, G. T.
**Thompson, Roy C.**, and Kirby, H. Biochem. individuality (II) variations in the urinary excretion of lysine, threonine, leucine, and arginine, 8507*d*.
**Thompson, R. E.** Water-softening reagents produced from the softening sludge, 6766*b*.
**Thompson, R. F.** See Dreyfus, C.; Rowley, R. D.
**Thompson, R. H.** See Scott, F. R.
**Thompson, R. H. S.** See Stocken, L. A.
**Thompson, R. L.**, and Wilkin, M. L. Inhibition of growth of the vaccinia virus by β-2-thienylalanine and its reversal by phenylalanine, 300*c*.
**Thompson, R. M.** Telluride minerals and their occurrence in Canada, 8982*f*, goongarrite and warthaite discredited, 8983*a*, see Warren, H. V.
**Thompson, R. W.** Design of C hearth at Zenith furnace, 7389*h*.
**Thompson, S. C.** Diseases of the Nose and Throat (book), 6491*e*.
**Thompson, S. G.**, and Roberts, W. O., Diagnosis and cure of mineral deficiencies in cherries, 2353*b*.
**Thompson, Stanley G.** Half-life and disintegration energy in orbital electron capture by heavy nuclei, 8854*e*.
**Thompson, S. R.** See Liebmann, H.
**Thompson, S. Y.** See Mawson, E. H.
**Thompson, T. R.** Thio ketone intermediates for methine dyes, P 5146; filter and antihalation dyes, P 6100*a*; monoazo compds. contg. a thiazolone cyanine dye component, P 7845*f*; pyrylium salts in photographic materials, P 7849*a*.
**Thompson, W. I.**, and Tyson, C. W. Fluidized catalyst regeneration, P 9300*b*.
**Thompson, W. L.** Relation of timing post-bloom spray to certain fruit blemishes on oranges, 9353*h*; see Griffiths, J. T., Jr.; Stearns, C. R., Jr.
———, Stearns, C. R., Jr., and Griffiths, J. T., Jr. Parathion as an insecticide for Florida citrus, 9349*e*.
**Thompson Manufg. Co.** Gut casings, P 2710*b*.
**Thompson Products, Inc.** Preventing scaling, P 2155*d*
**Thoms, R. K.**, Edwards, L. D., and Christian, J. E. Detn. of residues of applied phospholipides and Na alkyl sulfates on rat skin, 2263*c*.
**Thomsen, H.**, and Knudsen, M. Detn. of the salinity of sea water by the titration method of Mohr-Knudsen, 1975*e*.
**Thomsen, J.** See Luco, J. V.
**Thomsen, P.** See Luco, J. V.
**Thomson, A.**, *et al.* Fastness of dyes on leather, 7736*c*
**Thomson, B. F.** Tissue responses to physiologically active substances, 2678*d*.
**Thomson, D.** Refining of Au, 5711*e*.
**Thomson, G. P.** Growth of crystals, 3681*f*.
**Thomson, G. W.** Nomographs for paraffin-naphthene split in the type analysis of gasoline, 5931*f*.
**Thomson, J. E.** Geology of Hearst and McFadden Townships, 8315*a*.
**Thomson, M. L.** Micro-volumetric detn. of sulfate, 1686*b*.

*gamosae* in African houses, 2728*f*
**Thomson, R. F.**, and Knight, A. H. Intermediates and coloring matters, 4788*e*.
**Thomson, R. H.** Chlorination of 1,5-dihydroxynaphthalene, 200*d*, juglone series (I) halogen derivs. and their reaction with aniline, 201*e*, (II) hydroxy and hydroxyhalogeno derivs., 9057*c*.
**Thomson, R. H. K.** Artificial protein filaments, P 2785*a*.
——— and Imperial Chemical Industries Ltd. Artificial protein filaments, P 9475*a*.
———, Swift, S. R., and Imperial Chemical Industries Ltd. Viscous protein solns. for the production of artificial filaments, P 6832*i*.
**Thon, N.**, Kelemen, D., and Yang, L. Porosity of electrodeposited metals (IV) measurement of very low porosities, 6923*g*, (V) measurement of the corrodibility of metal foils, 8327*e*.
**Thonemann, P. C.**, Moffatt, J., Roaf, D., and Sanders, J. H. Performance of a new radio-frequency ion source, 4109*e*.
**Thor, C. J. B.** See Beal, K. F.
**Thorbjörnson, B.** Saccharification of wood with formic acid, 395*e*.
**Thorell, B.** Relation of the synthesis of hemoglobin to the cellular growth during normal and certain pathol. conditions, 750*h*.
**Thorén, P.-A.** See Hedin, R.
**Thoria, L.** Viscose-rayon manuf., 1565*b*; changes in viscosity and degree of ripeness of viscose caused by addn. of reagents, 5912*e*.
**Thorkelsson, T.** Thermal activity in Iceland and geyser action, 9302*f*.
**Thorlin, J. F.** See Taber, A. P.
**Thormann, F.** See Wannow, H. A.
**Thorn, G. D.** See Jones, R. N.
**Thorn, M. B.** Detg. the ratio of the Michaelis consts. of an enzyme with respect to two substrates, 7984*i*.
**Thorn, R. J.** See Simpson, O. C.
**Thornberry, H. H.**, Braun, A. C., and Elrod, R. P. Application of the bacteriophage-lysis technique for the identification of plant pathogenic bacteria, 3068*e*.
**Thorndike, A. M.** See Safford, R. W.
**Thorne, C. B.**, and Peterson, W. H. Xanthomycins A and B, new antibiotics produced by a species of streptomyces, 1829*f*.
**Thorne, L. A.** See Butterfield, G. P.
**Thorne, M. D.**, and Russell, M. B. Dielec. properties of soil moisture and their measurement, 793*g*.
**Thorne, N.** See Bassett, H. L.
**Thorne, P. C. L.** Tech. education for the gas industry in Great Britain, 8118*i*.
——— and Roberts, E. R. Ephraim's Inorg. Chemistry (book), 520*b*.
**Thorne, R. L.** See Holt, S. P.
**Thorne, R. S. W.** Nitrogen nutrition of yeast, 9361*g*.
**Thornes, L. S.** See Anglo-Iranian Oil Co., Ltd.
**Thornley, E. R.** Statistical Methods in the rubber industry, 5983*a*; see Pittman, G. A.
**Thornton, A. W.** See Kennedy, T. A.
———, Stewart, L., and Susa, F. App. for coating the inside of ingot molds with comminuted pitch, P 6965*h*.
**Thornton, B. M.** Detg. the ash content in coal, 1941*e*
**Thornton, D. P., Jr.** Glycerol from petroleum, 2758*e*; propane recovery, 7673*e*; octane protection insured by plant revamp program, 9423*d*.
**Thorp, F., Jr.** See Luecke, R. W.
**Thorp, J. M.** See Meillon, B. de.
———, Meillon, B. de, and Hardy, F. Effect of 2,3-dimercaptopropanol (British anti-Lewisite) on the toxicity of neoarsphenamine for *Ornithodorus moubata*, 4772*h*
**Thorp, R. H.** Direct-reading pH meter, 4904*c*; pharmacology of the optical isomers of amidone, 7591*a*; see Ofner, P., Walton, E.
**Thorpe, E.** Coagulants and anticoagulants, 5543*a*.
**Thorpe, J. F.**, and Whiteley, M. A. Thorpe's Dictionary of Applied Chemistry. Vol. IX. Oils, Fatty-Pituitary Body (book), 3543*g*.
**Thorpe, M. A.** Injectable therapeutic suspensions, P 9388*c*.
**Thorpe, R. E.**, and Larsen, R. G. Antiseizure properties of boundary lubricants, 5933*a*.
**Thorpe, W. H.** See Crisp, D. J.
**Thorpe, W. V.** See Bray, H. G.
**Thorslund, P.** Ordovician bentonite from the islands of Bornholm, Denmark, reply, 8320*e*, see Waern, B.
**Thorson, J.** See Hermanson, J. L.
**Thorstenson, E. B.**, *et al.* Analysis of chrome vegetable retan leathers, 9510*h*.
**Thorvaldson, T.** Chemistry of portland cement, 7657*g*.
**Thorvik, A.** See Halse, M.
**Thouvay, R.** Sapamine WL in the woolen and worsted industries, 8141*c*.
**Thrailkill, A.** See Fenimore, C. P.
**Threefoot, S. A.** See Burch, G. E., Ray, C. T.; Reaser, P. B.
———, Burch, G. E., and Reaser, P. B. Biologic decay periods of Na in normal man, in patients with congestive heart failure, and in patients with the nephrotic syndrome as detd. by $Na^{22}$, 3476*i*.
**Threlfall, C. J.** See Stoner, H. B.
**Thring, M. W.** Construction of models in which more than one process is similar to the original, 1227*b*; application of the results of some steel-furnace trials to glass-furnace practice, 2747*h*; influence of heat transfer on open-hearth-furnace charging rate, 3327*d*; see Arthur, J. R.; Robertson, F. L.
**Throdahl, M. C.** Aging of elastomers—comparison of creep with some conventional aging methods, 2013*d*; dixanthic disulfides as vulcanizing agents, P 4509*c*, phys. aspects of the aging of rubbers, 8722*g*.
**Thrun, W. E.** Detn. of Al, 1681*d*.
**Thuau, U. J. L.** Aromatic colloidal acids, 685*e*; future of artificial tannins (IV) how to analyze artificial tannins and evaluate their quality and tanning power, 8718*i*.
**Thugutt, S. J.** Chabazite and gmelinite, 1291*d*; compn. and origin of harmotome, 1291*e*.
**Thuillier, H. M.** Utilization of waste liquors, 399*g*.
**Thulin, K. E.** Penicillin solns., P 3154*e*.
**Thulin, S.** See Bergström, I.
**Thum, W.** Test papers for the detn. of pH in soln., P 8980*f*.
**Thuman, W. C.**, Brown, A. G., and McBain, J. W. Protein foams obtained by bubbling, 9098*d*.
**Thumm, G.** See Schramm, G.
**Thunberg, T.** Citric acid in the shell substance of eggs of chickens, ducks, and

geese, 4751*b*; citric acid in calcareous and similar formations in invertebrates, 9270*f*.
**Thurau, R.** Blood proteins in healthy and sick children, 8050*h*.
**Thurber, E. A.** Passivation of ferrous metals, P 6143*i*.
**Thurlow, James.** See Mirov, N. T.
**Thurlow, John.** See Bonner, J.
—— and Bonner, J. Fixation of atm. $CO_2$ in the dark by leaves of *Bryophyllum*, 8009*i*
**Thurman, B. H.** Purification of glyceride oils, P 3638*b*; high-quality tall oil from waste-pulp liquor, P 7686*d*.
**Thurman, D. C.** See Taylor, D. J.
**Thurman, G. R.** See Conant, F. S.
**Thurmond, C. D.** See Cubicciotti, D. D.
**Thurston, E. F.** Gas drying by $CaCl_2$ solns.—mechanism of transfer, 2841*d*.
**Thurston, H. W., Jr.** Fungicides for diseases of fine turf, orchard fruits, and potatoes, 0775*e*; see Harry, J. B.
**Thurston, J. P.** See Hawking, F.
**Thurston, J. T.** Insolubilized sulfonates and products thereof, P 2344*e*; $\alpha,\beta$-unsatd. guanamines, P 3854*f*; halogen-substituted guanamines, P 5051*e*; amino aliphatic guanamines, P 5052*a*; cation-exchange resins, P 5238*d*, *N*-heterocyclic substituted guanamines, P 7053*e*; arylazoarylguanides, P 7710*h*.
—— and Warner, R. B. Dimerized fatty acid alkylolamides condensed with alkylene oxide, P 9472*c*.
**Thurston, R.** See Hawkins, J. H.
**Thurston-Hookway, H.** See British Resin Products Ltd
—— and Evans, E. M. Cyanoethyl substituted 1,3,5-trimethylene trisulfones, P 6674*b*
**Thury, W.** See Breitenbach, J. W
**Thyberg, W. G.,** and Lyons, W. R. Androgen induced growth of the os penis of hypophysectomized-gonadectomized rats, 740*g*
**Thygesen, J. E.** See Johansen, A
**Thymian, E. W.** Detection of tung oil, 5906*d*
**Tian, A.** Esterification with $H_2SO_4$, 6057*c*.
**Tiberio, T.** See Cusmano, S
**Tice, J. M.** See Greenwood, M. L.
**Tice, L. F.** Amino acids, proteins, and protein hydrolyzates, 4304*i*.
**Tichmeneff, M. G.** See Tikhmenev, M. G
**Ticho, H. K.** Capture probability of neg mesotrons, 1257*f*
**Tichomirowa.** See Tikhomirova
**Tichonova, A. A.** See Tikhonova, A. A
**Tichow, G. A.** See Tikov, G. A.
**Tickner, A. W.** See Hodgins, J. W
**Tide Water Associated Oil Co.** Regenerating Mg silicate adsorbents, P 5134*f*, mineral oil compn., P 5938*e*, diol compds. and esters thereof, P 6652*a*; refining mineral oil, P 9427*c*
**Tidik, S.,** and Steadman, A. Forming a luminescent screen, P 1267*c*.
**Tidwell, H. C.** Methionine excretion, 6301*a*
—— and Axelrod, H. R. Blood sugar after injection of acetoacetate, 3928*a*.
**Tiedema, T. J.** See May, W.
——, May, W., and Burgers, W. G. Inclusions in Al crystals, 7768*f*
**Tieghi, M.** CO analyzer, P 7870*h*
**Tiel, N. van.** Retention of methallyl chloride and MeBr by fumigated grain, 5876*e*
**Tielrooy, J.** $NH_3$—anhyd. to aqua, 5553*d*
**Tiernan, M. F.** Controlling Cl in water treatment, 3344*n*.
**Tierney, N. A.** See Dole, V. P.
—— and Yeomans, A. Metabolic studies in louse borne typhus—serum-electrolyte pattern, serum protein partition, and N balance, 2304*i*.
**Tietz, H. D.** Cladded metal cooking utensils, P 6641*h*
**Tietz, T. E.** See Dorn, J. E.
——, Dorn, J. E. Effect of strain rate on the work hardening of metals, 7394*d*
**Tietze, K. H.** Specific dynamic action of glycine and yeast, 8471*h*.
**Tiffany, B. D.** See Close, W. J.
**Tiger, G. J.** See Crawford, R. A.
**Tigerschiöld, M.** Reducing coke consumption in Fe and steel production, 6552*h*.
**Tighe, H. F.** Correlating thermal reforming yield data with operating conditions, 2757*h*.
**Tihonova, A. A.** See Tikhonova, A. A
**Tikamori, T.** See Ishikawa, S.
**Tikhmenev, M. G.** Unit of hardness of water, 8078*f*.
**Tikhomirova, N. K.** Analysis of light alloys, 970*e*.
**Tikhomirova, N. S.** See Danilov, S. N.
**Tikhonov, A. N.** See Zabezhinskiĭ, Ya. L.
**Tikhonova, A. A.** Detn. of Cr in Al alloys by means of photocolorimeter, 5330*c*; photometric detn. of Mo in alloy steel, 5332*i*.
**Tikhonowa, A. A.** See Tikhonova, A. A.
**Tikhov, G. A.** Infrared fluorescence of plants, 2286*f*.
**Tikka, J.,** and Porvari, R. Pectin, 3536*g*.
**Tikotskaya, K. M.** Influence of Al alloys of various kinds on the stability of ascorbic acid, 5125*d*.
**Tilak, B. D.** See Bedekar, S. G.; Munshi, S. K.
**Tilden, S. G.** See Evans, H. T., Jr.
**Tilford, C. H.** See Wheeler, K. W.
——, Shelton, R. S., and Van Campen, M. G., Jr. Histamine antagonists—basically substituted pyridine derivs., 2204*d*.
——, Van Campen, M. G., Jr., and Shelton, R. S. Basically substituted pyrimidine and imidazoline derivs. as histamine antagonists, 7023*b*.
**Tiličeĭev, Tiličejev.** See Tilicheev, M. D.
**Tilicheev, M. D.,** and Milovidova, N. V. Isolation of individual hydrocarbons from paraffin cracking distillate (II) isolation of *n*-alkanes and 1-alkenes with 5 to 11 C atoms, 8124*e*.
—— —— and Tatevskiĭ, V. M. Crit. consts. of *n*-alkanes, 3254*g*.
**Tillitscheyew, M. D.** See Tilicheev, M. D
**Tiller, F. M.** Efficiencies in gas absorption, extn., and washing, 5646*f*
**Tilley, C. E.** Metamorphism of siliceous dolomites, 6129*f*, Fe wollastonites in contact skarns, 8987*a*.
—— —— and Vincent, H. C. G. Occurrence of an orthorhombic high-temp form of $Ca_2SiO_4$ (bredigite) in the Scawt Hill contact zone and as a constituent of slags, 5705*h*, cuspidine from dolomite contact skarns, Broadford, Skye, 5706*a*
**Tilley, F. W.** Influence of subculture media on results obtained in disinfectant testing, 274*c*.
**Tillitson, E. W.** Stabilization of aromatic compds., P 7647*d*, see Banks, C. K
**Tillman, A. B.** See Hulme, R. F.
**Tillman, A. D.** See Swift, R. W
**Tillman, C. C.** See Jones, Edgar
**Tillmanns, J.,** and Ohnesorge, G. Praktikum der klinischen chemischen, mikroskopischen und bakteriologischen Untersuchungsmethoden (book), 5820*c*.
**Tillotson, K. J.** See Altschule, M. D.
**Tillson, E. K.** See Beyer, K. H., Scheidy, S. F.
**Tillyer, E. D.** See Moulton, H. R
**Til'mans, Yu. Ya.** Crystn. of $NH_4Cl$ from aq. solns. in the presence of extraneous anions, 2483*c*.
**Tilton, L. W.** See Wood, L. A.
——, Plyler, E. K., and Stephens, R. E. *n*'s of 11 bromide iodide crystals for visible and infrared radiant energy, 8875*h*.
**Timár, M.** Industrial poisoning in the manuf. of explosives, 8681*c*.
**Timasheff, S. N.,** Biet, M., and Noteł, F. F. Aggregation phenomena in polyvinyl alc.-acetate solns., 8240*e*.
**Timber Engineering Co.** Improving chem. reactivity and adsorptive capacity of lignin from wood saccharification, P 8491*f*, converting lignin residue from wood hydrolysis into resinous material, P 1980*b*
**Timberlake, T. G.** See Joachim, W. F.
**Timbrol Ltd.** Diphenylamines, P 3454*f*
**Timell, T.** Cellulose ethanesulfonic acid and its salts, P 9445*d*, cellulose reactions (II) methylation of native cellulose with dimethyl sulfate and alkali, (III) prepn. and properties of sulfoethylcellulose, 3964*d*, (IV) methylation of regenerated cellulose with methyl sulfate and alkali, (V) methylation of Na cupricellulose, 2770*h*, (VI) formation of carboxymethyl- and sulfoethylcelluloses, (VII) periodate method for estg. the amt. of easily accessible material in cellulose, 4849*i*; (VIII) estn. of the amt. of easily accessible material in a cellulose deriv., 8071*c*; (IX) alkylation of cellulose in quaternary $NH_4$ bases, 5942*h*, (X) estg. the amt. of accessible material in cellulose, 8671*e*, see Groth, B.
**Timergasin, K. R.** See Miropol'skiĭ, L. M.
**Timken Roller Bearing Co.** Basic refractory structure, P 1936*b*.
**Timkovskiĭ, Yu. V.** See Gologorskiĭ, B. S.
**Timm, J. A.,** and Neal, R. E. Lab. Exercises in General Chemistry (book), 4090*e*.
**Timm, T.** See Scheele, W.
**Timma, D. L.** See Brode, W. R.
**Timmer, H. J.** See Domingo, W. R.
**Timmermans, A. M.** See Lacourt, A.
**Timmler, H.** See Salzer, W.
**Timmons, F. L.** See Meenen, F. E.
**Timofeev, D. P.** See Dubinin, M. M.
**Timofeeva, I. V.** See Osipova, O. P.
**Timofeeva, L. A.** Crabs as food products and their role in food poisoning, 7602*f*, *B. proteus* as the basic cause of food poisoning by crab meat, 7602*g*.
**Timofeeva, T. V.** Luminescence with $\alpha$-ray excitation; 5668*i*, dependence of the brightness of scintillations of ZnS on the dimensions of the crystals, 7349*b*; efficiency of the luminescence of ZnS in excitation by $\alpha$- and $\gamma$ rays, 7826*d*; see Brumberg, E. M., Zelinskiĭ, V. V.
**Timofejeff, Timofejew.** See Timofeev, D. P.
**Timofejewa.** See Timofeeva
**Timokhina, N. I.** See Starodubtsev, S. V
**Tims, W. C.** Odor control at Key West Sewage Treatment Plant, 1887*f*.
**Tin, U.** See Rhind, D.
**Tinao, M. M.** See Mateo Tinao, M
**Tincker, M. A. H.** Agriculture and horticulture, 4789*i*
**Tindall, J. B.** Arylalkylnitro alcohols, P 3038*a*, recovery of nitromethane from aq. alc. mixts., P 5790*h*
**Tinelli, G.** Free amino acids with C$_6$H and indole rings of cerebrospinal fluid in normal and pathol conditions, 5110*h*.
**Tinelli, R.** Cr in the soils of France, 3955*h*
**Ting, H.-S.** See Wang, Yu
**Ting, I.** Detn of fully satd. glycerides in New Zealand butterfat, 1874*h*; see Rothbaum, H. P.
**Ting, K. S.,** Coon, J. M., and Conway, A. C. Detn of procaine and *p*-aminobenzoic acid, 7540*g*
**Ting, Y.,** Weidler, R. C., and Williams, D. Microwave absorption spectra of paramagnetic salts, 4141*h*
**Tingaud.** See Rocher, H. L.
**Tingle, E. D.** Work on friction, lubrication, and wear in Germany during the war years, 2416*b*; see Tabor, D.
**Tingley, I. I.** See Coffin, C. C
**Tinker, J. F.** See Bendich, A., Cavalieri, L. F.; Getler, H
**Tinker, J. M.** See Du Pont de Nemours, E. I., & Co
**Tinkler, C. K.,** and Masters, H. Applied Chemistry. Vol. II. Foods (book), 1123*f*
**Tinlot, J.,** and Gregory, B. Absorption of penetrating shower primaries, 4103*a*, correlation of penetrating showers with air showers, 4103*b*
**Tinsley, J.** Microdetn of K as cobaltinitrite in biol. and agricultural materials (II) turbidimetric method, 6687*f*.
**Tinsley, J. S.** See Klug, E. D.
**Tinsley, M.** See Wolfson, W. Q.
**Tinsley, S. G.,** and Bowman, A. Rutile-type Ti pigments, 8697*b*.
**Tint, H.,** and Murray, C. W. Extg rubber from plants, P 2802*g*.
**Tio, M. A.** See Jones, L. H
**Tiomno, J.,** and Wheeler, J. A. Energy spectrum of electrons from meson decay, 7325*f*, charge-exchange reaction of the $\mu$-meson with the nucleus, 7325*g*.
**Tipler, M. M.** See Daff, M.
**Tipper, C. F. H.** See Bawn, C. E. H.
**Tippo, O.** See Fuller, H. J.
**Tipson, R. S.** Presence of D(*levo*)-2,3 butanediol in the mixed 2,3 butanediols produced by normal fermentation of glucose with *Aerobacter aerogenes*, 1320*h*.
**Tiratsoo, E. N.** Radioactivity of sediments (I), 4128*d*, (II), (III), 7331*g*.
**Tirouflet, J.** See Vène, J.
**Tirumalachar, E. R.** Occurrence of bowenite and talc-picrolite intergrowth in the ultrabasic rock from Hole-Narsipur area, Mysore State, 2136*b*.
**Tishchenko.** See Tishchenko.
**Tischer, J.,** and Togel, E. Fluorescent chromatography of perilla oil, 4031*i*.
**Tishtschenko.** See Tishchenko.
**Tisdale, W. B.,** and Ruehle, G. D. *Pythium* root rot of aroids and easter lilies, 3133*e*
**Tisdall, F. F.** See Drake, T. G. H.
**Tiselius, A.** Adsorption sepn. by salting

out, 1624*e*; biochemistry, 3855*a*; see Synge, R. L. M.
**Tishchenko, D.**, Bardysheva, K., and Nosova, N. Chem. compn. of water from wood-fed gas generators, 5925*g*
——— and Nosova, N. 3,6-Anhydro-D-glucosan<1,5>α<1,4>(anhydride of anhydro-D-glucose), 1726*e*
——— and Zhokhovets, N. Chloro derivs. (II) inductive effect and order of substitution of H atoms with Cl in chloroalkanes, 2925*d*.
**Tishchenko, V. E.** See Gavrilov, B. G.
**Tishkoff, G. H.** See Dounce, A. L.; Flagg, J. F., Goldberg, H. J. V.; Robe, Eugene
———, Zaffaroni, A., and Tesluk, H. Purified liver extract—chem. nature [etd.] by paper partition chromatography, 710*d*
**Tishler, M.** See Bentel, R. H.; Cram, D. J.; Howe, E. E.; Pfister, K., III; Pierson, F.; Stein, G. A.; Weijlard, J.; Wendler, N. L.; Wolf, F. J.
——— and Beutel, R. H. Resolution of racemic α-hydroxy-β,β-dimethyl-γ-butyrolactone, P 1056*f*
**Tissières, A.** Activity of phosphomonoesterases and of pyrophosphatases in the kidney and intestine of the adrenalectomized rat and the action of desoxycorticosterone, 1818*d*, influence of castration, testosterone, and estradiol on the phosphatases of the kidney, 2302*c*; constitution and properties of laccase, 6247*i*, see Vogt, O.
**Tissot, A. N.**, and Knitert, L. C. Insecticide tests for the control of fall armyworm on corn, 3136*e*
**Tistchenko, Tistschenko.** See Tishchenko.
**Tisza, L.** Superfluidity, 4064*a*; phase transition in the H halides 4065*i*, classification of phase transitions, 4066*d*
**Titanium Alloy Manufg. Co.** Zr flakes, P 2442*d*; high dielec. material, P 6805*d*
——— and Every, C. E. Vitreous enamels, P 6804*e*.
**Titchenko.** See Tishchenko
**Titievskaya, A.** See Deryagin, B. V.
**Titkov, N. P.**, and Getman, S. I. Concn. of finely interspersed poor Sn ores, 2440*d*
**Titone, L. V.** See Parsegian, V. L.
**Titov, A. I.** Configurations of angelic and tiglic acids, 2166*d*, theory of nitration of satd. hydrocarbons and their derivs. (IV) oxidation of the paraffin chain by N oxides and nitric acid, (V) nitration of diphenylmethane with $NO_2$, 4216*e*, (VI) nitration in the side chain of *o* and *m*-xylenes and mesitylene, 6584*d*; nitration of aromatic compds., 5012*h*.
——— and Laptev, N. G. Oxidative nitration of aromatic nitroso compds. and aryl hydroxylamines, 5013*a*, catalytic nitration of aromatic compds. in the presence of Hg salts (II) general theory of reactions [transformation of arylmercury compds. in reactions with $HNO_3$], 6585*c*.
**Titov, A. V.** Complex compds. formed by $MgCl_2$ in aq. soln., 6104*a*
**Titov, E. M.** Chromatographic adsorption analysis under increased pressure, 8790*g*
**Titov, N. G.**, Fedorovskaya, N. P., and Tantsyrev, I. N. Sapropele coals of the Moscow basin and effect of their petrographic character on the yield and compn. of the light tar distillate, 7207*g*
**Titov, V. I.** Cl-resistant app., P 6387*b*
**Titow.** See Titov.
**Tits, M.**, and Bruylants, A. Ozonolysis of ethylenearnides, 128*b*
**Titterton, E. W.** Slow neutron monitoring with B- and Li-loaded nuclear emulsions, 7812*a*.
——— and Goward, F. K. Photo fission of U into three charged fragments, 8269*d*
**Tittle, C. W.**, and Goodman, C. Neutron diffusion in hydrogeneous media, 4096*a*
**Titus, E.** See Fried, J.
**Titze, W.** Steel production and furnace linings of refractory material, 8632*e*.
**Titsmann, R.** See Brintzinger, H.
**Tiulin, A. F.** See Tyulin, A. F.
**Tjagelowa, Tjashelowa, Tjazholowa.** See Tyazhelova, A. A.
**Tjepkema, J. J.** See Adams, R.
**Tjernström, S. H.** See Brundell, P. G.
**Tjia, J. E.** See Wassink, E. C.
**Tjulin, A. F.** See Tyulin, A. F.
**Tkáč, A.** See Stehlík, B.
**Tkachenko, N. S.**, and Klimpach, S. M. Drying of Fe ore samples at a high temp., 969*g*; detn. of free $SiO_2$ in ores and accompanying rocks, 970*a*, detn. of Mn in ores, 4178*e*.
**Tkatchenko, B.** Palm sugar of Cambodia, 3221*d*, culture of tung-tree in U.S.S.R., 5204*a*.
**Toa Eiyo Kagaku-kogyo K. K.** Same as East Asia Nutrition Chemical Industries Co.
**Toa Gosei Kagaku Kogyo K. K.** Same as East Asia Synthetic Chemical Industries Co.
**Toal, J. S.** ZnO, 9374*f*
**Toa Senikogyo K. K.** Curled viscose artificial fibers, P 6833*b*
**Tobey, A. R.** Neutron production by cosmic rays at sea level, 4104*e*
**Tobias, C. A.** See Bertrand, J. I.
——— and Dunn, R. W. Analysis of microcompn. of biol. tissue by means of induced radioactivity, 9439*e*.
**Tobias, C. W.** See Szabo, S. v. N.
**Tobias, E. B.** See Goldsmith, E. D.
**Tobias, J. M.**, Postel, S., Patt, H. M., Lushbaugh, C. C., Swift, M. N., and Gerard, R. W. Localization of the site of action of a pulmonary irritant, diphosgene, 8057*e*
——— and Retondo, N. Syringe O cathode for measurement of O tension in soln. and in respiratory gases, 8963*i*
**Tobias, N.** Essentials of D. natology (book), 5112*e*
**Tobie, W. C.**, and Jones, M. I. *p*-Aminosalicylic acid in the metabolism of bacteria, 5826*b*
**Tobin, R. A.** See Mock, D. L.
**Tobio, J. M.** Analysis of tannin materials—detn., 2456*h*, see Sampaio de la Quintana, J.
**Tobiyama, T.** See Mizushima, S.
**Tobler, J.**, and Landau, M. Cu fungicide, P 5899*e*
**Tobolsky, A. V.** Oxidative degradation of polymers—rate [illegible] Mercy, I., Jr., Andrews, R. D., Conwell, V., Mesrobian, R. B., Mochalsky, M., Stein, R. S.
———, Leonard, [illegible] and Ro[illegible] I. Use of polymerizable ring compd. [illegible] instantaneous polymerizations, 4018*e*
**Toca, R. L.** See Lopez Toca, R.
**Tocantins, L. M.**, and Carroll, R. F. Activity curves of crude and purified inhibitors and accelerators of blood coagulation, 2299*e*.
**Toda, H.** See Kurozumi, M.
**Todd, A. C.** Thyroactive iodocasein and thiouracil in the diet and growth of parasitized chicks, 1988*i*
**Todd, A. R.** International Union of Chemistry's Advisory Council on Relations and Gmelin, 150*a*, synthesis of nucleotides, 2619*h*, see Atherton, F. R.; Baddiley, J.; Basford, F. R.; Bick, I. R. C.; Brown, R.; Brownlie, I. A.; Duvoll, J.; Hackman, R. H.; Holland, A.; Howard, G. A.; Kennet, G. W.; Rivett, D. E. A.
**Todd, D.** Wolff-Kishner reduction, 2155*i*, (I) prepn. and properties of *N*-alkyl- and *N,N*-dialkylhydrazones, 6592*f*; see Vigneaud, V. du
**Todd, E. W.** Quant. studies on the total plasmin and the trypsin inhibitor of human blood serum (I) methods for the titration of total plasmin and of trypsin inhibitor, 3187*e*, (II) variations in the blood concn. of total plasmin and of trypsin inhibitor in streptococcal disease—rheumatic fever, 3547*a*
**Todd, F.** Vacuum pressure regulator, 1226*a*
**Todd, F. C.** Precision photoelec. control of high-temp. furnaces, 1959*f*
**Todd, G. W.** Poynting and Thomson's University Textbook of Physics. Vol. I. Properties of Matter (book), 180*a*.
**Todd, H. P.** See Bliss, L. A.
**Todd, J. P.** Storing bacterial solns., 1531*d*; see Wylie, D. W.
**Todd, M.** See Ridge, D.
**Todd, S. S.** See Huffman, H. M., King, E. G., Waddington, G.
——— and Coughlin, J. P. Low-temp. heat capacity and high-temp. heat content of ammonium vanadate, 3276*a*
**Todd, W.** See Douglas, C. J.
**Todes, O. M.** See Afanas'ev, P. B., Khachaturov, G. A., Margolis, L. Ya., Zel'dovich, Ya. B.
**Tödt, F.**, Freier, R., and Schwarz, W. Velocity of oxidation and thickness of the [illegible] films of metal surfaces, and activity [illegible] cal complex between metal and metal, 8946*b*
**Togel, E.** See Tischer, J.
**Töndury, G.** Effect of stilbestrol on the mitotic divisions of the axolotl egg, 2705*h*.
**Toenges, A. L.** Coal mine development in Alaska, 9413*f*.
——— and Jolley, T. R. Coal deposits in south-central Alaska and the Kenai Peninsula, 5708*h*.
**Toenjes, W.** See Mitchell, A. E.
**Tønnesen, M.** Detn. of small concns. of atropine and allied alkaloids in forensic analyses, 2125*g*; absorption and distribution of atropine in rats, 4767*f*; see Pedersen-Bjergaard, K.
**Toennies, G.** See Winegard, H. M.
——— and Gallant, D. L. Bacterimetric studies (I) factors affecting the precision of bacterial growth responses and their measurement, 1078*f*; (II) lysine in bacterial maintenance, 3880*c*, (III) blood level studies on teropterin metabolism, 4340*f*, (IV) photometric turbidity and bacterial concn., (V) bacterial growth responses induced by different amino acids, 7086*d*
**Toepel, T.** See Reppe, W.
**Toerge, W. F.** Powder metallurgy, 5316
**Törnblom, N.** Renal crises following the extirpation of parathyroid adenomata, 6302*i*
**Törbk, C.** See Zocher, H. E. W.
**Totterman, H.** Casagrande hydrometer method for detg. particle size in finely divided material, 4923*h*
**Totterman, L. E.** Vitamin C and Fe metabolism—relation between vitamin C and Fe under physiol. conditions and in infectious diseases, pathogenesis of infectious anemia, 8475*b*
**Tofaute, W.** Alloy steels in chem. equipment construction, 8745*e*
**Toffoli, C.** Detn. of oxyhemoglobin in blood, 7532*h*
**Togashi, K.** Structural analysis of gasoline and its application to gasoline produced in Kinsen, Formosa, (I) phys. properties of [illegible]dine, (II) theory of structural analysis of gasoline and its application, 2115*g*
**Tognola, T.** Spark plug assembly molded in one operation, P 831*i*
**Toha, J.** See Middleton, S.
**Toharsky, B.** See Schneierson, S. S.
**Toit, J. L. du.** See Du Toit, J. L.
**Toivonen, N. J.**, Nummen, S. (nee Tomminen, Eskola, S., Lang, S. (nee Tommikoski, Turunen, P., and Tuhkanen, V. Total synthesis of camphoric acid, 5380.
**Toivonen, T.** See Suomalainen, H.
**Tojo, T.** See Funasaka, W.
**Tokareva, A. G.** Elec. app. for detn. of soln. concn., e.g., salinity, P 3250*b*
**Tokareva, R.** See Kretovich, V. L.
**Tokarski, H.** Potassium rock from Janowa Dolina (Wolyń district), 1293*a*, origin of the so-called "betonite" from Podole and Wolyń, 6954*e*; potassic igneous rocks in Wolyn, 7385*h*, detn. of alkali metals in silicates (I) sepn. of $CaCl_2$ from the alkali chlorides by alc., 7800*g*.
**Tokarski, Z.** Polish quartzites, 6385*e*.
**Tokay, E.** Human Body and How it Works (book), 8117*g*.
**Tokikawa, K.** See Kimura, Motoharu
**Tokimoto, S.** See Kambara, S.
**Toki Shikenyocho.** Same as Tokyo Instrument Testing Laboratory.
**Tokokawa, T.** See Shiomi, Y.
**Tokumitsu, T.** Identification of Al nitride in steels deoxidized with Al, 7397*b*
**Tokunaga, T.** See Ueno, Seiichi.
**Tokune, Y.**, Goto, K., and Asaoka, K. Potassium extn. from Japanese potash liparite (I) calcining test of the 2 component systems of liparite–Ca carbonate, and liparite–gypsum, (II) heating the system liparite–gypsum–limestone, and the effect of heating temp. as well as the fineness of the liparite on the yield of soluble potash, 1920*i*
**Tokura, N.**, and Oda, R. Oxidative [illegible] splitting of alicyclic compds. (I), (II), (III), (IV), (V), 2175*i*; (VI) polymerization of ε-caprolactam by cleavage, 2176*a*.
**Tokyo College of Engineering.** Misch metal, P 6925*i*.
**Tokyo Engineering Testing Laboratory.** Nonhydrolyzable dolomite clinker, P 7206*i*
**Tokyo Industrial Testing Laboratory.** Fe carbonyl, P 1162*a*; electrolytic refining of Al, P 3299*h*; vinyl chloride, P 3835*b*.
**Tokyo Instrument Testing Laboratory.** Removing of mica from andalusite and sillimanite, P 7206*c*.

**Tokyo Kogyo Daigakucho.** Same as Tokyo College of Engineering.
**Tokyo Kogyo Shikenyoohо.** Same as Tokyo Engineering Testing Laboratory.
**Tokyo Manufg. Co.** Recovery of Pb, P 6143*g*
**Tokyo Seiko K. K.** Same as Tokyo Manufg. Co.
**Tokyo Shibaura Denki K. K.** Same as Tokyo Shibaura Electric Co.
**Tokyo Shibaura Electric Co.** Metallic W, P 6965*e*, concn of dispersed phase of solid colloid, P 7164*b*; solid colloid from blood serum, P 7198*a*.
**Toland, W. C.** Fountain soln. roller, P 1506*e*.
——— and Hamilton, M. H. Fountain soln roller, P 1506*e*
**Toland, W. G., Jr.** See Levine, I. E.
**Tolansky, S.,** and Austin, E. Abrasion tests on diamonds—interferometric examn., 8227*g*.
——— and Morris, P. G. Interferometric survey of the micas, 4980*e*; interferometric examn of synthetic mica, 4980*i*
**Tolbert, B. M.** See Branch, G. E. K., Calvin, M.
———, Christenson, F., Chang, F. N.-H., and Salt, P. P. T. Synthesis of ethanol-1-$C^{14}$, ethanol-2-$C^{14}$, ethyl bromide-1-$C^{14}$, ethyl bromide-2-$C^{14}$ and $C^{14}$-labeled methadon, 9031*f*
———, Dauben, W. G., and Reid, J. C. Lab induction stirrer for closed systems, 8746*g*
**Tolbert, N. E.** See Clagett, C. O.
**Toleman, S. L.** See Kramer, I. J.
**Tolksdorf, S.** See McCullagh, D. R.
———, McCready, M. H., McCullagh, D. R., and Schwenk, E. Assay of hyaluronidase, 3186*f*
**Tollefson, E. L.,** and Le Roy, D. J. Reaction of at. H with $C_2H_2$, 472*i*
**Tollenaar, D.** Paper structure, 1164*e*
**Tollert, H.** Validity of Stefan's law for associd liquids, 3255*d*
**Tollestrup, A. V.,** Fowler, W. A., and Lauritsen, C. C. Energy release in Be and Li reactions with protons, 8804*c*
———, Jenkins, F. A., Fowler, W. A., and Lauritsen, C. C. Neutron-H mass difference from the D-D reactions, 7328*i*
**Tolley, G.** Corrosion of metals in atm contg. $SO_2$ (I), 2151*d*, catalytic oxidation of $SO_2$ on metal surfaces (I), 5910*b*, —(II), reaction of $SO_2$ and O at a mild steel surface, 8324*d*, paper partition chromatography, 6484*d*, surface reactions of metals—effect on wear, friction, lubrication, and machining, 7769*b*, sprayed Al coatings on steel, 7888*d*
**Tolliday, J. D.,** Woods, F. F., and Hartung, E. J. Membrane permeability (V) activation energies of diffusion and membrane potentials of KCl through cupric ferrocyanide, 5257*b*
**Tołłoczko, S.** Chemia nieorganiczna łącznie z zasadami chemii ogólnej (book), 8812*f*
**Tollstrup, J.** See Waldo, J. P.
**Tolman, C.** Mining geology and geophysics, 6550*i*
**Tolman, L.** See Martin, G. J.
**Tolman, R. C.** Superficial d. of matter at a liquid-vapor boundary, 4531*f*, effect of droplet size on surface tension, 5256*b*.
**Tolman, S. L.** Use of models in solving flocculation problems, 8584*g*
**Tolone, S.** Lysozyme in nervous tissue, 7104*i*
**Tolonen, A. W.** See Holt, S. P., Wright, W. S.
**Tolsted, L. L.,** and Swineford, A. Kansas rocks and minerals, 71*i*
**Tolstoi, D. M.** Sliding of disperse systems along walls (I) origin, dimensions, and importance of the effect, (II) method for studying the effect and preliminary exptl results, 7778*g*
**Tolstoi, N. A.** Flow birefringence, 456*i*; see Gurevich, D. B.
**Tolstoouhov, A. V.** See Friedman, H. L.
**Tolstopjatowa, A. A.** See Tolstopyatova, A. A.
**Tolstopyatova, A. A.** See Balandin, A. A.
**Tolstoukhov, Tolstuhov.** See Tolstooukov, A. V.
**Tom, A. K. S.** See Sherman, G. D.
**Tom, T. B.** See Watson, Roger W.
**Tomachi, K.** See Oguri, S.
**Tomajoli, F. M.** See Muscari-Tomajoli, F.
**Toman, J. E. P.** See Goodman, L. S.; Hendley, C. D.
——— and Goodman, L. S. Anticonvulsants, 2325*g*.
**Tomarelli, R. M.,** Charney, J., and Harding, M. L. Azoalbumin as a substrate in the colorimetric detn. of peptic and tryptic activity, 4324*e*
———, Norris, R. F., and György, P. Inability of vitamin $B_{12}$ to replace the desoxyriboside requirement of a *Lactobacillus bifidus*, 9148*i*.
**Tomaschow, N. D.** See Tomashov, N. D.
**Tomash, K. K.** See Sidorenko, Yu. P.
**Tomashevich, I. O.** See Stepanenko, M. G.
**Tomashov, N. D.,** Kiselev, V. S., and Gol'dberg, M. M. Corrosion of metals under films of paint and electrochem. methods of study of the protective properties of paint coatings, 6430*i*.
———, Sinel'shchikova, G. P., and Vedeneeva, M. A. Anodic and cathodic polarization curves of Fe and of Cu in sulfate solns. with addns. of oxidants, 47*e*; corrosion of Cu steels, 98*e*, 5722*i*.
**Tomassi, W.** Properties of substances above their crit. temps. and pressures, 8779*d*, see Świętosławski, W.
——— and Palczewska, W. Au extn. from auriferous As ores (I), 1695*g*.
——— and Taube, M. Au extn. from auriferous As ores (II), 1695*g*
**Tombesi, L.** Transpiration of plants, 5086*h*, see Gattorta, G.
**Tomblin, A.** See Robinson, F.
**Tomboulian, D. H.** Radiative x-ray transition within the *L* shell of S, 4132*a*.
——— and Pell, L. M. Response of certain inorg. phosphors to far ultraviolet radiation, 3716*i*
**Tomcsik, J.** See Schwarzweiss, H.
———— and Schwarzweiss, H. Role of thermolabile protein antigens of the stroma of sheep erythrocytes in serological reactions, 2309*g*; nature of the heterogenetic hapten reacting with hemagglutinins in horse serum sickness, 3092*g*
———, Schwarzweiss, H., Trissler, M., and Erlenmayer, H. Immuno chem. comparison between ring and pseudo ring compds., 4370
**Tomé Bona, J. M.** Dermatoses from impregnation of wood, 933*a*.
**Tomeo Lacrué, M.,** and Martinez, R. Metal packings, 5723*f*.
**Tomhave, A. E.** See Skoglund, W. C.
**Tomić, D.** Fluorine in thermal waters of the Croat. Zagorje, 5138*e*, see Ivančević, I., Krsnik, V., Supek, Z.
**Tomíček, O.,** Šandl, Z., and Simon, V. Detns. in strongly alk. solns. (VI) detn. of Mn and Co, 8955*b*
**Tomihisa, K.** See Furukawa, J.
**Tominaga, E.** App. for concg. brine, P 6477*b*
**Tominaga, T.** Glucoside isolated from the leaves of *Leucaena glauca*, 8617*b*, see Tsukamoto, T.
**Tomisek, A. J.** 1-Benzyl-3-phenyl-2-thiohydantoin, 4229*b*
**Tomita, H.** See Itsumi, F.
**Tomita, S.,** Kamio, S., Yano, K., and Goryoya, K. 6-Methoxy-8-(4-diethylamino-1-methylbutylamino)quinoline, 7051*f*.
**Tomita, T.** See Takaoka, M.
**Tomiuk, M.** See Richmond, H. H.
**Tomiyama, T.** Biochem. studies on nutrition under special environment (I) app. capable of keeping the reduced pressure constant, 5099*d*
———, Yabuki, T., and Nakao, S. Biochem. studies on nutrition under special environment (II) effect of reduced pressure on digestibility, 5099*d*
**Tomka, G.** See Csuzár, J.
**Tomka, P.** See Gyulai, Z.
**Tomkieff, S. L.** Reserves of coal and petroleum in the U.S.S.R. and the world, 6390*h*.
**Tomkins, D. G.** See Peck, E. B.
**Tomkins, F. S.** See Dieke, G. H.; Fred, M.
——— and Fred, M. Spectra of the heavy elements, 5304*e*
**Tomkins, R. V.** See Wheat, J. A.
———, Scott, D. S., and Simpson, F. J. Production and properties of 2,3-butanediol (XXIX) pilot-plant studies on fermentation of barley by *Aerobacillus polymyxa* and recovery of the products, 3561*b*.
**Tomkins, S. S.** Boiler-water conditioning and chem. cleaning of boilers, 6766*b*.
**Tomlin, A.** See Robinson, F.
**Tomlinson, G. H., II.** See Raff, R. A. V.
**Tomlinson, J. E.** See Gillham, R. W.
**Tomlinson, J. W.** See Bockris, J. O'M.
**Tomlinson, M. L.** See Richards, R. E.
**Tomlinson, W. R.,** Ottoson, K. G., and Audrieth, L. F. Explosive properties of metal ammines, 5187*e*.
**Tommasini, L.** Reactor, P 8218*e*.
**Tommila, E.** See Meretoja, A.
**Tomonari, T.** Phys. chemistry of the solns. of Na aluminate (I) equil. const. of hydrolysis, (II) soly., heat of soln., etc., 2077*c*.
**Tomoskozy, J.,** and Goldberger, J. Agglomeration of moist silts contg. Fe or other metals, P 1708*g*.
**Tomota, S.** Heat and elec. resistant alloy, P 6563*g*
**Tompa, H.** Statistical thermodynamics of mixts. of normal paraffins, 5246*i*.
**Tompkins, E. H.** Use of $HgCl_2$ for biol. studies with special references to blood counts, 703*a*.
**Tompkins, E. R.** Sepn. of Ra from Ba by the use of an ion-exchange column procedure, 2090*d*; lab applications of ion-exchange techniques, 3264*c*; see Cohn, W. E.
**Tompkins, F. C.** Thermal decompn. of Ag oxalate, 25*i*, see Crawford, V. A.
**Tompkins, M. D.** See Feaster, J. F.
**Tompkins, P. C.** Radioisotope building, 2505*f*
——— and Levy, H. A. Impact of radioactivity on chem. lab. techniques and design, 2505*c*.
**Tompkins, V. M.** See Muraschi, T. F.
**Tompsett, A. L. L.** See Childs, A. F.
**Tompsett, S. L.** Detn. of steroids in urine, 4317*c*.
——— and McAllister, R. A. Detn. of the Fe content of blood serum, 7535*b*.
**Tomson, N. M.** Content of metals in atm. dust and its effect on living organisms, 4988*b*
**Tondeur, R.** See Engel, B. G.
**Toner, R. K.,** Bowen, C. F., and Whitwell, J. C. Moisture detn. in textiles (II), 2779*h*.
**Tong, L. K. J.,** and Kenyon, W. O. Heats of polymerization (IV) copolymerization, 8255*b*.
**Tong, W.** See Taurog, A.
**Tongberg, C. O.** Olefin extn., P 3851*i*.
**Tongeren, W. van.** Influence of adventitious errors on the accuracy of analytical detns., 4173*h*; Dow-Baird Associates automatic spectrometer, 5235*f*.
**Tongiorgi, V.** Same as Cocconi, V. (nee Tongiorgi).
**Tongiorgi Cocconi, V.** Same as Cocconi, V. (nee Tongiorgi).
**Tongur, V. S.** Inhibition of the oxidation of fats, 2449*e*.
**Toni, G.** Caryometric observations (II) differences between mononuclear and binuclear liver cells in their reaction to pilocarpine-HCl, 9246*d*; toxicity of tobacco-seed oil and grape-seed oil, 6307*e*.
**Tono, M.** See Hironaka, Y.
**Tonomura, S.** Thermal decompn. and oxidation of alkylbenzenes, 7916*g*.
**Tonosaki, K.** Kinetics of thermal decompn. of $Ni(CO)_4$ vapor (II), 7306*c*.
——— and Suginuma, B. Kinetics of thermal decompn. of $Ni(CO)_4$ vapor (I), 7306*a*.
**Toogood, J. B.** See Braude, E. A.
**Tooke, F. G. C.** See Krogh, P. M. D.
**Tooke, J. W.,** and Lang, E. Z., Jr. Azeotropic distn. of $C_4$ acetylenes from 2-butene, P 4682*a*
**Tool, A. Q.,** and Saunders, J. B. Expansion effects of annealing borosilicate thermometer glasses, 5558*h*.
**Toole, E. H.** See Marth, P. C.
**Toole, V. K.** See Marth, P. C.
**Tooley, F. V.** See Newkirk, T. F.
**Tooley, P. H.,** and Lack, C. Gynecomastia during treatment with amphetamine, 5501*g*.
**Toot, D. F.** Steel and Al for automotive products compared, 88*f*.
**Tootal Broadhurst Lee Co. Ltd.** and Corteen, H. Fabric bags for explosive charges, P 7714*h*.
**Top, F. H.** Communicable Diseases (book), 8051*b*.
**Topchiev, A. V.** See Paushkin, Ya. M.
———, Igorova, G. M., and Vasil'eva, V. N. Alkylation of benzene by alcs. in the presence of the compd. of $BF_3$ with phosphoric acid, 7915*i*.
——— and Paushkin, Ya. M. Polymerization of propylene with the aid of mol. compds.

of $BF_3$, 1214*h*, $BF_3$ compds. as catalysts of alkylation and polymerization, 1711*f*, 8074*d*.
———, Paushkin, Ya. M., and Sergaeva, L. I. Catalytic alkylation of benzene with propylene and with ethylene, 4638*a*.
**Topchiev, K. S.** Structure of Linnel-Glynn's aminopentanol, 2579*g*; see Bekhli, A. F.
—— and Bekhli, A. F. Chem. structure and parasiticidal activity (VIII) synthesis of quinoline compds with carbonyl bond in the 8-position, 2623*f*; 9-(4-diethylamino-1-methylbutylamino) - 1 - chloroacridine and its 7-alkoxy derivs., P 5427*b*.
———, Bekhli, A. F., and Kirmalova, M. L. Chem. structure and parasiticidal activity (IX) isomeric chloro-9-aminoacridines—quinonoid structure and antiplasmodial action, 7142*i*.
—— and Braude, M. B. 1,2,3,4-Tetrahydro-6 - methoxy - 8 - (4 - diethylamino - 1-methylbutylamino)quinoline, P 5050*h*; 6 - methoxy - 8 - (4 - diethylamino - 1-methylbutylamino)quinoline, P 5050*i*
—— and Kirmalova, M. L. N-C bond—action of HCl on γ-trimethylene cyanohydrin, 2579*d*.
**Topčiew.** See Topchiev.
**Tope, N. A.** Rochelle Cu plating soln., 4147*g*.
**Topf, W.** See Andress, K.
**Toporovskaya, K. S.** Synthetic tanning agents, P 9512*a*.
**Topp, N. E.** See Robinson, C.
**Topper, Y. J.** Synthesis of succinic acid labeled in the carboxyl position with radioactive C, 2861*i*; see Gould, R. G.; Olson, R. E.
**Toptchiew, Toptschiew, Toptschijeff** See Topchiev
**Topuz, I. I.** Attachment to funnel for transferring liquids contg. ... ous gases, P 4907*c*.
**Toraishi, S.** See Horiuchi, J.
**Torbágyi-Novák, L.** Pectins in connection with the production of fruit juices, 8571*f*
**Torbet, N. J.** See Ruegamer, W. R.
**Torboli, A.** Phenoloxidase action of synthetic cuproproteins, 3855*i*
**Torda, C.,** and Wolff, H. G. Effect of convulsant and anticonvulsant agents on the activity of carbonic anhydrase, 5865*f*; effects of adrenocorticotropic hormone on neuromuscular function in patients with myasthenia gravis, 8494*i*.
**Tordai, L.** Radioactive tracers in research and industry (I) scope of radiochemistry, 7325*h*; see Ward, A. F. H.
**Torelli, V.** See Amard, G.
**Toren, P. E.** See Pagel, H. A.
**Torgeson, D. R.** See Sahama, T. G.
**Torgov, I. V.** See Nazarov, I. N.
**Toribio, A. M.** See Mosqueira Toribio, A.
**Torii, J.** Acid treatment of cellulose and coexistent substances (I) prepn. of oxy nitro fibrous paper and study of its properties, (II) catalytic oxidation of cellulose by $HNO_3$ in presence of metal nitrate, 1978*h*.
**Torii, T.** Efficacy of K in tropical environment (I), (II), 798*h*
**Torikai, Y.,** and Kodama, T. Velocity of formation of the ion sheath along the central wire of a Geiger-Muller counter, 5291*h*.
**Torkington, H.** Mech. firing (IV) data and fuel saving by the application of the underfeed stoker to kilns, 2391*f*.
**Torkington, P.** Electron distribution in substituted styrenes, 3293*g*, variations in force consts., 4527*i*, vibrational assignment for $C_2Cl_4$ and some remarks on the force const. of the C—C bond in that mol., 7342*g*; resonance and mol. structure, 7762*g*; general soln. of the secular equation of second degree, with application to the class A vibrations of the sym. triat. mol., 7820*f*; interaction terms in the potential functions of polyat. mols., 8221*b*.
**Tormey, H. J.,** and Barnhurst, J. D. Chemotherapy of rheumatic fever (IV) azo derivs. of sulfanilamide, 3109*i*.
—— and Salvatori, D. P. Chemotherapy of rheumatic fever (V) cyclopentanoperhydrophenanthrene derivs. in the etiology of rheumatic fever—cholesterol and the sterols, 3110*a*.
**Tornout, F. van.** See Van Tornout, F.
**Torok, M. G.** See Gajdos-Torok, Mme. M.
**Toronto Paint & Varnish Production Club.** Detn. of hiding power of pigments, 3211*d*.
**Toropov, N. A.** Forming and constitution of clinker and the structure of hydrated cements, 1165*g*.
—— and Borisenko, A. I. Solid solns. in the system $NiO$–$Fe_2O_3$, 4552*b*.
———, Poral-Koshits, E. A., and Borisenko, A. I. Solid solns. in the system $CoO$–$Fe_2O_3$, 7314*i*.
—— and Volkonskii, B. V. Hydraulic activity of granulated slags, 6803*g*.
**Toropova, V. F.,** and Yakovleva, G. S. Amperometric titration of phosphate ions, 4975*h*.
———, Zimkin, E. A., and Popel, A. A. Detn. of sulfates in Ni plating baths, 6941*i*
**Torpey, W. N.** Step aeration, 3123*h*.
**Torre, J. R. de la.** Effect of K on the efficiency and the compn. of the tobacco leaf of Pennsylvania, 4802*h*.
**Torre, L. D.** See Dalla Torre, L.
**Torrence, M. F.** Vulcanization of Neoprene with $Sb_2S_3$, 3618*i*
**Torrent, J. A.** See Alberto Torrent, J.
**Torres, C.,** and Martinez Oller, B. Reaction between chloral hydrate and phenylhydrazines, 1324*i*
**Torres, J. T.** See Tamarit Torres, J.
**Torres Gonzalez, C.** Same as Torres, C.
**Torreson, S. H.** Structure diagrams in gray iron foundries, 2556*e*.
**Torres Ruiz, A.,** and Candela, J. L. R. Alloxan diabetes (IX) comparative studies on N metabolism in alloxan diabetes and after pancreatectomy, 5483*c*
**Torrey, W. V.** Pulp evaluation and classification, 2775*h*.
**Torriani, A. M.** See Monod, J.
—— and Monod, J. Reversibility of the reaction catalyzed by amylomaltase, 7985*g*.
**Torry, A.** See Darwins Ltd.
**Tortolina, L.** Cl, NaOH, and NaCl, P 8110*b*.
**Tortori-Donati, B.** See Benedetti, G.
**Toschi, G.** See Cavallini, D.
**Toshima, K.** See Iwai, S.
**Toshima, N.** See Nakasawa, Sumio
**Tošić, J.,** and Mitchell, R. L. Concn. of Co by microorganisms and its relation to Co deficiency in sheep, 1096*g*.
**Tostado, C. A.** See Alvarez-Tostado, C.
**Tostanovskaya, A. A.** See Svershkov, I. V.
**Tosteson, D. C.** See Abrams, M.
**Tosti, A.** Bilirubin study, 6683*g*
**Tosto, S.** Phillipsite of the volcanic country of Agnone, Italy, 2129*a*
**Totah, V.** See Bird, M. J.
**Toth, F. M.** See Swain, H. L.
**Tóth, L.** Nitrogen binding by *Calotermes flavicollis* and its symbionts, 9269*h*
**Toth, S. J.** See Mikkelsen, D. S., Wallace, A.
—— and Prince, A. L. Estn. of cation exchange capacity and exchangeable Ca, K, and Na contents of soil by flame photometer techniques, 7620*i*.
———, Prince, A. L., Wallace, A., and Mikkelsen, D. S. Detn. of 8 mineral elements in plant tissue, 3314*i*
**Totter, J. R.** See Day, P. L., Keith, C. K.
———, Amos, E. S., and Keith, C. K. Influence of pteroylglutamic acid on glycine and on porphyrin metabolism, 5835*d*
———, Martindale, W. E., McKee, M., Keith, C. K., and Day, P. L. Biochem. studies on livers of chicks receiving graded levels of pteroylglutamic acid, 5098*c*
**Totzek, F.** Gasification of coal by the ... pers-Totzek process, 5923*g*
**Touhey, W. O.,** and Redmond, J. C. Analysis of cemented carbide compns., 1287*a*.
**Toulmin, H. A., Jr.** Freedom of science—its opportunities and responsibilities, 3670*j*; Handbook of Patents (book), 6761*i*.
**Toups, R. L.** Aq. $NH_3$, its manuf. from anhyd. $NH_3$, 8621*h*.
**Tour, S.,** and Fletcher, L. S. Hot spot machining at work temps. at 500°, 1000° and 1500°F., 7393*g*
**Tourky, A. R.,** and Mousa, A. A. Metal electrodes (VI) As electrode as a metal-metal oxide-O electrode, (VII) behavior of As electrodes prepd. by sublimation and decompn. of arsine out of contact with air, (VIII) bearing of the properties of arsenious oxide on the behavior of the As electrode, 8904*g*.
—— and Shamy, H. K. El. Oxidation-reduction potential of sex and quinquevalent Mo ions, 4961*f*
**Tournay, M.** Crystallographic data of *d*-benzalcamphor, 6038*d*.
**Tourowa-Poljak, M. B.** See Turova-Pollak, M. B.
**Toursin, V. M.** See Tursin, V. M.
**Tourte, R.** See Bouyer, S.
**Tous, J. G.** See Gracian Tous, J.
**Touschek, B. F.** Analytic behavior of Schrödinger's wave functions, 4940*g*; theory of the double β-disintegration, 8845*i*; see Sneddon, I. N.
**Tousey, R.** See Durand, E.
**Toussaint, W. J.** See Fife, H. R.
**Toutberidze, C.,** and Julien, P. Varnishing paper, P 4854*i*.
**Touzé, M.** See Cordier, D.
**Tovar Bicudo de Castro, A.** See Jordão da Rosa, M.
**Tovarnitskii, V. I.** Nucleoproteins of viruses, 3050*e*
—— and Karlina, M. I. Complexes of influenza virus with org. bases and cationic detergents, 3051*b*.
**Tovarov, V. V.** Developments in grinding, 1166*g*, app. for detn. of the surface area of cement by air permeability, 1546*h*.
——, Gunzburg, Yu. N., and Massil'on, T. K. Detn. of the specific surface area of cements, 1937*f*.
**Tovbin, M.,** and Baram, O. Kinetics of soln. of NaCl monocrystals, 6054*e*.
—— and Konenko, A. Kinetics of non steady heterogeneous processes (I) kinetics of absorption of O by water, 2494*j*.
—— and Krasnova, S. Stability of supersatd. salt solns., 8805*f*.
**Tovborg-Jensen, A.** Structure of salt monohydrates, 3301*g*; Krystallinske Salt hydrater (book), 7366*g*
—— and Moller, A. Detn. of size and shape of the apatite particles in different dental enamels and in dentin, 1098*i*
**Tovborg-Jensen, S.,** and Kjaer, B. Loss of $NH_3$ by evapn. from $(NH_4)_2SO_4$ applied to soils, 1512*b*.
**Tove, S. B.,** and Wilson, P. W. Isotopic studies of fixation of N by rhizobia in presence of hemoprotein, 716*i*
**Toverud, E. G.** Influence of general health supervision on the frequency of dental caries in groups of Norwegian children, 8173*i*
**Tower, D. B.** See Cone, W. V.
——— and McEachern, D. Acetylcholine and neuronal activity (I) cholinesterase patterns and acetylcholine in the cerebrospinal fluids of patients with craniocerebral trauma, (II) acetylcholine and cholinesterase activity in the cerebrospinal fluids of patients with epilepsy, 8519*f*, content and characterization of cholinesterases in human cerebrospinal fluids, 8520*a*.
**Towers, A.** $CS_2$, 2826*d*
**Towers, J., Jr.** See Beck, P. A.
**Town, B. W.,** Wills, E. D., and Wormall, A. Action of suramin on enzymes, 6257*b*.
**Towndrow, R. P.** Fuel efficiency in the blast furnace, 4613*d*.
**Towne, C. C.** Fat acid sepn., P 2793*i*
**Towne, E. B.** See Coover, H. W., Dickey, J. B.
**Towne, F. L.** Vinyl plasticizer extender, P 1218*a*.
**Townend, D. T. A.** Value and the future of research, 4909*b*; science of combustion, 5921*g*; see Jones, R. E.
**Townend, P. P.,** and Scerb, L. Remanuf. of knitted nylon fabric waste, 853*h*.
**Townes, C. H.** See Dailey, B. P., Longmire, C. L.; Low, W.; Wu, C. S.
——— and Aamodt, L. C. Nuclear spin and quadrupole moment of $Cl^{35}$, 8870*b*.
———, Holden, A. N., and Merritt, F. R. Microwave spectra of some linear XYZ mols., 1658*a*.
———, Mays, J. M., and Dailey, B. P. Nuclear moments of stable Ge and Si isotopes, 8871*a*.
**Townes, H.** Effectiveness of DDT against dermestids in insect boxes, 7631*c*.
**Towns, M. B.** See Hill, C. M.
**Townsend, B. F.** See Sawyer, C. H.
**Townsend, C. P.** Sepn. of electrically conducting material from nonconducting material, P 4906*h*.
**Townsend, J.** See Braden, C. H.; Ter-Pogossian, M.
**Townsend, J. F.** European apple sawfly, 810*c*; see Garman, P.
**Townsend, L. G.** Fe oxide purification of gases, 3595*h*.

**Townshend, S. C.** See Mond Nickel Co. Ltd.
**Toy, A. D. F.** Copolymers of alkenyl arylphosphonates with methyl methacrylate, P 1220*f*; copolymers of dialkenyl arylphosphonates with vinyl acetate, P 1220*g*; prepn. of tetra-Et pyrophosphate and other tetraalkyl pyrophosphates, 1314*h*; prepn. of tetra-Me pyrophosphate, 6970*g*; plasticizing agents comprising dialkylphenylphosphonates and compns. contg. them, P 7752*d*.
——— and Beck, T. M. *p*-Nitrophenyl diethyl thiophosphate, P 6659*i*.
——— and Brown, L. V. Allyl ester of phosphonic acid, 5378*e*.
**Toyama, C.** AcH, P 3837*h*.
**Toyama, N.** See Ono, F.
**Toye, R.** See Pearson, J.
**Toyoda, H.** See Noda, T.
**Toyoda, E.** See Ueno, Seiichi.
**Toyoda, T.** See Nosawa, T.
**Toyo Koatsu Kogyo K. K.** Same as Oriental High Pressure Industries Co.
**Tozer, H.** See Distillers Co., Ltd.
**Trabucchi, C.** Histamine content of spinal fluid—dementia praecox, 2308*b*, chem. mediators and motility in plants, 3475*h*, passage of sulfones through the blood-spinal fluid barrier, 5119*d*
**Tracey, M. V.** Detn. of uronic acids in soil, 1130*i*; Proteins and Life (book), 1451*c*, estn. of mg. quantities of uronic acids, 2663*e*, see Holden, M.
**Tracy, A. W.** See Freeman, J. R., Jr.; Thompson, D. H.
**Tracy, P. H.** See Hetrick, J. H., Stull, J. W., Whitman, D. W.
**Traffmov, A.** Isotopic compn. of S in meteorites and in terrestrial objects, 6078*c*.
**Trager, L. S.** See Szilágyi-Trager, L.
**Trager, W.** Fat sol. material from plasma having biotin activity 2300*i*, biotin and fat sol. materials with biotin activity in the nutrition of mosquito larvae, 2334*b*, see Clark, P. F.
**Traill, D.** Protein fibers, 4789*a*; see Thomas, J. B.
**Traina, S.** Sulfonamide content of blood and cerebrospinal fluid during lumbar drainage, 1103*e*.
**Traina, V.** Folic acid as an antianaphylactic, 6306*a*.
**Trainor, H. M.** See McCallum, K. J.
**Trajano, R. B.** See Borges-Trajano, R.
**Trakhtman, N. N.** $ClO_2$ in water disinfection, 1508*a*; detn. of active Cl in water, 7613*c*.
**Tralli, N.** See Lowen, I. S.
**Trambouze, Y.** Chem. changes in Fischer catalysts during their prepn., 2853*b*, x-ray diffraction study of Fischer catalysts, 7313*c*.
——— and Perrin, M. Influence of the state of combination of the constituents of Ni catalysts on their activities in the Fischer synthesis, 6389*h*; preheating of Ni catalysts in the course of thermal reduction—influence on efficiency in the Fischer synthesis, 8831*c*.
**Tramm, H.** See Kolling, H.; Paul, H.
**Tramm, R. S.** See Chermikhov, Yu. A.
**Tramontana, C.** Fe in the cerebrospinal fluid, 9201*c*.
**Transparent Package Co.** Sausage casing, P 7603*c*.
**Tranter, T. C.** Low-order detonation in solid high explosives, 405*f*.
**Trantin, J., Jr.** Ferrous base alloy for pierce points, P 8348*a*.
**Trapeznikov, A. A.** Elastic properties of monolayers of proteins and their temp. dependence, in connection with thermal denaturation, 2487*d*.
——— and Shlosberg, E. M. Viscoelastic properties of colloidal systems, 2072*c*.
**Trapeznikova, Z. A.** See Antonov-Romanovskii, V. V.; Levshin, V. L.
**Trapp, G. J.** Hard metal in industry, 7880*b*.
**Trapp, H. D.** See Mack, P. B.
**Trappe, W.** See Selbach, H.
**Trask, P. D., and Rodriguez Cabo, J., Jr.** Mn deposits of Mexico, 4983*e*.
**Traube, S. G. B.** See Boas-Traube, S. G.
**Traustel, S., and Gumz, W.** Calcn. of gas yields from coal gasification, 7665*f*.
**Trautman, C. E., and O'Hagan, E.** Insulating oils, 2342*i*.
**Trautman, W. V., Jr.** See Mayerson, H. S.; Nisset, R. T.; Parson, W.
**Trautmann, B.** See Hofmann, W.
**Trautmann, H.** Auricular arrhythmia produced by benzene intoxication, 3947*h*.
**Travagli, G.** Catalytic behavior of $HgSO_4$ (III) effect on the hydrolysis of aromatic nitriles, (IV) on the hydrolysis of aliphatic nitriles, 1248*h*; thiazoles (IV) obstacles in the prepn. of Grignard compds., 2615*f*; action of diazonium salts on *o*-quinone monoöximes, 3810*b*.
**Traver, W. M.** Coyote Creek Sb deposits, Garfield Co., Utah, 6123*c*.
**Travers, J. J.** See Harte, R. A.
**Traverso, P. M. de.** See Rangier, M. Bonvallet, M., and Krebs, M. Utilization of pentose sugars and renal filtration, 2299*b*.
**Travia, L., Gattini, M., and Mele, V.** Glucide metabolism and urinary elimination of lactoflavin, 6707*g*.
——— and Pelosio, C. Urinary elimination of phosphorylated lactoflavin after administration of glucose and lactoflavin, 6707*h*.
———, Pelosio, C., and Dalla Torre, L. Elimination of riboflavin in the urine of normal persons, 2299*a*, urinary elimination of free and phosphorylated lactoflavin, 6707*i*.
———, Santagati, U., and Gattini, M. Lactoflavin in the urine, 4749*i*.
**Travis, B. V.** See Blanton, F. S.
———, Morton, F. A., and Smith, C. N. Insect repellents and toxicants, 7181*c*.
**Traxler, R. N.** See Lyttleton, D. V.
**Traynard, P.** See Kinell, P. O.
**Traynham, J. G.** See Letsinger, R. L.
**Treacy, P. B.** Nuclear isomeric transitions of short periods, 30*d*, see Makinson, R. E. B.
**Treadwell, C. R.** Growth and lipotropism (II) effects of dietary methionine, cystine, and choline in the young white rat, (III) effect of supplementary cystine, methionine, and choline in low protein diets, 2681*g*, see Hazán, S. J.; Raymond, M. J.
**Treadwell, W. D.** See Dorta Schaeppi, V., Kubli, H.
**Trease, G. E.** Pharmacognosy (book), 6791*b*.
**Treasure, R. W.** Steel strip pickling, 6138*b*.
**Treccani, C. P.** Control of vine mildew by Bordeaux mixt. activated with lime S, 8596*a*.
**Treccani, V.** See Polli, I.
**Tree, G.** Reducing vapor condensation above steel-packing tanks, P 555*f*.
**Treffler, A.** Soda ash as a soap builder, 9492*h*.
**Tréfouel, J.** See Fourneau, E.
**Trefzger, E. F.** Two W deposits in Spain, 2132*a*.
**Tregarthen, T.** See Grenville, G.
**Treibs, A.** Origin of petroleum, 2551*i*, vinylacetylene, 2570*e*.
**Treibs, W.** Di- and polycyclic azulenes (I) synthesis of 1,2-benzazulene, 207*a*, autoxidation of O active acids (XI) O$_2$-stage of the autoxidation of linolenic and linolenic acid esters, 5365*i*, polycyclic azulenes and verdazulenes, 6203*d*.
——— and Bast, H. Acylating oxidation of cycloolefins and cyclic ketones, 7915*b*.
**Treis, M. le.** See Le Treis, M.
**Treifa, R. T.** See Erkko, E. O.
**Treloar, L. R. G.** Stresses and birefringence in rubber, 4043*d*, 8723*d*, rubbers and their characteristics, 5620*b*, see Saunders, D. W.
**Tremain, H. E., and Bacon, L. R.** Compn. for inhibiting foam, P 1202*g*, 4879*d*.
**Tremaine, B. K.** Cleaning compn., P 3640*b*.
**Tremblay, F. T., and Baut, K. E.** Detg. the K requirements of peas, 1513*e*.
**Tremblay, J. A.** Water supply at Quebec City, 7165*a*; waterworks at Quebec City, 7611*c*.
**Trémolières, J.** See Laroche, G.
——— and Péquignot, G. N balance index in protein-deficient patients, 8467*i*.
**Trengove, R. R.** New Idria Hg deposit, San Benito Co., Calif., 8989*d*; see King, William H.
**Trenkner, M.** Vitamin E, 1846*c*.
**Trenne, H.** Universal condenser, 8746*h*.
**Trenner, N. R., and Bacher, F. A.** Catalytic reduction of the esters of tartaric acid to the erythritols, 8355*c*.
——— and Buhs, R. P. Cryst. form of benzylpenicillinic acid, 460*e*.
———, Walker, R. W., Arison, B., and Buhs, R. P. Detn. of γ isomer of benzene hexachloride—mass isotope dilu. method, 4805*c*.
**Trentin, J. J., and Turner, C. W.** Effect of ultraviolet irradiation on biol. activity of α-estradiol benzoate, 7521*g*; effect of adrenalectomy on the mammary glands of the castrated and estrogen-treated castrated male rat, 7565*h*.
**Trenz, F.** See Schill, F.
**Treon, J. F., Deichmann, W. B., Sigmon, H. E., Wright, H., Witherup, S. O., Heyroth, F. F., Kitzmiller, K. V., and Keenan, C.** Toxic properties of xylidene and monomethylaniline (I), 4401*d*.
———, Sigmon, H. E., Kitzmiller, K. V., and Heyroth, F. F. Physiol. response of animals to respiratory exposure to the vapors of diisopropylamine, 8052*f*.
———, Sigmon, H. E., Kitzmiller, K. V., Heyroth, F. F., Younker, W. J., and Cholak, J. Physiol. response of animals exposed to air-borne ketene, 8527*e*.
**Trepagnier, J. H.** Vulcanization of isobutylene rubber, P 2464*c*; improving the millability of butadiene-styrene interpolymers, P 7258*a*; see Sparks, C. E., Sturgis, B. M.
**Trepka, E.** World chem. industry, 8071*i*.
**Trepp, S. G.** Removable floor and wall covering, P 2040*d*.
**Treptow, A. W.** See Christensen, C. J.
**Tresarden, F. H.** See Mitchell, W.
**Treshchova, E. G.** See Levina, R. Ya.; Tatevskii, V. M.
———, Akishin, P. A., and Tatevskii, V. M. Detn. of mol. compn. and of structural elements of org. compds., 7346*c*.
——— and Tatevskii, V. M. Raman spectra of aromatic C$_8$ hydrocarbons, 2867*i*.
**Tressler, D. K.** Tea ext., P 7606*c*.
**Treszczanowicz, E.** Butadiene from petroleum, 3346*c*.
**Trethewie, E. R., and Day, A. J.** Influence of past experience on the liberation of histamine and its immunol. significance, 1482*b*.
**Tret'yakov, I. I.** See Roginskii, S. Z.
**Trevan, J. W.** See Glock, G. E.
**Trevor, J. S.** Plastics for coating yarns, 1571*c*; synthetic adhesives (I), 5507*g*, (II), 5996*f*, ion-exchange resins, 6747*b*.
**Trevoy, D. J., and Drickamer, H. G.** Viscosity of liquid hydrocarbon mixts., 8777*h*.
**Trew, V. C. G.** See Bedwell, M. E.
**Trey, F.** Largest monocrystal formation, 8229*b*.
**Treybal, R. E.** See Newman, M.
**Trey frères S. A. de.** See De Trey frères S. A.
**Tria, E.** Action of *p*-aminobenzoic acid on alc. fermentation, 3559*b*.
**Tribalat, S.** Extn. and detn. of traces of Re, esp. in the molybdenites, 8304*g*.
**Tribot, A.** See Chedin, J.
——— and Marsaudon, A. Ethylation of cellulose—hydrolysis of ethyl sulfate—purification of ethyl sulfate—detn. of the ethoxyl group, 4845*i*.
**Tricerri, S.** See De Barbieri, A.
——— and De Barbieri, A. Synthesis of DL-methionine, 2945*d*.
**Triché, H.** Application of spectrographic analysis of surfaces to the study of impurities, 5694*c*; spectrographic detn. of the soly. of Cd in solid Sn, 8949*h*.
**Tricker, R. E.** Metals in clock and instrument manuf., 6958*i*.
**Triebold, H. O.** See Bonhorst, C. W.
**Trifonov, N. A.** See Miskidzh'yan, S. P.
**Triggs, W. W.** See No-Mercury Felt Corp.; Wingfoot Corp.
**Trikojus, V. M., and White, D. E.** Synthesis of myristicin, 7451*f*.
**Trillat, J. A.** See Mouchiroud, A. F. G.
**Trillat, J. J.** Mol. adsorption and the state of the lubricated surface, 1953*b*.
——— and Brigonnet, J. Effect of temp. on adsorption of interfaces—paraffin oil activated by oleic acid, 16*h*; detn. of the no. of fatty mols. adsorbed by a metal during lubrication, 8659*b*.
——— and Laloeuf, A. AgI vapors, 4062*g*; structure of AgI and $NH_4Cl$ vapors, 7769*h*.
**Trilling, C. A.** See Mickley, H. A.
**Trim, A. R.** Recovery of *l*-nicotine from animal tissues, 2662*f*; kinetics of the penetration of some representative anthelmintics and related compds. into *Ascaris lumbricoides*, 9270*b*.
**Trimarchi, E., and De Pasquale, F.** Adrenaline and eosinophiles, 2327*f*.
**Trimble, H. M., McReynolds, L. A., and Metacek, B.** Use of isoöctane and heptane as reference fuels, 383*f*.

**Trimble, R. A.** See Moore, R. L.
**Trimble, R. F., Jr.** See Roberts, J. D.
**Trinastic, J. C.** See Maron, S. H.
**Trinder, N.** Estn. of minute amts of $H_3BO_3$, 2893*b*, see Dermott, W.; Thomas, Brynmor.
**Trinh, N. Q.** See Nguyen Quang Trinh.
**Trinidade, F. M.** See Marcio Trindade, F.
**Trinidad Leaseholds Ltd.** See Hene, E
—— and Hanson, T. K. Cyclopentadiene, P 3032*c*.
**Trinkler, G. V.** Gas generator for caking tar-contg. coal, P 6397*b*
**Trinquier, E.** See Ceccaldi, J
**Trioen, M.** Elec. detn. of humidity in grain, 3941*c*.
**Triolo, R.,** and Di Bella, S. Cl in gastric diseases, 5853*i*.
**Tripod, J.** Parasympathicolytic activity of atropine, trasentin-H, and trasentin, 4381*a*; see Meier, Rolf.
—— and Meier, R. Relation between estradiol and progesterone and the sensitivity of the rabbit uterus to the oxytocic agents hypophysin, adrenaline, and histamine, 1848*f*.
**Tripodo, C.** Vitamins and the healing of fractures, 1471*i*, see Solarino, G
—— and Diomede Fresa, V. Vitamin of capillary permeability (P or citrin) and the antibody production, 1481*e*
**Tripp, F.** Dyeing (II), (III) diazotized and developed colors, 5951*i*
**Tripp, G.** See Cherons, N. D.
**Tripp, R. C.** See Segal, L.
**Tripp, V. W.** See Segal, L.
**Trischin, F. I.** See Trishin, F. I
**Trischka, J. W.** Nuclear quadrupole interaction in CsF, 941*f*
**Trishin, F. I.** Electrochronometric method of analysis (I), 959*h*, registering app. for detection and detn. of ions from the potential and time required for their deposition at a const. current, 960*g*
**Trissler, M.** See Tomesik, J
**Trist, A. R.** Recovering materials from the waste water from papermaking machines, P 849*a*.
**Trivedy, J. N.,** Murthy, G. K., Kukade, S. M., and Dastur, N. N. Effect of heat on the chem. compn. of ghee, 1496*h*
——, Rao, V. R. B., and Dastur, N. N. Nutritive value of fresh, rancid, high-acid, and bazaar ghee, 4394*g*
**Trivelli, A. P. H.** Characteristic curves of photographic materials, 2527*h*, min. and max. sensitivities of photographic emulsions, 8923*d*; see Loveland, R. P.; Smith, William F
**Triwush, H.** See Klotz, I. M.
**Trobridge, G. W.** See Dunlop Rubber Co. Ltd.
**Trocmé, S.** See Barbier, G
—— and Barbier, G. Decompn. rate of phosphatic slag in soil, 6773*g*
**Tröger, E.** See Hoenes, D.
**Troeltzsch, J.** See Kastens, M. L
**Trömel, G.** Manuf. of phosphate fertilizers, 7174*h*.
—— and Gerlschold, H. Extn. of V from slags formed in the manuf. of steel, 1297*e*
**Troemper, A. P.** See Klassen, C. W
**Troesch, A.** Inhibition by C and H of the activated adsorption of $CH_4$ by Ni Fischer catalysts, 6064*a*; kinetic laws of adsorption of methane by Fischer catalysts contg. Ni, 6064*b*
**Troestler, J.** See Tabone, J.
**Trofimova, N. P.** See Meisel, M. N
**Troiano, A. R.** Use of hardness data restricted, 1697*b*, see Greninger, A. B
**Troisi, F. M.,** and Amorati, A. Benzene poisoning, 5120*c*.
**Troitskaya, A. D.** See Grinberg, A. A.
**Troitskii, A. V.** Concn. of nonferrous metal ores in U. S. S. R., 2140*i*
—— and Verigo, K. N. Complex utilization of nonferrous metal ores in concn., 1203*g*
**Troitskii, D. A.** Thirty yrs. of higher chemico-technological education in U.S.S.R., 3670*h*.
**Troitskii G. V.** Absorption spectra of polyenes—structure and position of the absorption max., 1264*f*
**Troizkaja, A. D.** See Troitskaya, A. D.
**Troizkij.** See Troitskii
**Trojan Powder Co.** (*Patents*) Dipentaerythritol from mixts. contg. same 1135*i*, resinous esters of higher fatty acids with pentaerythritols, 3232*g*, pentaerythritol dehydration products, 3232*h*, 7240*a*, pentaerythritol conversion, 3232*i*, epoxy tetramethylolmethane polymerization products, 3238*g*; recovery of pentaerythritol, 5036*e*; nitrated products of dehydrated pentaerythritol, 6223*f*; (hydroxymethyl)alkanes, 7505*a*.
**Trojer, F.** Thermal-shock-resistant magnesite brick, 8628*i*, merwinite, 8629*h*; see Konopicky, K
—— and Konopicky, K. Free CaO in portland cement clinker, 3987*h*, crystn. of magnesioferrite from solid soln., 8229*d*
**Trojok, S.** Thiourea synthesis, 2166*b*
**Trokhimovskaya, I. P.** See Poluboyarinov, D. N.
**Troll, W.** Allgemeine Botanik (book), 7096*g*
**Trolle, B.** Bottom fermentation, 9361*h*.
**Trolle, C.** Thiocyanate excretion in manic-depressive patients, 2330*a*; detn. of total protein and globulin in the cerebrospinal fluid, 6096*h*.
**Trombara, C.** See Bruni, Giordano.
**Trombe, F.** Reactions between a solid phase and a liquid or gaseous phase, 6066*f*
——, Focx, M., and La Blanchetais, C. H. Fusion of alumina in the solar furnace, 6025*h*
**Tromp, K. F.** Gravity separator for magnetite, P 2566*e*
**Tromp, L. A.** Diagnosis of sugar, 6845*i*
**Tronchetti, F.** Crossed treatment with sex hormones, 3086*e*
**Tronev, V. G.,** and Chulkov, V. N. Thermodynamic basis of the principle of trans-influence, 2854*f*
**Trong, Le Q.** See Phu, Le Q
**Troob, I. A.** See Trub, I. A.
**Troost, L.,** and Péchard, C. Traité élémentaire de chimie (book), 2856*f*
**Troost, M. A.** See Davidson, J. L.
**Tropkina, M. F.** Agrotech. and chem. methods against *Oscinella frit* and other insect pests attacking grain, 8088*c*
**Troponwerke Dinklage & Co.** Isoquinoline derivs., P 2241*c*, tetrahydroisoquinoline compds., P 2241*g*
**Trost, W. R.** See Steacie, E. W. R.
**Trostler, F.,** and Huntington, Heberlein & Co. Washing of Fe ores, P 6142*k*
**Trotman, E. R.** See Trotman, S. R
**Trotman, S. R.,** and Trotman, F. R. Textile Analysis (book), 855*e*
**Trotman-Dickenson, A. F.** See Bell, R. P.
**Trots, A. A.,** and Maksimenko, M. S. High percentage ferrosilicon, 2913*f*
**Trott, J. C., Jr.** See MacNider, W. de B
**Trotta, A.** See Antoniani, C
**Trotter, J.,** and McLean, D. Electron microscope study of quenched and tempered steel, 8328*h*
**Trotter, W. R.** Developments in the pharmacology of the antithyroid compds., 4771*b*, effect of thiouracil and uracil on the germination of cress seeds, 8452*c*
**Trought, M. E.** See Davis, H. W.; Nighman, C. E.
**Trout, E. D.,** and Gager, R. M. Phys. characteristics of soft Röntgen rays, 8874*b*
**Trout, G. M.** See Brunner, J. R.
**Troutman, H. D.,** and Long, L. M. Synthesis of 2,3-disubstituted 4-thiazolidones, 6346*b*
**Trovato, A.** Polypeptidemia in malaria, 2312*c*, polypeptide content of exudates and transudates, 2691*a*; see Andrini, F.
**Troxler, F.** See Stoll, A
**Troy, A.,** and Alsop, W. G. Estn. of glycerol, diglycerol, and polyglycerols in com. diglycerol, 880*a*
**Troy, V. S.** See Beisel, C. G.
**Troy, W. C.,** and Steven, G. W. Ir-Ir thermocouple, 8217*d*
**Troyan, A. V.** See Rakitin, Yu. V.
**Truax, R. C.** Pioneer rocket project of the U. S. Navy, 833*i*
**Trub, I. A.** Improvement of evapg. station, 7241*i*
**Trubek Laboratories.** Methallylbenzene, P 2228*e*
**Trubetzkoy, N.** See Riehl, N.
**Trubnick, E. H.** See Rudolfs, W.
**Truby, H. A., Jr.** See Bludworth, J. E.
**Trucco, E.** Functional examn. of the adrenals, 1856*b*
**Trucco, R. E.** See Caputto, R.; Cardini, C. E., Leloir, L. F., Paladini, A. C.; Soriano, S.
——, Caputto, R., Leloir, L. F., and Mittelman, N. Galactokinase, 1070*f*
——, Cardini, C. E., Paladini, A. C., Caputto, R., and Leloir, L. F. Glucose phosphate and its function as coenzyme, 2258*h*
**Truce, W. E.,** McBee, E. T., and Alfieri, C. C. Chlorination of *tert*-butylbenzene to 1-chloro-2-methyl-2-phenylpropane, 3877*i*.
—— and Sack, B. H. Reduction of phenacyl fluoride with Al isopropoxide, 1349*a*.
—— and Suter, C. M. Sulfonation of β-bromostyrene, 1347*d*
**Truchan, A.** See McBee, E. T.
**Truddalu, M.** Detn. of fatty acids in soaps, soap solns., and oil residues, 8710*c*.
**Trüb, C. L. P.** Absorption and excretion of some sulfonamides after intraperitoneal administration—glomerular filtration and reabsorption of various sulfonamides after intraperitoneal administration, 8543*b*.
**Trüb, Tauber & Cie. A.-G.** Vacuum seal, P 3669*a*; electron microscope with magnetic and electrostatic lenses, P 8284*a*.
**Trueblood, K. N.,** and Malmberg, E. W. Chromatographic properties of silicic acid-celite, 8945*i*.
**Trümpler, G.** See Bieber, R.
**Truesdale, E. C.** Cu coating Fe particles, P 9022*d*.
**Trufanov, A. V.** B6 vitamins and their role in enzyme reactions, 8028*b*.
—— and Solov'eva, Z. I. Biosynthesis of pyridoxal phosphate by yeasts, 9158*h*
**Truffert, L.** Qual. inorg. microchem. analysis, 4971*c*; microchem. identification of metals, 7860*c*
**Truhaut, R.** Insecticidal halogenated org. derivs., 1518*d*; (book), 2364*a*; Fluoroses (book), 7592*i*; see Vincent, D.
—— and Vermes, E. Can α-naphthylacetic acid have a cancerigenic action on the animal? 8047*e*
—— and Vincent, D. Toxic action of DDT—DDT and the cholinesterase systems of insects and higher animals, 2359*d*, 3964*i*
**Truhlar, J.,** and Pantsios, A. A. Flameproofing, P 3210*c*
**Truitt, P.,** Mark, D., Long, L. M., and Jeanes, J. Alkyl α-(2 dialkylaminoalkoxy)phenylacetates (I), 2189*d*
**Trujillo, V. A. A.** See Alta Trujillo, V. A
**Trukhov, N. I.** Digestion and recovery in the Sakhalin sulfite pulp mills, 9441*e*
**Truman, J. E.** See Shutley, H. T
**Trumbore, F. A.** See Ketchen, E. E
**Trumbull, E. R.** See Roberts, J. D
**Trumbull, H.** Research director's viewpoint on long-range selling, 5131*g*
**Trumbull, R. C.,** Hardiek, W., and Lawford, E. G. Treatment of pyrites cinders, 2141*g*.
**Trump, J. G.** See Schumb, W. C., Van de Graaff, R. J
—— and Cloud, R. W. Laminated envelope structure for electron discharge devices, P 2518*c*
—— and Van de Graaff, R. J. Secondary emission of electrons by high energy electrons, 4101*f*
**Trumper, M.** See Cantarow, A.
**Trumpler, P. R.** Gas sepn. including impurity-removal steps, P 3176*d*.
**Trumpy, B.** Metastable states induced in atoms by high voltage x rays, 4131*g*
**Trupp, H. Y.** See Sherman, H. C
**Trurnit, H. J.** Unimol. films on water interfaces and layer films, 4710*i*, (book), 4781
**Truscott, B. L.** See Sadhu, D. I
**Truscott, J. H. L.** See Filman, C. C.
**Trushkina, N. I.** See Shogam, S. M.
**Trusty, A. W.** Flash test 382*d*.
**Truter, E. V.** See Blackman, M.
**Truter, F. C.** See Krige, L. J.
**Truter, M. R.** See Cox, E. G.
**Trybalski, E.** See Kochakian, C. D
**Trygg, J. E.** Pest infestation of reservoirs and water-distribution systems, 2717*b*, what happens to sewage in treatment plants? 2718*c*; Cl in sewage treatment 2718*e*.
**Tryller, H.** Detn. of the specific rotation as an aid for analysis of sirup, 4502*b*
**Tryon, P. F.** Plasticizers for butadiene copolymers, P 5992*a*; *N*-(hydroxyalkyl)-amides and fatty acid ester type derivs. as plasticizers for elastomers, P 7258*i*.
**Trzebiatowski, W.** Chem. compds. of variable compn., 8929*d*.
**Tsai, C.** See Chen, T. I.
**Tsai, K. R., and Fu, Y.** Analysis of mixts. of org. acids, 8976*i*.
**Tsao, C.-H. S.** See Harris, R. S.
**Tsao, D. P. N., and Youngken,** H. W., Jr. Chem. plant growth regulators and alkaloid formation in *Datura stramonium*, 8597*f*.
**Tsao, T.-H.** Chemotropism of pollen tubes, 8020*e*.

**Tsarev, M. V.** Cytisine content in the dyer's broom, 5543*e*.
**Tschalenko, D. K.** See Chalenko, D. K.
**Tschamler, H.** Binary liquid mixts. (II) heats of mixing, vol effects, and phase diagrams of Chlorex with cyclohexane and methylcyclohexane, (III) with methylbenzenes, (IV) heats of mixing and vol. effects in the system chlorex-styrene, 1251*g*; (VI) heats of mixing, heat capacities, volume effects, and phase diagrams of 1,2-dichloroethane with $C_6H_6$ and *n*-alkylbenzenes, (VII) cyclohexane and methylcyclohexane, (VIII) polymethylbenzenes, (IX) styrene, 4938*a*; lab. app. for detg cooling curves down to temps of −160°, 8754*g*.
— and Reiberger, R. Binary liquid mixts. (V) mol refractivity, polarizability, surface tension and viscosity of mixts of Chlorex and various hydrocarbons, 4937*g*
**Tschan, E.** Accelerated fixation of Cr-mordant dyeprints, P 1989*a*.
**Tschapek, M.** See Enders, C.
**Tscheischwili, L.** See O'Daniel, H
**Tschelincev, Tschelintzeff, Tschelintzew.** See Chelintsev, G. V
**Tschenykajewa, Je. Ju.** See Chenykaeva, I. Yu
**Tschepelewetzky, M. L.** See Chepelevetskii, M. L.
**Tschermak-Seysenegg, A. v.** Leitfaden der Physiologie (book), 5849*i*.
**Tscherne, E** See Muhlbock, O
**Tscherniaev, Tschernjajew.** See Chernyaev
**Tschernjak, A.** Loss of N in drying of poultry manure, 342*h*
**Tschernichov, J. A.** See Chernikhov, Yu. A.
**Tschernikow, M. P.** See Chernikov, M. P.
**Tschesche, R.** Chemistry of vegetable cardiac poisons, toad poisons, saponins, and alkaloids of the steroid group, 4710*h*, see Bethge, H
— Loop, W., and Soehring, K. Antibac. and local properties of sulfonamide (III), 2903*f*
**Tschesnokoff, F. A.** See Chesnokov, F. A.
**Tschirch, E.** Rational gravimetric methods, 5742
**Tschirkoff** See Chirkov.
**Tschirkowskaja, Je. W.** See Chirkovskaya, E. V.
**Tschirwinsky, P. N.** See Chirvinskii, P. N.
**Tschitschibabine, A.** See Tchitchibabine, A.
**Tschopp, E.** See Meystre, C.
**Tschoufarioff, G. J.** See Chufarov, G. I.
**Tschoukina** See Shchukina
**Tschrelaschvili, M. N.** See Chrelashvili, M. N.
**Tschuchanoff, S. F.** See Chukhanov, Z. F.
**Tschuiko, W. T.** See Chuiko, V. T.
**Tschukina** See Shchukina
**Tseidler, A. A.** Metallurgna mkeha (book), 2566*b*
**Tseitlin, L. A.** See Pirogov, A. A.
**Tseitlina, N. Ya.** See Zelikman, A. N.
**Tselinskaya, T. F.** See Roginskii, S. Z.
**Tselm, N. K.** See Kleyke, V. A.
**Tshukina** See Shchukina
**Tsien, L. C.** Interference pattern of two incoherent radiations, 4134*f*
**Tsien, P. C.** Evaluation of the cryst. orientation of cellulose fibers from x ray data, 5051*f*, 6820*e*
**Tsien, S.-T.** Bipartition and tripartition of heavy elements, 6077*c*
**Tsigler, V. D.** See Kalnarskii, I. S.; Smelyanskii, I. S.
**Tsiklis, D.** See Bruns, B.
**Tsimbalenko, M. N.** See Ovchinnikov, L. N.
**Tsimmergakl, V. A.** See Zosimovich, D. P.
**Tsinzerling, E. V.** Hardness and fragility of quartz, 976*e*
**Tsiskovskii, V. K.** Linoleum, P 6434*e*.
**Tso, T.-C.** See Clark, G. L.
**Tsobkallo, G. I.** Action of chloral hydrate, $MgSO_4$, dial, and their mixts. on the contractile ability of the uterus, 7141*e*, "analgesic properties of chloral hydrate, $MgSO_4$, dial, and their combinations, 7141*e*.
**Tsobkallo, S. O.** Prepn. of AgCl specimens for deformation studies, 6008*e*.
**Tsou, K.-C.** See Cromwell, N. H.
**Tsuchida, M.** See Stamer, R. Y.
**Tsuchikawa, H.** See Ueno, Seiichi
**Tsuchiya, Tadashi.** See Okumura, S.
**Tsuchiya, Tomotaro.** Change of oil during the storage of rice polishing, 5609*i*; decolorization of rice oil, 5611*a*; wax from rice oil, 5611*d*; ash in rice oil, 5611*g*; effect of added acids on the decolorization of oil by acid clay, 8709*b*.
**Tsuchiya, Y.** Prepn. of Sr from corals and calcareous algae, 5350*b*
— and Aikawa, H. $SrSO_4$, P 6796*h*.
**Tsuda, T.** See Takahara, S.
**Tsui, C.** See Skoog, F.
**Tsujimura, K.** See Kasugai, S.
**Tsukada, Y.** Detergent, P 6844*h*.
**Tsukakoshi, N.** See Anzai, H.
**Tsukamoto, E.** See Kimijima, Takeo.
**Tsukamoto, T.** Tartaric acid, P 3843*b*.
Tominaga, T., and Takahashi, J. Constituents of the leaves of *Euphoria longana* (II), 8611*c*.
**Tsukershtein, E. I.,** and Egorova, M. N. Blood ketones and cholesterol in hypertonic diseases, 7126*d*.
**Tsukervanik, I. P.** See Tatarenko, A. N.
— and Poletaev, A. V. Condensation of ales with aromatic compds in the presence of $AlCl_3$ (XII) condensation of primary butyl and isoamyl ales with $C_6H_6$ and with toluene, 1614*b*
and Terent'eva, I. V. Activity of halogen in org. compds in Friedel-Craft's syntheses (I) condensation of ethyl esters of aliphatic halogen-substituted acids with $C_6H_6$, 1638*e*
**Tsukhanova, E. A.** See Tsukhanova, O. A.
**Tsukhanova, O. A.,** and Salamandra, G. D. Calcn. of the rate of heating in mixing 2 powd. materials of different temps., 29*h*.
— and Tsukhanova, E. A. Slag removal in gas generators on a lab. scale, 4446*a*.
**Tsukiba, S.** See Sugimoto, T.
**Tsunemitsu, K.** See Ogata, V.
**Tsung, C.-H.** See Nah, P. P. T.
**Tsurugi, J.** See Horio, M.
**Tsurumi, K.** See Osaki, S.
— and Sasaki, K. Carbohydrates (LXXVII) nonamino sugars in the carbohydrates of pseudomucin, 3179*i*.
**Tsurumi, M.** See Inukai, F.; Sakai, S.
**Tsuruta, S.** Phenol-formaldehyde resins (XII) comparison of acid and basic catalysts in emulsification, (XIII) reaction kinetics of the homogeneous system, 5223*g*; urea formaldehyde resins (IV) decompn. temps and behaviors toward some reagents of acid catalyzed powdery resins, 7745*h*.
**Tsushima, R.** See Hachihama, Y.
**Tsutsui, M.** See Ishikawa, S.
**Tsutsumi, S.** Polymerization of gaseous olefins, P 3190*e*, hydrogenation and hydrolysis of unsatd. fats and oil, 5009*e*; hydrogenation of unsatd. oil and that of rice oil of high acid no. with Ni oxide as catalyst (I) of chrysalis oil, (II) of rice oil having high acid no., (III) action of water and acid clay on Ni oxide, 5610*f*
**Tsuverkalov, D.,** and Bogomolova, T. Gasometric detn. of arginine in the presence of urea and $NH_3$ salts, 1077*d*
**Tsuya, N.** Theory of antiferromagnetism, 8840*c*.
**Tsvang, I. M.,** and Litvinenko, P. M. Bactericidal activity of certain concns. of acetic acid in meat preservation, 7602.
**Tsvetkov, V. N.,** and Eskin, V. E. Acoustic birefringence and relaxation time of liquids, 3681*d*, relaxation of the enforced anisotropy in liquids, 7766*f*
— Frisman, E. Flow birefringence and relaxation time of normal ales., 7284*g*.
— and Kabardina, Kh. Temp. dependence of the flow birefringence of benzene and other liquids, 450*f*
— and Marinin, V. Elec. birefringence of soins of normal ales., 469*g*, dipole moments of mols of liquid crystals and elec. birefringence of their soins., 3675*b*, measurement of the velocity of supersonic waves, 8786*b*.
— and Petrova, A. Dynamic double refraction in soins of polymers of bivinyl and methyl methacrylate, 6046*e*.
— and Sosinskii, M. Rotating magnetic field as a method of studying colloidal systems, 7291*c*.
— and Sycheva, M. S. Introduction of fillers into gutta-percha films to increase their thermal stability, 6855*d*.
**Tsyklis, D.** See Tsiklis, D.
**Tsypkina, O. Ya.** See Karpukhin, P. P.
**Tsyrlin, V.** See Dobrotin, N. A.
**Tsyskovskii, V. K.** Technology of synthesis of the film-forming ester derivs., formed by high-temp. kerosene oxidation, 3181*i*, oxidized paraffin as raw material for the production of Ca soap greases, 4006*b*; oxidation of petrolatum, 4000*e*; oxidation of narrow petroleum fractions, 7218*a*, effect of temp. and of time on the oxidation of kerosene, 8057*f*; see Drinberg, A. Ya.
—, Alekseeva, E. A., and Shpak, A. I. Varnishes, P 3216*e*.
— and Pylaeva, T. I. Improving mineral lubricating oils, P 3192*f*
—, Velikovskii, D. S., Chernozhukov, N. I., Rybak, B. M., Shpak, A. I., and Arunov, R. I. Catalytic oxidation of high-mol. petroleum products, P 3180*h*.
**Tsyurupa, I. G.** See Gorbunov, N. I.
**Tsyvina, B. S.** Detn. of small quantities of Ca, 5330*a*, detn. of small quantities of Na, 5333*i*.
**Tu, H. C.** See Huang, S. H.
**Tuan, M.-T.** See Chen, C.-Y.
**Tuba, J.** See Cantor, M. M.
—, Baker, D. B., and Cantor, M. M. Relation of serum phosphatases to sex hormones, 8500*e*.
—, Cantor, M. M., and Richards, A. G. Relation between serum alk. phosphatase and dietary essential amino acids, 6254*d*.
— and Hoare, R. Serum lipase and alloxan diabetes in rats, 9216*b*
**Tuboi, S.** Fate of sterols in animal body (II), (III), 5818*c*.
**Tucci, J. H.** See Finesinger, J. P.
**Tuček, K.** Glaucophane in the Giant Mts., 8987*d*
**Tuchihashi, R.,** and Hanzawa, T. Sulfite turpentine oil (I) tetrahydrocadalene in the medium-boiling fraction, (II) pyrolysis of tetrahydrocadalene and the rearrangement of dimethylnaphthalenes, 5590*d*.
**Tuchihashi, S.** Analytical expression of self-consistent wave functions for Li, B, C, and O, 7336*a*; doublet-intervals of Li I, B I, and O IV, 7336*d*
**Tuchmann-Duplessis, H.** Development of secondary sexual characteristics of the crested triton treated with hypophys. gonadotropic and lactogenic hormones, 1871*b*
— and Aschkenasy-Lelu, P. Influence of age on the effects of a high protein diet on the hypophysis and genital tract, 1842*i*, basophilia and increase in gonadotropin in the hypophysis of the female rat on a high-protein diet, 7348
**Tuci, P.,** and Ercoli, C. Effect of *p*-aminobenzoic acid on the healing of wounds, 6309*i*.
**Tuck, D. H.** Dyeing of leather, 8184*i*.
**Tuck, N. G. M.,** and Mason, S. G. Accuracy of Mullen testers, 4011*f*
**Tucker, B. M.** See Northcote, K. H.
**Tucker, C. M.** See Schulze, W. A.
**Tucker, D. R.** See Brunner, H.
**Tucker, E. M.** See Gwinn, G. R.; **Harris,** Florence E., Johnson, Bertrand L.
**Tucker, G. E.** See Gwinn, G. R.
**Tucker, H. A.** Effect of human cerebrospinal fluid on the dilution bioassay of penicillins G, X, and K, 2718*b*.
**Tucker, H. H.** $(NH_4)_2SO_4$, 1135*h*
**Tucker, I. W.** See Woods, G. F.
— and Balls, A. K. Extg. diastase, P 2366*h*.
**Tucker, J.** See Pearson, R. G.
**Tucker, N. B.** Detergent compns., P 2795*h*; wetting, sudsing, and detergent agent, P 6844*h*.
**Tucker, P. W.** Hydrodiethylstilbestrol compds (III), 9077*g*, see Ungnade, H. E.
**Tucker, S. H.** See Forrest, J.
and Whalley, M. Condensation of fluorene with $Me_2CO$ (V) contrasting reactions of 9-fluorenylmagnesium bromide and of 9-fluorenyllithium with α,β-unsatd. ketones, (VI) methylated di- and tetrahydrofluoranthenes; synthesis of 2,3,4-trimethylfluoranthene, 9058*f*.
**Tucker, W. B.,** Sampson, R. J., and Oakeshott, G. R. Mineral resources of Kern Co., 4607*e*.
**Tuckley, H. H.** Piston pycnometer—sp. gr. and free gas content of pastes and creams, 2734*i*.
**Tudoranu, G.,** Foni, I., and Creteanu, G. Action of urethan and heat in the coagulation of blood with some vitamin systems, 6679*e*.
**Tülin, A. F.** See Tyulin, A. F.
**Tuell, S. W.,** Martin, W. B., and Laufman, H. Complications from the use of plastic intravenous tubing, 899*e*
**Tümer, A.** See Haurowitz, F.
**Tuemmler, W. B.** See Syrbely, W. J.
**Tuer, G.** See Ripling, E. J.
**Tuerck, K. H. W.** Crotonic acid, P 671*e*, see Distillers Co., Ltd.; Duval, B.
**Tueva, O. F.,** and Samollova, S. A. Effect

of phosphate on assimilation and distribution of N in plants, 2676*h*.
**Tuey, G. A. P.** $CrO_3$ oxidation risks, 3199*c*.
**Tuhkanen, A.** See Toivonen, N. J.
**Tui, F. W. C.** See Co Tui, F W.
**Tukey, H. B.** Fungicidal property of actidione, 804*f*.
**Tulasne, R.** Cytology of *Proteus vulgaris* and its modifications under the influence of penicillin—development of microcolonies and inframicroscopic forms of *Proteus vulgaris* as an effect of penicillin, 8436*f*; see Boivin, A.
——, Minck, R., and Minck, A. Variability of the cytologic structure of colon bacilli, 4331*a*
——, Vendrely, R., and Minck, R. Bacterial nuclei and streptomycin, 4330*i*.
**Tulczyński, M.** Influence of acidosis on the organism—gaseous exchange and the circulatory app., 6303*f*
**Tulenkov, K. I.** Effect of Cu on patenting wire, 2558*c*; electrolytic dipping of wire, 4583*f*.
**Tuley, W. F.** Butadiene styrene chem rubbers polymerized at low temps., 1210*c*
**Tull, R.** See Fuson, R C
**Tullar, B. F.** Sepn of L-arterenol from natural U.S.P adrenaline, 7194*f*, see Jackman, M.; Larsen, A A
——, Wetterau, W, and Archer, S Resolution of Et 1,1-diphenyl-3-dimethylaminobutyl sulfone, 1367*b*.
**Tullis, D. H.** Developments in paint oil extenders, 4025*c*
**Tullis, E. L.** See Pesonen, P E
**Tullis, J. L.** See Snider, R H.
**Tullner, W. W** See Hertz, R
**Tullo, J. W.**, Stringer, W J, and Harrison, G. A F. Estn of Al in beer, 7636*h*
**Tully, J. B.** Pulp mill pollution, 7681*a*
**Tully, K. J.** See Cottrell, T I
**Tumanov, K. A.** See Andronikashvili, E L
**Tumbin, P. A.** Limestone for acid towers, 3573*h*.
**Tunell, G.** Presentation of the Roebling Medal of the Mineralogical Society of America to W. L. Bragg, 8759*i*
**Tung, L.-H.** See Chang, T -L
**Tunmann, P.** See Dietzel, R
**Tunnicliff, D. D.** Gas thermometer for automatic control of low temps.—application to sepn of gases by isothermal distn., 1226*i*; line source in ultraviolet absorption spectrophotometric analyses, 8944*e*, see Rasmussen, R S
**Tunnicliffe, P. R.** Proportional α counter for atm. dust filters, 1521*i*
**Tuomy, J. M.** See Slotter, R. L
**Tupitsin, G. I.** See Birman, Ya N.
**Tupper, R.** See Banks, T E
**Turba, F.** Chromatographic methods in protein chemistry, 1447*d*, isolation and detn. of lysine in protein hydrolyzates, 6604*g*.
——, Haul, R, and Uhler, G Detn of nitroparaffins, 4185*c*
—— and Schuster, K. H. Synthesis of DL-arginine, 6169*c*.
**Turbett, F. L.** Sepn. of Fe and Ti from *titaniferous ore*, P 1306*d*.
**Turchini, J.**, Castel, P, and Kien, L K van Application of new cytochem reactions to the study of nucleic acids, nucleotides, nucleosides, and glucides in cells, 3870*b*
**Turco, E.** pH in eggs, 5509*i*
**Turco Products, Inc.** Cleaning Al preparatory to spot welding, P 9022*i*
**Turcotte, A. L.** See McDonald, E J
**Turcotte, F.** See Marion, L
**Turesky, S.** See Glickman, I.
**Turetzky, S.** Solidification of petroleum products, 6398*h*.
**Turfitt, G. E.** See Hucknall, E.
**Turgel, R. S.** See Holmes, J E. R
**Turi, P.** MeOH in presence of EtOH—drugs contg. spirits and alc. beverages, 9372*h*.
**Turich, M. L.** See Zarubina, O V.
**Turitsyna, N. F.** See Vompe, A F
**Turk, A.** Oxidation of olefinic higher fatty acids, P 5792*c*.
**Turk, K. L.** See Whiting, F.
**Turkdogan, E. T.** See Maddocks, W. R.
**Turkel, S. H.** See Seren, L.
**Turkel'taub, N. M.** See Falnberg, M. M.
**Turkevich, J.** See Zwiebel, N.
—— **and Hillier, J.** Electron microscopy of colloidal systems, 6040*f*.
—— **and Hubbell, H. H, Jr.** Intensity distribution in small-angle x-ray scattering, 4095*f*.
**Turkhan, E. Ya.** Velocity of absorption of $CO_2$ by hydroxide solns., 1631*b*.
**Turkleson, R. E.** See Reeves, E. J.
**Turkovskaya, A. V.** See Bakhvalov, G T
**Turley, E. W.** Silicates in de-inking, 5948*d*
**Turley, H. C.** See Graham, E. R.
**Turmel, J. M.**, and Belval, H Spontaneous hybridization in *Helianthus* perennials, 8160*g*
**Turnbull, D.** Subcooling of liquid metals, 8776*h*; see Fisher, J. C
—— and Fisher, J C Rate of nucleation in condensed systems, 2847*e*
**Turnbull, F. M.** Salts of sulfanilamides and vasopressor amines, P 9389*g*
**Turnbull, N. H.**, and Prokhovnik, S. J. Measurement of vitamin A, 7075*g*.
**Turnbull, R. F.** Handling and prepn. of wood at pulp mill, 6414*a*
**Turnbull, S. G., Jr.** 3,4-Dihydroxy-2,5-thiophenedicarboxylic acid, P 2236*i*, 3,4-dihydroxythiophene, P 2237*a*.
**Turner, A., Jr.**, and Osol, A Detn of the dissocn. consts. of theophylline, theobromine, and caffeine, 8615*a*
**Turner, A. A.** See Geiger, C F.
—— — and Smith, J M Application of superrefractories to gas-fired industrial kilns and furnaces, 5563*d*
**Turner, A. W.** Bacterial oxidation of arsenite, 8006*e*
**Turner, C. M.** Branching ratio in $Be^7$ decay, 8806*c*.
—— , Cork B, Ballam, J, and Gordon, H. Berkeley four million v electrostatic generator, 1093*a*
**Turner, C. W.** Influence of season on comb development of chicks following oral administration of methyl testosterone, 262*f*, feeding estrogen to laying hens, 294*g*, feeding thyroprotein and sex hormones to laying hens, 294*h*, oral effectiveness of androgens in fowls, 1097*d*, effect of temp and drying on activation of male hormone of cow manure, 9125*c*, see Kauffman G, Montoe, R A., Pipes, G W, Trentin, J J.
—— and Kempster, H L Mild hyperthyroidism maintains egg production with advancing age, 294*g*
—— and Reineke, E. P. Synthetic thyroprotein, P 7998*i*
**Turner, D. L.** Willgerodt Kindler reaction with a pyrrole, 1393*c*, aryl-substituted cyclopentenones: synthesis of the cyclopentophenanthrene structure, 3129*f*, see Miller, Franklin R
**Turner, D R.** Electrolytic polishing of Ag, P 2870*g*, 6525*i*
**Turner, E. F** See Hall, D M.; Shine, H J
**Turner, F. P.**, Butler, B C, Smith, M. B, and Scudder, J. Dextran an exptl. plasma substitute, 5502*a*
**Turner, H. A.** Dyeing and textile printing processes, 5952*i*
**Turner, H C.** See General Electric Co Ltd
**Turner, Harold S.** See Goldberg, A. A; Ward, Blenkinsop, & Co., Ltd.
**Turner, Howard S** See Graham, Boynton
**Turner, J S**, and Hanly, V F. Succinate and plant respiration, 8455*c*.
**Turner, K. B.**, and Pratt, V Effect of incubation on the cholesterol partition in human serum, 9220*c*.
**Turner, L. B** See Young, D. W
**Turner, N.** Org insecticides for control of the Mexican bean beetle, 810*c*; control of insects on tobacco, 2729*a*, see Woodruff, N.
— and Woodruff, N Toxicity of DDT residues, 808*f*, 2728*a*, effect of formulations of DDT and of Chlordan on potato flea beetles and yield, 8599*f*.
**Turner, R. A.** See Carpenter, F H
**Turner, R. B.** See Cope A C.
**Turner, R. D.**, Lawless, M C, Cleary, E, and French, E M Silicone treated test tubes to obtain serum from blood, 6689*i*
**Turner, R. J.** Derivs of 4-methylimidazole, 634*a*, see Denton, J J.
—— and Hill, A J 2,4-Thiophanedicarboxylic acid and related compds., 6611*i*.
**Turner, R. W.** See Smoluchowski, R.
**Turner, S. E.**, and Anderson, R C Spectrophotometric studies on complex formation with sulfosalicylic acid(III) with Cu(II), 5326*a*
**Turner, W. R.** Rust-inhibiting lubricant, P 816*b*.
**Turner-Jones, A.** See Brown, C. J; Crowfoot, D.
**Turner & Newall Ltd.**, Riley, H. L., Hudspith, I. J, and Hancock, E. G. Materials as fillers for rubber, etc., P 7745*b*
**Turova-Pollak, M. B.** Isomerization of polymethylenic hydrocarbons under the action of $AlCl_3$, 157*e*.
**Turovets, A.** Cheese from sheep milk 9283*i*.
**Turovskiĭ, Ya. A.** Heat cond. of peat oil, 8653*g*.
**Turrell, E. S.** See Harger, R. N.
**Turrell, F. M.**, and Chervenak, M. B Radioactive material in studies of S burn in Calif citrus, 9336*c*.
**Turrentine, J. W.** Chem. compn. of agricultural potash salts, 341*g*.
**Turrentine, R. E.** See Hull, A. W.
**Turri, M.** See De Barbieri, A.
**Tursin, V. M.** Biochem. oxidation of sorbite to sorbose, P 3562*d*.
**Turtle, E. E.** Stored-products pests—control in the United Kingdom, 9336*a*.
**Turtur, F.** See Werle, E.
**Turunen, E.** See Toivonen, N. J.
**Turzhetskiĭ, K. I.** Canned fish as a source of staphylococcus food poisoning, 6751*i*, formation of toxin by *Staphylococcus* in food products, 7601*f*.
**Tusques, J.** Action of thyroxine on the olfactory app. of tadpoles of *Rana esculenta*, 8054*a*.
**Tusson, J R.** Purification of red P, P 8110*e*
**Tust, P**, and Schimmels, M. Einführung in die Chemie auf einfachster Grundlage (book), 2084*b*.
**Tustanovskiĭ, A. A.** See Orekhovich, V N
**Tuterian, M. T.** See Tuteryan, M. T.
**Tuteryan, M. T.** See Tatevosyan, G. T.
**Tuthill, H. L.** See Blythe, R. H
**Tuthill, J. B.** Soldering flux, P 5360*c*.
**Tuthill, M. W.** Sn situation, 6954*i*.
**Tuthill, R. W.** W welding, 6142*b*.
**Tuthill, S. M.** See MacNevin, W. M
**Tutin, J.** At. Energy Year Book (book), 6517*d*
**Tuttle, B. S.**, and Navoy, T Treating phosphate coated surfaces, P 8350*b*.
**Tuttle, H. A.**, and Bryan, F R Mo mold samples increase accuracy of spectrographic analysis, 1279*i*
**Tuttle, J. N., Inc.** Treating phosphate coated surfaces, P 8350*b*
**Tuttle, M. A.**, and Cook, R L Cryst and glassy phases in white ware bodies, 9406*i*
**Tuttle, O. F.** New hydrothermal quenching app., 2475*f*; see Bowen, N. L
**Tuttle, W.** See Kip, A
**Tuttle, W. P., Jr.** See Jacobs, T. L.
**Tuttle, W. W.** See Daum, K; Wilson, M
——, Wilson, M, Daum, K., and Rhodes H Influence of thiamine intake on physiologic response (III) reaction time, (IV) vision and hearing, (VI) O consumption, 5096*f*.
**Tutundzhić, P. S.** N. A Pushin, 1617*i*
**Tutundzitsch, Tutuntzich.** See Tutundzhić, P. S.
**Tuve, R. L.** Colored-smoke shell, P 5190*e*
— —, Fogelberg, J. M., Brunnick, F E, and Springer, H S. Shark repellent, P 2734*a*
**Tuzet, O.**, and Durand, M. C. Action of colchicine on the spermatogenesis of *Allolobophora chlorotica*, 5873*d*.
**Tverdokhleb, G.** Faulty butter consistency, 9282*e*
**Tverdova, E. N.** See Nikolaev, V. I
**Tverskaya, S. S.** See Simonov, K. A.
**Tverskoĭ, G. B.** See Zaks, M. G.
**Tweedy, J. M.** See Saunders, H. L.
**Tweedy, W. R.** See Irving, J. T.
**Twible, E.** See Olshaker, B.
**Twichell, T.** See Weissenborn, A E
**Twigg, G. H.** Dissocn extn., 8214*c*. see Lichtenstein, H. J.; Wood, A. M.
**Twiss, D. F.** Improving the quality of natural rubber—problem for the plantation industry, 2457*i*; see Dunlop Rubber Co. Ltd.
**Twiss, R. Q.**, and Frank, N. H. Orbital stability in a proton synchrotron, 3280*i*
**Twomey, D.** See Barry, V. C.
**Tyapkina, V. V.**, and Dankov, P. D. Electron-diffraction study of primary sulfide films on Ag, 32*e*.
**Tyazhelova, A. A.** Synthesis and structure detn of ethers of isopropylethylene bromohydrin, 3358*i*.
**Tyerman, W.**, and Imperial Chemical Industries Ltd. Amines, P 7953*c*.
**Tykachinskiĭ, I. D.** See Buneeva, L L.
Gik, D. L.
and Gik, D. L. Admixts. for intensifying the glass-melting processes, 3577*f*.
**Tyler, C.** Absorption and excretion of certain minerals (I) excretion of Ca, P, carbonate, and chloride—variations during the day, and in relation to oviposition, (II) changes

in compn. of food material as it moves along the alimentary tract, (III) influence of different levels of dietary Ca on retention of Ca, P, carbonate, and chloride, 2291*b*.
**Tyler, F.** Intermediate Heat (book), 4940*e*.
**Tyler, J. D.** See Collins, R. D.
**Tyler, J. G.** See Simmons, P.
**Tyler, L. D.** Higher yields of better oils by alkali refining, 4783*e*.
**Tyler, L. J.** See Sommer, L. H.
——, Sommer, L. H., and Whitmore, F. C. Organosilicon compds. (XIX) *tert*-butylsilicon compds., 562*h*.
**Tyler, P. M.** Mineral economics in 1948, 6550*i*.
**Tyler, R. G.**, and Gunter, S. Biochem O demand of sulfite waste liquor, 3126*a*.
**Tyler, S. A.** See Jackson, M. L.
**Tyler, S. W.**, Brooke, R. O., and Baker, W. S. Detn. of sulfaquinoxaline and sulfaguanidine in com. feeds, 9291*a*.
**Tyler, W. P.** See Beesing, D. W.
**Tylkina, M. A.** See Savitskiĭ, E. M.
**Tymstra, S.**, and Miles, T. K. Removing oil from water, P 6770*d*.
**Tyndall, E. P. T.** See Wert, C. A.
**Tyner, M.** Enthalpy concn diagram for HF water system at one atm., 2043*c*; manuf of sand-lime brick, 3590*e*.
**Tyran, L. W.** See Rogers, A. O.
**Tyre, A. T.** Flameless, gas-producing charges, P 5190*d*.
**Tyree, E. B.** See Straube, R. L.
**Tyree, S. Y., Jr.** See Chapman, F. W., Jr.
—— and Knight, S. B. Training of a chemist 8220*c*.
**Tyrer, D.** Phenols or salts thereof, P 2638*e*, 2639*a*
**Tyrrell, G. W.** Advances in geology, 978*d*, 6126*i*
**Tyrrell, H. J. V.** Corrosion investigations by Brit. Nonferrous Metals Research Assoc.—Cu pipe—review of service failures, 6343*h*.
—— and Hollis, G. L. Thermal diffusion potentials in nonisothermal electrolytic systems, 6492*h*.
**Tyrrell, J. F.** Economy in production—progressive stamping dies, 8999*a*.
**Tyson, B. T.** See Dwyer, F. P.
**Tyson, C. W.** Stripping vessel for fluidized solid catalyst in hydrocarbon conversion, P 7677*d*, see Gohr, E. J., Murphree, E. V., Thompson, W. I.
**Tytell, A. A.** Lysis of *Clostridium perfringens*, 9158*d*; see Byers, S. O.
**Tyulin, A. F.** Sepg coarse silt into aggregated and nonaggregated particles and evaluating the two fundamental forms of aggregation of silt, 793*f*.
—— and Malomakhova, T. A. Coating coarsely dispersed clay minerals with sesquioxides, 7620*g*.
**Tyurenkov, N. G.** Concn. scheme of Perevoural'sk titanomagnetites, 3325*i*.
**Tzarev, M. V.** See Tsarev, M. V.
**Tze, Y. P.** See Shinra, K.
**Tzoukerwanik, I. P.** See Tsukervanik, I. P.
**Tzschacher, W.** Can virus diseases be influenced successfully by chem agents? 5503*d*
**Tzschaschel, H.** Working up of German silver shot, 8327*a*.
**Tsukervanik, I. P.** See Tsukervanik, I. P.
**Tsukhanova, O.** See Tsukhanova, O. A.
**Tzvetcoff, V.** See Cooper, H. S.
**Tzvetkow, W.** See Tsvetkov, V. N.

**Ubaldini, I.** Mercaptobenzothiazole as a reagent for Pt, Rh, and Pd, 60*d*.
——, Crespi, V., and Guerrieri, F. Detn. of anthracene with maleic anhydride, 8980*c*.
—— and Guerrieri, F. Identification and estn. of nitrites in colored solns and in soils, 2894*e*; detn. of nitrates in the presence of large amts. of nitrites, 8968*b*; analysis of mixts. of $Cu_2O$, CuO, and metallic Cu, 8969*d*.
—— and Nebbia, L. Sepg. Pt from Rh and Pd, 2880*f*.
**Ubatuba, F., and Costa de Moraes, J.** Effect of thyroxine on mitosis and binucleated cells in the rat liver, 1487*i*.
**Ubbelohde, A. R.** Freezing-in of nuclear equil., 3708*k*; see Copp, J. L.; Kacser, H.; Mackle, H.; Menary, J. W.; Pink, R. C.; Reid, T. J.
**Ubeda, F. E.** See Buscarós Ubeda, F.
**Ubisch, H. v.** Hot-wire vacuum gage, 4*g*, 1615*c*; see Arvidson, H.; Bergstrand, A.; Bergström, S.
**Uchida, J.** Sulfite waste liquors (V) behavior of methoxyl group during the sulfite cooking, (VI) detn. of lignin and lignosulfonic acid in sulfite liquor, (VII) identification and detn of sugars, (VIII) detn. of pentoses, (IX) detn. of total sugars, 2434*c*.
**Uchida, K.** Br from a bromide-contg. fluid, P 2381*g*.
**Uchida, M.** See Sahashi, Y.
**Uchida, Shogo.** $NH_3$-soda process under high pressure of $CO_2$, $Na_2SO_4$ being used as raw material (I) equil of the reciprocal system $Na_2SO_4$-$NH_4HCO_3$-$H_2O$ under high pressure of $CO_2$, (II) identification of compds. obtained from the solid phase in the equil. of the reciprocal system $Na_2SO_4$-$NH_4HCO_3$-$H_2O$ by means of polarizing, (III) phase diagram of equil solns of the reciprocal system $Na_2SO_4$-$NH_4HCO_3$-$H_2O$, (IV) empirical formulas for calcg. the compns. of the equil. solns. of the reciprocal system $Na_2SO_4$-$NH_4HCO_3$-$H_2O$, 1917*h*; (V) effect of concn., temp., and pressure of $CO_2$ on the efficiency of carbonating process, (VI) summary of expts., 1918*h*.
**Uchida, Shun-ichi.** Adsorption of penicillin from broth with active charcoal and its elution with acetone, 6789*d*.
**Uchida, Shunro.** Insecticidal action of chemically inert materials, 1139*g*; see Nakasawa, Sumio.
—— and Harukawa, C. Comparison of the toxic actions of *p*-dichlorobenzene and naphthalene, 1142*b*
**Uchida, Y.** Fe carbonyl, P 1162*a*.
**Uchino, M.**, and Ueno, I. $MgCl_2$, P 7201*b*.
**Uddeen, O. T.** See Talib-Uddeen, O.
**Uddeholms Aktiebolag.** Metal salts of ether carboxylic acids, P 9536*d*
**Udin, H.**, Shaler, A. J., and Wulff, J. Surface tension of solid Cu, 2558*b*
**Udovenko, V. V.** Detn of the mol wt. as a method of physicochem. analysis (VI), 1252*e*.
—— and Babak, S. F. Detn. of the mol. wt. as a method of physicochem. analysis (IV), (V), 1252*b*.
—— and Frid, Ts. B. Heats of vaporization of binary mixts. (I), (II), 476*h*; (III), 1253*i*.
**Udupa, H. V.** See Dev, B. B.
**Udvardy, M. D. F.** See Gerendás, M.
**Udy, M. C.** See Kura, J. G.
——, Manning, G. K., and Eastwood, L. W. Be alloys, 9011*h*.
**Udy, M. J.** Cr compds., P 3983*i*, sound metal castings, P 551*c*, compns for use in producing metallic Cr bearing materials, P 5729*h*.
**Udylite Corp.** Filter assembly using diatomaceous earth as filtering aid, periodically replaced by reverse flow of wash water, P 2048*b*, bright Cu plating bath, P 2103*b*; bright Ni plating bath, P 2103*d*, electrodeposition of metals, P 1152*b*, electrodeposition of Ni from an acid bath, P 4153*a*, 6095*ab*.
**Ueda, M.** See Takano, T.
**Ueda, R.** See Miyake, S.
**Ueda, Z.** See Okabe, M.
**Ueki, K.** See Tanaka, Yoshio.
**Ueki, S.** Glucose, P 2456*d*; fructose, P 3639*f*.
**Ueno, A.** See Matsuda, T.
**Ueno, I.** Manuf of anhyd. $MgCl_2$ from magnesia and $NH_4Cl$ (I) calcination below 300°, (II) effect of excluding air during calcination, (III) rate of generation of $NH_3$ gas and the relation between raw material mix, and purity and yield of $MgCl_2$, (IV) reactions between $NH_4Cl$ and FeO, silicic acid, alumina, lime, Ca carbonate, Mg carbonate, and the reaction mechanism in this method, 1918*i*; (V) roasting expt. of calcined magnesite, (VI) roasting in kg units, 1919*d*; production of alumina by soda-lime process (IV) expts. with aluminous shale, (V) expts. with raw materials mixed in the molar ratio of $Na_2O$ and $Al_2O_3$ 1.2·1.0, 1924*a*; see Uchino, M.
——, Ogura, T., and Hasegawa, M. Production of $Al_2O_3$ by soda-lime process (I) synthesis of compds. of CaO-$Al_2O_3$, $Na_2O$-$Al_2O_3$, and CaO-$SiO_2$ systems and the extn. of the products with soda soln., (II) synthesis of compds. of $Na_2O$-CaO-$Al_2O_3$ and $Na_2O$-CaO-$Al_2O_3$-$SiO_2$ systems and the extn. of the products with soda soln., also expts. with kaolinite, (III) synthesis of $Na_2O$-CaO $Al_2O_3$ $SiO_2$-$Fe_2O_3$ and $Na_2O$-CaO-$Al_2O_3$-$SiO_2$-FeO systems and the extn. of calcined substances by soda soln. as well as expts. with bauxite used as raw material, 1923*c*.
**Ueno, K.** Electrolytic Fe from sand Fe, P 6526*d*.
**Ueno, Saizo**, and Orito, Y. Prepn. of AcOH from AcH by liquid-phase oxidation, 4633*e*.
**Ueno, Seiichi.** Influence conditions of pptn. on the activity of Ni catalysts (I) pptn. with caustic soda, 5211*b*.
—— and Anzai, R. Life of Ni catalysts and the recovery of spent catalysts, 5210*i*.
—— and Imade, H. Relation between forms and the rate of drying of soap, 5612*c*.
—— and Kodera, M. Synthetic splitting agents for oils and fats (VI) effect of saw dust and Al grains, 8707*a*.
——, Komori, S., and Kishimoto, A. Reduction of fatty acid esters to higher alcs. by Raney Ni, 5363*f*.
—— and Manpo, K. Alcoholysis of oil (I) effect of catalysts under ordinary pressure, 7723*h*.
—— and Matsuda, S. Synthesis of lubricating oil (I) lubricating oil prepd. from polymerized Me esters of fatty acids, 2416*f*
——, Matsuda, S., and Kimura, T. Vegetable seed oils (III) constituents of rumbannut oil produced in the Philippine Islands, 7723*a*; seed-oil of *Nandina domestica*, 8708*h*, seed-oil of *Perilla fintescens*, 8708*i*.
——, Matsuda, S., and Toyoda, R. Utilization of coconut oil (I) synthesis of a higher fatty alc., 5208*e*.
——, Matsuda, S., and Yamashita, T. Partial hydrogenation of linolenic acid, 8707*b*.
—— and Morita, E. Prepn. of castor bean lipase, 5434*f*
—— and Morita, N. Influence conditions of pptn. on the activity of Ni catalysts (II) pptn with $Na_2CO_3$, 5211*c*.
——, Ota, Y., Sakaguchi, S., and Yasuda, Y. Lubricating oil (I) depression of the pour point of mineral lubricating oil by the addn. of fatty acids and their esters, (II) influence of adding metallic soaps of fatty acids on adhesiveness and pour point of mineral lubricating oil, 2416*b*.
——, Saida, T., and Yamada, K. Synthetic splitting agents for oils and fats (I) trial manuf of splitting agents, 8705*i*.
—— and Tokunaga, T. Characteristics and compn of hemp seed oil (I) compn. of mixed fatty acids, 5208*b*.
—— and Tsuchikawa, H. Quality of Japanese butters and margarines, 1875*b*; fractional distn. of the satd. fatty acids of highly hydrogenated oils (VII) compn. of the completely hardened oil of the Antarctic finback whale and Japan wax, 5207*c*.
—— and Wan, P. North China sunflower-seed oil, 882*g*.
——, Yagi, S., and Anzai, R. Hydrogenation of soybean oil, 5209*h*.
—— and Yamada, K. Synthetic splitting agents for oils and fats (II) reaction velocity of hydrolysis, (III) kinetics of hydrolysis of oils, blown oil, and wax, (IV) influence of the addn. of unsaponifiable matter and soybean lecithin to oils and fats on the velocity of hydrolysis, (V) effect of metals on the velocity of hydrolysis, 8705*i*.
——, Yamamura, K., and Koguro, Y. Quality of soap after World War II, 5612*c*.
—— and Yorozu, K. Fractional distn. of the satd. fatty acids of highly hydrogenated oils (VIII) highly hardened Chinese tea oil, 5207*d*.
——, Yukimori, T., and Hayashi, K. Alc. extn. of rice-bran oil (I), (II), 881*h*.
——, *et al.* Synthesis of lubricating oil from cuttle-fish oil, 9424*a*
**Uetakil, M. I.** Prepn. of highly beaten pulp, 9441*g*.
**Ueyanagi, J.** See Tatsuoka, S.
**Ufer, A.**, and Schlittler, E. Reduction of an amide to an amine with the same no. of C atoms, 121*g*.
**Ufford, C. W.** See Aller, L. H.
**Ufimcev, V.** See Ufimtsev, V. N.
**Ufimtsev, V. N.** Bisulfite compds. (IX) reactions of resorcinol with bisulfite, (X) bisulfite compd. of chrysoidine, (XI) bisulfite compd. of 1,4-naphthoquinone, (XII) bisulfite compd. of the methylphenylhydrazone of 1,4-naphthoquinone, 2595*f*; formation of the intramol. bond in aromatic compds., 4627*d*; see Bekhli, A. F.
**Ufnowski, W.** App. for recovering $CS_2$, $H_2S$, etc., from coagulation and ripening baths of viscose filaments, P 849*d*.
**Ugai, Ya. A.**, and Shatillo, V. A. Polytherm

of the ternary system $ZnCl_2$–$PbCl_2$–KCl, 7316*e*.

**Ugarov, V. A.** See Lopukhin, V. M.

**Uhl, H. B.,** and Cooper, I. H. HCHO, P 5791*i*.

**Uhl, W. C.** Cold rubber success means business for butadiene plants in the southwest, 7742*d*.

**Uhle, F. C.** Synthesis of 5-keto-1,3,4,5-tetrahydrobenz[*cd*]indole—synthesis of 4-substituted indoles, 4255*d*

**Uhlen, G.** See Turba, F.

**Uhlen, Gerda.** See Haul, R.

**Uhlen, Gertrud.** See Schauenstein, E.

**Uhlenbeck, G. E.** See Falkoff, D. L.

**Uhlenhuth, P.** Kartoffelkäfer-Forschung und -Bekämpfung (book), 5898*i*.

**Uhlig, H. H.** Metallurgy, 1293*d*; inhibitors of corrosion, 1707*a*; why metals corrode, 5721*i*, cost of corrosion to the U. S., 8342*b*, see Robertson, W. D

——— and Broughton, D. B. Less common metals, 8745*d*.

**Uhlir, F.** Prepn. of the Boutron Boudet soln., 7724*f*.

**Uhlmann, P. A.** Activated sludge treatment of rendering wastes, 6767*g*.

**Uhry, P.** See Boulin, R

**Uihlein, E. C.,** and Lawrie, I W Stabilizing beer against radiation deterioration, P 1526*g*.

**Uitenbroek, G.** See Nieuwenburg, C. J. van

**Ukil, A. C.** See Sen Gupta, U N.

**Ukita, T.** See Shibata, S

**Uklitzsch, H. W.** Al alloyed cast iron, 7395*a*.

**Ulevitch, I. N.** See Maron, S H

**Ulich, H.** Kruzes Lehrbuch der physikalischen Chemie (book), 479*a*.

**Ulivelli, A.** See Nassi, L.

**Ullyot, G. E.** Secondary cyclohexylalkylamines and their salts, P 1802*c*; aminoalkyl benzoates, P 4696*g*; aminophthalidylalkanes, P 7510*c*, see Wilson, J W., III.

**Ulmann, M.** Research in wood chemistry in the U S S R , 3193*e*.

**Ulmer, R. C.,** and Churchill, J F pH control through use of a S burner, 3184*g*

**Ulrich, A.** Mineral metabolism and Halovis, 3912*h*; poisoned oil and mists against *Lymantria monacha*, 7626*c*.

**Ulrich, Albert.** Plant analysis as a guide in the nutrition of sugar beets in Calif , 5142*e*, see Stout, P. R.

**Ulrich, D.** See DeLamater, E. D

**Ulrich, J. A.** Tests on bacon point way to keep it fresh in cans, 4394*h*.

**Ulrich, R.** Extn and analysis of the internal gas of fleshy fruits, 4350*b*; variations of the respiratory activity of some fruits during their development, 8014*i*, influence of injuries on the metabolism of glucides in pea pods, 8458*i*.

**Ulshafer, C. B.** Al coating steel, 1269*a*.

**Ultée, A. J.** Streptomycin, 2276*c*, components of samples of latex, 4041*i*; halogen derivs. of isoprene, 5362*b*, 2-methyl-3-buten-2-ylmethyl ether and 2-methyl-2-4-butenylmethyl ether, 6970*i*, see Salomon, G.

**Ulubay, S.** See Helberger, J H

**Ul'yanova, N. T.** See Mehk Zade, M.

**Umanskaya, V. P.** See Melsel, M. N.

**Umanskii, A. M.** Detn. of Na citrate, 6541*f*.

**Umanskii, M. M.** See Bagaryatskiĭ, Yu. A.; Sevast'yanov, N. G ; Shugam, E A.

**Umanskii, Ya. S.** Karbidy tverdykh splavov (book), 2566*b*.

**Umbarger, M. A.** See Miller, Joseph M.

**Umberger, E. J.,** and Curtis, J. M. *p*-Phenylazobenzoyl esters of the natural estrogens and their sepn. by chromatographic adsorption, 5787*e*; $H_2SO_4$ reaction for the estn. of $\alpha$- and $\beta$-estradiols and of estrone and equilin in binary mixts in pure solns., 8427*e*

**Umberto, V.** Effect of *p*-aminobenzoic acid on the agglutination of *Eberthella typhosa* and of the paratyphoid bacillus, 6310*b*.

**Umbreit, W. W.** Action of streptomycin, 4334*a*.

——— and Gunsalus, I. C. Codecarboxylase not pyridoxal-3-phosphate, 6680*c*.

———, O'Kane, D. J., and Gunsalus, I C. Function of the vitamin $B_6$ group—transamination, 2297*c*.

——— and Waddell, J. G. Action of desoxypyridoxine, 4710*f*.

**Umeda, Kazuo.** See Kambara, S.

**Umeda, Kwai,** and Nakano, Y. Solid-soly. effect of metallic surface friction, 5278*a*.

**Umeda, Y.** Equil. of the system $Na_2B_4O_7$–$Na_2CO_3$–water (I), (II), 7804*c*.

**Umemoto, J.** See Iguchi, K.

———, Sogabe, Y., and Inokuchi, K. Soybean protein (I) manuf. of soybean protein with good plasticity, 4789*i*.

**Umemura, H.** Detoxicating hormone of the liver (CII) effect of yakriton on the urinary Cl excretion, 5843*i*; peroxidase reactions (CLXXIII) distribution of urinary $B_1$ outputs according to difference of Arakawa's reaction of lactating mothers, (CLXXVII) influence of vitamin $B_1$ and glucose injected into mammary gland on lactation and Arakawa's reaction, 9215*a*.

**Umemura, T.** See Murata, Y.

**Umezawa, H.,** Susuki, S., Shigei, T., and Takeuchi, T. Influence of phenylacetic, (*p*-nitrophenyl)acetic, (*p*-aminophenyl) acetic and (*p*-hydroxyphenyl)acetic acids on penicillin production in surface culture, 3060*g*, 6273*f*.

**Umezawa, J.** Curled viscose artificial fibers, P 6833*c*.

**Umezu, M.** See Asami, N

**Umhau, J. B.** See Nighman, C. E

**Umhoefer, R. R.** See Dawsey, L. H

**Umnik, N. N.** See Zhavoronkov, N M.

**Umrath, K.** See Hellauer, H. F.

——— and Hellauer, H F Occurrence of the sensory substance and of enzymes destroying active substances, 5842*d*

**Umrikhin, P. V.** Slag formation in the melting period of a scrap process, 2910*i*

**Umstätter, H.** Structure mechanics of viscous elastic systems (XII) cavitation, 4540*h*, relaxation theorem of Maxwell in macromol. org chemistry, 6490*h*, structural analysis of petroleum hydrocarbons, 8653*i*.

——— and Flaschka, H Structure mechanics of viscous elastic systems (XI) viscous elastic hysteresis, 4540*g*.

———, Flaschka, H , and Volker, H Structure mechanics of viscous elastic systems (XIV) theory of the filter effect, 4541*c*

——— and Hansen-Dunnewitz, I Structure mechanics of viscous elastic systems (XIII) kinetic of pre-cryst phases, 4541*a*

**Uncapher, R. P.** See Clark, W G

**Undank, P.,** and Feigelman, V. New York City water supply, 9301*h*

**Underdown, R. E.** Glycerol in wine, 6780*a*

**Underhill, A. B.** Spectrum of $\gamma$ Pegasi (II), 2509*e*.

**Underkofler, L. A.** See Banzon, J.

**Underwood, E. J.** See Clare, L. E. A , Johanson, R , Lee, J. W.

———, Coleman, R. G , and Curnow, D. H. Carotene losses in curing and storing cereal hay, 4784*a*.

**Underwood, G. B.** See Gaul, L E

**Underwood, J. C.,** and Keller, G J Measuring the consistency of tomato paste, 2709*a*

**Underwood, J. E.** Anomalous luminescent effect, 6081*f*

**Underwood, J. W.** See D'Alelio, G. F

**Underwood, N.** See Lagemann, R. T ; Thomas, H. C

**Undritz, E.** See Bidder, H. v.

**Ungar, D.** Food and Drug Administration and some import figures for crude drugs and spices, 6786*g*.

**Ungar, G.,** and Mist, S. H. Release of serum fibrinolysin by specific antigen, peptone, and certain polysaccharides, 7125*g*

**Ungar, J.,** Coulthard, C. E , and Dickinson, L. Pathogenic effect of phthioic acid and its synthetic analogs, 4375*f*.

**Ungaro, R.** Permanent crystals of hemochromogen in an alk medium produced by a method of identifying traces of blood, 9133*b*.

**Unger, P. N.,** Weiner, M., and Shapiro, S. Vitamin K-tolerance test, 1095*h*

**Ungnade, H. E.** Isomers of 4-phenyl and 4-cyclohexylcyclohexanol, 159*i*; 1,2-bis-(4-ketocyclohexyl)ethane, 590*g*; isomeric 4-propylcyclohexanols, 6989*e*; see Keller, W. D ; Pickett, E E

——— and Crandall, E. W. Reaction of aromatic aldehydes with $AlCl_3$ and $C_6H_6$, 7005*e*.

——— and Hendley, E. C. Bitter principle of *Helenium tenuifolium*, 1389*f*

——— and Tucker, P. W. Hydrodiethylstilbestrol compds. (III) *meso* octahydro compds , 2194*e*; (IV) unsatd. ketones, 6187*d*; (V) reinvestigation of the racemic octahydro compds., 7007*h*.

——— and Zilch, K. Elec. furnace for semimicroanalysis of C and H, 1267*i*.

**Union Bay State Chemical Co., Inc.** Derivs. of aliphatic terpenes, P 6219*d*.

**Union Carbide & Carbon Corp.** Welding flux, P 3344*a*; treating agent, P 3768*i*; purification of ferrochromium, P 6146*b*; welding rod, P 7405*e*; alloy addn. agent, P 9020*h*

**Union chimique belge, Soc. anon.** $NH_4NO_3$, P 1537*a*, polymerized org. Si compds , P 4896*f*

**Union minère du Haut Katanga.** Production of relatively volatile metals by reduction of their ores in an elec. furnace, P 2878*e*

**Union Oil Co. of Calif.** (*Patents.*) Oxidation of hydrocarbons and manuf. of lubricant additives, 1959*b*; carboxylic acid purification, 2222*i*, 1,3-diketones, 2634*c*, azeotropic distn , 3187*a*, 3435*e*; lubricating compn., 3192*g*, 8131*c*; gum inhibitor for motor fuel, 3193*e*; well logging, 3603*h*, sepn of close-boiling naphthenes by azeotropic distn., 3670*b*; oxidation of cycloaliphatic hydrocarbons and alcs., 3842*b*, azeotropic sepn of xylene isomers, 4007*b*; multiple-stage shale eduction process, 4157*b*; aliphatic dinitrohydrocarbons, 4683*d*, ketones, 4685*i* cycloalkyl nitrites, 4693*i*; treatment o soils for agricultural purposes, 5144*c*; Diesel fuel, 8810*f*, recovery of naphthene hydrocarbons, 7678*a*; purification of naphthenic acids, 8130*g*; asphaltic jet-propulsion fuel, 8669*c*, catalytic reforming of hydrocarbon mixts , 9430*a*; additive for motor fuels, 9431*d*

**Union Trust Co.** Water-filtering unit comprising glass-ball beds and agitating means for cleansing the filter beds, P 3548*h*.

**Unipektin, A.-G.** Decompn of pectins, P 4398*b*, 5137*a*, gels from water-sol salts of pectic acid, P 5887*i*, purification of pectin contg material, P 7610*f*

**UNIP S. A.** Blood coagulating agents, P 1158*b*

**United Aircraft Corp.** Protecting metal surfaces, P 1710*c*, de icing compn , P 2712*g*, pattern materials, P 5888*i*

**United Chemical and Metallurgical Works, Ltd.** Al Si alloys, P 3771*d*.

**United Chemical and Metallurgical Works National Corp.** See Spolek pro chemickou a hutni vyrobu narodni podnik (United Chemical and Metallurgical Works National Corp ).

**United Chromium, Inc.** Removing incrustation from Pb anodes used for Cr plating, P 2102*g*, articles having fissured Cr surface electrodeposits, P 2878*i*, method of Cr plating and treating steel airplane propeller blades, P 4152*f*, compns for producing surface-conversion coatings on Zn, P 5681*e*.

**United Domestic Industries Ltd.** and Katscher, E. Cholesterol, P 4433*d*.

———, Katscher, E , and Peter, R C. Isolation of calciferol and vitamin $D_3$, P 3573*a*

**United Gas Improvement Co.** Hydrocarbon resins, P 903*a*, O-treated hydrocarbon resins and compns. contg. the same, P 903*b*; decolorization of hydrocarbon resin, P 3233*g*; stabilized indene resins, P 4511*d*; resin blend, P 5228*h*; diesters of glycols of nuclear-substituted styrenes, P 6663*g*; plasticized polystyrene, P 8209*c*

**United Merchants & Manufacturers, Inc.** Drier of textile fabrics, P 2443*d*.

**United States Forest Products Laboratory.** Wood preservation, 3554*e*.

**United States Gypsum Co.** Dense products from cement material, P 374*d*, light-wt. products, P 874*g*; fire-resistant asphalt roofing, P 1940*c*, water-repellant coating, P 3606*g*; stabilized gel-type $Ca(OH)_2$, P 6375*f*; self-hardening compn. of urea-HCHO resins and a hydrated alk. earth oxide, P 8739*a*; self-hardening compn. of melamine-HCHO resin and a hydrated alk. earth oxide, P 8730*b*.

**United States Industrial Chemicals, Inc.** Same as U. S. Industrial Chemicals, Inc.

**United States Radium Corp.** X-ray screen, P 1662*c*; radioactive Au, P 3206*g*; radioactive metal products, P 7831*b*, 8898*d*.

**United States Rubber Co.** (*Patents*) Abrasive articles, 9408*g*; $\alpha$-(acetoxymethyl)acrylonitrile polymers, 2630*e*, addn. of chlorinated AcOH derivs to olefins, 7502*g*; allylic *o*-benzoylbenzoates, 3847*e*; antioxidants, 3042*g*, 4891*c*; 1,3-bis(*o*-xenyl)triazine, 897*h*; bonding metal to rubber, 5626*a*; Br-contg. compds., 5789*e*, 6644*h*; butadiene-styrene copolymer cements, 8239*b*; 1,3,4-butanetricar-

boxylic acid, 2635*b*; cellular resin, 3656*a*; creaming of rubber latexes, 9518*d*; cyanoethylated esters of α-acylsuccinic acids, 2634*i*; di(o-acrylaminoaryl) disulfide softeners for isolefin-diolefin copolymers, 6858*i*; di(o-acylaminoaryl)disulfide softeners for rubber, 6858*hi*; 2,4-dichlorophenoxyacetic acid, 7509*i*; dispersions of synthetic rubbers, 896*b*; 2,2'-dithiobis-[(*N*-aryl carbamic ester)] softeners for rubbers, 6858*h*; 2,2'-dithiobis[propionanilide] softener for rubbers, 6858*i*; divinylarylene compds. in elastomer polymerization, 7746*c*; elastic fabrics, 1194*g*; electrically conducting panel, 2526*f*; fumaric acid, 1798*d*; fungicides, 7632*d*; halogenated dicarboxylic acids, 6226*d*; increasing particle size of synthetic rubber latexes, 5223*c*, 7744*h*; interpolymer, 3660*h*; oil-phase polymerization, 5230*b*; plasticized polyvinyl chloride compns., 7755*c*; polymerization of 1,3-butadienes, 2806*a*; polymerization of polyhydric alc. esters of α-olefinic dicarboxylic acids with ethylenic monomers, 906*e*, 5230*e*; polymerization of unsatd alkyd resins, 3239*e*, polymerization of 2-vinylthiazoles, 2805*e*, polymers of butadiene and styrene, 3228*i*, polymers of 2,5-dimethyl-1,5-hexadiene and acrylic esters, 2035*f*; preserving rubber, 2803*i*, 5990*h*, 9519*a*; 2-propenyl esters of α-halogenated aliphatic acids, 2632*h*, purification of phenothiazine, 821*d*, reclaiming aid, 5992*f*; recovery of $HSO_3F$ and use as condensing agent in production of DDT, 2732*g*, reducing odor and surface tack of Neoprene objects, 6456*i*; sepn of rubber from the serum or skim obtained in creaming or centrifuging rubber latex, 895*b*, sponge polychloroprene rubber, 2804*i*; symmetrical xenyltriazenes in making gas-expanded org. plastics, 897*d*, synthetic resin, 9525*c*, synthetic rubber latexes, 9520*i*, 9521*a*; tensile strength of gray cotton yarn, 6429*d*, trichloroacetyl chloride, 7954*c*; unsatd polymeric materials, 905*b*, vinyl sulfones, 7952*g*, vulcanization accelerators, 8195*h*; vulcanization of rubber, 3230*c*, 5626*f*

**United States Rubber Products, Inc.** See United States Rubber Co

**United States Standard Products Co.** Chlorophenyl camphorates as fungicides, P 1901*i*

**United States Tariff Commission.** Synthetic org. chemicals, U S. production and sales—crude products from petroleum and natural gas for chem conversion—miscellaneous chemicals—plasticizers, 6336*g*

**United States Vanadium Corp.** Recovering W from low-grade ores, P 3768*f*; improvement in Mo and W compds., P 4436*c*, Mo compds , P 5160*b*.

**United Water Softeners Ltd.** Name changed to Permutit Co Ltd.

**Universal Atlas Cement Co.** Slow-setting cement, P 5920*i*; retarded cement, P 6389*a*

**Universal Industria dolciaria agricola alimentare.** Sweet material, P 5881*d*

**Universal Oil Products Co.** (*Patents.*)
alkyl-alkoxyphenol mixts., sepn. of, 3187*e*.
alkylation app., the liquid catalyst being continuously returned for reuse, 3604*h*.
alkylation of aromatics, 680*a*, 5181*i*
alkylation of phenols, 6235*b*, 7966*c*.
alkyl norcamphanyl ethers, 3462*a*.
alumina-Pt-halogen catalyst, 8578*i*.
arylalkanes, intermol. condensation of, 1440*b*.
arylalkylamines, 681*h*.
branched-chain hydrocarbons, 1049*f*, 6217*e*.
carbonyl compds., 4287*f*.
catalyst absorption, 2704*a*.
catalyst prepn., 2746*f*.
catalyst regenerator for hydrocarbon cracking systems, 3604*d*.
catalysts, 4004*f*.
catalysts, regenerating dehydrofluorinating, 5518*c*.
cone shaped, perforated insert for funnels to hold and remove filter paper, 4057*a*.
conversion of fluid reactants, 1955*i*.
conversion of hydrocarbon oils, 4003*i*.
conversion of hydrocarbons, 387*s*, 1955*h*, 4457*i*, 4843*e*.
core oil, 5728*b*.
cracking of hydrocarbons, 386*i*.
dehydrogenation of hydrocarbons, 1538*h*.
dehydrogenation using $CO_2$ as stripping gas, 9078*e*.
dehydrohalogenation of alkyl halides obtained from alkanes and alkenyl halides, 4681*h*.
dienophilic adduct resin intermediate, 5997*c*.
distn. of alkylated aromatic hydrocarbons contg neutral org sulfates, 3187*d*.
distg. or converting hydrocarbon oils with powd. solid materials, 9429*f*.
drying and spraying app for forming spherical catalyst particles used in hydrocarbon reactions, 6013*e*.
drying oil from castor oil, 6838*b*.
emulsifier for polymerization, 4896*b*.
extn. of an aromatic hydrocarbon from a mixt. contg. other hydrocarbons, 3845*a*.
fluoride removal from hydrocarbons, 1557*g*, 2764*e*, 6218*d*, 6643*c*.
fluoroalkanes, 2628*g*.
gas-liquid contacting app., 8759*b*.
haloalkylated alicyclics from alkenyl halides, 4693*h*.
halogenated bicycloparaffins, 689*f*.
halogen removal from hydrocarbon mixts., 4006*c*.
hydrogen fluoride catalyst, 5939*d*.
hydrogen fluoride recovery, 5182*a*.
hydrogen meter for flowing gaseous mixts., 2047*h*.
isomerization of olefins, 3604*i*
isomerization of paraffinic hydrocarbons, 6819*i*, 8667*b*.
mercury vacuum still, 7*c*.
methoxyacetic acid, 3448*d*.
methylation of aromatic hydrocarbons, 679*h*.
monohaloalkane derivs., 7035*c*.
naphtha fractions, reduction in olefin content and increase in octane no. of, 7677*s*.
olefin polymerization, 5640*f*, 5788*h*, 5939*b*.
olefin sepn. from paraffins, 3436*c*.
olefins, sepn. of cyclic from straight-chain, 4003*f*.
oxidizing ales , 3025*g*.
polymerization of $C_4H_8$, 1218*i*.
polymers (high-boiling), 2469*a*.
purification of cyclic olefinic ketones, 5039*d*.
purification of hydrocarbons, 4002*c*
reactor for close chem control, 7760*h*.
reforming a gasoline, 8664*g*.
resins prepd. by reaction of an alkyl benzene, a phenolic compd., and a dihaloalkane, 3654*g*
sepg a gaseous mixt , 379*h*
shale oil-distn. retort, 4450*f*
silica hydrogel catalysts, 3604*a*.
stabilization of org compds , 3604*f*, 4005*e*.
sulfonic acid recovery from sulfonating agent, 7224*a*.
surface-active agents, 2004*f*.
tetrabasic polyacids, 846*d*.

**University of Minnesota.** Plant exts , P 5157*e*, preservation of oleaginous materials from oxidative rancidity, P 5881*h*; prepg fibers and yarns, P 6833*a*

**University of Oklahoma Research Institute.** Cellular material from volcanic ash, P 6339*h*.

**University of Tennessee Research Corp.** Antigen for the diagnosis of malaria, P 5112*d*, phenolic molding compns., P 5633*h*.

**University of Texas** and Stevens, A. H. App. for treating gases with elec. glow discharges, P 3994*d*.

**University of Toronto.** Extn. of insulin from pancreas glands, P 4434*a*.

**Unkel, H.** Re-formation expts. on a Cu-Be alloy, 6136*f*.

**Unna, K.** See Kimura, K. K.; Schlau, L. S.

**Unny, M. M.** See Chari, S. T.

**Unrau, J.** See Kennedy, W. K.

**Unruh, C. C.** See Kenyon, W. O.

——— and Kenyon, W. O. Heteropolymer of isopropenyl acetate and maleic anhydride, P 2226*d*.

**Unruh, C. H.,** and Katz, D. L. Gas hydrates of $CO_2$–$CH_4$ mixts., 4832*f*.

**Unseld, D. W.** See Goertz, M.

**Unsöld, A.** Nuclear physics and cosmology, 38*g*; spectrum analysis of the sun's atm., 38*i*; what can one conclude from a given curve of growth? 39*g*; calcn. of statesums for atoms and ions in a partially ionized gas, 39*i*; structure of stellar atm. (II) adiabatic change of state of stellar material—entropy *S* and temp. gradient $(d \log T/d \log P_g)_{ad}$ as functions of $P_g$ and *T*—boundary condition between convective and radiative equil., 6916*d*; see Jentzsch, C.; Rosa, A.

**Unterreiner, J.** Plates for Pb storage batteries, P 8292*e*.

**Unvala, H. A.** See Tawde, N. R.

**Unwin, H.** Hosiery dyeing, 7232*e*.

**Unwin, H. D.** Metallurgical-plant wastes and their treatment, 5712*e*, 8587*e*

**Updegraff, D. M.** Production of phenol and *p* cresol by means of bacteria, 6280*e*

**Updegraff, I. H.,** and Cassidy, H G Electron exchange-polymers (II) vinylhydroquinone monomer and polymer, 5263*e*.

**Updike, R. L., Jr.** See Gooden, E. L.

**Upgar, V.** See Goldenberg, M.

**Upham, F. N.** Energy of resilience and abrasion resistance, 4884*i*.

**Upjohn Co.** β-Aminopropionitrile, P 1052*e*; alkyl esters of ascorbic acid, P 3154*ac*; therapeutic sponge, P 4434*g*; quaternary salts of *N*-substituted 3-pyridenesulfonamides, P 6671*e*.

**Uppal, I. S.** Recovery of maize starch by-products and their industrial applications, 5218*g*.

**Upton, P. B.** Electrodeposition in the printing industry, 6924*g*

**Upton, R. C.** Continuous replenishment of metal electrodes in high-temp. salt bath, P 4154*a*

**Upton, T. H.** Water conservation and supply in Australia, 7611*c*.

**Urai, L.** See Gomori, P

**Ural'skaya, A. V.** See Afanas'ev, B. N.

**Uraneck, C. A.** See Fryling, C. F.

**Urasovski, Urasowsky.** See Urazovskiĭ, S. S

**Urazovskiĭ, S. S.,** and Chetaev, P. M. Phase analysis of polymorphous substances by surface tension, 7765*i*; temp. dependence of the *n* in liquids, 7766*d*.

———, Palatnik, L. S., and Luft, B. D. Metallization of glassy Se in nitrogeneous compds , 459*e*.

**Urazowskij, S. S.** See Urazovskiĭ, S. S.

**Urbach, F.** High speed photographic proof paper, P 56*d*; see Nail, N. R.; Pearlman, D.

———, Nail, N. R., and Pearlman, D. Asymptotic behavior of spontaneous and forced decay, 8279*e*.

**Urbach, H.** Test for the presence in the urine of sick and healthy persons of protective enzymes against hemolytic streptococci, lactic acid streptococci, and diphtheria bacilli, 751*i*

**Urbach, J.** See Bellet, S

**Urbach, K. F.** Nature and probable origin of conjugated histamine excreted after ingestion of histamine, 3478*d*, deposition and simultaneous concn. of dil solns. in paper partition chromatography, 4183*a*

——— and Giscafré, L. Identification of histamine in blood by paper chromatography, 264*b*.

**Urbain, A.,** and Pasquier, M. A. Mg content of the serum and of the plasma of various mammals, 8511*b*.

**Urbain, M.** See Le Bihan, H.

**Urbain, Mme. G.** See Guillot-Urbain, Mme.

**Urban, J.** See Curtis, F. D.

**Urban, J. A.** See Adair, F. E.

**Urban, P.** Proton and neutron magnetic moments, 4940*i*.

——— and Schwarzl, F. Nucleon scattering problem, 4941*c*.

**Urban, S. F.,** and Baldwin, W. J. Anomalies in high-dielec.-const titanates, 5244*i*.

**Urbancsok, G.** Artificial soles for shoes, P 4900*b*.

**Urbanek, L.** See Šorm, F.

**Urbánek, O.** Possibilities of using crude phenol, 8073*d*.

**Urbani, B.** See Bertoli, R.

**Urbanskaya, O. S.** See Rodionov, V. M.

**Urbanski, T.** $C_2H_2$ as a raw material, 1713*i*; pyridoxine (vitamin $B_6$), 3079*f*; developments in the field of explosives, 4465*i*; cross-linking of cellulose esters, 8672*e*; see Galinowski, S.

**Urbschat, E.** See Bonrath, W.

**Urdang, G.** Origin of the term calomel, 9*d*; Berzelius and pharmacy, 8607*i*; how chemicals entered the official pharmacopeias, 9363*d*.

**Urdanivia, I. D. de.** See Diez de Urdanivia, I.

**Urech, F.,** Müller, P., and Sulzberger, R. Detn. of Mg in Al alloys, 4523*f*.

**Urechia, C. I.,** Cosmulescu, I., Giossa, E., and Micu, D. Variations in venous blood after electroshock, 5108*f*.

———, Cosmulescu, I., and Micu, D. Variations in bromide of the blood after elec. shock, 9235*f*.

**Ureles, A.** See Freedberg, A. S.

**Ureto, E.** See Erdös, J.

**Urey, H. C.** O isotopes in nature and in the lab., 2507*a*.
**Urgoiti, L. G.** See Candela, J. L. R.
**Uri, G. M.** See Müller-Uri, G.
**Uri, J.** Treatment of anemia by spinach ext., 3931*k*; see Vályi-Nagy, T
**Uri, N.** See Evans, M. G.
**Urie, A.** See Lampitt, L. H
**Uriev, U. K.** See Yur'ev, Yu. K.
**Urinson, A. P.** See Vladimirov, G. E.
**Urion, E.** Difficulties in beer caused by metals, 1147*c*.
——— and Lejeune, G. Detn. of air in beer bottles, 8607*h*.
**Urison, J.**, Calignon, P. de, and Pingard, G. Liquid org. compds. from vegetable materials, P 608*g*.
——— and Vorburger, A. Liquid org. compds. from vegetable materials, P 669*a*.
**Urist, H.** See Martin, G. J.; Moss, J. N.
——— and Martin, G. J. *N*-Salicyloyl-β-alanide, P 1914*f*; pantoylsulfanilamide derivs., P 4817*f*.
**Urist, M. R.**, Budy, A. M., and McLean, F. C. Factors influencing the reaction of the mammalian skeleton to estrogens, 8040*e*.
**Urquhart, A. R.** See Howlett, F.; Simmens, L.
**Urquhart, J. M.** See Klotz, I. M.
**Urquia, D. A.** See Benda, R.
**Urquiza, L. M. C.** See Correa Urquiza, L. M.
**Uroma, E.**, and Virtanen, O. E. Antibiotics of yeasts, 2277*h*.
**Urry, W. D.** Ra content of varved clay and a possible age of the Hartford, Conn., deposits, 2552*i*; radioactivity of ocean sediments (VI) concns. of the radioelements in marine sediments of the southern hemisphere, 5298*f*; (VII) rate of deposition of deep-sea sediments, 5298*h*.
**Urry, W. H.** See Kharasch, M. S.
**Ursprung, R.** See Buchi, J.
**Urushibara, K.** See Kamazuka, A.
**Urushima, N.** See Tazawa, V.
**Urusov, V. V.** See Belopol'skii, A. P.
**Urusovskaya, L. G.**, and Frank-Kamenetskii, D. A. Catalytic gas analyzer for $NH_3$-air mixts., 8308*c*.
——— and Zhilina, P. I. Replacement of $AgNO_3$ in control detn. of chlorides, 6942*e*.
**Urussoff, V. W.** See Urusov, V. V.
**Urvoas, N.** Hydrocarbon fuel from fat acids, P 4835*a*.
**Ushakov, S. N.** See Ushakov, S. N
**Usanovich, M.**, and Sumarokova, T. Electroconductance, viscosity, and d. of the binary systems formed by $HClO_4$ (V) system $HClO_4$–$CH_3COOH$, (VI) system $HClO_4$–water, 7315*g*.
**Usatenko, Yu. I.**, and Bulakhova, P. A. Persulfate method of detn. of Mn in sinter cake and Fe ores, 966*e*; detn. of silicic acid in agglomerates, 1288*d*, detn. of Fe and insol. residue in ores without the use of $HgCl_2$ and $H_3PO_4$, 5331*e*; detn. of Ca in sinter cake, 6106*h*.
——— and Datsenko, O. V. Detn. of Ca and Mg in Fe ore, 4176*e*; permanganate method for detg. Pb in Babbitt metal, 5332*a*; detn. of P in P-Cu and ferrophosphorus by the use of cation-exchange agent, 5336*g*.
**Uschakow, S. N.** See Ushakov, S. N.
**Ushakoff, A. E.** Inflatable solar still for obtaining drinking water from sea water, P 2348*a*.
**Ushakov, S. N.**, Arbuzova, I. A., and Rostovskii, E. N. Vinyl ester of formic acid, 567*e*.
———, Gavurina, R. K., and Medvedeva, P. A. Esterification of polyvinyl alc by dibasic aliphatic acids, 6155*i*.
———, Gavurina, R. K., and Ryadinskaya, N. M. Degree of homogeneity of compn of polyvinyl acetals obtained by homogeneous or heterogeneous acetalation, 6159*e*.
——— and Mitsengendler, S. P. Copolymerization of mixts. of vinyl esters with maleates (I) copolymerization of ethylene glycol maleate with vinyl formate, 439*a*.
**U. S. Industrial Chemicals, Inc.** Rotenoid solvent, P 350*e*; 5-diethylamino-2-pentanone, P 668*e*; methionine, P 677*a*; acetylbutyrolactone, P 677*i*; AcH from aldol, P 2221*e*; insecticide, P 4420*d*; glycols, P 9080*f*.
**Usines de Melle.** (*Patents.*) Yeast culture, 556*a*; recovery of HCOOH in saccharification of cellulosic materials, 405*a*; secondary and tertiary aliphatic amines, 666*i*; aliphatic acids, 669*d*, 5035*d*; recovery of anhyd. lower aliphatic carboxylic acids from aq. solns., 670*i*; Cu catalysts, 1161*c*; synthetic lubricating oil, 1176*c*; sepg. olefins and paraffins, 1432*f*; food preservation from pyroligneous liquors, 1502*b*; peroxides of cyclic ethers as polymerization catalysts, 1812*g*; catalytically hydrogenating org. substances, 2218*h*, industrial oils, 3190*f*; hydration of olefins, 4682*f*; alcs from olefins, 5032*f*; unsatd. aldehydes, 5034*a*; aldehydes and ketones, 5791*g*; synthetic rubbery reaction products of butadiene hydrocarbons and satd. aliphatic compds., 9520*b*
**Uskova, O. N.** See Pinkhusovich, L. L.
**Usova, L. K.** See Gryaznov, V. M.
**Usovskaya, V. S.** See Fel'dman, I. Kh
**Uspenskaya, V. I.** Influence of Hg compds on marine organisms, 1192*e*.
**Ussanovich, Ussanowitsch.** See Usanovich, M.
**Ussar, M.** Bitumens and resins of Austrian lignites, 3992*f*, swelling of bituminous coal, 8639*h*.
**Ussing, H. H.** Active-ion transport through the isolated frog skin in the light of tracer studies, 4714*i*, 5482*f*, see Johnsen, V. K., Levi, H.
**Usskowa, O. N.** See Uskova, O. N
**Ustalova, Z. A.** See Shisterman, K. A
**Usteri, E.** See Granacher, C
**Usuelli, F.** Bios I and vitamin E, 737*d*.
——— —, Grossi, G., Piana, G., and Nordio, C. Action of the corticosuprarenal hormone on the biochemistry of carbohydrates in the uterus, 7113*a*.
**Utermohle, C. E.** Production of high B.t.u. oil gas, 6392*i*
**Utermohlen, W. P., Jr.** Decolorizing acrylic acids, P 3442*h*, acylating amines, P 6652*e*, see McMahon, J. M.
———, Fischer, E. K., Ryan, M. F., and Campbell, G. H. Detergency studies (IV) influence of oily soil on the removal of pigment soil, 7725*a*
**Utescher, K.** Phosphate deposits of Ranis Caves, Thuringia, 6126*b*, chemistry of fuller's earth clays, 7651*d*.
**Utevskii, A. M.**, and Butom, M. L. Presence of a reversibly oxidized form of adrenaline in animal tissues, 743*a*
**Utiger, H.** Detn. of vitamin $B_1$, 9131*c*
**Utkin, L. M.** Nutrient medium for growing molds for the production of penicillin, P 6281*a*
**Uto-Chemie A.-G.** Impregnating or coating metal and wood fibers, P 4518*a*, porous masses from plastics, P 6464*i*.
**Utsushi, M.** See Taroh, O.-U.
**Utter, J. L.** See Kreidl, F. J.
**Utterback, C. L.**, and Sanderman, L. A. Ra analyses of marine sediments in northern Pacific and adjacent waters, 4951*a*
**Utterback, E.** Heat transfer with granular solids, P 388*g*
——— and Bergstrom, F. V. Heat-treating solid inorg. adsorbents, P 7608*h*; gaseous reactions in the presence of solid moving particles, P 8663*b*.
———, Sinclair, R. L., and Crowley, J. A., Jr. App. for hydrocarbon conversion, P 2422*b*.
**Utyanskii, Z. S.** See Danilovich, A. I.
**Utz, D. C.** See Zeller, E. A.
**Utz, J. P.** Effect of specific lipide fractions of animal serums on psittacosis virus, 717*a*.
**Uvnäs, B.** See Folkow, B.; Jögi, P.
**Uya, K.** See Matsumaru, H.
**Uyeda, R.**, Ito, S., and Kimoto, K. Investigation of W carbide surfaces by electron diffraction, 6483*c*.
**Uzac, R.** See Weiss, A.
**Uzbekov, G. A.** Effect of Pb on the content of ascorbic acid and sulfhydryl compds. in animal tissues, 1113*a*
**Uziak, S.** See Dobrzański, B
**Uzman, L.**, and Denny-Brown, D. Aminoaciduria in hepato-lenticular degeneration, 2308*c*.
**Uzumasa, Y.** Minor inorg. constituents of coals, 8639*d*.
——— and Mayumi, H. Hot springs (XIII) detn. of heavy metals in spring water in the presence of $H_2S$, 7611*g*.

**Vaala, G. T.** Plasticizers for polyamides, P 2033*i*, nonthermoplastic synthetic-resin films, P 3662*c*; cured polyvinyl acetal films, P 4513*i*; see Frank, C. E.
**Vacca, C.** Analysis of respiration gases, 2268*b*; see Saviano, M.
——— and De Franciscis, P. KCNS behavior in dog blood, 2328*d*.
**Vacher, M.** Photometric method employing a narrow heterochromic band, 1279*d*; increasing the sensitivity of spectrophotometric microdetns. in biochemistry, 7997*c*.
**Vacin, E. F.**, and Went, F. W. pH changes in nutrient solns., 6704*d*.
**Vacirca, F.** Resistance of the rabbit to poisoning with U nitrate, 764*d*; Gli amino-acidi in biologia e in terapia (book), 3054*c*; biol. activity of antibiotics and amino acids, 3879*b*, therapeutic activity of norvaline in streptococcic infection, 5443*i*, glutamic acid in clinical therapy, 5861*e*; see De Barbieri, A.
——— and Frangi, P. Action of amino acids on virus, 3915*f*.
**Vaday, F.** NaCl intoxication of hogs, 8547*c*.
**Vaeck, S. V.** Polymorphism of glycerides and their m. ps., 4495*c*; influence of insol. and sol. constituents of cacao on the detn. of sugars in chocolates, 5880*d*
**Vaes, J. F.**, and Kerr, P. F. Sengierite, 8983*g*.
**Vaganay, J.** See Prat, J.
**Vago, E. E.** See Bell, R. P
——— and Barrow, R. F. Diat. oxides sulfides, selenides, and tellurides of C, Si, Ge, Sn, and Pb, 2510*h*.
———, Tanner, E. M., and Bryant, K. C. Alkylnaphthalenes (IV) infrared absorption spectra of some monoalkylnaphthalenes and the dimethylnaphthalenes, 6512*h*.
**Vagramian.** See Vagramyan.
**Vagramyan, A. T.** Periodic phenomena in the electrodeposition of metals, 2874*d*, see Vagramyan, N. T.
**Vagramyan, N. T.**, and Vagramyan, A. T. Effect of surface-active substances on the rate of growth of an electrolytic single crystal of Ag, 4584*c*.
**Vahl, L.** Crystn., P 6013*b*; transport in continuous rotary driers, 6473*i*.
**Vahlquist, B.** See Neander, G.
**Vahramian.** See Vagramyan.
**Vahrenkamp, G. J.** Shaped articles from fluorite, P 4442*f*, see Hack, C. H
**Vailati, P.** See Crippa, G. B.
**Vaill, R.** Hills of hematite, 1694*c*.
**Vaindrakh, R. I.** See Vashkov, V. I
**Vainrub, L. G.** Drying and firing installations for clay at the point of mining, 5559*g*; firing of grog in a rotary kiln, 5560*h*.
**Vainshtein, B. K.** Detn. of the structure of $BaCl_2$, 460*c*.
**Vainshtein, Yu. I.** Detn. of α-nitronaphthalene in the presence of α-naphthylamine, 4978*e*; analysis of benzanthrone and anthraquinone, 6948*c*.
**Vairel, C.** See Paris, R.
**Vaisberg, Z. M.** See Davydov, A. I.
——— and Daln, B. Ya. Structure of derivs. of Mo and W blue, 942*g*.
**Vaisenberg, A.** See Alikhanyan, A. I.
**Vaiser, V. L.** Kinetics and mechanism of the slow oxidation of cyclohexene, 8825*a*
**Vaisman, A.** See Levaditi, C.
**Vaisman, G. A.** Prepn. of basic Bi nitrate, 5553*d*.
**Vaisman, I. A.** Periodic arrangement of the elements on the basis of the nuclear structure, 3701*i*.
**Vaissière, A. J. D. H. M. de.** Vinyl chloride, P 5790*b*.
**Vajk, A.** Gasification of coal deposits, 9414*h*.
**Vajna, F. P.** Formation of bauxite ores, 2133*h*.
**Vakhromeev, S. A.** Occurrence of cinnabar in the pyrite ores of the Sibai deposits, 2900*f*.
**Vakhrushev, V. A.** Rational nomenclature of the nontronite minerals, 6121*g*.
**Vakusevich, K. A.** Mineral of the delvauxite type from recent sediments of the Moscow Basin, 2898*f*.
**Val, A. V. del.** See Valladolid del Val, A
**Val, M. J. del.** See Jesus del Val, M.
**Valachko.** See Valyashko.
**Valadares, M.** See Rosenblum, S.
**Valade, P.** Lipides of the cerebral sheath, 713*a*.
**Valaize, H.** Nonvolatile acids of wines, 5532*a*; tartaric acid and malic acid in must and wines, 5532*c*; factors affecting the detn. of the b.p. of wines, 7188*i*.
**Valantin, G.** See Servant, M.
**Valas, P. D.** See Lechthaler, C. H.
**Valashko.** See Valyashko.
**Valatin, J. G.** Thermochemistry of org. compds., 452*i*; rotational const. BJ of mol. energy levels, 2092*d*; dissocn. energy of the CO mol. and the role of excited atoms and radicals from the thermochem.-bond

viewpoint, 2830c; mol. perturbations, 5665c; bond energy of hydrocarbons, 6016b; Maxwell's equations in the quantum theory of radiation, 6071h; see Gero, L.
**Valdecasas, F. G.** See García-Valdecasas, F.
**Val'dman, G. F.** See Vil'komirskiĭ, I. E.
**Val'dman, V. L.** Effect of thermal treatment on the low-temp. properties of lubricating oils, 5177c; effect of oxidation products on the thixotropic properties of lubricating oils at low temps., 7219a; effect of the rate of cooling on the properties of lubricating oils at low temps., 7675c.
**Val'dshtein, A. Kh.** Citric acid, P 0362a.
—— and Sheidin, I. A. Increasing the water resistance of plywood and wood plastics, P 9529c.
**Vale, J.** See Sewell, D. C.
**Vale, J. C. do.** See Cardoso do Vale, J.
**Válek, B.** Comparison of pedologic properties of the plants *Brachypodietum pinnati* and *Arrhenatheretum elatioris*, 9320d
**Valenciano, O. A.** See Colobraro, V., Grau, C. A.
**Valensi, G.** Applications of the theory of oxidation of metals having two oxides, 3272g; see Peschanski, D.
**Valentin, F.** Pectins, 7161e, triphenylmethyl derivs. of L sorbose, 7431c; configuration of digitalose, 7431e, stereochemistry of anhydrohexoses, 7431f, β-alanine as a growth-supporting factor, 8004c.
**Valentin, J.** Berzelius and pharmacy, 1617i.
**Valentine, F.** See McCullagh, D. R.
**Valentine, K. S.** Agitated gas absorbers, 1615i.
**Valentiner, S.** Replacement of Al and Sn by In in Heusler alloys, 4618e
**Valentinuzzi, M.**, Cotino, L. E., and Portnoy, M. Oxidation-reduction potential of lactoflavin, 7355g
—, Tejo, A. J., and Mazzulli, H. R. Properties of neoprontosil, 9163a
**Valenzuela, R. C.** See Salcedo, J., Jr.
**Valerio, M.** Wetting agents in ophthalmology and their applications to ocular sulfonamide therapy, 3563f
**Valerio, V.** Hematopoietic action of Co (I), 7658; (II) qual peripheral hematological data, 3524g, (III), 6311c.
**Valeriu-Petrescu, M.** Townsend coeffs in cyclohexane vapor, 6906i.
**Valet, G.** Viscosity of high polymers, 2465g
**Valette, A.** Compds related to ethylenic cis trans isomerism—2 butene-1,4-diol, 2577i.
**Valette, G.** Effects of the glycosides of senna (sennosides A and B) and their hydrolysis products on isolated intestine, 6308a
— and Cavier, R. Activity of synthetic estrogens administered percutaneously to rats—activity of progesterone administered percutaneously to rabbits, 2318i; cutaneous absorption of fat-sol. hormones, 8928d
**Valette, J., Voisin, G., and Société lumière.** Reducible dyes for use in photography, P 4966i
**Váli, A.** See Erdey-Grúz, T.
**Valiaschko, Valiashko, Valiaško.** See Valyashko.
**Valis, H. J.** See Blaine, R. L.
**Valjasko.** See Valyashko.
**Valk, A. D., Jr.** See Peters, L.
**Valk, C. J. vander.** See Vander Valk, C. J.
**Valko, E. I.** Revaluation of colloid chemistry, 2049h.
**Valladas-Dubois, S.** See Hatem, S.
**Valladolid del Val, A.** See Aznar Reig, A.
**Vallance, J. M.** Powd. soap products, 4875i, scouring powders, 8180d; antiseptics and disinfectants, 9364h; see James, G. V.
**Vallance-Owen, J.** Demonstration of glycogen in necropsy material, 1823c.
**Vallancien, B.** See Caussé, R.
**Vallandigham, V. V.** Alginate-contg. adhesive compns., P 8212i.
**Vallarta, M. S.** See Sandoval Vallarta, M.
**Vallaud, A.** See Martin, Raymond, V.
**Valle, C., Jr.** See Fields, M.
**Valle, J. E., Henriques, S. B., and Henriques, O. B.** Assay of androsterone by the chick-comb wt. method and the renal excretion of androgens by the Cebus monkey, 7634g.
**Valleau, W. D.** Breeding low-nicotine tobacco, 5088e.
**Vallee, B. L.**, and Gibson, J. G., 2nd. Detn. of small quantities of Zn in blood and tissue samples, 2267g, Zn content of normal human whole blood, plasma, leucocytes, and erythrocytes, 2301h.
**Vallée, J.** Alkyl arylsulfonates at the service of the textile industry, 4016c.
**Vallee, J. P. S.** See Collonges, R. S. A.
**Vallencourt, D. C.** See Schmidt, F. C.
**Valléry-Radot, P.**, Halpern, B. N., and Martin, J. Production of ulcers and gastric perforation with histamine, 4761a.
——, Halpern, B. N., and Reber, H. Total inhibition of the Shwartzman phenomenon in rabbits by 10-(2-dimethylaminoisopropyl)phenothiazine, 5494i.
——, Hamburger, J., and Halpern, B. N. Synthetic antihistaminic compd., 3525a.
**Vallette, F.** See Beck, I. T., Bischler, A.; Frommel, E.
**Valley, G. E.**, Leavitt, C. P., and Vitale, J. A. Cloud-chamber evidence of a meson-nucleus interaction, 4104b.
**Valori, P.** Effect of thyroidectomy on the hypertrophy and metabolic activity of kidney following unilateral nephrectomy, 7118f.
**Valsecchi, O.** See Rocha de Almeida, J.
**Valyashko, N. A.**, and Nepomnyashchaya, Z. A. Fatty oil of Abyssinian basil-weed seeds, 1582c
—— and Rozum, Yu. S. Absorption spectra and structures of benzene derivs. (XIV) acetophenone and its derivs., 1349h.
—— and Valyashko, N. N. 5-Bromo- and 3,5-dibromosalicylic aldehydes, 943c.
—— and Voroshin, E. M. Keto-enol tautomerism of phenols—phloroglucinol and some of its derivs., 2598d
**Valyashko, N. N.** See Valyashko, N. A.
**Vályi-Nagy, T.** Action of dichlorodiethyl sulfide on biol oxidations catalyzed by metals, 2246d, relation between poisoning by chlorites and chlorates, 5115f, see Barrenscheen, H. K.
—, Simkovics, G., and Uri, J. Action of penicillin, 9145i
—, Urim, J., and Szeplaky, S. Poisoning caused by explosives, 9449d
**Valyuzhenich, E. N.** Thermal vol. coeff. for cognac, 1901h
**Van, W. I. le.** See Le Van, W. I.
**Vana, C. A.** See Bozsin, M. J.
**Van Aalst, A.** See Aalst, A. van
**Van Abeele, F. R.** See Behrens, O. K.; Carter, H. E.
**Vanadium Corp. of America.** Concn. of V ores, P 3768f, alloys, P 5358c.
**Vanag, G. Ya.**, and Matskanova, M. A. Test for antipyrine, 5535i
**Van Alphen, J.** See Alphen, J. van.
**Van Alstine, R. E.** Geology and mineral deposits of the St. Lawrence area, Burin Peninsula, Newfoundland, 1292e.
**Van Amerongen, G. J.** See Amerongen, G. J. van.
**Van Amstel, J. J. A. P.** See Amstel, J. J. A. P. van.
**Van Arendonk, A. M.** See Shonle, H. A.
**Van Arkel, A. E.** See Arkel, A. E. van.
**Van Arkel, C. G.** See Arkel, C. G. van.
**Van Arsdel, W. B.**, Eskew, R. K., Gastrock, E. A., and Langford, C. T. Pilot-plant design and construction—Regional Research Labs., U.S. Dept. of Agr., 1613c.
**Van Arsdell, P. M.** Health hazards of metal-cleaning compds., 787e; factors for safety in the elementary chemistry lab., 2050e.
**Van Arsdell, W. J.** See Ross, O. B.
**Vanas, D. W.**, and Walters, W. D. Thermal decompn. of cyclopentene, 3271f.
**Van Asperen, K.** See Asperen, K. van.
**Van Atta, G. R.**, and Dietrich, W. C. Dehydrochlorination of chlorinated fatty acids and esters, P 7302e.
**Vanatta, J.**, Muirhead, E. E., and Grollman, A. Improvements on the artificial kidney—its application to dogs bilaterally nephrectomized or otherwise deprived of renal function, 6272h.
**Van Barneveld, G. W.** See Barneveld, G. W. van.
**Van Benedek, G.** See Benedek, G. van.
**Van Berg, C. F.** See Oliver, E. H.
**Van Biema, G.** See Degering, E. F.
**Van Blaricom, L. O.** See Mitchell, J. H.
**Van Brederode, H.** See Brederode, H. van.
**Van Bree, G.** See Bree, G. van.
**Van Burkalow, A.** F in U.S. water supplies—pilot project for the atlas of dist ses, 6341f.
**Van Buskirk, E. C.**, and Surland, C. C. Low-temp. insulation—plastic low-temp. insulation, 436g.
**Van Cakenberghe, J.** See Cakenberghe, J. van.
**Van Camp, J. S., Jr.** Nutrient element content of foliage of certain species of minor forest vegetation, 725f.
**Van Campen, J. H.** See Reynolds, D. D.
**Van Campen, M. G., Jr.** See Shelton, R. S.; Tilford, C. H.; Wheeler, K. W.
—— and Shelton, R. S. Substituted pyridinium and piperidinium germicidal compds., P 696g.
**Van Caster, A.** See Caster, A. van.
**Vance, C. L.** Alloying of gray iron in the cupola, P 8347f.
**Vance, E. R.** Direct-reading spectrometer, 8944g.
**Vance, G. H.** See Goss, A. E.
**Vances, P.** NaCl content of tears in vitamin A deficiency, 9214d.
——, Lazarescu, D., and Micsa, M. Influence of acetylcholine and parathyroid ext. on NaCl excretion in tears, 9214c; influence of nicotinic acid on NaCl excretion in tears, 9214b.
—— and Micsa, M. Influence of vitamin B on NaCl excretion in tears, 9214b.
**Van Cleave, A. B.** Presentation of the fundamental ideas of chemistry to elementary students, 1230e.
——, Haskell, V. C., Hudson, J. H., and Kristjanson, A. M. Hydrolysis of gyanogen halides, 6490h.
**Vand, V.** Device for calcg. x-ray structure factors, 459g; indexing powder photographs of long spacing compds., 3709g, x-ray analysis, 4566d, see Morley, W. M.
**Van Dalfsen, J. W.** See Dalfsen, J. W. van
**Van Dam, B.** See Dam, B. van.
**Van Dam, C. F.** See Dam, C. F. van.
**Van Dam, F. J.** See Dam, F. J. van.
**Van Dam, J. W.** See Dam, J. W. van
**Van de Graaff, R. J.** See Buechner, W. W.; Trump, J. G.
——, Trump, J. G., and Buechner, W. W. Electrostatic generators for the acceleration of charged particles, 4559i.
**Van de Griendt, G. H.**, and Peters, L. M. Unsatd. alcs., P 7952b.
**Vandegrift, R. B.** See Bush, O. B.
**Van de Hulst, H. C.** See Hulst, H. C. van de.
**Van de Kamer, J. H.** See Kamer, J. H. van de
**Van de Kamp, J.** See Conn, J. B.
**Van de Kasteele, R. P.** See Kasteele, R. P. van de
**Vandelli, I.** Relation between hyaluronidase content and the no. of spermatozoa of human semen, 3903i.
**Van de Loo, K. J.** See Loo, K. J. van de.
**Vandemark, N. L.** See Bratton, R. W.
**Van den Akker, J. A.** See Bublitz, W. J.; Heuser, Emil.
——, Lewis, H. F., Jones, G. W., and Buchanan, M. A. Color changes in groundwood, 4463b.
**Vandenbelt, J. M.** See Doub, L.
**Van den Berg, G. J.** See Berg, G. J. van den.
**Van den Berg, H. J.** See Berg, H. J. van den.
**Van den Berge, J.** See Berge, J. van den.
**Van den Bold, H. J.** See Bold, H. J. van den.
**Van den Boomgaard, J.** See Boomgaard, J. van den.
**Van den Bosch, J.** See Bosch, J. van den.
**Van den Bosch, J. C.** See Bosch, J. C. van den.
**Vandenbosch, V.** Detn. of some constituents of glass, 5558b; see Lingane, J. J.
**Vandenburgh, C. D.** See Kulp, M. P.
**Van den Daelen, P.** See Daelen, P. van den.
**Van den Driessche, R.** See Driessche, R. van den.
**Van den Handel, J.** See Handel, J. van den.
**Van den Hende, A.** See Hende, A. van den.
**Van den Heuvel, G.** See Heuvel, G. van

**Van den Honert, T. H.** See Honert, T. H. van den.
**Van den Tempel, M.** See Tempel, M. van den.
**Vandeplassche, M.** See Peeters, G.
**Van der Baan, I.** See Baan, I. van der.
**Van der Bie, G. J.** See Bie, G. J. van der.
**Vanderbilt, B. M.** See Gleason, A. H.
——— and Bascom, F. Diolefin polymerization, P 3228*f*.
——— and Hetchler, J. D. Hydrogenated tallow soap as polymerization emulsifier, P 5991*e*.
——— and Parker, P. T. Container for packaging rubberlike materials, P 1212*d*
**Vanderbilt, R. T., Co., Inc.** Pigment-starch compn., P 2006*h*, coating compn., P 5224*e*; drilling mud contg. gelatinized starch and monoethanolammonium 2-benzothiazyl sulfide, P 6402*e*.
**Van der Borght, A.** See Borght, A. van der.
**Vander Brook, M. J.**, Olson, K. J., Richmond, M. T., and Kuizenga, M. H. Pharmacology of a new antihistamine, 10-[β - (1 - pyrrolidine)ethyl]phenothiazine monohydrochloride (pyrrolazote), 759*e*.
**Vanderhaeghe, H.** Streptomycin and equil. disorders, 7131*d*.
**Van der Have, J. H.** See Have, J. H. van der.
**Van der Held, E. F. M.** See Held, E. F. M. van der.
**Van der Hoeve, J. A.** See Hoeve, J. A van der.
**Van der Hoeven, B. J. C.** Recovery of by product ether from the manuf of butadiene, P 7950*d*
**Vanderhoeven, D.** See Massart, L.
**Van der Hoeven, H.** See Hoeven, H van der.
**Van der Linde, A.** See Linde, A van der
**Van der Linden, A. C.** See Linden, A. C. van der.
**Van der Marel, H. W.** See Marel, H. W van der
**Van der Meer, S.** See Meer, S van der.
**Van der Meer, W. A.** See Meer, W A van der
**Van der Merwe, C. W.** See Parsegian, V L.
**Van der Meulen, J. H.** See Meulen, J. H van der.
**Van der Meulen, P. A.** See Meulen, P A van der
**Van der Minne, J. L.** See Minne, J. L. van der.
**Van der Paauw, F.** See Paauw, F van der
**Vanderpoel, J. C.** See Correll, J. T
**Vander Sommen, J.** See Sommen, J vander.
**Van der Spek, J.** See Spek, J. van der
**Van der Stricht, A. F.** See Stricht, A. F. van der.
**Vander Valk, C. J.** Primers for marine atm. environments, 5969*e*
**Vandervell Products Ltd.** and Green, D. F. Bonding of electroplated layers, P 2524*i*.
———, Green, D. F., and Salmon, J. E. Ir plating, P 4588*e*.
**Van der Vlies, G. S.** See Vlies, G. S van der.
**Van Dervoort, G.** See Dervoort, G van
**Vandervort, G. L.**, and Willard, J. E. Photobromination of methylsiloxane films on glass surfaces, 2096*f*.
**Van der Waals, J. H.** See Waals, J. H van der.
**Van der Wal, A. A.** See Wal, A. A. van der.
**Van der Wath, J. G.** See Wath, J. G. van der
**Vander Werf, C. A.** Consistent treatment of oxidation-reduction, 451*b*, see Bradlow, H. L., Hart, C. A.; Minor, J. T.; Sisler, H. H.; Zingaro, R. A.
——— and Lemmerman, L. V. 2 Allylcyclohexanone, 1730*b*
**VanderWerff, H.** See Falco, E. A
**Van der Werff, J. T.** See Werff, J. T van der.
**Van der Werth, A.** See Werth, A van der
**Vander Weyden, A. J.** See Hurd, L. C
**Van der Willigen, P. C.** See Willigen, P. C. van der.
**Van der Wyk, A. J. A.** See Wyk, A. J. A. van der.
**Van der Zanden, J. M.** See Zanden, J. M. van der.
**Van der Zee, H.** See Zee, H. van der.
**Van de Velde, A. J. J.** Atom in history up to John Dalton, 4057*g*, effect of aromatic hydrocarbons on urease, 4310*h*; action of neutral compds. on urease (III), 5060*g*.
**Van Dien, E.** Stark effect of the higher Balmer lines in stars of spectral types A and B, 7335*c*; see Wright, K. O.
**Van Dijk, G.** See Dijk, G van.
**Van Dijk, J.** See Dijk, J van
**Van Dijke Beatty, S.** See Beatty, S. van D
**Van Dongen, K.** See Dongen, K. van.
**Vandoni, R.** See Chédin, J
**Van Doormaal, J. J.** See Doormaal, J. J van
**Vándor, J.** Physicochc investigation of anabasine—equation of state, 2481*e*, supplementing tars from brown coal gas generators, 9413*i*
**Van Dormael, A.** See Dormael, A van.
**Van Dorp, D. A.** See Dorp, D. A. van
**Van Dorsten, A. C.** See Dorsten, A. C van
**Vandrewala, H. P.**, and Jadhav, G. V. Chalcones—condensation of 2,4-dimethoxyacetophenone, 2,4 - dimethoxy - 5-bromoacetophenone, 2 - hydroxy - 4-(benzyloxy)acetophenone, and 2-hydroxy - 4 - (benzyloxy) - 5 - bromoacetophenone with 2 - methoxybenzaldehyde and 2 - methoxy - 5 - bromobenzaldehyde, bromination of the chalcones, and study of the reactivity of the bromo derivs., 1712*e*
**Van Duin, G. F.** See Duin, G. F van
**Van Dusen, C. H., Jr.** Paper planographic printing plate, P 1189*a*
**Van Duzer, R. M., Jr.**, Rohrig, I. A., and McCutchan, A. Graphitization of steel steam-pipes at Detroit power station, 2144*e*.
**Van Dyke, B. H.** Design of system for production of O, 1576*c*, Elliot O system how it works—description of cycle 2044*b*, O by atm. pressure distn., 2743*b*
**Van Dyke, D. C.** See Berlin, N. I
**Van Dyke, H. B.** See Dyke, H. B van
**Van Dyke, K. S.** See Glover, C. P
**Van Dyke, O. W.** Preventing fluid loss through porous walls, P 8662*e*
**Van Dyke, R. E.**, and Kraus, C. A. Properties of electrolytic solns. (XLII) conductance of AlBr$_3$ in nitrobenzene on addn. of dimethyl ether, 8810*i*
**Vane, J. R.** Action of choline ester on isolated rabbit auricles when arrested by paludrine, 2704*b*, pharmacol. actions of paludrine, 5504*b*, see Burn, J. H
——, Walker, J. M., and Perry, C. B. W. Effect of paludrine on gastric secretion, 2704*e*.
**Van Eekelen, M.** See Eekelen, M van
**Van Eijk van Voorthuijsen, J. J. B.** See Voorthuijsen, J. J. B van E. van.
**Van Eijnsbergen, J. F. H.** See Eijnsbergen, J. F. H van
**Van Erkel, K.** See Erkel, K van
**Van Eseltine, W. P.** See Rahn, O
——— and Hucker, G. J. Effect of org. matter on germicidal action of the quaternary NH$_4$ compds., 3884*i*
——— and Rahn, O. Effect of temp. on bacteriostasis, 6280*b*
**Vanesse, M.**, and Caster, A. van Brucks, P 4828*d*.
**Van Etten, H. A.** Stain resistant plasticized polyvinyl chloride resin coatings, P 1222*e*
**Van Eunen, C.** See Eunen, C van
**Vaney, F. D. de.** See De Vaney, F. D.
**Van Eyck, M. J. M.** See Eyck, M. J. M. van
**Van Gaver, G.** See Gaver, G. van.
**Van Geel, W. C.** See Geel, W. C. van
**Van Genderen, H.** See Genderen, H. van
**Van Gilder, C. F.** Salts of alkyl phenol sulfides, P 390*h*, stabilized isobutene polymers, P 6865*i*.
**Van Gils, G. E.** See Gils, G. E van
**Van Ginkel, J. G.** See Ginkel, J. G van
**Van Goor, H.** See Goor, H van
**Van Goor, W. R.** See Goor, W. R van
**Vangrevenynge, C.**, and Bidault, Elion et Cie. Al alloy, P 2567*d*, 4626*d*
**Van Halewijn, A.** See Halewijn, A. van
**Van Harreveld, A.**, and Feiyen, G. A. Effect of nicotine on spinal synaptic conduction and on polarization of spinal cord, 9260*b*
**Van Hartesveldt, C. H.** Rust preventative test of lubricants, P 1180*e*.
**Van Hasselt, J. A. K.** Cl, chloramines, and O$_3$—comparison, 3121*g*
**Van Heleden, R.** See Heleden, R. van.
**Van Herwijnen, W. B.** See Herwijnen, W. B van.
**Van Heuckeroth, A. W.** Transparent material, P 9534*i*
**Van Heusden, G. P. H.** See Heusden, G. P. H. van.
**Van Hoesen, D.** See Redemann, C. E.
**Van Holde, K.**, and Alberty, R. A. High-polymer expt. for phys. chemistry, 4540*a*.
**Van Hook, A.** Sugar. Its Production, Technology, and Uses (book), 5616*f*; see Whelan, W. P., Jr.
**Van Hook, E.** See Mann, J. D.
**Van Hook, J. O.** See Croxall, W. J.
**Van Hooren, C. J.** See Hooren, C. J. van.
**Van Horn, E. C.** Barite possibilities revealed in the Carolinas, 2134*a*.
**Van Horn, H. T.**, and Koppenhoefer, R. M. Ceramic-ware decoration, P 8115*e*.
**Van Horne, W. L.** Polymethacrylates as viscosity-index improvers and pour-point depressants, 6400*g*
**Van Houten, F. B.** Origin of red-banded early Cenozoic deposits in Rocky Mountain region, 2137*c*.
**Vanick, J. S.** See Gagnebin, A. P.
**Van Itterbeek, A.** See Itterbeek, A. van.
**Van Kampen, G. R.** Better drying at low cost, 4465*e*.
**Van Kien, L. K.** See Kien, L. K. van.
**Van Kleeck, A.** Fire retardant coatings for wood, 4492*i*
**Van Klooster, H. S.** 125 yrs. of chemistry at Rensselaer Polytechnic Inst., 6014*h*, beginnings of lab. instruction in chemistry in the U. S., 8759*g*.
**Van Kranendonk, J.** See Kranendonk, J van.
**Van Krevelen, D. W.** See Krevelen, D W. van.
**VanLandingham, A. H.** See Clark, T. B. —, Weakley, C. E., Jr., Ackerman, R. A., and Hyatt, G., Jr. Relation of production of heifers milked prepartum to the compn. of colostrum, 8498*c*.
**Van Lanen, J. M.** See Le Mense, E. H —, LeMense, E. H., Anellis, A., and Corman, J. Influence of proteolytic enzymes and yeast nutrients on the requirement for malt in grain ale fermentations, 351*i*
**Van Lerberghe, K.** See Lerberghe, K van
**Vanlerenberghe, J.** See Bizard, G.; Les pagnol, A
**Van Lessen, W.** See Lessen, W van
**Van Liempt, J. A. M.** See Liempt, J. A. M van
**Van Lier, K. L.** See Lier, K. L van
**Van Lierde, J.** See Lierde, J. van.
**Van Liere, E. J.** See Marsh, D Northup, D. W.; Stickney, J. C. —, Stickney, J. C., and Northup, D. W. Blood-sugar response to anoxia during acclimatization, 2691*g*.
**Van Loenen, W. F.** Electrophoretic separator of Mg dust from liquid hydrocarbon, P 7*h*, Mg explosive compn., P 8682*g*
**Vanloo, A.** See Lenel, R.
**Van Loo, M.** 25 yrs. of paint testing, 2787*h*, see Asbeck, W. K.
**Van Loon, J.** See Loon, J. van.
**Van Loon, M.** See Loon, M. van
**Van Loon, W.** See Loon, W. van.
**Van Mater, H. L.** Textile waterproofing, P 3628*d*, see Warner, E
**Van Meter, J. C.** See Oleson, J. J.
——— and Oleson, J. J. Effect of tagathen on histamine-induced gastric lesions, 6309*i*.
**Van Meter, R.** See Ball, J. S.; Wilzbach, K. E.
**Van Meurs, G. J.** See Meurs, G. J. van.
**Van Middlesworth, L.** Metabolism of I$^{131}$ in severe anoxic anoxia, 8042*d*, see Wood, John L.
——, Banner, R. L., Lawson, F., and Cox, E. M. Effects of acute intermittent anoxia on urinary vol., sp. gr., and chloride, 1072*c*.
**Van Name, F. W., Jr.** Measurement of the radioactive decay const. of Th C', 4128*g*.
**Van Niel, C. B.** Kinetics of growth of microorganisms, 4710*g*.
**Van Nieuwenburg, C. J.** See Nieuwenburg, C. J. van.
**Van Nieuwenhuyzen, J. L.** See Nieuwenhuyzen, J. L. van.
**Van Norman, E.** See Hamm, F. A.
**Van Norman, R. W.**, French, C. S., and Macdowall, F. D. H. Absorption and fluorescence spectra of two red marine algae, 282*b*.
**Vannotti, A.** Functional relations between hemoglobin and cytochrome c metabolism, 5476*a*.
**Van Nouhuys, H. L.** See Nouhuys, H. L. van.
**Van Olphen, H.** See Olphen, H. van.
**Van Oordt, G. J.** See Oordt, G. J. van.

**Van Orden, L. J.** See Dickinson, J. T.
**Van Order, R. B.** See Davis, S. B.
**Van Ormondt, J.** See Ormondt, J. van
**Van Orstand, C. E.** Cosmic origin of oil and gas, 839*f*.
**Van Oss, J. F.** See Oss, J. F. van.
**Vanossi, E.** Identification of Sn, 1683*d*; sepn and identification of elements which are distd by acids—Os, Ru, Ge, Re, Se, Hg, As, Sb, Sn, 2119*g*; identification of Sb, 3743*g*, identification of As, 6935*f*.
**Van Overbeek, J.** See Brandes, E. W.
**Vanpee, M.** See Lind, S. C.
**Van Peski, A. J.** See Peski, A. J. van.
**Van Peski, C. C. J.** See Peski, C. C. J. van.
**Van Poucke, R. F.** See Krider, J. L.
**Van Ramshorst, J. D.** See Ramshorst, J. D. van.
**Vanremoortere, E.** Dissocn. of K and acetylcholine sensitivity of frog muscle produced by isotonic glucose, 1853*b*; dibenzylmethylamine and adrenaline in tachycardia, 7128*c*, sensitivity of frog muscle to K and acetylcholine (I) effect of curare and physostigmine on thiocyanate-potassium sensitization, 8056*d*.
**Van Riet, R.** See Riet, R. van
**Van Rij, N. J. W.** See Rij, N. J. W van
**Van Risseghem, H.** See Risseghem, H. van
**Van Roey, G.** See Roey, G. van.
**Van Rooyen, C. E.** See McClelland, L., Rhodes, A. J.
**Van Rossem, A.** See Rossem, A van
**Van Rossum, L.** See Rossum, L. van
**Van Royen, A.** See Royen, A van.
**Van Rysselberghe, P.** History of the concept of affinity, 5239*c*; see Zimmerman, H. K., Jr.
**Van Santen, J. H.** See Santen, J. H. van
**Vanscheidt, Vanseidt.** See Vanscheidt, A. A.
**Vanselow, A. P.**, and Datta, N. P. Mo deficiency of the citrus plant, 7551*b*
**Vanselow, W.** See Wilson, M. J., Quirk, R. F., and Leermakers, J. A.
Ferrification studies with Na perborate, 957*e*
**Vansheldt, A. A.**, and Gruz, R. I. Prepn of phenol alcs. from phenol and paraform, 7000*c*.
— Naumova, Z. K., and Sorokina, N. I. Prepn of melamine formaldehyde resin and plastic masses, 2809*a*
— and Zel'tser, V. M. Production of styrene by vapor-phase dehydration of methylphenylcarbinol, 502*a*
**Van Slyke, D. D.** Effect of urine vol on urea excretion, 8039*i*, see Hiller, A., Weisiger, J. R., and Van Slyke, K. K. Photometric measurement of plasma pH, 7536*h*, photometric measurement of urine pH, 7536*d*
**Van Slyke, K. K.** See Van Slyke, D. D.
— Evans, E. J., Lewis, R., and Taylor, R. Urine chloride detn in the detection and treatment of dehydration with salt depletion, 1473*a*
**Van Sonsbeek, J. J. M.** See Sonsbeek, J. J. M. van
**Van Steenis, J.** See Steenis, J. van.
**Van Straaten, L. M. J. U.** See Straaten, L. M. J. U. van.
**Van Stuivenberg, J. H. M.** See Stuivenberg, J. H. M. van.
**Van Tamelen, E. E.**, and Van Zyl, G. Malonic ester reaction with 1-halonitro paraffins, 4217*e*
**Van Tassel, R.** See Tassel, R. van.
**Van-Thoai, N.** See Nguyen-Van-Thoai.
**Van Tiel, N.** See Tiel, N. van.
**Vantiggelen, A.** Photosensitization and inhibition in $CH_4$ combustion, 3591*g*.
**Van Tongeren, W.** See Tongeren, W. van.
**Van Tornout, F.** See Smets, G.
**Vântu, V.**, and Gavăt, M. Ring analysis of an Edeleanu (liquid $SO_2$) ext. of a lubricating oil from Bucoi, 8659*d*.
**Van Veen, A. G.** See Veen, A. G. van.
**Van Veersen, J.** See Veersen, J. van.
**Van Vleck, J. H.** Width of *r-f* absorption lines in solids, 4094*g*; theory of the width of microwave lines in cupric salts, 4095*e*; see Aller, L. H.
**Van Vleet, E. M.** See Poe, C. F.
**Van Vliet, R.** Developments in treatment and dehydration of tar, 8646*g*.
**Van Vlimmeren, P. J.** See Vlimmeren, P. J. van
**Van Vloten, G. W.** See Vloten, G. W. van.
**Van Volkenburgh, R.**, Greenlee, K. W., Derfer, J. M., and Boord, C. E. Synthesis of some cyclopropane hydrocarbons from Mg cyclopropyl ketone, 3955*a*.
**VanVoorhees, S. N.** See Barnes, S. W.
**Van Voorst, F. T.** See Voorst, F. T. van.
**Van Voorthuijsen, J. J. B. van E.** See Voorthuijsen, J. J. B. van E. van.
**Van Wagtendonk, W. J.** See Ross, L. E.
**Van Waser, J. R.** Phys. properties of solns. of a Na phosphate glass, 3268*b*.
**Van Weeren, J. W.** See Weeren, J. W. van.
**Van Went, N. B.** See Went, N. B. van.
**Van Wieringen, G.** See Wieringen, G. van.
**Van Wijk, F.** See Wijk, F. van
**Van Wijk, G. J.** See Wijk, G. J. van.
**Van Winkle, J. L.** See Morris, R. C.
**Van Winkle, M.** Thermal properties of petroleum oils (III) effect of pressure on enthalpy of petroleum vapor, 381*i*; pressure-temp correlations for petroleum oils and hydrocarbons, 3179*e*.
**Van Winkle, Q.**, Larson, R. G., and Katzin, L. I. Half-life of $Pa^{231}$, 8269*b*
**Van Wyck, H. B.** See McGanity, W. J
**Van Wyck, P.** Stabilization of cellulose ethers, P 1187*h*
**VanZante, R. D.**, Graham, T. R., and Knickerbocker, R. G. Electrode coatings contg rutile, 8342*h*
**Vanzetti, B. L.** Olivil, prototype of a new class of natural resinous products, 2600*f*
**Vanzetti, G.**, and Seidenari, R. Compn of aq. humor—glucose and chloride content, 5485*f*.
**Van Zijl, W. J.** See Zijl, W. J. van.
**Van Zyl, G.** See Van Tamelen, E. E.
**Vaquer, F. P.** See Pardello Vaquer, F.
**Varadan, K. S.** See Devadatta, S. C.
**Varay, A.** See Bergeret, A.
**Varco, R. L.** See Sako, Y.
**Vardanyan, A. G.** See Tatevosyan, G. T.
**Varela, G.**, and Bernal, I. Measurement of suspension ds applied to the detn of blood proteins (I) detn of fibrinogen, 9127*c*.
**Varga, E.** See Kesztyus, L., Vastagh, G.
**Varga, J.** Hungarian chem. industries, 8073*b*
**Varga, L.** Striation in actin solns, 9095*b*, activation energy of the contraction of actomyosin, 9095*c*.
**Varga, S.** Improvement of peat, P 1951*a*.
**Vargas, J. J.** See Jimenez Vargas, J.
**Vargas, L.** Subcutaneous implantation of insulin in diabetes mellitus, 5121*a*
— and Mundt, E. Diabetogenic action of barbituric acid, uracil, ninhydrin, and urethan, 2314*g*
**Vargo, E. J.** Aging Mg alloys, P 7891*f*
**Varier, N. S.** See Mathai, A. O.
— and Moudgil, K. L. Retting of coconut husks (I) proximate analysis of coconut at various stages of retting, 5955*e*
**Varjabedian, B.** See Haissinsky, M.
**Varlakov, M. N.** Drugs with a blood vessel dilating action—panzeria, 5548*g*, stimulating effects of *Schisandra chinensis*, 5550*h*, see Shass, E. Yu.
**Varlamoff, N.** Cassiterite deposits in the Kalima region, Maniema Belgian Congo, 6546*a*.
**Varlamov, V. S.** Tung-oil substitutes, P 3632*i*.
**Varley, E. R.** Vermiculite deposits in Kenya, 8985*e*
**Varley, J. C.** Quaternaries, 9365*a*.
**Varley, P. C.** Recovery and recrystn of rolled Al of com. purity, 1697*i*
**Varma, K.**, and Paul, T. M. Vitamin C content of the milk of some important breeds of Indian cattle, 1873*i*
**Varnau, B. H.** See Louviere, W. H.
**Varnell, D. S.**, and Kimbrell, W. B. Controlling anhydrite contamination in Rocky Mountain drilling muds, 6397*f*.
**Varney, P. L.** See Weichselbaum, T. E.
**Varossieau, W. W.** Survey of scientific abstracting and indexing services, 6875*i*
**Varpila, E.** See Karrman, K. J.
**Vartanetyan, S. M.** See Kasparova, S. A.
**Vartanjane, A. T.** See Vartanyan, A. T.
**Vartanyan, A. T.** Semiconductor properties of org. dyes (I) phthalocyanines, 1272*g*.
**Vartia, K. O.** Antibiotics in lichen, 5077*a*.
**Vartiainen, O.**, and Venho, E. V. Pharmacol. effects of methylsantenone[1,4,7-trimethylnorcamphor] compared with camphor, 3926*b*.
**Vartiovaara, U.** Microbiology of the symbiotic cellulose digestion, 8574*g*
**Vas, K.** Decrease of HCHO content of preserved milk, 8067*f*, preservation of fruit prepns. and pulps by $SO_2$, 9286*i*.
**Vasátko, J.** Scales in sugar-beet juice heaters, 9500*g*; production methods in defecation of sugar-beet juice by liming and carbonation, 9501*a*; defecation by lime and carbonation after a progressive preliming of sugar-beet juice, 9501*a*
**Vasconcellose Lencastre, A. de Q.** Estn. of Cu in port wine, 3550*h*.
**Vasenin, F. I.** Polymorphic inversion of Ca orthosilicate, 7314*b*.
**Vesenko, E. N.** Thermodynamic properties of solns. of strong electrolytes in formamide (II) activity coeffs. of the chlorides of K, Rb, and Cs in formamide, 470*h*
**Vashkov, V. I.**, and Vaindrakh, R. I. Agglutinins in protein fractions of Shiga dysentery serum, 7126*e*.
**Vasilesco-Karpen, N.** Pb storage cell, 1271*g*; e.m.f. of an O concn. cell and thermodynamics, 2193*h*; variation of the e.m.f. of the gas cell with pressure—e.m.f. of the O concn cell, 4146*f*, activity of ions the law of mass action, and Raoult's law, 6048*f*, activity in phys. chemistry, 6048*g*
**Vasil'ev.** See also Vassiliev.
**Vasil'ev, A. A.** Unsatn of butadiene rubbers (I), 8723*i*
**Vasil'ev, L. L.** Influence of at. decompn. products on the functional condition of the nervous system, 5434*d*
— and Latmanizova, L. V. Influence of unipolar air ionization on the functional state of denervated muscle, 5499*e*.
**Vasil'ev, N. V.** See Slutskil, A. M.
**Vasil'ev, S. F.** See Glushnev, V. E.
— and Glushnev, V. E. Oxidative reforming of gasolines of the Tuimazin Devonian petroleum, 8125*a*
**Vasil'ev, S. V.** Sulfanilamide derivs. of aromatic arsonic acids (II) sulfanilamide derivs of 3-amino-4-hydroxybenzenearsonic acid, 6593*d*, see Vil'yams, N. V.
**Vasil'eva, E. V.** Detection of Ag and Hg ions and their detn., 5702*a*; see Babko, A. K.
**Vasil'eva, V. N.** See Topchiev, A. V.
**Vasilevskaya, L. M.** See Makarevskaya, E. A.
**Vasiliu, H.** Property of P of emitting ultraviolet rays in animal and vegetable organisms vital rays, 6265*f*.
**Vasiljeva.** See Vasil'eva.
**Vasjunina, N. A.** See Vasyunina, N. A.
**Vásquez, A. P.** See Pérez Vásquez, A.
**Vassails, G.** Large ions in a gas, 8258*e*.
**Vassas-Dubuisson, C.** Effect of temp. on the low frequency Raman rays of $NaNO_3$, 2866*d*, polarization of the Raman radiation from cryst. and aq. solns. of Na thiosulfate, 6920*e*.
**Vassel, B.**, Stephens, S. J., and Celusta-Howard, P. R. Nitrogenous constituents of spent brewers' grains, 4809*e*.
**Vasseur, E.** Orcinol reaction with carbohydrates, 3795*g*, jelly coat of the sea-urchin egg, 4389*f*, effect of Ca ions on the agglutination in *Strongylocentrotus droebachiensis*, 4390*a*, see Immers, J.
— and Immers, J. Genus specificity of the carbohydrate component in the sea-urchin-egg jelly coat as revealed by paper chromatography, 4389*e*; hexosamine in the sea urchin-egg jelly coat—misinterpretation of the method of Elson and Morgan, 9271*h*.
**Vassiliev.** See also Vasil'ev.
**Vassiliev, G. A.** Hydrogenation of $C_4H_8$, 108*h*, formation of maleic compds.—terpene-maleic resins, 2465*b*.
**Vassillou, B.**, and White, J. Vapor pressure capillarity relations in clays and their application to drying, 2748*c*.
**Vassiljevskaja, L. M.** See Vasilevskaya, L. M.
**Vassy, A.** See Abadie, P.
— and Vassy, E. Effect of temp. on the absorption spectrum of $O_3$—Chappuis bands, 3291*i*.
**Vassy, E.** See Abadie, P.; Vassy, A.
**Vastagh, G.**, and Iván, E. Detn. of ascorbic acid in dehydrated vegetables, 8572*d*; mortar used by the Romans, 9410*b*.
— and Rózsa, P. Compn. of the cell membrane of vegetable foods and its alteration in the digestive process, 6753*b*.
— and Varga, E. Preservation of $CHCl_3$ used in the detn of vitamin A, 9129*f*, detn. of Cl in insecticides, 9331*b*.
**Vasterling, P.** Substitute chemicals in prescriptions and analysis (I), 6789*h*.
**Vasylyev.** See Vasil'ev.
**Vasyunina, N. A.** See Balandin, A. A.
**Vaucouleurs, A. de, and Glaser, L.** Radiation of the secondary series of the K spectrum and the likely existence of perturba-

tions in the higher members of these series, 6917*d*.

**Vaucouleurs, G. de.** Errors in photographic photometry, 51*c*; temp. coeff. and spectral variation of the depolarization factor for Rayleigh scattering in liquid $C_6H_6$, 6308*i*; depolarization of light scattered by gases, 7281*c*.

**Vaughan, D. A.** See Snavely, C. A.

**Vaughan, E. K.,** and Dana, B. F. Applications of dusts and sprays to beans for control of *Sclerotinia sclerotiorum*, 2355*g*.

**Vaughan, J. A.** Properties of hydrocarbon oils as related to their preservative value, 2731*c*, 3962*a*.

and Vinson, J. C. App. for cleansing and dehydrating contaminated creosote, P 7632*c*.

**Vaughan, J. R., Jr.** See Clark, J. H.; Sutherland, L. H.

——, Anderson, G. W., Clapp, R. C., Clark, J. H., English, J. P., Howard, K. L., Marson, H. W., Sutherland, L. H., and Denton, J. J. Antihistamine agents (IV) halogenated *N,N* - dimethyl - *N'* - benzyl - *N'* - 2 - pyridylethylenediamines, 5782*a*.

——, Krapcho, J., and English, J. P. Triazolo- and imidiazopyridines, 7023*f*.

**Vaughan, W. E.** See Dickey, F. H.; Rust, F. F.

—— and Barnett, B. Plastic S vulcanizing agent, its utilization, and vulcanizable compns contg. it, P 8980.

—— and Rust, F. F. HBr-catalyzed oxidation of org. compds, P 6694*a*.

**Vaughan, W. R.** 2,4-Dimethylquinoline, 1777*d*, chemistry of the phthalazines, 3013*i*, see Fieser, L. F.

**Vaughn, R. H.** See Fornachon, J. C. M.; Tabachnick, J.

——, Douglas, H. C., and Fornachon, J. C. M. Taxonomy of *Lactobacillus hilgardii* and related heterofermentative lactobacilli, 6700*e*.

**Vaughn, T. H.** Chloral, P 2632*a*; see Wegst, W. F.

——, Hill, E. F., Smith, C. E., and McCoy, L. R. Developments in army sea water laundering, 2003*h*.

——, Sotier, A. L., Hill, E. F., Simpson, J. E., and Lee, W. M. Germicides for army mobile laundries, 1573*b*.

**Vautier, R.** Longitudinal magnetostriction of Ni and Mg ferrites, 8335*f*.

**Vavich, M. G.** See Guerrant, N. B.

**Vavilov, O. N.,** and Frank, I. M. Transition effects of $\gamma$ rays and their influence on the ionization current in ionization chambers, 5282*e*.

**Vavilov, S. I.,** Galanin, M. D., and Pekerman, F. M. Migration of energy in fluorescent solns., 7824*e*.

**Vavon, G.,** and Gastambide, B. Steric factor in the chromatographic sepn. of ketones and their oximes, 7452*f*.

**Vavrinecz, G.,** and Vukov, K. Mixed indicators in the sugar-factory lab., 6439*a*.

**Vavřinová, M.** Mineral and geol. bibliography of the Czechoslovak Republic, 8981*d*; see Schwarz, Rudolf.

**Vavruch, I.** Interfacial tension of sucrose solns. in org. solvents, 2845*b*, phys. chemistry of the surfaces of aq. solns. of sucrose, 2845*c*; adhesion of microscopic particles of Fe on glass and films, 4077*i*, effects of sucrose, starch, gelatin, and molasses on the adhesion of microscopic particles, 4503*b*, detn. of fructose, 7869*f*; effect of a medium on the formation of interfacially active substances in refined products, 9499*d*; beet industry in the U.S., 9502*g*.

and Phillips, J. W. Colloidal biotics and their actions, 1458*g*.

**Vawter, F. J.** See Guarnieri, G. J.

**Vaynshteyn.** See Vainshtein.

**Vázquez Sánchez, J.,** and Huerta Romo, A. 5-Chloro-8 hydroxyquinoline, 7484*i*.

**Vdovtsova, E. A.** See Sidorova, N. G.

**Veal, J. R.,** Shadid, J. N., and Jamison, W. Effect of tetraethylammonium chloride on peripheral blood flow, 5114*f*.

**Veal, M. P.** See Henderson, J. H. M.

**Veatch, F.** See Hughes, E. C.

**Vecchi, E.** See Foffani, A.; Riccoboni, L.

**Vecchi, G.** Analysis of silicates, 6111*f*.

**Vecchio, A. del.** See Del Vecchio, A.

**Vecchio, V. del.** See Del Vecchio, V.

**Vecher, A. S.** Detn. of vitamin A by adsorption on bentonite, 3056*a*; polyvitamin ——— P 9391*c*; see Loza, V. M.

T. I. See Vekhotko, T. I.

**Vécsey, B.** Reducibility of Al-Fe ore, 8995*h*.

**Vedder, E. H.** See Gulliksen, F. H.

**Vedeneeva, M. A.** See Tomashov, N. D.

**Vedeneeva, N. E.** Emission and color centers of smoky quartz, 946*g*, see Chentsova, L. G.

**Vedenina, L. V.** See Belous, A. T.

**Vedensky, A. A.** See Vvedenskii, A. A.

**Vedernikova, M. I.** See Peshkova, V. M.

**Vedyashkin, P.** See Ovchinnikov, A.

**Veen, A. G. van,** and Collier, W. A. Stable palatable preps. of Laboe merah, P 7198*d*.

**Veen, H. H. le.** See Le Veen, H. H.

**Veenemans, C. F.,** and Loosjes. Cathodes for cold discharge tubes, P 4966*b*.

**Veer, W. L. C.** Gaillard, P. J., Goldschmidt, S.

**Veersen, G. J. van.** Aq. dispersions of rubber hydrohalides, P 5225*e*.

**Vega, F. A. de la.** See Alvarez de la Vega, F.

**Vega, F. C.** See Cano Vega, F.

**Vegard, L.** Structure and properties of solid matter with the help of x rays, 4073*h*, at theory in the service of northern lights research, 4133*e*, thickness and height of the Na layer responsible for the strong yellow line in twilight, 7335*f*, see Kvifte, G.

—— and Kvifte, G. Green auroral line as an initiator of phosphorescence in condensed systems, 4133*e*.

**Végh, A.,** and Kovacs, L. Detn. of Ca-$(H_2PO_2)_2$, 9368*g*.

**Végh, L.** See Gal, I.

**Véghelyi, P.** Fat digestion in delayed gastric emptying, gastric lipase, 5105*d*, pancreatic function and protein deficiency, 9184*e*.

**Vegni, M. T.** See Padoa, E.

**Végvári, J.** See Susztek, L.

**Veh, P. O.** Theoretical energy consumption of small forging furnaces, 7392*a*.

**Vehotko, T. I.** See Vekhotko, T. I.

**Veibel, S.** Johan Kjeldahl, 7761*f*.

—— and Arnfred, N. H. Pyrazole studies (I) pyrazoisocoumarazones, (II) anhydrides of 1-(2-carboxyphenyl)-3-phenyl-5-pyrazolone and 1-(2-carboxyphenyl)-3-methyl-4-ethyl-5-pyrazolone, 5021*g*.

——, Refn, I., and Friediger, A. Pyrazole studies (III) $\alpha$- and $\beta$-lactones of some 1-(2-carboxyphenyl)-5-pyrazolones, 5025*a*.

—— and Schmidt, H. W. Diagnostic value of the titration curves of the *p*-carboxyphenylhydrazones of hydroxy-substituted aromatic aldehydes and ketones, 5764*e*.

—— and Simonsen, J. L. Emar C. S. Billmann, 5239*a*.

**Veil, S.** Chem. suction of $K_2Cr_2O_7$ in the Liesegang ppt., its control by edge effect—generation of rings, 7297*c*, detection, by plane analysis, of unstable formations in the chemistry of the cobalthexammines, 7364*b*.

**Veller, S. Ya.,** Likhtman, V. I., and Rebinder, P. A. Measurement of relaxation in colloidal structurized systems, 6888*f*.

**Veinberg, I. A.** Influence of ingredients on the strength of bonds between rubbery mixts. and leather, 0854*f*.

**Veinberg, T. N.** Luminescence of glasses contg. Cu, Pb, and Sn, 5671*h*.

**Veinberg, Z. A.** Detn. of cellulose, P 3196*h*.

**Veinshtein.** See Vainshtein.

**Veis, R. A.,** and Karasik, V. M. Central and peripheral antagonism between curare and prostigmine, 4373*d*.

**Veiskopf, V. F.** See Weisskopf, V. F.

**Veit, J.** See Duratube & Wire Ltd.

**Veitsblit, G. I.** Detn. of Cu in Sn bearing bronzes and brasses without sepn. of Sn, 4178*a*.

**Veitser, Ya. I.** Detn. of the visibility and the extinction coeffs. in dense smoke and cloud, 6039*f*.

**Vekhotko, T. I.** Removal of Fe and Mn from aq. solns., 8078*d*.

**Veksler, R. I.** Detn. of aldehydes (I) HCHO, 4976*g*; detn. of alloxan in pure solns. and in blood, 8979*e*.

**Veksler, V. I.** See Azimov, S. A.; Bell, L.

**Velarde, J. D.** See Diaz Velarde, J.

**Velasco, F.** Analysis by adsorption, 58*d*, 1679*d*.

**Velasco, J. R.** Reaction velocity in homologous series (III) hydrolysis of acetic, propionic, and butyric anhydrides, 5271*c*; see Oliver Ruiz, J.

—— and Ayerbe, F. R. Vegetable oils (III) absorption of H by olive oil and castor oil 7722*g*.

—— and Piazza Molini, C. Vegetable oils (II) absorption of Br by castor oil, 7722*f*.

**Velasco Corral, C.** Enamels and varnishes, 420*d*.

**Velásquez, T.** See Monge M., C.

**Velázquez, B. L.** See Lorenzo Velázquez, B.

**Velbinger, H. H.** Toxicology of DDT preps., 3556*c*, effect of DDT, gammexane, and E605, 6770*g*.

**Velculescu, A. I.,** and Cohen, I. Prepn. of inorg. Cu pigments from roasted Cu pyrites, 2443*i*.

**Veld, L. G. H. in't.** See Dingemanse, E.

—— and Dingemanse, E. Excretion diagrams of 17-ketosteroids in patient with tumors of the adrenal cortex, 2307*f*.

**Velde, A. J. J. van de.** See Van de Velde, A. J. J.

**Veldheer, P. A.** Detn. of $C_2H_2$ in liquid $O_2$, 2894*i*.

**Veldhuis, M. K.** See Royo Iranzo, J.

—— and Gordon, W. O. Feed yeast from citrus press juice, 2708*g*.

**Veldman, H.** Vitamin A and vitamin C supply of Amsterdam students, 1850*b*.

**Veldstra, H.** Synergistic actions of structural analogs, 5525*g*; see Havinga, E., Stuivenberg, J. H. M. van.

**Velez O., V.** See Cordano, M.

—— and Cordano, M. Testing of penicillin in pharmaceutical preps., 9367*c*.

**Velhartický, J.** Soap manuf., 7724*g*.

**Velick, S. F.** Interaction of enzymes with small ions (I) analysis of aldolase in phosphate and acetate buffers, 4311*a*.

**Velikovskii, D. S.** See Tsyskovskii, V. K.

—— and Pelsakhodina, S. L. Cooling of metals, P 6144*a*.

**Velluz, L.** See Plotka, C.

—— and Amiard, G. Syntheses in the esculetol series (III) 4-methylesculoside, a vitamin of the P group, 3823*a*; precursor of vitamin $D_3$, 9180*i*.

——, Amiard, G., and Bartos, J. Phosphorylation deriv. of vitamin $B_1$, thiamine triphosphoric acid, 3902*b*.

——, Amiard, G., and Pesez, M. Aldehydes and the Doebner-Miller reaction (I) 2-methyl-5-carboxy-7-aminoquinoline, (II) characterization of the $-CH_2CHO$ group, 3002*g*.

——, Pesez, M., and Herbain, M. Aldehydes and the Doebner-Miller reaction (III) titration of acetaldehyde, 3003*f*.

—— and Petit, A. Phys. consts. of estrone and estradiol, 5254*d*.

——, Petit, A., and Amiard, G. Nonphotochem. stage in the formation of the calciferols, 5408*c*.

**Vélon, P.** Analysis problems in cosmetology, 3145*a*.

**Velsicol Corp.** Insecticide contg. methylated naphthalene and 4,4-dichlorodiphenyltrichloroethane, P 1902*f*, Diels Alder adducts, P 4693*c*.

**Velten, E. M.** Adsorption app. for the recovery of acetone from acetone-air mixts., P 450*d*.

**Veltfort, T. R.** Experiences with Cu tube in gas services and mains, 5925*f*.

**Veltitsova, M. V.** See Maslyanskii, G. N.

**Veltman, G. H.** Relation between the growth factors of plants and fibers and fiber quality, 9456*i*.

**Velz, C. J.** How much should sewage treatment cost? 5140*a*; factors influencing self-purification and their relation to pollution abatement, 8586*g*.

**Venables, D. G.** See Greaves, T.

**Vencov, S.** Purification of C electrodes used for analysis, 3732*b*.

**Vendramini, E.** Measurement of aerosol particles, 6883*f*; DDT inactivation by light, 7183*f*.

**Vendrely, C.** (nee Randavel). HCl as a substitute for ribonuclease in the localization of ribonucleic acid in cells of higher animals as well as in bacteria, 4719*i*, 8420*i*; presence of ribonucleic acid in the chondrioma, 5847*d*; see Vendrely, R.

**Vendrely, R.** See Boivin, A.; Callot, J.; Tulasne, R.

—— and Vendrely, C. Desoxyribonucleic acid content of cell nuclei of various organs of individual and different species of animals, 2690*g*, 9093*b*, 9210*i*.

**Vendrely-Randavel, C.** Same as Vendrely, C. (nee Randavel).

**Vendrik, A. J. H.** See Smit, J. A.

**Vendt, V. P.** Photofiler-condenser for fluorescence analysis, 8746*f*.

—— and Lebedeva, T. A. Harmful vapors

**and gases in the ozokerite mines in Borislavsk region, 9297*g*.**

**Vène, J.** Study of the structures of org. mols. by electronic diffraction, 931*h*; Matières premières de synthèse (book), 3654*c*; Plastiques (book), 3654*c*.

—— and Tirouflet, J. Comparative stability of the lactonic ring of dialkyl phthalides and 6-nitro dialkyl phthalides, 7925*f*.

**Veneklasen, P. S.,** and Watson, N. A. Compn. for the manuf. of ear stoppers, P 908*h*.

**Venemark, E.** Wet and dry, green or stored wood for sulfate pulping, 2428*d*.

**Vener, I. M.** Lignin of the woodlike tropical fern, 7552*i*; see Karavaev, N. M.

**Venere, A.** Insecticide, P 7632*i*.

**Venezia, M.** Detg. alc. in grape residue, 5531*c*; detecting small amts. of saccharose in wine and other beverages, 8607*a*; Dubosq's colorimeter in testing the decolorizing properties of charcoal in winemaking, 8606*i*.

**Venho, E. V.** See Vartiainen, O.

**Venier, G.** $MgSO_4$, P 8109*a*.

**Venkatappiah, D.** See Rao, V. R. B.

**Venkataraman, A.** See Dziewiatkowski, D. D., Ganapathi, K.

**Venkataraman, K.** See Anand, N., Bedekar, S. G.; Khorana, M. L.; Munshi, S. K.

**Venkataraman, P. R.** See Rao, R. R.

**Venkataramaniah, M.,** and Rao, B. S. V. R. Th periodate and its use in Th estns., 6940*b*.

**Venkatarayudu, T.** See Bhagavantam, S.

**Venkatesan, C.** See Ghosh, J. C.

**Venkateswaran, C. S.** Dynamic x-ray reflections in C silicide, 4525*g*.

**Venkateswarlu, P.** See Madsen, C. B.

**Venkateswarlu, V.** See Seshadri, T. R.

**Venkatram, S.** Cotton, 3203*b*.

**Venkstern, T. V.** Metabolism and light-sensitive substances of the retina, 7107*e*; P compds. and enzymic systems of the retina, 8040*e*.

**Vennerholm, G.** Nodular graphite cast iron, 6957*g*.

**Vennesland, B.** N and C isotopes, application to the study of the animal organism, 4710*e*; $\beta$ carboxylases of plants (II) distribution of oxalacetic carboxylase in plant tissues, 5827*i*; see Ceithaml, J.; Conn, E. E.; Golluh, M. C., and Speck, J. F. $\beta$ carboxylases of plants (I) oxalacetic carboxylase, 5057*d*.

**Venning, E. H.** Effect of large doses of corticotropin on steroid metabolism, 8041*a*.

**Venstrøm, E. K.** See Likhtman, V. I.

**Venter, F. A.** Waterberg coalfield, 4609*d*.

**Venth, E.** Comparison between the U. S. P. XIII and the D. A.-B. VI and its supplement, 1527*e*.

**Vento, V.** See García-Blanco, J.

**Venton, C. B.** Recovery of wax from factory mud, 4880*i*.

**Ventre, E. K.** Extn. of aconitic acid from sugar cane, P 5220*e*.

**Ventriglia, U.** Leucititelike lava occurring on the Torpagnotta estate, Rome, Italy, 7455*e*, classification of clays, 3580*e*; periodic system of the elements forming with O, OH, and F ionic crystal structures, 8231*d*.

**Ventura, E.** See Raucourt, M.

**Ventura, M.** Action of biliary acids on growth of *Escherichia coli*, 7077*h*.

**Ventura, S.** Splenectomy and carbohydrate metabolism, 7112*i*.

**Venturello, G.,** and Bosio, M. Brasses contg. Ni and Be, 2915*i*.

—— and Pestelli, V. Silica-contg. dust, 4780*e*.

—— and Saini, G. Detn. of Mg with diphenylcarbazone, 7370*g*.

**Venturi, A.** Sostanze aromatiche (book), 7940*d*.

**Venturi, V. M.** Vitamin control of sulfoconjugation, 3894*a*.

**Venus-Danilova, E. D.,** and Kazimirova, V. F. Isomerization of hydroxy aldehydes (XI) oxidation-reduction of 2-hydroxyenanthaldehyde, 3790*i*.

**Vera, A., Jr.** Calcg. raw-mix proportions, 3584*h*.

**Verain, M.** See Watrin, J.

**Verbanc, J. J.** Processing aids, P 5224*b*.

**Verbeke, R.** Pharmacology of diisopropyl fluorophosphate, 7129*e*; pharmacology of tetraethylpyrophosphate, 7133*h*; see Heymans, C.; Vleeschhouwer, G. R. de.

**and Votava, Z.** Pharmacology of hexaethyltetraphosphate, 7132*c*.

**Verbestel, J.,** Springuel, J., and Royer, V. Detn. of silica in boiler water, 5140*b*.

**Verbrugh, A. J.** Sol-gel problem in fresh plantation rubber, 2799*f*.

**Verburgt, J. W.** See Bartstra, E. A. C.

**Vercauteren, R.** Histo- and cytochemistry of the enzymes, 5433*a*; see Massart, L.

**Vercillo, A.** Analysis of mixts. of sugars, 8979*f*.

**Verda, A.** Synthesis of the components of animal and vegetable organs, 701*g*.

**Verde, M.** Elastic scattering of neutrons by deuterons, 6908*b*.

**Verder, A. E.** See Larson, C. L.

**Verdery, C. G.** See Vogt, C. G.

**Verdier, C. H. de,** and Ågren, G. Paper chromatographic analysis of ammo acids and peptides in tissue exts. and enzyme-hydrolyzed proteins, 4314*a*.

**Vereschagin, L.** See Vereshchagin, L. F.

**Vereshchagin, L. F.** See Polyakova, A. M.

**Vereshchinskii, I. V.** See Chirkov, N. M.

**Vergano, T. M.** See Maggiora-Vergano, T.

**Verghese, G. T.** Prepn. of highly purified *Hevea* rubber, 2457*e*, 9512*i*; fractionation of purified *Hevea* rubber, 7249*i*, behavior of different fractions of purified *Hevea* rubber during vulcanization, 7250*d*.

**Verghese, J.,** Gulati, K. C., and Joshi, M. L. Production of thymol from ajowan seeds, 6366*a*.

——, Sondhi, H. K., Bhushan, B., and Joshi, M. L. *p*-Cymene from carene, 5012*f*, 5767*i*.

**Vergnano, F.** See Paolino, W.

**Vergnolle, J.** See Mende, S. de.

**Vergunas, F. I.** Dependence of the intensity of the spontaneous afterglow of crystal phosphors on the intensity of the exciting radiation, 5669*a*.

—— and Gavrilov, F. F. Dependence of the intensity of luminescence of Zn oxide and Zn sulfide on the intensity of the excitation, 4113*b*.

**Verhaegen, L.** See Itterbeek, A. van.

**Verhagen, B. A.** Cu-formol gel reaction, and its connection with the euglobulin and $\gamma$-globulin content of serum, 4321*a*.

**Verheus, J.** Analytical applications of rectifying distn., 8209*c*.

**Verhoek, F. H.** See Mack, E., Jr.

—— and Morgan, W. L. Protection of portions of articles during formation of mirrors, P 3120*e*.

**Verhoogen, J.** Eruptions of the volcano Nyamuragira, 5348*g*, 8992*e*, thermodynamics of a magmatic gas phase, 8224*f*.

**Verhorst, G. F.,** and Spronck, S. J. H. Colored ceramics, P 5166*f*.

**Verhulst, H. L.,** Arrigoni, L., and Fischer, L. Modified assay methods for crude drugs involving the removal of interfering substances by enzymic digestion (II) belladonna root, 8612*e*.

**Vericat Raga, J.** See Iburz Aznárez, J.

**Verigo, K. N.** See Troitskii, A. V.

**Verink, E. D., Jr.** See Brown, R. H.; Horst, R. L.

—— and Brown, R. H. Al alloys, 8745*b*.

——, Reid, K. K., and Diggins, E. R. Output of light metal anodes as a function of soil resistivity, 6093*c*.

**Verkade, P. E.** Synthesis of glycerides, 6576*d*; relation between the degradation of straight-chain fat acids by $\beta$-oxidation and the metabolism of carbohydrates, 9179*g*, see Bosma, G. S. K.; Morel, T.; Wepster, B. M.

**Verkerk, B.** See Schmidt, R.

**Verkholetova, G. P.** See Nazarov, I. N.

**Verkhorubova, A. N.** See Tananaev, N. A.

**Verkhovskaya, I. N.** Artificial radioactive isotopes in biology and medicine, 5812*h*.

**Verly, W.** Reciprocal oxidation of vitamin C and adrenaline, 3053*e*; pharmacol. properties of dimethylnoradrenaline, 4374*g*.

**Verma, I. P. S.** See Singh Verma, I. P.

**Verma, T. N.** 100° mark on the scale of pptn. efficiency, 6847*g*.

**Vermaas, D.,** and Hermans, J. J. Swelling of cellulose xanthate gels in dil. salt solns., 4070*d*.

**Verman, L. C., Khanna, M. L., Das Gupta, S. K.,** and Nair, K. A. Corrosion of Fe by water-in-oil emulsion (II) corrosion of engines by emulsions, 2504*g*.

——, Nair, K. A., Khanna, M. L., and Das Gupta, S. K. Colloidal fuels for Diesel engines, 5921*c*.

**Vermande, G. J. van E.** See Eck-Vermande, G. J. van.

**Vermeer, C. G. H.** See Hoff-Vermeer, C. G.

**Vermeil, G.** See Halpern, B. N.

**Vermel, E. M.** Action of sulfanilamide and its derivs. on the growth of malignant tumors, 9252*e*.

**Vermes, E.** See Truhaut, R.

**Vermeulen, G.** See Hueck, H. J.

**Vermeulen, T.** See Hiester, N. K.

**Vermillion, H. E.** Alkylation of isobutane with $C_2H_4$, P 2422*h*.

**Verne, J.,** Boulin, R., and Nepveux, F. Histochemistry and chemistry of the arteries of patients with diabetic gangrene, 8047*d*.

——, Hanon, F., and Coquoin-Carnot, M. Influence of serum of pregnant women on cultures of uterine muscle, 3083*d*.

—— and Hébert, S. Variations of alk. phosphatase during development of the tooth buds, 5470*g*; steroid sex hormones and activity of the alk. phosphatase of the intestine of the adrenalectomized rat, 9201*f*.

**Verner, A. R.,** and Orlovskii, N. V. S-reducing bacteria in the saline soils of Baraba, 4410*e*.

**Verney, E. L.** See Scott, E. M.

**Vernon, A. A.,** and Kring, E. V. Polarization of $C_2H_4Cl$ in $C_6H_6$, 6480*e*.

**Vernon, C. E.** See Harris, I.

**Vernon, W. H. J.** Corrosion and microbiol. corrosion, 1706*d*; corrosion of metals, 6559*f*.

**Vernov, S. N.** See Alekseeva, K. I.; Baradzei, I. T., Brikker, S. I.

——, Grigorov, N. L., and Savin, F. D. Ionization-chamber measurement of pulses caused by cosmic rays in the stratosphere, 5661*g*.

**Verolini, F.** Action of DDT in the larvae of *Culicidae*, 2358*g*.

**Véron, M.** Temp. of the filaments of lamps for infrared drying, 1272*e*.

**Verona, O.** Can adaptation to S-contg. media induce a change of the phase of ellipsoidal yeasts? 1906*b*, microbic origin of the flavor of butter, 2708*a*.

**Veronesi, B.** Anthraquinones in *Rumex obtusifolius*, 5830*d*.

**Verrall, A. F.** Molds on wood favored by certain toxicants, 7623*h*.

**Verrien, J. P.** Electrolytic corrosion of gas pipe lines, 1706*b*.

**Verrotti, I.** Cholinesterase content of the blood and cerebrospinal fluid, 7384*d*.

**Verschaffelt, J. E.** Diffusion in gases, 454*e*, adsorption, 3263*d*, terminology and symbols in phys. chemistry, 4058*h*, thermomechanics of elec. conduction by electrons, 5250*d*, thermal mechanics of diffusion, 8805*i*, thermoelec. diffusion, 8806*a*.

**Verstraete, J. R.** Nembutal, pentothal, and pentothal-tubocurarine and respiration and circulation, 4704*c*.

**Vertadier, P.** See Régnier, J.

**Verter, P. L. de.** See De Verter, P. L.

**Vertsner, V. N.** Soviet electron-microscope, 8847*f*.

**Vertushkov, G. N.** Rutile from the Sukhoi Sugomak Creek near Kyshtym, Urals, 6117*c*; laminated quartz from Krystalnaja Gora, Krystalberg in the Urals, 6118*c*.

**Vervelde, G. J.** Electrochem behavior of ion-exchanging substances—potential measurements on plant roots (V), 6525*d*.

**Verver, C. G.** See Have, J. H. van der.

**Verwaltungsgesellschaft der Werkzeugmaschinenfabrik Oerlikon.** Anode for hard Cr baths, P 3734*b*.

**Verweij.** See Verwey.

**Verwey, E. J. W.** Free energy of phase boundaries, 3259*i*; electronic semiconductors, 5659*g*; induced valence, 6015*g*; arrangement of cations in spinels, 6032*f*; ceramic materials, 7205*b*; see Haayman, P. W.; Padmos, A. A.

——, Boer, F. de, and Santen, J. H. van. Cation arrangement in spinels, 1623*b*.

—— and Bügel, R. D. Ceramic materials with a high dielec. const., 4823*d*.

——, Haayman, P. W., and Bol, A. Elec. resistance element, P 8920*a*.

**Verwey, W. F.** See Miller, A. K.

**Verzal, A. I.,** and Kruppe, G. A. Prepn. of glass filters, 8625*h*.

**Verzár, F.** Lehrbuch der inneren Sekretion (book), 5483*a*; fat absorption and transport—influence of internal secretion, 9198*c*; see Leupin, E.; Mentha, J.; Sass-Kortsák, A.; Vogt, O.

**Verzele, M.,** and Eugene, P. Formation of bitter acids during the maturation period of hops, 6780*i*.

——— and Govaert, F Detn. of bitter acids of hops, 3142c
**Verzhbinskaya, N. A.**, Kreps, E. M., Fetisenko, I. V., Chenykaeva, E. Yu., and Shmatova, E. G. Influence of high-altitude conditions on blood carbonic anhydrase, 5475c.
**Vesce, C. A.** Se poisoning (IV) anatomical-histological changes, 3524f, prothrombin time in aniline poisoning, 3525a
**Vescia, A.** Distinction between D- and L-aminopeptidase, 3856c.
——— and Giuliano, G D-Aminopeptidase in normal organs, 3856b
**Veselitskaya, T. A.** See Grigorovskii, A. M.
**Veselov, E. A.** Effect of salinity of the external medium on intensity of respiration, 5874c.
**Veselovskii, V. I.** Photoelectrochem processes on Ag $Ag_2O$ electrode, 2503f, sensitization mechanism of the photoelectrochem. process at a Zn ZnO electrode, 2858h.
**Veselovskii, V. S.** Nagrevatel nye pribory v laboratornoi praktike (book), 2176
**Vesely, K.**, and Bidrčka, R Limiting currents of HClO as a measure of its dehydration rate, 25d
**Vessell, H.** See Litwins, J
**Vessey, R. E.** See Cunningham, R W
**Vestal, B.** See Albanese, A A
**Vesterdal, H. G.** Sintered metal catalyst, P 9419
**Vesterhus, R.** Discoloration of canned fish balls, 5069a
**Vetoshkin, V. F.** See Filippov, S A
**Vetrocoke Società anon.** Crystn of tar oils, such as naphthalene and anthracene, and similar oils, P 4816e.
**Vetsher, A. S.** Carotene from carrots and green parts of plants, P 3118a
**Vetter, J.** Histotopochemistry of vitamin C in the cornea, corium, and retina, 5848a.
**Vetter, W. L.** See Postma, N
**Vevey, B. de.** Disintegration process using Hertzian waves, P 2518a
**Vexlearschi, G.** Tertiary alkylamines, 7303h
**Vexler, V. I.** See Vekler, V I
**Vial, J.** See Chatonnet, J , Hermann, H , Rosenblum, S
**Viale, L.**, and Kunkl, S Ketolysis after inhibition of glycolysis by NaF, 1863g
**Viallard, R.**, and Jaszczyn, P Fixation of H and of D by La and Ce, 4122d
——— and Magat, M Fragmentation of linear C chains by electron impact, 5280e
**Vialli, G.** Content and distribution of vitamin A in the pyloric appendix and in the liver of *Eupomotis aureus*, 6745i, nature and content of vitamin A in the liver of amphibians, 6746a, presence and distribution of vitamin A in the liver of *Cyclostomata*, 6746a.
**Viallier, J.** See Josserand, A ; Pichat, P
**Vian, A.** Analytical applications of conductometry, 58c; see Blasco Santiago, E , Mora, A.
**Vianna Dias, M.** See Guimarães Villela, G. G.
**Vian Ortuño, A.** Rectifying columns, (I), 4902f, (II), 7270c.
**Viatte, R.** See Bréquet, A.
**Viaud, P.** See Mayer, R.
**Vibrans, F. C.** See Kraybill, H R.
**Vic Cleaning Machine Co.** Filtering for cleaning fluids used in dry-cl plants, P 8757f
**Vicente, G. C.** See Jones, M A
**Vicente, J. G.** See García Vicente J
**Vichnievsky, R.** Combustion studies by means of the elec. cond of flames, 3591h, detg. the intensity of detonation, 4453d; thermodynamics in the study of and experimentation with the engine, 9422g
——— and Monnet, G Combustion studies, 7663a
——— and Salé, B States of gas mixts by semilogarithmic entropy vol diagrams, 4914b.
**Vick, F. A.** Advances in physics, 2481d, 6015d, 6927b.
**Vickers, R. D.** See Roger: H , Jr
**Vickers-Armstrongs Ltd.** tary kiln f burning cement, ore, etc , P 8 6i
**Vickers Inc.** Reclamation of Se rectif cells, P 6530g
**Vickerstaff, T.** Dyeing, 6419g, see Peters, R. H.
**Vickery, B. C.**, and Denbigh, K G abilities of bonds (II) bond refr the alkanes, 5242i
**Vickery, H. B.** See Puchet, G W
——— and Abrahams, M. D. Metabolism of the org. acids of tobacco leaves (II) effect of culture of excised leaves in solns. of d isocitrate and acetate, 9177d
———, Leavenworth, C S , and Bliss, C. I. Uniform samples of leaves, 8017a
**Vickery, R. C.** Influence of basicity on the efficiency of oxidation hydrolysis procedures for the pn and purification of Ce, 4168e
**Vico Products Co.** Treatment of liquid yeast products, P 816d
**Victor Chemical Works.** Copolymers of alkenyl arylphosphonates with methyl methacrylate, P 1220f, copolymers of dialkenyl arylphosphonates with vinyl acetate, P 1220g, hexaethyl tetraphosphate, P 3836g, anhyd mono Ca phosphate, P 3981f, *p* nitrophenyl diethyl thophosphate, P 6659a, phosphonic and thophosphonic acid chlorides, P 7499e, plasticizing agents comprising dialkylphenylphosphonates and compns contg them, P 7752d
**Victoreen, J. A.** Absorption of incident quanta by atoms as defined by the mass photoelec absorption coeff and mass scattering coeff , 483c
**Victorero, F. A.** See Alzola Victorero, F
**Victoroff, M. M.** See Viktorov, M M
**Victory, H J.** Estg. the excess air used in combustion of blast-furnace and coke oven gas from the gross calorific value of the fuel and the $CO_2$ content of the waste gases, 1146a
**Vicuna, A** nd Jannuzzi, S Glycerol, P 3562a
**Vidal, A. Z** see Zubiri Vidal, A
**Vidal, F.** S Wa , G
**Vidal, F. Z** See Zubiri Vidal, F.
**Vidal, J. M.** See Foz Gazulla, O R
**Vidal, S.** See Sols, A
**Vidal, V. A. C.** See Canhoto Vidal, V A
**Vidale, M** Lord, J
**Vidal-Sivilla, S.** See Jiménez Vargas, J — and Monche, J Sympathin F in splenic blood during hemorrhage and asphyxia, 5519d
**Videla, C. A.** See Alberto Videla, C
**Vieböck, F.** Analysengang zur Erkennung von Arzneimitteln (book), 3978e
**Viego Delgado, S.** Cálculo azucarero (book), 2708e
**Vielweg, M. P.** See Fiveg, M P
**Vieitez, E**, and Dios, R Influence of intensive irrigation on the chem compn of *Holcus lanatus*, *Lolium multiflorum*, and *Poa annua*, 1408g
**Viel, G.**, Guerin, H , and Mas, R Relative toxicity of the arsenates of Cu to the larvae of *Doryphora*, 9340a
**Vierk, A. L.** See Haufle, K
**Viermann, H.**, and Mannheims, J S content and characteristics developed with protein hydrolysis, 7061f
**Viertel, O.** Effect of the addn. of cellulose-glycolic acid to detergent solns , 4876a
**Viervoll, H.** See Bastiansen, O , Fimbak, C
**Vietes, J. R la.** See La Vietes, J R
**Viets, H. R.** Drug therapy in psychiatry and neurology, 1484.
**Vietti, W. V.** Control of heaving shale with Na silicate muds 6397g
**Vieweg, R.** Foam materials, 1215g.
**Vigdergauz, V. S.** See Avgustinik, A I
**Vighi, L.** Barite mineralization near Catanzaro, Calabria, 5708f
**Vigler, M. S.** See Conrad, A L
**Vigliani, E C.** See Barsotti, M — and Baldi, G Epidemic of Hg poisoning in a factory, 8688a
——— and Saita, G Leukemias from benzene, 332g
**Vignalou, J.** See Perrault, M
**Vignau, M.** Calcn of errors in chem. analysis by the statistical method, 2115f, see Cheritat, R
**Vigneaud, V. du.** See Carpenter, F. H , Ferger, M F , Keller, E B , Livermore, A H , Maw, G. A., Reed, L. J., Stevens, C. M , Wood, John L.
— and Carpenter, F. H γ Lactam of benzylhomopenicilloic acid and related compds 7932a
———, Stacy, G W , and Todd, D Syntheses of DL-β β diethylcystcine and DL-β ethyl-β-methylcystcine, 2581a
**Vigneron, L.**, and Chastel, R L'énergie atomique (book), 5311f
**Vignes, J L** See Condon, M Z.
**Vignes, R.** See Brustier, V
**Vignola, T.** Analisi dei Pigmenti minerali (book), 6838a
**Vignoli, L., Delphaut, J., and Lieutier, J.** Fluid ext. of cascara, 5536i.
**Vigroux, E.** Adsorption of $O_3$ in the visible spectrum, 39b; $O_3$, 8774h.
**Viktorin, O.** Foaminess of solns., 8794f.
**Viktorov, M. M.** Graphical Method of Calcn in the Technology of Salts (book), 5555b.
**Viktorova, E. A.** See Levina, R. Ya.
**Vila, A.** Tar oil of deciduous wood, 6395i.
——— and Thomas, A. Acetylating tar oils, P 8122d.
**Vila, J. P.** See Pascual Vila, J.
**Vilanova, X.** See García-Valdecasas, F.
**Vilars, J.** Properties of mech. pulp, 1183g, tear measurement with a dynamometer, 1978d, graphically representing pulp and paper strength, 5591a.
——— and Gueunet, J. Analyses of white loading materials in paper, 5949c.
**Vilaseca, G C.** See Pavlovski, A.
**Vil'borg, S. S.** See Kreshkov, A P.
**Vilbrandt, F. C.** Chem Engineering Plant Design (book), 8218c.
**Vilchez, F. A.** Oxalic acid in the blood in normal and pathol. conditions, 8520i.
**Vilenkina, G. Ya.** See Braunshtein, A I.
**Vilents, S. B.** Continuous heaters for the handling of paper broke, 3613e
**Viles, P. S.**, and Camp, E Q Inhibition of corrosion in oil wells, P 3185h, 7221g, 8602e.
**Vilkas, M.** See Dupont, G.
**Vil'komirskii, I. E.**, Val'dman, G. F., and Novak, A G Lab cell for detg effect of electrode spacing on current efficiency, 1270f
**Vil'kovich, V. A.** Phys properties of aminoplastic dishes, 5125f.
**Villa, H.** See Kubaschewski, O.
**Villa, M. G.** See Gallardo Villa, M
**Villamil, M. F.**, and Mancini, R E. Benzidine reaction for peroxidases applied to thyroids in hypofunction, 8014d.
**Villani, F.** See Papa, D
**Villanúa Fungairiño, L.** Detn of Ca gluconate, 3317b, detn of caffeine in medicinal mixts , 5536d, see Casares Lopez, R — and García Puertas, P. Detn of uric acid, 266f
**Villar, G. E.** Series of acinides, 3701g, utilization of petroleum in org. synthesis, 7305h
**Villarino, R.** See Cuervo, C
**Villar Palasí, V.** Indispensable amino acids, 287e, saponins in the plant kingdom (II), 4729a; synthetic hormones, 6786x, see Santos Ruiz, A
———, Santos Ruiz, A , and Sanz Domínguez, F Biochemistry of proteins (II) aromatic and S aminoacids of *Lathyrus sativus*, 1449e.
**Villars, D. S.** C black (II) Grignard analysis, 2068f
**Villars, F.**, and Thellung, A Magnetic moment of $H^3$ and $He^3$ in the Møller Rosenfeld theory of nuclear forces, 1256b
**Villaseca, L. B.** See Brú Villaseca, L.
**Villedieu, G.** Cu and mildew, 3959e.
**Villee, C. A.**, and Hastings, A. B. Metabolism of $C^{14}$-labeled glucose by the rat diaphragm, 8029e
———, Lowens, M., Gordon, M., Leonard, E , and Rich, A Incorporation of $P^{32}$ into the nucleoproteins and phosphoproteins of the developing sea-urchin embryo, 7063i
**Villegas de Bollini, L. S.** Toluylene blue as an oxidation-reduction indicator in cerimetry, 2117a.
**Villela, G. G.** See Guimarães Villela, G
**Villers, J.** See Dubouloz, P.
**Vilnjanskij, J.** See Vil'nyanskii, Ya E
**Vil'nyanskii, Ya. E.**, and Pudovkina, O I. Binary system $Na_2CrO_4$–$CaCrO_4$, 6898f; Na ferrate in the formation of Na chromate from soda and natural chromite, 8933d
**Vilsmeier, J.**, and Bierbrauerei Steinholzl A.-G Extractable product from grains which have husks, P 5512a.
**Vil'yams, N. V.**, and **Vasil'ev, S. V.** Action of N oxides on unsatd. acids $C_nH_{3n-2}O_2$ (I) action of $N_2O_3$ on petroselinic acid, (II) action of $N_2O_4$ on petroselinic acid, 1318d.
**Viña, J.** See García-Blanco, J.
**Vinadé, J. V.** See Virgili Vinadé, J.
**Vinal, G. W.** Transition from international to abs. elec. units as it affects the physchemist, 8762f.
**Vinberg, G. G.** Passive anaerobiosis and

microaerophilic exchange in invertebrates, 8066*e*.
**Vincent, D.** Serum cholinesterase and insulin hypoglucemia, 3520*d*; detn of cholinesterase in serum, 8426*h*; see Truhaut, R.
———, Abadie, A., and Lagreu, R. Action of cardiotonic glycosides—their action on the cholinesterases of myocardium, erythrocytes, and brain, 4380*f*.
——— and Lagreu, R. Detn of arginine by the Sakaguchi reaction (III) arginine of blood and urine, 3054*i*; enzymic hydrolysis of acetylsalicylic acid, 7983*f*.
———, Parant, M., and Lagreu, R. Action of streptomycin on cholinesterases, 6676*b*.
———, Refait, R., and Broca, J. Variations in the cholinesterase activity of horse serum as a function of aging and a method of preservation, 5435*g*.
———, Truhaut, R., and Abadie, A. Toxic action of DDT—DDT and the cholinesterase systems of insects and higher animals, 5495*a*.
**Vincent, D. B.** Food products from citrus wastes, P 5512*b*.
**Vincent, D. B., Inc.** Food products from citrus wastes, P 5512*b*.
**Vincent, G. P.** See Aston, R. N.
——— and Dubeau, A. L. Scouring or bleaching cellulosic textiles, P 5200*c*.
———, MacMahon, J. D., and Synan, J. F. Elimination of tastes and odors in water, P 1888*f*.
**Vincent, H. C. G.** See Nockolds, S. R.; Tilley, C. E.
**Vincent, J. G.** Bacteriostatic base for pharmaceuticals, P 3978*d*.
**Vincent, J. M.** See Cavill, G. W. K.; Morton, R. K.; Raistrick, H.
**Vincent, J. R.** Polymerizing chloroprene, P 1001*d*, processing agents for butadiene copolymers, P 4046*b*, polymerization modifiers, P 4051*e*, see Nead, A. M.
**Vincent, K. C.** See Dean, K. C.
**Vincent, M.** See Mousseron, M.; Sannié, C.
**Vincentiis, M. de.** See De Vincentiis, M.
**Vinci A.** See Kind, C. A.
**Vincke, E.** Prophylaxis of thrombosis with org. salts of rare-earth metals (III) anti-thrombosis activity of Nd nicotinate, 757*e*, action of anticoagulants, 1851*b*.
——— and Muller, D. Narcotic action of steroid hormones, 309*h*.
**Vine, R. Y. le.** See Le Vine, R. Y.
**Vines, R. F.** See Wise, E. M.
**Viuet, A. G.** See Guérillot-Vinet, A.
**Vinet, J. G.** See Guérillot-Vinet, J.
**Vineyard, G. H.** Small-angle x-ray scattering from amorphous materials, 1650*e*; see Lund, L. H.
**Vinglallo F. A.** See Bradsher, C. K.
**Vining W. H.** Alkali metal compds., P 7502*j*.
**Vink, H. J.** See Loosjes, R.
**Vinogradov, A. F.,** and Kazakov, V. A. Detn of large amts. of salts, 910*i*.
**Vinogradov, A. P.,** and Vinogradova, Kh. G. Mo in the soils of the U.S.S.R., 1890*d*.
**Vinogradov, A. V.** Organization of Plant Laboratories in the Chemical Industry (book), 2712*e*.
**Vinogradov, G. V.** Nomograms for Recalcn of Concn (book), 7808*f*, Calcn of Specific Gravities and of Viscosities of Petroleum Products (Nomograms) (book), 8661*h*.
——— and Pavlov, V. P. Viscous properties of Ca [illegible] 5*i*.
**Vinogradov, N. I.** Carburization of molten steel for castings, 2910*f*.
**Vinogradov, N. V.** See Shakin, A. N.
**Vinogradova, E. I.** See Bochvar, D. A.
[illegible] M. M. Oxidative and oxidative-hydrolytic reactions of org. mols. (IX) routes of transformation of [o-(α-chloropropionyl)-phenyl]glyoxylic acid into carbocyclic compds., 7009*i*.
**Vinogradova, Kh. G.** See Vinogradov, A. P.
**Vinogradova, M. E.** See Ruzhentseva, A. K.
**Vinogradova, Z. A.** Chem. compn. of invertebrates of the Black Sea, 6746*b*.
**Vinokourov, M. A.** See Vinokurov, M. A.
**Vinokurov, M. A.,** and Alputova, R. A. Compn of the humus of the soils in the Tartar Republic, 5141*c*.
——— and Cherkashina, L. V. Influence of pasture land crop rotation on humus compn in gray, weakly podzolic soil, 8580*i*.
**Vinoles, J. J.** See Fernández, A.
**Vinot, M.,** and Bouscary, A. Grapefruit in southern France, 8457*e*.
**Vinson, J. C.** See Vaughan, J. A.
**Vinson, L. J.** Microorganisms as food, 6747*e*.
**Vintika, J.** Lab. control in the dairy-microbiol. control, 8508*d*; effect of some milk preservatives, esp. $H_2O_2$, 9279*g*.
**Vinton, W. H.** Arylmethylmercapto aldehydes, P 6664*a*.
**Vinyard, R. E.** See Reading, G. R.
**Violante, C.** Grape pigments, 7093*i*.
**Violante, F.** Sclerosis due to $CCl_4$, 4377*i*.
**Viollier, G.** Action of poly-unsatd. fatty acids and the B vitamins on the fat metabolism of the albino rat, 1093*f*; essential fat acids in the animal body (II) vitamins B, the more unsatd. acids, and acute acrodynia, 3497*b*; influence of alimentary fats on the development of tumors in rats deficient in choline, 6295*g*, detn. of the I no. of liver fat acids, 9131*g*, see Gschaedler, L.; Schurch, O.; Staub, H.; Sullmann, H.; Wiss, O.
**Virasoro, E.** Potentiometric titration in nonaq. solns. with glass electrodes, 59*e*, see Berraz, G.
——— and Berraz, G. Photometric extinction of colorless liquids in the near infrared, 59*d*; detn. of Cu and Ni, 62*h*.
**Virenque, J.,** Bimes, C., Jung, F., and Ibes-Jung, M. Involution in hyperthyroidism, 8047*c*.
**Virgili, R.,** and Del Vecchio, V. Chemotherapeutic action of antibrucellina in brucellar meningitis, 6708*a*.
**Virgili Vinadé, J.** See Ibarz Aznárez, J.
**Virginia Carolina Chemical Corp.** Recovery of protein from proteinous materials, P 333*c*.
**Virginia Smelting Co.** Surface-active agent, P 3638*h*.
**Viro, S. E.** See Filintsev, G. P.; Miklashevskii, A. I.
**Virskaya, G. M.** See Zaprometov, B. G.
**Virtanen, A. I.** Biol. N fixation, 9157*f*; H-ion concn. in preservation of foods and fodder, 2709*g*; see Miettinen, J. K.
———, Csaky, T. Z., and Rautanen, N. Influence of nitrate and ammonia N on the formation of different N fraction in *Torula utilis*, 7080*h*; formation of amino acids and proteins in *Torula utilis* on nitrate nutrition, 8003*c*.
———, Kerkkonen, H. K., and Laaksonen, T. Formation and structure of plastein, 4708*g*.
———, Kerkkonen, H. K., Laaksonen, T., and Hakala, M. Plastein a mixt. of higher-mol. polypeptides synthesized by proteolytic enzymes, 8415*f*.
——— and Miettinen, J. K. Formation of biliverdin from lecitholeglobin, 4729*h*.
——— and Saubert-v. Hausen, S. Substances formed during germination in the growth of plants, 5827*f*.
——— and Winkler, U. Effect of decrease in the protein content of cells on the proteolytic enzyme system, 7066*h*.
**Virtanen, O. E.** Relation between the production of penicillin and pigments in a *Penicillium* strain, 9161*f*, growth-promoting effect of destroyed corn penicillin for *Staphylococcus aureus*, 9161*h*, see Uroma, E.
**Vischer, E.** See Chargaff, E.
——— and Chargaff, E. Compn of the pentose nucleic acids of yeast and pancreas, 2655*h*, sepn. and estn. of purines and pyrimidines in minute amts., 2668*a*.
———, Zamenhof, S., and Chargaff, E. Microbial nucleic acids: desoxypentose nucleic acids of avian tubercle bacilli and yeast, 3063*i*.
**Vischnevski, A. K.** See Vishnevskii, A. K.
**Viscontini, M.,** Bonetti, G., and Karrer, P. Prepn. of cocarboxylase and the thiamine-triphosphoric esters, 9122*e*.
——— and Meier, J. Synthesis of (peteroyl-sulfonyl)-L(+)-glutamic acid, 7029*b*.
**Visco Products Co.** Resolving petroleum emulsions, P 1557*b*.
**Vishnevskii, A. K.** I-sensitized photocathodes, 1641*i*.
**Vishnyakov, A. P.** Surface activity of stagnant and surface waters, 7614*a*.
**Visking Corp.** Acrylonitrile copolymer film, P 2470*c*; polyvinyl acetal resins, P 2813*g*; nitroalkanesulfonyl chlorides, P 5411*h*; nitro sulfonates from β-nitro alkanols, P 9079*a*; nitroalkane sulfonates from nitroalkanes, P 9079*c*.
**Visman, J.** De monsterneming van heterogene binomiale korrelmengsels, in het bijzonder steenkool (book), 5230*f*.
**Vissac, G. A.** Coal drying, 2404*h*.
**Visscher, H. J.,** and Visscher, J. Felt, board, etc., from peat, P 5174*h*.
**Visscher, J.** See Visscher, H. J.
**Visscher, M. B.** See Campbell, G. S.; Casas, C. B.; King, J. T.; Lifson, N.
**Visscher, M. J.** Practische scheikunde voor de opleiding van analysten (book), 2126*h*.
**Visse, L.** See Ellenberger, F.
**Visser, D.** See Dittmer, K.
**Visser, H. N.** See Cillié, J. F.
**Visser, J. F.** See Westra, S. A.
**Visser, W.,** Vlies, G. S. van der, and Waterman, H. I. Extn. of juice at low temps. and use of ion exchangers in the beet sugar industry, 7243*g*.
**Visvanathan, K. S.,** and Raghavan, V. S. Production of the Joshi effect in $Br_2$ and $H_2$ and their mixts., 7322*i*.
——— and Rao, B. L. Production of the Joshi effect in air under silent elec. discharge, 6074*f*.
**Viswanadham, N.** See Rao, K. V.
**Viswanath, B.** See Patel, D. K.; Ramamurthy, B.; Sastry, V. V. K.; Satyanarayana, K. V. S.; Sen Gupta, U. N.
**Vita, D.** Detn. of HCHO by its alkali-thermic index, 4184*a*.
**Vita, P. de.** See De-Vita, P.
**Vitagliano, G.** Metabolism of ribonucleic acid in the spermatogenesis of *Asellus aquaticus*, 5123*b*.
——— and De Nicola, M. Ribonucleic acid supply and phosphatase distribution during the spermatogenesis of *Asellus aquaticus*, 3532*b*.
**Vitagliano, G. R.** See Allison, S. T.
**Vitale, J. A.** See Valley, G. E.
**Vitali, T.,** and Caccia-Bava, A. M. Action of castor-bean lipase on adulterated butters (I), 8570*a*.
**Vitcha, J. F.** See Krantz, J. C., Jr.
**Viterbo, B.** See Finzi, B.
**Vitis, T. E. C. y.** See Césarman y Vitis, T. E.
**Vitolo, A. E.** See Esposito Vitolo, A.
**Vittori, R. L.** See Ballio, A.
**Vittum, P. W.** See Glass, D. B.; Weissberger, A.
——— and Weissberger, A. *p*-Hydroxybenzyl alc. couplers for color photography, P 7842*e*.
**Vivaldi, G.** See Tentori, L.
**Vivaldi, J. L. M.** See Martín Vivaldi, J. L.
**Vivanco, F.** See Jiménez Díaz, C.
———, Jiménez Díaz, C., Buylla, A., Palacios, J. M., and Ortí, E. Nutritional value of the chick pea—biol. value of its protein, cicerin, 4738*f*.
**Vivarelli, S.** See Righini, G.
**Vivian, A. C.** Percentage elongation of steel, 88*g*, Essential Metallurgy for Engineers (book), 2566*b*.
**Vivian, C. H.** At. energy progress, 5659*f*.
**Vivian, D. L.** Synthesis of 2-phenazinol through the di-*N*-oxide, 4278*e*.
**Vivian, H. E.** Cement-aggregate reaction (VIII) expansions of composite mortar bars, 831*a*.
**Vivian, J. E.** See Whitney, R. P.
**Vix, H. L. E.** See Gastrock, E. A.; Spadaro, J. J.
**Vizental, I. B.** See Botvinkin, O. N.
**Vjachirev, D. A.** See Vyakhirev, D. A.
**Vlach, L.** See Bycichin, A.
**Vladescu, I.** See Dimofte, N.
**Vladimirov, B. D.** See Budagyan, F. E.
**Vladimirov, G. E.,** Dedyulin, I. M., Ostrogorskaya, L. I., and Fedorov, I. I. Changes in fat metabolism in people existing at high elevations, 291*c*.
———, Pelishenko, I. A., and Urinson, A. P. Course of lipide and protein P renewal in the stroma of human erythrocytes, 1099*d*.
**Vladykina, N. Ya.** See Glikman, S. A.
**Vlam, C. C.** See Brinkman, H. C.
**Vlamis, J.** Growth of lettuce and barley as influenced by degree of Ca satn. of soil, 7622*h*.
**Vlasák, F.** See Švasta, J.
**Vlasenko, G.** See Deryagin, B. V.
**Vlasov, A.** Gelatin from bones, 6851*a*.
**Vlasov, K. F.** Effect of nicotinic acid on circulation, 3076*a*.
**Vlasov, N. A.** Expts. with monochromatic slow neutrons, 7809*e*.
**Vlassov.** See Vlasov.
**Vlassyuk, P. A.** See Vlasyuk, P. A.
**Vlasyuk, P. A.,** and Dobrotvorskaya, K. M. Effectiveness of enrichment of manure with mineral fertilizers, 5143*a*.
——— and Sirochenko, I. A. Compn. and

physiol. properties of sugar beets under the influence of various systems of nutrition, 7552f.
Vleck, J. H. van. See Van Vleck, J. H.
Vleeschhouwer, G. R. de. Pharmacology of dihydroergotamine, 7128b
---- and Verbeke, R. Pharmacol effects of the diethylaminoethyl ester of phenylcyclopentanecarboxylic acid, atropine, and tetraethylammonium on the vasomotor properties of acetylcholine, 7134a.
Vleeschouwer, A. de, Hendrickx, G., and Heyhdrickx, G. Onderzoekinsmethoden van zuivelproducten (book), 8071e.
Vleet, E. M. van. See Van Vleet, E. M.
Vlies, G. S. van der. See Visser, W.
Vliet, R. van. See Van Vliet, R.
Vlimmeren, P. J. van. Chemistry of leather production, 5617a.
---- and Herwijnen, W. B. van. Cr-vegetable tanning, 1205c
Vlodavec, N. See Vlodavets, N. I.
Vlodavets, N. I. Ni-contg. calcite, 3319g.
Vlodavskii, I. S. Paving blocks from blast furnace slag, 4197a.
Vloeberghs, A. Combustible agglomerates, P 1170e, fuel agglomerates, P 3994a, 4835b.
Vloten, G. W. van, Kruissink, C. A., Strijk, B., and Bijvoet, J. M. Crystal structure of 1,2,3,4,5,6 - hexachlorocyclohexane, 3686a.
Vniimp, L. Z. See Zueva Vniimp, L.
Voce, E. Cu and its alloys, 5355b, 6960i, see Whitaker, M. E.
Vodar, B. See Darmois, E.; Mayence, J.
---- and Robin, S. Ultraviolet absorption spectra of substances dissolved in compressed gases, 41i.
Voderberg, K. Nutritional requirements of *Coprinus lagopus*, 3065f
Vodol Co. Medicated gauze, P 3978i
Voegtli, W. Effect of O deficiency on behavior of erythrocyte phosphatase, 1819e, see Erlenmeyer, H.; Leupin, E.; Meutha, J., Stähelin, D.
Voegtlin, C., and Hodge, H. C. Pharmacology and Toxicology of U Compds Vols I and II (books), 1870i
Völker, H. See Umstätter, H.
Völker, W. Tests with Cr free heat-resisting steels, 1302g
Voerman, J. G. See Cramer, J. S. N.
Voet, A. Emulsion printing inks, P 878d, dispersion of C black, P 1200d; printing ink, P 1995c, rheology of typographic printing inks, 3629f, mol. interaction in high-polymer solns., 6490i, interrelation of flow characteristics and elec properties in printing inks, 8175g
Voets, J. Antibiotics, 1828c.
Voevodskii, V. V. See Nalbandyan, A. B., Zel'dovich, Va. B.
---- and Lavrovskaya, G. K. Recombination of atoms on solid surfaces, 1635d
---- and Tal'roze, V. L. Effect of water addns. and of the dimensions of the reaction vessel on the second limit of ignition of H-O mixts., 1246d
Voge, C. I. B. Medicinal uses of chlorophyll, 2371i.
Voge, H. H., and Good, G. M. Thermal cracking of higher paraffins, 3343e
Vogel, A. I. Phys. properties and chem. constitution (X) n-alkylbenzenes, (XI) ketones, (XII) ethers and acetals, (XIII) aliphatic carboxylic esters, (XIV) parachors and the refractivities of the halogens, (XV) phenyl group, 2589f, (XIX) five-membered and six-membered C rings, (XX) aliphatic ales. and acids, (XXI) aliphatic thiols, sulfides, and disulfides, (XXII) primary, secondary, and tertiary amines, 2955h; (XXIII) miscellaneous compds.—coordinate or dative link in esters of oxy acids and in nitro paraffins—at., structural, and group parachors and refractivities, 2957a; see Jeffery, G. H.
Vogel, E. K. See Stone, W. A.
Vogel, F. Dark spots in malleable cast iron, 4618a.
Vogel, F. A., Jr. See Hill, H. B.
Vogel, G. Influence of the central nervous system on the glycemic reaction with work, 7115b.
Vogel, H. Cleaning of metal objects of antiquity, museum pieces, and bronze monuments, 3335i; Bierhele und ihre Verwertung (book), 3971e, Sulfitzellstoff-Ablaugen (book), 4013b, occupational hazards and occupational diseases in Fe and metal pickling industries, 7888f; hygiene and first aid in Fe and metal pickling industries, 8326g; see Brintzinger, H.
Vogel, K. See Sietz, W.
Vogel, O. Handbuch der Metallbeizerei (book), 7890h.
Vogel, R., and Gilde, W. System Su-Sb-S, 6902b.
---- and Kasten, G. W. Diagram of state: Fe-S-Ti, 1252g.
Vogel, W. See Blume, W.
Vogelbach, C. See Biehg, H. J.; Wieland, T.
Vogel-Högler, R. Raman spectra of some derivs. $ClSO_2X$ of chlorosulfonic acid, 7345a.
Vogelsang, A. See Shute, W. E.
Vogelsang, C. A. See Roberts, C. C.
Vogelsohn, Vogelsson. See Fogel'son, E. I.
Vogl, O. See Galinovsky, F.
Vogler, K. Degree of maturity of raw cotton, 5595b.
Vogt, C. G. Aminoanthraquinone sulfonamides, P 7709i; aminostilbene anthraquinone dyes for wool and nylon, P 9467f.
---- and Marschall, F. 4,4'-Bis(acylamino)-2,2'-bis(carboxyalkoxy)biphenyl derivs., P 2442f.
---- and Wilkinson, J. M., Jr. 4-Substituted 5,6,7,8-tetrahydro-2-naphthols, P 3040b
Vogt, E. See Klemm, W.
Vogt, E. G., and White, R. R. Friction in the flow of suspensions—granular solids in gases through pipe, 912a.
Vogt, F. See Hofer, R.
Vogt, H. Detn. of Mg in salts of the D.A.-B. VI, 817d; detn. of the Pb content in liquor plumbi subacetici D.A.-B. VI, 2755d, see Rosenmund, K. M.
Vogt, M. See Feldberg, W.
Vogt, O., Tascares, A., and Verzar, F. Influence of thymectomy on the sensitivity of rats toward deficiency of vitamins A and D as well as a protein poor ration, 1093h
Vogt, P. See Ballay, M.
Vogt, W. Material basis of intestinal motility and effect of vagal stimulation on the intestine, 5470a.
Vogutskii, S. S. See Slonimskii, G. L.
Voice, E. W. Stockline in a driving blast furnace—detn. of contour, movement, and gas compn., 7878e.
Voie, E. P. la. See La Voie, E. P.
Voigt, L. R. Salt-spray testing, 95h, punched cards for filing corrosion-test results, 546h
Voigt, O. D. See Schmitt, E. A.
Volkhanskii, M. E., Dzhelepov, B. S., and Shiv, L. A. $\beta$ Decay of $H^3$, 886ic.
Volnar, A. O., and Rusanov, A. K. Trace elements in the brain of man, 6719h
Volnov, B. P. Graphic calcn. of the rectification of a binary mixt., 3255g
Voinovitch, I., Cheftel, H., Durocher, J., and Kahane, E. Inhibition of the oxidases of *Agaricus campestris* by the combination of vitamin substances to $SO_2$, 7525a
Volnovskaya, K. K. See Krasnovskii, A. A.
Voisin, A. See Lesage, M.
Voisin, G. See Valette, J.
Voitkevich, A. A. Dependence of the reaction of guinea-pig thyroid to thiourea on the state of hypophysis thyroid complex, 3085e, inhibition of growth promoting factors by sulfonamides and thouracil, 5870c
Voitsekhovskaya, I. A. See Butkov, K. V.
Voitsekhovskii, R. V. See Dumanskii, A. V.
Voizekhovsky, R. See Voitsekhovskii, R. V.
Vokes, C. G. Filtration in industry, 8745h.
Vokes Ltd. Filter assembly of finlike disks, P 6g, filter for a centrifugal gas scrubber, P 6009h.
Volarovich, M. P. Rheological kinematics of disperse systems, 5259d.
---- and Branopol'skaya, R. A. Relaxation phenomenon in wheat dough, 7595h.
---- and Gorazdovskii, T. Ya. Kinematic analysis of the movement of disperse systems in a screw conveyer by x-ray shadows, 6872b.
---- and Gutkin, A. M. Conditions of flow of two adjacent disperse masses having the properties of a viscous-plastic body, 7271e.
---- and Yampol'skii, B. Ya. P. A. Rebinder, 6875b.
Volcani, B. E. See Karlsson, J. L.
Volcenstein. See Vol'kenshtein.
Volchanov, S. F. See Kitaigorodskii, I. I.
Volchkova, L. M., Antonova, L. G., and Krasil'shchikov, A. I. Anodic behavior of Ni in alk. solns., 7353f.
---- and Krasil'shchikov, A. I. Anodic liberation of O on Ni in alk. solns., 6523d.
Vold, M. J. Differential thermal analysis, 6903b; see Vold, R. D.
----, Hattiangdi, G. S., and Vold, R. D. Crystal forms of anhyd. Ca stearate derivable from Ca stearate monohydrate, 4919d.
---- and Vold, R. D. Grease problems, 9424g.
Vold, R. D. Teaching of colloid chemistry, 2040h, see Greiner, L.; Vold, M. J.
----, Grandine, J. D., and Vold, M. J. Polymorphic transformations of Ca stearate and Ca stearate monohydrate, 29b.
---- and Vold, M. J. Properties of systems of Ca stearate and cetane as deduced from x-ray diffraction patterns, 4081d.
Voldrich, C. B. Welded joints in thick Al plates, 6963b.
Volet, B. See Petitpierre, C.
Vol'fkovich, S. I., and Dubovitskii, A. M. Fertilizers and $H_2SO_4$ in the U.S.S.R., 3156c; mineral fertilizers in the U.S.S.R., 3958e
----, Remen, R. E., and Rozenberg, T. S. Thermal stability and stabilization of $MgNH_4PO_4$, 7796d.
----, Zusser, E. E., and Remen, R. E. Melamine pyrophosphate, P 3473g.
Volgunov, G. P., and Pokhno, M. T. Enzymic decompn. of air-dried proteins, 9108g
Volhard, J. Influence of desoxycorticosteronacetate on the water metabolism and blood pressure, 8038i
Volk, B. W. See Popper, H.
Volk, G. M. See Sims, G. T.
---- and Bell, C. E. Effect of anion balance on the leaching of ions from sandy soils, 1509d
---- and Sims, G. T. Effect of soil on the mineral compn. of commercially grown vegetables, 2722h
Volk, H. See Klemm, W.
Volk, M. E. See Feinstein, R. N.
---- and Feinstein, R. N. Phosphoprotein phosphatase in rat young, embryos, and placentas, 5471h
Volk, R. See Allison, S. T.
Volkenburgh, R. van. See Van Volkenburgh, R.
Vol'kenshtein, A. A., and Gershun, A. A. Visual photometric measurements at low brightnesses, 6513h
Vol'kenshtein, F. F. Elec. cond. of nonmetallic crystals, 7707i.
Vol'kenshtein, M. V. Stroenie Molekul (book), 2502e.
Volkenstein. See Vol'kenshtein.
Volker, J. F. Dental caries, 3918e.
Volkert, G. Reduction in stages of ores of metals used in steel refining in the elec furnace, 1294i.
Volkin, E. Combination of insulin with thiocyanate ions, 706c; isolation of a serum lipide which inhibits serologic reactions, 4369e.
Volkmann, H. Structure of liquids, 1620c, surface and boundary tension, 1625d, free rotation capacity of the $CH_3$ groups in diisopropyl ketone and di-*n*-propyl ether, 6016d.
Volkmann, M. See Maier, C.
Volkmer, G. H. See Hites, B. D.
Volkonskii, B. V. See Toropov, N. A.
Volkov, G. I. Electrolytic production of Cl and alkali, P 4588g.
Volkov, I. A. Treatment of roots of transplanted plants with synthetic growth substances, 804i.
Volkov, V. I. Steeloscope in the analysis of steam-turbine components, 6473d.
Volkov, V. L., and Zhavoronkov, N. M. Calcg. the no. of plates of a rectifying column, 4902f.
Volkova, E. E. See Malinovskii, M. S.
Volkova, E. I. See Boreskov, G. K.
Volkova, O. Yu., and Shinkarenko, A. L. Bactericidal action of Tambukan mud, 1078d.
Volkova, T. V. Materials on A. M. Butlerov's activities in the Academy of Sciences, 7761b.
Volkova, Z. V. Sepn. of solids, 465d.
Volkringer, H. See Hatem, S.
Vollaire-Salvat, J. Preservation of the natural vitamin C in orange juice manufd in France, 783d.

**Vollenbruck.** Centrifugal casting in Russia, 8324*f*.
**Vollenweider, H.** Cholagoga and choleretica, 320*a*.
**Vollmer, A.** Porosity and thickness detn. of conductive and non-conductive protective coatings, 9481*h*.
**Vollmer, H. C.** Effects of $CaCl_2$ on concrete, 3589*e*.
**Vollmer, K.** See Gutirner, F.
**Vollmert, B.** Detn. of galacturonic acid and methoxy group in pectin prepns., 9290*e*; see Henglein, F. A.
**Vollrath, E. E.** See Donoghue, J. J.
**Vol'nov, Yu. N.,** and Safronchik, V. I. Change of functionality and of dielec. properties in the course of the glycerolysis of linseed oil, 9481*b*.
**Vol'nova, V. A.** See Ravich, G. B.
**Volobuev, V. R.** Structureless puddled chernozem, 7616*f*.
**Volobueva, A. K.** See Zhvirblyanskil, Yu. M.
**Volodarskil, N. I.** Effect of N nutrition on the quality of the yield of tobacco, 10826*b*.
**Volodin, E. A.** Electrolytic soda-type rectifier for spark generators, 6525*g*.
**Volodina, M. A.** See Nametkin, S. S.
**Volokh, S. M.** Feeding the stills with superheated vapors of the crude oil, 3178*f*; rectification of superheated feed vapors in a plate still, 3667*e*
**Volokhvyanskil, V. M.** Purifying sugar solns., 6444*b*.
**Voloshin, A. I.** See Kustov, B. I.
**Voloshina, I. Ya.** See Shklyar, B. S
**Volova, E. D.,** Ivanov, A. D., Kurlyankin, A. I., Mishchenko, K. P., Khamov, N. N., and Shmidt, L. L. Guide to Practical Work in Physical Chemistry (book), 2502*e*.
**Volovick, G** Influence of certain additives on the oiliness of lubricating oils, 1555*c*; influence of the pressure of the exterior gas on the unctuosity of lubricants, 7675*e*
**Volpe, F.,** and Zanuni, L. Treatment of exudative monolateral pleuritics with vitamin $D_2$ in shock dosage, 4738*a*.
**Vol'pe, G. S.,** and Simel'nikov, A. S. Water-gas generator, P 6397*d*.
**Vol'pert, G. R.** Detn of the quality of collagens in wet-salted hides, 6447*g*.
**Volpi, A.** Microchem test for succinic acid in the presence of aconitic and tricarballylic acids, 70*c*; analysis of some Mg-base alloys contg. Sb and Pb, 7369*g*.
**Volpi, B.** Insecticides, fungicides, anticryptogams, antiparasites, and related prepns on a cellulose carrier, P 5529*g*
**Volterra, E.** Temp. of setting of cements, cement mortars, and concretes, 2395*g*.
**Volterra, M.,** and Jacobs, M. D. Detn. of dehydrates in blood, 7073*b*.
**Volwiler, W.** Thymol turbidity test, 2657*a*.
**Volynskil, I. S.** Mineralogy of the sulfide inclusions of the Ni deposits of Novoandyrha, 6123*f*.
**Volz, J. L.,** and Korpl, K. J. Additive for motor fuels, P 9431*d*.
**Vom Hove, H.** See Hove, H. vom.
**Vompe, A. F.** Cleavage of the pyridine ring—reaction of quaternary salts of the pyridine and quinoline series with amines complexes of quinoline chlorobenzylate with aromatic amines, 645*c*.
——— and Turitsyna, N. F. Cleavage of the pyridine ring—synthesis of chlorodinitrophenylates of substituted pyridines and their reaction with aromatic amines, 4671*a*
———, Turitsyna, N. F., and Levkoev, I. I. Cleavage of the pyridine ring—synthesis of chlorodinitrophenyl derivs. of 4-alkoxy-, 4-methylmercapto-, and 4-phenoxypyridines and their reactions, 6626*h*.
**Von Allmen, S.** See Allmen, S. v.
**Von Ardenne, M.** See Ardenne, M. v.
**Von Bargen, J.** See Zelngraff, P.
**Von Becker, R.** See Becker, R. v.
**Von Bertalanffy, L.** See Bertalanffy, L. v.
**Von Brand, T.,** Mehlman, B., and Nolan, M. O. Influence of some potential molluscacides on the O consumption of *Australorbis glabratus*, 9352*c*.
**Von Bronsart, H.** See Bronsart, H. v.
**Von Brücke, F.** See Brücke, F. v.
**Von Büren, G.** See Büren, G. v.
**Von Coldltz, P.** Steel foundry thermic pipe eliminator, 2555*d*.
**Vonderbank, H.** Chemotherapy of tuberculosis, 8050*g*; see Wagner-Jauregg, T.
**Von der Dunk, G.** See Dunk, G. von der.
**Von Dobeneck, H.** See Dobeneck, H. v.
**Von Eckermann, H.** See Eckermann, H. v.
**Von Elbe, G.** See Lewis, B.
**Von Euler, H.** See Euler, H. v.
**Von Euler, U. S.** See Euler, U. S. v.
**Von Euler-Chelpin, H. K. A. S.** See Euler-Chelpin, H. K. A. S. v.
**Von Euw, J.** See Euw, J. v.
**Von Fellenberg, T.** See Fellenberg, T. v.
**Von Fischer, W.** Paint and Varnish Technology (book), 1200*b*.
**Von Glahn, W. H.,** and Bergstrom, H. A. 4 - Cyano - 2,5-dialkoxyacetoacetanilides, P 3461*i*.
**Von Gliszczynski, S.** See Gliszczynski, S. v.
**Von Gronow, H. E.** See Gronow, H. E. v.
**Von Guttenberg, H.** See Guttenberg, H. v.
**Von Halban, H.** See Halban, H. v.
**Von Hippel, A.,** and Alger, R. S. Breakdown of ionic crystals by electron avalanches, 7286*g*.
**Von Hueber, E. F.** See Hueber, E. F. v.
**Von Huene, R.** Lakeside No. 70 transparent cement, 9409*b*.
**Vonkennel, J.,** Koelzer, P., and Giesen, J. Chemotherapy of tuberculosis with *p*-amino salicylic acid, 8537*g*.
**Von Keussler, V.** See Keussler, V. v.
**Von Laue, M.** See Laue, M. v.
**Von Loesecke, H.** Economic Crops. Vol. I. Bananas (book), 9283*i*.
**Von Lossberg, L. G.** See Powell, S T.
**Von Magnus, P.** See Preben, M v.
**Von Mikusch, J. D.** See Mikusch, J. D. v.
**Von Muralt, A.** See Muralt, A. v.
**Vonnegut, B.** Production of ice crystals by the adiabatic expansion of gas, 1231*f*; variation with temp of the nucleation rate of supercooled liquid Sn and water drops, 2061*d*, nucleation of supercooled water clouds by AgI smokes, 6039*a*.
**Von Oettingen, W. F.** Hepatic injury due to chemicals, 2701*i*.
———, Donahue, D D., Yagoda, H , Monaco, A R , and Harris, M. R Toxicity and potential dangers of cyclotrimethylenetrinitramine, 4467*e*.
**Von Porat, B.** See Porat, B. v
**Von Schwarz, M. F.** See Schwarz, M. F. v.
**Von Sinner, F.** See Sinner, F. v.
**Vonsovskil, S. V.** Elec. cond. of ferromagnetics at low temps., 4529*f*, theory of magnetism, 7809*g*
**Von Stroh, G.** See Byrns, A C.
**Von Ubisch, H.** See Ubisch, H. v
**Von Weizsäcker, C. F.** See Weizsäcker, C. F. v
**Von Zeerleder, A.** See Zeerleder, A. v.
**Voong, S.-T.** See Price, C. C
**Voorhees, A. B., Jr.** See Pulaski, E. J.
**Voorhees, S. N. van.** See Van Voorhees, S. N.
**Voorhees, V.** Purification of silica sol, P 2746*e*; catalyst gels, P 3161*d*; powd. catalyst conversion system, P 9429*d*; see Anderson, John A.
**Voorhies, A., Jr.** Sulfide catalyst, P 1932*f*; Fe catalyst, P 6397*a*; hydrocarbon synthesis, P 9420*f*.
——— and Spicer, W. E. Ni impregnated clay catalyst, P 1102*b*.
——— and Sydnor, A. R., Jr. Alkylation process, P 5181*d*.
**Voorhies, H. J.** Petroleum industry in Louisiana, 6813*d*.
**Voorst, F. T. van.** Refractometric remarks (II) value of the refraction of the $CH_2$ group, 5243*b*; detn. of small amts. of fat in the presence of large amts. of sugar, 6433*g*; reductometric and biochem. system for the analysis of sugar mixts., 8070*i*.
**Voorthuijsen, J. J B. van E. van,** and Engel, W. F. Cyclohexane, P 3453*g*, 5798*f*.
**Vorberg, G.** Evaluation of Diesel fuels, 2753*c*; production of liquid fuels from coal, 6390*h*.
**Vorburger, A.** See Urison, J.
**Voreaux, P. L.** See Lamaigre-Voreaux, P.
**Voripaieff, H.** See Nuchmansohn, D.
**Vorob'ev, A. L.** See Popov, V. I.
**Vorob'ev, A. S.** Detn. of Cl ion in the presence of Br and I ions, 6942*g*.
**Vorob'ev, N. I.** Detn. of electrolytic cond., 7302*c*.
**Vorob'eva, A. F.** See Danilov, S. N.
**Vorob'eva, O. I.,** and Novoselova, A. V. System $Na_2BeF_4$–$H_2O$, 6899*g*.
**Vorobieva, Vorobjewa.** See Vorob'eva.
**Vorobjov, Vorobjova.** See Vorob'ev, Vorob'eva.
**Vorogushin, T. I.** See Yakubovich, S. V.
**Vorokhobin, I. G.,** and Filyanskaya, E. D. Detg. $H_2S$ in air, 971*f*.
——— and Koblyaeva, T. N. Detn. of $PbEt_4$ in ethylated gasoline and kerosene, 9423*e*.
**Voroncoff.** See Voronkov.
**Voronin, N. I.,** and Novikov, A. N. Forsterite refractories from serpentine materials, 5502*i*.
**Voronkov, M. G.** Surface tension and parachors of vinyl alkyl ethers, 455*h*; detn of Cu in its acetylide—detn of $C_2H_2$ and Cu, 4972*i*; prepn. of acetaldehyde acetals from vinyl ethyl ether and their phys. properties, 5365*d*; addn. of aliphatic monocarboxylic acids to vinyl alkyl ethers—synthesis of 1-alkoxyethyl carboxylic acid esters, 6576*d*; see Broun, A. S.; Yur'ev, Yu. K.
**Voronov, S. M.** A. M. Bochvar, 7761*d*.
**Vorontsov, R. V.** Detn. of V, 4179*c*.
**Vorontsova, E. I.** Action on the organism of the aerosol obtained in arc welding with Mn electrodes, 6561*e*.
**Voroshilova, A. A.,** and Dianova, E. V. Media promoting bacterial growth and partly or entirely replacing agar, 275*i*.
**Voroshin, E. M.** See Valyashko, N. A.
**Voroshilova, A. A.** See Voroshilova, A. A.
**Vorsatz, B.** See Mika, J.
**Vorum, D. A.** See Foster, John F.
**Vorwerck, J. R.** See Gorin, E.
**Vorzimer, J. J.** See Cotlove, E.
**Vosburgh, G. J.** See Flexner, L. B.
**Vosburgh, W. C.** See Ferrell, D. T., Jr.
**Voskresenskaya, N. P.** Influence of N feeding and illumination on the accumulation of org matter and the amt. of chlorophyll a and b in lettuce, 8012*i*.
**Voskresenskil, P. I.** Obshchaya tekhnika laboratornykh rabot (book), 2712*e*.
**Voskressenskaya, N. P.** See Voskresenskaya, N. P.
**Voskull, W. H.** Illinois mineral industry, 3749*i*; see Hamrick, N. T.
**Voss, E.** See Klemm, W.
**Voss, M. J.** See Flagg, J. F.
**Voss, W. K.** Steam jet refrigeration system for sulfite acid making, 4010*i*.
**Vosskühler, G. H.** Development of a high-tensile Al-Mg-Zn wrought alloy, 3333*g*; see Siebel, G.
**Vostokov, A. I.** See Lepeshkin, I. P.
**Votá, A. S.-P.** See Santa-Pau Votá, A.
**Votava, Z.** See Heymans, C.; Verbeke, R.
**Votaw, J. W., Jr.** See De Becze, G. I.
**Voth, H. W.** See Hellwig, C. A.
**Voti, P. H.** See Li Voti, P.
**Vought, R. H.,** and Seren, L. Positron analysis of high-energy γ-ray spectra, 4091*a*.
**Vousden, P.** See Kay, H F.
**Voynar, A.** See Volnar, A. O.
**Voysey, R. G.** See Hughes, D. F.
**Voyutskil, S. S.** See Peregudova, L. E.
**Voyvodic, L.** See Pickup, E.
**Vozdvijenski, G. S.** See Vozdvizhenskil, G. S
**Vozdvizhenskil, G. S.** Electrodeposition of Ni (III) effect of $SeO_2$ on the structure and internal stress, (IV) electrodeposition of Ni under direct action of at. H, 2519*e*; (V) conditions of formation of colloidal solns. of basic salts in the electrolysis, 5675*h*.
———, Dezider'ev, G. P., and Dmitriev, V. A. Anodic soln. of textured metal, 5677*c*.
——— and Dmitriev, V. A. Electrode potentials of textured metal in anodic solns., 6523*b*.
**Voznyakovskaya, Yu. M.** Influence of wheat root systems on soil microflora, 5523*b*; intensifying effect of *Clostridium pasteurianum* on results of inoculating seed with *Azotobacter*, 5825*h*.
**Voznyl, G. E.** Desulfurization of coal in the course of beneficiation, 4830*g*.
**Vozza, J. F.** See McElvain, S. M.
**Vozzella, J. F.** See Baker, C. P.
**Vreedenberg, H. A.** Cylindrical diffusion with discontinuous boundary, 6048*e*.
**Vreeland, F. K.** Direct-reading analytical spectroscope, 8746*g*.
**Vreugdenhil, D.** See Jong, H. G. B. de.
**Vries, A. de.** See De Vries, A.
**Vries, C. L. de.** Nutritive value of casein and albumin in cow milk and human milk, 6748*i*; see Wiechers, S. G.
**Vries, G. de.** See Zanden, J. M. van der.
**Vries, J. de.** See De Vries, J.
**Vries, J. A. de.** See De Vries, J. A.
**Vries, O. de,** and Bruin, P. Liming problems on light soils in the Netherlands, 3405*b*.
**Vries, T. de.** See De Vries, T.
**Vries, W. H. de.** See De Vries, W. H.

**Vrijburg, R.** Waste waters of leather tanneries, 4406*c*.
**Vrijer, F. W. de,** and Gorter, C. J. Paramagnetic relaxation, 5651*d*.
**Vroelant, C.,** and Daudel, R. Calcn. of interat. distances, 4569*c*.
**Vroman, G. M. S.** See Moolten, S. E.
**Vroman, L.** See Moolten, S. E.
**Vromen, B. H.** See Parkas, L.
**Vromen, S.** See Wibaut, J. P.
**Vrublevskii, M. I.** Content of B in some Caucasian mineral water springs, 5519*h*.
**Vrzalová, S.** See Churý, J.
**Vuigner, E.** Colloids in the industrial electrolysis of Cu, 1269*a*.
**Vuillaume, R.** See Thieulin, G.
**Vukčević-Kovačević, V.** Detn. of m.ps of org. pharmaceutical chem. preps., 9365*i*.
**Vukov, K.** See Vavrinecz, G.
**Vuldy, G.** Near ultraviolet absorption of $NiSO_4.6H_2O$ and $NiSeO_4.6H_2O$ crystals, 7340*c*.
**Vunder, P. A.,** and Ivanova, I. I. Production of biologically imperfect colloids in the thyroid gland—analysis of the action of sulfidine and methylthiouracil in the thyroid gland, 5870*e*; action of thyroidin on the speed of regeneration of metamorphogenic activity of thyroid altered by methylthiouracil, 7141*a*.
**Vuylsteke, C. A.** Relation of blood and cerebrospinal glucose, 7102*d*.
**Vvedenskii, A. A.,** Ivannikov, V. Va., and Nekrasova, V. A. Thermodynamics of the dehydrogenation reactions of ales — equil. $2C_2H_5OH \rightleftarrows CH_3COOC_2H_5 + 2H_2$, 8247*b*.
——— and Takhtareva, N. K. Chem. equil. of hydrocarbon reaction—equil. iso-$C_7H_7C_6H_5 + 3H_2 \rightleftarrows$ iso-$C_7H_{11}C_6H_{11}$ and 1,3-$C_6H_4(CH_3)_2 + 3H_2 \rightleftarrows$ 1,3-$C_6H_{10}(CH_3)_2$, 8246*h*.
**Vyakhirev, D. A.** Control of electrolyte baths (III), 4149*f*; app. for polarographic analysis, 4522*i*.
**Vyas, M. T.** See Desai, C. M.
**Vyaseleva, S. M.** Action of some antibiotics on cultures of the spirochete, 5445*i*.
**Vyatkin, V. V.** See Malchenko, A. L.
———, Stan'kov, Kh. Z., Loginov, A. G., Klimovskii, D. N., Feniksova, R. V., and Zelikman, G. F. Growing molds of the *Aspergillus* family, P 3490*g*.
**Vygodskaya, M. B.** See Petrov, G. S.
**Vylomov, V. S.** CO indicator, 4596*f*.
**Vyse, J.** See Clements, J. F.
**Vyskrebentseva, E.** See Kursanov, A. L.
**Vysotskaya, N. A.** See Fridlyander, I. N.

**Waal, H. L. de,** and Crous, A. S. African *Senecio* alkaloids (VII) structure of senecanecic acid, 3567*d*.
**Waalkes, T. P.** Addn. of F to acyclic olefins, P 5031*f*.
**Waals, J. H. van der,** and Hermans, J. J. Heat of mixing in the system heptane–hexadecane, 6070*e*.
**Waard, J. de,** and Florschutz, P. A. Interaction of 2,3,5 triiodobenzoic acid and indole-3-acetic acid in growth processes, 2678*f*.
**Waard, R. D. de.** See De Waard, R. D.
**Waber, J. T.** See McDonald, H. J.; Misch, R. D.
**Wacek, A. v.,** and Eisner, G. Reaction of phenol with spruce, 8669*h*.
——— and Horak, I. Constitution of synthetic ketols and of natural ketols of the type of hydroxypropioguaiacone, obtained by ethanolysis of wood, 4238*d*.
——— and Kratzl, K. Side chains of lignin, 4401*i*.
**Wache, X.** See Chevenard, P.
**Wachholtz, F.** See Wekua, K.
**Wachs, H.** Insecticide, P 4420*d*.
**Wachs, T.** Mixing shellac with a hot filler, P 9536*e*.
**Wachsmuth, H.** General reagent for alkaloids—qual. and quant. application, 357*c*.
——— and Meyten, E. Detn. of morphine in soln. or in opium, 357*f*.
**Wachstein, M.** Inclusion bodies (I) acid fastness of nuclear inclusion bodies induced by ingestion of Pb and Bi, 7539*g*.
**Wachtel, H. K.** Posterior lobe of the pituitary gland and the metabolism of lipides, 4752*g*.
**Wachter, A.** Prevention of corrosion in HF catalytic org. reactions, P 3190*a*; corrosion-preventive packaging, 7681*e*; see Hildebrand, J. H.
——— and Stillman, N. Dicyclohexylammonium nitrite, P 1058*a*.
**Wachter, J. J.** Low-odor phenol-HCHO resin, P 5997*i*.
**Wacker, A.** See Möller, E. F.; Weygand, F.
**Wacker, K.** See Weygand, F.
**Wackher, R. C.** See Mavity, J. M.
**Wada, E.** See Hirokawa, K.
**Wada, H.** See Mayumi, K.
**Wada, M.** AgBr gelatin emulsion (IX) influence of AgI in the emulsion, 1667*b*.
**Wada, W. W.** Čerenkov radiation effect in meson theory, 4103*g*.
**Waddel, R. C.** See Mock, D. L.
**Waddell, J. G.** See Umbreit, W. W.
**Waddell, J. S.** See Katcoff, S.
**Waddell, R. W.,** and Wynne, R. A. Drilling anhydrite with Na carboxymethylcellulose-base mud, 3509*g*.
**Waddill, P. M.** Prevention of siliceous deposits in hydrocarbon conversion processes, P 1558*h*, storage of HF, P 6373*i*.
**Waddington, G.,** Knowlton, J. W., Scott, D. W., Oliver, G. D., Todd, S. S., Hubbard, W. N., Smith, J. C., and Huffman, H. M. Thermodynamic properties of thiophene, 6069*g*.
**Waddle, H. M.** See Hudson, R. E., Jr.
———, *et al.* Effect of Sulfur Black on the tendering of cotton yarns, 3621*f*.
**Wade, F. B.,** and Geisler, W. C. Cause of color in turquoise, 8080*e*.
———, Geisler, W. C., and Calvert, C. Compn. and color of turquoise, 570*ab*.
**Wade, H. N.** Removal of N from natural gas, 5921*g*; design features in new natural gasoline plant, 5931*f*.
**Wadey, W. G.** α-Ray spectrum of Po, 1648*a*, design of an α-ray spectrograph and a study of the α-ray spectrum of Po, 4559*g*.
**Wadia, D. N.** Petroleum resources of India, 6126*i*.
**Wadleigh, C. H.** Mineral nutrition of higher plants, 9174*c*.
**Wadman, W. H.** See Hough, L.
**Wadsley, A. D.** See Samson, H. R.
——— and Walkley, A. Observations on the potential of the $MnO_2$ electrode, 2101*i*.
**Wadsworth, F. T.,** and Lee, R. J. Alkylation, P 4158*a*.
**Wadsworth, K. D.** See Pahn, D. E.
**Waffler, H.** See Hirzel, O.
**Wahner, I. M.** See Veuer, I. M.
**Wahrer, F.** Tech. status and direction of development of light metal shot manuf. (II) Al refinement methods, 3326*i*.
**Wälchli, O.** Testing the moth resistance of woolen textile, 7234*d*.
**Waele, A. de.** See De Waele, A.
**Waelsch, H.** See Bessman, S. P.; Borek, F.
**Waelterman, F. A.** Use of rectifiers as external source of protective currents, 6092*i*.
**Waern, B.,** Thorslund, P., and Henningsmoen, G. Deep borings through Ordovician and Silurian strata at Kinnekulle, Vestergotland, 4985*f*.
**Waesche, H. H.** Piezoelec. minerals, 2129*d*.
**Wagamon, R. E.** Poultry feeds, P 3324*d*.
**Wagener, G.** Conversion of a producer-gas heated enameling oven to "grid" gas, 6394*i*, Gaswarme (book), 8120*f*.
**Wagener, S.** Ionic cond. of oxide-coated cathodes, 4084*a*.
**Wager, H. G.** Stem end blackening pigment of potatoes is a compd. of Fe, 2677*d*.
**Wagers, J. K.,** and Shokal, E. C. Laminated resinous sheets, P 5626*c*.
**Waggaman, W. H.** Nonmetallics, 6551*a*.
**Waggoner, A. G.,** and Brooks, W. B. Alloy steel, P 6144*e*.
**Wagley, P. F.** See Morgan, H. R.; Quinby, W. C., Jr.
——— and Morgan, H. R. Effects of folic acid antagonists inoculated in embryonated eggs, 7097*b*.
**Wagner, A.** See Schöberl, A.
**Wagner, C.** Reactions of metals and alloys with O, S, and halogens at high temps., 90*i*, natural convection in electrolytic processes, 4581*f*.
**Wagner, C. D.** See Beeck, O.
———, Beeck, O., Otvos, J. W., and Stevenson, D. P. H exchange reactions of paraffin in the presence of $AlCl_3$-alumina catalyst, 7897*f*.
**Wagner, C. L.** See Farrell, R. A.
**Wagner, C. R.** $CS_2$, P 5555*f*; see Hiatt, W. G.
——— and Axe, W. N. Drilling fluids, P 5179*g*.
**Wagner, E.** Poisons to destroy pests, 6356*h*.
**Wagner, E. F.** See Parker, K.
**Wagner, E. L.,** and Hornig, D. F. Rotation in ammonium halides, 2866*a*.
**Wagner, E. O.** See Parry, V. F.
**Wagner, F. C.** See Klier, E. P.
**Wagner, G.,** and Kochendörfer, A. Measurement of intensity of x-rays diffusely scattered by a crystal with an interference counter tube with single impulse counts, 5662*c*.
**Wagner, Hans.** Taschenbuch des chem. Bautenschutzes (book), 1994*b*; influence of the phys.-chem. properties of pigments on anticorrosion paint films, 8696*e*.
**Wagner, Harold.** See Hutchens, J. O., Kjems, H.
**Wagner, H. B.** Lab. expt. to illustrate deviation from ideal gas laws, 6021*c*; see Patrick, W. A.
**Wagner, J. A.** See Harrison, E. N.
**Wagner, J. C.,** Golub, O. J., and Andrew, V. W. Purification of psittacosis virus by alc. pptn. and centrifugation, 1101*a*.
**Wagner, K. G.** Organoleptic and analytical findings in foods, 6747*d*.
**Wagner, K. H.** Is the resorption of β-carotene dependent on the fats used as the solvent? 9196*e*.
**Wagner, K. M.** See Muller, Freidrich.
**Wagner, N.,** and Cooper, D. π-Meson, 8858*a*.
**Wagner, R.** See Krenkler, K.
**Wagner, R. H.** Osmometry of polyvinyl acetate-acetone solns., 8802*e*.
**Wagner, R. L.** Thermochem. removal of metal with a flux-forming powder in the O cutting stream, P 1038*b*.
**Wagner, R. M.** Cu plating, 2098*e*.
**Wagner, R. P.** Synthesis of pantothenic acid by pantothenicless and wild type *Neurospora*, 5820*i*.
——— and Guirard, B. M. Gene-controlled reaction in *Neurospora* involving the synthesis of pantothenic acid, 715*d*.
**Wagner, U. H.** See Dart, J. C.
**Wagner, W. H.** Serological differentiation of streptococci and its importance for epidemiology, diagnosis, and therapy, 271*a*; action of Na salicylate on the respiration of staphylococci, 8433*c*.
**Wagner, W. R.** Geology of part of the south slope of the St. Joe Mountains, Idaho, 4608*b*.
**Wagner-Jauregg, T.** Allgemeine Grundlagen der Chemotherapie von Infektionskrankheiten (book), 1115*g*, ethylene thiocyanohydrin, 2945*a*; Therapeutische Chemie (book), 9268*i*.
———, Arnold, H., and Lennartz, T. Polymerization reactions of dienes (VI) de hydrogenating polymerization of isoprene with Ni-Clarite, 109*a*.
———, Ganter, W., and Irmscher, R. Insecticidal properties of aliphatic thiocyan hydrocarbons, 2729*d*.
———, Vonderbank, H., and Witzel, H. Reaction of chloral with phenylthiocyanate, 4657*f*.
**Wagoner, J. A.** Industrial corn steeping, 324*f*; see Barham, H. N.
**Wagreich, H.,** Abraham, S., and Epstein, M. E. Reactivation of raffinase, 1070*d*.
**Wagstaff, C. J. L.** Properties of Matter (book), 7320*a*.
**Wagtendonk, W. J. van.** See Van Wagtendonk, W. J.
**Wahab, A.,** Witzke, W., and Cruess, W. V. Ester-forming yeasts, 3560*i*.
**Wahba, M.** Moisture relations of cellulose (I) heat of wetting in water and in certain org. liquids, 1638*f*.
**Wahhab, A.** Deterioration of dried fruits (II) identification of furfurals, 1120*h*.
**Wahl, K. L.** Soap industry, 4497*c*.
**Wahl, P. M.** Diet and cirrhosis of the liver, 7097*d*.
**Wahl, A. C.** See Linnenbom, V. J.; Prestwood, R. J.
**Wahl, Hans,** and **Gebauer, K.** Wear-testing of hard Cr plate, 8902*h*.
**Wahl, Henri.** Developments in dye chemistry, 407*h*; cyanines, 851*h*; see Ceillier, B.
**Wahl, I.** See Stakman, E. C.
**Wahl, W.** Isostasy and the origin of sial and sima and of parental rock magmas, 6127*a*.
**Wahlberg, T.** Detn. of the radiation dose produced by artificial radioactive substance in tissue, 3282*g*.
**Wahle, S. C.** See Carlos Wahle, S.
**Wahlquist, H. W.,** and Fanett, H. M. Practical use of galvanic anodes, 6093*e*.
**Wahlquist, K. D.** Pipe-line corrosion control with cathodic protection, 2151*a*.

**Wahlstrom, E. E.** Prefountain and recent weathering on Flagstaff Mt. near Boulder, Colo., 2905*e*.
**Waida, T.** Butadiene from EtOH in the presence of MgO, 2016*i*.
**Waife, S. O.** See Wohl, M. G.
**Waight, E. S.** See Braude, E. A.
**Wain, R. L.**, and Martin, A. E. Detn. of *p,p'*-DDT in com. samples, 2896*a*.
**Waindle, R. F.** Diamonds in industry, 9295*i*.
**Waine, H.** See Bertrand, J. J.
**Wainer, E.** Refractory mold compn., P 5167*a*; high dielec. material, P 5918*i*, 6803*d*.
— and Salomon, A. N. Alk. earth titanate dielec. compns., P 5566*b*.
— and Van Mater, H. L. Zr lakes, P 2442*d*.
**Wainio, W. W.** See Brunelli, E.; Cooperstein, S. J.; Eichel, B.
**Wainio, Walter W.** Utilization of sucrose by the mammalian organism, 3907*a*.
**Wainstain, M.** Soap of low fat content, P 4877*b*.
**Wainstein.** See Vainshtein.
**Wainwright, C.** Prepn of specifications for plastics, 434*f*
**Wainwright, W. W.** Dentistry and the at. energy program, 9100*h*
**Waissberg, Z. M.** See Valsberg, Z. M.
**Waissmann.** See Vaisman
**Wait, B. H.** Aggregate for improving portland cement concretes, P 2396*h*; bituminous mix, P 5186*f*.
t, G. R Ion content of air irradiated by ultraviolet light, 4090*h*
te, H. A., *et al* Ground water hydrology of the Republican and Frenchman river valleys 789*c*, geology and groundwater hydrology of the lower Platte river valley, Nebr., 3951*b*
tkoff, H. K. See Graham, C. F.
jnryb, M. Polyamide resins, 8197*c*
jzer, J. Enzymic synthesis of purine nucleotides (I), (II), 5064*a*.
kabayashi, G. Distribution of cholines [illegible] in the tissues, 6208*a*
kayama, M. Fe salt of lysalbinic acid, P 6224*g*. Fe salt of protein acids, P 6225*a*
ke, W. C See Phillips, W. M
kefield, H. See Imperial Chemical Industries Ltd
kefield, J. E. Sprayed metal coatings, 986*c*.
kefield, L. B. See Kluchesky, E. F.; Lucas, V. E.; Marquardt, D. N.; Willis, J. M.
ikeford, L. E. See Berger, L., & Sons Ltd.
, Halwitt, D. H., Armitage, F., Steiner, H., and Petrocarbon Ltd. Interpolymers of styrene with polyhydric alc. mixed esters, and of coating compns obtained therefrom, P 1223*a*
akeham, H. See Burleigh, E. G., Jr
akelin, R. W. See Peters, R. A.
akeman, D. W., and Raynor, G. V. Constitution of Al-Mn-Mg and Al-Mn-Ag alloys—ternary compd formation, 984*i*; constitution of the Al-rich ternary alloys of Al and Mn with Zn and Cd, 4204*b*.
/akim, K. G., Peters, G. A., Terrier, J. C., and Horton, B. T. Effects of intravenously administered histamine on the peripheral circulation, 4386*b*.
Vaksman, S. A. Literature of Streptomycin (book), 2738*d*; antibiotics, 3881*d*; antibiotics and life, 4339*c*; antibiotics—product of collaboration between university and industry, 8102*i*; see Hutchison, D., Iverson, W. P.
—, Frankel, J., and Graessle, O. E. Activity of neomycin, 8541*f*.
— and Harris, D. A. Streptomycin-producing capacity of different strains of *Streptomyces griseus*, 7079*a*.
—, Harris, D. A., Kupferberg, A. B., Sugiher, H. O., and Styles, H. Streptomycin, an antibiotic isolated from mycelium of *Streptomyces griseus*, is active against *Trichomonas vaginalis* and certain bacteria, 5079*b*.
**Waksmundzki, A.** Electrocapillary properties of the aq. solns. of pyridine and quinoline and their derivs. at different H-ion concns., 2845*e*; effect of the size and constitution of mols. on the surface phenomena, 2845*f*; relation between surface tension and surface potential, 2845*g*; dielec potential and the surface tension at the interfaces air-solns. of amphoteric substances at different H-ion concns., 3267*f*; measuring the surface tension by tensiometer, 3267*h*.
**Wal, A. A. van der.** See Hertog, H. J. den.
**Walaas, E.**, and Walaas, O. Physiol. variations and normal values of the total bases in blood serum, 7108*c*; electrodialysis as a method for total cation detn., 8424*i*.
**Walaas, O.** See Walaas, E.
**Walachko.** See Valyashko.
**Wal-Balacianu, E.** See Goldféder, A.
**Walcher, W.** See Maier-Leibnitz, H.
**Walcott, R. H.**, and Schallis, A. Stabilization of insol. S, P 3575*h*.
**Walcott, W. W.** See Allison, J. B.; Deyrup, I. J.
— and Deyrup, I. J. Cardiac effects of intravenous injection of small vols. of strongly hypertonic solns., 1490*e*.
**Wald, G.** Synthesis from vitamin $A_1$ of retinene and of a new 545 mμ chromogen yielding light-sensitive products, 157*i*; enzymic reduction of the retinenes to the vitamins A, 5837*b*.
and Hubbard, R. Reduction of retinenes to vitamin $A_1$, 3077*e*.
**Wald, W. J.** See Susie, A. G.
**Walden, C. C.**, and Larmour, R. K. Relation of diastatic activity to flour strength, 325*f*.
**Walden, C. H.** See Lacher, J. R.
**Walden, P.** Geschichte der Chemie (book), 1256*a*.
**Waldenström, J.** Vitamin $B_{12}$, 8463*f*.
**Walder, W. O.** Polysaccharides (I) properties and chemistry of the gums classed as polysaccharides, (II) uses of the polysaccharide gums in food manuf., 2005*g*; (III) chem and phys tests for the identification of the polysaccharide gums, 3639*e*, cooling water, 8584*e*
**Waldesbühl, E.** Soaps with mineral fillers, P 4498*d*
**Waldie, W. A.** Wrinkle finish, P 2147*h*, 2418*a*
**Waldie, W. J.** Processes relating to the woolled sheep industry, 7233*c*
**Waldman, B.** See Miller, W. C.; Schillinger, E. J., Jr
**Waldman, J.** Calcification of hypertropic epiphyseal cartilage following inactivation of phosphatase and other enzymes, 1446*b*.
**Waldmann.** See also Val'dman.
**Waldmann, L.** Diffusion thermoeffect (II), 4082*e*, pressure and temp dependence of thermal diffusion phenomena, 8224*e*.
— and Becker, E. W. Diffusion of para- into ortho-H, 3253*c*.
**Waldo, J. F.**, Masson, J. M., Lu, W. C., and Tollstrup, J. Effect of benzoic acid and carbamamide on blood penicillin levels and on renal function, 6318*b*
**Waldo, P. G.** See Smith, Robert L.
**Waldock, K. T.** See Sheffer, H
**Waldon, C. H.** See Hamor, G. H.
**Waldrip, H. E.** Condensate well corrosion, 551*f*.
**Waldron, D. R.**, Ball, C. D., Miller, E. J., and Benne, E. J. Detn. of sugar in crop plants, 6752*i*.
**Waldron, J. W.** Purification of heterocyclic N compds., P 1810*i*
**Waldron, M. B.** See Douglas, A. M. B.; Raynor, G. V.
**Waldschmidt-Leitz, E.**, and Exner, M. Steric specificity of dipeptidase to racemic peptides, 4311*d*.
**Waldvogel, M. J.** See Wells, B. B.
— and Schlenk, F. Metabolism of ribose (V) enzymic conversion of ribose into hexose monophosphate, 9123*f*.
**Waldvogel, R. K.** Economy in production —projection welding, 8999*b*.
**Walen, R. J.** Existence of a new isotope of radon—$Rn^{218}$, 3287*e*; branching of Ra A and the existence of $Rn^{218}$, 4951*f*; see Loiseleur, J.
**Waley, S. G.** Polyquinolyls, 3006*d*; see King, F. E.
**Waliaschko, Waljaschko.** See Valyashko.
**Walken, J. J.** See Hunt, E. L.
**Walker, A.** See Crowe, M. O.
**Walker, A. C.**, and Kohman, G. T. Growing crystals of ethylenediamine tartrate, 458*h*.
**Walker, A. E.** See Eichelberger, L.
**Walker, A. G.** See Maxted, E. B.
**Walker, B. S.** See Crafts, R. C.; Schaffer, N. K.
**Walker, B. Y.** See Hands, C. H. G.
**Walker, D.** See Bunyan, D. E.; Ward, A. H.
**Walker, D. F.** See Banks, C. K.
**Walker, E. E.** See Charlton, W.; Hill, Rowland.
**Walker, E. W.** See Hey, D. H.
**Walker, F.** Paragenesis of a hornblende lamprophyre from Bellville, near Cape Town, 8993*g*.
— and Poldervaart, A. Karoo dolerites of the Union of S. Africa, 6128*d*.
**Walker, F. M.** See Klotz, I. M.
**Walker, G. B.** See Renfrow, W. B., Jr.
— and Allen, C. F. Beneficiation of industrial minerals by heavy-medium sepn., 1614*i*.
— and Swainson, S. J. Three-product heavy-media sepn. process for beneficiation of ores, P 5726*c*.
**Walker, G. F.** Water layers in vermiculite, 6949*d*.
**Walker, G. L.** See Conklin, J. G.
**Walker, G. N.** See Horning, E. C.
**Walker, H. F.** See Thomas, Brynmor
**Walker, H. G.** See Snyder, H. R
**Walker, H. L.**, and Craig, W. J. Effect of grain size on tensile strength, elongation, and endurance limit of deep drawing brass, 94*a*.
**Walker, H. W.** See Scott, G. W.
**Walker, I. F.** Comminuting impure DDT, P 350*f*; synthetic linear polyamides and a process for retarding crystn., P 7266*a*.
**Walker, J.** See Forrest, H. S.
**Walker, J. C.** Vegetable seed treatment, 9178*t*; see Chiu, W. F
**Walker, J. F.** Improved stability and reactivity of paraformaldehyde, P 3441*h*; chlorinated formals, P 5035*b*; see Bair, R. R.
**Walker, J. G.** See Bozorth, R. M
**Walker, J. Geoffrey.** Lime-zeolite process —water treatment which is finding increasing application, 1507*b*.
**Walker, J. M.** Effect of smoking on water diuresis, 4384*f*; see Bülbring, E.; Vane, J. R.
— and Parry, C. B. W. Effect of hepatectomy on the action of anesthetics, 7590*i*.
**Walker, J. P.** See Wartman, F. S.
**Walker, Jay P.** Salt water filtering and disposal assembly connected to oil-well pumping system, P 2763*b*
**Walker, J. T.** Applications of spectrophotometry to medicine, 3563*h*; see Fisher, R. S.
**Walker, J. W.** See Mayer-Gross, W.
**Walker, K. C.** Removal of DDT spray residue from apples, 5895*i*
**Walker, K. E.** Hydraulic fluid, P 1504*dh*, 3949*i*.
**Walker, L. A.** See Dobson, E. L.
**Walker, R.**, Wilkin, C. R., Cooper, H. G., and Brown, J. T. Removal of $H_2S$ from gases, P 2756*c*.
**Walker, R. B.** Mo deficiency in serpentine barren soils, 1890*d*.
**Walker, R. C.** Photoelectric Cells in Industry (book), 2870*c*.
**Walker, R. L.** ($\alpha,n$) Cross section of B, 8265*d*; absorption of 17.6 m.e.v. γ-rays in C, Al, Cu, Sn, and Pb, 8867*a*.
**Walker, R. M.** Variable sp. heat corrections for the efficiency of the basic internal-combustion thermodynamic cycle and their application to the const.-vol., const.-pressure Diesel and Humphrey pump cycles, 4089*b*.
**Walker, R. W.** See Trenner, N. R.
**Walker, S.** See Hall, H. W.
**Walker, S. M.**, and Matthews, J. I. Effects of prepartal and postpartal estrogen and progesterone treatment on lactation, 8488*g*, reactions to treatment with progesterone and estrone in late pregnancy, 8494*e*
**Walker, T.** See Badger, G. M.
**Walker, T. K.** See Rockenhull, D. J. D.; Kulka, D.
**Walker, V.** Deposits in turbines—removal, 2717*e*.
**Walker, W., & Sons Ltd.**, Alexander, J. R., Burton, D., and Hausmann, F. Aminoformaldehyde resins, P 4049*g*.
—, Burton, D., and Alexander, J. R. Treating leather, P 4884*b*.
**Walker, W. C.** Drying of printing inks, 1577*h*.
**Walker, W. J.** Liquid viscometer and thermostatic device, 8214*e*
**Walker, W. S.** N protects the quality of foods, 9273*f*.
**Walkey, J. E.** See Griswold, J.
**Walkington, D.** Chem. market research techniques, 2341*f*.

**Walkinshaw, W.** Theoretical design of linear accelerator for electrons, 4945*d*; see Fry, D. W.
**Walkley, A.** See Wadsley, A. D.
**Wall, C. J.**, and Ash, W. J. Fluid-solid air sizer and drier, 6471*g*.
**Wall, C. L.** Screen-printing technique and practice (VI), 9455*ab*
**Wall, F. T.**, and Swoboda, T. J. Oxidation-reduction cycle in emulsion polymerization systems, 6064*f*.
**Wall, L. A.** Mass-spectrometric investigation of the thermal decompn. of polymers, 2810*f*; see Simha, R.
**Wall, M. E.** Concentrates of fat-sol. constituents of leaf-meal exts.—prepn. by mol. distn, 8101*c*; see Skoglund, W. C.
**Wall, R.** See Thomas, Harold A.
**Wallace, A.** See Toth, S. J.
——, Toth, S. J., and Bear, F. E. Cation and anion relations in plants with special reference to seasonal variation in the mineral content of alfalfa, 5449*i*.
**Wallace, B. P.** Mold compn., P 5888*de*.
**Wallace, C. R.** Poison bait for black beetle, 7185*a*.
**Wallace, D. D.** Filters of sintered, noncompacted metal powders, P 913*g*
**Wallace, E. C.** Economy in production—graphitic toolsteel, 8999*b*
**Wallace, G. I.** See Hift, H
**Wallace, J. F.** See Taber, A. P.
**Wallace, J. M., Jr.** See Cox, F. W
**Wallace, J. R.** See Hughes, D J
**Wallace, M. E.** See Doll, E R.
**Wallace, P. L.** Aniline printing process, 5070*e*.
**Wallace, P. R.** Neutron distribution in elementary diffusion theory (I), (II), 4098*h*; nuclear reactions induced by neutron bombardment of nuclei, 4554*g*.
—— and LeCaine, J. Elementary approximations in the theory of neutron diffusion, 4098*h*.
**Wallace, R. H.** See Newcomer, E H
—— and Lochhead, A G. Soil microorganisms (VIII) influence of various crop plants on the nutritional groups of soil bacteria, 3957*i*.
**Wallace, T.** Detg. mineral deficiencies in plants, 278*f*, soil conditions and mineral deficiencies of plants—deficiencies of the trace elements Fe, Mg, B, Zn, Cu, and Mo, 7618*i*; see Jones, J. O.; Nicholas, D. J. D.
**Wallace, W. A.** See King, R O
**Wallace, W. E.** See Fineman, M A., Ketchen, E. E.; Nickels, J E.
**Wallace, W. J. L.** See King, K C.
**Wallace Laboratories, Inc.** S prepn. for treating acne, P 2739*b*
**Wallace & Tiernan Co., Inc.** Portable water filter, P 7614*f*.
**Wallace & Tiernan Products, Inc.** Disinfection of swimming pools and water supplies, P 3126*d*; quaternary ammonium bactericides, P 9390*a*
**Wallach, A.**, and McQuary, W. A. Sampling and detn of Cl in air, 7373*b*.
**Wallaeys, R** See Chaudron, G
**Wallbank, A. W.** Plating shop layout, 4148*g*; German electroplating practice, 4148*h*.
**Wallbaum, H. J.** Pptn reactions in Al-Cu alloys, 7886*a*; see Calhoun, J. A.
—— and Mischer, R Microhardness of recrystd. Al sheet, 6956*i*.
**Wallcave, L.** See Cason, J.
**Wallenfang, W.** Exterior coatings with oil-contg. emulsion binders, 7717*g*
**Waller, A.** Quality development in the Swedish pulp industry, 3615*g*
**Waller, C. W.** Purification of pteroylglutamic acid, P 6072*h*, 7974*c*; see Angier, R. B.; Hutchings, B L.
**Waller, F. B.** Developments [of carbonizing plant] at Stroud, 1944*e*.
**Waller, I.** See Hansson, L.
**Waller, J. G.** See Page, J. E.
**Wallerstein, J. A.** See Alba, R T
—— and Alba, R. T. Recovery of enzymes from aq. solns., P 1451*c*, stabilized fermented beverages, P 5532*f*
——, Farber, E., and Alba, R T Improving fermented beverages and product obtained thereby, P 5902*c*.
——, Hale, M. G., and Alba, R T. Oxidizing enzymes in brewing materials (IV) *o*-phenylenediamine oxidase in rice, wheat, and corn, (V) peroxidase in malt adjuncts, 1905*b*.
——, Schade, A. L., and Levy, H. Improving the foam of fermented malt beverages and product obtained thereby, P 8608*f*.
**Wallerstein, L.** Alc. fermentations in inorg. adsorbents, P 8094*a*.
**Wallerstein Co., Inc.** Recovery of enzymes from aq. solns., P 1451*c*; stabilized fermented beverages, P 5532*f*; improving fermented beverages and product obtained thereby, P 5902*c*; clarifying and purifying vegetable beverages, P 6334*a*; alc. fermentations in inorg. adsorbents, P 8094*a*
**Wallersteiner, K.** Rubberlike polymers, P 895*c*.
**Walley, A.** See Schmidt, L. H.
**Wallgren, P. A.** See Liander, H.
**Wallhausen, C. W.**, and Dooley, H. H. Radioactive Au, P 3296*g*
——, Dooley, H. H, and Carroll, C. C. Radioactive metal products, P 7831*b*, 8898*d*.
**Walling, C.** Org. sulfides, P 2219*g*; copolymerization (XIII) overall rates in copolymerization—polar effects in chain initiation and termination, 8736*h*; see Mayo, F. R.
—— and Mayo, F. R. Effect of substitution on the reactivity of the styrene double bond towards free radical attack—nature of the alternating effect in copolymerization, 5629*e*; alternating effect in copolymerization, 7261*a*.
**Walling, E.** Detg the ages of Rb-free minerals by an inverse Sr method, 8266*f*.
**Walling, I. W.** Chem character of surface waters in the Washita River basin of Oklahoma, 5519*c*.
**Wallingford, V. H.**, and Homeyer, A H. Carbalkoxylation of org compds., P 2225*g*.
**Wallis, A. E.** See Mond Nickel Co. Ltd.
**Wallis, E. S.** See Anderson, R. Christian, Pryce, A. H.
**Wallis, R. F.** See Dickinson, R. G.
**Wallis, T. E.** Sclerenchyma in the diagnosis and analysis of vegetable powders, 8100*b*.
—— and Santra, D. K. Pepper and pepper husk, 8575*g*.
—— and Sanyal, P. K Indian valerian, 1910*d*
**Wallis, W. B.** Arc melting furnace, 45*c*.
**Wallouch, R.** See Franck, H H.
**Walls, H. J.** Fatal poisoning by Na nitroprusside, 2322*c*
**Walls, L. P.** Phenanthridinium compds., P 1812*c*, see Wellcome Foundation Ltd.
**Wallsgrove, E. R.** See Crawford, J W. C.; Elsner, B B
—— and Imperial Chemical Industries Ltd. 1,1,1-Trifluoro 2 propanol, P 7497*e*.
**Walpole, W. T. P.** See Pell-Walpole, W T
**Walraven, J. J.** See Karsten, P
**Walsh, A. D.** Applications of ionization-potential data to problems of mol. structure, 2479*d*; far ultraviolet spectra and related topics, 4939*h*, properties of bonds involving C, 5241*g*; structures of ethylene oxide, cyclopropane, and related mols., 5366*i*, see Downs, D ; Wheeler, R. W
**Walsh, E. F.** Slag on high-pressure boiler heating surface, 6392*d*, 8584*d*.
**Walsh, K. A.** See Katcoff, S.
**Walsh, T. J.** High temp distn., 1227*h*.
**Walsh, W.** See Edgar, S. A
**Walt, C. W. de.** See De Walt, C. W.
**Walter, A. R.** Use of anthracite coal in sintering Fe ore at the Bethlehem Steel Co concentrator plant, Lebanon, Pa., 9411*h*.
**Walter, F. E.**, and Carlson, H. J. Effect of wetting agents on oral lactobacilli (II) local and systemic toxicity—toxicity *vs* antibacterial activity, 6270*f*.
**Walter, H.**, and Nepveux, F Fatty acids in the serum during Vichy cure, 5500*a*.
**Walter, Hans.** Johann Wolfgang Doebereiner, 4057*g*.
**Walter, H. A.** 3,5-Diamino 4 *H*-thiatriazine 1-dioxide resins, P 903*d*; aminotriazine and derivs., P 2648*c*; diaminothiadiazine derivs., P 2648*e*; urea HCHO resin catalyst, P 4512*h*, ammeline, P 5809*i*; di(aryl sulfonyl) peroxides as latent curing catalysts for acid curing thermosetting materials, P 6002*h*; 3,5-dihydroxy - 1,2,6, 4 *H* - thiadiazine 1,1 - dioxide, P 6674*a*, 3,6-diamino-1,4-dihydro-1,2,4,5 tetrazine, P 9088*c*; 3,5-diamino - 4 - dihydro - thiadiazine 1-dioxide, P 9528*a*.
**Walter, H. C.** See Huntress, E. H.
**Walter, H. E.** Defibering lignocellulose, P 1980*c*, 2436*c*; fibrous products from lignocellulose, P 2436*d*.
**Walter, H. J.** See Royer, G. L.
**Walter, J. E.** See Morgan, O. M.
**Walter, L.** Automatic temp. control in dyeing, 8140*h*.
**Walter, L. A.** 1 - Allyl - 1,6 - dihydro - 6-oxonicotinic acid, P 7973*f*.
**Walter, P.** Lab. app. for the rubber industry, 2458*d*; collodion cottons, 8681*f*.
**Walter, R.** Metallic materials of construction for lab. and industry, 2041*b*; nonmetallic materials of construction for the lab. and industry, 2041*c*; recent developments and applications in the field of high vacuum technique, 4903*a*.
**Walter, Roger.** Control testing of rubber, 429*b*.
**Walter, Z. T.** Fire-resistant laminated fabric, P 2443*c*.
**Walter-Lévy, L.** Zones of formation of basic Mg nitrates from 25° to 125°, 2885*c*; isomorphism of a basic Mg chlorate and a basic Mg nitrate, 7286*c*.
**Walters, A. J.**, and Shepherd, D. M. Improvements in or relating to the manuf. of aq. emulsions, P 0437*e*.
**Walters, E. G.** Magnetic core, P 5888*g*.
**Walters, E. L.**, and Busso, C. J. Oxidation stability of PbEt$_4$ and leaded aviation gasolines, 5578*i*.
——, Minor, H. B., and Yabroff, D. L Chemistry of gum formation in cracked gasoline, 8656*a*.
**Walters, J. H.** Dietetic deficiency syndromes in Indian soldiers, 4353*a*.
**Walters, R. C. S.** Geophys. experiences in water supply, 9301*d*.
**Walters, W. D.** See Vanas, D. W.
**Walthard, B.** Pathol. anatomy of tri-*o*-tolylphosphate poisoning, 9251*f*.
**Walther, G.** Two-bath chrome tanning 6851*c*.
**Walther, H.** See Rabe, P.
**Walther, M. E.** Anomalous spectra of stars of class A, 8882*a*.
**Waltner, A.** Measurement of the ionization potential of gases in photoelec. cells, 4089*h*; see Byatt, W. J.
—— and Rogers, F. T, Jr. $\beta$-Particle spectrum from the decay of radium E, 5298*i*.
**Walton, C. J.** See Archdeacon, J. W.
**Walton, C. W.** See Borders, A. M.
**Walton, E.** Org. As compds., P 4296*h*, see Ofner, P.
——, Ofner, P., and Thorp, R H. Analgesics (III) homologs of amidone, isoamidone, and related compds., 7466*a*
**Walton, H. F.** Inorg. Prepns. (book), 960*f*
**Walton, J. S.** See McCullough, J. P.
**Walton, R. P.**, and Belkin, M. Pharmacol characterization of the sympathomimetic aliphatic amine, 2 - methylamino - 6-hydroxy-6-methylamine, 8546*e*.
—— and Brodie, O J. Cardiovascular effects of two aliphatic amines and of ephedrine, 8546*c*.
**Walton, W. W.** See Hattiangdi, G. S
—— and Isbell, H. S. Ba 2-ketolactobionate and the corresponding barium bromide double salt, 1330*i*; prepn of Ca melibionate, 5744*d*.
**Waltz, J. E.** Treatment of synthetic linear polyamide threads, P 9475*c*.
**Waltz, R. H., Jr.** See Mertz, E. T.
**Walworth, V. K.** See Ryan, W. H.
**Walyaschko.** See Valyashko.
**Walz, D. E.** See Fried, J.
**Wambacher, H.** Surely identified particle from a cosmic-ray collision, 1644*j*
—— and Widhalm, A. Short tracks in photographic layers, 1644*e*.
**Wampler, R. H.** Shellac in wood finishing, 420*c*; clean finishes, 1197*h*; nonvolatile content of finishing materials, 1578*c*; reproducing wood grain, 1578*i*; plasticizers in org. finishes, 3651*f*; spray booth coatings, 5970*i*; drying org. finishes, 5971*a*; drying behavior of varnishes on wood (I), (II), 6836*i*.
**Wan, P.** See Ueno, Seiichi.
**Wand, A. I.** Mg oxychloride coating material, P 3948*i*.
**Wander, A., A.-G.** (*Patents.*) Crystallizable irradiation product from ergosterol 3152*h*; sulfonamide salts, 4298*c*; hexamethylenetetramine salt of *N*$^1$-2-pyridyl *N*$^4$-sulfomethyl sulfanilamide, 4431*i*; hydrogenation product of vitamin 4433*b*; isolation of a cardiac glycoside 5909*e*; soap substitute, 6844*e*; sulfanilamide deriv., 7043*f*, 7961*h*; quinine sulfonamide salt, 7043*i*; amino ketone 7508*h*; fat-free ointment base, 7640*i* basic amide of 2-thioalkylcinchoninic acid, 7647*g*; *N*, *N*-diethyl-*N'*-sulfanilyl succinamide, 7963*f*; basic ether, 7974*c*.

**Wang, C.** See Sah, P. P. T.
**Wang, C. C.** See Gershbein, L. L.
—— and Grossman, M. I. Nonexcretion of serum alk. phosphatase by the liver and the pancreas, 5849*c*.
——, Grossman, M. I., and Ivy, A. C. Effect of secretin and pancreozymin on amylase and alk. phosphatase secretion by the pancreas, 1476*f*.
**Wang, C. F.**, and Hegsted, D. M. Detn. of blood and plasma vols., thiocyanate space and bromosulfalein clearance, 5819*i*.
——, Hegsted, D. M., Lapi, A., Zamcheck, N., and Black, M. B. Changes in liver compn., function, body fluids, and liver cytology during protein depletion and the effect of choline on these changes, 8478*b*.
**Wang, C. H.**, and Christensen, B. E. Quinazolines (VIII) amino alc. derived from 2,4(1*H*,3*H*)-quinazolinedione-5-carboxylic acid, 6633*h*.
**Wang, C. S.** Same as Chang, C. S. W.
**ıg, Chuan-Y.**, and Nickerson, M. Effect of dibenamine on renal function, 104*d*.
**ıg, Chung Y.** Calcg. charges for the pttn. method of Sb smelting, 3326*d*.
**ıg, F. C.** Glycogen formation after hymectomy, 2690*i*; see Sass-Kortsák, A.
**ıg, F. K. C.** See Harris, R. S.
**ıg, H.** See Campbell, N.
**ıg, Hsi.** Modulation of tract specificity by estrogenic hormone in experimentally produced feather-chimaerae of brown leghorn capons, 8508*d*.
**ıg, H.-M.** See Sah, P. P. T.
**ıg, H. P.** See Gaw, H. Z
**ıg, K.-C.**, and Jones, S B. Disintegration of mesotrons, 1257*b*
**ıg, M. H.** Internal pair conversion, 187*a*
**ıg, T H.** See Mirov, N. T.
**ıg, W.-T.** See Sah, P. P. T.
**ıg, Yü**, and Hsu, C.-C. Effect of citrinin on the activity of urease, 8401*i*.
—— and Ting, H.-S Detn. of citrinin, 4723*f*
**ng, Yueh.** Disposal of garbage and night soil by composting, 3960*b*
**ng, Y. L.** See Kodicek, E.; Levenbook, L
, Hsu, T. L., and Liu, C. Geology of the Tanshanling coal field and Tsaitzewan coal field of Chinshakou, Kansu, 2902*g*.
, Li, C. H., Chang, K. C., Chang, C. T., Hu, M., Chiao, T. S., and Chang, E. T. Geology and mining industry of A-Kan-Chen coal field, Kaolan, Kansu, 2902*e*
**nk, A.** Prepn. of sinkers and riders for the Mohr Westphal balance, 445*i*.
**nka, J.** Scientific research and research institutes in Czechoslovakia, 4057*h*.
**ankel, R. A.** See Cromwell, N. H
**anklyn, J. N.**, and Evans, U. R. Corrosion (XII) influence of corrosion on the thermal deposition of $CaCO_3$, 7889*e*.
**ankmüller, A.** Use of German suppository masses, 6363*e*; use of "Lanogen C" as an ointment base, 8093*f*. *Tanacetum vulgare* as an anthelmintic, 8102*f*.
**'anmaker, W. L.** See Backer, H. J.
**'anner, H.** Absorption of nutrient salts by plants, 1841*g*; dependence of salt uptake through plant roots on temp. (I) relative size of the temp. coeff. of cation and anion absorption, (II) dependence of the temp coeff. of cation and anion absorption on salt concn., 7089*f*.
**Vannow, H. A.**, and Thormann, F. Chain-length distribution of cellulose, 9435*g*.
**Vanntorp, H.** Detn. of vitamin A in livers, 2295*h*; see Winzenried, H. U.
**Vanscheidt, A. A.** See Vansheidt, A. A.
**Wapshaw, H.** Serum-enzyme changes in perforated peptic ulcer, 8522*b*.
**Wapstra, A. H.** Mass defects of the lightest nucleons, 8271*h*.
**Warburg, O.** Wasserstoffübertragende Fermente (book), 1075*b*; Schwermetalle als Wirkungsgruppen von Fermenten (book), 6268*h*; see Burk, D.
——, Burk, D., Schocken, V., Korzenovsky, M., and Hendricks, S. B. Does light inhibit the respiration of green cells? 9160*a*.
——and Schocken, V. Manometric actinometer for the visible spectrum, 7824*g*.
**Warburton, D. M.** Purification of alkylation mixts., P 8666*a*.
**Warchol, J. A., Jr.** Quality of rimming steel ingots, 984*f*.
**Ward, A. A., Jr.**, McCulloch, W. S., and Kopeloff, N. Temporal and spatial distribution of changes during spontaneous seizures in brain, 9238*g*.
**Ward, A. F. H.** Kinetics of adsorption at liquid/liquid interfaces, 8819*e*.
—— and Tordai, L. Activities of assocg. solutes, 3268*g*.
**Ward, A. G.** Diffusion of decompn. products through plastic materials, 4509*h*.
—— and Freeman, P. R. Rheology of stiff pastes, 2823*d*.
- and Westbrook, E. L. E. Rheology of building mastics (I) caulking compds. for gun application, 3166*b*.
**Ward, A. H.** Continuous galvanizing, 9014*c*; see Bunyan, D. E.
—— and Walker, D. Directional correlation between successive internal-conversion electrons from $Ta^{181}$, 3285*f*.
**Ward, Alfred H.** See Harris, A. W.
**Ward, A. M.** Corrosion of mild steel by $(NH_4)_2SO_4$, 6141*d*; see Holt, M. C. N.
**Ward, C. L.** See Bowes, J. H.
**Ward, C. S.** See Glazko, A J.
**Ward, E. R.** See Hodgson, H. H.
**Ward, F. N.** See Jacob, K. D.
**Ward, G. C.**, and Genazzani, R. U. Recovery of wool from wool-acetate fabrics, P 6834*a*.
**Ward, H. H.** Treatment of flour for controlling its strength, P 786*e*.
**Ward, H. K.** Phosphatic coatings of metals, P 7895*c*.
**Ward, H. P.** See Blake, W. D.
**Ward, J.** See Gunn, D. L.
**Ward, Joseph.** See Richards, J. H.; Smith, Howard E.
**Ward, J. R.**, and Call, L. S Changes in blood chemistry following electrically induced seizures, 4383*a*.
**Ward, Robert.** See Lo-Grippo, G A.
**Ward, Roland.** See Mason, R. W., Pitha, J. J.; Prener, J.; Texin, H
**Ward, R. K.** Hormone weed-killers, 2358*i*.
**Ward, S. G.** See Green, S J
**Ward, W. C.**, and Dodd, M. C. Bacteriostatic action of some simple derivs. of furan, thiophene, and pyrrole, 720*a*.
——, Prytherch, J. P., and Cramer, D. L. Fungistatic action of some nitrofuran derivs., 2669*d*.
—— and Scott, A. B. Vaginal suppository, P 5155*h*.
**Ward, W. H.** London clay (IV) shrinkage and the stability of shallow foundations, 3163*b*; see Lundgren, H. P.
**Ward, Wilfred H.**, and Binkley, C. H. Keratin derivs., P 6764*f*.
**Ward, W. M.** See Oetjen, R. A
**Ward Baking Co.** Fungicide, P 7647*c*.
**Ward, Blenkinsop & Co., Ltd.** Coumarins, P 693*h*, cyclic lactones, P 693*i*; sulfonamides, P 6660*f*.
——, Goldberg, A. A., and Kelly, W. Imido-esters and amidines, P 672*g*; arylaminoacridine derivs., P 698*c*.
——, Goldberg, A. A., and Turner, H. S. Aminoalkyl esters of 2-carboxydiphenylamine, P 4697*b*.
—— and Howards & Sons Ltd. Acridine derivs., P 4703*e*.
——, Howards & Sons Ltd., Goldberg, A. A., and Kelly, W. 2-(Aminoalkyl)pyrimidines, P 3473*a*.
—— and Pritchard, G. J. Phenylmercury complexes, P 690*a*; organometallic complexes, P 690*c*; tri- and tetrasubstituted methane compds., P 5047*b*.
**Warden, W. B.** Waterproofing cellulosic material with higher aliphatic acyl peroxides, P 4023*c*.
**Wardlaw, C. W.** Tropical fruits—their storage and transport, 3535*g*.
**Wardlaw, W.** Structural inorg. chemistry, 3672*d*.
**Wardle, T. & A., Ltd.** See Keyworth, C. M.
**Wardleworth, J.** See Coffey, S.
**Wardner, W. C.** Higher gas production from coke-oven plants, 2755*a*.
**Ware, A. G.** See Fahey, J. L.; Murphy, R. C.; Patton, T. B.; Seegers, W. H.
——, Fahey, J. L., and Seegers, W. H. Platelet exts., fibrin formation and interaction of purified prothrombin and thromboplastin, 746*c*.
—— and Seegers, W. H. Detn. of prothrombin concn., 8441*i*.
**Ware, P. F.** See Gaensler, E. A.
**Warf, J. C.** See Newton, A. S.; Spedding, F. H.
——, Newton, A. S., Butler, T. A., and Spedding, F. H. U hydride (III) dispersions in Hg, 7853*h*.
**Warffemius, J. G. R.** See Revallier-Warffemius, J. G.
**Warhurst, E.** Calcns. on the lengths of chem. bonds between atoms of different electronegativity by the valence-bond method, 2478*i*; applications of the valence-bond method to problems of mol. structure (I) calcns. of the bond lengths of the H halides, (II) calcns. of the effect of solvation on the force consts. of bonds that possess partial ionic character, 6876*g*, see Evans, A. G.
**Warin, R. P.** See Bain, W. A.
**Waring, C. E.**, and Barlow, C. S. Inhibiting effect of NO on the thermal decompn. of diethyl ketone, 6061*d*.
—— and Mutter, W. E. Kinetics of the thermal decompn. of gaseous MeCOEt, 2848*i*.
**Waring, D. H.** See Bell, F.
**Waring, E. J.** See Wilson, R. D.
**Waring, F. H.** Nitrates in water supplies, 3121*a*.
**Waring, R. K.** See Peirce, W. M.
**Waring, (Sister Mary Grace).** Priestley Centennial, turning-point in the career of W. George Waring, 1229*g*.
**Waring, W. S.** See Hendry, J A.
**Warming-Larsen, A.** Influence of adrenaline on blood sugar and blood ketone bodies in normal individuals and in patients suffering from hepatic disease, 4761*c*; influence of alc. on ketone metabolism, 4774*i*.
**Warminsky, R.** See Broser, I.; Frerichs, R.
**Warnant, E. F. J.** Purification of Fe products, P 3770*a*
**Warnat, K.** Thiamine derivs., P 4433*g*.
**Warne, J. D.** Northgate fluorspar, Jackson County, Colo., 7385*d*.
**Warner, A. J.** Elec. properties of plastics, 435*c*, 4047*g*.
and Bakst, M. Plasticized polystyrene insulating material, P 4518*d*.
—— and Hartstein, S. R. Hydrogenation of dimeric $p,\alpha$-dimethylstyrene, P 4518*e*.
—— and Talbot, T. H. Dimerization of $\alpha$-alkyl-$p$-alkylstyrenes, P 1059*c*.
**Warner, B. R.** Hydrocarbon synthesis, P 5573*b*.
**Warner, C. N.** See Johansson, W. I.
**Warner, D. T.** See Moe, O. A.
—— and Moe, O. A. Amino acids (I) syntheses of DL-tryptophan, DL-ornithine, and DL-glutamic acid, 137*g*; (II) synthesis of DL-lysine, 1323*c*; 1,4-addn. reactions (II) addn. of Et malonate to acrolein, 577*f*; (IV) addn. of malonate systems to alkyl-substituted acroleins, 6980*c*; cyano tricarboxylic acids and derivs., P 7505*f*.
**Warner, E. D.** See Boyd, E. J.
**Warner, F. L.** See Merrick, E. W.
**Warner, G. S.**, Pelczar, M. J., Jr., and Stuart, L. S. Testing quaternary $NH_4$ disinfectants, 7639*b*.
**Warner, J. C.** American University and education for professional responsibility, 5650*f*, see McCabe, C. L.
**Warner, J. D.** See Killinger, G. B.
**Warner, J. M.** U—opportunities for private prospecting, 3322*d*; Hg, 6337*a*; Ti, 6337*a*; W, 6337*b*.
**Warner, R. B.** See Thurston, J. T.
**Warner, R. C.** See Senti, F. R.
**Warner, R. G.**, and Sutton, T. S. Nutrition of the newborn calf (III) response to a photolysed milk diet, 735*d*.
**Warner, W. R., & Co., Inc.** Esters of (2,3-epoxypropyl)malonic acid derivs., P 4291*h*; esters of 1-methyl-3-(acyloxypropyl)-$\alpha$-halomalonic acids, P 4689*i*; basic Al chloride, P 6795*b*; vinyldiacetonalkamine, P 9080*f*.
**Warnotte, A.** Product for improving oil colors used for painting on fabrics, P 4030*e*.
**Warrack, G. H.** See Oakley, C. L.
**Warren, B. D.** Keeping press felts fit for today's high-speed papermaking, 1185*c*.
**Warren, B. E.** X-ray studies of randomness in various materials, 4527*a*; see Averbach, B. L.
**Warren, D.** See Keith, C. K.
**Warren, F. L.** See Elson, L. A.; Leisegang, E. C.
**Warren, F. W.** See Dunlop Rubber Co. Ltd.
**Warren, G. F.** Value of several chemicals as selective herbicides for vegetable crops, 2358*i*.
—— and Hernandez, T. P. Weed control in vegetable crops with 2,4-D, 1893*g*.

**Warren, G. H.**, Durso, J. G., and Levin, N. R. Assay of hyaluronidase, 7535*a*.
——, Williams, E. C., Alburn, H. E., and Seifter, J. Rous chicken sarcoma as a source for hyaluronic acid, 9100*h*.
**Warren, G. T.**, and Jordan, R. A. Clarification of sugar cane juice, P 5980*g*.
**Warren, H. E., Jr.** Effect of raw materials on control of S in the open hearth, 7390*a*, S in basic Fe and steel, 8998*e*.
**Warren, H. V.**, and Delavault, R. E. Biogeochem investigations in British Columbia, 3321*c*, biogeochemistry, 3321*h*.
—— and Thompson, R. M. Occurrences of Sb and Te minerals in western Canada, 8982*i*.
**Warren, J.** See Weil, M. L.
**Warren, K. H.** See Hildebrandt, F. M.
**Warren, M. E.** See Oakley, C. L.; Ross, H. E.
**Warren, M. F.** See Beecher, H. K.
**Warren, M. R.**, Thompson, C. R., and Werner, H. W. Pharmacol studies on the hypnotic, 2-ethyl 3-propylglycidimide, 7139*d*.
**Warren, S.**, and Sommers, S. C. Giant-cell inclusions in cicatrizing enteritis, 300*d*.
**Warren, S. D., Co.** Stabilizer for Al-casein compn., P 3242*f*; dual toned metallic coated web, P 8346*d*, separable liner for tacky elastomers, P 8732*f*.
**Warren, S. L.** See Howland, J. W.; Mann, W.
**Warren, T. N.** See Gjessing, E. C.
—— and Chanutin, A. Fractions of a thymoma - effect of diet and inhibiting agents on the lipide and nucleic acid concns., 5853*f*
**Warrern, A.** Engelsk-dansk teknisk ordbog (book), 7320*a*.
**Warrick, E. L.** Me siloxanes, P 1222*b*, rubbery silicones, P 3229*d*, polymerization of organosiloxanes, P 3237*h*; coating articles with siloxanes, P 7610*f*; organosiloxane elastomers, P 9520*e*, see McGregor, R. R.
—— and Fugassi, P. Kinetics of the thermal decompn. of *tert* butyl propionate, 1633*c*.
**Warriner, L. P.**, and Burgess, B. C. Pegmatites of Jasper Co., Ga., 8992*b*.
**Warringa, M. G. P. J.** See Cohen, J. A.
**Warrington, C. J. S.**, and Nicholls, R. V. V. History of Chemistry in Canada (book), 8256*i*.
**Warrington, M.** See Gross, P.
**Warshaw, S. D.** See Hall, T. A.
**Warshowsky, B.**, and Schantz, E. J. Detn. of phenol and *m*-cresol in complex biochem mixts., 1453*e*.
**Wartanjan, A. T.** See Vartanyan, A. T.
**Wartburg, A. v.** 4,4'-Dithiazolylmethane, 7931*e*
**Wartenberg, H. v.** Heat of formation of $COF_2$, 6500*f*; heat of formation of $CF_4$, 8255*h*.
**Warth, A. H.** Action of mineral salts on metals, 6962*d*, bottled Cl bleaches, 9395*c*.
**Wartman, F. S.**, Walker, J. P., Fuller, H. C., Cooke, M. A., and Anderson, E. L. Production of ductile Ti at Boulder City, Nev., 8323*a*.
**Wartman, W. B.**, and Pillemer, L. Effect of injecting cryst. tetanal toxin and tetanal antitoxin, 3104*b*
**Warwicker, J. O.** See Standing, H. A.
**Waschiczek, K.** See Riehl, N.
**Waser, J.** Absolute configuration of *d* tartaric acid, 7901*e*
**Waser, P.** See Karrer, P.
**Washburn, G. N.** Toxicity to warm-water fishes of certain cyanide plating and carburizing salts before and after treatment by the alkali-chlorination method, 3125*b*
**Washburn, H. W.** Mass spectrometer, P 7274*d*
**Washburn, L. H.** See Dickens, D. A.
**Washken, E.** See Buerger, M. J.
**Washko, J. B.** See Mooers, C. A.
**Washko, W. W.** Effect of K on the N and mineral content of brome grass, 7087*i*.
**Wasicki, R.** See Maffei, F. J.
**Wasiliew.** See Vasil'ev.
**Wassén, A. M.** See Bonnichsen, R. K.
**Wassenaar, T.** See Michels, A.
**Wassenin, F. I.** See Vasenin, F. I.
**Wasser, E.** Decay of phosphorescence from powd. mixt. of K and Tl chlorides, 3718*a*.
**Wasserman, D.** See Keil, H.
—— and Dawson, C. R. Cashew-nutshell liquid (III) cardol component of Indian cashew-nutshell liquid with reference to the liquid's vesicant activity, 1348*c*; substituted veratroles, 6999*b*.
**Wasserman, L.** See Levine, H.
**Wasserman, L. R.** See Stats, D.
**Wasserman, R. D.** Weldrod flux coating, P 7400*c*.
**Wasserman, R. H.** See Hicks, B. L.
**Wassermann, A.** See MacArthur, I.
**Wassermann, Albert.** Structure of dike tene—potentiometric and cond. measurements, 1320*d*, cation adsorption by brown algae—occurrence of alginic acid, 3068*a*
**Wassermann, G.** See Schikorr, G.
**Wassermann, M.** See Schigmann, E.
**Wassilieff, Wassiliew, Wassiljeff, Wassiljew.** See Vasil'ev.
**Wassiljewa, E. W.** See Vasil'eva, E. V.
**Wassink, E. C.** Photosynthesis, 1083*i*, expts. on photosynthesis of horticultural plants, 2281*g*, chromophyllins and the paths of energy transfer in photosynthesis, 6517*a*
—— and Keirsten, J. A. H. Absorption spectrum and the role of carotenoids in the photosynthesis of diatoms, 2281*c*
——, Tjia, J. E., and Wintermans, J. F. G. M. Phosphate exchanges in purple S bacteria in connection with photosynthesis, 7078*f*.
**Wassmer, H.** Rotary kiln for the production of white and gray cement, P 7660*i*
**Wasson, J. I.**, and Zimmer, J. C. Rust preng. compds., P 7224*f*
**Wasson, L. A.** See Bauer, C. W.
**Wataghin, G.** Multiple production of mesons 183*d*, showers of mesons and nucleons, 1103*a*, see Meyer, H. A.
**Watakami, M.** See Matsuda, T.
**Watanabe, A.** Treatment of solid fuel, P 5928*c*
**Watanabe, F.** *p,p'*-Dichlorodiphenyltrichloroethane, P 5530*i*
**Watanabe, Hachiro.** See Kimishima, T.
**Watanabe, Hiroshi.** Collective electron ferromagnetism (I), 1099*i*, see Fuchi, I.
**Watanabe, I.** See Mizushima, S.
**Watanabe, M.** Quaternary ammonia compds., P 7960*b*
**Watanabe, N.**, *et al* Ti removal from Ti, 696*i*
**Watanabe, Sadayoshi.** Stability of lose nitrate (I) relation between the compn. of acid mixt. and the ignition point of cellulose nitrate and the meaning of ignition point, (II) method of expressing the stability of cellulose nitrate by ignition test, (III) variation of stability during nitration, (IV) stabilization of cellulose nitrate by methanol, (V) distribution of destabilizing matter in cellulose nitrate fiber (VI) location of destabilizing matter from the change in stability with denitration, (VII) reversible equil. between stable and metastable nitrocellulose, (IX) change in the curve of thermal decompn. of cellulose nitrate by treatment with boiling water, (X) change in heat stability by boiling nitrate cellulose, 1965*e*, nitration of pulp (I) compn. of mixed $H_2SO_4$ and $HNO_3$ and the N content of hemicelluloses, (II) soln. of hemicelluloses during nitration, (III) soly. of hemicellulose in MeOH and $Me_2CO$ and the viscosity of the soln., (IV) stability of hemicellulose nitrate, (V) nitration of hemicellulose with mixts. of AcOH and $HNO_3$, (VI) spontaneous decompn. of hemicellulose nitrate and its cause, 1966*i*, nitration of cellulose in org. medium (I) nitration of cellulose with $HNO_3$,$CCl_4$, (II) nitration in $CCl_4$-$Ac_2O$-$HNO_3$ mixt., (III) soly. and swelling property of cellulose nitrate prepd. in a mixed system of $CCl_4$, $Ac_2O$, and $HNO_3$, (IV) construction of fibril, fibril nonuniform nitration, and fiber uniform nitration, 1967*h*, see Atsuki, K.
**Watanabe, Shukichi.** Dry alkali alginate, P 9298*f*
**Watanabe, Susumu.** Synthesis of benzine by catalytic reduction of CO at atm. pressure (VI) consumption of CO in passing through catalyst layer, 2400*h*
——, Morikawa, K., and Ikawa, S. Synthesis of benzine by catalytic reduction of CO at atm. pressure (V) effect of adding lower hydrocarbons to the feed gas, 2406*e*
**Watanabe, T.**, and Suto, T. Polymorphism of Be oxyacetate, 6033*c*.
**Watanabe, Tadashi.** See Shirahama, K.
**Watanabe, Takeshi.** Medicinal use of mint, 9381*h*.
**Watanabe, W.**, and Westheimer, F. H. Kinetics of the chromic acid oxidation of isopropyl alc.—induced oxidation of manganous ion, 2847*g*.
**Watanabe, Y.** See Miwa, M.
**Wataru, S.** Lubricating oil from coal, P 4844*e*.
**Waterfall, F. D.** Casehardening steels in cyanide-contg. salt baths, 5353*g*.
**Waterhouse, C.**, and Bassett, S. H. Metabolic studies on the fate of human albumin administered intravenously, 7591*g*
**Waterhouse, D. F.** Spray tests against adult mosquitoes (I) lab. spray tests with culicine adults, 2730*e*; see McCulloch, R. N.
—— and Atherton, D. O. Spray test, against adult mosquitoes (II) spray tests with anopheline adults, 3965*g*
**Waterkamp, M.** Detn. of Cb and Ta in steels, 4597*h*
**Waterman, F. A.** Relation between spontaneous activity and metabolic rate as influenced by certain sympathomimetic compds., 9249*f*.
**Waterman, H. I.** Sugar diffusion, P 5220*b*, selective hydrogenation, 6841*h*, see Keunzenkamp, A. Man, W. de, Steems, J. van, Visser, W.
——, Hak, D. P. A., and Pennekamp, B. Prepn. of standoil with a catalyst, 8176*i*
**Waterman, N.**, Berkhout, H. W., and Bos, C. J. Investigations into the biol. significance of amino acids on malignancy, 2307*c*.
**Waterman, W. W.** Stripping of emulsion polymerization latexes, P 3229*b*.
—— and Ohsol, E. O. Coagulation of emulsion polymers, P 2026*e*
**Waters, H. H.** Prepg. batches of uncal canized rubber mixes ready for use, P 2802*i*
**Waters, K. L.**, Betz, A. L., and Lachman, R. C. Potentiometric titration in pharmaceutical control, 8611*b*
**Waters, P. W.** See Ford Motor Co., Ltd.
**Waters, W. A.** See Hey, D. H., Mee, J. H., Milton, R. F., Robertson, Alan, Slack, R.
**Wath, J. G. van der.** Alimentary tract of Merino sheep in South Africa (XI) digestion and synthesis of starch by ruminal bacteria, 2663*h*
**Wathey, J. B.** Mill application of Boracure durable moth proofing compd., 6316
**Watjen, H. H.** See Sullivan, T. G.
**Watkin, D. M.** See Stare, F. J.
**Watkins, C. H.** Treatment of leukemia, 5498*d*
**Watkins, F. M.** Anticorrosion additive for petroleum oils, P 5582*i*, lubricating oil compn., P 5584*h*
**Watkins, G. M.**, and Klemme, D. F. Effects of dextrose concn. on the action of fungicide, 2,2' methylenebis 4-chlorophenol), 1517*i*
**Watkins, J. M.**, and Allwood, E. Retting of kenaf, 1570*i*
**Watkins, S.** See Hucker, G. J.
**Watkins, S. S.** Preserving timber in American mines, 1137*d*
**Watkins, W. M.**, and Wormall, A. Inactivation of complement by N mustard, 2698*c*
**Watkins, W. W.** Modification of polyamides, P 7713*h*
**Watman, R. N.**, and Nasset, E. S. Thyroid activity and resistance to histamine induced peptic ulcer and to acute histamine poisoning, 7145*g*.
**Watorski, M.** Medical service in chem. industry, 2711*d*.
**Watrin, J.**, Louyot, P., Verain, M., and Laurent, Mlle. Blood chloride in eczemas and erythrodermias—urinary elimination of chloride during eczemas and erythrodermias—ameliorating influence of low chloride diet in eczema, 4364*d*
**Watson, A. J.** Effect of varied levels of N, P, K, and B in soil on the yield and chem. compn. of greenhouse tomatoes, 9322*a*
**Watson, A. T.**, and Bircher, L. J. Azeotrope in cyclohexene-1,4 dioxane system, 6980*b*
**Watson, B. B.** Problems in College Physics (book), 932*g*; see DuMond, J. W. M.
——, West, W. J., Lind, D. A., and DuMond, J. W. M. Precision study of the W *h* spectrum using the 2-meter focusing curved-crystal spectrometer, 4132*f*
**Watson, C. C.** H meter for flowing gaseous mixts., P 2047*h*.
**Watson, C. J.** Urobilinogenuria, 2660*i*; see Grinstein, M.
**Watson, Claude W.** See Goldsby, A. R.
——, Burton, C. C., and Scoville, L. P. Hydrocarbon alkylation, P 7223*a*.

**Watson, C. Wesley.** See Swank, R. L.
**Watson, D.** See Moynahan, E. J.
**Watson, D. P.** Modification of bean leaves as a result of treatment with 2,4-D, 1517*d*.
**Watson, E. M.** See Pearce, R. H.; Williams, H. L.
—— and Pearce, R. H. Biochemistry of the skin, 3506*a*; mucopolysaccharide content of the skin in localized (pretibial) myxedema (II), 5487*f*.
**Watson, G. I.** See Sarkar, B. C. R.
**Watson, G. M.** See Cameron, D. G.
**Watson, H. H.** Dust sampling in a hematite mine with the P.R.V. hand pump, 910*f*
**Watson, H. R.** See Steiner, H.
**Watson, Jack.** What's ahead for news ink? 5605*d*.
**Watson, James.** See Mann, F. G.
**Watson, Joyce.** See Askew, H. O.
**Watson, J. E.,** and McBride, C. B. Centrifugal dust separator, P 7273*e*.
**Watson, J. H.,** and Anderson, H. E. Stabilized paper, P 9449*b*.
**Watson, J. H. L.** Morphology of C-black particles in shadow-cast specimens, 9418*f*; see Heller, W.
——, Heller, W., and Wojtowicz, W. Morphological changes of tactoid-forming particles, 13*f*; direct electron microscopic thickness detns of ultramicroscopically thin crystals, 14*b*; comparative electron and light microscopic investigations of tactoid structures in $V_2O_5$ sols, 6040*h*.
**Watson, K. D.,** and Mathews, W. H. Partly vitrified xenoliths in pillow basalt, 2903*h*.
**Watson, K. M.** App for catalytic cracking of hydrocarbon gases, P 3188*a*; see Smith, K. A.
**Watson, N. A.** See Veneklasen, P. S.
**Watson, P. D.** Polylactylic acid coatings, P 1996*a*, polylactylic acid resins, P 2813*e*
**Watson, R. C.,** and Bowman, M. I. Microchem. identification of amidone, 9366*b*
**Watson, R. W.,** and Grace, N. H. Phys. properties of poly-1,2-dimethylethylene phthalate, 4047*c*; viscosity-mol. wt. relation of poly *levo* 2,3-butanediyl *o*-phthalate, 4078*i*
**Watson, Roger W.** Inhibited mineral oil, P 1179*f*, oxidation resistant org. substances, P 1459*h*
—— and Tom, T. B. Relation of structure and effectiveness in Cu deactivators, 6063*i*
**Watson, S.** See Griffith, F. R., Jr.
**Watson, S. A.** See Noggle, G. R.
**Watson, S. J.** Nutritive value of silage and dried grass, 329*e*.
**Watson, V.** See Clay, H. F.
**Watson, W.** Electrically conductive fabric, P 6528*i*
**Watson, W. E.** See Hopkins, A. C., Jr.
**Watson, W. F.** See Livingston, R.; Melville, H. W.
—— and Livingston, R. Concn. quenching of fluorescence in chlorophyll solns., 8295*e*
**Watson, W. H.** See Murray, G. S.; Raff, R. A. V.
**Watson, W. R.** See Cromwell, N. H.
**Watt, C. H.** See Bellamy, L. J.
**Watt, C. S.** See Sloane, R. H.
**Watt, G. L.** See McGanity, W. J.
**Watt, G. W.** Designation of special isotopes in the names and formulas of inorg. compds., 2105*f*.
—— and Davies, D. D. Mo (III) oxide, 2531*h*, catalytic activity of metals produced by the reduction of salts in liquid $NH_3$ (I) Ni, 2536*a*.
—— and Hatch, L. F. Science of Chemistry (book), 4090*f*
**Watt, J.** Lime-kiln combustion, 6373*b*
**Watt, J. Y. C.** See Levin, M. B.
**Watt, L. M.** See Milligan, W. O.
**Watt, W.** See Roberts, J. P.
**Wattenberg, A.** See Hamermesh, B.; Myers, V. W.
**Watts, A. B.** See Ross, O. B.
**Watts, B. J.** See Morgan, A. F.
——, Lehmann, B., and Goodrich, F. Effect of baking powder residues on rancidity, 9278*e*
**Watts, B. N.** See Milner, C. J.
**Watts, D. T.** Inhibition of succinic oxidase system by meperidine, methadone, and codeine, 3521*c*; effect of local anesthetics on the respiration of brain homogenates, 8056*g*.
**Watts, J. G.** Cotton insect control with org. insecticides, 1143*b*.
**Watts, R. J.** See Rogers, J.
**Watts, V. E.** Lightwt. coated aggregate, P 3990*b*.
**Watzlawek, H.** Technischen Kernphysik (book), 3296*e*.
**Waugh, D.** See More, R. H.
**Waugh, R. K.** See Jarvis, R. N.
**Waugh, S. P.** Mineral-oil compn., P 5938*e*.
**Waukesha Foundry Co.** Corrosion-resistant alloy, P 9021*d*.
**Wawilow.** See Vavilov.
**Wawzonek, S.** Organic polarography [in analysis], 2113*f*.
**Waxler, S. H.** See Brecher, G.
**Way, K.** Neutron and proton binding energies in the region of Pb, 5297*g*.
**Way, M. J.** Insects and insecticides (I) insect morphology, (II) insect physiol. and insecticidal action, (III), (IV), 1139*f*, detg. the stomach-poison effect of insecticides used against leaf-eating insects, 5893*f*, see Tattersfield, F.
—— and Synge, A. D. Effects of DDT and of benzene hexachloride on bees, 5148*i*
**Way, R. L.** See Cason, J.
**Waygood, E. R.** Estn. of inorg. and org. P in plant exts., 1840*c*.
**Waymouth, C.** See Davidson, J. N.
**Wayne, E. J.,** Goodwin, J., and Stoner, H. B. Effect of adenosine triphosphate on electrocardiogram, 8527*i*.
**Wayne, T. B.** Treatment of drilling fluids, P 1556*i*, 8662*b*
**Wayne, W. J.** See Rothrock, H. S.
**Wayo, S. J.** $\alpha,\alpha'$-Dithiocarbonodialiphatic acid, P 7955*f*, $\alpha,\alpha'$-trithiocarbonodialiphatic acids, P 7955*g*, turbine oil, P 8130*i*
**Wazer, J. R. van.** See Van Wazer, J. R.
**Weakley, C. E., Jr.** See Vanlandingham, A. H.
**Weakley, F. B.** See Montgomery, E. M.
**Weale, K. E.** See Newitt, D. M.
**Wear, G. E. C.,** and Quiram, E. R. Burners for elemental analysis by lamp combustion—application to special problems, 6474*ee*
**Wear, J. I.,** and Sommer, A. L. Acid extractable Zn of soils in relation to the occurrence of Zn-deficiency symptoms of corn, 1133*h*.
**Wearn, R. B.,** Murray, W. M., Jr., Ramsey, M. P., and Chandler, N. Detn. of $\alpha,\beta$-unsatd. aldehydes, 1088*a*
**Wearne, E.** Automatic warning of changes in gas quality, 8120*a*.
**Weatherall, M.** Antidotal activity of dithiols and acetyldithiols in mice poisoned with oxophenarsine, 9250*h*; see Ginsburg, M.
**Weatherbee, C.** See Frank, R. L.
**Weatherburn, A. S.** See Bayley, C. H.
——, Rose, G. R. F., and Bayley, C. H. Adsorption of soap by C black, 7289*b*.
**Weatherburn, M. W.** Rot-proofing of textiles and related materials, 413*i*, see Bayley, C. H.
**Weathersby, A. B.** See Terzian, L. A.
**Weaver, A.** See Cork, J. M.
**Weaver, C.** See McQueen, D. M.; Snyder, H. R.
**Weaver, C. R.** See Rings, R. W.
**Weaver, D. E.** See Broadhurst, W. L., Irelan, B.
**Weaver, J. B.** See Everson, J. N.
**Weaver, J. R.,** and Brattain, R. R. Common-matrix system of spectrochem. analysis, 8945*a*
**Weaver, J. W.** See Schuyten, H. A.
**Weaver, L. O.** Use of lime-S sprays on peach, 1515*h*.
**Weaver, P. J.** See Kent, D. L.
**Weaver, R. J.** Uses of activated C in contratoxification of plant growth-regulators, 2355*h*.
**Weaver, S. H.** Effect of carbide spheroidization on rupture strength and elongation of C-Mo steel, 2146*d*.
**Weaver, W. E.** See Swensen, A. D.
**Weaver, W. I.** Dispersing a solid polymerization catalyst in a polymerizable thermosetting sirup, P 2034*f*.
—— and Hobbs, L. M. *N*-Substituted aromatic sulfonamide polymers, P 9530*i*.
**Webb, A. H.** See Friedberg, F.
**Webb, C. D.** Brazing cemented carbides, P 6968*b*.
**Webb, E. T.** Monsavon continuous soap-making process, 8179*e*; phase factors affecting soap quality, 9492*d*.
**Webb, F. J.** See Baltzly, R.
**Webb, G. A.** See Corson, B. B.; Nickels, J. E.
**Webb, G. M.** Purification of hydrocarbons, P 4002*c*.
—— and Smith, M. A. Catalysts, P 4004*f*.
**Webb, H. W.** Ceramics, refractories, and cements, 4788*f*.
**Webb, J. D.** See Webb, J. L. A.
**Webb, J. H.** Photographic plates for use in nuclear physics, 35*e*, 4966*h*; fogging of photographic film by radioactive contaminants in cardboard packaging materials, 8263*a*.
**Webb, J. K.** Thermoplastic cable insulation, P 3657*d*.
**Webb, J. L.** See Nakamura, Kazuko.
—— and Elliott, K. A. C. Formation of acetate in brain-tissue suspensions, 8416*i*.
——, Saunders, P. R., and Thienes, C. H. Metabolism of the heart in relation to drug action (I) endogenous aerobic metabolism of heart slices, (II) utilization of substrates by heart slices, (III) action of metabolic inhibitors on heart-slice respiration, 9210*f*
**Webb, J. L. A.,** and Webb, J. D. Catalytic synthesis of aromatic-aliphatic and heterocyclic-aliphatic ketones (I) ketones derived from $C_6H_6$, pyridine, and furan, 8367*f*.
**Webb, J. S.** See Jacobson, R.
**Webb, L. J.** Alkaloids in Queensland *Cryptocarya* species, 1155*b*; see Hughes, G. K.
**Webb, M.** Action of lysozyme on heat-killed gram-pos. microorganisms, 3058*i*; influence of Mg on cell division (I) growth of *Clostridium welchii* in complex media deficient in Mg, 3059*c*; see Jones, A. S.; Smith, F.
**Webb, P. S.,** and Koster, J. R. Silicone grease compn. for coating cooking utensils, P 3544*e*, hardened silicone-surfaced cooking implement, P 5634*d*.
**Webb, R. E.,** and Linford, H. B. Effect of pressure on current efficiency of Cu electrodeposition from cyanide solns., 46*c*.
**Webb, R. W.** See Murdoch, J.
**Webb, W. A.** Dehydrated food products, P 6758*f*
**Webb, W. H. H.** Use of Nile blue in the study of tetrathionase activity, 4308*a*.
**Webb, W. L.** Fouling in steam power plants, 8755*g*
**Webber, B. S.,** Bjorklund, S. C., Rutledge, F. A., Thomas, B. I., and Wright, W. S. Hg deposits of southwestern Alaska, 6919*f*.
**Webber, H. H.** See Frampton, V. L.
**Webber, H. M.** See Hotchkiss, A. G.
**Webber, R. T.,** Fairbank, H. A., and Lane, C. T. Film-transfer rate in He II, 8779*a*.
—— and Reynolds, J. M. Crit. fields of superconducting V, 4067*a*.
**Weber, A. G.,** and Hamblet, G. H. Zn propionate, P 2223*a*.
**Weber, A. H.** See Arnold, G. P.
**Weber, D. V.,** and Young, W. E. Effects of extn. rate on baking quality for three classes of wheat, 8565*i*.
**Weber, E.** Dyeing wool with indigo dyestuffs, P 415*i*.
**Weber, F.** Hexachlorocyclohexane, 9341*h*.
**Weber, Friedl.** Vitamin C content of the arillus of *Jeffersonia* and of Belt's particles, 8015*b*, see Kellermann, H.
**Weber, G.** Quenching of fluorescence in liquids by complex formation—detn. of the mean life of the complex, 498*g*; see Hörlein, H.
**Weber, George.** Trend toward larger lube-oil plants revealed in N.P.A. survey, 8658*e*.
**Weber, G. M.** See Miller, E. C.; Price, J. M.
**Weber, G. R.,** and Black, L. A. Evaluating practical performance of quaternary $NH_4$ and other germicides proposed for sanitizing food utensils, 323*d*.
**Weber, H. J.** See Baertich, E.
**Weber, K.,** and Asperger, S. Kinetics of photochem. oxidation with dichromate—oxidation of glycerol, 3695*g*.
—— and Lokar, M. Quenching of fluorescence (I) theory of quenching of fluorescence, 7346*i*.
**Weber, K. H.** Rubberlike copolymers of allyl esters, P 9519*f*.
—— and Powers, P. O. Dimethylstyrene polymerization products, P 897*b*.
**Weber, M. K.,** and Nelson, C. R. Inhibiting acid attack on brick, P 6387*c*.
**Weber, O.** See Kessler, J.
**Weber, P. M.** See Schwartz, C. M.
**Weber, P. R.,** and Corby, J. C., Jr. Remote actuation of high-pressure valves—elec. mechanism developed for remote-control purposes, 4523*g*.
**Weber, R.** Properties and applications of metallic bearing materials, 80*g*; construc-

tion and action of dust and fog filters, 2041*g*.
**Weber, R. P.**, and Steggerda, F. R. Histamine in plasma—correlation with blood-pressure changes following x-ray irradiation, 4308*h*.
**Weber, S.** See Heilbronner, E.; Plattner, P A
**Webjörn, B.** See Hägglund, E.
**Webley, D. M.** Technique for study of O availability to microörganisms in soil and its possible use as index to soil aeration, 6771*e*; see Forsyth, W. G. C.; Quastel, J. H.
**Webman, H.**, Hill, T. J., and Kniesner, A. H. Effect of penicillin on dental caries in rats fed on a coarse corn diet, 6709*c*.
**Webre, A. L.** Countercurrent condenser, 8746*h*.
**Webster, H. G.** Salt-bath cleaning of castings prior to hot-dip coating with Pb, P 2154*i*; molten salt baths, P 3709*b*; preservation of the effectiveness of a metal cleaning bath, P 3769*c*; electrolytic cleaning of metal, P 5680*d*.
—— and Falter, C. L. Salt-bath cleaning of metals to replace pickling, P 2154*i*
**Webster, J. E.** See Gurdjian, E. S.
**Webster, James E.**, Sieglinger, J., and Davies, F. Chem compn of sorghum plants at various stages of growth and relation of compn. to chinch-bug injury, 4346*a*.
**Webster, J. H.** See Harmon, J. W.
**Webster, O. J.** See Leukel, R. W.
**Webster, R.** Gem testing, 5703*f*
**Webster, R. L.** Mites of economic importance in the Pacific Northwest (and their control), 1897*f*
**Webster, S. H.**, Liljegren, E. J., and Zimmer, D. J. Heinz-body formation by certain chem. agents, 3930*a*.
**Webster, W.** See McCoubrey, A
**Wechotko, T. I.** See Vekhotko, T. I
**Wechsler, H.** Friedel-Crafts copolymerization, 1733*a*.
**Wechsler, M. T.** See Hoge, H J
**Wechsler, R. I.** See Veksler, R. I.
**Weck, G. de.** Et *N*-(*p*-aminobenzoyl)-phthalamate, P 6236*e*.
**Weck, W.** Pharmacology on the island of Bali, 5531*i*.
**Weckel, K. G.** See Berth, L.
**Weckel, W. O.** Press water reclamation, 6446*a*.
**Wedemeyer, K. F.** See Helferich, B.
**Wedeneewa, N. E.** See Vedeneeva, N E
**Wedevågs Bruks Aktiebolag.** Solvents, fuels, and lubricants from wood waste, P 6416*e*.
**Weed, F. G.**, and Beckwith, N. P. Industrial finishes and finishing, 8701*b*.
**Weedon, B. C. L.** See Heilbron, I. M.; Lambert, A; Rose, J D.
**Weeke, H.** See Riesser, O
**Weekers, R.** Cholinesterase of the retina, 1473*e*.
**Weeks, G. A.** See Childs, A F.
**Weeks, L. J.** Bridgeville limonite deposits, 5347*i*
**Weeks, M. E.** See Evans, H. J, Seay, W. A.
**Weeks, R. E.** See Gunnar, R. M.
**Weeldenburg, J. G.** Bonding cellulosic materials to rubber and composite products formed therefrom, P 3227*c*; aftertreatment of viscose rayon, P 6129*d*
**Weeren, J. W. van.** See Hertog, H. J den.
**Weerts, E.** See Gratia, A.
**Weesner, C. W.**, Connor, P. M, and Hill, R. P. Stainless clad steel, P 3770*f*.
**Weesner, W. E.** See McBee, E. T.
**Weetman, B.**, and Hurlburt, D. W. Effect of asphalt viscosity on stability of asphalt paving mixts., 6401*d*.
**Wegener, J. B.** See Grab, E. G., Jr.
**Wegler, R.**, and Baliauf, A. Reaction of the nitrile group with HCHO, 5405*c*.
**Wegmann, E.** Fat recovery from waste water, P 2720*c*
**Wegner, E. S.** See Grant, R. S.
**Wegner, H.** Steam-volatile flavor (odor and taste) materials of potatoes, 5879*d*.
**Wégria, R.** See Blake, W. D.
**Wegst, W. F.**, Bacon, L. R., and Vaughn, T. H. Protection of glass surfaces against alkali attack, P 374*b*.
—— and Wills, J. H. Hydrated polysilicate, P 826*d*.
**Wehmer, F.** See Lindner, G. F.
**Wehmeyer, P.** Physicochem. studies of blood and serum of cows vaccinated against hoof and mouth disease, 3512*i*.
**Wehmeyer, S.** Organo metallic plastics, P 8306*g*.

ıtering
Steubenville, 7388*i*.
**Wehr, W.** Vinyl chloride polymers as celluloidlike masses, 3230*i*; nitrocellulose, 5588*f*.
**Wehrli, S.**, and Kanter, M. Microchem. detn. of prussic acid for forensic purposes, 1288*g*.
**Wehrli, U.** See Grumbach, A.
**Wehrli, W.** Metallized tetrakisazo dyes, P 8161*a*.
—— and Kehrer, F. Trisazo dyes, P 7701*g*.
—— and Petitjean, C. Metallizable polyazo dyes for cotton and regenerated cellulose, P 4482*g*.
**Wehrman, F. C.** Finishing Farmall tractors, 7716*b*.
**Wehrmann, O.** See Balks, R.
**Wehrse, F.** Synthetic materials in light structures, 1603*h*.
**Wehrung, A.** Spinning and drawing in the viscose process, 7692*e*.
**Weiant, E. A.** See Roeder, K D.
**Weibel, R. O.** Castor-oil plant, 424*a*.
**Weibel S., J.** See Borgo S, J dal.
**Weibke, F.**, and Kubaschewski, O. Thermochemie der Legierungen (book), 4908*c*.
**Weibull, C.** Chem and physicochem. properties of the flagella of *Proteus vulgaris*, 3061*j*, chem and physicochem. properties of the flagella of *Proteus vulgaris* and *Bacillus subtilis*, 8431*a*.
**Weichan, C.** Essential oil content of aromatic plants as dependent on fertilizing, 5907*a*.
**Weichert, J. P.** Drilling fluids, 381*d*.
**Weichet, J.** See Rittel, V.
**Weichherz, J.** Vinyl chloride, P 4284*d*.
**Weichselbaum, T. E.**, and Varney, P. L. Flame photometry, 8217*e*.
**Weickhardt, L. W.** Production of sulfamerazine in Australia, 4427*a*
**Weidinger, A.** See Hermans, P H.
**Weidler, R. C.** See Johnson, R C, Ting, Y.
**Weidlich, H. A.**, and Daniels, G. H. Prepn. of substituted cyclopentanones (V), 241*d*.
**Weidlich, P.** See Patat, F.
**Weidner, C. L.**, and Eger, L. W Adhesive tape for laminating, P 5613*b*, 7756*d*.
**Weidner, R. T.** See Whitmer, C. A.
**Weier, T. E.** See Stocking, C R
—— and Stocking, C R. Influence of selected antioxidants on dehydrated carrots, 7157*b*.
**Weigel, C. A.** See Wester, R E.
—— and Baumhofer, L. G. Handbook on insect enemies of flowers and shrubs, 3551*h*.
**Weigelt, H.** See Gurtler, G
**Weigert, F.** Biochemistry of benzopyrene (III) quant. estn. of the metabolites, 1824*b*.
——, Calcutt, G, and Powell, A K Course of the metabolism of benzopyrene in the skin, 320*f*
**Weigham, W. R.** See Courtaulds Ltd.
**Weigl, J. W.**, and Calvin, M. Isotope effect in photosynthesis, 4730*c*.
**Weigner, J.** Domestic raw materials in the Czechoslovakian chem. industry, 4397*g*.
**Weihe, A.** Cellulose esters as coating materials, 5202*f*; (II) 5970*i*.
**Weijlard, J.**, Swanezy, E. F., and Tashjian, E. Prepn. of 6,7-diethoxy-1-(3,4-diethoxybenzyl)isoquinoline, 7027*g*.
—— and Tishler, M. Pyrazine derivs., P 608*g*.
**Weil, A.** Chem. analysis of the phospholipides of the brain in disseminated sclerosis, 3924*i*, 9232*i*
—— and Bradburne, G B P metabolism in disseminated sclerosis, 3924*h*.
**Weil, A. J.** See Parfentjev, I. A.
—— and Rose, E. Sepn. by means of $NH_4$ salts of the antigen-antibody reaction from the response of the smooth muscle, 9221*e*.
**Weil, B. H.** Expanding market—antifreezes from petroleum, 3117*i*; Georgia Tech. Engineering Expt. Sta., 7275*i*, see Bolen, M.
—— and Lane, J. C Technology of the Fischer-Tropsch Process (book), 2756*b*.
——, Murray, P. E, Reid, G W., and Ingols, R. S. Water and sewage analysis, 1505*h*.
**Weil, C.** See Flagg, J. F.
**Weil, C. M.** See Miner, C. S., Jr.
**Weil, C. S.** See Smyth, H. F., Jr.
**Weil, H.** See Lynam, C. G.
**Weil, I.** See Fair, G. M.
—— and Morris, J. C. Kinetic studies on the chloramines (I) rates of formation of monochloramine, *N*-chloromethylamine, and *N*-chlorodimethylamine, 6896*e*; equil. studies on *N*-chloro compds. (II) base strength of *N*-chloro dialkylamines and of monochloramine, 8821*i*.
**Weil, J. K.** See Stirton, A. J.
**Weil, Leopold.** See Mitchell, J. W.; Woodward, C. F.
**Weil, Lotte.** Grundlinien für den Biologieunterricht an Volksschulen (book), 8417*g*.
**Weil, Louis.** Rate of approach to the ordered state in alloys, 3260*f*.
**Weil, M. L.**, Beard, D., Sharp, D. G., and Beard, J. W. Purification, pH stability, and culture of the mumps virus, 3066*a*.
—— and Warren, J Therapeutic failure of phenosulfazole in mice infected with EMC or MM virus, 5496*i*.
**Weil, R.** Variation with temp. of metallic reflectivity, 480*e*; see Neuburger, W.
**Weiland, G. S.** See Figge, F. H. J.
**Weiland, J. H., Jr.**, McCay, R. C., and Barnes, J. E. Rates of fouling and cleaning of unfired heat-exchanger equipment, 8755*e*.
**Weiland, P.** Antibacterial substances from soil bacteria—treatment of carriers of diphtheria bacilli, 270*h*.
**Weiler, G.** See Grassmann, P.
**Weill, H. C.** See Caflisch-Weill, H.
**Weil-Malherbe, H.** Effect of lipide solvents on the rate of elimination and the carcinogenic potency of 3,4-benzopyrene after subcutaneous injection, 307*d*, elimination and carcinogenic potency of 3,4-benzopyrene after subcutaneous injection of nonlipide solns., 307*f*.
—— and Schade, R. Liver catalase of normal and cancerous rats, 2309*c*.
—— and Weiss, J. Color reactions and adsorption of aluminosilicates, 6035*e*.
**Wein, Samuel.** Deposition of metallic films, 6525*g*.
**Wein, Stanisław.** Manuf. of $NH_4NO_3$, 2377*e*.
**Weinaug, C. F.** See Thodos, G.
—— and Cordell, J C. Revaporization of butane and pentane from sand, 1553*i*.
**Weinbaum, S.** Alloying of metal powders by diffusion, 982*f*
**Weinberg.** See also Veinberg.
**Weinberg, A. M.**, and Schweinler, H C Theory of oscillating absorber in a chain reactor, 488*c*.
**Weinberg, V.** See Manchester Oil Refinery Ltd.
**Weinberger, J. H.**, Prince, V. E., and Havis, L. Tests on foliar fertilization of peach trees with urea, 8594*i*.
**Weinecke, L. A.**, and Hoeltzel, O. R. Flexible insulating pad, P 5518*h*.
**Weiner, L. I.** Quartermaster Corps accelerated test method, 6423*e*.
**Weiner, M.** See Unger, P. N.
**Weiner, N.** See Weiss, U.
**Weiner, S.** Formazan test for reducing compds., 59*b*.
**Weinhouse, S.** See Kharasch, M. S.
—— and Millington, R H. Ketone body formation from tyrosine, 1745*h*.
——, Millington, R. H., and Lewis, K F Oxidation of glucose by yeast studied with isotopic C, 1460*c*.
**Weinig, A. J.** Concn. of V ores, P 3768*d*, selective flotation of chromite ores, P 4998*d*.
**Weinkauff, O. J.** Biacetyl, P 1797*c*, 1-propenyl-2-hydroxy-3-ethoxybenzene, P 3037*d*.
**Weinman, C. J.** See Kearns, C. W.
—— and Decker, G. C. Chlorinated hydrocarbon insecticides used alone and in combinations for grasshopper control, 6353*e*.
**Weinmann, J. P.** See Irving, J. T.
**Weinmayr, V.** 2-Thiophenecarboxylic acid, P 3850*h*; alkyl-substituted aromatic sulfonates, P 6232*g*; thiophanthraquinone derivs., P 6668*g*, see Hunt, M.; Lee, H. R.
**Weinrich, A. R.** $B_2O_3$ in the production of quartz coatings *in vacuo*, P 5919*a*; see Colbert, W. H.
**Weinrich, W. W.** See Hornaday, G. F.; Peavy, C. C.
——, Holloway, C. A., Jr., and Bonnell, William S. Catalytic contact process, P 1175*d*.
**Weinrub, L. G.** See Valnrub, L. G.
**Weinstein.** See also Valnshtein.
**Weinstein, H. R.** See Foà, P. P.
**Weinstein, L.** Action of urea and some of its derivs. on bacteria (V) antibacterial activity of methyl- and thiourea, 5075*f*.
**Weinstein, S.** See Edrington, M. P.
**Weinstock, B.** See Osborne, D. W.
**Weintraub, M.** See Leva, M.

—— and Leva, M. Pressure drop in packed tubes—nomogram, 2*e*.
**Weintraub, R. L.,** and Norman, A. G. Plant growth-regulators, 9178*s*.
**Weir, C. E.** Expansivity of leather and collagen—effect of temp. on the vol. of leather and collagen in water, 4041*d*; rate of shrinkage of tendon collagen—heat, entropy, and free energy of activation of the shrinkage of untreated tendon—effect of acid, salt, pickle, and tannage on the activation of tendon collagen, 7247*e*.
**Weir, D. R.,** Heinle, R. W., and Welch, A. D. Pteroylglutamic acid deficiency, 1470*e*.
——, Welch, A. D., and Heinle, R. W. Effect of an antagonist of pteroylglutamic acid on the leukemia of Ak mice, 6733*i*.
**Weir, H. M.** Comminuted hydrogels, P 2050*a*.
**Weir, J.** Nitroglycerin and guncotton, 2435*i*.
**Weir, J. A.** Blood pH as a factor in genetic resistance to mouse typhoid, 9222*b*.
**Weir, J. B. deV.** Calcg. metabolic rate—protein metabolism, 8427*h*; see Bell, G. H.
**Weir, J. R.** Ontario pastures, 9320*f*.
**Weir, R. D.** See Smith, Howard E.
**Weir, T.** See Distillers Co., Ltd
**Weir, W. C.,** Pope, A. L., Phillips, P. H., and Bohstedt, G. Effect of a low-carotene winter ration on the blood, milk, and liver concns of vitamins A and C, 8467*c*.
**Weis, A. E.,** and Bisbey, B. Relation of the carotenoid pigments of the diet to the growth of young chicks and to the storage in their tissues, 4353*g*
**Weis, U. P.** See Fischer, Roland.
**Weis, W.** See Ginzel, K. H.
**Weisberg, S. M.,** and Greenspan, J. Devitaminized casein by solvent extn., P 8072*e*.
——, Stimpson, E. G., and Miller, A. L. Alkyl lactates, P 6224*c*
**Weisblat, D. I.,** and Myers, D. R. Alkyl esters of ascorbic acid, P 3154*b*
——, Myers, D. R., and Wise, E. C. Alkyl esters of ascorbic acid, P 3154*a*.
**Weisburger, E. K.** See Ray, Francis E.
—— and Quinlin, P. M. New compds for cancer research, 1367*i*
**Weisburger, J. H.** See Ray, Francis E.
**Weiser, H. B.** Colloid Chemistry (book), 3278*i*.
**Weiser, R.** See Galinovsky, F.
**Weisflog, G.** Dried plasma and plasma fractions, 3054*g*, see Spengler, H.
**Weishaupt, J.** Detn. of the phase equil of N-A-O mixts at a pressure of 1000 Torr 2500*e*.
**Weisiger, J. R.** See Roos, A.; Van Slyke, D. D.
**Weisman.** See Valsman.
**Weiss, A.,** and Gavarret, J. Metallic salts of abieto-maleic acids, 7719*c*.
—— and Uzac, R. Rosin oil in the paint industry, 6431*h*.
**Weiss, E.** Transparent cellulosic textiles, P 1869*a*; see Heberlein, Georges
**Weiss, F.** Verwendung der Kunststoffe in der Textilveredlung (book), 6832*d*.
**Weiss, H. A.** See Kinsell, L. W.
**Weiss, J.** Intermediate compds. in inorg. reactions, 4593*f*; nature of the "active" oxalic acid, 5742*c*; see Weil-Malherbe, H.
—— and Humphrey, C. W. Reaction between $H_2O_2$ and Fe salts, 6895*b*.
**Weiss, J. G.** Control and production of high-C wire, 84*a*.
**Weiss, J. M.** Maleic anhydride, P 2226*c*, 4690*f*; future sources of aromatic hydrocarbon, 4637*i*; chem. industry's capital requirements, 7605*h*.
**Weiss, Karl.** Optical consts. and elec. resistance of thick metal layers, 2836*c*.
**Weiss, Kathryn.** See Stekol, J. A.
**Weiss, M.,** and Appel, M. Catalytic oxidation of benzoin to benzil, 1368*a*; catalytic oxidation of piperonyloin to piperil, 7007*f*.
**Weiss, M. G.** See Porter, K. B.
**Weiss, M. J.** See Humphlett, W. J.
—— and Hauser, C. R. Attempted synthesis of an aliphatic analog of plasmochin, 6991*b*; condensations (XLIII) acylation and carbethoxylation of quinaldine, lepidine, and 2-picoline using Na amide or K amide, (XLIV) Michael condensations by Na amide with quinaldine, α-picoline, or lepidine as the active H compo.ent, 7022*d*.
**Weiss, M. T.** See Strandberg, M. W. P.
**Weiss, Philip.** Prepn. of 2-methyl-4-methoxy-5 isopropylpropiophenone and (2-methyl - 4 - methoxy - 5 - isopropylphenyl)ethylcarbinol, 604*a*; prepn. of Me [*p*-(benzyloxy)phenyl]acetate, 1746*b*; see Niederl, J. B.
—— and Niederl, J. B. Prepn. of 3,4-bis(3-methyl - 4 - hydroxy - 5 - allylphenyl)-2,4-hexadiene, 4247*c*.
**Weiss, P. A.** Differential growth, 4710*g*.
**Weiss, P. R.** See Whitmer, C. A.
**Weiss, R.** Automatic regulation of a gas burner by means of a Pt needle holder, 6474*b*.
**Weiss, R. H.** See Conn, Robert C.
**Weiss, R. S.** See Gottschalk, H. R.
**Weiss, S.,** Fiore, J. V., and Nord, F. F. Enzyme action (XXXVIII) effect of different naphthoquinones on the fat formation in *Fusarium lini*, 9161*a*.
—— and Nord, F. F. Enzyme action (XXXVII) solanione, a pigment from *Fusarium solani* D₂ purple, 9160*i*.
**Weiss, U.,** and Weiner, N. Isomerization of morphine to *O*-desmethylthebainone, 5786*d*.
**Weiss, Z.** See Milas, N. A.
**Weissbecker, L.** Substance P in blood—problem of delayed toxic action, 1071*f*; Co in blood pigments, 8497*g*.
**Weissberg, S. G.,** Kline, G. M., and Hansberry, H. L. Fire-retardant coatings for fabric-covered aircraft, 8074*g*.
**Weissberg, Z. M.** See Valsberg, Z. M.
**Weissberger, A.** Developer for color film, P 516*a*; Catalytic, Photochem., and Electrolytic Reactions. Vol II. Technique of Org Chemistry (book), 660*b*; Phys. Methods of Org. Chemistry. Vol I. Pt 1 (book), 7496*f*; see Glass, D. B.; Graham, Bruce; Kibler, C. J.; Leiserson, L.; LuValle, J. E.; Porter, H. D.; Vittum, P. W.
——, Kibler, C. J., and Young, R. V. Thioglycolic amide couplers, P 54*f*
——, Salmunen, I. F., and Vittum, P. W. 1-Naphthol-2-carboxylic acid amide couplers for color photography, P 8293*b*.
**Weissenberg, A.** See Vaisenberg, A
**Weissenberg, K.** See Freeman, S. M.
**Weissenberg, R.** Lymphocystis tumor cells (I) osmiophilic granules of the cytoplasmic inclusions and their interpretation as elementary bodies of the lymphocystis virus, 9230*g*.
**Weissenborn, A. E.** Occurrence of helvite, 8986*h*.
——, Stenzel, H. B., Fountain, H. C., Jenke, A. L., Hendricks, T. A., Miller, R. L., Kinney, D. M., Twichell, Trigg, and White, W. N. Geol. resources of the Trinity River tributary area in Oklahoma and Texas, 4607*h*.
**Weisskopf, V. F.** Interaction of mesons with nuclei, 4090*g*; see French, J. B.
**Weissler, A.** Ultrasonic investigation of mol. properties of liquids (III) linear polymethylsiloxanes, 3256*d*; (IV) cyclic compds., 4531*i*, (V) inorg. halides, 6024*h*; chem. effects of intense ultrasonic waves in liquids, 8779*h*.
—— and Cooper, H. W. Chem. effects of ultrasonic irradiation, 1660*g*.
**Weissler, G. L.,** and Kotter, R. W. Work functions of a gas-coated surface, 4093*d*.
**Weissler, P. G.** See Cook, R. K.
**Weissman, L.** See Dunitz, J. D.
**Weissman, N.,** and Fisher, J. Significance of Mg ion for desoxyribonuclease activity, 6249*d*.
**Weissmann.** See Valsman.
**Weiss, Paul B.** Phosphatases in normal and reorganizing stentors, 9272*i*.
**Weisz, Paul Burg.** Starting potential of the Geiger-Müller counter discharge, 1646*a*.
—— and Kern, W. P. Measurements of behavior and mobility of polyat. ions, 4559*a*.
**Weisz, R.** Role of kidney tubules in pathology (III) effect of diuretics on the tubular function, 9218*f*; see Sellei, C.
**Weitbrecht, G.** See Fricke, R.
—— and Fricke, R. Active solid substances (LXVIII) particle size, lattice distortion, and secondary structure of γ-$Al_2O_3$ and its starting material, 3685*b*.
**Weith, A. J.** See Simonds, H. R.
**Weith, A. J., Jr.** See Dixon, J. K.
**Weitkamp, A. W.** Rosin-soap grease, P 4008*e*; see Swenson, R. A.
**Weitz, F. W.** Treatment of [beet] juice with $CaCl_2$ at Missoula, 6443*h*.
**Weitzel, G.** Branched fatty acids and tuberculosis, 1855*i*; succinic acid in normal human urine, 4746*a*; sublimation of succinic acid and similar acids—isolation of dicarboxylic acids from urine, 5069*i*; effect of atophanyl on metabolism, 5115*f*; succinic acid secretion by metabolism of higher *N*-dicarboxylic acids, 5469*b*; metabolism studies with *sym*-dimethyl succinic acid, 5469*d*; see Thomas, K.
——, Fretzdorff, A., Wojahn, J., Savelsberg, W., and Thomas, K. Properties of branched aliphatic acids and their behavior, 6251*b*.
**Weitzel, H. R.,** and Muldrew, W. E. Combination scrubbing, dehydration, desulfurization plant, 836*f*
**Weitzel, W. H.** See Jones, D. B.
**Weitzenkorn, L. F.,** and Galler, G. N. Ferrochrome process and product, P 991*a*.
**Weizmann, A.** Fine structure of sulfanilamide, 1019*e*; see Pines, H.
**Weizmann, C.** (*Patents.*) Utilization of coal oil, 1951*b*; aromatic hydrocarbons, 1955*f*; synthesis of secondary and tertiary ethynylcarbinols, 2219*b*; carboxylic acids, 2632*f*, ethylene chlorohydrin, 2633*a*; ketones, 4287*g*, 7037*e*; fermentative production of a mixt. of fatty acids, 4810*c*; acetone and BuOH, 5902*b*, 6781*g*, 7638*f*, condensation products, 6664*g*; fermentation processes, 6781*c*, 7638*e*; aliphatic acids by fermentation of difficultly fermentable materials, P 6781*f*; fermentation of molasses, 6782*g*; aliphatic acids from sulfite waste liquor, 6826*a*, sepn. of diolefins from gaseous mixts., 7275*a*; conversion of olefins into diolefins, 7950*b*.
——, Bergmann, E., Chandley, E. F., Steiner, H., Sulzbacher, M., and Zimkin, E. Selective extraction and adsorption (I) selective solvents for ethylene chlorohydrin, 5*i*.
——, Bergmann, E., and Sulzbacher, M. Derivs of salicylic acid, 2603*c*.
——, Bergmann, E., Sulzbacher, M., and Pariser, E. R. Selective extn. and adsorption (III) adsorption of acetone, butyl alc., and 2,3-butylene glycol from dil. solns., 6*b*
**Weizmann, M.,** Israelashvili, S., and Papo, R. Prepn. of 1,1,1-trichloro-2,2-bis(4-aminophenyl)ethane, 1752*h*.
—— and Patai, S. 4,4′-Dibromo-α,α′-dicyanostilbene, 7007*g*.
——, Patai, S., Dimant, E., and Bergmann, F. β,β-Diarylacrylic acids (III) esters with diethylaminoethanol as anesthetics, 7464*a*.
**Weizsäcker, C. F. v.** Geschichte der Natur (book), 7808*g*; spectrum of turbulence at large Reynold's nos., 8778*h*.
**Wekua, K.,** and Wachholtz, F. Formation of pores in chlorinated rubber coatings, 5620*d*.
**Welborn, I. R., Jr.** See Yust, H. R.
**Welch, A. D.** See Berk, L.; Peters, L.; Weir, D. R.
—— and Wilson, M. F. The growth-promoting effect of ascorbic acid on *Lactobacillus leichmannii* and the reduction of oxidation products of vitamin $B_{12}$, 9158*c*.
**Welch, H.** See Potter, V. R.; Price, C. W.
**Welch, P. S.** Limnological Methods (book), 1888*b*.
**Welch, Z. D.** See McBee, E. T.
**Welcher, R. P.** See Morton, A. A.
**Welchner, J.,** and Hildorf, W. G. Inclusion content and transverse ductility of a Cr-Ni-Mo steel, 8333*i*.
**Weldon, P. R.,** *et al.* Avoidance of Toxic Hazards in Some German Chem. Factories (book), 3948*g*.
**Weldon, T. H.** See McNaughton, R. R.
**Welford, S. F. W.** Packaging photographic elements with alkyd-resin binders, P 4593*d*.
**Welge, H. J.** Displacement of oil from porous media by water or gas, 2757*d*; core porosity analysis, P 4842*g*.
**Welin, S.** See Engström, A.
**Welinsky, I. H.** See Milliken, T. H., Jr.
**Welker, W. H.** See Mann, L. S.
**Wellard, H. J.** Extension of the theory of Mason and Matthias to the low temp. transitions in $BaTiO_3$, 8786*d*; see Kay, H. F.
**Wellcome Foundation Ltd.** Marfanil derivs., P 686*b*; bromination of phenones, P 1806*h*; urea derivs., P 2229*a*; derivs. of 5-aminouracil, P 5796*f*; substituted amidines, P 5801*b*; antibiotic, P 6702*a*.
——, Ainsworth, G. C., Pope, C. G., and Macsween, J. C. Antibiotic, P 5820*e*.
——, Copp, F. C., and Walls, L. P. Dehydrophenanthridines, P 2646*f*.
——, Goodson, J. A., Gorvin, J. H., Kirby, K. S., and Sharp, T. M. Secondary diamines, P 3455*a*.

——, Platt, B. C., and Sharp, T. M. Sulfanilamidoquinoxaline derivs., P 6061*d*.
——, Wilkinson, S., and Copp, F. C. Phenacyl derivs. of heterocyclic secondary amines, P 7050*g*.
**Weller, B. L.** Ionization chamber, P 44*i*.
**Weller, J. F.** Vinyl chloride, P 7496*h*.
**Weller, S.** Effect of operating variables on the Fischer-Tropsch synthesis, 3167*d*; see Golumbic, C.
——, Pelipetz, M. G., Kuhn, M., Friedman, S., and Clark, E. L. Hydrogenation of coal in batch autoclaves with coke-oven gas, 5171*d*.
and Young, T. F. O complexes on charcoal, 2840*d*.
**Wellers, G.** Action of KCN on crude cobra venom, 4380*a*; see Binet, L.
**Wellinger, K.,** and Hofmann, A. Testing metallic materials at subzero temps., 80*f*
—— and Keil, E. Adhesion of Ni and hard Cr deposits and of the fatigue resistance of Ni and Cr plated parts by heat treatment, 8900*e*.
**Wellington, M. S.** See Jacobson, S.
**Wellm, J.** See Mohr, W.
**Wellman, F. L.** Spray control of *Alternaria* blight of petunias grown for seed in Costa Rica, 2725*f*
**Wellman, H. W.** Sheet mica in South Westland, 6953*a*.
**Wellman, R. H.** Synthetic chemicals for agriculture (I) fertilizers and insecticides, (II) fungicides, nematocides, rodenticides, and weed killers, 1891*a*, see Harry, J. B
**Wellman Bronze and Aluminum Co.** Aging Mg alloys, P 7894*f*.
**Wellock, W. D.** See Roberts, J. F.
**Wells, A. A., Jr.** Intaglio printing, 1541*c*.
**Wells, A. F.** Luminescent materials or phosphors of the alk. earth metal sulfide type, P 500*h*; structures of metallic oxides, 1236*a*; bond lengths in some inorg. mols. and complex ions, 4910*e*; bifurcated H bonds, 6479*b*, crystal structure of atacamite and the crystal chemistry of cupric compds., 7772*b*; crystal habit and internal structure (III), 8229*e*, see Garlick, G. F. J
—— and Bailey, M. Structures of inorg oxy acids—crystal structure of selenious acid, 8788*e*.
**Wells, A. L.** Soldering flux, P 2568*s*.
**Wells, B. B.** See Awapara, J
——, Marvin, H. N., and Waldvogel, M. J. Detn. of antitryptic activity in human plasma, 5441*d*.
**Wells, B. H.** See Haywood, R. W., Jr.
**Wells, C.** See Olds, E. G.; Spretnak, J. W.
——, Sawyer, C. F., Boverman, I., and Mehl, R. F. Quench cracking susceptibility test for hollow cylinders, 8329*f*.
**Wells, C. J.** Hickory Valley phosphate deposit in Independence County, Ark., 8991*f*.
**Wells, E. H.,** and Wootton, T. P. Au mining and Au deposits in New Mexico, 4007*f*
**Wells, E. J., Jr.** See Bloom, E. G., Mohler, F. L.
**Wells, F. B.** Sulfurized jojoba oil, P 885*e*
**Wells, F. G.,** Hotz, P. E., and Cater, F. W., Jr. Preliminary description of the geology of the Kerby quadrangle, Oregon, 4984*h*
**Wells, F. V.** Modifications in soap boiling, 6435*c*.
**Wells, G. C.** Controlled humidity in long time preservation, 96*c*.
**Wells, J. A.,** and Rall, D. P. Influence of an adrenergic blocking drug, *N*-ethyl-*N*-(2-bromoethyl) - 1 - naphthylenemethylamine-HBr, on pyrogenic reaction, 3522*d*.
**Wells, J. E.,** and Hunter, D. P. Amyl acetate—a solvent for the sepn. of Fe in metallurgical analysis, 2541*d*.
**Wells, J. H.** See Wilson, P. J., Jr.
**Wells, L. E.** Storage-battery separator, P 2882*d*.
**Wells, L. E., Jr.** See Moss, H. V.
**Wells, L. J.** Production of adrenotropin by the fetal hypophysis, 295*d*.
**Wells, L. S.,** Clarke, W. F., and Levin, E. M. Expansive characteristics of hydrated limes and the development of an autoclave test for soundness, 1938*g*.
**Wells, R. A.** See Burstall, F. H.
**Wells, R. C.** Antimonial Ag ore from Cobalt, Ontario, 8982*c*.
**Wells, R. S.** See Anderson, James T.
**Wells, R. W.** See Barrett, W. L., Jr.; Bushland, R. C.; Carter, R. H.
**Wells, S. D.** Alk. pulping, 1183*f*, 6409*g*; papermaking fiber from straw, P 3198*e*; see Shallcross, R.
**Welsch, M.** Dosage microbiologique des vitamines (book), 3080*i*; bacteriolytic system of actinomycetes, 5079*a*, production of penicillinase by actinomycetes, 9163*d*; see Heusghem, C.
—— and Heusghem, C. Streptomyces which transforms estradiol into estrone, 4331*b*.
——, Nihoul, E., and Demelenne-Jaminon, G. Cytological study of the action of some antibacterial agents on *Escherichia coli*, 5444*h*.
**Welsh, C. E.** Polysiloxane resins, P 440*f*, see Ferguson, C. S
**Welsh, H. L.** See Crawford, M. F
——, Crawford, M. F., and Locke, J. L. Infrared absorption of H and $CO_2$ induced by intermol. forces, 8880*h*.
**Welsh, J. H.** Physiology of acetylcholine (IV) mode of action of acetylcholine, 4753*b*
—— and Taub, R. Action of choline and related compds on the heart of *Venus mercenaria*, 8058*e*
**Welsh, J. N.** Effects of municipal water treatment on boiler-water conditioning, 9306*b*
**Welsh, J. W.** Reducing boiler sludge with a silica equil (I) power generation (II), 4794*i*.
**Welsh, L. H.** Ephedrine, 7640*h*
**Welsnimer, H. J.,** and Robinow, C. F. Lysis of *Bacillus megatherium* by lysozyme, 6280*a*.
**Welte, H.** Tinctura Strophanthi—extn. of Strophanthus, 357*a*
**Welter, G.** Micro- and macro-deformation of metals and alloys under longitudinal impact loads, 1298*f*
**Welter, R.** See Prager, F. D
**Welter, S.** See Decristoforo, J
**Weltman, W. C.,** and Dixon, I. F. Catalyst for gelation of phenolic resins, P 2033*b*
**Welton, T. A.** Effects of the quantum-mech fluctuations of the electromagnetic field, 1653*a*.
**Welty, A. B., Jr.,** and Hobler, C. H. Activation of catalyst, P 2384*b*
**Welty, M.** See Skipper, H. E.
**Welvart, Z.** Hydrolysis of 2 cyano-1 methylcyclohexanol, 6172*b*, prepn of furfuryl ester of *p* aminocarbanilic acid, 6176*b*, furan isostere of 3 (1-piperidyl)-1,2 propanediol 1,2 - dicarbanilate (diothane), 6204*d*, see Tchoubar, B
**Wemple, E. L.** See Bradford, C. I
**Wendel, H.** Lethal poisoning with dichloroethane, 2705*a*.
**Wendel, L.** See Henriques, O. B
**Wendell, C. B.** See Schaeffer, W. D
**Wender, I.** See Feldman, J., Orchin, M
——, Friedel, R. A., and Orchin, M. Prepn of high-purity H deuteride from Li Al hydride, 4967*b*
**Wender, S. H.** See Howard, W. L.; Smith, S. C.
—— and Gage, T. B. Paper chromatography of flavonoid pigments, 6285*b*
**Wenderoth, H.** App. for the detn. of amino groups, 6869*b*.
**Wenderoth, Heinz.** Development of latent cases of trichinosis, 7122*g*
**Wenderoth, Hermann.** Development of the lacquer industry during the last decade, 4491*i*.
**Wendes, J. C. H.** Refrigeration requirements in the manuf. of cold rubber, 9515*c*.
**Wendland, G.** Total vitamin C detn., crit. evaluation of electrolytic methods, 3485*c*; influence of the cans on the vitamin C content of fruits and vegetables, 3944*i*.
**Wendland, R. T.,** and Smith, C. H. Dibenzofuransulfonic acid as a precipitant for Na and K, 5021*b*.
——, Smith, C. H., and Muraca, R. 2-Dibenzofuransulfonic acid (I) free acid and its alkali salts, 6203*g*.
**Wendler, N. L.** Application of the Delépine reaction to β-bromopropionic acid, 2943*e*.
—— and Reichstein, T. Bile acids and related substances (XLVI) 3(β),12(α)-dihydroxy-5-cholenic acid, 1790*c*
—— and Tishler, M. Displacement-chlorination of dimethylamino-2-propanol, 2935*d*.
**Wendon, G. W.** Properties of Al flake powder (III) nature and role of leafing, 8176*g*.
**Wendt, G.** See Kuhn, R.
**Wendt, H.** See Jander, G.
**Wendt, W.** Sb smelting, 78*d*; history of Sb and its compds., 320*a*; Hg production in Slovakia (C.S.R.), 8315*e*.
**Wendt, W. P.** See Vendt, V. P.
**Wendtner, K.** See Hoffert, W. H.
**Wene, G. P.** Control of turnip aphids, 5897*a*; see Blanchard, R. A.
**Wener, I. M.** See Vener, I. M.
**Wenger, P. E.** Works and conferences of the Congress of Utrecht, 7762*a*; see Monnier, D.; Rusconi, Y.
—— and Duckert, R. Reagents for Qual. Inorg Analysis (book), 522*g*.
——, Monnier, D., and Rusconi, Y. Manuel théorique et pratique d'analyses chimiques qualitative et volumétrique (book), 976*a*.
**Wenger, W. J.,** and Ball, J. S. Analytical distn of crude oils at high altitudes by the Bureau of Mines routine method, 8654*b*.
**Wengerd, S. A.** Fernvale and Viola limestones of Oklahoma, 2136*f*.
**Wengraf, G.** See Klima, R.
**Wenig, K.,** and Kubišta, V. Riboflavin in the luminous material of the earthworm, 4779*b*
**Weniger, C.,** and Herman, L. Spectra of van der Waals' mols. observed in compressed He, 2510*c*.
**Wenis, E.** See Solmssen, U. V.
**Wenk, J.** See Mudge, G. H.
**Wenkert, E.** See Youngken, H. W., Jr.
**Wenner, B. J.** See Brown, A. W. A.
**Wenner, H. A.** See Miller, Herbert C.
**Wenner, R. R.** Prediction of reaction equil., 3541*e*
**Wenner, W.** Carboxylated monosubstituted barbituric acid, P 1799*h*; oxidation of barbituric acid to alloxan, P 2227*c*, reaction of L-ascorbic and D-isoascorbic acid with nicotinic acid and its amide, 4230*b*, amino alcs., P 9080*g*; see Creighton, M.; Fox, H. H.; Platt, J. T.
**Wenninger, C. E.** The acid open-hearth process 7390*b*
**Wennström, M.** Waste water problems of the Swedish Sugar Corp., and proposals for purification of the waste water from Sabyholm [beet] sugar factory, 6446*c*.
**Wense, T.** Effect of adrenaline on the growth, 8467*f*
**Wenstrom, E.** See Venstrom, E. K.
**Went, F. W.** Phytohormones—structure and physiol activity (II), 6707*c*; see Kramer, M., Vacin, E. F.
—— and Hull, H. M. Effect of temp on translocation of carbohydrates in the tomato plant, 8020*g*
**Went, J. J.** Soft iron for the electromagnet of a cyclotron, 4199*i*
**Went, L. N.** Activation of yeast by aneurine, 9150*i*
**Went, N. B. van.** See Taverne, N. J. A
**Went, S.,** and Keszthyus, L. Synthesis, properties, and effect of a histamine antigen (histaminazobenzol-azoprotein), 9254*e*
**Wentink, T., Jr.** See Cohen, V. W.
Strandberg, M. W. P.
——, Strandberg, M. W. P., and Hilliger, R. E. Stark effect in the CO Se mol., 4095*e*.
**Wentrup, H.,** Fucke, H., and Reif, O. H. contents of liquid steels made by different processes, 8331*h*.
——, Maetz, H., and Heller, P. Reactions of $TiO_2$ contg lime-silicate slags with C contg Fe as basis for the smelting of Ti contg Fe ores, 5351*c*.
—— and Schrader, H. Primary crystn of plain and alloy steels, 6135*c*
**Wentworth, R. L.** See Broughton, D. B
**Wentz, W. M.** Vat-dyeing unwoven fibers P 2784*e*.
**Wentzel, G.** Photon self energy problem 1640*h*; strong-coupling meson theories, 5661*e*, polarization effects of vector mesons, 6905*b*, spin of the π-meson, 6907*f*.
**Wentzel, L. M.,** and Sterne, M. Double-surface dialyzing membrane, 8213*f*
**Wenusch, A.** Nicotine formation in the tobacco plant, 4345*f*; what hopes can be based on nicotine filters? 9383*a*.
**Wenzel, B. M.** Sensitivity in olfaction 2374*b*
**Wenzel, F. W.** Canning and by-product research at citrus expt. station, 1121*d*.
**Wenzel, M. E.** See Smith, N. R.
**Wenzel, R. N.** See Ford, J. G
**Wenzel, W.** Synol process—synthesis of aliphatic alcs., 994*e*.
**Wenzke, H. H.** Sepg. a gaseous mixt., P 879*h*
**Wepster, B. M.** Onderzoekingen over sterische beïnvloeding van Mesomerie (book), 2215*g*; structural formulas in org. chemistry, 7405*g*.
and Verkade, P. E. Steric effects of mesomerism (I) deacylation of aromatic acylamino compds. with a nitro group in the *o*- or *p*-position, (II) deacylation of

aromatic acylamino nitro compds.—deacylation of *o*-, *m*-, and *p*-nitroacetanilide, 2186*b*; (III) estn. of the direct influence of substituents on the rate of deacylation of *o*- and *p*-nitroacetanilide, (IV) steric effects on mesomerism in derivs. of *o*-nitroacetanilide, 5755*a*.
**Werber, F. X.** See Snyder, H. R.
**Werchowskaja, I. N.** See Verkhovskaya, I. N.
**Wereščagin, Werestschiagin.** See Vereshchagin, L. F.
**Werf, C. A. vander.** See Vander Werf, C. A.
**Werff, H. van der.** See Vander Werf, H.
**Werff, J. T. van der.** Biol Reactions Caused by Electronic Currents and by X-rays (book), 3483*e*.
**Wergeland, H.** See Ter Haar, D
**Werigo, K. N.** See Verigo, K. N
**Werker, W.** See Krusheer, C I.
**Werkman, C. H.** Heterotropic assimilation of $CO_2$, 3886*b*; see Ajl, S J
**Werkmeister, O.** Schleifen und Polieren der Metalle (book), 3768*b*.
**Werkspoor N.V.** Crystallizing sugar solns., P 3222*e*, crystallization, P 6013*b*, cleaning continuous crystallizers, P 6873*h*
**Werle, E.,** and Koch, W Amino acid decarboxylases and the mechanism of their action, 9106*i*
and Koebke, K Decompn of nicotine and nicotyrine by liver tissue, 6745*b*
— — and Pechmann, E v Diamine oxidase on plants and its adaptive formation by bacteria, 6706*c*
and Raub, A. Occurrence, formation, and destruction of biogenous amines in plants—histamine, 3070*a*.
, Turtur, F., and Baucreis, R Mucopolysucrase from bull testes, 9107*d*
**Vermel, E.** See Vermel, E M
**Verner, A. R** See Verner, A R.
**Verner, B** See Jorpes, J E
**Verner, E. G G** Glycidyl ethers (II) oxidation of aromatic allyl ethers with perbenzoic acid, (III) reactions of hydroquinone diglycidyl ether with water and with HCl, 2181*b*
and Barenhorst, E Glycidyl ethers (I) synthesis of diglycidyl ethers, 2180*b*, bisglycidyloxybenzenes, P 5421*h*
**Verner, F.** Sheets and articles from resins, P 4511*i*, bricks and plates from synthetic resins, P 4512*a*, inks for writing on sheets of chloroethylene polymers, P 4872*i*.
**Verner, G.** Streptomycin induced modifi bacte al cell str ctv studi with the electron microscope, 5824*d*, metabolism of strophanthin, 7131*h*; see Hohlinger, F
**Verner, G K.** See Monk, G. W.
**Verner, H.,** and Schmalfuss, H Do fats change, as in spoilage, during germination of seeds? 8457*d*
**Verner, H G.** See Smith, H S
**Verner, H. W.** See Snyder, F H, Thompson, C R, Warren, M R.
**Verner, J.** Ammation by reduction, 7759*b*
**Verner, K.** Uses of softeners in the manuf. of artificial leather, 6451*e*, manuf. and uses of synthetic leather, 8198*i*
**Verner, L. B.** See Cunningham, B B.
**Verner, O.** Elec equipment for excitation in spectrographic analyses, 1273*a*
**Verner, S. C.** Parenteral nutrition, 1845*c*.
— —, Quimby, E H., and Schmidt, C Diagnosis and treatment of thyroid disorders with radioactive I, 1484*d*.
**Vernet, J.** See Fischer, Werner
**Vernick, S.** Electrolytic Polishing and Bright Plating of Metals (book), 2102*b*; reduction of polishing costs, 6924*b*
**Vernimont, G.** Statistics applied to analysis, 2113*g*, design of expts. for developing new analytical methods, 4173*b*
**Vernlund, C. J.** Producing a catalytic article, P 6096*d*
**Verntz, J. H.** Condensation products of citric acid with long chain aliphatic monohydric alcs., P 6846*c*.
**Verquin, V.** Rational use of lime and $CO_2$, 1587*g*
**Vert, C. A.** Internal friction of Zn single crystals, 2482*i*
— — and Tyndall, E. P. T. Elasticity of Zn crystals, 6482*b*.
**Vertenberger, G. E.** See Hafkesbring, R
**Verth, A. van der.** Regeneration of old newsprint and other waste paper, 3994*h*; recovery of printed and other waste paper, 1187*a*; production of soaps from oxidation products of hydrocarbons, 3218*c*.
**Vertheim, E.** Introductory Org. Chemistry (book), 1049*c*.
**Vertheim, R. A. P.** See Grover, D. W.
**Vertheimer, E.,** and Shapiro, B Physiology of adipose tissue, 2690*c*.
**Vertman, M.** See Martin, H. E.
**Verts, C. F.** See Maffitt, D. L.
**Vertz, D. H.** See Furlong, R. R.
**Vertz, J. E.** See Reyerson, L. H.
**Vertzler, R.** See Kinder, J. F.
**Vëry, A.** Primary Au in the Paleozoic of southern Belgium, 7382*f*
**Vescoe, W. C.** See Riker, W. F., Jr.
— — and Green, R. E. Convulsant action of strychnine—lack of atropine antagonism, 314*f*
**Vescott, J. W., 2nd.** See Brockman, F G
**Vesco Waterpaints (Canada) Ltd.** Water-thinned paints, P 3214*d*
**Veser, D. K.** Math. evaluation of biol. tests, 7069*i*
**Veske, J. R.** Investigations of the flow in curved ducts at large Reynolds numbers, 4477*c*.
**Vesley, W. A.,** and Copson, H R Effect of non-condensable gases on corrosion of Ni in steam condensate, 4996*e*.
**Vesly, W.** Required phosphate quantities for after softening of boiler water, 5139*i*
**Vessanen's Koninklijke Fabrieken N.V.** Improving flour, P 5130*g*.
**Vessel, C.** Metal-casting mold, P 7892*d*.
**Vessel, G.** See Kopfermann, H; Paul, W.
**Vessel, P.** Fizyka (book), 8842*f*
**Vesselman, H. J.,** and Hilty, W W. Detn. of peptic activity, 3054*f*
**Vessely, F.,** Bauer, A, Chwala, C, Plachinger, L., and Schönbeck, R Substances related to synthetic estrogens (III), 6605*f*.
— —, Benedikt, K., and Benger, H. Aminosalicylic acids, 187*h*, 7925*d*, carboxylic acids of natural and synthetic estrogens, 9093*a*.
**Vesson, A. J.** See Olpin, H C.
— — and Olpin, H C. Fire-resistant org fibrous materials contg ethylenediamine dihydrobromide, P 4024*i*.
**Vesson, L. G, Jr.,** and Anslow, W. P., Jr. Excretion of Na and water during osmotic diuresis, 297*i*
— —, Cohn, W E., and Brues, A M Effect of temp on K equil in chick embryo muscle, 4751*f*
**West, C. C.** Alkyd resins, 2446*g*
**West, C. D.** Structure-optical studies (II) aq dispersion of polyvinyl borate I and its heat of formation, 4542*d*.
— — and Makas, A S Spectral dispersion of birefringence especially of birefringent plastic sheets, 8847*b*
**West, Clark D.** See Rapoport, S
— — and Rapoport, S Detn of mannitol and sorbitol in plasma and urine, 3870*c*, detn. of sucrose and sorbose in blood and urine, 3870*c*, urinary excretion of phosphate following injection of Na *p*-aminohippurate, 6734*b*
**West, C. H.** Soaking-pit furnace with plurality of burners located in the wall of the heating chamber, P 7402*e*.
**West, C. J.** U S. patents on papermaking, 2774*b*, 4466*a*, 7685*a*; Sizing of Paper (book), 3616*f*, utilization of sugar-cane bagasse for paper, board, plastics, and chemicals, 4852*e*
**West, E. G.** Corrosion resistance of Al, 3337*f*, Development of the Al Industry (book), 4623*b*; British achievements in Al, 6956*h*.
**West, E. S.** See Highet, D. M.
**West, G. B.** Injections of adrenaline and noradrenaline, and further studies on liver sympathin, 1868*b*, sympathin, 6716*g*, vasodepressor action of noradrenaline, 7590*c*, see García de Jalón, P. D.
—— and Whittet, T. D. Stability of adrenaline solns (V), 1150*g*
**West, H. D.** See Johnson, C. W.
**West, H. I., Jr.** See Pepinsky, R
**West, H. J.** Water-resistance materials from compns contg. methylcellulose, P 1980*b*, reaction product of a polymethylol melamine and an aromatic amine, P 9537*g*.
**West, H. L.** Synthetic lubricants and additives in Germany, 2417*a*; fluids for use in hydraulic mechanisms, P 9302*a*.
**West, J. P.** See Schmerling, L.; West, T. J.
**West, L. E.** Auxiliary boiler drains that speed up chem. cleaning, 2345*i*.
**West, N. N.** See Sundstrom, R. W.
**West, P. H.** See Collins, T. T., Jr.
**West, P.M.** Ineffectiveness of chymotrypsin therapy in malignancy, 6734*c*.
—— and Hilliard, J. Proteolytic enzyme inhibitors of human serum in health and disease, 6676*c*.
**West, P. W.** Introductory quant. analysis, 1618*i*; inorg microchemistry, 2113*h*, detn of Cl residuals in water, 2716*e*; reactions of *p*-fuchsin acid with $AuCl_3$ and $PdCl_2$, 7856*a*; see Feigl, F.
—— and Compere, M. Detn. of Cu in water, 6765*e*.
**West, R.** See London, I M; Reisner, E H., Jr.
**West, R. V., Jr.** See Griswold, J.
**West, T. F.** Action of newer synthetic insecticides, 806*i*, see Acheson, G. G.; Baer, E; Gillam, A E, Stafford Allen & Sons Ltd.
——, *et al.* Synthetic Perfumes (book), 6791*b*.
**West, T. J.** Reactivating an overheated Ag surface catalyst, P 9299*i*.
—— and West, J. P Ag-surface catalyst, P 4289*h*; reactivating a poisoned Ag surface catalyst, P 9299*g*.
**West, W. J.** See Watson, B. B.
**Westall, R. G.** See Partridge, S M.
**Westberg, N. K. G.** Intensive aeration of water, 5520*i*.
**Westbrook, E. L. E.** See Ward, A G
**Westbrook, J. A.** See Lafferty, R H, Jr.
**Westbury, D. C.** See Janser, O L.
**Westcott, C. H.,** and Hanna, G. C. Pulse-amplitude analyzer for nuclear research using pretreated pulses, 6076*e*.
**Weste, F.** Analysis for Cu in Duralumin, 8952*c*.
**Westerdorp, W. F.,** and Elder, F R. Electron gun emission and x-ray output for 3 betatrons, 8850*h*
**Wester, D. H.** Mensch, Scheikunde, Samenleving (book), 2084*c*
**Wester, R. E.,** and Weigel, C A. Effect of DDT insecticides on plant growth and yield of some bush Lima bean varieties, 4805*g*.
**Wester, S.** Injectabile sulfuris, 5903*g*
**Westerberg, C. S.** Mech. coal cleaning in Utah, 6391*a*
**Westerdijk, T.** Hydrodynamic theory of stationary flame cones, 5569*d*.
**Westerfeld, W. W.** AcH disappearance and acetoin formation, 5841*h*
— —, McKibbin, J M, Roemmelt, J. C, and Hilfinger, M F. AcH metabolism and liver changes in dogs maintained on a purified diet, 7100*c*
— and Richert, D A. Dietary factor related to xanthine oxidase, 3900*f*; xanthine oxidase activity of tissues, 8037*f*.
**Westerman, A.** See Grimshaw, R. W.
**Western, O. C.,** and Ozburn, E E. MeOH and $CH_2O$ in body tissues and fluids, 5468*g*.
**Westernbrink, H. G. K.** Biol. synthesis of polysaccharides and nucleotides, 1447*e*.
**Western Condensing Co.** Lacteal food products, P 1781*g*, whey food products, P 1781*h*, novel products from whey, P 4785*a*; enhancing yield of yeast from whey, P 4810*d*
**Western Electric Co., Inc.** N atm., P 104*f*, Pb coating ferrous articles, P 2155*b*; cooling tools for cutting sol. artificial $NH_4H_2PO_4$ crystals, P 2343*g*; resin melt, P 5228*i*; electrical conductor cable, P 5518*e*; insulated tinsel conductor, P 5518*f*, Si material, P 5556*g*; magnetic core, 5888*g*; compounding rosin, rosin oil, and polyisobutylene, P 7610*h*; conducting bearing, P 7895*g*.
**Western Electrochemical Co.** Electrolytic cell for producing perchlorates, P 7840*b*.
**Western Precipitation Corp.** Dust-collecting compns., P 3120*f*, 3120*g*.
**Western Union Telegraph Co.** Cable joint, P 4045*i*.
**Westerveld, W.** See Claussén, A.
**Westfall, B. A.** Effect of phenobarbital on O consumption of brain slices, 7139*d*; antagonism of pyruvic acid polymers to pentobarbital anesthesia, 9265*h*; see Hamilton, H. S.
**Westfall, B. B.** See Morris, H. P.
**Westfall, R. J.,** Bosshardt, D. K., and Barnes, R. H. Influence of crude trypsin inhibitor on utilization of hydrolyzed protein, 288*f*.
**Westgate, M. W.** Preservatives and mildewproofing agents—new members of the paint family, 2446*d*.
**Westgate, P. J.** See Wolfenbarger, D. O.
**Westheimer, F. H.** Quant. theory of steric

effects, 4627*g*; see Koshland, D., Jr.; Watanabe, W.
- and Nicolaides, N. Kinetics of the oxidation of 2-deuterio-2-propanol by chromic acid, 3272*g*.
**Westinghouse Electric Corp.** (*Patents.*) Application of phosphate protective coatings to nonferrous metals, 556*e*, brazing alloy, 6566*g*; carburizing furnace, 2566*g*; catalyst for gelation of phenolic resins, 2033*b*; cathode coating, 8290*f*; Cr plating, 5317*e*; coating magnetic sheets, 4402*d*; compn. bearing materials, 4518*f*; Cu oxide rectifier, 2525*g*, 4590*a*; elec. contact device, 6529*e*; elec. insulating material, 3544*a*, 8075*d*; electrolytic polishing process, 6525*i*; electroplating, 956*d*, 5680*h*; electroplating unit for continuously moving metal strip, 6926*a*; electrostatic gas-cleaning dust precipitator, 7760*e*; gas generator for steel-hardening furnaces, 7402*f*; high-strength, creep-resistant austenitic alloys at elevated temps., 7894*a*; insulated conductor, 2714*i*, insulating resins, 5998*a*, 9536*g*, isotropic polymers, 1607*g*; lubricants, 1777*i*, 1959*f*; Mo, 2152*a*; outgassing photocells contg. Sb, 1666*e*; phenol-HCHO resin, 5997*i*; phosphate coatings, 2922*d*, 3342*a*, 4209*f*, polyhydroxybenzene - HCHO resinous compns., 9525*c*, pore-free, cryst. Se films, 4153*d*; prepg. Cu alloys for painting, 3300*d*, process for varnishing employing strippable protective coatings, 8705*d*; protecting metal surfaces during soldering and brazing processes, 6566*e*; rectifier, 8290*i*; refractory alloys of Mo, W, and Cr, 6146*h*, resins and conductors insulated therewith, 3656*c*; resistance thermometer, 6014*b*; Se rectifier, 510*f*, 8920*d*, 8920*e*; stabilized org. silicon polymers, 5999*i*; synthetic resin and members produced therefrom, 3232*a*; thermoplastic wax material, 5232*g*; ultraviolet lamp, 5320*a*, urea-HCHO-alkyd insulating compn., 3216*f*; vapor trap for high vacuum systems, 4057*c*.
**Westinghouse Electric International Co.** Reduction of Mo compds., P 1666*a*, Th, P 1709*a*, 7838*e*, vapor elec.-discharge devices, P 2518*d*; reducing ammonium molybdate, P 2745*a*, reducing $MoO_3$ to Mo, P 5729*a*; dehydration of intermediate silicone polymers, P 5999*h*.
——— and Shepherd, G. R. App. for producing a gas or mixt. of gases suitable for use in the heat-treatment of metals, P 6811*f*
**Westlin, A.** See Samuelson, O.
**Westman, A.** See Borell, U.
**West-Meerbeek, I. B. de.** Same as Beeckmans, I
**Westmoreland-White, B.** Same as White, B. W.
**Weston, A. D.** Control of water-supply quality, 9308*f*.
**Weston, A. W.** α-[Phenyl(and phenylalkyl) aminomethylene]phenaceturates, P 1807*d*, see Hamlin, K. E.
**Weston, C. D.** See Dunbar, C.
**Weston, R. E.,** and Karel, L. Influence of denitrogenation on the response of anesthetized dogs to intravenously injected O, 6740*i*.
**Weston, R. F.** See Hall, W. A.; Hunter, J. B.
———, Merman, R. G., and DeMann, J. G. Industrial plant waste disposal survey, 8586*h*.
**Weston, R. S.** Control of corrosion, 4995*f*
**Weston, W. A. R. D.** See Dillon-Weston, W. A. R.
**Westöö, I. J.** See Jonevall-Westöö, I.
**Westover, D. E.** See Karlson, K. E.
**Westphal, O.** See Schmidt, Hans.
———, Maurer, K., and Schmidt, H. Chemoimmunol. properties of synthetic polyuronic acids (I) polyuronic acids from cellulose, 4338*g*.
**Westphal, U.** See Heerhaber, I
——— and Gedigk, P. Combined state of blood bilirubin, 8519*d*
**Westphal, W.** L'energie atomique (book), 7351*b*; Kleines Lehrbuch der Physik (book), 7808*g*.
**Wesphal, Wilhelm.** Evaluation of the Lower Harz metal refineries, 1696*e*.
**Westra, S. A.,** and Visser, J. F. Hypercalcemia in Besnier-Boeck's disease, 3091*f*
**Westrum, E. F., Jr.,** and Pitzer, K. S. Thermodynamics of the system $KHF_2$-KF-HF, including heat capacities and entropies of $KHF_2$ and KF—nature of the H bond in $KHF_2$, 8763*d*.
**Westveld, R. H.** Response of slash pine to various nutrients in Norfolk soils, 4408*h*.
**West Virginia Pulp & Paper Co.** Recovery of lignin from concd. black liquor, P 4466*f*.
**Westwood, M. A.** See Smith, Wilson.
**Wetherbee, R. T.** See Holmes, A. D.
**Wethern, J.** See Browning, B. L.
**Wethington, K.** See Selwood, P. W
**Wethly, F.** Coke-oven battery to coke coal of low volatile content, P 3598*i*.
**Wetmore, F. E. W.** See Suggitt R. M.
**Wetmore, R. H.** See Gunckel, J. E.
**Wetmore, R. T.,** and Dunphy, L. W. Groundwood for newsprint—effect of grinder operation on printing quality, 4462*i*.
**Wette, H.** Carbonate hardness required for protective coating formation from very soft waters and the calcn. of the required chem. addns. for forming such deposits, and the mode of action of the chemicals, 6765*i*.
**Wetter, L. R.** See Cohn, Melvin.
——— and McCalla, A. G. Electrophoretic properties of pea proteins, 7065*e*.
**Wetter, R. S.** See Schmidt-Wetter, R.
**Wetterau, W.** See Tullar, B. F.
**Wetterholm, A.** Frontal adsorption analysis as a quant. method, 5325*d*.
**Wetternik, L.** Metal pickling, 4149*c*; intercryst. corrosion in chrome-Mn steels, 7400*e*.
**Wettstein, A.** See Meystre, C.; Miescher, K.
——— and Benz, F. Chemistry of the hormones, 9205*f*.
——— and Meystre, C. Steroids (LXXXVI) simple degradation of the bile acid side chain (14) partial synthesis of $\Delta^{11}$-dehydrocorticosterone acetate, 6639*f*.
**Wetzel, N. C.** See Tanturi, C. A
**Wetzel, V.** See Wolinsky, E.
**Wever, F.** See Oelsen, W.
**Wexler.** See Veksler.
**Weychert, S.** Prepn. of high-grade Ca(OCl)$_2$, 9394*a*; see Zawadzki, J
**Weyden, A. J. vander.** See Vander Weyden, A. J
**Weyerhaeuser Timber Co.** Sepn. of bark fiber from comminuted bark, P 1188*a*; synthetic resin, P 3656*b*.
**Weyers, H. A.** See Kamer, J. H. van de.
**Weygand, C.** Chemischen Morphologie der Flussigkeiten und Kristalle (book), 6502*b*
**Weygand, F.** Application of stable and radioactive isotopes in biochemistry, 7524*d*, see Moller, E. F.
——— and Frank, I. Action of light on tetrazolium compds. (I), 5313*f*
———, Möller, E. F., and Wacker, A. Antagonists of folic acid, 3065*i*.
———, Wacker, A., and Schmied-Kowarzik, V. Condensation products of hydroxy ketones and amino ketones with 2,4,5-triamino-6-hydroxypyrimidine, 5104*b*.
——— and Wacker, K. Detn. of lactoflavin, 1452*g*.
**Weyl, W. A.** Surface properties of glasses as affected by heavy metal ions, 2386*e*, glasses on phosphate basis, 2747*a*, boric oxide—its chemistry and role in glass technology (VII), 2747*d*, fluorescence of at. Ag in glasses and crystals, 3294*h*, phosphate glasses, 6381*a*, see Forland, T.; Marboe, E. C., Roman, M. K.
——— and Marboe, E. C. Mechano-chem. properties of water, 3682*c*
and Williams, H. S. Glass, P 1934*f*.
**Weyland, H.,** Weyland, R., Kremer, K. W., Reinert, J., and Kocke, H. U. Influence of chem. substances on plants, 7553*b*.
**Weyland, R.** See Weyland, H.
**Weymouth, P. P.** See Nelson N.
**Whalen, J. J.** See Stamm, R. F
**Whalen, M. J.** See Jones, R. N.
**Whaley, A. M.** Fluorination process, P 6746*b*.
**Whaley, B. R.** See Lewis, W. K., Jr.
**Whaley, F. R.** See Harry, J. B.
**Whaley, T. H.** Agglomeration of C black, P 2803*d*.
**Whaling, W.,** and Evans, J. E. Sepn. of Li isotopes, 4093*f*.
———, Evans, J. E., and Bonner, T. W. Neutrons from deuteron bombardment of $Li^6$, 4114*b*.
**Whalley, H. C. S. de.** See De Whalley, H. C. S.
**Whalley, H. K.** See Davies, W.
**Whalley, M.** See Tucker, S. H.
**Whalley, R.** See Clayton Aniline Co. Ltd.
**Whalley, T. G.** Bagacillo in rotary filtration, 9503*g*; see Bick, I. R. C.
**Whalley, W. B.** Synthesis of *N,N'*-diarylformamidines, 170*b*; org. F compd., P 2217*i*; see Bacon, R. G. R.; Brown, Joseph H.; Cartwright, N. J.; Imperial Chemical Industries Ltd.; Jones, G. H.
**Wharton, D. R. A.** See Creech, H. J.
——— and Creech, H. J. Immunological properties of polysaccharides from *Serratia marcescens* (*Bacillus prodigiosus*) (II) antigenic action and the antibody response in mice, 7574*i*.
**Wharton, F. W.** See King, R. R.
**Whately, W. R.** Water-dispersible $TiO_2$, P 4028*h*, 9482*h*.
**Whatley, F. R.** See Arnon, D. I.
**Wheat, F. M.,** and Fitzpatrick, E. T. Biology (book), 9125*i*.
**Wheat, J. A.** See Blackwood, A. C.
———, Leslie, J. D., Tomkins, R. V., Mitton, H. E., Scott, D. S., and Ledingham, G. A. 2,3-Butanediol (XXVIII) pilot-plant recovery of *levo*-2,3-butanediol from wholewheat mashes fermented by *Aerobacillus polymyxa*, 3561*b*.
**Wheatley, E. W.** See Fisher, J. W.
**Wheatley, J.** See Halliday, D.
——— and Halliday, D. Paramagnetic absorption in single crystals of Cu sulfate pentahydrate, 5244*c*
**Wheatley, M.** See Lauffer, M. A.
**Wheatley, P. J.** See Linnett, J. W.
**Wheatley, V. R.** Improved diacetyl reaction for the estn. of urea in blood, 4321, see Henderson, J.
**Wheatley, W. B.,** Cheney, L. C., and Blinkley, S. B. 2-Dimethylaminoethyl ethers of substituted 2-benzylphenols, 2969*d*.
**Wheaton, G. S.** Western balance—insecticides, 8577*c*.
**Wheeler, A.** See Beeck, O.
**Wheeler, A. H.,** McDermott, E., Adler, J., and Kahn, R. L. Serology of malaria (II) hemoglobin pptn. with lipide antigen, 1855*c*.
**Wheeler, D., Jr.** See Potapenko, G
**Wheeler, D. H.** Dimers of methyl sorbate, 589*g*, progress in the protective coatings and plastics industries, 2787*h*; tall oil 5970*f*, see Cowan, J. C.; Paschke, R. F., Terry, D. E
**Wheeler, E.** See Everson, G.
**Wheeler, E. O.** See Brown, R.
**Wheeler, G. B., Jr.** Chem. engineering developments in the paint industry—investigation of the mech. action in a steel ball mill, 3627*g*.
**Wheeler, J. A.** Meson-induced fission 1095*g*, electromagnetic interaction between $\mu^-$-mesons and nuclei, 7320*i*, see Jaswon, M. A., Tiomno, J
**Wheeler, J. E.,** Lukens, F. D. W., and Gyorgy, P. Localization of tagged methionine within the pancreas, 3905*a*
**Wheeler, K. W.,** Tilford, C. H., Van Campen, M. G., Jr., and Shelton, R. S. Quinaldine and 3-methylquinoline derivs., 4276*i*
**Wheeler, L. M.** See Banks, C. K
**Wheeler, M. A.** See Hall, H. C.
**Wheeler, N. C.** See Fowell, D. M.; Remington, J. W.
**Wheeler, P.,** and Goetzl, F. R. Quant. changes in plasma fatty acids of allergic and nonallergic individuals following single and repeated administration of soybean oil, 5107*e*.
**Wheeler, P. M.** See Shimkin, M. B.
**Wheeler, R. S.** See Hoffmann, E.; Huston, T. M.
——— and Hoffmann, E. Value of thyroprotein in starting, growing, and laying rations (II) growing period, 12–24 weeks of age, 285*i*; goiterous chicks from thyroprotein-fed hens, 8036*e*; influence of quant. thyroprotein treatment of hens on length of incubation period and thyroid size of chicks, 8054*i*.
**Wheeler, R. W.,** Downs, D., and Walsh, A. D. Knock in internal-combustion engines, 2411*b*.
**Wheeler, T. S.** Aspect of the Claisen condensation, 4525*i*; see Belton, J. G., Doyle, B. G.
**Wheeler, W. R.** Removing stresses from calendered thermoplastic sheeting, P 901*h*; see Cislak, F. E.
**Wheelock, C. E.** Reaction-sampling device, 4904*h*.
**Whelan, W. J.** See Bourne, E. J.
**Whelan, W. P., Jr.,** Galkowski, T. T., and Van Hook, A. Kinetics of sucrose cryst. (VII) real massecuites, 5613*g*.
**Wheland, G. W.** Advanced Org. Chemistry

(book), 7496*e*; see Parr, J. D.; Goldsmith, M.
—— and Mann, D. E. Dipole moments of fulvene and azulene, 5246*c*.
—— and Schwartz, J. R. Cross products in benzidine rearrangement, 7927*b*.
**Whetsel, K. B.** See Melaven, A. D.
**Whetstone, J.** Granular explosives, P 2776*d*; prepn. of large pentaerythritol crystals, 5740*i*; anticaking treatment for $NH_4$ nitrate, 8107*d*; see Taylor, J.
—— and Taylor, J. Power- and gas-producing liquids, P 1552*a*.
**Whetstone, R. R.** Catalytic polymerization of allyl esters, P 8742*d*.
**Whettem, S. M. A.** Detn. of small amts. of hydroquinone in styrene, 6113*e*.
**Whewell, C. S.** Some defects arising in the finishing of woolen and worsted fabrics, 2779*g*; protein fibers, 4788*e*; see Stevens, C. B.
——, Charlesworth, A., and Kitchin, R. L. Cloth finishing, 8685*h*.
—— and Crawford, J. B. Factors influencing the raising of wool fabrics, 5956*c*.
**Whiddington, R.** See Cross, L. E.
**Whiffen, A. J.** Production, assay, and antibiotic activity of actidione, an antibiotic from *Streptomyces griseus*, 271*h*.
**Whiffen, D. H.** See Thompson, H. W.
—— and Thompson, H. W. Infrared analysis of stereoisomers of $C_2H_2Cl_2$, 2124*h*; measurements on the absorption of microwaves (I), (II), 6018*g*.
**Whinfield, J. R.** Chemistry of terylene, 5380*e*; see Cook, J. G.
—— and Bertwistle, W. K. Rubberlike substances, P 7257*h*.
—— and Dickson, J. T. Polymeric linear terephthalic esters, P 4896*g*.
**Whipple, F. L.,** and Gossner, J. L. Upper limit to the electron d. near the earth's orbit, 7334*f*.
**Whipple, G. H.** See Robscheit-Robbins, F. S.
**Whisnant, J.** See Breazeale, F.
**Whistler, R. L.** See Smart, C. L.
——, Bachrach, J., and Bowman, D. R. Prepn. and properties of corn cob holocellulose, 4009*g*.
——, Hevne, E., and Bachrach, J. Aldehydo D-galactose heptaacetate and aldehydo D-xylose hexaacetate from acetolysis of guaran and xylan, 5009*d*.
—— and Johnson, C. Effect of acid hydrolysis on the retrogradation of amylose, 2455*d*.
——, Li, T. K., and Dvonch, W. Branched structure of guaran, 580*i*.
**Whitacre, J.,** Fraps, G. S., and Varnell, S. H. Comparison of some nutrients and yield of turnip greens, 4783*h*.
**Whitaker, Alvin C.** See Hervey, I. R. B.
**Whitaker, Arthur C.** See Hass, H. B.
**Whitaker, J. S.** See Skow, N. A.
**Whitaker, M. E.,** Voce, E., and Bailey, A. R. Intercryst failure of brasses and Al brasses in air, $NH_3$, and certain aq. solns. and molten metals, 2149*b*.
**Whitaker, W. O.,** and Imperial Chemical Industries Ltd. Pest-control compns., P 3970*b*.
**Whitby, F. J.** See Bawn, C. E. H.
**Whitby, L.** Mg alloy protection by selenious acid dichromate solns., 4206*f*; see High Duty Alloys Ltd., Jordan, L. A.
**Whitcher, C. W.,** and Griffith, F. R., Jr. Possible role of the skin in the effect of adrenaline on body temp. and respiratory metabolism, 5480*i*.
**Whitcomb, G. P.** See Kienle, R. H.
**Whitcomb, K. R.** Ni-Mn-Ag brazing alloy, P 5000*g*.
**White, A.** Lymphatic system, 5850*b*; growth of lymphoid tissue, 8483*b*; see Roberts, Sidney; Szego, C. M.
—— and Dougherty, T. F. Adrenal cortex and the thyroid in the mobilization of N from the tissues in fasting, 8031*g*.
**White, A. E.** See Fitzgerald, R. C.
**White, A. G.,** *et al.* Petroleum and petroleum products, 2127*f*.
**White, Abraham G.** Effect of tyrosine, tryptophan, and thiouracil on melanuria, 7143*f*.
**White, Alan G.** See Distillers Co., Ltd.
**White, Addison H.** Application of thermodynamics to chem. problems involving the oxon cathode, 8838*c*; see Hannay, N. B.
**White, Alfred H.** Engineering Materials (book), 789*b*.
**White, A. R.** Chem. treatment for debarking of live trees, 2767*d*.
**White, B. B.** See Seymour, G. W.
**White, B. H.,** and Goddard, V. R. Green chili peppers as a source of ascorbic acid in the Mexican diet, 1121*g*.
**White, B. J.** See Hill, T. J.
**White, B. W.** Hard compns. for use in tools, P 6144*c*.
**White, C. E.** Fluorometric analysis, 2113*g*.
**White, C. M.** Hydraulic pressure transmitting fluid, P 6340*i*; flushing fluid for hydraulic brake systems, P 6341*a*.
**White, C. W.** See Ewing, C. O.
**White, D. E.** Sb deposits of Soyatal District State of Queretaro, Mex., 4982*b*; see Gascoigne, R. M.; Trikojus, V. M.
**White, D. G.** See Pagán, C.
—— and Mangual, J. C. Weed control—2,4-D killed only basal bulbs of nutgrass—thirteen applications of herbicides failed to eradicate nutgrass—2,4-D increased herbicidal action of Concentrate 40—waterfern peat killed with fortified oil emulsion, 3967*a*.
**White, D. J.** Radioactive ores the prospector should know, 7872*f*.
**White, D. L.,** and Reichardt, F. E. Colorimetric test for detg. mercaptan odorants in natural gas, 5924*c*.
**White, D. M.** Al, 6551*a*.
**White, E.** See Brown, John W.
**White, E. R.,** and Harman, D. Synthetic grease, P 3606*d*.
**White, E. T.,** and Robinson, R. C. Rust-inhibiting greases, P 1177*e*.
**White, F. S.** Calcining lime-bearing sludge, P 6378*d*.
**White, F. W.,** and Story, E. B. Desulfurizing molten ferrous metal, P 2566*h*.
**White, G. K.** See Carver, J. H.
**White, G. S. J.** Textile contributions by the org. chem. industry, 7689*i*.
**White, H. C.** See Britton, E. C.; Marshall, D. F.
**White, H. G.** See Smith, Walter F.
**White, H. J.,** Alverson, C. M., Baker, M. J., and Jackson, E. R. Comparative biol. studies of polymyxin and aerosporin, 8145*c*.
**White, H. J., Jr.,** and Stam, P. B. Adsorption and swelling isotherms of human hair in water vapor, 4305*d*.
**White, H. K.,** and Ford, O. W. Detg. the nitrate N in nitrate-chloride mixts., 7374*a*.
**White, H. L.,** Heimbecker, P., and Rolf, D. Depression of renal function following hypophysectomy, 5480*g*, enhancing effects of growth hormone on renal function, 7116*c*.
**White, H. S.** See McKee, S. A.
**White, I. U.** See Quimby, F. H.
**White, J.** Thermodynamics of substances of interest in Fe and steel making from 0° to 2400° (I) oxides, 9006*h*; see Ford, W. F.; Murray, P.; Vassiliou, B.
**White, John.** Yeast production (I) historical—physiology and nutrition, (II) yeast growth, 9361*c*.
**White, Julius.** See Berenbom, M.
**White, John C.** Local corrosion ruins boiler in one yr.'s. operation, 6141*i*.
**White, John Cowles.** Nephrosis occurring during trimethadione therapy, 3935*d*.
**White, J. E., Jr.** Crude-oil metering, 3177*e*.
**White, J. G.** Crystal structure of 1,12 benzoperylene—quant. x-ray investigation, 2839*e*.
**White, J. H.** Corrosion control by threshold treatment, 4795*e*; see Reiss, M.
**White, J. I.** See Allison, J. B.
**White, J. L.,** Fried, M., and Ohlrogge, A. J. Utilization of P in green manure crops by the succeeding crop, using radioactive P, 6774*d*.
**White, J. O.** Acetylene tetramethacrylate and polymers thereof, P 2034*f*; esters, P 9078*h*; see Bren, B. C.
**White, J. R.,** and Buck, J. H. Discrepancies between physically and chemically detd. at. wts. for the elements between $_{47}$Ag and $_{53}$I, 5239*h*.
—— and Cameron, A. E. Natural abundance of isotopes of stable elements, 1649*b*.
**White, J. U.** See Moore, Dan H.
**White, J. W.** See Couch, J. F.
——, Holben, F. J., Jeffries, C. D., and Richer, A. C. Correlation of microbiol. and chem. soil data with crop yields of the Jordan soil fertility plots, 9322*g*.
**White, J. W., Jr.** Chromatographic sepn. of aliphatic 2,4-dinitrophenylhydrazones, 1289*d*.
—— and Dryden, E. C. Sepn. of aliphatic alcs. by chromatographic adsorption of their 3,5-dinitrobenzoates, 67*h*.
—— and Ratchford, W. P. Optically active 2-methylbutyl 3,5-dinitrobenzoate, 3776*f*.
**White, L., Jr.** See Bryan, C. E.
**White, L. M.** Effects of polymerization temp. on tire-tread quality, 8726*a*.
**White, Lawrence M.** See Bickoff, E. M.
——, Secor, G. E., and Long, M. D. C. Detn. of the N content of proteins and amino acids contg. refractory N by micro and macro Kjeldahl methods, 7540*d*.
**White, M. F.,** and Brown, J. B. Isolation of methyl arachidonate by chromatographic adsorption—occurrence of eicosapentenoic acid in adrenal lipoids, 2260*e*; hexabromide no. and hexabromide yield of pure linolenic acid with a suggested interpolation method for its estn., 3635*d*; estg. linoleic acid in fatty acid mixts., 7721*h*.
——, Orians, B. M., and Brown, J. B. Application of the polybromide yield in the estn. of methyl arachidonate in Me ester mixts., 2791*g*.
**White, M. G.** See Sherr, R.
**White, M. R.** Effects of hormones on embryonic sex differentiation in the golden hamster (II) estrogenic effects in treated males—androgenic and estrogenic effects in treated females, 5478*e*.
**White, P. B.** International standard and unit for penicillin (VIIIf), 3569*d*.
**White, P. C.** Recovery of oxygenated products from hydrocarbon synthesis, P 8650*h*.
**White, P. R.** Nitrate and phosphate *vs.* L-proline as factors in the behavior of *Ulva*, 1835*g*.
**White, R. B.** Molding polyester-glass fiber laminate, 2029*g*.
**White, R. F.** Characteristics for some alloy magnets for geomagnetic instruments, 541*h*.
**White, R. R.** See Resnick, W.; Vogt, E. G.
**White, R. V.,** and Coonradt, H. L. Rubberlike polymer, P 8194*i*.
**White, R. W.** Varnishing employing strippable protective coatings, P 8705*d*.
**White, S. S.** See Smith-White, S.
**White, T.** Soly. and other studies on quebracho tannin ext., 3640*i*.
**White, T., Jr.** Experience at Bagnell Dam to prevent corrosion of underwater steel and Fe, 1305*d*.
**White, T. A.** Ammonium salts in animal glue jellies, P 6453*i*.
**White, W. A.** Balanced treatment of papermaking fibers, 8680*e*.
**White, W. C.** Leak detector, 7271*b*.
**White, W. H.,** and Elsea, A. R. High-Si cast Fe for high-temp service, 535*h*.
**White, W. N.** See Weissenborn, A. E.
**Whitecotton, W. M.** See Nelson, C. A.
**Whitehair, C. K.,** Gallup, W. D., Bell, M. C., and Briggs, H. M. Efficiency of urea in supplementing corn and dried sweet potatoes, 6712*a*.
——, Gallup, W. D., and Ross, O. B. Nutritional deficiencies in eastern Oklahoma, 6711*i*.
——, Grummer, R. H., Spitzer, R. R., Bohstedt, G., and Phillips, P. H. Tryptophan in digestive disturbances in swine, 1466*f*.
——, Schaefer, A. E., and Elvehjem, C. A. Nutritional deficiencies in mink with special reference to hemorrhagic gastroenteritis, "yellow fat," and anemia, 8022*c*.
**Whitehead, C. W.** See Behrens, O. K.; Corse, J.; Soper, Q. F.
**Whitehead, E.** Application of automatic control to open-hearth furnaces, 8324*c*.
**Whitehead, E. D. F.** Water-insol. oxychloride cement, P 3166*f*.
**Whitehead, J. K.** See Bentley, H. R.
**Whitehead, J. R.** See Greenhill, E. B.
**Whitehead, M. D.,** and Dickson, J. G. Influence of germination temps. on seedling development of helminthosporium blights of oats, 1892*i*.
**Whitehead, M. H.** Town gas dehydration, 4831*f*.
**Whitehead, R. C.** Shustoke reservoir—biology and algal control, 1885*b*.
**Whitehead, R. L. St.D.** See King, F. E.
**Whitehead, T.** See Boyle, A. J.
**Whitehead, W.** Ribbon for typewriter, etc., P 5607*h*.
**Whitehead, W. D., Jr.** See Heydenburg, N. P.
**Whitehead Brothers Co.** Mold compn., P 5888*d*.
**Whitehead-Craft Corp.** Water-insol. oxychloride cement, P 3166*f*.
**Whitehill, L. N.** See Barker, R. S.; Shokal, E. C.

—— and Shokal, E. C. Polymerization of esters of unsatd. alcs., P 443*f*.
**Whitehouse, A. A. K.** Polycondensation products, 4780*b*.
**White Laboratories, Inc.** *N,N*-Dimethyl-*N'*-benzyl-*N'*-2-thiazolylethylenediamine, P 1914*c*.
**Whiteley, J. H.** Identifying Mn inclusions in steel, 3311*g*.
**Whiteley, M. A.** See Thorpe, J. F.
**Whiteman, T. M.** Na α-naphthylacetate tests on life of cut flowers, 5092*b*; see Wright, R. C.
**Whiteside, C. N.** See Cason, J.
**Whiteside, E. P.** Preliminary x-ray studies of loess deposits in Ill., 2720*f*; see Muckenhirn, R. J.
**Whiteside, R. S.**, and Allen, C. H. Benzoyl peroxide bleaching compn., P 2710*c*.
**Whiteside-Carlson, V.** See Carlson, W. W.
—— and Carlson, W. W. Vitamin requirements of *Leuconostoc* for dextran synthesis, 8438*g*; effect of *p*-aminobenzoic acid and sulfanilamide on dextran synthesis by *Leuconostoc*, 8438*i*.
**Whiteway, S. G.** See Goffin, C. C.
**Whitewell, J. C.** See Kreible, J. G.
**Whitfield, M. G.**, and Sheshunoff, V. Al coatings on Cu-base alloys, P 1710*g*, coating Fe with Al, P 2151*e*.
**Whitfield, R.** See Stannett, V.
**Whitford, R. F.** Mo in a whiteware body, 6801*f*, 7655*g*.
**Whiting, A. G.** See Murray, M. A.
**Whiting, E. J.** See Avallone, S. C.
**Whiting, F.** See Krukovsky, V. N.
—— and Loosli, J. K. Placental and mammary transfer of tocopherols in sheep, goats, and swine, 1847*i*.
——, Loosli, J. K., Krukovsky, V. N., and Turk, K. L. Influence of tocopherols and codliver oil on milk and fat production, 3896*e*.
——, Loosli, J. K., and Willman, J. P. Influence of tocopherols on the mammary and placental transfer of vitamin A in sheep, goats, and swine, 3496*g*.
**Whiting, G. H.** Some physiochem. properties of *cis*-(2-chlorovinyl)dichloroarsine, 916*i*.
**Whiting, L. R.** Modified drying oil compns., P 9484*d*.
**Whiting, S. H.** See Beardsley, A. P.
**Whiting Corp.** Tiltable sludge dewatering tank for dust collectors, P 3250*f*, refractory lining compn., P 3988*d*.
**Whitley, J. R.** See O'Dell, B. L.
**Whitley, R. R.** Fractionating tower, P 6010*e*.
**Whitman, D. W.**, and Tracy, P. H. Alkalinity of dry buttermilk, 3943*c*.
**Whitman, G. M.** Alkylation of cyclic unsatd. hydrocarbons using alkali metal catalyst, P 1057*f*, catalytic production of carbonyl compds., P 4287*b*; cyclohexene, P 5418*f*; see Du Pont de Nemours, E. I., & Co.
—— and Scott, S. L. Polymerization of $C_2H_4$, P 6001*a*.
**Whitman, M. J.**, and Repko, A. J. Oxidation of TiC-base ceramals contg. Mo, W, and Co, 8628*a*.
**Whitman, N.** See Detrick, S. R.
**Whitmer, C. A.**, Weidner, R. T., Hsiang, J. S., and Weiss, P. R. Magnetic resonance absorption in the chrome alums, 916*g*.
**Whitmore, F. C.** See DiGiorgio, P. A., Dixon, J. A.; Gold, J. R.; Moersch, George W.; Rytina, A. W.; Sommer, L. H., Stehman, C. J., Tyler, L. J.
**Whitmore, F. E.** Measurement of radioisotopes, 2861*h*; see Llewellyn, F. J.
**Whitmore, L. M.**, Downing, G. V., and Sherrard, S. S. Deterioration of leather insoles, 4041*h*.
**Whitmore, W. F.**, and Krems, I. J. Prepn. and properties of aliphatic esters of erythrol, 7419*e*.
**Whitnack, G. C.**, and Holford, C. J. Detn. of water in $N_2O_4$, 6943*f*.
**Whitney, J. E.**, Bennett, L. L., Li, C. H., and Evans, H. M. Effect of hypophyseal growth hormone on urinary N excretion, 740*e*; effect of growth hormone on N excretion and body wt. of adult female rats, 8487*b*.
**Whitney, R.** See Freeman, M. E.
**Whitney, R. M.** See Hetrick, J. H.
**Whitney, R. P.**, and Vivina, J. E. Absorption of $SO_2$ in water, 4965*a*.
**Whitney, R. S.**, and Robertson, D. W., and Gardner, R. Sugar-beet fertilizer expts. on recently leveled land, 5142*i*.
**Whitney, W. T.**, and Hollingsworth, C. A. Production of defluorinated phosphate rock—calcining without fusion in rotary kilns, 7174*h*.
**Whiton, L. V.** See McNaughton, R. R.
**Whitson, M. T. B.** $O_3$ in the purification of water, 2715*g*.
**Whitt, F. R.** Action of metals on benzalde hyde, 4238*h*.
**Whittaker, A.** See Batchelor, R.
**Whittaker, A. G.**, and Yost, D. M. Magnetic susceptibility, f.-p. diagram, d., and spectral absorption of the system $VCl_4$-$CCl_4$, 4528*i*, prepn. and properties of V nitrosyl chlorides, 8933*i*.
**Whittaker, C. W.** See Hill, W. L., Jacob, K. D.
**Whittaker, E. C.** See Bowman, F. T.
**Whittaker, E. J. W.** Evaluation of Fourier transforms by a Fourier synthesis method, 918*b*.
**Whittaker, V. P.** See Adams, D. H.
—— and Adams, D. H. Detg. the ratio of the Michaelis consts. of an enzyme with respect to 2 substrates, 9118*g*.
**Whittem, R. N.** See Le Fèvre, R. J. W.
**Whittemore, O. J., Jr.** Pure oxide heavy refractories, 830*b*, 1164*a*, 3584*f*, see Keith, W. P.
**Whittemore, W. L.**, and Street, J. C. AgCl used as an ionization detector for cosmic rays, 4093*f*.
**Whitten, W. K.** Inactivation of gonadotropins, 5060*d*, (I) inactivation of serum gonadotropin by influenza virus and receptor-destroying enzyme of *Vibrio cholerae*, 1102*a*, (II) inactivation of pituitary and chorionic gonadotropins by influenza virus and receptor destroying enzyme, 5471*i*.
**Whittenberger, J. L.** See Silverman, Leslie.
**Whittenberger, R. T.**, and Nutting, G. C. Effect of phytohormones on potato growth and the size of the starch granules, 1734*h*.
**Whittet, T. D.** Stability of $NH_4HCO_3$, 4812*d*, see West, G. B.
**Whittingham, D. J.**, and Garmaise, D. L. Relative reactivities of the geometrical isomers of $C_6H_3Cl_3$, 7311*a*.
**Whittingham, G.** Influence of silica smokes on the dewpoint of combustion gases contg. S oxides, 2103*h*.
**Whittington, R. B.** See Harkness, J.
**Whitton, W. I.** Oxide films formed on pure Fe in cond. HCl, 6931*e*.
**Whitwell, J. C.** See Krieble, J. G., Toner, R. K.
**Whitworth, E.** See Gordon, Stuart.
—— and Hornel, J. C. Stabilized blasting-explosive compn., P 5594*d*.
**Whitworth, J. M.** Electrodes for arc welding, 6561*d*.
**W. H. & L. D. Betz.** See Betz, W. H. & L. D.
**Whorlow, R. W.** Rubber research (I) development of plasticity tests, 3643*g*, efficiency of the Defo plastometer, 7256*e*.
**Whynes, A. L.** See Partington, J. R.
**Whyte, L. L.** Unitary Principle in Physics and Biology (book), 7808*h*.
**Whyte, M.** See Champion, F. A.
**Whytlaw, G. G.** Drying wound packages, P 2444*b*.
**Whytlaw-Gray, R.** See Casado, F. L.
—— and Teich, N. Hg meniscus in precision measurements on gases, 3677*a*.
**Wiame, J. M.** Occurrence and physiol. behavior of 2 metaphosphate fractions in yeast, 7078*d*; see Doudoroff, M.
**Wiant, J. S.** See Barger, W. R.
**Wibaut, J. P.** See Sixma, F. L. J.
—— and Boer, H. Pyridine and quinoline derivs. (LXXVI) electrolytic reduction of pyridinemonocarboxylic acids to methylpyridines, 4266*f*.
——, Sixma, F. L. J., Suyver, J. F., and Nijland, L. M. Influence of temps. and catalysts on the bromination of naphthalene—the α-bromonaphthalene *vs.* β-bromonaphthalene equil., 2851*g*.
—— and Vromen, S. Pyrimidine derivs., (LXXIII) prepn. of 3-methyl-4-alkylpyridines from 3-methylpyridine, 1775*b*, 5399*h*.
**Wiberg, E.** H compds., 2105*i*.
—— and Hertwig, K. Inorg. benzene, $B_3N_3H_6$ (II) prepn. and properties of hexamethylborazole, 3301*h*; (IV) stability of *N*-phenylated borazole, 5690*d*.
——, Hertwig, K., and Bolz, A. Inorg. benzene, $B_3N_3H_6$ (III) 2 symmetrical trimethylborazoles, 5690*a*.
**Wiberley, J. S.**, and Rather, J. B., Jr. Detn. of oil in petroleum waxes, 1954*b*.
**Wiberley, S. E.**, and Bassett, L. G. Colorimetric detn. of Al in steel—use of 8-hydroxyquinoline, 5328*d*.
**Wichnewskij, A. K.** See Vishnevskii, A. K.
**Wichnjakow, A. P.** See Vishnyakov, A. P.
**Wichterle, O.** Organická chemie (book), 4681*g*.
**Wick, A. N.** See Bartlett, G. R.
——, Ackerman, N., and MacKay, E. M. Effect of 11-desoxycorticosterone acetate on carbohydrate utilization by the depancreatectomized rat, 8495*c*.
—— and Laurence, E. Choline—cause of lipocaic lipotropic action on fatty rat livers, 6307*b*.
**Wick, G.** See Bernardini, G.
**Wick, G. C.** Space distribution of slow neutrons, 4105*i*.
**Wick, H.** Action on the circulation of some compds. related to adrenaline, 7137*e*.
**Wick, L. B.** Reactions of 2 arylcyclohexanones, 5010*f*.
**Wicke, E.** Dissocn. energy of a single atom from the mol. compd. for the case of $CH_4$, 1250*a*; H-exchange catalysis by oxygenic contact, 6197*e*, heat of formation of chloromonofluoride, 6500*e*, see Schäfer, K.
— and Brötz, W. Diffusion, fluid flow, and reaction velocity in the interior of porous catalyst bodies, 7313*i*.
**Wickenden, L.** Activated C products, P 890*c*, filtration of sugar sirups, P 6850*d*, filter for sugar sirups, P 6850*b*.
**Wicker, D. B.**, and Coe, E. L. Spinning artificial filaments, P 5593*b*.
**Wickerham, L. J.**, and Burton, K. A. C assimilation tests for the classification of yeasts, 718*e*.
**Wickert, K.** Effect of pickling acid, 91*e*, effect of inhibitors in pickling, 2917*b*.
—— and Kroll, J. Absorption of mol. O on $Fe(OH)_3$ in water, 81*b*.
—— and Pilz, H. Electrolytic soln. of Fe in HCl, 6519*a*.
**Wicki, H.** See Grob, C. A.
**Wickman, A. C.** Sintered abrasive body, P 8634*c*.
**Wickman, A. C., Ltd.** Sintered abrasive body, P 8631*c*.
**Wickman, F. E.** Mineral notes of the late K. Johansson (I) ankerite and siderite from the Bleka mines, Telemarken, Norway, (II) analyses of minerals from Kaveltorp, (III) galenobismutite and weibullite, 6513*f*.
**Wicks, W. A.** See Strumia, M. M.
**Wicksell, F.** Estg. the histaminolytic activity of plasma in pregnancy, 6689*c*, histamine and histaminolysis in pregnancy, 7109*b*, histamine sensitivity of smooth muscles in pregnant guinea pigs, 8501*b*, see Carlsten, A.
**Wickström, A.** See Fleury, P.
**Wickstrom, H. W.** There's a right regulator for every job, 3600*f*.
**Wictorin, C. G.** Two-phase boundary of the Au-Pt system, 2853*f*.
**Wiczer, S. B.** Metallic coatings, P 3772*a*.
**Widaly.** Compn. of washing powders, 5970*b*; compn. of softening agents, 5977*a*; cellulose products, their production and use, 6408*d*.
**Widell, N. E.** Corrosion inhibitors in refrigeration systems, P 2568*e*.
**Widell, T.** Thermal investigations into carbonization of wood, 6809*g*, pressure losses in the flow of gas and liquid mists in horizontal pipes, 7759*d*.
**Wideman, F. L.** Ophir Hill Consolidated Pb-Zn mine, Tooele County, Utah, 6950*i*.
**Wideqvist, S.** Mononitriles of substituted succinic acids, 2167*e*; synthesis of ethyl isopropylidenecyanoacetate and the construction of a new water separator, 7901*h*.
**Widerkehr-Scherb, L. P.** See Bucher, H.
**Widhalm, A.** See Wambacher, H.
**Widiger, A. H., Jr.** Diphenylamine, P 8399*h*.
**Widmaier, O., and Mauss, F.** Detn. of gasoline oxidation products, 1952*g*, autoclave oxidation of heptane, 2402*h*.
**Widmark, G.** See Löfgren, N.
**Widmer, G.** Identification of melamine and urea-resins in wet-strength paper, 3615*i*; melamine- and urea-resins in tech. products, 8130*h*, 8197*f*.
— and Fisch, W. Aminotriazine-aldehyde condensation products with linolenic acid monoglyceride, P 441*i*.
—— and Hertner, W. Glue compn. contg. vetch-seed meal, P 908*g*.
——, Sutter, T., Fisch, W., and Hochuli, E.

Aldehyde condensation products of aminotriazines, P 2471*c*.

**Widmer, W.** K metabolism during labor and its relation to carbohydrate and muscle metabolism, 3913*f*; chromed monoazo compds., P 8155*f*; see Mayer, Hans; Straub, F.

**Widrig, S. L.,** and Groves, W. T. Furnaces for gas carburizing, 7303*e*.

**Widström, G.** See Swedberg, B

**Wiebe, R.** See Kretschmer, C. B.

**Wiebe, W.** U and Th counters, 5298*a*.

**Wiebelhaus, V. D.,** and Lardy, H. A. Phosphorylation of hexoses by brain hexokinase, 7980*g*

**Wiebelt, F. J.** Mohawk Pb-Zn mine, San Bernardino Co., Calif., 6123*a*, Akoz Mine, Mariposa County, Calif., 7383*c*; Bessemer Fe project, San Bernardino County, Calif., 7384*b*; Carbonate King Zn mine (Crystal Cave group), San Bernardino County, Calif., 8089*h*

**Wiebols, J.** Geology of the Pb deposits of the Matschiedler Alps in Gail Valley, 6122*i*.

**Wiebusch, K. D.** See Gochring, M.

**Wiechers, S. G.,** and Vries, C. L. de Nutritional value and importance of whey demineralized by electrodialysis, 4393*f*

**Wiechert, K.,** and Burandt, M. L. Detn. of P, 3314*e*.

**Więcławek, B.** Development of org. chemistry in Poland, 2923*h*

**Wiedeman, M. P.** Experiments for the Elementary Physiology Lab. (book), 3091*e*

**Wiedemann, E.** Electrophoresis, 3265*e*, 8800*g*; (VI) new cells for electrophoretic measurements and for small-scale preparative electrophoretic expts., 2668*d*

**Wiedemann, M.** See Erbacher, O

**Wiedenbeck, M. L.** See Chu, K. Y., Vladansky, L.

and Crane, H. R. Delayed emission of electrons from the cathode in a counter when operated above the plateau, 4945*h*

**Wiederhorn, N.** See Alfrey, T., Jr.

**Wiedermann, L. H.** See Miller, L. E.

**Wiedling, S.** Direct comparison of the depressant effect of the barbiturates on the respiration and circulation, 3110*d*; local irritating effects of metal ions and local anesthetics, 4379*i*

**Wiedmer, H.** See Steck, C. T.

**Wiedow, H.** See Soehring, K.

**Wiegand, C.** Origin and interpretation of important org. trivial names (I) hydrocarbons of the $C_nH_n$ series, 2923*g*; (II) polynuclear isocyclic hydrocarbons, (III) heterocyclic compds., 7405*g*; see Merkel, E.

and Holman, W. I. M. Synthesis of derivs. of *N*-methyl-2-pyridone from nicotinic acid and nicotinamide, 3196*e*.

and Merkel, E. Liquid crystals and planar mol. structure, 6025*h*

**Wiegand, C. E.** Balanced ionization chamber for differential measurements of $\gamma$-rays, 1992*g*; see Hadley, J., Segrè, E.

**Wiegand, E. H.** See Samuels, C. E., Yang, H. Y.

**Wiegandt, E.** See Schubert, R.

**Wieland, H.** Gattermann's die Praxis des organischen Chemikers (book), 4283*c*, lead oxidation, 5059*f*; see Huisgen, R.

**Wieland, K.** Mol. spectra with ionic character, 2803*c*, 3712*h*, see Herczog, A.

and Herczog, A. Thermal dissocn. and thermodynamic properties of $HgI_2$ and HgI in the vapor phase, 6895*d*.

**Wieland, P.,** and Miescher, K. Estrogenic carboxylic acids (XXVI) derivs. of alkylated $\beta$-naphthylvaleric acids, 3814*e*

**Wieland, T.** Retention analysis and its usefulness in the quant. evaluation of paper chromatograms and paper ionopherograms of synthetic amino acid mixts., 2668*i*, ketopantothenic acid and aminopantothenic acid, 4223*g*; synthesis of dialkylated pyruvic acids, 4227*f*, see Buth, H. J.

Fischer, E., and Moewus, F. Na skatylsulfonate, an antagonist of heteroauxin, 3817*i*

and Low, I. Biochemistry of the vitamin B group (pantothenic acid and vitamin $B_6$), 4710*h*.

and Moller, E. F. Biologically active homologs of pantothenic acid—2 diastereomeric *N*-($\alpha,\gamma$-dihydroxy-$\beta$-methyl $\beta$-ethylbutyryl)-$\beta$-alanines, 4225*g*.

, Vogelbach, C., and Bielig, H. J. Behavior of amino acids towards $NaClO_2$ and their deamination by hypochlorite, 2891*g*.

**Wiemann, J.** See Laude, G.

**Wiemann, P.** See Schratz, E.

**Wiemer, H.** Effects of small contents of elements commonly present in steel on the properties of sintered soft Fe—effects of the sintering atm., 2142*d*; see Lichtenberg-Strunk, G.

——— and Fischer, W. A. Sintered Fe and C articles, 1297*f*.

——— and Hanebuth, R. Improvement of the mech. properties of sintered Fe by O treatment, 9000*h*

**Wien, R.** See Mushin, W. W.

———, Harrison, J., and Freeman, W. A. Diamidines as antibacterial compds., 3061*f*.

**Wiener, A. S.** Pathogenesis of erythroblastosis fetalis and the Schwartzman phenomenon, 7123*i*

——— and Gordon, E. B. Blood factor Rh$^w$, 7571*e*.

———, Hyman, M. A., and Handman, L. Serological test (inhibition test) for human serum globulin, 6269*c*

**Wiener, G. W.** See Danko, A. W.

**Wiener, M.** Ophthalmology in the War Years. Vol. II (book), 756*b*

**Wiener, S.** See Hopkins, R. H.

**Wieninger, L.,** and Adler, N. Formation of microscopic crystals on crystal surfaces exposed to $\alpha$-rays, 7769*g*.

**Wier, F. C.** Steel mill scrap prepn., 9007*g*.

**Wier, T. P., Jr.** See Baker, M. O.

**Wieringa, K.** Vitamin C in fresh and processed vegetables, 1500*h*.

**Wieringen, G. van,** and Jongh, S. E. de. Anterior pituitary lobe and the amino acid content of the blood (II), 4355*e*.

**Wiersma, C. A. G.** See Schallek, W.

——— and Schallek, W. Potentials from motor roots of the crustacean central nervous system, 9259*g*; influence of drugs on response of crustacean synapse to preganglionic stimulation, 9260*f*

——— and Zawadzki, B. Relation between different ions and peripheral inhibition in crustacean muscle, 2333*c*.

**Wierzbicki, J.** Utilization of sewage and industrial wastes for soil fertilization in Poland, 3547*a*; purification of sewage waters prior to their agricultural utilization, 7169*a*

**Wierzchowski, J.** See Bobranski, B.

**Wieschhaus, L. J.** Economy in production cleaning forgings, 8099*a*

**Wiese, A. C.** See Petersen, C. F.

———, Petersen, C. F., and Lampman, C. E. Variability of protein supplements in the hen's diet in supplying the unidentified factor or factors essential for chick growth, 285*a*.

**Wiese, G. A.,** and Jones, J. W. Prepn. of tris(hydroxymethyl)sulfanilamidomethane, 3383*e*.

**Wiese, H. K.** See Robey, R. F.

**Wiese, J. v.** See Scupin, L.

**Wieseman, P. C.** See Bennett, H. R.

**Wieser, T.** See Siedlecki, S.

**Wiesinger, K.** Detn. of O tension in blood, 1821*b*; see Maier, C.

———, Rossier, P. H., Saboz, E., and Sampaolo, G. Influence of temp. and pH on the const. pK′ of the Hasselbalch-Henderson equation, 9131*h*

**Wiesner, B. P.** See Milton, R.

**Wiesner, J. A.** See Kenyon, R. L.

**Wiesner, K.** See Prelog, V.

**Wiest, E.** See Fontaine, R.

**Wiester, H. J.** See Koch, Walter.

**Wiesevich, P. J.** Name changed to Gaylor, P. J.

**Wiggers, C. J.** Physiology in Health and Disease (book), 9216*a*

**Wiggers, R. F.** See Gelenger, S. M.

**Wiggins, G. M.** See Smith, Donald Murgatroyd.

**Wiggins, L. F.** Sugar cane as a source of raw materials for chem. industry, 8073*c*; reaction of Me tetramethylglucosaccharate with Na, 8357*f*; see Bourne, E. J.; Gregory, H.; Homer, R. F.; Montgomery, R.; Overend, W. G.

——— and Overend, W. G. Coconut flavors from levulinic acid, 784*d*

**Wiggins Teape & Co. Ltd.** and Edge, S. R. H. High-absorbent rag papers, P 849*c*.

**Wigglesworth, V. B.** Insect as a medium for the study of physiology, 1850*e*; insect cuticle, 3529*g*, 6322*d*; insect biochemistry, 9273*b*.

**Wiggs, J. W.** See Hensel, F. R.

**Wight, E. H.** See Shoeld, M.

**Wight, K. M.** Environmental pH as a factor in control of anaerobic bacterial corrosion, 547*d*; see Starkey, R. L.

——— and Hadley, R. F. Anodic behavior of sacrificial metals in specific environments, 506*a*.

**Wight, N. J.** See Hunter, G.

**Wight, P. A.** See Cantor, M. M.

**Wightman, A. S.** See Marshak, R. E.

**Wigner, E. P.** At. energy, 1255*c*; nuclear reactions and level widths, 5278*c*; see Daniels, F.

**Wigton, P. L.** Traction-type thickener with a plurality of treatment zones in a single tank, P 2048*g*.

**Wiig, E. O.** See Beebe, R. A.

**Wiig, R.** Drum-type separator for the wet sepn. of Fe ores, P 5726*b*.

**Wilk, H. B.** See Mikkola, T.

**Wilga, P. W. O.** Detn. of surface-active materials in dil. solns., 8791*f*.

**Wijk, F. van.** Transformation-temp.-time diagram, 85*c*.

**Wijk, G. J. van.** See Schmidt, R.

**Wijkerslooth, P. de.** Phenomena of mineralization at the Mezzel Creek near Bommerig in the Geul Valley, 2901*d*.

**Wijmenga, H. G.,** Lens, J., and Middelbeek, A. Properties of vitamin $B_{12}$, 9193*f*.

**Wijsman, R. A.** Breakdown probability of a low-pressure gas discharge, 4101*e*.

**Wikén, T.** Radioactive and heavy C isotopes in microbiology, 4725*h*.

**Wikholm, D. M.** See Riegel, B.

**Wiklander, L.** See Elgabaly, M. M.

——— and Gieseking, J. E. Exchangeability of adsorbed cations as influenced by the degree of satn. and the nature of the complementary ions—trace concns., 3087*c*

**Wiklund, O.** Industrial value of the sugar beet, 8714*g*.

**Wiland, J.** See Cronheim, G.

**Wilber, D. T.** Phosphorescent response to sinusoidal excitation, 8279*c*.

**Wilborn, F.** Test method for coating materials used by the German forces in the last war, 5606*c*.

**Wilbrandt, W.,** and Heimann, H. Action of tannic acid on the erythrocyte membrane, 3520*e*.

**Wilbur, K. M.** See Kramer, P. J.; Wingfield, R. T.

——— and Anderson, N. G. Detn. of carbonic anhydrase, 2266*d*.

**Wilby, F. V.** $C_2H_2$ as a natural gas leakage tracer, 8646*a*.

**Wilcock, C. C.** See Courtaulds Ltd.; McFarlane, R. A.

**Wilcock, D. F.** Liquid polysiloxane lubricants, P 5939*g*.

——— and Anderson, M. Grease—oil storehouse for bearings, 5933*g*.

——— and Chace, E. G. Liquid polysiloxane as a pumping fluid in diffusion pumps, P 5237*a*.

——— and Jones, F. C. Ag surfacing improves performance of gas turbine roller bearings, 6559*d*.

**Wilcox, E. B.,** and Morrell, K. E. Vitamin content of peas as influenced by maturity, fertilizers, and variety, 9289*e*.

**Wilcox, F. A.,** Tenney, R. I., and Stewart, T. J. Hop sampling, 9357*h*.

**Wilcox, H. A.** Detn. of rate of energy loss for slow $H^1$, $H^2$, $He^4$, $Li^6$ nuclei in Au and Al, 1646*c*.

**Wilcox, H. E.** See O'Kelley, G. D.

**Wilcox, J.** See Baker, W. W.

——— and Howland, A. F. DDT dust for control of onion thrips, 1897*i*.

**Wilcox, L. J.** Fabrication of conduits for corrosive fluids, P 3670*a*.

**Wilcox, L. V.** Quality of water for irrigation use, 3951*d*.

**Wilcox, M. H.** See Downing, J.

**Wilcox, M. S.** See Mitchell, J. W.

**Wilcox, P. W.,** and Jatul, B. B. Clear aq. solns. of tyrothricin, P 6372*f*.

**Wilcox, R. B.** Tests of fungicides and of times of application to control fruit rot of cranberries, 804*d*.

**Wilcoxon, F.** See Litchfield, J. T., Jr.

**Wild, A. M. de.** See Froentjes, W.

**Wild, R.** See Saunders, H. L.

**Wild-Barfield Electric Furnaces Ltd.** Tiltable salt bath furnace, P 7357*h*.

**Wilde, S. A.** Soil classification, 7615*c*.

———, Nalbandov, O. G., and Yu, T. M. Ash, protein, and organo-solubles of jack pine seedlings in relation to soil fertility, 796*f*.

**Wilde, W. K.** Molar refraction in some org. compds. of Hg, 5004*a*.
**Wilde, W. S.** See Cowie, D. B.
**Wilder, A. B.** See Fitzgerald, R. C.
——— and Light, J. O Stability of AISI alloy steels at elevated temps., 8331*c*
**Wilder, E. A.** Cane-wax production, P 2795*a*; refining ouricury wax, P 5613*d*.
**Wilder, F. W.** See Scribner, A K
**Wilder, O. H. M.** See Beadle, B. W.
**Wildermuth, G. E.** Vicara, 5954*a*, 6829*e*.
**Wilder Smith, A. E.** See Scaife, C. W.; Simpson, S. A.
——— and Imperial Chemical Industries Ltd. Hydroxylamine, P 3025*c*; org. N compds., P 9078*i*; polymerized nitroethylene, P 9079*a*.
———, Scaife, C. W., and Baldock, H. Nitration of alcs., P 5411*b*; org. nitro compds., P 6640*i*.
———, Stanley, R. H., Scaife, C. W., and Imperial Chemical Industries Ltd. Polymerized nitroethylene, P 4052*a*, 7504*c*, 2-nitroethyl ethers, P 5033*b*
**Wildman, J. W. R., Jr.** Removal of $SiF_4$ from HF alkylate, P 4006*b*.
**Wildman, P.** See Cheronis, N. D.
**Wildman, S. G.**, and Bonner, J. Chem. nature and formation of auxin in the *Avena* coleoptile, 3071*b*
———, Campbell J. M., and Bonner, J. Tissue-bound, acid-labile P in tobacco leaves, oat coleoptiles, and rat liver, 9112*d*.
——— and Muir, R. M. Auxin formation in plant tissues, 2288*f*.
**Wilds, A. L.** See Biggerstaff, W. R.
——— and McCormack, W. B Hexahydro derivs. of *meso*-hexestrol, 2194*h*; synthesis of hexestrol through the catalyzed Grignard coupling of anethole hydrobromide and the mechanism of the reaction, 3812*f*.
——— and Meader, A. L, Jr. Use of higher diazohydrocarbons in the Arndt-Eistert synthesis, 4652*g*.
**Wildschut, A. J.** Radiation chemistry and polymerization, 2501*g*.
**Wildt, R.** Absorption by interstellar mols., 5662*e*.
**Wiley, F. V.** $C_3H_2$ as a natural gas leakage tracer, 7211*b*.
**Wiley, J. L.** See Davidson, J. L.
**Wiley, J. W.** See Pierce, C.
**Wiley, P. F.** Reaction of amides with isocyanates, 6162*e*, see Koniuszy, F
**Wiley, R. H.** Cl-contg. vinyl resins stabilized with a tri(2-alkenyl)phosphite, P 1606*c*; vinyl chloroacetate, 1719*f*, see Cheek, P H.
——— and Bennett, L L., Jr. Chemistry of the oxazolines, 6616*a*.
——— and Brauer, G M. Detn. of second-order transition temps in polymers (III) acrylates and methacrylates, (IV) butadiene-acrylonitrile copolymers, 7747*e*; polyvinyl chloroacetate, 7749*b*; specific refractivity temp. data for polyvinyl acetate and polybutyl acrylate, 7786*g*.
——— and Guerrant, W B Diamides from carboxylic acids and their nitriles, 4241*f*
——— and Hobson, P. H Decarboxylation of *p*- and *o*-formylcinnamic acids to *p*-formylstyrene and 1-indanone, 7456*f*.
——— and Jeffries, J. F. 2,2-Disubstituted 4-thiazolidinecarboxylic acids, 4271*h*.
**Wilham, C. A.** See Jeanes, A
**Wilhelm, H. A.**, and Daane, A. H. U carbides, P 500*c*.
**Wilhelm, L. C.** See Cauer-Wilhelm, L.
**Wilhelm, R. H.** Rate process—application to reactor design, 3247*h*, see McCune, L. K.; Paul, G. T.
——— and Collier, D. W. Vapor-liquid equil. of the system butadiene styrene, 2058*d*.
——— and Smith, J. B. Transmittance, reflectance, and absorptance of near infrared radiation in textile materials, 3201*d*.
**Wilhelmi, A. E.** See Smith, Emil L.
———, Fishman, J. B., and Russell, J. A Prepn. of cryst. anterior pituitary growth hormone, 2300*f*.
——— and Sayers, G. Corrections of published electrophoretic mobilities of adrenocorticotropic and parathyroid hormones, 2253*h*.
**Wilk, M. B.** Prepn. and extn. of $S^{35}$, 8266*c*.
**Wilke, C. R.** Estn. of liquid diffusion coeffs., 3692*f*; see Buddenberg, J. W.
——— and Wride, W. J. Mercaptan formation in acid treatment of pressure distillates, 8601*c*.
**Wilkening, M. C.** See Brown, S. O.
**Wilkerson, C. A.** Penicillin extn., P 5553*a*.
**Wilkerson, J. D.** Synthetic rubber latex, P 3228*b*.
**Wilkerson, T. L.** Processing phosphate rock for use in agriculture, 7174*g*.
**Wilkie, E. T.** See Barnes, H.
**Wilkie, J. B.** Vitamin A, comparison of the spectrophotometric and $SbCl_3$ methods for vitamin A in margarine, 9283*f*.
**Wilkin, C. R.** See Walker, R.
**Wilkin, M. L.** See Thompson, R L.
**Wilkins, D. S.**, Featherstone, R M., Gray, C. E., Schwidde, J. T., and Brotman, M. Depression of brain oxidations (I) biopsy technique and analysis of variance in the selection of a pentobarbital concn., 7540*i*.
**Wilkins, E. T.** See Booth, N.
**Wilkins, H.** Fundamental Chemistry (book), 932*g*.
**Wilkins, L.**, and Lewis, R. A. Relation of dosage and duration of treatment to adrenal atrophy caused by injection of steroid hormones, 7591*g*
**Wilkins, M. H. F.** See Garlick, G F. J.
**Wilkins, R. A.**, and Bunn, E S. Recovery of cuprous and ferrous materials from scrap, P 6562*d*
**Wilkins, R. W.**, Freis, E D, and Stanton, J R Essential hypertension—lab. studies in human beings with drugs recently introduced, 6311*h*
**Wilkins, W. J.** See Halpern, A.
**Wilkinson, A. W.**, Billing, B H, Nagy, G, and Stewart, C P. Excretion of chloride and Na after surgical operations, 5487*c*
**Wilkinson, C. A.** See Allan, H R.
**Wilkinson, C. F., Jr.**, Hand, E A, and Fliegelman, M T Essential familial hypercholesterolemia, 751*f*.
**Wilkinson, C. S., Jr.**, and Gehman, S D Vulcanization at high pressures, 4888*e*
**Wilkinson, D. G.**, and Imperial Chemical Industries Ltd. Thioindigoid dye, P 8173*f*
**Wilkinson, D. H.** Geiger discharge, 1259*b*; see Allen, K. W; Bretscher, E; Livesey, D L.
**Wilkinson, G.** Radioactive isotopes of Pt and Au, 4124*i*; see Broda, E
——— and Hicks, H G Radioactive isotopes of Tb, Ho, Tm, Lu, Ta, W, and Re, 1647*f*; $Hf^{175}$, a new radioactive isotope of hafnium, 4124*a*; radioactive isotopes of the rare earths (I) exptl techniques and thulium isotopes, 5296*i*, (II) Nd isotopes, 6507*h*
**Wilkinson, H.** Nutritive value of margarine and edible vegetable oils, 4395*a*
**Wilkinson, J. F.** Fermentation of galactose by yeast, 9154*b*
**Wilkinson, J. H.** See Henderson, J
**Wilkinson, J. M., Jr.** See Vogt, C G.
**Wilkinson, K. J. R.** Betatron development, 4945*c*.
**Wilkinson, P. A.** See Bide, A. E., Glaxo Laboratories Ltd.
**Wilkinson, P. R.** Tests of insecticides on cattle, 1140*i*
**Wilkinson, R.** See Ingleson, H
**Wilkinson, R. G.** See Beach, L. A.
**Wilkinson, S.** See Catch, J. R.; Wellcome Foundation Ltd.
**Wilkinson, W. W.** Abatement of nuisances from smoke and from colliery spoilbanks, 3593*a*
**Wilkman, B.** See Ringbom, A.
**Wilks, S. S.** Sampling and its uncertainties, 5515*h*
**Willaime, G.** How should the power of an evaporator be increased? 426*g*; evapn., 5648*b*.
**Willaman, J. J.** Prepn. and use of leaf meals from vegetable wastes, 4313*d*, see Heller, M E
**Willan, J. H. G.** $H_2SO_4$ and HCl for pickling steel, 3329*g*
**Willard, H. H.**, and Hahn, R. B. Detn. of Zr by pptn. from homogeneous soln., 3313*d*.
———, Mosher, R. E., and Boyle, A. J. Detn of Cu by dithio-oxamide in Mg and Mg alloys, 5330*e*
———, *et al* Instrumental Methods of Analysis (book), 522*h*.
**Willard, H. S.** Vitamin A in Wyoming butter, 6327*e*.
**Willard, J. E.** See Hansen, J. L.; Hensley, J. W.; Higuchi, Takeru, Johnston, Francis; Miller, A. A., Ruka, R.; Vandervort, G. L
**Willard Storage Battery Co.** Storage battery separator, P 2882*d*.
**Willatt, N.** Fiber identification, 412*i*.
**Willcocks, R. G.** Detn. of proteins in cerebrospinal fluid, 4722*a*.
**Willcox, J. S.** See Druce, E.
**Willcox, O. W.** Ion exchange, 2475*d*.
**Wille, H.** Influence of K-avitaminosis on the occurrence of retinal hemorrhages in the newborn, 1466*h*.
**Willebrands, A. F.** Detn. of Na and K in blood serum and urine with the aid of the flame photometer, 9137*c*; see Groen, J.
**Willebrands-Schogt, E. C. C.** See Hertog, H. J. den
**Willemart, A.** Charles Friedel, 2049*d*; see Dunet, A; Duveen, D. I.; Mahé, J.
**Willems, J.** Chemistry of oriented growth of crystals of org. compds., 6027*i*.
——— and Giltges, A. Oriented growths of hexasubstituted benzene derivs. on org. carrier lattices, 3262*c*.
**Willermain, M.** Generalization of Thorp's method of analysis and its application to the detn. of the γ-isomer in tech. hexachlorocyclohexane, 8311*d*.
**Willert, H.** Geology of Fe ore deposits in the Weser-Wiehen Mts., 2550*i*.
**Willets, W. R.** Ti pigments in coating, 8696*i*
**Willett, E. L.**, Henke, L. A, Work, S. H, Maruyama, C., and Ross, W. Garbage as a feed for swine, 9292*h*.
**Willett, R. W.** Preliminary report on the lignite deposits of the Mataura Valley, Eastern Southland coalfield, 2135*b*.
**Willi, A.** Chemische Rezepte für die Fabrikation verschiedenster Artikel für den taglichen Gebrauch (book), 2712*f*.
——— and Schwarzenbach, G. Complexons (XIV) ultraviolet absorption of aniline and anthranilic-acid-diacetic acids and their metal complexes, 7340*h*.
**Williams.** See also Vil'yams.
**Williams, Albert E.** Automatic chem. control of boiler feedwater, 335*c*; Asbestos (book), 1125*i*, detection of flaws in metals, 1300*b*; activated alumina, 2379*i*, 5909*f*; electron microscope, 6503*a*, metallic powders—developments, 6552*b*, $O_2$ in mines, 7161*c*, sprayed asbestos, 7608*a* refractory concrete and cements, 7656*g* nondestructive testing of metals, 8322*a* aerosols in industry, 9297*c*
**Williams, Arthur E.** See Faick, C. A
**Williams, A. F.** Purity of diphenylene oxide, 7803*c*
**Williams, A. H.** See Hewitt, E J.
**Williams, A. J., Jr.** See Morris, J. P
**Williams, Alvin R.** Si electrical steel, 1307*c*.
**Williams, Arthur R.** See Rapoport, H
**Williams, Bryan.** Contrast medium for hysterosalpingography, 9364*d*
**Williams, Brymer.** Pressure-vol.-temp relations and phase equil. in the system ethylene-butane, 4937*b*.
**Williams, B. S.** See Burchenal, J H.
**Williams, C.** See Borst, L B.
**Williams, Cicely.** See Burrage, L. J.
**Williams, Clarke.** See Benedict, M.
**Williams, Clyde.** Alloy steel in the war 89*h*; materials in the aircraft industry 6959*e*.
**Williams, C. B., Jr.** See Gwyn, J. D
**Williams, C. C.**, and Lohman, S W Geology and ground-water resources of a part of south-central Kansas—Wichita municipal water supply, 9301*f*
**Williams, C. D.** See Stubbs, F. J.
——— and Lee, D. B Sewage treatment research plants study special Florida conditions, 6767*b*.
**Williams, C. E.** See Lyon, J A. M.
**Williams, C. M.** See Zamecnik, P. C.
**Williams, David.** See Jones, W. R.
**Williams, Dudley.** See Chambers, W H., Johnson, R. C.; Oxholm, M. L.; Rogers, J.; Ting, Y.; Zimmerman, J. R.
**Williams, D. A.** See Josien, M. L.
**Williams, D. B.** Odor control, 5522*a*; free residual chlorination at Brantford, 7167*f*, "excess lime" treatment of the Brantford water supply, 9305*a*; solving a difficult taste and odor problem at Brantford, Ont., 9305*e*.
**Williams, D. E.** See Kratzer, F. H.
———, MacLeod, F. L., Morrell, E., and Patrick, H. Phosphatic animal-feed supplement—animal feeding tests, 7159*a*.
**Williams, D. J. A.** See Allen-Williams, D. J.
**Williams, D. R.** Use of soap in milling, 9457*a*.
**Williams, D. W.** See Sims, C. E.
**Williams, Eleanor.** See Everson, G.
**Williams, Emily.** See Scholz, E.
**Williams, E. C.** Recrystn., 3757*e*.
**Williams, Edwin C.** See Warren, G. H.

**Williams, E. F., Jr.** See Wood, John L.
**Williams, E. M.** See Henze, H. R.
**Williams, F. A.** Fuel, 4789*a*.
**Williams, F. E.** Luminescence of infrared-sensitive phosphors, 4089*g*; theory of the luminescence of ionic phosphors, 4095*h*; Cd pyrophosphate phosphor, P 6518*a*; phosphor materials, P 7831*c*; interpretations of luminescence phenomena, 8278*a*; see Johnson, J. S., Jr.; Johnson, Peter D.; Parkinson, W. W., Jr.; Patten, S. H.
**Williams, F. J.,** and Herrmann, E. H. Anti-corrosive paint, P 9482*f*.
—— and Pitrot, A. R. Pigment, 870*i*; composite Pb sulfate-Pb silicate pigment, P 9482*h*.
**Williams, G.** See Bonner, T. G.
—— and Thomas, H. Short-chain polymerization of styrene in the presence of stannic chloride and HCl, 2966*h*.
**Williams, G. C.** See Braudo, C. J.; Craggs, J. D.; Hottel, H. C.
**Williams, G. E.** Tech. Literature (book), 3702*b*
**Williams, G. W.** See Wynn-Williams, G.
**Williams, G. W. M.** See Monier-Williams, G. W.
**Williams, H.** See Texin, H.
**Williams, H. B.** See Williams, V. R.
**Williams, H. G.** See Kurtz, J.
**Williams, H. H.** See Coryell, M. N.; Fesher, M.; Loosli, J. K.
**Williams, Harry L.** See Orloff, M. J.
**Williams, H. Leverne.** See Davies, T. L.; Fordham, J. W. L., Mitchell, J. M.
—— and Watson, E. M. Arginine free diets and intestinal synthesis of arginine, 2684*h*.
**Williams, H. O.** See Dreyfus, H.
**Williams, H. S.** See Weyl, W. A.
**Williams, I.,** and Carlton, C. A. Increasing tackiness of rubberlike materials, P 3209*f*.
**Williams, J. C.** See Collins-Williams, J.
**Williams, J. E.** See Lindquist, A. W.
**Williams, J. F.** See Stanley, H. M.
**Williams, James H.,** and Imperial Chemical Industries Ltd. Applying protective coatings to surfaces, P 6003*f*.
**Williams, John H.** See Blair, J. M., Procter, G.
**Williams, J. L. R.** See Marvel, C. S.
**Williams, J. N., Jr.,** and Elvehjem, C. A. Relations of folic acid to structurally similar metabolites, 667*bd*.
**Williams, J. W.,** Petermann, M. L., and Bridgman, W. B. Purified human serum γ globulin, P 9390*f*.
**Williams, K. A.** Fats, fatty oils, and detergents, 4789*a*; analysis of mixts. of fatty oils with hydrocarbons, 9489*c*.
**Williams, K. T.** See Bickoff, E. M.
**Williams, L. G.** Growth regulating substances in *Laminaria agardhii*, 9167*a*
**Williams, L. R.,** and Ravve, A. Benzyl chloromethylselenide, 600*d*.
**Williams, M. A.** See Smith, S. E.
**Williams, M. C.** See Andrews, D. H.
**Williams, N. B.** See Coolidge, T. B.
**Williams, N. H.** See Humphreys & Glasgow Ltd.
**Williams, N. T.,** and Essex, H. Effect of elec. fields on the decompn. of nitrous oxide by α rays, 3295*h*
**Williams, O. B.** See Davis, F. L., Jr.
—— and Mrak, E. M. Yeast spoilage in salad dressing, 2708*a*.
**Williams, P. A.,** Hadden, R. P., Hall, C. M., Castillon, L. E., Guice, W. A., O'Connor, R. T., and Boatner, C. H. Processing of cottonseed (IV) effect of prepn. and cooking of meats in the bleach color and storage properties of screw-pressed oils, 1999*e*
**Williams, P. D.** Rugged cathode, P 1666*c*; see Eaves, H.
**Williams, P. H.,** and Ballard, S. A. Cyclic ethers, P 3042*h*.
—— and Evans, T. W. Halogenation of unsatd. ethers, P 4682*g*.
**Williams, P. L.** See Asquith, R. S.; Gardner, E. R.
**Williams, P. S.** Rheological methods of control (IV) application to the paint industry, 8750*d*.
**Williams, R., Jr.** Versatility in fatty acids, 7239*h*; cyanide waste disposal—platers call new installation "the model system," 8903*g*
**Williams, R. A.** See Dixon, B. E.
**Williams, R. C.,** and Backus, R. C. Electron-micrographic structure of shadow-cast films and surfaces, 2503*d*.
**Williams, R. F.** Effects of P supply on the rates of intake of P and N and on certain aspects of P metabolism in gramineous plants, 5090*a*.
**Williams, R. H.** See Rogers, W. F.
**Williams, R. J.** Pantothenic acid and other growth-promoting compds., P 3152*g*; lactone from pantothenic acid, P 5037*h*; see Lane, R. L.
——, Berry, L. J., and Beerstecher, E., Jr. Biochem. individuality (III) genetotropic factors in the etiology of alcoholism, 9217*a*.
**Williams, R. J. P.** See Irving, H.
**Williams, R. O.** Artificial logs and briquets from waste paper, P 7686*i*
**Williams, R. R.** Research in small colleges, 7275*i*; see Burgus, W. H.
**Williams, Robert R., Jr.** Fe production increased 38.2%, 79*f*.
**Williams, Russell E., Jr.** See Hamill, W. H.
——, Hamill, W. H., and Schuler, R. H. Lab exercises in nuclear chemistry, 4909*h*.
**Williams, R. S.,** and Homerberg, V. O. Principles of Metallography (book), 2919*g*.
**Williams, R. T.** Biochem. Reactions of Chem. Warfare Agents (book), 1882*i*; see Carton, G. A.; Guerrero, A. H.; Hartles, R. L., Porteous, J. W.; Smith, J. N.
**Williams, R. W.** Structure of large cosmic-ray air showers, 2086*f*; lateral distribution function of cosmic-ray air showers, 4095*f*, see Bridge, H. S., Rossi, B.
**Williams, S. D.** Melting Fe in elec. furnaces, P 5680*b*
**Williams, S. V.** See General Electric Co. Ltd.; Ransley, C. E.
**Williams, T. I.** Preventing corrosion, 6559*f*, chromatography—recent developments and future possibilities, 7775*b*.
**Williams, T. V., Jr.** Polyvinyl halide emulsions, P 5635*d*; vinyl chloride-contg. polymers having a high stability against thermal decompn., P 9530*g*.
**Williams, V.** See Floro, M. B.
**Williams, V. C.** Phase equil. description, 1251*f*
**Williams, V. H.,** Wright, H. R., and Imperial Chemical Industries Ltd. Detonating explosives, P 852*c*
**Williams, V. R.,** and Fieger, E. A. Lipide stimulation of *Lactobacillus casei* (II), 4337*i*
—— and Williams, H. B. Surface activity of biotin, 1307*a*
**Williams, V. Z.** See Dobriner, K.; Jones, R. N.
**Williams, W.** See Bamag Ltd.
**Williams, William L.,** Hoff-Jørgensen, E., and Snell, E. E. Detn. and properties of an unidentified growth factor required by *Lactobacillus bulgaricus*, 4334*b*
**Williams, W. Lee.** Free-machining steels, 8335*b*, see Stewart, W. C.
—— and Stewart, W. C. Fatigue and corrosion of sintered and rolled Ti, 3765*i*
**Williams, W. O.,** and Hewitt, W. B. Control of grape root-rot in soln. culture, 9351*a*.
**Williams, W. P.** See Procter & Gamble Co.
**Williams, W. R.** Chemistry in the 4-yr. college of pharmacy curriculum, 2050*e*
**Williams-Bauer Corp.** Artificial logs and briquets from waste paper, P 7686*i*
**Williams-Leir, G.** See Burgoyne, J. H.
**Williamson, A. T.** Isothermal distn. in the porous-disk osmometer, 4063*g*.
**Williamson, C. E.** Effect of diseases on plants, 8458*d*.
**Williamson, J.,** and Rudge, E. A. Antipyretic action and catalase activity, 2325*a*.
**Williamson, J., Jr.** Sewage treatment, 4795*g*.
**Williamson, J. E.** Detn. for Ca, 3311*a*.
**Williamson, L.** See Madorsky, S. L.
**Williamson, M. B.** Increased requirement for pteroylglutamic acid during lactation, 4747*a*; see György, P.; Jarowski, C. I.; Patterson, W. I.
**Williamson, R. H.,** and Garside, J. E. Application of fluidized-solid technique to coal-gas purification, 3172*d*.
**Williamson, R. M.,** and Richards, H. T. *K* capture of $Be^7$ and the excited state of $Li^7$, 8872*d*.
**Williamson, R. V.** Phenolic moldings—extractives in the water absorption test, 7261*e*.
—— and Lathrop, E. C. Agricultural residue flours as extenders in phenolic resin glues for plywood, 8737*i*.
**Williard, L. E.** Physics (book), 3278*d*.
**Willigen, A. H. A. de.** Turbidity of starch solns., 2006*e*; see Goedewaagen, M. A. J.
—— and Groot, P. W. de. Relation between amylose and amylopectin in potato starch as property of potato variety, 2005*h*; viscosity of potato starch-water suspensions, 2455*a*.
**Willigen, P. C. van der.** See Bienfait, H.
**Willihnganz, E.** See Stewart, A.
**Willingham, C. B.** See Epstein, M. B.; Glasgow, A. R., Jr.; Streiff, A. J.
**Willis, A.** See Freedman, A. M.
**Willis, A. L.** See Jackson, M. L.
——, Pennington, R. P., and Jackson, M. L. Mineral standards for quant. x-ray diffraction analysis of soil clays (I) abridgement of component percentages based on weathering sequence, 2721*f*
**Willis, C. A.** Treatment of nylon webbing to increase resistance to abrasion, 8142*g*.
**Willis, G. M.** Constitution of phases at high temp. in relation to their thermodynamic properties, 4935*i*.
**Willis, H. B.** Thermoplastic wax material, P 5232*g*.
**Willis, J. M.,** Wakefield, L. B., Poirier, R. H., and Glymph, E. M. Isoprene-styrene in the GR-S system, 2450*g*.
**Williston, S. H.** Ferroalloys and other strategic metals, 6550*i*
**Willits, C. O.** Org. microchemistry, 2113*h*; see Ogg, C. L.
——, Coe, M. R., and Ogg, C. L. Kjeldahl detn. of N in refractory materials, 7656*f*.
—— John, H. J., and Ross, L. R. Distn. of $NH_3$ in the Kjeldahl detn.—connecting bulb, 2891*c*.
—— and Ogg, C. L. Standardization of microchem. methods—C, H, and N, 8962*f*.
**Willkie, H. F.** See Stark, W. H.
**Willman, J. P.** See Whiting, F.
——, Asdell, S. A., and Loosli, J. K. Value of thiouracil in rations for growing and fattening pigs, 8466*h*.
—— and Morrison, F. B. Feeding expts. with growing and fattening pigs, 9193*a*.
**Willmott, J. C.** Absorption of MgO in the infrared region, 3714*e*.
**Willner, M. M.** See Slobody, L. B.
**Willott, W. H.** See Dock, E. H.; Fisher, D. G.; Newton, R. G.
**Willoughby, G.** See Sully, A. H.
**Willoughby, L. B.** See Armstrong, L.
**Wills, C. G.,** Rampton, S., and Pugsley, L. I. Variables affecting the assay of testosterone propionate using the seminal vesicle response of the juvenile castrated male rat, 7994*h*.
**Wills, E. D.** See Town, B. W.
**Wills, J. Henry.** See Dounce, A. L.
—— and Main, E. R. Renal function in normal rabbits and dogs and the effect of uranyl salts, 1490*c*.
**Wills, John H.** See Dedrick, C. H.; Wegst, W. F.
—— and Sams, R. H. Industrial adhesives—review of colloidal properties of Na silicate, 2465*g*
**Willsmer, A. G.** Fatty acid isolates, 2449*b*.
**Willson, B. D.** See Storrow, J. A.
**Willson, E. A.,** Miller, J. R., and Rowe, E. H. Adsorption areas in the soap titration of latex for particle-size measurement, 6041*g*.
**Willson, K. S.,** and DuRose, A. H. Semi-bright Ni plating process, 2872*e*; smoothing effects of Ni deposits, 4147*c*.
—— and Ellis, D. G. Electrodeposition of Cu, P 6094*g*.
**Willson, R. F.** German practices in drawing and forging turbine blades, 540*f*.
**Willson Products, Inc.** Gas-absorbing material, P 8578*b*.
**Wilstaedt, E.** See Myrbäck, K.
**Wilstaedt, H.** Azo compds. for chemotherapeutic purposes, P 6662*e*.
—— and Zetterberg, B. Chemotherapy of tuberculosis, 5085*b*.
**Wilstaedt, H. C.** Reducing or preventing oxidation of oils and fats, P 9294*d*.
**Wilstätter, R.** Meinem Leben (book), 7808*h*.
**Wilman, H.** Structure of photosensitive PbS and PbSe deposits and the effect of sensitization by O, 3720*b*; electron diffraction "Kikuchi-line" patterns (I) detn. of the crystal unit cell, its orientation and the crystal symmetry, (II) indexing the patterns, 4556*g*; single-crystal patterns in electron diffraction, 7819*b*; see Elleman, A. J.
**Wilmer, D. L.** See Miller, A. K.

**Wilms, G. R.**, and Wood, W. A. Creep in metals, 5352*b*.
**Wilner, T.** Cd trap for arresting Hg vapor, 8215*a*.
**Wilnyansky, J. E.** See Vil'nyanskiĭ, Ya. E.
**Wilshaw, C. T.** Isothermal heat treatment for precision hardening, 983*g*.
**Wilsing, H.** See Jenckel, E.
**Wilson, A.**, and Goodwin, J. Treatment of thyrotoxicosis with propylthiouracil, 5870*h*.
**Wilson, A. E.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*.
**Wilson, A. G.** See Fieser, L. F.
**Wilson, A. H.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*, diffusion problem in which the amt. of diffusing substance is finite, 2839*h*.
**Wilson, A. J. C.** Detn of a center of symmetry, 6079*e*; X-ray Optics Diffraction of X-rays by Finite and Imperfect Crystals (book), 6517*d*; see Jones, J. G.
**Wilson, A. L.** Hydroxyalkyl alkylenimines, P 7955*c*.
**Wilson, A. N.**, and Harris, S. A. Synthesis and properties of neopyrithiamine salts, 7030*h*.
**Wilson, A. O.** See McMillan, W. D.
**Wilson, A. S.** See Rundle, R. E.
——— and Rundle, R. E. Structure of U metal, 6485*b*.
**Wilson, B. A.** See Miller, Joseph M.
**Wilson, B. J.**, and Armstrong, B. W. Detn. of *p*-aminosalicylic acid blood levels, 9258*h*.
**Wilson, B. R.** See Malkin, T.
**Wilson, C.** See Betteridge, W.
——— and Munday, J. W. Al alloy forgings, 7885*i*.
**Wilson, Carl.** Bacterial reproduction in cation-exchange layers, 9308*i*.
**Wilson, C. C.**, and Kramer, P. J. Relation between root respiration and absorption, 2288*d*.
**Wilson, C. D.** See Serfass, E. J.
**Wilson, Cyril D.** Sensitizing dyes, P 4160*b*, 8926*c*.
**Wilson, C. E., Jr.** 1,1,1-Trichloro-2,2-diarylethanes, P 7968*h*.
**Wilson, Cecil L.** Physicochem. methods in microchemistry (II) mol. wt., 1087*b*, see Ingram, C.; McDonnell, F. R. M.; Magee, R. J.
**Wilson, Christopher L.** Reduction by cathodes, 4587*c*, see Hsu, S. K.
**Wilson, C. O.** Acetamide derivs., 9032*i*.
**Wilson, C. S.** Piperonyl butoxide, piperonyl cyclonene, and pyrethrum applied to selected parts of individual flies, 8602*i*, see Blanton, F. S.
**Wilson, C. V.** See Allen, C. F. H.
**Wilson, C. W.** See Aly, S. M.
**Wilson, C. W., Jr.** Pre-Chattanooga stratigraphy in central Tennessee, 7874*f*.
**Wilson, D.** Dolomite and Refractories by Steetley (book), 8304*h*, steam and refractories manuf., 2748*h*.
**Wilson, D. L.** See Kirkpatrick, W. H.
**Wilson, D. W.** Prepn. and Measurement of Isotopic Isomers (book), 500*c*; see Hemrich, M. R.
**Wilson, E.** See Fieser, L. F.
**Wilson, E. B., Jr.** See Arons, A. B., Dailey, B. P.
**Wilson, Earl D.** Small current Se rectifiers, P 8920*e*.
**Wilson, Eldred D.**, and Roseveare, G. H. Chem. resources—Arizona, 9295*c*.
**Wilson, E. E.** Effect of Bordeaux and petroleum oil on the eradicative action of monocalcium arsenite against *Sclerotinia laxa* in apricot trees, 7179*g*.
**Wilson, E. J.** See Chackett, K. F.
**Wilson, E. W.** Bright Ag plating, 4146*h*.
**Wilson, F. H.** See Kronberg, M. L.
**Wilson, G. W., Jr.** Distn. of butane contg. high-boiling contaminants, P 2423*b*, oil-fractionation column with control device governing the feed rate of liquid stock and of vapors from the reboiler, P 6403*d*.
**Wilson, Hewitt.** See Conley, J. E.
**Wilson, Hildegard**, and Carter, P. Stabilization of the alc. KOH in colorimetric 17-ketosteroid detns., 7534*h*.
**Wilson, H. A.** Scattering of particles by an attractive center of force varying inversely as the cube of the distance, 4094*c*, spherical shell nuclear model, 4094*c*, energy levels of the $N^{14}$ nucleus, 8869*i*, rotation levels of the $Na^{24}$ and $Ca^{41}$ nuclei, 8869*i*.
**Wilson, H. B.**, Sylvester, G. E., Laskin, S., LaBelle, C. W., and Stokinger, H. E. Relation of particle size of $UO_2$ dust to toxicity following inhalation by animals, 1866*g*.
**Wilson, H. F.** See Soyka, C.
**Wilson, H. G.** See Gahan, J. B.
**Wilson, H. N.** Detn. of traces of org. bases in benzene, etc., 973*a*; detn. of Si, 6936*a*; see Smales, A. A.
**Wilson, I. B.** See Reiss, H.
**Wilson, I. F.**, and Rocha, V. S. Mn deposits of the Talamantes District near Parral, Chihuahua, Mex., 4983*c*.
**Wilson, John B.** Quaternary $NH_4$ compds. in foods, 7151*e*, monochloroacetic acid, 7155*d*, detection and detn. of monochloroacetic acid, 9274*d*.
**Wilson, Joseph B.** See Ball, C. J. P.
**Wilson, J. C.** Xerography, 5111*b*; see Stone, W. A.
**Wilson, J. D.** Fixed Cu fungicides on vegetables, 4411*i*.
——— and Runnels, H. A. Losses from tomato fruit rot can be reduced, 3960*e*.
———, *et al.* Coördination of field tests with fungicidal sprays and dusts, 9327*c*.
**Wilson, J. F.** See Hillyer, J. C.
**Wilson, J. K.** Changes in silage as affected by salt, 1123*c*, legume bacteria liberate gaseous N from nitrate, 1514*f*, nitrate in foods and its relation to health, 2337*i*.
——— and Nair, K. M. Latitude between the pH values of nodules and the tissues of leguminous plants, 2279*b*.
**Wilson, J. N.** Intrinsic viscosity of linear polymers, 4539*i*, see Guthrie, G., Jr.
**Wilson, J. R.** See Meyerhof, O.
**Wilson, J. W.**, and Smith, G. H. Calcg. pressure-flow relations for lubricating greases, 5178*b*.
**Wilson, J. W., III**, Dawson, N. D., Brooks, W., and Ullyot, G. E. Local anesthetics — (ammoalkyloxy)isoquinoline derivs., 4267*b*.
**Wilson, J. Walter**, Leduc, E. H., and Winston, D. H. Production of biotin deficiency, 6292*e*.
**Wilson, K. B.** Tubular reactors (I) calcn. and analysis of longitudinal temp. gradients in tubular reactors, 6907*c*.
**Wilson, K. P.** See Cox, Herbert R.
**Wilson, K. W.**, Roberts, J. D., and Young, W. G. Allylic rearrangements (XXVI) reaction of butenyl mesitoates and chlorides with $PhMgBr$, 9051*b*.
**Wilson, L. P.** Tolerance of larvae of *Drosophila* for methionine, cystine, and cysteine, 1871*i*.
**Wilson, M.** See Daum, K., Tuttle, W. W.
———, Tuttle, W. W., Daum, K., and Rhodes, H. Influence of thiamine intake on physiologic response (V) maximum work output, 5096*h*.
**Wilson, M. C.** Control of corn flea beetles, 4416*h*.
**Wilson, M. F.** See Welch, A. D.
**Wilson, M. J.**, and Vanselow, W. Processing nuclear-track emulsions, 4560*h*.
**Wilson, M. J. G.**, and Howland, A. H. Chlorination of $CH_4$, 6154*a*.
**Wilson, M. L.** See Glazko, A. J.; McGinty, D. A.
——— and McGinty, D. A. Antithyroid activity of ergothioneine, 6319*h*.
**Wilson, N. G.** Mech. refuse disposal and salvage handling, 6769*d*.
**Wilson, N. W.** World's diamond deposits, 2900*a*.
**Wilson, O. C.** Nova Serpentis 1948, 490*b*; nuclear and nebular spectra of the planetary nebula NGC 2392, 938*d*, variations in the spectrum of the Wolf-Rayet star HD 50896, 1651*f*, spectroscopic binaries, 1651*g*.
**Wilson, P. J., Jr.**, Wells, J. H., and Liebel, C. R. Refining aromatic hydrocarbons, P 1802*f*.
**Wilson, P. W.** See Lindstrom, E. S.; Rosenblum, E. D., Segal, W.; Tove, S. R.
**Wilson, R.** See Bishop, G. R.
———, Collie, C. H., and Halban, H. Photodisintegration of the deuteron, 35*i*; cross-section for the disintegration of the deuteron by 2.76-m.e.v. $\gamma$-rays, 4561*f*.
**Wilson, R. A.** See Goldsworthy, M. C.
**Wilson, R. C., Jr.** Desiccants, P 3986*d*.
**Wilson, R. D.** Responses of lettuce to the application of Mo, 5093*a*.
——— and Waring, E. J. Role of Mo in the nutrition of the cauliflower plant, 5092*i*.
**Wilson, Ralph E.** See Joy, A. H.
**Wilson, Robert E.** Attitude of management toward research, 3117*e*.
**Wilson, Rex H.** Diagnosis and treatment of industrial solvent poisoning, 4789*e*.
**Wilson, Robert H.**, and DeEds, F. Protection of adrenaline by flavonoids, 5542*a*.
**Wilson, R. L.** Water-scale removal from cooling units, 792*d*.
**Wilson, R. M.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*.
**Wilson, R. M., Jr.** See Wolf, F. J.
**Wilson, R. W.** See Mullins, P. V.
———, McDonald, A. S., and Moore, B. H. Munglinup and Donnelly River graphite ores, 6125*h*.
**Wilson, S. C.** See Silson, J. E.
**Wilson, Stanley D.** See Chen, Shang-C.
**Wilson, Stuart D.** See Davis, S. B.
**Wilson, S. G.** Assessing the acaricidal properties of DDT and Gammexane preps., 346*f*, feeding of Gammexane and DDT to bovines, 5526*g*; drug resistance shown by trypanosomes following antrycide treatment, 7592*e*.
**Wilson, S. H.** Sensitivity of spectrographic and radiotracer methods, 2113*i*.
**Wilson, S. J.** Effect of methionine on blood coagulation, 4357*f*.
**Wilson, S. P.** Plastic coatings to control metal corrosion, 899*e*; finishing materials, 1198*f*, solvents for org. finishes, 4028*e*.
**Wilson, T. L.** See McGavack, J.
**Wilson, W.** Some 2,4-diamino-5-acylamino-6-hydroxypyrimidines, 652*a*, tetrahydrofurans related to amidone, 2201*i*; see Drain, D. J., Jones, E. R. H.
**Wilson, W. A.** See Simons, J. H.
**Wilson, W. H.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*.
**Wilson, W. H., Jr.** Preventing the discoloration of butts of leafy vegetables, P 1124*e*.
**Wilson, W. J.** See Sisler, H. H.
**Wilson, Wilfred K.** Stable polyvinyl acetate dispersions, P 7267*a*.
**Wilson, William K.** See Lanner, H. F.
**Wilson, W. L.** Exposures in the Pb paint industry, 7715*e*; see Heilbrunn, L. V.
**Wilson, W. M.** See Hunter, R. B.
———, Farquhar, J. W., and Lewis, I. C. Procaine penicillin in infants and children, 7545*f*.
**Wilson, W. R.** See Nelson, Richard C.
**Wilson, W. S.** Detn. of sizing by the wet break test, 3611*i*, Al sulfate, P 1926*g*, water resistance—beating, 9441*h*.
**Wilson, W. W.** See Boger, W. P.
**Wilson & Co., Inc.** Upholstery pad, P 8176*c*.
**Wilton, T. O.** Cracking and hydrogenation oils and tars, P 1558*e*.
**Wilts, C. H.** See McCann, G. D., Jr.
**Wiltshire, W. A.** See Dalton, J. A.
**Wilzbach, K. E.** See Mayo, F. R.
———, Mayo, F. R., and Van Meter, R. Prepn., structure, and properties of the dimer of methallyl chloride, 2157*g*.
**Wimett, T. F.** See Dickinson, W. C.
**Wimmenauer, W.** See Mehnert, K. R.
**Wimmer, L.** Basal metabolism, 713*d*, extraclinical detection of pregnancy, 5478*i*.
**Wimmler, N. L.** Chromite deposits of the Stillwater complex, Stillwater and Sweetgrass Counties, Mont., 2132*d*.
——— and Cole, W. B. Diamond drilling in the Metaline district in Pend Oreille County, Wash., 6123*b*.
**Wimsatt, W. A.** See Wislocki, G. B.
**Winand, L.** Action of developers and chromic acid on latent image formed by charged particles, 2527*b*, print-out images produced on nuclear photographic emulsions by $\alpha$-particles from Po, 8923*b*; see Sauvenier, H.
**Winans, G. D.** See Collins, L. F.
**Winberg, H.**, and Öbrink, K. J. Chemistry of enterogastrone, 4747*c*.
**Winbury, M. M.** See Hambourger, W. E.
——— and Crittenden, P. J. Intravenous saline tolerance, 1487*d*.
———, Schmalgemeier, D. M., and Hambourger, W. E. Simple assay for parasympatholytic agents using the lacrimation response in rats, 3146*e*.
**Winch, A. R.** See Leonard, E. A.
**Winchell, A. N.** What is a mineral? 8981*b*.
**Winchester, A.** Biology (book), 6083*b*.
**Winckel, M.** Biologie der Volksernährung (book), 5465*h*.
**Winckelmann, J.** Auskunftsbuch für die chemische Industrie (book), 8075*a*.
**Winckler, J. R.** See Chang, W. Y.
**Wincor, W.** See Kleinert, T.
**Windecker, C. E.** See Schormuller, A.

**Windeçk-Schulze, K.,** and Pieper, J. Detn. of cellulose, 9435*b*.
**Winderlich, R.** Alchemy, 1229*h*; Eilhard Mitscherlich, 6013*g*; burning glasses as aids in chem. research, 8759*h*.
**Windes, S. L.** Phys. properties of mine rock (I), 4190*i*.
**Windham, E. S.** See Babcock, C. J.
**Winding, C. C.** Polymerization, 7759*c*; refining mineral oil, P 9427*c*; see Dittman, F. W.
**Windisch, F.** Infection-free brewing and sterile racking of beer, 4423*b*; centrifugal force for beer and wort clarification, 4423*d*.
**Windisch, S.** See Enders, C.
**Windus, W.** Tanning with free HCHO and melamine simultaneously, P 6452*h*.
**Winebrenner, L. E.,** and Marx, W. Effect of dietary cholesterol on metabolic rate of hyperthyroid rats, 6709*b*.
**Winegard, H. M.,** Toennies, G., and Block, R. J. Detection of S-contg. amino acids on paper chromatograms, 2665*i*.
**Winfield, K.** See Dole, V. P.
**Wing, L.,** and Dawson, A. Asbestos and assocd. rocks of northwestern Maine, 8318*i*.
**Wing, M.** See Rapoport, S.
**Wingard, M. R.,** and Shand, W. C. Detn. of the rate of extn of crude lipides from oil seeds with solvents, 7720*i*
**Wingate, I.** Textile Fabrics (book), 7234*i*.
**Wingate, P. J.** See Du Pont de Nemours, E. I., & Co.
**ıge, Ö.** Yeast in genetics, 4339*c*.
**ıgfield, R. T.,** and Wilbur, K. M. Effects of electrolytes and sugars on the erythrocytes of the turtle, 3939*a*.
**ıgfoot Corp.** (*Patents*) Allyl and substituted allyl esters of allyl carbonate derivs. of aliphatic hydroxy acids and their polymers, 3152*d*, azo esters, 4293*f*, butadiene - butylene copolymer rubber, 7163*e*, 2 chloroindone, 7018*d*, coagulation of emulsion polymers, 5635*g*; color stabilization of vinyl halide resins, 3655*g*, 1-cyano 1,3-butadiene, 7953*a*, 2-cyano-2,3 diacetoxybutanes, 9080*d*, β-cyano vinylacetic acid esters, 6651*c*, delustering copolymer filaments, 8693*e*, diallyl diethanolamine, 7265*b*, dichloropropyl-α-chloroacrylate, 2223*f*, α,β dihaloacrylates and their polymers, 3236*c*, diketo acrylates, 7511*f*, dodecin polymerization products, 7806*e*; dithiofurole acid derivs., 4314*a*, ...oline resistant coated fabric, 3208*i*, α-haloacrylates, 3027*b*, hydrazo esters, 4293*b*, N-isopropylmethacrylamide, 4334*a*; low temp vulcanization of rubber, 5626*h*; methylol dithionaphthoates, 6666*i*; modifying vinyl chloride vinylidine chloride copolymers with phenol HCHO resins, 7134*d*, nitriles, 2227*h*, 3027*d*, polyamides, 6214*j*, polymer and copolymer of allyl carbamate, 9531*f*; polymeric materials from isocyanates and isothiocyanates with acrylic acids, 4516*e*; polymerization of propiolates, 4514*g*, polymers and copolymers from chloroacrylophenones, 9531*g*; polymers of butadiene and alkyl esters of α,β dichloroacrylic acid, 5638*e*, polymers of butadiene and tetrahydrofurfuryl methacrylate, 9519*d*; polymers of cyclohexyl - α - chloracrylate and 1,3-butadiene, 2471*a*, polymers of diallyl chloromaleate and 1,3-butadiene, P 6866*b*; polymers of halo allyl esters of carboxylic acids, 432*h*; polymers of substituted acrylonitriles and 1,3-butadiene or derivs. thereof, 7753*i*; polymers of vinyl chloride and vinylidene chloride, 5637*h*; polymers of vinylfuran and chloroprene, 9532*h*; polymers of vinylfuran and vinylidene chloride, 9532*f*; porous compns., 9535*a*; reaction of a piperylene with a halo-substituted maleic anhydride, 3227*h*; reclaiming elastomers, 8733*b*, removing volatile material from latex, 3226*i*, 4889*i*; rubber hydrochloride film, 3227*d*; splicing Butyl rubber, 5624*g*; synthetic rubber latex, 3228*b*, synthetic rubber sponge, 6901*h*, tetrahydrofurfuryl α-chloroacrylate, 3166*a*; treatment of polymeric material, 9530*c*; treatment of rubber, 3650*d*; urea HCHO resins, 8738*i*; vinyl chloride, 2688*b*, vinyl chloride-alkyl ester of unsatd dicarboxylic acid copolymer sponge compn., 3239*f*; vinylidene chloride-polyvinyl chloride blend, 2471*c*.
and Triggs, W. W. 2-Cyanoethyl α-chloroacrylate, P 3027*c*; tetrahydrofurfuryl α chloroacrylate, P 3040*g*.
**Wingler, A.** Malaria and synthetic antimalarials, 4365*b*.
**Wingo, C. W.,** and Thomas, G. W. Development of the two-spotted spider mite in the presence of DDT and other insecticides, 1522*h*.
**Wingo, W. J.** See Dziewiatkowski, D. D.; Hendrix, B. M.
**Winheim, A. H.** Leather industry—tanning, 7246*f*.
**Wink, W. A.,** and Dearth, L. R. Measurement of water-vapor permeability at low temp., 5949*a*.
**Winkelmann.** Cutting oils for machining metals, 6400*h*.
**Winkelmann, H. A.** Gasket compn., P 7260*d*.
**Winkenwerder, W. W.** See Gay, L. N.
**Winkle, J. L. van.** See Van Winkle, J. L.
**Winkle, M. van.** See Van Winkle, M.
**Winkle, Q. van.** See Van Winkle, Q.
**Winkler, A.,** and König, H. Electron-optical findings with bacteria, 7083*c*.
**Winkler, A. W.** See Danowski, T. S.; Elkinton, J. R.
——, Man, E. B., and Danowski, T. S. Min dosage of thiourea, given together with I medication, necessary for the production and maintainance of a remission in hyperthyroidism, 6740*g*
**Winkler, C. A.** See Bardwell, J.; Eager, R. L.; Graham, W.; Hutcheon, A. T.; Wright, G. F.
**Winkler, D. E.,** and Ballard, S. A. Production of thioketones, P 3491, thiophenols from cyclohexenones, P 1062*i*.
—— and Mortimer, R. H. Alkylation of phenols, P 687*e*.
**Winkler, E.** See Kast, W.
**Winkler, H. G. F.** Clays and their properties, 5559*g*, crystn. of basaltic magma as recorded by variation of crystal size in dikes, 6127*f*; relation between crystal size and distance from walls in magmatic dikes, 7873*g*.
**Winkler, J. H.** Significant developments affecting photoengraving, 5081*a*.
**Winkler, K., & Cie.** Expansive cement, P 4413*e*; concrete or mortar stable to frost, P 7662*b*.
**Winkler, U.** See Virtanen, A. I.
**Winkler, W.** Therapeutic studies with citric acid in rickets, 5464*e*.
**Winkler, Werner.** 1,2 - Diacetylbenzene, 1030*f*.
**Winkler, Willibald.** Purification of technical K chlorate, 2377*i*; prepg. $ZnCl_2$ in the pharmacy, 3147*a*, AcOH and acetates in the Austrian pharmacy, 3565*d*, secale alkaloids, 5550*h*, structure and synthesis of chloromycetin, 5907*i*, vitamin F prepns., 6368*h*; German pharmacopeia (D. A.-B. 7), 6790*b*, pontocaine hydrochloride—identity with pantocaine, 8099*i*.
**Winkler, W. O.** Detn. of 2-aminopyridine in oranges, 6752*c*; enzymic oxidation of thiourea in frozen peaches, 7155*g*, detn. of thiourea in foods, 9274*i*; detection of decompn. in fruits and fruit products, 9280*f*.
**Winkler-Julesz, E.** See Julesz, M.
**Winn, H.,** and Shelton, J. R. Effect of certain antioxidants in GR-S—O absorption, 2460*e*.
**Winnek, P. S.,** and Faith, H. E. 10-Carboxyacylphenothiazines, P 3853*h*.
**Winnick, C. N.** See Milas, N. A.
**Winnick, T.** See Greenberg, D. M.
——, Peterson, E. A., and Greenberg, D. M. Incorporation of $C^{14}$ of glycine into protein and lipide fractions of homogenates, 7538*d*.
**Winning, C.** Oxidation inhibitor for lubricating oils, P 6405*f*.
**Winning, J.** C and S, 4180*f*.
**Winninghoff, W. J.** See Found, C. G.
**Winocourow, M. A.** See Vinokurov, M. A.
**Winogradowa.** See Vinogradova.
**Winokourow, M. A.** See Vinokurov, M. A.
**Winokur, M.** Aging effects in *Chlorella* cultures, 5095*d*.
**Winsberg, L.** See Krueger, H. H. A.
——, Meneghetti, D., and Sidhu, S. S. Total neutron cross sections of compds. with different cryst. structures, 4106*e*.
**Winsche, W. E.** See Borst, L. B.; Johnstone, H. F.
**Winslow, A. F.** See Kearsley, W. K.
**Winslow, E. H.** See Zemany, P. D.
**Winslow, J. A.** See Fowell, D. M.
**Winslow, N. M.,** and Heise, G. W. Conducting chem. reactions, P 2478*a*.
**Winsor, P. A.** Hydrotropy, solubilization and related emulsification processes (I), (II) solubilization of petroleum ether with Na-secondary $C_{10}$-$C_{18}$ alkyl sulfates, (III) solubilization of miscellaneous org. liquids with Na secondary $C_{10}$-$C_{18}$ alkyl sulfates—effect of dilu., (IV) solubilization with miscellaneous amphiphiles; (V) solubilization in ethylene glycol, (VI) effect of temp. on the solubilization of liquids, (VII) solubilization of solids, f.-p. depression effects in solubilized systems, (VIII) effect of constitution on amphiphilic properties, 465*g*.
**Winsor, T.,** and Ottoman, R. Influence of benzylimidazoline on the peripheral circulation, 5866*h*.
**Winstein, S.** See Jacobs, T. L.; Kepner, R. E.
—— and Schlesinger, A. H. Exchange at the 6-position of *i*-cholesteryl Me ether, 659*g*
**Winsten, W. A.,** and Figen, E. Streptomycin complex using paper partition chromatography, 8199*h*, vitamin $B_{12}$ and related factors in the nutrition of *Lactobacillus leichmannii*, 4334*c*.
**Winston, D. H.** See Wilson, J. Walter
**Winston, H.,** and Halford, R. S. Motions of mols. in condensed systems (V) classification of motions and selection rules for spectra according to space symmetry, 8856*e*.
**Winston, J. R.** Vitamin C content and juice quality of exposed and shaded citrus fruits, 2708*f*; see Miller, F. V.
——, Meckstroth, G. A., and Roberts, G. L. 2-Aminopyridine, inhibitor of decay in oranges, 3133*i*.
**Winston, L.** See Lusskin, R. M.
**Winston, W. B.** U, 2901*d*, pumice, 2901*i*, Ba, 3947*g*.
**Wint, R. F.** See Coughlan, J. J.
**Winter, A.** Same as Winter Klein, A.
**Winter, A. R.** See Schlamb, K. F.
**Winter, C. A.** Potentiating effect of antihistaminic drugs on the sedative action of barbiturates, 312*i*.
**Winter, E. R. S.** Measurement of abundance ratios of nonradioactive isotopes, 2861*h*; Thiele acetylation of quinones, 5379*b*; see Mackenzie, H. A. E., Pethica, B. A.
**Winter, F.** Crèmes de beauté, 1906*h*, how hair dyes work, 2373*h*, 9386*h*, Handbuch der gesamten Parfumerie und Kosmetik (book), 5552*d*; Riechstoffe und Parfumierungstechnik (book), 8619*i*
**Winter, F. K.** See Simek, B. G.
**Winter, G.** Properties of makita oil, 4031*f*, photochem. activity of paint pigments, 5604*i*; see Krantzer, I.
**Winter, H.** Temps prevailing in the water-gas generator, 1550*h*
**Winter, H. J. J.** Work of G. T. Fechner on the galvanic circuit, 7761*f*.
**Winter, L. L.** Electrode for vacuum discharge app., P 1274*e*.
**Winter, P. K.** See Cooper, M. D.
**Winterberg, S. H.** See MacIntire, W. H.
**Winterbottom, A. B.** Detn. of thin films on reflecting bases in transparent environments, 1621*f*.
**Winterbottom, R.** See Bell, P. H., Clark, J. H., Shepherd, R. G.
**Winterfeld, K.,** and Brill, L. H. Viscotoxin, a component of the mistletoe, 2942*i*
—— and Kink, M. Constitution of viscotoxin, 7940*f*
**Winterfeldt, E. K.** See Knuth-Winterfeldt, E.
**Winteringham, F. P. W.** Prepn. of AgBr ppts. for radioactivity measurements, 8271*b*.
**Winter-Klein, A.** Variation of birefringence of glass in the region of transformation, 458*g*; problem of annealing glass, 1161*e*.
**Wintermans, J. F. G. M.** See Wassink, E. C.
**Wintermute, G. E.** See Sperati, C. A.
**Wintermute, H. A.** Two-stage elec. precipitator, P 6098*a*.
**Winternitz, F.** See Mousseron, M.
—— and Mousseron, M. Synthesis of some antibiotic agents (I), 5387*h*.
**Winters, D. L.** Control of upflow-type sedimentation basins, 2716*i*.
**Winters, H. F.** See Loustalot, A. J.; Plank, H. K.
**Winters, J. C.,** and Kunin, R. Ion exchange in the pharmaceutical field, 4423*g*.
**Wintersteiner, O.** See Adler, M.; Menzel, A. E. O.
—— and Dutcher, J. D. *d*-Chondocurarine halides, P 1914*f*; antibiotics, 9153*b*.

——— and MacPhillamy, H. B. Cryst. Na penicillin G, P 3154*f*.
——— and Moore, M. Δ⁵-Cholestenol, 9077*d*.
**Wintgen, K.** Countercurrent kollergang, 2772*h*.
**Winthrop Chemical Co., Inc.** 1-(3,4-Dihydroxyphenyl) - 2 - amino - 1 - butanol, P 4696*b*; amino acids, P 6653*c*.
**Winthrop-Stearns Inc.** (*Patents*). Alkyl esters of α-acylamino-α-cyano-3-indolepropionic acid, 1442*d*; diarylalkylamino heterocycles, 1810*e*; leucine, 2225*c*; benzoyl peroxide bleaching compn., 2710*c*; amide production, 3027*i*, 3028*b*, thiamine salts, 4433*e*, 5552*h*, esters of α-acyl-α-acylamino - 3 - indolepropionic acid, 5806*g*; enrichment compn., 5881*c*; 1-(dihydroxyphenyl) - 2 - amino - 1 - butanol and its intermediates, 6664*d*; oxazolines, 9388*i*.
**Winton, B. S.** See Hamer, F. M.
**Winton, E. R.** Processing of woolled sheepskins, 7692*a*.
**Wintringham, J. S.** See Calingaert, G.
**Wintrobe, M. M.** See Cartwright, G. E.; Greenberg, G. R.; Gubler, C. J.
——— and Cartwright, G. E. Anemias in swine and their relation to liver ext. deficiencies, 8471*a*.
———, Greenberg, G. R., Humphreys, S. R., Ashenbrucker, H., Worth, W., and Kramer, R. Anemia of infection (III) uptake of radioactive Fe in Fe-deficient and in pyridoxine-deficient pigs before and after acute inflammation, 2695*g*.
**Winz, P.** See Kuchenhoff, O.
**Winzenried, H. U.,** and Wanntorp, H. Genetic influence on the vitamin A and carotene contents of milk of uniovular calf twins, 1098*h*.
**Winzler, R. J.** Metabolic inhibitors, 9205*g*; see Frieden, E.; Glick, D.; Hardwick, V. L.; Lesser, A. J.; Lipsett, M. B.; Mehl, J. W.
———, Devor, A. W., and Mehl, J. W. Isolation and characterization of proteose from human plasma, 2303*i*.
**Wirén, R.** See Eckert, P.
**Wirges, M. F.,** and Palm, J. W. Production of chemicals by oxidation of natural-gas hydrocarbons, 8643*e*.
**Wirtel, A. F.** See De Groote, M.
**Wirth, A.** Moisture content of hygroscopic materials, P 6114*h*.
**Wirth, T.** See Kuecht, O.
**Wirts, C. W.** Clinical and lab. use of bromosulfalein, 2657*i*, see Cantarow, A.
**Wirts, J. J.** Effluent chlorination at Cleveland, 5138*f*.
**Wirtz, K.** Kinetic theory of thermoosmosis, 3265*h*, is there an electron and energy distribution system in proteins? 3481*e*, quantum theory and phys. chemistry, 5659*c*; range of neutrons in C and heavy water, 6075*g*; thermodiffusion and heat of transport in condensed phases, 8835*c*; see Heisenberg, W.
**Wirwille, J. W.** See Mitchell, J. W.
**Wirz, E.** See Meier, Rolf.
**Wisansky, W. A.,** and Ansbacher, S. 4-Bromo-o-xylene, 1733*c*; 2,3-dimethylaniline, 1734*d*.
**Wischhusen, J. F.** Mn and other essential elements in life process, 6720*d*.
**Wischnewsky, A. K.** See Vishnevskii, A. K.
**Wisconsin Alumni Research Foundation.** Diesters of 3,3′-methylenebis(4-hydroxycoumarin), P 1067*c*; 4-hydroxycoumarins, P 4701*d*, 6671*c*; 10,11-dihydrophenanthro[2,1-*d*]isoxazole and its 7-methoxy derivative, P 7054*f*.
**Wise, C. E.** See Bloom, E. G.; Mohler, F. L.
**Wise, C. S.** See Brown, E.
**Wise, E. C.** Lower alkyl esters of ascorbic acid, P 3154*c*; see Weisblat, D. I.
**Wise, E. M.,** and Vines, R. F. Pd plating, P 1665*c*.
**Wise, F. A.** See Mrose, M. E.
**Wise, G. H.** See Allen, R. S.; Murley, W. R.; Parrish, D. B.
**Wise, G. W.** See Miller, Herbert C.
**Wise, H.** Dispersal of triethylene glycol vapor with aerosol bombs, 4405*i*, see Robertson, O. H.
**Wise, J. E.** See Dorfman, R. I.
**Wise, J. K.** Self-hardening compn. of melamine-HCHO resin and a hydrated alk. earth oxide, P 8739*b*, see Scholz, H. A.
**Wise, L. E.** Chemistry of the hemicellulo... 3609*f*; polysaccharide from iles mannan, 9381*b*; see Pearl, I. A.
——, Green, J. W., and Rittenhouse, R. C. Paper partition chromatography of the simple sugars, 9433*f*.
— and Ratliff, E. K. Distribution of mannans in the wood of slash pine and black spruce, 2425*i*.
——— and Rittenhouse, R. C. Arabinose units in pinewood and in kraft pulp, 9433*h*.
**Wise, L. L.** Richland (Washington) story (II) artificially recharged wells provide city water, (III) sewage and garbage, 9301*h*.
**Wise, P. H.** 1-Cyano-1,3-butadiene, P 7953*a*, see Serijan, K. T.
**Wise, W. D.,** Loker, F. F., and Brambel, C. E. Effectiveness of dicoumarol prophylaxis against thromboembolic complications following major surgery, 4384*b*.
**Wisegarver, B. B.** See Redemann, C. E.
**Wisely, H. R.** See Gebler, K. A.
**Wisely, W. H.** Stream pollution control activities of industrial assocns., 8079*i*.
**Wiseman, A. J. S.** Dust problems in gas works, 4445*e*.
**Wiseman, B. K.** See Brown, Ray K.
**Wiseman, E. L.,** and Gregory, N. W. Vapor pressure of TaBr₅, 8224*i*.
**Wiseman, G.** Use of cation-active finishes 7233*h*.
**Wiseman, P.** See Drogin, I.
**Wiseman, P. A.** See McBee, E. T.
**Wisler, C. O.,** and Brater, E. F. Hydrology (book), 6770*i*.
**Wislocki, G. B.** Seasonal changes in the testes, epididymides, and seminal vesicles of deer, 8490*d*, see Dempsey, E. W.
———, Bunting, H., and Dempsey, E. W. Metachromasia in mammalian tissues and its relation to mucopolysaccharides, 7401*e*.
———, Deane, H. E., and Dempsey, E. W. Histochemistry of rodents' placenta, 5466*f*.
——— and Dempsey, E. W. Chem. cytology of normal blood and hemopoietic tissues, 2683*f*, histochem. reactions in placenta of cat, 5466*a*.
——— and Wimsatt, W. A. Chem. cytology of placenta of 2 N. Am. shrews, 7077*e*.
**Wiśniewska, J.** Tech. planning in the Polish chem. industry, 8073*a*.
**Wiśniewski, T. F.** Furan resins, 8197*a*.
**Wiss, A. J.** Liquefied dicyclopentadiene, P 4693*e*.
**Wiss, O.** Formation of alanine by incubation of pyruvic acid and histidine with liver ext., 5054*e*; free amino acids in blood in various feeding studies (I) essential amino acids, (II) unessential amino acids, 5834*f*, free amino acids in liver with various diets (III) valine, leucine, isoleucine, methionine, phenylalanine, histidine, arginine, lysine, tryptophan, threonine, cystine, tyrosine, proline, and oxyproline, 7562*i*, L-kynurenine-splitting enzyme kynurenmase, 9122*f*, see Krueger, R.
——— and Hatz, F. Degradation of tryptophan to alanine and anthranilic acid in animal organisms, 5095*f*.
———, Hatz, F., and Violher, G. Degradation of tryptophan in the animal organism, 9202*d*.
——— and Krueger, R. Influence of oral and parenteral administration of glucose on alanine content of the blood, 1846*i*, free amino acids in liver with various diets (I) alanine, glutamic acid (glutamine), and aspartic acid, 5095*h*.
**Wisseman, C. L., Jr.** See Lemon, H. M.
**Wissler, A.** Concn. function of viscosity in colloid solns., 6885*e*.
**Wissler, R. W.** See Benditt, E. P.; Jaffé, E. R.
———, Findley, J. W., Jr., and Frazier, L. E. Pancreatic islet hyperplasia in rats force fed high carbohydrate diets, 6709*a*.
**Wit, H. de.** See Rathenau, G. W.
**Wit, S. D. de.** See Raven, C. P.
**Wit, W. de.** See Ignatius, J. G. W.
**With, T. K.** See Jørgensen, J.
**Wither, R. P.** See Reithel, F. J.
**Witheridge, W. N.** See McCord, C. P.
**Withers, J. G.** See Huff, H. J.
**Withers, S. M.** See Kerr, R.
**Witherspoon, J.** Speeding cotton stapling with electronic fibrograph, 1571*d*.
**Witherup, S. O.** See Treon, J. F.
**Withner, C. L.** B-vitamin changes during development of cucurbit and tomatoes, 5456*f*, 8461*f*, movement of $P^{32}$ in maturing corn plants, 8021*a*.
**Withrow, L. L.** See Fry, A. S.
**Witkop, B.** Aspidospermine (I), 1427*b*; plant poisons, 3888*f*; see Woodward, R. B.
**Witlin, B.** See Gershenfeld, L.
**Witmer, E. E.** Nuclear magnetic moments as integral multiples of a natural unit 4095*c*.
**Witmer, J. H. M.** See Postma, N.
**Witoszynskyj, G. M.** Austrian pharmacopeia, 815*f*; detn. of fat consts., 879*a*, phytohormones, 3493*h*; unsolved problems of chemotherapy, 6743*d*.
**Witt, C. C. de.** See De Witt, C. C.
**Witt, J. B. de.** See De Witt, J. B.
**Witt, N. F.** See Castle, R. N.; Larsen, J. Poe, C. F.
**Witt, P.** See Jung, F.
**Witt, P. R., Jr.,** and Ohle, R. L. Enzyme activity relative to end fermentation of malt-converted corn mashes, 8090*i*.
**Witt, T. W. de.** See De Witt, T. W.
**Wittcoff, H.** Drying oils from 2,2,6,6 tetramethylolcyclohexanol and linseed fatty acids, 4871*c*, rosin-acid esters, P 8402, low-ash condensation products, P 8743, satd. esters of ketone-HCHO condensation products, P 9527*h*.
**Witte, M.** *p*-Nitrobenzenesulfonyl chloride P 6232*a*; see Lind, C. J.
——— and Welge, M. G. *p*-Nitrobenzenesulfonyl chloride, P 6232*b*.
**Witte, R. S.,** Mrowca, B. A., and Guth, E. Propagation of audiofrequency sound in high polymers, 6855*h*.
**Witten, B.,** and Miller, J. I. Radioactive diisopropyl fluorophosphate, 2507*e*.
——— and Rosen, H. H. Nuclear halogenated derivs. of α,α-dihydroxymalonamide 5788*b*.
**Wittenberg, J.,** and Shemin, D. Glycine for the biosynthesis of both types of pyrroles in protoporphyrin, 4356*a*.
**Wittenwyler, C. V.** See Shokal, E. C.
**Witter, R. F.,** Snyder, J., and Stotz, E. Colorimetric detn. of acetylacetone and related β-diketones, 2123*f*.
——— and Stotz, E. Synthesis and properties of triacetic acid, 1724*f*, metabolism of triacetic acid and related diketones, 2296*i*.
**Wittfoht, A. M.** Kunststofftechnisch Wörterbuch (book), 900*g*.
**Wittholz, W.** See Lockemann, G.
**Wittig, G.** Autoxidation of aldehydes and its inhibition, 604*d*.
——— and Keicher, G. Metal org. compds., 5758*a*.
———, Keicher, G., Ruckert, A., and Raff, P. Bi-alkali metal diorg. complexes, 7418*e*.
———, Mangold, R., and Fellet-comp. Stevens and Sommelet rearrangement viewed as "vide" reactions, 6177*b*.
——— and Vidal, F. Bromination of fluorene 4658*f*.
**Wittka, F.,** and Muscari Tomajoli. Changes in the acidity of poppy oil during various treatments of the seeds, 1051*i*.
**Wittker, M.** See Wojahn, H.
**Wittkopf, I.** See Schmidt, Hans.
**Wittle, E. L.** See Swendseid, M. E.
**Wittler, R. G.,** and Pillemer, L. Soluble equine tetanal antitoxin in methanol-water mixts. of controlled pH, ion strength, and temp., 8523*d*.
**Wittman, P.** See Horwitt, M. K.
**Wittmann, G.** Detn. of basic N in oil 2891*b*.
**Wittmer, E. F.** Alternating two-stage filtration of sewage and milk waste, 3581.
**Wittner, F. H.** See Hirschbold-Wittner.
**Witts, L. J.** See Cameron, D. G.
**Wittwer, S. H.** See Sarkar, B. C. R.
———, Stallworth, H., and Howell, M. "Hormone" spray for overcoming delay in fruit set and increasing yields of outdoor tomatoes, 1518*a*.
**Witty, R.** High vacuum technique, 7271*f*.
**Witzel, H.** See Wagner-Jauregg, T.
**Witzke, W.** See Wahab, A.
**Wizinger, R.** Cu-contg. dyes, 6419*e*.
——— and Biro, V. Formazyl complexes, 6589*a*.
**Wjetaher, A. S.** See Vecher, A. S.
**Wladimiroff.** See Vladimirov.
**Wladislaw, B.** See Hauptmann, H.
**Wlasjuk, P. A.** See Vlasyuk, P. A.
**Wlassow.** See Vlasov.
**Wlodawetz, N. I.** See Vlodavets, N. I.
**Wocasek, J. J.,** and Koch, J. R. Fluor catalysis at 175° of the reaction—glycol plus fatty acid, 4030*g*.
**Wode, G.** See Holm, U.
**Wodicka, V. O.** See Brenner, S.
**Woeldike, A.** See Schüler, H.
**Woglum, R. S.,** Plummer, C. C., and Sh... J. C. Insecticides for citrus black... 3555*g*.
**Wohl, M. G.,** Wolfe, S. O., Green, S...

**Clough, G. B.** Relation of blood sugar and hypoproteinemia to antibody response in diabetics, 4759*h*.
**ohler, L. A.,** and Greenup, H. W. Mold adhesive for foam rubber, P 8194*e*.
**ohlers, H. C.** See Milas, N. A.
**ohlers, J.** See Hugi, E.
**ohlfarth, E. P.** Anomalous values of the thermionic emission constant, 481*d*; thermionic emission consts. and band overlap, 3704*c*; collective electron ferromagnetism (III) Ni and Ni-Cu alloys, 4941*e*.
**ohlhuter, M.** See Domange, L.
**ohnsiedler, H. P.** Thermosetting resins plasticized with polyesters, P 9527*b*.
**ohrer, H.** Hygroscopic device, P 5237*b*.
**oinar, A. O.** See Voinar, A. O.
**oislowski, S.** See Olynyk, P.
**oiwod, A. J.** See Linggood, F. V.
— and Linggood, F. V. Production of riboflavin and allied substances during the growth of *Corynebacterium diphtheriae*, 721*f*, amino acid constitution of diphtheria toxin and toxoid, 4760*h*
**oizechowsky, R. W.** See Voltsekhovskii, R. V
**ojahn, H.** Bromometric titration of sulfonamides, 1908*e*; detn of the halogen content of quinoline compds., 6113*b*.
— and Wittker, M. Bromination of sulfathiazole and sulfapyrimidine compds., 3801*b*
**ojahn, J.** See Weitzel, G
**ojciechowski, M.** Lab. still-head, 4521*b*.
**ojcieszak, P.** Polish fermentation industries, 2733*c*.
**ójcik, J.** Mud for rotary drilling, 3995*c*
**ojtkiewicz, A. A.** See Voltkevich, A. A.
**ojtowicz, W.** See Heller, W., Watson, J. R. J.
**okes, F** See Daglish, C
, Barr, J. R., Brunskill, L., and Shaw, A. C. Vitamin C in English tomatoes, 7815*b*
— and Melville, R. Vitamin C in the walnut, 3946*a*.
— and Nunn, G. Vitamin C in potatoes, 2256*b*
**Kolak, M** See Orchin, M
**Kolarovich, Wolarowitch, Wolarowitsch.** See Volarovich, M. P
**Wolcott, G. N.** Termite repellents, 6356*d*, of Cu most effective in making resistant to the attack of the West dry-wood termite, 9341*c*, termite repellent, 9341*e*
**Wolcott, H** Auxiliary spray and cleansing nt for water treating app using zeolite P 3548*h*
**Wolcott, R. H.** Animal Biology (book), 5
**Woldan, A** Detection of Ag in silicates, loss of
**Wolf, A** Liquid level measurement and control, P 2618*a*
**Wolf, A V** Estn of changes in plasma and extracellular fluid vol following changes in body content of water and certain solutes, 2666*h*
— and Ball, S M Effect of intravenous Cl salts on renal excretion, 8557*e*.
**Wolf, C** Irradiation of milk in the U.S., 4550*d*
**Wolf, C. S.** See Hamilton, J. H.
— and Kruppa, W. J. Dustless plastification of ultramarine raw mix, P 9483*a*.
**Wolf, D E** See Brink N. G.; Folkers, K.; Harris, S A., Kaczka, E A.
— Harris, S A., and Folkers, K. Synthesis of biotin, P 3467*f*.
— and Shabica, A. C. Synthesis of biotin, P 3469*e*
**Wolf, F A** See Sharp, D. G.
**Wolf, F J** 2- and 4-Aminoquinazolines, P 4704*a*, 2- and 4-sulfanilamidoquinazoline, P 7042*a*
, Beutel, R. H., and Stevens, J. R. Substituted sulfaquinoxalines (II) derivs. and isomers of 2-sulfanilamidoquinoxaline, 174*c*, 2-chloro 4-aminoquinazoline, 1780*c*.
—, Elmendorf, E. T., Denkewalter, R. G., and Tishler, M. Cryst. salts of dihydrostreptomycin, 6369*d*.
—, Pfister, K., III., Beutel, R. H., Wilson, R. M., Jr., Robinson, C. A., and Stevens, J. R. Substituted sulfaquinoxalines (III) extension of the glyoxalate synthesis of 2-aminoquinoxaline, 3383*g*.
— and Tishler, M. Streptomycin prepn. of reduced toxicity, P 6372*e*.
**Wolf, G. M.** Rubber industry in the Detroit area, 891*c*.
— and De Hilster, C. C. Ultra-accelerators in GR-S, 5987*a*.
**Wolf, J.** See Hodsman, H. J.
**Wolf, J. M.** See Miller, B. L.
**Wolf, J. S.** Motion-sickness chewing gum, P 3982*b*; see King, J. H.
**Wolf, K.** Chem. reactions in fur tanning, 1205*g*; one-bath chrome tanning, 6851*b*.
**Wolf, K. L.** See Ramsauer, R.
— and Metzger, G. Complex formation and complex equil., 7793*b*.
— and Wolff, R. Supermols., 6043*i*.
**Wolf, L. M.** See Glazko, A. J.
**Wolf, M. J.,** MacMasters, M. M., Hubbard, J. E., and Rist, C. E. Comparison of corn starches at various stages of kernel maturity, 727*a*.
**Wolf, P. A.** See Coleman, G. H.
**Wolf, R. E.** See Allen, E. M.
**Wolf, S.,** and Wolff, H. G. Action of drugs and various chem. agents on the gastric mucosa and gastric function, 3106*b*.
**Wolfangel, R. D.** See Johnson, Bernard L.
**Wolfcovitche, C.** See Vol'fkovich, S. I.
**Wolfe, B.** Materia plastiche (book), 900*g*.
**Wolfe, C. W.** Two-circle goniometer, 8748*i*; ludlamite from the Palermo Mine, North Groton, N Hampshire, 8986*a*.
**Wolfe, D. M.,** Kornfeld, L., and Markham, F. S. Indirect complement fixation test applied to Newcastle disease immune avian serum, 4760*a*.
**Wolfe, H. J.** Printing and Litho Inks (book), 8705*a*
**Wolfe, K. J. B.,** and Robinson, I. R. Effect of metallic segregation on the cutting power of high speed steel tools—application of microradiography, 4994*d*.
**Wolfe, R. A.** See Enns, J. H.
**Wolfe, R. D.,** and Ballou, N. E. Yields of the Pt-group radio-isotopes in the high-energy He ion bombardment of U, 4123*e*.
**Wolfe, T A. de.** See De Wolfe, T. A
**Wolfe, W. D.** See Borders, A. M
**Wolfenbarger, D. O.** Nutritive value of phosphatic insecticides, 1899*d*, guava insects, 3135*b*, wireworm control, 3139*i*
— and Westgate, P J Mealybug control on pineapples, 4416*i*
**Wolfenden, J. H.** See Cottrell, T. L.; Levi, D. L.
**Wolfenstein, L.** Theory of proposed reactions involving polarized protons, 6505*g*; polarization effects in *n-p* and *p-p* scattering, 8845*g*
**Wolff, Emillienne.** See Wolff, Étienne.
**Wolff, Étienne,** and Strudel, G. Substance having an ambisexual activity—3-*cis*-, 17-*trans*-androstanediol, 3087*g*.
— and Wolff, Étienne. Action of *dl*-bisdehydrodoisynolic acid on genital tracts of chick embryos, 1474*c*.
**Wolff, G.** See Stranski, I. N.
**Wolff, Hanns.** Al content of the blood, 4322*b*
**Wolff, Hans.** Photolysis of AgBr and AgCl in water, 6088*c*; see Langlois, D. P
**Wolff, H. G.** See Torda, C., Wolf, S.
**Wolff, I. A.** See Cowan, J. C.
— and Rist, C. E. Polysaccharide aryl carbamates, 153*i*; aryl carbamate derivs. of D glucosan<1,5>β<1,6> and of 1,2-isopropylidene D-glucose, 1331*g*.
**Wolff, J.** See Nichols, C. W., Jr.
— and Chaikoff, I. L. Relation of thyroxine to total I in the thyroid gland, 8032*c*; plasma inorg. iodide, a chem. regulator of normal thyroid function—inhibitory action of excessive iodide on synthesis of diiodotyrosine and thyroxine in the thyroid gland, 8036*g*.
—, Chaikoff, I. L., and Nichols, C. W., Jr. Accumulation of thyroxinelike and other I compds. in the fetal bovine thyroid, 8493*i*.
**Wolff, J. P.** Potentiometric study of the acidimetric properties of fatty acids and their derivs., 3269*h*; acidimetric properties of soaps, 6886*h*; see Charlot, G.
**Wolff, K.** See Raub, E.
**Wolff, L.** See Sagal, E. L.
**Wolff, P. M. de.** Multiple Guinier cameras, 911*i*.
**Wolff, R.** See Wolf, K. L.
—, Drouet, L., and Karlin, R. Occurrence of vitamin B$_{12}$ conjugase in human plasma, 7557*d*.
— and Lavergne, E. de. Adenosinetriphosphoric acid of the erythrocytes in various pathol. conditions and in anemias, 299*h*.
**Wolff, W. A.,** Hawkins, M. A., and Giles, W. E. Nicotine in blood in relation to smoking, 3521*h*; estn. of nicotine in blood, 4724*b*.
**Wolfhagen, H. J.** See Cason, J.
**Wolfhard, H. G.** See Gaydon, A. G.; Klaukens, H.
— and Parker, W. G. Emissivity of small particles in flames, 499*a*; evapn processes in a burning kerosene spray, 4840*a*.
**Wolfinger, H.** Production of wet-strength papers by means of beater additives—effects of polyethylenimine, 403*g*.
**Wolfkowitsch, S.** See Vol'fkovich, S. I.
**Wolford, E. Y.** Heat-resistant polystyrene, 5996*d*.
**Wolfrom, M. L.** See Binkley, W. W. Dickey, E. E.
—, Berkebile, J. M., and Thompson, A. Synthesis of perseulose (L-galaheptulose), 8358*e*.
— and DeWalt, C. W. Configuration of streptose, 1330*c*.
—, Georges, L. W., and Miller, I. L. Cryst. derivs. of isomaltose, 2583*b*.
**Wolfson, D. E.** See Reynolds, D. A.
**Wolfson, K.** Gravure printing process and device, P 54*h*.
**Wolfson, W. Q.,** Cohn, C., Calvery, E., and Ichiba, F. Serum proteins (V) estn. of total protein, true albumin, total globulin, α-globulin, β-globulin, and γ-globulin in 1.0 cc. of serum, 265*f*.
—, Cohn, C., and Devaney, W. A. Ascending paper chromatography on large-size filter paper sheets, 8806*f*.
—, Cohn, C., Levine, R., Rosenberg, E. F., and Hunt, H. D. Liver function and serum-protein structure in gout, 4761*e*.
—, Huddlestun, B., and Levine, R. Transport and excretion of uric acid in man (II) endogenous uric acidlike chromogen of biol. fluids, 7111*c*.
—, Levine, R., and Tinsley, M. Transport and excretion of uric acid in man (I) true uric acid in normal cerebrospinal fluid, in plasma and in ultrafiltrates of plasma, 7111*b*.
**Wolinsky, E.** See Steenken, W., Jr.
—, Wetzel, V., and Steenken, W., Jr. Tuberculostatic effect of Furacin, 5445*a*.
**Wolk, I. L.** Emulsion polymerization, P 3650*h*; alkylation of hydrocarbons, P 4458*d*.
**Wolken, J. J.** See Miller, E. V.
**Wolkenstein.** See Vol'kenshtein.
**Wolkow, Wolkowa.** See Volkov, Volkova.
**Woll, E.** Effects of folic acid deficiency and a folic acid antagonist on chicks, 7097*d*.
**Wollan, E. O.** See Hoover, J. I.
—, Davidson, W. L., and Shull, C. G. Neutron diffraction study of the structure of ice, 5252*d*.
**Wollenberger, A.** Action of narcotics and local anesthetics on the respiration of heart muscle, 1862*f*.
— and Krayer, O. Heart failure caused by central nervous system depressants and local anesthetics, 1862*e*.
**Wollentin, R. W.** See Nagy, R.
**Wollman, E.** Proline synthesis and bacteriophage resistance of *Escherichia coli* mutants, 5821*e*; metabolic deficiencies associd. with the acquisition of resistance to bacteriophage, 9165*g*
**Wollman, S. H.** See Michaelis, L.
**Wollner, P.** Melting furnace of the immersion heater type for tar, asphalt, and the like, P 4460*d*.
**Wolman, A.** See Gorman, A. E.
**Wolman, I. J.** See Dickstein, B.
— and Evans, A. N. Phosphatases in relation to clinical pediatrics, 6727*c*.
**Wolnow, J. N.** See Vol'nov, Yu. N.
**Wolny, J.** See Kamecki, J.
**Wolochow, H.** See Doudoroff, M.
**Wolodin, E. A.** See Volodin, E. A.
**Wolodina, M. A.** See Volodina, M. A.
**Wolodkewitsch, W.** See Krumbholz, G.
**Wolowa, E. D.** See Volova, E. D.
**Wolpers, C.** Disklike and lamellalike modifications in the structure of collagen, 2844*b*.
**Wolsky, A(lexander).** Same as Wolsky, S(ándor).
**Wolsky, S.,** Csík, L., and Fábián, G. Detg. body color in *Drosophila melanogaster*, 9269*d*.
**Wolstenholme, S.** Detn. of Fe in chrome liquors by means of thioglycolic acid, 5981*f*.
**Wolten, G. M.,** and King, C. V. Transference nos. of Zn and Cd sulfates at 25°, as functions of the concn., 4930*e*.
**Wolterek, K.** Dyeing and printing with vat dyestuffs, 4856*i*.
**Wolthorn, H. J.** See Herdle, A. J.

**Wolthuis, E.**, and Shafer, H M. Hydroxy aromatic carboxylic acids, P 3040*c*.
**Woltz, P. J. H.**, and Jones, E. A Infrared and Raman spectra of $COF_2$, 7821*a*.
**Woltz, W. G.** See Nelson, W. L.
**Womack, M.** See Rose, W. C.
**Wommelsdorf, R.** Removal of nitrates from plating baths, 7833*i*.
**Wompe, A.** See Vompe, A. F.
**Wong, E.** See Rossiter, R J.
**Wong, S. C.** See Cox, Herald R.
**Wong, S. Y.** HCHO, P 2221*c*.
**Woo, M.**, and Huyck, C. L. Diabetic sirups, 3144*i*.
**Woo, P.-L.** Nuclear morphogenesis, 31*e*.
**Woo, Y. H.** See Mandeville, C. E.
——— and Sun, C. P. Absorption of x-rays, 4132*e*.
**Wood, A. A. R.** Detn. of W in steels, 4179*a*.
**Wood, A. M.**, Crank, J., and Twigg, G. H. Application of the differential analyzer to a problem in chem. kinetics, 26*c*.
**Wood, B.** See Schlesinger, E. B.
**Wood, C.** Phthalocyanine dyes for cotton, P 7704*e*; see Coffey, S., Haddock, N H.
**Wood, C. H.**, and Isherwood, H Solo chrome cyanine as a colorimetric reagent for Be—detn. in Mg and Mg alloys, 5327*h*.
**Wood, D. C.**, and Emms, W. B., Jr. Influence of butyl 2,4,5-trichlorophenoxyacetate on the development of tuber abnormalities in Irish potatoes, 9339*f*
**Wood, D. R.** Effect on gastric secretion of different rates of histamine infusion and of neoantergan, 1868*g*.
**Wood, E. C.** Application of statistics to chem. analysis, 4595*f*, 8944*a*, organoleptic tests in the food industry (III) statistical considerations, 8065*g*.
**Wood, E. H.**, Geraci, J E., Neher, M., and Cronin, L. Detn of arterial O satn in man, 4324*e*.
**Wood, E. J.** Phosphor material, P 6517*e*, 7831*e*.
**Wood, G.**, and Rait, J R Ferritic steels for gas turbines, 4617*e*, 7884*e*
**Wood, G. W.** Polish manuf., 2451*g*
**Wood, H. C. S.** See Battersby, A R.
**Wood, H. G.** Synthesis of liver glycogen in rat as an indicator of intermediate metabolism, 5482*g*; see Lifson, N; Shreeve, W. W.
——— and Lorber, V. Carbohydrate metabolism in higher animals 9190*a*.
**Wood, H. S.** See Hayes, J G
**Wood, H. W.** See Kendall, J D.
**Wood, J.** See Burns, R E
**Wood, J. F.** See Emeléus, H. J
**Wood, J. G.**, and Hone, M R N metabolism of plants (VIII) utilization of α-oximino-carboxylic acids by oat plants, 1082*e*.
———, Hone, M R, Mattner, M. E., and Symons, C. P N metabolism of plants (VII) toxicity of some oximes and oximino acids to *Azotobacter* and their utilization, 2276*c*.
**Wood, J. H.** See Campbell, A N.
——— and Gibson, R E. Bis[1(and 2)-(substituted-amino)ethyl]benzenes (I) 2,5-bis(2-aminoethyl)hydroquinones, 3387*i*.
**Wood, John L.** See Carpenter, F. H, Stevens, C. M.
——— and Gutmann, H. R Radioactive L-cystine and D-methionine—resolution of radioactive racemates by isotopic diln., 7902*h*.
———, Rachele, J R, Stevens, C M., Carpenter, F H, and Vigneaud, V. du. Reaction of some radioactive mustard-type vesicants with purified proteins, 707*a*
——— and Van Middlesworth, L. Cystine from radioactive S, 7902*e*.
——— and Williams, E. F., Jr Metabolism of thiocyanate in the rat and its inhibition by propylthiouracil, 3111*b*
**Wood, Joseph L.**, and McMullin, R. B. Anhyd fusions contg. $MgCl_2$, P 8919*e*.
**Wood, J. N.** Future developments in water supply, 7165*g*; Sheffield water undertaking, 9304*h*.
**Wood, J. W.** Distribution of org. S compds. in town gas, 3170*g*; combustion characteristics of town gas, 3170*h*.
——— and Claydon, E. W. Combustion characteristics of town gas, 3596*e*.
**Wood, L.** See Bacon, R G R.
**Wood, L. A.** Rubber technology and research in Western Europe, 5981*i*.
——— and Tilton, L. W. *n* of natural rubber for different wave lengths, 9513*c*.
**Wood, L. A., Jr.**, and O'Mahony, E. D. Vinyl copolymer resin compns., P 9532*a*.
**Wood, L. K.** See Gross, W. G
**Wood, M. E.**, and Gray, C. H. Urinary excretion of neutral 17-ketosteroids in childhood, 5843*f*.
**Wood, M. L.** See Crampton, D. K.
**Wood, Petts.** See Murphy, A. J
**Wood, Phyllis.** See Bensley, E H.
**Wood, P. B.** See Bray, H G.
**Wood, P. J.** Evaluation of enzymes in textile processing, 6829*d*.
**Wood, R. E.** See Dickinson, R G
**Wood, R. G.** Applications of radioactive isotopes in medicine, 7637*g*
**Wood, R. R.**, and Nelson, R T. Comparison of various chloride and sulfate salts as fertilizers for sugar beets, 5142*i*
**Wood, S. A.** See Mitchell, W.
**Wood, T. F.** α-(Acetoxymethyl)acrylonitrile polymers, P 2630*e*.
**Wood, T. R.** See Barnes, H M; Brink, N. G.; Rickes, E L; Stokes, J L.
**Wood, W.** See Nachod, F C
**Wood, W. A.** See Wilms, G R.
——— and Rachinger, W A Crystallite theory of strength of metals, 4198*c*
**Wood, W. B.**, and Smith, M R Inhibition of surface phagocytosis by the capsular "slime layer" of pneumococcus type III, 7087*d*
**Wood, William H.** X-ray-opaque marking means, P 2872*a*, developing inks, P 8706*c*, photographic developer, P 8925*h*, see Fasce, E V.
**Wood, William Herman.** Vinyl ester-dioxolane copolymers, P 9532*c*.
**Wood, W. L.** See Distillers Co., Ltd
**Wood, W. S.** See Slater, V W
———, Clennett, G, and Laporte, B., Ltd $ZnO_2$, P 1928*c*.
**Woodall, E. A.** Au *L* spectrum, 6079*f*
**Woodall-Duckham (1920) Ltd.** Stripping and rectifying unit of benzine-contg. wash-oil, P 6403*c*
———, Rider, D, and Chadder, W J. Recovery of crude benzene from benzene ized wash oil, P 2768*a*.
**Woodard, D. H.** Deformation of Monel metal as shown by polarized light, 9012*i*.
**Woodard, G.** See Radomski, J L
**Woodard, H. Q.** See Adair, F E
**Woodberry, D. L.**, Howerton, W W, and Dunbar, A. Incendiary material, P 1190*g*.
**Woodbine, M.** See Brownlee, G.
**Woodbridge, R. G., III**, and Dougherty, G Sulfadation reaction and its application to some 4-substituted-2-aminothiazoles, 8380*h*.
**Woodburn, H. M.** See Sroog, C E.
——— and Sroog, C E Prepn and properties of esters related structurally to certain insecticides, 5761*h*.
**Woodbury, D. M.**, and Davenport, V. D. Brain and plasma cations and seizures in normal and desoxycorticosterone-treated rats, 7146*a*.
**Woodbury, J. W.** See Eyring, H
**Woodbury, L. A.** See Sayers, M. A.
**Woodbury, R. A.** See Ahlquist, R P
**Woodcock, D.** Insecticidal activity and chem constitution (1) chlorinated *p*-chloroethylbenzenes, 6991*c*; see Batt, R. F.
**Woodcock, R. F.** See Duckworth, H. E.
**Woodcock, W. A.** Plasticizers, 5628*c*.
**Wood Conversion Co.** Defibering lignocellulose, P 1980*c*, 2436*c*; fibrous products from lignocellulose, P 2436*d*; surface fluxing coated liner, P 7163*b*.
**Wooddell, C. E.** See Baumann, H. N., Jr.
**Woodell, R.** Artificial filaments and yarn, P 4021*a*.
**Woodford, E. K.**, and Gregory, F. G App. for the study of salt uptake and root respiration of whole plants, 1080*b*.
**Woodford, R. B.** See Shenkin, H. A.
**Woodhead, A. H.** Industrial solvents, 3118*e*, phthalocyanine colors, 7715*g*.
**Woodhead, M.** See Barrer, R. M.
**Woodhouse, D. L.** Microestn. of thymine, 6270*g*, see Hamer, D.
**Wooding, N. S.** See Entwistle, D.
**Woodland, P. C.** See Boyer, R. F.
**Woodman, D.** See Hobson, W.
**Woodman, T. C.** Loom temple, P 6430*c*.
**Woodmansee, C. W.** See Baker, G. L.
**Woodriff, R.** See Gaines, P. C.
**Woodroffe, D.** Standard Handbook of Industrial Leathers (book), 5618*d*; Fundamentals of Leather Science (book), 5618*e*.
**Woodroof, J. G.**, Shelor, E., and Cecil, I. A. Frozen sweet corn, 1495*e*.
———, Thompson, H. H., and Cecil, S. R. Peanut butter, 3534*h*; how refrigeration protects quality of peanuts, 3534*i*.
**Woodrow, A. W.** Tests with DDT on honey bees, 2361*a*.
**Woodrow, W. A.** See Evans, E. B.
**Woodruff, A. W.** See Murgatroyd, F.
**Woodruff, C. M.** Detn of the exchangeable H and lime requirement of the soil 1131*d*
**Woodruff, C. W.**, Cherrington, M. E Stockell, A. K., and Darby, W. J. Effect of pteroylglutamic acid and related compds on tyrosine metabolism in the scorbutic guinea pig, 5835*f*.
**Woodruff, E. H.** See Kolloff, H. G.
**Woodruff, H. B.** Bacteriol. spectra and microbiol synthesis of the natural penicillins, 4339*d*, see Perlman, D.; Scudi, J V
——— and Ruger, M. Physiology of *Streptomyces griseus* on proline medium, 272*e*
**Woodruff, J. A.** Classification of direct dyes, 407*h*; flame retardant, P 3210*a*; selection of dyes and dyeing procedures for viscose-rayon cake-dyeing, 7232*d*.
**Woodruff, N.** See Turner, N
——— and Turner, N Effect of dispersing and spreading agents on toxicity of DDT spray powders, 8087*h*
**Woods, A., Jr.** See Coker, R G
**Woods, A. C.** See Friedenwald, J S
**Woods, B.** See Grollman, A
**Woods, C. W.** Water filter with back wash arrangement, P 2720*c*.
**Woods, D. D.** Sulfonamides as antagonists of *p*-aminobenzoic acid in microbiology 5078*h*
**Woods, E.** See Fincke, M. L
**Woods, E. F.** See Tolliday, J. D
**Woods, G. F.**, Griswold, P H, Jr, Armbrecht, B H, Blumenthal, D J, and Plapinger, R Syntheses with dihydroresorcinol monoethyl ether. 3-alkyl-Δ²-cyclohexenones, 9044*f*
——— and Reed, F. T *m*-Diarylbenzenes, 6185*g*
——— and Schwartzman, L. H 1,3,5 Hexatriene, 557*i*, 1,3,5,7-octatetraene, 615*e*
——— and Tucker, J W Synthesis of *m*-diarylbenzenes, 610*h*
**Woods, H.** See Bonner, W A
**Woods, H. A.**, and Plantefeber, J M Lubricating soap greases, P 9133*d*.
———, Yates, W. J., Klingen, L., and Barton, R C Grease, P 5940*e*
**Woods, H. J.** Structure of textile fibers (III) fiber properties and mol arrangement, 5190*h*.
**Woods, J. P.** Application of a heat pump to paper-machine driers, 4165*f*
**Woods, L. A.** See Cochin, J., Wyngaarden, J B
———, Wyngaarden, J B, Rennick, B R, and Sevvers, M H Cardiovascular toxicity of thiobarbiturates—comparison of thiopental and surital, 4768*f*
**Woods, M. W.** See Deans, A L; DuBuy, H G., Kahler, H.
**Woods, R.** Nutritional factors in liver disease, 1095*a*, fluorine in the diet, 1095*b*, food utilization, 1095*b*; dietary interrelations nicotinic acid-tryptophan 1844*b*, vitamin $B_{12}$, 3075*b*, dietary interrelations—pyridoxine and amino acid metabolism, 5099*h*.
**Woods, S. B.** See Katz, L.
**Woods, S. E.** Reduction of oxides of Fe as a diffusion controlled reaction, 1932 see National Smelting Co Ltd.
**Woods, W. P.** See Gates, C W
**Woods, W. W.** See McBain, J. W.; Robinson, J. V.
——— and Robinson, J. V. Emulsified antifoams for aircraft lubricating oils, 3603*a*
**Woodside, A. M.** Tetraethyl pyrophosphate for control of the periodical *Cicada*, 1899*c*; tobacco stalk borer, 5147*i*; insecticides for control of cat-facing on peaches, 8088*d*.
**Woodside, G. L.** See Kidder, G W.
**Woodside, L. M.** Relation of felts paper-machine production, 4405*e*
**Woodside, T. J.** El Paso slag treatment plant, 8999*i*.
**Woodside, V.** See Stone, W. A.
**Woodstock, W. H.** Phosphonic and thiophosphonic acid chlorides, P 7499*e*
**Woodward, B. A.** See Dye, J. A., McCandless, E.
**Woodward, C. F.** See Haines, P. C; Mayer, E. L.; Swain, M. L.
———, Howard, F. L., Keil, H. L., and Weil, L. Fungicidal nicotinium salt compns., P 5151*h*.

—— and Provost, R. C., Jr. Alkylnicotinium arylsulfonate pesticide, P 1903*d*.
—— and Weil, L. Nicotinium salts, P 3968*i*.
**Woodward, D. W.** Films with hydrophilic polyvinyl acetal sublayers, P 3738*d*; hydrophilic dye intermediates, P 9471*c*; see Corner, J. O.
**Woodward, E. F.** See Lewis, T.
**Woodward, E. R.** Treating shrimp, P 3541*a*; bleaching of glycerides with chlorine dioxide, P 0844*a*.
**Woodward, F. L.** Sampler for deep-water surveys, 3119*h*.
**Woodward, F. N.** Monothioethylene glycol and thiodiglycol, 2935*g*; estn. of thiols, 6114*c*; see Meade, E. M.
**Woodward, L. A.** See Bell, R. P.
—— and Glover, A. T. Mo oxide catalysts for the reduction of phenol to benzene, 2081*c*.
**Woodward, L. L.** See McCown, D. A.
——, McCown, D. A., and Pool, M. L. Radioactive Br isotopes, 485*h*, radioactive Kr isotopes, 936*h*.
**Woodward, P.** See Pollard, F. H.
**Woodward, R. B.** Biogenesis of the strychnos alkaloids, 240*b*.
—— and Brehm, W. J. Structure of strychnine—formulation of the neo bases, 657*g*.
——, Brutschy, F. J., and Baer, H. Structure of santonic acid, 2192*i*.
—— and Doering, W. v. E. 7-Hydroxyisoquinoline derivs., P 9086*e*.
—— and Kornfeld, E. C. Action of alkali on chloralquinaldine, 1411*i*.
—— and McLamore, W. M. Synthesis of sempervirine metachloride, 3010*g*.
—— and Singh, G. Structure of patulin, 2093*c*.
—— and Witkop, B. Structure of ketoyohyrine, 1422*f*; structure of sempervirine, 3016*e*.
**Woodward, R. L.,** and LeBosquet, M., Jr. Effect of reservoir operation on stream water quality, 9301*h*.
**Woodward, W. M.,** and Halpern, I. Angular distribution of the photo-disintegration of the deuteron, 6909*g*.
**Woody, E., Jr.,** and Avery, R. C. Effect of KI and streptomycin on tuberculosis, 7508*i*.
**Woodyard, J. R.** See Bradner, H.; MacKenzie, K. R.
**Wooley, J. G.,** and Murphy, M. K. Metabolic studies on T2 *Escherichia coli* bacteriophage (I) desoxypyridoxine inhibition and its reversal, 6697*f*.
**Woolf, C.** See Distillers Co., Ltd.; Galitzenstein, E. G.
**Woolf, D. O.,** and Smith, T. R. Test for alkali-aggregate reaction, 3589*i*, 6388*d*.
**Woolf, L. I.** Ergothioneine in urine, 5441*c*; see Cooper, K. A.; Dhar, M. L.; Hughes, E. D.
**Woolf, W. E.** See Lagemann, R. T.
**Woolfolk, E. O.** See Orchin, M.
—— and Orchin, M. 2,4,7-Trinitrofluorenone, 1753*g*.
**Woollam, J. P. V.,** and Jackson, A. Removal of oxides of S from exit gases, 1882*e*.
**Woollatt, E.** Chem. engineering thermodynamics—steady-flow energy balance equations, 6006*e*.
**Woolley, D. W.** Purification of an influenza virus substrate and competitive antagonism to apple pectin, 2314*e*, applications of antagonism between structurally similar compds. to studies of infectious diseases, 1336*h*, lycomarasmine, 4643*a*, synthesis and detn. of lycomarasmine activity of some derivs. of aspartic acid, 4643*e*; structural analogs antagonistic to pteroylglutamic acid in microbiology, 5444*d*, isolation of some cryst. yellow peptides from enzymic digests of dinitrophenyl insulin and dinitrophenyl trypsinogen, 7067*e*; discovery purification, and chem. properties of streptogenin, 7196*a*.
**Woolley, G. W.,** and Chute, R. Effect of steroids on adrenal cortical tumor formation in mice, 7124*e*.
**Woolley, H. W.** Effect of Fermi resonance on the thermodynamic functions of gaseous $CO_2$, 4066*b*; effect of limiting summation over vibrational levels on calcns. of thermodynamic properties, 5274*e*.
——, Scott, R. B., and Brickwedde, F. G. Compilation of thermal properties of H in its various isotopic and ortho-para modifications, 2057*b*.
**Woolley, R. v. d. R.,** and Allen, C. W. Coronal emission spectrum, 1262*i*.
**Woolman, J.** Fe and steel, 4788*b*.
**Woolridge, R. L.** See Benditt, E. P.
**Woonsocket Rayon, Inc.** Flotation process of clarifying regenerating baths, P 4014*c*.
**Wooster, C. B.** Methacrylonitrile by pyrolysis of 1-(2-isonitroso-*tert*-butyl)-pyridinium chloride, P 7498*i*.
**Wooster, W. A.** Measurement of the intensities of x-ray reflections from crystals—reflection of x-rays at non-Bragg angles, 6509*b*.
——, Ramachandran, G. N., and Lang, A. X-ray counter-spectrometers for single-crystal measurements, 4566*f*.
**Wooten, A. L.** Detn. of certain phenols, 4603*f*.
**Wootton, I. D. P.** See King, E. J.
**Wootton, T. P.** See Wells, E. H.
**Worden, C. O.** See Zapffe, C. A.
**Woringer, J.** See Perret, A.
**Work, E.** Estn. of ergothioneine by paper partition chromatography, 5441*b*; amino acids of *Corynebacterium diphtheriae*, 8001*e*; see Work, T. S.
**Work, L. T.** Crushing and grinding, 1227*g*.
**Work, R. W.** Effect of variations in degree of structural order on some phys. properties of cellulose and cellulose acetate yarns, 6829*h*.
**Work, S. H.** See Willett, E. L.
**Work, T. S.** Biochem. effects of mutation, 4710*f*.
—— and Work, E. Basis of Chemotherapy (book), 1115*g*.
**Workman, R. E.** Developments for high styrene-butadiene copolymers in protective coatings, 5606*e*.
**Worley, W. J.** See Findley, W. N.
**Wormall, A.** See Banks, T. E.; Boursnell, J. C.; Dewey, H. M.; Town, B. W., Watkins, W. M.
**Wormell, R. L.** See Courtauulds Ltd.
—— and Happey, F. Regenerated keratin fibers, 2777*i*.
——, Milbidge, A. F., and Knight, C. L. Extn. of protein from seeds, P 3514*j*.
**Wormell, T. W.** See Shaw, J. H.
**Wormwell, F.** Influence of movement on corrosion of metals in salt solns. and natural waters (I) low speed rotation of mild steel—peripheral velocities below 100 ft. per min., 2150*c*.
—— and Brasher, D. M. Electrochem. studies of protective coatings on metals (I) electrode-potential measurements on painted steel, 6835*d*.
——, Nurse, T. J., and Ison, H. C. K. High-speed rotor tests of paints for underwater service, 3210*f*.
**Worner, H. W.** Prepn. and some properties of ductile Ti, 6551*g*.
**Worobjew, Worobjewa.** See Vorob'ev, Vorob'eva.
**Woroch, E. L.** See Johnson, William S.
**Worochobine, I. G.** See Vorokhobin, I. G.
**Woronin, N. I.** See Voronin, N. I.
**Woronkoff, M. G.** See Voronkov, M. G.
**Worrall, R. L.** Energy and Matter (book), 6088*i*.
**Worrell, F. T.** Twinning in tetragonal alloys of Cu and Mn, 984*h*.
**Worscha, H.** See Wurz, O.
**Worson, L.** Bituminous emulsions, P 5186*g*.
**Worstell, D. M.** See Brody, S.
**Worth, D. C.** Coincidence measurement of neutron energy, 4112*h*.
**Worth, W.** See Greenberg, G. R.; Wintrobe, M. M.
**Worthen, E. L.** Farm Soils (book), 2356*a*.
**Worthington, E. A.,** and Nicholson, D. G. Coordinated Co soaps as paint driers, 6836*d*.
**Worthington, H.,** Sharp, F. L., and Imperial Chemical Industries Ltd. Penicillin, P 1915*d*.
**Worthington Pump and Machinery Corp.** Zeolite water softener with provisions to regenerate the filter bed with brine and reverse flow of water under pressure, P 2720*b*; water clarifier, P 4406*g*.
**Worthy, T. S.** See Saunders, B. C.
**Woskressenskaya, N. P.** See Voskresenskaya, N. P.
**Woskressenskij, P. I.** See Voskresenskiĭ, P. I.
**Woskressjenskaja, N. P.** See Voskresenskaya, N. P.
**Wotis, J. H.** See Newman, M. S.
**Woud, H.** Dried cheese, P 330*c*.
**Wouters, L. F.** See MacKenzie, K. R.
**Woyski, M. S.** Intrusives of central minnesota, 6128*i*.
**Wozencroft, C. J. M.** Soln. G and other urinary calculi solvents, 1528*e*.
**Wragg, W. R.** See Barber, H. J.; May & Baker, Ltd.
**Wragge, W. B.** Disposal of spent acid pickling liquor, 6138*c*.
**Wranglén, G.** Electrolytic production of Fe powder, 2522*c*; hydroxide content, hardness, internal stress, and cathodic polarization of electrodeposited Fe, 7353*c*.
**Wray, R. I.** Al pigments—effect of particle size on durability, 1991*i*; formulation of Al paint vehicles, 4489*c*; prepn. of Al sheet surfaces for painting, 7716*c*; see Boylan, J. A.
**Wrazej, W. J.** Lattice spacing of retained austenite in Fe-C alloys, 4205*g*.
**Wreath, A. R.** Detn. of P in org. compds., 6937*a*.
—— and Zickefoose, E. J. Estn. of tetraethyl pyrophosphate, 8976*g*.
**Wredden, J. H.** Microscopic examn. of enameled wire, 420*c*, microscopic examn. of plastic materials (VI) moldings (*g*), mineral fillers, (VII) moldings, 2027*i*.
**Wrenn, T. R.** See Sykes, J. F.
**Wrenshall, G. A.,** Collins Williams, J., and Hartroft, W. S. Incidence, control, and regression of diabetic symptoms in the alloxan-treated rat, 5111*c*.
**Wretlind, K. A. J.** Effect of synthetic amino acids essential for growth on the body wt. of growing rats, and the synthesis of the amino acids used, 6295*i*.
**Wride, W. J.** See Wilke, C. R.
**Wright, A.** Tests for shellac and other resins, 4492*c*; chem. constitution of shellac, 5607*a*.
**Wright, B. A.,** and Cole, P. A. Examn. of the crystal structure of L-proline, 6488*e*; low angle x-ray diffraction camera, 7333*g*.
**Wright, C. C.** Alternate fuels for the ceramic industry, 2389*a*.
—— and Newman, L. L. Gasification of anthracite in the Wellman-Galush producer, 378*e*.
—— and Reagan, W. J. Cupola operations with anthracite, 9411*g*.
**Wright, C. I.** See Mason, H. S.
**Wright, C. W.** Cb contg. steel, P 9019*i*.
**Wright, D.** See Sykes, C.
**Wright, D. A.** Work function and energy levels in insulators, 933*h*, energy levels in oxide cathode coatings, 934*a*.
**Wright, D. E.** See Clendenning, K. A.
**Wright, D. L.** See Davis, W. S., Jr.
**Wright, E. A.** See Young, J. K.
**Wright, E. C. B.** See Barton-Wright, E. C.
**Wright, E. N.** See Gunn, D. L.
**Wright, E. P.** See Petty, D. S.
**Wright, E. R.** See Greear, J. A.
**Wright, E. S.** See Klarmann, E. G.
**Wright, F. B.** Lime distributor, 5979*h*.
**Wright, G. F.** Small-scale expts. for the org. chem. lab.—prepn. and isomerization of *l*-menthanone, 6875*e*, see Aristoff, E.; Bell, A., Brockman, F. J., Chute, W. J.; Eastcott, E. V.; Hochstein, F. A.; McKay, A. F.; Myers, G. S., Richmond, H. H.; Smart, G. N. R.
—— and Chute, W. J. Nitramines, P 4286*g*.
—— and Winkler, C. A. Recovering acid in the production of cyclonite, P 8682*i*.
**Wright, G. G.,** and Schomaker, V. Denaturation of antibody (IV) influence of pH and certain other factors on the rate of inactivation of *Staphylococcus* antitoxin in urea solns., 2304*i*.
**Wright, G. M.** See Feldman, K.
**Wright, G. P.** See Ambache, N.
**Wright, G. T.** See Staudinger, J. J. P.
**Wright, H.** See Treon, J. F.
**Wright, H. B.,** and Freifelder, M. *m*-Aminophenyl 2 - (1 - piperidyl)ethyl ketone monohydrochloride, 5780*h*.
—— and Moore, M. B. Reactions of aralkylamines with $CO_2$, 1351*f*.
**Wright, H. D.** See Kulp, J. L.
**Wright, H. E., Jr.** Sealing and potting compn., P 2716*a*.
**Wright, H. F.** See Milas, N. A.
**Wright, H. N.** See Fink, L. D.
—— and Montag, M. Textbook of Pharmacology and Therapeutics (book), 1870*i*.
**Wright, H. R.** See Williams, V. H.
——, Donaldson, W. J., and Imperial Chemical Industries Ltd. Mononitration products of toluene, P 2637*d*.
**Wright, J.** See King, H.
**Wright, J. A.** See Allman, S. L.

**Wright, J. B.** Histamine antagonists (IV) indole and carbazole derivs., 4257*e*; (V) 1 - (2 - dimethylaminoethyl)benzimidazole derivs., 7021*g*; see Reid, W. B., Jr.
——, Kolloff, H. G., and Hunter, J. H. Histamine antagonists (I) alkamine ethers, 630*h*.
**Wright, J. F. H.** See Patrick, R.
**Wright, J. G. E.** Heat-curable elastic compns. of matter, P 1212*c*; dimethyl silicone products, P 2026*c*.
**Wright, J. W.** See Clar, E.
**Wright, K. O.** Line intensities in the spectra of K-type stars, 8877*b*.
—— and Van Dien, E. Spectrum of ε Aurigae, 1946–48, 938*i*.
**Wright, L. D.** See Skeggs, H. R.
——, Skeggs, H. R., and Huff, J. W. Ability of thymidine to replace vitamin $B_{12}$ as a growth factor for certain lactobacilli, 270*c*.
**Wright, L. E. A.** Inorg. I content of the saliva in hyperthyroidism following the administration of KI and the effect of 2-thiouracil and 4-methylthiouracil, 317*e*
**Wright, M. H.** Thymidine and vitamin $B_{12}$, 9159*i*
**Wright, M. J.** See Menary, J. W.
**Wright, M. M.**, and Taylor, H. S. Interaction of methane and methane-$d_4$ on Ni and the state of the catalyst surface, 7802*f*.
**Wright, P. A.**, and Greenbank, G. R. Effect of the ascorbic acid content of fluid milk on the keeping quality of its dried product, 8567*g*.
**Wright, P. H.** See Simpson, J. C. E.
**Wright, R.** See Grant, A
**Wright, R. A. M.** Temp estn. in basic open-hearth practice, 6552*d*.
**Wright, R. C.**, Whiteman, T. M., Caldwell, J. S., Culpepper, C. W., and Hutchins, M. C. How good will potatoes be after storage? 9289*g*.
**Wright, R. D.** See Tauber, H.
**Wright, Robert E.** Materials handling, 1227*i*.
—— and Harris, M. Textile research pays dividends, 1125*c*.
**Wright, Roy E.** Chem stabilization of sand speeds driving of 10-foot tunnel, 7659*c*
**Wright, R. G.** Chemistry of barrier creams, 5901*i*.
**Wright, S.** See Chennels, M.
—— and Braddock, Z. I. Amts of melanin in the hair of diverse genotypes of the guinea pig, 6721*i*.
**Wright, S. E.** Constitution of evodione, 2994*e*.
**Wright, S. L.** Calorific value considerations, 6808*a*, control of gas quality, 7666*a*.
**Wright, W. A. S.** Load support characteristics of aircraft greases, 5935*f*, corrosion-preventive characteristics of aircraft greases, 5936*e*
**Wright, W. G.** Effect of moisture on the H bond in carboxylic and sulfinic acids, 7454*d*; mol. wt. and structure of the acid K compds. of 1- and 2-naphthalenesulfinic acids, 9056*e*.
**Wright, W. S.** Ward Cu deposit, Seward Peninsula, Alaska, 6949*g*, see Bjorklund, S. C., Heide, H. E.; Webber, B. S.
—— and Tolonen, A. W. Mount Andrew Fe deposit, Kasaan Peninsula, Prince of Wales Island, S. E. Alaska, 7384*c*.
**Wrightsman, G. G.** Consolidation of sands, P 8129*b*.
**Wrightsman, J. H.** See Hansen, D. W.
**Wrigley, A. N.**, Mast, W. C., and McCutcheon, T. P. Laminary form of the periodic table (I), 4909*h*, (II) theoretical development and modifications, 8220*g*.
**Wrinch, D.** Structure of insulin, 16*d*, synthesis of native proteins, 467*g*; protein—physicochem individual, 2258*c*; relation between certain distributions and their corresponding Patterson distributions, 4566*b*.
**Wrixton, C. H.** See Merrill, H. B.
**Wrubel, M. H.** Exact curves of growth for the formation of absorption lines according to the Milne-Eddington model (I) total flux, 4134*f*
**Wray, G.** See Caltabiano, G. B.
**Wu, C. S.** See Feldman, L.; Havens, W. W., Jr.; Longmire, C. L.; Meaker, C. L.
—— and Albert, R. D. β-Ray spectra of $Cu^{64}$, 4119*h*; β-ray spectra of $Cu^{64}$ and the ratio of positron to negatron, 4563*f*.
—— and Feldman, L. β-Ray spectrum of $Cl^{36}$, 8870*c*; β-spectrum of $Yb^{91}$, 8870*e*; β-spectrum of $Be^{10}$, 8870*h*.
——, Havens, W. W., Jr., Albert, R. D., and Grimm, G. Helical focusing β-ray spectrograph, 4095*i*.
——, Townes, C. H., and Feldman, L. Radioactivity of $Cl^{36}$, 8870*c*.
**Wu, H.** See Lee, K.-H.; Liu, S.-C.
**Wu, L. P.**, and Lee, M. T. Bentonite of northern Chekiang, 1292*h*.
**Wu, M.** See Fieser, L. F.
**Wu, T.-Y.**, and Foley, H. M. Sym. meson theory of nuclear forces, 7320*g*.
**Wu, Y.** See Liang, S.-C.
**Wu, Y. H.** See Harris, R. S.
**Wucher, J.** Variation of the moment and Curie point of Pd hydride, 8768*i*.
**Wübben, A.** Nutritional-physiol. considerations with regard to present-day problems, 4354*c*.
**Wüest, H. M.** See Wuest, H. M.
**Wuensch, C. E.** Centrifugal ball mill for ore grinding, P 7401*i*
**Wuerth, F.** See Beller, H.
**Wuerth, H. L.** Materials for wire and cable applications, 4314*h*
**Würth, K.** Damages to coatings and their causes, 5202*h*
**Wuest, H. M.** See Creighton, M.; Schwarzkopf, O.
—— and Solmssen, U. V. Urinary excretion of D-ribose in man, 2683*h*.
**Wuhrmann, F.** See Bobba, P.
—— and Wunderly, C. Cd reaction-test for the evaluation of serum lability - the cephalin cholesterol flocculation and thymol turbidity test, 9225*d*.
——, Wunderly, C., and Hugentobler, F. Blood proteins in 60 cases of plasmocytoma and their clinical significance, 5856*h*.
**Wuhrmann-Meyer, K.**, and Wuhrmann-Meyer, M. Absorption of ultraviolet light by cuticular and wax layers of leaves, 1834*e*
**Wuhrmann-Meyer, M.** See Wuhrmann-Meyer, K.
**Wulf, H.** Survey of fresco painting, 5199*h*
**Wulff, J.** Stainless steel filters, P 3341*a*, see Kamm, R., Udin, H.
**Wulff, O.** Expts. with methylol urea, 5585*g*
**Wullhorst, B.** See Raub, E.
**Wultsch, F.** Mn in pulp and its influence on the aging process in the manuf. of viscose, 396*i*
**Wulzen, R.** See Christensen, B. E.; Ross, L. E.
**Wunder, P. A.** See Vunder, P. A.
**Wunderlich, W.** See Schneider, Armin.
**Wunderly, C.** Effect of yeast nucleic acid, adenosine-3 phosphoric acid, and ATP on the coagulation of fibrinogen, 3478*f*; gelatination of blood serum with fibrinogen, 4760*g*, formation of a symplex from ribosenucleic acid and fibrinogen, 9122*a*, see Bobba, P., Wuhrmann, F.
—— and Hassig, A. Spectrophotometric analysis of the antigen/antibody reaction, 9221*c*
**Wurgler, W.** Stimulation of scar callus in *Prunus armeniaca* with α-naphthylacetamide, 7090*d*.
**Wurm, K.** Auroral spectrum and the nature of the exciting solar particles, 6916*f*, relation between the spectra of the sun's chromosphere and corona and the excitation in the chromosphere, 6916*h*
**Wurmser, R.** Detn. of the coeff. of absorption of a diffusing medium, 2868*g*; Louis Rapkine, 3251*d*.
**Wursten, J. L.** Relative efficiency of some phosphate fertilizers on calcareous soils, 6350*g*
**Wurster, A.** See Stranski, I. N.
**Wurstlin, F.** Dielec. data on the chain mobility of high-mol. substances, 4530*b*.
**Wurtele, M. G.** See Neiburger, M.
**Wurtele, R. K.** Ammonia recovery in soda ash production, P 6375*e*.
**Wurth, W. A.**, and Lane, S. C. Finishing polymers, P 6002*i*.
**Wurtz, A.** Properties of a Cyanophyceae causing waterbloom—*Microcystis aeruginosa*, 9159*g*.
**Wurtzschmitt, B.** Sulfitometric detn. of double bonds, 3316*h*.
**Wurz, O.** Pulping raw materials contg. chaff, 398*e*; significance of the total dry solids content of sulfite liquors on their subsequent treatment, 399*e*; manuf. of safety paper, 403*i*; Sulfitzellstoffherstellung und ihre Nebenerzeugnisse (book), 4852*g*; changes in cellulose pulp during storage, 7227*g*.
—— and Worscha, H. Effect of neutralization temps. on the alc. yields from sulfite waste liquors, 399*d*.
**Wwedensky, A. A.** See Vvedenskiĭ, A. A.
**Wyandotte Chemicals Corp.** Protection of glass surfaces against alkali attack, P 3746*b*, compn for inhibiting foam, P 1202*g*, 4879*d*; chloral, P 2632*a*; laundry-souring compn., P 4022*d*; Ca silicate pigment, P 5991*b*, water-sol. Be compd., P 6374*i*, dust-free alk. detergent product, P 6438*i*, paint remover, P 9302*b*.
**Wyant, D. G.** See Cox, M. W.
**Wyant, R. K.** See Roy, Sharat K.
**Wyart, J.** Synthesis of silicates by reaction in the solid state—role of supercrit. water vapor, 5322*i*, see Guilland, C.
—— and Epelboim, I. Cryst. structure of ferromagnetic foils with electrolytic polishing and x-rays, 8858*h*.
**Wyatt, J. L.** See Jones, Edgar.
**Wycis, H. T.** See Spiegel-Adolf, M.
**Wyck, H. B. van.** See Van Wyck, H. B.
**Wyck, P. van.** See Van Wyck, P.
**Wyckoff, H. A.** Coliform death rates resulting from chlorination of raw sewage, 8586*a*.
**Wyckoff, H. O.**, and Kennedy, R. J. Concrete as a protective barrier for γ-rays from Ra, 8871*d*.
——, Kennedy, R. J., and Bradford, W. R. Broad- and narrow-beam attenuation of 500–1400-kv. x-rays in Pb and concrete, 4132*d*
**Wyckoff, R. W. G.** Electron microscopy of macromol. crystals, 3071*f*, see Hedén, C. G., Polson, A.
**Wyeth, Inc.** (*Patents.*) Substituted glycinamides, 677*f*, antioxidants, 1586*b*, 2339*h*, 2340*a*, dusoeugenol as an antioxidant, 1586*d*, stabilized fat compns., 1800*i*, lactone derivs. of 2-pyridone compds., 3045*h*, disubstituted acetamidyl derivs. of aminoquinolines, 3046*b*, emulsions of vitamins and oil with glycerol, 3572*e*, nordihydroguaiaretic acid and intermediates, 7047*e*, suppository coating, 8621*d*
**Wyk, A. J. A. van der**, and Studer, M. Acidity of cellulose, 9434*i*
**Wylenmann, G. K.** See Keller-Wylenmann, G.
**Wyler, J. A.** Obtaining dipentaerythritol from mixts. contg. the same, P 1435*i*, resinous esters of higher fatty acids with pentaerythritols, P 3232*g*, pentaerythritol condensation products, P 3232*h*, 7240*a*, pentaerythritol conversion, P 3232*i*, epoxy tetramethylolmethane polymerization products, P 3238*g*; recovery of pentaerythritol, P 5030*e*, nitrated products of dehydrated pentaerythritol, P 6223*f*, (hydroxymethyl)alkanes, P 7505*a*
**Wyler, O.**, and Högl, O. Analysis of coffee, coffee exts., and coffee substitutes (*II*), 1498*f*.
**Wylie, D. W.**, and Todd, J. P. Sources and quant. testing of pyrogen, 762*c*.
**Wylie, W. D.** Insecticides for the control of aphids on celery, 346*c*.
**Wyllie, D.**, and Cheesman, G. C. N. Oxidation of turbine oils in the lab., 4001*c*.
—— and Cheesman, G. C. N. $NaNO_2$ as an inhibitor against the attack of sea water on steel (I) influence of $NaNO_2$ on the area and intensity of attack, 7888*i*, (II) addn. of other inhibitors to nitrite, 9016*d*
**Wyllie, M. R. J.** Quant. analysis of the electrochem. component of the self potential curve, 2757*f*; electrochem. properties of shales, 3177*f*
**Wyly, L. D.** Angular distribution of protons in $N^{14}(dp)N^{15}$ reaction, 6910*c*; energy levels in $N^{15}$ and $N^{16}$, 8866*e*; see Pollard, E. C.
**Wyman, C.** See Faist, C. A.
——, Goehring, E. J., and Faist, C. A. Use of high-purity O for decarbonization in 5-ton acid elec. furnaces, 948*i*.
—— and Johnson, G. W. Recovery of V and other alloys in the acid elec. furnace, 1661*f*.
**Wyngaarden, J. B.** See Woods, L. A.
——, Woods, L. A., Ridley, R., and Seevers, M. H. Anesthetic properties of Na 5-allyl - 5 - (1 - methylbutyl) - 2 - thiobarbiturate (surital) and other thiobarbiturates, 4768*e*.
**Wynne, I. H.** See Manegold, R. L.
**Wynne, J. N.** Treatment of fluorspar, P 6378*c*.
**Wynne, R. A.** See Waddell, R. W.
**Wynne-Williams, G.** See Bishop, P. M. F.

**Wysong, W. S.** See Gulbransen, E. A.
**Wyss, A. P.,** and Poe, C. F. Effect of benzoic acids on spoilage organisms, 1493*f*.
**Wyss, O.** Chemical disinfectants, 9387*c*; see Davis, F. L., Jr.
**Wyss, O. A. M.** Respiration, 5838*i*.
**Wyssling, A. F.** See Frey-Wyssling, A.
**Wysszotskaja, N. A.** See Vysotskaya, N. A.

**Xhenseval, P.** See Moureau, P.
**Ximenes, M. R.,** Ferguson, J. H., and Bunce, S. C. Plastic insulation, P 3235*b*.
**"X" Laboratories, Inc.** Leak-stopping compn., P 5520*b*.
**Xuong, D.** See Dat-Xuong.

**Yablokova, I. E.** See Bagotskiĭ, V. S.
**Yablonskaya, V. P.** See Yablonskiĭ, V. S.
**Yablonskiĭ, V. S.,** and Yablonskaya, V. P. Heat exchange between two nonmiscible liquids, 5*f*.
**Yabroff, D. L.** See Walters, E. L.
**Yabuki, S.** See Isobe, H.; Tanaka, Kazuhiko.
**Yabuki, T.** See Tomiyama, T.
**Yabuta, T.** Pure xylitol from xylan-contg. substances, P 3453*a*.
**Yackel, E. C.** Processing photographic materials, P 8025*i*, see Kenyon, W. O.
**Yacowitz, H.,** Norris, L. C., and Heuser, G. F. Microbiol. assay of growth factors, 8417*g*.
**Yadav, H. N.** See Burhop, E. H. S.
**Yaffe, C. D.** See Farner, L. M.
**Yaffe, L.** Industrial uses of radioactivity, 7319*c*.
— and Justus, K. M. Detn. of the max energy of the $\beta$-radiation of $S^{35}$, 6077*b*.
—, Kirsch, M., Standil, S., and Grundlund, J. M. Chain $_{56}Ba^{139}(n,\gamma)_{56}Ba^{141} \rightarrow {}_{55}Cs^{141} \rightarrow {}_{54}Xe^{141}$, 4120*f*.
—, Sargent, B. W., Kirsch, M., Standil, S., and Grundlund, J. M. Neutron capture cross section of 85-minute $Ba^{139}$, 8853*b*.
**Yager, N.** See Krukovsky, V. N., Nelson, Walter L.
**Yager, W. A.** Ferromagnetic resonance absorption measurements on Supermalloy, 4763*c*, ferromagnetic resonance absorption at microwave frequencies, 4066*i*, see Holden, A. N.
— and Merritt, F. R. Ferromagnetic resonance absorption in Heusler alloy, 3764*b*.
—, R. See Shishido, S.
—, S. Turbulent diffusion (I), (II) burning rate of gaseous fuel, (III) length of flame, 2056*c*.
—, S. See Ueno, Seiichi
Yoda, H. Radioactive Measurements with Nuclear Emulsions (book), 3296*e*, see Von Oettingen, W. F.
— and Kaplan, N. O. Spontaneous neutron emission from U and Sm, 8857*f*.
Yovdik, N. K. Influence of the liquid phase on the mech. strength of fireclay refractories at various temps., 3584*i*.
Yremtsev. Coating of glass for Wolf's miner's lamps, 5914*i*.
Yuama, Y., *et al.* Highly polymerized polyamide contg. a hydroxyl group, from furfural, P 6866*h*.
Yuiro, S. See Iguchi, K.
Yuchnikov, I. S. Absorption and elimination of water by casein, 6882*b*.
Yuji, M. See Sumiki, Y.
Yuima, M., and Yazawa, M. Artificial strong fiber, P 6406*g*.
Yuima, T. See Najaki, D.
Yukar, N. See Lacqueur, W.
Yukhina, P. D. See Elgenson, A. S.
Yukhnina, A. Detn. of nitrogenous compds. in cheese, 9284*a*.
Yukhontov, V. D. Soln. of C steel in fatty acids, 5402*a*.
Yukimac, A. See Antonoff, G.
Yukobson, L. M. See Konikova, A. S.
—, Konikova, A. S., Kritsman, M. G., and Melik-Sarkisyan, S. S. Amino acids from $NH_3$ and keto acids by various bacteria, 5084*c*.
Yukolev, P. See Sweet, W. H.
Yukover, E. S. See Gnesin, Yu. D.
Yukovlev, F. G. Bag filter, P 6009*f*.
Yukovlev, G. S. See Burgits, G. A.
Yukovlev, N. N. Effect of phosphates on tissue proteolysis, 7063*h*; biochem. basis for muscle training, 7107*e*.
Yukovlev, P. Ya. Detn. of Mo in steel, 1283*i*, detn. of CaO in slags, 4181*i*; detn. of Mo in ferromolybdenum, 4601*g*.
— and Pen'kova, E. F. Detn. of Mo and Ti in ferrous alloys and steel by the amalgam method, 5333*b*.
**Yakovlev, T. I.** See Gukhman, B. S.
**Yakovleva, G. S.** See Toropova, V. F.
**Yakovleva, N. P.** See Sukhenko, K. A.
**Yakowitz, M. L.** Polymorphic modifications of sulfanilamide, 7287*i*.
**Yakubov, T. F.** Soil erosion due to wind and its prevention, 3549*d*.
**Yakubovich, A. Ya.,** and Nevyadomskiĭ, M. Expts. in the synthesis of acridine, 232*i*.
—, Rudenko, V. A., and Merkulova, E. N. Acetylation of $\alpha$-cyanohydrins, 564*a*.
— and Zinov'ev, Yu. M. Radical $SO_2Cl$, its structure and reactions, 1248*i*.
**Yakubovich, S. V.,** and Vorogushin, T. I. App. for testing lacquer-paint coatings, 1578*d*.
**Yakushkina, N. I.** Physiol. and biochem. changes in plants under treatment with growth substances, 3889*a*, growth substance in pollen, 7553*d*.
**Yakutovich, M. V.** See Rybalko, F. P.
**Yale, H. L.** See Hearne, G. W.; Lott, W. A.
**Yalim, F.** See Braun, Hugo.
**Yamada, C.** Adhesive from agar-agar, P 7164*e*.
**Yamada, H.** See Murata, Y.
**Yamada, Kazuo.** See Ueno, Seiichi.
**Yamada, Kei.** See Akiyama, K.
**Yamada, S.** See Takebayashi, M.
**Yamada, Takeo.** See Ikeda, Y.
**Yamada, Teikichi,** Saito, T., and Yasunaga, E. Mixed cellulose esters (I) fibrous cellulose acetate butyrate, (II) fibrous cellulose acetate propionate, (III) partial hydrolysis of mixed acid esters of cellulose, 1962*g*.
**Yamada, Tetsuzo,** and Mizuno, K. Crystal structure of accelerators of the thiuram series, 3225*h*.
**Yamada, Tokuo,** and Nakanishi, Y. Ca aluminate of high $Al_2O_3$ content (I) existence of $CaO \cdot 2Al_2O_3$, 1278*e*.
**Yamada, Toshiko.** See Kawai, S.
**Yamada, Yasuji.** Damage by silverfish on Japanese papers treated with rice paste and seaweed glue, 5895*c*.
**Yamada, Yataro.** Removing of inks in printed waste paper, P 5952*a*.
**Yamada, Yohei.** Taurine, P 7039*d*.
**Yamafuji, K.** Production of virus in expts. with the silkworm, 9100*c*.
**Yamagata, S.** Blood diastase (II) influence of pancreas activity on blood diastase, 3504*i*, (III) external and internal secretion of the pancreas, (IV) participation of the liver in the blood diastase increase resulting from pilocarpine, 3505*a*.
— and Nishizuka, T. Blood diastase (V) origin and significance of the diastase in blood and also in the different organs, 3505*b*.
**Yamagishi, M.** Uric acid content of lactating mothers' urine and Arakawa reaction (I) relation between uric acid concn. of their urine and Arakawa reaction of their milk, 5844*d*.
**Yamaguchi, K.** Pentose assimilating yeast (I) *Mycotorula japonica*, 724*f*.
**Yamaguchi, Sanemori.** Flotation utilizing citronella oil, P 3249*h*.
**Yamaguchi, Shigeto.** Electron-diffraction studies on corrosion—thin film structures of corrosion products, 7399*i*; high-temp. diffraction photography and results (I), 8259*a*; see Mizushima, S.
— and Katsurai, T. Synthesis of HCN by the reaction between coal and $NH_4$ alum, 6983*a*.
—, Nakayama, T., and Katsurai, T. Electron-diffraction studies on the nature of the corrosion resistance of stainless steel—on the ferrous Ni chromate formed on the surface of stainless steel, 1706*c*.
**Yamaguchi, Shoichiro.** Soybean proteolytic microbes (I) isolated bacteria and their proteolytic power, 724*h*.
**Yamaguchi, Takuji.** See Anazawa, K.
**Yamaguchi, Tokuichiro.** Pulps of high purity, P 6416*a*.
**Yamaguchi, Y.** See Fujimoto, Y.; Orito, I.
**Yamakawa, K. A.** Slow-neutron crystal counter, 6909*b*; see Sigurgeirsson, T.
**Yamaki, T.** See Hayashi, Kozo.
**Yamamoto, A.** See Hamada, M.
—, Kameaki, T., and Kasahara, M. Synthesis of benzenehexachloride (I) preliminary expt. on the manuf. of benzene hexachloride (1), 8601*e*.
**Yamamoto, I.** See Morita, Noriyoshi.
**Yamamoto, K.** Insecticidal and germicidal emulsion, P 6778*e*.
**Yamamoto, N.** See Kameyama, N.
**Yamamoto, R.** See Matsui, M.
**Yamamura, K.** See Ueno, Seiichi.
**Yamamura, T.** See Nakahara, S.; Sueda, H.
**Yamamura, Y.** See Kitawaki, I.
**Yamanaka, S.** Recovery of Pb, P 6143*g*.
**Yamane, S.** Effect of added substances on the setting of cements, 8634*g*.
**Yamane, T.** Properties of coloring matter of juices from a cane-sugar factory and their effects on the process of sugar manuf. (VI) supersatn. of the first carbonation in the plantation-white-sugar factory, (VII) coloring substance in the supersatd. first carbonation juice, 2453*c*.
**Yamanishi, T.** See Takahashi, E.
**Yamanouchi, T.,** and Amemiya, A. At. energy levels of $p^n l$ configurations, 7811*b*.
**Yamanouchi Seiyaku K. K.** Cyclic diamine compds., P 6926*d*.
**Yamashita, J.** See Muto, T.
**Yamashita, M.** See Sugino, K.
**Yamashita, S.** See Horio, M.; Kimoto, M.
**Yamashita, Takanori.** See Ueno, Seiichi
**Yamashita, Tomoji.** K in the physiology of plants, in particular its effect on the growth and on the pH of the press juice of various plant parts, 5451*e*.
**Yamawaki, M.** Aromatic hydrocarbons by electrolysis of salt of aromatic carboxylic acid, P 6926*h*.
**Yamazaki, K.,** and Suzuki, K. Water- and fire-resistant coating, P 6764*c*.
**Yamazaki, W. T.** See Finney, K. F.
**Yamazaki, Y.** See Muranaka, A.
**Yampol'skiĭ, B. Ya.** See Volarovich, M. P.
— and Rebinder, P. A. Structure-mech. properties of metallic disperse systems by the method of conical plastometer, 7779*f*.
**Yanagi, R.** Recovering of light metal or light metal alloy from scraps contg. heavy metal, P 6563*f*.
**Yanagisawa, N.** [*m*-(Dimethylcarbamyloxy)phenyl]trimethylammonium ethyl sulfate, P 3843*g*.
**Yanagita, M.** First-stage reaction in the PhOH-HCHO condensation (I) variations in the amt. of HCHO and the order of the reaction, (II), (III) effect of the concn. of catalyst on the reaction velocity const., (IV) reaction with $NH_3$ catalysts, (V) differences in the point of emulsification of HCl- and $NH_3$-catalyst systems, 8737*a*.
**Yanagita, T.** Action of penicillin (III) influence of temp., pH, and thiol. compds. on action of penicillin, 3060*c*.
**Yanazawa, K.** See Miller, C. D.
**Yancey, H. F.** See Geer, M. R.
**Yanchevskiĭ, K.** Illumination of objects in electron microscopes, 4556*i*.
**Yáñez, F. C.** See Castro Yáñez, F.
**Yang, C. N.** Angular distribution in nuclear reactions and coincidence measurements, 933*c*, see Lee, T. D.
— and Li, Y. Y. Quasichem. method in the statistical theory of superlattices, 8787*f*.
**Yang, H. Y.,** and Wiegand, E. H. Possibilities of secondary fermentation in light sweet wines, 2733*d*; fruit wines, 8606*f*.
**Yang, J.-M.** See Sah, R. P. T.
**Yang, J.-T.** See Martin, M.
— and Halssinsky, M. Chromatographic sepn. of Act from La, 8792*h*.
**Yang, L.** See Thon, N.
**Yang, S. T.** Identification of Chinese antimalarial plants, 7194*d*.
**Yang, S.-Y.** See Huang, Y.-T.
**Yanko, J. A.** Phys. properties of fractions of GR-S and their vulcanizates, 8724*c*.
**Yanko, W. H.** See Harris, Jay C.; Mowry, D. T.
**Yankovskiĭ, K. A.** See Prokhorov, F. G.
**Yankwich, P. E.** Radioactive isotopes as tracers, 5287*d*; see Calvin, M.
— and Calvin, M. Effect of isotopic mass on the rate of a reaction involving the C—C bond, 2862*d*.
**Yannaquis, N.** See Chaudron, G.; Lacombe, P.
**Yano, K.** See Tomita, S.
**Yano, R.** See Sofue, K.
**Yano, S.** Antiseptic coating for lumbers, P 7188*f*.
**Yanovskaya, L. A.** See Terent'ev, A. P.
**Yanovsky, E.** See Hamilton, R. M.; Talley, E. A.; Zief, M.
**Yanulov, K. P.** Limits of the laws of regular intergrowths, 3317*h*.
**Yao, H. K.,** and Mi, T. H. Geology of

Kangsu coal field of Urukchat, South Sinkiang, 2903a.
**Yap, C.-P.** Phys. chemistry of acid refining process from the kinetic point of view, 8327c.
**Yapp, W. W.** See Alexander, M. H.
**Yarborough, E. H. C.** See Cooke-Yarborough, E. H.
**Yarchin Faierman, L.** Detn. of moisture, 5535d.
**Yardley, J. T.** Instrumentation in industrial analysis, 5645c.
**Yarham, E. R.** Infrared radiation and the drying of refractories, 7205c; Al—its surface prepn. and finishing (I), 8325f.
**Yarmola, G. A.** $Me_2CO$-EtOH, fermentation—influence of sugar concn. in the medium on yields of $Me_2CO$ and EtOH, 5529h; $Me_2CO$-EtOH fermentation—fermentation of three-C compds. by $Me_2CO$ EtOH bacteria, 8446h.
**Yarmolinskii, M. B.** Cryst of low-grade massecuite, 9501c.
**Yarnall, W. A.** See Hurd, C. D.
**Yarnell, S. H.** See Whitacre, J.
**Yarnold, G. D.**, and Bolton, H. C. Electrostatic analysis of ionic beams, 4556b.
**Yarosh, P. Ya.** Valleriite and cubanite from Karabash, 6116e; relictic colloid structures in pyrite ore of Karabash, 6125d.
**Yaroslavskii, N. G.**, and Terenin, A. N. Infrared absorption spectra of adsorbed mols., 7343h.
**Yarovoi, I. M.** Detn. of $CH_4$ in coal beds, 1549e.
**Yarroll, W. H.** See Jacobs, James H.
**Yartsev, N. A.**, and Kulibin, V. A. Ore basis of ferrous metallurgy for 30 yrs. of Soviet regime, 4611c.
**Yarwood, J.** High Vacuum Technique (book), 913d.
**Yarzhemskii, Ya. Ya.** Secondary quartz in halite rocks, 8994g, polyhalites in K salt deposits, 8995a.
**Yashiro, R.** See Murata, Y.
**Yasnopol'skii, V. D.** Oxidation of tetraphenylbutynediol by chromic anhydride, 3105a, synthesis of acetylenic γ-glycols, 6573g.
**Yastrebov, V. A.** Temp.-stability of luminescence bands, 3723e.
**Yasuda, Masao.** See Murata, Y.
**Yasuda, Motomu.** See Kodama, S.
**Yasuda, S.** Acetone and BuOH fermentation, P 6781i.
**Yasuda, T.** Confectionary use of mint, 8573c.
**Yasuda, Y.** See Ueno, Seiichi.
**Yasue, Y.** Insecticidal action of various pulverized inert dusts (I) relative toxicity of differently sized particles of SiC to the small rice weevil, 1142f; see Hamada, M.
**Yasui, Z.** Japan lacquering, P 7240c.
**Yasumi, M.** Detn of dielec. const. and loss factor by the free wave method, 7763h; influence of ions on the dielec properties of polar solvents, 7763i.
**Yasunaga, E.** See Yamada, Teikichi.
**Yasuoka, H.** Synthetic tanning materials (V) soln. of difficultly sol. quebracho by β-naphthalenesulfonic acid and its Na salt, (VI) soln. of difficultly sol. quebracho and *Acacia richii* ext. by the Na salt of benzene-, naphthalene-, and phenanthrenesulfonic acids, (VII-VIII) condensation of β-naphthalenesulfonic acid with formalin and the treatment of quebracho with the condensate, 1589i; see Kawanaka, T.
**Yasuoka, T** Biochem studies on carbohydrates (XCIII) group specific substances in human urine (2) antisheep hemolysin, 8412h; see Masamune, H.; Takahashi, M.
—— and Sasaki, K. Biochem. studies on carbohydrates (LXXVIII) does mucoitin exist in the animal body combined with $H_2SO_4$ (1) carbohydrate involved in the mucosa-mucoid of bull stomach, 3480b.
**Yatagawa, S.**, and Tei, I. Detn. of Ca in brass, 2117e.
**Yater, W. M.** Fundamentals of Internal Medicine (book), 5112c
**Yates, R. C.**, and Curtis, J. T. Effect of sucrose and other factors on the shoot-root of orchid seedlings, 6290c.
**Yates, W. J.** See Woods, H. A.
**Yates, W. W.** See Lindquist, A. W.
**Yatsimirskii, K. B.** Calcn. of the ionization potentials of some lanthanides with the aid of the Kapustinskii equation, 1254f; lattice energies of salts of metals of the subgroups of the periodic system, 2829a; see Kapustinskii, A. F; Zaslavskii, I. I.
—— and Pankova, L. L. Thermochemistry of complex pentamine Co salts, 2855a; thermochemistry of complex cobaltic salts with neutral addends, 7805g, thermochem. relations in Werner-Miolatti series for complex cobaltic compds., 7806d.
**Yatsyna, L. T.** See Kasikhin, A. N.
**Yavolskii, V. I.** Transfer of gases to metal through slag, 4196f.
—— and Dzhemyan, S. K. Oxidation and reduction reactions of Cr in the basic and acid process, 1295b
**Yavorskaya, S. F.** Cleansing prepn., P 3220h
**Yavorskii, B. M.** Stepwise processes in inelastic interaction between atoms and electrons, 3290d
**Yazawa, M.** See Yajima, M
——, *et al* Refining of polyvinyl alc., P 7036d.
**Yazawa, S.**, and Hagino, C. Heat-treatment in salt baths of polyvinyl alc fiber (I) effect of temp., time, and concn of the heat-treatment bath on hot-water resistance of fiber, (II) effect of temp., time, and concn. of the bath on strength, elongation, degree of polymerization, and degree of acetal formation, 5227g
**Ydstie, B.** See Christiansen, H., Jr.
**Yeager, E.**, Bugosh, J., Hovorka, F., and McCarthy, J. Ultrasonics in the study of electrolytic solns. (II) detection of the Debye effect, 7301b
—— and Hovorka, F. Ultrasonics in the study of electrolytic solns (III), 7301d
**Yeager, G. H.**, and Cowley, R. A. Polythene as a fibrous tissue stimulant, 1183h
**Yeagley, J. D.**, and Caver, D. Gastric pH following the administration of fruit juice in peptic ulcer, 8516g
**Yearwood, R. D. E.** See Fitzwilliam, C. W.
**Yeater, M. L.** See Gaertner, E. R.
**Yeaw, J. S.**, and Shmidman, L. Interchangeability of mixts contg. manufd. and natural gases with a 540 B.t.u. per cu. ft. manufd. gas, 836a
**Yegenaga, H. T.** See Stevens, C. B.
**Yeh, H.-L.** See Adolph, W. H.
**Yeh, L. Y.**, and Kwan, S. C. Geology of the Liangchihszu coal field, Liangtang, Kansu, 2902g
**Yeh, Y.-W.** See Chang, I.
**Yeiser, F. M.** Purification of native S, P 3160g.
**Yeiter, M. O.** See Alexander, A. L.
**Yen, C. S.** See Dolan, J. J.
**Yen, M.-K.** Textures and earing behavior of cold-rolled and annealed Cu strips, 2558e
—— and Hibbard, W. R., Jr. Transverse bending of single crystals of Al, 9003f
**Yensen, T. D.** See McGeary, R. K.
**Yeo, D.** See Gunn, D. J.
**Yeomans, A.** See Dole, V. P.; Tiernev, N. A.
**Yeomans, A. H.** Directions for detg. particle size of aerosols and fine sprays, 6883f, see Nelson, R. H.
**Yerington, A. P.** See Bottger, G. T.
**Yershov.** See Ershov.
**Yevick, G. J.** Interaction Hamiltonian for photon, meson, and nucleon fields, 5277e
**Yevstigneyev, V. B.** See Evstigneev, V. B.
**Yi, C.-L.**, and Chow, Y. C. Total plasma protein and hematocrit in fowl and pigeon, 8180c.
**Yi, L.-K.** See Chen, C.-Y.
**Yieh, Y.-W.** See Huang, Y. T.
**Yin, H. C.** Microbial farming, 6361f, phosphorylase in plastids, 8013h
—— and Sun, C. N. Localization of phosphorylase and of starch formation in seeds, 2288i
**Yin-Ch'ang Chin.** See Chin, Y.-C.
**Yip, C. W.** See Seyer, W. F.
**Ylstra, J.** Microbiol. detn. of tryptophan, 7997h.
**Yñigo, L. M. S.** See Santos-Yñigo, L. M.
**Yntema, L. F.** See Ksycki, (Sister Mary Joecile).
**Yoder, D. M.** Bulb diseases, 9337i.
**Yoder, L.**, and Thomas, B. H. Antirachitic sulfonation of some steroids, 5028e.
**Yoe, J. H.** Colorimetric and gravimetric org. reagents, 4972e, inorg. analysis with org. reagents, 4972e; see Lindsley, C. H., McBryde, W. A. E.
**Yoffe, A.** See Bowden, F. P.; Gray, P.
**Yogeswari, L.** Trace element nutrition of fungi (I) effect of B, Zn, and Mn on *Fusarium* species, 9161e.
**Yohe, G. R.**, Blodgett, E. O., and Loranger, W. F. 4-Butyl-2,6-di-*tert*-butyl phenol, 0996i.
**Yohe, R. V.** Com. aspects of natural and synthetic rubber latexes, 1593b.
**Yokoi, K.** See Koide, T.
**Yokomaku, Y.** See Kodama, S.
**Yokoyama, S.** Petroleumlike matter resulting from dry distn. of waste laundering liquid, 2420f.
**Yokoyama, Y.** See Hata, T.; Kuroda, K.
**Yoldi, F.** See Yoldi Bereau, F.
**Yoldi Bereau, F.**, and Chaves Sánchez, M. Identification of some $NH_4$ thio salts, 8307g.
—— and Gracian Tous, J. Potentiometric detn. of acid mixts.—use of nonaq. solvents (I) quinhydrone electrode, (II) Sb electrode, 5696b.
**Yolles, S.**, and Schultz, H. P. Quinoxaline studies (I) prepn of 2-hydroxy-3-methyl-6-methoxyquinoxaline and 2-hydroxy-3-methyl-7-methoxyquinoxaline, 7487i.
**Yomosa, S.** See Nagamiya, T.
**Yoneda, K.**, Honda, Y., and Abe, R. Water-gas conversion under elevated pressure (IV) behavior of water gas in aq. $KHCO_3$ and formate under high pressure and temp., (V) thermal decompn. of K formate soln and the behavior of water gas with $KHCO_3$ below the decompn. temp., 1945b
——, Honda, Y., Momiyama, N., and Abe, R. Water-gas conversion under elevated pressure (III) behavior of water gas in aq. $K_2CO_3$ soln. under elevated pressure and temp., 1945a.
**Yonkman, F. F.** Pharmacology of demerol and its analogs, 1869d; see Meier, Rolf
**Yonkman, W.** Pb coating ferrous articles, P 2155b.
**York, H.** See Hadley, J., Moyer, B. J.
**York, R., Jr.** See Prengle, H. W., Jr.
**York, R. F.** Chem. damage to nonprotein fibers, 5191b
**Yorke-Long, A. B.** See King, F. E.
**Yorkshire Tar Distillers Ltd.**, Milner, D. W., and Holdsworth, E. C. Purification of hydrocarbons contg. C disulfide, P 7041d
**Yorozu, K.** See Ueno, Seiichi.
**Yoshida, J.** Accuracy of tensile strength tests of rubber (II) ring test-pieces, 3221i
**Yoshida, K.** See Okuno, T.
**Yoshida, Masao.** Gas purifier to be used for combustion engines, P 6397c
**Yoshida, Masayoshi.** Toxicity of pyrethrin to certain insect larvae at different stages of growth, 5898c.
**Yoshida, Sanae.** X ray study of mixts. of long-chain compds., 5253d
**Yoshida, Shuichi.** Cl content of mothers' urine and their Arakawa's reaction, 5844a, peroxidase reaction (Cl.XXVIII) relation between oxidation quotient of lactating mothers' urine and their Arakawa's reaction (1) oxidation quotient of healthy adults and children including nurslings (Cl.XXIX) (2) oxidation quotient of lactating mother's urine and its relation to Arakawa's reaction, 9215b; effect of vitamin $B_1$ on oxidation quotient of lactating mothers with different Arakawa's reaction, 9215f.
**Yoshii, T.** Heat balance in the cement rotary kiln and the burning mechanism of cement clinker (I), (II), 1937b
**Yoshimori, K.** See Kodama, S.
**Yoshimoto, K.** Base for electrically insulated utensils, P 6027a.
**Yoshimura, N.** Paper for hot bed, P 7230b
**Yoshimura, S.** Saccharification of wood, P 7229b.
**Yoshinaga, G.** See Takizawa, M.
**Yoshinaga, H.** Vinyl compds. (I) synthesis of 4-chloro-1,2-butadiene, (II) absorption of vinylacetylene in liquid catalysts contg. $Cu_2Cl_2$ in $SnCl_2$, 7898i.
**Yoshioka, Y.** See Murata, Y.
**Yoshisaki, T.** See Goto, Hisanobo.
**Yoshizawa, S.** See Okada, S.
**Yoss, K. M.** Spectrum of Nova Cygni 1948, 5302b.
**Yost, D. M.** See Grinstead, R. R.; Hayward, P.; Johnson, H. S.; Whittaker, A. G.
**Yost, R. S.** See Hauser, C. R.
**Yota, H.**, *et al.* Acetone and BuOH by fermentation, P 6362c.
**Yothers, M. A.** Sprays to destroy overwintering codling-moth larvae, 810s; see Carlson, F. W.
**Youden, W. J.** Multiple-factor expts. in analytical chemistry, 4173d.
**Young, A. E.** Protective coating for metal articles, P 2922g.

—— and Hoogsteen, H. M. Modified styrene-linseed oil interpolymers, P 5639*b*; film-forming base for baking enamels, P 9488*a*.
—— and Stilbert, E. K. Cellulose deriv. compns., P 6834*b*.
**Young, C. B. F.,** and Struyk, C. Electrodeposition of Cu-Pb alloys from fluoborate solns., 6520*f*.
**Young, C. L.** See Bassett, H. I.
**Young, C. W.,** Servais, P. C., Currie, C. C., and Hunter, M. J. Organosilicon polymers (IV) infrared studies on cyclic disubstituted siloxanes, 2512*i*.
**Young, D. P.** 1,2-Cycloalkanediols, P 6229*i*.
**Young, D. W.** Solid catalyst treatment of gaseous hydrocarbons, P 2764*d*, copolymers of the isoölefins with thiophene sulfones, P 3051*b*; see Brakeley, P. W., Jr.; Dornte, R. W.; Hineline, H. D., Morway, A. J.; Newberg, R. G., Sparks, W. J., Thomas, R. M.
—— and Brakeley, P. W., Jr. Pour depressor for hydrocarbon oils, P 6821*d*.
—— and Britton, C. E. 2,3-Dimethyl-1,3-butadiene from pinacol, P 3834*c*.
——, Buckley, D. J., Newberg, R. G., and Turner, I. B. Elastomer-resin blends—acrylonitrile type synthetic rubber and polyvinyl chloride resins, 3646*b*.
—— and Smyers, W. H. Viscous oil by copolymerization of aromatic olefin with monoolefin, P 8130*d*.
—— and Sparks, W. J. Copolymers of vinyl ethers and polyolefins, P 3660*d*, polyamide-hydrocarbon resin blend, P 5229*d*; isobutylene copolymers, P 9519*c*.
**oung, Edmond G.** Stability of aerosol formulations, 9330*d*.
**oung, E. Gordon.** See Macpherson, M. G.
and Campbell, R. B. $HClO_4$ as an oxidizing agent, 2436*i*.
**oung, E. M.** See Gruntfest, I. J.
**oung, E. W.** Mech. dehydration of coke-oven tar emulsion, 378*h*.
**oung, F. G.** Metabolism in exptl. diabetes mellitus, 5487*c*.
**oung, F. G., Jr.** See Boese, A. B., Jr.
**oung, Frank G.** Enol acetates, P 3838*h*; reaction of ketene with unsatd. ketones, 9165*a*.
**oung, F. M.** See Hardy, A. C.
**oung, G. H. S.** See Egerton, A. C.
**oung, G. L.** Corrosion protection, P 2156*a*.
**oung, G. T.** See Le Quesne, W. J.
**oung, H. C.,** and Gill, J. B. Soil treatments with DDT to control the white-fringed beetle, 809*d*.
**oung, H. E.** Response of loblolly and slash pines to phosphate manures, 6350*i*; blue-stained cane timber and mold rots in hen eres, 8597*d*.
**oung, H. H.** See Grettie, D. P.
—— and Rubinstein, D. Detergent compn., P 9495*e*.
**Young, H. H., Jr.** See Kratz, G. D.
**Young, H. S.,** Grieger, P. F., and Kraus, C. A. Properties of electrolytic solns. (XXXVII) conductance of some long-chain salts in acetone-water mixts., 3269*b*.
**Young, H. Y.** See Sideris, C. P.
**Young, I. I.** See McCormick, H. M.
**Young, I. M.** Abdominal relaxation with decamethonium iodide during caesarian section, 7586*c*.
**Young, J. A.** See Hamill, W.
**Young, John A.,** and Tarrant, P. Prepn. of some derivs. of chlorofluoroacetic acid, 8352*h*.
**Young, J. B.** See Mooers, C. A.
**Young, J. D.** See Marvel, C. S.
**Young, J. H.,** and Das Gupta, R. N. Internal indicator for arsenite-hypochlorite titrations, 7861*d*.
**Young, James H.** Polytetrafluoroethylene-bonded shaped articles, P 9300*f*.
**Young, John H.,** and Emerson, K., Jr. Parathyroid carcinoma assocd. with acute parathyroid intoxication, 5120*i*.
**Young, J. K.,** and **Wright, E. A.** Rotary retort with cooling means between the gland and the retort, P 6014*d*.
**Young, J. L.** Detection and detn. of cocaine in the presence of procaine and various other substances, 7191*c*.
**Young, K. B.** See Nichols, H. J.
**Young, K. W.,** and Allmand, A. J. Photolysis of aq. solns. of Cl, HClO, and NaCl, 6515*g*.
**Young, L.,** Edson, M., and McCarter, J. A. Measurement of radioactive $S^{35}$ in biol. material, 6270*e*.
**Young, L. E.,** Davis, R. W., and Hogestyn, J. Equipment for detn. of urobilinogen in urine and stool, 4322*i*.
**Young, L. G.** Analysis of very small samples of steel, 6541*c*.
**Young, N. F.** See Levy, Milton.
**Young, P. F.** See Cross, A. H. B.
**Young, R. A.** Zn industry, 3754*c*.
**Young, R. E.** Cleaning Warburg respiration vessels, 1452*a*; see Pratt, H. K.
**Young, R. H. R.** Specialty papers manufd. by Pacific Mills Ltd., 1185*i*.
**Young, R. J.** See Arnold, M. H. M.
**Young, R. M.** See Hager, H. F.
**Young, R. S.** Co (book), 988*c*, sepn. of Be from Fe by solvents, 6538*g*; see Barker, C. W.; Leibowitz, A.
—— and Barker, C. W. Test for small concns. of Cd in Zn solns., 1282*c*.
—— and Golledge, A. Compn. of woodland soils and wood ash in Northern Rhodesia, 337*g*.
**Young, R. V.** See Weissberger, A.
**Young, T. F.** See Price, W. C., Weller, S.
—— and Blatz, L. A. Variation of the properties of electrolytic solns. with degrees of dissocn., 4544*g*.
—— and Grinstead, S. R. Surface tensions of aq. $H_2SO_4$, 7299*g*.
**Young, T. W.** Soil moisture and the citrus tree root system, 9317*b*; see Peech, M.
**Young, V. S.** See Tao, H.
**Young, W. A.** See Allsman, P. T.
**Young, W. E.** Fe deposits, Iron Co., Utah, 7872*i*.
**Young, Wade E.** See Weber, D. V.
**Young, W. G.** See Beebe, R. A.; Campbell, T. W., Kepner, R. E., Wilson, K. W.
—— and Billings, E. M. Professional training, 4526*i*.
**Young, W. H.,** Anderson, R. L., and Isaac, L. H. Coal—bituminous and lignite, 2127*a*.
**Youngken, H. W.** Textbook of Pharmacognosy (book), 1913*c*.
—— and Hassan, W. E., Jr. Camphor basil, *Ocimum kilimandscharicum*, 3068*a*, pharmacognostical and chem. studies of Indian belladonna, *Atropa acuminata*, 7194*g*.
**Youngken, H. W., Jr.** See Tyao, D. P. N.
——, Neva, A. C., Dauben, H. J., Jr., Chang, Y. W., and Wenkert, E. Muscle relaxant effects produced by *Potentilla anserina* exts. (I) fractionation studies, 9383*f*.
**Younker, W. J.** See Treon, J. F.
**Youriev, Yu. K.** See Yur'ev, Yu. K.
**Youse.** See Zhuze.
**Youssov, G.** See Chaudron, G.
**Yovanovitch, S. L.** See Jovanović, S. L.
**Yowell, H. L.,** and Morrell, C. E. Purifying alkyl halides, P 2628*c*.
—— and Swaney, M. W. Removal of O compds. from hydrocarbon mixts., P 3435*h*.
**Yowell, L. Q.** Adhesive offers promise to paper industry, 7228*e*.
**Yphantis, D. A.** See Bennett, H. S.
**Yshakov, S. N.** See Ushakov, S. N.
**Yturriaga, F. Z.** See Zatorre Yturriaga, F.
**Yu, F.-C.,** and Kurbatov, J. D. Disintegration of isomers of $Ba^{133}$, 4090*c*.
**Yu, H.** Universal indicator of soil reaction (pH) test, 1130*d*.
**Yu, K. T.,** and Coull, J. Application of zygograph to distn. of binary mixts., 1*a*.
**Yu, T. M.** See Wilde, S. A.
**Yuan, H.-I.,** Kuo, F.-C., and Huang, Y.-O. Shantung bauxite and extn. of alumina by the wet process, 9395*h*.
**Yuan, P. L.** Hengkeh-Henglu Zn deposits of Yunnan, 1291*h*.
**Yuasa, N.** See Kurozumi, M.
**Yuda, N. N.** See Cunningham, R. W.
**Yudaev, N. A.** Carnosine and creatine contents of tonic and atonic frog muscles, 5478*a*.
**Yudina, V. P.** See Gologorskiĭ, B. S.
**Yuditskaya, A. I.** Chem. nature of reticulin, 6263*b*.
**Yudowitch, K. L.** Particle size detn. by soft x-ray scattering, 2863*c*.
**Yü, C.-W.** See Sah, P. P. T.
**Yü, H.-A.,** and Hickman, J. B. Liquid-vapor equil. in the system: nitromethane-trichloroethene—lab. expt., 4909*i*.
**Yü, S. H.** Fourier and the new point diagram synthesis in x-ray crystallography, 8858*c*.
**Yücel, T.,** and Laqueur, W. Control of morphological alterations accompanying generative processes, 3503*h*.
**Yuen, D. W.** See Addis, T.
**Yúfera, E. P.** See Primo Yúfera, E.
**Yui, N.,** and Hagisawa, H. Detn. of the second dissocn. const. of thiosulfuric acid by means of glass electrode, 2071*f*.
**Yukimori, T.** See Ueno, Seiichi.
**Yule, G. W.** Adhesive compns. and adhesive sheets, P 6868*c*.
**Yule, L. T.** See Gwin, G. T.
—— and Bennett, R. B. Hydroforming pilot unit, 841*a*.
**Yundt, A. P.** Cryst. xylan and mannan, 2954*g*.
**Yung, V. N.** Aggressive action of sea water and cements for sea construction, 1936*h*.
—— and Butt, Yu. M. Utilization of low-lime marl as additives to portland cement, 1545*i*.
——, Panteleev, A. S., Butt, Yu. M., and Bubenin, I. G. Cements with microfillers, 1937*i*, effect of small addns. of limestone on the quality of portland cement, 2751*e*.
**Yunker, W. S.** Flow measurement and control, 447*b*; electronic instruments and their uses in the pulp and paper industry, 7228*d*.
**Yura, S.,** and Hara, H. *o*-Xylene, P 7507*e*.
**Yura Refined Products Co., Inc.** 2-Furaldehyde, P 3040*f*.
**Yurchak, I. Ya.,** and Matveev, I. K. Porcelain bodies, P 9408*c*.
**Yurchik, S. I.** See Butt, Yu. M.
**Yurenka, S.** See Dietz, A. G. H.
**Yur'ev, Yu. K.,** and Gragerov, I. P. Synthesis of β alkylfuramidines (II), 3818*i*.
——, Korobitsyna, I. K., and Brige, E. K. Hydration of 2-butyne-1,4 diol, 2577*h*, 5003*c*.
—— and Novitskiĭ, K. Yu. Reaction of ethylene oxide with $H_2S$ in presence of $Al_2O_3$, 2624*g*.
——, Tatevskiĭ, V. M., and Gragerov, I. P. Combination scattering spectra of thiophane and its homologs, 8887*i*.
——, Voronkov, M. G., Gragerov, I. P., and Kondrat'eva, G. Ya. Behavior of β-bromofuranidine in the Grignard reaction (I), 3818*d*.
**Yur'eva, A. F.** See Pyatnitskiĭ, M. P.
**Yur'evskaya, N. P.** See Onusaitis, B. A.
**Yurk, Yu. Yu.** Contact of Korosten and Shitomir granites in Volhynia, 3752*a*.
**Yurkevich, V. V.** See Oparin, A. I.
**Yurovskaya, F. S.,** and Dukhan, D. S. Detn. of salt in salted fish, 5128*d*.
**Yuse.** See Zhuze.
**Yust, H. R.,** Welborn, I. R., Jr., and Nelson, H. D. Nylon tents for fumigation of citrus, 1524*h*.
**Yuzuoka, S.** Heat-insulating compd. from short fibers of minerals or noncombustible artificial fibers, P 7163*g*.
**Yvan, P.** See Gouarné, R.
**Yvernault, T.** See Kirrmann, A.
——, Moré, J., and Durand, M. Electrochemistry of org. solvents (II) H electrode in AcOH and in pyridine, 8907*i*.
**Yvon, J.** Calcn. of thermodynamic pressure in a quantized liquid, 3678*d*.
**Yzu, L.** Gasoline from shale oil (III) detn. of aromatics in Puertollano gasoline by ultraviolet absorption, 5577*c*; see Blasco Santiago, E.
—— and Doblas, J. Gasoline from shale oil (VI) ultraviolet absorption for detn. of aromatics in catalytically aromatized Puertollano gasoline, 5931*c*.

**Zabavin, V. I.** Reaction with abietic acid as a method of characterization and investigation of coal, 4830*d*.
**Zabel, H. W.** Metal hydrides, 2342*f*.
**Zabeshinskiĭ, Ya. L.,** Zhukhovitskiĭ, A. A., and Tikhonov, A. N. Occlusion of gas from an air current by a layer of granular material (III), 5255*b*.
**Zaborenko, R. N.** See Freeman, H.
**Zaborenko, K. B.,** Nefman, M. B., and Samsonova, V. I. Isotope exchange of I between KI and $KIO_3$ in aq. soln., 4565*i*.
**Zabrodina, A. S.** α-Dihydrocamphenone and some of its transformations, 2604*i*.
**Zacco, M.,** and De-Vita, P. Histamine and the osmotic resistance of blood cells, 5121*e*.
—— and Pratesi, G. S elimination through urine with hepatopathy, 1481*g*; clinical value of Millon's test in urine in relation to the pathology of the liver, 5850*e*.
**Žáček, J.,** Klimecký, V., and Motáček, D. Radiotoxins (II), 8404*h*.
**Zacharewicz, J.** Detonating caps, 4467*d*.
**Zacharewicz, W.** Action of $PCl_5$ on Se derivs. of terpenes, 2975*g*; reaction of $SeO_2$ with *p*-menthene, 2976*a*.

**Zacharias, J. R.** See Davis, L., Jr.
**Zachariasen, W. H.** Crystal structure of the normal orthophosphates of Ba and Sr, 3261*c*; crystal chem. studies of the 5 *f*-series of elements (I) new structure types, (II) crystal structure of $Cs_2PuCl_6$, 3709*h*; (III) disorder in the crystal structure of anhyd. uranyl fluoride, (IV) crystal structure of $Ca(UO_2)O_2$ and $Sr(UO_2)_2O_3$, (V) crystal structure of $UCl_3$, 3710*a*; (VI) $Ce_2S_3$-$Ce_3S_4$ type of structure, (VII) crystal structure of $Ce_2O_2S$, $La_2O_2S$, and $Pu_2O_2S$, 6484*e*; (VIII) crystal structure studies of U silicides and of CeSi$_2$, NpSi$_2$, and PuSi$_2$, 6484*h*.
**Zacharoff, Zacharov.** See Zakharov.
**Zacharova.** See Zakharova.
**Zacharow, Zacharowa.** See Zakharov, Zakharova.
**Zachary, J. B.,** and Moore, W. J. Soly. of glycine, leucine, and tyrosine in liquid ammonia, 4081*i*.
**Zacheval, L.** Theoretical study of the intermittency effect, 51*i*.
**Zachvatkin, V. K.** See Zakvatkin, V. K.
**Zack, S. I.** Treatment of dye-house wastes, 3621*b*; activated sludge process and app. for treating sewage, P 7616*a*.
**Zade, A. K. A.** See Abas-Zade, A. K.
**Zade, M. K. M.** See Melik-Zade, M. K.
**Zadina, R.** Synergistic action of synthetic antihistaminics and harmine on isolated intestine, 3102*d*.
——— and Kriz, V. Action of Mg on contractions of isolated intestine, 3102*e*.
**Zádor, L.** Tolerance of rats to $HgCl_2$ poisoning, 8547*e*.
**Zaehringer, A. J.** Rachemistry (II), (III), (IV), 9449*e*; rocket fuels—f.o.b. Detroit, 9449*h*.
**Zaeslin, H.** See Martin, Henry.
**Zaffarano, D. J.** See Kern, B. D.
**Zaffaroni, A.** See Tishkoff, G. H.
———, Burton, R. B., and Keutmann, E. H. Application of paper partition chromatography to steroid analysis (I) ketosteroids, 3872*f*.
**Zaffiro, B. B.** See Baldanza-Zaffiro, B.
**Zafiriadis, Z.** Hydrogenation of cinnamylidene methyl isobutyl ketone with Raney Ni, 4651*g*; hydrogenation of cinnamalacetophenone with Raney Ni, 5015*e*.
**Zafirov, S.** Coal deposits in northwest Bulgaria, 4609*e*.
**Žagar, L.** See Hüttig, G. F.
**Zagorodskikh, D. M.** Viscous, brittle, and boundary cracks in impact tests, 3760*h*.
**Zagorul'ko, L. T.** Successive images in the optical system, 8062*c*.
**Zagrodzki, S.** Beet-sugar molasses, 4036*a*, necessity of deriving profit from the K compds from molasses residues, 4036*b*.
**Zagwyn, T. K.,** and Kosting, P. R. Heat-treatment of vitreous fused silica, P 4442*g*.
**Zaharoff.** See Zakharov.
**Zahler, H.** Behavior of testes and hypophyses of A-avitaminotic rats and the influence of androgen on them, 3896*d*, effect of various doses of testosterone propionate on the infantile rat testis, 3906*e*.
**Zahm, E. L. E.,** Gibson, W. D., Pierce, A. B., and DeGeer, B. W. Treating Diesel make-up water, 3546*h*.
**Zahm, G. G.** Concg. eggs, P 330*d*; concg. liquids by evapn., P 330*i*.
**Zahm, W.** See Gold, H.; Modell, W.
**Zahn, H.** Detn. of the alkali soly. of wool, 5192*g*; chemistry of wool (I) chem. constitution, 7691*e*, electron microscopy of natural silk, 9457*g*; see Elod, E.
——— and Lautsch, W. X-ray studies on lignin, 4848*c*.
**Zahn, V.** See Brooks, F. R.
**Zaicev.** See Zaltsev.
**Zaides, A. L.** Changes in the linear measurements of the fibers in leather during tanning, 6450*g*.
**Zaidesse, A. L.** See Zaides, A. L.
**Zaikovskii, Ya.** Detn. of dry residue of milk, 7597*c*.
**Zaimis, E. J.** See Organe, G.
**Zaionchkovskii, A. D.** See Blokh, G. A.
**Zaiser, E. M.,** and La Mer, V. K. Kinetics of the formation and growth of monodispersed S hydrosols, 2070*e*.
**Zaitsev, B. D.** Quant. expression of decompn. of org. matter in the soil, 8082*g*.
**Zaitsev, M.** Catalyst for the hydrogenation of fats, 7607*h*.
**Zaitseva, A. F.** See Nikitin, N. I.
**Zajac, B.** See Ross, M. A. S.
———, Broda, E., and Feather, N. γ-Radiation from Po, 3707*g*.
——— and Ross, M. A. S. Calibration of electron-sensitive emulsions, 8921*f*.
**Zajcev.** See Zaltsev.
**Zajceva, A. F.** See Zaltseva, A. F.
**Zajdela, F.** See Lacassagne, A.
**Zajec, V. D.** See Dim-Zajec, V.
**Zak, A. F.** Melting of high-quality glass, 6380*g*.
**Zakar, P.** Raw materials consumed by the Hungarian rubber industry, 8187*b*
**Zakharich, G. F.** See Godnev, T. N.
**Zakharov.** See also Sakharov.
**Zakharov, A. V.** Column for double rectification of gaseous mixts., P 6010*d*.
**Zakharov, B. P.** See Sichikov, M. F.
**Zakharov, I. P.,** and Nazarenko, G. F. Using products of autoclaved protein as nitrogenous yeast nutrient and producing fusel oil, 354*i*.
**Zakharova, A. I.** Intramol. rearrangements in the acetylene series (IV) reaction of 3-chloro-3-methyl-1-pentyne and 3-chloro-3-methyl-4-hexyne with Ag acetate, 6153*c*; see Zhukov, I. I.
——— and Sergeeva, Z. I. Chlorohydrins of tertiary acetylenic alcs.—action of halogenating agents on dimethyl(phenylethynyl)carbinol, 2182*b*.
**Zakharova, A. V.,** and Rozengart, V. I. Action of diisopropyl fluophosphate on glycolysis in muscle tissue, 5478*b*.
**Zakhavaeva, N. N.** Temp. dependence of the rate const. of decompn. of $NH_3$ in elec. discharge, 6524*i*.
**Zakhidov, A. Z.** Compn. of mulberry fruit from Tadzhikistan regions, 5128*h*.
**Zakhvatkin, V. K.** Status of Pb-Zn concn. abroad, 1693*d*.
**Zakoshchikova, E. P.** See Likhtman, V. I.
**Žáková, J.** Quality of wheat and rye flours, 7596*b*.
**Zaks, M. G.** Inhibitors of the thyroid gland, 318*b*.
———, Kersanov, M. E., Kharshan, M. E., and Chernova, K. S. Manoilov reaction for chem. transmitters, 7069*e*.
——— and Tverskoi, G. B. Effect of thiourea on metamorphosis of tailless amphibia, 773*c*.
**Załachowski, W.** Elec. detonating caps, 4467*d*.
**Zaleon, I.** See Johnson, W. E.
**Zaleski, J.** White sugars, 6845*b*.
**Zalesskaya, T. E.** Isomeric transformations of carbonyl compds.—behavior of diphenylacetaldehyde on heating with $ZnCl_2$, 1753*d*, catalytic conversions of ketones—isomerization of α-methyldesoxybenzoin, 1751*a*
**Zal'kind, I. Ya.,** Anan'in, A. V., and Manuilov, P. N. Detn. of linear thermal expansion at high temps., 3246*d*
**Zal'kind, Yu. S.** Addn. of H to $C_5H_8$ compds. (XLI) factors which det. the course of catalytic hydrogenation of $C_5H_8$ glycols in respect to their structures, 3783*a*
——— and Iremadze, I. Addn. of H to acetylene derivs. (XXXIX) catalytic hydrogenation of a glycol of the diacetylene series, 1368*c*.
——— and Khazova, I. P. Addn. of H to $C_5H_8$ compds. (XL) catalytic hydrogenation of ethers of $C_5H_8$ γ-glycols, 3782*e*.
——— and Mel'teva, N. N. Action of Br and Cl on glycols of the acetylene series, 130*a*
——— and Zhuravleva, L. Addn. of H to $C_5H_8$ derivs. (XXXVIII) erythritol of the diacetylene series and its catalytic hydrogenation, 571*e*.
**Zal'manovich, M. Z.** Synthesis of terpene homologs starting with $C_5H_8$—action of $H_2SO_4$ on methylethylvinylcarbinol, 3778*a*
**Zalmanzon, E. S.** Action of protease on nuclear inclusions in silkworm jaundice infections, 9110*e*.
**Zambeletti, L.** Influence of 3,4-benzopyrene on flocculation of proteins, 5054*c*.
**Zambito, A. J.** See Snyder, H. R.
———, Peretz, W. L., and Howe, E. E. Method of resolution of DL-threonine, 8355*g*.
**Zamboni, P.,** and Zanella, B. Synthesis and pharmacology of some glycerol derivs. with muscle-relaxing action, 4773*h*.
**Zambotti, V.,** and Gonzato, P. Biochem. studies on *Oösphora lactis* (I) optimum conditions for the utilization of hexoses, 7541*h*.
**Zambrovskii, V. A.** Self-discharging centrifugal, 6870*g*.
**Zambruno, D.** See Cafiero, M.
**Zamcheck, N.** See Wang, C.-F.
**Zamecnik, P. C.** See Aub, J. C.; Krayer, O.
———, Loftfield, R. B., Stephenson, M. L., and Williams, C. M. Biol. synthesis of radioactive silk, 7149*b*.
———, Nathanson, I. T., and Aub, J. C. Physiol. action of *Clostridium welchii* toxins, 6700*a*.
——— and Stephenson, M. L. Comparison of activators of proteolytic enzymes and peptidases in normal rat livers and hepatomas, 3921*g*.
**Zamenhof, S.** See Vischer, E.
——— and Chargaff, E. Desoxypentosenuclease in yeast and specific nature of its cellular regulation, 1832*g*; core in desoxyribonucleic acids, 4716*i*.
**Zamkov, I. V. S.** See Smirnov-Zamkov, I. V.
**Zamkov, V. A.** Simple device for fluorescence microscopy, 5234*e*.
**Zamkova, M. A.,** and Rokhlenko, E. I. Carboanhydrase activity in premature children, 4749*h*.
**Zammarchi, A.** See Baresi, F.
**Zampach, J.,** and Starosta, O. Permanent magnets cast in sand, 5715*f*.
**Zamyatina, V. A.** See Korshak, V. V.
**Zandberg, E. Ya.** See Dukel'skii, V. M.
**Zanden, J. M. van der,** and Vries, G. de. 1,3,5-Tris(*p*-methoxybenzyl)cyclohexane, 3797*e*; cinnamaldehyde from benzaldehyde and B fluoride etherate, 3805*b*, metanethole, 6608*c*.
**Zanella, B.** See Zamboni, P.
**Zanetti, E.** Activity of a barrier cream in prophylaxis of ulcerations from $H_2SO_4$ in cuprammonium rayon industry, 9440*d*
——— and Brigatti, L. Stomatitis in mercurialism, 333*a*.
**Zanetti, R.** See Giovanardi, A.
**Zangri, G.** Fat content of human milk after administration of thyroid exts., 3527*d*.
——— and Lanza, A. Cerebrospinal fluid of healthy children after subarachnoid injection of nicotinic acid, 2296*g*.
**Zankl, W.** Analyses of German coals, 1549*e*, propane-air gas, 2405*f*.
**Zannini, L.** See Volpe, F.
**Zanon, F. S.** See Saverio Zanon, F.
**Zanotelli, G.** See Bolle, A.
**Zante, R. D. van.** See Van Zante, R. D.
**Zanussi, C.** See De Ritis, F.
——— and Prati, G. Behavior of lysozyme of serum in various morbid conditions, 9217*g*.
**Zapata, J.** Lab. accelerated weathering tests, 7675*h*.
**Zapata Rivas, H.** Detn. of the peptide content of normal blood, 2659*a*.
**Zapffe, C. A.** Alloy steels, 89*g*; Stainless Steel (book), 5724*h*.
——— and Haslem, M. E. Evaluation of pickling inhibitors from the standpoint of H embrittlement (I) acid pickling of stainless steel, 94*f*; (II) acid pickling of C steels, 545*f*, (III), 1304*f*; H embrittlement in Cu electroplating, 8903*e*.
———, Phebus, R. L., and Landgraf, F. K. Bar bend test and its application to stainless steel, 8330*i*.
——— and Worden, C. O. Fractographic study of deformation and cleavage in ingot Fe, 8326*d*.
———, Worden, C. O., and Landgraf, F. K. Fractographic examn. of ship plate, 3761*e*.
**Zapiór, B.** Effect of H ions on the electrocapillary properties of some physiologically active substances, 6887*e*; dielec. potential and surface tension of some drugs at different H ion concns. (I), (II), 7196*b*.
**Zaposhnikov, D. I.** See Sapozhnikov, D. I.
**Zappert, R. H.** See Brunner, A. H.
**Zappi, E. V.,** and Cagnoni, J. A. Action of cyanogen chloride on Na alcoholates, 9034*h*.
**Zaprometov, B. G.,** and Prikhod'ko, N. E. Coagulates of CdS as pigments, 5201*g*.
——— and Virskaya, G. M. Structure-mech. properties of coagulates (II) sediment vol. and rate of d. increase of the coagulates of As trisulfide and Fe oxide, 7780*a*
**Zaprometov, M.** See Kursanov, A. L.
**Zaretskaya, I. I.** See Nazarov, I. N.
**Zarew, M. V.** See Tsarev, M. V.
**Zarkova, V. E.** See Zharkova, V. R.
**Zaroubine, N. M.** See Zarubin, N. M.
**Zarrow, M. X.** Steroid hormones in the relaxation of the symphysis pubis of the guinea pig, 8034*i*; antidiuretic action of relaxin-contg. prepns., 9250*c*; see Hisaw, F. L.

—— and Money, W. L. Involution of the adrenal cortex of rats treated with thiouracil, 8544*a*.

**Zart, A.** Fiber crimp, 4861*g*; synthetic silk and synthetic fibers, 9456*h*.

**Zartman, I. F.** Ultrasonic velocities and absorption in gases at low pressure, 5652*a*.

**Zarubin, N. M.,** and Klaz, N. E. Passivating solns. in the prepn. of micrographic sections, 9004*f*.

**Zarubina, O. V.,** and Turich, M. L. Effect of temp. and of moisture on the corrosion of metals in a $SO_2$ atm., 101*d*.

**Zasada, Z. A.,** and Frederickson, F. T. Limits of closer utilization of black-spruce pulpwood, 1184*d*.

—— and Richardson, C. A. Logging and pulping black-spruce trimmings, 9440*f*.

**Zaslavskii, I. I.** Investigation of liquid binary systems, 930*d*.

—— and Yatsimirskii, K. B. Extreme points on property curves of binary systems in vol analysis, 2853*h*.

**Zaslavskii, Yu. S.** See Brusyantsev, N. V.

**Zaslavskij, Zaslawskij.** See Zaslavskii.

**Zathurecky, J.** See Mouriquand, G.

**Zathurecky, Z. v.** See Anuau, E.; Eperjessy, A.

——, Eperjessy, A., and Mihályi, E. Lipoprotein from the standpoint of the biol. oxidation of fat, 4311*c*.

**Zatorre Yturriaga, F.** Action of some ions on cholinesterase, 3855*b*.

**Zatsepin, G. T.** Cascade curves for Pb, 4564*f*

**Zatsepina-Dizertinskaya, T. S.** See Karmitskii, V. A.

**Zaugg, H. E.** Michael reaction of lawsone, 5779*h*, see Fieser, L. F.

—— and Horrom, B. W. Li Al hydride as a quant reagent in the modified Grignard app., 1280*f*.

—— and Lauer, W. M. Modified and combined Grignard and quant. hydrogenation app., 1226*f*

——, Rapala, R. T., and Leffler, M. T. Naphthoquinone antimalarials (XIV) 2-hydroxy-3-aryl-1,4-naphthoquinones, 1385*a*.

**Zaukelies, D.,** and Frost, A. A. Recording differential refractometer, 6870*c*.

**Zaunick, R.** Podophyllum resin in a new medicinal and biol. use, 5907*c*; Kjeldahl Jubilee 7761*f*

**Zavala Mufiiz, J.** Tyrosine as a carcinogenic agent, 1480*h*.

—— and Dominguez, C. M. Tyrosine, a cancerigenic agent, 7571*d*.

**Zavaleta, A. C. S.** See Saavedra Zavaleta, A. C.

**Zavarella, A.** Phosphating stainless-steel surfaces, P 7893*h*.

**Zavarzina, N. B.** See Melsel, M. N.

**Zavelevich, P. M.** Prepn. of silicotungstic acid, 2886*h*.

**Zaverina, E. D.** See Dubinin, M. M.

**Zavist, A. F.** See Kharasch, M. S.

**Zavoiskii, E. K.** Measurement of the magnetic susceptibility of paramagnetic substances in decimeter waves, 3673*a*.

**Zavojski, E. K.** See Zavoiskii, E. K.

**Zav'yalov, S. I.** See Pryamova, N. A.

**Zawadzki, B.** See Wiersma, C. A. G.

**Zawadzki, J.** Manuf. of $H_2SO_4$ and cement from gypsum and anhydrite, 2377*d*; oxidation of $NH_3$, 9303*i*.

—— and Bańkowski, Z. Electrochem. prepn of $N_2O_5$, 8906*a*

—— and Bretsznajder, S. Kinetics of reaction in which solid phases take part, 7307*f*

——, Gajewski, W., and Gletkier, H. Kinetics of the Boudouard reaction, 7309*b*.

—— and Gotlieb, J. Decompn. of alite, 7363*g*

—— and Pasternak, E. Kinetics of the decompn of $NH_3$ on Fe, 7312*h*.

—— and Szamborska, W. Kinetics of the decompn of $ZnCO_3$, 7306*d*.

—— and Wevchert, S. Manuf. of $SO_2$ and cement from gypsum and anhydrite, 2377*i*.

**Zayceva, A. F.** Zaitseva, A. F.

**Zbarskii, I. B.,** and Brisker, N. A. Adenosinetriphosphatase activity of aq. exts. and of water-insol. residues of mouse and rat normal and cancerous tissues, 7574*e*.

—— and Debov, S. S. Proteins of cell nuclei, 2052*e*.

**Zbarsky, S. H.,** and Fischer, I. Prepn. of cyanamide, urea, and related compds. with long-lived radioactive C, 5007*b*.

**Zbinden, H.,** and Huber, K. Effect of elec. charge of the carrier foil on prepn. of colloids for electron microscopy, 921*g*.

**Ždanoff, Ždanov.** See Zhdanov.

**Ždanovič, A. I.** See Zhdanovich, A. I.

**Zdanovskii, A. B.** Calcg. solubilities of electrolytes in multicomponent systems (I), (II), 2844*e*; detn. of solubilities, 6889*c*; application of Sechenov's formula to the solubilities of strong electrolytes, 8805*c*.

**Zebelyshinskii, I. M.** Greater Dzheskazgan, 2550*a*.

**Zechmeister, L.** Progress in the Chemistry of Org. Natural Products. Vol. 5 (book), 8397*c*; see Deuel, H. J., Jr., Tang, Y. W.

—— and Pinckard, J. H. Colorless polyenes, 3565*f*.

——, Pinckard, J. H., Greenberg, S. M., Straub, E. E., Fukui, T., and Deuel, H. J., Jr. Stereochem. configuration and provitamin A activity (VIII) pro-γ-carotene (a poly-civ compd.) and its all-trans isomer in the rat, 9180*e*.

**Zee, H. van der.** See Degens, P. N., Jr.

**Zeerleder, A. v.** Development of Al forging alloys, 2147*d*; development of the more recent production and refining processes of Al, 2519*a*; Technology of Light Metals (book), 9018*a*.

—— and Hübner, W. Anodic oxidation of Al in different combined oxalic solns., 6523*f*.

**Zegzhda, D. P.** See Bron, V. A.; Gavrish, D. I.

**Zegzhda, V. P.** Lab. kryptol furnace for temps. up to 2000°, 6089*c*; pot mixes for plate glass, 8109*i*, see Clebov, S. V.

**Zehngraff, P.,** and Von Bargen, J. Chem. brush control in forest management, 3134*i*.

**Zeidler.** See also Tseldler.

**Zeidler, G.** Laboratoriumsbuch für die Lack- und Farben-industrie. Bd. XXV. (book), 4872*f*.

—— and Heyne, W. Efflux cup, 911*d*, 8214*e*.

**Zeidman, I.** Chem. factors in the mutual adhesiveness of epithelial cells, 299*e*.

**Zeile, K.** Lifework of Hans Fischer, 2825*c*, analysis of amino acid mixts., 3871*a*, chemistry of the blood pigments, 8497*e*

——, Brandes, C. H., Hanske, W., Roever, W., and Ritzhaupt, H. Fish insulin, 3150*c*.

**Zeininger, H.** See Mecke, R.

**Zeise, P. H.** Thermodynamik auf den Grundlagen der Quanten-theorie, Quantenstatistik und Spektroskopie. Vol. I (book), 4940*f*

**Zeising, I.** Soaps, synthetic detergents, and emulsions—theory of the colloid-chem. processes in detergency, 2793*d*.

**Zeiss, H. H.** Methylation of methyl-6-hydroxydehydroabietate, P 3462*b*; see Doering, W. v. E.

**Zeitlin, B. R.** See Omohundro, A. L.

**Zeitlin, L. A.** See Tseitlin, L. A.

**Zelasco, J. F.** See López García, A.

**Želazny, A.** Manuf. of acetone and butanol from molasses, 5901*e*.

**Zelcer, V. M.** See Zel'tser, V. M.

**Zeldes, H.** See Brosi, A. R.

**Zel'dovich, Ya. B.** See Afanas'ev, P. B.; Kogarko, S. M.

—— and Frank-Kamenetskii, D. A. Course in the Theory of Combustion Detonation and Explosion. II. Turbulent and Heterogeneous Combustion (book), 8140*e*.

—— and Shlyapintokh, I. Ya. Ignition of explosive gaseous mixts. in shock waves, 5951*b*.

—— and Todes, O. M. Math. formulation of the theory of periodic pptn., 5264*c*.

—— and Voevodskii, V. V. Course in the Theory of Combustion Detonation and Explosion. I. Thermal Explosion and Propagation of Flames in Gases, (book), 8140*e*.

**Zelenetskii, M. I.** $SO_2$ poisoning in the canning industry, 1871*i*.

**Zelenii, P.** Biol. significance of S and its assimilation in hens, 7563*h*.

**Zelenka, L.** See Halmágyi, D.

**Zelenka, V.** Pregnandiol in urine during the menstrual cycle and pregnancy as detd. by a chromatographic method, 4357*b*.

**Zeleny, L.** Chem. and nutritive changes in stored grain, 324*c*.

**Zelger, A.** Moisture detn. of dry exts., 2367*f*.

**Zeligson, M. E.,** and Kolpakova, V. V. Quinine dihydrochloride, P 3572*d*.

**Zelikman, A. N.,** Loseva, S. S., and Tseltlina, N. Ya. N in Ti carbide and in Ti-W alloys, 2148*f*.

**Zelikman, G. F.** See Vyatkin, V. V.

**Zelinski, R. P.,** and Bonner, W. A. Absorption spectra of *p*-phenylazophenyl β-D-glycosides and related compds., 6919*e*.

**Zelinskii, N. D.** See Akimova, L. N.; Balandin, A. A.; Eldus, Ya. T.; Sergienko, S. R.

——, Gavrilov, N. I., and Akimova, L. N. Structure of submol. units of proteins (IV) enzymic hydrolysis of the amidine bond with pepsin and intestinal juice, 3790*g*.

**Zelinskii, V. V.** Structure of the mol. and fluorescence, 7829*a*.

—— and Timofeeva, T. V. Phosphors with ultraviolet emission, 6085*a*.

**Zellars, G. R.,** and Levine, R. Cyanoethylation of certain ketones, β-diketones, and β-keto esters, 2582*d*.

**Zellat, J. S.** See Porter, J. N.

**Zeller, E A.** Cholinesterase of snake venoms, 261*f*; influence of histamine on adenosinetriphosphatase, 2250*e*; biochemistry of animal poisons (V) cholinesterase of snake venoms, 4718*a*; cholinesterase of the elephant brain, 5064*g*; see McNaughton, R. A.; Roulet, F.

——, Fleisher, G. A., McNaughton, R. A., and Schweppe, J. S. Substrates for cholinesterases, 9122*b*.

—— and Utz, D. C. Biochemistry of animal poisons (VI) specificity of cholinesterase in snake venoms, 4718*b*.

**Zeller, J. H.** See Carter, R. H.

**Zellner, C. N.,** and Granholm, H. B. Diol compds. and esters thereof, P 6652*a*.

**Zellweger A.-G. Apparate- und Maschinen-fabriken Uster.** Measuring the amt. of moisture in textiles, wood, and other hygroscopic materials, P 8760*c*.

**Zel'tser, V. M.** See Vansheldt, A. A.

**Zemann, J.** Structure of pharmacosiderite, 976*d*.

**Zemany, P. D.,** and Price, F. P. Kinetics and thermodynamic properties of the disproportionation of methylchlorosilanes, 4931*f*.

——, Winslow, E. H., Poellmitz, G. S., and Liebhafsky, H. A. X-ray absorption measurements—comparative method for chem. analysis based on measurements with multiplier phototube, 5693*d*.

**Zemek, F.** See Jantsch, G.

**Zemelka, J.** See Krupkowski, A.

**Zemlyakova, E. P.** See Grinberg, A. A

**Zener, C.** Dynamics of slip bands, 7394*d*; relation between residual strain energy and elastic moduli, 7768*e*; relaxation phenomena in metals, 8325*b*.

**Zenftman, H.,** McLean, A., and Imperial Chemical Industries Ltd. Nitropolystyrene, P 5040*g*.

**Zenles, B. J.** See Burbank, H. R.

**Zentmyer, G. A.** See Curtis, D. S.; Klotz, L. J.

**Zepplin, M.** See Halverson, A. W.

**Zepter, K. H.** See Gleichmann, H.

**Zerahn, K.** Measurement of radioactive corpuscle samples for blood-vol. detn., 4320*e*; see Nickerson, W. J.

**Zerban, F. W.** Detn. of unfermented reducing substances in molasses, 8715*c*; see Clark, G. L.; Erb, C.; Sattler, L.

**Zerbe, C.,** and Höter, H. Analysis of lubricating oils by selective adsorption, 5932*e*.

**Zerfoss, S.** $A_2XO_4$-type compds. of interest to ceramists, 2388*b*.

—— and Johnson, L. R. Crystal chem. relations in inorg. piezoelec. materials, 8782*f*.

——, Johnson, L. R., and Imber, O. Single crystal growth of scheelite, 4111*i*.

——, Stokes, R. G., and Moore, C. H., Jr. Properties of synthetic rutile single crystals, 1622*i*.

**Zerkalej, V.** See Dědek, J.; Ivančenko, D.

**Zermal, F.** See Bodendorf, K.

**Zermati, M.,** and Leonardon, H. Anti-endotoxin properties of the globulin pptd. by $CO_2$ from serums of typhoid convalescents, 1100*i*.

**Zerner, E.,** and Gradsztain, M. Treatment of textiles with orthosilicates, P 8175*c*.

**Zerweck, W.,** Ritter, H., and Schubert, M. Constitution of S dyes, 407*i*.

**Zettel, H.** Action of strychnine on the circulation, 8548*c*.

**Zetterberg, B.** Substances exerting a com-

bined bacteriostatic and respiration inhibiting effect on tubercle bacilli, 5085*c*; effects on tubercle bacilli of bacteriostatics, respiration inhibitors, and bactericides, 7545*g*, see Willstaedt, H.

**Zettlemoyer, A. C.** Effect of inks on rollers and blankets in printing, 1196*i*.

———, Lower, G. W., and Gamble, E. Co feeder drier, 7717*a*.

**Zeuthen, E.** See Giese, A. C., Gross, F.

**Zgonnik, N. P.** Structure of the binders in corundum abrasive products, 1164*b*; measuring the distribution of temps. in the service space of kilns, 6385*g*, construction and use of lab. gas and elec. furnaces, 6519*a*.

**Zhabrova, G. M.** See Elovich, S. Yu.

**Zharkova, V. R.,** and Moldavskii, B. L. Isomerization of hydrocarbons (IX) isomerization of amylenes and their equil relations, 3343*g*.

**Zharov, V. S.** See Shorov, V. S.

**Zhavoronkov, N. M.** L. Yu. Karpov Phys. Chemistry Institute, 3670*h*; see Volkov, V. L.

———, Aerov, M. E., and Umnik, N. N. Hydraulic resistance and packing d. of a layer of grains, 5645*h*.

**Zhdanov, A. K.** Equil. in the system $H_2O$ $NH_4Cl$–$NH_4I$, 1253*c*, equil in the system $H_2O$–KCl–HBr–KI, 7795*e*.

——— and Adamenkova, V. Equil. in the system $H_2O$–NaCl–NaI, 7795*c*.

——— and Kovalenko, N. Equil. in the system $H_2O$–KCl–KI, 7795*g*.

**Zhdanov, A. P.** Nuclear fissions near large showers of heavy particles, 6914*g*.

**Zhdanov, G. B.** See Azimov, S. A.

——— and Naumov, A. A. Slow mesons at altitudes of 900-4700 M., 1642*g*.

**Zhdanov, G. S.** See Sevast'yanov, N. G., Shugam, E. A., Zvonkova, Z. V.

——— and Ismailzade, I. G. X-ray detn of the structures of some tetraaryl compds. of Si, Sn, and Pb, 8764*e*.

**Zhdanov, S. P.** Calcn. of the structure of porous sorbents from sorption isotherms, 461*i*; irreversible hysteresis of water vapor adsorption isotherms on porous glass and on silica gel, 8790*h*.

**Zhdanovich, A. I.** See Kremnev, L. Ya.

**Zheldak, M. P.** See Mal'tsev, V. F.

**Zheleznyakova, N. S.** Detn of admixts of barley to wheat flour, 9277*d*.

**Zhelokhovtseva, N. N.** See Dragunov, S. S.

**Zhevandrov, N. D.,** Levshin, V. L., and Mozgova, K. K. Influence of the structure of the 9,10-diaryldiammoanthracene mol. on its optical properties, 7823*d*.

**Zhilin.** See also Silin.

**Zhilin, A. I.** Fluidity of blast furnace slags at low temps., 4195*c*.

**Zhilina, L. D.** See Levkoev, I. I.

**Zhilina, P. I.** See Urusovskaya, L. G.

**Zhitkova, A. S.** See Alekseeva, M. V.

**Zhitomirskaya, E. Z.** Dressing of glass sands, 3575*i*, 7653*c*.

——— and Stepanova, E. I. Dressing of sands from the Velikodvor deposits, 3577*b*.

**Zhokhovets, N.** See Tishchenko, D.

**Zhorina, M. D.** Detn. of *p* phenylenediamine by diazotization, 4185*f*.

**Zhukhovitskii, A. A.** See Lesokhina, G. F.

——— and Rubinshtein, R. N. Detn of the surface area of adsorbents, 6036*c*.

**Zhukov, A. I.** See Nedogovorov, D. I.

**Zhukov, B. P.** See Rogovin, Z. A.

——— and Sudakova, G. N. Celluloid, P 6416*c*.

**Zhukov, I. I.,** and Fridrikhsberg, D. A. Electrokinetic characteristics of capillary systems (I) surface conductance, 7290*h*.

———, Poddubnyi, I. Ya., and Lebedev, A. V. Physicochem. study of solns. of synthetic rubber (I) osmotic pressure of Na-butadiene rubber solns., (II) mol. wt. and intrinsic viscosity of coreless Na-butadiene rubber, 7743*d*.

——— and Zakharova, A. I. 80th jubilee of "Journal of Russian Chemical Society", 6477*i*.

**Zhukov, M. P.** Calcn of the compn of the raw mix by taking into account addns. and ash from fuel, 1546*b*.

**Zhukova, A. I.** See Gorbunova, K. M.

**Zhukova, N. V.** See Kats, M. L.

**Zhukovskaya, M. D.** Detn. of H in a solid fuel by combustion in a bomb calorimeter, 5921*i*.

**Zhukovskaya, S. S.** See Budnikov, P. P.

**Zhukovskii, E. V.** See Ashkinazi, G. M.

**Zhukovskii, P. M.,** and Medvedev, Zh. Extraplastidic carotenoids and sporogenesis, 4730*i*; connection of generative functions of plants with carotenoids, 8011*i*.

**Zhunko, V. I.,** and Orochko, D. I. Thermal decompn. of solid fuel and hydrogenation sludge, P 3599*a*.

**Zhuravlev, S. V.** Xanthogen disulfides, 6983*g*.

——— and Galchenko, M. I. Thio anhydrides of xanthic acids, 143*i*.

**Zhuravlev, V. F.** Advances in chemistry and technology of cement, 1165*g*; role of the Russian scientist in the study of cement, 1936*g*.

———- and Gordon, M. M. Effect of vinsol on the tech. properties of cement suspensions and of concrete, 1546*d*.

———, Lesokhin, I. G., and Tempel'man, R. G. Kinetics of the formation of Ca aluminates and the role of mineralizers, 8826*d*.

——— and Sheveleva, B. I. Production and properties of cement-latex materials, 2752*c*.

——— and Sychev, M. M. Granulometric characteristics of cement powder, 1938*a*, raw material for production of mineral wool, 6761*b*.

**Zhuravleva, E. I.** Uptake of the moisture of air by corn starch, 9504*h*.

**Zhuravleva, L.** See Zal'kind, Yu. S.

**Zhurkina, Z. N.** See Zubov, P. I.

**Zhurkov, S. N.,** and Levin, B. Ya. Infrared absorption spectra of polymers in the hardening range, 7343*f*.

**Zhuze, T. P.,** and Pokidin, V. K. X-ray investigation of hydrocarbon systems at low temps., 2410*g*.

**Zhuze, V. P.,** and Ryvkin, S. M. Detn. of the sign of the carriers of the photocurrent, 482*h*.

**Zhvirblyanskii, Yu. M.** Crystallization of massecuite from the second sirup, P 5220*a*.

———, Volobueva, A. K., and Abragam, D. R. Kinetics of sucrose crystn. in impure sugar solns., 7729*g*.

**Zickefoose, E. J.** See Wreath, A. R.

**Zickrick, L.** See Adams, Roy L.

**Ziebolz, H.** Combustion control, 831*c*.

**Zief, M.,** and Yanovsky, E. Prepn and properties of allylsucrose, 9041*g*.

**Ziegfeld, R. L.,** and Roll, K. H. Powder metallurgy no panacea, 3756*b*.

**Ziegler.** See also Tsigler.

**Ziegler, C. H.** See Thatcher, J. S.

**Ziegler, E.** Chem. processes in the formation of novolak, 7717*a*, see Zinke, A.

——— and Gartler, K. Indophenol, 6595*e*.

——— and Hontschik, I. Hardening processes of phenol formaldehyde resins (XIV) mol.-wt. detns., 5994*f*.

———, Hontschik, I., and Milowiz, L. Condensation of pseudo phenol halides with substituted phenols, 5019*d*.

——— and Kohlhauser, R. Hardening processes of phenol-formaldehyde resins (XVI) mol. wt. detns., 7745*i*.

**Ziegler, G. W., Jr.** See Speiser, R.

**Ziegler, H. W.** See Brintzinger, H.

**Ziegler, J. B.** 9 Azaalloxozines, 5785*e*.

**Ziegler, K.** Formation mechanism and structure of butadiene polymers, 4505*e*, trivalent C, 6014*g*.

**Ziegler, N. A.,** Meinhart, W. L., and Goldsmith, J. R. Low-Cr-Mo cast steels, 8333*g*.

**Ziegler, W. M.** Quinones, P 9085*e*, naphthoquinones, P 9085*f*.

**Zieliński, A.** Catalytic oxidation of hydrocarbons in vapor phase, 1711*c*; detn. of phthalic anhydride, 2125*d*.

**Zieliński, F. E.** Hydrolyzing enzymes in laundering, 3203*b*.

**Zielinski, Q.** Ascorbic acid content of 33 peach varieties in relation to genetic and environmental factors, 5091*d*.

**Zieliński, W.** Natural rubber derivs., 8721*f*.

**Ziels, N. W.,** and Schmidt, W. H. Hydrogenation of oils, P 5613*a*.

**Ziemeck, B.** See Ensslin, F.

**Ziemke, H.** Blood histamine and local freezing, 8484*i*.

**Ziemke, P. C.** How to make cement for HCl, 5132*i*.

**Zienty, F. B.** *N*-Monoformyl-*N*,*N'*-disubstituted ethylenediamines, P 3028*e*; stabilizers for 2-(chloromethyl)thiophene, P 3041*a*; see Kyrides, L. P.

——— and Kyrides, L. P. Nuclear bromination of 2-aminothiazole and derivs., P 3042*b*.

——— and Stealy, G. W. 1-(4-Isopropylbenzyl)piperazine as a fungicide and bactericide, P 3558*f*.

**Zienty, M. F.** Quaternary salts of *N*-substituted 3-pyridinesulfonamides, P 6671*e*; see Kyrides, L. P.

**Zierler, K. L.** See Eyzaguirre, C.; Lilienthal, J. L., Jr.

**Ziesecke, K. H.** Behavior of CO-resistant materials of construction under extreme operating conditions, 3330*h*.

**Zigerli, P.** Biol. water purification, P 5890*e*.

**Zigeuner, G.** See Ziegler, E.

**Zijl, W. J. van.** Grondslagen voor de bepaling der bloedsedimentatie bij paard en rund (book), 9140*g*.

**Zikeev, T. A.,** and Shifrin, M. G. Solns. of $CrCl_2$ as O absorbents in gas analysis, 4599*g*, detn. of total S in dark petroleum, 5575*f*.

**Zikmund, E.** See Jelinek, V.

**Zikmund, M.** Chem. constitution and properties of contact insecticides, 8086*g*, insecticidal and repellent properties of org. compds., 8086*g*.

**Zil'berfarb, M. I.** Measuring the thickness of Sn coating, P 6148*b*.

——— and Shteinberg, L. M. Measuring the thickness of Sn coating, P 6148*a*.

**Zil'berg, F. D.** Aq. concentrate of the flower of the lily of the valley, P 6371*e*.

**Zil'berman, R. A.** See Gershenzon, S. M.

**Zilch, K.** See Ungnade, H. E.

**Zilli, E.,** and Di Ferranté, N. Excretion of *p*-aminobenzoic acid in the urine after intravenous administration in normal subjects and patients with liver disease, 6298*i*.

**Zilliken, F.** See Dirscherl, W.

**Zil'pert, L. V.** See Sapilevskii, P. F.

**Zilsel, P. R.** See London, F.

**Zilva, S. S.** See Painter, H. A.

**Zilversmit, D. B.** See Chaikoff, I. L.

———, Chaikoff, I. L., Feller, D. D., and Masoro, E. J. Oxidation of glucose labeled with radioactive C by normal and alloxan-diabetic rats, 2310*a*.

———, Entenman, C., and Chaikoff, I. L. Measurement of turnover of the various phospholipides in liver and plasma of the dog and its application to the mechanism of action of choline, 1852*a*.

**Zimakov, P. V.** Formation of $C_2H_4O$ from $C_2H_4Cl_2$, 4638*g*.

——— and Pokrovskii, V. A. Oxidation of allyl alc. to acrolein, 1717*h*.

**Zimdahl, H.** See Lindblad, G.

**Zimen, K. E.** Extn of radiosilver ($Ag^{111}$), 8267*f*; isotopes of the heavy elements and their genetic relationships, 4096*h*.

**Zimkin, E.** See Weizmann, C., Rowley, D.

**Zimkin, E. A.** See Toropova, V. F.

**Zimkin, N. V.** Functional structure of reflexes (V) peculiarities of functional structures of reflexes under influence of poisons, which disturb the normal coordination, and soporific substances, 763*h*.

**Zimler, R. G.** See Roe, J. H.

**Zimm, B. H.** Scattering of light and the radial distribution function of high-polymer solns., 1627*d*; measurement and interpretation of the angular variation of light scattering—results on polystyrene solns., 1627*f*.

**Zimmer, D. J.** See Webster, S. H.

**Zimmer, F.** Handbuch für Oberflächenschutz und Veredelung durch Lacke chemische Beizen (book), 876*f*, surface protection and treatment of large metal surfaces by lacquers and chem. stains, 3336*f*.

**Zimmer, J.** See Mandel, P.

**Zimmer, J. C.** Heat-exchange media, P 6222*g*; see Duncan, G. W.; Morway, A. J.; Wasson, J. I.

——— and Beerbower, A. Detg. viscosity of grease, P 2766*i*; penetration oil, P 5187*a*.

———, Carlson, E. W., and Duncan, G. W. Lubricant additives, P 5184*c*.

——— and Duncan, G. W. Bearing-lubricant compn., P 2765*f*.

——— and Rosen, R. Nonfoaming oil compns., P 5406*c*.

**Zimmer, K. G.** Effect of ionizing rays on solns., 6075*e*.

**Zimmer, R. P.** See Barlow, J. S.

**Zimmerli, F. P.** Shot quality, 90*d*.

**Zimmerly, S. R.** See Myers, J. F.

**Zimmerman, B. G.** Reduction of nitrophenols, P 4695*f*; recovery and recycling manganic sulfate paste in org. oxidations, P 5161*e*.

**Zimmerman, C. L.** See Royer, G. L.
—— and Royer, G. L. Lab. study of padding (I) cotton, 1191*c*.
**Zimmerman, F. T.**, Burgemeister, B. B., and Putnam, T. J. Effect of glutamic acid on the intelligence of patients with mongolism, 9266*a*.
**Zimmerman, G. B.**, and Gerhold, C. G. Removal of halogens from hydrocarbon mixts., P 4006*c*.
**Zimmerman, G. D.** See Sholl, H. A.
—— and Garibay y R., J. Developments in pulp and paper mill instrumentation, 848*g*.
**Zimmerman, H. K., Jr.** Geometric approach to the theory of the C-C bond, 8844*a*.
—— and Van Rysselberghe, P. Directed valence as a property of determinant wave functions, 8865*d*.
**Zimmerman, J. C.** See Streiff, A. J.
**Zimmerman, J. F.** Abs. reaction rate theory and the respiratory rebound, 7065*d*.
**Zimmerman, J. R.**, and Williams, D. Magnetic moment of $B^{11}$, 3290*a*; measuring nuclear magnetic moments, 4092*h*; magnetic moment of $Al^{27}$, 4136*c*; nuclear gyromagnetic ratios of $Be^{9}$, $Rb^{85}$, $Rb^{87}$, and $Cs^{133}$, 4137*a*, detn. of nuclear gyromagnetic ratios (I), 8262*e*.
**Zimmerman, M. U.** See Steffens, J. H.
**Zimmerman, P. W.** See Hitchcock, A. E.
—— and Hitchcock, A. E. Plant hormones, 1083*g*.
**Zimmermann, A.** See Hacker, W.
**Zimmermann, E. K.** Traffic-paint studies, 9179*d*.
**Zimmermann, G.** Protein substances and nutrition of chicks, 8469*g*.
**Zimmermann, M.** See Ptelog, V.
**Zimmermann, R.** See Scheil, E.
**Zimny, F.** See Latyński, J.
**Zinca, V.** See Macovski, E.
**Zinchenko, E. M.** See Agranovich, B. D.
**Zinder, N.** See Lederberg, J.
**Zingaro, R. A.**, Goodrich, J. E., Kleinberg, J., and Vander Werf, C. A. Reactions of the Ag salts of carboxylic acids with I in the presence of some tertiary amines, 5089*h*.
**Zingman, L. I.** See Gik, D. L.
**Zinke, A.** Perylene and its derivs. (LVII) 2,3:10,11-dibenzoperylene-1,12-diquinone, 7928*d*.
——, Bossert, F., and Ziegler, E. Perylene and its derivs. (LVIII) 2,3,10,11-dinaphthoperylene, 7928*d*.
——, Hanus, F., and Ferrares, O. Coronene (I), 5020*a*.
——, Hanus, F., and Pichelmayer, H. Hardening processes of phenol formaldehyde resins (II) hardening with $(CH_2)_6N_4$, 9953*g*.
—— and Pack, G. Perylene and its derivs. (LIX) presumed perylene derivs. 1-hydroxyperylene and 1,12-furoperylene, 7929*c*.
—— and Pucher, S. Hardening processes of phenol-formaldehyde resins (XV) hardening with $(CH_2)_6N_4$ (2), 5994*f*.
——, Ziegler, E., and Hontschik, I. Hardening processes of phenol-formaldehyde resins (XIII), 5994*b*.
**Zinkernagel, R.** Mothproofing, 6356*b*.
**Zin'kov, Z. E.** Temp. cycle in the tanning-ext. industry and the thermal conversion of tanning matter, 6450*c*.
—— and Knyazeva, M. A. Detn. of condensate recovery in boilers, 6343*f*.
**Zinner, P.** See Pesonen, P. E., Renwick, M. O.
**Zino, E.** See Marconi, R.
**Zinov'ev, Yu. M.** See Yakubovich, A. Ya.
**Zinov'eva, K. N.** See Peshkov, V. P.
**Zinowjewa, K. N.** See Zinov'eva, K. N.
**Zinserling, Zinserling.** See Tsinzerling, I. V.
**Ziolkowski, Z.** Selective extn. of paraffin-oil base distillates with furfural, 3602*h*.
**Ziomek, J. S., and Cleveland, F. F.** Thermodynamic properties of diiodoacetylene and some symmetrical-top acetylenes, 8838*e*.
——, Cleveland, F. F., and Meister, A. G. Raman and infrared spectra of oxalyl chloride, 8881*g*.
**Zipf, H. F.** Influence of $CO_2$ on growth of *Escherichia coli* under various conditions of growth, 715*i*; influence of plasma, serum, and Mellanby thrombin on methemoglobin formation after hemolysis, 9504*h*.
**Zipkin, I., and McClure, F. J.** Inhibitory effect of fluoride on tooth decalcification by citrate and lactate, 6310*e*.
**Zippin, C.** See Nachod, F. C.
**Zirkl, E. J.** Epsomite crystals from the Hallstatt salt deposits, 2129*b*.
**Zirkle, C. L.** See Carter, H. E.; Fuson, R. C.
**Ziskin, D. E.**, Applebaum, E., and Gorlin, R. J. Effect of hypophysectomy on the permanent dentition of rhesus monkeys, 6715*f*.
——, Karshan, M., Stein, G., and Dragiff, D. A. Oral manifestations in rats fed synthetic diets deficient in pantothenic acid and biotin (I) methods and general gross symptoms, 5833*d*.
**Ziskind, E.** See Bercel, N. A.
—— and Bercel, N. A. Convulsive thresholds (II) epileptics and nonepileptics, 9231*g*.
**Zisman, W. A.** See Baker, H. R.; Murphy, C. M.
—— and Hain, G. M. Low-temp. grease, P 1178*g*.
**Žitkova, A. S.** See Zhitkova, A. S.
**Zittle, C. A.** Detn. of carboxypeptidase, 713*e*.
——, Smith, L. D., and Kraft, L. E. Reaction of borate with polysaccharides; blood group substances from intestinal mucosa and gastric mucin, 1315*b*.
**Zizzo, S. G.**, and Platt, J. B. Detection of x-ray quanta by a CdS crystal counter, 8875*g*.
**Zmaczyński, A.** Chem. industry in Poland, 8072*f*.
**Znamenskaya, M. P.** Leont'ev, I. **Zobel, F.** Purification of the arc proc. $C_2H_2$, 1661*b*.
**Zobell, C. E.** See Johnson, F. H.
—— and Rittenberg, S. C. Sulfate reducing bacteria in marine sediments, 5076*e*.
**Zohkallo.** See Tsobkallo.
**Zobrist, F.**, and Schinz, H. Sesquiterpenes (LXXXVI) cyclization of farnesylidene acetone, 8369*d*.
**Zocceddu, E.** Phenolphthalein in malaria therapy, 7143*d*.
**Zocher, H. E. W.** Anisotropy of the surface of crystals; muscovite of Bicas, Minas Geraes, Brazil, 7871*f*.
—— and Torok, C. Asymmetry of crystals, 7770*a*.
**Zöllner, N.**, Eymer, K. P., and Scheid, L. Electrophoresis in the pathophysiol. of plasma proteins, 5857*a*.
**Zohary, M.**, and Orshansky, G. Effect of minerals on the formation of subterranean fruits, 8459*e*.
**Zoja, R.** Brittleness in annealing of chrome steels—influence of P and Mn, 3330*f*; metallic alloys, P 5000*a*; active strata between metal and dross in the manuf. of steel, 6958*f*; morphology of nonmetallic occlusions in steel products; occlusions in ferro Cr, 8331*f*; see Bianchi, G.
**Zolad, J. J.** Economical paint spraying, 869*e*.
**Zolkover, A. M.** See Kriss, A. E.
**Zoll, J.** See Hubbard, R. S.
**Zollinger, H.** Ozone tube, P 8921*a*.
**Zolotavin, V. L.** Sparsely sol. metavanadates, 8247*e*.
**Zolotorog, A. F.** See Beluga, S. M.
**Zolotukhin, V. K.** See Molotkova, A. S.
**Zolotukhina, A. P.** See Sabinina, L. E.
**Zolotykh, B. N.** See Krasyuk, B. A.
**Zomlefer, J.** See Price, C. C.
**Zomosa R., A.** Detn. of critical humidities in drying, 3246*c*.
**Zondek, H.** Diabetes mellitus, 9226*d*.
**Zook, E. G.** See Callison, E. C.
**Zopf, L. C.** See Hartman, M., Meyers, D. B.; Nadkarni, M. V.
**Zorabyan, S. I.** Kettle for distn. of residues from wine making, P 9362*e*.
**Zorkóczy, G.** Glycerol from lactic acid or its derivs., P 4290*g*.
**Zorn, F. M.** See Roderick, H. F.
**Zorn, H.** Polymerization of ethylene to lubricating oils, 384*d*.
**Zorzi, S.** Expansive cement, 2394*h*.
**Zosimovich, D. P.**, Tsimmergakl, V. A., and Khalmovich, R. S. Detn. of Zn in Cd, 64*c*.
**Zoss, A. O.** Resinous products from $C_2H_2$ and secondary and tertiary alkyl phenols, P 2466*g*; rubbery polyvinyl butyl ethers, P 2808*d*; stabilized vinyl ether polymers, P 8210*a*; see Schildknecht, C. E.
——, Hanford, W. E., and Schildknecht, C. E. Prepn. and properties of alkylphenol-acetylene resins, 2807*i*.
**Zossimowitsch, D. P.** See Zosimovich, D. P.
**Zotta, M.** See Riccoboni, L.
—— and Somló, F. Detn. of γ-1,2,3,4,5,6,-hexachlorocyclohexane, 8087*a*.
**Zotterman, Y.** Response of the frog's taste fibers to the application of pure water, 9273*c*.
**Zotta, G. del.** See Del Zotta, G.
**Žoukov.** See Zhukov.
**Zouravlev.** See Zhuraulev.
**Zowader, H.** Anion exchange in production of formaldehyde free of formic acid, 4632*e*.
**Zrenner, F.** Possibility of increasing yields in ore dressing by shifting the milling toward the coarser range, 7387*g*.
**Zschiegner, H. E.** Pd oxide, P 1160*b*.
**Zschitomirskaja, E. Z.** See Zhitomirskaya, E. Z.
**Zsiga, I.** See Bálint, P.
**Zsigmond, Z.**, and Erdélyi, G. Progester onelike effect of vitamin E, 8031*a*.
**Zsivny, V.** Vivianite from Kisbánya, 8985*b*.
**Zsoldos, I.** Sedimentation rate in tilted tubes, 6473*g*.
—— and Foldi, M. Effect of mercuric diuretics on tubular salt absorption, 9257*c*.
**Zsolnai, T.**, and Stanchich, I. Bacteriostatic effects of some S compds. and unsatd. ketones, 8434*g*.
**Zsótér, T.** See Bálint, P.
**Zubashchenkov, F.** See Deryagin, B. V.
**Zuber, K.** Quant. autoradiography, 1258*d*, 6912*a*.
**Zubiri Vidal, A.** See Mateo Tinao, M.
**Zubiri Vidal, F.** See Mateo Tinao, M.
**Zubkovich, L. E.**, and Andreeva, T. F. Photochem. activity of isolated chloroplasts, 8013*b*.
**Zubov, P. I.**, Zhurkina, Z. N., and Kargin, V. A. Structure of protein gels (II) deformation of concd. gels, 5261*d*.
**Zubrilin, A. A.** Theory of making hay, 329*f*.
**Zuccari, G. C.** See Coppa-Zuccari, G.
**Zucker, J.** App. for steam distn., P 7*b*; see Bohm, Egon.
**Zucker, L. M.** See Berg, B. N., Zucker, T. F.
—— and Zucker, T. F. Does "animal protein factor" occur in green plants? 288*d*.
**Zucker, T. F.** See Berg, B. N., Zucker, L. M.
—— and Zucker, L. M. Lactation on well fortified all-plant rations, 2293*a*; occurrence of zoopherin in lower animals, 2331*c*.
**Zuckerkandl, F.** Power of fixation of serum proteins with respect to Na and Ca fluorescenates, 8049*g*.
**Zuckerman, A.**, and Grace, N. H. Utilization of erucic acid oils, 7240*i*.
**Zuckerman, J. L.**, Zymaris, M. C., and Natelson, S. Detn. of fecal fat and fatty acids, 4322*g*.
**Zuckert, W.** Modern water treatment, 5889*f*.
**Zuckerwanick, I. P.** See Tsukervanik, I. P.
**Zuelzer, W. W.**, and Apt, L. Acute hemolytic anemia due to naphthalene poisoning, 9258*e*.
**Zürupa, I. G.** See Tsyurupa, I. G.
**Zuev, L. A.** Influence of P nutrition on young plants, 7622*c*; see Gapon, E. N.
**Zuev, Yu. S.** Detn. of the adhesion forces between particles in the sediments of suspensions, 7777*d*; effect of surface active substances on the mech. properties of concd. ZnO suspensions, 7777*i*.
**Zueva, L. D.** See Kizber, I. S.
**Zueva-Vnlimp, L.** See Smirnova, V.
**Zufall, C. J.** See Ahmed, Z. F.
**Zufeldt, R. H.** Treating East-Texas oilfield water, 3953*f*.
**Zuidema, H. H.**, and Pilz, G. P. Interfacial tension between water and org. liquids heavier than water, 3255*i*.
**Żuk, W.** Phosphorescence of KCl crystals activated by Tl, 2869*e*.
**Zukerwanik, I. P.** See Tsukervanik, I. P.
**Zukhovitskii, A. A.** See Zabezhinskii, Ya. L.
**Žukoff, Žukov.** See Zhukov.
**Zulueta, C.** See Rius, A.
**Zumbusch, M.** See Fischer, Werner.
**Zumwalt, L. R.** See Badger, R. M.
**Zupko, A. G.**, and Edwards, L. D. Toxicological study of *p*-dichlorobenzene, 8552*e*.
**Žuravlev, S.** Heating of stored sole leather, 5220*i*.
**Zurawlew.** See Zhuravlev.
**Žurkow, S. N.** See Zhurkov, S. N.
**Zusman, M. N.** See Burdin, S. F.

**Zusser, E. E.** See Vol'fkovich, S. I.
**Zussman, H. W.** Sequestering agents use in textile processing, 6420*e*.
**Zuwerkalow, D.** See Tsuverkalov, D.
**Zverev, B. P.** See Dertev, N. K.
**Zvetkov, Zvetkow.** See Tsvetkov, V. N.
**Zviagincev, O. E.** See Zvyagintsev, O. E.
**Zviak, C.** See Luchampt, F.
**Zvjagincev, Zvjaginzev, Zvjaguincev, Zvjaguintzev.** See Zvyagintsev, O. E.
**Zvonkova, Z. V.**, and Zhdanov, G. S. Crystal structure of $Ag_7NO_{11}$, 2484*a*.
**Zvorykina, V. K.** See Rodionov, V. M.
**Zvyagintsev, O. E.** Refining of Au, Ag, and Metals of the Pt Group (book), 2566*c*; 30 years of Soviet applied chemistry, 2711*d*; A. E. Poral-Koshits, 7761*c*.
**Zwanenberg's Fabrieken N. V.** Meat pickling, P 1502*f*.
**Zwanikken, G. C. J.** Penetration of nucleons through heavy nuclei, 5278*d*.
**Zweidler, R.** See Keller, E.
**Zweifach, B. W.** See Lee, R. E.
**Zweifel, H. C.** Contamination studies of S. A. E. coöperative grease samples, 5937*a*
**Zwemer, R. L.** See Elftman, H.
**Zwergal, A.** Hydrocarbons in the prepn of synthetic fat products by oxidation, 7241*d*.
**Zwetkoff, V. N.** See Tsvetkov, V. N.
**Zwiagincev, O. E.** See Zvyagintsev, O. E.
**Zwicker, U.** See Köster, W.
**Zwicky, R.** See Ruzicka, L.
**Zwiebel, N.**, Turkevich, J, and Miller, W. W. Prepn. of radioactive $CO_2$ from $BaCO_3$, 4951*i*.
**Zwilling, E.** Assocn. of hypoglycemia with insulin micromelia in chick embryos, 3872*b*.
**Zworikina, W. K.** See Zvorykina, V. K.
**Zworykin, V. K.**, and Ramberg, E. G. Photoelectricity and Its Applications (book), 4958*i*.
**Zyl, G. van.** See Van Zyl, G.
**Zylberszac, S.** Nature and origin of pigmented leucocytes in amphibian blood, 4386*h*.
**Zyma S. A.** Phenyl Hg salts against microorganisms on plants, P 9355*d*.
**Zymaris, M. C.** See Zuckerman, J. L.
**Zypkina, O. Ya.** See Tsypkina, O. Ya.
**Zyskovsky, V. K.** See Tsyskovskiĭ, V. K

# CHEMICAL ABSTRACTS

Vol. 43 DECEMBER 25, 1949 No. 24

## III. FORMULA INDEX

### KEY

n using this index the following should be ne in mind:

. The Formula Index does not replace any t of the Subject Index. Unnamed, incomely described compounds can sometimes be xed *specifically* in the Formula Index only, there are cross references from the Formula ex to the Subject Index for the simpler and mmoner compounds; otherwise compounds are pletely indexed both by formulas and by nes.

**Inorganic as well as organic compounds** e been entered.

**Entries under their own formulas** are de for all strictly inorganic and strictly orne compounds, both addition compounds and e reaction derivatives (this includes esters, razones, oximes, picrates, semicarbazones, ). Inorganic salts of organic acids and inorne addition compounds of organic compounds ydrohalides, chloroplatinates, perchlorates, lfates, etc.) are not given separate entries but e indicated in modifying phrases under the rmulas of the compounds from which they are rived (under the acid in the case of a salt). alts of formic, acetic, and oxalic acids are exptions; these are entered as such.

4. **The arrangement of symbols in formulas** alphabetical except that in carbon compounds always comes first, followed immediately by H hydrogen is also present.

**The arrangement of formulas** is also abetical except that the number of atoms of ny specific kind influences the order of compounds; e.g., all formulas with C (one carbon tom only) come before those with $C_2$, thus: $CCl_2O$, $CCl_4$, $CHCl_3$, CHN, CHNO, $CH_2Br_2$, $CH_4O$, $CH_3Cl$, CO, $C_2Ca$, $C_2H_4O_2$.

6. **The arrangement of entries under any heading** is alphabetical according to the preferred names of the isomers.

7. **Entries consist of** (*a*) the formula (in boldface type), (*b*) the name as it has been entered in the Subject Index (in light-face Roman type; *it should be noted particularly that the part of the entry in this type is the exact equivalent of the formula given*), (*c*) occasionally a modifying phrase or word such as "*Ca salt*" or "*di- HCl*" (in italics, different type being used to set off that part of a compound being indexed which is not represented in the formula used; see ¶3 above), (*d*) the column reference, and (*e*) the fraction of the column in ninths (indicated by an italic letter) in which the compound will be found.

8. **Cross references** are to the Subject Index.

9. **Water of hydration** is not made a part of the formulas indexed but is often given in light-face type following the formulas.

10. **Polymers** having different names and recognized as different substances, e.g., acetaldehyde and paraldehyde, are all entered under their accepted formulas. But a definite compound for which different polymeric formulas are in use is entered under the simplest formula.

11. **A straight line,** thus—, used under some headings to avoid repetition of names, always stands for the name of the "index compound," i.e., that part of the preceding name which comes before the comma.

12. "P" before a page number indicates that the abstract is of a **patent.**

13. The **names beryllium** (Be), **columbium** (Cb), and **hafnium** (Hf) are given preference over glucinum (Gl), niobium (Nb) and celtium (Ct), respectively, for these elements.

14. For **deuterium** ($H^2$) and **tritium** ($H^3$),

respectively, the symbols D and T are used. These are placed alphabetically in formulas, the exception in arrangement made for H not being extended to include these isotopes.

*The Key to a formula index is necessarily lengthy. It would not be correct to conclude from this that this index is difficult to use. Experience is to the contrary.*

## INTRODUCTION

**General purpose and policy.** The location of chemical compounds in an index by names is at times uncertain because names vary and in the case of complex compounds may be difficult to ascertain. New compounds are constantly being prepared, which, if named at all, may receive more than one name that is justified from one point of view or another, and the possibilities of incorrect naming are considerable. Since the kinds and number of component atoms of a chemical compound are unvarying characteristics the supplementary Formula Index to *Chemical Abstracts* is published for the purpose of eliminating this element of uncertainty in the Subject Index. The Subject Index is in no way altered on account of the Formula Index. In the Subject Index related compounds are *grouped* rather effectively and to good use by the present system of indexing on the basis of "parent compounds" or, more accurately, "index compounds"; in the Formula Index the certain location of *individual* compounds is the primary consideration. The Subject Index is more convenient to use in some respects, and it frequently contains more information in the form of modifying phrases. The repetition of modifying phrases in the Formula Index beyond necessary brief expressions to indicate derivative has been avoided as unnecessary for the accomplishment of the real purpose of this index, as stated above. Isomerism is not indicated in the Formula Index in cases in which the names differ only in position numbers or letters, but it always is in the Subject Index when known. Ready reference to the Subject Index for the purpose of locating information regarding related compounds is made possible by the use in the Formula Index of names following the formulas written exactly as they appear in the former index (except for the indication of isomerism as above mentioned).

All new compounds and all compounds for which new information is given have been entered. Most of the compounds have been entered under their own formulas. Some departure from a policy of making separate formula entries for derivatives of all kinds is reasonable and accords with custom. The only departures in this index (see ¶3 of the Key) have been in classes of compounds the natures of which would be more than likely apparent to the investigator. The interest in a salt of a complex organic acid, for example, is likely to be mainly in the acid, and it is considered more valuable to have the record of it under the formula of the acid for the use of searchers looking up that acid.

In the case of unnamed organic compounds, where possible, the class, as acid, and melting or boiling point have been given.

Cross references to the Subject Index have been used for many simple inorganic compounds, for all minerals of definite composition, and for the organic compounds more commonly met with, in general, whenever it seemed likely that users of *Chemical Abstracts* would predominantly refer to the Subject Index.

**The System.** The system, as described in the Key, is with slight modifications, that worked out by Edwin A. Hill[1] and used by the Classification Division of the U.S. Patent Office. This system is preferred to the system of Richter's Lexikon because of its greater simplicity and its applicability with equal fitness to inorganic and to organic compounds.

**$ActBr_3$** Actinium bromide, 3709*h*.
**$ActCl_3$** Actinium chloride, 2828*b*, 3709*h*.
**$Act_2S_3$** Actinium sulfide, 3709*i*, 6484*e*.
**AgAsS₂** See *Smithite*.
**AgBr** See *Silver bromide*.
**$AgBrF_4$** Silver fluobromide, 3739*f*.
**$AgBr_2Cs$** Cesium bromoargentate(I), 4971*b*.
**$AgBr_3Cs_2$** Cesium bromoargentate(I), 4971*b*.
**$AgBr_3H_8N_2$** Ammonium bromoargentate(I), 4971*b*.
**AgCl** See *Silver chloride*.
**$AgClO_3$** Silver chlorate, 1242*c*, 1630*d*.
**$AgClO_4$** See *Silver perchlorate*.
**$AgCl_2Cs_2$** Cesium chloroargentate(I), 7771*i*.
**$AgCs_2I_3$** Cesium iodoargentate(I), 7771*i*.
**AgF**, See *Silver fluoride*
**$AgF_2$** Silver fluoride, P 4300*g*, 6793*d*.
**$AgH_2NO_3S$** Silver sulfamate, 6090*h*.
**AgI** See *Silver iodide*.
**$AgIO_3$** Silver iodate, 8971*i*.
**$AgI_2K_2$** Potassium iodoargentate(I), 7771*i*.
**$AgI_2Rb_2$** Rubidium iodoargentate(I), 7771*i*.
**$AgMg_3$**, 6558*f*.
**$AgMnO_4$** See *Silver permanganate*.
**$AgNO_3$** See *Silver nitrate*.
**$AgN_3$** See *Silver azide*.
**$AgO_3V$** Silver vanadate(V), 8247*f*.
**AgZn**, 4917*a*.
**$Ag_2Al$**, 4917*a*.
**$Ag_2CrO_4$** See *Silver chromate*.
**$Ag_2Cr_2O_4$** Silver chromite, 7367*g*, 8953*c*.
**$Ag_2Cr_2O_7$** See *Silver dichromate*.
**$Ag_2MoO_4$** Silver molybdate, P 5565*f*.
**$Ag_2O$** See *Silver oxide*.
**$Ag_2O_4S$** See *Silver sulfate*.
**$Ag_2O_4W$** Silver tungstate, P 5565*f*.
**$Ag_2Pb_5S_{10}Sb_8$** See *Oxyhercite; Warrenite*.
**$Ag_2S$** See *Argentite; Silver sulfide*.
**$Ag_2S_3Sb_2$**, 3274*f*.
**$Ag_2Se$** See *Silver selenide*.
**$Ag_2Te$** See *Hessite*.
**$Ag_3AsO_4$** See *Silver arsenate*
**$Ag_3AsS_3$** See *Proustite; Xanthoconite*.
**$Ag_3AuTe_2$** See *Petzite*
**$Ag_3N$** Silver nitride, 5691*b*.
**$Ag_3O_4P$** See *Silver phosphate*
**$Ag_3O_4V$** Silver vanadate(V), 8308*f*.
**$Ag_3PS_4$** Silver thiophosphate, 4170*f*.
**$Ag_3S$**, 6927*e*.
**$Ag_3Sb$** See *Dyscrasite*.
**$Ag_3Al_3$**, 8341*f*.
**$Ag_3S_4Sb$** See *Stephanite*.
**$Ag_3Te_2$** See *Empressite*.
**$Ag_3Zn_8$**, 4917*a*.
**$Ag_4MnMo_9O_{32}$** Silver molybdomanganate(IV), 8297*d*.
**$Ag_4Mo_9NiO_{32}$** Silver molybdonickelate(IV), 8298*a*.
**$Ag_6S_4Sb_2$**, 3274*f*.
**$Ag_7NO_{11}$**, 2484*a*.
**$Ag_{16}As_2S_{11}$** See *Pearceite*.
**$AlBCl_2H_4$**, 8937*h*.
**$AlB_3H_{12}$**, 4573*a*, 8937*h*.
**AlBr** Aluminum bromide, 3740*f*.
**AlBrO** Aluminum bromide, P 3834*c*, P 5230*d*.
**$AlBr_3$** See *Aluminum bromide*.
**$AlBr_3H_9N$**, 8811*a*.
**$AlBr_3Sb$** Aluminum antimony bromide, 1232*i*.
**AlCl** Aluminum chloride, 3740*f*, 4932*a*.
**$AlClCu_4H_{12}O_{16}S$** + $3H_2O$ See *Spangolite*
**$AlCl_2HO_4S$** Aluminum chloride sulfate, 6582*h*.
**$AlCl_3$** See *Aluminum chloride*.
**$AlCl_2H_9N$**, 2095*f*.
**$AlCl_2O_{12}$** Aluminum perchlorate, 4172*c*.
**$AlCl_4NO$**, 3305*i*.
**$AlCs_2O_8S_2$** See *Pollucite*.
**$AlCs_2O_8S_2$** + $12H_2O$ Aluminum cesium alum, 8273*d*, 8785*i*.
**$AlCs_2O_8Se_2$** + $12H_2O$ Aluminum cesium selenium alum, 8785*i*.
**AlF** Aluminum fluoride, 4932*c*.
**$AlF_3$** See *Aluminum fluoride*.
**$AlF_4H_4N$** Ammonium fluoaluminate, 4435*c*, 4820*fg*.
**$AlF_4Na_3$** (See also *Cryolite*.) Sodium fluoaluminate, P 7201*c*.
**$AlF_7MgNa_2$** See *Weberite*.
**$AlFeH_2O_6P$** + $H_2O$ See *Childrenite*.
**AlH** See *Aluminum hydride*.
**$AlHO_2$** See *Boehmite; Diaspore*.
**$AlHO_5Si$** See *Pyrophyllite*.
**$AlH_3O_3$** See *Aluminum hydroxide; Gibbsite*.
**$AlH_3O_{12}S_2$** + $6H_2O$ Aluminum sulfate, 6067*g*
**AlH₄Li** See *Aluminum lithium hydride*.
**$AlH_4NO_8S_2$** + $12H_2O$ (See also *Tschermigite*) Aluminum ammonium alum, 5331*b*, 6482*a*, 6983*a*, 8785*i*.
**$AlH_4NO_8Se_2$** + $12H_2O$ Aluminum ammonium selenium alum, 8785*i*.
**$AlH_4NO_8S_2$** + $12H_2O$, 8785*i*.
**$AlI_3$** See *Aluminum iodide*.
**$AlI_4Na$** Sodium iodoaluminate, 6519*g*
**$AlKO_2$** See *Potassium aluminate*.

[1] *J. Am. Chem. Soc.* 22, 478-94(1900).

$O_4Si$ (See also *Kaliophilite; Kalsilite.*)
otassium aluminosilicate, 5705*f*.
$O_8Si_2$ See *Leucite.*
$O_8S_2$ See *Aluminum potassium sulfate; Alums; Kalinite.*
$O_8Se_2$ + $12H_2O$ Aluminum potassium selenium alum, 8785*i*.
$O_8Si_3$ See *Adularia; Microcline; Orthoclase; Sanidine.*
$O_4Si$ See *Eucryptite.*
$O_{10}Si_2$ See *Spodumene.*
$O_{10}Si_4$ See *Petalite.*
$_1N_3$ Aluminum lithium nitride, 4170*h*.
$g_1O_4$ Magnesium aluminate, 2388*c*.
See *Aluminum nitride.*
$O_9$ See *Aluminum nitrate.*
$_1O_7$ See *Sodium aluminate.*
$_1O_4Si$ (See also *Carnegieite.*)
odium alumino silicate, 8253*f*.
$_1O_8Si_2$ + $H_2O$ See *Analcime.*
$_1O_8S_2$ + $12H_2O$ Aluminum sodium alum, 8785*i*.
$_1O_8Se_2$ + $11H_2O$ Aluminum sodium selenate, 6067*d*.
$_1O_8Si_3$ See *Albite.*
$_1O_{12}Si_5$ See *Mordenite.*
$_2O_3$ Sodium aluminate, 2621*a*.
$_1$, 4074*b*, 7815*i*, 8231*h*.
$_1$, 7815*i*.
Aluminum oxide, 499*a*, 8878*c*.
$_1P$ See *Aluminum phosphate; Berlinite; Variscite.*
$_1V$ Aluminum vanadate(V), 6033*b*.
$_1RbS_2$ + $12H_2O$ Aluminum ribidium alum, 8785*i*.
$_1RbSe_2$ + $12H_2O$ Aluminum rubidium selenium alum, 8785*i*.
$_1S_2Tl$ + $12H_2O$ Aluminum thallium alum, 8785*i*.
$_1Se_2Tl$ + $12H_2O$ Aluminum thallium selenium alum, 8785*i*.
$_1V_3$ Aluminum vanadate(V), 8247*f*.
$_3aO_4$ + $6H_2O$ Barium aluminate, 1278*b*.
$_3a_2O_5$ + $5H_2O$ Barium aluminate, 1277*i*.
$_3a_3O_6$ + $7H_2O$ Barium aluminate, 1277*h*.
$_3eCa_4O_{28}Si_9$ + $H_2O$ See *Bavenite.*
$_3eO_4$ (See also *Alexandrite; Chrysoberyl.*)
Beryllium aluminate, 5690*f*.
$_3e_3O_{18}Si_6$ See *Beryl.*
$_3e_4Ca_6O_{41}Si_{14}$ + $2H_2O$ See *Duplexite.*
$Br_3ClK$ Aluminum potassium bromide chloride, 1232*i*, 6898*i*.
$Br_3H_4N$ Aluminum ammonium bromide, 1232*i*.
$Br_3K$ Aluminum potassium bromide, 6899*b*.
$Br_3Na$ Aluminum sodium bromide, 1232*i*, 6898*g*.
$Br_3Zn$ Aluminum zinc bromide, 1232*i*.
$CaO_4$ See *Calcium aluminate.*
$CaO_8Si_2$ See *Anorthite.*
$CaO_{18}Si_5$ + $5H_2O$ See *Levynite.*
$CaO_{12}Si_4$ See *Chabazite; Laumontite.*
$Ca_2H_2O_{12}Si_3$ See *Prehnite.*
$_1Ca_3O_6$ + $9H_2O$ Calcium aluminate, 1278*b*.
$_3Ca_3O_8Si$ (See also *Gehlenite.*)
Calcium aluminosilicate, 1924*h*, 6499*b*.
$_6Ca_3O_6$ See *Calcium aluminate.*
$_6Ca_3O_{12}Si_3$ See *Grossularite.*
$_6Ca_4Fe_2O_{10}$ (See also *Brownmillerite.*)
Calcium aluminate ferrate(III), 3587*i*.
$_6Ca_4O_7$ + $12H_2O$ Calcium aluminate, 1278*b*.
$_6Cl_3H_2O_3$ Aluminum chloride, 8720*c*.
$_6Cl_3OS$ Aluminum chloride, compd. with $SOCl_2$, 2533*c*.
$_6Cu$, 2915*b*, 4204*e*, 5718*c*, 7887*a*.
$_6CuMg$, 4204*e*.
$_6F_{12}Li_3Na_3$ See *Cryolithionite.*
$_6FeO_4$ See *Hercynite.*
$_6Fe_6O_{16}S_4$ See *Halotrichite.*
$_6Fe_3O_{12}Si_3$ See *Almandite.*
$_6H_3O_7P$ See *Augelite.*
$_6H_4O_8Si_2$ See *Endellite; Halloysite; Metahalloysite.*
$_6H_8N_2O_{16}S_4$ Aluminum ammonium sulfate, 4172*i*.
$_6K_2O_{16}S_4$ Aluminum potassium sulfate, 4172*i*.
$_6La_2O_6$ Lanthanum aluminate, 3723*a*.
$_6Li_2Mg$, 2500*f*.
$_6Li_2O_{16}S_4$ Aluminum lithium sulfate, 4172*i*.
$_6MgO_4$ (See also *Spinel.*)
Magnesium aluminate, 3723*a*.
$_6MgO_{16}S_4$ Aluminum magnesium sulfate, 4172*i*.
$_6MgZn_2$, 7886*i*.
$_6MnO_{16}S_4$ Aluminum manganese sulfate, 4172*i*.
$_6Mn_2O_{12}Si_3$ See *Spessartite.*
$_6Mn_7O_{28}Si_6$ + $6H_2O$ See *Ganophyllite.*
$_6Na_2O_{16}Si_4$ + $2H_2O$ See *Natrolite.*
$Al_2Na_2O_{16}S_4$ Aluminum sodium sulfate, 4172*i*.
$Al_2Na_2O_{16}Si_3$ Sodium aluminosilicate, 8577*g*.
$Al_2Na_2S_4$ Aluminum sodium sulfide, 2109*b*.
$Al_2NiO_4$ Nickel aluminate, 4534*b*.
$Al_2O_3$ See *Alumina; Bayerite; Corundum; Ruby; Sapphire.*
$Al_2O_4Sr$ Strontium aluminate, 3723*a*.
$Al_2O_4Zn$ See *Gahnite; Zinc aluminate.*
$Al_2O_5Si$ (See also *Andalusite; Kyanite; Sillimanite.*)
Aluminum silicate, 8253*f*.
$Al_2O_6Sr_3$ + $6H_2O$ Strontium aluminate, 1278*d*.
$Al_2O_7Si_2$ (See also *Dickite; Kaolin; Kaolinite; Metakaolin; Nacrite.*)
Aluminum silicate, 2077*b*.
$Al_2O_8Si_2Tl_2$ Thallium aluminosilicate, 8932*d*.
$Al_2O_9Si_2$ + $2H_2O$ See *Anauxite.*
$Al_2O_{12}S_3$ See *Aluminum sulfate; Alunogen.*
$Al_2O_{12}Se_3$ See *Aluminum selenate.*
$Al_2O_{13}Si_4Tl_2$ Thallium aluminosilicate, 8932*f*.
$Al_2O_{16}Rb_2S_4$ Aluminum rubidium sulfate, 4172*i*.
$Al_2S$ Aluminum sulfide, 3739*i*.
$Al_2S_3$ See *Aluminum sulfide.*
$Al_2Se$ Aluminum selenide, 3739*i*.
$Al_2Se_3$ Aluminum selenide, 1673*c*.
$Al_2U$, 7770*d*.
$Al_3Ca_2HO_{13}Si_3$ See *Clinozoisite.*
$Al_3ClNa_4O_{12}Si_3$ See *Sodalite.*
$Al_3F_{16}NaSr_2$ See *Jarlite; Metajarlite.*
$Al_3Fe$, 3763*g*, 4546*e*.
$Al_3HNa_2O_{12}Si_3$ See *Apoanalcite; Hydronephelite.*
$Al_3H_2KO_{12}Si_3$ See *Damourite; Muscovite; Sericite.*
$Al_3H_4NaO_{12}P_2$ See *Brasilianite.*
$Al_3H_6O_{16}P$ + $6H_2O$ See *Evansite.*
$Al_3H_6O_{14}PSSr$ See *Svanbergite.*
$Al_3KO_{14}S_2$ + $3H_2O$ See *Alunite.*
$Al_3Mg_2$, 4204*e*.
$Al_3Ti$, 7886*i*.
$Al_3U$, 7770*d*.
$Al_3V$, 7886*i*.
$Al_3Zr$, 7886*i*.
$Al_4CaO_7$ Calcium aluminate, 1278*e*, 4594*g*, 8937*b*.
$Al_4Ca_4O_7$ Calcium aluminate, 1923*e*.
$Al_4Cu_9$, 6880*e*.
$Al_4F_{22}Na_{11}$ Sodium fluoaluminate, 8305*b*.
$Al_4Mg_2O_{10}Si_5$ See *Cordierite.*
$Al_4O_9S$ Aluminum sulfate, 2493*a*.
$Al_4FeHO_{13}Si_2$ See *Staurolite.*
$Al_6B_4O_{15}$ Boron aluminate, 6801*i*.
$Al_6BeO_{10}$, 2535*d*.
$Al_6Ca_4O_{14}$ See *Calcium aluminate.*
$Al_6CuMg_4$, 4204*f*.
$Al_6K_2O_{24}P_6$ See *Palmerite.*
$Al_6Mn$, 1701*e*.
$Al_6O_{13}Si_2$ See *Mullite.*
$Al_7Cr$, 7886*i*.
$Al_9Co_3$, 1235*i*, 3763*g*.
$Al_{10}Ca_3O_{18}$ Calcium aluminate, 1924*hi*.
$Al_{10}Li_2O_{16}$ Lithium aluminate, 6763*a*.
$Al_{10}O_{18}Sb_4$ Aluminum antimonate, 2302*g*.
$Al_{12}CaO_{19}$ Calcium aluminate, 4594*g*, 8937*b*.
$Al_{12}H_{12}K_2Mg_2O_{67}Si_{20}$ + $4H_2O$ See *Illidromica.*
$Al_{14}Ca_{12}O_{33}$ Calcium aluminate, 1924*b*.
$Al_{15}Mn_3O_{44}P_3$ Manganese aluminophosphate, 9403*c*.
$AmBr_3$ Americium bromide, 3709*h*, 8889*i*.
$AmCl_3$ Americium chloride, 3709*h*, 8889*i*.
$AmI_3$ Americium iodide, 3709*i*.
$Am_2S_3$ Americium sulfide, 3709*i*, 6484*e*.
$AsBO_4$ Boron arsenate, 3981*f*.
$AsBiO_4$ Bismuth arsenate, 918*f*, 8971*h*.
$AsBr_3$ See *Arsenic bromide.*
$AsCl_3$ See *Arsenic chloride.*
$AsCl_4$ See *Arsenic chloride.*
$AsCl_7Si$, 2534*i*.
$AsCoS$ See *Cobaltite.*
$AsCs_2H_2O_4$ Cesium arsenate, P 3696*b*.
$AsCu_3$ See *Domeykite.*
$AsCu_3S_4$ See *Enargite.*
$AsCu_5$ See *Algodonite.*
$AsCu_6$ See *Whiteneyite.*
$AsD_3$ Arsine-*d*$_3$, 3293*d*, 4139*g*.
$AsFeO_4$ + $2H_2O$ See *Scorodite.*
$AsFeS$ See *Arsenopyrite.*
$AsHNa_2O_3$ See *Sodium arsenite.*
$AsHNa_2O_4$ + $7H_2O$ See *Sodium arsenate.*
$AsHOS$ Thioarsenious acid, 5321*c*.
$AsHO_3$ See *Arsenious acid.*
$AsHO_4Pb$ See *Lead arsenate.*
$AsHO_4Zn_3$ See *Adamite.*
$AsHS_3$ Thioarsenious acid, 5321*c*.
$AsH_2KO_4$ See *Potassium arsenate.*
$AsH_2O_4Rb$ Rubidium arsenate, P 3696*b*.
$AsH_3$ See *Arsine.*
$AsH_3O_3$ See *Arsenious acid.*
$AsH_3O_4$ See *Arsenic acid.*
$AsH_4NO_4$ Ammonium arsenate, P 3696*b*.
$AsI_3$ See *Arsenic iodide.*
$AsNaO_2$ Sodium arsenite, 771*c*, 3110*h*, 3967*b*, 6350*e*, 7333*c*, 8296*c*, 9340*h*.
$AsNa_3O_3$ See *Sodium arsenite.*
$AsNa_3O_4$ See *Sodium arsenate.*
$AsNi$ (See also *Niccolite.*)
Nickel arsenide, 4167*g*, 8834*f*.
$AsNiS$ (See also *Gersdorffite.*)
Nickel arsenide sulfide, 4167*g*.
$AsO$ Arsenic oxide, 5240*f*.
$AsS$ See *Realgar.*
$As_2BaO_4$ Barium arsenite, 8296*a*.
$As_2Ba_3O_8$ Barium arsenite, 8296*b*.
$As_2CaO_4$ See *Calcium arsenite.*
$As_2Ca_3O_8$ See *Calcium arsenate.*
$As_2Ca_4O_9$ + $5H_2O$ Calcium arsenate, 5324*a*.
$As_2Cl_{10}Si$, 2535*a*.
$As_2Co_3O_8$ + $8H_2O$ See *Erythrite.*
$As_2Cu_2O_7$ Copper arsenate, 2885*c*, 3303*a*, 9340*b*.
$As_2Cu_3O_8$ Copper arsenate, 3303*a*.
$As_2Cu_4O_9$ Copper arsenate, 3303*a*, 9340*b*.
$As_2Cu_4H_4O_{13}$ + $H_2O$ See *Cornwallite.*
$As_2Cu_5O_{10}$ + $5H_2O$ Copper arsenate, 2885*d*.
$As_2Fe$ See *Loellingite.*
$As_2H_2$ Arsenic hydride, 6929*i*.
$As_2H_4$ Arsenic hydride, 1277*a*.
$As_2Ni_2$ Nickel arsenide, 8834*f*.
$As_2Ni_5O_8$ + $8H_2O$ See *Annabergite.*
$As_2O_3$ See *Arsenic oxide.*
$As_2O_5$ See *Arsenic oxide.*
$As_2O_7Pb_2$ Lead arsenate, 8971*h*.
$As_2O_7Zr$ Zirconium arsenate, 8302*b*.
$As_2O_8Pb_3$ See *Lead arsenate.*
$As_2O_{11}Zr_3$ Zirconium arsenate, 8302*c*.
$As_2S_3$ See *Arsenic sulfide.*
$As_3Cl_{15}Si$, 2535*a*.
$As_3Co$ See *Skutterudite.*
$As_4Ba_3O_8$ Barium arsenite, 8296*b*.
$As_4Bi_{10}O_{24}U_3$ + $12H_2O$ See *Walpurgite.*
$As_4ClCu_4NaO_{16}$ Copper arsenate, compd. with NaCl, 2885*c*.
$As_4CuO_{11}$ Copper arsenate, 3303*a*.
$As_4Cu_3H_8N_2O_{16}$ Ammonium copper arsenate, 2885*d*.
$As_4Cu_5O_{18}$ Copper arsenate, 2885*c*, 9340*b*.
$As_4H_2$ Arsenic hydride, 6929*i*.
$As_4O_{16}Sn_3$ Tin arsenate, 7785*c*.
$As_4Pb_3S_{16}$ See *Gratonite.*
$As_6Ba_3O_{11}$ + $H_2O$ Barium arsenite, 8296*a*.
$As_8Ni_{11}$ See *Maucherite.*
$AuCl_3$ See *Gold chloride.*
$AuCl_4H$ Chloroauric acid, 4765*d*.
$AuCu_3$, 3260*e*, 4917*a*, 6915*a*.
$AuHO$ Gold hydroxide, 3297*e*.
$AuH_3O_3$ Gold hydroxide, 3297*f*, 4584*b*.
$AuNa_3O_6S_4$ Gold sodium thiosulfate, 2328*g*, 3525*h*, 4765*c*.
$AuTe_2$ See *Calaverite; Krennerite.*
$AuZn$, 4917*a*.
$Au_2O$ Gold oxide, 4583*i*.
$Au_2O_3$ Gold oxide, 4583*i*.
$Au_2S_3$ Gold sulfide, 7363*a*.

$BBrO$ Boron bromide, P 3834*d*.
$BBr_3$ See *Boron bromide.*
$BCaHO_5Si$ See *Datolite.*
$BCl_3$ See *Boron chloride.*
$BCr$ Chromium boride, 3303*b*.
$BF$ Boron fluoride, 7817*b*.
$BFH_2O_2$ Fluoboric acid, P 2643*h*.
$BF_7H_2O_2$ Fluoboric acid, 8657*b*.
$BF_3$ See *Boron fluoride.*
$BF_5HO_4P$ Boron fluoride, compd. with $HPO_3$, 1214*i*, 1711*g*.
$BF_5H_3O_4P$ Boron fluoride, compd. with $H_3PO_4$, 1214*i*, 1711*g*, 1732*e*, 4638*b*.
$BF_4H$ See *Fluoboric acid.*
$BF_4K$ See *Potassium fluoborate.*
$BF_4Na$ Sodium fluoborate, P 2745*g*.
$BFe_2O_6$ Iron boroferrate(III), 4968*f*.
$BH$ Boron hydride, 7817*b*.
$BHO_2$ See *Metaboric acid.*
$BH_4NaO_4$ See *Sodium perborate.*
$BH_3O_3$ See *Boric acid.*
$BH_4Li$, 4573*a*, P 4684*h*, 7805*d*.
$BH_4Na$, 2249*b*, 2570*d*, 4573*a*, P 4684*ehi*, 7805*d*, 8937*i*.
$BH_5O_{43}W_{12}$ Tungstoboric acid, 925*i*.
$(BI)_n$, Boron iodide, 8931*h*.
$BI_3$ Boron iodide, 8931*g*.
$BNaO_2$ Sodium borate, 8134*b*.
$BNaO_3$ See *Sodium perborate.*
$BNi_2$ Nickel boride, P 4684*h*.
$BO$ Boron oxide, 7817*b*.
$BO_4P$ Boron phosphate, P 2790*b*, 3981*f*, P 9022*d*.
$BW_2$ Tungsten boride, 1261*h*.
$B_2BaO_4$ Barium borate, 4438*h*.
$B_2Ba_3O_6$ Barium borate, 4438*h*.
$B_2BeH_8$, 4573*a*.
$B_2CaO_4$ Calcium borate, 3723*a*.
$B_2CaO_8Si_2$ See *Danburite.*

**$B_2Ca_2O_5$** Calcium borate, 3723*a*.
**$B_2Cb$** Columbium boride, 8933*a*.
**$B_2Cd_2O_5$** Cadmium borate, 3717*b*, 3723*a*.
**$B_2ClH_5$** Diborane, chloro-, P 6795*f*.
**$B_2ClH_4Ti$**, 8937*h*.
**$B_2CuF_8$** Copper fluoborate, 8913*i*.
**$B_2CuO_4$** Copper borate, 2443*i*.
**$B_2D_6$** Boron hydride-$d_6$, 7333*e*.
**$B_2F_8Mn$** Manganese fluoborate, P 9022*d*.
**$B_2F_8Zn$** Zinc fluoborate, P 1056*c*, P 9022*d*.
**$B_2Fe_4$** Iron boride, P 6562*b*.
**$B_2H_6O_6Mn$** Manganese borate, 2400*a*.
**$B_2H_6$** See *Boron hydride*.
**$B_2H_6Na_2$**, 8937*i*.
**$B_2I_4$** Boron iodide, 8931*g*.
**$B_2MgO_4$** (See also *Pinnoite*.) Magnesium borate, 2400*a*.
**$B_2O_3$** See *Boron oxide*.
**$B_2O_4Zn$** Zinc borate, 3723*a*.
**$B_2O_6Zn_3$** Zinc borate, 3723*a*.
**$B_2Ta$** Tantalum boride, 8933*a*.
**$B_2Ti$** Titanium boride, 8933*a*.
**$B_2V$** Vanadium boride, 8933*a*.
**$B_2Zr$** Zirconium boride, 6898*e*, 8933*a*.
**$B_3Cl_3H_6N_3$** *s*-Triazatriborine, 2,4,6-tri chlorohexahydro-, 7818*b*.
**$B_3H_6N_3$** *s*-Triazatriborine, hexahydro-, 3301*h*.
**$B_3H_{12}Ti$**, 8037*g*.
**$B_4BaO_7$** Barium borate, 4438*h*.
**$B_4H_2O_7$** Tetraboric acid, P 2745*g*
**$B_4H_{10}$** Boron hydride, 1535*a*.
**$B_4H_{16}Hf$**, 8937*g*.
**$B_4H_{16}Th$**, 8937*g*.
**$B_4H_{16}Zr$**, 8937*g*.
**$B_4K_2O_7$** Potassium borate, 1584*c*, P 1928*a*.
**$B_4Na_2O_7$** See *Borax; Kernite; Tincalconite*.
**$B_4U$** Uranium boride, 8933*b*.
**$B_5CaNaO_9$** See *Probertite; Ulexite*.
**$B_5H_9$** Boron hydride, 959*e*, 1535*a*.
**$B_5H_{11}$** Boron hydride, 1535*a*.
**$B_6CaMgO_{11} + 11H_2O$** See *Inderborite*.
**$B_6H_{11}$** Boron hydride, 1535*a*.
**$B_6BaO_{11}$** Barium borate, 4438*g*.
**$B_{10}H_{14}$** Boron hydride, 959*e*, 1535*d*.
**$B_{11}KMg_2O_{19}$** See *Kaliborite*.
**$B_{12}U$** Uranium boride, 8933*b*.
**$BaBr_2$** See *Barium bromide*.
**$BaBr_4F_3$** Barium fluobromite, 3739*f*.
**$BaCl_2$** See *Barium chloride*.
**$BaCl_2O_6$** See *Barium chlorate*.
**$BaCl_2O_8$** See *Barium perchlorate*.
**$BaCrO_4$** See *Barium chromate*.
**$BaCr_2K_2O_8$** Barium potassium chromate, 5603*i*.
**$BaF_2$** See *Barium fluoride*.
**$BaF_6Si$** See *Barium fluosilicate*.
**$BaH_2O_2$** See *Barium hydroxide*.
**$BaH_4O_8P_2$** Barium phosphate, 5688*i*.
**$BaI_2$** See *Barium iodide*.
**$BaMg_2$**, 4594*h*.
**$BaMg_4$**, 4594*h*.
**$BaMg_9$**, 4594*h*.
**$BaMoO_4$** Barium molybdate, 3722*e*.
**$BaN_2O_4$** See *Barium nitrite*.
**$BaN_2O_6$** See *Barium nitrate*
**$BaN_6$** Barium azide, P 4966*b*.
**$BaN_4O_8Pd$** Barium nitropalladate(II), P 6100*a*.
**$BaNaO_3PS$** Barium sodium thiophosphate, 4170*e*.
**BaO** See *Barium oxide*.
**$BaO_3S_2$** Barium thiosulfate, 1680*f*.
**$BaO_3Si$** Barium silicate, 3723*a*.
**$BaO_3Sn$** Barium stannate, 3723*a*, 5245*a*, P 6803*e*.
**$BaO_3Ti$** See *Barium titanate*.
**$BaO_3Zr$** Barium zirconate, 3723*a*.
**$BaO_4S$** See *Barite; Barium sulfate*.
**$BaO_4W$** Barium tungstate, 3722*ei*.
**$BaO_6S_2$** Barium dithionate, 8232*e*.
**$BaO_6Sb_2$** Barium antimonate, 2392*g*.
**$BaO_6V_2$** Barium vanadate(V), 8247*f*.
**$BaO_9Ti_4$** Barium titanate, 5561*f*.
**BaPb**, 5275*c*.
**$BaPb_3$**, 5275*c*.
**BaS** See *Barium sulfide*.
**$BaSn_3$**, 5275*c*.
**$Ba_2O_4Si$** Barium silicate, 3723*a*, 8856*g*.
**$Ba_2O_4Sn$** Barium stannate, 3723*a*.
**$Ba_2O_7P_2$** Barium pyrophosphate, 8971*h*.
**$Ba_2Pb$**, 5275*c*.
**$Ba_2Sn$**, 5275*c*.
**$Ba_2Bi_3$**, 5275*b*.
**$Ba_2MnMo_9O_{32}$** Barium molybdomanganate-(IV), 4167*b*, 8297*d*.
**$Ba_2MoO_5$** Barium molybdate, 3722*e*.
**$Ba_2Mo_9NiO_{32}$** Barium molybdonickelate(IV), 4167*b*, 8298*a*.
**$Ba_2Mo_{24}O_{82}P_2 + 58H_2O$** Barium phosphomolybdate, 2537*f*.
**$Ba_3N_2$** Barium nitride, 8930*e*.
**$Ba_3O_8P_2S_2 + 6H_2O$** Barium thiophosphate, 4170*f*.
**$Ba_3O_8P_2$** See *Barium phosphate*.
**$Ba_4O_{11}Si_4$** Barium silicate, 3717*b*.
**$Ba_4O_{80}P_2W_{24} + 48H_2O$** Barium phosphotungstate, 2537*g*.
**$Ba_4P_2S_8$** Barium thiophosphate, 4170*i*.
**$Ba_4Sb_2$**, 5275*b*.
**$Ba_4Fe_3O_{11}Si_{10}$** See *Taramellite*.
**$Ba_4H_2In_6O_{13} + 16H_2O$**, 2883*h*.
**$Ba_4O_{16}PtTi_2$** Barium platinate titanate, 1236*d*.
**BeCl** See *Beryllium chloride*.
**$BeF_2$** See *Beryllium fluoride*.
**$BeF_4Na_2$** Sodium fluoberyllate, 5253*a*.
**$BeF_4Na_2$** Sodium fluoberyllate, 6899*g*.
**$Be_2F_7LiNa_2$** Beryllium lithium sodium fluoride, 5253*a*.
**$Be_2FeO_{10}Si_2Y_2$** See *Gadolinite*.
**$BeH_2O_2$** See *Beryllium hydroxide*
**$BeI_2$** Beryllium iodide, 4582*g*
**$BeN_2O_6$** See *Beryllium nitrate*.
**$BeNa_2O_7$** Sodium beryllate, P 6374*i*
**BeO** See *Beryllium oxide*.
**$BeO_4S$** See *Beryllium sulfate*.
**$Be_2O_4Si$** (See also *Phenakite*.) Beryllium silicate, 2388*c*, 7347*i*
**$Be_2O_9S$** Beryllium sulfate, 4967*h*
**$Be_3Mn_4O_{12}SSi_3$** See *Helvite*.
**$Be_3O_7S$** Beryllium sulfate, 4967*h*
**BiBr** See *Bismuth bromide*.
**BiClO** Bismuth chloride, 7836*i*
**$BiClO_4$** Bismuth perchlorate, 1669*a*
**$BiCl_3$** See *Bismuth chloride*
**$BiF_3$** See *Bismuth fluoride*
**$BiI_3$** See *Bismuth iodide*.
**$BiNO_4$** Bismuth nitrate, 5553*d*, 8610*d*, 9363*f*.
**$BiN_3O_9$** See *Bismuth nitrate*
**$BiNaO_3$** Sodium bismuthate, 3745*h*
**BiO** Bismuth oxide, 5240*i*
**$Bi_2O_3$** See *Bismuth oxide*
**$Bi_2O_3S_3$** See *Bismuth sulfate*
**$Bi_2PbS_3$** See *Galenobismutite*
**$Bi_2Pb_2S_5$** See *Cosalite, Goongerrite, Wurthaite*
**$Bi_2Pb_4S_7$** See *Goongarrite*
**$Bi_2STe_3$** (See also *Tetradymite*.) Bismuth sulfide telluride, 8982*h*
**$Bi_2S_3Te$** Bismuth sulfide telluride, 8982*h*
**$Bi_2S_3$** See *Bismuthinite, Bismuth sulfide*.
**$Bi_2Se_3$** (See also *Guanajuatite, Paraguanajuatite*.) Bismuth selenide, 483*a*, 8806*b*
**$Bi_2Te_3$** (See also *Tellurobismuthite*.) Bismuth telluride, 8982*i*.
**$Bi_3H_7MnO_9$** Bismuth permanganate, 519*i*.
**$Bi_2STe$** See *Josette*
**BrCd** Cadmium bromide, 2863*h*, 3712*i*
**BrCl** See *Bromine chloride*
**$BrClH_4N_4O_4Pt$**, 5665*b*
**$BrCl_3Ge$** Germanium bromide chloride, 2885*h*
**$BrCoH_{18}N_6O_4S$**, 3316*b*.
**$BrCrO_4S + 8H_2O$** Chromium bromide sulfate, 7852*g*.
**BrCs** See *Cesium bromide*
**$BrCuH_2O_2$** Copper bromide, 7772*i*
**$BrF_3$** Bromine fluoride, 3739*f*, 3774*i*
**$BrF_4K$** Potassium fluobromite, 3739*f*
**BrH** See *Hydrobromic acid*.
**BrHO** See *Hypobromous acid*
**BrHOPb** Lead bromide, 2112*a*
**$BrHO_2Pb_2$** Lead bromide, 2112*f*.
**$BrH_4N$** See *Ammonium bromide*
**$BrH_4P$** Phosphonium bromide, 7277*d*.
**$BrH_{16}N_8O_9Pt$**, 1673*g*.
**BrHg** See *Mercury bromide*.
**BrI** See *Iodine bromide*.
**$BrI_3$** Iodine bromide, 2876*h*
**BrIn** See *Indium bromide*.
**BrK** See *Potassium bromide*
**$BrKO_3$** See *Potassium bromate*
**BrLi** See *Lithium bromide*
**BrMn** Manganese bromide, 1264*c*.
**BrNO** Nitrosyl bromide, P 7950*e*.
**BrNa** See *Sodium bromide*.
**BrNaO** Sodium hypobromite, 4316*h*, 8672*b*.
**$BrNaO_3$** See *Sodium bromate*.
**BrO** Bromine oxide, 5312*g*
**BrRb** See *Rubidium bromide*.
**BrTl** See *Thallium bromide*.
**BrZn** Zinc bromide, 2863*h*, 3712*i*.
**$Br_2Ca$** See *Calcium bromide*.
**$Br_2Cd$** See *Cadmium bromide*
**$Br_2ClCoH_{18}N_5$**, 2855*b*.
**$Br_2Cl_2Ge$** Germanium bromide chloride, 2885*h*
**$Br_2Co$** See *Cobalt bromide*.
**$Br_2CoH_{18}N_6O_7$**, 2855*c*.
**$Br_2Cu$** See *Copper bromide*.
**$Br_2Cu_2$** See *Copper bromide*.
**$Br_2Fe$** See *Iron bromide*.
**$Br_2H_6N_2Pt$**, 4953*i*, 7277*i*.
**$Br_2H_8N_4O_4Pt$**, 5664*h*.
**$Br_2H_8N_2Pt$**, 2538*a*.
**$Br_2H_{12}MgO_{12}$** Magnesium bromate, 3294*d*.
**$Br_2H_{12}N_4Pt$**, 7277*i*, 7278*a*.
**$Br_2H_{12}O_{12}Zn$** Zinc bromate, 3294*d*.
**$Br_2Hg$** See *Mercury bromide*.
**$Br_2Hg_2O$** Mercury bromide, 2111*b*.
**$Br_2Hg_3O_4$** Mercury bromide, 2111*a*.
**$Br_2Hg_3O_4$** Mercury bromide, 2111*a*.
**$Br_2K_2N_4O_8Pd$**, P 6100*a*.
**$Br_2Mg$** See *Magnesium bromide*.
**$Br_2Mn$** See *Manganese bromide*.
**$Br_2Ni$** See *Nickel bromide*.
**$Br_2OTi$** Titanyl bromide, P 3834*d*.
**$Br_2Pb$** See *Lead bromide*.
**$Br_2S_2$** Sulfur bromide, 6793*f*.
**$Br_2Sn$** See *Tin bromide*.
**$Br_2Sr$** See *Strontium bromide*.
**$Br_2Yb$** Ytterbium bromide, 9093*d*.
**$Br_2Zn$** See *Zinc bromide*.
**$Br_3Ce$** Cerium bromide, 3709*h*.
**$Br_3ClGe$** Germanium bromide chloride, 2885*h*.
**$Br_3ClTi$** Titanium bromide chloride, P 3834*d*
**$Br_3CoH_{18}N_6$**, 2855*f*.
**$Br_3CoH_{18}N_6$**, 3316*b*, 7805*h*.
**$Br_3Cr$** Chromium bromide, 4141*h*.
**$Br_3CrH_6O_3$**, 7852*e*.
**$Br_3DyO_9 + 9H_2O$** Dysprosium bromate, 2093*a*
**$Br_3EuO_9 + 9H_2O$** Europium bromate, 2093*a*, 7337*a*.
**$Br_3Fe$** See *Iron bromide*.
**$Br_3GdO_9 + 9H_2O$** Gadolinium bromate, 2093*a*.
**$Br_3H_{12}InN_6$** Hydrazine, compd. with $InBr_3$, 6932*i*
**$Br_3In$** Indium bromide, 2109*g*, 2883*e*, 3306*a*
**$Br_3La$** Lanthanum bromide, 3709*h*
**$Br_3Nd$** Neodymium bromide, 3709*h*, 8881.
**$Br_3NdO_9$** Neodymium bromate, 4043, 4137*d*, 7337*e*
**$Br_3Np$** Neptunium bromide, 2107*a*, 3706*a*
**$Br_3P$** See *Phosphorus bromide*.
**$Br_3Pr$** Praseodymium bromide, 3709*h*, 8881.
**$Br_3Pu$** Plutonium bromide, 3709*h*
**$Br_3Sb$** See *Antimony bromide*.
**$Br_3Sm$** Samarium bromide, 3709*h*, 8881.
**$Br_3Ti$** See *Titanium bromide*
**$Br_3Tl$** Thallium bromide, 8940*a*
**$Br_3Tm$** Thallium bromide, 8881.
**$Br_3U$** Uranium bromide, 3709*h*.
**$Br_4Ge$** See *Germanium bromide*.
**$Br_4Hg_2O$** Mercury bromide, 2111*a*
**$Br_4Np$** Neptunium bromide, 2106*a*
**$Br_4Si$** See *Silicon bromide*
**$Br_4Sn$** See *Tin bromide*
**$Br_4Ti$** Titanium bromide, P 3834*d*
**$Br_4U$** Uranium bromide, P 6797*a*
**$Br_5Cb$** Columbium bromide, 7851*i*
**$Br_5P$** See *Phosphorus bromide*
**$Br_5Ta$** Tantalum bromide, 7851*i*, 8224*i*
**$Br_6H_2Te$** Bromotellurous acid, 4167*a*

**CAgN** See *Silver cyanide*
**$CAg_2O_4$** See *Silver carbonate*
**CAgNO** Silver cyanate, 517*ae*
**$CB_6$** See *Boron carbide*
**$CB_6$** Boron carbide, 4614*a*, 6500*a*, P 8347
**$CBaO_3$** See *Barium carbonate, Witherite*
**$CBi_2O_6$** Bismuth carbonate, 8610*d*.
**CBr** Carbon bromide, 5312*g*.
**CBrCl-F** Methane, bromodichlorofluoro- 2865*g*.
**$CBrCl_3$** See *Methane, bromotrichloro-*
**$CBrF_2NO_2$** Methane, bromodifluoronitro- 6793*e*.
**$CBrF_3$** Methane, bromotrifluoro-, 3775*a*
**CBrN** See *Cyanogen bromide*.
**$CBr_2ClF$** Methane, dibromochlorofluoro- 2865*g*.
**$CBr_2Cl_2$** Methane, dibromodichloro-, 3345*a*, 4573*g*, 5307*i*
**$CBr_2F_2$** Methane, dibromodifluoro- 2865*h*, 3775*a*.
**$CBr_3Cl$** Methane, tribromochloro-, 5307*i*
**$CBr_3F$** Methane, tribromofluoro-, 2865*i*, 3775*a*
**$CBr_4NO_2$** Bromopicrin, 6016*d*.
**$CBr_4$** See *Carbon tetrabromide*
**$CCaN_2$** See *Calcium cyanamide*.
**$CCaO_3$** See *Aragonite; Calcite; Calcium carbonate; Vaterite*.
**$CCa_3O_7Si$** See *Tilleyite*.
**$CCa_4O_{11}Si_2$** See *Spurrite*.
**CCb** See *Columbium carbide*.
**$CCdO_3$** See *Cadmium carbonate*.
**CCl** Carbon chloride, 7663*e*.
**$CClD_3$** Methane-$d_3$, chloro-, 5307*i*, 8889*a*.
**$CClFO$** Carbonyl chloride fluoride, 3741*f*.
**$CClF_3$** Methane, chlorotrifluoro-, 1656*f*, P 3437*a*, 6016*i*.
**CClN** See *Cyanogen chloride*.
**$CCl_2D_2$** Methane-$d_2$, dichloro-, 5307*i*.
**$CCl_2F_2$** See *Methane, dichlorodifluoro-*.
**$CCl_2O$** See *Phosgene*.
**$CCl_3O_3Pb_3$** See *Phosgenite*.

**$CCl_2S$** Thiophosgene, 2478*h*, 4629*b*.
**$CCl_3$** Methyl, trichloro-, 109*h*, 4636*f*, 9023*i*.
**$CCl_3D$** Methane-*d*, trichloro-, 5307*i*.
**$CCl_3F$** See *Methane, trichlorofluoro-*.
**$CCl_3NO$** Methane, trichloronitroso-, 8915*i*.
**$CCl_3NO_2$** See *Chloropicrin*.
**$CCl_4$** See *Carbon tetrachloride*.
**$CCl_4O_2S$** Methanesulfonyl chloride, trichloro-, 6970*g*.
**$CCl_4S$** Methanesulfenyl chloride, trichloro-, 2478*h*, 4629*c*.
**$CCl_4Si$** Silane, trichloro(trichloromethyl)-, 563*b*, P 7752*f*.
**$CCoO_3$** See *Cobalt carbonate*.
**$CCo_3$** Cobalt carbide, 6064*c*.
**$CCs_2O_3$** Cesium carbonate, 2620*i*
**$CCuN$** Copper cyanide, P 7955*c*.
**$CCuNS$** Copper isothiocyanate, 2110*g*.
**$CCuO_3$** See *Copper carbonate*.
**$CCu_2H_2O_5$** Copper carbonate, 7607*i*.
**CD** Methylidyne-*d* (*free radical*), 7802*g*.
**$CD_2$** Methylene *d*$_2$ (*free radical*), 7802*g*
**$CD_3$** Methyl-*d*$_3$ (*free radical*), 7802*g*
**$CD_3I$** Methane-*d*$_3$, iodo-, 8889*a*.
**$CD_4$** Methane-*d*$_4$, 5307*h*, 7802*f*.
**$CD_4O$** Methan-*d*$_4$-ol-*d*, 4140*b*.
**CF** Carbon fluoride, 7851*g*.
**CFN** See *Cyanogen fluoride*.
**$CF_2O$** Carbonyl fluoride, 3741*g*, 6500*f*, 7821*a*.
**$CF_2HgI$** Trifluoromethylmercury iodide, 3775*c*.
**$CF_3I$** Methane, trifluoroiodo-, 3775*b*.
**$CF_3NO$** Methane, trifluoronitroso-, 6793*f*.
**$CF_3NO_2$** Fluoropicrin, 6793*f*.
**$CF_4$** See *Carbon tetrafluoride*.
**$CF_4O$** Methanol, trifluoro-, hypofluorite, 2833*c*
**$CFeO_3$** See *Siderite*.
**$CFe_2$** See *Iron carbide*
**$CFe_3$** See *Cementite, Iron carbide*
**$CFe_3Mo_3$** Iron molybdenum carbide, 2914*b*, 7397*k*
**$CFe_3W_3$** Iron tungsten carbide, 2914*b*.
**$CFe_6Mo_2$** Iron molybdenum carbide, 2914*b*
**$CFe_6W_2$** Iron tungsten carbide, 2914*b*
**CH** Methylidyne (*free radical*), 5241*g*, 5662*g*, 7335*b*, 7802*g*.
**$CHAgO_2$** Silver formate
**CHBrClF** Methane, bromochlorofluoro-, 2865*g*
**$CHBrCl_2$** See *Methane, bromodichloro-*.
**CHBr$_2$Cl** Methane, dibromochloro-, 4573*f*.
**$CHBr_2F$** Methane, dibromofluoro-, 2865*g*
**CHBr** See *Bromoform*.
**CHClF$_2$** See *Methane, chlorodifluoro*
**CHCl$_2$F** See *Methane, dichlorofluoro*
**CHCl$_3$** Methane, trichloro-, 1816*a*, 1983*a*.
**CHCl$_3$NO** Methane, dichloronitroso-, 8915*i*
Phosgene, oxime, 8915*i*
**CHCl$_3$** See *Chloroform*
**$CHCsO_2$** Cesium formate, 2109*i*
**$CHCuO_2$** Copper formate, 1279*a*
**CHD$_3$** Methane-*d*$_3$, 5242*h*, 5307*i*
**CHD$_3$O** Methan-*d*$_3$-ol, 4140*b*
**$CHF_3$** Fluoroform, 1141*c*, 6016*i*
**$CHI_3$** See *Iodoform*
**$CHKO_2$** Potassium formate, 2399*h*, 5444*b*
**$CHLiO_3$** See *Lithium carbonate*
**CHN** See *Hydrocyanic acid*
**CHNO** See *Cyanic acid*.
**CHNS** See *Isothiocyanic acid, Thiocyanic acid*.
**$CHN_3S_2$** Formic acid, dithiotrazo-, *Na salt*, 417*a*.
**$CHNaO_2$** See *Sodium formate*.
**$CHNaO_3$** See *Sodium carbonate*.
**CHO** Formyl, 6479*c*.
**CH** See *Methylene (free radical)*
**CH$_2$BrCl** Methane, bromochloro-, 1816*a*, 1983*a*.
**CH$_2$BrF** Methane, bromofluoro-, 2865*g*
**CH$_2$BrNO** Formyl bromide, oxime, 6983*e*
**CH$_2$Br$_2$** See *Methane, dibromo-*.
**CH$_2$ClI** Methane, chloroiodo-, 600*e*
**CH$_2$ClNO** Carbamyl chloride, P 2635*h*
**CH$_2$Cl$_2$** See *Methane, dichloro-*
**CH$_2$Cl$_2$O$_2$S** Methanesulfonyl chloride, chloro-, 6508*h*, 6970*f*.
**CH$_2$Cl$_2$S** Methanesulfenyl chloride, chloro-, 6970*f*
**CH$_2$Cl$_2$Si** Silane, chloro(trichloromethyl)-, P 3441*e*
**$CH_2Cu_2O_3$** (See also *Malachite*.) Copper carbonate, P 3168*f*.
**CH$_2$D$_2$** Methane-*d*$_2$, 5307*i*.
**CH$_2$F$_2$** Methane, difluoro-, 4139*i*.
**CH$_2$INO** Formyl iodide, oxime, 6983*c*.
**CH$_2$I$_2$** See *Methane, diiodo-*.
**$CH_2Mg_2O_3 + 3H_2O$** See *Artinite*.
**CH$_2$NO$_2$Tl** Methane, nitro-, Tl deriv., 3952*h*.
**$CH_2N_2$** See *Cyanamide; Methane, diazo-*.
**$CH_2N_4O$** 1*H*-Tetrazol-5-ol, 1770*a*.
**$CH_2N_4O$** 1*H*-Tetrazole-5-diazohydroxide, 1770*a*.
**$CH_2NiO_3$** Nickel carbonate, 7607*i*.
**$CH_2O$** See *Formaldehyde*.
**$CH_2O_2$** See *Formic acid*.
**$CH_2O_3$** See *Carbonic acid; Peroxyformic acid*.
**$CH_3$** See *Methyl (free radical)*.
**$CH_3Ag$** Silver, methyl-, 5732*d*.
**$CH_3AlBr_2$** Methylaluminum bromide, 8810*f*.
**$CH_3BClN$** Borine, chloro(methylimino)-, 3301*i*.
**$CH_3BCl_2$** Borine, dichloromethyl-, P 6220*d*
**$CH_3BO$**, 491*g*, 4573*c*, 7821*f*, 8869*g*
**$CH_3Br$** See *Methane, bromo-*.
**$CH_3BrMg$** Methylmagnesium bromide, 561*h*, 643*e*.
**$CH_3Cl$** See *Methane, chloro-*.
**$CH_3ClHg$** Methylmercury chloride, 1138*d*, 5004*c*, P 7953*e*.
**$CH_3ClO_2S$** Methanesulfonyl chloride, 120*g*, 1313*f*.
**$CH_3ClO_3S$** Methyl chlorosulfonate, 7345*a*
**$CH_3Cl_3Ge$** Methylgermanium trichloride, P 2631*f*.
**$CH_3Cl_3Si$** (See also *Silane, trichloromethyl-*.) Silane, chloro(dichloromethyl)-, P 3441*e*
**$CH_3Cu$** Copper, methyl-, 5732*d*
**$CH_3D$** Methane-*d*, 4136*i*, 5307*i*
**$CH_3DO$** Methanol-*d*, 4140*b*, 5276*a*
**$CH_3F$** Methane, fluoro-, 2108*a*, 4141*f*.
**$CH_3HgI$** Methylmercury iodide, P 7953*e*.
**$CH_3I$** See *Methane, iodo-*.
**$CH_3IMg$** Methylmagnesium iodide, 991*i*, 1280*f*, 2068*g*, 2621*a*, 2887*a*, 5029*a*, 5739*f*, 8964*e*.
**$CH_3IZn$** Methylzinc iodide, 8964*f*.
**$CH_3KO$** Potassium methoxide, P 2218*h*
**$CH_3KO_4S$** Methyl potassium sulfate, 7412*e*
**$CH_3N$** Methylenimine, 6479*e*
**$CH_3NO$** See *Formamide*.
**$CH_3NOS$** Carbamic acid, thio-, P 2882*d*
**$CH_3NO_2$** See *Carbamic acid, Methane, nitro-, Methyl nitrite*.
**$CH_3NO_3$** Methyl nitrate, 1981*e*, 2835*c*, 2846*a*, 4928*c*
**$CH_3NS$** Formamide, thio-, 2202*g*
**$CH_3NS_2$** See *Carbamic acid, dithio-*
**$CH_4N_2O$** Urea, nitro-, 4150*b*, 6279*i*
**$CH_4N_4$** Formamidine, α-azido-, 1769*a*
1*H*-Tetrazole, 5-amino-, 1769*i*
**$CH_4N_4O$** See *Sodium methoxide*
**$CH_4NaO_3S$** Sodium formaldehydesulfoxylate, 317*i*, 402*d*, 2886*d*, P 3470*i*
**$CH_4NaO_4S$** See "bisulfite, Na salt" under *Formaldehyde*
**$CH_4STl$** Methanethiol, Tl deriv., 3352*h*
**$CH_4$** See *Methane*.
**$CH_4BF_3O$** Methanol, compd. with $BF_3$, 1711*g*
**$CH_4ClFSi$** Silane, chlorofluoromethyl-, 5739*c*.
**$CH_4ClN$** Methylamine, *N*-chloro-, 6890*e*
**$CH_4Cl_2Si$** Silane, dichloromethyl-, P 5528*b*, 5739*b*, 7229*i*
**$CH_4F_2Si$** Silane, difluoromethyl-, 5739*c*
**$CH_4MgN_2O_3S + 3H_2O$** Urea, compd with magnesium sulfate, 1280*a*
**$CH_4N_2$** Ammonium cyanide, 2946*f*
Formamidine, 3367*a*
**$CH_4N_2O$** (See also *Urea*.)
Ammonium cyanate, 143*g*, P 698*k*, 2946*d*.
**$CH_4N_2O_2$** Methylamine, *N*-nitro-, 5307*i*
**$CH_4N_2O_2S$** Methanesulfinic acid, amino-imino-, 1325*d*, P 7647*e*.
**$CH_4N_2S$** (See also *Ammonium thiocyanate; Urea, thio-*.)
Ammonium isothiocyanate, 548*a*, 2883*c*.
**$CH_4N_4O$** Guanidine, nitroso-, 2541*b*, 4150*f*, 5745*i*.
**$CH_4N_4O_3$** See *Guanidine, nitro*
**$CH_4O$** See *Methanol*
**$CH_4O_2$** Methanediol, 940*e*, 4543*i*.
Methyl hydroperoxide, 280*g*, 3724*f*, 9121*b*
**$CH_4O_3S$** See *Formaldehydesulfoxylic acid*.
**$CH_4O_4S$** (See also "bisulfite" under *Formaldehyde*.)
Methylsulfuric acid, 171*i*
**$CH_4O_9S_3$** Methanetrisulfonic acid, P 5035*h*.
**$CH_4S$** See *Methanethiol*
**$CH_4As_2$** Arsine, methyl-, 8351*e*
**$CH_4As_2O_3$** Methanearsonic acid, *di-Na salt*, 7637*h*.
**$CH_4BO_2$** Methaneboronic acid, 3302*f*, 5690*c*.
**$CH_4ClSi$** Silane, chloromethyl-, P 3441*de*.
**$CH_4N$** See *Methylamine*.
**$CH_4NO$** Hydroxylamine, *N*-methyl-, 8915*i*.
**$CH_4NO_2$** See *Ammonium formate*.
**$CH_4NO_2S$** Methanesulfonamide, 120*g*.
**$CH_4NO_3$** See *Ammonium carbonate*.
**$CH_4NO_5S_2$** Methionic acid, amino-, *salts*, P 6219*h*.
**$CH_4N_2$** See *Guanidine*.
**$CH_4N_2O$** See *Semicarbazide*
**$CH_4N_2S$** See *Semicarbazide, thio-*.
**$CH_4N_4O_2$** Guanidine, 1-amino-3-nitro-, 6983*i*.
**$CH_4AlNO_5S_2 + 12H_2O$**, 8785*i*.
**$CH_4AlNO_8Se_2 + 12H_2O$**, 8785*i*.
**$CH_4CrNO_5S_2$**, 8785*i*, 8870*a*.
**$CH_4CrNO_8Se_2 + 12H_2O$**, 8785*i*.
**$CH_4FeNO_5S_2 + 12H_2O$**, 8785*i*.
**$CH_4NO_3P$** Methanephosphonic acid, amino-, *and salts*, 1248*b*.
**$CH_6N_2$** Methanediamine, *and sulfate*, 1316*h*, 8354*e*
**$CH_6N_2S_2$** Ammonium dithiocarbamate, 605*c*, P 4508*g*, 8307*g*
**$CH_6N_4$** Guanidine, amino-, 1769*h*, 4150*b*, P 6096*g*, 6984*a*.
**$CH_7N_5$** Guanidine, 1,3-diamino-, 6984*a*.
**$CH_8N_2O_3$** See *Ammonium carbonate*.
**$CH_8N_2S_3$** Ammonium thiocarbonate, 605*c*
**$CH_8N_4O_2Pt$**, 2538*c*.
**$CH_{12}ClCoN_4O_3$**, 8295*c*
**$CH_{13}CoN_6O_6 + H_2O$**, 2855*a*
**$CH_{13}CoN_6O_6S$**, 2855*c*.
**$CH_{16}Al_2Mg_6O_{19} + 4H_2O$** See *Hydrotalcite*.
**CIN** See *Cyanogen iodide*.
**$CI_4$** Carbon tetraiodide, 9*i*, 3774*i*
**CKN** See *Potassium cyanide*
**CKNO** See *Potassium cyanate*.
**CKNS** See *Potassium thiocyanate*.
**CKNSe** Potassium selenocyanate, 7421*h*.
**$CK_2O_3$** See *Potassium carbonate*
**$CLi_2O_3$** See *Lithium carbonate*
**$CMgN_2$** Magnesium cyanamide, 8930*f*
**$CMgO_3$** See *Magnesite; Magnesium carbonate*.
**$CMnO_4$** See *Manganese carbonate, Rhodochrosite*
**CMo** Molybdenum carbide, 4614*a*, 6111*b*
**$CMo_2$** Molybdenum carbide, 7397*h*
**CN** See *Cyanogen (free radical)*.
**CNNa** See *Sodium cyanide*.
**CNNaO** See *Sodium cyanate*
**CNNaS** See *Sodium thiocyanate*
**CNRb** Rubidium cyanide, 516*f*
**CNSTl** Thallium isothiocyanate, 2110*g*
**$CN_4O_8$** Methane, tetranitro-, 8978*c*
**$CNa_2O_5$** See *Natron; Sodium carbonate Thermonatrite*.
**$CNa_2O_4 + H_2O$** Sodium peroxymonocarbonate, 4822*a*.
**$CNa_2S_3$** Sodium thiocarbonate, P 6825*f*, 9439*di*.
**$CNa_2S_5$** Sodium perthiocarbonate, 9439*ei*.
**$CNiO_3$** See *Nickel carbonate*.
**CO** See *Carbon monoxide*.
**COS** See *Carbonyl sulfide*.
**COSe** See *Carbonyl selenide*.
**$CO_2$** See *Carbon dioxide*.
**$CO_3Pb$** See *Cerussite*.
**$CO_3Rb_2$** Rubidium carbonate, 2620*i*, 5287*i*.
**$CO_3Sr$** See *Strontianite, Strontium carbonate*.
**$CO_3Zn$** See *Smithsonite, Zinc carbonate*.
**CS** Carbon sulfide, 2510*h*, 4145*a*.
**$CS_2$** See *Carbon disulfide*
**CSe** Carbon selenide, 2510*h*
**CSi** See *Carborundum; Silicon carbide*.
**CTa** See *Tantalum carbide*.
**CTe** Carbon telluride, 2510*h*.
**CTh** Thorium carbide, 918*d*.
**CTi** See *Titanium carbide*
**CU** Uranium carbide, P 500*d*, 918*d*, 3685*e*, 8270*i*.
**CV** See *Vanadium carbide*
**CW** See *Tungsten carbide*.
**$CW_2$** See *Tungsten carbide*
**CZr** See *Zirconium carbide*.
**$C_2AgKN_2$** Potassium cyanoargentate(1), 517*d*, 1242*c*, 8901*a*.
**$C_2AgN_2Na$** Sodium cyanoargentate(I), 8901*a*.
**$C_2Ag_2N_2O_2$** Silver fulminate, 8785*a*.
**$C_2Ag_2O_4$** Silver oxalate, 2101*g*, 8905*d*.
**$C_2Ag_2HgN_4O_8$** Mercury acetylide, compd. with $AgNO_3$, P 5176*a*, P 7670*f*.
**$C_2Ag_2NO_3$** Silver acetylide, compd. with $AgNO_3$, P 5176*b*.
**$C_2Ag_5N_5O_{18}$** Silver acetylide, compd. with $AgNO_3$, P 5176*a*, P 7670*f*.
**$C_2Ba$** Barium carbide, 1713*h*.
**$C_2BaCaO_6$** See *Barytocalcite*.
**$C_2BaN_2$** See *Barium cyanide*.
**$C_2BrCl_5$** Ethane, bromopentachloro-, 2923*i*.
**$C_2BrF_3$** Ethylene, bromotrifluoro-, P 6646*a*
**$C_2Br_2Cl_4$** Ethane, dibromotetrachloro-, 2924*e*.
**$C_2Br_2D_4$** Ethane-1,1,2,2-*d*$_4$, 1,2-dibromo-, 2868*f*.
**$C_2Br_2Mg_2$** Ethynylenedimagnesium bromide, 6573*g*.
**$C_2Ca$** See *Calcium carbide*.
**$C_2CaN_2$** See *Calcium cyanide*.
**$C_2CaO_4$** See *Calcium oxalate; Whewellite*.
**$C_2Ca_2O$** Calcium carbide, compd. with CaO, 2081*g*.
**$C_2Ca_4O$** Calcium carbide, compd. with CaO, 2081*g*.
**$C_2CdN_2$** See *Cadmium cyanide*.
**$C_2CdN_2S_2$** Cadmium thiocyanate, 2829*i*.
**$C_2CdO_4$** Cadmium oxalate, 3964*a*, 4934*a*.
**$C_2ClF_3$** See *Ethylene, chlorotrifluoro-*.

**$C_2ClF_3N_2O_4$** Ethane, 1-chloro - 1,2,2-trifluoro-1,2-dinitro-, P 3025*a*.
**$C_2OClF$** Acetyl chloride, trifluoro-, 3394*c*, 6793*e*.
**$C_2OClKN_2S_2O_{12}S_3$** See *Hanksite*.
**$C_2OCl_2$** Acetylene, dichloro-, 1716*b*.
**$C_2Cl_2D_2$** Ethylene-1,2-*d*$_2$, 1,2-dichloro-, 8889*d*.
**$C_2Cl_2F_2$** Ethylene, 1,1-dichloro-2,2-difluoro-, 2465*c*, 6016*h*, 6071*c*, 7407*b*.
**$C_2Cl_2F_2N_2O_4$** Ethane, 1,2 - dichloro - 1,2-difluoro-1,2-dinitro-, P 3025*a*.
**$C_2Cl_2F_4$** Ethane, dichlorotetrafluoro-, P 351*f*.
**$C_2Cl_2IrK_3N_3O_6$**, 2538*f*.
**$C_2Cl_2O_2$** Oxalyl chloride, 2603*b*, 3789*c*, 8881*g*.
**$C_2Cl_2F$** Ethylene, trichlorofluoro-, 6016*h*.
**$C_2Cl_3F_3$** Ethane, trichlorotrifluoro-, 2157*e*.
**$C_2Cl_3N$** Acetonitrile, trichloro-, P 4285*d*.
**$C_2Cl_3NO_2$** Ethylene, trichloronitro-, 1716*b*.
**$C_2Cl_4$** See *Ethylene, tetrachloro-*.
**$C_2Cl_4F_2$** Ethane, tetrachlorodifluoro-, P 5031*i*, P 5789*i*.
**$C_2Cl_4O$** Acetyl chloride, trichloro-, P 7954*c*, 9031*c*.
**$C_2Cl_4O_3$** See *Diphosgene*.
**$C_2Cl_6$** See *Ethane, hexachloro-*.
**$C_2CoN_2$** Cobalt cyanide, 2830*a*.
**$C_2CoN_2S_2$** See *Cobalt thiocyanate*.
**$C_2Cs_2O_4$** Cesium oxalate, 2110*a*.
**$C_2CuN_2$** Copper cyanide, 2829*i*, 3963*i*.
**$C_2CuN_2S_2$** Copper thiocyanate, 2829*i*, 3963*i*.
**$C_2CuO_4$** Copper oxalate, 3964*b*, 9443*a*.
**$C_2Cu_2$** Copper acetylide, 2112*h*, 4972*i*.
**$C_2Cu_2N_2$** See *Copper cyanide*.
**$C_2D_2$** Acetylene-*d*$_2$, 4183*f*.
**$C_2D_6$** Ethane-*d*$_6$, 6479*b*.
**$C_2D_6O$** Ethyl-*d*$_6$ alcohol-*d*, 5011*d*.
**$C_2F_3I$** Ethylene, trifluoroiodo-, P 6646*a*.
**$C_2F_3NO$** Isocyanic acid, trifluoromethyl ester, 6793*e*.
**$C_2F_4$** See *Ethylene, tetrafluoro-*.
**$(C_2F_4)_n$** See "polymers" under *Ethylene, tetrafluoro-*.
**$C_2F_4N_2O_4$** Ethane, 1,1,2,2 - tetrafluoro-1,2-dinitro-, P 3025*b*.
**$C_2F_5HgI$** Pentafluoroethylmercury iodide, 3775*c*.
**$C_2F_5I$** Ethane, pentafluoroiodo-, 3775*b*.
**$C_2F_6$** Ethane, hexafluoro-, P 3834*h*.
**$C_2FeN_6$** Iron cyanide, 2830*a*.
**$C_2FeN_2S_2$** Iron thiocyanate, 2829*i*.
**$C_2FeO_4$** Iron oxalate, 9442*i*.
**$C_2H$** Ethynyl, 6479*d*, 8820*h*.
**$C_2HBrClF_3$** Ethane, 1 - bromo - 2 - chloro-1,1,2-trifluoro-, 7407*b*.
**$C_2HBrCl_2$** Ethylene, 1-bromo-1,2-dichloro-, 2572*c*.
**$C_2HBrCl_2F_2$** Ethane, 1 - bromo - 2,2-dichloro-1,1-difluoro-, 7407*c*.
**$C_2HBrF_4$** Ethane, 1 - bromo - 1,1,2,2-tetrafluoro-, 7407*c*.
**$C_2HBr_2ClO$** Acetyl chloride, dibromo-, 6975*h*.
**$C_2HBr_2Cl_3Si$** Silane, trichloro(1,2-dibromo-1,2-dichloroethyl)-, 2572*b*.
**$C_2HBr_2D_3$** Ethane-1,1,2-*d*$_3$, 1,2-dibromo , 2865*f*.
**$C_2HBr_3O_2$** Acetic acid, tribromo-, 6082*g*.
**$C_2HClCu_2$**, 3308*a*.
**$C_2HClFN$** Acetonitrile, chlorofluoro-, 8353*a*.
**$C_2HClF_4$** Ethane, chlorotetrafluoro-, P 351*f*.
**$C_2HCl_2FO$** Acetyl chloride, chlorofluoro-, 8353*a*.
**$C_2HCl_3$** See *Ethylene, trichloro-*.
**$C_2HCl_3F_2$** Ethane, trichlorodifluoro-, 2465*c*, P 5031*i*.
**$C_2HCl_3Hg$** 1,2-Dichlorovinylmercury chloride, 5004*d*.
**$C_2HCl_3O$** See *Chloral*.
**$C_2HCl_3OS$** Acetic acid, trichlorothiol-, 7410*d*.
**$C_2HCl_3O_2$** See *Acetic acid, trichloro-*.
**$C_2HCl_4F$** Ethane, 1,1,2,2-tetrachloro-1-fluoro-, 2925*b*.
**$C_2HCl_5$** See *Ethane, pentachloro-*.
**$C_2HCl_6Si$** Silane, trichloro(1,2-dichlorovinyl)-, 2571*h*.
**$C_2HCl_7Si$** Silane, trichloro(1,1,2,2-tetrachloroethyl)-, 2572*b*.
**$C_2HD$** Acetylene-*d*, 4183*f*.
**$C_2HF_3NO$** Isocyanic acid, difluoromethyl ester, 6793*e*.
**$C_2HF_3$** See *Ethylene, trifluoro-*.
**$C_2HN_3$** See *Dicyanamide*.
**$C_2HNa$** Sodium acetylide, 6167*i*.
**$C_2HNa_2O_5 + 2H_2O$** See *Trona*.
**$C_2H_2$** See *Acetylene*.
**$C_2H_2AsClO$** Ethylene, 1-arsenoso-2-chloro-, 561*f*.
**$C_2H_2AsCl_3$** See *Lewisite*.
**$C_2H_2BCl_3$** Borine, dichloro(2-chlorovinyl)-, P 2681*c*.
**$C_2H_2Br_2D_2$** Ethane-*d*$_2$, 1,2-dibromo-, 2865*f*.
**$C_2H_2Br_2O$** Acetaldehyde, dibromo-, 2575*i*.
Acetyl bromide, bromo-, 1656*b*.
**$C_2H_2Br_2O_2$** Acetic acid, dibromo-, 6975*h*.
**$C_2H_2Br_4$** Ethane, tetrabromo-, 30*f*, 42*d*, 1232*h*, 1242*f*, 7283*i*.
**$C_2H_2CaO_4$** See *Calcium carbonate*.
**$C_2H_2CdO_4$** Cadmium formate, 2830*a*.
**$C_2H_2ClFO$** Acetyl chloride, fluoro-, 2933*c*, 6164*d*, 8841*b*.
Acetyl fluoride, chloro-, 2933*c*, 8841*b*.
**$C_2H_2ClFO_2$** Acetic acid, chlorofluoro-, 8353*a*.
**$C_2H_2ClN$** Acetonitrile, chloro-, 1406*d*.
**$C_2H_2Cl_2$** See *Ethylene, dichloro .*
**$C_2H_2Cl_2F_2$** [illegible] dichlorodifl[illegible]
P 5412*g*.
Acetyl chloride, chloro-, 1656*c*, P 7697*gh*
**$C_2H_2Cl_2OS$** Acetic acid, dichlorothiol-, 7410*d*.
**$C_2H_2Cl_2O_2$** (See also *Acetic acid, dichloro-*.) Formic acid, chloro-, chloromethyl ester, 8896*e*.
**$C_2H_2Cl_2F$** Ethane, 1,1,2 - trichloro - 1-fluoro-, P 2218*a*, 2925*b*.
**$C_2H_2Cl_4$** See *Ethane, tetrachloro-*.
**$C_2H_2Cl_4S$** Sulfide, bis(dichloromethyl), 4629*a*, 5396*a*.
**$C_2H_2Cl_6Si_2$** Silane, (1,2-dichloroethylene)-bis[trichloro-, 2571*i*.
**$C_2H_2CoO_4$** Cobalt formate, 2830*a*.
**$C_2H_2CuO_4$** Copper formate, 1279*a*, 2829*e*.
**$C_2H_2Cu_3O_8$** See *Azurite*.
**$C_2H_2FN$** Acetonitrile, fluoro-, 8841*b*.
Vinylideniimine, *N* fluoro-, 6793*e*.
**$C_2H_2FNO$** Isocyanic acid, fluoromethyl ester, 6793*e*.
**$C_2H_2F_2$** Ethylene, 1,1-difluoro-, P 906*a*, 2465*c*.
**$C_2H_2F_2O$** Acetyl fluoride, fluoro , 2933*d*.
**$C_2H_2F_2N$** Vinylamine, *N*, *N*, 1-trifluoro-, 6793*e*.
**$C_2H_2F_3NaO$** Ethanol, 2,2,2-trifluoro-, Na deriv , P 2219*f*.
**$C_2H_2FeO_4$** Iron formate, 2830*a*.
**$C_2H_2HgO_4$** Mercury formate, 2830*a*.
**$C_2H_2I_2$** Ethylene, 1,2-diiodo-, 6568*a*.
**$C_2H_2KNO_3$** Ethenol, 2-nitro-, K deriv., 1004*b*.
**$C_2H_2KNO_4$** Acetic acid, isonitro-, K deriv., *K salt*, 1004*c*.
**$C_2H_2MgO_6$** See *Magnesium carbonate*.
**$C_2H_2MnO_4$** Manganese formate, 2829*f*.
**$C_2H_2N_2$** Hydrocyanic acid, dimer, 5244*i*.
**$C_2H_2N_2OS$** Formaldehyde, thiocyano-, oxime, 6983*f*.
**$C_2H_2N_2O_2$** Acetonitrile, nitro-, 7817*h*.
**$C_2H_2N_2S_2$** Isoperthiocyanic acid, 971*a*.
Thiadiazole-2,5-dithiol, 767*a*, 3909*a*.
**$C_2H_2N_4$** Tetrazine, 8979*c*.
**$C_2H_2NiO_4$** Nickel formate, 2830*a*, P 5161*g*.
**$C_2H_2O$** See *Ketene*.
**$C_2H_2O_2$** See *Glyoxal*.
**$C_2H_2O_3$** See *Glyoxylic acid*.
**$C_2H_2O_4$** See *Oxalic acid*.
**$C_2H_2O_4Pb$** See *Lead formate*.
**$C_2H_2O_4Sr$** See *Strontium formate*.
**$C_2H_2O_4Zn$** See *Zinc formate*.
**$C_2H_2O_8S_2$** 1,1,2,2-Ethanetetrol, disulfate, P 6219*g*.
**$C_2H_3$** Vinyl, 6479*c*, 8820*h*.
**$C_2H_3AgO_2$** See *Silver acetate*.
**$C_2H_3AlCl_2O_2$** Aluminum acetate chloride, 2930*i*.
**$C_2H_3BaO_6P$** Glycolaldehyde, dihydrogen phosphate, Ba salt, 147*h*.
**$C_2H_3Br$** See *Ethylene, bromo-*.
**$C_2H_3BrO$** See *Acetyl bromide*.
**$C_2H_3BrO_2$** See *Acetic acid, bromo-*.
**$C_2H_3BrO_2Pb$** Lead acetate bromide, 2112*b*.
**$C_2H_3Br_2D$** Ethane-*d*, 1,2-dibromo-, 2865*f*.
**$C_2H_3Br_3Cl_2Se$** (2,2-Dichloroethyl)selenium tribromide, 2159*i*.
**$C_2H_3Br_3O$** See *Avertin*.
**$C_2H_3Br_3O_2$** Bromal, hydrate, 1862*a*.
**$C_2H_3Cl$** See *Ethylene, chloro-*.
**$C_2H_3ClFNO$** Acetamide, *α*-chloro-*α*-fluoro-, 8352*i*.
**$C_2H_3ClF_2$** Ethane, 1-chloro-1,1-difluoro-, 2925*c*, P 3023*i*.
**$C_2H_3ClN_2$** Ethane, 1-chloro-2-diazo-, 4634*b*.
**$C_2H_3ClO$** (See also *Acetyl chloride*.) Acetaldehyde, chloro-, 2575*c*, P 8604*e*.
**$C_2H_3ClOS$** Acetic acid, chlorothiol-, 7410*d*.
**$C_2H_3ClO_2$** (See also *Acetic acid, chloro-*.) Formic acid, chloro-, Me ester, P 886*d*, 8896*d*.
**$C_2H_3ClO_4$** Acetyl perchlorate, 8936*a*.
**$C_2H_3ClO_5S$** Acetic acid, chlorosulfo-, P 2632*e*, P 4019*eh*.
**$C_2H_3Cl_2F$** Ethane, dichlorofluoro-, P 2218*a*, 2925*c*.
**$C_2H_3Cl_2NO$** Acetamide, dichloro-, 3781*i*.
**$C_2H_3Cl_3$** See *Ethane, trichloro-*.
**$C_2H_3Cl_3O$** Ethanol, 2,2,2-trichloro-, 2570*e*, 5765*b*.
**$C_2H_3Cl_3O_2$** See *Chloral*.
**$C_2H_3Cl_3Se$** Ethaneselenyl chloride, 2,2-dichloro-, 2159*i*.
**$C_2H_3Cl_3Si$** Silane, trichlorovinyl-, 2017*h*, P 6220*f*, P 7262*f*.
**$C_2H_3Cl_4Si$** Silane, dichloromethyl(trichloromethyl)-, P 7752*f*.
**$C_2H_3Cl_6OSb$** Acetyl chloroantimonate(V), 8935*h*.
**$C_2H_3CsO_2$** Cesium acetate, 2110*e*.
**$C_2H_3CuO_2$** See *Copper acetate*.
**$C_2H_3D$** Ethylene-*d*, 7342*e*.
**$C_2H_3F$** See *Ethylene, fluoro-*.
**$C_2H_3FO_2$** See *Acetic acid, fluoro-*.
**$C_2H_3F_2N$** Ethylidenimine, *N*, 1-difluoro-, 6793*e*.
**$C_2H_3F_3$** Ethane, 1,1,1-trifluoro-, 43*b*, 1656*g*.
**$C_2H_3F_3N$** Ethylamine, *N*, *N*, 1,1-tetrafluoro-, 6793*e*.
**$C_2H_3I$** Ethylene, iodo-, 4553*c*.
**$C_2H_3IO$** Acetyl iodide, 2110*f*, P 7954*c*.
**$C_2H_3IO_2$** See *Acetic acid, iodo-*.
**$C_2H_3IO_2Pb$** Lead acetate iodide, 2112*c*.
**$C_2H_3KO_2$** See *Potassium acetate*.
**$C_2H_3LiO_2$** Lithium acetate, 8773*g*.
**$C_2H_3N$** (See also *Acetonitrile* .) Methyl isocyanide, 5310*e*, 7346*c*.
**$C_2H_3NO$** Glycolonitrile, P 3839*e*, 9032*b*.
Isocyanic acid, Me ester, 2110*f*.
**$C_2H_3NO_2$** Ethylene, nitro-, P 5411*g*, P 7504*c*, P 9079*a*.
**$C_2H_3NO_2S_2$** Acetic acid, nitrodithio-, *salts*, 4413*h*, 7177*b*.
**$C_2H_3NO_4$** Acetic acid, nitro-, *Cu salt*, 4413*h*, *K salt*, 4855*a*.
**$C_2H_3NS$** Isothiocyanic acid, Me ester, 548*c*, 5310*g*.
Thiocyanic acid, Me ester, 2729*d*, 5310*i*.
**$C_2H_3N_3$** 1,2,4(1 *H*)-Triazole, 8365*g*.
**$C_2H_3N_3S$** 1,2,4,2 *H*-Triazole-3-thiol, 9242*b*
**$C_2H_3N_3S_2$** 1,3,4-Thiadiazole-2-thiol, 5-amino-, 8544*g*, 9242*b*.
**$C_2H_3N_5O_3$** Guanidine, cyanonitro-, P 5190*d*.
**$C_2H_3N_{11}$** 1 *H*-Tetrazole, 5,5′-diazoaminodi-, 1769*i*.
**$C_2H_3NaO_2$** See *Sodium acetate*.
**$C_2H_3NaO_3$** Glycolic acid, Na deriv., *Na salt*, 2577*g*
**$C_2H_3O$** Acetyl, 6479*c*.
**$C_2H_3O_2Rb$** Rubidium acetate, 2110*e*.
**$C_2H_3O_2Tl$** Thallium acetate, 522*b*, 2110*e*.
**$C_2H_4$** See *Ethylene*.
**$C_2H_4AsClO_3$** Ethylenearsonic acid, 2-chloro-, 348*f*, 561*d*.
**$C_2H_4AuN_3S_2$** Gold thiocyanate, compd with thiourea, 9035*d*.
**$C_2H_4BF_3O_3$**, 1711*g*, 6204*a*, 8829*h*.
**$C_2H_4BrCl$** Ethane, 1-bromo-2-chloro-, 1139*e*, 1816*a*, 7186*h*.
**$C_2H_4BrF$** Ethane, 1-bromo-2-fluoro-, 3774*g*, 6154*e*.
**$C_2H_4BrNO$** Acetamide, bromo-, 5081*g*, 5753*h*, 5754*f*.
**$C_2H_4BrNO_2$** Ethane, 1-bromo-1-nitro-, 6569*b*.
**$C_2H_4Br_2$** See *Ethane, dibromo-*.
**$C_2H_4Br_2Cl_2Se$** (2-Chloroethyl)selenium tribromide, 2160*b*.
**$C_2H_4ClF$** Ethane, chlorofluoro-, P 2218*a*, 2925*c*, 6154*c*.
**$C_2H_4ClFO_3S$** Chlorosulfonic acid, 2-fluoroethyl ester, 6164*a*.
**$C_2H_4ClNO$** Acetamide, chloro-, 172*f*, 3781*i*, 5754*f*.
**$C_2H_4ClNO_3S$** Ethanesulfonyl chloride, 2-nitro-, P 5411*i*.
**$C_2H_4Cl_2$** See *Ethane, dichloro-*.
**$C_2H_4Cl_2FO_3P$** Chlorophosphoric acid, 2-fluoroethyl ester, 6163*i*.
**$C_2H_4Cl_2N_2$** Formamidine, *α*, *α′*-azobis[chloro-, 7581*f*.
**$C_2H_4Cl_2O$** Ethanol, 2,2-dichloro-, 5765*a*.
Ether, bis(chloromethyl), P 2795*i*, P 2796*ab*.
**$C_2H_4Cl_2S$** Sulfide, bis(chloromethyl), 4629*a*.
**$C_2H_4Cl_6Si$** Silane, dichloro(dichloromethyl)-methyl-, P 7752*f*.
**$C_2H_4Cl_8Si_2$** Silane, ethylenebis[trichloro-, P 9533*a*.
**$C_2H_4FNO$** Acetamide, fluoro-, P 351*c*, 2891*a*, P 6357*i*.
**$C_2H_4FNO_3$** Ethanol, 2-fluoro-, nitrite, 6163*h*, 8841*b*.
**$C_2H_4F_2$** See *Ethane, 1,1-difluoro-*.
**$(C_2H_4F_2O_2Si)_n$**, P 6220*b*.
**$C_2H_4INO$** Acetamide, iodo-, 305*i*, 1486*h*, 5823*i*, 7690*c*.

$C_2H_4N_4O_5$ Ethane, nitro-, Na deriv., 8364*i*.
$C_2H_3NO_2$ Glyoxylamide, 128*c*.
$C_2H_4NO_3Tl$ Ethane, nitro-, Tl deriv., 3352*h*.
$C_2H_5N_3$ Ethane, 1-diazo-, 1743*g*, 4652*i*.
$C_2H_6N_2O$ Urea, methylene-, P 5910*d*.
$C_2H_2N_2O_2$ Acetylenedicarboxamide, 9334*h*.
$C_2H_4N_2O_4$ Ethane, 1,2-dinitro-, P 665*b*, P 3025*c*.
$C_2H_3NO_3$ Nitric acid, 2-nitroethyl ester, P 5411*c*.
$C_2H_4N_2O_6$ Ethylene nitrate, 1981*h*, 4928*c*, 6416*i*.
$C_2H_4N_2S_2$ Oxamide, dithio-, P 1798*e*.
$C_2H_2N_4$ See *Guanidine, cyano-*.
$C_2H_4N_4O_6$ Methanol, (nitroimino)di-, dinitrate, 8354*e*, 9075*h*.
$C_2H_4N_4S$ 1*H*-Tetrazole-5-thiol, 1-methyl-, P 5320*d*.
1,2,4,4*H*-Triazole-3-thiol, 4-amino-, 5396*a*.
$C_2H_4O$ See *Acetaldehyde; Ethylene oxide; Vinyl alcohol*.
$C_2H_4OS$ (See also *Acetic acid, thiol-*.)
Acetic acid, thio-, 3133*b*.
$C_2H_4OS_2$ Carbonic acid, dithio-, Me ester, *K salt*, 3133*b*.
Xanthic acid, methyl-, zinc salt, P 1602*b*.
$C_2H_4O_2$ (See also *Acetic acid*.)
Formic acid, Me ester, 1656*c*, 2834*b*, 2923*f*, 6495*g*.
$C_2H_4O_2S$ See *Acetic acid, mercapto-*.
$C_2H_4O_3$ (See also *Glycolic acid; Peroxyacetic acid*.)
Carbonic acid, Me ester, *Na salt*, P 6867*f*.
$C_2H_4O_3S$ Ethylene sulfite, P 673*g*, P 4853*b*.
Ethylenesulfonic acid, *Na salt*, 7408*g*.
$C_2H_4O_3$ See *Glyoxylic acid*.
$C_2H_4O_3S$ Acetic acid, sulfo-, P 674*e*, P 3838*h*, 4401*h*, 7380*b*.
$C_2H_4S$ Ethylene sulfide, P 1799*b*, 2935*e*, 7419*h*, 7420*h*.
$C_2H_5$ See *Ethyl*.
$C_2H_5Ag$ Silver, ethyl-, 5732*d*.
$C_2H_5AlO_2$ Aluminum acetate, 3145*g*, 5533*d*.
$C_2H_5AsCl_2$ Arsine, dichloroethyl-, 6071*b*.
$C_2H_5AsO$ Ethane, arsenoso-, 6971*c*.
$C_2H_5BaO_4P + 2H_2O$ Barium ethyl phosphate, 600*a*.
$C_2H_5Br$ See *Ethane, bromo-*.
$C_2H_5BrMg$ Ethylmagnesium bromide, 2571*i*, 2579*b*, 3391*g*, 7022*i*.
$C_2H_5BrO$ Ethanol, 2-bromo-, 2848*f*, P 3024*c*.
$C_2H_5BrO_2S$ Sulfone, bromomethyl methyl, 7409*e*.
$C_2H_5BrS$ Sulfide, bromomethyl methyl, 7409*e*.
$C_2H_5Cl$ See *Ethane, chloro-*.
$C_2H_5ClFO_2PS$ Ethyl chlorofluothiophosphate, 1313*i*.
$C_2H_5ClHg$ Ethylmercury chloride, 1138*df*, 5001*i*, P 7953*e*, 8597*c*.
$C_2H_5ClINO$ Acetamide, compd. with ICl, 6601*a*.
$C_2H_5ClMg$ Ethylmagnesium chloride, 2929*a*.
$C_2H_5ClN_2$ Acetamidine, α-chloro-, - *HCl*, P 5414*c*.
$C_2H_5ClO$ (See also *Ethanol, 2-chloro-*.)
Ether, chloromethyl methyl, 5017*g*, 6568*e*, 7409*i*.
$C_2H_5ClO_3S$ Ethanesulfonyl chloride, 120*g*.
Sulfone, chloromethyl methyl, 7409*e*.
$C_2H_5ClO_3Se$ Ethaneseleninic acid, 2-chloro-, - *HCl*, 2160*b*.
$C_2H_5ClO_3S$ Ethanesulfonic acid, 2-chloro-, *salts*, P 660*d*.
Ethyl chlorosulfonate, 7345*a*.
$C_2H_5ClS$ Ethanethiol, 2-chloro-, 2035*i*.
Sulfide, chloromethyl methyl, 7409*d*.
$C_2H_5Cl_2OPS$ Ethyl chlorothiophosphate, 1313*h*.
$C_2H_5Cl_2P$ Phosphine, dichloroethyl-, 6971*d*.
$C_2H_5Cl_2PS$ Ethyl chlorothiophosphite, 561*a*.
$C_2H_5Cl_2Sb$ Stibine, dichloroethyl-, 6971*e*.
$C_2H_5Cl_2OSi$ Silane, trichloroethoxy-, 8939*a*.
$C_2H_5Cl_3Si$ (See also *Silane, trichloroethyl-*.)
Silane, dichloro(chloromethyl)methyl-, P 3441*d*.
$C_2H_5Cu$ Copper, ethyl-, 5732*d*.
$C_2H_5D$ Ethane-*d*, 4572*d*, 7344*h*, 7897*g*.
$C_2H_5F$ Ethane, fluoro-, P 3835*a*, 4139*c*.
$C_2H_5FO$ Ethanol, 2-fluoro-, 2848*f*, 6163*cf*, 8841*b*.
$C_2H_5FO_3S$ Ethyl fluosulfonate, 8841*c*.
$C_2H_5F_2OPS$ Ethyl fluothiophosphate, 1313*i*.
$C_2H_5F_3OSi$ Silane, ethoxytrifluoro-, 8939*a*.
$C_2H_5Hgl$ Ethylmercury iodide, 7179*e*.
$C_2H_5I$ See *Ethane, iodo-*.
$C_2H_5IMg$ Ethylmagnesium iodide, 1717*f*, 2887*c*, 4130*g*.
$C_2H_5IO$ Ethanol, 2-iodo-, 2848*f*.
$C_2H_5IO_2S$ Sulfone, iodomethyl methyl, 7410*b*.
$C_2H_5IS$ Sulfide, iodomethyl methyl, 7410*b*.
$C_2H_5KO$ Potassium ethoxide, P 2218*i*.
$C_2H_5N$ (See also *Ethylenimine*.)
Vinylamine, 6479*e*.
$C_2H_5NO$ (See also *Acetamide*.)
Acetaldehyde, oxime, 6569*b*.
Formamide, *N*-methyl-, 575*h*.
$C_2H_5NOS$ Acetamide, α-mercapto-, 607*i*.
$C_2H_5NO_2$ (See also *Ethane, nitro-; Ethyl nitrite; Glycine*.)
Carbamic acid, Me ester, P 2786*g*, 3107*c*.
Formamide, *N*-(hydroxymethyl)-, 569*f*.
$C_2H_5NO_3$ (See also *Ethyl nitrate*.)
Acetic acid, (aminooxy)-, P 3887*e*.
Ethanol, 2-nitro-, P 665*c*, 9533*f*.
$C_2H_5NO_3S$ Ethanesulfonic acid, 2-nitro-, *K salt*, P 9079*b*.
$C_2H_5NS$ Acetamide, thio-, P 1798*e*, 1858*e*, 2115*c*, P 3473*e*, 7420*g*, 8052*h*.
$C_2H_5NS_2$ Carbamic acid, methyldithio-, *salts*, 1137*g*.
$C_2H_5N_3O_2$ Biuret, P 698*h*, 2945*b*, 6105*e*, 6308*f*, P 8169*b*.
Urea, 1-methyl-1-nitroso-, 2214*c*.
$C_2H_5N_3S_2$ Biuret, dithio-, 2678*i*, 5092*c*, P 5425*i*.
$C_2H_5N_3O_2S$ 1,2,4,6,4*H*-Thiatriazine, 3,5-diamino-, 1,1-dioxide, P 903*d*, P 2648*c*.
$C_2H_5N_4O_3$ Guanidine, 1-methyl-3-nitro-1-nitroso-, 9035*e*.
Urea, 1-guanyl-3-nitro-, P 6229*a*.
$C_2H_5NaO$ See *Sodium ethoxide*.
$C_2H_5O_4P$ Ethyl metaphosphate, 120*i*, 259*a*.
$C_2H_5O_4P$ Acetic acid, anhydride with $H_3PO_4$, 8351*c*.
Glycolaldehyde, dihydrogen phosphate, *and Ba salt*, 147*h*.
$C_2H_5STl$ Ethanethiol, Tl deriv., 3352*h*.
$C_2H_6$ See *Ethane*.
$C_2H_6AlBr$ Dimethylaluminum bromide, 8810*f*.
$C_2H_6AuClS$ Methyl sulfide, compd. with AuCl, 1313*d*.
$C_2H_6AuCl_3S$ Methyl sulfide, compd. with $AuCl_3$, 5323*c*.
$C_2H_6BCl$ Borine, chlorodimethyl-, P 6220*d*; *compd. with* $NH_3$, 5690*c*.
$C_2H_6BF_3O$ Ethyl alcohol, compd. with $BF_3$, 1711*g*.
$C_2H_6Cd$ Cadmium, dimethyl-, 4939*e*, 4680*i*, 5242*c*, 8882*h*.
$C_2H_6ClN$ Dimethylamine, *N*-chloro-, 6896*e*, 8822*a*.
Ethylamine, 2-chloro-, - *HCl*, 1861*e*.
$C_2H_6ClNO$, 8220*h*.
$C_2H_6ClOP$ Phosphine oxide, chlorodimethyl-, 5739*h*.
$C_2H_6Cl_2Ge$ Dimethylgermanium dichloride, P 2631*d*.
$C_2H_6Cl_2Si$ See *Silane, dichlorodimethyl-*.
$C_2H_6CoKN_4O_8$, 7806*g*.
$C_2H_6CoN_4NaO_8$, 7806*g*.
$C_2H_6FN$ Ethylamine, 2-fluoro-, - *HCl*, 2927*i*.
$C_2H_6FNO_2S$ Sulfamyl fluoride, dimethyl-, 1314*g*.
$C_2H_6FO_3P$ Methyl fluophosphate, 8841*a*.
$C_2H_6Hg$ Mercury, dimethyl-, 4572*g*, 5004*b*, 7825*d*.
$C_2H_6HgN_4$ Guanidine, cyano(methylmercuri)-, 7179*c*, 7180*b*.
$C_2H_6HgO$ Ethylmercury hydroxide, P 690*e*.
$C_2H_6MgN_4$ Ammonia, compd. with Mg(CN)$_2$, P 1537*f*.
$C_2H_6N_2$ Acetamidine, P 1814*a*, 9037*b*.
$C_2H_6N_2O$ Acetic acid, hydrazide, 5741*b*.
Glycinamide, - *HCl*, 3781*i*.
Pseudourea, 2-methyl-, *and salts*, 8404*c*; - *HCl*, 3793*b*.
Urea, methyl-, P 3472*i*.
$C_2H_6N_2O_2$ Methyl hyponitrite, P 5641*c*.
Urea, (hydroxymethyl)-, 1206*a*, 2079*b*, 5585*g*, P 5602*f*, 6451*b*.
$C_2H_6N_2O_2S$ Methanesulfinic acid, aminomethylimino-, 1325*f*.
$C_2H_6N_2O_3S$ Methanesulfonic acid, aminomethylimino-, 1325*g*.
$C_2H_6N_2O_4$ Methanol, (nitroimino)di-, 8354*e*.
$C_2H_6N_2S$ Pseudourea, 2-methyl-2-thio-, P 1814*a*, 1868*d*, 6279*i*; *sulfate*, 3104*a*.
$C_2H_6N_2O$ See *Urea, guanyl-*.
$C_2H_6N_4O_2$ Guanidine, 1-methyl-3-nitro-, 9035*i*.
Oxalic acid, dihydrazide, 7318*d*.
$C_2H_6N_4O_4$ Ethylenediamine, *N*, *N'*-dinitro-, 2775*c*, 2839*c*, 4856*b*, P 6827*c*.
$C_2H_6N_4O_4S$ Ureasulfonic acid, guanyl-, P 8152*ai*.
$C_2H_6N_4S$ Urea, 1-guanyl-2-thio-, *phosphate*, 2950*c*.
$C_2H_6N_6$ *s*-Tetrazine, 3,6-diamino-1,4-dihydro-, P 9088*c*.
$C_2H_6N_6O_6$ Methylamine, 1,1'-(nitroimino)-bis[*N*-nitro-, 4633*c*.
$C_2H_6Na_4O_{12}$ Sodium carbonate, P 369*d*.
$C_2H_6O$ See *Ethyl alcohol; Methyl ether*.
$C_2H_6OS$ Ethanol, 2-mercapto-, 2254*f*, 2935*g*, 6114*c*, 8199*i*, P 9527*e*.
Methyl sulfoxide, P 3438*g*, 3672*h*.
$C_2H_6O_2$ (See also *Ethylene glycol*.)
1,1-Ethanediol, 2495*g*.
Ethyl hydroperoxide, 200*g*, 3724*f*, 9121*b*.
Formaldehyde, compd. with MeOH, 7409*a*.
$C_2H_6O_2S$ Methyl sulfone, 6366*f*.
$C_2H_6O_2S_2$ Methyl disulfide, dioxide(?), 6995*i*.
$C_2H_6O_3S$ Ethanesulfonic acid, 1313*g*.
Methanesulfonic acid, Me ester, 1313*g*.
Methyl sulfite, 1313*f*.
$C_2H_6O_4$ Peroxide, bis(hydroxymethyl), 3724*f*.
$C_2H_6O_4S$ (See also *Methyl sulfate*.)
Ethylsulfuric acid, P 1050*a*.
Isethionic acid, *K salt*, 7421*a*.
$C_2H_6O_4S_2$ Methyl sulfate, reaction product with $SO_3$, 2569*e*.
$C_2H_6O_4Tl_2$ Glycolic acid, complex with $Tl(OH)_4$, P 1796*e*.
$C_2H_6O_{12}Zn_3$ See *Hydrozincite*.
$C_2H_6PbS_2$ Lead, bis(methylmercapto)-, 5027*g*.
$C_2H_6S$ See *Ethanethiol; Methyl sulfide*.
$C_2H_6S_2$ 1,2-Ethanedithiol, 2935*g*, 7421*a*, P 9527*e*.
Methyl disulfide, 2950*f*, 8136*a*.
$C_2H_6Zn$ Zinc, dimethyl-, 4572*g*, 5242*c*.
$C_2H_7AsO_2$ See *Cacodylic acid*.
$C_2H_7BClN$ Borine, chloromethyl(methylamino)-, 3301*i*.
$C_2H_7BrClNPt$, 4954*b*.
$C_2H_7ClSi$ Silane, chlorodimethyl-, 2160*e*.
$C_2H_7Cl_2NPt$, 4954*a*.
$C_2H_7N$ See *Dimethylamine; Ethylamine*.
$C_2H_7NO$ See *Ethanol, 2-amino-*.
$C_2H_7NO_3$ See *Ammonium acetate*.
$C_2H_7NO_2S$ Ethanesulfonamide, 120*g*.
$C_2H_7NO_3Si$ Silane, iminodimethoxy-, 1006*e*.
$C_2H_7NO_3S$ See *Taurine*.
$C_2H_7NO_4S$ Ethanol, 2-amino-, sulfate, P 9467*c*.
$C_2H_7N_3$ See *Guanidine, methyl-*.
$C_2H_7N_3O$ Glycine, hydrazide, 5741*b*.
$C_2H_7N_4O_4V$ Guanidine, cyano-, V complex, 8959*a*.
$C_2H_7N_5$ See *Biguanide*.
$C_2H_7N_5O$ 1-Tetrazene, 1-guanyl-1-isonitroso-guanyl-, 1769*i*.
$C_2H_7OTl$ Dimethylthallium hydroxide, 4596*c*.
$C_2H_7O_2P$ Phosphinic acid, dimethyl-, 5739*g*.
$C_2H_7O_2PS_2$ Methyl thiophosphate, 7859*a*.
$C_2H_7O_4P$ Ethyl phosphate, 3131*e*.
$C_2H_7O_4P$ Ethylene glycol, phosphate, 147*i*.
$C_2H_8BCl_2N$ Borine, dichloromethyl-, compd. with $MeNH_2$, 3302*f*.
$C_2H_8BN$ Borine, aminodimethyl-, 5690*b*.
Borine, dimethylamino-, 7856*g*.
$C_2H_8Br_2InN_3$, 6932*h*.
$C_2H_8Cl_2CuN_2$, 6536*f*.
$C_2H_8Cl_2N_2Pt$, 7277*i*.
$C_2H_8Cl_2InN_3$, 6932*h*.
$C_2H_8Cl_2N_2Pt$, 7278*a*.
$C_2H_8Cl_4N_2Pt$, 7278*a*.
$C_2H_8Cl_4N_3P_3$ Triphosphornitrile bismethylamide, tetrachloro-, *and perchlorate*, 5364*h*.
$C_2H_8I_2InN_3$, 6932*h*.
$C_2H_8N_2$ (See also *Ethylenediamine*.)
Hydrazine, dimethyl-, 1314*b*.
$C_2H_8N_2O_4$ See *Ammonium oxalate*.
$C_2H_8N_2O_7Zr$ Ammonium zirconyl carbonate, P 3628*d*.
$C_2H_8N_4$ 1,1'-Biguanidine, 7581*f*.
$C_2H_8O_6P_2Zr$ Methyl zirconyl phosphate, 3313*d*.
$C_2H_8BClN$ Borine, chlorodimethyl-, compd. with $NH_3$, 5690*c*.
$C_2H_8N_2O_4Pt$, 2538*c*.
$C_2H_{10}CoN_4O_8$, 2538*f*, 7806*g*.
$C_2H_{10}N_8Ni$ Guanidine, amino-, Ni deriv., 7856*i*.
$C_2H_{11}Cl_2N_4O_4Pt$, 1673*g*.
$C_2H_{11}CoN_4O_8$, 7806*g*.
$C_2H_{12}N_8NiO_4S$ 7856*i*.
$C_2H_{12}N_{12}Ni$ Guanidine, diamino-, Ni deriv., 7856*i*.
$C_2H_{13}O_{11}Tl_3$ Glycolic acid, complex with $Tl(OH)_4$, P 1796*e*.
$C_2H_{14}Cl_2N_4Pt_2$, 1674*h*, 7277*i*.
$C_2H_{14}N_2O_4Te$, 518*e*.
$C_2H_{14}N_4O_2Pt_2$, 1674*h*.
$C_2H_{14}N_{16}NiO_4S$, 7856*i*.
$C_2H_{14}N_{12}Ni$ Guanidine, 1,2,3-triamino-, Ni deriv., 7856*i*.
$C_2H_{16}ClCoN_4O_4$, 2855*b*.
$C_2H_{16}CoN_4O_8$, 2855*c*.
$C_2H_{16}N_4O_4Te$, 518*f*.
$C_2H_{17}Cl_2N_4Pt$, 2538*c*.
$C_2H_{20}Cl_4N_6Pt + 2H_2O$, 1673*g*.

**$C_2HgN_2$** See *Mercury cyanide*.
**$C_2HgN_2O_2$** Mercury fulminate, 1982*f*, 6416*i*.
**$C_2HgN_2S_2$** Mercury thiocyanate, 2829*e*, 3963*i*.
**$C_2Hg_2O_4$** Mercury oxalate, 2101*h*.
**$C_2I_2$** Acetylene, diiodo-, 4572*f*, 8838*e*.
**$C_2I_4$** Ethylene, tetraiodo-, 3774*i*, 9334*e*.
**$C_2KN_3$** Dicyanamide, K derivs., P 1532*e*.
**$C_2K_2MoO_6$** Potassium oxalate peroxymolybdate, 7855*e*.
**$C_2K_2MoO_8$** Potassium oxalate peroxymolybdate, 7855*e*.
**$C_2K_2O_4$** See *Potassium oxalate*.
**$C_2K_2O_8W$** $+H_2O$ Potassium oxalate peroxytungstate, 7855*f*.
**$C_2K_2O_8W$** Potassium oxalate peroxytungstate, 7855*f*.
**$C_2Li_2O_4$** Lithium oxalate, 337*e*.
**$C_2Mg$** Magnesium carbide, 1670*i*.
**$C_2MgN_2$** See *Magnesium cyanide*.
**$C_2MgO_4$** Magnesium oxalate, 5267*e*.
**$C_2MnN_2$** Manganese cyanide, 2830*a*.
**$C_2MnN_2S_2$** Manganese thiocyanate, 2829*i*.
**$C_2MnO_4$** Manganese oxalate, 9443*a*.
**$C_2N_2$** See *Cyanogen*.
**$C_2N_2Ni$** See *Nickel cyanide*.
**$C_2N_2NiS_2$** See *Nickel thiocyanate*.
**$C_2N_2Pb$** Lead cyanide, 2830*a*.
**$C_2N_2PbS_2$** Lead thiocyanate, 2829*f*, 3963*i*.
**$C_2N_2S_2Zn$** See *Zinc thiocyanate*.
**$C_2N_2Se_2$**, 8366*g*.
**$C_2N_2Zn$** See *Zinc cyanide*.
**$C_2N_3Na$** Dicyanamide, Na deriv., P 1532*e*, 2947*a*.
**$C_2Na_2$** Sodium acetylide, 6168*a*.
**$C_2Na_2O_4$** See *Sodium oxalate*.
**$C_2NiO_4$** Nickel oxalate, 9443*a*.
**$C_2O_4Pb$** Lead oxalate, 2837*h*.
**$C_2O_4U$** $+6H_2O$ Uranium oxalate, 7367*h*
**$C_2U$** Uranium carbide, P 500*d*, 3685*e*, 5273*f*, 8270*c*.
**$C_2W_2$** Tungsten carbide, 4546*f*
**$C_2Zr$** Zirconium carbide, 8627*d*.
**$C_2Al_4$** See *Aluminum carbide*.
**$C_3Br_6N_6$** Melamine, hexabromo-, P 7517*g*.
**$C_3ClF_7$** Propene, 2-chloroheptafluoro-, P 5031*i*.
**$C_3Cl_3F_3N$** Propionitrile, $\alpha,\beta$-dichloro-$\alpha,\beta,\beta$-trifluoro-, P 4683*h*.
**$C_3Cl_3F_5$** Propane, dichlorohexafluoro-, P 5031*i*.
**$C_3Cl_3IN_3$** *s*-Triazine, 2,4-dichloro-6-iodo-, P 1575*i*.
**$C_3Cl_3F_3N$** Propionitrile, $\alpha,\alpha,\beta$-trichloro $\beta,\beta$-difluoro-, P 4683*h*.
**$C_3Cl_3F_5$** See *Propane, trichlorotrifluoro-*.
**$C_3Cl_3F_5$** Propane, trichloropentafluoro , P 3834*g*, 4213*e*, P 5031*g*
**$C_3Cl_3N$** Acrylonitrile, trichloro-, 2574*f*
**$C_3Cl_3N_3$** See *Cyanuric chloride*
**$C_3Cl_4F_2$** Propene, (tetrachlorodifluoro-, 2925*b*, P 4683*f*, P 8397*f*.
**$C_3Cl_4F_2O$** Propane, tetrachloroepoxydifluoro-, P 4683*g*.
Propionyl chloride, $\alpha,\alpha,\beta$-trichloro-$\beta,\beta$-difluoro-, P 4683*g*.
**$C_3Cl_4F_4$** Propane, tetrachlorotetrafluoro-, P 3834*f*, 4213*ef*, P 5031*g*.
**$C_3Cl_4F$** Propene, pentachloro-3-fluoro-, 2925*b*.
**$C_3Cl_5F_3$** Propane, pentachlorotrifluoro-, P 661*g*, 4213*f*.
**$C_3Cl_6$**, Propene, hexachloro-, 4231*h*, P 8397*e*, 8667*f*.
**$C_3Cl_6F_2$** Propane, hexachlorodifluoro-, P 661*g*, 4213*f*.
**$C_3Cl_6N_6$** Melamine, hexachloro-, P 7517*e*.
**$C_3Cl_8$** Propane, octachloro-, 2839*a*.
**$C_3Cr_3O_9$** Chromium carbonate, 2399*h*.
**$C_3F_6$** Cyclopropane, hexafluoro-, 3295*g*.
Propene. hexafluoro-, 6071*c*, 7407*c*.
**$C_3F_8$** Propane, octafluoro-, P 3834*h*
**$C_3FeN_3S_3$** See *Iron thiocyanate*.
**$C_3Fe_3N$**, 3765*c*.
**$C_3HBrF_6$**, Propane, 1-bromo-1,1,2,3,3,3-hexafluoro-, 7407*c*.
**$C_3HBr_3O$** 2-Propanone, 1,1,1,3,3-pentabromo-, 4724*c*.
**$C_3HCl_2F_5$** Propane, dichloropentafluoro-, P 3834*g*, 4213*e*.
**$C_3HCl_2N$** Acrylonitrile, $\alpha,\beta$-dichloro-, 2574*e*, P 3440*b*.
**$C_3HCl_2NSe$** Selenocyanic acid, 1,2-dichlorovinyl ester, 2159*g*.
**$C_3HCl_3F_4$** See *Propane, trichlorotetrafluoro-*.
**$C_3HCl_3N_2O$** 2-Propanone, 1,1,1-trichloro-3-diazo-, 6160*b*.
**$C_3HCl_4F_3$** Propane, tetrachlorotrifluoro-, P 661*f*, 4213*e*.
**$C_3HCl_4N$** Propionitrile, $\alpha,\alpha,\beta,\beta$-tetrachloro-, 2574*f*.
**$C_3HCl_5$** Propene, 1,1,2,3,3-pentachloro-, 3346*d*.
**$C_3HCl_5F_3$** Propane, pentachlorodifluoro-, P 661*f*, 4213*f*.
**$C_3HCl_5O$** Propionyl chloride, tetrachloro-, P 1434*d*.
**$C_3HCl_6F$** Propane, hexachlorofluoro-, P 661*e*, 4213*e*.
**$C_3HCl_7$** Propane, heptachloro-, 2923*i*, 3346*d*.
**$C_3HN_3S_3$** Pseudothiocyanic acid, 971*a*.
**$C_3H_2Br_2O_4$** Malonic acid, dibromo-, 6075*g*
**$C_3H_2ClN$** Acrylonitrile, $\alpha$-chloro-, P 1794*e*, 2574*e*.
**$C_3H_2Cl_2N_4$** *s*-Triazine, 2 amino 4,6-dichloro , 1425*i*.
**$C_3H_2Cl_2O$** Acrolein, $\beta,\beta$-dichloro-, 3775*g*.
**$C_3H_2Cl_2F_2NO$** Propionamide, $\alpha,\alpha,\beta$-trichloro $\beta,\beta$-difluoro , P 4683*g*
**$C_3H_2Cl_2N$** Propionitrile, trichloro-, 2574*e*, P 3027*f*.
**$C_3H_2Cl_3NO_2$** 1-Propene, 3,3,3-trichloro 1-nitro , 2926*f*
**$C_3H_2Cl_4$** Propene, tetrachloro-, 5361*hi*.
**$C_3H_2Cl_4O$** 2-Propanone, tetrachloro-, 6584*ac*
**$C_3H_2FNOS$** Acetyl isothiocyanate, fluoro-, 8841*b*
**$C_3H_2INS$** Thiazole, iodo , 2615*h*
**$C_3H_2NNaO_4$** Malonaldehyde, nitro , Na deriv , 161*h*.
**$C_3H_2N_2$** See *Malononitrile*.
**$C_3H_2N_2O_3$** Parabanic acid, 3609*d*
**$C_3H_2O$** Propiolaldehyde, 1115*i*
**$C_3H_2O_3$** Mesoxalaldehyde, 2667*f*
**$C_3H_2S_4$** 1,2-Dithiole-3-thione, 1012*i*
**$C_3H_3Br$** Propyne, 1-bromo-, 8838*f*.
**$C_3H_3BrN_2S$** Thiazole, 2-amino-5 bromo-, P 3042*c*; *and -HBr*, P 3466*h*, *HCl*, 3804*h*.
**$C_3H_3BrN_2Se$** Selenazole, 2 amino-5-bromo , P 3042*d*.
**$C_3H_3Cl$** Propyne, 1 chloro-, 8838*f*
**$C_3H_3ClHgN_2S$** Thiazole, 2-amino 5-(chloromercuri)-(?), 2615*i*
**$C_3H_3ClN_2$** Acrylonitrile, $\beta$-amino-$\alpha$-chloro , 2574*i*, P 3440*b*.
**$C_3H_3ClN_2O_2$** Propionitrile, $\alpha$ chloro-$\beta$-nitro , 1716*b*.
**$C_3H_3ClO$** Acrylyl chloride, P 5793*b*
**$(C_3H_3ClO)_n$** Acrylyl chloride, polymer, P 5793*c*.
**$C_3H_3ClO_2$** Acrylic acid, $\alpha$-chloro-, P 4288*c*, P 6866*e*
Malonaldehyde, chloro-, 5367*h*
**$C_3H_3ClO_3$** Glyoxylic acid, chloro , Me ester, 8380*b*.
**$C_3H_3Cl_2N$** Propionitrile, $\alpha,\beta$-dichloro-, 2574*e*
**$C_3H_3Cl_2NSe$** Selenocyanic acid, 2,2-dichloroethyl ester, 2159*i*.
**$C_3H_3Cl_3$** Propene, 1,2,3-trichloro-, 6161*g*
**$C_3H_3Cl_3N_6$** Melamine, trichloro-, P 7517*f*.
**$C_3H_3Cl_3O$** 2-Propanone, 1,1,3-trichloro-, 6583*i*.
**$C_3H_3Cl_3O_2$** Propionic acid, trichloro , P 6845*d*
**$C_3H_3Cl_5$** Propane, 1,1,1,2,3 pentachloro-, P 8397*c*.
**$C_3H_3D$** Propyne-1 *d*, 8838*f*.
**$C_3H_3D_3O_2S$** Acetic acid, methyl-*ds*-mercapto-, 2682*f*.
**$C_3H_3F_3O$** 2-Propanone, 1,1,1 trifluoro , P 7497*e*.
**$C_3H_3I$** Propyne, 1-iodo-, 8838*f*
**$C_3H_3N_3S$** Thiazole, 2-amino-5 iodo-, 2616*a*
**$C_3H_3N$** See *Acrylonitrile*.
**$C_3H_3NOS$** Acetyl thiocyanate, 2110*f*
**$C_3H_3NOS_2$** See *Rhodanine*.
**$C_3H_3NO_2$** Acetic acid, cyano , P 2225*g*
**$C_3H_3NO_2S$** 2,4-Thiazolidinedione, 3819*h*
**$C_3H_3NO_3$** 2,5 Oxazolidinedione, 4017*c*, 4858*i*
**$C_3H_3NS$** See *Thiazole*.
**$C_3H_3NS_2$** 2 Thiazolethiol, 8541*g*.
**$C_3H_3N_3$** See *s-Triazine*.
**$C_3H_3N_3O$** *v*-Triazole-4-carboxaldehyde, 6620*f*
**$C_3H_3N_3OS_2$** Hydroperthiocyanic acid, 971*a*
**$C_3H_3N_3OS_2$** Hydropseudothiocyanic acid, 2100*h*.
**$C_3H_3N_3O_2$** Imidazole, nitro , 2022*c*
3,5-*as*-Triazinediol, 123*b*.
**$C_3H_3N_3O_3$** Cyanuric acid, P 698*h*, 1657*f*, 2946*d*.
**$C_3H_3N_3O_4$** Furoxan, 3-methyl-4-nitro-(?), P 5411*f*.
**$C_3H_3N_3S_3$** Cyanuric acid, trithio-, P 5517*h*.
**$C_3H_4O$** Propiolaldehyde, 6620*e*.
**$C_3H_4$** See *Allene; Propyne*
**$C_3H_4AsCl_3$** Arsine, dichloro(3-chloroallyl) , 2928*f*.
**$C_3H_4BrCl$** Propene, 2-bromo 3-chloro-, 4214*d*
**$C_3H_4BrClO$** Propionyl bromide, $\beta$-chloro-(?), 7345*b*
**$C_3H_4Br_2O$** Propane, 1,1-dibromo-2,3-epoxy-, P 6672*g*
Propionaldehyde, $\alpha,\alpha$-dibromo-, 2575*i*.
**$C_3H_4ClFO$** 2-Propanone, 1-chloro-3-fluoro-, 6163*e*.
**$C_3H_4ClFO_2$** Acetic acid, chlorofluoro-, Me ester, 8352*i*.
Formic acid, chloro-, 2-fluoroethyl ester, 6164*c*, 8841*b*.
**$C_3H_4ClF_3$** Propane, 3-chloro-1,1,1-trifluoro , 558*b*.
**$C_3H_4ClF_3Mg$** 3,3,3-Trifluoropropylmagnesium chloride, 558*b*.
**$C_3H_4ClN$** Propionitrile, $\beta$-chloro-, 657*c*, 5405*e*, 5785*b*.
**$C_3H_4ClNO$** Hydracrylonitrile, $\alpha$-chloro-, P 1794*e*.
**$C_3H_4ClNSe$** Selenocyanic acid, 2-chloroethyl ester, 2160*a*.
**$C_3H_4ClN_3$** Pyrimidine, 2-amino 4 chloro , P 4704*c*
**$C_3H_4Cl_2$** See *Propene, dichloro*
**$C_3H_4Cl_2HgO$** 2-Propen-1-ol, 2-chloro-3 (chloromercuri)-, 7412*h*.
**$C_3H_4Cl_2O$** Ether, 2,2-dichlorovinyl methyl, 1404*a*.
2-Propanone, dichloro-, 130*e*, 5955*d*
Propionaldehyde, $\beta,\beta$-dichloro-, 3315*i*
Propionyl chloride, $\beta$-chloro-, P 3444*e*, 7345*c*.
**$C_3H_4Cl_3NO_2$** Propane, 1,2,3-trichloro-2 nitro-, 2946*b*.
**$C_3H_4Cl_4$** Propane, tetrachloro , 109*i*, P 8106*e*, P 8397*e*
**$C_3H_4Cl_4O$** Ether, methyl 1,2,2,2 tetrachloro ethyl, 1404*a*.
Propanol, tetrachloro-, P 3835*h*
**$C_3H_4F_2O_2$** Hydracrylic acid, $\alpha,\alpha$-difluoro-, P 2224*c*
**$C_3H_4I_2O$** 2 Propen-1 ol, 2,3 diiodo-, 7413*i*
**$C_3H_4N_2$** Imidazole, 1868*d*, 4133*d*, 8365*i*
Pyrazole, 8365*e*
**$C_3H_4N_2O$** Acetamide, $\alpha$ cyano-, 643*h*, 1218, 3367*b*, P 3470*d*
Pyrazolone, 5604*h*, 8553*i*
**$C_3H_4N_2OS$** Hydantoin, 2 thio-, 1410*i*, 1463, 7144*e*, 9242*b*
Pseudothiohydantoin, 229*c*, 3820*b*
4-Thiazolol, 2 amino , 2902*f*
**$C_3H_4N_2O_2$** See *Hydantoin*
**$C_3H_4N_2O_3S_2$** 1,2,1,2,*H* Thiadiazine-3,5(4*H*, 6*H*)-dione, 3 thio , 1,1 dioxide, P 4868*d*.
**$C_3H_4N_2O_4S$** 1,2,6,4 *H*-Thiadiazine-4,5 diol, 1,1 dioxide, P 6671*a*.
1,2,4,2 *H* Thiadiazine - 3,5(4 *H*,6 *H*) dione, 1,1 dioxide, P 4868*i*
**$C_3H_4N_2S$** (See also *Thiazole, amino-*) 2 Imidazolethiol, 8541*c*, 9242*a*
**$C_3H_4N_2Se$** Selenazole, 2 amino , P 3042*d*
**$C_3H_4N_4O_2$** Ammelide, P 698*h*.
**$C_3H_4N_4O_3$** 2 Imidazolidone, 1,3 dinitro , 2203*e*.
**$C_3H_4O$** (See also *Acrolein*) 2 Propen-1-ol, 930*h*, P 3021*c*, P 5410, 7412*h*.
**$C_3H_4O_2$** (See also *Acrylic acid; Pyruvic aldehyde*)
Formic acid, vinyl ester, 439*a*, 567*c*, P 3027*g*.
Glycidaldehyde, 422*i*, 3217*c*, 5072*i*
Hydracrylic acid, *d* lactone, P 1053*a*, P 1054*cdfh*, P 1055*dh*, P 1056*acf*, P 2032*g*, 3393*a*, P 3444*e*, P 5055, P 5414*i*, P 5795*a*, P 7506*fi*.
Malonaldehyde, P 6225*g*.
**$(C_3H_4O_2)_n$** Formic acid, vinyl ester, polymer, 567*i*.
**$C_3H_4O_3$** (See also *Pyruvic acid; Reductone*) Carbonic acid, ethylene ester, P 673*i*, Reductol, 7903*h*.
**$C_3H_4O_3S$** Pyruvic acid, mercapto-, 1854 *and NH₄ salt*, 137*e*.
**$C_3H_4O_4$** See *Malonic acid*
**$C_3H_5$** Allyl, 2512*a*, 5732*fg*, 6479*i*.
**$C_3H_5Br$** See *Propene, bromo-*
**$C_3H_5BrO$** 2-Propanone, bromo , P 2232*c*, P 5409*i*, 6942*g*
2-Propen-1-ol, bromo-, P 3024*c*.
Propionaldehyde, $\alpha$-bromo-, P 3024*i*.
**$C_3H_5BrO_2$** (See also *Propionic acid, bromo-*) Acetic acid, bromo-, Me ester, 3448*a*
**$C_3H_5Br_2F$** Propane, 1,2 dibromo-3-fluoro-, 3774*i*.
**$C_3H_5Br_2NO$** Acetamide, $\alpha,\alpha$-dibromo-*N*-methyl-, 6975*h*.
**$C_3H_5Br_3$** Propane, 1,2,3-tribromo-, 30*h*, 3775*f*, P 8667*f*.
**$C_3H_5Cl$** See *Propene, chloro-*.
**$C_3H_5ClMg$** Allylmagnesium chloride, 7898*g*
**$C_3H_5ClN_2$** Cyanamide, (2-chloroethyl)-, 2946*a*.
**$C_3H_5ClN_4$** 1 *H*-Tetrazole, 5-(chloromethyl) 1-methyl-, P 7971*a*.
**$C_3H_5ClN_6$** Melamine, chloro-, P 7517, 9309*a*.
**$C_3H_5ClO$** (See also *Epichlorohydrin; 2-Propanone, chloro-*.)

2 Propen-1-ol, chloro-, P 5410*i*, 7412*i*.

**$C_3H_4ClO_2$** (See also *Propionic acid, chloro-*.)
Acetic acid, chloro-, Me ester, P 1801*a*, P 2223*e*, 2590*i*, 3488*a*.
Formic acid, chloro-, Et ester, P 4287*e*.
Hydracrylaldehyde, α-chloro-, P 3026*d*.

**$C_3H_4ClO_2S$** 1-Propene-1-sulfonyl chloride, 7411*i*.

**$C_3H_5ClS$** Thiirane, 2-methyl-, chloro deriv., 7419*i*, 7420*h*.

**$C_3H_5Cl_2NO_2$** Propane, 1,3-dichloro-2-nitro-, 2946*c*.

**$C_3H_6Cl_2$** Propane, trichloro-, 30*h*, P 904*e*, P 4516*a*, P 5636*i*.

**$C_3H_4Cl_4O_2$** Chloral, compd. with MeOH, 1252*f*.

**$C_3H_6Cl_3S$** 1-Propanethiol, 3,3,3-trichloro-, P 8195*e*.

**$C_3H_5Cl_3Si$** Silane, allyltrichloro-, 2018*a*, P 6220*e*.

**$C_3H_5F$** Propene, 3-fluoro-, 3774*i*.

**$C_3H_6FO$** Epifluorohydrin, 6163*d*, 8841*b*.

**$C_3H_5FOSe$** Acetic acid, fluoroseleno-, Me ester, 8841*b*.

**$C_3H_5FO_2$** Acetic acid, fluoro-, Me ester, 2932*i*, 7147*c*, 8841*a*.
Formic acid, fluoro-, Et ester, 2933*d*, 3741*g*.
Hydracrylic acid, α-fluoro-, P 2224.

**$C_3H_4F_2O_2$** Acetic acid, difluoro-, Me ester, 8841*b*.

**$C_3H_6F_2O$** Propanol, trifluoro-, 5588, P 7497*e*.

**$C_3H_5IO$** 2 Propanone, 1-iodo-, 6942*g*

**$C_3H_3IO_2$** Acetic acid, iodo-, Me ester, 3188*a*.
Propionic acid, β-iodo, 6082*g*, 8199*f*.

**$C_3H_5KO$** See *Potassium lactate*.

**$C_3HN$** See also *Propionitrile*.)
Allylidenimine, 6479*e*.
Vinylamine, N-methylene-, 6479*e*.

**$C_3H_3NO$** (See also *Hydracrylonitrile*.)
Acetonitrile, methoxy-, 5738*i*
Acrolein, oxime, P 7195*i*
2-Azetidinone, 8357*c*.
Isocyanic acid, Et ester, 6162*e*.
Lactonitrile, 564*a*.

**$(C_3H_3NO)_n$** Acrylamide, polymer, P 5793*b*

**$C_3H_3NOS$** 2-Oxazoline-2-thiol, 9242*b*
Thiocyanic acid, 2-hydroxyethyl ester, 2945*b*

**$C_3H_3NO_3$** Propene, nitro-, P 5411*f*, *g*.
Pyruvaldehyde, aldoxime, 2115*d*, 5367*c*.
Pyruvamide, 3073*i*

**$C_3H_5NO_3S$** Carbamic acid, dithio-, carboxymethyl ester, 9242*a*

**$C_3H_3NO_3$** Pyruvic acid, oxime, 1082*d*, 2276*d*

**$C_3H_5NO_3S$** Methanesulfonic acid, cyanomethyl ester, 2942*c*

**$C_3H_5NO_4$** Acetic acid, nitro-, Me ester, 7318*f*

**$C_3HNS$** Thiocyanic acid, Et ester, 2729*d*.

**$C_3H_3NS_2$** Thiazoline-2-thiol, P 1798*f*, 4974*d*, 8544, 9242*b*.

**$C_3H_5N_3O$** Glycocyamidine, 1451*g*.
4-Pyrazolone, 3-amino-, 4272*f*.
Urea, (cyanomethyl)-, 1401*f*.

**$C_3H_3NO_3$** Glyoxylic acid, semicarbazone, 123*a*.

**$C_3H_6N_2O_3$** Glycolamide, *N*-methyl-*N*-nitro-, nitrate, P 1796*a*, P 1797*b*.

**$C_3H_5N_3O_9$** See *Nitroglycerin*

**$C_3H_5NS$** Glycononitrile, thiocyanate, 1403*h*.

**$C_3H_6N_2O$** Ammeline, P 698*h*, P 2786*i*, P 3809*j*.

**$C_3H_6N_4O_2$** 2-Imidazoline, 2-nitramino-1-nitro-, 2265*e*.

**$C_3H_6N_4S$** 2,4-Triazinethiol, 4,6-diamino-, P 7851.

**$C_3H_5Na$** Sodium, allyl-, 558*d*.

**$C_3H_5NaO$** Sodium allyloxide, 558*e*

**$C_3H_5NaO_3$** See *Sodium lactate*.

**$C_3H_6$** See *Cyclopropane; Propene*.

**$C_3H_6BaO_4S_2$** 1,3 Propanediol, bis(hydrogen sulfate) Ba salt, 2934*f*.

**$C_3H_6BaO_6S_2$** Glycerol, sulfate, Ba salt, 5368*d*.

**$C_3H_5BrF$** Propane, 1-bromo-3-fluoro-, 3774*h*.

**$C_3H_4BrNO$** Acetamide, α-bromo-*N*-methyl-, 5081*h*.

**$C_3H_5BrNO_2$** Propane, 2-bromo-2-nitro-, 4217*e*.

**$C_3H_6Br_2$** See *Propane, dibromo-*.

**$C_3H_6Br_2O$** 1-Propanol, 2,3-dibromo-, 6970*i*.

**$C_3H_6ClFO$** Ether, chloromethyl 2-fluoroethyl, 6163*g*.
2-Propanol, 1-chloro-3-fluoro-, 8841*b*.

**$C_3H_4ClNO$** Propionamide, chloro-, 172*h*, 5785*d*

**$C_3H_4ClNO_2$** Acetamide, α-chloro-*N*-(hydroxymethyl)-, P 3221*c*, P 3222*a*.
Alanine, β-chloro-, 7908*g*; *- HCl*, 7902*f*.
Carbamic acid, chlorovinyl-, Et ester, P 3032*a*

Propane, 2-chloro-2-nitro-, 157*a*, 4217*f*, 6569*b*.

**$C_3H_4ClNO_3S$** 1-Propanesulfonyl chloride, 2-nitro-, P 5411*i*.

**$C_3H_6ClNS$** Carbamyl chloride, dimethylthio-, P 5038*c*.

**$C_3H_6Cl_2$** See *Propane, dichloro-*.

**$C_3H_6Cl_2O$** Propanol, dichloro-, 1321*f*, 4733*i*, 5148*f*, P 7276*b*.

**$C_3H_6Cl_2O_2S$** Chlorosulfinic acid, 2-chloroisopropyl ester, 1249*b*.
1-Propanesulfonyl chloride, chloro-, 6569*gh*.

**$C_3H_6Cl_2O_4S_2$** 1,3-Propanedisulfonyl chloride, 4857*a*.

**$C_3H_6Cl_2S$** Propanethiol, dichloro-, 7419*i*.

**$C_3H_6Cl_2Si$** Silane, allyldichloro-, 2017*h*, P 6220*e*.
Silane, dichloromethylvinyl-, 2017*i*.

**$C_3H_6Cl_2Si_2$** Silane, trimethylenebis[trichloro-, P 9533*a*.

**$C_3H_6D_2$** Propane-2,2-$d_2$, 7897*g*

**$C_3H_6F_2$** Propane, 1,3-difluoro-, 3774*g*.

**$C_3H_6F_2O$** 2-Propanol, 1,3-difluoro-, 6163*d*.

**$C_3H_6HgN_4$** Guanidine, cyano(methylmercuri)-, 2355*f*.

**$C_3H_6I_2$** Propane, 1,3 diiodo-, 2591*a*.

**$C_3H_6NNaO_2$** Propane, 2-isonitro-, Na deriv., 4217*e*.
Propane, nitro-, Na deriv., 5761*a*, 8364*i*.

**$C_3H_8NNaO_4$** 1,3-Propanediol, 2 nitro-, Na deriv., 128*f*.

**$C_3H_8N_2$** Propane, 1-diazo-, 1744*b*, 4652*i*
Propionitrile, β-amino-, P 1052*e*
Pyrazoline, 8365*e*.

**$C_3H_8N_2O$** 2-Imidazolidone, P 691*h*, P 692*a*, P 7513*e*.
Oxazolidine, 2-imino-, 2946*b*

**$C_3H_4N_2O_2$** Glyoxime, methyl-, 2276*d*
Malonamide, 6308*f*, 7520*i*
Urea, acetyl-, 8353*f*

**$C_3H_5N_3O_4$** Carbamic acid, methylnitroso-, Me ester, 4633*i*.
Propane, 2 nitro 2 nitroso-, P 6646*g*.
Hydantoin acid, 741*g*, 6308*f*

**$C_3H_6N_2O_4$** See *Propane, dinitro-*

**$C_3H_6N_4O_6$** Nitric acid, 2 nitrosopropyl ester, P 665*e*, P 5411*e*, P 6647*b*.

**$C_3H_6N_2S$** Imidazoline-2 thiol, 8544*g*, 9242*b*.

**$C_3H_6N_4$** 4-0 5H-0 Guanidine, 1-cyano-3 methyl-, 2947*b*

**$C_3H_6N_4O_2$** 2-Imidazoline, 2 nitramino-, 4273*a*.

**$C_3H_6N_4O_2S$** 1,2,6,4*H*-Thiadiazine, 3,5-diamino-, 1,1 dioxide, P 2618*e*, P 9528*a*

**$C_3H_6N_4O_4$** 1,3,5,2*H*-Oxadiazine, tetrahydro-3,5-dinitro-, 9074*g*

**$C_3H_6N_6$** See *Melamine*

**$C_3H_6N_6O_3$** *s*-Triazine, hexahydro-1,3,5-trinitroso-, 1317*a*, 9073*f*

**$C_3H_6N_6O_6$** *s* Triazine, hexahydro 1,3-dinitro-5-nitroso-, 9073*i*

**$C_3H_6N_6O_6$** See *Hexogen*.

**$C_3H_6O$** (See also *Acetone; Allyl alcohol; Propionaldehyde; Propylene oxide*.)
Ether, methyl vinyl, 69*a*, P 1050*a*, 3370*i*, P 4204*d*, P 7036*g*
Propenol, 8807*a*

**$C_3H_6OS$** 2-Propanone, mercapto-, 653*g*.

**$C_3H_6OS_2$** See *Xanthic acid, ethyl-*.

**$C_3H_6O_2$** (See also *2-Propanone, hydroxy-; Propionic acid*.)
Acetic acid, Me ester, 1604*f*, 1620*d*, 1656*c*, 2590*d*, 2834*b*, 2923*i*, P 3443*c*, 3670*a*, 3776*b*, P 5035*i*, 6018*k*, 6019*g*, 6064*i*, 6495*d*, P 6650*g*, 8808*i*, 8835*a*.
1,3 Dioxolane, 1401*g*.
Formic acid, Et ester, 643*g*, 1045*f*, 1336*a*, 1656*c*, 2590*d*, 2677*b*, 2834*b*, 2923*f*, P 3445*c*, 5249*g*, 5745*a*, 8780*a*.
Glycidol, 1717*i*, P 2796*c*, P 4490*b*, 5741*h*
Lactaldehyde, P 4589*b*.

**$C_3H_6O_2S$** (See also *Propionic acid, mercapto-*.)
Acetic acid, methylmercapto-, 2682*e*.

**$C_3H_6O_2S_2$** Propionic acid, α,β-dimercapto-, *NH₄ salt*, 3783*h*.

**$C_3H_6O_3$** (See also *Glyceraldehyde, Hydracrylic acid; Lactic acid; Paraformaldehyde; Propanone, dihydroxy-; Trioxane*.)
Acetic acid, methoxy-, P 3448*d*, 8484*a*.
Carbonic acid, di-Me ester, 1656*c*, 6167*i*, 6168*h*.
Glycerose, P 4037*c*.
Trioxymethylene, 1855*b*, 1865*h*.

**$C_3H_6O_3S$** Ethylenesulfonic acid, Me ester, 7411*h*.
1-Propanesulfonic acid, 3-hydroxy-, sultone, 6569*h*.
Propenesulfonic acid, *and Na salt*, 7411*eg*.
Propylene sulfite, P 4858*c*.

**$C_3H_6O_4$** See *Glyceric acid*.

**$C_3H_6O_4S$** 1,3-Propanediol, cyclic sulfate, 2934*e*.
1-Propanesulfonic acid, 2-oxo-, P 5216*i*, P 7729*d*.

**$C_3H_6O_5S$** Propionic acid, β-sulfo-, *diammonium salt*, P 1056*f*.

**$C_3H_6O_6S_3$** *s*-Trithiane, 1,3,5-tris(dioxide), P 5427*e*, P 6674*b*.

**$C_3H_6S$** 2-Propene-1-thiol, 998*i*, 6286*g*.
Thiirane, 2-methyl-, 7420*a*.

**$C_3H_6S_2$** 2 Thiiranemethanethiol, 7425*d*.

**$C_3H_6S_3$** *s* Trithiane, 4629*b*, 5894*a*, 6970*e*, 7487*d*.

**$C_3H_7$** Isopropyl, 2512*a*, 6479*c*.
Propyl, 2512*a*, 6479*c*.

**$C_3H_7Br$** See *Propane, bromo-*.

**$C_3H_7BrMg$** Isopropylmagnesium bromide, 2604*a*.
Propylmagnesium bromide, 643*c*.

**$C_3H_7BrO_2S$** Sulfone, bromomethyl ethyl, 7409*e*.

**$C_3H_7BrS$** Sulfide, bromomethyl ethyl, 7409*e*.

**$C_3H_7CaO_6P$** Calcium glycerophosphate, 5703*c*, P 7650*b*.

**$C_3H_7Cl$** See *Propane, chloro-*

**$C_3H_7ClHg$** Isopropylmercury chloride, 1138*ef*, 5004*c*.
Propylmercury chloride, 1138*df*, 5004*c*.

**$C_3H_7ClN_2$** Propionamidine, β-chloro-, *- HCl*, 5785*d*.

**$C_3H_7ClN_2O$** Ethylamine, 2-chloro-*N*-methyl-*N*-nitroso-, 7422*h*.

**$C_3H_7ClO$** Ether, chloromethyl ethyl, 6568*c*
Propanol, chloro-, 4733*i*.

**$C_3H_7ClOS$** Sulfoxide, chloromethyl ethyl, 7409*g*.

**$C_3H_7ClO_2$** 1,2 Propanediol, 3-chloro-, P 3740*c*, 4733*i*.

**$C_3H_7ClO_2S$** Sulfone, 1-chloroethyl methyl, 7409*f*.

**$C_3H_7ClO_2Se$** Propaneselenimc acid, 3-chloro-, *- HCl*, 2160*b*

**$C_3H_7ClO_3S$** Propanesulfonic acid, 2-chloro-, 6569*h*, *Na salt*, 7411*g*.
Propyl chlorosulfonate, 7345*a*

**$C_3H_7ClS$** Sulfide, 1 chloroethyl methyl, 7409*f*.

**$C_3H_7Cl_2OP$** Phosphine oxide, dichloropropyl-(?), 1315*e*.

**$C_3H_7Cl_2Si$** Silane, chloro(dichloromethyl)-dimethyl-, P 3837*e*, P 7752*g*.
Silane, trichloropropyl-, P 5528*b*, P 6221*e*.

**$C_3H_7D$** Propane-*d*, 7897*g*

**$C_3H_7DO$** Propan 2-*d*-2-ol, 3272*g*.

**$C_3H_7F$** Propane, 1-fluoro-, 4139*c*

**$C_3H_7FO$** 2 Propanol, 1-fluoro-, 4401*h*, 6163*c*.

**$C_3H_7I$** See *Propane, iodo-*.

**$C_3H_7IO_2S$** Sulfone, ethyl iodomethyl, 7410*b*.

**$C_3H_7IS$** Sulfide, ethyl iodomethyl, 7410*b*.

**$C_3H_7Li$** Lithium, propyl-, 5740*a*.

**$C_3H_7N$** Allylamine, 1613*g*, P 3456*b*.

**$C_3H_7NO$** Acetone, oxime, 157*a*, 2276*d*, 3974*g*, P 4515*a*, 6569*b*, P 6658*a*, 7225*f*.
Formimidic acid, Et ester, *- HCl*, 3367*a*.
2-Propanone, amino-, 7478*h*.
Propionamide, P 1552*c*, P 3028*c*, 5405*d*.

**$C_3H_7NOS$** Carbamic acid, thiono-, Et ester, 7420*g*.
2 Propanone, mercapto-, oxime, 653*h*.

**$C_3H_7NO_2$** (See also *Alanine; β-Alanine; Propane, nitro-; Sarcosine*.)
Acetamide, *N*-(hydroxymethyl)-, 569*f*.
Carbamic acid, Et ester, 305*ai*, 307*bc*, 316*h*, 521*g*, 774*f*, 1103*i*, 1241*e*, 2314*g*, 2329*f*, 2695*e*, P 2786*g*, 2834*e*, 2835*b*, 3107*d*, 3109*f*, 3519*i*, 3917*g*, 3933*a*, 3975*a*, 4380*i*, 4385*b*, 5082*b*, 5108*a*, 5247*c*, 5437*h*, 5444*b*, 5488*d*, 5493*e*, 5498*cd*, 5853*f*, 5854*e*, 5872*a*, 5873*f*, 5906*c*, 6066*e*, 6670*e*, 6723*f*, 7092*d*, 7134*b*, 7135*a*, 7139*f*, 7142*e*, 7143*h*, 7580*e*, 8051*f*, 8058*b*, 8064*d*, 8066*a*, 8548*b*, P 9088*c*, 9251*b*, 9258*c*, 9263*dg*.
—, methyl-, Me ester, 4633*i*.
Formamide, *N*-2-hydroxyethyl-, P 5632*h*.
—, *N*-(methoxymethyl)-, 569*f*.
Isopropyl nitrite, 2834*i*.
2-Propanone, hydroxy-, oxime, 5367*c*.
Propyl nitrite, 2834*i*.

**$C_3H_7NO_3S$** (See also *Cysteine*.)
Isocysteine, 5117*e*.
1-Propene-1-sulfonamide, 7411*i*.

**$C_3H_7NO_3$** (See also *Serine*.)
Propanol, nitro-, 2846*c*, 5367*b*, P 5411*f*, P 6647*b*, 9053*i*.
Propyl nitrate, 2835*c*.

**$C_3H_7NO_3S$** Acetamide, *N*-(methylsulfonyl)-, 120*h*.
Sulfamic acid, allyl-, P 9473*h*.

**$C_3H_7NO_4$** 1,3-Propanediol, 2-nitro-, 128*e*, 9533*f*.

**$C_3H_7NO_4S$ Alanine, β-sulfino-,** 2666*b*, 5430*e*.
Methanesulfonic acid, carbamylmethyl ester, 2942*d*.
**$C_3H_7NO_4S$** Cysteic acid, 5818*e*.
1-Propanesulfonic acid, 2-nitro-, *K salt*, P 9079*d*.
**$C_3H_7NO_4S$** Glycerol, nitrate, sulfate, *Ba salt*, 5368*e*.
**$C_3H_7NS$** Propionamide, thio-, P 1798*e*.
**$C_3H_7NS_2$** See *Carbamic acid, dimethyldithio-*.
**$C_3H_7N_3OS$** Pseudourea, 2 (carbamylmethyl)-2-thio-, - *HCl*, P 4156*f*.
**$C_3H_7N_3O_2$** Glycocyamine, 1451*g*, 2301*f*, 3061*g*, 8481*a*, 8501*de*.
**$C_3H_7N_3O_3$** Guanidine, 1 ethyl-3-nitro-1-nitroso-, 9035*e*.
**$C_3H_7N_3O_4P_2$** *s*-Triazine, 2,4-bis(phosphonoamino)-, P 7974*i*.
**$C_3H_7N_3O_7$** 2-Propanol, 1,3-dinitramino-, nitrate, 9065*i*.
**$C_3H_7N_7$** 1,2,4-Triazolidine-1-carboxamidine, 3,5-diamino-, P 3843*d*
**$C_3H_7Na_2O_6P$** See *Sodium glycerophosphate*.
**$C_3H_7O_6P$** Glyceraldehyde, β-phosphate, 4725*e*.
**$C_3H_7O_6PZn$** Zinc glycerophosphate, 4550*g*
**$C_3H_7O_7P$** See "phosphate" under *Glyceric acid*.
**$C_3H_8$** See *Propane*.
**$C_3H_8AuN_3S_3$** Gold thiocyanate, compd. with thiourea, 9035*d*.
**$C_3H_8Br_2Si$** Silane, dibromoethylmethyl-, 2575*b*.
**$C_3H_8ClN$** Ethylamine, 2-chloro-*N*-methyl-, 1005*f*; - *HCl*, 1861*e*.
**$C_3H_8Cl_2Si$** Silane, chloro(chloromethyl)dimethyl-, P 3441*d*.
Silane, dichloroethylmethyl-, P 5528*h*.
**$C_3H_8FO_2P$** Ethyl methyl fluophosphate, 8841*a*.
**$C_3H_8N_2O$** Alaninamide, 9032*i*
β-Alaninamide, - *HCl*, 1448*h*.
Hydracrylamidine, - *HCl*, 5785*b*.
2-Propanone, 1,3-diamino-, 5404*b*.
Propionic acid, hydrazide, P 3843*d*.
Urea, 1,1-dimethyl-, 6308*e*.
—, ethyl-, P 4050*f*, P 4696*g*, P 7508*f*.
**$C_3H_8N_2OS$** Urea, 1-(hydroxyethyl)-2-thio-, P 3222*b*.
**$C_3H_8N_2O_2$** Carbamic acid, (2-aminoethyl), inner salt, 6158*a*.
**$C_3H_8N_2O_3$** Urea, bis(hydroxymethyl)-, P 1940*e*, P 5602*f*, 7208*d*.
**$C_3H_8N_2S$** Pseudourea, 2-ethyl 2-thio-, 1868*d*; - *HBr*, P 4156*e*.
Urea, 1,1-dimethyl-2-thio-, 2950*e*.
**$C_3H_8N_4O$** Urea, methylguanyl-, P 868*f*.
**$C_3H_8N_4O_2$** Guanidine, 1-ethyl-3-nitro-, 9035*e*.
Malonic acid, dihydrazide, 7318*d*.
**$C_3H_8N_4O_3$** Urea, guanyl-, formate, 1405*d*.
**$C_3H_8N_4O_4$** Propanediamine, *N*, *N'*-dinitro-, 9065*b*, 9066*a*.
**$C_3H_8N_4O_8$** Methanol, [(2 nitraminoethyl)nitramino]-, 9074*c*.
**$C_3H_8N_4O_8S_2$** Malonamidε, *N*, *N'*-disulfamyl-, 2573*d*.
**$C_3H_8N_4S_2$** Pseudourea, 2,2'-methylenebis[2-thio-, 1868*d*.
**$C_3H_8N_4O_4$** Imidazolidine, 2 amino-2-nitramino-1-nitro-, 2203*g*.
**$C_3H_8O$** (See also *Isopropyl alcohol; Propyl alcohol*.)
Ether, ethyl methyl-, 4080*a*, P 4835*d*, 6020*g*.
**$C_3H_8OS_2$** See *Propanol, dimercapto*.
**$C_3H_8O_2$** (See also *Ethanol, 2-methoxy-; Methylal; Propanediol*.)
Propyl hydroperoxide, 3724*f*.
**$C_3H_8O_3$** (See also *Glycerol*.)
Peroxide, 1-hydroxyethyl methyl, 3724*f*.
**$C_3H_8O_4S$** 1-Propanesulfonic acid, 2-hydroxy-, *Na salt*, 7411*f*.
**$C_3H_8O_4S$** 1,3-Propanediol, hydrogen sulfate, 2934*g*.
**$C_3H_8O_5S$** Glycerol, sulfate, *Ba salt*, 5368*d*.
**$C_3H_8O_6S_2$**, 1,3-Propanediol, bis(hydrogen sulfate), *Ba salt*, 2934*f*.
**$C_3H_8O_9S_3$** Glycerol, sulfate, *Ba salt*, 5368*d*.
**$C_3H_8O_{15}S_3$** Glycerol sulfate, 5862*f*.
**$C_3H_8S$** (See also *Propanethiol*.)
Sulfide, ethyl methyl, 2956*e*.
**$C_3H_8S_2$** Ethanethiol, 2-methylmercapto-, 2928*h*, 2935*f*.
Methane, bis(methylmercapto)-, 7409*d*.
Methanethiol, (ethylmercapto)-, 7409*h*.
1,2-Propanedithiol, 7420*b*.
**$C_3H_8S_3$** 1,2,3-Propanetrithiol, P 4516*a*, 7420*b*.
**$C_3H_9Al$** Aluminum, trimethyl-, 5242*c*.
**$C_3H_9AlBr_2O$**, 8810*h*.
**$C_3H_9B$** Borine, trimethyl-, 3422*c*, 5242*c*, P 6220*d*; *compd. with* $NH_3$, 5690*a*.
**$C_3H_9BO_3$** Methyl borate, 3686*d*, P 4684*f*.
**$C_3H_9B_3O_3$** 1,3,5,2,4,6-Trioxatriborinane, trimethyl-, 3302*f*, 5690*c*.
**$C_3H_9BrSi$** Silane, bromotrimethyl-, 562*cg*.
**$C_3H_9ClGe$** Trimethylgermanium chloride, P 2631*f*.
**$C_3H_9ClSi$** See *Silane, chlorotrimethyl*.
**$C_3H_9FSi$** Silane, fluorotrimethyl-, 565*e*, P 1051*d*.
**$C_3H_9IS$** Trimethylsulfonium iodide, 999*a*, 1001*a*, 1046*c*, 7420*d*.
**$C_3H_9KOSi$** Silanol, trimethyl-, K deriv., P 3657*i*.
**$C_3H_9N$** See *Isopropylamine; Propylamine; Trimethylamine*.
**$C_3H_9NO$** (See also *Propanol, amino-*)
Ethanol, 2-methylamino-, 572*i*, 1843*f*
Trimethylamine, oxide, 738*f*, 6016*c*, 7345*d*.
**$C_3H_9NO_2$** Propanediol, amino-, 573*a*, 1723*e*, P 8181*c*.
**$C_3H_9NO_3S$** Trimethylamine, compd with $SO_3$, 5241*b*.
**$C_3H_9NO_4S$** 1-Propanesulfonic acid, 2 amino-, 7412*a*
Trimethylamine, compd with $SO_3$, 5241*c*, *N*-oxide, compd. with $SO_3$, 2574*f*
**$C_3H_9N_3$** Guanidine, 1,3-dimethyl-, P 868*f*.
Guanidine, ethyl-, *sulfate*, 2948*h*.
*s*-Triazine, hexahydro-, 1316*d*.
**$C_3H_9N_3O$** Guanidine, (2 hydroxyethyl)-, P 868*f*.
**$C_3H_9N_3O_2S$** 1,2,4,6,4*H*-Thiatriazine, tetrahydro 4-methyl-, 1,1-dioxide, 2573*f*.
**$C_3H_9N_3S$** Thiocyanic acid, ethylenediamine salt, 578*g*.
**$C_3H_9N_5$** Biguanide, 1-methyl-, P 868*g*.
**$C_3H_9NaOSi$**, Silanol, trimethyl-, Na deriv., P 7500*c*.
**$C_3H_9O_3PS_2$** Methyl thiophosphate, 7859*b*
**$C_3H_9O_4P$** Methyl phosphate, 1867*f*.
2-Propanephosphonic acid, 2-hydroxy-, P 1794*b*.
**$C_3H_9O_6P$** 1,2 Propanediol, phosphate, 3112*f*.
**$C_3H_9O_6P$** See *Glycerophosphate*.
**$C_3H_{10}BN$** Borine, dimethyl(methylamino)-, 3302*g*.
**$C_3H_{10}BNaO_3$** Methyl borate, compd. with NaH, P 4684*f*.
**$C_3H_{10}N_2$** 1,3 Propanediamine, P 2633*e*, P 5412*b*.
**$C_3H_{10}N_2O_3$** Ethylenediamine, carbonate, 6158*a*.
**$C_3H_{10}Na_2O_2Si$** Silanol, trimethyl-, Na deriv., compd with NaOH, P 7500*c*.
**$C_3H_{10}OSn$** Trimethyltin hydroxide, 4632*e*.
**$C_3H_{11}BClN$** Borine, chlorodimethyl-, compd. with $MeNH_2$, 3302*g*
**$C_3H_{12}BN$** Borine, trimethyl, compd. with $NH_3$, 5690*a*.
Trimethylamine, compd. with borine, 7856*g*.
**$C_3H_{12}B_3N_3$** *s*-Triazatriborine, hexahydrotrimethyl-, 5690*a*, 7818*b*, 7856*g*.
**$C_3H_{12}B_3N_3O_3$** *s*-Triazatriborine, hexahydro-2,4,6-trihydroxy-1,3,5-trimethyl-, 5690*c*
**$C_3H_{12}N_6O_3$** Guanidine, carbonate, 1278*i*, P 1928*h*, P 5413*c*.
**$C_3H_{12}N_6O_3PtS_3$**, 1675*d*.
**$C_3H_{12}O_3Si_3$** Cyclotrisiloxane, 2,4,6 trimethyl-, 1315*f*.
**$C_3HgKN_3$** Potassium cyanomercurate(II), 517*g*.
**$C_3I_6N_6$** Melamine, hexaiodo-, P 7517*h*.
**$C_3K_7N_4NiO$**, 3303*g*.
**$C_3La_2N_6$** Lanthanum cyanamide, 4169*d*.
**$C_3Mg_2$** Magnesium carbide, 1671*a*.
**$C_3N_2O$** Carbonyl cyanide, 3682*e*.
**$C_3Na_4O_{11}U$** Sodium uranyl carbonate, P 6796*f*.
**$C_3U_2$** Uranium carbide, P 500*d*, 8270*c*.
**$C_3V_4$** See *Vanadium carbide*.
**$C_4Br_4S$** Thiophene, tetrabromo-, 3253*a*.
**$C_4CaN_4PdS_4$**, Calcium thiocyanatopalladate(II), P 6100*a*.
**$C_4Ca_5O_3$** Calcium carbide, compd. with CaO, 2081*g*.
**$C_4CdHgN_4S_4$** Cadmium thiocyanatomercurate(II), 5325*a*, 6482*h*, 7803*h*, 8764*i*.
**$C_4CdK_2O_8$** +2$H_2O$ Potassium oxalatocadmate, 4954*f*.
**$C_4Cl_2F_6$** Cyclobutane, dichlorohexafluoro-, P 4284*g*.
**$C_4Cl_2F_8S$** Sulfide, bis(2-chloro-1,1,2,2-tetrafluoroethyl), P 6646*c*.
**$C_4Cl_2F_8S_2$** Disulfide, bis (2-chloro-1,1,2,2-tetrafluoroethyl), P 6646*c*.
**$C_4Cl_2F_8S_3$** Trisulfide, bis(2-chloro-1,1,2,2-tetrafluoroethyl), P 6646*c*.
**$C_4Cl_2N_2O_4S$** Thiophene, 2,5-dichloro-3,4-dinitro-, 5775*f*.
**$C_4Cl_2O_3$** Maleic anhydride, dichloro-, P 3227*h*.
**$C_4Cl_4O$** Furan, tetrachloro-, P 3041*d*.
**$C_4Cl_4S$** Thiophene, tetrachloro-, 624*h*.
**$C_4Cl_6$** 1,3-Butadiene, hexachloro-, P 2218*b*, 4232*a*, 5361*i*.
**$C_4Cl_6Hg$** Mercury, bis(trichlorovinyl)-, 5004*d*.
**$C_4Cl_6O$** Furan, hexachloro-2,5-dihydro-, P 3041*d*.
**$C_4CoHgN_4S_4$** Cobalt thiocyanatomercurate(II), 5325*a*, 6482*h*, 7803*h*, 8764*i*.
**$C_4CoK_2O_8$** +6$H_2O$ Potassium oxalatocobaltate(II), 4954*e*.
**$C_4CoN_4Pt$** See *Cobalt cyanoplatinate*.
**$C_4CoO_4$** See *Cobalt carbonyl*.
**$C_4Cr$** Chromium carbide, 6111*b*.
**$C_4CuK_2O_8$** +2$H_2O$ Potassium oxalatocuprate(II), 4954*f*.
**$C_4F_6$** 1,3-Butadiene, hexafluoro-, 3345*f*.
2-Butyne, hexafluoro-, 2925*g*.
Cyclobutene, hexafluoro-, 3345*f*, 6071*c*, 7407*c*, 7418*f*.
**$C_4F_8$** Cyclobutane, octafluoro-, 3266*i*, P 8219*a*.
**$C_4F_{10}$** Butane, decafluoro-, 3266*i*, P 3834*h*.
**$C_4FeK_2O_4$**, 8809*g*.
**$C_4FeK_2O_8$** +2$H_2O$ Potassium oxalatoferrate(II), 4954*e*.
**$C_4FeN_4Pt$** See *Iron cyanoplatinate*.
**$C_4GeN_4O_4$** Germanium isocyanate, 6536*i*.
**$C_4HBrF_6$** Cyclobutane, 1-bromo-1,2,2,3,3,4-hexafluoro-, 7407*c*.
**$C_4HBr_2NO_2$** Maleimide, α,β-dibromo-, 7016*a*.
**$C_4HClF_6$** 2-Butene, 2-chloro-1,1,1,4,4,4-hexafluoro-, 2925*h*.
**$C_4HClO_3$** Maleic anhydride, chloro-, P 3227*h*.
**$C_4HCl_3F_4$** Cyclobutane, 1,1,4-trichloro-2,2,3,3-tetrafluoro-, 3370*f*.
**$C_4HCl_3O$** Furan, 2,3,5 trichloro-, P 3041*d*.
**$C_4HCl_3S$** Thiophene, trichloro-, 624*f*.
**$C_4HFeKO_4$**, 8809*g*.
**$C_4H_2BrClS$** Thiophene, 2-bromo-5-chloro-, 216*g*.
**$C_4H_2Br_2N_2$** Pyrazine, 2,6-dibromo-, 8394*b*.
**$C_4H_2Br_2O$** Furan, dibromo-, 4913*c*.
**$C_4H_2Br_4Cl_2$** Cyclobutane, tetrabromodichloro-, 6200*a*.
**$C_4H_2Cl_2F_4$** Cyclobutane, 1,1-dichloro-2,2,3,3-tetrafluoro, 3370*f*.
**$C_4H_2Cl_2N_2$** Pyrimidine, 2,5-dichloro-, P 8105
**$C_4H_2Cl_2N_2O_4$** Cyclobutene, 3,4-dichloro-1,2-dinitro (?), 6200*c*
**$C_4H_2Cl_2O$** Furan, 2,5-dichloro-, P 3041*d*.
**$C_4H_2Cl_2O_2$** Fumaryl chloride, P 4303*c*.
**$C_4H_2Cl_2O_4$** Maleic acid, dichloro-, 6981*g*.
**$C_4H_2Cl_2S$** Thiophene, dichloro-, 624*f*, 3253*c* 5775*f*.
**$C_4H_2Cl_4Hg$** Mercury, bis(1,2-dichlorovinyl) 5004*d*.
**$C_4H_2Cl_4OSe$** Selenoxide, bis(2,2-dichlorovinyl), 2159*i*.
**$C_4H_2Cl_4Se$** Selenide, bis(dichlorovinyl) 2159*gi*.
**$C_4H_2Cl_6$** Ethylene, trichloro-, dimer, 9025*b*.
**$C_4H_2Cl_6S$** Thiophene, 2,2,3,4,5,5-hexachlorotetrahydro-, 625*a*.
**$C_4H_2Cl_6Se$** Bis(1,2-dichlorovinyl)selenium dichloride, 2159*g*.
**$C_4H_2D_4O_4$** Succinic acid, tetradeutero deriv. 7985*a*.
**$C_4H_2F_6$** 2-Butene, 1,1,1,4,4,4-hexafluoro-2925*i*.
**$C_4H_2FeO_4$**, 8809*g*.
**$C_4H_2I_2S$** Thiophene, 2,5-diodo-, 1393*g*.
**$C_4H_2KO_6Sb$** See *Tartar emetic*.
**$C_4H_2K_2O_7V$** Potassium vanadyl tartrate 2830*i*.
**$C_4H_2N_2$** Fumaronitrile, P 7498*h*.
Maleonitrile, 2330*e*.
Malononitrile, methylene-, P 4897*c*, 6220*c*, P 9079*e*.
**$C_4H_2N_2O_4$** See *Alloxan*.
**$C_4H_2N_2O_4S$** Thiophene, 2,5-dinitro-, 4913*c*.
**$C_4H_2N_2O_5$** Furan, 2,5-dinitro-, 4913*b*.
**$C_4H_2N_4OS$** 5-Thiazolecarbonyl azide, 221*b*.
**$C_4H_2Na_2O_7V$** Sodium vanadyl tartrate, 2831*a*.
**$C_4H_2O_3$** See *Maleic anhydride*.
**$C_4H_2O_4$** Acetylenedicarboxylic acid, 2861*i* 9334*h*.
**$C_4H_2O_4$** Succinic acid, dioxo-, 726*f*, 2667*g*.
**$C_4H_2AsCl_3S$** Thiophene, 2-dichloroarsino-, 6102*f*.
**$C_4H_2AuNa_3O_4S$** See *Myochrysin*.
**$C_4H_2BrN_3$** Pyridazine, 3-bromo-, 177*b*.
**$C_4H_2BrN_3O$** Pyrazinol, 6-bromo-, 8394*e*.
**$C_4H_2BrN_3O_2$** Uracil, 5-bromo-, 6487*g*.
**$C_4H_2BrO$** Furan, bromo-, 4913*c*.
**$C_4H_2BrO_4$** Fumaric acid, bromo-, 9334*f*.
**$C_4H_2BrS$** Thiophene, 2-bromo-, 3253*a*.
**$C_4H_2ClF_3O$** Acrylyl chloride, α-(difluoromethyl)-, P 8398*i*.
**$C_4H_2ClF_4$** Cyclobutane, 3-chloro-1,1,2,2-tetrafluoro-, 3370*e*, P 4294*a*.
**$C_4H_2ClN_3$** Pyrazine, chloro-, P 5809*f*.
Pyridazine, 3-chloro-, *and - HCl*, 3007*e*.
Pyrimidine, 2-chloro-, P 8105*f*.
**$C_4H_2ClO$** Furan, 2-chloro-, P 3041*d*.

$C_4H_3ClO_2S_2$ 2-Thiophenesulfonyl chloride, 2164*a*.

$C_4H_3ClS$ Thiophene, chloro-, 624*e*, 1764*c*, 3253*a*.

$C_4H_3Cl_2Cu_2$, 3308*b*.

$C_4H_3Cl_2N_3$ Pyrimidine, 4-amino-2,6-dichloro-, 6487*g*.

$C_4H_3Cl_3O_2$ Crotonic acid, $\alpha,\beta,\gamma$-trichloro-, 6161*h*.

$C_4H_3Cl_5S$ Thiophene, 2,2,3,4,5-pentachlorotetrahydro-, 624*i*.

$C_4H_3Cl_5Se$ Selenide, 1,2-dichlorovinyl 1,2,2-trichloroethyl, 2159*f*.

$C_4H_3Cl_7Se$ (1,2-Dichlorovinyl)(1,2,2-trichloroethyl)selenium dichloride, 2159*g*.

$C_4H_3Cl_8Se$ (1,1,2,2-Tetrachloroethyl)(1,2,2-trichloroethyl)selenium dichloride, 2159*h*.

$C_4H_3F_3N$ Acrylonitrile, $\alpha$-(difluoromethyl)-, P 6465*f*, P 8398*i*.

$C_4H_3IO$ Furan, 2-iodo-, 4913*c*.

$C_4H_3IS$ Thiophene, 2-iodo-, 1393*g*, 3253*a*.

$C_4H_3K_4MoN_3O_4 + H_2O$, 3303*i*.

$C_4H_3MnO_4$ Manganese carbonyl, 6533*c*.

$C_4H_3NO_2$ Maleimide, 579*d*, 4232*b*, 7016*a*, 7591*c*.

$C_4H_3NO_2S$ Thiazolecarboxylic acid, 221*b*, 5021*e*.
Thiophene, 2 nitro-, 3253*a*, 4913*b*.

$C_4H_3NO_3S_2$ 2,5-Thiazolidinedione, 4-(hydroxymethylene)-2-thio-, 1402*c*.

$C_4H_3NO_3$ Furan, 2-nitro-, 4913*b*.

$C_4H_3N_3O_4$ Imidazolecarboxylic acid, nitro-, 2616*h*.
2,4,6-Pyrimidinetriol, 5-nitroso-, 8395*h*.
Uracil, 5-nitro-, 5307*c*.
Violuric acid, 7938*c*.

$C_4H_3N_3O_5$ Diluturic acid, 2082*f*.

$C_4H_3N_3O$ 1*H* - Triazolo[*d*]pyrimidin - 7 - ol, 9148*i*.

$C_4H_3N_3O_2$ 1*H*-*v*-Triazolo[*d*]pyrimidine-5,7-diol, 1425*a*.

$C_4H_4$ (See also *1-Buten-3-yne*.)
1,3 Cyclobutadiene, 3796*c*, 4059*i*.

$C_4H_4AsCl_3$ Arsine, chlorobis(2-chlorovinyl)-, 6111*e*.

$C_4H_4BrCl_5$ Butane, 3-bromo 1,1,1,3,4-pentachloro , 9024*d*

$C_4H_4BrN$ Acrylonitrile, $\alpha$-(bromomethyl)-, P 7498*g*.

$C_4H_4BrNO_2$ See *Succinimide, bromo-*.

$C_4H_4BrNS$ Isothiocyanic acid, 2-bromoallyl ester, 1016*a*.
Thiocyanic acid, 2 bromoallyl ester, 1016*a*.

$C_4H_4BrNSe$ Selenocyanic acid, 2-bromoallyl ester, 2160*a*.

$C_4H_4Br_2$ 2-Butyne, 1,4 dibromo-, 2578*d*.

$C_4H_4Br_2Cl_2$ 2-Butene, 2,3-dibromo-1,4-dichloro-, 2578*d*.
Cyclobutane, 1,2-dibromo-3,4-dichloro-, 6200*a*.

$C_4H_4Br_2O_2$ Crotonic acid, $\alpha,\beta$-dibromo-, 1220*d*.

$C_4H_4Br_4$ 2-Butene, 1,2,3,4-tetrabromo-, 2578*d*.
Cyclobutane, 1,2,3,4 - tetrabromo-, 6200*d*.

$C_4H_4CaO_5$ See *Calcium tartrate*.

$C_4H_4ClCuO_4$ Fumaric acid, compd. with CuCl, 1678*a*, 8940*h*.
Maleic acid, compd. with CuCl, 1678*a*, 8940*g*.

$C_4H_4ClN$ Acrylonitrile, $\alpha$-(chloromethyl)-, P 7498*g*.
Acrylonitrile, $\beta$-chloro-$\alpha$-methyl-, P 3027*e*, P 3837*b*.
Crotononitrile, $\gamma$-chloro-, P 7498*h*.

$C_4H_4ClNO_2$ Succinimide, *N*-chloro-, 1573*b*

$C_4H_4ClNS$ Thiocyanic acid, 3-chloroallyl ester, 2928*e*.

$C_4H_4ClN_3$ Pyrimidine, aminochloro-, 5307*c*, P 9082*f*.

$C_4H_4Cl_2$ 1,3-Butadiene, 2,3-dichloro-, 591*b*, P 7035*g*.
2-Butyne, 1,4-dichloro-, 2578*d*, 4911*f*, 7413*b*.
Cyclobutene, 3,4-dichloro-, 6199*f*.

$C_4H_4Cl_2Hg$ Mercury, bis(2-chlorovinyl)-, , 1716*i*, P 5790*a*.
Pyrazine, 2,5-dichloro-3,6-dihy- , 3790*a*.
Crotonic acid, $\beta,\gamma$-dichloro-, 6161*f*.
1,3-Dioxolane, 2-(dichloromethylene)-, 1404*f*.
Formic acid, chloro-, 3-chloroallyl ester, 2928*d*.
Succinyl chloride, P 2786*a*.

$C_4H_4Cl_2O_3$ Acetic acid, chloro-, anhydride, 565*e*, 2110*f*.

$C_4H_4Cl_2O_4PbS$ Bis(2-chlorovinyl)lead sulfate, 1717*c*.

$C_4H_4Cl_2Se$ Selenide, bis(2-chlorovinyl), 2160*a*.

$C_4H_4Cl_2Tl$ Bis(2-chlorovinyl)thallium chloride, 560*f*.

$C_4H_4Cl_4$ Ethylene, 1,2-dichloro-, dimer, 9024*i*.

$C_4H_4Cl_4Hg$ [2,3-Dichloro-1-(chloromethyl)-propenyl]mercury chloride, 7413*b*.

$C_4H_4Cl_4Pb$ Bis(2-chlorovinyl)lead dichloride, 560*f*, 1717*a*.

$C_4H_4Cl_4S$ Thiophene, 2,3,4,5-tetrachlorotetrahydro-, 624*f*.

$C_4H_4Cl_4Se$ Bis(2-chlorovinyl)selenium dichloride, 2160*a*.

$C_4H_4Cl_4Sn$ Bis(2-chlorovinyl)tin dichloride, 560*f*, 1717*c*.

$C_4H_4Cl_4Tl$ Bis(2-chlorovinyl)thallium dichloride, 560*f*.

$C_4H_4Cl_6$ Butane, 1,1,2,3,4,4-hexachloro-(?), 6200*b*.

$C_4H_4Cl_6Se$ Selenide, bis(1,2,2-trichloroethyl), 2159*f*.

$C_4H_4Cl_6Se$ Bis(1,2,2-trichloroethyl)selenium dichloride, 2159*f*.

$C_4H_4CuO_6 + 3H_2O$ Copper tartrate, 7287*h*

$C_4H_4F_2O_2$ Acrylic acid, $\alpha$-(difluoromethyl)-, P 8398*i*.

$C_4H_4F_2O_2$ Acetic acid, fluoro-, anhydride, 2933*e*.

$C_4H_4F_3NO$ Acrylamide, $\alpha$-(trifluoromethyl)-, P 8398*i*.

$C_4H_4F_4$ Cyclobutane, 1,1,2,2-tetrafluoro-, 3370*c*.

$C_4H_4F_6$ Butane, 1,1,1,4,4,4-hexafluoro-, 2925*h*.

$C_4H_4INO_2$ Succinimide, *N*-iodo-, P 7517*g*.

$C_4H_4I_2$ 2-Butyne, 1,4-diiodo-, 2578*e*.

$C_4H_4KNaO_6$ See *Potassium sodium tartrate*.

$C_4H_4KO_7Sb$ See *Tartar emetic*.

$C_4H_4N_2$ (See also *Pyrazine; Pyrimidine; Succinonitrile*.)
Pyridazine, 5013*f*.

$C_4H_4N_2O$ Acrylamide, $\alpha$-cyano , P 4897*d*.
2-Pyrazinol, 3009*e*
3-Pyridazinol, 177*a*.
3(2*H*) Pyridazone, 3007*d*.

$C_4H_4N_2OS$ See *Uracil, 2-thio-*.

$C_4H_4N_2O_2$ (See also *Uracil*.)
Imidazolecarboxylic acid, 3410*g*, 3411*d*.
3,6-Pyridazinedione, 1,2-dihydro-, 579*d*, 6776*a*.
4,6-Pyrimidinediol, 5307*c*.

$C_4H_4N_2O_2S$ Barbituric acid, thio-, 1483*d*, 3909*b*, 4186*b*, 7420*h*, 8199*f*.

$C_4H_4N_2O_3$ (See also *Barbituric acid*.)
Isobarbituric acid, 5307*c*

$C_4H_4N_2O_4$ Dialuric acid, 4306*d*, 7835*c*.
Pyrimidinetetrol, 8396*a*.

$C_4H_4N_2O_5$ Alloxanic acid, 7835*d*.

$C_4H_4N_2S_2$ 2,4-Pyrimidinedithiol, 8394*g*.

$C_4H_4N_2S_3$ Barbituric acid, 2,4,6-trithio-, 8300*h*.

$C_4H_4N_4$ *v*-Triazoleacetonitrile, 6620*i*.

$C_4H_4N_4O_2$ Pyrimidinediol, amino-5-nitroso-, 8395*hi*.

$C_4H_4N_4O_4$ Alloxan, 5,6-dioxime, 8396*a*.

$C_4H_4N_4$ 1*H*-*v* Triazolo[*d*]pyrimidine, 7-amino-, 1425*a*.

$C_4H_4N_4O$ 1*H* - Triazolo[*d*]pyrimidin - 7 - ol, amino-, 9148*h*, 9251*e*; - *HCl*, 1424*i*, 1425*a*.

$C_4H_4N_4OS$ Canariuic acid, 971*a*.

$C_4H_4Na_2O_2$ 2-Butyne-1,4-diol, di-Na deriv., 2578*d*.

$C_4H_4Na_2O_6$ See *Sodium tartrate*.

$C_4H_4O$ See *Furan*.

$C_4H_4O_2$ 3 Butenoic acid, 3 hydroxy-, $\beta$-lacton, 1320*g*.
3-Butynoic acid, 7415*d*.
*p*-Dioxin, 3827*e*.
Fumaraldehyde, 4219*g*.
Ketene, dimer, 1247*c*, 1320*d*, P 2634*d*, 4220*g*, P 4289*b*, P 8398*e*.
Malealdehyde, P 1808*i*.
Propiolic acid, Me ester, 9334*h*.

$C_4H_4O_2S$ 3,4-Thiophenediol, P 2237*a*.
Thiophene, 1,1-dioxide, P 4514*b*.

$C_4H_4O_3$ (See also *Succinic anhydride*.)
Malealdehydic acid, 1271*e*.

$C_4H_4O_4$ See *Fumaric acid; Maleic acid*.

$C_4H_4O_4S$ Furansulfonic acid, *and salts*, 214*f*.

$C_4H_4O_5$ See *Oxalacetic acid*.

$C_4H_4O_6$ Maleic acid, dihydroxy-, 726*b*, 2667*f*.

$C_4H_4S$ See *Thiophene*.

$C_4H_4S_2$ 2-Thiophenethiol, P 1066*f*.

$C_4H_4S_3$ Succinic anhydride, trithio-, P 1066*f*.

$C_4H_5Br$ Cyclobutene, 3-bromo-, 587*a*.

$C_4H_5BrMgO$ Ethoxyethynylmagnesium bromide, 2570*h*.

$C_4H_5BrN_2O_2$ Hydantoin, 5-(bromomethyl)-, 7903*f*.

$C_4H_5BrN_2S$ Thiazole, 2-amino-5-bromo-4-methyl-, 632*c*.

$C_4H_5BrN_4$ Pyrimidine, 4,6-diamino 5-bromo-, 6487*g*

$C_4H_5BrN_4O$ 4-Pyrimidol, 2,6-diamino 5-bromo-, 6487*g*.

$C_4H_5BrO_2$ Acrylic acid, $\alpha$-bromo-, Me ester, P 3027*c*.
Crotonic acid, $\alpha$-bromo-, 4224*g*.
1,3-Dioxolane, 2-(bromomethylene)-, 1404*f*.

$(C_4H_5BrO_2)_n$ 1,3-Dioxolane, 2-(bromomethylene)-, polymer, 1404*f*.

$C_4H_5Cl$ (See also *Chloroprene*.)
1,2-Butadiene, 4 chloro-, 7898*i*.

$C_4H_5ClN_2O_2$ Hydantoin, 5 (chloromethyl)-, 7903*f*.

$C_4H_5ClN_2S$ Thiazole, 2-amino-4-(chloromethyl)-, 7931*b*.

$C_4H_5ClN_4$ Pyrimidine, 4,5-diamino-2 chloro-, 2625*a*.

$C_4H_5ClO_2$ Acetic acid, chloro , vinyl ester, 1719*f*, 7749*b*.
Acetoacetyl chloride, 4633*d*.
Acrylic acid, $\alpha$-chloro-, Me ester, P 3027*c*, 3370*f*, P 7502*d*, 9334*g*.
Crotonic acid, $\alpha$-chloro-, P 4288*d*, 6082*i*
1,3-Dioxolane, 2-(chloromethylene)-, 1404*e*.
Formic acid, chloro-, allyl ester, P 5230*g*.

$(C_4H_5ClO_2)_n$ 1,3-Dioxolane, 2-(chloromethylene)-, polymer, 1404*e*.

$C_4H_5ClO_3$ Glyoxylic acid, chloro-, Et ester, 8380*b*.

$C_4H_5ClO_3S$ Thiophene-3-ol, 4-chloro-2,3-dihydro-, 1,1-dioxide, P 3466*c*.

$C_4H_5Cl_2N$ Isobutyronitrile, $\alpha,\beta$-dichloro-, P 3027*e*, P 3837*b*.

$C_4H_5Cl_2NO_2$ Diacetamide, $\alpha,\alpha'$-dichloro-, 4221*c*.

$C_4H_5Cl_3$ 1-Butene, 4,4,4-trichloro-, 3775*g*, 9024*d*.
Propene, 1,1,3 - trichloro - 2 - methyl-, 4214*d*.

$C_4H_5Cl_3O$ Butyraldehyde, trichloro-, 2575*g*.

$C_4H_5Cl_3O_2$ Acetic acid, trichloro-, Et ester, P 1656*d*, P 7954*d*.
1,3 - Dioxolane, 2 (trichloromethyl)-, 1404*c*.

$C_4H_5Cl_3Se$ Selenide, (2-chlorovinyl) (2,2-dichloroethyl), 2160*a*.

$C_4H_5Cl_5O$ Ether, 2-chloroethyl 1,2,2,2-tetrachloroethyl, P 7188*c*, P 7634*i*.

$C_4H_5F$ See *Fluoroprene*.

$C_4H_5F_3NO$ Acrylamide, $\alpha$-(difluoromethyl)-, P 6465*g*, P 8398*i*.

$C_4H_5F_3O_2$ Butyric acid, $\gamma,\gamma,\gamma$-trifluoro-, 558*b*.

$C_4H_5KO_6$ See *Potassium tartrate*.

$C_4H_5N$ (See also *Methacrylonitrile; Pyrrole*.)
3-Butenenitrile, 2592*b*, 3370*h*, P 4294*d*, P 4685*e*, 9024*d*.
Crotononitrile, P 7498*h*.

$C_4H_5NOS_2$ Rhodanine, 3-methyl-, P 9356*f*.

$C_4H_5NO_2$ (See also *Succinimide*.)
Acetic acid, cyano-, Me ester, 3356*g*.
Glycolonitrile, acetate, P 2631*i*.
Lactonitrile, formate, P 3027*g*.
Maleamic acid, P 3842*i*.
Propionic acid, $\beta$ cyano-, P 1056*e*.

$C_4H_5NO_2S$ Formic acid, isothiocyano-, Et ester, 1402*d*.
Propionic acid, $\beta$-thiocyano-, P 1056*e*.
2,4-Thiazolidinedione, 3-methyl-, P 9356*f*.

$C_4H_5NO_2S_2$ 4-Thiazolidinecarboxylic acid, 2-thioxo-, 1402*c*.

$C_4H_5NO_3$ Maleamic acid, 579*c*, P 7039*i*.

$C_4H_5NO_3S$ 2-Pyrrolesulfonic acid, *and salts*, 7015*i*, 7016*a*.

$C_4H_5NO_5$ Oxalacetic acid, oxime, 1082*d*, 2276*d*.

$C_4H_5NS$ Isothiocyanic acid, allyl ester, 548*a*, 1861*b*, 2728*e*, P 3843*f*, 3885*i*, 3888*h*, 3964*a*, 4184*g*, 6176*i*, 6900*a*, 9170*c*, 9171*ce*, 9273*i*.
Thiazine, 9171*eg*.
Thiazole, methyl-, 5777*a*, 6180*i*.

$C_4H_5NS_2$ 2-Thiazolethiol, 4-methyl-, P 1798*f*, 9242*b*.

$C_4H_5NSe$ Selenocyanic acid, allyl ester, 2160*a*.

$C_4H_5N_3$ Pyridazine, 3-amino-, 176*g*, 3007*e*.
Pyrimidine, 2-amino-, 5307*c*; - *HCl*, P 1814*a*.

$C_4H_5N_3O$ (See also *Cytosine*.)
Isocytosine, 5307*c*, P 9082*f*.

$C_4H_5N_3OS$ 5-Thiazolecarboxylic acid, hydrazide, 221*b*.
Uracil, 6-amino-2-thio-, 6298*e*, 9242*a*.

$C_4H_5N_3OS_2$ 4-Thiazoline-4-carboxamide, 5-amino-2-thioxo-, P 6609*i*.

$C_4H_5N_3O_2$ Uracil, 5-amino-, 5307*c*.

$C_4H_5N_3O_3$ 2,4,6-Pyrimidinetriol, 5-amino-, 8395*i*.
Uramil, 7305*b*.

**$C_4H_5N_3S$** 2-Pyrimidinethiol, 4-amino-, 4228*h*, 8395*c*.
**$C_4H_5N_3S_2$** 2-Thiazolecarboxamide, 5-amino-thio-, 221*b*.
**$C_4H_5N_3OS$** 2-Pyrimidinethiol, 4,6-diamino-5-nitroso-, 580*a*.
**$C_4H_5N_3O_2$** Pyrimidol, diamino-5-nitroso, 8395*h*.
**$C_4H_5N_3O_3$** 2(1*H*)-Pyrimidone, tetrahydro-5-hydroxy-1,3-dinitro-, nitrate, 9065*i*.
**$C_4H_5N_7$** 1*H*-Triazolo[*d*]pyrimidine, 5,7-diamino-, 9148*h*, 9251*e*; *sulfate*, 1424*h*.
**$C_4H_6$** (See also *Butadiene; Butyne.*)
Cyclobutene, 587*a*, 1111*e*.
**$C_4H_6AlClO_4$** Aluminum acetate chloride, 2931*a*.
**$C_4H_6BaO_4$** See *Barium acetate.*
**$C_4H_6BrCl$** Butene, bromochloro-, P 2218*d*e.
**$C_4H_6BrClOS$** Acetic acid, chlorothiol-, 2 bromoethyl ester, 2935*f*.
**$C_4H_6BrClO_2$** 2-Butene-1,4-diol, 2-bromo-3-chloro-, 7413*a*.
**$C_4H_6BrFO_2$** Acetic acid, bromo-, 2-fluoroethyl ester, 6164*e*.
**$C_4H_6Br_2$** Butene, dibromo, 2578*g*, 6152*f*.
Cyclobutane, 1,2-dibromo-, 587*a*.
**$C_4H_6Br_2Cl_2$** Butane, 1,3-dibromo-1,1-dichloro-, 3345*d*.
**$C_4H_6Br_2O$** Butane, 1,2-dibromo-3,4 epoxy-, 7424*e*.
Butyraldehyde, $\alpha,\alpha$-dibromo, 2575*i*
**$C_4H_6Br_2O_2$** 2-Butene-1,4-diol, 2,3-dibromo-, 2578*c*, 4911*f*.
Butyric acid, $\alpha,\beta$ dibromo-, 6082*h*, 6169*e*.
1,2 - Cyclobutanediol, 3,4 - dibromo, 6200*d*.
1,3 - Dioxolane, 2 (dibromomethyl), 1404*c*
**$C_4H_6Br_2O_2S$** Thiophene, 3,4 dibromotetrahydro, 1,1-dioxide, 558*i*.
**$C_4H_6Br_4$** Butane, tetrabromo-, 2578*g*, 6152*h*
**$C_4H_6CaO_4$** See *Calcium acetate.*
**$C_4H_6CdO_4$** Cadmium acetate, 6495*i*.
**$C_4H_6ClCuO_2$** 3 Butenoic acid, CuCl complex, 8940*h*.
Crotonic acid, CuCl complex, 8940*h*
**$C_4H_6ClFO_2$** Acetic acid, chlorofluoro, Et ester, 8352*i*
Acetic acid, chloro-, 2-fluoroethyl ester, 6164*d*.
—, fluoro-, 2 chloroethyl ester, 8841*a*.
**$C_4H_6ClIO_2$** 2-Butene-1,4 diol, 2-chloro 3 iodo-, 7413*a*.
**$C_4H_6ClN$** Butyronitrile, $\gamma$ chloro-, 1007*d*.
Isobutyronitrile, $\alpha$ chloro, P 1285*c*.
**$C_4H_6ClNO_2$** Diacetamide, $\alpha$-chloro, 4220*i*
Propene 3 chloro 2-nitromethyl-, P 6646*h*.
**$C_4H_6ClNO_3$** Glycine, *N* chloroacetyl, 258*e*
**$C_4H_6ClNO_4$** Propionic acid, $\alpha$ chloro $\beta$ nitro, Me ester, 1716*c*.
**$C_4H_6ClNO_5S$** 1,3 Propanediol, 2-(chloro methyl)-2-nitro, cyclic sulfite, 2935*i*
**$C_4H_6ClNSe$** Selenocyanic acid, 3 chloropropyl ester, 2160*a*
**$C_4H_6ClN_3$** 1,2,4,1*H* Triazole, 5-chloro-3 ethyl-, 7019*c*.
**$C_4H_6ClN_5$** *s*-Triazine, 2 amino-4-chloro-6-methylamino, 1426*b*
**$C_4H_6Cl_2$** (See also *Butene, dichloro-*)
Propene, 1,3-dichloro 2-methyl-, 4214*d*.
**$C_4H_6Cl_2HgO_2$** 2-Butene-1,4-diol, 2-chloro-3 (chloromercuri)-, 7412*f*
**$C_4H_6Cl_2O$** Furan, 3,4 dichlorotetrahydro-, P 5425*a*.
**$C_4H_6Cl_2OS$** Acetic acid, chlorothiol-, 2-chloro ethyl ester, 2935*f*
**$C_4H_6Cl_2O_2$** Acetic acid, chloro-, 2-chloroethyl ester, 1404*c*.
1,3 - Dioxolane, 2 - (dichloromethyl), 1404*c*.
Propionic acid, $\alpha,\beta$-dichloro, Me ester, P 7502*d*
**$C_4H_6Cl_2O_2S$** Thiophene, 3,4 dichlorotetrahydro-, 1,1-dioxide, 5775*f*.
**$C_4H_6Cl_2O_3$** Acetic acid, dichloro, 2 hydroxyethyl ester, 1404*f*
**$C_4H_6Cl_2Si$** Silane, dichlorodivinyl, 2017*i*, 2018, P 6220*f*.
**$C_4H_6Cl_3NO$** Acetamide, $\alpha,\alpha$-dichloro *N*-(2-chloroethyl)-, 7423*h*.
**$C_4H_6Cl_3NO_2$** Propene, 1,3 dichloro 2 (chloro methyl) 2-nitro-, 2935*i*.
**$C_4H_6Cl_4N_2$** Piperazine, 2,3,5,6 tetrachloro, 3790*b*.
**$C_4H_6Cl_4O$** Ether, ethyl 1,2,2,2 tetrachloro ethyl, 1404*a*.
**$C_4H_6Cl_4OSe$** Selenoxide, bis(2,2-dichloro ethyl), 2159*h*.
**$C_4H_6Cl_4O_2$** Butyric acid, $\alpha,\beta,\beta,\gamma$-tetra chloro-, 6161*g*.
**$C_4H_6Cl_4Se$** Selenide, bis(2,2 dichloroethyl), 2159*i*.
**$C_4H_6Cl_8Se$** Bis(2,2 dichloroethyl)selenium di chloride, 2159*h*
**$C_4H_6CoO_4$** See *Cobalt acetate.*
**$C_4H_6CrO_4$** Chromium acetate, 2110*g*
**$C_4H_6CuO_4$** See *Copper acetate.*
**$C_4H_6FIO_2$** Acetic acid, iodo-, 2-fluoroethyl ester, 6164*d*.
**$C_4H_6FN$** Butyronitrile, $\gamma$ fluoro, 8841*b*.
**$C_4H_6F_2$** 1-Butene, 3,3 difluoro-, 1599*a*, 2218*f*
**$C_4H_6F_2O$** Propane, 1,2 epoxy-1,1-difluoro-2-methyl-, P 6746.
**$C_4H_6F_2O_2$** Acetic acid, fluoro, 2-fluoroethyl ester, 6164*d*, 8841*a*.
**$C_4H_6HgN_2O_2$** 1,3-Dioxa-5,6-diaza-2 mercurepane, 4,7-dimethyl-, 5368*i*
**$C_4H_6HgO_4$** See *Mercury acetate.*
**$C_4H_6Hg_2$** Mercury, ethynylenebis[methyl, 2611*f*.
**$C_4H_6I_2O_2$** 2-Butene-1,4-diol, 2,3 duodo-, 2578*i*, 7413*c*.
Isobutyric acid, $\beta,\beta'$-diiodo-, 2580*i*
**$C_4H_6MgO_4$** See *Magnesium acetate.*
**$C_4H_6MnO_4$** See *Manganese acetate.*
**$C_4H_6N_2$** Imidazole, methyl-, 2616*h*, 3440*f*.
**$C_4H_6N_2Na_2O_4$** Glyoxime, dimethyl-, Na deriv., 3741*a*.
**$C_4H_6N_2O$** (See also *5 Pyrazolone, 3-methyl-*)
Acetimidic acid, cyano, Me ester, - *HCl*, 3359*i*.
2-Butanone, 3-diazo-, 4653*g*.
Furazan, 3,4-dimethyl, 8767*h*
Imidazolemethanol, 8382*a*, *and* - *HCl*, 3410*f*.
2(3*H*) Imidazolone, 4-methyl-, P 5808*b*.
Oxadiazole, dimethyl, 8767*h*
**$C_4H_6N_2OS$** Hydantoin, methyl-2-thio, 634*h*, 3408*h*.
Hydrouracil, 2 thio-, 9241*i*.
**$C_4H_6N_2O_2$** (See also *Piperazinedione*)
Acetic acid, diazo-, Et ester, 207*d*, 6203*e*.
Diimide, diacetyl-, 5369*a*.
Hydantoin, methyl-, 3786*e*, 6308*e*.
Hydrouracil 5118*d*.
Malonamide, $\alpha$-methylene-, P 4897*d*.
**$C_4H_6N_2O_2S$** Alanine, $\beta$-thiocyano-, *and Cu salt*, 1014*f*.
Carbamic acid, 2-thiocyanoethyl ester, 2945*f*.
Hydantoin, 5 (mercaptomethyl)-, 1015*b*
1,3,5,2*H* - Thiadiazine - 2,4(3*H*) - dione, 5,6-dihydro-6-methyl-, 2945*b*
**$C_4H_6N_2O_3S$** 1,2,4,2*H*-Thiadiazine 3,5(4*H*,6*H*)-dione, 2-methyl-, 1,1-dioxide, P 4868*d*.
**$C_4H_6N_2S$** 2 Imidazolethiol, methyl-, 6208*e*, 8056*c*.
2(1*H*) Pyrimidinethione, 3,4 dihydro, 9242*a*
Thiazole, 2 amino-4-methyl, 8434*h*.
**$C_4H_6N_2S_2$** Hydantoin, 5 methyldithio-, 7586*a*
**$C_4H_6N_4$** Pyrazine, 2,6-diamino, 8394*e*.
Pyrimidine, 4,5-diamino-, *and nitrate*, 2625*a*
**$C_4H_6N_4O$** Imidazolecarboxamide, amino, 4836*h*.
Imidazolecarboxylic acid, hydrazide, 8381*g*
Pyrimidol, diamino-, 5307*e*, - *HCl*, 1425*b*; *salts*, 580*e*
**$C_4H_6N_4O_2$** Pyrimidinediol, diamino, 3126*d*, 8396*ab*, *sulfate*, 1425*b*
**$C_4H_6N_4O_3$** See *Allantoin*
**$C_4H_6N_4O_4$** 2 Imidazolidone, 4-methyl-1,3 dinitro, 9065*g*.
2(1*H*) Pyrimidone, tetrahydro-1,3-dinitro, 2203*f*.
**$C_4H_6N_4S$** 2 Pyrimidinethiol, 4,6 diamino-, 579*i*, 5307*e*
**$C_4H_6N_6O$** Pyrimidine, 2,4,6 triamino-5-nitroso, 8396*a*
**$C_4H_6N_6S_2$** 1*H* Tetrazole, 5,5'-dithiobis[1-methyl-, P 4593*i*, P 5320*e*.
**$C_4H_6NiO_4$** Nickel acetate, 1943*h*, 2110*g*, P 8742*d*
**$C_4H_6O$** (See also *Butenone; Crotonaldehyde; Vinyl ether.*)
1 Butene, 3,4-epoxy-, P 1979*d*, 6574*d*, 7420*e*
3-Butynol, P 1793*g*, 7415*d*.
Ether, methyl propynyl, 7416*a*.
Furan, dihydro-, 214*d*, 2578*h*, 3816*c*, P 5425*a*.
Methacrylaldehyde, P 2222*g*, 3870*h*, P 4294*d*, 4401*h*, 6169*h*.
**$C_4H_6OS$** 3(2*H*)-Thiophenone, dihydro-, P 3041*g*.
**$C_4H_6OS_2$** Carbonic acid, trithio-, cyclic 3-hydroxypropylene ester, 7419*d*.
**$C_4H_6O_2$** (See also *2,3-Butanedione; 2-Butyne-1,4-diol; Butyrolactone; Crotonic acid; Methacrylic acid.*)
Acetic acid, vinyl ester, 438*c*, P 906*a*, P 907*d*, P 1217*e*, P 1220*c*, P 1611*d*, 2019*h*, 2042*e*, 2407*a*, 3345*b*, 3354*h*, 3370*h*, P 3651*a*, 3696*g*, P 3838*g*, P 3839*b*, P 4294*d*, P 4807*c*, P 5230*c*, 5271*e*, 5378*f*, 5606*i*, P 5642*c*, 5740*g*, 6460*g*, 6495*f*, P 6649*i*, P 7036*i*, 7296*c*, 8255*b*, 8352*h*, 8735*b*, 8736*i*, 9024*c*, P 9537*e*.
Acrylic acid, Me ester, 575*h*, P 907*c*, P 1055*d*, 1266*a*, 1716*c*, P 2035*a*, P 2630*g*, P 3442*f*, P 4288*e*, P 4685*e*, 4887*h*, P 4807*d*, P 5230*c*, P 5417*a*, P 5978*b*, P 6651*a*, 8736*i*.
Butane, 1,2,3,4-diepoxy-, P 1996*c*, 2578*f*.
3-Butenoic acid, 2591*e*.
3-Buten-2-one, 1-hydroxy-, 6624*e*.
Butyraldehyde, $\alpha$-oxo-, 3791*e*.
Butyric acid, $\beta$-hydroxy-, $\beta$-lactone, P 1055*h*, P 1056*ac*, P 5414*i*, P 5795*a*.
Crotonaldehyde, $\gamma$-hydroxy-, 5774*h*.
Cyclopropanecarboxylic acid, 2955*e*.
1,3-Dioxolane, 2-methylene-, 1403*i*.
Formic acid, allyl ester, P 8742*d*.
3(2*H*)-Furanone, 4,5-dihydro-, P 5424*h*
**$(C_4H_6O_2)_n$** 1,3 Dioxolane, 2-methylene-, polymer, 1404*e*.
**$C_4H_6O_2S$** Acetic acid, thiol-, anhydride, 2110*f*.
Thiophene, 2,5 dihydro-, 1,1-dioxide, 558*h*, P 1065*f*, 2986*g*.
Vinyl sulfone, 7590*c*, P 7952*g*.
**$C_4H_6O_2S_2$** Formic acid, thiobis[thiono-, di-Me ester, 141*a*.
**$C_4H_6O_2S_4$** Formic acid, dithiobis[thiono-, di-Me ester, 6983*h*.
**$C_4H_6O_2Se$** Acetic acid, seleno-, anhydride, 2110*f*.
**$C_4H_6O_3$** (See also *Acetic anhydride; Acetoacetic acid.*)
Acetic acid, 1 hydroxyethoxy-, $\gamma$-lactone, P 6239*a*.
Butyric acid, $\alpha$-oxo-, 5342*h*.
Pyruvic acid, Me ester, 567*b*.
Succinaldehydic acid, 7933*e*.
**$C_4H_6O_4$** (See also *Acetyl peroxide, Succinic acid.*)
Ethylene glycol, diformate, P 7503*a*.
Glycolic acid, acetate, P 676*h*, P 6224*i*
*Ca salt*, 310*f*.
Lactic acid, formate, P 676*h*
Oxalic acid, di Me ester, 376*h*, 1045*i*, 6105*e*
**$C_4H_6O_4Pb$** See *Lead acetate.*
**$C_4H_6O_4S$** Acetic acid, thiodi, 1867*f*
Succinic acid, mercapto, 2328*g*, 3111*h*, P 3633*c*, *Na salt*, 1486*e*
**$C_4H_6O_4S_2$** Acetic acid, dithiodi, 1867*i*, 8199*f*.
**$C_4H_6O_4Sr$** See *Strontium acetate.*
**$C_4H_6O_4Zn$** See *Zinc acetate.*
**$C_4H_6O_5$** (See also *Malic acid.*)
Diglycolic acid, P 843*d*, 6103*f*, 9032*d*
Succinic monoperoxyacid, 1381*a*.
Tartronic acid, methyl-, 7542*b*
**$C_4H_6O_5S$** Acetic acid, sulfinyldi-, 9032*g*
**$C_4H_6O_6$** See *Tartaric acid.*
**$C_4H_6O_6S$** Acetic acid, anhydride with $H_2SO_4$, 8936*a*.
**$C_4H_6O_6U$** See *Uranyl acetate.*
**$C_4H_6O_7S$** Succinic acid, sulfo, 7245*c*
**$C_4H_6S$** 1,3-Butadiene, sulfide, 7420*e*
**$C_4H_6S_3$** Carbonic acid, trithio-, cyclic propyl ene ester, 7419*b*
**$C_4H_7AlO_5$** Aluminum acetate, 5533*d*, 7192*f*.
**$C_4H_7Br$** Cyclobutane, bromo-, 3796*b*.
**$C_4H_7BrClNO_4S$** 1-Butanesulfonyl chloride, 2 bromo-2-nitro-, P 5411*i*.
**$C_4H_7BrCl_2$** Butane, 3-bromo-1,1 dichloro-, 3345*c*.
**$C_4H_7BrN_2$** 2-Imidazoline, 2-(bromomethyl) - *HBr*, P 5048*f*.
**$C_4H_7BrN_2O$** Oxazolidine, 5-(bromomethyl) 2-imino-, P 3196*i*.
**$C_4H_7BrN_2O_3$** Carbamic acid, (2-bromoethyl) nitroso-, Me ester, 2945*i*.
**$C_4H_7BrO$** Furan, 3-bromotetrahydro-, 3818*d*
**$C_4H_7BrO_2$** Acetic acid, bromo-, Et ester, 562*g*, 613*a*, 1431*b*, 2973*c*, 3488*d*, 3964*a*, 8177*e*.
1,3-Dioxolane, 2-(bromomethyl)-, 1404*c*.
Isobutyric acid, $\alpha$-bromo-, 3351*h*, 6082*h*.
Ketene, bromo-, di-Me acetal, 1404*h*
**$C_4H_7BrO_3$** Butyric acid, $\alpha$-bromo-$\beta$-hydroxy-, 6169*e*.
**$C_4H_7BrO_3S$** Thiophene-3-ol, 4-bromotetrahydro-, 1,1-dioxide, 558*i*.
**$C_4H_7Br_2NO$** Acetamide, $\alpha,\alpha$-dibromo-*N*-ethyl-, 6975*h*.
**$C_4H_7Br_3$** Butane, tribromo-, 3796*b*.
**$C_4H_7Cl$** See *Butene, chloro-; Propene, chloromethyl-.*
**$C_4H_7ClFN_3O$** 2-Propanone, 1-chloro-3-fluoro-, semicarbazone, 6163*e*

$H_7ClN_2$ 2-Imidazoline, 2-(chloromethyl)-, P 4430*b*; - *HCl*, P 3042*d*.

$H_7ClN_2O_2$ Carbamic acid, (2-chloroethyl)-nitroso-, Me ester, 4634*b*.
Carbamic acid, methylnitroso-, 2-chloroethyl ester, 4634*a*.

$H_7ClN_2O_4$ Carbamic acid, (2-chloroethyl)-nitro-, Me ester, 2946*a*.

$H_7ClO$ 2-Butanone, chloro-, 2936*g*, 2937*i*, 3791*cd*.
Butenol, chloro-, 4214*g*, 6976*bc*.
Butyryl chloride, 2570*g*, 6057*e*.
Ether, 2-chloroethyl vinyl, 4401*f*.
Furan, 2-chlorotetrahydro-, 3816*e*.

$H_7ClO_2$ Acetic acid, chloro-, Et ester, P 1800*t*, P 1801*a*, 2590*i*, 3488*a*, 4221*d*, 4638*e*.
Acetyl chloride, ethoxy-, 3408*a*.
Butyric acid, β-chloro-, 6082*i*.
1,3-Dioxolane, 2-(chloromethyl)-, 1404*c*.
Formic acid, chloro-, isopropyl ester, 6056*h*.
Ketene, chloro-, di Me acetal, 1404*h*.
Propionic acid, β-chloro-, Me ester, 7345*b*.

$H_7ClOS$ Thiophene 3-ol, 4 chlorotetrahydro-, 1,1-dioxide, P 3466*c*.

$H_7ClS$ Sulfide, 3-chloroallyl methyl, 2928*b*.

$H_7ClNO$ Acetamide, α-chloro-*N*-(2-chloroethyl), 7423*a*.
Acetamide, α,α-dichloro-*N*,*N*-dimethyl-, 1720*a*.
Carbamyl chloride, (2-chloroethyl)-methyl, 7423*a*.
Isobutyrohydroxamyl chloride, α-chloro-, 6093*i*.

$H_7ClNO_2$ Acetamide, α,α-dichloro-*N*-2-hydroxyethyl-, 7423*b*.

$H_7ClNO_3S$ 1-Butanesulfonyl chloride, 2-chloro-2-nitro-, P 5411*t*.

$H_7ClN_3OZn$ + 1.5$H_2O$ 4-Pyrimidol, 2,5,6-triamino-, $ZnCl_2$ complex, P 7052*b*.

$H_7ClOP$ Phosphine oxide, dichloro(2-methylpropenyl)-, P 7499*h*.

$H_7Cl_3$ Butane, 1,2,3 trichloro-, 6567*h*.

$H_7Cl_3O$ See *Chlorotone*.

$H_7Cl_3O_2$ Chloral, compd. with EtOH, 1532*f*
Dioxane, 2-(trichloromethyl)-, 1404*c*.
Ethanol, 2,2,2-trichloro 1-ethoxy-, P 4122*c*.
Ether, 7119*a*
Propionic-α-*d* acid, 3392*e*.

$H_7F$ Butene, fluoro-, P 3437*t*.

$H_7FOS$ Acetic acid, thiol-, 2-fluoroethyl ester, 8841*b*

$H_7FO_2$ Acetic acid, fluoro-, Et ester, 2933*a*, 8841*a*
Butyric acid, fluoro-, 4709*f*.
Ethanol, 2-fluoro-, acetate, 6164*c*.
Propionic acid, α-fluoro-, Me ester, 2973*b*
Ether, ethyl 2,2,2-trifluoroethyl, P 2390*f*

$H_7IO_2$ Acetic acid, iodo-, Et ester, 3488*a*.

$H_7KO_4S$ 2-Butenyl potassium sulfate, 2934*f*

$H_7N$ Allylamine, 1-methylene-, 6479*e*.
Isobutadienylamine, 6479*e*.
Butyronitrile, 2592*b*, P 2630*e*, P 3024*c*, P 3512*f*, 3697*a*.
Isobutyronitrile, P 2630*e*.
Pyrroline, 8365*d*.

$H_7NO$ Acetamide, *N*-methyl-, 3358*g*.
2-Cyclohexenone, 1 methyl-, 9034*c*.
Butyronitrile, γ-hydroxy-, 2579*d*.
Crotonaldehyde, oxime, 1654*h*.
2,3*H*-Furanimine, dihydro-, and *salts*, 2579*f*
Isobutyronitrile, hydroxy-, 564*b*, P 672*b*, P 1794*e*, P 3839*f*, P 7955*b*.
Methacrylamide, P 672*b*, 8142*f*.

$H_7NO_2$ 2,3-Butanedione, 2-oxime, 2276*d*.
2-Butene, 2-nitro-, P 5411*g*.
Butyraldehyde, α-oxo-, oxime, 3006*c*.
Diacetamide, 128*c*; *and - HCl*, 4220*i*.
Propene, 2-methylnitro-, P 665*f*, P 5411*f*.

$H_7NO_3S$ Hydracrylic acid, dithiocarbamate, *and salts*, P 7506*f*.

$H_7NO_3$ Aceturic acid, 6598*b*, 6714*g*.
Butyric acid, α-oxo-, oxime, 2276*d*
Glycine, *N*-formyl-, Me ester, 3411*b*.

$H_7NO_4$ (See also *Aspartic acid*.)
Acetic acid, iminodi-, P 4800*d*.
— nitro-, Et ester, 127*e*.

$H_7NO_4S$ 1,3 Propanediol, 2-methyl-2-nitro-, cyclic sulfite, P 6223*a*.

$H_7NO_5S$ 1,3 Propanediol, 2-(hydroxymethyl) 2 nitro-, cyclic sulfite, 2935*i*, P 6223*a*.

$H_7NS$ Isothiocyanic acid, iso-Pr ester, 5748*f*.
Propionitrile, β-methylmercapto-, 1321*d*.
Thiocyanic acid, isopropyl ester, 2729*d*; Pr ester, 2729*d*.

$H_7NS_2$ Isothiocyanic acid, (ethylmercapto)-methyl ester, 7410*b*.

$H_7N_2NaNiO_4$ Glyoxime, dimethyl-, Ni Na deriv., 3741*b*

$H_7N_3$ Imidazole, 5-amino-1-methyl-, 3408*i*, 3409*a*.
1,2,4,1*H*-Triazole, 3-ethyl-, 7019*c*.

$H_7N_3O$ (See also *Creatinine*.)
Propionic acid, α-cyano-, hydrazide, 4222*i*.
2-Pyrazolin-3-ol, 5-imino-, 4272*a*.
5-Pyrazolone, 3-aminomethyl-, 4272*a*, 7478*b*.

$H_7N_3O_2$ Fumaramide, amino- (?), 9334*g*
Maleamide, amino-(?), 9334*g*.

$H_7N_3O_3S$ Imidazoleaminomethylsulfonic acid, 8001*c*.

$H_7N_3O_7$ Glycolamide, *N*-2 hydroxyethyl-, dinitrate, P 1796*t*.

$H_7N_3S$ 2 Imidazolethiol, 5-amino 1-methyl-, *and - HCl*, 3408*i*
Pseudourea, 3-cyano 1,2-dimethyl-2 thio-, 2947*c*.
Thiazole, 5-amino-2-methylamino-, 3408*h*.

$H_7N_5$ Pyrimidine, 4,5,6-triamino-, 1425*b*, 3367*a*.

$H_7N_5O$ See *Pyrimidol, triamino-*.

$H_7N_5O_4$ 2-Imidazoline, methyl-1-nitro-2-nitramino-, 9065*g*.

$H_7N_5O_8$ 5-Pyrimidol, 1,4,5,6-tetrahydro 2-nitramino-, nitrate, 9065*i*.

$H_7N_5S$ 2-Pyrimidinethiol, 4,5,6-triamino-, *and sulfate*, 580*a*.
s-Triazine, 2,4 diamino-6 methylmercapto-, P 1444*d*, P 7852*a*.

$H_7Na$ Sodium, 2-methylpropenyl-, P 1795*a*.

$H_8$ (See also *Butene; Propene, 2 methyl-*.)
Cyclobutane, 1111*e*, 2501*b*, 3796*a*, 5309*e*.

$H_8AuCl_3S$ Sulfide, bis(2-chloroethyl)-, compd. with AuCl, 1313*d*, 5323*c*.

$H_8BaO_8S_2$ 1,3 Butanediol, bis(hydrogen sulfate) Ba salt, 2934*d*

$H_8BrCl$ Butane, 1 bromo 4-chloro-, 6571*d*.

$H_8BrN$ Butyrimidyl bromide, P 3024*c*.

$H_8BrNO$ Acetamide, α-bromo-*N*,*N*-dimethyl-, 5081*h*.
Acetamide, α-bromo-*N*-ethyl-, 5081*h*.

$H_8BrNO_2$ Butane, 2-bromo-2-nitro-, 6569*c*

$H_8Br_2$ Butane, dibromo-, 2569*i*, P 8667*g*
Propane, 1,2-dibromo-2-methyl-, 2569*i*, 3345*f*

$H_8Br_2O$ Ether, 1,2 dibromoethyl ethyl, 1019*i*, 7898*g*.

$H_8Br_2O_2$ 1,4-Butanediol, 2,3 dibromo-, 2578*f*.

$H_8ClF$ Butane, 1-chloro-4 fluoro-, 3774*h*.

$H_8ClFO$ Ether, 2-chloroethyl 2-fluoroethyl, 6163*g*.

$H_8ClNO$ Propene, 2-methyl-, reaction product with NOCl, P 7950*f*.
Propionamide, β-chloro-, Me ester, - *HCl*, 5785*c*.

$H_8ClNO_2$ Butane, 2-chloro-2-nitro-, 6569*b*
Carbamic acid, (2-chloroethyl)-, Me ester, 4634*b*.
—, methyl-, 2-chloroethyl ester, 4633*i*.

$H_8ClNO_2S$ Propionamide, *N*-(chloromethylsulfonyl)-, 120*h*.

$H_8ClNO_4S$ 1-Butanesulfonyl chloride, 2-nitro-, P 5411*i*.

$H_8Cl_2$ See *Butane, dichloro-*.

$H_8Cl_2CuN_2O_2$, 8222*e*.

$H_8Cl_2FO_2P$ Fluophosphoric acid, bis(2 chloroethyl) ester, 121*c*, 8351*c*.

$H_8Cl_2N_2O$ Diethylamine, 2,2′-dichloro-*N*-nitroso-, 7422*h*.

$H_8Cl_2O$ (See also *Ether, bis(chloroethyl)*.)
Butanol, dichloro-, 6567*i*.
Ether, 1,2-dichloroethyl ethyl, 2158*h*.
—, 1,3-dichloropropyl methyl, 1021*b*.

$H_8Cl_2OS$ Sulfoxide, bis(2-chloroethyl), 129*c*, 4374*g*, 7590*i*.

$H_8Cl_2O_2$ Butanediol, dichloro-, 6976*d*.

$H_8Cl_2O_2S$ Butanesulfonyl chloride, chloro-, 6569*d*.
Sulfone, bis(2-chloroethyl), 129*d*, 4374*g*, 7590*c*.

$H_8Cl_2O_4S$ Ethanol, 2-chloro-, sulfate, 6164*a*.

$H_8Cl_2S$ See *Sulfide, bis(chloroethyl)*.

$H_8Cl_2Si$ Silane, allyldichloromethyl-, 2017*h*.

$H_8Cl_2N$ *tert*-Butylamine, 2,2′,2″ trichloro-, 2936*a*.

$H_8Cl_2OP$ Phosphine oxide, dichloro[1 (chloromethyl)propyl]-, P 7500*a*.

$H_8Cl_2O_2P$ Chlorophosphoric acid, bis(2 chloroethyl) ester, 8351*b*.

$H_8Cl_2Si$ Silane, trichlorochloro-*tert*-butyl-, 562*i*.

$H_8CuN_2O_4$ Glycine, Cu deriv., 8222*e*.

$H_8DNO$ Acetamide-*N*-*d*-, *N*-ethyl-, 8274*g*

$H_8F_2$ Butane, difluoro-, 2157*b*, P 3437*f*, 3774*g*.

$H_8F_2O_3S$ Ethanol, 2-fluoro-, sulfate, 6164*a*, 8841*b*

$H_8F_3O_2P$ Fluophosphoric acid, bis(2-fluoroethyl) ester, 121*c*.

$H_8HgO_2S$ Acetic acid, (ethylmercurimercapto)-, 2273*b*.

$H_8I_2S_3$ Trisulfide, bis(2-iodoethyl), 15*i*.

$H_8KNO_6$ Ammonium potassium tartrate, 7287*f*.

$H_8NNaO_2$ Butane, nitro-, Na deriv., 8365*a*.

$H_8NNaO_6$ Ammonium sodium tartrate, 7287*f*.

$H_8N_2$ Acetaldehyde, azine, 123*f*
Butane, 1-diazo-, 1741*b*, 4653*a*

$H_8N_2O$ 2,3-Butanedione, hydrazone, 122*h*.
Glycinonitrile, *N*-2 hydroxyethyl-, 7422*f*.
2(1*H*) Pyrimidone, tetrahydro-, 4273*c*

$H_8N_2O_2$ Glycoxime, dimethyl-, 2276*d*, P 6845*d*, 7651*i*, 8199*f*, 8935*c*.
Hydrazine, 1,2-diacetyl-, 579*c*, 5368*g*
Propionic acid, β-guanyl-, *and - HCl*, 3360*d*e.

$H_8N_2O_2S$ Propionic acid, β-(guanylmercapto)-, P 7506*b*.

$H_8N_2O_3$ (See also *Asparagine*.)
Glycine, *N*-glycyl-, 258*e*, 7773*g*, 8419*c*, *and - HCl*, 8356*b*

$H_8N_2O_3S$ Allophanic acid, γ-(1 mercaptoethyl), 2945*d*.
Hydantoic acid, α-(mercaptomethyl)-, *and Pb salt*, 1015*b*.

$H_8N_2O_4$ Asparagine, *N*-hydroxy-, 2674*h*
Butane, 1,2-dinitro-, P 6647*i*
Ethylene glycol, dicarbamate, P 4690*g*
Propane, 2 methyl-1,2 dinitro-, P 2220*b*, P 2630*d*, P 5411*i*, P 6647*i*

$H_8N_2O_6$ Nitric acid, nitro-, *tert* butyl ester, P 665*e*, P 5411*d*, P 6647*i*.

$H_8N_2O_7$ Diethylene glycol, dinitrate, 3197*b*, 8138*i*

$H_8N_2S$ Thiosinamine, 548*a*, P 1798*t*, P 2882*d*, 3110*g*, P 3221*b*, 3263*a*, 8089*b*.

$H_8N_2S_2$ Oxamide, dimethyldithio-, 6063*e*

$H_8N_2S_4$ See *Carbamic acid, ethylenebis[dithio-*.

$H_8N_4$ Guanidine, cyanodimethyl-, 2947*c*, 2949*g*.
Guanidine, 1-cyano-3-ethyl-, 2947*b*
s-Triazole, 4 (2 aminoethyl)-, *and di HCl*, 6621*b*.

$H_8N_4O_2$ Guanidine, 1-allyl-3-nitro-, 9035*t*.
2 Imidazoline, methyl-2-nitramino-, 4273*b*, 9065*g*.
Pyrimidine, 1,4,5,6-tetrahydro-2 nitramino-, 4273*c*.

$H_8N_4O_3$ 5-Pyrimidol, 1,4,5,6 tetrahydro-2-nitramino-, 9065*h*.

$H_8N_4O_3S$ Taurine, *N*-(cyanoguanyl)-, *and Na salt*, P 2636*c*

$H_8N_4O_4$ Allantoic acid, 2331*d*.

$H_8N_4O_6$ 1,3,6-Oxadiazepine, hexahydro-3,6 dinitro-, 9074*d*.

$H_8N_4O_8$ 1,5,3,7(2*H*,6*H*)-Dioxadiazocine, tetrahydro-3,7-dinitro-, 8355*a*.

$H_8N_4O_8$ Ethanol, 2,2′-(nitroimino)di-, dinitrate, P 4286*g*.

$H_8N_6$ Pyrimidine, tetraamino-, 8396*b*, *sulfate*, 580*g*, 1424*h*.
s-Triazine, 2,4-diamino-6-(aminomethyl), P 5052*b*.

$H_8N_6O_2$ Glyoxal, disemicarbazone, 123*f*

$H_8N_6O_6$ 1,3,5,1*H*-Triazepine, hexahydro-1,3,5-trinitro-, 9073*i*.

$H_8N_8O_8$ Cyclotetramethylenetetranitramine, 4856*b*, 5187*h*.
1,3,5,7-Tetrazocine, octahydro-1,3,5,7-tetranitro-, 8137*e*, 8355*a*, 9072*i*, 9075*bd*, P 9079*h*.

$H_8N_8O_{12}$ 2,4,6-Triazaheptane-1,7-diol, 2,4,6 trinitro-, dinitrate, 9074*d*.

$C_4H_8O$ (See also *2 Butanone; Butenol; Butyraldehyde; Ether, ethyl vinyl; Furan, tetrahydro-; Isobutyraldehyde*.)
Ether, isopropenyl methyl, P 1050*a*.
Propane, 1,2-epoxy-2-methyl-, 6163*d*.
2-Propen-1-ol, 2-methyl-, P 2819*b*, 5741*h*.

$C_4H_8OS$ Acetic acid, thiol-, Et ester, 561*a*.
*p*-Oxathiane, 2624*h*, 4532*c*.

$C_4H_8OS_2$ 1,2-Butanediol, 3,4-dimercapto-, anhydride, 7424*g*.
1,4,5-Oxadithiepane, 4048*e*.
Xanthic acid, isopropyl-, *Na salt*, P 4807*b*.
—, propyl-, *Zn salt*, P 1602*b*.

$C_4H_8O_2$ (See also *Aldol; 2-Butanone, hydroxy-; Butyric acid; Dioxane; Ethyl acetate; Isobutyric acid*.)
2-Butene-1,4-diol, 11*d*, 2577*i*, 4911*c*, 6162*i*.

Butyraldehyde, γ-hydroxy-, 3816*d*.
1,3-Dioxolane, methyl-, P 1434*b*, 2624*h*, 4401*h*.
Erythrol, 2579*a*, 7419*e*.
Formaldehyde, compd. with acetone, 7409*a*.
Formic acid, iso-Pr ester, 1656*c*; Pr ester, 1656*c*, 2590*d*, 2834*b*, 2923*f*.
Propionic acid, Me ester, 1656*c*, 2370*i*, 2590*d*, 2834*b*, 2923*f*, 6495*g*.

**$C_4H_8O_2S$** Acetic acid, (ethylmercapto)-, 8816*a*.
Acetic acid, mercapto-, Et ester, 1340*f*.
(Carboxymethyl)dimethylsulfonium hydroxide, inner salt, 2261*f*, 2682*e*.
Sulfone, ethyl vinyl, 4215*i*, P 7266*h*.
Thiophene, tetrahydro-, 1,1-dioxide, P 1065*f*, P 4514*b*, P 6003*d*.

**$C_4H_8O_2S_2$** Isobutyric acid, β,β'-dimercapto-, 2580*c*.

**$C_4H_8O_3$** (See also *Butyric acid, hydroxy-*.)
Acetic acid, ethoxy-, 8484*a*.
Butyraldehyde, α,β-dihydroxy-, 5370*e*.
Ethylene glycol, monoacetate, P 674*a*, P 7275*b*.
Hydracrylic acid, Me ester, 4639*f*.
Isobutyric acid, α-hydroxy-, 112*c*, 2162*i*, 3905*c*, 7914*i*.
Lactaldehyde, β-methoxy-, 4641*i*.
Lactic acid, Me ester, 1323*h*, 2941*f*, 6495*f*.
Methanol, methoxy-, acetate, 5017*h*.
Propionic acid, methoxy-, 2161*i*, 8484*a*; *and Bi salt*, 2488*i*.

**$C_4H_8O_3S$** Butanediol, cyclic sulfite, P 4853*c*.
Butanesulfonic acid, hydroxy-, sultone, 6569*f*.
Thiophene-3-ol, tetrahydro-, 1,1-dioxide, P 5136*a*.

**$C_4H_8O_4$** Threose, 4219*c*.

**$C_4H_8O_4S$** 1,3-Butanediol, cyclic sulfate, 2934*d*.
Propionic acid, β (methylsulfonyl)-, 6577*g*.

**$C_4H_8O_4S$** Dioxane, compd. with $SO_3$, 171*i*.

**$C_4H_8S$** 2-Butene-1-thiol, P 691*h*.
Sulfide, allyl methyl, 6286*g*.
Thiophene, tetrahydro-, P 7512*d*.

**$C_4H_8S_2$** *p*-Dithiane, 2624*h*, 4232*h*, 7487*d*.

**$C_4H_9$** *tert*-Butyl, 2512*a*, 6479*c*.

**$C_4H_9BaO_4P$** Barium butyl phosphate, 599*i*.

**$C_4H_9Br$** See *Butane, bromo-, Propane, bromomethyl-*.

**$C_4H_9BrMg$** Butylmagnesium bromide, 559*f*, 565*d*, 644*a*, 1718*g*, 5368*f*.
Isobutylmagnesium bromide, 644*a*, 1718*g*.

**$C_4H_9BrO$** Ether, bromomethyl isopropyl, 2926*c*.

**$C_4H_9Cl$** See *Butane, chloro; Propane, chloromethyl-*.

**$C_4H_9ClFO_3P$** Ethanol, 2-chloro-, ester with EtHPO$_3$F, 8841*a*.

**$C_4H_9ClHg$** Butylmercury chloride, 1138*df*, 5004*c*.
*sec*-Butylmercury chloride, 5004*c*.
*tert*-Butylmercury chloride, 5004*c*.
Isobutylmercury chloride, 1138*f*, 5004*c*.

**$C_4H_9ClMg$** Butylmagnesium chloride, 2925*f*.
Isobutylmagnesium chloride, 2604*a*.

**$C_4H_9ClO$** Butanol, chloro-, 2934*h*, 4733*i*, 6976*c*.
Butyl hypochlorite, 4708*i*.
*tert*-Butyl hypochlorite, 5204*e*.
Ether, chloroethyl ethyl, 129*c*, 1019*i*, P 3471*c*, 7898*f*.
—, chloromethyl propyl, 6568*e*
—, 1-chloropropyl methyl, 6974*e*.

**$C_4H_9ClOS$** Ethanol, 2-(2-chloroethylmercapto)-, 6057*e*.
Sulfoxide, 2-chloroethyl ethyl, 129*c*.

**$C_4H_9ClO_2$** Butanediol, chloro-, 6567*i*.
Ethanol, 2-(2-chloroethoxy)-, 4733*i*
1,2-Propanediol, 3-chloro-2-methyl-, 4734*a*, P 5421*b*.

**$C_4H_9ClO_2S$** Sulfone, chloroethyl ethyl, 129*c*, 2928*h*, 7409*f*.
Sulfone, chloromethyl isopropyl, 7409*e*.
—, chloromethyl propyl, 7409*e*.

**$C_4H_9ClO_3S$** Butanesulfonic acid, chloro, 6569*f*.
Butyl chlorosulfonate, 6567*g*, 7345*b*.

**$C_4H_9ClO_3$** Acetic acid, compd. with perchloric acid, 7315*i*.

**$C_4H_9ClS$** Sulfide, chloroethyl ethyl, 129*c*, 2928*g*, 7409*f*.
Sulfide, chloromethyl isopropyl, 7409*e*.
—, chloromethyl propyl, 7409*e*.

**$C_4H_9Cl_2N$** Butylamine, *N*, *N*-dichloro-, P 7517*f*.
Diethylamine, 2,2'-dichloro-, 2700*c*, 5505*c*.

**$C_4H_9Cl_2OP$** Ethanol, 2-chloro-, phosphite, 8351*b*.

**$C_4H_9Cl_3Si$** Silane, butyltrichloro-, P 3638*i*, P 5791*e*, P 6221*f*.
Silane, *sec*-butyltrichloro-, P 5791*e*.
—, *tert*-butyltrichloro-, 562*h*.
—, trichloroisobutyl-, P 5791*e*.

**$C_4H_9D$** Butane-*d*, 7897*g*.
Propane-*d*, 2-methyl-, 7897*eg*.

**$C_4H_9FO$** 2-Propanol, 1-fluoro-2-methyl-, 6163*d*.

**$C_4H_9FO_2$** Ethanol, 2-(2-fluoroethoxy)-, 6163*cg*.

**$C_4H_9F_2N$** Diethylamine, 2,2''-difluoro-, 2927*f*.

**$C_4H_9I$** (See also *Butane, iodo-*.)
Propane, iodomethyl-, 2591*a*, 3346*h*, 8871*i*.

**$C_4H_9IO$** Ether, ethyl 2-iodoethyl, 3784*e*.

**$C_4H_9IS$** Thirane, 2-methyl-, compd. with MeI, 7420*d*.

**$C_4H_9KO$** Potassium *tert*-butoxide, 590*d*, 1349*b*.

**$C_4H_9Li$** Lithium, butyl-, 2188*g*, 5739*i*, 7018*b*, 7475*h*.
Lithium, *tert*-butyl-, 562*h*.

**$C_4H_9N$** (See also *Pyrrolidine*.)
Allylamine, 2-methyl-, 1613*g*, P 3456*a*

**$C_4H_9NO$** (See also *Morpholine*.)
Acetamide, *N*-ethyl-, 8274*g*.
1-Aziridineëthanol, 4401*g*.
2-Butanone, oxime, 2276*d*, 5740*d*, 6569*b*.
3-Buten 2-ol, 1-amino-, 6618*a*.
Butyraldehyde, oxime, P 4515*c*.
Butyramide, P 3028*c*, 6162*f*.
Ethanol, 2-ethylideneamino-, P 7955*e*.
Isobutyramide, P 3028*c*.

**$C_4H_9NOS$** Sulfilimine, *N*-acetyl-*S*,*S* dimethyl-, *and salts*, 173*a*.

**$C_4H_9NO_2$** (See also *Butyric acid, amino-*.)
Acetamide, *N*-2 hydroxyethyl-, P 6652*e*.
—, *N*-(methoxymethyl)-, 569*f*.
Aldol, oxime, 5367*b*.
Butane, 2-nitro-, 1312*e*, P 2220*b*.
Butyl nitrite, 2600*e*, 2834*i*.
Carbamic acid, Pr ester, 2329*g*, 3107*c*, 3933*a*.
—, methyl-, Et ester, 2956*g*, 3107*d*, 5108*a*.
Glycine, Et ester, 7520*f*; *- HCl*, 211*g*, 2973*i*; *and - HCl*, 7425*h*.
—, *N*, *N*-dimethyl-, *- HCl*, 7422*d*.
Isobutyl nitrite, 2834*i*, P 3670*d*.
Isobutyric acid, α amino-, 6070*d*.
Lactamide, *N*-methyl-, 3358*d*.
Propane, 2-methyl-2 nitro-, P 2220*b*.
Sarcosine, Me ester, 4574*h*.

**$C_4H_9NO_2S$** Acetamide, *N* - 2 - hydroxyethyl-α-mercapto, 3365*e*.
Alanine, β-methylmercapto-, 3104*a*, 7903*g*.
Butyric acid, α amino-β-mercapto-, 1768*h*.
Homocysteine, 2261*g*.
Isothiazolidine, 5 - methyl - (?), 1,1-dioxide, 6569*g*.
Methanesulfonamide, *N* - methyl - *N*-vinyl-, P 8212*a*.
o-Thiazane (?), 1,1-dioxide, 6569*g*.

**$C_4H_9NO_3$** (See also *Threonine*.)
Allothreonine, 3787*a*, 4224*g*, 4225*b*, P 4688*g*, 6169*d*, 7986*g*, 9033*b*.
Butanol, nitro-, 4646*g*, P 6647*c*.
Butyl nitrate, P 2221*d*, P 5413*e*.
Ether, methyl 2-nitroisopropyl, P 665*d*
Glycolamide, *N*-2-hydroxyethyl-, 3364*f*.
Isobutyl nitrate, 2835*c*.
2-Propanol, 2 methyl-1-nitro-, P 5411*f*, P 6647*c*.
Serine, Me ester, 1723*e*, *- HCl*, 3786*i*.

**$C_4H_9NO_3S$** Acetamide, *N*-(ethylsulfonyl)-, 120*h*.
1,3 - Propanediol, 2-amino-2 methyl-, cyclic sulfite, *- HCl*, 7422*e*.
Propionamide, *N* - (methylsulfonyl)-, 120*h*.

**$C_4H_9NO_4$** 1,3-Propanediol, 2-(hydroxymethyl)-2 nitro-, 6575*b*, 9533*g*.

**$C_4H_9NO_4S$** 1-Butanesulfonic acid, 2-nitro, *K salt*, P 9079*b*.

**$C_4H_9NS_2$** Carbamic acid, dimethyldithio-, Me ester, 3964*c*, 7410*i*.

**$C_4H_9N_3O$** 2(1 *H*)-*s*-Triazone, tetrahydro-5-methyl-, 1782*f*.

**$C_4H_9N_3O_2$** (See also *Creatine*.)
Acetamide, α,α'-iminobis-, 3782*a*.
β-Alanine *N*-guanyl-, 3793*d*.
Diacetamide, α,α'-diamino-(?), *- HCl*, 3781*i*.

**$C_4H_9N_3O_2S_2$** Biuret, 1,5-bis(hydroxymethyl)-2,4-dithio-, P 3032*b*.

**$C_4H_9N_3O_3$** Aspartic acid, hydrazide, 2674*h*.

**$C_4H_9N_3S$** 2(1 *H*) - *s* - Triazinethione, tetrahydro 5-methyl-, 1782*f*.

**$C_4H_9NaO$** Sodium *tert* butoxide, 5737*a*.

**$C_4H_9NaO_4S$** *tert*-Butyl sodium sulfate, 5737*f*.

**$C_4H_9STl$** 1-Butanethiol, Tl deriv., 3352*h*.

**$C_4H_{10}$** See *Butane; Propane, 2-methyl-*.

**$C_4H_{10}AsCl$** Arsine, chlorodiethyl-, 6971*d*.

**$C_4H_{10}AuClS$** Ethyl sulfide, compd. with AuCl, 1313*d*.

**$C_4H_{10}BF_3O$** Ethyl ether, compd. with $BF_3$, 3805*b*, 5366*h*, 6204*a*.

**$C_4H_{10}BrN$** Ethylamine, 2-bromo-*N*, *N*-dimethyl-, *-HBr*, 1861*e*.

**$C_4H_{10}Br_2Pb$** Diethyllead dibromide, 2111*g*.

**$C_4H_{10}CaO_8S_2$** Calcium ethyl sulfate, 4426*g*.

**$C_4H_{10}ClN$** (See also *Ethylamine, 2-chloro-N, N-dimethyl-*.)
Diethylamine, chloro-, 5505*d*, 6570*h*, 8822*a*; *- HCl*, 1861*e*.

**$C_4H_{10}ClNO_2S$** Butanesulfonamide, chloro-, 6569*d*.
Sulfamyl chloride, diethyl-, 3742*b*.

**$C_4H_{10}ClO_2PS$** Ethyl chlorothiophosphate, 1314*a*.

**$C_4H_{10}ClO_3P$** Ethyl chlorophosphate, 599*h*.

**$C_4H_{10}ClO_3PS_3$** Ethanol, 2-(2-chloroethylmercapto)-, thiophosphate, 6057*i*.

**$C_4H_{10}ClPS_2$** Ethyl chlorothiophosphite, 560*i*.

**$C_4H_{10}Cl_2OSi$** Silane, butoxydichloro-, 9028*d*.

**$C_4H_{10}Cl_2O_2Si$** Silane, dichlorodiethoxy-, 8939*a*.

**$C_4H_{10}Cl_2Pb$** Diethyllead dichloride, 2111*g*.

**$C_4H_{10}Cl_2Si$** See *Silane, dichlorodiethyl-*.

**$C_4H_{10}CoN_2O_8$**, 7806*g*.

**$C_4H_{10}CuN_2O_2$** Urea, guanyl-, Cu deriv., 8222*c*.

**$C_4H_{10}FNO_2S$** Sulfamyl fluoride, diethyl-, 3742*b*.

**$C_4H_{10}FOPS_2$** Ethyl fluothiophosphate, 121*g*

**$C_4H_{10}FO_2P$** Phosphine oxide, fluoroisopropoxymethyl-, 8841*b*.

**$C_4H_{10}FO_2P$** Ethyl fluophosphate, 121*c*, 8841*a*.

**$C_4H_{10}F_2O_2Si$** Silane, diethoxydifluoro-, 8939*b*.

**$C_4H_{10}F_2S_2Si$** Silane, bis(ethylmercapto)difluoro-, P 6220*b*.

**$C_4H_{10}Hg$** Mercury, diethyl-, 5004*b*, 5576*g*

**$C_4H_{10}LiN$** Diethylamine, Li deriv., 1348*b*

**$C_4H_{10}N_2$** See *Piperazine*.

**$C_4H_{10}N_2O$** Acetamide, *N*-(2-aminoethyl)-, P 6652*e*.
Acetamide, α-dimethylamino-, 9032*i*.

**$C_4H_{10}N_2OS_2$** Urea, (2,3-dimercaptopropyl)-, 3783*h*.

**$C_4H_{10}N_2O_2$** Butyric acid, α,γ-diamino-, 9386*ff*; *and hydrochlorides*, 5005*d*.
Ethyl hyponitrite, P 5641*c*

**$C_4H_{10}N_2O_2$** Ethanol, 2,2'-(nitrosoimino)di-, 7422*g*.

**$C_4H_{10}N_2O_4$** Acetic acid, nitro-, Et ester, $NH_3$ compd., 127*e*.

**$C_4H_{10}N_2O_4$** 1,3 - Propanediol, 2 - (hydroxymethyl)-2-nitramino-, 5307*e*, 6575*a*.
1,3 - Propanediol, 2 - (hydroxymethyl)-2-nitrosohydroxamino-, 5307*e*, 6575*c*.

**$C_4H_{10}N_2S$** Pseudourea, 2-propyl-2-thio-, 1868*d*.
Thiocyanic acid, isopropylamine salt, 578*g*.
3,4-Thiophenediamine, tetrahydro-, *di-HBr*, P 6671*b*.
Urea, 1-isopropyl-2-thio-, 9242*a*.
—, 1-propyl-2-thio-, 1112*g*.

**$C_4H_{10}N_2S_2$** Urea, 1 - [(ethylmercapto)methyl]-2-thio-, 7410*b*.

**$C_4H_{10}N_3O_4P$** See *Creatinephosphoric acid*.

**$C_4H_{10}N_4$** 2,3-Butanedione, dihydrazone, 123*f*.

**$C_4H_{10}N_4O$** Urea, *N*, *N*-dimethylguanyl-, P 868*f*.

**$C_4H_{10}N_4O_2$** Succinic acid, dihydrazide, 7318*d*.

**$C_4H_{10}N_4O_4$** Butanediamine, *N*, *N'*-dinitro-, 9065*hi*, 9066*a*.
Putrescine, *N*, *N'*-dinitro-, 9065*i*, 9066*a*.

**$C_4H_{10}N_4O_8$** Methanol, [ethylenebis(nitroimino)]di-, 9074*a*.
Urea, compd. with oxalic acid, 1280*a*.

**$C_4H_{10}N_4S_2$** Pseudourea, 2,2'-ethylenebis[2-thio-, 1868*d*.

**$C_4H_{10}O$** See *Butyl alcohol; sec-Butyl alcohol; tert-Butyl alcohol; Ethyl ether; Iso butyl alcohol*.

**$C_4H_{10}OS$** Ethanol, 2-(ethylmercapto)-, P 3447*g*, 7420*i*.

**$C_4H_{10}OS_2$** 1-Butanol, 3,4-dimercapto-, 3783*g*.

**$C_4H_{10}O_2$** (See also *Butanediol; tert-Butyl hydroperoxide; Ethanol, 2-ethoxy-*.)
Acetaldehyde, di-Me acetal, P 1433*i*, 2590*c*, 4401*g*, 4603*g*, P 5034*i*.
Ethyl peroxide, 3617*g*, 3724*f*.
Propanediol, methyl-, 572*d*, 573*f*, 6495*d*.

**$C_4H_{10}O_2S$** (See also *Ethanol, 2,2'-thiodi-*.)
Ethyl sulfoxylate, 2886*b*.

**$C_4H_{10}O_2S_2$** Butanediol, dimercapto-, 7424*fi*, 7425*a*, 9250*i*, 9251*a*.

Threitol, 1,4-dithio-, 9251*a*.

**$C_4H_{10}O_2$** (See also *Diethylene glycol*.)
Butanetriol, 572*c*, 573*a*, 5076*b*, 8007*d*.
Ethanol, 2-(methoxymethoxy)-, P 1051*g*, P 9080*b*.
Methane, oxybis[methoxy-, P 1052*d*.
Peroxide, ethyl 1-hydroxyethyl, 3724*f*.
Propanediol, (hydroxymethyl)-, P 3447*i*.
—, methoxy-, 311*h*, 7428*e*.

**$C_4H_{10}O_3S$** Butanesulfonic acid, 6975*f*; *K salt*, 8707*g*.
Ethanesulfonic acid, Et ester, 1313*g*.
Ethyl sulfite, 1313*g*, 2832*b*, P 4853*g*, P 6645*e*.

**$C_4H_{10}O_4$** (See also *Erythritol*.)
Peroxide, bis(1-hydroxyethyl), 3724*f*.

**$C_4H_{10}O_4S$** (See also *Ethyl sulfate*.)
Butanesulfonic acid, hydroxy-, 6569*f*.
Ethanol, 2,2'-sulfonyldi-, 7590*d*, P 7952*g*.

**$C_4H_{10}O_4S_2$** Methane, methylmercaptobis-(methylsulfonyl)-, 6905*i*.

**$C_4H_{10}O_5S$** 1,3 - Butanediol, mono(hydrogen sulfate), *Ba salt*, 2934*g*.

**$C_4H_{10}O_6S_2$**, 6996*b*.
Methane, methylsulfinylbis(methylsulfonyl)-, 6996*a*.

**$C_4H_{10}O_6S_3$** Methane, tris(methylsulfonyl)-, 6995*h*.

**$C_4H_{10}O_8S_2$** 1,3 - Butanediol, bis(hydrogen sulfate), *Ba salt*, 2934*d*.

**$C_4H_{10}S$** See *Butanethiol; Ethyl sulfide; Propanethiol, 2-methyl-*.

**$C_4H_{10}S_2$** Ethyl disulfide, 2956*f*.

**$C_4H_{10}S_2$** Ethanethiol, 2,2'-thiodi-, 2935*g*.

**$C_4H_{10}S_4$** Ethyl tetrasulfide, 998*h*, 1002*c*, 7410*g*.

**$C_4H_{10}Sn$** Tin, diethyl-, 4632*d*.

**$C_4H_{10}Zn$** Zinc, diethyl-, 5242*c*.

**$C_4H_{11}ClN_2O_2$**, 8220*h*.

**$C_4H_{11}ClOS$** (2 - Hydroxyethyl)dimethylsulfonium chloride, 2682*c*.

**$C_4H_{11}ClO_2Si$** Silane, chlorodiethoxy-, 4401*f*.

**$C_4H_{11}ClSi$** Silane, (chloromethyl)trimethyl-, 2929*e*.

**$C_4H_{11}IS$** Ethyldimethylsulfonium iodide, 3348*i*.

**$C_4H_{11}ISi$** Silane, (iodomethyl)trimethyl-, 2929*f*.

**$C_4H_{11}N$** (See also *Butylamine; sec-Butylamine; tert-Butylamine; Diethylamine; Isobutylamine*.)
Ethylamine, *N*, *N*-dimethyl-, 926*f*.

**$C_4H_{11}NO$** (See also *Butanol, amino-; Ethanol, 2 - dimethylamino-; 1 - Propanol, 2-amino-2-methyl-*.)
Ethanol, 2-ethylamino-, 6291*d*.

**$C_4H_{11}NO_2$** (See also *Ethanol, 2,2'-iminodi-*.)
Butanediol, 2-amino-, 573*a*, 1723*e*.
1,3-Propanediol, 2-amino-2-methyl-, P 1190*a*, 7422*d*, P 8168*i*.

**$C_4H_{11}NO_2Si$** Silane, diethoxyimino-, 1006*h*.

**$C_4H_{11}NO_3$** 1,3-Propanediol, 2-amino-2-(hydroxymethyl)-, 6575*d*, P 8168*h*, P 9468*c*.

**$C_4H_{11}NO_3S$** 1 - Propanesulfonic acid, 1-amino-2-methyl-, 8001*c*.

**$C_4H_{11}NO_4$** 1,3-Propanediol, 2-hydroxamino-2-(hydroxymethyl)-, 6575*b*.

**$C_4H_{11}NO_4S$** 2 - Butanol, 4 - amino-, hydrogen sulfate, *cyclic salt*, 2934*i*.

**$C_4H_{11}N_3$** Guanidine, isopropyl-, *sulfate*, 2948*f*, 5746*b*.
Guanidine, propyl-, *HNO*$_3$, 2946*f*.
—, 1,2,3-trimethyl-, P 868*f*.

**$C_4H_{11}N_3O$** Butyramide, α,γ-diamino-, 3009*f*.

**$C_4H_{11}N_3O_3S$** 1,2,4,6,4*H* - Thiatriazine-4-ethanol, tetrahydro-, 1,1-dioxide, 2573*f*.

**$C_4H_{11}N_5$** Biguanide, 1,1-dimethyl-, P 868*g*.

**$C_4H_{11}N_5O$** Biguanide, 1-(2-hydroxyethyl)-, P 868*g*.

**$C_4H_{11}N_5S$** Biguanide, (2-mercaptoethyl)-, P 1799*b*.

**$C_4H_{11}O_2PS_2$** Ethyl thiophosphate, 7859*a*.

**$C_4H_{11}O_3P$** Ethyl phosphite, 599*h*.

**$C_4H_{11}O_4P$** Ethyl phosphate, 1315*c*.

**$C_4H_{11}AlLi$** Aluminum, trimethyl-, compd. with LiMe, 4218*g*.

**$C_4H_{12}Al_2Br_4O$**, 8810*h*.

**$C_4H_{12}BLi$** Borine, trimethyl-, compd. with LiMe, 4218*g*.

**$C_4H_{12}BNaO_4$** Methyl borate, compd. with MeONa, P 4684*i*.

**$C_4H_{12}B_2$** Diborane, tetramethyl-, 4578*c*.

**$C_4H_{12}BrN$** Tetramethylammonium bromide, 2110*f*, 2876*h*, 6970*h*.

**$C_4H_{12}ClN$** Tetramethylammonium chloride, 2110*f*, 2876*i*, 8773*g*.

**$C_4H_{12}FN_2OP$** Diamidophosphoryl fluoride, tetramethyl-, 1314*e*, 8841*a*.

**$C_4H_{12}IN$** Tetramethylammonium iodide, 2110*f*, 4346*h*.

**$C_4H_{12}Li_2Zn$** Lithium, methyl-, compd. with ZnMe$_2$, 4218*g*.

**$C_4H_{12}N_2$** Butanediamine, P 2633*e*, P 5412*a*, 8381*f*.
Propanediamine, 2-methyl-, P 2633*e*, P 5412*b*; *di-HCl*, 9067*f*.
Putrescine, 3110*h*, 4332*a*, 6706*d*.

**$C_4H_{12}N_2O$** Ethanol, 2-(2-aminoethylamino)-, 1569*f*, 5493*c*; *and di-HCl*, P 674*f*.

**$C_4H_{12}N_2O_2$** Ethanol, 2,2'-hydrazodi-, P 2796*c*.

**$C_4H_{12}N_2O_2S$** Sulfamide, butyl-, 2573*d*.

**$C_4H_{12}N_2O_3$** Tetramethylammonium nitrate, 5264*i*, 6496*b*.

**$C_4H_{12}N_2S$** Urea, tetramethylthio-, P 8173*e*.

**$C_4H_{12}N_2O_4S_2$** Sulfamide, (tetrahydro-5-methyl - 1,2,6,4*H* - thiadiazin-3-yl)-, 1,1-dioxide, 5996*b*.

**$C_4H_{12}N_4$** Guanidine, ethylenedi-, P 3844*a*.

**$C_4H_{12}N_8Pt_2S_4$**, 6889*h*.

**$C_4H_{12}OSi$** Silane, methoxytrimethyl-, 562*e*.

**$C_4H_{12}O_2Pb$** Diethyllead dihydroxide, 2111*g*.

**$C_4H_{12}O_2Si$** Silane, dimethoxydimethyl-, P 2221*c*.

**$C_4H_{12}O_3Si$** Silanetriol, butyl-, P 3639*a*.

**$C_4H_{13}O_4P$** Ethyl phosphate, 147*i*.

**$C_4H_{12}O_4Si$** Methyl silicate, 4631*b*, 5737*i*, P 6647*c*, 8136*e*.

**$C_4H_{13}O_7P_3$** Methyl pyrophosphate, 1315*b*.

**$C_4H_{12}P_2S_2$** Bi(phosphine sulfide), tetramethyl-, 5739*f*.

**$C_4H_{12}Pb$** Lead, tetramethyl-, 4095*a*, 5732*e*.

**$C_4H_{12}Si$** Silane, tetramethyl-, 4931*g*.

**$C_4H_{12}NO$** Tetramethylammonium hydroxide, 2374*e*, 4181*h*, 5544*e*, 6731*b*.

**$C_4H_{13}N_3$** Diethylenetriamine, P 251*f*, P 2242*g*, 4401*f*, P 5614*d*, 8753*d*.

**$C_4H_{13}N_2O_3P$** Phosphinic acid, [1-(2-guanylhydrazino)isopropyl]-, 5378*b*.

**$C_4H_{14}BN$** Borine, trimethyl-, compd. with $MeNH_2$, 3301*h*.

**$C_4H_{14}Cl_2CuN_{10}$**, 8222*b*.

**$C_4H_{14}Cl_4N_2P_2$** Triphosphornitrile bisethylenediamide, tetrachloro-, *and di-HCl*, 5364*i*.

**$C_4H_{15}N_4$** 1,2,3 - Propanetriamine, 2-(aminomethyl)- *and salts*, 2936*c*.

**$C_4H_{16}O_5$** Formic acid, compd. with MeOH, 7409*c*.

**$C_4H_{16}B_2N_2$** Borine, aminodimethyl-, dimer, 5690*b*.

**$C_4H_{16}Cl_2CoN_4O_2$**, 7806*g*.

**$C_4H_{16}Cl_2CuN_4 + H_2O$**, 6536*f*.

**$C_4H_{16}Cl_2N_4PtS_4$**, 1675*d*, 1680*b*, 7277*i*.

**$C_4H_{16}Cl_4N_4Pt$**, 1673*g*.

**$C_4H_{16}InN_7O_9$**, 6932*h*.

**$C_4H_{20}Cl_2CoN_4$**, 5305*a*.

**$C_4HgK_2N_4$** Potassium cyanomercurate(II), 517*g*.

**$C_4HgN_4S_4Zn$** Zinc thiocyanatomercurate(II), 3313*h*, 5325*a*, 6482*h*, 7803*h*.

**$C_4K_2MnO_8 + 2H_2O$** Potassium oxalatomanganate(II), 4954*e*.

**$C_4K_2N_4PdS_4$** Potassium thiocyanatopalladate(II), P 6100*a*.

**$C_4K_2N_4Zn$** Potassium cyanozincate, 3294*d*, 8939*c*.

**$C_4K_2NiO_8 + 6H_2O$** Potassium oxalatonickelate(II), 4954*e*.

**$C_4K_2O_8Pb + 2.5H_2O$** Potassium oxalatoplumbate(II), 4954*g*.

**$C_4K_2O_8Pt + 2H_2O$** Potassium oxalatoplatinate(II), 4954*f*.

**$C_4K_2O_8Sn + 2H_2O$** Potassium oxalatostannate(II), 4954*g*.

**$C_4K_2O_8Zn + 5H_2O$** Potassium oxalatozincate, 4954*f*.

**$C_4N_4NiPt$** See *Nickel cyanoplatinate*.

**$C_4Na_2O_8Pd + 2H_2O$** Sodium oxalatopalladate(II), 4954*f*.

**$C_4NiO_4$** See *Nickel carbonyl*.

**$C_4O_8Sn$** Tin oxalate, 7365*c*.

**$C_4O_8U$** Uranium oxalate, 4066*g*, 8952*i*.

**$C_4Ti_2W$** Titanium tungsten carbide, P 3576*b*.

**$C_5BrCl_4O$** 2-Cyclopenten-1-one, 5-bromo-2,3,4,4,5-pentachloro-, 4230*i*.

**$C_5Br_2Cl_4O$** Cyclopentenone, dibromotetrachloro-, 4231*a*.

**$C_5Cl_2F_6$** Cyclopentene, 1,2-dichlorohexafluoro-, P 678*h*, P 3844*f*.

**$C_5Cl_2F_6$** Cyclopentene, trichloropentafluoro-, P 678*h*.

**$C_5Cl_4F_4$** Cyclopentene, tetrachlorotetrafluoro-, P 678*h*.

**$C_5Cl_6$** Cyclopentadiene, hexachloro-, P 678*g*, 4230*d*, 4231*d*, 5370*h*.

**$C_5Cl_6O$** Cyclopenten - 1 - one, hexachloro-, 4230*h*, 4552*f*.

**$C_5Cl_8$** Cyclopentene, octachloro-, 4230*h*, 4231*i*.
1,3-Pentadiene, octachloro-, 4231*i*.

**$C_5F_{10}$** See *Cyclopentane, decafluoro-*.

**$C_5F_{12}$** Butane, nonafluoro - 3 - (trifluoromethyl)-, 3288*g*, 8225*g*.
Pentane, dodecafluoro-, 3266*i*, 3288*g*, P 5183*h*, 8225*g*.

**$C_5FeN_6Na_2O$** See *Sodium nitroprusside*.

**$C_5FeO_5$** See *Iron carbonyl*.

**$C_5HBrCl_4O_2$** 2,4-Pentadienoic acid, 5-bromo - 2,3,4,5 - tetrachloro-, 4231*a*.

**$C_5HBr_4N$** Pyridine, 2,3,5,6-tetrabromo-, 641*h*.

**$C_5HBr_4NO$** 4-Pyridol, tetrabromo-, 642*a*.

**$C_5HCl_4O$** 2 - Cyclopenten-1-one, 2,3,4,4,5-pentachloro-, 4230*i*.

**$C_5HCl_4O_2$** Pentadienoic acid, pentachloro-, 4230*h*.

**$C_5HF_9$** Cyclopentane, nonafluoro-, 3288*g*, 8225*g*.

**$C_5HF_{11}$** Pentane, hendecafluoro-, 8225*g*.

**$C_5H_2BrClOS$** 2-Thiophenecarbonyl chloride, 5-bromo-, 4665*i*.

**$C_5H_2BrN_3$** Pyrazinoic acid, 6-bromo-, 8394*c*.

**$C_5H_2Br_2N_2O_2$** Pyridine, 3,5-dibromo-2-nitro-, 6626*d*.

**$C_5H_2Br_3N$** Pyridine, tribromo-, 641*hi*, 642*c*, 6626*e*.

**$C_5H_2Cl_2O_2S$** Thiophenecarboxylic acid, dichloro-, 2987*b*, 5775*e*.

**$C_5H_2F_3NO_2$** Acetic acid, trifluoro-, ester with pyruvonitrile, P 5636*c*.

**$C_5H_2FeK_4N_6O$**, 6088*b*.

**$C_5H_2FeN_4Na_4O$**, 6088*a*.

**$C_5H_2BrCl_2S$** Thiophene, 3-(bromomethyl)-2,5-dichloro-, 2987*a*.

**$C_5H_2BrN_2O_2$** Pyridine, 5-bromo- 2-nitro-, 6626*d*.

**$C_5H_2BrOS$** 3 - Thiophenecarboxaldehyde, 2-bromo-, 2987*a*.

**$C_5H_2BrO_2S$** Thiophenecarboxylic acid, bromo-, 2987*a*, 4665*i*, 5781*i*.

**$C_5H_2BrO_2$** 2-Furoic acid, bromo-, 4913*c*.

**$C_5H_2Br_2N$** Pyridine, dibromo-, 641*e*, 642*e*, 6626*d*.

**$C_5H_2Br_2NO$** 4(1*H*) - Pyridone, 3,5-dibromo-, 5780*c*.

**$C_5H_2ClN_3O_2$** 3 - Pyridazinecarboxylic acid, 6-chloro-, 3007*d*.

**$C_5H_2ClN_3O_2S$** 2 - Pyridinesulfenyl chloride, 6-nitro-, P 8400*f*.

**$C_5H_2ClN_3$** Pyrido[2,3-*d*]-*v*-triazole, 6-chloro-, 7023*g*.

**$C_5H_2ClOS$** 2-Thiophenecarbonyl chloride, 4665*b*.
Thiophenecarboxaldehyde, chloro-, 2986*i*, 9061*i*, 9064*f*.

**$C_5H_3ClO_2S$** Thiophenecarboxylic acid, chloro-, 2986*i*, 5775*e*.

**$C_5H_3ClO_2$** 2-Furoic acid, 5-chloro-, 7014*i*.

**$C_5H_3Cl_2NO$** 3,5-Pyridinediol, 2,6-dichloro-, 3824*e*.

**$C_5H_3Cl_2NO_2S$** 3-Pyridinesulfonyl chloride, 6-chloro-, 3417*c*.

**$C_5H_3Cl_3O_2$** 2-Pentenoic acid, 2,3,5-trichloro-4-oxo-, 6981*g*.

**$C_5H_3F_2NO_2$** Acetic acid, difluoro-, ester with pyruvonitrile, P 5636*c*.

**$C_5H_3F_4N$** Cyclobutanecarbonitrile, 2,2,3,3-tetrafluoro-, 3370*g*, P 4294*c*.

**$C_5H_3I_2NO$** Pyridone, 3,5-diiodo-, 5780*b*, 7484*cd*.

**$C_5H_3I_2NS$** Pyridinethiol, 3,5-diiodo-, 7484*ac*.

**$C_5H_3NO_4S$** Thiazoledicarboxylic acid, 5021*f*; *and salts*, 5021*d*.

**$C_5H_3NO_4$** Furoic acid, 5-nitro-, 4913*c*, 5021*a*.

**$C_5H_3NS$** 2-Thiophenecarbonitrile, 3817*b*.

**$C_5H_3NO_4$** 2(1*H*)-Pyridone, 1-hydroxy-5-nitro-, 2998*a*.

**$C_5H_4AsNO_2$** 2(?*H*)-Pyridone, 5-arsenoso-, P 8105*c*.

**$C_5H_4BrClS$** Thiophene, 3-(bromomethyl)-2-chloro-, 2986*i*.

**$C_5H_4BrN$** Pyridine, 2-bromo-, 642*d*, 644*a*, 1045*h*.

**$C_5H_4BrNO$** 3-Pyridol, 2-bromo-, *and - HBr*, 6626*a*.
2(1*H*)-Pyridone, 3-bromo-, 2998*b*.

**$C_5H_4BrNOS$** 2-Thiophenecarboxamide, 5-bromo-, 4665*i*.

**$C_5H_4BrNO_3$** 2(1*H*)-Pyridone, bromo-1-hydroxy-, 2997*i*, 2998*b*.

**$C_5H_4BrN_3O_2$** Pyridine, 2-amino-5-bromo-3-nitro-, 1425*e*.

**$C_5H_4Br_2N_2$** Pyridine, 4-amino-2,6-dibromo-, 642*a*.

**$C_5H_4Br_2S$** Thiophene, bromo(bromomethyl)-, 2987*a*, 6613*a*.
Thiophene, 2,5 - dibromo - 3-methyl-, 6613*a*.

**$C_5H_4CdCl_2O_2$** 2 - Furaldehyde, complex with $CdCl_2$, 7000*h*.

**$C_5H_4ClHgN$** Pyridine, (chloromercuri)-, 6356*e*; *and - HCl*, 714*h*.

**$C_5H_4ClN_3O_2$** Pyridine, 2-amino-5-chloro-3-nitro-, 7023*f*.

**$C_5H_4ClN_2O$** 3(2*H*) - Pyridazone, 4,5-dichloro-2-methyl-, 3006*h*.
**$C_5H_4ClN_3O_3$** Uracil, 5-chloro-6-(chloromethyl)-, 2170*c*.
**$C_5H_4Cl_2S$** Thiophene, 2,5-dichloro-3-methyl-, 2987*a*.
**$C_5H_4Cl_6$** 2 - Peutene, 1,1,1,5,5,5 - hexachloro-, 3775*g*.
**$C_5H_4FN$** Pyridine, 2-fluoro-, 6992*c*, 9069*g*.
**$C_5H_4F_4$** Cyclobutane, 1,1,2,2-tetrafluoro-3-methylene-, 3371*c*, P 4295*a*.
**$C_5H_4F_4O$** Cyclobutanecarboxaldehyde, 2,2,-3,3-tetrafluoro-, 3370*h*.
**$C_5H_4F_4O_2$** Cyclobutanecarboxylic acid, 2,2,3,3-tetrafluoro-, 3370*g*, P 4295*b*.
**$C_5H_4F_8$** Pentane, octafluoro-, P 5183*h*.
**$C_5H_4N_2$** Malononitrile, ethylidene-, P 4897*e*.
**$C_5H_4N_2O_2S$** 2-Pyridinethiol, 5-nitro-, P 8400*e*.
**$C_5H_4N_2O_2$** 3 - Pyridazinecarboxylic acid, 1,6-dihydro 6-oxo-, 3006*i*, 3007*c*.
**$C_5H_4N_2O_4$** 2 Furaldehyde, 5-nitro-, oxime, 2669*e*, 6735*g*.
4,5-Imidazoledicarboxylic acid, 8436*g*.
Orotic acid, 7108*b*, 8495*e*, 8510*f*.
5 - Pyrimidinecarboxylic acid, 2,4-dihydroxy-, 5307*c*.
**$C_5H_4N_4$** Pyrido[2,3-*d*]-*v*-triazole, 7023*i*.
**$C_5H_4N_4O$** (See also *Hypoxanthine*.)
*s*-Triazolo[2,3-*a*]pyrimidin-5-ol, P 4165*e*.
**$C_5H_4N_4O_2$** See *Xanthine*.
**$C_5H_4N_4O_3$** See *Uric acid*.
**$C_5H_4N_6O_3$** 2 - Pyrazoline - 3 - carbonyl azide, 1-methyl-4,5-dioxo-, 4-oxime, 4272*a*.
**$C_5H_4OS$** See *Thiophenecarboxaldehyde*.
**$C_5H_4O_2$** (See also *2-Furaldehyde*.)
Protoanemonin, 2675*c*, 5830*i*, 6366*c*, 8462*g*.
**$C_5H_4O_2S$** See *Thiophenecarboxylic acid*.
**$C_5H_4O_3$** (See also *Furoic acid*.)
Citraconic anhydride, 7992*c*, 8376*h*.
**$C_5H_4O_6S$** 2-Furoic acid, 5 sulfo-(?), *Ba salt*, 7015*h*.
**$C_5H_5BrCl_3N$** Valeronitrile, β-bromo-δ, δ, δ-trichloro-, 9024*d*.
**$C_5H_5BrCl_6$** Pentane, 3 bromo-1,1,1,5,5,5-hexachloro-, 3775*f*.
**$C_5H_5BrN_2$** Pyridazine, 3 bromo-6-methyl-, 1771*i*.
Pyridine, 2 amino-5-bromo , 6626*b*.
**$C_5H_5BrO_2$** 1,2 - Cyclopentanedione, 3-bromo-, P 2227*f*.
**$C_5H_5BrO_3$** Isovaleric acid, β-bromo-γ hydroxy-α-oxo-, γ-lactone, 6980*e*.
Valeric acid, β-bromo-γ-hydroxy-α oxo-, γ-lactone, 6981*a*.
**$C_5H_5BrO_4$** Glycerol, 1,2-cyclic carbonate bromoformate, P 6652*h*.
**$C_5H_5BrS$** Thiophene, bromomethyl-, 6612*i*, 6613*a*.
Thiophene, (bromomethyl)-, P 6237*i*, 6613*a*.
**$C_5H_5Cl$** 1-Buten 3 yne, 4-chloro-2-methyl-, P 6645*b*.
**$C_5H_5ClF_4$** Cyclobutane, 3-(chloromethyl)-1,1,2,2-tetrafluoro-, 3370*f*.
**$C_5H_5ClHgN_2OS$** Thiazole, 2 acetamido-5-(chloromercuri)-(?), 2616*b*.
**$C_5H_5ClIN$** Pyridine, compd. with ICl, 6901*b*.
**$C_5H_5ClN_2$** Pyrimidine, 2-chloro-4-methyl-, P 8105*f*.
**$C_5H_5ClN_2O_2$** Uracil, 5-chloro-6 methyl-, 2170*d*.
**$C_5H_5ClN_2O_2S$** 3 - Pyridinesulfonamide, 6-chloro-, 3417*c*.
**$C_5H_5ClO_2$** 1,2-Cyclopentanedione, 3-chloro-, P 2227*f*, 6987*d*.
Furfuryl alcohol, 5 chloro-, 7014*i*.
**$C_5H_5ClO_3$** Glycerol, 1,2-cyclic carbonate chloroformate, P 6652*h*.
**$C_5H_5ClS$** Thiophene, 2-(chloromethyl)-, P 3041*a*, 6611*b*, 8223*e*.
Thiophene, 2-chloro-5-methyl , 9064*f*
**$C_5H_5Cl_2F_3$** Propionic acid, α,β-dichloro-α,β,β-trifluoro-, Et ester, P 4683*h*.
**$C_5H_5Cl_2I_2N$** Pyridine, compd. with ICl, 6901*b*.
**$C_5H_5Cl_2F_3O_2$** Propionic acid, α,α,β-trichloro-β,β-difluoro-, Et ester, P 4683*g*.
**$C_5H_5Cl_3O_2$** Acetic acid, trichloro-, allyl ester, P 2633*a*.
**$C_5H_5F_3O_2$** Acrylic acid, α-(trifluoromethyl)-, Me ester, P 6465*g*.
**$C_5H_5F_7$** Pentane, heptafluoro-, P 5183*h*.
**$C_5H_5IN_2OS$** Thiazole, 2-acetamido 5-iodo , 2616*c*.
**$C_5H_5KO_2$** Potassium furfuryloxide, P 2218*h*.
**$C_5H_5N$** (See also *Pyridine*.)
Butenenitrile, 2-methylene-, 2574*a*, P 9080*e*, P 9522*b*.
2,4-Pentadienenitrile, P 2220*h*, 4217*g*, 6172*e*, P 7953*a*.
**$C_5H_5NO$** 3-Pyridol, P 2639*a*, 7024*g*.
2(1*H*)-Pyridone, 2997*f*, 9069*g*.
**$C_5H_5NOS$** 2-Thiophenecarboxamide, 3817*a*
**$C_5H_5NO_2$** Acrylic acid, α-cyano-, Me ester, P 6222*fg*.
Citraconimide, 7591*c*.
2-Furaldehyde, oxime, 1654*h*.
Maleimide, *N*-methyl-, 4887*h*, 6453*d*.
Pyridol, 1-oxide, 2997*cf*.
Pyridone, 1-hydroxy-, 2997*c*.
Pyruvonitrile, acetate, 5366*i*, P 6465*g*.
**$C_5H_5NO_3S$** Pyridine, compd with $SO_3$, 5241*c*.
4-Thiazoleacetic acid, 5022*b*.
5-Thiazolecarboxylic acid, Me ester, 221*b*.
**$C_5H_5NO_3$** Furan, 2-methyl-5-nitro-, 2669*f*, 4913*b*.
3 - Isoxazolecarboxylic acid 5 methyl-, 2991*c*, 5394*b*.
**$C_5H_5NO_3S$** (See also *Pyridinesulfonic acid*.)
Pyridine, compd. with $SO_3$, 214*c*, P 696*i*.
**$C_5H_5NS$** Thiazole, 2 vinyl-, P 2805*c*
**$C_5H_5N_3O_2$** Pyrazinamide, 3-hydroxy-, 3009*f*.
Pyrazinoic acid, 3-amino-, P 6244*h*.
2 Pyrazoline-4,5-dicarboximide, 579*d*
3 - Pyridazinecarboxamide, 1,6-dihydro-6-oxo-, 3007*d*.
**$C_5H_5N_3O_2S$** *v*-Triazole - 4 - pyruvic acid, α-thio-, 6620*g*.
**$C_5H_5N_3O_4$** Uracil, 6-methyl-5-nitro-, 650*i*.
**$C_5H_5N_3S_3Si$** Silane, ethyltrisothiocyano-, 6571*b*.
**$C_5H_5N_5$** See *Adenine*
**$C_5H_5N_5O$** (See also *Guanine*.)
Isoguanine, 579*h*, *sulfate*, 1425*a*.
**$C_5H_6N_4O_2$** 6,8(1*H*,9*H*) - Purinedione, 2,3 dihydro 2 imino , 7594*c*
2 - Pyrazoline - 3 carbonyl azide, 1-methyl-5 oxo-, 4272*b*
**$C_5H_6N_4S$** 2 - Purinethiol, 6 - amino-, *and sulfate*, 580*b*
**$C_5H_6$** (See also *Cyclopentadiene*.)
1-Buten-3 yne, 2-methyl , 3352*a*, 3777*d*, 6168*i*.
**$C_5H_6BrCl_3O_2S$** Thiophene, bromotetrahydro(trichloromethyl) , 1,1-dioxide, 2986*g*, 4636*h*.
**$C_5H_6BrN_3$** Pyridine, 2,3-diamino-5-bromo-, 1425*e*.
**$C_5H_6Br_2O_2$** Acrylic acid, α,β-dibromo-, Et ester, 9334*g*
**$C_5H_6ClCuO_4$** Citraconic acid, CuCl complex, 8940*h*
Itaconic acid, CuCl complex, 8940*h*
Mesaconic acid, CuCl complex, 8940*h*
**$C_5H_6ClIO_2$** Acetic acid, iodo-, 3-chloro allyl ester, 2928*c*.
**$C_5H_6ClNO$** Furfurylamine, 5-chloro-, *and chloroplatinate*, 7015*a*
**$C_5H_6ClNO_3$** Acrylic acid, α-(α-chloroacetamido)-, 257*i*, 258*d*.
Alanine, chloroacetyldehydro , 9113*e*
Propionic acid, α-(chloroacetylimino)-, 1071*e*.
**$C_5H_6ClNS$** 2 - Thenylamine, 5-chloro , *HCl*, 2201*h*.
**$C_5H_6ClN_3$** Pyridine, 2,3-diamino-5-chloro , 5785*f*, 7023*g*.
**$C_5H_6Cl_2$** 1,3 - Butadiene, 1,2 dichloro 3-methyl-, 5362*h*.
**$C_5H_6Cl_2N_2O_2$** Hydantoin, 1,3-dichloro 5,5-dimethyl-, 1573*b*.
**$C_5H_6Cl_2N_2O_3$** Hydrouracil, 5,5 dichloro-6-hydroxy-6 methyl , 2170*c*.
**$C_5H_6Cl_2N_4$** *s*-Triazine, 2,4-dichloro 6-dimethylamino, 1426*a*.
**$C_5H_6Cl_2O_2$** Acetic acid, chloro-, 3-chloro allyl ester, 2928*c*.
*m* - Dioxane, 2 - (dichloromethylene) , 1404*g*.
Glutaryl chloride, P 2786*a*.
**$C_5H_6Cl_3N$** Pivalonitrile, trichloro , P 1526*b*.
**$C_5H_6Cl_3NO_4$** 2 - Propanol, 1,1,1-trichloro-3-nitro-, acetate, 2926*f*.
**$C_5H_6Cl_4O_2S$** Thiophene, 3-chlorotetrahydro-4 - (trichloromethyl)-, 1,1-dioxide, 2986*h*
**$C_5H_6F_2O_2$** Acrylic acid, α-(difluoromethyl) , Me ester, P 6465*f*, P 8398*i*.
Acrylic acid, α-fluoro-, 2 fluoroethyl ester, P 5413*b*.
**$C_5H_6F_2O_3$** Acetoacetic acid, α,γ difluoro , Me ester, 2933*b*.
**$C_5H_6F_2O_4$** Acetic acid, fluoro , methylene ester, 2933*d*.
**$C_5H_6F_3NO$** Acrylamide, *N*-methyl-α-(trifluoromethyl)-, P 8399*a*.
**$C_5H_6F_8$** Cyclobutane, 1,1,2,2-tetrafluoro-3-methyl-, 3370*d*, P 4294*b*.
**$C_5H_6F_4O$** Cyclobutanemethanol, 2,2,3,3-tetrafluoro-, 3370*i*.
Ether, methyl 2,2,3,3-tetrafluorocyclobutyl, 3370*i*.
**$C_5H_6NNaO_2$** Acetic acid, cyano , Et ester Na deriv., 3405*c*.
**$C_5H_7NO_3$** Pyroglutamic acid, 143*f*.
**$C_5H_8N_2$** (See also *Pyridine, amino-*.)
Glutaronitrile, 2592*b*.
Pyrimidine, 2-methyl-, *HCl*, P 1814*a*.
Pyrrole, 2-(iminomethyl)-, 2541*b*.
**$C_5H_8N_2O$** Imidazolecarboxaldehyde, 1-methyl , 8381*i*.
Pyrazinol, 3-methyl , 3009*h*.
3-Pyridazinol, 6-methyl , *salts*, 177*h*.
Pyridine, 2-amino , 1-oxide, *and HCl*, 8386*b*
-, 2-hydroxamino-, 8386*c*.
Pyrimidol, methyl-, 1780*g*. *HCl*, 1823*a*.
**$C_5H_8N_2OS$** (See also *Uracil, methylthio*.)
Thiazole, 5 acetamido , 221*c*.
Thymine, 2 thio-, 5118*deg*, 7536*h*
**$C_5H_8N_2O_2$** (See also *Thymine*.)
Imidazoleacetic acid, 9102*h*
Pyrazolecarboxylic acid, methyl , 8365*i*
3(2*H*)-Pyridazone, 6 methoxy , 579*e*
2,4 - Pyrimidinediol, 6 - methyl-, 6985*d*.
Uracil, methyl , 650*h*, 1780*f*, 4635*b*
**$C_5H_8N_2O_3S$** Hydantoin, 5-acetyl 2-thio , 7144*e*
Imidazolecarboxylic acid, 2 mercapto 1-methyl , 3411*c*.
, 2-mercapto-, Me ester, 3411*c*.
**$C_5H_8N_2O_4S$** Hydroorotic acid, 2-thio-, 5995*i*.
**$C_5H_8N_2O_4$** Hydroorotic acid, 5995*i*.
**$C_5H_8N_2S$** 3 Pyridazinethiol, 6 methyl , 3007*f*.
Pyrimidine, 2-methylmercapto-, *HCl*, P 1814*a*
**$C_5H_8N_4O_2$** *v* - Triazole - 4 pyruvic acid, oxime, 6620*h*
**$C_5H_8N_4O_{10}$** 2 Oxazolidone, 4,4 bis(hydroxymethyl) 3 nitro , dinitrate, 6575*b*
**$C_5H_8N_4O_{12}$** Xylopyranose, tetranitrate, 5007*e*.
**$C_5H_8N_6$** Purine, 2,6 diamino , 2250*g*, 6505*a*, 7103*b*, 9186*i*, 9249*e*, *sulfate*, 580*a*, 1424*i*
**$C_5H_8O$** (See also *Furan, methyl-*.)
2 Cyclopenten 1 one, 588*f*.
2,4 Pentadienal, 5775*a*
3-Pentadienone, 2957*i*
2 Penten 4 yn 1 ol, 7115*f*
3 Pentyn-2 one, 7416*a*
**$C_5H_8O_2$** (See also *Furanyl alcohol*.)
Acrylic acid, vinyl ester, P 3229*b*.
1,3 Butadien 2 ol, formate, 2957*i*.
Cyclopentanedione, 7908*i*, 6987*d*.
Formic acid, 1 methylenallyl ester, 2576*a*
2 Pentenal, 4 oxo-, P 1808*i*.
Pentenoic acid, hydroxy , lactone, 1140*d*, 4574*h*, 4640*f*, 7138*h*, 7542.
**$C_5H_8O_3$** 2,3,4 Pentanetrione, P 5130*h*.
2 Pentenoic acid, 2,4 dihydroxy , γ-lactone, 4222
, 4 oxo , 1040*b*, 7015*f*.
Pyrotartaric anhydride, 5070*a*
Reductic acid, P 2227*e*, P 5130*h*, 5879*a*, 6821*i*, 6987*b*.
**$C_5H_8O_3S$** 3(2*H*) Thiophenone, 4-methyl-, 1,1-dioxide, 5777*g*.
**$C_5H_8O_4$** Citraconic acid, 9334*e*.
1,2-Cyclopropanedicarboxylic acid, 635*h*.
Fumaric acid, Me ester, 9334*b*.
Glutaric acid, α hydroxy-, lactone, P 3841*a*.
Itaconic acid, P 678*b*, P 1057*b*, 2366*i*, P 4424*c*, 8091*b*, 9334*c*.
Valeric acid, α,γ-dioxo-, 705*g*.
**$C_5H_8O_4S$** 2 - Furansulfonic acid, 5 methyl , *and Ba salt*, 7015*f*.
**$C_5H_8O_5$** See *Glutaric acid, oxo-*.
**$C_5H_8O_7S_2$** 2,4 - Furandisulfonic acid, 5-methyl-, *and salts*, 7015*e*.
**$C_5H_8S$** Thiophene, methyl-, P 1067*a*, 1763*i*, 4841*h*, 6612*h*, 8223*e*, 9064*d*.
**$C_5H_7$** Allyl, 1-vinyl-, 2512*a*, 5732*fg*.
2,4-Pentadienyl, 5732*fg*.
**$C_5H_7AgN_2S_2$** Imidazolethione, 2-mercaptodimethyl , Ag deriv., 6171*c*.
**$C_5H_7Br$** Cyclobutane, 1-bromo-2 methylene , 586*e*.
Cyclobutene, 1-(bromomethyl)-, 586*b*.
**$C_5H_7BrCl_2O_2$** 1-Propanol, 1 bromo 3,3 dichloro-, acetate, 3345*c*.
**$C_5H_7BrCl_4$** Butane, 3-bromo - 1,1,1,1 tetrachloro-3-methyl-, 9024*c*.
**$C_5H_7BrO_2$** Crotonic acid, γ-bromo-, Me ester, 8361*c*.
*m* - Dioxane, 2 - (bromomethylene) , 1404*g*.
Senecioic acid, α-bromo-, 6975*a*.
**$C_5H_7BrO_2S$** Acetic acid, (2-bromoallylmercapto)-, 3364*h*.

**$C_5H_7Br_2Cl$** 2 - Butene, 1,3 - dibromo-4-chloro-2-methyl-, 5363*b*.

**$C_5H_7Cl$** 1,3 - Butadiene, chloromethyl-, P 2218*d*, 3352*b*, 5362*f*.
1-Butyne, 3-chloro-3-methyl-, 2272*d*.

**$C_5H_7ClFIO_2$** Acetic acid, iodo-, 2-chloro-2' - fluoroisopropyl ester, 6164*f*.

**$C_5H_7ClF_2O_2$** Acetic acid, fluoro-, 2-chloro-2'-fluoroisopropyl ester, 6164*f*.

**$C_5H_7ClN_2$** Imidazole, (chloromethyl) - 1-methyl-, - *HCl*, 8382*b*.

**$C_5H_7ClO$** 3 - Butyn - 2 - ol, 4-chloro-2-methyl-, P 6645*b*.
Furan, 4 - chloro - 2,3 - dihydro 5-methyl-(?), P 3573*d*.
- -, 3 - chlorotetrahydro - 2-methylene-, P 3573*d*, P 9085*i*.
1,2*H* - Pyran, 5 - chloro - 3,4 - dihydro-, 9334*e*.

**$C_5H_7ClO_2$** Acetic acid, chloro-, allyl ester, P 2632*i*, 8200*g*
Acrylic acid, α chloro-, Et ester, P 3027*c*.
*m* - Dioxane, 2 - (chloromethylene)-, 1404*g*.
Levulinyl chloride, P 1056*i*.
2,4-Pentanedione, 3 chloro-, 1008*i*.

**$C_5H_7ClO_2S$** Acetic acid, (2 chloroallylmercapto) , 3364*h*.

**$C_5H_7ClO_3$** Propionic acid, β (chloroformyl)-, Me ester, 2570*g*.

**$C_5H_7Cl_2N$** Pivalonitrile, dichloro-, P 1525*e*.

**$C_5H_7Cl_2NO$** Acetamide, *N* - allyl α,α-dichloro , 1720*b*.

**$C_5H_7Cl_2NO_2$** 2 Butene, 1,4 - dichloro - 2 nitromethyl , P 6646*h*.

**$C_5H_7Cl_3$** Butene, trichloromethyl , 5362*gh*, 9025*a*

**$C_5H_7CuO_2$** 9941

**$C_5H_7F$** 1,3 Butadiene, 2 fluoro 3 methyl , P 2218*s*.

**$C_5H_7FO_2$** Acetic acid, fluoro , allyl ester, 8811*a*

**$C_5H_7N$** 1,3 Butadienylamine, *N* methyl-ene , 6479*e*
2,4 Pentadienylidenimine, 6479*e*
, Pentenenitrile, P 4286*a*
Vinylamine , *N* allylidene-, 6479*e*

**$C_5H_7NO$** Acrylonitrile, β methoxy α-methyl , P 3027*c*
3 Butenenitrile, 2 (hydroxymethyl)-, P 5790*d*
Butyraldehyde, γ-cyano , P 4685*e*
Butyronitrile, α,β - epoxy - α - methyl-, 2937*a*
Cyclopropanitrile, α ethyl , 2938*a*.
4 Pentenenitrile, 3 hydroxy-, P 5790*b*.

**$C_5H_7NOS$** 2 Oxazolidinethione, 5 vinyl-, 6685*a*
1 1,2*H* Thiazin-3-ol, 5-methyl-, 608*a*

**$C_5H_7NO_2$** Acetic acid, cyano-, Et ester, 775*c*, P 689*d*, 1248*s*, 1431*h*, 3357*b*, P 3446*e*, 4774*k*, 7505*f*, P 7507*l*, 7901*h*, P 9475*a*, P 9520*c*.
Acrylonitrile, β oxo , di-Me acetal, 3356*g*
Butyric acid, β cyano-, 2168*a*.
Glutaramide, 641*g*.
Hydracrylonitrile, acetate, P 2220*f*, P 6220*e*
Lactonitrile, acetate, 564*b*, P 4288*h*, P 5035*e*.
1,3 Pentadiene, 1-nitro-, 2926*i*.
Succinimide, *N*-methyl-, 570*g*.

**$C_5H_7NO_2S$** Acetic acid, isothiocyano-, Et ester, 9273*i*.

**$C_5H_7NO_3$** Acetic acid, cyano-, 2-hydroxyethyl ester, P 8691*c*.
Acrylic acid, α-acetamido-, 2166*e*, 3857*a*.
Oxamic acid, *N*-allyl-, *and salts*, P 9473*h*.
2,4 Oxazolidinedione, 5,5-dimethyl-, 1406*a*.
Propionic acid, α-(acetylimino)-, 1071*e*.
Pyroglutamic acid, 3924*a*, 5001*g*.
Valeramide, α,γ-dioxo-, 4673*b*.

**$C_5H_7NO_3S$** 2 Pyrrolesulfonic acid, methyl-, *Ba salt*, 7016*b*.

**$C_5H_7NO_4$** Malonaldehydic acid, formamido-, Me ester, 3411*e*.

**$C_5H_7NO_5$** Glutaric acid, α-oxo-, oxime, 1082*d*, 2276*e*.
Glycerol, 1,2 - cyclic carbonate carbamate, P 6653*a*.

**$C_5H_7NS$** Isothiocyanic acid, butenyl ester, 3888*b*, methylallyl ester, P 3843*e*, 3888*b*
2 Thienylamine, 1763*e*; *and - HCl*, 2201*f*.
Thiazole, 4,5 dimethyl , 5777*b*.

**$C_5H_7NS_2$** 2 Thiazolethiol, 4,5-dimethyl-, P 1798*f*, 4074*d*.

**$C_5H_7N_3$** Pyridazine, 3-amino-6-methyl-, 177*a*, 3007*f*
Pyridine, diamino-, 1425*d*, 5785*f*, P 7973*a*.
—, 2-hydrazino-, 2541*c*.
Pyrimidine, aminomethyl-, P 698*g*; *- HCl*, 1822*h*.

**$C_5H_7N_3O$** Cytosine, methyl-, 4635*b*; *hydrochlorides*, 4228*h*.
5-Pyrimidinemethanol, 4-amino-, *- HCl*, 1822*i*.
3-*as*-Triazinol, 5,6-dimethyl-, 122*i*.

**$C_5H_7N_3OS$** 2 - Pyrazoline - 1 - carboxamide, 3-methyl-5-oxothio-, 6619*g*.

**$C_5H_7N_3O_2$** 2 - Pyrazoline - 3 - carboxamide, 1-methyl-5-oxo-, 4272*i*.
5-Pyrazoline, 3-acetamido-, 4272*g*.

**$C_5H_7N_3O_2S$** 2-Pyridinesulfonamide, 5-amino-, P 8400*f*.

**$C_5H_7N_3S$** 2 - Pyrimidinethiol, 4 amino-methyl-, 4229*a*, 8395*a*.
2 - Pyrimidinethiol, 4 - methylamino-, 8395*c*.

**$C_5H_7N_3S_2$** Urea, 1 - (4 - methyl - 2 - thiazolyl) - 2 - thio , - *HCl*, P 5425*i*.

**$C_5H_7N_4O$** Formamide, *N* - (4,6 - diamino-5-pyrimidyl)-, 3367*b*, 6984*b*.

**$C_5H_7N_4OS + H_2O$** Formamide, *N*-(4,6-diamino - 2 - mercapto - 5-pyrimidyl)-, 580*a*.

**$C_5H_7NaO_4$** Lactic acid, acetate Na deriv., *Na salt*, P 6224*b*.

**$C_5H_8$** (See also *Cyclopentene; Isoprene; Pentadiene; Piperylene.*)
1,2-Butadiene, 3 methyl-, 5275*e*.
1 Butyne, 3 methyl-, 3355*b*.
Cyclobutane, methylene-, 586*d*, 3370*b*.
Cyclopropane, vinyl , 3646*a*.
1-Pentyne, P 6645*d*, 8123*f*, 8255*a*.

**$C_5H_8BrCl$** Butene, bromochloromethyl-, 5363*a*

**$C_5H_8BrClN_2Pt$**, 1678*i*.

**$C_5H_8BrClO_2$** Valeric acid, bromochloro-, 6615*b*

**$C_5H_8BrNO$** Acetamide, *N*-allyl-α-bromo-, 5081*h*

**$C_5H_8Br_2$** Cyclobutane, 1 bromo 1-(bromomethyl) , 586*f*

**$C_5H_8Br_2Cl_2$** Butane, 1,3 - dibromo - 1,1-dichloro 3 methyl , 3345*c*

**$C_5H_8Br_2O$** Isovaleraldehyde, γ,γ'-dibromo , 3775*i*.

**$C_5H_8Br_2O_2$** *m*-Dioxane, 2 (dibromomethyl)-, 1404*i*
Valeric acid, α, δ-dibromo-, 6615*b*

**$C_5H_8Br_2O_2S$** Acetic acid, (2,3-dibromopropylmercapto)-, 3364*i*.

**$C_5H_8Br_2O_3$** Acetic acid, (2,3 dibromopropoxy)-, 7424*c*

**$C_5H_8ClCuO_2$** Senecioic acid, CuCl complex, 8940*h*.
Tiglic acid, CuCl complex, 8940*h*.

**$C_5H_8ClFO_2$** Acetic acid, chlorofluoro , Pr ester, 8352*i*.
Butyric acid, β-chloro-γ-fluoro-, Me ester, 8841*a*.

**$C_5H_8ClN$** Pivalonitrile, chloro-, P 1526*b*.
Valeronitrile, δ-chloro-, 6615*b*.

**$C_5H_8ClNO$** Butyromtrile, α-(chloromethyl)-α-hydroxy-, 2938*c*.

**$C_5H_8ClNO_2$** Carbamic acid, chlorovinyl-, Et ester, P 3032*a*.
Propionamide, *N*-chloroacetyl-, 4221*a*.

**$C_5H_8ClNO_3$** Alanine, chloroacetyl-, 258*c*, 9113*e*.
β Alanine, *N*-chloroacetyl-, 1448*f*.

**$C_5H_8ClN_3$** *s* - Triazine, 2-amino - 4 - chloro-6-dimethylamino-, 1426*c*.
*s* - Triazine, 2 - amino - 4 - chloro - 6 ethylamino , 1426*b*.
—, 2 - chloro - 4,6 - bis(methylamino)-, 1426*d*.

**$C_5H_8ClN_3O$** Ethanol, 2 (4 - amino-6 chloro - *s* - triazin 2 - ylamino) , 1426*c*.

**$C_5H_8Cl_2$** Butene, dichloromethyl-, P 2218*d*, 3372*e*, 5362*ef*, 9024*i*, 9025*a*.
1-Pentene, 1,1-dichloro-, 9024*i*.

**$C_5H_8Cl_2HgO$** 3 - Buten - 2 - ol, 3 - chloro-4-(chloromercuri)-2-methyl-, 7412*i*.

**$C_5H_8Cl_2N_2$** Cyanamide, bis(2-chloroethyl)-, 2927*b*.

**$C_5H_8Cl_2N_2O_2$** Carbamic acid, (2-chloroethyl)nitroso-, 2-chloroethyl ester, 4634*b*.
Carbamic acid, (2,3 - dichloropropyl)-nitroso-, Me ester, 2945*i*.

**$C_5H_8Cl_2O$** Furan, 2,3 - dichlorotetrahydro-2-methyl-, P 9085*h*.

**$C_5H_8Cl_2OS$** Acetic acid, thiol-, ester with dichloropropanol, 7420*c*.

**$C_5H_8Cl_2O_2$** *m*-Dioxane, (dichloromethyl)-, 1404*c*, P 4685*h*, P 5035*c*.
Pivalic acid, β,β'-dichloro-, 2157*i*.
1-Propanol, 2,3-dichloro-, acetate, 1321*g*.
Valeric acid, α, δ-dichloro-, 6615*b*.

**$C_5H_8Cl_2O_2$** 1,3 - Dioxolane, 2-(dichloromethyl)-2-methoxy-, 1404*f*.

**$C_5H_8Cl_2S$** Sulfide, 3-chloroallyl 2-chloroethyl, 2928*a*.

**$C_5H_8Cl_3NO$** Butyrimidic acid, γ,γ,γ-trichloro-, Me ester, - *HCl*, 3359*i*.
Formamide, α - chloro - *N*, *N* - bis(2-chloroethyl)-, 2927*b*.

**$C_5H_8Cl_4$** Butane, 1,2,3,4 - tetrachloro-2-methyl-, 5362*e*.
Pentane, 1,1,1,5 - tetrachloro-, 109*f*, P 8196*e*.

**$C_5H_8FIO_2$** Acetic acid, iodo-, 2-fluoroisopropyl ester, 6164*e*.

**$C_5H_8F_2O_2$** Acetic acid, fluoro-, 2-fluoroisopropyl ester, 6164*f*.
Hydracrylic acid, α,α-difluoro-, Et ester, P 2224*c*.

**$C_5H_8F_2O_3$** Carbonic acid, bis(2 - fluoroethyl) ester, 6164*c*, 8841*b*.

**$C_5H_8INS$** 3,4 - Dimethylthiazolium iodide, 3820*h*.

**$C_5H_8NNaO_2$** Cyclopentane, nitro-, Na deriv., 8365*a*

**$C_5H_8N_2$** Pyrazole, 3,5 - dimethyl-, 8365*g*.

**$C_5H_8N_2O$** Acetamide, *N* - (2 - cyanoethyl)-, P 3841*e*.
Acetimidic acid, cyano-, Et ester, - *HCl*, 3359*i*.
Imidazolemethanol, 1 methyl-, 8382*a*.
2(3*H*) - Imidazolone, 4-ethyl-, P 5808*b*.
2 Pentanone, 3-diazo-, 4653*h*.
Propionimidic acid, β-cyano-, Me ester, - *HCl*, 3359*i*.

**$C_5H_8N_2OS$** Hydantoin, 5,5-dimethylthio-, 6171*fg*, 7586*a*.
Hydantoin, 5-ethyl-2-thio-, 634*h*.
1*H* - Thieno[3,4]imidazol - 2(3*H*)-one, tetrahydro , P 6671*c*.

**$C_5H_8N_2O_2$** Acetamide, α-cyano-*N*-2-hydroxyethyl-, 2273*a*.
Hydantoin, 5,5-dimethyl-, 6171*f*, 7586*a*.
Hydrouracil, 6-methyl-, 5996*a*.

**$C_5H_8N_2O_2S$** Hydantoin, 5-(methylmercaptomethyl)-, 7903*f*.

**$C_5H_8N_2O_3$** Acrylic acid, α-(α-aminoacetamido)-, 258*af*.
Alanine, glycyldehydro-, 6725*d*, 9113*e*
Hydantoin, 5-(methoxymethyl)-, 7903*e*.
Propionic acid, α-(glycylimino) , 1071*c*.

**$C_5H_8N_2O_2S_2$** 1,2,4,2*H* - Thiadiazine - 3,5 (4*H*,6*H*)-dione, 2-ethyl 3-thio-, 1,1-dioxide, P 4868*d*.

**$C_5H_8N_2O_4$** Glutaraldehydic acid, γ-oxo-, dioxime, 2276*d*

**$C_5H_8N_2O_2S$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - (2 - hydroxyethyl)-, 1,1-dioxide, P 4868*d*.

**$C_5H_8N_2S$** Thiazole, (2-aminoethyl)-, 3520*h*.
Thiazole, 2-amino-4-ethyl-, *and - HCl*, 8380*f*

**$C_5H_8N_2S_2$** Hydantoin, 5,5-dimethyldithio-, 2324*a*, 5500*c*, 6171*e*, 7586*a*.
2 - Thiazolesulfenamide, 4,5-dimethyl-, P 1602*e*, P 4509*a*.

**$C_5H_8N_4$** Acetonitrile, (methylenediimino)-di-, 1248*i*.
Pyridine, 2,3,6 - triamino-, *di- HCl*, 7023*i*.
Pyridotetrazole, P 2239*h*.
Pyrido[2,3-*d*] - *v* - triazole, 4,5,6,7-tetrahydro-, 7023*i*.
Pyrimidine, 2,4 - diamino - 6 - methyl-, 9038*c*.

**$C_5H_8N_4O$** 4-Imidazolecarboxamide, 5-amino-1-methyl-, *and - HCl*, 3409*d*.
Imidazolecarboxylic acid, 1-methyl-, hydrazide, 8381*g*.
4 - Pyrimidol, 2,5 - diamino - 6-methyl-, 3423*e*.

**$C_5H_8N_4OS$** 4 - Imidazolecarboxamide, 5 amino-2-mercapto-1-methyl-, 3409*c*.

**$C_5H_8N_4O_2$** 2 - Pyrazoline - 3 - carboxylic acid, 1-methyl 5 oxo-, hydrazide, - *HCl*, 4272*b*
*s*-Triazole 4 alanine, 6621*e*.

**$C_5H_8N_4O_2S$** Compd., m. 273° (decompn.), 3409*b*.

**$C_5H_8N_4O_5$** 2-Homopiperazinone, 1,3-dinitro-, 2203*f*.
2(1*H*) - Pyrimidone, tetrahydro - 4-methyl-1,3-dinitro-, 9065*h*.

**$C_5H_8N_4O_6$** 4,4 - Oxazolidinedimethanol, 3-nitro-, dinitrate (ester), 2936*f*.

**$C_5H_8N_4O_{12}$** Pentaerythritol, tetranitrate, 358*a*, 405*c*, 407*f*, 1982*d*, P 1984*c*, P 2438*a3*, 2580*b*, 4856*a*, 5007*g*, 6066*a*, 6415*h*, 6417*a*, 8681*f*.

**$C_5H_8N_4S$** Pseudourea, 2-(imidazolylmethyl)-2-thio-, *di- HCl*, 634*b*.

**$C_5H_8O$** (See also *Cyclopentanone; Pyran, dihydro-.*)
3-Buten-2-one, 3-methyl-, 564*g*, P 1056*b*, 3352*d*, 3777*s*, 4219*h*, 5987*h*, P 6458*b*.
3-Butyn-2-ol, 2-methyl-, 565*a*, P 693*e*, 994*g*, 1392*s*, 3352*b*, 3777*d*, 7412*i*.

Ether, ethyl 1-propynyl, 2158*g*.
—, methyl 1 - methyleneallyl, 2576*i*, 2957*i*, 6157*g*.
Ketone, cyclopropyl methyl, 2588*i*, 2955*ae*.
2-Pentenal, 4222*c*.
Pentenone, 564*g*, 3715*g*, P 4288*a*, 6165*i*, 7414*b*.
Senecialdehyde, 3345*c*.

**$C_5H_8OS$** 1,4-Thiapyrone, tetrahydro-, 7433*e*.

**$C_5H_8OS_2$** Valeric acid, γ,δ-dimercapto-, γ-lactone, 7424*d*, 9251*a*.

**$C_5H_8O_2$** (See also *Pentanedione*.)
Acetic acid, allyl ester, 1321*f*, 2591*f*, 4401*f*, P 4685*e*, 5307*d*, 5740*g*, 8180*e*; P 8742*d*; isopropenyl ester, P 4807*e*.
Acrylic acid, Et ester, 575*i*, P 907*c*, P 1055*d*, P 3442*g*, P 5413*a*, P 5417*b*, P 5422*i*, 5988*k*, 7408*g*, 8363*g*, 9334*c*.
Angelic acid, 2166*d*.
3-Butenoic acid, Me ester, 2591*e*.
Butyric acid, α-methylene-, P 3442*i*, P 4516*e*.
Crotonic acid, Me ester, 1319*h*, 2591*f*, 6495*g*.
Cyclobutanecarboxylic acid, 2955*e*; *Ag salt*, 3796*b*.
Cyclopropanecarboxylic acid, Me ester, 2955*e*.
2,7-Dioxabicyclo[4.1.0]heptane, 9061*b*.
*m*-Dioxane, 2-methylene-, 1403*i*.
2-Furaldehyde, tetrahydro-, 9060*i*.
Isovaleric acid, β-hydroxy-, β-lactone, P 1055*h*, P 1056*ac*, P 5414*i*.
Methacrylic acid, Me ester, 437*e*, P 444*a*, 559*g*, P 907*a*, P 1218*g*, P 1220*c*, 1598*h*, 1733*b*, 1867*g*, 2010*c*, 2019*h*, P 2034*f*, P 2038*b*, P 3026*g*, 3231*h*, 3370*g*, 3373*f*, P 3444*b*, P 4294*d*, P 4295*b*, 4547*h*, 4552*g*, 4574*h*, 4887*h*, 4934*f*, P 5230*c*, 5271*b*, 5378*f*, P 5629*h*, P 5641*d*, 5883*e*, 6000*d*, P 6218*h*, 6400*f*, P 6465*g*, 7260*i*, 7261*c*, 7296*c*, 7742*c*, 8189*c*, 8200*b*, 8239*f*, 8735*c*, 8736*i*, 8785*a*, P 9537*e*.
Pentane, 1,2,4,5-diepoxy-, 2208*i*.
Pivalic acid, β-hydroxy-, β-lactone, P 1056*c*.
1-Propen-2-ol, acetate, P 903*g*, P 2226*d*, P 3451*e*, P 3838*i*, 4401*h*, P 6652*d*, P 7953*h*, 8255*c*.
Propionic acid, vinyl ester, P 906*b*.
Senecioic acid, P 1055*i*, P 1795*c*, 6975*c*, 9177*a*.
Tiglic acid, 2166*d*, 2184*g*.
Valeric acid, hydroxy-, lactone, 1110*d*, 1312*f*, 1807*f*, P 2224*f*, 2570*f*, P 3451*e*, 4574*h*, 4640*h*, 5367*b*, P 5415*a*, 7138*h*, P 7502*d*, 8358*g*.

**$(C_5H_8O)_n$** *m*-Dioxane, 2-methylene, polymer, 1404*g*.

**$C_5H_8O_2S$** Acetic acid, (allylmercapto)-, 3364*h*.
2 - Thiophenecarboxylic acid, tetrahydro-, *and Ag salt*, 3817*c*.
Thiophene, 2,5-dihydromethyl-, 1,1-dioxide, P 2217*a*, P 3023*g*, 7411*b*.

**$C_5H_8O_2S_2$** 5 - *m* - Dithianecarboxylic acid, 2580*f*.

**$C_5H_8O_3$** (See also *Levulinic acid*.)
Acetic acid, (allyloxy)-, 3364*d*, 7424*b*
Acrylic acid, β-methoxy-, Me ester, 6168*d*
Glycidol, acetate, 7419*d*.
Glycolic acid, allyl ester, P 1055*a*, P 4896*d*, P 5036*i*.
Hydracrylaldehyde, acetate, P 3026*i*.
Isovaleric acid, α-oxo-, 6975*c*.
Pyruvic acid, Et ester, 6980*a*.
Succinaldehydic acid, Me ester, P 4685*e*.
Valeric acid, α,γ-dihydroxy-, γ-lactone, 5926*a*.

**$C_5H_8O_4$** (See also *Glutaric acid*.)
Acetic acid, anhydride with Et carbonate, 6980*a*.
Acetic acid, methylene ester, 3697*c*.
Glycolic acid, propionate, P 5036*i*.
Hydracrylic acid, acetate, P 1053*e*, P 3027*a*, P 6223*i*.
Lactic acid, acetate, P 676*g*, P 6224*b*.
Malonic acid, di-Me ester, 2590*d*.
2-Propanone, 1-hydroxy-, acetate, 9122*b*.
Pyrotartaric acid, 4228*a*, 5069*i*, 6947*a*, 6987*h*.
Succinic acid, mono-Me ester, 7303*b*.

**$C_5H_8O_4S$** Acetic acid, α-methyl-α,α′-thiodi-, 3364*h*.
Propionic acid, β-(carboxymethylmercapto)-, P 1054*h*.
1,2,4,2*H* - Thiadiazine - 3,5(4*H*,6*H*)-dione, 2,4-dimethyl-, 1,1-dioxide, P 4868*d*.

**$C_5H_8O_4S_2$** *p*-Dithiane, 2-methylene-, 1,1,4,4-tetroxide, 7030*d*.
1,4-Dithiepin, 2,3-dihydro-, 1,1,4,4-tetroxide, 4278*i*.
*p* - Dithiin, 2,3 - dihydro - 5 - methyl-, 1,1,4,4-tetroxide, 7030*d*.

**$C_5H_8O_5$** Citramalic acid, P 2635*h*.
Ribonic acid, lactone, P 2104*c*, P 8399*b*.
Xylosone, 2667*i*.

**$C_5H_8O_5S_2$** 1,4 - Dithiepan - 6 - one, 1,1,4,4-tetroxide, 4278*i*.

**$C_5H_8O_7$** Glutaric acid, trihydroxy-, 5128*i*, 5343*c*, *and Ca salt*, 6982*h*.

**$C_5H_8S_3$** Carbonic acid, trithio-, cyclic 1,1-dimethylethylene ester, 7419*b*

**$C_5H_9Br$** Cyclopentane, bromo-, 2955*i*.
Pentene, 5-bromo-, 574*f*, 1334*f*.

**$C_5H_9BrCl_2$** Butane, 3 bromo-1,1-dichloro-3-methyl-, 3345*c*.

**$C_5H_9BrO$** Ether, 2-bromopropenyl ethyl, 2158*e*.
Furan, 3 bromotetrahydro-2-methyl-, 3818*f*
Isovaleraldehyde, α-bromo-, 2158*g*.

**$C_5H_9BrO_2$** Acetic acid, bromo-, Pr ester, 2591*a*.
Isovaleric acid, α-bromo-, 6082*h*.
Propionic acid, α-bromo-, Et ester, 613*a*.
Valeric acid, δ-bromo-, 6615*d*.

**$C_5H_9BrO_3$** Acetic acid, bromo-, 3-hydroxypropyl ester, 1404*g*.
Butyric acid, α-bromo-β-methoxy-, 4224*f*.

**$C_5H_9Br_2Cl$** Butane, dibromochloromethyl-, 5362*i*.

**$C_5H_9Br_3$** Propane, 1,3-dibromo-2-(bromomethyl)-2 methyl-, 3369*h*.

**$C_5H_9Cl$** Butene, chloromethyl-, 111*h*, 113*i*, 5362*cd*, 5731*f*
Cyclopentane, chloro-, 2955*i*
Pentene, chloro-, 3351*c*, 9024*g*

**$C_5H_9ClHgO_2S$** Propionic acid, β-(chloromercurimercapto)-, Et ester, 7433*f*

**$C_5H_9ClN_2$** 2-Imidazoline, 2 (chloromethyl)-1-methyl-, *HCl*, P 7050*i*

**$C_5H_9ClN_2O_3$** Carbamic acid, (2-chloroethyl)-nitroso-, Et ester, 2945*i*
Carbamic acid, (2-chloropropyl)nitroso-, Me ester, 2945*i*.
—, ethylnitroso-, 2-chloroethyl ester, 4634*a*.

**$C_5H_9ClO$** 2 Butanone, chloro-3-methyl-, 2936*g*, 2938*f*.
Ether, 4-chloro-2-butenyl methyl, P 3968*f*.
Pentanone, chloro-, 564*i*, 2936*g*, 2938*d*.

**$C_5H_9ClOS$** Acetic acid, thiol-, ester with chloropropanol, 7420*c*.
Ethanol, 2 - (3 - chloroallylmercapto)-, 2928*a*

**$C_5H_9ClO_2$** Acetic acid, chloro-, Pr ester, 2590*i*
*m*-Dioxane, 2 (chloromethyl)-, 1404*c*.
1,3 - Dioxolane, 4 - (chloromethyl) - 2-methyl-, P 6650*a*.
Formic acid, chloro-, *tert*-butyl ester, 578*h*.
Pivalic acid, chloro-, P 671*g*.
Propanol, chloro-, acetate, 1249*b*, 1404*g*.
Propionic acid, chloro-, Et ester, 3780*e*, 4638*f*, 4639*e*.
Valeric acid, δ-chloro-, 6615*b*.

**$C_5H_9ClO_3$** 1,3-Dioxolane, 2-(chloromethyl)-2-methoxy-, 1404*e*.
1,3-Propanediol, 2-chloro-, acetate, 5367*d*.

**$C_5H_9ClO_4S_2$** *p*-Dithiane, 2 (chloromethyl)-, 1,1,4,4-tetroxide, 7030*i*.

**$C_5H_9ClS_2$** *p* Dithiane, 2 (chloromethyl)-, 7030*e*

**$C_5H_9Cl_2NO$** Acetamide, α-chloro-*N*-(2 chloroethyl)-*N*-methyl-, 7423*a*.
Acetamide, α,α-dichloro-*N* isopropyl-, 1720*b*.
—, α,α-dichloro-*N*-propyl-, 1720*b*.

**$C_5H_9Cl_2NO_2$** Carbamic acid, (2-chloroethyl)-, 2-chloroethyl ester, 4634*b*.
Carbamic acid, (2,3-dichloropropyl)-, Me ester, 2945*i*.

**$C_5H_9Cl_3$** Butane, 1,2,3 trichloro-3-methyl-, 5362*d*.
Pentane, 1,1,1 trichloro-, 2925*f*.

**$C_5H_9Cl_3O$** 2-Butanol, 1,1,1-trichloro-3-methyl-, P 664*f*, P 4284*b*.

**$C_5H_9Cl_3O_2$** Chloral, compd. with iso-PrOH, 1252*f*.

**$C_5H_9Cl_3S$** 1-Pentanethiol, 5,5,5-trichloro-, P 8195*e*.

**$C_5H_9F$** 1-Pentene, 5 fluoro-, 3774*h*.

**$C_5H_9FOS$** Butyric acid, γ-fluorothiol-, Me ester, 8841*c*.

**$C_5H_9FO_2$** Acetic acid, fluoro-, iso-Pr ester, 2933*a*, 8841*a*, Pr ester, 2933*a*.
Butyric acid, γ fluoro-, Me ester, 8841*a*.
Isobutyric acid, α-fluoro-, Me ester, 2933*b*.

**$C_5H_9FO_3$** Butyric acid, γ-fluoro-β-hydroxy-, Me ester, 8841*b*.

**$C_5H_9I$** Cyclopentane, iodo-, 2955*i*.

**$C_5H_9IO_2$** Acetic acid, iodo-, Pr ester, 2591*a*.

**$C_5H_9N$** Pivalonitrile, P 3439*i*.
Valeronitrile, 2592*b*, 3697*e*.

**$C_5H_9NO$** Acetamide, *N*-allyl-, P 9473*h*.
Acrylamide, dimethyl-, P 672*g*, 3358*g*.
Butyronitrile, α-methoxy-, 6974*f*.
Ketone, cyclopropyl methyl, oxime, 5740*e*.
3-Penten-2-one, 4-amino-, 7820*a*.
4-Piperidone, 4275*a*.
2-Pyrrolidone, 1-methyl-, 4274*e*.

**$C_5H_9NOS$** Butyronitrile, α-amino-γ-methylmercapto-, P 677*a*.
Thiocyanic acid, 4-hydroxybutyl ester, 2945*f*.
2-Thiophenecarboxamide, tetrahydro-, 3817*c*.

**$C_5H_9NOS_2$** 4-Morpholinecarbodithioic acid, *Pb salt*, 2188*a*; *Na salt*, 1111*g*.

**$C_5H_9NO_2$** (See also *Proline*.)
Carbamic acid, allyl-, Me ester, 2945*h*.
—, vinyl-, Et ester, P 4897*e*.
Glycine, *N*-allyl-, 6274*i*.
Levulinamide, 4640*e*.
4 Morpholinecarboxaldehyde, 1780*d*.
Norvaline, γ-hydroxy-, γ-lactone, - *HCl*, 574*b*.
4-Pentenoic acid, 2-amino-, P 6653*e*; *and* - *HCl*, 574*b*.
Propionamide, *N*-acetyl-, 4221*a*.

**$C_5H_9NO_3S$** 3-Carboxytetrahydro-1-methyl-2,1-azathiolium hydroxide inner salt, P 5807*b*.
Malonamic acid, thiono-, Et ester, 5021*g*.

**$C_5H_9NO_3$** (See also *Proline, hydroxy-*.)
Alanine, acetyl-, 258*d*, 5058*b*.
Glycine, *N*-formyl-, Et ester, 3411*b*.
Lactamide, acetate, P 3448*f*.
3-Penten 2-ol, 1-nitro-, 2926*g*.
Pyruvic acid, oxime Et ester, 2276*e*.
Sarcosine, *N*-formyl-, Me ester, 3411*b*
Succinamic acid, β-methyl-, 2168*a*.
Valeric acid, α-oxo-, oxime, 2276*d*

**$C_5H_9NO_4$** (See also *Glutamic acid*.)
Acetic acid, (methylimino)di-, 2927*d*
2-Oxazolidone, 4,4-bis(hydroxymethyl-, 6575*f*.
Pivalic acid, nitro-, P 3449*i*.

**$C_5H_9NO_4S$** Alanine, β-(carboxymethylmercapto)-, P 3451*b*.

**$C_5H_9NO_4$** Glutamic acid, β-hydroxy-, 3499*g*

**$C_5H_9NS$** Isothiocyanic acid, isobutyl ester, 548*c*.

**$C_5H_9NSe$** Selenocyanic acid, *tert*-butyl ester, 2160*a*.

**$C_5H_9N_3O$** *s*-Triazine, 2-amino-4-methoxy-6-methylamino-, 4269*c*.

**$C_5H_9N_3$** (See also *Histamine*.)
Imidazole, 2-(2-aminoethyl)-, 3520*h*; *di-HCl*, 3410*h*.
Imidazole, 2-(aminomethyl)-4-methyl-, *di-HCl*, 7478*g*.
Pyrazole, 3-(2-aminoethyl)-, 3520*i*.

**$C_5H_9N_3O$** 3-Buten-2-one, semicarbazone, 2934*g*.
Butyric acid, α-cyano-, hydrazide, 4222*i*
Crotonaldehyde, semicarbazone, 1654*h*, 2934*h*.
2(5*H*) - Imidazolone, 5 - imino - 4,4 - dimethyl-, 6171*g*.
5 Pyrazolone, 3-amino-4-ethyl-, 7478*b*
4(1*H*)-Pyrimidone, tetrahydro-2 imino 6 methyl-, 3793*g*, 5996*a*.

**$C_5H_9N_3OS$** Hydantoin, 5,5-dimethyl 2 thio-, oxime, 6171*i*
3(2*H*)-Thiophenone, dihydro-, semicarbazone, P 3041*h*.

**$C_5H_9N_3O_2$** 2,3-Butanedione, semicarbazone, 122*i*.
Carbamic acid, guanyl-, allyl ester, P 6229*a*.

**$C_5H_9N_3S$** 2(5*H*)-Imidazolethione, iminodimethyl-, 6171*g*.
Pseudourea, 3-cyano-1-ethyl-2-methyl 2-thio-, 2947*c*.

**$C_5H_9N_3O_5$** *s*-Triazine, 1-acetylhexahydro-3,5-dinitro-, 9074*f*, 9075*e*.

**$C_5H_9N_3S$** *s*-Triazine, 2,4-diamino-6-(ethylmercapto)-, P 1444*d*.

**$C_5H_9Na$** Sodium, 1-pentenyl-, 429*h*.

**$C_5H_9NaO_2$** Acrolein, β-hydroxy-, di Me acetal Na deriv., P 6225*g*.

**$C_5H_{10}$** (See also *Butene, methyl-; Cyclopentane; Pentene*.)
Cyclobutane, methyl-, 991*f*, 3370*b*.
Cyclopropane, 1,1-dimethyl-, 3370*b*.
—, ethyl-, 2955*b*.

**$C_5H_{10}AuNS$** Diethylgold thiocyanate, 9034*i*

**$C_5H_{10}BaO_2S_2$** 1,2,3-Pentanetriol, 4,5-dimercapto-, Ba deriv., 7424*i*.

**$C_5H_{10}BrCl$** Butane, bromochloromethyl-, 5363*b*.
Pentane, 1-bromo-5-chloro-, 6571*e*. 3792*f*

**$C_5H_{10}BrNO$** Acetamide, α-bromo-*N*-isopropyl-, 5081*h*.
Acetamide, α-bromo-*N*-propyl-, 5081*h*.
**$C_5H_{10}BrNO_3$** Butyramide, α-bromo-β-methoxy-, 4224*h*.
Pentane, 2-bromo-2-nitro-, 6569*c*.
**$C_5H_{10}Br_2$** Butane, 2,3-dibromo-2-methyl-, 2569*i*.
**$C_5H_{10}Br_2O_2$** Butanol, 3,4-dibromomethoxy-, 6157*eg*.
**$C_5H_{10}ClF$** Pentane, 1-chloro-5-fluoro-, 3774*h*.
**$C_5H_{10}ClNO$** Acetamide, α-chloro-*N*-ethyl-*N*-methyl-, P 6890*b*.
**$C_5H_{10}ClNO_2$** Carbamic acid, (chloropropyl)-, Me ester, 2945*h*, 7422*i*.
Carbamic acid, ethyl-, 2-chloroethyl ester, 4634*a*.
Pentane, 2-chloro-2-nitro-, 6569*c*.
**$C_5H_{10}ClNO_3S$** Propionamide, *N*-(1-chloroethylsulfonyl)-, 120*h*.
**$C_5H_{10}ClNS$** Carbamyl chloride, diethylthio-, P 5038*c*.
1-Piperidinethiocarbonyl chloride, P 5038*c*.
**$C_5H_{10}ClN_3O$** 2-Butanone, chloro-, semicarbazone, 3791*cd*.
**$C_5H_{10}Cl_2$** Pentane, dichloro-, 2925*e*.
Propane, 1,3-dichloro-2,2-dimethyl-, P 8667*g*.
**$C_5H_{10}Cl_2O_2$** Methane, bis(2-chloroethoxy)-, P 5636*i*.
2,4 Pentanediol, 1,5-dichloro-, 2209*c*.
**$H_{10}Cl_2O_3Si$** Silane, (1,2-dichlorovinyl)trimethoxy-, 2571*h*.
**$H_{10}Cl_2S$** Sulfide, 2-chloroethyl 3-chloropropyl, P 4292*c*.
**$H_{10}Cl_2Si$** Silacyclohexane, 1,1-dichloro-, P 8210*e*.
**$H_{10}Cl_2OP$** Phosphine oxide, dichloro[1-(chloromethyl)butyl]-, P 7500*a*.
**$H_{10}FNO$** Carbamyl fluoride, diethyl-, 3741*g*.
**$H_{10}F_2$** Pentane, difluoro-, 2157*b*, 3774*g*, P 6645*d*.
**$H_{10}F_2O_2$** Methane, bis(2-fluoroethoxy)-, 6163*h*, 8841*b*.
**$H_{10}NNaO_2S$** Valine, β-mercapto-, Na deriv., *Na salt*, P 4687*h*.
**$H_{11}N$** Butyronitrile, α-amino-α-methyl-, 8381*b*.
Carbodiimide, methylpropyl-, 1015*f*.
Cyanamide, isopropylmethyl-, 9036*a*.
Isobutyronitrile, α-methylamino-, 1766*b*.
Piperidine, 2-imino-, 2504*i*.
Propionitrile, β-dimethylamino-, P 2631*a*, P 4430*i*.
**$H_{12}N_2O$** Homopiperazinone, *and -HCl*, 9067*e*.
Oxazolidine, 3-ethyl-2-imino-, P 252*g*.
4-Piperidone, oxime, *and -HCl*, 9068*a*.
2-(1*H*)-Pyrimidone, tetrahydro-4-methyl-, 4273*e*.
**$H_{11}N_3OS$** Thiocyanic acid, morpholine salt, 578*g*.
**$C_5H_{11}N_3O$** Hydracrylamidine, acetate, *-HCl*, 5785*b*.
Malonamidic acid, di-Me ester, *di-HCl*, 3759*a*.
Propionic acid, β-guanyl-, Me ester, *-HCl*, 3360*d*.
**$C_5H_{11}NO_2$** (See also *Glutamine*.)
Alanine, glycyl-, 258*c*, 9113*e*.
β-Alanine, *N*-glycyl-, 1448*f*.
Carbamic acid, ethylnitroso-, Et ester, 1652*a*.
Glycine, *N*-alanyl-, 9113*i*.
—, *N*-β-alanyl-, 1448*e*.
—, *N*-(*N*-methylglycyl)-, 2250*b*.
Hydantoic acid, Et ester, 211*g*.
**$C_5H_{11}NO_2S$** Cysteine, *N*-glycyl-, *-HCl*, 8357*a*.
**$C_5H_{11}N_2O_3$** Glutamine, *N*-hydroxy-, 2674*h*.
Glyceric acid, α,γ-diamino-, 5005*d*.
1,2,3,4-*H*-Oxadiazin-4-one, tetrahydro-3,5-bis(hydroxymethyl)-, P 3167*a*.
1,3-Propanediol, dicarbamate, P 4690*h*.
**$C_5H_{11}N_2S$** Butyronitrile, α-amino-γ-methylmercapto-, P 677*a*.
Urea, 1-(2-methylallyl)-2-thio-, P 3843*f*.
**$C_5H_{11}N_2S_2$** 1,3,5,2-*H*-Thiadiazine-2-thione, tetrahydro-3,5-dimethyl-, 4415*b*.
**$C_5H_{12}N_4$** Guanidine, 1-cyano-2-ethyl-3-methyl-, 2949*g*.
Guanidine, 1-cyano-3-isopropyl-, 1405*d*, P 1799*e*, 2947*b*.
—, 1-cyano-3-propyl-, 2947*b*.
**$C_5H_{12}N_4O_2$** Pyrimidine, 1,4,5,6-tetrahydro-methyl-2-nitramino-, 9065*h*.
Urea, (hexahydro-2-oxo-4-pyrimidyl)-, 5996*a*.
**$C_5H_{12}N_4O_2S$** 2-Thia-1,3,5,7-tetrasatricyclo[3.3.1.1$^{3,7}$]decane, 2,2-dioxide, 2573*e*.
**$C_5H_{12}N_4S$** Hydantoin, 5,5-dimethyl-2-thio-, hydrazone, 6171*h*.
**$C_5H_{12}N_6O_2$** Melamine, bis(hydroxymethyl)-, P 2467*e*.
Pyruvaldehyde, disemicarbazone, 2575*i*.
1,3,5,7-Tetrazabicyclo[3.3.1]nonane, 3,7-dinitroso-, 1317*a*.
**$C_5H_{12}N_8O_4$** 1,3,5,7-Tetrazabicyclo[3.3.1]-nonane, 3,7-dinitro-, 1316*h*, 8354*c*, 9072*h*, 9075*c*, P 9079*h*.
**$C_5H_{12}N_6O_{12}$** 2,4,7-Triazoctane-1,8-diol, 2,4,7-trinitro-, dinitrate, 9074*a*.
**$C_5H_{12}N_{10}O_{14}$** 2,4,6,8-Tetrazanonane-1,9-diol, 2,4,6,8-tetranitro-, dinitrate, 9073*a*.
**$C_5H_{10}O$** (See also *Cyclopentanol; Pentanone*.)
2-Butanone, 3-methyl-, 565*c*, 3715*g*, 5004*f*, P 6650*c*.
Butenol, methyl-, 111*g*, 114*bc*, 994*g*, 6970*b*, P 7258*d*.
Butyraldehyde, α-methyl-, P 4685*e*, 6155*g*.
Cyclopropanemethanol, 1-methyl-, 3370*b*.
Ether, ethyl propenyl, 456*a*.
—, isopropyl vinyl, 455*i*, P 2469*i*, P 3228*g*.
—, propyl vinyl, 455*i*, 6576*e*.
Furan, tetrahydromethyl-, P 2805*b*, 3818*g*, 3819*a*, P 9079*i*.
Isovaleraldehyde, 1718*g*, 2095*b*, 3003*b*, P 5791*h*.
Pentenol, 574*f*, 3818*f*, P 4288*a*.
Pyran, tetrahydro-, P 2224*e*, 2535*a*, 4532*b*, P 5650*b*.
Xylonic acid, Ca salt, 4641*g*.
**$C_5H_{10}OS$** 2-Butanone, 4-methylmercapto-, 7434*b*.
**$C_5H_{10}OS_2$** *p*-Dithiane-2-methanol, 7030*e*.
1,4-Dithiepan-6-ol, 4278*g*.
Xanthic acid, butyl-, 5343*h*; *K salt*, 9439*h*; *Na salt*, P 7958*a*; *salts*, P 1602*b*.
—, ethyl-, Et ester, 1518*e*.
**$C_5H_{10}O_2$** (See also *Furfuryl alcohol, tetrahydro-; Isovaleric acid; Pivalic acid; Valeric acid*.)
Acetic acid, iso-Pr ester, 1656*c*, 2590*d*, P 2633*c*, 6495*f*, 8808*g*; Pr ester, 1656*c*, 2590*d*, 2834*b*, 2923*f*, 6495*f*, 8226*e*, 8779*g*.
2-Butanone, hydroxymethyl-, P 1051*e*, 2944*g*, 3352*c*.
—, methoxy-, 1338*i*, P 1443*h*, 6157*e*.
Butenol, methoxy-, 2079*d*, 5741*gh*, 6157*ef*.
Butyric acid, Me ester, 111*e*, 2590*d*, P 2633*c*, 2834*b*, 2923*f*, 8226*e*, 9125*a*.
—, α-methyl-, 1353*f*, 2184*g*, 6155*i*.
1,2-Cyclopentanediol, P 6230*a*.
Formaldehyde, compd. with 2-butanone, 7409*a*.
Formic acid, iso-Bu ester, 1656*c*, 2834*b*; Bu ester, 1656*c*, 2590*d*, P 2633*c*, 2834*b*, P 3670*d*, 8226*e*.
Hydroperoxide, methyl 2-butenyl, P 5033*a*.
Isobutyric acid, Me ester, 111*e*, 2590*d*, 2834*b*, 2923*f*, 6495*g*.
Isovaleraldehyde, β-hydroxy-, 2571*a*.
2-Pentanone, hydroxy-, 2163*d*, P 3451*e*, 5744*i*, 6160*a*, 6190*e*.
Pivalaldehyde, hydroxy-, 2940*i*.
Propionic acid, Et ester, 127*g*, 573*b*, 1656*c*, 2370*i*, 2590*d*, 2834*b*, 2923*f*, 4221*d*, 8226*e*, 8779*g*.
Valeraldehyde, δ-hydroxy-, 6615*d*.
**$C_5H_{10}O_2S$** (2-Carboxyethyl)dimethylsulfonium hydroxide, inner salt, 2261*f*, 2682*e*.
(Carboxymethyl)ethylmethylsulfonium hydroxide, inner salt, 2682*e*.
Ethanol, 2-methylmercapto-, acetate, 2571*g*.
Isovaleric acid, β-mercapto-, 1722*i*.
Methanol, (ethylmercapto)-, acetate, 7410*a*.
Propionic acid, (ethylmercapto)-, 2991*a*, 8816*a*.
—, β-mercapto-, Et ester, P 5424*d*, 7433*f*.
—, β-methylmercapto-, Me ester, 1321*e*.
**$C_5H_{10}O_2S_2$** Acetic acid, (ethylmercaptomethylmercapto)-, 3364*i*.
1,3-Dioxa-6,7-dithionane, 4048*e*.
1-Propanol, 2,3-dimercapto-, 1-acetate, 3783*f*.
Valeric acid, γ,δ-dimercapto-, 7424*d*.
**$C_5H_{10}O_3$** 2-Butanone, 1-hydroxy-4-methoxy-, 2577*h*, 6624*d*.
Butyric acid, α-hydroxy-α-methyl-, 4797*i*, 4798*e*.
—, β-methoxy-, 2162*d*.
Carbonic acid, di-Et ester, 111*f*, P 693*h*, P 694*a*, 1656*c*, 2834*d*, P 4287*e*, 6167*g*, 6168*g*, P 9474*a*.
1,3-Dioxolane, 2-methoxy-2-methyl-, 1404*d*.
Ethanol, 1-ethoxy-, formate, 3786*a*, 6576*e*.
—, 2-methoxy-, acetate, P 4007*c*, P 5582*h*.
Glycolic acid, Pr ester, 8779*g*.
Hydracrylic acid, Et ester, 4639*f*, 8779*g*.
Isobutyric acid, α-methoxy-, 3782*g*; *and Ag salt*, 113*e*.
Isovaleric acid, hydroxy-, 2162*d*, 3788*b*.
Lactic acid, Et ester, 127*g*, 572*c*, 573*g*, P 1055*a*, 6495*f*, 8779*g*.
2-Pentanone, 1,5-dihydroxy-, 9061*a*.
2-Propanone, 1,3-dimethoxy-, 4641*i*.
Propionic acid, α-ethoxy-, *and Bi salt*, 2488*i*.
—, β-methoxy-, Me ester, P 3442*f*, P 3452*a*.
Pyran-2,3-diol, tetrahydro-, 9061*b*.
Valeric acid, hydroxy-, 5367*b*, 6615*c*, P 7502*d*.
**$C_5H_{10}O_4Pb$** Diethyllead carbonate, 2111*g*.
**$C_5H_{10}O_3S$** Isopentane sultone, 6569*h*.
Pentenesulfonic acid, 3352*i*.
1,3-Propanediol, 2,2-dimethyl-, cyclic sulfite, 9042*h*.
Thiophene, tetrahydro-3-methoxy-, 1,1-dioxide, P 4514*b*.
**$C_5H_{10}O_3S_2$** Acetic acid, (2,3-dimercaptopropoxy)-, 7424*c*.
**$C_5H_{10}O_4$** Pentose, 2-desoxy-, 5747*e*.
Pivalic acid, β,β′-dihydroxy-, 2157*i*.
Ribitol, anhydro-, 1721*g*, 5369*i*.
**$C_5H_{10}O_4S$** Methanol, (ethylsulfonyl)-, acetate, 7410*a*.
2,4-Pentanediol, cyclic sulfate, 2934*e*.
**$C_5H_{10}O_4S_2$** *p*-Dithiane, methyl-, 1,1,4,4-tetroxide, 4279*a*, 7030*e*.
1,4-Dithiepane, 1,1,4,4-tetroxide, 4278*i*.
**$C_5H_{10}O_5$** (See also *Arabinose; Ribose; Xylose*.)
Lyxose, 770*d*, 7861*c*, 7870*a*.
Xyloketose, 6285*f*.
**$C_5H_{10}O_5S_2$** *p*-Dithiane-2-methanol, 1,1,4,4-tetroxide, 7030*f*.
1,4-Dithiepan-6-ol, 1,1,4,4-tetroxide, 4278*h*, 7030*f*.
**$C_5H_{10}O_6$** Arabonic acid, P 3972*d*.
Ribonic acid, P 3972*d*.
Xylonic acid, P 3972*d*.
**$C_5H_{10}S$** Thiophene, tetrahydromethyl-, 8887*i*.
**$C_5H_{11}Br$** (See also *Pentane, bromo-*.)
Butane, bromomethyl-, 30*i*, 2834*a*, 2590*i*, 3346*h*, 3348*d*, 6020*c*.
**$C_5H_{11}BrMg$** 1-Methylbutylmagnesium bromide, 8384*g*.
**$C_5H_{11}BrO$** Ether, bromomethyl *sec*-butyl, 2926*d*.
Ether, bromomethyl isobutyl, 2926*c*.
**$C_5H_{11}BrO_2S$** (1-Carboxyethyl)dimethylsulfonium bromide, 2571*g*.
**$C_5H_{11}Cl$** (See also *Butane, chloromethyl-; Pentane, chloro-*.)
Propane, 1-chloro-2,2-dimethyl-, 3372*f*.
**$C_5H_{11}ClHg$** Amylmercury chloride, 1138*df*, 5004*c*.
Isoamylmercury chloride, 1138*ef*, 5004*c*.
**$C_5H_{11}ClO$** Ether, butyl chloromethyl, 6568*c*.
Ether, chloromethyl isobutyl, 6568*d*.
—, 3-chloropropyl ethyl, 129*c*.
Pentanol, chloro-, 2934*h*, P 4684*b*, P 4687*d*.
**$C_5H_{11}ClOS$** Ether, 2-(2-chloroethylmercapto)ethyl methyl, 2928*h*.
**$C_5H_{11}ClO_2S$** (2-Carboxyethyl)dimethylsulfonium chloride, 2571*e*, 7061*c*.
Sulfone, 3-chloropropyl ethyl, 129*d*.
**$C_5H_{11}ClS$** Sulfide, 2-chloroethyl propyl, 2928*g*.
Sulfide, 3 chloropropyl ethyl, 129*c*.
**$C_5H_{11}ClS_2$** Ethane, 1-(2-chloroethylmercapto)-2-methylmercapto-, 2928*h*.
**$C_5H_{11}ClSi$** Silane, allylchlorodimethyl-, 2017*h*.
**$C_5H_{11}ClN_2$** (See also *Diethylamine, 2,2′-dichloro-N-methyl-*.)
1-(2-Chloroethyl)-1-methylaziridinium chloride, 3521*f*.
**$C_5H_{11}Cl_2NO$** Methoxyamine, *N,N*-bis(2-chloroethyl)-, 7422*h*.
**$C_5H_{11}Cl_2Si$** Silane, trichloroisoamyl-, 7219*d*.
**$C_5H_{11}DO$** Amyl alcohol-*d*, 604*b*.
**$C_5H_{11}F$** Pentane, 1-fluoro-, 2591*a*.
**$C_5H_{11}F_2N$** Diethylamine, 2,2′-difluoro-*N*-methyl-, 2927*g*.
**$C_5H_{11}I$** Butane, iodomethyl-, 30*i*, 2591*a*, 3350*d*.
Pentane, iodo-, 2591*a*, 5313*e*.
**$C_5H_{11}Li$** Lithium, amyl-, 5740*a*.
**$C_5H_{11}N$** (See also *Piperidine*.)
3-Butenylamine, 1-methyl-, 5401*i*.
Cyclobutanemethylamine, *-HCl*, 586*i*.
Pyrrolidine, 2-methyl-, 2579*i*.
**$C_5H_{11}NO$** 2-Butanone, 1-amino-3-methyl-, *-HCl*, 635*a*.

2-Butanone, 3-methyl-, oxime, 5740*d*.
Butyramide, α-methyl-, 2184*g*.
Ethanol, 2-(allylamino)-, 7246*f*.
Formamide, *N-tert* butyl-, 2165*i*, P 3028*i*.
—, *N, N* diethyl-, 1656*c*.
Morpholine, 4-methyl-, 4401*h*, P 5419*i*.
2-Pentanone, oxime, 2276*d*, 5740*d*, 6869*c*.
—, 1-amino-, - *HCl*, 635*a*.
4-Piperidinol, *and* - *HCl*, 4275*a*.
2-Propanol, 1-ethylideneamino-, P 7155*e*.
Propionamide, *N*-ethyl-, 121*g*.
2-Pyrrolidinemethanol, 1723*d*, 2582*i*.
Valeramide, P 3028*d*.

**$C_5H_{11}NOS$** Carbamic acid, ethylthiono-, Et ester, 3107*d*.
Sulfilimine, *S,S*-dimethyl-*N*-propio-, *salts*, 173*a*.

**$C_5H_{11}NO_2$** (See also *Amyl nitrite; Betaine; Norvaline; Valine.*)
Acetamide, *N*-(methoxymethyl)-*N*-methyl-, P 3571*h*.
Alanine, Et ester, 573*a*, 1723*b*, *and* - *HCl*, 7425*h*.
β-Alanine, Et ester, 576*b*, - *HCl*, 83 7*e*.
—, *N*-methyl-, Me ester, 575*i*.
Butyric acid, γ-methylamino-, - *HCl*, 4274*e*.
Carbamic acid, Bu ester, 2329*g*, 3107*c*, 3933*a*, *tert*-Bu ester, 5781.
—, ethyl-, Et ester, 2956*g*, 4652*i*.
Isoamyl nitrite, 758*i*, 2834*i*.
Isobutyramide, α-hydroxy-*N*-methyl-, 3358*e*.
Isobutyric acid, α-amino-, Me ester, 3015*d*
Lactamide, *N, N*-dimethyl-, 3358*e*.
Pivalic acid, amino-, P 3450*a*.
Sarcosine, Et ester, 572*i*.

**$C_5H_{11}NO_2S$** (See also *Methionine; Valine, β-mercapto-.*)
Alanine, β-(ethylmercapto)-, 31 ..., 6576*h*.
Cystéine, Et ester, 7520*f*
3-Thiophenine, tetrahydro-*N*-methyl-, 1,1-dioxide, P 4514*b*.

**$C_5H_{11}NO_2S_2$** Carbamic acid, bis(2-hydroxyethyl)dithio-, 767*a*; *Na salt*, 1111*g*

**$C_5H_{11}NO_3$** Alanine, *N*-2-hydroxyethyl-, 2943*g*
Amyl nitrate, 6805*d*, 6814*a*.
Carbamic acid, 2-hydroxyethyl-, Et ester, 3107*d*.
Ether, ethyl 2-nitroisopropyl, P 665*d*.
Hydracrylamide, *N*-2-hydroxyethyl-, 2273*a*
Isoamyl nitrate, 2835*c*.
2-Pentanol, 3-nitro-, 4646*f*.
Serine, Et ester, - *HCl*, 9033*b*.
Valine, hydroxy-, 6250*c*, 6694*b*

**$C_5H_{11}NO_3S$** Alanine, β-(ethylsulfinyl)-, 6576*h*.
Butyric acid, α-amino(methylsulfinyl)-, 2666*b*, 2674*h*, 3499*h*.
Propionamide, *N*-(ethylsulfonyl)-, 120*h*.

**$C_5H_{11}NO_4S$** Butyric acid, α-amino(methylsulfonyl)-, 2666*b*, 2674*h*, 3499*h*, 3895*b*, 6577*g*.

**$C_5H_{11}NO_5$** 1-Propanol, 2-amino-, oxalate, 1723*c*.

**$C_5H_{11}NO_5S$** 2-Pentanesulfonic acid, 1-nitro-, *K salt*, P 9079*c*.
Valine, β-sulfo-, *and Cu salt*, 4920*d*.

**$C_5H_{11}NO_6$** Arabitol, 1-desoxy-1-nitro-, 5747*f*

**$C_5H_{11}NS$** 2-Thenylamine, tetrahydro-, *and salts*, 3817*d*.

**$C_5H_{11}NS_2$** See *Carbamic acid, diethyldithio-*.

**$C_5H_{11}N_3O$** 2(1*H*)-*s*-Triazone, tetrahydro-4,6-dimethyl-, 1782*e*.

**$C_5H_{11}N_3O_2$** 2-Butanone, hydroxy-, semicarbazone, 3791*d*.
Butyric acid, β-guanidino-, 3793*d*.
2(1*H*)-*s*-Triazone, tetrahydro-5-(2-hydroxyethyl)-, 1782*g*.

**$C_5H_{11}N_3O_3$** Glutamic acid, hydrazide, 2674*h*

**$C_5H_{11}N_3S$** 2(1*H*)-*s*-Triazinethione, tetrahydro-4,6-dimethyl-, 1782*e*

**$C_5H_{11}N_3O_3$** Guanidine, 1-butyl-3-nitro-1-nitroso-, 9035*e*.

**$C_5H_{11}N_3O_4$** 1,3,5,1*H*-Triazepine, hexahydro-3-methyl-1,5-dinitro-, 9074*a*.

**$C_5H_{11}N_3O_5$** Imidazolidine, 2-ethoxy-2-nitramino-1-nitro-, 2203*g*.

**$C_5H_{11}Na$** Sodium, amyl, 429*h*, 3346*b*

**$C_5H_{12}$** (See also *Butane, 2-methyl-; Pentane.*)
Propane, 2,2-dimethyl-, 2810*g*, 2924*g*, 6516*g*, 8123*e*

**$C_5H_{12}ClN$** Diethylamine, 2-chloro-*N*-methyl-, - *HCl*, 1861*d*.
Isopropylamine, 2-chloro-*N, N*-dimethyl-, 4213*f*, 9053*i*, - *HCl*, 7466*c*.
—, *N*-(2-chloroethyl)-, - *HCl*, 3419*c*.
Propylamine, chloro-*N, N*-dimethyl-, P 8878, 4924*g*, - *HCl*, 7466*c*.
—, *N*-(2-chloroethyl)-, - *HCl*, 1861*c*.

**$C_5H_{12}ClNO$** Ethanol, 2-[(2-chloroethyl)-methylamino]-, 1005*f*, 5503*b*.
1-(2-Hydroxyethyl)-1-methylaziridinium chloride, 3521*f*.

**$C_5H_{12}ClNO_2$** See *Betaine*.

**$C_5H_{12}FO_3P$** Phosphine oxide, ethylfluoroisopropoxy-, 8841*b*.

**$C_5H_{12}INS$** Hexahydro-1-methyl-2,1-azathionium iodide, P 5807*e*.

**$C_5H_{12}N_2O$** 3-Azetidinemethanol, 3-(aminomethyl)-, 214*a*
3,3-Oxetanebismethylamine, 214*a*.
Urea, butyl-, P 6846*a*.
—, tetramethyl-, P 4515*h*.

**$C_5H_{12}N_2O_2$** (See also *Ornithine.*)
Isovaleric acid, α,γ-diamino-, *and hydrochlorides*, 5005*d*.
Valeric acid, δ-hydroxy-, hydrazide, 8358*g*.

**$C_5H_{12}N_2O_2$** β-Alaninamide, acetate, 1441*h*.
Urea, 1,1-bis(2-hydroxyethyl)-, 6308*i*.

**$C_5H_{12}N_2S$** Pseudourea, 2-butyl-2-thio-, 1868*d*, P 4156*e*
Pseudourea, 1,2-diethyl-2-thio-, - *HBr*, P 1060*a*, 9039*a*.
Thiocyanic acid, $BuNH_2$ salt, 578*g*.
3,4-Thiophenediamine, tetrahydro-2-methyl-, *di-HBr*, P 7970*h*.
Urea, 1,3-diethyl-2-thio-, P 1798*f*.
—, 1-methyl-3-propyl-2-thio-, 1015*e*
—, tetramethylthio-, 2315*i*, 3999*a*, 6298*e*, 7410*i*, P 8163*h*.

**$C_5H_{12}N_4$** 2-Imidazoline, 2-(2-aminoethylamino)-, 4273*d*.
*s*-Triazine, hexahydro-2-imino-4,6-dimethyl-, 1782*f*.

**$C_5H_{12}N_4O$** 2(1*H*)-*s*-Triazone, 5-(2-aminoethyl)tetrahydro-, 1782*g*.

**$C_5H_{12}N_4O_2$** See *Canavanine*.

**$C_5H_{12}N_4S$** 2(1*H*)-*s*-Triazinethione, 4-(2-aminoethyl)tetrahydro-, 1782*g*.
Urea, 1-(isopropylguanyl)-2-thio-, 2950*f*.

**$C_5H_{12}N_4S_2$** Pseudourea, 2,2′-trimethylenebis-[2-thio-, 1868*d*

**$C_5H_{12}N_6O_4$** Hydantoic acid, compd. with guanylurea, 6308*f*.

**$C_5H_{12}O$** (See also *Amyl alcohol; tert-Amyl alcohol, Isoamyl alcohol.*)
Butanol, methyl-, 565*i*, 4215*b*, 6155*e*.
Ether, butyl methyl, 2590*b*.
—, *sec*-butyl methyl, 113*g*
—, ethyl propyl, 2834*b*, 2923*f*
Pentanol, 565*h*, 1369*g*, 7345*h*
1-Propanol, 2,2-dimethyl-, 2165*b*

**$C_5H_{12}OS$** Ethanethiol, 2-propoxy-, 2928*h*.
1-Propanethiol, 3-ethoxy-, 1340*f*.

**$C_5H_{12}OS_2$** Ethanol, 2-(2-methylmercapto-ethylmercapto)-, 2928*h*
1-Propanol, 2,3-bis(methylmercapto-, 7425*e*.

**$C_5H_{12}O_2$** (See also *Pentanediol.*)
1,3-Butanediol, 3-methyl-, 111*gi*.
Ethanol, 2-propoxy-, P 352*e*, 707*f*, 9387*d*.
Formaldehyde, compd. with BuOH, 7409*a*; compd. with $Et_2O$, 7409*a*.
Methane, diethoxy-, P 675*c*, P 105..., 2590*i*, 6568*e*, 7303*a*
1,3-Propanediol, 2,2-dimethyl-, P 7505*h*, 8516*h*.
—, 2-ethyl-, 572*d*.

**$C_5H_{12}O_2S$** Ethanol, 2-(2-methoxyethylmercapto)-, 2928*h*.

**$C_5H_{12}O_2Si$** Acetic acid, (trimethylsilyl)-, 5003*g*.

**$C_5H_{12}O_3$** Acetaldehyde, methoxy-, di-Me acetal, P 675*b*.
Acetone compd. with ethylene glycol, 7409*a*.
Ethanol, 2-(2-methoxyethoxy)-, 4063*f*, 5894*a*, 6495*d*.
1,3,5-Pentanetriol, 572*d*.
Peroxide, *tert*-butyl hydroxymethyl, 6156*h*.
Propanediol, 3-ethoxy-, 311*h*.
—, 2-(hydroxymethyl)-2-methyl-, 3369*g*, P 7505*b*.

**$C_5H_{12}O_3S$** (2-Carboxyethyl)dimethylsulfonium hydroxide, 2571*d*.
Pentanesulfonic acid, *and Ba salt*, 3353*a*, *K salt*, 8707*g*.

**$C_5H_{12}O_3S_2$** 1,2,3-Pentanetriol, 4,5-dimercapto-, 7424*i*, 9250*i*.

**$C_5H_{12}O_4$** (See also *Pentaerythritol.*)
Methane, bis(methoxymethoxy)-, 1052*d*.

**$C_5H_{12}O_4S_2$** Methane, bis(ethylsulfonyl)-, 7409*g*.

**$C_5H_{12}O_4S_4$** Methane, bis(methylmercapto)-bis(methylsulfonyl)-, 6996*b*.

**$C_5H_{12}O_5$** Adonitol, 322*h*, 5704*b*.

**$C_5H_{12}O_5S$** 2,4-Pentanediol, hydrogen sulfi... 2934*g*.

**$C_5H_{12}O_6S_4$** Methane, tetrakis(methylsulfonyl)-, 6995*h*.

**$C_5H_{12}S$** Butanethiol, methyl-, 2759*h*, 2956, 6455*b*, 7420*i*.
1-Pentanethiol, 2759*g*, 2956*d*, P 429... 5925*b*.
Sulfide, butyl methyl, 2956*e*.
—, *tert*-butyl methyl, 2956*e*.
—, isobutyl methyl, 2956*e*.

**$C_5H_{12}S_2$** Ethanethiol, 2-propylmercapt... 2928*h*.
Methane, bis(ethylmercapto)-, 7409*g*.

**$C_5H_{12}S_4$** Orthocarbonic acid, tetrath... tetra-Me ester, 6995*h*.

**$C_5H_{13}ClN_2O$** 1-Propanol, 2,2-bis(aminomethyl)-3-chloro-, 214*b*.

**$C_5H_{13}Cl_2N$** (2-Chloroethyl)trimethylamm... nium chloride, 1005*f*, 1861*e*, 5505*d*.

**$C_5H_{13}IS$** Dimethylpropylsulfonium iodi... 3348*i*.
Isopropyldimethylsulfonium iodi... 3349*c*

**$C_5H_{13}N$** Amylamine, P 2004*b*, 6421*b*.
*tert*-Amylamine, P 8196*g*, 9027*e*.
Butylamine, 1-methyl-, 9027*h*.
Isoamylamine, 6308*i*, 9250*f*.
Isopropylamine, *N*-ethyl-, P 253*h*.
Propylamine, 1,1-dimethyl-, 7303*i*.
—, ethyl-, 121*g*, 9027*h*.

**$C_5H_{13}NO$** 1-Butanol, 2-amino-3-methyl-, ... - *HCl*, 6979*a*.
Ethanol, 2-isopropylamino-, 6587*c*.
Pentanol, amino-, 2579*h*, 2920*i*.
Propanol, dimethylamino-, 4243*e*, 905...
—, 2-methyl-1-methylamino-, P 3839*f*

**$C_5H_{13}NOS$** Butylamine, 4-(methylsulfiny... 1725*d*.

**$C_5H_{13}NO_2$** Ethanol, 2,2′-(methylimino)-... 1626*d*, 2027*d*, P 3839*e*, 5503*b*
1,5-Pentanediol, 2-amino-, 2582*c*.
1,3-Propanediol, 2-amino-2-ethyl-, 7161*d*.
Tetramethylammonium formate, 7526...

**$C_5H_{13}NO_3$** (See also *Betaine.*)
Ethanol, 2,2′-(methoxyimino)di-, 742...

**$C_5H_{13}N_5O_4$** Ribitame, *and* - *HCl*, 5870*a*.

**$C_5H_{13}NO_4S$** Choline, sulfate (cyclic), 2671...

**$C_5H_{13}NS$** Butylamine, 4-methylmercapt... 1725*d*.

**$C_5H_{13}N_3$** Guanidine, 1-isopropyl-3-methy... - *HI*, 9039*c*.

**$C_5H_{13}N_3O_2$** Guanidine, bis(2-hydroxyethyl... P 8685*f*

**$C_5H_{13}N_3O_2S$** Sulfamide, 1-piperidyl-, 2573...
1,2,4,6,4*H*-Thiatriazine, tetrahydro-propyl-, 1,1-dioxide, 2573*i*.

**$C_5H_{13}O_3P$** 1-Propanephosphonic acid, 2,2-di... methyl-, 8366*c*.

**$C_5H_{14}ClFSi_2$** Silane, chlorofluoromethylene-bis[dimethyl-, 563*i*.

**$C_5H_{14}ClNO$** See *Choline*.

**$C_5H_{14}ClN_3O$** (Carboxymethyl)trimethylammonium chloride, hydrazide, 2330*f*

**$C_5H_{14}Cl_2Si_2$** Silane, methylenebis[chlorodimethyl-, 563*i*, P 5206*c*.

**$C_5H_{14}F_2Si_2$** Silane, methylenebis[fluorodimethyl-, 563*e*.

**$C_5H_{14}NNaO_6$** 1,3-Propanediol, 2-nitro-, *N*-deriv., compd. with MeOH, 128*e*.

**$C_5H_{14}N_2$** 1,2-Butanediamine, 2-methyl-... 8381*d*
Cadaverine, 771*b*, P 4511*g*, 6706*d*, 7134*b*.
1,3-Propanediamine, *N, N*-dimethyl-, 2631*a*, P 4431*a*.

**$C_5H_{14}N_2O$** Ethanol, 2-(2-aminoisopropylamino)-(*?*), 4401*g*.
Ethanol, 2-(2-aminopropylamino-(*?*), 4401*g*.

**$C_5H_{14}N_2O_4$** Carbamic acid, 2-hydroxyethyl-, salt with 2-aminoethanol, 6157*i*.

**$C_5H_{14}N_4$** Agmatine, 238*g*, 7134*b*.

**$C_5H_{14}N_4O$** Urea, 1,3-bis(1-aminoethyl)-, 1782*f*.

**$C_5H_{14}OSi$** Silane, ethoxytrimethyl-, 562*g*, P 1222*b*, 1866*i*, P 3237*g*.
Silane, (methoxymethyl)trimethyl-, 1716*g*.

**$C_5H_{14}O_2Si$** Silane, diethoxymethyl-, P 6759*e*

**$C_5H_{14}O_6P_2$** 1,3-Propanediphosphonic acid, 2,2-dimethyl-, 8366*c*.

**$C_5H_{14}AsO_3$** (2-Hydroxyethyl)trimethylarsonium hydroxide, P 8208*c*.

**$C_5H_{14}NO_2$** See *Choline*.

**$C_5H_{14}NO_4P$** Choline, phosphate, 6718*f*.

**$C_5H_{16}N_4$** 1,3-Propanediamine, 2,2-bis(aminomethyl)-, P 4687*d*.

**$C_5H_{16}O_2Si_2$** Silanol, methylenebis[dimethyl-, 563*g*.

**$C_5H_{10}O_2$** Acetic acid, compd. with MeOH, 7409*c*.

$C_6H_{17}N_2Pt$, 8942*b*.
$C_6H_{36}MgN_{10}O_{18}S$ +2$H_2O$ Urea, compd. with magnesium sulfate, 1280*a*.
$C_6K_4MoN_6O$ +2$H_2O$, 3303*i*.
$C_6AgCl_5O$ Phenol, pentachloro-, Ag deriv., 8085*f*.
$C_6Br_4O_2$ *o*-Quinone, tetrabromo-, 6981*i*.
$C_6Ca_2O_2$ Calcium carbide, compd. with CaO, 2081*g*.
$C_6CdFeK_2N_6$ Cadmium potassium ferrocyanide, 1677*h*.
$C_6Cd_2FeN_6$ Cadmium ferrocyanide, 8966*e*.
$C_6CeCrO_{12}$ +8$H_2O$ Cerium oxalatochromate(III), 4970*c*.
$C_6Cl_2F_8$ Cyclohexene, 1,2-dichlorooctafluoro-, P 3844*f*.
$C_6Cl_4O_2$ (See also *Chloranil*.) *o*-Quinone, tetrachloro-, 6981*e*.
$C_6Cl_5NaO$ Phenol, pentachloro-, Na deriv., 404*b*, 1516*i*, 1807*f*, 3554*f*, 5525*i*, 5948*a*, 5983*d*, 6356*e*, P 6782*f*, 8086*e*, 9337*h*, 9352*a*, P 9475*g*.
$C_6Cl_6$ See *Benzene, hexachloro-*.
$C_6Cl_6D_6$ Cyclohexane - 1,2,3,4,5,6 - *d*$_6$, 1,2,3,4,5,6-hexachloro-, 4805*c*.
$C_6Cl_6O$ 2,5-Cyclohexadien-1-one, hexachloro-, 6356*e*, 8590*h*.
$C_6Cl_8$ Cyclopentadiene, 1,2,3,4,5 pentachloro-5-(trichloromethyl)- (?), 4231*i* Cyclopentene, 1,2,3,3,4,4 hexachloro 5-(dichloromethylene)- (?), 1231*i*. 1,3,5-Hexatriene, octachloro-, 3346*i*
$C_6CoK_3O_{12}$ 4 3$H_2O$, 7806*g*.
$C_6Co_2FeN_6$ Cobalt ferrocyanide, 1650*h*, 8966*e*
$C_6CrLaO_{12}$ + 8$H_2O$ Lanthanum oxalatochromate(III), 4970*c*.
$C_6CrNdO_{12}$ +8$H_2O$ Neodymium oxalatochromate(III), 4970*c*.
$C_6CrO_{12}Pr$ +8$H_2O$ Praseodymium oxalatochromate(III), 4970*c*.
$C_6Cu_2FeN_6$ See *Copper ferrocyanide*
$C_6F_6$ Aromatic compd , hexa 81 2 , P 3845*d* Benzene, hexafluoro , 3266*i*.
$C_6F_{12}$ Cyclohexane, dodecafluoro , 1656*i*, 2157*b*, 3266*i*, 3288*g*, P 3834*b*, 7277*a*. $C_6F_{14}$ Hexane, tetradecafluoro-, 3266*i*
$C_6FeKN_6Y$ Potassium yttrium ferrocyanide, 4970*f*
$C_6FeK_2N_6Zn$ Potassium zinc ferrocyanide, 8744*e*.
$C_6FeK_3N_6$ See *Potassium ferricyanide*
$C_6FeK_4N_6$ See *Potassium ferrocyanide*
$C_6FeLaN_6$ Lanthanum ferricyanide, 4082*g*
$C_6FeLi_4N_6$ Lithium ferrocyanide, 5326*i*
$C_6FeN_6Na_4$ See *Sodium ferrocyanide*
$C_6FeN_6Ni_2$ Nickel ferrocyanide, 8966*e*
$C_6FeN_6O_3U_2$ Uranyl ferrocyanide, 8299*g*
$C_6FeN_6Zn_2$ See *Zinc ferrocyanide*
$C_6Fe_2N_6$ Iron ferricyanide, 1077*c*.
$C_6Fe_2Mo_2$ Iron molybdenum carbide, 7397*g*.
$C_6HBr_3O_4$ Muconic acid, $\alpha,\beta,\delta$-tribromo-$\gamma$-hydroxy-, $\gamma$-lactone, 6981*i*
$C_6HBr_5O$ Phenol, pentabromo-, 4918*b*, 6356*e*, 8086*e*.
$C_6HCl_3N_2O_4$ Benzene, trichlorodinitro , 8014*i*, 11377*g*
$C_6HCl_3O_2$ *p*-Quinone, trichloro , 5665*g*
$C_6HCl_3O_4$ Muconic acid, $\alpha,\beta,\delta$-trichloro-$\gamma$-hydroxy-, $\gamma$-lactone, 6981*f*.
$C_6HCl_5$ Benzene, pentachloro , P 1437*d*, 3346*d*, 5523*e*
$C_6HCl_5O$ See *Phenol, pentachloro-*
$C_6H_2BrCl_3O$ Hypobromous acid, 2,4,6-trichlorophenyl ester, 4658*g*
$C_6H_2Br_2ClNO$ *p*-Quinone imine, 2,6-dibromo-*N*-chloro-, 4185*a*.
$C_6H_2Br_2O_4$ Muconic acid, $\alpha,\gamma$-dibromo-$\beta,\delta$-dihydroxy-, $\gamma$-lactone, 6982*b*.
$C_6H_2Br_2O$ Hypobromous acid, 2,4,6-tribromophenyl ester, 4658*f*.
$C_6H_2ClIN_2O_4$ Benzene, 1-chloro-2-iodo-4,6-dinitro-, 2184*a*.
$C_6H_2ClN_3O_8$ See *Picryl chloride*.
$C_6H_2ClN_3O_7$ Picric acid, 3-chloro-, 6585*i*.
$C_6H_2ClINO_2$ Benzene, 1,4-dichloro-2 iodo 5-nitro , 3729*cg*.
$C_6H_2Cl_2N_2O_3$ Benzene-2-diazo-1-oxide, 4,6-dichloro 5-hydroxy-, P 9355*c*.
$C_6H_2Cl_2N_2O_4$ Benzene, 2,5-dichloro-1,3-dinitro-, 7452*h*.
$C_6H_2Cl_2O_2S$ 2,5-Thiophenedicarbonyl chloride, 630*i*
$C_6H_2Cl_2O_4$ Muconic acid, $\alpha,\gamma$-dichloro-$\beta,\delta$-dihydroxy-, $\gamma$-lactone, 6981*f*.
$C_6H_2Cl_4I$ Benzene, 1,2,4-trichloro-5-iodo-, 3720*f*.
$C_6H_2Cl_4NO_2$ Benzene, 1,2,3-trichloro-5-nitro-, 6194*a*.
$C_6H_2Cl_4NaO$ Phenol, 2,4,5-trichloro-, Na deriv., 7178*i*, 9327*h*.
$C_6H_2Cl_4O$ Phenol, tetrachloro-, 1807*f*, 6356*f*, 8086*e*.
$C_6H_2Cl_4O_2$ Hydroquinone, tetrachloro-, 6515*e*.
$C_6H_2Cl_4O_4$ Muconic acid, tetrachloro-, 6981*f*.
$C_6H_2Cl_4N$ Aniline, 2,3,4,5,6-pentachloro-, 4918*b*, 7803*h*.
$C_6H_2Cl_6$ 1,3,5-Hexatriene, hexachloro-, 3346*d*.
$C_6H_2Cl_6$ 1,5-Hexadiene, octachloro-, 3346*d*.
$C_6H_2F_6O_4$ +2$H_2O$ Adipic acid, octafluoro-, P 2635*c*.
$C_6H_2KN_3O_7$ Picric acid, K salt, 6495*h*.
$C_6H_2LiN_3O_7$ Picric acid, Li salt, 8811*b*.
$C_6H_2N_3NaO_7$ Picric acid, Na salt, 4707*i*, 8811*b*.
$C_6H_2N_3O_7Tl$ Picric acid, Tl salt, 6495*h*.
$C_6H_2N_4$ 2,6-Pyrazinedicarbonitrile, 8394*b*.
$C_6H_2O_6$ Rhodizonic acid, P 5130*h*, 7790*c*.
$C_6H_3BrN_2O_4$ Benzene, 1-bromo-2,4-dinitro-, 8086*d*.
$C_6H_3BrN_2S$ 1,2,3-Benzothiadiazole, 5-bromo-, 222*i*.
$C_6H_3Br_3$ Benzene, tribromo-, 7918*f*.
$C_6H_3Br_3O$ Phenol, tribromo-, 1044*e*, 7140*h*, 7447*d*, 7448*e*, 9143*f*
$C_6H_3ClN_2$ Nicotinonitrile, 6-chloro-, 2995*e*.
$C_6H_3ClN_2O_2$ Benzofurazan, 5-chloro-, *N*-oxide, P 6846*b*.
$C_6H_3ClN_2O_4$ Benzene, chlorodinitro-, 70*d*, 221*i*, 222*a*, 3277*e*, P 3968*de*, P 4604*fg*, 6175*c*, 7463*i*, 8727*i*.
$C_6H_3ClN_2O_5$ Phenol, chlorodinitro-, 3964*b*, P 4695*h*, 5013*c*, 6585*gi*, 6586*a*.
$C_6H_3ClN_2S$ 1,2,3-Benzothiadiazole, 5-chloro-, 222*h*.
$C_6H_3Cl_2NO_2$ Benzene, dichloronitro-, 3729*d* 4150*h*, 6175*d*.
$C_6H_3Cl_2NO_3$ Phenol, 2,4-dichloro-6-nitro-, P 6658*c*.
$C_6H_3Cl_2NaO$ Phenol, 2,4-dichloro-, Na deriv , 4707*i*.
$C_6H_3Cl_3$ See *Benzene, trichloro-*.
$C_6H_3Cl_3N_3$ *s* Triazine, 2,4,6-tris(chlorofluoromethyl)-, P 1444*f*.
$C_6H_3Cl_3O$ Phenol, trichloro-, 1807*f*, 3964*b*, 7447*d*, 7448*e*, 7734*d*.
$C_6H_3Cl_3O_2$ Resorcinol, trichloro-, 841*i*.
$C_6H_3Cl_3S$ Thiophene, 3,4,5-trichloro-2-vinyl , 216*i*
$C_6H_3F_6N_3$ *s* Triazine, 2,4,6-tris(difluoromethyl) , P 1444*f*.
$C_6H_3IN_2O_5$ Phenol, 2-iodo-4,6-dinitro-, 2784*a*.
$C_6H_3IN_2S$ 1,2,3-Benzothiadiazole, 5-iodo , 222*i*
$C_6H_3IS_2$ Thieno[3,4-*b*]thiophene, iodo-, 4667*b* Thiophthene, iodo-, 4667*b*
$C_6H_3NO_4S$ 2,4,5-Thiazoletricarboxylic acid, *and K salts*, 5021*d*
$C_6H_3NO_7$ 2,3-Furandicarboxylic acid, 5-nitro-, 5021*a*.
$C_6H_3N_2NaO_4S$ Benzenethiol, 2,4-dinitro-, Na deriv , 3387*h*
$C_6H_3N_2NaO_5$ Phenol, dinitro-, Na deriv., 4806*d*, 5892*i*, 7123*i*
$C_6H_3N_3O_2S$ 1,2,3-Benzothiadiazole, 7-nitro-, 221*h*
$C_6H_3N_3O_6$ See *Benzene, trinitro-*
$C_6H_3N_3O_7$ (See also *Picric acid*.) Phenol, trinitro , 6276*a*
$C_6H_3N_3O_8$ See *Styphnic acid*
$C_6H_3N_9$ Melon, 557*i*
$C_6H_4AsCl_3N_2O$ 5-Dichloroarsino-2-hydroxybenzenediazonium chloride, inner salt, 599*a*.
$C_6H_4AsNO_4$ Phenol, 4-arsenoso-2-nitro-, 599*a*.
$C_6H_4As_2Cl_6$ Arsine, *p*-phenylenebis[dichloro-, 4383*e*
$C_6H_4BrCl$ Benzene, bromochloro-, 1895*i*, 4937*e*, 5754*f*.
$C_6H_4BrClHg$ *p*-Bromophenylmercury chloride, 171*d*.
$C_6H_4BrI$ Benzene, 1-bromo-4-iodo-, 5754*f*.
$C_6H_4BrNO_2$ Benzene, bromonitro-, 27*f*, 1242*e*, 1312*e*, 5754*g*, P 7593*a*. Nicotinic acid, bromo-, 9069*c*. *p*-Quinone, bromo-, oxime, 5378*h*.
$C_6H_4BrNO_3S$ Benzenesulfenyl bromide, *o*-nitro , 8366*g*. Thiophene, 2-bromo 5-(2 nitrovinyl) , 9036*h*.
$C_6H_4BrN_3O$ 1*H*-Imidazo[*b*]pyridin-2-ol, 6-bromo-, 1425*h*.
$C_6H_4BrN_3O_4$ Aniline, 2-bromo-4,6-dinitro-, P 1574*d*, P 8155*a*.
$C_6H_4BrN_3S$ 1*H*-Imidazo[*b*]pyridine-2-thiol, 6-bromo-, 1425*h*.
$C_6H_4Br_2$ See *Benzene, dibromo-*.
$C_6H_4Br_2O$ Phenol, dibromo-, 1044*e*, 7447*d*, 7448*d*.
$C_6H_4Br_2N_2$ *p*-Quinone diimine, dibromo-, 894*a*.
$C_6H_4Br_2N$ Aniline, 2,4,6-tribromo-, 175*d*.
$C_6H_4ClF$ Benzene, 1-chloro-2-fluoro-, 3252*h*.
$C_6H_4ClHgNO_3$ *p*-Nitrophenylmercury chloride, 171*d*.
$C_6H_4ClI$ Benzene, 1-chloro-4 iodo-, 4937*e*, 5754*f*.
$C_6H_4ClNO$ Benzene, chloronitroso-, 5013*cd*, 6585*e*.
$C_6H_4ClNO_3$ (See also *Benzene, chloronitro-*.) Nicotinic acid, 2-chloro-, 1409*g*. Phenol, chloro-4-nitroso , 5378*h*. Picolinic acid, 6-chloro-, P 3471*f*. *p*-Quinone, chloro-, oxime, 5378*h*.
$C_6H_4ClNO_3S$ Benzenesulfenyl chloride, *p*-nitro-, P 8400*b*. Thiophene, 2-chloro-5-(2-nitrovinyl)-, 9036*h*.
$C_6H_4ClNO_4$ Hydroquinone, chloronitro-, P 8664*f*.
$C_6H_4ClNO_4S$ Benzenesulfonyl chloride, nitro-, 4630*a*, P 6232*a*.
$C_6H_4ClNO_5S$ Phenol, nitro-, chlorosulfonate, 173*ef*.
$C_6H_4ClN_3$ Benzene, 1-azido-4-chloro-, 8366*a*. Imidazo[*b*]pyridine, 6-chloro-, 7023*g*.
$C_6H_4ClN_3O$ Imidazo[*b*]pyridin-2-ol, 6-chloro-, 7023*g*.
$C_6H_4ClN_3O_2$ *p*-Nitrobenzenediazonium chloride, 169*i*, 595*g*, 893*i*, 1736*e*, 4649*e*
$C_6H_4ClN_3O_3$ Benzenediazohydroxide, 4-chloro-2-nitro-, 2402*e*. Chlorobenzenediazonium nitrate, 6585*g*.
$C_6H_4ClN_3O_4$ Aniline, chlorodinitro , P 862*e*, 5755*g*, P 8151*h*.
$C_6H_4ClN_3S$ Imidazo[*b*]pyridine-2-thiol, 6-chloro , 7023*h*.
$C_6H_4Cl_2$ See *Benzene, dichloro-*.
$C_6H_4Cl_2NP$ Phosphine, chloro(chlorophenylimino) , P 2765*c*.
$C_6H_4Cl_2N_2$ *p*-Chlorobenzenediazonium chloride, 1736*e*, 4646*f*.
$C_6H_4Cl_2N_2O_2$ Aniline, dichloro-4-nitro-, 3729*e*, P 4474*c*, P 4866*dfg*, P 5599*a*, 6194*a*, P 7696*f*, P 8154*g*, P 9549*d*.
$C_6H_4Cl_2N_2O_3$ 3-Pyridazinecarboxylic acid, 4,5 - dichloro - 1,6 - dihydro - 1-methyl-6-oxo-, 3006*k*.
$C_6H_4Cl_2N_2O_6S$ 1-Phenol-2 sulfonic acid, 6-amino-4,5-dichloro-3-nitro-, P 2440*h*, P 8148*d*.
$C_6H_4Cl_2O$ See *Phenol, dichloro-*.
$C_6H_4Cl_2OS$ Ketone, chloromethyl 5-chloro-2-thienyl, 5303*b*.
$C_6H_4Cl_2O_2$ Benzoic acid, 3,4 dichloro-, 6351*f*. Muconyl chloride, 7452*i*.
$C_6H_4Cl_2O_3S$ Phenol, chloro , chlorosulfonate, 173*b*.
$C_6H_4Cl_2O_4S_2$ *p*-Benzenedisulfonyl chloride, 1739*b*, 4237*d*
$C_6H_4Cl_2S$ Thiophene, 2-chloro-5-(2 chlorovinyl)-, 5393*h*. Thiophene, 2,5-dichloro-3 vinyl-, 216*i*
$C_6H_4Cl_3N$ Aniline, 2,4,5-trichloro-, 3729*f*.
$C_6H_4Cl_3NO$ Phenol, 2-amino-3,4,6-trichloro , P 4865*g*, P 5960*c*, P 6832*f*, P 8148*d*, P 8153*g*.
$C_6H_4Cl_3NO_3S$ 1-Phenol-3-sulfonic acid, 6-amino-2,4,5-trichloro , P 3626*d*.
$C_6H_4Cl_6$ Cyclohexane, octachloro-, 5894*f*, 7175*h*, 8601*r*. 1-Hexene, 1,2,3,4,5,5,6,6-octachloro-, 5361*i*.
$C_6H_4D_2O$ Phen-3,5-$d_2$-ol, 602*i*, 5012*c*.
$C_6H_4FNO_2$ Benzene, 1-fluoronitro-, 6992*c*. Nicotinic acid, fluoro-, 4267*a*, 9069*f*.
$C_6H_4FNO_3$ Phenol, 2-fluoro-4-nitro-, 9048*e*.
$C_6H_4F_2$ Benzene, *m*-difluoro-, 6020*f*.
$C_6H_4F_4$ Cyclobutane, 3-ethynyl-1,1,2,2-tetrafluoro-, 3371*d*, P 4293*i*, P 4295*a*. Cyclobutene, 3,3,4,4 - tetrafluoro - 1-vinyl-, 3371*d*, P 4293*i*, P 4295*a*.
$C_6H_4Hg_2K_4N_6O_8S$, P 3837*f*.
$C_6H_4INO_2$ Benzene, iodonitro-, 27*f*, 5754*g*. Isonicotinic acid, 3-iodo-, 3827*c*.
$C_6H_4I_2$ Benzene, diiodo , 1657*f*, 2866*g*.
$C_6H_4I_2O_3S$ 1-Phenol-4-sulfonic acid, 2,6-diiodo , *N H*$_4$ *salt*, 2972*f*.
$C_6H_4NNaO_3S$ Benzenethiol, nitro-, Na deriv., 3387*d*.
$C_6H_4NNaO_5$ Phenol, nitro-, Na deriv., 6935*c*.
$C_6H_4N_2$ Malononitrile, allylidene-, P 4897*e*. Nicotinonitrile, 643*c*, 1411*d*, P 1811*bd*, P 7513*i*.
$C_6H_4N_2OS$ 1,2,3-Benzothiadiazol-5-ol, 222*i*.
$C_6H_4N_2O_3$ Benzene, dinitroso-, 5623*fh*, P 8196*d*.
$C_6H_4N_2O_4$ Benzene, nitronitroso-, 1655*i*, 5013*d*, 5621*e*, 6585*f*.
$C_6H_4N_2O_4$ (See also *Benzene, dinitro-*.) Pyrazinedicarboxylic acid, 8394*cd*. Resorcinol, 2,4-dinitroso-, 3810*b*.
$C_6H_4N_2O_5$ See *Phenol, dinitro-*.
$C_6H_4N_2O_6$ Resorcinol, dinitro-, 5379*b*.

**$C_6H_4N_2S$** 1,2,3-Benzothiadiazole, 221*h*.
Nicotinonitrile, 6-mercapto-, 2995*f*.
Pseudourea, 2-amyl-2-thio-, 1868*d*.
**$C_6H_4N_2NaO_2$** *p*-Nitrobenzenediazoniuм hydroxide, Na deriv., 169*i*.
**$C_6H_4N_2O_7Tl$** Benzene, 1,3,5-trinitro-, compd. with TlOH, 3352*g*.
**$C_6H_4N_4$** Pteridine, 2624*i*, 5013*f*.
**$C_6H_4N_4O$** 1,3,4-Oxadiazole-2,5-diacetonitrile, P 8924*g*.
**$C_6H_4N_4OS_2$** Rhodanine, 5-(*y*-triazol-4-ylmethylene)-, 6620*f*.
**$C_6H_4N_4O_3$** Benzene, azidonitro-, 8366*a*.
Lumazine, P 6244*h*.
**$C_6H_4N_6$** Benzene, diazido-, 8366*a*.
**$C_6H_4O_2$** See *Quinone*.
**$C_6H_4O_3$** 2-Furanglyoxylaldehyde, 1393*c*.
**$C_6H_4O_4$** Coumalic acid, 1110*d*, 7138*h*.
2-Hexen-4-ynedioic acid, 7415*e*.
**$C_6H_4O_4S$** 2,5-Thiophenedicarboxylic acid, 630*b*, 1393*g*, 1764*c*, P 4302*d*.
**$C_6H_4O_6$** Aconitric anhydride, 3145*e*.
**$C_6H_4O_6$** Quinone, tetrahydroxy-, P 5130*h*.
**$C_6H_4O_6S$** 2,5-Thiophenedicarboxylic acid, 3,4-dihydroxy-, P 2236*i*.
**$C_6H_4S$** *o*-Phenylenethio (*free radical*), 6179*h*.
**$C_6H_4S_2$** Thienothiophene, 3407*e*, 4666*i*.
Thiophthene, 3407*e*, 4666*i*.
**$C_6H_5$** Phenyl (*free radical*), 6479*c*.
**$C_6H_5Ag_3O_4P$** Phenyl silver phosphate, 6996*c*.
**$C_6H_5AsCl_2$** Arsine, dichlorophenyl-, 23*a*, 1046*e*, 6114*d*, 6178*b*.
**$C_6H_5AsCl_4N_2$** Benzenediazonium chloride, compd. with $AsCl_3$, 4648*b*.
**$C_6H_5AsN_2O_8$** Benzenearsonic acid, 4-hydroxy-3,5-dinitro-, *and salts*, 2436*i*.
**$C_6H_5AsO$** Benzene, arsenoso-, 3111*a*, 8535*b*.
**$C_6H_5Br$** See *Benzene, bromo-*.
**$C_6H_5BrF_4$** Cyclobutane, 1-bromo-2,2,3,3-tetrafluoro-1-vinyl-, P 4295*e*.
**$C_6H_5BrHg$** Phenylmercury bromide, 171*c*.
**$C_6H_5BrMg$** Phenylmagnesium bromide, 565*e*, 1717*d*, 2579*b*, 2621*a*, 3390*b*, 4227*i*, 4275*a*, 6994*d*, 7484*d*, 9051*bd*.
**$C_6H_5BrN_2O$** Nicotinamide, 2-bromo-, 9039*d*
**$C_6H_5BrN_2O_3$** Aniline, 2-bromo-4-nitro-, P 8154*i*.
**$C_6H_5BrO$** See *Phenol, bromo-*.
**$C_6H_5BrOS$** Ketone, bromomethyl 2-thienyl, 2614*h*.
Ketone, 5-bromo-2-thienyl methyl, 4665*i*, 5393*a*.
**$C_6H_5BrO_2Se$** Benzeneseleninic acid, bromo-, 6050*i*.
**$C_6H_5BrO_3$** 3-Furoic acid, 5-bromo-4-methyl-, 5020*g*.
**$C_6H_5BrO_3S$** Benzenesulfonic acid, *p*-bromo-, 2359*h*.
**$C_6H_5BrO_4$** Kojic acid, bromo-, 8007*e*.
**$C_6H_5BrS$** Thiophene, 2-bromo-5-vinyl-, 2161*h*, 5393*f*.
**$C_6H_5Br_2ClS$** Thiophene, 2-chloro-5-(1,2-dibromoethyl)-, 5393*g*.
**$C_6H_5Br_2NO$** Pyridine, 2,6-dibromo-4-methoxy-, 641*i*.
2(1*H*)-Pyridone, 3,5-dibromo-6-methyl-, 6631*a*.
**$C_6H_5Br_2N_3O_3$** Uracil, 5-α,α-dibromoacetamido-, P 5796*g*.
**$C_6H_5Br_2S$** Thiophene, 2-bromo-5-(1,2-dibromoethyl)-, 5393*g*.
**$C_6H_5Cl$** See *Benzene, chloro-*.
**$C_6H_5ClF_4$** Cyclobutane, 1-chloro-2,2,3,3-tetrafluoro-1-vinyl-, 3371*b*, P 4294*i*.
Cyclobutane, 3-(1-chlorovinyl)-1,1,2,2-tetrafluoro-, 3371*b*, P 4294*i*.
**$C_6H_5ClF_4O_2$** Cyclobutanecarboxylic acid, -chloro-2,2,3,3-tetrafluoro-, Me ester, 3370*f*.
**$C_6H_5ClHg$** Phenylmercury chloride, 171, 560*a*, 2356*g*, 5004*c*, 6356*e*, 8688*e*.
**$C_6H_5ClHgO_2$** Phenol, 2-chloro-4-(hydroxmercuri)-, 1510*f*.
**$C_6H_5ClMg$** Phenylmagnesium chloride, 5768*h*.
**$C_6H_5ClNNaO_3S$** Chloramine-B, 172*d*, 1573*c*, P 7404*f*.
**$C_6H_5ClNPS$** Phosphine sulfide, chloro(phenylimino)-, P 2765*c*.
**$C_6H_5ClN_2$** Benzenediazonium chloride, 803*h*, 1737*i*, 1744*f*, 2570*h*, 2599*g*.
**$C_6H_5ClN_2O$** Benzenediazohydroxide, *p*-chloro-, 2491*i*.
Nicotinamide, 6-chloro-, 2995*e*, 5025*e*, 9069*d*.
**$C_6H_5ClN_2O_2$** Aniline, chloronitro-, 221*i*, P 4474*c*, 5755*g*, P 8154*f*.
**$C_6H_5ClN_2O_3$** (See also *Phenol, aminochloronitro-*.)
3-Pyridazinecarboxylic acid, 4-chloro 1,6-dihydro-1-methyl-6-oxo-, 3006*i*.
**$C_6H_5ClN_2O_3S$** Benzenediazosulfonic acid, chloro-4-hydroxy- $Na_2$ salt, P 6955
Benzenesulfonamide, 4-chloro-3-nitro-, P 5042*d*, P 6662*a*.
**$C_6H_5ClN_2O_5S$** 1-Phenol-2-sulfonic acid, 6-amino-4-chloro-3-nitro-, P 2440*h*, P 5960*d*.
**$C_6H_5ClN_4O$** 6-Pteridinol, 2-chloro-7,8-dihydro-, P 9087*d*.
**$C_6H_5ClO$** See *Phenol, chloro-*.
**$C_6H_5ClOS$** Ketone, chloromethyl 2-thienyl, 5393*b*.
Ketone, 5-chloro-2-thienyl methyl, P 2644*c*, 5393*a*.
2-Thiophenecarbonyl chloride, methyl-, 4666*de*.
**$C_6H_5ClO_2$** Hydroquinone, chloro-, 3386*i*.
**$C_6H_5ClO_2S$** Benzenesulfinic acid, *p*-chloro-, 5245*f*.
Benzenesulfonyl chloride, 926*h*.
**$C_6H_5ClO_2Se$** Benzeneseleninic acid, chloro-, 6050*i*.
**$C_6H_5ClO_3S$** Phenyl chlorosulfonic acid, 3801*c*.
**$C_6H_5ClS$** Thiophene, 2-chloro-5-vinyl-, 2161*i*, 5393*f*.
**$C_6H_5Cl_2N$** Aniline, 2,5-dichloro-, P 3024*i*, 3729*d*, P 7711*c*, P 7712*e*.
**$C_6H_5Cl_2NO$** Phenol, aminodichloro-, P 1987*bg*, P 8147*i*, P 8148*ac*, P 8153*g*.
**$C_6H_5Cl_2NO_2S$** Benzenesulfonamide, 3,4-dichloro-, P 2231*e*.
**$C_6H_5Cl_2NO_4S$** 1-Phenol-2-sulfonic acid, 6-amino-4,5-dichloro-, P 8148*d*.
**$C_6H_5Cl_2N_3O_2$** Uracil, 5-α,α-dichloro acetamido-, P 5796*g*.
**$C_6H_5Cl_2OPS$** Phenyl chlorothiophosphate, 9353*f*.
**$C_6H_5Cl_2O_2P$** Phenyl chlorophosphoric acid, 6167*f*.
**$C_6H_5Cl_2NP$** Phosphinimide, *P,P,P*-trichloro-*N*-phenyl-, P 2765*c*.
**$C_6H_5Cl_3OS$** 2-Thiophenemethanol, 3,4,5-trichloro-α-methyl-, 216*g*.
**$C_6H_5Cl_3O_2$** 2-Pentenoic acid, 2,3,5-trichloro-4 oxo-, Me ester, 6981*g*.
**$C_6H_5Cl_3O_4$** Succinic acid, (2,2,2-trichloro-1-hydroxyethyl)-, γ-lactone, P 6846*b*.
**$C_6H_5Cl_3Si$** Silane, dichloro(*p*-chlorophenyl)-, P 5801*h*.
Silane, trichlorophenyl-, 1027*i*, 8185*i*
**$C_6H_6Cl_6$** Cyclohexane, heptachloro-, 5894*f*, 8601*i*, 8978*i*.
**$C_6H_6DO$** Phenol-*d*, 4094*b*.
**$C_6H_6F$** See *Benzene, fluoro-*.
**$C_6H_6FN_2O$** Nicotinamide, fluoro-, 4266*i*, 9069*d*.
**$C_6H_6FO$** Phenol, *p*-fluoro-, 6992*c*
**$C_6H_6FO_2Se$** Benzeneseleninic acid, fluoro-, 6050*i*.
**$C_6H_6F_4N$** Cyclobutaneacetonitrile, 2,2,3,3-tetrafluoro-, 3370*h*.
**$C_6H_6F_8$** Cyclobutane, 1,1,2,2,3-pentafluoro-3-vinyl-, 3371*b*, P 4294*i*.
Cyclobutane, 1,1,2,2-tetrafluoro-3-(1-fluorovinyl), 3371*b*, P 4294*i*.
**$C_6H_6GeN_2O_3$** Ethylgermanium trisocyanate, 6536*h*.
**$C_6H_6HgNO_2$** Phenylmercury nitrate, 3964*i*.
**$C_6H_6I$** See *Benzene, iodo*
**$C_6H_6IO$** Benzene, iodoso-, 6275*h*
Phenol, iodo-, 7447*d*, 7448*d*
**$C_6H_6I_2NO$** 4(1*H*)-Pyridone, 3,5-diiodo-1-methyl-, 5780*d*.
**$C_6H_6I_2NO_2S$** Pyridine, 3,5-diiodo-4-(methylsulfonyl)-, 7484*b*.
**$C_6H_6I_2NS$** Pyridine, 3,5-diiodo-4-methyl-mercapto-, 7484*b*.
**$C_6H_6KO$** Potassium phenoxide, P 2231*i*.
**$C_6H_6K_3O$** See *Potassium citrate*
**$C_6H_6Li$** Lithium, phenyl-, 648*i*, [illegible], 6574*f*, 7484*d*.
**$C_6H_6LiS$** Benzenethiol, Li deriv., 6574*f*
**$C_6H_6NO$** (See also *Benzene, nitroso-*.)
Picolinaldehyde, 4547*b*.
*p*-Quinone imine, -*HCl*, 4640*g*.
**$C_6H_6NO_2$** (See also *Benzene, nitro-; Isonicotinic acid; Nicotinic acid, Picolinic acid.*)
Phenol, nitroso-, P 1988*e*, 2495*d*, 3964*c*, 5378*h*, P 6001*i*.
Propiolic acid, 2-cyanoethyl ester, 4514*i*.
Pyrrole-glyoxaldehyde, 4256*g*.
*p*-Quinone, monooxime, 5378*h*.
**$C_6H_6NO_2S$** Benzenethiol, nitro-, 6170*f*.
Nicotinic acid, 2-mercapto-, 1409*g*.
Thiophene, 2-(2-nitrovinyl)-, 9063*h*.
**$C_6H_6NO_3$** (See also *Phenol, nitro-*.)
Furan, 2-(2-nitrovinyl)-, 4913*b*, 9334*e*.
Nicotinic acid, hydroxy-, 9069*e*.
Phenyl nitrate, 2846*a*.
Picolinic acid, 1-oxide, *and salts*, 8386*b*.
[illegible], hydroxy-, 1409*h*, 7024*f*
**$C_6H_6NO_4$** Isonicotinic acid, 1,2,3,6-hydro-2,6-dioxo-, P 7711*c*.
Pyrocatechol, nitro-, 4174*g*, P 8664
Resorcinol, nitro-, 5370*b*, 7025*a*, [illegible]
**$C_6H_6NO_5S$** Benzenesulfinic acid, *m*-[illegible], 5245*f*.
4-Thiazolecarboxylic acid, 5-carb[illegible], 5021*d*.
**$C_6H_6NO_5Se$** Benzeneseleninic acid, *m*-[illegible], 6050*i*.
**$C_6H_6NO_6$** 3-Furoic acid, 4-methyl-5-[illegible], 5020*i*.
Pyrogallol, nitro-, P 8664*f*.
**$C_6H_6NO_6S$** Benzenesulfonic acid, [illegible], 5265*a*; *Na salt*, 6915*h*.
Isonicotinic acid, 3-sulfo-, 7024*h*.
Nicotinic acid, 5-sulfo-, 7024*g*.
Picolinic acid, 5-sulfo-, 7024*f*.
**$C_6H_6N_3$** Benzotriazole, 4570*e*, P 6846*a*, [illegible], 8365*g*.
Imidazo[*b*]pyridine, 1425*c*; *and* [illegible], 7023*h*.
**$C_6H_6N_3O$** Imidazo[*b*]pyridine, *N*-[illegible] *and* -*HCl*, 7024*a*.
Imidazo[*b*]pyridin-2-ol, 1425*h*, 7023
**$C_6H_6N_3O_2$** Aniline, *p*-nitro-*N*-nit[illegible], 7444*a*.
Benzenediazohydroxide, nitro-, 2491*i*, 7443*h*.
Benzenediazonium nitrate, 6585*f*
*p*-Nitrobenzenediazonium hydrox[illegible], 7443*h*.
**$C_6H_6N_3O_4$** Aniline, dinitro-, 2277*d*, P 4[illegible], 6175*b*, P 8154*g*, P 86[illegible]
**$C_6H_6N_3O_5$** Oxamic acid, *N*-(1,2,3,tetrahydro-2,4-dioxo-5-pyrim[illegible]dyl)-, P 5796*g*.
Picramic acid, P 6832*g*, P 7698[illegible], P 8148, P 8661*g*, P 9464*d*.
Pyridine, 3-methoxy-2,6-dinitro-, 3853*f*.
**$C_6H_6N_3O_5S$** 1*H*-Benzotriazole-7-sulfon[illegible] acid, 4,5-dihydroxy-, *K salt*, 3110[illegible]
**$C_6H_6N_3O_6S$** *p*-Nitrobenzenediazonium su[illegible]fate, 7443*h*.
**$C_6H_6N_3O_9Tl_2$** Benzene, 1,3,5-trinitro-compd. with TlOH, 3352*g*.
**$C_6H_6N_4S$** 1*H*-Imidazo[*b*]pyridine-2-thio-1425*k*
**$C_6H_6N_4O$** See *Xanthopterin*.
**$C_6H_6N_4O_2$** See *Leucopterin*.
**$C_6H_6Na$** Sodium, phenyl-, 429*h*.
**$C_6H_6NaO$** See *Sodium phenoxide*
**$C_6H_6NaO_3$** 2,4-Cyclohexadien-1-one, 3,-dihydroxy-, Na deriv., 2599*a*
**$C_6H_6NaO_7Zr$** 5467*i*.
**$C_6H_6Na_3O_7$** See *Sodium citrate*.
**$C_6H_6OSb$** Benzene, stiboso-, 3696*d*.
**$C_6H_6S$** Mercapto, phenyl-, 6179*g*.
**$C_6H_6STl$** Benzenethiol, Tl deriv., 3352*h*.
**$C_6H_6$** (See also *Benzene*.)
Fulvene, 10*e*, 5246*c*, P 6644*a*.
**$C_6H_6AsCl_3$** Arsine, tris(2-chlorovinyl)-6111*e*; *compd. with PdCl₂*, 348*h*.
**$C_6H_6AsNS$** Phenol, 2-amino-4-thi[illegible] arsenoso-, *and -HCl*, 598*i*
**$C_6H_6AsNO_2$** See *Phenol, aminoarsenoso-*.
**$C_6H_6AsNO_3$** Benzenearsonic acid, nitro-5460*d*; *and salts*, 57*b*.
**$C_6H_6AsNO_6$** Benzenearsonic acid, hydroxy-nitro-, P 368*a*, 5460*e*.
**$C_6H_6BF_4N_3O_3S$** *p*-Sulfamylbenzenediazo[illegible]nium fluoborate, 602*a*.
**$C_6H_6BrCl_3$** Cyclopentene, bromo(trichloromethyl)-, 4636*i*.
**$C_6H_6BrN$** Aniline, bromo-, 7446*f*, 7447[illegible], 7748*c*, 8202*e*, 8908*g*, 9037*b*.
Picoline, bromo-, 644*a*, 9069*b*; -*HBr* 2996*g*.
**$C_6H_6BrNO$** 2(1*H*)-Pyridone, 5-bromo-6-methyl-, 6631*a*.
**$C_6H_6BrNO_2S$** Benzenesulfonamide, *p*-bromo-, 5893*g*.
**$C_6H_6BrO_3P$** Benzenephosphonous acid, *p*-bromo-, 6051*b*.
**$C_6H_6BrO_4P$** Benzenephosphonic acid bromo-, 599*e*, 1737*f*, 6051*b*.
**$C_6H_6Br_2N_2$** 2-Picoline, 6-amino-3,5-dibromo-, 6630*i*.
**$C_6H_6Br_2N_2O_2S$** Sulfanilamide, 3,5-dibromo-, 175*c*.
Sulfanilamide, dibromo deriv., 7642*f*.
**$C_6H_6Br_2O_2$** Compd., m. 129–9.5°, 130*c*.
**$C_6H_6Br_2S$** Thiophene, 2-(1,2-dibromoethyl)-, 5393*g*.
**$C_6H_6ClHgNO_2S$** Benzenesulfonamide, *p*-(chloromercuri)-, 7922*f*.
**$C_6H_6ClN$** (See also *Aniline, chloro-*.)
2-Picoline, 6-chloro-, P 3471*e*.
**$C_6H_6ClNO$** See *Phenol, aminochloro-*.
**$C_6H_6ClNO_2$** Acrylic acid, α-chloro-, 2-cyanoethyl ester, P 3027*c*, P 4514*i*.
[illegible] chloro-, P

$C_6H_6ClNO_3S$ See *Phenolsulfonic acid, amino-chloro-*.

$C_6H_6ClN$ 2 - Thenylamine, 5-chloro-*N*-methylene-, 1764*c*.

$C_6H_6ClN_3OS$ 2 - Thiophenecarboxaldehyde, 5-chloro-, semicarbazone, 9062*a*.

$C_6H_6ClN_3O_2$ *p* - Phenylenediamine, 2-chloro-5-nitro-, P 8145*d*.

$C_6H_6ClN_3O_2$ Uracil, 5-α-chloroacetamido-, P 5796*g*.

$C_6H_6ClO_3P$ Benzenephosphonic acid, *m*-chloro-, 599*e*.

$C_6H_6Cl_2N_2$ Hydrazine, (dichlorophenyl)-, 622*c*.
Pyrazine, 2,5 - dichloro - 3,6 - dimethyl-, 3009*g*.

$C_6H_6Cl_2N_2O$ 3(2*H*) - Pyridazone, dichloro-2,6-dimethyl-, 3006*f*.

$C_6H_6Cl_2N_2O_2S$ Sulfanilamide, 3,5-dichloro-, 175*g*, 601*e*.

$C_6H_6Cl_2OS$ 3 - Thiophenemethanol, 2,5-dichloro-α-methyl-, 216*g*.

$C_6H_6Cl_2O_2$ 2 - Pentenoic acid, 2,3-dichloro - 4 - hydroxy - 4 - methyl-, γ-lactone, 130*e*.

$C_6H_6Cl_2O_2S$ Thiophene - 3,4 - diol, 2,5-dichlorotetrahydro-, 1,1-dioxide diformate, P 3466*e*.

$C_6H_6Cl_2S$ Thiophene, 2,5-bis(chloromethyl)-, 629*i*.

$_6Cl_3Si$ Silane, dichlorophenyl-, P 5801*g*.

$_6Cl_3Sb$ Stibine, tris(2-chlorovinyl)-, 566*e*.

$_6Cl_3N_3P_2$ Triphosphornitrile *o* phenylenediamide, tetrachloro-, 5364*i*.

$_6Cl_4O_2$ Adipyl chloride, α, δ-dichloro-, P 7957*e*.

$_6Cl_6$ See *Cyclohexane, hexachloro-*.

$_6Cl_6O_2$ Ethane, 1,2 bis(1,2,2,2-tetrachloroethoxy) -, P 7188*c*.

$_6FN$ 3 - Picoline, fluoro-, 4267*a*, 9069*gh*.

$_6FNO$ Phenol, 4-amino-2 fluoro-, 9018*e*.

$_6FN_3O_2$ Uracil, 5 α fluoroacetamido-, P 5796*g*.

$_6F_6$ Cyclobutane, 1,1,2,2 - tetrafluoro-3-vinyl-, 3371*a*, P 4204*b*, P 4205*a*.

$_6F_6O$ Cyclobutanecarboxaldehyde, 2,2,-3,3 - tetrafluoro - 1 methyl, 3370*h*
Cyclobutane, 3 - (1,2 - epoxyethyl) 1,1,2,2-tetrafluoro-, 3370*h*, 3371*a*.
Ether, 2,2,3,3 - tetrafluorocyclobutyl vinyl, P 4295*e*.
Ketone, methyl 2,2,3,3 - tetrafluorocyclobutyl, 3370*i*.

$H_3F_4O_2$ Cyclobutanecarboxylic acid, 2,2,3,3 tetrafluoro - 1 - methyl, 3370*g*
Cyclobutanol, 2,2,3,3 - tetrafluoro-, acetate, 3370*h*.
Cyclobutene, 3,3,4,4 - tetrafluoro 1,2 dimethoxy-, 7418*g*.

$H_4FeN_2O_4S \cdot 6H_2O$ Nicotinamide, compd. with $FeSO_4$, P 253*a*

$H_5HgNNaO_6S_2$ Amline, *p* (hydroxymercuri)-, thosulfate, Na salt, 699*i*.

$_6H_5HgN_3O_3$ P 3837*f*

$_6H_5HgO$ Phenylmercury hydroxide, P 6901, 7110*i*

$_6H_5HgO_3S$ Benzenesulfonic acid, *p*-(hydroxymercuri) -, H sulfate, 171*f*.

$_6H_6IN$ Aniline, iodo, 7440*g*, 7447*i*, 7448*c*, 9037*h*

$_6H_6IO_3P$ Benzenephosphonic acid, iodo-, 599*d*

$_6H_6I_6$ Benzene, compd with I, 7824*i*.

$C_6H_6LiNO_3S$ Lithium, *p* sulfamylphenyl-, 2188*i*

$C_6H_6NNaO$ 2(1*H*) Pyridone, 6 methyl, Na deriv, 6627*h*

$C_6H_6NNaS$ Benzenethiol, *p*-amino-, Na deriv, 6574*d*.

$C_6H_6NO_3P$ Benzenephosphonic acid, *m*-nitro, 599*d*.

$C_6H_7N$ Benzonitrile, *m* amino-, 8890*i*.
1,2 Cyclobutanedicarbonitrile, 3779*c*.
Hydromuconononitrile, P 5796*a*, P 6647*e*.
β - Hydromuconononitrile, P 3847*h*, 4286*d*.
*p* Quinone dimine, - *HCl*, 4649*g*.

$C_6H_7NO$ (See also *Nicotinamide*.)
Formamide, *N*-3-pyridyl-, 5766.
Nicotinaldehyde, amino-, *and* - *HCl*, 6626*g*.

$C_6H_7NOS$ Nicotinamide, 6-mercapto-, 2995*g*.

$C_6H_7NO_2$ (See also *Aniline, nitro-*.)
Isonicotinic acid, 3-amino-, 3827*b*.
Nicotinamide, hydroxy-, 9060*e*.
Nicotinic acid, 6-amino-, 8884*d*.
Picolinamide, 1-oxide, 8386*b*.
Picolinic acid, 6-amino-, P 3471*e*.
Quinone, dioxime, 5623*af*.
Tartrononitrile, methyl-, acetate, P 9079*e*.
Urocanic acid, 9102*h*.

$C_6H_7N_3O_2S$ Benzenesulfenamide, nitro-, 8366*i*, P 8400*c*.
Pyridine, 2-methylmercapto-5-nitro-, 2996*b*.
5*H* - Thiazolo[3,2-*a*]pyrimidine - 5,7-(6*H*)-dione, 2,3-dihydro-, P 8925*b*.

$C_6H_7N_3O_2Se$ 2,1,3,4*H* - Benzoxaselenazole, 5,6-dihydro-7-nitroso-, 7478*i*.

$C_6H_7N_3O_3$ (See also *Phenol, aminonitro-*.)
Pyrazinoic acid, 3-hydroxymethyl-, 3010*a*.
—, 3-hydroxy-, Me ester, 1409*h*.
Pyridazinecarboxylic acid, dihydromethyloxo-, 3006*hi*.
—, 1,6 - dihydro - 6 - oxo-, Me ester, 3006*i*.

$C_6H_8N_2O_4$ Orotic acid, 5-methyl-, 4634*c*.

$C_6H_8N_2O_4S$ Benzenediazohydroxide, *p*-sulfo-, 2491*i*.
Benzenediazosulfonic acid, 4-hydroxy-, *salts*, P 9355*b*.
Benzenesulfonamide, *p* nitro-, P 8400*a*, 9249*h*.
Pyridine, 2 - (methylsulfonyl) - 5-nitro-, 2996*c*.
2,5 - Thiophenedicarboxamide, 3,4-dihydroxy-, P 2237*a*

$C_6H_8N_2O_4S$ Benzenesulfonic acid, aminonitro-, P 857*h*, P 862*e*, P 958*g*, P 8159*f*, P 9464*e*.
2 - Hydroxy - 4 - sulfobenzenediazonium hydroxide, inner salt, 4235*f*.
Metanilic acid, 6 nitro, P 9463*g*.

$C_6H_8N_2O_4S$ See *Phenolsulfonic acid, aminonitro-*

$C_6H_8N_2S$ 2,5 - Thiophenedicarbonitrile, 6612*a*.

$C_6H_8N_2S_2$ Malononitrile, carbonyl-, di-Me mercaptal, P 6650*d*

$C_6H_8N_3O_7Tl$ Benzene, 1,3,5 - trinitro, compd. with TlOH, 3352*g*.

$C_6H_8N_4$ Imidazo[*b*]pyridine, 5-amino-, *di-HCl*, 7023*i*
5 - Pyrimidinecarbonitrile, 4-amino-2-methyl-, 1822*h*, 5307*c*

$C_6H_8N_4O_2$ [4,4' - Bi - 2 - pyrazoline] - 5,5'-dione, P 958*c*.
2,6-Pyrazinedicarboxamide, 8394*c*.
Xanthine, 1 methyl-, 9148*h*.

$C_6H_8N_4O_2S$ 2,4,5 - Thiazoletricarboxamide, 5021*f*.

$C_6H_8N_4O_3$ Furaldehyde, 5-nitro-, semicarbazone, 315*g*, 1110*d*, 2322*b*, 5445*a*, 5533*c*, 5869*cz*, 6735*g*, 7015*b*, 7138*h*, 7143*a*, 8000*b*, 9147*d*, 9249*b*.
Hydrazine, (2,4 - dinitrophenyl), 4282*c*, 6105*f*, 6175*b*, 8199*fh*

$C_6H_8N_4S_2$ 4,4' - Bithiazole, 2,2'-diamino-, *and - HBr*, 2202*h*

$C_6H_8N_{10}$ Melem, P 4894*e*.

$C_6H_8O$ (See also *Phenol*.)
Furan, vinyl-, 2615*c*, 3370*i*, P 4204*d*, P 5037*g*, P 5415*a*, 6861*i*.

$C_6H_8OS$ (See also *Ketone, methyl thienyl*.)
2 - Thiophenecarboxaldehyde, methyl-, 9061*i*, 9064*e*.

$C_6H_8O_2$ (See also *Hydroquinone; Pyrocatechol; Quinol; Resorcinol*.)
2-Furaldehyde, 5-methyl-, 1120*h*.
Ketone, 2 furyl methyl, 214*c*, 1393*c*, 1764*h*, 2582*g*, P 3465*ce*, 4253*g*, 6204*a*, 8367*g*
Muconaldehyde, 6981*d*.

$C_6H_8O_3S$ Benzenesulfinic acid, 565*h*, 5245*f*, P 6002*i*, 7454*d*.
Ketone, hydroxymethyl 2 thienyl, 2614*h*.
2 Thiophenecetic acid, 4666*h*.
2 - Thiophenecarboxylic acid, 5-methyl-, 4666*d*, 5016*a*.

$C_6H_8O_3S_2$ Acetic acid, (thienylmercapto)-, 3364*i*.
2-Furoic acid, dithio-, hydroxymethyl ester, P 6607*b*.

$C_6H_8O_3Se$ Benzeneselenimic acid, 6050*i*

$C_6H_8O_4$ (See also *Furaldehyde, hydroxymethyl)-; Phloroglucinol; Pyrogallol*.)
Acrylic anhydride, P 8398*f*.
1,2,4-Benzenetriol, 6313*c*.
Furoic acid, Me ester, 4252*h*, 4664*h*, 5020*f*.
4 - Hexenoic acid, 5-hydroxy-3-oxo-, δ-lactone, 1724*e*, 2261*a*, 5842*i*, 9211*a*.
Maltol, 1329*a*, 5920*a*.

$C_6H_8O_4S$ (See also *Benzenesulfonic acid*.)
2 - Furoic acid, 5 - (mercaptomethyl)-, 7014*h*.
2,5 - Thiophenedicarboxylic anhydride, tetrahydro-, 6612*a*.

$C_6H_8O_4$ Acetylenedicarboxylic acid, di-Me ester, 2592*a*, 8824*f*, 9334*h*.
Glutacon-α aldehydic acid, γ-oxo-, Me ester, P 1808*i*.
Muconic acid, 6312*h*, 6981*b*.
4 - Pyrone, 5 - hydroxy - 2 - (hydroxymethyl)-, 1110*d*, P 4419*a*, 5702*c*, 6275*a*, 7138*h*, 8007*a*, 8303*f*, 8385*e*, 9334*b*.
Valeric acid, β-(hydroxymethyl)α, γ-dioxo-, γ-lactone, 1406*h*.

$C_6H_8O_4S$ See *Phenolsulfonic acid*.

$C_6H_8O_4S$ Benzenesulfonic acid, dihydroxy-, 5980*d*.

$C_6H_8O_6$ (See also *Aconitic acid; Dehydroascorbic acid*.)
Benzenehexol, 588*a*.
Dehydroisoascorbic acid, 1690*c*.

$C_6H_8O_6S_2$ *p* - Benzenedisulfonic acid, 17396.

$C_6H_8O_7$ Aconitic acid, α-hydroxy-, 6579*f*.
Hibiscic acid, 7644*c*.
Oxalosuccinic acid, 1013*g*, 6579*f*.

$C_6H_8O_8S_2$ Benzenedisulfonic acid, dihydroxy, *Na salt*, 1860*b*, 4376*f*.

$C_6H_8S$ (See also *Benzenethiol*.)
Thiophene, 2-vinyl-, 5393*e*.

$C_6H_7AsNNaO_3$ See *Atoxyl*.

$C_6H_7AsO_3$ Benzenearsonic acid, 348*f*, 2592*d*, 4647*g*, 5460*d*, *and salts*, 57*b*.
Benzenearsonous acid, *p*-hydroxy-, P 1804*d*.

$C_6H_7AsO_4$ Benzenearsonic acid, *p*-hydroxy-, 5460*d*, *and salts*, 57*b*.

$C_6H_7BO_2$ Benzeneboronic acid, 5831*h*, 6703*i*.

$C_6H_7BrN_2$ 2-Picoline, 6-amino-3-bromo-, 6630*i*.

$C_6H_7BrN_2OS$ Thiazole, 2-acetamido-5-bromo-4-methyl-, 632*a*.

$C_6H_7BrN_2O_2S$ Sulfanilamide, 3-bromo-, 175*e*
Sulfanilamide, bromo deriv., 7642*f*.

$C_6H_7BrO_2$ Acrylic acid, α-bromo-, allyl ester, P 3027*c*.
Fumaric acid, bromo-, di-Me ester, 8824*g*.
Maleic acid, bromo-, di Me ester, 8824*g*.

$C_6H_7BrO_3$ 2 Pentenoic acid, 3-bromo-4-hydroxy - 2 - methoxy-, γ-lactone, 6981*a*.

$C_6H_7BrO_4$ Fumaric acid, bromo-, di-Me ester, 9334*f*.

$C_6H_7BrS$ Thiophene, 2 - (bromoethyl)-, 3817*f*, 5781*h*.

$C_6H_7Cl$ 1-Buten-3-yne, 4-chloro-2-ethyl-, P 4284*f*.

$C_6H_7ClF_4$ Cyclobutane, 1-chloro-1-ethyl-2,2,3,3-tetrafluoro-, 3371*d*.
Cyclobutane, 1-(chloromethyl) - 2,2,3,3-tetrafluoro-1-methyl-, 3370*f*.

$C_6H_7ClHgN_2OS$ Thiazole, 2-acetamido-5-(chloromercuri) - 4 - methyl-(?), 2616*d*.

$C_6H_7ClHgN_2O_2S$ Sulfanilamide, *N*-(chloromercuri)-, - *HCl*, 1456*e*.

$C_6H_7ClN_2$ *m*-Phenylenediamine, 4-chloro-, P 4863*h*, P 5965*i*, P 9461*b*.
Pyridazine, 3-chloro-6-methyl-, 178*c*.

$C_6H_7ClN_2O$ Pyrazine, 3-chloro - 2,5-dimethyl-, 1-oxide, 3005*g*.
Pyrazinol, 5-chloro-3,6-dimethyl-, 3005*i*.
3(2*H*) - Pyridazone, chloro - 2,6-dimethyl-, 3006*f*.

$C_6H_7ClN_2O_2S$ Sulfanilamide, 3-chloro-, 175*h*.

$C_6H_7ClN_4O_2$ 4,6 - Pyrimidinediol, 2-amino-5-α-chloroacetamido-, 3426*d*.

$C_6H_7ClOS$ 2 Thiophenemethanol, 5-chloro-α methyl-, 216*f*.

$C_6H_7ClO_2$ Acrylic acid, chloroallyl ester, P 4686*e*.
Acrylic acid, α-chloro-, allyl ester, P 2033*a*, P 3027*c*.
1,2 - Cyclopentanedione, 3-chloro-4-methyl-, 6987*g*.

$C_6H_7ClO_3$ Acetoacetic acid, α-chloro-α-2-hydroxyethyl-, γ-lactone, P 677*h*, P 2224*d*, P 6225*e*.

$C_6H_7ClO_4$ Fumaric acid, chloro-, di-Me ester, 9334*g*.

$C_6H_7ClO_4S$ Thiophene - 3 - ol, 4-chloro-2,3-dihydro-, 1,1-dioxide acetate, P 3466*c*.

$C_6H_7ClS$ Thiophene, 2-(1-chloroethyl)-, 5893*f*.

$C_6H_7Cl_2NO_2$ Propionic acid, α,β-dichloro-, ester with hydracrylonitrile, P 3027*d*.

$C_6H_7Cl_2O_2$ Acrylic acid, α-chloro-, 2,3-dichloropropyl ester, P 2223*f*.
Crotonic acid, α, β,γ-trichloro-, Et ester, 6161*g*.
Methacrylic acid, 2,2,2-trichloroethyl ester, 9334*c*.

$C_6H_7FO_7$ Citric acid, fluoro-, 7984*d*.

**$C_6H_7F_5$** Cyclobutane, 1-ethyl-1,2,2,3,3-pentafluoro-, 3370*e*, 3371*d*.

**$C_6H_7HgNO_4S_2$** Aniline, *p*-(hydroxymercuri)-, thiosulfate (acid), *Na salt*, 600*c*.

**$C_6H_7IN_2OS$** Thiazole, 2-acetamido-5-iodo-4-methyl-, 632*b*, 2616*d*.

**$C_6H_7IN_2O_3S$** Sulfanilamide, 3-iodo-, 175*i*.

**$C_6H_7N$** (See also *Aniline; Picoline*.)
2,4-Pentadienenitrile, 3-methyl-, 4218*a*
Pyrrole, 1-vinyl-, P 2037*f*.

**$C_6H_7NO$** (See also *Phenol, amino-*.)
Hydroxylamine, *N*-phenyl-, 4586*a*, 5013*d*.
Methylamine, *N*-furfurylidene-, 3406*i*.
6-Oxabicyclo[3.1.0]hexane-1-carbonitrile, 588*f*.
Pyridinemethanol, P 1914*b*, 2996*g*, 7138*d*, P 7647*g*, P 7973*a*.
3-Pyridol, 6-methyl-, 3079*g*.
2(1*H*)-Pyridone, methyl, 3292*e*, 6627*b*, 6628*a*, 9069*g*
**$C_6H_7NOS$** Ketone, methyl 2-thienyl, oxime, 3817*d*.
Thiocyanic acid, 3,4-dihydro-1,2*H*-pyran-5-yl ester, 9334*e*
2-Thiophenecarboxamide, *N*-methyl-, 3817*e*.

**$C_6H_7NOS_2$** 2,5-Thiazolidinedione, 4-isopropylidene 2-thio-, 1402*b*

**$C_6H_7NO_2$** Acrylic acid, α-cyano-, Et ester, P 6222*g*.
Acrylonitrile, α-(hydroxymethyl)-, acetate, P 2630*e*
3-Butenoic acid, 3-cyano-, Me ester, P 6651*e*.
Crotonic acid, β-cyano-, Me ester, P 6651*e*.
Hydroquinone, amino-, P 9463*i*.
Ketone, methyl 5-methyl-3-isoxazolyl, 2991*b*, 5394*a*
Maleimide, *N*-ethyl-, 7591*i*
2,3-Pyridinediol, 5-methyl-, 3079*g*
2-Pyridinemethanol, 5-hydroxy-, 3079*g*
2(1*H*)-Pyridone, 1-(hydroxymethyl)-, P 7973*e*.
—, 1-hydroxy-4-methyl-, 2997*h*
Pyrocatechol, 4-amino-, 4174*g*
Succinimide, *N*-vinyl-, P 4422*b*

**$C_6H_7NO_2S$** (See also *Benzenesulfonamide*.)
Acetic acid, (2-cyanoallylmercapto)-, 3364*h*.
Carbamic acid, 2-thenyl-, 2201*i*
2-Thiazoleacetic acid, 4-methyl-, *and K salt*, 5021*d*
5-Thiazolecarboxylic acid, 4-methyl-, Me ester, 5022*a*
2,5-Thiophenedicarboximide, tetrahydro-, 6612*b*

**$C_6H_7NO_3S_2$** Benzenesulfonamide, *p*-mercapto-, 1739*b*, 9246*e*.
5(4*H*)-Thiazolone, 2-(ethylmercapto)-4-(hydroxymethylene)-, 1399*d*

**$C_6H_7NO_3$** Cyclopentanecarboxamide, 2,5-dioxo-(?), 7910*g*
3-Isoxazolecarboxylic acid, 4,5-dimethyl-, 5394*b*.

**$C_6H_7NO_3S$** (See also *Sulfanilic acid*.)
Metanilic acid, P 4863*i*, P 4867, P 7696*d*, P 8159*f*, P 8160*i*.
3-Picoline, compd. with $SO_3$, P 697*b*
3-Pyridinesulfonic acid, 5-methyl-, P 697*b*.

**$C_6H_7NO_4$** Furan, 2-(methoxymethyl)-5-nitro-, 2669*f*.
Glutaconic-γ aldehydic acid, γ-oxo-, Me ester aldoxime, 1724*a*

**$C_6H_7NO_4S$** See *Phenolsulfonic acid, amino-*.

**$C_6H_7NO_6S_2$** *p*-Benzenedisulfonic acid, amino-, P 6463*b*.

**$C_6H_7NO_7S_2$** 1-Phenol-2,4-disulfonic acid, 6-amino-, P 9461*a*

**$C_6H_7NS$** Benzenethiol, amino-, 767*a*, 6179*f*, 7421*b*, 8388*h*.
Thiazole, 4-methylvinyl-, P 2805*a*, 7019*a*

**$C_6H_7N_2NaO_3S$** See "Na deriv." under *Sulfanilamide*

**$C_6H_7N_4NiO$** Furan, complex with $Ni(CN)_2$·$NH_3$, 5753*f*

**$C_6H_7N_4NiS$** Thiophene, complex with $Ni(CN)_2$·$NH_3$, 5753*f*.

**$C_6H_7N_2O$** Nicotinaldehyde, amino-, oxime, 6626*fg*.
Nicotinamide, 6-amino-, 5025*f*.
Pyridazine, 3-acetamido-, 177*f*.
5-Pyrimidinecarboxaldehyde, 4-amino-2-methyl-, P 7051*i*.

**$C_6H_7N_2OS$** 2-Thiophenecarboxaldehyde, semicarbazone, 9061*i*

**$C_6H_7N_2O_2$** 2-Furaldehyde, methylnitroso hydrazone, 6592*i*, semicarbazone, 1654*h*.
Hydrazine, (*p*-nitrophenyl)-, P 5414*d*
*p*-Phenylenediamine, 2-nitro-, P 8145*a*.
Pyrazinamide, 3-hydroxy-6-methyl-, 3009*g*.

**$C_6H_7N_2O_2S$** Acetic acid, (4-amino-2-pyrimidylmercapto)-, 4228*i*.

**$C_6H_7N_2O_3$** 4-Pyrimidineacetic acid, 1,2,3,6-tetrahydro-2-imino-6-oxo-, 5307*e*

**$C_6H_7N_2O_3S$** Acetic acid, (4-amino-6-hydroxy-2-pyrimidylmercapto)-, 5860*g*.

**$C_6H_7N_2O_3S$** Benzenesulfonamide, 2-amino-5-nitro-, P 858*a*

**$C_6H_7N_2S$** Nicotinamidine, 6-mercapto-, *-HCl*, 2995*h*

**$C_6H_7N_5$** Adenine, $N^6$-methyl-, *HCl*, 4634*i*
Purine, 1,6-dihydro-6-imino-1-methyl-, *HCl*, 4635*a*

**$C_6H_7N_5O$** Guanine, methyl-, 9148*h*, *-HCl*, 4635*a*

**$C_6H_7N_5O$** 6(5*H*)-Pteridinone, 2-amino-7,8-dihydro-4-hydroxy-, *salts*, 3425*h*
s-Triazine-2-acrylic acid, 4,6-diamino-, P 1814*e*
Xanthopterin, α-dihydro-, *and salts*, 3425*h*

**$C_6H_7N_5O_2$** Oxamic acid, (2,4-diamino-6-hydroxy-5-pyrimidyl)-, *and Na salt*, 652*d*

**$C_6H_7N_5O_{16}$** Glucopyranose, pentanitrate, 5007*f*.

**$C_6H_7O_2P$** Benzenephosphonous acid, P 1794*b*

**$C_6H_7O_3P$** Benzenephosphonic acid, 5994*d*, 6051*a*, *Tl salt*, 3352*g*

**$C_6H_7O_4P$** Phenyl phosphate, P 1794*b*

**$C_6H_8$** (See also *Cyclohexadiene*.)
1,3,5-Hexatriene, 557*i*, 2863*i*, 3780*a*, 6179*e*, 6512*i*, 8224*a*
1,4-Pentadiene, 3-methylene-, 2863*i*

**$C_6H_8AsClN_2$** Propionitrile, 3,3′-(chloroarsylenedi)-, 8551*f*

**$C_6H_8AsNOS$** Benzenearsonous acid, 3-amino-4-hydroxydithio-, 5081*i*

**$C_6H_8AsNO_2S$** Benzenearsonous acid, 3-amino-4-hydroxythio-, *and HCl*, 5081*i*.

**$C_6H_8AsNO_4$** (See also *Arsanilic acid*.)
Benzenearsonous acid, 3-amino-4-hydroxy-, 9376*g*; *and HCl*, 5082*i*

**$C_6H_8AsNO_4$** *m*-Arsanilic acid, 4-hydroxy-, 4810*i*, *-HCl*, 1485*h*.

**$C_6H_8BrCl$** Cyclopentane, bromo-trichloromethyl-, 4636*a*

**$C_6H_8BrN_4OP$** Phosphine oxide, diamino(*p*-bromophenyl)-, 1737*g*.

**$C_6H_8BrN_3$** Pyrimidine, 4-amino-5-(bromomethyl)-2-methyl-, *-HBr*, 1822*a*

**$C_6H_8Br$** Cyclohexene, 1,5-dibromo-, 6919*a*

**$C_6H_8BrO$** Cyclohexanone, 2,6-dibromo-, 7412*e*

**$C_6H_8Br_2O_2$** Crotonic acid, α,β-dibromo-, Et ester, 4220*i*
Hexanedione, dibromo-, 2202*b*

**$C_6H_8Br_2O_3$** Acetoacetic acid, α,α-dibromo-, Et ester, 4642*d*
Isovaleric acid, α,β-dibromo-β-hydroxy-α-methoxy-, γ-lactone, 6980*g*

**$C_6H_8Br_4S$** Bis(1-bromoallyl)sulfur dibromide, 559*d*
Bis(3-bromopropenyl)sulfur dibromide, 559*d*

**$C_6H_8ClNOS_2$** Carbamic acid, acetyldithio-, 3-chloroallyl ester, 2928*f*

**$C_6H_8ClN_3$** s-Triazine, 2-(allylamino)-4-amino-6-chloro-, 1126*c*

**$C_6H_8ClN_3O_2$** 1 $H_2O$ 4-Pyrimidol, 2,6-diamino-5-(α-chloroacetamido)-, 4125*i*

**$C_6H_8Cl_2O$** Adipyl chloride, P 2786*a*
Crotonic acid, β,γ-dichloro-, Et ester, 6161*f*
Mannitol, 2,5-dichloro-1,4,3,6-dianhydro-, 2940*d*
Sorbitol, 2,5-dichloro-1,4,3,6-dianhydro-, 2939*f*
Succinyl chloride, α,α-dimethyl-, P 3812*h*, P 6227*b*

**$C_6H_8Cl_2O_3$** Adipic acid, α,δ-dichloro-, P 7957*f*
Succinic acid, α,β-dichloro-, di Me ester, P 8606*i*

**$C_6H_8Cl_2O_4S$** Thiophene 3-ol, 4-chlorotetrahydro-, 1,1-dioxide chloroacetate, P 3466*d*.

**$C_6H_8Cl_2S$** Sulfide, bis(3-chloroallyl), 2927*i*.

**$C_6H_8Cl_6$** Cyclohexane, tetrachloro-, 3676*b*, 6487*d*.

**$C_6H_8F_2O_2$** Acrylic acid, α-(difluoromethyl)-, Et ester, P 6465*g*, P 8398*i*.

**$C_6H_8F_2O_4$** Acetic acid, fluoro-, diester with ethylene glycol, 2933*f*.

**$C_6H_8F_4$** Cyclobutane, 3-ethyl-1,1,2,2-tetrafluoro-, 3370*d*, P 4294*a*, P 4295*b*.
Cyclobutane, 1,1,2,2-tetrafluorodimethyl-, 3370*de*, P 4294*c*.

**$C_6H_8HgN_2O_3S$** Sulfanilamide, $N^1$-(hydroxymercuri)-, *-HCl*, 1456*e*.

**$C_6H_8NO_3P$** Benzenephosphonic acid, amino-, 5994*d*, 1737*e*.

**$C_6H_8NO_4SSb$** Benzenestibonic acid, *p*-sulfamyl-, 6025*b*.

**$C_6H_8N_2$** (See also *Adiponitrile; Hydrazine, phenyl-; Phenylenediamine*.)
Picoline, amino-, P 7050*i*, P 7973*a*.
Pyridine, 3-(aminomethyl)-, P 6652*h*.
—, dihydroimino-1-methyl-, 3202*be*
*chloroplatinate*, 7024*d*, *and salts*, 4137*e*.
—, 2-methylamino-, 3292*b*.

**$C_6H_8N_2O$** 2-Furaldehyde, methylhydrazone, 6591*i*.
Propionitrile, β,β′-oxydi-, P 673*f*, 5893*i*
Pyrazinol, dimethyl-, 3006*e*, 3009*h*
3-Pyridazinol, 6-ethyl-, *-HBr*, 178*e*.
3(2*H*)-Pyridazone, 2,6-dimethyl-, 3006*e*
2-Pyrimidol, 4,6-dimethyl-, 920*a*

**$C_6H_8N_2OS$** 4(3*H*)-Pyrimidone, 6-methyl-2-methylmercapto-, 6081*e*
Thiazoleacetamide, 4-methyl-, 5021*h*, 5102*i*
Uracil, ethyl 2-thio-, 5118*d*, 9242*a*

**$C_6H_8N_2OS_2$** Thiocyanic acid, 2,2′-oxydiethylene ester, 5147*i*, 9342*i*, 9353*b*

**$C_6H_8N_2O_2$** Acrylic acid, β-amino-α-cyano-, Et ester, P 3473*e*
Imidazolecarboxylic acid, Et ester, 3411*f*
—, 1-methyl-, Me ester, 3411*d*
Isocyanic acid, tetramethylene ester 12066, 1564*i*
Ketone, methyl 5-methyl-3-isoxazolyl, oxime, 2991*i*
Pyrazine, 2,6-dimethoxy-, 8394*d*.
Pyrazinol, 3,6-dimethyl-4-oxide, 3005*i*
3(2*H*)-Pyridazone, 6-methoxy-4-methyl-, 579*e*
2(1*H*)-Pyrimidone, 1-hydroxy-4,6-dimethyl-, 2998*b*

**$C_6H_8N_2O_2S$** (See also *Sulfanilamide*.)
Benzenesulfonamide, 4-amino-, 3096*i*, 8890*h*
Imidazolecarboxylic acid, 2-mercapto-, Et ester, 3411*f*
—, 2-mercapto-1-methyl-, Me ester, 3411*d*
Metanilamide, 3096*i*, 3107*i*, 8890*i*
Pyridine, 5-amino-2-(methylsulfonyl-, 2996*e*.
4,6-Pyrimidinediol, 5-ethyl-2-mercapto-, 5307*i*
2-Thiophenealanine, 3096*i*.

**$C_6H_8N_2O_3$** Barbituric acid, 5-ethyl-, 6945*f*
Imidazolecarboxylic acid, 2-hydroxy-, Et ester, 3411*f*.
Imidazolelactic acid, 9102*h*
1,6(1*H*,5*H*)-Pyrimidinedione, 5-(hydroxyethyl)-, 6173*d*

**$C_6H_8N_2O_3S$** (See also *1-Phenol-4-sulfonamide, amino-*.)
Benzenesulfonic acid, diamino-, P 5965*e*, 9386*h*, P 9460*i*
—, *p*-hydrazino-, P 8166*e*.
2-Butanesulfonic acid, 1,4-dicyano-, *salts*, P 3840*h*.
Hydrazinesulfonic acid, 2-phenyl-, 7182*e*
3-Pyridinesulfonamide, 6-methoxy-, 3417*e*

**$C_6H_8N_2O_4S$** 1-Phenol-4-sulfonic acid, 2,6-diamino-, P 5196*g*

**$C_6H_8N_2O_4S$** Sorbide, dinitrate, 2702*i*.

**$C_6H_8N_2S$** Benzenethiol, 2,4-diamino-, *di-HCl*, 222*b*.
Propionitrile, β,β′-thiodi-, 1401*f*
Pyridine, 5-amino-2-methylmercapto-, 2996*e*.

**$C_6H_8N_2S_2$** *p*-Benzenedithiol, 2,5-diamino-, P 1438*f*.
Pseudourea, 2-(2-thenyl)-2-thio-, *HCl*, 7030*g*.

**$C_6H_8N_4Ni$** Pyrrole, complex with $Ni(CN)_2$·$NH_3$, 5753*f*.

**$C_6H_8N_4O$** 5-Pyrimidinecarboxamide, 4-amino-2-methyl-, *di-HCl*, 1822*b*

**$C_6H_8N_4OS_2$** Pseudourea, 2-(2-thiazolylcarbamylmethyl)-2-thio-, *-HCl*, P 4156*e*

**$C_6H_8N_4O_2S$** Acetic acid, (4,6-diamino-2-pyrimidylmercapto)-, *and sulfate*, 580*c*.
4-Pyrimidol, 6-amino-2-(ethylmercapto)-5-nitroso-, 2212*g*.

**$C_6H_8N_4O_3$** 4,6-Pyrimidinediol, 5-acetamido-2-amino-, 8396*a*.

**$C_6H_8N_8O_2$** Adipyl azide, 1564*c*.

**$C_6H_8N_8O_{18}$** Gluconamide, pentanitrate, P 1796*i*.

**$C_6H_8N_8O_{18}$** Mannitol, hexanitrate, 358*a*, 4928*c*, 5007*g*.

**$C_5H_6O$** 3 - Cyclopentene - 1 - carboxaldehyde, P 5416*i*.
Furan, dimethyl-, 1391*g*, P 4301*i*, P 4700*c*, 5657*d*, P 5805*i*, 6204*c*, 7015*f*.
—, 2-ethyl-, P 3836*a*.
3,5 Hexadien 2 one, 2159*b*
Hexenynol, 2183*f*, P 4700*de*.

**$C_5H_6OS$** 2 - Furanmethanethiol, 5-methyl, 7014*h*.
2-Thiopheneéthanol, 3817*f*.
2-Thiophenemethanol, methyl, 1763*f*, 3817*e*, 5781*h*.

**$C_5H_6O_2$** Acrylic acid, allyl ester, P 4686*c*.
1,3-Butadien-1 ol, acetate, P 4897*e*, P 5795*i*, P 7037*i*, P 7953*i*.
Cyclohexanedione, 1336*c*, 2196*f*, P 6230*h*, 7478*i*.
1,2 - Cyclopentanedione, methyl, 6987*f*, 6988*b*.
3 - Cyclopentene - 1 carboxylic acid, P 5416*i*.
Cyclopentenone, hydroxymethyl, 5926*a*
Furfuryl alcohol, methyl, P 4301*i*
Hexenoic acid, hydroxy, lactone, P 1055*i*, P 1056*c*, P 5415*a*, 1140*d*, 7138*h*, 7542*c*, 9334
2-Hexen-4 yne 1,6-diol, 7415*e*
Ketene, methyl-, dimer, 4220*e*
4 Pentynoic acid, Me ester, 2591*i*
2*H* - Pyran - 2 carboxaldehyde, 3,4 dihydro-, P 1435*g*, 1640*h*
Sorbic acid, 2184*i*, P 3634*b*, 9334
Tetrolic acid, Et ester, 4230

**$C_5H_6O_2S$** 2,5-Thiophenedimethanol, 6306
Thiophene, 3,4 dimethoxy-, P 2237.

**$C_5H_6O_3$** Acetoacetic acid, α 2 hydroxy ethyl, γ lactone, P 678*a*, 1008*a* P 2224*d*, P 6225*e*
3 Buten-2 one, 3 hydroxy, acetate, P 1436*d*, P 3451*f*
Butyric acid, γ hydroxy α,β dimethyl α oxo, γ lactone, 4223, 7426
1,3 Cyclopentadiene 1,2,3 triol, 5 methyl, 6988.
2 Cyclopenten 1 one, 2,3 dihydroxy methyl, 6987*f*.
Formaldehyde acid, Et ester, 6981*b*
Glutaric anhydride, 3 methyl, 3781*i*
, 3,4 Hexanetriene, P 3806
Hexenoic acid, 2,4 dihydroxy, γ lactone, 4222
, 4 oxo, 3788*d*
Oxalmic acid, α hydroxy β methyl, β lactone, P 10*db*
Pentenoic acid, 2,4 dihydroxy 3 methyl, γ lactone, 4222*b*
, 2 methyl 4 oxo, 8876*a*
, 4 oxo, Me ester, 1724*d*
2*H* Pyran 3 carboxylic acid, 3,4 dihydro, calc, P 3469*a*
Pyruvic acid, γ hydroxy α methoxy, γ lactone, 4980.
α Succinanhydride, ethyl, 5070*a*

**$C_5H_6O_3Si$** dimethyl, phenyl, P 3657.

**$C_5H_6O_4$** Butyric acid, α,β dioxo, Et ester, 753*f*, 4247*e*
Citraconic acid, α,γ dioxo, 7056, 6267*a*
Citramalic acid, β lactone Me ester, P 2633*a*
Fumaric acid, di Me ester, P 6226*b*, 6310, Et ester, P 2038*a*, 9334*b*
Glutaconic acid, 3 oxo, 1,4, 4,6 anhydro, 1726*e*
Glycic acid, di Me ester, 2591*f*, Et ester P 2038*a*
Malonic acid, monoisopropylidene cyclic ester, 671*i*
, isopropylidene, *and Ca salt*, 1722*i*
Pyruvic acid, Me ester, acetate, P 3453
Triacetic acid, 1724*d*, 2123*f*, 2266*b*, 5812, 6267*a*.

**$C_5H_6O_4S$** 1 Furansulfonic acid, 2,5 dimethyl, *and salts*, 7015*g*
2,5 Thiophenedicarboxylic acid, tetrahydro, 6611*i*.

**$C_6H_6O_4$** Adipic acid, α oxo, 3083*a*, 5084*d*, 7547*b*
1,2 Cyclohexanedione, 3,4,5 - trihydroxy, 4726*h*.

**$C_6H_6O_4S$** 3,4 Thiophenedicarboxylic acid, tetrahydro 3 hydroxy-, P 6668*b*.

**$C_6H_6O_6$** See also "C" under *Vitamins*.
Araboascorbic acid, 1498*c*, 1690*c*, 4230*b*, 1334*i*, 8478*e*.
1,2 - Cyclohexanedione, 3,4,5,6 tetrahydroxy, 153*b*.
Lactone, 5946*a*
Tricarballylic acid, 955*c*.

**$C_6H_6O_4S$** Succinic acid, (carboxymethylmercapto)-, 2704*a*,

**$C_6H_6O_7$** (See also *Citric acid*.)
Gulonic acid, diketo-, 6327*i*.
Isocitric acid, 1013*h*, 2288*e*, 9177*d*.

**$C_6H_6S$** Thiophene, dimethyl-, P 691*h*, P 1067*a*, 9064*e*.
Thiophene, ethyl-, P 1067*a*, 9064*e*

**$C_6H_9AlO_6$** See *Aluminum acetate*.

**$C_6H_9AsN_2O_2$** Arsinic acid, bis(2 cyano ethyl), *and nitrate*, 8351*f*.

**$C_6H_9AsO_6$** Arsenic acetate, 2110*e*.

**$C_6H_9BO_6$** Boron acetate, P 5415*a*.

**$C_6H_9BiO_6$** Bismuth acetate, 2110*g*

**$C_6H_9Br$** Cyclohexene, 3 bromo-, 998*b*, 4658*h*
Cyclopentene, 3 bromo-2 methyl, 2586*e*.
Hexadiene, bromo-, 9024*e*.
2 Hexyne, 1 bromo-, 6572*b*.

**$C_6H_9BrN_4O_2S$** Ethanesulfonamide, 2-amino *N* (5 bromo 2 pyrimidyl)-, P 3450*f*

**$C_6H_9BrO_2$** Crotonic acid, α-bromo, Et ester, 4224*g*

**$C_6H_9BrO_3$** Acetoacetic acid, bromo, Et ester, 4642*d*, 7909*a*.

**$C_6H_9BrO_4S$** Thiophene - 3 ol, 4-bromo tetrahydro, 1,1-dioxide, acetate, 558*i*

**$C_6H_9BrO_4Pb_2$** Lead acetate bromide, 2112*d*.

**$C_6H_9BrS$** Sulfide, allyl 1-bromoallyl, 559*a*

**$C_6H_9Cl$** Hexadiene, chloro-, 112*i*
1 Hexyne, chloro-, 6571*g*, 6968*d*
1,3 Pentadiene, 2 - chloro - 3-methyl-, 3352*c*.
1 Pentyne, 3 chloro - 3 - methyl-, 3352*c*, 6153*c*

**$C_6H_9ClN_4O_2S$** Ethanesulfonamide, 2-amino *N* (5 chloro 2 pyrimidyl), P 3450*g*

**$C_6H_9ClO$** Cyclohexanone, 2 chloro-, 2176*b*.
Ether, 4 chloro - 3 - methyl - 1,3 butadienyl methyl, 5362*i*
Hexenoyl chloride, 1334*g*, 2187*c*
2 Pentenoyl chloride, 4 methyl-, 2187*d*
4 - Pentyn 2 ol, 5 chloro - 3 methyl P 1284*c*.

**$C_6H_9ClO$** Acetic acid, chloro-, 2 methylallyl ester, P 2632*i*
Acrylic acid, α chloro, Pr ester, P 3027*c*

**$C_6H_9ClO_2S$** Acetic acid, (3 chloro 2 butenylmercapto), 575*a*
Thiophene, 3 chloro 2,3 dihydro dimethyl, 1,1 dioxide, P 5185*a*.

**$C_6H_9ClO_3$** Acetoacetic acid, α chloro-, Et ester 1008*c*, 6331*g*
3 Furanol, 4 chlorotetrahydro-, acetate, P 5425*a*
Sorbitol, 5 - chloro - 1,4,3,6 - dianhydro, 2939*g*

**$C_6H_9ClO_3$** Propionic acid, β chloro, ester with hydracrylic acid, P 10*cb*

**$C_6H_9ClO_3S$** Acetic acid, chlorothioxh, di Me ester, 7409*e*
Thiophene 3 - ol, 4 chlorotetrahydro, 1,1 dioxide acetate, P 3166

**$C_6H_9ClO_4S$** Acetic acid, chlorosulfonyldi, di Me ester, 7409*e*

**$C_6H_9Cl_2N$** Diallylamine, 3,3' dichloro, 2928*f*

**$C_6H_9Cl_2NO$** Cyclohexane, 1,2 dichloro 1-nitroso, 2946*b*

**$C_6H_9Cl_2NO_2$** Carbamic acid, (2 chloro ethyl), 3 chloroallyl ester, 2028*d*
Cyclohexane, 1,2 - dichloro - 1 - nitro-, 2946.

**$C_6H_9Cl_3$** 1 Butene, 1,1,2 trichloro - 3,3 dimethyl, 9025*c*

**$C_6H_9Cl_3O_2$** 3 - Hexanone, 6,6,6 trichloro - 5 hydroxy, 3785*b*

**$C_6H_9Cl_3O_3$** Paraldehyde, trichloro-, 2575*c*.

**$C_6H_9CrO_6$** Chromium acetate, 2399*h*.

**$C_6H_9F_2NO$** Acrylamide, α difluoromethyl *N* ethyl, P 6465*g*

**$C_6H_9I$** 1 Hexyne, 6 iodo, 6572*e*

**$C_6H_9IO_4Pb$** Lead acetate iodide, 2112*d*.

**$C_6H_9LaO_6$** Lanthanum acetate, 3864*d*.

**$C_6H_9N$** 1,3 Butadienylamine, 1 vinyl, 6479*b*
1,3,5 Hexatrienylamine, 6479*e*
5 Hexenenitrile, 1334*g*
2,4 Pentadienylamine, 1 methylene-, 6479*e*

**$C_6H_9NO$** Acetamide, *N* - 1 - methyleneallyl-, P 3651*a*
Butyronitrile, α,β - epoxy - α,β - dimethyl-, 2937*e*
-, α,β epoxy-α ethyl-, 2937*d*.
Caprontrile, β-oxo-, 2938*c*.
Cyclopentanecarbonitrile, 1-hydroxy-, 7906*f*.
Glycidonitrile, α-isopropyl-, 2938*h*.
—, α propyl, 2938*e*.
Isocapronitrile, β-oxo-, 2938*h*.
Valeronitrile, α,β - epoxy - α - methyl-, 2937*c*.

**$C_6H_9NOS_2$** Rhodanine, 3,4,4 trimethyl, 1766*d*.

**$C_6H_9NO_2S$** 4 - Thiazolidinecarbothiolic acid, 5,5-dimethyl-2-thioxo-, P 692*i*.

**$C_6H_9NO_2$** Butyronitrile, γ-hydroxy-, acetate, 2579*e*.
1,2-Cyclohexanedione, monoxime, P 8739*f*.
Glutarimide, β-methyl-, 2172*c*.
Isobutyronitrile, α - hydroxy-, acetate, 564*c*.
Propionic acid, α-cyano-, Et ester, 4222*g*.

**$C_6H_9NO_2S_2$** 4 - Thiazolidinecarboxylic acid, 5,5 - dimethyl - 2 - thioxo-, P 693*a*, 1402*c*

**$C_6H_9NO_3$** Acrylic acid, α-acetamido-, Me ester, P 3238*i*.
Butyric acid, γ hydroxy-β,β-dimethyl-α oxo, γ lactone oxime, 4224*a*, 7426*f*.
Crotonic acid, α acetamido, 3857*a*.
2,4 - Oxazolidinedione, 3,5,5 trimethyl-, 1406*a*, 1862*c*, 2699*i*, 3835*d*, 8611*i*, 9202*bd*.

**$C_6H_9NO_3S$** 2 - Pyrrolesulfonic acid, 3,5-dimethyl-, *Na salt*, 7016*b*.

**$C_6H_9NO_4$** Acetic acid, cyano-, 2,3 dihydroxypropyl ester, P 8691*d*
Butyric acid, α,β dioxo, Et ester, α oxime, 127*d*, 573*a*, 2115*d*.
Malonaldehydic acid, formamido-, Et ester, 3411*e*.

**$C_6H_9NO_4S_2$** Glycine, *N* - dithiocarboxy, anhydrosulfide with *O* Et thiolcarbonate, 1399*c*.

**$C_6H_9NO_6$** Acetic acid, nitrilotri-, P 886*h*, P 4800*d*, P 6224*g*, P 6757*f*, *di-Na salt*, 9090*f*, *salts*, 2888*c*, *Na salt*, 5976*i*

**$C_6H_9NS$** 2-Thenylamine, methyl-, 1763*i*, 3817*e*, *and - HCl*, 2201*gh*

**$C_6H_9N_3$** Benzenetriamine, P 3456*b*, *and di-Hcl*, 3384*e*.
4 Picoline, 2,6 diamino-, P 3853*e*.
Propiontrile, β,β'-iminodi, 4401*f*
Pyrazine, 3 amino 2,5-dimethyl-, 3005*e*, 7187*h*
-, (2 aminoethyl), 3520*h*.
Pyridazine, 3 (2-aminoethyl)-, 3520*h*.
, 4 amino 6-ethyl-, 178*c*.
Pyrimidine, 2 - amino 4,6 - dimethyl, P 3854*f*, 9038*c*.
, (2 aminoethyl)-, 3520*h*.

**$C_7H_9N_3O$** 2 - Cyclopenten - 1 - one, semicarbazone, 588*f*
2,4 - Pentadienal, semicarbazone, 5775*a*.
Pyrazimol, 5-amino 3,6-dimethyl-, 3006*a*.
3(2*H*) - Pyridazone, 5 - amino - 2,6-dimethyl-, *and - HCl*, 3007*b*.
Pyridine, 2,6 diamino-3-methoxy-, P 3853*f*.
Pyrimidine, 4-amino-2-ethoxy-, 5307*c*.
5 Pyrimidinemethanol, 4-aminomethyl, 1822*i*, P 7051*h*, - *HCl*, 1822*g*.
2(1*H*) Pyrimidone, 3,4 - dihydro - 3-methyl-4-methylimino, 4635*b*.

**$C_7H_9N_3OS$** Ethanol, 2 - (2 - mercapto-4-pyrimidylamino)-, 8395*d*.
2 Thiazoleacetic acid, 4-methyl-, hydrazide, 5021*i*

**$C_7H_9N_3O_2$** (See also *Histidine*.)
Cupferron, 6103*g*, 7175*i*, 8973*b*.
2-Imidazolealanine, 3410*i*.
Imidazolecarbamic acid, Et ester, 1402*f*.
5 - Pyrimidinemethanol, 4 - amino-2-methyl 6-hydroxy-, 1822*i*.

**$C_7H_9N_3O_2S$** Benzenesulfonamide, 2,4-diamino, P 6832*g*.
Benzenesulfonamide, *p* - hydrazino, *and - HCl*, 6018
Glycine, α - cyano-, Et ester, thiocyanate, 1403*h*.
Imidazolecarbamic acid, 2-mercapto-, Et ester, 1402*e*.
2-Thiazolecarbamic acid, 5 amino-, Et ester, 1402*d*.

**$C_7H_9N_3O_3$** 1,3,5 - Cyclohexanetrione, trioxime, 5623*f*.
Glycine, *N* - (5 oxo - 2 - piperazylidene), 3789*c*.
4-Isopyrazolinecarboxylic acid, 3-carbamyl, Me ester, 579*d*.

**$C_7H_9N_3O_{11}$** Xylopyranoside, methyl, trinitrate, 5007*f*.

**$C_7H_9N_3S$** 2 - Pyrimidinethiol, 4-dimethylamino-, 8395*e*.

**$C_7H_9N_5$** *s* - Triazine, 2,4 - diamino - 6-isopropenyl-, P 3854*g*.

**$C_7H_9N_5OS$** Pyrimidine, 4,6 - diamino-2-(ethylmercapto)-5-nitroso-, 3010*h*.

**$C_7H_9N_5O_2$** 4 - Pyrimidol, 5 - acetamido-2,6-diamino-, 652*b*.
*s* - Triazine - 2 - propionic acid, 4,6-diamino-, P 1814*e*.

**$C_7H_9N_5O_2S$** Acetic acid, (4,5,6-triamino-2-pyrimidylmercapto)-, 580*c*.

**$C_7H_9N_5O_3$** Glycine, *N* - (2,5 - diamino-6-hydroxy-4-pyrimidyl)-, 3426*e*.

**$C_7H_9N_{11}$** Melam, P 4894*e*.

**$C_6H_9NaNpO_8$** Neptunium sodium acetate, 2090*a*, 5686*d*.

**$C_5H_9NaO$** Cyclohexanone, Na deriv., 1730*b*.
**$C_5H_9NaO_2$** Acetoacetic acid, Et ester, Na deriv., 2621*a*.
**$C_5H_9NaO_8U$** Sodium uranyl acetate, 4138*e*
**$C_5H_9O_6Pr$** Praseodymium acetate, 3864*d*.
**$C_5H_9O_6Sb$** Antimony acetate, 2110*g*.
**$C_5H_{10}$** (See also *Butadiene, dimethyl-; Cyclohexene; Hexadiene; Pentadiene, methyl-.*)
1,3-Butadiene, 2-ethyl-, 1311*e*.
1-Butyne, 3,3-dimethyl-, 7822*a*.
Cyclobutane, ethylidene-, 3369*h*.
—, vinyl-, 3369*i*.
Cyclopentene, methyl-, 2172*a*, 2173*b*, 2955*h*, P 4003*g*, 5010*e*.
Cyclopropane, isopropenyl-, 2955*c*.
1-Hexyne, P 5788*g*, 6153*hi*, P 6645*d*, 7417*e*, 8255*b*.
**$C_5H_{10}AuCl_3S$** Allyl sulfide, compd. with $AuCl_3$, 5323*c*.
**$C_5H_{10}BrCl_3$** Butane, 3 - bromo - 1,1,1 trichloro-2,3-dimethyl-, 9024*c*.
**$C_5H_{10}BrHgNO$**, 2111*d*.
**$C_5H_{10}BrN$** Capronitrile, ε bromo-, 3792*e*.
**$C_5H_{10}BrNO_2$** Propionamide, *N* acetonyl-α-bromo-, 3005*c*.
**$C_5H_{10}BrN_3O$** Valeric acid, δ-bromo-α cyano-, hydrazide, 4222*i*.
**$C_5H_{10}Br_2$** Cyclohexane, 1,2 dibromo-, 4658*i*.
2-Hexene, 1,3-dibromo-, 6572*b*.
1 - Pentene, 5 - bromo - 4 - (bromomethyl)-, 3775*i*.
**$C_5H_{10}Br_2O$** 2 - Pentanone, 3,4 - dibromo-4-methyl-, 111*a*.
**$C_5H_{10}Br_2O_2$** Valeric acid, β,γ-dibromo-, Me ester, 574*c*.
**$C_5H_{10}Br_2O_4$** Cyclohexanetetrol, dibromo-, 6581*b*.
**$C_5H_{10}Br_4Se$** Bis(2,3 - dibromopropyl)selenium dibromide, 2160*b*.
**$C_5H_{10}CaO_6$** See *Calcium lactate*.
**$C_5H_{10}Ca_2O_{12}P_2 + H_2O$** Glucose diphosphate, di-Ca salt, 4229*c*.
**$C_5H_{10}ClFO_2$** Acetic acid, chlorofluoro-, Bu ester, 8352*i*.
Butyric acid, γ-fluoro-, 2-chloroethyl ester, 8841*a*.
**$C_5H_{10}ClHgNO$**, 2111*cd*.
**$C_5H_{10}ClN$** Capronitrile, ε-chloro-, 3792*e*.
**$C_5H_{10}ClNO$** Cyclohexanone, 2 - chloro-, oxime, 2946*b*.
Propionamide, *N*-allyl β-chloro-, 2271*h*, 2273*a*.
Valeronitrile, α - (chloromethyl) - α-hydroxy-, 2938*f*.
**$C_5H_{10}ClNO_2$** Butyryl chloride, α-oxo-, *O*-ethyloxime, P 5422*e*.
Cyclohexane, 1-chloro-1-nitro-, 156*h*
**$C_5H_{10}ClNO_3$** Alanine, *N*-chloroacetyl-*N*-methyl-, 9114*g*.
**$C_5H_{10}ClN_3$** *s*-Triazine, 2-amino-4-chloro-6-propylamino-, 1426*b*.
*s*-Triazine, 2-chloro-4-dimethylamino-6-methylamino-, 1426*d*.
**$C_5H_{10}ClN_3O$** 2 - Propanol, 1 - (4 - amino-6-chloro-*s*-triazin-2-ylamino)-, 1426*c*.
**$C_5H_{10}Cl_2$** 1-Butene, dichloro 3,3-dimethyl-, 3372*e*, 9025*a*.
Cyclohexane, 1,2-dichloro-, 2173*i*, 7420*e*.
**$C_5H_{10}Cl_2N_2P_2$** Triphosphornitrile diamide *o* phenylenediamide, dichloro-, 5365*b*.
**$C_5H_{10}Cl_2O$** Ether, allyl 2,3-dichloropropyl, P 4683*a*.
**$C_5H_{10}Cl_2O_3$** Butyric acid, γ-chloro β-(chloromethyl)-β-methyl, 2157*i*
**$C_5H_{10}Cl_2O_5$** Hexitol, dichloroanhydro-, 2940*e*
**$C_5H_{10}Cl_2Si$** Silane, diallyldichloro-, 2018*a*, P 5999*f*, P 6220*e*, P 7262*e*.
**$C_5H_{10}Cl_2NO$** Acetamide, α chloro-*N*, *N*-bis(2-chloroethyl), 2927*b*, 7423*b*
**$C_5H_{10}Cl_3NO_2$** Carbamic acid, 2,2',2''-trichloro *tert*-butyl, Me ester, 2945*h*
**$C_5H_{10}Cl_3FO_2P$** Fluophosphoric acid, bis-(2,2' - dichloroisopropyl) ester, 8351*b*.
**$C_5H_{10}Cl_4O$** Ether, bis(2,3-dichloropropyl), P 4683*a*.
Ether, butyl 1,2,2,2-tetrachloroethyl, 2359*h*.
**$C_5H_{10}Cl_4O_3$** Butyric acid, α,β,β,γ-tetrachloro-, Et ester, 6161*g*.
**$C_5H_{10}CuN_2O_4S_2$** Cystine, Cu deriv., 8222*d*.
**$C_5H_{10}DNO$** Hexamethylenimine-*N*-*d*, 2-oxo-, 8274*g*.
**$C_5H_{10}F_2O_2$** Butyric acid, γ-fluoro-, 2-fluoro ethyl ester, 8841*a*.
**$C_5H_{10}F_3NO_2$** Butyramide, γ,γ,γ - trifluoro-β-hydroxy - *N* - 2 - hydroxyethyl-, 2273*b*.
**$C_5H_{10}GeN_2O_2$** Diethylgermanium diisocyanate, 6536*h*.
**$C_5H_{10}Hg$** Mercury, ethynylenebis[ethyl-, 2614*f*.
**$C_5H_{10}I_2$** Cyclohexane, diiodo-, 7420*d*, 7435*i*.
**$C_5H_{10}NNaO_2$** Cyclohexane, nitro-, Na deriv., 8365*a*.
**$C_5H_{10}N_2$** Propionitrile, β-(allylamino), P 2226*g*.
Pyrrole, 2-(2-aminoethyl)-, 3520*i*.
1-Pyrrolidineacetonitrile, 2207*d*.
**$C_5H_{10}N_2O$** Acetamide, *N*-(2-cyanoisopropyl)-, 4263*a*.
Acetamide, *N*-(1-cyanopropyl)-, 8381*e*.
Pyrazole, ethoxymethyl-, 8365*f*.
Pyrazolone, ethylmethyl-, 7934*e*, P 9466*g*.
3(2*H*) - Pyridazone, 6 - ethyl - 4,5 dihydro-, 178*b*.
**$C_5H_{10}N_2OS$** Hydantoin, 5-ethyl-5-methyl-2 thio-, 7586*a*.
Hydantoin, 5-isopropyl-2-thio-, 634*i*
- -, 5-propyl-2 thio-, 634*h*.
Imidazolone, dimethylmethylmercapto-, 6171*gh*.
1*H* - Thieno[3,4]imidazol - 2(3*H*)-one, tetrahydro-4-methyl-, P 7970*i*.
**$C_5H_{10}N_2OS_2$** Hydantoin, 5 (methylmercapto ethyl)-2-thio-, 634*i*.
**$C_5H_{10}N_2O_2$** Allyl hyponitrite, P 5641*c*.
Butyric acid, γ-hydroxy-β,β dimethyl α-oxo-, γ-lactone, hydrazone, 7426*c*.
Cyclohexanedione, dioxime, 2176*c*, 3313*g*, 6932*a*, 7478*i*.
Diimide, dipropionyl-, 5369*a*.
1*H*-Furo[3,4]imidazole, hexahydro-4 methyl-2-oxo-, P 8101*c*.
Hydantoin, 5 ethyl-5-methyl-, 6308*f*.
Piperazinedione, dimethyl-, P 2739*e*, 4227*c*, *compd. with ZnCl₂*, 7456*b*.
2 - Pyrazoline - 3 - carboxylic acid, Et ester, 5005*f*.
—, 4-methyl-, Me ester, 5005*g*.
5 - Pyrazolone, 4 - (2 - hydroxyethyl) 3-methyl-, 7019*a*.
**$C_5H_{10}N_2O_2S$** 2,5 - Thiophenedicarboxamide, tetrahydro-, 6612*a*.
**$C_5H_{10}N_2O_3$** Acrylic acid, α-(α-methylaminoacetamido)-, 2588*c*.
Alanine, alanyldehydro-, 6725*d*
—, *N* - methylglycyldehydro-, 6725*e*
Hydantoin, 5-(ethoxymethyl)-, 7903*f*
Maleic anhydride, compd. with ethylene diamine, 8832*g*.
Morpholine, 4-(2-nitrovinyl)-, 1003*i*.
Propionic acid, α-(alanylimino)-, 1071*e*
**$C_5H_{10}N_2O_4$** Butyric acid, α,β-dioxo-, Et ester, dioxime, 127*d*
Formic acid, azodi-, di-Et ester, 612*g*, 1725*g*, 8730*h*, 8731*d*.
**$C_5H_{10}N_2O_4S_2$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - (2 - methoxyethyl) - 3 - thio-, 1,1 - dioxide, P 4868*d*
**$C_5H_{10}N_2O_5$** Glutamic acid, *N*-carbamyl-, 1848*h*.
**$C_5H_{10}N_2O_6S$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*)-dione, 2-(3-hydroxypropyl)-, 1,1-dioxide, P 4868*d*.
1,2,4,2*H* - Thiadiazine - 3,5(4*H*,6*H*)-dione, 2 - (2 - methoxyethyl)-, 1,1-dioxide, P 4868*d*.
**$C_5H_{10}N_2O_6$** Methanol, (nitroimino)di-, diacetate, 8355*c*, 9075*ah*.
**$C_5H_{10}N_2S$** 2 Imidazolethiol, 4-propyl-, 9242*a*
2(3*H*) - Imidazolethione, 4 isopropyl-, 634*i*.
—, 4-propyl-, 634*i*.
Thiazole, (2 aminoethyl)methyl-, 3520*h*.
- , 2-amino-5-propyl-, 4263*e*.
**$C_5H_{10}N_2S_2$** Hydantoin, 5-ethyl-5-methyldithio-, 7586*a*.
Hydantoin, 1,5,5 - trimethyldithio-, 1766*f*.
Imidazolethione, dimethylmethylmercapto-, 6171*ef*
2-Thiazolidinethione, 5 - imino - 3,4,4-trimethyl-, 1766*b*.
**$C_5H_{10}N_2S_2Si$** Silane, diethyldiisothiocyano-, 6571*b*.
**$C_5H_{10}N_2OP$** Phosphine oxide, diamino(*p*-aminophenyl)-, 1737*h*.
**$C_5H_{10}N_4$** (See also *Metrazole.*)
Pyrimidine, 4 amino-5-(aminomethyl)-2-methyl-, 716*ab*, 1457*g*, 4331*e*, P 7051*h*; *di-HCl*, 1822*h*, P 6652*h*; *-HCl*, P 6528*c*.
—, 4 - amino - 2 - methyl - 5 - methylamino-, 269*c*.
**$C_5H_{10}N_4O$** Acetamide, *N* - [2 - (*v*-triazol-4-yl)ethyl], *and -HCl*, 6621*a*.
4 - Pyrimidol, 5 - amino - 6 - methyl-2-methylamino-, 3423*f*.
**$C_5H_{10}N_4OS$** 4 - Pyrimidol, 5,6-diamino-2-(ethylmercapto)-, 2212*g*.
Urea, 1 - (2 - mercapto - 1 - methyl-5-imidazolyl)-3-methyl-, 3408*i*.
**$C_5H_{10}N_4O_2$** Cyclopentanecarboxylic acid, 2,5 - dioxo-(?), hydrazide, hydrazone, 7910*g*.
Glycoluril, 3a,6a-dimethyl-, 348*h*.
**$C_5H_{10}N_4O_2S$** Ethanesulfonamide, 2-amino-*N* - 2 - pyrimidyl-, *and -HCl*, P 3450*f*.
**$C_5H_{10}N_4O_{10}$** Acetamide, *N* - (2,2',2''-trihydroxy - *tert* - butyl)-, trinitrate, 6575*f*.
**$C_5H_{10}N_4S$** Pyrimidine, 4,6 - diamino-2-(ethylmercapto)-, 3010*g*.
**$C_5H_{10}N_4O_2$** Fumaraldehyde, disemicarbazone, 4219*g*.
**$C_5H_{10}O$** (See also *Cyclohexanone; Mesityl oxide.*)
Allyl ether, 558*e*, 4401*f*, P 4683*a*, 5989*a*, P 7952*d*.
3-Cyclohexen-1-ol, 7435*g*.
Cyclopentanecarboxaldehyde, 7431*i*.
Cyclopentanone, methyl-, 2172*e*, 2955*i*.
3-Cyclopentene-1-methanol, P 5416*i*.
2-Cyclopenten-1-ol, 2-methyl-, 2586*c*.
Ether, 1-butynyl ethyl, 2158*h*.
- , methyl 2,4-pentadienyl, 5737*b*.
Furan, 2-ethyl-2,5-dihydro-, 5774*h*.
Hexadienol, 112*f*, 557*i*.
2-Hexenal, 4222*d*.
Hexenone, 5734*i*, 6163*a*.
Hexynol, 6571*f*, 6967*i*.
Ketone, methyl 1-methylcyclopropyl(?), 2158*a*.
7 - Oxabicyclo[4.1.0]heptane, 7420*h*, 7431*i*.
6 - Oxabicyclo[3.1.0]hexane, 1-methyl-, 2172*f*.
2-Pentenal, methyl-, 1040*b*, 3780*a*, 4222*d*, P 4685*g*, 8376*h*.
Pentenone, methyl-, P 1055*i*, P 1056*abc*, P 5415*a*, P 6458*c*.
1-Pentyn-3-ol, methyl-, 994*h*, 3352*i*, P 4294*d*.
2*H*-Pyran, dihydromethyl-, 2994*c*.
**$C_5H_{10}OS$** 1-Penten-3-one, 5-methylmercapto-, 7433*i*.
**$C_5H_{10}OS_2$** Allicin, 3482*d*.
7 - Oxa - 2,5 - dithiabicyclo[2.2.1]heptane, 1,4-dimethyl-, 654*a*.
**$C_5H_{10}O_2$** (See also *Hexanedione.*)
Acrylic acid, isopropyl ester, P 6651*a*
Butenoic acid, Et ester, 2591*e*, 9024*c*.
Butenol, acetate, P 5796*a*, P 7953*i*.
Caproic acid, hydroxy-, lactone, P 1055*n*, P 1056*c*, 1110*d*, P 5415*a*, 7138*h*, 7434*d*, 8358*h*.
Crotonic acid, Et ester, 576*c*, 2591*f*, 5775*h*.
Cyclobutanecarboxylic acid, Me ester, 2955*c*.
Cyclohexanone, 2-hydroxy-, 2176*a*, 7915*e*.
2 Cyclohexen-1-yl hydroperoxide, 4934.
Cyclopentanecarboxylic acid, 2176*c*.
Cyclopentanol, formate, 2955*h*.
Cyclopropanecarboxylic acid, Et ester, 2955*e*.
Furan, ethoxydihydro-, 5774*h*.
2-Furanol, tetrahydro-5-vinyl-, 4254*a*.
Glutaric acid, α-methyl-, 2173*f*.
1,5-Hexadiene-3,4-diol, 1721*h*.
Hexane, 1,2,5,6-diepoxy-, P 7237*a*.
Hexenoic acid, 1334*g*, 2187*c*.
Isocaproic acid, β-hydroxy-, β-lactone, P 5415*a*.
Methacrylic acid, Et ester, 1867*g*, P 5641*e*.
Pentenoic acid, Me ester, 574*e*.
- -, methyl-, P 1055*i*, 2187*c*, 7901*f*, 8376*h*.
Propionic acid, allyl ester, 2591*f*; iso propenyl ester, P 7038*e*.
Valeric acid, β-hydroxy-β-methyl-, β-lactone, P 5415*a*.
**$C_5H_{10}O_2S$** Acetic acid, (2-methylallylmercapto)-, 3364*i*.
Acetic acid, thiodi-, mono-Et ester, P 6224*f*.
Allyl sulfone, 559*b*.
2-Propanone, 1,1'-thiodi-, 653*h*.
Sulfide, bis(2,3-epoxypropyl), P 5518*b*.
Thiophene, 2,5-dihydro-2,4-dimethyl-, 1,1-dioxide, P 1065*e*, P 5637*c*.
**$C_5H_{10}O_2S_2$** Adipic acid, dithiol-, 8193*f*.
1,3-Dithiolane-4-carboxylic acid, 2,2-dimethyl-, 3783*h*.
**$C_5H_{10}O_2S_2$** Formic acid, thiobis[thiono-, di-Et ester, 144*c*, 1181*h*.
**$C_5H_{10}O_2S_4$** Formic acid, dithiobis[thiono-, di-Et ester, 1181*g*, P 1212*g*, P 4509*c*, 6983*h*, 8600*b*.
**$C_5H_{10}O_2S_6$** Formic acid, tetrathiobis[thiono-, di-Et ester, P 7040*a*.
**$C_5H_{10}O_3$** Acetoacetic acid, Et ester, 139*g*, 228*f*, 572*d*, 573*h*, 618*c*, P 678*a*, P 689*cd*, 1007*h*, 1010*f*, 1047*a*, P 1601*d*,

2200*a*, 2582*g*, 4401*g*, 4574*h*, 4642*d*, 4671*f*, 5621*f*, P 6665*b*, 6969*a*, 6979*g*, 7432*f*, P 8165*b*, P 9520*c*.
Adipaldehydic acid, 2196*f*.
2-Butanone, 1-hydroxy-, acetate, 3791*d*.
3-Butenoic acid, 2-methoxy-3-methyl-, 6975*c*.
Butyric acid, α,γ-dihydroxy-β,β-dimethyl-, γ-lactone, 7154, P 1056*f*, P 3448*g*, P 4291*c*, P 5037*h*, P 7038*i*, 7138*g*.
Caproic acid, 5-oxo-, 2173*f*, 3792*b*.
Crotonic acid, γ-methoxy-, Me ester, P 3442*h*.
Ether, bis(2,3-epoxypropyl), P 1996*e*, P 5518*c*.
Furan, 2,5-dihydro-2,5-dimethoxy-, P 7970*b*.
2-Furanol, tetrahydro-, acetate, 3816*e*.
2-Furoic acid, tetrahydro-2-methyl-, 2163*b*.
Glutaraldehydic acid, Me ester, P 1809*f*, P 3468*f*.
Glyoxylic acid, Bu ester, 3383*g*.
Isocaproic acid, α-oxo-, 3857*b*, 6266*e*.
Lactic acid, allyl ester, P 1055*b*, P 4896*e*, 6495*f*.
Levulinic acid, Me ester, 140*d*.
Propionic anhydride, 505*e*, 5271*c*, 8138*e*, 8353*d*.
Pyran-3-carboxylic acid, tetrahydro-, P 3470*a*.
Senecioic acid, α-methoxy-, 6975*c*.
Valeric acid, γ-hydroxy-γ-methoxy-, γ-lactone, 140*c*.
—, β-methyl-α-oxo-, 4227*f*.
—, β-oxo-, Me ester, 140*b*.
$C_6H_{10}O_3S_2$ 7-Oxa-2,5-dithiabicyclo[2.2.1]-heptane, 1,4-dimethyl-, 2,2-dioxide, 654*c*.
$C_6H_{10}O_4$ (See also *Adipic acid.*)
Acetaldehyde, (ethylenedioxy)di-, 2577*g*, 7735*i*.
Cyclopentanecarboxylic acid, 1,2-dihydroxy-, 588*f*.
p-Dioxino[*b*]-p-dioxin, hexahydro-, P 4689*a*.
1,1-Ethanediol, diacetate, P 3838*g*.
Ethyleneglycol, diacetate, 4063*f*, P 7275*b*.
Galactal <1,5>, 1727*b*.
Glucal, 8007*a*.
Glutaric acid, Me ester, P 3468*f*.
—, β-methyl-, 2172*c*.
Glycolic acid, Et ester, acetate, P 1436*c*.
Hexitol, dianhydro-, 2940*b*.
Hydracrylic acid, Me ester, acetate, 4639*g*.
Mannitol, dianhydro-, 2939*f*, 2940*a*.
Methanediol, diacetate, P 5035*h*.
Oxalic acid, di-Et ester, 127*g*, 2590*d*, 5368*f*, 6628*b*.
Sorbitol, dianhydro-, 2939*f*, P 4301*g*.
Succinic acid, di-Me ester, 2590*d*, P 3452*a*, 6609*i*; mono-Et ester, 7303*b*.
—, dimethyl-, 1333*b*, 5469*de*.
—, ethyl-, 4228*a*, 5069*i*.
$C_6H_{10}O_4S$ Malonic acid, (1-mercaptoisopropyl)-, *and Ca salt*, 1722*h*.
2-Propanone, 1,1'-sulfonyldi-, 653*h*.
Propionic acid, β,β'-thiodi-, P 895*d*, P 1054*ehi*, P 5795*f*.
$C_6H_{10}O_4S_2$ Acetic acid, dithiodi-, Me ester, 2956*f*.
Propionic acid, β,β'-dithiodi-, P 1056*f*.
Thiophene, tetrahydro-3-vinylsulfonyl-, 1,1-dioxide, P 2238*d*.
$C_6H_{10}O_5$ Diglycolic acid, di-Me ester, 9032*e*.
α-Glucosan, 9060*h*.
Glucose, 3,6-anhydro-, 1726*f*.
Levoglucosan, 3368*e*.
Lyxomethylose, 3-C-formyl-, 1330*e*.
Propionic acid, β,β'-oxydi-, P 5037*d*, 7433*a*.
Streptose, 1329*i*, 1330*c*, 6580*b*.
Streptosomic acid, dihydro-, lactone, 6580*e*.
Talomethylonic acid, lactone, 1729*c*.
$(C_6H_{10}O_5)_x$ See *Cellulose; Dextrin; Galactan; Glycogen; Inulin.*
$C_6H_{10}O_5S$ Acetic acid, sulfinyldi-, di-Me ester, 9032*h*.
$C_6H_{10}O_5S_2$ 7-Oxa-2,5-dithiabicyclo[2.2.1]-heptane, 1,4-dimethyl-, 2,2,5,5-tetroxide, 654*c*.
$C_6H_{10}O_6$ Glucosone, 5007*i*.
Gulonic acid, lactone, 4917*b*.
Inosose, 1550.
Peroxydicarbonic acid, di-Et ester, P 8742*f*.
$C_6H_{10}O_8S_2$ Acid, di-Me ester, 8355*d*.
$C_6H_{10}O_8S_2$ Acetic acid, (tetrahydro-3-thienylsulfonyl)-, 1,1-dioxide, P 2238*b*.
$C_6H_{10}O_7$ (See also *Galacturonic acid; Glucuronic acid.*)
Acid, 5946*a*.
Gluconic acid, keto-, *and salts*, 1690*c*.
Gulonic acid, keto-, P 6225*b*, P 8919*f*.
$C_6H_{10}O_8$ (See also *Saccharic acid.*)
Glucosaccharic acid, P 7506*c*.
Mucic acid, 6982*h*.
$C_6H_{10}S$ Allyl sulfide, 559*b*, 998*i*, 1097*a*, 7410*d*.
3-Cyclohexene-1-thiol, 998*i*.
7-Thiabicyclo[4.1.0]heptane, 998*h*, 7419*i*.
$C_6H_{10}S_2$ Allyl disulfide, 6286*f*, 7061*d*, 7410*g*.
$C_6H_{10}S_2$ 2-Propanethione, 1,1'-thiodi-, 4633*d*.
Trithiabicycloheptane, dimethyl-, 654*d*.
$C_6H_{11}AuO_6S$ Glucose, thio-, *S*-Au deriv., 5117*f*, 5118*a*.
$C_6H_{11}Br$ Cyclohexane, bromo-, 557*g*, 1312*b*, 2955*i*, 3372*a*, 4912*b*.
Cyclopentane, 1-bromo-2-methyl-, 1039*f*.
$C_6H_{11}BrN_2O_3$ See *Bromural.*
$C_6H_{11}BrN_6O_7Pt$, 2538*a*.
$C_6H_{11}BrO$ Ether, 2-bromo-1-butenyl ethyl, 2158*f*.
Ether, 1-(bromomethyl)-3-butenyl methyl, 2208*g*.
Furan, 2-(bromomethyl)tetrahydro-5-methyl-, 5735*f*. ●
2-Hexanone, 6-bromo-, P 4684*b*.
$C_6H_{11}BrO_2$ Acetic acid, bromo-, Bu ester, 2591*a*.
1-Butanol, 3-bromo-, acetate, P 4690*a*.
Butyric acid, γ-bromo-, Et ester, 6165*b*.
Crotonaldehyde, γ-bromo-, dimethyl acetal, 4219*a*.
Isobutyric acid, α-bromo-, Et ester, 613*a*.
Pentane, 1-bromo-4,5-epoxy-2-methoxy-, 2208*h*.
$C_6H_{11}BrO_2$ Isovaleric acid, α-bromo-β-methoxy-, P 3030*c*.
1,2-Propanediol, 3-(1-bromoallyloxy)-, 311*h*.
$C_6H_{11}BrO_2S$ Thiophene-3-ol, 4-bromo-3,5-dimethyl-, 1,1-dioxide, P 3851*g*.
$C_6H_{11}Br_2NO$ Acetamide, α,α-dibromo-*N*-butyl-, 6975*h*.
Acetamide, α,α-dibromo-*N*,*N*-diethyl-, 6975*i*.
$C_6H_{11}Br_3$ Butane, 1-bromo-2,2-bis(bromomethyl)-, 3369*g*.
Pentane, 1,5-dibromo-2-(bromomethyl)-(?), 3775*i*.
$C_6H_{11}Cl$ 1-Butene, 1-chloro-3,3-dimethyl-, 9024*h*.
Cyclohexane, chloro-, 1312*c*, 2834*a*, 2955*i*, 3371*h*, 3372*c*, 3780*c*, 4232*h*.
Cyclopentane, 1-chloromethyl-, 2171*c*, 3372*d*.
1-Hexene, 2-chloro-, P 5788*g*.
1-Pentene, 4-chloro-4-methyl-, 3777*a*.
$C_6H_{11}ClN_2$ 2-Imidazoline, 2-(3-chloropropyl)-, *HCl*, P 7050*c*.
$C_6H_{11}ClN_2O_3S$ Carbamic acid, [2-(2-chloroethylmercapto)ethyl]nitroso-, Me ester, 2945*i*.
$C_6H_{11}ClN_4O_7Pt$, 2537*i*.
$C_6H_{11}ClO$ Cyclohexanol, chloro-, 588*f*, 4733*i*, 7435*df*.
Ether, chloro-2-butenyl ethyl, P 3968*g*.
—, 2-chloro-3-methyl-2-butenyl methyl, 4362*f*.
—, chloropentenyl methyl, 130*g*, 9025*f*.
2-Hexanone, 1-chloro-, 565*e*, 4263*f*.
$C_6H_{11}ClO_2$ Acetic acid, chloro-, Bu ester, 2590*i*.
Butyric acid, γ-chloro-, Et ester, 4638*g*.
1,3-Dioxolane, 4-(chloromethyl)-2,2-dimethyl-, P 8181*a*.
Furan, 3-chloro-2-ethoxytetrahydro-, 5774*g*.
2-Propanol, 1-(allyloxy)-3-chloro-, 5741*f*.
$C_6H_{11}ClO_2S$ Cyclohexanesulfonyl chloride, 4039*f*.
Thiophene, 3-chloro-2,3,4,5-tetrahydro-2,4-dimethyl-, 1,1-dioxide, P 5185*h*.
$C_6H_{11}ClO_3$ Acetic acid, chloro-, 2-ethoxyethyl ester, 569*e*.
$C_6H_{11}ClO_3S$ Thiophene-3-ol, chlorotetrahydrodimethyl-, 1,1-dioxide, P 3466*c*, P 3851*fg*.
$C_6H_{11}ClS$ Cyclohexanethiol, 2-chloro-, 7419*i*.
$C_6H_{11}Cl_2HgNO$, 2111*d*.
$C_6H_{11}Cl_2NO$ Acetamide, *N*,*N*-bis(2-chloroethyl)-, 2927*b*.
Acetamide, *N*-butyl-α,α-dichloro-, 1720*b*.
—, *N*-*sec*-butyl-α,α-dichloro-, 1720*b*.
—, α,α-dichloro-*N*-isobutyl-, 1720*b*.
$C_6H_{11}Cl_2NO_2$ Carbamic acid, bis(2-chloroethyl)-, Me ester, 2927*b*.
$C_6H_{11}Cl_2OP$ Phosphine oxide, dichlorocyclohexyl-, 1315*e*.
$C_6H_{11}Cl_3$ Butane, 1,1,1-trichloro-2,2-dimethyl-, 3372*d*.
$C_6H_{11}Cl_3O_2$ Chloral, compd with BuOH, 1252*g*.
Ethanol, 1-butoxy-2,2,2-trichloro-, 2359*h*.
$C_6H_{11}Cl_3O_3$ Peroxide, *tert*-butyl 2,2,2-trichloro-1-hydroxyethyl, P 2629*h*, 6156*h*.
$C_6H_{11}DO_2$ Caproic-α-*d* acid, 3392*e*.
$C_6H_{11}F$ 1-Hexene, 6-fluoro-, 3774*h*.
$C_6H_{11}I$ Cyclohexane, iodo-, 2955*i*.
$C_6H_{11}IN_2OS$ Dimethyloxoimidazolidylidenemethylsulfonium iodide, 6171*gh*.
$C_6H_{11}IN_2S_2$ (4,4-Dimethyl-5-thioxo-2-imidazolidylidene)methylsulfonium iodide, 6171*f*.
$C_6H_{11}IO$ Cyclohexanol, iodo-, 7435*b*, 7436*a*.
$C_6H_{11}IOS$ Hexahydro-1-methyl-4-oxothiapyrylium iodide, 7433*e*.
$C_6H_{11}IO_2$ Acetic acid, iodo-, Bu ester, 2591*a*.
1-Butanol, 3-iodo-, acetate, P 4690*b*.
$C_6H_{11}IO_4$ 1,4-Sorbitan, 6-iodo-6-desoxy-, 152*c*.
$C_6H_{11}IO_5$ Galactose, 6-desoxy-6-iodo-, 150*h*.
$C_6H_{11}N$ Capronitrile, 568*b*, 2592*b*, 3779*b*.
Isocapronitrile, 2592*b*, P 3440*b*.
2-Picoline, 1,4,5,6-tetrahydro-, 8365*e*.
$C_6H_{11}NO$ (See also *Hexamethylenimine, 2-oxo-.*)
Acrylamide, *N*,*N*,α-trimethyl-, 3358*g*.
Crotonamide, α-ethyl-, 121*g*.
Cyclohexanone, oxime, 156*i*, P 3844*d*, 4232*c*, P 4515*b*.
2-Hexenamide, 2187*c*.
Oxazolidine, 3-allyl-, 7246*f*.
2-Pentenamide, 4-methyl-, 2187*d*.
Piperidone, methyl-, 2959*a*, 4274*e*, 7432*b*; *-HCl*, 9067*h*; *and -HCl*, 3408*d*.
3-Pyridinemethanol, 1,2,5,6-tetrahydro-, 2582*b*.
$C_6H_{11}NOS_2$ 1,3-Dithiolane-4-carboxamide, 2,2-dimethyl-, 3783*h*.
4-Morpholinecarbodithioic acid, Me ester, 2188*b*.
Sulforaphane, 1725*c*.
$C_6H_{11}NO_2$ Butyric acid, α-amino-γ-hydroxy-β,β-dimethyl-, γ-lactone, *-HCl*, 574*h*, 4224*a*.
Carbamic acid, *N*-allyl-, Et ester, P 9473*h*.
Crotonamide, *N*-2-hydroxyethyl-, 2273*b*.
Cyclohexane, nitro-, 157*a*, P 4683*e*, P 4694*c*.
Cyclohexyl nitrite, P 4694*c*.
Dipropionamide, 4221*b*.
4-Hexenoic acid, 2-amino-, 574*d*.
Isobutyronitrile, α,β-dimethoxy-, P 3027*f*.
Leucine, γ-hydroxy-, γ-lactone, 574*c*.
Morpholine, 4-acetyl-, P 6652*d*.
2-Pentanone, 4-methyl-4-nitroso-, 6016*c*.
4-Pentenoic acid, 2-amino-4-methyl-, 574*c*, P 6653*c*.
$C_6H_{11}NO_2S$ Alanine, β-(allylmercapto)-, 6577*b*.
4-Thiazolidinecarboxylic acid, 5,5-dimethyl-, 4668*b*.
$C_6H_{11}NO_3$ Acetoacetic acid, Et ester oxime, 2276*d*.
Aceturic acid, Et ester, 2989*g*.
β-Alanine, *N*-formyl-, Et ester, 576*b*.
—, *N*-formyl-*N*-methyl-, Me ester, 575*i*.
—, *N*-propionyl-, 3497*f*, 4737*c*.
Butyric acid, γ-imino-γ-methoxy-, Me ester, *-HCl*, 3359*i*.
—, α-oxo-, *O*-ethyloxime, P 5422*e*; oxime Et ester, 2276*e*.
Cyclohexyl nitrate, P 4694*e*.
Lactamide, *N*-methyl-, acetate, 3358*e*.
Orthoacetic acid, cyano-, tri Me ester, 3356*g*, 3360*b*.
Oxamic acid, *N*-isobutyl-, 1719*i*, 2933*i*.
1*H*-Oxazolo[3,4-*c*]oxazole-7a(7*H*)-methanol, 3,5-dihydro-, 2936*f*.
Pyruvonitrile, β-methoxy-, di-Me acetal, P 3027*f*.
$C_6H_{11}NO_3S$ Alanine, β-(allylsulfinyl)-, 3482*d*, 6577*c*, 6723*f*, 7198*g*, 7570*c*.
Valine, *N*-formyl-β-mercapto-, 8892*f*.
$C_6H_{11}NO_3S_2$ 3-Thiophenecarbamic acid, tetrahydrothiol-, 1,1-dioxide, Me ester, P 6668*e*.
$C_6H_{11}NO_4$ Adipic acid, α-amino-, 2278*c*, 3082*gi*, 4223*d*, 5084*d*, 5818*e*, 6708*c*, 8423*e*.
Allothreonine, *N*-acetyl-, 4225*f*.
Butyric acid, α-formamido-β-methoxy-, 4224*g*.
—, γ-hydroxy-β,β-dimethyl-α-oxo-, oxime, *Na salt*, 4224*a*.
Imidodicarboxylic acid, di-Et ester, 4228*f*.
Threonine, *N*-acetyl-, 4225*g*.

Valeric acid, γ-nitro-, Me ester, 1319*g*.
$C_6H_{11}NO_5$ 3-Buten-2-ol, 1-amino-, oxalate, 6618*a*.
$C_6H_{11}NO_6$ Galacturonamide, 4642*b*.
Glucuronamide, 4642*d*.
Mannuronamide, 4642*b*.
$C_6H_{11}NS$ Hexamethylenimine, 2-thioxo-, 2176*d*, 8735*i*.
$C_6H_{11}NS_2$ Isothiocyanic acid, 4-methylmercaptobutyl ester, 1725*d*.
1-Piperidinecarbodithioic acid, *Bi salt*, 1111*g*; *Zn salt*, 430*g*, 8729*g*.
$C_6H_{11}N_3$ Histamine, methyl-, 3520*h*; *and di-HCl*, 8382*e*.
Imidazole, (2-aminoethyl)methyl-, 3520*h*; *di-HCl*, 7478*h*.
$C_6H_{11}N_3O$ 3-Buten-2-one, 3-methyl-, semicarbazone, 565*b*, 3352*d*, 3777*e*
Cyclopentanone, semicarbazone, 588*f*.
$C_6H_{11}N_3O_2$ 3-Oxazolidinepropionamide, 2-imino-, P 252*g*.
$C_6H_{11}N_3O_4$ Glycine, *N*-(*N* glycylglycyl), 1448*e*, 2066*h*, 7066*b*.
$C_6H_{11}N_3S$ 2-Imidazoline, 4-imino 5,5-dimethyl-2-methylmercapto-, 6171*g*
Pseudourea, 3-cyano-1-isopropyl-2-methyl-2-thio-, 2947*c*.
—, 3-cyano 2-methyl-1 propyl-2 thio-, 2947*c*.
$C_6H_{11}N_3O$ *s*-Triazine, 2 amino-4-dimethyl amino-6-methoxy-, 4269*e*.
*s*-Triazine, 2-amino-4-ethylamino 6-methoxy-, 4269*e*.
—, 2 methoxy 4,6 bis(methylamino)-, 4269*e*.
$C_6H_{11}N_3O_5$ 1,3,5,1 *H*-Triazepine, 3 acetylhexahydro-1,5-dinitro-, 9074*b*
$C_6H_{11}N_3O_6$ *s*-Triazine-1(2 *H*)-methanol, tetrahydro-3,5 dinitro-, acetate, 9074*f*.
$C_6H_{11}N_3O_8$ 2(1 *H*)-Pyrimidone, tetrahydro-, picrate, 4273*c*
$C_6H_{11}N_4S$ Pyrimidine, 1,5,6 triamino 2-(ethylmercapto), 3010*b*.
*s*-Triazine, 2,4 bis(methylamino) 6 methylmercapto-, P 7851*c*.
$C_6H_{11}N_7O_7$ 1,3,5,7-Tetrazocine, 1-acetyl octahydro 3,5,7 trinitro-, 9075*d*
$C_6H_{11}N_7O_8Pt$, 2538*a*
$C_6H_{11}N_3O_3$ Mesoxaldehyde, trisemicarbazone, 4227*d*
$C_6H_{11}NaO_6S$ D-Glucose, thio-, Na deriv, 2328*g*.
$C_6H_{11}O_2PS_2$ Allyl thiophosphate, 7859*b*.
$C_6H_{12}$ (See also *Butene, dimethyl*, *Cyclohexane; Cyclopentane, methyl*; *Hexene*)
1-Butene, 2-ethyl-, 2924*g*, 3369*i*, 4453*d*, 9024*c*.
Cyclobutane, ethyl-, 157*f*, 2924*g*, 3369*i*.
Cyclopropane, 1 ethyl 1 methyl-, 3369*i*.
—, isopropyl-, 2955*d*.
Pentene, methyl-, 108*d*, 2924*g*, 4453*d*, 5734*g*, P 5939*d*.
$C_6H_{12}BaN_2O_{18}S_2$ Glycerol, nitrate, sulfate, Ba salt, 5368*e*.
$C_6H_{12}BrNO$ Acetamide, α-bromo-*N*-butyl-, 5081*h*.
Acetamide, α bromo-*N*-*sec* butyl-, 5081*h*
—, α-bromo *N*-isobutyl-, 5081*h*
$C_6H_{12}Br_2$ Hexane, 2,5 dibromo-, 6969*e*
$C_6H_{12}Br_2O$ Ether, 2,3-dibromopropyl propyl, 2159*c*.
2-Hexanol, 5,6-dibromo-, 5735*f*.
$C_6H_{12}Br_2O_2$ 2-Butanol, 3,4-dibromo-1 ethoxy-, 6157*f*.
$C_6H_{12}Br_2O_4$ Mannitol, 1,6 dibromo-, 2939*h*
$C_6H_{12}Br_2N$ Triethylamine, 2,2′,2″ tribromo, *and HBr*, 2927*f*.
$C_6H_{12}Br_4O_2Se$ Bis(2-bromo-3-hydroxypropyl)selenium dibromide, 2160*c*.
$C_6H_{12}ClF_3N$ Triethylamine, 2-chloro-2′,2″-difluoro-, 2027*h*.
$C_6H_{12}ClN$ Cyclohexylamine, chloro-, P 3033*c*; *-HCl*, 3373*b*.
Pyrrolidine, 1-(2-chloroethyl)-, *-HCl*, 2205*g*; *and-HCl*, 630*i*, 9052*e*.
$C_6H_{12}ClNO$ Morpholine, 4-(2-chloroethyl)-, 5505*d*; *-HCl*, 1861*d*
$C_6H_{12}ClNO_2$ Glycine, *N*-(2 chloroethyl), Et ester, *and-HCl*, 7422*f*.
$C_6H_{12}ClNO_2S$ Carbamic acid, [2 (2 chloroethylmercapto)ethyl]-, Me ester, 2945*h*.
$C_6H_{12}Cl_2$ Hexane, dichloro-, P 663*d*, P 5788*g*.
Pentane, 2,3-dichloro-2 methyl-, P 663*d*.
$C_6H_{12}Cl_2FN$ Triethylamine, 2,2′-dichloro-2″-fluoro-, 2927*i*.
$C_6H_{12}Cl_2O_2$ Acetaldehyde, bis(2-chloroethyl) acetal, P 1434*a*, 5365*g*, 6159*e*, P 6649*i*.
Ethane, bis(2-chloroethoxy)-, P 2033*a*.
$C_6H_{12}Cl_2O_4$ Mannitol, 1,6-dichloro-, 2940*d*.
$C_6H_{12}Cl_2O_4S_2$ 1,6-Hexanedisulfonyl chloride, 4857*a*.
$C_6H_{12}Cl_2S$ Sulfide, bis(2 chloropropyl), P 4292*c*.
Sulfide, 2-chloropropyl 3-chloropropyl, P 4292*a*.
$C_6H_{12}Cl_3N$ (See also *Triethylamine, 2,2′,2″-trichloro-*.)
1,1-Bis(2-chloroethyl)aziridinium chloride, 6158*e*.
$C_6H_{12}Cl_3NO_2$ Compd., m. 97–9°, 7423*b*.
$C_6H_{12}Cl_3O_4P$ Phosphoric acid, tris(2-chloroethyl) ester, 1720*g*.
$C_6H_{12}Cl_6N_4$ Triethylenetetramine, hexachloro-, 569*i*, P 7517*f*.
$C_6H_{12}F_2$ Hexane, difluoro-, 3774*h*, P 6645*d*.
$C_6H_{12}F_2O_2$ Acetaldehyde, bis(2 fluoroethyl) acetal, 6163*h*.
$(C_6H_{12}F_2S_2Si)_n$, P 6220*b*.
$C_6H_{12}F_3N$ Triethylamine, 2,2′,2″-trifluoro-, 2927*g*
$C_6H_{12}F_3O_3P$ Ethanol, 2-fluoro-, phosphite, 6163*i*.
$C_6H_{12}F_3O_4P$ Ethanol, 2-fluoro-, phosphate, 6164*a*.
$C_6H_{12}INS$ 5,6-Dihydro-2,3-dimethyl-1,3,4 *H* thiazinium iodide, 1046*i*.
$C_6H_{12}N_2$ Butyronitrile, α-methyl-α methylamino-, 1766*b*, 8381*d*
Capronitrile, ε-amino-, P 1793*h*, 4857*d*.
Carbodiimide, *tert*-butylmethyl-, 9036*b*
1,4-Diazabicyclo[2.2.2]octane, 6336*i*.
Hexamethylenimine, 2 imino-, 2594*d*.
2 Imidazoline, ethyl 2 methyl-, 8381*f*
Isobutyronitrile, α dimethylamino-, *and sulfate*, P 6647*i*.
2 Pyrazoline, 3,5,5-trimethyl-, 8365*e*
$C_6H_{12}N_2O$ 5 Homopiperazinone, 1-methyl-, *and-HCl*, 9067*h*.
Isobutyronitrile, α-(2-hydroxyethylamino)-, 4415*g*
Nipecotamide, 6207*a*
1-Piperidinecarboxamide, 124*a*
4-Piperidone, 1-methyl-, oxime, *and HCl*, 9067*h*
$C_6H_{12}N_2OS$ Butyramide, β-acetamidothio-, 4263*b*
$C_6H_{12}N_2O_2$ Acetamide, *N*, *N*′-ethylenebis-, P 6652*c*.
Acetimidic acid, Et ester, *HCl*, P 673*b*.
Adipamide, P 3452*c*, P 3836*g*
Hydrazine, 1,2 dipropionyl-, 5369*a*
Oxamide, *N-tert* butyl-, P 3445*g*
Succinimidic acid, di Me ester, *di HCl*, 3359*i*.
$C_6H_{12}N_2O_2S$ 2 Propanone, 1,1′-thiodi-, di oxime, 653*h*.
$C_6H_{12}N_2O_4$ Alanine, *N*-alanyl-, 1227*i*
Alanine, *N*-glycyl-*N*-methyl-, 9111*h*
—, *N*-sarcosyl-, 9114*a*
β Alanine, *N*-β alanyl-, 1118*e*
Asparagine, Et ester, 1723*e*
Carbamic acid, isopropylm Et ester, 4652*i*, 4653*a*
—, nitrosopropyl-, Et ester, 4652*i*
Glycine, *N*-(*N*, *N*-dimethylglycyl), 2250*c*
—, *N*-glycyl-, Et ester, 7520*f*
Malonamide, α (3 hydroxypropyl), 577*g*
1,3,2 *H*-Oxazine, tetrahydro-3,5-dimethyl-5 nitro-, P 1068*i*.
$C_6H_{12}N_2O_4S_2$ Allophanic acid, γ-1-mercaptoethyl-, 1-mercaptoethyl ester, 2945*e*
$C_6H_{12}N_2O_4$ Bicarbamic acid, di Et ester, 1725*g*
Butane, 2,3-dimethyl-2,3 dinitro-, 4217*f*, P 4683*f*.
1,4 Butanediol, dicarbamate, P 4690*h*.
Maleic acid, compd with ethylenediamine, 8832*f*.
Succinamide, α,β dimethoxy-, 5589*e*
$C_6H_{12}N_2O_4S$ Alanine, β,β′ thiodi-, 1450*i*, 2295*i*, 2666*b*, 4017*d*, 6423*i*
Ethanol, 2,2′ thiodi-, dicarbamate, 293*h*
$C_6H_{12}N_2O_4S_2$ See *Cystine*.
$C_6H_{12}N_2O_5$ Galacturonamide, 1 amino-, 4642*b*
Glucuronamide, 1 amino-, 4642*d*.
Glutaramide, *meso-xylo*-dihydroxymethoxy-, 5589*c*.
Mannuronamide, 1-amino-, 576*e*, 4642*a*.
$C_6H_{12}N_2O_6S_2$ Alanine, β,β′-disulfinyldi-, 2666*b*.
$C_6H_{12}N_2O_{10}$ Sorbitol, dinitrate, 358*a*
$C_6H_{12}N_2S$ Thiocyanic acid, cyclopentylamine salt, 578*g*.
$C_6H_{12}N_2S$ Adipamide, dithio-, P 6465*a*, P 7745*e*
$C_6H_{12}N_2S_2$ See *Sulfide, bis(dimethylthiocarbamyl)*.
$C_6H_{12}N_2S_4$ See *Disulfide, bis(dimethylthiocarbamyl)*.
$C_6H_{12}N_2S_6$ Carbamic acid, thiodiethylenebis[dithio-, *Zn salt*, P 5224*f*.
$C_6H_{12}N_4$ (See also *Hexamethylenetetramine*.)
$\Delta^{2,2}$-Biimidazolidine, 6856*i*.
Guanidine, 1-butyl-3-cyano-, 2947*c*.
—, 3-cyano-1,1-diethyl-, 2947*c*.
—, 1-cyano-3-isobutyl-, 2947*c*.
—, 3-cyano-1-isopropyl-1-methyl-, 2047*c*.
$C_6H_{12}N_4O$ 1,2,4,1 *H*-Triazole, 5-amino-3 (2-ethoxyethyl)-, 7019*c*.
$C_6H_{12}N_4OS$ Urea, 1-(butyrylguanyl)-2-thio-, P 4292*e*.
$C_6H_{12}N_4O_2$ Urea, (hexahydro 6-methyl 2-oxo-4-pyrimidyl)-, 5996*a*.
$C_6H_{12}N_4O_2S$ 11-Thia-1,3,5,7-tetrazatricyclo[3.3.2.1$^{3,7}$]hendecane, 11,11-dioxide, 2573*f*.
$C_6H_{12}N_4O_6$ Propane, 1-nitro-2-nitroso-, dimer, P 5411*f*.
$C_6H_{12}N_4S$ *s*-Triazine, 4-amino-1,2-dihydro-2,2-dimethyl-6-methylmercapto-, 2950*g*.
$C_6H_{12}N_4S_2$ Urea, 1-(hexahydro-6 methyl-2 thioxo-4-pyrimidyl)-2-thio-, 5996*a*.
$C_6H_{12}N_6$ Melamine, trimethyl-, 433*i*
$C_6H_{12}N_6O_2$ 2,3-Butanedione, disemicarbazone, 123*f*.
Butyraldehyde, α oxo-, disemicarbazone, 3791*e*
$C_6H_{12}N_6O_9$ Melamine, tris(hydroxymethyl)-, P 3239*i*.
$C_6H_{12}N_6O_4$ 1,3,5,7 Tetrazabicyclo[3.3.2]decane, 3,7 dinitro-, 8354*j*.
1,3,5,7-Tetrazabicyclo[3.3.1]nonane 9 methyl-3,7-dinitro-, 8354*i*.
$C_6H_{12}Na_2S_2$ 1,6 Hexanedithiol, di-Na deriv., P 6220*b*.
$C_6H_{12}O$ (See also *Cyclohexanol; Ether, butyl vinyl*, *Hexanone; Pentanone, methyl*)
2 Buten 1-ol, 2,3-dimethyl-, 3777*h*
Caproaldehyde, 5973*e*, 7417*g*
Cyclopentanemethanol, 7131*i*
Cyclopentanol, methyl-, 2172*b*, 2955*e*
Cyclopropanemethanol, α,α-dimethyl-, 2955*c*.
Ether, allyl propyl, 2159*b*
, butenyl ethyl, 4556*i*, 2934*i*
—, cyclopentyl methyl, 2955*h*
—, 1,1-dimethylallyl methyl, 1134*d*, 1144*a*, 6970*c*.
—, ethyl 2-methylpropenyl, 1564*a*
—, isobutyl vinyl, 694*a*, 6576*f*
—, methyl 3-methyl 2 butenyl, 1144*a*, 1144*d*, 6970*b*
Furan, ethyltetrahydro-, 3818*i*, 4254*i*
—, tetrahydro 2,5-dimethyl-, 5735*i*
Hexenol, 4427*e*, 5364*c*, 5754*b*, 9375*b*
2-Pentanol, 3 methylene-, 1344*e*
Pentenol, methyl-, 2570*i*, P 2629*f*, 3776*i*, 3777*i*, 3778*d*, 6970*b*
Pinacolone, 1144*e*, 5654*c*, P 1434*i*, 3715*i*, P 3834*d*, 5004*e*
$C_6H_{12}OS$ Acetic acid, thiol-, *tert* Bu ester, P 3445*b*
2-Butanone, 4 (ethylmercapto)-, 7134*b*
Butyraldehyde, β (ethylmercapto)-, 1321*e*.
Cyclohexanol, 2 mercapto-, 7420*b*
2 Pentanone, 4 mercapto-4 methyl-, 1722*g*, 2163*f*
$C_6H_{12}OS_2$ Xanthic acid, amyl-, *Na salt*, P 7958*a*, *Zn salt*, P 1602*b*.
$C_6H_{12}O_2$ (See also *Caproic acid*.)
Acetic acid, Bu ester, 437*e*, 1664*a*, 1240*e*, 1629*e*, 1650*e*, 2590*d*, P 2643*e*, 2834*b*, 3266*d*, 6162*e*, 6495*f*, 7140*e*, 8220*e*, 8697*i*, 8779*g*, *sec* Bu ester, 1650*e*, 4786*d*, 6495*f*, P 7951*f*, *tert* Bu ester, 6495*f*, 8808*g*, iso Bu ester, 1650*e*, 2834*b*, 6495*f*.
2 Butanone, 4 ethoxy-, 1338*i*
2 Butene, 1,4-dimethoxy-, P 3968*h*
Butenol, ethoxy-, 2079*d*, 3816*e*, 6157*h*
3 Buten 2-one, di Me acetal, 2577*e*
Butyraldehyde, β-hydroxy-α,α-dimethyl-, 722*e*.
Butyric acid, Et ester, 127*g*, 466*a*, 1650*e*, 2590*d*, P 2633*e*, 2834*b*, 2941*d*, 6064*i*, 6890*e*, 8226*e*.
, α,α-dimethyl-, 9027
, α ethyl-, 3905*e*, 5657*h*
Cyclohexanediol, 1555*h*, 1730*e*, P 6230*a*, 7421*b*, 7434*b*, 7435*f*, 7915*f*.
1,2-Cyclopentanediol, methyl-, 2172*d*, 2173*d*.
Formic acid, Am ester, 8226*e*, 8780*a*, *tert*-Am ester, P 3020*h*; iso-Am ester, 1650*e*, 2590*d*, 2834*b*.
Furan, 2 ethoxytetrahydro-, 3816*d*
—, tetrahydro 2-methoxy-2 methyl-, 6190*f*.
2-Furanol, 2 ethyltetrahydro-, 4254*b*
2-Hexanone, 6-hydroxy-, 6190*f*.
3 Hexene-2,5-diol, 6162*i*.
Isobutyric acid, Et ester, 466*a*, 613*e*, 1650*d*, 2590*d*, 2834*b*, 2944*e*.
Isocaproic acid, 565*g*, 1239*a*, 2248*g*, 2249*a*

Isovaleric acid, Me ester, 2590*d*, 2834*b*.
Pentanone, hydroxymethyl-, 2944*g*, 4575*c*, P 4791*f*, P 5794*a*, 6055*a*, 6112*h*, 6159*i*, P 7275*b*.
—, 3-methoxy-, 6974*g*.
2-Penten-1-ol, 5-methoxy-, 9025*i*.
Pivalic acid, Me ester, 1656*d*, 4574*g*, 6495*g*.
1,3-Propanediol, 2-allyl-, 3776*a*.
Propanol, (allyloxy)-, 5741*f*.
Propionic acid, iso-Pr ester, 1056*c*, 2370*i*; Pr ester, 2370*i*, 2834*b*, 8226*e*, 8779*g*.
Pyran-2-methanol, tetrahydro-, P 1435*h*, 4640*h*.
Valeric acid, Me ester, 2590*d*.

**$C_6H_{12}O_2S$** Acetic acid, (*sec* butylmercapto), 3364*i*.
(Carboxymethyl)diethylsulfonium hydroxide, inner salt, 2682*e*.
Isobutyric acid, (ethylmercapto)-, 8816*a*
2,4-Pentanediol, 2-methyl-, cyclic sulfite, P 4853*c*.
Propionic acid, β (ethylmercapto), Me ester, 2272*a*
—, β-methylmercapto, Et ester, 1321*e*
, β-propylmercapto-, 6577*e*.
Sulfone, butyl vinyl, P 7266*h*
Thiophene, tetrahydro-2,4 dimethyl-, 1,1-dioxide, P 1065*f*, P 7512*f*.

**$C_6H_{12}O_2S_2$** Isobutyric acid, β,β′-bis(methylmercapto), 2580*h*
1-Propanol, 2,3 dimercapto-, 1-propionate, 3783*g*

**$C_6H_{12}O_3$** (See also *Metaldehyde; Paraldehyde*)
1,4 Butanediol, acetate, P 4685*e*
2 Butene 1,4 diol, 2 ethoxy, P 5414*d*
Butyric acid, α hydroxy, Et ester, 573*f*.
1,3,5 Cyclohexanetriol, 6881*f*. *compd with NaHs*, 6486*g*
1,3 Dioxolane, 2 ethoxy 2 methyl, 1404*d*.
1,3 Dioxolane 4 methanol, 2,2 dimethyl, 1720*f*
Ethanol, ethoxy-, acetate, 3786*a*, 6576*e*, 9122*h*
, 1 propoxy, formate, 6576*e*
Furan, tetrahydro 2,5 dimethoxy, P 2643, P 7512*d*.
Glycolic acid, Bu ester, 8697*h*, 8779*g*
Hydracrylic acid, Pr ester, 4639*f*, 8779*g*
Isobutyric acid, α hydroxy-, Et ester, 572*d*, 573*f*
Isovaleric acid, α methoxy-, 6975*b*.
Lactic acid, iso Pr ester, 573*c*, 6495*f*, Pr ester, 6495*f*, 8779*g*
Lactic acid, P 3841.
Methane, methoxy(2 vinyloxyethoxy), P 1051*g*, P 9080*b*
Propanediol, (allyloxy), 3111*h*, 5741*e*, 7423*g*, 7424*a*, P 9480.
Propionic acid, β ethoxy, Me ester, 1422*g*.
α propoxy, *and Ba salt*, 2488*i*
Sorbose, bisdesoxy, 1428*a*

**$C_6H_{12}O_3S$** Ethanol, 2,2′ thiodi, acetate, 1321*b*
Pentanesulfonic acid, 4 hydroxy 2 methyl, sultone, 6560*g*
Propionic acid, β (propylsulfinyl), 6577*e*

**$C_6H_{12}O_4$** Butyric acid, α,γ dihydroxy β,β dimethyl, 715*a*. *Na salt*, 2680*h*
Erythrose, 3003*a*
2,5 α Dioxanedimethanol, P 4290*h*
Hexane 1,2,3,4 tetrol, 1721*f*
Mucoaldehydic acid, Me ester di Me acetal, 6168*d*.

**$C_6H_{12}O_4S$** Erythrose, dihydrodesoxy, 1328*a*
Cyclohexanesulfonic acid, 2 hydroxy, *Na salt*, 7421*b*.

**$C_6H_{12}O_5$** (See also *Rhamnose*)
Arabinose, 2-methyl, 7430*d*
Arabofuranoside, methyl, 7430*b*
Fucose, 2314*d*, 4389*e*, 4724*a*, 7801*c*, 8005*i*.
Galactose, 2 desoxy, 1727*b*
Glucose, 2 desoxy, 8007*d*
Gulose, 3 desoxy-, 1727*i*.
Ideose, 3 desoxy-, 1727*i*.
Mannitan, 2940*c*
Quercitol, 4726*g*.
Ribofuranoside, methyl, 2953*h*.
Sorbitan, P 5593*c*, P 5938*c*.
Styracitol, 3367*g*.
Talomethylose, 1728*i*
Xyloside, methyl, 3368*e*.
Yellow gum, 1320*b*.

**$C_6H_{12}O_6$** (See also *Fructose; Galactose;* α-*Glucose; Inositol; Mannose; Sorbose.*)
Fructofuranose, 1145*g*.
Galactose, 1728*i*.
Glucose 3795*a*
Isomannitol, 2175*cd*.
Pinitose, 1327*h*.
Sedoheptitol, 587*i*.
Tagatose, 4881*b*.

**$C_6H_{12}O_7$** See *Gluconic acid*.

**$C_6H_{12}O_{11}S_3$** 1,3,5 - Cyclohexanetrisulfonic acid, 1,3-dihydroxy-, *tri-Na salt*, 2595*g*.

**$C_6H_{12}S$** Cyclohexanethiol, 998*i*, 1000*a*, P 2630*a*.
Cyclopentanethiol, 1-methyl-, 2172*e*.
3-Pentene-2-thiol, 4-methyl-, P 2630*b*.
Sulfide, allyl propyl, 998*f*, 7410*d*.
Thiophene, ethyltetrahydro-, 8887*i*.
—, tetrahydro-2,4-dimethyl-, P 7512*f*.

**$C_6H_{12}S_2$** 1,2-Cyclohexanedithiol, 7419*c*, 7420*b*.

**$C_6H_{12}S_3$** *s*-Trithiane, 2,4,6-trimethyl-, 4232*h*.

**$C_6H_{13}Br$** Hexane, 1-bromo-, 2590*i*, 4912*b*.
Pentane, 3-(bromomethyl)-, 3780*f*.

**$C_6H_{13}BrO$** Ether, 2-bromoisoamyl methyl(?), 3359*a*.
Ether, bromomethyl isoamyl, 2926*c*.
—, 1-(bromomethyl)isobutyl methyl, 3359*a*.
—, bromomethyl 2 methylbutyl, 2926*c*.
2 Hexanol, 6 bromo-, P 4684*b*.

**$C_6H_{13}BrO_2$** Acetaldehyde, bromo-, di-Et acetal, 2575*h*.

**$C_6H_{13}Cl$** Butane, chlorodimethyl-, 2850*f*, 6968*g*, P 7035*d*
Hexane, 1-chloro-, 129*c*, 2590*i*, 6569*i*.
Pentane, chloromethyl-, 6569*i*, 6968*g*.

**$C_6H_{13}ClO$** 1-Hexanol, 6 chloro-, 1720*d*.

**$C_6H_{13}ClOS$** Ether, 2-(2-chloroethylmercapto)-ethyl ethyl, 2928*h*.

**$C_6H_{13}ClO_2$** Acetaldehyde, chloro-, di-Et acetal, 2577*f*, P 8398*c*
Acetaldehyde, Et 2-chloroethyl acetal, 6159*c*.
2 Propanol, 1-(2-chloropropoxy)-, 4734*a*.

**$C_6H_{13}ClO_3$** Ethanol, 2-[2-(2-chloroethoxy)-ethoxy]-, 4733*i*

**$C_6H_{13}ClS$** Sulfide, butyl 2 chloroethyl, 707*bfh*, 708*a*, 2928*g*

**$C_6H_{13}ClS_2$** Ethane, 1-(2-chloroethylmercapto)-2-(ethylmercapto)-, 2928*h*.

**$C_6H_{13}Cl_2N$** *tert* Butylamine, 2,2′-dichloro-*N*,*N* dimethyl-, 7422*e*
Propylamine, chloro-*N* (2 chloroethyl)-*N* methyl-, 7422*ab*
Triethylamine, 2,2′-dichloro-, 767*g*, 2701*c*, 5505*c*, 7135*d*, 8051*f*

**$C_6H_{13}Cl_2NO$** Diethylamine, 2,2′-dichloro-*N*-(methoxymethyl)-, 2927*c*.

**$C_6H_{13}Cl_2OP$** Phosphine oxide, dichloro-3-methylamyl-, 1315*e*.

**$C_6H_{13}Cl_3Si$** Silane, trichlorohexyl-, P 6221*g*.

**$C_6H_{13}F$** Butane, 1-fluoro 3,3-dimethyl, P 2628*g*.
Hexane, 1-fluoro-, 2591*a*.

**$C_6H_{13}FeO_9$** Gluconic acid, ferric complex, 5743*h*.

**$C_6H_{13}I$** Hexane, 1-iodo-, 2591*a*.
Pentane, 1-iodo-4 methyl-, 2586*a*.

**$C_6H_{13}IO_2$** Ethane, 1-ethoxy-2-(2 iodoethoxy), 3784*e*.

**$C_6H_{13}IO_3S$** (2 Hydroxyethyl)dimethylsulfonium iodide, 2571*g*.

**$C_6H_{13}IO_5$** Glucopyranoside, methyl 6-desoxy-6-iodo, 150*i*, 151*e*.

**$C_6H_{13}Li$** Lithium, hexyl-, 5740*a*.

**$C_6H_{13}N$** (See also *Cyclohexylamine.*)
Cyclopentylamine, 1-methyl, 2171*g*.
Ethylamine, *N*-isobutylidene-, 1654*e*.
Hexamethyleneimine, P 1793*h*, 5400*c*.
2-Pipecoline, 8365*e*.
Piperidine, 1-methyl-, 231*e*, P 4488*i*

**$C_6H_{13}NO$** Acetamide, *N-tert*-butyl-, 2165*c*, P 3028*i*, P 3445*g*.
Acetamide, *N*,*N*-diethyl-, 121*g*, P 8398*h*, 8573*d*.
, *N*-isobutyl-, P 6652*e*.
Cyclohexanol, 2-amino-, *and* -*HCl*, 3372*g*.
Cyclopentanemethanol, 1 amino-, *and* -*HCl*, 572*h*.
Cyclopentanol, 2-(aminomethyl)-, 588*h*.
Hexanone, oxime, 5740*e*.
Hydroxylamine, *N*-cyclohexyl-, 157*b*.
Isocaproamide, P 3028*a*.
Morpholine, 4-ethyl-, P 5419*i*.
2 Pentanone, 1-amino-4-methyl-, -*HCl*, 635*a*.
4-Piperidinol, 1-methyl-, 3408*d*.
2-Propanol, 1-propylideneamino-, P 7955*e*.
1-Pyrrolidineethanol, *and* -*HCl*, 2205*g*.

**$C_6H_{13}NOS$** Sulfilimine, *N*-acetyl-*S*,*S*-diethyl-, *salts*, 173*b*.

**$C_6H_{13}NO_2$** (See also *Isoleucine; Leucine; Norleucine.*)
β-Alanine, *N*-methyl-, Et ester, 575*i*, 9034*a*.
Butyric acid, α-amino-α-ethyl-, 1323*a*, 1723*h*.
—, α-ethylamino-, 6979*e*.
Caproic acid, ε-amino-, P 2225*b*, 6070*c*, P 7712*c*, 8736*a*.
Carbamic acid, Am ester, 2329*g*, 3933*a*, P 6846*a*.
—, isopropyl-, Et ester, 4652*i*.
—, propyl-, Et ester, 3107*d*, 4652*i*.
1,3-Dioxolane-4-methylamine, 2,2-dimethyl-, P 8181*b*.
Glycolamide, *N-tert*-butyl-, P 3028*h*.
Isobutyric acid, α-amino-, Et ester, 572*i*
4-Morpholineethanol, P 3473*a*, 5505*d*, -*HCl*, 1861*e*, 6978*b*.
Norvaline, α-methyl-, 1323*a*.
3,5-Pyridinediol, 1-methyl-, 2209*b*.
Valine, Me ester, -*HCl*, 4041*f*.
—, *N*-methyl-, 3788*h*.

**$C_6H_{13}NO_2S$** Alanine, β-(isopropylmercapto)-, 6576*i*.
Butyric acid, α-amino-γ-(ethylmercapto)-, 1470*g*, 8477*d*.
Isoleucine, β-mercapto-, 1768*h*.
Norvaline, β-mercapto-β-methyl-, -*HCl*, 2581*a*.
Valine, β-mercapto-, Me ester, *and* -*HCl*, P 7039*f*.

**$C_6H_{13}NO_2S_2$** Acetamide, *N*-[(2-hydroxy-2′-mercaptoisopropylmercapto)methyl]-(?), P 3571*h*.
Acetamide, *N*-[(3 hydroxy 2-mercaptopropylmercapto)methyl]-(?), P 3571*h*.
Carbamic acid, (2,3-dimercaptopropyl)-, Et ester, 3783*h*.

**$C_6H_{13}NO_3$** Acetamide, α-ethoxy-*N*-2-hydroxyethyl-, 3364*f*.
Allothreonine, Et ester, -*HCl*, 9033*b*.
Butyramide, β-hydroxy-*N*-2-hydroxyethyl-, 2273*b*.
Butyric acid, α-amino-γ-hydroxy-β,β-dimethyl-, 138*d*, 715*a*, 4224*b*.
Ether, ethyl 1-nitromethylpropyl, 1716*c*.
Leucine, γ-hydroxy-, 574*c*
Norleucine, ε hydroxy-, 2293*f*.
Propionamide, *N* 2 hydroxyethyl-β-methoxy, 2273*b*.
Serine, isopropyl ester, -*HCl*, 9033*b*.
Threonine, Et ester, *HCl*, 9033*b*.
Valine, β-methoxy-, P 3030*c*.

**$C_6H_{13}NO_3S$** Alanine, β (isopropylsulfinyl)-, 6577*a*.
Butyric acid, α-amino-α-(ethylsulfinyl)-, 3499*h*.
Cyclohexanesulfamic acid, P 9526*c*.
Ethanol, 2-(tetrahydro-3-thienylamino)-, *S*,*S*-dioxide, P 4514*b*.
Ethylamine, 2-(tetrahydro-3-thienyloxy)-, *S*,*S*-dioxide, P 4514*b*.

**$C_6H_{13}NO_4$** Acetamide, *N*-(2,2′,2″-trihydroxy *tert*-butyl)-, 6575*e*

**$C_6H_{13}NO_4S$** Butyric acid, α-amino α-(ethyl sulfonyl)-, 3499*h*.

**$C_6H_{13}NO_5$** (See also *Glucosamine.*)
Arabonamide, 2-methyl-, 2954*c*.
Chondrosamine, 3479*g*
Inositol, aminodesoxy-, -*HCl*, 1336*g*.
Quercitol, 6 amino, *and* -*HCl*, 149*c*.

**$C_6H_{13}NO_5S$** Taurine, *N*-γ-hydroxybutyryl-, 2680*h*, *and Ba salt*, P 4818*d*.

**$C_6H_{13}NO_6$** Galactonamide, 8358*f*.

**$C_6H_{13}NO_7$** Glucitol, 1-desoxy-1-nitro-, 3795*c*.
Mannitol, 1 desoxy-1-nitro-, 3795*c*, 9041*d*.
Sorbitol, 1 nitro 1-desoxy-, 9041*d*.

**$C_6H_{13}NS_2$** Carbamic acid, diethyldithio-, Me ester, 7410*i*.
1,3,5-Dithiazine, 5,6-dihydro-2,4,6-trimethyl-, 9376*g*.

**$C_6H_{13}N_2O_2P$** Diamidophosphoric acid, *N*,*N*′-diallyl-, P 9473*h*.

**$C_6H_{13}N_3$** 2-Imidazoline, 1-(2-aminoethyl)-2-methyl-, 3520*i*.
1-Piperidinecarboxamidine, *sulfate*, 2948*i*.

**$C_6H_{13}N_3O$** 2-Butanone, 3-hydroxy-3-methyl-, semicarbazone, 2944*g*.
*s*-Triaz-2(1*H*)-one, tetrahydro-5-propyl-, 1782*f*.

**$C_6H_{13}N_3O_2$** 2-Pentanone, 5-hydroxy-, semicarbazone, 1690*c*, 2163*d*.

**$C_6H_{13}N_3O_3$** (See also *Citrulline.*)
2-Butanone, 1-hydroxy-4-methoxy-, semicarbazone, 6624*d*.

**$C_6H_{13}N_3O_4S$** 1,2,4,6,4*H*-Thiatriazine-4-ethanol, tetrahydro-, acetate, 1,1-dioxide, 2573*f*.

**$C_6H_{13}N_3O_5$** Glycine, *N*-(*N*-glycylglycyl)-, hydrazide, *di*·*HCl*, 5743*c*.

**$C_6H_{13}N_5O_3$** Imidazolidine, 2-nitramino-1-nitro-2-propoxy-, 2208*g*.
*s*-Triazine, 1-(ethoxymethyl)hexahydro-3,5-dinitro-, 9074*f*.

**$C_6H_{14}NaO_3$** Hydroperoxide, 1,1,2-trimethylpropyl, Na deriv., 6180*f*.

**$C_6H_{14}NaO_3$** Ethanol, 2-(ethoxyethoxy)-, Na deriv., 3784*d*.

$C_6H_{13}O_3P$ Cyclohexanephosphonic acid, 1315*e*.
$C_6H_{13}O_9P$ (See also *Glucose phosphate.*)
Fructofuranose, 6-phosphate, 147*i*.
Fructose phosphate, 1857*f*, 6266*c*.
Galactose phosphate, 6266*c*.
Mannose phosphate, 6266*c*.
$C_6H_{14}$ See *Butane, dimethyl-*; *Hexane*; *Pentane, methyl-*.
$C_6H_{14}AuClS$ Propyl sulfide, compd. with AuCl, 1313*d*.
$C_6H_{14}AuN_3S_2$ Diethylgold thiocyanate, compd. with thiourea, 9035*b*.
$C_6H_{14}BaO_{12}S_2$ Glycerol, sulfate, Ba salt, 5368*d*.
$C_6H_{14}BrMgN$ Diisopropylaminomagnesium bromide, 6170*g*.
$C_6H_{14}Br_2Sn$ Dipropyltin dibromide, 7900*a*.
$C_6H_{14}ClFSi$ Silane, (2-chloroethyl)diethylfluoro-, 562*a*.
$C_6H_{14}ClN$ 1,1-Diethylaziridinium chloride, 6158*d*.
Isopropylamine, *N*-(2-chloroethyl)- *N*-methyl-, 6587*d*.
Propylamine, *N* - (2 - chloroethyl) - *N*-methyl-, - *HCl*, 1861*d*.
—, 2-chloro- *N*-isopropyl-, - *HCl*, 3419*c*.
Triethylamine, 2-chloro-, 1005*f*, P 3461*d*, 5505*d*, 6158*d*, 6179*i*; - *HCl*, 1861*d*; *and* - *HCl*, 6591*g*, 6976*g*.
$C_6H_{14}ClO_3P$ Isopropyl chlorophosphate, 599*h*, 1109*h*.
$C_6H_{14}Cl_2Si$ Silane, chloro(2-chloroethyl)diethyl-, 561*i*.
Silane, dichlorodiisopropyl-, 3354*i*.
—, dichlorodipropyl-, P 5528*b*.
—, (2,3-dichloropropyl)trimethyl-, 562*d*.
$C_6H_{14}Cl_2N$ Bis(2-chloroethyl)dimethylammonium chloride, 2927*f*, 5505*d*.
$C_6H_{14}Cl_4OSi_2$ Disiloxane, 1,3-bis(dichloromethyl) - 1,1,3,3 - tetramethyl-, P 3837*e*.
$C_6H_{14}CuN_{12}S_2$, 8222*c*.
$C_6H_{14}FN$ Triethylamine, 2-fluoro-, 6164*b*.
$C_6H_{14}FO_3P$ (See also *Isopropyl fluophosphate.*) Propyl fluophosphate, 121*c*.
$C_6H_{14}F_2IN$ Bis(2-fluoroethyl)dimethylammonium iodide, 2927*g*.
$C_6H_{14}Hg$ Mercury, dipropyl-, 5004*c*.
$C_6H_{14}IN$ Triethylamine, 2-iodo-, 8059*e*.
$C_6H_{14}N_2$ Hydrazine, cyclohexyl-, - *HCl*, 7480*a*.
Propane, 2,2′-azodi-, 931*a*
Pyrrolidine, 1-(2-aminoethyl)-, 2207*d*.
$C_6H_{14}N_2O$ Acetamide, α-diethylamino-, 6162*f*.
Acetamide, α - ethylamino - *N*, *N* - dimethyl-, P 7955*i*.
Caproamide, ε-amino-, P 5967*g*.
Isobutyraldehyde, α-dimethylamino-, oxime, P 6647*i*.
Isobutyramide, α-dimethylamino-, 9032*i*.
Leucinamide, 1448*c*, 2245*h*, 7520*f*.
Urea, *tert*-amyl-, 2165*di*.
$C_6H_{14}N_2O_2$ (See also *Lysine.*)
Caproic acid, ε-hydroxy-, hydrazide, P 3445*d*, 8358*h*.
Propyl hyponitrite, P 5641*c*.
$C_6H_{14}N_2O_2S$ Sulfamide, cyclohexyl-, 2573*d*.
$C_6H_{14}N_2O_3$ Lysine, hydroxy-, 5818*f*, 9457*c*.
$C_6H_{14}N_2O_4$ Cyclohexanetetrol, diamino-, *and salts*, 6581*e*.
Streptamine, 6579*i*, 6581*b*.
$C_6H_{14}N_2O_5$ Streptosonic acid, dihydro-, hydrazide, 6581*a*.
$C_6H_{14}N_2O_6$ Ethylenediamine, tartrate, 458*h*, 4956*g*.
$C_6H_{14}N_2S$ Pseudourea, 2-ethyl-1-isopropyl-2-thio-, P 1060*a*; - *HBr*, 9038*i*, 9039*a*
Urea, 1 - *tert* - butyl - 3 - methyl - 2-thio-, 1015*f*.
$C_6H_{14}N_2S_2$ Urea, 1-(4-methylmercaptobutyl)-2-thio-, 1725*d*.
$C_6H_{14}N_4O_2$ See *Arginine*.
$C_6H_{14}N_4S$ Pseudourea, 3-(isopropylguanyl)-2-methyl-2-thio-, - *HI*, 2950*f*.
Urea, 1-(butylguanyl)-2-thio-, 2950*f*.
—, 1 - (*N*, *N* - diethylguanyl) - 2 - thio-, 2950*f*.
—, 1-(*N*-isopropyl- *N*-methylguanyl)-2-thio-, 2950*f*.
$C_6H_{14}N_4S_2$ Pseudourea, 2,2′-tetramethylene-
$C_6H_{14}N_4$ ...mino-2-thio-, 1868*d*.
Pentane, 2,3-dicloureas, 2,2′-(thiodiethylene)-
$C_6H_{15}Cl_3FN$ Triethyl...-*HCl*, P 4292*c*.
2″-fluoro-, 2927*i*. ...-(2-ureidotrimethylene)-
$C_6H_{15}Cl_2O_2$ Acetaldehyde, ... acetal, P 1434*a*, 5365*b*, 2-nitramino-1-ni-
Ethane, bis(2-chloroethoxy 2203*g*.
$C_6H_{15}Cl_2O_4$ Mannitol, 1,6-dichlorohydrodimethyl-
$C_6H_{15}Cl_2O_4S_2$ 1,6-Hexanedisul...5*c*.
4857*a*. ...etrahydro-3,5-dini-
$C_6H_{15}Cl_2S$ Sulfide, bis(2 chl...(2 *H*) - ylmethyl-4292*c*.
$C_6H_{14}N_6O_8$ 2,10-Dioxa-4,6,8-triazahendecane, 4,6,8-trinitro-, 9074*h*.
$C_6H_{14}N_6O_6$ Triethylenetetramine, *N*, *N*′, *N*″, *N*‴-tetranitro-, 569*i*.
$C_6H_{14}O$ (See also *Hexyl alcohol*; *Isopropyl ether.*)
1-Butanol, 3,3-dimethyl-, 6155*b*.
—, 2-ethyl-, 2165*b*.
Ether, amyl methyl, 2590*b*.
—, *tert*-amyl methyl, 113*e*.
—, butyl ethyl, 2590*b*.
—, ethyl isobutyl, 2834*b*.
—, isoamyl methyl, 113*f*.
Pentanol, methyl-, 994*h*, 3778*a*, 4427*g*, P 5794*b*, 7140*c*, P 9487*b*.
Propyl ether, 437*d*, 2590*a*, 6016*d*.
$C_6H_{14}OS$ Ethanethiol, 2-butoxy-, 2928*h*.
Ethanol, 2-(butylmercapto)-, 7420*i*.
$C_6H_{14}O_2$ (See also *Acetal*; *Ethanol, 2-butoxy-*; *Hexanediol*; *Pentanediol, methyl-.*)
Butanediol, 3,3-dimethyl-, 573*e*.
—, 2-ethyl-, 572*d*.
Compd. bp 56.5–7°, 2944*e*.
Hydroperoxide, 1,1,2-trimethylpropyl, 6189*f*.
Pinacol, P 1434*i*, 3777*h*, P 3834*c*.
1,3 - Propanediol, 2 - ethyl - 2 - methyl-, 8546*h*.
—, 2-propyl-, 572*e*.
Propyl peroxide, 3724*f*.
$C_6H_{14}O_2S$ Ethanol, 2-(2-ethoxyethylmercapto)-, 2928*h*.
Propanol, 3-(2-hydroxypropylmercapto)-, P 4292*a*.
—, thiodi-, P 3606*e*, P 4292*b*.
$C_6H_{14}O_2Si$ Propionic acid, β-(trimethylsilyl)-, 5003*g*.
$C_6H_{14}O_2$ Acetic acid, compd. with $Et_2O$, 7409*a*.
1,4-Butanediol, 2-ethoxy-, P 5414*d*.
Ethanol, 2-(2-ethoxyethoxy)-, 3784*e*, 4063*e*, P 7275*b*.
Glycolaldehyde, di-Et acetal, P 5625*h*.
Hexanetriol, P 1435*f*, P 4873*a*.
Methane, oxybis[ethoxy-, P 1052*c*.
Peroxide, *tert*-butyl 1-hydroxyethyl, P 2629*g*.
—, 1-hydroxypropyl propyl, 3724*i*.
Propanediol, 2-ethyl-2-(hydroxymethyl)-, P 7505*b*.
—, 3-propoxy-, 311*h*.
2-Propanol, 1,1′-oxydi-, P 8670*c*.
$C_6H_{14}O_2S_2$ Propanediol, (2,3-dimercaptopropoxy)-, 7423*i*, 7424*b*, 9250*i*.
$C_6H_{14}O_4$ (See also *Triethylene glycol.*)
1,2,3,4 Hexanetetrol, 1721*g*.
Peroxide, bis(1-hydroxypropyl), 3724*f*.
$C_6H_{14}O_4S$ Isopropyl sulfate, P 1050*a*.
$C_6H_{14}O_4S_2$ Dulcitol, 1,6-dithio-, 9251*a*.
Hexanetetrol, dimercapto-, 7425*b*, 9250*i*
$C_6H_{14}O_5$ Methane, oxybis[(methoxymethoxy)-, P 1052*d*.
1,2-Propanediol, 3,3′-oxybis-, 880*a*, P 4033*b*.
Ribitol, 2-methyl-, 1326*b*.
$C_6H_{14}O_6$ (See *Dulcitol*; *Mannitol*; *Sorbitol.*)
$C_6H_{15}O_6P_3$ Cyclohexanediphosphonic acid, 8366*b*.
$C_6H_{14}O_6S_2$ Sulfone, bis[(ethylsulfonyl)-methyl], 7409*h*.
$C_6H_{15}O_{12}P_3$ Fructose phosphate, 6266*c*, 6268*f*.
Glucose phosphate, 3478*a*, 7528*h*, 9119*e*; *salts*, 4229*c*.
Inositolphosphate, 4318*f*.
$C_6H_{14}PbS_2$ Propanethiol, Pb deriv., 998*f*.
$C_6H_{14}S$ Hexanethiol, P 2630*a*, 2759*h*, 2956*d*.
Isopropyl sulfide, 2956*e*.
2,4-Pentanedithiol, 2-methyl-, P 2630*b*.
Propyl sulfide, 2956*e*.
Sulfide, butyl ethyl, P 1794*d*, 2956*e*, P 7952*f*.
—, *tert*-butyl ethyl, 2956*e*.
$C_6H_{14}SSn$ Dipropyltin sulfide, 7900*a*.
$C_6H_{14}S_2$ Ethanethiol, 2-butylmercapto-, 2928*h*.
1,2-Hexanedithiol, 7417*g*.
Isopropyl disulfide, 2956*f*.
Propyl disulfide, 2956*f*, 6286*f*.
$C_6H_{14}S_3$ Sulfide, bis[(ethylmercapto)methyl], 7409*h*.
$C_6H_{14}S_4$ Ethanethiol, 2,2′-(ethylenedithio)-di-, 2935*g*.
$C_6H_{15}Si$ Silane, allyltrimethyl-, 562*b*.
$C_6H_{14}Zn$ Zinc, dipropyl-, 5242*c*.
$C_6H_{15}AlO_3$ Aluminum ethoxide, 5737*i*.
$C_6H_{15}B$ Borine, triethyl-, P 6220*d*.
$C_6H_{15}BO_3$ Ethyl borate, 3617*g*, P 5414*i*.
$C_6H_{15}BrPb$ Triethyllead bromide, 2111*g*.
$C_6H_{15}BrSi$ Silane, (2-bromopropyl)trimethyl-, 562*c*.
$C_6H_{16}ClN_3O_2$ Choline, chloride carbamate, 316*d*, 2323*c*, 4754*a*, 4771*b*, 7128*e*, 8058*g*, 8543*e*.
$C_6H_{15}ClOSi$ Silanol, (1-chloroethyl)diethyl-, 2929*f*.
$C_6H_{15}ClO_3Si$ Silane, chlorotriethoxy-, 8939*a*
$C_6H_{15}ClPb$ Triethyllead chloride, 2111*g*.
$C_6H_{15}ClS$ *tert*-Butyldimethylsulfonium chloride, 3346*h*.
$C_6H_{15}ClSi$ Silane, chlorotriethyl-, 124*e*, 562*a*, P 3237*h*.
$C_6H_{18}ErO_{12}S_3$ +$9H_2O$ Erbium ethyl sulfate, 5304*b*.
$C_6H_{18}EuO_{12}S_3$ +$9H_2O$ Ethyl europium sulfate, 2093*a*, 7337*a*.
$C_6H_{15}FO_3Si$ Silane, triethoxyfluoro-, 8939*b*.
$C_6H_{15}FS_3Si$ Silane, tris(ethylmercapto) fluoro-, P 6220*b*.
$C_6H_{15}HgNS$ Ethylamine, 2 - (ethylmercurimercapto) - *N*, *N* - dimethyl-, P 667*i*, P 6648*di*, P 9355*i*.
$C_6H_{15}Hg_2O_4P$ Ethylmercury phosphate, 7623*i*.
$C_6H_{18}HoO_{12}S_3$ + $9H_2O$ Ethyl holmium sulfate, 6917*h*.
$C_6H_{15}IS$ Butyldimethylsulfonium iodide 3348*i*.
*sec*-Butyldimethylsulfonium iodide, 3349*c*.
*tert* - Butyldimethylsulfonium iodide, 3346*h*, 3349*g*.
Isobutyldimethylsulfonium iodide, 3348*i*.
Triethylsulfonium iodide, 1004*f*.
$C_6H_{15}ISi$ Silane, (2-iodopropyl)trimethyl-, 562*d*.
$C_6H_{15}N$ (See also *Triethylamine.*)
Amylamine, 1-methyl-, 1110*a*.
Butylamine, ethyl-, 121*g*, P 2633*e*.
Diisopropylamine, 2956*g*, 4630*d*, 4632*c*, 8052*e*; *nitrite*, 5745*e*.
Dipropylamine, 2956*g*, 4630*d*, P 5412*a*
Hexylamine, 1110*b*; - *HCl*, 1243*h*.
Propylamine, 1-ethyl-1-methyl-, 7303*i*
$C_6H_{15}NO$ Allyltrimethylammonium hydroxide, 3779*h*.
2-Butanol, 4-dimethylamino-, 2935*c*.
Ethanol, 2-diethylamino-, 315*i*, 1821*c*, 1861*e*, 2700*e*, 6291*d*, 6734*d*, P 8172*h*
—, 2 (isopropylmethylamino)-, 6587*c*.
Leucinol, 1723*d*.
2 - Propanol, 1 - dimethylamino-2 methyl-, P 3839*f*.
—, 1-isopropylamino , *HCl*, 3419*c*.
$C_6H_{15}NO_2$ Ethanol, 2,2′-(ethylimino)di , P 2633*g*.
1,3 - Propanediol, 2-dimethylamino-2 methyl-, 7422*e*.
Propanol, [(2 - hydroxyethyl)methyl amino]-, 7422*ab*.
Tetramethylammonium acetate, 2110*c*
$C_6H_{15}NO_3S$ Triethylamine, compd. with $SO_3$, 5241*b*.
$C_6H_{15}NO_3$ (See also *Ethanol, 2,2′,2″-nitrilotri-.*)
Ethanol, 2,2′ - (methoxymethylimino) di-, P 3839*f*.
$C_6H_{15}NO_3S$ 2 - Propanol, 1-dimethylamino-, methanesulfonate, *and* - *HCl*, 2935*d*
Triethylamine, compd. with $SO_3$, 5241*b*
$C_6H_{15}NO_4$ 1,2-Propanediol, 3,3′-iminodi-, P 8181*c*.
$C_6H_{15}NO_4S$ Triethylamine, *N*-oxide, compd. with $SO_3$, 2574*h*.
$C_6H_{15}NS$ Ethanethiol, 2-diethylamino , - *HCl*, P 6649*c*.
2 - Propanesulfenamide, *N*, *N*,2-trimethyl-, 2934*c*.
$C_6H_{15}N_3O_2S$ 1,2,4,6,4 *H* - Thiatriazine, 4 butyltetrahydro , 1,1-dioxide, 2573*f*
$C_6H_{15}OPS_2$ Ethyl thiophosphite, 1004*d*
$C_6H_{15}OPS_3$ Ethyl thiophosphate, 121*f*, 561*b*
$C_6H_{15}O_2PS$ Ethanephosphonic acid, thio-, *O*,*S*-di-Et ester, 1004*f*.
Ethyl thiophosphite, 1004*d*.
$C_6H_{15}O_3P$ Isopropyl phosphite, 599*h*.
1-Pentanephosphonic acid, 3-methyl-, 1315*e*.
$C_6H_{15}O_4P$ Ethyl phosphate, 1004*g*, 2832*b*, 4417*f*, P 5413*e*, P 5519*b*, 7161*d*, P 9478*b*.
$C_6H_{15}O_{15}P_3$ Isositolphosphoric acid, 4308*d*
$C_6H_{15}PS$ Phosphine sulfide, triethyl-, 7420*d*
$C_6H_{15}PS_2$ Ethyl thiophosphite, 560*i*.
$C_6H_{16}AuNS$ Ethanethiol, 2-amino- diethylgold deriv., 7421*e*.
$C_6H_{16}ClNO$ 2 - (Hydroxypropyl)tri ammonium chloride, 3934*e*.
$C_6H_{16}ClNO_2$ ...-(2 - hydroxyethyl)di ammo... ...ie, 6978*a*.
$C_6H_{16}ClNSi$ Silane, ...mino(2-chloroethyl)-diethyl-, 561*i*.
$C_6H_{16}Cl_2OSi_2$ Disiloxane, 1,3-bis(chloromethyl)tetramethyl-, 2930*a*, P 3441*d*, P 7500*g*.
$C_6H_{16}CuN_8S_2$, 8222*e*.
$C_6H_{16}CuN_{10}O_8S$, 8222*d*.

$C_4H_{12}I_2OSn_2$ Diethyltin oxide, complex with dimethyltin diiodide, 7900*d*.
Dimethyltin oxide, complex with diethyltin diiodide, 7900*d*.
$C_4H_{13}NO_3P$ Phosphinic acid, (1-propylaminoisopropyl)-, 5378*a*.
$C_4H_{12}N_2$ (See also *1,6-Hexanediamine.*)
Base, 7070*h*.
1,2 - Butanediamine, $N^2$,2-dimethyl-, 8381*e*.
Ethylenediamine, *N, N, N', N'* - tetramethyl-, P 4488*i*.
2,4 - Pentanediamine, 2-methyl-, P 2633*e*, P 5412*b*.
$C_4H_{14}N_2O$ 2 - Propanol, 1-amino - 3 - isopropylamino-, 1776*e*.
$C_4H_{13}NO_2$ Ethanol, 2,2'-(ethylenediimino)di-, 5493*c*.
$C_5H_{15}NO_2$ Choline, carbamate, 2704*b*.
$C_6H_{15}N_3$ Arcaine, P 3844*b*, 7134*b*.
$C_6H_{16}OPb$ Triethyllead hydroxide, 2111*g*.
$C_6H_{16}OS$ Ethyldimethylsulfonium ethoxide, 3348*i*.
$C_6H_{16}OSi$ Silane, (ethoxymethyl)trimethyl-, 1716*h*, 2929*h*.
Silanol, triethyl-, 2177*i*, 4215*e*.
$C_6H_{18}O_2Si$ Silane, diethoxydimethyl-, 1866*i*, P 1222*b*, P 2813*b*, P 3237*g*, P 4517*b*, P 4894*h*.
$C_6H_{15}O_3P$ Inositolphosphoric acid, 4308*d*.
$C_6H_{16}Si$ Silane, diethyldimethyl-, 561*i*.
Silane, triethyl-, 2160*h*.
—, trimethylpropyl-, 562*d*.
$C_6H_{17}ClMgOSi_2$ (Pentamethyldisiloxanyl)-methylmagnesium chloride, 2929*f*
$C_6H_{17}ClOSi_2$ Disiloxane, (chloromethyl)-pentamethyl-, 563*d*, 2929*e*, P 3441*d*.
$C_6H_{17}IMgOSi_2$ (Pentamethyldisiloxanyl)-methylmagnesium iodide, 2929*f*.
$C_6H_{17}IOSi_2$ Disiloxane, (iodomethyl)pentamethyl-, 2929*e*.
$C_6H_{17}NO_2$ (2 - Hydroxyisopropyl)trimethylammonium hydroxide, P 8208*a*.
$C_6H_{17}NO_4S_2$ 2 - Mercaptoethyltrimethylammonium methyl sulfate, P 6649*c*.
$C_6H_{17}O_2P$ (2 - Hydroxyisopropyl)trimethylphosphonium hydroxide, P 8208*c*.
$C_6H_{18}B_3N_3$ *s*-Triazatriborine, hexahydrohexamethyl-, 3301*h*.
$C_6H_{18}Cl_2N_2Pt$, 1676*c*.
$C_6H_{18}Co_2N_6O_{12} + 3H_2O$, 7806*g*.
$C_6H_{18}K_2N_{12}S_6Ti$, 8038*i*.
$C_6H_{18}N_3O_3$ 1,3,5 - Cyclohexanetriol, compd. with $NH_3$, 6486*g*.
$C_6H_{18}NO_4P_3$ Phosphonitrilic acid, di-Me ester, trimer, 6970*i*.
$C_6H_{18}N_4$ 2-Imidazoline, 2-(2-aminoethylamino)methyl-, 4273*e*.
Triethylamine, 2,2',2'' - triamino-, P 3839*i*
Triethylenetetramine, P 251*f*, 569*i*, 3648*f*, 4401*h*, P 4460*c*, P 5614*d*.
$C_6H_{18}OSi_2$ See *Disiloxane, hexamethyl-*.
$C_6H_{18}O_3PbSi_2$ Silanol, trimethyl-, Pb salt, P 2032*d*.
$C_6H_{18}O_3Si_2$ Disiloxane, 1,3-bis(hydroxymethyl) - 1,1,3,3 - tetramethyl-, 6158*i*.
$C_6H_{18}O_3Si_3$ Cyclotrisiloxane, hexamethyl-, 2513*a*, P 3441*c*, 6158*h*.
$C_6H_{18}O_4SSi$ Silanol, trimethyl-, sulfate, 562*d*.
$C_6H_{19}O_{12}P_5$ Inositolphosphoric acid, 4308*d*.
Phytic acid, P 1794*b*, 2896*c*, 3116*d*, 4392*f*, 5098*i*, P 8187*a*; *salts*, P 5155*i*; *Sc salt*, 8305*e*.
$C_6H_{19}NO_3Si_2$ Disilazane, 1,1,1,3,3,3-hexamethoxy-, 1006*d*.
$C_6H_{20}O_7$ Glycolic acid, compd. with MeOH, 7409*c*.
$C_6H_{21}B_3Cl_2N_3$, 3301*i*.
$C_6H_{21}N_3Si_3$ Cyclotrisilazane, 2,2,4,4,6,6-hexamethyl-, 1315*i*, P 5033*i*, P 5034*a*.
$C_6H_{21}Bi_8N_{12}O_{41}S_8Si_4W_{12}$, 1672*a*.
$C_6H_{24}Br_2In_2N_6$, 6932*g*.
$C_6H_{24}Cl_2In_2N_6$, 6932*g*.
$C_6H_{24}Cl_4N_6Pt$, 1673*g*.
$C_6H_{24}CoI_2N_6$, 7805*h*.
$C_6H_{24}CoN_6O_6$, 7805*h*.
$C_6H_{24}CoN_6O_7$, 7364*c*.
$C_6H_{24}I_2In_2N_6$, 6932*g*.
$C_6H_{24}MgN_{10}O_{16}S + 2H_2O$ Urea, compd. with magnesium sulfate, 1280*a*.
$C_6K_4N_8S_6Ti$ Potassium thiocyanatotitanate(III), 8938*f*.
$C_6K_4N_8S_6V$ Potassium thiocyanatovanadate(III), 6101*g*.
$C_6N_4S$ 2,4,5 - Thiazoletricarbonitrile, 5021*f*.
$C_6Ag_2BaCs_2N_8S_7$ Barium cesium silver thiocyanate, 5324*g*.
$C_6BaCs_2Cu_2N_8S_7$ Barium cesium copper thiocyanate, 5324*g*.
$C_7ClF_7$ Toluene, chloroheptafluoro-, P 3033*g*.
$C_7ClF_{11}$ Compd., b. 90–2°, 4231*g*.
$C_7ClF_{13}$ Cyclopentane, ethyl-, chlorotridecafluoro deriv., 4231*g*.
$C_7Cl_2F_8$ Toluene, dichlorohexafluoro-, P 3033*g*.
$C_7Cl_2F_{10}$ Compd., b. 116°, 4231*g*.
$C_7Cl_3F_5$ Toluene, trichloropentafluoro-, P 3033*g*.
$C_7Cl_3F_{10}$ Cyclohexane, tetrachloroheptafluoro(trifluoromethyl)-, P 3033*g*.
$C_7Cl_3F_5$ Toluene, pentachlorotrifluoro-, P 3033*f*.
$C_7Cl_4O$ Cyclopentadiene-$\Delta^1,\alpha$-acetyl chloride, $\alpha$,2,3,4,5-pentachloro-, 4231*d*.
Cyclopentadienone, trichloro(trichlorovinyl)-, 4231*f*.
$C_7Cl_5$ Cyclopentadiene, pentachloro(trichlorovinyl)-, 4231*d*.
Cyclopentadiene, 1,2,3,4 - tetrachloro-5 - (tetrachloroethylidene)-, 4231*c*.
$C_7F_8$ Toluene, octafluoro-, 592*d*, 3266*i*.
$C_7F_{12}$ Norcamphane, dodecafluoro-, P 4301*c*.
$C_7F_{14}$ Cycloheptane, tetradecafluoro-(?), P 3834*h*.
Cyclohexane, hendecafluoro(trifluoromethyl)-, 1232*f*, 1653*h*, 1656*i*, 2019*f*, 2924*h*, 3266*i*, 8803*h*.
Cyclopentane, nonafluoro(pentafluoroethyl)-, 3266*i*.
$C_7F_{16}$ (See also *Heptane, hexadecafluoro-.*)
Pentane, decafluoro-2,3-bis(trifluoromethyl)-, 1656*i*.
$C_7HCl_4O_2$ Benzoic acid, pentachloro-, 2188*i*.
Cyclopentenedione, dichloro(trichlorovinyl)-, 4231*f*.
$C_7HCl_5$ Cyclopentadiene, 1,2,3,4,5-pentachloro - 5 - (1,2,2,2 - tetrachloroethyl)-, 4231*c*.
$C_7H_4Br_2NO$ Isocyanic acid, 2,4,6-tribromophenyl ester, 3378*c*.
$C_7H_2Cl_3NO$ Isocyanic acid, 2,4,6 - trichlorophenyl ester, 3378*c*.
$C_7H_3ClN_2O_2$ Benzonitrile, 2-chloro-4-nitro-, 2190*a*.
$C_7H_3ClN_2O_2S$ Benzothiazole, 2-chloro-nitro-, P 6670*c*.
$C_7H_3ClN_2O_2SSe$ Benzenesulfenyl selenocyanate, 4-chloro-2-nitro-, 8367*b*.
$C_7H_3ClN_2O_4$ Isocyanic acid, 2-chloro-4-nitrophenyl ester, 169*a*.
$C_7H_3Cl_2NO$ Isocyanic acid, 2,5-dichlorophenyl ester, 3378*c*.
$C_7H_3Cl_2O$ Benzoyl chloride, 2,4-dichloro-, P 8170*f*.
$C_7H_3Cl_2O_2$ Formic acid, 2,4,5-trichlorophenyl ester, 3133*f*, P 3459*h*.
$C_7H_3Cl_3O_4$ Muconic acid, $\alpha,\beta,\delta$ - trichloro-$\gamma$ - hydroxy-, $\gamma$-lactone, Me ester, 6981*f*.
$C_7H_3Cl_5$ Toluene, 2,3,4,5,6 - pentachloro-, 3262*c*, 4918*b*, 7803*h*.
$C_7H_3Cl_5O$ Anisole, 2,3,4,5,6-pentachloro-, 5893*h*.
$C_7H_3F_4NO_3$ Toluene, $p,\alpha,\alpha,\alpha$-tetrafluoro-3(?)-nitro-, 7918*c*.
$C_7H_3F_5$ Toluene, $\alpha,\alpha,\alpha,2,5$ - pentafluoro-, 1656*i*, 2157*e*.
$C_7H_4I_2O_2$ Benzoic acid, triiodo-, 2678*f*, 4733*a*, 5456*i*, 6705*cd*.
$C_7H_4NO_3$ Quinolinic anhydride, 7483*g*.
$C_7H_3N_3O_6$ Benzoic acid, trinitro-, 592*h*, 1493*f*, 1733*e*, P 7966*c*, *Tl salt*, 3352*f*.
$C_7H_5BiIO_4$ See *Asrol*.
$C_7H_5BrClO$ Benzoyl chloride, bromo-, P 7705*i*, P 8170*cf*.
$C_7H_5BrF_3$ Toluene, *m*-bromo-$\alpha,\alpha,\alpha$-trifluoro-, 1378*g*, P 6234*f*.
$C_7H_5BrNS$ Benzothiazole, 6-bromo-, 7476*d*.
$C_7H_5BrN_2$ Pyrido[2,3]pyrazine, 7-bromo-, 1425*e*.
$C_7H_5BrN_2O$ Pyrido[2,3]pyrazine, 7-bromo-, *N*-oxide, 1425*g*.
$C_7H_4BrN_3O_5$ Benzamide, *N*-bromo-3,5-dinitro-, P 5428*e*.
$C_7H_4Br_2N_2S_2$ Thiazole, 4,4'-methylenebis-[2-bromo-, 7931*g*.
$C_7H_4Br_2O_2$ Benzaldehyde, 3,5-dibromo-4-hydroxy-, 5446*d*.
Salicylaldehyde, 3,5-dibromo-, 943*c*, 5446*d*.
$C_7H_4Br_2O_3$ Salicylic acid, 3,5-dibromo-, 2116*f*, 2972*f*.
$C_7H_4Br_2O_4$ $\alpha$ - Resorcylic acid, 2,4-dibromo-, 1038*d*.
$C_7H_4Br_2O_5$ Muconic acid, $\alpha,\beta$-dibromo-$\delta$-dihydroxy-, $\gamma$-lactone, Me ester, [illegible]
$C_7H_4Br_2ClO$ *o*-Cresol, 3,4,6-tribromo-5-chloro-, 1348*a*.
$C_7H_4Br_4O$ *o*-Cresol, tetrabromo-, P 6434*c*.
$C_7H_4ClF_3$ Toluene, chloro-$\alpha,\alpha,\alpha$-trifluoro-, 3252*h*, 4573*h*.
$C_7H_4ClN$ Benzonitrile, *o*-chloro-, 4652*e*.
$C_7H_4ClNOS$ 2 - Thiophenepropionitrile, 5-chloro-$\beta$-oxo-, 5393*b*.
$C_7H_4ClNOS_2$ Thiocyanic acid, (5-chloro-2-thenoylmethyl) ester, 5393*c*.
$C_7H_4ClNO_2$ 2(3*H*) - Benzoxazolone, 6-chloro-, 6615*i*.
$C_7H_4ClNO_2S$ Benzoyl chloride, *p*-sulfinylamino-, 1744*c*.
$C_7H_4ClNO_3$ Benzoyl chloride, nitro-, 1345*b*, 1743*g*, 3715*d*, 4240*h*, 4241*b*, 4652*h*, 4757*f*.
$C_7H_4ClNO_4$ Benzoic acid, 2-chloro-4-nitro-, 2190*a*.
$C_7H_4ClNS$ Benzothiazole, chloro-, P 6670*c*, 7476*d*.
Isothiocyanic acid, *p* - chlorophenyl ester, 5746*f*, 9273*i*.
$C_7H_4ClNS_2$ 2-Thiazolethiol, 4-(5-chloro-2-thienyl)-, 5393*d*.
$C_7H_4ClN_3O_2$ Anthranilonitrile, 3-chloro-5-nitro-, P 8155*c*.
$C_7H_4Cl_2N_2S_2$ Thiazole, 4,4'-methylenebis-[2-chloro-, 7931*h*.
$C_7H_4Cl_2O$ Benzaldehyde, dichloro-, 7005*f*.
Benzoyl chloride, chloro-, 3715*d*, 4652*h*, P 7705*h*, P 8170*cd*/*i*.
$C_7H_4Cl_2O_2$ Benzoic acid, dichloro-, 2188*i*, 2725*i*.
Salicylaldehyde, 3,5-dichloro-, 5446*d*, 6182*b*.
*p*-Toluquinone, 5,6-dichloro-, 1348*a*.
$C_7H_4Cl_2O_3$ Salicylic acid, dichloro-, 2599*g*, 2972*f*.
$C_7H_4Cl_2O_5$ Muconic acid, $\alpha,\gamma$-dichloro-$\beta,\delta$ - dihydroxy-, $\gamma$-lactone, Me ester, 6981*h*.
$C_7H_4Cl_2O_6S_2$ Benzoic acid, 3,5-bis(chlorosulfonyl)-, P 8153*h*.
$C_7H_4Cl_3F$ Toluene, $\alpha,\alpha,\alpha$-trichlorofluoro-, 3252*h*, 7918*a*.
$C_7H_4Cl_4$ Toluene, $p,\alpha,\alpha,\alpha$ - tetrachloro-, 3252*h*.
$C_7H_4FNO$ Benzonitrile, 3-fluoro-4-hydroxy-, 9048*f*.
$C_7H_4F_4$ Toluene, tetrafluoro-, 1656*i*, 3252*h*, 7918*a*.
$C_7H_4F_8$ Spiro[3.3]heptane, 1,1,2,2,6,6,7,7,-octafluoro-, 3371*e*.
$C_7H_4HgO_2$ See *Mercury salicylate*.
$C_7H_4HgO_6S$ Salicylic acid, 3-(hydroxymercuri)-5-sulfo-, inner salt, 922*d*.
$C_7H_4INO$ Benzonitrile, 4-hydroxy-3-iodo-, 9048*e*.
$C_7H_4IN_3O$ Benzoyl azide, *m*-iodo-, 7447*g*.
$C_7H_4I_2O_2$ Benzaldehyde, 4-hydroxy-3,5-diiodo-, 2256*b*.
$C_7H_4LiN$ Lithium, (*p*-cyanophenyl)-, 2188*h*.
$C_7H_4LiNS$ Lithium, 2-benzothiazolyl-, 7475*h*.
$C_7H_4NNaO_3S$ Saccharin, Na deriv., 3145*a*, 6785*h*.
$C_7H_4NNaS_2$ Benzothiazole, 2-mercapto-, Na deriv., P 1798*f*, 7410*i*.
$C_7H_4N_2OS_2$ 4-Thiazolyl ketone, 7931*i*.
$C_7H_4N_2O_2$ Benzonitrile, nitro-, 27*f*, 1248*k*, 7486*c*.
$C_7H_4N_2O_2S$ Benzothiazole, nitro-, 2022*a*, 5776*h*, 7476*b*.
Thiocyanic acid, *o*-nitrophenyl ester, 8366*h*.
$C_7H_4N_2O_2SSe$ Benzenesulfenyl selenocyanate, *o*-nitro-, 8366*g*.
$C_7H_4N_2O_3S_2$ Benzothiazole, 2-mercapto-6-nitro , 2022*ab*, 3137*a*.
$C_7H_4N_2O_3$ Benzonitrile, 4-hydroxy-3-nitro-, 9048*f*.
Salicylonitrile, 4-nitro-, 2189*i*.
$C_7H_4N_2O_6$ (See also *Benzoic acid, dinitro-.*)
Pyrazinetricarboxylic acid, 8394*d*.
$C_7H_4N_2O_7$ Salicylic acid, 3,5-dinitro-, 1493*f*.
$C_7H_4N_2O_8$ $\beta$-Resorcylic acid, 3,5-dinitro-, 9067*d*.
$C_7H_5N_3O_4$ Anthranilonitrile, 3,5-dinitro-, P 4474*c*, P 9459*c*.
7-Pteridinecarboxylic acid, 2,4-dihydroxy-, *and Ag salt*, 654*f*.
$C_7H_4N_4O_5$ 6 - Pteridinecarboxylic acid, 2,4,7-trihydroxy, 2212*i*.
$C_7H_4N_4O_8$ Toluene, tetranitro-, 9449*d*.
$C_7H_5NO_{10}$ Aniline, *N*-methyl-*N*,2,3,4,6-pentanitro-, 1189*c*.
$C_7H_4O_2S_2$ Thieno[3,4 - *b*]thiophenecarboxylic acid, 4667*a*.
Thiophthenecarboxylic acid, 4667*a*.
$C_7H_4O_2Se$ 2,3 - Selenophenedicarboxylic anhydride, 4-methyl-, 6612*f*.
$C_7H_4O_6$ Chelidonic acid, 4426*a*.
$C_7H_4O_7$ Meconic acid, 1110*d*, 7138*h*, 9334*d*.
$C_7H_4AlCl_4O$ Benzoyl chloroaluminate, 8935*i*.
$C_7H_5BrN_2O_3$ Benzamide, *N*-bromonitro-, P 5428*e*.
$C_7H_5BrN_4O_4$ Toluene, 4-bromodinitro-, 6992*d*.

**$C_7H_5BrN_2S$** Benzothiazole, aminobromo-, 1766*h*, 7476*i*.
**$C_7H_5BrO$** Benzaldehyde, bromo-, 5446*d*, 5761*b*.
**$C_7H_5BrO_2$** Benzaldehyde, 3-bromo-4-hydroxy-, 1973*i*, 5446*d*.
Benzoic acid, bromo-, 1349*d*, 3715*c*, 6453*h*, P 7705*g*, 7723*i*, 8811*e*, 8908*g*.
Salicylaldehyde, 5-bromo-, 943*c*, 5446*d*.
**$C_7H_5BrO_3$** Benzoic acid, 2-bromo-5-hydroxy-, 5023*e*.
**$C_7H_5BrO_4$** 2*H* - Pyran - 6 - carboxylic acid, 3,4 - dihydro - 5 - (hydroxymethyl)-4-oxo-, γ-lactone, Br deriv., 1407*e*.
**$C_7H_5BrO_5$** 2,3 - Furandicarboxylic acid, 5-bromo-4-methyl-, 5020*g*.
**$C_7H_5Br_2NO_3$** 1(4*H*) - Pyridineacetic acid, 3,5-dibromo-4-oxo-, *Pb salt*, 5780*g*.
Salicylohydroxamic acid, 3,5-dibromo-, 2116*f*.
**$C_7H_6Br_2O$** Anisole, 2,4,6-tribromo-, 5773*c*.
**$C_7H_5Br_3O_4$** Muconic acid, α,β,δ-tribromo-γ-hydroxy-, δ-Me ester, 6982*a*.
**$C_7H_5ClHgO_2$** Benzoic acid, *p*-(chloromercuri)-, 305*i*, 2334*f*, 5994*d*.
**$C_7H_5ClINO$** 8-Quinolinol, 5-chloro-7-iodo-, 7586*h*.
**$C_7H_5ClN_2$** Methane, *o*-chlorophenylisodiazo-, 4260*g*.
**$C_7H_6ClN_3O_2$** Aniline, 2-chloro-4-nitro-, P 862*e*.
**$C_7H_6ClN_3O_3$** Benzamide, 2-chloro-4-nitro-, 7455*a*.
**$C_7H_5ClN_2O_4$** Toluene, 4-chloro-2,3-dinitro-, 592*e*.
**$C_7H_5ClN_2S$** Benzothiazole, 2-amino-6-chloro-, 1766*h*
**$C_7H_5ClO$** (See also *Benzoyl chloride*.)
Benzaldehyde, chloro-, 2359*h*, 3138*c*, 3390*d*, 4235*b*, 7005*e*.
**$C_7H_5ClO_2$** (See also *Benzoic acid, chloro-*.)
Benzaldehyde, 3 - chloro - 4 - hydroxy-, 1974*a*.
Salicylaldehyde, 5-chloro-, 5446*d*, 6182*b*.
*p*-Toluquinone, chloro-, 182*efg*.
**$C_7H_5ClO_2S$** 2-Thiopheneacrylic acid, 5-chloro-, 9064*a*.
**$C_7H_5ClO_3$** 2-Furanhydracrylic acid, 5-chloro-, β-lactone, P 5037*h*.
Salicylic acid, chloro-, 2599*i*, 7925*f*
**$C_7H_5ClO_4$** Gallyl chloride, P 6665*d*.
*p* - Toluquinone, 5 - chloro - 3,6-dihydroxy-, 608*i*.
**$C_7H_5ClO_4S$** Benzoic acid, *m*-(chlorosulfonyl)-, P 8153*g*.
**$C_7H_5Cl_2NO$** Benzamide, 3,4-dichloro-, 1896*b*.
**$C_7H_5Cl_2NO_2$** Anthranilic acid, 3,5-dichloro-, P 5963*f*.
**$C_7H_5Cl_2NO_4S$** Benzoic acid, *p*-(dichlorosulfamyl)-, 1573*b*.
**$C_7H_6Cl_2$** Toluene, trichloro-, 1246*i*, 3252*h*, 2194*d*, 7917*f*, 8364*h*, P 8667*g*, 9413*b*.
**$C_7H_6Cl_2O$** *o*-Cresol, 4,5,6-trichloro-, 1348*a*.
**$C_7H_6Cl_2O_2$** + $H_2O$ 4-Cyclohexene-1,3-dione, 2,6,6 - trichloro - 4 - hydroxy-5-methyl-, 609*c*.
**$C_7H_5Cl_3S$** Thiophene, 3,4,5-trichloro-2-isopropenyl-, 216*i*.
**$C_7H_5Cl_6F_3$** Cyclohexane, 1,2,3,4,5,6-hexachloro-1-(trifluoromethyl)-, P 4693*f*.
**$C_7H_6Cl_6OSb$** Benzoyl chloroantimonate(V), 8935*h*.
**$C_7H_5FN_2S$** Benzothiazole, 2-amino-6-fluoro-, 1766*h*.
**$C_7H_5FO_2$** Formic acid, fluoro-, Ph ester, 3741*g*.
**$C_7H_6F_2NO_2$** Toluene, 2,4-difluoronitro-, 7917*i*.
**$C_7H_5F_3$** See *Toluene, α,α,α-trifluoro-*.
**$C_7H_4F_4N$** Cyclobutanecarbonitrile, 2,2,3,3-tetrafluoro-1-vinyl-, P 4295*e*.
*m*-Toluidine, α,α,α,6-tetrafluoro-(?), 7918*c*.
**$C_7H_6HgNO_3$** Benzoic acid, 4-amino 2-(hydroxymercuri)-, cyclic anhydride, P 7968*c*.
**$C_7H_5IN_2O_3$** Benzamide, 2-iodo-4 nitro-, 7455*b*.
**$C_7H_4IN_3O_4$** Toluene, 4-iodo-2,6-dinitro-, 592*e*.
**$C_7H_5IN_2S$** Benzothiazole, 2-amino-6-iodo-, 1766*i*.
**$C_7H_5IO_2$** Benzoic acid, iodo-, 187*g*, 6973*d*.
**$C_7H_5IO_3$** Benzoic acid, 3-hydroxy-4-iodo-, 191*c*.
Benzoic acid, *o*-iodoso-, 306*a*, 1485*hk*.
**$C_7H_5I_2NO_2S$** Acetic acid, (3,5-diiodo-4-pyridylmercapto)-, 7484*a*.
**$C_7H_5I_2NO_3$** 1(2*H*) - Pyridineacetic acid, 3,5-diiodo-2-oxo-, 7484*c*.
1(4*H*) - Pyridineacetic acid, 3,5-diiodo-4-oxo-, *salts*, 5780*a*.
**$C_7H_4KN_3O_8$** See "Aniline orange" under *Dyes*.
**$C_7H_5N$** (See also *Benzonitrile*.)
Phenyl isocyanide, 7184*e*, 9340*h*.
**$C_7H_5NO$** Anthranil, 1027*e*.
Benzonitrile, *m*-hydroxy-, 8800*i*.
Benzoxazole, 4765*i*, P 6846*a*.
Isocyanic acid, Ph ester, 1038*f*, 1351*h*, 5062*g*, 6162*e*, 6618*b*, 7441*ae*, 7442*ae*, 8365*b*.
Salicylonitrile, 7300*i*, 8890*i*.
**$C_7H_5NOS$** Benzothiazolol, 2021*g*, 2329*c*, 7476*e*.
2-Benzoxazolethiol, P 1798*f*, 4974*d*, P 6846*a*.
2-Thiophenepropionitrile, β-oxo-, 5393*b*.
**$C_7H_5NOS_2$** Thiocyanic acid, 2-thenoylmethyl ester, 5393*b*
**$C_7H_5NO_2$** Benzoxazolone, 6616*a*, 6714*f*, 8001*c*.
**$C_7H_5NO_2S_2$** + $3H_2O$ 2-Benzothiazolesulfinic acid, *Na salt*, 2021*g*
**$C_7H_5NO_2$** See *Benzaldehyde, nitro-*
**$C_7H_5NO_3S$** See *Saccharin*
**$C_7H_5NO_4$** (See also *Benzoic acid, nitro-*.)
Benzaldehyde, 4 - hydroxy - 3 - nitro-, 1973*i*.
Cinchomeronic acid, P 697*e*, P 8402*e*
Isocinchomeronic acid, 3825*e*
2,6 Pyridinedicarboxylic acid, 3825*i*
Quinolinic acid, P 1443*a*, 5402*g*, 6291*f*.
Salicylaldehyde, 5-nitro-, 5446*d*
Salicylic acid, 3 nitroso-, 3309*c*.
**$C_7H_5NO_5$** Protocatechualdehyde, 6-nitro-, 627*h*, 3405*i*
Resorcylaldehyde, nitro-, 7925*bcd*.
Salicylic acid, nitro-, 1493*f* 2600*b*, 4174*f*, P 6236*d*, P 9085*b*, *and Ba salt*, 2189*f*
**$C_7H_5NO_7$** 2,3 - Furandicarboxylic acid, 4-methyl-5-nitro-, 5021*a*.
**$C_7H_5NO_7S$** Benzoic acid, 4-nitro-2-sulfo-, *and mono-K salt*, 1762*h*
**$C_7H_5NS$** (See also *Benzothiazole*.)
Isothiocyanic acid, Ph ester, 548*c*, 1038*f*, 1597*b*, P 2733*a*, 3134*e*, 4232*d*, 4657*h*, P 4808*d*, 6024*a*, 6162*h*, 6176*i*, 6900*a*, 7421*c*, 9273*i*.
Thiocyanic acid, Ph ester, 4657*f*
**$C_7H_5NS_2$** See *Benzothiazole, 2 mercapto-*
**$C_7H_5NS_2$** 2 Thiazolethiol, 4 - (2 thienyl)-, 5393*c*.
**$C_7H_5N_2NaO_3$** *o*-Cresol, dinitro-, Na deriv., 1803*a*, 2358*i*, 5525*d*, 5892*i*, 5898*i*, 7177*d*, 8598*i*, 9327*g*, 9347*b*, 9354*a*
**$C_7H_5N_4$** Benzenediazocyanide, 7455*d*
Pyrido[2,3]pyrazine, 1425*c*.
**$C_7H_5N_3O_2$** Anthranilonitrile, 5 nitro-, P 4474., P 7697*g*, P 8155*a*, P 9458*i*
Benzimidazole, 6 nitro-, *nitrate*, 957*g*
Indazole, nitro-, 8365*h*
**$C_7H_5N_3O_2S$** 2 - Benzimidazolethiol, 6 nitro-, 2022*a*.
1,2,3 - Benzothiadiazole, 5-methylnitro-, 221*hi*.
**$C_7H_5N_3O_3S$** Benzothiazole, 2-hydroxamino-6-nitro-, 5395*h*.
**$C_7H_5N_3O_4$** Isoindazole, 6-nitro-, P 6846*b*
**$C_7H_5N_3O_6$** (See also *Toluene, trinitro-*.)
Compd., m. 218°, 592*h*.
**$C_7H_5N_3O_7$** (See also *Cresol, trinitro-*.)
Anisole, 2,4,6-trinitro-, P 5958*f*.
**$C_7H_5N_3O_2$** 6 - Pteridinecarboxaldehyde, 2-amino - 4 - hydroxy-, 3065*i*, 5432*a*, 7489*c*.
**$C_7H_5N_5O_3$** Pteridinecarboxylic acid, 2-amino-4-hydroxy-, 654*g*, P 6246*b*, 7029*a*, 8282*d*; *and di-Na salt*, 7489*cd*, *Na salt*, P 7052*i*.
**$C_7H_5N_5O_4$** 7 - Pteridinecarboxylic acid, 2-amino-4,6-dihydroxy-, 262*a*.
**$C_7H_5N_5O_8$** See *Tetryl*.
**$C_7H_6N_2O_7$** Phenol, 3-(methylnitramino)-2,4,6-trinitro-, 1189*c*.
**$C_7H_5NaO_2$** See *Sodium benzoate*.
**$C_7H_5NaO_3$** See *Sodium salicylate*.
**$C_7H_5BF_4N_2$** 3-Fluoro-*p*-toluenediazonium fluoborate, 7917*h*.
**$C_7H_5BiI_2O_6$** See *Asrol*.
**$C_7H_6BrCl$** Toluene, α-bromo-*p*-chloro-, 4628*e*.
**$C_7H_6BrClO_3S$** Sulfone, *p*-bromophenyl chloromethyl, 2593*c*.
**$C_7H_6BrF$** Toluene, bromofluoro-, 166*b*, 5782*b*.
**$C_7H_6BrN$** Pyridine, 3-bromo-5-vinyl-, 217*e*.
**$C_7H_6BrNO$** Benzamide, *N*-bromo-, P 5428*d*.
Ketone, 5 - bromo - 3 - pyridyl methyl, 217*d*.
**$C_7H_6BrNO_3$** Anisole, 3-bromo-4-nitroso-, 5378*h*.
Anthranilic acid, bromo-, P 4865*d*, P 5508*f*, P 5963*g*.
Nicotinic acid, bromo-, Me ester, 9069*c*.
*p* - Quinone, bromo-, *O*-methyloxime, 5378*h*.
Toluene, α-bromonitro-, 8600*b*, 9047*ab*.
**$C_7H_6BrN_3$** 1*H* - Imidazo[*b*]pyridine, 6-bromo 2-methyl-, 1425*g*.
**$C_7H_6BrN_3O_2$** Pyridine, 5-bromo-2,3-diformamido-, 1425*e*.
**$C_7H_6Br_2$** Toluene, *p*,α dibromo-, 4628*e*, 5761*b*.
**$C_7H_6Br_2O_3$** Saligenin, dibromo-, 9249*a*.
**$C_7H_6CdCl_2O_2$** Salicylaldehyde, complex with $CdCl_2$, 7000*h*.
**$C_7H_6Cd_2Cl_4O$** Benzaldehyde, complex with $CdCl_2$, 7000*h*.
**$C_7H_6ClF$** Toluene, chloro-α-fluoro-, 166*b*.
**$C_7H_6ClIO_2S$** Sulfone, chloromethyl *p*-iodophenyl, 2593*c*.
**$C_7H_6ClNO$** Benzamide, chloro-, 172*i*, 1705*i*.
**$C_7H_6ClNOS_2$** 1,3 - Oxathiolan - 2 - imine, 5 (5 chloro 2-thienyl)-, 5393*h*.
**$C_7H_6ClNO_2$** (See also *Anthranilic acid chloro-*.)
Anisole, 3-chloro 4-nitroso-, 5378*h*
Benzoic acid, 4 amino-2-chloro-, 3497*f*
*p*-Quinone, chloro-, *O*-methyloxime 5378*h*.
Toluene, chloronitro-, 166*e*, 2190*a* 6275*i*, 7454*h*, 8364*e*.
**$C_7H_6ClNO_3$** Anisole, 4 chloro-2-nitro 2599*e*.
Salicylic acid, 4-amino 6 chloro 4475*i*.
**$C_7H_6ClNO_3S$** Sulfanilyl chloride, *N* formyl-, 926*g*.
**$C_7H_6ClN_3$** Benzimidazole, 2-amino-chlo 1655*e*.
**$C_7H_6Cl_2$** See *Toluene, dichloro-*
**$C_7H_6Cl_2O$** Anisole, dichloro-, 5831*d*, 6705*cd*, 7555*e*.
Cresol, dichloro-, 7418*e*.
**$C_7H_6Cl_2OS$** Sulfoxide, chloromethyl *p* chlorophenyl, 7409*g*
**$C_7H_6Cl_2O_2S$** Sulfone, chloromethyl *p* chlorophenyl, 1896*d*, 2593*c*, 7409*f*
**$C_7H_6Cl_2O_3$** Pyrogallol, dichloromethyl-, 609*d*
Toluene - 2,3,5 - triol, 4,6-dichloro-609.
**$C_7H_6Cl_2S$** Sulfide, chloromethyl *p*-chlorophenyl, 7409*f*
Thiophene, 2,5-dichloro - 3 - isopropenyl-, 216*i*
**$C_7H_6C_4O_2$** Cyclopentadienone, tetrachlorodimethyl acetal, 4230*e*.
**$C_7H_6FI$** Toluene, α-fluoroiodo-, 166*a*.
**$C_7H_6FNO$** Carbamyl fluoride, 3741*g*.
**$C_7H_6FNO_2$** Toluene, fluoronitro-, 166 7917*h*, 7918*b*
**$C_7H_6F_2$** Toluene, difluoro-, 166*b*, 1656*i*, 7917*i*.
**$C_7H_6F_4$** Bicyclo[3.2.0]-2-heptene, 6,6,7,7-tetrafluoro-, 3371*e*.
Cyclobutene, 1 allyl 3,3,4,4 - tetrafluoro-, P 4295*e*.
**$C_7H_6F_4O_2$** Acrylic acid, 2,2,3,3-tetrafluorocyclobutyl ester, P 4295*e*.
Cyclobutanecarboxylic acid, 2,2,3,3-tetrafluoro-, vinyl ester, P 4295*e*
**$C_7H_6HgO_6S$** Salicylic acid, 3-(hydroxymercuri) - 5 - sulfo-, inner salt, 9223*f*.
**$C_7H_6INO_2$** Benzoic acid, 4-amino 2-iodo-, 7545*g*.
**$C_7H_6NNaO_3S$** *p*-Toluenethiol, 2 nitro-, Na deriv., 3387*e*.
**$C_7H_6N_2$** Benzimidazole, 1655*e*, 3416*e*, 6351*f*, 7362*c*, 8365*h*.
Benzonitrile, *p*-amino-, 3715*c*.
Carbanilonitrile, 1038*h*, 1248*i*, 4232*e*.
Indazole, 3416*e*.
Malononitrile, 1-methylallyl-, P 4897*e*.
**$C_7H_6N_2O$** 2(3*H*)-Benzimidazolone, P 692*a*
Imidazo[1,2-*a*]pyridin-2(3*H*)-one, 642*i*
Nicotinonitrile, 6-methoxy-, 2995*i*.
**$C_7H_6N_2O_2S$** Benzenesulfonamide, *p*-cyano-, P 7508*c*.
Nicotinonitrile, 6 - (methylsulfonyl)-, 2995*f*.
**$C_7H_6N_2O_2S_2$** Thiocyanic acid, *p*-sulfamylphenyl ester, 1739*a*.
**$C_7H_6N_2O_3$** Benzaldehyde, *p*-nitro-, 5760*h*
Benzamide, nitro-, 1408*h*, P 3452*b*, 6162*e*, 6717*i*, 9249*h*.
**$C_7H_6N_2O_3S_2$** 6 - Benzothiazolinesulfonic acid, 2-imino-, 6180*f*.
**$C_7H_6N_2O_4$** (See also *Anthranilic acid, nitro-*; *Toluene, dinitro-*.)
Aniline, 4,5-methylenedioxy-2-nitro-, 1413*d*.
Benzoic acid, 5-amino-2-nitro-, P 4479*e*.
Salicylamide, 4-nitro-, 6595*e*.
**$C_7H_6N_2O_5$** (See also *Cresol, dinitro-*.)
Anisole, 2,4-dinitro-, 2599*e*, 6175*b*

Salicylic acid, 3-amino-5-nitro-, P 9461*b*.
$C_7H_8N_2O_5S$ Formic acid, (*p*-sulfophenylazo)-, *K salt*, 171*e*.
$C_7H_8N_2O_7S$ Anthranilic acid, 3-nitro-5-sulfo-, P 2784*b*.
$C_7H_8N_2S$ Benzimidazolethiol, 6455*g*, 7249*a*, 7362*bc*, 9242*a*.
1,2,3-Benzothiadiazole, 5-methyl-, 221*h*.
Benzothiazole, amino-, 1766*h*, 5776*i*, 7476*b*, P 8166*g*.
Nicotinonitrile, 6 - methylmercapto-, 2995*f*.
Thiocyanic acid, *p*-aminophenyl ester, 1516*f*.
$C_7H_8N_2S_2$ Thiazole, 4,4'-methylenebis-, 7931*e*.
$C_7H_8N_4O$ Formamide, *N*-imidazo[*b*]pyrid-5-yl-, 7023*i*.
$C_7H_8N_4O_2$ Toluene, azidonitro-, 8366*a*.
$C_7H_8N_4O_2S$ Benzothiazole, 2-hydrazino 6-nitro-, 5395*h*.
$C_7H_8N_4O_3$ Benzotriazole, 5-methoxy-6-nitro, 7016*f*.
γ - Triazolo[2,3-*a*]pyrimidinecarboxylic acid, 5 hydroxy-, Me ester, P 4165*f*.
—, 7-hydroxy-5-methyl-, P 52*i*.
$C_7H_8N_4O_3S_2$ 6 Benzothiazolinesulfonamide, 2-nitrosoimino-, 6180*f*.
$C_7H_8N_4O_5$ 2-Furaldehyde, 5-nitro-, semioxamazone, 9249*h*.
$C_7H_8N_6O_2$ 7 - Pteridinecarboxylic acid, 2,4 diamino , 654*g*.
$C_7H_8N_6O_4$ 6-Pteridinecarboxylic acid, 2,4-diamino-7-hydroxy , 2212*h*.
$C_7H_8O$ See *Benzaldehyde*.
$C_7H_8OS$ Benzoic acid, thiol-, 8353*d*.
$C_7H_8OS$ Xanthic acid, phenyl-, *salts*, P 8604*g*.
$C_7H_8O_2$ (See also *Benzaldehyde, hydroxy-; Benzoic acid; Salicylaldehyde*.)
2 Furanacrolein, 9334*b*.
Toluquinone, 26*e*, 603*b*, 1044*g*, P 2806*b*, 5665*i*, 6515*e*, 8413*i*.
$C_7H_8O_2S$ Benzoic acid, mercapto , 2254*f*, P 3039*c*, P 8171*h*.
2 Thiopheneacrylic acid, 9063*i*.
$C_7H_8O_3S$ 2-Thiophenepyruvic acid, α-thio , 3820*e*.
$C_7H_8O_3$ (See also *Benzoic acid, hydroxy-; Salicylic acid*.)
2 Furanacrylic acid, 2615*c*, 9334*c*.
2 Furanhydracrylic acid, β lactone, P 1055*a*, P 1056*b*, P 5037*g*, P 5415*a*.
Gentisaldehyde, 3386*i*, 6598*b*.
Mucoinic anhydride, β methyl-, 603*b*.
Pyridin, desoxy , 2993*d*.
Peroxybenzoic acid, P 825*i*, 2018*e*, 2181*b*, 2588*i*, 8358*g*.
Protocatechualdehyde, 757*g*, 1974*a*, 5146*e*.
2*H* Pyran $\Delta^{3(6H)}$-acetic acid, 4 hydroxy , lactone, 2993*d*.
3 Resorcylaldehyde, P 4008*b*, 7925*d*.
$C_7H_8O_3S$ 2 Furanpyruvic acid, α thio , 3820*b*.
$C_7H_8O_4$ (See also *Clavacin; Expansin*.)
Claviformin, 8003*h*.
Gentisic acid, 319*i*, 2204*c*, 3393*g*, 7003*f*.
Lachnacin, 1110*d*, 1407*a*, 7138*h*.
Patulin, 1406*f*, 2993*c*, 7095*b*, 8003*h*.
Protocatechuic acid, 757*g*, 2285*b*, 2702*e*, 3386*i*, 3940*c*, 4038*h*.
2*H* Pyran $\Delta^{3(6H)}$ - acetic acid, 2,4-dihydroxy-, lactone, 2993*d*.
Pyrocatechuic acid, 2204*b*.
*p* Quinone, 2-hydroxy-6-methoxy-, 181*i*.
Resorcylic acid, 319*i*, 1035*g*, 1493*i*, 2204*b*.
$C_7H_8O_4S$ Benzenesulfonic acid, formyl-, P 8712*h*, *Na salt*, 4547*a*, 4651*d*.
$C_7H_8O_4Se$ 2,3 - Selenophenedicarboxylic acid, 4-methyl-, 6612*f*.
$C_7H_8O_5$ (See also *Gallic acid*.)
Benzoic acid, trihydroxy-, 4376*c*, 5337*e*.
$C_7H_8O_5S$ (See also *Salicylic acid, sulfo-*.)
2,5 - Thiophenedicarboxylic acid, 3,4-dihydroxy-, Me ester, P 2237*a*.
$C_7H_8O_8S_2$ Benzenedisulfonic acid, formyl-, P 7730*a*.
$C_7H_7$ Benzyl (*free radical*), 2512*a*, 6479*c*, 7797*hi*.
$C_7H_7AlCl_2O$ *m* Toloxyaluminum dichloride, 5398*e*.
$C_7H_7AsN_2O_3$ Benzamide, 2-amino-4-arsenoso-, 7995*d*.
Urea, (*p*-arsenosophenyl)-, 8559*b*.
$C_7H_7BiO_2$ See *Dermatol*.
$C_7H_7Br$ See *Toluene, bromo-*.
$C_7H_7BrMg$ Benzylmagnesium bromide, 2579*b*.
$C_7H_7BrN_2O_3$ Glycolamide, *N*-(6-bromo 2-pyridyl)-, P 3853*g*.
$C_7H_7BrN_2O_3$ Pyridine, 2-bromo-3-ethoxy-6-nitro-, 6620*a*.
$C_7H_7BrN_4O_3$ Guanidine, 1-(bromophenyl)-3-nitro-, 9035*h*.
$C_7H_7BrO$ Anisole, bromo-, 1348*b*, 4563*h*.
Benzyl alcohol, *p*-bromo-, 2188*g*.
$C_7H_7BrOS$ 1-Propanone, 1-(5-bromo-2-thienyl)-, 4666*a*.
$C_7H_7BrO_2$ Saligenin, 4-bromo-, 9248*i*.
$C_7H_7BrO_2S$ 3-Thiophenecarboxylic acid, 4-bromo-2,5-dimethyl-, 4666*g*.
$C_7H_7BrO_4$ 2 - Pentenoic acid, 3-bromo-2,4-dihydroxy-, γ-lactone, acetate, 6981*a*.
2 - Pentenoic acid, 5-bromo - 3 - (hydroxymethyl) - 2 - methoxy - 4-oxo-(?), γ-lactone, 6981*a*.
$C_7H_7BrS$ Thiophene, 2-bromo-5-isopropenyl-, 216*i*.
$C_7H_7Br_2NO$ Pyridine, 3,5-dibromo-2-ethoxy-, 6626*e*.
$C_7H_7Cl$ See *Toluene, chloro-*
$C_7H_7ClHg$ Benzylmercury chloride, 560*a*.
*p*-Tolylmercury chloride, 171*d*.
$C_7H_7ClHgO$ Methoxyphenylmercury chloride, 4236*i*, 5004*c*.
$C_7H_7ClHgO_3$ 3-Furoic acid, (chloromercuri)-4-methyl , Me ester, 5020*gi*.
$C_7H_7ClNNaO_3S$ See *Chloramine T*.
$C_7H_7ClN_2$ Toluenediazonium chloride, 1745*a*.
$C_7H_7ClN_2O$ Benzamide, aminochloro-, 1766*a*, 7455*b*.
Hydrazine, 1-(o-chlorophenyl)-2-formyl-, 4260*c*.
Methoxybenzenediazonium chloride, 1745*e*.
$C_7H_7ClN_2O_2$ 3 - Pyridazinecarboxylic acid, 6-chloro-, Et ester, 3007*d*.
*m*-Toluidine, 6-chloro-5-nitro-, 222*d*.
$C_7H_7ClN_2S$ Urea, 1 - (*p* - chlorophenyl)-2 thio-, 1779*f*.
$C_7H_7ClN_4O$ 6-Pteridinol, 2 chloro 7,8 dihydro-4-methyl , P 9087*f*.
$C_7H_7ClN_4O_2$ Guanidine, 1-(chlorophenyl)-3-nitro-, 9035*g*.
$C_7H_7ClN_4O_4$ Glycine, *N* (2 chloro - 5-nitro - 4 - pyrimidyl)-, Me ester, P 9087*d*
$C_7H_7ClN_4S$ Pseudourea, 2 (5-cyano-2-pyridyl)-2-thio-, - *HCl* 2995*e*.
$C_7H_7ClO$ Anisole, *p*-chloro-, 3138*c*, 7463*i*.
Benzyl alcohol, *p*-chloro-, 166*d*, 3138*c*
Cresol, chloro , 1347*i*, 5019*e*, P 7015*b*, 7447*d*, 7448*e*
$C_7H_7ClOS$ 2 - Thiophenepropionyl chloride, 3817*g*.
$C_7H_7ClO_2S$ Sulfone, chloromethyl phenyl, 1896*d*, 7409*e*.
Sulfone, *p*-chlorophenyl methyl, 1896*d*
*p* Toluenesulfonyl chloride, 3368*a*, 3784*f*, P 5899*g*, 6094*e*.
$C_7H_7ClO_3$ 2-Furoic acid, 5-(chloromethyl)-, Me ester, P 1065*d*
$C_7H_7ClO_3S$ Phenol, *p*-(chloromethylsulfonyl)-, 2593*d*.
$C_7H_7ClO_4$ Caproic acid, ε chloro β-(hydroxymethyl) - α,γ - dioxo-, γ-lactone, 1406*i*.
Toluene 2,3,5,6-tetrol, 4-chloro-, 608*i*.
$C_7H_7ClS$ Sulfide, chloromethyl phenyl, 7409*e*.
Thiophene, 2 chloro-5-isopropenyl-, 216*i*
Thiophene, 2-chloro-5-propenyl-, 217*a*
$C_7H_7Cl_2NO$ *p*-Cresol, 2-amino-3,5-dichloro-, P 8148*c*.
$C_7H_7Cl_2O_2P$ Chlorophosphoric acid, o-methoxyphenyl ester, 6178*e*.
$C_7H_7Cl_3OS$ 2 - Thiophenemethanol, 3,4,5 trichloro - α,α - dimethyl-, 216*h*.
$C_7H_7Cl_3OSi$ Silane, trichloro(*p*-methoxyphenyl)-, 3354*i*.
$C_7H_7Cl_3O_4$ Chloralic aldehyde, 973*h*
$C_7H_7Cl_3O_5$ Chloralic acid, 973*h*
$C_7H_7Cl_4NO_3Sn$ Anisole, o-nitro-, compd with $SnCl_4$, 6899*i*.
$C_7H_8F$ Toluene, fluoro-, 1656*i*, 2591*a*, 6020*g*, 7917*i*.
$C_7H_7FN_2O_2$ *p*-Toluidine, 5-fluoro-2-nitro-, - *HCl*, 7918*b*.
$C_7H_7FO$ *p*-Cresol, 3-fluoro-, 7917*i*.
$C_7H_7HgNO_3$ Pyridine, 3-(acetoxymercuri)-, P 690*e*.
$C_7H_7HgNO_4$ o-Cresol, 6-hydroxymercuri-5-nitro-, 9335*h*.
$C_7H_7I$ Toluene, iodo-, 600*e*, 4140*e*, 6973*d*.
$C_7H_7IN_2O$ Benzamide, 4-amino-2-iodo-, 7455*c*.
Benzoic acid, *m*-iodo-, hydrazide, 6973*d*.
$C_7H_7IO_2$ Saligenin, iodo-, 9249*a*.
$C_7H_7KO$ Potassium benzyloxide, P 2218*h*.
$C_7H_7Li$ Lithium, *p*-tolyl-, 649*a*.
$C_7H_7LiO$ Lithium, (α-hydroxytolyl)-, 2188*g*.
$C_7H_7N$ Pyridine, vinyl-, 1626*d*, P 3228*b*, 3422*f*, P 4608*h*, 5306*g*.
$C_7H_7NO$ (See also *Benzamide*.)
Anthranilaldehyde, 1742*a*.
Benzaldehyde, oxime, 2846*c*, 3388*g*, 3974*g*, 5760*f*, 6994*a*, 7345*c*.
—, amino-, P 8169*g*.
Formanilide, 575*i*, P 2037*f*.
2-Furanpropionitrile, 2988*d*.
Ketone, methyl 3-pyridyl, 643*e*, 2681*b*, 5306*g*, 8367*g*.
Toluene, nitroso-, 5013*c*, 6585*dh*.
$C_7H_7NOS$ Carbamic acid, thiol-, phenyl ester, 4657*i*.
$C_7H_7NOS_2$ 1,3-Oxathiolan-2-imine, 5-(2-thienyl)-, 5393*h*.
$C_7H_7NO_2$ (See also *Anthranilic acid; Benzoic acid, amino-; Toluene, nitro-*.)
Benzaldehyde, 3 - amino - 4 - hydroxy-, 1974*a*.
Benzamide, hydroxy-, 319*i*, 3911*i*, 8890*i*.
Benzohydroxamic acid, 2188*f*, 6996*f*; *and salts*, 2116*b*.
1 - (Carboxymethyl)pyridinium betaine, 4574*h*.
Cresol, nitroso-, 3964*a*, 5378*h*.
Homarine, 3053*d*.
Nicotinic acid, Me ester, 2622*e*, 6316*h*, 6317*ef*.
Picolinic acid, 6-methyl-, 3825*c*.
3 - Pyridinemethanol, formate, P 8105*h*.
*p*-Quinone, O-methyloxime, 5378*h*.
Salicylaldehyde, oxime, 3974*g*.
Salicylamide, 756*h*, 3911*i*, 8890*i*.
*p*-Toluquinone, oxime, 5378*h*.
Trigonelline, 2373*b*, 4766*d*, 9130*i*, 9200*i*.
$C_7H_7NO_2S$ Benzoic acid, 4-amino-3-mercapto-, 767*b*.
Nicotinic acid, 2-mercapto-, Me ester, 1409*g*.
Sulfide, methyl nitrophenyl, 7820*e*.
2 Thiophenecarboxamide, *N* acetyl-, 3817*a*.
Thiophene, methyl(2-nitrovinyl)-, 9063*h*.
- 2-(2-nitropropenyl)-, 9063*h*.
$C_7H_7NO_3$ (See also *Anisole, nitro-; Salicylic acid, amino-*.)
Anthranilic acid, 3-hydroxy-, 292*a*, 6266*f*.
Benzoic acid, 3-amino-4-hydroxy-, P 8148*c*, P 8151*f*.
Benzyl alcohol, nitro-, 2570*g*, 6182*a*, 9047*a*
Benzyl nitrate, 4216*f*.
Gentisamide, 319*i*.
Isonicotinaldehyde, 3,5-dihydroxy-2-methyl-, P 725*e*
Nicotinic acid, dihydro-1-methyloxo-, 3496*e*, 7024*c*.
—, hydroxy-, Me ester, 1409*g*, 9069*e*.
Picolinic acid, 1-oxide, Me ester, 8386*c*.
—, 1,6 - dihydro - 1 - methyl - 6-oxo-, 6628*f*
Resorcylamide, 319*i*.
Salicylohydroxamic acid, *and salts*, 2116*e*.
$C_7H_7NO_3S$ Sulfoxide, methyl o-nitrophenyl, 8366*h*.
$C_7H_7NO_4$ Furfuryl alcohol, 5-(2-nitrovinyl)-, 9334*e*.
Gallamide, 1341*i*.
Guaiacol, 5-nitro-, 8553*a*.
$C_7H_7NO_4S$ Benzoic acid, sulfamyl-, P 863*g*, 2188*h*.
Fumaric acid, thiocyano , di-Me ester, 9334*g*.
4-Thiazoleacetic acid, 5-carboxy-, 5-Me ester, 5022*a*.
$C_7H_7NO_5$ 2-Furoic acid, 5-nitro-, 2669*e*.
$C_7H_7NO_5S$ Anthranilic acid, sulfo-, P 3039*b*, P 4805*f*, P 5964*f*, P 8144*h*, 8602*a*.
Toluenesulfonic acid, nitro-, 5265*a*, *Na salt*, 6495*h*.
$C_7H_7NO_6S$ See *Salicylic acid, aminosulfo-*.
$C_7H_7NS$ Benzamide, thio-, 7420*g*.
Benzothiazoline, 8365*f*.
2-Thiophenepropionitrile, 3817*f*.
$C_7H_7NS_2$ Carbanilic acid, dithio-, (*d salt*, 1137*g*; *Zn salt*, 3964*b*.
$C_7H_7N_2Na$ Benzaldehyde, hydrazone, Na deriv., 123*i*.
$C_7H_7N_2O_2$ Benzenediazoöxide, *p*-methoxy-, 2495*e*.
$C_7H_7N_3$ Benzimidazole, 2-amino-, 1655*e*.
$C_7H_7N_3O$ 1*H*-Benzotriazole, 5-methoxy-, 2618*g*.
$C_7H_7N_3O_2$ Benzaldehyde, o-nitro-, hydrazone, 123*e*, 1027*d*.
Benzamidine, *p*-nitro-, P 3450*g*, 9249*h*.
*p*-Quinone, monosemicarbazone, 1027*e*.
$C_7H_7N_3O_2S$ Sulfanilamide, *N*¹-cyano-, 8422*g*.
$C_7H_7N_3O_3S_2$ 6 - Benzothiazolesulfonamide, 2-amino-, 6180*e*.
$C_7H_7N_3O_3$ Benzamide, 2-amino-5-nitro-, 1765*i*.
2 - Furanglyoxylaldehyde, semicarbazone, 1393*e*.

3-Butyn-2-ol, 2-methyl-, acetate, 3352*d*.
Cyclohexanecarboxylic acid, 4-hydroxy-, lactone, 7436*i*.
3-Cyclohexene-1-carboxylic acid, P 5416*h*.
Cyclopentanone, 2-acetyl-, P 5417*a*.
2-Heptenoic acid, 4-hydroxy-, lactone, 7542*c*.
2-Hexenoic acid, 5-hydroxy-3-methyl, δ-lactone, 6166*b*.
Hydrosorbic acid, δ-hydroxy-β-methyl-, δ-lactone, 6165*i*.
Methacrylic acid, allyl ester, 8199*d*, 9334*c*.
Pentadien 2-ol, acetate, P 5795*i*, P 7038*b*, P 7953*h*.
3-Penten-2-one, 4-hydroxy-, acetate, P 7953*i*.
4-Pentynoic acid, Et ester, 2591*i*.
—, 3,3-dimethyl-, 2272*e*.
Propiolic acid, iso-Bu ester, 9334*h*
**$C_7H_{10}O_2S$** 5-Thiaspiro[2.4]-6-heptene, methyl, 5,5-dioxide, 5778*a*
**$C_7H_{10}O_2$** Acetic acid, (allyloxy)- vinyl ester, P 2817*b*.
Caproic acid, β-hydroxy β-methyl-δ-oxo-, lactone, P 1055*h*, P 1056*b*.
Cyclohexanecarboxylic acid, 4 oxo-, 2958*d*.
2,4,6-Heptanetrione, 2585*e*.
2-Heptenoic acid, 2,4-dihydrox γ lactone, 4221*h*.
—, 4-oxo-, 3785*d*.
2-Hexenoic acid, 2,4 dihydroxy-5 methyl-, γ-lactone, 4222*d*.
2-Pentenoic acid, 2-ethoxy-4 hydroxy, lactone, 2168*f*.
Penten-2-one, 4-hydroxy-, acetate, P 1436*d*, 4575*c*, P 5796*a*, P 7038*c*.
Succinic anhydride, propyl-, 5070*a*
Valeric acid, β-(hydroxymethyl) β-methyl-α-oxo-, γ-lactone, 4225*h*.
**$C_7H_{10}O_2S$** 2-Thiabicyclo[3 1 0]-3-hexen 5-methoxy 4-methyl, 2,2-dioxide, 5777*i*.
Thiophenecarboxylic acid, tetrahydro-oxo-, Et ester, P 3041*e*, P 6669*b*.
Thiophene, 3-methoxy-2,4-dimethyl-, 1,1-dioxide, 5777*h*.
**$C_7H_{10}O_4$** Acrylic acid, β-hydroxy-, Et ester, acetate, P 3448*f*
Citraconic acid, di Me ester, 2591*f*
1,1-Cyclopropanedicarboxylic acid, di-Me ester, 2955*e*.
Glucosan<1,5>α<1,4>, 3,6-anhydro methyl-, 1726*g*.
Glutaric acid, β-hydroxy-β-methyl, β-lactone, Me ester, P 1055*i*
Itaconic acid, di-Me ester, 1320*c*.
Malonic acid, (2-hydroxyethyl)-, γ-lactone Et ester, 6172*i*.
Mesaconic acid, di-Me ester, 2591*f*.
2,4-Pentanedione, 3-hydroxy, acetate, 1008*i*.
2-Pentenoic acid, 2-hydroxy 4-oxo-, Et ester, 2168*i*.
—, 2-methoxy-4 oxo-, Me ester, 2168*h*.
Propenediol, diacetate, 4401*h*, P 5642*c*, P 8741*i*.
Pyran-3-acetic acid, tetrahydro 6-oxo-, 2993*f*.
2*H*-Pyran-6-carboxylic acid, 3,4,5,6-tetrahydro-4-hydroxy-5-(hydroxymethyl)-, γ-lactone, 1407*e*.
Tetraconic acid, 1320*b*, P 6846*a*.
Valeric acid, γ,γ-dihydroxy-, lactone acetate, 4574*h*.
—, α,γ-dioxo-, Et ester, 1009*a*.
**$C_7H_{10}O_2S$** 2-Thiophenepropionic acid, tetrahydro-4-hydroxy-3-oxo-, P 7046*e*.
**$C_7H_{10}O_5$** Glutaric acid, β-acetyl-, 3792*h*.
Maleic acid, methoxy-, di-Me ester, 6168*e*.
Mesoxalic acid, di-Et ester, 573*e*.
Pimelic acid, γ-oxo-, 3792*b*.
2-Propanone, 1,3-dihydroxy-, diacetate, 5404*b*.
Pyran-4,4-dicarboxylic acid, tetrahydro, *and Na salt*, P 6227*a*.
**$C_7H_{10}O_4S$** 3,4-Thiophenedicarboxylic acid, tetrahydro-3-hydroxy-2-methyl-, P 7970*e*.
**$C_7H_{10}O_6$** Ascorbic acid, 3 methyl-, 9179*h*
1,2,4-Butanetricarboxylic acid, P 2635*b*, P 3031*h*.
Heteroascorbic acid, 1 methyl-, 9179*h*.
**$C_7H_{10}O_7$** Glucoascorbic acid, 4742*c*, 8478*e*
**$C_7H_{10}S$** Thiophene, 2-ethyl-5-methyl-, 9064*e*.
Thiophene, 2-isopropyl-, 1395*c*, 5775*b*.
—, propyl-, 691*f*, 9064*e*.
—, 2,3,5-trimethyl-, 9064*f*.
**$C_7H_{11}AsBr_2N$** Propionitrile, β,β'-(methylarsylene)di-, dibromide, 8351*e*.
**$C_7H_{11}AsCl_2N$** Propionitrile, β,β'-(methylarsylene)di-, dichloride, 8351*f*.
**$C_7H_{11}AsN_2$** Propionitrile, β,β'-(methylarsyl ene)di-, 8351*e*.
4-Hexen-3-one, 4-bromo- 2163*i*.
**$C_7H_{11}BrO_2$** Pyran-2-ol, 3-bromotetrahydro, acetate, P 693*d*.
**$C_7H_{11}BrO_4$** Isovaleric acid, β-bromo γ hydroxy α,α-dimethoxy, γ-lactone, 6980*h*
Lactic acid, β-bromo Et ester, acetate 4643*c*.
Malonic acid, bromo-, di-Et ester, 4217*e*
Valeric acid, β bromo-γ-hydroxy-α,α di methoxy-, γ-lactone, 6981*b*.
**$C_7H_{11}Br_3$** 2-Heptene, 1,2,3-tribromo, 6572*e*
**$C_7H_{11}Cl$** Cyclohexane, 1-chloro 2-methylene 588*i*.
Cyclopentane, (2-chlorovinyl), 9024*h*
Heptyne, chloro, 6571*h*, 6572*a*.
Hexadiene, chloro 5-methyl, 112*be*.
2 Hexyne, 4 chloro-4 methyl-, 6153*c*.
Norcamphane, 2 chloro-, P 689*g*
**$C_7H_{11}ClN_2$** Acrylonitrile, β-butylamino-α chloro-, 2571*i*, P 3440*d*
Imidazole, (chloromethyl) 1-isopropyl-, *HCl*, 8382*b*.
**$C_7H_{11}ClN_2O_2$** Hydantoin, 5 (4 chlorobutyl), 8356*a*.
**$C_7H_{11}ClN_2O_4$** Alanine, *N*-(*N*-chloroacetylglycyl)-, 9113*e*, 9114*a*.
Glycine, *N*-(*N*-chloroacetylglycyl)-, 9113*e*
**$C_7H_{11}ClO$** Cyclohexanecarbonyl chloride, P 3033*d*
1-Hexen-3-ol, 5-chloro-4 methyl, 6625*c*.
Ketone, 2-(chloromethyl)-2 methylcyclopropyl methyl, 2158*a*.
1 Oxaspiro[2.5]octane, 4-chloro-, 589*a*.
**$C_7H_{11}ClO_2$** Acrylic acid, α-chloro, Bu ester, P 3027*c*.
Propionic acid, α chloro-, 2-methylallyl ester, P 2632*i*.
**$C_7H_{11}ClO_3$** Isovaleric acid, γ-(chloroformyl), Me ester, 3781*f*
Ortho-3-butynoic acid, 4-chloro, tri-Me ester, 3360*c*.
2-Pentanone, 3-chlorohydroxy-, acetate, P 677*g*, P 6225*c*.
**$C_7H_{11}ClO_4$** 1,3-Dioxolane-4-methanol, 2,2 dimethyl-, chloroformate, P 1990*i*
**$C_7H_{11}ClO_4S_2$** Thiophene, 3-(2 chloroallylsulfonyl)tetrahydro, 1,1-dioxide, P 2238*b*.
**$C_7H_{11}ClO_5S$** Mannitol, 2 chloro 5-(methanesulfonyl)-1,4,3,6 dianhydro-, 2940*a*
**$C_7H_{11}Cl_2N$** Diallylamine, 3,3'-dichloro-*N* methyl, 2928*a*
**$C_7H_{11}Cl_3O_2$** 4-Heptanone, 1,1,1 trichloro 2-hydroxy-, 3785*c*.
**$C_7H_{11}F_3$** Cyclohexane, (trifluoromethyl)-, 2157*e*.
**$(C_7H_{11}N)_n$** Pyrrole, 2,3,4 trimethyl-, polymer(?), 1393*f*
**$C_7H_{11}NO$** Compd, m. 98-100°, 4257*c*.
Cyclohexanecarbonitrile, hydroxy-, 588*e*, 7906*i*.
Cyclohexanone, 2-(aminomethylene)-588*e*.
2-Furanpropylamine, 2988*c*.
Furfurylamine, α-ethyl-, 3407*b*.
Glycidonitrile, α-*tert*-butyl-, 2939*a*.
5-Hexenenitrile, 2-hydroxy-2-methyl, 5736*b*
Isocyanic acid, cyclohexyl ester, 4233*a*
4-Piperidinol, 4 ethynyl-, 2960*b*.
2 Pyrrolol, ethylmethyl-, 4257*b*.
Valeronitrile, γ,γ-dimethyl-β-oxo, 2939*b*.
**$C_7H_{11}NOS$** Isothiocyanic acid, [1-(2-methoxyethyl)allyl] ester, 9026*g*; 5-methoxy-2 pentenyl ester, 9026*h*
2-Thiophenemethanol, 5 (methylaminomethyl)-, 2201*f*.
**$C_7H_{11}NOS_2$** Rhodanine, 4-ethyl 3,4-dimethyl-, 1766*d*.
**$C_7H_{11}NO_2$** Acrylonitrile, β-oxo-, di-Et acetal, 3356*g*.
Butyric acid, β-cyano-α,α-dimethyl-, 2168*a*.
—, cyano-, Et ester, 2167*i*, 4222*g*.
Glutarimide, *N*-ethyl-, 2999*a*.
4-Piperidone, 1-acetyl-, 4275*c*.
**$C_7H_{11}NO_2S$** Thiocyanic acid, 4-hydroxybutyl ester, acetate, P 5153*a*.
**$C_7H_{11}NO_3$** Isovaleric acid, γ-dimethylamino-γ'-hydroxy-α-oxo-, γ-lactone, 7138*g*.
Methacrylic acid, ester with lactamide, P 3447*a*.
Oxamic acid, *N*-allyl-, Et ester, P 9473*h*.
2,4-Oxazolidinedione, 5-ethyl-3,5-di-
**$C_7H_{11}NO_3S$** salt, 2594*c*.
**$C_7H_{11}NO_4$** Acrylic acid, 2-nitrobutyl ester, P 2815*g*.
Imidodicarboxylic acid, allyl Et ester, 4228*f*.
3-Penten-2-ol, 1-nitro-, acetate, 2926*h*
Senecioic acid, α nitro-, Et ester, 1723*a*
**$C_7H_{11}NO_4S$** Cysteine, *N*-acetyl-, acetate, 2166*c*
**$C_7H_{11}NO_5$** Mesoxalic acid, di-Et ester oxime, 573*a*, P 3445*c*, 5738*i*.
**$C_7H_{11}NO_6$** Succinic acid, 1-nitroisopropyl-, 1320*a*
**$C_7H_{11}NO_6S$** Succinic acid, (2-amino-2-carboxyethylmercapto)-, 2704*a*.
**$C_7H_{11}NS$** Isothiocyanic acid, 1-methylcyclopentyl ester, 2171*g*, 2172*f*.
2-Thenylamine, *N*, *N*-dimethyl-, 1764*a*.
Thiocyanic acid, methylcyclopentyl ester, 2171*i*
**$C_7H_{11}N_3$** Pyrimidine, (aminomethyl)dimethyl-, 1822*f*; *and -HCl*, P 3473*d*.
2,4,6-Toluenetriamine, P 3456*d*.
**$C_7H_{11}N_3O$** Acetamide, *N*-[2-(imidazolyl)ethyl]-, 3478*d*, 8413*h*.
5-Pyrimidinemethanol, 2-methyl-4 methylamino-, 1822*h*.
4 Pyrimidol, 2-dimethylamino-6 methyl, 3123*g*
**$C_7H_{11}N_3OS$** 4(3*H*)-Pyrimidone, 6-amino-2 (ethylmercapto) 3-methyl-, 3010*e*
**$C_7H_{11}N_3O_2$** Histidine, 1 methyl-, 8382*d*
Imidazolecarbamic acid, methyl-, Et ester, 1402*h*.
4-Imidazolecarboxylic acid, 5-amino 1 methyl-, Et ester, *and -HCl*, 3409*i*
**$C_7H_{11}N_3O_2S$** Acetamide, *N*-2-hydroxyethyl α-(2-imidazolylmercapto), 3365*e*
Allophanic acid, γ (1-cyanoethyl)-β-thio, Et ester, 1402*g*.
Ethanesulfonamide, 2 amino-*N*-2-pyridyl, *and -HCl*, P 3450*d*.
Imidazolecarbamic acid, 2-mercaptomethyl-, Et ester, 1402*h*.
4 Imidazolecarboxylic acid, 5-amino-2-mercapto-1-methyl-, Et ester, 3409*b*.
2 Thiazolecarbamic acid, 5-amino 4-methyl, Et ester, 1402*f*.
4 Thiazolecarboxylic acid, 5-amino-2-methylamino, Et ester, *and -HCl*, 3409*a*.
**$C_7H_{11}N_3O_4$** Acrylic acid, α-[α-(α-aminoacetamido)acetamido]-, 257*h*.
5 Hydantoinacetamide, *N*-2-hydroxyethyl, 3364*c*.
**$C_7H_{11}N_3O$** *s*-Triazine, 2 (allylamino)-4-amino 6 methoxy-, 4269*d*.
**$C_7H_{11}N_3O_2$** *s*-Triazine-2-propionic acid, 4,6 diamino-, Me ester, P 1814*e*.
**$C_7H_{11}N_3O_3$** Glycine, *N*-(2,5-diamino-6-hydroxy-4-pyrimidyl)-, Me ester, 3426*i*
Lactamide, *N*-(2,4-diamino-6-hydroxy 5-pyrimidyl)-, 652*d*.
**$C_7H_{11}NaO_4$** Malonic acid, di-Et ester, Na deriv., 3351*d*, 3390*d*, 3405*b*, 4217*e*, P 4090*c*.
**$C_7H_{12}O$** Cyclohexanone, 4-methyl-, P 2633*b*
**$C_7H_{12}$** (See also *Cyclohexene, methyl-*.)
1,3-Butadiene, 2-isopropyl-, 1311*f*.
Cyclobutane, isopropylidene-, 3370*a*.
Cycloheptene, 2956*a*.
Cyclopentene, dimethyl-, 2173*bc*.
—, ethyl-, 2173*c*.
1,4-Heptadiene, 2904*d*.
1-Heptyne, P 5788*h*.
Hexadiene, methyl-, 115*e*, 5735*f*.
Norcamphane, P 689*g*, 2191*i*.
Pentadiene, dimethyl-, P 1055*i*, P 1056*abc*, 2080*f*, 3344*g*, 3375*i*.
**$C_7H_{12}BrCl_3$** Pentane, 3-bromo-1,1,1-trichloro-3-ethyl-, 9024*c*.
**$C_7H_{12}BrNO_3$** Propionamide, α-bromo-*N*-(2-oxobutyl)-, 3005*c*.
**$C_7H_{12}BrN_3$** *s*-Triazine, 2,4-diamino-6-(1-bromoisobutyl)-, P 5051*f*.
**$C_7H_{12}Br_2$** 2-Heptene, 1,3-
2-Hexene, 5,6-dibrom
**$C_7H_{12}Br_2Cl_2$** Heptane, 1,- - chloro-, 3346*d*.
**$C_7H_{12}Br_2O$** 2-Hepten-1-ol, 2,3-dibromo-, 6572*d*.
**$C_7H_{12}Br_2O_2$** Valeric acid, γ,δ-dibromo-, Et ester, 7424*d*.

$C_7H_{12}Br_2O_3$ Acetic acid, (2,3-dibromopropoxy)-, Et ester, 7424*c*.

$C_7H_{13}ClN_4$ *s*-Triazine, 2-amino-4-butylamino-6-chloro-, 1426*b*.

*s*-Triazine, 2-amino-4-chloro-6-diethylamino-, 1426*c*.

—, 2-chloro-4,6-bis(dimethylamino)-, 1426*d*.

—, 2-chloro-4,6-bis(ethylamino)-, 1426*d*.

$C_7H_{12}ClN_3O$ Ethanol, 2-[(4-amino-6-chloro-*s*-triazin-2-yl)ethylamino]-, 1426*d*.

$C_7H_{12}Cl_2$ Cyclohexane, 1-chloro-2-(chloromethyl)-, 588*i*.

1-Hexene, 4,6-dichloro-4-methyl-, P 7496*i*.

$C_7H_{12}Cl_2O$ Ether, chloroethyl chloropentenyl, 9025*g*.

2-Pentanone, 5-chloro-4-(chloromethyl)-4-methyl-, 2157*h*.

$C_7H_{12}Cl_2S_2$ Ethane, 1-(3-chloroallylmercapto)-2-(2-chloroethylmercapto)-, 2928*b*

$C_7H_{12}Cl_3N$ Allylamine, 2-chloro-*N*, *N*-bis(2-chloroethyl)-, 5505*c*.

$C_7H_{12}Cl_3NO_2$ Carbamic acid, 2,2′,2″-trichloro-*tert*-butyl-, Et ester, 2945*i*.

$C_7H_{13}Cl_3$ Heptane, 1,1,1,7-tetrachloro-, 109*g*.

$C_7H_{12}I_2$ Cyclohexane, 1-iodo-4-(iodomethyl)-, 7436*i*.

$C_7H_{12}N_2$ Butyronitrile, β-(allylamino)-, P 2226*h*.

3-Piperidineacetonitrile, 4415*i*.

Propionitrile, β-(2-methylallylimino)-, P 2226*h*.

$C_7H_{12}N_2O$ Acetamide, *N*-(2-cyanoisopropyl)-*N*-methyl-, 4263*d*

Acetamide, *N*-(1-cyano-1-methylpropyl)-, 8381*b*.

Imidazolemethanol, 1-isopropyl-, 8382*a*.

3-Pyrazolone, isopropylmethyl-, 7934*ch*.

—, 5-methyl-2-propyl-, 7934*e*

$C_7H_{12}N_2OS$ Hydantoin, 5-butyl-2-thio-, 6341

Hydantoin, 5-*sec*-butyl-2-thio-, 6341.

—, 5-isobutyl-2-thio-, 6341.

4(1*H*)-Pyrimidone, 2,3-dihydro-3,6-dimethyl-2-methylmercapto-, 6081*d*

$C_7H_{12}N_2O_2$ Acrylamide, *N*-(2-acetamidoethyl)-, P 9531*d*.

Hydantoin, 5,5-diethyl-, 1322*i*.

Piperidine, 1-(2-nitrovinyl)-, 1003*i*.

$C_7H_{12}N_2O_3$ Hydantoin, 5-(4-hydroxybutyl)-, 835*ba*.

Morpholine, 4-(1-nitropropenyl)-, 1003*i*.

Proline, 1-glycyl-, 1448*d*, 9148*e*.

$C_7H_{12}N_2O_2S_2$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-butyl-3-thio-, 1,1-dioxide, P 4868*d*.

1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 2,4-diethyl-3-thio-, 1,1-dioxide, P 4868*d*.

$C_7H_{12}N_2O_4$ Hydrouracil, 1,3-bis(hydroxymethyl)-6-methyl-, 5996*b*.

$C_7H_{12}N_2O_4S$ 1,2,3,4-Butanetetrol, 1-(2-mercapto-4-imidazolyl)-, 2988*i*.

1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 2,4-diethyl-, 1,1-dioxide, P 4868*d*.

$C_7H_{12}N_2O_5S_2$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-(2-ethoxyethyl)-3-thio-, 1,1-dioxide, P 4868*d*.

$C_7H_{12}N_2O_5$ Asparagine, *Nβ*-(1-carboxyethyl)-, 6266*f*.

Glutamine, *N*-(carboxymethyl)-, 6978*i*.

$C_7H_{12}N_2O_4S$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-(2-ethoxyethyl)-, 1,1-dioxide, P 4868*d*.

$C_7H_{12}N_2S$ 2(3*H*)-Imidazolethione, 4-*tert*-butyl-, 635*c*.

2(3*H*)-Imidazolethione, 4-isobutyl-, 634*i*.

Thiazole, 2-amino-4-butyl-, *and* -*HCl*, 4263*e*.

—, 2-(1-aminoisopropyl)-4-methyl-, *and di*-*HCl*, 4263*d*.

—, 2-(2-aminopropyl)-4-methyl-, *and di*-*HCl*, 4263*b*

$C_7H_{12}N_2S_2$ Hydantoin, 5,5-diethyldithio-, 7586*a*.

4-Imidazole, 4,4-dimethyl-2,5-bis(methylmercapto)-, 6171*f*.

2-Thiazolidinethione, 4-ethyl-5-imino-3,4-dimethyl-, 1766*c*.

$C_7H_{12}N_2O_4Sb$ Urea, stibamine, 9266*g*.

$C_7H_{12}N_4$ 5*H*-Azepotetrazole, 6,7,8,9-tetrahydromethyl-, P 2239*h*.

1-Piperidinecarboxamidine, *N*-cyano-, P 2636*c*, 2947*c*.

$C_7H_{12}N_4O$ Imidazolecarboxylic acid, 1-isopropyl-, hydrazide, 8381*g*.

4-Pyrimidol, 5-amino-2-dimethylamino-6-methyl-, 3423*h*.

2,4,6-Triazinol, 4-isopropylamino-4-methyl-, 1405*e*.

$C_7H_{12}N_4OS$ 4(3*H*)-Pyrimidone, 5,6-diamino-2-(ethylmercapto)-3-methyl-, 3010*b*.

$C_7H_{12}N_4O_2$ Methanol, [methylenebis(nitroimino)]di-, diacetate, 9075*c*.

$C_7H_{12}N_4S$ 5-Imidazolecarboxamide, *N*,1-dimethyl-4-methylaminothio-, *and salts*, 3794*d*.

$C_7H_{12}N_4O_4$ Acrylic acid, β-hydroxy-, Et ester, compd. with NaOEt, 5745*a*.

$C_7H_{12}O$ (See also *Cyclohexanone, methyl-*.)

Cycloheptanone, 2176*a*, 7906*i*, 8358*g*.

Cyclohexanecarboxaldehyde, 2993*c*, P 4685*f*, 8359*h*.

Cyclohexanol, 2-methylene-, 589*a*.

Cyclohexenecarboxaldehyde, P 4287*c*.

3-Cyclohexene-1-methanol, P 5416*h*.

3-Cyclohexen-1-ol, 4-methyl-, 7417*b*.

Cyclopentanone, 2,3-dimethyl-, 7911*f*.

Ether, ethyl 3-methyl-1-butynyl, 2158*h*.

Furan, 3-allyltetrahydro-, 3818*e*.

3-Hepten-2-one, 6166*d*.

Heptynol, 6571*fg*.

Hexadienol, methyl-, 112*a*.

Hexenone, methyl-, P 1056*b*, 2161*b*.

Hexyn-3-ol, 3-methyl-, 1333*d*, 6153*f*.

Ketone, cyclopentyl methyl, 7431*i*.

2-Norcamphanol, P 689*h*.

7-Oxabicyclo[4.1.0]heptane, 3-methyl-, 7420*f*.

2-Pentanone, 4-methyl-3-methylene, P 6458*c*.

1-Pentyn-3-ol, 3,4-dimethyl-, 3376*a*.

2*H*-Pyran, 5,6-dihydro-2,4-dimethyl-, 3412*a*.

$C_7H_{12}OS$ 1-Hexen-3-one, 5-mercapto-5-methyl-, 2944*i*.

1,4-Thiapyrone, tetrahydro-2,2-dimethyl-, 2163*g*, 2944*h*.

$C_7H_{12}O_2$ Acrylic acid, Bu ester, P 5417*b*.

3-Butenoic acid, Pr ester, 2591*e*.

—, 3-methyl-, Et ester, P 1055*h*, P 1056*ac*.

Butenol, 2-(allyloxy)-, 5741*g*.

—, 4-methyl-, acetate, 111*h*, 114*d*, P 7953*i*.

3-Butyn-2-ol, 4-ethoxy-2-methyl-, 2570*i*.

Butyric acid, allyl ester, 2591*f*, isopropenyl ester, P 7038*e*.

Caproic acid, δ-hydroxy-β-methyl-, δ-lactone, 6166*a*.

Crotonic acid, Pr ester, 2591*f*.

—, methoxy-, Et ester, 9334*c*.

Cyclobutanecarboxylic acid, Et ester, 2955*e*.

Cyclohexanecarboxylic acid, 4708*c*, 6203*b*.

Cyclohexanol, formate, 2955*i*.

Cyclohexanone, 2-methoxy-, 2966*c*.

Cyclopentanol, acetate, 2955*h*.

Cyclopropanecarboxylic acid, Pr ester, 2955*e*.

Enanthic acid, ζ-hydroxy-, ζ-lactone, 8358*h*.

3(2*H*)-Furanone, 4,5-dihydro-2,2,5-trimethyl-, 2161*f*

Heptanedione, P 677*i*, 2173*f*, P 4689*d*.

2,4-Hexanedione, 5-methyl-, 7343*d*.

3-Hexyne-2,5-diol, 2161*g*.

Methacrylic acid, Pr ester, P 5641*e*.

3-Pentanone, 2,4-epoxy-2,4-dimethyl-, 1393*a*.

2-Pentenoic acid, Et ester, 8376*h*.

4-Pentyne-2,3-diol, 2,3-dimethyl-, 3358*g*.

1-Pentyn-3-ol, 5-methoxy-3-methyl-, 1339*b*.

Pivalic acid, vinyl ester, P 9528*e*.

Propiolaldehyde, di-Et acetal, P 1813*f*, P 2637*h*, 6620*e*.

Pyrone, tetrahydrodimethyl-, 2161*fi*, 4401*g*.

Senecioic acid, Et ester, P 5414*i*.

Valeric acid, vinyl ester, P 7036*i*.

$C_7H_{12}O_2S$ Acetic acid, (allylmercapto)-, Et ester, 3365*d*.

Acetic acid, (3-methyl-2-butenylmercapto)-, 3364*i*.

$C_7H_{12}O_2S_2$ 1,3-Dithiolane-4-carboxylic acid, 2,2-dimethyl-, Me ester, 3783*h*.

Thiophene 3-(allylmercapto)tetrahydro-, 1,1-dioxide, P 3851*h*.

$C_7H_{12}O_3$ Acetic acid, (allyloxy)-, Et ester, 7424*b*.

Acetoacetic acid, Pr ester, 2945*a*.

—, α-methyl-, Et ester, 4574*h*.

Acrylic acid, β-ethoxy-, Et ester, 6167*h*.

3-Butenoic acid, 2-ethoxy-3-methyl-, 6975*d*.

3-Butenol, methoxy-, acetate, 6157*ef*.

Butyric acid, β-methoxy-, vinyl ester, P 7753*g*.

Caproic acid, methyl-δ-oxo-, 2173*f*, 6161*c*.

—, β-oxo-, Me ester, 1405*b*.

Cyclohexanecarboxylic acid, hydroxy-, 588*g*, 7436*i*.

1,2-Cyclopentanediol, 1-methyl-, formate, 2172*d*.

Enanthic acid, oxo-, 2173*f*, 2174*g*, 3792*b*.

Furan, 2,5-dihydro-2,5-dimethoxy-2-methyl-, P 7970*b*.

2-Furoic acid, tetrahydro-2,5-dimethyl-, 5736*d*.

Furfuryl alcohol, tetrahydro-, acetate, 9365*c*.

5-Hexenoic acid, 2-hydroxy-2-methyl-, 5736*c*.

Homolevulinic acid, β-methyl-, 6623*h*.

Isovaleric acid, α,β-epoxy-, Et ester, 7421*c*.

Levulinic acid, Et ester, P 1436*c*.

Methacrylic acid, 2-methoxyethyl ester, P 5036*b*.

2,4-Pentanedione, 1-ethoxy-, 1008*i*.

Propionic acid, β-(allyloxy)-, Me ester, 2272*b*.

Pyran-?-ol, tetrahydro-, acetate, P 1443*a*.

Senecioic acid, α-ethoxy-, 6975*d*.

Thevetal, 1729*e*.

Valeric acid, α,γ-dihydroxy-β,β-dimethyl-, γ-lactone, 722*f*.

—, α-ethoxy-γ-hydroxy-, γ-lactone, 2168*f*.

—, α-hydroxy-β-(hydroxymethyl)-β-methyl-, γ-lactone, 4225*h*.

$C_7H_{12}O_2S_2$ 1-Propanol, 2,3-dimercapto-, diacetate, 9250*i*.

$C_7H_{12}O_4$ (See also *Pimelic acid*.)

Adipic acid, mono-Me ester, 7303*b*.

—, β-methyl-, 2173*f*, 8803*g*.

Glutaric acid, di-Me ester, 2590*e*.

—, β-methyl-, Me ester, 3781*f*.

Hydracrylic acid, Et ester, acetate, P 1053*e*, 4639*g*.

Lactic acid, butyrate, P 676*h*.

Levulinic acid, α-methoxy-, Me ester, 2168*i*.

Malonic acid, di-Et ester, 454*h*, 572*d*, 577*f*, 1047*a*, P 1601*d*, P 3031*a*, 4239*b*, P 4689*g*, P 6665*a*, 6980*b*, 7432*i*, 7433*h*, 9034*f*, P 9475*i*, P 9520*c*.

Oleandronic acid, lactone, 1729*f*.

Propanediol, diacetate, 4574*h*, 5367*d*, P 7503*h*.

Succinic acid, mono-Pr ester, 7303*b*.

—, propyl-, 5069*i*.

—, trimethyl-, 2168*b*.

$C_7H_{12}O_4$ Adipic acid, β-methoxy-, 4228*d*.

Arabonic acid, 3,5-dimethyl-, lactone, 583*e*, 585*a*, 586*a*.

Succinic acid, α-methoxy-α-methyl-, Me ester, P 2635*h*.

$C_7H_{12}O_5$ Malonic acid, dihydroxy-, di-Et ester, 193*c*.

$C_7H_{12}O_6S_2$ *p*-Dithiane-2-methanol, 1,1,4,4-tetroxide, acetate, 7030*f*.

$C_7H_{12}O_7$ Galacturonide, methyl-, 2126*b*.

Gluconic acid, keto-, Me ester, *and salts*, 1690*c*.

Gulonic acid, keto-, Me ester, P 5415*g*.

$C_7H_{12}S$ 7-Thiabicyclo[4.1.0]heptane, 3-methyl-, 7420*df*.

$C_7H_{12}SSi$ Thiophene, 2-(trimethylsilyl)-, 8366*e*.

$C_7H_{13}Br$ Cyclohexane, 1-bromomethyl-, 7283*i*.

2-Pentene, 4-bromo-2,4-dimethyl-, 3344*h*.

$C_7H_{13}BrN_2O_2$ Carbromal, 3147*i*, 8429*h*.

$C_7H_{13}BrN_2S$ Urea, 1-(2-bromoallyl)-3-isopropyl-2-thio-, 1016*d*.

Urea, 1-(2-bromoallyl)-3-propyl-2-thio-, 1016*c*.

$C_7H_{13}BrO$ Cyclohexanecarboxaldehyde, 1-bromo-2-methyl-, 8360*c*.

Ether, 2-bromo-3-methylbutenyl ethyl, 2158*g*, 5363*a*.

—, 1-(bromomethyl)-3-butenyl ethyl, 7898*h*.

Furan, 5-(bromomethyl)tetrahydro-2,2-dimethyl-, 5735*g*.

$C_7H_{13}BrO_2$ 2*H*-Pyran, 2-(2-bromoethoxy)-tetrahydro-, 2203*i*.

Valeric acid, α-bromo-β-ethyl-, 2581*d*.

—, δ-bromo-, Et ester, 5375*c*.

$C_7H_{13}BrO_3$ Butyric acid, α-bromo-β-methoxy-, Et ester, 4224*g*.

1,2-Propanediol, 3-(1-bromo-2-methylallyloxy)-, 311*h*.

$C_7H_{12}Br_2ClO$ 3-Hexanol, 5,6-dibromo-1-chloro-3-methyl-, P 7497*g*.

$C_7H_{12}Br_4$ Butane, 1-bromo-2,2-bis(bromomethyl)-3-methyl-, 3369*h*.

$C_7H_{13}Cl$ Cyclohexane, 1-chloromethyl-, 2173*h*, 3371*i*.

1-Heptene, 1-chloro-, 9024*h*.

Hexene, chloromethyl-, 114*i*, 5736*e*.

$C_7H_{13}ClN_2$ Piperidine, 1-(2-chloro-1-iminoethyl)-, -*HCl*, P 7050*c*.

$C_7H_{13}ClN_4$ 1*H*-Tetrazole, 5-(chloromethyl)-1-isoamyl-, P 7971*f*.

**$C_7H_{13}ClO$** Cycloheptanol, 2-chloro-, 2966*c*.
Cyclohexanemethanol, 2-chloro-, 589*a*.
Cyclohexanol, 4-(chloromethyl)-, 7436*h*
Ether, 2-chloro-3-methyl-2-butenyl ethyl, 5362*f*.
—, chloropentenyl ethyl, 6508*a*, 9025*f*.
Heptanone, chloro-, 633*g*, 2936*g*.
5-Hexen-3-ol, 1-chloro-3-methyl-, P 7497*i*.
3-Pentanone, 2-chloro-2,4-dimethyl-, 2936*g*.

**$C_7H_{13}ClOS_2$** Ethanol, 2-[2-(3-chloroallylmercapto)ethylmercapto]-, 2928*b*.

**$C_7H_{13}ClO_2$** Acetaldehyde, allyl 2-chloroethyl acetal, P 6650*a*.
1-Butene, 1-chloro-3,4-dimethoxy-2-methyl-, 5362*h*.
1-Pentanol, 5-chloro-, acetate, 3792*f*, 6571*e*.
2*H*-Pyran, 3-chloro-2-ethoxytetrahydro-, 5774*i*.

**$C_7H_{13}Cl_2N$** Allylamine, *N*,*N*-bis(2-chloroethyl)-, 5505*a*.

**$C_7H_{13}Cl_2NO$** Acetamide, *N*-amyl-α,α-dichloro-, 1720*b*.
Acetamide, α,α-dichloro-*N*-1-methylbutyl-, 1720*c*.

**$C_7H_{13}Cl_2NO_2$** Carbamic acid, bis(2-chloroethyl), Et ester, 3107*d*, 7422*i*.

**$C_7H_{13}Cl_3O_2$** Propane, 2-chloro-1,3-bis(2-chloroethoxy), P 9358*e*.

**$C_7H_{13}Cl_3O_3$** Orthobutyric acid, γ,γ,γ-trichloro, tri Me ester, 3360*c*.
Orthoformic acid, tris(2-chloroethyl) ester, 1720*e*.

**$C_7H_{13}F_3O_3$** Orthoformic acid, tris(2-fluoroethyl) ester, 8841*b*.

**$C_7H_{13}IN_2S$** (5,5 Dimethyl-4-methylmercapto-3-imidazolin-2-ylidene)-methylsulfonium iodide, 6171*f*.

**$C_7H_{13}IOS$** Dimethyl(3-oxo-1-pentenyl)sulfonium iodide, 7433*i*.

**$C_7H_{13}IO_2$** Valeric acid, δ-iodo α-methyl-, Me ester, 7901*f*.

**$C_7H_{13}N$** Butyronitrile, α,α,β-trimethyl-, P 3439*i*.
Enanthonitrile, 2592*b*
3*H*-Pyrrolo[1,2-*a*]pyrrole, hexahydro-, 214*h*, 2988*d*.
Quinuclidine, 3422*c*,*f*

**$C_7H_{13}NO$** Acrylamide, *N*-butyl-, P 672*f*, P 5413*a*.
Acrylamide, *N*,*N*-diethyl-, 3358*g*.
—, *N*-isopropyl-α-methyl-, P 435*a*.
Cycloheptanone, oxime, 5400*c*.
Cyclohexanecarboxamide, 4233*a*.
Ethanol, 2-(1-cyclopenten-1-ylamino)-, P 7844*g*.
Formanilide, *N*-cyclohexyl-, 576*a*
Heptamethylenimine, 2-oxo-, 5400*c*.
Hexamethylenimine, methyloxo-, 2176*d*, 2593*i*.
Ketone, aminomethyl cyclopentyl, -*HCl*, 635*b*.
3-Penten-2-one, 4-amino-1-ethoxy-, P 3470*d*.
Piperidine, 1-acetyl-, 124*a*, P 4515*h*.
Piperidone, dimethyl-, 2959*b*
—, 1-ethyl-, 7432*c*, -*HCl*, 6207*a*.
3-Pyridinemethanol, 1,2,5,6-tetrahydr-1-methyl-, 2582*b*.

**$C_7H_{13}NO_2$** (See also *Stachydrine*.)
5-Heptenoic acid, 2-amino-, 574*e*.
Hexamethylenimine, 1-(hydroxymethyl)-2-oxo-, 2176*d*.
3-Penten-2-one, 4-amino-1-ethoxy-, P 677*g*.
Proline, Et ester, 1723*d*.

**$C_7H_{13}NO_2S$** Acetamide, α-(allylmercapto)-*N*-2-hydroxyethyl-, 2271*g*, 3365*e*
Acetic acid, 1-piperidylmercapto-, 2934*e*
4-Thiazolidinecarboxylic acid, 5,5-dimethyl-, Me ester, -*HCl*, 4668*b*.
—, 2-ethyl-2-methyl-, 4271*i*.

**$C_7H_{13}NO_3$** Acetamide, α-(allyloxy)-*N*-2-hydroxyethyl-, 3364*f*.
β-Alanine, *N*-formyl-*N*-methyl-, Et ester, 575*i*.
Glycine, *N*-butyryl-, Me ester, P 3030*b*.
—, *N*-formyl-*N*-isopropyl-, Me ester, 3411*b*.
Isobutyramide, α-hydroxy-*N*-methyl-, acetate-, 3358*e*.
4-Morpholinecarboxylic acid, Et ester, 3107*d*.
Norvaline, *N*-acetyl-, P 7956*e*.
Orthopropionic acid, β-cyano-, tri-Me ester, 3380*b*.
Propionic acid, β-ethoxy-β-imino-, Et ester, -*HCl*, 3359*i*.
Succinamic acid, *N*-ethyl-*N*-methyl-, P 5038*a*.
Valeric acid, α-oxo-, Et ester oxime, 1746*e*, 2276*e*.
Valine, *N*-acetyl-, 2269*h*.

**$C_7H_{13}NO_3S$** Acetamide, α-(allylsulfinyl)-*N*-2-hydroxyethyl-, 2272*a*.
Acetamide, α-(2,3-epoxypropylmercapto)-*N*-2-hydroxyethyl-, 3365*e*.
Valine, *N*-acetyl-β-mercapto-, 8802*f*.

**$C_7H_{13}NO_4$** Aspartic acid, α-propyl-, 1323*b*.
Caproic acid, γ-nitro-, Me ester, 1319*g*
Glutamic acid, di-Me ester, *and* -*HCl*, 7425*h*.
Isocaproic acid, γ-nitro-, Me ester, 1319*g*.
Isovaleric acid, γ-nitro-, Et ester, 5775*i*.
Pimelic acid, α-amino-, 3499*i*.
Threonine, *N*-acetyl-, Me ester, 4225*g*.

**$C_7H_{13}NO_4S$** Acetamide, α-(allylsulfonyl)-*N*-2-hydroxyethyl-, 2272*b*.
3-Thiophenecarbamic acid, tetrahydro-2-methyl-, 1,1-dioxide, Me ester, P 6668*e*.

**$C_7H_{13}NO_5$** β-Alanine, Et ester, oxalate, 576*b*.

**$C_7H_{13}NS$** Hexamethylenimine, 1-methyl-2-thioxo-, 8735*i*.

**$C_7H_{13}N_3O$** Ketone, methyl 1-methylcyclopropyl(?), semicarbazone, 2158*a*.
Mesityl oxide, semicarbazone, 1017*d*.

**$C_7H_{13}N_3O_2$** Hydrazine, (1-piperidylglyoxyl)-, 5369*h*.
Urea, (1-piperidylcarbonyl)-, 5369*g*.

**$C_7H_{13}N_3O_3$** Acetoacetic acid, Et ester semicarbazone, 2604*g*
2-Butanone, 1-hydroxy-, semicarbazone, acetate, 3791*d*.

**$C_7H_{13}N_3O_4$** β-Alanine, *N*-(*N*-glycylglycyl)-, 1448*e*, 9114*e*
Asparagine, $N^{\alpha}$-glycyl-, Me ester, 4643*c*.
Glycine, *N*-(*N*-β-alanylglycyl)-, 1448*e*.
—, *N*-(*N*-glycyl β-alanyl)-, 1448*e*, 9113*h*.

**$C_7H_{13}N_3O_4S_2$** Allophanic acid, ester with α-[(1-hydroxyethyl)dithiopropionamide, 2945*d*

**$C_7H_{13}N_3O_5S_2$** Allophanic acid, ester with the monocarbamate of 1,1′-dithiodiethanol, 2945*d*

**$C_7H_{13}N_3S$** Pseudourea, 1-butyl-3-cyano-2-methyl-2-thio-, 2947*c*.
Pseudourea, 3-cyano-1-isobutyl-2-methyl-2-thio-, 2947*c*.
Thiazole, 2,4-bis(2-aminoethyl)-, 3520*h*

**$C_7H_{13}N_3$** Pyrimidine, 2-amino-4-(3-aminopropylamino)-, P 4704*g*
*s*-Triazine, 2-amino-4-butylamino-, P 6246*i*

**$C_7H_{13}N_3O$** *s*-Triazine, 2-amino-4-methoxy-6-propylamino, 4269*c*.
*s*-Triazine, 2,4-diamino-6-(2-methoxyisopropyl)-, P 3854*h*
—, 2,4-diamino-6-(3-methoxypropyl)-, P 3854*i*.
—, 2-dimethylamino-4-methoxy-6-methylamino, 4269*f*.

**$C_7H_{13}N_3O_6$** 1,3,5,1*H*-Triazepine-3(2*H*)-methanol, tetrahydro-1,5-dinitro-, acetate, 9074*b*.

**$C_7H_{13}N_3S$** *s*-Triazine, 2,4-diamino-6-(butylmercapto)-, P 1444*e*
*s*-Triazine, 2,4-diamino-6-(*sec* butylmercapto)-, P 1444*e*
, 2,4-diamino-6-(isobutylmercapto)-, P 1444*e*.

**$C_7H_{13}N_7O_7$** 1,3,5,7-Tetrazocine, octahydro-1,3,5-trinitro-7-propionyl-, 9075*e*.

**$C_7H_{13}NaO_3$** $+6H_2O$ Hydroperoxide, 1-methylcyclohexyl, Na deriv., 6189*f*.

**$C_7H_{14}$** (See also *Cyclohexane, methyl-*; *Cyclopentane, dimethyl-*; *Heptene*.)
1-Butene, 2,3,3-trimethyl-, P 1432*e*.
Cyclobutane, isopropyl-, 3370*a*.
Cycloheptane, 157*g*, 2956*a*.
Cyclopentane, ethyl-, 157*f*, P 3670*f*, 4453*g*, 4573*g*, 5275*h*, 7916*e*, 8890*b*.
Cyclopropane, 1-isopropyl-1-methyl-, 3370*a*.
2-Hexene, 2-methyl-, 4061*g*, 6062*f*.
2-Pentene, 3-ethyl-, 9027*h*.

**$C_7H_{14}BrNO$** Acetamide, *N*-amyl-α-bromo-, 5081*h*.
Acetamide, *N*-*sec*-amyl-α-bromo-, 5081*h*.

**$C_7H_{14}BrNO_2$** Butyramide, α-bromo-β-methoxy-*N*,*N*-dimethyl-, 4224*h*.

**$C_7H_{14}Br_2O$** Ether, butyl 2,3-dibromopropyl, 2159*d*.
Ether, 1,2-dibromoisoamyl ethyl, 2158*d*.

**$C_7H_{14}Br_2O_2$** Pentane, 1,5-dibromo-2,4-dimethoxy-, 2208*h*.
Propionaldehyde, dibromo-, di-Et acetal, 2575*i*, 6620*d*.

**$C_7H_{14}ClN$** Cyclohexanemethylamine, 2-chloro-, 588*h*.
Piperidine, 3-chloro-1-ethyl-, *and* -*HCl*, 227*c*.
—, 1-(2-chloroethyl)-, -*HCl*, 1861*d*.
Pyrrolidine, 2-(chloromethyl)-1-ethyl-, *and* -*HCl*, 227*c*.
—, 1-(2-chloropropyl)-, 4243*f*; *and* -*HCl*, 631*e*.

**$C_7H_{14}ClNO$** Acetamide, *N*-*tert*-amyl-α-chloro-, 2165*d*.
Carbamyl chloride, diisopropyl-, P 6245*c*
Morpholine, 4-(2-chloroisopropyl)-, *and* -*HCl*, 9054*b*.
—, 4-(2-chloropropyl)-, 4243*d*; *and* -*HCl*, 9054*c*.

**$C_7H_{14}ClN_3S_2$** Urea, thio-, compd. with pyridine-HCl, 4044*i*.

**$C_7H_{14}Cl_2$** Heptane, 1,2-dichloro-, P 5788*h*.
Pentane, 1,2-dichloro-4,4-dimethyl-, P 4681*i*.

**$C_7H_{14}Cl_2N$** Propylamine, 3-chloro-*N*,*N*-bis(2-chloroethyl)-, 5505*c*, 7422*d*.
Propylamine, 3,3,3-trichloro-*N*,*N*-diethyl-, -*HCl*, 1861*e*.

**$C_7H_{14}F_2$** Heptane, 2,2-difluoro-, 2157*b*.

**$C_7H_{14}IN$** Piperidine, 4-(2-iodoethyl)-, -*HI*, 3422*g*

**$C_7H_{14}INO$** 1,1-Dimethyl-4-oxopiperidinium iodide, 3408*d*, 7432*c*.

**$C_7H_{14}INO_2$** 1*H*-Oxazolo[3,4-*c*]oxazole 7a(7*H*)-methanol, 3,5-dihydro-, methiodide, 2936*f*.

**$C_7H_{14}N_2$** Cyclohexanone, methylhydrazone, 6591*i*.
2-Imidazoline, ethyldimethyl-, 8381*c*.
Propionitrile, α-diethylamino-, P 254*i*
—, β-isobutylamino-, 1776*b*.

**$C_7H_{14}N_2O$** Cyclohexanecarboxylic acid, hydrazide, 4232*i*.
Morpholine, 4-*N*-methylacetimido-, 2594*c*
Oxazolidine, 3-butyl-2-imino-, *and* -*HCl*, P 252*c*.
Propionitrile, β-(2-hydroxyisobutylamino)-, 1776*c*.
Urea, cyclohexyl-, 4233*a*.
Valeronitrile, α-(2-hydroxyethylamino)-, 4415*e*

**$C_7H_{14}N_2OS$** Butyramide, β-*N*-methylacetamidothio-, 4263*d*.

**$C_7H_{14}N_2O_2$** Acetamide, *N*,*N*-dimethyl-α-methylacetamido-, P 248*i*, P 4291*d*
Malonimidic acid, di-Et ester, *di*-*HCl*, 3359*i*.
2-Pentanone, 4-methyl-4-(methylnitrosoamino)-, 5762*i*.
Pimelamide, 4667*c*.
Propionamide, *N*,*N*′-methylenebis-, 657*e*.
Propionimidic acid, α-acetamido-, Et ester, -*HCl*, P 673*c*.
Propionitrile, β-[bis(2-hydroxyethyl-amino)-, 8733*d*.
Urea, 1-butyryl-3-ethyl-, 6162*h*.
—, α,β-dimethylbutyryl-, 2169*e*.
—, isocaproyl-, 2169*d*.
—, (β-methylvaleryl)-, 2169*d*

**$C_7H_{14}N_2O_2$** Carbamic acid, butylnitroso-, Et ester, 4653*a*.

**$C_7H_{14}N_2O_4$** Butyric acid, α-amino-γ-(1-carboxyethylamino)-, 7933*h*.
1,3,5,4*H*-Oxadiazin-4-one, tetrahydro-3,5-bis(methoxymethyl)-, P 3167*a*

**$C_7H_{14}N_2O_4S$** Cystathionine, 2666*b*.

**$C_7H_{14}N_2O_4S_2$** Djenkolic acid, 2666*b*.

**$C_7H_{14}N_2O_5$** Glutaramide, *xylo*-hydroxydimethoxy-, 5589*c*.

**$C_7H_{14}N_2S$** Pseudourea, 2-(1-methylcyclopentyl)-2-thio-, -*HCl*, 2171*h*.
Thiocyanic acid, cyclohexylamine salt, 578*g*.

**$C_7H_{14}N_2S_2$** Pimelamide, dithio-, 4667*c*.

**$C_7H_{14}N_4$** Guanidine, 1-amyl-3-cyano-, 2947*c*
Guanidine, 2-butyl-1-cyano-3-methyl-, 2949*g*.
—, 1-cyano-3-ethyl-2-isopropyl-, 2949*f*
*s*-Triazole, 4-(2-isopropylaminoethyl)-, 6621*c*.

**$C_7H_{14}N_4O_2$** Guanidine, 1-cyclohexyl-3-nitro-, 9035*f*.

**$C_7H_{14}N_4O_2S$** 3,4-Thiophenedicarboxylic acid, tetrahydro-2-methyl-, dihydrazide, P 7970*g*.
Thiophene, tetrahydro-2-methyl-3,4-diureido-, P 7970*f*.

**$C_7H_{14}N_4O_2S$** 1,2,6(4*H*)-Thiadiazine, 3,5-bis[bis(hydroxymethyl)amino]-, 1,1-dioxide, P 9528*a*.

**$C_7H_{14}N_4O$** Guanidine, cyano-, compd. with acetone, *di*-*HCl*, P 1069*a*.

**$C_7H_{14}N_4O_6$** *s*-Triazine, 1,1′-methylenebis[hexahydro-3,5-dinitro-, 9074*e*.

**$C_7H_{14}O$** (See also *Enanthaldehyde*; *Heptanone*.)
Butyrone, 1817*g*, 2589*h*, P 2633*b*, 3715*f*, P 5791*h*, 6170*i*.
Cyclohexanol, methyl-, 164*i*, 1867*f*, 2961*b*.
Cyclopentanemethanol, methyl-, 2961*c*.
Ether, cyclohexyl methyl, 2956*i*.

—, cyclopentyl ethyl, 2955*h*.
—, isoamyl vinyl, 455*i*, 6576*f*.
—, methyl 1-methylcyclopentyl, 2172*f*.
—, methyl 3-methyl-2-pentenyl, 113*f*.
—, methyl 1-methyl-1-vinylpropyl, 113*f*.
Furan, tetrahydro-3-propyl-, 3819*a*.
3-Hexanone, methyl-, 2163*i*, 2926*a*, 2944*h*.
Hexenol, methyl-, 114*h*, 5735*c*, 6970*c*.
Pentanone, dimethyl-, 111*c*, 1309*d*, 1310*g*, 3715*g*, 4212*i*, 6016*d*, 6170*i*.
Pyran, tetrahydro-2,4-dimethyl-, 3412*b*.

**$C_7H_{14}O_2$** (See also *Enanthic acid.*)
Acetic acid, Am ester, 466*a*, P 2221*d*, 2451*d*, 2926*a*, P 4963*f*, P 5188*a*, 5249*g*, 6495*f*, 7377*i*, 8835*f*; *tert*-Am ester, P 7951*g*; iso-Am ester, 127*g*, 1656*c*, 2834*b*, 454*b*.
Acrolein, di-Et acetal, P 5035*h*.
2 Butanone, 4 isopropoxy-, 1339*a*
Butyric acid, iso-Pr ester, 1656*c*; Pr ester, 2590*d*, 2834*b*.
, α,α,β-trimethyl-, 1312*i*.
Caproic acid, Me ester, 1656*d*, 2164*i*, 2590*d*.
–, β-methyl-, 6161*c*.
1,2 Cyclohexanediol, 3 methyl-, 2173*d*.
Cyclohexanemethanol, hydroxy-, 588*h*, 7436*c*
1,2-Cyclopentanediol, 3-ethyl-, 2173*d*
1,3-Dioxolane, 1,2,4,5-tetramethyl-, 1320*i*.
Enanthaldehyde, α-hydroxy-, 3790*i*
2-Heptanone, hydroxy-, 131*h*, 3791*b*, 6190*f*.
3-Hexanone, 2-hydroxy-2-methyl-, 2944*dg*.
, 4-methoxy-, 6974*g*
Hydroperoxide, 1-methylcyclohexyl, 6189*f*.
Isobutyric acid, iso-Pr ester, 1656*d*, Pr ester, 1656*d*
Isovaleric acid, Et ester, 1656*d*, 2590*d*, 2834*b*
, α-ethyl-, P 662*g*
2-Pentanone, 5-ethoxy-, 1338*d*
2-Pentene, 1,5-dimethoxy-, 5737*e*.
Pivalic acid, Et ester, 1111*c*, 2944*c*.
Propionic acid, Bu ester, 1656*c*, 2370*i*, P 2655*i*, 2834*b*, P 7501*f*, 8779*g*, *tert*-Bu ester, 1633*c*, iso-Bu ester, 1656*c*, 2370*i*, 2834*b*
Pyran, tetrahydro-2-methoxy-2-methyl-, 6190*f*
Valeric acid, Et ester, 2590*d*
, 2,3-dimethyl-, P 7501*d*
, α-ethyl-, 3774*e*

**$C_7H_{14}OS$** Acetic acid, (amylmercapto)-, 339*a*
Acetic acid, (isoamylmercapto)-, 3364*a*.
Propionic acid, β-(*tert*-butylmercapto)-, P 1054*f*
, β-(ethylmercapto)-, Et ester, 1321*e*

**$C_7H_{14}O_2S_2$** 1 Propanol, 2,3-dimercapto-, 1-formate, 3783*g*

**$C_7H_{14}O_3$** Acetic acid, ethoxy-, iso-Pr ester, 4248*f*
Butanol, methoxy-, acetate, 8697*i*.
Enanthic acid, α-hydroxy-, 3791*b*.
Ethanol, 1-propoxy-, acetate, 6576*e*.
Formic acid, 1-butoxyethyl ester, 3786*a*, 7125*a*
Hydracrylic acid, Bu ester, 4639*f*, 6495*g*, 8779*g*
Isovaleric acid, α-ethoxy-, 6975*d*.
–, β-hydroxy-, Et ester, 2570*i*.
Lactic acid, Bu ester, 6495*f*, 8779*g*; iso-Bu ester, 6495*f*, *tert*-Bu ester, 6495*f*, iso-Bu ester, 6495*f*.
Methanol, butoxy-, acetate, 6161*i*.
2 Pentanone, 3,4-dihydroxy-3,4-dimethyl-, 3358*h*.
1,2-Propanediol, 3-(2 methylallyloxy)-, 3115*h*
Propionic acid, 1-ethoxyethyl ester, 6576*e*.
, α-butoxy-, *and Bi salt*, 2488*i*.
, ethoxy-, Et ester, 1322*g*, P 3442*g*, 4248*e*, P 9087*c*.
Pyran-3,4-diol, tetrahydro-2,4-dimethyl-, 3412*a*.
Valeric acid, δ-hydroxy-, Et ester, 2176*a*, 5375*b*.

**$C_7H_{14}O_3S$** 2-Propanone, (butylsulfonyl)-, 4215*i*.

**$C_7H_{14}O_4$** Acetic acid, (2-isopropoxyethoxy)-, P 9477*i*.
Butyric acid, β,γ-dimethoxy-, Me, P 1055*e*, P 3442*g*.
Diginose, 1727*a*, 7034*b*.
Fucose, 2-desoxy-3-methyl-, 1727*a*.
Isovaleric acid, α-hydroxy-α-1-hydroxyethyl-, 2625*d*, 3837*i*.
Lactic acid, 2-ethoxyethyl ester, P 676*e*.
Oleandrose, 1729*d*, 7034*d*.
Valeric acid, γ-ethoxy-α-hydroxy-, 2168*e*.
—, α-hydroxy-β-(hydroxymethyl)-β-methyl-, 4225*h*.
—, α-hydroxy-γ-methoxy-, Me ester, 2168*h*.

**$C_7H_{14}O_4S$** 1,2-Cyclohexanediol, methanesulfonate, 7434*i*.

**$C_7H_{14}O_5$** Arabinose, 3,5-dimethyl-, 586*a*.
Arabinoside, methyl 2-methyl-, 2954*b*.
Diginonic acid, 1727*h*.
Digitalose, 4635*i*, 7431*e*.
Galactose, 2-desoxy-3-methyl-, 1727*f*.
Galactoside, methyl 2-desoxy-, 1727*c*.
Glucomethylose, 3-methyl-, 1728*f*.
Guloside, methyl 3-desoxy-, 1728*e*.
Idose, 3-desoxy-2-methyl-, 1728*c*.
Idoside, methyl 3-desoxy-, 1728*b*.
Ribopyranoside, ethyl-, 1721*e*.
Thevetose, 1728*f*, 1791*g*.
Xylose, 2,4-dimethyl-, 7430*b*.
Xyloside, methyl methyl-, 5589*b*.

**$C_7H_{14}O_6$** Galactose, 3-methyl-, 4636*c*.
Galactoside, methyl, 3368*e*.
Glucopyranoside, methyl, 151*b*.
D-Glucose, methyl-, 1330*f*, 3911*e*, 8007*d*.
Glucoside, methyl-, 322*h*, 3368*e*, 5082*f*.
Ketohexose, 6-methyl-, 5370*c*.
Mannoside, methyl, 2171*d*, 3367*h*.
Sorbopyranoside, methyl, 7431*c*.

**$C_7H_{14}O$** Mannoheptulose, 7548*c*.
Perseulose, 8358*c*.
Sedoheptulose, 7548*d*.

**$C_7H_{14}S$** Cyclohexanemethanethiol, P 5418*f*.
Cyclohexanethiol, 2-methyl-, 999*e*.
Thiophene, tetrahydropropyl-, 8887*i*.

**$C_7H_{14}AuN_2S_2$** Diethylgold thiocyanate, compd. with thioacetamide, 9035*c*.

**$C_7H_{15}Br$** Heptane, bromo-, 1312*b*, 1719*e*, 2590*i*, 4912*b*, 6165*c*.

**$C_7H_{15}BrO$** Ether, 2-bromoisoamyl ethyl, (?), 3359*a*.
Ether, 1-(bromomethyl)isobutyl ethyl(?), 3359*a*

**$C_7H_{15}BrO_2$** Propionaldehyde, α-bromo-, di-Et acetal, 2575*h*

**$C_7H_{15}Br_2N$** Heptylamine, 4,7-dibromo-, *HBr*, 215*a*

**$C_7H_{15}Cl$** Butane, 2-chloro-2,3,3-trimethyl-, 6968*g*.
Heptane, 1-chloro-, 2590*i*.
Hexane, 2-chloro-2-methyl-, 6968*g*
Pentane, 1-chlorodimethyl-, 3372*f*, P 4681*i*
–, 3-chloro-3-ethyl-, 6968*h*.
–, 3-(chloromethyl)-2-methyl-, P 662*h*.

**$C_7H_{15}ClOS$** Ether, 2-(2-chloroethylmercapto)-ethyl propyl, 2928*h*

**$C_7H_{15}ClO_2S$** Ether, 2-(2-chloroethylsulfonyl)-ethyl propyl, 2928*a*.

**$C_7H_{15}ClS_2$** Ethane, 1-(2-chloroethylmercapto)-2-propylmercapto-, 2928*h*.

**$C_7H_{15}Cl_2N$** Dipropylamine, 2,2'-dichloro-*N*-methyl-, 1005*f*, 7422*c*.
Isopropylamine, *N*,*N*-bis(2-chloroethyl)-, 5505*c*.
Propylamine, *N*,*N*-bis(2-chloroethyl)-, 5505*c*.
–, 3-chloro-*N*-(2-chloroethyl)-*N*-ethyl-, *HCl*, 1861*e*.

**$C_7H_{15}Cl_2NO$** Diethylamine, 2-chloro-2'-(2-chloroethoxy)-*N*-methyl-, 1005*f*.
Triethylamine, 2,2'-dichloro-2''-methoxy-, 5505*c*.

**$C_7H_{15}Cl_2NO_2$** Choline, chloride chloroacetate, 8058*g*.

**$C_7H_{15}Cl_2OP$** Phosphine oxide, dichloroheptyl-, 1315*d*.

**$C_7H_{15}F$** Heptane, 1-fluoro-, 2591*a*.
Pentane, 1-fluoro-3,3-dimethyl-, P 2628*h*.

**$C_7H_{15}GeNO$** Triethylgermanium isocyanate, 6536*h*

**$C_7H_{15}I$** Heptane, 1-iodo-, 2591*a*.

**$C_7H_{15}IN_2$** (3-Dimethylaminoallylidene)dimethylammonium iodide, 1653*f*, 3359*g*.

**$C_7H_{15}IO_2S$** (2-Carboxyethyl)dimethylsulfonium iodide, Et ester, 7433*f*.
Hexahydro-1-methyl-4-oxothiapyrylium iodide, compd. with MeOH, 7433*f*.

**$C_7H_{15}N$** Cyclohexylamine, methyl-, 2961*a*, 9027*f*.
Heptamethylenimine, 5400*c*.
2,5-Lupetidine, *and salts*, 2959*d*.
Piperidine, 1,2-dimethyl-, *and chloroplatinate*, 2959*b*.
Pyrrolidine, 2-propyl-, 2958*d*.

**$C_7H_{15}NO$** Acetamide, *N*-*tert*-amyl-, 2165*d*, P 8028*i*.
2-Butanone, 4-dimethylamino-3-methyl-, 4219*i*.
Cyclohexanemethanol, 2-(aminomethyl)-, *and* -*HCl*, 588*g*.
Enanthamide, P 2233*d*, 2600*g*, P 3028*a*, 3774*e*, 6182*c*.
2-Furanpropylamine, tetrahydro-, 2988*d*.
2-Heptanone, oxime, 5740*e*.
—, 1-amino-, -*HCl*, 635*a*.
Isovaleramide, α-ethyl-, P 662*i*.
Piperidineethanol, 572*d*, 3422*f*; -*HCl*, 1861*e*.
3-Piperidinol, 1-ethyl-, 7019*i*; *and* -*HCl*, 227*d*.
Pivaldehyde, dimethylamino-, P 9080*h*.
Propylamine, 2,3-epoxy-*N*,*N*-diethyl-, 6574*e*.
1-Pyrrolidineethanol, α-methyl-, 631*d*.
2-Pyrrolidinemethanol, 1-ethyl-, *and* -*HCl*, 227*d*.
1-Pyrrolidinepropanol, 1388*a*.
Valeramide, α-ethyl-, 3774*e*.

**$C_7H_{15}NO_2$** Carbamic acid, butyl-, Et ester, 4653*a*.
Enanthic acid, α-amino-, 4223*b*.
Ethanol, 2,2'-(allylimino)di-, 7246*f*.
2 Heptanone, 4-hydroxy-, oxime, 131*g*.
Isoleucine, *N*-methyl-, 3788*ch*.
Leucine, methyl-, 572*g*, 3788*h*.
4-Morpholineethanol, methyl-, 9054*a*.
4 Morpholinepropanol, P 6673*g*.
Norvaline, ethyl, 2167*d*, 2581*d*, 6979*e*.
3,5 Piperidinediol, 1-ethyl-, 2209*b*.
3-Piperidinol, 5-methoxy-1-methyl-, 2209*a*.
Valine, Et ester, 7520*f*.
—, ethyl-, 2167*c*, 6979*e*.

**$C_7H_{15}NO_2S$** Alanine, β-(butylmercapto)-, 6577*a*.
Methionine, Et ester, *and* -*HCl*, P 7956*f*.
Norvaline, β-ethyl-β-mercapto-, 1768*h*, -*HCl*, 2581*a*.
Propionamide, β-(ethylmercapto)-*N*-2-hydroxyethyl-, 2273*c*.
Valine, β-mercapto-, Et ester, -*HCl*, P 7039*f*.

**$C_7H_{15}NO_3$** Carnitine, 7526*h*.
Ether, ethyl 1-nitromethylbutyl, 1716*d*.
Heptanol, nitro-, 131*g*, P 3438*i*
3-Hexanol, 2-methyl-2-nitro-, P 3438*i*.
3-Pentanol, 2,4-dimethyl-2-nitro-, P 3438*i*, P 3439*a*.
1,2-Propanediol, 3-(4-morpholinyl)-, P 1812*i*.

**$C_7H_{15}NO_3S$** Alanine, β-(butylsulfinyl)-, 6577*a*.
Butyric acid, α-amino-α-(propylsulfinyl)-, 3499*h*.

**$C_7H_{15}NO_3SSi$** Silane, triethoxyisothiocyano-, 6571*c*.

**$C_7H_{15}NO_4$** Orthosuccinamic acid, tri-Me ester, 3360*e*.

**$C_7H_{15}NO_4S$** Acetamide, α-(2,3-dihydroxypropylmercapto)-*N*-2-hydroxyethyl-, 2273*c*.
Butyric acid, α-amino-α-(propylsulfonyl)-, 3499*h*.

**$C_7H_{15}NO_5$** Arabonamide, dimethyl-, 583*f*, 585*a*, 586*a*, 2954*b*.
1-Butanol, 2-amino-3-methyl-, oxalate, 6979*a*.
Glucosamine, *N*-methyl-, 1330*a*; -*HCl*, 1328*g*.

**$C_7H_{15}NO_5S$** 4-Heptanesulfonic acid, 3-nitro-, *K salt*, P 9079*d*.

**$C_7H_{15}NO_6$** Ribamine, oxalate, 5370*b*.

**$C_7H_{15}NSSi$** Silane, triethylisothiocyano-, 6571*b*.

**$C_7H_{15}NS_2$** Carbamic acid, *sec*-butylethyldithio-, *Na salt*, 1111*g*.
Carbamic acid, dipropyldithio-, *salts*, 5987*a*.

**$C_7H_{15}N_3$** 2-Imidazoline, 2-butylamino-, 4273*b*.
2-Imidazoline, 2-isobutylamino-, 4273*b*.

**$C_7H_{15}N_3O$** Caproaldehyde, semicarbazone, 7417*g*.
Ethanol, 2-(1,4,5,6-tetrahydromethyl-2-pyrimidylamino)-, 4273*d*.
2-Pentanone, 3-methyl-, semicarbazone, 3777*g*.
1-Piperazinecarboxamide, dimethyl-, P 6245*fg*.
2(1*H*)-*s*-Triazone, tetrahydro-5-isobutyl-, 1782*f*.
—, tetrahydro-1,3,4,6-tetramethyl-, 1782*f*.

**$C_7H_{15}N_3O_2$** Biuret, 1-*tert*-amyl-, 2165*dk*.
Pentanone, 2-hydroxy-2-methyl-, semicarbazone, 2944*g*.
—, 3-methoxy-, semicarbazone, 6074*g*.

**$C_7H_{15}N_3O_4$** Propionamide, β-amino-*N*-(carbamylmethyl)-, acetate, 1448*h*.
*s*-Triazine-3(1*H*)-thione, tetrahy-

**$C_7H_{15}N_5$** 1*H*-Tetrazole, 5-(diethylamino methyl)-1-methyl-, 1864*g*, P 7972*c*.
**$C_7H_{15}N_5O_3$** 1,3,5,1*H* Triazepine, 3-(ethoxymethyl)hexahydro-1,5-dinitro-, 9074*b*.
**$C_7H_{15}NaO_3$** Hydroperoxide, 1,1,2,2-tetramethylpropyl, Na deriv., 6189*f*.
**$C_7H_{16}$** (See also *Butane, trimethyl-; Heptane; Hexane, methyl-; Pentane, dimethyl-*.)
Pentane, 3-ethyl-, 8239*e*.
**$C_7H_{16}BrN$** Amylamine, 4-bromo-*N*-ethyl-, - *HBr*, P 4684*d*.
*sec*-Butylamine, *N*-(3-bromopropyl)-, - *HBr*, 7026*c*.
**$C_7H_{16}ClN$** Butylamine, *N*-(2-chloroethyl)-1-methyl-, - *HCl*, 3421*d*.
Propylamine, chloro-*N*,*N*-diethyl-, P 667*a*, 4243*f*.
—, *N*-(2-chloroethyl)-2,2-dimethyl , - *HCl*, 3421*d*.
—, *N*-(2-chloroethyl)ethyl-, - *HCl*, 1861*d*, 3421*d*.
—, 1-(chloromethyl)-*N*-isopropyl-, *HCl*, 3419*d*.
**$C_7H_{16}ClNO$** 2-Propanol, 1-chloro-3-(methylpropylamino)-, P 253*i*.
**$C_7H_{16}ClNO_3$** (See also *Choline, acetyl-*.) (Carboxymethyl)trimethylammonium chloride, Et ester, 6977*a*, 8058*g*.
**$C_7H_{16}Cl_2IN$** (2-Chloroethyl)(3-chloropropyl)-dimethylammonium iodide, 7422*b*.
**$C_7H_{16}Cl_2N_6PtS_2$**, 1680*a*.
**$C_7H_{16}INO$** 4-Hydroxy-1,1-dimethylpiperidinium iodide, 3408*d*.
**$C_7H_{16}N_2$** Enanthaldehyde, hydrazone, 123*c*.
Piperazine, 1-isopropyl-, *and di-HCl*, P 6245*d*.
Piperidine, 3-amino-1-ethyl-, 6207*b*.
Pyrrolidine, 2-(aminomethyl)-1-ethyl-, 7019*h*.
Triethylamine, salt with HCN, 517*d*
**$C_7H_{16}N_2O$** Formamide, *N*-ethyl-*N*-(2-ethyl aminoethyl)-, P 3028*f*.
Isovaleramide, β-amino-*N*,*N*-dimethyl , P 251*e*.
1-Piperazineethanol, 4-methyl-, *and di-HCl*, 630*i*.
Propionamide, α-ethylamino-*N*,*N*-dimethyl-, P 4686*f*.
Urea, 1,3-diisopropyl-, P 9082*d*
—, (1,3-dimethylbutyl)-, P 9082*d*.
**$C_7H_{16}N_2O_2$** Enanthic acid, α,γ-diamino-, *and* - *HCl*, 5005*d*.
Enanthic acid, ζ-hydroxy-, hydrazide, 8358*h*.
**$C_7H_{16}N_2S$** Pseudourea, 1,2-diisopropyl-2-thio-, - *HBr*, P 1059*i*, 9039*a*.
Pseudourea, 2-hexyl-2-thio-, 1868*d*.
Thiocyanic acid, $Pr_2NH$ salt, 578*g*.
Urea, 1,3-diisopropyl-2-thio-, 9242*a*.
**$C_7H_{16}N_4O_2$** Urea, 1,1′-methylenebis[3,3-dimethyl-, 6308*f*.
**$C_7H_{16}N_4S$** Pseudourea, 3-(*N*,*N*-diethylguanyl)-2-methyl-2-thio-, - *HI*, 2950*f*.
Pseudourea, 3-(*N*-isopropyl-*N*-methylguanyl)-2-methyl-2-thio-, 2950*f*
**$C_7H_{16}N_4S_2$** Pseudourea, 2,2′-pentamethylenebis[2-thio-, 1868*d*.
**$C_7H_{16}N_4S_2$** Pseudourea, 2-[3-[2-(guanylmercapto)ethylmercapto]propyl] - 2-thio-, *di-HCl*, P 4292*c*.
**$C_7H_{16}N_4O_2$** Urea, 1,1-bis(2-ureidoethyl)-, P 3843*i*.
**$C_7H_{16}O$** (See also *Heptyl alcohol*.)
1-Butanol, 2-ethyl-3-methyl-, P 662*h*.
—, 2,2,3-trimethyl-, 1312*i*.
Ether, amyl ethyl, 2590*b*.
—, hexyl methyl, 2590*b*.
—, methyl 3-methylamyl-, 113*g*.
Heptanol, 1715*d*, 2926*a*, 6155*b*.
Hexanol, methyl-, 112*cd*, 2925*i*, 3776*d*, 6155*b*.
Pentanol, 4,4-dimethyl-, 6155*b*.
—, 3-ethyl-, 4215*d*.
**$C_7H_{16}OS$** Ethanol, 2-(isoamylmercapto)-, 7420*i*.
**$C_7H_{16}OS_2$** Ethanol, 2-(2-propylmercaptoethylmercapto)-, 2928*h*.
**$C_7H_{16}O_2$** 2-Butanol, 4-ethoxy-2-methyl-, 2570*i*.
2,3-Hexanediol, 2-methyl-, 2944*d*.
Hydroperoxide, 1,1-diethylpropyl, 6189*f*.
—, 1,1,2,2-tetramethylpropyl, 6189*f*.
Methane, diisopropoxy-, 2590*c*.
—, dipropoxy-, 2590*c*, 6568*e*.
2,3-Pentanediol, 2,4-dimethyl-, 2944*e*.
1,3-Propanediol, 2-butyl-, 572*e*.
—, 2,2-diethyl-, 8546*g*.
—, 2-isopropyl-2-methyl-, 8546*h*.
—, 2-methyl-2-propyl-, 8546*h*.
**$C_7H_{16}O_2S$** Acetaldehyde, methylmercapto-, di-Et acetal, 7903*f*.
Ethanol, 2-(2-propoxyethylmercapto)-, 2928*h*.
**$C_7H_{16}O_2S_2$** Propionaldehyde, α,β-dimercapto-, di-Et acetal, 3783*g*.
**$C_7H_{16}O_2Si$** Acetic acid, (trimethylsilyl)-, Et ester, 562*f*.
**$C_7H_{16}O_3$** Acetaldehyde, methoxy-, di Et acetal, 7903*e*.
2-Butanone, 4-methoxy-, di-Me acetal, P 1443*h*, 2577*d*
Orthoformic acid, tri-Et ester, 2585*e*, 2940*f*, 5757*g*, 6515*d*.
Propanediol, 3-butoxy-, 311*h*.
—, 2-ethoxy-2-ethyl-, 8546*i*
—, 2-(hydroxymethyl)-2-isopropyl-, 3369*g*.
—, 3-isobutoxy-, 311*h*.
**$C_7H_{16}O_3S$** Heptanesulfonic acid, *K salt*, 8707*g*
**$C_7H_{16}O_4$** Malonaldehyde, bis(di-Me acetal), P 4291*b*.
Methane, bis(ethoxymethoxy)- , P 1052*c*.
**$C_7H_{16}O_4S_2$** See *Sulfonal*.
**$C_7H_{16}O_7$** Volemitol, 7548*c*
**$C_7H_{16}S$** 1-Heptanethiol, 2956*d*
**$C_7H_{16}S_2$** Ethanethiol, 2-(amylmercapto) , 2935*f*.
**$C_7H_{16}S_4$** Propionaldehyde, α,β-dimercapto , di-Et mercaptal, 3783*g*
**$C_7H_{17}BrN_2$** 1,3 Propanediamine, 2-bromo-*N*,*N*,*N*′,*N*′-tetramethyl , - *HBr*, 7026*g*.
**$C_7H_{17}ClS$** *tert* Amyldimethylsulfonium chloride, 3346*h*
**$C_7H_{17}HgNS$** Ethylamine, *N*,*N*-dimethyl-2-(propylmercurimercapto)-, P 6648*e*, P 6649*d*
**$C_7H_{17}IS$** Amyldimethylsulfonium iodide, 2571*g*
*tert*-Amyldimethylsulfonium iodide, 3319*g*
(1,2-Dimethylpropyl)dimethylsulfonium iodide, 3350*d*.
**$C_7H_{17}N$** Amylamine, dimethyl-, 1110*b*, 9250*f*, 9259*g*, *salts*, P 4429*d*.
Amylamine, 1-ethyl-, 1110*b*.
Butylamine, isopropyl-, P 253*h*, - *HCl*, 2166*h*.
—, 1-propyl-, 1110*b*
Diisopropylamine, *N*-methyl-, P 1435*a*.
Heptylamine, 1110*a*.
Hexylamine, methyl-, 1110*a*, 3564*a*, 9250*f*, *salts*, P 4429*d*, 8611*f*.
Isobutylamine, *N*-isopropyl-, P 253*h*.
Propylamine, 1,1-diethyl , 7303*i*
**$C_7H_{17}NO$** 1-Butanol, 2-isopropylamino , - *HCl*, 3419*d*
Ethanol, 2-(2,2-dimethylpropylamino)-, 3421*c*.
—, 2-(1-ethylpropylamino)-, 3421*c*.
—, 2-(1-methylbutylamino)-, 3421*c*
Heptanol, 2-amino-, 131*g*.
Pentanol, 2-amino-2,4-dimethyl-, *and chloroplatinate*, 572*i*.
—, 5-ethylamino-, P 4684*c*.
1-Propanol, 3-*sec*-butylamino-, 7026*c*.
—, 3-dimethylamino-2,2-dimethyl-, P 9081*a*.
**$C_7H_{17}NO_2$** 2-Propanol, 1,1′-(methylimino)di-, 7422*b*.
**$C_7H_{17}NO_3$** (See also *Choline, acetyl-*.)
1,3-Propanediol, 2-(dimethylaminomethyl)-2-(hydroxymethyl)-, *and* - *HBr*, 134*c*.
Propanol, [bis(2-hydroxyethyl)amino]-, 7422*c*.
**$C_7H_{17}NS$** 2-Propanesulfenamide, *N*-isopropyl-2-methyl-, 2934*c*.
**$C_7H_{17}N_3$** Guamidine, 1,2,3-triethyl-, 2203*d*.
**$C_7H_{17}N_3O_3$** Guanidine, tris(2-hydroxyethyl)-, P 868*f*.
**$C_7H_{17}OPS_2$** Ethyl propyl thiophosphite, 1004*d*.
**$C_7H_{17}O_3P$** 1-Heptanephosphonic acid, 1315*d*.
**$C_7H_{18}AuN_3S_3$** Diethylgold thiocyanate, compd. with thiourea, 9035*c*.
**$C_7H_{18}BrHgNS$** [2-(Ethylmercurimercapto)-ethyl]trimethylammonium bromide, P 668*d*.
**$C_7H_{18}BrNO$** (3-Ethoxyethyl)trimethylammonium bromide 8058*g*.
**$C_7H_{18}ClHgNS$** [2-(Ethylmercurimercapto)-ethyl]trimethylammonium chloride, P 668*a*.
**$C_7H_{18}ClNO$** Diethyl(2-hydroxyethyl)methylammonium chloride, 1470*g*.
**$C_7H_{18}HgINS$** [2-(Ethylmercurimercapto)-ethyl]trimethylammonium iodide, P 668*e*.
**$C_7H_{18}IN$** Triethylmethylammonium iodide, 3422*g*.
**$C_7H_{18}INO$** (3-Hydroxybutyl)trimethylammonium iodide, 2935*c*.
**$C_7H_{18}INO_3$** Tris(2-hydroxyethyl)methylammonium iodide, 7526*h*.
**$C_7H_{18}N_2$** 1,2-Propanediamine, diethyl-, P 255*a*, 1349*g*.
1,3-Propanediamine, *N*-isobutyl-, 1776*c*.
**$C_7H_{18}N_2O$** 2-Propanol, 1-(3-aminopropylamino)-2-methyl-, 1776*c*.
2-Propanol, 1,3-bis(dimethylamino)-, *and salts*, 7026*f*.
**$C_7H_{18}N_2O_3$** (2-Hydroxypropyl)trimethylammonium hydroxide, carbamate, 8540*a*.
**$C_7H_{18}OS$** Dimethylpropylsulfonium ethoxide, 3348*i*.
Isopropyldimethylsulfonium ethoxide, 3349*c*.
**$C_7H_{18}O_2S$** Diethyl(2-hydroxypropyl)sulfonium hydroxide, P 8208*c*.
**$C_7H_{18}O_2Si$** Silane, diethoxyethylmethyl-, 2575*b*.
**$C_7H_{18}O_3Si$** Silane, triethoxymethyl-, P 1222*b*, 1866*t*, P 3657*f*, P 4894*h*.
**$C_7H_{18}O_3Si_2$** Acetic acid, pentamethyldisiloxanyl-, 5003*g*.
**$C_7H_{18}Si$** Silane, *tert*-butyltrimethyl-, 562*i*.
**$C_7H_{19}NO_4S$** Acetone, compd. with *sec*-butylamine bisulfite, 3356*b*.
**$C_7H_{19}N_3$** Spermidine, 4332*c*.
**$C_8ClF_{15}$** Cyclohexane, chlorononafluorobis(trifluoromethyl)-, 1232*f*, 2924*h*.
**$C_8Cl_4F_6$** *p*-Xylene, tetrachloro α,α,α,α′,α′,α′-hexafluoro-, 6174*g*.
**$C_8Cl_4F_{12}$** Compd., b$_{20}$ 90.5° 1.5°, 3345*h*.
**$C_8Cl_4O_3$** Phthalic anhydride, tetrachloro , P 2004*b*, P 5607*f*, P 7705*d*.
**$C_8Cl_6F_{12}$** Compd., b$_{20}$ 139–40°, 3345*h*.
**$C_8Cl_6O_2$** Terephthaloyl chloride, tetrachloro , 609*f*.
**$C_8Cl_6S_2$** 2,2′-Bithiophene, hexachloro-, 624*h*
**$C_8F_{10}$** *m*-Xylene, decafluoro , 2019*f*.
**$C_8F_{12}$** Tricyclo[4.2.0.0$^{2,5}$]octane, dodecafluoro (?), 3345*h*.
**$C_8F_{18}$** Cyclohexane, decafluorobis(trifluoromethyl)-, 1232*f*, 1653*h*, 2924*h*, 3266*i*, 8803*k*.
**$C_8F_{18}$** Octane, octadecafluoro-, 1653*h*, 2157*b*, 3266*i*
**$C_8HCl_2F_6$** Xylene, trichloro α,α,α,α′,α′,α′-hexafluoro , 6174*g*.
**$C_8HCl_3O$** Ether, 2,2-dichlorovinyl pentachlorophenyl, P 7045*g*.
**$C_8H_2Cl_2F_6$** Xylene, dichloro α,α,α,α′,α′,α′-hexafluoro , 3252*h*, 6174*g*.
**$C_8H_2Cl_4O_4$** Phthalic acid, tetrachloro-, 8733.
Terephthalic acid, tetrachloro-, 609*f*
**$C_8H_2Cl_6O_2$** Acetic acid, trichloro , 2,4,6-trichlorophenyl ester, 1896*a*.
**$C_8H_2N_4$** 1,3-Butadiene-1,1,4,4-tetracarbonitrile, P 4807*e*
**$C_8H_3Br_2NO_2$** Isatin, 5,7-dibromo-, P 7707*a*, P 9470*k*.
**$C_8H_3ClF_6$** Xylene, chloro-α,α,α,α′,α′,α′-hexafluoro-, 3252*h*, 6174*f*.
**$C_8H_3ClN_2$** Phthalonitrile, 3-chloro-, P 7710*e*
**$C_8H_3ClN_4O_3$** Cinchomeronomtrile, 2-chloro-6-methyl-5-nitro-, 4673*g*.
**$C_8H_3ClO_3$** Phthalic anhydride, 3-chloro , P 7710*e*.
**$C_8H_3Cl_2NO_4$** Isophthaloyl chloride, 2-nitro , 1780*a*
**$C_8H_3Cl_2N_3O_2$** Quinazoline, 2,4-dichloronitro , 2951*c*.
**$C_8H_3Cl_3N_2$** Cinnoline, 4,6,7-trichloro-, 1782.
Quinazoline, trichloro-, 2951*b*.
Quinoxaline, 2,5,7-trichloro-, 3384*a*
**$C_8H_3Cl_3O_3$** Isophthaloyl chloride, 5-chloro , 609*e*.
**$C_8H_3Cl_4NO_2$** Styrene, α,β,β,4-tetrachloro-3-nitro-, 6091*d*.
**$C_8H_4Cl_4O$** Acetophenone, 2,3,4,5,6-pentachloro-, 2189*a*.
Ether, 2,2-dichlorovinyl 2,4,5-trichlorophenyl, P 7045*g*.
**$C_8H_4Cl_4O_2$** Acetic acid, trichloro-, 2,4-dichlorophenyl ester, 1896*a*.
Cyclopentadiene - $\Delta^{1,3}$ - acetic acid, α,2,3,4,5-pentachloro-, Me ester, 4231*e*.
Phenol, pentachloro-, acetate, 3133*g*.
**$C_8H_4Cl_4O_4S$** 2,4,1-Benzodioxathiin, 5,7-dichloro-3-(trichloromethyl)-, 1,1-dioxide, 1755*a*.
**$C_8H_4Cl_6F$** *m*-Xylene, α,α,α,α′,α′,α′-hexachloro-4-fluoro-, 3252*h*.
**$C_8H_5Cl_2NO_2$** Benzene, 1-chloro-2-nitro-4-(pentachloroethyl)-, 6991*f*.
**$C_8H_5Cl_7$** Benzene, 1,2,4-trichloro(1,2,2,2-tetrachloroethyl)-, P 8399*h*.
**$C_8H_5NO_5$** Phthalic anhydride, 3-nitro-, 5767*b*
**$C_8H_6N_2O_5$** Isatin, 5,7-dinitro-, 4360*g*.
**$C_8H_6BrClN_2$** Quinoxaline, bromo-2-chloro-, 3383*i*.
**$C_8H_6BrClN_2O$** 4-Cinnolinol, bromochloro , 653*ce*.
**$C_8H_6BrCl_3O_4S$** 2,4,1-Benzodioxathiin, 7-bromo-3-(trichloromethyl)-, 1,1-dioxide, 1755*a*.
**$C_8H_6BrNO_2$** Isatin, 5-bromo- P 7707*a*, 7924*e*, P 9470*l*.

$C_8H_4Br_2N_2O$ 4 Cinnolinol, 3,6 dibromo-, 653*e*.

$C_8H_4Br_2N_2O_3$ Oxindole, 3,3-dibromo-5-nitro-, 215*d*.

$C_8H_4ClNO$ 3-Pseudoindolone, 2-chloro-, P 9470*i*.

$C_8H_4ClNO_2$ Isatin, chloro-, 1765*i*, 1766*a*.
Phthalimide, chloro , 6600*e*, P 7517*f*.

$C_8H_4ClN_3O_2$ Quinoxaline, 2-chloronitro-, 3383*i*.

$C_8H_4Cl_2$ Benzene, 1 chloro-4-(chloroethynyl)-, 6991*h*.

$C_8H_4Cl_2N_2$ Cinnoline, 4,8 dichloro-, 1781*i*
Quinazoline, 4,6-dichloro-, 5784*h*.
Quinoxaline, dichloro-, 3383*i*, 3384*a*

$C_8H_4Cl_2N_2O$ 4 Cinnolinol, 3,6 dichloro , 653*d*.
Phthalimidine, dichloro 3-imino , P 8166*d*.

$C_8H_4Cl_2N_2O_2S$ 6-Quinoxalinesulfonyl chloride, chloro-, 3383*i*.

$C_8H_4Cl_2O_2$ Isophthaloyl chloride, 609*e*
Phthaloyl chloride, 2570*g*
Terephthaloyl chloride, 609*e*

$C_8H_4Cl_2NO$ Aniline, 5-chloro 2-(2,2 dichlorovinyloxy)-, P 7045*h*

$C_8H_4Cl_4$ Styrene, $\beta,\alpha,\beta,\beta$ tetrachloro , 6991*e*.

$C_8H_4Cl_4N_2O_2$ Terephthalamide, 2,3,5,6-tetrachloro , 609*f*

$C_8H_4Cl_4O$ Acetophenone, $\beta,\alpha,\alpha,\alpha$-tetrachloro-, 199*f*, 2350*h*
Ether, dichlorophenyl 2,2 dichlorovinyl, P 7045*g*.

$C_8H_4Cl_4O_2$ Acetic acid, chloro , 2,4,5 trichlorophenyl ester, 7175*i*, 7178*e*
Acetic acid, trichloro-, *p* chlorophenyl ester, 1896*a*
Acetyl chloride, (trichlorophenoxy)-, 2073*f*.
Phenol, 2,3,4,6 tetrachloro , acetate, 3153*f*

$C_8H_4Cl_4O_3$ Acetic acid, (2,3,4,6 tetrachloro phenoxy)-, P 1146*d*.

$C_8H_4Cl_4NO_2$ Benzene, 1 chloro 2 nitro 4 tetrachloroethyl , 6991*dk*

$C_8H_4Cl_5$ Benzene, chloro(pentachloroethyl) , 5146*g*, 6991*f*
Benzene, dichloro(1,2,2,2 tetrachloroethyl) , P 7188*c*, P 7959*i*, P 8399*g*
Pentachloro(2 chloroethyl) , 3377*g*.
*o* Xylene, $\alpha,\alpha,\alpha,\alpha',\alpha',\alpha'$ hexachloro , 3252*b*

$C_8H_4F_6$ Xylene, hexafluoro , 2157*c*, 3252*h*, 6174*c*

$C_8H_4F_6$ Cyclobutene, 3,3,4,4 tetrafluoro 1-(2,2,3,3 - tetrafluorocyclobutyl) , 3571*c*, P 4295*i*

$C_8H_5N$ Phthalonitrile, P 351*c*, 5893*h*, 7183*c*.

$C_8H_5NO_4$ Isatin, nitro-, 215*df*

$C_8H_5NO_3$ 1,2 Benzisoxazole 3 carboxylic acid 6 nitro , P 6230*b*

$C_8H_5NO_4$ Terephthalic acid, 2,5 dinitro , 5760

$C_8H_5NS$ 6 Benzothiazolecarbonitrile, 7476*d*.

$C_8H_5NS$ Thiocyanic acid, benzothiazolyl ester, 3964*b*

$C_8H_4N_4S_2$ Benzo[1,2,4,5]bisthiazole 2,6-dithiol, P 1438*f*.

$C_8H_5NO$ 2,4 Pentadienamide, 2,5,5-tricyano , P 4897*e*.

$C_8H_5NO_2$ Cinchomerononitrile, 1,2 dihydro-6 methyl 5 nitro 2-oxo-, 4673*f*.

$C_8H_5NO_6$ 6,7 Pteridinedicarboxylic acid, 2,4 dihydroxy-, 654*e*.

$C_8H_5NO$ See *Alloxantin*

$C_8H_6OS$ Thianaphthenequinone, 771*d*.

$C_8H_6O_3$ See *Phthalic anhydride*.

$C_8H_4O_3$ Phthalic anhydride, 4-hydroxy-, 6608*i*
Protocatechualdehyde, cyclic carbonate, 7155*i*

$C_8H_4O_5S$ Phthalic anhydride, 4-sulfo-, P 1217*i*, P 3233*f*.

$C_8H_4O_4Sn$ Tin oxalate, 7865*c*.

$C_8H_5BrClNO_3$ Acetophenone, α-bromo-5-chloro 2 nitro-, 653*b*.

$C_8H_5BrCl_4$ Benzene, 1-bromo-4-(1,2,2,2-tetrachloroethyl)-, P 8399*g*.

$C_8H_5BrN_2O$ 4 Cinnolinol, 3-bromo-, 653*a*.

$C_8H_5BrN_2O_2$ Sydnone, *C*-bromo-*N*-phenyl-, 3417*g*, 3418*b*, 7480*bd*.
Sydnone, *N* (bromophenyl)-, 3417*i*, 3418*b*

$C_8H_5BrN_2S_2$ Thiocyanic acid, (5-bromo-2-thienyl)ethylene ester, 5393*g*.

$C_8H_5BrO_2$ Phthalide, 3-bromo-, 3806*b*.

$C_8H_5BrO_2S$ Thianaphthene, bromo-, 1, 1-dioxide, 8379*g*.

$C_8H_5BrO_4$ Isophthalic acid, 4 - bromo-, 9322*g*
Phthalic acid, 4-bromo-, 7010*g*, 9382*h*.

$C_8H_5BrNO_3$ Acetophenone, α,5-dibromo-2-nitro-, 653*c*.

$C_8H_4Br_2NO_2S$ Thianaphthene, dibromodihydro-6-nitro-, 1,1-dioxide, 1762*g*.

$C_8H_4Br_2O_2$ Phenol, tribromo-, acetate, 3133*f*.

$C_8H_5ClN_2$ Quinazoline, chloro-, P 4704*a*.
Quinoxaline, 2-chloro-, 7023*d*.

$C_8H_5ClN_2O$ Acetophenone, *p*-chloro-α-diazo-, 4653*c*.
4-Cinnolinol, chloro-, 1781*i*, 653*a*.

$C_8H_5ClN_2O_2$ 1,3,4-Oxadiazol-2(3*H*)-one, 3-(*o*-chlorophenyl)-, 4260*b*.
2,4-Quinazolinediol, chloro-, 2951*h*.
Sydnone, *C*-chloro *N*-phenyl-, 3418*a*, 7480*d*.
—, *N*-(*p* chlorophenyl)-, 7480*cd*.

$C_8H_5ClN_2O_3$ Acetophenone, α-chloro-3,5 dinitro-, 7452*c*.

$C_8H_5ClN_2O_6$ Acetic acid, (chlorodinitrophenyl)-, 2184*d*, 7452*h*.

$C_8H_5ClN_2S_2$ Isothiocyanic acid, 5 chloro-α-thiocyanomethyl - 2 - thenyl ester, 5393*h*.
Thiocyanic acid, (5-chloro-2-thienyl)-ethylene ester, 5393*g*

$C_8H_5ClN_2NaS$ Pseudourea, 1-(*p*-chlorophenyl)-3 cyano-2-thio , Na deriv., 2948*h*, P 6658*i*.

$C_8H_5ClN_4$ Cinchomerononitrile, 5 amino-2-chloro 6-methyl-, 4673*h*.

$C_8H_5ClO_2S$ 2-Thiophenecrotonic acid, 5-chloro γ oxo , 607*e*

$C_8H_5ClO_4$ Isophthalic acid, 5-chloro-, 609*e*.
Phthalic acid, 3-chloro , 6600*e*.

$C_8H_5Cl_2FO$ Ether, 2,2 dichloro-1-fluorovinyl phenyl, P 9084*h*.

$C_8H_5Cl_2NO_3$ Acetophenone, α,4 dichloro 3-nitro-, 6991*i*.
Ether, 2,2 dichlorovinyl *p*-nitrophenyl, P 7045*h*

$C_8H_5Cl_3$ Styrene, trichloro , P 680*h*, P 4514*e*, 6991*g*

$C_8H_5Cl_3O$ Acetophenone, $p,\alpha,\alpha$-trichloro 2350*h*, 6991*f*.
Ether, *p* chlorophenyl dichlorovinyl, P 7045*g*, P 7966*a*

$C_8H_5Cl_3O_2$ Acetic acid, (2,4,5-trichlorophenyl)-, P 7046*e*.
Phenol, trichloro-, acetate, 3133*g*, P 3459*i*, P 3961*g*, 7175*i*, 7179*d*, 7180*b*, P 8071*b*.

$C_8H_5Cl_3O_3$ See *Acetic acid, (trichlorophenoxy)*.

$C_8H_5Cl_4NO_2$ Benzene, 1-chloro 2-nitro-4-(1,2,2 trichloroethyl)-, 6991*g*.

$C_8H_5Cl_5$ Benzene, 1 chloro-4-(tetrachloroethyl)-, 6991*dh*, P 8399*g*.
Benzene, pentachloroethyl-, 3377*f*.

$C_8H_6Cl_2O$ Benzyl alcohol, 3,4 dichloro-α-(trichloromethyl)-, 1895*i*, P 7950*i*.
Phenetole, pentachloro-, P 7633*b*

$C_8H_5F_3O$ Tolualdehyde, $\alpha,\alpha,\alpha$-trifluoro-, 5761*e*, 7918*d*.

$C_8H_5F_3O_2$ *m*-Toluic acid, $\alpha,\alpha,\alpha$-trifluoro , 7918*c*

$C_8H_5F_3O_2S$ 1,3-Butanedione, 4,4,4 trifluoro-1-(2 thienyl) , 8959*d*.

$C_8H_5IN_2O_6$ Acetic acid, (2-iodo-4,6 dinitrophenyl)-, 2184*c*.

$C_8H_5IO_4$ Phthalic acid, 3-iodo-, 6600*e*.

$C_8H_5NO$ Benzaldehyde, *p* cyano , 5761*d*.
Glyoxylonitrile, phenyl-, 2974*g*

$C_8H_5NOS$ Benzoyl isothiocyanate, 4232*c*.
Phthalimide, thio-, P 8166*c*.

$C_8H_5NO_2$ (See also *Isatin; Phthalimide.*)
Benzonitrile, 2,3-methylenedioxy-, 186*b*.
Piperonylonitrile, 186*a*

$C_8H_5NO_2S$ Benzothiazolecarboxylic acid, 7475*h*, 7476*e*.

$C_8H_5NO_2S_2$ 2,4-Thiazolidinedione, 5 (2 thenylidene)-, 3820*e*.

$C_8H_5NO_3$ Isatin, 6-hydroxy-, 216*c*.

$C_8H_5NO_4S$ Thianaphthene, 6-nitro-, 1,1-dioxide, 1762*g*.

$C_8H_5NO_5$ Piperonal, nitro-, 1408*h*.

$C_8H_5NO_6$ Phthalic acid, nitro-, P 1266*h*, 5767*i*, 8733*c*.

$C_8H_5N_3O$ Cinchomeronitrile, 1,2-dihydro-6-methyl-2-oxo-, P 3470*c*, 4670*h*, 4673*e*.

$C_8H_5N_3O_3$ Acetophenone, α-diazo-*p*-nitro-, 4654*e*, 6178*a*.
Phthalimidine, 3-iminonitro-, P 8166*cf*.

$C_8H_5N_3O_4$ Isatin, nitro-, oxime, 215*df*.
Phthalimide, *N*-aminonitro-, P 1266*h*.
Sydnone, *N*-(*p*-nitrophenyl)-, 7480*d*.

$C_8H_5N_3O_6$ 6,7-Pteridinedicarboxylic acid, 2-amino-4-hydroxy-, 654*e*.

$C_8H_5N_5O_6$ Purpuric acid, 7305*c*.

$C_8H_6$ See *Benzene, ethynyl-*.

$C_8H_6AsClS_3$ Thiophene, 2,2'-(chloroarsylene)di-, 3383*a*, 6102*f*.

$C_8H_6AsCl_2O$ Acetophenone, α-chloro-*m*-dichloroarsino-, 7452*e*.

$C_8H_6BrClN_2S$ Benzothiazole, 4-bromo-6-chloro-2-methylamino-, 1766*i*.

$C_8H_6BrClO$ Acetophenone, α bromo-*p*-chloro , 3138*c*, 4653*f*.

$C_8H_6BrF_3$ *p*-Xylene, α'-bromo-$\alpha,\alpha,\alpha$ trifluoro-, 5761*d*.

$C_8H_6BrN$ Acetonitrile, (bromophenyl)-, 605*g*, 1752*i*.
*o*-Tolunitrile, α-bromo-, P 3214*g*.

$C_8H_6BrNO$ Benzonitrile, 2-bromo-5-methoxy-, 1916.
Mandelonitrile, *p*-bromo-, 605*i*.

$C_8H_6BrNO_3$ Nicotinic acid, 5-bromo-1,2-dihydro - 4 - (hydroxymethyl) - 6-methyl-2-oxo-, γ-lactone, P 3046*a*.

$C_8H_6BrN_3$ Quinoxaline, 2-aminobromo-, 3384*b*.

$C_8H_6Br_2ClNO$ Carbanilyl chloride, 2,4-dibromo-*N*-methyl-, P 1439*e*.

$C_8H_6Br_2O$ Acetophenone, α,α-dibromo-, 608*c*.

$C_8H_6Br_2O_2S$ Thianaphthene, 2,3-dibromo 2,3-dihydro-, 1,1 dioxide, 8379*c*

$C_8H_6Br_2O_4$ *p*-Quinone, 2,6-dibromo-3,5 dimethoxy-, 4264*i*.

$C_8H_6Br_2O_5$ Muconic acid, dibromohydroxy δ methoxy-, γ-lactone, Me ester, 6982*b*.

$C_8H_6CdCl_2O_2$ Piperonal, complex with $CdCl_2$, 7000*h*.

$C_8H_6ClFO$ Ether, 2-chloro-1-fluorovinyl phenyl, P 9084*h*.

$C_8H_6ClN$ Acetonitrile, (chlorophenyl)-, 605*g*, 5405*j*.
Indole, 4-chloro-, 4255*e*.
*o*-Tolunitrile, α-chloro-, P 3214*g*.

$C_8H_6ClNO$ Mandelonitrile, *o*-chloro-, 606*a*.

$C_8H_6ClNOS$ Benzothiazole, 2-chloro-5-methoxy-, P 6670*c*.

$C_8H_6ClNOS_2$ Benzothiazole, 2-chloro-6-(methylsulfinyl)-, 2618*a*.

$C_8H_6ClNO_2$ 2(3*H*)-Benzoxazolone, 6-chloro 3-methyl-, 6615*i*.
Styrene, *p*-chloro-β-nitro-, 9334*d*

$C_8H_6ClNO_3S_2$ Benzothiazole, 2-chloro-6-(methylsulfonyl)-, 2617*i*.

$C_8H_6ClNO_3$ Acetophenone, 5-chloro-2-nitro , 653*b*

$C_8H_6ClNS$ 3,1,4*H*-Benzothiazine, 2-chloro-, 4278*d*.

$C_8H_6ClNS_2$ Benzothiazole, 2-chloro 6 methylmercapto-, 2618*a*.
2(3*H*)-Benzothiazolethione, 3-(chloromethyl)-, 1767*e*.

$C_8H_6ClN_3$ Quinazoline, 4-amino-2-chloro-, 1780.
Quinoxaline, aminochloro-, 174*c*, 3384*ac*.

$C_8H_6ClN_3O_2S$ Benzenesulfonyl chloride, *p*-(1,2,3,2*H*-triazol-2-yl)-, 2020*b*.
6 Quinoxalinesulfonamide, chloro-, 3383*i*.

$C_8H_6ClN_3O_3$ Acetanilide, 5-chloro-2,4-dinitro-, 5755*g*.

$C_8H_6ClN_3O_6$ Benzene, 2-(2-chloroethyl)-1,3,5-trinitro-, 1733*k*.

$C_8H_6ClN_3S$ Urea, 1-(*p*-chlorophenyl)-3-cyano-2-thio-, 5746*e*.

$C_8H_6ClN_3S_2$ Thuret, $N^1$-(*p*-chlorophenyl)-, -*H1*, 5746*h*.

$C_8H_6ClN_5O_2$ 1*H*-Tetrazole, 5 (chloromethyl)-1-(nitrophenyl)-, P 7971*f*.

$C_8H_6Cl_2$ See *Styrene, dichloro-*.

$C_8H_6Cl_2INO$ Acetanilide, 2,5-dichloro-4-iodo , 3729*c*.

$C_8H_6Cl_2N_2$ Benzimidazole, chloro-2-(chloromethyl)-, 1655*e*.

$C_8H_6Cl_2N_2O$ Pyrimidine, 2,4-dichloro 6-(2-furyl)-, 7929*i*.

$C_8H_6Cl_2N_2O_3$ Glyoxylic acid, chloro-, *o*-chlorophenylhydrazone, *and salts*, 4259*g*.

$C_8H_6Cl_2N_2O_3$ Acetanilide, dichloronitro-, 2186*h*, 2992*g*, 3729*d*, 5755*e*.

$C_8H_6Cl_2N_2O_4S$ Acetimidyl chloride, α-chloro-*N*-(*p*-nitrophenylsulfonyl)-, P 6660*i*.

$C_8H_6Cl_2N_4$ Guanidine, 1-cyano-3-(2,4-dichlorophenyl)-, 169*f*.

$C_8H_6Cl_2O$ Acetophenone, dichloro-, 6991*h*, 9336*e*.
Ether, 2,2 - dichlorovinyl phenyl, P 7045*g*.

$C_8H_6Cl_2O_2$ (See also *Acetic acid, (dichlorophenoxy)-*.)
Benzoic acid, 2,4-dichloro-5-methoxy-, 6633*c*.

$C_8H_6Cl_2O_5$ Muconic acid, α,γ-dichloro-β-hydroxy-δ-methoxy-, γ-lactone, Me ester, 6981*g*.

$C_8H_6Cl_2FO$ Benzyl alcohol, *p*-fluoro-α-(trichloromethyl)-, P 350*h*, 2359*h*.

$C_8H_6Cl_3NO$ Acetanilide, trichloro-, 3729*g*, 5081*h*.

$C_8H_6Cl_3NO_2$ Acetamide, α-(trichlorophenoxy)-, 2973*f*.
Benzene, 1-chloro-4-(1,2-dichloroethyl)-2-nitro-, 6991*i*.

$C_8H_6Cl_4$ Benzene, 1-chloro-4-(trichloroethyl)-, 6991*g*, 6992*a*.

Benzene, (1,2,2,2-tetrachloroethyl)-, P 8399*g*.
—, trichloro(1-chloroethyl)-, P 680*h*.
$C_3H_6Cl_4O$ See *Benzyl alcohol, chloro(trichloromethyl)-*.
$C_3H_6Cl_4O_4$ Muconic acid, tetrachloro-, di-Me ester, 6981*f*.
$C_3H_6F_3NO_3$ Anisole, nitro(trifluoromethyl)-, 7918*cd*.
$C_3H_6F_4$ Cyclobutane, 3 (3-buten-1-ynyl)-1,1,2,2-tetrafluoro-, P 4295*e*.
$C_3H_6F_4O$ Furan, 2 (2,2,3,3-tetrafluorocyclobutyl)-, 3370*i*.
$C_3H_6F_8$ Bicyclobutyl, 2,2,2′,2,3,3,3′,3′-octafluoro-, 3371*a*.
$C_3H_6INO$ Benzonitrile, 2-iodo-5-methoxy-, 191*b*.
$C_3H_6I_2O_3$ Anisic acid, 3,5-diiodo-, 7585*c*.
$C_3H_6Li_2$ Cyclooctatriene, Li deriv., 6195*e*.
$C_3H_6N_2$ Cinnoline, 2095*b*.
Phthalazine, 2095*b*.
Quinazoline, 2095*b*.
Quinoxaline, 2095*b*, 3416*e*.
$C_3H_6N_2O$ Acetophenone, α-diazo-, 1775*h*, 4054*e*, 5761*h*, 5762*i*.
Benzamide, *N*-cyano-, 4232*d*.
4-Cinnolinol, 652*g*.
1(2 *H*)-Phthalazone, 3806*c*.
Phthalimidine, 3-imino-, P 8166*c*.
4(3 *H*)-Quinazolone, 3424*dh*.
$C_3H_6N_2OS$ 4-Quinazolinol, 2-mercapto-, 8395*a*.
$C_3H_6N_2O_2$ Acetonitrile, (*o*-nitrophenyl)-, 3964*c*.
Isatin, 5-amino-, *sulfate*, 215*g*.
1,4-Phthalazinedione, 2,3-dihydro-, 579*e*, 8371*h*.
2,4(1 *H*,3 *H*)-Quinazolinedione, 579*f*.
Sydnone, *N*-phenyl-, 3417*f*, 3418*b*, 7479*f*, 7480*d*.
Tolunitrile, nitro-, 1408*g*, 3805*c*.
$C_3H_6N_2O_2S$ 4-Pyrimidol, 6-(2-furyl)-2-mercapto-, 7929*h*.
4-Thiazolidone, 5-furfurylidene-2-imino-, 3820*c*.
$C_3H_6N_2O_2SSe$ *p*-Toluenesulfenyl selenocyanate, 2-nitro-, 8367*a*.
$C_3H_6N_2O_3$ Isatin, 6-hydroxy-, oxime, 216*b*.
Isocyanic acid, *p*-nitro-*o*-tolyl ester, 169*a*.
Oxindole, 5-nitro-, 215*d*.
2,4-Pyrimidinediol, 6-(2-furyl)-, 7929*i*.
$C_3H_6N_2O_4$ Isocyanic acid, 2-methoxynitrophenyl ester, 169*a*.
$C_3H_6N_2O_6$ Acetic acid, (dinitrophenyl)-, 2189*h*, 6175*c*.
Benzoic acid, 2,4-dinitro-, Me ester, 6175*c*.
Phenol, 2,4-dinitro-, acetate, 6175*b*.
$C_3H_6N_2O_7$ Acetophenone, 2,4-dihydroxy-3,5-dinitro-, 2621*h*, 9067*c*.
$C_3H_6N_2S$ Phthalimidine, 3-imino-1-thio-, P 8166*c*.
$C_3H_6N_2S_2$ Thiocyanic acid, (2-thienyl)ethylene ester, 5393*g*.
$C_3H_6N_4$ Cinchomerononitrile, 5-amino-6 methyl-, 4673*i*.
2,5 - Pyrazinedicarbonitrile, 3,6 - dimethyl-, 3006*d*.
$C_3H_6N_4O_2$ Cinnoline, 4-amino-8-nitro-, 1782*a*.
Oxanilyl azide, 7446*e*.
Quinoxaline, 2-aminonitro-, 3384*b*.
1,2,3,2 *H*-Triazole, 2-(nitrophenyl)-, 2619*h*.
$C_3H_6N_4O_2S_2$ Benzenesulfenamide, *p*-nitro-*N*-thiadiazolyl-, P 8400*d*.
$C_3H_6N_4O_2S_2$ Sulfanilamide, 3,5-dithiocyano-, P 3457*d*.
$C_3H_6N_4O_3$ *p*-Toluyl azide, 3-nitro-, 7448*a*.
$C_3H_6N_4O_4$ Pteridine, oxalate, 2625*b*.
7-Pteridinecarboxylic acid, 2,4-dihydroxy-, Me ester, 654*f*.
$C_3H_6N_4O_5$ Glyoxylic acid, 2,4-dinitrophenylhydrazone, 5342*h*.
$C_3H_6N_4O_6$ See *Alloxantin*.
$C_3H_6N_4O_4$ 6,7-Pteridinedicarboxylic acid, 2,4-diamino-, 654*f*.
$C_3H_6O$ (See also *Benzofuran*.)
Ether, ethynyl phenyl, 6997*a*.
$(C_3H_6O)_n$ Ether, ethynyl phenyl, polymer, 6997*c*.
$C_3H_6OS$ 3-Thianaphthenol, 6204*f*.
$C_3H_6O_2$ Acetic acid, (*o*-hydroxyphenyl)-, γ-lactone, 7015*h*.
Glyoxal, phenyl-, 6086.
Phthalide, 2570*g*.
$C_3H_6O_2S$ Thianaphthene, 1,1-dioxide, 1762*g*, 8379*d*.
$C_3H_6O_2S_2$ Thieno[3,4 - *b*]thiophthenecarboxylic acid, Me ester, 4667*a*.
Thiophthenecarboxylic acid, Me ester, 4667*a*.
$C_3H_6O_3$ (See also *Piperonal*.)
3(2 *H*)-Benzofuranone, 6-hydroxy-, 1406*d*.
Glyoxal, (hydroxyphenyl)-, 4240*cd*.
Glyoxylic acid, phenyl-, 48*i*, 2273*d*.
Homogentisic acid, lactone, 7003*b*.
Phthalaldehydic acid, 7003*c*.
$C_3H_6O_3S$ 2-Thiophenecrotonic acid, γ-oxo-, 607*e*, 7192*h*.
$C_3H_6O_4$ (See also *Phthalic acid*.)
Glyoxal, (3,4-dihydroxyphenyl)-, 4240*e*.
Isophthalic acid, 376*h*, 2190*e*, 7790*c*, 8890*i*.
Terephthalic acid, 2188*h*, P 4052*b*.
$C_3H_6O_4S$ 2 Benzofuransulfonic acid, *salts*, 7015*h*.
$C_3H_6O_5$ Phthalic acid, 3 hydroxy-, 2984*h*.
Phthalic monoperoxyacid, 6981*ei*, 7434*d*.
$C_3H_6O_5S$ 1-Isobenzofuransulfonic acid, 1,3-dihydro-3-oxo-, *Na salt*, 3806*b*.
$C_3H_6O_6$ Peroxyphthalic acid, 6979*i*.
*p*-Quinone, 2,3,5 trihydroxy-, 3-acetate, 4265*a*.
Terephthalic acid, 2,5-dihydroxy-, 2204*c*.
$C_3H_6O_7S$ Phthalic acid, sulfo-, 7245*h*; *Fe salts*, 6852*h*.
$C_3H_6S$ Thianaphthene, P 691*h*, 1762*g*, 3407*e*, 4418*a*, P 5236*i*
$C_3H_7$ Styryl (*free radical*), 4934*e*.
$C_3H_7AlCl_2O_3$ Salicylic acid, Me ester, $AlCl_3$, deriv., 5770*f*.
$C_3H_7AsClNO_2$ Acetanilide, 5-arsenoso-α-chloro-2-hydroxy-, 6179*a*.
$C_3H_7AsCl_2O_3$ Mandelic acid, *p*-dichloroarsino-, 4237*c*.
$C_3H_7AsO_2S_2$ Arsinic acid, di-2-thienyl-, *and Na salt*, 6102*g*.
$C_3H_7AsO_4$ Acetic acid, (*p*-arsenosophenoxy)-, 2273*d*.
$C_3H_7Br$ See *Styrene, bromo-*.
$C_3H_7BrClNO$ Acetanilide, α bromo-*p*-chloro-, 5081*h*.
Acetophenone, 2 - amino - α - bromo - 5-chloro-, 653*c*.
$C_3H_7BrN_2O_3$ (See also *Acetanilide, bromonitro-*.)
Glycine, *N*-(bromophenyl)-*N*-nitroso-, 3417*i*.
$C_3H_7BrN_2O_4$ *m*-Xylene, α-bromo-α,α-dinitro-, 6581*f*.
$C_3H_7BrN_2S$ Benzothiazole, 2-amino-4-bromo-6-methyl-, 1766*i*.
Benzothiazole, 6 - bromo - 2 - imino - 3-methyl-, 1766*i*.
$C_3H_7BrN_4$ Guanidine, 1-(bromophenyl)-3-cyano-, 169*f*, 2179*d*, 9036*b*.
$C_3H_7BrO$ See *Acetophenone, α-bromo-*.
$C_3H_7BrO_2$ Acetic acid, (bromophenyl)-, 605*i*.
Acetophenone, 5 - bromo - 2 - hydroxy-, 5446*e*.
Benzaldehyde, 5 - bromo - 2 - methoxy-, 1742*e*.
Benzoic acid, *p*-bromo-, Me ester, 5754*g*.
$C_3H_7BrO_2S$ Benzoic acid, *o*-(bromomethylmercapto)-, 2200*h*.
$C_3H_7BrO_3$ Anisic acid, 3-bromo-, 2116*h*.
$C_3H_7BrO_3S$ β Styrenesulfonic acid, bromo-, *salts*, 1347*d*; *Na salt*, 172*c*.
2-Thiophenebutyric acid, β-bromo-γ-oxo-, P 8401*g*.
$(C_3H_7BrO_3S)_n$ Compd., decomp. 109–10°, 1347*f*.
$C_3H_7BrO_5$ Muconic acid, bromodihydroxy-α-methoxy-, γ-lactone, Me ester, 6982*c*.
$C_3H_7BrO_5Pb$ Kojic acid, bromo-, compd. with Pb acetate, 8007*e*.
$C_3H_7Br_2NO$ Acetanilide, α,α-dibromo-, 6975*i*.
Acetophenone, 2-amino-α,5-dibromo-, 653*d*.
$C_3H_7Br_2NOS$ Acetanilide, 3,5-dibromo-α-mercapto-, 1347*h*.
$C_3H_7Cl$ See *Styrene, chloro-*.
$C_3H_7ClF_4O_2$ Cyclobutanecarboxylic acid, 1-chloro-2,2,3,3-tetrafluoro-, allyl ester, P 4295*e*.
$C_3H_7ClHgO_2$ Chlorophenylmercury acetate, 6585*f*.
$C_3H_7ClINO$ Acetanilide, α-chloro-*o*-iodo-, 1022*b*.
$C_3H_7ClNO_3PS$ Phosphine sulfide, (carboxyphenylimino)chloro-, Me ester, P 2765*c*.
$C_3H_7ClN_3$ Nicotinonitrile, 2-chlorodimethyl-, 2995*b*.
$C_3H_7ClN_3O$ *o*-Acetylbenzenediazonium chloride, 652*g*.
Isonicotinonitrile, 5-(chloromethyl)-3-hydroxy-2-methyl-, 644*d*.
$C_3H_7ClN_4O_2$ Glyoxylanilide, *p*-chloro-, α-oxime, 6351*f*.
Isophthalamide, 5-chloro-, 609*f*.
$C_3H_7ClN_4O_3$ (See also *Acetanilide, chloronitro-*.)
Glycine, *N*-(*p*-chlorophenyl)-*N*-nitroso-, 7480*c*.
$C_3H_7ClN_4O_4$ Carbanilic acid, 2-chloro-4-nitro-, Me ester, 169*a*.
$C_3H_7ClN_2O_5S$ Acetimidyl chloride, *N*-(*p*-nitrophenylsulfonyl)-, P 6660*h*.
Benzenesulfonamide, *N*-(1-chloroethylidene)-*p*-nitro-, P 6233*i*.
$C_3H_7ClN_2O_5$ Anisole, 3-chloro-6-methyl-, 2,4-dinitro-, 1348*a*.
$C_3H_7ClN_4$ (See also *Guanidine, 1-(chlorophenyl)-3-cyano-*.)
1 *H* - Tetrazole, 5 - (chloromethyl) - 1-phenyl-, P 7971*d*.
$C_3H_7ClN_4O_4$ Acetaldehyde, chloro-, 2,4-dinitrophenylhydrazone, 2575*e*.
$C_3H_7ClN_6$ Guanidine, 1-(*p*-chlorophenylazo)-3-cyano-, 3793*i*.
$C_3H_7ClO$ (See also *Acetophenone, chloro-*.)
Acetyl chloride, phenyl-, 1743*i*, 2271*d*, 4574*h*.
*p*-Toluyl chloride, 3715*d*, 4652*h*.
$C_3H_7ClO_2$ Acetic acid, chlorophenyl-, 2942*e*.
Acetic acid, (chlorophenyl)-, 605*h*, 4654*e*.
Anisoyl chloride, 1743*g*, 3715*d*, 4652*h*.
Benzoic acid, *p*-chloro-, Me ester, 5754*g*.
Benzoyl chloride, *m*-methoxy-, P 4699*d*.
Phenol, *p* chloro-, acetate, 7924*d*.
$C_3H_7ClO_3$ (See also *Acetic acid, (chlorophenoxy)-*.)
Acetic acid, chloro-, *o*-hydroxyphenyl ester, 3800*c*.
Acetophenone, β-chloro-3,4-dihydroxy-, 3800*c*.
Coumalyl chloride, 4,6-dimethyl-, P 2239*i*.
Vanillin, 6-chloro-, P 9447*a*.
$C_3H_7ClO_3S$ Benzoyl chloride, *m*-(methylsulfonyl)-, P 8171*g*.
$C_3H_7ClO_4$ Vanillic acid, 5-chloro-, 7455*g*.
$C_3H_7ClO_6$ Muconic acid, chlorodihydroxy-α-methoxy-, γ-lactone, Me ester, 6981*h*
$C_3H_7Cl_2NO$ Acetanilide, dichloro-, 3729*d*, 5081*h*.
Carbanilyl chloride, chloro-*N*-methyl-, P 1439*c*.
$C_3H_7Cl_2NO_3S$ Acetamide, *N*-(3,4-dichlorophenylsulfonyl)-, P 4419*h*.
$C_3H_7Cl_2N_3O_2$ Hydrazine, 1-(2,5-dichlorophenyl)-2-(1-nitroethylidene)-, 4646*i*
$C_3H_7Cl_2N_5$ Guanidine, (5,6-dichloro-2-benzimidazolyl)-, *and - HCl*, 1405*c*.
$C_3H_7Cl_2OP$ Phosphine oxide, dichlorostyryl, P 7499*g*.
$C_3H_7Cl_2PS$ Phosphine sulfide, dichlorostyryl, P 7499*i*.
$C_3H_7Cl_3$ Benzene, 1-chloro-4-(1,2-dichloroethyl)-, 6991*i*.
Benzene, dichloro(chloroethyl)-, P 680*h*, P 688*b*, P 2636*i*.
—, (trichloroethyl)-, P 681*a*.
*o*-Xylene, 3,4,6-trichloro-, P 8667*g*.
$C_3H_7Cl_3O$ Anisole, 2,3,4-trichloro-6-methyl-, 1348*a*.
Benzyl alcohol, *p*-chloro-α-(dichloromethyl)-, 6991*f*.
—, α-(trichloromethyl)-, P 350*i*.
$C_3H_7Cl_3Si$ Silane, trichloro(*p*-vinylphenyl)-, P 5635*d*.
$C_3H_7F$ Styrene, fluoro-, 1733*c*, 5629*e*, P 5972*b*, P 6433*c*.
$C_3H_7FN_2O_3$ Acetanilide, 2-fluoronitro-, 5755*ce*.
$C_3H_7FN_4$ Guanidine, 1-cyano-3-(*p*-fluorophenyl)-, 169*f*, 2947*f*, 5757*f*.
$C_3H_7FN_6$ Guanidine, 1-cyano-3-(*p*-fluorophenylazo)-, 5757*f*.
$C_3H_7FO$ Acetophenone, α-fluoro-, 1349*a*, 8841*c*.
$C_3H_7FO_2$ Acetic acid, fluoro-, Ph ester, 2933*b*.
$C_3H_7FO_3$ Acetic acid, (3-fluoro-4-hydroxyphenyl)-, 5863*g*, 6253*f*.
$C_3H_7F_3O$ Benzyl alcohol, *p*-(trifluoromethyl)-, 5761*e*.
$C_3H_7HgNO_4$ *m*-Nitrophenylmercury acetate, 6585*f*.
$C_3H_7I$ Styrene, *p*-iodo-, 5629*e*.
$C_3H_7IN_4$ Guanidine, 1-cyano-3-(*p*-iodophenyl)-, 169*f*, 2947*e*.
$C_3H_7IO_2$ Benzoic acid, *m*-iodo-, Me ester, 6973*d*.
$C_3H_7IO_2S$ Thianaphthene, 2,3-dihydro-3 iodo-, 1,1-dioxide, 1762*i*.
$C_3H_7IO_3$ Benzoic acid, 5-hydroxy-2-iodo-, Me ester, 191*c*.
$C_3H_7I_2NO_2S$ Propionic acid, β-(3,5-diiodo-4-pyridylmercapto)-, 7484*b*.
$C_3H_7KN_2O_4$ *m*-Xylene, α,α-dinitro-, K deriv., 6584*f*.
$C_3H_7N$ See *Acetonitrile, phenyl-; Indole; Tolunitrile*.
$C_3H_7NO$ Anisonitrile, 4652*f*.
Benzonitrile, *o*-methoxy-, 185*d*.
Benzoxazole, 2-methyl-, *- HCl*, 3428*a*.
Indolol, 1765*bcdf*.
Indoxyl, 2062*h*.

Isocyanic acid, *p*-tolyl ester, 8365*b*.
Mandelonitrile, 1312*e*, P 6666*b*.
Oxindole, 123*c*.
Phthalimidine, 8365*h*.

**$C_8H_7NOS$** 3,1,4 *H*-Benzothiazin-2-ol, 4278*d*.
1,4,2 *H*-Benzothiazin-3(4 *H*)-one, 7421*d*.
Benzothiazolol, 2-methyl-, *and salts*, 9453*d*.
2(3 *H*) - Benzothiazolone, 3 - methyl-, 4262*g*.
Benzoxazole, 2-methylmercapto-, 4415*c*.
Isothiocyanic acid, methoxyphenyl ester, 9278*i*.

**$C_8H_7NOS_2$** 2(3 *H*)-Benzothiazolethione, 3-(hydroxymethyl)-, 1767*d*.

**$C_8H_7NO_2$** 2(3 *H*)-Benzoxazolone, methyl-, 6615*ef*.
2-Furanbutyronitrile, γ-oxo-, P 7848*d*.
5,6-Indolediol, 3405*h*.
Phthalimidine, 3-hydroxy-, 623*eh*, 3805*i*, 3806*b*.
Styrene, nitro-, 1312*e*, 5620*e*, 7453*h*, 9334*d*.

**$C_8H_7NO_3$** 2(3 *H*)-Benzoxazolone, 5-methoxy-, 6615*h*.
2-Furanglycolonitrile, acetate, P 2631*i*.
2 Furanpropionic acid, α cyano-, 2988*d*.
Isonicotinic acid, 3-hydroxy-5-(hydroxymethyl)-2-methyl , γ-lactone, P 3045*b*, P 6071*g*, 8282*d*, *and its - HCl*, 644*a*, P 1067*e*.

**$C_8H_7NO_3S$** Benzenesulfonic acid, cyanomethyl ester, 2941*i*

**$C_8H_7NO_4$** Acetic acid, (nitrophenyl)-, 3060*f*, 4654*e*, 6266*a*, 6273*e*.
Acetophenone, 4-hydroxy-3-nitro-, 5446*e*.
Isophthalic acid, 4-amino-, P 3204*h*, P 4478*h*, P 8144*g*.
Nicotinic acid, 1,2-dihydro-5-hydroxy-4-(hydroxymethyl)-6-methyl 2-oxo-, γ-lactone, P 3046*a*
Phenol, nitro-, acetate, 4574*h*, 7924*d*, 9122*b*.

**$C_8H_7NO_4S$** (See also *Indican* )
Thianaphthene, 2,3-dihydronitro-, 1,1-dioxide, 1763*a*.

**$C_8H_7NO_5$** Acetophenone, 2,4-dihydroxy-3-nitro-, 2622*c*
Chelidamic acid, 1-methyl-, 1409*h*.

**$C_8H_7NO_7$** 2,3-Furandicarboxylic acid, 5-nitro-, di-Me ester, 5021*a*.

**$C_8H_7NS$** 3,1,4 *H*-Benzothiazine, 4277*i*
Benzothiazole, 2-methyl-, 2511*i*, 2853*d*, 3716*d*, 3814*b*, 7284*g*
Benzothiazoline, 2-methylene , 2511*i*, 2853*e*.
Isothiocyanic acid, *o* tolyl ester, 9273*i*.
Thiocyanic acid, benzyl ester, 2728*c*, P 3772*f*, 4657*i*.

**$C_8H_7NS_2$** Benzothiazole, 2-mercaptomethyl-, P 1438*c*.
Benzothiazole, 2 - methylmercapto-, 4415*a*.
2(3 *H*)-Benzothiazolethione, methyl-, 3964*b*, 4415*a*.

**$C_8H_7N_3$** Cinnoline, 4-amino , 1780*d*.
Quinazoline, amino-, P 4704*a*, P 7042*g*.
Quinoxaline, amino , 174*g*, 1028*d*, 3383*g*, 3384*f*.
*p* Toluenediazocyanide, 7455*e*.
1,2,3,2 *H*-Triazole, 2-phenyl-, 2619*f*.

**$C_8H_7N_3O$** Isatin, 3 hydrazone, 123*c*, 6614*g*.
4(3 *H*)-Quinazolone, 3-amino-, 3424*i*.

**$C_8H_7N_3OS$** 4-Quinazolinol, 6-amino-2-mercapto-, 8395*a*
Urea, (6-benzothiazolyl)-, 7476*c*.

**$C_8H_7N_3O_2$** Isonicotinamide, 3-cyano-1,2-dihydro-6-methyl-2-oxo-, 4673*d*.
1,4-Phthalazinedione, aminodihydro-, P 1266*g*, 8139*a*.
Phthalimide, 3-hydrazino-, 7488*f*.

**$C_8H_7N_3O_3S$** 6-Quinoxalinesulfonic acid, amino-, 3384*b*.

**$C_8H_7N_3O_4$** Glyoxylic acid, *p*-nitrophenylhydrazone, 1324*d*.

**$C_8H_7N_3O_6$** Acetanilide, dinitro-, 5755*ce*, 6175*b*.

**$C_8H_7N_3O_6$** Xylene, trinitro-, 4360*f*, 6584*e*.

**$C_8H_7N_3O_7$** Phenethyl alcohol, trinitro-, 592*g*, 1733*g*.

**$C_8H_7N_3S_2$** 2,4-Quinazolinedithiol, 6-amino-, 8394*i*.

**$C_8H_7N_4O$** Nicotinamide, *N*-(cyanoguanyl)-, 5025*e*.

**$C_8H_7N_4O_2$** Guanidine, 1-cyano-3-(nitrophenyl)-, 169*f*, 2179*d*.

**$C_8H_7N_4O_3$** 6-Pteridineacetic acid, 2-amino-4-hydroxy-, 655*i*.
7-Pteridinecarboxylic acid, 2-amino-4-hydroxy-, Me ester, 654*g*.

**$C_8H_7N_4O_6$** Barbituric acid, 5,5′-iminodi-, 7304*i*.

**$C_8H_7NaO_2$** Acetophenone, *o*-hydroxy-, Na deriv., 2621*a*.

**$C_8H_8$** (See also *Cyclooctatetraene; Styrene*.)
Bicyclo[4.2.0]-2,4,7-octatriene, 6195*f*.
1,3,5-Cycloheptatriene, 7-methylene-, 6918*g*.
*p*-Quinodimethan, 2512*a*, 5759*df*.

**$C_8H_8AsClO_4$** Benzenearsonic acid, *m*-chloroacetyl , 7452*e*.

**$C_8H_8AsNO_3$** Acetanilide, 5-arsenoso-2-hydroxy-, 599*a*, 6178*i*.

**$C_8H_8AsN_3O_3$** Benzenearsonic acid, *p*-(1,2,3,2 *H*-triazol-2-yl)-, 2620*a*.

**$C_8H_8AuNOS$** Acetanilide, α (auromercapto)-, P 1913*i*.

**$C_8H_8BrCl$** Xylene, 4-bromo-α′-chloro-, 2625*i*.

**$C_8H_8BrN$** Pyridine, 3-bromo-5-isopropenyl-, 217*d*.

**$C_8H_8BrNO$** Acetanilide, α-bromo-, 5754*f*.
Acetophenone, *o*-amino-α-bromo-, 652*i*.

**$C_8H_8BrNO_2$** Glycine, *N*-(*m*-bromophenyl)-, 3417*i*.
Nicotinic acid, 5-bromo-, Et ester, 217*d*.
*m*-Xylene, α-bromo-α-nitro-, 6584*f*.

**$C_8H_8BrNO_2S$** β Styrenesulfonamide, β-bromo-, 1347*e*.

**$C_8H_8BrN_3O$** Benzaldehyde, *p*-bromo-, semicarbazone, 5761*b*.

**$C_8H_8Br_2$** Benzene, (1,2-dibromoethyl)-, 1312*d*, 3136*d*, 5753*i*, 6195*h*.
Bicyclo[4.2.0]-2,4 octadiene, 7,8-dibromo , 6196*f*.
Xylene, α,α′-dibromo-, P 3215*h*, 3382*b*, 8199*f*.

**$C_8H_8Br_2Cl_4$** Bicyclo[4.2.0]octane, dibromotetrachloro-, 6196*f*.

**$C_8H_8Br_2N_2O$** Acetic acid, dibromo-, 2-phenylhydrazide, 6975*i*.

**$C_8H_8Br_2N_2O_3S$** Acetamide, *N*-sulfanilyl-, dibromo deriv., 7642*f*

**$C_8H_8Br_2O$** 3 Oxatricyclo[5 2 0 $0^{2,4}$]-5-nonene, 8,9 dibromo-, 6197*g*.

**$C_8H_8Br_2O_6$** Muconic acid, α,γ dibromo-β hydroxy δ methoxy , α Me ester, 6082*b*.

**$C_8H_8Br_4$** Bicyclo[4.2.0]octene, tetrabromo-, 6196*h*.
Compd., m. 94°, 6196*h*.

**$C_8H_8Br_6$** Bicyclo[4.2.0]octane, 2,3,4,5,7,8-hexabromo , 6196*g*.
Compd., m. 150 1°, 6196*g*.

**$C_8H_8CdCl_2O_2$** Anisaldehyde, complex with $CdCl_2$, 7000*h*.

**$C_8H_8ClF_2NO_2$** Acrylamide, α-(chlorodifluoromethyl) *N* - [2 (trifluoroacetamido)-ethyl] , P 8399*a*.

**$C_8H_8ClN$** Pyridine, 3-chloro-5-isopropenyl-, 217*e*.

**$C_8H_8ClNO$** (See also *Acetanilide, chloro-*.)
Acetamide, α-chloro-α-phenyl-, 2942*e*
Acetophenone, amino-α-chloro-, 653*a*, 7452*b*.
—, *p* chloro-, oxime, 4651*a*.

**$C_8H_8ClNO_2$** Benzene, 1-(2-chloroethyl)-4-nitro-, 646*c*
Glycine, *N*-(*p*-chlorophenyl)-, 7480*c*.
Nicotinic acid, 2-chloroethyl ester, 2622*f*.

**$C_8H_8ClNO_3$** Acetic acid, (2-amino-4-chlorophenoxy)-, P 5961*g*, P 5962*a*, P 7700*i*.
Benzyl alcohol, *p*-chloro-α-nitromethyl-, P 5046*c*.
Phenetole, 4-chloro-2-nitro-, 2599*e*, 4150*g*.

**$C_8H_8ClNO_3S$** Sulfanilyl chloride, *N*-acetyl-, 926*g*, 9142*g*.

**$C_8H_8ClN_3S_2$** Biuret, 1-(*p*-chlorophenyl)-2,4-dithio-, 5746*g*; *and - HCl*, 2950*d*.

**$C_8H_8ClN_5$** Guanidine, (5-chloro-2-benzimidazolyl)-, *and di HCl*, 1405*a*.

**$C_8H_8Cl_2$** Benzene, chloro(1-chloroethyl)-, P 680*h*, 6992*a*.
Benzene, (dichloroethyl)-, P 681*a*.
—, 1,4-dichloro-2-ethyl-, P 688*b*, P 2636*h*.
Bicyclo[4.2.0]-2,4-octadiene, 7,8 dichloro-, 6196*b*.
Xylene, dichloro-, P 681*g*, P 3215*b*, 6590*f*, P 8667*g*.

**$C_8H_8Cl_2N_2O$** Acetanilide, aminodichloro-, 3729*d*, *and di HCl*, 1024*d*.

**$C_8H_8Cl_2N_2O_3S$** Acetamide, *N*-(3,5-dichlorosulfanilyl)-, 601*g*.
Acetanilide, 2,6-dichloro-4-sulfamyl-, 601*f*.

**$C_8H_8Cl_2O$** Anisole, 2,4-dichloro-5-methyl-, 6633*c*.
Benzyl alcohol, *p*-chloro-α-(chloromethyl)-, 6991*i*.
—, 2,5-dichloro-α-methyl-, P 688*a*, P 2637*a*.
3-Oxatricyclo[5.2.0.$0^{2,4}$]-5-nonene, 8,9-dichloro-, 6197*e*.

**$C_8H_8Cl_2O_6$** Muconic acid, α,γ-dichloro-β-hydroxy-γ-methoxy-, α-Me ester, 6981*h*.

**$C_8H_8Cl_3N$** Aniline, 2,4,6-trichloro-*N*, *N*-dimethyl-, 6571*a*.

**$C_8H_8Cl_3NO$** Benzyl alcohol, *p*-amino-α-(trichloromethyl)-, 1367*g*.

**$C_8H_8Cl_4$**, 6196*f*.
Bicyclo[4.2.0]octene, tetrachloro-, 6196*e*.
1,3-Butadiene, 2,3-dichloro-, dimer, 591*b*.

**$C_8H_8Cl_4O_8Si$** Acetic acid, chloro-, tetraanhydride with orthosilicic acid, 4631*i*.

**$C_8H_8Cl_4Si$** Silane, trichloro[*p*-(chloroethyl)-phenyl]-, P 5635*d*.

**$C_8H_8Cl_6$**, 6196*f*.
Bicyclo[4.2.0]octane, 2,3,4,5,7,8-hexachloro-, 6196*f*.

**$C_8H_8FNO$** Carbanilyl fluoride, *N*-methyl-, 3741*g*.

**$C_8H_8F_3NO$** *o*-Anisidine, 5-(trifluoromethyl)-(?), 7918*d*.

**$C_8H_8F_4$** Bicyclo[4.2.0]-2-octene, 7,7,8,8-tetrafluoro, 3371*c*.

**$C_8H_8HgO_2$** Phenylmercury acetate, P 690*ab*, 3904*a*, 5146*a*, P 5155*i*, 5865*h*, 6585*f*, 7176*i*, 7178*f*, 7684*d*, 7734*c*, 8680*c*, 9335*i*, 9337*hi*, 9338*c*, 9347*c*.

**$C_8H_8I_2$** *p*-Xylene, α,α′-diiodo-, 6591*a*.

**$C_8H_8NNaO_2$** Benzyl alcohol, α-nitromethyl , Na deriv., 7453*h*.

**$C_8H_8N_2$** Benzimidazole, 2-methyl-, 5621*f*, 8365*h*, P 9474*e*.

**$C_8H_8N_2O$** Nicotinonitrile, 1,2-dihydro-4,6-dimethyl-2-oxo , 2995*b*.
Oxindole, 6-amino-, - *HCl*, 216*a*.
2-Pyridineacetonitrile, 1,6-dihydro-1-methyl-6-oxo-, 6628*i*.
1(4 *H*) - Pyridinepropionitrile, 4 - oxo-, 3416*i*.

**$C_8H_8N_2O_2$** Nicotinaldehyde, 2-acetamido-, 6626*g*.
Oxindole, 3-amino-6-hydroxy-, - *HCl*, 216*b*.
Urea, benzoyl-, 4232*d*.

**$C_8H_8N_2O_2S$** Hydantoin, 1-methyl-5-(2-thienyl)-, 3426*f*.

**$C_8H_8N_2O_2S_2$** Benzothiazole, 2-amino-6-(methylsulfonyl)-, 2617*h*.

**$C_8H_8N_2O_3$** Acetanilide, nitro-, 2186*d*, 5755*a*, P 7593*a*.
Benzamide, *N*-methylnitro-, 1145*b*, 5897*g*, 7181*i*.
Benzoic acid, 5-amino-2-formamido-, P 4865*b*.
—, ureido-, 6719*b*.
Glycine, *N*-nitroso-*N*-phenyl-, 3418*b*.
—, *N*-3-pyridylcarbonyl-, 6718*e*.
Oxanilic acid, amino-, P 6425*beg*, P 6426*abcde*, P 7702*efg*.
1,5 *H*-Pyrindine-2,4-diol, 6,7-dihydro-3 nitroso-, 9069*a*.
Toluamide, nitro-, 1408*g*, 3805*cf*.

**$C_8H_8N_2O_3S$** Acetamide, *N*-(*p*-nitrophenylmercapto)-, P 8400*b*.

**$C_8H_8N_2O_4$** Adipic acid, α, δ-dicyano-, P 9476*a*.
Benzene, 1-ethyl-2,4-dinitro-, 6175*a*.
1,4 - Benzodioxan - 6 - amine, 7 - nitro-, 1413*f*.
Malonic acid, [1-methyl-4(or 5)-imidazolylmethylene]-, 8382*f*.
Salicylamide, *N*-methyl-4-nitro-, 6596*f*.
Xylene, dinitro-, 70*d*, 6175*a*, 6584*di*, 6585*a*.

**$C_8H_8N_2O_5$** Anisole, 2-methyl-4,6-dinitro-, 3805*a*, 8600*a*, 9336*e*.
Anthranilic acid, *N*-acetyl-5-nitro-, P 4864*g*.
Phenetole, 2,4-dinitro-, 2599*e*.
3,4-Xylenol, 2,6-dinitro-, 5758*g*.

**$C_8H_8N_2O_5S$** Acetamide, *N*-(*p*-nitrophenylsulfonyl)-, P 3458*f*, P 7961*e*, P 8400*b*.

**$C_8H_8N_2O_6S$** Oxanilic acid, 4-amino-2-sulfo-, P 9463*e*.

**$C_8H_8N_2S$** 3,1,4 *H*-Benzothiazine, 2-amino-, 4278*i*.
Benzothiazoline, 2 - imino - 3 - methyl-, 1766*i*.

**$C_8H_8N_2S_2$** Benzothiazole, 2-amino-6 methylmercapto-, 2617*h*.
4,4′-Bithiazole, 5,5′-dimethyl-, 2202*g*.

**$C_8H_8N_4$** Guanidine, 1-cyano-3-phenyl-, P 1799*e*, 2179*d*, P 2636*a*.
1,2,3,2 *H*-Triazole, 2-(*p*-aminophenyl)-, *and - HCl*, 2619*i*.

**$C_8H_8N_4O$** Guanidine, 1-cyano-3-(hydroxyphenyl)-, P 2636*c*.

**$C_8H_8N_4OS$** 4-Pteridinol, 2-(ethylmercapto)-, 2212*g*.

**$C_8H_8N_4O_2$** Lumazine, 6,7-dimethyl-, 654*d*.

**$C_8H_8N_4O_2S$** Benzenesulfonamide, *p*-(1,2,3,2 *H*-triazol-2-yl)-, 2620*b*.
6-Quinoxalinesulfonamide, amino-, 3384*b*.

**$C_8H_8N_4O_2S_2$** Sulfanilamide, *N*¹-(thiadiazolyl)-, P 3034*i*, P 3458*a*, P 5042*e*, P 8400*d*.

**$C_8H_8N_4O_3$** Benzaldehyde, *p*-nitro-, semicarbazone, 4574*e*, 5761*f*.
Benzotriazole, 5-ethoxy-6-nitro-, 7016*f*.

*s* - **Triazolo[2,3 - *a*]pyrimidine - 6 - carboxylic acid, 5-hydroxy-**, Et ester, P 4165*d*.

**$C_8H_8N_4O_3S$** Sulfanilic acid, *N*-(cyanoguanyl)-, P 2636*b*.

**$C_8H_8N_4O_4S$** Benzenesulfonamide, *p*-(3,5-dioxo-1,2,4-triazolid-1-yl)-, 601*d*.

**$C_8H_8N_4O_5$** 2-Furaldehyde, 5-nitro-, 2-hydroxyethylsemicarbazone, 9249*h*.
Resorcylaldehyde, nitro-, semicarbazone, 7925*bc*.
*p*-Toluic acid, 3,5-dinitro-, hydrazide, 6972*c*.

**$C_8H_8N_4S$** 2-Quinazolinethiol, 4,6-diamino-, 8395*a*.

**$C_8H_8N_6$** *s*-Triazine, 2-amino 4-(2-pyridylamino)-, P 7053*g*.

**$C_8H_8N_6O_2$** 7-Pteridinecarboxylic acid, 2,4 diamino , Me ester, 654*g*

**$C_8H_8N_6O_6$** Murexide, 7304*i*, 7369*a*.

**$C_8H_8O$** (See also *Acetaldehyde, phenyl-*; *Acetophenone*.)
Benzene, (1,2-epoxyethyl)-, 1312*f*, 6574*a*, 7420*f*.
9 - Oxabicyclo[6.1.0] 2,4,6 - nonatriene, 6195*b*.
Tolualdehyde, 5761*b*, 6584*c*, 6585*a*

**$C_8H_8OS$** Acetic acid, thiol-, Ph ester, 8086*d*, 8978*i*.
2 Buten-1-one, 1 (2-thienyl) , P 2644*c*.

**$C_8H_8OS_2$** Xanthic acid, methyl-, Ph ester, 6409*d*.

**$C_8H_8O_2$** (See also *Acetic acid, phenyl*; *Acetophenone, hydroxy-*, *Anisaldehyde*; *Toluic acid*.)
Acetaldehyde, phenoxy-, P 689*c*, 4240*b*
Acetic acid, Ph ester, 2588*i*, 4574*g*, 6495*f*, 7924*c*, 9049*f*, 9122*b*.
Benzaldehyde, methoxy-, 1742*c* 3728*g*, 6020*h*.
6 Benzofuranol, 2,3 dihydro , 1406*c*, 3412*c*.
Benzoic acid, methyl ester, 319*n*, 1242*f*, 1323*h*, 1619*f*, 2591*d*, 4215*c*, 4574*h*, 6018*h*, 6019*g*, 6495*f*, 7453*b*.
3-Buten-2 one, 4 (2-furyl) , 9334*b*
2,4,6-Cycloheptatrien 1 one, 2 hydroxy-6 methyl , 3404*c*.
Hydroquinone, vinyl-, 5263*c*
Phlorone, 5665*g*, 8413*f*, 8615*g*

**$C_8H_8O_2S$** Acetic acid, phenylmercapto , 8017*f*, 8816*a*.
1,3-Butanedione, 1-(2-thienyl) , 629*h*, 2582*i*.
Thianaphthene, 2,3-dihydro , 1,1 dioxide, 1762*i*
2-Thiopheneacrylic acid, methyl , 9063*i*
*p*-Toluquinone, methylmercapto , 2620*d*

**$C_8H_8O_2S_2$** Acetic acid, (*p* mercaptophenyl mercapto)-, 2271*g*, 3365*a*.

**$C_8H_8O_2Se$** Acetic acid, (phenylselenyl) , 2273*d*.

**$C_8H_8O_3$** (See *Acetophenone, dihydroxy*; *Anisic acid, Mandelic acid; Vanillin*; *o Vanillin*.)
Acetic acid, (hydroxyphenyl) , 3060*f*, 4708*c*, 6273*e*, 9146*h*.
–, phenoxy-, P 2233*i*, P 7509*i*, 8017*f*
Acrylic acid, furfuryl ester, P 2034*i*, 5988*i*.
Anisaldehyde, 2 hydroxy , 3567*g*.
Benzoic acid, hydroxy-, Me ester, 714*h*, 1243*c*, 3144*i*, 7193*d*, P 7646*h*.
—, methoxy , 2685*i*, 2863*i*, P 4699*d*, 8811*f*.
1,4-Butanedione, 1-(2-furyl)-, 4253*g*.
Cresotic acid, 3964*b*, P 4481*e*, 5080*a*, P 7702*h*, P 8151*g*.
4-Cyclohexene-1,2-dicarboxylic anhydride, 8700*c*.
Furanacrylic acid, Me ester, P 3232*d*, 9334*c*.
2-Furanhydracrylic acid, 5-methyl-, *β*-lactone, P 5037*h*.
Isovanillin, 125*c*, 1318*a*, 7005*f*.
*β*-Resorcylaldehyde, 5-methyl-, 3412*g*
Salicylic acid, Me ester, 454*c*, 1243*c*, 1529*e*, 2044*g*, 2320*i*, 2868*f*, 3520*b*, P 8195*d*
Toluic acid, *α*-hydroxy-, 2188*g*.
Toluquinone, methoxy-, 2274*i*, 2668*h*, 8413*f*.

**$C_8H_8O_3S$** Ketone, hydroxymethyl 2-thienyl, acetate, 2614*i*
*β*-Styrenesulfonic acid, *Na salt*, 172*b*
2-Thiophenebutyric acid, γ-oxo-, P 8402*a*.

**$C_8H_8O_4$** (See also *Vanillic acid*.)
**Anisic acid**, 2-hydroxy-, 1035*i*, 6608*f*.
**Benzoic acid**, 4-hydroxy-2-methoxy-, 1036*d*.
**Cyclohexadienedicarboxylic acid**, P 7839*a*.
**Dehydroacetic acid**, 1724*e*, P 6758*d*, P 6784*a*, 9334*b*.
**2-Furanbutyric acid**, γ-oxo-, P 7848*d*
**Gallacetophenone**, 5446*e*.
**2-Hexen-4-yndioic acid**, di-Me ester, 7415*e*.
**Homogentisic acid**, 1456*h*, 6598*a*, 6599*d*, 7002*i*, 8061*c*.
**Homoprotocatechuic acid**, 3940*c*.
**Ketone, 2-furyl hydroxymethyl, acetate**, 1392*b*.
**2,4,6-Octatrienedioic acid**, 6981*b*
**Phloroacetophenone**, 4009*i*.
**Protocatechualdehyde, 5 - methoxy-**, 3386*i*.
*p*-Quinone, 2,6-dimethoxy-, 3111*e*, 8413*f*
**Salicylic acid, 3 methoxy-**, 7455*g*, P 7509*a*.

**$C_8H_8O_4S$** Acetic acid, anhydride with $PhSO_2H$, 2110*f*.
Acetic acid, (phenylsulfonyl) , 2273*d*.
2,5-Thiophenedicarboxylic acid, di Me ester, 6308, P 4302*d*.
3,4 Thiophenediol, diacetate, P 2237*c*.

**$C_8H_8O_5$** 2,3-Furandicarboxylic acid, 4-methyl-, 3-Me ester, 5020*h*.
2-Pentenoic acid, 2 hydroxy-3 (hydroxymethyl) 4-oxo-, γ lactone acetate, 1406*h*
4 Pyrone, 5-hydroxy-2 (hydroxymethyl)-, 2-acetate, 8385*g*.

**$C_8H_8O_5S$** Glycolic acid, benzenesulfonate, *and salts*, 2941*h*.

**$C_8H_8O_6$** Mucone acid, dihydroxy-*α* methoxy , γ lactone Me ester, 6982*c*.

**$C_8H_8O_6S$** 2,5-Thiophenedicarboxylic acid, 3,4 dimethoxy-, P 2237*a*

**$C_8H_9AsO_3$** Acetic acid, phenylarsinoso- 2273*d*

**$C_8H_9AsO_6$** Mandelic acid, *p*-arsono , *di-Na salt*, 4237*b*

**$C_8H_9AuN_2O_4S_2$** Acetamide, *α*-(auromercapto)- *N*-sulfamyl , 1347*h*
Acetamide, *α*-(auromercapto) *p* sulfamyl-, 1347*g*

**$C_8H_9Br$** Benzene, bromoethyl , P 8667*f*
Benzene, (1-bromoethyl) , P 3024*b*, 4241*c*, 6195*h*
Xylene, bromo-, 1733*c*, 1734*d*, 5761*b*, P 8667*f*.

**$C_8H_9BrN_2O \cdot \frac{1}{2}H_2O$** 1,5 *H* Pyrindin-2-ol, 4-amino-3 bromo-6,7-dihydro , 9068*h*.

**$C_8H_9BrN_2O_3S$** Compd., m. 120°, 6986*b*.

**$C_8H_9BrN_2O_3S$** Acetamide, *N*-sulfanilyl-, bromo deriv., 7642*f*
Acetamide, 2-bromo-4 sulfamyl , 175*e*.

**$C_8H_9BrO$** Benzyl alcohol, *α* (bromomethyl)-, 2570*f*.

**$C_8H_9BrOS$** 1-Butanone, 1 (5 bromo-2-thienyl)-, 4666*b*.

**$C_8H_9BrO_2$** Pyrocatechol, 4-(2 bromoethyl)-, 7451*d*
Veratrole, 4 bromo-, 2177*h*.

**$C_8H_9BrO_4$** Sorbic acid, bromo-γ-hydroxy-*β*-methoxy-δ-methyl , γ-lactone, 1722*ar*.

**$C_8H_9Br_2N$** *o*-Toluidine, 4,6-dibromo *N*-methyl-, 1343*c*

**$C_8H_9Br_2NO_2S$** Ethanesulfonamide, 1,2-dibromo-2-phenyl , 172*a*

**$C_8H_9Cl$** Benzene, chloroethyl-, 1867*f*, 8368*bc*.
Benzene, (chloroethyl)-, 612*h*, P 680*f*, 1867*f*, 2966*h*, 7407*f*, 8282*c*.
1,3-Cyclohexadiene, 3 chloro-1-vinyl-, 590*i*.

**$C_8H_9ClHgO$** Phenetylmercury chloride, 4236*i*, 4237*a*.

**$C_8H_9ClNP$** Phosphine, chloro(xylylimino)-, P 2765*c*.

**$C_8H_9ClN_2$** Acetamidine, *N*-(*p*-chlorophenyl)-, 9037*b*.
1,5 *H*-Pyrindine, 4-amino-2-chloro-6,7-dihydro-, 9069*a*.

**$C_8H_9ClN_2O$** Acetamide, *α*-chloro- *N*-(2-cyanocyclopentylidene)-, 9068*e*
Acetophenone, diamino-*α*-chloro-, 7452*c*.

**$C_8H_9ClN_2O_2S_2$** Pseudourea, 1-(*p*-chlorophenylsulfonyl) - 2 - methyl - 2 - thio-, 2946*g*.

**$C_8H_9ClN_2O_3S$** Acetamide, *α*-chloro- *N*-sulfanilyl-, 1347*h*.
Acetanilide, chlorosulfamyl-, 175*g*, 1347*h*.
Acetanilide, *p* (chlorosulfamyl)-, 7450*g*.

**$C_8H_9ClN_2O_5$** 2,3-Dihydro-1-methyl 2 oxo 1 *H*-imidazo[1,2-*a*]pyridinium perchlorate, 6436.

**$C_8H_9ClN_2S$** Urea, 1-(*p*-chlorophenyl)-3-methyl-2-thio , P 1060*e*.

**$C_8H_9ClN_4O_4$** Glycine, *N*-(chloromethyl-5-nitro-4-pyrimidyl)-, Me ester, P 9087*e*.

**$C_8H_9ClN_4S$** Urea, 1-(*p*-chlorophenylguanyl)-2-thio-, 2950*d*.
Urea, 1 - (*p* - chlorophenyl) - 3 - guanyl-2-thio-, 1779*f*, 9039*i*.

**$C_8H_9ClO$** Anisole, *p*-(chloromethyl)-, 1741*c*, 2607*a*.
Anisole, 5-chloro-2-methyl-, 1347*i*, 1348*a*.
Benzyl alcohol, chloro-*α*-methyl-, 1733*c*, 1741*i*, 6992*a*.
Phenethyl alcohol, *β*-chloro-, 4733*i*
Phenetole, chloro-, 129*c*, 3138*c*.
3,5-Xylenol, 4-chloro-, 3065*c*, 3964*a*.

**$C_8H_9ClO_2$** Ethanol, 2-(*p*-chlorophenoxy)-, P 352*e*.

**$C_8H_9ClO_2S$** Sulfone, benzyl chloromethyl, 7409*f*.
Sulfone, 2-chloroethyl phenyl, 129*c*, 7590*c*.

**$C_8H_9ClO_3$** 2-Furoic acid, 5-(2-chloroethyl) , Me ester, P 1065*d*.
2 Furoic acid, 5-(chloromethyl)-, Et ester, P 1065*d*.

**$C_8H_9ClO_3$** Caproic acid, *β*-chloro-*β*-(hydroxymethyl)-ε-methoxy-*α*,γ-dioxo-, γ-lactone, 1407*c*.

**$C_8H_9ClS$** Sulfide, benzyl chloromethyl, 7409*f*
Sulfide, *α*-chlorobenzyl methyl, 7409*f*.
–, 2-chloroethyl phenyl, 129*c*.

**$C_8H_9ClSe$** Selenide, benzyl chloromethyl, 600*d*.

**$C_8H_9Cl_2N$** Aniline, 2,4-dichloro- *N*, *N*-dimethyl-, 6571*a*.

**$C_8H_9Cl_3OSi$** Silane, trichloro(*p*-ethoxyphenyl)-, 3354*i*.

**$C_8H_9Cl_3Si$** Silane, trichloro(*p*-ethylphenyl) , P 5635*d*.

**$C_8H_9F$** Benzene, 2-fluoroethyl-, 6164*c*.
Xylene, *α*-fluoro-, 166*ab*.

**$C_8H_9FN_2O$** Acetic acid, fluoro , phenylhydrazide, 348*c*.

**$C_8H_9FN_2O_2S$** Acetanilide, 2-fluoro-4 sulfamyl-, 5863*g*, 6253*f*.

**$C_8H_9FO$** Phenetole, *β*-fluoro-, 6163*h*.

**$C_8H_9FO_4$** 4-Cyclohexene-1,2-dicarboxylic acid, 4-fluoro-, P 2218*f*.

**$C_8H_9HgNO_2$** Aniline, *p*-(acetoxymercuri) , 600*c*.

**$C_8H_9HgNO_4S_2$** Acetic acid, (*p* sulfamylphenyl mercurimercapto) , 7922*g*.

**$C_8H_9HgNaO_3S_2$** Sulfomerthiolate, 4382*d*

**$C_8H_9IN_2O$** 2,3 Dihydro-1 methyl-2-oxo 1 *H* imidazo[1,2 - *a*]pyridinium iodide, 643*a*.

**$C_8H_9IN_2OS$** 5 *H*-Thiazolo[3,2-*a*]pyrimidin 5-one, 2,3-dihydro-2-(iodomethyl)-7 methyl-, 6985*h*.

**$C_8H_9IN_2O_3S$** Acetanilide, 2-iodo-4-sulfamyl-, 175*i*.

**$C_8H_9IN_2S_2$** 3-Methyl-4-(4-thiazolylmethyl)-thiazolium iodide, 7931*h*.

**$C_8H_9IN_4S$** Urea, 1-(*p* iodophenylguanyl) 2-thio-, - *HCl*, 2950*f*.

**$C_8H_9IO_2$** Pyrocatechol, 4 (2-iodoethyl) , 7451*c*.

**$C_8H_9IO_3$** Sorbic acid, γ hydroxy *α* iodo *β*-methoxy-δ-methyl-, γ-lactone, 1722*a*.

**$C_8H_9KN_2O_3S$** Acetanilide, *p*-sulfamyl , K deriv , 2597*e*.

**$C_8H_9LiO$** Lithium (*p*-hydroxyethylphenyl) , 2188*h*.

**$C_8H_9N$** Aniline, *N*-ethylidene-, 8192*d*.
Aniline, *ar*-vinyl-, 1633*h*.
Indoline, 2165*a*.
Isoindoline, 121*h*.
Methylamine, *N*-benzylidene-, 1340*h*
Pyridine, isopropenyl-, 217*c*.

**$C_8H_9NO$** (See also *Acetamide, α-phenyl-*, *Acetanilide*.)
Acetophenone, oxime, 4650*i*.
—, amino-, 604*g*, 652*g*, 2863*i*, 4315*b*, 7546*d*.
Benzaldehyde, methyloxime, 3974*g*.
Formamide, *N*-benzyl-, 576*a*, P 5800*c*, 6596*a*.
2 Propanone, (2-pyridyl)-, 6625*g*

**$C_8H_9NOS$** Carbanilic acid, thiol-, Me ester, 4415*b*.
Carbanilic acid, thiono-, Me ester, 4415*b*
2 - Thiophenecarboxamide, *N* - allyl-, 2273*b*.

**$C_8H_9NOS_2$** 4-Thiazolidone, 3-methyl 2-(2 thienyl)-, 634*e*.

**$C_8H_9NO_2$** (See also *Glycine, phenyl-*; *Xylene nitro-*.)
Acetamide, *α*-phenoxy-, 121*h*.
Acetanilide, hydroxy-, 263*g*, 314*e*, 3204*i*, P 4482*g*, P 4867*cde*, P 5196*i*.
Acetic acid, (*p*-aminophenyl)-, 3060*f*, 6273*e*.
Acetophenone, aminohydroxy-, 7545*b* - *HCl*, 2602*d*, P 5043*d*, *salts*, P 5044*f*.
Anthranilic acid, Me ester, 3146*b*, 3148*f*, 4815*d*, 5150*e*.
—, *N*-methyl-, 3425*b*.
Benzamide, *N*-(hydroxymethyl)-, 6223*b*.
Benzene, ethylnitro-, 7439*g*.
Benzodioxan-6-amine, P 5194*ab*, P 7697*c* P 8149*b*.
Carbanilic acid, Me ester. P 1904*d* 7441*bf*.

Nicotinic acid, Et ester, 6316*h*, 6317*a*; *and - HCl*, 2622*f*.
Phlorone, oxime, 5378*h*.
2-Pyridineacetic acid, Me ester, 4269*h*.
3-Pyridinemethanol, acetate, P 7973*a*, P 8105*gh*.
1,5 *H*-Pyrindine-2,4-diol, 6,7-dihydro-, 9069*a*.
2,5-Xylenol, 4-nitroso-, 5378*h*.

**$C_8H_9NO_2S$** Acetic acid, (*o*-aminophenylmercapto)-, *K salt*, 7421*d*.
β-Styrenesulfonamide, 1347*f*.
4-Thiazolidone, 2-(2-furyl)-3-methyl-, 634*e*.

**$C_8H_9NO_2S_2$** Benzamide, *p*-(methylsulfonyl)-thio-, 1740*e*.

**$C_8H_9NO_3$** (See also *Isonicotinaldehyde, 3-hydroxy-5-(hydroxymethyl)-2-methyl-.*)
Anisic acid, 2-amino, 1416*h*.
Anisohydroxamic acid, *and salts*, 2116*g*.
Benzyl alcohol, α nitromethyl-, 7453*f*.
Cresotic acid, amino-, P 4475*h*, P 4477*h*.
Furan, 2-(2-nitro-1-butenyl)-, 9334*e*.
Glycine, *N*-(*p*-hydroxyphenyl)-, 6930*b*.
Nitric acid, *m*-methylbenzyl ester, 6584*d*.
Orthoform, 7190*h*
Phenetole, nitro-, P 687*gi*, 702*g*, 3699*d*.
Pyridineacetic acid, dihydro-1 methyl-oxo-, 6628*ef*.
1(2 *H*)-Pyridineacetic acid, 6-methyl-2 oxo-, 6630*f*.
1(4 *H*) Pyridinepropionic acid, 4-oxo, 3416*i*.
Salicylic acid, 3 amino, Me ester, 7925*d*.
Xylenol, nitro-, 358*b*, 5758*e*.

**$C_8H_9NO_3S$** Benzamide, *N*-(methylsulfonyl), 120*g*.
Benzenesulfonamide, *p*-acetyl-, 7450*f*

**$C_8H_9NO_4$** Isonicotinic acid, 3 hydroxy-5-(hydroxymethyl) 2-methyl-, 644*a*, 4352*b*.
Veratrole, 4-nitro, 5026*b*, 8675*b*

**$C_8H_9NO_4S$** Benzenesulfonic acid, carbamyl methyl ester, 2942*e*
Benzoic acid, *p* (methylsulfamyl)-, P 863*i*.
—, *p* sulfamyl-, Me ester, 5990*g*
Sulfamic acid, *N*-acetyl-, 9142*h*.

**$C_8H_9NO_4S_2$** Acetic acid, (*p* sulfamylphenylmercapto)-, 3305*a*.

**$C_8H_9NO_5$** 3 Furoic acid, 4-methyl 5-nitro-, Et ester, 5020
Propionic acid, 3-nitrofurfuryl ester 2669*e*

**$C_8H_9NO_5S$** α-Toluenesulfonic acid, α-nitro-methyl-, *N H₄ salt*, P 9079*bl*.

**$C_8H_9NO_5S$** 3,4 Xylenesulfonic acid, 6-hydroxy 5-nitro-, 5758*f*.

**$C_8H_9NS$** Acetanilide, thio, P 1798*e*.
1,4,2 *H* Benzothiazine, 3,4-dihydro-, 7421*b*.
Formamide, *N*-benzylthio, 6596*c*.

**$C_8H_9N{\cdot}NaO_3S$** See "sodium deriv." under *Acetamide, N-sulfanilyl-*.

**$C_8H_9N_3$** Nicotinonitrile, 5-amino 4,6-dimethyl, 4674*a*.
Pyridine, 3-(2-imidazolin 2-yl)-, 5048*i*.

**$C_8H_9N_4Ni$** Benzene, compd. with Ni(CN)₂.NH₃, 5753*f*

**$C_8H_9N_4NiO$** Phenol, complex with Ni(CN)₂.NH₃, 5753*f*

**$C_8H_9N_3O$** Benzaldehyde, methylnitrosohydrazone, 6592*h*, semicarbazone, 4574*e*.
Benzotriazole, 5-ethoxy-, 7016*e*.
Glyoxylamide, phenylhydrazone, P 511*h*.
Oxindole, 3,5-diamino, *di-HCl*, 215*f*.
1 *H* - Pyrrolo[3,4-*c*]pyridin - 1 - one, 7-amino - 2,3 - dihydro - 6 - methyl-, P 7972*e*.

**$C_8H_9N_3O_2$** 1,5 *H* - Pyrindin - 2 - ol, 4-amino-6,7 - dihydro - 3 - nitroso-, 9068*i*.
Semioxamazide, 1-phenyl-, 1896*f*, P 5530*a*.

**$C_8H_9N_3O_3$** Acetanilide, 4-amino-2-nitro-, 5755*b*.
Aniline, *N* - ethyl - 4 - nitro - *N*-nitroso-, 3617*e*.
5 *H* - *p* - Oxazino[2,3-*d*]pyrimidine - 2,6-diol, 4,7-dimethyl-, 3423*d*.
*p* Toluic acid, 3-nitro-, hydrazide, 6972*i*.

**$C_8H_9N_3O_3S$** 2 - (Methylsulfamino) - *p* - toluenediazonium hydroxide, inner salt, P 3204*a*.

**$C_8H_9N_3O_4$** Acetanilide, 3-amino-2-hydroxy-5-nitro-, P 8148*c*.
Benzenesulfonamide, *N* acetimido-*p*-nitro-, P 6660*g*.
Benzenesulfonamide, *N* - (1 - aminoethylidene)-*p*-nitro-, P 6234*a*.

**$C_8H_9N_3O_5$** Phenethyl alcohol, 4-amino-2,6-dinitro-, 592*h*.

**$C_8H_9N_3O_5S$** Urea, 1-methyl-3-(*p*-nitrophenylsulfonyl)-, P 2377*a*.

**$C_8H_9N_3O_7$** Acetic acid, [hexahydro-2,4,6-trioxo - 5 - pyrimidyl)imino]di-, P 4800*d*.

**$C_8H_9N_3S$** Benzaldehyde, thiosemicarbazone, 3523*e*.

**$C_8H_9N_5$** 1,3,5,3 *H* - Benzotriazepine, 2,4-diamino-, *and nitrate*, 1405*i*.
Guanidine, (2 - benzimidazolyl)-, *and salts*, 1404*i*.
1 *H* - Tetrazole, (aminophenyl)methyl-, 1865*c*.

**$C_8H_9N_5O_2S$** Sulfanilamide, *N*¹ - 1,2,4,4 *H*-triazol-4-yl-, 3097*g*.

**$C_8H_9N_7O_3$** Urea, guanyl-, picrate, 1405*d*.

**$C_8H_9NaO_4S$** Acetaldehyde, phenyl-, NaHSO₃ compd., 3786*g*.

**$C_8H_9Na_3O_4$** 1,3 - Cyclohexadiene - 1,3,5-triol, 5-ethoxy-, tri-Na deriv., 2599*a*.

**$C_8H_{10}$** (See also *Benzene, ethyl-; Xylene*)
Cyclohexene, 1-ethynyl-, 131*e*, 7437*d*
Cyclooctatriene, 591*f*, 6195*e*.
Fulvene, 6,6-dimethyl-, 5246*d*.
1,5 - Heptadien - 3 - yne, 5-methyl-, 155*i*.
1,7-Octadiyne, 7417*i*.
1,3,5,7-Octatetraene, 6154*e*.

**$C_8H_{10}AsNO_3$** Ethanol, 2-(2-amino-4-arsenosophenoxy)-, 8559*c*.

**$C_8H_{10}AsNO_4$** Arsacetin, 5865*e*, *and salts*, 57*b*.

**$C_8H_{10}AsNO_5$** See *Acetarsone*.

**$C_8H_{10}AsN_2NaO_4$** See *Tryparsamide*.

**$C_8H_{10}AuN_7O_7S_2$** Picric acid, aurous salt, compd. with thiourea, 9035*d*.

**$C_8H_{10}BrCl_3$** Norcamphane, 2-bromo-3-(trichloromethyl), 4636*i*.

**$C_8H_{10}BrN$** Aniline, bromo-*N*, *N*-dimethyl-, 4140*e*, 6918*h*.
Aniline, *N* - (2 - bromoethyl)-, *- HBr*, 1861*e*
Benzylamine, *p*-bromo α-methyl-, 7921*c*

**$C_8H_{10}BrNO$** 3 - Pyridinemethanol, 5-bromo-α,α-dimethyl-, 217*c*

**$C_8H_{10}BrNO_2$** 3 - Carboxy - 1 - methylpyridinium bromide, Me ester, 2622 6317*h*.
Succinimide, *N* - bromo-, compd. with cyclobutene, 587*b*.

**$C_8H_{10}BrN_3O_3$** Propionamide, α-bromo-*N*-(2,4 - dihydroxy - 6 - methyl - 5-pyrimidyl)-, 3423*d*.

**$C_8H_{10}Br_2$** Cyclooctadiene, dibromo-, 591*e*.

**$C_8H_{10}Br_2Cl_2$** Bicyclo[4.2.0]octane, dibromo-7,8-dichloro-, 6196*d*.

**$C_8H_{10}Br_2N_2O_3S$** Ethanesulfonamide, 2-amino-3′,5′-dibromo-, P 3450*f*.

**$C_8H_{10}Br_2O_4$** Acetoacetic acid, γ-bromo-α-bromoacetyl-, Et ester, 7908*i*, 7909*a*, 7910*a*.
Fumaric acid, dibromo-, di-Et ester, 6334*g*.

**$C_8H_{10}Br_4$** Octadiene, tetrabromo-, 6154*i*.

**$C_8H_{10}ClN$** Allylpyridinium chloride, 2159*b*.
Aniline, chloro-*N*, *N*-dimethyl-, 4140*e*, 6571*a*, 6918*h*.
Phenethylamine, chloro-, 7486*g*; *and - HBr*, 3378*i*, 3379*a*

**$C_8H_{10}ClNO$** *o*-Phenetidine, 5-chloro-, 4150*i*.
3-Pyridinemethanol, 5-chloro-α,α-dimethyl-, 217*e*.

**$C_8H_{10}ClNO_2$** 1 - (Carboxymethyl)pyridinium chloride, Me ester, 6977*b*.
Ethanol, 2 - (4 - amino - 2 - chlorophenoxy)-, P 7695*i*.

**$C_8H_{10}ClNO_2S$** Benzenesulfonamide, *p*-chloro-*N*, *N*-dimethyl-, P 5802*b*, P 6234*a*, P 6661*h*.
Ethanesulfonanilide, 1-chloro-, 6568*i*.
Methanesulfonotoluidide, chloro-, 6568*i*.

**$C_8H_{10}ClN_3$** Guanidine, *p*-chlorobenzyl-, *HNO₃ and H₂SO₄*, 2946*g*.
Guanidine, (*p* - chlorophenyl)methyl, 9039*b*; *and - HCl*, 9037*b*.

**$C_8H_{10}ClN_3O_3$** Butyramide, α-chloro-*N*-(1,2,3,4 - tetrahydro - 2,4 - dioxo-5-pyrimidyl)-, P 5796*g*.

**$C_8H_{10}ClN_5$** Biguanide, 1-(*p*-chlorophenyl)-, 9037*b*; *and - HCl*, 3793*h*.

**$C_8H_{10}Cl_2$** Bicyclo[4.2.0]octene, 7,8-dichloro-, 6196*c*.
Cyclohexene, 1 - chloro(chlorovinyl)-, 590*i*, 8190*f*.
1,5-Cyclooctadiene, 1,5-dichloro-, 591*ac*.

**$C_8H_{10}Cl_2N_2S_2Zn$** Thiazole, 4-methyl-, compd. with $ZnCl_2$, 3820*f*.

**$C_8H_{10}Cl_2O$** 3 - Cyclohexene - 1 - carbonyl chloride, chloro-1-methyl-, 3373*h*.

**$C_8H_{10}Cl_2O_4Pb$** Bis(2-chlorovinyl)lead diacetate, 560*e*, 1716*i*.

**$C_8H_{10}Cl_2O_4S$** Thiophene - 3,4 - diol, 2,5-dichlorotetrahydro-, 1,1-dioxide diacetate, P 3466*e*.

**$C_8H_{10}Cl_2Si$** Silane, dichloroethylphenyl-, P 3237*h*, P 3657*f*, P 4517*b*.

**$C_8H_{10}Cl_4O_3$** Ethanol, 2 - [2 - (dichloromethyl) - 1,3 - dioxolan - 2-yloxy]-(?), dichloroacetate, 1404*f*.

**$C_8H_{10}FN$** Aniline, *o*-fluoro-*N*, *N*-dimethyl-, 6918*h*.
Phenethylamine, *p*-fluoro-, 759*d*.

**$C_8H_{10}FNO$** Tyramine, 3-fluoro-, 5863*g*, 6253*f*.

**$C_8H_{10}F_4$** Cyclobutane, 1,1,2,2-tetrafluoro-3-isopropenyl-3-methyl-, P 4295*e*.

**$C_8H_{10}F_4N_2O_4$** 1,2 - Diazetidine - 1,2-dicarboxylic acid, tetrafluoro-, di-Et ester, P 3445*i*.

**$C_8H_{10}F_4O$** Ether, allyl (2,2,3,3-tetrafluoro cyclobutyl)methyl, P 4295*e*.
Ether, ethyl 2,2,3,3-tetrafluoro 1-vinylcyclobutyl, P 4295*e*.

**$C_8H_{10}F_4O_2$** Cyclobutene, 1,2-diethoxy-3,3,4,4-tetrafluoro, 7418*g*

**$C_8H_{10}HgN_2O_2$** 1,3 - Dioxa - 5,6 - diaza-2-mercurepine, 4,7-dipropenyl-, 5369*c*.

**$C_8H_{10}IN$** 2,4-Xylidine, 6-iodo-, 1343*b*.

**$C_8H_{10}INO_2$** 3-Carboxy-1-methylpyridinium iodide, Me ester, 2622*f*, 6317*h*.

**$C_8H_{10}I_2$** Xylene, compd. with I, 7824*i*.

**$C_8H_{10}I_2O_4$** Acetoacetic acid, γ-iodo α-iodoacetyl-, Et ester, 7909*d*, 7910*a*.

**$C_8H_{10}KN_2O_4S$** Hydantoic acid, 5-carboxy-α - cyano - γ - thio-, 5-Et Me ester, K deriv., 1403*g*.

**$C_8H_{10}NNaO_4$** Malonic acid, cyano, di Et ester, Na deriv., 3405*c*.

**$C_8H_{10}NO_4P$** Benzenephosphonic acid, *p*-acetamido-, 1737*f*.
Methanephosphonic acid, benzamido-, P 1794*b*.

**$C_8H_{10}NO_4P$** See "phosphate" under *Isonicotinaldehyde, 3 - hydroxy - 5 - (hydroxymethyl)-2-methyl-*.

**$C_8H_{10}N_2$** Acetamidine, α-phenyl-, P 7649*b*.
Benzaldehyde, methylhydrazone, 6591*h*
Pyrimidine, 4,6 - dimethyl - 2-vinyl-(?), 5785*e*.

**$C_8H_{10}N_2O$** (See also *Acetanilide, amino*)
Acetamide, α-amino-α-phenyl-, 3009*f*, 9032*i*.
—, *N*-(2-cyanocyclopentylidene)-, 9068*i*.
Acetic acid, phenylhydrazide, 5118*b*, 5526*a*, 7182*h*.
Aniline, *N*, *N*-dimethyl-*p*-nitroso-, P 4046*c*, 6631*e*, 8190*f*.
—, *N*-ethyl-*N*-nitroso-, 3617*d*, 6631*g*, 8138*i*.
Anisamidine, P 2231*b*, P 5038*f*.
Glycinamide, *and - HCl*, 8356*f*.
Nicotinamide, *N*-ethyl-, 4739*a*.
—, 2-ethylidene-1,2-dihydro-, 705*f*
1,5 *H* - Pyrindin - 2 - ol, 4-amino-6,7-dihydro-, *and - HCl*, 9068*b*.
Urea, benzyl-, P 5800*d*.
—, tolyl-, 6718*i*.

**$C_8H_{10}N_2OS$** 4(3 *H*) - Pyrimidone, 2-(allylmercapto)-6-methyl-, 6985*d*.
2,4(1 *H*,3 *H*) - Quinazolinedione, 5,6,7,8-tetrahydro-2-thio-, 1106*e*.
5 *H* - Thiazolo[3,2-*a*]pyrimidin - 5-one, 2,3 - dihydro - 2,7 - dimethyl-, 6985*i*.
Uracil, allyl-6-methyl-2-thio-, 6985*eg*.

**$C_8H_{10}N_2O_2$** Acetic acid, (3,4-diaminophenyl)-, *di-HCl*, 3363*g*.
Aniline, *N*, *N*-dimethylnitro-, 3378*a*.
Butyric acid, α,γ-dicyano-, Et ester, P 3446*h*.
Carbamic acid, dimethyl-, 3-pyridyl ester, P 4702*f*, P 5050*e*, P 6671*i*.
Carbazic acid, benzyl ester, P 4293*c*.
Diimide, dicrotonyl-, 5369*c*.
Phenethylamine, nitro-, 3520*i*, 7485*h*.
2,4-Pyrimidinediol, 5-allyl-6-methyl, 6985*f*.
*p*-Quinone, bis(methyloxime), 5623*d*.
—, ethyl-, dioxime, 5623*c*.
Salicylamide, 4-amino-*N*-methyl-, 6596*g*.
Uracil, 3-allyl-6-methyl-, 6985*h*.
Urea, (hydroxytolyl)-, 6719*a*.
*m*-Xyloquinone, dioxime, 5623*c*.

**$C_8H_{10}N_2O_2S$** Benzamidine, *p*-(methylsulfonyl)-, 1739*c*, P 2231*b*, P 5038*f*, *- HCl*, P 688*h*.
Pyridine, 5-nitro-2-propylmercapto-, 2996*c*.
Uracil, 5,6-dimethyl-2-thio-, reaction product with HCHO, 3013*h*.

**$C_8H_{10}N_2O_2Se$** 2,1,3,4 *H* - Benzoxaselenazole, 5,6 - dihydro - 5,5 - dimethyl-7-nitroso-, 7479*a*.

**$C_8H_{10}N_2O_3$** Anisidine, methylnitro-, 167*g*, 7918*b*.
Isonicotinaldehyde, 3 - hydroxy - 5-(hydroxymethyl) - 2 - methyl-, oxime, 644*b*, P 4702*i*.
Isonicotinamide, 3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl-, *- HCl*, 644*d*.

*o*-Phenetidine, nitro-, 166*h*, 167*a*, 2592*c*.
4 - Pyridazinecarboxylic acid, 2,3-dihydro - 6 - methyl - 3 - oxo-, Et ester, 3006*h*.
1(4*H*)-Pyridinealanine, 4-oxo-, 3417*a*.
**$C_8H_{10}N_2O_2S$** (See also *Acetamide, N-sulfanilyl-*.)
Acetamide, *N*-metanilyl-, P 8689*i*.
Acetanilide, *p*-sulfamyl-, 1756, 7450*g*.
Formamide, *N*-*p*-sulfamylbenzyl-, 8539*e*.
2-Furoic acid, 5-(2-thioureidomethyl)-, Me ester, - *HCl*, P 1065*d*.
**$C_8H_{10}N_2O_2S_2$** Acetamide, α-mercapto-*N*-sulfanilyl-, 1347*h*.
Acetanilide, α-mercapto-*p*-sulfamyl-, 1347*h*.
**$C_8H_{10}N_2O_4$** Alloxan, butyl-, 2953*g*.
Alloxan, isobutyl-, 2953*g*.
$\Delta^4$-α-Imidazolideneacetic acid, α-methyl-2,5-dioxo-, Et ester, 4634*d*.
Leucenine, 3416*g*.
Mimosine, 9314*b*.
Orotic acid, 5-methyl-, Et ester, 4634*c*.
2,5 - Piperazinedione, 1,4-diacetyl-, 3789*c*.
2,4 - Pyrrolidinedione, 3-acetamido-1-acetyl-, 2988*f*.
**$C_8H_{10}N_2O_2S$** Benzenesulfonamide, *N*, *N*-dimethylnitro-, 4630*c*.
Benzenesulfonamide, *N* - ethylnitro-, 4630*c*.
Benzenesulfonic acid, 2-acetamido-5-amino-, P 4481*a*, P 7701*h*, P 7702*a*, P 9463*cfh*.
Carbamic acid, sulfanilyl-, Me ester, P 821*a*.
**$C_8H_{10}N_2O_3$** 5 - Pyrimidinepropionic acid, hexahydro - β - methyl - 2,4,6-trioxo-, P 1800*d*.
**$C_8H_{10}N_2O_3S$** Acetic acid, (2-amino-4-sulfamylphenoxy)-, P 5962*c*.
**$C_8H_{10}N_2S$** 2-Imidazoline, 2-(2-thenyl)-, P 3042*e*.
Pseudourea, 2 - benzyl - 2 - thio-, 8962*f*; - *HCl*, 214*g*, 1325*g*, 2891*e*, 7015*i*.
Thiocyanic acid, benzylamine salt, 578*g*.
2,5 - Thiophenebismethylamine, *N*, *N'*-dimethylene-, 1764*b*.
Urea, 1-methyl-3-phenyl-2-thio-, 348*g*.
—, 2-thio-1-*o*-tolyl-, 2917*g*, P 8173*f*.
**$C_8H_{10}N_2S_2$** Malononitrile, carbonyl-, di-Et mercaptal, P 6650*d*.
**$C_8H_{10}N_2N_2O_4S$** Hydantoic acid, δ-carboxy-α - cyano - γ - thio-, δ-Et Me ester, Na deriv., 1403*g*.
**$C_8H_{10}N_4Ni$** Aniline, complex with Ni(CN)$_2$.NH$_3$, 5753*f*.
**$C_8H_{10}N_4O$** Guanidine, salicylideneamino-, 9330*e*.
**$C_8H_{10}N_4OS$** Caffeine, 6-thio-, 3794*c*.
Pseudourea, 2 - (2 - pyridylcarbamylmethyl)-2-thio-, - *HCl*, P 4156*g*.
**$C_8H_{10}N_4O_2$** (See also *Caffeine*.)
Guanidine, 1-benzyl-3-nitro-, 9035*f*.
—, 1-nitro-3-tolyl-, 9035*g*.
Oxalic acid, hydrazide 2-phenylhydrazide, 6971*i*.
5*H* - *p* - Oxazino[2,3-*d*]pyrimidin-6-ol, 2-amino-4,7-dimethyl-, 3423*f*.
—, 4-methyl-2-methylamino-, 3423*g*.
1,4-Phthalazinedione, compd. with $N_2H_4$, 1672*f*.
Urea, *p*-phenylenedi-, 8545*h*.
Xanthine, trimethyl-, 9148*i*.
**$C_8H_{10}N_4O_3$** Guanidine, 1-(methoxyphenyl)-3-nitro-, 9035*g*.
**$C_8H_{10}N_4O_4$** Malonic acid, (5-amino-1,2,4,-1*H* - triazol - 1 - ylmethylene)-, di-Me ester, P 53*b*.
**$C_8H_{10}N_4O_5$** 2-Furaldehyde, 5-nitro-, 2-(2 hydroxyethyl)semicarbazone, 5497*b*, 6735*g*.
**$C_8H_{10}N_4O_5S$** Benzenesulfonamide, 2-amino-*N*-ethyl-3,5-dinitro-, P 862*e*.
**$C_8H_{10}N_4S_2$** Bithiazole, diaminodimethyl-, *and* - *HBr*, 2202*fi*.
Caffeine, 2,6-dithio-, 3794*d*.
**$C_8H_{10}N_4S_2$** Thiazole, 5,5'-thiobis[2-amino-4-methyl-, 8380*g*; *and salts*, 632*a*.
**$C_8H_{10}N_4$** Pteridine, 2,4-diamino-6,7-dimethyl-, 8491*d*, 8555*f*.
**$C_8H_{10}N_6S_2$** 1*H* - Tetrazole, 5,5'-dithiobis[1-allyl-, P 4593*c*, P 5320*e*.
**$C_8H_{10}O$** (See also *Benzyl alcohol, methyl-; Phenethyl alcohol; Phenetole; Xylenol*.)
Anisole, methyl-, 2521*g*, 2535*b*, 4640*c*, 6087*e*.
1,3 - Cyclohexadiene - 1 - carboxaldehyde, 6-methyl-, 5376*h*.
Ketone, cyclohexadienyl methyl, 7415*g*, 7416*h*.
Phenol, ethyl-, 4253*a*, 7788*i*.
**$C_8H_{10}OS$** 1 - Butanone, 1-(2-thienyl)-, 214*d*, 5016*a*, 6204*a*.
Ethanethiol, 2-phenoxy-, P 4507*h*.
Ethanol, 2-phenylmercapto-, P 673*i*.
1-Propanone, 1-(5-methyl-2-thienyl)-, 5016*a*.
2-Thiophenecarboxaldehyde, 5-propyl-, 9061*i*, 9064*e*.
—, trimethyl-, 9064*f*.
**$C_8H_{10}O_2$** (See also *Veratrole*.)
Anisyl alcohol, 2570*f*, 2607*a*, 5150*e*.
Benzene, *p*-dimethoxy-, 182*c*, 4140*e*, 7577*b*.
Benzyl alcohol, 4-hydroxy-3-methyl-, 8690*c*.
—, *o*-methoxy-, 5150*e*.
1-Butanone, 1-(2-furyl)-, 214*c*, 6204*a*, 8367*h*.
Cresol, methoxy , 3387*a*.
1,2-Ethanediol, 1-phenyl-, 572*c* 3316*f*, P 3461*e*, 4240*f*.
Ethanol, 2-phenoxy-, P 6457*i*.
1,5 - Hexadiyne - 3,4 - diol, 3,4 dimethyl-, 3359*d*.
Hydroquinone, ethyl-, 3940*c*, 5263*h*.
Ketone, 2,5-dimethyl-3-furyl methyl, 6204*c*.
—, methyl 7-oxabicyclo[4.1.0]-3-hepten-3-yl, 7415*i*.
2,6-Octadienedial, 4219*f*.
3,5-Octadiene 2,7-dione, 6981*d*
2,4,6-Octatrienoic acid, P 3634*b*
β-Orcinol, 2185*a*.
Phenol, ethoxy-, P 2033*h*, 8199*g*.
Resorcinol, 4-ethyl-, 1037*h*.
α,α'-*o*-Xylenediol, 2570*g*.
Xylohydroquinone, P 1806*def*, 3386*i*
*o*-Xylotricinol, 9044*i*.
**$C_8H_{10}O_2S$** Creosol, α-mercapto-, 9138*c*.
*m*-Cresol, α-mercapto-5-methoxy-, 7014*h*.
3-Thiopheneacetic acid, 2,5-dimethyl-, 4666*h*.
*p*-Toluhydroquinone, methylmercapto-, 2620*d*.
**$C_8H_{10}O_2S_2$** Acetoacetic acid, β-thiothiol-, anhydrosulfide, 4633*d*.
**$C_8H_{10}O_3$** Crotonic anhydride, P 3839*d*, P 8398*f*.
1 - Cyclopentene - 1 - carboxylic acid, 5,5-dimethyl-3-oxo-, 1335*h*.
2-Furanbutyric acid, 5022*h*.
Phenethyl alcohol, 3,4-dihydroxy-, 7451*b*.
Phenol, 2,5-dimethoxy-, 6821*a*.
Vanillyl alcohol, P 6664*f*, 9438*b*
α,α'-Xylenediol, hydroxy-, P 6235*d*.
**$C_8H_{10}O_3S$** Benzenesulfinic acid, *o*-ethoxy-, 5245*f*
Xylenesulfonic acid, 2009*e*, 7418*e*, *Na salt*, 1242*d*.
**$C_8H_{10}O_4$** (See also *Penicillic acid*.)
Acetylenedicarboxylic acid, di-Et ester, 2592*a*, 9331*h*
Adipic acid, β,γ-dihydroxy-β,γ-dimethyl-, dilactone, P 1036*h*.
2-Butyne-1,4-diol, diacetate, 11*d*, 2578*c*, 4911*f*.
3-Cyclobutene-1,2-diol, diacetate, 6200*e*.
Cyclohexene - 1,2 - dicarboxylic acid, 5389*c*, 7428*e*.
Cyclooctatrienedicarboxylic acid, *and Li salt*, 6195*e*.
Cyclopentanecarboxylic acid, 2,5-dioxo-(?), Et ester, 7909*d*, 7910*a*.
2,5 - Hexadienoic acid, 4,4-dihydroxy-3-methoxy-5-methyl-, γ-lactone, 5745*b*
2 - Hexenoic acid, 5-hydroxy-3-methoxy-5-methyl-4-oxo-, δ-lactone, 1722*c*.
α-Hydromuconic acid, β-hydroxy-(?), γ-lactone, Et ester, 7909*d*, 7910*a*.
Malonic acid, (1,1-dimethyl-2-propynyl)-, 2272*e*.
Muconic acid, Et ester, 6981*c*.
3 - Pentenoic acid, 2,4 - dihydroxy - 3-methyl-, γ-lactone acetate, 4222*b*.
Succinic acid, divinyl ester, P 7957*h*.
**$C_8H_{10}O_4S$** Isethionic acid, 2-phenyl-, *Na salt*, 172*b*.
Phenol, *p*-ethyl-, sulfate, 3911*h*.
3,4-Xylenesulfonic acid, 6-hydroxy-, 5758*f*.
**$C_8H_{10}O_5$** Caproic acid, β-(hydroxymethyl)-ε - methoxy - α,γ - dioxo-, γ-lactone, 1406*i*.
Fumaric acid, α-(hydroxymethyl)-β-methoxy-(?), γ-lactone, Et ester, 6980*i*.
Maleic acid, α-(hydroxymethyl)-β-methoxy-(?), γ-lactone, Et ester, 6980*i*.
**$C_8H_{10}O_8$** 1,1,4,4 - Butanetetracarboxylic acid, P 9476*a*.
**$C_8H_{10}S$** Sulfide, ethyl phenyl, 2956*f*.
Sulfide, methyl *p*-tolyl, 7474*f*, 7820*c*.
α-Toluenethiol, α-methyl-, P 2630*b*.
Xylenethiol, P 1063*b*, P 4510*a*, P 4891*b*, 8724*b*.
**$C_8H_{11}Br$** Cycloöctadiene, bromo-, 891*d*.
**$C_8H_{11}BrN_4O_2$** Propionamide, *N* - (2 amino - 4 - hydroxy - 6 - methyl-5 pyrimidyl)-α-bromo-, 3423*f*.
**$C_8H_{11}BrO_3$** Acrylic acid, α-bromo-, tetrahydrofurfuryl ester, P 3027*c*.
Cyclopentanecarboxylic acid, 1-bromo-2 oxo-, Et ester, 3273*e*.
**$C_8H_{11}BrO_4$** 2-Butene-1,1-diol, 4-bromo diacetate, 4218*i*.
Fumaric acid, bromo-, di-Et ester, 9334
**$C_8H_{11}BrS$** Thiophene, 2-(1-bromobutyl) 5781*h*.
**$C_8H_{11}Br_2N$** 3 - Octenenitrile, 3,4-dibromo 6572*i*.
**$C_8H_{11}Br_2O_4$** 1,1-Butanediol, 2,3,4-t bromo-, diacetate, 4219*d*.
**$C_8H_{11}ClN_2O$** Pyrazine, 2-chloro-5-ethox 3,6-dimethyl-, 3005*h*.
Pyrazine, 2-(chloromethyl) - 3 - ethox 5-methyl-, - *HCl*, 3005*h*.
**$C_8H_{11}ClN_2O_2S$** Ethanesulfonanilide, amino-*p*-chloro-, P 3450*h*.
**$C_8H_{11}ClN_2O_4$** Acrylic acid, α-[(*N*-chlo acetylalanyl)amino]-, 257*g*.
**$C_8H_{11}ClN_4O_2$** 4 - Pyrimidol, 5-α-chlo acetamido - 6 - methyl - 2 - meth amino-, 3423*g*.
**$C_8H_{11}ClN_4$** Guanidine, (chloro-*p*-phenylene)di-, di-*HCl*, 8515*g*, *and di-H* 5014*c*.
**$C_8H_{11}ClO$** 3 - Cyclohexene - 1 - carbo chloride, 1-methyl-, 3373*g*.
Ketone, 2 - chloro - 1 - cyclohexenmethyl, P 6230*b*
**$C_8H_{11}ClO_2$** 3 - Cyclohexene - 1-carbox acid, chloro-1-methyl-, 3373*h*
4 - Hexenoic acid, 6 chloro - 5 hydr 3,3-dimethyl-, lactone, 7905*c*.
**$C_8H_{11}ClO_2Si$** Silane, chlorodimeth phenyl-, 1006*g*.
**$C_8H_{11}ClO_3$** Acrylic acid, α-chloro-, t hydrofurfuryl ester, P 3027*c*, 3040*g*, P 3465*i*.
**$C_8H_{11}ClO_4$** Fumaric acid, chloro-, ester, 9334*g*
Maleic acid, chloro-, di-Et ester, 933
**$C_8H_{11}ClO_4$** Oxalacetic acid, chloro-, ester, 9334*g*
**$C_8H_{11}ClO_4S$** Thiophene - 3 - ol, 4-cl tetrahydro-, 1,1 - dioxide, ester allyl H carbonate, P 6915*b*.
**$C_8H_{11}Cl_3OS$** Acetic acid, trichloro- cyclohexyl ester, 7410*d*.
**$C_8H_{11}Cl_3O_2$** Acetic acid, trichloro-, hexyl ester, 4220*d*
2-Hepten-4 one, 7,7,7-trichloro droxy-2-methyl-, 3785*c*.
**$C_8H_{11}Cl_3O_4$** See *Chloralose*.
**$C_8H_{11}F_2NO_2$** Acrylic acid, α-(di methyl)-, 2-acetamidoethyl P 6465*g*.
**$C_8H_{11}N$** (See also *Aniline, N, N-dim Anilines, ethyl-; Phenethyl Xylidine*.)
Benzylamine, methyl-, 1312*d*, 1351*g*, 6158*a*.
*s*-Collidine, 2845*fh*, 4654*b*.
Octynenitrile, 6572*ig*.
Picoline, ethyl-, 1775*c*, 3825*c*, 5399
*o*-Toluidine, *N*-methyl-, 1343*c*.
**$C_8H_{11}NO$** (See also *Anisidine, Phenetidine; Tyramine*.)
Benzyl alcohol, α-(aminome 1312*e*.
*p*-Cresol, α-methylamino-, 2702*e*.
Ethanol, 2-anilino-, P 673*i*.
Ethylamine, 2-phenoxy-, 121*h*.
5 - Heptenenitrile, 6 - methyl - 6625*b*.
4 - Hepten - 2 - yn - 4 - ol, 6 - 1 imino-, 2999*d*.
Phenethyl alcohol, *p*-amino-, 5738
Phenol, *p*-dimethylamino-, 595*a*.
Propylamine, *N*-furfurylidene-, 3
Pyridinemethanol, dimethyl-, 217*c* 2995*a*.
4(1*H*) - Pyridone, 1,2,6 - trin 2999*d*.
2 - Pyrrolecarboxaldehyde, 3-methyl-, 4257*b*.
Xylenol, amino-, 5758*h*, 6617*a*.
**$C_8H_{11}NOS_2$** 5(4*H*) - Thiazolone, mercapto) - 4 - isopropylide 6922*g*.
**$C_8H_{11}NO_2$** (See also *Aniline, dimethc* Acrylic acid, α-cyano-, iso-Bu 6222*fg*.
Benzyl alcohol, α - (aminome droxy-, P 5043*c*, 7128*dh*; 2602*c*.
Ethanol, 2-(aminophenoxy)-, P
Hydroquinone, (2-aminoethyl)- *and salts*, 6599*d*.

Ketone, 2,5-dimethyl-3-furyl methyl, oxime, 6204*d*.
Maleimide, *N*-butyl-, P 4422*a*, 4887*h*.
5(4*H*) - Oxazolone, 4-*sec*-butylidene-2-methyl-, 2581*h*.
3 - Pyridinemethanol, 5 - hydroxy-4,6-dimethyl-, 4362*f*, 4710*i*, 6293*f*, 6697*f*.
Pyrocatechol, 4-(2-aminoethyl)-, 317*a*, 3070*b*, 6308*b*, 8484*g*.
2-Pyrrolecarboxylic acid, 3-methyl-, Et ester, 623*d*.
Saligenin, α-(aminomethyl)-, - *HCl*, P 5044*g*.
Senecioic acid, α-cyano-, Et ester, 7901*h*.
$C_8H_{11}NO_2S$ Benzenesulfonamide, *N*, *N*-dimethyl-, 2595*f*.
Benzylamine, *p*-(methylsulfonyl)-, 1730*c*.
2-Thiazoleacetic acid, 4-methyl-, Et ester, 3363*h*, 5021*g*.
2 - Thiopheneacetamide, *N* - 2 - hydroxyethyl-, 3364*b*.
$C_8H_{11}NO_2S_2$ Sulfilimine, *S*,*S*-dimethyl-*N*-(phenylsulfonyl)-, 172*e*.
5(4*H*)-Thiazolone, 4-(ethoxymethylene)-2-(ethylmercapto)-, 1399*d*.
$C_8H_{11}NO_3$ (See also *Arterenol*; and "B6" under *Vitamins*.)
2-Furanacetamide, *N*-2-hydroxyethyl-, 3364*b*.
Glutaraldehydic acid, α-cyano-, Et ester, 577*h*.
1 - Ox - 3 - azaspiro[4,5]decane-2,4-dione, 1406*a*.
2,5 - Pyridinedimethanol, 3-hydroxy-4-methyl-, *and* - *HCl*, P 1811*g*.
Pyridine, 2,4,6-trimethoxy-, 642*c*.
1 - Pyrrolidinepropionaldehyde, methyl-, 2,5 dioxo-, 6170*b*.
$C_8H_{11}NO_2S$ Ethanol, 2-(*o*-aminophenylsulfonyl)-, P 8153*d*.
Ethanol, 2-sulfanilyl-, P 7235*b*, P 8146*b*, P 8153*b*.
Metanilic acid, *N*, *N*-dimethyl-, *and salts*, 3803*b*
Methanesulfonic acid, toluidino-, P 8158*b*; *Na salt*, P 8689*g*
Sulfanilic acid, *N*, *N*-dimethyl-, P 3838*f*; *and Ca salt*, 3803*d*.
Taurine, 2-phenyl-, 7412*a*
3,5-Xylenesulfonic acid, 2-amino-, P 8171*a*.
$C_8H_{11}NO_4$ Butyric acid, β-cyano-β-hydroxy-, Me ester, acetate, P 6651*d*.
Imidodicarboxylic acid, diallyl ester, 4228*g*.
Isobutyronitrile, α,β - dihydroxy-, diacetate, P 2630*f*.
Succinic acid, α-cyano-α-methyl-, Et ester, 2167*i*.
$C_8H_{11}NO_4S$ 1-(3-Hydroxypropyl)pyridinium hydrogen sulfate, cyclic ester, 2935*a*.
Metanilic acid, 4 ethoxy-, P 9466*f*.
Methanesulfonic acid, *o*-methoxyanilino-, P 4485*f*.
$C_8H_{11}NS$ Benzenethiol, *p*-dimethylamino-, 6575*a*.
2-Thiazoline, 2-(1-cyclopenten-1-yl)-, P 7844*h*.
$C_8H_{11}N_2NaO_3$ Barbital sodium, 3103*h*, 3147*i*.
$C_8H_{11}N_3$ Acetamidine, α-anilino-, P 2738*h*.
Acetamidine, *N*-methyl-*N'*-2-pyridyl-, 2594*e*.
$C_8H_{11}N_3O$ 1,5*H* - Pyrindin - 2 - ol, 3,4-diamino 6,7-dihydro-, 9068*i*
$C_8H_{11}N_3OS$ 1 - Propanone, 1-(2-thienyl)-, semicarbazone, 214*d*
2-Pyrimidinethiol, 4-(4-morpholinyl)-, 8305*d*.
Thiophenecarboxaldehyde, dimethyl-, semicarbazone, 9064*h*.
—, ethyl-, semicarbazone, 9061*i*.
$C_8H_{11}N_3O_2$ *p* - Phenylenediamine, $N^1$, $N^1$-dimethyl-2-nitro-, P 1574*d*.
3(2*H*) - Pyridazone, 5-acetamido - 2,6-dimethyl-, 3007*b*.
5 - Pyrimidinecarboxylic acid, 4-amino-2-methyl-, Et ester, P 3473*e*; - *HCl*, 1822*h*.
$C_8H_{11}N_3O_2S$ Sulfanilamide, $N^1$-acetimido-, P 6660*g*.
Sulfanilamide, $N^1$ - (1 - aminoethylidene)-, P 6233*i*.
$C_8H_{11}N_3O_3S$ Benzenediazosulfonic acid, *p*-dimethylamino-, *Na salt*, 4381*d*.
Imidazolecarbamic acid, 2-mercapto-, Et ester, acetate, 1402*f*.
2-Thiazolecarbamic acid, 5-acetamido-, Et ester, 1402*e*.
Urea, 1-methyl-3-sulfanilyl-, P 2377*a*.
$C_8H_{11}N_3O_4$ 5 - Pyrimidineacetamide, 2,4-dihydroxy - *N* - 2 - hydroxyethyl-, 3364*b*.
$C_8H_{11}N_3O_4S$ Ethanesulfonanilide, 2-amino-*p*-nitro-, P 2450*h*.
Hydantoic acid, δ - carboxy - α - cyano-γ-thio-, δ-Et Me ester, *and salts*, 1403*g*.
$C_8H_{11}N_4S$ Semicarbazide, 1-benzyl-3-thio-, 3523*e*.
$C_8H_{11}N_5$ Biguanide, phenyl-, 5148*f*, P 5978*f*, P 6845*c*, P 7697*a*.
*s*-Triazine, 2,4-diamino-6-(1,3-pentadienyl)-, P 3854*h*.
$C_8H_{11}N_5O_3S$ Benzenesulfonic acid, *p*-(guanylguanidino)-, 7365*cf*.
$C_8H_{11}N_5O_4$ Glycine, *N* - (6-amino-2-methyl-5 - nitro - 4 - pyrimidyl)-, Me ester, P 9087*e*.
$C_8H_{11}N_7O_{10}$ Gluconamide, *N* - 2 - hydroxyethyl-, hexanitrate, P 1706*i*.
$C_8H_{11}NaO_3Si$ Silanol, dimethylphenyl-, Na deriv., P 3658*d*, P 7500*d*.
$C_8H_{11}NaO_4$ Oxalacetic acid, di-Et ester, Na deriv., 4221*e*.
$C_8H_{11}O_3P$ Ethanephosphonic acid, 2-phenyl-, 8366*c*.
$C_8H_{12}$ (See also *Cyclohexene, vinyl-*.)
Cyclohexadiene, dimethyl-, 1018*a*, 5169*f*, 5984*a*.
1,5-Cyclooctadiene, 590*i*, 591*d*
1,3,6-Heptatriene, 5-methyl-, 1018*b*
$C_8H_{12}BN$ Borine, anilinodimethyl-, 5690*e*.
$C_8H_{12}BrNO_2$ Valeric acid, δ-bromo-α-cyano-, Et ester, 4222*h*.
$C_8H_{12}BrN_3$ Pyridine, 3-amino-5-(aminomethyl) - (bromomethyl)methyl-, P 1812*a*; *di-H Br*, P 2645*h*.
$C_8H_{12}Br_2$ Bicyclo[4.2.0]octane, 7,8-dibromo-, 6196*g*.
$C_8H_{12}Br_2O_2$ 3(2*H*) - Furanone, 4,4-dibromodihydro - 2,2,5,5 - tetramethyl-, 1392*f*.
$C_8H_{12}Br_2O_4$ 1,2 - Butanediol, 3,4-dibromo-, diacetate, 7424*f*.
Mannitol, 1,6 - dibromo - 2,4,3,5-dimethylene-, 2939*h*.
$C_8H_{12}ClNO$ 3 - Cyclohexene - 1 - carboxamide, chloro-1-methyl-, 3373*h*.
$C_8H_{12}ClNO_4$ See "B6" under *Vitamins*.
$C_8H_{12}ClN_3O$ Pyrimidine, 5-chloro-2-(2-dimethylaminoethoxy)-, 5782*i*.
$C_8H_{12}ClN_3S$ Pyrimidine, 5-chloro-2-(2-dimethylaminoethylmercapto)-, *and* - *HCl*, 5782*i*.
$C_8H_{12}ClN_3$ *s* - Triazine, 2 - amino - 4-chloro-6-(1-piperidyl)-, 1426*c*.
$C_8H_{12}Cl_2$ Bicyclo[4.2.0]octane, 7,8-dichloro-, 6196*d*.
Cyclohexane, (2,2 - dichlorovinyl)-, 3372*e*, 9025*b*.
$C_8H_{12}Cl_2O$ Bicyclo[4.2.0]octanol, 7,8-dichloro-, 6197*f*.
$C_8H_{12}Cl_2OS$ Acetic acid, dichlorothiol-, cyclohexyl ester, 7410*d*.
$C_8H_{12}Cl_2O_2$ Acetaldehyde, bis(3-chloroallyl) acetal, 2928*e*.
Acetic acid, dichloro-, cyclohexyl ester, 4220*d*.
2,7 - Octanedione, 1,8-dichloro-, P 6465*b*, P 7745*e*.
$C_8H_{12}Cl_2O_3$ Propionic acid, α,β-dichloro-, tetrahydrofurfuryl ester, P 3466*a*.
$C_8H_{12}Cl_2O_4$ Butanediol, dichloro-, diacetate, P 4685*h*, P 5035*d*, 6976*def*.
1,3 - Propanediol, 2-(dichloromethyl)-(?), diacetate, P 5035*d*.
$C_8H_{12}Cl_2S_2$ Acetaldehyde, bis(3-chloroallyl) [illegible]
Ethane, 1,2 - bis(3 - chloroallylmercapto)-, 2928*b*.
$C_8H_{12}Cl_4O$ Ether, cyclohexyl 1,2,2,2-tetrachloroethyl, P 7188*c*, P 7634*i*.
$C_8H_{12}F_2N_2O_3$ Acrylamide, *N* - (2-acetamidoethyl)-α-(difluoromethyl)-, P 8399*a*.
$C_8H_{12}GeO_2$ Germanium acetate, 2110*a*.
$C_8H_{12}I_2O_4$ Mannitol, 1,6-diiodo-2,4,3,5-dimethylene-, 2939*h*.
$C_8H_{12}NO_3P$ Benzenephosphonous acid, *p*-dimethylamino-, 6051*b*.
Phosphinic acid, (1-anilinoethyl)-, 5378*b*.
$C_8H_{12}NO_3P$ Benzenephosphonic acid, *p*-dimethylamino-, 6051*b*.
$C_8H_{12}N_2$ (See also *Phenylenediamine, dimethyl-*.)
Crotonaldehyde, azine, 1654*d*, 1655*a*.
Hexamethylene diisocyanide, P 4515*f*.
Phenethylamine, amino-, 9047*b*.
Pyridine, 5 - (aminomethyl)dimethyl-, 2995*c*.
Toluene - 2,4 - diamine, $N^1$-methyl-, P 3203*i*.
$C_8H_{12}N_2O$ Acetamidine, *N* - furfuryl-*N'*-methyl-, 2594*e*.
Adiponitrile, β-ethoxy-, P 3031*g*.
Nicotinamide, 1,2-dihydro - 1,2-dimethyl-, *and salts*, 7525*h*.
Pyrazinol, 3,6-diethyl-, 3005*f*, 3006*d*.
2 - Pyrimidineethanol, 4,6-dimethyl-(?), 5785*e*.
Pyrimidine, 5-(ethoxymethyl) 1822*i*.
$C_8H_{12}N_2OS$ 1,3 - Diazaspiro[2,4-dione, 2-thio-, 6172*a*.
Thiazole, 2-acetamidopropyl 8381*a*.
4 - Thiazolecarboxamide, *N*, P 7049*d*.
Uracil, 6-butyl-2-thio-, 9242*a*.
—, 6-*tert*-butyl-2-thio-, 9242*a*.
—, 5 - isopropyl - 6 - methyl 2326*c*.
—, 6-methyl-5-propyl-2-thio-,
$C_8H_{12}N_2OS_2$ 2 - Thiazolidineth (acetylimino) - 3,4,4 - 1 1766*e*.
$C_8H_{12}N_2O_2$ (See also *Pyridin (aminomethyl)hydroxymethyl-*
Hydrazine, 1,2-dicrotonyl-, 53(
5-Imidazolecarboxylic acid, pyl-, Me ester, 3411*d*.
2-Imidazolepropionic acid, I 3411*a*.
Isocyanic acid, hexamethyle 1206*b*.
3,5-Octadiene-2,7-dione, dioxim
Oxamide, *N*, *N'*-diallyl-, P 947
Pyrazine, 2,6-diethoxy-, 8394*d*.
—, 3 - ethoxy - 2,5 - dimethyl-, 3005*h*.
Pyrazinemethanol, 3 ethoxy-5 3006*a*.
2*H* - Pyrido[1,2-*a*]pyrimidine - dione, hexahydro-, 7031*b*.
4 - Pyrimidol, 5 - (ethoxymet methyl-, 1822*i*.
1 - Pyrroleacetamide, *N* - 2 - ethyl-, 3364*b*.
Sydnone, *N*-cyclohexyl-, 3417*h*,
$C_8H_{12}N_2O_2S$ Barbituric acid, 5,5-c thio-, 3009*b*, 9242*a*.
Benzenesulfonamide, *p* - (amin 7450*e*.
Ethanesulfonanilide, 2-amino , 1
5 - Imidazolecarboxylic acid, 1-is 2-mercapto-, Me ester, 3411*c*.
Sulfanilamide, $N^1$-ethyl-, 3097*g*.
Thiazoleacetamide, *N* - 2 - hydro methyl-, 3364*b*.
4 - Thiazoleacetic acid, 2-a methyl-, Et ester, 8380*h*.
3*H* - Thiazolo[3,4-*a*]pyrazine dione, tetrahydro - 1,1 - din 4668*c*.
$C_8H_{12}N_2O_2S_2$ Sulfanilamide, $N^1$ - 2 captoethyl-, - *HCl*, 3015*b*.
$C_8H_{12}N_2O_3$ (See also *Barbital*.)
Barbituric acid, 1-butyl-, 2953*e*.
—, 1-isobutyl-, 2953*f*.
Cyclopentanecarboxylic acid, dioxo-(?), Et ester, hydrazone,
5-Imidazolecarboxylic acid, 2-hydi isopropyl-, Me ester, 3411*f*.
1 - Ox - 3 - azaspiro[4.5]decan - 2 3-nitroso-, 2993*c*.
4,6(1*H*,5*H*) - Pyrimidinedione, 2 5-(2-hydroxyethyl)-, 6173*e*.
Valeric acid, δ-cyano-α-oxo-, Et oxime, 1007*d*.
$C_8H_{12}N_2O_3S$ Methanesulfinic acid, ethoxy - 3 - pyridylamino)-, *Na* P 3471*a*.
$C_8H_{12}N_2O_4$ 1*H* - Furo[3,4]imidazole - picinic acid, hexahydro-2-oxo-,
$C_8H_{12}N_2O_4S$ Methanesulfonic acid, ( oxy - 3 - pyridylamino)-, *and metal salts*, P 3470*h*.
$C_8H_{12}N_2O_6S_2$ *p* - Benzenedisulfona *N*, *N'*-dimethyl-, 4237*d*.
$C_8H_{12}N_2O_6S_2$ Toluene - 2,4 - disulfamic $N^2$-methyl-, *di-Na salt*, P 8208*i*.
$C_8H_{12}N_2O_6S_2$ Sulfanilamide, $N^1$, $N^4$-bis(su methyl)-, *di-Na salt*, P 4817*d*.
$C_8H_{12}N_2O_{12}S_2$ 1,3 - Propanediol, 2 droxymethyl) - 2 - nitro-, cyclic fite, sulfite, P 6223*a*.
$C_8H_{12}N_2S$ 2(3*H*) - Imidazolethione, 4-c pentyl-, 635*a*.
Pyridine, 5-amino-3-propylmerca *and* - *HCl*, 2996*c*.
$C_8H_{12}N_2S_2$ 1,3 - Diazaspiro[4.5]decane-dithione, 6171*i*.
Isocyanic acid, hexamethylene ester 4516*e*.
$C_8H_{12}N_4$ Guanidine, (*p*-aminobenz 5014*f*.
Guanidine, (α - amino - *p* - tolyl)-, *HCl*, 8545*h*; *and di-HCl*, 5014*e*.
—, 1,2-diallyl-3-cyano-, P 1799*d*.
Isobutyronitrile, α,α' - azodi-, 33 9681*i*, 8736*i*.
$C_8H_{12}N_4O$ Pyrimidine, 4 - acetamido - (aminomethyl) - 2 - methyl-, - *H* 1822*h*.

**$C_8H_{12}N_4O_3$** 1 - Pyrrolidinepropionaldehyde, 2,5 - dioxo-, semicarbazone, 6170*a*.
**$C_8H_{12}N_4O_4$** Piperazine, 2,5-bis(carboxymethylimino)-, 3789*f*.
**$C_8H_{12}N_6$** Guanidine, phenylenedi-, 8545*f*.
**$C_8H_{12}N_6O_3S$** Metanilamide, $N^3$ - (guanylguanyl)-, 2946*h*.
Sulfanilamide, $N^4$ - (guanylguanyl)- - *HCl*, 2946*h*.
**$C_8H_{12}N_{10}$** *s* - Triazine, 2,2′ - ethylenebis[4,6-diamino-, P 1814*e*, P 3662*f*.
**$C_8H_{12}O$** 1,3 - Cyclohexadiene - 1-methanol, 6-methyl, 5377*a*.
Cyclohexanol, 1-ethynyl-, 7437*d*.
Cyclohexenecarboxaldehyde, methyl-, 1731*bd*, 8360*c*.
2-Cyclohexen-1-one, dimethyl-, 1718*f*, 8362*g*.
—, 3-ethyl-, 9045*a*.
1 - Cyclopentene - 1 - carboxaldehyde, 2,5-dimethyl-, 4254*i*.
2 - Cyclopenten - 1 - one, 2,3,4-trimethyl-, 156*a*.
Ether, ethyl 1-methylene-2,4-pentadienyl, 2159*a*, 5737*b*.
—, ethyl 3 - methyl - 2 - penten - 4-ynyl, 1339*b*, P 1793*h*.
—, methyl 5 - methyl - 1,4 - cyclohexadien-1-yl, 2521*g*.
—, methyl 3-methyl-2-hexen-5-ynyl, P 9082*g*.
Furan, 2,3 - dihydro - 3 - methyl-2-propenyl-, 4254*h*.
Heptadienone, methyl-, 2161*bc*, 2576*a*.
6-Hepten-4-yn-3-ol, 3-methyl-, 155*i*.
Ketone, cyclohexenyl methyl, 2174*a*, 5377*d*, 6157*g*, 7416*d*.
—, methyl 2-methyl-1-cyclopenten-1-yl, 1335*e*, 5751*e*.
1,5,7-Octatrien-4-ol, 6154*f*.
Phthalan, tetrahydro-, 158*g*.
**$C_8H_{12}OS$** 2 - Cyclohexen - 1 - one, 3-(ethylmercapto)-, P 6230*i*.
Thiophene, 2-(1-ethoxyethyl)-, 5393*g*.
2-Thiophenemethanol, α-propyl-, 5781*h*.
**$C_8H_{12}O_2$** (See also *1,3-Cyclohexanedione, 5,5-dimethyl-*.)
1,3 - Butadien - 1 - ol, 2 - ethyl-, acetate, P 5795*h*, P 7037*i*, P 7953*i*.
1,2-Cyclohexanedicarboxaldehyde, 6196*i*.
1,4-Cyclohexanediol, 1-ethynyl-, 7416*i*.
Cyclohexanone, acetyl-, 2577*b*, P 7954*b*.
Cyclohexenecarboxylic acid, Me ester, P 4685*f*.
—, methyl-, 1731*d*, 3373*g*, 7428*e*.
Cyclohexenol, acetate, P 3838*i*, P 5795*i*, P 7038*b*, 7915*c*, P 7953*i*.
2 - Cyclohexen-1-one, 3-ethoxy-, 9044*i*.
—, 3 hydroxy-5,5-dimethyl-, 1320*e*.
2-Furanbutanol, 5022*h*.
Hexadienol, acetate, 113*a*.
Hydrosorbic acid, δ-hydroxy-β, δ-dimethyl-, δ-lactone, 6166*c*.
Ketone, 4 - hydroxy - 1 - cyclohexen-1-yl methyl, 7417*a*.
Octynoic acid, 6571*d*.
7 - Oxabicyclo[4.1.0]heptane, 3-(epoxyethyl)-, P 2817*b*, P 5639*e*.
Pentadienol, methyl-, acetate P 3839*a*, 6153*e*.
4 - Pentynoic acid, Pr ester, 2591*i*.
—, 3,3 dimethyl-, Me ester, 2272*e*.
1 - Pentyn - 3 - ol, 3 - methyl-, acetate, 6153*e*.
**$C_8H_{12}O_2S$** Cyclohexaneglyoxylic acid, α thio-, 3820*e*.
**$C_8H_{12}O_3$** Acetic acid, (2-butenyloxy)-, vinyl ester, P 2817*b*
Acetic acid, (2 methylallyloxy)-, vinyl ester, P 2817*b*.
Cyclohexanone, 2-hydroxy-, acetate, 7915*e*.
Cyclopentanecarboxylic acid, 3,3-dimethyl-4 oxo-, 7462*f*.
—, 2-oxo-, Et ester, 1008*a*, 3273*e*, 3698*d*, 6979*g*, 7432*e*, 7433*f*.
Enanthic acid, β-hydroxy-β methyloxo-, β-lactone, P 1055*i*, P 1056*b*.
3,4(2*H*,5*H*) - Furandione, 2,2,5,5-tetramethyl-, 1392*i*.
2-Furanol, tetrahydro-5-vinyl-, acetate, 4254*b*.
Heptenoic acid, 6-methyl-4-oxo-, 3785*d*, 6625*c*.
Ketone, 4,5 - dihydroxy - 1 - cyclohexen-1-yl methyl, 7415*i*.
Levulinic acid, allyl ester, 140*e*, P 9081*g*.
2-Octenoic acid, 4-oxo-, 3785*d*.
Succinic anhydride, butyl-, 5070*a*.
*p*-Toluic acid, α-hydroxy-, P 1223*h*, P 6236*d*.
Valeric acid, γ-(allyloxy)-γ-hydroxy-, γ-lactone, 140*e*.
**$C_8H_{12}O_3S$** Bicyclo[2.2.1] - 5 - heptene - 2-sulfonic acid, Me ester, 7411*i*.
Thiapyran - 3 - carboxylic acid, tetrahydro-4-oxo-, Et ester, 7433*f*.
**$C_8H_{12}O_4$** Acetoacetic acid, α-acetyl-, ethyl ester, P 6655*a*.
Acid, monolactone, m. 100°, 3567*e*.
Adipic acid, β-hydroxy-β-methyl-, β-lactone Me ester, P 2635*g*.
Butenediol, diacetate, 11*d*, 2578*c*, 4911*e*, 7425*b*.
3 - Butenoic acid, 3-hydroxy-, Et ester, acetate, P 1436*c*.
Caprylic acid, γ,ε-dioxo-, 3792*b*.
Crotonic acid, β-hydroxy-, Et ester acetate, P 1436*c*, P 6655*a*.
1,1 - Cyclobutanedicarboxylic acid, di-Me ester, 2955*f*.
1,2 - Cyclohexanedicarboxylic acid, 6196*i*.
Erythrol, diacetate, 11*d*, 2578*i*, 4911*e*, 7419*f*, 7424*e*.
Fumaric acid, Bu ester, P 2038*a*; di-Et ester, 2591*f*, 8255*b*, 9334*f*.
Glutaric acid, β-hydroxy β-methyl-, β-lactone Et ester, P 1055*h*, P 1056*ac*, P 2635*g*.
Malcic acid, Bu ester, P 2038*a*, di-Et ester, 2591*f*, 4401*f*, P 6665*a*, 8255*b*, 9334*b*.
Malonic acid, allyl-, di-Me ester, 2591*e*.
—, dimethyl-, monoisopropylidene cyclic ester, 572*a*.
2-Pentenoic acid, 2-methoxy-4-oxo-, Et ester, 2168*i*.
2 - Propene - 1,1 - diol, 2 - methyl-, diacetate, P 8742*a*.
Succinic acid, ethylidene-, di-Me ester, 1320*c*.
Triacetic acid, Et ester, 1724*e*, 2123*f*, 2261*a*.
**$C_8H_{12}O_5$** Acetoacetic acid, α-hydroxy-, Et ester acetate, 1008*e*.
Caproic acid, ε-methoxy-α,γ-dioxo-, Me ester, 1406*h*
2 - Hexenoic acid, 4,4,5 - trihydroxy-3-methoxy-5-methyl-, γ-lactone, 1722*b*.
Malonic acid, (hydroxymethylene)-, di-Et ester, 573*d*.
**$C_8H_{12}O_5S$** 1 - Cyclohexene - 1 - sulfonic acid, 2 - hydroxy - 4,4 - dimethyl-6-oxo-, 9044*h*.
Thiophene - 3 - ol, tetrahydro-, 1,1-dioxide, ester with allyl H carbonate, P 691*b*.
**$C_8H_{12}O_6$** β - Hydromuconic acid, γ-hydroxy-α-methoxy-, Me ester, 6981*i*.
1,2,5 - Pentanetricarboxylic acid, 7428*f*.
Sorbose, dimethylene-, P 8919*h*.
**$C_8H_{12}O_6S$** Glutaric acid, α - (2 - carboxyethylmercapto)-, P 7501*i*.
**$C_8H_{12}O_7$** Gluconic acid, 2,4,3,5 - dimethylene-, 5006*i*.
Saccharic acid, γ-lactone, Et ester, 7904*g*.
**$C_8H_{12}O_8Pb$** See *Lead acetate*.
**$C_8H_{12}O_8Si$** Acetic acid, tetraanhydride with orthosilicic acid, 2110*e*, 4631*f*.
**$C_8H_{12}O_8Sn$** Tin acetate, 2110*e*.
**$C_8H_{12}S$** Thiophene, butyl-, 1395*c*, 4841*h*.
Thiophene, 2-*tert*-butyl-, 1395*cf*, 5775*b*.
—, 2-methyl-5-propyl-, 9064*e*.
**$C_8H_{11}Br$** Bicycloöctane, 2-bromo-, 5752*c*.
Cyclohexene, 3-(2-bromoethyl)-, 1377*h*.
**$C_8H_{11}BrN_2$** Carbodiimide, 2-bromoallyl-*tert*-butyl-, 1016*g*.
**$C_8H_{11}BrO_2$** 3(2*H*) - Furanone, 4-bromodihydro-2,2,5,5-tetramethyl-, 1392*f*.
**$C_8H_{11}BrO_2$** Isoenanthic acid, δ-bromo-γ-oxo-, Me ester, 3792*a*.
**$C_8H_{11}Br_2NO$** 3-Octenamide, 3,4-dibromo-, 6572*i*.
**$C_8H_{11}Br_4N_3O$** 3 - Hexanone, 1,2,4,5-tetrabromo - 5 - methyl-, semicarbazone, 2163*h*.
**$C_8H_{11}Cl$** Cyclohexane, 2-chloro-4-methyl-1-methylene-, 589*c*.
Cyclohexane, (2-chlorovinyl)-, 9024*i*.
**$C_8H_{11}ClN_2O_4$** Alanine, *N*-(*N*-chloroacetylsarcosyl)-, 9114*e*.
**$C_8H_{11}ClN_4$** 1*H* - Tetrazole, 5-(chloromethyl) - 1 - cyclohexyl-, P 7971*e*.
**$C_8H_{11}ClO$** Cycloheptanone, 2-(chloromethyl)-, 4278*d*.
Cycloheptanone, 2-chloro-5-methyl-, 2966*b*.
1 - Hepten - 3 - one, 5 - chloro - 5-methyl-, 2576*a*.
1 - Oxaspiro[2.5]octane, chloro - 5-methyl-, 2966*b*.
2*H* - Pyran, 2 - (chloromethyl) - 3,6-dihydro-4,6-dimethyl-, P 3043*b*.
**$C_8H_{11}ClOS$** Acetic acid, chlorothiol-, cyclohexyl ester, 7410*d*.
Acetic acid, thiol-, 2-chlorocyclohexyl ester, 7420*c*.
**$C_8H_{11}ClO_2$** Acrylic acid, α-chloro-, Am ester, P 3027*c*.
3(2*H*) - Furanone, 4 - chlorodihydro-2,2,5,5-tetramethyl-, 1393*a*.
3-Octenoic acid, 4-chloro-, 6572*h*.
**$C_8H_{11}ClO_4$** 1,3 - Propanediol, 2-(chloromethyl)-, diacetate, P 4685*h*.
**$C_8H_{11}ClO_4S$** Thiophene - 3 - ol, 4 - chlorotetrahydro - 2,4 - dimethyl-, 1,1-dioxide acetate, P 3466*e*.
**$C_8H_{11}Cl_2O_2$** Compd., m. 69.5–70°, P 3043*b*.
4 - Heptanone, 1,1,1 - trichloro - 2-hydroxy-6-methyl-, 3785*c*.
4 - Octanone, 1,1,1 - trichloro - 2 - hydroxy-, 3785*c*.
**$C_8H_{11}IN_2$** Trimethyl - 2 - pyridylammonium iodide, 4137*h*.
**$C_8H_{11}IO_2$** Cyclohexanol, 2-iodo-, acetate, 7435*d*.
**$C_8H_{11}NO$** Acetamide, *N*,*N*-diallyl-, P 9473*h*.
2 - Azabicyclo[3.3.1]nonan - 3 - one, 1730*c*.
Cycloheptanecarbonitrile, 1-hydroxy-, 7906*i*.
Cyclohexanecarbonitrile, 2-hydroxy-2-methyl-, 6172*b*.
3-Cyclohexene 1-carboxamide, methyl-, 1731*d*, 3373*g*.
Enanthonitrile, ε-methyl-γ-oxo-, 6625*b*.
2 - Furanpropylamine, α-methyl-, 1349*f*.
Isovaleronitrile, α,β - epoxy - α isopropyl-, 2037*g*.
7 Octynal, oxime, 7418*a*.
Octynamide, 6573*b*
Oxazole, 2-amyl-, 2989*g*
Valeronitrile, α,β - epoxy - α propyl-, 2937*f*.
**$C_8H_{11}NO_2$** (See also *Arecoline*.)
Guvacine, Et ester, 2582*b*
5(4*H*) - Isoxazolone, 4,4 - diethyl - 3-methyl-, 1723*i*.
1 - Ox - 3 - azaspiro[4,5]decan - 2 - one, 2993*c*.
Retronecine, 3567*d*, 7475*f*, 9076*a*; - *HCl*, 6208*i*
Sorbamide, *N*-2-hydroxyethyl-, 2273*c*
**$C_8H_{11}NO_2S$** 1-Pentanol, 5 thiocyano-, acetate, P 5153*b*
Propionic acid, 4 thiocyanobutyl ester, P 5153*b*
1 - Thi - 4 - azaspiro[4.4]nonane - 3-carboxylic acid, 4271*i*.
**$C_8H_{11}NO_3$** Butyric acid, α - acetamido-γ-hydroxy - δ,δ - dimethyl-, γ-lactone, 574*i*
Glycine, *N* hydrosorboyl-, *and Ba salt*, 4920*e*.
2-Hexenoic acid, 2-acetamido-, 3857*a*
Isatinecine, 7475*e*.
Nipecotic acid, 1-methyl-4-oxo-, Me ester, 3408*d*.
Norecgonine, 5544*b*.
2 - Oxazoline - 4 - carboxylic acid, 2,5-dimethyl-, Et ester, *HCl*, 4225*i*
2 - Pentenoic acid, 2 - acetamido - 4-methyl-, 3857*a*
Senecioic acid, α-acetamido-, Me ester, P 3030*c*.
Succinimide, *N* - 3 - hydroxyisobutyl-, 6170*c*.
**$C_8H_{11}NO_4$** Acetoacetic acid, α-acetamido-, Et ester, 4225*d*.
Malonic acid, (aminomethylene)-, di-Et ester, 573*b*.
Methacrylic acid, 2-nitroisobutyl ester, P 2815*g*.
1*H* - Oxazolo[3,4-*c*]oxazole - 7a(7*H*)-methanol, 3,5-dihydro-, acetate, 2936*f*.
4 - Piperidineacetic acid, 4-carboxy-, - *HCl*, 4275*i*.
**$C_8H_{11}NO_4S$** Acetone, compd. with pyridine bisulfite, 3355*i*.
3-Thiophenecarbamic acid, tetrahydro-, 1,1-dioxide, allyl ester, P 6668*d*.
**$C_8H_{11}NO_5$** Malonic acid, formamido-, di-Et ester, P 3445*e*.
4-Piperidone, 1-methyl-, oxalate, 7432*b*.
**$C_8H_{12}NO_6$** Succinic acid, 1-nitroisopropyl-, Me ester, 1320*b*.
**$C_8H_{11}NS_2$** 2 - Thiazolethiol, 4-amyl-, 633*h*.
**$C_8H_{12}N_2$** Pyrazine, 3-amino-2,5-diethyl-, 3005*e*.
Pyrimidine, 1,4-dihydro-1,2,6-trimethyl-4-methylimino-, *and* - *HCl*, 2595*c*.
**$C_8H_{12}N_2O$** 1 - Cyclohexene - 1 - carboxaldehyde, semicarbazone, 8359*i*.
Morpholine, 4 - (imidazolylmethyl)-, *di-HCl*, 634*a*.

Pyrazine, (2 - dimethylaminoethoxy)-, 5782*h*.
4 - Pyridinemethanol, 3-amino-5-(aminomethyl)-2-methyl-, - *HCl*, P 2645*i*.
Pyrimidine, 4 - amino - 5 - (ethoxymethyl)-2-methyl-, 1822*g*, P 9087*a*.

$C_8H_{12}N_2O_2S$ Benzenesulfonamide, *p*-hydrazino - *N*, *N* - dimethyl-, *and* - *HCl*, 601*e*.

$C_8H_{12}N_2O_3$ 4,6(1 *H*,5 *H*) - Pyrimidinedione, 5 - ethyl - 2,3 - dihydro - 5 - (2-hydroxyethyl)-2-imino-, 6173*f*.

$C_8H_{12}N_2O_4$ Alanine, glycylsarcosyldehydro-, 9113*h*.

$C_8H_{12}N_2O_4S_2$ Ethanesulfonanilide, 2-amino-*p*-sulfamyl-, P 3450*h*.

$C_8H_{12}N_2S$ 1,3 - Diazaspiro[4.5]decane-2-thione, 4-imino-, 6172*a*

$C_8H_{12}N_2O$ *s*-Triazine, 2-amino-4 methoxy 6-(2-methylallylamino)-, 4269*d*.

$C_8H_{12}N_4O_2$ *s*-Triazine, 2-amino-4-methoxy-6-(4-morpholinyl) , 4269*e*.

$C_8H_{12}N_4O_2S$ Benzenesulfonic acid, biguanide salt, P 4292*h*, P 7040*e*.

$C_8H_{12}NaO_2$ 1 - Hepten - 3 - one, 1-hydroxy-2 methyl-, Na deriv., 643*g*.

$C_8H_{14}$ Benzene, *m*-diethyl-, 165*e*
Bicyclooctane, 5752*de*, 6196*e*.
Cyclohexene, dimethyl-, 165*c*, P 4285*g*.
—, 3-ethyl-, P 1057*h*
Cyclooctene, 2479*g*, 6194*i*
Cyclopentene, 1,2,3-trimethyl-, 156*b*.
Hexadiene, dimethyl-, 1104, P 1056*b*, 7346*b*.
1,4 Octadiene, 2904*d*.
Octyne, 7818*d*
Pentalene, octahydro-, 3371*f*.
Propene, 2 - methyl - 3 - (1 methylcyclopropyl) , 2158*a*

$C_8H_{14}AsIN_2$ Bis(2 cyanoethyl)dimethylarsonium iodide, 8351*e*.

$C_8H_{14}BrNO$ Acetamide, α bromo-*N*-cyclohexyl-, 5081*h*.

$C_8H_{14}BrN_3O$ 4 Hexen 3 one, 4 bromo-5-methyl , semicarbazone, 2163*i*.

$C_8H_{14}Br_2$ Cyclohexane, (2,2-dibromoethyl) , 3372*d*
Cyclooctane, 1,2-dibromo , 6195*a*

$C_8H_{14}Br_2O$ 3 - Octen - 1 - ol, 3,4 dibromo-, 6572*e*.

$C_8H_{14}ClN$ Chloride, b. 94.5°, 3827*i*.

$C_8H_{14}ClNO$ 3 Octenamide, 4 chloro , 6572*h*.

$C_8H_{14}ClNO_2$ Caproyl chloride, α-oxo-, *O*-ethyloxime, P 5422*e*
2 - Pentene, 1 - chloro - 4,4 - dimethyl-2-nitromethyl-, P 6646*h*

$C_8H_{14}ClNO_3$ Leucine, *N*-chloroacetyl-, 9089*d*, 9114*e*.

$C_8H_{14}ClN_5$ *s* Triazine, 2 amino - 4-amylamino 6-chloro , 1426*b*

$C_8H_{14}Cl_2$ Cyclohexane, (2,2-dichloroethyl)-, 3372*b*.
Cyclopentane, 1 - (2,2 - dichloroethyl)-1 methyl-, 3372*d*.
Dichloro olefin, b. 126-7°, 9025*a*.
Dichloro olefin, b. 129-31°, 9025*a*.
1 - Pentene, 5 - chloro - 4 - (chloromethyl)-2,4-dimethyl-, 2157*h*.

$C_8H_{14}Cl_2HgO_2$ 3 - Hexene - 2,5 - diol, 3-chloro - 4 - (chloromercuri) - 2,5-dimethyl-, 7413*b*.

$C_8H_{14}Cl_2O$ Ether, chloro 1-(chloromethyl)-pentenyl ethyl, 2158*i*, 5737*c*.

$C_8H_{14}Cl_2O_2$ Acetic acid, dichloro-, 2-butoxyethyl ester, 4220*d*.

$C_8H_{14}Cl_2N$ Butylamine, 1,3-dimethyl-*N*-(2,2,2-trichlorocthylidene), P 7499*e*.

$C_8H_{14}Cl_2N_2$ Piperazine, 2,2,5,5 - tetrakis-(chloromethyl)-, 2936*a*.

$C_8H_{14}Cl_2N_2O_4$ Acetic acid, dichloro-, piperazine salt, 235*d*.

$C_8H_{14}Cl_2O_2$ Acetaldehyde, bis(2,3-dichloropropyl)acetal(?), P 6650*b*.

$C_8H_{14}CuN_4O_4$ Glyoxime, dimethyl-, Cu deriv , 8222*c*.

$C_8H_{14}HgN_2O_2$ 1,3 - Dioxa - 5,6 - diazo - 2-mercurepine, 4,7-dipropyl-, 5369*b*

$C_8H_{14}Hg_2$ Mercury, ethynylenebis[propyl-, 2614*f*.

$C_8H_{14}INPt$, 2887*b*.

$C_8H_{14}INS$ Trimethyl - 2 - thenylammonium iodide, 1764*a*.

$C_8H_{14}N_2$ Cyclohexanecarbonitrile, 1-methylamino-, 1766*c*.

$C_8H_{14}N_2O$ Acetamide, *N* - (1 - cyano-1-methylpropyl) - *N* - methyl-, 8381*d*.
3 - Pyrazolone, 2 - butyl - 5 - methyl-, 7934*e*.
—, 2-isobutyl-5-methyl-, 7934*e*.

$C_8H_{14}N_2OS$ Hydantoin, 5-amyl-2-thio-, 634*i*.

$C_8H_{14}N_2OS_2$ 2 - Thiazolidinethione, 5-(2-hydroxyethylimino)-3,4,4 - trimethyl-, 1766*f*.

$C_8H_{14}N_2O_2$ Cyclohexanone, 4-acetyl-, dioxime, 2577*c*.
Diimide, dibutyryl-, 5369*b*.
Hydantoin, 5-ethyl - 5-isopropyl-, 2167*c*.
—, 5-ethyl-5-propyl-, 2167*d*.
—, 5-isobutyl-5-methyl-, 572*f*.
Nipecotamide, 3-ethyl-2-oxo-, P 7051*c*.
2,5 - Piperazinedione, 3,3,6,6-tetramethyl-, 3016*d*.
Piperidine, 1-(1-nitropropenyl)-, 1003*i*.
Urea, (2-ethyl-4-pentenoyl)-, 2169*e*.

$C_8H_{14}N_2O_3$ Glycine, *N* - cyclohexyl - *N*-nitroso-, 7480*a*.
Hydantoin, 5 - (1 - methoxypropyl)-5-methyl-, 6985*a*.
Proline, 1-β-alanyl-, 1448*d*.

$C_8H_{14}N_2O_6$ Galacturonamide, 1-acetamido-, 4642*c*.
Mannuronamide, 1-acetamido-, 576*f*.

$C_8H_{14}N_2S$ 2(3 *H*) - Imidazolethione, 4-amyl-, 634*i*.
Thiazole, 4 - methyl - 2 - (2-methylaminopropyl)-, *and di-HCl*, 4263*c*.

$C_8H_{14}N_2S_2$ 2 Thiazolesulfenamide, *N*-isopropyl-4,5-dimethyl-, P 1602*d*, P 4509*a*.

$C_8H_{14}N_4$ Guanidine, 1-cyano-3-cyclohexyl-, P 2636*a*, 2947*c*.
Propionitrile, (ethylenediimino)di-, 4415*i*, P 5414*f*.
Pyrazine, (2 - dimethylaminoethylamino)-, 5782*g*.
Pyridine, 3-amino-4,5-bis(aminomethyl)-2-methyl-, *and tri-HCl*, 4674*b*.

$C_8H_{14}N_4NiO_4$ Glyoxime, dimethyl-, Ni deriv., 3740*g*.

$C_8H_{14}N_4O$ Pyrimidine, 2-amino-4-(2-dimethylaminoethoxy)-, 5782*i*.

$C_8H_{14}N_4O_4Pd$ Glyoxime, dimethyl-, Pd deriv , 8056*a*.

$C_8H_{14}N_4O_6$ Glycoluril, 1,3,4,6-tetrakis-(hydroxymethyl)-, 5996*b*

$C_8H_{14}N_4O_6S$ Carbamic acid, 2,2'-(thiodiethylene)bis[nitroso-, di-Me ester, 2946*a*.

$C_8H_{14}N_4O_8$ Methanol, [ethylenebis(nitrosimino)]di-, diacetate, 9074*d*.

$C_8H_{14}N_4S$ Hydantoin, 5,5-dimethyl-2-thio-, azine with acetone, 6171*h*.

$C_8H_{14}N_6$ *s* - Triazine, 2 - [2 - (allylamino)-ethyl]-4,6-diamino-, P 5052*c*.

$C_8H_{14}N_6O_6$ 1,3,5,7 - Tetrazocine, 1,5-diacetyloctahydro - 3 - nitro - 7-nitroso-, 9075*f*.

$C_8H_{14}N_8O_8$ 1,3,5,7 - Tetrazocine, 1,5-diacetyloctahydro-3,7-dinitro-, 9075*f*.

$C_8H_{14}N_6O_{12}$ 2,4,6 - Triazaheptane-1,7-diol, 2,4,6-trinitro-, diacetate, 9074*g*.

$C_8H_{14}O$ (See also *Heptenone, methyl-; 2-Hexenal, 2-ethyl-*.)
Bicyclo[3.2.1]octan-2-ol, 5752*d*.
Compd , bis 104–5°, 6195*d*.
Cycloheptanecarboxaldehyde, 6197*d*.
Cycloheptanone, 3-methyl-, 2965*i*.
Cyclohexaneacetaldehyde, 3372*c*.
Cyclohexanecarboxaldehyde, 3-methyl-, 2966*a*.
Cyclohexanol, 1-vinyl-, 6970*c*.
Cyclohexanone, dimethyl-, 2962*dh*, 2968*i*, 2998*f*, 8362*g*.
—, 3-ethyl-, 9045*c*.
2-Cyclohexene-1-ethanol, 1377*h*.
Cyclooctanone, 161*h*, 7907*a*.
Cyclopentanecarboxaldehyde, 2,5-dimethyl-, 4255*a*.
Cyclopentanone, 2,3,4-trimethyl-, 156*d*.
Ether, bis(2-methylallyl), 3371*c*, 5989*a*.
—, 2 - cyclohexen - 1 - yl ethyl, 2174*a*.
—, 3 - cyclohexen - 1 - ylmethyl methyl, 7436*g*.
Furan, 2,3 - dihydro - 3 - methyl-2-propyl-, 4254*i*.
—, 2,5 - dihydro - 2,2,5,5 - tetramethyl-, 6163*a*.
—, tetrahydro - 3 - methyl - 2 - propenyl-, 4254*h*.
2-Heptanone, 3-methylene-, P 6458*e*.
Hexen-2-one, 3,4-dimethyl-, P 2633*b*.
—, 3-ethyl-, 5735*a*.
Ketone, cyclohexyl methyl, 1411*d*.
Norcamphane, 2-methoxy-, P 689*h*.
2-Octenal, 5973*c*.
3-Octyn-1-ol, 6571*g*.
9-Oxabicyclo[6.1.0]nonane, 6195*a*.
8-Oxabicyclo[5.1.0]octane, 4-methyl-, 2966*c*.
1-Oxaspiro[2.5]octane, 5-methyl-, 2966*a*.
1-Propanone, 1-cyclopentyl-, 7431*i*.
2 *H* - Pyran, 3,6 - dihydro - 2,4,6-trimethyl-, P 3042*i*.

$C_8H_{14}OS$ Acetic acid, thiol-, cyclohexyl ester, 7410*d*; 1-hexen-1-yl ester, 7417*e*.

$C_8H_{14}O_2$ Acetaldehyde, diallyl acetal, P 1433*i*.
Acrylic acid, 1-ethylpropyl ester, P 6651*a*.
Bicyclo[4.2.0]octane - 7,8-diol, 6196*i*.
3-Butenoic acid, Bu ester, 2591*e*.
Crotonic acid, Bu ester, 2591*f*.
Cyclobutanecarboxylic acid, Pr ester, 2955*e*.
Cycloheptanecarboxylic acid, 6197*e*.
Cyclohexanecarboxylic acid, 1-methyl-, 9027*f*.
Cyclohexanol, acetate, 466*a*, 1656*c*, 2588*i*, P 2633*c*, 2955*i*, 6988*e*.
Cyclohexanone, 2-(hydroxymethyl)-5-methyl-, 589*b*.
Cyclopentanol, methyl-, acetate, 2171*i*.
Cyclopropanecarboxylic acid, Bu ester, 2955*e*.
Enanthic acid, γ-hydroxymethyl-, γ-lactone, 3786*e*, 4254*f*.
Ethane, 1,2-bis(allyloxy)-, 5989*a*.
2 Furanol, tetrahydro - 4 - methyl-5-propenyl-, 4254*d*.
3(2 *H*) - Furanone, dihydro - 2,2,5,5-tetramethyl-, 1392*d*.
2,5-Hexanedione, 3,4-dimethyl-, P 9081*i*.
2-Hexenoic acid, ethyl-, P 677*i*, 1374*a*, P 4689*d*.
5-Hexen-2-ol, acetate, 5735*b*.
4 - Hexen - 3 - one, 1 - methoxy - 5-methyl-, 6625*d*.
3-Hexyne-2,5-diol, 2,5-dimethyl-, 1392*e*, 7413*b*.
Methacrylic acid, Bu ester, P 5036*b*, P 5641*e*, 9334*c*, 9510*h*; *sec*-Bu ester, 9334*c*; iso-Bu ester, 9334*c*.
Octanedione, 2176*b*, 2944*d*, 5369*b*.
2,4 - Pentanedione, 3 - isopropyl-, 1009*i*.
2 - Pentanol, 3 - methylene-, acetate, 1311*e*.
2-Pentenoic acid, 4-methyl-, Et ester, 4222*e*.
1-Pentyn - 3 - ol, 5 - ethoxy - 3-methyl-, 1330*a*.
4-Pyrone, 2-ethyltetrahydro-2-methyl-, 2576*b*.

$C_8H_{14}O_2S$ Cyclohexanol, 2-mercapto-, *O*-acetate, 7420*a*.

$C_8H_{14}O_2S_2$ Thiophene, 3 - (2 - butenylmercapto)tetrahydro, 1,1-dioxide, P 3851*h*.
Thiophene, tetrahydro 3 - (2-methylallylmercapto)-, 1,1-dioxide, P 2237*h*, P 3851*h*.

$C_8H_{14}O_2S_3$ Formic acid, thiobis[thiono-, di-Pr ester, 144*c*.

$C_8H_{14}O_2S_4$ Formic acid, dithiobis[thiono-, diisopropyl ester, 6455*a*, 7263*d*, 8199*i*; di-Pr ester, 6983*h*, 8189*b*.

$C_8H_{14}O_3$ Acetoacetic acid, Bu ester, 2945*a*; *tert*-Bu ester, 1317*b*.
Acetoacetic acid, α,α-dimethyl-, Et ester, 4574*h*.
—, α-ethyl-, Et ester, 572*d*.
Acrylic acid, 2-isopropoxyethyl ester, P 3030*i*.
3-Butenol, ethoxy-, acetate, 3816*e*, 6157*fh*.
Butyric anhydride, 565*e*, P 3889*d*, 5271*e*, P 8398*j*.
Caproic acid, β-oxo-, Et ester, P 674*h*, 2582*g*.
Caprylic acid, oxo-, 2174*g*, 6572*i*.
Cyclohexanecarboxylic acid, 2-hydroxy-2-methyl-, 6172*c*.
1,4-Cyclohexanediol, acetate, 7435*h*.
Enanthic acid, methyl-γ-oxo-, 4254*g*, 6625*b*.
Furan, 2,5 - dihydro - 2,5 - dimethoxy-2,5-dimethyl-, P 7970*c*.
2-Furanol, 2-ethyltetrahydro-, acetate, 4254*c*.
2 - Furanpropionic acid, tetrahydro-5-methyl-, 5736*a*.
Isocaproic acid, β-oxo-, Et ester, P 674*i*.
Isooenanthic acid, γ-oxo-, Me ester, 3792*a*.
Levulinic acid, iso-Pr ester, 140*d*.
Pyran - 2 - methanol, tetrahydro-, acetate, P 1435*h*.
Valeric acid, γ,γ-dimethyl-β-oxo-, Me ester, 140*a*.
—, γ-hydroxy - γ - isopropoxy-, γ-lactone, 140*d*.
—, methyloxo-, Et ester, 613*c*, 4227*f*, 6170*h*.

$C_8H_{14}O_2S_2$ 1,2 - Propanedithiol, 3-methoxy-, diacetate, 7418*b*.

$C_8H_{14}O_3$ Acetoacetic acid, γ-ethoxy-, Et ester, 2625*e*.
Adipic acid, di-Me ester, 2590*e*; mono-Et ester, 7303*b*.
—, ethyl-, 6165*b*.
Butanediol, diacetate, 11*d*, 2578*d*, 4911*e*, P 7503*i*.

Glutaric acid, β-isopropyl-, 6601*c*.
Hydracrylic acid, Pr ester, acetate, 4639*g*.
Isoenanthic acid, δ-hydroxy-γ-oxo-, Me ester, 3792*a*.
Lactic acid, tetrahydrofurfuryl ester, P 676*c*.
Malonic acid, methyl-, di-Et ester, 572*d*, 573*b*.
Oxalic acid, diisopropyl ester, 2590*d*; di-Pr ester, 2590*d*.
Pimelic acid, β-methyl-, 7428*f*.
1,3 - Propanediol, 2-methyl-, diacetate, P 7503*i*.
Suberic acid, 3357*h*, 3792*d*, 5469*b*, 6195*a*, 9442*h*; *K salt*, 4075*f*.
Succinic acid, di-Et ester, 572*d*, 590*d*, 621*g*, 2590*d*; mono-Bu ester, 7303*b*.
—, butyl-, 5069*i*.

**$C_6H_{14}O_4S$** Ethanol, 2,2′-thiodi-, diacetate, 5150*f*.
Propionic acid, β,β′-thiodi-, di-Me ester, P 5414*g*.

**$C_6H_{14}O_4S_2$** Acetic acid, dithiodi-, Et ester, 2956*f*.
Acetic acid, (tetramethylenedithio)di-, 3365*a*.
Thiophene, tetrahydro - 3 - (2-methylallylsulfonyl)-, 1,1 - dioxide, P 2237*h*.

**$C_6H_{14}O_5$** Acetaldehyde, [oxybis(ethyleneoxy)]di-, 7735*i*.
Acetoacetic acid, α,γ-dimethoxy-, Et ester, 1008*e*.
Arabonic acid, 2,3,5-trimethyl-, lactone, 2954*b*.
Butyric acid, β,β′-oxydi-, P 5037*f*.
Diglycolic acid, di-Et ester, 9032*e*.
Glucosan, dimethyl-, 5926*c*.
Isovaleric acid, γ - hydroxy - α,α,β-trimethoxy-, γ-lactone, 6980*h*.
Lactic acid, 2-methoxyethyl ester, acetate, P 676*d*.
Malic acid, di-Et ester, 572*c*.
Ribonic acid, 2,3,5-trimethyl-, lactone, 2953*i*.

**$C_6H_{14}O_5S$** Acetic acid, sulfinyldi-, di-Et ester, 9032*h*.

**$C_6H_{14}O_6$** Mannonic acid, 2,3-dimethyl-, γ-lactone, 581*cg*.
Oxalacetic acid, di-Me ester di-Me acetal, 6168*e*.
Peroxydicarbonic acid, diisopropyl ester, 8200*a*.
Succinic acid, α,β-dimethoxy-, di-Me ester, 5589*c*.
Tartaric acid, di-Et ester, 127*g*, 572*c*, 7379*f*.

**$C_6H_{14}O_7$** Glutaric acid, dihydroxymethoxy-, di-Me ester, 5589*c*.

**$C_6H_{14}O_8S_2$** Hexitol, bis(methanesulfonyl)-dianhydro-, 2940*b*.
Mannitol, bis(methanesulfonyl)dianhydro-, 2940*a*.

**$C_6H_{11}Br$** Cyclohexane, 3-bromo-1,1-dimethyl-, 9044*f*.
Cyclohexane, (2-bromoethyl)-, 3372*a*.
Octene, bromo-, 9024*e*.

**$C_6H_{11}BrN_2S$** Urea, 1 - (2 - bromoallyl)-3-*tert*-butyl-2-thio-, 1016*f*.

**$C_6H_{11}BrN_4$** Metrazole, compd. with bromoethane, 5540*g*.

**$C_6H_{11}BrO$** Furan, 5-(bromomethyl)-3-ethyltetrahydro-2-methyl-, 5735*g*.

**$C_6H_{11}BrO_2$** Caproic acid, ε-bromo-, Et ester, 6165*b*.

**$C_6H_{11}Cl$** Cyclohexane, 1-chloro-1-ethyl-, 3371*i*.
Cyclopentane, 1-chloro-1-propyl-, 2173*i*.

**$C_6H_{11}ClN_2O_2$** Isocaproamide, α-(α-chloroacetamido)-, 9114*i*.

**$C_6H_{11}ClO$** Caproyl chloride, β,γ-dimethyl-, 1373*i*.
Caproyl chloride, ethyl-, 1373*i*, 8353*c*.
Cycloheptanol, 2-chloromethyl-, 2966*b*.
Ether, chloromethylpentenyl ethyl, 9025*g*.
—, chloropentenyl propyl, 9025*f*.
2-Octanone, 1-chloro-, 633*g*.
Valeryl chloride, α-ethyl-α-methyl-, 6974*i*.

**$C_6H_{11}ClO_2$** Furan, 2-butoxy-3-chlorotetrahydro-, 3816*d*.
Pyran, 2 - (3 - chloropropoxy)-tetrahydro-, 2203*i*.
Pyran - 4 - ol, 2 - (chloromethyl)tetrahydro-4,6-dimethyl-, P 3043*b*.

**$C_6H_{11}ClO_2$** Acetic acid, chloro-, 2-butoxyethyl ester, P 2223*e*, 4220*d*.

**$C_6H_{11}ClO_2S$** Thiophene - 3 - ol, 4-chloro-3,5-diethyltetrahydro-, 1,1-dioxide, P 3851*g*.

**$C_6H_{11}Cl_2NO$** Acetamide, α,α-dichloro-*N*,*N*-diisopropyl-, 1720*b*.
Acetamide, α,α - dichloro - *N*,*N*-dipropyl-, 1720*b*.
—, α,α - dichloro - *N* - 2 - ethylbutyl-, 1720*c*.
—, α,α-dichloro-*N*-hexyl-, 1720*c*.
2 - Butanone, 4 - [bis(2 - chloroethyl)-amino]-, 5505*c*.

**$C_6H_{11}Cl_2OP$** Phosphine oxide, dichloro-(2,4,4 - trimethyl - 1 - pentenyl)-, P 7499*g*.

**$C_6H_{12}Cl_3O_3$** Orthoacetic acid, tris(2-chloroethyl) ester, 1720*f*.

**$C_6H_{11}FO_3$** Acetic acid, fluoro-, 2-butoxyethyl ester, P 3140*h*.

**$C_6H_{11}IO_4$** Galactoside, methyl 2-desoxy-6-iodo-3-methyl-, 1727*g*.

**$C_6H_{11}N$** Capronitrile, δ,δ-dimethyl-, 132*h*.
Capronitrile, γ-ethyl-, P 3440*b*.
Caprylonitrile, P 2786*b*.
Heliotridane, 5775*h*.
Pseudoheliotridane, 5775*h*.
Valeronitrile, α-propyl-, 6165*c*.

**$C_6H_{11}NO$** (See also *Tropine*.)
Acetamide, *N*-cyclohexyl-, 4233*b*.
Acrylamide, *N*-*tert*-amyl-, 2165*d*.
—, *N*-butyl-α-methyl-, P 672*g*.
1*H* - Azonin - 2(3*H*) - one, hexahydro-, 5400*c*.
Cycloheptanecarboxamide, 6197*e*.
Cyclohexanone, dimethyl-, oxime, 2962*g*, 2998*f*.
Cyclooctanone, oxime, 5400*c*.
Ethanol, 2-(1-cyclohexen-1-ylamino)-, P 7844*h*.
Hygrine, 4256*h*.
Isoretronecanol, 3827*i*.
4-Piperidone, trimethyl-, 2959*d*, P 9080*g*.
2-Propanone, 1 - (1 - piperidyl)-, 4243*f*.
Retronecanol, 6210*a*, 9076*c*.
Trachelanthamidine, 2625*c*.

**$C_6H_{11}NO_2$** Acetamide, *N* - 2 - hydroxycyclohexyl-, 3372*h*.
2 - Buten - 1 - ol, 4 - dimethylamino-, acetate, - *HCl*, 6977*h*.
Caproamide, α,β-epoxy-α-ethyl-, 7139*d*.
Caprylaldehyde, α-oxo-, monoxime, P 8739*f*.
Cyclohexaneacetic acid, 3-amino-, 1730*c*.
Cyclopentanecarboxylic acid, 1-amino-, Et ester, 572*h*.
3(2*H*) - Furanone, 4-aminodihydro-2,2,5,5-tetramethyl-, 1302*i*.
Glycine, *N*-caproyl-, *Ba salt*, 4920*f*.
1-Pentene, 2,4,4 - trimethyl - 1 - nitro-, P 665*e*.
Platynecine, 7475*f*.

**$C_6H_{11}NO_2S$** 4-Thiazolidinecarboxylic acid, 2-isopropyl-2-methyl-, 4271*i*.
4 - Thiazolidinecarboxylic acid, 2,2,5,5-tetramethyl-, - *HCl*, 4920*e*.

**$C_6H_{11}NO_2S_2$** Hydracrylic acid, diethyldithiocarbamate, P 7506*g*.

**$C_6H_{11}NO_3$** Butyric acid, α-acetamido-α-ethyl-, 1723*h*.
Caproic acid, α-oxo-, *O*-ethyloxime, P 5122*e*.
Glycine, *N*-isovaleryl-, Me ester, P 3030*b*.
Isobutyramide, α - hydroxy - *N*,*N*-dimethyl-, acetate, 3358*f*.
Leucine, *N*-acetyl-, 1241*e*, P 7956*e*.
Norleucine, *N*-acetyl-, P 7956*e*.
Propionamide, β - (allyloxy) - *N* - 2-hydroxyethyl-, 2273*c*.
Teloidine, 7194*d*.

**$C_6H_{11}NO_3S$** Norvaline, *N* - acetyl - β - mercapto-β- methyl-, 2581*i*.
Valine, *N*-acetyl-β mercapto-, Me ester, 8892*f*.

**$C_6H_{11}NO_3S_2$** 3 - Thiophenecarbamic acid, tetrahydro - *N* - methylthiol-, 1,1-dioxide, Et ester, P 6668*e*.

**$C_6H_{11}NO_4$** β-Alanine, *N*-(hydroxypivalyl)-, 7426*g*.
Allothreonine, *N*-acetyl-, Et ester, 4225*f*.
Aspartic acid, β-butyl-, 1323*b*.
*m*-Dioxane, 5-methyl-5-nitro-2-propyl-, 5150*f*.
Imidodicarboxylic acid, Bu Et ester, 4228*f*.
Threonine, Et ester, acetate, - *HCl*, 4225*g*.
—, *N*-acetyl-, Et ester, 4225*d*.
Valeric acid, α,γ-dimethyl-γ-nitro-, Me ester, 1319*h*.

**$C_6H_{11}NO_5$** β-Alanine, *N*-(α,γ-dihydroxyisovaleryl)-, P 3152*g*.
β-Alanine, *N* - (α,γ - dihydroxyvaleryl)-, P 3152*g*.
Glycine, *N* - (α,γ - dihydroxy - β,β-dimethylbutyryl)-, *Na salt*, 722*h*.
Isobutyric acid, α-hydroxy-, 2-nitroisobutyl ester, P 2815*g*.

**$C_6H_{11}NO_6$** Acetamide, *N* - (2,3,4,5,6-pentahydroxycyclohexyl)-, 149*d*.
Glucosamine, acetyl-, 8480*d*.

**$C_6H_{11}NO_6S$** Taurine, *N* - (γ - hydroxy-β,β-dimethyl-α-oxobutyryl)-, 4223*i*.

**$C_6H_{11}N_3$** Histamine, *N* - isopropyl-, *di-HCl*, 6621*c*.
Imidazole, (diethylaminomethyl)-, *di-HCl*, 634*a*.

**$C_6H_{11}N_3O$** Cyclohexanone, 3-methyl-, semicarbazone, 3356*d*.
Cyclopentanone, 2,3-dimethyl-, semicarbazone, 7911*f*.
Enanthic acid, α-cyano-, hydrazide, 4222*i*.
4-Hexen-3-one, 5-methyl-, semicarbazone, 2161*b*, 2163*i*.
Ketone, cyclopentyl methyl, semicarbazone, 7431*i*.

**$C_6H_{11}N_3OS$** 1,4-Thiapyrone, tetrahydro-2,2-dimethyl-, semicarbazone, 2163*g*.

**$C_6H_{11}N_3O_2$** 3(2*H*)-Furanone, 4,5-dihydro-2,2,5 - trimethyl-, semicarbazone, 2161*f*.

**$C_6H_{11}N_3O_3$** Glutamic acid, isopropylidenehydrazide, 2674*h*.
Levulinic acid, β,β-dimethyl-, semicarbazone, 1333*b*.

**$C_6H_{11}N_3O_4$** Glycine, *N*-(*N*-alanylglycyl)-, Me ester, 2943*g*.
Malonamide, α acetamido-α-(3-hydroxypropyl)-, 143*c*.

**$C_6H_{11}N_3O_4S$** Compd. m. 190-2°, 2945*e*.

**$C_6H_{11}N_4$** 1*H*-Tetrazole, 5-(aminomethyl) 1-cyclohexyl-, 1864*h*; - *HCl*, P 7972*a*.

**$C_6H_{11}N_5O$** Ethanol, 2-[2-(2-amino-4-pyrimidylamino)ethylamino]-, *and tri- HCl*, P 4704*g*.
*s*-Triazine, 2-amino-4-butoxy-6-methylamino-, 4269*i*.
—, 2 amino-4 butylamino-6-methoxy-, 4269*d*.
—, 2 amino 4-diethylamino-6 methoxy-, 4269*c*.
—, 2,4 bis(dimethylamino)-6 methoxy-, 4269*f*.
—, 2,4 - bis(ethylamino) - 6 - methoxy-, 4269*f*.
—, 2,4-diamino-6-(3-ethoxypropyl)-, P 3854*i*.

**$C_6H_{11}N_5O_2$** Ethanol, 2-[(4-amino-6-methoxy-*s*-triazin-2 yl)ethylamino]-, 4269*e*.

**$C_6H_{12}NaO_2$** Hydroperoxide, 1-ethylcyclohexyl, Na deriv., 6189*g*.

**$C_6H_{13}$** (See also *Cyclohexane, dimethyl-*; *Cyclohexane, ethyl*; *Octene*; *Pentene, trimethyl*.)
Cycloheptane, methyl-, 157*g*.
Cyclooctane, 157*g*, 591*ad*, 2479*g*, 6194*i*
Cyclopentane, 1-ethyl-2-methyl-, 157*g*.
—, isopropyl-, 157*g*, 5009*i*, 8890*b*.
—, propyl-, 157*f*.
—, trimethyl-, 155*i*, 1332*b*, 2924*g*, 4453*g*, 7916*e*, 8890*b*.
Heptene, methyl-, 1311*d*, 4061*g*, 5010*c*, 6152*c*.
Hexene, dimethyl-, 1311*b*, 4061*g*, 6152*c*.
—, 2 ethyl-, 4401*g*, 6150*i*.

**$C_6H_{13}AgN_2$** 517*d*.

**$C_6H_{13}BrN$** (1-Cyclobuten-1-ylmethyl)trimethylammonium bromide, 586*g*.
Trimethyl - 2 - methylenecyclobutylammonium bromide, 586*g*.

**$C_6H_{13}BrNO$** Acetamide, α-bromo-*N*,*N*-diisopropyl-, 5081*h*.
Acetamide, α-bromo-*N*,*N*-dipropyl-, 5081*h*.
—, α-bromo *N*-2-ethylbutyl-, 5081*h*.
—, α-bromo-*N*-hexyl-, 5081*h*.

**$C_6H_{12}Br_2$** Octane, 1,2-dibromo-, 1312*c*.

**$C_6H_{12}Br_2O_2$** Butyraldehyde, α,α-dibromo-, di-Et acetal, 2575*i*.

**$C_6H_{13}Br_2N$** [2-Bromo-2-(bromomethyl)cyclobutyl]trimethylammonium bromide, 586*h*.
(1,2 - Dibromocyclobutylmethyl)trimethylammonium bromide, 586*h*.

**$C_6H_{14}ClN$** Cyclohexylamine, *N*-(2-chloroethyl)-, - *HCl*, 3386*b*, 3419*c*.
Piperidine, 1-(2-chloroisopropyl)-, 4243*g*.
—, 1-(chloropropyl)-, P 667*a*, 4243*d*.
Pyrrolidine, 1-(2-chloroethyl)dimethyl-, *and - HCl*, 681*f*.

**$C_6H_{14}ClNO_2$** (4-Carboxy-2-hydroxybutyl)-trimethylammonium chloride lactone, 6978*a*, 7132*f*.

**$C_6H_{14}Cl_2$** Hexane, 2,4-dichloro-2,3-dimethyl-, P 663*d*.
Octane, dichloro-, 589*e*.

**$C_6H_{14}Cl_2N_2$** Piperazine, 1,4-bis(2-chloroethyl)-, *di- HCl*, 1861*e*, 2927*c*.

**$C_6H_{15}Cl_3N_2O_2$** Propene, 3-methyl-, compd. with NOCl, dimer, P 6647*i*.

$C_8H_{16}Cl_2O_2$ Acetaldehyde, bis(2-chloroisopropyl) acetal, P 6649*i*.
$C_8H_{16}Cl_2O_2$ Ether, bis[2-(2-chloroethoxy)-ethyl], P 2033*a*, P 9358*c*.
$C_8H_{16}Cl_3Si$ Silane, (1,2-dichlorovinyl)triethyl-, 2571*i*.
$C_8H_{16}Cl_3N$ Butylamine, 3-chloro-*N*, *N*-bis(2-chloroethyl)-, 5505*c*.
$C_8H_{16}Cl_4O_2Sn$ Furan, tetrahydro-, compd. with $SnCl_4$, 2035*a*.
$C_8H_{16}Cl_4PdS_2$ Sulfide, bis(2-chloroethyl), compd. with $PdCl_2$, 348*h*.
$C_8H_{16}FN_2O_2P$ Phosphine oxide, fluorodi-4-morpholinyl-, 1314*f*.
$C_8H_{16}IN$ 1-Methylquinuclidinium iodide, 3422*g*.
$C_8H_{16}INO$ 1-Ethyl-1-methyl-4-oxopiperidinium iodide, 7432*c*.
$C_8H_{16}INO_2$ [3-Carboxy-1-(hydroxymethyl)-propyl]trimethylammonium iodide, lactone, 6978*a*, 7132*f*.
$C_8H_{16}N_2$ Butyronitrile, diethylamino-, P 2541*i*, 2211*a*
Butyronitrile, β-(methylpropylamino) P 2541*i*.
Caprylonitrile, α-am o-, *and* -*HCl*, 3408*e*.
Carbodiimide, *tert* butylisopropyl, 1015*h*.
—, *tert* butylpropyl-, 1015*h*
Cyclohexanone, dimethylhydrazone, 6591*i*.
Cyclopentanone, 2,3,4-trimethyl-, hydrazone, 156*e*.
2-Imidazoline, 2 amyl-, P 5048*i*.
—, 5-ethyl-1,2,5 trimethyl, 8381*e*.
Isobutyraldehyde, azine, 1654*d*.
$C_8H_{16}N_2O$ Nipecotamide, 1 ethyl, 6207*b*
2 Piperazinone, 3,3,6,6 tetramethyl-, *and* -*HCl*, 3015*f*.
Propionamide, α-(allylamino) *N*, *N* dimethyl-, P 4886*g*
$C_8H_{16}N_2O_2$ Acetamide, *N*, *N'* (1,1-dimethyl ethylene)bis, 9067*g*.
Acetamide, α-*N* ethylacetamido *N*, *N*-dimethyl, P 2488*i*, P 7956*a*
Cyclohexaneacetic acid, 1 hydroxy hydrazide, 2993*b*.
Hydrazine, 1,2-dibutyryl, 5369*b*
Malonamide, *N*-*tert* amyl, 2165*f*
2 Pentanone, 4-(ethylnitrosoamino) 4 methyl, 4652*a*
1 Piperazinecarboxylic acid, 4 methyl, Et ester, *and salts*, P 6671*e*.
Propionamide, *N*-[(dimethylcarbamyl)-methyl] *N* methyl-, P 4291*e*
, *N*, *N*-dimethyl-α-*N* methylacetamido-, P 2490*a*, P 4291*d*.
succinamic acid, di-Et ester, *di HCl*, 7756*e*
Urea, (α,β-dimethylvaleryl), 2169*e*
, (α ethylisovaleryl)-, 2169*e*
, α ethyl α methylbutyryl)-, 2169*e*.
, isoamanthyl-, 2169*e*.
$C_8H_{16}N_2O_3$ Glycine, *N*-leucyl-, 1448*c*, 2245*g*, 4334*d*, 7066*b*
Hydantoic acid, α-ethyl-α-propyl-, 2167*d*
Leucine, *N* glycyl-, 1448*e*, 9148*e*.
1,3,2*H* Oxazine, tetrahydro-3-isopropyl-5 methyl-5 nitro-, P 1068*i*.
$C_8H_{16}N_2O_4$ Carbamic acid, ethylenebis-, di Et ester, 1324*g*.
1,6 Hexanediol, dicarbamate, P 4690*h*.
Lactamide, *N*, *N'*-ethylenebis-, P 3447*a*
Pentane, 2,4,4-trimethyl-1,2 dinitro-, P 865*e*.
$C_8H_{16}N_2O_4S$ Carbamic acid, (thiodiethyleneoxy)di-, di-Me ester, 2945*i*.
Homolanthionine, 4739*d*, 6712*e*.
$C_8H_{16}N_2O_4S_2$ Homocystine, 3077*e*, 8895*b*.
$C_8H_{16}N_2S_2$ Disulfide, bis(ethylmethylthiocarbamyl), 6856*h*.
$C_8H_{16}N_4$ Guanidine, 1-cyano-2,3-diisopropyl-, 2049*f*.
Guanidine, 1-cyano-2-isopropyl-3-propyl-, 2949*g*.
$C_8H_{16}N_4O_4$ Urea, [hexahydro-1,3-bis(hydroxymethyl)-4-methyl-2-oxo-4-pyrimidyl]-, 5096*b*.
$C_8H_{16}N_4O_8$ Propane, 2-methyl-1-nitro-2-nitroso-, dimer, P 5411*f*.
$C_8H_{16}N_4S_2$ Pseudourea, 2-[1-[2-(guanylthiocapto)ethylmercaptomethyl]allyl] - 2-thio-, *di*-*HCl*, P 4292*d*.
$C_8H_{16}N_4O_4$ Methanol [[(ethoxymethylnitramino)methylnitramino]methyl-, acetate, 9074*h*.
$C_8H_{16}N_4S_2$ 2(1*H*)-*s*-Triazinethione, 5,5'-ethylenebis[tetrahydro-, 1782*g*.
$C_8H_{16}O$ (See also *Octanone*.)
Caprylaldehyde, α-eth P 864*e*, P 2633*b*, P 3442*d*.
Caprylaldehyde, P
Cycloheptanol,
Cyclohexaneethanol, 573*d*.
Cyclohexanol, dimethyl-, 165*c*, 475*c*, 2176*b*, 2962*i*, 9044*f*.
Cyclooctanol, 6195*c*, 6988*e*.
Cyclopentanemethanol, 2,5-dimethyl-, 4255*a*.
Cyclopentanol, 2,3,4-trimethyl-, 156*d*.
Ether, cyclohexyl ethyl, 2955*i*, P 9087*b*.
—, ethyl 1-ethylcyclopropylmethyl, 3369*i*.
—, hexyl vinyl, 455*i*.
—, isopropyl 3-methyl-2-butenyl, 114*f*.
—, 3-methyl-2-butenyl propyl, 114*f*.
—, methyl 3-methyl-2-hexenyl, 115*b*.
—, methyl 1-methyl-1-vinylbutyl, 115*b*.
Furan, 3-butyltetrahydro-, 3819*a*.
—, 3-ethyltetrahydro-2,5-dimethyl-, 5735*e*.
—, tetrahydro-3-methyl-2-propyl-, 4254*f*.
Heptanone, methyl-, 2161*bc*, 5388*c*.
3-Hexanone, 2,2-dimethyl-, 111*e*, 2926*a*.
Hexenol, ethyl-, P 3438*d*, 5735*b*.
Pentane, epoxy-2,4,4-trimethyl-, 1309*eh*, 1310*bg*.
3 Pentanone, 2,2,4-trimethyl-, 111*d*, 5004*f*.
1-Penten-3-ol, 2,4,4-trimethyl-, 1309*i*.
Pyran, tetrahydro-2,4,6-trimethyl-, P 3043*c*.
Valeraldehyde, α,γ,γ-trimethyl-, 1310*bg*.
$C_8H_{16}O_2$ (See also *Caproic acid, ethyl-*; *Caprylic acid*.)
Acetic acid, hexyl ester, 8779*g*.
2-Butanone, 4 *tert*-butoxy-, 1339*a*.
Butyric acid, Bu ester, 1656*c*, P 2633*c*, 6102*c*; iso-Bu ester, 2834*b*.
—, α,α-diethyl-, 9027*g*.
—, α-ethyl, Et ester, 6171*a*.
—, α,α,β,β-tetramethyl-, 1310*h*.
Caproaldehyde, α-ethyl-β-hydroxy-, 1317*f*.
Caproic acid, Et ester, 3612*a*, 6064*i*.
—, dimethyl-, 1373*i*, 2932*e*.
Cyclohexanemethanol, 2-hydroxy-, 4 methyl-, 589*b*.
—, 4-methoxy, 7437*c*.
Cyclohexanol, 4-(methoxymethyl)-, 7436*g*.
Dioxane, tetramethyl-, 6163*d*.
Enanthic acid, Me ester, 2590*d*.
1,2 Ethanediol, 1-cyclohexyl-, 573*d*.
Furan, 2-butoxytetrahydro-, 3816*d*
Furanol, tetrahydro 4-methyl-5-propyl-, 4254*e*.
—, tetrahydro-2,2,5,5-tetramethyl-, 1393*b*.
Heptanone, hydroxymethyl, 1315, 2944*f*.
—, 3-methoxy-, 6974*g*
3-Hexanone, 4-hydroxy-2,5-dimethyl-, 2944*e*.
—, 4 methoxy-2-methyl-, 6974*g*
3 Hexene-2,5-diol, 2,5-dimethyl-, 6162*i*.
Hexenol, ethoxy-, 9025*i*.
Hydroperoxide, 1-ethylcyclohexyl, 6189*g*.
Isobutyric acid, Bu ester, 1656*d*, P 2633*c*; iso-Bu ester, 1656*d*, 5004*g*.
Isovaleric acid, Pr ester, 2834*b*.
Octanone, hydroxy-, 2944*d*, 6190*g*.
Oxepin, hexahydro-2-methoxy-2-methyl-, 6190*g*.
2-Pentanol, 2 methyl-, acetate, P 7951*g*.
Propionic acid, Am ester, 1656*c*; iso-Am ester, 2370*i*, 2834*b*.
Pyran-4-ol, tetrahydro-2,4,6-trimethyl-, P 3042*i*.
Valeric acid, Pr ester, 2590*d*.
—, α-ethyl-α-methyl-, 6974*i*.
—, α-propyl-, 6165*c*.
—, α,γ,γ-trimethyl-, 1310*b*, 3905*c*.
$C_8H_{16}O_2S$ Acetic acid, (hexylmercapto)-, 3365*a*.
1,3-Hexanediol, 2-ethyl-, cyclic sulfite, P 4853*c*.
3-Hexanone, 5-mercapto-1-methoxy-5-methyl-, 2163*e*.
Sulfone, cyclohexyl ethyl, 1002*g*.
$C_8H_{16}O_2S_2$ Thiophene, 3-(*tert*-butylmercapto)tetrahydro-, 1,1-dioxide, P 2237*h*.
$C_8H_{18}O_2$ 1,3-Butanediol, 2,3-dimethyl-, 1-acetate, P 7952*a*.
—, 3-methyl-, 1-propionate, P 7952*b*.
Butyric acid, 1-ethoxyethyl ester, 6576*a*.
—, α-butoxy-, *and Bi salt*, 2488*i*.
—, α-hydroxy-β,β-dimethyl-, Et ester, 573*e*.
Caprylic acid, ε-hydroxy-, Et ester, 2176*a*, P 3445*d*.
Enanthic acid, α-methoxy-, *and Bi salt*, 2488*i*.
Ethanol, 1-butoxy-, acetate, 3786*a*, 6670*f*, 7426*a*.
—, 1-isobutoxy-, acetate, 6670*f*.
Furan, tetrahydro-2,5-dimethoxy-2,5-dimethyl-, P 7512*d*.
Glycolic acid, hexyl ester, 8779*g*.
2-Heptanone, 3,4-dihydroxy-3-methyl-, 1322*b*.
Lactic acid, Am ester, 6495*f*.
2,4-Pentanediol, 2-methyl-, 4-acetate, P 7952*a*.
Propionic acid, 1-propoxyethyl ester, 6576*e*.
—, β-ethoxy-, Pr ester, 1322*g*.
—, α-isoamoxy-, *and Bi salt*, 2488*i*.
Pyran-3,4-diol, tetrahydro-2,4,6-trimethyl-, P 3043*d*.
$C_8H_{16}O_3$ (See also *Metaldehyde*.)
Acetic acid, (2-butoxyethoxy)-, P 9477*i*.
2-Butanone, 3-hydroxy-, dimer, 3791*f*.
Diginoside, methyl-, 1727*h*.
*s*-Tetroxane, 3,6-diethyl-3,6-dimethyl-, 1952*g*.
$C_8H_{16}O_4$ Arabinose, 2,3,5-trimethyl-, 583*e*.
Arabinoside, methyl dimethyl-, 584*f*, 585*i*, 2954*b*.
Digitaloside, methyl, 4636*d*.
Galactoside, methyl 2-desoxy-3-methyl-, 1727*e*.
Idoside, methyl 3-desoxy-2-methyl-, 1728*c*.
Orthopropionic acid, β-carboxy-, tetra-Me ester, 3360*c*.
Ribofuranose, trimethyl-, 2953*h*.
Ribose, 2,3,5-trimethyl-, 2953*i*.
Xyloside, methyl dimethyl-, 5589*b*, 7430*b*.
$C_8H_{16}O_4S$ Galactopyranoside, ethyl thio-, 3367*i*.
Mannopyranoside, ethyl thio-, 3367*h*.
$C_8H_{16}O_5$ Fructose, dimethyl-, 5749*i*, 5750*i*, 6947*d*.
Galactose, dimethyl-, 1330*f*.
Galactoside, methyl 3-methyl-, 4636*b*.
D-Glucose, dimethyl-, 1330*f*, 1331*d*.
Hexoside, methyl 6-methyl-, 5370*f*.
Mannose, 3,4-dimethyl-, 585*c*, 586*b*, 1330*f*.
Sorbitol, 2,4-ethylidene-, 2939*d*.
$C_8H_{16}O_6S_2$ 1,2-Cyclohexanediol, dimethanesulfonate, 7434*i*.
$C_8H_{16}S$ Thiophene, butyltetrahydro-, 8887*i*.
$C_8H_{16}S_2$ Cyclohexanethiol, 2-(ethylmercapto)-, 7420*b*.
Disulfide, isobutyl 2-methylpropenyl, 996*g*.
$C_8H_{16}S_3$ Trisulfide, isobutyl 2-methylpropenyl, 996*g*.
$C_8H_{16}S_4$ Tetrasulfide, isobutyl 2-methylpropenyl, 996*g*.
$C_8H_{18}Si$ Silane, diallyldimethyl-, P 1223*d*.
$C_8H_{17}Br$ Heptane, 3-(bromomethyl)-, 1312*b*.
Hexane, 1-bromo-4-ethyl-, 3780*g*.
Octane, bromo-, 558*d*, 1312*a*, 2590*i*, 4912*b*.
$C_8H_{17}BrMg$ Octylmagnesium bromide, 1718*g*.
$C_8H_{17}BrN_2S$ 3,4-Thiophenediamine, 2-(4-bromobutyl)tetrahydro-, *di*-*HBr*, P 1810*b*, P 2645*c*.
$C_8H_{17}BrO$ Ether, bromomethyl 1-methylhexyl, 2926*d*.
$C_8H_{17}BrO_2$ Butyraldehyde, α-bromo-, di-Et acetal, 2575*h*.
Isovaleraldehyde, α-bromo-, Et Me acetal, 2158*d*.
$C_8H_{17}Cl$ Alkyl chloride, b. 157°, P 662*i*.
Heptane, 3-(chloromethyl)-, 1312*b*.
Octane, 1-chloro-, 2590*i*, 4912*b*.
Pentane, 3-chloro-3-ethyl-2-methyl-, 6968*h*.
—, chlorotrimethyl-, 6968*gh*.
$C_8H_{17}ClHg$ Octylmercury chloride, 5004*c*.
$C_8H_{17}ClOS$ Ether, butyl 2-(2-chloroethylmercapto)ethyl, 2928*h*.
$C_8H_{17}ClO_2$ Acetaldehyde, Bu 2-chloroethyl acetal, 6159*d*.
$C_8H_{17}ClO_3S_2$ Ethane, 1-(butylsulfonyl)-2-(2-chloroethylsulfonyl)-, 2928*h*.
$C_8H_{17}ClS_2$ Ethane, 1-(butylmercapto)-2-(2-chloroethylmercapto)-, 2928*h*.
$Cl_3N$ Butylamine, *N*, *N*-bis(2-chloroethyl)-, 5505*c*.
*sec*-Butylamine, *N*, *N*-bis(2-chloroethyl)-, 5505*c*.
*tert*-Butylamine, *N*, *N*-bis(2-chloroethyl)-, 5505*c*.
Isobutylamine, *N*, *N*-bis(2-chloroethyl)-, 5505*c*.
$C_8H_{17}F$ Octane, 1-fluoro-, 2591*a*.
$C_8H_{17}FO_2Pb$ Triethyllead fluoroacetate, 2933*e*.
$C_8H_{17}I$ Octane, 1-iodo-, 2591*a*, 4912*b*.
$C_8H_{17}IO_2$ Ethane, 1-(2-ethoxyethoxy)-2-(2-iodoethoxy)-, 3784*e*.
$C_8H_{17}IO_4$ Galactose, 6-desoxy-6-iodo-, compd. with 150*g*.
$C_8H_{17}N$ 1*H*-Azonine,

**Butylamine**, *N*-isobutylidene-, 931*a*.
Coniine, 8305*e*.
Cyclohexaneëthylamine, 1026*e*.
**Cyclohexylamine**, dimethyl-, P 4488*i*, P 8172*h*; *and - HCl*, 2963*c*.
Piperidine, 2,3,6-trimethyl-, 2959*e*.
$C_8H_{17}NO$ 2-Butanone, 4-diethylamino-, 4219*i*.
**Butyramide**, $\alpha,\alpha$-diethyl-, 9027*h*.
Caproimidic acid, Et ester, 2203*a*.
Caprylamide, P 3028*c*, 7914*d*.
Conhydrine, 7937*b*.
Cycloheptanol, 2-amino-5-methyl-, *and - HCl*, 2966*c*.
Cyclohexanol, 2 - (aminomethyl) - 1-methyl-, 588*h*.
Ethanol, 2-cyclohexylamino-, 572*i*.
2-Octanone, oxime, 5740*e*.
—, 1-amino-, - *HCl*, 635*a*.
1-Piperidineëthanol, $\alpha$-methyl-, 4243*f*.
**2-Piperidinemethanol**, $\alpha$-ethyl-, 7937*b*.
1-Piperidinepropanol, 573*b*.
4-Piperidinol, 2,2,6-trimethyl-, P 9080*f*.
Propionamide, *N-tert*-amyl-, 2105*d*.
1-Pyrrolidineëthanol, dimethyl-, 631*e*.
Valeramide, $\alpha$-isopropyl-, 2166*h*.
—, $\alpha$-propyl-, 6165*c*.
$C_8H_{17}NOS$ Morpholine, 4-(*tert*-butylmercapto)-, P 1176*g*.
$C_8H_{17}NO_2$ Acetaldehyde, (2-methylallylamino)-, di-Me acetal, 6974*c*.
Butyric acid, $\alpha$-ethylamino-, Et ester, P 251*c*, P 7956*a*.
Caprylic acid, amino-, 3879*dg*.
Leucine, Et ester, 1723*c*, 7520*f*, *and - HCl*, 7425*h*.
—, *N*-ethyl-, 6979*e*.
4-Morpholinebutanol, P 6673*g*.
4-Morpholineëthanol, dimethyl-, P 6673*g*, 9052*e*.
Norvaline, $\alpha$-isopropyl-, *and - HCl*, 2167*d*.
—, $\alpha$-propyl-, *and - HCl*, 2167*b*.
2-Octanol, nitrite, 3779*a*.
Piperidine, 3,5-dimethoxy-1-methyl-, 2208*i*.
3-Piperidinol, 1-ethyl-5-methoxy-, 2209*a*.
1,2-Propanediol, 3-(1-piperidyl)-, 6204*e*.
Valine, *N*-isopropyl-, 6979*e*; *and - HCl*, 2167*b*.
—, *N*-propyl-, 6979*e*.
$C_8H_{17}NO_2S$ Methionine, isopropyl ester, 4724*i*.
3-Thiophenine, *N*-butyltetrahydro-, 1,1-dioxide, - *HCl*, 2988*g*.
Valine, $\beta$-propylmercapto-, 6577*c*.
$C_8H_{17}NO_3$ Butyramide, $\gamma$-ethoxy-*N*-2-hydroxyethyl-, 2273*c*.
3-Hexanol, 2,4-dimethyl-4-nitro-, P 3439*a*.
4-Morpholineacetaldehyde, di-Me acetal, *and - HCl*, 6974*c*.
$C_8H_{17}NO_3S$ Butyric acid, $\alpha$-amino-$\alpha$-(butylsulfinyl)-, 3499*h*.
1-Piperidineëthanesulfonic acid, $\beta$-methyl-, 7412*a*.
Valine, $\beta$-(propylsulfinyl)-, 6577*e*.
$C_8H_{17}NO_4S$ Butyric acid, $\alpha$-amino-$\alpha$-(butylsulfonyl)-, 3499*h*.
1-(3-Hydroxypropyl)piperidinium hydrogen sulfate, cyclic ester, 2935*a*.
$C_8H_{17}NO_5$ Arabonamide, 2,3,5-trimethyl-, 583*e*, 585*bi*, 2954*b*.
Leucinol, oxalate, 1723*d*.
$C_8H_{17}NO_5S$ 2-Octanesulfonic acid, 1-nitro-, *K salt*, P 9079*c*.
$C_8H_{17}NO_6S$ Taurine, *N*-($\alpha,\gamma$-dihydroxy-$\beta,\beta$-dimethylbutyryl)-, 716*d*; *Na salt*, 722*h*.
$C_8H_{17}NS_2$ Carbamic acid, ethylisoamyldithio-, *Na salt*, 1111*g*.
$C_8H_{17}N_3$ 2-Imidazoline, 2-amylamino-, 4273*b*.
2-Imidazoline, 2-butylaminomethyl-, 4273*c*.
—, 2-isobutylaminomethyl-, 4273*c*.
4-Piperidone, trimethyl-, hydrazone, 2959*d*.
$C_8H_{17}N_3O$ 3-Hexanone, 2-methyl-, semicarbazone, 2944*h*.
1-Piperazinecarboxamide, *N*-ethyl-4-methyl-, - *HCl*, P 6245*f*.
—, *N*, *N*,4-trimethyl-, - *HCl*, P 6245*c*.
$C_8H_{17}N_3O_2$ 2-Heptanone, 7-hydroxy-, semicarbazone, 6190*f*.
3-Hexanone, 2-hydroxy-2-methyl-, semicarbazone, 2944*dg*.
—, 4-methoxy-, semicarbazone, 6074*g*.
Isocaproamide, $\alpha$-glycylamino-, 2245*f*.
2-Pentanone, 5-ethoxy-, semicarbazone, 1338*d*.
$C_8H_{17}N_3O_2S$ 1,2,4,6,4 *H*-Thiatriazine, 4-cyclohexyltetrahydro-, 1,1 - dioxide, 2573*f*.
$C_8H_{17}N_3O_6$ 1,3,5,1 *H*-Triazepine, hexahydro-1,5-dinitro-3-propoxymethyl-, 9074*b*.
1,3,5,1 *H*-Triazepine, hexahydro-3-(isopropoxymethyl)-1,5-dinitro-, 9074*b*.
$C_8H_{17}NaO_4S$ 1-Hexanol, 2-ethyl-, sulfate Na salt, 7234*b*.
4-Octanol, hydrogen sulfate, Na salt, 466*g*.
Octyl sodium sulfate, 466*g*, 2263*e*, 5064*i*, 6915*h*.
$C_8H_{17}O_3P$ 1-Propene-1-phosphonic acid, 2-methyl-, di Et ester, P 7499*h*.
$C_8H_{18}$ (See also *Heptane, methyl-*; *Hexane, dimethyl-*; *Octane*; *Pentane, trimethyl-*.)
Butane, 2,2,3,3-tetramethyl-, 111*e*, 4094*b*.
Pentane, 3-ethylmethyl-, 5010*c*, 8657*c*, 9023*e*.
$C_8H_{18}BaO_4S_2$ +$H_2O$ Barium *tert*-butyl sulfate, 5737*g*.
$C_8H_{18}BaO_6S_2$ 1,3-Butanediol, mono(hydrogen sulfate) Ba salt, 2934*g*.
$C_8H_{18}BrMgN$ Dibutylaminomagnesium bromide, 6171*b*.
$C_8H_{18}BrN$ Amylamine, 4-bromo-*N* isopropyl-, *and - HBr*, P 4684*d*.
Amylamine, 4-bromo-*N*-propyl-, - *HBr*, P 4684*d*.
(Cyclobutylmethyl)trimethylammonium bromide, 586*i*.
Dipropylamine, 3'-bromo 2,2-dimethyl-, - *HBr*, 3421*d*.
Trimethyl - 2 - methylcyclobutylammonium bromide, 586*i*.
$C_8H_{18}Br_2Si$ Silane, (dibromoethyl)triethyl-, 2929*d*.
$C_8H_{18}ClN$ Dipropylamine, 3-chloro-1'-ethyl-, - *HCl*, 3421*d*.
Dipropylamine, *N* - (2 - chloroethyl) -, - *HCl*, 1861*d*.
Hexylamine, 5 - chloro - 1,5 - dimethyl-, 9248*e*.
$C_8H_{18}ClNO$ 2-Propanol, 1-chloro-3-(ethylisopropylamino)-, P 253*i*.
2-Propanol, 1-chloro-2-methyl-3-(methylpropylamino)-, P 254*b*.
$C_8H_{18}ClNO_2$ (Carboxymethyl)trimethylammonium chloride, Pr ester, 6977*a*.
Choline, chloride propionate, 8058*g*.
(2 - Hydroxypropyl)trimethylammonium chloride, acetate, 311*b*, 1861*f*, 8058*g*, 9260*i*.
$C_8H_{18}ClOP$ Phosphine oxide, dibutylchloro-, 2967*g*.
$C_8H_{18}ClO_3P$ *sec*-Butyl chlorophosphate, 8350*i*.
$C_8H_{18}Cl_2Si$ Silane, di-*tert*-butyldichloro-, 563*a*.
Silane, dichlorodiisobutyl-, 3355*a*.
$C_8H_{18}FO_3P$ Butyl fluophosphate, 8351*a*.
*sec*-Butyl fluophosphate, 8350*i*, 8841*a*.
$C_8H_{18}F_2O_2Si$ Silane, dibutoxydifluoro-, P 6220*a*.
$C_8H_{18}Hg$ Mercury, dibutyl-, 5004*c*.
Mercury, diisobutyl-, 5004*c*.
$C_8H_{18}HgS_2$ 2-Propanethiol, 2-methyl-, Hg deriv., 1000*b*.
$C_8H_{18}IN$ (Cyclobutylmethyl)trimethylammonium iodide, 586*i*.
$C_8H_{18}INO_2$ Trimethyl(2-methyl-1,3-dioxolan-4-ylmethyl)ammonium iodide, 348*h*, 2704*b*.
$C_8H_{18}N_2$ 1-Butene-1,3-diamine, *N*, *N*, *N'*, *N'*-tetramethyl-, 4248*h*.
Piperazine, 2,2,5,5-tetramethyl-, *and di-HCl*, 3015*d*.
$C_8H_{18}N_2O$ Butyramide, ethylamino-*N*, *N*-dimethyl-, P 249*i*, P 251*e*.
Isocaproamide, $\gamma$-amino-*N*-ethyl-, P 3450*b*.
Propionamide, *N*, *N*-dimethyl-$\alpha$ propylamino-, P 249*e*.
—, $\alpha$-isopropylamino-*N*, *N*-dimethyl-, P 249*f*.
Urea, (1,1-dimethylamyl)-, 2165*g*.
$C_8H_{18}N_2O_2$ Butyl hyponitrite, P 5641*i*.
Enanthic acid, $\gamma$ hydroxy-$\beta$-methyl-, hydrazide, 4254*g*.
1,4-Piperazinediethanol, 2579*c*.
$C_8H_{18}N_2O_2S$ Piperazine, 1-ethyl-4-(ethylsulfonyl)-, - *HCl*, 8551*a*.
$C_8H_{18}N_2O_3S$ Butyramide, $\alpha,\gamma$-dihydroxy-$\beta,\beta$-dimethyl-*N*-2 sulfamylethyl-, 9254*g*.
$C_8H_{18}N_2S$ Pseudourea, 2-heptyl-2-thio-, 1868*d*.
Urea, 1-*tert*-butyl-3-isopropyl-2-thio-, 1015*h*.
—, 1-*tert*-butyl 3-propyl-2-thio-, 1015*g*.
$C_8H_{18}N_4O_4$ Urea, guanyl-, tris(2-hydroxyethyl) deriv., P 868*f*.
$C_8H_{18}N_4S_2$ Pseudourea, 2,2'-hexamethylenebis[2-thio-, 1868*d*.
$C_8H_{18}N_4S_2$ Pseudourea, 2-{3-[2-(guanylmercapto)propylmercapto]propyl} - 2-thio-, *di-HCl*, P 4292*b*.
Pseudourea, 2,2'-[thiobis(1-methylethylene)]bis[2-thio-, *di-HCl*, P 4292*c*.
$C_8H_{18}N_6O_4$ Streptidine, 1329*i*, 6579*i*; *di-HCl*, 1329*d*; *sulfate*, 3367*e*.
$C_8H_{18}N_6O_8$ 3,11-Dioxa-5,7,9-triazatridecane, 5,7,9-trimtro-, 9074*i*.
$C_8H_{18}O$ (See also *Butyl ether*; *Octanol*; *Octyl alcohol*.)
Ether, ethyl hexyl, 2590*b*.
—, methyl 3-methylhexyl, 115*d*.
Heptanol, 2-methyl-, 1718*g*, 3776*d*.
Hexanol, dimethyl-, 111*e*, 1312*g*, 2926*a*, 3776*d*.
—, 2-ethyl-, P 2633*c*, P 3438*b*, P 3442*d*, 3780*f*, 7418*f*, P 7610*d*.
Isooctyl alcohol, 3180*a*.
Pentanol, trimethyl-, 111*f*, 557*b*, 1715*e*.
$C_8H_{18}OS_2$ Ethanol, 2 [2-(butylmercapto) ethylmercapto]-, 2928*h*.
$C_8H_{18}O_2$ Acetaldehyde, diiso Pr acetal, P 1434*a*; di-Pr acetal, 2590*b*, 5365*f*, P 6665*a*.
*tert* Butyl peroxide, 612*h*, P 669*c*, 1715*d*, 3345*e*, 8190*h*, 9024*f*.
Ethane, 1-butoxy-2-ethoxy-, P 2633*c*.
Ethanol, 2 (hexyloxy)-, 7079*e*, 9387*d*.
1,4 Heptanediol, 3 methyl-, 4254*f*.
Hexanediol, 2,5 dimethyl-, 2944*e*.
, 2 ethyl-, 2362*a*, 3140*b*, P 4421*a*, 5150*e*, 6354*a*, 7181*d*, 9335*g*.
Hexanol, ethoxy-, 9026*a*.
4,5 Octanediol, 2944*d*.
Pentanediol, 2,4,4 trimethyl-, 1309*e*, 1310*g*, P 7503*f*.
1,3 Propanediol, 2 butyl-2-methyl-, 8546*i*.
, 2-ethyl-2 isopropyl-, 8546*g*.
$C_8H_{18}O_2S$ Butyl sulfone, P 6846*a*.
Ethanol, 2 (2-butoxyethylmercapto)-, 2928*g*.
$C_8H_{18}O_2$ Acetaldehyde, ethoxy-, di Et acetal, P 675*a*, 7403*e*.
Ethanol, 2-(2-butoxyethoxy)-, 709*a*.
Ether, bis 2 ethoxyethyl), 2590*b*, 4067*e*.
Orthoacetic acid, tri Et ester, 5365*h*.
1,2 Propanediol, 3 amoxy-, 3114*h*.
, 3 isoamoxy-, 3114*h*.
$C_8H_{18}O_3S$ Butyl sulfite, 1313*g*, P 4853*k*, 6567*g*.
Octanesulfonic acid, *K* salt, 8707*g*.
$C_8H_{18}O_3$ Ethanol, 2 [2 (2 ethoxyethoxy)-ethoxy], 3784*d*.
Hydroperoxide, (1,1,4,4 - tetramethyl tetramethylene)di-, 6190*a*.
$C_8H_{18}O_4S$ Butyl sulfate, 6567*g*.
1-Hexanol, 2 ethyl-, sulfate, *Na salt*, 7234*b*.
4 Octanol, hydrogen sulfate, *Na salt*, 466*g*.
$C_8H_{18}O_4S_2$ See *Ironal*.
$C_8H_{18}O_5$ D Glucose, dimethyl acetal, 1828*e*.
$C_8H_{18}O_{11}S_2$ Dioxane, compd with $H_2SO_4$, 6901*d*.
$C_8H_{18}S$ Butyl sulfide, 2956*e*, 7410*d*.
*sec* Butyl sulfide, 2956*e*.
*tert* Butyl sulfide, 1000*b*, 4215*h*.
1-Hexanethiol, 2-ethyl-, P 2630*b*.
Isobutyl sulfide, 2956*e*.
Octanethiol, P 2630*a*, 2956*d*, P 9527*e*.
*tert*-Octyl mercaptan, 2019*b*.
Pentanethiol, 2,4,4 trimethyl-, P 6641*i*, P 6646*e*.
$C_8H_{18}S_2$ Butyl disulfide, P 1794*c*, 2956*f*, 7221*h*.
*tert* Butyl disulfide, 1000*b*, 7410*g*.
1,3-Hexanedithiol, 2-ethyl-, P 2630*b*.
$C_8H_{18}S_4$ Butyl tetrasulfide, 1002*c*.
$C_8H_{18}Si$ Silane, triethylvinyl-, 2929*d*.
$C_8H_{18}Zn$ Zinc, dibutyl-, 5242*c*.
$C_8H_{19}BrSi$ Silane, (1-bromoethyl)triethyl-, 2929*cd*.
$C_8H_{19}ClO_2Si$ Silane, dibutoxychloro-, 9028*d*.
$C_8H_{19}ClSi$ Silane, (2-chloroethyl)triethyl-, 561*h*, 2929*a*.
$C_8H_{19}HgNS$ Triethylamine, 2-(ethylmercuimercapto)-, P 6648*e*, P 6649*d*.
$C_8H_{19}N$ (See also *Dibutylamine*.)
Butylamine, *N*-isobutyl-, P 253*h*.
—, 1,1,3,3-tetramethyl-, - *HCl*, 2166*a*, *and - HCl*, 2165*f*.
Di-*sec*-butylamine, 2956*g*.
Di *tert*-butylamine, P 1435*a*.
Diisobutylamine, 2956*g*.
Heptylamine, 1-methyl-, 8797*a*.
Hexylamine, dimethyl-, 7148*a*, 9250*f*; - *HCl*, 9260*g*.
—, 2 ethyl-, 4401*g*.
Isobutylamine, *N-sec*-butyl-, P 253*h*.
Octylamine, 8797*a*.
$C_8H_{19}NO$ Diisopropylamine, P 1435*a*.
Heptanol, 6-amino-2-methyl-, P 3029*c*; - *HCl*, 6732*i*.
—, 2-methylamino-, 131*g*.
2-Pentanol, 5-isopropylamino-, P 4694*c*.

—, 5-propylamino-, P 4684*c*.
1-Propanol, 3-(1-ethylpropylamino)-, 3421*c*.

$C_8H_{19}NOS$ Ethanol, 2-(2-diethylaminoethylmercapto)-, P 3461*e*.

$C_8H_{19}NO_2$ Acetaldehyde, butylamino-, di-Me acetal, *and - HCl*, 6974*b*.
Acetaldehyde, diethylamino-, di - Me acetal, 6974*b*.

$C_8H_{19}NO_3$ (See also *Muscarine*.)
Choline, propionate, 9124*h*.
(2 - Hydroxypropyl)trimethylammonium hydroxide, acetate, 2704*b*.

$C_8H_{19}NS$ 2-Propanesulfenamide, *N, N*-diethyl-2-methyl-, 2934*c*.

$C_8H_{18}N_2O_2$ Caproic acid, γ,ε-diamino-γ-(2-aminoethyl)-, P 4519*h*.

$C_8H_{18}N_4O_2$ Guanidine, 1-(3-diethylaminopropyl)-3-nitro-, 9035*f*.

$C_8H_{19}O_2P$ Phosphinic acid, dibutyl-, 2967*g*.

$C_8H_{19}O_2PS$ Ethyl propyl thiophosphate, 1004*d*.

$C_8H_{19}O_3PS_2$ Butyl thiophosphate, 7859*a*.
*sec*-Butyl thiophosphate, 7859*a*

$C_8H_{19}O_3P$ Butyl phosphite, 4401*f*.
*sec*-Butyl phosphite, 8350*b*

$C_8H_{20}BrN$ Tetraethylammonium bromide, 1111*f*, 5872*h*, 6734*b*, 7586*b*, 9257*b*.

$C_8H_{20}BrNO_3$ [3-Hydroxy-2,2-bis(hydroxymethyl)propyl]trimethylammonium bromide, 1344*d*.

$C_8H_{20}Br_2OSn_2$ Dimethyltin oxide, complex with dipropyltin dibromide, 7900*d*

$C_8H_{20}ClN$ Tetraethylammonium chloride, 321*i*, 3103*h*, 3525*g*, 4754*e*, 5114*c*, 7134*b*, 7153*c*, 8502*e*

$C_8H_{20}ClNO$ Butyl-2-hydroxyethyldimethylammonium chloride, 6478*a*
Triethyl-2-hydroxyethylammonium chloride, 8035*g*

$C_8H_{21}Cl_2O_2Si_2$ Silane, (1,2-dichloroethylene bis[trimethoxy-, 2572*a*

$C_8H_{20}FN_2OP$ Diamidophosphoryl fluoride, *N, N'*-dibutyl-, 1314*e*
Diamidophosphoryl fluoride, tetraethyl-, 1314*e*

$C_8H_{20}IN$ Amyltrimethylammonium iodide, 4260*b*
Tetraethylammonium iodide, 3422*g*

$C_8H_{20}INO_3$ [3-Hydroxy-2,2-bis(hydroxymethyl)propyl]trimethylammonium iodide, 1345*d*

$C_8H_{21}IPS_2$ Ethyl thiophosphate, compd. with [illegible], 5895*b*

$C_8H_{21}NO_4P$ Iodine, phosphate (ester), ester with glycerol, 4706*a*

$C_8H_{20}N_2$ 1,3-Butanediamine, diethyl-, P 5116, 11[illegible], P 2963*g*, P 5112*b*
1,3-Butanediamine, *N*-methyl-*N*-propyl-, P 1553*a*
1,6-Heptanediamine, 6-methyl-, P 6866*b*
1,7-Heptanediamine, *N*-ethyl-, P 5794*b*

$C_8H_{21}NO_2S$ Sulfamide, *N, N'*-dibutyl-, 2[illegible]

$C_8H_{19}NO_3$ 1-Propanol, 2-amino-, oxalate, 1725*b*

$C_8H_{19}NO_3$ 1,3-Propanediol, 2-amino-, oxalate, 1724*e*

$C_8H_{21}NS$ Diethylamine, *N, N'*-thiobis-, 2886*b*

$C_8H_{21}NS_2$ Ethylamine, 2,2'-dithiobis[*N*-dimethyl-, *- HCl*, P 6648*d*

$C_8H_{21}OS$ Butyldimethylsulfonium ethoxide, 3418*a*
*sec*-Butyldimethylsulfonium ethoxide, 3418*a*
*tert*-Butyldimethylsulfonium ethoxide, 3418*a*
Isobutyldimethylsulfonium ethoxide, 3418*a*

$C_8H_{21}OSi$ Silane, (butoxymethyl)trimethyl-, 1710*a*
Silane, ethoxytriethyl-, 4215*e*.

$C_8H_{21}O_3Si$ Silane, butoxydiethoxy-, 9028*d*.
Silane, isoamyltrimethoxy-, P 4287*a*, P 5[illegible]

$C_8H_{[illegible]}$ [illegible]

$C_8H_{[illegible]}$ [illegible] acetate, 6158*g*.

$C_8H_{20}O_4Si$ See *Ethyl silicate*.

$C_8H_{20}O_4Ti$ Ethyl titanate, 9026*d*.

$C_8H_{20}O_7P_2$ (See also *Ethyl pyrophosphate*.)
Octyl pyrophosphate, 7161*e*.

$C_8H_{20}Pb$ See *Lead, tetraethyl-*.

$C_8H_{20}Si$ Silane, tetraethyl-, 124*e*, 2928*i*, 9023*a*.

$C_8H_{21}AuNS$ Ethylamine, 2-(ethylmercapto)-, diethylgold deriv., 7421*g*.

$C_8H_{21}Cl_2O_2Si_3$ Trisiloxane, 1,3,5-tris(chloromethyl)pentamethyl- [illegible]

$C_8H_{21}NO$ Tetraethylammonium hydroxide, 2374*e*, 6731*b*.

$C_8H_{21}NO_2$ Triethyl(2-hydroxyethyl)ammonium hydroxide, 3104*a*, 6291*d*.

$C_8H_{21}NO_2Si$ Silane, (dimethylamino)triethoxy-, 1006*i*.

$C_8H_{21}NO_4$ Tetrakis(2-hydroxyethyl)ammonium hydroxide, 1321*b*, P 5620*g*.

$C_8H_{21}NSi$ Silane, triethylethylamino-, 5739*d*.

$C_8H_{21}Br_2N$ Ethylenebis[trimethylammonium bromide], 2703*d*.

$C_8H_{21}CdCl_2NO_7P + 2H_2O$ Choline, 1-glycerophosphate, compd. with $CdCl_2$, 6167*a*.

$C_8H_{22}Cl_2O_2Si_3$ Trisiloxane, 1,5-bis(chloromethyl)hexamethyl-, 2930*b*.

$C_8H_{21}F_3Si$ Silane, bis(fluorodimethylsilylmethyl)dimethyl-, 563*g*.

$C_8H_{21}LiZn$ Lithium, methyl-, compd. with ZnMe$_2$, compd. with $Et_2O$, 4218*h*.

$C_8H_{22}NO_5P$ Choline, glycerophosphate, 4709*c*, 6166*g*

$C_8H_{22}N_2O_2$ Ethylenediamine, compd. with pinacol, 2082*d*.

$C_8H_{22}N_4$ Ethylenediamine, *N, N'*-bis(3-aminopropyl)-, P 5414*f*

$C_8H_{22}O_2Si_2$ Disiloxane, 1,3-diethoxy-1,1,3,3-tetramethyl-, P 6221*c*

$C_8H_{22}O_2$ Ethylene glycol, compd. with $Et_2O$, 7409*a*

$C_8H_{22}O_3Si_2$ Disiloxane, 1,1,3,3-tetraethoxy-, 9028*c*.

$C_8H_{21}ClO_3Si_3$ Trisiloxane, 3-(chloromethyl)-heptamethyl-, 2930*b*.

$C_8H_{24}NSi_2$ Disilazane, 1,3-diethyl-1,1,3,3-tetramethyl-, 1316*a*.

$C_8H_{24}N_4$ Tetraethylenepentamine, 1569*f*, P 3807*e*, 4401*h*, P 5517*h*, P 5518*b*, P 5614*f*.

$C_8H_{24}N_2O_3S$ Tetramethylammonium sulfite, 5689*b*

$C_8H_{24}N_2O_3S_2$ Tetramethylammonium pyrosulfite, 5689*b*

$C_8H_{24}N_4O_2$ Pyrophosphoramide, octamethyl-, 6776*a*.

$C_8H_{24}O_2Si_4$ Trisiloxane, octamethyl-, 4067*d*, P 4402*e*, P 6220*b*.

$C_8H_{24}O_4Si_4$ Cyclotetrasiloxane, octamethyl-, 2513*i*, P 3441*c*, P 3658*a*, P 6221*c*.

$C_8H_{24}CoN_4O_8$ 7604*b*.

$C_8H_{27}N_3Si_3$ Trisilazane, 1,1,1,3,3,5,5,5-octamethyl-, 1316*b*

$C_8H_{28}N_4Si_4$ Cyclotetrasilazane, 2,2,4,4,6,6,8,8-octamethyl-, 1315*b*, P 5034*a*.

$C_8H_{32}Ag_4N_2O_{40}SiW_{12}$ 1671*e*.

$C_8H_{32}Cd_2N_2O_{40}SiW_{12}$ 1672*a*.

$C_8H_{32}N_8Ni_2O_{40}SiW_{12}$ 1671*i*.

$C_8H_{32}Cu_2N_2O_{40}SiW_{12}$ 1671*h*.

$C_8H_{32}Hg_2N_2O_{40}SiW_{12}$ 1671*i*.

$C_9Cl_4F_8$ Toluene, 2,3,5,6-tetrachloro-α,α,α-trifluoro-4-(pentafluoroethyl)-, 6174*h*.

$C_9Cl_6O$ Indone, hexachloro-, 4230*g*.

$C_9F_{14}$ Indan, hexadecafluorohexahydro-, P 4301*d*.

$C_9F_{18}$ Cyclohexane, nonafluoro-1,3,5-tris(trifluoromethyl)-, 3266*a*.
Pinane, octadecafluoro-, P 4301*c*.

$C_9F_{20}$ Nonane, eicosafluoro-, 1653*h*, 2157*b*, 3266*a*.

$C_9Fe_2$ 3765*d*

$C_9HCl_2F_3$ Toluene, trichloro-α,α,α-trifluoro-4-(pentafluoroethyl)-, 6174*h*.

$C_9H_4Cl_2F_4$ Toluene, 2,5-dichloro-α,α,α-trifluoro-4-(pentafluoroethyl)-, 6174*h*.

$C_9H_4Cl_4O_3$ Maleic anhydride, compd. with hexachlorocyclopentadiene, P 4693*e*.

$C_9H_5Cl_3O_3$ Hemimellityl chloride, 2190*f*.

$C_9H_5Br_7OS_2$ Ketone, *bis*(5-bromo-2-thienyl), 4666*c*.

$C_9H_4ClN_3$ 6-Quinoxalinecarbonitrile, chloro-, 3383*i*

$C_9H_4ClN_5O_2$ Pyrido[2,3-*b*]pyrimido[5,4-*e*]pyrazine-2,4(1*H*,3*H*)-dione, 7-chloro-, 5785*g*.

$C_9H_4Cl_2N_2O_2$ Quinoline, 4,7-dichloro-8-nitro-, 7027*b*.

$C_9H_4Cl_2O_2$ 1,3-Indandione, 2,2-dichloro-, 7012*d*

$C_9H_4Cl_2O_3$ Hemimellitic acid, 4,5-dichloro-, 4230*f*.

$C_9H_5Cl_3$ Styrene, β,β,β-trichloro-α-(trichloromethyl)-, 6584*b*.

$C_9H_5Cl_3O$ Acetophenone, α,α,α-trichloro-*p*-(trichloromethyl)-, 109*f*, 2359*h*.

$C_9H_5Cl_5$ Cumene, β,α,β,β,β,β′,β′,β′-octachloro-, 6584*b*.

$C_9H_4F_3N$ *m*-Tolunitrile, α,α,α-trifluoro-, 7918*e*

[illegible] 7-bromo-5- [illegible]
1902*d*, [illegible]

$C_9H_5ClF_4O$ Ether, 2-chloro-1,3,3,3-tetrafluoropropenyl phenyl, P 9084*h*.

$C_9H_5ClINO$ 8-Quinolinol, 5-chloro-7-iodo-, P 697*h*, 6113*b*.

$C_9H_5ClN_2O_2$ Isoquinoline, chloro-8-nitro-, 5783*i*.
8-Quinazolinecarbonyl chloride, 4-hydroxy-, *- HCl*, 1770*i*.
Quinoline, chloronitro-, 1418*b*, 1776*h*, 5401*e*, 9037*f*.
6-Quinoxalinecarboxylic acid, chloro-, 3783*i*.

$C_9H_4ClN_3O_2$ 5-Quinazolinecarbonyl chloride, 1,2,3,4-tetrahydro-2,4-dioxo-, 6033*h*.

$C_9H_5ClO$ Indone, 2-chloro-, P 7048*d*
Propiolophenone, α-chloro-, P 868*d*.

$C_9H_5ClO_2$ Coumarin, 3-chloro-, P 7513*e*.

$C_9H_5Cl_2N$ Quinoline, dichloro-, 1777*d*, 5401*d*, 5402*c*.

$C_9H_5Cl_2NO$ 8-Quinolinol, 5,7-dichloro-, P 1002*d*, 7485*a*.
4(1*H*)-Quinolone, 3,5-dichloro-, 2865*d*.

$C_9H_5Cl_2NO_2S$ Benzenesulfonic acid, 2,2-dichloro-1-cyanovinyl ester, 2942*b*.

$C_9H_5Cl_3$ Propyne, 3,3,3-trichloro-1-phenyl-, P 5789*g*.

$C_9H_5Cl_3$ Styrene, β,β-dichloro-α-(trichloromethyl)-, 6584*a*.
Styrene, β,α,β,β - trichloro - α - (dichloromethyl)-, 6584*b*.

$C_9H_5Cl_3O$ Acetophenone, α,α-dichloro-*p*-(trichloromethyl)-, 2359*h*.

$C_9H_6Cl_2O_2$ Benzoic acid, dichloro-, 2,2,2-trichloroethyl ester, 5764*i*.

$C_9H_6Cl_6$ Cumene, β,α,β,β,β,β′,β′-heptachloro-, 6584*b*

$C_9H_6I_2NO$ Quinolinol, diiodo-, 3006*g*, 7586*h*, 9265*g*.

$C_9H_6KN_3O_5$ Acetonitrile, *p*-nitrobenzoyl-, K deriv., 5394*h*

$C_9H_6NO_4$ Acid, m 251–2°, 3377*a*.
1,3-Indandione, 2-nitro-, 69*g*.
Indolinecarboxylic acid, 2,3-dioxo-, 216*d*.
Propiolic acid, (*p*-nitrophenyl)-, 606*c*.

$C_9H_6NO_5$ Coumarin, 3-hydroxy-5-nitro-, 1765*h*.

$C_9H_6N_2O_3$ 4-Quinolinol, 3,6-dinitro-, 3002*c*.

$C_9H_6N_2S$ 1,2,3-Thiadiazolo[5,4-*f*]quinoline, 7476*h*.

$C_9H_6N_4O_2$ Pyrido[2,3-*b*]pyrimido[5,4-*e*]pyrazine-2,4(1*H*,3*H*)-dione, 5785*e*.

$C_9H_6As_2S_2$ Thiophene, 2,2′-(cyanoarylene)-di-, 3383*d*.

$C_9H_6BF_4N_3$ 3-Quinolinediazonium fluoborate, 5783*f*.

$C_9H_6BrCl_3$ Benzene, 1-(1-bromo-3,3,3-trichloropropyl)-2,4-dichloro-, 9024*d*.

$C_9H_6BrNOS$ Ketone, 5-bromo-2-thienyl 2-pyrryl, 4666*c*.

$C_9H_6BrNO_2$ Phthalimide, *N*-(bromomethyl)-, 6184*i*.

$C_9H_6BrN_3O_2S$ Thiazole, 2-amino-5-bromo-, picrate, P 3466*h*.

$C_9H_6Br_2N_2O_2S_2$ Sulfanilamide, 3,5-dibromo-*N*¹-(5-bromo-2-thiazolyl)-, 3804*d*.

$C_9H_6ClN$ Isoquinoline, chloro-, 5784*a*; *and perchlorate*, 5783*g*.
Quinoline, chloro-, 1770*g*, 4276*f*, 9069*g*.

$C_9H_6ClNO$ 7-Isoquinolinol, 8-chloro-, 5784*c*.
Quinolinol, chloro-, 1660*a*, P 2646*a*, 5401*c*, 5402*c*, P 5961*f*, 7484*i*.

$C_9H_6ClNO_2$ 2-Indolecarboxylic acid, 4-chloro-, 4255*e*.
Isatin, 6-chloro-7-methyl-, P 7707*a*, P 9470*b*.
Phthalimide, *N*-(chloromethyl)-, 6184*i*.
4(1*H*)-Quinolone, 7-chloro-1-hydroxy-, 2997*i*.

$C_9H_6ClNO_4$ Pyruvic acid, (2-chloro-6-nitrophenyl)-, 4255*e*.

$C_9H_6ClN_3O$ 6 - Quinoxalinecarboxamide, chloro-, 3384*a*.
1,2,3,2*H*-Triazole-4-carbonyl chloride, 2-phenyl-, 2619*d*.

$C_9H_6ClN_3O_2$ Cinnoline, 4-chloromethylnitro-, 1781*h*, 1782*c*.

$C_9H_6ClN_3O_3S$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 6-(4-chloro-2-nitrophenylazo)-, 1,1-dioxide, P 4868*e*.

$C_9H_6ClN_3$ Acrylonitrile, α-chloro-β-*p*-chloroanilino-, 2574*i*, P 3440*f*.
Quinoline, 8-amino-4,7-dichloro-, 7027*c*.

$C_9H_6Cl_2N_2O$ Quinazoline, 2,4-dichloromethoxy-, 2951*e*.

$C_9H_6Cl_2N_4$ *s*-Triazine, 2-anilino-4,6-dichloro-, P 1575*i*.

$C_9H_6Cl_2O$ Acrylophenone, α,β-dichloro-, P 9531*g*.

[illegible]
ethyl ester, 576[illegible]
5]4 Styrene, β,[illegible]
methyl)-, 6584*c*

Styrene, $p,\beta,\beta$ - trichloro - $\alpha$ - (chloromethyl)-, 6584*a*.
$C_9H_6Cl_4O_2$ Benzoic acid, chloro-, 2,2,2-trichloroethyl ester, 5764*i*.
Benzoic acid, dichloro-, 2,2-dichloroethyl ester, 5764*i*.
$C_9H_6Cl_6$ Cumene, hexachloro-, P 6231*b*, 6584*a*.
Cyclopentadiene, hexachloro-, compd. with butadiene, P 4693*e*.
$C_9H_6Cl_6O$ Benzyl alcohol, $p,\alpha$-bis(trichloromethyl)-, 2359*h*.
$C_9H_6Cl_6O_2$ Cyclopentadienone, trichloro(trichlorovinyl)-, dimethyl acetal, 4231*f*.
$C_9H_6FN$ Quinoline, fluoro-, 5783*ef*.
$C_9H_6INO_2$ Phthalimide, *N*-(iodomethyl)-, 6184*i*.
$C_9H_6INO_4S$ (See also *Yatren*.)
Quinolinesulfonic acid, hydroxyiodo-, 7369*f*, 7586*h*.
$C_9H_6NO$ Pseudoindoxyl, 5,6-dihydroxy-1-methyl-, 9136*a*.
$C_9H_6N_2$ 4-Indolecarbonitrile, 4255*f*.
$C_9H_6N_2O$ 2 - Quinoxalinecarboxaldehyde, 3425*b*, 4227*f*.
$C_9H_6N_2O_2$ Quinoline, nitro-, 1776*g*, 3420*c*.
$C_9H_6N_2O_2$ Acetonitrile, *p*-nitrobenzoyl-, 5394*h*, 7021*c*.
8-Quinazolinecarboxylic acid, 4-hydroxy-, 1779*h*.
2,4-Quinolinediol, 3-nitroso-, 3002*e*.
Quinoline, 6-nitro-, 1-oxide, 1776*h*.
Quinolinol, nitro-, 1414*c*, 7027*g*.
$C_9H_6N_2O_4$ Coumarin, aminonitro-, 2179*i*.
6-Indolinecarboxylic acid, 2,3-dioxo-, oxime, 216*d*.
5-Quinazolinecarboxylic acid, 1,2,3,4-tetrahydro-2,4-dioxo-, 6633*h*.
5,6-Quinolinediol, 8-nitro-, 1413*f*.
Sydnone, *N*-(carboxyphenyl)-, 3417*i*.
$C_9H_6N_2O_5$ 1,2-Benzisoxazole-3-carboxylic acid, 6-nitro-, Me ester, 2189*i*.
$C_9H_6N_2O_6$ Styrene, 4,5-methylenedioxy-$\beta$,2-dinitro-, 7020*c*.
$C_9H_6N_2S$ 3,1,4 *H*-Benzothiazine-3-carbonitrile, 4278*b*.
$C_9H_6N_4$ Malonitrile, phenylazo-, 3367*b*.
6-Quinoxalinecarbonitrile, amino-, 3384*b*.
$C_9H_6N_4O_4$ Quinoline, 4-amino-3,6-dinitro-, 3002*b*.
Quinoline, 6-nitro-4-nitramino-, 3002*c*.
1,2,3,2 *H*-Triazole-4-carboxylic acid, nitro-2-phenyl-, 2619*e*.
$C_9H_6O$ Propiolophenone, P 868*c*, 3402*d*.
$(C_9H_6O)_x$ Benzaldehyde, *p*-acetyl-, polycondensation product of, 5761*c*.
$C_9H_6OS$ 3-Thianaphthenecarboxaldehyde, 9062*i*.
$C_9H_6OS_2$ 1,2-Dithiol-3-one, 5-phenyl-, 1043*b*, 4652*d*.
2-Thienyl ketone, 4665*g*.
$C_9H_6O_2$ (See also *Coumarin*.)
Isocoumarin, 1045*d*.
Propiolic acid, phenyl-, 2273*e*, 7113*i*, 8886*g*.
$(C_9H_6O_2)_x$ Benzopyrone, dihydro-, polymer, 397*e*.
$C_9H_6O_2S$ 2-Thianaphthenecarboxaldehyde, 3-hydroxy-, 2201*d*.
2-Thianaphthenecarboxylic acid, 1396*c*.
Thianaphthenequinone, 5-methyl-, 7474*f*.
$C_9H_6O_3$ Coumarin, 4-hydroxy-, P 693*i*, P 694*b*, P 4701*d*, P 6671*c*.
Umbelliferone, 2280*b*, 2993*g*.
$C_9H_6O_3$ Coumarilic acid, 6-hydroxy-, 3412*d*.
Esculetin, 3104*g*, 5116*h*, 8464*c*.
Ninhydrin, 2314*g*, P 5130*h*, 7012*d*, 9124*d*.
Pyruvic acid, (2,5-dihydroxyphenyl)-, *δ*-lactone, 6598*f*.
$C_9H_6O_3S$ 2-Indansulfonic acid, 1,3-dioxo-, *and K salts*, 2596*f*.
$C_9H_6O_6$ Hemimellitic acid, 376*h*, 2190*e*.
Trimellitic acid, 6203*a*, 7913*h*.
Trimesic acid, 2190*e*, 3797*g*, 6203*a*, 6583*a*.
$C_9H_6O_7$ Hemimellitic acid, 4-hydroxy-, 2974*i*.
Trimellitic acid, 5-hydroxy-, 2974*i*.
$C_9H_6S_3$ 1,2-Dithiole-3-thione, 5-phenyl-, 1043*c*, 4652*b*.
$C_9H_7AsO_3$ Cinnamic acid, *m*-arsenoso-, 4237*c*.
$C_9H_7BrCl_2$ Benzene, (1-bromo-3,3,3-trichloropropenyl)-, P 5789*g*.
$C_9H_7BrN_2S$ Pyridine, 2-(5-bromo-2-thienylamino)-, *and - HCl*, 5781*h*.
$C_9H_7BrO$ Cinnamaldehyde, $\alpha$-bromo-, 1348*i*.
$C_9H_7BrO_3S$ Pyruvic acid, (bromophenyl)-$\alpha$-thio-, 605*f*.
$C_9H_7Br_3Cl_2$ Toluene, *p*-(1,1-dibromo-2,2,2-trichloroethyl)-, 345*f*.
$C_9H_7Br_3N_2O_2S_2$ Sulfathiazole, dibromo deriv., 7642*f*.
$C_9H_7Br_3O_2$ Acetic acid, (3,4,5-tribromophenyl)-, Me ester, 3361*d*.
$C_9H_7Br_3O_4$ Benzoic acid, 2,4,6-tribromo-3,5-dimethoxy-, 1038*e*.
$C_9H_7Br_4N_3O_2S_2$ Sulfanilamide, 3,5-dibromo-*N*-2-thiazolyl-, dibromide, 3804*d*.
$C_9H_7ClF_3NO$ 1,4,2 *H*-Benzoxazine, 8-chloro-3,4-dihydro-3-(trifluoromethyl)-, P 2782*e*.
$C_9H_7ClN_2$ Cinnoline, 4-chloro-8-methyl-, 1782*b*.
Isoquinoline, aminochloro-, 5783*i*, 5784*ab*.
Pyrazole, 4-chloro-1-phenyl-, 5367*i*.
Quinoline, aminochloro-, 7027*d*, 8387*e*.
Quinoxaline, chloromethyl-, 1741*i*, 1426*i*, 3383*i*, 3384*a*, 3384*fh*, P 6661*ef*.
$C_9H_7ClN_2O$ Propiophenone, *p* chloro-$\alpha$-diazo-, 4653*d*.
Quinoxaline, 2-chloromethoxy , 3383*i*
$C_9H_7ClN_2OS$ Benzothiazole, 6-acetamido - chloro-, 5776*i*, 5777*a*.
$C_9H_7ClN_2O_4$ 2-Propanone, (chlorodinitrophenyl)-, 2184*d*, 7452*h*.
$C_9H_7ClN_2S$ Pyridine, 2-(5-chloro 2 thienylamino)-, *and - HCl*, 5781*h*.
$C_9H_7ClO$ Cinnamoyl chloride, 2570*g*, P 8170*c*.
$C_9H_7ClOS$ 3(2 *H*)-Thianaphthenone, chloro-7-methyl-, P 4868*a*, P 6427*f*.
$C_9H_7ClO_2$ Benzoic acid, chloro , vinyl ester, P 5045*a*
$C_9H_7ClO_3S$ Pyruvic acid, (chlorophenyl)-$\alpha$-thio-, 605*e*.
$C_9H_7ClO_3$ 1,4-Benzodioxan-5-carbonyl chloride, 186*c*.
Benzoic acid, *o*-(chloroformyl)-, Me ester, 7003*c*.
Salicyloyl chloride, acetate, P 693*g*, 2603*d*.
$C_9H_7ClS$ Thianaphthene, 3-(chloromethyl)-, 631*h*, 1395*h*, 9062*h*.
$C_9H_7Cl_2N$ Indole, 5,7-dichloro-2-methyl-, 622*f*.
$C_9H_7Cl_2NO$ Benzamide, 3,4 dichloro *N*-methyl-, 1896*c*.
$C_9H_7Cl_2NO_3S$ Benzenesulfonic acid, 1-carbamyl-2,2-dichlorovinyl ester, 2942*i*.
$C_9H_7Cl_2N_3O_3$ Biuret, 1-(3,5-dichlorosalicylidene)-, 6182*e*.
$C_9H_7Cl_3O_2$ Benzoic acid, 2,2,2-trichloroethyl ester, 569*d*.
Benzoic acid, chloro-, 2,2-dichloroethyl ester, 5764*i*.
—, dichloro-, 2-chloroethyl ester, 5764*i*.
Propane, 1,2-epoxy-3-(2,4,5-trichlorophenoxy)-, P 675*a*.
Propionic acid, 2,4,5-trichlorophenyl ester, 3133*f*, P 3450*i*.
$C_9H_7Cl_3O_3$ Propionic acid, $\alpha$-(2,4,5-trichlorophenoxy)-, 9337*e*.
$C_9H_7Cl_5$ Cumene, pentachloro-, 5893*h*, 6583*i*, 6584*ac*.
$C_9H_7D$ Indene-1-*d*, 8767*f*.
$C_9H_7FO_4$ Salicylic acid, fluoroacetate, 2933*f*.
$C_9H_7F_3$ Styrene, $\alpha$-(trifluoromethyl)-, P 8209*d*.
$C_9H_7F_3O$ Acetophenone, *m*-(trifluoromethyl)-, 2211*f*, 3361*f*.
$C_9H_7F_3O_2$ Acetic acid, ($\alpha,\alpha,\alpha$-trifluoro-*m*-tolyl)-, 3361*f*.
$C_9H_7F_3O_2S$ Acetic acid, ($\alpha,\alpha,\alpha$-trifluoro-*m*-tolylmercapto)-, 3365*a*.
$C_9H_7F_3O_2Se$ Acetic acid, ($\alpha,\alpha,\alpha$-trifluoro-*m*-tolylselenyl)-, 2272*g*.
$C_9H_7F_3O_3$ Acetic acid, ($\alpha,\alpha,\alpha$-trifluoro-*m*-toloxy)-, 3364*d*.
$C_9H_7F_3NO$ *m*-Acetotoluidide, $\alpha^1,\alpha^1,\alpha^1,6$-tetrafluoro-, 7918*c*.
$C_9H_7IN_2O_5$ 2-Propanone, (2-iodo-4,6-dinitrophenyl)-, 2184*b*
$C_9H_7IO_3S$ Pyruvic acid, (*p*-iodophenylmercapto)-, 3527*e*.
$C_9H_7N$ (See also *Isoquinoline; Quinoline*.)
Benzonitrile, *p*-vinyl-, 5620*e*.
Cinnamonitrile, 183*a*, 5004*i*.
$C_9H_7NO$ (See also *Quinolinol*.)
Acetonitrile, benzoyl-, 7021*b*.
Benzoxazole, 2-vinyl-, 7018*e*.
Carbostyril, 3267*g*, 6277*b*, 7355*c*, 9069*g*.
Indolecarboxaldehyde, 3888*b*, P 5806*e*.
Isocyanic acid, vinylphenyl ester, P 5422*g*.
7-Isoquinolinol, P 9086*e*.
$C_9H_7NOS$ Ketone, 2-pyrryl 2-thienyl, 4665*i*.
Thiocyanic acid, phenacyl ester, 6619*h*.
$C_9H_7NO_2$ 1,4-Benzodioxan-5-carbonitrile, 186*d*.
Isatin, 5-methyl-, 228*d*.
Quinolinediol, 3002*d*, P 8149*e*, P 8153*h*, P 9464*h*.
*o*-Toluic acid, $\alpha$-cyano-, 1045*g*.
$C_9H_7NO_2S$ Benzoic acid, *o*-(cyanomethylmercapto)-, 2201*b*.
3,1,4 *H*-Benzothiazine-3-carboxylic acid, 4278*c*.
6-Benzothiazolecarboxylic acid, Me ester, 7476*e*.
Thianaphthenequinone, 5-methyl-, 2-oxime, 7474*f*.
$C_9H_7NO_3$ 2(3 *H*)-Benzoxazolone, 3-acetyl-, 6615*f*.
4-Cyclohexen-1,2-dicarboxylic acid anhydride, 3-cyano-, 4217*i*.
2-Indolecarboxylic acid, hydroxy-, 1765*bd*.
6-Indolinecarboxylic acid, 2-oxo-, 216*d*.
Isatin, methoxy-, 216*c*, 1410*h*.
Phthalimide, *N* - (hydroxymethyl)-, 6184*h*
$C_9H_7NO_3S$ Acetic acid, (2-benzothiazolyloxy)-, P 5154*f*.
$C_9H_7NO_4$ Hydracrylic acid, $\beta$-(*m*-nitrophenyl) , $\beta$ lactone, P 5037*h*.
Isatin, 1 hydroxy-6-methoxy-, 216*c*.
Lactone, m 262 4°, 2213*d*.
$C_9H_7NO_4S$ 7 Quinolinesulfonic acid, 8-hydroxy-, P 5961*i*, P 7700*i*.
$C_9H_7NO_5$ Pyruvic acid, (*p*-nitrophenyl)-, 5766*g*
$C_9H_7NO_6$ Homoterephthalic acid, 2-nitro-, 216*d*.
Phthalic acid, 3 - nitro-, 2 - Me ester, 5767*g*
2,3,6-Pyridinetricarboxylic acid, 4-methyl , 5402*g*.
Pyruvic acid, (5-hydroxy-2-nitrophenyl)-, 1765*a*.
$C_9H_7NO_7$ $\beta$-Resorcylic acid, 5-acetyl 3-nitro , 2622*c*.
$C_9H_7NS_2$ 2-Thiazolethiol, 4 phenyl , 4971*d*, 5393*d*
$C_9H_7N_3$ Cinchomerononitrile, 2,6-dimethyl , 4670*h*.
$C_9H_7N_3O$ 1,2,3,2 *H*-Triazole-4-carboxaldehyde, 2 phenyl-, 2618*e*.
$C_9H_7N_3OS$ Compd., m 260°, 5022*e*.
Nicotinamide, *N* 2-thiazolyl-, 5025*d*.
$C_9H_7N_3O_3$ Isoquinoline, amino-8-nitro-, 5784*a*
Quinoline, aminonitro-, 1418*b*, 1777*ab*, 3002*c*.
6-Quinoxalinecarboxylic acid, amino , 3384*b*.
3,5(2 *H*,4 *H*)-*as*-Triazinedione, 6-phenyl , 3016*b*
1,2,3,2 *H*-Triazole-4-carboxylic acid, 2-phenyl , 2619*a*
$C_9H_7N_3O_3S_2$ Benzenesulfenamide, *p* nitro-*N*-2-thiazolyl-, P 1437*e*, P 8400*d*.
$C_9H_7N_3O_3$ 4-Cinnolinol, methylnitro-, 1781*gi*, 1782*c*.
Propiophenone, $\alpha$ diazo-*p*-nitro-, 1743*g*, 4653*f*
$C_9H_7N_3O_4$ Acetophenone, $\alpha$-diazo-4-methoxy-2-nitro-, 216*c*.
$C_9H_7N_3O_4S_2$ Benzenesulfonamide, *p*-nitro-*N* 2 thiazolyl-, P 1437*i*.
Thiazole, 5 nitro-2-sulfanilyl-, 6181*f*.
$C_9H_7N_3O_5$ Propionaldehyde, $\alpha$-nitro-$\beta$-(*p*-nitrophenylimino)-, 3420*d*.
$C_9H_7N_4O_7Tl$ Isatin, 3-semicarbazone, Tl deriv., 8079*i*.
$C_9H_7N_5$ Guanidine, 1-cyano-3-(*p*-cyanophenyl)-, 169*f*.
5 *H*-*as*-Triazino[5,6-*b*]indole, 3-amino , *and salts*, 3428*c*.
$C_9H_7N_5O$ Urea, (3-hydroxypyrido[2,3]pyrazin-2 ylcarbonyl)-(?), 5785*g*.
$C_9H_7N_5O_3S$ 5 *H*-*as*-Triazino[5,6-*b*]indole-8 sulfonic acid, 3-amino-, *and Na salt*, 3428*h*.
$C_9H_7N_7O_4S$ *s*-Triazine, 2,4-diamino-6-(2,4 dinitrophenylmercapto), P 1444*e*.
$C_9H_8$ See *Indene*.
$C_9H_8BrClO_2$ Acetic acid, (4-bromo-3-chlorophenyl)-, Me ester, 3361*d*.
$C_9H_8BrNO_3$ *o*-Veratronitrile, bromo-, 185*fh*.
$C_9H_8BrNO_3$ Benzoic acid, *p*-$\alpha$-bromoacetamido-, 5081*h*.
Pyruvic acid, (bromophenyl)-, oxime, 605*g*.
$C_9H_8BrN_3O_2PS$ Compd., m. 225°, 1737*i*.
$C_9H_8BrN_3$ Pyrido[2,3]pyrazine, 7-bromo-2,3-dimethyl-, 1425*e*.
$C_9H_8BrN_3O_2S_2$ Sulfanilamide, *N*-(5-bromo-2-thiazolyl)-, P 3042*c*.
Sulfathiazole, bromo deriv., 7642*f*.
$C_9H_8BrN_3S$ Pseudourea, 1-(*p*-bromophenyl)-3-cyano-2-methyl-2-thio-, 3948*c*, P 6658*f*.
$C_9H_8Br_2ClNO$ *p*-Acetotoluidide, 2,6-dibromo-$\alpha$-chloro-, 1023*a*.
$C_9H_8Br_2O_2$ Acetic acid, (3,4-dibromophenyl)-, Me ester, 3361*d*.

Hydrocinnamic acid, α,β-dibromo-, 5754c.

$C_9H_8Br_2O_3$ Benzoic acid, 2,6-dibromo-3,5-dimethoxy-, 1038c.

$C_9H_8CdCl_2O$ Cinnamaldehyde, complex with $CdCl_2$, 7000d.

$C_9H_8ClF$ Toluene, *m*-(2-chloroethyl)-α,α,α-trifluoro-, 1378h.

$C_9H_8ClNO$ Propionaldehyde, α-chloro-β-phenylimino-, 5368a.

4(1*H*)-Quinolone, chloro-2,3-dihydro-, 8387d, 8388d.

$C_9H_8ClNOS$ Benzothiazole, 2-chloro-5-ethoxy-, P 6670c.

$C_9H_8ClNO_2$ Benzamide, *N*-chloroacetyl-, 4221a.

Formanilide, *m*-chloroacetyl-, 7452b.

$C_9H_8ClNO_3$ Pyruvic acid, (chlorophenyl)-, oxime, 605g.

$C_9H_8ClNO_4$ Benzoic acid, *p*-nitro-, 2-chloroethyl ester, 1896c, 8600b.

$C_9H_8ClN_3$ Isoquinoline, chlorohydrazino-, 5784a.

$C_9H_8ClN_3O_3$ Biuret, 1-(5-chlorosalicylidene)-, 6182d.

$C_9H_8ClN_3O_6$ 2-Propanone, (chlorodinitrophenyl)-, oxime, 2184d, 7452h.

$C_9H_8ClN_3S$ Pseudourea, 1-(*p*-chlorophenyl)-3-cyano-2-methyl-2-thio-, 2948c, P 6658f.

$C_9H_8Cl_2N_2O$ Pyruvaldehyde, dichloro-, phenylhydrazone, 6160b.

$C_9H_8Cl_2N_2O_2$ Formamide, *N,N'*-(3,5-dichlorosalicylidene)bis-, 6182e.

$C_9H_8Cl_2N_4O_4$ Propionaldehyde, β,β-dichloro-, 2,4-dinitrophenylhydrazone, 3345c.

$C_9H_8Cl_2O_2$ Acetyl chloride, (4-chloro-*o*-tolyoxy)-, P 2234c.

Benzoic acid, 3,4-dichloro-, Et ester, 8367h.

$C_9H_8Cl_2O_3$ Acetic acid, (2,4-dichlorophenoxy)-, Me ester, 343d, 4248e, 5145d, 6775h, P 7045d.

Propionic acid, (2,4-dichlorophenoxy)-, P 1054a, P 2234a, 3393e, P 7045d.

$C_9H_8Cl_2O_4$ *o*-Orsellinic acid, 3,5-dichloro-, Me ester, 609b.

$C_9H_8Cl_2O_4S$ Acetic acid, (2,4-dichlorobenzylsulfonyl)-, 2273e

$C_9H_8Cl_4$ Toluene, *p*-(1,2,2,2-tetrachloroethyl)-, P 8399g.

$C_9H_8Cl_4O$ Ether, benzyl 1,2,2,2-tetrachloroethyl, P 7188b, P 7635a.

Ether, *p* chloro-α-(trichloromethyl)benzyl methyl, 199d, 2359h.

—, 2,4-dichlorophenyl 2,3-dichloropropyl, P 4808a.

$C_9H_8Cl_4O_2$ 2 Propanol, 1-chloro-3-(2,4,5-trichlorophenoxy)-, P 675i.

$C_9H_8FNO_4$ Acetic acid, fluoro-, *p*-nitrobenzyl ester, 2933e.

$C_9H_8F_2$ Styrene, α (difluoromethyl)-, P 8209d.

$C_9H_8F_3NO$ *m*-Acetotoluidide, $\alpha^4,\alpha^4,\alpha^4$-trifluoro-, 7918b.

1,4,2*H*-Benzoxazine, 3,4-dihydro(trifluoromethyl)-, P 2782d.

$C_9H_8F_3NO_3$ Phenetole, 4-nitro-3-(trifluoromethyl)-, 7918c.

$C_9H_8IN_3O_3$ 2-Propanone, (2-iodo-4,6-dinitrophenyl)-, oxime, 2184c.

$C_9H_8IN_3S$ Pseudourea, 3-cyano-1-(*p*-iodophenyl)-2-methyl-2-thio-, 2948c, P 6658f.

$C_9H_9N$ Isoquinoline, amino-, 1655c, 5783h.

Pyridine, 3-(2-pyrryl)-, 5306g.

Quinoline, amino-, 1655c, 1776a, 3002b, 6113a, 8386h.

Quinoxaline, 2-methyl-, 3425b, 6206h, 8394c.

$(C_9H_9N_3)_n$ Benzimidazole, 2-vinyl-, polymer, 7018i.

$C_9H_9NO$ Acetanilide, cyano-, P 6428a, 9068f.

Acetophenone, α-diazo-*p*-methyl-, 4653c.

Carbostyril, 4-amino-, 9068f.

4-Cinnolinol, methyl-, 1781g, 1782a.

Furazan, 3-methyl-4-phenyl-, 2991f.

Hippuronitrile, 1403h.

Propiophenone, α-diazo-, 4653g, 4654f.

Quinazolone, methyl-, 3425ab.

Quinolinol, amino-, 1418f; -*HCl*, P 2646b.

Quinoxalinol, methyl-, 1426g, 3384h, P 6661f.

$C_9H_9NOS$ 3,1,4*H*-Benzothiazine-3-carboxamide, 4278b.

Benzothiazole, acetamido-, 5776i, 5777a.

$C_9H_9NO_2$ Acetophenone, α-diazo-*p*-methoxy-, 4653c, 5761h.

5-Benzimidazoleacetic acid, -*HCl*, 8363g.

Coumarin, 3,6-diamino-, 2179h.

Hydantoin, 5-phenyl-, 6906f.

1(2*H*)-Phthalimone, 4-methoxy-, 879f.

Phthalimidine, 3-iminomethoxy-, P 8166e.

3,5-Pyrazolidinedione, 1-phenyl-, 579f.

2,4-Quinazolinediol, 7-methyl-, 2951d.

2,4(1*H*,3*H*)-Quinazolinedione, methyl-, 579f, 6634e.

Sydnone, *N*-benzyl-, 3417h, 3418b, 7479i, 7480e.

—, methylphenyl-, 3418ab, 7480e.

—, *N*-*p*-tolyl-, 7480bd.

$C_9H_9NO_2S$ 3-Benzothiazolineacetic acid, 2-imino-, *and Na salt*, 5022c.

4-Pyrimidol, 6-(2-furyl)-2-mercapto-, Me deriv., 7929h.

$C_9H_9NO_2S_2$ 5-Thiazoleacetic acid, 2-amino-4-(2-thienyl)-, P 8401f

$C_9H_9NO_3$ (See also *Propentdyopent.*)

6-Indolinecarboxylic acid, 3-amino-2-oxo-, 216e.

Propionaldehyde, α-nitro-β-phenylimino-, 3420c.

2,4-Quinazolinediol, methoxy-, 2951e.

$C_9H_9NO_3S_2$ Phenolsulfonamide, *N*-2-thiazolyl-, 4382h, 5496ghi.

$C_9H_9NO_4$ Acetamide, α-*p*-nitrobenzoyl-, 5395b.

1-Butene-1,2-diol, 4-(*p*-nitrophenylimino)-, 4227e.

$C_9H_9NO_4S$ 1,2-Benzopyran-6-sulfonamide, 3-amino-2-oxo-, 2179g.

3-Indolemethanesulfonic acid, 1-nitroso-, *Na salt*, 3818c.

1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 2-phenyl-, 1,1-dioxide, P 4808d.

$C_9H_9NO_5$ Acetophenone, 2-methyl-3,5-dinitro-, 4239c.

Anthranilic acid, *N*-acetyl-4-nitro-, 2189h.

—, *N*-(carboxymethyl)-*N*-nitroso-, 3417i.

2-Propanone, (2,4-dinitrophenyl)-, 1742b, 6175c.

$C_9H_9NO_6$ Acetic acid, (dinitrophenyl)-, Me ester, 2189h, 6175c.

Pyruvic acid, (5-hydroxy-2-nitrophenyl)-, oxime, 1765b.

$C_9H_9N_3O$ Benzoic acid, 4-ethoxy-3,5-dinitro-, 6991e.

$C_9H_9N_3S$ Thiazole, 2-amino-4-phenyl-, 2992f, P 7513a

Thiazole, 2-(*p*-aminophenyl)-, 6282d, 7544i, 8437d.

$C_9H_9N_3S_2$ 3,1,4*H*-Benzothiazine-3-carboxamide, thio-, 4278b.

2(3*H*)-Thiazolethione, 5-amino-4-phenyl-, P 6669i.

$C_9H_9N_3NaO_3S_2$ See "sodium deriv." under *Sulfathiazole.*

$C_9H_9N_4$ 2-Quinoxalinecarboxaldehyde, hydrazone, 3425c

$C_9H_9N_4O$ 1,2,3,2*H*-Triazole-4-carboxamide, 2-phenyl-, 2619d.

1,2,4(1*H*)-Triazole-1-carboxanilide, 8365g.

$C_9H_9N_4O_2$ Cinnoline, 4-aminomethylnitro-, 1781h, 1782c.

Isatin, 3-semicarbazone, 8979g.

Oxanilyl azide, *p*-methyl-, 7446e.

2-*s*-Triazinol, 4-amino-6-(*m*-hydroxyphenyl)-, 238f.

$C_9H_9N_4O_2S_2$ Benzenesulfenamide, *N*-(5-methyl-1,3,4-thiadiazol-2-yl)-*p*-nitro-, P 8400d.

$C_9H_9N_4O_3$ Benzotriazole, acetyl-5-methoxy-6-nitro-, 7016f.

$C_9H_9N_4O_3S_2$ Sulfanilamide, (5-nitro-2-thiazolyl)-, 6180g.

$C_9H_9N_4O_4S$ 1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 6-(*o*-hydroxyphenylazo)-, 1,1-dioxide, P 4868e.

$C_9H_9N_4O_5$ Pyruvic acid, 2,4-dinitrophenylhydrazone, 5342h.

$C_9H_9N_4O_6S$ 5*H*-*as*-Triazino[5,6-*b*]indole-8-sulfonamide, 3-amino-, 3428h.

$C_9H_{10}O$ (See also *Cinnamaldehyde.*)

Acrylophenone, 6177g.

Anisole, *p*-ethynyl-, 7417i.

Benzaldehyde, *p*-vinyl-, 7456g.

Benzofuran, 2-methyl-, 4252i.

Benzyl alcohol, α-ethynyl-, 1348i.

4-Heptanone, 2,5-dimethyl-, 1333a.

1-Indanone, 4250i, 7456f.

$C_9H_{10}OS$ 3-Thianaphthenol, methyl-, 3816g, 7474e.

$C_9H_{10}O_2$ (See also *Cinnamic acid.*)

Benzoic acid, vinyl ester, P 9068.

Hydracrylic acid, β-phenyl-, β-lactone, P 5037h.

$C_9H_{10}O_2S$ Benzoic acid, *o*-(1-hydroxyethylmercapto)-, lactone, 5860h.

Pyruvic acid, phenyl-α-thio-, 3890c.

$C_9H_{10}O_3$ Benzaldehyde, *p*-hydroxy-, acetate, 897e.

5-Benzofurancarboxaldehyde, 2,3-dihydro-6-hydroxy-, 1406f, 3412e.

Benzoic acid, *o*-2-hydroxyethoxy-, lactone, 2603g.

Bicyclo[2.2.1]-5-heptene-2,3-dicarboxylic anhydride, 8700c.

Cinnamic acid, hydroxy-, 726g, 2685i, 5263f.

Glyoxal, (*p*-methoxyphenyl)-, 603f, 4240c.

Phthalaldehydic acid, Me ester, 7003c.

Pyruvic acid, phenyl-, 157b, 5084d, 5342h, 7547a, P 7649b, 9234g.

Salicylaldehyde, acetate, 397e, 6598d.

Terephthalaldehydic acid, Me ester, 5761d.

$C_9H_{10}O_2S$ Benzoic acid, *o*-(formylmethylmercapto)-, 2201a.

Thianaphthene, 3-methoxy-, 1,1-dioxide, 8370g

$C_9H_{10}O_4$ (See also *Acetylsalicylic acid.*)

1,4-Benzodioxan-5-carboxylic acid, 186c.

Benzoic acid, *p*-hydroxy-, acetate, 7936a.

Caffeic acid, 2283g, 4327ghi, 8459c.

Cinnamic acid, 2,5-dihydroxy-, 5263f.

Esculetin, dihydro-, 5116i.

Myristicaldehyde, 602e, 2212a, 9046e.

Peroxide, acetyl benzoyl, P 905e, P 1807c.

Phthalic acid, Me ester, 7003c.

Pyruvic acid, (*p*-hydroxyphenyl)-, 4360d, 5342h, 6598a, 6685h.

β Resorcylaldehyde, 3-acetyl-, 4009i.

γ-Resorcylaldehyde, 3-acetyl-, 4009h.

Terephthalic acid, methyl-, 7913i.

Uvitic acid, 9051g.

$C_9H_{10}O_4S$ Benzoic acid, *o*-(carboxymethylmercapto)-, 2201a.

$C_9H_{10}O_5$ Benzaldehyde, 3-acetyl-2,4,6-trihydroxy-, 4009i.

Pyruvic acid, (2,5-dihydroxyphenyl)-, 6598a.

*p*-Quinone, 2-acetyl-3-hydroxy-5-methoxy-, 182a.

Terephthalic acid, methoxy-, 7925f.

$C_9H_{10}O_5$ *p*-Quinone, 2,5-dihydroxy-3-methoxyacetyl-, 5770f.

$C_9H_{10}S$ Thianaphthene, 3-methyl-, 7475e.

$C_9H_{10}S_2$ Thiophene, 2,2'-methylenedi-, 1763g.

$C_9H_{10}$ Benzyl, α vinyl-, 612c.

Cinnamyl, 612c.

$C_9H_{10}AsClN_3O_3$ Arsanilic acid, *N*-(4-amino-6-chloro-*s*-triazin-2-yl)-, P 4296g.

$C_9H_{10}AsO_4$ Cinnamic acid, *m*-arsono-, 4237b.

$C_9H_{10}Br$ Benzene, (3-bromopropenyl)-, 612c.

Styrene, *p*-bromo-α-methyl-, 5629e.

$C_9H_{10}BrFNO_3$ Tyrosine, bromofluoro-, 5863f, 6253f.

$C_9H_{10}BrN_3$ Benzimidazole, 2-(2-bromoethyl)-, 7018h.

$C_9H_{10}BrN_4$ Guanidine, 1-(*p*-bromophenyl)-3-cyano-2-methyl-, 2948c, P 6658g.

1*H*-Tetrazole, 5-(1-bromoethyl)-1-phenyl-, P 7971e.

$C_9H_{10}BrN_4O_4$ 2-Propanone, 1-bromo-, 2,4-dinitrophenylhydrazone, 1722e.

$C_9H_{10}BrO$ Acetophenone, *p*-(bromomethyl)-, 5761b.

Acetophenone, α-bromo-*p*-methyl-, 4653f.

Ether, β-bromostyryl methyl, 1404a.

2-Propanone, 1-bromo-3-phenyl-, 7931a.

$C_9H_{10}BrO_2$ Acetic acid, bromophenyl-, Me ester, 2189d.

Benzoic acid, *p*-(2-bromoethyl)-, P 1224c, P 6236d.

Hydrocinnamic acid, β-bromo-, P 3024c.

*p*-Toluic acid, 2-bromo-, Me ester, 3396d.

$C_9H_{10}BrO_2S$ Acetic acid, (*p*-bromophenylmercapto)-, Me ester, 3365d.

$C_9H_{10}BrO_3$ Acetic acid, (*p*-bromophenoxy)-, Me ester, 3364e.

Benzaldehyde, 5-bromo-2-(methoxymethoxy)-, 4246d.

Guaiacol, 4-bromo-, acetate, 2177i.

Propionic acid, β-(bromophenoxy)-, 3393f.

*o*-Veratraldehyde, 5-bromo-, 185g.

$C_9H_{10}BrO_4$ Benzoic acid, 4-bromo-3,5-dimethoxy-, 1038a.

$C_9H_{10}BrO_5$ 2,3-Furandicarboxylic acid, 5-bromo-4-methyl-, di-Me ester,

$C_9H_{10}BrO_8$ Mucoic acid, bromohydroxydimethoxy-, γ-lactone, Me ester, 6982c.

$C_9H_{10}Br_2NO_3$ Tyrosine, 3,5-dibromo-, 7149f.

$C_9H_{10}Br_3$ Mesitylene, $\alpha^1,\alpha^2,\alpha^3$-tribromo-, 6202i.

$C_9H_{10}Br_3O_8$ Mucoic acid, α,β,δ-tribromo-γ-methoxy-, di-Me ester, 6982b.

$C_9H_{11}Cl$ Benzene, (3-chloropropenyl)-, 612c.

Indan, 1-chloro-, P 3094d.

Styrene, *p*-chloro-α-methyl-,

**$C_9H_9ClHgO_2$** Benzoic acid, *p*-(chloromercuri)-, Et ester, 7922*e*.
**$C_9H_9ClN_2$** Benzimidazole, (chloroethyl)-, 7018*fg*.
**$C_9H_9ClN_2O$** 4(1*H*) - Quinolone, 7-chloro-2,3-dihydro-, oxime, 8387*e*.
**$C_9H_9ClN_2O_2$** Urea, [(chlorophenyl)acetyl]-, 2169*f*.
**$C_9H_9ClN_2O_2S$** Benzothiazole, 2-amino, chloroacetate, 5022*b*.
**$C_9H_9ClN_2O_3$** *m*-Acetotoluidide, 6-chloro-5-nitro-, 222*d*.
**$C_9H_9ClN_2O_4$** *o*-Acetanisidide, 5-chloro-4-nitro-, P 3034*b*.
**$C_9H_9ClN_2O_4S$** Propionimidyl chloride, *N*-(*p*-nitrophenylsulfonyl)-, P 6660*h*.
**$C_9H_9ClN_4$** Guanidine, 1-(*p*-chlorophenyl) 3-cyanomethyl-, 2948*c*, P 6658*g*, P 6659*i*.
1*H* - Tetrazole, 1 - benzyl - 5 - (chloromethyl)-, P 7971*e*.
**$C_9H_9ClN_4O$** 1*H*-Tetrazole, 5-(chloromethyl)-1-(*m*-methoxyphenyl)-, P 7971*f*.
**$C_9H_9ClN_4O_3$** 7 - Pteridinecarboxylic acid, 2-chloro - 7,8 - dihydro - 6 - hydroxy-, Et ester, P 9087*f*.
**$C_9H_9ClO$** Benzoyl chloride, *p* ethyl-, 7004*i*.
Ether, allyl *p*-chlorophenyl, 3138*c*.
Propiophenone, chloro-, 166*d*, 4638*f*, 7025*g*.
**$C_9H_9ClOS$** *m*-Toluyl chloride, 4-methylmercapto-, P 7044*c*.
**$C_9H_9ClO_2$** Acetophenone, α-chlorohydroxymethyl-, 7452*d*.
Homoanisoyl chloride, 1744*a*.
Propane, 1-(chlorophenoxy)-2,3-epoxy-, P 4808*a*, P 5794*g*.
2 - Propanone, 1 - chloro - 3-phenoxy, P 4304*f*.
Propionic acid, α-(*p*-chlorophenyl), 4654*f*
**$C_9H_9ClO_2S$** Acetic acid, (*p* - chlorobenzylmercapto)-, 3365*a*.
**$C_9H_9ClO_3$** (See also *Acetic acid, (chlorotoloxy)*-.)
Acetic acid, (chlorohydroxytolyl)-, 8598*b*
4 - Cyclohexene - 1,2 - dicarboxylic anhydride, 4 chloro-5-methyl-, 3352*c*.
Hydracrylic acid, chlorophenyl ester, 3393*d*.
Propionic acid, (chlorophenoxy)-, P 1054*a*, 1139*d*, 2725*i*, 3393*e*, 9337*e*.
Propiophenone, β-chloro-2,4-dihydroxy, 1771*b*.
**$C_9H_9ClO_4$** Vanillic acid, 5-chloro-, Me ester, 4242*c*.
**$C_9H_9ClO_4S$** Acetic acid, (*p* chlorobenzylsulfonyl)-, 2273*e*.
**$C_9H_9ClO_5$** 2 - Hexenoic acid, 6-chloro 2-hydroxy - 3 - (hydroxymethyl)-4 oxo-, γ-lactone, acetate, 1407*a*.
**$C_9H_9Cl_2N$** Isoquinoline, 1,3 dichloro-5,6,7,8-tetrahydro-, 4279*d*, P 7518*a*.
**$C_9H_9Cl_2NO_2$** Toluene, α chloro-2-(2-chloroethyl)-5-nitro-, 646*c*.
**$C_9H_9Cl_2NO_2S$** Acetamide, *N* - (3,4 - dichlorophenylsulfonyl) - *N* - methyl-, P 2231*g*.
Propionamide, *N* - (3,4 - dichlorophenylsulfonyl)-, P 2231*f*.
**$C_9H_9Cl_2O_2$** 1,2 - Propanediol, 3-(trichlorophenoxy)-, 312*a*, P 675*f*.
**$C_9H_9D$** Benzene, (allyl-1-*d*)-, 604*d*.
**$C_9H_9DO_2$** Hydrocinnamic-*d* acid, 604*c*, 3392*e*.
**$C_9H_9F$** Styrene, *p*-fluoro-α-methyl-, 5629*e*.
**$C_9H_9FINO_3$** Tyrosine, 3-fluoro-5-iodo-, 5863*g*, 6253*f*.
**$C_9H_9FN_2O_3$** *p* - Acetotoluidide, 5-fluoro-2-nitro-, 7918*a*.
**$C_9H_9FO_2$** Benzoic acid, *p*-fluoro, Et ester, 6992*c*.
**$C_9H_9F_3O$** Benzyl alcohol, α-methyl(trifluoromethyl)-, 1741*i*, P 8209*d*.
Phenethyl alcohol, *m*-(trifluoromethyl), 1378*h*.
**$C_9H_9HgNO_4$** Nitro - *o* - tolylmercury acetate, 9335*i*.
**$C_9H_9HgN_3S_2$** Pyridine, ethylene Hg complex, 7449*e*.
**$C_9H_9HgNaO_2S$** See *Merthiolate*.
**$C_9H_9IN_2O$** Benzoic acid, *m*-iodo-, ethylidenehydrazide, 6973*e*.
**$C_9H_9IN_4$** Guanidine, 1-cyano-3-(*p*-iodophenyl)-2-methyl-, 2948*d*, P 6658*h*.
**$C_9H_9IO_3$** Benzoic acid, 2-iodo-5-methoxy-, Me ester, 191*c*.
**$C_9H_9I_2NO_3$** (See also *Tyrosine, diiodo-*.)
1(2*H*) - Pyridineacetic acid, 3,5-diiodo-2-oxo-, Et ester, 7484*c*.
**$C_9H_9KN_2O_4$** Mesitylene, α,α-dinitro-, K deriv., 6585*b*.
**$C_9H_9N$** (See also *Skatole*.)
Benzonitrile, ethyl-, 4218*a*, 7439*gh*, 8367*e*.
Hemellitonitrile, 7439*f*.
Hydrocinnamonitrile, 3356*i*, 3607*a*.
Indole, methyl-, 1027*c*, 1397*g*, 2165*a*, 5085*c*, 7545*h*.
Isoquinoline, 3,4-dihydro, 4672*f*
Isoxylonitrile, 7439*e*.
Quinoline, dihydro-, 955*d*.
Xylonitrile, 7439*cd*.
**$C_9H_9NO$** Acetonitrile, (*m* methoxyphenyl)-, 4244*i*.
Aziridine, 1-benzoyl, 3014*c*.
Benzamide, *o* vinyl-, 4218*d*.
Cinnamaldehyde, oxime, 1654*h*.
Cinnamamide, 7002*g*.
Homoanisonitrile, 606*a*, 2607*a*.
Indole, 3-methoxy-, 629*c*.
5-Indolol, 2-methyl-, 1765*g*.
Oxazoline, 2-phenyl, 1022*d*, 3014*c*.
Oxindole, 5-methyl-, 1396*g*.
4(1*H*)Quinolone, 2,3-dihydro, 8387*a*
*p*-Tolunitrile, α-methoxy, 5761*c*.
**$C_9H_9NOS_2$** Benzothiazole, 6-ethoxy-2-mercapto-, P 1438*f*
Ethanol, 2 - (2 - benzothiazolylmercapto)-, 4415*a*.
**$C_9H_9NO_2$** Benzamide, *N*-acetyl-, 4221*b*.
Benzonitrile, dimethoxy-, 185*ce*.
2(3*H*) - Benzoxazolone, 5,6-dimethyl-, 6615*h*.
Bicyclo[2 2.1] - 5 - heptene - 2,3-dicarboximide, 4232*b*.
1,3-Butanedione, 1-(3 pyridyl)-, 643*e*
1-Butene-1,2-diol, 4-phenylimino-, *and* - *HCl*, 4227*e*
5,6 Indolediol, methyl-, 3404*h*, 3406*a*
Indolol, methoxy-, 3406*b*
Nicotinic acid, allyl ester, 2622*c*
Oxindole, 5-methoxy, 216*c*.
Phthalimidine, 3 hydroxy 2 methyl, 3806*ac*.
—, 3-methoxy-, 623*c*
Styrene, *p*-methyl-β-nitro, P 5803*c*.
Veratronitrile, 186*b*
*o*-Veratronitrile, 185*e*, 205*b*
**$C_9H_9NO_2S$** Acetonitrile, (*p* methylsulfonyl phenyl)-, 1739*g*.
*p*-Tolunitrile, α-(methylsulfonyl), 1739*f*
**$C_9H_9NO_3$** (See also *Adrenochrome, Hippuric acid.*)
Acetanilide, 3,4-methylenedioxy-, 1413*a*
Acetophenone, 3 methyl-2 nitro-, 1781*f*
Anisole, *p*-(2 nitrovinyl), 7454*a*, 9334*d*.
Anthranilic acid, *N*-acetyl-, 5402*f*, 5860*g*.
1,4 - Benzodioxan - 5 - carboxamide, 186*c*.
Homopiperonylamide, P 3452*c*.
Isonicotinic acid, 5 (hydroxymethyl) 3-methoxy 2-methyl, lactone, P 1067*e*
Nicotinic acid, 1-allyl-1,6-dihydro-6 oxo-, P 7973*f*.
**$C_9H_9NO_3S$** Benzenesulfonic acid, 1 cyano ethyl ester, 2942*a*.
1,2 - Benzisothazol - 3(2*H*) - one, 2-ethyl, 1,1-dioxide, P 4422*c*.
Benzoic acid, *o*-(formylmethylmercapto)-, oxime, 2201*a*.
Glycolonitrile, *p*-toluenesulfonate, 2942*a*.
3-Indolemethanesulfonic acid, *salts*, 3817*h*.
2-Propanone, 1-(*o*-nitrophenylmercapto)-, 8366*i*.
**$C_9H_9NO_4$** Acetic acid, (*p*-nitrophenyl)-, Me ester, 4654*e*
Acetophenone, 4-hydroxy-2-methyl-5-nitro-, 3385*f*.
—, *p*-methoxy-α-nitro-, 7453*g*.
Benzoic acid, nitro-, Et ester, 4574*h*.
Benzyl alcohol, *p*-nitro-, acetate, 166*e*.
Guaiacol, 4-(2 nitrovinyl)-, 9334*e*.
Hippuric acid, *p*-hydroxy-, 2702*e*
Hydrocinnamic acid, *o*-nitro-, 9047*b*.
Isocinchomeronic acid, di-Me ester, 3825*e*
Mesitylenic acid, 4-nitro-, 6972*g*.
Propionic acid, α-(*p*-nitrophenyl)-, 4654*f*.
Pyridinepyruvic acid, dihydro-1-methyl oxo-, 6628*d*
Salicylurie acid, 2328*i*, 2680*i*, 5819*c*.
**$C_9H_9NO_4S$** Cinnamic acid, *p*-sulfamyl-, 7450*c*.
**$C_9H_9NO_5$** Anisic acid, 2-methyl-5-nitro-, 3385*f*.
Benzoic acid, 4-ethoxy-3-nitro-, 6991*e*.
Chelidamic acid, di-Me ester, 1409*h*.
Homoanisic acid, 3-nitro-, 3361*d*.
Propionic acid, β-(nitrophenoxy)-, P 1054*b*, 3393*e*.
Salicylic acid, 4-nitro-, Et ester, 6596*e*.
**$C_9H_9NO_6$** Benzaldehyde, 4-hydroxy-5-(methoxymethoxy)-2-nitro-, 6271*i*.
**2,3,5 - Pyrroletricarboxylic acid, 4-**methyl-, 3-Me ester, 623*c*.
**$C_9H_9NO_7$** Furanmethanediol, 5-nitro-, diacetate, 7015*c*, 9249*h*.
**$C_9H_9NO_7S$** Benzoic acid, 4-nitro-2-sulfo-, di-Me ester, 1762*h*.
**$C_9H_9NS$** Benzothiazole, 2-ethyl-, 3716*d*, 7284*g*.
*p*-Tolunitrile, α-methylmercapto-, 1739*d*.
**$C_9H_9NS_2$** Benzothiazole, 2-(ethylmercapto)-, 4415*a*.
Isothiocyanic acid, [(benzylmercapto)-methyl] ester, 7410*b*.
**$C_9H_9N_2O_8S_2Sb$** Benzenestibonic acid, *p*-2-thiazolylsulfamyl-, 6026*b*.
**$C_9H_9N_3$** Cinnoline, 4-amino-8-methyl-, 1782*b*.
Isoquinoline, hydrazino, 5783*i*.
Pyrido[2,3]pyrazine, 2,3 - dimethyl-, 1425*d*.
Quinoline, 4,6 - diamino-, *and di-HCl*, 1777*b*.
Quinoxaline, aminomethyl-, 174*f*, 1426*i*, 1427*a*, 3384*bfgi*, 3385*ab*, P 6661*eg*
**$C_9H_9N_3O$** Acetanilide, *p*-cyanoamino, 5014*b*
Acetic acid, cyano-, phenylhydrazide, 4272*f*.
—, cyanophenyl-, hydrazide, 4222*i*.
5-Pyrazolone, 3 aminophenyl-, 1766*g*, 7478*b*.
—, 1 (*p*-aminophenyl)-, P 9461*h*.
4(3*H*) Quinazolone, 3-amino-2-methyl, 3425*a*.
Quinoxaline, 2-aminomethoxy-, 3384*b*.
1,2,3,2*H* - Triazole - 4 - methanol, 2 phenyl-, 2619*b*.
Urea, 1-(6-cyano-*m* tolyl)-, 2951*c*.
**$C_9H_9N_3O_2$** Benzimidazole, 1,2-dimethyl 6 nitro, P 7236*e*.
Benzotriazole, acetylmethoxy-, 2618*gi*
**$C_9H_9N_3O_2S$** 1,2,3 - Benzothiadiazole, 6 acetamido 5-methoxy, 5776*h*
**$C_9H_9N_3O_3S$** (See also *Sulfathiazole*.)
Promizole, 8615*d*
**$C_9H_9N_3O_4$** Glyoxylic acid, phenyl-, semicarbazone, *Na salt*, 2004*e*
*p* Toluic acid, 3-nitro-, methylenehydrazide, 6973*b*
**$C_9H_9N_3O_4S_2$** Sulfanilamide, *N*(4-hydroxy 2-thiazolyl)-, P 6806*g*, P 3852*b*
**$C_9H_9N_3O_4S$** Hydantoic acid, δ-(*p*-nitrophenyl)-γ-thio-, 168*h*
**$C_9H_9N_3O_5$** Acetophenone, 2-amino-4 methyl-3,5-dinitro-, 1781*e*.
Acetotoluidide, dinitro-, 592*e*, 5755*e*
Hydantoic acid, δ-(*p*-nitrophenyl)-, 168*g*
**$C_9H_9N_3O_6$** Alanine, *N*-(2,4-dinitrophenyl), 7379*b*.
Mesitylene, 2,4,6 trinitro-, 5894*a*
**$C_9H_9N_3O_6S$** Sulfide, methyl 2,4,6-trinitrophenethyl, 1733*i*.
**$C_9H_9N_3O_6S$** Sulfone, methyl 2,4,6 trinitrophenethyl, 1734*a*
**$C_9H_9N_3S$** Glycinonitrile, α-phenyl-, thiocyanate, 1403*h*.
Thiazole, 5 amino-2-anilino (?), 1401*g*
**$C_9H_9N_4$** *s*-Triazine, 2,4-diamino 6-phenyl-, P 3014*f*
**$C_9H_9N_4O$** Isatin, 3-guanylhydrazone, *and salts*, 3428*d*.
*s*-Triazine, 2,4-diamino-6 [2-(2-furyl) vinyl]-, P 3854*i*.
2 - *s* - Triazinol, 4 - amino - 6-(amino phenyl)-, P 7711*c*.
**$C_9H_9N_5O_2$** 4-Pteridinol, 2-aminomethyl-, acetate, 5404*e*.
**$C_9H_9N_5O_4S$** 5 - Indolinesulfonic acid, 2,3 dioxo-, 3-guanylhydrazone, 3428*f*
**$C_9H_9N_5O_8$** Oxazolidine, 2 imino-, picrate, 2946*b*.
**$C_9H_9Na$** Benzene, allyl-, Na deriv., 3351*f*. Sodium, 3-phenylpropenyl-, 612*f*.
**$C_9H_{10}$** (See also *Indan; Styrene, methyl*.)
Benzene, allyl-, 612*f*, 9024*d*, 9034*e*
—, propenyl-, 493*c*, 1638*d*, P 2228*cd*, 5275*e*, P 6242*a*, 9024*c*.
**$C_9H_{10}AsNO_2$** Acetamide, *N*-(*p*-arsenosobenzyl)-, 176*d*.
**$C_9H_{10}BrD$** Benzene, (3-bromopropyl-1-*d*)-, 604*c*.
**$C_9H_{10}BrNO$** Acetamide, α-(4-bromo-*o* tolyl)-, 1746*i*.
Acetotoluidide, α-bromo-, 5081*h*
**$C_9H_{10}BrNO_2$** *o*-Veratraldehyde, 5-bromo-, oxime, 185*g*.
**$C_9H_{10}BrNO_2S$** Thiophenealanine, *N*-acetyl-bromo-, 6613*ei*.
**$C_9H_{10}BrN_3O$** Acetophenone, *p*-bromo-, semicarbazone, 2850*d*.
**$C_9H_{10}BrN_3O_2$** Hydrazine, 1-(*p*-bromophenyl) - 2 - (1 - nitropropylidene)-, 4646*i*.
**Pyridine, 2,3 - diacetamido - 5 - bromo-, 1425*e*.**

**$C_9H_{10}Br_2O_4$** Muconic acid, α,γ-dibromo-β-hydroxy-δ-methoxy-, di-Me ester, 6982*b*.
**$C_9H_{10}CdCl_2O_2$** Peonol, complex with $CdCl_2$, 7000*i*.
**$C_9H_{10}ClN$** Isoquinoline, 3-chloro-5,6,7,8-tetrahydro-, 4279*e*, P 6672*e*.
**$C_9H_{10}ClNO$** Acetophenone, α-chloro-*m*-methylamino-, 7452*b*.
Benzamide, *N*-(2-chloroethyl)-, 3014*f*.
—, *p*-chloro-*N*-ethyl-, 4652*h*.
Carbanilyl chloride, dimethyl-, P 1439*ab*
Hydrocinnamamide, *p*-chloro-, 3378*e*.
Oxazolidine, 2-(*o*-chlorophenyl)-, 4235*d*
**$C_9H_{10}ClNOS$** Carbanilic acid, *p*-chlorothiono-, Et ester, 5746*d*
**$C_9H_{10}ClNO_2$** Acetamide, α-(4-chloro-*o*-toloxy)-, P 2234*c*.
Acetophenone, 3-amino-α-chloro-4-methoxy-, 7452*d*
Alanine, β-(chlorophenyl)-, 8810*b*.
β-Alanine, *N*-(*p*-chlorophenyl)-, 8388*c*.
Benzamide, *p*-chloro-*N*-2-hydroxyethyl-, 2273*c*.
Ethanol, 2-chloro-, carbanilate, P 1904*d*.
**$C_9H_{10}ClNO_2S$** Acetanilide, *p*-(chloromethylsulfonyl)-, 2593*b*, 2597*b*
**$C_9H_{10}ClNO_4$** Ethane, 1-(4-chloro-2-nitrophenoxy)-2-methoxy-, P 5421*f*
**$C_9H_{10}ClNS$** Carbamyl chloride, *N*-ethyl-thio-, P 5038*a*.
**$C_9H_{10}ClN_3O$** Acetophenone, *p*-chloro-, semicarbazone, 2850*d*.
**$C_9H_{10}ClN_3O_2$** Hydrazine, 1-(*p*-chlorophenyl)-2-(1-nitropropylidene), 4646*f*.
**$C_9H_{10}ClN_3S_2$** Allophanimidic acid, γ-(*p*-chlorophenyl)dithio-, Me ester, 2950*e*, 5746*e*.
**$H_{12}Cl_2$** Cumene, dichloro-, P 8667*a*
**$H_{10}Cl_2N_2$** Acetone, (dichlorophenyl)hydrazone, 622.
**$H_{12}Cl_2N_4O_2$** Urea, 1,1'-(3,5-dichlorosalicylidene)di-, 6182*e*
**$H_{12}Cl_2O$** Anisole, 2,4-bis(chloromethyl)-, 6591*e*.
Ether, 2,2'-dichloroisopropyl phenyl, 570*a*.
**$H_{10}Cl_2O_2$** 2-Propanol, 1-chloro-3-(*p*-chlorophenoxy)-, P 4807*f*, P 4808*a*, P 6663*d*
**$H_{12}Cl_2O_2$** 1,2-Propanediol, 3-(2,4-dichlorophenoxy)-, 312*a*
**$H_{11}Cl_3N_2O_2$** Hydrazine, 1-phenyl-2-(2,2,2-trichloro-2'-nitrosopropyl)-, 2926*f*.
**$H_{12}Cl_2O_2$** Cyclopentadienone, tetrachloro-, diethyl acetal, 4230*e*.
**$H_{11}DNO$** Benzamide-*N-d*, *N*-ethyl-, 8274*g*.
**$H_{10}FNO_2$** Alanine, (*p*-fluorophenyl)-, 8001*i*.
**$H_{10}F_2O$** Benzyl alcohol, α-(difluoromethyl)-α-methyl-, P 8209*d*
**$H_{12}HgO_2$** *o*-Tolylmercury acetate, 9335*i*
**$H_{12}HgO_2$** Phenylmercury lactate, 2774*e*, 7734*c*.
**$H_{10}INO_3$** Tyrosine, iodo-, 709*b*, 1871*c*, 6254*a*, 6714*c*
**$H_{10}NNaO_4$** Amsyl alcohol, α-nitromethyl-, Na deriv., 7454*a*.
**$H_{10}N_2$** Benzonitrile, *p*-dimethylamino-, 1039*a*.
Glycinonitrile, *N*-benzyl-, *HCl*, 7479*h*
Propionitrile, anilino-, 4415*e*, 8351*f*
Pyridine, 3-(2-pyrrolin-2-yl)-, 5306*g*, 9383*b*
**$C_9H_{10}N_2O$** Acetamidine, α-benzoyl-, 3395*f*.
2-Benzimidazoleethanol, 7018*h*
1,5-Benzodiazepin-2(3*H*)-one, 4,5-dihydro-, 7018*f*.
Cinnamamide, α-amino-, 1390*h*.
Glycinonitrile, *N*-(*o*-methoxyphenyl)-, 6351*g*.
2-Imidazolidone, 4-phenyl-, 3821*d*.
Nicotinonitrile, 2-methoxydimethyl-, 2995*b*.
2(2*H*)-Pyridinepropionitrile, 6-methyl-2-oxo-, 6630*d*.
4(1*H*)-Quinolone, 2,3-dihydro-, oxime, 8387*b*.
**$C_9H_{10}N_2OS$** Urea, 2-thio-1-toluyl-, 8089*b*.
**$C_9H_{10}N_2O_2$** 4-Indanamine, nitro-, 616*h*.
Urea, phenylacetyl-, 8611*i*.
**$C_9H_{10}N_2O_2S$** Hydantoin, 1-ethyl-5-(2-thienyl)-, 3426*f*.
Malonamide, α-phenylmercapto-, 632*i*
**$C_9H_{10}N_2O_3$** (See also *Hippuric acid, p-amino-*.)
Acetamide, *N*-*p*-nitrobenzyl-, 176*a*.
Acetanilide, *N*-methyl-*p*-nitro-, 5755*c*.
Acetophenone, 2-amino-4-methyl-5-nitro-, 1781*e*.
Acetotoluidide, nitro-, 2186*h*, 2189*g*, P 3034*b*, 5755*bc*.
Anthranilic acid, 5-acetamido-, P 1575*a*.
Benzamide, *N*,*N*-dimethylnitro-, 1145*b*, 2357*h*, 5897*g*, 7181*i*.
—, *N*-ethyl-*p*-nitro-, 5897*g*.
Benzene, (2-nitro-1-nitrosopropyl)-, 6999*d*.
Benzoic acid, 3-ethylamino-5-nitroso-, 1344*h*.
Glycine, *N*-benzyl-*N*-nitroso-, 3417*h*, 7479*i*.
2-Propanone, (2-amino-4-nitrophenyl)-, 1742*b*
Pyridine, 2-amino-, 1-oxide, diacetyl deriv., 8386*e*.
Urea, phenoxyacetyl-, 2169*f*.
**$C_9H_{10}N_2O_4$** Acetamanilide, nitro-, 2618*h*, P 3034*b*, 5755*b*.
Adrenochrome, oxime, 3111*f*
Aniline, 4,5-(dimethylmethylenedioxy)-2-nitro-, 1413*h*.
Benzene, 1-nitro-4-(2-nitropropyl)-, 8364*i*.
Carbanilic acid, 2-methyl-4-nitro-, Me ester, 169*a*.
1,4-Cyclohexadiene-1-carboxylic acid, 3,6-dioxo-, Et ester dioxime, 5623*e*.
Fumaramic acid, *N*-(2-cyano-1-ethoxyethylidene)-(?), Et ester, 3360*a*
Glycine, *N*-(nitrotolyl)-, 1426*g*, 3384*h*.
Maleamic acid, *N*-(2-cyano-1-ethoxyethylidene)-(?), Et ester, 3360*a*
Mesitylene, dinitro-, 5893*h*, 6175*a*, 6585*b*
2-Pyridinepyruvic acid, 1,6-dihydro-1-methyl-6-oxo-, α-oxime, 6628*i*
Salicylamide, *N*-ethyl-4-nitro-, 6596*f*.
**$C_9H_{10}N_2O_5$** Carbanilic acid, 2-methoxy-nitro-, Me ester, 169*a*.
Serine, β-(*p*-nitrophenyl)-, 7456*a*
**$C_9H_{10}N_2O_5S$** Anthranilic acid, 5-[(carboxymethyl)sulfamyl]-, P 7710*b*
**$C_9H_{10}N_2S$** Benzimidazole, 2-(ethylmercapto)-, 7302*i*.
Benzothiazole, 2-amino-4,6-dimethyl-, 1706*b*
Thiocyanic acid, *p*-dimethylammophenyl ester, 5599*h*
**$C_9H_{10}N_4$** Guanidine, 1-benzyl-3-cyano-, P 2636*c*.
Guanidine, 3-cyano-1-methyl-1-phenyl-, P 2636*c*, 2947*e*
—, 1-cyano-3-tolyl-, 1691*i*, 2179*d*, 2947*e*
**$C_9H_{10}N_4O$** Guanidine, 1-cyano-3-(*p*-methoxyphenyl)-, 2179*d*.
**$C_9H_{10}N_4OS$** Urea, 1-(benzoylguanyl)-2-thio-, P 4292*e*.
**$C_9H_{10}N_4O_2S_2$** Sulfanilamide, *N*¹-(5-methyl-1,3,4-thiadiazol-2-yl)-, P 3034*i*, 3097*f*, P 4207*e*, P 8400*e*, 8538*e*.
**$C_9H_{10}N_4O_3$** 8-Purinecarboxaldehyde, 1,2,3,6-tetrahydro-1,3,7-trimethyl-2,6-dioxo-, 3794*e*
s-Triazolo[2,3-*a*]pyrimidinecarboxylic acid, hydroxymethyl-, Et ester, P 52*i*, P 4165*f*
**$C_9H_{10}N_4O_3S$** Sulfanilamide, *N*¹-4-oxo-2-imidazolidylidene-, P 6234*e*
**$C_9H_{10}N_4O_4$** Acetone, 2,4-dinitrophenylhydrazone, 3969*g*.
3-Buten-2-one, 4-(5-nitro-2-furyl)-, semicarbazone, 6735*g*.
8-Purinecarboxylic acid, 1,2,3,6-tetrahydro-1,3,7-trimethyl-2,6-dioxo-, 3794*g*.
**$C_9H_{10}N_4O_5$** 2-Furaldehyde, 5-nitro-, 5-(2-hydroxyethyl)semioxamazone, 6735*g*.
**$C_9H_{10}N_6$** *s*-Triazine, 2,4-diamino-6-(*p*-aminophenyl)-, 238*e*
**$C_9H_{10}N_6O_7$** 2-Imidazoline, 2-amino-, picrate, P 6670*f*.
**$C_9H_{10}O$** (See also *Cinnamyl alcohol*.)
Acetophenone, methyl-, 1047*a*, 1743*c*, 2001*b*, 7924*c*, 8367*d*.
Anisole, *m*-vinyl-, 1633*h*, 5629*e*.
Ether, allyl phenyl, 602*i*, 2181*b*.
Hydratropaldehyde, 4632*h*.
Hydrocinnamaldehyde, 2600*h*.
Mesitylenaldehyde, 6585*b*.
Phenol, *o*-allyl-, 4252*i*.
2-Propanone, phenyl-, 2589*i*, 4632*h*.
Propiophenone, 2589*ai*, 3716*e*, 4955*d*, 5015*i*, 6178*c*, P 7509*g*.
**$C_9H_{10}OS$** Acetic acid, thiol-, benzyl ester, 6975*g*.
Acetophenone, methylmercapto-, 3361*e*, 6574*g*, 7475*a*.
Benzoic acid, thiol-, Et ester, 2597*d*.
3-Thianaphthenol, 2,3-dihydro-3-methyl-, 7475*e*.
*m*-Tolualdehyde, 6-methylmercapto-, 1746*c*, 7474*g*.
**$C_9H_{10}O_2$** (See also *Hydrocinnamic acid*.)
Acetic acid, benzyl ester, 6495*f*, 6789*g*, 8179*e*, 8707*f*; *m*-tolyl ester, 9049*g*.
—, phenyl-, Me ester, 2591*d*, 6495*g*, 7418*e*.
—, *p*-tolyl-, 4654*f*.
Acetophenone, 4-hydroxymethyl-, 2187*b*, 3385*f*, P 5044*c*.
—, methoxy-, 1340*i*, 2971*a*, 4248*c*, P 6235*h*, 7001*a*, 7924*c*, P 7966*h*, P 7967*c*.
Benzaldehyde, *o*-ethoxy-, 1030*e*, 5150*e*.
—, 2-ethyl-3-hydroxy-, 197*d*.
6-Benzofuranol, 2,3-dihydromethyl-, 3412*hi*
Benzoic acid, Et ester, 127*g*, 319*i*, 454*b*, 1242*e*, 2591*d*, P 2633*c*, 2677*b*, 6018*h*, 6019*g*, 6495*f*, 7418*e*, 8808*g*.
—, ethyl-, 2603*b*, 8367*e*.
Benzyl alcohol, acetate, P 2633*c*.
Hemellitic acid, 234*g*, 1422*h*, 2964*b*.
Homoanisaldehyde, 7417*i*.
Hydratropic acid, 2248*g*; *Ag salt*, 4241*d*.
Isopeonol, 1349*i*
Isoxylic acid, 2964*b*
Mesitylenic acid, 2964*b*.
Peonol, 1349*i*
Propane, 1,2-epoxy-3-phenoxy-, 2181*b*, P 3473*a*, 4401*h*.
2-Propanone, 1-phenoxy-, P 1914*h*.
Propionic acid, Ph ester, 2589*a*, P 6234*i*.
Propiophenone, hydroxy-, P 693*i*, 6606*b*, P 7510*e*.
Pyrocatechol, allyl-, 771*d*, 3110*i*
Resorcinol, 4-isopropenyl-(?), 1408*d*.
Xylic acid, 2964*b*.
**$C_9H_{10}O_2S$** Acetic acid, (benzylmercapto)-, 8816*a*
Acetic acid, (*p*-methylmercaptophenyl)-, 3361*e*.
—, *p*-tolylmercapto-, 3365*a*.
1,3-Pentanedione, 1-(2-thienyl)-, 629*h*
Propionic acid, phenylmercapto-, P 1054*g*, 2273*i*, 3393*g*, 8816*a*.
2-Thiopheneacrylic acid, Et ester, 9064*a*.
—, 5-ethyl-, 9064*a*.
*m*-Toluic acid, 4-methylmercapto-, P 7044*d*.
**$C_9H_{10}O_2S_2$** *p*-Toluquinone, bis(methylmercapto)-, 2620*e*.
**$C_9H_{10}O_3$** Acetic acid, methoxyphenyl-, *bismuth salt*, 2488*i*
Acetic acid, toloxy-, 7867*i*, 8017*f*.
Acetophenone, 3,5-dihydroxy-4-methyl-, 9066*g*.
—, hydroxymethoxy-, 2428*c*, 3414*f*, 4851*b*, 5763*d*, 6823*g*, 6824*a*, 7644*i*, 9438*b*.
Anisic acid, Me ester, 569*d*, 8808*g*.
Benzaldehyde, 2,5-dimethoxy-, 6598*h*.
Benzoic acid, *p*-2-hydroxyethyl-, P 1223*h*, 2188*h*, 2357*e*, P 6236*d*.
—, *m*-methoxy-, Me ester, 6608*f*.
Bourbonal, 1867*f*
4-Cyclohexene-1,2-dicarboxylic anhydride, methyl-, 8700*c*
Cyclopentadienone, 2-ethyl-3-hydroxy-, acetate, 2585*f*.
Furanacrylic acid, Et ester, P 3232*d*
Homoanisic acid, 1741*d*, 1757*h*, 4654*f*.
Hydracrylic acid, Ph ester, 3393*c*.
Isoxylic acid, 6-hydroxy-, 2972*g*.
Lactic acid, β-phenyl-, P 3841*a*.
Mandelic acid, *o*-methyl-, 188*c*.
Mesitylenic acid, 2-hydroxy-, 2972*g*.
2-Nonen-4-ynoic acid, 6-oxo-, 7415*e*.
Phloretic acid, 2196*e*.
Propionic acid, β-phenoxy-, P 1054*a*, 3393*b*.
Propiophenone, 2,5-dihydroxy-, 2187*f*.
β-Resorcylaldehyde, 6-ethyl-, 2185*a*.
Salicylaldehyde, 3-ethoxy-, P 3037*d*.
Veratraldehyde, 125*c*, P 689*d*, 1181*i*, 3820*b*, 7005*f*, P 7509*h*.
*o*-Veratraldehyde, 4277*f*, 7005*f*.
Xylic acid, hydroxy-, 2972*g*.
**$C_9H_{10}O_3S$** Thianaphthene, 2,3-dihydro-3-methoxy-, 1762*i*.
2-Thiophenepropionic acid, β-oxo-, Et ester, 2582*h*.
**$C_9H_{10}O_4$** Acetic acid, (*o*-methoxyphenoxy)-, 1771*a*; *Ca salt*, 6307*g*.
Acetophenone, dihydroxymethoxy-, 1775*h*, 3414*c*.
Benzoic acid, dimethoxy-, 6599*g*, 7925*f*.
—, 2-ethoxy-4-hydroxy-, 1036*e*.
—, *p*-2-hydroxyethoxy-, P 1223*h*, P 6236*d*.
Bicyclo[2.2.1]-5-heptene-2,3-dicarboxylic acid, P 2234*f*, 4232*c*.
2-Furanpropionic acid, β-oxo-, Et ester, 2582*h*.
2*H*-Furo[3,4-*b*]pyran-4,7(3*H*,5*H*)-dione, 2,2-dimethyl-, 1110*d*, 7188*h*.
5-Heptenoic acid, 3-(hydroxymethyl)-6-methyl-2,4-dioxo-, γ-lactone, 7138*g*.

2,4,6 - Octatrienedioic acid, Me ester, 6981*d*.
Phloroacetophenone, 3-methyl-, 5445*f*.
Propiophenone, β,2,4-trihydroxy-, 1771*b*.
4 - Pyrone, 2 - allyl - 3 - hydroxy - 6-(hydroxymethyl)-, 8385*h*.
—, 5 - (allyloxy) - 2 - (hydroxymethyl)-, 8385*h*.
Salicylic acid, 2-hydroxyethyl ester, 2003*g*.
—, methoxy-, Me ester, 3393*g*, 4242*b*, 7455*h*.
Syringaldehyde, 1743*e*, 1973*i*, P 7509*a*.

**$C_9H_{10}O_4S$** Acetic acid, (benzylsulfonyl)-, 2273*f*.
Acetic acid, (*p*-methylsulfonylphenyl)-, 1739*g*.
Benzoic acid, *p*-(methylsulfonyl)-, Me ester, 1740*c*.
Ethanesulfonic acid, 1-benzoyl-, 5763*f*.
Malonic acid, [2 - (2 - thienyl)ethyl] , 2982*a*.
Succinic acid, (2-thenyl)-, 6611*d*.

**$C_9H_{10}O_5$** Acetophenone, 2,3,6 - trihydroxy-4-methoxy-, 182*a*.
Gallic acid, Et ester, 1498*c*, 8178*i*.
2*H* - Pyran - $\Delta^{3(6H)}$ - acetic acid, dihydro - 4,4 - dihydroxy-, lactone mono acetate, 2993*e*.
4 - Pyrone, 2 - (hydroxymethyl) - 5-methoxy-, acetate, 8385*g*.
β-Resorcylaldehyde, 3,6 - dimethoxy , 7480*g*.
Syringic acid, 1743*d*, 4848*d*, P 7509*a*.

**$C_9H_{10}O_5S$** Glycolic acid, Me ester, benzenesulfonate, 2942*e*, *p*-toluenesulfonate, 2941*h*.
Lactic acid, benzenesulfonate, 2941*h*.

**$C_9H_{10}S$** 2-Propene-1-thiol, 3-phenyl-, 1044*a*.

**$C_9H_{11}AsN_2O_3$** Acetamide, α - (*p* - arsenosobenzylamino)-, *and salts*, P 4694*h*.

**$C_9H_{11}AsO_4$** Acetic acid, (*p* - arsonophenoxy)-, Me ester, 3364*e*.

**$C_9H_{11}AuN_2O_8S_2$** Acetamide, α-(auromercapto) - *N* - *p* - sulfamylbenzyl-, 1347*h*.

**$C_9H_{11}BaN_2O_8P$** Deaminated nucleotide, Ba deriv., 2170*g*.

**$C_9H_{11}Br$** Mesitylene, 2-bromo-, 5011*d*.
Toluene, *m*-(2-bromoethyl)-, 6609*c*.

**$C_9H_{11}BrIN$** 3 - Bromo - 5 - isopropenyl-1-methylpyridinium iodide, 217*d*.

**$C_9H_{11}BrN_2O_4$** Pyridine, 2-bromo-3,5 diethoxy-6-nitro-, 3824*e*.

**$C_9H_{11}BrN_2O_6$** Uracil, 1-arabinosyl-5-bromo-, 716*f*.
Uracil, 1-ribosyl-5-bromo-, 716*f*.

**$C_9H_{11}BrN_4O_2$** Xanthine 8-(bromomethyl)-1,3,7-trimethyl-, 3794*f*.

**$C_9H_{11}BrO_3$** 1,2 - Propanediol, 3-(bromophenoxy)-, 312*a*, 5655*e*.

**$C_9H_{11}Br_2NO_2$** Pyridine, 2,6-dibromo-3,5-diethoxy-, 3824*a*.

**$C_9H_{11}Cl$** Benzene, (3-chloropropyl)-, 8282*c*.

**$C_9H_{11}ClN_2O_6$** Uracil, 1-arabinosyl-5-chloro-, 716*f*.
Uracil, 1-ribosyl 5-chloro-, 716*f*.

**$C_9H_{11}ClN_4O_2$** Xanthine, 8-(chloromethyl)-1,3,7-trimethyl-, 3794*f*.

**$C_9H_{11}ClN_4O_3$** Urea, 1,1′ - (5 - chlorosalicylidene)di-, 6182*d*.

**$C_9H_{11}ClN_4O_4$** Glycine, *N* - (2 - chloro - 6-methyl - 5 - nitro - 4 - pyrimidyl)-, Et ester, P 9087*e*.

**$C_9H_{11}ClN_4S$** Pseudourea, 3-(*p*-chlorophenylguanyl) - 2 - methyl - 2 - thio-, *- HI*, 2950*d*.
Urea, 1 - (*p* - chlorophenylguanyl) - 3-methyl-2-thio-, *and - HCl*, 2949*h*.

**$C_9H_{11}ClO$** Bicyclo[2.2.1] - 5 - heptene - 2-carbonyl chloride, 2-methyl-, 3373*s*.
Ether, 2-chloroethyl tolyl, P 7960*c*.
—, 3 - chloropropyl phenyl, 129*c*.

**$C_9H_{11}ClO_2$** Homoveratrole, α-chloro-, 2970*d*.

**$C_9H_{11}ClO_2S$** Sulfone, 2-chloropropyl phenyl, 9049*i*.

**$C_9H_{11}ClO_3$** 1,2 - Propanediol, 3-(chlorophenoxy)-, 312*a*, P 4696*g*, P 4807*f*, 5655*e*, P 5794*g*, P 7508*g*.

**$C_9H_{11}ClS$** Sulfide, benzyl 2-chloroethyl, 707*bf*, 2928*g*.
Sulfide, 2-chloroisopropyl phenyl, 9049*h*.
—, chloropropyl phenyl, 129*c*, 9049*i*.
—, $\alpha^1$ - chloro - 2,4 - xylyl methyl, 1746*c*.

**$C_9H_{11}Cl_2N_5$** Biguanide, 1-(2,4-dichloro-methyl-, *- HCl*, 7905*e*.
-3-*d*-1-ol, 3-phenyl-, 604*b*.
-S Ethanol, 2-fluoro-, *p*-toluenesulfonate, 2927*g*, 6164*b*.

**$C_9H_{11}FO_4$** 4 - Cyclohexene - 1,2 - dicarboxylic acid, 4-fluoro-5-methyl-, P 2218*g*.

**$C_9H_{11}IMg$** Mesitylmagnesium iodide, 1351*d*

**$C_9H_{11}IO_2$** 1,2-Propanediol, 3-(*o*-iodophenoxy)-, 5655*e*.

**$C_9H_{11}N$** Cyclohexenecarbonitrile vinyl-4217*i*, 4218*c*.
Ethylamine, *N* benzylidene-, 1340*i*.
Indoline, methyl-, 2165*a*, 8385*e*.
Isoquinoline, tetrahydro-, 4279*d*, P 6672*d*, P 7518*a*, 8365*f*.
Quinoline, tetrahydro-, 955*d*, 2845*fh*, 8365*f*, 8387*b*.

**$C_9H_{11}NO$** (See also *Benzaldehyde, p-dimethylamino-*.)
Acetamide, *N*-benzyl-, P 5800*e*, 6596*a*.
Acetanilide, *N*-methyl-, 1312*f*.
Acetimidic acid, *N*-methyl-, Ph ester, 2594*f*.
Acetophenone, 2-aminomethyl-, 1781*df*.
—, *p*-methyl-, oxime, 4651*a*.
Acetotoluidide, 2325*c*, P 3845*g*, 4651*b*, 6718*i*.
Benzamide, *N*, *N*-dimethyl , P 689*a*.
—, ethyl-, 4218*c*, 8274*g*, 8367*e*.
1,4,2*H* - Benzoxazine, 3,4 - dihydro-3-methyl-, P 2782*b*, 8365*f*.
1-Butanone, 1-(3-pyridyl)-, 643*c*, 8367*g*
2,3 Formoxylidide, 7439*f*.
Hydratropamide, P 2233*d*
Hydrocinnamamide, P 2233*d*, P 3028*a*.
3 - Isoquinolinol, 5,6,7,8 - tetrahydro-, P 6672*e*.
Oxazolidine, 2-phenyl-, 8365*f*.
2-Propanone, 1-amino-3-phenyl-, *- HCl*, 635*a*.
Propiophenone, oxime, 6178*c*
—, *m*-amino-, *and - HCl*, 6606*b*

**$C_9H_{11}NOS$** Benzamide, *N*-2-hydroxyethylthio-, 3014*g*.
Benzamide, *N*-2-mercaptoethyl-, 3015*a*.
Carbamic acid, thiol-, Et ester, 4415*b*.
—, thiono-, Et ester, 3107*d*.

**$C_9H_{11}NO_2$** (See also *Alanine, phenyl-; Benzocaine* )
Acetamide, *N*-*p*-hydroxybenzyl-, 2702*e*.
*m*-Acetanisidide, 2618*h*.
Acetophenone, amino-4-hydroxymethyl-, 3385*f*; *- HBr*, P 5044*e*.
—, *m* - hydroxy - α - methylamino , P 3460*e*.
—, *p*-methoxy-, oxime, 7001*a*.
Acetotoluidide, hydroxy-, P 3204*i*, P 4482*g*, P 4867*a*, P 5194*b*, P 9401*b*.
β-Alanine, *N*-phenyl-, 8380*b*.
Anthranilic acid, Et ester, 7446*g*, 7448*a*.
—, *N*-ethyl-, 1344*g*
—, *N* methyl-, Me ester, 4574*h*
Benzamide, *N*-2-hydroxyethyl-, 3014*f*
Benzoic acid, amino-, Et ester, 7446*g*, 9171*ceg*.
—, dimethylamino-, 1349*d*, P 3463*f*
—, *p*-ethylamino-, 1344*h*.
Carbamic acid, Et ester, 1619*f*, P 1904*d*, 3107*d*, 4346*i*, 4415*b*, 7143*h*, 7441*bf*.
3 - Cyclohexene - 1 - carboxylic acid, 1-cyano-, Me ester, P 6222*f*.
Ethanol, 2-amino-, benzoate, *- HCl*, 3014*f*.
—, 2-salicylideneamino-, 4235*c*.
Glycine, *N* benzyl , *- HCl*, 7479*i*.
Homoanisaldehyde, oxime, 7417*i*.
Hydrocinnamic acid, β amino , 3821*d*.
1,3 - Isoquinolinediol, 5,6,7,8-tetrahydro-, 4279*c*.
Lactanilide, P 3447*a*.
Mesitylene, nitro-, 1312*e*, 4586*b*.
Nicotinic acid, iso-Pr ester, 2622*g*, 6316*h*, 6317*d*; Pr ester, 2622*g*, 6316*h*
2-Propanone, 1-hydroxy - 1 - phenyl-, oxime, 2602*h*.
Propionic acid, 3-pyridylmethyl ester, P 8105*h*.
*p*-Pseudocumoquinone, 1-oxime, 180*b*.
2-Pyridineacetic acid, Et ester, 4269*h*, 7022*g*.
2(1*H*) - Pyridone, 6 - acetonyl - 1-methyl-, 6629*f*.

**$C_9H_{11}NO_2S$** Acetic acid, [2 - (2 - pyridyl)-ethylmercapto]-, *phosphate*, 3305*a*.
Benzenesulfonamide, *N* - methyl - *N*-vinyl-, P 8212*a*.
Benzoic acid, 4-amino-3-mercapto-, Et ester, 767*b*.
Cysteine, β-phenyl-, *- HCl*, P 692*h*, 1402*a*; *and - HCl*, 1399*e*.
1-Propene-1-sulfonanilide, 7411*i*.
2,4 - Thiazolidinedione, 5-(1-cyclohexen-1-yl)-, 3820*e*.
Thiophene, 2-(2-nitrovinyl)-5-propyl-, 9063*h*.

**$C_9H_{11}NO_3$** (See also *Tyrosine*.)
Acetic acid, (3-amino-*p*-toloxy)-, P 5061*d*.
Adrenalone, 3175, 1480*c*, 2072*d*, 7196*i*, 9250*e*; *and - HCl*, 2603*i*.
Benzyl alcohol, *p*-methyl-α-nitromethyl-, P 5803*e*.
Formanilide, 3,4-dimethoxy-, 2177*fi*.
Glycine, *N*-(*m*-methoxyphenyl)-, P 8151*g*.
Phenol, 2-nitro-4-propyl-, 6616*d*.
2 - Pyridineacetic acid, 1,6-dihydro-1-methyl-6-oxo-, Me ester, 6628*g*.
1(2*H*) - Pyridinepropionic acid, 6-methyl-2-oxo-, 6630*d*.
*o*-Quinone, 4-(1-hydroxy-2-methylaminoethyl)-, 3111*e*.
Salicylic acid, 4-amino-, Et ester, 6596*e*.
Serine, phenyl-, 8001*c*.
Veratramide, P 3452*b*.

**$C_9H_{11}NO_3S$** Acetamide, α - [*p* - (methylsulfonyl)phenyl]-, 1739*f*.
Acetone, oxime, benzenesulfonate, 2594*d*
Acetophenone, oxime, methanesulfonate, 2594*c*.
Benzamide, *N* - (ethylsulfonyl)-, 120*g*.
Formamide, *N* - [*p* - (methylsulfonyl)-benzyl]-, 8539*e*.
2-Propanone, 1-sulfanilyl-, 2593*e*.
2-Thiophenealanine, *N*-acetyl-, 6613*d*.

**$C_9H_{11}NO_4$** (See also *Alanine, (dihydroxyphenyl)-*.)
Anisyl alcohol, α-nitromethyl-, 7453*f*.
Gentisamide, *N* - 2 - hydroxyethyl-, P 3979*c*, P 5045*d*.
Homoveratrole, 5-nitro-, 5926*b*.
*o*-Homoveratrole, 4-nitro-, 8675*b*.
2,3,5,6 - Indolinetetrol, 1-methyl-, 3404*i*.
1 - Pentanone, 1-(5 nitro-2-furyl)-, 2869*e*.
2,4 - Pyrroledicarboxylic acid, 3-methyl-, 2-Et ester, 623*d*.

**$C_9H_{11}NO_4S$** Acetophenone, *p*-methyl-, oxime, sulfate, 4651*b*.
Benzenesulfonic acid, 1-carbamylethyl ester, 2942*c*.
Benzoic acid, (dimethylsulfamyl)-, P 863*g*.
—, *p*-(ethylsulfamyl)-, P 863*i*.
Fumaric acid, thiocyano-, di-Et ester, 9334*g*.
Hydrocinnamic acid, *p*-sulfamyl-, 7450*d*.
2,4 - Thiazoledicarboxylic acid, di-Et ester, 5021*d*.
*p* Toluenesulfonic acid, carbamylmethyl ester, 2942*c*.

**$C_9H_{11}NO_4S_2$** Carbonic acid, thiol-, *O*-Et ester, ester with 4 (ethoxymethylene) - 2 - mercapto - 5(4*H*) - thiazolone, 1399*c*.

**$C_9H_{11}NO_5$** 1,2 - Propanediol, 3-(*m*-nitrophenoxy)-, 311*h*.
Serine, β-(3,4-dihydroxyphenyl)-, 2691*e*

**$C_9H_{11}NO_5S$** Alanine, β - (4 - hydroxy - 3-sulfophenyl)-, *Na salt*, 1673*a*.

**$C_9H_{11}NS_2$** Carbanilic acid, ethyldithio-, *salts*, 1111*g*; *Zn salt*, 6856*h*.

**$C_9H_{11}N_3$** Benzimidazole, 6-amino-1,2-dimethyl-, P 7236*e*.
Benzimidazole, 2-(2 - aminoethyl) , 3520*i*.

**$C_9H_{11}N_3O$** Acetophenone, semicarbazone, 2850*d*.
Benzamide, *N*-(guanylmethyl)-, P 3473*c*, *- HCl*, P 672*i*.
Tolualdehyde, semicarbazone, 5761*b*, 6585*a*.

**$C_9H_{11}N_3OS$** Anisaldehyde, thiosemicarbazone, 7576*i*.
Glyoxylamide, (*p* - methylmercaptophenyl)hydrazone, P 511*h*.

**$C_9H_{11}N_3O_2$** Semioxamazide, 5-methyl-1-phenyl-, P 5530*c*.
Urea, 1-ethyl-3-(3-pyridylcarbonyl)-, 6162*f*.

**$C_9H_{11}N_3O_2S$** Benzenesulfonamide, *N*-2-imidazolin-2-yl-, P 6670*f*.

**$C_9H_{11}N_3O_3$** Acetotoluidide, aminonitro-, 592*f*, 5755*e*.
Mesitylenic acid, 4-nitro-, hydrazide, 6972*g*.
2-Propanone, (2-amino-4-nitrophenyl)-, oxime, 1742*b*.
5-Pyrimidinecarboxylic acid, 4-acetamido - 2 - methyl-, Me 1823*a*.
Urea, 1-(2-carbamylmethoxyphenyl)-, 2961*e*.

**$C_9H_{11}N_3O_3S_2$** Urea, 1-(*N*-acetylsulfanilyl)-3-thio-, P 686*f*.

**$C_9H_{11}N_3O_4$** Ketone, 2-furyl hydroxymethyl, semicarbazone, acetate, 1392*b*.
2 - Pyrazolin - 5 - ol, 1 - acetyl - (acetylimino)-, acetate, 4272*g*.
5 - Pyrazolol, 3-acetamido-1-acetyl-, acetate, 4272*g*.

**-benzenesulfonamide, *p* - nitro - *N*-propionimidyl-, P 6660*i*.**
**$C_9H_{11}NO_2$ Pyridine, 3,5-diethoxy-2,6-dinitro-, 3825*a*.**
**$C_9H_{11}NO_3S$ Methanesulfonic acid, (*o*-nitrophenylcarbamylmethylamino)-, 6586*i*.**
Taurine, *N* - [(*p* - nitrophenyl)carbamyl]-, 168*g*.
**$C_9H_{11}N_2S$ Urea, 1-allyl-3-(pyridyl)-2-thio-, 548*e*.**
**$C_9H_{11}N_3$ Guanidine, (5-methyl-2-benzimidazolyl)-, *di*-*HCl*, 1405*b*.**
1*H* - Tetrazole, (*m* - aminophenyl)-ethyl-, 1855*c*.
—, 5 - (methylaminomethyl) - 1-phenyl-, 1864*h*; -*HCl*, P 7972*d*.
**$C_9H_{11}N_3O$ Guanidine, (5-methoxy-2-benzimidazolyl)-, *and di*-*HCl*, 1405*b*.**
**$C_9H_{11}N_3O_3$ Acetanilide, *p*-3-nitroguanidino-, 9035*h*.**
Glycine, *N* - (7,8 - dihydro - 6 - hydroxy-2-pteridyl)-, Me ester, P 9087*f*.
8-Purinecarboxaldehyde, 1,2,3,6-tetrahydro - 1,3,7 - trimethyl - 2,6 - dioxo-, oxime, 3794*h*.
**$C_9H_{11}NO_2$ Acetamidine, *N*-methyl picrate, 2594*d*.**
**$C_9H_{11}NO_4Sb$ Benzenestibonic acid, *p*-(4,6 diamino - *s* - triazin - 2 - ylamino)-, P 4705*e*.**
**$C_9H_{12}$ (See also *Benzene, propyl-; Cumene, Mesitylene; Pseudocumene*.)**
Benzene, trimethyl-, P 3439*b*, 5370*d*
Hemimellitene, 164*e*, 2481*h*, 2923*g*.
1,5 Heptadien - 3 - yne, 2,5 - dimethyl-, 1332*g*.
—, 5 ethyl-, 115*f*.
1,5 Octadien - 3 - yne, 5-methyl-, 115*f*.
Toluene, ethyl-, 164*e*, P 2228*g*, 4453*g*, 4573*g*, 5012*e*, 5275*e*, 5377*a*.
**$C_9H_{12}AsNO_3S_2$ Benzenearsonous acid, 3 amino - 4 - hydroxydithio-, 3 hydroxypropylene ester (cyclic), 3931*b*.**
**$C_9H_{12}AsNO_4$ *p* - Toluenearsonic acid, *o*-acetamido-, 176*e*.**
**$C_9H_{12}AsNO_5$ Glycine, *N* - (*p* - arsono benzyl)-, P 5041*d*.**
**$C_9H_{12}BaN_2O_8P$ Cytosine, 2'-phosphate, Ba deriv., 2170*e*.**
**$C_9H_{12}BrCl_3$ Bicyclo[2.2.2]octane, 2-bromo-(tribromomethyl)-, 4630*e*, 4637*a*.**
**$C_9H_{12}BrN$ 2,4 Xylidine, 6-bromo-*N*-methyl-, 1342*e*, 1343*a*.**
**$C_9H_{12}BrNO_2$ 3 - Carboxy - 1 - methylpyridinium bromide, Et ester, 2622*f*, 6577*h*.**
Pyridine, 4-bromo-3,5-diethoxy-, 3824*b*.
**$C_9H_{12}BrN_5$ Biguanide, 1 (*p* bromophenyl)-5-methyl-, *HCl*, P 4692*a*, 9036*e*.**
**$C_9H_{12}ClN$ 2,4 Lutidine, 6-chloro-3 ethyl-, 1427*e*.**
**$C_9H_{12}ClNO_2$ 1 - (Carboxymethyl)pyridinium chloride, Et ester, 6977*b*.**
**$C_9H_{12}ClNO_2S$ Ethanesulfonotoluidide, 1-chloro-, 6568*a*.**
**$C_9H_{12}ClNO_3S$ *m* - Methanesulfonophenetidide, 4-chloro-, 6566*a*.**
**$C_9H_{12}ClN_3$ Guanidine, 1-(*p*-chlorophenyl)-3-ethyl-, 9039*e*.**
**$C_9H_{12}ClN_5$ Biguanide, 1 (*p*-chlorophenyl)-5-methyl-, 2951*a*, P 6659*g*, 9036*d*.**
*HCl*, P 6684*g* *and* -*HCl*, P 4691*e*.
s-Triazine, 2-amino-4-chloro-6-(diallylamino)-, 1426*e*.
—, 2,4 - bis(allylamino) - 6 - chloro-, 1426*d*.
**$C_9H_{12}Cl_2O$ Ether, 4-(dichloromethylene)-2-cyclohexen-1-yl ethyl, 4636*i*.**
**$C_9H_{12}Cl_2O_2$ Bicyclo[4.2.0]-2 octenal, 7,8 dichloromethoxy-, 6197*g*.**
**$C_9H_{12}Cl_3N$ Triallylamine, 3,3',3''-trichloro-, 2928.**
**$C_9H_{12}FN$ Phenethylamine, *p*-fluoro-*N*-methyl-, 759*d*.**
**$C_9H_{12}FNO_3S$ *p* - Toluenesulfonamide, *N*-2-fluoroethyl-, 2927*f*.**
**$C_9H_{12}IN$ 2,4 - Xylidine, 6-iodo-*N*-methyl-, 1343*b*.**
**$C_9H_{12}INO_2$ 3-Carboxy-1-methylpyridinium iodide, Et ester, 2622*f*, 6577*h*.**
**$C_9H_{12}I_2$ Mesitylene, compd. with I, 7824*i*.**
**$C_9H_{12}N_2S_2$ 4,4' - Methylenebis[3 - methyl-thiazolium iodide], 7931*h*.**
**$C_9H_{12}NNaO_3S$ *p* - Toluenesulfonamide, *N*-2-hydroxyethyl-, Na deriv., 2943*g*.**
**$C_9H_{12}N_2$ (See also *Nicotine*.)**
Acetaldehyde, *p*-tolylhydrazone, 1343*d*.
Acetamidine, *N*-methyl-*N'*-phenyl-, 2594*e*.
Acetone, phenylhydrazone, 1037*e*.
Benzaldehyde, dimethylhydrazone, *and chloroplatinate*, 5891*h*; ethylhydrazone, 124*a*.
4,5-Indandiamine, 616*i*.
**$C_9H_{12}N_2O$ Acetamide, *N* - (*p* - aminobenzyl)-, *and di*-*HCl*, 1765.**
Acetamide, α-methylamino-α-phenyl-, 9032*i*.
*o*-Acetotoluidide, 4-amino-, P 6452*g*, P 6426*e*.
1-Butanone, 1-(3-pyridyl)-, 4345*g*.
Carbostyril, 4-amino - 5,6,7,8 - tetrahydro-, 9068*g*.
Nicotinamide, 2-ethylidene-1,2-dihydro-1-methyl-, 705*e*.
—, *N*-isopropyl-, 5025*e*.
—, *N*-propyl-, 5025*e*.
4 - Oxazolecarbonitrile, 2-amyl-, 2203.
Propionamide, α - amino - α - phenyl-, 9032*a*.
—, α-anilino-, 9032*i*
—, *N* - (2 - cyanocyclopentylidene)-, 9068*e*.
Pseudourea, 2-ethylphenyl, 6082*b*.
Pyridine, 3-acetamido-5-ethoxy-, 641*e*.
1,5*H* - Pyrindin - 2 - ol, 4 - amino - 6,7-dihydro-3-methyl-, 9068*e*.
**$C_9H_{12}N_2OS$ 4(3*H*) - Pyrimidone, allyl-6-methyl - 2 - methylmercapto-, 6985*g*.**
**$C_9H_{12}N_2O_2$ (See also *Dulcin*.)**
Acetanisidide, amino-, 2618*a*, P 8156*i*.
Benzamidine, acetate, P 2230*h*, P 5038*f*.
Pilosinine, 2625*e*
Pyridineacetamide, *N* - 2 hydroxyethyl-, 3364*b*.
Pyridine, 2 - acetamido - 5 ethoxy-, 6626*b*.
Salicylamide, 4-amino - *N* - ethyl-, 6596*g*.
2,4 Xylidine, *N* - methyl - 5 - nitro-, 1343*e*.
**$C_9H_{12}N_2O_2S$ Acetamidine, α-(*p*-methylsulfonylphenyl)-, -*HCl*, 1730*h*.**
Benzenesulfonamide, *N* - (*N*-methyl acetimido)-, 2594*g*.
Pyridine, 2 - (butylmercapto) - 5-nitro-, 2906*b*.
*p* - Toluamidine, α-(methylsulfonyl)-, -*HCl*, 1739*f*.
Uracil, 5-ethyl-6-methyl-2-thio-, reaction product with HCHO, 3013*i*.
**$C_9H_{12}N_2O_3$ Aniline, nitropropoxy-, 166*a*, 2593*e*, P 5799*h*, 8099*b*, -*HCl*, P 5799*h*, *and HCl*, 8437*e*.**
Phenetidine, methylnitro-, 167*g*, 7918*b*.
Pyrazinoic acid, 3,6-diethyl-5-hydroxy-, 3006*d*
*f* Quinone, ethoxymethyloxime oxime, 5623*d*
Serine, *S*-(*p*-aminophenyl)-, 7456*b*
Tyramine, *N* methyl-3-nitro-, 6597*e*
**$C_9H_{12}N_2O_3S$ Acetamide, *N*-*p*-sulfamylbenzyl-, 8539*e*.**
Methanesulfinic acid, [6 - (allyloxy) 3-pyridylamino]-, *Na salt*, P 3471*a*
Propionamide, *N*-sulfanilyl-, 3097*e*
**$C_9H_{12}N_2O_4S$ Acetamide, α-mercapto-*N*-*p* sulfamylbenzyl-, 1347*h*.**
**$C_9H_{12}N_2O_4$ Pyridine, 3,5-diethoxy-2-nitro-, 3825*a*.**
**$C_9H_{12}N_2O_4S$ Acetamide, *N* - [*N* (hydroxymethyl)sulfamyl]-, 7077*d*.**
Acetamide, α-methoxy-*N*-sulfanilyl-, P 3035*a*.
Alanine, *S* - *p* - sulfamylphenyl-, 8810*b*, *HCl*, 7450*b*.
Benzenesulfonamide, *N*-isopropylnitro-, 4630*d*
—, nitro *N*-propyl-, 4630*d*.
Carbamic acid, sulfanilyl-, Et ester, P 7044*e*.
Methanesulfonic acid, [6 - (allyloxy)-3 - pyridylamino]-, *and alkali metal salts*, P 3470*h*.
—, (phenylcarbamylmethylamino)-, 6586*h*.
Pyridine, 2 - (butylsulfonyl) - 5 - nitro-, 2906*e*.
**$C_9H_{12}N_2O_5$ 4 - Imidazolidinecaproic acid, δ,2,5-trioxo-, P 5426*g*.**
5 - Pyrimidinepropionic acid, hexahydro-β - methyl - 2,4,6 - trioxo-, Me ester, P 1799*i*.
—, hexahydro - 2,4,6 - trioxo-, Et ester, P 1800*a*.
**$C_9H_{12}N_2O_6$ (See also *Uridine*.)**
Uracil, 1-arabinosyl-, 716*f*.
—, 1-ribosyl-, 716*f*.
**$C_9H_{12}N_2O_6S$ Carbanilic acid, 3-amino-hydroxy-5-sulfo-, Et ester, P 5961*ab*.**
**$C_9H_{12}N_2O_7$ Aspartic acid, *N*-(*N*-pyruvyl-...)-, 4643*b*.**
Compd. from lycomarasmine, 4643*a*.
**$C_9H_{12}N_2O_8$ 2 - Oxazolidone, 4,4-bis(hydroxymethyl) - 3 - nitro-, diacetate, 6575*h*.**
**$C_9H_{12}N_2S$ 2-Imidazoline, 2-(5-methyl-3-thenyl)-, P 3042*f*.**
*p* - Toluamidine, α - methylmercapto-, -*HCl*, 1739*d*.
**$C_9H_{12}N_2S_2$ Urea, 1-[(benzylmercapto)-methyl]-2-thio-, 7410*b*.**
**$C_9H_{12}N_2NaO_4S$ Hydantoic acid, 5-carboxy - α - cyano - γ - thio-, di-Et ester, Na deriv., 1403*f*.**
**$C_9H_{12}N_4O_2$ Guanidine, 1-α-methylbenzyl-3-nitro-, 9035*f*.**
Guanidine, 1-nitro-3-phenethyl-, 9035*f*.
—, 1-nitro-3-(2,5-xylyl)-, 9035*h*.
5*H* - *p* - Oxazino[2,3-*d*]pyrimidin - 6-ol, 2-dimethylamino-4-methyl-, 3423*h*.
Urea, (2-methyl-*p*-phenylene)di-, 8545*h*.
Xanthine, 1,3,7,8 - tetramethyl-, P 3452*e*.
**$C_9H_{12}N_4O_2S$ Oxamic acid, *N*-(4-amino-2-ethyl - 5 - pyrimidylmethyl)thio-, P 3042*a*.**
Sulfanilamide, *N*'-2-imidazolin-2-yl-, P 6670*e*.
**$C_9H_{12}N_4O_3$ Guanidine, 1-nitro-3-phenetyl-, 9035*g*.**
Uric acid, 1,3,7,9-tetramethyl-, 3077.
Xanthine, 8 - (hydroxymethyl) - 1,3,7-trimethyl-, 3794*e*.
**$C_9H_{12}N_4O_3S$ Acetanilide, *p*-(cyanosulfamyl)-, $NH_4$ deriv., P 4298*b*.**
Acetanilide, *p* - (guanylsulfamyl)-, P 1060*h*, P 2037*h*, P 4298*b*, P 7965*d*.
**$C_9H_{12}N_4O_3S$ Benzenesulfonamide, 2-amino-*N* - 2 - methoxyethyl - 3,5-dinitro-, P 2781*h*.**
**$C_9H_{12}N_4O_3$ Guanidine, 1,1-dimethyl-, picrate, 2950*c*.**
**$C_9H_{12}N_6$ *s* - Triazine, 2,2' - (methylene-ethylene)bis[4,6 - diamino-, P 1814*e*.**
**$C_9H_{12}O$ Benzyl alcohol, dimethyl-, 1718*f*, 1741*i*, P 4624*de*, 5403*f*.**
Benzyl alcohol, α-ethyl-, P 4624*d*.
Cresol, ethyl, 1028*h*, 2969*a*, 3385*h*, 7788*i*.
Ether, benzyl ethyl, 6622*c*.
—, isopropyl phenyl, 2590*b*.
—, methyl α-methylbenzyl, 6195*i*.
—, phenyl propyl, 2535*c*, 2590*b*.
Furan, 2 - (3 - buten - 1 - ynyl)tetrahydro-2-methyl-, 2163*a*.
3,4,5-Hemimellitenol, 9043*i*
6 - Hepten - 4 - yn - 2 - ol, 2 - methyl-3-methylene-, 2162*h*.
6 - Hepten - 4 - yn - 2 - one, 3,3-dimethyl-, 2162*h*.
1 Indanone, 4,5,6,7 - tetrahydro-, 590*g*.
Isopseudocumenol, 9044*a*.
Ketone, methyl 2 - methyl - 1,4 - cyclohexadien-1-yl, 7416*a*.
Mesitol, 5995*b*, 6105*e*.
Phenol, *p*-propyl-, 6616*b*, 8675*e*.
—, 2,3,6-trimethyl-, 7405*e*.
1-Propanol, 3-phenyl-, 572*d*, 604*a*, 1312*f*, 2570*g*, 8797*f*.
Pseudocumenol, 1028*a*.
**$C_9H_{12}OS$ Benzyl alcohol, α-(methylmercaptomethyl)-, 6574*a*.**
Benzyl alcohol, 5-methyl-2-methylmercapto-, 7474*h*.
Ethanol, 2-(benzylmercapto)-, 1321*c*.
1-Propanol, 2-phenylmercapto-, 9049*i*.
**$C_9H_{12}O_2$ Bicyclo[2.2.1] - 5 - heptene-2-carboxylic acid, 2-methyl-, 3373*i*.**
Cresol, 3-ethoxy-, P 252*b*.
Cresorcinol, 5-ethyl-, 9066*e*.
2,4-Cyclohexadiene-1-carboxylic acid, Et ester, 6203*b*.
2 - Cyclopenten - 1 - one, 2 - allyl - 4-hydroxy-3-methyl-, 5751*i*.
1,2 Ethanediol, tolyl-, P 6664*a*, P 5153*e*.
Ethanol, 2-(benzyloxy)-, P 674*a*, P 5153*e*.
—, 2-toloxy-, P 7960*e*.
2 - Hexen - 5 - yn - 1 - ol, 3-methyl-, acetate, P 9083*e*.
Homoveratrole, 5926*b*, P 7500*h*.
Hydroperoxide, α,α-dimethylbenzyl, P 3459*e*, 5987*g*, 8723*f*, 8727*f*.
Ketone, methyl 4-methyl-7-oxabicyclo-[4.1.0]-3-hepten-3-yl, 7416*b*.
2-Nonen-4-ynoic acid, 7415*d*.
Phenethyl alcohol, *m*-methoxy-, 7033*d*.
1,3-Propanediol, phenyl-, 572*a*, 604*d*, 8546*i*.
Propanol, phenoxy-, 1348*d*.
1-Propanone, 1-(2,5-dimethyl-3-furyl)-, 6204*d*.
Pseudocumohydroquinone, P 893*e*, 5271*f*.
Resorcinol, 5-ethyl-2-methyl-, 2185*b*.
Sorbic acid, isopropenyl ester, P 7038*e*.
3,5-Xylenol, 4-methoxy-, 3387*b*.
**$C_9H_{12}O_2S$ 1,2-Propanediol, 3-phenylmercapto-, 312*e*.**
3. - Thiophenepropionic acid, 2,5-dimethyl-, 4066*h*.
**$C_9H_{12}O_2Si$ + $H_2O$ 3-Thiophenesilicoxyaldehyde, 5-(trimethylsilyl)-, 9065*d*.**

**$C_9H_{12}O_2S_2$** *p* - Toluhydroquinone, 3,5-bis(methylmercapto)-(?), 2620*e*.

**$C_9H_{12}O_3$** Benzene, trimethoxy-, 1772*i*, 2598*e*.
Benzyl alcohol, 3,5-dimethoxy-, 8383*i*.
Cyclohexanecarboxaldehyde, 4,4-dimethyl-2,6-dioxo-, 2965*a*.
1,2 - Ethanediol, (*p*-methoxyphenyl)-, 4240*f*.
3 - Furoic acid, 2,5-diethyl-, 2938*c*.
$\alpha^1,\alpha^3$ - Mesitylenediol, hydroxy-, P 3227*g*, 7746*g*.
$\alpha^1,\alpha^3,\alpha^5$-Mesitylenetriol, 6202*h*.
Propanediol, phenoxy-, 311*h*, 570*a*, 5655*e*.
$\alpha^1,\alpha^2,\alpha^4$ - Pseudocumenetriol, 6202*h*.
Sorbic acid, glycidol ester, P 3240*h*.

**$C_9H_{12}O_3S$** Ethanol, 2-*p*-tolylsulfonyl-, 7421*b*.
*α*-Toluenesulfonic acid, *α* ethyl-, 5763*h*.

**$C_9H_{12}O_3Si$** + $H_2O$ 2 Furanglyoxylaldehyde, 5-(trimethylsilyl)-, 9065*e*.

**$C_9H_{12}O_4$** Benzyl alcohol, 4-hydroxy-3,5-dimethoxy-, P 9447*b*.
2 - Cyclobutene - 1 - carboxylic acid, 2-hydroxy - 1,3 - dimethyl - 4 - oxo-, Et ester, 1320*e*.
1-Cyclohexene - 1 - acetic acid, 2-carboxy-, 4279*b*.
*α,α',α''* - Hemimellitenetriol, hydroxy-(?), P 6235*d*.
2-Heptenoic acid, 2,4-dihydroxy-, *γ*-lactone, acetate, 4221*i*.
Malonic acid, 2-hexynyl, 6573*a*.
*α,α',α''* - Mesitylenetriol, hydroxy (?), P 6235*d*.
Methacrylic acid, ester with 3 hydroxy 2,4-pentanedione, P 2634*g*.
Phenol, trimethylol-, P 8137*b*.
Pimelic acid, *β,δ* - dihydroxy - *β,δ*-dimethyl-, dilactone, P 1056*ab*.
1,2-Propanediol, 3-(hydroxyphenoxy) , 311*i*, 5655*e*.
$\alpha^1,\alpha^2,\alpha^4$ - Pseudocumenetriol, hydroxy-(?), P 6235*d*.

**$C_9H_{12}O_5$** Caproic acid, *ε*-ethoxy - *β*-(hydroxymethyl) - *α,γ* - dioxo-, *γ*-lactone, 1406*i*.
Caproic acid, *β* 1-hydroxyethoxyl-*ε*-methoxy - *α,γ* - dioxo-, *γ* - lactone, 1406*i*.
Carolic acid, 1110*d*, 7138*h*.

**$C_9H_{12}O_3S$** Thiophene - 3 - ol, 2,3-dihydro-, 1,1 - dioxide, ester with 2-methylallyl H carbonate, P 691*b*

**$C_9H_{12}O_6$** 1,3,5 - Cyclohexanetricarboxylic acid, 3797*g*.
Hemimellitic acid, tri-Me ester, 376*i*.

**$C_9H_{12}S$** Benzenethiol, 3-ethyl-5-methyl-, P 1063*b*.
Sulfide, isopropyl phenyl, 2956*f*.
—, phenyl propyl, 2956*f*.

**$C_9H_{12}AsN_2O_4$** *p* - Toluenearsonic acid, *α* [(carbamylmethyl)amino]-, P 4694*i*, *and salts*, P 5041*b*.

**$C_9H_{12}BrINO$** 3 - Bromo - 5 - (1 - hydroxyisopropyl) - 1 - methylpyridinium iodide, 217*c*.

**$C_9H_{12}BrN_3$** 2,4 - Mesitylenediamine, bromo-, 1735*c*.

**$C_9H_{12}BrN_3O_2$** 3 - Hydroxy - 1 - methylpyridinium bromide, dimethylcarbamate, P 4702*f*, P 5050*d*, P 6671*h*, 9261*b*.
Pyridine, 2 - amino - 6 - bromo-3,5-diethoxy-, 3824*f*.

**$C_9H_{13}BrO_2$** Acrylic acid, *α*-bromo-, cyclohexyl ester, P 3027*c*.

**$C_9H_{13}ClN_2O$** 1 - (1 - Formylisopropyl)-pyridinium chloride, oxime, P 7498*i*

**$C_9H_{14}ClN_3O_7$** Serine, chloroacetylaspartyl , 4643*f*

**$C_9H_{12}ClN_3O_2$** 4 - Pyrimidol, 5 - *α* - chloroacetamido - 2 - dimethylamino 6-methyl-, 3423*h*.

**$C_9H_{13}ClO$** 1 - Propanone, 1 - (2 - chloro-1 cyclohexen-1-yl)-, P 6230*i*

**$C_9H_{13}ClO_2$** Acrylic acid, *α*-chloro-, cyclohexyl ester, P 3027*c*.
3 - Cyclohexene - 1 - carboxylic acid, chloro-1-methyl-, Me ester, 3373*h*.

**$C_9H_{13}ClSi$** Silane, (chloromethyl)dimethyl phenyl-, 5003*f*.
Silane, (*p* - chlorophenyl)trimethyl-, 8223*c*, 8366*f*.

**$C_9H_{13}Cl_2NO$** Furfurylamine, *N, N*-bis(2-chloroethyl)-, 5505*c*.

**$C_9H_{12}Cl_3$** Cyclopentane, (1,2,4 - trichloro-3 butenyl)-, 9024*i*.

**$C_9H_{13}FSi$** Silane, (*p*-fluorophenyl)trimethyl-, 8223*c*.

**$C_9H_{13}HgNO_3$** Succinimide, *N*-[3-(acetoxymercuri) - 2 - hydroxypropyl]-, 7922*a*.

**$C_9H_{13}N$** (See also *Phenethylamine, methyl-*.)
Aniline, *N*-ethyl-*N*-methyl-, 1312*f*.
—, *N*-propyl-, 2956*g*, 7304*a*.
—, trimethyl-, P 2241*d*, P 5799*f*.
Benzylamine, ethyl-, 4218*b*, 7921*d*.
Cumidine, P 251*f*, 6587*b*.
1 - Cyclohexene - 1 - acetonitrile, *α* methyl-, 3798*a*.
Lutidine, ethyl-, P 1433*g*; *salts*, 1427*f*.
Mesidine, 7449*c*.
3-Picoline, 4-propyl-, 1775*c*, 5399*h*.
Propylamine, 3-phenyl-, 1026*d*, 9250*g*. *and - HCl*, 5739*a*.
Pseudocumidine, 7231*b*.
Pyridine, 3-butyl-, *and - HCl*, 643*c*.
—, 3,5-diethyl-, *salts*, 1427*c*.
—, 2-isobutyl-, 644*a*.
Toluidine, *N, N*-dimethyl-, 6918*h*
—, *N*-ethyl-, P 906*f*.
2,4 Xylidine, *N*-methyl-, 1343*e*.

**$C_9H_{13}NO$** Aniline, *p*-propoxy-, 4370*i*.
Benzyl alcohol, *m*-amino-*α* ethyl-, 6606*b*
—, *p*-dimethylamino-, 1312*f*, 2570*i*, 5761*e*.
—, *α* - (methylaminomethyl)-, 5493*h*, 7128*h*.
Benzylamine, *p* - methoxy - *N* - methyl-, 6594*b*
Butylamine, *N* furfuryliden-, 3406*i*
*m*-Cresol, 6 amino-4 ethyl-, 3385*e*.
Ethanol, 2 *N* methylamino , P 4475*a* P 7697*h*, P 8145*e*.
—, 2-*o*-toluidino , 4401*h*
Norephedrine, 4238*d*, 9118*d*
Paredrine, 3564*a*, 9250*d*, - *HBr*, 8611*i*.
Phenethylamine, methoxy-, - *HCl*, 7432*h*, *and hydrochloride*, 1026*b*
Phenol, 2 amino-4-propyl-, - *HCl* 6616*d*.
—, 4-amino-2,3,6-trimethyl , 180*i*.
1 Propanol, 2-amino-3-phenyl-, 1723*f*
2-Pyridinemethanol, *α* propyl , 4266*b*
2(1*H*) - Pyridone, 5 ethyl - 4,6 - dimethyl-, 1427*e*
*p*-Toluidine, *α*-ethoxy-, 4370*i*.
Tyramine, *N* methyl , - *HCl*, 2602*f*, *and - HCl*, 6590*h*

**$C_9H_{13}NOS_2$** 3 - Thi - 1 - azaspiro[4.5]-decane - 2,4 - dione, 1 methyl 2 thio-, 1766*d*

**$C_9H_{13}NO_2$** (See also *Epinine, Synephrine; m-Synephrine*.)
Aniline, 4 - ethoxy - 3 - methoxy , 2177*d*.
Anisyl alcohol, *α* (ammonomethyl)-, - *HCl*, 6176*h*
Benzylamine, acetate, P 2630*h*
Cyclohexanecarbonitrile, 1 hydroxy-, acetate, P 3027*g*.
Ethanol, 2-(4-amino-*o*-toloxy)-, P 7695*i*
—, 2-methoxyamino-, 7442*i*, P 8151*g*
Neosynephrine, 321*i*, 1489*i*, 3561*d*, 7140*i*, 8566*b*, 9249*i*, P 9390*c*.
Norephedrine, *p* hydroxy , 9250*d*
3,6-Octanedione, 4 cyano , 2948*b*
5(4*H*)-Oxazolone, 4 (1 ethylpropylidine) 2-methyl-, 2581*i*
Phenol, 4 - hydroxyamino 2,3,6-trimethyl , 180*i*
1-Propanol, 2 - amino - 3 - (*p* - hydroxyphenyl)-, 1723*i*, *and - HCl*, 6979*b*
Pyridine, 3,5-diethoxy , 3824*m*
3,4 - Pyridinedimethanol, 2,6 dimethyl-, 4671*a*.
2 4(1*H*,3*H*) - Pyridinedione, 3,3 diethyl-, 8428*g*, 8540*d*
Pyrocatechol, 4 - (2 - aminopropyl)-, 9250*e*
Pyrrolecarboxylic acid, dimethyl , Et
Saligenin, (methylaminomethyl) , 4240*f*
Veratrylamine, *and HCl*, 2177*a*

**$C_9H_{13}NO_2S$** Aniline, *p* (propylsulfonyl) , 2593*e*
Benzenesulfonamide, *N* isopropyl , 7484*d*
Benzylamine, *p*-(methylsulfonylmethyl)-, - *HCl*, 1739*f*
3 - Thiophenecarboxylic acid, 2-dimethylammoethyl ester, *and* - *HCl*, 6306.
Toluenesulfonamide, *N* ethyl , P 2037*i*

**$C_9H_{13}NO_2S_2$** Sulfilimine, *S,S*-dimethyl *N* *p* tolylsulfonyl-, 172*e*

**$C_9H_{13}NO_3$** (See also *Adrenaline*.)
Acrylic acid, ester with *N*-allyllactamide, P 3447*d*
2-Furaldehyde, compd with morpholine, 7030*b*.
Norephedrine, dihydroxy-, 3928*e*, 5864*g*
1 - Ox - 3 - azaspiro[4.5]decane - 2,4-dione, 3-methyl-, 1406*a*.
4 Oxazolecarboxylic acid, 2-amyl-, 2203*c*, 2989*g*, 2990*a*.
1,2-Propanediol, 3 (aminophenoxy)-, 311*h*, 5655*e*.

**$C_9H_{13}NO_3S$** 3 - Thiophenecarboxylic acid, 4-cyano - 1,2,3,4 - tetrahydro - 4-hydroxy-5-methyl-, Et ester, P 7970*e*.
*p* - Toluenesulfonamide, *N* - 2 - hydroxyethyl-, 2943*g*.

**$C_9H_{13}NO_4$** Butyronitrile, *α,β* - dihydroxy-*α*-methyl-, diacetate, P 9080*c*.
Oxo acid, m. 131–3°, 7426*g*.

**$C_9H_{13}NO_4S$** *m* - Cumenesulfonic acid, 5-amino-6-hydroxy-, P 9461*c*.
1 - (3 - Hydroxybutyl)pyridinium hydrogen sulfate, cyclic ester, 2935*a*.

**$C_9H_{13}NO_4S_2$** Pyrocatechol, 4-(1-mercapto-2-methylaminoethyl)-, *S*-thiosulfate, 7137*d*.

**$C_9H_{13}NO_5$** 2 - Oxazolidone, 4,4-bis(hydroxymethyl)-, diacetate, 6575*h*.

**$C_9H_{13}NS$** Benzylamine, *p*-(methylmercaptomethyl)-, - *HCl*, 1739*e*.
Butylamine, *N*-2-thenylidene-, 3407*a*
2-Thiazoline, 2-(1-cyclohexen-1-yl)-, P 7844*h*.

**$C_9H_{12}N_2NaO_3$** Ipral sodium, 3147*i*.

**$C_9H_{12}N_2O_6P$** Uridylic acid, 4367*e*, 4707*e*.

**$C_9H_{12}N_2$** Propionitrile, *β,β'*-(allylimino)di , P 2226*h*

**$C_9H_{12}N_2O$** Acetamidine, *α*-*o*-methoxy anilino-, *HCl*, P 6240*c*.
Propionamide, *N* - (3,6 - dimethyl-2 pyrazinyl) , 3005*d*.

**$C_9H_{12}N_2OS$** 2 - Thiophenecarboxaldehyde, 5-propyl-, semicarbazone, 9061*i*

**$C_9H_{12}N_2O_2$** Ketone, methyl 7-oxabicyclo [1 1 0] - 3 - hepten - 3 - yl, semicarbazone, 7415*i*.

**$C_9H_{12}N_2O_2S$** Benzenesulfonamide, *p*-hydrazino-, hydrazone with acetone, 601*c*.
Nicotinamidine, 6-methylmercapto-, acetate, 2996*a*.
Sulfanilamide, $N^1$ - (*N* - methylacetimido)-, P 6660*h*
—, $N^1$ propionimidyl-, P 6660*i*

**$C_9H_{12}N_2O$** 1 - Cyclopentene - 1 - carboxylic acid, 5,5 - dimethyl - 3 - oxo-, semicarbazone, 1335*h*.
Nicotinamidine, 6 methoxy-, acetate, 2995*i*.
5 - Pyrimidineacetamide, 4 hydroxy *N* 2-hydroxyethyl-2-methyl-, 3364*b*

**$C_9H_{12}N_2O_3$** Cyclopentanecarboxylic 2,5 dioxo-(*N*), Et ester, semicarbazone, 7910*f*
Riboside cytosine desoxy-, 4334*e*.

**$C_9H_{12}N_2O_4S$** Hydantoic acid, *δ*-carboxy *α* cyano *γ* - thio-, di-Et ester, 1403*d*
Nicotinamidine, 6 methylsulfonyl-, acetate, 2996*a*.
2 - Thiazolecarbamic acid, 5-amino-4 carboxy , di-Et ester, *salts*, 1403*e*

**$C_9H_{12}N_2O_5$** See *Cytidine*

**$C_9H_{13}N_3S$** 2-Pyrimidinethiol, 4-(1-piperidyl)-, 8395*d*.

**$C_9H_{13}N_5$** Biguanide, tolyl-, P 4701*b*, P 6231*d*

**$C_9H_{13}N_3O_2$** Guanidine, 1 - (*p* - dimethylaminophenyl)-3-nitro-, 9035*h*

**$C_9H_{13}N_3O_3S$** Acetanilide, *p* - [(aminoguanyl)sulfamyl]-, P 3846*e*.

**$C_9H_{13}N_3O_4$** Glycine, *N* - (2 - amino 6 methyl - 5 - nitro - 4 - pyrimidyl) , Et ester, P 9087*f*.

**$C_9H_{14}AsNO_4$** *p* Toluenearsonic acid, *α*-(2-hydroxyethylamino)-, P 5041*g*.

**$C_9H_{14}AsNO_7S$** Methanesulfonic acid, [5-dihydroxyarsino - 2 - (2 - hydroxyethoxy anilino]-, *Na salt*, 599*b*.

**$C_9H_{14}Br_2O_2$** Cyclohexanemethanol, 1,2 dibromo , acetate, 159*d*.
4 Hexen 3-one, 2,4-dibromo-1-ethoxy-4 methyl-, 2163*h*.

**$C_9H_{14}ClNO$** 1 (3-Hydroxybutyl)pyridinium chloride, *and chloroplatinate*, 2935*a*

**$C_9H_{14}ClNO_3S$** 4-Thiazolidinecarboxylic acid 3-chloroacetyl-5,5-dimethyl-, 4668*b*

**$C_9H_{14}ClNO_4S$** 3-Thiophenecarbamic acid tetrahydro , 1,1-dioxide, chloro methallyl ester, P 6668*d*.

**$C_9H_{15}ClN_4$** *s* Triazine, 2-amino-4 chloro 6 cyclohexylamino-, 1426*c*.

**$C_9H_{14}Cl_2$** Cyclohexane, (2,2-dichlorovinyl methyl-, 9025*b*.

**$C_9H_{14}Cl_3NO_2$** Valine, *N*-*γ,γ,γ* trichlorobutyryl-, 2273*a*.

**$C_9H_{14}IN$** 1,2,4,6-Tetramethylpyridinium iodide, 7024*d*.

**$C_9H_{14}NO_3P$** Phosphinic acid, (1-anilinopropyl)-, 5377*i*.
Tonophosphan, 5339*d*.

**$C_9H_{14}NO_3S$** 4-Thiazoleacetic acid, 2-amino *α* ethyl-, Et ester, 8381*a*.

**$C_9H_{14}N_2$** Ethylenediamine, *N*-methyl phenyl-, *and di- HCl*, 6176*h*.
2,4-Mesitylenediamine, 1734*i*, 1735*d*
Phenethylamine, *p*-amino-*α*-meth 8365*a*, 9047*d*.
Phenylenediamine, *N, N, N'*-trimeth 594*d*, 3008*d*.

Pyridine, 2-butylamino-, P 8472*d*.
Toluene-2,5-diamine, $N^1$, $N^1$-dimethyl-, 594*f*.

**$C_9H_{14}N_2O$** *o*-Cresol, 4-amino-α-ethylamino-, P 1062*b*.
2-Furaldehyde, diethylhydrazone, 6591*i*.
Phenol, *m*-(1-amino-2-methylaminoethyl)-, 9250*e*.
—, 2-amino-4-(2 methylaminoethyl)-, 6597*f*.
Pyridine, 2-(2-dimethylaminoethoxy)-, 5782*i*.

**$C_9H_{14}N_2OS$** Acetamide, *N*-[(4-methyl-2-thiazolyl)isopropyl]-, 4263*bd*.
Pyrazinol, 5,6-dimethyl-3-(2-methylmercaptoethyl)-, 3009*i*.
Thiazole, 2-acetamido-4-butyl-, 4263*g*.

**$C_9H_{14}N_2OS_2$** 2-Thiazolidinethione, 5 (acetylamino) 4-ethyl-3,4-dimethyl-, 1766*e*.

**$C_9H_{14}N_2O_7$** Benzyl alcohol, 3-amino-4-hydroxy α-(methylaminomethyl)-, *di-HBr*, P 7967*e*; *-HCl*, P 7046*c*.
Pyridine, 2 amino-3,5 diethoxy-, 3825*b*
Pyrocatechol, 4-(1 amino-2 methylaminoethyl), 9250*e*.
Urea, (2-allyl 4 pentenoyl)-, 2168*e*.

**$C_9H_{14}N_2O_2S$** Ethanesulfonamide, 2-amino *N*-benzyl, P 3450*h*.
*p* Ethanesulfonotoluidide, 2 amino, P 3450*h*.
Pyridine, 5 amino 2 (butylsulfonyl), 2996*l*.

**$C_9H_{14}N_2O_2S_2$** Acetamide, α (4,5-dimethyl 2-thiazolylmercapto) *N*-2-hydroxyethyl, 3365*e*.

**$C_9H_{14}N_2O_3$** Butyric acid, α acetamido-α-cyano, Et ester, P 6653*f*
Furfurylamine, *N* 2 nitroisobutyl, P 5424*k*
Iprol, 10776*b*, 8612*b*
Salicylic acid, compd with ethylenediamine, 8832*f*
Trimethylphenylammonium nitrate, 7310*e*

**$C_9H_{14}N_2O_3S$** *p* Ethanesulfonanisidide, 2 amino, P 3450*e*.

**$C_9H_{14}N_2O_4$** 1*H* Furo[3,4]imidazole 4 butyric acid, hexahydro 2 oxo, P 8401*d*, 9144*b*
Oxamo, *m* 280°, 3005*a*

**$C_9H_{14}N_2O_4S$** 1 Imidazoleacetic acid, 2 mercapto 1 (1,2,3,4 tetrahydroxybutyl), 2989*c*.

**$C_9H_{14}N_4S$** 3,1 Cycloheptathiazine, 2 amino 1,5,6,7,8,9 hexahydro-, 4278*e*.
Pyridine, 5 amino 2 (butylmercapto), *and -HCl*, 2996*d*.

**$C_9H_{14}N_4S_2$** 1,3 Diazaspiro[4 5]3 decene thione, methylmercapto, 6171*i*, 6172*a*
Hydantoin, 5 cyclohexylidithio, 7586*a*.
Thiadiazaspiro[4 5]decane 2 thione, 4-amino 1 methyl, 1766*e*.

**$C_9H_{14}NO_4P$** Cytidine, 2′ phosphate, 2170*e*
Cytidylic acid, 4367*e*, 4707*e*

**$C_9H_{14}N_4O$** 5 Heptenenitrile, 6 methyl-4 oxo, semicarbazone, 6625*b*

**$C_9H_{14}N_4O_3$** *See Carnosine*

**$C_9H_{14}N_4S$** 2 Pyrimidinethiol, 4 (4-methyl 1 piperazyl)-, 8395*d*

**$C_9H_{14}N_5$** Biguanide, 1 (α-amino *p* tolyl), *di-HCl*, 5014*e*
Guanidine, tolylene-, 6857*a*, *di HCl*, 8545*g*, *and di-HCl*, 5014*e*.

**$C_9H_{14}N_6O_7$** Guanidine, *m*-phenylene-, carbonate, 5014*e*.

**$C_9H_{14}O$** Cryptone, 160*g*.
Cyclohexanone, 2-allyl-, 1730*b*
, 4 isopropylidene-, 6578*g*.
3 Cyclohexene 1 carboxaldehyde, dimethyl-, 164*g*
2 Cyclohexen-1-one, 3-isopropyl, 9045*b*
, 3 propyl, 9045*b*
2 Cyclopenten-1 one, ethyldimethyl-, 1166*e*.
, 2,3,4,4 tetramethyl-, 1333*a*.
Ether, ethyl 4 methyl-3-hexen 5 ynyl, 1338*d*
, methyl 1,1,4 trimethyl-4 penten 2 ynyl, 3782*f*.
3 Isochocamphorone, 7462*f*
Heptadienone, dimethyl-, 1332*i*, 3355*e*.
, 5-ethyl-, 116*d*.
1 Hepten-4-yn-3-ol, 3-ethyl-, 115*g*.
3 Heptyne, 5,6-epoxy-2,5-dimethyl-, 3355*d*.
Isophorone, P 1063*a*, P 3638*k*, 4575*c*, P 5039*d*, P 5419*a*, P 7507*e*, 9043*k*.
Ketone, methyl methyl-1-cyclohexen-1-yl, 1017*e*, 7416*d*.
2 Nonen-4-yn-1-ol, 7415*d*.
1,3-Octadien-4-one, 5-methyl-, 115*i*.
1 Octen-5-yn-4-ol, 4-methyl-, 115*g*.
Phorone, P 5039*d*, P 6846*a*, P 8132*c*.
4-Pyran, 3,6-dihydro-4,6-dimethyl-2-vinyl, P 3043*c*.
Santenone, 3796*k*.

**$C_9H_{14}OS$** 2-Cyclohexen-1-one, 3-(ethylmercapto)-5-methyl-, P 6230*i*.

**$C_9H_{14}OSi$** Ketone, methyl 5-(trimethylsilyl)-2-thienyl, 9065*c*.

**$C_9H_{14}O_2$** Acrylic acid, cyclohexyl ester, P 5230*c*, P 6651*b*, P 7754*h*; 4-methyl-4-pentenyl ester, 5988*i*.
Cyclobutanecarboxylic acid, cyclobutyl ester, 3796*b*.
Cyclohexanone, 6-(hydroxymethylene)-2,3-dimethyl-, 8362*h*.
1-Cyclohexene-1-acetic acid, α-methyl-, 3798*b*.
3-Cyclohexene-1-carboxylic acid, methyl-, Me ester, 3373*g*, 7428*e*.
1-Cyclohexene-1-methanol, acetate, 159*d*.
3-Cyclohexen-1-ol, 4-methyl-, acetate, 7417*c*.
2 Cyclopentene-1-acetic acid, Et ester, 3796*d*.
1,3-Dioxolane, 2,2 dimethyl 4,5-divinyl-, 1721*h*.
2-Furanpentanol, P 5805*e*.
6-Hepten 4 yne-2,3-diol, 2162*g*
Hexadienol, methyl-, acetate, 112*d*
4-Hexyn-3-ol, 3 methyl-, acetate, 6153*g*.
2-Nonen-4-yne-1,6-diol, 7415*d*.
3 Octenoic acid, 5-hydroxy-3-methyl-, δ-lactone, 6166*d*
7-Octen-5-yne-1,4 diol, 4-methyl-, 2163*a*.
Octynoic acid, Me ester, 6573*c*.
4-Pentynoic acid, Bu ester, 2591*i*.

**$C_9H_{14}O_2Si$** Ketone, methyl 5-(trimethylsilyl) 2 furyl, 9065*c*.

**$C_9H_{14}O_3$** Cyclohexanecarboxylic acid, 2,6 dimethyl 4-oxo, 1391*a*.
Cyclohexanecarboxylic acid, formyl-, Me ester, P 4685*f*.
-, 2-oxo-, Et ester, 1008*a*, 6979*k*, 7432*i*.
Cyclohexanone, 2-hydroxy-5-methyl-, acetate, 7915*f*.
Cyclopentanecarboxylic acid, 3 methyl-2 oxo-, Et ester, 2584*i*.
3-Cyclopentene-1-carboxylic acid, 2-hydroxy 1 methyl-, Et ester, 3820*eh*.
Methacrylic acid, tetrahydrofurfuryl ester, P 9519*d*
8 Nonene-2,5-dione, 3-hydroxy-, 5751*i*.
2 Nonenoic acid, 4-oxo, 3785*d*.
Octenoic acid, 7-methyl 4-oxo-, 3785*d*
-, 3-oxo-, Me ester, 1334*g*.
Propionic acid, β (allyloxy), allyl ester, 2272*c*, P 5037*c*

**$C_9H_{14}O_3Si$** Silane, trimethoxyphenyl-, P 5033*f*.

**$C_9H_{14}O_4$** Caproic acid, ε-ethoxy β-(hydroxymethyl)-δ oxo-, γ-lactone, 2625*g*.
Citraconic acid, di Et ester, 2591*f*.
1,2 Cyclohexanedicarboxylic acid, 1-methyl-, 2200*b*
1,1 Cyclopropanedicarboxylic acid, di Et ester, 2955*e*.
Glutaconic acid, di-Et ester, 5745*d*
Itaconic acid, di-Et ester, 1320*d*, 5745*d*.
Lactic acid, 1-methylallyl ester, acetate, P 5036*i*.
Levulinic acid, β acetyl-, Et ester, P 8149*f*
Mannitol, 3,4-isopropylidene-1,2,5,6-dianhydro-, 8141*i*.
Mesaconic acid, di-Et ester, 2591*f*.
2,4-Pentanedione, 3 (2-hydroxyethyl)-, acetate, 1008*i*.
Pentenoic acid, 4-ethoxy-2-oxo-, Et ester, 2168*d*.
-, 4-hydroxy-, Et ester, acetate, P 1430*c*.
Succinic acid, propylidene-, di-Me ester, 1320*i*.
Teraconic acid, di-Me ester, 1319*i*.
Thevetal, acetate, 1729*e*.

**$C_9H_{14}O_4S$** 1-Cyclohexene-1-methanesulfonic acid, 5,5-dimethyl 3-oxo-, 9044*b*.
2 Cyclohexene-1-sulfonic acid, 2,6,6-trimethyl 4 oxo, 9044*b*

**$C_9H_{14}O_4S_2$** 1 Propanol, 2,3-dimercapto-, triacetate, 7425*d*, 9250*i*.

**$C_9H_{14}O_5$** Adipic acid, α-methyl-β oxo-, di-Me ester, 7433*h*, 7434*a*.
Azelaic acid, oxo-, 3792*b*, 7905*b*.
Enanthic acid, ε-hydroxy-α,γ-dioxo-, Et ester, 1406*g*.
D-Glucose, 1,2-acetone-5,6-anhydro-, 1728*h*.
Glutaric acid, β-oxo-, di-Et ester, 572*d*.

**$C_9H_{14}O_5S$** 3,4-Thiophenedicarboxylic acid, tetrahydro-4-hydroxy-2-propyl-, P 6668*a*.
Thiophene-3-ol, tetrahydro-, 1,1-dioxide, ester with 2-methylallyl H carbonate, P 6915*b*.
—, tetrahydro-4-methyl-, 1,1-dioxide, ester with allyl H carbonate, P 6915*b*.

**$C_9H_{14}O_6$** Acetin, tri-, 771*b*, 2010*i*, 3110*h*, 8191*g*.
1,2,4-Butanetricarboxylic acid, 3,3-dimethyl-, 1335*g*.
1,2,6 Hexanetricarboxylic acid, 2614*a*.
β-Hydromuconic acid, γ-hydroxy α-methoxy-, di Me ester, 6981*i*.
1,1,3-Propanetriol, triacetate, P 7503*h*

**$C_9H_{14}O_6S$** Pinnelic acid, α-(carboxymethylmercapto)-, P 7504*h*.

**$C_9H_{14}O_6S_3$** *s*-Trithiane, 2,4-diallyl, 1,1,3,3,5,5-hexoxide, P 4705*e*.

**$C_9H_{14}O_7$** Mucic acid, 2,3-dimethyl-, γ-lactone, Me ester, 1327*d*.

**$C_9H_{14}S$** 2-Cyclohexene-1-thione, 3,5,5 trimethyl-, P 1063*b*.
Thiophene, amyl-, P 691*e*, 1395*c*, 4841*h*.
—, 2-*tert*-amyl-, 1395*c*.
—, 2-(3-methylbutyl)-, 1395*i*.

**$C_9H_{14}Si$** Silane, trimethylphenyl, 8223*a*, 8366*f*.

**$C_9H_{15}BrN_2OS$** 1*H*-Thieno[3,4]imidazol-2-(3*H*)-one, 4-(4-bromobutyl)tetrahydro-, P 2645*d*.

**$C_9H_{15}BrN_4$** 1*H*-Tetrazole, 5-(1 bromoethyl) 1-cyclohexyl-, P 7971*f*.

**$C_9H_{15}BrO_4$** Glutaric acid, α-bromo-, di Et ester, 1325*c*.
Malonic acid, bromoethyl-, di Et ester, 4217*f*.

**$C_9H_{15}Br_2N_3O_2$** 3(2*H*) Furanone, 4,4-dibromo dihydro 2,2,5,5-tetramethyl-, semicarbazone, 1392*e*

**$C_9H_{15}ClN_2O_2$** 1*H*-Furo[3,4]imidazol 2(3*H*)-one, 4-(4-chlorobutyl)tetrahydro-, 5023*a*.

**$C_9H_{15}ClO$** Cyclohexaneacetyl chloride, 1 methyl-, 1375*b*
1 Heptyn 3 ol, 2-chloro 3,6 dimethyl-, 3355*a*.

**$C_9H_{15}ClO_3$** Enanthic acid, ζ-chloro-ε oxo-, Et ester, 7905*a*.
Pelargonic acid, ζ-chloro-η-oxo-, 1769*c*.

**$C_9H_{15}ClO_4S$** Thiophene-3-ol, 4-chlorotetrahydro-3,5-dimethyl, 1,1-dioxide propionate, P 3166*c*.

**$C_9H_{15}ClO_5$** Lactic acid, 2-(2-chloroethoxy)-ethyl ester, acetate, P 676*d*.

**$C_9H_{15}Cl_3O_2$** 4 Nonanone, 1,1,1 trichloro-2 hydroxy-, 3785*c*
4-Octanone, 1,1,1-trichloro-2 hydroxy-7 methyl-, 3785*c*.

**$C_9H_{15}Cl_3O_3$** Acetal, bp 205 20°, P 5035*c*.

**$C_9H_{15}GaO_9$** Gallium lactate, 19098*c*.

**$C_9H_{15}HgNO_4S_2$** 2-(Ethylmercurimercapto) 1 methylpyridinium methyl sulfate, P 6684*d*.

**$C_9H_{15}IN_2O$** 3 Carbamyl 1,2 dihydro-1,1,2 trimethylpyridinium iodide, 7525*i*.

**$C_9H_{15}IN_2S_2$** Methyl(4-thioxo-1,3-diazaspiro[4 5]dec-2-ylidene)sulfonium iodide, 6172*a*.

**$C_9H_{15}IO_2S$** 3-Carboxyhexahydro-1-methyl-4 oxothiapyrylium iodide, Et ester, 7433*f*.

**$C_9H_{15}NO$** 1-Cyclohexene 1-acetamide, α methyl-, 3798*c*.
Cyclooctanecarbonitrile, 1-hydroxy-, 7907*a*.
5-Heptenenitrile, 2-hydroxy-2,6-dimethyl-, 5736*c*.
2-Isoazepinone, 1,5,6,7 tetrahydro-4,6,6-trimethyl-, P 3451*b*.
Isophorone, oxime, P 3451*b*.
4-Piperidinol, 4-ethynyl-2,5-dimethyl-, 2060*d*.
4*H*-Quinolizin-4-one, octahydro-, 4267*i*.

**$C_9H_{15}NO_2$** Butyric acid, β-cyano-α,α-dimethyl-, Et ester, 2168*a*.
Caprylic acid, η-cyano-, P 7502*i*.
4-Pentynamide, *N*-2-hydroxyethyl-3,3-dimethyl-, 2273*d*.
Succinimide, *N*-amyl-, 1900*i*, P 4422*b*, 5150*g*.

**$C_9H_{15}NO_2S$** Propionic acid, 5-thiocyanoamyl ester, P 5153*b*.
1-Thi-4-azaspiro[4.5]decane-3-carboxylic acid, *-HCl*, 659*e*.

**$C_9H_{15}NO_3$** (See also *Ecgonine*.)
Caproic acid, ε-cyano-ε-hydroxy-, Et ester, 3410*a*.
Isonipecotic acid, 1-methyl-3-oxo-, Et ester, 4274*g*.
Methacrylic acid, ester with *N*-ethyllactamide, P 3447*a*.
Nipecotic acid, 1-methyl-4-oxo-, Et ester, 1009*e*.
2,4-Oxazolidinedione, 5,5-dipropyl-, 1862*ef*.
2-Pentenoic acid, 2-acetamido-3-ethyl-, 2581*f*.
1-Piperidineglyoxylic acid, Et ester, 5369*h*.

$C_9H_{11}NO_4$ Leucine, *N*-(2,3-dihydroxyallylidene)-, 4227*d*.
Methacrylic acid, 2-nitroamyl ester, P 2815*g*.
$C_9H_{11}NO_4S$ 2-Thiazolidinepropionic acid, 4-carboxy-5,5-dimethyl-, 7933*e*.
3-Thiophenecarbamic acid, tetrahydro-, 1,1-dioxide, 2-methylallyl ester, P 6668*d*.
$C_9H_{11}NO_5$ β-Alanine, *N*-(γ-hydroxy-β,β-dimethyl-α-oxobutyryl)-, 4223*g*, 7426*h*.
Compd. m. 220–40°, 3005*a*.
Malonic acid, acetamido-, di-Et ester, 1438, 2989*g*, 3405*f*, 5739*a*, 6079*c*.
4-Piperidone, 1-ethyl-, oxulate, 7432*c*.
$C_9H_{11}NO_6$ Gluconamide, *N*-methyl-2,4,3,5-dimethylene-, 5007*a*.
Succinic acid, 1-nitroisopropyl-, di-Me ester, 1319*i*; Et ester, 1320*a*.
$C_9H_{11}NS$ 2-Thenylamine, *tert*-butyl-, 2201*i*.
$C_9H_{11}NS_2$ 2-Thiazolethiol, 4-hexyl-, 633*h*.
$C_9H_{11}N_2O_2P$ Phosphinic acid, [1-(2-phenylhydrazino)isopropyl]-, 5378*b*.
$C_9H_{11}N_2O_4PS$ Phosphinic acid, (1-*p*-sulfamylanilinoisopropyl)-, *and Na salt*, 5378*a*.
$C_9H_{11}N_3$ Piperidine, 1-(imidazolylmethyl)-, *di-HCl*, 634*a*.
Pyridine, 3,4-bis(aminomethyl)-2,6-dimethyl-, *tri-HCl*, 4670*i*.
—, 2-(2-dimethylammoethylamino)-, P 3471*c*, P 3472*c*.
$C_9H_{11}N_3O$ Cyclohexene-1-carboxaldehyde, 2-methyl-, semicarbazone, 1731*c*, 8306*c*.
1-Cyclopentene-1-carboxaldehyde, 2,5-dimethyl-, semicarbazone, 4254*i*.
Histidine, 1-isopropyl-, 8382*d*
1-Isoindazolecarboxamide, 3a,4,5,6,7,7a-hexahydro-3-methyl-, 1017*d*.
Ketone, cyclohexen-1-yl methyl, semicarbazone, 1017*d*, 6157*g*.
—, methyl 2-methyl-1-cyclopenten-1-yl, semicarbazone, 1335*e*.
$C_9H_{11}N_3O_3S$ (See also *Thioneine*.)
Methanesulfonanilide, 2-amino-5-dimethylamino, P 5164.
$C_9H_{11}N_3O_4$ Cyclopentanecarboxylic acid, 3,3-dimethyl-4-oxo-, semicarbazone, 7462*f*.
5-Heptenoic acid, 6-methyl-4-oxo-, semicarbazone, 6625*c*.
4,6(1*H*,5*H*)-Pyrimidinedione, 2,3-dihydro-5-(2-hydroxyethyl)-2-imino-5-propyl-, 6173*f*.
*s*-Triazine, 1,3,5-triacetylhexahydro-, 657*e*, 5405*f*.
$C_9H_{12}N_2O_3$ Asparagine, *N*α-[*N*-(1-carboxy-1-hydroxyethyl)glycyl]-, 4643*d*.
Lycomarasmine, 4643*ad*.
Serine, glycylaspartyl-, 4643*f*.
$C_9H_{12}N_2S$ 2-Pyrimidinethiol, 4-amylamino-, 8395*c*.
$C_9H_{12}N_4O$ *s*-Triazine, 2-amino-4-methoxy-6-(1-piperidyl)-, 4269*e*.
$C_9H_{12}N_4O_2S$ Benzenesulfonic acid, 1-methylbiguanide salt, P 4292*i*, P 7040*f*.
Methanesulfonic acid, 1-phenylbiguanide salt, P 4292*i*.
$C_9H_{12}N_4S$ *s*-Triazine, 2,4-diamino-6-(cyclohexylmercapto)-, P 1444*e*.
$C_9H_{12}N_6$ Guanidine, phenenyltri-, 8545*h*.
$C_9H_{12}N_2O_4$ Malonic acid, ethyl-, di-Et ester Na deriv., 4217*f*.
$C_9H_{13}O_3P$ Allyl phosphite, P 1606*c*.
$C_9H_{14}$ 1,3-Butadiene, 2-amyl-, 1311*f*.
Cyclohexene, 1-ethylmethyl, 165*a*, 4003*g*.
—, trimethyl-, 164*h*, P 4003*g*.
Geraniolene, 996*h*, 1000*e*, 3743*b*.
1,3-Hexadiene, 2,3,4-trimethyl-, 110*e*.
1,4-Nonadiene, 2994*d*.
2,4-Octadiene, 3-methyl-, 110*d*.
3-Octyne, 2-methyl-, 6567*g*.
$C_9H_{15}BN$ Borine, trimethyl-, compd. with aniline, 5690*d*.
$C_9H_{15}BrN_2$ Carbodiimide, 2-bromoallyl(3-dimethylaminopropyl)-, 1016*g*.
$C_9H_{15}BrN_2O_2$ 3(2*H*)-Furanone, 4-bromodihydro-2,2,5,5-tetramethyl-, semicarbazone, 1392*g*.
$C_9H_{16}Br_2Cl_2$ Heptane, 2,6-dibromo-4,4-dichloro-2,6-dimethyl-, 3345*e*.
$C_9H_{16}ClNO$ 2-Propanol, 1-chloro-3-diallylamino-, P 253*i*.
$C_9H_{16}ClNO_2$ Norvaline, *N*-chloroacetylethyl-, 2167*d*, 2581*e*.
Valine, *N*-chloroacetyl-α-ethyl-, 2167*d*
$C_9H_{16}Cl_3N_3$ *s*-Triazine, 2-amino-4-chloro-6-hexylamino-, 1426*c*.
*s*-Triazine, 2-chloro-4-diethylamino-6-ethylamino-, 1426*d*.
$C_9H_{16}Cl_2$ Cyclohexane, 1-(2,2-dichloroethyl)-1-methyl-, 3372*c*.
$C_9H_{16}Cl_4$ Nonane, 1,1,1,9-tetrachloro-, 109*g*, P 8196*e*.
$C_9H_{16}INO_2$ 3-Carboxy-1,1-dimethyl-4-oxopiperidinium iodide, Me ester, 3408*d*.
$C_9H_{16}N_2O$ Acetamide, *N*-(1-cyano-1-methylpropyl)-*N*-ethyl-, 8381*f*.
Cyclohexanecarbonitrile, 1-(2-hydroxyethylamino)-, 4415*g*.
Cyclohexanecarboxylic acid, ethylidenehydrazide, 4233*b*.
Formamide, *N*-cyclopropyl-*N*-(2-cyclopropylaminoethyl)-, P 3028*f*.
2-Imidazoline, 1-acetylethyldimethyl-, 8381*c*.
Oxazolidine, 3-cyclohexyl-2-imino-, *and -HCl*, P 252*g*.
3-Pyrazolone, 2-ethyl-4-isopropyl-5-methyl-, 7934*f*.
$C_9H_{16}N_2OS$ Hydantoin, 5-hexyl-2-thio-, 634*i*.
$C_9H_{16}N_2O_2$ Hydantoin, 5-hexyl-, 3409*h*.
Hydrazine, 1-acetyl-2-cyclohexylcarbonyl-(?), 4233*b*.
2-Pentenamide, 2-acetamido-3-ethyl-, 2581*f*.
2-Pyrazoline-3-carboxylic acid, 5-propyl-, Et ester, 5005*h*.
$C_9H_{16}N_2O_3S$ 1*H*-Furo[3,4]imidazol-2(3*H*)-one, tetrahydro-4-(4-mercaptobutyl)-, 5023*b*, 9149*b*.
Thiophene, 3,4-diacetamidotetrahydro-2-methyl-, P 7970*a*.
$C_9H_{16}N_2O_4$ 1*H*-Furo[3,4]imidazol-2(3*H*)-one, tetrahydro-4-(4-hydroxybutyl)-, 5023*a*, 9149*b*.
Hydantoin, 5-ethyl-5-(1-methoxypropyl)-, 6985*a*.
$C_9H_{16}N_2O_4S$ 1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 2,4-dipropyl-, 1,1-dioxide, P 4868*l*.
$C_9H_{16}N_2O_5S$ 1*H*-Furo[3,4]imidazole-4-butanesulfonic acid, hexahydro-2-oxo-, *2244h*, 9149*b*, *Ba salt*, 5023*b*.
$C_9H_{16}N_2O_6S_2$ 1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 2,4-bis(3-hydroxypropyl)-3-thio-, 1,1-dioxide, P 4868*d*.
$C_9H_{16}N_2O_6S$ 1,2,4,2*H*-Thiadiazine-3,5(4*H*,6*H*)-dione, 2,4-bis(2-methoxyethyl)-, 1,1-dioxide, P 4868*d*.
$C_9H_{16}N_2S$ 2(3*H*)-Imidazolethione, 4-hexyl-, 634*i*.
$C_9H_{16}N_2S_2$ Hydantoin, 5-hexyl-2,4-dithio-, 3409*h*.
2-Thiazolesulfenamide, *N-sec*-butyl-4,5-dimethyl-, P 1602*e*, P 4509*a*.
2-Thiazolethiol, 5-amino-4-hexyl-, 3409*f*.
2(3*H*)-Thiazolethione, 5-amino-4-hexyl-, P 6669*n*.
$C_9H_{16}N_2O$ Enanthonitrile, ε-methyl-γ-oxo-, semicarbazone, 6625*b*.
$C_9H_{16}N_4O_2$ Propionic acid, hexamethylenetetramine betaine complex, 2943*f*.
1,3,5,7-Tetrazabicyclo[3.3.1]nonane, 3,7-diacetyl, 9075*f*.
$C_9H_{16}N_4S$ Hydantoin, 5,5-dimethyl-2-thio-, azine with 2-butanone, 6171*i*.
$C_9H_{18}N_6O_{10}$ 2,4,7-Triazoctane-1,8-diol, 2,4,7-trinitro-, diacetate, 9074*a*.
$C_9H_{18}N_8O_{12}$ 2,4,6,8-Tetrazanonane-1,9-diol, 2,4,6,8-tetranitro-, diacetate, 9073*a*.
$C_9H_{18}O$ Cryptol, 160*g*.
Cyclohexaneacetaldehyde, 1-methyl-, 3372*c*.
Cyclohexanecarboxaldehyde, dimethyl-, 8362*ac*.
Cyclohexanone, 3-isopropyl-, 9045*c*.
—, propyl-, 6989*e*, 9045*c*.
—, trimethyl-, P 3638*h*, 8362*i*, 9043*i*.
Cyclononanone, 161*h*, 7907*a*.
Cyclooctanone, methyl, 2966*a*
Cyclopentanone, ethyldimethyl-, 116*c*
—, 2,3,4,4-tetramethyl-, 1333*a*.
Heptenone, 2,2-dimethyl-, 5735*a*.
—, 3-ethyl-, 1326.
Ketone, 2,2 dimethylcyclopentyl methyl, 5751*f*.
2-Nonenal, 3345*b*, 4222*d*.
2*H*-Pyran, butyldihydro-, 2994*c*.
$C_9H_{18}OS$ Acetic acid, thiol-, cyclohexylmethyl ester, P 5418*f*.
$C_9H_{18}O_2$ Acrylic acid, 1,3-dimethylbutyl ester, P 6651*b*.
3-Butenoic acid, Am ester, 2591*e*.
Butyric acid, α-methylene-, isobutyl ester, P 3442*i*.
Caprylic acid, hydroxymethyl-, lactone, 784*e*, 3786*e*.
Crotonic acid, Am ester, 2591*f*; iso-Am ester, 2591*f*.
Cyclobutanecarboxylic acid, Bu ester, 2955*e*.
Cycloheptanol, acetate, 6988*e*.
Cyclohexaneacetic acid, methyl-, 1375*b*, 9025*b*.
Cyclohexanecarboxylic acid, dimethyl-, 2964*c*.
Cyclohexanol, 2-methyl-, acetate, 2961*b*.
Cyclooctanecarboxylic acid, 6195*b*.
Cyclopentanebutyric acid, 1375*c*.
Cyclopentanone, 2-ethyl-3-hydroxy-3,4-dimethyl-, 116*g*.
Cyclopropanecarboxylic acid, Am ester, 2955*e*.
4-Hepten-3-one, 1-methoxy-5-methyl-, 2576*c*.
Heptynediol, dimethyl-, 1332*h*, 8355*d*.
Hexenol, 3-methyl-, acetate, 115*d*.
1-Hexyn-3-ol, 6-ethoxy-3-methyl-, 1338*d*.
Methacrylic acid, Am ester, 9334*c*.
2,4-Nonanedione, 7343*d*.
2,4-Pentanedione, 3-butyl-, 1008*i*.
Propionic acid, cyclohexyl ester, 2370*i*.
Pyran-4-ol, tetrahydro-2,4-dimethyl-6-vinyl-, P 3043*c*.
$C_9H_{18}O_3S_2$ Thiophene, 3-(allylmercapto)tetrahydro-2,4-dimethyl-, 1,1-dioxide, P 3851*i*.
$C_9H_{18}O_3$ Acetoacetic acid, amyl ester, 228*g*.
Caproic acid, α-acetyl-, Me ester, 1317*c*.
—, α-methyl-β-oxo-, Et ester, 4254*g*.
Caprylic acid, methyloxo-, 3785*d*, 6160*e*.
Cinenic acid, 5736*d*.
Cyclohexanecarboxylic acid, 4-hydroxy-, Et ester, 7436*d*.
1,3-Dioxolane, 4-[(allyloxy)methyl]-2,2-dimethyl-, 7423*g*.
Enanthic acid, γ-methyl-β-oxo-, Me ester, 6160*d*.
Geronic acid, 1337*h*, 1339*f*.
5-Heptenoic acid, 2-hydroxy-2,6-dimethyl-, 5736*c*.
Isoenanthic acid, β-oxo-, Et ester, 2582*e*
Isovaleric acid, α-acetyl-, Et ester 1009*i*.
Methacrylic acid, 2-isopropoxyethyl ester P 3030*i*.
Pelargonic acid, oxo-, 2174*g*, 3785*d*.
2*H*-Pyran-2-carboxylic acid, tetrahydro-2,6,6-trimethyl-, 5736*d*.
Valeric acid, γ,γ-dimethyl-β-oxo-, Et ester, 1007*i*, 1009*i*.
$C_9H_{18}O_3S$ Acetoacetic acid, α-(2-methylmercaptoethyl)-, Et ester, 5742*e*.
$C_9H_{18}O_3Si$ Silane, tris(allyloxy)-, 9028*c*.
$C_9H_{18}O_4$ (See also *Azelaic acid*.)
Acrylic acid, β-oxo-, di-Et acetal Et ester 4574*h*.
Adipic acid, Et Me ester, 6981*i*.
Caproic acid, ester with lactic acid, 1 6224*c*.
Glutaric acid, di-Et ester, 572*d*.
—, α-butyl-, P 4689*s*.
Hydracylic acid, Bu ester, acetate, 4639*g*.
Malonic acid, ethyl-, di-Et ester, 577*i*, 577*h*, 9034*f*.
—, hexyl-, *di-Na salt*, 4707*i*.
Pelargonic acid, α-hydroxy-γ-oxo-, 3785*h*
Pimelic acid, di-Me ester, 2590*e*.
—, α-ethyl, P 7505*i*.
1,2-Propanediol, dipropionate, 1900*e*
2,4,8,10-Tetroxaspiro[5.5]hendecane, 3,9-dimethyl-, 5894*b*.
$C_9H_{18}O_4S$ Propionic acid, β-(carboxymethylmercapto)-, di-Et ester, P 6669*b*.
Succinic acid, (amylmercapto)-, P 6845*d*.
2-Thiophenevaleric acid, tetrahydro-3,4-dihydroxy-, P 5806*d*.
$C_9H_{18}O_4S_2$ Propionic acid, β,β′-(isopropylidenedithio)di-, P 5424*d*.
Thiophene, 3-allyl-4-(ethylsulfonyl)tetrahydro-, 1,1-dioxide, P 2238*d*
$C_9H_{18}O_5$ Cyclopentanone, 2,2,5,5-tetra(hydroxymethyl)-, P 9527*i*.
Glucosan, trimethyl-, 5926*b*.
Glutaric acid, β-hydroxy-, di-Et ester 572*d*.
Lactic acid, 2-ethoxyethyl ester, acet P 676*d*.
Pelargonic acid, α,β-dihydroxy-γ-o 3785*e*.
$C_9H_{18}O_5S$ 1,2-Cyclohexanediol, acetate mesulfonate, 7435*a*.
$C_9H_{18}O_6$ Galactonic acid, 2,3,6-trimeth lactone, 5835, 5864.
Glucose, 1,2-isopropylidene-, 1728*g*.
Isoenanthic acid, γ,γ,δ-trihydroxy-dimethoxy-, γ-lactone, 1722*d*.
Mannonic acid, 2,3,6-trimethyl-, lact 581*f*.
Sorbofuranose, 2,3-isopropylide 7431*e*.
Sorbopyranose, 1,2-isopropylide 7431*e*.
$C_9H_{18}O_7$ Glucuronic acid, 2,3,4-trimeth 1324*b*.
Glutaric acid, oxo-hydroxydimeth di-Me ester, 5889*c*.
$C_9H_{18}S$ Geraniolene, sulfide from, 997*a*.
$C_9H_{18}Si$ Silane, triallyl-, 2160*h*.
$C_9H_{19}Br$ Cyclohexane, 1-(bromomethy dimethyl-, 9044*g*.

**$C_9H_{17}BrCl_2$** Nonane, 3-bromo-1,1-dichloro-, 3345*b*.

**$C_9H_{17}BrO$** Furan, 2-(bromomethyl)-5-*tert*-butyltetrahydro-, 5735*g*.

**$C_9H_{17}Cl$** Cyclohexane, 1-(2-chloroethyl)-1-methyl-, 3371*d*.
2-Heptene, 6-chloro-2,6-dimethyl-, 5736*f*.

**$C_9H_{17}ClN_2O_4$** (5-Dimethylamino-2,4-pentadienylidene)dimethylammonium perchlorate, 1653*f*.

**$C_9H_{17}ClO$** Enanthyl chloride, dimethyl-, 1373*i*, 2586*b*.
Ether, butyl chloropentenyl, 6568*d*, 9025*f*.
—, chloropentenyl isobutyl, 6568*d*.
Furan, 2-*tert*-butyl-5-(chloromethyl)tetrahydro-, 5735*i*.
Isoenanthyl chloride, β-ethyl-, 1374*b*.

**$C_9H_{17}ClO_2$** 2-Hexene, 6-chloro-5-ethoxy-1-methoxy-, 2159*a*.
Pelargonic acid, 9-chloro-, 109*g*.

**$C_9H_{17}ClO_4$** Malonaldehydic acid, chloro-, Et ester, di-Et acetal, P 7038*g*.

**$C_9H_{17}ClO_4S_2$** Thiophene, 3-chloro-4-(2,2-dimethylpropylsulfonyl)tetrahydro-, 1,1-dioxide, P 2238*a*.

**$C_9H_{17}Cl_2NO$** Acetamide, α,α-dichloro-*N*-heptyl-, 1720*c*.
Furfurylamine, *N*, *N*-bis(2-chloroethyl)-tetrahydro-, 5505*c*.

**$C_9H_{17}Cl_3O$** 2-Heptanol, 1,1,1-trichloro-3-ethyl-, P 664*j*, P 4284*h*.

**$C_9H_{17}Cl_3S$** 1-Nonanethiol, 9,9,9-trichloro-, P 8195*f*.

**$C_9H_{17}KO_3$** Glucopyranoside, methyl, compd. with KOAc, 1518.

**$C_9H_{17}N$** Enanthonitrile, α,s-dimethyl-, 1335*c*.
Norlupinane, 4268*c*.
Quinoline, decahydro-, *and salts*, 1414*j*.
Valeronitrile, α,α,γ,γ-tetramethyl-, P 3439*i*.

**$C_9H_{17}NO$** Acrylamide, *N tert* amyl α-methyl-, 2165*d*
1*H*)-Azecinone, octahydro-, 5400*c*
9 - Azonin - 2(3*H*) - one, hexahydro-methyl-, P 2225*c*
yclohexanone, 3,3,5-trimethyl-, oxime, P 3450*h*.
yclononanone, oxime, 5400*c*
anthonitrile, β - ethyl - α - hydroxy-, 3409*h*.
eptenone, 2,2-dimethyl-, oxime, 3735*a*.
, 3-ethyl-, oxime, 1311.
examethylenimine, trimethyl 2-oxo-, P 3450*i*.
Pentanone, 5 (1-pyrrolidyl)-, 3420*h*
Piperidinol, 2,5-dimethyl 4 vinyl-, 2060*e*.
Piperidone, 2 - ethyl - 3,6 - dimethyl-, 2059*f*.
, tetramethyl-, 2950*f*, 8365*f*, 9067*e*.
Propanone, (1-methyl-2-piperidyl)-, 6625*e*.

**$NO_2$** Crotonic acid, β-diethylamino-, Me ester, 7134*b*
yclohexanecarbamic acid, Et ester, 4233*a*.
yclohexanecarboxamide, *N*-2-hydroxyethyl-, 573*a*.
yclohexanecarboxylic acid, 1-amino-, Et ester, 574*a*, *and* - *HCl*, 572*g*.
yclopentaneacetamide, *N* - 2 - hydroxyethyl-, 2273*d*.
exenoic acid, 6-aminotrimethyl-, *and* - *HCl*, P 3451*b*.
Morpholinepropionaldehyde, α,α-dimethyl-, P 9080*i*
Piperidineacetic acid, Et ester, 572*d*, 573*g*.

**NO·S** Piperidine, 1-(tetrahydro-3-thienyl), *S*,*S*-dioxide, 2988*h*.
Hexoyamic acid, 2 (2 butoxyethoxy)ethyl ester, 2363*b*, 2730*f*, 3965*h*, P 4419*h*, P 4420*i*, 5149*h*, 6330*c*, 9353*b*.

**NO·S** Glycine, *N*-caproyl-, Me ester, P 3939*b*.
Lactamide, *N*, *N*-diethyl-, acetate, 3358*f*.
Malonamic acid, *N-tert*-amyl-, Me ester, 2165*d*
Morpholineacetic acid, α-methyl-, Et ester, 9054*a*.
Orthoacetic acid, cyano-, tri-Et ester, 3358*g*, 3360*b*.
Pelargonic acid, 9-amino-9-oxo-, P 5808*d*; *HCl*, 1769*d*.

**$NO_2S$** Cysteine, *N*-caproyl-, 2990*i*.
3-Heptanone, 6-methyl-1-methylmercapto-6-nitro-, 7433*h*.
Norvaline, *N*-acetyl-β-ethyl-β-mercapto-, 2581*g*.
Valine, *N* - [(ethylmercapto)acetyl]-, 3356*f*.

**$NO_3$** Butyramide, *N*-2-formylethyl-α,γ - dihydroxy - β,β - dimethyl-, P 5416*f*.
Butyric acid, γ-[(carboxymethyl)methylamino]-, Et ester, - *HCl*, 4274*f*.
Glutamic acid, di-Et ester, 2582*b*; *and* - *HCl*, 7425*h*.
Imidodicarboxylic acid, Am Et ester, 4228*g*.
Malonic acid, dimethylamino-, di-Et ester, 7422*d*.
Propionic acid, β,β'-(methylimino)di-, di-Me ester, 3408*c*.

**$NO_3$** See *Pantothenic acid*.

**$C_9H_{17}NO$** Cycloheptanecarboxaldehyde, semicarbazone, 6197*d*.
Cycloheptanone, 3-methyl-, semicarbazone, 2965*i*.
Cyclohexaneacetaldehyde, semicarbazone, 3372*c*.
Cyclohexanecarboxaldehyde, 3-methyl-, semicarbazone, 2066*a*.
Cyclohexanone, dimethyl-, semicarbazone, 2002*g*, 2998*f*, 8362*g*.
Cyclopentanecarboxaldehyde, 2,5-dimethyl-, semicarbazone, 4255*a*.
Heptenone, methyl-, semicarbazone, 2161*c*, 7413*i*.
5-Hexen-2-one, 3-ethyl-, semicarbazone, 5735*a*.
1-Propanone, 1-cyclopentyl-, semicarbazone, 7431*i*.
2(1*H*)-*s*-Triazone, 5-cyclohexyltetrahydro-, 1782*f*.

**$C_9H_{17}N_3O_2$** 5-Homopiperazinone, 2,2,7,7-tetramethyl-1-nitroso-, 9067*g*.

**$C_9H_{17}N_3O_4$** Enanthic acid, ε-methyl-γ-oxo-, semicarbazone, 6625*b*.

**$C_9H_{17}N_3S$** 2(1*H*)-*s*-Triazinethione, 5-cyclohexyltetrahydro-, 1782*f*.

**$C_9H_{17}N_3$** Pyrimidine, 2-amino-4-(5-aminoamylamino)-, P 4704*h*.

**$C_9H_{17}N_3O$** *s*-Triazine, 2-amino-4-an ylamino-6-methoxy-, 4269*d*.
*s*-Triazine, 2 - amino - 4 - butoxy - 6 - dimethylamino-, 4269*e*.
, 2-amino-4-butoxy-6-ethylamino-, 4269*c*.
, 2 - butoxy - 4,6 - bis(methylamino)-, 4269*f*.

**$C_9H_{18}$** (See also *Nonene*.)
Cycloheptane, ethyl-, 157*g*
Cyclohexane, 1-ethyl-2-methyl-, 3814*a*.
—, isopropyl-, 8246*h*, 8890*b*.
—, propyl-, 10*c*.
—, trimethyl-, 157*fg*.
Cyclopentane, butyl-, 157*i*, 2924*g*.
Heptene, dimethyl-, 4061*g*.
—, 4-ethyl-, 4061*g*.

**$C_9H_{18}BrNO$** Acetamide, α-bromo-*N*-heptyl-, 5081*h*.

**$C_9H_{18}BrN_3S$** Urea, 1-(2-bromoallyl)-3-(3-dimethylaminopropyl) 2-thio-, 1016*g*.

**$C_9H_{18}Br_2O$** 3-Heptanol, 6,7-dibromo-2,2-dimethyl-, 5735*g*.

**$C_9H_{18}ClI$** Nonane, 1-chloro 9-iodo-, 566*k*.

**$C_9H_{18}ClN$** Cyclohexylamine, 1-(chloromethyl)-*N*, *N*-dimethyl-, 4243*g*
Pyrrolidine, 1-(2-chloropropyl)dimethyl-, 631*e*.

**$C_9H_{18}ClNO$** Isobutyramide, *N-tert*-amyl-α-chloro-, 2165*d*.

**$C_9H_{18}ClNS$** Carbamyl chloride, dibutylthio-, P 5038*i*.

**$C_9H_{18}Cl_2$** Heptane, 2,6-dichloro-2,6-dimethyl-, 5736*f*.
Nonane, 1,9-dichloro-, 560*k*.

**$C_9H_{18}Cl_2N$** Amylamine, 5,5,5-trichloro-*N*, *N*-diethyl-, - *HCl*, 1861*e*.

**$C_9H_{18}IN$** 1-Ethylquinuclidinium iodide, 3422*g*.

**$C_9H_{18}INO$** 1,1-Diethyl-4-oxopiperidinium iodide, 7432*c*.
Isoretronecanol, methiodide, 3827*i*.

**$C_9H_{18}N_2$** Acetamidine, *N*-cyclohexyl-*N'*-methyl-, *and* - *HCl*, 2594*d*.
Carbodiimide, di-*tert*-butyl-, 1016*a*.
Enanthonitrile, α-amino-β-ethyl-, *and* - *HCl*, 3409*i*.
2-Imidazoline, 1,5-diethyl-2,5-dimethyl-, 8381*f*.

**$C_9H_{18}N_2O$** 5-Homopiperazinone, 2,2,7,7-tetramethyl-, *and* - *HCl*, 9067*f*.
4-Piperidone, 2,2,6,6-tetramethyl-, oxime, - *HCl*, 9067*g*.

**$C_9H_{18}N_2O_2$** Acetamide, *N*, *N*-diethyl-α-(*N*-methylacetamido)-, P 249*a*.
Propionamide, *N*-[(dimethylcarbamyl)-methyl]-*N*-ethyl-, P 4291*e*.
Urea, β,γ-dimethylcaproyl-, 2169*e*.
—, γ-ethylcaproyl-, 2169*e*.

**$C_9H_{18}N_2O_2S$** 2-Thiophenevaleric acid, 3,4-diaminotetrahydro-, P 3468*a*; *sulfate*, P 3469*cd*, P 6670*i*.

**$C_9H_{18}N_2O_2S_2$** 4-Morpholinecarbodithioic acid, morpholine salt, 2188*a*.

**$C_9H_{18}N_2O_3$** β-Alanine, *N*-leucyl-, 1448*c*.
2-Furanvaleric acid, 3,4-diaminotetrahydro-, *and sulfate*, 2988*a*.
Furfurylamine, tetrahydro-*N*-2-nitroisobutyl-, P 5424*h*.
Hydantoic acid, α,α-dipropyl-, 2167*b*.
Leucine, *N*-β-alanyl-, 1448*c*.
—, *N*-(*N*-methylglycyl)-, 2250*c*.

**$C_9H_{18}N_2O_3S_2$** Acetamide, *N*, *N'*-[3-hydroxypropylenebis(thiomethylene)]bis-, P 3571*h*.

**$C_9H_{18}N_2O_4$** β-Alanine, *N*-(α-amino-γ-hydroxy-β,β-dimethylbutyryl)-, 4223*g*.
*m*-Dioxan-5-amine, 5-methyl-*N*-2-nitroisobutyl-, P 813*b*.

**$C_9H_{18}N_2O_5$** 3-Heptanol, 2,6-dimethyl-2,6-dinitro-, P 7952*i*.

**$C_9H_{18}N_2O_6$** Arabinose, diacetamido-, 5747*h*.

**$C_9H_{18}N_2S_2$** Azelaamide, dithio-, P 6465*ab*.

**$C_9H_{18}N_4$** Guanidine, 2-butyl-1-cyano-3-isopropyl-, 2949*g*.

**$C_9H_{18}N_4O_4$** (See also *Octopine*.)
Propionic acid, α,α-bis(*N*-methylglycylamino)-, - *HCl*, 138*h*.

**$C_9H_{18}N_6$** *s*-Triazine, 2,4-diamino-6-(2-butylaminoethyl)-, P 5052*c*.

**$C_9H_{18}N_2O_4$** Acetamide, *N*-(hydroxymethyl)-, nitrate, compd. with hexamethylenetetramine, 9075*g*.

**$C_9H_{18}N_6O_6$** Melamine, hexakis(hydroxymethyl)-, P 2444*c*, P 3239*i*.

**$C_9H_{18}N_{10}O_6$** 1,3,5,1*H*-Triazepine, 3,3'-methylenebis[hexahydro - 1,5 - dinitro-, 9073*i*.

**$C_9H_{18}O$** Caproaldehyde, β, δ, δ-trimethyl-, P 7501*g*.
Cyclohexaneëthanol, 1-methyl-, 3372*a*.
Cyclohexanemethanol, dimethyl-, 164*g*, 9044*g*.
Cyclohexanepropanol, 1375*f*.
Cyclohexanol, 1-ethyl-3-methyl-, 165*a*.
—, 1-isopropyl-, 3366*f*.
—, 4-propyl-, 6980*e*.
—, 3,3,5-trimethyl-, P 1217*g*, 4401*h*.
Cyclononanol, 6988*f*.
Cyclooctanemethanol, 6195*d*.
Ether, butyl 3-methyl-2-butenyl, 114*f*.
—, heptyl vinyl, 456*a*, 6576*f*.
—, isobutyl 3-methyl-2-butenyl, 114*f*.
Furan, 2 - butyltetrahydro - 2 - methyl-, 2163*b*.
—, 2 - *tert* - butyltetrahydro - 5 - methyl-, 5735*e*.
2-Heptanone, 3,3-dimethyl-, 2162*h*.
—, 4-ethyl-, 131*h*.
Heptenol, dimethyl-, 5735*cd*.
2-Hexanone, 3-ethyl-3-methyl-, 6974*i*.
Isovalerone, 406*a*, 2589*h*, 4401*g*, P 5519*b*, 6170*i*, 7140*c*.
Nonanone, 1656*c*, 2589*h*, 3148*e*.
4-Octanone, 5-methyl-, 116*a*.
Pelargonaldehyde, 3217*c*, 3977*a*, 5972*i*.
3-Pentanone, 2,2,4,4-tetramethyl-, 111*d*, 1349*e*.

**$C_9H_{18}O_2$** (See also *Pelargonic acid*.)
Acetic acid, heptyl ester, 8779*g*.
Butyric acid, iso-Am ester, 2834*b*.
Caproic acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
—, β-propyl-, 6165*c*.
—, β, δ, δ-trimethyl-, P 7501*g*.
Caprylic acid, Me ester, 2164*i*, 2590*d*.
Enanthic acid, Et ester, 3612*a*, 7418*e*.
—, dimethyl-, 1335*c*, 1373*i*, 2586*b*.
Heptanone, 3-ethyl-4-hydroxy-, 132*a*.
—, methoxymethyl-, 6974*h*.
Hexanol, 3-methyl-, acetate, 115*e*.
Isoenanthic acid, β-ethyl-, 1374*b*.
Isovaleric acid, iso-Bu ester, 2834*bf*.
4-Octanone, 3-methoxy-, 6974*g*.
Pentenol, butoxy-, 9025*i*
Propionic acid, hexyl ester, 8779*g*.

**$C_9H_{18}O_2S$** Acetic acid, (2,4-dimethylamylmercapto)-, 3365*a*.
Acetic acid, (1-propylbutylmercapto)-, 3365*b*.
3-Heptanone, 5-mercapto-1-methoxy-5-methyl-, 2163*f*.
Propionic acid, β-(1-ethylmercapto)-, P 1054*g*.

**$C_9H_{18}O_2S_2$** Thiophene, 3 - (amylmercapto)-tetrahydro-, 1,1-dioxide, P 2237*g*.

**$C_9H_{18}O_3$** Acrolein, β-ethoxy-, di-Et acetal, 3359*f*.
Butyric acid, butoxymethyl ester, 6162*a*; 1-propoxyethyl ester, 6576*e*.
—, α-isoamoxy-, *and Bi salt*, 2488*i*.
Caprylic acid, α-hydroxy-α-methyl-, 1353*i*.
Carbonic acid, di-Bu ester, 6168*c*; di-*tert*-butyl ester, 578*h*.
Enanthic acid, ζ-hydroxy-, Et ester, 2176*a*.

Ethanol, 1-isoamoxy , acetate, 6576*f*.
Glycolic acid, heptyl ester, 8779*g*.
Hydracrylic acid, hexyl ester, 8779*g*.
Lactic acid, hexyl ester, 8779*g*.
1,2 - Propanediol, 3 - (cyclohexyloxy)-, 311*h*.
Propionic acid, 1-butyoxyethyl ester, 3786*b*, 6576*f*, 7426*a*; 1-isobutoxyethyl ester, 6576*f*.
—, β-ethoxy-, Bu ester, 1322*g*.
Valeric acid, 1-ethoxyethyl ester, 6576*e*.
—, δ-butoxy-, 1381*e*.

**$C_9H_{18}O_3S$** Cyclohexanemethanesulfonic acid, 3,3-dimethyl-, *and salts*, 9044*e*.

**$C_9H_{18}O_4$** Acetic acid, (2-isoamoxyethoxy)-, P 9477*i*.
Lactic acid, 2-butoxyethyl ester, P 676*c*.
Malonaldehydic acid, Et ester di-Et acetal, P 1055*g*, 6167*h*.
Valeric acid, γ-ethoxy-α-hydroxy-, Et ester, 2108*e*.

**$C_9H_{18}O_4S$** Cyclohexanemethanesulfonic acid, 5-hydroxy-3,3-dimethyl-, 9044*e*

**$C_9H_{18}O_4S_2$** Thiophene, 3-(amylsulfonyl)tetrahydro-, 1,1-dioxide, P 2237*g*.

**$C_9H_{18}O_5$** Arabinoside, methyl 2,3,5-trimethyl-, 583*e*, 585*h*, 2954*b*.
Arabofuranoside, methyl 2,3,5-trimethyl-, 583*e*.
Peroxide, *tert*-butyl 3-carboxy 1-hydroxy-1-methylpropyl, P 2629*g*.
Pyran-4-ol, tetrahydro-3,3,5-tris(hydroxymethyl)-, P 8402*c*.
2*H*-Pyran-3,3,5(4*H*)-trimethanol, 5,6-dihydro - 4 - hydroxy - 5 - methyl-, P 9527*i*.
Rhamnose, 2,3,4-trimethyl-, 584*i*.
Ribofuranoside, methyl trimethyl-, 2953*h*.
Xyloside, methyl 2,3,4-trimethyl , 5580*b*

**$C_9H_{18}O_6$** Fructose, trimethyl-, 5749*i*, 5750*g*, 6947*d*.
Galactose, trimethyl-, 583*b*, 586*a*, 1324*b*
Galactoside, methyl dimethyl-, 583*f*.
D-Glucose, trimethyl-, 1330*h*, 1331*d*
Glucoside, methyl 4,6-dimethyl , 3368*i*.
Mannose, trimethyl-, 581*c*, 585*b*.
Mannoside, methyl dimethyl-, 581*bf*, 584*g*, 585*i*.
Pyran-4-ol, tetrahydro-3,3,5,5-tetrakis(hydroxymethyl)-, P 8402*b*
2*H* - Pyran - 3,3,5,5(4*H*,6*H*) - tetramethanol, 4 hydroxy-, P 9527*h*

**$C_9H_{18}O_6S_2$** Glucoside, (2,3-dimercaptopropyl)-, 4376*h*, 9250*i*.

**$C_9H_{18}S$** Heptene-2-thiol, 2,6-dimethyl , 1001*a*.
Thiapyran, tetrahydro 2,2,6,6 tetramethyl-, 1001*a*, 3743*b*

**$C_9H_{18}S_2$** 1,3-Dithiolane, 4 butyl-2, 2-dimethyl-, 7417*h*.
Geraniolene, disulfide, bi 75°, 1001*a*.

**$C_9H_{19}Br$** Heptane, 4-(2 bromoethyl) , 1374*d*, 6165*d*.
Nonane, 1 bromo , 2590*i*, 4912*b*.
Octane, 2-bromo-3 methyl-, 8384*i*

**$C_9H_{19}BrO$** Ether, 2 bromoisoamyl butyl(?), 3359*a*.
Ether, 2-bromoisoamyl isobutyl(?), 3359*a*.
—, 1-(bromomethyl)isobutyl butyl (?), 3359*a*.
—, 1-(bromomethyl)isobutyl isobutyl(?), 3359*a*.
—, bromomethyl 1 methylheptyl, 2926*d*

**$C_9H_{19}BrO_2$** Isovaleraldehyde, α-bromo-, di-Et acetal, 2575*h*.

**$C_9H_{19}BrO_3$** Propionaldehyde, α-bromo β-ethoxy-, di-Et acetal, 3359*f*.

**$C_9H_{19}Cl$** Nonane, 1-chloro-, 2590*i*
Pentane, 3-chloro-3 ethyl-2,2-dimethyl , 6968*h*.

**$C_9H_{19}ClO_2$** 2,5-Heptanediol, 1-chloro-6,6-dimethyl-, 5735*i*.
1,3 - Propanediol, 2 - amyl - 2 - (chloromethyl)-, 6576*a*.

**$C_9H_{19}ClS$** Sulfide, 2-chloroethyl heptyl, 2928*g*.

**$C_9H_{19}Cl_2NS_2$** Diethylamine, 2,2'-bis(2-chloroethylmercapto) -N-methyl-, 5505*d*

**$C_9H_{19}N$** (See also *1 Hexenylamine, N,1,5-trimethyl* .)
Azecine, decahydro , 5400*d*.
Cyclohexaneethylamine, α - methyl , 9250*g*; *and HCl*, 1026*i*
Cyclohexanemethylamine, ethyl-, P 2630*i*, 4218*ab*.
Cyclopentylamine, *N*-isobutyl-, P 253*i*, P 255*a*.
2-Hexenylamine, 2 ethyl-1-methyl-, 131*i*

**$C_9H_{19}NO$** Alkaloid from *Sedum sarmentosum*, 6625*e*.
Butyramide, *N-tert*-amyl-, 2165*d*.
Caproamide, β-propyl-, 6165*c*.
Cyclohexanepropanol, β-amino-, *and salts*, 5725*i*.
Enanthamide, α,ε-dimethyl-, 2586*b*.
Formamide, *N* - 1,1,3,3 - tetramethylbutyl-, 2165*f*.
2-Heptanone, 4-ethyl-, oxime, 131*h*.
5-Nonanone, oxime, 5740*e*
Pelargonamide, 7914*g*.
2 Pentanone, 5-diethylamino-, P 668*e*
2 - Piperidineethanol, α,1 - dimethyl-, 6625*e*.
1-Piperidinepropanol, α-methyl-, *and - HCl*, 2935*b*.
4 - Piperidinol, 4 - ethyl - 2,5 - dimethyl-, 2960*e*.
1-Pyrrolidineethanol, trimethyl-, 631*e*

**$C_9H_{19}NO_2$** Caproic acid, ε-aminotrimethyl-, P 3450*i*.
Caprylic acid, aminomethyl , 1323*a*, P 2225*c*.
Carbamic acid, dipropyl-, Et ester, 3107*d*.
Cyclohexanepropanol, β - amino - 4 - hydroxy-, 573*a*
2-Heptanone, 3-ethyl-4-hydroxy-, oxime, 131*i*.
Leucine, *N*-isopropyl , 6979*e*
—, α-methyl , Et ester, *and salts*, 572*g*
—, *N*-propyl-, 6979*e*.
4-Morpholinepropanol, dimethyl-, P 6673*h*, P 9081*a*.
Norleucine, α isopropyl-, *and HCl*, 2167*e*.
Norvaline, Bu ester, 2270*g*.
Pelargonic acid, β-amino-, 235*i*
1-Piperidineacetaldehyde, di-Me acetal, *and - HCl*, 6974*c*.
Piperidine, 1 - ethyl - 3,5 - dimethoxy-, 2208*i*.
4-Piperidone, di-Et acetal, - *HCl*, 4275*c*

**$C_9H_{19}NO_3$** Ether, methyl 1-nitromethylheptyl, 1716*d*.

**$C_9H_{19}NO_3S$** Butyric acid, α-amino α (amylsulfinyl)-, 3499*h*.

**$C_9H_{19}NO_4$** Butyramide, α,γ-dihydroxy-N (3-hydroxypropyl)-β,β-dimethyl-, 3074*i*, 4742*h*, P 5794*i*, P 6793*b*, 8466*i*, 8476*i*, 9132*i*, 9373*c*.

**$C_9H_{19}NO_4S$** Butyric acid, α-amino-α-(amylsulfonyl)-, 3499*h*.
1-(3-Hydroxybutyl)piperidinium hydrogen sulfate, cyclic ester, 2935*a*.

**$C_9H_{19}NO_5$** Glucosamine, dimethylmethyl-, 585*i*.

**$C_9H_{19}NO_6$** Mannonamide, 2,3,6-trimethyl-, 581*f*.

**$C_9H_{19}NO_6S$** Taurine, N (α,γ-dihydroxy-β,β dimethylvaleryl)-, 722*k*

**$C_9H_{19}NS$** Piperidine, 1 (butylmercapto) , 2934*c*.
Piperidine, 1-(*tert*-butylmercapto)-, P 1176*g*.

**$C_9H_{19}NS_2$** Carbamic acid, dibutyldithio-, *salts*, 5987*a*

**$C_9H_{19}N_3O$** Butyraldehyde, α,α,β,β-tetramethyl-, semicarbazone, 1309*i*
Heptanone, methyl , semicarbazone, 2161*bc*.
4-Octanone, semicarbazone, 6154*g*.
1-Piperazinecarboxamide, N,N-diethyl-, P 6245*f*.
— , 4-methyl *N*-propyl-, P 6245*g*
2(1*H*)-*s*-Triazone, tetrahydro-4,6-dipropyl , 1782*f*.

**$C_9H_{19}N_3O_2$** 2 Butanone, 4-*tert*-butoxy-, semicarbazone, 1339*a*
4 Heptanone, 3-hydroxy-3-methyl , semicarbazone, 2944*i*.
—, 3 methoxy-, semicarbazone, 6974*g*
3-Hexanone, 4-methoxy-2 methyl-, semicarbazone, 6974*g*
Octanone, hydroxy , semicarbazone, 2944*d*, 6190*g*
Urea, 1-(diethylaminoacetyl) 3-ethyl , 6162*i*.

**$C_9H_{19}N_3S_2$** 1midazolethione, 2 mercaptodi methyl , compd with $Et_2NH$, 6171*e*

**$C_9H_{20}$** (See also *Nonane* .)
Heptane, dimethyl , 1332*i*, 3773*e*, 4453*f*, 8767*h*.
Hexane, trimethyl , 1311*c*, 2924*g*.
Octane, methyl-, 4453*f*.

**$C_9H_{20}BrN$** Amylamine, 4 bromo *N*-tert-butyl-, - *H Br*, P 4684*d*.
Amylamine, 4-bromo-*N* isobutyl , - *H Br*, P 4684*d*.
Hexylamine, 5 - bromo - *N* - isopropyl , - *H Br*, P 4684*d*.

**$C_9H_{20}ClN$** Amylamine, *N* butyl-5-chloro-, *HCl*, 3421*d*.
Amylamine, *N-sec*-butyl-5-chloro-, - *HCl*, 3421*c*.
Hexylamine, 5-chloro- *N*,1,5-trimethyl-, 9248*e*.

**$C_9H_{20}ClNO$** 2-Propanol, 1-chloro-3-dipropylamino-(?), P 253*i*.
2-Propanol, 1-chloro-3-(ethylisopropylamino)-2-methyl-, P 254*b*.
Propionyl chloride, compd. with $Et_3N$, 8353*c*.

**$C_9H_{20}ClNO_2$** (Carboxymethyl)trimethylammonium chloride, Bu ester, 6977*a*.
Choline, chloride butyrate, 8058*g*.

**$C_9H_{20}I_2OS_2$** (3-Oxopentamethylene)bis[dimethylsulfonium iodide], 7434*a*.

**$C_9H_{20}NO_2P$** Phosphinic acid, (1-cyclohexylaminoisopropyl)-, 5378*d*.

**$C_9H_{20}N_2$** Amylamine, *N*, *N*-diethyl-4-imino-, 132*i*.
Propionamidine, *N*, *N*, *N'* - triethyl-, 2594*f*.
Pyrrolidine, 1-(4-aminoamyl)-, 3420*i*.

**$C_9H_{20}N_2O$** Butyramide, *N*, *N*-diethyl-α-methylamino-, P 249*h*.
Butyramide, *N*, *N*-dimethyl-α-propylamino-, P 250*f*, P 4686*f*.
—, α-ethylamino-*N*, *N*,α-trimethyl-, P 251*b*.
Ethanol, 2-(1-ethyl-4-piperidylamino)-, 2207*c*.
Formamide, *N* - propyl - *N* - (2 - propylaminoethyl)-, P 3028*f*.
Isovaleramide, α-ethylamino-*N*, *N*-dimethyl-, P 4686*g*.
Oxetane-3,3-bismethylamine, *N*, *N*, *N'*,-*N'*-tetramethyl-, *and salts*, 133*i*.
Propionamide, α-*sec*-butylamino-*N*, *N*-dimethyl-, P 4686*g*.
—, *N*, *N*-diethyl-α-ethylamino-, P 249*c*, P 251*c*.

**$C_9H_{20}N_2O_3$** Choline, aspartate, 5742*f*, 7426*b*.

**$C_9H_{20}N_2S$** Pseudourea, 2-octyl-2-thio-, 1868*d*.
Thiocyanic acid, $Bu_2NH$ salt, 578*g*.
Urea, 1,3 dibutyl-2-thio-, P 1219*d*, 6560*a*.
—, 1,3-di-*tert*-butyl-2-thio-, 1015*i*.

**$C_9H_{20}N_4OS_2$** Pseudourea, 2-[1-[2-(guanylmercapto)ethylmercaptomethyl] - 3-methoxypropyl]-2-thio-, *di- HCl*, P 4292*d*

**$C_9H_{20}N_6O_7 + H_2O$** Streptidine, carbonate, 1329*d*.

**$C_9H_{20}N_4O_4$** Urea, 1,1'-[2,2 bis(ureidomethyl)-trimethylene]di-, P 3843*i*.

**$C_9H_{20}N_4O_{10}$** 3,13-Dioxa-5,7,9,11-tetrazapentadecane, 5,7,9,11-tetranitro-, 9074*g*.

**$C_9H_{20}O$** Heptanol, dimethyl-, 2162*i*, 4401*f*, 5735*c*, 7140*c*.
1-Hexanol, 3-propyl , 1374*d*, 6165*c*.
Nonanol, P 5032*d*
Nonyl alcohol, 469*h*, 2956*b*, 5627*i*, 6041*d*, 7161*d*, 7284*h*, 8356*g*.
2 Octanol, 3-methyl-, 8384*h*.
3-Pentanol, 2,2,3,4-tetramethyl-, 111*d*.

**$C_9H_{20}OS$** Ethanol, 2-(heptylmercapto)-, 2928*g*.

**$C_9H_{20}O_2$** Methane, dibutoxy-, 2590*i*, 6568*d*
Methane, dusobutoxy-, P 1052*b*, 2590*i*, 2926*b*, 6568*d*.
1,9 Nonanediol, 566*g*
Pentanol, butoxy-, 9026*a*.
1,3 Propanediol, 2-butyl-2 ethyl-, 572*f*.
—, 2,2-dipropyl-, 8546*h*.

**$C_9H_{20}O_3$** Orthopropionic acid, tri-Et ester, 5365*h*.
Pivalaldehyde, hydroxy-, di-Et acetal, 2941*a*.
Propanediol, 2-amyl-2-(hydroxymethyl)-, 6576*b*
—, 3 (1,3-dimethylbutoxy)-, 5150*g*.
—, 3-(hexyloxy)-, 311*h*.
Propionaldehyde, β-ethoxy-, di-Et acetal 3359*f*.

**$C_9H_{20}O_3Si$** Silane, cyclohexyltrimethoxy-, 5033*f*.

**$C_9H_{20}O_4$** Acetone, compd. with 1,2,5-hexanetriol, 7409*a*.
Orthocarbonic acid, tetra Et ester, 5365*h*

**$C_9H_{20}O_4S_2$** Xylose, di-Et mercaptal, 7429*h*.

**$C_9H_{20}O_6S_2$** Mannitol, (2,3-dimercaptopropyl)-, 9250*i*.
Sorbitol, 6 - (2,3 - dimercaptopropyl)-9251*a*.

**$C_9H_{20}S$** Sulfide, amyl *sec*-butyl, P 6646*d*.
Sulfide, amyl *tert*-butyl, P 6646*d*.

**$C_9H_{20}S_2$** Ethanethiol, 2-[2-(amylmercapto) ethylmercapto]-, 2935*f*.

**$C_9H_{21}AlO_3$** Aluminum isopropoxide, 1349*a*, 3234*a*.

**$C_9H_{21}Al_2O_{10}P_3$** Aluminum glycerophosphate, 4550*g*.

**$C_9H_{21}BrN_2O$** 1-Propanol, 3-bromo-2,2-bi(dimethylaminomethyl)-, *di- HB* 134*a*.

**$C_9H_{21}BrSn$** Tripropyltin bromide, 7980*c*

$C_6H_{11}O_{42}P_3Y_6$ Cerium glycerophosphate, 4551*b*.
$C_6H_{11}ClO_3Si$ Silane, chlorotris(2-methoxyethoxy)-, 2160*d*.
$C_6H_{11}Fe_3O_{18}P_3$ Iron glycerophosphate, 4550*g*.
$C_6H_{11}HgNS$ Triethylamine, 2-(propylmercurimercapto)-, P 6649*e*.
$C_6H_{12}ISn$ Tripropyltin iodide, 7900*a*.
$C_6H_{11}La_3O_{18}P_3$ Lanthanum glycerophosphate, 4549*g*, 4550*a*.
$C_6H_{11}N$ Butylamine, *N*-isobutyl-1-methyl-, P 253*h*.
Dibutylamine, 1-methyl-, P 253*h*.
Hexylamine, ethyl-1-methyl-, *and - HCl*, 131*hi*.
—, *N*,1,2-trimethyl-, *and - HCl*, 131*i*.
Isoamylamine, *N sec*-butyl-, P 255*a*, P 1008*a*.
Tripropylamine, 2956*g*.
$C_6H_{11}NO$ Heptanol, methyl-6-methylamino- P 3029*d*, 7148*a*, 8546*cc*; - *HCl*, 9248*e*
2-Hexanol, 6 isopropylamino-, P 4684*c*
Pentanol, 5-butylamino-, 3421*b*.
—, 5-*sec*-butylamino-, 3421*b*.
—, 5-*tert*-butylamino-, P 4684*c*.
—, 1-isobutylamino-, P 4684*c*.
1 Propanol, 3 - diethylamino - 2,2 - dimethyl-, P 9081*a*.
Propylamine, *N*-(3 methoxypropyl)-2,2-dimethyl, 3421*b*.
$C_6H_{11}NO_3$ 2-Propanol, 1,1′,1″-nitrilotri-, P 1220*c*.
$C_6H_{11}NO_4$ [2 - (Ethoxymethoxy)ethyl]trimethylammonium formate, P 2739*g*.
$C_6H_{11}NO_5S$ Cyclopentanone, compd. with *tert* butylamine bisulfite, 3356*b*
$C_6H_{13}N_3$ Guanidine, 1,3-dibutyl-, 2203*d*.
Triazine, triethylhexahydro-, 4390*a*, 8729*g*.
$C_6H_{13}O_4P$ Propyl phosphate, P 9478*b*
$C_6H_{13}IN$ Triethylisopropylammonium iodide, 3422*g*
$C_6H_{13}INO_2$ (2,2 Dimethoxyethyl)diethyl methylammonium iodide, 6974*b*
$C_6H_{14}N_2$ 1,4 Pentanediamine, *N*,*N*′ diethyl-, 1321, *and chloronaxate*, 13490
1,3 Propanediamine, *N*,*N*-dipropyl-, *di 2Hcl*, 3380*d*
$C_6H_{14}N_2O_4$ Carbamic acid, bis(2 hydroxyethyl) , salt with 2,2′ iminodiethanol, 6158*a*
$C_6H_{14}N_2S_2$ Carbamic acid, butyldithio , compd with $BuNH_2$, P 4508*f*
$C_6H_{14}OPb$ Tripropyllead hydroxide, 4596*c*.
$C_6H_{14}OS$ *tert* Amyldimethylsulfonium ethoxide, 3449*g*.
$C_6H_{14}OSn$ Tripropyltin hydroxide, 7900*a*.
$C_6H_{14}OSi$ Silane, hexyltrimethoxy-, P 5033*f*
$C_6H_{14}Si$ Silane, triethylpropyl-, P 8398*b*
$C_6H_{14}HgNO_4S_2$ Trimethyl[2 propylmercuri mercapto)ethyl]ammonium methyl sulfate, P 6688, P 6649*e*.
$C_6H_{15}NO_3S$ Isovaleraldehyde, compd with *tert* butylamine bisulfite, 3356*c*.
Valeraldehyde, compd with *tert* butylamine bisulfite, 3356*b*.
$C_6H_{15}O_4P$ Ethyl methyl triphosphate, [illegible]
$C_6H_{16}Br_2N_2$ Trimethylenebis[trimethylammonium bromide], 2703*d*
$C_6H_{16}Cl_2N_2O$ (2-Hydroxytrimethylene)bis(trimethylammonium chloride), 6788*b*
$C_6H_{15}NO_3$ (Carboxymethyl)trimethylammonium hydroxide, (tetramethylammonium salt, P 8208*c*.
$C_6H_{16}NPS$ Thiophosphoramide, *N*, *N*′, *N*″-tripropyl-, 3353*d*.
$C_6H_{18}OSi_3$ 3 Oxa 2,4,6 - trisilaheptane, 2,2 1,4,6,6 hexamethyl-, 503*e*, P 3506, P 7500*f*.
$C_6H_{12}BrInN_2$ Propylamine, compd. with InBr, 6932*i*.
$C_6H_{12}ClInN_2$ Propylamine, compd with InCl, 6932*i*.
$C_6H_{12}IInN_2$ Propylamine, compd with InI, 6932*i*.
$C_6H_{14}BrInN_2$ 1,2-Propanediamine, compd. with InBr, 6932*i*.
$C_6H_{14}ClInN_2$ 1,2-Propanediamine, compd with InCl, 6932*i*.
$C_6H_{14}IInN_2$ 1,2 Propanediamine, compd. with InI, 6932*i*.
$C_6C_6O_3$ Calcium carbide, compd. with CaO, 2081*g*.
$C_6Cl_4F_2$ Benzene, 1,2,4,5-tetrachloro-3,6-bis(pentafluoroethyl)- 6179*k*.
$C_6Cl_6O_3$ [illegible]
[illegible] 4221*b*.
[illegible]pentadiene, hexachloro-, dimer, 4221*b*.
$C_6F_{14}$ 3,7 Methanoindene, hexadecafluorooctahydro , P 4301*a*.
$C_6F_{18}$ Naphthalene, octadecafluorodecahydro-, 2157*b*, P 4301*c*.
$C_6H_3Cl_3F_{10}$ Benzene, 1,4-dichloro-2,5-bis(pentafluoroethyl)-, 6174*h*.
$C_6H_3Cl_6S_2$ Thiophene, 3,3′-(dichlorovinylidene)bis[2,5-dichloro-, 627*e*.
$C_6H_3Cl_{13}O_3S$ Compd. m. 146–7 , 4231*b*.
$C_6H_3O_6$ Mellophanic dianhydride, 2589*d*.
$C_6H_3BrCl_2O_2$ Juglone, 6-bromo-2,3 dichloro-, 9057*i*.
$C_6H_3Br_3O_2$ Juglone, 2,3,6-tribromo-, 201*f*, 9058*a*.
$C_6H_3ClF_{10}$ Benzene, chlorobis(pentafluoroethyl)-, 6174*h*.
$C_6H_3Cl_3S_2$ Thiophene, 3,3′-(2,2,2-trichloroethylidene)bis[2,5 dichloro-, 627*e*, 2359*h*.
$C_6H_3BrClO_4$ 1,4-Naphthoquinone, 6-bromo 2-chloro-3,5 dihydroxy-, 9057*a*.
$C_6H_3Br_2O_3$ Juglone, dibromo-, 201*h*, 615*c*.
$C_6H_3Br_2O_4$ 1,4-Naphthoquinone, dibromodihydroxy-, 9057*gh*.
$C_6H_4Cl_2O_2$ See *1,4-Naphthoquinone, 2,3-dichloro-*.
$C_6H_4Cl_2O_3$ Juglone, 2,3-dichloro- 201 -
[illegible]
tetra [illegible] P 57
$C_{10}H_4BrCl_5$ 4,7-Methanoindene, 1-bromo 2,3,4,5,6,7,8,8 octachloro-2,3,3a, 4,7,7a hexahydro , P 5797*b*.
$C_{10}H_4BrO_3$ Juglone, bromo , 201*eg*
$C_{10}H_4BrO_4$ 1,4 Naphthoquinone, bromodihydroxy-, 9057*fg*
$C_{10}H_4Br_2Cl_2S_2$ Thiophene, 2,2′-(2,2,2-trichloroethylidene)bis[3 bromo , 627*e*, 3137*g*
$C_{10}H_4Br_2ClN$ Quinaldine, $\alpha,\alpha,\alpha$-tribromo-6 chloro-, 217*g*
$C_{10}H_4ClN_3O_4$ Naphthalene, 2-chlorodinitro , 5773*b*.
$C_{10}H_4ClO_3$ 1,4 Naphthoquinone, 2-chloro , 1372*a*, 5822*e*, 6675*d*
$C_{10}H_4ClO_3$ Benzoic acid, *o* [2 -chloroformyl)-1 hydroxyvinyl] , lactone, P 7850*b*.
Juglone, chloro-, 201*eg*
$C_{10}H_4ClO_4$ 1,4-Naphthoquinone, chlorodihydroxy-, 9057*eg*.
$C_{10}H_5Cl_3$ Naphthalene, 1,4,5 trichloro-, 345*h*.
$C_{10}H_5Cl_3Hg_2S$ Thiophene, 2,2′-(2,2,2-trichloroethylidene)bis[5 - (chloromercuri , 627*f*
$C_{10}H_5Cl_5S_2$ Thiophene, 2,2′-(2,2,2-trichloroethylidene)bis[5 chloro , 627*d*, 3137*g*
$C_{10}H_5Cl_5I$ 4,7-Methanoindene, 4,5,6,7,8,8-hexachloro-3a,4,7,7a - tetrahydro - 1-iodo-, P 5797*b*
$C_{10}H_5Cl_3NO_2$ 1,3-Benzodioxan, 6-nitro-2,4 bis(trichloromethyl) , 1896, 6605*a*
$C_{10}H_5Cl_7$ 4,7-Methanoindene, heptachloro-3a,4,7,7a-tetrahydro , 2705*f*, 4411*h*, P 5797*a*, P 6353*bc*, 9346*g*
$C_{10}H_5Cl_3O_2$ Benzyl alcohol, *p*-chloro-$\alpha$ (trichloromethyl)-, trichloroacetate, 1996, 2359*h*.
$C_{10}H_5IN_2O_3$ Phthalimide, *N* 2-hydroxyethyl 3,4,5,6-tetraiodo-, P 1534*f*
$C_{10}H_5KN_2O_6$ 1 Naphthol, 2,4-dinitro , K deriv., 5056*a*.
$C_{10}H_6NO_2$ 1,2 *H* Benzopyran 4 carbonitrile, 3 hydroxy 2-oxo-, P 693*g*
$C_{10}H_6NO_3$ 1,2 *H*-Benzopyran 3 carboxylic acid, 6-nitro 2-oxo-, 2180*a*
$C_{10}H_5N_2NaO_5$ 1 Naphthol, 2,4-dinitro-, Na deriv., 5056*a*.
$C_{10}H_6N_2O_3S$ Naphth[1,2]oxadiazole-5-sulfonic acid, 7-nitro , P 8148*b*.
$C_{10}H_6N_2O_4$ Umbelliferone, 4 methyl-3,6,8-trinitro-, 2621*h*.
$C_{10}H_6NaO_2$ 1,4-Naphthoquinone, 2-hydroxy-, Na deriv., 3111*e*.
$C_{10}H_6BrCl$ Naphthalene, 1-bromo-5-chloro-, 3813*b*.
$C_{10}H_6BrClN_2O_3$ 4-Cinnolinol, bromochloro-, acetate, 653*ce*
$C_{10}H_6BrClO_2$ Acrylic acid, $\beta$-bromo-$\beta$-*p*-chlorobenzoyl-, 607*e*.
$C_{10}H_6BrNO_3$ Rhodanine, 5-bromobenzylidene-, 605*d*.
$C_{10}H_6BrNO_3$ Naphthalene, bromonitro-, 3813*b*, 6607*ah*.
$C_{10}H_6BrNO_3$ Acrylic acid, $\beta$-(4-bromo-3-nitrobenzoyl)-, 6076.
$C_{10}H_6BrN_3O_3S$ Thiazole, 2-(2-bromo-4-nitrobenzamido)-, 7455*b*.
$C_{10}H_6Br_2$ Naphthalene, dibromo-, 2852*a*.
$C_{10}H_6Br_2Cl_6$ 4,7-Methanoindene, 1,2-dibromo - 4,5,6,7,8,8 - hexachloro-2,3,3a,4,7,7a-hexahydro-, P 5796*i*.
$C_{10}H_6Br_2N_2O_2$ 4-Cinnolinol, 3,6-dibromo-, acetate, 653*e*.
1,4-Naphthoquinone imine, 8-amino-2,6-dibromo 5-hydroxy-, P 8167*a*.
$C_{10}H_6Br_2N_2O_3S$ Salicylamide, 3,5-dibromo-*N*-2-thiazolyl-, P 693*b*, P 7513*c*.
$C_{10}H_6Br_2O$ Naphthol, dibromo-, 2600*ab*, P 8153*h*.
$C_{10}H_6Br_2O_3Se$ 4,7 Selenanaphthenedione, 2,5-dibromo 3,6 dimethyl-, 6612*f*.
$C_{10}H_6Br_2O_4$ Acrylic acid, $\beta$-(3,5-dibromosalicyloyl)-, 7192*h*
$C_{10}H_6Br_3N$ Quinaldine, $\alpha,\alpha,\alpha$-tribromo-, 6207*g*
$C_{10}H_6Br_4Cl$ Cyclopentadiene, pentabromochloro-, compd. with cyclopentadiene, P 4693*d*.
$C_{10}H_6Br_6$ Cyclopentadiene, hexabromo-, [illegible]
[illegible]-Naphthalenediazosulfonic acid, 4-chloro-, Na salt, 616*f*.
$C_{10}H_7ClN_2O_3S$ Thiazole, 2-(2 chloro-4-nitrobenzamido) , 7455*a*
$C_{10}H_7Cl_2$ Naphthalene, 2,6-dichloro-, 5389*a*.
$C_{10}H_7Cl_2F_4$ Benzene, (2,2,3,3-tetrafluorocyclobutyl) , dichloro deriv., P 4294*g*.
$C_{10}H_7Cl_2N_2O_2$ 4 Cinnolinol, 3,6-dichloro-, acetate, 653*d*
$C_{10}H_7Cl_2N_2O_3S$ Salicylamide, 3,5-dichloro-*N*-2-thiazolyl-, P 693*b*, P 7513*d*
$C_{10}H_7Cl_2O$ 1 Naphthol, dichloro-, 2590*k*, P 5960*cd*, P 8153*g*, P 8157*g*.
$C_{10}H_8Cl_2O_2$ 1,5-Naphthalenediol, 2,4-dichloro-, 200*h*.
1,4 Naphthoquinone, 2,3-dichloro-2,3-dihydro-, 1371*i*, 1372*a*
$C_{10}H_8Cl_2O_3$ Acrylic acid, $\beta$-chloro-$\beta$-*p*-chlorobenzoyl-, 607*e*.
Acrylic acid, $\beta$-dichlorobenzoyl-, 607*e*, 7192*h*.
$C_{10}H_8Cl_2O_3S_2$ Naphthalenedisulfonyl chloride, 1369*e*, 2864*e*.
$C_{10}H_8Cl_4O$ Benzoic acid, 2,3,4,5-tetrachloro-6-propionyl-, 2974*c*.
$C_{10}H_8Cl_4O_4$ Terephthalic acid, tetrachloro-, di Me ester, 609*f*.
$C_{10}H_8Cl_4$ Cyclopentadiene, hexachloro-, compd. with cyclopentadiene, P 4693*c*.
$C_{10}H_8Cl_8$ See *Chlordan*.
$C_{10}H_8IN_3O_3S$ Thiazole, [illegible]-nitrobenzamido)-, 7455*b*.
$C_{10}H_8I_2N_2O_3S$ Salicylamide, 3,5-diiodo-*N*-2 thiazolyl-, P 693*b*, P 7513*d*.
$C_{10}H_8NNaO_3S$ 1-Naphthalenethiol, 4-nitro-, Na deriv , 3387*d*.
$C_{10}H_8N_2O_2S_2$ Rhodanine, nitrobenzylidene-, 4174*i*.
$C_{10}H_8N_2O_4$ (See also *Naphthalene, dinitro-*.) Alloxan, phenyl-, 2953*g*.
1,3-Dioxolo[*f*]quinoline, 5-nitro-, 1413*e*.
Maleimide, *N*-(nitrophenyl)-, P 4422*a*.
$C_{10}H_8N_2O_5$ 1-Naphthol, 2,4-dinitro-, 1194*b*, 2600*b*, P 4808*e*, 5956*a*.
5-Quinolinecarboxylic acid, 6-hydroxy-8-nitro-(?), 1414*d*.
$C_{10}H_8N_2O_7$ Chromone, 7-hydroxy-2-methyl-6,8-dinitro-, 9067*a*.
Umbelliferone, 4-methyl-6,8-dinitro-, 2622*d*.
$C_{10}H_8N_2O_8S$ Flavianic acid, 3308*e*, 5255*b*.
$C_{10}H_8N_2S$ Thiazolo[5,4-*f*]quinoline, 7476*f*.
$C_{10}H_8N_2NaO_4S$ 1-Naphthalenediazosulfonic acid, 4-nitro-, Na salt, 616*e*.
$C_{10}H_8N_4O_2$ 1,3,4-Oxadiazole-2-acetonitrile, 5-(*p*-nitrophenyl)-, P 8024*g*.
$C_{10}H_8N_2O_2S$ Pyridine, 2,2′-thiobis[5-nitro-, P 5050*c*.
$C_{10}H_8N_2O_4S$ Pyridine, 2,2′-sulfonylbis[5-nitro-, P 5050*c*.
$C_{10}H_8O_2$ See *Naphthoquinone*.
$C_{10}H_8O_2S_2$ 2,2′-Bithenoyl, 1763*b*, 9062*i*.
$C_{10}H_8O_3$ (See also *1,4-Naphthoquinone, 2-hydroxy-*.)
Indancarboxaldehyde, dioxo-, P 1988*d*.
Juglone, 6673*d*, 7341*e*, 9057*c*.
Maleic anhydride, phenyl-, 2974*h*.

1,4-Naphthoquinone, 2,3-epoxy-2,3-dihydro-, 1372*a*.

**$C_{10}H_6O_3S$** 1-Naphthol-8-sulfonic acid, sultone, P 5047*d*, 7006*d*.

**$C_{10}H_6O_4$** 2,1*H*-Benzopyrancarboxylic acid, 1-oxo-, 1045*e*.
Furil, P 690*f*, 1368*b*, 4913*b*.
Naphthazarin, 7341*e*, 8413*f*, 9161*b*.
1,4-Naphthoquinone, dihydroxy-, 8413*f*, 9057*d*.

**$C_{10}H_6O_5$** 2,3-Benzofurandicarboxylic acid, 632*f*.
Benzopyrancarboxylic acid, hydroxyoxo-, 2993*i*, 4265*d*.
2-Furoic anhydride, 8353*b*.
Phthalic anhydride, 3-hydroxy-, acetate, 2984*h*.

**$C_{10}H_6O_6S$** Naphthalenesulfonic acid, dihydrodioxo-, 2437*g*; *Na salt*, 3111*e*, 7581*c*.

**$C_{10}H_6O_9$** Mellophanic acid, 2589*c*, 6208*f*, 7472*c*.
Pyromellitic acid, 208*d*.

**$C_{10}H_7AsCl_2$** Arsine, dichloro-2-naphthyl-, 4648*a*.

**$C_{10}H_7AsCl_4N_2$** 2-Naphthalenediazonium chloride, compd. with $AsCl_3$, 4647*h*.

**$C_{10}H_7Br$** See *Naphthalene, bromo-*.

**$C_{10}H_7BrClNO$** 8-Quinolinol, bromochloro-2-methyl-, P 4304*ab*.

**$C_{10}H_7BrHg$** 1-Naphthylmercury bromide, 560*a*.

**$C_{10}H_7BrMg$** 1-Naphthylmagnesium bromide, 3402*i*.

**$C_{10}H_7BrN_2O_2$** 4-Cinnolinol, 3-bromo-, acetate, 653*a*.

**$C_{10}H_7BrN_4O_3S$** 1,3,4-Thiadiazole, 2-(2-bromo-4-nitrobenzamido)-5-methyl-, 7455*b*.

**$C_{10}H_7BrN_4O_4S$** Benzenesulfonamide, *N*-(5-bromo-2-pyrimidyl)-*m*-nitro-, P 7516*h*.

**$C_{10}H_7BrO_2$** Acrylic acid, *β*-*p*-bromobenzoyl-, 607*b*.
Umbelliferone, 6-bromo-4-methyl-, 6206*g*.

**$C_{10}H_7Br_2N$** Quinaldine, *α*,*α*-dibromo-, 6207*g*.

**$C_{10}H_7Br_2NO$** 8-Quinolinol, 5,7-dibromo-2-methyl-, P 4304*b*.

**$C_{10}H_7Br_2NO_4$** Benzene, 1,3-bis(bromoacetyl)-2-nitro-, 1780*a*.

**$C_{10}H_7Br_2N_3O_2S$** Sulfanilamide, 3,5-dibromo-*N*¹-(5-bromo-2-pyrimidyl)-, 3804*c*.

**$C_{10}H_7Cl$** See *Naphthalene, chloro-*.

**$C_{10}H_7ClHg$** Naphthylmercury chloride, 171*f*, 5004*d*

**$C_{10}H_7ClN_2OS$** 4-Pyrimidol, 2-(*p*-chlorophenylmercapto)-, 2953*d*.

**$C_{10}H_7ClN_2O_2$** 4-Cinnolinol, 3-chloro-, acetate, 653*a*.

**$C_{10}H_7ClN_2O_3$** Quinoline, 4-chloro-6-methoxy-8-nitro-, 7027*e*.

**$C_{10}H_7ClN_2O_3S$** 1-Naphthalenediazosulfonic acid, 4-chloro-, *Na salt*, 616*f*.

**$C_{10}H_7ClN_2O_6S$** 2-Pyrazoline-3-carboxylic acid, 1-(2-chloro-5-sulfophenyl)-5-oxo-, P 5194*f*, P 8146*a*.

**$C_{10}H_7ClN_4O_3S$** 1,3,4 Thiadiazole, 2-(2-chloro-4-nitrobenzamido)-5-methyl-, 7455*a*.

**$C_{10}H_7ClN_4O_4S$** Benzenesulfonamide, *N*-(chloropyrimidyl)-*m*-nitro-, P 7516*h*.

**$C_{10}H_7ClO$** Naphthol, chloro-, 2599*hi*, P 5959*i*, P 6425*b*.

**$C_{10}H_7ClO_2$** Hydrocinnamoyl chloride, *p*-methoxy-, 1744*a*.

**$C_{10}H_7ClO_2S$** Naphthalenesulfonyl chloride, 926*i*, 4630*a*.

**$C_{10}H_7ClO_2$** Acrylic acid, *β*-benzoyl-*β*-chloro-, 607*e*.
Acrylic acid, *β*-*p*-chlorobenzoyl-, 607*c*, 7192*h*.
Umbelliferone, 6-chloro-4-methyl-, 6206*g*.

**$C_{10}H_7ClO_3S$** 1-Naphthalenesulfonic acid, 2-chloro-, 5773*i*.

**$C_{10}H_7ClO_4$** Acrylic acid, *β*-(5-chlorosalicyloyl)-, 7192*h*.

**$C_{10}H_7Cl_2N$** 1-Naphthylamine, 2,4-dichloro-, *and -HCl*, 6570*f*.
Quinaldine, 4,6-dichloro-, 8388*c*.
Quinoline, dichloromethyl-, 1776*b*, P 2646*f*, 5401*d*, P 7974*b*.

**$C_{10}H_7Cl_2NO$** Phenol, 2,6-dichloro-4-(1-pyrryl)-, P 9355*b*.
8-Quinolinol, 5,7-dichloro-2-methyl-, 1289*a*, P 4431*g*, P 6242*b*.

**$C_{10}H_7Cl_2NO_3$** 3-Pseudoindolone, 2,5-dichloro-7-methoxy-4-methyl-, P 9470*i*.

**$C_{10}H_7Cl_3S_2$** Thiophene, 2,2'-(2,2,2-trichloroethylidene)di-, 672*d*, 3137*g*.

**$C_{10}H_7Cl_3N_2Sb$** 2-Naphthalenediazonium chloroantimonate (III), 4647*h*.

**$C_{10}H_7Cl_5O$** 3-Buten-1-ol, 1-(2,3,4,5,6-pentachlorophenyl)-, 2189*a*.
Naphthol, pentachlorotetrahydro-, 2599*n*, 2600*e*.

**$C_{10}H_7Cl_5O_2$** Benzyl alcohol, *p*-chloro-*α*-(trichloromethyl)-, chloroacetate, 2359*h*, P 7634*f*.

**$C_{10}H_7F$** Naphthalene, 1-fluoro-, 2591*a*, 8888*f*.

**$C_{10}H_7F_6NO_2$** Benzene, (2,2,3,3-tetrafluorocyclobutyl)-, nitro deriv., P 4294*f*

**$C_{10}H_7IO_2$** Acrylic acid, *β*-*p*-iodobenzoyl-, 607*c*.

**$C_{10}H_7KO_4S$** 2-Naphthyl potassium sulfate, 5388*g*.

**$C_{10}H_7Li$** Lithium, 1-naphthyl-, 3402*i*.

**$C_{10}H_7NO$** Quinaldehyde, 6207*g*.

**$C_{10}H_7NOS_2$** Rhodanine, benzylidene-, 4174*i*.
2,5-Thiazolidinedione, 4-benzylidene-2-thio-, 1401*i*

**$C_{10}H_7NO_2$** (See also *Naphthalene, nitro-*)
Cinchoninic acid, 3502*i*.
Cinnamic acid, cyano-, 2189*a*, 5004*h*.
Isoquinaldic acid, 7310*b*.
Maleimide, *N*-phenyl-, P 4422*a*
Naphthol, nitroso-, 2437*g*, 3313*h*, 3964*a*, P 4046*c*, P 6001*i*, 7538*i*, 8109*g*.
5(2*H*)-Oxazolone, 2-benzylidene-, P 1809*h*.
Phthalimide, *N*-vinyl-, P 4422*b*, P 5635*f*.
Quinaldic acid, 3267*g*, 7024*h*, 7310*b*.
Quinolinecarboxylic acid, 1422*ad*, 2623*g*, 7484*g*, 8947*i*.

**$C_{10}H_7NO_2S$** 2,4-Thiazolidinedione, 5-benzylidene-, 3820*c*.

**$C_{10}H_7NO_3$** (See also *Kynurenic acid*)
Cinchoninic acid, 2-hydroxy-, 1778*f*, 3502*i*, 3929*h*.
3-Isoxazolecarboxylic acid, 5-phenyl-, 5394*c*; *and Na salt*, 2991*g*, 2992*a*.
1-Naphthol, 4-nitro-, P 4808*e*.
1,4-Naphthoquinone, 2-hydroxy-, oxime, 3111*e*.
3,4-Quinolinedione, 2-hydroxy-7-methyl-, 5403*d*.

**$C_{10}H_7NO_4$** 1,2*H*-Benzopyran-3-carboxylic acid, 6-amino-2-oxo-, 2180*a*.
6-Indolinecarboxylic acid, 2,3-dioxo-, Me ester, 216*e*.
Xanthurenic acid, 1470*a*, 5847*g*, 6294*a*, 8464*d*.

**$C_{10}H_7NO_5$** Acrylic acid, *β*-*m*-nitrobenzoyl-, 607*b*, 7192*h*.
Chromone, 7-hydroxy-2-methyl-8-nitro-, 9067*a*.
Umbelliferone, 4-methyl-6-nitro-, 2621*g*.

**$C_{10}H_7NO_5S$** 1-Naphthalenesulfonic acid, 5-nitro-, *dihydrate*, 4725*e*.
1-Naphthol-4-sulfonic acid, 2-nitroso-, 3313*h*.

**$C_{10}H_7NO_8S_2$** 2-Naphthol-3,6-disulfonic acid, 1-nitroso-, 7370*a*.

**$C_{10}H_7NS$** 3-Thianaphtheneacetonitrile, 6311*i*, 13954.

**$C_{10}H_7N_2NaO_2S$** 1-Naphthalenediazo hydrogen sulfite, Na salt, 616*d*.
Naphthalenediazosulfonic acid, Na salt, 616*e*.

**$C_{10}H_7N_3$** Naphthalene, azido-, 8366*a*.
Naphtho[1,2]triazole, 9058*c*.

**$C_{10}H_7N_3O_4$** Quinoline, 6-methyl-3,5-dinitro-, 3420*f*.

**$C_{10}H_7N_3O_5S$** 1-Naphthalenediazosulfonic acid, 4-nitro-, *Na salt*, 616*e*.

**$C_{10}H_7N_3O_6$** Compd., m. 239°, 1742*d*.

**$C_{10}H_7N_3O_6S$** Benzoic acid, 3-nitro-4-(tetrahydro-3,5-dioxo-1,2,4,2*H*-thiadiazin-6-ylazo)-, 1,1 dioxide, *Na salt*, P 4868*e*.

**$C_{10}H_7STl$** 2-Naphthalenethiol, Tl deriv., 3352*i*.

**$C_{10}H_8$** (See also *Azulene; Naphthalene.*)
Benzofulvene, 10*e*
1-Buten-3-yne, 4-phenyl-, 1020*e*.

**$C_{10}H_8AsCl_3$** Arsine, chlorophenyl-2-thienyl-, 3383*b*.

**$C_{10}H_8BrCl$** 1-Butyne, 4-bromo-3-chloro-1-phenyl-, 1020*f*.

**$C_{10}H_8BrClO_2$** Propionic acid, *β*-bromo-*β*-*p*-chlorobenzoyl-, P 8401*g*.

**$C_{10}H_8BrCl_3$** Indan, 1-bromo-2-(trichloromethyl)-, 4637*a*.

**$C_{10}H_8BrN$** Isoquinoline, 3-(bromomethyl)-, 3820*i*.
1-Naphthylamine, 7-bromo-, *and -HCl*, 6607*b*.

**$C_{10}H_8BrNO_2$** Phthalimide, *N*-(2-bromoethyl)-, 7485*f*.

**$C_{10}H_8BrN_3OS$** Thiazole, 2-(4-amino-2-bromobenzamido)-, 7455*c*.

**$C_{10}H_8BrN_3O_3S$** Benzenesulfonamide, *N*-(4-amino-5-bromo-2-pyrimidyl)-*m*-nitro-, P 7516*h*.

**$C_{10}H_8Br_2N_4O_2S$** Sulfadiazine, dibromo deriv., 7642*f*.
Sulfanilamide, 3,5-dibromo-*N*¹-2-pyrimidyl-, 3804*f*.

**$C_{10}H_8Br_2O_2$** 3-Buten-2-one, 4-(3,5-dibromo-4-hydroxyphenyl)-, 607*g*.

**$C_{10}H_8Br_2O_3$** Propionic acid, *β*-benzoyl-*α*,*β*-dibromo-, 7192*h*.

**$C_{10}H_8Br_4$** 1-Butene, 1,2,3,4-tetrabromo-1-phenyl-, 1020*e*.

**$C_{10}H_8Br_4N_4O_2S$** Sulfanilamide, 3,5-dibromo-*N*¹-2-pyrimidyl-, dibromide, 3804*c*.

**$C_{10}H_8ClF_3O$** Hydrocinnamoyl chloride, *m*-(trifluoromethyl)-, 1378*h*.

**$C_{10}H_8ClN$** Lepidine, 8-chloro-, P 1443*i*.
Naphthylamine, chloro-, 616*c*, 6607*a*; *and -HCl*, 6570*df*.
Quinaldine, 4-chloro-, 228*i*.
Quinoline, 4-chloro-3-methyl-, 4276*e*.

**$C_{10}H_8ClNO$** Hydrocinnamoyl chloride, *o*-cyano-, 2189*c*.
Quinoline, 7-chloro-4-methoxy-, 1778*a*.
4-Quinolinol, chloromethyl-, 228*g*, 1776*b*, 5401*c*, 8388*c*.
4(1*H*)-Quinolone, chloro-3-methyl-, 2865*c*.

**$C_{10}H_8ClNO_2$** 2-Furoyl chloride, compd. with pyridine, 8353*b*.
2-Indolecarboxylic acid, 4-chloro-, Me ester, 4255*e*.
Succinimide, *α*-chloro-*N*-phenyl-, P 4422*b*.

**$C_{10}H_8ClNO_3$** Cyclopropanecarbonyl chloride, (*p*-nitrophenyl)-, 635*g*, 9042*b*.
Isatin, 5-chloro 7-methoxy-4-methyl-, P 7707*a*.

**$C_{10}H_8ClN_3OS$** Thiazole, 2-(4-amino-2-chlorobenzamido), 7455*c*.

**$C_{10}H_8ClN_3O_2$** 2-Pyrazoline-3-carboxamide, 1-(*m*-chlorophenyl)-5-oxo-, P 8150*f*.

**$C_{10}H_8ClN_3O_2S$** 3-Pyridinesulfonamide, 6-chloro-*N*-2-pyridyl-, 3417*c*.

**$C_{10}H_8ClN_4O_3$** 1,1-Phthalazinedione, 5-*α*-chloroacetamido-2,3-dihydro-, 7488*d*.

**$C_{10}H_8ClN_3S$** 2-Pyrimidinethiol, 4-*p*-chloroanilino-, 8395*e*.

**$C_{10}H_8Cl_2HgO$** 3-Buten-2-one, 4-chloro-3-(chloromercuri)-4-phenyl-, 7413*d*.

**$C_{10}H_8Cl_2N_2O$** 5-Pyrazolone, 1-(dichlorophenyl)-3-methyl-, P 8149*h*, P 8150*e*.
Quinazoline, 2,4-dichloro-6,7-dimethoxy-, 2951*g*.

**$C_{10}H_8Cl_2N_2O_3S$** Benzenesulfonic acid, 2,5-dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)-, P 861*a*, P 4867*hi*, P 5000*i*, P 8689*i*.

**$C_{10}H_8Cl_2N_4O_4S$** Sulfanilamide, *N*¹-(4,6-dichloro-2-pyrimidyl)-, P 7964*i*.

**$C_{10}H_8Cl_2O_2$** Acetophenone, *o*-(2,2-dichlorovinyloxy)-, P 7045*h*.
Hydrocinnamoyl chloride, *o*-(chloroformyl)-, 2189*b*.

**$C_{10}H_8Cl_2Si$** Silane, dichloro-1-naphthyl-, 1580*ih*.

**$C_{10}H_8Cl_2NO_3$** Phenetole, 2-nitro-4-(trichlorovinyl)-, 6991*e*.

**$C_{10}H_8Cl_4O_2$** Benzyl alcohol, chloro(trichloromethyl)-, acetate, 1895*i*, 2359*h*, 2360*f*.

**$C_{10}H_8Cl_4$** Cyclopentadiene, hexachloro-, compd. with isoprene, P 4693*e*.

**$C_{10}H_8Cl_6$** Bicyclo[2.2.1]-2-heptene, 1,2,3,4,7,7-hexachloro-5-(1,2-dichloroisopropyl)-, P 5797*c*.

**$C_{10}H_8CuN_2O_4$** 2-Pyridol, 1-oxide Cu oxide, 2997*d*.
Pyridone, 1-hydroxy-, Cu deriv., 2997*e*

**$C_{10}H_8D_2O_4$** Malonic acid *d*₂, benzyl, 3392*f*

**$C_{10}H_8FNO_2$** Phthalimide, *N*-(2-fluoroethyl)-, 2927*h*.

**$C_{10}H_8F_3NO_3$** 2-Propanone, 1,1,1-trifluoro-2-(4-methoxy-2-nitrophenoxy)-, P 2782*e*.

**$C_{10}H_8F_4$** Benzene, (2,2,3,3-tetrafluorocyclobutyl)-, 3370*e*, 3371*e*, P 4293*i*, P 4294*e*.

**$C_{10}H_8IN_3OS$** Thiazole, 2-(4-amino-2-iodobenzamido)-, 7455*c*.

**$C_{10}H_8N_2$** *p*-Benzenediacetonitrile, 6591*b*.
2,2'-Bipyridine, 2541*c*, 6056*bf*, 6105*f*.
Hydrocinnamonitrile, *o*-cyano-, 6172*g*.
3-Indoleacetonitrile, P 2236*g*, 3818*a*

**$C_{10}H_8N_2O$** Imidazolecarboxaldehyde, 1-phenyl-, 8381*i*.
Pyrazinol, 3-phenyl-, 3009*i*.

**$C_{10}H_8N_2OS$** Hydantoin, 5-benzylidene-2-thio-, 1402*b*, 6984*c*.
Thiazole, 2-benzamido-, P 6239*c*.
4-Thiazolidone, 5-benzylidene-2-imino-, 3820*c*, 6984*d*.

**$C_{10}H_8N_2OS_2$** 2,4-Pyrimidinedithiol, phenoxy-, 8394*i*.
Rhodanine, 5-*o*-aminobenzylidene-, 4175*a*.

**$C_{10}H_8N_2O_3$** Cyclopropanecarbonitrile, 1-(*p*-nitrophenyl)-, 9042*b*.
1,3-Diozolo[*f*]quinoline, 5-amino-, 1413*e*.

2-Furaldehyde, azine, 1655*a*.
Hydantoin, 5-benzylidene-, 6984*c*.
2 - Hydroxy - 1 - naphthalenediazonium hydroxide, 4236*d*.
Naphthoquinone, dioxime, 5623*e*.
Naphthylamine, nitro-, 616*c*, 1734*d*, 1755*h*, 6192*e*, 6607*a*, 7011*e*, 8371*f*.
Quinaldine, 5-nitro-, P 6846*b*.
Quinoline, methylnitro-, 2211*h*, 3420*e*, 3422*a*.

**$C_{10}H_8N_2O_2S$** Hydantoin, 5-benzoyl 2-thio-, 7144*e*.
5 - Imidazolecarboxylic acid, 2-mercapto-1-phenyl-, 3411*e*.
Salicylamide, *N* - 2 - thiazolyl-, P 6239*a*.
4 - Thiazolecarboxylic acid, 2-amino-5-phenyl-, 1399*i*.
Thiazole, 2 - *p* - hydroxybenzamido-, P 6239*c*.

**$C_{10}H_8N_2O_3$** Barbituric acid, 1-phenyl-, 2953*f*.
Isatin, 6-acetamido-, 2151*i*.
—, 5-amino-, acetyl deriv., 2151*g*.
1,8 - Naphthyridine - 3 - carboxylic acid, 4-hydroxy-7-methyl-, 650*g*.
2-Pyrazoline-3-carboxylic acid, 5-oxo-1-phenyl-, P 1575*c*.
Quinoline, methoxynitro-, 1413*i*, 1776*h*.
4-Quinolinol, 2-methyl-6-nitro-, 646*b*.
4(1*H*) Quinolone, 1 - methyl - 6-nitro-, 1777*c*
2-Quinoxalinecarboxylic acid, 3-hydroxy-8-methyl-, 3384*i*, P 6661*f*

**$C_{10}H_8N_2O_3S$** 1-Naphthalenediazo hydrogen sulfite, *Na salt*, 616*d*.
Naphthalenediazosulfonic acid, *Na salt*, 616*e*.

**$C_{10}H_8N_2O_4$** Isatin, 6-acetamido-1-hydroxy-, 215*i*
5-Quinazolinecarboxylic acid, 1,2,3,4-tetrahydromethyl - 2,4 - dioxo-, 6634*d*
5 - Quinolinemethanol, 6-hydroxy-8-nitro-, 1414*d*

**$C_{10}H_8N_2O_4S$** 2 - Hydroxy - 4 - sulfo - 1-naphthalenediazonium hydroxide, inner salt, 4236*d*.
1-Naphthalenesulfonic acid, 5-amino-8-nitro-, P 8159*f*
2-Propene 1-thiol, 3,5-dinitrobenzoate, 1043*h*.

**$C_{10}H_8N_2O_6$** Benzoic acid, 3,5-dinitro-, allyl ester, 558*e*.
Isosafrole, 3,5-dinitro-, 7020*d*.
Phenol, nitro(2-nitrovinyl)-, acetate, 1765*ef*

**$C_{10}H_8N_2O_6S$** 2 - Naphthol - 4 - sulfonic acid, 1 amino 6 nitro-, P 5194*h*, P 9461*be*.

**$C_{10}H_8N_2S$** $\Delta^2$ $\alpha$-Benzothiazolineacetonitrile, 3-methyl-, P 7843*a*.

**$C_{10}H_8N_2Se_2$** Selenocyanic acid, *p*-xylylene ester, 2160*b*

**$C_{10}H_8N_4O$** Nicotinamide, *N*-2 pyrimidyl-, 5025*f*

**$C_{10}H_8N_4O_2S$** Benzenesulfenamide, nitro-*N*-2-pyrimidyl-, P 1438*a*, P 7516*i*.
Pyrimidine, amino(nitrophenylmercapto)-(?), 6179*f*

**$C_{10}H_8N_4O_2S$** Benzenesulfonamide, nitro-*N*-pyrimidyl-, P 1438*a*, P 7516*gh*.
Pyrimidine, amino(nitrophenylsulfonyl)- (?), 6179*f*

**$C_{10}H_8N_4O_6$** 6,7 - Pteridinedicarboxylic acid, 2,4 dihydroxy-, di Me ester, 654*e*.

**$C_{10}H_8N_4O_8$** Oxalacetic acid, 2,4-dinitrophenylhydrazone, 5312*b*.

**$C_{10}H_8N_4$** Pyrimido[4,5 *b*]quinoxaline, 1,2,-3,4 tetrahydro - 2,4 - diimino-, 8282*d*.

**$C_{10}H_8N_4O_7$** Pyridazine, 3-amino-, picrate, 177*f*.

**$C_{10}H_9Na_4O_8P_2$** 1,4-Naphthalenediol, diphosphate tetra-Na salt, 3526*g*.

**$C_{10}H_{10}O$** (See also *Naphthol*.)
3 Butyn-2-one, 4-phenyl-, 7413*d*.

**$C_{10}H_{10}OS$** 1(3*H*) - Isothianaphthenone, 3-ethylidene-, 2974*c*.
Naphthol, 6-mercapto-, P 7258*d*.

**$C_{10}H_{10}OS_2$** 1,2 - Dithiole - 3 - thione, 5-(*p*-methoxyphenyl)-, 1043*d*, 1489*a*, 2418*f*, 4652*b*.

**$C_{10}H_{10}O_2$** (See also *Naphthalenediol*.)
3 Butenoic acid, 4-hydroxy-4-phenyl-, $\gamma$-lactone, 7459*b*.
Coumarin, methyl-, 8010*e*.
Furan, 2,2'-vinylenedi-, 9334*e*.
Hydrocinnamic acid, $\beta$-(hydroxymethylene)-, lactone, 7138*h*.
1,3 Indandione, 2-methyl-, 2974*a*, 7010*a*.
Indenecarboxylic acid, 4236*e*, 4637*a*.
1,4 - Naphthoquinone, 5,8 - dihydro-, 1371*f*.
Phthalide, 3-ethylidene-, 2974*a*.
Propiolophenone, methoxy-, P 868*d*, 3402*d*.

**$C_{10}H_{10}O_2S$** Ketone, 3-hydroxy-2-thianaphthenyl methyl, 2200*h*.
Naphthalenesulfinic acid, 5245*f*, P 6002*f*, 7454*d*; *and salts*, 9056*e*.
Thianaphtheneacetic acid, 631*i*, 1395*i*, 1396*b*.

**$C_{10}H_{10}O_2S_2$** 1,2 - Dithiol - 3 - one, 5-(*p*-methoxyphenyl)-, 1043*d*, 4652*c*.
Ethanone, 2 - hydroxy - 1,2 - dithienyl-, 1763*b*, P 6237*i*, 9062*i*.

**$C_{10}H_{10}O_2Se$** 4,7 - Selenanaphthenedione, 3,6-dimethyl-, 6612*c*.

**$C_{10}H_{10}O_3$** Acrylic acid, $\beta$-benzoyl-, 6061, 6919*b*, 7192*h*.
1,2,3-Butanetrione, 1-phenyl-, P 5130*h*.
Chromone, 7-hydroxy 2-methyl-, 9067*a*.
Cinnamic acid, formyl-, 7456*e*.
Coumarinaldehyde, 6-hydroxy-3-methyl-, 3412*h*.
Coumarin, 4-hydroxy-3 methyl-, P 693*i*, P 4701*h*.
Crotonic acid, $\beta,\gamma$-dihydroxy-$\gamma$-phenyl, $\gamma$ lactone, 7459*f*.
Indancarboxylic acid, oxo-, 3399*c*, 7456*h*
Naphthalenetriol, 281*c*, 1371*h*.
1,4 Naphthoquinone, 5,8 - dihydro 2-hydroxy, 1371*i*.
Propiolic acid, (*p* methoxyphenyl)-, 606*c*.
Tetronic acid, $\gamma$-hydroxy-$\gamma$-phenyl-, 7459*a*
Umbelliferone, 4-methyl-, 1408*d*

**$C_{10}H_{10}O_3S$** (See also *Naphthalenesulfonic acid*.)
Glycolic acid, di 2-thienyl-, 1763*b*

**$C_{10}H_{10}O_3Se$** 4,7-Selenanaphthenedione, 5-hydroxy-3,6-dimethyl-, 6612*f*.

**$C_{10}H_{10}O_4$** Acrylic acid, $\beta$-*p* hydroxybenzoyl-, 607*d*
Acrylic acid, $\beta$-salicyloyl-, 6919*b*, 7192*h*.
Anemonin, 6366*b*, 9380*d*
3(2*H*) Benzofuranone, 6 hydroxy-, acetate, 1406*d*
Chromone, 5,7-dihydroxy-2 methyl-, 1775*h*
Cinnamic acid, 3,4 - methylenedioxy-, 4327*k*.
Furoin, P 690*f*, 1368*b*.
Malonic acid, benzylidene-, 8886*g*
Scopoletin, 1770*e*, 6284*d*, 7090*e*

**$C_{10}H_{10}O_4S$** See *Naphtholsulfonic acid*

**$C_{10}H_{10}O_5$** Acrylic acid, $\beta$ - 2,6 - dihydroxybenzoyl-, 4265*c*, 6919*c*.
2-Chromancarboxylic acid, 5-hydroxy-4-oxo-, 4265*e*, 6919*b*.
Hemipic anhydride, 125*c*.
Isochroman - 3 - carboxylic acid, 4-hydroxy 1-oxo-, 1045*e*.

**$C_{10}H_{10}O_6S$** 1 - Indenecarboxylic acid, 3-sulfo-, 4236*e*.
Naphthalenesulfonic acid, dihydroxy-, P 5962*h*, P 7700*e*, P 8157*i*, P 8159*b*.

**$C_{10}H_{10}O_6$** Acrylic acid, $\beta$-(2,4,6-trihydroxybenzoyl)-, 4265*c*.
2-Chromancarboxylic acid, 5,7-dihydroxy-4-oxo-, 4265*e*, 6919*b*.
1,4,6 - Cycloheptatriene - 1 - acetic acid, 2-carboxy-4-hydroxy-3-oxo-, 3404*c*.

**$C_{10}H_{10}O_6S_2$** See *Naphthalenedisulfonic acid*.

**$C_{10}H_{10}O_7$** Hemimellitic acid, 4-methoxy-, 2975*b*.
Trimellitic acid, 5-methoxy-, 2975*b*.

**$C_{10}H_{10}O_7S_2$** Naphtholdisulfonic acid, P 859*c*, P 4476*b*, P 5960*a*, P 8150*h*, P 8158*i*, P 8174*f*; *Na salt*, 595*g*.

**$C_{10}H_{10}O_8S$** 2,5 Thiophenedicarboxylic acid, 3,4-dihydroxy-, diacetate, P 2237*a*.

**$C_{10}H_{10}O_8S_2$** 2,7-Naphthalenedisulfonic acid, 4,5-dihydroxy-, P 859*g*, P 5959*h*, P 7698*i*, P 9460*h*.

**$C_{10}H_{10}O_9S_3$** Naphthalenetrisulfonic acid, 1368*i*.

**$C_{10}H_{12}O_{10}S_3$** 1-Naphthol-3,6,8-trisulfonic acid, P 5598*d*.

**$C_{10}H_{12}S$** (See also *Naphthalenethiol*.)
Thiophene, phenyl-, 2615*b*, 5392*df*.

**$C_{10}H_{12}S_2$** 1,6-Naphthalenedithiol, P 7258*d*.

**$C_{10}H_{13}AsO_3$** 2-Naphthalenearsonic acid, 4647*i*.

**$C_{10}H_{13}Br$** 1-Butyne, bromo-1-phenyl-, 1020*h*, 1021*a*.

**$C_{10}H_{13}BrN_2O$** 5-Pyrazolone, 1-(*p*-bromophenyl)-3-methyl-, P 8149*i*.

**$C_{10}H_{13}BrN_4OS$** 1,3,4 - Thiadiazole, 2-(4-amino - 2 - bromobenzamido)-5-methyl-, 7455*c*.

**$C_{10}H_{13}BrN_4O_2S$** Metanilamide, *N*$^1$-(5-bromo-2-pyrimidyl)-, P 7517*c*.
Sulfadiazine, bromo deriv., 7642*f*.
Sulfanilamide, *N*$^1$ - (5 - bromo - 2-pyrimidyl)-, 275*ef*.

**$C_{10}H_{13}BrO$** Crotonophenone, $\alpha$-bromo-, 7819*e*.

**$C_{10}H_{13}BrO_2$** Acrylic acid, $\alpha$-bromo-, benzyl ester, P3027*c*.
3 - Buten - 2 - one, 4 - (3 - bromo-2-hydroxyphenyl)-, 607*g*.

**$C_{10}H_9BrO_2$** Acetophenone, $\alpha$-bromo-*m*-hydroxy-, acetate, P 5044*f*.

**$C_{10}H_9Br_2N_3O_2S_2$** Sulfanilamide, 3,5-dibromo - *N*$^1$ - (4 - methyl - 2 - thiazolyl)-, 3804*f*.

**$C_{10}H_9Br_3$** 1-Butene, tribromo-1-phenyl-, 1020*h*.
1 - Butene, 1,2,4 - tribromo - 1-phenyl-, 1021*a*.

**$C_{10}H_9Br_3N_4O_2S$** Sulfanilamide, 3,5-dibromo-*N*$^1$ - (5 - bromo - 4,5 - dihydro - 4-hydroxy 2-pyrimidyl)-(?), 3804*e*

**$C_{10}H_9Br_3O_4$** Acetic acid, (2,1,6-tribromophenoxy)-, Et ester, 348*f*.

**$C_{10}H_9Br_3O_4$** Benzoic acid, 2,4,6 - tribromo-3,5-dimethoxy-, Me ester, 1038*e*.

**$C_{10}H_9Br_4N_3O_2S_2$** Sulfanilamide, 3,5-dibromo - *N*$^1$ - (4 - methyl - 2 - thiazolyl)-, dibromide, 3804*f*.

**$C_{10}H_9Cl$** Naphthalene, 4-chloro-1,2-dihydro-, 2174*a*.

**$C_{10}H_9ClN_2$** Acrylonitrile, $\alpha$-chloro-$\beta$-*N*-methylanilino-, 2574*i*, P 3440*f*.
Benzimidazole, chloro - 2 - propenyl-, 2993*b*.
Imidazole, (chloromethyl) - 1 - phenyl-, *HCl*, 8382*b*.

**$C_{10}H_9ClN_2O$** Butyrophenone, *p*-chloro-$\alpha$-diazo-, 4653*h*.
5 Pyrazolone, 1 - (chlorophenyl) - 3 methyl-, P 6425*a*, P 7235*b*, P 8149*h*, P 8153*ch*
Quinoline, 8 - amino - 4 - chloro - 6-methoxy-, 7027*f*.

**$C_{10}H_9ClN_2O_7$** Acetoacetyl chloride, $\alpha$-phenylazo-, 3015*c*

**$C_{10}H_9ClN_2O_3$** Crotonanilide, 4-chloro-2-nitro-, 2934*a*

**$C_{10}H_9ClN_2O_4$** Benzoic acid, *o*-[2-(carboxychloromethylene)hydrazino]-, Me ester, 4259*i*.

**$C_{10}H_9ClN_2O_4S$** Benzenesulfonic acid, chloro-(3 - methyloxo - 2 - pyrazolin-1-yl), P 4179*e*, P 4198*h*, P 4807*hi*, P 9463*b*.

**$C_{10}H_9ClN_4O$** Pyrimidine, 2,4-diamino-5-(*p*-chlorophenoxy)-, 8526*c*

**$C_{10}H_9ClN_4OS$** 1,3,4-Thiadiazole, 2-(4-amino - 2 - chlorobenzamido) - 5-methyl-, 7455*c*.

**$C_{10}H_9ClN_4O_2S$** Metanilamide, *N*$^1$-(chloropyrimidyl), P 5427*d*, P 7517*b*, 9253*h*, 9265*i*
Sulfanilamide, *N*$^1$ - (chloro - 2 - pyrazinyl)-, 275*e*.
—, *N*$^1$ - (chloro - 2 - pyrimidyl)-, 275*ef*, P 7963*i*.
—, 2 - chloro - *N*$^1$ - 2 - pyrimidyl, 275*e*.

**$C_{10}H_9ClN_4O_5$** Pyruvic acid, (2-chloro-6-nitrophenyl)-, semicarbazone, 4255*c*.

**$C_{10}H_9ClO$** 3-Buten-2-one, 4-chloro-4-phenyl-, 7413*e*.

**$C_{10}H_9ClOS$** 3(2*H*) - Thianaphthenone, 5 chloro-4,7-dimethyl-, P 4868*a*.

**$C_{10}H_9ClO_2$** Acrylic acid, $\alpha$ chloro-, benzyl ester, P 3027*c*.
1,3 - Butanedione, 1 - (*p* - chlorophenyl)-, 2174*e*.
Cinnamoyl chloride, *p*-methoxy-, 2973*d*.

**$C_{10}H_9ClO_4$** Isophthalic acid, 5-chloro-, di-Me ester, 609*e*.
Phthalic acid, 3-chloro-, Et ester, 6600*e*.

**$C_{10}H_9Cl_3NO_2$** Acetanilide, $\alpha$-chlorochloroacetyl-, 7452*b*.
Acetoacetanilide, 2,5-dichloro-, P 8156*g*.

**$C_{10}H_9Cl_2NS_2$** Di - 2 - thenylamine, 5,5'-dichloro-, *HCl*, 1764*c*, 2201*h*.

**$C_{10}H_9Cl_3I_2$** Ethane, 1,1,1 - trichloro - 2,2-bis(*p*-iodophenyl)-, 9342*f*

**$C_{10}H_9Cl_3OS$** Acetic acid, trichlorothiol-, xylyl ester, P 4046*e*, P 6664*d*.

**$C_{10}H_9Cl_3O_2$** Benzyl alcohol, *p*-chloro-$\alpha$-(dichloromethyl)-, acetate, 6981*f*.

**$C_{10}H_9Cl_3O_3$** Acetic acid, (2,4-dichlorophenoxy)-, 2-chloroethyl ester, 6775*h*.
Acetic acid, (trichlorophenoxy)-, Et ester, 2973*g*.

**$C_{10}H_9Cl_3O_3$** Ethane, 1-(*o*-chlorophenoxy)-2 - (1,2,2,2 - tetrachloroethoxy)-, P 7188*c*.

**$C_{10}H_9FO_3$** Propionic acid, $\beta$-*p*-fluorobenzoyl-, 1378*g*.

**$C_{10}H_9F_3O_2$** Hydrocinnamic acid, *m*-(trifluoromethyl)-, 1378*h*.
*p*-Toluic acid, $\alpha,\alpha,\alpha$-trifluoro-, Et ester, 5761*d*.

**$C_{10}H_9F_3O_2S$** Acetic acid, ($\alpha,\alpha,\alpha$-trifluoro-*m*-tolylmercapto)-, Me ester, 3365*d*.

**$C_{10}H_9F_3O_3$** Acetic acid, ($\alpha,\alpha,\alpha$ - trifluoro-*m*-toloxy)-, Me ester, 3364*e*.

**$C_{10}H_9IO_3$** Propionic acid, $\beta$-*p*-iodobenzoyl-, 1379*a*.

$C_{10}H_9IO_4$ Phthalic acid, 3-iodo-, Et ester, 6600*f*.
$C_{10}H_9N$ (See also *Naphthylamine; Quinaldine.*)
Benzonitrile, *p*-isopropenyl-, 5629*e*.
Cyclopropanecarbonitrile, 1-phenyl-, 9042*e*.
Isoquinoline, 1-methyl-, 6206*h*.
Lepidine, 1415*b*, P 1443*fi*, 2075*d*, 2845*fh*, 4418*b*, 6206*h*, 7022*dg*.
Quinoline, methyl-, 955*e*, 1422*ac*, 2075*d*, 4418*b*, 6267*c*.
$C_{10}H_9NO$ Carbostyril, methyl-, 228*h*, 5403*d*, 6267*c*.
Indoleacetaldehyde, 3071*c*, 4348*d*, 7096*e*.
Isocyanic acid, 5-vinyl-*o*-tolyl ester, P 5422*g*.
3-Isoquinolinemethanol, 3821*c*.
7-Isoquinolinol, 8-methyl-, P 9086*f*.
Naphthol, amino-, 3111*e*, P 5598*g*, P 8156*c*.
Oxazole, methyl-2-phenyl-, 2989*e*.
Propionitrile, β-benzoyl-, P 7848*d*.
Quinolinol, methyl-, 228*g*, 7371*e*.
4(1 *H*)-Quinolone, methyl-, 1777*d*, 2865*c*.
Spiro[cyclopropane - 1,3′ - indolin]-2′-one, 9042*e*.
$C_{10}H_9NOS$ 2 - Pyridinemethanol, α-2-thienyl-, 4266*b*.
3-Thianaphtheneacetamide, 1396*a*.
$C_{10}H_9NOS_2$ 5(4 *H*) - Thiazolone, 2-(benzylmercapto)-, *and - HBr(?)*, 1398*f*.
$C_{10}H_9NOS_2$ 4 - Thiazolidinecarbothiolic acid, 5-phenyl-2-thioxo-, P 692*h*, 1400*c*.
$C_{10}H_9NO_2$ (See also *3-Indoleacetic acid.*)
Acetic acid, cyano-, benzyl ester, 3357*a*.
2(3 *H*)-Benzoxazolone, 3-allyl-, 6615*f*.
5 *H* - [1,3]Dioxolo[*f*]indole, 6-methyl-, 7020*b*.
Gentianine, 2213*c*.
Hydrocinnamic acid, cyano-, 2167*f*, 2189*b*.
Hydrocinnamonitrile, 3,4 - methylenedioxy-, 3555*d*.
1-Indancarboxamide, 3-oxo-, 3399*d*.
Indolecarboxylic acid, Me ester, 4255*g*.
—, 6-methyl-, 1397*g*.
Indolol, acetate, 1765*ef*.
5(4 *H*)-Oxazolone, 2-benzyl-, P 1809*h*.
Phthalimide, *N*-ethyl-, 7182*c*.
Propionic acid, β-cyano-α-phenyl-, 2168*b*.
Propionitrile, β-*p*-hydroxybenzoyl-, P 7848*d*.
5 - Quinolinemethanol, 6-hydroxy-, 1414*b*.
4-Quinolinol, 6-methoxy-, 8388*d*.
$C_{10}H_9NO_3S$ Benzothiazolol, 2-methyl-, acetate, 9453*f*.
$C_{10}H_9NO_3S_2$ Ethanone, 2-hydroxy-1,2-di 2-thienyl-, oxime, 1763*b*.
5-Thiazoleacetic acid, 2-methyl-4-(2-thienyl)-, P 8401*e*.
4-Thiazolidinecarboxylic acid, 5 phenyl-2-thioxo-, P 692*i*, 1400*d*, 1402*a*.
2,5 - Thiazolidinedione, 4-α-mercaptobenzyl-(?), 1400*a*.
$C_{10}H_9NO_2Se$ 4,7 - Selenanaphthenedione, 3,6-dimethyl-, oxime, 6612*e*.
$C_{10}H_9NO_3$ Acetonitrile, (3-methoxy-4,5 methylenedioxyphenyl)-, 2212*b*.
Cinnamic acid, *o*-formyl-, oxime, 7456*h*.
2-Indolecarboxylic acid, 3-hydroxy-, Me ester, 1772*a*.
Phthalimide, *N*-2-hydroxyethyl-, 7182*d*.
$C_{10}H_9NO_3S$ (See also *Naphthalenesulfonic acid, amino-; Naphthionic acid.*)
1,2 - Benzisothiazol - 3(2 *H*) - one, 2-allyl-, 1,1-dioxide, P 4422*c*.
Naphtholsulfonamide, P 8156*bc*.
4-Thiazolidinecarboxylic acid, 2-oxo-5-phenyl-, P 692*h*, 1400*b*.
$C_{10}H_9NO_4$ 2(3 *H*)-Benzoxazolone, 3-acetyl-5-methoxy-, 6615*i*.
Cyclopropanecarboxylic acid, (nitrophenyl)-, 635*f*, 9042*b*.
Isosafrole, β-nitro-, 7020*d*.
Phthalide, 3,3-dimethyl-6-nitro-, 7925*h*.
$C_{10}H_9NO_4S$ (See also *Naphtholsulfonic acid, amino-.*)
Benzoic acid, *p*-nitrothiol-, acetonyl ester, 653*h*.
$C_{10}H_9NO_5$ Propionic acid, β-*p*-nitrobenzoyl-, P 4296*i*.
Pyruvic acid, (2-nitro-*p*-tolyl) , 1397*g*.
Styrene, 3-methoxy-4,5-methylenedioxy-β-nitro-, 9046*f*.
$C_{10}H_9NO_3S_2$ 1-Naphthalenesulfonic acid, 5-sulfamyl-, *and Ba salt*, 6607*e*.
$C_{10}H_9NO_3S_2$ (See also *Naphthalenedisulfonic acid, amino-.*)
2 - Pyrrolesulfonic acid, 1-*p*-sulfophenyl-, *Ba salt*, 7016*c*.
$C_{10}H_9NO_7$ β-Resorcylic acid, 5-acetyl-3-nitro-, Me ester, 2622*b*.
$C_{10}H_9NO_7S_2$ See *Naphtholdisulfonic acid, amino-.*
$C_{10}H_9NO_9S_3$ 1,3,6 - Naphthalenetrisulfonic acid, 8-amino-, P 4863*a*.
$C_{10}H_9NS$ 2-Naphthalenethiol, 1-amino-, P 1438*f*.
Thiazole, methylphenyl-, 6206*k*, P 6231*e*.
$C_{10}H_9NS_2$ Benzothiazole, 2-(allylmercapto)-, 4415*a*.
$C_{10}H_9N_3$ Pyridazine 3-amino-6-phenyl-, 178*d*.
Pyridine, 2,2′ iminodi , 1046*i*.
$C_{10}H_9N_3O$ Imidazole, benzamido-, 1401*c*.
1-Imidazolecarboxanilide, 8365*g*.
2-Pyrimidol, 4-anilino-, 8305*f*.
Quinoxaline, 5-acetamido-, 174*g*.
$C_{10}H_9N_3OS$ 2 - Imidazolethiol, benzamido-, 1401*c*.
2-Pyrimidinethiol, 4 amino-5-phenoxy-, 8395*c*.
Thiazole, 5-amino - 2 - benzamido-, *and salts*, 1400*f*.
$C_{10}H_9N_3O_2$ 5-Pyrazolone, 3-benzamido-, 4272*i*.
6-Quinoxalinecarboxylic acid, amino , Me ester, 3384*b*.
3,5(2 *H*,4 *H*)-*as*-Triazinedione, 6-benzyl-, 3016*b*.
1,2,3,2 *H* - Triazole - 4 - carboxylic acid, 2-phenyl-, Me ester, 2619*d*.
$C_{10}H_9N_3O_2S$ Thianaphthenecarboxaldehyde, 3-hydroxy-, semicarbazone, 2201*d*
$C_{10}H_9N_3O_2S_2$ Benzenesulfenamide, *N*-(4-methyl - 2 - thiazolyl) - *p* - nitro-, P 1438*a*.
Thiazole, 2-amino-4 (*p*-nitrophenylmercaptomethyl)-, *and - HCl*, 7931*c*
$C_{10}H_9N_3O_3$ Acetic acid, hydrazide with 3 hydraznophthalimide, 7488*g*.
Benzamide, *N*-(2-cyanoethyl)-*p*-nitro-, 1696
Butyrophenone, α diazo-*p* nitro-, 4653*h*, 6178*a*
2 Pyrazoline - 3 - carboxylic acid, 1-(aminophenyl)-5-oxo-, P 4479*r*, P 8116*a*
5 - Pyrazolone, 3 methyl - 1 - nitrophenyl)-, P 5198*g*, P 5959*a*, P 7700*at*, P 8150*f*.
$C_{10}H_9N_3O_3S$ Benzenesulfonamide, *N* - (4-methyl 2 - thiazolyl) - *p* - nitro-, P 1438*b*.
5 - Thiazolecarboxylic acid, 2-sulfanilamido , P 2644*h*
$C_{10}H_9N_3O_5$ Propionaldehyde, α nitro β (3 nitro *p*-tolylhydrazono)-, 3420*d*
$C_{10}H_9N_3O_8$ Phenethyl alcohol, 2,4,6-trinitro , acetate, 592*h*.
$C_{10}H_9N_3O_9$ Acetic acid, picryloxy-, Et ester, 2942*g*
$C_{10}H_9N_3S$ 2 Pyrimidinethiol, 4 anilino , 8395*c*
$C_{10}H_9N_4NaO_2S$ See "sodium deriv." under *Sulfadiazine*, and "sodium deriv." under *Sulfapyrazine*
$C_{10}H_9N_5$ 5 *H* - *as* - Triazino[5,6-*b*]indole, 3 amino 5-methyl-, *and salts*, 3428*i*
$C_{10}H_9N_5O_2S$ Benzenesulfonamide, *N* (4 amino 2 - pyrimidyl) - *m* - nitro-, P 7516*h*
$C_{10}H_9N_5O_5$ 6,7 - Pteridinedicarboxylic acid, 2 amino - 4 - hydroxy-, di-Me ester, 654*e*
$C_{10}H_9N_5O_7S$ 1,2,4,2 *H* - Thiadiazine - 3,5 (4 *H*,6 *H*) - dione, 6 - (4 - methoxy-2-nitrophenylazo)-, 1,1-dioxide, P 4868*f*
$C_{10}H_9N_5O_8S_2$ 1,2,1,2 *H* - Thiadiazine-3,5-(4 *H*,6 *H*)-dione, 6 [4 (methylsulfonyl) 2 - nitrophenylazo] - 3 - thio-, 1,1-dioxide, P 4868*f*.
$C_{10}H_9N_5O_9$ 2 - Imidazolemethanol, picrate, 3410*f*.
$C_{10}H_9O_2Sb$ 2 Naphthalenestiboni acid, 4648*b*
$C_{10}H_{10}$ (See also *Benzene, divinyl-*)
1,3-Butadiene, 1-phenyl-, 8363*ag*, 8364*d*.
Compd , b₀.₄ 33-6°, 6201*e*.
Compd., $b_2$ 48-50° 6201*c*.
Naphthalene, dihydro-, 2972*a*, P 3848*e*, P 7510*h*, 8888*f*.
$C_{10}H_{10}AsNO_5$ Succinanilic acid, 5-arsenoso-2-hydroxy-, 599*a*.
$C_{10}H_{10}BrClN_2O_3$ Butyranilide, β-bromo-4-chloro-2-nitro-, 2992*i*.
$C_{10}H_{10}BrCl_3$ Benzene, (2-bromo-4,4,4-trichlorobutyl)-, 9024*d*.
Benzene, (1 bromo-3,3,3-trichloroisobutyl)-, 9024*c*.
$C_{10}H_{10}BrNO$ Benzonitrile, bromo-6-ethyl-5-methoxy-, 185*g*.
Benzonitrile, *p* - (3 - bromopropoxy)-, 9048*f*.
$C_{10}H_{10}BrNO_3$ Acetanilide, *p*-acetyl-α-bromo-, 5081*h*.
Benzoic acid, *p*-(2-bromoallylamino)-, P 6673*d*.
$C_{10}H_{10}BrN_3O$ 5 - Pyrazolone, 1-(4-amino-2-bromophenyl)-3-methyl-, P 9461*h*.
$C_{10}H_{10}BrN_3O_4$ Glyoxylic acid, bromo-, Et ester *p*-nitrophenylhydrazone, 4247*i*.
$C_{10}H_{10}BrN_5$ *s* - Triazine, 2,4-diamino-6-(3-bromo-*p*-tolyl)-, P 5051*g*.
$C_{10}H_{10}BrN_3O_2S$ Metanilamide, $N^1$ - (4-amino - 5 - bromo - 2 - pyrimidyl)-, P 7517*c*.
$C_{10}H_{10}Br_2$ 1-Butene, 1,4-dibromo-1-phenyl-, 1021*b*.
$C_{10}H_{10}Br_2N_2O_3S$ Succinamic acid, *N*-sulfanilyl , dibromo deriv., 7642*f*.
$C_{10}H_{10}Br_2O_4$ Benzoic acid, 2,6-dibromo-3,5-
$C_{10}H_{10}Br_2NO_2$ Acetamide, *N* - 2 - hydroxyethyl - α - (3,4,5 - tribromophenyl)-, 3362*d*.
$C_{10}H_{10}ClIO_4$ Benzene, 1-chloro-4-iodoso , diacetate, P 5231*d*.
$C_{10}H_{10}ClN$ Butyronitrile, α-(*p*-chlorophenyl)-, 2169*d*.
$C_{10}H_{10}ClNO$ Benzamide, *N*-allyl-*p*-chloro-, 2273*c*.
3 - Buten - 2 - one, 4-chloro - 4-phenyl-, oxime, 7413*e*.
4(1 *H*)-Quinolone, 6-chloro-2,3-dihydro-2-methyl-, 8388*a*.
$C_{10}H_{10}ClNOS$ 4 - Thiazolidone, 2-(*p*-chlorophenyl)-3-methyl-, 634*e*.
$C_{10}H_{10}ClNO_2$ Acetanilide, chloroacetyl-, 1734*h*, 7452*b*.
Acetoacetanilide, *o*-chloro-, P 8171*f*
2(3 *H*) - Benzoxazolone, 6-chloro-3 isopropyl-, 6615*i*.
Carbanilic acid, 3-chloroallyl ester, 2928*i*.
$C_{10}H_{10}ClNO_2S$ 4-Thiazolidone, 2-(*p* chlorophenyl) - 3 - methyl , 1,1-dioxide, 6341*f*.
$C_{10}H_{10}ClNO_4$ Glycine, *N* carboxy-, chlorobenzyl ester, 2273*f*.
$C_{10}H_{10}ClN_3O$ 5 - Pyrazolone, 1-(4-amino chlorophenyl)-3-methyl-, P 9461*h*
$C_{10}H_{10}ClN_3O_2S_2$ Sulfanilamide, $N^1$ (5-chloro - 4 - methyl - 2 - thiazolyl) P 3979*f*.
$C_{10}H_{10}ClN_3O_3$ Nicotinonitrile, 2-chloro-6 (ethoxymethyl) - 4 - methyl - 5 - nitro-, P 1811*i*.
$C_{10}H_{10}ClN_3O_4$ Acetoacetanilide, 4-amino-2-chloro-5-nitro-, P 9463*b*.
$C_{10}H_{10}ClN_3O_6$ α-Alanine, *N*-[(2-chloro-4-nitrophenyl)carbamyl]-, 168*h*
$C_{10}H_{10}Cl_2CuN_2O_4$, 2114*b*.
$C_{12}H_{16}Cl_2N_2O_2S$ Sulfanilamide, $N^1$, $N^4$ diacetyl-3,5-dichloro-, 601*g*
$C_{10}H_{10}Cl_2O_2$ Benzyl alcohol, *p*-chloro α (chloromethyl)-, acetate, 6991*i*
1 - Propanol, 2,3-dichloro , benzoate, 1321*f*.
$C_{10}H_{10}Cl_2O_3$ Acetic acid, (2,4-dichlorophenoxy)-, Et ester, 1514*e*, 3554*i*, 5145*d*, 6775*h*.
Butyric acid, (dichlorophenoxy) , P 2234*a*, 2273*f*, 5456*i*, P 7045*d*
$C_{10}H_{10}Cl_2O_4$ Everninic acid, 3,5-dichloro , Me ester, 608*h*.
Fumaric acid, bis(2-chloroallyl) ester, P 903*h*.
$C_{10}H_{10}Cl_2NO_2$ Acetanilide, *p*-(2,2,2-trichloro-1-hydroxyethyl)-, 1367*g*
$C_{10}H_{10}Cl_2NO_3$ Acetamide, *N* - 2 - hydroxyethyl - α - (2,4,6 - trichlorophenoxy)-, 3364*f*.
$C_{10}H_{10}Cl_4N_2Pt$, 2887*b*.
$C_{10}H_{10}Cl_4O$ Ether, *p*-chloro α-(trichloromethyl)benzyl ethyl, 199*e*, 2350*h*.
$C_{10}H_{10}CrNO_3$ Pyridine, compd. with $CrO_3$, 2534*c*.
$C_{10}H_{10}CuN_4$ Pyrrole, 2-(iminomethyl) deriv., 4073*e*.
$C_{10}H_{10}CuN_4O_8$, 8222*e*.
$C_{10}H_{10}F_3NO$ 1,4,2 *H* - Benzoxazine, 3 dihydro - 3 - methyl - 6 - (trifluoromethyl)-, P 2782*c*.
Hydrocinnamamide, *m* - (trifluoromethyl)-, 1378*h*.
$C_{10}H_{10}F_3NO_2$ Acetanisidide, (trifluoromethyl)-, 7918*d*.
1,4,2 *H* - Benzoxazine, 3,4-dihydro methoxy - 3 - (trifluoromethyl)-2782*e*.
$C_{10}H_{10}F_3N_3O$ Acetophenone, *m*-(trifluoromethyl)-, semicarbazone, 2211*f*
$C_{10}H_{10}F_4O_3$ Cyclobutanecarboxylic 2,2,3,3 - tetrafluoro - 1 - methyl anhydride with methacrylic acid, 4295*e*
$C_{10}H_{10}F_4O_4$ Adipic acid, octafluoro-, di-ester, P 2635*e*.

$C_{10}H_{10}IN_3O_2$ Quinoline, aminonitro-, methiodide, 1777*c*.
$C_{10}H_{10}I_2N_2O_2$ Acetamide, *N*, *N'*-phenylenebis[α-iodo-, 7523*d*.
$C_{10}H_{10}I_2N_2Pt$, 2887*c*.
$C_{10}H_{10}N_2$ 3 - Cyclohexene - 1 - acrylonitrile, 2-cyano-, 6172*f*.
1 - Cyclohexene - 1,4 - dicarbonitrile, 4-vinyl-, 2574*b*.
Imidazole, 1-benzyl-, 3410*c*.
—, 5-methyl-2-phenyl-, 2980*e*.
Lepidine, 2-amino-, - *HCl*, 8389*e*.
1,5-Naphthalenediamine, 2864*f*.
Nicotyrine, 5306*g*, 6745*a*.
Quinaldine, 7-amino-, 3003*a*.
Quinoline, aminomethyl-, 2211*h*, 3420*e*, 7545*h*.
—, methylamino-, 6113*a*, *and chloroaurate*, 4276*g*.
Quinoxaline, 2,3-dimethyl-, 6206*h*.
$C_{10}H_{10}N_2O$ (See also *Pyrazolone, methylphenyl-*.)
Acetamidic acid, α-cyano-*N*-phenyl-, Me ester, 3356*g*.
4-Cinnolinol, 3-ethyl-, 3012*f*.
Hydrocinnamide, o-cyano-, 2189*c*.
Imidazolemethanol, 1-phenyl-, 8382*b*.
3-Indoleacetamide, 1397*d*.
Propiophenone, α - diazo - *p* - methyl-, 4653*f*.
Quinoline, amino-6-methoxy , 3419*b*, *and - HCl*, 8387*i*.
$C_{10}H_{10}N_2OS$ Hydantoin, 5-benzyl-2-thio-, 634*i*.
$C_{10}H_{10}N_2OS_2$ Benzothiazole, 2-acetamido-6-methylmercapto-, 2617*h*
4 - Pyrimidol, 6-methyl-2-(2 thenylmercapto) , 7030*g*
4 Thiazolidinecarboxamide, 5 phenyl 2-thioxo , 1402*b*
$C_{10}H_{10}N_2O_2$ Anthranilic acid, *N* - (1-cyanoethyl) , 1344*f*
Benzoic acid, (1 cyanoethylamino) , 1344*f*.
Hydantoin, 5 benzyl-, 3786*g*
Malonamide, α benzylidene-, P 4897*e*.
4 Pyrazolone, 3-methoxy-2-phenyl-, 579*e*
4,6 Pyridazinedione, tetrahydro - 1 phenyl-, 579*g*
2,4(1*H*,3*H*) Quinazolinedione, 1,3 dimethyl , 579*e*
2 Quinoxalinol, methoxy - 3 methyl-, 7487*i*
Urea, cinnamoyl-, 6981*c*.
$C_{10}H_{10}N_2OS$ Benzothiazole, 6 acetamido 5 methoxy , 5776*h*
Hydantoin, 1 allyl 5 (2 thenyl)-, 3426*f*
Pyrimidine, 4 - (2 furyl) - 6 methoxy 2 methylmercapto , 7929*h*
4 Pyrimidol, 6 [2 (2 furyl)ethyl] 2-mercapto-, 7929*b*
, 6 - (2 furyl) - 2 - mercapto , Et deriv , 7929*h*
$C_{10}H_{10}N_2O_2S$ Sulfanilamide, *N*1-2 thenyl-, 3097*g*
$C_{10}H_{10}N_2O_3$ Benzamide, *p*-(2,3-dihydroxyallylideneamino)-, P 6236*c*.
Cyclopropanecarboxamide, (*p* - nitrophenyl)-, 635*g*, 9042*b*
Isonicotinonitrile, 3 - hydroxy - 5-(hydroxymethyl) - 2 - methyl , 5 acetate, 644*b*.
2,5 Piperazinedione, 1 - (*m* - hydroxyphenyl) , 2973*h*.
Propionaldehyde, α-nitro-β tolylimino , 3420*c*.
$C_{10}H_{10}N_2O_2S_2$ Benzothiazole, 2-acetamido 6 methylsulfonyl)-, 2617*h*.
$C_{10}H_{10}N_2O_4$ Fumaric acid, bis(2-cyanoethyl) ester, P 903*h*.
Hydantoin, 5 - (2,5 - dihydroxybenzyl)-, 5599*c*.
4,1 - Quinazolinediol, 6,7-dimethoxy-, 2951*g*.
Quinone, dioxime diacetate, 5623*c*.
Salicylamide, *N* allyl-4-nitro-, 6596*f*
$C_{10}H_{10}N_2O_5S$ Pyridine, complex with $SO_3$, 8374*h*.
$C_{10}H_{10}N_2O_5S$ (See also *Benzenesulfonic acid, (3 methyloxo - 2 - pyrazolin-1-yl)-*.)
1,2,4,2*H* - Thiadiazine - 3,5(4*H*,6*H*)-dione, 2-benzyl-, 1,1-dioxide, P 4868*d*.
—, 2 *p* - tolyl-, 1,1 - dioxide, P 4868*d*.
$C_{10}H_{10}N_2O_5S_2$ 1,5 - Naphthalenedisulfonamide, 6607*e*.
$C_{10}H_{10}N_2O_6$ β Alanine, *N*-*p*-nitrobenzoyl-, 168*k*.
1,4 - Benzodioxan, 6-acetamido-7-nitro-, 1413*f*.
Isocumanilic acid, *p*-nitro-, 168*k*.
$C_{10}H_{10}N_2O_6S$ 2 - Propanethiol, 3,5-dinitrobenzoate, 1043*g*.
$C_{10}H_{10}N_2O_6$ Benzoic acid, 3,5-dinitro-, Pr ester, 6175*c*.
*p*-Toluic acid, 3,5-dinitro-, Et ester, 6972*d*.
$C_{10}H_{10}N_2O_7S_2$ 1 - Naphthol - 3,6 - disulfonic acid, 8-hydrazino-, 2777*c*.
$C_{10}H_{10}N_2S$ 2-Imidazolethiol, 1-benzyl-, 3410*d*.
2(3*H*)-Imidazolethione, 4-benzyl-, 635*a*.
Thiazole, 2 - amino - 5 - methyl - 4-phenyl-, *and - HBr*, 2968*a*.
$C_{10}H_{10}N_2S_2$ Hydantoin, 5-methyl-5-phenyldithio-, 7586*a*.
2(3*H*) - Thiazolethione, 5-amino-3-methyl-4-phenyl-, P 6669*i*.
$C_{10}H_{10}NNaO_3S_2$ See "sodium deriv." under *Sulfamethylthiazole*.
$C_{10}H_{10}N_2O_2P$ Benzenephosphonic acid, *p*-pyrrylazo-, 1737*f*.
$C_{10}H_{10}N_2O_2SSb$ Benzenestibonic acid, *p*-(2-pyrimidylsulfamyl)-, 602*b*.
$C_{10}H_{10}N_4$ 2,5 - Pyrazinedicarbonitrile, 3,6-diethyl-, 3006*d*.
$C_{10}H_{10}N_4O$ Acetanilide, *p* - (1,2,3,2*H*-triazol-2-yl)-, 2619*i*.
Imidazolecarboxylic acid, 1-phenyl-, hydrazide, 8381*g*.
$C_{10}H_{10}N_4O_2$ Isatin, 1-methyl-, 3-semicarbazone, 8979*i*.
$C_{10}H_{10}N_4O_2S$ (See also *Sulfadiasine; Sulfapyrasine*.)
Metanilamide, *N*1-pyrazinyl-, P 5427*d*.
—, *N*1-pyridazyl-, P 7517*c*.
—, *N*1-pyrimidyl-, P 7517*ac*.
Pyrimidine, amino(aminophenylsulfonyl)-(?), 6179*f*.
Sulfanilamide, *N*1-3-pyridazyl-, 177*g*, 3007*e*.
—, *N*1-4-pyrimidyl-, P 3035*b*, P 4297*e*.
Urea, 1 - (2 - cyanoethyl) - 3 - (*p* nitrophenyl)-2 thio , 169*b*.
$C_{10}H_{10}N_4O_2$ 1,4 - Phthalazinedione, 5-α-aminoacetamido-2,3-dihydro-, 7488*e*.
2 - Triazinol, 4-amino - 6 - [*m*-hydroxyphenoxy)methyl]-, P 7710*i*
Urea, 1 - (2 - cyanoethyl) - 3 - (*p*-nitrophenyl) , 168*g*.
$C_{10}H_{10}N_4O_2S$ Hydrazine, 1-(imidazolylcarbonyl) - 2 - (phenylsulfonyl)-, 8381*h*
Sulfanilamide, *N*1 - (4 - hydroxy - 2-pyrimidyl) , P 7963*i*
$C_{10}H_{10}N_4O_3$ Benzotriazole, acetyl-5-ethoxy-6-nitro , 7016*f*.
$C_{10}H_{10}N_4O_3S$ Sulfanilamide, *N*1-(4,6-dihydroxy-2-pyrimidyl)-, P 7964*i*.
$C_{10}H_{10}N_4O_5$ 3 Buten 2-one, 1-hydroxy-, 2,4 dinitrophenylhydrazone, 6624*e*
3(2*H*)-Furanone, 4,5-dihydro-, 2,4-dinitrophenylhydrazone, P 5424*i*.
*p* Toluic acid, 3,5 dinitro-, ethylidenehydrazide, 6972*d*.
$C_{10}H_{10}N_4O_5$ Acetoacetic acid, 2,4-dinitrophenylhydrazone, 5342*h*.
Butyric acid, α-oxo-, 2,4 dinitrophenylhydrazone, 5342*h*.
$C_{10}H_{10}N_4S$ Pyrimidine, amino(aminophenylmercapto) (?), 6179*f*
$C_{10}H_{10}N_4$ Pyrimidine, 4,6 diamino-5-phenylazo , 3367*a*.
$C_{10}H_{10}N_4O$ 1,2,3,2*H* - Triazole - 4 - carboxaldehyde, 2-phenyl , semicarbazone, 2619*b*.
$C_{10}H_{10}N_4O_4$ 6,7 - Pteridinedicarboxylic acid, 2,4-diamino-, di Me ester, 654*f*.
$C_{10}H_{10}N_4O_7$ Imidazole, 5-amino-1-methyl-, picrate, 3409*a*.
$C_{10}H_{10}N_4O_2S_2$ Benzenesulfonamide, 3-nitro-4 - (tetrahydro - 2 - methyl - 5 - oxo-3 thioxo - 1,2,4,2*H* - thiadiazin - 6-ylazo) , 1,1-dioxide, P 4868*g*.
$C_{10}H_{10}N_8$ Guanidine, 3,3'-phenylenebis[1-cyano-, P 2636*c*.
$C_{10}H_{10}O$ (See also *1(2H)-Naphthalenone, 3,4-dihydro-*.)
Acrylophenone, α-methyl-, 1757*f*.
Benzofuran, 3,6-dimethyl-, 3413*c*.
3-Buten-2-one, 4-phenyl-, 1576, 1826*i*, 4652*a*, 5005*a*, P 6665*b*, 7819*i*, 9334*b*.
3-Butynol, 4-phenyl-, 1020*g*, 1021*a*.
Cinnamaldehyde, methyl-, 1390*b*, 7413*h*.
Crotonophenone, 7819*i*.
1-Indanone, methyl-, 1757*g*, 7472*a*.
$C_{10}H_{10}OS$ Acetic acid, thiol-, styryl ester, 7417*h*.
$C_{10}H_{10}O_2$ (See also *Safrole*.)
Anisyl alcohol, α-ethynyl-, 3402*c*.
Benzene, o-diacetyl-, 1030*f*.
Benzoic acid, allyl ester, 1321*f*, 1351*e*; isopropenyl ester, P 7038*e*.
Benzyl alcohol, α-methylene-, acetate, P 3838*i*, P 5796*a*, P 7038*b*, P 7953*i*.
1,3 - Butanedione, 1-phenyl-, 1137*g*, 2174*f*, 2582*h*, P 7954*a*.
3 - Buten - 2 - one, 4 - (*o* - hydroxyphenyl)-, 7001*h*.
Cinnamic acid, Me ester, 1319*h*, 3715*b*.
—, methyl-, 1744*hi*, 2571*a*, 5026*fh*.
1,3 - Dioxolane, 2-benzylidene-, 1404*e*.
3,5 - Hexadien - 2 - one, 1-(2-furyl)-, 9334*b*.
Hydrocinnamic acid, β-hydroxy-β-methyl-, β-lactone, P 1055*i*, P 1056*c*, P 5415*a*.
1-Indanone, methoxy-, 4250*i*.
Isosafrole, 1757*b*, P 2639*c*, 7924*a*.
Naphthalenediol, dihydro-, 1371*c*, P 7632*d*, 8505*i*.
1(2*H*) - Naphthalenone, 3,4 - dihydrohydroxy-, 7010*hi*, P 7511*c*.
1,4 - Naphthoquinone, 4a,5,8,8a - tetrahydro-, P 3650*e*, P 7632*d*.
Phenol, *p*-vinyl-, acetate, 1597*f*.
Phthalide, 3,3-dimethyl-, 7925*h*.
2 - Propen - 1 - one, 1 - cyclopropyl-3-(2-furyl)-, P 5530*c*.
$C_{10}H_{10}O_2S$ Benzoic acid, thiol-, acetonyl ester, 653*h*.
$C_{10}H_{10}O_2S_2$ 1,2 - Ethanediol, 1,2 - di - 2-thienyl-, 9063*a*.
$C_{10}H_{10}O_2Se$ 4,7 - Selenanaphthenediol, 3,6-dimethyl-, 6612*e*.
$C_{10}H_{10}O_3$ Acetophenone, hydroxy-, acetate, P 3461*f*, P 5044*e*.
Anisic acid, vinyl ester, P 5045*c*.
5 - Benzofurancarboxaldehyde, 2,3-dihydro-6-hydroxy-3-methyl-, 3412*i*.
6 - Benzofuranol, 2,3-dihydro-, acetate, 1406*e*.
Benzoic acid, methoxy-, vinyl ester, P 5045*c*.
—, o-propionyl-, 4661*c*.
Butyric acid, α oxo-γ-phenyl-, 5017*a*.
Chromanone, 7 - hydroxy - 2 - methyl-, 1771*c*.
—, methoxy-, 1770*i*, 1771*a*.
Cinnamic acid, *p*-methoxy-, 6596*i*.
Crotonophenone, 2,4-dihydroxy-, 1771*c*.
Ferulaldehyde, 1181*i*, 4461*g*.
Glyoxylic acid, phenyl , Et ester, 6980*a*.
Hydrocinnamic acid, α,β-epoxy-β-methyl-, 5150*f*.
Ketone, 1,4 - benzodioxan - 6 - yl methyl, 9070*b*.
1,4 - Naphthoquinone, 5,6,7,8 - tetrahydro-2 hydroxy-, 1383*b*.
Piperonyl alcohol, α-vinyl-, 2181*h*.
1,2 - Propanedione, 1 - (*p*-methoxyphenyl)-, 1741*f*.
Propionic acid, β benzoyl , 7192*h*.
Propiophenone, methylenedioxy-, 186*ab*.
*m*-Toluic acid, 2 (1-hydroxyethoxy)-, lactone, 5860*i*.
$C_{10}H_{10}O_3S$ Acetic acid, phenacylmercapto-, 608*a*.
Benzoic acid, o - (acetonylmercapto)-, 2200*g*.
Pyruvic acid, (benzylmercapto)-, 607*h*, 1844*i*.
4,5,7 - Selenanaphthenetriol, 3,6-dimethyl-, 6612*h*.
$C_{10}H_{10}O_4$ Acetic acid, (acetylphenoxy)-, 3364*d*, 5860*g*.
Acetylsalicylic acid, Me ester, P 4701*f*.
Anisaldehyde, 3 - acetyl - 2 - hydroxy-, 3414*c*.
3(2*H*) - Benzofuranone, 5,6 - dimethoxy-, 7460*h*.
Benzoic acid, anhydride with Et carbonate, 6980*a*.
Ferulic acid, 2685*i*, 4848*d*, 8459*c*.
Hydrocinnamic acid, o-carboxy-, 2189*b*, 6172*h*.
Hydroquinone, diacetate, 1741*h*, 2187*f*.
Isophthalic acid, di-Me ester, 376*i*.
Lactic acid, benzoate, P 6224*c*.
Levulinic acid, β-furfurylidene-, 9334*d*.
Meconin, 1318*c*.
Phthalic acid, di-Me ester, 20*f*, 466*a*, 1625*g*, P 1807*d*, P 1960*a*, 2362*i*, 2730*h*, 3140*a*, P 3444*g*, 3678*a*, 3688*d*, 3965*h*, P 4421*a*, 5150*g*, 5767*a*, 6354*c*, 7181*c*, P 7633*e*, 8138*i*, 8368*f*, 9335*g*, 9524*c*.
Phthalide, 3,3-dimethoxy-, 8368*f*.
Piperonyl alcohol, acetate, 3555*d*.
Piperonylic acid, Et ester, 3555*c*.
Propionic acid, β-(formylphenoxy)-, 3393*e*.
Pyrocatechol, diacetate, 9049*g*.
Pyruvaldehyde, (4 - hydroxy - 3 - methoxyphenyl)-, 2285*b*.
Resorcinol, diacetate, 9049*g*.
—, diacetyl-, 1243*c*.
Succinic acid, phenyl-, 2168*b*, 4228*a*.
Terephthalic acid, di-Me ester, P 3030*f*.
$C_{10}H_{10}O_4S$ Benzoic acid, .o-(1-carboxyethylmercapto)-, 3816*h*.

$C_{10}H_{10}O_5$ 2-Furanbutyric acid, α,γ-dioxo-, Et ester, 1764*h*.
3 - Furoic acid, 2-methyl-5-(1,2,3,-4 - tetrahydroxybutyl)-, dianhydro deriv., 4664*i*.
Isophthalic acid, 4-methoxy-2-methyl-, 2975*c*.
Opianic acid, *Ca salt*, 1318*a*; *Cu salt*, 125*a*.
$C_{10}H_{10}O_6$ Acetic acid, (*m*-phenylenedioxy)di-, P 5998*a*.
1,3 - Cyclohexadiene - 1,3,5 - tricarboxylic acid, 5-methyl-, 9051*g*.
Isophthalaldehydic acid, 2,6-dihydroxy-4-methoxy-, Me ester, 3414*a*.
4 - Pyrone, 5 - hydroxy - 2 - (hydroxymethyl)-, diacetate, 8385*f*.
$C_{10}H_{10}O_6S$ 1,1,2 - Propanetricarboxylic acid, 3-(2-thienyl)-, 6611*d*.
$C_{10}H_{10}O_7$ Hemipic acid, 6-hydroxy-, 7459*h*.
$C_{10}H_{10}O_8S_2$ 1,4 - Naphthalenedisulfonic acid, 1,4 - dihydro - 1,4 - dihydroxy-, *salts*, 2596*f*.
$C_{10}H_{10}S$ Thianaphthene, 3,5-dimethyl-, 7475*d*.
$C_{10}H_{11}AsN_2O_4$ Benzenearsonic acid, *p*-(1,4,5,6 - tetrahydro - 6 - oxo - 3-pyridazyl)-, *and salt*, P 4296*i*.
$C_{10}H_{11}AsO_4$ Butyric acid, (*p*-arsenosophenyl)-, 4237*c*, 8559*c*.
$C_{10}H_{11}AsO_6$ Propionic acid, β-(*p*-arsonobenzoyl)-, P 4296*h*.
$C_{10}H_{11}BrClNO_3$ Acetamide, α-(4-bromo-3-chlorophenyl) - *N* - 2 - hydroxyethyl-, 3362*b*.
$C_{10}H_{11}BrN_2O_3$ Picolinonitrile, 6-bromo-3,5-diethoxy-, 3824*c*.
$C_{10}H_{11}BrO_2$ Acetic acid, bromophenyl-, Et ester, 2189*d*.
Benzene, 1-(2-bromopropyl)-3,4-methylenedioxy-, P 7047*f*.
1,3-Dioxolane, 2-α-bromobenzyl-, 1404*c*.
$C_{10}H_{11}BrO_3$ Acetophenone, 5-bromo-2,4-dimethoxy-, 1742*e*.
$C_{10}H_{11}BrO_4$ Benzoic acid, 4-bromo-3,5-dimethoxy-, Me ester, 1038*a*.
$C_{10}H_{11}Br_2NO_2$ Acetamide, α-(3,4-dibromophenyl)-*N*-2-hydroxyethyl-, 3362*b*.
$C_{10}H_{11}Br_2NO_3$ Acetamide, α-(3,5-dibromo-4 - hydroxyphenyl) - *N* - 2 - hydroxyethyl-, 3362*b*.
$C_{10}H_{11}Br_3O$ Furan, 2,3,4 - tribromo - 2,5-dihydro - 5,5 - dimethyl - 2 - (1,1,2,3-tetrabromoisobutyl)-, 130*c*.
$C_{10}H_{11}Cl$ Naphthalene, 2-chloro-1,2,3,4-tetrahydro-, 205*h*, 2173*i*.
$C_{10}H_{11}ClN_2$ Benzimidazole, 2-(2-chloroisopropyl)-, 7018*i*.
$C_{10}H_{11}ClN_2O_2$ Glyoxylic acid, chloro-, 2,4-xylylhydrazone, 4259*i*.
$C_{10}H_{11}ClN_2O_4$ *o*-Acetophenetidide, 5-chloro-4-nitro-, P 3034*b*.
$C_{10}H_{11}ClN_4$ Guanidine, 1-(*p*-chlorophenyl)-3-cyano-2-ethyl-, 2948*c*, P 6658*g*.
Quinazoline, 4 - (2 - aminoethylamino)-6-chloro-, 5784*i*.
$C_{10}H_{11}ClO$ Benzoyl chloride, *p* propyl-, 7004*i*.
1,4 - Cyclohexadiene - 1 - carbonyl chloride, 4-isopropenyl-, 3797*i*.
Ether, 4-chloro-2-butenyl phenyl, P 4419*f*.
2-Naphthol, chloro-1,2,3,4-tetrahydro-, 2363*c*.
$C_{10}H_{11}ClOS$ Benzoic acid, thiol-, ester with chloropropanol, 7420*c*
$C_{10}H_{11}ClO_2$ Acetic acid, chlorophenyl-, Et ester, 3780*e*.
1,4-Benzodioxan, 2-(chloromethyl)-5-methyl-, P 4304*c*.
Benzyl alcohol, *p*-chloro-α-methyl-, acetate, 6992*a*.
Butyric acid, α-(*p*-chlorophenyl)-, 2169*d*, 4654*g*.
Cumic acid, α-chloro-, 3799*g*.
Propiophenone, β - chloro - *p* - methoxy-, 3797*f*.
*p*-Toluic acid, α-chloro-, Et ester, 1769*e*.
$C_{10}H_{11}ClO_3$ Acetic acid, (chlorotoloxy)-, Me ester, 1894*g*, P 7045*a*.
Anisic acid, 2-chloroethyl ester, 569*e*.
*o*-Homoveratryl chloride, 4277*g*.
$C_{10}H_{11}ClO_4$ Acetophenone, α-chloro-2-hydroxy-4,5-dimethoxy-, 7460*f*.
Vanillic acid, chloroethyl ester, 4242*ac*, 7455*g*.
—, 5-chloro- ethyl ester, 7455*g*.
$C_{10}H_{11}ClO_4S_2$ Thiophene, 3-(*p*-chlorophenylsulfonyl)tetrahydro-, 1,1-dioxide, P 2238*a*.
$C_{10}H_{11}Cl_2NO_2$ Acetamide, α-(dichlorophenyl)-*N*-2-hydroxyethyl-, 3362*c*.
$C_{10}H_{11}Cl_2NO_2S$ Acetamide, *N*-(3,4-dichlorophenylsulfonyl) - *N* - ethyl-, P 2231*h*.
Butyramide, *N* - (3,4 - dichlorophenylsulfonyl)-, P 2231*f*.
Propionamide, *N* - (3,4 - dichlorophenylsulfonyl)-*N*-methyl-, P 2231*h*.
$C_{10}H_{11}Cl_2N_3O_3$ 1 - Butanol, 2 - (2,5-dichlorophenylazo)-2-nitro-, 4646*h*.
$C_{10}H_{11}Cl_2N_3O_4$ Aniline, *N,N* - bis(2-chloroethyl)-2,4-dinitro-, 7443*c*.
$C_{10}H_{11}Cl_2N_5O$ Pyruvaldehyde, dichloro-, phenylhydrazone semicarbazone, 6160*c*
$C_{10}H_{11}Cl_2N_5O_4$ Adenine, 2,8-dichloro-9-(β-D-ribofuranosido)-, 146*i*.
$C_{10}H_{11}Cl_2N_7O_2$ *p* - Toluidine, *N* - (2,2,2-trichloro - 2' - nitroisopropyl)-, 2926*f*.
$C_{10}H_{11}Cl_3O_2$ 2 - Propanol, 1 - methoxy-3-(2,4,5 trichlorophenoxy)-, P 675*g*.
$C_{10}H_{11}Cl_4NSb$ Stibine, dichloro-2-naphthyl-, dichloride, $NH_4Cl$ complex, 4648*a*.
$C_{10}H_{11}FO_2$ Acetic acid, (fluorophenyl)-, Et ester, 3361*d*.
Butyric acid, γ-(*p*-fluorophenyl)-, 1378*g*.
$C_{10}H_{11}IN_2O$ Benzoic acid, *m*-iodo-, isopropylidenehydrazide, 6973*f*.
$C_{10}H_{11}IN_4$ Guanidine, 1-cyano-2-ethyl-3-(*p*-iodophenyl)-, 2948*d*.
$C_{10}H_{11}IO_2$ Butyric acid, γ-(*p*-iodophenyl)-, 1379*a*.
$C_{10}H_{11}IO_4$ Benzene, iodoso-, diacetate, P 5231*d*.
$C_{10}H_{11}I_2NO_3$ Acetamide, α - (4 - hydroxy-3,5 - diiodophenyl) - *N* - 2 - hydroxyethyl-, 3362*c*.
$C_{10}H_{11}N$ Aniline, *N*-2-butenylidene-, 430*g*, 8729*g*.
Butyronitrile, γ phenyl-, 5738*i*.
Hydratroponitrile, α methyl-, P 3439*i*.
Indole, dimethyl-, 2165*b*, 7490*b*, 8892*h*.
Isoquinoline, dihydromethyl-, 5026*a*, 6631*c*.
3*H*-Pseudoindole, 3,3-dimethyl-, 2165*b*.
3-Pyrroline, 1-phenyl-, 5403*g*.
Quinaldine, dihydro-, 955*e*.
Quinoline, dihydromethyl-, 955*f*, 6631*c*.
$C_{10}H_{11}NO$ 2-Azetidinone, 1-benzyl-, 9034*c*.
Benzamide, *N* allyl-, 2273*c*.
Benzonitrile, 2 ethyl-3-methoxy-, 185*e*.
3-Buten-2-one, 4-phenyl-, oxime, 1039*c*, 5005*b*.
1-Indolemethanol, 3-methyl-, 8892*h*.
Isocyanic acid, α,α-dimethylbenzyl ester, 6993*i*.
1,2,2*H*-Oxazine, 3,6-dihydro-2-phenyl-, 650*c*, 5403*f*.
Tryptophol, 1397*c*.
$C_{10}H_{11}NOS$ 4-Thiazolidone, 3-methyl-2-phenyl-, 634*c*.
$C_{10}H_{11}NO_2$ Acetoacetanilide, 228*i*, 5013*g*, P 8156*d*, P 8174*f*, P 9163*b*.
Aniline, 2,6-diacetyl-, 1780*a*.
Benzamide, *N*-acetonyl-, 7478*h*.
—, *N*-propionyl-, 4221*c*.
2(3*H*)-Benzoxazolone, 5-propyl-, 6615*g*.
Benzylidenimine, α-ethyl - 2,3-methylenedioxy-, *and - HCl*, 186*b*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-methyl-, P 4421*f*.
1-Butene, 2-nitro-1-phenyl-, 9334*d*.
Carbanilic acid, allyl ester, P 1904*d*.
Cyclopropanecarboxylic acid, (*p*-aminophenyl)-, 635*h*, 9042*e*.
Gentianine, dihydro-, 2213*d*.
2-Indancarboxylic acid, 2-amino-, 4223*c*.
Indole, 5,6-dimethoxy-, 3406*a*.
Naphthalene, 1,2,3,4 - tetrahydronitro-, 494*e*.
Phthalimidine, 3-ethoxy-, 623*g*.
—, 2-ethyl-3-hydroxy-, 3806*ac*.
Piperonylidenimine, α-ethyl-, *and - HCl*, 186*a*
4(1*H*)-Quinolone, 2,3 - dihydro - 6-methoxy-, 8387*e*.
Styrene, 3,4-dimethyl-β nitro-, P 5803*f*.
*o* Veratronitrile, 5-methyl-, 185*i*.
$C_{10}H_{11}NO_2S$ Acetamide, α-phenacylmercapto-, 608*a*.
Hydrocinnamonitrile, *p* - (methylsulfonyl)-, 1739*h*.
Propionitrile, β - (benzylsulfonyl)-, 1321*c*.
$C_{10}H_{11}NO_2S_2$ Glycine, *N*-dithiocarboxy-, *S*-benzyl ester, 1398*e*.
$C_{10}H_{11}NO_3$ β-Alanine, benzoyl-, 2680*i*, 5005*c*, 7192*h*.
Butyrophenone, nitro-, 3012*g*.
Glycine, *N* - acetyl - *N* - phenyl-, 650*e*, 5403*i*.
—, *N* - formyl - *N* - phenyl-, Me ester, 3411*b*.
Hippuric acid, Me ester, 1323*g*.
Phenaceturic acid, 2269*h*.
Phthalimidine, 3 - hydroxy - 2 - (2-hydroxyethyl)-, 3806*a*.
Propionic acid, β-(*p*-aminobenzoyl)-, P 4296*i*.
Propiophenone, methylenedioxy-, oxime, 186*ac*.
Succinanilic acid, 3925*e*.
$C_{10}H_{11}NO_3S$ Glycine, *N*-thiolcarboxy-, *S*-benzyl ester, 1398*g*.
2 - Oxazoline, 2 - (*p* - methylsulfonylphenyl)-, P 7512*h*.
4 - Thiazolidone, 3-methyl-2-phenyl-, 1,1-dioxide, 634*f*.
$C_{10}H_{11}NO_4$ Acetic acid, (nitrophenyl)-, Et ester, 7454*h*.
Acetic acid, (phenylimino)di-, 7340*h*.
Acetophenone, 4 - methoxy - 2 - methyl-5-nitro-, 3385*f*.
β-Alanine, *N*-salicyloyl-, 756*h*, P 1914*e*, 2680*h*.
Anthranilic acid, *N* - (carboxyethyl)-, 8017*f*.
Benzoic acid, *p*-nitro-, iso-Pr ester, 1896*c*, 8000*a*.
Butyric acid, (*p*-nitrophenyl)-, 1379*b*, 4654*g*.
Glycine, *N*-carboxy-, benzyl ester, 2273*g*.
Mesitylenic acid, 4-nitro-, Me ester, 6972*g*.
Propiophenone, 4-hydroxy - 2 - methyl-5-nitro-, 3385*g*.
Serine, benzoate, 9033*f*.
*p*-Toluic acid, 3-nitro-, Et ester, 6973*a*.
Veratrol, (2-nitrovinyl)-, 4277*f*, 9334*d*.
$C_{10}H_{11}NO_4S$ Benzoic acid, *m*-(allylsulfamyl)-, P 9473*h*.
$C_{10}H_{11}NO_5$ Chelidamic acid, 1-methyl-, di-Me ester, 1409*h*.
Salicylic acid, 4-nitro-, isopropyl ester, 6596*e*; Pr ester, 6596*e*.
$C_{10}H_{11}NO_6$ Pigment, m. 105–6°, 2184*g*.
2,3,5 - Pyrroletricarboxylic acid, 4-methyl-, 3-Et ester, 623*c*.
$C_{10}H_{11}NO_6S_2$ Thiophene, tetrahydro - 3-nitro - 4 - (phenylsulfonyl)-, 1,1-dioxide, P 2238*b*.
$C_{10}H_{11}NS$ Benzothiazole, 2-isopropyl-, 3716*d*.
Benzothiazole, 2-propyl-, 3716*d*.
Butyronitrile, γ-phenylmercapto-, 2272*g*
Propionitrile, β - (benzylmercapto)-1321*c*
$C_{10}H_{11}NS_2$ Benzothiazole, 2-(isopropylmercapto)-, 4415*a*.
Benzothiazole, 2 - (propylmercapto)-4415*a*.
Di-2-thenylamine, 1763*e*; *and - HCl* 2201*g*.
$C_{10}H_{11}N_3$ Quinaldine, 4,6 - diamino-, 1777*i*.
Quinoxaline, aminodimethyl-, 174*d*, 234*i*.
—, 2-(2-aminoethyl)-, 3520*i*.
$C_{10}H_{11}N_3O$ Cinnamaldehyde, semicarbazone, 1654*h*.
3 - Pyrazolidone, 5-imino-4-methyl-1-phenyl-, 7478*b*.
Pyrazolone, 3-amino-4-benzyl-, 7478*b*.
—, aminomethylphenyl-, P 6239*g*, P 7049*h*.
—, 1-(aminophenyl)-3-methyl-, P 5198*f*, P 5959*bc*, P 9461*g*.
4(1*H*) - Pyrimidone, tetrahydro - imino - 6 - phenyl-, *and - HCl*, 3793*e*.
1,2,3,2*H* - Triazole - 4 - methanol, methyl-2-phenyl-, 2619*d*.
$C_{10}H_{11}N_3O_2$ Benzotriazole, acetyl-5-ethoxy-, 7016*de*.
$C_{10}H_{11}N_3O_2S$ Sulfanilamide, *N*¹-2-pyrryl-, 3097*g*.
Urea, 1-benzoyl-3-(carbamylmethyl)-2-thio-, 1400*h*.
$C_{10}H_{11}N_3O_2S_2$ (See also *Sulfamethylthiazo*) Sulfanilamide, *N*¹-(3-methyl-4-thiazol-2-ylidene)-, 4237*h*.
Thiazole, 2-amino-4-sulfanilylmethyl-, 7931*c*.
$C_{10}H_{11}N_3O_3$ Butyraldehyde, α-oxo-, *p*-nitrophenylhydrazone, 3791*e*.
Phthalaldehydic acid, Me ester, carbazone, 7003*d*.
Pyruvic acid, phenyl-, semicarb *Na salt*, 2604*e*.
*p*-Toluic acid, 3-nitro-, ethylidene hydrazide, 6973*b*.
$C_{10}H_{11}N_3O_3S$ Benzenesulfonamide, methyl - 5 - oxo - 2 - pyrazolin-3-yl)-, P 4864*b*, P 5958*g*, P 7697*d*, P 7699*h*, P 8145*g*, P 8150*f*, P 9466*g*.
Benzoic acid, *o*-(formylmethylmercapto semicarbazone, 2201*b*.
$C_{10}H_{11}N_3O_4$ Acetanilide, α-acetam nitro-, 6586*i*, 6667*a*.

Acetoacetanilide, 4-amino-3-nitro-, P 9463*b*.
Nicotinonitrile, 6 - (ethoxymethyl) - 2-hydroxy - 4 - methyl - 5 - nitro-, P 1811*i*.
$C_{10}H_{11}N_3O_3S$ β - Alanine, *N* - [(*p* - nitrophenyl)thiocarbamyl]-, 168*h*.
*p*-Toluenesulfonamide, α-2,4-dioxo-5-imidazolidyl-, 6978*e*.
$C_{10}H_{11}N_3O_3$ Alanine, *N*-[(*p*-nitrophenyl)-carbamyl]-, 168*g*.
β-Alanine, *N* - [(nitrophenyl)carbamyl]-, *and Na salt*, 168*cgh*.
Hydantoic acid, β-methyl-5-(*p*-nitrophenyl)-, 168*g*.
$C_{10}H_{11}N_3O_6S_2$ 1 - Naphthol - 3,6 - disulfonamide, 8-amino-, P 8146*g*.
$C_{10}H_{11}NO_3$ Phenethyl alcohol, 4-amino-2,6-dinitro-, acetate, 592*h*.
$C_{10}H_{11}N_3O$ Isatin, 1-methyl-, 3-guanylhydrazone, *and - HCl*, 3428*f*.
s-Triazine, 2,4 - diamino - 6 - (*p* methoxyphenyl)-, 238*e*.
$C_{10}H_{11}N_3O_3S$ Benzenesulfonic acid, 2-amino - 4 - pyrimidylhydrazide, - *HCl*, 3410*c*.
Metanilamide, *N*¹ - (4 - amino - 2-pyrimidyl)-, P 7517*c*.
$C_{10}H_{11}N_3O_3$ 1,4 - Phthalazinedione, 5-α-hydrazinoacetamido - 2,3 - dihydro-, 7488*e*.
$C_{10}H_{11}N_3O_7$ Lysidine, picrate, P 5049*g*.
$C_{10}H_{11}N_3O_3S$ Sulfanilamide, dilturate, 3262*g*.
$C_{10}H_{11}N_3S$ *s*-Triazine, 2,4-diamino-6-(benzylmercapto)-, P 1444*e*.
$C_{10}H_{12}$ (See also *4,7-Methanoindene, 3a,4,-7,7a-tetrahydro-*; *Naphthalene, tetrahydro-*; *Styrene, dimethyl-*.)
Benzene, (2-methylallyl)-, P 2228*e*, 9051*c*.
Butene, phenyl-, P 7507*g*, 9051*b*.
Cyclopentadiene, dimer, P 4293*a*.
Styrene, ethyl-, 70*g*, P 5608*b*.
Toluene, *p*-isopropenyl-, 5762*g*.
—, *p*-propenyl-, P 6242*b*.
$C_{10}H_{12}AsCl_2NO_2$ Butyric acid, γ-(2-amino-4 dichloroarsinophenyl)-, *HCl*, 4237*c*.
$C_{10}H_{12}AsNO_3S_2$ Acetic acid, mercapto-, diester with 3-amino-4 hydroxydithiobenzenearsonous acid, *and di-Na salt*, 598*i*.
$C_{10}H_{13}AsNO_7$ Butyric acid, γ-(4-arsono-2-nitrophenyl)-, 4237*b*.
$C_{10}H_{12}Ba_2N_2O_8$ Acetic acid, (ethylenedinitrilo)tetra-, Ba complex, 2113*c*.
$C_{10}H_{11}BrNO_2$ Acetamide, α (bromophenyl)-*N* 2 hydroxyethyl-, 3362*b*.
β-Alanine, *N* (*m* - bromophenyl)-, Me ester, P 9462*c*.
Glycine, *N* - (*m* - bromophenyl) , Et ester, 3417*h*
$C_{10}H_{12}BrNO_3S$ Acetamide, α (*p* - bromophenylmercapto) - *N* - 2 - hydroxyethyl-, 3365*e*.
$C_{10}H_{12}BrNO_3$ Acetamide, α (*p* bromophenoxy)-*N*-2-hydroxyethyl-, 3364*f*.
$C_{10}H_{12}BrNO_4$ Ethane, 1 - (4 - bromo - 2-nitrophenoxy)-2-ethoxy-, P 5421*f*.
Fumaric acid, 6-bromo-3,5-diethoxy-, 3824*c*.
$C_{10}H_{12}BrN_3O_2$ 1 - Butanol, 2 - (bromophenylazo)-2-nitro-, 4646*h*.
$C_{10}H_{11}Br_2ClN$ Aniline, *N*, *N* - bis(2-bromoethyl)-*p*-chloro-, 7443*b*.
$C_{10}H_{12}Br_2O$ 3,5 Xylenol, 2,4-dibromo-6-ethyl-, 2968*c*.
$C_{10}H_{10}Br_2O_4$ Muconic acid, α,γ-dibromo-3,5-dimethoxy-, di-Me ester, 6982*i*.
$C_{10}H_{11}Br_2CoN_2$ 5305*a*.
$C_{10}H_{11}ClI_2N$ Aniline, *p*-chloro-*N*, *N*-bis(2-iodoethyl)-, 7443*b*.
$C_{10}H_{10}ClNO$ Acetoxylidide, α-chloro-, 1022*a*.
Carbamyl chloride, trimethyl-, P 1439*d*.
Hydratropohydroxamyl chloride, α-methyl-, 6993*i*.
2 - Naphthol, 1-amino-4-chloro-5,6,7,8-tetrahydro-, P 3040*c*.
4 Quinolinol, 6-chloro - 1,2,3,4 - tetrahydro 2 methyl-, 8387*g*.
$C_{10}H_{10}ClNO_2$ Acetamide, α-(chlorophenyl)-*N* 2 hydroxyethyl-, 3362*b*.
β-Alanine, *N*-(*m*-chlorophenyl)-, Me ester, 8387*c*, P 9462*c*.
Butyric acid, β-*p*-chloroanilino-, 8388*a*.
Glycine, *N*-(*p*-chlorophenyl)-, Et ester, 7480*c*.
$C_{10}H_{10}ClNO_3$ Acetamide, α-(*p*-chlorophenoxy) - *N* - 2 - hydroxyethyl-, 3364*f*.
$C_{10}H_{11}ClNO_4$ Ethane, 1 - (chloronitrophenoxy)-2-ethoxy-, P 1062*g*, P 5421*f*.
Propane, 2 - (2 - chloro - 4 - nitrophenoxy)-1-methoxy-, P 5421*f*.
$C_{10}H_{12}ClNO_2S$ 2 - Methyl - 3 - phenyl - 2-thiazolinium perchlorate, P 7843*h*.
$C_{10}H_{12}ClN_3O_2S$ Benzenesulfonamide, *p*-chloro - *N* - (1,4,5,6 - tetrahydro-2-pyrimidyl)-, P 6670*f*.
$C_{10}H_{11}ClN_2O_3$ 1 - Butanol, 2-(chlorophenylazo)-2-nitro-, 4646*g*.
$C_{10}H_{12}ClO_2$ Tyramine, β-chloro-, acetate, *hydrochloride*, 2602*c*.
$C_{10}H_{12}Cl_2$ Durene, α³, α⁴-dichloro-, 1909*e*, 5955*d*.
$C_{10}H_{12}Cl_2O_2$ *p*-Xylene, α, α'-dichloro-2,5-dimethoxy-, 3387*i*, 6599*e*.
$C_{10}H_{12}Cl_2N$ Aniline, *p*-chloro-*N*, *N*-bis(2-chloroethyl)-, 7443*b*.
$C_{10}H_{12}CoCsN_2O_8$, 7364*h*.
$C_{10}H_{12}CoKN_2O_8$, 7364*f*.
$C_{10}H_{12}CoLiN_2O_8$, 7364*h*.
$C_{10}H_{12}CoNaO_8$, 7364*h*.
$C_{10}H_{12}CoN_2O_8Rb$, 7364*h*.
$C_{10}H_{12}FNO_2$ Acetamide, α-(fluorophenyl)-*N*-2-hydroxyethyl-, 3362*c*.
$C_{10}H_{12}F_2O_2$ Cyclobutanecarboxylic acid, 2,2,3,3 - tetrafluoro - 1 - methyl-, 2 methylallyl ester, P 4295*e*.
$C_{10}H_{11}INO$ 3 - Methyl - 2 - phenyl - 2-oxazolinium iodide, 3014*e*.
$C_{10}H_{11}INOS$ 3 - Ethyl - 6 - hydroxy - 2 methylbenzothiazolium iodide, 9453*e*.
$C_{10}H_{12}INO_2$ Acetamide, *N* - 2 - hydroxyethyl - α - (iodophenyl)-, 3362*c*.
$C_{10}H_{12}INS$ 3 - Ethyl - 2 - methylbenzothiazolium iodide, 2617*a*.
$C_{10}H_{13}IN_2O_3S$ Dimethyl(2,4,6 - trinitrophenethyl)sulfonium iodide, 1731*a*.
$C_{10}H_{12}MnN_2O_8$ Acetic acid, (ethylenedinitrilo)tetra-, Mn complex, 2113*c*.
$C_{10}H_{11}NO_2$ Glycine, *N*-phenyl-, Et ester, 7520*f*.
$C_{10}H_{13}NO_4P$ Succinamilic acid, *p*-phosphono-, 1737*f*.
$C_{10}H_{12}N_2$ (See also *2 Imidazoline, 2 benzyl-*; *Indole, 3 (2-aminoethyl)-*.)
Benzeneazobutane, 1654*h*.
Crotonaldehyde, phenylhydrazone, 1674*i*.
Pyridine, 3-(1-methyl-2 pyrrolin-2-yl)-, 5306*g*.
$C_{10}H_{12}N_2O$ 2 - Benzimidazoleethanol, β-methyl-, 7018*i*.
Glycinonitrile, *N* - 2 - hydroxyethyl-α-phenyl-, 4415*e*.
Imidazoline - 2 - methanol, α phenyl-, *and - HCl*, 7023*c*.
2-Imidazoline, 2-(*p*-methoxyphenyl)-, P 5049*h*.
Nicotinonitrile, 6-butoxy-, 2966*d*
$C_{10}H_{12}N_2OS$ Benzothiazoline, 6-ethoxy 2-imino-3-methyl , 1766*i*.
$C_{10}H_{12}N_2O_2$ Acetanilide, α acetamido , 6586*h*.
Acetoacetamide, *N* - (2 - cyanocyclopentylidene) , 9068*e*.
Aniline, *N*, *N*-dimethyl - *p* - (2-nitrovinyl)-, 6993*b*.
Benzamide, *N*-acetonyl-, oxime, 7478*h*
—, *N* - (2 - carbamylethyl) , 1448*i*.
*p*-Cymene, 2,5-dinitroso , 5623*f*.
Hydrocinnamamide, α carbamyl-(?), 6172*h*.
Ketone, 4 - amino - 6,7 - dihydro - 2-hydroxy - 1,5 *H* - pyridin - 3 - yl methyl, 9068*e*.
1 - Naphthylamine, 5,6,7,8 - tetrahydro-4 nitro-, 616*i*, 617*a*.
Nicotinonitrile, (ethoxymethyl) - 2-hydroxymethyl , P 1811*h*, P 3470*c*.
Picolinonitrile, 3,5-diethoxy-, 3824*b*.
1,5 *H* - Pyrindin - 2 - ol, 4-acetamido 6,7-dihydro-, 9068*g*.
Pyrrolidine, 1-(*p*-nitrophenyl)-, 594*g*.
4(1 *H*)-Quinolone, 2,3-dihydro-6-methoxy-, oxime, 8387*f*.
Salicylamide, *N*-allyl-4-amino-, 6596*g*.
Urea, 1-benzoyl-3-ethyl-, 6162*h*.
—, hydrocinnamoyl-, 2169*e*.
—, (α-phenylpropionyl)-, 2169*e*.
—, tolylacetyl-, 2169*e*.
$C_{10}H_{12}N_2O_3S$ Hydantoin, 1-isopropyl-5-(2-thienyl)-, 3426*f*.
Hydantoin, 1 - propyl - 5 - (2 - thienyl)-, 3426*f*.
2 *H* - Pyrimido[2,1-*b*]benzothiazole-2,4-(3 *H*)-dione, 5a,6,7,8,9,9a - hexahydro-, P 8925*d*.
$C_{10}H_{12}N_2O_3$ (See also *Uracil*.)
Acetanilide, *N*-ethyl-*p*-nitro-, P 7593*a*.
Acetoxylidide, nitro-, 5755*a*.
Benzamide, *N*-isopropylnitro-, 1145*b*, 2357*h*, 5897*g*, 7181*i*.
—, nitro-*N*-propyl-, 1145*b*, 5897*g*, 7181*i*.
Hydrocinnamic acid, β-ureido-, 6597*h*.
Kynurenine, 1470*a*, 4315*i*, 5847*g*, 6264*c*, 7114*h*, 8005*e*, 9186*e*.
Morpholine, 4-(*p*-nitrophenyl)-, 594*h*.
2-Naphthol, 1-amino - 5,6,7,8 - tetrahydro-4-nitro-, P 3040*c*.
Oxalic acid, phenylhydrazide Et ester, 5526*a*, 6972*a*.
$C_{10}H_{12}N_2O_3S$ Acetanilide, *p*-(1-aziridylsulfonyl)-, 3015*b*.
$C_{10}H_{12}N_2O_4$ Acetamide, *N* 2-hydroxyethyl-α (*p*-nitrophenyl)-, 3362*d*.
Acetic acid, (4-amino-3-nitrophenyl)-, Et ester, 3361*d*.
Benzene, 1-*tert* butyl-2,4-dinitro-, 6175*a*.
—, 1-nitro-4-(2 nitrobutyl)-, 8364*i*.
—, 1 - nitro - 4 - (2 - nitroisobutyl)-, 5761*f*, 8364*i*.
Glycine, *N* glycyl - *N* - (*m*-hydroxyphenyl) , 2973*i*.
Salicylamide, *N* - isopropyl - 4 - nitro, 6596*f*
—, 4-nitro-*N* propyl , 6596*f*.
$C_{10}H_{12}N_2O_3S$ Acetamide, *N*-2-hydroxyethyl - α (*p* - nitrophenylmercapto) -, 3365*e*
Sulfanilamide, *N*¹, *N*¹ diacetyl-, P 3846*d*
$C_{10}H_{12}N_2O_4$ (See also *Phenol, tert-butyldinitro-*.)
Acetamide, *N* - 2 - hydroxyethyl α (*p*-nitrophenoxy)-, 3361*f*.
Alanine, *N* - (methoxynitrophenyl) , 7488*a*.
Phenol, butyldinitro-, 805*g*
Veratric acid, 6-ureido , 2951*g*.
$C_{10}H_{12}N_2O_4S$ Succinamilic acid, *p*-sulfamyl-, 3974*a*, P 7961*i*.
$C_{10}H_{12}N_2O_4$ Maleic anhydride, compd with ethylenediamine, 8832*g*
$C_{10}H_{12}N_2O_8Sr_2$ Acetic acid, (ethylenedinitrilo)tetra-, Sr complex, 2113*c*.
$C_{10}H_{12}N_2O_8Zn_2$ Acetic acid, (ethylenedinitrilo)tetra-, Zn complex, 2113*d*
$C_{10}H_{12}N_2S$ Benzothiazole, 2-dimethylamino-4-methyl-, 1766*b*.
Benzothiazole, 2-ethylamino - 6 - methyl-, 1766*b*.
$C_{10}H_{12}N_2S_2$ 1,3,5,2 *H* - Thiadiazine - 2-thione, tetrahydro - 5 - methyl-3 phenyl-, 4415*b*.
2-Thiazolidinethione, 3-(anilinomethyl)-, 8544*g*.
$C_{10}H_{12}N_2S_2$ Thiazole, 2,2' - thiobis[4,5 dimethyl-, P 1798*f*.
Thiazole, 2,2'-thiobis[4-ethyl-, P 1798*f*.
$C_{10}H_{12}N_4$ Guanidine, 1-cyano-3-(2,3-xylyl)-, 2179*d*.
1 *H*-Tetrazole, methyl 3,4-xylyl-, 4235*b*.
$C_{10}H_{12}N_4O$ Urea, 1 (*p*-aminophenyl)-3-(2-cyanoethyl)-, 166*a*.
$C_{10}H_{12}N_4OS$ Acetanilide, *p*-formyl-, thio semicarbazone, 7576*k*, 8534*d*
4 Pteridinol, 2-(ethylmercapto)-6,7-dimethyl-, 2212*h*.
$C_{10}H_{12}N_4O_2$ 2 Imidazoline, 2-(o-nitroanilinomethyl)-, - *HCl*, P 6240*c*.
Oxalic acid, 2-ethylidenehydrazide 2-phenylhydrazide, 6972*b*.
Pimelonitrile, γ-(2-cyanoethyl)-γ-nitro-, P 4519*k*.
Propionitrile, β, β', β'' - (nitromethylidyne)tri-, 2927*o*.
$C_{10}H_{12}N_4O_2S$ Sulfanilamide, *N*¹-(5-ethyl-1,3,4 thiadiazol-2-yl)-, 1908*f*, 3097*f*.
$C_{10}H_{12}N_4O_3$ Adrenochrome, semicarbazone, 3111*f*, 5117*h*, 5508*d*, 5822*f*, 7129*g*, 8062*f*.
*s* - Triazolo[2,3-*a*]pyrimidine - 6 - carboxylic acid, 5-hydroxy-2-propyl-, Me ester, P 4165*f*.
$C_{10}H_{12}N_4O_4$ Isobutyraldehyde, 2,4-dinitrophenylhydrazone, 3788*b*.
Propane, 1 - nitro - 1 - (4 - nitro-*o*-tolylhydrazono)-, 4646*i*.
Riboside, hypoxanthine desoxy-, 4334*e*.
Urea, [(*m* - hydroxyphenoxy)acetylguanyl]-, P 7710*i*.
$C_{10}H_{12}N_4O_5$ Inosine, 5064*a*.
$C_{10}H_{12}N_4O_6$ Xanthosine, 4635*a*, 4707*d*, 6964*k*.
$C_{10}H_{12}N_4O_2S$ Benzenesulfonamide, *N*-[(2,4-diamino-*s*-triazin-2-yl)methyl]-, P 5052*c*.
$C_{10}H_{12}N_4O_2S_2$ [4,4'-Bi-2-pyrazoline]-1,1'-dicarboxamide, 3,3'-dimethyl-5,5'-dioxodithio-, P 5319*g*.
$C_{10}H_{12}N_4O_3S$ Sulfanilamide, *N*¹-(2,4-diamino-6-hydroxy-5-pyrimidyl)-, 652*e*.
$C_{10}H_{12}N_4O_4$ [4,4'-Bi-2-pyrazoline]-1,1'-dicarboxamide, 3,3'-dimethyl-5,5'-dioxo-, P 5319*g*.
$C_{10}H_{12}N_4O_5$ β-Alanine, *N*-guanyl-, picrate, 3793*e*.
$C_{10}H_{12}O$ (See also *Anethole*; *Butyrophenone*; *Naphthol, tetrahydro-*.)
Acetophenone, dimethyl-, 6990*g*, 7439*def*, 8367*d*.

—, ethyl-, 1030*h*, 7439*gh*, 8367*d*.
Anisole, *p*-isopropenyl-, 5629*e*.
—, methylvinyl-, 1597*f*.
2-Butanone, phenyl-, 2589*i*, 4652*a*, 5762*a*, 6195*h*.
2-Buten-1-ol, 1-phenyl-, 2183*f*.
3-Butyn-2-one, 4-(1-cyclohexen-1-yl)-, 1336*h*, 7437*g*.
Cumaldehyde, 6182*h*.
Estragole, 2372*c*.
Furan, 2,5-diethynyltetrahydro-2,5-dimethyl, 3359*e*.
Hydrocinnamaldehyde, *β*-methyl-, 3356*e*.
Isobutyrophenone, 3716*e*, 4239*a*, 4651*g*, 4955*d*, 6178*c*.
Propiophenone, methyl-, 7439*h*.

**$C_{10}H_{12}OS$** Acetophenone, *p*-(ethylmercapto)-, 7475*c*.
Acetophenone, 5-methyl-2-methylmercapto-, 7475*a*.
Propionaldehyde, *β*-(benzylmercapto)-, P 6664*c*.

**$C_{10}H_{12}OS_2$** Xanthic acid, methyl-, phenethyl ester, 6409*d*.

**$C_{10}H_{12}O_2$** (See also *Eugenol*.)
Acetic acid, *p*-ethylphenyl ester, P 3461*g*; phenethyl ester, 5898*f*.
—, phenyl-, Et ester, 2591*d*, P 3471*g*, 7418*e*, 7454*f*.
Acetophenone, *p*-ethoxy-, P 7966*i*, P 7967*c*.
—, methoxymethyl-, 3825*def*.
—, *p*-(methoxymethyl)-, 5761*c*.
Anisyl alcohol, *α*-vinyl-, 2181*h*.
Benzaldehyde, 2-ethyl-3-methoxy-, 196*i*.
6-Benzofuranol, 2,3-dihydro-3,5-dimethyl-, 3413*c*.
Benzoic acid, iso-Pr ester, 6495*f*, 8808*g*; Pr ester, 2591*d*, 6495*f*.
—, *p*-propyl-, 2603*b*, 9056*b*.
—, trimethyl-, 2964*b*.
Benzyl alcohol, *α*-methyl-, acetate, 2967*b*.
2-Butanone, 4-(hydroxyphenyl), 1743*f*, 7001*gh*.
Butyraldehyde, *γ*-(*o*-hydroxyphenyl)-, 2196*e*.
Butyric acid, phenyl-, 1396*d*, 4638*g*, 8017*f*; *Na salt*, 4707*i*.
Chavibetol, 8617*d*.
Cumic acid, 6182*h*.
2,4,6-Cycloheptatrien-1-one, 2-hydroxy-isopropyl-, 5016*abc*.
1,3-Cyclohexadiene-1-acrylic acid, 6-methyl-, 5377*c*.
1,4-Cyclohexadiene-1-carboxylic acid, 4-isopropenyl-, 3797*c*.
Duroquinone, 5665*g*.
Durylic acid, 2964*b*.
Furan, tetrahydro-2-phenoxy-, 3816*d*.
Hinokitiol, 5906*b*.
Hydrocinnamaldehyde, *β*-hydroxy-*β*-methyl-, 2571*b*.
Hydrocinnamic acid, Me ester, 2591*d*.
—, methyl-, 1396*d*, 5026*f*, 5377*c*, 6265*i*.
Hydroperoxide, tetrahydronaphthyl, 1952*g*, 2196*g*, P 3848*c*, 5621*f*, P 5625*f*.
Isobutyrophenone, *α*-hydroxy-, 6181*i*.
Isochavibetol, P 4299*b*.
*β*-Isodurylic acid, 2964*b*.
Isoeugenol, 1757*b*, 2181*g*, 9438*b*.
Ketene, phenyl-, di-Me acetal, 1404*g*.
2,7-Naphthalenediol, tetrahydro-, 7010*i*, P 7511*c*.
2-Propanone, (*p*-methoxyphenyl)-, 1741*c*.
Propionic acid, benzyl ester, 2372*g*.
—, *α*-*p*-tolyl-, 4654*f*.
Propiophenone, *p*-methoxy-, 603*h*, 2971*a*.
Thujaplicin, 5016*abc*.
*γ*-Thujaplicin, 3728*f*.
Thymoquinone, 5665*g*, 8615*g*.
*p*-Toluic acid, Et ester, 6973*a*.
Veratrole, 4-vinyl-, 1597*f*.

**$C_{10}H_{12}O_2S$** Acetic acid, (*p*-methylmercaptophenyl)-, Me ester, 3361*e*.
Acetic acid, phenethylmercapto-, 3365*b*.
Butyric acid, *γ*-phenylmercapto-, 2272*g*.
1,3-Hexanedione, 1-(2-thienyl)-, 629*h*.
Isobutyric acid, phenylmercapto-, 8816*a*.
1,3-Pentanedione, 4-methyl-1-(2-thienyl)-, 629*h*.
Propionic acid, *β*-(benzylmercapto)-, 1321*c*, 8816*a*.
Sulfone, allyl benzyl, 6995*d*.
—, benzyl propenyl, 6995*d*.
2-Thiopheneacrylic acid, methyl-, Et ester, 9064*b*.
—, 5-propyl-, 9064*a*.

**$C_{10}H_{12}O_2S_2$** Thiophene, tetrahydro-3-phenylmercapto-, 1,1-dioxide, P 2238*a*.

**$C_{10}H_{12}O_3$** Acetaldehyde, (2,5-dimethoxyphenyl)-, 6599*g*.
Acetic acid, (2-ethyl-3-hydroxyphenyl)-, 198*f*.
—, (6-methoxy-*m*-tolyl)-, 1385*b*.
—, phenoxy-, Et ester, 4248*d*.
—, *p*-toloxy-, Me ester, 3364*e*.
—, 3,5-xylyloxy-, 8017*f*.
Acetophenone, dihydroxydimethyl-, 2185*a*.
—, dimethoxy-, 1349*a*, 1742*e*, 4851*b*, 7003*a*, 8384*i*.
Anisic acid, Et ester, 5699*b*, 8808*g*.
Benzaldehyde, 4-ethoxy-3-methoxy-, 6786*e*.
Benzene, 1-(2,3-epoxypropoxy)-2-methoxy-, P 5791*g*.
1,4-Benzodioxan-2-methanol, 5-methyl-, P 4304*f*.
Benzoic acid, *p*-hydroxy-, Pr ester, 7193*d*, P 7646*h*, 9273*i*.
2-Butanone, 4-(3,4-dihydroxyphenyl)-, 7001*e*.
Butyric acid, *γ*-(*p*-hydroxyphenyl)-, 1377*i*, 2196*e*.
Butyrophenone, 3,4-dihydroxy-, P 4696*b*.
Coniferyl alcohol, 1181*i*.
Cumic acid, hydroxy-, 7917*e*.
4-Cyclohexene-1,2-dicarboxylic anhydride, dimethyl-, 3778*i*, 8700*c*.
—, 4-ethyl-, 1311*f*.
Ethanol, phenoxy-, acetate, 3786*i*, 5150*f*, 7181*d*.
Hydracrylic acid, tolyl ester, 3393*i*.
Mandelic acid, Et ester, 572*c*.
Phenol, (allyloxy)methoxy-, 602*d*, 7451*g*.
2-Propanone, 1-(*o*-methoxyphenoxy)-, P 1915*c*.
Propionic acid, *β*-toloxy-, 3393*f*.
Pyrocatechol, 3-allyl-3-methoxy-, 602*e*, 7451*h*.
2,6-Xylic acid, 4-methoxy-, 7451*b*.

**$C_{10}H_{12}O_3S$** Acetic acid, (*p*-methoxyphenylmercapto)-, Me ester, 3365*d*.
Acetic acid, (2-phenoxyethylmercapto)-, 3365*b*.
2-Naphthalenesulfonic acid, 5,6,7,8-tetrahydro-, *Na salt*, 6915*h*.
Thianaphthene, 3-ethoxy-2,3-dihydro-, 1,1-dioxide, 1762*i*.
2-Thiophenecaproic acid, *ε*-oxo-, 1379*a*, P 2644*e*, 3366*h*, 3817*g*.
2-Thiopheneglycidic acid, *β*-methyl-, Et ester, 1764*i*.

**$C_{10}H_{12}O_4$** (See also *Cantharidin*.)
Acetic acid, (2,5-dimethoxyphenyl)-, 6599*f*, 7003*b*.
—, (*p*-methoxyphenoxy)-, Me ester, 3364*e*.
Acetophenone, 2,6-dihydroxy-4-methoxy-3-methyl-, 5445*f*.
—, 2-hydroxydimethoxy-, 183*c*, 7001*a*, 7460*d*.
Asaronaldehyde, 2608*i*.
Benzaldehyde, (2,3-dihydroxypropoxy)-, 311*h*.
—, 3,4,5-trimethoxy-, 190*f*, 1743*e*, 2198*a*.
Benzoic acid, *p*-(3-hydroxypropoxy)-, P 1223*h*, P 6236*d*.
Butyric acid, 2-furoylmethyl ester, 1392*e*.
1-Cyclohexene-1,4-dicarboxylic acid, 4-vinyl-, 2574*b*.
Formic acid, diester with 4-hydroxy-*α*-methylene-3-cyclohexene-1-methanol, 2576*i*.
2-Furanglycidic acid, *β*-methyl-, Et ester, 1764*i*.
Hydracrylic acid, methoxyphenyl ester, 3393*d*.
Hydroferulic acid, 2685*i*.
Lactic acid, *β*-*o*-toloxy-, 3194*h*, 2702*h*.
*α*-Longinecic acid, dehydration product, 6209*e*.
Maleic acid, diallyl ester, 805*g*, P 3238*d*, 4401*f*.
2,3-Norcamphanedicarboxylic acid, 5-hydroxy-, *γ*-lactone, Me ester, P 3032*h*.
2-Propanone, 1-hydroxy-1-(4-hydroxy-3-methoxyphenyl)-, 4238*e*.
—, 1-hydroxy-3-(*o*-methoxyphenoxy)-, P 3038*d*.
Propionic acid, *β*-(methoxyphenoxy)-, P 1054*b*, 3393*f*.
Propiophenone, *α*,4-dihydroxy-3-methoxy-, 4238*d*.
Salicylic acid, 3-methoxy-, Et ester, 4242*b*, 7455*h*.
*o*-Toluic acid, 3,5-dimethoxy-, 2185*c*.
Vanillic acid, Et ester, 7455*g*.

**$C_{10}H_{12}O_4S$** Propionic acid, *β*-*p*-tolylsulfonyl-, 2571*f*.
2,5-Thiophenedimethanol, diacetate, 630*a*.
2,5-Thiophenedipropionic acid, 630*e*.

**$C_{10}H_{12}O_4S_2$** Thiophene, tetrahydro-3-(phenylsulfonyl)-, 1,1-dioxide, P 2238*a*.

**$C_{10}H_{12}O_5$** Acetophenone, 3,6-dihydroxy-2,4-dimethoxy-, 1773*c*.
Benzoic acid, *p*-(2,3-dihydroxypropoxy)-, 312*a*, P 5794*g*.
—, 3,4,5-trimethoxy-, 1743*d*, 2198*c*, 5763*d*, 8452*h*.
Gallic acid, Pr ester, 7195*h*.
Maleic acid, allyl 2,3-epoxypropyl ester, P 8740*d*.
Sorbic acid, *γ*,*ε*-dihydroxy-*β*-methoxy-*δ*-methyl-, *γ* lactone, acetate, 1722*e*.
Vanillic acid, 2-hydroxyethyl ester, 4242*b*, 7455*g*.

**$C_{10}H_{12}O_5S$** Glycolic acid, Et ester, benzenesulfonate, 2942*f*; Me ester, *p*-toluenesulfonate, 2942*f*.
Lactic acid, Me ester, benzenesulfonate, 2942*e*.

**$C_{10}H_{12}O_6$** Acid, m. 215°, 3567*e*.
Anemonimic acid, 4426*a*.
3,4-Furandicarboxylic acid, 2-(4-hydroxybutyl), 5022*h*.
3-Furoic acid, 2-methyl-5-(1,2,3,4-tetrahydroxybutyl), anhydro deriv., *and Ag salt*, 4664*e*, lactone, 4664*h*.
Pimelic acid, *β*-(hydroxymethyl)-*α*,*γ*-dioxo-, *γ* lactone, Et ester, 1406*i*.

**$C_{10}H_{12}O_7$** 2,5-Furandicarboxylic acid, tetrahydro-3,4-dioxo-, di-Et ester, 1008*f*.

**$C_{10}H_{12}O_8$** Vitamin C, diacetate, 576*c*, 1498*i*.

**$C_{10}H_{13}O_4P$** 1,4-Naphthalenediol, diphosphate, *tetra Na salt*, 3526*g*.

**$C_{10}H_{12}S$** Sulfide, allyl benzyl, 6995*c*.
Thiophene, 2-(1-cyclohexen-1-yl)-, 3366*b*

**$C_{10}H_{10}AsN_3O$** *p*-Toluenearsonic acid, *α*-[(2-cyanoethyl)amino]-, P 5041*e*.

**$C_{10}H_{13}AsO_4$** Butyric acid, 4-(*p*-arsonophenyl)-, 4237*b*.

**$C_{10}H_{11}BiN_2O_8$** Acetic acid (ethylenedinitrilo)tetra-, Bi comph, 2113*c*.

**$C_{10}H_{13}Br$** *p*-Cymene, 2 bromo-, 1339*g*.
*p*-Xylene, 2-bromoethyl-, 2182*g*.

**$C_{10}H_{14}BrClN_6$** Biguanide, 1-bromochlorophenyl)-5-ethyl-, *HCl*, P 1060*a*, P 6228*fg*.

**$C_{10}H_{11}BrCoCsN_2O_6$**, 7364*g*.

**$C_{10}H_{14}BrCoKN_2O_8$**, 7364*g*.

**$C_{10}H_{14}BrCoLiN_2O_8$**, 7364*g*.

**$C_{10}H_{13}BrCoN_2NaO_8$**, 7364.

**$C_{10}H_{13}BrCoN_2O_8Rb$**, 7364*g*.

**$C_{10}H_{13}BrIN_5$** Biguanide, 1-(3-bromo-4-iodophenyl)-5-ethyl-, *HCl*, P 6228*h*.

**$C_{10}H_{12}BrN_2O_3$** See *Nostal*.

**$C_{10}H_{13}BrN_2O_3S$** Acetamide, *p*-(2-bromoethylsulfamyl)-, 3015*a*.

**$C_{10}H_{12}BrN_2O_7$** Uracil, 1-glucosyl-5-bromo-716*f*.

**$C_{10}H_{13}BrN_2S$** Compd., m. 186.5°, 1011*a*.

**$C_{10}H_{13}BrO$** Anisole, *p*-(1-bromopropyl)-381*cf*.
Phenol, 4-bromo-2-*tert*-butyl-, 6998*g*.

**$C_{10}H_{11}BrOS$** 1-Hexanone, 1-(5-bromo-2-thienyl)-, 4666*b*.

**$C_{10}H_{11}BrO_3$** Camphoric anhydride, 5-bromo-5382*b*.

**$C_{10}H_{13}BrO_6$** 2-Butene-1,1,4-triol, 2-bromo-, triacetate, 4219*e*.

**$C_{10}H_{13}Br_2N$** Aniline, *N*,*N*-bis(2-bromoethyl), 7443*a*.

**$C_{10}H_{14}Br_2N_6$** Biguanide, 1-(3,4-dibromophenyl)-5-ethyl-, *HCl*, P 6228*h*.

**$C_{10}H_{13}Cl$** Benzene, (chloro-*tert*-butyl)-, 3377*i*.
Cymene, chloro-, 3799*f*, P 1498*g*, 5762*g*, 7917*e*.
*m*-Xylene, (1-chloroethyl)-, P 681*d*.

**$C_{10}H_{13}ClN_5$** Biguanide, 1-(chloroiodophenyl)-5-ethyl-, *HCl*, P 1060*b*, P 6228*g*.

**$C_{10}H_{14}ClNO_2$** Ethanol, 2,2′-(*m*-chlorophenylimino)di-, P 8145*e*.

**$C_{10}H_{13}ClN_2O$** Nicotinamide, 6-chloro-*N*,*N*-diethyl-, P 3979*i*.
Urea, 1-(chloro-*o*-tolyl)-1-ethyl-, P 2229*c*.

**$C_{10}H_{13}ClN_2O_3$** Barbituric acid, 5-(3-chlorobutenyl)-5-ethyl-, 1725*s*.
1,5-*H*-Pyrindin-2-ol, 4-amino-3-chloro-6,7-dihydro-, acetate, 9068*e*.

**$C_{10}H_{13}ClN_2O_4$** 1,3-Propanediol, 2-(4-chloronitroanilino)-2-methyl-, P 7694*c*.

**$C_{10}H_{13}ClN_2O_5$** 1,3-Propanediol, 2-(4-chloro-2-nitroanilino)-2-(hydroxymethyl)-, P 7694*f*.

**$C_{10}H_{13}ClN_2O_7$** Uracil, 1-galactosyl-5-chloro-716*f*.
Uracil, 1-glucosyl-5-chloro-, 716*f*.

**$C_{10}H_{13}ClN_2S$** Urea, 1-(*p*-chlorophenyl)-3-isopropyl-2-thio-, 5746*f*.

**$C_{10}H_{13}ClN_2$** Acetamidine, *α*-chloro-*N*-phenethyl-, *HCl*, P 7050*c*.

**$C_{10}H_{13}ClN_4O_2S_2$** Pseudourea, 1-[(*p*-chlorophenylsulfonyl)guanyl]-2-ethyl-thio-, 2946*h*.

$C_{10}H_{13}ClN_4S$ Pseudourea, 3-(*p*-chlorophenyl-guanyl)-2-ethyl-2-thio-, - *HI*, 2950*d*.
Urea, 1-(*p*-chlorophenyl)-3-(*N*, *N*-dimethylguanyl)-2-thio-, 2948*i*.
—, 1-(*p*-chlorophenyl)-3-(ethylguanyl)-2-thio-, 2948*h*.
—, 1-(*p*-chlorophenylguanyl)-3-ethyl-2-thio-, *and* - *HCl*, 2949*h*.
$C_{10}H_{13}ClO$ Carvacrol, chloro-, 3964*b*.
Ether, 4-chlorobutyl phenyl, 129*b*.
—, *α*-chloro-*p*-tolyl isopropyl, 6587*e*.
Phenol, chloroisobutyl-, 3317*a*.
Thymol, chloro-, 2679*b*, 3904*b*, 6363*g*.
$C_{10}H_{13}ClOS$ 2-Thiophenecaproyl chloride, 3817*h*.
$C_{10}H_{13}ClO_2S$ Sulfone, 4-chlorobutyl phenyl, 129*d*.
Sulfone, 2-chloroethyl phenethyl, P 5801*f*.
$C_{10}H_{13}ClO_3$ 2-Furoic acid, 5-(chloromethyl)-, Bu ester, P 1065*d*.
1,2-Propanediol, 3-(chlorophenoxy)-2 methyl-, 312*b*, P 5421*c*.
—, 3-(4-chloro-*m*-toloxy)-, 312*a*, 5655*e*.
$C_{10}H_{13}ClO_3S$ (2-Formyl-*p*-tolyl)dimethylsulfonium perchlorate, 7474*h*.
$C_{10}H_{13}ClO_4S$ (2-Carboxy-*p*-tolyl)dimethylsulfonium perchlorate, 7474*i*.
$C_{10}H_{13}ClS$ Sulfide, 4-chlorobutyl phenyl, 129*b*
$C_{10}H_{13}Cl_2N$ Aniline, *N*, *N*-bis(2-chloroethyl)-, - *HCl*, 4381*c*
$C_{10}H_{13}Cl_2N_5$ Biguanide, 5-(2,4-dichlorophenyl) 1,1-dimethyl-, - *HCl*, 7905*f*
Biguanide, 1-(3,4-dichlorophenyl)-5-ethyl-, - *HCl*, P 6228*e*.
$C_{10}H_{13}Cl_3O_4$ 1,3-Cyclohexanedione, 5,5-dimethyl 2-(2,2,2-trichloro-1-hydroxyethyl)-, 2965*a*.
$C_{10}H_{13}CoKN_3O_{10}$, 7364*h*
$C_{10}H_{13}CoN_3NaO_{10}$, 7364*h*.
$C_{10}H_{13}IO_2S$ Sulfone, benzyl 3-iodopropyl, 6995*g*
$C_{10}H_{13}IO_3$ 1,2-Propanediol, 3-(iodophenoxy)-2-methyl-, P 5421*c*
$C_{10}H_{12}K_2O_8P$ 1,2-Propanediol, 3-*o*-toloxy-, phosphate, di K salt, 312*c*.
$C_{10}H_{13}N$ Aniline, *N*-2-butenyl-, 5403*h*.
Aniline, *N*-butylidene-, 430*g*, 8729*g*.
—, *N*, *N*-dimethyl-*p* vinyl-, 5629*e*.
Indoline, 2,3-dimethyl-, 2165*b*
Isopropylamine, *N*-benzylidene-, 1776*c*.
Naphthylamine, tetrahydro-, 763*i*, P 8600, 4370*b*, P 7511*b*, P 8167*b*; *and* *HCl*, 7011*b*
Propylamine, *N*-benzylidene-, 1340*i*
Pyrrolidine, 1-phenyl-, 5403*g*
Quinaldine, tetrahydro-, 955*e*
Quinoline, tetrahydro-8-methyl-, 955*f*
$C_{10}H_{13}NO$ Acetamide, *N*-*α*-methylbenzyl-, 2165*g*.
Acetamide, *N*-phenethyl-, 5027*d*.
Acetimidic acid, *N*-methyl-, *p*-tolyl ester, *and* *HCl*, 2594*g*
Benzamide, *N*-isopropyl-, 7183*c*
—, *p*-propyl-, 7004*i*, 9056*b*.
1,4,2*H*-Benzoxazine, 3,4-dihydro-3,5-dimethyl-, 8365*f*.
—, 3-ethyl-3,4-dihydro-, P 2782*c*
Benzylidenimine, *α*-ethyl-*o*-methoxy-, *and* - *HCl*, 185*d*
Bicyclo[2.2.1]-5-heptene-2-carboxamide, 2-methyl-, 3373*i*
Buten-1-ol, 4-anilino-, 650*d*.
Butyrophenone, oxime, 6178*c*.
—, *o*-amino-, 3012*g*.
4-Cyclohexadiene-1-carboxamide, 4-isopropenyl-, 8797*d*.
Formamide, *N*-(3-phenylpropyl)-, 5739*a*
Hydrocinnamamide, methyl-, 1744*a*, P 3028*d*, 5026*gh*.
Isobutyranilide, 4654*g*, 6992*e*.
Isobutyrophenone, oxime, 6178*c*.
—, *o*-amino-, 3012*g*.
Isodurylaldehyde, oxime, 3388*g*.
Ketone, methyl 2,4,6-trimethyl-3-pyridyl, P 7973*d*
Lutidine, 4-(allyloxy)-, 1416*i*.
Pentanone, 4-(2-pyridyl)-, 4267*h*.
Phenethylamine, *N*-methylenemethoxy-, 7585*g*.
Propionamide, *N*-benzyl-, P 5800*e*, 6596*a*.
Propiophenone, *α*-methylamino-, *and* *HCl*, 2602*h*.
2-Pyridinemethanol, *α*-cyclopropyl-*α*-methyl-, *and* - *HCl*, 2205*a*.
4-Pyridol, 3-allyl-2,6-dimethyl-, 1416*i*, 1417*a*.
*m*-Tolualdehyde, 6-dimethylamino-, 1412*d*.
*o*-Toluamide, *N*-ethyl-, 4652*h*.
$C_{10}H_{13}NOS$ 3-Buten-2-ol, 1-(*p*-aminophenylmercapto)-, 6574*d*.
Carbanilic acid, thiono-, Pr ester, 4415*b*.
$C_{10}H_{13}NO_2$ (See also *Phenacetin*.)
Acetamide, *N*-2-hydroxyethyl-*α*-phenyl-, 2269*i*, P 3574*e*, P 4607*f*.
—, *α*-(6-methoxy-*m*-tolyl)-, 1385*b*.
Acetic acid, phenyl-, 2-aminoethyl ester, - *HCl*, 2269*h*.
2,3-Acetoxylidide, 6-hydroxy-, 5758*i*.
*β*-Alanine, *N*-phenyl-, Me ester, 8380*b*, 8386*i*, P 9462*c*
Anthranilic acid, *N*, *N*-dimethyl-, Me ester, 4574*h*.
Benzene, nitro-*tert*-butyl-, 6993*d*.
Benzoic acid, *m*-amino-, trimethyl betaine, P 3463*f*.
Butyric acid, 3-pyridylmethyl ester, P 8105*h*.
Carbanilic acid, isopropyl ester, 1514*d*, 1893*b*, P 1904*d*, 3554*g*, 3961*a*, 5456*i*, 7089*b*, 7092*d*, 7441*bf*, 7625*a*, 9328*f*, 9352*a*, 9354*d*; Pr ester, P 1904*d*.
—, *o*-methyl-, Et ester, 8138*i*.
Carvacrol, 5-nitroso-, 5378*h*.
Cyclopentanepropionitrile, 1-acetyl 2-oxo-, P 7040*h*.
Durene, nitro-, 4586*b*.
Formanilide, 4-hydroxy-2,3,5-trimethyl-, 180*d*.
Glycine, *N*-phenyl-, Et ester, 572*i*.
2,6-Glycoloxylidide, 1025*f*.
Homoanisamide, *α* methyl-, 1743*i*.
Homopiperonylamine *α*-methyl-, 9118*e*, 9250*e*.
Nicotinic acid, Bu ester, 2622*h*, 6316*h*, *tert*-Bu ester, 2622*h*; iso-Bu ester, 2622*h*, 6316*h*.
Propiophenone, 5-amino-4-hydroxy-2-methyl-, 3385*g*.
*p*-Pseudocumoquinone, 1-*O*-methyloxime, 180*c*.
Thymol, 6-nitroso-, 5378*h*.
Thymoquinone, oxime, 5378*h*.
$C_{10}H_{13}NO_2S$ Alanine, *β*-(benzylmercapto)-, 7902*h*, 7903*g*
Azetidine, 1-*p*-tolylsulfonyl-, P 9531*a*.
Naphthalenesulfonamide, tetrahydro-, P 2784*i*.
3-Thiophenecarboxylic acid, 4-cyano-2,3-dihydro-2-propyl-, Me ester, P 1066*d*.
$C_{10}H_{13}NO_2Se$ Acetamide, *N*-2-hydroxyethyl-*α* (phenylseleny)-, 2273*d*.
$C_{10}H_{13}NO_3$ Acetamide, *N*-2-hydroxethyl-*α*-(hydroxyphenyl)-, 3362*c*.
Acetamide, *N*-2-hydroxyethyl-*α*-phenoxy-, 3364*f*.
Acetic acid, (6-methyl 2-pyridyloxy)-, Et ester, 6630*f*
Acetophenone, *α*-ethylamino-3,4-dihydroxy-, - *HCl*, 3388*d*.
Benzamide, *N*-(2,2-dihydroxyisopropyl)-, 2273*c*.
Benzyl alcohol, 3,4-dimethyl-*α*-nitromethyl-, P 5803*f*.
Butyric acid, *α*-amino-*γ*-phenoxy-, 4223*b*.
Butyrophenone, *α*-amino-3,4-dihydroxy-, *and* - *HCl*, P 4696*e*.
Formanilide, 4-ethoxy-3-methoxy-, *and* - *HCl*, 2177*e*.
Furo[3,4-*c*]pyridin-7-ol, 1-ethoxy-1,3-dihydro-6-methyl-, P 6672*b*, - *HCl*, P 4702*i*.
Homopiperonylamine, 5-methoxy-, 602*f*, 9046*f*; *and* - *HCl*, 2212*b*.
*o*-Homoveratraldehyde, oxime, 4277*f*.
*o*-Homoveratramide, 4277*g*.
Mandelamide, *N*-2-hydroxyethyl-, 2273*d*
1-Propanol, 2-methyl-2-nitro-3-phenyl-, P 3038*c*.
2-Pyridineacetic acid, 1,6-dihydro-1-methyl-6-oxo-, Et ester, 6628*g*.
1(2*H*)-Pyridineacetic acid, 6-methyl-2-oxo-, Et ester, 6630*f*.
Salicylic acid, 4-amino-, isopropyl ester, 6596*e*; Pr ester, 6596*e*.
Surinamine, 6596*h*.
*o*-Toluamide, 3,5-dimethoxy-, 2185*c*.
$C_{10}H_{13}NO_3S$ Acetamide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.
Alanine, *β*-(benzylsulfinyl)-, 6577*b*.
2-Butanone, oxime, benzenesulfonate, 2594*e*.
Hydrocinnamamide, *p*-(methylsulfonyl)-, 1739*h*.
Valine, *N*-2-thenoyl-, 2273*b*.
$C_{10}H_{13}NO_4$ Benzamide, *o*-(2,3-dihydroxypropoxy)-, 312*a*.
Gentisamide, *N*-(2-hydroxypropyl)-, P 3979*c*, P 5045*e*.
1-Hexanone, 1-(5-nitro-2-furyl)-, 6735*g*.
Picolinic acid, 3,5-diethoxy-, *and* *Cu salt*, 3824*b*.
Pyrroledicarboxylic acid, dimethyl-, Et ester, 623*b*.
—, 4-methyl-, 3-Et 2-Me ester, 623*e*.
$C_{10}H_{13}NO_4S$ Acetamide, *N*-2-hydroxyethyl-*α*-(phenylsulfonyl)-, 2273*d*.
Acetanilide, *p*-(2-hydroxyethylsulfonyl)-, 2593*f*.
Alanine, *β*-(*p*-methylsulfonylphenyl)-, 1740*c*.
—, *N*-*p*-tolylsulfonyl-, 2943*g*.
*β*-Alanine, *N*-*p*-tolylsulfonyl-, 8357*e*.
Benzoic acid, *p*-sulfamyl-, Pr ester, 5995*g*.
4-Thiazoleacetic acid, 5-carboxy-, di-Et ester, 5022*a*.
$C_{10}H_{13}NO_5$ Picolinic acid, 3,5-diethoxy-6-hydroxy-(?), 3824*d*.
$C_{10}H_{13}NO_5S$ Pyrrolo[2,1-*b*]thiazole-3,6-dicarboxylic acid, hexahydro-2,2-dimethyl-5-oxo-, 7933*e*.
$C_{10}H_{13}NS$ Benzamide, *N*-isopropylthio-, 3014*i*.
Propionamide, *N*-benzylthio-, 6596*c*.
$C_{10}H_{12}N_2NaO_3$ Alurate sodium, 3147*h*.
$C_{10}H_{13}N_3$ Benzimidazole, 2-(dimethylaminomethyl)-, 1655*e*.
1,3,1*H*-Diazepine, 4,5,6,7-tetrahydro-2-(3-pyridyl)-, P 5049*i*.
2-Imidazoline, 2-(anilinomethyl)-, P 4430*a*, 9249*c*; - *HCl*, P 5049*a*; *and* - *HCl*, P 4303*a*.
—, 2-benzylamino-, 4273*b*.
$C_{10}H_{13}N_3O$ Acetophenone, *p*-methyl-, semicarbazone, 2850*d*.
Benzamide, *N*-(2-guanylethyl)-, - *HCl*, P 673*a*.
Glyoxylamide, (*p*-ethoxyphenyl)hydrazone, P 511*h*.
Hydratropaldehyde, semicarbazone, 4632*h*.
Mesitylenaldehyde, semicarbazone, 6585*b*.
Phenol, *m*-(2-imidazolin-2-ylmethylamino)-, - *HCl*, P 683*e*, P 6240*f*.
Propionaldehyde, 4-phenylsemicarbazone, 3801*h*.
$C_{10}H_{13}N_3OS$ *m*-Tolualdehyde, 6-methylmercapto-, semicarbazone, 7474*g*.
$C_{10}H_{13}N_3O_2$ Acetophenone, *p*-methoxy-, semicarbazone, 2850*d*.
*β*-Alanine, *N*-guanyl-*β*-phenyl-, 3793*c*.
2-Butanone, *p*-nitrophenylhydrazone, 122*i*.
Homoanisaldehyde, semicarbazone, 7417*e*.
*p*-Pseudocumoquinone, 1-semicarbazone, 180*b*.
Semioxamazide, 5-ethyl-1-phenyl-, P 5530*i*.
$C_{10}H_{13}N_3O_2S_2$ Benzaldehyde, *p*-(ethylsulfonyl)-, thiosemicarbazone, 7576*i*.
$C_{10}H_{13}N_3O_3$ Acetanilide, 4-dimethylamino-2-nitro-, 5755*b*.
*β*-Alanine, *N*-[(*p*-aminophenyl)carbamyl]-, 168*h*.
2-Butanone, 3-hydroxy-, *p*-nitrophenylhydrazone, 3791*g*.
Pyridine, 2,6-diacetamido-3-methoxy-, P 3853*f*.
$C_{10}H_{13}N_3O_4$ Acetamide, *α*-(4-amino-3-nitrophenyl)-*N*-2-hydroxyethyl-, 3362*b*.
Picoline, 2,6-bis(*α*-hydroxyacetamido)-, P 3853*e*.
$C_{10}H_{13}N_3O_4S$ Benzenesulfonamide, *N*-(*N*-ethylacetimido)-*p*-nitro-, P 6660*h*.
Benzenesulfonamide, *N*-(*N*-methylpropionimidyl)-*p*-nitro-, P 6660*i*.
$C_{10}H_{13}N_3O_5$ Adipamic acid, *N*-(1,2,3,4-tetrahydro-2,4-dioxo-5-pyrimidyl)-, P 5796*g*.
Pyridine, 2,6-bis(*α*-hydroxyacetamido)-3-methoxy-, P 3853*g*.
$C_{10}H_{13}N_5$ Guanidine, (5,6-dimethyl-2-benzimidazolyl)-, *and* - *HCl*, 1405*d*.
1*H*-Tetrazole, (*m*-aminophenyl)isopropyl-, 1865*c*.
—, (*m*-aminophenyl)propyl-, 1865*c*.
—, (ethylaminomethyl)-1-phenyl-, 1864*h*, P 7972*a*.
—, 5-(1-methylaminoethyl)-1-phenyl-, 1864*i*; - *HCl*, P 7972*c*.
$C_{10}H_{13}N_5O$ Ethanol, 2-[1-phenyl-1*H*-tetrazol-5-yl)methylamino]-, 1864*i*; - *HCl*, P 7972*b*.
$C_{10}H_{13}N_5O_2$ Guanidine, (5,6-dimethoxy-2-benzimidazolyl)-, *and* *hydrochlorides*, 1405*c*.
$C_{10}H_{13}N_5O_4$ Adenine, 9-(3-D-ribofuranosido)-, 147*a*.
Adenosine, 144*e*, 146*hi*, 3795*a*, 4634*h*, 4707*d*, 7590*f*, 8409*d*.
*β*-Alanine, *N*-[(*p*-nitrophenyl)carbamyl]-, hydrazide, 168*g*.
1,2,3-Butanetriol, 4-(2-amino-4-hydroxy-7-pteridyl)-, 5404*c*.
$C_{10}H_{13}N_5O_5$ (See also *Guanosine*.)

1,2,3,4-Butanetetrol, 1-(2-amino-4-hydroxypteridyl)-, 3065*i*, 7028*i*, 7489*be*.
**$C_{10}H_{13}N_5O_6$** Glycine, *N*-[4-(carboxymethylamino)-5-nitro-2-pyrimidyl]-, di-Me ester, P 9087*f*.
**$C_{10}H_{13}NaO$** Thymol, Na deriv., 466*f*.
**$C_{10}H_{13}NaO_5$** Oxalacetic acid, (1-hydroxybutyl)-, γ-lactone, Et ester, Na deriv., 4221*f*.
**$C_{10}H_{14}$** (See also *Benzene, butyl-; Benzene, sec-butyl-; Benzene, tert-butyl-; Benzene, diethyl-; Cymene.*)
Benzene, isobutyl-, 42*d*, 6583*f*, 7819*d*.
2,4,6,8-Decatetraene, 1264*g*.
Durene, 2923*g*, 3377*d*, 4140*e*, 7439*c*.
Fulvene, 6,6-diethyl-, 5246*d*.
—, 6-isopropyl-6-methyl-, 5370*g*.
1,5-Hexadien-3-yne, 2-*tert*-butyl-, 117*h*.
Isodurene, 3377*d*, 7439*c*.
Prehnitene, 2923*g*, 3377*d*, 7439*c*.
Toluene, propyl-, 5012*e*, 5377*b*, 7439*h*.
Tricyclo[4.2.2.0$^{2,5}$]-7-decene, 6198*a*.
Xylene, ethyl-, P 2228*g*, 6990*h*, 7439*cdef*.
**$C_{10}H_{14}AsNO_5$** Butyric acid, γ-(4-arsono-2-aminophenyl)-, 4237*b*.
**$C_{10}H_{14}AsN_3O_3S_2$** Benzenearsonous acid, 3-amino-4-hydroxydithio-, bis(carbamylmethyl) ester, *and - HCl*, 598*i*.
**$C_{10}H_{14}BaN_2O_8$** Acetic acid, (ethylenedinitrilo)tetra-, Ba complex, 2113*c*.
**$C_{10}H_{14}BrN$** Benzylamine, *p*-bromo-*N*, *N*,α-trimethyl-, *and - HCl*, 7919*i*.
**$C_{10}H_{14}BrNO_2$** 1-(1-Carboxypropyl)pyridinium bromide, Me ester, 6977*c*.
**$C_{10}H_{14}BrNO_2S$** Benzenesulfonamide, *p*-bromo-*N* isobutyl-, 5894*a*.
**$C_{10}H_{14}BrN_5$** Biguanide, 5-(*p*-bromophenyl)-1,1-dimethyl-, P 4692*b*, 9036*i*.
Biguanide, 1-(bromophenyl)-5-ethyl-, *- HCl*, P 684*g*, P 1060*a*, P 4691*e*, P 6228*cd*, 9036*i*.
**$C_{10}H_{14}Br_2O$** Pinocamphone, dibromo-, 2977*ab*.
**$C_{10}H_{14}Br_2O_3$** Cyclopentanevaleric acid, γ,1-dibromo-δ-oxo-, 587*g*.
**$C_{10}H_{14}Br_2O_5$** Cyclohexanetetrol, dibromo-, diacetate, 6581*c*.
**$C_{10}H_{14}CaN_4S_4$** Imidazolethione, 2-mercaptodimethyl-, Ca deriv., 6171*e*.
**$C_{10}H_{14}ClF_3O$** Cyclohexanepropionyl chloride, 3-(trifluoromethyl)-, 1382*b*.
**$C_{10}H_{14}ClN$** Aniline, *N*-(2-chloroethyl)-*N*-ethyl-, 7443*a*; *- HCl*, 4381*c*.
Phenethylamine, β - chlorodimethyl-, *- HCl*, 1861*e*, 2602*a*, 4381*c*.
3-Picoline, 2-butyl-6-chloro-, 643*i*.
**$C_{10}H_{14}ClNO$** Phenethylamine, β-chloro-*p*-methoxy-*N*-methyl-, *- HCl*, 2602*c*.
**$C_{10}H_{14}ClNO_2$** 1-(Carboxymethyl)pyridinium chloride, Pr ester, 6977*b*.
Ethanol, 2,2′-(*p*-chlorophenylimino)di-, 7443*b*
**$C_{10}H_{14}ClNO_2S$** Butanesulfonanilide, chloro-, 6569*d*.
**$C_{10}H_{14}ClNO_2S_2$** Sulfilimine, *S*-(2-chloroethyl)-*S*-methyl-*N*-*p*-tolylsulfonyl-, 2928*i*.
**$C_{10}H_{14}ClNO_3S$** *m*-Ethanesulfonophenetidide, 1-chloro-, 6569*a*.
**$C_{10}H_{14}ClN_3O_2S$** Benzenesulfonamide, *p*-chloro-*N*-isopropylguanyl-, 2940*g*.
**$C_{10}H_{14}ClN_5$** (See also *Biguanide, (p-chlorophenyl)dimethyl-.*)
Biguanide, 1-chlorophenyl)-5-ethyl-, P 1060*a*, P 6059*f*, 9030*b*, *and - HCl*, P 6228*bc*.
**$C_{10}H_{15}ClO_3P$** Benzenephosphonic acid, *p*-chloro-, di-Et ester, 1109*h*.
**$C_{10}H_{14}Cl_2N_2O_3S$** Cystine, *N*, *N′*-bis(chloroacetyl)-, 1071*e*.
**$C_{10}H_{14}Cl_2O_2$** 4-Hexenoic acid, 5-chloro-2-(3-chloro-2-butenyl)-, 1726*a*.
**$C_{10}H_{14}Cl_4O_2$** 3,5-Octadiyne-2,7-diol, 2,7-dimethyl-, tetrachloride, 130*e*.
Sebacyl chloride, α,θ-dichloro-, P 7957*f*.
**$C_{10}H_{14}Cl_6O_2$** 3,5-Octadiyne-2,7-diol, 2,7-dimethyl-, hexachloride, 130*e*.
**$C_{10}H_{14}CuO_4$** 2,4-Pentanedione, Cu deriv., 8199*g*.
**$C_{10}H_{14}FNO$** Phenol, 2-fluoro-4-(2-methylaminopropyl)-, 5863*g*, 6253*f*.
**$C_{10}H_{14}F_4O$** Ether, 2-methylallyl 2,2,3,3-tetrafluoro-1-methylcyclobutylmethyl, 3371*c*, P 4294*bh*.
**$C_{10}H_{14}F_4O_2$** Cyclobutene, 3,3,4,4-tetrafluoro-1,2-dipropoxy-, 7418*g*.
**$C_{10}H_{14}FeO_4Pb$**, 4596*c*.
**$C_{10}H_{14}HgN_2O_8$** Acetic acid, (ethylenedinitrilo)tetra-, Hg complex, 2113*c*.
**$C_{10}H_{14}INO$** (*p*-Formylphenyl)trimethylammonium iodide, 5761*f*.
Phenol, (2-dimethylaminoethyl)iodo-, 7432*i*.
**$C_{10}H_{14}INO_2$** 3-Carboxy-1-methylpyridinium iodide, Pr ester, 2622*g*.
Pyrrolecarboxylic acid, iodotrimethyl-, Et ester, 2850*a*.
**$C_{10}H_{14}IN_5$** Biguanide, 1-ethyl-5-(*p*-iodophenyl)-, *- HCl*, P 1060*b*, P 6228*d*.
**$C_{10}H_{14}NO_4P$** Benzenephosphonic acid, *p*-butyrylamino-, 1737*f*.
**$C_{10}H_{14}NO_5PS$** See *Parathion*.
**$C_{10}H_{14}NO_6P$** Furo[3,4-*c*]pyridin-7-ol, 1-ethoxy-1,3-dihydro-6-methyl-, 7-dihydrogen phosphate, P 6672*b*, 6680*c*.
**$C_{10}H_{14}N_2$** (See also *Anabasine; Nicotine.*)
Metanicotine, 5306*g*.
Pimelonitrile, γ-isopropylidene-, 6579*b*.
Pyrrolidine, 1-(*p*-aminophenyl), 594*g*.
**$C_{10}H_{14}N_2O$** (See also *Coramine.*)
Acetamide, *N*-(2-aminoethyl)-α-phenyl-, 2269*i*, *and salts*, P 3574*c*.
—, *N*-[α-(aminomethyl)benzyl]-, *and - HCl*, 6176*e*.
—, α-ethylamino-α-phenyl-, 9032*i*.
Acetimidic acid, α-anilino-, Et ester, *- di- HCl*, P 2738*h*.
*o*-Acetotoluidide, α-methylamino-, 1021*h*.
2,5-Acetoxylidide, 4 amino-, P 4473*b*
Aniline, *N*, *N*-diethyl-*p*-nitroso-, 6631*f*.
Butyric acid, phenylhydrazide, 5526*a*, 7182*h*.
Imidazolecarboxaldehyde, 1-cyclohexyl-, 8381*i*.
Isobutyramide, α anilino-, 9032*i*.
Isobutyric acid, phenylhydrazide, 1896*e* 5526*a*, 7182*h*, 7183*c*.
Morpholine, 4-(*p*-aminophenyl)-, 594*h*.
Nicotinamide, *N*-butyl , 5025*e*.
Propiophenone, α-methylamino-, oxime, 2602*h*.
Quinoline, 8-amino-1,2,3,4-tetrahydro-6 methoxy-, P 5050*g*
Urea, (α methylphenethyl)-, P 2230*b*.
**$C_{10}H_{14}N_2O_2$** Acetamide, α-(*p*-aminophenyl)-*N*-2-hydroxyethyl-, 3362*b*
Acetic acid, (3,4-diaminophenyl)-, Et ester, *di- HCl*, 3363*g*.
*p*-Acetophenetidide, 2-amino-, 7016*d*
Benzoic acid, 2-ethyl-3-methoxy-, hydrazide, 196*h*.
Hydrocinnamic acid, α-amino-β-(amino methyl)-, *and - HCl*, 5005*d*.
Nicotinamide, 6 butoxy-, 2996*e*, 5025*f*.
—, *N*-(methoxypropyl)-, 5025*e*.
2-Pyridineacetamide *N*-2-hydroxyethyl-6-methyl-, 3364*b*.
Salicylamide, 4 - amino - *N* - isopropyl-, 6596*g*.
—, 4-amino-*N*-propyl-, 6596*g*.
Thymoquinone, dioxime, 5623*e*.
**$C_{10}H_{14}N_2O_2S$** Benzamidine, *N*, *N*-dimethyl-*p* (methylsulfonyl)-, *- HCl*, P 688*i*
Benzenesulfonamide, *N*-methyl *N*-(*N*-methylacetimido)-, 2591*h*.
Ethylamine, *N*, *N*-dimethyl-2-(nitro phenylmercapto)-, *- HCl*, 6179*c*, *and HCl*, 6180*a*.
Hydrocinnamamidine, *p*-(methylsulfonyl)-, *- HCl*, 1739*h*.
**$C_{10}H_{14}N_2O_3$** (See also *Allurate.*)
Acetanilide, 4-amino-2,5-dimethoxy-, P 4473*c*.
Compd., m. 171°, 9068*c*.
7,9 - Diazaspiro[4.5]decane - 6,8,10-trione, dimethyl-, P 3472*i*, P 4429*gi*.
4-Pentenoic acid, 2-acetamido-2-cyano-, Et ester, P 6653*e*.
Phenol, 2 amino-4-*tert*-butyl-6-nitro-, P 7698*h*, P 7699*a*.
Urea, (4 - ethoxy - 3 - methoxyphenyl)-, 2177*g*.
**$C_{10}H_{14}N_2O_3S$** Butyramide, *N*-sulfanilyl-, 3097*f*.
Propionamide, *N*-*p*-sulfamylbenzyl-, 8539*e*.
**$C_{10}H_{14}N_2O_3S_2$** Acetamide, α-(ethylmercapto)-*N*-sulfanilyl-, P 3035*g*.
Acetanilide, *p*-(2-mercaptoethylsulfamyl)-, 3015*b*.
**$C_{10}H_{14}N_2O_4$** Glutaraldehydic acid, α-acetamido-α-cyano-, Et ester, 143*d*.
Glycine, *N* - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-, 644*f*, 723*b*.
1,3-Propanediol, 2-methyl-2-*o*-nitroanilino-, P 7694*f*.
**$C_{10}H_{14}N_2O_4S$** Acetamide, α-ethoxy-*N*-sulfanilyl-, P 3035*g*.
Benzenesulfonamide, *N* - butylnitro-, 4630*d*.
—, *N-sec*-butylnitro-, 4630*d*.
—, *N-tert*-butylnitro-, 4630*d*.
—, *N*, *N*-diethylnitro-, 4630*c*.
—, *N*-isobutylnitro-, 4630*d*.
Carbamic acid, sulfanilyl-, iso-Pr ester, P 7044*f*; Pr ester, P 7044*g*.
Ethylamine, *N*, *N*-dimethyl-2-(nitrophenylsulfonyl)-, 6179*c*; *and HCl*, 1680*b*.
**$C_{10}H_{14}N_2O_5$** Glutamic acid, *N*-acetyl-γ-cyano-, γ-Et ester, 137*h*.
,3-Propanediol, 2-(hydroxymethyl)-2-*o*-nitroanilino-, P 7694*f*.
5-Pyrimidinepropionic acid, hexahydro-β-methyl-2,4,6-trioxo-, Et ester, P 1799*i*.
Thymidine, 270*c*, 4334*d*, 9146*c*, 9159*i*, 9250*a*.
**$C_{10}H_{14}N_2O_5$** Thymine, 1-arabinosyl-, 716*f*.
Thymine, 1-ribosyl-, 716*f*.
**$C_{10}H_{14}N_2O_7$** Uracil, 1-galactosyl-, 716*f*.
Uracil, 1-glucosyl-, 716*f*
**$C_{10}H_{14}N_2O_7S_2$** Anthranilic acid, 5-[methyl(2-sulfoethyl)sulfamyl] , P 7710*b*.
**$C_{10}H_{14}N_2O_8Sr$** Acetic acid, (ethylenedinitrilo)-tetra-, Sr complex, 2113*c*.
**$C_{10}H_{14}N_2S_2$** Urea, 1-[(ethylmercapto)methyl]-3-phenyl-2-thio-, 7410*b*.
**$C_{10}H_{14}N_4$** 1*H*-Benzotriazole, 1-(2-dimethylaminoethyl)-, *and - HCl*, 7022*a*.
**$C_{10}H_{14}N_4O$** 1-Butanone, 1-(3-pyridyl)-, semicarbazone, 643*d*.
**$C_{10}H_{14}N_4O_7S$** Sulfanilamide, *N*¹-(allylguanyl)-, P 5802*c*.
Sulfanilamide, *N*¹-(1,4,5,6-tetrahydro-2-pyrimidyl)-, P 6670*e*.
**$C_{10}H_{14}N_4O_7S$** Acetanilide, *p*-(methylguanylsulfamyl)-, P 1060*h*, P 4298*c*.
**$C_{10}H_{14}N_4O_8$** Malonic acid, (5 amino-1,2,4,1*H*-triazol-1-ylmethylene)-, di-Et ester, P 52*i*.
Theophylline, dihydroxypropyl-, 9258*i*.
**$C_{10}H_{14}N_4O_8$** 4,5-Imidazoledicarboxamide, 1-ribofuranosyl-, 6984*g*.
**$C_{10}H_{14}N_4O_8$** 2 Butanol, 4-amino-, picrate 2935*b*.
**$C_{10}H_{14}N_4O_8$** 1,3-Propanediol, 2-amino-2-methyl-, picrate, 7422*d*.
**$C_{10}H_{14}N_4PbS_4$** Imidazolethione, 2-mercaptodimethyl-, Pb deriv., 6171*e*.
**$C_{10}H_{14}N_4S$** Urea, 1-(*N*, *N*-dimethylguanyl)-3-phenyl-2-thio-, 2948*i*
**$C_{10}H_{14}N_4S_2$** Thiazole, 5,5′-thiobis[2-aminoethyl-, 8381*a*
**$C_{10}H_{14}N_5O_7P$** See *Adenylic acid*
**$C_{10}H_{15}N_5O_2P$** Guanylic acid, 3063*f*, 4367*e*, 4707*d*, 9251*f*
**$C_{10}H_{15}N_5O_3$** Biguanide, 1,1-dimethyl-5-(4-nitrophenyl)-, P 6659*h*.
**$C_{10}H_{16}O$** (See also *Carvacrol; Carvone; Thymol.*)
Anisole, ethyl-2-methyl-, 1028*h*.
—, propyl-, 3385*h*, 3812*g*.
—, 2,3,4 trimethyl-, 2975*c*.
Benzyl alcohol, α-ethyl-α-methyl-, 4624*e*
2-Butanol, 4-phenyl , 4652*a*.
3-Buten-2 one, 4-(cyclohexen-1-yl)-, 679*d*, 8360*a*.
3 - Butyn - 2 - ol, 4 - (1 - cyclohexenyl)-, 8360*g*.
6-Camphenone, 2604*i*.
Cinerone, 1334*f*.
*m*-Cresol, 5-isopropyl-, 2969*a*.
—, propyl-, 2969*a*, 3385*g*.
2 - Cyclopenten - 1 - one, 2 - (buten 3-methyl-, 1334*fg*.
8-*p*-Cymenol, P 4624*e*.
Durenol, 7450*i*, 7465*d*.
Ether, butyl phenyl, 2590*b*.
—, *tert*-butyl phenyl, P 7966*d*.
—, ethyl methylbenzyl, 166*d*, 612*h*.
Eucarvone, 4637*g*.
Furan, 2-isopropenyl-5-isopropyl, 70
Isodurenol, 7465*e*.
2(3*H*)-Naphthalenone, 4,4a,5,6,hexahydro-, 7908*a*.
3,7-Octadien-5-yn-2-ol, 2,4-dime 2163*a*.
7-Octen-5-yn-2-ol, 2-methyl-4 ene-, 2162*i*, 2163*a*.
Phenethyl alcohol, dimethyl-, 6181*h*.
Phenol, butyl-, 274*d*, 3065*c*, P 769
—, *tert*-butyl-, P 3037*b*, 3805*a*, P P 6821*e*, 6998*f*, 8881*c*.
—, diethyl-, 1029*a*, 3385*h*.
—, isobutyl-, 3317*a*.
3,5-Xylenol, 2-ethyl-, 2969*c*.
**$C_{10}H_{16}OS$** Acetic acid, thiol-, 1-octen-7-yl ester, 7417*i*.
1-Hexanone, 1-(2-thienyl)-, 228*a*.
1-Propanol, 2-(benzylmercapto)-,
**$C_{10}H_{16}OS_2$** Ethanethiol, 2-(2-phenylmercaptoethoxy)-, P 4507*h*.
Ketone, (butylmercapto)methyl enyl, 1398*d*.
**$C_{10}H_{16}O_2$** Acetaldehyde, phenyl-, di-tal, 6196*g*.
Anisyl alcohol, 2,6-dimethyl-, 74
Benzene, 1-ethyl-2,4-dimethoxy-,

**Benzyl alcohol, α - ethyl - *m* - methoxy-, 3385*h*.**
**Bicyclo[2.2.1]-5-heptene-2-carboxylic acid, 2-methyl-, Me ester, 3374*a*.**
**Bicyclo[5.1.0]-2,5-octadiene, 7,8-dimethoxy-, 6197*b*.**
**1-Butanone, 1-(2,5-dimethyl-3-furyl)-, 6204*d*.**
**Camphorquinone, 610*h*.**
**Cinerolone, 5751*h*, 6988*d*.**
**2-Cyclopenten-1-one, 2-(butenyl)hydroxy-3-methyl-, 1335*a*, 5751*i*.**
**—, 4 - hydroxy - 3 - methyl - 2 - (2-methylallyl)-, 5751*i*.**
Ethane, 1,2-dimethoxy-1-phenyl-, 6197*a*.
Guaiacol, 4-propyl-, 2427*i*, 5589*i*, 8075*e*.
Ketone, 4-ethoxycyclohexadienyl methyl, 7416*e*.
1,3-Naphthalenediol, hexahydro-, 7010*h*.
Octadiynediol, dimethyl-, 130*a*, 3359*d*.
2,4,6-Octatrienoic acid, 3,7-dimethyl-, 7238*e*.
Phenol, *o*-butoxy-, P 7696*a*.
1,3 Propanediol, 2 benzyl-, 572*f*
Pyrocatechol, 4-*tert* butyl-, P 2806*i*, 8727*i*.
$C_{10}H_{14}O_2S$ Ethanethiol, 2 (2-phenoxyethoxy) , P 4507*h*
...2 Propanediol, 3-tolylmercapto , 312*c*.
...thophenebutyric acid, 2,5-dimethyl , 4666*h*
...2 thiophenecaproic acid, 1379*a*, 3817*h*
$C_{10}H_{14}O_3Si$ Acetic acid, (dimethylphenylsilyl) , 5003*g*
...roic acid, (trimethylsilyl)- , 8223*c*.
$C_{10}H_{14}O_3$ (See also *1,2 Propanediol, 3-toloxy-*.)
...3 Butanediol, 1-phenoxy , 312*b*.
...mphoric anhydride, 5382*d*
...Cyclohexene-1-carboxylic acid, methyl-oxo- , Et ester, 10088, 2605*d*, 3373*i*, 8002*e*
...3-Cyclopentanedicarboxylic anhydride, 1,1,2-trimethyl , 2605*a*
...Cyclopentene-1-valeric acid, *δ*-oxo- , 3857*e*
...Furanbutyric acid, Et ester, 5022*b*
...rone, 4 hydroxy - 1 cyclohexen - 1 - ...methyl, acetate, 7417*a*
...ohol, 3,4-dimethoxy- , 1 hydroxy methoxy , 5380*i*
...2 Cyclohexadiol, 1-benzyloxy- , 3114
...methyl-3-phenoxy-, P 5424*i*
$C_{10}H_{14}O_3S$ Ethanol, 2 (phenethylsulfonyl) , P 5831*e*
...2 Propanediol, 3-(methoxyphenylmercapto) , 312*c*
...sonol, (benzylsulfonyl)- , 6995*g*
...Pyrone, 2 [2-tert butylmercapto)methyl]-...hydroxy , 1775*b*
$C_{10}H_{14}O_4$ Acetylenedicarboxylic acid, diiso...propyl ester, 2592*a*, 9334*h*, di Pr ester, 2592*a*
...acid, divinyl ester, P 7957*h*.
...ol, trimethylol-, P 8137*i*
...hexanecarboxylic acid, 2-oxo-, Et ...ter, 10095.
Cyclohexanesuccinic acid, 590*e*
...hexanesuccinic acid, 1-hydroxy- , ...lactone, 590*e*.
...dicarboxylic acid, di-Me ...ter, 1401*g*.
...hexene-1-succinic acid, 590*e*
...pentanevaleric acid, γ,1-dihydroxy-...oxo-, γ-lactone, 5874.
...cyclopentene-1,3-dicarboxylic acid, ...-, trimethyl-, 7462*e*
...Heptanone, 2,5-diethoxy-, P 3454*d*.
...ynoic acid, 2-heptynyl-, 6573*c*.
...Phenylic acid, ester with 1,1-ethanediol, P 8761*i*, glycol ester, 8209*b*.
...2 Propanediol, 3-(*o*-hydroxy-*o*-toloxy)-, 311*i*, 5655*e*
...3 methoxyphenoxy)-, 311*i*, 5655*e*
...3-Toloxy- , P 5794*f*.
...meric acid, lactone, 3017*b*, 9076*a*.
...meric acid, *β,ε*-dihydroxy-*β,ε*-dimethyl-, dilactone, P 1956*a*.
...ramic acid, diallyl ester, 2591*f*, 8602*i*
$C_{10}H_{14}O_4S$ 1,2-Propanediol, 3-*p*-tolylsulfonyl-, 312*c*.
...Toluenesulfonic acid, 2-methoxyethyl ...ester, P 7751*e*.
$C_{10}H_{14}O_4S_2$ Methane, (benzylsulfonyl)(ethylsulfonyl)-, 7409*h*.
Acetoacetic acid, *α*-1-hydroxy-...ethylidene-, Et ester acetate, P 6655*b*.
...Camphoric acid, 5-oxo-, 5381*e*.
...1,4-Cyclohexanediacetic acid, 2-oxo-, 3813*a*.
...Isocrotic acid, diallyl ester, P 5152*f*, P 7750*i*.
...Laneciphyllic acid, 1427*h*.
Lactic acid, allyl ester allyl carbonate, P 3452*e*.
α-Longinecic acid, 6209*d*.
Oxalacetic acid, (1-hydroxybutyl)-, γ-lactone Et ester, 4221*f*.
—, (1-hydroxyisobutyl)-, γ-lactone Et ester, 4222*d*.
Sceleranecic acid, dilactone, 3567*d*.
Seneciphyllic acid, 1427*h*.
$C_{10}H_{14}O_5$ Acid, m. 213°, 3567*d*.
2-Butene-1,1,4-triol, triacetate, 4219*b*.
Muconic acid, *α,δ*-dimethoxy-, di-Me ester, 8357*g*.
Sebacic acid, γ,ζ-dioxo-, 3792*b*.
Tartaric acid, di-Et ester, 8355*e*.
$C_{10}H_{14}O_7$ 3-Furoic acid, 2-methyl-5-(1,2,3,4-tetrahydroxybutyl)-, 4664*e*.
$C_{10}H_{14}S$ Benzenethiol, 3,5-diethyl-, P 1063*b*.
Sulfide, butyl phenyl, 2956*f*.
—, *tert*-butyl phenyl, 7820*c*.
—, mesityl methyl, 7820*c*.
Thiophene, 2-cyclohexyl-, 1395*d*.
$C_{10}H_{14}S_2$ Methane, (benzylmercapto)(ethylmercapto)-, 7409*h*.
$C_{10}H_{14}AgN_3O8$ Uracil, 5 amyl 6-methyl 2-thio-, Ag deriv., 3013*e*.
$C_{10}H_{14}AsN_3O_4$ *p* Toluenearsonic acid, *α*-[(2-carbamylethyl)amino] , P 5011*e*.
$C_{10}H_{14}Br$ Camphene, 8 bromo , 5768*b*.
$C_{10}H_{14}BrN_3$ Carbodiimide, 2 bromoallylcyclohexyl-, 1016*f*.
$C_{10}H_{14}BrO_2$ Δ¹ α-Cyclohexaneacetic acid, 2-bromo-(?), Et ester, 2586*a*
1-Cyclohexene 1-acetic acid, 6-bromo-(?), Et ester, 2586*a*.
$C_{10}H_{14}BrO_3$ Cyclohexanecarboxylic acid, 3-bromo-1 methyl-2-oxo-, Et ester, 2605*d*.
$C_{10}H_{15}BrO_4$ Camphoric acid, 5-bromo-, 5382*b*
$C_{10}H_{15}BrO_3S$ Camphorsulfonic acid, bromo-, 4276*b*.
$C_{10}H_{15}Cl$ Bicyclo[3.1.1]-2-heptene, 2 (chloromethyl)-6,6-dimethyl-, 2975*g*
$C_{10}H_{15}ClN_2$ Imidazole, (chloromethyl)-1-cyclohexyl-, - *HCl*, 8382*b*
$C_{10}H_{15}ClN_4O_7$ (Carboxymethyl)trimethyl ammonium chloride, 5-nitrofurfurylidenehydrazide, 2669*e*.
$C_{10}H_{15}ClN_4O_4$ Trimethyl[(5-nitrofurfurylideneaminocarbamyl)methyl]ammonium chloride, 6735*h*
$C_{11}H_{15}ClN_{10}$ Biguanide, (chloro-*p*-phenylene)-bis-, *di*- *HCl*, 8545*g*; *and* - *HCl*, 5014*f*.
$C_{11}H_{15}ClO$ 1-Butanone, 1-(2-chloro-1-cyclohexen-1-yl)-, P 6230*b*.
2-Buten-1-one, 1 (2-chloro-1-cyclohexen-1-yl)-, P 6230*c*.
Cyclohexanone, 2 (3 chloro-2-butenyl)-, 7908*a*.
Cyclohexene-1-butyryl chloride, 1377*h*, 1378*a*.
3 Cyclohexene 1-carbonyl chloride, 1,3,4-trimethyl-, 3373*i*.
$C_{10}H_{15}ClO_2$ Camphor, 3-chloro-8-hydroxy-, P 2640*e*
$C_{10}H_{15}ClO_7$ 1,1,3,4-Butanetetrol, 2-chloro-, 1,1,4-triacetate, 4219*d*.
$C_{10}H_{15}F_3O$ Cyclohexanepropionic acid, 3-(trifluoromethyl)-, 1382*b*
$C_{10}H_{15}HgNS$ Aniline, *p*-(ethylmercurimercapto)- *N,N*-dimethyl-, P 668*d*, P 6648*f*, P 6649*g*
Ethylamine, *N,N*-dimethyl 2 (phenylmercurimercapto)-, P 668*a*, P 6648*f*, P 6649*f*
$C_{10}H_{15}IN_2$ 2-Ethyl-1,3 dimethylbenzimidazolium iodide, 4273*f*
$C_{10}H_{15}IN_2O$ Nicotinamide, 2-ethylidene-1,2-dihydro-1-methyl-, methiodide, 705*e*.
$C_{10}H_{15}IOS$ (*β*-Hydroxyphenethyl)dimethylsulfonium iodide, 6574*g*
$C_{10}H_{15}IS$ Dimethylphenethylsulfonium iodide, 3348*i*, 3349*c*.
$C_{10}H_{15}I_2N$ (*o*-Iodo-*o*-tolyl)trimethylammonium iodide, 5761*e*.
$C_{10}H_{15}N$ (See also *Phenethylamine, dimethyl-*.)
Aniline, butyl-, 2956*g*, 4644*h*, 5403*i*.
—, *N-tert*-butyl-, 7304*a*.
—, diethyl-, P 1437*f*, 2917*g*, 6945*f*, P 8130*c*.
Benzylamine, *α*-ethyl-*N*-methyl-, 7921*d*.
—, *N*-isopropyl-, 1776*d*.
—, *N,N,α*-trimethyl-, 2967*b*, 6177*d*, 7919*i*.
Butylamine, 4-phenyl-, 5738*i*.
*α*-Campholenonitrile, 3806*g*, 4232*d*.
Carvacrylamine, 8202*c*.
1-Cyclohexene-1-acetonitrile, *α*-ethyl-, 3798*a*.
Phenethylamine, ethyl-, 2320*f*, 7585*g*, 9047*d*, 9118*d*.
3-Picoline, butyl-, 1775*d*, 5399*h*; *and chloroplatinate*, 643*i*.
Propylamine, 1-methyl-3-phenyl-, 9118*d*, 9250*g*; *and* - *HCl*, 1349*f*.
2,6-Xylidine, *N,N*-dimethyl-, 6918*h*.
$C_{10}H_{15}NO$ (See also *Ephedrine; Ephetonine; Hordenine; Phenol, p-(2-methylaminopropyl)-*.)
Amylamine, *N*-furfurylidene-, 3406*i*.
Anisidine, trimethyl-, 180*ef*.
Benzyl alcohol, *α*-(dimethylaminomethyl)-, - *HCl*, 2602*b*.
Benzylamine, methoxy-*N,N*-dimethyl-, 6594*i*; - *HCl*, 602*g*.
*m*-Cresol, 6-amino-4-propyl-, 3385*g*.
Durenol, 4-amino-, 180*g*.
Ethanol, 2-*N*-ethylanilino-, P 859*e*, P 4019*e*, P 7235*c*, P 8149*c*.
—, (phenethylamino)-, 7585*g*.
Phenethylamine, methoxymethyl-, 1109*f*, 1351*g*, 6594*a*, 9250*e*.
*p*-Phenetidine, *N*-ethyl-, P 1178*c*.
Phenol, *p*-butylamino-, 5514*c*.
—, *m*-(2-dimethylaminoethyl)-, 7432*h*.
Pseudoephedrine, 3975*e*.
2-Pyridol, 6-butyl-5-methyl-, 643*h*.
2,5-Xylenol, *α*²-dimethylamino-, 7433*d*.
$C_{10}H_{15}NOS$ 2-Thiophenecaproamide, 3817*h*.
$C_{10}H_{15}NOS_2$ Furoic acid, dithio-, compd. with piperidine, P 434*b*.
3 - Thi - 1 - azaspiro[4.5]decane - 2,4-dione, 1,8-dimethyl-2-thio-, 1766*d*
$C_{10}H_{15}NO_2$ Aniline, 2,5-diethoxy-, P 4477*f*, P 8151*f*.
Aniline, *N*-ethyl-3,4-dimethoxy-, 2177*dh*.
Benzyl alcohol, *α*-(ethylaminomethyl)-*p*-hydroxy-, 7128*d*
Benzylamine, 4-ethoxy-3-methoxy-, *and* - *HCl*, 2177*a*.
Camphorquinone, 3-oxime, 610*h*.
Ephedrine, *p* hydroxy-, 168*b*, 1489*f*, 4426*e*.
Ethanol, 2,2'-(phenylimino)di-, P 674*a*, P 4019*h*, P 7696*f*, P 8145*d*, P 8689*g*, 8727*i*, P 9459*d*.
2 Pentenoic acid, 2-cyano-3,4-dimethyl-, Et ester, P 4692*h*.
—, 2-cyano-3-ethyl , Et ester, P 4692*g*.
Phenethylamine, dimethoxy-, 1026*b*, 4277*f*, *and salts*, 6600*c*.
Propanediol, 2 - [2 - (2 - pyridyl)ethyl]-, 4268*d*.
—, 3-toluidino-, 312*c*, 4773*h*.
Pyrocatechol, 4-(2-ethylaminoethyl)-, 3176.
—, 4-(2-methylaminopropyl)-, 9250*e*.
Pyrrolecarboxylic acid, trimethyl-, Et ester, 623*e*, 2849*i*
2,4-Xylidine, acetate, P 5799*i*.
$C_{10}H_{15}NO_2S$ Aniline, *p*-(butylsulfonyl)-, 2593*e*.
Benzenesulfonamide, *N*-butyl-, 1242*e*.
Cymenesulfonamide, P 3220*i*.
Propylamine, 3 - (*p* - methylsulfonylphenyl)-, - *HCl*, 1739*i*.
Toluenesulfonamide, *N*-isopropyl-, 748*d*.
Xylenesulfonamide, *ar*-ethyl-, 6990*k*.
$C_{10}H_{15}NO_2S_2$ Sulfilimine, *S,S*-diethyl-*N*-(phenylsulfonyl)-, 172*e*.
$C_{10}H_{15}NO_3$ Ephedrine, dihydroxy-, 3928*f*, 4426*e*.
Methacrylic acid, ester with *N*-allyllactamide, P 3447*d*.
4-Oxazolecarboxylic acid, 2-amyl-5-methyl-, 2989*g*.
1,2-Propanediol, 3-(4-amino-*o*-toloxy)-, 311*h*.
Protocatechuyl alcohol, *α*-(1-aminopropyl)-, P 6664*c*; - *HCl*, 4770*b*, 8057*b*, *and* - *HCl*, P 4696*b*.
—, *α*-(dimethylaminomethyl)-, 4374*g*.
— *α*-(ethylaminomethyl)- - *HCl* 3388*e*.
$C_{10}H_{15}NO_3S$ Benzenesulfonic acid, *p*-diethylamino-, P 8171*b*.
Propylamine, 1-methyl-3-phenyl-, sulfonic acid deriv., *Na salt*, P 8163*b*, P 9468*g*.
$C_{10}H_{15}NO_4$ Butyronitrile, *α*,γ-dihydroxy-*α,β*-dimethyl-, diacetate, P 9080*d*.
Malonic acid, (2-cyanoethyl)-, di-Et ester, P 4689*h*, 6987*b*.
Nipecotic acid, 1-acetyl-4-oxo-, Et ester, 9067*h*.
Succinic acid, *α*-cyano-*α*-methyl-, di-Et ester, 2167*g*.
—, cyanotrimethyl-, Et ester, 2167*i*.
$C_{10}H_{15}NO_5$ 2,2-Pyrrolidinedipropionic acid, 5-oxo-, P 4519*h*.
$C_{10}H_{15}NS$ 2-Thenylamine, *tert*-butyl-*N*-methylene-, 1764*c*.
$C_{10}H_{15}N_3$ Propionitrile, *β,β'*-(2-methylallylimino)di-, P 2226*h*.
Pyridine, 2-amino(4-methylamino-1-butenyl)-, 6626*f*.
—, 2 - amino(1 - methyl - 2 - pyrrolidyl)-, 6626*e*; *and di- HCl*, 4138*eb*.

$C_{10}H_{15}N_3O$ Nicotinamidine, 6-butoxy-, - *HCl*, 2996*e*.
$C_{10}H_{15}N_3O_2$ Ethylenediamine, *N*, *N*-dimethyl-*N'*-(*o*-nitrophenyl)-, 7021*h*; *and* - *HCl*, 5783*d*.
Isonicotinic acid, 3-amino-5-(aminomethyl)-2-methyl-, Et ester, - *HCl*, P 3045*c*.
Semicarbazide, 1-(4-hydroxy-*as*-pseudocumyl)-, 180*b*.
$C_{10}H_{15}N_3O_2S$ Sulfanilamide, *N*$^1$-(*N*-ethylacetimido)-, P 6660*h*.
Sulfanilamide, *N*$^1$-(*N*-methylpropionimidyl)-, P 6660*i*.
$C_{10}H_{15}N_3O_2Si$ 2-Thiopheneglyoxylaldehyde, 5-(trimethylsilyl)-, semicarbazone, 9065*d*.
$C_{10}H_{15}N_3O_3S$ 2-Imidazoline, 2-amino-, *p*-toluenesulfonate, P 6670*e*, P 7050*e*.
Pyrimidine, 2-amino-1,4,5,6-tetrahydro-, benzenesulfonate, P 6670*e*.
$C_{10}H_{15}N_3O_4S$ Glycine, *N*-[(carboxyimino)-methylmercaptomethyl]-α-cyano-, di-Et ester, 1403*f*.
$C_{10}H_{15}N_3O_5$ Cytidine, 1-methyl-, 4635*b*.
Phenol, 2-butyl-4,6-dinitro-, $NH_4$ deriv., 2858*i*.
—, 2-*sec*-butyl-4,6-dinitro-, $NH_4$ deriv., 3962*f*, 5525*d*, 6776*a*.
$C_{10}H_{15}N_3S$ 2-Pyrimidinethiol, 4-methyl-6-(1-piperidyl)-, 8395*d*.
$C_{10}H_{15}N_5$ Biguanide, dimethylphenyl-, P 4691*i*, P 4692*a*, 9036*g*; - *HCl*, P 684*h*, 2949*a*.
Biguanide, (xylyl)-, P 6231*d*.
$C_{10}H_{15}N_5O$ *s*-Triazine, 2-amino-4-diallylamino-6-methoxy-, 4269*e*.
*s*-Triazine, 2,4-bis(allylamino)-6-methoxy-, 4269*f*.
$C_{10}H_{15}N_5O_4S$ Pyrimidine, 5-nitroso-6-amino-4-D-xylosidoamino-2-methylmercapto-, 3422*i*, 3423*a*.
$C_{10}H_{15}N_6O_{10}P_2$ See *Adenosinediphosphoric acid*.
$C_{10}H_{15}NaO_6$ Methanetricarboxylic acid, tri-Et ester, Na deriv., 3405*d*
$C_{10}H_{15}O_5P$ 1,2-Propanediol, 3 *o*-toloxy-, phosphate, *di-K salt*, 312*c*.
$C_{10}H_{16}$ (See *Alloöcimene; Camphene; Dipentene; Limonene; Nopinene; Pinene*.)
Bornylene, 2975*d*.
Carene, 5012*f*, 5249*c*, 5650*i*, 5767*i*, 5971*b*, 6367*b*.
Compd., $b_{760}$ 182–3°, 6201*f*.
Fenchene, 1529*g*.
Isoprene, dimer, 109*a*.
Lebedev's hydrocarbon, 5621*g*.
Myrcene, P 5232*c*, P 5423*f*, 5988*i*, P 6219*d*.
β-Ocimene, 361*f*.
Phellandrene, 158*d*, 2181*g*, 6185*b*.
δ-Pinene, 188*i*.
Pyronene, 5249*c*, 5657*a*, 5666*g*, 6601*d*.
Sabinene, 3375*a*, 3976*i*.
Sylvestrene, 9381*d*.
α-Terpinene, 3645*e*, 6601*a*.
Terpinolene, 3645*e*, 6185*b*, P 6237*c*, 7190*f*.
Tricyclo[4.2.2.$0^{2,5}$]decane, 6198*a*.
Tricyclo[2.1.1.$0^{2,4}$]heptane, 1,7,7-trimethyl-, 2975*d*.
$C_{10}H_{16}AsNO_5$ β-Alanine, *N*-(*p*-arsonobenzyl)-, P 5041*f*.
$C_{10}H_{16}Br_2$ Naphthalene, 2,3-dibromodecahydro-, 9332*d*.
$C_{10}H_{16}Br_2Cl_2O_2$ 4-Octene, 4,5-dibromo-1,8-dichloro-3,6-dimethoxy-, 128*h*.
$C_{10}H_{16}Br_2O_4$ Adipic acid, α,δ-dibromo-, di-Et ester, 6611*a*.
$C_{10}H_{16}Br_2O_5$ Propanediol, (2,3-dibromopropoxy)-, diacetate, 7423*h*, 7424*a*.
$C_{10}H_{16}Br_4$ *p*-Menthane, 1,2,8,9-tetrabromo-, 159*g*.
$C_{10}H_{16}ClNO_2S_2$ 3-Thiophenecarbamic acid, tetrahydro-2,4-dimethylthiono-, 1,1-dioxide, chloroallyl ester, P 6668*f*.
$C_{10}H_{16}Cl_2CoN_{10}$, 8941*f*.
$C_{10}H_{16}Cl_2CuN_{10}$, 8222*c*.
$C_{10}H_{16}Cl_2O_2$ 4-Octyne, 1,8-dichloro-3,6-dimethoxy-, 128*h*.
$C_{10}H_{16}Cl_2O_4$ Adipic acid, α,δ-dichloro-, di-Et ester, P 7957*f*.
$C_{10}H_{16}Cl_2CoN_{10}$, 8941*e*.
$C_{10}H_{16}CoN_4O_8$, 7304*f*.
$C_{10}H_{16}IN$ 3,5-Diethyl-1-methylpyridinium iodide, 1427*c*.
$C_{10}H_{16}INO$ (α-Hydroxy-*p*-tolyl)trimethylammonium iodide, 5761*e*.
$C_{10}H_{16}KNO_9S_2$ Sinigrin, 7193*g*.
$C_{10}H_{16}N_2$ Ethylamine, 2,2'-*p*-phenylenebis-, 6591*b*.
Ethylenediamine, *N*-ethyl-1-phenyl-, *and di-HCl*, 6176*h*.
2,4-Mesitylenediamine, *N*-methyl-, 7919*a*.
Phenethylamine, *p*-amino-α,α-dimethyl-, 8365*b*, 9047*d*.
—, *p*-amino-α-ethyl-, 8365*a*, 9047*d*.
*p*-Phenylenediamine, diethyl-, 7232*b*, 7360*h*, - *HCl*, P 8168*c*.
—, 2,3,5,6-tetramethyl-, *and di-HCl*, 504*f*.
Pyridine, 3-(diethylaminomethyl)-, 121*h*.
Sebaconitrile, 1312*e*, P 3836*e*.
$C_{10}H_{16}N_2O$ Imidazolemethanol, 1-cyclohexyl-, 8382*b*.
Pyridine, 5-(aminomethyl)-2-butoxy-, *di-HCl*, 2996*f*.
$C_{10}H_{16}N_2O_2S$ Hydantoin, 5-(cyclohexylmethyl)-2-thio-, 634*i*.
2-Thiazoleacetamide, *N*, *N*-diethyl-4-methyl-, 5021*i*.
Uracil, 5-amyl-6-methyl-2-thio-, 3013*d*.
—, 6-hexyl-2-thio-, 9242*a*.
$C_{10}H_{16}N_2O_2$ Hydroquinone, 2,5-bis(2-aminoethyl)-, *and di-HCl*, 3387*i*.
Isocyanic acid, octamethylene ester, 1563*d*.
Pyrazine, 2,5-diethoxy-3,6-dimethyl-, 3006*a*.
—, 2,6-diisopropoxy-, 8394*e*.
—, 3-ethoxy-2-(ethoxymethyl)-5-methyl-, *and chloroplatinate*, 3005*i*
Succinamide, *N*, *N'*-diallyl-, 7921*i*, 7922*a*.
$C_{10}H_{16}N_2O_2S$ Aniline, (2-dimethylaminoethylsulfonyl)-, 6179*c*, 6180*b*.
Ethanesulfonanilide, 2-amino-*N*-ethyl-, - *HCl*, P 3450*g*.
4-Imidazoline-4 caproic acid, 5-methyl-2-thioxo-, 1769*e*.
Sulfanilamide, 2,3,5,6-tetramethyl-, 1619*c*.
$C_{10}H_{16}N_2O_2S_2$ 4-Imidazolidinevaleric acid, 2,5-dithioxo-, Et ester, 3410*a*.
Morpholine, 4,4' - (dithioöxalyl)di-, 2188*a*
4-Thiazolevaleric acid, 5-amino-2-mercapto-, Et ester, 3410*a*
$C_{10}H_{16}N_2O_3$ (See also *Neonal*.)
4-Imidazolidinecaproic acid, 5-methyl-2-oxo-, P 692*b*, 1769*d*, P 5808*d*.
4,6(1*H*,5*H*)-Pyrimidinedione, 2-butyl-5-(2-hydroxyethyl)-, 6173*d*.
Valine, *N*-acetyl-α-cyano-, Et ester, P 6653*e*.
$C_{10}H_{16}N_2O_3S$ (See also *Biotin*.)
Acetamidine, *N*, *N'*-dimethyl-, benzenesulfonate, 2595*c*.
Allobiotin, P 3468*a*.
Butyric acid, α-acetamido-α-cyano-γ-methylmercapto-, Et ester, P 6653*d*.
Epiallobiotin, P 4368*a*.
Methanesulfinic acid, (6-butoxy-3-pyridylamino)-, *Na salt*, P 3470*i*.
1*H*-Thieno[3,4]imidazole-4-valeric acid, hexahydro-2-oxo-, P 2645*a*.
$C_{10}H_{16}N_2O_4$ Carbamic acid, ethylenedi-, diallyl ester, P 7263*c*.
1*H*-Furo[3,4]imidazole-4-valeric acid, hexahydro-2-oxo-, 2244*h*, 2988*b*, 3073*de*, 5022*f*, P 8401*c*, 9149*b*.
5-Hydantoinacetic acid, 5-propyl-, Et ester, 1323*b*.
Nipecotic acid, 3-acetamido-2-oxo-, Et ester, 137*h*
$C_{10}H_{16}N_2O_4S$ 1,2,3,4-Butanetetrol, 1-(1-allyl-2-mercapto-4-imidazolyl)-, 2989*c*.
Methanesulfonic acid, (6-butoxy-3-pyridylamino)-, *and alkali metal salts*, P 3470*h*.
$C_{10}H_{16}N_2O_4S_2$ *p*-Benzenedisulfonamide, *N*, *N'*-diethyl-, 4237*d*.
$C_{10}H_{16}N_2O_5S$ Sulfanilamide, *N*$^1$-(2,2',2''-trihydroxy-*tert*-butyl)-, 3383*e*.
$C_{10}H_{16}N_2O_5S$ Cystine, *N*, *N'*-diacetyl-, 1071*d*
$C_{10}H_{16}N_2O_6$ See *Acetic acid, (ethylenedimitrilo)tetra*
$C_{10}H_{16}N_2S$ Aniline, (2-dimethylaminoethylmercapto)-, 6179*c*; *and di-HCl*, 6180*a*.
2(3*H*)-Imidazolethione, 4-(cyclohexylmethyl)-, 635*a*.
$C_{10}H_{16}N_2S_2$ 3-Thi-1-azaspiro[4.5]decane-2-thione, 4-imino-1,8-dimethyl-, 1766*c*.
2-Thiazolesulfenamide, *N*-cyclohexyl-4-methyl-, P 1602*d*, P 4509*a*.
$C_{10}H_{16}N_4$ Butyronitrile, α,α'-azobis[α-methyl-, 3354*g*.
1,4 - Piperazinediacetonitrile, di-methyl-, 4415*h*.
$C_{10}H_{16}N_4O$ Imidazolecarboxylic acid, 1-cyclohexyl-, hydrazide, 8381*h*.
$C_{10}H_{16}N_4OS$ 2-Pyrimidinethiol, 4-[2-(4-morpholinyl)ethylamino]-, 8395*d*.
$C_{10}H_{16}N_4O_4$ Semicarbazone, m. 171.5–3.5°, 7426*g*.
Uracil, 6-methyl-5-nitro-, compd. with piperidine, 651*a*.
$C_{10}H_{16}N_4O_5$ +$H_2O$ Pyrimidine, 6-amino-4-(D-glucosidamino)-, 146*f*.
$C_{10}H_{16}N_5O_{13}P_3$ See *Adenosinetriphosphoric acid*.
$C_{10}H_{16}N_6O_2$ 2,6-Octadienedial, disemicarbazone, 4219*f*.
3,5-Octadiene-2,7-dione, disemicarbazone, 6981*e*.
Sebacyl azide, 1563*e*.
$C_{10}H_{16}N_{10}$ Biguanide, 1,1'-*p*-phenylenedi-, *and tetra-HCl*, 5014*f*.
*s*-Triazine, 2,2'-tetramethylenebis[4,6-diamino-, P 3662*f*.
$C_{10}H_{16}O$ (See also *Camphor; Citral; Pulegone*.)
Carvotanacetone, 6601*b*, 7915*d*.
2-Cyclohepten-1-one, 2,6,6-trimethyl-, 4637*g*.
Cyclohexanol, 1-ethynyl-2,6-dimethyl-, 1017*f*.
2-Cyclohexen-1-one, 3-butyl-, 9045*b*.
—, 3-*sec*-butyl-, 9045*b*.
—, 3-*tert*-butyl-, 9045*c*.
—, ethyldimethyl-, P 1063*b*, 2969*b*.
—, 3-isobutyl-, 9045*b*.
2-Cyclopentene-1-carboxaldehyde, 3-isopropyl-1-methyl-, 1750*b*, 1751*g*.
2 - Cyclopenten - 1 - one, 2 - *tert* - butyl-4-methyl-, 118*a*.
2,4-Decadienal, 5973*c*.
Ether, butyl 3-methyl-2-penten-4-ynyl, 1801*d*, 5373*b*.
Fenchone, 4234*i*, 7452*g*.
1-Hepten-4-one, 6,6-dimethyl-5-methyl ene-, 118*b*.
6-Hepten-4-yn-3-ol, 2,2,3-trimethyl-, 117*i*.
Isofenchone, 7462*h*.
Ketone, 2,6-dimethyl-1-cyclohexen-1-ylmethyl, 1017*f*.
4(5)-*p*-Menthen-3-one, 2976*a*.
Myrtenol, 2975*h*.
2(1*H*) - Naphthalenone, octahydro-, 6607*f*.
Norcamphor, trimethyl-, 2604*i*, 3926*b*.
Phellandral, 7434*e*.
Pinocamphone, 2976*d*, 2977*bf*, 3806*i*.
Piperitone, 7915*h*.
2*H*-Pyran, 3,6-dihydro-4,6-dimethyl-2-propenyl-, P 3043*a*.
Terpenic aldehyde, $b_{15}$ 115–20°, 3807*i*.
Thujone, 3374*i*, 8535*h*, 8537*h*
Tricyclo[4.2.2.$0^{2,5}$]decan-7-ol, 6198*a*.
$C_{10}H_{16}OS$ 2-Cyclohexen-1-one, 3-(ethylmercapto)-5,5-dimethyl-, P 6230*i*.
$C_{10}H_{16}OS_2$ Ketone, 2-furyl methyl, di-Et mercaptal, 7015*b*.
$C_{10}H_{16}OSi$ Silane, ethoxydimethylphenyl-, P 3657*f*.
Silane, (*p*-methoxyphenyl)trimethyl-, 8366*e*.
$C_{10}H_{16}O_2$ (See also *Ascaridole*.)
Acetaldehyde, 1,1-dimethyl-4-penten-2-ynyl methyl acetal, 124*g*.
Acrylic acid, methylcyclohexyl ester, P 6651*b*, P 7754*i*.
2 - Butanone, 4 - (1 - cyclohexen-1-yl)-4-hydroxy-, P 1058*g*.
Carvotanacetone, 6-hydroxy-, 7915*d*
Chrysanthemummonocarboxylic acid, 2732*i*.
γ-Chrysanthemummonocarboxylolactone, hydro-δ-hydroxy-, 812*d*.
Cinerolone, dihydro, 6988*c*.
1,6-Cyclodecanedione, 6189*i*.
Cyclohexanone, 2-(isopropoxymethylene)-, 3016*g*.
Cyclohexene - 1 - acetic acid, Et ester, 1377*g*.
—, α-ethyl-, 3798*b*.
Cyclohexene - 1 - butyric acid, 1378*a*.
3 - Cyclohexene - 1 - carboxylic 1,3,4-trimethyl-, 3373*i*.
Cyclohexene, 1-methoxy - 4 - (1-methoxyvinyl)-, 2577*a*.
1-Cyclooctene-1-acetic acid, 1375*e*.
2 - Cyclopentene - 1 - carboxylic acid, isopropyl-1-methyl-, 1749*d*, 1751*g*.
2 - Cyclopenten - 1 - one, 2-butyl-4-droxy-3-methyl-, 5751*i*.
2,4-Decadienoic acid, 4026*i*.
2-Furanethanol, 5-isopropyl-β-meth 7016*d*.
Geranic acid, 997*a*, 6020*e*.
Ketone, 3,4 - dihydro - 2,5,6 methyl - 2*H* - pyran - 2 - yl met 5023*i*.
7 - Octen - 5 - yne - 2,4 - diol, 2,4 methyl-, 2162*i*.
2 - Oxabicyclo[2.2.2]octan - 6 - 1,3,3-trimethyl-, 7926*e*.
Pinocamphone, 2-hydroxy-, 2976*d*.
$C_{10}H_{16}O_2S$ Thiophene, 2,5 - bis(et methyl)-, 630*d*.

Thiophene, 2,5-dihydro-3-(4-methyl-3-pentenyl)-, 1,1-dioxide, P 1065*f*.
—, 2,5-dipropyl-, 1,1-dioxide, P 3651*c*.

**$C_{10}H_{16}O_3$** Acetoacetic acid, cyclohexyl ester, 5150*e*.
Cyclohexanecarboxylic acid, methyloxo-, Et ester, 1008*b*, 1381*b*, 3807*e*.
—, 1,3,3-trimethyl-4-oxo-, 7462*c*.
Cyclopentanecarboxylic acid, 3,3-dimethyl-4-oxo-, Et ester, 7462*f*.
Cyclopentanepropionic acid, β,3-dimethyl-2-oxo-, 2584*i*.
Cyclopentanevaleric acid, δ-oxo-, 587*d*.
Decene-2,5-dione, 3-hydroxy-, 5751*i*.
2-Decenoic acid, 2,4-dihydroxy-, γ-lactone, 4222*a*.
—, 4-oxo-, 3785*d*.
2-Furanol, tetrahydro-4-methyl-5-propenyl-, acetate, 4254*e*.
1-Hepten-3-one, 5-hydroxy-5-methyl-, acetate, 2576*b*.
Isobutyric acid, β-(allyloxy)-, allyl ester, P 5037*d*.
5-Nonene-2,5-dione, 3-hydroxy-8-methyl-, 5751*i*.
5-Octenoic acid, 3-oxo-, Et ester, 1334*e*.
1-Oxaspiro[2.5]octane-2-carboxylic acid, 5,7-dimethyl-, 8462*a*.
2,4-Pentadienoic acid, 3-ethoxy-4-methyl-, Et ester, 6169*a*.
Pimaric acid, 362*e*, 2604*b*, 2976*b*, 3807*i*.
Succinic anhydride, hexyl-, 5070*a*.

**$C_{10}H_{18}O_2S$** Cyclohexanol, 2-mercapto-, diacetate, 7420*a*.

**$C_{10}H_{18}OSi$** Silane, benzyltrimethoxy-, P 5033*f*.
Silane, ethoxydimethoxyphenyl-, 1006*c*.

**$C_{10}H_{16}O_4$** Camphoric acid, P 3020*a*, 5380*a*, *Ca salt*, 8052*e*.
Capric acid, α,5-dioxo-, 705*h*.
Caproic acid, α-acetyloxo-, Et ester, 1000*d*, 7443*f*.
Crotonic acid, Me ester, dimer, P 5792*b*.
3,3-Cyclobutanedicarboxylic acid, di-Et ester, 2955*f*.
3,4-Cyclohexanediol, diacetate, 7435*a*.
Cyclopentaneacetic acid, carboxydimethyl-, 3790*a*, 7462*e*.
Cyclopentanedicarboxylic acid, 1,1,3-trimethyl-, 2605*a*.
1,2-Cyclopentanediol, methyl-, diacetate, 2754*e*.
Decenedioic acid, 2184*c*.
Isothrol, dipropionate, 7419*e*.
Itaconic acid, Bu Et ester, P 5034*b*, di-Bu ester, P 4897*d*, di-Pr ester, 2501*c*, P 2761*a*.
Norcamphoric acid, 7462*a*.
Octanoic acid, allyl ester, butyrate, P 5036*a*, 2-methylallyl ester, propionate, P 5037*a*.
Oxalic acid, di-Pr ester, 2501*c*, hexyl ester, P 2038*a*.
Pentenoic acid, allyl-, di-Et ester, 2501*c*.
Propylidenepropylidene-, di-Et ester, 1722*g*, 4217*e*.
Pentene-1,2-diol, 3-methyl-, diacetate, 6153*f*.
Pentenoic acid, γ-isopropylidene-, 6578*a*, 6579*a*.
Pentenoic acid, dihydro-, lactone, 9076*b*.
Propionic acid, ethylidene-, di-Et ester, 1420*e*.
2,9,13-Tetroxadispiro[4.2.4.2]tetradecane, 9060*b*, 9061*c*.

**$C_{10}H_8S$** (See also *Camphorsulfonic acid*.)
Thiophene, 2,5-bis(2-hydroxyethoxymethyl)-, 630*d*.
3-Thiophenedicarboxylic acid, tetrahydro-, di-Et ester, 6611*i*.

**$C_{10}O_4$** Acetoacetic acid, α-2-hydroxyethyl-, Et ester, acetate, 1008*e*.
Camphoric acid, 5-hydroxy-, 5381*g*.
Capric acid, ε-ethoxy-α,γ-dioxo-, Et ester, 1406*g*.
3-Cyclopentanedicarboxylic acid, 3-hydroxy-1,4,4-trimethyl-, 7462*d*.
Diketone, 1,2-acetone-5,6-anhydro-3-methyl-, 1728*b*.
Hexenoic acid, tetrahydrofurfuryl ester, acetate, P 678*e*.
Oxalic acid, ethoxy-, di-Et ester, 6167*i*.
Oxalic acid, (2,3-epoxypropyl)-, di-Et ester, P 4291*h*.
—, (ethoxymethylene)-, di-Et ester, 3725, 1725*b*.
Pentanoic acid, 2-formylethyl-, di-Et ester, 577*f*, P 7595*r*.
Pentoic acid, α-methyl-δ-oxo-, di-Me ester, 6161*c*.
Propanediol, (allyloxy)-, diacetate, 3126, 7423*g*, 7424*a*.
Senecic acid, 9076*a*.
Succinic acid, acetyl-, di-Et ester, P 8149*d*.

**$C_{10}H_{18}O_6$** 5,5-*m*-Dioxanedimethanol, diacetate, P 4290*h*.
2,3,6-Heptanetricarboxylic acid, 2192*i*.
β-Longinecic acid, 6209*e*.
Methanetricarboxylic acid, tri-Et ester, 3405*g*.
1,2,4-Pentanetricarboxylic acid, 2,4-dimethyl-, 7462*c*.
1,1,3-Propanetriol, 2-methyl-, triacetate, 7503*a*.

**$C_{10}H_{18}O_4S$** Pimelic acid, α-(2-carboxyethylmercapto)-, P 7504*e*.
2,5-Thiophenedicarboxylic acid, tetrahydro-, di-Et ester, 1,1-dioxide, 6612*b*.

**$C_{10}H_{18}O_7$** Glucosaccharic acid, 2,3,4-trimethyl-, 6-Me ester lactone, 583*a*.
Saccharo-δ-lactone, 2,3,4-trimethyl-, Me ester, 5589*c*.
Saccharopyranolactone, 2,3,4-trimethyl-, Me ester, 1324*b*.

**$C_{10}H_{18}S$** Pinene mercaptan, P 2219*h*.
Thiophene, hexyl-, 4811*h*

**$C_{10}H_{18}Si$** Silane, benzyltrimethyl-, 8366*f*
Silane, trimethyl-*p*-tolyl-, 8366*f*.

**$C_{10}H_{17}Br$** Carvomenthene, bromo-, 2605*g*, 6601*a*.
Cyclohexane, 2-bromo-1,1,2-trimethyl-3-methylene-, 6601*a*.
2,6-Octadiene, 5-bromo-2,6-dimethyl-, 6601*a*

**$C_{10}H_{17}BrCoN_3O_4$** 7364*g*.

**$C_{10}H_{17}BrN_2S$** Urea, 1-(2-bromoallyl)-3-cyclohexyl-2-thio-, 1016*e*.

**$C_{10}H_{17}BrO_2$** Cyclohexaneacetic acid, 2-bromo-, Et ester, 2586*h*.
3(2*H*)-Furanone, 4-bromo-4-ethyldihydro-2,2,5,5-tetramethyl-, 1392*h*.

**$C_{10}H_{17}BrO_4$** Adipic acid, α-bromo-, di-Et ester, 1325*a*.

**$C_{10}H_{17}Cl$** Limonene hydrochloride, 5017*h*

**$C_{10}H_{18}ClN_3O_2$** Crotonamide, β-chloro-*N*-(1-dimethylcarbamylethyl)-*N*-methyl-, P 249*a*.

**$C_{10}H_{18}ClNO_3$** Glycine, *N*-(*N*-chloroacetylleucyl)-, 9113*g*.
Leucine, *N*-(*N*-chloroacetylglycyl)-, 9112*f*.

**$C_{10}H_{17}ClO$** Cyclohexanecarbonyl chloride, 2,2,6-trimethyl-, 4813*e*.
3-Nonenoyl chloride, 3-methyl-, 1381*f*.

**$C_{10}H_{17}ClO_2$** Caproic acid, ε-chloro-δ,δ-dimethyl-δ-oxo-, Et ester, 7905*a*
Caproic acid, ε-(chloroformyl)-α-methyl-, Et ester, 1381*i*.

**$C_{10}H_{17}ClO_4$** Adipic acid, α-chloro-, di-Et ester, 1325*a*.

**$C_{10}H_{17}ClO_4S$** Thiophene-3-ol, 4-chlorotetrahydro-, 1,1-dioxide, caproate, P 3466*d*.

**$C_{10}H_{17}Cl_3NO_7Pb$** Bis(2-chlorovinyl)lead di-acetate, compd. with $AcONH_4$, 1717*a*.

**$C_{10}H_{17}Cl_3O_2$** 4-Decanone, 1,1,1-trichloro-2-hydroxy-, 3785*a*.

**$C_{10}H_{17}Cl_3O_3$** Methane, (dichloromethoxybutoxy)trichlorobutoxy-, P 4685*h*.

**$C_{10}H_{17}IN_2O$** 3-Carbamyl-1-ethyl-1,2-dihydro-1,2-dimethylpyridinium iodide, 7525*i*.

**$C_{10}H_{17}N$** Cyclooctadienylamine, *N*,*N*-dimethyl-, 591*e*.
Menthonenonitrile, 4232*e*.
Tricyclo[4.2.2.0$^{2,5}$]decan-7-amine, 6107*i*.

**$C_{10}H_{17}NO$** Benzyltrimethylammonium hydroxide, 1321*b*.
α-Campholenamide, 3806*h*.
Camphor, oxime, P 670*g*, 3806*g*, 4232*d*, P 4515*b*, 7452*g*, 8813*d*.
1-Cyclohexene-1-acetamide, α-ethyl, 3798*c*.
Cyclononanecarbonitrile, 1-hydroxy-, 7907*a*.
1-Cyclooctene-1-acetamide, 1375*e*.
Fenchone, oxime, 7452*g*.
Geranamide, 1657*a*.
Norcamphor, 5,5,6-trimethyl-, oxime, 2605*a*.
Pinocamphone, oxime, 2977*ab*.
4-Piperidinol, 4-ethynyl-2,3,6-trimethyl-, *and chloroplatinate*, 2960*f*.
4(1*H*)-Quinolone, octahydro-2-methyl-, 2959*i*.

**$C_{10}H_{17}NOS$** Isothiocyanic acid, [1-(2-butoxyethyl)allyl] ester, 9026*h*; 5-butoxy-2-pentenyl ester, 9026*h*.

**$C_{10}H_{17}NO_2$** 2-Butyn-1-ol, 4-diethylamino-, acetate, 131*e*.
Caproic acid, α-cyano-β-methyl-, Et ester, P 4602*d*.
Caprylonitrile, α-hydroxy-, acetate, P 3027*g*.
Carbamic acid, 4-isopropyl-2-cyclohexen-1-yl ester, 161*b*.
Enanthic acid, α-cyano-, Et ester, 4222*f*.
Ketone, 3,4-dihydro-2,5,6-trimethyl-2*H*-pyran-2-yl methyl, oxime, 5023*i*.
Valeric acid, α-cyano-β, γ-dimethyl-, Et ester, P 4692*h*.
—, α-cyano-β-ethyl-, Et ester, P 4692*g*.

**$C_{10}H_{17}NO_3$** Acetamide, *N*-2-hydroxycyclohexyl-, acetate, 3372*h*.
Cyclohexaneacetic acid, 3-oxo-, Et ester oxime, 1730*e*.
Glycine, *N*-cyclohexyl-*N*-formyl-, Me ester, 3411*b*.

**$C_{10}H_{17}NO_3S$** Tetramethylammonium benzenesulfonate, 2110*f*.

**$C_{10}H_{17}NO_3S$** Acetone, compd. with benzylamine bisulfite, 3356*b*.
Trimethylphenylammonium methyl sulfate, 6058*a*.

**$C_{10}H_{17}NO_4$** Gluconamide, *N*-ethyl-2,4-3,5-dimethylene-, 5007*a*.
Glutaric acid, β-nitromethyl-, di-Et ester, 5745*e*.
Pimelic acid, γ-amino-γ-(2-carboxyethyl)-, P 4519*g*.
Succinic acid, (2-nitroethyl)-, di-Et ester, 5745*e*.

**$C_{10}H_{17}NO_7$** Gluconamide, *N*-2-hydroxyethyl-2,4,3,5-dimethylene-, 5007*a*.

**$C_{10}H_{17}N_2O_4PS$** + $H_2O$ Phosphinic acid, [1-(*p*-sulfamylbenzylamino)isopropyl]-, *and Na salt*, 5378*b*.

**$C_{10}H_{17}N_3$** *o*-Phenylenediamine, *N*-(2-dimethylaminoethyl)-, 7021*h*.

**$C_{10}H_{17}N_3O$** Cyclohexanone, 4-isopropylidene-, semicarbazone, 6578*g*.
2-Cyclopenten-1-one, ethyldimethyl-, semicarbazone, 116*b*.
—, 2,3,4,4-tetramethyl-, semicarbazone, 1333*a*.
β-Fenchocamphorone, semicarbazone, 7462*g*
3,4-Heptadiene-2-one, 3,6-dimethyl-, semicarbazone, 3355*e*.
Ketone, methyl methyl-1-cyclohexen-1-yl, semicarbazone, 1017*e*.
Pyridine, 3-amino-5-(aminomethyl)-(ethoxymethyl)methyl-, P 1812*a*, *di-HCl*, P 2645*h*.
Santenone, semicarbazone, 3796*i*.

**$C_{10}H_{17}N_3O_2$** 4,6(1*H*,5*H*)-Pyrimidinedione, 5-butyl-2,3-dihydro-5-(2-hydroxyethyl)-2-imino-, 6173*f*.

**$C_{10}H_{17}N_3O_6S$** See *Glutathione*.

**$C_{10}H_{17}N_3S$** 2-Pyrimidinethiol, 4-amylaminomethyl-, 8395*c*.

**$C_{10}H_{17}N_3$** *s*-Triazine, 2,4-diamino-6-(3-ethyl-1-pentenyl)-, P 3854*h*.

**$C_{10}H_{17}N_3O$** *s*-Triazine, 2-(allylamino)-4-amino-6-butoxy-, 4269*d*.
*s*-Triazine, 2-amino-4-cyclohexylamino-6-methoxy-, 4269*d*.

**$C_{10}H_{18}$** (See also *Menthene; Naphthalene, decahydro-; 2,6-Octadiene, dimethyl-*.)
Bicyclopentyl, 5432*b*.
Butene, 2-cyclohexyl-, 5376*g*.
Carane, 5656*i*.
Carvomenthene, P 6237*a*, 6601*a*, 7915*c*.
Cyclic hydrocarbon, bu 68.2°, 5751*d*.
Cyclogeranolene, methyl-, 6601*a*.
Cyclopentane, 2-isopropenyl-1,1-dimethyl-, 5751*d*.
Cyclopentene, 3-isopropyl-1,2-dimethyl-, 3375*b*.
2,4-Heptadiene, 3-ethyl-5-methyl-, 110*d*.
Isocamphane, 2605*a*.
Myrcene, dihydro-, 1155*g*, 1657*a*, 4886*b*.
2,4-Octadiene, 3-ethyl-, 110*d*.
Sabinane, 3375*a*.

**$C_{10}H_{18}BrNO_2$** Piperidine, 1-(α-bromo-β-methoxybutyryl)-, 4224*h*.

**$C_{10}H_{18}Br_2$** Myrcene, dihydro-, dibromide, 1155*g*.

**$C_{10}H_{18}ClN$** 1*H*-Quinolizine, 1-(chloromethyl)octahydro-, 6210*d*.

**$C_{10}H_{18}ClNO$** 2-Propanol, 1-chloro-3-(diallylamino)-2-methyl-, P 2546.

**$C_{10}H_{18}ClNO_2$** Norvaline, *N*-chloroacetyl-α-isopropyl-, 2167*d*.
Norvaline, *N*-chloroacetyl-α-propyl-, 2167*c*.

**$C_{10}H_{18}ClNO_4S$** 3-Thiophenecarbamic acid, 2-chlorotetrahydro-3-methyl-, 1,1-dioxide, Bu ester, P 6668*e*.

**$C_{10}H_{18}D_2$** β-Menthane-2,3-*d*$_2$, 8226*g*.

**$C_{10}H_{18}FO_2P$** Lactic acid, Et ester fluorophosphate, 8351*b*.

**$C_{10}H_{18}INO_3$** 3-Carboxy-1,1-dimethyl-4-oxopiperidinium iodide, Et ester, 7432*b*.

$C_{10}H_{18}N_2$ 2 - Imidazoline, 2 - (cyclohexylmethyl)-, P 5048*i*.
Isobutyronitrile, α-cyclohexylamino-, 4415*g*.
$C_{10}H_{18}N_2O$ Caproimidic acid, *N*-(cyanomethyl)-, Et ester, 2203*a*.
Cyclohexanecarboxylic acid, isopropylidenehydrazide, 4233*b*.
3 - Pyrazolone, 2,4 - diisopropyl - 5-methyl-, 7934*f*.
—, 2 - ethyl - 4 - isopropyl - 1,5-dimethyl-, 7934*g*.
—, 4 - isopropyl - 5 - methyl - 2-propyl-, 7934*f*.
$C_{10}H_{18}N_2O_2$ Crotonamide, *N* - (1-dimethylcarbamylethyl) - *N* - methyl-, P 249*a*.
Crotonamide, *N* - [(dimethylcarbamyl)-methyl]- *N*-ethyl-, P 4291*e*.
—, *N* - (1 - dimethylcarbamylpropyl)-, P 4687*a*.
Glycine, *N* - (3 - cyanopropyl) - *N*-ethyl-, Et ester, 6207*a*.
Hydantoin, 5-(1-ethylamyl)-, 3410*a*.
$C_{10}H_{18}N_2O_2S$ 1*H* - Furo[3,4]imidazol-2(3*H*)-one, tetrahydro(5-mercaptoamyl)-, 5023*c*, 9149*h*.
$C_{10}H_{18}N_2O_2S_2$ 2,5 - Piperazinedione, 3,6-bis[2-(methylmercapto)ethyl]-, 8477*f*.
$C_{10}H_{18}N_2O_3$ 1*H* - Furo[3,4]imidazole - 4-pentanol, hexahydro-2-oxo-, P 8401*c*.
1*H* - Furo[3,4]imidazol - 2(3*H*) - one, tetrahydro - 4 - (5 - hydroxyamyl)-, 2988*b*.
Hydantoin, 5 - isopropyl - 5 - (1 - methoxypropyl)-, 6985*a*.
—, 5 - (1 - methoxypropyl) - 5 propyl-, 6985*a*.
4 - Imidazolidinecaproic acid, 5-methyl-2-oxo-, 1769*b*, P 5808*b*.
Valine, *N*-prolyl-, 4641*g*.
$C_{10}H_{18}N_2O_4$ Isobutyric acid, α,α'-azodi-, di-Me ester, 3354*h*.
2,5 - Piperazinedione, 3,6-bis(2-hydroxypropyl)-, 574*c*.
$C_{10}H_{18}N_2O_5$ 1,3,2*H* - Oxazine, 3 - (5,6-dihydro - 5 - methyl - *m* - dioxin - 5-yl) tetrahydro - 5 - methyl - 5 - nitro-, P 1008*h*.
$C_{10}H_{18}N_2O_6S$ 1*H* - Furo[3,4]imidazole-4-pentanesulfonic acid, hexahydro-2-oxo-, 9149*h*; *Ba salt*, 5023*c*.
$C_{10}H_{18}N_2O_6$ Cyclohexanetetrol, diacetamido-, 6582*a*.
Streptamine, *N*, *N'*-diacetyl-, 6582*d*.
$C_{10}H_{18}N_2S$ 2,5 - Thiophenebismethylamine, *N*, *N*, *N'*, *N'* - tetramethyl-, 1764*b*.
$C_{10}H_{18}N_2S_2$ Hydantoin, 5 - (1 - ethylamyl)-2,4-dithio-, 3409*i*.
2 - Thiazolesulfenamide, 4,5 dimethyl-*N*-1-methylbutyl-, P 1602*e*, P 4509*a*.
2-Thiazolesulfenamide, 4-ethyl-1-methylbutyl-, P 1602*e*, P 4509*b*.
2 - Thiazolethiol, 5 - amino - 4 - (1-ethylamyl)-, 3409*i*.
$C_{10}H_{18}N_4$ Glycinonitrile, *N*, *N'*-hexamethylenedi-, P 4519*g*.
$C_{10}H_{18}N_4O_4S_2$ Cystine, *N*, *N'*-diglycyl-, 1071*e*.
$C_{10}H_{18}N_4O_4U$ Uranyl acetate, compd. with hexamethylenetetramine, 1717*h*.
$C_{10}H_{18}N_4S$ Hydantoin, 5,5-dimethyl-2-thio-, azine with 3-pentanone, 6171*i*.
2 - Pyrimidinethiol, 4 - (2 - diethylaminoethylamino)-, 8395*d*.
$C_{10}H_{18}N_6$ *s* - Triazine, 2,4 - diamino - 6-[2-(1-piperidyl)ethyl]-, P 5052*b*.
$C_{10}H_{18}N_4O_2$ 1,3 - Cyclohexanedione, 5,5-dimethyl-, disemicarbazone, 123*g*.
Cyclohexanone, 4-acetyl-, disemicarbazone, 2577*c*.
$C_{10}H_{18}O$ (See also *Borneol; Cineole; Citronellal; Geraniol; Isoborneol; Linalool; Menthone; Terpineol.*)
2-Butanone, 4-cyclohexyl-, 7437*i*, 8360*h*.
4-Carvomenthenol, 3374*f*.
Carvomenthone, 7915*g*.
Carvotanacetol, 6601*b*, 7915*d*.
Cycloheptanone, 2,6,6-trimethyl-, 4637*g*.
Cyclohexanecarboxaldehyde, 4-isopropyl-, 7434*g*.
Cyclohexanone, 3-butyl-, 9045*c*.
—, 3-*tert*-butyl-, 9045*d*.
—, 3-isobutyl-, 9045*d*.
—, 2,2,3,6-tetramethyl-, 8362*e*.
3-Cyclohexene-1-ethanol, β,4-dimethyl-, 2605*f*.
1-Cyclohexene-1-methanol, 4-isopropyl-, 7434*e*.
Cyclopentanone, 2-*tert*-butyl 4 methyl-, 118*b*.
2 - Cyclopentene - 1 methanol, 3 - isopropyl-1-methyl-, 1750*b*, 1751*g*.
2-Decenal, 5736*h*.
Ether, bis(1 - methylcyclopropylmethyl), 3370*b*.
Fenchyl alcohol, 4215*c*.
1 - Heptene, 5,6 - epoxy - 2 - ethyl-6-methyl-(?), 4629*a*.
Hepten-2-one, 3,6,6-trimethyl-, P 4686*a*.
4(5)-*p*-Menthen-3-ol, 2976*b*.
Naphthol, decahydro-, 2363*a*, 6607*e*.
5-Nonen-4-one, 5-methyl-, 1317*h*.
Octene, 6,7 - epoxy - 3,7 - dimethyl (?), 4629*a*.
7 - Oxabicyclo[2.2.1]heptane, 1-isopropyl-4-methyl-, P 2476*g*.
Pinocampheol, 189*a*, 2977*ab*.
γ-Terpineol, 6578*i*.
$C_{10}H_{18}O_2$ Acrylic acid, 1-methylhexyl ester, P 6651*b*.
3,3' - Bifuran, octahydro - 5,5' - dimethyl-, 3818*g*.
Carvomenthone, 3-hydroxy-, 7915*c*.
Citronellic acid, 4633*f*, 5906*b*, 7238*f*
Compd. in *Eucalyptus* oil, 2371*h*.
Cyclobutanecarboxylic acid, Am ester, 2955*c*.
Cyclodecanone, 6-hydroxy-, 6189*b*, 6190*b*
Cyclohexaneacetic acid, Et ester, 573*d*
Cyclohexanebutyric acid, 1375*f*
Cyclohexanecarboxylic acid, trimethyl-, 2964*c*.
Cyclohexanepropionic acid, α-methyl-, 1375*b*
Cyclooctaneacetic acid, 1375*c*.
Cyclooctanol, acetate, 6195*a*, 6988*e*
Fencholic acid, 2273*g*.
3(2*H*) - Furanone, 4 ethyldihydro-2,2,5,5 tetramethyl , 1392*h*.
1-Hexen 1-ol, 2 ethyl-, acetate, P 5795*i*, P 7038*a*.
3 - Hexyne, 2,5 - dimethoxy - 2,5-dimethyl-, 3782*e*
Hydroperoxide, decahydronaphthyl, 8736*d*.
—, octahydro - 4a(2*H*) - naphthyl, 6189*g*, P 6437*g*.
Ketone, methyl tetrahydro - 2,5,6 trimethyl - 2*H* - pyran 2-yl, 5024*b*.
Menthone, 2-hydroxy-, 7915*g*.
Nonenoic acid, 3-methyl-, 1381*f*
4,5-Octanedione, 3,6-dimethyl-, 4227*g*
1 - Octen - 3 - ol, 6,7 - epoxy - 3,7-dimethyl-, 4628*i*.
5-Octen-4-one, 2-methoxy-5 methyl-, 115*i*
4-Octyne, 3,6-dimethoxy-, 128*h*.
Pelargonic acid, γ-hydroxy-γ-methyl-, lactone, 784*e*.
1 - Pentanol, 4,4 - dimethyl - 2-methylene-, acetate, 1310*c*.
Pentenol, 2,4,4-trimethyl-, acetate, 1310*ce*.
Pyran - 4 - ol, tetrahydro - 2,4 - dimethyl-6-propenyl-, P 3043*a*.
Rhodinic acid, 5906*b*.
$C_{10}H_{18}O_2S$ Thiophene, tetrahydro 3-(4-methyl - 3 - pentenyl)-, 1,1-dioxide, P 1065*f*.
$C_{10}H_{18}O_2S_2$ 5,5' - Bi - 1,3 - oxathiolane, 2,2,2',2' - tetramethyl-, 7425*a*.
1,3 - Dioxolane, 4 - (2,2 - dimethyl-1,3-dithiolan - 4 - yl) - 2,2 - dimethyl-, 7424*g*.
1,2 - Hexanedithiol, diacetate, 7417*e*.
Sebacic acid, dithiol-, 8193*g*.
Thiophene, tetrahydro - 2,4 - dimethyl-3 - (2 - methylallylmercapto)-, 1,1-dioxide, P 3851*i*.
$C_{10}H_{18}O_2S_2$ Formic acid, thiobis[thiono-, di-Bu ester, 144*c*; diisobutyl ester, 1181*g*
$C_{10}H_{18}O_2S_4$ Formic acid, dithiobis[thiono-, di Bu ester, P 1212*g*, 6983*h*; diisobutyl ester, 1181*g*, 6983*i*.
$C_{10}H_{18}O_3$ Acetoacetic acid, 2-ethylbutyl ester, 228*g*.
1-Butanone, 3-methoxy-1-(tetrahydro-2-methyl 2-furyl)-, 2163*c*.
Capric, γ-oxo-, 3785*e*.
Caproic acid, α-acetyl-, Et ester, 1007*i*, 1009*i*.
—, ethyl β-oxo-, Et ester, 1009*i*, 6170*i*.
Caprylic acid, 5-methyl-γ-oxo-, Me ester, 1725*b*.
Compd., b$_{1.5}$ 45–6°, 2163*c*.
Cyclohexaneacetic acid, α-ethyl-4-hydroxy , 2195*f*.
Cyclohexanebutyric acid, 4-hydroxy-, 1377*i*.
Cyclohexanecarboxylic acid, 4-methoxy-, Et ester, 7437*b*.
Cyclooctaneacetic acid, 1-hydroxy-, 1375*e*.
2,5 - Decanedione, 3-hydroxy-, 5751*i*.
1,4-Dioxaspiro[4.5]decane - 2 - methanol, 6-methyl-, 5150*f*.
Fencholic acid, 2-hydroxy-, 1749*i*.
2-Furanol, tetrahydro - 4 - methyl - 5-propyl-, acetate, 4254*e*.
3-Heptanone, 5-hydroxy - 5 - methyl-, acetate, 2576*b*.
Homolevulinic acid, β-methyl-β-propyl-, *and Ag salt*, 1333*g*.
Ketone, methyl tetrahydro - 6 - hydroxy - 2,5,6 - trimethyl - 2*H*-pyran-2-yl, 5024*a*.
Methacrylic acid, 2-butoxyethyl ester, 9334*c*.
4 - Octen - 3 - one, 8 - hydroxy - 1-methoxy-5-methyl-, 2163*c*.
7 - Oxabicyclo[4.1.0]heptane - 3,4-diol, 1,3,4,6-tetramethyl-, 5744*i*.
Pelargonic acid, methyloxo-, 4227*h*, 6160*e*.
Peroxy - 3 - nonenoic acid, 3-methyl , 1381*f*.
Pyran - 4 - ol, tetrahydro - 2,4,6-trimethyl-, acetate, P 3043*c*.
Valeric acid, α,α,γ-trimethyl-β-oxo-, Et ester, 613*c*, 6170*i*.
$C_{10}H_{18}O_4$ (See also *Sebacic acid.*)
Acrylic acid, 2-(2-isopropoxyethoxy)ethyl ester, P 3030*i*.
Adipic acid, di-Et ester, 572*d*, 2590*e*.
Azelaic acid, mono-Me ester, 7303*b*.
Capric acid, α-hydroxy-γ-oxo-, 3785*b*.
Caproic acid, α-acetyl-δ-hydroxy-, Et ester, 1009*g*.
Glutaric acid, α-amyl-, P 4689*h*.
1,4-Hexanediol, diacetate, 4254*c*.
3,4-Hexanedione, 2,5-dimethoxy-2,5 dimethyl , 3782*g*.
Malonic acid, propyl-, di-Et ester, 572*e*
Oxalic acid, di-Bu ester, P 2633*c*.
2,4 - Pentanediol, 2-methyl-, diacetate, P 7952*b*.
Pimelic acid, α-methyl-, Et ester, 1381*e*
Suberic acid, di-Me ester, 2590*e*.
—, ethyl-, 6165*b*.
Succinic acid, diisopropyl ester, 2590*e*, di-Pr ester, 2590*d*.
—, hexyl-, 5069*i*.
$C_{10}H_{18}O_4S$ Caproic acid, ester with tetrahydrothiophene 3-ol 1,1-dioxide, P 1441*f*
Malonic acid, (1-mercaptoisopropyl)-, di-Et ester, 1722*k*.
$C_{10}H_{18}O_4S_2$ Propionic acid, dithiodi-, Et ester, 2956*f*.
$C_{10}H_{18}O_5$ Capric acid, α,β - dihydroxy-γ-oxo-, 3785*e*.
Diglycolic acid, diisopropyl ester, 9032*e*; di-Pr ester, 9032*f*.
Glucomethylose, 1,2-acetone-3-methyl-, 1728*h*.
Hydracrylic acid, Bu ester, hydracrylate, 4639*c*.
Isovaleric acid, β,β'-oxydi-, P 5037*f*.
Lactic acid, 2-isopropoxyethyl ester, acetate, P 676*d*.
Malonic acid, (3-hydroxypropyl)-, di Et ester, 577*g*.
Pimelic monoperoxyacid, ε-methyl-, ε-Et ester, 1381*c*.
Propionic acid, 2,2'-oxydi-, di-Et ester, 7433*a*.
Senecic acid, dihydro-, 9076*b*.
Succinic acid, ethoxy-, di-Et ester, 61
Valeric acid, β,β'-oxydi-, P 5037*e*.
Xylose, 3,5-isopropylidene-2,4-dimeth 7430*b*.
$C_{10}H_{18}O_5S$ Succinic acid, (2-hydroxyethyl mercapto)-, di-Et ester, P 7957*d*.
$C_{10}H_{18}O_6$ Acetaldehyde, [ethylenebis(oxyethyleneoxy)]di-, 7735*i*.
Adipic acid, α, δ-dimethoxy-, di-Me est 8357*g*.
Lactic acid, 2-ethoxyethyl ester Et c bonate, P 2485*d*; 2-(2-methoxye oxy)ethyl ester, acetate, P 676*e*.
Sorbitol, 1,3,2,4-diethylidene-, 2939*d*
$C_{10}H_{18}O_7$ Diglycolic acid, bis(2-metho ethyl) ester, 9032*e*.
$C_{10}H_{18}O_7S$ Malonic acid, 2-sulfoethyl-, di-Me ester, 7411*h*.
$C_{10}H_{18}S$ 6-Fenchanethiol, P 2630*a*.
2,6-Octadiene, 2,6-dimethyl-, sul from, 9968.
$C_{10}H_{18}Si$ Silane, triallylmethyl-, P 1223*c*.
$C_{10}H_{19}Br$ Cyclohexane, 1-(2-bromoethyl ethyl-, 3372*a*.
Cyclopentane, 5-bromoamyl-, 1375*c*.
$C_{10}H_{19}BrIN_3$ Carbodiimide, 2-bromoallyl dimethylaminopropyl)-, methio 1016*h*.
$C_{10}H_{19}BrO$ Furan, 5-(bromomethyl)-2- 5735*i*

2-Octanone, 1-bromo-3,7-dimethyl-, 1335c, 2586c.

$C_{10}H_{19}Cl$ Cyclohexane, 1-(2-chloroethyl)-1-ethyl-, 3371i.
2-Heptene, 5-chloro-5,6,6-trimethyl-, 5736f.

$C_{10}H_{19}ClO$ Enanthyl chloride, γ-propyl-, 1374b.
Ether, amyl chloropentenyl, 9025f.
—, butyl chloromethylpentenyl, 9025g.
—, chloromethylpentenyl isobutyl, 9025g.
—, chloropentenyl isoamyl, 9025f.
Pelargonyl chloride, η-methyl-, 1373h.

$C_{10}H_{19}ClO_2$ Acetic acid, chloro-, octyl ester, 4641a.
2-Hexene, 5-chloro-1,5-diethoxy-, 2159a.

$C_{10}H_{19}Cl_2NO$ Acetamide, *N*,*N*-dibutyl-α,α-dichloro-, 1720b.
Acetamide, *N*,*N*-di-*sec*-butyl-α,α-dichloro-, 1720b.
—, α,α-dichloro-*N*,*N*-diisobutyl-, 1720b.
—, α,α-dichloro-*N*-(2-ethylhexyl)-, 1720c.
—, α,α-dichloro-*N*-octyl-, 1720c.

$C_{10}H_{19}IO_2$ Acetic acid, iodo-, octyl ester, 4641a.

$C_{10}H_{19}IS$ Geraniolene, methiodide, m. 120°, from sulfide of, 999a

$C_{10}H_{19}N$ Capronitrile, α-butyl-, 5686
Caprylonitrile, γ-ethyl-, P 3440b
2-Cyclohexen-1-ylamine, *N*,*N*-diethyl-, 2174b.
Cyclohexylamine, *N*-isobutylidene-, 1651e
Enanthonitrile, γ-propyl-, 6165d
Quinaldine, decahydro-, *and* -*HCl*, 2959n
1*H*-Quinolizine, octahydro-4-methyl-, 4268a.

$C_{10}H_{19}NO$ Acetamide, *N*-3,5-dimethylcyclohexyl-, 2963c.
Acrylamide, *N*-heptyl-, P 672
2-Azacyclohendecanone, 5400d
Cyclodecanone, oxime, 5400d
Cyclohexanepropionamide, α-methyl-, 1375b.
Cyclohexanone, 2-(dimethylaminomethyl)-6-methyl-, *HCl*, P 5417e
Hexamethyleneimine, 2-isopropyl-5-methyl-7-oxo-, 4232c.
Menthone, oxime, 4232a
4-Piperidinepropionaldehyde, α,α-dimethyl-, P 9080g
4-Piperidinol, 2,3,6-trimethyl-4-vinyl-, *and* -*HCl*, 2960f
4-Piperidone, 2-ethyl-1,3,6-trimethyl-, *and* -*HCl*, 2959g

$C_{10}H_{19}NO_2$ Acetaldehyde, diallylamino-, di-Me acetal, 6974b.
Cyclohexaneacetamide, *N*-2-hydroxyethyl-, 2273e
Morpholine, 4-caproyl-, 5893i.
1-Piperidinepropionic acid, Et ester, 2-oxo-, 2273e

$C_{10}H_{19}NO_3$ Acetoacetic acid, α,α-diethyl-, Et ester, oxime, 1723g
Aminoacetic acid, α-(dimethylaminomethyl)-α-methyl-, Et ester, *and* -*HCl*, 2944c
Butyramide, *N*-*tert*-amyl-, acetate, 2165d
Carbamide, *N*-*tert*-amyl-, acetate, 2165d.
Malonamic acid, *N*-*tert*-amyl-, Et ester, 2264f
$C_{10}H_{19}NO_3S$ 3-Thiophenecarbamic acid, tetrahydro-*N*-methylthiol-, 1,1-dioxide, Bu ester, P 6668d.

$C_{10}H_{19}NO_4$ Adipamic acid, *N*-2-hydroxyethyl-, Et ester, 2273e.
Imidodicarbonylic acid, di-Bu ester, 4228c, Et hexyl ester, 4228g.
Propionic acid, β,β'-(ethylimino)di-, di-Me ester, 2267b.

$C_{10}H_{19}NO_5$ β-Alanine, *N*-(α,γ-dihydroxy-β,β-dimethylvaleryl)-, *Na salt*, 722g.
β-Alanine, *N*-[α-hydroxy-β-(hydroxymethyl)-β-methylvaleryl]-, 4225g
Butyric acid, β-(α,γ-dihydroxy-β,β-dimethylbutyrylamino)-, *and salts*, P 8106, *Na salt*, 722h, P 3634b, P 7957f
Isobutyric acid, α-(α,γ-dihydroxy-β,β-dimethylbutyrylamino)-, *Na salt*, 722h
Pantothenic acid, Me ester, P 823a.
Ribamine, acetylacetone-, 5370a.

$C_{10}H_{19}NO_6$ Glucuronoside, methyl 2,3,4-trimethyl-, amide, 583ag.

$C_{10}H_{19}NO_8S_2$ See *Ethylisobamine*.

$C_{10}H_{20}O$ Cyclohexaneacetaldehyde, 1-methyl-, semicarbazone, 3372c.
Cyclohexanecarboxaldehyde, 3,5-dimethyl-, semicarbazone, 6863a.
Cyclohexanone, 3-propyl-, semicarbazone, 9045c.
Cyclopentanone, ethyldimethyl-, semicarbazone, 116d*f*.
—, 2,3,4,4-tetramethyl-, semicarbazone, 1333a.
6-Hepten-3-one, 2,2-dimethyl-, semicarbazone, 5735a.
Ketone, 2,2-dimethylcyclopentyl methyl, semicarbazone, 5751*f*.
4(1*H*)-Pyrimidone, 6-hexyltetrahydro-2-imino-, *and*-*HCl*, 3793*f*.

$C_{10}H_{20}N_2O_2$ Cyclopentanone, 2-ethyl-3-hydroxy-3,4-dimethyl-, semicarbazone, 116*h*.

$C_{10}H_{20}N_2O_3$ Glycine, *N*-(*N*-glycylleucyl)-, 9113*h*.
Glycine, *N*-(*N*-leucylglycyl)-, 2245*g*.
Leucine, *N*-(*N*-glycylglycyl)-, 9114*g*.

$C_{10}H_{20}N_2O_3$ Pelargonic acid, α,β-dihydroxy-γ-oxo-, semicarbazone, 3785*e*.

$C_{10}H_{20}N_4$ Pyrimidine, 2-amino-4-(6-aminohexylamino)-, P 4704*e*.
1*H*-Tetrazole, 1-cyclohexyl-5-(dimethylaminomethyl)-, 1864*h*, P 7972*a*.

$C_{10}H_{20}N_4O$ *s*-Triazine, 2-amino-4-butoxy-6-propylamino-, 4269*c*.
*s*-Triazine, 2-amino-4-hexylamino-6-methoxy-, 4269*d*.
—, 2-butoxy-4-dimethylamino-6-methylamino-, 4269*f*.
—, 2-diethylamino-4-ethylamino-6-methoxy-, 4269*f*.

$C_{10}H_{20}N_4O_4S$ Pyrrolo[2,1-*b*]thiazole-3,6-dicarboxylic acid, hexahydro-2,2-dimethyl-5-oxo-, hydrazide, hydrazine salt, 7033*e*.

$C_{10}H_{20}$ (See also *Decene*; *Menthane*.)
Compd., bp 74.9–75.5°, 5751*d*.
Compd., bp 175.9°, 6201*g*.
Compd., bp 185.6°, 6201*g*.
Cyclohexane, butyl-, 10*e*, 2964*f*, 8890*b*.
—, sec-butyl-, 8890*b*.
—, *tert* butyl-, 8890*b*.
—, 1,1-diethyl-, 3372*b*
—, tetramethyl-, 157*g*.
Cyclopentane, (1,2-dimethylpropyl)-, 3370*b*.
—, isopropyldimethyl-, 3375*b*, 5751*e*.
Dipentene, P 7950*b*.
3-Heptene, 2,4,6-trimethyl-, 4061*g*, 9023*g*
2-Hexene, 2,4,4,5-tetramethyl-, 3341*f*
4-Nonene, 5-methyl-, 4061*h*
Pentane, 1-cyclopentyl-, 157*f*.

$C_{10}H_{20}Au_2N_2S_2$ Diethylgold thiocyanate, dimer, 9034*i*.

$C_{10}H_{20}BrNO$ Acetamide, α-bromo-*N*,*N*-dibutyl-, 5081*h*
Acetamide, α-bromo-*N*,*N*-di-*sec*-butyl-, 5081*h*
—, α-bromo-*N*,*N*-diisobutyl-, 5081*h*.
—, α-bromo-*N*-octyl-, 5081*h*.

$C_{10}H_{20}BrN_2O_4$ Propionic acid, α-bromo-, piperazine salt, 235*d*

$C_{10}H_{20}Br_2O_4$ 6577*h*.

$C_{10}H_{20}ClN$ Cyclohexylamine, *N*-[1-(chloromethyl)propyl]-, *HCl*, 3419*d*.
2-Piperidine, 1-(2-chloroethyl)-5-ethyl-, 4245*c*.

$C_{10}H_{20}Cl_2O_2$ Hexane, 1,6-bis(2-chloroethoxy)-, P 9358.

$C_{10}H_{20}Cl_2O_3$ Ethane, 1,2-bis[2-(2-chloroethoxy)ethoxy]-, P 2033*a*.

$C_{10}H_{20}Cl_2O_4S_2$ 1,10-Decanedisulfonyl chloride, 4857*a*.

$C_{10}H_{20}Cl_2CoN_2O_2$ 8941*e*

$C_{10}H_{20}Cl_4N_2$ Ethylenediamine, *N*,*N*,*N*',*N*'-tetrakis(2-chloroethyl)-, 2027*d*, 5505*d*.

$C_{10}H_{20}Cl_2O_2Sn$ Pyran, tetrahydro-, compd. with $SnCl_4$, 2535*b*

$C_{10}H_{20}FN_2OP$ Phosphine oxide, fluorodi-1-piperidyl-, 1314*f*.

$C_{10}H_{20}IN$ 1-Isopropylquinuclidinium iodide, 3422*g*.

$C_{10}H_{20}INO_4$ Bis(2-carboxyethyl)dimethylammonium iodide, di-Me ester, 3408*f*

$C_{10}H_{20}N_2$ Acetamidine, *N*-cyclohexyl-*N*'-ethyl-, *and*-*HCl*, 2694*f*.
Acetonitrile, dibutylamino-, 4415*i*.
Butyronitrile, γ-(diisopropylamino)-, P 1007*f*.
Caprylonitrile, α-dimethylamino-, 4415*e*.
Cyclohexanone, diethylhydrazone, 6591*i*.
Glycinonitrile, *N*,*N*-dibutyl-, P 4703*i*.
2-Pentanone, azine, P 8607*a*.

$C_{10}H_{20}N_2O$ Caprylonitrile, α-(2-hydroxyethylamino)-, 4415*f*.
Propionamide, α-(allylamino)-*N*,*N*-diethyl-, P 249*f*.

$C_{10}H_{20}N_2O_2$ Acetamide, *N*,*N*-diethyl-α-(*N*-ethylacetamido)-, P 248*i*.
Adipamide, *N*,*N*,*N*',*N*'-tetramethyl-, P 4515*e*.
Butyramide, α-(*N*-ethylacetamido)-*N*,*N*-
Cyclohexylamine, *N*-2-nitroisobutyl-, P 8135.
1-Piperazinecarboxylic, 4-isopropyl-, Et ester, P 6245*d*.
Propionamide, *N*,*N*-diethyl-α-(*N*-methylacetamido)-, P 249*a*.
—, α-(ethylpropionylamino)-*N*,*N*-dimethyl-, P 249*b*.
Sebacamide, P 3836*e*.
Urea, β-ethylenanthyl-, 2169*e*.

$C_{10}H_{20}N_2O_2S$ Morpholine, 4,4'-(thiodimethylene)di-, 2188*b*.

$C_{10}H_{20}N_2O_3$ Carbamic acid, (β-aminopelargonyl)-, 236*c*.
2-Furancaproic acid, 3,4-diaminotetrahydro-, *sulfate*, 9149*h*.
Glycine, *N*-(*N*,*N*-dimethylleucyl)-, 2247*i*.
Pelargonic acid, β-ureido-, 6597*h*.

$C_{10}H_{20}N_2O_4$ Adipic acid, α,δ-bis(1-aminoethyl)-, 578*a*.
Glycine, *N*,*N*'-hexamethylenedi-, P 4519*f*.

$C_{10}H_{20}N_2O_4S_2$ Butyric acid, γ,γ'-(ethylenedithio)bis[α-amino-, P 7956*e*.
Valine, β,β'-dithiobis-, 4668*a*.

$C_{10}H_{20}N_2O_5$ 3-Heptanol, trimethyl-2,6-dinitro-, P 7952*i*.

$C_{10}H_{20}N_2O_5$ Mucamide, *N*,*N*',2,3-tetramethyl-, 1327*d*.

$C_{10}H_{20}N_2S$ Piperidine, 1,1'-thiodi-, 2886*g*.

$C_{10}H_{20}N_2S_2$ Sulfide, bis(diethylthiocarbamyl), P 4872*h*, 5987*a*.

$C_{10}H_{20}N_2S_4$ See *Disulfide*, *bis*(*diethylthiocarbamyl*).

$C_{10}H_{20}N_2S_2Se$ 7855*i*.

$C_{10}H_{20}N_4$ Guanidine, 1-cyano-3-octyl-, P 2636*c*.
Guanidine, 1,1-dibutyl-3-cyano-, P 2636*c*.

$C_{10}H_{20}N_4O$ 4-Piperidone, 2-ethyl-3,6-dimethyl-, semicarbazone, 2959*f*.

$C_{10}H_{20}N_4$ 2-Imidazoline, 2,2'-(ethylenediimino)bis[methyl-, 4273*e*.

$C_{10}H_{20}N_4O_2$ 2,7-Octanedione, disemicarbazone, 2176*b*.

$C_{10}H_{20}N_4O_4$ Propionamide, *N*-(hydroxymethyl)-, nitrate, compd. with hexamethylenetetramine, 9075*h*.

$C_{10}H_{20}O$ (See also *Citronellol*; *Menthol*.)
Cyclodecanol, 6088*f*.
Cyclohexanepropanol, α-methyl-, P 679*d*, 8360*h*.
Cyclopentanemethanol, α,α,2,2-trimethyl-, 5751*f*.
Cyclopentanepentanol, 1375*c*.
Cyclopentanol, 2-*tert*-butyl-4-methyl-, 118*c*.
Decanone, 2185*h*, 2589*h*, 4637*d*.
2-Decen-1-ol, 5736*h*.
Ether, 2-ethylhexyl vinyl, 8202*h*.
4-Heptanone, 2,2,3-trimethyl-, 118*b*.
6-Hepten-3-ol, 2,2,3-trimethyl-, 5735*d*.
4-*p*-Menthanol, 3374*f*.
4-Nonanone, 5-methyl-, 1317*i*.

$C_{10}H_{20}OS$ Acetic acid, thiol-, 2,4,4-trimethylamyl ester, P 2805*d*.

$C_{10}H_{20}O_2$ (See also *Capric acid*; *Terpinol*.)
Acetic acid, octyl ester, 466*a*.
1,3-Butanediol, 1-cyclohexyl-, P 1058*g*.
Butyric acid, α-methyl-, 2-methylbutyl ester, 6155*h*.
Caproic acid, α-*sec*-butyl-, 1317*e*.
—, α-isobutyl-, 1317*e*.
—, β-propyl-, Me ester, 6165*c*.
Caprylaldehyde, ζ-hydroxy-β,ζ-dimethyl-, 1115*i*.
Caprylic acid, Et ester, 3612*a*.
Cycloheptane, 1-methoxy-1-(methoxymethyl)-, 6197*c*.
1,2-Cyclohexanediol, 3-isopropyl-6-methyl-, 7915*g*.
Cyclohexane, 1-methoxy-4-(1-methoxyethyl)-, 2577*e*.
Enanthic acid, β-ethyl-γ-methyl-, 1374*b*.
—, γ-propyl-, 1374*b*, 6165*d*.
3-Furanol, 3-ethyltetrahydro-2,2,5,5-tetramethyl-, 1392*i*.
Heptanone, ethoxymethyl-, 2576*c*.
—, ethylmethoxy-, 6974*h*.
3-Hexanone, 4-hydroxy-2,2,5,5-tetramethyl-, 111*f*.
3-Hexene, 2,5-dimethoxy-2,5-dimethyl-, 3782*g*.
2-Hexen-1-ol, 5-isobutoxy-, 9026*a*.
Isocaproic acid, α-isobutyl-, 1317*e*.
4-Nonanone, 6-hydroxy-5-methyl-, 1317*h*.
—, 3-methoxy-, 6974*h*.
Octanol, acetate, 3779*b*.
—, epoxydimethyl-, 4638*f*.
4-Octanone, 3-methoxymethyl-, 6974*h*.

4 - Octene - 3,6 - diol, dimethyl-, 6162*i*, 6163*a*.
Pelargonic acid, η-methyl-, 1373*k*.
2-Penteue, 1-butoxy-5-methoxy-, 5737*e*.
Pentenol, amoxy-, 9025*i*.
Pivalic acid, 2,2-dimethylpropyl ester, 2165*b*.
Propionic acid, heptyl ester, 2370*i*, 8779*g*.
Valeric acid, α,γ,γ-trimethyl-, Et ester, 1310*h*.

**$C_{10}H_{20}O_2S$** Acetic acid, (1-methylheptylmercapto)-(?), 3365*b*.
Acetic acid, octylmercapto-, 3365*b*.
—, (1-propylamylmercapto)-, 3365*b*.
3 - Octanone, 5 - mercapto - 1 - methoxy-5-methyl-, 2163*f*.

**$C_{10}H_{20}O_2S_2$** Thiophene, 3-(amylmercapto)tetrahydro - 2 - methyl-, 1,1 - dioxide, P 2237*i*.

**$C_{10}H_{20}O_3$** Butyric acid, 1-butoxyethyl ester, 7426*a*.
Caprie acid, α-hydroxy-, 3785*b*.
Caproic acid, α-butoxy-, *and Bi salt*, 2488*i*.
—, α-butyl-α-hydroxy-, 5368*g*.
2 - *m* - Dioxaneëthanol, β,β,5,5 - tetramethyl-, 6577*i*.
1,3 - Dioxolane - 4 - methanol, 2 - amyl-2-methyl-, 7582*a*.
—, 2-hexyl-, 5150*f*.
Hydracrylic acid, heptyl ester, 8779*g*.
Isobutyric acid, 1 - butoxyethyl ester, 3786*b*.
Isocaproic acid, β-ethoxy-, Et ester, 6169*a*.
Isoenanthic acid, β-ethyl-β-hydroxy-, Me ester, 1374*a*.
Lactic acid, heptyl ester, 8779*g*.
Menthanetriol, 2371*h*, 2976*b*.
3 - Octanone, 8 - hydroxy - 1 - methoxy-5-methyl-, 2163*d*.
Pelargonic acid, β-hydroxy-β-methyl-, 1381*f*.
1 - Pentanol, 5 - (tetrahydro - 2*H* - pyran-2-yloxy)-, 2203*i*.
Propionic acid, β-ethoxy-, Am ester, 1322*g*.
2*H* - Pyran, 2 - (3 - ethoxypropoxy)tetrahydro , 2203*i*.
Valeric acid, 1-propoxyethyl ester, 6576*f*.

**$C_{10}H_{20}O_4$** 2 - *m* - Dioxaneëthanol, 4 hydroxy-β,β,5,5-tetramethyl , 6577*h*.
Ethanol, 2-(2-butoxyethoxy)-, acetate, 3140*b*.
Pivaldehyde, hydroxy-, di-Et acetal, formate, 2940*i*.

**$C_{10}H_{20}O_4S$** Acetic acid, [2-(2-butoxyethoxy)-ethylmercapto]-, 3365*b*.

**$C_{10}H_{20}O_4S_2$** Thiophene, 3-(amysulfonyl)tetrahydro-2-methyl-, 1,1-dioxide, P 2237*i*.

**$C_{10}H_{20}O_5$** Acetic acid, [2-(2-butoxyethoxy) ethoxy]-, P 9477*i*.
1,1,3,3 - Cyclohexanetetramethanol, 2-hydroxy-, 4871*c*, P 9527*i*.
Cyclohexanol, 2,2,6,6-tetrakis(hydroxymethyl)-, P 8402*b*.
Formic acid, compd. with acetone, 7409*a*.
Rhamnoside, methyl 2,3,4-trimethyl-, 584*f*.

**$C_{10}H_{20}O_6$** Fructofuranoside, methyl 1,3,4-trimethyl-, 1331*f*.
Fructose, 1,3,4,6-tetramethyl-, 5749*i*, 5750*g*, 6947*d*.
Galactose, 2,3,4,6-tetramethyl-, 586*a*
Galactoside, methyl trimethyl-, 583*a*, 585*i*.
D-Glucose, 2,3,4,6-tetramethyl-, 1331*d*.
Ketohexose, tetramethyl-, 5370*f*.
Mannose, 2,3,4,6-tetramethyl-, 585*b*, 586*b*.
Mannoside, methyl trimethyl , 581*bf*, 584*g*.

**$C_{10}H_{20}O_8$** Cyclodecane, 1,1,6,6-tetrakis(hydroperoxy)-, 6189*g*.

**$C_{10}H_{20}O_{13}S_4$** Styracitol, 2,3,4,6-tetrakis(methanesulfonyl)-, 2940*e*.

**$C_{10}H_{20}S$** Octenethiol, dimethyl , 1000*d*, 1001*d*.
Thiapyran, 2 ethyltetrahydro 2,6,6-trimethyl-, 1000*d*, 1001*e*, 3743*b*.
—, tetrahydro-6-isopropyl 2,3-dimethyl , 1001*g*.

**$C_{10}H_{20}S_2$** Cyclohexanethiol, 2-(*tert*-butylmercapto)-, 7420*b*.

**$C_{10}H_{21}Br$** Decane, 1-bromo-, 2591*a*, 4912*b*.
Nonane, 3-bromo-2-methyl-, 107*e*.
Octane, 1-bromo-6-ethyl-, 3780*g*.

**$C_{10}H_{21}BrIN_3O$** Urea, 1-(2-bromoallyl)-3-(3-dimethylaminopropyl)-, methiodide, 1016*g*.

**$C_{10}H_{21}BrN_2$** Piperazine, 1-(2-bromoethyl)-2,2,5,5-tetramethyl-, *di-HBr*, 3015*g*.

**$C_{10}H_{21}Cl$** Decane, 1-chloro-, 2590*i*.

**$C_{10}H_{21}ClIN$** 1-(2-Chloropropyl)-1,2,5-trimethylpyrrolidinium iodide, 631*e*.

**$C_{10}H_{21}ClN_2$** Piperazine, 1-(2-chloroethyl)-2,2,5,5-tetramethyl , *di HCl*, 3015*g*.

**$C_{10}H_{21}Cl_3O_3Si$** Silane, butyltris(2-chloroethoxy)-, P 3639*a*.

**$C_{10}H_{21}N$** Azacyclohendecane, 5400*d*.
Cyclohexaneëthylamine, dimethyl , 9250*g*, - *HCl*, 9249*f*, *and* - *HCl*, 1026*f*, *and sulfate*, P 1802*e*.
Cyclooctylamine, *N*, *N*-dimethyl-, 591*f*.
Menthylamine, 1336*a*

**$C_{10}H_{21}NO$** Acetamide, *N*-(1,1,3,3-tetramethylbutyl)-, 1715*e*, 2165*f*.
1-Butanol, 2-cyclohexylamino-, - *HCl*, 3419*d*.
Capramide, P 3028*e*
Isoenanthamide, α-isopropyl-, 1144*e*.
Pelargonamide, η-methyl-, 1373*h*
3-Pentanone, 1-diethylamino-2-methyl-, P 1067*i*.
2-Piperidinebutanol, α methyl-, *and* - *HCl*, 4268*a*
1-Piperidineethanol, 5-ethyl-2 methyl , 4245*c*.
1 Piperidinepropanol, α,α-dimethyl-, P 9081*a*.
4-Piperidinol, 3,5-diethyl 1-methyl , *and* - *HCl*, 1427*f*
—, 4 ethyl 2,3,6 trimethyl-, *and* - *HCl*, 2960*i*.
Valeramide, *N tert*-amyl , 2165*e*.

**$C_{10}H_{21}NOS$** 3-Buten-2 ol, 1 (2-diethylamino ethylmercapto) , 6574*d*.

**$C_{10}H_{21}NO_2$** Acetaldehyde, cyclohexylamino-, di-Me acetal, *and* - *HCl*, 6974*e*
Glycine, octyl ester, 4641*b*
Leucine, α-isobutyl , *and* - *HCl*, 2167*e*
Norleucine, α butyl , 1723*b*, 2167*e*

**$C_{10}H_{21}NO_2S_2$** Triethylamine, 2-(tetrahydro 3 thienylmercapto) , *S*,*S* dioxide *HBr*, 2988*i*

**$C_{10}H_{21}NO_3$** Butyric acid, α (dimethylamino methyl) - β - hydroxy α methyl , Et ester, 7643*c*.
4 Morpholineacetaldehyde, di Et acetal, *and* - *HCl*, 6974*e*

**$C_{10}H_{21}NO_3S$** Butyric acid, α amino α (hexyl sulfinyl)-, 3499*h*
Triethylamine, 2 (tetrahydro - 3 thienyloxy)-, *S*,*S* dioxide, *phosphate*, 2988*h*.

**$C_{10}H_{21}NO_4$** Butyramide, α,γ-dihydroxy *N*-(3 hydroxy - 1 - methylpropyl) - β,β - dimethyl-, P 6654*e*, P 7646*h*.

**$C_{10}H_{21}NO_4S$** Butyric acid, α-amino-α (hexyl sulfonyl)-, 3499*h*
1 - (3 - Hydroxy 1 - methylbutyl)piperidinium hydrogen sulfate, cyclic ester, 2935*a*.

**$C_{10}H_{21}NO_5$** Butyramide, *N*-(3,4 dihydroxybutyl) - α,γ - dihydroxy - β,β dimethyl , P 5415*f*, P 7956*gh*.

**$C_{10}H_{21}NO_{11}S_2$** 1,5 Pentanedisulfonic acid, 3-nitro - 3 - (2 - sulfoethyl)-, tri Me ester, 7411*h*

**$C_{10}H_{21}N_3$** Carbodiimide, *tert*-butyl(3-dimethylaminopropyl)-, 1016*b*.

**$C_{10}H_{21}N_3O$** Heptanone, dimethyl-, semicarbazone, 1333*a*, 2162*h*.
1 - Piperazinecarboxamide, *N*, *N* - diethyl - 4 - methyl , *hydrochlorides*, 1490*f*, 5860*h*, P 6245*bc*, 8540*eg*.

**$C_{10}H_{21}N_3O_2$** Biuret, 1-(1,1,3,3 tetramethylbutyl) , 2165*f*.
4-Heptanone, methoxymethyl-, semicarbazone, 6974*h*.
4 Octanone, 3-methoxy , semicarbazone, 6974*g*.
Pelargonic acid, β guanidino , 3793*d*.

**$C_{10}H_{21}N_3O_3$** Ornithine, $N^{\alpha}$-valyl-, - *HCl*, 4641*f*.

**$C_{10}H_{21}N_7O_2$** 2(1*H*) - s - Triazone, 5,5′ - (iminodiethylene)bis[tetrahydro-, 1782*g*.

**$C_{10}H_{11}N_7S_2$** 2(1*H*) - s - Triazinethione, 5,5′-(iminodiethylene)bis[tetrahydro-, 1782*g*.

**$C_{10}H_{21}NaO_4S$** Decyl sodium sulfate, 2263*e*, 2843*e*, 5064*i*

**$C_{10}H_{22}$**. (See also *Decane*.)
Heptane, 3-ethyl-3 methyl , 9023*e*
—, trimethyl-, 2499*b*, 4212*h*, 6967*g*, 9023*d*.
Hexane, 3,3-diethyl-, 9023*e*.
—, tetramethyl-, 3344*i*, P 3833*e*, 6516*g*.
Nonane, methyl , 4453*g*
Octane, 3,4-dimethyl-, 6967*g*.

**$C_{10}H_{22}Au_2N_2S_2$** Oxamide, dithio-, bis(diethylgold) deriv., 7421*i*.

**$C_{10}H_{22}BN$** Quinuclidine, compd. with BMe$_3$, 3422*e*.

**$C_{10}H_{12}BeCl_2N_2$** Piperidine, compd. with $BeCl_2$, 4172*f*.

**$C_{10}H_{23}ClN$** Amylamine, 5-chloro-*N*-(dimethylpropyl) , *HCl*, 3421*cd*.
Amylamine, 5-chloro-*N*-(1-ethylpropyl)-, - *HCl*, 3421*c*.
—, 5-chloro-*N*-isoamyl-, - *HCl*, 3421*d*.
—, 5-chloro-*N*-1-methylbutyl-, - *HCl*, 3421*c*.
Diamylamine, 5 chloro-, - *HCl*, 3421*d*.

**$C_{10}H_{22}ClNO$** 2-Propanol, 1-(butylisopropylamino)-3-chloro-, P 254*a*.
2-Propanol, 1-chloro-3-dipropylamino-2-methyl-, P 254*b*.
—, 1-chloro-3-(isobutylisopropylamino)-, P 254*a*.

**$C_{10}H_{22}ClNO_2$** (Carboxymethyl)trimethylammonium chloride, Am ester, 6977*a*.

**$C_{10}H_{22}Cl_2N_2$** Ethylenediamine, *N*, *N*′-bis(2-chloroethyl) - *N*, *N*′ - diethyl-, *di HCl*, 1861*e*.

**$C_{10}H_{22}Cl_2Si$** Silane, dichlorodiisoamyl-, 7219*d*.

**$C_{10}H_{22}Cl_3CoN_{12}$** 8941*e*

**$C_{10}H_{22}Cl_4N_2$** 1,4 Bis(2 chloroethyl) - 1,4-dimethylpiperazinium dichloride, 5503*b*

**$C_{10}H_{12}CoN_{12}O_6$**, 8941*e*.

**$C_{10}H_{23}FO_3P$** Amyl fluophosphate, 8351*a*.
Fluophosphonic acid, bis(1-ethylpropyl) ester, 8351*b*.
Isoamyl fluophosphate, 8351*a*.

**$C_{10}H_{12}Hg$** Mercury, diamyl , 5004*c*.

**$C_{10}H_{12}INO$** 1 (2,2-Dimethoxyethyl) 1-methylpiperidinium iodide, 6974*c*.
Triethyl(2 hydroxyethyl)ammonium iodide, acetate, 8058*g*

**$C_{10}H_{12}N_2O$** Butyramide, α-butylamino-*N*, *N* dimethyl-, P 2955*h*.
Butyramide, α sec-butylamino *N*, *N* dimethyl , P 250*i*
, *N*, *N* diethyl - α ethylamino-, P 250*b*
Caproamide, α ethylamino - *N*, *N* - dimethyl , P 251*a*.
Isobutyramide, *N*, *N*-diethyl-α ethylamino , P 251*b*.
Isocaproamide, γ-amino *N*, *N*-diethyl , 1 3450*b*
3 Pentanone, 1-diethylamino-2-methyl oxime , P 1067*i*
1 Piperazineethanol, 2,2,5,5-tetramethyl , *and di HCl*, 3015*f*

**$C_{10}H_{12}N_2O_2S$** Sulfamide, *N* butyl *N*′-cyclohexyl , 2573*e*

**$C_{10}H_{12}N_2O_3$** Choline, glutamate, 5742
7426*b*

**$C_{10}H_{12}N_2O_6$** Acetic acid, methoxy-, piperazine salt, 235*e*

**$C_{10}H_{12}N_2S$** Pseudourea, 2-nonyl-2 thio-, 1868*d*

**$C_{10}H_{12}N_2O_3P$** Benzenephosphonic acid, *p* amino-, 2-aminoethanol salt, 1737*i*

**$C_{10}H_{22}N_4$** Spherophysine, 238*g*.

**$C_{10}H_{12}N_4O_2$** Sebacic acid, dihydrazide, 15 P 8740*b*.

**$C_{10}H_{12}N_8O_4$** Urea, 1,1′-ethylenebis[1-(2 nitroethyl) , P 3843*i*.

**$C_{10}H_{22}N_8O_8$** Triethylenetetramine, *N*, *N*′ diethyl - *N*, *N*′, *N*″, *N*‴ - tetranitro , 570*a*.

**$C_{10}H_{22}O$** Amyl ether, 2590*a*, 4067*i*.
Decyl alcohol, 2956*b*, 6041*d*, 7284*h*, 8786*d*
4-Heptanol, trimethyl-, 4212*i*, 6967*f*.
Hexanol, butyl-, P 3438*e*.
—, isopropylmethyl-, 111*c*.
Isoamyl ether, 1242*e*, 2590*a*.
Nonanol, methyl-, 107*e*, 1317*i*, 1326*f*
Octanol, dimethyl-, 2163*a*, 6967*g*.
—, ethyl-, P 3438*e*, 3780*g*.
3 - Pentanol, 3 - ethyl - 2,2,4 - trimeth 111*d*.

**$C_{10}H_{22}O_2$** Acetaldehyde, di Bu acetal, 9
P 1434*a*, 2590*e*, 3272*b*, P 5034*f*, 53
7426*b*; diisobutyl acetal, 25
5365*f*.
1,10 Decanediol, 4547*e*.
Hexane, 2,5 - dimethoxy - 2,5 - dimeth 3782*g*.
Hexanol, butoxy-, 9026*a*.
—, isobutoxy , 9026*a*.
Octane, 3,6-dimethoxy-, 128*i*.
1-Pentanol, 5-amoxy-, 9026*a*.
1,3-Propanediol, 2-heptyl-, 572*e*.

**$C_{10}H_{22}O_2S$** Acetic acid, [1-(triethyl ethylmercapto]-, 2929*bd*, 5003*h*.

**$C_{10}H_{22}O_3$** 3,4,5-Heptanetriol, 4 pro 2944*f*.
Methane, oxybis[isobutoxy-, P
2,3,4 - Pentanetriol, 2,4 - dimeth propyl-, 2944*e*.
—, 3-isopropyl-2,4-dimethyl-,
1-Pentanol, 5,5′-oxydi-, P 5790*g*.

**$C_{10}H_{22}O_3S$** Decanesulfonic acid, 8707*g*.

$_nO_4$ Acetaldehyde, bis(2-ethoxyethyl) acetal, 5365*g*.
ydroperoxide, (1,1,6,6 - tetramethylhexamethylene)di, 6190*a*.
$_nO_5$ Ether, bis[2-(2-methoxyethoxy)-ethyl], 2590*b*.
$_nO_6S_2$ D-Glucose, di-Et mercaptal, 1828*g*, P 5625*h*.
$_nO_4Si_2$ Disiloxane, 1,3-bis(hydroxymethyl) - 1,1,3,3 - tetramethyl-, diacetate, 6158*g*.
$_nO_8$ Orthosuccinic acid, hexa-Me ester, 3360*c*.
$_nO_7$ Dipentaerythritol, P 1485*i*, 3212*i*, 6432*b*, P 7240*c*.
$_nO_7S_2$ D-Glucose, bis(2-hydroxyethyl) mercaptal, P 5625*h*.
$_nS$ Amyl sulfide, 2956*e*.
Decanethiol, 8610*a*.
amyl sulfide, 2956*e*.
$_nS_2$ Amyl disulfide, 2956*f*.
hane, 1,2 - bis(butylmercapto)-, P 1794*d*.
amyl disulfide, 2956*f*, 7410*g*.
6-Octanedithiol, dimethyl-, 1001*e*.
$_nS_4$ 2,5-Hexanedione, bis(dimethyl mercaptole), 564*f*.
amyl tetrasulfide, 1002*c*.
$_nCoN_{10}O_8$, 8941*e*.
$_nIN_2O$ 1-[3 - (Dimethylaminomethyl) - 3-oxetanyl]methyl]trimethylammonium iodide, 134*d*.
$_nN$ Diamylamine, 2956*g*.
butylamine, *N*-ethyl-, P 1435*a*.
amylamine, 2956*g*.
xylamine, ethyl-*N*,1-dimethyl-, *and* -*HCl*, 1318*h*.
$_nNO$ 2-Heptanol, 6 ethylamino-2-methyl, P 3020*e*, -*HCl*, 9248*e*.
Pentanol, 5-amylamino-, 3421*b*.
dimethylpropylamino)-, 3421*b*.
ethylpropylamino)-, 3421*b*.
amylamino, 3421*b*.
methylbutylamino)-, 3421*b*.
$_nNO_2$ Acetaldehyde, dipropylamino-, di Me acetal, 6974*b*.
ylamine, *N*, *N* diethyl-, acetate, 131*e*.
anol, 4,4'-iminodi-, 2570*b*.
$_nNO_2S$ Cyclohexanone, compd. with butylamine bisulfite, 3356*b*.
*N*, guanidine, 1 nonyl, 7581*f*.
line, 3 - (2 - dimethylaminoethyl oxy) - 1 methyl, 6207*d*.
$_nN_2S$ Urea, 1 *tert* butyl 3-(3 dimethylaminopropyl) 2-thio, 1016*a*.
$_nO$ PS Amyl thiophosphate, 7859*a*
thiophosphate, 7859*b*.
$_nBr$ OSn Diethyltin oxide, complex with dipropyltin dibromide, 7900*d*.
tin oxide, complex with diethyltin dibromide, 7900*d*
H ClNO Hexyl(2 hydroxyethyl)dimethyl ammonium chloride, 6978*a*
$_nN_2$ 1,10 Decanediamine, 1312*e*, P
diamine, *N*, *N*-dibutyl-, P 4703*i*.
*N*-dibutyl-, P 4703*i*.
Pentanediamine, *N*¹, *N*¹ - diethyl-methyl-, P 1067*i*.
amine, *N*, *N*-dipropyl-, P 1067*g*
$_nN_2O_2$ Ethanol, 2,2',2'',2''' (ethylenedinitrilo)tetra-, *di-HCl*, 2927*d*.
$_nN_2O_2$ 1,4 Butanediol, 2-amino-, oxalate, 1724*e*.
$_nN_2S$ Carbamic acid, thiodiethylene-bis(thio-, compd. with 2,2'-thiobis-ethanamine], P 5224*f*.
$_nO_3Si$ Silane, butyltriethoxy-, P 2815, P 3689*i*.
ane, dimethoxyethoxy-, 9028*d*.
$_nO_3$ 1,2,4 Hexanetriol, compd. with PbO, 7408*i*.
$_nO_3$ Triethylene glycol, compd. with PbO, 7408*i*.
$_nCoN_4O_2$, 8941*e*.
$_nHgNO_3S$ Diethyl[2 - (ethylmercuri-mercapto-ethyl]methylammonium methyl sulfate, P 6688, P 6649*d*.
$_nN_2S$ Acetone, compd. with heptylamine disulfide, 3356*b*.
$_nO_7P_3$ Ethyl triphosphate, 1208.
$_nN_4$ Tetramethylenebis[trimethylammonium bromide], 2703*d*.
$_nCl_2O_3Si_2$ Tetrasiloxane, 1,3,5,7-tetrachloromethyl]hexamethyl-, 2930*c*.
$_nH_7N$ Spermine, 1108*b*, 3058*a*, 4332*c*, 7134*b*.
$_nCl_2O_3Si_4$ Tetrasiloxane, bis(chloromethyl)octamethyl-, 2930*b*.
$_nN_2$ Pentaethylenehexamine, P 2807*e*.
$_nO_2Si$ 1,5 - Dioxa - 2,4,6,8 - tetrasilocane, 2,2,4,4,6,6,8,8 - octamethyl-, 6934*b*.
$C_{10}H_{30}O_4Si_4$ Trisiloxane, 1,5-diethoxyhexamethyl-, P 6221*c*.
$C_{10}H_{32}O_{24}P_6$ Dipentaerythritol, hexaphosphate, P 5604*c*.
$C_{10}H_{30}Cl_2N_4O_8P_2PtS_2$, 4172*h*.
$C_{10}H_{28}N_2O_{16}U_2$ Choline, compd. with $UO_2(NO_3)_2$, 8297*c*.
$C_{10}H_{30}O_4Si_4$ Tetrasiloxane, decamethyl-, 4067*df*, P 4402*f*, P 6220*h*.
Trisiloxane, 1,1,1,3,5,5,5-heptamethyl-3-(trimethylsiloxy)-, P 6221*a*.
$C_{10}H_{30}O_5Si_5$ Cyclopentasiloxane, decamethyl-, P 6221*c*.
$C_{10}H_{18}O_{10}$ Succinic acid, compd. with MeOH, 7409*c*.
$C_{11}F_{16}$ Naphthalene, heptafluoro(trifluoromethyl)-, 2019*f*.
$C_{11}F_{36}$ Naphthalene, heptadecafluorodecahydro(trifluoromethyl)-, P 4301*c*.
$C_{11}H_6ClO_3S$ 1 - Naphthol - 8 - sulfonic acid, 4 - (chloroformyl) , sultone, 204*a*.
$C_{11}H_4Br_2O_5$ 2-Naphthoic acid, 4,7-dibromo-3-hydroxy-, 2600*a*, 7010*f*
$C_{11}H_4Br_2O_4$ Juglone, 3,6-dibromo-2-methoxy-, 9058*a*
$C_{11}H_5ClN$ 1-Naphthonitrile, 5-chloro-, 6607*a*.
$C_{11}H_5Cl_3O$ 1-Naphthaldehyde, 5,8-dichloro-, 3813*d*.
$C_{11}H_5Cl_3O_2$ 1-Naphthoic acid, 5,8-dichloro-, 3813*d*.
$C_{11}H_6Cl_4$ Naphthalene, 1-chloro-2-(trichloromethyl) , 345*a*.
$C_{11}H_6Cl_4O_3$ 1,4-Methanonaphthalene-5,8-dione, 4a,6,7,8a - tetrachloro - 1,4,-4a,8a - tetrahydro-, P 7632*f*.
$C_{11}H_6Cl_4O_3$ 1,4 - Methanonaphthalene - 5,8-dione, hexachlorohexahydro-, P 7632*f*.
$C_{11}H_4N_2O_2$ 1,2-Naphthoquinone, 4-cyanoamino-, 1383*c*.
$C_{11}H_4N_2O_3$ 1*H* Naphtho[2,3]pyrazole - 4,9-dione, hydroxy-, 7019*c*.
$C_{11}H_4N_2O_4$ 1*H* - Naphtho[2,3]pyrazole - 4,9-dione, 5,8 dihydroxy , 7019*c*.
$C_{11}H_4N_2O_5$ 5 - Quinolinecarboxylic acid, 6-(hydroxymethoxy) - 8 nitro , δ-lactone, 1414*d*.
$C_{11}H_4N_2O_5$ 1,2*H* - Benzopyran - 6 - carboxylic acid, 7-hydroxy-4-methyl-3,8-dinitro-2 oxo, 2622*c*.
$C_{11}H_6O_3$ Psoralen, 3412*b*
$C_{11}H_6O_4$ Naphthoic acid, 3,4 dihydro-3,4-dioxo-, 4248*a*, 6191*g*
$C_{11}H_6O_4S$ 1 Naphthol 8-sulfonic acid, 4-formyl , sultone, 203*h*.
$C_{11}H_6O_4S$ 1 Naphthoic acid, 4-hydroxy-5-sulfo , sultone, 203*i*.
$C_{11}H_6O_4S_2$ 2 Thiophenecarboxylic acid, 5,5'-carbonylidi , P 6238*a*
$C_{11}H_6O_6$ Benzenepentacarboxylic acid, P 3176*b*, 6610*g*
$C_{11}H_7BrClNOS$ 2 Thiophenecarboxanilide, 5 bromochloro-, 4666*a*
$C_{11}H_7BrN_2O_2$ Pyrazinol, 6 bromo , benzoate, 8394*e*
$C_{11}H_7BrN_2S$ Naphtho[2,3]thiazole, 2 - amino-4 bromo-, 1767*a*
$C_{11}H_7BrN_2O_4S$ 3 Thiophenecarboxaldehyde, 2-bromo , 2,4 - dinitrophenylhydrazone, 2987*a*.
$C_{11}H_7BrOS$ Ketone, 5 - bromo - 2 - thienyl phenyl, 4666*b*
$C_{11}H_7BrO_2$ 1,4 - Naphthoquinone, 2 - bromo-3-methyl , 7581*d*.
$C_{11}H_7BrO_3$ 2 Naphthoic acid, 4 bromo-1-hydroxy-, 1030*g*, 2600*a*
$C_{11}H_7BrO_3S$ 1 - Naphthol - 8 - sulfonic acid, 4 - (bromomethyl) , sultone, 203*e*, P 2641*g*, P 4488*b*.
$C_{11}H_7BrO_3$ 1,2*H* - Benzopyran - 4 - acetic acid, 6 - bromo - 7 - hydroxy - 2 - oxo , 6206*e*
$C_{11}H_7Br_2NO$ Pyridine, dibromophenoxy , 642*dg*.
$C_{11}H_7ClIN_2O_4$ 1 - (2,4 - Dinitrophenyl) - 3-iodopyridinium chloride, 4671*b*.
$C_{11}H_7ClN_2S$ Thiazolo[5,4 - *f*]quinoline, 9-chloro-7-methyl , 7476*g*.
$C_{11}H_7ClN_2O_4S$ 3 - Thiophenecarboxaldehyde, 2 - chloro-, 2,4 - dinitrophenylhydrazone, 2986*i*.
$C_{11}H_7ClO$ Naphthoyl chloride, 1743*i*, 4652*h*.
$C_{11}H_7ClO_2$ 1-Naphthoic acid, 5-chloro-, 6606*i*.
2-Naphthoyl chloride, 1-hydroxy-, P 5189*g*.
$C_{11}H_7ClO_3$ 1,2,4(3*H*) Naphthalenetrione, 3-chloro-3-methyl-, 7009*i*.
2-Naphthoic acid, 4-chlorohydroxy-, 2599*h*.
$C_{11}H_7ClO_3S$ 1-Naphthol-8-sulfonic acid, 4-(chloromethyl)-, sultone, 203*e*, P 2641*f*, P 4488*b*.
$C_{11}H_7ClO_4$ 1,2*H* - Benzopyran - 3 - carbonyl chloride, 7 - methoxy - 2 - oxo-, 7936*f*.
$C_{11}H_7ClO_4$ 1,2*H* - Benzopyran - 4 - acetic acid, 6 - chloro - 7 - hydroxy - 2 - oxo-, 6206*e*.
$C_{11}H_7Cl_2NO$ 1-Naphthaldehyde, 5,8-dichloro-, oxime, 3813*d*.
$C_{11}H_7Cl_3$ Naphthalene, 2-chloro-1-(dichloromethyl)-, 345*e*.
$C_{11}H_7FO_3$ 1,4 - Naphthoquinone, 6 - fluoro-2-hydroxy-3-methyl-, 5863*g*, 6253*f*.
$C_{11}H_7I_2N_3O_2$ Salicylamide, 3,5-diiodo-*N*-2-pyrimidyl-, P 6936.
$C_{11}H_7N$ 1-Naphthonitrile, 7916*g*, 8888*g*.
$C_{11}H_7NO$ Isocyanic acid, 1-naphthyl ester, [illegible], 6606*g*.
$C_{11}H_7NO_4$ 2-Naphthoic acid, 3-hydroxy-4-nitro-, 2600*c*.
$C_{11}H_7NO_5$ Coumarin 3-acetyl-5-hydroxy-6-nitro , 7925*b*.
Umbelliferone, 3-acetyl-8-nitro-, 7925*c*.
$C_{11}H_7NO_7$ 1,2*H* - Benzopyran - 6 - carboxylic acid, 7 - hydroxy - 4 - methyl - 8-nitro-2-oxo-, 2622*a*.
$C_{11}H_7NS$ Isothiocyanic acid, 1-naphthyl ester, 548*c*, 7136*fg*.
Thiocyanic acid, 1-naphthyl ester, 8600*b*.
$C_{11}H_7NS_2$ Naphthothiazolethiol, P 1438*f*, 2021*h*.
$C_{11}H_7N_3$ Naphthalenediazocyanide, 7455*d*.
$C_{11}H_7N_3O_4S$ Pyridine, 5-nitro 2-(*p* nitrophenylmercapto)-, P 1804*c*
4(1*H*) - Pyridinethione, 1 - (2,4 - dinitrophenyl)-, 6627*a*.
$C_{11}H_7N_3O_5$ 4(1*H*) - Pyridone, 1 - (2,4 - dinitrophenyl)-, 6626*i*.
$C_{11}H_7N_3O_6S$ Pyridine, 5-nitro-2-(*p*-nitrophenylsulfonyl)-, P 1804*c*.
$C_{11}H_7N_3O_7$ Compd., m. 230°, 1742*d*.
$C_{11}H_7N_3O_9$ Herniarin, 4-methyl-3,6,8-trinitro-, 2621*i*.
$C_{11}H_8As_2NS$ Thiophene, 2-(cyanophenylarsino)-, 3383*c*.
$C_{11}H_8BrF$ Naphthalene, 2-(bromomethyl)-6-fluoro-, 3362*h*.
$C_{11}H_8BrNO$ Pyridine, 2-bromo-6-phenoxy-, 642*h*.
$C_{11}H_8BrNO_2$ Maleimide, α-(4 bromo-*o*-tolyl)-β-hydroxy-, 1746*i*.
$C_{11}H_8Br_2$ Naphthalene, 2-bromo-6-(bromomethyl)-, 3362*i*.
$C_{11}H_8Br_2N_2O_3S$ Salicylamide, 3,5-dibromo-*N* - (4 - methyl - 2 - thiazolyl)-, P 6936, P 6239*f*
$C_{11}H_8Br_2O_2$ 1 - Naphthol, dibromo - 5-methoxy-, 615*b*.
$C_{11}H_8Ca_2O_7P_2$ 1,4 - Naphthalenediol, 2-methyl-, diphosphate di-Ca salt, 4414*h*.
$C_{11}H_8ClN$ Pyridine, (*p*-chlorophenyl)-, 3394*h*.
$C_{11}H_8ClNOS$ 2 - Thiophenecarboxanilide, chloro-, 4665*b*.
$C_{11}H_8ClNO_2$ 2 Furanilide, chloro-, 4665*b*.
$C_{11}H_8ClNO_3$ Kynurenic acid, chloro-3-methyl-, P 2646*d*, P 4303*e*; *and Ba salt*, 5401*b*.
3 - Quinolinecarboxylic acid, 7 - chloro-4-hydroxy-6-methyl-, 1776*b*.
$C_{11}H_8ClNO_3S$ 1,2*H* - Benzopyran - 6 - sulfonyl chloride, 3 - acetamido - 2 - oxo-, 2179*f*.
$C_{11}H_8ClN_3O_4$ 1 - (2,4 - Dinitrophenyl)pyridinium chloride, 6175*b*.
$C_{11}H_8ClN_3O_5$ 1 - (2,4 - Dinitrophenyl) - 3-hydroxypyridinium chloride, 4671*b*.
$C_{11}H_8Cl_2N_2O_2S$ Salicylamide, 3,5 - dichloro-*N* - (4 methyl - 2 - thiazolyl)-, P 6936, P 7513*c*.
$C_{11}H_8Cl_2O_2$ 1-Naphthol, 6,8-dichloro-5-methoxy-, 201*c*.
$C_{11}H_8Cl_2NO_3$ 1 - (3,4 - Dichloro - 2,5 - dihydroxyphenyl)pyridinium chloride, 5683*c*.
$C_{11}H_8Cl_2O_5$ Bicyclo[2.2.1] - 5 - heptene-2,3 - dicarboxylic anhydride, 1,4,5,6-tetrachloro - 7 - oxo-, dimethyl acetal, 4230*f*.
$C_{11}H_8F_3N_3O_2S$ 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - methyl - 6-(α,α,α - trifluoro - 2 - nitro - *p* - tolylazo)-, 1,1-dioxide, P 4868*f*.
$C_{11}H_8I_2N_2O_2S$ Salicylamide, 3,5-diiodo-*N*-(4-methyl-2-thiazolyl)-, P 6936, P 7513*d*.
$C_{11}H_8N_2$ 3-Iroquinolineacetonitrile, 3820*i*.
Malononitrile, α-methylbenzylidene-, P 3461*a*.
9*H* - Pyrid[3,4 - *b*]indole, 234*g*, 1422*h*, 3416*f*, 6627*c*.
7*H*-Pyrrolo[2,3-*h*]quinoline, 3421*i*.
3-Quinolineacetonitrile, 3383*d*.
$C_{11}H_8N_2OS$ 1*H* - Imidazo[3,4 - *a*]indole-1,3(2*H*) - dione, 2 - methyl - 3-thio-, 6206*a*.
Thiazolo[5,4-*f*]quinolin-9-ol, 7-methyl-, 7476*f*.

**$C_{11}H_8N_2O_2$** Benzoic acid, *o*-(3-methyl-5-oxo-2-pyrazolin-1-yl)-, *and - HCl*, 5024*h*.
Pyrazinol, benzoate, 8394*e*.
5*H* - Pyrazolo[*a*][3,1]benzoxazin - one, 2-methyl-(?), 5024*g*.

**$C_{11}H_8N_2O_2S_2$** Hydantoin, 5,5-di-2-thienyl-, P 5805*i*.

**$C_{11}H_8N_2O_2Se$** Selenocyanic acid, 2-phthalimidoethyl ester, 2160*b*.

**$C_{11}H_8N_2O_3$** Urea, (3,4-c[illegible]naphthyl)-, 1383*f*.

**$C_{11}H_8N_2O_3$** Alloxan, benzyl-, 2953*g*.
*p* - Dioxino[*f*]quinoline, 2,3 - dihydro - 6-nitro-, 1413*g*.
1*H* - *m* - Dioxino[5,4 - *f*]quinoline, 6-nitro-, 1414*c*.
Quininaldehyde, 8-nitro-, 7026*b*.

**$C_{11}H_8N_2O_3$** 5(4*H*) - Oxazolone, 4 - (5 - hydroxy - 2 - nitrobenzylidene) - 2-methyl-, 1765*a*.

**$C_{11}H_8N_2O_3S$** Benzenesulfonic acid, *p*-nitro-, 2-pyridyl ester, 3417*b*.

**$C_{11}H_8N_2O_4$** 2-Pyrazoline-3-carboxylic acid, 1-(3 - carboxy - 4 - hydroxyphenyl) - 5-oxo-, P 1575*b*.

**$C_{11}H_8N_2O_7$** Chromone, 7-methoxy-2-methyl-6,8-dinitro-, 9067*a*.

**$C_{11}H_8N_2S$** Benzimidazole, 2-(2-thienyl)-, 4665*d*.

**$C_{11}H_8N_2O$** *s* - Triazolo[2,3 - *a*]pyrimidin - 5-ol, 2-phenyl-, P 4165*f*.

**$C_{11}H_8N_2O_2$** Alloxazine, methyl-, 1427*a*, 3384*g*.

**$C_{11}H_8N_2O_3$** Alloxazine, methoxy-, 1781*c*.

**$C_{11}H_8N_4O_5$** 2 - Furaldehyde, 2,4 - dinitrophenylhydrazone, 1120*h*, 1121*a*.

**$C_{11}H_8N_4O_7$** Pyridine, picrate, 6070*g*.

**$C_{11}H_8N_4O_8$** 2(1*H*)-Pyridone, picrate, 2097*f*.

**$C_{11}H_8N_4O$** 2-Naphthol, 1-(1*H*-tetrazol-5-ylazo)-, 1770*b*.

**$C_{11}H_8N_4O_3$** Alloxazine, 8-(nitrosomethylamino)-, 3008*e*.

**$C_{11}H_8Na_2O_8S_2$** 1,4 - Naphthalenediol, 2-methyl-, bis(H sulfate) di-Na salt, 5703*c*.

**$C_{11}H_8Na_4O_8P_2$** See "diphosphate, Na salt" under *1,4- Naphthalenediol, 2-methyl-*.

**$C_{11}H_8O$** 1-Naphthaldehyde, 3813*d*.

**$C_{11}H_8OS$** Ketone, phenyl 2-thienyl, P 2643*h*, P 2644*e*.

**$C_{11}H_8O_2$** (See also *Naphthoic acid; Naphthoquinone, methyl-*.)
5*H* - Cycloheptabenzen - 5 - one, 6 - hydroxy-, 5753*a*.

**$C_{11}H_8O_2S$** 1,4-Naphthoquinone, 2-methylmercapto-, 4248*f*.
Thiophene-2-ol, benzoate, 9349*b*.

**$C_{11}H_8O_2S_2$** 1,3 - Propanedione, 1,3 - di - 2-thienyl-, 629*i*.

**$C_{11}H_8O_3$** (See also *Phthiocol*.)
5 - Benzofuranacrylic acid, 2,3 - dihydro - 6 - hydroxy-, δ - lactone, 1406*c*, 3412*b*.
3 - Indenecarboxylic acid, 2 - methyl - 1-oxo-, 4661*a*.
2-Naphthoic acid, hydroxy-, 1036*g*, 1418*i*, P 1574*c*, P 1575*f*, 7010*e*, 7801*b*, P 8144*c*, P 8162*g*; *salts*, 2538*g*.
1,4 - Naphthoquinone, 2,3 - epoxy - 2,3-dihydro-2-methyl-, 6191*cg*.
—, 2-hydroxy-7-methyl-, 1382*i*.
—, methoxy-, 182*c*, 1371*i*, 2611*h*, 5822*e*, 7341*e*.
Plumbagin, 5544*h*.
2 - Propen - 1 - one, 1,3 - di - 2 - furyl-, 3407*c*.
Propiolic acid, benzoyl-, Me ester, 7459*g*.

**$C_{11}H_8O_3S$** 1-Naphthol-8-sulfonic acid, 4-methyl-, sultone, 203*f*, P 2641*g*, P 4488*b*.
1,3 - Propanedione, 1 - (2 - furyl) - 3 - (2-thienyl)-, 4253*h*.
Salicylic acid, 2-thenyl ester, 9349*b*.

**$C_{11}H_8O_4$** Coumarin, 3-acetyl-4-hydroxy-, P [illegible]
Naphthazarin, methyl-, 8413*f*, 9161*b*
1-Naphthoic acid, 3,4-dihydroxy-, 6191*f*, 7010*b*.
$\Delta^{1,\alpha}$ - Phthalanacetic acid, 3 - oxo-, Me ester, 2974*d*.

**$C_{11}H_8O_4S$** Furoic acid, 2-thenoylmethyl ester, 2614*i*.
1 - Naphthol - 8 - sulfonic acid, 4 - (hydroxymethyl)-, sultone, 203*h*, P 2641*g*, P 4488*b*.

**$C_{11}H_8O_5$** 1,2*H*-Benzopyranacetic acid, hydroxy-2-oxo-, 1408*c*; *and salts*, 7035*f*.
1,2*H* - Benzopyran - 3 - carboxylic acid, 7 - hydroxy - 4 - methyl - 2 - oxo-, 7936*g*.
—, 4-hydroxy-2-oxo-, Me ester, 9334*d*.
—, 7-methoxy-2-oxo-, 7936*f*.
Coumarilic acid, 6-hydroxy-, acetate, 3412*d*.
5*H* - Cycloheptabenzen - 5 - one, 2,3,4,6-tetrahydroxy-, 3403*a*.
Glyoxylic acid, *o*-pyruvylphenyl-, 7008*f*.
1,4 - Naphthoquinone, 2,5,8 - trihydroxy-3-methyl-, 9161*b*.
Oxalacetic acid, benzyl-, 5017*d*.
Purpurogallin, 3403*a*.

**$C_{11}H_8O_5S$** 1-Naphthol-8-sulfonic acid, 4-sulfomethyl-, sultone, P 2641*g*, P 4488*b*.

**$C_{11}H_8O_6$** 1,2*H* - Benzopyran - 3 - carboxylic acid, 7 - hydroxy - 6 - methoxy - 2-oxo-, 1770*e*.

**$C_{11}H_8O_6S$** 1-Naphthoic acid, 2-hydroxy sulfo-, P 2441*h*.
1,4-Naphthoquinone, 6-hydroxy-2-methyl-, sulfate, *Na salt*, 6708*a*.

**$C_{11}H_8S_2$** Benzo[1,2-*b*,4,5-*b'*]dithiophene, 2-methyl-(?), 4665*h*.

**$C_{11}H_9Br$** Naphthalene, 2 - (bromomethyl) -, 4628*f*.
Naphthalene, 2-bromo-6-methyl -, 3362*i*.

**$C_{11}H_9BrN_2O$** 2-Furaldehyde, *p* bromophenylhydrazone, 2011*g*.

**$C_{11}H_9BrN_2OS$** 2-Thiophenecarboxylic acid, 5-bromo-, phenylhydrazide, 4666*a*.

**$C_{11}H_9BrN_2O_2$** 4(3*H*)-Quinazolone, 8-bromo-acetyl-3-methyl-, 1779*i*.

**$C_{11}H_9BrN_2O_3$** 4*H* - Pyrido[1,2 - *a*]pyrimidine 3-carboxylic acid, 6-bromo-4-oxo-, Et ester, 650*g*
2,4(1*H*,3*H*)-Quinazolinedione, 5 (bromoacetyl)methyl-, 6644*a*.

**$C_{11}H_9BrN_4O_4S$** Benzenesulfonamide, *N*-(5-bromo - 4 - methyl - 2 - pyrimidyl)-*m*-nitro-, P 7516*h*

**$C_{11}H_9BrO$** Naphthalene, 1-bromo-2-methoxy-, 1040*e*.

**$C_{11}H_9BrOS_2$** Ketone, 5-bromo 2-thienyl 2,5-dimethyl-3-thienyl, 4666*c*.

**$C_{11}H_9BrO_2$** Crotonic acid, γ bromo γ-hydroxy - β - methoxy - γ phenyl-, γ-lactone, 7459*d*.

**$C_{11}H_9Br_2N_3O_2S$** Sulfapyridine, dibromo deriv., 7642*f*.

**$C_{11}H_9Cl$** Naphthalene, 1-(chloromethyl)-, P 4300*c*, P 7511*c*.

**$C_{11}H_9ClHgN_2OS$** Thiazole, 2-acetamido 5-(chloromercuri) - 4 - phenyl - (?), 2616*e*

**$C_{11}H_9ClN_2O$** Isoquinoline, 7-acetamido-8-chloro-, 5784*b*.

**$C_{11}H_9ClN_2OS$** 4 - Pyrimidol, 2 - (*p* - chlorophenylmercapto) - 6 - methyl-, 2953*d*

**$C_{11}H_9ClN_2O_3$** 6 - Quinoxalinecarboxylic acid, chloro-, Et ester, 3383*i*.

**$C_{11}H_9ClN_2O_3$** Benzoic acid, 2-chloro-5 (3-methyl - 5 - oxo - 2 - pyrazolin - 1 - yl)-, P 8157*e*.
4*H* - Pyrido[1,2 - *a*]pyrimidine - 3 - carboxylic acid, 6 - chloro - 4 - oxo-, Et ester, 650*g*.
5 - Quinazolinecarbonyl chloride, 1,2,3,4-tetrahydro - 1,3 - dimethyl - 2,4 dioxo-, 6634*c*.

**$C_{11}H_9ClN_2O_4$** Salicylic acid, 3-chloro-5-(4-methyl - 5 - oxo - 2 - pyrazolin - 1 - yl)-, P 858*a*.

**$C_{11}H_9ClN_2O_6$** 2-Buten-1-ol, 3-chloro-, 3,5-dinitrobenzoate, 4214*f*.

**$C_{11}H_9ClN_4O_2S$** 2-Thenylamine, 5-chloro-, picrate, 2201*h*.

**$C_{11}H_9ClO_2$** Acrylic acid, β-(chloro *m*-toluyl)-, 607*d*, 7192*h*.

**$C_{11}H_9ClO_4$** Acrylic acid, β-(5-chloro-2,4-cresotyl)-, 7192*h*.
Glyoxylic acid, [*o* (α-chloropropionyl)-phenyl]-, 7009*i*, *and Ag salt*, 7009*d*.
,4-Naphthoquinone, 2-chloro-2,3-dihydro 3,3-dihydroxy-2-methyl-, 7009*b*

**$C_{11}H_9Cl_2N$** Quinoline, 2,4-dichloro-3-ethyl-, P 7974*c*.

**$C_{11}H_9Cl_2NO_2$** 1-(3-Chloro-2,5-dihydroxyphenyl)pyridinium chloride, 5683*c*

**$C_{11}H_9F$** Naphthalene, 2-fluoro-6-methyl-, 3362*h*.

**$C_{11}H_9IN_2OS$** Thiazole, 2 acetamido-5-iodo-4-phenyl-, 2616*f*.

**$C_{11}H_9IN_2S$** Thiazolo[5,4-*f*]quinoline, methiodide, 7476*f*.

**$C_{11}H_9N$** Pyridine, phenyl-, 3394*h*: *and salts*, 5402*e*.
Quinoline, 2-vinyl-, 217*b*.

**$C_{11}H_9NO$** Benz[*cd*]indol-5(1*H*)-one, 3,4-dihydro-, 4255*d*.
Ketone, methyl quinolyl, 191*h*, 1412*c*, 3000*f*, 3363*ef*.
Phenol, *p*-2-pyridyl-, 1027*h*.
Pyridine, phenoxy-, 642*eg*.

**$C_{11}H_9NO_2$** 2-Carboxy-1-methylquinolinium betaine, 7310*d*.
Cinchoninic acid, 2-methyl-, 3503*a*, 3920*h*.
1*H*-*m*-Dioxino[5,4-*f*]quinoline, 1414*a*.
2-Furananilide, 1654*g*.
3-Indoleglyoxaldehyde, 2-methyl-, *hydrate*, 4256*d*.
Ketone, 5-methyl-3-isoxazolyl phenyl, 2991*d*, 5394*c*.
—, methyl 5-phenyl-3-isoxazolyl, 2991*d*, 5394*b*.
Maleinimide, *N*-tolyl-, P 4422*a*.
2-Naphthoic acid, 3-amino-, P 1788*bc*, P 1987*g*, P 5062*d*, P 5965*b*, P 8691*ab*.
1,4-Naphthoquinone, 2-amino-3-methyl-, 1382*f*.
5(2*H*) - Oxazolone, 2 - benzylidene - 4-methyl-, P 1809*i*, P 9389*a*.
6-Quinolineacetic acid, 3363*f*.
6-Quinolinecarboxylic acid, Me ester, 1122*d*.

**$C_{11}H_9NO_2S$** 5 Thiazoleacetic acid, 4-phenyl-, P 8401*d*.

**$C_{11}H_9NO_2S_2$** Acetic acid, (4-phenyl-2-thiazolylmercapto)-, 3365*b*.
4-Thiazolecarboxylic acid, 2-(benzylmercapto)-, 1398*h*.
5(4*H*)-Thiazolone, 2-(benzylmercapto)-4-(hydroxymethylene)-, 1399*b*.

**$C_{11}H_9NO_4$** Cinchonuric acid, hydroxymethyl-, 3502*i*, 3920*g*
2 Isonaphthoquinonepropionaldehyde, 2,3-dioxo-, 6169*h*.
Maleimide, α hydroxy-β-tolyl-, 1746*h*.
2 Naphthoic acid, 5 amino-1 hydroxy-, P 3040*c*
5(4*H*) Oxazolone, 4-(methoxymethylene) 2-phenyl, 2618*e*
Phthalimide, *N*-acetonyl-, 7478*h*.
Quinuric acid, 3402*i*, 3920*h*
2,4 Quinolinediol, monoacetate, 3002*e*

**$C_{11}H_9NO_4$** Acrylic acid, β *p*-formamidobenzoyl, 7192*h*
Cinnamic acid, α-cyano-2-hydroxy-4 methoxy-, 7936*f*.
2-Isoindolinepropionic acid, 1,3-dioxo-, 6170*d*, 9166*d*

**$C_{11}H_9NO_5$** Chromone, 7-methoxy-2-methyl 8 nitro, 9067*a*
Hermarin, 4 methyl-6-nitro, 1015*i*, 2621*g*.

**$C_{11}H_9N_3$** 9*H*-Pyrid[3,4-*b*]indole, 1-amino-, 3416*f*

**$C_{11}H_9N_3O$** Nicotinamide, *N*-pyridyl-, 5025*d*

**$C_{11}H_9N_3O_2$** Compd., m. 158–9°, 6902*h*
Pyrazinamide, 3 - hydroxy - 6 - phenyl-, 3009*h*
1,2,3,2*H* Triazole-4-acrylic acid, 2 phenyl-, 2619*c*

**$C_{11}H_9N_3O_2S$** Benzenesulfenamide, *p*-nitro-*N*-2-pyridyl, P 8400*c*.
$\Delta^{1,\alpha}$ Benzothiazolmeacetonitrile, 3 ethyl-6-nitro-, P 7843*d*

**$C_{11}H_9N_3O_5$** Isoquinoline, 5-acetamido-8 nitro-, 5784*a*
Ketone, diazomethyl (*p*-nitrophenylisopropyl), 635*h*, 9042*c*.
Quinoline, acetamidonitro-, 1777*ab*

**$C_{11}H_9N_3O_3S$** Acetic acid, (1,5-dihydro-5-oxo-6-phenyl - *as* - triazin - 3 - ylmercapto)-3016*b*.
4-Thiazolecarboxylic acid, 5-amino-, benzamido-, 1403*d*.

**$C_{11}H_9N_3O_4S_2$** Thiazole, 2-acetamido 5-(*p*-nitrophenylmercapto)-, P 6670*i*, 9086*d*.

**$C_{11}H_9N_3O_4S$** Benzenesulfonamide, *p*-nitro-2-pyridyl-, P 8400*c*.

**$C_{11}H_9N_3O_4S_2$** Acetanilide, *p*-(5-nitro 2 thiazolylsulfonyl)-, 6181*f*.

**$C_{11}H_9N_3S$** 1,3,4-Thiadiazole-2-acetonitril 5-*p*-tolyl-, P 8924*g*.

**$C_{11}H_9N_3$** Benzimidazole, 2-(2-pyrimidyl amino)-, P 3854*a*.

**$C_{11}H_9N_3O_2$** Alloxazine, 8-amino-7-methyl 7938*c*.
Alloxazine, 8-methylamino-, 3008*e*.
3-Pyrazoline-3-carbonyl azide, 2-methyl-5-oxo-1-phenyl-, P 6239*g*.

**$C_{11}H_9NO_2$** Pyridine, 2-amino-, picrate, 6626*c*.

**$C_{11}H_{10}$** (See also *Naphthalene, methyl-*.)
1 - Buten - 3 - yne, 2 - methyl-2-phenyl-, 2182*c*.
Cyclopentacycloheptene, methyl-, 4l 5768*f*.

**$C_{11}H_{10}AuN_3O_3S_2$** Acetanilide, α-(auric capto)-*p*-2-thiazolylsulfamyl-, 134

**$C_{11}H_{10}BrNO_2$** Ketone, bromomethyl (*p*-methoxyphenyl)cyclopropyl, 635*i*, 9042*c*.

**$C_{11}H_{10}BrN_3O_2S$** Sulfapyridine, bromo deriv., 7642*f*.

**$C_{11}H_{10}Br_2N_4O_2S$** Sulfanilamide, 3,5-dibromo-*N*¹-(4-methyl-2-pyrimidyl)-, 3804

**$C_{11}H_{10}Br_2N_4O_3S$** Sulfanilamide, 3,5-dibromo-*N*¹-(4-methyl-2-pyrimidyl)-, monohydrate, 3804*g*.

**$C_{11}H_{10}ClN_3O$** 4-Carbamyl-8-chloro-1-methylquinolinium iodide, 4675*f*.

**$C_{11}H_{10}ClN$** Quinoline, 4-chlorodimethyl-, 4276*d*.

**$C_{11}H_{10}ClNO$** Quinaldine, 4-chloro-7-methoxy-, 1410*g*.
4-Quinolinemethanol, 6-chloro-α-methyl-, *and - H Br*, 4675*d*.

**$C_{11}H_{10}ClNOS$** 2-Pyridinemethanol, α-(5-chloro-2-thienyl)-α-methyl-, *and - HCl*, 2205*c*.

**$C_{11}H_{10}ClNO_2$** 1-(Dihydroxyphenyl)pyridinium chloride, 5683*cd*.
1-(2-Furoylmethyl)pyridinium chloride, 1393*d*.

**$C_{11}H_{10}ClNO_2S$** Methanesulfonamide, 1-chloro-*N*-naphthyl-, 6500*a*.

**$C_{11}H_{10}ClNO_3$** Alanine, chloroacetyldehydrophenyl-, 9113*f*.
1-Naphthoyl chloride, 5,6,7,8-tetrahydronitro-, 202*eh*.

**$C_{11}H_{10}ClN_3O_3S_2$** Acetanilide, α-chloro-*p*-2-thiazolylsulfamyl-, 1347*h*.

**$C_{11}H_{10}Cl_2N_2O$** 4-Carbamyl-8-chloro-1-methylquinolinium chloride, 4675*f*.

**$C_{11}H_{10}Cl_2N_4S$** Pyrimidine, 4,6-diamino-5-(2,5-dichlorophenylazo)-2-methylmercapto-, 145*a*.

**$C_{11}H_{10}Cl_2O_3$** Acetic acid, (2,4-dichlorophenoxy)-, allyl ester, 6775*h*.

**$C_{11}H_{10}Cl_2O_4$** *p*-Toluhydroquinone, 5,6-dichloro-, diacetate, 1348*b*.

**$C_{11}H_{10}Cl_6O_2$** Benzyl alcohol, *p*-chloro-α-(trichloromethyl)-, propionate, 2359*h*, P 6858*h*

**$C_{11}H_{10}Cl_6O_4$** Bicyclo[2.2.1] - 5 - heptene-2,3 - dicarboxylic acid, 1,4,5,6 - tetrachloro - 7 - oxo-, dimethyl acetal, 4230*f*

**$C_{11}H_{10}Cl_6NO$** Cyclopentadiene - $\Delta^{1,\alpha}$ - acetamide, α,2,3,4,5 - pentachloro - *N*, *N*-diethyl, 1231*d*

**$C_{11}H_{10}N_2$** Glutaronitrile, α phenyl-, P 3446*h*
Phthalamidine, P 2231*c*, P 5038*g*.
**$C_{11}H_{10}N_2$** *m* Benzenediacetonitrile, 4 methoxy-, 6591*f*
Cinnamide, *N* - (8 - methyl - 7 - quinolyl)-, 3422*a*
Furaldehyde, phenylhydrazone, 1654*i*, 2014*f*, 8727*i*
Quinoline, 7 acetamido-, 5783*h*
Ketone, diazomethyl 2 phenylcyclopropyl, 635*d*
Resorcinol, 3-methyl 5 phenyl-, 3009*h*.
Pyrrolecarboxanilide, 8367*e*
Quinazolone, 3 allyl-, 5406*e*
**$C_{11}H_{10}N_2OS$** Hydantoin, 5-benzylidene 3-methyl 2-thio-, 3408*h*, 6984*i*
Oxazolone, benzylidene - 2 - methyl mercapto-, 6984*d*
Pyrazole, 2 acetamido-4 phenyl-, 2992*e*
Pyridine, α phenylacetamido-, P 6239*d*
Thiophenecarboxylic acid, phenylhydrazide, 4665*d*.
Uracil, benzylthio-, 1106*e*, 3909*a*, 8544*g*, 9242*a*
**$C_{11}H_{10}N_2O_2$** Acetamide, *N* (cyanoformylmethyl) α-phenyl-, 4667*i*
Coumarinol, 7-methyl-, acetate, 1781*g*.
Dioxino[*f*]quinoline, 6 - amino - 2,3-dihydro-, 1413*g*.
Furoic acid, phenylhydrazide, 4665*d*.
Hydantoin, 5-benzylidenemethyl-, 6984*c*.
Imidazolecarboxylic acid, 1-benzyl-, 3410*f*
Oxazole, 5 methyl-2 phenyl-, 2989*e*
Phthalonitrile, 5,6,7,8 - tetrahydro-4 nitro-, 202*d*
Propanone, 4 - phenyl - 3 - furazanyl-, 2991*e*
Resorcinol, 3-*p*-hydroxybenzyl, 3009*i*
Quinolinecarboxylic acid, 7 - amino - 2-methyl-, 3002*g*.
Succinidine, dimethylnitro-, 2211*h*, 4277*i*, 8591*d*
**$C_{11}H_{10}N_2O_2S$** Anisamide, *N*-2-thiazolyl-, P 6239*d*.
Benzimidazolecarboxylic acid, 2 - mercapto-1 phenyl, Me ester, 3411*d*.
Salicylamide, *N*-(4-methyl-2-thiazolyl)-, P 6239*g*
Thiazoleacetic acid, 2-amino-4-phenyl-, P 8401*e*.
Uracil, 5 - (hydroxymethyl) - 6 - phenyl-2 thio-, 3013*f*.
**$C_{11}H_{10}N_2Se$** 5-Selenazoleacetic acid, 2-amino-4-phenyl-, P 8401*f*.
**$C_{11}H_{10}N_2O_3$** Barbituric acid, 1-benzyl-, 2956*f*
2-Pyrrolidinedione, 3-benzamido-, 2988*f*.
**$C_{11}H_{10}N_2O_3$** 5 - Hydantoinacetic acid, 3-phenyl-, 1353*b*.
1,8-Naphthyridine - 3 - carboxylic acid, 1-ethoxy-4-hydroxy-, 680*g*.
5 - Quinazolinecarboxylic acid, 1,2,3,4-tetrahydro - 1,3 - dimethyl - 2,4-dioxo-, 6684*c*.
Salicylic acid, 5-(3-methyl-5-oxo-2-pyrazolin-1-yl)-, P 857*h*, P 5198*f*, P 5597*c*, P 5958*hi*, P 7700*a*.

**$C_{11}H_{10}N_2O_3S$** 2-Furanilide, *p*-sulfamyl-, 1028*c*.

**$C_{11}H_{10}N_2O_3S$** 1,2*H* - Benzopyran - 6 - sulfonamide, 3 - acetamido - 2 - oxo-, 2179*g*.

**$C_{11}H_{10}N_2O_3$** *m*-Anol, 4,β-dinitro-, acetate, 1765*f*.
Glycine, compd. with 2-nitro-1,3-indandione, 69*i*.

**$C_{11}H_{10}N_2O_7$** Guaiacol, nitro(2-nitrovinyl)-, acetate, 3406*b*.

**$C_{11}H_{10}N_2S$** (See also *Urea, naphthylthio-*.) $\Delta^{2,\alpha}$ - Benzothiazolineacetonitrile, 3-ethyl-, P 7843*b*.

**$C_{11}H_{10}N_2S_2$** 2,4 - Pyrimidinedithiol, 5 - benzyl-, 8394*i*.

**$C_{11}H_{10}N_2O_2S$** 4 - Pyrimidol, 2 - amino 6-methyl - 5 - (*p* - nitrophenylmercapto)-, 6634*g*.

**$C_{11}H_{10}N_2O_4$** 2,4 - Pentadienal, 2,4 - dinitrophenylhydrazone, 5775*a*.
3 - Pentyn - 2 - one, 2,4 - dinitrophenylhydrazone, 7416*a*.

**$C_{11}H_{10}N_4O_4S$** Benzenesulfonamide, *N*-(4-methyl - 2 - pyrimidyl) - *m* - nitro-, P 7516*h*.
Benzenesulfonic acid, 5-nitro-2-pyridylhydrazide, 3410*c*.

**$C_{11}H_{10}N_4O_4S$** 4 - Pyrimidol, 2 - amino - 6-methyl - 5 - (*p* - nitrophenylsulfonyl)-, 6634*g*.

**$C_{11}H_{10}N_4O_4S$** 2-Thenylamine, picrate, 2201*f*.

**$C_{11}H_{10}N_4O_6$** Glutaric acid, α-oxo-, 2,4-dinitrophenylhydrazone, 5342*h*.

**$C_{11}H_{10}N_6O_2$** *s* - Triazine, 2,4 - diamino - 6-(*p*-nitrostyryl)-, P 3854*i*.

**$C_{11}H_{10}N_6O_2S$** Sulfanilamide, *N*¹-6-purinyl-, 3097*g*.

**$C_{11}H_{10}N_4O_2$** Cytosine, 1-methyl-, picrate, 4635*b*

**$C_{11}H_{10}O$** Benzofuran, 2-isopropenyl-, 7018*c*.
2 Cyclopenten-1-one, 3-phenyl-, 3366*f*.
1-Naphthalenemethanol, 178*g*.
Naphthalene, methoxy-, 1040*e*, 3699*d*, 8138*i*, P 9087*b*.
Naphthol, methyl-, 5085*c*, 7465*f*, 7545*h*.
Pentenyn 1-ol, phenyl-, 2576*d*, 7415*c*.

**$C_{11}H_{10}OS$** 2-Thiophenemethanol, α-phenyl-, 6620*b*.

**$C_{11}H_{10}OS_2$** Ketone, bis(5-methyl-2-thienyl), 4066*d*.
Ketone, 2,5-dimethyl-3-thienyl 2-thienyl, 4665*g*.

**$C_{11}H_{10}O_2$** Coumarilaldehyde, 3,6-dimethyl-, 3413*d*.
Coumarin, 3,4-dimethyl-, 8010*e*
5*H* - Cycloheptabenzene - 5,6,7*H*)-dione, 8,9 dihydro, 5753*i*
1,4 - Methanonaphthalene - 5,8 - dione, 1,4,4a,8a-tetrahydro-, P 7632*i*
1,4-Naphthalenediol, 2-methyl-, P 1533*b*, 9246*g*, 9247*d*.
Naphthoic acid, dihydro-, 9334*d*
Naphthol, methoxy-, 615*b*, 1371*h*, P 7608*c*, P 8157*g*.
Phthalide, 3-propylidene-, 2974*c*.
Propiolic acid, phenyl-, Et ester, 2592*b*.

**$C_{11}H_{10}O_2S$** 2-Thianaphtheneacetic acid, Me ester, 1396*c*.
3-Thianaphthenol, 2-methyl-, acetate, 3816*i*.

**$C_{11}H_{10}O_3$** Acrylic acid, β-benzoyl-, Me ester, 7192*h*, 7459*e*.
Acrylic acid, β-*p*-toluyl-, 607*a*, 7192*h*.
Chromone, 7-methoxy-2-methyl-, 9067*a*.
Coumarilic acid, 3,6-dimethyl-, 3413*c*.
Coumarin, 3-ethyl-4-hydroxy-, P 4701*h*.
Crotonic acid, γ-hydroxy-β-methoxy-γ-phenyl-, γ-lactone, 7459*c*.
1,4-Naphthalenediol, 6-methoxy-, 2612*a*.
1-Propanone, 1,3-di-2-furyl-, 3407*d*.
Tetrolic acid, γ-hydroxy-γ-phenyl-, Me ester, 7459*b*.

**$C_{11}H_{10}O_3S$** Succinic anhydride, (benzylmercapto)-, 1321*c*.
2 - Thianaphthenecarboxylic acid, 3-hydroxy-, Et ester, 1009*d*.

**$C_{11}H_{10}O_3Se$** 4,7 - Selenanaphthenedione, 5-methoxy-3,6-dimethyl-, 6612*g*.

**$C_{11}H_{10}O_4$** Acrylic acid, β-anisoyl-, 607*d*, 7192*h*.
Acrylic acid, β-cresotyl-, 607*d*, 7192*h*.
Chromone, 5,7-dihydroxy-2,8-dimethyl-, 8622*b*.
—, 6,7-dimethoxy-, 7461*d*.
Coumarilic acid, 2,3-dihydro-3-oxo-, Et ester, 1771*f*.
—, hydroxy-, Et ester, 1006*e*, 3412*d*.
Coumarin, 5,7-dimethoxy-, 4376*b*, 7460*h*.
Crotonic acid, γ,γ-dihydroxy-β-methoxy-γ - phenyl-, γ - lactone, 7459*e*.
Eugenin, 1775*g*.
Glyoxylic acid, *o*-propionylphenyl-, 4661*a*, 7009*f*.
Herniarin, 6-hydroxy-4-methyl-, 3823*e*.
Hydrocinnamic acid, α,β-dioxo-, Et ester, 4247*i*.
Ketone, 6 - hydroxy - 4 - methoxy - 7-benzofuryl methyl, 3413*g*.
Phthalic acid, allyl ester, P 9537*e*.
Scopoletin, 4-methyl-, 3823*e*.
Visnaginone, 5542*e*.

**$C_{11}H_{10}O_3S$** 1 - Naphthalenemethanesulfonic acid, 2-hydroxy-, P 8172*c*.
1-Naphthol-8-sulfonic acid, 4 methyl-, P 2641*g*, P 4488*b*, P 8148*b*.

**$C_{11}H_{10}O_4$** 2 - Chromancarboxylic acid, 5-hydroxy-4-oxo-, Me ester, 4265*e*.
Coumarin, hydroxy - 6,7 - dimethoxy-, 7460*i*, 7461*a*.
Gladiolic acid, 3058*g*.
Glyoxylic acid, (*o*-lactylphenyl)-, 7009*di*; *and Ag salt*, 6191*e*.
1 - Indancarboxylic acid, 1,2 - dihydroxy-2-methyl-3-oxo-, 1384*c*.

**$C_{11}H_{10}O_4S$** 1 - Naphthol - 1(4*H*) - sulfonic acid, methyl-4-oxo-, *salts*, 616*a*; *Na salt*, 5906*d*.
Pyruvic acid, (3-methoxy-4,5-methylenedioxyphenyl) - α - thio-, 2212*a*, 9046*e*.
2 - Thianaphthenecarboxylic acid, 3-hydroxy-, Et ester 1,1-dioxide, 1009*d*.

**$C_{11}H_{10}O_4$** Glutaconic acid, β-(2,4-dihydroxyphenyl)-, 1408*b*.
Malonic acid, *o*-carboxybenzyl-, 7491*a*.
Phthalic anhydride, 3,4,5-trimethoxy-, 1029*h*.

**$C_{11}H_{10}O_7$** Protocatechualdehyde, ester with Me H carbonate, 7455*h*.

**$C_{11}H_{10}O_6S_2$** 1,4 - Naphthalenediol, 2 - methyl-, bis(H sulfate), *di-Na salt*, 5703*c*.

**$C_{11}H_{10}S$** 1-Naphthalenethiol, 2-methyl-, P 7258*d*.
Thiophene, methylphenyl-, 2615*ac*, 5392*efg*.

**$C_{11}H_{11}BrN_4O_2S$** Metanilamide, *N*¹-(5-bromo-4-methyl-2-pyrimidyl)-, P 7517*c*.

**$C_{11}H_{11}BrN_5S$** Biguanide, 1-(*p*-bromophenyl)-5-(2-thiazolyl)-, - *HCl*, 5777*c*.

**$C_{11}H_{11}BrO$** Ketone, bromomethyl 2-phenylcyclopropyl, 635*e*.

**$C_{11}H_{11}BrO_2$** Acetophenone, α-bromo-4-hydroxy-2-methyl-, acetate, P 5044*e*.
Isobutyric acid, β-benzoyl-β-bromo-, P 8402*a*.
Propionic acid, β-bromo-β-*p*-toluyl-, P 8401*g*.

**$C_{11}H_{11}Cl$** 1,3-Pentadiene, 5-chloro-1-phenyl-, 2576*g*

**$C_{11}H_{11}ClN_2$** Imidazole, 1-benzyl(chloromethyl)-, - *HCl*, 3410*g*, 8382*c*.

**$C_{11}H_{11}ClN_2O$** Compd., m. 90.5–1.0°, 4653*e*.

**$C_{11}H_{11}ClN_4$** Pyrimidine, 4-amino-2-*p*-chloroanilino-6-methyl-, 9038*d*.

**$C_{11}H_{11}ClN_4O_2S$** Sulfanilamide, *N*¹-(5-chloro-4-methoxy-2-pyrimidyl)-, 275*e*.

**$C_{11}H_{11}ClN_5$** + $H_2O$ Biguanide, 1-(8-chloro-5-quinolyl)-, 231*a*.

**$C_{11}H_{11}ClN_5S$** Biguanide, 1-(*p*-chlorophenyl)-5-(2-thiazolyl)-, - *HCl*, 5777*c*.

**$C_{11}H_{11}ClO_2$** Cinnamoyl chloride, *p*-methoxy-α-methyl-, 7021*e*.
2-Naphthoyl chloride, 5,6,7,8-tetrahydro-1-hydroxy-, P 7511*g*.

**$C_{11}H_{11}ClO_3$** Benzoyl chloride, 2-ethyl-3-hydroxy-, acetate, 197*d*.
Propionic acid, β-(4-chloro-*m*-toluyl)-, 1378*h*.

**$C_{11}H_{11}ClO_3S$** Thiophene-3-ol, 2-chlorotetrahydro-, 1,1-dioxide benzoate, P 3466*d*.

**$C_{11}H_{11}Cl_3N_2O_3$** *tert* - Butylamine, 2,2',2'-trichloro - *N* - (*m* - nitrobenzylidene)-, 2936*a*.

**$C_{11}H_{11}Cl_3O_2$** Benzyl alcohol, α-(trichloromethyl)-, propionate, P 6358*h*.

**$C_{11}H_{11}Cl_3O_3$** Acetic acid, (2,4,5-trichlorophenoxy)-, iso-Pr ester, 1893*f*, 3135*a*.

**$C_{11}H_{11}Cl_5O_2$** Methane, butoxy(pentachlorophenoxy)-, P 3968*c*.

**$C_{11}H_{11}CuN_2O_3S$** Benzoic acid, *m*-[[(allylimino)mercaptomethyl]amino]-, *S*-Cu deriv., *Na salt*, 1351*b*.

**$C_{11}H_{11}IN_5S$** Biguanide, 1-(*p*-iodophenyl)-5-(2-thiazolyl)-, - *HCl*, 5777*c*.

**$C_{11}H_{11}I_2N$** 1-Ethyl-2-iodoquinolinium iodide, P 8167*c*.

**$C_{11}H_{11}I_2NO_3$** Tyrosine, acetyldiiodo-, 2256*b*, 2327*c*, 6298*d*.

**$C_{11}H_{11}N$** Benz[*cd*]indole, 1,3,4,5-tetrahydro-, 4358*a*.
5-Indanacetonitrile, 8390*a*.

4-Indancarbonitrile, 7-methyl-, 2625*i*.
Quinoline, dimethyl-, P 1443*fi*, 1777*d*, 2917*g*, 7937*f*, 8941*i*; *and salts*, 5402*def*.
Toluquinaldine, 2917*g*; *and chloromercurate*, 7027*a*.

**$C_{11}H_{11}NO$** Benz[*cd*]indol-5-ol, 1,3,4,5-tetrahydro-, 4256*a*.
Carbostyril, 4,8-dimethyl-, 228*h*.
1(2*H*) - Isoquinolone, 2,3 - dimethyl-, 3821*b*.
Ketone, 1,4-dihydro-3-quinolyl methyl, 1412*d*.
Lepidine, 6-methoxy-, P 1443*f*, P 1444*a*.
1,4 - Methanonaphthalene - 5(1*H*) - one 4,4a,8,8a - tetrahydro - 8 - imino-, *and - HCl*, 4649*i*.
1-Naphthol, 4-amino-2-methyl-, 7581*d*.
Naphthylamine, 6-methoxy-, P 8155*g*, *and - HCl*, 7026*e*.
Quinolinol, dimethyl-, 228*g*, 4270*cd*.
—, 2-ethyl-, 227*i*.
4(1*H*)-Quinolone, dimethyl-, 229*c*, 2865*i*.

**$C_{11}H_{11}NOS$** 2-Propanone, (3-methyl-2-benzothiazolinylidene)-, 4262*f*, P 8167*c*.
2 - Pyridinemethanol, α - methyl - α - 2-thienyl-, 4266*b*; *and - HCl*, 2205*b*.
2 - Thiazolemethanol, 4 - methyl - α-phenyl-, 3820*f*.

**$C_{11}H_{11}NO_2$** (See also *3-Indolepropionic acid.*)
Acetic acid, cyanophenyl-, Et ester, 4222*i*.
Butyric acid, α-(*p*-cyanophenyl)-, 9055*f*.
—, β-cyano-γ-phenyl-, 2168*b*.
Carbostyril, 1-ethoxy-, 2997*c*.
Cinnamamide, *N*-acetyl-, 3822*d*.
1,3 - Dioxolo[*g*]isoquinoline, 7,8 - dihydro - 5 - methyl-, *and - HCl*, 1412*g*.
Ethanol, 2-(8-quinolyloxy)-, P 673*i*.
Hydrocinnamic acid, α-cyano-, Me ester, 3356*h*.
Indoleacetic acid, 2-methyl-, 8017*f*.
5-Indolol, 2-methyl-, acetate, 1765*g*.
5(4*H*) - Oxazolone, 2 - benzyl - 4-methyl-, P 1800*i*.
—, 4,4-dimethyl-2-phenyl-, - *HBr*, 4262*h*.
Phthalimide, *N*-isopropyl-, 7182*d*.
—, *N*-propyl-, 7182*c*.
Propionitrile, β-anisoyl-, P 7848*d*.
Quinoline, 2-ethoxy-, 1-oxide, 2997*b*.
4-Quinolinol, methoxy-2-methyl-, 1416*g*; *and - HCl*, 1416*d*.
4(1*H*)-Quinolone, methoxy-3-methyl-, 2866*c*.
Succinimide, *N*-benzyl-, P 4422*b*.

**$C_{11}H_{11}NO_2S$** 3,1,4*H* - Benzothiazine - 3-carboxylic acid, Et ester, 4278*a*.
2 - Naphthalenesulfonamide, *N* - methyl-, 4630*c*.
3-Thianaphthenealanine, 631*g*.
2 - Thiazoline - 4 - carboxylic acid, 2-phenyl-, Me ester, 3786*i*.
3(2*H*) - Thiophenone, 4 - benzamido - 4,5-dihydro-, P 3468*d*.

**$C_{11}H_{11}NO_3$** Benzoic acid, *p* (3-oxo-1-butenylamino)-, 7937*e*.
Cinnamic acid, α-acetamido-, 7531*a*.
Crotonic acid, α-benzamido-, 9033*h*.
Indolol, methoxy-, acetate, 3406*b*.
2 - Oxazoline - 4 - carboxylic acid, 5-methyl - 2 - phenyl-, 3787*a*; *and Na salt*, 9033*d*.
—, 2-phenyl-, Me ester, 9033*c*.
1 - Propanone, 1,3 - di - 2 - furyl-, oxime, 3407*d*.

**$C_{11}H_{11}NO_3S$** 3 - Benzothiazolineacetic acid, 2-oxo-, Et ester, 5022*d*.
1 - Naphthoic acid, 5,6,7,8 - tetrahydronitrothiol-, *and K salt*, 6192*g*, 6193*b*.
2 - Pyrrolesulfonic acid, 1 - *o* - tolyl-, *Ba salt*, 7016*c*.

**$C_{11}H_{11}NO_4$** 1,2*H* - Benzopyran - 4 - ol, 2-imino-6,7-dimethoxy-, 7461*a*.
Cyclopropanecarboxylic acid, (*p*-nitrophenyl)-, Me ester, 635*f*, 9042*b*.
*m*-Hemipimide, *N*-methyl-, 5545*a*.
1 - Naphthoic acid, 5,6,7,8 - tetrahydronitro-, 202*bfg*, 6192*h*, 6193*b*.
Phenaceturic acid, α-formyl-, 4667*g*, P 9085*a*.
Phthalide, 3 - ethyl - 3 - methyl - 6-nitro-, 7925*g*.
3 - Pyridinebutyric acid, α,γ - dioxo-, Et ester, 1764*h*.
Succinaldehydic acid, α-benzamido-, 7932*e*.

**$C_{11}H_{11}NO_4S$** 2 - Naphthalenesulfonic acid, 5-amino-6-methoxy-, P 861*a*, P 3204*f*, P 4478*bde*, P 4481*ade*, P 6425*gs*, P 9463*e*.
2 - Naphthol - 6 - sulfonic acid, 8 - methylamino-, P 1987*g*.
2,4 - Pentanedione, 3 - (*p* - nitrophenylmercapto)-, 6634*h*.

**$C_{11}H_{11}NO_5$** 3 - Buten - 2 - one, 4 - (4 - hydroxy - 3 - methoxy - 5 - nitrophenyl)-, 7001*f*.
Glyoxylic acid, (2-acetamido-4-methoxyphenyl)-, 1416*h*.

**$C_{11}H_{11}NO_6$** Anthranilic acid, *N*,*N*-bis(carboxymethyl)-, P 4800*d*, 7340*h*.
Pyruvic acid, (3 methoxy-4,5-methylenedioxyphenyl)-, oxime, 2212*a*, 9046*e*.

**$C_{11}H_{11}NS$** Thiazole, 2-benzyl-4-methyl-, 3820*g*.
2 - Thiopheneacetonitrile, α - cyclopentylidene-, 8359*b*.

**$C_{11}H_{11}NO_6SSb$** Benzenestibonic acid, *p* (2-pyridylsulfamyl)-, 602*b*.

**$C_{11}H_{11}N_3$** Pyrimidine, 2-benzylamino-, P 3472*c*.

**$C_{11}H_{11}N_3O$** 2-Indancarboxylic acid, 2-cyano-, hydrazide, 4222*i*.
Propionic acid, α-cyano-, benzylidenehydrazide, 4223*a*.
Spiro[indan - 1,4′ - 2′ - pyrazolin] - 5′-one, 3′-amino-, 7478*c*.

**$C_{11}H_{11}N_3OS$** 2-Pyrimidinethiol, 4-*p*-methoxyanilino-, 8395*e*.

**$C_{11}H_{11}N_3O_2$** 1,3 - Indandione, 2 - methyl-, semicarbazone, 7010*b*.
2 - Propanone, 4 - phenyl - 3 - furazanyl-, oxime, 2991*e*.
2 - Pyrazolin - 3 - ol, 5 - (benzoylimino)-1 methyl-, 4272*f*.
5-Pyrazolone, 3-benzamido-1-methyl-, 4272*f*.
—, 3 methyl-, reaction product with PhNCO, 8365*h*.
3-Quinoxalinecarboxylic acid, 3-amino-6,7-dimethyl-, 174*d*.

**$C_{11}H_{11}N_3O_2S$** (See also *Sulfapyridine.*)
Pyridine 5-amino 2- sulfamlyl-, P 1803*g*.
Sulfanilamide, *N*1-pyridyl-, P 364*h*, 1738*d*.

**$C_{11}H_{11}N_3O_3S_2$** Sulfathiazole, reaction product with AcH, 4237*i*.

**$C_{11}H_{11}N_3O_3$** Salicylamide, *N*-(1-methyl-4-oxo-2-imidazolidylidene)-, P 4431*g*.

**$C_{11}H_{11}N_3O_3S$** Benzenesulfonamide, *p*-hydrazino-, hydrazone with 2-furaldehyde, 601*c*.
3-Benzothiazolineacetic acid, 2-nitrosoimino-, Et ester, 5022*d*.
Methanesulfinic acid, [6-(2-pyridyloxy)-3 - pyridylamino]-, *Na salt*, P 3471*a*.

**$C_{11}H_{11}N_3O_3S_2$** Acetanilide, *p*-2-thiazolylsulfamyl-, P 3978*f*.

**$C_{11}H_{11}N_3O_3S_3$** Acetanilide, α-mercapto-*p*-2-thiazolylsulfamyl-, 1347*h*.

**$C_{11}H_{11}N_3O_4$** Salicylic acid, 3-amino-5-(3-methyl - 5 - oxo - 2 - pyrazolin - 1 - yl)-, P 4486*i*.

**$C_{11}H_{11}N_3O_4S$** Methanesulfonic acid, [6-(3-pyridyloxy) - 3 - pyridylamino]-, *and alkali metal salts*, P 3470*h*.

**$C_{11}H_{11}N_3O_4S_2$** Acetanilide, *p* - (4 - hydroxy-2-thiazolylsulfamyl)-, P 686*f*, P 3852*b*
Benzenesulfonamide, 2 - amino - 5 - (2-pyridylsulfonyl)-, P 7042*b*, P 7961*f*
2 - Pyridinesulfonamide, 5 - sulfanilyl-, P 7963*f*.
4 - Thiazoleacetic acid, 2 - sulfanilamido-, P 2644*i*.
5 - Thiazolecarboxylic acid, 4 - methyl - 2-sulfanilamido-, P 2644*i*.

**$C_{11}H_{11}N_3O_5S_2$** Glycolic acid, (*p*-2-thiazolylsulfamylanilino)-, P 7962*g*.

**$C_{11}H_{11}N_3O_6$** *m* Acetotoluidide, 6-acetyl-2,4-dinitro-, 1781*e*.

**$C_{11}H_{11}N_3O_7$** Propionic acid, α-picryloxy-, Et ester, 2942*g*.

**$C_{11}H_{11}N_3S$** 2-Pyrimidinethiol, 4-anilinomethyl-, 8395*e*.
2-Pyrimidinethiol, 4-*p*-toluidino-, 8395*e*.

**$C_{11}H_{11}N_4NaO_2S$** See "sodium deriv." under *Sulfamerazine*.

**$C_{11}H_{11}N_5$** Pyridine, 2,6-diamino-3-phenylazo-, P 7647*b*.
*s* - Triazine, 2,4 - diamino - 6 - styryl-, P 3854*i*.

**$C_{11}H_{11}N_5O$** Phenol, *o*-[2-(4,6-diamino-*s*-triazin-2-yl)vinyl]-, P 3854*i*.
4-Pyrimidol, 2-amino-6-methyl-5-phenylazo-, 3423*e*.

**$C_{11}H_{11}N_5O_2$** Isatin, 1-acetyl-, guanylhydrazone, 3428*e*.
4 - Pyrimidol, 2,6 - diamino - 5 - benzamido-, 652*c*.

**$C_{11}H_{11}N_5O_3$** Benzoic acid, 5-amino-2-(3-methyl - 5 - oxo - 2 - pyrazolin - 4 - ylazo)-, P 4864*h*, P 4865*dfg*, P 5195*i*.

**$C_{11}H_{11}N_5O_4$** Pteridinemethanol, 2-amino-4-hydroxy-, diacetate, 5404*g*.

**$C_{11}H_{11}N_5O_5S_2$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - (2 - hydroxyethyl) - 6 - (2 - hydroxy - 4 - nitrophenylazo) - 3 - thio-, 1,1 - dioxide, P 4868.

**$C_{11}H_{11}N_5O_6S_2$** Benzenesulfonic acid, 5 - nitro-2 - (tetrahydro - 2,4 - dimethyl - 5-oxo - 3 - thioxo - 1,2,4,2*H* - thiadiazin-6-ylazo)-, 1,1-dioxide, P 4868*g*.

**$C_{11}H_{11}N_5O_8S_2$** Benzenesulfonic acid, 4-(2-ethyltetrahydro - 3,5 - dioxo - 1,2,4,-2*H* - thiadiazin - 6 - yluzo) - 3 - nitro-, 1,1-dioxide, *Na salt*, P 4868*f*.

**$C_{11}H_{11}N_7O_2S$** Biguanide, 1-(*p*-nitrophenyl)-5-(2-thiazolyl)-, - *HCl*, 5777*d*.

**$C_{11}H_{12}$** 1,3-Butadiene, 2-methyl-3-phenyl-, 5392*e*.
Naphthalene, dihydromethyl-, 2174*a*, 3814*a*, P 7510*h*.
1,4-Pentadiene, 2-phenyl-(?), 3777*b*.

**$C_{11}H_{13}AsNO_3S_2$** Acetic acid, mercapto-, diester with *p*-carbamyldithiobenzenearsonous acid, 9249*i*.

**$C_{11}H_{13}BrCl_2$** Compd., bp.$_{1}$ 110–15°, 4637*a*.

**$C_{11}H_{12}BrN$** 1-Ethylquinolinium bromide, 2917*g*.

**$C_{11}H_{12}BrNO_2$** Acetamide, *N* - acetonyl - α-bromo-α-phenyl-, 7487*g*.
Propionamide, α - bromo - *N* - phenacyl-, 3005*d*.

**$C_{11}H_{12}BrNO_3S$** Alanine, *N*-acetyl-β-(*p*-bromophenylmercapto)-, 5845*e*.

**$C_{11}H_{12}Br_2O_2$** Hydrocinnamic acid, α,β-dibromo-, Et ester, 5754*c*.

**$C_{11}H_{12}ClNO$** (See also *Vitamin $K_5$.*)
Crotonanilide, α-chloro-*N*-methyl-, P 5413*h*.

**$C_{11}H_{12}C^1NOS$** 4-Thiazolidone, 2-(*p*-chlorophenyl)-3-ethyl-, 634*e*.

**$C_{11}H_{12}ClNO_2$** Pyruvyl chloride, phenyl-, ethyloxime, P 5422*d*

**$C_{11}H_{12}ClNO_3$** o Acetanisidide, 5-chloro-acetyl-, 7452*d*
β - Alanine, *N* - acetyl - *N* - (*p* - chlorophenyl)-, 8388*d*.
Alanine, chloroacetylphenyl-, 258*d*, 9089*d*, 9113*e*.

**$C_{11}H_{12}ClNO_3S$** 4 - Thiazolidone, 2 - (*p*-chlorophenyl) - 3 - ethyl-, 1,1 - dioxide, 634*f*.

**$C_{11}H_{12}ClNO_4$** Acetamide, α - chloro - *N* - (3,4 - dihydroxyphenacyl) - *N* - methyl-, 2601*h*.

**$C_{11}H_{12}ClN_3O$** Ethanol, 2 - [*N* - (4 - amino-6 - chloro - *s* - triazin - 2 - yl)anilino]-, 1426*d*.

**$C_{11}H_{12}Cl_2N_2O_4$** Acetanilide, *N*, *N*′ - (3,5 - dichlorosalicylidene)bis-, 6182*e*.

**$C_{11}H_{12}Cl_2N_2O_5$** See *Acetamide, α,α-dichloro-N [β - hydroxy - α - (hydroxymethyl) - p nitrophenethyl]*.

**$C_{11}H_{12}Cl_2O_2$** *m*-Dioxane, 5 chloro-4-(chloromethyl) 2-phenyl-, 6976*d*.

**$C_{11}H_{12}Cl_2O_3$** Acetic acid, (2,4 dichlorophenoxy)-, iso-Pr ester, 343*c*, 1893*i*, 3135*a*, 5893*d*, 6775*h*, Pr ester, 5145*l*.
Benzoic acid, 3,4-dichloro-, 2-ethoxyethyl ester, 569*e*.
Propionic acid, α-(2,4-dichlorophenoxy)-, Et ester, 4248*e*.

**$C_{11}H_{12}Cl_2O_4$** 3,4-Furandicarbonyl chloride 2-(5-hydroxyamyl)-, P 5805*f*.
Vanillic acid, 2,2′-dichloroisopropyl ester, 4242*a*, 7455*g*; 2,3-dichloropropyl ester, 4242*a*, 7455*g*.

**$C_{11}H_{12}Cl_3NO_4$** Propane, 1 - ethoxy - 2 - (3,4 trichloro - 2 - nitrophenoxy)-, P 5421

**$C_{11}H_{12}Cl_4$** Cumene, *p*-(1,2,2,2-ethyl)-, P 8399*g*.

**$C_{11}H_{12}Cl_6N_2O_7SSb$** Chloroantimonic acid, sulfamylphenyl deriv., pyridine 602*b*.

**$C_{11}H_{12}F_3NO_2$** Acetamide, *N* - 2 - hydroxyethyl - α - (α,α,α - trifluoro-*o*-tolyl)-, 3362*d*.

**$C_{11}H_{12}F_3NO_3S$** Acetamide, *N* - 2 - hydroxyethyl - α - (α,α,α - trifluoro-*o*-tolylmercapto)-, 3365*e*.

**$C_{11}H_{12}F_3NO_3$** Acetamide, *N* - 2 - hydroxyethyl - α - (α,α,α - trifluoro-*o*-toloxy)-, 3364*g*.

**$C_{11}H_{12}HgO_4$** Benzoic acid, *p*-(acetoxymercuri)-, Et ester, 7922*f*.

**$C_{11}H_{12}HgO_4S$** Thianaphthene, 2-(acetoxymercuri) - 2,3 - dihydro - 3 - methyl-, 1,1-dioxide, 1763*a*.

**$C_{11}H_{12}IN$** 2,3-Dimethylisoquinolinium iodide, 3821*a*.

**$C_{11}H_{12}INO_3S$** Alanine, *N*-acetyl-β-(*p*-iodophenylmercapto)-, 3527*e*.

**$C_{11}H_{12}KNO_3$** Pyridinepyruvic acid, 1-methyloxo-, Et ester, K 6628*bc*.

**$C_{11}H_{12}N_2$** Imidazole, 1-benzyl-2-methyl-, 3410*e*.
Quinoline, 8 - aminodimethyl-, 8391*a*.

—, *p*-2-(2-aminoethyl)-, 3520*i*.
—, dimethylamino-, 1655*c*, 6113*a*; *and* - *HCl*, 4270*f*.

**$C_{11}H_{12}N_2O$** (See also *Antipyrine*.)
Acetamide, *N* - *α* - cyanobenzyl - *N*-methyl-, 6176*d*.
Imidazolemethanol, 1-benzyl-, 8382*b*; *and* - *HCl*, 3410*e*.
Pyrazolone, 2-benzyl-3-methyl-, 7934*d*.
—, 3-methyl-1-tolyl-, P 7746*e*, P 8150*e*, P 8153*d*.
Pyrimidone, 5,6 dihydromethylphenyl, 236*e*, 3822*b*.

**$C_{11}H_{12}N_2O_2$** (See also *Tryptophan*.)
Acetamide, *α* - cyano - *N* - 2 - hydroxyethyl-*α*-phenyl, 2273*e*.
5 - Benzimidazoleacetic acid, Et ester, 3363*g*.
2 - Benzimidazolemethanol, *α* - methyl-, acetate, 7018*g*.
Butyrophenone, *α* - diazo - *p* - methoxy-, 4653*h*
Carbamic acid, *α* cyanobenzyl-, Et ester, 4223*b*.
2 - Imidazolidone, 1 - acetyl - 5 - phenyl-, 3821*e*.
5 - Pyrazolone, 3 - ethoxy - 1 - phenyl, P 6930*d*.
3,6 \ Pyridazinedione, tetrahydro - 1 methyl-2-phenyl-, 570*g*.
3(2 *H*) - Pyridazone, 4,5 - dihydro - 6 methoxy 2 phenyl-, 570*h*
**H $_{11}$N$_2$O$_2$S** Acetic acid, (2 benzimidazolylmercapto), Et ester, 3365*d*
1 - Benzothiazolineacetic acid, 2 - imino, Et ester, 5022*i*
Hydantoin, 5-[(benzylmercapto)methyl], 7903*g*.
4 - Pyrimidol, 6 - [2 - (2 - furyl)ethyl] - 2 mercapto -, Me deriv., 7929*i*.
, 6 - (2 - furyl) - 2 - mercapto -, iso - Pr deriv., 7929*k*. Pt deriv., 7929*h*
Thiazole, 2 - amino - 4 - (3,4 - dimethoxyphenyl) -, *and HBr*, 2968*c*.
(2 *H*) - Thiophenone, 4 - benzamido-4,5 dihydro -, oxime, P 3468*d*.
**H $_{11}$N$_3$O$_2$S$_2$** Thiazole, 4,5 - dimethyl - 2 - sulfanilyl -, 6181*e*
Thiazole, 5 ethyl 2 sulfanilyl-, 6181*f*.
**H $_{11}$N$_3$O$_3$S** 2 - Benzothiazolesulfenamide, *N* - (tetrahydro - 3 - thienyl) -, dioxide, P 8196*a*
**H $_{11}$N$_3$O$_4$** Acetamide, *N* - (nitrofurfurylidenyl)-, 6166*b*, 5755*c*
Amine, glycylidehydrophenyl-, 6725*e*, 9113*f*
Benzimidazoleacetic acid, 2 - hydroxy -, Et ester, 3363*g*
Cinnamic acid, *α* - (*o*-aminoacetamido)-, 2758*d*.
Naphthamide, 5,6,7,8 - tetrahydro-1 - oxo -, 202*e*
*H*,3 *H*) - Quinazolinedione, 5 - (1 - hydroxyethyl)-methyl -, 6634*d*
**$_{11}$NO$_3$S** Benzenesulfonic acid, 2-amino-pyridine salt, 2594*a*
Butanone, 1 - diazo - 4 - (*p* - methylsulfonylphenyl) -, 1739*i*
Urea, 2 - amino -, benzenesulfonate, P 2301*i*.
**O$_3$** *m* - Acetotoluidide, 6 - acetyl - 4-nitro -, 1781*e*
Amic acid, *β*-*p*-nitroanilino-, Me ester, 46*a*
Amine, *N*-(*N*-benzoylglycyl)-, 9089*e*.
Amic acid, *N*-(carbamylmethyl) -, 782*a*
Morpholine, 4 - nitrobenzoyl-, 1145*a*, 3741*i*
**$_{11}$NO$_3$S** Hydantoin, 5-[*p*-(methylsulfonyl)benzyl]-, 6978*e*
**$_{11}$NO$_4$** Acetanilide, 4,5-(dimethylmethylenedioxy) 2 nitro -, 1413*g*.
**$_{11}$NO$_4$S** Seneciamide, *N*-(*p*-nitrophenylsulfonyl) -, P 1060*i*, P 7961*ch*.
**$_{11}$NO$_5$** Threonine, *N*-*p*-nitrobenzoyl-, 8659*a*.
**$_{11}$NS** Thiazole, 2-(2-aminoethyl)-4-phenyl -, 3520*h*.
Thiazole, 2 - benzylamino - 4 - methyl-, *HCl*, 4669*f*.
**$_{11}$NS$_2$** Hydantoin, 5-ethyl-5-phenyldithio -, 7586*a*.
**$_{11}$N$_2$O** (See also *Sulfamerazine*.)
Benzenesulfonamide, *p* - hydrazino - *N*-methyl -, 601*a*.
Carbamide, *N*'- (4 - methyl - 2 - pyrimidyl) -, P 7517*c*.
Carbamide, *N*'- (6 - amino - 3 - pyridyl) - 17.38*g*
methyl - 3 - pyridazyl)-,
**$_{11}$N$_2$O$_2$S** Sulfanilamide, *N*$^1$-(5-cyclopropyl-1,3,4-thiadiazol-2-yl)-, 5800*i*.
**$(C_{11}H_{12}N_4O_2S_2)_n$** Sulfanilamide, *N*$^1$-(5-ethyl-1,3,4 - thiadiazol - 2 - yl)-, reaction product with HCHO, 4237*i*.
**$C_{11}H_{12}N_4O_3S$** Hydrazine, 1-(1-methylimidazolylcarbonyl) - 2 - (phenylsulfonyl)-, 8381*h*.
Sulfanilamide, *N*$^1$ - (4 - methoxy - 2 - pyrimidyl)-, 275*e*.
**$C_{11}H_{12}N_4O_4$** 3 - Buten - 2 - one, 3 - methyl-, 2,4 - dinitrophenylhydrazone, 565*b*
1 - Penten - 3 - one, 2,4 - dinitrophenyl hydrazone(?), 565*b*.
**$C_{11}H_{12}N_4O_4S$** Acetanilide, *p*-(4-oxo-2-imidazolidylidenesulfamyl)-, P 6234*e*.
**$C_{11}H_{12}N_4O_4S_2$** Benzenesulfonamide, 2-amino-5 - (5 - amino - 2 - pyridylsulfonyl)-, P 7961*g*.
**$C_{11}H_{12}N_4O_5$** 2 - Furaldehyde, tetrahydro-, 2,4 - dinitrophenylhydrazone, 9061*a*.
*p* - Toluic acid, 3,5 - dinitro-, isopropylidenehydrazide, 6972*e*; propylidenehydrazide, 6972*d*.
*s* Triazolo[2,3 - *a*]pyrimidine - 2,6 - dicarboxylic acid, 5 - hydroxy-, di - Et ester, P 4165*f*.
**$C_{11}H_{12}N_4O_4S$** 1,2,4,2 *H* - Thiadiazine - 3,5-(4 *H*,6 *H*) - dione, 6 - *o* - phenetylazo-, 1,1-dioxide, P 4868*e*.
**$C_{11}H_{12}N_4O_5$** Isovaleric acid, α-oxo-, 2,4-dinitrophenylhydrazone, 6075*c*.
**$C_{11}H_{12}N_4O_4S$** Butyric acid, *γ*-methylmercapto - *α* - oxo-, 2,4 - dinitrophenylhydrazone, 5342*h*.
**$C_{11}H_{13}N_3O_2$** Proline, picrate, 6615*d*.
**$C_{11}H_{12}N_2O$** Acetanilide, (4,6-diamino *s*-triazin-2-yl)-, 238*d*.
**$C_{11}H_{12}N_6O_2$** Glycine, *N*-[(4,6-diamino-*s*-triazin 2-yl)phenyl]-, 238*f*.
Histamine, 2-(*p*-nitrophenylazo)-, 5058*f*.
**$C_{11}H_{12}N_4O_3$** 4(1 *H*) - Pyrimidone, tetrahydro 2 - imino - 6 - methyl-, picrate, 3793*i*.
**$C_{11}H_{13}N_5$** Biguanide, 1-phenyl-5-(2-thiazolyl)-, - *HCl*, 5777*c*, 7905*g*.
**$C_{11}H_{12}O$** 3 Butyn-2 ol, 2-methyl-4-phenyl, 2182*b*.
Butyrophenone, *α*-methylene-, 1757*g*.
Cyclopentanone, 3-phenyl-, 3398*i*.
Furan, 2,3-dihydro-3-methyl-2-phenyl-, 4255*b*
1-Indanone, dimethyl, 208*i*, 1757*j*.
—, 2-ethyl-, 1390*b*, 1757*f*.
2,4 - Pentadien - 1 - ol, phenyl-, 2576*d*.
4-Pentenophenone, 3716*e*, 4955*e*.
**$C_{11}H_{12}OS$** Acetic acid, thiol-, 2-indanyl ester, P 2805*d*.
**$C_{11}H_{12}O_2$** Cinnamic acid, Et ester, 2591*f*, 3681*i*, 5754*c*, 9024*c*, 9334*c*.
Cinnamic acid, dimethyl-, 1745*bc*.
—, *β*-ethyl-, 3351*g*.
*m*-Dioxane, 2-benzylidene-, 1404*g*.
Hydrocinnamic acid, *β*-vinyl-, 3351*g*.
Isovaleric acid, *γ*-hydroxy-*γ*-phenyl, *γ*-lactone, 4255*c*.
Methacrylic acid, benzyl ester, 9334*c*.
1,4-Naphthalenediol, 2-methyl-, 8059*k*.
1(2 *H*) - Naphthalenone, 3,4 - dihydro-methoxy-, 2971*a*, 4251*a*, 7010*i*.
2 - Naphthoic acid, 5,6,7,8 - tetrahydro-, 195*g*, 7010*i*, 7011*a*, P 7511*b*.
1,4 - Naphthoquinone, 4a,5,8,8a - tetrahydromethyl-, 2613*f*, P 3650*e*.
1,4-Pentanedione, 1-phenyl-, 2991*a*.
Pentenoic acid, phenyl-, 3351*gh*.
Phthalide, 3-ethyl-3-methyl-, 7925*g*.
Tricyclo[4 2.2.0$^{2,5}$] - 3,9 - decadiene - 7-carboxylic acid, 6197*h*.
Valeric acid, *γ*-hydroxy-*γ*-phenyl-, *γ*-lactone, 8372*b*
**$C_{11}H_{12}O_2S$** Acetic acid, thiol-, *p*-methoxystyryl ester, 7417*i*.
Cinnamic acid, 5-methyl-2-methylmercapto-, 1746*c*.
**$C_{11}H_{12}O_2S_4$** Carbonic acid, trithio-, cyclic 3-*p* - tolylsulfonylpropylene ester, 7419*b*.
**$C_{11}H_{12}O_3$** Acetic acid, benzoyl-, Et ester, 228*h*, 572*d*, 1007*i*, 1010*f*, 2582*h*.
Acetophenone, 4-hydroxy-2-methyl-, acetate, P 5044*e*.
Benzofuran, 5,6 - dimethoxy - 3 - methyl-, 7460*e*.
Benzoic acid, *o*-acetyl-, Et ester, 2974*e*.
1,3 - Butanedione, 2 - methoxy - 1-phenyl-, 4248*d*
2 - Butanone, 4 - (3,4 - methylenedioxyphenyl)-, 2186*b*.
3 - Buten - 2 - one, 4 - (4 - hydroxy - 3-methoxyphenyl)-, 2185*e*, 5763*d*.
Butyric acid, benzoyl-, 2273*h*, 3366*f*, 6625*a*.
4 - Chromanone, 7 - methoxy - 2 - methyl-, 1771*d*.
Cinnamaldehyde, 3,4-dimethoxy-, 1181*i*.
Cinnamic acid, *o*-ethoxy-, 1030*e*.
—, methoxy-, Me ester, 6168*h*, 9172*a*.
—, methoxy-*α*-methyl-, 1745*e*.
Glycidic acid, *β*-phenyl-, Et ester, 7420*g*.
1-Indanone, 5,6-dimethoxy-, 4251*b*.
Isobutyric acid, *β*-benzoyl-, P 8402*a*.
Isomyristicin, 602*e*, 2212*a*, 9046*e*.
Malonaldehydic acid, phenyl-, Et ester, 1007*i*.
Mysticin, 602*e*, 7451*f*, 8573*e*.
2 - Naphthoic acid, 5,6,7,8 - tetrahydrohydroxy-, 7011*b*, P 7511*a*.
1,4 - Naphthoquinone, 4a,5,8,8a - tetrahydro - 6 - methoxy-, 2613*b*.
1 Propanol, 1,3 di 2 furyl-, 3407*d*.
1 - Propanone, 1 - (1,4 - benzodioxan-5-yl)-, 186*d*.
Propionic acid, *β*-toluyl, 4241*h*.
Stearoptene apiole, 8573*e*.
**$C_{11}H_{12}O_4$** Acetic acid, (acetylphenoxy)-, Me ester, 3364*e*.
Acetic acid, (6-acetyl-*m*-toloxy)-, 3413*c*.
Benzoic acid, *o*-(3-carboxypropyl)-, 5753*e*.
—, *p* - (2,3 epoxypropoxy)-, Me ester, P 5794*g*.
—, 2-ethyl-3 hydroxy-, acetate, 197*c*.
4 - Chromanone, 7,8 - dihydroxy - 2,2-dimethyl-, 1771*e*.
Cyclopentadienone, 2 - acetyl - 5 - ethyl-4-hydroxy-, acetate, 2585*f*.
Erythrose, 2,4-benzylidene-, 5747*e*.
Ethylene glycol, acetate benzoate, P 1795*i*.
2-Furanacrylic acid, *α* acetyl-, Et ester, 9334*c*.
Homophthalic acid, Et ester, 1045*f*.
Homoterephthalic acid, *α*,*α*-dimethyl-, 5762*f*, 6993*f*.
—, *α*-ethyl-, 9055*g*.
Hydrocoumarin, 6,7 dimethoxy-, 7460*i*
Isoxylic acid, 6 hydroxy-, acetate, 2973*a*.
Ketone, 2,3 - dihydro - 6 - hydroxy - 4-methoxy - 7 - benzofuryl methyl, 3413*h*
Mesitylenic acid, 2 hydroxy, acetate, 2973*a*.
Phenol, 2,6-diacetyl-3-methoxy-, 3414*d*.
Piperonylic acid, Pr ester, 3555*c*.
1,2 - Propanedione, 1 - (3,4 - dimethoxyphenyl)-, 1741*c*.
Propionic acid, piperonyl ester, 3555*d*.
—, *β*-anisoyl, 4241*h*, P 7848*d*
—, *β*-*m*-methoxybenzoyl, P 7509*g*
Salicylic acid, Me ester, propionate, P 4701*h*.
Succinic acid, benzyl 1747*d*, 2168*b*, 2273*h*, 6611*f*.
Terephthalic acid, methyl-, di-Me ester, 7913*i*.
Vanagone, dihydro-, 3413*i*
3,4-Xylic acid, 6-hydroxy-, acetate, 2973*a*.
**$C_{11}H_{12}O_4S$** Malonic acid, allylthenyl-, 1778*b*.
Pyruvic acid, (3,4-dimethoxyphenyl)-*α*-thio-, 3820*d*.
Succinic acid, (benzylmercapto)-, 1321*d*.
**$C_{11}H_{12}O_5$** Acetaldehyde, (6-hydroxyveratroyl)-, 7461*d*.
Acetic acid, (*p*-hydroxyphenyl)-, ester with EtH carbonate, 3361*a*.
Anisic acid, *α*-carboxy-, di-Me ester, 3364*e*.
1,3 - Dioxolane - 4 - methanol, 2 - (3,4-methylenedioxyphenyl)-, 3555*c*.
Hydrocinnamic acid, 3 - methoxy 4,5-methylenedioxy-, 602*f*.
Opianic acid, Me ester, 1318*c*.
Purpurogallin, tetrahydro-, 3403*a*.
Pyruvic acid, (2,5-dimethoxyphenyl)-, 6599*h*.
Resorcinol, 4-methoxy-, diacetate, 3823*e*.
Sinapic acid, *and K salt*, 8452*g*.
Terephthalic acid, methoxy-, Me ester, 7925*f*.
**$C_{11}H_{12}O_6$** *γ*-Resorcylic acid, 3-acetyl-4-methoxy-, Me ester, 3414*a*.
**$C_{11}H_{12}O_7$** Benzoic acid, 4-(carboxymethoxy)-3,5-dimethoxy-, 1029*h*.
Malonic acid, (2,6-dimethoxyphenoxy)-, 1030*b*.
**$C_{11}H_{13}O_8P_2$** 1,4-Naphthalenediol, 2-methyl-, diphosphate, 4414*h*, 9247*f*.
**$C_{11}H_{13}AsN_2O_3$** Acetic acid, mercapto-, ester with dithio-*p*-ureidobenzenearsonous acid, 8559*b*.
**$C_{11}H_{13}AsO_3$** Valeric acid, *δ*-(*p*-arsenosophenyl)-, 4237*c*.
**$C_{11}H_{13}BrN_2O_2$** Acetamide, *N*, *N*'-(bromotolylene)bis-, 6992*e*.
**$C_{11}H_{13}BrN_4$** 1 *H* - Tetrazole, 5 - (1 - bromoisobutyl)-1-phenyl-, P 7971*e*.
**$C_{11}H_{13}BrO_2$** Acetic acid, bromophenyl-, iso-Pr ester, 2189*d*.
Butyrophenone, *α* - bromo - *p* - methoxy-, 603*g*.

*m*-Dioxane, 2-α-bromobenzyl-, 1404*c*.
Hydrocinnamic acid, 2-bromoethyl ester, 1404*d*.
Propiophenone, α-bromo-*p*-ethoxy-, 232*h*.
2*H* - Pyran, 2 - (*p* - bromophenoxy)tetrahydro-, 2204*b*.

**$C_{11}H_{13}Br_2NO$** 2,6 - Propionoxylidide, α,β-dibromo-, 1025*d*.

**$C_{11}H_{13}Cl$** Naphthalene, 6-(chloromethyl)-1,2,3,4-tetrahydro-, P 4300*d*.
1 - Pentene, 4-chloro - 4 - phenyl-, 3777*b*.

**$C_{11}H_{13}ClN_2O_2$** Urea, [α - (*p* - chlorophenyl)-butyryl]-, 2160*f*.

**$C_{11}H_{13}ClN_2O_2S$** 2 - Amino - 3 - (carboxymethyl)benzothiazolium chloride, Et ester, 5022*c*.

**$C_{11}H_{13}ClN_2O_3$** Acetamide, *N*,*N'* - (5 - chlorosalicylidene)bis-, 6182*c*.
Barbituric acid, 5-allyl-5-(3-chloro-2-butenyl)-, 1725*i*, 1726*a*.

**$C_{11}H_{13}ClN_2O_4$** Acetanilide, 5-chloro-2-isopropoxy-4-nitro-, P 3034*b*.

**$C_{11}H_{13}ClN_4$** Guanidine, 1 - (*p* - chlorophenyl)cyanoisopropyl-, P 1799*e*, 5746*h*.

**$C_{11}H_{13}ClN_4O_4$** Malonic acid, (2-chloro-5-nitro - 4 - pyrimidylamino)-, di - Et ester, P 9088*a*.

**$C_{11}H_{13}ClO$** Benzoyl chloride, *p*-butyl-, 7004*i*.
Propiophenone, β-chloro-3,4-dimethyl-, 208*e*.

**$C_{11}H_{13}ClO_2$** Acetyl chloride, (2-ethyl-3-methoxyphenyl)-, 198*a*.
Butyric acid, γ - (4 - chloro - *m* - tolyl)-, 1378*h*.
Hydrocinnamic acid, *p*-chloro-β,β-dimethyl-, 2273*h*.

**$C_{11}H_{13}ClO_3$** Acetic acid, (4-chloro-*o*-toloxy)-, Et ester, 1514*d*.
Benzoic acid, *p*-chloro-, 2-ethoxyethyl ester, 569*d*.

**$C_{11}H_{13}ClO_3S$** Benzoyl chloride, *p*-(butylsulfonyl)-, P 7706*c*.
2 - Butanone, 1 - chloro - 4 - (*p* - methylsulfonylphenyl)-, 1740*a*.

**$C_{11}H_{13}ClO_4$** Vanillic acid, chloropropyl ester, 4242*a*, 7455*g*.
Vanillic acid, 5-chloro-, Pr ester, 4242*c*.

**$C_{11}H_{13}Cl_2NO$** Benzamide, *N*,*N*-bis(2-chloroethyl)-, 7423*c*.
Phenol, 2,6-dichloro-4-(1-piperidyl)-, P 9355*b*.

**$C_{11}H_{13}Cl_2NO_2$** Benzoic acid, *p*-[bis(2-chloroethyl)amino]-, 7443*c*.

**$C_{11}H_{13}Cl_2NO_3S$** Propionamide, *N*-(3,4-dichlorophenylsulfonyl) - *N* - ethyl-, P 2364*c*.

**$C_{11}H_{13}Cl_2NO_4$** Ethane, 1 - (2,5 - dichloro - 4-nitrophenoxy)-2-isopropoxy-, P 5421*f*.

**$C_{11}H_{13}Cl_2N_3$** Guanidine, 1-(5,6-dichloro-2-benzimidazolyl) - 3 - isopropyl-, *and salts*, 1405*g*.

**$C_{11}H_{13}Cl_2Hg_2NS_2$** Isothiocyanic acid, 2-(benzylmercapto)propyl ester, compd. with $2HgCl_2$, 1321*d*.

**$C_{11}H_{13}FO_2$** Hydrocinnamic acid, *p*-fluoro-β,β-dimethyl-, 2273*h*.

**$C_{11}H_{13}IN_2$** 1 - Methyl - 4 - methylaminoquinolinium iodide, 4276*h*.

**$C_{11}H_{13}IN_2O$** Benzoic acid, *m*-iodo-, butylidenehydrazide, 6973*e*; *sec*-butylidenehydrazide, 6973*f*; isobutylidenehydrazide, 6973*e*.

**$C_{11}H_{13}IO_2$** 1-Butanol, 3-iodo-, benzoate, P 4690*f*.
Hydrocinnamic acid, *p*-iodo-β,β-dimethyl-, 2273*h*.

**$C_{11}H_{13}N$** Hydratroponitrile, *p*,α-dimethyl-, 6993*h*.
2-Indenemethylamine, *N*-methyl-, *and* - *HCl*, P 1441*b*.
Isoquinoline, 3,4 - dihydrodimethyl-, 5026*a*.

**$C_{11}H_{13}NO$** Acetamide, *N*-allyl-α-phenyl-, 2269*i*, P 3574*d*
Acetonitrile, (2-ethyl-3 methoxyphenyl)-, 198*e*.
Benzonitrile, 2 - isopropyl - 3 - methoxy-, 185*e*.
3 - Buten - 2 - one, 4 - *p* - toluidino-, 7937*e*.
Compd., m. 132–4°, 6993*g*.
1 - Indanone, 5,6 - dimethyl-, oxime, 208*f*.
1 - Indolemethanol, 2,3 - dimethyl-, 8892*h*.
Isocyanic acid, α,α - dimethylphenethyl ester, P 5800*h*.
5*H* - Pyrido[1,2,3 - *de*] - 1,4 - benzoxazine, 2,3,6,7-tetrahydro-, P 2782*e*.
6 - Quinolinecarboxaldehyde, 1,2,3,4-tetrahydro - 1 - methyl-, 3427*h*.
*m* - Tolunitrile, 6 - ethyl - 5 - methoxy-, 186*a*.

**$C_{11}H_{13}NOS$** 2 - Benzothiazolemethanol, α-propyl-, 7476*a*.
Morpholine, 4 - thiobenzoyl-, 2187*i*, 5027*g*.
4-Thiazolidone, 3-ethyl-2-phenyl-, 634*c*.

**$C_{11}H_{13}NOS_2$** Benzothiazole, 2-(2-ethoxyethylmercapto)-, 4415*a*.

**$C_{11}H_{13}NO_2$** Acetamide, *N*-allyl-α-(*p*-hydroxyphenyl)-, 3362*d*
*o*-Acetoacetotoluidide, P 8174*f*
Acetotoluidide, acetyl-, 1781*d*.
Benzaldehyde, *p* - 4 - morpholinyl-, P 2233*a*.
1,4 - Benzodioxanmethylenimine, α-ethyl , 186*d*.
2(3*H*) - Benzoxazolone, 3 - butyl-, 6615*e*.
—, 3-ethyl-5,6-dimethyl-, 6615*h*.
—, 3-isobutyl-, 6615*e*.
Bicyclo[2 2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-ethyl , P 4421*f*.
Cinnamamide, *N* - 2 - hydroxyethyl-, 2273*e*.
—, methoxy-α-methyl-, 1745*e*.
Hydratroponitrile, 3,5 - dimethoxy-, 8384*b*.
7 - Isoquinolinol, 2 - acetyl - 1,2,3,4-tetrahydro-, 6632*f*.
Levulinamide, 4640*e*.
1 - Naphthoic acid, 3 - amino - 5,6,7,8-tetrahydro-, *and HCl*, 202*i*.
Phthalide, 3 (1-aminopropyl)-, P 7510*d*.
Phthalimidine, 3-isopropoxy-, 623*g*.
—, 3-propoxy-, 623*g*.

**$C_{11}H_{13}NO_2S$** Butyronitrile, γ (*p* methylsulfonylphenyl)-, 1740*a*.
Morpholine, 4-thiosalicyloyl , 5027*h*.

**$C_{11}H_{13}NO_3$** (See also *Hydrastinine* ) 162*a*.
Acetamide, *N*-homopiperonyl-, 1412*h*
Acetanilide, 3,4 - (dimethylmethylenedioxy)-, 1413*g*
*o*-Acetoacetanisidide, P 8156*e*.
Acetophenone, α - amino - 4 - hydroxy-2 - methyl , acetate, - *HBr*, P 5044*a*.
Alanine, *N*-acetyl-β-phenyl-, P 7956*d*.
—, *N*-benzoyl-, Me ester, 1323*e*.
—, *N*-phenylacetyl-, 2269*h*, 5765*c*
β - Alanine, *N* - acetyl - *N* - phenyl-, 3822*a*.
Anthranilic acid, *N* acetyl-*N*-methyl , Me ester, 4574*h*.
Bicyclo[5 3 1] - 1(11),7,9 - hendecatrien-11-ol, 9-nitro-, 161*h*
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-2-hydroxyethyl-, P 4421*f*.
Butyric acid, β-benzamido-, 7427*g*.
4 - Chromanone, 7 - methoxy - 2 - methyl-, oxime, 1771*d*.
Diformanilide, 4 - hydroxy - 2,3,5 - trimethyl-, 180*d*.
Glycine, *N* - benzyl - *N* - formyl-, Me ester, 3411*b*.
Hippuric acid, Et ester, 573*a*.
Hydrocinnamic acid, β-acetamido-, 3822*a*.
Isobutyric acid, α-benzamido-, 8383*f*.
Mesitylenic acid, 2-acetamido-, 5402*h*.
Nicotinic acid, tetrahydrofurfuryl ester, 9254*d*.
Phthalamic acid, *N*-ethyl-*N*-methyl-, P 5038*b*.
1 - Propanone, 1 - (1,4 - benzodioxan-5-yl)-, oxime, 186*d*.
3 - Pyridineglycidic acid, β - methyl-, Et ester, 1764*i*.
Pyruvic acid, phenyl-, *O*-ethyloxime, P 5422*d*.

**$C_{11}H_{13}NO_3S$** Cyclopentanone, oxime, benzenesulfonate, 2594*c*.
1,3,4*H* - Oxazine, 5,6 - dihydro - 2-(*p* - methylsulfonylphenyl)-, P 7512*i*.
Serine, *N*-thiobenzoyl-, Me ester, 3786*i*.
4 - Thiazolidone, 3 - ethyl - 2 - phenyl-, 1,1-dioxide, 634*f*.

**$C_{11}H_{13}NO_4$** Acetamide, *N*-(3,4-dihydroxyphenacyl) - *N* - methyl , 2601*h*.
β-Alanine, *N*-mandelyl-, 2680*h*.
Allothreonine, *N*-benzoyl-, 4225*b*, 6169*f*.
Aspartic acid, *N*-benzyl-, 1352*e*.
Benzoic acid, *p*-nitro-, iso-Bu ester, 1896*c*, 8600*a*.
Benzyl alcohol, α-1-nitroethyl-, acetate, 6999*e*.
Homopiperonylamide, *N* - 2 - hydroxyethyl-, 3362*d*, 3364*b*.
Hydrocinnamamide, 3 - methoxy - 4,5-methylenedioxy-, 602*f*.
Propiophenone, 4 - methoxy - 2 - methyl-5-nitro-, 3385*g*.
Pyridinepyruvic acid, dihydro - 1-methyloxo-, Et ester, 6628*cd*.
Succinamic acid, *N*-benzyl-α-hydroxy-, 1352*i*.
Threonine, benzoate, 9033*f*.
—, *N*-benzoyl-, 4225*c*, 9033*e*.
Tyrosine, *N*-acetyl-, 708*h*.
Valeric acid, δ-(*p*-nitrophenyl)-, 4237*b*.

**$C_{11}H_{13}NO_4S$** Acetanilide, *p*-(acetonylsulfonyl)-, 2593*e*.

**$C_{11}H_{13}NO_4S_2$** Acetic acid, [*p*-(allylsulfamyl)-phenylmercapto]-, 3365*b*.

**$C_{11}H_{13}NO_5$** 2 - Butanone, 4 - (4 - hydroxy - 3-methoxy - 5 - nitrophenyl)-, 7001*f*.
Peroxybenzoic acid, *p*-nitro-, *tert*-butyl ester, 6189*f*.
Salicylic acid, 4-nitro-, Bu ester, 6596*e*; isobutyl ester, 6596*e*.

**$C_{11}H_{13}NO_6$** 2,6 - Pyridinedicarboxylic acid, 3,5-diethoxy-, 3824*d*.
2,3,5 - Pyrroletricarboxylic acid, 4-methyl-, Et Me ester, 623*c*.

**$C_{11}H_{13}NO_7$** Benzaldehyde, 4,5-bis(methoxymethoxy)-2-nitro-, 627*i*.

**$C_{11}H_{13}NO_8$** 3-Furanmethanediol, 5-nitro-, diacetate, compd. with AcOH, 7015*c*.

**$C_{11}H_{13}NS$** Benzothiazole, 2-butyl-, 3716*d*.
Benzothiazole, 2-isobutyl-, 3716*d*.

**$C_{11}H_{13}NS_2$** Benzothiazole, 2-(isobutylmercapto)-, 4415*a*.
Isothiocyanic acid, 2-(benzylmercapto) propyl ester, 1321*d*.

**$C_{11}H_{13}N_2NaO_3S$** Irgamide, Na deriv., P 3457*e*.

**$C_{11}H_{13}N_3O$** Antipyrine, 4-amino-, P 8150*g*.
Cinnamaldehyde, β-methyl-, semicarbazone, 7413*i*.
1-Indanone, 3 methyl-, semicarbazone 7472*a*
3 - Pyrazolidone, 4 - ethyl - 5 - imino - 1 phenyl-, 7478*b*.
Pyrazolone, 5 - amino - 1 - ethyl - 2 phenyl-, P 7049*h*
—, 1 - (*p* - aminophenyl) - 3 - ethyl , 9461*h*.
—, 1 - (4 - amino - *o* - tolyl) - 3 - methyl- P 9461*h*

**$C_{11}H_{13}N_3O_2$** Benzimidazoleacetamide, *N* hydroxyethyl , 3364*c*.
Butyric acid, α-cyano-γ-phenoxy-, hydrazide, 4222*i*.
—, α,γ - dicyano - α - (2 - cyanoethyl) Et ester, P 3446*h*.
1(2*H*) - Naphthalenone, 3,4 - dihydro 6 hydroxy-, semicarbazone, 7010*e*
5 - Pyrazolone, 1 - (4 - amino - 2 - methoxyphenyl)-3-methyl-, P 9461*h*.
—, 3 - amino - 4 - (2 - phenoxyethyl) 7478*b*
1,2,4 - Triazocine - 3,5(2*H*,4*H*) - dion tetrahydro - 8 - phenyl-, 2604*h*.

**$C_{11}H_{13}N_3O_2S$** Acetamide, α - (2 - benzimidazolylmercapto) - *N* - 2 - hydroxyethyl-, 3365*e*.
Ethanesulfonamide, 2 - amino - *N* - quinolyl-, P 3450*g*.

**$C_{11}H_{13}N_3O_2S_2$** Sulfanilamide, *N*¹-(dimethylthiazolyl)-, P 3979*f*, 6180*i*.
Sulfanilamide, *N*¹-(4-ethyl-2-thiazolyl) 3097*f*, P 3979*f*.
—, *N*¹ - [2 - (2 - thiazolyl)ethyl]-, 6181

**$C_{11}H_{13}N_3O_3$** 5 - Benzimidazoleacetamide, hydroxy - *N* - 2 - hydroxyethyl- 3364*c*.
Butyric acid, α - oxo - γ - phenyl-, semicarbazone, *Na salt*, 2604*e*.
2 - Furaldehyde, tetrahydro-, *p* - nitrophenylhydrazone, 9061*a*.
Hydrocinnamoyl azide, 2,5-dimethoxy- 6600*b*.
Mesitylenic acid, 4-nitro-, ethylidene- drazide, 6972*h*.
Propionic acid, β-benzoyl-, semicarbazone, 2604*g*.
Propiophenone, 3,4-methylenedioxy- semicarbazone, 186*a*.
*p* - Toluic acid, 3 - nitro-, isopropylidene hydrazide, 6973*c*; propylidenehydrazide, 6973*b*.

**$C_{11}H_{13}N_3O_3S$** Sulfanilamide, *N*¹-(3,4-methyl-5-isoxazolyl)-, 321*h*, 5862

**$C_{11}H_{13}N_3O_3S_2$** Sulfanilamide, *N*¹ - (2 - droxy - 4 - methyl - 5 - thiazolylmethyl)-, 6181*c*.

**$C_{11}H_{13}N_3O_4$** *o* - Diacetotoluidide, 5 - nitro-, 592*f*.
Piperidine, 1 - (2,4 - dinitrophenyl)- 6175*b*.

**$C_{11}H_{13}N_3O_4S$** Benzenesulfonamide, *N*¹-ethoxy - 5 - oxo - 2 - pyrazolin - 1- P 6930*e*.
Butyric acid, β-[3-(*p*-nitrophenyl)-ureido]-, 168*h*.

**$C_{11}H_{13}N_3O_4$** β - Alanine, *N* - [(4 - nitrotolyl)carbamyl]-, 168*h*.
Butyric acid, [3-(*p*-nitrophenyl)ureido]- 168*g*.
Hydantoic acid, δ-(*p*-nitrophenyl)- ester, 168*i*.

$C_{11}H_{13}N_3O_6$ β-Alanine, *N*-[(2-methoxynitrophenyl)carbamyl]-, 168*h*.
Isophthalaldehydic acid, 2,6-dihydroxy-4-methoxy-, Me ester, semicarbazone, 3414*a*.
Valine, *N*-(2,4-dinitrophenyl)-, 7370*b*
$C_{11}H_{13}N_3O_8S$ (Carboxyethyl)dimethylsulfonium picrate, 2571*g*.
$C_{11}H_{13}N_3O_{10}S$ (Carboxyethyl)dimethylsulfonium styphnate, 2571*g*.
$C_{11}H_{13}N_5$ Histamine, 2-phenylazo-, 5058*f*.
1*H*-Tetrazole, 5-[(allylamino)methyl]-1-phenyl-, -*HCl*, P 7072*b*.
$C_{11}H_{13}N_5O_2$ 2-Pyrazolin-3-ol, 5-imino-4-(*p*-methoxyphenylazo)-1-methyl-, 4272*e*.
3-Pyrazolone, 3-amino-4-(*p*-methoxyphenylazo)-1-methyl-, 4272*d*.
$C_{11}H_{13}N_5O_3S$ Acetamide, α-(acetonylmercapto)-, 2,4-dinitrophenylhydrazone, 608*a*
$C_{11}H_{13}N_5O_7$ Piperidine, 2-amino-, picrate, 2594*d*.
$C_{11}H_{13}N_5O_8$ Hydracrylamidine, acetate, picrate, 5785*b*.
$C_{11}H_{13}N_7O_2S$ Sulfaguanidine, dilliurate, 3262*g*.
$C_{11}H_{14}$ Benzene, cyclopentyl-, 2957*f*, 3398*d*.
Benzene, (1,2-dimethylpropenyl)-, 6583*h*.
2-Butene, 2-methyl-3-phenyl-, 5392*d*.
2-*o*-tolyl-, 5012*d*
5*H*-Cycloheptabenzene, 6,7,8,9-tetrahydro-, 2965*d*
Cyclohexene, 1-(3-buten-1-ynyl)-methyl-, 1166*b*, 1174*d*
Indan, dimethyl-, 1172*h*, 2081
ethyl-, 2107*g*
Naphthalene, tetrahydromethyl-, 1731*g*, 1742*b*, 2606*g*, 3811*a*, P 7511*b*
Pentene, phenyl-, 5392*f*
Styrene, β-isopropyl-, 1597*e*, P 2816*g*
trimethyl-, 5293*b*
$C_{11}H_{14}AsNO_5S_2$ Acetic acid, mercapto-, diester with 4-hydroxy-3-(sulfinomethylamino)dithiobenzenearsenous acid, *bis* salt, 599*a*
$C_{11}H_{14}AsNO_5S_2$ Acetic acid, mercapto-, diester with 4-hydroxy-3-sulfomethylamino-dithiobenzenearsenous acid, *bis* salt, 599*a*
$C_{11}H_{14}BrCl_2N_3$ Biguanide, 1-(4-bromo-3,5-dichlorophenyl)-2-isopropyl-, *HCl*, 1:1 salt, P 1060, P 6223*a*
$C_{11}H_{14}BrNO$ 2,6-Propionoxylidide, α-bromo-, -*HCl* 1022*g*
$C_{11}H_{14}BrNO_2$ Butyramide, α-bromo-β-methoxy-, 1022*b*
$C_{11}H_{14}BrN_3O_3$ see *Lumarcon*
$C_{11}H_{14}BrNO_4$ 1,4-*H*-Pyridineacetamide, 3-bromo-*N*,*N*-diethyl-4-oxo-, 5780*b*
$C_{11}H_{14}ClNO$ Acetomesidide, α-chloro-, 1022*e*
Propionoxylidide, β-chloro-, 1022*e*
$C_{11}H_{14}ClNO_2$ β-Alanine, *N*-(*p*-chlorobenzoyl)-, Et ester, 8498
Benzoic acid, 2-(chloromethylamino)-, benzyl ester, *HCl*, 7423*b*
Ethanol, α-1-chloro-2-methylamino-ethyl-, acetate, -*HCl*, 2603*b*.
Formate, β-chloro-*N*-methyl-, acetate, -*HCl*, 2603*d*
$C_{11}H_{14}ClNO_3$ Carbamyl chloride, *N*-ethyl-*N*-(4-methoxy-, 2177*f*.
$C_{11}H_{14}ClNO_3S$ Acetic acid, chlorosulfo-, 2-methylanilinomethyl ester, P 3574*b*, P 4475*a*.
$C_{11}H_{14}ClN_5$ Biguanide, 1-allyl-5-(*p*-chlorophenyl)-, P 6659*f*
Guanidine, 1-(3-chloro-2-benzamidazolyl)-3-isopropyl-, *and di-HCl*, 4650
Guanine, 4-amino-6-(*p*-chlorobenzyl)-7,8-dihydro-2,2-dimethyl-, 2950*g*
$C_{11}H_{14}ClN_5O_5$ Adenine, 2-chloro-9-glucopyranosido-, 1726*b*.
$C_{11}H_{14}N$- see also "Ks" under *Vitamins*.)
2-Pentanone, 2,6-dichlorophenylhydrazone, 6224
$C_{11}H_{14}Cl_2NO_2$ Benzylamine, *N*,*N*-bis(2-chloroethyl)-*p*-nitro-, -*HCl*, 4381*c*.
Diethylamine, 2,2'-dichloro-, methyl picrate, 3481*f*.
$C_{11}H_{14}Cl_2O_4$ Malonic acid, bis(3-chloro-2-butenyl)-, 1726*a*
$C_{11}H_{14}Cl_2N_2$ Benzylamine, chloro-*N*,*N*-bis(2-chloroethyl)-, 3481*c*
$C_{11}H_{14}Cl_2N_2O_3S$ *o*-Toluenesulfonamide, *N*-(2,2-dichloro-*tert*-butyl)-, 2936*b*.
$C_{11}H_{14}Cl_2N_4$ Biguanide, 1-isopropyl-5-(3,4,5-trichlorophenyl)-, -*HCl*, P 6645, P 6646, P 6691
Biguanide, 1-propyl-5-(3,4,5-trichlorophenyl)-, -*HCl*, P 6645, P 6223*f*.
$C_{11}H_{14}F_2N_2O$ Urea, 1,1-bis(2-fluoroethyl)-3-phenyl-, 2927*g*.
$C_{11}H_{14}I_2N_2O_3$ 1(4*H*)-Pyridineacetamide, *N*,*N*-diethyl-3,5-diiodo-4-oxo-, 5780*b*.
$C_{11}H_{14}I_2N_2O_4$ 1(4*H*)-Pyridineacetic acid, 3,5-diiodo-4-oxo-, compd with morpholine, P 4820*a*.
$C_{11}H_{14}HNa_2O_4$ Compd., decompg. at about 200°, 161*b*.
$C_{11}H_{14}N_2$ Butyronitrile, α-anilino-α-methyl-, 4415*i*.
Gramine, 3405*g*, 8379*i*.
2-Imidazoline, 2-benzyl-1-methyl-, 1869*b*
—, 2-phenethyl-, P 5048*i*.
Indole, 3-(2-aminoethyl)-1-methyl-, 1397*g*.
Piperidine, 2-phenylimino-, *and* -*HCl*, 2594*d*.
$C_{11}H_{14}N_2O$ (See also *Cytisine*.)
Benzimidazole, 2-(2-ethoxyethyl)-, 7018*g*.
3-Indolepropanol, β-amino-, 7020*b*
Nicotinonitrile, 6-butyl-1,2-dihydro-5-methyl-2-oxo-, 643*b*.
1-Pyrrolidinecarboxanilide, 8365*d*
$C_{11}H_{14}N_2OS$ Benzothiazole, 2-(2-dimethylaminoethoxy)-, -*HCl*, 5783*a*.
$C_{11}H_{14}N_2OS_2$ 1,3,5,2*H*-Thiadiazine-2-thione, tetrahydro-5-(2-hydroxyethyl)-3-phenyl-, 4415*b*.
$C_{11}H_{14}N_2O_2$ Acetanilide, *N*-(2-carbamylethyl)-, 3822*b*.
Aniline, *N*,*N*-dimethyl-*p*-(2-nitropropenyl)-, 6993*b*.
1,3,2*H*-Benzoxazine, 6-acetamido-3,4-dihydro-3-methyl-, 3425*h*.
3-Butenoic acid, 2,2-bis(2-cyanoethyl)-3-methyl-, 6579*a*.
Butyramide, β-benzamido-, 236*e*.
Glutaramide, α-(2-cyanoethyl)-α-isopropenyl-, 6579*b*.
Hippurimidic acid, Et ester, -*HCl*, P 672*h*.
Hydrocinnamamide, β-acetamido-, 236*e*.
4-Indanamine, *N*,*N*-dimethyl-7-nitro-, 616*b*.
Isobutyric acid, α-(benzylidenehydrazino)-, 1027*a*.
Malononitrile, bis(3-oxobutyl)-, 1011*d*.
Morpholine, 4-anthranoyl-, 3424*d*
4-Morpholinecarboxanilide, 8365*e*
Pimelonitrile, γ,γ-diacetyl-, 2582*k*
Piperidine, 1-(*p*-nitrophenyl)-, 594*g*.
Pyrrolidine, 1-(4-nitro-*m*-tolyl)-, 594*g*.
Urea, 1-butyryl-3-phenyl-, 6162*f*.
—, 2-ethylphenylacetyl-, 2169*f*.
—, phenylbutyryl-, 2169*f*, 9375*d*.
—, α-phenylisobutyryl-, 2169*e*.
$C_{11}H_{14}N_2O_2S$ Hydantoin, 1-butyl-5-(2-thienyl)-, 3426*f*.
Hydantoin, 3-*sec*-butyl-5-(2-thienyl)-, 3426*f*.
$C_{11}H_{14}N_2O_3$ Acetamide, *N*,*N'*-(2-methoxy-*p*-phenylene)bis-, P 8145*b*.
Acetanilide, 2-hydroxy-5-*N*-methylglycyl-, P 7667*a*.
2,4-Acetoxylidide, *N*-methyl-5-nitro-, 1343*f*.
Alanine, *N*-formyl-*N*-3-pyridyl-, Et ester, 576*a*.
Alanine, glycylphenyl-, 258*e*, 9148*d*; *and* -*HCl*, 8356*b*.
Asparagine, *N*-benzyl-, 1352*h*.
Benzamide, *N*-butylnitro-, 1145*b*, 2357*h*, 5897*g*, 7181*i*
—, *N*-*sec*-butylnitro-, 1145*a*, 2357*h*, 7181*i*
—, *N*,*N*-diethyl-*p*-nitro-, 2357*h*, 5897*e*
—, *N*-isobutyl-*m*-nitro-, 1145*b*, 7181*i*
Carbamic acid, (2-carbamylethyl)-, benzyl ester, 1418*b*
Isobutyrohydroxamic acid, α-benzamido-, 8383*e*.
Morpholine, 4-(4-nitro-*m*-tolyl)-, 594*h*.
Phloretamide, α-acetamido-, 7531*a*, 9112*i*.
Urea, α-phenoxybutyryl-, 2160*f*.
$C_{11}H_{14}N_2O_3S$ See *Irgamide*.
$C_{11}H_{14}N_2O_4$ Acetamide, *N*-(4-hydroxy-3-nitrophenethyl)-*N*-methyl-, 6597*f*.
Alanine, β-methoxy-*N*-phenylcarbamyl-, 7903*f*
Benzene, 1-(2-methyl-2-nitrobutyl)-4-nitro-, 8365*a*.
—, 1-nitro-4-(2-nitroamyl)-, 8365*a*.
1-Butanol, 2-amino-, *p*-nitrobenzoate, -*HCl*, P 4697*a*.
1-Propanol, 2-amino-2-methyl-, *p*-nitrobenzoate, -*HCl*, P 4697*a*.
2-Pyridinepyruvic acid, 1,6-dihydro-1-methyl-6-oxo-, Et ester α-oxime, 8623*h*.
Salicylamide, *N*-butyl-4-nitro-, 6596*f*.
—, *N*,*N*-diethyl-4-nitro-, 6596*f*.
—, *N*-isobutyl-4-nitro-, 6596*f*.
$C_{11}H_{14}N_2O_4S$ 4-Thiazolidinecarboxylic acid, 2-(3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridyl]-, 6454, 7234.
$C_{11}H_{14}N_2O_4S_2$ 1,4-Dithiepan-6-one, phenylhydrazone 1,1,4,4-tetraoxide, 4278*i*.
$C_{11}H_{14}N_2O_5$ Anisole, 2-*tert*-butyl-4,6-dinitro-, P 8100*g*
Carbamic acid, 5-nitro-2-propoxy-, Me ester, 169*a*
Homoanisamide, *N*-2-hydroxyethyl-3-nitro-, 3362*d*.
Phenol, amyldinitro-, 805*g*
Serine, β-(*p*-nitrophenyl)-, Et ester, -*HCl*, 7456*a*.
$C_{11}H_{14}N_2O_5S$ Glutaramic acid, *N*-sulfanilyl-, 2507.
$C_{11}H_{14}N_2S$ Isothiocyanic acid, allyl ester, compd with benzylamine, 6177*a*, 6900*b*, allyl ester, compd. with toluidine, 6177*a*, 6900*b*.
$C_{11}H_{14}N_4S_2$ 1,3,5,2*H*-Thiadiazine-2-thione, tetrahydro-3-methyl-5-*p*-tolyl-, 4415*b*
$C_{11}H_{14}N_4OS$ Benzamide, *N*-acetonyl-, thiosemicarbazone, 7178*b*
$C_{11}H_{14}N_4O_2$ Oxalic acid, 2-isopropylidenehydrazide 2-phenylhydrazide, 6972*c*; 2-phenylhydrazide 2-propylidenehydrazide, 6972*b*.
$C_{11}H_{14}N_4O_3$ Pyridine, 2,3,6-triacetamido-, 1425*f*.
$C_{11}H_{14}N_4O_4$ Butyraldehyde, α-methyl-, 2,4-dinitrophenylhydrazone, 3788*d*
Xanthine, 8-(hydroxymethyl)-1,3,7-trimethyl-, acetate, 3794*f*.
$C_{11}H_{14}N_4O_4S$ 2-Butanone, 4-methylmercapto-, 2,4-dinitrophenylhydrazone, 7434*b*.
$C_{11}H_{14}N_4O_5$ 1-Butanol, 2-nitro-2-(5-nitro-*m*-tolylazo)-, 4646*b*.
2-Butanone, 1-methoxy-, dinitrophenylhydrazone, 6157*e*
Compd., m. 128.8–9°, 565*b*
Isovaleraldehyde, β-hydroxy-, dinitrophenylhydrazone, 2571*a*
Propionaldehyde, α-ethoxy-, 2,4-dinitrophenylhydrazone, 2158*f*.
$C_{11}H_{14}N_4O_6$ 2-Butanone, 1-hydroxy-4-methoxy-, 2,4-dinitrophenylhydrazone, 2577*i*.
2-Pentanone, 1,5-dihydroxy-, 2,4-dinitrophenylhydrazone, 9061*ak*.
2-Propanone, 1,3-dimethoxy-, 2,4-dinitrophenylhydrazone, 4641*i*
$C_{11}H_{14}N_4O_{10}$ β-Alanine, Et ester, styphnate, 5788.
$C_{11}H_{14}N_4O_8$ Butyric acid, β-guanidino-, picrate, 3795*d*.
$C_{11}H_{14}N_4O_{10}$ Glutamic acid, hydrazide picrate, 2674*b*.
$C_{11}H_{14}O$ Acetophenone, trimethyl-, 2589*a*, 8367*d*.
Benzaldehyde, *p*-*sec*-butyl-, 3356*d*.
2-Butanone, 3-methyl-4-phenyl-, 5762*a*.
3-Buten-2-one, 4-(6-methyl-1,3-cyclohexadien-1-yl)-, 8360*e*.
Butyrophenone, *p*-methyl-, 2601*b*.
Cyclohexene, 1-(3,4-epoxy-3-methyl-1-butynyl)-, 1337*a*.
Cyclopentanol, 1-phenyl-, 3366*f*.
*p*-Cymenecarboxaldehyde, 5015*a*.
Ether, ethyl α-ethylidenebenzyl-, 7921*c*.
Furan, tetrahydro-3-methyl-2-phenyl-, 4255*c*.
Hydratropaldehyde, *p*,α-dimethyl-, 7917*b*.
Isobutyrophenone, *p*-methyl-, 2601*b*.
Isovalerophenone, 6178*c*.
2-Naphthalenemethanol, 5,6,7,8-tetrahydro-, P 7634*g*, P 9498*c*
2-Naphthol, 1,2,3,4-tetrahydro-1-methyl-, 2363*c*.
Pentanone, phenyl-, 2580*f*, 2932*b*, 5762*b*
1-Penten-2-ol, 2-phenyl-, 3776*i*.
Phenol, *p*-cyclopentyl-, 2971*b*.
—, α-(1-ethylpropenyl)-, 5392*a*.
Pivalophenone, 1340*e*, 3716*e*, 4651*g*, 4955*d*, 7452*g*.
Propiophenone, 2,5-dimethyl-, 6990*g*
2*H*-Pyran, 4-(3-buten-1-ynyl)-3,6-dihydro-2,2-dimethyl-, 2162*b*
$C_{11}H_{14}OS$ Benzoic acid, thiol-, butyl ester 8975*f*.
2-Butanone, 4-(benzylmercapto)-1321*d*.
Butyraldehyde, β-(benzylmercapto)-, 1664*c*.
Isobutyraldehyde, α-(benzylmercapto)-P 4688*d*.
Thianaphthene, 2,3-dihydro-3-methoxy-3,5-dimethyl-, 7475*b*.

**$C_{11}H_{14}O_2$** Acetic acid, phenyl-, Pr ester, 2591*d*.
Acetophenone, 4-ethoxy-3-methyl-, 3825*e*.
—, methoxydimethyl-, 7924*eg*.
*o*-Anol, 6-ethoxy-, P 3037*d*.
Benzene, 2 - allyl - 1,4 - dimethoxy-, 6599*f*.
—, 1 - (allyloxy) - 2 - ethoxy-, P 3037*d*.
Benzoic acid, Bu ester, 2591*d*; *tert*-Bu ester, 1349*e*, 6495*f*, 8808*g*.
—, *tert*-butyl-, 4234*b*.
—, tetramethyl-, 1619*e*, 2964*b*.
Benzyl alcohol, α - (allyloxymethyl)-, 5741*g*.
2-Butanone, 4-(methoxyphenyl)-, 1743*f*, 7001*gi*.
Butyric acid, γ-*p*-tolyl-, 4241*h*.
Butyrophenone, α - (hydroxymethyl)-, 1757*f*.
—, methoxy-, 2971*a*, 6974*i*.
5*H* - Cycloheptabenzene - 5,6 - diol, 6,7,8,9-tetrahydro-, 5753*d*.
*p*-Cymenecarboxylic acid, 5015*d*.
2 - Furanol, tetrahydro - 4 - methyl - 5-phenyl-, 4255*b*.
3,4,5-Hemimellitenol, acetate, 9043*i*.
Hydratropic acid, *p*,α-dimethyl-, 6993*g*, 7917*b*.
Hydrocinnamic acid, Et ester, 2591*d*.
—, dimethyl-, 5762*bc*, 7485*i*.
—, β-ethyl-, 3351*g*.
2-Naphthol, 1,2,3,4-tetrahydro-1-methoxy-, 2363*c*.
Phenethyl alcohol, propionate, 2372*g*.
—, β-(allyloxy)-, 5741*g*.
Phenol, 2-allyl-6-ethoxy-, P 3037*e*.
Pivalophenone, β-hydroxy-, 1757*f*.
Propionic acid, 2,5-xylyl ester, 613*h*.
Propiophenone, *p*-ethoxy , 231*e*.
—, 4-hydroxy-2,5-dimethyl-, 613*i*.
—, 4-methoxymethyl-, 3825*de*.
2*H*-Pyran, 2-(2-furyl)-3,6-dihydro-4,6 dimethyl-, P 3043*a*.
—, tetrahydro-2-phenoxy-, 2204*b*.
Pyrethrolone, 6988*c*.
Valeric acid, γ-phenyl-, 2248*f*.
Valerophenone, *p*-hydroxy-, 6616*b*.
Veratrole, 4-allyl-, 1181*i*, 3140*b*, 3566*gh*, 5550*b*.

**$C_{11}H_{14}O_2S$** Acetic acid, mesitylmercapto-, 3365*c*.
Acetic acid, phenethylmercapto-, Me ester, 3365*d*.
—, (3-phenylpropylmercapto)-, 3365*c*.
—, *p*-tolylmercapto-, Et ester, 3365*d*.
Isobutyric acid, (benzylmercapto)-, 8816*a*.
Sulfone, benzyl 2-methylallyl, 559*a*.
2-Thiopheneacrylic acid, 5 ethyl-, Et ester, 9064*b*.

**$C_{11}H_{14}O_2S_2$** Thiophene, 3-(benzylmercapto)-tetrahydro-, 1,1 dioxide, 2988*i*.

**$C_{11}H_{14}O_3$** Acetic acid, (2-ethyl-3-methoxyphenyl)-, 197*i*.
Acetic acid, (ethyl-*o*-toloxy)-, 1028*h*.
—, (mesityloxy)-, 8017*f*.
—, (*m*-methoxyphenyl)-, Et ester, 7033*d*.
—, phenyl-, 3-hydroxypropyl ester, 1404*g*.
—, 3,4-xylyloxy-, Me ester, 3364*e*.
Acetophenone, 3,5-dimethoxy-2-methyl-, 2185*c*.
—, 2-hydroxy-4-methoxy-3,6-dimethyl-, 2185*a*.
Anisic acid, iso-Pr ester, 8808*f*.
Anisyl alcohol, propionate, 2372*g*.
*p*-Anol, 2,6-dimethoxy-, 1030*c*.
Benzaldehyde, 3,4-diethoxy-, 7027*g*.
—, 2-ethyl-4,6-dimethoxy-, 2185*a*.
Benzene, 1 - (allyloxy) - 2,3 - dimethoxy-, 7451*i*.
Benzoic acid, 2-ethoxyethyl ester, 569*b*.
—, 2 - ethyl - 3 - methoxy-, Me ester, 196*e*.
Bicyclo[3.3.1] - 3 - nonene - 1 - carboxylic acid, 4-methyl-9-oxo-, 7907*i*.
2 - Butanone, 4 - (3 - hydroxy 4-methoxyphenyl)-, 7001*g*.
Butyric acid, *o*-methoxyphenyl ester, 9375*e*.
—, γ-(methoxyphenyl)-, 4241*h*, P 7509*g*.
Butyrophenone, α - hydroxy - *p* - methoxy-, acetate, 603*h*.
Chavicol, 2,6-dimethoxy-, 1029*c*, 4848*d*, 7451*k*.
1,3 - Dioxolane, 2-benzyl-2-methoxy-, 1404*e*.
Furanacrylic acid, Bu ester, P 3232*d*, 9334*c*.
1,3-Hexanedione, 1-(2 - furyl) - 5-methyl-, 4253*g*.
Homoanisic acid, α-ethyl-, 4654*g*.
Hydracrylic acid, β-phenyl-, Et ester, 5150*f*.
Mandelic acid, *o*-methyl-, Et ester, 188*b*.
Peroxybenzoic acid, Bu ester, 8190*i*; *tert*-Bu ester, P 3238*f*, 8193*f*, 9024*f*.
Phenol, 6-allyl-2,3-dimethoxy-, 7451*i*.
—, *o* - (tetrahydro - 2*H* - pyran - 2-yloxy)-, 2204*a*.
Phloretic acid, β,β-dimethyl-, 2273*i*.
2-Propanone, 1-(3,5-dimethoxyphenyl)-, 8384*f*.
—, 1-ethoxy-3-phenoxy-, P 3460*i*.
Propionic acid, α-phenoxy-, Et ester, 4248*e*.
—, β-3,5-xylyloxy-, 3393*f*.
Propiophenone, 3,4-dimethoxy-, 186*b*.
—, ethoxyhydroxy-, 1423*f*.
Salicylic acid, Bu ester, 4574*h*.
Toluene, 3,4 - methylenedioxy - α-propoxy-, P 9356*a*.
Valeric acid, γ - hydroxy - γ - phenyl-, 8372*c*.
Valerophenone, 3,5-dihydroxy-, 8385*c*.
Zingerone, 2185*c*.

**$C_{11}H_{14}O_3S$** Acetic acid, (3-phenoxypropylmercapto)-, 3365*c*.
Benzenesulfonic acid, cyclopentyl-, *salts*, 2957*g*.
2 - Butanone, 3 - methyl - 3 - (phenylsulfonyl)-, 4215*i*.

**$C_{11}H_{14}O_4$** Acetophenone, (2,3-dihydroxypropoxy)-, 312*b*.
Acetophenone, 2-hydroxy-4,6-dimethoxy-3 methyl-, 5445*f*.
—, trimethoxy-, 183*c*, 7000*i*.
Benzoic acid, 2,4-diethoxy-, 1036*e*.
—, ethyldimethoxy-, 1033*c*, 2185*b*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboxylic acid, di-Me ester, 1900*i*, 5150*e*, 7181*c*, P 7633*e*, 9335*g*.
1,3 - Butanediol, 2 - (3,4 - methylenedioxyphenyl)-(?), P 4420*d*.
2 - Butanone, 1 - hydroxy - 4 - (4-hydroxy - 3 - methoxyphenyl)-, 7001*f*.
Hydratropic acid, 3,5 dimethoxy-, 8384*c*.
Hydrocinnamic acid, 2,5-dimethoxy-, 6600*a*.
1,3 - Propanediol, 2 - methyl - 1 - (3,4-methylenedioxyphenyl)-(?), P 4420*d*.
2-Propanone, 1 hydroxy-3-*o*-phenetyloxy-, P 4299*f*.
Propionic acid, β-(2-methoxy-*m*-toloxy) , P 1054*b*.
Propiophenone, 2-hydroxy-4,5-dimethoxy-, 7461*c*.
Salicylic acid, 3 methoxy-, Pr ester, 4242*b*, 7455*h*.
Veratraldehyde, 6-ethoxy-, 7459*i*.

**$C_{11}H_{14}O_4S$** Acetic acid, (*p*-methylsulfonylphenyl)-, Et ester, 1739*g*.
Benzoic acid, *o*-(formylmethylmercapto)-, di-Me acetal, 2200*i*.

**$C_{11}H_{14}O_4S_2$** Thiophene, 3-(benzylsulfonyl)-tetrahydro-, 1,1-dioxide, P 2238*a*.

**$C_{11}H_{14}O_5$** Acetophenone, hydroxytrimethoxy-, 1772*bi*.
Benzoic acid, (2,3 dihydroxypropoxy)-, Me ester, 312*a*, P 2233*g*.
—, 3,4,5 trimethoxy-, Me ester, 1341*i*, 1974*d*.
Gallic acid, Bu ester, 2253*g*, 3568*a*.
1,4 - Hexadien - 3 - one, 2,4 - dihydroxy-5-methyl-, diacetate, 2164*b*.
Melilotic acid, 4,5-dimethoxy-, 7460*h*.
Phenol, 3,4,5 - trimethoxy-, acetate, 1773*d*.
Vanillic acid, hydroxypropyl ester, 4242*b*, 7455*g*, 2-methoxyethyl ester, 4241*i*, 7455*g*.
Veratric acid, 6-ethoxy-, 7459*i*.
Verbenalol, 7017*g*.

**$C_{11}H_{14}O_5S$** Glycolic acid, Et ester, *p*-toluenesulfonate, 2942*f*.

**$C_{11}H_{14}O_6S_2$** 3 - Thianaphthenol, 5-methyl-, compd. with $Me_2SO_4$, 7474*e*.

**$C_{11}H_{14}O_6$** 1,3 - Cyclopentanedicarboxylic acid, 4,5 - dioxo-, di - Et ester, 6987*c*.
3,4 - Furandicarboxylic acid, 2-(5-hydroxyamyl)-, P 5805*e*.
Methyl ester, m 133°, 3567*e*.
4 - Pentyne - 1,2,3 - triol, triacetate, 7424*h*.

**$C_{11}H_{14}O_6S$** Ethanesulfonic acid, veratroyl-, 5763*ef*.
3,4 - Thiophenedicarboxylic acid, 5-(4-carboxybutyl)-2,3-dihydro-, P 5425*e*.

**$C_{11}H_{14}O_9$** 2 - Furanacetic acid, 3-carboxy-5-(1,2,3,4 - tetrahydroxybutyl)-, 5392*b*.

**$C_{11}H_{14}S$** Sulfide, 2-methyl - 2 - butenyl phenyl, 7253*d*.

**$C_{11}H_{15}AsO_3$** Valeric acid, δ-(*p*-arsonophenyl)-, 4237*c*.

**$C_{11}H_{16}BrClN_4$** Biguanide, 1-(bromochlorophenyl)-5-isopropyl-, P 6228*g*; - *HCl*, P 684*b*, P 1060*b*, P 4691*c*.
Biguanide, 1 - (bromochlorophenyl)-5 propyl-, - *HCl*, P 1060*b*, P 6228*g*.

**$C_{11}H_{16}BrCl_3N_4S$** Thiophene, 3-(bromomethyl) - 2,5 - dichloro-, hexamethylenetetramine salt, 2987*a*.

**$C_{11}H_{16}BrIN_4$** Biguanide, 1-(bromoiodophenyl)-5-isopropyl-, - *HCl*, P 1060*c*, P 6228*k*, P 684*bc*.
Biguanide, 1 - (3 - bromo - 4 - iodophenyl)-5-propyl-, - *HCl*, P 6228*k*.

**$C_{11}H_{16}BrN_3O$** Urea, 1 - (4 - bromo - *o* - tolyl)-1-propyl-, P 2229*c*.

**$C_{11}H_{16}BrN_2O_2$** Urea, 1 - (3 - bromo - 4-methoxybenzyl)-1-ethyl-, P 2229*d*.
Urea, 1 - (5 - bromo - *o* - phenetyl) - 1-ethyl-, P 2229*d*.

**$C_{11}H_{16}BrN_3O_3$** (See also *Pernoston*.)
Pyridine, 2 - acetamido - 6 - bromo - 3,5-diethoxy-, 3824*f*.

**$C_{11}H_{16}BrN_2O_7$** Thymine, 1-galactosyl-5-bromo-, 716*f*.

**$C_{11}H_{16}BrN_4S$** Urea, 1-(*p*-bromophenyl)-3-isopropylguanyl-2-thio-, 2948*i*.

**$C_{11}H_{16}BrO_7$** Xylosyl bromide, triacetate, 7430*e*.

**$C_{11}H_{16}Br_2N$** Toluidine, *N*, *N*-bis(2-bromoethyl)-, 7443*a*.

**$C_{11}H_{16}Br_2NO$** *p* - Anisidine, *N*, *N* - bis(2-bromoethyl)-, 7443*b*.

**$C_{11}H_{16}Br_2N_4$** Biguanide, 1-(3,4-dibromophenyl) - 5 - isopropyl-, - *HCl*, P 684*c*, P 1060*c*, P 6228*g*.
Biguanide, 1 - (3,4 - dibromophenyl)-5-propyl-, - *HCl*, P 6228*g*.

**$C_{11}H_{15}Cl$** Cumene, 3 - (chloromethyl) - 4-methyl-, P 4498*h*.

**$C_{11}H_{16}ClIN_4$** Biguanide, 1-(chloroiodophenyl) - 5 - isopropyl-, - *HCl*, P 1060*b*, P 4691*c*, P 6228*f*, P 684*bc*.
Biguanide, 1 - (3 - chloro - 4 - iodophenyl) 5-propyl-, - *HCl*, P 1060*b*, P 5228*f*.

**$C_{11}H_{16}ClN_4O_7$** Propylamine, 2-chloro *N*, *N*-dimethyl-, picrate, 2935*e*.

**$C_{11}H_{15}ClN_4S$** Pseudourea, 3-(*p*-chlorophenylguanyl) - 2 - isopropyl-2-thio-, - *H Br*, 2950*e*.
Urea, 1 - (*p* - chlorophenylguanyl)-3-isopropyl-2-thio , *and* - *HCl*, 2949*h*.
—, 1 - (*p* - chlorophenylguanyl) - 3-propyl-2-thio-, *and* - *HCl*, 2949*h*.
—, 1 - [*N* - (*p* - chlorophenyl) - *N'*-isopropylguanyl]-2-thio-, 5746*h*.
—, 1 - (*p* - chlorophenyl) - 3 - isopropylguanyl-2-thio-, 2948*g*.

**$C_{11}H_{15}ClO$** 2 - Buten - 1 - one, 1 - (4-chloro-3 - cyclohexen - 1 - yl) - 3 - methyl-, 2958*e*.
3 - Butyn - 2 - ol, 1 - chloro - 4 - (1-cyclohexen-1-yl) 2 methyl-, 1337*a*.

**$C_{11}H_{15}ClO_2$** 1,2 - Propanediol, 3-(4-chloro-*m*-toloxy)-2-methyl-, 312*b*.
1,2 - Propanediol, 3 - (4 - chloro - 3,5-xylyloxy)-, 312*a*.

**$C_{11}H_{15}ClO_4S$** 2 - Acetyl - *p* - tolyldimethylsulfonium perchlorate, 7475*a*.

**$C_{11}H_{15}ClO_7$** Ribofuranose, acetochloro-, 146*i*.

**$C_{11}H_{15}Cl_2N$** Benzylamine, *N*, *N*-bis(2-chloroethyl)-, 5505*c*; - *HCl*, 4381*c*.
Toluidine, *N*, *N* - bis(2 - chloroethyl)-, 7443*a*.

**$C_{11}H_{15}Cl_2NO_2S_2$** Sulfilimine, *S*,*S*-bis(2-chloroethyl) - *N* - - tolylsulfonyl-, 348*f*.

**$C_{11}H_{15}Cl_2N_5$** Biguanide, 1-(dichlorophenyl)-5-isopropyl-, 5868*c*; - *HCl*, P 684*b*, P 1060*b*, P 4691*c*, P 6228*be*, 7905*e*.
Biguanide, 1 - (3,4 - dichlorophenyl)-5-propyl-, - *HCl*, P 6228*e*.

**$C_{11}H_{15}Cl_3O_3$** 2 - Cyclohexen - 1 - one, 3-methoxy - 5,5 - dimethyl - 2 - (2,2,2-trichloro - 1 - hydroxyethyl)-, 2965*c*.

**$C_{11}H_{15}CoN_3O_8S$** 7364*f*.

**$C_{11}H_{15}FNO_2S$** *p*-Toluenesulfonamide, *N*, *N*-bis(2-fluoroethyl)-, 2927*g*.

**$C_{11}H_{15}IN_2$** 1,2,3,5 - Tetramethylbenzimidazolium iodide, 4273*g*.

**$C_{11}H_{15}I_2N$** Toluidine, *N*, *N*-bis(2-iodoethyl)-, 7443*a*.

**$C_{11}H_{15}I_2NO$** *p* - Anisidine, *N*, *N* - bis(2-iodoethyl)-, 7443*b*.

**$C_{11}H_{15}I_2N_5$** Biguanide, 1 - (3,4 - diiodophenyl)-5-isopropyl-, - *HCl*, P 684*c*, P 1060*c*.

**$C_{11}H_{15}N$** Aniline, *p*-isopropenyl-*N*, *N*-dimethyl-, 5629*e*.
Butylamine, *N*-benzylidene-, 1340*i*.
1 - Cyclohexene - 1 - acetonitrile, α-allyl-, 3798*b*.
5-Indanethylamine, 8390*b*.
Isoquinoline, 1,2,3,4 - tetrahydro - 1,3-dimethyl-, *and* - *HCl*, 5026*h*.
Phenethylamine, *N*-allyl-, 7585*g*.

Quinoline, 3-ethyl-5,6,7,8-tetrahydro-, 191*k*.

**$C_{11}H_{15}NO$** Acetamide, *N*-α,α-dimethylbenzyl-, 2165*k*.
Acetamide, *N*-(methylphenethyl)-, 2166*a*, 5026*gh*.
2,4-Acetoxylidide, *N* methyl-, 1343*f*.
Benzaldehyde, *p*-diethylamino-, P 2232*i*.
Benzamide, butyl-, P 351*e*, P 4686*i*, 7004*i*.
—, *N*-*tert*-butyl-, 2165*c*, P 3445*g*.
—, *N*, *N*-diethyl-, 1312*f*.
—, *N*-methylpropyl-, P 689*b*, 7004*i*.
Butyramide, *N*-benzyl-, 6596*a*.
Butyranilide, α-methyl-, 1354*a*, 4654*g*.
Compd. b$_{30\mu}$ 72°, 565*b*.
Compd., m. 56.5–57°, 565*b*.
*o*-Cresol, α-(butylimino)-, 4235*c*.
Cyclohexanol, 1-(2-pyridyl)-, *and* -*HCl*, 2205*e*.
Formamide, *N*-(α,α-dimethylphenethyl)-, 2166*b*.
3-Furonitrile, 2,5-dipropyl-, 2938*f*.
Hydratropamide, *p*,α-dimethyl-, 6993*g*.
Hydrocinnamamide, α-ethyl-, 1744*b*.
1-Indanol, 2-(methylaminomethyl)-, P 1441*b*.
Isobutyramide, *N*-benzyl-, 6596*a*.
Isobutyrophenone, *p*-methyl-, oxime, 2601*b*.
Isovalerophenone, oxime, 6178*c*.
2,6-Lutidine, 4-(2-butenyloxy)-, 1417*a*.
Oxazolidine, 4-ethyl-2-phenyl-, 8365*f*.
4-Piperidinol, 4-phenyl-, -*HCl*, 4276*a*.
Propiophenone, β-dimethylamino-, 2183*h*.
4-Pyridol, 3-(2-butenyl)-2,6-dimethyl-, 1417*a*.

**$C_{11}H_{15}NO_2$** (See also *Butesin*.)
Acetamide, α-(2-ethyl-3-methoxyphenyl), 198*e*.
—, *N*-2-hydroxyethyl-α-tolyl-, 3362*d*.
—, *N*-(hydroxyisopropyl)-α-phenyl-, 2270*i*.
—, *N*-(*p*-hydroxyphenethyl)-*N*-methyl-, 6597*e*.
—, *N*-(2-hydroxypropyl)-α-phenyl, 2270*i*, P 3574*e*, P 4697*g*.
—, *N*-2-methoxyethyl-α-phenyl-, 2270*i*, P 3574*e*, P 4697*g*.
Acetanilide, 4-hydroxy-2,3,5-trimethyl-, 180*d*.
Alanine, *N*-ethyl-β-phenyl-, 6979*e*.
—, phenyl-, Et ester, 572*g*, 573*a*, 1723*e*.
α-Alanine, *N*-phenyl-, Et ester, 576*a*.
Benzylidenimine, α-ethyldimethoxy-, *and* -*HCl*, 185*d*.
1-Butanol, 2-amino-, benzoate, -*HCl*, P 4696*i*.
Butyric acid, β-anilino-, Me ester, P 9462*c*.
Carbamic acid, *tert*-butyl ester, 578*i*, 7441*bf*.
—, *N*-ethyl-, Et ester, 8138*i*.
Δ$^1$α-Cyclohexaneacetic acid, α-cyano-, Et ester, 4251*f*.
Cyclohexanepropionitrile, 1-acetyl-2-oxo-, P 7040*g*.
1-Cyclohexene-1-acetic acid, cyano-, Et ester, 3797*i*.
Cyclopentanepropionitrile, oxo-1-propionyl-, P 7040*h*.
Ethylamine, *N*-veratrylidene-, 2177*a*.
*p*-Formamsidide, 2,3,5-trimethyl-, 180*f*.
Glycine, *N*-benzyl-, Et ester, 4229*c*.
Hydratropohydroxamic acid, *p*,α-dimethyl-, 6993*f*.
Hydrocinnamamide, *p*-methoxy-α-methyl-, 1744*a*, 1745*g*.
Hydrocinnamic acid, *p*-amino-β,β-dimethyl-, 2273*i*.
—, β-amino-, Et ester, -*HCl*, 9034*a*.
2-Morpholinol, 4-methyl-2-phenyl-, 4239*e*.
Nicotinic acid, iso-Am ester, 2622*h*, 6316*h*.
Norpseudoephedrine, acetate, -*HCl*, 6999*e*.
Norvaline, *N*-phenyl-, 6979*e*.
1-Penten-3-one, 5-dimethylamino-1-(2-furyl)-, -*HCl*, 9334*b*.
Phenol, *m*-(2-methylaminoethyl)-, acetate, -*HCl*, 2602*g*.
1-Propanol, 2-amino-2-methyl-, benzoate, *and* -*HCl*, P 4696*i*.
2-Pyridinebutyric acid, α-ethyl-, 4267*g*.
Thymoquinone, *O*-methyloxime, 5378*h*.
Toluene, *p*-nitro-*tert*-butyl-, 6993*e*.
Valeric acid, δ-(*p*-aminophenyl)-, 4237*b*.
Valine, *N*-phenyl-, 6979*e*.
Veratrylidenimine, α-ethyl-, *and* -*HCl*, 186*b*.

**$C_{11}H_{15}NO_3S$** Acetamide, *N*-2-hydroxyethyl-α-(*p*-methylmercaptophenyl)-, 3362*d*.
Acetamide, *N*-2-hydroxyethyl-α-tolylmercapto-, 3365*e*.
Butyric acid, α-amino-α-(benzylmercapto)-, 7903*bc*.
Piperidine, 1-(phenylsulfonyl)-, 1004*b*.

**$C_{11}H_{15}NO_4$** Acetamide, α-(benzyloxy)-*N*-2-hydroxyethyl-, 3364*g*.
Acetamide, *N*-(dihydroxyisopropyl)-α-phenyl-, 2270*i*.
—, *N*-(2,3-dihydroxypropyl)-α-phenyl-, 2270*b*.
—, *N*-2-hydroxyethyl-α-(methoxyphenyl)-, 3362*d*.
—, *N*-2-hydroxyethyl-α-methoxy-α-phenyl-, 2273*f*.
—, *N*-2-hydroxyethyl-α-*p*-toloxy-, 3364*g*.
Acetophenone, 3,4-dihydroxy-α-isopropylamino-, 317*b*; -*HCl*, 3388*d*.
—, 3,4-dihydroxy-α-propylamino-, -*HCl*, 3388*d*.
β-Alanine, *N*-(*p*-methoxyphenyl)-, Me ester, 8387*e*.
1-Butanol, 2-benzyl-2-nitro-, P 3038*c*.
Candidulin, 9241*d*.
*o*-Cresol, 4-*tert*-butyl-6-nitro-, 3805*a*.
Cyclohexanecarboxylic acid, 2-cyano-2-methyl-4-oxo-, Et ester, 2200*a*.
3-Cyclopentene-1-carboxamide, 3-(butenyl)-1-hydroxy-4-methyl-2-oxo-, 1334*i*.
Homoanisamide, *N*-2-hydroxyethyl-, 3362*d*.
Homopiperonylamine, β-methoxy-α-methyl-, 9118*e*.
Nicotinic acid, 6-butyl-1,2-dihydro-5-methyl-2-oxo-, 643*h*.
Norvaline, δ-phenoxy-, 1007*c*
Phenol, 4-amyl-2-nitro-, 6616*d*.
1-Propanol, 2-methyl-2-nitro-3-*m*-tolyl-, P 3038*c*.
2-Pyrrolecarboxylic acid, 4-acetyl-3,5-dimethyl-, Et ester, 1393*e*.
—, 4-ethyl-5-formyl-3-methyl-, Et ester, 4257*d*.
Salicylic acid, 4-amino-, Bu ester, 6596*e*, iso-Bu ester, 6596*e*.
Synephrine, acetate, -*HCl*, 2601*e*.
*m* Synephrine, *m*-acetate, -*HCl*, 2602*b*.
Tropamide, *N*-2-hydroxyethyl-, 2273*f*.
Tyrosine, Et ester, 573*a*, 1723*f*; *and* -*HCl*, 7425*h*.

**$C_{11}H_{15}NO_5S$** Acetamide, *N*-2-hydroxyethyl-α-(*p*-methoxyphenylmercapto)-, 3365*e*.
Acetanilide, *p*-(propylsulfonyl)-, 2593*d*.
Butyramide, γ-(*p*-methylsulfonylphenyl)-, 1739*i*.
3-Pentanone, oxime, benzenesulfonate, 2594*f*.
Propionamide, *N*-[*p*-(methylsulfonyl)-benzyl]-, 8539*e*.
3-Thiophenecarboxylic acid, 2-(4-morpholinyl)ethyl ester, *and* -*HCl*, 630*g*.
Valine, *N*-2-thienylacetyl-, 3363*i*.

**$C_{11}H_{15}NO_6$** Acetamide, *N*-2-hydroxyethyl-α-(*p*-methoxyphenoxy)-, 3304*g*.
Acetamide, *N*-methyl-*N*-(β,3,4-trihydroxyphenethyl)-, 2601*h*.
Acetanilide, (2,3-dihydroxypropoxy)-, 311*h*, 5655*e*.
Acetophenone, *p*-(2,3-dihydroxypropoxy)-, oxime, 312*b*.
3-Azabicyclo[3.2.0]heptane-3-acetic acid, α-isopropyl-2,4-dioxo-, 5743*e*.
Gentisamide, *N*-hydroxy-*tert*-butyl-, P 5045*e*.
2,4-Pyrroledicarboxylic acid, 3,5-dimethyl-, 2-Et 4-Me ester, 623*b*.
—, 3-methyl-, di-Et ester, 623*c*.
Veratrole, 4-nitro-3-propyl-, 8675*b*.
Xyloside, anilino-, 144*g*.

**$C_{11}H_{15}NO_6S$** Benzoic acid, (diethylsulfamyl)-, P 863*g*.
Benzoic acid, *p*-sulfamyl-, Bu ester, 5995*g*.

**$C_{11}H_{15}NO_8$** Acrylic acid, diester with *N*-2-hydroxyethyllactamide, P 3447*c*.
1-Propanol, 2-amino-3-phenyl-, oxalate, 1723*f*.

**$C_{11}H_{15}NO_9$** Gentisamide, *N*-2,2′,2″-trihydroxy-*tert*-butyl-, P 5045*e*.

**$C_{11}H_{15}NO_9S$** Ethanol, 2-[3-(*p*-nitrophenoxy)-propylsulfonyl]-, 8388*f*.

**$C_{11}H_{15}NO_{11}$** 1-Pentene, triacetoxy-1-nitro-, 5747*f*.

**$C_{11}H_{15}NS$** Butyramide, *N*-benzylthio-, 6596*c*.
Isobutyramide, *N*-benzylthio-, 6596*c*.

**$C_{11}H_{15}NS_2$** Carbanilic acid, dithio-, Bu ester, 4415*b*.

**$C_{11}H_{15}N_2NaO_3$** Barbituric acid, 5-ethyl-5-(3-methyl-2-butenyl)-, Na deriv., 5862*b*.
Delvinal, 1077*b*, 3147*i*, 8612*ce*.

**$C_{11}H_{15}N_3$** Benzimidazole, 1-(2-dimethylaminoethyl)-, *and di*-*HCl*, 7021*g*.
2-Imidazoline, 2-(*N*-methylanilinomethyl)-, *and* -*HCl*, P 6240*d*.
—, 2-phenethylamino-, 4273*b*.
Pyrimidine, 2-(anilinomethyl)tetrahydro-, -*HCl*, P 683*g*.
—, 2-benzylamino-1,4,5,6-tetrahydro-, 4273*c*

**$C_{11}H_{15}N_3O$** Acetophenone, 2,5-dimethyl-, semicarbazone, 6990*g*.
Acetophenone, *o*-ethyl-, semicarbazone, 1030*h*.
3-Butyn-2-one, 4-(1-cyclohexen-1-yl)-, semicarbazone, 1336*h*, 7437*h*.
Butyrophenone, semicarbazone, 2178*b*.
2-Imidazoline, 2-(*o*-methoxyanilinomethyl)-, -*HCl*, P 6240*d*; *and* -*HCl*, P 4303*b*.

**$C_{11}H_{15}N_3O_2$** 5,8-Ethano-6*H*-pyrano-[4,3-*e*]-*as*-triazin-3-ol, 5,8-dihydro-6,6,8-trimethyl-, 7926*g*.
Hydrocinnamaldehyde, β-hydroxy-β-methyl-, semicarbazone, 2571*b*.
2-Propanone, (*p*-methoxyphenyl)-, semicarbazone, 1741*e*.

**$C_{11}H_{15}N_3O_3$** *m*-Acetotoluidide, 4-dimethylamino-6-nitro-, 5755*e*.
1-Butanol, 2-nitro-2-*p*-tolylazo-, 4646*h*.
Phloretamide, α-(α-aminoacetamido)-, 5056*a*, 7531*a*, 9113*a*.

**$C_{11}H_{15}N_3O_3S$** 2-Thiophenecaproic acid, ε-oxo-, semicarbazone, P 2644*e*, 3366*h*, 3817*g*.

**$C_{11}H_{15}N_3O_3S_2$** Pseudourea, 1-(*N*-acetylsulfanilyl)-2-ethyl-2-thio-, P 5802*d*, P 7965*f*.

**$C_{11}H_{15}N_3O_4$** Butyric acid, 2-furoylmethyl ester, semicarbazone, 1392*c*.

**$C_{11}H_{15}N_3O_4S$** Benzenesulfonamide, *N*-(*N*-ethylpropionimidyl)-*p*-nitro-, P 6660*i*.
Benzenesulfonamide, *N*-(*N*-isopropylacetimido)-*p*-nitro-, P 6660*h*.
1,2,4,6,4*H*-Thiatriazine-4-ethanol, tetrahydro-, benzoate 1,1-dioxide, 2573*f*.
4-Thiazoline-4-carboxylic acid, 5-acetamido-3-acetyl-2-methylimino-, Et ester, 3400*b*.

**$C_{11}H_{15}N_3O_4S_2$** Pseudourea, 1-(*N*-acetylsulfanilyl)-2-(methoxymethyl)-2-thio-, P 686*e*.

**$C_{11}H_{15}N_3O_5S$** 2-Thiazolecarbamic acid, 5-acetamido-4-carboxy-, di-Et ester, 1403*f*.

**$C_{11}H_{15}N_3O_7$** Arabinose, acetoazido-, 7430*g*.
Xylose, acetoazido-, 7430*e*.

**$C_{11}H_{15}N_5$** Guanidine, 1-(2-benzimidazolyl)-3-isopropyl-, *and di*-*HCl*, 1404*i*.
1*H*-Tetrazole, (*m*-aminophenyl)butyl-, 1865*c*.
—, (*m*-aminophenyl)isobutyl-, 1865*c*.
—, 5-(isopropylaminomethyl)-1-phenyl-, 1864*h*; -*HCl*, P 7972*c*.
—, 1-phenyl-5-(propylaminomethyl)-, 1864*h*.

**$C_{11}H_{15}N_5O$** 1-Propanol, 2-[(1-phenyl-1*H*-tetrazol-5-ylmethyl)amino]-, P 7972*c*.
1*H*-Tetrazole, 5-(dimethylaminomethyl)-1-(*m*-methoxyphenyl)-, -*HCl*, P 7971*f*.

**$C_{11}H_{15}N_5O_2S$** Urea, 1-isopropylguanyl-3-(*p*-nitrophenyl)-2-thio-, 2948*i*.

**$C_{11}H_{15}N_5O_4$** Adenosine, methyl-, *and* -*HCl*, 4634*i*, 4635*a*.

**$C_{11}H_{15}N_5O_4S$** Adenine, 9-L-arabofuranosido-2-methylthio-, 144*g*.

**$C_{11}H_{15}N_5O_5$** Adenine, 9-D-glucopyranosido-, 146*c*.
Guanosine, methyl-, 4635*a*.

**$C_{11}H_{15}N_5O_6$** Glycine, *N*-[4-(carboxymethylamino)-6-methyl-5-nitro-2-pyrimidyl]-, di-Me ester, P 9088*a*.
Guanine, glucoside, 1726*c*.

**$C_{11}H_{15}N_5O_7$** Acetamidine, *N*, *N*, *N*′-trimethyl-, picrate, 2595*f*.

**$C_{11}H_{16}$** Benzene, amyl-, P 1057*h*, 2174*h*, 2589*f*, 6583*f*, 6990*i*.
Benzene, *tert*-amyl-, 6583*df*.
—, (dimethylpropyl)-, 6583*f*.
—, pentamethyl-, 4140*e*.
Naphthalene, hexahydro-1-methyl-, 3814*a*.
1,5-Octadien-3-yne, 5-propyl-, 6623*c*.
Toluene, *tert*-butyl-, 4234*a*, 6989*c*.
*p*-Xylene, 2-propyl-, 6990*h*.

**$C_{11}H_{16}BrClN_4S$** Thiophene, 3-(bromomethyl)-2-chloro-, hexamethylenetetramine salt, 2986*i*.

**$C_{11}H_{16}BrNO_2$** 1 - (1 - Carboxypropyl)pyridinium bromide, Et ester, 6977*c*.
Phenethylamine, 2-bromo - 4,5 - dimethoxy-*N*-methyl-, - *HCl*, 5766*e*.
2 - Pyrrolecarboxylic acid, 5-(bromomethyl) - 4 - ethyl - 3 - methyl-, Et ester, 4257*d*.

**$C_{11}H_{16}BrN_5$** Biguanide, 1 - (bromophenyl)-5-isopropyl-, P 4692*b*, 9036*i*, 9037*b*; - *HCl*, P 684*c*, P 1060*b*, 2947*g*, 2951*a*, P 4691*d*, P 6228*ac*, 7905*e*.
Biguanide, 1 - (bromophenyl) - 5 - propyl-, - *HCl*, P 684*g*, P 1060*b*, P 4691*e*, P 6228*cd*, 9036*i*.

**$C_{11}H_{16}Br_2N_4S$** Thiophene, 2-bromo-3-(bromomethyl)-, hexamethylenetetramine salt, 2986*i*.

**$C_{11}H_{16}Br_2O_6$** 1,2,3 - Pentanetriol, 4,5-dibromo-, triacetate, 7424*h*.

**$C_{11}H_{16}ClNO_2$** 1 - (Carboxymethyl)pyridinium chloride, Bu ester, 6977*b*.
(Carboxymethyl)trimethylammonium chloride, Ph ester, 6977*d*.

**$C_{11}H_{16}ClNO_3S$** Aniline, *p* - [3 - (2-chloroethylsulfonyl)propoxy]-, - *HCl*, 8388*h*.

**$C_{11}H_{16}ClN_2O_3P + 2H_2O$** Phosphinic acid, [1 - (4 - acetamido - 3 - chloroanilino)-isopropyl]-, 5378*d*.

**$C_{11}H_{16}ClN_5$** (See also *Paludrine*.)
Biguanide, (*p* - chlorophenyl)ethylmethyl-, - *HCl*, P 684*f*, P 1060*e*, 2948*e*, 2950*a*, P 6650*a*.
—, (chlorophenyl)isopropyl-, 5808*c*, 9039*i*; - *HCl*, P 1060*b*, 2947*g*, P 4691*c*, P 6227*h*, 7905*de*, *and salts*, 3703*h*.
—, (chlorophenyl)propyl-, P 1060*b*, P 6228*c*, P 6659*g*, 9039*i*; - *HCl*, P 1060*b*.
*s* - Triazine, 2 - amino - 4 - [bis(2-methylallyl)amino]-6-chloro-, 1426*c*.
—, 2 - chloro - 4,6 - bis(2 - methylallylamino)-, 1426*d*.

**$C_{11}H_{16}ClN_5O_2$** *s* - Triazine, 2 - chloro - 4,6-di-4-morpholinyl-, 1426*e*.

**$C_{11}H_{16}ClN_5O_2S$** Benzenesulfonamide, *p*-chloro - *N* - [(isopropylguanyl)-guanyl]-, 2946*h*.

**$C_{11}H_{16}Cl_2N_4O_6$** Propionic acid, $\alpha,\alpha$-bis(*N*-chloroacetylglycylamino)-, 138*h*.

**$C_{11}H_{16}Cl_4O$** Camphor, compd. with $CCl_4$, 4543*d*.

**$C_{11}H_{16}CrN_7OS_4$** 1 - (Methoxymethyl)pyridinium reineckate, 7409*i*.

**$C_{11}H_{16}FN_5$** Biguanide, 1-(*p*-fluorophenyl)-5-isopropyl-, 5757*e*, 5868*c*; - *HCl*, P 684*b*, 2947*f*, 7905*e*.

**$C_{11}H_{16}IN$** 1,2,3,4 - Tetrahydro - 2,2-dimethylisoquinolinium iodide, 3407*i*.

**$C_{11}H_{16}INO_2$** 3 - Carboxy - 1 - methylpyridinium iodide, Bu ester, 2622*h*.

**$C_{11}H_{16}IN_3O_2S$** Sulfanilamide, $N^1$-(5 iodo-2-pyridyl)-, 1028*e*.

**$C_{11}H_{16}IN_5$** Biguanide, 1-(iodophenyl)-5-isopropyl-, 9037*b*, *HCl*, P 684*bd*, P 1060*b*, 2947*f*, 2950*h*, P 4691*c*, P 6228*b*, 7905*e*.
Biguanide, 1 - (*p* - iodophenyl) - 5-propyl-, - *HCl*, P 1060*b*, P 6228*d*.

**$C_{11}H_{16}N_2$** Butyraldehyde, *p* tolylhydrazone, 4646*i*.
Cumaldehyde, methylhydrazone, 6591*h*.
Piperidine, 1-(*p*-aminophenyl)-, 594*g*.
Pyrrolidine, 1 - (4 - amino-*m*-tolyl)-, 594*g*.

**$C_{11}H_{16}N_2O$** Acetamide, *N* - [$\alpha$ - (aminomethyl)benzyl]-*N*-methyl-, 6176*e*.
Acetamide, *N* - (3 - aminopropyl) - $\alpha$-phenyl-, 2270*i*.
Acetotoluidide, $\alpha$-ethylamino -, *and* - *HCl*, 1021*h*.
—, *N* - methylmethylamino-, 4273*gh*.
Acetoxylidide, 5 - amino - *N* methyl-, 1343*f*.
—, $\alpha$-methylamino-, *and salts*, 1024*f*.
Benzamide, *o*-amino-*N*-butyl-, 3425*b*.
*o*-Cresol, 4-amino - $\alpha$ - 2 - methylallylamino-, P 1062*b*.
—, 4 - amino - $\alpha$ - 1 - pyrrolidyl-, *di*-*HCl*, P 1062*c*.
Isovaleric acid, phenylhydrazide, 5526*a*, 7182*h*.
Morpholine, 4 - (4 - amino-*m*-tolyl)-, 594*h*.
Nicotinamide, *N* amyl-, P 694*g*.
Propionamide, *N* - (2 - anilinoethyl)-, P 2033*g*.
Propionanilide, *o* - dimethylamino-, 4273*f*.
2(1*H*) - Pyridone, 1-methyl - 3 - (1-methyl-2-pyrrolidyl)-, 4138*a*.
Valeric acid, phenylhydrazide, 5526*a*, 7182*h*.

**$C_{11}H_{16}N_2OS$** *o*-Cresol, 4-amino-$\alpha$-4-thiamorpholinyl-, P 1062*c*.

**$C_{11}H_{16}N_2O_2$** (See also *Pilocarpine*.)
Acetamide, *N* - (3 - amino - 4 - hydroxyphenethyl)-*N*-methyl-, 6597*f*.
—, *N* - 2 - hydroxyethyl - $\alpha$ - (*N*-methylanilino)-, 2273*f*.
Benzoic acid, *p*-amino-, 2-aminobutyl ester, - *HCl*, P 4697*a*; 2-aminoisobutyl ester, - *HCl*, P 4697*a*.
—, *p* - (2 - aminoisobutylamino)-, *and* - *HCl*, 6183*f*.
Carbamic acid, dimethyl-, *m*-dimethylaminophenyl ester, P 3843*g*.
*o*-Cresol, 4-amino - $\alpha$ - 4 - morpholinyl-, *di*- *HCl*, P 1062*c*.
Homoanisamide, *N* - (2 - aminoethyl)-, - *HCl*, 3362*e*.
5-Imidazolecarboxylic acid, 1-cyclohexyl-, Me ester, 3411*d*.
Isopilocarpine, 2616*h*.
Salicylamide, 4-amino-*N*-butyl-, 6596*g*.
—, 4-amino-*N*, *N*-diethyl-, 6596*g*.
—, 4-amino-*N* isobutyl-, 6596*g*.

**$C_{11}H_{16}N_2O_2S$** Butyramidine, $\gamma$-(*p*-methylsulfonylphenyl)-, - *HCl*, 1740*a*.
5-Imidazolecarboxylic acid, 1-cyclohexyl-2-mercapto , Me ester, 3411*c*.
*p*-Toluamidine, $\alpha$-methylmercapto , acetate, 1739*e*.

**$C_{11}H_{16}N_2O_3$** (See also *Sandoptal*.)
Acetanilide, 2-hydroxy-5-(1 hydroxy-2-methylaminoethyl)-, - *HBr*, P 7967*d*.
Barbituric acid, 1-allyl-5,5 diethyl , 2169*g*
—, 5 - allyl - 5 isopropyl - 1 - methyl-, 4766*c*; *Na salt*, P 7646*i*.
—, (1 - cyclopropyl - 1 - methylpropyl)-, 9239*c*.
Cyclohexanecarboxamide, *N* - (2,4-dioxo-3-pyrrolidyl)-, 2988*f*.
7,9 - Diazaspiro[4,5]decane-6,8,10 trione, 1,4,7-trimethyl-, P 4429*g*.
4 Hexenoic acid, 2 acetamido-2-cyano , Et ester, 574*d*.
Hydrocinnamic acid, 2,5-dimethoxy-, hydrazide, 6600*b*.
5-Imidazolecarboxylic acid, 1-cyclohexyl-2-hydroxy-, Me ester, 3411*f*.
4 - Pentenoic acid, 2 - acetamido - 2 cyano - 4 - methyl , Et ester, P 6653*e*.
Phenol, 2-amino-4-amyl-6-nitro-, P 2781*b*, P 5959*h*, P 8148*d*.
—, 2 - amino - 4 - *tert* - amyl - 6-nitro , P 5597*i*, P 7698*gi*.
- , *m* - dimethylamino-, *N* - oxide, dimethylcarbamate, *and salts*, P 7966*d*.
Pyridine, 2-acetamido - 3,5 - diethoxy-, 3825*b*.
Urea, (4 - ethoxy - 3 methoxybenzyl)-, 2177*b*

**$C_{11}H_{16}N_2O_3S$** Benzenesulfonic acid, 2-iminopiperidine salt, 2594*c*.
Butyramide, *N* - *p* - sulfamylbenzyl-, 8539*e*.

**$C_{11}H_{16}N_2O_3S_2$** Acetamide, $\alpha$ propylmercapto- *N* sulfanilyl-, P 3035*h*.
Propenesulfonic acid, 2-benzyl-2-thiopseudourea salt, 7411*eg*

**$C_{11}H_{16}N_2O_4$** Alanine, *N* - [3 - hydroxy-5-(hydroxymethyl) - 2 - methyl - 4-pyridylmethyl]-, 723*b*; *and* - *HCl*, 644*f*
$\beta$ - Alanine, *N* - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4-pyridylmethyl]-, 644*g*.
Glutaraldehydic acid, $\alpha$-acetamido-$\alpha$-cyanomethyl , Et ester, 6980*d*

**$C_{11}H_{16}N_2O_4S$** Acetamide, $\alpha$-isopropoxy-*N*-sulfanilyl , P 3035*g*.
Acetamide, $\alpha$ - propoxy - *N* - sulfanilyl-, P 3035*g*.
Anthranilic acid, 5-(diethylsulfamyl)-, P 7710*b*.
Carbamic acid, sulfanilyl-, Bu ester, P 7044*g*; iso Bu ester, P 7044*g*.
Isobutyramide, $\alpha$ methoxy-*N*-sulfanilyl , P 3035*f*
Propionamide, $\alpha$-ethoxy-*N*-sulfanilyl , P 3035*f*

**$C_{11}H_{16}N_2O_4S_2$** Penicillin, methylmercaptomethyl , 2274*f*.

**$C_{11}H_{16}N_2O_5$** 3,4-Furandicarbamic acid, 2-methyl-, di-Et ester, P 1442*a*, P 5805*h*.
5-Pyrimidinebutyric acid, hexahydro-$\gamma$-methyl-2,4,6-trioxo-, Et ester, P 1800*a*.
Serine, *N* - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl] , 644*i*, 723*b*.

**$C_{11}H_{16}N_2O_6$** Malonic acid, [3 - (hexahydro-2 - oxo - 1*H* - furo[3,4]imidazol-4-yl)propyl]-, 9149*b*.

**$C_{11}H_{16}N_2O_7$** Thymine, 1-galactosyl-, 716*f*.
Thymine, 1-glucosyl-, 716*f*.

**$C_{11}H_{16}N_4S$** Pseudourea, 2-benzyl-1-isopropyl-2-thio-, *and* - *HCl*, P 1059*i*, 9039*a*.

**$C_{11}H_{16}N_4O$** 5,8 - Ethano - 6*H* - pyrano-[4,3-*e*] - *as* - triazine, 3-amino-5,8-dihydro-6,6,8-trimethyl-, 7926*i*.

**$C_{11}H_{16}N_4O_2$** Guanidine, 1-carvacryl-3-nitro-, 9035*h*.
2,4 - Mesitylenediamine, *N*, *N'* - dimethyl - *N*, *N'* - dinitroso-, 1735*a*.

**$C_{11}H_{16}N_4O_2S$** Sulfanilamide, $N^1$ - (4,5,6,7-tetrahydro - 1,3,1*H* - diazepin-2-yl)-, P 6670*f*.

**$C_{11}H_{16}N_4O_2$** Xanthine, 8-(ethoxymethyl)-1,3,7-trimethyl-, 3794*f*.

**$C_{11}H_{16}N_4O_4$** Malonic acid, (5-amino-3-methyl - 1,2,4,1*H* - triazol - 1-ylmethylene)-, di-Et ester, P 53*a*.

**$C_{11}H_{16}N_4O_4S_2$** 2 - Thiazolecarbamic acid, 5-(3 - carboxy - 2 - thioureido) - 4-methyl-, di-Et ester, 1402*g*.

**$C_{11}H_{16}N_4O_7S$** Butylamine, 4-methylmercapto-, picrate, 1725*d*.

**$C_{11}H_{16}N_4O_8S$** Butylamine, 4-(methylsulfinyl)-, picrate, 1725*d*.

**$C_{11}H_{16}N_4O_{10}$** Ethanol, 2,2' - (methoxyimino)di-, picrate, 7422*g*.

**$C_{11}H_{16}N_6O$** 4-Pteridinol, 2-amino-6-(diethylaminomethyl)-, - *HI*, P 6246*b*

**$C_{11}H_{16}N_6O_2$** Biguanide, 1-isopropyl-5 (*p* nitrophenyl)-, - *HCl*, 2947*g*.

**$C_{11}H_{16}N_6O_7$** Guanidine, 1-isopropyl-3 methyl-, picrate, 9039*c*.

**$C_{11}H_{16}O$** Anisole, 3,5-diethyl-, 1029*b*.
Anisole, 2-isopropyl-5-methyl-, 4640*c*.
Benzyl alcohol, $\alpha$-ethyldimethyl-, 1368*c*, 6990*g*.
—, $\alpha$-isobutyl-, 2604*c*.
Bicyclo[4 3.1] - 7 - decen - 10 - one, 7-methyl-, 7908*d*.
2-Butanol, 3-methyl-4-phenyl-, 5762*a*.
3 - Buten - 1 - one, 1 - (methyl 1 cyclohexen-1-yl)-, 117*abfg*, 8360*d*.
Cresol, *tert*-butyl-, 3804*h*, 8881*c*.
2*H* - Cycloheptabenzen - 2 - one, 3,4,4a, 5,6,7,8,9-octahydro-, 7908*e*.
Cyclohexanol, 1-(3 - buten - 1 - ynyl)-methyl-, 116*h*, 117*e*.
Ether, amyl phenyl, 2590*b*
1 Indanone, 4,5,6,7 - tetrahydrodimethyl , 116*i*, 117*e*.
1-Pentanol, 5-phenyl-, 2576*g*.
Phenethyl alcohol, *p*-isopropyl-, 5150*g*.
Phenol, *p* amyl-, 6616*c*.
—, *tert*-amyl-, 1242*e*, P 7610*d*, 8881*c*.
—, *p*-(1-ethylpropyl) , 3812*g*
—, pentamethyl-, P 687*f*, 7450*i*, 7465*d*.

**$C_{11}H_{16}OS$** 1-Heptanone, 1-(2-thienyl)-, 228*a*.
Ketone, methyl 5-(1-methylbutyl) 2-thienyl, P 2644*c*.
Phenol, *p*-(amylmercapto)-, 7820*c*.

**$C_{11}H_{16}O_2$** Benzene, 2,4 - dimethoxy-1-propyl-, 1033*c*.
1,1 - Butanediol, 2-methyl - 1 - phenyl-, 4255*c*.
Butanol, (benzyloxy)-, 6976*a*.
3 - Buten - 1 - one, 1 - (3,6 - dihydro 2,2 dimethyl - 2*H* - pyran - 4 - yl)-, 2162*c*.
—, 1 - (tetrahydro - 2,2 - dimethylpyran 4 ylidene)-, 2161*i*, 2162*a*.
Camphor, 3-(hydroxymethylene) , 610*k*.
Cyclohexanone, 4 senecioyl-, 2958*b*.
1 - Cyclohexene - 1 - acetic acid, $\alpha$-allyl , 3798*b*.
Cyclopenta[*c*]pyran - 5(1*H*) - one, 3,4,6,7 - tetrahydro - 3,3,7 - trimethyl , 2162*f*.
2 - Cyclopenten - 1 - one, 4 - hydroxy-3-methyl - 2 - (3 - methyl - 2 - butenyl) , 5751*i*.
Guaiacol, 4-butyl-, 2185*f*.
$\Delta^{2,\alpha}$-Norcamphaneacetic acid, 3,3-dimethyl-, 5708*b*.
Phenol, *tert* butyl-4-methoxy-, P 3187*f*, P 6235*c*, 9286*a*.
1,3 - Propanediol, 2 - ethyl - 2 - phenyl-, 8546*i*.
Pyran - 4 - ol, 4 - (3 - buten - 1-ynyl) tetrahydro 2,2-dimethyl-, 2161*h*.
Tricyclo[4.2.2.0$^{1,4}$]decane - 7 - carboxylic acid, 6197*h*.

**$C_{11}H_{16}O_2S$** Ethanethiol, 2-*p*-toloxyethoxy-, P 4507*i*.

**$C_{11}H_{16}O_2SSi$** Acetic acid, [*p*-(trimethylsilyl)phenylmercapto]-, 3365*c*

**$C_{11}H_{16}O_2SeSi$** Acetic acid, [*p*-(trimethylsilyl)phenylselenyl]-, 2273*i*.

**$C_{11}H_{16}O_3$** Benzyl alcohol, $\alpha$-butyl-3,5-dihydroxy-, 8385*d*.
Bicyclo[3.3.1]nonane - 1 - carboxylic acid, 4-methyl-9-oxo-, 7907*i*.
2,3-Butanediol, 1-*p*-toloxy-, 3120*b*.
Camphocarboxylic acid, 610*f*, 6055*e*.

Cyclohexene - 1 - carboxylic acid, 6-acetyl-3,4-dimethyl-, 1040*c*.
—, 2,3-dimethyl-4-oxo-, Et ester, 8362*f*.
4 - Cyclohexene - 1,3 - dione, 5-hydroxy-pentamethyl-, 2598*g*.
1 - Cyclohexene - 1 - valeric acid, δ-oxo-, 587*e*.
1 - Cyclopentene - 1 - valeric acid, δ-oxo-, Me ester, 587*e*.
2 - Norcamphanepropionic acid, 2-methyl-3-oxo-, 5383*g*.
Phenethyl alcohol, 3,5-dihydroxy-α,β,2-trimethyl-, 2185*c*, 9066*e*.
Phenol, 2,6 - dimethoxy - 4 - propyl-, 8675*e*.
Propanediol, 2-ethyl-2-phenoxy-, 8546*i*.
—, 3-(ethylphenoxy)-, 311*i*, 5655*e*.
—, 3-(methylbenzyloxy) , 311*h*, 7000*f*.
—, 2-methyl 3-toloxy-, 312*b*, P 5421*i*.
—, 3 (2,4-xylyloxy)-, 311*i*.
2 - Propanol, 1 - ethoxy - 3 - phenoxy , P 3460*i*.
—, 1-methoxy-3-*o* toloxy-, 312*c*
Pyran - 4 - ol, 2 (2 - furyl)tetrahydro 4,6-dimethyl-, P 3043*a*.

$C_{11}H_{16}O_3S$ Butyl tolyl sulfite, P 4853*g*
Toluenesulfonic acid, Bu ester, P 7751*de*.

$C_{11}H_{16}O_4$ Benzyl alcohol, α-ethyl-4-hydroxy-3,5-dimethoxy , 1030*d*.
Cyclohexanesuccinic acid, 1-hydroxy-, γ-lactone, Me ester, 590*f*.
Cyclopentanepropionic acid, 1-acetyl-2-oxo-, Me ester, P 5417*a*.
Malonic acid, [2 - (2 - cyclohexen-1 yl)-ethyl] , 1377*h*.
4 - Pentyne - 2,3 - diol, 2,3 - dimethyl-, diacetate, 3358*h*.
1,2 - Propanediol, 3 - (2,5 - dimethoxyphenyl) , 6599*g*.
—, 3 (ethoxyphenoxy)-, 311*i*.
—, 3-(*p*-methoxybenzyloxy)-, 311*h*
—, 3 (methoxyphenoxy) 2-methyl , 312*b*, P 5421*c*.
—, 3 - *o* - phenetyloxy-, 5655*e*.

$C_{11}H_{16}O_5$ 1,3 - Dioxolane - 4 - acrylic acid, 4 - hydroxy - β - methoxytetramethyl-, γ-lactone, 1722*c*.
Terrestric acid, 1110*d*, 7138*h*.

$C_{11}H_{16}O_5S$ *p* - Acetylphenyldimethylsulfonium methyl sulfate, 7475*a*.

$C_{11}H_{16}O_6$ Adipic acid, α acetyl-α-methyl-β oxo-, di-Me ester, 7434*a*
1,2,3 - Cyclohexanetricarboxylic acid, 1,3-dimethyl , 1042*h*.
1,3,5 Pentanetricarboxylic acid 3-isopropenyl , 6578*i*.
4 Pentene 1,2,3 - triol, triacetate, 7124*h*.

$C_{11}H_{16}O_6S$ 3,4 - Thiophenedicarboxylic acid, 2 (4 - carboxybutyl)tetrahydro-, P 5425*i*

$C_{11}H_{16}O_9$ Ribitol, 1,5-anhydro-, triacetate, 1721*c*

$C_{11}H_{16}O_9$ 1,1,5,5 Heptanetetracarboxylic acid, P 7505*i*.

$C_{11}H_{16}S$ Sulfide, amyl phenyl, 2956*f*.

$C_{11}H_{16}S_2$ Benzaldehyde, di Et mercaptal, 2567*i*.

$C_{11}H_{16}BrN_2O$ *o* Cresol, 5 amino-4 bromo α diethylamino , P 1062*c*.

$C_{11}H_{17}BrO_4$ Cyclopentanecarboxylic acid, 2 bromoacetyl - 1 - methyl , Et ester, 3829*h*.

$C_{11}H_{16}ClN_2O$ *o*-Cresol, 6-amino-4-chloro-α-diethylamino-, P 1062*c*

$C_{11}H_{17}ClN_2O_3$ Hydroxy(*m*-hydroxyphenyl)-dimethylammonium chloride, *m*-dimethylcarbamate, P 7966*e*.

$C_{11}H_{17}ClN_2O_4S_2$ 2 - Propanesulfonic acid, 2-chloro-, 2 - benzyl - 2 - thiopseudourea salt, 7411*g*.

$C_{11}H_{17}ClO$ Cycloheptanone, 2-(3-chloro-2-butenyl) , 7908*d*.
Naphthoyl chloride, decahydro-, 1376*f*.

$C_{11}H_{17}ClO_4$ Malonic acid, (3 chloro-2-butenyl) , di-Et ester, 1725*h*.
Pimelic acid, α-3-chloro-2-butenyl-, 7908*b*.

$C_{11}H_{17}ClO_4S$ 3,4 - Thiophenedicarboxylic acid, 3 - chlorotetrahydro - 2-methyl-, di Et ester, P 7970*f*.

$C_{11}H_{17}IN_2$ 1 - Methyl - 3 - (1 - methyl - 2-pyrrolidyl)pyridinium iodide, 4138*b*.

$C_{11}H_{17}KN_2O_2$ Caproimidic acid, *N*-(1-cyano 2 - hydroxyvinyl)-, Et ester, K deriv., 2203*b*.

$C_{11}H_{17}N$ Benzylamine, diethyl-, 1340*i*, 2956*h*, 7921*d*.
Benzylamine, α-ethyl-*N*, *N*-dimethyl-, 7921*d*.
—, α - isopropyl - *N* - methyl-, *and* - *HCl*, 1340*i*.
—, *N* - methyl - α - propyl-, *and* - *HCl*, 1340*i*.
Butylamine, 1-methyl-4-phenyl-, 9250*g*.
1 - Cyclohexene - 1 - acetonitrile, α-propyl-, 3798*a*.
Phenethylamine, α-ethylmethyl-, P 1802*e*, 9047*d*; - *HCl*, P 5800*g*.
—, *N*-isopropyl-, 7585*g*.
—, propyl-, 7585*g*, 9047*e*.
—, trimethyl-, P 1802*f*, 6993*f*, 9118*d*, *and* - *HBr*, P 1059*d*, P 3454*i*.
Propylamine, dimethyl-3-phenyl , 1026*d*, - *HCl*, P 5800*h*.
*o*-Toluidine, *N*, *N*-diethyl-, 594*i*.

$C_{11}H_{17}NO$ *p*-Anisidine, 2,3,5,6-tetramethyl-, 180*g*.
Benzyl alcohol, α - (2 - dimethylaminoethyl)-, - *HCl*, 9071*d*.
2-Butanol, 4-benzylamino-, 2935*b*.
1 - Cyclohexene - 1 - acetamide, α-allyl-, 3798*c*.
Ethylamine, *N*, *N*-dimethyl 2-toloxy-, P 7960*d*
Norephedrine, *N*, *N*-dimethyl-, 9118*e*.
Phenethylamine, methoxydimethyl-, 1741*g*, 6594*b*; - *HCl*, 1109*e*, P 5800*f*, 9259*c*.
*p*-Phenetidine, *N*-propyl-, P 1178*c*.
Phenol, 2-amino-4-amyl-, *and* - *HCl*, 6617*a*.
—, *p* (2 dimethylaminopropyl)-, 9250*d*.
—, *p* - (2 - ethylaminopropyl)-, *sulfate*, 1741*h*.
4 - Piperidinol, 4 - (3 - buten - 1-ynyl)-2,5-dimethyl-, 6622*i*.
2(1 *H*) - Pyridone, 6-amyl-1-methyl-, 6629*d*.

$C_{11}H_{17}NO_2$ Acetaldehyde, benzylamino-, di-Me acetal, *and* - *HCl*, 6974*d*.
Aniline, 4 - ethoxy - *N* - ethyl - 3-methoxy-, 2177*d*.
Benzyl alcohol, *p*-hydroxy-α-(isopropylaminomethyl)-, 7128*d*, 9250*d*; *and* - *HCl*, P 3460*c*.
Cyclohexaneacetic acid, α-cyano-, Et ester, 5150*e*.
Enanthonitrile, α-butyryl-γ-oxo-, 2938*f*
Ethanol, 2,2' (tolylimino)di-, 7443*a*, P 7607*g*, P 8145*e*, P 9458*f*, P 9459*b*.
1 - Pentanol, 5 - (*p* - aminophenoxy)-, P 7695*i*.
Phenethylamine, dimethoxymethyl-, 7588*c*, 6594*b*, 9250*e*.
Propanediol, *N*-ethylanilino-, P 8149*c*.
—, 3 - (*N* - methyl - *o* - toluidino) , 4773*i*.
2-Propanol, 1-ethylamino-3-phenoxy-, P 7045*i*.
Pyrocatechol, 4-(2-isopropylaminoethyl)-, 317*b*, - *HCl*, 2602*g*.
Trimethylphenacylammonium hydroxide, 6993*a*.
Tyramine, β-ethoxy-*N*-methyl , - *HCl*, 2602*d*.
Veratrylamine, *N*-ethyl-, 2177*a*.

$C_{11}H_{17}NO_2S$ Aniline, *p*-(isoamylsulfonyl)-, 2593*e*.
Butylamine, 4 - (*p* - methylsulfonylphenyl) , - *HCl*, 1740*b*.
5(4 *H*) - Oxazolone, 5-amyl - 4 - [(ethylmercapto)methylene]-, 2990*f*.
3-Thiophenecarboxylic acid, 2-diethylaminoethyl ester, *and* - *HCl*, 630*g*.
2,5 - Thiophenedicarboximide, *N*-amyltetrahydro-, 6612*b*.
Xylenesulfonamide, *ar*-propyl-, 6990*h*.

$C_{11}H_{17}NO_2S_2$ Sulfilimine, *S*,*S*-diethyl- *N*-*p*-tolylsulfonyl-, 172*e*.

$C_{11}H_{17}NO_3$ (See also *Protocatechuyl alcohol, α-(isopropylaminomethyl)-*.)
Mescaline, 5805*g*, 9128*h*; - *HCl*, 9260*i*.
Pyridine, 2,3,5-triethoxy-, 3824*h*.

$C_{11}H_{17}NO_3S$ 3-Thiophenecarboxylic acid, 4-cyanotetrahydro - 4 - hydroxy-2-propyl-, Et ester, P 6667*i*.

$C_{11}H_{17}NO_4$ Adipic acid, α-cyano-, di-Et ester, 4222*f*.
Malonic acid, (3-cyanopropyl)-, di-Et ester, 1007*d*.

$C_{11}H_{17}NO_4S$ 2-Butanol, 4-benzylamino-, hydrogen sulfate, *cyclic salt*, 2934*i*.
Cyclohexanone, compd. with pyridine bisulfite, 3355*i*.
Ethanol, 2 - [3 - (*p* - aminophenoxy)propylsulfonyl]-, 8388*g*.
1 - Phenol - 2 - sulfonic acid, 6-amino-4-amyl-, P 8148*d*.
3 - Thiophenecarbamic acid, tetrahydro-2-vinyl-, 1,1 - dioxide, 2-methylallyl ester, P 6668*f*.

$C_{11}H_{17}NO_5$ Pimelic acid, γ-carbamyl-γ-isopropenyl-, 6579*d*.
Valine, *N* - (2 - carboxycyclobutylcarbonyl)-, 5743*e*.

$C_{11}H_{17}NO_5S_2$ Pyrocatechol, 4 - (2 - isopropylamino - 1 - mercaptoethyl)-, *S*-thiosulfate, 7137*d*.

$C_{11}H_{17}NO_6$ Gluconamide, *N*-allyl-2,4,3,5-dimethylene-, 5007*a*.

$C_{11}H_{17}NO_7$ Xylose, acetoamido-, 7430*e*.

$C_{11}H_{17}NS$ 2 - Propanesulfenamide, *N*-benzyl-2-methyl-, 2934*c*.

$C_{11}H_{17}N_2NaO_3S$ (See also *Pentothal sodium*.) Barbituric acid, 5-ethyl-5-isoamyl-2-thio-, Na deriv., 4768*e*.

$C_{11}H_{17}N_2NaO_3$ See *Amytal sodium; Pentobarbital sodium*.

$C_{11}H_{17}N_2O_3P + 2H_2O$ Phosphinic acid, [1-(*p*-acetamidoanilino)isopropyl]-, 5378*a*.

$C_{11}H_{17}N_3$ Butyronitrile, β,β'-(allylimino)di-, P 2226*h*.
Guanidine, cuminyl-, *salts*, 2946*f*.
Pyridine, 1,2-dihydro-2-imino-1-methyl-(1 - methyl - 2 - pyrrolidyl)-, 4138*ab*; 7024*d*.
Pyrimidine, 4,6 - dimethyl - 2 - (1-piperidyl)-, 3427*c*.

$C_{11}H_{17}N_3O$ 3-Buten-2-one, 4-(1-cyclohexen-1-yl)-, semicarbazone, 8360*a*.
2(3 *H*) - Naphthalenone, 4,4a,5,6,7,8-hexahydro-, semicarbazone, 7908*a*.
Propionamide, *N* - (3,6 - diethyl - 2-pyrazinyl)-, 3005*e*.

$C_{11}H_{17}N_3O_2$ Carbamic acid, dimethyl-, 2-(dimethylaminomethyl) - 3 - pyridyl ester, -2 *HCl*, 9261*b*.
2 - Cyclopenten - 1 - one, 2 - (2-butenyl)-5 - hydroxy - 3 - methyl-, semicarbazone, 1335*a*.

$C_{11}H_{17}N_3O_2S$ Sulfanilamide, $N^1$ - (*N*-ethylpropionimidyl)-, P 6660*i*.
Sulfanilamide, $N^1$ - (*N* - isopropylacetimido)-, P 6660*h*.

$C_{11}H_{17}N_3O_3$ 2 - Oxabicyclo[2.2.2]octane-5,6-dione, 1,3,3 - trimethyl-, 6-semicarbazone, 7926*f*.

$C_{11}H_{17}N_3O_3S$ Pyrimidine, 2-amino-1,4,5,6-tetrahydro-, *p*-toluenesulfonate, P 7050*e*.
1,2,3,6,4 *H* - Thiatriazine, 4-[2-(benzyloxy)ethyl]tetrahydro-, 1,1-dioxide, 2573*f*.
Urea, 1,1 - diethyl - 3 - sulfanilyl-, P 821*d*.

$C_{11}H_{17}N_3O_4$ Cytidine, $N^4$,1-dimethyl-, 4635*b*.

$C_{11}H_{17}N_3O_7$ Asparagine, $N^\alpha$ - (*N* - lactylglycyl)-, acetate, 4643*g*.

$C_{11}H_{17}N_3O_8$ Aspartic acid, *N* - [*N* - (*N*-acetyl - α - hydroxyalanyl)glycyl]-, 4643*h*.

$C_{11}H_{17}N_3S$ 3-Buten-2-one, 4-(1-cyclohexen-1-yl)-, thiosemicarbazone, 8360*b*.

$C_{11}H_{17}N_5$ Biguanide, 1-ethyl-5-*p*-tolyl-, - *HCl*, 2947*h*.
Biguanide, 1-isopropyl-5-phenyl-, 9037*b*; - *HCl*, P 1059*i*, 2947*g*, P 6227*h*.
—, 1,1,5-trimethyl-5-phenyl-, P 4691*i*, 9036*h*.

$C_{11}H_{17}N_5O$ Biguanide, 5-(*p*-methoxyphenyl)-1,1-dimethyl-, P 4691*d*, P 6659*h*; *and* - *HCl*, 9036*e*.
6 - Pteridinol, 2 - diethylamino - 7,8-dihydro-4-methyl-, P 9087*f*.

$C_{11}H_{17}N_5O_4S$ Pyrimidine, 6-amino-5-thioformamido - 4 - D - xylosidoamino-2-methyl-, 3423*a*.

$C_{11}H_{18}$ Naphthalene, octahydromethyl-, 2174*a*, 3814*a*, 6607*f*.

$C_{11}H_{18}BrNO_3$ (5 - Carboxy - 3 - hydroxy-4-methoxy - 2 - methyl - 2,4 - pentadienyl)trimethylammonium bromide, γ-lactone, 1722*f*.

$C_{11}H_{18}ClNO$ (2-Chloroethyl)trimethylammonium phenoxide, P 8208*c*.

$C_{11}H_{18}Cl_2O_2$ 2,10 - Hendecanedione, 1,11-dichloro-, P 6465*ab*.

$C_{11}H_{18}Cl_2O_3S_2$ Furan, 2-[3,4-bis(chloromethyl)tetrahydro - 2 - thienylsulfonylmethyl]tetrahydro-, 1,1-dioxide, P 2238*b*.

$C_{11}H_{18}Cl_3N$ Cyclohexylamine, 3,3,5-trimethyl - *N* - (2,2,2 - trichloroethylidene)-, P 5154*a*, P 7499*d*.

$C_{11}H_{18}IN$ Trimethyl(α-methylbenzyl)ammonium iodide, 2967*a*.

$C_{11}H_{18}INO$ Trimethyl(2 - phenoxyethyl)ammonium iodide, 6365*d*.

$C_{11}H_{18}IN_3$ 2 - (Amino - 3 - pyridyl) - 1,1-dimethylpyrrolidinium iodide, 4138*a*.

$C_{11}H_{18}NO_3P$ Phosphinic acid, (1-*p*-phenetidinoisopropyl)-, 5378*d*.

$C_{11}H_{18}N_2$ Aniline, *p*-(5-aminoamyl)-, 9047*c*.
Ethylenediamine, *N'*-benzyl-*N*, *N*-dimethyl-, P 3472*c*; *and di-HCl*, 7023*d*.
2,4 - Mesitylenediamine, *N*, *N'* - dimethyl-, 1734*i*, 7919*a*.
—, *N*-ethyl-, 1735*d*.

Phenethylamine, *p* - amino - *α* - ethyl - *α*-methyl-, 8365*b*, 9047*d*.
—, *p*-amino-*α*-propyl-, 8365*b*, 9047*d*.

**$C_{11}H_{18}N_2O$** *o* - Cresol, 4 - amino - *α* - butylamino-, P 1062*b*.
*o*-Cresol, amino-*α*-diethylamino-, and *di*-*HCl*, P 1062*b*.
—, 4-amino-*α*-isobutylamino-, P 1062*b*.
Cyclohexanecarboxylic acid, 2-butenylidenehydrazide, 4233*b*.
Ethylamine, 2,2′ - (4 - methoxy-*m*-phenylene)bis-, 6591*f*.
Ethylenediamine, *N* - ethyl - 1 - (*p*-methoxyphenyl)-, *di*-*HCl*, 6176*i*.
—, *N*′ - (*p* - methoxyphenyl) - *N*, *N*-dimethyl-, 6587*g*.

**$C_{11}H_{18}N_2OS_2$** Hydantoin, 5-hexyl-2,4-dithio-, Ac deriv., 3409*h*.
2 - Thiazolethiol, 5 - acetamido-4-hexyl-, 3409*f*.

**$C_{11}H_{18}N_2O_2$** 4 - Pentynamide, *N* - (1-dimethylcarbamylethyl) - *N* - methyl-, P 249*a*.

**$C_{11}H_{18}N_2O_2S$** See *Pentothal*.

**$C_{11}H_{18}N_2O_3$** (See also *Amytal*; *Pentobarbital*.)
Allophanic acid, 4-isopropyl-2-cyclohexen-1-yl ester, 161*b*.
5 - Benzimidazolebutyric acid, octahydro-2-oxo-, 2244*g*.
Caprylic acid, *η*-diazo-*α*-methyl-*ζ*-oxo-, Et ester, 1381*c*.
Hydantoin, 5 - cyclohexyl - 5 - (methoxymethyl)-, P 3452*i*.
4,6(1*H*,5*H*) - Pyrimidinedione, 5 - (2-hydroxyethyl) - 2 - isoamyl-, 6173*e*.

**$C_{11}H_{18}N_2O_3S$** Acetamidine, *N*, *N*, *N*′-trimethyl-, benzenesulfonate, 2595*f*.
Biotin, Me ester, P 1810*c*.
Methanesulfinic acid, [6-(1-ethyl propoxy) - 3 - pyridylamino]-, *Na salt*, P 3471*a*.
1*H* - Thieno[3,4]imidazole - 4 - valeric acid, hexahydro - 2 - oxo-, Me ester, P 2645*e*.

**$C_{11}H_{18}N_2O_4$** 1*H* - Furo[3,4]imidazole - 4-caproic acid, hexahydro-2-oxo-, 2244*h*, 9149*b*.
1*H* - Furo[3,4]imidazole - 4 - valeric acid, hexahydro-2-oxo-, Me ester, 2988*b*.

**$C_{11}H_{18}N_2O_4S$** Methanesulfonic acid, [6-(1-ethylpropoxy) - 3 - pyridylamino]-, *and alkali metal salts*, P 3470*h*.

**$C_{11}H_{18}N_2O_4S$** 1 - Imidazoleacetic acid, 2-mercapto - 4 - (1,2,3,4 - tetrahydroxybutyl)-, Et ester, 2989*c*.

**$C_{11}H_{18}N_2S_2$** 2 - Thiazolesulfenamide, *N*-cyclohexyl - 4,5 - dimethyl-, P 1602*d*, P 4509*a*.
2 - Thiazolesulfenamide, *N* - cyclohexyl-4-ethyl-, P 1602*d*, P 4509*a*.

**$C_{11}H_{18}N_4O_4S$** Butylamine, 4-methylmercapto-, picramate, 1725*d*.
Pyrimidine, 6 - amino - 4 - (D - galactopyranosidamino) - 2 - (methylmercapto)-, 145*c*.
—, 6 - amino - 4 - D - glucosidamino-2-(methylmercapto) , 146*c*.

**$C_{11}H_{18}N_4O_5S$** Butylamine, 4-(methylsulfinyl)-, picramate, 1725*e*.

**$C_{11}H_{18}O$** Alc., $b_{16}$ 132–4°, P 1807*f*.
Bicyclo[3.1.1] - 2 - heptene - 2 - ethanol, 6,6-dimethyl-, P 1807*f*.
3 - Cyclohexene - 1 - carboxaldehyde, tetramethyl-, 3376*b*.
2 - Cyclohexen - 1 - one, 2 - ethyl - 3,5,5-trimethyl-, 1013*d*.
Cyclopentanone, 2-cyclohexyl-, 2586*h*.
2 - Cyclopenten - 1 - one, 3 - ethyl - 4-methyl-2-propyl-, 6623*f*.
1-Indanone, hexahydrodimethyl-, 116*i*, 117*f*.
2,6 - Octadienal, 3,6,7 - trimethyl-, 7900*d*.
1,5-Octadien-4-one, 5-propyl-, 6623*e*.
7-Octen-5-yn-4-ol 6623*d*.

**$C_{11}H_{18}O_2$** Acetaldehyde 1,1 - dimethyl-4-penten - 2 - ynyl ethyl acetal, 124*h*.
Cyclohexanone, 6 - (ethoxymethylene)-2,3-dimethyl-, 2362*h*.
—, 4-isovaleryl-, 2958*c*.
1 - Cyclohexene - 1 - acetic acid, *α*-propyl-, 3798*b*.
3 - Cyclohexene - 1 - butyric acid, Me ester, 1378*a*.
3 - Cyclohexene - 1 - carboxylic acid, 1,3,4 - trimethyl-, Me ester, 3373*i*.
Cyclopenta[*c*]pyran - 5(1*H*) - one, hexahydro - 3,3,7 - trimethyl-, 2162*g*.
3-Decenoic acid, 3-hydroxy-2-methyl-, ***β*-lactone**, 4220*g*.
**Formic acid**, ester with linalool, P 6219*g*.
2-Naphthoic acid, decahydro-, 1376*f*.
2-Norpinaneacetic acid, 6,6-dimethyl-, **P 1807*g***.
3-Pentenoic acid, 2-hexyl-3-hydroxy-, *β*-lactone, 4220*g*.
Pyrethrolone, tetrahydro-, 6988*d*.

**$C_{11}H_{18}O_2Si$** Silane, diethoxymethylphenyl-, 2575*a*, P 3237*c*, P 4517*c*.

**$C_{11}H_{18}O_3$** Cyclohexanecarboxylic acid, 2,6-dimethyl-4-oxo-, Et ester, 1391*a*.
Cyclohexanecarboxylic acid, 1,3,3-trimethyl-4-oxo-, Me ester, 7462*c*.
Cyclohexanevaleric acid, *δ*-oxo-, 587*e*.
Cyclohexene-1-carboxylic acid, butoxy-, 6203*c*.
Cyclopentanecarboxylic acid, 3-isopropyl-2-oxo-, Et ester, 1749*f*.
Cyclopentanepropionic acid, 1,4,4-trimethyl-2-oxo-, 7462*b*.
8 - Decene - 2,5 - dione, 3 - hydroxy - 9-methyl-, 5751*i*.
2-Hendecenoic acid, 4-oxo-, 3785*d*
Levulinic acid, cyclohexyl ester, 1867*f*.
1 - Oxaspiro[2.5]octane - 2 - carboxylic acid, 5,7 - dimethyl-, Me ester, 8361*i*.
Propionic acid, *β*-(2-methylallyloxy)-, 2-methylallyl ester, P 5037*d*.
Succinic anhydride, heptyl-, 5070*a*.
Valeric acid, *γ*-(cyclohexyloxy)-*γ*-hydroxy-, *γ*-lactone, 140*e*.

**$C_{11}H_{18}O_4$** Citraconic acid, di-Pr ester, 2591*f*.
1,2 - Cyclohexanediol, methyl-, diacetate, 2173*e*.
Cyclohexanemethanediol, diacetate, P 5418*e*.
Cyclopentaneacetic acid, 4-carboxy-2,2,4 trimethyl-, 7462*i*.
1,2-Cyclopentanediol, 2,3-dimethyl-, diacetate, 2173*e*
—, 3-ethyl-, diacetate, 2173*e*.
Cyclopentanemalonic acid, *α*-propyl-, 1388*b*.
1,1 - Cyclopropanedicarboxylic acid, di-Pr ester, 2955*e*.
Malonic acid, 1-methylallyl-, di-Et ester, P 4291*i*.
Mesaconic acid, di-Pr ester, 2591*f*.
Succinic acid, propylidene-, di-Et ester, 1320*c*.
Tetraconic acid, di Et ester, 1320*d*.

**$C_{11}H_{18}O_4S$** 3,4 - Thiophenedicarboxylic acid, tetrahydro - 2 - methyl-, di-Et ester, P 7970*g*.

**$C_{11}H_{18}O_4S_2$** Valeric acid, *γ*, *δ* - dimercapto-, Et ester diacetate, 7424*d*.

**$C_{11}H_{18}O_5$** Malonic acid, (2,3 - epoxy - 1-methylpropyl)-, di-Et ester, P 4291*i*.
Malonic acid, (2-formylisopropyl)-, di-Et ester, 6980*d*.
—, (2 - formylpropyl)-, di-Et ester, 6980*c*.
Pimelic acid, *α*-3-oxobutyl-, 7908*b*.
—, *β*-oxo-, di-Et ester, 7033*d*
Verbenalol, tetrahydro-, 7017*h*.

**$C_{11}H_{18}O_5S$** 3,4 - Thiophenedicarboxylic acid, tetrahydro 3 - hydroxy - 2 - methyl-, di-Et ester, P 7970*e*
3,4 - Thiophenedicarboxylic acid, tetrahydro - 4 - hydroxy - 2 - propyl-, di-Me ester, P 6668*a*.

**$C_{11}H_{18}O_5S_2$** Acetic acid, (2,3 - dimercaptopropoxy)-, Et ester, diacetate, 7424*c*, 9251*a*.

**$C_{11}H_{18}O_6$** 1,1,2 - Ethanetricarboxylic acid, tri-Et ester, 6611*c*, P 8149*f*.
1,3,5 - Hexanetricarboxylic acid, 3,5-dimethyl-, 7462*b*.

**$C_{11}H_{18}O_6S$** Glutaric acid, *α*-(2-carboxyethylmercapto)-, tri-Me ester, P 7504*i*.

**$C_{11}H_{18}O_7$** Gulonic acid, isopropylidene-2-keto-, Et ester, P 6654*f*.
Sorbofuranose, 2,3-isopropylidene-, 4-acetate, 7431*d*.

**$C_{11}H_{18}S$** Thiophene, heptyl-, 4841*h*.

**$C_{11}H_{18}Si$** Silane, trimethylphenethyl-, 8366*f*

**$C_{11}H_{19}Cl$** Norpinane, 2-(2-chloroethyl)-6,6-dimethyl-, P 1807*h*.

**$C_{11}H_{19}ClN_2$** Acrylonitrile, *α*-chloro-*β*-dibutylamino-, 2574*i*, P 3440*e*

**$C_{11}H_{19}ClN_2O_2$** Crotonamide, *β*-chloro-*N*-(1-dimethylcarbamylethyl) - *N* - ethyl-, P 249*b*.

**$C_{11}H_{19}ClO$** Cyclohexanebutyryl chloride, methyl-, 1375*b*.
Ether, chloropentenyl cyclohexyl, 9025*g*.

**$C_{11}H_{19}ClO_3$** Enanthic acid, *ζ*-(chloroformyl)-*α*-methyl-, Et ester, 1381*d*.
Pelargonic acid, *ζ*-chloro-*η*-oxo-, Et ester, 1769*c*.

**$C_{11}H_{19}Cl_3O_2$** 4 - Hendecanone, 1,1,1-trichloro-2-hydroxy-, 3785*c*.

**$C_{11}H_{19}N$** Cyclopentanecapronitrile, 1375*c*.

**$C_{11}H_{19}NO$** Benzyltrimethylammonium methoxide, 7458*c*.
Formamide, *N*-isobornyl , 2165*h*.
Furfurylamine, amylmethyl-, 3407*ab*.
—, butylethyl-, 3407*a*.
—, *N*,*α*-dipropyl-, 3407*a*.
—, *α*-isoamyl-*N*-methyl-, 3407*b*.
Ketone, decahydro-1-isoquinolyl methyl, 121*i*.
4 - Piperidinol, 2 - ethyl - 4 - ethynyl-3,6-dimethyl-, 2960*g*.
—, 4 - ethynyl - 1,2,3,6 - tetramethyl-, 2960*i*.
4*H* - Quinolizin - 4 - one, 3 - ethyloctahydro-, 4267*i*.
4(1*H*)-Quinolone, octahydrodimethyl-, 2960*a*.

**$C_{11}H_{19}NO_2$** 1*H*-Quinolizine - 3 - carboxylic acid, octahydro-4-methyl-, 4268*a*.
4*H*-Quinolizin - 4 - one, octahydro-3-(1 hydroxyethyl)-, 4267*i*.

**$C_{11}H_{19}NO_2S$** 1 - Thi - 4 - azaspiro[4.5]decane-3 - carboxylic acid, Et ester, - *HCl*, 659*e*.

**$C_{11}H_{19}NO_3$** 2 - Oxazoline - 4 - methanol, 2,4-diethyl-, propionate, P 5992*a*.

**$C_{11}H_{19}NO_3S$** Acrylic acid, *α* - caproylamino-*β*-(ethylmercapto)-, 2990*c*.

**$C_{11}H_{19}NO_4S$** Acetone, compd. with *α* methylbenzylamine bisulfite, 3356*b*, compd. with phenethylamine bisulfite, 3356*b*.
Benzaldehyde, compd. with *tert*-butyl amine bisulfite, 3356*c*.
Trimethyl - *p* - tolylammonium methyl sulfate, 6058*a*.

**$C_{11}H_{19}NO_5$** Propionic acid, *β*,*β*′-(formylimino)di-, di-Et ester, 576*b*.

**$C_{11}H_{19}NO_5S$** Malonic acid, formamido[2-(methylmercapto)ethyl]-, diethyl ester, 2943*e*.

**$C_{11}H_{19}NO_6$** Succinic acid, 1-nitroisopropyl-, di-Et ester, 1320*a*.
Succinic acid, (2-nitropropyl)-, di-Et ester, 5745*e*.

**$C_{11}H_{19}NS$** 2 - Thenylamine, *N* butyl-*α*-ethyl-, 3407*b*.

**$C_{11}H_{19}NSi$** Aniline, *N*, *N*-dimethyl-*p* (trimethylsilyl)-, 8366*e*.

**$C_{11}H_{19}N_3$** 2,4,6 - Mesitylenetriamine, *N*, *N*′ dimethyl-, 1735*c*.

**$C_{11}H_{19}N_3O$** Carvotanacetone, semicarbazone, 7915*d*.
Citral, semicarbazone, 7414*a*.
2 - Cyclohepten - 1 - one, 2,6,6 - trimethyl-, semicarbazone, 4637*g*.
2 - Cyclohexen - 1 - one, 3 - *sec*-butyl , semicarbazone, 9045*c*.
—, 3-*tert*-butyl-, semicarbazone, 9045*c*
—, 3-isobutyl-, semicarbazone, 9045*b*
Isofenchone, semicarbazone, 7462*i*.
4(5) - *p* - Menthen - 3 - one, semicarbazone, 2976*a*
Norcamphor, 5,5,6 - trimethyl-, semicarbazone, 2605*a*.
Pinocamphone, semicarbazone, 2976*g*, 2977*bg*, 3806*i*.
Piperitone, semicarbazone, 7915*h*.
Pulegone, semicarbazone, 4815*b*
Pyrimidine, 4 - amino - 5 - (amoxymethyl)-2-methyl-, P 9087*b*
Semicarbazone, m. 133°, 3807*i*.

**$C_{11}H_{19}N_3O_2$** Ketone, 3,4 - dihydro 2,5,6-trimethyl - 2*H* - pyran - 2 - yl methyl, semicarbazone, 5023*i*.

**$C_{11}H_{19}N_3O_3$** Cyclohexanecarboxylic acid, 1,3,3 - trimethyl - 4 - oxo-, semicarbazone, 7462*c*.
2-Decenoic acid, 4-oxo-, semicarbazone, 3785*d*.
Pinonic acid, semicarbazone, 3807*c*.
4,6(1*H*,5*H*) - Pyrimidinedione, 5 - amyl - 2,3 - dihydro - 5 - (2-hydroxyethyl)-2-imino-, 6173*e*.
—, 2,3 - dihydro - 5 - (2 - hydroxyethyl) 2-imino-5-isoamyl-, 6173*f*.

**$C_{11}H_{19}N_5$** 1*H* - Tetrazole, 5 - [(allylamino)-methyl] - 1 - cyclohexyl-, 1864*h*, P 7971*i*.

**$C_{11}H_{19}N_5O$** Morpholine, 4 - [3 - (2 - amino-4-pyrimidylamino)propyl]-, *and tri-HCl*, P 4704*d*.
*s*-Triazine, 2-amino-4-butoxy-6-(2-methylallylamino)-, 4269*d*.

**$C_{11}H_{19}N_5O_2$** *s*-Triazine, 2-amino-4-butoxy-6-(4-morpholinyl)-, 4269*e*.

**$C_{11}H_{19}N_5O_2S$** *p* - Toluenesulfonic acid, 1,1-dimethylbiguanide salt, P 4292*h*.

**$C_{11}H_{19}N_5O_6$** Glycine, *N*-[*N*-[(*N*-alanylglycyl)-glycyl] glycyl]-, 6249*h*.

**$C_{11}H_{19}N_7O_{11}$** Acetamide, *N* - (trioxymethylnitramino)methyl] - *N* - [(trioxymethylnitramino)methyl]nitramino methyl]-, diacetate, 9073*c*.
2,4,6,8 - Tetraazanonane - 1,9 - diol, 4-acetyl-2,6,8 - trinitro-, diacetate, 9075*g*.

$C_{11}H_{22}$ Cyclohexane, cyclopentyl-, 4521*f*.
Cyclohexene, 3-isopropyl-4,4-dimethyl-, 5751*c*.
1,4-Hendecadiene, 3774*c*.
Naphthalene, decahydromethyl-, 3814*a*, 6607*e*.
2,7-Nonadiene, 2,8-dimethyl-, 5751*b*.
Norcamphane, 2-*tert*-butyl-, P 689*h*.
$C_{11}H_{22}Br_4$ Hendecane, 1,2,4,5-tetrabromo-, 3774*c*.
$C_{11}H_{22}ClNO_3$ Norleucine, *N*-chloroacetyl-α-isopropyl-, 2167*e*.
$C_{11}H_{22}ClN_3$ *s*-Triazine, 2-chloro-4,6-bis(diethylamino)-, 1426*d*.
$C_{11}H_{22}IN$ Cyclooctadienyltrimethylammonium iodide, 591*f*.
$C_{11}H_{22}N_2$ Carbodiimide, *tert*-butylcyclohexyl-, 1015*i*.
Cyclohexanecarbonitrile, 1-diethylamino-, 4415*g*.
$C_{11}H_{22}N_2O$ 3-Pyrazolone, 2-butyl-4-isopropyl-5-methyl-, 7934*f*.
3-Pyrazolone, 2,4-diisopropyl-1,5-dimethyl-, 7934*h*.
—, 2-isobutyl-4-isopropyl-5-methyl-, 7934*f*.
—, 4-isopropyl-1,5-dimethyl-2-propyl-, 7934*h*.
4(3*H*)-Pyrimidone, 6-hexyl-5,6-dihydro-2-methyl-, 236*a*.
$C_{11}H_{22}N_2O_2$ Butyramide, α-(*N*-allylacetamido)-*N*,*N*-dimethyl-, P 250*g*.
Crotonamide, *N*-(1-dimethylcarbamylethyl)-*N*-ethyl-, P 248*e*, P 249*b*, P 4686*f*, P 5793*d*.
—, *N*-(1-dimethylcarbamylpropyl)-*N*-methyl-, P 249*h*.
2,5-Piperazinedione, 1-isobutyl-4-isopropyl-, 8406*g*.
$C_{11}H_{22}N_2O_3$ Hydantoin, 5-butyl-5-(1-methoxypropyl)-, 6985*a*
Hydantoin, 5-sec-butyl-5-(1-methoxypropyl)-, 6985*a*.
—, 5-isobutyl-5-(1-methoxypropyl)-, 6985*a*
$C_{11}H_{22}N_2O_3S$ Pentanesulfonic acid, PhNHNH$_2$ salt, 3353*a*.
$C_{11}H_{22}N_2O_3S_2$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)dione, 2,4-dibutyl-3-thio-, 1,1-dioxide, P 4868*d*.
$C_{11}H_{22}N_2O_4S$ 1,2,4,2*H*-Thiadiazine 3,5-(4*H*,6*H*)-dione, 2,4-dibutyl-, 1,1-dioxide, P 4868*d*
1,2,6,4*H*-Thiadiazine-3,5(2*H*,6*H*)-dione, 2,6-diisobutyl-, 1,1-dioxide, 2573*d*.
3,4-Thiophenedicarbamic acid, tetrahydro-2-methyl-, di-Et ester, P 7970*h*.
$C_{11}H_{23}NO_4$ 3,4-Furandicarbamic acid, tetrahydro-2-methyl-, di-Et ester, P 1442.
Glutamic acid, *N*-leucyl-, 2245*f*, *g*.
$C_{11}H_{24}N_2O_4S$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2,4-bis(2-ethoxyethyl)-, 1,1-dioxide, P 4868*d*.
$C_{11}H_{24}N_4S_2$ 2-Thiazolesulfenamide, *N*-1,3-dimethylbutyl-4,5-dimethyl-, P 1602*e*, P 4509*b*.
$C_{11}H_{24}N_4$ Guanidine, 1-cyano-2-cyclohexyl-3-isopropyl-, 2949*g*.
$C_{11}H_{24}N_4O$ Urea, 1,1′-isopropylidenebis[3-isopropylidene-, 6308*f*.
$C_{11}H_{24}N_4O$ Acetamide, *N*-butyl-*N*-[2-(4,6-diamino-*s*-triazin-2-yl)ethyl]-, P 5052.
$C_{11}H_{24}N_4O_5$ Propionic acid, α,α-bis(diglycylamino)-, -*HCl*, 138*h*.
$C_{11}H_{22}O$ Butanone, (methylcyclohexyl)-, 117*bg*, 8360*f*.
Cyclohexanone, 2-ethyl-3,5,5-trimethyl-, 1013*e*.
Cyclopentanone, 3-ethyl-4-methyl-2-propyl-, 6623*g*.
Ether, 1,5-dimethyl-1-vinyl-4-hexenyl methyl, P 6219*g*.
—, methyl [1-(4-methyl-3-cyclohexen-1-yl)isopropyl], 8368*i*.
2-Hendecenal, 5736*h*.
1-Indanol, hexahydro-3,5-dimethyl-, 117*a*
Ketone, methyl 2,2,6-trimethylcyclohexyl, 4813*e*.
2-Naphthol, decahydro-2-methyl-, 6607*f*.
3-Nonen-4-one, 5-ethyl-, 1317*g*.
2-Norpinanemethanol, 6,6-dimethyl-, P 1807*h*.
1,6-Octadien-3-ol, 3,6,7-trimethyl-, 7900*d*.
$C_{11}H_{22}O_2$ Acrylic acid, thiol-, *tert*-octyl ester, P 7678*i*.
$C_{11}H_{22}OSi_2$ Disiloxane, pentamethylphenyl-, P 667*f*, P 1803*c*.
$C_{11}H_{22}O_3$ (See also *Hendecenoic acid*.)
Acid, $b_3$ 120–2°, 3376*g*.
Acrylic acid, 1-methylheptyl ester, P 6651*b*.
Butanone, 1-cyclohexyl-2-methoxy-, 6974*i*.
—, 1-(tetrahydro-2,2-dimethylpyran-4-yl)-, 2162*ae*.
Caproic acid, α-ethyl-, isopropenyl ester, P 7038*d*.
Citronellic acid, Me ester, 4633*g*.
Cyclodecanone, 6-methoxy-, 6190*e*.
Cyclohexanebutyric acid, methyl-, 1375*b*.
Cyclohexanecarboxylic acid, tetramethyl-, 2964*c*.
Cyclohexanepropanol, acetate, 1375*f*.
Cyclohexanevaleric acid, 2273*i*.
Cyclohexanone, 2-(3-ethoxypropyl)-, 1414*h*.
Cyclononanol, acetate, 6988*f*.
Cyclopentanecaproic acid, 1375*c*.
Hendecanoic acid, 4-hydroxy-, γ-lactone, P 6652*a*.
4-Heptanone, 6-methoxy-2,2-dimethyl-3-methylene-, 118*a*.
Heptenol, dimethyl-, acetate, P 3838*i*, 5735*c*.
Nonanedione, 2,8-dimethyl-, 1723*f*.
—, ethyl-, P 7954*ab*.
3-Nonenoic acid, 4,8-dimethyl-(?), 5388*d*.
2-Octanol, 3-methylene-, acetate, 1311*f*.
11-Oxabicyclo[4.4.1]hendecane, 1-methoxy-, 6190*d*.
$C_{11}H_{22}O_3$ Acrylic acid, β-butoxy-, Bu ester, 6168*e*.
Cyclohexanebutyric acid, 4-hydroxy-, Me ester, 1377*i*.
Enanthic acid, α-acetyl-, Et ester, P 4689*h*.
2-Furoic acid, tetrahydro-2,5-dimethyl-, Bu ester, 5736*d*.
Hendecanoic acid, 6-oxo-, 3366*g*.
5-Hexenoic acid, 2-hydroxy-2-methyl-, Bu ester, 5736*c*.
Levulinic acid, 1,3-dimethylbutyl ester, 140*e*.
2,4-Pentadienal, 5-ethoxy-, di-Et acetal, P 6225*h*.
2-Penten-1-ol, 5-butoxy-, acetate, 9026*b*.
1-Propanol, 1,3-bis(tetrahydro-2-furyl)-, 3407*e*.
Valeric acid, γ-(1,3-dimethylbutoxy)-γ-hydroxy-, γ lactone, 140*e*.
$C_{11}H_{22}O_4$ Azelaic acid, Et ester, 7303*b*.
Hendecanoic acid, 2-hydroxy-4-oxo-, 3785*b*.
Malonic acid, butyl-, di-Et ester, 572*e*, P 4689*h*, 8358*b*.
Pimelic acid, di-Et ester, P 7505*e*.
Propionic acid, pentamethylene ester, 5150*f*.
Sebacic acid, Me ester, 7303*b*
—, methyl-, 6165*h*.
Suberic acid, α-methyl-, α-Et ester, 1381*d*
Succinic acid, heptyl-, 5069*i*, 5469*c*.
Valeric acid, α-ethoxy-α,γ-dimethyl-β-oxo-, Et ester, 4248*e*.
$C_{11}H_{22}O_4$ Acetoacetic acid, α,γ-diethoxy-, iso-Pr ester, 4248*d*.
Lactic acid, 2-butoxyethyl ester, acetate, P 676*d*.
Suberic monoperoxyacid, ζ-methyl-, ζ-Et ester, 1381*d*.
Valeric acid, γ-ethoxy-α-hydroxy-, Et ester, acetate, 2168*e*.
$C_{11}H_{22}O_4S$ Caproic acid, α-(2-carboxyethylmercapto)-ε-ethoxy-, P 7504*g*.
$C_{11}H_{22}O_5$ Lactic acid, 2-(2-ethoxyethoxy)-ethyl ester, acetate, P 676*e*.
$C_{11}H_{22}O_7$ Glucuronoside, methyl 2,3,4-trimethyl-, Me ester, 583*ag*.
$C_{11}H_{21}BrO_2$ Propionic acid, bromo-, octyl ester, 4641*a*; 1-propylamyl ester, P 8399*a*.
$C_{11}H_{21}ClO$ Pelargonyl chloride, β,γ-dimethyl-, 1373*i*.
2*H*-Pyran, 3-chloro-2-hexyltetrahydro-, 3774*d*.
$C_{11}H_{21}Cl_3N_2$ 1,3-Propanediamine, 2-chloro-*N*,*N*,*N*′,*N*′-tetrakis(2-chloroethyl)-, 5505*d*.
$C_{11}H_{21}IO_2$ Propionic acid, α-iodo-, octyl ester, 4641*a*.
$C_{11}H_{21}IS$ 2,6-Octadiene, 2,6-dimethyl-, methiodide, m. 130° from sulfide of, 996*i*.
$C_{11}H_{21}N$ Isoquinoline, 1-ethyldecahydro-, *and* -*HCl*, 121*i*.
Piperidine, 1-cyclohexyl-, *and* -*HCl*, 7919*i*.
1*H*-Quinolizine, 3-ethyloctahydro-, *and* -*HCl*, 4268*c*.
Valeronitrile, α,α-dipropyl-, 568*d*.
$C_{11}H_{21}NO$ Acrylamide, *N*-octyl-, P 672*f*.
Azacyclododecan-2-one, 5400*d*.
Cyclohododecanone, oxime, 5400*d*.
Cyclohexanebutyramide, β-methyl-, 1375*b*.
4-Piperidinol, 1,2,3,6-tetramethyl-4-vinyl-, 2961*a*.
4-Piperidone, 2-ethyl-6-methyl-3-propyl-, 2959*h*.
1*H*-Quinolizine-3-methanol, octahydro-4-methyl-, 4268*d*.
1*H*-Quinolizine, octahydro-1-(methoxymethyl)-, 6210*c*.
$C_{11}H_{21}NO_2$ β-Alanine, *N*-cyclohexyl-, Et ester, 576*a*.
Cyclohexanone, 2-(3-ethoxypropyl)-, oxime, 1414*h*.
Cyclopentanepentanol, carbamate, 1375*c*.
Valeramide, *N*-acetyl-*N*-isobutyl-, P 4422*c*.
$C_{11}H_{21}NO_3$ Acetoacetic acid, α-(dimethylaminomethyl)-α-ethyl-, Et ester, *and* -*HCl*, 7643*b*.
Glycine, *N*-(1-methoxyhexylidene)-, Et ester, 2989*i*.
Pelargonic acid, β-acetamido-, 235*i*.
Succinamic acid, *N*,*N*-diethyl-, Pr ester, 5150*g*.
Valine, *N*-β,β-dimethylbutyryl-, 2273*c*.
—, *N*-isocaproyl-, 2273*c*.
$C_{11}H_{21}NO_4$ Butyric acid, γ-[(carboxymethyl)methylamino]-, di-Et ester, 4274*f*.
$C_{11}H_{21}NO_5$ Norvaline, *N*-(α,γ-dihydroxy-β,β-dimethylbutyryl)-, *Na salt*, 722*h*.
Pantothenic acid, Et ester, 7903*c*.
$C_{11}H_{21}NO_7$ Cyclohexanol, 2-(aminomethyl)-, tartrate, 588*g*.
$C_{11}H_{21}N_3O$ 2-Butanone, 4-cyclohexyl-, semicarbazone, 7437*i*.
Cycloheptanone, 2,6,6-trimethyl-, semicarbazone, 4637*h*.
Cyclohexanecarboxaldehyde, 4-isopropyl-, semicarbazone, 7434*g*.
Cyclohexanone, 3-butyl-, semicarbazone, 9045*d*.
—, 3-*tert*-butyl-, semicarbazone, 9045*d*.
—, 3-isobutyl-, semicarbazone, 9045*d*.
2-Decenal, semicarbazone, 5736*i*.
Menthone, semicarbazone, 3807*b*.
5-Nonen-4-one, 5-methyl-, semicarbazone, 1317*h*.
$C_{11}H_{21}N_3O_2$ Cyclodecanone, 6-hydroxy-, semicarbazone, 6190*b*.
Ketone, methyl tetrahydro-2,5,6-trimethyl-2*H*-pyran-2-yl, semicarbazone, 5024*b*.
$C_{11}H_{21}N_3O_3$ Homolevulinic acid, β-methyl-β-propyl-, semicarbazone, 1333*g*.
$H_{21}N_3O_4$ Glutaramic acid, γ-amino-*N*-(1-carbamylisoamyl)-, 2245*f*.
3,4-Hexanedione, 2,5-dimethoxy-2,5-dimethyl-, semicarbazone, 3782*g*.
$C_{11}H_{21}N_3O_5$ Capric acid, α,β-dihydroxy-γ-oxo-, semicarbazone, 3785*e*.
$C_{11}H_{21}N_3$ Pyrimidine, amino(2-diethylaminoethylamino)methyl-, P 6243*f*, P 6244*c*, 9038*d*.
Pyrimidine, 2-amino-4-(3-diethylaminopropylamino)-, *and tris*-*HCl*, P 4704*g*.
—, 4-amino-6-(3-dimethylaminopropylamino)-2,5-dimethyl-, P 6243*e*.
1*H*-Tetrazole, 1-cyclohexyl-5-(propylaminomethyl)-, 1864*h*; -*HCl*, P 7972*c*.
*s*-Triazine, 2,4-diamino-6-octyl-, P 3046*g*.
$C_{11}H_{21}N_4O$ *s*-Triazine, 2-amino-4-butoxy-6-diethylamino-, 4269*e*.
*s*-Triazine, 2-amino-4-butylamino-6-butoxy-, 4269*d*.
—, 2-butoxy-4,6-bis(dimethylamino)-, 4269*f*.
—, 2-butoxy-4,6-bis(ethylamino)-, 4269*f*.
$C_{11}H_{21}N_4O_2$ Ethanol, 2-[(4-amino-6-butoxy-*s*-triazin-2-yl)ethylamino]-, 4269*e*.
$C_{11}H_{22}$ Cyclohexane, amyl-, 3715*i*.
Cyclohexane, *tert*-butylmethyl-, 6989*c*.
1-Decene, 4-methyl-, 558*f*.
Hendecene, 2156*i*, 3715*h*, 4213*a*, 8124*i*.
3-Heptene, 2,4,6,6-tetramethyl-, 4213*b*.
Hexene, pentamethyl-, 4213*c*.
4-Nonene, 4,8-dimethyl-, 9023*g*.
1-Pentene, 2-*tert*-butyl-4,4-dimethyl-, 4213*c*.
—, 2-isobutyl-4,4-dimethyl-, 4213*b*.
$C_{11}H_{22}Br_2$ Nonane, 2,8-dibromo-2,8-dimethyl-, 1751*b*.
$C_{11}H_{22}ClN$ Cyclohexylamine, *N*-5-chloroamyl-, -*HCl*, 3421*c*.

**$C_{11}H_{22}Cl_4N_2$** 1,3 - Propanediamine, *N, N, N', N'* - tetrakis(2 - chloroethyl)-, 5505*d*.
**$C_{11}H_{22}N_2$** Capronitrile, α-(diethylaminomethyl)-, 568*d*.
Propionamidine, *N* - cyclohexyl - *N'*-ethyl-, *and* - *HCl*, 2594*f*.
**$C_{11}H_{22}N_2O$** Butyramide, α-(allylamino)-*N, N*-diethyl-, P 250*h*.
Propionamide, α - cyclohexylamino-*N, N*-dimethyl-, P 249*h*.
**$C_{11}H_{22}N_2O_2$** Butyramide, *N, N*-dimethyl-α - (*N* - propylacetamido)-, P 248*e*, P 250*f*, P 4686*f*, P 5793*g*.
Butyramide, α - (ethylpropionylamino)-*N, N*-dimethyl-, P 248*e*, P 249*i*, P 6653*i*.
—, α - (*N* - isopropylacetamido) - *N, N*-dimethyl-, P 250*f*.
Cyclohexylamine, 1-methyl-*N*-2-nitroisobutyl-, P 813*b*.
Isovaleramide, *N* - (1 - dimethylcarbamylethyl) - *N* - methyl - (?), P 249*a*.
—, α - (*N* - ethylacetamido) - *N, N* - dimethyl-, P 251*a*.
Malonamide, *N* - 1,1,3,3 - tetramethylbutyl-, 2165*f*.
Pelargonamide, β-acetamido-, 235*i*.
Pivalamide, *N* - (1 - dimethylcarbamylethyl)- *N*-methyl-, P 249*a*.
Propionamide, *N, N* - dimethyl - α - (propionylpropylamino)-, P 249*e*.
**$C_{11}H_{22}N_2O_2S_2$** Acetamide, *N, N'* - [3 - hydroxypropylenebis(thiomethylene)]-bis[*N* methyl-, P 3571*h*.
**$C_{11}H_{22}N_2O_4$** β - Alanine, *N* - (α - amino - γ-hydroxy - β, β - dimethylbutyryl)-, Et ester, 575*a*.
**$C_{11}H_{22}N_2S$** Urea, 1 - *tert* - butyl - 3 - cyclohexyl-2-thio-, 1015*h*.
**$C_{11}H_{22}N_2S_2$** 1 - Piperidinecarbodithioic acid, piperidine salt, 1111*g*, 6856*h*.
**$C_{11}H_{22}N_4O_2S$** 3,4-Thiophenedicarboxylic acid, tetrahydro - 2 - (4 - methoxybutyl)-, dihydrazide, P 1810*a*, P 2645*a*.
**$C_{11}H_{22}N_4O_4$** 3,4-Furandicarboxylic acid, tetrahydro-2-(5-hydroxyamyl)-, dihydrazide, 2987*h*.
Propionic acid, α,α-bis(*N, N*-dimethylglycylamino)-, - *HCl*, 138*h*.
**$C_{11}H_{22}N_4O_4S$** 1,2,6(4 *H*)-Thiadiazine, 3,5-bis[bis(methoxymethyl)amino]-, 1,1-dioxide, P 9528*b*.
**$C_{11}H_{22}O$** Cyclohendecanol, 6988*f*.
Cyclohexanol, 1-amyl-, 3306*f*.
Cyclopentanol, 2 - *tert* - butyl - 1.4 - dimethyl-, 118*c*.
Ether, allyl 1-methylheptyl, 558*g*.
—, 3-cyclohexyl-1-methylpropyl methyl, P 679*e*.
Hendecanone, 2589*h*, 3148*e*, 3715*g*.
Hendecen-1-ol, 3774*d*, 5736*h*.
2-Heptanone, 3-*sec*-butyl-, 1317*d*.
—, 3-isobutyl-, 1317*d*.
—, 4,4,5,5-tetramethyl-, 131*i*.
4-Nonanone, 5-ethyl-, 1317*g*.
4-Octanone, 5-propyl-, 6623*e*.
Pyran, 4-butyltetrahydro-2,2-dimethyl-, 2162*b*.
**$C_{11}H_{22}OS_2$** Xanthic acid, decyl-, *Na salt*, 8710*i*.
**$C_{11}H_{22}O_2$** (See also *Hendecanoic acid*.)
Butyric acid, α,α,β-trimethyl-, Bu ester, 1313*a*.
Capric acid, Me ester, 2164*i*, 2416*c*, 2590*d*.
—, α-methyl-, 6165*e*.
Caproic acid, β-propyl-, Et ester, 6165*c*.
Caprylic acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
—, γ-ethyl-δ-methyl-, 1374*b*.
—, δ-propyl-, 6165*d*
4-Decanone, 3-methoxy-, 6974*i*.
4-Nonanone, 5-ethyl-6 hydroxy-, 1317*f*.
Pelargonic acid, Et ester, 466*a*, 3612*a*.
—, β,η-dimethyl-, 1373*i*.
Valeric acid, α,α-dipropyl-, 568*h*.
**$C_{11}H_{22}O_2S$** Sulfone, cyclohexyl isoamyl, 1002*i*.
**$C_{11}H_{22}O_2S_2$** Thiophene, 3-(amylmercapto)-tetrahydro-2,4-dimethyl-, 1,1-dioxide, P 2237*i*.
**$C_{11}H_{22}O_3$** Caproic acid, butoxymethyl ester, 6162*a*.
Caproic acid, α-ethyl-α-(hydroxymethyl)-, Et ester, 572*f*.
1,3 - Dioxolane, 2 hexyl - 4 - (methoxymethyl)-, 5150*f*.
Ethanol, 1-butoxy-, isovalerate, 3786*b*.
—, 1-(heptyloxy)-, acetate, 6576*f*.
Hydracrylic acid, octyl ester, 4639*f*.
Propionic acid, β-ethoxy-, hexyl ester, 1322*g*.
**$C_{11}H_{22}O_4S_2$** Thiophene, 3-(amylsulfonyl)tetrahydro-2,4-dimethyl-, 1,1-dioxide, P 2237*i*.
**$C_{11}H_{22}O_5$** Orthoacetic acid, carboxy-, tetra-Et ester, 3360*c*.
**$C_{11}H_{22}O_6$** Fructofuranoside, methyl 1,3,4,6-tetramethyl-, 1331*f*.
Fructoside, methyl tetramethyl-, 5750*f*.
Galactoside, methyl 2,3,4,6-tetramethyl-, 5818*f*, 5009*g*.
Hexoside, methyl tetramethyl-, 5750*f*.
Mannoside, methyl tetramethyl-, 5850*h*.
**$C_{11}H_{22}S$** Sulfide, cyclohexyl isoamyl, 1002*h*.
**$C_{11}H_{23}Br$** Decane, 1-bromo-2-methyl-, 6165*e*.
Hendecane, 1-bromo-, 2591*a*.
Octane, 1-bromo-5-propyl-, 6165*d*.
**$C_{11}H_{23}BrO_2$** Enanthaldehyde, α-bromo-, di-Et acetal, 3791*a*.
**$C_{11}H_{23}Cl$** Hendecane, 1-chloro-, 2590*i*.
**$C_{11}H_{23}ClS$** Sulfide, 2-chloroethyl nonyl, 2928*g*.
**$C_{11}H_{23}Cl_2N$** Heptylamine, *N, N*-bis(2-chloroethyl)-, 5505*c*.
**$C_{11}H_{23}IS$** Myrcene, dihydro-, methiodide, m. 126–7°, from sulfide of, 1000*d*.
**$C_{11}H_{23}N$** Azacyclododecane, 5400*d*.
Cyclohexaneethylamine, α - ethyl - *N*-methyl-, P 1802*f*.
—, trimethyl-, P 1802*ef*.
Cyclohexanemethylamine, *N, N*-diethyl-, P 2630*i*.
Cyclohexanepropylamine, *N, N* - dimethyl-, 1026*g*.
**$C_{11}H_{23}NO$** Butylamine, *N*-[1-(2-ethoxyethyl)allyl]-, 9026*c*.
Cyclohexylamine, 2-(3-ethoxypropyl)-, 1414*h*.
2-Heptanol, 6-allylamino-2-methyl-, P 3029*d*.
2-Heptanone, 4,4,5,5-tetramethyl-, oxime, 131*h*.
Pelargonamide, β,η-dimethyl-, 1373*i*.
1-Pentanol, 5-cyclohexylamino-, 3421*b*
2-Pentenylamine, *N*-butyl-5-ethoxy-, 9026*d*.
4 Piperidinol, 4-butyl-2,5-dimethyl-, 6622*i*.
—, 2,4-diethyl-3,6-dimethyl-, 2960*g*
—, 4-ethyl 1,2,3,6-tetramethyl-, 2960*i*
Propionamide, *N*-octyl-, P 4686*i*.
Valeramide, α,α-dipropyl-, 568*e*.
**$C_{11}H_{23}NOS$** 3-Buten-2-ol, 1-(3-diethylaminopropylmercapto)-, 6574*d*.
**$C_{11}H_{23}NO_2$** Alanine, octyl ester, 4641*b*
Carbamic acid, dibutyl, Et ester, 3107*d*.
Cyclohexanemethylamine, *N*-ethyl-, acetate, P 2630*h*.
Hendecanoic acid, amino-, 1322*i*, P 5037*i*
Hydracrylamide, *N*-1,1,3,3-tetramethylbutyl-, 2165*g*.
1 Piperidineacetaldehyde, di-Et acetal, 6974*d*.
**$C_{11}H_{23}NO_3$** Butyric acid, α-(dimethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester, *and* - *HCl*, 7643*d*.
**$C_{11}H_{23}NO_4$** Orthopropionic acid, β-ethoxy-β-imino-, tri-Et ester, 3360*d*.
**$C_{11}H_{23}NS_2$** Carbamic acid, diamyldithio-, *salts*, 5987*a*.
**$C_{11}H_{23}NO$** 2-Decanone, semicarbazone, 7914*d*.
1-Piperazinecarboxamide, *N, N*-diethyl-2,5-dimethyl-, P 6245*h*.
**$C_{11}H_{23}N_3O_2$** 4-Heptanone, 3-ethyl-4-methoxy, semicarbazone, 6974*h*.
4-Nonanone, 3-methoxy-, semicarbazone, 6974*h*.
4-Octanone, 3-methoxymethyl-, semicarbazone, 6974*h*.
**$C_{11}H_{23}NaO_4S$** 3-Hendecanol, hydrogen sulfate Na salt, 466*bh*.
**$C_{11}H_{24}$** (See also *Hendecane*.)
Decane, 4-methyl-, 558*f*.
Heptane, 3,3-diethyl-, 9023*e*.
—, 2,2,4,4,6-tetramethyl-, 4212*h*.
Hexane, 2,2,3,5,5-pentamethyl-, 4212*h*.
Nonane, 3,4-dimethyl-, 6967*h*.
Octane, 3-ethyl-3-methyl-, 9023*e*.
—, 4-propyl-, 6623*d*.
—, 2,2,4-trimethyl-, 4212*h*.
**$C_{11}H_{24}BrN$** 1,1-Diethyl-2,6-dimethylpiperidinium bromide, 5496*e*.
**$C_{11}H_{24}ClN$** Dibutylamine, *N*-(3-chloropropyl)-, P 667*a*.
**$C_{11}H_{24}ClNO$** 2-Propanol, 1-(butyl-*sec*-butylamino)-3-chloro-, P 254*a*.
2-Propanol, 1-(butylisobutylamino)-3-chloro-, P 254*a*.
—, 1-(*sec*-butylisobutylamino)-3-chloro-, P 253*i*.
—, 1-chloro-3-dibutylamino-, P 253*i*.
—, 1-chloro-3-diisobutylamino-, P 253*i*.
—, 1-chloro-3-(isobutylisopropylamino)-2-methyl-, P 254*b*.
**$C_{11}H_{24}IN$** Cyclooctyltrimethylammonium iodide, 591*f*.
**$C_{11}H_{24}INO_2$** 4-(2,2-Diethoxyethyl)-4-methylmorpholinium iodide, 6974*e*.
**$C_{11}H_{24}IN_3$** Carbodiimide, *tert*-butyl(3-dimethylaminopropyl)-, methiodide, 10166.
**$C_{11}H_{24}N_2O$** Butyramide, *N, N*-diethyl-α-isopropylamino-, P 250*g*.
Enanthamide, α-ethylamino-*N, N*-dimethyl-, P 251*b*.
Formamide, *N*-butyl-*N*-(2-butylaminoethyl)-, P 3028*f*.
Isovaleramide, *N, N*-diethyl-α-ethylamino-, P 251*a*.
Propionamide, α-butylamino-*N, N*-diethyl-, P 249*g*.
—, α-*sec*-butylamino-*N, N*-diethyl-, P 249*g*.
Valeramide, *N, N*-diethyl-α-ethylamino-, P 250*i*.
**$C_{11}H_{24}N_2OS_2$** Urea, 1,3 bis(4-methylmercaptobutyl)-, 1725*d*.
**$C_{11}H_{24}N_2O_2S$** 1,3 Propanediamine, *N, N*-diethyl-*N'* (tetrahydro-3-thienyl)-, *S,S*-dioxide, 2988*h*.
**$C_{11}H_{24}N_2O_4$** Urea, 1,3-bis(butoxymethyl)-, P 1200*f*.
**$C_{11}H_{24}N_2O_4S_2$** Urea, 1,3-bis[4-(methylsulfinyl)butyl]-, 1725*f*.
**$C_{11}H_{24}N_2S$** Pseudourea, 2-decyl-2-thio-, 1868*d*.
**$C_{11}H_{24}N_4S_3$** Pseudourea, 2 [1-[2-(guanylmercapto)ethylmercaptomethyl]isohexyl] 2 thio-, *di*- *HCl*, P 4292*d*.
**$C_{11}H_{24}N_6O_4$** Imidazolidine, 2-dibutylamino-2-nitramino 1-nitro-, 2203*g*.
**$C_{11}H_{24}O$** 1-Decanol, 2-methyl-, 6165*e*.
Hendecyl alcohol, 2956*b*, 6041*d*, 6542*e*.
4-Heptanol, 2,2,4,6-tetramethyl-, 4213*a*
3-Hexanol, 3-isopropyl-2,5 dimethyl-, 111*d*.
—, 2,2,3,5,5-pentamethyl-, 4213*b*.
4-Nonanol, 3,4-dimethyl-, 6967*g*.
—, 5-ethyl-, 1317*g*
4-Octanol, 2,2,4 trimethyl-, 1213*a*
3-Pentanol, 3-isopropyl-2,2,4 trimethyl-, 111*d*.
**$C_{11}H_{24}OS$** Ethanol, 2 nonylmercapto-, 2928*g*
**$C_{11}H_{24}O_2$** 1,1-Hendecanediol, P 6652*b*.
Methane, diamoxy-, 2590*c*
1,3-Propanediol, 2,2-dibutyl-, 8546*h*
**$C_{11}H_{24}O_3$** Acetaldehyde, methoxy-, dibutyl acetal, P 675*c*.
4,5,6-Nonanetriol, 6-ethyl-, 2944*f*.
**$C_{11}H_{24}O_4$** Malonaldehyde, bis(di-Et acetal), P 4291*b*.
Methane, bis(isobutoxymethoxy)-, P 1052*b*.
Peroxide, isopropylidenebis[*tert* butyl-, P 2629*g*, 6156*g*.
**$C_{11}H_{24}O_4S$** 3-Hendecanol, hydrogen sulfate, *Na salt*, 466*bh*.
**$C_{11}H_{24}O_4S_2$** Xylose, 2,4 dimethyl-, di Et mercaptal, 7430*a*.
**$C_{11}H_{24}O_5$** 1,3-Propanediol, 2,2'-[methylenebis(oxymethylene)bis[2 - (hydroxymethyl) , P 4290*g*.
**$C_{11}H_{25}HgNO_2S_2$** 1 - [2 - (Ethylmercurimercapto)ethyl] - 1 - methylpiperidinium methyl sulfate, P 668*b*.
**$C_{11}H_{25}N$** Hendecylamine, - *HCl*, 466*b*.
Hexylamine, 1-amyl-, - *HCl*, 2166*i*.
—, 1,3,3,4,4-pentamethyl-, *and* - *HCl*, 131*h*
Nonylamine, α-ethyl-, - *HCl*, 466*b*
**$C_{11}H_{25}NO$** Amylamine, *N*-butyl-5-ethoxy-, 9026*d*.
Amylamine, 4-ethoxy-*N, N*-diethyl-, P 9087*b*.
2-Heptanol, 6-isopropylamino-2-methyl-, P 3029*e*, - *HCl*, 9248*f*.
**$C_{11}H_{25}NO_5S$** Cyclohexanone, 3-methyl-, compd. with *sec*-butylamine bisulfite, 3356*b*
**$C_{11}H_{25}NO_6S$** Acetone, compd. with 4-butylmorpholine bisulfite, 3355*i*.
**$C_{11}H_{25}N_3$** Piperidine, 4 (2-dimethylaminoethylamino)-1-ethyl-, 2207*c*.
**$C_{11}H_{26}INO_2$** (2,2-Dimethoxyethyl)methyldipropylammonium iodide, 6974*b*
**$C_{11}H_{26}O$** Cyclohendecanone, 7907*a*.
**$C_{11}H_{27}HgNO_4S_2$** Diethylmethyl[2-(propylmercurimercapto)ethyl]ammonium methyl sulfate, P 6649*e*.
**$C_{11}H_{28}O_4S$** Enanthaldehyde, compd. with *tert*-butylamine bisulfite, 3356*c*.
**$C_{11}H_{27}N_3O$** 1-Propanol, 3-dimethylamino-2,2-bis(dimethylaminomethyl)-, 134*b*.
**$C_{11}H_{28}Br_2N_2$** Pentamethylenebis[trimethylammonium bromide], 2703*d*.
**$C_{11}H_{28}I_2N_2$** Pentamethylenebis[trimethyl-

'ammonium iodide], 3525*d*, 8540*h*, 8541*b*.

$C_{11}H_{20}O_3$ Glycerol, compd. with $Et_2O$, 7409*a*.

$C_{11}H_{32}O_3Si_4$ 3,7-Dioxa-2,4,6,8-tetrasilanonane, 2,2,4,4,6,6,8,8-octamethyl-, 563*d*, P 3656*g*.

$C_{12}Cd_2Fe_2N_{12}$ Cadmium ferricyanide, 2113*b*, 3277*a*, 8966*e*.

$C_{12}Cl_2O_2$ Diphenoquinone, octachloro-, P 813*c*.

$C_{12}Cl_6CuO_2$ Phenol, pentachloro-, Cu deriv., P 1902*d*.

$C_{12}Cl_5O_2Zn$ Phenol, pentachloro-, Zn deriv., 2446*f*.

$C_{12}Co_2Fe_2N_{12}$ Cobalt ferricyanide, 8966*e*.

$C_{12}Cu_2Fe_2N_{12}$ Copper ferricyanide, 8307*i*, 8966*e*.

Acenaphthene, eicosafluorodecahydro-, P 4300*i*.

$C_{12}F_{22}$ Naphthalene, hexadecafluorodecahydrobis(trifluoromethyl)-, P 4301*d*.

$C_{12}Fe_3K_4N_{12}Zn_3$ Potassium zinc ferrocyanide, 3744*e*.

$C_{12}Fe_3N_{12}Na_2Ni_3$ Nickel sodium ferrocyanide, 5326*i*.

$C_{12}Fe_3N_{12}Ni_2$ Nickel ferricyanide, 8966*e*.

$C_{12}Fe_3N_{12}Zn_3$ See *Zinc ferricyanide*.

$C_{12}H_2Cl_6O_2$ *p,p'*-Biphenol, octachloro-, P 813*c*.

Biphenyl, octachlorodihydroxy-, 1867*f*.

$C_{12}H_3Cl_5N_2O_5$ Ether, 2,4-dinitrophenyl pentachlorophenyl, 5893*h*.

$C_{12}H_4Cl_6CuO_2$ Phenol, trichloro-, Cu deriv., 7175*i*.

$C_{12}H_4Cl_6O_2Zn$ Phenol, trichloro-, Zn deriv., 803*f*, 3961*g*, 6775*e*, 7175*i*, 7178*e*, 7179*f*, 8071*b*, 9327*h*, 9338*a*.

$C_{12}H_4N_6O_{14}Pb$ Picric acid, Pb salt, 6495*g*.

$C_{12}H_4Na_2O_{16}S_4Sb$ Fouadin, 1485*e*, 2330*a*, 6740*a*, 9266*g*.

$C_{12}H_4BrCl_2O_4$ Juglone, 6-bromo-2,3-dichloro-, acetate, 9057*i*.

$C_{12}H_4Br_3O_4$ Juglone, 2,3,6-tribromo-, acetate, 201*h*.

$C_{12}H_5Cl_3N_4O_7$ Azoxybenzene, 4,4'-dichlorotrinitro-, 3802*i*, 3803*a*.

$C_{12}H_5Cl_3N_4O_8$ Diphenylamine, 3,5-dichloro-2,2',4,4'-tetranitro-, 3799*i*.

$C_{12}H_5BrClOS$ 3-Thiophanthrenol, 9-bromo-6-chloro-, P 7707*c*.

$C_{12}H_5Br_3OS$ Naphtho[2,1-*b*]thiophen-1-ol, 6,9-dibromo-, P 7707*b*.

$C_{12}H_5Br_3S_2$ Thianthrene, dibromo-, P 8091*h*.

$C_{12}H_5Cl_3N_2$ Benzo[*g*]quinazoline, 2,4-dichloro-, 2951*g*.

$C_{12}H_5Cl_3N_2O_4S$ Sulfide, bis(2 chloro-4-nitrophenyl), 600*e*.

$C_{12}H_5Cl_3N_2O_5S$ Sulfoxide, bis(2-chloro-4-nitrophenyl), 600*f*.

$C_{12}H_5Cl_3N_2O_6S$ Phenol, 2,2'-thiobis[4 chloro-6-nitro-, P 1901*e*.

Sulfone, bis(2 - chloro - 4 - nitrophenyl), 600*f*.

$C_{12}H_5Cl_3N_2O_4$ Pyrimidine, 2,4 dichloro-5-nitro-6-(*p*-nitrostyryl)-, 651*k*.

$C_{12}H_5Cl_3OS$ Naphthothiophenol, dichloro-, P 7706*i*, P 7707*b*.

Naphtho[1,2-*b*]thiophen-3(2*H*)-one, 6,9-dichloro-, P 9470*f*.

$C_{12}H_5Cl_3O_3S$ 2-Biphenylsulfonic acid, 5,5'-dichloro-2'-hydroxy , sultone, 4249*f*.

$C_{12}H_5Cl_3O_4$ Juglone, 2,3-dichloro-, acetate, 201*a*.

$C_{12}H_6Cl_2N_4O_6S$ Benzenediazobenzenesulfonate, 2',4',6'-trichloro-4-hydroxy-3'-nitro-, P 9355*d*.

$C_{12}H_6Cl_2N_2O$ Azoxybenzene, 2,2',5,5'-tetrachloro-, 2599*f*.

$C_{12}H_6Cl_4O_2$ 2-Acetonaphthone, $\alpha,\alpha,\alpha,4$-tetrachloro-1-hydroxy-, 2599*i*, 7010*f*.

$C_{12}H_6HgN_2NaO_3$, P 3837*g*.

$C_{12}H_6N_2O_6S$ Dibenzothiophene, 2,8-dinitro-, 2987*d*.

$C_{12}H_6N_4O_8S$ Sulfide, bis(2,4-dinitrophenyl), 222*e*, 600*h*.

$C_{12}H_6N_4O_8S_2$ Disulfide, bis(2,4-dinitrophenyl), 222*e*, 3803*a*.

$C_{12}H_6N_4O_9$ Ether, bis(2,4-dinitrophenyl), 6175*b*.

$C_{12}H_6N_4O_9S$ Sulfoxide, bis(2,4-dinitrophenyl), 222*f*.

$C_{12}H_6N_4O_{10}S$ Sulfone, bis(2,4-dinitrophenyl), 3803*a*.

$C_{12}H_6N_4O_{12}S$ Phenol, 2,4-dinitro-, sulfate, 173*e*.

Phenol, 4,4'-sulfonylbis[2,6-dinitro-, 6994*h*.

$C_{12}H_6O_2$ Acenaphthenequinone, 1766*a*, P 7707*a*.

$C_{12}H_6O_2S$ 4,9-Thiophanthrenedione, P 9467*g*.

$C_{12}H_6O_3$ Naphthalenedicarboxylic anhydride, 8885*f*.

2-Naphthaleneglyoxylic acid, 1-hydroxy-, lactone, 1036*g*.

Naphthalic anhydride, 1766*a*, 3816*b*.

$C_{12}H_6O_4$ Naphthaleneglyoxylic acid, dihydroxy-(?), lactone, 1036*h*.

$C_{12}H_6O_{11}$ See *Mellitic acid*.

$C_{12}H_7AsClN$ Phenarsazine, chloro-, 3964*a*.

$C_{12}H_7BrO_2S$ Glyoxal, (5-bromo-2-thienyl)-phenyl-, 4666*b*.

$C_{12}H_7BrO_4$ Juglone, bromo-, acetate, 201*fg*.

$C_{12}H_7Br_3O_2$ 2-Acetonaphthone, $\alpha,\alpha,4$-tribromo-1-hydroxy-, 2600*a*, 7010*f*.

$C_{12}H_7ClN_2$ Phenazine, 2-chloro-, 4278*f*.

$C_{12}H_7ClN_2O_2$ Phenazine, 2-chloro-, 5,10-dioxide, 4278*f*.

$C_{12}H_7ClN_2O_6S$ Benzenediazobenzenesulfonate, chloro-4-hydroxy-3',5'-dinitro-, P 9355*d*

$C_{12}H_7ClO_3S$ 2-Biphenylsulfonic acid, chloro-2'-hydroxy-, sultone, 4249*f*.

$C_{12}H_7ClO_4$ Juglone, chloro-, acetate, 200*h*, 201*fg*.

$C_{12}H_7Cl_3NO_2$ See *Indophenol, dichloro-*.

$C_{12}H_7Cl_3N_4O_2$ Pyrimidine, 2,4-dichloro-5-nitro-6-styryl-, 651*b*.

$C_{12}H_7Cl_3N_4O_4$ Diphenylamine, 3,5-dichloro-2',4'-dinitro-, 3799*h*.

$C_{12}H_7Cl_3N_2O_3S$ Chlorosulfonic acid, 2-chloro-4-(*m*-chlorophenylazo)phenyl ester, 3800*i*.

$C_{12}H_7Cl_3N_2O_6S_2$ Dibenzenesulfonamide, 3,4,4'-trichloro-3'-nitro-, P 8150*a*.

$C_{12}H_7Cl_3O$ Naphthalene, 1-chloro-4-(2,2-dichlorovinyloxy)-, P 7045*h*.

$C_{12}H_7Cl_3OS$ Acetyl chloride, (5,8-dichloronaphthylmercapto)-, P 7707*d*.

$C_{12}H_7Cl_3O_2$ 1(4*H*)-Naphthalenone , 2,4,4-trichloro-5-hydroxy , acetate, 200*i*.

$C_{12}H_7Cl_3N$ Diphenylamine, 2,2',4,4'-tetrachloro-, 6570*g*.

$C_{12}H_7Cl_4NO_2S$ Benzenesulfonanilide, 3,3',4,4'-tetrachloro-, P 4419*h*.

$C_{12}H_7NO$ 5*H*-Indeno[1,2-*b*]pyridin-5-one, 5403*b*

$C_{12}H_7NO_2$ 5-Quinolineacrylic acid, 6-hydroxy , δ lactone, 7027*i*.

$C_{12}H_7NO_2S$ Dibenzothiophene, 2-nitro-, 2987*c*

$C_{12}H_7NO_4S$ Dibenzothiophene, 2-nitro-, 5,5-dioxide, 2987*d*.

$C_{12}H_7NO_6$ 2,3,4-Quinolinetricarboxylic acid, 3929*h*

$C_{12}H_7NO_6S_2$ Naphthalic anhydride, 4-aminodisulfo-, P 7710*f*.

$C_{12}H_7N_3O_4S$ Phenothiazine, 1,3-dinitro-, P 4488*d*.

$C_{12}H_7N_3O_5$ Phenoxazine, 1,3 dinitro-, P 4488*d*.

$C_{12}H_7N_3O_6$ Resorcinol, 4-(nitrophenyl)-2,6-dinitroso-, 3810*d*

$C_{12}H_7N_3O_6S$ Sulfide, 2, 4-dinitrophenyl nitrophenyl, 3387*d*.

$C_{12}H_7N_3O_7$ Furan, 2-(2,4,6-trinitrostyryl) , 592*h*.

$C_{12}H_7N_3O$ 9*H*-Pyrid[3,4-*b*]indole-1-carbonyl azide, 3416*g*.

$C_{12}H_7N_3O_8$ Diphenylamine, 2,2',4,4'-tetranitro , 179*h*, 6175*b*

$C_{12}H_8$ Acenaphthylene, P 1223*d*, 2984*a*, 2986*c*, 3252*c*.

Cyclobutadibenzene, 3810*a*.

$C_{12}H_8AsCl_3$ Arsine, chlorobis(*o*-chlorophenyl)-, 3383*a*.

$C_{12}H_8B_2F_8N_4O_8$ *p*-Hydroxybenzenediazonium fluoborate, sulfate, 173*d*.

$C_{12}H_8BrClN_2O_3S$ Chlorosulfonic acid, *p*-(*p*-bromophenylazo)phenyl ester, 3800*i*.

$C_{12}H_8BrClO_3S$ Acetic acid, (1-bromo-6-chloro-2-naphthylmercapto)-, P 7707*f*.

$C_{12}H_8BrCl_3NO_2S$ Benzenesulfonanilide, 4-bromo-3',5'-dichloro-, 4649*a*.

$C_{12}H_8BrN_3O_3$ Pyridine, 2-(2-bromo-4-nitrobenzamido)-, 7455*b*.

$C_{12}H_8Br_2$ Biphenyl, 3,3'-dibromo-, 2979*c*.

$C_{12}H_8Br_2Cl_2$ Naphthalene, 1,4-dichloro-5-(1,2-dibromoethyl)-, 3813*e*.

$C_{12}H_8Br_2I_2$ Bis(*p*-bromophenyl)iodonium iodide, 268*fi*.

$C_{12}H_8Br_2Mg$ 3,3'-Biphenylenebis[magnesium bromide], 2979*e*.

$C_{12}H_8Br_2N_2$ Azobenzene, 4,4'-dibromo-, 1312*e*, 3801*c*.

$C_{12}H_8Br_2N_2O_2$ Salicylamide, 3,5-dibromo-*N*-2-pyridyl-, P 6935, P 7513*c*.

$C_{12}H_8Br_2N_2O_6S$ Benzenesulfonanilide, 3',5'-dibromo-4-nitro-, 4648*i*.

$C_{12}H_8Br_2O_3S$ Acetic acid, (5,8-dibromo-2-naphthylmercapto)-, P 7707*f*.

Sulfone, bis(*p*-bromophenyl), 2359*h*, 7411*b*.

$C_{12}H_8Br_2O_4$ Acetic acid, (1,6-dibromo-2-naphthoxy)-, 3813*g*.

$C_{12}H_8Br_2O_4$ Juglone, 3,6-dibromo-2-ethoxy-, 9058*b*.

$C_{12}H_8Br_2O_4S$ Phenol, *p*-bromo-, sulfate, 173*b*.

$C_{12}H_8Br_2N_2O_5S$ Benzenesulfonamide, *p*-(tribromohydroxyphenylazo)-, 9047*i*.

$C_{12}H_8Br_2N_2O_6S$ Benzenesulfonamide, *p*-(tribromodihydroxyphenylazo)-, 9047*i*.

$C_{12}H_8ClNO$ 2,4-Pentadienoyl chloride, 2-cyano-5-phenyl-, 7036*i*.

$C_{12}H_8ClNO_4S$ 4-Biphenylsulfonyl chloride, 2'-nitro , P 4297*h*.

$C_{12}H_8ClNO_5S$ Benzenesulfonic acid, 5-chloro-2-nitro-, Ph ester, 4249*e*.

Benzenesulfonic acid, *o*-nitro-, *p*-chlorophenyl ester, 4249*e*.

$C_{12}H_8ClN_3O_4$ Pyridine, 2-(2-chloro-4-nitrobenzamido)-, 7455*a*.

$C_{12}H_8ClN_3O_4S$ Aniline, 2-(2-chloro-4-nitrophenylmercapto)-5-nitro-, 600*e*.

$C_{12}H_8ClN_3O_6S$ Benzenediazobenzenesulfonate, chloro-4-hydroxynitro-, P 9355*c*.

$C_{12}H_8ClNaO$ Phenol, chlorophenyl-, Na deriv., 7177*d*.

$C_{12}H_8Cl_2$ Biphenyl, 4,4'-dichloro-, 2980*e*, 3137*i*, 6021*c*.

Naphthalene, 1,4 - dichloro - 5 - vinyl-, 3813*e*.

$(C_{12}H_8Cl_2)_n$ Naphthalene, 1,4-dichloro-5-vinyl-, polymer, 3813*e*.

$C_{12}H_8Cl_2Hg$ Mercury, bis(*p*-chlorophenyl)-, 6585*e*.

$C_{12}H_8Cl_2INO_2$ Iodine 2,4-dichlorobenzoate, compd. with pyridine, 5689*i*.

$C_{12}H_8Cl_2I_2$ Bis(*p* - chlorophenyl)iodonium iodide, 268*fi*.

$C_{12}H_8Cl_2N_2$ Azobenzene, 4,4'-dichloro , 3137*i*, 3802*i*.

$C_{12}H_8Cl_2N_2O$ Azoxybenzene, 4,4'-dichloro-, 3802*i*.

Phenol, 3-chloro-4-(*o*-chlorophenylazo)-, 3801*b*.

$C_{12}H_8Cl_2N_2O_2$ Diphenylamine, dichloronitro-, 1734*fg*, 6175*gh*.

Salicylamide, 3,5-dichloro-*N*-2-pyridyl-, P 6935, P 7513*d*.

$C_{12}H_8Cl_2N_2O_3S$ Chlorosulfonic acid, *p*-(*p*-chlorophenylazo)phenyl ester, 3801*a*.

$C_{12}H_8Cl_2N_2O_4S$ Benzenediazobenzenesulfonate, dichloro-4-hydroxy-, P 9355*c*.

Benzenesulfonanilide, dichloronitro-, 3136*h*, 4648*i*, P 5042*g*.

$C_{12}H_8Cl_2N_2O_6S_2$ Phenol, *p,p'*-azodi-, bis(chlorosulfonate), 3801*a*.

$C_{12}H_8Cl_2O$ Ether, bis(*p*-chlorophenyl), 3137*i*, 8600*a*.

Naphthalene, 2-(2,2-dichlorovinyloxy)-, P 7045*h*.

$C_{12}H_8Cl_2OS$ Sulfoxide, bis(*p*-chlorophenyl), P 4419*i*.

$C_{12}H_8Cl_2O_2S$ Acetic acid, (dichloronaphthylmercapto)-, P 7707*cde*, P 9470*f*.

Phenol, 2,2' thiobis[4-chloro-, P 1901*e*.

Sulfone, bis(*p*-chlorophenyl), 2359*h*, 3137*i*, P 4419*i*, 4806*e*.

$C_{12}H_8Cl_2O_2$ 1,5-Naphthalenediol, 2,4-dichloro-, 5-acetate, 200*d*, 201*f*.

$C_{12}H_8Cl_2O_3S$ Benzenesulfonic acid, *p*-chloro-, *p*-chlorophenyl ester, 3137*i*.

Benzenesulfonyl chloride, *p*-(*p*-chlorophenoxy)-, P 857*d*.

$C_{12}H_8Cl_2O_4$ 1,2*H*-Benzopyran-3-carbonyl chloride, 4-(chloromethyl)-7-methoxy-2-oxo-, 7936*h*.

$C_{12}H_8Cl_2O_4S$ Phenol, chloro-, sulfate, 173*b*.

$C_{12}H_8Cl_2S$ Sulfide, bis(*p*-chlorophenyl), 3137*i*, P 4419*i*, 5893*g*.

$C_{12}H_8Cl_2S_2$ Tetrasulfide, bis(*p*-chlorophenyl), 1002*c*.

$C_{12}H_8Cl_2Se$ Selenide, bis(*p*-chlorophenyl), 3137*i*.

$C_{12}H_8Cl_2I$ Bis(*p*-chlorophenyl)iodonium chloride, 269*a*.

$C_{12}H_8Cl_2N_2$ Benzidine, 2,2',5,5'-tetrachloro-, 3729*c*.

$C_{12}H_8Cl_2N_2O_2S_2$ Metanilamide, 4-chloro-*N*1-(2,4,5-trichlorophenylsulfonyl)-, P 8150*ef*.

$C_{12}H_8Cl_8$ 1,4,5,8-Dimethanonaphthalene, 1,2,3,4,10,10 - hexachloro - 1,4,4a,-5,8,8a-hexahydro-, 6353*be*, 9345*bg*, 9346*e*, 9349*i*.

$C_{12}H_8Cl_8O$ Compound 497, 9345*g*.

$C_{12}H_8CuN_2O_4$ Picolinic acid, Cu deriv., 8222*c*.

$C_{12}H_8F_6N_4O_8Si$ *p*-Nitrobenzenediazonium fluosilicate, 6992*c*.

$C_{12}H_8Fe_4K_4O_{22}$ Tartaric acid, K salt, ferric complex, 5745*g*.

$C_{12}H_8IN_3O_4$ Iodine 3,5-dinitrobenzoate, compd. with pyridine, 5689*i*.

$C_{12}H_8I_2O_4S$ Phenol, *p*-iodo-, sulfate, 173*c*.

$C_{12}H_8I_4$ Bis(*p*-iodophenyl)iodonium iodide, 268*fi*.

$C_{12}H_8Li_2$ Lithium, 3,3'-biphenylenedi-, 2979*e*.

$C_{12}H_8N_2$ (See also *Phenanthroline*.)

Benzo[*c*]cinnoline, 2095*b*, 3009*d*.

Phenazine, 2095*b*, 3416*e*, 9336*e*.
**$C_{12}H_8N_2O$** 1-Acetonaphthone, α-diazo-, 4653*c*.
Benzo[*c*]cinnoline, oxide, 3000*d*.
Phenanthrolinol, 1418*f*, P 2646*b*.
1-Phenazinol, 1896*c*, 4278*e*.
**$C_{12}H_8N_2O_2$** 2,4 - Benzo[*g*]quinazolinediol, 2951*g*.
1*H*-Naphtho[2,3]pyrazole-4,9-dione, 1-methyl-, 7019*f*.
1,3-Phenazinediol, 3009*b*.
9*H*-Pyrid[3,4-*b*]indole-1-carboxylic acid, 3416*f*.
Sydnone, *N*-2-naphthyl-, 3418*b*.
**$C_{12}H_8N_2O_3$** 2-Phenazinol, 5,10-dioxide, 4278*e*.
**$C_{12}H_8N_2O_4$** Biphenyl, dinitro-, 1734*d*, P 8174*c*.
1*H*-Naphtho[2,3]pyrazole 4,9-dione, 5,8-dihydroxy-1-methyl-, 7019*e*, 7341*i*.
4,5-Pyrimidinedicarboxylic acid, 2-phenyl-, 1424*d*.
Resorcinol, 2,4 - dinitroso - 6 - phenyl-, 3810*c*.
**$C_{12}H_8N_2O_4S$** Sulfide, bis(nitrophenyl), 1741*a*, 3387*f*, 3802*f*, 4806*e*, 6179*f*.
Sulfide, *o*-nitrophenyl *p*-nitrophenyl, 3387*c*.
**$C_{12}H_8N_2O_4S_2$** Disulfide, bis(nitrophenyl), 3802*g*, 8366*g*.
**$C_{12}H_8N_2O_5$** Hydantoin, 5 (3,4-dihydroxybenzylidene)-1-methyl-, cyclic carbonate, 7456*b*.
**$C_{12}H_8N_2O_5S$** Phenol, *o* nitro-, ester with *p*-nitrophenyl H sulfate, 173*f*.
Phenol, *p*-nitro-, sulfate, 173*d*
—, 4,4′-sulfonylbis[2-nitro-, 6994*h*.
**$C_{12}H_8N_2O_6$** 1,2 *H*-Benzopyran-6-carboxylic acid, 7-hydroxy-4-methyl-3,8-dinitro-2 oxo-, Me ester, 1045*d*, 2622*a*
1,2 *H*-Benzopyran-6-carboxylic acid, 7-methoxy-4-methyl-3,8-dinitro-2-oxo-, 1045*d*.
**$C_{12}H_8N_4O_2$** Oxamyl azide, naphthyl-, 7446*e*.
5(4 *H*)-Oxazolone, 2 phenyl-4-(*v*-triazol-4-ylmethylene)-, 6621*d*.
**$C_{12}H_8N_4O_4$** Azobenzene, 4,4′-dinitro-, 3387*i*, 3803*a*.
**$C_{12}H_8N_4O_5$** Phenol, 4-nitro-2-(*p*-nitrophenylazo)-, 7443*h*.
**$C_{12}H_8N_4O_6$** Uracil, 5 nitro-6-(*p*-nitrostyryl)-, 651*h*.
**$C_{12}H_8N_4O_8S$** Aniline, *p*-(picrylsulfonyl)-, 2593*e*.
**$C_{12}H_8N_4O_8S$** *p*-Nitrobenzenediazonium sulfate, 7443*h*.
**$C_{12}H_8N_8O_{12}$** Diphenylamine, 2,2′,4,4′,6,6′-hexanitro-, $NH_4$ deriv., 7521*e*.
**$C_{12}H_8O$** (See also *Dibenzofuran*.)
1-Acenaphthenone, 628*e*.
**$C_{12}H_8OS$** Naphtho[1,2-*b*]thiophen-3-ol, P 7707*a*.
Phenoxathiin, P 4520*h*, P 6846*a*, 8600*b*.
**$C_{12}H_8O_2$** 2-Dibenzofuranol, 1302*c*, P 8690*g*.
Diphenoquinone, 5017*i*.
2,3-Naphthalenedicarboxaldehyde, 8371*i*.
Naphtho[1,2-*b*]furan-3(2 *H*)-one, 3415*g*.
1-Naphthoic acid, 8-(hydroxymethyl)-, δ-lactone, 7011*g*.
*p*-Quinone, phenyl-, 1372*g*.
**$C_{12}H_8O_2S$** 2,8-Dibenzothiophenediol, P 9432*b*.
**$C_{12}H_8O_3$** 1,4-Naphthoquinone, 2-acetyl-, 7341*e*.
*p*-Quinone, 2-hydroxyphenyl-, 1372*h*.
Tricyclo[4.2.2.$0^{2,5}$] - 3,7,9 - decatriene-7,8-dicarboxylic anhydride, 6198*e*.
**$C_{12}H_8O_3S$** 2-Biphenylsulfonic acid, 2′ hydroxy-, sultone, 4249*ab*.
**$C_{12}H_8O_4$** Ammoidin, 1910*e*.
5-Benzofuranacrylic acid, 6-hydroxy-7-methoxy-, δ-lactone, 1910*e*
Bergaptene, 1910*e*.
9*H*-Furo[2,3-*f*][1]benzopyran-9-one, 4 hydroxy-7-methyl-, 3414*b*.
Juglone, 6-acetyl-, 7019*f*.
Majudin, 1910*e*.
1,4-Naphthoquinone, 2-acetyl-3-hydroxy-, 7341*e*.
Xanthotoxin, 1910*e*.
**$C_{12}H_8O_4S$** Acetic acid, (1,4-dihydro-1,4-dioxo-2-naphthylmercapto) , 2703*i*.
Dibenzofuransulfonic acid, *and salts*, 5021*b*, 6203*g*.
1-Naphthol-8-sulfonic acid, 4-acetyl-, sultone, P 5047*d*.
**$C_{12}H_8O_5$** Compd., m 252°, 7481*b*.
Malonic acid, (2,3-dihydro-6-hydroxy-5-benzofurylmethylene)-, δ-lactone, 3412*f*.
**$C_{12}H_8O_7S_2$** Dibenzofurandisulfonic acid, 6203*h*
**$C_{12}H_8S$** Dibenzothiophene, 942*f*, 8600*a*
**$C_{12}H_8S_2$** Thianthrene, 5622*b*, 6179*g*, P 6358*e*.
**$C_{12}H_8AgO_4$** 2-Indancarboxylic acid, 1,3-dioxo-, Et ester, Ag deriv., 3398*a*.
**$C_{12}H_8AsCl_2$** Arsine, chloro(*o* chlorophenyl)-phenyl-, 3382*i*.
**$C_{12}H_8AsS_3$** Arsine, tri-2-thienyl-, 3383*a*, 6102*f*.
**$C_{12}H_9Br$** Acenaphthene, bromo-, 8600*a*.
Biphenyl, bromo-, 4242*i*, 6185*g*.
**$C_{12}H_9BrINO_2$** Iodine bromobenzoate, compd. with pyridine, 5689*i*.
**$C_{12}H_9BrN_2O$** Acetophenone, α-(5-bromo-2-pyrimidyl)-, 3395*g*.
Phenol, *p*-(*p*-bromophenylazo) , 3800*i*
**$C_{12}H_9BrN_2O_2$** 5-Pyrimidinecarboxylic acid, 4-(bromomethyl)-2-phenyl-, 1424*c*
**$C_{12}H_9BrN_2S$** Naphtho[1,2]thiazole, 5-bromo-2-methylamino , 1767*a*.
**$C_{12}H_9BrOS$** Ketone, benzyl 5-bromo-2-thienyl, 4666*b*.
**$C_{12}H_9BrO_2$** Acetonaphthone, bromohydroxy-, 2600*a*, 5446*e*.
2-Naphthaleneacetic acid, 6-bromo-, 3362*i*.
1,4-Naphthoquinone, 2-(bromomethyl)-3-methyl-, 1380*h*
**$C_{12}H_9BrO_3$** Acetic acid, (1-bromo-2-naphthoxy)-, 3813*g*.
**$C_{12}H_9Br_2Cl$** Naphthalene, chloro(1,2-dibromoethyl)-, 1756*c*, 3813*abd*.
**$C_{12}H_9Br_2ClSe$** (Chlorophenyl)phenylselenium dibromide, 8810*a*
**$C_{12}H_9Br_2NO_2$** Acetamide, α-(1,6-dibromo-2-naphthoxy)-, 3813*h*
**$C_{12}H_9Br_3N_2O_2S$** Sulfanilanilide, 3′,4′,5′-tribromo-, 4649*a*
**$C_{12}H_9Cl$** Biphenyl, chloro-, 5387*c*
Naphthalene, chlorovinyl , 1756*b*, 3813*abc*.
**$(C_{12}H_9Cl)_n$** Naphthalene, chlorovinyl , polymer, 3813*abc*.
**$C_{12}H_9ClHgO$** Ether, (chloromercuri)phenyl phenyl, 4236*fh*
**$C_{12}H_9ClINO_2$** Iodine chlorobenzoate, compd. with pyridine, 5689*i*.
**$C_{12}H_9ClMg$** 4-Biphenylylmagnesium chloride, 5768*h*.
**$C_{12}H_9ClN_2$** Benzimidyl chloride, *N*-2 pyridyl-, - *HCl*, 1409*c*.
Picolinimidyl chloride, *N*-phenyl , - *HCl*, 1409*e*.
**$C_{12}H_9ClN_2O_2$** 2-Biphenylamine, 5-chloro-4′-nitro-, 7445*f*.
Diphenylamine, chloronitro , 1734*f*, 6175*g*, 9037*i*
Xenylamine, 2′-chloro-3-nitro-, P 2442*g*
**$C_{12}H_9ClN_2O_3$** 1-(Nitrobenzoyl)pyridinium chloride, 4241*bc*.
3 Pyridazinecarboxylic acid, 1-(*p*-chlorophenyl) - 1,4 - dihydro - 6 - methyl - 4-oxo-, P 2242*h*.
**$C_{12}H_9ClN_2O_3S$** Chlorosulfonic acid, *p*-phenylazophenyl ester, 3800*i*.
**$C_{12}H_9ClN_2O_4S$** Benzenediazobenzenesulfonate, 4′-chloro 4-hydroxy-, P 9355.
Chlorosulfonic acid, *p* phenylazoxyphenyl ester, 3801*a*
**$C_{12}H_9ClN_2O_5S$** Benzenesulfonanilide, 4-chloro 2′-hydroxy-3 nitro-, P 5042*h*.
**$C_{12}H_9ClN_4$** 1*H*-Tetrazole, 5-(chloromethyl)-1 (naphthyl)-, P 7971*ef*
**$C_{12}H_9ClN_4O_2$** Aniline, *p*-(4-chloro-2-nitrophenylazo)-, P 8166*a*.
Pyrimidine, 4 amino-2 chloro-5 nitro-6-styryl-, 651*b*.
**$C_{12}H_9ClO$** 1-Acetonaphthone, 7-chloro-, 3813*b*.
**$C_{12}H_9ClO_2$** 2-Acetonaphthone, 4-chloro-1-hydroxy-, 2599*h*.
Naphthaleneacetic acid, chloro-, 3303*b*, 3813*c*.
1,4 Naphthoquinone, 2-(chloromethyl)-3-methyl-, 1380*h*
**$C_{12}H_9ClO_3$** Acetic acid, (1-chloro 2-naphthoxy)-, *and K salt*, 3813*f*; *and Na salt*, P 2234*c*.
2-Acetonaphthone, α-chloro-3,4-dihydroxy-, 7341*f*
**$C_{12}H_9ClO_3S$** Benzenesulfonyl chloride, *p*-phenoxy-, P 857*d*.
**$C_{12}H_9Cl_2N$** Diphenylamine, 4,4′-dichloro-, 2359*h*, 6570*f*.
**$C_{12}H_9Cl_2NO_3S$** Benzenesulfonic acid, 2-amino-5-chloro-, *p*-chlorophenyl ester, 4219*f*.
**$C_{12}H_9Cl_2N_3O$** 1-Naphthaldehyde, 5,8-dichloro-, semicarbazone, 3813*d*.
**$C_{12}H_9Cl_3N_2O_2S$** Sulfanilanilide, trichloro-4649*ab*.
**$C_{12}H_9Cl_3N_2O_4S_2$** Dibenzenesulfonamide, 2′ amino-2,4,5-trichloro-, P 8150*d*.
N-(anilamide, chloro - *N*-(dichlorophenylsulfonyl)-, P 8150*cdef*.
*N*-(2,4,5-trichlorophenylsulfonyl) , P 8150*c*.
**$C_{12}H_9FINO_2$** Iodine fluorobenzoate, compd. with pyridine, 5689*i*.
**$C_{12}H_9FO_2$** 2-Naphthaleneacetic acid, 6-fluoro-, 3362*i*.
**$C_{12}H_9IN_2O_2$** Benzoic acid, *m*-iodo-, furfurylidenehydrazide, 6973*f*.
**$C_{12}H_9IN_2O_4$** Iodine nitrobenzoate, compd. with pyridine, 5689*i*.
**$C_{12}H_9IO$** Ether, iodophenyl phenyl, 4236*fh*.
**$C_{12}H_9I_2NO_2$** Iodine iodobenzoate, compd. with pyridine, 5689*i*.
Phenol, *p*-(4-amino 2,6-diiodophenoxy)-, 7585*d*.
**$C_{12}H_9N$** (See also *Carbazole*.)
5*H*-Indeno[1,2 *b*]pyridine, *and chloroplatinate*, 5403*a*.
1-Naphthaleneacetonitrile, P 4300*c*, 9057*a*.
**$C_{12}H_9NO$** 1-Carbazolol, 6206*a*.
Ketone, phenyl 2 pyridyl, 1408*i*.
1-Naphthonitrile, 2-methoxy-, 1040*e*.
6 Quinolineacrolein, 3000*h*.
**$C_{12}H_9NOSe$** Naphtho[1,2]selenazol-2(1 *H*)-one, 1-methyl-, P 7848*f*.
**$C_{12}H_9NO_2$** Biphenyl, nitro-, 748*d*, 1867*f*, 3394*e*, 6019*e*.
Indophenol, 1553*f*, 3530*g*, 8009*d*, 8019*f*.
Ketone, 6 hydroxy-3 pyridyl phenyl, 3417*b*.
2 Naphthaleneglyoxylaldehyde, monoxime, P 8739*f*
2-Pyridol, benzoate, 3417*b*.
**$C_{12}H_9NO_2S$** 2-Dibenzothiophenamine, 5,5-dioxide, 2087*d*.
Sulfide, nitrophenyl phenyl, 7410*d*.
**$C_{12}H_9NO_3$** Furan, 2 (*p*-nitrostyryl)-, 3428*b*
1,4 - Naphthoquinone, 2 - acetamido-, 1382*f*.
Quinaldic acid, 3-acetyl , 1412*c*.
**$C_{12}H_9NO_3S$** 3 Carbazolesulfonic acid, 973*d*, *and Na salt*, 6205*b*.
**$C_{12}H_9NO_4$** 2-Acetonaphthone, 1-hydroxy-4-nitro-, 2600*b*.
3,4 Quinolinedicarboxylic acid, 2-methyl , 3503*a*, 3929*g*.
**$C_{12}H_9NO_3S$** 1-Naphthol-8-sulfonic acid, 4-methylcarbamyl , sultone, 204*d*.
**$C_{12}H_9NO_3S_2$** Rhodanine, 5 (5-methoxypiperonylidene) , 2212*a*, 9046*e*.
**$C_{12}H_9NO_5S$** Benzenesulfonic acid, *o*-nitro-, Ph ester, 4249*e*.
**$C_{12}H_9NO_6$** Chromone, 7-hydroxy-2-methyl 8-nitro , acetate, 9067*b*.
**$C_{12}H_9NO_6S$** Phenol, *p*-nitro-, ester with Ph H sulfate, 173*d*.
**$C_{12}H_9NO_7$** 1,2 *H*-Benzopyran-6-carboxylic acid, 7-hydroxy-4-methyl-8 nitro-2-oxo , Me ester, 2021*i*.
1,2 *H* Benzopyran 3 carboxylic acid, hydroxynitro-2-oxo-, Et ester, 7925*bc*.
**$C_{12}H_9NO_7S_2$** 3,6 Carbazoledisulfonic acid, 1-hydroxy-, 6206*a*.
**$C_{12}H_9NO_{10}S_3$** 1,3,6-Carbazoletrisulfonic acid, *and salts*, 6205*f*.
**$C_{12}H_9NO_{12}S_4$** 1,3,6,7-Carbazoletetrasulfonic acid, 973*b*.
**$C_{12}H_9NS$** (See also *Phenothiazine*.)
2 Dibenzothiophenamine, 2987*d*.
Isothiocyanic acid, 1-naphthylmethyl ester, 8600*b*
**$C_{12}H_9NSSe$** Naphtho[1,2]selenazole-2(1 *H*)-thione, 1 methyl-, P 7848*g*.
**$C_{12}H_9NS_3$** 12 *H*-Dibenzo[*c*,*g*][1,2,5,6]trithiazocine, 5860*h*.
**$C_{12}H_9NSe$** Phenoselenazine, 3964*c*.
**$C_{12}H_9N_3$** Benzo[*c*]cinnoline, 2-amino-, 6893*c*
Benzo[*f*]quinoxaline, amino-, 174*e*.
Benzotriazole, phenyl-, 4570*e*.
4,7 Phenanthroline, 1-amino-, 1418*f*.
5 Pyrimidinecarbonitrile, 4-methyl 2-phenyl , 1823*a*.
**$C_{12}H_9N_3OSe$** Naphtho[1,2]selenazole, 1,2 dihydro-1 methyl-2 nitrosoimino , P 7848*f*.
**$C_{12}H_9N_3O_7$** Azobenzene, 4 nitro-, 5756*g*
Hydantoin, 5-(3-indolylmethylene)-, 2114*h*.
**$C_{12}H_9N_3O_3$** Phenol, *p*-(nitrophenylazo)-, 597*b*, 6919*g*
**$C_{12}H_9N_3O_3S$** *p* (Phenylsulfamino)benzenediazonium hydroxide, inner salt, P 3204*a*
**$C_{12}H_9N_3O_4$** Diphenylamine, dinitro-, 169*b*, 2359*h*, 7444*a*.
Resorcinol, 4-(*p*-nitrophenylazo)-, 597*c*, 2118*d*.
Uracil, 5-nitro-6-styryl-, 651*a*.
**$C_{12}H_9N_3O_5$** Pyrogallol, 5-(*p*-nitrophenylazo)-, 597*c*.
**$C_{12}H_9N_3O_6S$** 1-Phenol-3-sulfonic acid, 4-(*p*-nitrophenylazo)-, *salts*, 2595*i*.
**$C_{12}H_9N_3O_7S$** Benzenesulfonic acid, 2,4-dihydroxy-5-(*p*-nitrophenylazo)-, *salts*, 2595*i*.

Benzenesulfonic acid, 2-(3,4-dihydroxyphenylazo)-5-nitro-, 4174*h*.
$C_{12}H_9N_5O_4$ Aniline, *p*-(3,5-dinitrophenylazo)-, P 9402*f*.
Triazine, 1,3-bis(*p*-nitrophenyl)-, 595*h*, 7443*i*.
$C_{12}H_9NaO$ Phenol, *o*-phenyl-, Na deriv., P 5900*f*, 7180*g*.
$C_{12}H_{10}$ (See also *Acenaphthene; Biphenyl.*)
1,5 Hexadien-3-yne, 2-phenyl-, 118*e*.
Naphthalene, vinyl-, 5019*f*, P 5804*h*, P 8130*d*, 8224*a*, 8376*f*.
$C_{12}H_{10}AsCl$ Arsine, chlorodiphenyl-, 23*a*, 6114*d*, 6178*b*, 7576*d*.
$C_{12}H_{10}AsClO_2$ Arsinic acid, (*o*-chlorophenyl)-phenyl-, 3382*g*.
$C_{12}H_{10}AsIO_2$ Arsinic acid, (*o*-iodophenyl)-phenyl-, 8352*d*.
$C_{12}H_{10}AsN$ Phenarsazine, 5,10-dihydro-, 4675*f*.
$C_{12}H_{10}BrClN_2O_4S_2$ Metanilamide, $N^1$-(*p*-bromophenylsulfonyl)-4-chloro-, P 8150*a*.
$C_{12}H_{10}BrNO$ Acetamide, α-bromo-*N*-2-naphthyl-, 5081*h*.
Acetamide, *N*-(7-bromo-1-naphthyl)-, 6607*b*.
Pyridine, 2-(benzyloxy)-5-bromo-, 2997*h*.
$C_{14}H_{10}BrNO_2$ Acetamide, α-(1-bromo-2-naphthoxy)-, 3813*g*.
Pyridine, 2-(benzyloxy)-5-bromo-, 1-oxide, 2997*h*.
$C_{12}H_{10}BrNO_2S$ Benzenesulfonanilide, 4′-bromo-, 2595*b*.
$C_{12}H_{10}BrN_3O_4S$ Benzenesulfonamide, *p*-(bromohydroxyphenylazo), 9047*h*.
$C_{10}H_8Br_2$ Naphthalene, dibromoethyl, P 7633*i*.
$C_{12}H_8Br_2N_2$ Benzidine, 3,3′-dibromo-, 2979*d*
Hydrazobenzene, 2,2′-dibromo-, 2979*d*
$C_{12}H_8Br_2N_2O_2S$ Sulfanilanilide, 3′,5′-dibromo-, 1485*a*, 3880*h*, 4648*g*, 8528*b*.
$C_{12}H_8Br_2O_2$ Naphthalene, dibromodimethoxy-, 6155*b*.
$C_{12}H_8Br_2O_3$ Tricyclo[4.2.2.0$^{2,5}$]decene-7,8-dicarboxylic anhydride, dibromo-, 6199*ff*.
$C_{12}H_8Br_2O_4$ Tricyclo[4.2.2.0$^{2,5}$]-7,9-decadiene-7,8-dicarboxylic acid, 3,4-dibromo-, 6199*g*.
$C_{12}H_8Ca_3O_{14}$ Calcium citrate, 7790*g*.
$C_{12}H_8ClI$ Diphenylhodonium chloride, 2685*i*.
$C_{12}H_8ClN$ Diphenylamine, *p*-chloro-, 6570*g*
Quinoline, 6-chloro-2-isopropenyl-, 217*g*.
$C_{12}H_8ClNO$ Aniline, *o*-chloro-2-phenoxy-, P 5908*a*
Pyridinemethanol, α-(chlorophenyl)-, 4266*i*, *and -HCl*, 2204*i*.
$C_{14}H_8ClNO_3$ Acetamide, α-(1-chloro-2-naphthoxy)-, 3813*g*.
Quinolinone acid, 2-chloro-5,6-dimethyl-, and *Na salt*, 4675*d*
Quinoline acid, 6-chloro-, Et ester, 217*g*.
$C_{14}H_8ClNO_2S$ 5-Thiazoleacetic acid, 4-(*p*-chlorophenyl)-2-methyl-, P 8401*e*.
$C_{12}H_8ClNO$ Kynurenic acid, chloro-, Et ester, 5400*r*, 5402*b*.
$C_{12}H_8ClNO_3S$ Benzenesulfonic acid, *o*-amino-, *p*-chlorophenyl ester, 4249*e*
Benzenesulfonic acid, 2-amino-5-chloro-, Phenyl ester, 4249*e*.
*N*-(chlorobenzenesulfonyl chloride, acetamido-, 926*i*
$C_{12}H_8ClNO_5S_2$ Benzenesulfonic acid, 5-(*o*-aminophenylsulfonyl)-2-chloro-, P 7409*g*.
$C_{12}H_8ClN_3O$ Pyridine, 2-(4-amino-2-chlorobenzamido)-, 7455*c*.
$C_{12}H_8ClNO_2S$ Benzenesulfonamide, *p*-chlorohydroxyphenylazo), 9047*h*.
$C_{17}H_{10}ClN_3O_4$ 1-(2,4-Dinitrophenyl)-3-picolinium chloride, 4671*b*.
$C_{13}H_8ClN_3O_4S$ 1-(2,4-Dinitrophenyl)-4-methylmercaptopyridinium chloride, 6627*a*
$C_{13}H_{11}ClN_2O_4$ 1-(2,4-Dinitrophenyl)methoxypyridinium chloride, 4671*b*, 6626*h*
$C_{13}H_{10}ClN_3S$ Thionine, 2093*g*.
$C_{12}H_{11}ClO_2PS$ Phenyl chlorothiophosphate, 935*g*.
$C_{12}H_{11}ClP$ Phosphine, chlorodiphenyl-, 1040*i*, 3801*i*
$C_{12}H_{11}ClSb$ Stibine, chlorodiphenyl-, 1737*i*.
$C_{13}H_{11}Cl$ Methane, (*o*-chlorophenyl)(*p*-chlorophenyl), 8600*a*.
Naphthalene, 2-chloro-6-(1-chloroethyl)-, 1756*c*
$C_{12}H_{10}Cl_2N_2$ Benzidine, dichloro-, P 7698*e*, P 7746*e*
*o*-Phenylenediamine, chloro-*N*-(chlorophenyl), 1734*fg*, 3932*c*.
$C_{12}H_9Cl_2NO_2S$ Aniline, 3,5-dichloro-4,4′-sulfonyldi-, 3518*d*.
Aniline, sulfonylbis[chloro-, 3518*d*, P 4476*e*.
Sulfanilanilide, dichloro-, 1485*a*, 4648*h*, 4649*b*, 8528*b*.
$C_{13}H_{10}Cl_2N_2O_4S_2$ Dibenzenesulfonamide, aminodichloro-, P 8150*d*.
Metanilamide, 4-chloro-$N^1$-(*p*-chlorophenylsulfonyl)-, P 8150*af*.
—, $N^1$-(dichlorophenylsulfonyl)-, P 8150*c*.
$C_{13}H_{10}Cl_2N_4O_3S$ Acetanilide, *p*-(4,6-dichloro-2-pyrimidylsulfamyl)-, P 7964*h*.
$C_{11}H_{10}Cl_2O$ 1-Naphthalenemethanol, 5,8-dichloro-α-methyl-, 3813*e*.
$C_{12}H_{10}Cl_2O_2$ Naphthalene, dichlorodimethoxy-, 201*hd*.
$C_{13}H_{10}Cl_2O_2$ Acrylic acid, β-2,4-dichlorobenzoyl-, Et ester, 7192*h*.
Tricyclo[4.2.2.0$^{2,5}$]-9-decene-7,8-dicarboxylic anhydride, 3,4-dichloro-, 6199*e*
$C_{12}H_{10}Cl_2Pb$ Diphenyllead dichloride, 560*a*.
$C_{12}H_{10}Cl_2Si$ Silane, dichlorodiphenyl-, 1027*i*, P 3237*g*, P 4517*b*.
$C_{12}H_{10}ClN$ 1-(2,4-Dichlorobenzyl)pyridinium chloride, 9123*e*.
$C_{13}H_{10}ClNO$ 2-Quinolinemethanol, α-(trichloromethyl)-, 1411*i*.
$C_{12}H_{10}Cl_3NO_3S$ 1,2-Benzisothiazol-3(2*H*)-one, 2-(5,5,5-trichloro-2-pentenyl)-, 1,1-dioxide, P 4422*c*
$C_{12}H_{10}Cl_3Sb$ Stibine, chlorodiphenyl-, dichloride, 1738*a*.
$C_{12}H_{10}Cl_4N_2O_4P_2S$ Amidophosphoryl chloride, *N*,*N*′-sulfonyldi-*p*-phenylene)bis-, P 5156*g*
$C_{17}H_{10}Cl_4N_3P_3$ Triphosphonitrile, diphenyltetrachloro-, 5365*a*.
$C_{12}H_{10}Cl_4O_4$ Phthalic acid, tetrachloro-, di Et ester, 8368*g*.
Phthalide, 4,5,6,7-tetrachloro-3,3-diethoxy-, 8308*f*
$C_{12}H_{10}CuN_4O_4$ Hydroxylamine, *N*-nitroso-*N*-phenyl-, Cu deriv., 2488*g*
$C_{12}H_{10}CuN_4S_2$ 8222*d*
$C_{12}H_{10}FO_3P$ Phenyl fluophosphate, 121*f*.
$C_{12}H_{10}F_4$ Benzene, (2,2,3,3-tetrafluoro-1-vinylcyclobutyl)-, P 4295*e*.
Styrene, *p*-(2,2,3,3-tetrafluorocyclobutyl)-, P 4295*e*
$C_{12}H_{10}F_4O_2$ Toluene, 3,4-methylenedioxy-α-(2,2,3,3-tetrafluorocyclobutyl)-, 3370*i*
$C_{12}H_{10}F_4N_4O_4Si$ *p*-Hydroxybenzenediazonium fluosilicate, 6992*c*.
$C_{12}H_{10}F_4N_4Si$ Benzenediazonium fluosilicate, 6992*c*
$C_{17}H_{14}F_4O_4$ Adipic acid, octafluoro-, diallyl ester, P 2635*i*
$C_{12}H_{10}Hg$ Mercury, diphenyl-, 171*f*, 560*a*, 4579*i*, 5004*i*, P 5528*h*, 6356*e*, 8895*a*.
$C_{12}H_{10}HgO_2$ Phenoxyphenylmercury hydroxide, 4236*gh*
$C_{12}H_{10}IN_3O_3S$ Benzenesulfonamide, *p*-(hydroxyiodophenylazo), 9047*i*
$C_{12}H_{10}I_2$ Diphenyliodonium iodide, 268*fi*.
$C_{12}H_{12}I_2N_2O_2S$ Sulfanilanilide, 3′,5′-diiodo-, 4648*h*.
$C_{12}H_{10}K_4LaO_{14}$ 4969*h*
$C_{12}H_{10}K_4NdO_{14}$ 4969*h*.
$C_{12}H_{10}N_2$ (See also *Azobenzene*.)
Carbazole, 2-amino-, 6205*g*
Naphth[1,2]imidazole, 2-methyl-, 9058*d*.
Perimidine, 2-methyl-, *HCl*, 9058*e*
Pyrid[3,4-*b*]indole, methyl-, 6627*f*
7*H*-Pyrrolo[2,3-*h*]quinoline, 7-methyl-, 3422*a*
$C_{12}H_{10}N_2O$ (See also *Azoxybenzene*.)
Acetophenone, α-pyruvudyl-, 3395*f*.
Diphenylamine, nitroso-, 7251*h*, P 7507*i*, 8138*i*, 8188*g*, 8599*h*
Ketone, phenyl 2-pyridyl, oxime, *and H-sulfate*, 1409*b*
Nicotinamilide, P 4686*i*
Phenol, phenylazo-, 1973*i*, 3800*h*, 6919*g*
Pyridine, 2-benzamido-, 1409*c*, *and -HCl*, 4274*i*
$C_{12}H_{10}N_2OS$ Cinnamamide, *N*-2-thiazolyl-, P 6239*d*.
$C_{12}H_{10}N_2O_2$ 3-Indolepropionic acid, 4-cyano-, 4255*h*
Isonicotinic acid, 3-anilino-, 3827*c*.
Nicotinanilide, hydroxy-, 5025*d*.
Nicotinic acid, 3-pyridylmethyl ester, P 6672*a*, P 8105*h*
Nitrone, *N*-phenyl-α-pyrrylcarbonyl-, 4256*e*.
Phenol, *p*,*p*′-azodi-, 3801*a*.
*p*-Quinone, phenyl-, dioxime, 5623*c*.
$C_{12}H_{10}N_2O_3S$ Aniline, *p*-(*p*-nitrophenylmercapto)-, 3802*g*
2,8-Dibenzothiophenediamine, 5,5-dioxide, 2987*f*.
2(1*H*)-Pyrimidinethione, 6-hydroxy-5-(hydroxymethyl)-4-phenyl-, cyclic methylene ether, 3013*g*.
5*H*-Thiazolo[3,2-*a*]pyrimidine-5,7-(6*H*)-dione, 2,3-dihydro-3-phenyl-, P 8925*c*.
$C_{12}H_{10}N_2O_2Se$ 2,1,3,4*H*-Benzoxaselenazole, 5,6-dihydro-7-nitroso-5-phenyl-, 7479*b*.
$C_{12}H_{10}N_2O_3$ Acetamide, *N*-2-nitro-1-naphthyl-, 2186*h*.
$C_{12}H_{10}N_2O_3S$ Benzenesulfonic acid, *p*-phenylazo-, *trihydrate*, 4725*d*.
Salicylamide, *N*-2-thiazolyl-, acetate, P 3467*e*.
$C_{12}H_{10}N_2O_4S$ Aniline, *p*-(*p*-nitrophenylsulfonyl)-, P4817*i*.
Benzenesulfonic acid, *p*-(*p*-hydroxyphenylazo)-, 4725*e*.
Phenol, sulfonylbis[amino-, 6995*a*; *and d*$_2$-*HCl*, 6995*a*.
Picolinic acid, 6-sulfanilyl-, 8422*i*.
$C_{12}H_{10}N_2O_4S_2$ *p*-Benzenedisulfonamide, *N*,*N*′-*p*-phenylene deriv., 4237*e*.
$C_{12}H_{10}N_2O_5$ Carbanilic acid, *p*-nitro-, furfuryl ester, 6176*c*.
Glycine, *N*-(phthalimidoacetyl), 8356*g*.
$C_{12}H_{10}N_2O_5S$ Benzenesulfonic acid, *p*-(3,4-dihydroxyphenylazo)-, 4174*h*, 4175*f*.
$C_{12}H_{10}N_2O_6$ Pyrocatechol, 4-nitro-5-(2-nitrovinyl)-, diacetate, 3405*i*.
$C_{12}H_{10}N_2O_9S_3$ 1,3,6-Carbazoletrisulfonic acid, 7-amino-, and *tri-K salt*, 6205*h*.
$C_{12}H_{10}N_2S$ 2,8-Dibenzothiophenediamine, 2987*e*.
$C_{12}H_{10}N_2Se$ Naphtho[1,2]selenazole, 1,2-dihydro-2-imino-1-methyl-, P 7848*f*.
$C_{12}H_{10}N_4$ Guanidine, 1-cyano-3-(naphthyl)-, 169*f*, P 2636*c*, 2947*e*.
$C_{12}H_{10}N_4O$ 9*H*-Pyrid[3,4-*b*]indole-1-carboxylic acid, hydrazide, 3416*f*.
$C_{12}H_{10}N_4O_2$ Alloxazine, 7,8-dimethyl-, 5079*f*, 6306*a*, 7073*g*, 8282*c*.
Aniline, *p*-(*p*-nitrophenylazo)-, 597*d*.
$C_{12}H_{10}N_4O_2S_2$ 6-Benzothiadiazolesulfonamide, 2-amino-*N*-2-pyridyl-, 6180*d*.
$C_{12}H_{10}N_4O_2$ 2,4(1*H*,3*H*)-Quinazolinedione, 3-(diazoacetyl)-1,3-dimethyl-, 6633*i*
*v*-Triazole-4-acrylic acid, α-benzamido-, 6621*d*.
$C_{12}H_{10}N_4O_3S$ Benzenesulfonic acid, *p*-(5-amino-2*H*-benzotriazol-2-yl)-, P 1575*e*.
$C_{12}H_{10}N_4O_3$ Alloxazine, 7,8-dimethoxy-, 3008*h*
$C_{14}H_{10}N_4O_4S_2$ Aniline, 2,2′-dithiobis[4-nitro-, 7476*g*
$C_{12}H_{10}N_4O_5$ 2-Furaldehyde, 5-methyl-, 2,4-dinitrophenylhydrazone, 1120*h*.
$C_{12}H_{10}N_4O_6S$ Sulfanilic acid, 3-(*p*-nitrophenylazo)-, 597*d*.
$C_{12}H_{10}N_4O_6$ 2-Furaldehyde, 5-(hydroxymethyl)-, 2,4-dinitrophenylhydrazone, 1120*h*, 1121*a*, 3795*b*.
$C_{12}H_{10}N_4O_6S_2$ *p*-Benzenedisulfonic acid, 2-(5-amino-2*H*-benzotriazol-2-yl)-, P 1575*f*
$C_{12}H_{10}N_4O_7$ Aniline, picrate, 6070*g*.
Picoline, picrate, 4266*i*.
$C_{12}H_{10}N_4NaO_7$ Alloxazine, 8-dimethylamino-, Na deriv., 3008*c*
$C_{12}H_{10}N_4O_4$ Pyrimidine, 2,4-diamino-5-nitro-6-(*p*-nitrostyryl)-, 651*h*.
$C_{12}H_{10}N_4O_7$ Imidazoleacetonitrile, 1-methyl-, picrate, 8382*e*.
Picolinamidine, picrate, P 688*i*.
$C_{12}H_{10}N_5O_7$ Adenine, $N^6$-methyl-, picrate, 4634*i*
Purine, 1,6-dihydro-6-imino-1-methyl-, picrate, 4635*a*.
$C_{12}H_{10}N_5O_8$ Guanine, methyl-, picrate, 4635*a*.
$C_{12}H_{10}Na_4NdO_{14}+3H_2O$, 4969*h*.
$C_{12}H_{10}O$ (See also *Phenol, phenyl-; Phenyl ether.*)
Acetonaphthone, 4948, 2588*i*, 2608*e*, P 5804*i*, 8371*b*, 8888*f*, 9421*f*.
$C_{12}H_{10}OS$ Phenyl sulfoxide, 6994*d*.
$C_{13}H_{10}OS_2$ Ketone, phenylmercaptomethyl-2-thienyl, 1398*d*.
$C_{12}H_{10}O_2$ (See also *Naphthaleneacetic acid.*)
Acetonaphthone, hydroxy-, 3415*a*, 5446*e*, 6606*eh*, 6607*c*, 7010*e*, 7341*f*.
Biphenol, 5403*c*, 8727*i*.
2(1*H*)-Dibenzofuranone, 3,4-dihydro-, 1012*h*.
Hydroquinone, phenyl-, 2182*a*.
1-Naphthaldehyde, 2-methoxy-, 1040*f*.
1-Naphthoic acid, 8-methyl-, 7011*h*.
Naphthol, acetate, 2588*i*, 6495*f*, 9049*g*.
1,4-Naphthoquinone, 2,3-dimethyl-, 2985*c*, 6675*d*, 8059*h*, 9247*a*.
—, 2-ethyl-, 4660*d*.
Phenol, *p*-phenoxy-, P 8690*i*.
Pyrocatechol, 4-phenyl-, 2182*a*, 8727*i*.

Quinol, 4-phenyl-, 2181*i*.
**$C_{12}H_{10}O_2S$** Acetic acid, 2-naphthylmercapto-, 3365*c*.
Benzoic acid, 2-thenyl ester, 8599*i*.
Phenol, *p,p'*-thiodi-, 8727*i*.
Phenyl sulfone, 2178*g*, P 3740*c*, 7411*b*.
2-Thiophenemethanol, benzoate, 3554*i*.
**$C_{12}H_{10}O_2S_2$** 1-Naphthoic acid, 2-hydroxy-dithio-, hydroxymethyl ester, P 6667*b*.
**$C_{12}H_{10}O_2S_4$** Phenol, tetrathiodi-, P 5992*g*.
**$C_{12}H_{10}O_2Se$** 2-Biphenylseleninic acid, 6050*i*.
**$C_{12}H_{10}O_3$** (See also *Acetic acid, naphthoxy-*.)
2-Acetonaphthone, dihydroxy-, 3416*a*, 7341*f*.
5-Benzofuranacrylic acid, 2,3-dihydro-6-hydroxy-3-methyl-, δ-lactone, 3413*a*.
1,3-Indandione, 2-acetonyl-, 3399*c*.
3-Indenecarboxylic acid, 2-methyl-1-oxo-, Me ester, 4661*b*.
1-Naphthaleneglycolic acid, 188*d*.
2-Naphthoic acid, 6-methoxy-, 6606*e*.
1,4-Naphthoquinone, 2-hydroxy-3,6-dimethyl-, 1382*i*.
2,4-Pentadienoic acid, 5-benzoyl-, 607*g*.
Tricyclo[4.2.2.$0^{2,5}$] - 3,9 - decadiene-7,8-dicarboxylic anhydride, 6197*h*.
**$C_{12}H_{10}O_3S$** 4-Biphenylsulfonic acid, 1033*f*.
Ketone, 3 - hydroxy - 2 - thianaphthenyl methyl, acetate, 2200*h*.
Salicylic acid, 2-thenyl ester, 1518*f*, 3554*i*, 8599*h*.
**$C_{12}H_{10}O_4$** (See also *Quinhydrone*.)
Acetic acid, (6-hydroxy-2-naphthoxy)-, P 7698*c*.
2-Acetonaphthone, trihydroxy-, 7341*f*.
*p*-Benzenediacrylic acid, 7456*f*.
Benzopyranearboxylic acid, oxo-, Et ester, 1770*h*, 6919*b*.
Coumarilaldehyde, 6-hydroxy-3-methyl-, acetate, 3412*h*.
2 - Furaldehyde, 5 - (hydroxymethyl)-, benzoate, 1120*h*.
Glutaconic anhydride, β-(*p*-methoxyphenyl)-, 4640*a*.
2-Indancarboxylic acid, 1,3-dioxo-, Et ester, 3397*h*.
1,2,4-Naphthalenetriol, 1-acetate, 1377*d*.
4 - Oxatetracyclo[5.2.2.$0^{2,6}$ $0^{3,5}$] - 10-hendecene-8,9-dicarboxylic anhydride, 6200*h*.
$\Delta^1$-α-Phthalanacetic acid, 3-oxo-, Et ester, 2974*d*.
Tricyclo[4.2.2.$0^{2,5}$] - 3,7,9 - decatriene-7,8-dicarboxylic acid, 6198*f*.
Umbelliferone, 8-acetyl-4-methyl-, 6206*g*.
**$C_{12}H_{10}O_4S$** 2-Biphenylsulfonic acid, 2'-hydroxy-, 4249*b*.
Phenol, *p,p'*-sulfonyldi-, P 4884*a*, P 5618*g*, P 6660*b*.
Phenyl sulfate, 173*c*.
Pyrocatechol, thiodi-, P 2469*a*.
**$C_{12}H_{10}O_4S_2$** Phenyl disulfone, 2942*b*.
**$C_{12}H_{10}O_4S_2$** Benzenesulfonyl sulfide, 6881*c*.
**$C_{12}H_{10}O_4S_4$** Pyrocatechol, tetrathiodi-, P 5992*g*.
**$C_{12}H_{10}O_4S_6$** Pyrocatechol, hexathiodi, P 5992*g*.
**$C_{12}H_{10}O_4Se$** 4,7-Selenanaphthenedione, 5-hydroxy-3,6-dimethyl-, acetate, 6612*g*.
**$C_{12}H_{10}O_5$** 1,2 *H*-Benzopyran-6-carboxylic acid, 7 - hydroxydimethyl - 2 - oxo-, 2993*i*.
Benzopyrancarboxylic acid, hydroxymethyloxo-, Me ester, 6206*g*, 7936*g*.
—, hydroxyoxo-, Et ester, P 693*g*, 4265*d*, 6919*b*.
—, methoxymethyloxo-, 7936*hi*.
—, methoxyoxo-, Me ester, 7936*f*.
Coumarilic acid, 6-hydroxy-3-methyl-, acetate, 3412*h*.
**$C_{12}H_{10}O_4S$** 1-Naphthol-8-sulfonic acid, 4-acetyl-, P 4482*cd*, P 4865*g*, P 8147*g*.
**$C_{12}H_{10}O_5S_2$** Benzenesulfonic acid, *m*-(phenylsulfonyl)-, P 6095*b*.
Benzenesulfonic anhydride, 2110*h*, 2594*i*.
**$C_{12}H_{10}O_6$** Bicyclo[2.2.2]octane-2,3,5,6-tetracarboxylic dianhydride, 6200*f*.
Coumarilic acid, 7-acetyl-6-hydroxy-4-methoxy-, 3413*g*.
1,4-Naphthoquinone, 2 ethyl-3,5,6,8-tetrahydroxy-, 2608*h*.
**$C_{12}H_{10}O_8$** 1,1,2,2-Ethanetetracarboxylic acid, 1-phenyl-, 4227*i*.
**$C_{12}H_{10}O_8S_2$** Benzenesulfonic acid, *m,m'*-sulfonyldi-, P 6095*b*.
**$C_{12}H_{10}S$** See *Phenyl sulfide*.
**$C_{12}H_{10}S_2$** 4,4'-Biphenyldithiol, P 7258*d*.
Phenyl disulfide, 1003*e*, 6179*f*, 6574*i*, 7253*d*, 7410*g*, 8078*i*.
**$C_{12}H_{10}S_2Zn$** Benzenethiol, Zn deriv., P 5224*c*.
**$C_{12}H_{10}S_4$** Phenyl tetrasulfide, 1002*c*, 7410*g*.
**$C_{12}H_{10}Se$** Phenyl selenide, 6356*f*, 6399*i*.
**$C_{12}H_{11}AsN_2O_4$** Benzenearsonic acid, *p*-(*p*-hydroxyphenylazo)-, 3925*e*.
**$C_{12}H_{11}AsN_2O_4S$** Sulfanilanilide, 5'-arsenoso-2'-hydroxy-, *and* - *HCl*, 6593*f*.
**$C_{12}H_{11}AsN_2O_6$** 3-Pyridazinecarboxylic acid, 1 - (*p* - arsonophenyl) - 1,4 - dihydro-6-methyl-4-oxo-, P 2242*h*.
**$C_{12}H_{11}AsO$** Arsinous acid, diphenyl-, *nitrate*, 348*f*.
**$C_{12}H_{11}AsO_2$** Arsinic acid, diphenyl-, 4647*g*.
**$C_{12}H_{11}Br$** Naphthalene, bromoethyl-, 1040*i*, P 7633*i*.
**$C_{12}H_{11}BrN_2O_2S$** Sulfanilanilide, 3'-bromo-, 4649*b*.
**$C_{12}H_{11}BrO_2$** Acrylic acid, β-benzoyl-, 2-bromoethyl ester, 7192*h*.
Umbelliferone, 6 - bromo - 3 - ethyl - 4-methyl-, 5024*d*.
**$C_{12}H_{11}BrO_4$** Tricyclo[4.2.2.$0^{2,5}$]-3-decene-7,8-dicarboxylic acid, 9-bromo-10-hydroxy-, γ-lactone, 6199*b*.
**$C_{12}H_{11}Cl$** Naphthalene, chloroethyl-, P 7633*i*.
**$C_{12}H_{11}ClNO_2P$** Phosphinic acid, (*p*-aminophenyl)(*p*-chlorophenyl)-, 599*f*.
**$C_{12}H_{11}ClN_2$** *o*-Phenylenediamine, chloro-*N*-phenyl-, 1734*fg*.
Pyridine, 2-benzylamino-5-chloro-, 5782*d*, 6587*g*.
—, 2 (*p*-chlorobenzylamino)-, 5782*d*.
**$C_{12}H_{11}ClN_2O$** Ketone, 3-chloro-5-methyl-1-phenyl-4-pyrazolyl methyl, 4258*h*.
**$C_{12}H_{11}ClN_2O_2$** Antipyroyl chloride, 7477*g*.
Quinoline, 8-acetamido-4-chloro-6-methoxy-, 7027*f*.
**$C_{12}H_{11}ClN_2O_2S$** Aniline, 2-chloro-4,4'-sulfonyldi-, 3518*d*.
Pyrimidine, 4 chloro - 6 - methyl - 2-(*p*-methylsulfonylphenyl), 1710*d*.
Sulfanilamide, 3'-chloro-, 4649*b*.
**$C_{12}H_{11}ClN_2O_3$** 2 Pyrazoline-3-carboxylic acid, 1-(*m*-chlorophenyl)-5-oxo-, Et ester, P 8150*e*.
**$C_{12}H_{11}ClN_2O_3S_2$** Metanilamide, *N*-(*p*-chlorophenylsulfonyl)-, P 8150*e*.
Metanilamide, 4-chloro-*N*-(phenylsulfonyl)-, P 8150*ce*.
Sulfanilamide, *N*-(*p*-chlorophenylsulfonyl)-, P 8150*c*.
**$C_{12}H_{11}ClN_2O_7$** Acetoacetic acid, α-(chlorodinitrophenyl)-, Et ester, 2184*d*, 7452*h*.
**$C_{12}H_{11}ClN_2S_2$** Urea, 1-(5-chloro-2-thenyl)-3-phenyl 2 thio-, 2201*h*.
**$C_{12}H_{11}ClN_4$** Pyrimidine, 4,5-diamino-2-chloro-6 styryl-, 651*e*.
**$C_{12}H_{11}ClN_4O_2S$** Acetanilide, *p*-(4-chloro-2-pyrimidylsulfamyl)-, P 7964*c*.
**$C_{12}H_{11}ClO$** 1-Naphthaleneethanol, chloro-, 3813*bc*.
Naphthalenemethanol, chloro-α-methyl-, 1756*b*, 3813*ac*.
**$C_{12}H_{11}ClO_2$** Naphthalene, 4-chloro-1,5 dimethoxy-, 201*b*.
**$C_{12}H_{11}ClO_2$** Acrylic acid, β-benzoyl-, 2-chloroethyl ester, 7192*h*.
Acrylic acid, β *o*-chlorobenzoyl-, Et ester, 7192*h*.
**$C_{12}H_{11}ClO_4$** Tricyclo[4.2.2.$0^{2,5}$]-3 decene-7,8-dicarboxylic acid, 9-chloro-10 hydroxy-, γ-lactone, 6199*d*.
**$C_{12}H_{11}Cl_2N$** Carbazole, 6,8-dichloro-1,2,3,4-tetrahydro-, 622*f*.
**$C_{12}H_{11}Cl_4S_2$** Thiophene, 2,2'-(2,2,2-trichloroethylidene)bis[5-methyl-, 3137*g*.
**$C_{12}H_{11}F_3O_2$** Acetic acid, (α,α,α trifluoro-*m*-toluyl)-, Et ester, 2211*f*.
**$C_{12}H_{11}IN_2$** 9 *H*-Pyrid[3,4-*b*]indole, 2-methiodide, 6627*e*.
**$C_{12}H_{11}IN_2O_2S$** Sulfanilanilide, 4'-iodo-, P 686*a*, 4649*b*.
**$C_{12}H_{11}IN_2O_7$** Acetoacetic acid, α-(2-iodo-4,6-dinitrophenyl)-, Et ester, 2184*b*.
**$C_{12}H_{11}IN_4O$** 1-(2-Amino-4-hydroxy-6-pteridylmethyl)pyridinium iodide, P 6246*a*, P 7518*h*.
**$C_{12}H_{11}N$** (See also *Diphenylamine*.)
5-Acenaphthenamine, 193*f*.
2-Biphenylamine, P 861*g*, P 1808*h*, 1867*f*, P 9085*i*, P 9086*b*, P 9458*gi*.
Pyridine, benzyl-, 6622*d*, *and nitrate*, 1408*i*; *dichromate*, 643*f*.
Quinoline, 2-isopropenyl-, 217*f*.
Xenylamine, 1867*f*, 6560*a*, 7446*f*, 7448*ac*, 8202*c*.
**$C_{12}H_{11}NO$** (See also *Naphthaleneacetamide*.)
Acetamide, *N* naphthyl-, 6606*c*.
Acetonaphthone, amino-, *and* - *HCl*, 6606*dgh*.
Aniline, *p*-[2-(2-furyl)vinyl]-, 3428*c*.
—, *p*-phenoxy-, P 1178*c*.
2-Naphthonitrile, 3,4-dihydro-6-methoxy-, 3814*f*.
Phenol, *p*-anilino-, P 6760*c*.
2-Propanone, 1-(2-quinolyl)-, 7022*e*.
Pyridine, 4-(benzyloxy)-, 2997*f*.
—, (*p*-methoxyphenyl)-, 3394*h*.
Pyridinemethanol, α-phenyl-, 4266*ab*; *and* - *HCl*, 2204*e*.
**$C_{12}H_{11}NOS$** Acetamide, α-mercapto-*N*-2-naphthyl-, 63*h*, 2541*f*.
Benzamide, *N*-2-thenyl-, 1763*h*.
2-Thiophenecarboxytoluidide, 4665*b*.
**$C_{12}H_{11}NOS_2$** 5(4 *H*)-Thiazolone, 4-benzylidene-2-(ethylmercapto)-, P 692*g*, 1398*i*, 1401*i*.
**$C_{12}H_{11}NO_2$** Acetamide, *N*-(6-hydroxy-1-naphthyl)-, 7026*e*.
2-Acetonaphthone, 4-amino-1-hydroxy-, 5779*c*.
Cinchoninic acid, dimethyl-, 4674*g*, 4675*d*.
Cinnamic acid, α-cyano-, Et ester, 3398*f*, 9334*d*.
2-Furo-*p*-toluidide, 1654*g*.
1-Indanacetic acid, α-cyano-, 8373*h*.
3 Isoquinolinemethanol, acetate, 3821*c*.
Ketone, 6-methoxy-4-quinolyl methyl, 231*e*.
1-Naphthaldehyde, 2-methoxy-, oxime, 1040*f*.
3-Pentenenitrile, 2-hydroxy-, benzoate, 4217*h*.
Phthalimide, *N*-2-methylallyl-, P 4422*b*.
Pyridine, (benzyloxy)-, 1-oxide, 2997*e*.
Pyridone, 1-(benzyloxy)-, 2997*e*.
8-Quinolinecarboxylic acid, Et ester, 2623*g*.
Tricyclo[1.2.2.$0^{2,6}$] - 3,9 - decadiene-7,8-dicarboximide, 6198*g*.
**$C_{12}H_{11}NO_2S$** Benzenesulfonanilide, 2594*i*, 5995*f*.
5-Thiazoleacetic acid, 2 methyl-4-phenyl-, P 8401*d*
**$C_{12}H_{11}NO_2S_2$** 5-Thiazoleacetic acid, 2-methylmercapto-4-phenyl-, P 8401*f*.
**$C_{12}H_{11}NO_3$** Cinchonine acid, 2 hydroxy-5,6 dimethyl-, 4675*d*.
2-Isoindolinepropionaldehyde, methyl-1,3-dioxo-, 6169*hi*.
3-Isoxazolecarboxylic acid, 5 phenyl, Et ester, 2991*i*.
Kynurenic acid, dimethyl, and Et ester, 4276*c*.
Maleimide, *N*-*p*-phenetyl, P 4422*a*.
1-Naphthalenecarbamic acid, 7-hydroxy, Me ester, P 5598*c*.
1,4-Naphthoquinone, 2-(2-hydroxyethylamino)-, 1383*e*.
5(4 *H*) Oxazolone, 2-benzyl-4-(methoxymethylene)-, 221*e*, 1768*cg*.
—, 4 - (ethoxymethylene) - 2 - phenyl-, 1768*h*, 2618*e*
Quinaldic acid, 3-acetyl-1,2-dihydro-, *and Na salt*, 1412*a*.
Quininic acid, Me ester, 1421*g*.
**$C_{12}H_{11}NO_3S$** Acenaphthenesulfonic acid, amino-, 1766*b*.
Benzenesulfonic acid, *o*-amino-, Ph ester, 4219*e*.
Biphenylsulfonic acid, amino-, P 2238*h* P 5597*b*.
Sulfanilic acid, *N*-phenyl-, *and Ba salt*, 963*c*.
**$C_{12}H_{11}NO_4$** Acrylic acid, β (*p* acetamidobenzoyl)-, 607*b*, 7192*h*.
1,2 *H*-Benzopyran-3-carboxylic acid, 6-amino 2-oxo-, Et ester, 2180*a*.
5,6-Indolediol, diacetate, 3406*a*
4 Indolepropionic acid, 4-carboxy, 4255*h*.
1 - (4 - Oxo - 2,5 - cyclohexadien - 1 - ylidene)pyridinium formate, 5781*b*
3 Pyrrolidinecarboxylic acid, 4,5-dioxo-1-phenyl-, Me ester, 8380*f*.
Spiro[furo[3,4 - *f*] - 1,2 - oxazepine-2(6 *H*), 1'-pyridine]-5,8 dione, 3,4-dihydro-, 1407*a*
**$C_{12}H_{11}NO_4S$** Hydroquinone, 2-sulfanilyl-, 2593*f*, 9376*e*.
Phenol, *p*-amino-, ester with Ph H sulfate, - *HCl*, 173*g*.
**$C_{12}H_{11}NO_5$** Acrylic acid, β-(acetamidosalicyloyl)-, 7192*h*.
Aspartic anhydride, *N*-carboxy-, benzyl ester, 4642*h*.
Nukagenine, 1117*h*.
4-Oxazolidineacetic acid, 2,5-dioxo-, benzyl ester, 4642*g*.
**$C_{12}H_{11}NO_5S$** Glycine, *N* (4-hydroxy-1 naphthylsulfonyl)-, P 1987*b*.
Naphtholsulfonic acid, acetamido-, P 4481*cde*, P 5964*d*, P 8158*g*.
**$C_{12}H_{11}NO_6S_2$** Benzenesulfonic acid, *m*-(o-aminophenylsulfonyl)-, P 2440*d*
**$C_{12}H_{11}NO_6S$** 2-Naphthalenecarbamic acid, 6-hydroxy-8-sulfo-, Me ester, P 4481*d*.
**$C_{12}H_{11}NO_6S_2$** Benzenesulfonic acid, *m*-(4-hydroxymetanilyl)-, P 1987*g*, P 8148*c*.
**$C_{12}H_{11}NO_9S_3$** 1-Naphthol-3,6-disulfonic acid,

acetamido-, P 859*b*, P 8158*eg*, P 9458*i*.

**$C_{12}H_{11}NS$** Thiazole, 4-(phenylcyclopropyl)-, 9042*e*; *and - HCl*, 6357.

**$C_{12}H_{11}N_2NaO_4$** See *Phenobarbital sodium*.

**$C_{12}H_{11}N_2O_4P$** Benzenephosphonic acid, *p*-(dihydroxyphenylazo)-, 1757*f*.

**$C_{12}H_{11}N_3$** (See also *Aniline, phenylazo-*.)
Benzamidine, *N*-2-pyridyl-, P 3457*a*.
2-Imidazoleacetonitrile, 1-benzyl-, 3410*g*.
Nicotinamidine, *N*-phenyl-, 7444*g*.
Triazene, 1,3-diphenyl-, 893*ch*, 1597*b*, 2727*c*, 5621*f*, 6858*a*.

**$C_{12}H_{11}N_3O$** Glyoxylamide, 2-naphthylhydrazone, P 511*i*.
Phenol, *o*-(*p*-aminophenylazo)-, P 4475*f*.
Pyrroleglyoxaldehyde, phenylhydrazone, 4256*g*.

**$C_{12}H_{11}N_3O_2$** Hydantoin, 5-(3-indolylmethyl)-, 211*i*.
Oxamic acid, *N*-naphthyl-, hydrazide, 6973*h*.
*o*-Phenylenediamine, 4-nitro-*N*$^1$-phenyl-, 3799*h*.
Salicylamide, *N*-(6-amino-2-pyridyl)-, P 3853*c*.

**$C_{12}H_{11}N_3O_2S$** Acetic acid, (4-anilino-2-pyrimidylmercapto)-, 8305*f*.
2-Imidazolethiol, 1-acetylbenzamido-(?), 1400*i*, 1401*a*
—, benzamido-, acetate, 1401*d*.
Thiazole, 2 amino-4-[(*p* nitrophenyl)cyclopropyl], 6351, 9042*d*.

**$C_{12}H_{11}N_3O_3$** 3-Indenecarboxylic acid, 2 methyl-1-oxo-, semicarbazone, 4661*c*, 7009*f*
Pyrazolecarboxylic acid, methyl-, reaction product, with PhNCO, 8365*i*.

**$C_{12}H_{11}N_3O_3S$** Acetic acid, (6-benzyl-1,5-dihydro 5 oxo - *as* - triazin - 3 - ylmercapto)-, 3016*a*.
Benzenesulfonic acid, *p*-(*p*-aminophenylazo)-, P 5196*a*, P 5198*d*, P 5965*gh*
Nicotinamide, *p*-sulfamyl, 2598*a*.
Thiazolecarboxylic acid, 2-(3-pyridylcarbonylamino) -, Et ester, 5025*d*

**$C_{12}H_{11}N_3O_3S_2$** Thiazole, 2-acetamido-4 methyl 5-(*p*-nitrophenylmercapto)-, P 9086*d*
Thiazole, 2-acetamido-4 (*p* nitrophenyl mercaptomethyl)-, 7931*d*

**$C_{12}H_{11}NO_3S$** Benzenesulfonamide, *N*-(3-allyl 4-thiazolin-2 ylidene) *p*-nitro-, P 6662*e*
Benzenesulfonic acid, (3-amino 4 hydroxyphenylazo) , P 4867*cd*

**$C_{12}H_{11}NO_4$** 2-Furoic acid, 2 furoylmethyl ester, semicarbazone, 1392*c*

**$C_{12}H_{11}NO_4S$** Metanilic acid, 6 (3,4 dihydroxyphenylazo)-, 4174*h*

**$C_{12}H_{11}NO_4S_2$** Thiazole, 2 acetamido 4-(*p*-nitrophenylsulfonylmethyl) , 7931*d*

**$C_{12}H_{11}NO_5$** 3 Penten 2 ol, 1-nitro-, 3,5-dinitrobenzoate, 2926*i*

**$C_{12}H_{11}N_3O_3S_2$** 1,3,6-Carbazoletrisulfonic acid, 9 hydrazino , 6209*n*

**$C_{12}H_{11}N_3S$** (See also *Thionine*.)
Urea, 1 - phenyl - 3 - (pyridyl) - 2 - thio-, 548*a*.

**$C_{12}H_{11}N_4O_2$** Alloxazine, 8-dimethylamino-, 3008*i*.
*m* Phenylenediamine, 4-(*p* nitrophenylazo) , 597*d*.
Pyrimidine, 2,4-diamino-5-nitro-6 styryl , 651*d*

**$C_{12}H_{11}N_4O_3$** Isocyanic acid, ester with 3-hydroxy - 4 - (*p* - methoxyphenylazo) - 1 methyl-5-pyrazolone, 4272*d*.

**$C_{12}H_{11}N_4O_7$** Pyridine, 1,2 dihydro-2-imino-1-methyl , pycrate, 7024*d*.

**$C_{12}H_{11}N_5O_3$** 2 Pyrazoline-3 carbonyl azide, 4-(*p* - methoxyphenylazo) - 1 methyl-5-oxo-, 4272*d*.

**$C_{12}H_{11}O_3P$** Phosphinic acid, diphenyl-, 3802*a*; *Tl salt*, 3352*h*.

**$C_{12}H_{11}O_3PS_2$** Phenyl thiophosphate, 7859*b*.

**$C_{12}H_{12}$** (See also *Naphthalene, dimethyl-; Naphthalene, ethyl-*.)
Acenaphthene, dihydro-, P 7510*i*.
Compd , b. 77°, 6201*c*.
Cyclopentacycloheptene, dimethyl-, 4139*b*
—, 2-ethyl-, 5768*f*.

**$C_{12}H_{12}AsN$** Aniline, *o*-phenylarsino-, 8352*d*.

**$C_{12}H_{12}As_2Cl_4Pd$** Arsine, tris(2-chlorovinyl)-, compd. with $PdCl_2$, 348*h*.

**$C_{12}H_{12}As_2N_2O_2$** (See also *Arsphenamine*.)
*p*-Arsenophenol, 3,3'-diamino-, P 6231*i*.

**$C_{12}H_{12}BrClO$** Ether, 1-(1-bromo-2-chloroethyl)-3-phenyl-2-propynyl methyl, 1091*c*.

**$C_{12}H_{12}BrClO_2$** Hydrocinnamic acid, *β*-bromo-*α*-(trichloromethyl)-, Et ester, 9024*c*.

**$C_{12}H_{12}BrNO_2$** Phthalimide, *N*-(4-bromobutyl)-, 1725*c*.
Phthalimide, *N*-[1-(bromomethyl)propyl]-, 3420*b*.

**$C_{12}H_{12}BrNO_2S$** Phthalimide, *N*-[2-(2-bromoethylmercapto)ethyl]-, 2927*f*.

**$C_{12}H_{12}BrNO_3$** Benzoic acid, *p*-[*N*-(2-bromoallyl)acetamido]-, P 6673*d*.

**$C_{12}H_{12}BrNO_3S$** Benzenesulfonic acid, *p*-bromoaniline salt, 2595*a*.

**$C_{12}H_{12}Br_2N_2$** 6,12-Dihydrodipyrido[1,2-*a*, 1',2' - *d*]pyrazidinium dibromide, 2997*a*.

**$C_{12}H_{12}Br_2N_2O_2$** Hydantoin, 5-(*α*,*β*-dibromophenethyl)-5-methyl-, P 7198*f*.

**$C_{12}H_{12}Br_2N_4O_2S$** Sulfamethazine, dibromo deriv., 7642*f*.
Sulfanilamide, 3,5-dibromo-*N*$^1$-(2,6-dimethyl-4-pyrimidyl)-, 3804*g*.

**$C_{12}H_{12}Br_2O_4$** Compd., m. 234–6°, 6199*c*.

**$C_{12}H_{12}Br_2NO_3$** Benzoic acid, *p*-[*N*-(2,2,3-tribromopropyl)acetamido]-, P 6673*d*.

**$C_{12}H_{12}ClN$** 1-Benzylpyridinium chloride, 6622*d*.

**$C_{12}H_{12}ClNO$** Quinoline, 4-chloro-7-ethoxy-3-methyl-, 4276*d*.

**$C_{12}H_{12}ClNO_2$** 1-(2,5-Dihydroxyphenyl)-3-picolinium chloride, 5683*c*.
1 - (2,5 - Dihydroxy - *p* - tolyl)pyridintum chloride, 5683*c*.

**$C_{12}H_{12}ClNO_2S$** Ethanesulfonamide, 1-chloro-*N*-naphthyl-, 6569*a*.
Phthalimide, *N*-[2 (2-chloroethylmercapto)ethyl]-, 2927*f*

**$C_{12}H_{12}ClNO_3$** Cinnamic acid, *α*-(*α*-chloropropionylamino)-, 257*f*.
1 - (2,5 - Dihydroxy - 4 - methoxyphenyl)-pyridinium chloride, 5683*c*.

**$C_{12}H_{12}ClN_3O_3S_2$** Acetanilide, *p*-(5-chloro-4-methyl 2-thiazolylsulfamyl)-, P 3979*f*

**$C_{12}H_{12}ClN_3O_4$** 1,4 Naphthoquinone, 2-chloro-2,3 - dihydroxy 3,5 - dihydroxy - 2-methyl-, semicarbazone, 7009*d*.

**$C_{12}H_{12}ClN_3O_5$** 1,4-Phthalazinedione, 5-*α*-chloroacetamido-2,3 dihydro-, compd. with AcOH, 7488*d*.

**$C_{12}H_{12}ClN_3O$** Guanidine, 1-(*p*-chlorophenyl)-3 - (4 hydroxy - 6 - methyl - 2 pyrimidyl)-, 9038*d*
4 Pyrimidol, 5-(*p*-chlorophenylazo)-6-methyl-2-methylamino-, 3423*f*

**$C_{12}H_{12}Cl_2N_2$** Quinoxaline, 2,6-dichloro-8-isopropyl 5-methyl-, 3384*a*

**$C_{12}H_{12}Cl_2O_3S$** Sulfanilamide, $N^1$, $N^4$, $N^4$ tri acetyl 3,5-dichloro-, 601*h*.

**$C_{12}H_{12}Cl_4O_2$** Benzyl alcohol, *p*-chloro *α*-(trichloromethyl)-, butyrate, 2359*h*.

**$C_{12}H_{12}CuN_2O_8S_2$** Sulfanilic acid, Cu deriv., 8222*d*.

**$C_{12}H_{12}CuN_4$** Pyrrole, 2,2'-[ethylenebis(nitrilomethylidyne)]di-, Cu deriv., 4073*e*.

**$C_{12}H_{12}FN_2OP$** Diamidophosphoryl fluoride, *N*, *N'*-diphenyl , 1314*e*.

**$C_{12}H_{12}F_3NO_2$** 5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin-6-ol, 2,3,6,7-tetrahydro-3-(trifluoromethyl)-, P 2782*g*.

**$C_{12}H_{12}Fe_2O_8Pb_2$** 2111*e*.

**$C_{12}H_{12}HgN_2$** Aniline, *p*, *p'*-mercuridi-, 6091*d*.

**$C_{12}H_{12}HgO_2$** 2-Naphthylmercury acetate, 9335*i*.

**$C_{12}H_{12}INO$** 4 [2 (2 Furyl)vinyl]-1-methylpyridinium iodide, 7483*g*.

**$C_{12}H_{12}INS$** 1-Methyl-4 [2-(2-thienyl)vinyl]-pyridinium iodide, 7483*g*.

**$C_{12}H_{12}NNaO_4$** Phenaceturic acid, *α*-formyl-, Me ester, Na deriv., P 9085*a*.

**$C_{12}H_{12}NOS$** 2-Butanone, 1 (3 methyl-2-benzothiazolinylidene)-, 4262*f*.

**$C_{12}H_{12}N_2$** (See also *Benzidine; Hydrazobenzene*.)
Acetaldehyde, 1-naphthylhydrazone, 1346*a*
*m*-Benzenediacetonitrile, 4,6-dimethyl-, 6591*d*.
Benzo[*c*]cinnoline, 1,2,3,4-tetrahydro-, 7038*g*.
Biphenyldiamine, 3809*i*, P 8174*ce*.
Phenylenediamine, *N*-phenyl-, 647*b*, P 3204*a*, 3810*b*, 9386*h*; *- HCl*, 3932*a*.
Pyridine, 2-benzylamino-, 4137*i*.
—, 1 - benzyl - 1,2 - dihydro - 2 - imino-, 4137*i*.

**$C_{12}H_{12}N_2O$** Acetamide, *N*-(aminonaphthyl)-, 9058*c*.
Acetic acid, 2-(1-naphthyl)hydrazide, 1346*d*.
1-Acetonaphthone, diamino-, 9058*d*.
Cinchoninamide, 6,7-dimethyl-, 4674*h*.
Cytisine, methyl-, 3016*i*.
Ethanol, 1,1-di-2-pyridyl-, 4266*b*; *and di- HCl*, 2205*e*.
Ketone, 2,4 - dimethyl - 8 - quinazolyl methyl, 1779*h*.
Phenol, 2-amino-5-(*p*-aminophenyl)-, P 5198*efg*, P 5597*b*.
Pyrazinol, 5,6-dimethyl-3-phenyl-, 3009*i*.
1-Pyrrolecarboxy-*p*-toluidide, 8365*e*.
Quinaldine, 7-acetamido-, 3003*a*.

**$C_{12}H_{12}N_2OS$** Aniline, sulfinyldi-, 3097*h*, P 4476*f*.
Hydantoin, 5-benzylidene-1,3-dimethyl-2-thio-, 6984*c*.
5(4*H*)-Imidazolone, 4-benzylidene-1-methyl-2-methylmercapto-, 6984*d*
Uracil, 5-benzyl-6-methyl-2-thio-, 2326*c*.

**$C_{12}H_{12}N_2O_2$** (See also *m,m'-Biphenol, 6,6'-diamino-*.)
Antipyraldehyde, 7476*i*.
*p*-Benzenediacetonitrile, 2,5-dimethoxy-, 3388*a*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-(2-cyanoethyl)-, P 4421*f*.
Compd., m. 238–40°, 7478*f*.
2-Furaldehyde, (hydroxymethyl), phenylhydrazone, 1120*h*, 3795*b*.
Hydantoin, 1-allyl-5-phenyl-, P 4818*b*.
—, 5-benzylidene-1,3-dimethyl-, 6984*c*.
—, 5-methyl-5-styryl-, 7429*g*.
1-Imidazoleacetic acid, 2-benzyl-, 3363*i*.
5-Imidazolecarboxylic acid, 1-benzyl-, Me ester, *and nitrate*, 3411*e*.
—, 1-phenyl-, Et ester, 3411*d*.
Pyrazinol, 3-*p* hydroxybenzyl-5-methyl-, 3009*i*.
9*H*-Pyrid[3,4-*b*]indole-3-carboxylic acid, 1,2,3,4-tetrahydro-, 6627*c*, 8892*h*.
Pyridine, 2-amino-, benzoate, 4274*c*.
2-Quinolinealanine, 1323*c*.
Quinoline, trimethyl-8-nitro-, 2211*h*, 8391*a*
4-Quinolinol, 6-acetamido-2-methyl-, 1778*a*.

**$C_{12}H_{12}N_2O_2S$** (See also *Aniline, sulfonyldi-*.)
Antipyric acid, thio-, 7477*h*.
Benzenesulfonic acid, phenylhydrazide, 1896*e*, 5526*a*, 7182*h*.
4-Biphenylsulfonamide, 4'-amino-, P 685*h*, P 4297*c*.
5-Imidazolecarboxylic acid, 1-benzyl-2-mercapto-, Me ester, 3411*e*.
—, 2-mercapto-1-phenyl-, Et ester, 3411*d*.
2,4-Oxazolidinedione, 5-(anilinomethylene)-3-ethyl-2 thio-, P 8692*g*.
Sulfanilide, 2573*e*.
5-Thiazoleacetic acid, 2-amino-*α*-methyl-4-phenyl-, P 8401*f*.
—, 2 amino-4-phenyl-, Me ester, P 8401*f*.
- -, 2-amino-4-*p*-tolyl-, P 8401*f*.
4-Thiazolecarboxylic acid, 2-amino-5-phenyl-, Et ester, 1399*i*.
Thieno[3,4 - *d*]pyrimidine - 2,4(1*H*,3*H*)-dione, tetrahydro-3-phenyl-, P 7052*g*.
*p*-Toluenesulfonamide, *N*-3-pyridyl-, 6207*e*.

**$C_{12}H_{12}N_2O_3$** (See also *Phenobarbital*.)
Antipyric acid, 7476*i*.
Carbanilic acid, *p*-amino-, furfuryl ester, 6176*b*.
3-Cinnolinebutyric acid, 4-hydroxy-, 3012*f*
5-Imidazolecarboxylic acid, 1-benzyl-2-hydroxy-, Me ester, 3411*f*.
Ketone, hydroxy(*N*-hydroxyanilino)-methyl pyrryl, 4256*f*.
1,8-Naphthyridine-3-carboxylic acid, 4-hydroxy-7-methyl-, Et ester, 650*g*.
4*H* - Pyrido[1,2 - *a*]pyrimidine - 3 - carboxylic acid, methyl-4-oxo-, Et ester, 650*g*.
4,6(1*H*,5*H*)-Pyrimidinedione, 5-(2-hydroxyethyl)-2-phenyl-, 6173*e*.
2 Quinoxalinecarboxylic acid, 3-hydroxy-8-methyl-, Et ester, 3384*i*, P 6661*f*.
*p*-Toluic acid, *α*-(5-methyl-2-oxo-4-imidazolin-4-yl)-, 1769*g*.

**$C_{12}H_{12}N_2O_3S$** Benzenesulfonic acid, 5-amino-2-anilino-, P 4864*d*.
3-Bipheuylsulfonic acid, 4,4'-diamino-, P 857*i*.
Methanesulfinic acid, (6-phenoxy-3-pyridylamino)-, *Na salt*, P 3471*a*.
2-Pyrazoline-3-carboxylic acid, 5-oxo-4-phenylmercapto-, Et ester, 632*i*.
4-Pyrimidol, 6-methyl-2-(*p*-methylsulfonylphenyl)-, 1740*d*.
4-Thiazolidone, 2-imino-5-veratrylidene-, 3820*d*.
Veratramide, *N*-2-thiazolyl-, P 6239*d*.

**$C_{12}H_{12}N_2O_3S_2$** 2-Thiophenecarboxanilide, methyl-4'-sulfamyl-, 4660*de*.

**$C_{12}H_{12}N_2O_4$** Isonicotinonitrile, 3-hydroxy-5-(hydroxymethyl)-2-methyl-, diacetate, 644*b*.
1,3-Phenazinediol, diacetate, 3009*c*.

3-Pyrazoline-3-carboxylic acid, 5-oxo-4-phenoxy-, Et ester, 632*f*.

**$C_{12}H_{12}N_2O_4S$** Methanesulfonic acid, (6-phenoxy-3-pyridylamino)-, *and alkali metal salts*, P 3470*k*.

2-Naphthalenesulfonic acid, acetamidoamino-, P 861*a*, P 6425*f*.

Phenol, amino-, ester with *p* aminophenyl H sulfate, *and* - *HCl*, 173*gh*.

**$C_{12}H_{12}N_2O_4S_2$** Benzenesulfonanilide, *p*-sulfamyl-, 5995*f*.

**$C_{12}H_{12}N_2O_4S_4$** Benzenesulfonamide, *p*,*p*′-dithiobis-, 1739*a*.

**$C_{12}H_{12}N_2O_5$** Hippuric acid, -(2,3-dihydroxyallylideneamino)-, P 6286*c*.

**$C_{12}H_{12}N_2O_5S$** Acetanilide, *p*-(succinimidosulfonyl)-, 2597*e*.

Adipamic acid, *N*-sulfanilyl-, 2597*f*.

**$C_{12}H_{12}N_2O_6S_2$** Metanilic acid, *N*-(*o*-aminophenylsulfonyl)-, P 2440*d*.

**$C_{12}H_{12}N_2O_6$** Alanine, compd. with 2-nitro-1,3-indandione, 69*i*.

Cyclopropanemethanol, 1-methyl-, 3,5-dinitrobenzoate, 3370*b*.

**$C_{12}H_{12}N_2O_6S$** $+H_2O$ Cysteine, compd. with 2-nitro-1,3-indandione, 69*i*.

**$C_{12}H_{12}N_2O_6S_2$** *p*-Benzenedisulfamic acid, *N*-phenyl, *di-Na salt*, P 3204*a*.

Benzenesulfonic acid, 5-amino-2,3′-iminodi-, P 4864*d*.

3,3′-Biphenyldisulfonic acid, 4,4′-diamino, P 2882*a*.

**$C_{12}H_{12}N_2O_7$** Acetoacetic acid, *α*-(2,4-dinitrophenyl)-, Et ester, 6175*c*.

Serine, compd. with 2-nitro-1,3-indandione, 70*a*.

**$C_{12}H_{12}N_2O_8$** Acid, m. 206° (decompn.), 6199*d*.

**$C_{12}H_{12}N_2S$** Aniline, thiodi-, 1741*a*, 3802*i*, 6179*f*, 6351*f*; *and di-HCl*, 5014*g*.

2-Imidazoline, 2-(thianaphthenylmethyl)-, - *HCl*, 1395*i*, 1396*ac*.

Pseudourea, 2-(1-naphthylmethyl)-2-thio-, - *HCl*, 565*f*.

Thiazole, 2-amino-4-(2-phenylcyclopropyl)-, 635*e*.

**$C_{12}H_{12}N_2S_2$** Aniline, *o*,*o*′-dithiodi-, 2180*e*, 7136*df*, 7476*ah*.

**$C_{12}H_{12}N_2S_2Zn$** Benzenethiol, *o*-amino, Zn deriv., P 1438*e*.

**$C_{12}H_{12}N_2Se$** Urea, 1-methyl-1-(1-naphthyl)-2-seleno-, P 7848*e*.

**$C_{12}H_{12}N_2O_3SSb$** Benzenestibonic acid, *p* (sulfamylphenylazo)-, 8099*f*.

**$C_{12}H_{12}N_4$** Aniline, *p*,*p*′-azodi-, P 8166*a*.

Chrysoidine, 1401*a*, 2596*c*, 7521*e*

Nicotinaldehyde, amino-, phenylhydrazone, 6626*g*

**$C_{12}H_{12}N_4O$** Benz[*cd*]indol-5(1*H*)-one, 3,4-dihydro-, semicarbazone, 4255*i*.

**$C_{12}H_{12}N_4O_2$** Ketone, methyl 5-phenyl-3-isoxazolyl, semicarbazone, 2991*d*.

**$C_{12}H_{12}N_4O_2S$** Benzenesulfonamide, *p* hydrazino-*N*-2 pyridyl, hydrazone with HCHO, 601*b*.

Pyrimidine, 2-amino-4,6-dimethyl-5-(*p* nitrophenylmercapto)-, 6634*h*

**$C_{12}H_{12}N_4O_2$** *v*-Triazole-4-alanine, *N*-benzoyl, 6621*e*.

**$C_{12}H_{12}N_4O_2S$** Acetanilide, *p*-(3-pyridazylsulfamyl)-, 3007*e*.

Acetanilide, *p*-(2-pyrimidylsulfamyl)-, P 2637*k*, P 3035*a*, P 7516*i*, P 7964*ds*.

**$C_{12}H_{12}N_4O_4$** 1,4 Phthalazinedione, 5-(*α*-acetamidoacetamido)-2,3-dihydro-, 7488*e*

**$C_{12}H_{12}N_4O_4S$** Acetanilide, *p*-(4-hydroxy-2-pyrimidylsulfamyl)-, P 7964*b*.

Benzenesulfonamide, *N*-(dimethylpyrimidyl)nitro-, P 4297*ef*, P 7516*h*, P 7965*g*.

Pyrimidine, 2-amino-4,6-dimethyl-5-(*p*-nitrophenylsulfonyl)-, 6634*h*.

**$C_{12}H_{12}N_4O_4S_2$** Benzenesulfonamide, *p*,*p*′-azodi-, P 3846*b*, 7450*h*.

**$C_{12}H_{12}N_4O_5S$** Acetanilide, *p*-(4,6-dihydroxy-2-pyrimidylsulfamyl)-, P 7964*h*.

Benzenesulfonamide, *N*-(4-ethoxy-2-pyrimidyl)-*m* nitro-, P 7516*h*.

**$C_{12}H_{12}N_4O_5S_2$** Succinamic acid, *N*-[5-(2-thiazolylsulfamyl)-2-pyridyl]-, P 3847*a*.

**$C_{12}H_{12}N_4O_6$** Butyric acid, γ-hydroxy-*β*,*β*-dimethyl-*α*-oxo-, γ-lactone, 2,4-dinitrophenylhydrazone, 7426*f*.

Fumaraldehydic acid, Et ester, 2,4-dinitrophenylhydrazone, 6981*i*.

2-Pentenoic acid, 4-oxo-, Me ester, 2,4-dinitrophenylhydrazone, 2168*i*.

**$C_{12}H_{12}N_4O_7$** Isovaleric acid, γ-hydroxy-*β* methoxy-*α*-oxo-, γ-lactone, 2,4-dinitrophenylhydrazone, 6980*f*.

Triacetic acid, 2,4-dinitrophenylhydrazone, 1725*a*.

**$C_{12}H_{12}N_4O_7S$** 2-Thenylamine, methyl-, picrate, 2901*gk*.

**$C_{12}H_{12}N_5NaO_2S$** See "Na deriv." under *Prontosil*

**$C_{12}H_{13}N_5O$** Guanidine, 1-(4-hydroxy-6-methyl-2-pyrimidyl)-3-(*p*-nitrophenyl)-, 9038*d*.

**$C_{12}H_{12}N_6O$** 3(2*H*)-Pyridazone, 5-amino-2,6-dimethyl-, picrate, 3007*b*.

2(1*H*)-Pyrimidone, 3,4-dihydro-3 methyl-4-methylimino-, picrate, 4635*b*.

**$C_{12}H_{12}N_6O_2$** 4-Pyrimidol, 5-acetamido-2,6-diamino-, picrate, 652*b*.

**$C_{12}H_{12}N_{10}$** *s*-Triazine, 2,2′-phenylenebis-[4,6-diamino-, P 3662*f*.

**$C_{12}H_{12}O$** 1-Acenaphthenone, 2a,3,4,5-tetrahydro-, 4250*e*.

1-Acetonaphthone, 3,4-dihydro-, 2200*a*.

Compd., bs 110–113°, 6201*i*.

2-Cyclohexen-1-one, 3-phenyl-, 3366*c*.

Cyclopent[*a*]inden-8(1*H*)-one, 2,3,3a,8a-tetrahydro-, 3399*a*.

1,3-Ethanonaphthalen-4(1*H*)-one, 2,3-dihydro-, 3398*d*.

Ether, ethyl 1 methylene-3-phenyl-2-propynyl, 1020*d*.

—, 3-methyl 2-penten-4 ynyl phenyl, 1801*e*, 5373*g*.

1,4-Hexadien-3-one, 5 phenyl-, 118*i*.

5-Hexen-3-yn-2-ol, 2-phenyl-, 118*d*

1-Indanone, 2 allyl-, 8374*e*.

Naphthalenecthanol, 2183*a*, 6009*g*.

Naphthalenemethanol, α-methyl-, P 5804*i*.

1-Naphthol, 4-ethyl-, P 4866*a*, P 7695*d*, P 9459*c*.

2,4-Pentadienal, 3-methyl-5-phenyl-, 2571*c*.

**$C_{12}H_{12}O_2$** Acrylic acid, cinnamyl ester, P 4686*d*, 5988*i*.

Ethanol, 2-(2-naphthoxy)-, P 673*h*, P 8105*b*.

5-Hexene-2,4 dione, 6-phenyl-, 7002*g*.

$\Delta^{3(9)}$-Naphthaleneacetic acid, 3,4-dihydro-, 7093*f*.

Naphthalene, dimethoxy, 615*b*, 1371*h*, 7341*f*.

1-Naphthol, 4-ethoxy-, P 7697*f*.

2,4-Pentadienoic acid, 3-methyl-5-phenyl-, 2571*c*.

2,4-Pentanedione, 3-benzylidene-, 5744*f*.

4-Pentynoic acid, 3-methyl-5-phenyl-, 1021*a*.

Propiolic acid, phenyl-, Pr ester, 2592*b*.

**$C_{12}H_{12}O_2S$** 2-Thianaphthenoacetic acid, Et ester, 1396*b*.

**$C_{12}H_{12}O_3$** Acrylic acid, *β*-benzoyl-, Et ester, 7192*h*

Acrylic acid, *β*-isoxyloyl, 607*i*.

—, *β*-2,4-xyloyl-, 607*i*.

2-Benzofuranacetic acid, 3,6-dimethyl-, 3413*d*.

Coumarin, 4-hydroxy-3-isopropyl-, P 4701*i*.

—, 4-hydroxy-3-propyl-, P 4701*h*.

Cyclopentanecarboxylic acid, 3-oxo-2-phenyl-, 3398*g*.

2(1*H*)-Dibenzofuranone, 3,4,4a,9b-tetrahydro-9b hydroxy-, 1012*h*.

1-Indancarboxylic acid, 3-oxo-, Et ester, 3399*i*

Maleic anhydride, compd. with cyclooctatriene, 6195*e*.

1(2*H*)-Naphthalenone, 3,4-dihydro-6-hydroxy-, acetate, 7010*i*.

2-Naphthoic acid, 3,4-dihydro-6-methoxy-, 3814*f*.

4-Pentenoic acid, 5-benzoyl-, 607*f*.

Phthalic anhydride, 4-*tert*-butyl-, 8139*g*.

—, 3-isopropyl-6-methyl-, 1747*h*.

Tricyclo[4.2.2.0$^{2,5}$]decene-7,8-dicarboxylic anhydride, 6199*a*.

Umbelliferone, 6-ethyl-4-methyl-, 6206*g*

**$C_{12}H_{12}O_4$** Acrylic acid, *β* 2,3-cresotyl-, Me ester, 7192*h*.

Acrylic acid, *β*-(3,5-dimethylsalicyloyl)-, 7192*h*

—, *β*-*p*-ethoxybenzoyl-, 607*d*.

1,2*H*-Benzopyran-3-ol, 7-methoxy-, acetate, 1770*f*.

2-Chromancarboxylic acid, 4-oxo-, Et ester, 6919*b*.

3-Chromanone, 4-acetyl 8-methoxy, 1771*a*.

Chromone, 6,7-dimethoxy-2-methyl-, 7461*g*.

—, 5-hydroxy 7-methoxydimethyl, 6621*i*, 6622*c*.

Cinnamic acid, 3,4-methylenedioxy-, Et ester, 3555*c*.

Coumaraldehyde, 5,6-dimethoxy-3 methyl-, 7460*e*

Coumarilic acid, 2,3-dihydro-7-methyl-3-oxo-, Et ester, 1771*k*.

Daphnetin, 6-ethyl-4-methyl-, 6206*g*.

Eugenitin, 6621*i*, 6622*c*.

Isoeugenitin, 6622*bc*.

Naphthalic acid, 1,2,3,4-tetrahydro-, 7011*a*, P 7511*b*.

4-Oxatetracyclo[5.2.2.0$^{2,6}$.0$^{3,5}$]-hendecane-8,9-dicarboxylic anhydride, 6200*h*.

*p*-Quinone, bis(2,3-epoxypropyl)-, 2181*c*.

Tricyclo[4.2.2.0$^{2,5}$]-3,9-decadiene-7,8-dicarboxylic acid, 6198*gh*.

**$C_{12}H_{12}O_4Se$** 1,9(2*H*,6*H*)-Phenoxaselenindione, 3,4,7,8-tetrahydro-, 10-oxide, 7479*c*.

**$C_{12}H_{13}O_3$** Acid, m. 249–50°, 6199*e*.

Acrylic acid, *β* dimethoxybenzoyl-, 607*d*

3(2*H*)-Benzofuranone, 2-acetyl-5,6 dimethoxy-, 7460*g*.

2-Chromancarboxylic acid, 5-hydroxy-4-oxo, Et ester, 4265*d*, 6919*b*.

Chromone, 3-hydroxy-6,7-dimethoxy-2-methyl, 7461*g*.

Coumarilic acid, 2,3-dihydro-6-methoxy-3-oxo-, Et ester, 1771*i*.

Coumarin, 4-hydroxy 6,7-dimethoxy 3-methyl, 7461*c*.

—, trimethoxy-, 7461*ab*.

Glyoxylic acid, [*o*-(*α*-hydroxypropionyl)phenyl], Me ester, 6191*e*.

1-Indancarboxylic acid, 1,2 dihydroxy-2-methyl-3-oxo-, Me ester, 1381*c*

Khellinone, 5542*e*, 7481*a*

Malonic acid, *o* ethoxybenzylidene-, 1030*f*.

**$C_{12}H_{12}O_6$** Phloroglucinol, triacetate, 2598*e*

Phthalic anhydride, 3-ethoxy-4,6-dimethoxy-, 7460*i*

Pyrogallol, triacetate, 9049*g*.

Trimesic acid, tri-Me ester, 3797*g*, 6203*a*, 6585*a*.

**$C_{12}H_{12}O_7$** Hemimellitic acid, 4-hydroxy-, tri-Me ester, 2975*b*

**$C_{12}H_{11}AsN_2O_5S$** *m* Arsanilic acid, 4-hydroxy-*N* sulfanilyl-, 6593*e*.

**$C_{12}H_{13}BHg_2O_4$** Phenylmercury borate, 1456*e*

**$C_{12}H_{11}BrN_2O_3S$** 2 Thiophenealamine, *N*-acetyl-5 bromo-α-cyano, Et ester, 6613*f*.

**$C_{12}H_{12}BrN_4O_2S$** Sulfamethazine, bromo deriv., 7642*f*.

**$C_{12}H_{13}BrO$** Ether, 1-(bromomethyl)-3-phenyl 2-propynyl methyl, 1021*bc*.

Ether, 1-(bromomethyl) 3 phenyl-2-propynyl ethyl, 1020*a*.

**$C_{12}H_{13}BrO_2$** Cinnamic acid, *β*-(bromomethyl), Et ester, 7093*d*

**$C_{12}H_{11}BrO_3$** Propionic acid, *β* bromo *β*-*p* ethylbenzoyl, P 8401*g*

Propionic acid, *β*-bromo *β*-xyloyl-, P 8401*g*.

Valeric acid, *δ*-benzoyl-*δ*-bromo, 607*i*

—, *δ*-*p*-bromobenzoyl, 1378*i*

**$C_{12}H_{13}BrO_4$** Propionic acid, *β*-bromo *β*-*p* ethoxybenzoyl, P 8401*g*.

Pyrocatechol, 4(2-bromoethyl)-, diacetate, 7451*d*.

**$C_{12}H_{12}Br_2ClO$** Ether, *β*,γ dibromo-α(2 chloroethyl)cinnamyl methyl, 1021.

**$C_{12}H_{12}Br_2NO_3$** Succinamic acid, 2,4-dibromo-*N*,6-dimethyl, 1343*c*.

**$C_{12}H_{12}Br_2O$** Ether, *β*,γ-dibromo-α-(2-bromoethyl)cinnamyl methyl, 1021*c*.

Ether, *β*,γ-dibromo-α-(bromomethyl)cinnamyl ethyl, 1020*b*.

**$C_{12}H_{12}ClN_3O_3$** Acetamide, *N*,*N*′-(5-chloroacetyl-*m*-phenylene)bis-, 7452*d*

3-Indolecarboxylic acid, aminochloro 2-methyl-, Et ester, 2184*e*, 7452*h*

**$C_{12}H_{13}ClO$** Cyclopentanecarbonyl chloride, 3 phenyl-, 3398*e*.

Ether, 1-(2-chloroethyl)-3-phenyl-2 propynyl methyl, 1021*b*.

**$C_{12}H_{13}ClO_2$** 2-Naphthoyl chloride, 1,2,3,4-tetrahydro-6-methoxy-, 3814*f*.

**$C_{12}H_{13}ClO_3$** Cumic acid, 2-acetyl-α-chloro-, 6595*g*.

Valeric acid, *δ*-*p*-chlorobenzoyl, 2272*h*.

**$C_{12}H_{13}ClO_4$** Benzoic acid, *p*-hydroxy-, Bu ester, chloroformate, 593*c*.

Phthalic acid, 3-chloro-, di-Et ester, 6600*e*.

Propionic acid, *β*-(-chlorobenzoyl α ethoxy-, 7192*h*.

**$C_{12}H_{13}ClO_5$** Acetophenone, α-chloro-2 hydroxy-4,5-dimethoxy-, acetate, 7460*g*.

**$C_{12}H_{12}Cl_3NO$** Crotonanilide, 3,4-dichloro *N*-ethyl-, P 5413*i*.

**$C_{12}H_{13}Cl_3O_2$** Caproic acid, 2,4,5-trichlorophenyl ester, P 3460*a*.

Isocaproic acid, 2,4,5-trichlorophenyl-, P 3460*a*.

**$C_{12}H_{11}Cl_3O_3$** Acetic acid, (2,4,5-trichloro-

phenoxy)-, Bu ester, 5893*d*, 6705*e*, 9339*f*.
2 - Propanol, 1 - (allyloxy) - 3 - (2,4,5-trichlorophenoxy)-, P 675*h*.

**$C_{12}H_{11}Cl_3O_4$** 2 - Propanol, 1 - methoxy - 3-(2,4,5 - trichlorophenoxy)-, acetate, P 675*h*.
Vanillic acid, 2,2,2 - trichloro - *tert* - butyl-ester, 4242*a*, 7455*g*.

**$C_{12}H_{11}IN_2O_2$** 3 - Indolecarboxylic acid, 6-amino - 4 - iodo - 2 - methyl-, Et ester, 2184*d*.

**$C_{12}H_{13}IN_2O_2$** Benzoic acid, *m*-iodo-, 3-carboxy - 1 - methylpropylidenehydrazide, 6973*f*.

**$C_{12}H_{12}KN_3O_3S$** Sulfamethazine, K deriv., P 7965*c*.
Sulfanilamide, $N^1$ - (4 - ethyl - 2 - pyrimidyl)-, K deriv., P 7960*e*.

**$C_{12}H_{13}N$** Carbazole, 1,2,3,4-tetrahydro-, 1391*b*.
2 - Naphthaleneacetonitrile, 5,6,7,8-tetrahydro-, 8390*g*.
Naphthylamine, *N*, *N*-dimethyl-, 1655*c*.
Quinoline, trimethyl-, 7027*a*, 7937*f*, *and salts*, 5402*g*, *h*.

**$C_{12}H_{13}NO$** Cinnamamide, *N*-allyl-, 2273*e*.
3,5 - Hexadien - 2 - one, 6 - phenyl-, oxime, 1039*c*.
Hydrocinnamonitrile, β-acetonyl-, P 6665*c*.
1 - Naphthalenemethylamine, 2 - methoxy-, 4250*a*.
1(2 *H*) - Quinolineacrolein, 3,4 - dihydro-, 2617*d*.
3 - Quinolinol, 2 - propyl, *and* - *HCl*, 227*i*.

**$C_{12}H_{13}NOS$** 2 - Propanone, (3 - ethyl - 2 - benzothiazolinylidene)-, P 8167*c*.
3 - Thianaphtheneacetimidic acid, Et ester, - *HCl*, 1396*a*.
4 - Thiazolidone, 3 - allyl - 2 - phenyl-, 634*c*.

**$C_{12}H_{13}NOS_2$** 4 - Thiazolidinecarbothiolic acid, 3 - methyl - 5 - phenyl - 2 - thioxo-, Me ester, 1400*d*.

**$C_{12}H_{13}NO_2$** (See also *3-Indolebutyric acid.*)
Bicyclo[2 2 1] - 5 - heptene - 2,3 - dicarboximide, *N*-allyl-, P 4421*f*.
Ethanol, 2 - (1 - amino - 2 - naphthoxy) -, P 1574*c*.
Hydrocinnamic acid, α-cyano-, Et ester, 2168*d*.
3 - Indolepropionic acid, 1 - methyl-, 3405*c*.
1,3,6 *H* - Oxazin - 6 - one, 4,5 - dihydro-1,4 - dimethyl - 2 - phenyl-, 7427*f*.
Phthalimide, *N*-butyl, P 3506, 5150*g*.
- , *N*-isobutyl-, 7182*c*.
4 Piperidone, 1-benzoyl, 4275*b*.
Propionic acid, β cyano-α phenyl-, Et ester, 2168*d*.
4 - Quinolinol, 7 - ethoxymethyl-, 1117*c*, 1276*c*.
4(1 *H*) - Quinolone, ethoxy - 3 - methyl-, 2865*c*.

**$C_{12}H_{13}NO_2S$** 2 Naphthalenesulfonamide, *N*, *N* dimethyl-, 4630*c*.
1 Naphthalenesulfonamide, *N* - ethyl, 4630*c*.

**$C_{12}H_{13}NO_3$** Acetanilide, 2,6-diacetyl-, 1780*a*
Acetoacetonitrile, α - (3,5 dimethoxy phenyl), 8384*f*.
Acrylic acid, ester with lactanilide, P 3417*a*.
Cinnamic acid, α acetamido-, Me ester, 1399*h*.
Cyclopropanecarboxylic acid, (*p*-acetamidophenyl)-, 635*h*, 9042*e*.
2 Oxazoline - 4 - carboxylic acid, 5 methyl 2-phenyl-, Me ester, 4225*b*.
- , 2 phenyl-, Et ester, 9033*c*.
1 Pentenoic acid, 2 benzamido, 7932*d*
Phthalimide, *N* - hydroxy - *tert* - butyl-, P 2033*i*
- , *N* - [1 - (hydroxymethyl)propyl], 3420*b*.
1,2 Propanediol, 3-(quinolyloxy)-, 311*h*
4 Quinolinol, 5,8 - dimethoxy - 2 methyl-, 646*b*

**$C_{12}H_{13}NO_3S$** Benzenesulfonic acid, aniline salt, 2594*i*.
Morpholine, 4 - (3 - thianaphthenyl)-, *S*,*S*-dioxide, 8379*g*.

**$C_{12}H_{13}NO_4$** Benzoic acid, *o*-α-oxobutyryl-, Me ester, α-oxime, P 7510*d*.
Coumarilaldehyde, 5,6 - dimethoxy - 3-methyl-, oxime, 7460*f*.
Cyclopropanecarboxylic acid, 2 - (*p* - nitrophenyl)-, Et ester, 635*g*.
1 - Naphthoic acid, 5,6,7,8 - tetrahydro-nitro, Me ester, 202*e*, *g*.
2 - Naphthol, 1,2,3,4 - tetrahydro - 8-nitro-, acetate, 2363*c*.
Phenaceturic acid, α-formyl-, Me ester, 8892*f*, P 9085*a*.
Phthalide, 3,3-diethyl-6-nitro-, 7925*h*.
1,5 *H* - Pyrindine - 2,4 - diol, 6,7 - dihydro-, diacetate, 9069*a*.
Succinaldehydic acid, α-(α-phenylacetamido)-, 7932*g*.

**$C_{12}H_{13}NO_4S$** Benzaldehyde, compd. with pyridine bisulfite, 3355*i*.
Glycine, *N*-thiolcarboxy-, *S*-benzyl ester, anhydride with AcOH, 1398*g*.
2 - Naphthalenesulfonic acid, 5 - amino-6-ethoxy-, P 859*g*, P 4481*de*.

**$C_{12}H_{12}NO_4S_2$** *p* - Dithiane - 2 - methanol, *p*-nitrobenzoate, 7030*e*.
1,4 - Dithiepan - 6 - ol, *p* - nitrobenzoate, 7030*b*.

**$C_{12}H_{13}NO_5$** 3 - Buten - 2 - one, 4 - (4,5 - dimethoxy - 2 - nitrophenyl)-, 628*a*.
2 - Pentanone, 5 - hydroxy-, *p* - nitrobenzoate, 1690*f*.

**$C_{12}H_{13}NO_5S$** Acetoacetic acid, α-(*p*-nitrophenylmercapto) - (?), Et ester, 6634*g*.
Alanine, *N*-benzoyl-β (carboxymethylmercapto)-, P 3468*b*.
1 - Naphthol - 3 - sulfonic acid, 6 - (2-hydroxyethylamino)-, P 7700*e*, P 8157*h*.

**$C_{12}H_{13}NO_6$** Aspartic acid, *N*-carboxy-, benzyl ester, *di Ag salt*, 4642*g*.

**$C_{12}H_{13}N_2OP$** 2-Biphenylyl amidophosphate, P 5631*f*.

**$C_{12}H_{13}N_2O_2P$** Diamidophosphoric acid, *N*, *N*-diphenyl-, 3353*h*.
Phosphinic acid, bis(*p*-aminophenyl)-, 599*f*.

**$C_{12}H_{13}N_2O_3SSb$** Benzenestibonic acid, *p* sulfanilamido-, 8099*i*.

**$C_{12}H_{13}N_2PS_2$** Diamidothiophosphoric acid, *N*, *N'*-diphenyl-, 3353*g*.

**$C_{12}H_{13}N_3$** 1,2,4 - Benzenetriamine, phenyl-, 8202*i*, 9386*h*.
Diphenylamine, diamino-, 169*b*, 647*e*.
4 - Indolecarbonitrile, 3 - (dimethylaminomethyl)-, 4255*g*.
Propionitrile, β,β' - (phenylimino)di-, 8351*g*.

**$C_{12}H_{13}N_3O$** Benzamide, *N* - (4 - methyl - 2 imidazolylmethyl), 7478*f*
Butyric acid, α-cyano-, benzylidenehydrazide, 4223*a*.
2 - Cyclopenten - 1 one, 3 - phenyl-, semicarbazone, 3366*f*.
Ketone, 3 - amino - 5 methyl - 1 - phenyl-4-pyrazolyl methyl, 4258*g*.
—, 5 - imino - 3 - methyl - 2 - phenyl - 3-pyrazolin - 4 - yl methyl, 4258*i*.
1 - Pyrazolecarboxamide, 3,5 - dimethyl-, 8365*g*
Pyrimidine, 2 - benzylamino - 4 - methoxy-, 6587*f*
5 - Pyrimidinemethanol, 4 - amino - 2 benzyl, - *HCl*, 1822*i*.
Quinaldine, 6 acetamido-4-amino-, 1778*a*

**$C_{12}H_{13}N_3O_2$** Antipyraldehyde, oxime, 7477*b*.
Antipyramide, 7477*g*
1,3 - Butanedione, 1 - (1 - aziridyl) - 2 phenylazo-, 3015*b*.
5 *H* - Cycloheptabenzene 5,6(7 *H*)-dione, 8,9-dihydro-, semicarbazone, 5753*c*
Histidine, 1-phenyl, 8382*d*.
Imidazolecarbamic acid, phenyl, Et ester, 1403*b*.
Phthalimide, *N* (3 - guanylpropyl)-, - *HCl*, P 673*a*.
5 Pyrazolone, 3-methyl-, reaction product with *p* tolyl isocyanate, 8365*h*.
Salicylamide, *N* - [2 - (imidazolyl)-ethyl]-, P 6239*b*

**$C_{12}H_{13}N_3O_2S$** Allophanic acid, γ-(α-cyano benzyl) - β thio-, Et ester, 1402*i*.
Imidazolecarbamic acid, 2 - mercaptophenyl-, Et ester, 1403*a*.
2 - Thiazolecarbamic acid, 5 - amino - 4-phenyl-, Et ester, 1402*i*.
4 - Thiazolecarboxylic acid, 5 - amino - 2-anilino, Et ester, 3409*d*.
1 *H* - Thieno[3,4]imidazole - 1 - carboxanilide, 2,3,3a,4,6,6a - hexahydro 2-oxo-, P 6671*b*.

**$C_{12}H_{13}N_3O_2S_2$** Sulfanilamide, $N^1$ - (3 - allyl-4 - thiazolin - 2 - ylidene), P 6662*d*.
Sulfathiazole, reaction product with propionaldehyde, 4238*a*.

**$C_{12}H_{13}N_3O_3$** Oxindole, 3,5-diamino-, diacetyl deriv., 215*j*.

**$C_{12}H_{13}N_3O_3S$** Benzenesulfonic acid, 5-amino-2-(*p*-aminoanilino)-, P 4481*d*.
1,2,4 - Benzenetriamine, $N^2$ - phenyl-, sulfo deriv., 9386*h*.
2 - Pyridinecarboxamidine, benzenesulfonate, P 5038*g*.

**$C_{12}H_{13}N_3O_3S_2$** Acetanilide, *p*-(2-amino-4-thiazolylmethylsulfonyl)-, 7931*b*.
Sulfanilamide, $N^1$ - (5 - acetyl - 4 - methyl-2-thiazolyl)-, P 3852*d*.

**$C_{12}H_{13}N_3O_4S_2$** Acetanilide, *p*-[(2-hydroxy-4-methyl - 5 - thiazolyl)sulfamyl]-, 6180*h*.
Sulfanilanilide, 4′ - sulfamyl-, 8422*h*, 9252*d*.

**$C_{12}H_{13}N_3O_4S_3$** Acetic acid, {[(*p* - 2 - thiazolylsulfamylanilino)methyl]mercapto}-, P 7044*e*.

**$C_{12}H_{13}N_3O_5$** Butyric acid, α,β-dioxo-, Et ester, α - (*p* - nitrophenylhydrazone), 4247*i*.

**$C_{12}H_{13}N_3O_5S_2$** Methanesulfonic acid, [*p*-(2-pyridylsulfamyl)anilino]-, *and Ca salt*, P 4298*c*; *salts*, P 7043*gi*.
5 - Thiazolecarboxylic acid, 4 - hydroxy-2 - sulfanilamido-, Et ester, P 686*i*, P 3852*c*.

**$C_{12}H_{13}N_3O_7$** Phenethyl alcohol, 4-amino-2,6-dinitro-, di-Ac deriv., 592*h*.

**$C_{12}H_{13}N_3S$** Pyrimidine, 4-anilino-2-(ethylmercapto)-, - *HCl*, 8395*f*.
2 - Pyrimidinethiol, 5 - benzyl - 4 - methylamino-, 8395*c*.
Thiazole, 2 - amino - 4 - [(*p* - aminophenyl)cyclopropyl]-, 635*c*, 9042*d*.

**$C_{12}H_{13}N_4O_4P$** Benzenephosphonic acid, *p*-(diaminophenylazo)-, 1737*f*.

**$C_{12}H_{13}N_5$** Pyrimidine, 2,4,5 triamino-6-styryl-, *and* - *HCl*, 651*e*.

**$C_{12}H_{13}N_5O_2$** Isatin, 1 methyl-, 3-guanylhydrazone, Ac deriv., 3428*g*.
Pyrimidine, 4 - amino - 2 - methyl - 5-(*m* - nitroanilinomethyl)-, 5056*h*.

**$C_{12}H_{13}N_5O_2S$** See *Prontosil*.

**$C_{12}H_{13}N_5O_2S$** 2 - Naphthalenesulfonic acid, 1-(guanylguanidino)-, 7365*cf*.
Semicarbazide, 1 - [*p* - (2 - pyridylsulfamyl)phenyl]-, 601*b*.

**$C_{12}H_{13}N_5O_4S_2$** 1,2,4,2 *H* - Thiadiazine - 3,5-(4 *H*,6 *H*) - dione, 2 - (3 - hydroxypropyl) - 6 - (*o* - nitrophenylazo) - 3-thio -, 1,1-dioxide, P 4868*f*.

**$C_{12}H_{14}N_2O_7$** 1 - Pyrrolidineacetonitrile, picrate, 2207*d*.

**$C_{12}H_{14}N_4O_7S$** Thiazole, 2 - amino - 5 - propyl-, picrate, 4263*f*.

**$C_{12}H_{14}N_4O_4S$** Acetamide, *N*-sulfanilyl-, dilturate, 3262*g*.

**$C_{12}H_{14}N_6O_{14}Pt$** 2538*b*.

**$C_{12}H_{14}$** Acenaphthene, 2a,3,4,5-tetrahydro-, 4250*c*, 6203*f*.
Benzene, *o*-diisopropenyl-, P 7746*d*.
—, ethyldivinyl-, P 6658*c*.
Cyclohexene, 1-phenyl-, 3366*c*, P 7510*h*.
2,4,6,8,10,12 - Dodecahexaene, 1264*g*.
1,3 - Ethanonaphthalene, 1,2,3,4 - tetrahydro-, 3399*a*.

**$C_{12}H_{14}As_2Cl_2N_2O_2$** See *Arsphenamine*.

**$C_{12}H_{14}BeCl_2N_2$** 2-Picoline, compd. with $BeCl_2$, 4172*f*.

**$C_{12}H_{14}BrIO_5$** Hydrocinnamic acid, 2-bromo-6-iodo - 3,4,5 - trimethoxy-, 190*i*.

**$C_{12}H_{14}BrNO$** Benzonitrile, *p*-(5-bromoamoxy)-, 9048*f*.
Crotonamide, *p*-bromo- *N*-ethyl, P 5413*i*.

**$C_{12}H_{14}BrNO_3S$** Morpholine, 4-(2-bromo-2,3-dihydro - 3 - thianaphthenyl)-, *S*,*S*-dioxide, 8379*g*.

**$C_{12}H_{14}Br_2O_5$** Hydrocinnamic acid, 2,6-dibromo - 3,4,6 - trimethoxy-, 190*i*.

**$C_{12}H_{14}ClNO$** Senecianilide, *o*-chloro-*N*-methyl-, P 5413*h*.

**$C_{12}H_{14}ClNOS$** Morpholine, 4-[(*p*-chlorophenyl)thioacetyl]-, 1385*b*.
4 - Thiazolidone, 2 - (*p* - chlorophenyl)-3-propyl-, 631*e*.

**$C_{12}H_{14}ClNO_2$** 2(3 *H*)-Benzoxazolone, 6-chloro-3-isoamyl-, 6615*i*.

**$C_{12}H_{14}ClNO_3$** Alanine, *N*-benzoyl β-chloro-, Et ester, P 3469*e*.
Butyric acid, β-(*N*-acetyl-*p*-chloroanilino)-, 8388*b*.
Valine, *N*-*p*-chlorobenzoyl-, 2273*c*.

**$C_{12}H_{14}ClNO_4$** Serine, *N*-α-chloropropionyl-β phenyl-, 257*e*.

**$C_{12}H_{14}ClN_3$** Quinoxaline, 2-amino-6-chloro-8-isopropyl - 5 - methyl-, *and* - *HCl*, 3384*c*.

**$C_{12}H_{14}ClN_3O_3S$** Oxamimidyl chloride, *N'*, *N'*-diethyl - *N* - (*p* - nitrophenylsulfonyl)-, P 6660*i*.

**$C_{12}H_{14}ClO_3P$** Benzenephosphonic acid, chloro-, diallyl ester, P 1220*g*.

**$C_{12}H_{14}Cl_2N_2$** Cyclohexanone, (dichlorophenyl)hydrazone, 622*d*.

**$C_{12}H_{14}Cl_2N_2O_3$** Barbituric acid, 5,5-bis(3-chloro-2-butenyl)-, 1726*a*.

**$C_{12}H_{14}Cl_2N_2P_2$** Triphosphornitrile diamide, dichlorodiphenyl-, 5365*a*.

**$C_{12}H_{14}Cl_2O_2$** Acetic acid, (2,4-dichlorophe-

noxy)-, Bu ester, 1894*c*, 3967*b*, 5145*d*, 6705*e*, 6775*h*, 7181*b*; iso-Bu ester, 6775*h*.

**$C_{12}H_{14}Cl_4$** *p*-Cymene, (1,2,2,2-tetrachloroethyl)-, P 8399*h*.

**$C_{12}H_{14}Cl_3NO$** Triethylamine, 2-(pentachlorophenoxy)-, 1896*c*.

**$C_{12}H_{14}CrN_1O_3$** Picoline, compd. with $CrO_3$, 2534*c*.

**$C_{12}H_{14}CuO_{14}$** + $9H_2O$ Citric acid, Cu deriv., *Ca salt*, 4182*c*.

**$C_{12}H_{14}F_8O_4$** Adipic acid, octafluoro-, diisopropyl ester, P 2635*f*.

**$C_{12}H_{14}Fe_4O_{22}$** Tartaric acid, ferric complex, 5745*i*.

**$C_{12}H_{14}HgNNaO_6$** Neptal, 2323*e*.

**$C_{12}H_{14}HgN_2O_6S$** Quinolin - 3 - amic acid, *N*-[3 - (carboxymethylmercaptomercuri)-2 - hydroxypropyl]-, *di - Na salt*, P 9084*c*.

**$C_{12}H_{14}IN$** 1,2,4-Trimethylquinolinium iodide, 5402*d*.

**$C_{12}H_{14}INO_3$** Succinanilic acid, 2-iodo-4,6-dimethyl-, 1343*d*.

**$C_{12}H_{14}IN_3S$** 1 - Ethyl - 2 - [2 - (2 - thiazolylamino)vinyl]pyridinium iodide, P 2642*h*.

**$C_{12}H_{14}I_2N_2$** 1,1′ - Dimethyl - 2,2′ - bipyridinium diiodide, 1046*e*.

**$C_{12}H_{14}NNaO_3S$** 5*H* - Pyrido[1,2,3 - *de*]-1,4 - benzoxazin - 6 - ol, 2,3,6,7 - tetrahydro-3-methyl-, hydrogen sulfate Na salt, P 2782*i*.

**$C_{12}H_{14}N_2$** Quinoline, 8-aminotrimethyl-, 2211*h*, 8391*b*.

Quinoline, 2-propylamino-, *and chloroplatinate*, 4276*h*.

**$C_{12}H_{14}N_2O$** Acetamide, *N*-α-cyanobenzyl-*N*-ethyl-, 6176*d*.

Benzamide, *N* - (2 - cyanoisopropyl) - *N*-methyl-, 4263*c*.

Compd., m. 80.5-1.0°, 4653*g*.

1,2 - Cyclohexanedione, 1 - phenylhydrazone, 7938*g*.

3 - Pyrazolone, 1,5 - dimethyl - 2 - *p*-tolyl-, 7477*e*.

—, 1,2,5 - trimethyl - 4 - phenyl-, 7934*i*.

4(3*H*)-Quinazolone, 3-butyl-, 3424*i*.

**$C_{12}H_{14}N_2O_2$** Antipyrine, 4-(hydroxymethyl)-, 360*i*.

Butyric acid, γ-hydroxy-β,β-dimethyl-α-oxo-, γ-lactone, phenylhydrazone, 7426*f*.

Compd., m. 66-7°, 7426*f*.

2 - Cyclopenten - 1 - one, 2,3 - dihydroxy-4 - methyl-, phenylhydrazone, 6988*c*.

Hydantoin, 3 - benzyl - 5,5 - dimethyl-, 6984*h*.

—, 5 - ethyl - 3 - methyl - 5 - phenyl-, 760*g*, 1102*g*, 8611*i*, 9262*b*.

Nitrone, *N* - (*p* - dimethylaminophenyl)-α - (2 - formylvinyl)-, 4219*f*.

2-Piperidone, 3-benzamido-, 1323*g*.

2 - Pyrazoline - 3 - carboxylic acid, 4-phenyl-, Et ester, 5006*c*.

4(1*H*) - Pyrimidone, 2 - ethoxy - 5,6 - dihydro-6-phenyl-(?), 3822*e*.

Tryptophan, Me ester, 7020*a*.

—, methyl-, 1397*eg*, 9154*e*.

**$C_{12}H_{14}N_2O_2S$** 3 - Butynoic acid, 2 - benzyl - 2-thiopseudourea salt, 7415*d*.

Ethanesulfonamide, 2 - amino - *N* - 2-naphthyl-, P 3450*g*.

Pyrimidine, 4 - ethoxy - 2 - (ethylmercapto) - 6 - (2 - furyl)-, 7929*i*.

4 - Pyrimidol, 6 - [2 - (2 - furyl)ethyl] - 2-mercapto-, Et deriv., 7929*i*.

Thiophene, 2,5 - bis[(2 - cyanoethoxy)-methyl]-, 630*c*.

**$C_{12}H_{14}N_2O_2S_2$** Thiazole, 2-amino-4-(*p*-methylsulfonylphenethyl)-, - *HCl*, 1740*a*.

**$C_{12}H_{14}N_2O_3$** Acetamide, *N* - (5,6,7,8 - tetrahydro - 3 - nitro - 2 - naphthyl)-, 5755*f*.

Cinnamic acid, α-(alanylamino)-, 257*d*.

—, α-(α-methylaminoacetamido)-, 257*e*.

Cyclopal, 8612*ce*.

Hydantoin, 5 - (ethoxymethyl) - 5-phenyl-, P 3452*h*.

—, 1 - (*p* - ethoxyphenyl) - 5 - methyl-, 6308*f*.

1 - Imidazolidinecarboxylic acid, 2 - oxo-5-phenyl-, Et ester, 3821*e*.

Nicotinonitrile, 1,2 - dihydro - 5 - (2 - hydroxyethyl) - 4,6 - dimethyl - 2 - oxo-, acetate, 1009*g*.

Piperidine, 1-nitrobenzoyl-, 1145*a*, 3424*g*, 7181*i*.

5 - Pyrazolone, 1 - (β - hydroxyphenetyl)-3-methyl-, P 5198*g*, P 9462*i*.

1,5*H* - Pyridin - 2 - ol, 4 - acetamido-6,7-dihydro-, acetate, 9068*g*.

**$C_{12}H_{14}N_2O_3S$** Acetamide, *N*, *N*′-(4-mercapto-*m* - phenylene)bis-, acetate, 222*h*.

Hydantoic acid, δ-benzoyl-γ-thio-, Et ester, 1401*b*.

3 - Thiophenecarboxylic acid, tetrahydro-4-(3-phenylureido)-, P 1809*c*.

**$C_{12}H_{14}N_2O_3S_2$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - isopropyl - 4-phenyl - 3 - thio-, 1,1 - dioxide, P 4868*d*.

**$C_{12}H_{14}N_2O_3S_2$** 4 - Thiazoline - 5 - acrylic acid, α - cyano - 3 - ethyl - 4 - hydroxy - β-methylmercapto - 2 - thioxo-, Et ester (compd. m. 98°), P 7849*i*.

**$C_{12}H_{14}N_2O_4$** 1,2,3,4-Butanetetrol, 1-(2-quinoxalyl)-, 5404*c*.

Methane, 1 - nitrocyclopentyl(*p* - nitrophenyl)-, 8365*a*.

**$C_{12}H_{14}N_2O_4S$** Sulfide, 2,4-dinitrophenyl 1-methylcyclopentyl, 2172*e*.

**$C_{12}H_{14}N_2O_5$** (See also *Phenol, cyclohexyldinitro-*.)

Glutamic acid, *N*-(*p*-aminobenzoyl)-, 3066*a*, 3877*f*.

**$C_{12}H_{14}N_2O_5S$** Crotonamide, α,β - dimethyl-*N*-(*p*-nitrophenylsulfonyl)-, P 7961*h*.

Cyclohexanol, 2 - (2,4 - dinitrophenylmercapto)-, 7421*a*.

**$C_{12}H_{14}N_2O_6$** 1 - Butanol, 2 - methyl-, 3,5-dinitrobenzoate, 3776*f*.

**$C_{12}H_{14}N_2O_6S$** Succinamic acid, *N*-(*N*-acetylsulfanilyl)-, 2597*e*.

**$C_{12}H_{14}N_2O_6S_2$** 1 - Phenol - 4 - sulfonic acid, sulfanilamide salt, 171*b*.

**$C_{12}H_{14}N_2O_7S$** Sulfanilamide, vitamin C deriv., 5541*e*.

**$C_{12}H_{14}N_2S_2$** 2(5*H*) - Imidazolethione, 4-(benzylmercapto) - 5,5 - dimethyl-, 6171*e*.

Uretidine, 1,3-di-2-thenyl-, 1763*f*.

**$C_{12}H_{14}N_4$** 3,3′,4,4′ - Biphenyltetramine, 4599*c*.

Propionitrile, β,β′ - (*p* - phenylenediimino)di-, P 5111*g*.

**$C_{12}H_{14}N_4O$** Cresol, α-[(2-amino-4-pyrimidyl)-methylamino]-, 2212*f*.

Guanidine, 1 - allyl - 2 - cyano - 3 - (*p*-methoxyphenyl)-, P 1799*e*.

**$C_{12}H_{14}N_4OS$** Thiochrome, 6472*e*, 8282*d*.

**$C_{12}H_{14}N_4O_2$** Capronitrile, β-oxo-, *p*-nitrophenylhydrazone, 2938*f*.

Creatinine, reaction product with *p*-tolyl isocyanate, 8365*i*.

Isocapronitrile, β oxo-, *p*-nitrophenylhydrazone, 2938*h*.

**$C_{12}H_{14}N_4O_2S$** (See also *Sulfamethazine*.)

Sulfanilamide, *N*¹ - (dimethylpyrimidyl)-, P 3035*b*, P 7962*f*.

—, *N*¹ - (6 - ethyl - 3 - pyridazyl)-, 178*c*.

—, *N*¹ - (4 - ethyl - 2 - pyrimidyl)-, P 7962*f*, P 7965*b*.

**$C_{12}H_{14}N_4O_2S_2$** Thiazole, 5,5′-thiobis[2-acetamido-4-methyl-, 632*a*.

**$C_{12}H_{14}N_4O_3S$** + 0.5 $H_2O$ 2,5-Cyclohexadiene-1-sulfonic acid, 1,3-diamino-4-oxo-, phenylhydrazone, 2596*d*.

Metanilamide, *N*¹ - (4 - ethoxy - 2 - pyrimidyl)-, P 7517*c*.

Sulfanilamide, *N*¹ - (1,6 - dihydro - 1,3-dimethyl - 6 - oxo - 4 - pyridazyl)-, *and - HCl*, 3007*c*.

—, *N*¹-(4-ethoxy-2-pyrimidyl)-, 275*e*.

**$C_{12}H_{14}N_4O_4$** Cyclopentanecarboxaldehyde, 2,4-dinitrophenylhydrazone, 7435*b*.

Cyclopentanone, 2 - methyl-, 2,4 - dinitrophenylhydrazone, 2172*e*.

Ketone, methyl 1-methylcyclopropyl(?), 2,4 - dinitrophenylhydrazone, 2158*a*.

**$C_{12}H_{14}N_4O_8$** *p*-Toluic acid, 3,5-dinitro-, butylidenehydrazide, 6972*e*; *sec*-butylidenehydrazide, 6972*e*; isobutylidenehydrazide, 6972*e*.

**$C_{12}H_{14}N_4O_8S$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 6 - (*p* - methoxyphenylazo) - 2,4 - dimethyl-, 1,1 - dioxide, P 4868*f*.

**$C_{12}H_{14}N_4O_8S$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - (2 - hydroxyethyl) - 6 - (*o* - methoxyphenylazo)-, 1,1-dioxide, P 4868*f*.

**$C_{12}H_{14}N_4O_8S_2$** Benzenesulfonamide, 3,3′-sulfonylbis[6-amino-, P 7961*g*.

**$C_{12}H_{14}N_4O_{10}$** Aceturic acid, Et ester, picrate, 2989*g*.

**$C_{12}H_{14}N_4S$** *m*-Phenylenediamine, 4,4′-thiodi-, 600*h*.

**$C_{12}H_{14}N_4$** Piperazine, 1,4-di-2-pyrazinyl-, P 4705*c*.

Piperazine, 1,4 - di - 2 - pyrimidyl-, *di-HCl*, P 4705*b*.

Pyrimidine, 2,4,5 - triamino - 6 - (*p*-aminostyryl)-, *and - HCl*, 651*i*.

**$C_{12}H_{14}N_5O$** Biguanide, 1-(6-methoxy-8-quinolyl)-, *and - HCl*, 2946*h*.

**$C_{12}H_{14}N_4OS$** Biguanide, 1-(*p*-methoxyphenyl) - 5 - (2 - thiazolyl)-, - *HCl*, 5777*d*.

**$C_{12}H_{14}N_4O_2$** 2 - Pyrazoline - 3 - carboxylic acid, 4 - (*p* - methoxyphenylazo) - 1-methyl - 5 - oxo-, hydrazide, 4272*c*.

**$C_{12}H_{14}N_4O_2S$** Acetanilide, *p* - (2,4 - diamino-6 - hydroxy - 5 - pyrimidylsulfamyl)-, 652*e*.

**$C_{12}H_{14}N_4S$** Biguanide, 1-(2-thiazolyl)-5-*p*-tolyl-, - *HCl*, 5777*c*.

**$C_{12}H_{14}N_4O_{11}$** Cellobiose, octanitrate, 5007*f*.

**$C_{12}H_{14}O$** Acenaphthenol, 6,7,8,8a-tetrahydro-, 4250*d*.

2-Acetonaphthone, tetrahydro-, 8888*g*, 9424*f*.

Cyclohexanone, 4-phenyl-, 160*b*, 1357*c*, 1370*a*, 5762*d*.

Cyclopentanone, 2-benzyl-, 3399*b*.

2,4,6,8,10-Dodecapentaenal, 5363*g*.

Ether, allyl cinnamyl, 2181*b*.

—, α - 1,3 - butadienylbenzyl methyl, 2576*h*.

—, ethyl 1-methyl-3-phenyl-2-propynyl, 1020*c*.

—, ethyl 4-phenyl-3-butynyl, 1021*b*.

—, 1 - ethyl - 3 - phenyl - 2 - propynyl methyl, 1021*b*.

3 - Hexen - 5 - yn - 2 - one, 6 - (1 - cyclohexen-1-yl)-, 8361*b*.

1-Indanone, 2-propyl-, 1757*f*.

—, 3,3,6-trimethyl-, 7917*d*.

1(2*H*) - Naphthalenone, 3,4 - dihydro-5,8-dimethyl-, 613*a*.

**$C_{12}H_{14}OS$** Acetic acid, thiol-, 1,2,3,4-tetrahydro - 2 - naphthyl ester, P 2805*d*.

**$C_{12}H_{14}OS_2$** Thiophene, 2,2′-(oxydiethylidene)di-, 5393*g*.

**$C_{12}H_{14}O_2$** Benzene, *p*-bis(allyloxy)-, 2181*c*.

Benzoic acid, *p*-cyclopentyl-, 1375*c*, 5752*b*.

3 - Butyn - 2 - ol, 4 - ethoxy - 2 - phenyl-, 2571*a*, 7413*h*.

Cinnamic acid, isopropyl ester, 5150*e*, Pr ester, 2591*f*.

—, β-methyl-, Et ester, 2571*a*, 5026*f*.

Cinnamyl alcohol, propionate, 2372*g*.

Cyclopentanecarboxylic acid, phenyl, 3398*d*.

2 - Hexenoic acid, phenyl ester, 2187*c*.

2 - Hexenophenone, 2′ - hydroxy-, 2187*d*.

Hydracrylic acid, β - *p* - propylphenyl-, β-lactone, P 5037*h*.

Hydrocinnamic acid, α-methyl-β-vinyl-, 3351*h*.

Hydroquinone, diallyl-, 2181*c*.

4 - Indancarboxylic acid, 5,6 - dimethyl-, 208*f*.

Methacrylic acid, phenethyl ester, 9334*c*.

Naphthaleneacetic acid, tetrahydro-, 4250*e*, 7011*a*, P 7511*c*, 8390*g*.

1,4 - Naphthalenediol, 5,8 - dihydro - 6,7-dimethyl-, 1756*h*.

1-Naphthoic acid, tetrahydro-8-methyl-, 7011*h*.

1 - Naphthol, 1,2,3,4 - tetrahydro-, acetate, 2971*h*.

1,4 - Naphthoquinone, 4a,5,8,8a - tetrahydrodimethyl-, 1756*h*, P 3650*f*.

2,4-Pentanedione, 3-benzyl-, 1008*i*.

Pentenoic acid, 2 - methyl - 5 - phenyl-, 3351*h*.

—, 4-methyl-, phenyl ester, 2187*d*.

2 - Pentenophenone, 2′ - hydroxy - 4-methyl-, 2187*e*.

4 - Pentyne - 2,3 - diol, 2 - methyl - 3-phenyl-, 6181*g*.

4 - Pentyn - 1 - ol, 3 - methoxy - 5-phenyl-, 1021*d*.

Phthalide, 3,3-diethyl-, 7925*h*.

*p*-Quinone, cyclohexyl-, 1372*c*.

Resorcinol, 4,6-diallyl-, P 3037*f*.

Valeric acid, γ - hydroxy - γ - *p* - tolyl-, γ-lactone, 2606*g*.

**$C_{12}H_{14}O_2S_2$** *p* - Dithiane - 2 - methanol, benzoate, 7030*e*.

1,4 - Dithiepan - 6 - ol, benzoate, 4278*g*.

**$C_{12}H_{14}O_3$** Acetoacetic acid, phenyl-, Et ester, 1007*i*, 3392*i*, 7909*i*.

Benzoic acid, *o*-(1,1-dimethylacetonyl)-, 5762*d*.

Butyric acid, α-phenacyl-(?), 1040*a*.

Cinnamic acid, *p*-methoxy-, Et ester, 1043*d*, 2973*d*.

Furfuryl alcohol, tetrahydro-, benzoate, 5150*e*.

Hydrocinnamic acid, β-acetonyl-, P 6665*b*.

2(1*H*) - Naphthalenone, 3,4 - dihydro-5,8-dimethoxy-, 2612*d*, 2613*a*.

2 - Naphthoic acid, 1,2,3,4 - tetrahydro-6-methoxy-, 3814*f*.

1,3 - Pentanedione, 2 - methoxy - 1-phenyl-, 4248*c*.

Propane, 1,2 - epoxy - 3 - (2,3 - epoxypropoxy) - 1 - phenyl - (?), 2181*b*.

Propionic acid, β-benzoyl-, Et ester, 7192*h*.

**Propiophenone**, *p*-hydroxy-, propionate, 6605*i*.
**Pyran**, tetrahydro- 2-(3,4-methylenedioxyphenyl)-, P 9356*c*.
**Senecliophenone**, hydroxymethoxy-, 7915*b*.
**Tricyclo[4.2.2.0$^{2,5}$]decane** - 7,8 - dicarboxylic anhydride, 6198*i*.
**Valeric acid**, δ-benzoyl-, 3366*c*.
—, γ - (benzyloxy) - γ - hydroxy-, γ-lactone, 1406*b*.

**$C_{12}H_{14}O_4$** Apiole, 8573*e*.
Benzene, bis(2,3-epoxypropoxy)-, 2181*ac*, P 5421*h*.
Bicyclo[4.2.0] - 2,4 - octadiene - 7,8-diol, diacetate, 6196*h*.
3 - Buten - 2 - one, 4 - (4 - hydroxy - 3,5-dimethoxyphenyl)-, 1743*d*.
Butyric acid, piperonyl ester, 3555*d*.
—, γ - (*p* - hydroxyphenyl)-, acetate, 1377*i*.
Cinnamaldehyde, 3,4,5-trimethoxy-, 5763*d*.
*m* - Dioxane, methyl(3,4 - methylenedioxyphenyl)-, 3555*c*, P 4420*d*, 7184*a*.
Hydroquinone, dipropionate, 2187*f*.
2,3 - Norcamphanedicarboxylic acid, 5-hydroxy-, γ-lactone allyl ester, P 3033*a*.
Phthalic acid, di-Et ester, 1568*f*, P 1807*d*, P 3444*i*, 3678*a*, 5944*h*, 8138*i*, 9524*c*.
—, 4-*tert*-butyl-, 8139*h*.
Piperic acid, tetrahydro-, 1085*e*.
Piperonylic acid, Bu ester, 3555*c*.
Propionaldehyde, β,β' - *p* - phenylenedioxydi-, 2181*e*.
Pyrocatechol, 5-allyl-3-methoxy-, acetate, 7451*h*.
4 - Pyrone, 2 - allyl - 3 - (allyloxy) - 6-(hydroxymethyl)-, 8385*i*.
Salicylic acid, Me ester, butyrate, P 4701*h*.
—, 5-valeryl-, 1032*i*.
Succinic acid, phenethyl-, 5380*d*.
Terephthalic acid, di Et ester, 6485*i*.
Tricyclo[4.2.2.0$^{2,5}$]decene - 7,8 - dicarboxylic acid, 6198*i*, 6199*b*.

**$C_{12}H_{14}O_4S$** Acetic acid, [3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1902*i*.
Acetic acid, (α-methylhomopiperonylmercapto) -, P 1903*a*.

**$C_{12}H_{14}O_4S_2$** Propionic acid, β,β'-(*m*-phenylenedithio)di-, P 1054*g*.

**$C_{12}H_{14}O_5$** Acetic acid, (2-acetonyl-6-methoxyphenoxy)-, 1771*a*.
1,3 - Butanedione, 1 - (2 - hydroxy - 4,5-dimethoxyphenyl)-, 7461*e*.
Hydracrylic acid, Ph ester, hydracrylate, 3393*c*.
Malonic acid, furfurylidene-, di Et ester, 9334*c*.
2 - Propanone, 1 - hydroxy - 3 - (*o* - methoxyphenoxy)-, acetate, P 3038*e*.

**$C_{12}H_{14}O_4S$** Acetic acid, (*p*-methylsulfonylbenzoyl)-, Et ester, 1740*b*

**$C_{12}H_{14}O_6$** Acetic acid, (*p* phenylenedioxy)di-, di-Me ester, 3364*e*
Hydroquinone, 2,6-dimethoxy-, diacetate, 1773*a*.
Ribose, 5-benzoate, 141*i*.

**$C_{12}H_{14}O_6S_2$** 1,4 - Dithiepan - 6 - ol, benzoate 1,1,4,4-tetraoxide, 4278*h*.

**$C_{12}H_{14}O_7$** 3,4 - Furandicarboxylic acid, 2-(4 - hydroxybutyl)-, acetate, 5022*h*.

**$C_{12}H_{14}O_8$** Compd., m. 231° (cor.) from *Baptisia minor*, 650*b*.
Pyrocatechol, glucuronide, 2325*f*.

**$C_{12}H_{15}AsO_3$** Caproic acid, ε-(*p*-arsenosophenyl)-, 4237*c*.

**$C_{12}H_{15}Br$** Naphthalene, (2-bromoethyl)-1,2,-3,4-tetrahydro-, 2183*a*.

**$C_{12}H_{15}BrN_2O_4S$** Penicillin, β-bromoallyl-, 3490*a*.

**$C_{12}H_{15}BrN_2S$** Benzothiazole, 4-bromo-2-isobutylamino-6-methyl-, 1706*i*.

**$C_{12}H_{15}BrO_2$** Caproic acid, ε-(*p*-bromophenyl)-, 1378*i*.
1-Pentanol, 5-bromo-, benzoate, 6190*g*.

**$C_{12}H_{15}BrO_3$** Acetic acid, (4-bromo-2-*tert*-butylphenoxy)-, 6998*g*.
1,2 - Propanediol, 3 - (2 - allylbromophenoxy)-, 312*a*.

**$C_{12}H_{15}BrO_5$** Hydrocinnamic acid, 2-bromo-3,4,5-trimethoxy-, 190*i*.

**$C_{12}H_{15}CdCl_2NO_3$** Butyric acid, β-phenylimino-, Et ester, compd. with $CdCl_2$, 4227*h*.

**$C_{12}H_{15}ClF_2N_4O_7$** Triethylamine, 2-chloro-2',2''-difluoro-, picrate, 2927*h*.

**$C_{12}H_{15}ClN_2O_3$** 1,3-Propanediol, 2-(4-chloro-2-nitroanilino) - 2 - methyl-, monoacetate, P 7694*d*.

**$C_{12}H_{15}ClN_2O_4$** 1,3 - Propanediol, 2 - (4-chloro - 2 - nitroanilino) - 2 - (hydroxymethyl)-, monoacetate, P 7694*f*.

**$C_{12}H_{15}ClN_4O_7$** Pyrrolidine, 1-(2-chloroethyl)-, picrate, 9052*e*.
Pyrrolidine, 2-(chloromethyl)-1-methyl-(?), picrate, 227*e*.

**$C_{12}H_{15}ClO$** Acetophenone, *p*-*tert*-butyl-α chloro-, 633*h*.
Acetophenone, 5 - (1 - chloroisopropyl)-2-methyl-, 6595*g*.

**$C_{12}H_{15}ClO_2$** Caproic acid, ε-(*p*-chlorophenyl)-, 1378*i*.

**$C_{12}H_{15}ClO_2S$** Sulfone, *p* - chlorophenyl cyclohexyl, 1003*d*.

**$C_{12}H_{15}ClO_3$** 1,2 - Propanediol, 3 - (2 - allylchlorophenoxy)-, 312*a*.

**$C_{12}H_{15}ClO_4$** Vanillic acid, 5-chloro-, Bu ester, 4242*c*.

**$C_{12}H_{15}ClO_6$** 1,3 - Cyclopentanedicarboxylic acid, 1 - chloro - 3 - methyl - 4,5-dioxo-, di-Et ester, 6988*b*.

**$C_{12}H_{15}ClS$** Sulfide, 2-chlorocyclohexyl phenyl, 4658*i*.
Sulfide, *p*-chlorophenyl cyclohexyl, 1003*d*.

**$C_{12}H_{15}Cl_2HgNO_2$** Butyric acid, β-phenylimino-, Et ester, compd. with $HgCl_2$, 4227*h*.

**$C_{12}H_{15}Cl_2NO_2Zn$** Butyric acid, β-phenylimino-, Et ester, compd. with $ZnCl_2$, 4227*h*.

**$C_{12}H_{15}Cl_2NO_2S$** Acetamide, *N*-butyl-*N*-(3,4-dichlorophenylsulfonyl)-, P 2231*h*.
Butyramide, *N* - (3,4 - dichlorophenylsulfonyl)-*N*-ethyl-, P 2364*d*.

**$C_{12}H_{15}Cl_3N_4O_7$** Triethylamine, 2,2',2''-trichloro-, picrate, 348*f*.

**$C_{12}H_{15}IN_2$** 2-Dimethylamino-1-methylquinolinium iodide, 4276*f*.

**$C_{12}H_{15}IN_2O$** Benzoic acid, *m*-iodo-, isoamylidenehydrazide, 6973*e*.

**$C_{12}H_{15}IO_4$** Benzene, iodoso-, dipropionate, P 5231*d*.

**$C_{12}H_{15}IO_5$** Hydrocinnamic acid, 2-iodo-3,4,5-trimethoxy-, 190*h*.

**$C_{12}H_{15}I_2NO_2$** β - Alanine, *N* - (4 - hydroxy-3,5 - diiodophenethyl) - *N* - methyl-, 5765*e*.

**$C_{12}H_{15}N$** 2 - Indenemethylamine, *N*, *N* - dimethyl-, *and* - *HCl*, P 1440*i*.
Indoline, 1,3,3 - trimethyl - 2 - methylene-, 4211*h*.
Julolidine, 5784*d*.
Quinoline, 1,2-dihydro-2,2,4-trimethyl-, P 902*a*, 1777*d*.

**$C_{12}H_{15}NO$** Acetamide, *N*-2-butenyl-α-phenyl-, 2269*t*, P 3574*d*.
Acetamide, *N* - 2 - methylallyl - α-phenyl-, 2269*t*, P 3574*d*.
—, *N* - (5,6,7,8 - tetrahydro - 1 - naphthyl)-, 202*c*, 7011*b*, P 7511*b*.
Acetanilide, *N*-2-butenyl-, 5403*h*.
Benzamide, *p*-cyclopentyl-, 5752*b*.
3 - Buten - 2 - one, 4 - (*p* - dimethylaminophenyl)-, 633*a*, 7820*a*.
Crotonotoluidide, *N*-methyl-, P 5413*h*.
Cyclohexanone, 4 phenyl-, oxime, 160*c*.
Cyclopentanecarboxamide, phenyl-, 3398*e*.
1 - Indanone, 2 - (dimethylaminomethyl)-, - *HCl*, P 1440*h*.
Isocyanic acid, α-ethyl-α-methylphenethyl ester, P 5800*h*.
Isoquinoline, 1 - (ethoxymethyl) - 3,4-dihydro-, *and* - *HCl*, 3408*a*.
2 - Naphthaleneacetamide, 5,6,7,8 - tetrahydro-, 8390*g*.
1,4,4*H* - Oxazine, 4 - ethyl - 2,3 - dihydro - 6 - phenyl-, 4239*t*.
5*H* - Pyrido[1,2,3 - *de*] - 1,4 - benzoxazine, 2,3,6,7 - tetrahydro - 5 - methyl-, P 2782*h*.
*p* - Quinone imine, 2 - cyclohexyl-, *chromate*, 1372*c*.

**$C_{12}H_{15}NOS$** Isovaleronitrile, β-(benzylmercapto)-α-hydroxy-, P 4688*e*.
Morpholine, 4 - (phenylthioacetyl)-, 2188*a*, P 2233*d*.
4-Thiazolidone, 3-isopropyl-2-phenyl-, 1767*b*.
—, 2-phenyl-3-propyl-, 634*c*.

**$C_{12}H_{15}NO_2$** Acetamide, *N*-(α-acetylphenethyl)-, 4226*t*, 7531*a*.
Acetanilide, *o*-butyryl-, 3012*g*.
Benzamide, *N*-(2-oxoamyl)-, 2926*i*.
2(3*H*)-Benzoxazolone, amyl-, 6615*eg*.
—, 3-butyl-5-methyl-, 6615*j*.
—, 3-isoamyl-, 6615*e*.
—, 3-isobutyl-5-methyl-, 6615*f*.
—, 3-(1-methylbutyl)-, 6615*f*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-isopropyl-, P 4421*f*.
—, *N*-propyl-, P 4421*f*.
Butyronitrile, α - (2,3 - dimethoxyphenyl)-, 625*c*.
*p*-Crotonanisidide, *N*-methyl-, P 5414*a*.
Crotonic acid, β-anilino-, Et ester, 228*i*.
Isocyanic acid, *p*-methoxy-α,α-dimethylphenethyl ester, P 5800*f*.
Isoquinoline, 3,4 - dihydro - 6,7 - dimethoxy-1-methyl-, 656*f*.
Nicotinic acid, cyclohexyl ester, 2622*i*, 6316*i*.
2,4 - Pentanedione, 3 - [2 - (2 - pyridyl)-ethyl]-, 4267*h*.
Phthalimidine, 3-butoxy-, 623*g*.
4-Piperidinol, 1-benzoyl-, 4275*d*.
5*H* - Pyrido[1,2,3 - *de*] - 1,4 - benzoxazin-6 - ol, 2,3,6,7 - tetrahydro - 3-methyl-, P 2782*j*.
Tricyclo[4.2.2.0$^{2,5}$]decane - 7,8 - dicarboximide, 6198*i*.

**$C_{12}H_{15}NO_2S$** 1,3 - Ethanonaphthalenesulfonamide, 1,2,3,4-tetrahydro-, 3399*a*.
Morpholine, 4 - (*o* - methoxythiobenzoyl)-, 5027*i*.
4 - Thiazolidinecarboxylic acid, 2,2 - dimethyl - 5 - phenyl-, - *HCl*, 1400*e*.

**$C_{12}H_{15}NO_3$** Acetamide, *N*-2-hydroxyethyl-α-phenyl-, acetate, 2269*s*.
Acetanilide, α - formyl - 4 - hydroxy-2,3,5-trimethyl-, 180*d*.
Acetophenone, 2 - methyl - 5 - (1 - nitroisopropyl)-, 6595*g*.
Alanine, *N*-hydrocinnamoyl-, 5765*c*.
β - Alanine, *N* - formyl - *N* - phenyl-, Et ester, 575*i*.
2(3*H*) - Benzoxazolone, 3 - isobutyl - 5-methoxy-, 6615*i*.
Bicyclo[6.3.1] - 1(12),8,10 - dodecatrien-12-ol, 10-nitro-, 161*h*.
Butyric acid, β-benzamido-, Me ester, 7427*h*.
—, (α - phenylacetamido)-, 2271*a*, P 3574*b*, 7428*b*.
Cinnamamide, 4 - ethoxy - 3 - methoxy-, 2177*c*.
Formanilide, 4 - hydroxy - 2,3,5 - trimethyl-, acetate, 180*e*.
Hydrocotarnine, P 4965*e*.
4 - Isoquinolinecarboxylic acid, 5,6,7,8-tetrahydro - 3 - hydroxy-, Et ester, P 6672*d*.
Isovaleric acid, β-benzamido-, 7427*f*.
Mandelonitrile, 3,4-diethoxy-, 7027*g*.
Nicotinic acid, 1-cyclohexyl-1,6-dihydro-6-oxo-, *and Na salt*, P 6241*h*.
Piperonylamide, *N*, *N*-diethyl-, 3555*d*.
5*H* - Pyrido[1,2,3 - *de*] - 1,4 - benzoxazine - 5 - methanol, 2,3,6,7 - tetrahydro-6-hydroxy-, P 2782*g*.
Valeric acid, δ-anthranoyl-, 3012*g*.
Valine, *N*-benzoyl-, 2269*h*.

**$C_{12}H_{15}NO_3S$** Alanine, *N*-acetyl-β-(benzylmercapto)-, 1844*a*, 7902*h*.
Benzenesulfonic acid, *p*-(diallylamino)-, P 8171*b*.
Cyclohexanone, oxime, benzenesulfonate, 2594*d*.
2 - Oxazoline, 4,4 - dimethyl - 2 - (*p*-methylsulfonylphenyl)-, P 7512*i*.
4-Thiazolidone, 3-isopropyl-2-phenyl-, 1,1-dioxide, 1767*b*.
—, 2 - phenyl - 3 - propyl-, 1,1 - dioxide, 634*f*.

**$C_{12}H_{15}NO_4$** (See also *Colarnine*.)
Acetamide, α - (*p* - acetylphenoxy) - *N* - 2-hydroxyethyl-, 3364*g*.
Alanine, *N*-carboxy-, Me benzyl ester, 1323*g*.
Allothreonine, *N*-benzoyl-, Me ester, 4225*b*.
Anisaldehyde, 3 - *tert* - butyl - 5 - nitro-, P 1063*h*.
Benzoic acid, *p*-hydroxy-, Bu ester, carbamate, 593*c*.
Hydrocinnamic acid, β-carboxyamino-, β-Et ester, 3822*c*.
Propionic acid, β,β'-(phenylimino)di-, 8351*g*.
Threonine, Me ester benzoate, - *HCl*, 4225*c*.
—, *N*-benzoyl-, Me ester, 4225*c*.

**$C_{12}H_{15}NO_5$** Ethanol, 2,2' - (phenylimino)di-, oxalate, P 2634*g*.
3 - Pyrrolepropionic acid, 5 - carboxy - 2-formyl - 4 - methyl-, 5 - Et ester, 4257*d*.

**$C_{12}H_{15}NO_5S$** 5*H* - Pyrido[1,2,3 - *de*] - 1,4-benzoxazin - 6 - ol, 2,3,6,7 - tetrahydro - 3 - methyl , hydrogen sulfate, *Na salt*, P 2782*t*.

**$C_{12}H_{15}NO_6$** Arabitol, 3,5-benzylidene-1-desoxy-1-nitro-, 5747*e*.
2,3,5-Pyrroletricarboxylic acid, 4-methyl-, 3,5-di-Et ester, 623*c*.
Ribitol, 3,5 - benzylidene - 1 - desoxy - 1-nitro-, 5747*e*.

**$C_{12}H_{15}NO_6S$** 2,4,5 - Thiazoletricarboxylic acid, tri-Et ester, 5021*e*.

**$C_{12}H_{15}NS$** Phenothiazine, 1,2,3,4,4a,10a-hexahydro-, 7421*c*.
**$C_{12}H_{15}NS_2$** Di - 2 - thenylamine, 5,5′ - dimethyl-, 1763*f*; - *HCl*, 2201*g*.
**$C_{12}H_{15}N_2NaO_3$** See *Evipal sodium*.
**$C_{12}H_{15}N_2NaO_3S$** Crotonamide, α,β dimethyl-*N*-sulfanilyl-, Na deriv., P 6233*f*.
**$C_{12}H_{16}N_2$** Imidazole, 2-(2 aminoethyl)-1-benzyl-, 3520*h*; *and di-HCl*, 3410*h*.
**$C_{12}H_{16}N_2O$** 3-Indolepropionic acid, 1-methyl-, hydrazide, 3405*e*.
Pimelonitrile, γ - acetyl - γ - (2 - cyanoethyl)-, 5893*i*.
Quinoline, 8 - (2 - aminoethylamino) - 6-methoxy-, *salts*, 7485*f*.
**$C_{12}H_{16}N_2O_2$** 1(2*H*) - Naphthalenone, 3,4 - dihydro - 5 - methoxy-, semicarbazone, 7010*i*.
Nicotinonitrile, 5 - acetamido - 4 - (ethoxymethyl)-6-methyl-, P 2645*g*.
5 - Pyrazolone, 3 - amino - 4 - (3 - phenoxypropyl)-, 7478*b*.
**$C_{12}H_{16}N_2O_3S$** 4 - Chromanone, 7 - methoxy-2-methyl-, thiosemicarbazone, 1771*d*.
3 - Thiamorpholone, 2 - (1 - hydroxyethyl) - 2 - phenylazo-, 3015*c*.
**$C_{12}H_{16}N_2O_3S_2$** Sulfanilamide, $N^1$-[2-(4-methyl - 2 - thiazolyl)ethyl] , 6181*b*
**$C_{12}H_{16}N_2O_3$** Acetic acid, benzoyl-, Et ester semicarbazone, 2601*g*.
Butyric acid, β-benzoyl-, semicarbazone, 6625*a*.
4 - Chromanone, 7 - methoxy - 2 - methyl-, semicarbazone, 1771*d*.
Glutamic acid, benzylidenehydrazide, 2674*h*.
1-Indanone, 5,6-dimethoxy-, semicarbazone, 4251*b*.
Mesitylenic acid, 4-nitro-, isopropylidenehydrazide, 6972*h*, propylidenehydrazide, 6972*h*.
*p* - Toluic acid, 3 - nitro-, butylidenehydrazide, 6973*b*; *sec* - butylidenehydrazide, 6973*c*.
*s* - Triazine, 1,3,5 - triacrylylhexahydro-, 657*f*, 5405*d*, 7031*c*.
**$C_{12}H_{16}N_2O_4$** D-Glucose, phenylosotriazole, 66*g*.
Triazole, phenylglucoso-, 2618*i*.
**$C_{12}H_{16}N_2O_5$** β - Alanine, *N* - [(*p* - nitrophenyl)carbamyl]-, Et ester, 168*g*.
**$C_{12}H_{16}N_2O_6$** Leucine, *N*-(dinitrophenyl)-, 138*c*, 7379*b*.
**$C_{12}H_{16}N_2O_8S$** Oxamide, *N*, *N*-diethyl-*N′* (*p*-nitrophenylsulfonyl)-, P 6660*i*.
**$C_{12}H_{15}N_3O$** Morpholine, 4-[(1-phenyl 1*H*-tetrazol-5-yl)methyl]-, 1864*i*, P 7972*a*.
**$C_{12}H_{16}N_4O_2$** Ethanol, 2-[*N*-(4-amino-6-methoxy - *s* - triazin - 2 - yl)anilino]-, 4269*e*.
**$C_{12}H_{16}N_4O_2S$** Sulfanilamide, $N^1$-(6-amino-1,2,3,4 - tetrahydro - 1,3 - dimethyl-2,4 - dioxo - 5 - pyrimidyl)-, P 2231*d*.
**$C_{12}H_{16}N_4O_5$** Guanosine, 2′-acetyl-, 1326*a*.
**$C_{12}H_{16}N_4O_7$** Hexamethylenimine, 2-imino-, picrate, 2594*d*.
2-Imidazoline, ethyl-2-methyl-, picrate, 8381*f*.
**$C_{12}H_{16}N_4O_8$** Nipecotamide, picrate, 6207*a*.
**$C_{12}H_{16}N_7$** Pyrimidine, 4-amino-5-[[(4-amino-2 - methyl - 5 - pyrimidylmethylene)-amino]methyl] - 2 - methyl-, P 7051*g*.
**$C_{12}H_{15}N_7O_6$** Hexamethylenetetramine, styphnate, 1316*h*.
**$C_{12}H_{16}O_3P$** Benzenephosphonic acid, diallyl ester, P 1220*fg*, 5378*e*.
**$C_{12}H_{16}O_{12}S_2Sb$** Succinic acid, mercapto-, *S*-Sb deriv., *Li salt*, 2702*i*.
**$C_{12}H_{16}$** Benzene, (1-methylcyclopentyl)-, 2171*h*.
Compd., $b_{744}$ 240 1°, 6201*h*.
Cyclohexane, phenyl-, 1753*f*, 2175*a*, 2957*f*, 3366*c*, 5376*g*.
Hexene, phenyl-, 118*g*, 9051*e*.
Indan, isopropyl-, 2197*g*.
Naphthalene, ethyl-1,2,3,4-tetrahydro-, 2197*g*, P 7511*c*.
—, 1,2,3,4 - tetrahydro - 6,7 - dimethyl-, 208*d*.
2-Pentene, 3-methyl-5-phenyl-, 1714*c*.
—, 1-*p*-tolyl-, P 7507*h*.
**$C_{12}H_{16}AsNO_3S_2$** Benzenearsonous acid, 3-amino - 4 - hydroxydithio-, diacetonyl ester, - *HCl*, 599*a*.
**$C_{12}H_{16}AsNO_4S_2$** Acetic acid, mercapto-, diester with 3 - amino - 4 (2 - hydroxyethoxy)dithiobenzenearsonous acid, *and di-Na salt*, 599*b*.
**$C_{12}H_{16}BrNO$** Benzylidenimine, bromo-α,6-diethyl - 5 - methoxy-, *and* - *HCl*, 185*f*.
**$C_{12}H_{16}BrNO_2S$** 3 - Thianaphthenylamine, 2-bromo - *N*, *N* - diethyl - 2,3 - dihydro-, 1,1-dioxide, 8379*h*.
**$C_{12}H_{16}BrNO_4$** 3 - Pyrrolepropionic acid, 2-(bromomethyl) - 5 - carboxy - 4-methyl-, 5-Et ester, 4257*d*.
**$C_{12}H_{16}Br_2O$** 3,5 - Xylenol, 2,4 - dibromo - 6-butyl-, 2969*c*.
**$C_{12}H_{16}ClNO_2$** 2 - Propanol, 1 - (allylamino)-3-(*o*-chlorophenoxy)-, P 7046*a*.
**$C_{12}H_{16}ClNO_2S_2$** Sulfilimine, *S*-allyl-*S*-(2-chloroethyl) - *N* - *p* - tolylsulfonyl-, 2928*i*.
**$C_{12}H_{16}ClNO_3$** β - Alanine, *N* - (*m* - chlorophenyl) - *N* - 2 - hydroxyethyl , Me ester, P 9462*c*.
Carbamyl chloride, 4-ethoxy *N*-ethyl-3-methoxy-, 2177*c*.
**$C_{12}H_{16}ClNO_4$** Ethane, 1 butoxy-2 (4-chloro-2-nitrophenoxy)-, P 5421*f*.
**$C_{12}H_{16}ClNO_4S$** Alanine, *N*-*p*-tolylsulfonyl-, 2-chloroethyl ester, 2943*g*.
**$C_{12}H_{16}ClN_3$** Benzimidazole, chloro-2-diethyl aminomethyl-, *and di-HCl*, 2992*h*.
**$C_{12}H_{16}ClN_3O_2S$** 5 - (2 - Hydroxyethyl) - 3-(4 - hydroxy - 2 - methyl - 5 - pyrimidylmethyl) - 4 - methylthiazolium chloride, 2293*c*, 9179*a*.
**$C_{12}H_{16}ClN_3O_4$** Acetanilide, 4-chloro-α-diethylamino 2 nitro-, 2992*g*.
**$C_{12}H_{16}ClN_5$** 1 - Pyrrolidinecarboxamidine, *N*-[(*p* - chlorophenyl)guanyl]-, P 6659*f*.
*s* - Triazine, 2 (allylamino) - 4 - chloro-6 (diallylamino) , 1126*e*.
**$C_{12}H_{16}ClO_3P$** Chlorophosphonic acid, 2,2-dimethyl - 1,3 - dioxolan - 4 - ylmethyl Ph ester, 6166*f*.
**$C_{12}H_{16}Cl_2HgO_4S$** Propionic acid, β-(benzylsulfonyl)-, Et ester, compd. with $HgCl_2$, 1321*c*.
**$C_{12}H_{16}Cl_2N_4O_7$** *tert*-Butylamine, 2,2′-dichloro-*N*, *N* - dimethyl-, picrate, 7422*c*.
Propylamine, chloro - *N* - (2 - chloroethyl) - *N* - methyl-, picrate, 7122*b*.
Triethylamine, 2,2′-dichloro-, picrate, 348*f*.
**$C_{12}H_{16}Cl_2N_5$** Biguanide, 1-isopropyl-1-methyl-5 - (3,4,5 - trichlorophenyl)-, - *HCl*, P 6228*f*.
**$C_{12}H_{16}CoN_3O_4$** Histidine, Co complex, 7856*c*
**$C_{12}H_{16}FNO_3$** β - Alanine, *N* - (*m* - fluorophenyl) - *N* - 2 - hydroxyethyl-, Me ester, P 9462*b*.
**$C_{12}H_{16}F_4$** Spiro[cyclobutane - 1,2′ - norcamphane], 2,2,3,3 - tetrafluoro-3′,3′-dimethyl-, 3370*e*.
**$C_{12}H_{16}INOS$** Methyl - α - 4 - morpholinylbenzylidenesulfonium iodide, 5027*h*.
**$C_{12}H_{16}INO_2S$** Methyl(α-4 morpholinylsalicylidene)sulfonium iodide, 5027*h*
**$C_{12}H_{16}NNaO_4$** Compd., decompg at about 200°, 1614*h*.
**$C_{12}H_{16}N_2$** Glycinonitrile, *N*, *N*-diethyl-α-phenyl-, 4115*i*.
Hexamethyleneimine, 2 phenylimino-, *and* - *HCl*, 2594*d*, 2595*f*.
Indole, 3 - (dimethylaminomethyl)-methyl-, 1397*h*, 1763*c*, 3405*b*.
Piperidine, 1-benzimido-, P 3156*h*.
Pyrazolidine, 4 - allyl - 1 - phenyl-, 3776*a*.
2 - Pyrazoline, 3,5,5 - trimethyl - 1-phenyl-, P 1178*f*.
Valeronitrile, α - *N* - methylanilino-, 4115*e*.
**$C_{12}H_{16}N_2O$** 3 - Buten - 2 - one, 4 - (*p* - dimethylaminophenyl)-, oxime, 633*b*.
Cytisine, *N*-methyl-, 650*ab*.
Nicotinamide, *N*-cyclohexyl-, 5025*d*.
Pimelonitrile, γ-acetyl-γ isopropenyl-, 6578*e*.
Piperidine, 1-anthranoyl-, 3424*d*.
**$C_{12}H_{16}N_2OS$** Benzamide, *N*-methyl-*N*-(2-thiocarbamylisopropyl)-, 4263*c*.
**$C_{12}H_{16}N_2O_2$** 2-Imidazolidone, 3-ethyl-4-(*p*-methoxyphenyl)-, 6176*i*.
1,4 - Naphthoquinone, 4a,5,8,8a - tetrahydro - 6,7 - dimethyl-, dioxime, 1756*h*.
1 - Naphthylamine, 5,6,7,8 - tetrahydro-*N*, *N* - dimethyl - 4 - nitro-, 617*a*.
Oxamide, *N*, *N* - diethyl - *N′* - phenyl-, 1022*d*.
Piperidine, 1-(4-nitro-*m*-tolyl)-, 594*h*.
Propionimidic acid, β-benzamido-, Et ester, - *HCl*, P 673*a*.
Urea, α-phenylisovaleryl-, 2169*e*.
—, (α-phenylvaleryl)-, 2169*e*.
**$C_{12}H_{16}N_2O_3S$** Hydantoin, 1-(1-methylbutyl)-5-(2-thienyl)-, 3426*f*.
Sulfanilamide, $N^1$ - 2 - cyclohexen - 1-yl-, 1028*c*.
**$C_{12}H_{16}N_2O_3S_2$** $\Delta^{3,7}$ - Thiazolidinecrotonic acid, α - cyano - 3 - methyl - β - methylmercapto-, Et ester, P 7840*h*.
**$C_{12}H_{16}N_2O_3$** (See also *Evipal*.)
Acetamide, α - (*N* - 2 - hydroxyethyl-acetamido) - α - phenyl-, 2271*a*.
Acetoacetic acid, α,α-bis(2-cyanoethyl)-, Et ester, 2582*g*.
*p* - Acetotoluidide, α - (2 - hydroxyethylcarbamyl)-, 3362*b*.
Alanine, phenyl-*N*-sarcosyl-, 9114*b*.
Barbituric acid, 5-(cycloheptenyl)-5-methyl-, P 5038*i*.
Benzamide, *N*-amylnitro-, 1145*b*, 1896*b*, 2357*h*.
Carbamic acid, [α-(carbamylmethyl)-benzyl]-, Et ester, 236*c*, 3822*c*, 6597*h*.
Nicotinic acid, 2-(4-morpholinyl)ethyl ester, P 5809*d*, P 7973*b*.
Phanodorm, 1077*b*, 8612*de*, 9375*a*.
**$C_{12}H_{16}N_2O_3S$** Crotonamide, α,β-dimethyl-*N*-sulfanilyl-, P 6233*e*, P 7961*adh*, P 7962*b*; *Ca salt*, P 7647*h*.
**$C_{12}H_{16}N_2O_4$** Adipic acid, α,δ-dicyano-, di-Et ester, P 9475*i*, P 9476*a*.
β - Alanine, *N* - *p* - phenetylcarbamyl-, 168*h*.
Benzoic acid, *p* - (2 - nitroisobutylamino)-, Me ester, 6183*f*.
Glucose, 3,6-anhydro-, phenylhydrazone, 1726*f*.
**$C_{12}H_{16}N_2O_4S$** Anthranilic acid, 5-(1-piperidylsulfonyl)-, P 7710*b*.
Pseudourea, 2-benzyl-2-thio-, compd. with succinic acid, 3792*a*.
**$C_{12}H_{16}N_2O_5$** Arabinose, benzoylhydrazone, 1323*i*.
Cyclopentanecarboxylic acid, 2-(hexahydro - 2,4,6 - trioxo - 5 - pyrimidyl)-, Et ester, P 1800*d*.
Epinose, phenylhydrazone, 149*d*.
Inosose, phenylhydrazone, 153*f*.
Phenetole, 2-*tert*-butyl-4,6-dinitro-, P 8400*h*.
1(2*H*) - Pyrimidineacetic acid, 5 - allyl-3,4,5,6 - tetrahydro - 5 - methyl-2,4,6 - trioxo-, Et ester, 9258*a*.
**$C_{12}H_{16}N_2O_5S$** Butyramide, β,β-dimethyl-*N*-(*p*-nitrophenylsulfonyl)-, P 7960*h*.
**$C_{12}H_{16}N_2O_6$** Aspartic acid, *N*-[3-hydroxy-5-(hydroxymethyl) - 2 - methyl - 4-pyridylmethyl]-, 644*g*, 723*b*.
**$C_{12}H_{16}N_2S$** Benzothiazole, 2 - isobutylamino 4-methyl-, 1766*i*.
Isovaleronitrile, α - amino - β - (benzylmercapto)-, - *HCl*, P 4088*f*.
**$C_{12}H_{16}N_2S_2$** 1,3,5,2*H* - Thiadiazine 2-thione, tetrahydro - 3 - phenyl 5-propyl-, 4415*b*.
**$C_{12}H_{16}N_2O_4PS_2$** Phosphinic acid, [1 (*p* 2-thiazolylsulfamylanilino)isopropyl]-, 5378*c*.
**$C_{12}H_{16}N_4O_2$** Oxalic acid, 2-butylidenehydrazide 2-phenylhydrazide, 6972*b*, 2-(*sec*-butylidene hydrazide 2 phenylhydrazide, 6972*c*; 2-isobutylidenehydrazide 2-phenylhydrazide, 6972*b*
**$C_{12}H_{16}N_4O_2S$** 3 - Thiophenecarboxylic acid, tetrahydro - 4 - (3 - phenylureido) , hydrazide, P 1065*i*, P 6671*b*.
**$C_{12}H_{16}N_4O_3S$** Acetanilide, *p*-[(allylguanyl)-sulfamyl] , P 5802*d*.
**$C_{12}H_{16}N_4O_4$** Caproaldehyde, 2,4-dinitrophenylhydrazone, 1447*c*, 7417*g*.
Lactamide, *N* - [1 - (2,3 - dihydroxypropyl) - 1*H* - benzotriazol - 6 - yl)-, P 3626*c*.
Valeric acid, azobis[cyano-, 3354*h*.
**$C_{12}H_{16}N_4O_4S$** 2 - Butanone, 4 - (ethylmercapto)-, 2,4 - dinitrophenylhydrazone, 7434*b*.
**$C_{12}H_{16}N_4O_5$** 2-Butanone, ethoxy-, dinitrophenylhydrazone, 1338*i*, 6157*f*.
Butyraldehyde, α-ethoxy-, 2,4-dinitrophenylhydrazone, 2158*f*.
**$C_{12}H_{16}N_4O_8S$** Formamide, *N*, *N*-diethyl-α-[(*p* - nitrophenylsulfonyl)guanyl]-, P 6660*i*.
**$C_{12}H_{16}N_4O_8$** Lysine, (2,4-dinitrophenyl)-, 575*e*, 9457*d*.
Xanthosine, 1,3-dimethyl-, 4635*a*.
**$C_{12}H_{16}N_4O_8P_2S$** Diamidophosphoric acid, *N*, *N″* - (sulfonyldi - *p* - phenylene)-bis-, P 6233*c*.
**$C_{12}H_{16}N_4O_2$** Cyclopentanemethanol, 1-amino-, picrate, 572*i*.
**$C_{12}H_{16}N_4O_9$** β-Alanine, *N*-methyl-, Et ester, picrate, 575*i*.
**$C_{12}H_{16}N_6$** Biguanide, 1-(*p*-cyanophenyl) 5-isopropyl-, - *HCl*, 2947*g*, 7905*e*.
*s* - Triazine, 2,4 - diamino - 6 - (2 - benzylaminoethyl)-, P 5052*c*.
**$C_{12}H_{16}N_6O_2$** Benzene, *o*-diacetyl-, disemicarbazone, 1030*i*.
1*H* - Tetrazole, 5 - (diethylaminomethyl)-1-(nitrophenyl)-, 1864*g*, P 7972*b*.
**$C_{12}H_{16}O$** (See also *Cyclohexanol, phenyl-*; *Phenol, cyclohexyl-*.)

Acetophenone, *o*-butyl-, 7416*c*.
—, diethyl-, 8367*d*.
—, 5-isopropyl-2-methyl-, 6595*f*.
Anisole, *p*-cyclopentyl-, 2971*a*.
—, *o*-(1-ethylpropenyl)-, 5392*i*.
2 - Butanone, 3 - methyl - 4 - *p* - tolyl-, 5763*d*.
Butyrophenone, 2,5-dimethyl-, 6990*g*.
Ether, cyclohexyl phenyl, 6178*h*.
—, *α* - ethylcinnamyl methyl, 1021*e*.
—, ethyl *α*-methylcinnamyl, 1020*c*.
3-Hexanone, phenyl-, 118*i*, 2590*a*.
Hexenynol, (1-cyclohexen-1-yl)-, 8360*k*, 8361*a*.
Isovalerophenone, *p*-methyl-, 2601*b*.
Naphthalene-ethanol, 1,2,3,4-tetrahydro-, 2183*a*, 6609*f*.
2 - Naphthalenemethanol, 5,6,7,8 - tetrahydro-*α*-methyl-, 4659*c*.
2 - Naphthol, 1 - ethyl - 1,2,3,4 - tetrahydro-, 2363*c*.
2 - Pentanone, methyl - 4 - phenyl-, 5762*bc*.
—, 4-*p*-tolyl-, 5762*c*.
2 - Penten - 4 - yn - 1 - ol, 5 - (1 - cyclohexen-1-yl)-3-methyl-, 1336*i*.
Phenol, *p*-1-methylcyclopentyl-, 2171*h*.

$C_{13}H_{16}OS$ Isobutyrophenone, 5-methyl-2-methylmercapto-, 7174*i*.
Thianaphthene, 3 - ethoxy - 2,3 - dihydro-3,5-dimethyl-, 7475*b*.
—, 3 - ethyl - 2,3 - dihydro - 3 - methoxy-5-methyl-, 7475*d*.

$C_{13}H_{16}O_2$ Acetic acid, phenyl-, Bu ester, 2591*d*, 6162*d*, 7418*e*.
Acetophenone, 2 - methyl - 4 - propoxy-, 3825*f*.
Anisaldehyde, 3-*tert*-butyl-, P 1063*f*, P 8100*g*.
Benzoic acid, *p*-amyl-, 2603*b*.
—, pentamethyl-, 2964*b*.
—, 2,3,5,6 - tetramethyl-, Me ester, 1619*e*.
2 - Butanone, 4 - (*p* - methoxyphenyl) - 3-methyl-, 5762*g*.
3 - Buten - 2 - ol, 1 - ethoxy - 2 - phenyl, 2571*b*, 7413*i*.
Butyric acid, phenethyl ester, 9375*e*.
Butyrophenone, 4 - methoxymethyl-, 3825*d*, 3826*a*.
1,3 - Cyclohexadiene - 1 - acrylic acid, 6 methyl-, Et ester, 5377*c*.
1,4 - Cyclohexadiene - 1 - carboxylic acid, 4-isopropenyl-, Et ester, 3797*d*.
Hydrocinnamic acid, Pr ester, 2591*d*.
—, *o* methyl, Et ester, 5377*c*.
—, *p*,*β*,*β*-trimethyl-, 5762*f*, 7917*e*.
Isobutyric acid, phenethyl ester, 5150*f*.
Naphthalene, 1,2,3,4 - tetrahydro - 1,4-dimethoxy-, 2612*e*.
2 - Pentanone, 3 - benzyl - 4 - hydroxy-, 5744*h*.
Phenethyl alcohol, 2,5-dimethyl-, acetate, 2182*g*.
Propiophenone, 4 - ethoxy - 3 - methyl-, 3825*e*.
—, methoxydimethyl-, 7924*eg*.
Valerophenone, *α* - (hydroxymethyl)-, 1757*l*.

$C_{13}H_{16}O_2S$ Acetic acid, (cuminylmercapto)-, 3365*c*.
Acetic acid, (3-phenylpropylmercapto)-, Me ester, 3365*d*.
—, (2,4,6 - trimethylbenzylmercapto)-, 3365*c*.
1,3 - Octanedione, 1 (2 - thienyl)-, 629*h*.
Propionic acid, *β* (benzylmercapto)-, Et ester, 1321*c*.
Sulfone, cyclohexyl phenyl, 7411*b*.
—, 1 - methylcyclopentyl phenyl, 2171*l*.
2 - Thiopheneacrylic acid, 5 - propyl-, Et ester, 9064*b*.
Thiophene, 2,5 - bis(3 - oxobutyl)-, 630*f*.

$C_{13}H_{16}O_3$ Acetic acid, butoxyphenyl-, *and Bi salt*, 2488*i*.
Acetic acid, (*o*-*tert*-butylphenoxy)-, 6998*g*.
—, (6 - methoxy - *m* - tolyl)-, Et ester, 1385*b*.
—, (4 propyl-*m*-toloxy)-, 3385*h*.
Bicyclo[4.3.1] - 7 - decene - 1 - carboxylic acid, 7-methyl-10-oxo-, 7908*c*.
2 - Butanone, (dimethoxyphenyl)-, 2185*f*, 8384*g*.
2 - Buten - 1 - one, 1 - (4 - hydroxy - 3-cyclohexen - 1 - yl) - 3 - methyl-, formate, 2958*a*.
Butyric acid, *p*-methoxybenzyl ester, 9375*e*.
Cymeneglycolic acid, 188*c*, 5015*c*.
*m* - Dioxane, 4 - (*p* - methoxyphenyl) - 5-methyl-, 5150*f*.
Hydrocinnamic acid, *β* - hydroxy - *β*-methyl-, Et ester, 5026*f*.
—, *p* - methoxy - *α*,*α* - dimethyl-, 5762*h*.
Methanol, butoxy-, benzoate, 6162*b*.
1,3 - Octanedione, 1 - (2 - furyl)-, 1253*h*.
1,2 - Propanediol, 3 - (*p* - allylphenoxy)-, 311*i*.
Propiophenone, 2,3 - dimethoxy - 5-methyl-, 185*i*.
Salicylic acid, 5-amyl-, 1032*i*.

$C_{13}H_{16}O_3S$ Acetic acid, (3-phenoxypropylmercapto)-, Me ester, 3305*d*.
Benzenesulfonic acid, cyclohexyl-, *salts*, 2957*g*.
2 - Thiopheneacproic acid, *ε* - oxo-, Et ester, 3817*g*.
2 - Thiophenecaprylic acid, *η*-oxo-, 3817*g*.

$C_{13}H_{16}O_4$ Acetic acid, benzoyl, Me ester di-Me acetal, 6168*h*.
Acetic acid, (2,5 - dimethoxyphenyl)-, Et ester, 6599*i*.
Acetophenone, 2,4-diethoxy-6-hydroxy-, 5397*g*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboxylic acid, Et Me ester, P 7633*f*.
Butyrophenone, 2 - hydroxy - 4,5 - dimethoxy, 7461*d*.
2 - Cyclohexene - 1,2 - dicarboxylic acid, 5-methyl 6-propenyl-, 580*i*.
Fumaric acid, bis(2-methylallyl) ester, P 4891*b*.
Homoveratric acid, Et ester, 7451*c*.
1,2 - Propanediol, 3 - (*o* - allyloxyphenoxy)-, 311*i*.
2 - Propanone, 1 - ethoxy - 3 - (*o* - methoxyphenoxy)-, P 6235*f*.
Propiophenone, (2,3 - dihydroxypropoxy)-, 312*a*.
Salicylic acid, 3-methoxy-, Bu ester, 4242*b*, 7455*h*, iso Bu ester, 4242*b*, 7455*h*
Tricyclo[4.2.2.0$^{2,5}$]decane - 7,8 - dicarboxylic acid, 6198*h*, 6199*a*.

$C_{13}H_{16}O_4S$ Propionic acid, *β*-(benzylsulfonyl)-, Et ester, 1321*c*.

$C_{13}H_{16}O_5$ Acetophenone, 2,4 - diethoxy-3,6-dihydroxy-, 5307*h*.
Benzoic acid, (2,3-dihydroxypropoxy)-, Et ester, 312*a*, P 2233*g*, 5655*e*.
Camphoric anhydride, 5 hydroxy-, acetate, 5381*h*.
Caproic acid, 5 hydroxy-4 oxo-4 *H* pyran-2-ylmethyl ester, 8385*g*.
Compd., b$_{0.002}$ 175-80°, 7017*g*.
Hydrocinnamic acid, 3,4,5 trimethoxy-, 190*g*
*γ* - Resorcylic acid, 4 - (2 hydroxy 1 methylpropyl) - 3 - methyl, 6206*b*
Salicylic acid, 3-methoxy-, 2 ethoxyethyl ester, 4242*c*, 7455*h*.
Vanillic acid, 2 ethoxyethyl ester, 4241*i*.

$C_{13}H_{16}O_5S$ Glycolic acid, Bu ester, benzenesulfonate, 2942*f*.

$C_{13}H_{16}O_6$ 1,2-Cyclohexanedicarboxylic acid, 2,6-dioxo-, di-Et ester, 1008*f*.
1,3 - Cyclopentanedicarboxylic acid, methyl - 1,5 - dioxo-, di - Et ester, 6987*i*, 6988*a*.
3 - Cyclopentene - 1,3 - dicarboxylic acid, 4 - hydroxy - 1 - methyl - 5 - oxo-, di Et ester, 6988*a*.
3 - Furoic acid, 2 - methyl - 5 - (1,2,3,4-tetrahydroxybutyl)-, anhydro deriv., Et ester, 4664*g*.
Galactopyranoside, phenyl, 1327*b*.
Glucoside, phenyl, 3364*c*.
Ketone, m. 116 17°, 3822*i*.
Oxalacetic acid, (1 - hydroxybutyl)-, *γ*-lactone Et ester, acetate, 4221*g*.

$C_{13}H_{16}O_7$ (See also *Arbutin*)
Diglycolic acid, monoallyl ester, ester with allyl glycolate, P 7754*d*.
Galactal<1,5>, 3,4,6-triacetate, 1727*b*.
2 - Hexenoic acid, 4,4,5 - trihydroxy - 3-methoxy - 5 - methyl-, *γ* - lactone, diacetate, 1722*b*.

$C_{13}H_{16}O_8$ Compd., m. 146.5°, 4219*c*.

$(C_{13}H_{16}O_8)_n$ Starch, triacetate, 7902*a*.

$C_{13}H_{16}S$ Sulfide, cyclohexyl phenyl, 7410*d*.
Sulfide, 1-methylcyclopentyl phenyl, 2171*i*.

$C_{13}H_{17}AsO_5$ Caproic acid, *ε*-(*p*-arsonophenyl)-, 4237*c*.

$C_{13}H_{17}Br$ Toluene, *p*-(3-bromo-1,1-dimethylpropyl)-, 5762*f*.

$C_{13}H_{18}BrClN_2$ Biguanide, 5-(bromochlorophenyl) - 1 - isopropyl - 1 - methyl-, - *HCl*, P 1060*d*, P 6228*fg*.
Biguanide, 5 - (bromochlorophenyl) - 1-methyl-1-propyl-, - *HCl*, P 1060*c*, P

$C_{13}H_{17}BrIN_5$ Biguanide, 5-(3-bromo-4-iodophenyl) - 1 - isopropyl - 1 - methyl-, - *HCl*, P 6228*h*.
Biguanide, 5 - (3 - bromo - 4 - iodophenyl) - 1 - methyl - 1 - propyl-, - *HCl*, P 6228*h*.

$C_{13}H_{17}BrN_2O$ Urea, 1-(4-bromo-*o*-tolyl)-1-butyl-, P 2220*c*.

$C_{13}H_{17}BrN_2O_2$ See *Sigmodal*.

$C_{13}H_{17}BrN_2O_4$ Talomethylose, *p*-bromophenylhydrazone, 1729*b*.

$C_{13}H_{17}BrO_3$ 1,2 - Propanediol, 3 - (bromopropylphenoxy)-, 312*a*.

$C_{13}H_{17}Br_2N_5$ Biguanide, 5 - (3,4 - dibromophenyl) - 1 - isopropyl - 1 - methyl-, - *HCl*, P 6228*h*.
Biguanide, 5 - (3,4 - dibromophenyl) - 1-methyl - 1 - propyl-, - *HCl*, P 6228*h*.

$C_{13}H_{17}Cl$ Toluene, amyl-*α*-chloro-, 1242*d*.

$C_{13}H_{17}ClIN_5$ Biguanide, 5-(3-chloro-4-iodophenyl) - 1 - isopropyl - 1 - methyl, - *HCl*, P 1060*d*, P 6228*f*.
Biguanide, 5 - (3 - chloro - 4 - iodophenyl) - 1 - methyl - 1 - propyl-, - *HCl*, P 6228*g*.

$C_{13}H_{17}ClN_7O_8$ 1 - Methyl - 2 - [2 - (4 - morpholinyl)vinyl]pyridinium perchlorate, P 2642*h*

$C_{13}H_{17}ClN_4OS$ See "B$_1$" under *Vitamins*

$C_{13}H_{17}ClN_4S$ Pseudourea, 1-(*p*-chlorophenyl)-3 - (*N*, *N* - dimethylguanyl) - 2 - ethyl-2-thio-, - *HBr*, 2948*i*.
Pseudourea, 3 - (*p* - chlorophenylguanyl)-1 - isopropyl - 2 - methyl - 2 - thio-, 2950*b*.
Urea, 1 - butyl - 3 - (*p* - chlorophenylguanyl) - 2 - thio-, *and* - *HCl*, 2949*h*.
—, 1 - (butylguanyl) - 3 - (*p* - chlorophenyl) 2 thio-, 2948*g*.
—, 1 - (*p* - chlorophenyl) - 3 - (*N* - isopropyl - *N'* - methylguanyl) - 2-thio-, 9039*d*.
—, 1 - [*N* - (*p* - chlorophenyl) - *N'*-methylguanyl] - 3 isopropyl - 2-thio-, *and* - *HCl*, 9039*b*.

$C_{13}H_{17}ClO$ Anisole, 3 (1-chloropropyl)-2-ethyl-, 197*g*.

$C_{13}H_{17}ClOS$ 2 - Thiophenecaprylyl chloride, 3817*h*.

$C_{13}H_{17}ClO_3$ 1,2 - Propanediol, 3 - (chloropropylphenoxy)-, 312*a*.

$C_{13}H_{17}ClO_4S$ (2 - Acetyl - *p* - tolyl)ethylmethylsulfonium perchlorate, 7475*b*.

$C_{13}H_{17}Cl_2N$ Phenethylamine, *N*, *N*-bis(2-chloroethyl)-, - *HCl*, 4381*c*.
Phenethylamine, *β* - chloro - *N* - (2-chloroethyl)-*N*,*α*-dimethyl-, 5505*d*.

$C_{13}H_{17}Cl_2N_5$ Biguanide, 1-butyl-5-(2,4-dichlorophenyl)-, - *HCl*, 7905*f*.
Biguanide, 5 - (3,4 - dichlorophenyl) 1,1-diethyl-, - *HCl*, P 6228*e*.
—, (3,4 - dichlorophenyl)isopropylmethyl-, - *HCl*, P 6228*ei*.
—, 1 - (2,4 - dichlorophenyl) - 5 - (methylpropyl)-, 5868*c*.
—, 5 - (3,4 - dichlorophenyl) - 1 - methyl-1-propyl-, - *HCl* (omitted from abstr.), P 6227*h*.

$C_{13}H_{17}Cl_3O_3$ Acetic acid, trichloro-, 11 oxabicyclo[4.4.1]hendec - 1 - yl ester, 6189*c*.

$C_{13}H_{17}FN_4O_7$ Triethylamine, 2-fluoro-, picrate, 6164*a*.

$C_{13}H_{17}IN_2O$ Acetanilide, *α*-diethylaminoiodo-, *and salts*, 1022*b*.

$C_{13}H_{17}IN_2O_4$ Galactose, 6-desoxy-6-iodo-, phenylhydrazone, 1801.

$C_{13}H_{17}N$ Cyclopentylamine, 1-benzyl-, 9047*e*.
2 - Naphthaleneethylamine, 5,6,7,8-tetrahydro-, 8390*h*.
Propylamine, 3-mesityl-, 8559*c*.

$C_{13}H_{17}NO$ Acetamide, *N*-*tert*-butyl-*α*-phenyl-, 2165*c*.
Acetamide, *N* - *p*,*α*,*α* - trimethylbenzyl-, 2165*h*.
Acetanilide, 2,3,5,6-tetramethyl-, 1619*e*.
1 - Azabicyclo[3.3.1] - 3,6 - nonadiene, 3 - acetyl - 4,5 - dimethyl-, *and perchlorate*, 3003*h*.
Benzamide, *N*-amyl-, P 351*e*.
—, *N*-*tert*-amyl-, 2165*e*.
—, *p*-butyl *N*-methyl-, 7004*s*.
1 - Butanone, 1 - (4 - propyl - 3 - pyridyl)-, 643*e*.
Butyramide, *α*,*α*-dimethyl-*γ*-phenyl-, P 5800*h*.
Furfurylamine, tetrahydro - 5 - methyl-*N*-phenyl, 5735*i*.
Hydrocinnamamide, *α*-propyl-, 1744*b*.
1 - Indanol, 2 - (dimethylaminomethyl)-, P 1440*h*.
Isobutyrophenone, *β* - dimethylamino-, - *HCl*, 1757*f*.
Isoquinoline, 1 - (ethoxymethyl) - 1,2,3,4-tetrahydro-, *and* - *HCl*, 3408*b*.

Isovalerophenone, *p*-methyl-, oxime, 2601*b*.
2-Pentanone, 4-*p*-tolyl-, oxime, 5762*e*.
Phenol, 4-amino-2-cyclohexyl-, - *HCl*, 1372*b*.
3 - Piperidinol, 1 - methyl - 3 - phenyl-, *and* - *HCl*, 4275*a*.
Tolualdehyde, 4-diethylamino, P 2232*i*, P 2233*a*.

**$C_{12}H_{17}NO_2$** Acetamide, *N*-(2-ethoxyethyl)-*α*-phenyl-, 2269*i*.
Acetamide, *α* - ethoxy - *N* - phenethyl-, 3408*a*.
—, *N* - ethyl - *N* - 2 - hydroxyethyl - *α*-phenyl-, 2270*i*.
—, *N* - 2 - hydroxybutyl - *α* - phenyl-, 2270*i*, P 3574*e*, P 4697*g*.
—, *N* - 2 - hydroxy - *tert* - butyl - *α*-phenyl-, 2270*i*.
—, *N* - 2 - hydroxyethyl - *α* - 3,4 - xylyl-, 3362*c*.
—, *N* - (2 - hydroxyisobutyl) - *α* - phenyl-, 2269*i*.
—, *N* - [1 - (hydroxymethyl)propyl] - *α*-phenyl-, 2270*i*.
Acetanilide, 4 - hydroxy - 2,3,5,6 - tetramethyl-, 180*g*.
*p* - Acetanisidide, trimethyl-, 180*ef*.
Acetophenone, *α* - [ethyl(2 - hydroxyethyl)amino]-, *and* - *HCl*, 4239*g*
*β* - Alanine, *N* - benzyl-, Et ester, 9034*d*, *and* - *HCl*, 576*a*.
Alanine, *N*-isopropyl-*β*-phenyl-, 6979*e*.
—, *β*-phenyl-*N*-propyl-, 6979*d*.
Benzamide, *N*-(2-hydroxyamyl)-, 2926*i*.
Butyramide, *N* - 2 - hydroxyethyl - *γ*-phenyl-, 2269*g*.
—, *γ* - (*p* - methoxyphenyl) - *α* - methyl-, 1744*a*.
Caproic acid, *ε*-(*p*-aminophenyl)-, 9047*c*.
Carbanilic acid, *p*-methyl-, *tert*-Bu ester, 578*i*.
Cyclohexanepropionitrile, 2 - oxo - 1-propionyl-, P 7040*g*.
1 - Cyclohexene - 1 - acetic acid, *α* - cyano-*α*-methyl-, Et ester, 3798*a*.
4 - Cyclohexene - 1,2 - dicarboximide, *N*-butyl-, P 4421*g*, 5150*f*.
Cyclopentanepropionitrile, 1 - butyryl - 2-oxo-, P 7040*h*.
Hydrocinnamamide, *N*-2-hydroxyethyl-*β*-methyl-, 2273*g*.
—, *p*-methoxy-*α*,*α*-dimethyl-, P 5800*f*.
Leucine, *N*-phenyl-, 6979*e*.
2 - Morpholinol, 4 - ethyl - 2 - phenyl-, *and* - *HCl*, 4230*eh*.
3 - Piperidinol, 5 - methoxy - 1 - phenyl-, 2209*a*.
3,4 - Quinolinediol, 1,2,3,4 - tetrahydro-2,2,4-trimethyl-, P 862*d*.

**$C_{12}H_{17}NO_2S$** Acetamide, *N*-2-hydroxyethyl-*α* - phenethylmercapto-, 3365*f*.
3 - Thiophenine, tetrahydro - *N* - phenethyl-, 1,1-dioxide, - *HCl*, 2988*g*.
Valine, *β*-(benzylmercapto)-, P 4687*g*, P 4688*f*.
—, *β* - mercapto-, benzyl ester, - *HCl*, P 7039*g*.

**$C_{12}H_{17}NO_3$** Acetamide, *N*, *N*-bis(2-hydroxyethyl)-*α*-phenyl-, 2270*i*.
Acetamide, *N* - 2 - hydroxyethyl - *α*-*p*-phenetyl-, 3362*c*.
—, *N* - 2 - hydroxyethyl - *α* - 3,4 - xylyloxy-, 3364*g*.
Acetanilide, *N* - ethyl - 3,4 - dimethoxy-, 2177*f*.
Acetophenone, *α* - butylamino - 3,4 - dihydroxy-, - *HCl*, 3388*d*.
—, *α* - *sec* - butylamino - 3,4 - dihydroxy-, - *HCl*, 3388*d*.
—, *α* - *tert* - butyl - 3,4 - dihydroxy-, - *HCl*, 3388*d*.
—, 3,4 - dihydroxy - *α* - isobutylamino-, - *HCl*, 3388*d*.
*β* - Alanine, *N* - 2 - hydroxyethyl - *N*-phenyl-, Me ester, P 9462*d*.
Butyramide, *N* - 2 - hydroxyethyl - *γ*-phenoxy-, 2273*g*.
Carbamic acid, diethyl-, *m*-methoxyphenyl ester, P 252*a*.
Coumalamide, *N*, *N* - diethyl - 4,6 - dimethyl-, P 821*h*.
Cyclohexanecarboxylic acid, 1 - (2 - cyanoethyl) - 2 - oxo-, Et ester, 1012*i*.
Formanilide, 4 - ethoxy - *N* - ethyl - 3-methoxy-, 2177*g*.
1 - Pentanol, 2 - benzyl - 2 - nitro-, P 3038*c*.
1,2 - Propanediol, 3 - (1,2,3,4 - tetrahydro-8-quinolyloxy)-, 311*i*.
Tyrosine, trimethylbetaine, 6596*i*.

**$C_{12}H_{17}NO_2S$** Acetanilide, *p*-(butylsulfonyl)-, 2593*e*.
Butyramide, *N* - [*p* - (methylsulfonyl)-benzyl]-, 8539*e*.

**$C_{12}H_{17}NO_4$** Acetanilide, *p*-(2,3-dihydroxyisobutoxy)-, 312*b*, P 5421*c*.
Benzamide, 3,4,5 - trimethoxy - *N*, *N*-dimethyl-, 121*h*.
Homoveratramide, *N* - 2 - hydroxyethyl-, 3362*c*.
*o* - Homoveratramide, *N* - 2 - hydroxyethyl-, 3362*c*.
Propionanilide, *p* - (2,3 - dihydroxypropoxy)-, 311*h*, 5655*e*.
2,3 - Pyrroledicarboxylic acid, 4,5 - dimethyl-, di-Et ester, 623*d*.

**$C_{12}H_{17}NO_4S$** Alanine, *N*-*p*-tolylsulfonyl-, Et ester, 2943*e*.
Valine, *N*-(benzylsulfonyl)-, 2273*d*.

**$C_{12}H_{17}NO_5$** Alanine, *β*-[*p* (2,3-dihydroxypropoxy)phenyl]-, 311*h*.
Fructosanilide, 7906*c*.
Galactosanilide, 7906*c*.
Glucosanilide, 7906*c*.

**$C_{12}H_{17}NO_5S$** Pyrrolo[2,1 - *b*]thiazole - 3,6-dicarboxylic acid, hexahydro - 2,2-dimethyl - 5 - oxo-, 6 - Et ester, *and* *Na salt*, 7933*d*.

**$C_{12}H_{17}NS$** Acetamide, *N*-methyl-*α*-phenyl-*N*-propylthio-, 3362*e*.

**$C_{12}H_{17}NS_2$** Imidocarbonic acid, phenyldithio-, Am ester, P 4998*h*.

**$C_{12}H_{17}N_2NaO_3S$** Barbituric acid, 5-allyl-5-(1-methylbutyl) - 2 - thio-, Na deriv., 1483*i*, 4768*ef*.

**$C_{12}H_{17}N_2NaO_3$** See *Seconal sodium*.

**$C_{12}H_{17}N_3$** Benzimidazole, 2-(diethylaminomethyl)-, 1055*e*.
Benzimidazole, 1 - (2 - dimethylaminoethyl)-2 methyl-, *and di* - *HCl*, 7021*i*.
2 - Imidazoline, 2 - (3 - anilinopropyl)-, *and* - *HCl*, P 6240*e*.
—, 2 - (2,4 - dimethylanilinomethyl)-, - *HCl*, P 6240*d*.
—, 1 - methyl - 2 - (*N* - methylanilinomethyl)-, *HCl*, P 6240*e*.
Pyrimidine, 2 - benzylamino - 1,4,5,6-tetrahydromethyl-, 4273*d*.

**$C_{12}H_{17}N_3O$** Benzaldehyde, *p*-*sec*-butyl-, semicarbazone, 3356*d*.
2 - Butanone, 3 - methyl - 4 - phenyl-, semicarbazone, 5762*a*.
3 - Buten - 2 - one, 4 - (6 - methyl - 1,3 cyclohexadien - 1 - yl)-, semicarbazone, 8360*f*.
Butyrophenone, *p*-methyl-, semicarbazone, 2601*b*
*p* - Cymenecarboxaldehyde, semicarbazone, 5015*b*.
Hydratropaldehyde, *p*,*α* - dimethyl-, semicarbazone, 7917*b*.
2-Pentanone, phenyl-, semicarbazone, 2932*b*, 5762*b*.
Propiophenone, 2,5-dimethyl-, semicarbazone, 6990*g*.

**$C_{12}H_{17}N_3O_2$** Acetophenone, 4 - ethoxy - 3-methyl-, semicarbazone, 3825*e*
Acetophenone, methoxydimethyl , semicarbazone, 7924*eg*.
Butyrophenone, *α*-methoxy-, semicarbazone, 6974*i*.
*o* - Phenylenediamine, *N*¹ - cyclohexyl-4-nitro-, 3799*a*.

**$C_{12}H_{17}N_3O_2$** Acetanilide, *α* - diethylaminonitro-, *and* - *HCl*, 1024*b*.
2 - Propanone, 1 - (3,5 - dimethoxyphenyl)-, semicarbazone, 8384*f*.

**$C_{12}H_{17}N_3O_3$** Acetophenone, 6-hydroxy-2,3,4-trimethoxy-, semicarbazone, 1773*e*.
Asparagine, *N*$^{\alpha}$ - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-, 644*g*, 723*h*.
Glycine, *N* - (1,4 - diacetyl - 5 - oxo - 2-piperazylidene) , Et ester, 3789*d*.

**$C_{12}H_{17}N_3O_3S$** Urea, 1-isoamyl-3-(*p*-nitrophenylsulfonyl)-, P 2377*a*.

**$C_{12}H_{17}N_5$** Guanidine, 1-isopropyl 3-(5-methyl-2 - benzimidazolyl)-, *di* *HCl*, 1405*g*
1*H* - Tetrazole, 5 - (diethylaminomethyl)-1-phenyl-, 1864*h*, *and* *HCl*, P 7971*i*.
—, 5 - (isobutylaminomethyl) - 1 - phenyl-, - *HCl*, P 7972*b*.

**$C_{12}H_{17}N_5O$** 1 - Butanol, 2 - [(1 - phenyl - 1*H*-tetrazol-5-yl)methylamino]-, 1864*i*, P 7972*c*.
Guanidine, 1 - isopropyl - 3 - (5 - methoxy - 2 - benzimidazolyl)-, *and di*- *HCl*, 1405*f*.
Phenol, *p* - [5 - (diethylaminomethyl)-1*H* - tetrazol - 1 - yl]-, 1864*g*, - *HCl*, P 7972*d*.

**$C_{12}H_{17}N_5O_2$** Benzoic acid, *m*-[3-(isopropylguanyl)guanidino]-, - *HCl*, 2947*g*.

**$C_{12}H_{17}N_5O_4$** Adenosine, 1, $N_3$-dimethyl-, 4634*i*.

**$C_{12}H_{17}N_5O_5$** Guanosine, $N^2$,1-dimethyl-, - *HCl*, 4635*a*.

**$C_{12}H_{17}N_5O_5S$** + $H_2O$ Adenine, 9-D-glucopyranosido-2-(methylmercapto)-, 146*e*.

**$C_{12}H_{18}$** Benzene, hexamethyl-, P 680*a*, 3678*h*, 4086*d*.
Benzene, triethyl-, 165*d*, 1895*e*, 4638*f*.
3,7 - Decadien - 5 - yne, 4,7 - dimethyl-, 1333*b*.
Fulvene, 6,6-dipropyl-, 5370*h*.
Hexane, 1-phenyl-, 10*e*, 2174*h*, 2589*f*, 6990*i*.
Toluene, *p*-amyl-, P 7507*h*.
—, *p*-*tert*-amyl-, 5762*f*.
Xylene, butyl , 6990*h*.
—, *tert*-butyl , 8139*g*.

**$C_{12}H_{18}AsNO_5$** Benzenearsonous acid, 3-amino - 4 - hydroxy-, *N* - glucosyl deriv., *and* *its* *NaHSO₃* *compd* , 599*a*.

**$C_{12}H_{18}AsN_3O_4S_2$** Benzenearsonous acid, 3 amino - 4 - (2 - hydroxyethoxy)di thio-, bis(carbamylmethyl)ester, *and* - *HCl*, 599*b*.

**$C_{12}H_{18}Be_3O_{18}$** Beryllium acetate, 6033*c*.

**$C_{12}H_{18}BrNO$** 1 - Azabicyclo[3.3.1] - 3 - nonene, 7 - acetyl - 3 - bromo - 5,6 - dimethyl-, 3004*i*.

**$C_{12}H_{18}BrNO_2$** 1 - (1 - Carboxypropyl)pyridinium bromide, Pr ester, 6977*c*.

**$C_{12}H_{18}BrN_5$** (See also *Biguanide*, (*p-bromophenyl)isopropylmethyl-*.)
Biguanide, 1 - (*p* - bromophenyl) - 5-butyl-, - *HCl*, P 684*g*, 2951*a*, P 4692*i*, 9036*i*.
—, 1 - (*p* - bromophenyl) - 5 - *sec* - butyl , - *HCl*, P 684*g*, P 1060*c*, 9036*i*.
—, 1 - (*p* - bromophenyl) - 5 - *tert* - butyl , - *HCl*, 9036*i*.
—, 5 - (*p* - bromophenyl) - 1,1 - diethyl , P 4691*e*, P 6228*e*; *and* - *HCl*, 9036*i*.
—, 1 - (*p* - bromophenyl) - 5 - isobutyl , - *HCl*, P 4692*b*, 9036*i*.
—, 5 - (*p* - bromophenyl) - 1 - methyl - 1 propyl-, - *HCl*, P 6228*d*; *and* - *HCl*, 9037*a*

**$C_{12}H_{18}Br_2O_3$** Cyclohexanecaproic acid, 5,1-dibromo-ε oxo-, 587*g*.

**$C_{12}H_{18}ClNO$** 4 - Benzyl - 4 - methylmorpholinium chloride, 599*i*.

**$C_{12}H_{18}ClNO_2$** 1 - (Carboxymethyl)pyridinium chloride, Am ester, 6977*c*.
Choline, chloride benzoate, 8058*g*

**$C_{12}H_{18}ClNO_3$** (*α* - Carboxy - *p* - hydroxyphenethyl)trimethylammonium chloride, 6590*i*.

**$C_{12}H_{18}ClNO_3S_2$** Sulfilimine, *S*-(2 chloroethyl) *S* - 2 - methoxyethyl - *N* - *p* - tolylsulfonyl-, 2928*i*

**$C_{12}H_{18}ClN_3O$** Acetanilide, 2-amino-4-chloro *α* - diethylamino-, *and di* - *HCl*, 2902*h*

**$C_{12}H_{18}ClN_3O_2$** Ethylenediamine, *N'* - (5-chloro - 2 - nitrophenyl) - *N*, *N* - diethyl-, *and* - *HCl*, 3008*i*.

**$C_{12}H_{18}ClN_5$** (See also *Biguanide*, (*chlorophenyl)diethyl* ; *Biguanide*, (*chlorophenyl)isopropylmethyl-*; *Biguanide*, (*p* - *chlorophenyl*)*methylpropyl-* )
Biguanide, 1 - butyl - 5 - (*p* - chlorophenyl)-, - *HCl*, P 684*f*.
—, 1 - *tert* - butyl - 5 - (*p* - chlorophenyl) , - *HCl*, P 6659*g*.
—, 1 - *p* - chlorobenzyl - 5 - isopropyl-, *H* VO₃, 2946*g*.
—, 1 - (*p* - chlorophenyl) - 5 - isobutyl , *HCl*, P 6659*g*.
—, 2 - (*p* - chlorophenyl) - 1,1,5,5 - tetramethyl-, - *HCl*, 9039*i*.
—, 1 - (chlorotolyl) - 5 - isopropyl-, P 6228*i*, - *HCl*, P 684*b*, P 1060*c*, P 4691*d*

**$C_{12}H_{18}ClN_5O$** Biguanide, 1-(4-chloro-3-methoxyphenyl) - 5 - isopropyl- , - *HCl*, P 6228*i*.
Biguanide, 5 - (*p* - chlorophenyl) - 1 - (2-methoxyethyl) - 1 - methyl-, P 6659*i*

**$C_{12}H_{18}ClN_5O_2$** Biguanide, 1-(*p*-chlorophenyl)-5 ethyl-, acetate, P 684*e*.

**$C_{12}H_{18}Cl_2FeN_6$** + $3H_2O$, 922*g*.

**$C_{12}H_{18}Cl_2N_2O_6S$** Cystine, *N*, *N'*-bis(*α*-chloropropionyl)-, 1071*d*.

**$C_{12}H_{18}Cl_2N_2S_2$** 3,3' - Ethylenebis[2,4 - dimethylthiazolium chloride], P 3737*i*.

**$C_{12}H_{18}Cl_2N_4OS$** See "$B_1$" under *Vitamins*.

**$C_{12}H_{18}Cl_2O_2$** Acetic acid, dichloro-, compd with camphor, 6498*h*.

**$C_{12}H_{18}Cl_3N_3O_3$** *s* - Triazine, 1,3,5 - tris(*β*-chloropropionyl)hexahydro-, 657*e*, 5405*e*.

**$C_{12}H_{18}CuN_2O_8$** 2-Pentanone, 4,4'-(ethylenedinitrilo)di-, Cu deriv., 8222*c*.

**$C_{12}H_{18}F_2O_2$** Cyclobutene, 1,2-dibutoxy-3,3,-4,4-tetrafluoro-, 7418*g*.

**$C_{12}H_{18}INO$** 4 - Benzyl - 4 - methylmorpholinium iodide, 4376*c*.

$C_{12}H_{18}INO_2$ (2 - Hydroxyethyl)trimethylammonium iodide, benzoate, 1486*i*, 2191*c*.

$C_{12}H_{18}IN_5$ (See also *Biguanide, (p-iodophenyl)-isopropylmethyl-*.)
Biguanide, 1 - butyl - 5 - (*p* - iodophenyl)-, - *HCl*, P 1060*c*.
—, 5 - (*p* - iodophenyl) - 1 - methyl - 1-propyl-, - *HCl*, P 6228*e*.

$C_{12}H_{18}IO_5$ Galactose, 6-desoxy-6-iodo-1,2,3,4 - diisopropylidene-, 150*g*.

$C_{12}H_{18}I_2N_2$ Dimethylnicotinium diiodide, P 5152*a*.

$C_{12}H_{18}NO_4P$ Benzenephosphonic acid, *p*-caproylamino-, 1757*f*.

$C_{12}H_{18}N_2$ Cumaldehyde, dimethylhydrazone, 6591*h*.
Piperidine, 1 - (4 - amino - *m* - tolyl)-, 594*h*.
*p* - Toluidine, α - (1 - aminocyclopentyl)-, 8365*b*, 9047*e*.
Valeramidine, *N*-*p*-tolyl-, *and* - *HCl*, 7444*c*.

$C_{12}H_{18}N_2O$ Acetamide, *N*-[α-(aminomethyl)benzyl]- *N*-ethyl-, 6176*f*.
Acetamide, α-anilino-*N*, *N*-diethyl-, P 6926*d*.
—, α - diethylamino - α - phenyl-, 9032*i*.
*o* - Acetotoluidide, α - isopropylamino-, *and salts*, 1021*h*.
—, α-propylamino-, *and salts*, 1021*h*.
Acetoxylidide, α dimethylamino-, *and* - *HCl*, 1021*i*, 1022*a*
—, α ethylamino-, *and* - *HCl*, 1024*g*.
Aniline, *p* nitroso - *N*, *N* - dipropyl, 564*e*
1 - Azabicyclo[3.3.1] - 3,6 - nonadiene, 3 acetyl-4,5-dimethyl-, oxime, 3004*b*.
Butyramide, *N* - (2 aminoethyl) - γ-phenyl, - *HCl*, 2271*a*.
*o* - Cresol, 4 - amino - α - 1 - piperidyl-, *di* - *HCl*, P 1062*c*.
Isocaproic acid, phenylhydrazide, 5526*a*, 7182*h*.

$C_{12}H_{18}N_2OS$ Urea, 1 [4 (methylsulfinyl)-butyl]-3 phenyl 2 thio, 1725*e*

$C_{12}H_{18}N_2O_2$ Benzoic acid, *p* (2-aminoisobutylamino), Me ester, *and* - *HCl*, 6183*f*.
Cresorcinol, 6-amino-α-1 piperidyl-, P 1062*d*.
Nicotinic acid, diethylaminoethyl ester, *and HCl*, 2622*e*
2 Pipecoline, 1-(3,5-dimethyl-4-isoxazolylcarbonyl)-, P 822*i*.
3 Pyridinemethanol, 5-hydroxy-4-(isobutyliminomethyl)-6-methyl-, 1410*i*

$C_{12}H_{18}N_2O_3S$ Barbituric acid, 5 allyl-5-(1-ethylpropyl)-2-thio-, P 4692*g*.
Barbituric acid, 5-allyl-5-(1-methylbutyl)-2-thio, P 4692*d*
—, 5-allyl-5-(1-methylisobutyl)-2-thio-, P 1692*h*
Thiophene, 2,5 bis(3-oxobutyl), dioxime, 630*f*.
*p* Toluenesulfonamide, *N*-3-piperidyl-, 6207*e*
Trimethylamine, 2-(nitrophenylmercapto)-, - *HCl*, 6179*i*, *and HCl*, 6180*c*.
Uracil, 5-amyl-6-methyl-2-thio-, reaction product with HCHO, 3013*h*

$C_{12}H_{18}N_2O_3$ Acetanilide, *m*-[bis(2-hydroxyethyl)amino], P 8145*e*.
Barbituric acid, 5-allyl-5-(1-methylbutyl), 1077*b*, 8612*de*.
7,9 - Diazaspiro[4,5]decane - 6,8,10-trione, 1,2,4,7-tetramethyl, P 4429*h*.
5 - Heptenoic acid, 2 - acetamido - 2-cyano-, Et ester, 574*f*.

$C_{12}H_{18}N_2O_3S$ Acetanilide, 2,3,5,6 - tetramethyl-4-sulfamyl-, 1619*e*.
Benzenesulfonic acid, 2-iminohexamethylenimine salt, 2594*d*.
Butyramide, β,β - dimethyl - *N* - sulfanilyl-, P 7960*h*.
Methanesulfinic acid, [6-(cyclohexyloxy) - 3 - pyridylamino]-, *Na salt*, P 3171*a*.
Sulfanilamide, *N*¹ - (2 - hydroxycyclohexyl)-, 1028*c*.

$C_{12}H_{18}N_2O_3S_2$ Propionamide, α - propylmercapto - *N* - sulfanilyl-, P 3035*g*.

$C_{12}H_{18}N_2O_3S_2$ Valine, *N* - [2 - (ethylmercapto) - 5 - oxo - 2 - thiazolin - 4 - ylmethylene] - β - mercapto-, Me ester, 1399*e*.

$C_{12}H_{18}N_2O_4$ *p* - Acetanisidide, 3 - (2,3-dihydroxypropylamino)-, P 859*e*.
Arabinose, 2-methyl-, phenylhydrazone, 2954*c*.
*p*-Quinone, bis(ethoxymethyl)oxime, 5623*d*.

$C_{12}H_{18}N_2O_4S$ Acetamide, α-isobutoxy-*N*-sulfanilyl-, P 3035*g*.
Benzenesulfonamide, *N*, *N* - diisopropylnitro-, 4630*d*.
—, nitro-*N*, *N*-dipropyl-, 4630*d*.
Butyramide, α-ethoxy - *N* - sulfanilyl-, P 3035*f*.
Isobutyramide, α-ethoxy-*N*-sulfanilyl-, P 3035*g*.
Methanesulfonic acid, [6 - (cyclohexyloxy) - 3 - pyridylamino]-, *and alkali metal salts*, P 3470*h*.
Propionamide, α - isopropoxy - *N*-sulfanilyl-, P 3035*f*.
—, α-propoxy-*N*-sulfanilyl-, P 3035*f*.
Sulfanilamide, *N*¹ - α - propoxypropionyl-, P 5802*b*.
Triethylamine, 2 - (nitrophenylsulfonyl)-, 6179*c*; *and* - *HCl*, 6180*c*

$C_{12}H_{18}N_2O_4S_2$ Penicillin, ethylmercaptomethyl-, 2274*f*, 3490*a*.

$C_{12}H_{18}N_2O_5$ Mannose, phenylhydrazone, 66*g*, 9041*d*.
1(2*H*) - Pyrimidineacetic acid, 5,5-diethyl - 3,4,5,6 - tetrahydro - 2,4,6-trioxo-, Et ester, 9258*a*.
5 - Pyrimidinepropionic acid, α-ethylhexahydro - β - methyl - 2,4,6-trioxo-, Et ester, P 1799*i*.
—, hexahydro - α,α,β - trimethyl-2,4,6-trioxo-, Et ester, P 1800*a*.
Threonine, *N* - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl], 641*i*, 723*b*.

$C_{12}H_{18}N_2O_6$ Arabinamine, *N* - (2 - nitro-*p*-tolyl)-, P 2637*d*.
3,4 - Furandicarbamic acid, 2-(4 hydroxybutyl)-, di-Me ester, P 1442*b*.

$C_{12}H_{18}N_2S$ Acetamide, α-anilino-*N*, *N*-diethylthio-, P 6926*e*.

$C_{12}H_{18}N_2S_2$ Urea, 1 - (4 - methylmercaptobutyl) - 3 - phenyl - 2 - thio-, 1725*d*.

$C_{12}H_{18}N_4OS$ Urea, 1 - isopropylguanyl-3-(*p* methoxyphenyl)-2-thio-, 9038*g*.

$C_{12}H_{18}N_4O_2$ Guanidine, 1 - (*p* - *tert* - amylphenyl)-3-nitro-, 9035*h*.

$C_{12}H_{18}N_4O_3$ Cyclohexanecarboxylic acid, 2-cyano - 2 - methyl - 4 - oxo-, Et ester, semicarbazone, 2200*b*.

$C_{12}H_{18}N_4O_3S$ Formamide, *N*, *N* - diethyl-α-sulfanilylguanyl-, P 6660*i*.

$C_{12}H_{18}N_4O_3S$ Benzenesulfonamide, *N*-[1,2-bis(dimethylamino)ethylidene] - *p*-nitro-, P 6661*a*.

$C_{12}H_{18}N_4O_4S$ Pyrimidine, 6 - acetamido-4-D - xylosidoamino - 2 - methylmercapto-, 3423*a*.

$C_{12}H_{18}N_4O_7$ Butylamine, 2-ethyl-, picrate, 121*h*.
Diisopropylamine, picrate, 5745*e*.

$C_{12}H_{18}N_4O_8$ Formic acid, azodi-, mono-Et ester, di-ester with diethylene glycol, P 4293*g*, P 5626*i*.
1,3 - Propanediol, 2 - dimethylamino-2-methyl-, picrate, 7422*e*.
Propanol, [(2 - hydroxyethyl)methylamino]-, picrate, 7422*ab*.

$C_{12}H_{18}N_4O_{10}S$ 2 - Propanol, 1 - dimethylamino-, methanesulfonate, picrate, 2935*d*.

$C_{12}H_{18}N_4S_2$ Pseudourea, 2 - [α - [2 - (guanylmercapto)ethylmercaptomethyl]-benzyl]-2-thio-, *di* - *HCl*, P 4292*d*.

$C_{12}H_{18}N_4$ 1*H* - Tetrazole, 1 - (*m* - aminophenyl) - 5 - (diethylaminomethyl)-, P 7972*b*.

$C_{12}H_{18}N_4O_2$ Biguanide 1,1-diethyl-5-(*p*-nitrophenyl)-, P 6659*h*
Biguanide, 1 - isopropyl - 1 - methyl-5-(*p*-nitrophenyl)-, - *HCl*, 2947*h*.

$C_{12}H_{18}N_4S$ *s* - Triazine, 2-amino-4-amyl-6-(4 - methyl - 2 - thiazolylamino)-, P 7053*g*.

$C_{12}H_{18}O$ Anisole, *tert*-butylmethyl-, P 1063*e*, 3805*a*, P 8400*g*.
Benzyl alcohol, α - butyl - α - methyl-, 118*e*.
—, *m* - *tert* - butyl - α - methyl-, 1741*i*.
—, 2,5-dimethyl-α-propyl-, 6990*g*.
Bicyclo[5.3.1] - 7 - hendecen - 11 - one, 8-methyl-, 7008*f*.
1-Butanol, 3-methyl-3-*p*-tolyl-, 5762*f*.
*m*-Cresol, amyl-, 3964*a*.
—, 2-ethyl-5-isopropyl-, 2969*c*.
Cyclohexanone, 2 - cyclohexylidene-, 2175*i*.
—, 2 - (2 - methyl - 2 - cyclopenten-1-yl)-, 2586*f*.
Ether, α-butylbenzyl methyl, 2576*i*.
—, ethyl 1-methyl-3-phenylpropyl, 1020*c*.
—, 1 - ethyl - 3 - phenylpropyl methyl, 1021*a*.
—, hexyl phenyl, 2590*b*.
1(2*H*) - Heptalenone, 3,4,5,6,7,8,9,10-octahydro-, 5375*g*.
Ketone, 2 - butyl - 1,4 - cyclohexadien-1-yl methyl, 7416*b*.
2-Pentanol, 3-benzyl-, 5744*g*.
—, 4-methyl-4-phenyl-, 5762*c*.
Xylenol, 3-butyl-, 2969*c*.
—, *tert*-butyl-, P 4488*c*, 5579*b*, 8554*a*, 8881*c*.

$C_{12}H_{18}OS$ 1-Octanone, 1-(2-thienyl)-, 228*a*.

$C_{12}H_{18}OS_2$ 1 - Propanethiol, 2 - (2 - phenylmercaptoisopropoxy)-, P 4507*i*.

$C_{12}H_{18}O_2$ (See also *Resorcinol, hexyl-*.)
Acetaldehyde, Bu Ph acetal, 3783*d*.
Benzene, 1 - butyl - 2,4 - dimethoxy-, 1033*c*.
Benzyl alcohol, α,2-diethyl-3-methoxy-, 197*g*.
[Bicyclohexyl]-4,4'-dione, 1335*i*.
2 - Buten - 1 - one, 1 - (4 - methoxy-3-cyclohexen-1-yl)-3-methyl-, 2958*d*.
Camphor, 3 - (methoxymethylene)-, 2607*d*.
2 - Cyclohexen - 1 - ol, 5 - isopropenyl-2-methyl-, acetate, 7915*e*.
Durenol, 4-(methoxymethyl)-, 7451*a*, 7465*i*.
Ethanol, 2 - (trimethylbenzyloxy)-, P 5153*e*.
2 - Norcamphanepropionic acid, 3-hydroxy - 2,3 - dimethyl-, δ-lactone, 5383*a* 5384*a*.
—, 2-methyl-3-methylene-, 5382*h*; *and Ag salt*, 5383*dg*.
Pyrocatechol, hexyl-, P 4008*b*.
Tricyclo[2.2.1.0$^{2,6}$]heptane - 7 - propionic acid, 1,7-dimethyl-, 5382*h*.
Veratrole, 4-butyl-, 2185*f*.
α,α' - *p* - Xylenediol, α,α,α',α' - tetramethyl-, P 4624*e*.

$C_{12}H_{18}O_2S$ 2 - Thiophenecaprylic acid, 3817*h*.

$C_{12}H_{18}O_2S_2$ 7 - Octyne - 1,2 - dithiol, diacetate, 7418*a*.

$C_{12}H_{18}O_3$ 1 - Butanone, 1 - (4 - hydroxy-3-cyclohexen - 1 - yl) - 3 - methyl-, formate, 2958*c*.
Camphocarboxylic acid, Me ester, 2607*d*.
1,3 - Cyclohexadiene - 1 - hydracrylic acid, 6-methyl-, Et ester, 5377*b*.
1,3,5 - Cyclohexanetrione, hexamethyl-, 2598*f*.
1 - Cyclohexene - 1 - caproic acid, ε-oxo-, 587*f*.
1 - Cyclohexene - 1 - valeric acid, δ-oxo-, Me ester, 587*e*.
2-Norcamphanepropionic acid, 2-methyl 3-oxo-, Me ester, 5383*g*.
1,2 - Propanediol, 3 - (*p* - ethylbenzyloxy)-, 311*h*.
—, 2-methyl-3-xylyloxy-, 3128, P 5421*c*.
—, 3-(propylphenoxy)-, 311*i*, 5655*e*.
2-Propanol, 1-isopropoxy-3-phenoxy-, P 3460*h*.
Pulegone, 2-hydroxy-, acetate, 7915*h*.
α¹,α² - *m* - Xylenediol, 5 - *tert* - butyl-2-hydroxy-, 5994*bf*.

$C_{12}H_{18}O_3S$ Ethanethiol, 2-[2-(2-phenoxyethoxy)ethoxy]-, P 4507*i*.
Ether, 2 - (benzylsulfonyl)isopropyl ethyl, 6995*f*.

$C_{12}H_{18}O_4$ Acetylenedicarboxylic acid, di-Bu ester, 2592*a*; diiso-Bu ester, 9334*h*.
Adipic acid, diallyl ester, P 3238*d*.
*p*-Benzenediethanol, 2,5-dimethoxy-, 3388*b*.
Bicyclo[4.2.0]octane - 7,8 - diol, diacetate, 6196*h*.
Cyclohexanecaproic acid, δ,1-dihydroxy-ε-oxo-, δ-lactone, 587*h*.
Cyclohexanepropionic acid, 1-acetyl-2-oxo-, Me ester, P 5417*b*.
Cyclohexenedicarboxylic acid, di-Et ester, 6203*b*.
1 - Cyclohexene - 1 - succinic acid, mono-Et ester, 590*d*.
Malonic acid, (1,1-dimethyl-2-propynyl)-, di-Et ester, 2272*e*.
Myrtenal, acetate, 2975*h*.
7 - Octenoic acid, 2 - acetyl - 3 - oxo-, Et ester, 1334*g*.
1,2 - Propanediol, 3 - (ethoxybenzyloxy)-, 311*h*.
—, 3-ο-propoxyphenoxy-, 311*i*, 5655*e*.
2*H* - Pyran - 6 - carboxylic acid, 3,4-dihydro - 2,2 - dimethyl - 4 - oxo-, Bu ester, 1900*i*, 2362*i*, P 4421*b*, 5894*a*, 6354*c*, 7181*d*, P 7633*e*, 9335*g*.

$C_{12}H_{18}O_4S_2$ Threitol, 1,4-dithio-, tetraacetate, 9251*a*.

$C_{12}H_{18}O_5$ Camphoric acid, 5-oxo-, mono-Et ester, 5381*c*.
Compd. m. 156.9–7.2°, 753*i*.
Diglycolic acid, bis(2-methylallyl) ester, P 7750*h*.

Pimelic acid, γ-acetyl-γ-isopropenyl-, 6578*f*.

**$C_{12}H_{18}O_5S$** 2 - Thiophenevaleric acid, 4-carboxytetrahydro - 3 - oxo-, di-Me ester, P 1066*c*.

**$C_{12}H_{18}O_6$** Acetic acid, (ethylidenedioxy)di-, diallyl ester, P 1433*i*.
Benzene, hexamethoxy-, 588*a*.
Camphoric acid, hydroxy-, acetate, 5382*a*.
Cyclohexanetricarboxylic acid, tri-Me ester, 3797*g*.
—, dimethyl-, Me ester, 1042*h*.
1,3 - Cyclopentanedicarboxylic acid, 3-hydroxy - 1,4,4 - trimethyl-, acetate, 7462*d*.
Glutaric acid, α-ethoxyacetyl-β-(hydroxymethyl)-, γ-lactone Et ester, 2625*f*.
1,2 - Propanediol, 3,3′ - (*p* - phenylenedioxy)bis-, 2181*d*.
Succinic acid, α,β-diacetyl-, di-Et ester, 1324*e*, 4574*h*.

**$C_{12}H_{18}O_6S$** Acetoacetic acid, α,α′-thiobis (?), di-Et ester, 6634*h*.

**$C_{12}H_{18}O_6S_2$** Butanediol, dimercapto-, tetraacetate, 7424*h*, 7425*a*, 9250*i*.

**$C_{12}H_{18}O_7$** Oxalosuccinic acid, tri-Et ester, 1013*g*.
Pyran - 3 - tartronic acid, tetrahydro-4-oxo-, di-Et ester, 2993*d*

**$C_{12}H_{18}O_8$** Tartaric acid, di-Et ester diacetate, 8355*e*.

**$C_{12}H_{18}O_{12}$** Tagaturonic acid, glucuronido-, 5008*e*.

**$C_{12}H_{18}O_{12}Zn_4$** Zinc acetate, P 5036*c*.

**$C_{12}H_{18}S$** Benzenethiol, 3-butyl-5 ethyl-, P 1063*c*.
Cyclohexenyl sulfide, 998*c*, 7410*d*.
Sulfide, hexyl phenyl, 2956*f*.

**$C_{12}H_{18}S_2$** Acetophenone, di-Et mercaptal, 2597*d*.

**$C_{12}H_{19}BrDN$** Trimethyl(3 - phenylpropyl-3-*d*)ammonium bromide, 604*c*.

**$C_{12}H_{19}BrN_2O_2$** (*o* - Hydroxyphenyl)trimethylammonium bromide dimethylcarbamate, P 7040*a*.

**$C_{12}H_{19}BrN_4O_4S$** Butyramide, *N* - [2-(5-bromo - 2 - pyrimidylsulfamyl)ethyl]-α,γ - dihydroxy - β,β - dimethyl , P 3450*f*.

**$C_{12}H_{19}BrO_4$** Fumaric acid, bromo-, di-Bu ester, 9334*g*.

**$C_{12}H_{19}ClN_4O_4S$** Butyramide, *N* - [2 - (5-chloro - 2 - pyrimidylsulfamyl)ethyl]-α,γ - dihydroxy - β,β - dimethyl-, P 3450*g*.

**$C_{12}H_{19}ClO_3$** Cyclohexanebutyryl chloride, 4 hydroxy-, acetate, 1381*h*.

**$C_{12}H_{19}IN_2O_6$** 1(2*H*) - Pyridineacetic acid, 3,4 - dihydro - 3 - iodo - 6-methyl-2,4-dioxo-, 2,2′ - iminodiethanol salt, P 6241*f*.

**$C_{12}H_{19}IO_7$** Fucoside, methyl 2,4 diacetyl-6-iodo-3-methyl-, 4636*d*.

**$C_{12}H_{19}IO_8$** Glucopyranoside, methyl 6-desoxy - 6 - iodo-, 2,3,4-triacetate, 151*be*.

**$C_{12}H_{19}N$** Amylamine, 1-methyl-5-phenyl-, 9118*d*, 9250*g*.
1 - Azabicyclo[3.3.1] - 3,6 nonadiene, 3-ethyl-4,5-dimethyl-, 3004*d*.
Benzylamine, *N*,*N*-diethyl-*m*-methyl , 6584*h*.
—, ethylpropyl-, *and* - *HCl*, 1341*a*.
1 - Cyclohexene - 1 - acetonitrile, α butyl , 3798*a*
Phenethylamine, α,α - diethyl-, - *HCl*, P 5800*g*.

**$C_{12}H_{19}NNaO_{11}S$** Benzenearsonous acid, 3-amino-4-hydroxy , *N*-glucosyl deriv , $NaHSO_3$ compd , 599*a*

**$C_{12}H_{19}NO$** *p*-Anisidide, *N*,2,3,5,6-pentamethyl-, 181*e*
1 - Azabicyclo[3.3.1] - 3,6 - nonadiene-3-methanol, α,4,5-trimethyl , 3004*c*.
1 - Azabicyclo[3.3.1] - 3 - nonene, 7-acetyl-5,6-dimethyl , 3004*f*
Ephedrine, *N*-ethyl-, 3564*a*.
Phenethylamine, β - ethoxy - *N*,α-dimethyl-, 9118*e*
—, *N* - ethylmethoxy - α - methyl , 1741*g*, - *HCl*, 1109*e*.
—, methoxytrimethyl-, 6594*d*, - *HCl*, 1109*e*.
Phenol, *p* - (2 - isopropylaminopropyl)-, - *HCl*, 1741*h*.
4 - Piperidinol, 4 - (3 - buten - 1-ynyl)-2,3,6-trimethyl-, 6623*a*.
2 - Pyridinemethanol, α,α - diisopropyl-, *and* - *HCl*, 2205*b*.
4 - Quinolinol, 4 - ethynyldecahydro 2-methyl-, 2960*h*.

**$C_{12}H_{19}NOS$** 1 - Butanone, 4 - diethylamino 1-(2-thienyl)-, 2211*c*.
2-Thiophenecaprylamide, 8817*h*.

**$C_{12}H_{19}NO_2$** Acetaldehyde, (benzylmethylamino)-, di-Me acetal, *and* - *HCl*, 6974*d*.
1 - Azabicyclo[3.3.1] - 3 - nonene, 7-acetyl-5,6-dimethyl-, *N*-oxide, 8005*b*.
Azelamide, *N*-allyl-, 7922*b*.
Benzyl alcohol, α-(butylaminomethyl)-*p*-hydroxy-, 7128*d*.
—, α - (*sec* - butylaminomethyl) - *p*-hydroxy-, P 3460*c*.
—, α - (*tert* - butylaminomethyl)-*p*-hydroxy-, 7128*d*, *and* - *HCl*, P 3460*d*.
—, α - [[ethyl(2 - hydroxyethyl)amino]-methyl]-, 4210*a*.
Benzylamine, 4 - ethoxy - *N* - ethyl-3-methoxy-, 2177*a*
1 - Butanone, 4 - diethylamino - 1 - (2-furyl)-, 2211*g*.
1,2 - Cyclohexanedicarboximide, *N*-butyl-, P 4421*g*
Maleimide, *N* - (2 - ethylhexyl)-, P 4422*a*.
Phenethylamine, 3,4 - diethoxy-, 7027*h*.
2 - Propanol, 1 - phenoxy - 3 - propylamino-, *and* - *HCl*, P 7045*i*.

**$C_{12}H_{19}NO_2S$** Xylenesulfonamide, *ar*-butyl-, 6990*h*.

**$C_{12}H_{19}NO_2Si$** Silane, triethyl(nitrophenyl)-, 1737*c*.

**$C_{12}H_{19}NO_3$** Choline, benzoate, 702*c*.
Ethanol, 2,2′ - (6 - methoxy - *m*-tolylimino)di-, P 8145*e*.
Mescaline, *N*,*N* - dimethyl , 121*h*.
Protocatechuyl alcohol, α-(butylaminomethyl)-, 317*b*, - *HCl*, 3388*e*.
—, α - (*sec* - butylaminomethyl)-, 317*b*.
—, α - (*tert* butylaminomethyl)-, 317*b*
—, α - (isobutylaminomethyl)-, - *HCl*, 3388*e*.
—, α - [(isopropylmethylamino)methyl]-, 3928*f*.
1*H* - Quinolizine - 3 - carboxylic acid, octahydro - 4 - oxo-, Et ester, 4267*h*

**$C_{12}H_{19}NO_4$** Ethanol, 2 - [2 - [2 - (*p*-aminophenoxy)ethoxy]ethoxy]-, P 3205*d*.
Pimelic acid, α-cyano-, di-Et ester, 4222*f*.
Succinic acid, cyanotrimethyl-, di-Et ester, 2167*h*.

**$C_{12}H_{19}NO_4S$** 2 - Butanol, 4 - (ethylanilino)-, hydrogen sulfate, cyclic ester, 2935*a*.
Cyclopentanone, compd. with benzylamine bisulfite, 3356*b*.

**$C_{12}H_{19}NO_5$** 2 - Cyclohexen - 1 - one, 3 - (2-dimethylaminoethyl)-, oxalate, 7432*h*.
Malonic acid, acetamidoethyl-, diallyl ester, P 2225*f*.
—, 4 - morpholinylmethylene-, di-Et ester, 1004*a*.
1 - Piperidineacetic acid, 5 - acetyl-3-carboxy-3,4-dimethyl-, 3004*i*

**$C_{12}H_{19}NO_6$** Malonic acid, acetamido-2-formylethyl-, di-Et ester, 143*b*, P 7505*h*.

**$C_{12}H_{19}NO_7$** Acetamide, *N* - (2,2′,2″ - trihydroxy - *tert* - butyl) , triacetate, 6575*d*

**$C_{12}H_{19}N_2NaO_3$** See *Ortal sodium*.

**$C_{12}H_{19}N_2O$** Acetanilide, amino-α-diethylamino-, *and* - *HCl*, 1024*c*.
Bicyclo[4.3.1] - 7 - decen - 10 - one, 7-methyl-, semicarbazone, 7008*d*.
3 - Buten - 2 - one, 4 - (2 - methyl-1-cyclohexen-1-yl)-, semicarbazone, 8360*d*.
2*H* - Cycloheptabenzen - 2 - one, 3,4,4a,-5,6,7,8,9 - octahydro-, semicarbazone, 7908*e*.
1 - Indanone, 4,5,6,7 - tetrahydroh methyl-, semicarbazone, 116*i*, 117*e*

**$C_{12}H_{19}N_2OS$** Hydrouracil, 5-allyl-5-(1-ethylpropyl)-6-imino-2-thio-, P 4692*g*
Hydrouracil, 5-allyl-6-imino-2-(1-methylbutyl) 2 thio , P 4692*e*.
—, 5 - allyl - 6 - imino - 5 - (1 methylisobutyl)-2-thio-, P 4692*h*.
Ketone, methyl 5 - (1 - methylbutyl)-2-thienyl, semicarbazone, P 2641*c*

**$C_{12}H_{19}N_2O_2$** Cyclopenta[*c*]pyran 5(1*H*)-one, 3,4,6,7 - tetrahydro - 3,3,7 - trimethyl , semicarbazone, 2162*f*.
Ethylenediamine, *N*,*N* - diethyl - *N*′-(*m*-nitrophenyl)-, 3008*e*.
Histidine, 1 cyclohexyl-, 8382*d*.

**$C_{12}H_{19}N_2O_2S$** 1,3,1*H* - Diazepine, 2-amino-4,5,6,7 - tetrahydro-, *p* - toluenesulfonate, P 6670*f*.
Urea, 1 - isoamyl - 3 - sulfanilyl-, P 2377*a*

**$C_{12}H_{19}N_2O_2S$** Sulfanilamide, $N^4$ - (2,2′-dihydroxy - *tert* - butyl) - $N^1$ - ethyl-3-nitro-, P 7604*e*.

**$C_{12}H_{19}N_2O_7S$** Sulfanilamide, $N^1$-ethyl-3-nitro - $N^4$ - (2,2′,2″ - trihydroxy-*tert*-butyl)-, P 7604*e*.

**$C_{12}H_{19}N_4O_{10}P_3S$** See "triphosphate" under "$B_1$" under *Vitamins*.

**$C_{12}H_{19}N_5$** Biguanide, 1-benzyl-5-propyl-, *HNO*$_3$, 2946*f*.
Biguanide, 1 - butyl - 5 - phenyl-, *and salts*, P 2229*i*.
—, 1-cuminyl-, *di*-*HCl*, 2946*f*.
—, 1,1 - diethyl - 5 - phenyl-, - *HCl*, P 6228*b*.
—, isopropylmethylphenyl-, - *HCl*, P 6228*b*; *and* - *HCl*, P 4692*a*, 9036*h*.
—, 1 - isopropyl - 5 - tolyl-, - *HCl*, 2947*g*, P 6228*c*.

**$C_{12}H_{19}N_5O$** Biguanide, 1-isopropyl-5-(methoxyphenyl)-, - *HCl*, P 684*d*, 2951*a*, P 6228*c*, 9038*f*.
*s*-Triazine, 2 - amino - 4 - [bis(2 - methylallyl)amino]-6 methoxy-, 4269*a*.
—, 2 - methoxy - 4,6 - bis(2 - methylallylamino)-, 4269*f*.

**$C_{12}H_{19}N_5O_3$** *s*-Triazine, 2-methoxy-4,6-di-4-morpholinyl-, 4269*g*.

**$C_{12}H_{19}N_5O_4$** Glycine, *N* - (2 - diethylamino-6-methyl - 5 - nitro - 4 - pyrimidyl)-, Me ester, P 9087*e*.

**$C_{12}H_{19}N_5O_6S_2 + H_2O$** Pyrimidine, 6-amino-5-thioformamido - 4 - D - glucosidamino-2-(methylmercapto)-, 146*e*.

**$C_{12}H_{19}N_5S$** Biguanide, 1-isopropyl-5-(*p*-methylmercaptophenyl)-, - *HCl*, 2947*g*.

**$C_{12}H_{20}$** Compd., $b_{760}$ 240–2°, 6201*h*.
Cyclopentene, methyl-, dimer, 2172*f*.
1,4-Pentadiene, 2-methyl-, dimer, P 2629*d*.

**$C_{12}H_{20}ClNO$** (*p* Methoxyphenethyl)trimethylammonium chloride, 6594*b*.

**$C_{12}H_{20}ClNO_2$** (2,3 - Dihydroxypropyl)dimethyl - *o* - tolylammonium chloride, 4773*f*.

**$C_{12}H_{20}Cl_2I_4N_4OSSb_2$** Vitamin $B_1$, chloride, compd. with $SbI_3$, 357*d*.

**$C_{12}H_{20}Cl_2S$** Sulfide, bis(2 chlorocyclohexyl), P 6358*b*

**$C_{12}H_{20}IN$** Benzyldiethylmethylammonium iodide, 4376*c*.

**$C_{12}H_{20}INO$** (*m* - Methoxyphenethyl)trimethylammonium iodide, 7432*h*

**$C_{12}H_{20}N_2$** Cyclohexanone, azine, 1654*e*, 1655*a*
Ethylamine, 2,2′ - (4,6 - dimethyl-*m*-phenylene)bis-, 6591*d*
Ethylenediamine, *N*,*N* - diethyl - *N*′-phenyl-, P 6926*e*
—, *N* - ethyl - *N*′, *N*′ - dimethyl - *N*-phenyl-, P 1437*h*; *and* - *HCl*, P 822*d*
*p* - Phenylenediamine, *N*,*N* - dipropyl-, 594*e*.
Putrescine, *N* - ethyl - *N* - phenyl-, P 2229*e*.
α,α′ - *p* - Xylenediamine, *N*, *N*, *N*′, *N*′-tetramethyl-, 6590*h*.

**$C_{12}H_{20}N_2O$** 1 - Azabicyclo[3.3.1] - 3 - nonene, 7 - acetyl - 5,6 - dimethyl , oxime, 3004*g*
Oxime, m. 182°, 3004*f*.
1,3 - Propanediamine, *N*′ - (*o* - methoxyphenyl) - *N*, *N* - dimethyl-, - *HCl*, P 683*a*.
2 - Pyrazinol, *sec*-butylisobutyl-, 3014*a*.
2,6 - Xylenol, 4 - amino - $\alpha^2$ - diethylamino-, P 1062*c*.

**$C_{12}H_{20}N_2OS$** 1 - Butanone, 4 - diethylamino-1-(2-thienyl)-, oxime, 2211*c*.
Uracil, 5 heptyl-6-methyl-2-thio-, 2326*c*.

**$C_{12}H_{20}N_2OS_2$** Thiazole, 5-acetamido-4-hexyl 2-methylmercapto , 3409*f*.
2 - Thiazolethiol, 5 acetamido - 4 - (1-ethylamyl)-, 3409*i*

**$C_{12}H_{20}N_2O_2$** (See also *Aspergillic acid*.)
[Bicyclohexyl] 1,1′-dione, 1335*i*.
1-Butanone, 4 - diethylamino-1 (2-furyl) , oxime, 2211*g*.
Crotonamide, *N* - allyl - *N* - (1-dimethylcarbamylethyl)-, P 249*f*.
Ethylamine, 2,2′ - (2,5 - dimethoxy-*p*-phenylene)bis-, *and di*-*HCl*, 3388*a*.
Guaiacol, 4 - amino - 6 - diethylaminomethyl-, P 1062*c*.
4 - Imidazolecarboxylic acid, 2-amyl-5-methyl-, Et ester, 2989*f*.
4 - Isoxazolecarboxamide, 3,5-dimethyl-*N*, *N*-dipropyl-, P 822*f*.
2(1*H*)-Pyrazinone, *sec*-butyl-1-hydroxyisobutyl-, 3014*b*.
3-Pyridinemethanol, 5-hydroxy-4-(isobutylaminomethyl) - 6 - methyl-, - *HCl*, 1411*a*.
Tetrolamide, *N* - (1 - dimethylcarbamylpropyl)-*N*-ethyl-, P 250*a*.

**$C_{12}H_{20}N_2O_2S$** Aniline, (2 - diethylaminoethylsulfonyl)-, 6179*c*, 6180*c*.
**$C_{12}H_{20}N_2O_3$** Barbituric acid, 5-ethyl-5-hexyl-, 1077*b*, 8012*de*.
Cyclohexanecarboxylic acid, 4-(5-methyl - 2 - oxo - 4 - imidazolidylmethyl)-, 1769*g*.
Hydantoin, 5 - cyclohexyl - 5 - (ethoxymethyl)-, P 3452*g*.
**$C_{12}H_{20}N_2O_3S$** Methanesulfinic acid, [6-(hexyloxy) - 3 - pyridylamino]-, *Na salt*, P 3471*a*.
Valeramidine, *p* - toluenesulfonate, P 2230*i*, P 5038*g*, 7445*a*.
**$C_{12}H_{20}N_2O_4$** Bicyclohexyl, 1,1'-dinitro-, P 4683*c*.
Carbamic acid, ethylenedi-, bis(2 methyl allyl) ester, P 7263*c*.
1*H* - Furo[3,4]imidazole - 4 - enanthic acid, hexahydro-2-oxo-, 9149*b*
**$C_{12}H_{20}N_2O_4S$** Methanesulfonic acid, [6-(hexyloxy) - 3 - pyridylamino]-, *and alkali metal salts*, P 3470*h*.
**$C_{12}H_{20}N_2O_6$** Malonic acid, acetamido(2-carbamylethyl)-, di-Et ester, 143*c*.
**$C_{12}H_{20}N_2S$** Aniline, (2-diethylaminoethylmercapto)-, 6179*c*; *and di-HCl*, 6180.
**$C_{12}H_{20}N_2S_2$** 2 - Thiazolethiol, 4-hexyl-5 isopropylideneamino , 3109*g*.
**$C_{12}H_{20}N_4O_2S$** Sulfanilamide, *N*1-[1,2-bis-(dimethylamino)ethylidene]-, P 6661*a*.
**$C_{12}H_{20}N_4O_4$** Piperazine, 2,5-bis(carboxymethylimino)-, di Et ester, *di-HCl*, 3789*f*, 3790*d*
Pyrazine, 2,5 - bis(carboxymethylamino) 3,6 - dihydro-, di-Et ester, 3790*e*
**$C_{12}H_{20}N_4O_4S$** Butyramide, $\alpha,\gamma$ - dihydroxy-$\beta,\beta$ - dimethyl - *N* - [2 - (2-pyrimidylsulfamyl)ethyl] , P 3450*f*.
**$C_{12}H_{20}N_4O_6P_2S$** Phosphoric acid, ester with vitamin $B_1$ phosphate, 3902*c*.
**$C_{12}H_{20}N_6O$** 6 Pteridinol, 2 - (2-diethylaminoethylamino) - 7,8 - dihydro , P 7087*f*
**$C_{12}H_{20}O$** 3-Buten-2-one, 4-(dimethylcyclohexyl) , 8362*c*
Cyclohexanone, 4-cyclohexyl , 160*d*.
3 - Cyclohexene - 1 - carboxaldehyde, 6-ethyl 1,3,4-trimethyl-, 1040*d*
2 - Cyclohexen - 1 - one, 2 - butyl - 3,5-dimethyl-, 2969*c*.
—, 2 - ethyl - 5 - isopropyl - 3-methyl-, 2969*b*.
2 Cyclopenten 1 one, 3 ethyl-2,4 dimethyl 4-propyl-, 1333*f*.
3,7 - Decadien 5 - one, 4,7 dimethyl , 1333*f*.
1(2*H*) - Heptalenone, decahydro , 5375*g*.
6 - Hepten - 3 - one, 4 - allyl - 2,2 - dimethyl-, 5735*a*.
Isophorone, P 1063*b*.
Ketone, 2 - butyl - 1 - cyclohexen - 1-yl methyl, 7416*d*.
2 - Norcamphanepropanol, 2 - methyl 3-methylene , 5383*d*
Tricycloekasantalol, 5384*i*.
**$C_{12}H_{20}OS$** Dimethylphenethylsulfonium ethoxide, 3348*i*, 3349*c*
**$C_{12}H_{20}O_2$** Acrylic acid, 3,3,5 - trimethylcyclohexyl ester, P 7754*i*.
Borneol, acetate, 2372*i*, 4814*e*, 6367*a*.
1 Butanone, 3 - methoxy - 1 - (methyl-1-cyclohexen-1-yl)-, 117*af*
Carvotanacetol, acetate, 6601*b*, 7915*c*
1 Cycloheptene - 1 - valeric acid, 5375*e*.
Cyclohexeneacetic acid, α-butyl-, 3798*b*
—, $\alpha$,4-dimethyl , Et ester, 2605*f*.
1 Cyclooctene - 1 - acetic acid, Et ester, 1375*e*.
2 Cyclopentene - 1 - carboxylic acid, 3-isopropyl-1-methyl-, Et ester, 1750*a*.
Geraniol, acetate, 1657*a*.
10-Hendecynoic acid, Me ester, 2591*i*.
Ketone, 2,5 - diethyl - 3,4 - dihydro-6-methyl - 2*H* - pyran - 2 - yl methyl, 5023*i*.
Linalool, acetate, P 6219*f*.
Menthenol, acetate, 7915*ce*.
Naphthaleneacetic acid, decahydro-, 6730*c*.
2 - Naphthol, decahydro-, acetate, 9332*d*.
5 - Nonene - 2,4 - dione, 6,8,8 - trimethyl-, P 2634*e*.
Norcamphanepropionic acid, dimethyl-, 5382*i*.
6 - Octen - 1 - yn - 3 - ol, 1 - ethoxy - 3,7-dimethyl-, 7414*a*.
**$C_{12}H_{20}O_2S$** Acetic acid, (geranylmercapto)-, 3365*c*.
**$C_{12}H_{20}O_2Si$** Silane, benzyldiethoxymethyl-, P 4517*b*.
**$C_{12}H_{20}O_3$** 1 - Butanone, 1 - (3,6 - dihydro-2,2 - dimethyl - 2*H* - pyran - 4 - yl)-3-methoxy-, 2162*c*.
2-Butanone, 4-methoxy-1-(tetrahydro-2,2 - dimethylpyran - 4 - ylidene)-, 2161*h*.
Carvomenthone, 3 - hydroxy-, acetate, 7915*g*.
Cycloheptanevaleric acid, 2-oxo-, 5375*d*.
Cyclohexaneacetic acid, $\alpha$,4 - dimethyl-3-oxo-, Et ester, 2605*f*.
Cyclohexanecaproic acid, ε-oxo-, 587*d*, 3366*e*.
Cyclohexanecarboxylic acid, 1-hydroxy-cyclopentyl ester, 5150*e*.
— , 2 - oxo - 4,4,6 - trimethyl-, Et ester, 1013*g*.
Cyclopentanepropionic acid, $\beta$,3-dimethyl-2-oxo-, Et ester, 2584*i*
—, 2-oxo-, Bu ester, P 6226*b*.
Fencholic acid, 2-oxo , Et ester, 1749*f*.
Menthone, 2-hydroxy-, acetate, 7915*g*.
2 Norcamphanepropionic acid, 3 hydroxy 2,3-dimethyl-, 5384*a*.
Succinic anhydride, octyl-, 5070*a*
**$C_{12}H_{20}O_4$** Adipic acid, trimethyl-, monoallyl ester, P 1217*i*.
Camphoric acid, Et ester, *Ba salt*, 5540*a*.
Caproic acid, α-acetyl-γ-ethyl-β-oxo-, Et ester, 1010*f*
Crotonic acid, Et ester, dimer, P 5792*i*
1,1 - Cyclobutanedicarboxylic acid, di-Pr ester, 2955*f*.
Cyclohexanebutyric acid, 4-hydroxy-, acetate, 1381*g*.
1,1 - Cyclopentanedicarboxylic acid, 3-methyl-, di-Et ester, P 3472*i*.
Cyclopentanemalonic acid, α-butyl-, 1388*b*.
Erythrol, dibutyrate, 7419*f*
Fumaric acid, di-Bu ester, P 903*h*, 2591*f*, P 2764*i*; diisobutyl ester, 2591*f*, octyl ester, P 2038*a*.
Maleic acid, di-Bu ester, 2591*f*; octyl ester, P 2038*a*.
Malonic acid, allyl-, di-Pr ester, 2591*e*.
Traumatic acid, 9334*c*.
**$C_{12}H_{20}O_4Si$** Allyl silicate, P 3235*f*, 9028*c*.
**$C_{12}H_{20}O_5$** Camphoric acid, 5-hydroxy-, mono-Et ester, 5381*g*.
Cyclohexanecaproic acid, δ,1-dihydroxy-ε-oxo-, 587*h*
Lactic acid, tetrahydrofurfuryl ester, butyrate, P 676*e*.
Malonic acid, ethyl-2-formylethyl-, di-Et ester, 577*h*, P 7505*i*.
Senecic acid, di-Me ester, 9076*a*.
**$C_{12}H_{20}O_6$** Fumaric acid, bis(2 ethoxyethyl) ester, P 903*h*.
Galactose, 1,2,3,4 - diisopropylidene-, 150*e*
Glucose, diisopropylidene-, 1728*g*, P 3739*c*.
1,2,6-Hexanetriol, triacetate, P 1435*h*
Mannitol, triethylidene , 2939*c*.
Sorbitol, triethylidene-, 2939*c*.
Sorbofuranose, 2,3,4,6-diisopropylidene-, 7431*d*.
Succinic acid, mono-Bu ester, ester with Et glycolate, P 1606*d*.
**$C_{12}H_{20}O_6S$** Pimelic acid, α-(2-carboxyethylmercapto)-δ-ethyl , P 7504*f*.
**$C_{12}H_{20}O_7$** Digitaloside, methyl 2,4-diacetyl-, 4636*d*.
**$C_{12}H_{20}O_8$** Galactoside, methyl 2,4-diacetyl-3-methyl-, 4636*c*.
**$C_{12}H_{20}O_{12}$** Galactose, glucuronosido-, 582*g*
Lactobionic acid, 2-keto-, *Ba salt and its Ba Br₂ compd* , 1330*i*.
**$C_{12}H_{20}S$** Sulfide, cyclohexenyl cyclohexyl, 996*b*.
Thiophene, 2,5-di-*tert*-butyl-, 1395*f*.
—, octyl-, 1395*g*, 4841*h*.
—, 2 - (1,1,3,3 - tetramethylbutyl)-(?), 1395*g*.
**$C_{12}H_{20}S_2$** Disulfide, cyclohexenyl cyclohexyl, 996*c*.
**$C_{12}H_{20}S_3$** Trisulfide, cyclohexenyl cyclohexyl, 996*c*.
**$C_{12}H_{20}S_4$** Tetrasulfide, cyclohexenyl cyclohexyl, 996*c*.
**$C_{12}H_{20}S_6$** Hexasulfide, cyclohexenyl cyclohexyl, 996*d*.
**$C_{12}H_{20}Si$** Silane, tetraallyl-, P 1223*c*, P 5637*e*.
Silane, triethylphenyl-, 1737*c*, 2177*i*.
**$C_{12}H_{21}AsN_2O_7$** Benzenearsonic acid, *p*-[(2 - hydroxyethylcarbamyl)methoxy]-, 2-aminoethanol salt, 3364*g*.
**$C_{12}H_{21}ClN_2O_3$** Crotonamide, β-chloro-*N*-(diethylcarbamylmethyl) - *N*-ethyl-, P 248*i*.
Crotonamide, β - chloro - *N* - (1 - dimethylcarbamylethyl) - *N* - propyl-, P 249*e*.
—, β - chloro - *N* - (1 - dimethylcarbamylpropyl) - *N* - ethyl-, P 250*a*.
**$C_{12}H_{21}ClN_4O_4P_2S$** See *Cocarboxylase*.
**$C_{12}H_{21}ClO_3$** Pelargonic acid, θ-(chloroformyl)-, Et ester, 1730*g*.
**$C_{12}H_{21}ClO_3S$** Thiophene - 3 - ol, 4-chlorotetrahydro-, 1,1 - dioxide α-ethylcaproate, P 3466*c*.
**$C_{12}H_{21}FeO_2$** Butyric acid, $\alpha,\gamma$ - dihydroxy-$\beta,\beta$ - dimethyl-, Fe deriv., *and Na salt*, P 4816*i*, P 8619*f*.
**$C_{12}H_{21}HgNO_4S_2$** [*p* (Ethylmercurimercapto)phenyl]trimethylammonium methyl sulfate, P 668*d*, P 6649*h*.
Trimethyl[2 - (phenylmercurimercapto)-ethyl]ammonium methyl sulfate, P 668*i*, P 6649*g*.
**$C_{12}H_{21}N$** 1 - Azabicyclo[3 3. 1] - 3 - nonene, 7-ethyl 5,6-dimethyl-, 3004*h*.
Julolidine, hexahydro-, 5784*d*.
**$C_{12}H_{21}NO$** Acetamide, *N* isobornyl-, 2165*h*.
1 - Azabicyclo[3.3.1] - 6 - nonene-3-methanol, α,4,5-trimethyl-, 3004*c*.
Benzyltrimethylammonium ethoxide, 6168*a*
Cyclohendecanecarbonitrile, 1 - hydroxy-, 7907*a*
Cyclohexanone, 4-cyclohexyl-, oxime, 160*d*, 1377*f*.
1 - Cyclohexene 1 - acetamide, α-butyl-, 3798*i*.
1-Isogranatanine, 3 acetyl-4,5-dimethyl-, 3004*h*
1 Quinolinol, decahydro - 2 - methyl-4-vinyl-, *and - HCl*, 2960*h*.
1*H* - Quinolizine - 3 - methanol, 2,6,7,8,-9,9a - hexahydro - α,4 - dimethyl-, 4268*b*.
4(1*H*) - Quinolone, octahydro - 1,2,7-trimethyl-, 2960*b*.
**$C_{12}H_{21}NO_2$** Succinimide, *N*-octyl-, P 4422*h*.
**$C_{12}H_{21}NO_2S$** 2 - Thiophenine, *N* - cyclohexyl 2,5 - dihydro - 3,5 - dimethyl-, 1,1-dioxide, P 3851*d*.
**$C_{12}H_{21}NO_3$** β - Alanine, *N* - cyclohexyl-*N*-formyl-, Et ester, 576*a*.
Isoleucine, *N* - (α - hydroxyisovaleryl)-*N*-methyl-, δ-lactone, 3788*e*.
Valine, *N*-cyclohexylcarbonyl-, 2273*d*.
**$C_{12}H_{21}NO_4$** Acrylic acid, β-hydroxy-α-(1-methoxyhexylideneamino)-, Et ester *K salt*, 2989*i*.
Malonic acid, (diethylaminomethylene)-, di-Et ester, 1004*a*.
**$C_{12}H_{21}NO_4S$** Isovaleraldehyde, compd with benzylamine bisulfite, 3356*c*.
3-Thiophenecarbamic acid, tetrahydro-2,4 - dimethyl-, 1,1 - dioxide, 1,1-dimethylallyl ester, P 6668*e*.
Valeraldehyde, compd. with benzylamine bisulfite, 3356*c*.
**$C_{12}H_{21}NO_5$** Malonic acid, acetamidopropyl-, diethyl ester, P 2225*f*, 6979*c*, P 7956*e*
Propionic acid, $\beta,\beta'$-(acetylimino)di , di-Et ester, P 4688*c*.
**$C_{12}H_{21}NO_6$** Acetic acid, nitrilotri-, tri-Et ester, P 5229*h*.
Aspartic acid, *N*-(carboxymethyl)-, tri-Et ester, 1352*f*.
Gluconamide, *N* - butyl - 2,4,3,5-dimethylene-, 5007*a*.
—, *N* - isobutyl - 2,4,3,5 - dimethylene-, 5007*a*.
Malonic acid, acetamido(3-hydroxypropyl)-, di-Et ester, 143*c*.
—, ethyl(1 - nitroisopropyl)-, di-Et ester, 4217*g*.
Pimelic acid, β-methyl-γ-nitro-, di-Et ester, 5776*a*.
**$C_{12}H_{21}NO_7$** Propionic acid, $\beta,\beta'$-iminodi-, di-Et ester, oxalate, 576*b*.
**$C_{12}H_{21}NO_{11}$** Chondrosin, 5008*di*, 5009*c*.
**$C_{12}H_{21}NO_{12}$** Chondrosinic acid, *Ba salt*, 5009*c*.
**$C_{12}H_{21}N_3O$** 3 - Cyclohexene - 1 - carboxaldehyde, tetramethyl-, semicarbazone, 3376*b*.
Cyclopentanone, 2 - cyclohexyl-, semicarbazone, 2586*h*.
2 - Cyclopenten - 1 - one, 3 - ethyl - 4-methyl - 2 - propyl-, semicarbazone, 6623*f*.
1 - Indanone, hexahydrodimethyl-, semicarbazone, 117*af*.
2,6 - Octadienal, 3,6,7 - trimethyl-, semicarbazone, 7900*d*.
**$C_{12}H_{21}N_3O_2$** Cyclohexanone, 4-isovaleryl-, semicarbazone, 2958*c*.
Cyclopenta[*c*]pyran - 5(1*H*) - one, hexahydro - 3,3,7 - trimethyl-, semicarbazone, 2162*g*.

Di-1-piperidinecarboxamide, 5369*h*.

**$C_{12}H_{21}N_3O_3$** Cyclopentanepropionic acid, 1,4,4 - trimethyl - 2 - oxo-, semicarbazone, 7462*b*.

*s* - Triazine, hexahydro - 1,3,5 - tripropionyl-, 657*e*, 5405*d*, 7031*d*.

—, 2,4,6-triisopropoxy-, 9034*i*.

**$C_{12}H_{21}N_5$** Pyrimidine, 2-amino-4-[3-(1-piperidyl)propylamino]-, *and tetra-HCl*, P 4704*h*, *and tri-HCl*, P 4704*g*.

**$C_{12}H_{21}N_5O$** Morpholine, 4-[4-(2-amino-4-pyrimidylamino)butyl]-, *and tri-HCl*, P 4704*g*.

*s*-Triazine, 2-amino-4-butoxy-6-piperidyl-, 4269*e*.

**$C_{12}H_{21}N_5O_3$** 2 - *s* - Triazinepelargonic acid, 4,6-diamino-, P 1814*e*.

**$C_{12}H_{21}N_5O_3S$** *p* - Toluenesulfonic acid, 1-isopropylbiguanide salt, P 4292*h*.

**$C_{12}H_{21}NaO_7S$** Aerosol IB, 7297*e*, 7315*f*.

**$C_{12}H_{21}NaO_{11}$** 7233*h*.

**$C_{12}H_{21}O_3P$** 2-Butenyl phosphite, P 1606*c*.

2-Propen-1-ol, 2-methyl-, phosphite, P 1606*c*.

**$C_{12}H_{22}$** Bicyclohexyl, 1895*e*, 2175*b*, 2955*i*, 4521*f*, 4532*b*.

Compd., $b_{0.4}$ 62–3°, 6201*h*.

**$C_{12}H_{23}BrMgN$** Dicyclohexylaminomagnesium bromide, 6171*b*.

**$C_{12}H_{23}BrN_3$** *s*-Triazine, 2,4-diamino-6-(9-bromononyl)-, P 5052*a*.

**$C_{12}H_{23}Br_2Cl_3$** Dodecane, 2,6-dibromo-4,4-dichloro-, 3345*d*.

**$C_{12}H_{22}CaO_{11}$** Sucrose, Ca compd., 4035*e*.

**$C_{12}H_{22}CaO_{14}$** See *Calcium gluconate*.

**$C_{12}H_{22}ClNO_3$** Leucine, *N*-chloroacetyl-α-isobutyl-, 2167*c*.

Norleucine, α-butyl-*N*-chloroacetyl-, 2167*c*.

**$C_{12}H_{22}Cl_2O_2$** Lauric acid, dichloro-, 2164*ef*.

**$C_{12}H_{23}FO_3P$** Cyclohexyl fluophosphate, 121*d*, 8841*a*.

**$C_{12}H_{22}FeO_{14}$** Iron gluconate, 8051*f*.

**$C_{12}H_{22}HgO_2S_2$** 2 - Pentanone, 4-mercapto-4-methyl-, Hg deriv., 1722*g*.

**$C_{12}H_{23}HgS$** Cyclohexanethiol, Hg deriv., 1000*a*.

**$C_{12}H_{24}N_2$** 5,7 - Cyclooctadiene - 1,4 - diamine, *N*, *N*, *N'*, *N'*-tetramethyl, 591*g*.

Propionitrile, β - (cyclopentylisobutylamino)-, P 254*i*.

**$C_{12}H_{24}N_2O$** 4 - Morpholineacetonitrile, α-hexyl-, 4415*f*.

3 - Pyrazolone, 2 - butyl - 4 - isopropyl-1,5-dimethyl-, 7934*h*.

—, 2 - isobutyl - 4 - isopropyl - 1,5-dimethyl-, 7934*h*.

**$C_{12}H_{24}N_2O_2$** Butyramide, α - (allylpropionylamino) - *N*, *N* - dimethyl-, P 250*g*.

Crotonamide, *N* - (1 - diethylcarbamylethyl) - *N* - methyl-, P 249*b*.

—, *N* - (1 - dimethylcarbamylethyl)-*N*-isopropyl-, P 249*f*, P 6654*b*.

—, *N* - (1 - dimethylcarbamylethyl)-*N*-propyl-, P 249*e*.

—, *N* - (2 - dimethylcarbamylisopropyl)-*N*-ethyl-, P 251*e*.

—, *N* - (1 - dimethylcarbamylpropyl)-*N*-ethyl-, P 218*e*, P 250*a*, P 4431*h*, P 4687*a*, P 6224*i*, P 7956*a*.

—, *N* - ethyl - *N* - [1 - (ethylmethylcarbamyl)ethyl]-, P 249*c*.

—, *N* - [1 - (ethylmethylcarbamyl)propyl] - *N* - methyl-, P 249*h*.

Hydantoin, 5-hexyl-5-propyl-, 4637*d*.

2,5 - Pyrazinedione, 3 - *sec* - butyltetrahydro-6-isobutyl-, 3014*a*.

Seneciamide, *N* - (dimethylcarbamyl-*tert*-butyl)-, P 251*e*.

Valeramide, β - crotonylamino - *N*, *N*, β-trimethyl-, P 251*e*.

**$C_{12}H_{22}N_2O_2$** 6 - Hepten - 3 - ol, 2,2,3-trimethyl-, allophanate, 5735*d*.

Hydantoin, 5 - amyl - 5 - (1 - methoxypropyl)-, 6985*a*.

—, 5 - (1 - ethylpropyl) - 5 - (1-methoxypropyl)-, 6985*a*.

—, 5 - isoamyl - 5 - (1 - methoxypropyl)-, 6985*a*

—, 5 - (1 - methoxypropyl) - 5 - (methylbutyl)-, 6985*a*

**$C_{12}H_{23}N_3O_4$** Carbamic acid, 2-butenylidene di-, di-iso-Pr ester, 1390*a*.

**$C_{12}H_{23}N_3O_5$** 3,4 - Furandicarbamic acid, tetrahydro - 2 - (4 - hydroxybutyl)-, di-Me ester, P 1442*c*.

**$C_{12}H_{22}N_2S$** Putrescine, $N^1$, $N^4$ - diethyl-1-(2-thienyl)-, 2211*d*.

Thiophene, 2,5-bis(3-aminobutyl)-, 630*f*.

**$C_{12}H_{23}N_2MnO_{14} + 3H_2O$**, 4969*h*.

**$C_{12}H_{24}N_4$** Butyronitrile, α,α' - (ethylenediimino)bis[α-methyl-, 4415*g*.

Propionitrile, β,β' - (hexamethylenediimino)di-, P 5414*g*.

Valeronitrile, α,α' - (ethylenediimino)di-, 4415*i*.

**$C_{12}H_{23}NO$** 4(1*H*) - Quinolone, octahydro-2,7 - dimethyl-, semicarbazone, 2960*b*.

**$C_{12}H_{23}N_3O_4$** Phthalic acid, compd. with ethylenediamine, 8832*g*.

**$C_{12}H_{23}N_3O_5$** Glycine, *N* - [*N* - (*N* - glycylglycyl)leucyl]-, 2245*g*.

**$C_{12}H_{23}N_3O_5S$** Cystine, *N*, *N'* - dialanyl-, 1071*e*.

**$C_{13}H_{23}N_3O_3$** Bicarbamic acid, mono-Et ester diester with diethylene glycol, P 4293*d*.

**$C_{12}H_{23}N_4O_{14}P_3S$** Vitamin $B_1$ phosphate, triphosphate, 9122*d*.

**$C_{12}H_{22}O$** (See also *Cyclohexanol*, *cyclohexyl-*.)

Cyclododecanone, 7907*a*.

Ether, 1,5 - dimethyl - 1 - vinyl-4-hexenyl ethyl, P 6219*g*.

—, ethyl [1-(4-methyl-3-cyclohexen-1-yl)isopropyl]-, 8369*c*.

Geraniol, dimethyl-, 3778*d*.

4 - Hepten - 3 - one, 2,2,5,6,6 - pentamethyl-, 111*e*.

Hexanone, cyclohexyl-, 8360*f*, 8361*b*.

1,6 - Nonadien - 3 - ol, 3,4,7-trimethyl-, 3778*a*.

1,6 - Octadien - 3 - ol, 2,3,6,7 - tetramethyl-(?), 3777*i*.

Pinane, 3-ethoxy-, 189*e*.

**$C_{12}H_{22}O_2$** [Bicyclohexyl]-1,1' diol, 3366*f*

1,3 - Butanediol, 1 - (2 - methyl - 2 norcamphanyl)-, P 1058*f*.

Butanone, (3,5 - dimethylcyclohexyl)hydroxy-, 8362*b*.

—, (4 - methoxycyclohexyl)methyl, 2958*e*.

Caproic acid, α-ethyl-, butenyl ester, P 7038*e*.

Citronellic acid, Et ester, 4633*g*.

Cyclododecanol, acetate, 6988*f*.

Cyclohexanecarboxylic acid, penta methyl-, 2964*c*.

1,9 - Decadiene - 5,6 - diol, 5,6 - dimethyl-, 5735*b*.

5 - Decyne - 4,7 - diol, 4,7 - dimethyl-, 1333*d*.

Dodecenoic acid, 1580*i*, 2164*g*.

10-Hendecenoic acid, Me ester, 2591*e*.

3 - Hexyn - 2 - ol, 5 - butoxy - 2,5-dimethyl-, 3782*h*.

Methacrylic acid, 2-ethylhexyl ester, 9334*c*.

Methyl ester, $b_{12}$ 81 2°, 3376*h*.

2-Nonenoic acid, 3 methyl-, Et ester, 1381*f*.

Propane, 1,2 - epoxy - 3 - (3,3,5-trimethylcyclohexyloxy)-, P 2634*a*

**$C_{12}H_{22}O_2S$** Cyclohexanol, 2,2'-thiodi-, 7420*i*.

Cyclohexyl sulfone, 1003*c*.

**$C_{12}H_{22}O_2S_2$** Formic acid, thiobis[thiono-, diisoamyl ester, 144*c*.

**$C_{12}H_{22}O_2S_4$** Formic acid, dithiobis[thiono, diiso-Am ester, 6983*i*.

**$C_{12}H_{22}O_3$** Acetic acid, (3-*p*-menthyloxy)-, *Na salt*, 8100*c*.

Acetoacetic acid, 1-methylheptyl ester, 2945*a*.

Butanone, methoxy - 1 - (tetrahydro-2,2 - dimethylpyran - 4 - yl)-, 2161*i*, 2162*d*.

Capric acid, dimethyloxo-, 1335*d*, 2932*e*.

Caproic acid, α-acetyl-, *tert* Bu ester, 1317*d*.

Cycloheptanevaleric acid, 2-hydroxy-, 5375*e*.

Cyclohexaneacetic acid, 3 hydroxy-α,4-dimethyl-, Et ester, 2605*f*.

Cyclooctaneacetic acid, 1-hydroxy-, Et ester, 1375*e*.

Enanthic acid, α-acetyl-ε-methyl-, Et ester, 7911*f*.

Ether, bis(5 - methoxy - 2 - pentenyl), 5737*c*.

Hendecanoic acid, methyl-5-oxo-, 1373*h*, 6160*e*.

2 - Hexen - 1 - ol, 5 - isobutoxy-, acetate, 9026*b*.

Isoenanthic acid, α-isopropyl-β-oxo-, Et ester, 6170*i*.

Ketone, 2,5 - diethyltetrahydro - 6-hydroxy - 6 - methyl - 2*H* - pyran-2-yl methyl, 5024*a*.

Lauric acid, θ-oxo-, 3781*a*.

2,7 - Octanedione, 3 - ethoxy - 3,6-dimethyl-, 5024*b*.

**$C_{12}H_{22}O_2S_2$** *m*-Dioxane, 5-(2,2-dimethyl-1,3 - dithiolan - 4 - ylmethoxy) - 2,2-dimethyl-, 7424*b*.

1,3 - Dioxolane, 4 - [(2,2 - dimethyl-1,3-dithiolan - 4 - ylmethoxy)methyl]-2,2-dimethyl-, 7423*i*.

**$C_{12}H_{22}O_4$** Adipic acid, diisopropyl ester, 2590*e*; di-Pr ester, 2590*e*.

Dodecanedioic acid, 2685*i*.

Malonic acid, ethylisopropyl-, di-Et ester, 4217*g*.

—, (1-ethylpropyl)-, di-Et ester, 2581*b*.

Pentanediol, 2,4,4 - trimethyl-, diacetate, 1310*e*.

4 - Pentenoic acid, 4 - methyl - 3 - oxo-, Et ester di-Et acetal, 6168*i*.

Pimelic acid, α-methyl-, di-Et ester, 1381*c*.

Sebacic acid, mono-Et ester, 7303*b*.

Suberic acid, di-Et ester, 2590*e*.

Succinic acid, octyl-, 5069*i*, 5469*d*.

**$C_{12}H_{22}O_4S$** Acetic acid, thiodi-, 2-ethylhexyl ester, P 6224*f*, monooctyl ester, P 6224*f*.

2 - Thiophenevaleric acid, tetrahydro-3,4 - dihydroxy-, isopropyl ester, P 5806*b*.

**$C_{12}H_{22}O_5$** Caproic acid, β,β'-oxydi-, P 5037*e*.

Diglycolic acid, di-Bu ester, 9032*e*; diisobutyl ester, 9032*e*.

Malic acid, Bu ester, 1900*i*, 5150*f*.

Pimelic acid, α-(3-ethoxypropyl)-, 1414*h*.

Senecic acid, dihydro-, di-Me ester, 9076*b*.

**$C_{12}H_{22}O_6$** Oxalacetic acid, di-Et ester di-Et acetal, 6167*i*.

Tartaric acid, di-Bu ester, P 2033*i*.

**$C_{12}H_{22}O_6S$** Succinic acid, sulfo-, di-Bu ester, *Na salt*, 6915*h*

**$C_{12}H_{22}O_8$** Glucosaccharic acid, 2,3,4,5-tetramethyl-, di Me ester, 8357*f*.

**$C_{12}H_{22}O_9$** Diglycolic acid, bis[2 - (methoxymethoxy)ethyl] ester, 9032*e*.

**$C_{12}H_{22}O_{11}$** (See also *Cellobiose*; *Lactose*; *Maltose*; *Sucrose*.)

D - Glucose, 6 - α - D - glucopyranosyl-, 2583*d*.

Isomaltose, 5748*d*.

Melibiose, 1904*h*, 5744*e*, 7861*c*.

Neolactose, 2669*i*.

Saccharose, 3795*i*.

Trehalose, 1904*g*, 6986*g*, 7065*i*, 7544*d*.

**$C_{12}H_{22}O_{12}$** Melibionic acid, *Ca salt*, 5744*d*.

**$C_{12}H_{22}PbS_2$** Cyclohexanethiol, Pb deriv., 998*c*.

**$C_{12}H_{22}S$** Cyclohexyl sulfide, 996*b*, 1000*a*, 1003*c*.

**$C_{12}H_{22}S_2$** Cyclohexyl disulfide, 996*c*, 1000*a*, 7410*g*.

**$C_{12}H_{22}S_3$** Cyclohexyl trisulfide, 996*c*.

**$C_{12}H_{22}S_4$** Cyclohexyl tetrasulfide, 1002*c*.

**$C_{12}H_{22}S_6$** Cyclohexyl hexasulfide, 1002*d*, 7410*g*.

**$C_{12}H_{23}BrO_2$** Lauric acid, α bromo-, P 3840*b*.

**$C_{12}H_{23}ClO$** Ether, chloropentenyl methylhexyl, 9025*f*, 3218*b*, 4241*c*.

**$C_{12}H_{23}ClO_2$** Caproic acid, α-butyl-, 2-chloroethyl ester, P 6241*g*.

2 - Hexene, 1 - butoxy - 6 - chloro 5-ethoxy-, 2159*a*.

Lauric acid, β chloro-, 2164*g*.

**$C_{12}H_{24}Cl_2NO$** Acetamide, *N*, *N*-diamyl-α,α dichloro-, 1720*c*.

Acetamide, α,α-dichloro-*N*-decyl-, 1720*c*.

**$C_{12}H_{23}N$** (See also *Lauronitrile*.)

2-Bicyclohexylamine, 5803*h*, *and* -*HCl*, 5011*a*.

Bornylamine, *N*, *N*-dimethyl-, 3392*e*.

Dicyclohexylamine, 2956*g*, P 3041*a*, 3373*f*, P 6647*d*; *nitrite*, P 1058*a*, 7140*e*.

Pelargononitrile, ε-propyl-, 6165*d*.

**$C_{12}H_{23}NO$** Azacyclotridecan-2-one, 5400*d*.

Cyclododecanone, oxime, 5400*d*.

Isocyanic acid, 1-isoamylisohexyl ester, 2166*h*.

4 - Piperidone, 2 - ethyl - 1,6 - dimethyl-3-propyl-, 2959*i*.

4 - Quinolinol, 4 - ethyldecahydro - 2-methyl-, *and* -*HCl*, 2960*h*.

1*H* - Quinolizine, 1 - (ethoxymethyl)-octahydro-, 6210*c*.

1*H* - Quinolizine - 3 - methanol, octahydro-α,4-dimethyl-, 4268*b*.

**$C_{12}H_{23}NO_2$** Acetaldehyde, [bis(2 - methylallyl)amino]-, di-Me acetal, *and its* -*HCl*, 6974*c*.

Acetamide, α - (cyclohexyloxy) - *N*, *N*-diethyl-, 7183*i*.

Cyclohexanebutyramide, *N* - 2 - hydroxyethyl-, 2273*h*.

Formamide, *N* - [2 - (3 - ethoxypropyl)-cyclohexyl]-, 1415*a*.

Morpholine, 4-caprylyl-, 5893*i*.

**$C_{12}H_{23}NO_2S$** 3 - Thiophenine, *N* - cyclohexyltetrahydro - 3,5 - dimethyl-, 1,1-dioxide, P 3851*e*.

**$C_{12}H_{23}NO_3$** Acetoacetic acid, α-(2-diethyl-

aminoethyl)-, Et ester, 1009*e*, P 6238*e*.
Acetoacetic acid, α-(diethylaminomethyl)-α-methyl-, Et ester, 7643*b*.
Norleucine, *N*-acetyl-α-butyl-, 1723*h*.
Sebacamic acid, Et ester, 1780*g*.
Succinamic acid, *N*,*N*'-dipropyl-, Et ester, 5150*g*.

$C_{12}H_{23}NO_4$ Aspartic acid, β-octyl-, 1323*b*.
Butyric acid, γ-[(carboxymethyl)ethylamino]-, di-Et ester, 6206*i*.
Dimethylamine, 1,1'-bis(2,2-dimethyl-1,3-dioxolan-4-yl)-, P 8181*b*.
Imidodicarboxylic acid, di-Am ester, 4228*g*.
Isoleucine, *N*-(α-hydroxyisovaleryl)-*N*-methyl-, 3788*e*.

$C_{12}H_{23}NO_5$ Butyric acid, α-(α,γ-dihydroxy-β,β-dimethylbutyrylamino)-α-ethyl-, *Na salt*, 722*h*.

$C_{12}H_{23}NO_5$ Glucosaminide, *N*-acetyl-3,4,6-trimethyl-α-methyl-, 5866*b*.

$C_{12}H_{23}NS$ Thiocyanic acid, hendecyl ester, 2720*d*.

$C_{12}H_{23}N_3O$ Butanone, (methylcyclohexyl)-, semicarbazone, 1176*g*, 8360*f*.
Cyclopentanone, 3-ethyl-4-methyl-2-propyl-, semicarbazone, 6623*g*.
2-Hendecenal, semicarbazone, 5786*i*.
5-Nonen-4-one, 5-ethyl-, semicarbazone, 1317*g*.

$C_{12}H_{27}N_3O_2$ 1-Butanone, 1-cyclohexyl-2-methoxy-, semicarbazone, 6974*i*.
2-Butanone, 1-(tetrahydro-2,2-dimethylpyran-4-yl)-, semicarbazone, 2162*a*.
Cyclodecanone, 6-methoxy-, semicarbazone, 6190*e*.
Cyclohexanone, 2-(3-ethoxypropyl)-, semicarbazone, 1414*h*.

$C_{12}H_{23}NO_3$ Hendecanoic acid, 6-oxo-, semicarbazone, 3366*g*.

$C_{12}H_{23}N_3O_3S_3$ 3,7-Phenothiazinedisulfonic acid, 2,8-diaminododecahydro-, 5560*h*.

$C_{12}H_{23}N_3$ Piperidine, 1-[(1-isoamyl-1*H*-tetrazol-5-yl)methyl]-, 1864*g*; *-HCl*, P 7972*a*.
Pyrimidine, 2-amino-4-(4-diethylamino butylamino)-, P 4704*d*.
—, amino(2-diethylaminoethylamino)-dimethyl-, P 6243*f*, 9038*d*.
—, 4-amino-6-(3-diethylaminopropylamino)methyl-, P 6243*f*, P 6244*c*.
s-Triazine, 2,4-diamino-6-nonyl-, P 1814*d*.

$C_{12}H_{23}N_5O$ *s*-Triazine, 2-amino-4-amylamino-6-butoxy-, 4269*d*.
s-Triazine, 2,4-bis(diethylamino)-6-methoxy-, 4269*f*.

$C_{12}H_{23}O_4PS_3$ Cyclohexyl thiophosphate, P 7859*b*.

$C_{12}H_{24}$ Decane, 4,7-dimethyl-, 1333*e*.
Dodecene, 1895*e*, 2150*i*, 2591*g*, 3715*h*.
Heptane, 4-cyclopentyl-, 5370*a*.
Heptene, pentamethyl-, 5176*f*, 6151*bc*.
Hexane, 1-cyclohexyl-, 10*e*, 8360*f*.
2-Octene, 2,4,4,7-tetramethyl-, 3311*i*.
Pentene, 2-(2,2-dimethylpropyl)-4,4-dimethyl-, 5176*f*, 6151*b*.
—, 3-isobutyl-2,4,4-trimethyl-, 5176*f*.
Propene, 2-methyl-, trimer, 1091, 1895*e*, P 2219*a*, P 5584*d*, 6151*a*, P 7222*d*, P 7959*b*.

$C_{12}H_{24}BrNO$ Acetamide, α-bromo-*N*-decyl-, 5081*h*.
Acetamide, *N*,*N*-diamyl-α-brom-, 5081*h*.

$C_{12}H_{24}Br_2N_2$ Tetradecahydrodipyrido[1,2-*a*;1',2'-*d*]pyrazidinium dibromide, 2966*h*.

$C_{12}H_{24}ClNO$ 2-Propanol, 1-chloro-3-(cyclopentylisobutylamino)-, P 254*a*.

$C_{12}H_{24}Cl_2S$ Sulfide, bis(6-chlorohexyl), P 9358*b*.

$C_{12}H_{24}ClNS_3$ Triethylamine, 2,2',2''-tris(2-chloroethylmercapto)-, *-HCl*, 2927*e*.

$C_{12}H_{24}Cl_6N_2S$ Triethylamine, 2,2'''-thiobis[2''',2''-ethanediylbis(oxy)]tris-, 5505*d*.

$C_{12}H_{24}FN_2OP$ Diamidophosphoryl fluoride, *N*,*N*'-dicyclohexyl-, 1314*f*.

$C_{12}H_{24}I_2N_2S$ 2,5-Thiophenebismethylamine, *N*,*N*,*N*',*N*'-tetramethyl-, dimethiodide, 1764*b*.

$C_{12}H_{25}N_3$ Butyramidine, *N*-cyclohexyl-α-ethyl-, *-HCl*, P 3456*h*.
Caprylonitrile, α-diethylamino-, 4415*i*.
Glycolonitrile, *N*,*N*-diamyl-, P 4703*i*.
—, *N*,*N*-diisoamyl-, P 4703*h*.

$C_{12}H_{25}NO_2S_2$ 4-Thiazolidinecarbothiolic acid, 5,5-dimethyl-2-thioxo-, Et$_2$N salt, P 6921*i*.

$C_{12}H_{25}N_3O_2$ Butyramide, α-(*N*-butylacetamido)-*N*,*N*-dimethyl-, P 250*h*.
Butyramide, α-(*N*-*sec*-butylacetamido)-*N*,*N*-dimethyl-, P 248*f*, P 250*i*, P 6654*b*.
—, α-butyrylamino-*N*,*N*-diethyl-, P 251*c*.
—, α-(butyrylethylamino)-*N*,*N*-dimethyl-, P 249*i*.
—, *N*,*N*-diethyl-α-(*N*-ethylacetamido)-, P 250*b*.
—, *N*-(1-dimethylcarbamylethyl)-*N*-propyl-, P 249*e*.
—, *N*-(1-dimethylcarbamylethyl)-*N*,β,β-trimethyl-, P 249*a*.
—, *N*,*N*-dimethyl-α-(propionylpropylamino)-, P 248*e*, P 250*f*, P 4680*f*, P 5793*f*.
—, α-(ethylisobutyrylamino)-*N*,*N*-dimethyl-, P 249*i*.
—, α-(isopropylpropionylamino)-*N*,*N*-dimethyl-, P 250*f*.
Caproamide, α-(*N*-ethylacetamido)-*N*,*N*-dimethyl-, P 251*a*.
Isovaleramide, *N*-(1-dimethylcarbamylpropyl)-*N*-methyl-, P 249*h*.
—, *N*,*N*-dimethyl-α-(*N*-propylacetamido)-, P 248*f*, P 251*a*, P 6654*b*.
Pelargonamide, β-propionylamino-, 236*d*.
Propionamide, α-(butylpropionylamino)-*N*,*N*-dimethyl-, P 249*f*, P 6654*a*.
—, *N*,*N*-diethyl-α-(*N*-isopropylacetamido)-, P 249*f*.
Valeramide, *N*,*N*-dimethyl-α-(*N*-propylacetamido)-, P 250*h*.

$C_{12}H_{24}N_2O_2S$ Butyramide, α-[ethyl(α-methylmercaptopropionyl)amino]-*N*,*N*-dimethyl-, P 250*a*.
Sulfamide, *N*,*N*'-dicyclohexyl-, 2573*d*.

$C_{12}H_{24}N_2O_3$ Carbamic acid, [1-(carbamylmethyl)heptyl]-, Et ester, 6597*g*
Furfurylamine, tetrahydro-*N*-isopropyl-*N*-2-nitrosobutyl-, P 5424*h*.

$C_{12}H_{24}N_2O_4$ 1,10-Decanediol, dicarbamate, P 4690*h*.

$C_{12}H_{24}N_2O_4S_2$ Cystine, bis(trimethyl betaine), 3105*i*.

$C_{12}H_{24}N_2O_6$ 2-Pyrrolidinemethanol, oxalate, 1723*d*, 2582*i*.

$C_{12}H_{24}N_4O$ Isospherophysine, acetyl-, 238*g*.
Smirnovine, 238*g*.
Spherophysine, acetyl-, 238*g*.

$C_{12}H_{24}N_6O_3$ Melamine, $N^2$,$N^4$,$N^6$-tris(ethoxymethyl)-, P 3473*i*.
2,7-Octanedione, 3-hydroxy-3,6-dimethyl-, disemicarbazone, 5024*a*.

$C_{12}H_{24}O$ Cyclododecanol, 6988*f*.
Cyclohexanepentanol, α-methyl-, 8361*a*.
Cyclohexanepropanol, α-propyl-, 8360*i*.
5-Decanone, 4,7-dimethyl-, 1333*f*.
4-Dodecanone, 4637*e*.
Nonanone, trimethyl-, 4101*h*.
2-Octen-1-ol, 2-butyl-, P 3438*e*.

$C_{12}H_{24}O_2$ (See also *Lauric acid*.)
1,3-Butanediol, 1-(3,5-dimethylcyclohexyl)-, P 1058*e*.
Butyric acid, α-ethyl-, 2-ethylbutyl ester, 2165*b*.
Capric acid, Et ester, 2416*c*, 2590*d*, 3612*a*, 8250*h*.
—, γ,γ-dimethyl-, 2932*e*.
—, α-ethyl-, 3774*e*, *Na salt*, 4668*bh*.
—, α-methyl-, Me ester, 6165*e*.
Caproic acid, α-*sec*-butyl-, Et ester, 1317*e*.
—, α-isobutyl-, Et ester, 1317*e*.
Caprylic acid, α-butyl-(?), 3774*e*.
—, 5-propyl-, Me ester, 6165*d*.
Cyclohexanemethanol, 4-hydroxy-α,α-1,3,4-pentamethyl-, 3777*i*.
Hendecanoic acid, methyl-, 1373*h*, 6160*fi*, 6161*a*.
3-Hexen-2-ol, 5-butoxy-2,5-dimethyl-, 3782*i*.
Isocaproic acid, α-isobutyl-, Et ester, 1317*e*.
*p*-Menthane, 1,8-dimethoxy-, 8369*a*.
Pelargonic acid, α-propyl-, 6165*e*.
Valeric acid, α-*tert*-butyl-α,γ,γ-trimethyl-, 4213*e*.

$C_{12}H_{24}O_3$ Capric acid, α-hydroxy-, Et ester, 188*d*.
Caprylic acid, α-butoxy-, *and Bi salt*, 2488*i*.
—, ε-hydroxy-β,ζ-dimethyl-, Et ester, 2176*a*.
1-Hexanol, 5-isobutoxy-, acetate, 9026*b*.
Lauric acid, α-hydroxy-, P 3219*i*, P 3840*e*.
Pelargonic acid, β-hydroxy-β-methyl-, Et ester, 1381*e*.
Propanol, 2-(2-cyclohexyloxypropoxy)-, 5150*g*.

$C_{12}H_{24}O_4$ Isocaproic acid, β-oxo-, Et ester di-Et acetal, 6169*b*.

$C_{12}H_{24}O_4S_2$ Thiophene, tetrahydro-3-(octylsulfonyl)-, 1,1-dioxide, P 2238*a*.

$C_{12}H_{24}S_3$ *s*-Trithiane, 2,4,6-triethyl-2,4,6-trimethyl-, 4633*c*.

$C_{12}H_{25}Br$ Dodecane, bromo-, 107*h*, 2591*a*, P 2628*a*, 4912*b*.
Hendecane, 5-bromo-2-methyl-, 107*f*.
Nonane, 1-bromo-2-ethyl-3-methyl-, 1374*d*.

$C_{12}H_{25}Cl$ Dodecane, 1-chloro-, 1312*a*, 2590*i*, 4912*b*.

$C_{12}H_{25}Cl_3OSi$ Silane, trichloro(dodecyloxy)-, P 5093*h*, P 6430*e*.

$C_{12}H_{25}I$ Dodecane, 4-iodo-, 107*h*.

$C_{12}H_{25}KO$ Potassium dodecyloxide, P 2218*h*.

$C_{12}H_{25}N$ Azacyclotridecane, 5400*d*.
Decenylamine, *N*,*N*-dimethyl-, P 8668*c*.
Piperidine, 1-(1-methylhexyl)-, *and -HCl*, 7919*i*.

$C_{12}H_{25}NNaO_{10}Sb$ See *Solustiboxan*.

$C_{12}H_{25}NO$ 2-Butanone, 4-dibutylamino-, P 2242*b*.
Hendecanamide, 3-methyl-, 6160*ft*.
Isoenanthamide, α-isoamyl-, 2166*h*.
—, α-isopropyl-*N*,*N*-dimethyl-, 1144*e*.
Lauramide, P 2004*a*.
4-Piperidinol, 4-butyl-2,3,6-trimethyl-, 6623*a*.

$C_{12}H_{25}NO_2$ Acetaldehyde, cyclohexylamino-, di-Et acetal, *and -HCl*, 6974*d*.
Capramide, *N*-2-hydroxyethyl-, 2273*h*.
Enanthic acid, α-amino-α-amyl-, 1323*a*
Hendecanoic acid, 2-amino-2-methyl-, 1323*a*.
Isoenanthic acid, α-amino-α-isoamyl-, *and -HCl*, 2167*d*.
Valeramide, β-hydroxy-β-methyl-*N*,*N*-dipropyl-, 7184*a*.

$C_{12}H_{25}NO_3$ Butyric acid, α-(diethylaminomethyl)-β-hydroxy-α-methyl-, Et ester, 7643*c*.

$C_{12}H_{25}NO_4S$ Cyclohexanone, compd. with 1 methylpiperidine bisulfite, 3355*h*.

$C_{12}H_{25}N_3$ Pyrrolidine, 1,1'-(iminodiethylene)di-, 2207*d*.

$C_{12}H_{25}N_3O$ 2-Hendecanone, semicarbazone, 6161*c*
2-Heptanone, 3-*sec*-butyl-, semicarbazone, 1317*c*.
—, 3-isobutyl-, semicarbazone, 1317*b*.
1-Piperazinecarboxamide, *N*,*N*-diethyl-4-isopropyl-, *-HCl*, P 6245*e*.
—, *N*,*N*-diethyl-2,4,5-trimethyl-, P 6245*h*.
—, *N*,*N*-diisopropyl-4-methyl-, *-HCl*, P 6245*d*.

$C_{12}H_{25}N_3O_2$ 4-Decanone, 3-methoxy-, semicarbazone, 6974*i*.

$C_{12}H_{25}NaO_4S$ See *Dodecyl sodium sulfate*.

$C_{12}H_{26}$ (See also *Dodecane*.)
Decane, 4,7-dimethyl-, 1333*e*.
Heptane, 2,2,4,6,6-pentamethyl-, 5176*f*.
Octane, 3,3-diethyl-, 9023*f*.
—, tetramethyl-, 3344*i*, 9023*d*.
Pentane, 3-isopropyl-2,2,4,4-tetramethyl-, 5176*f*.

$C_{12}H_{26}ClNO$ 2-Propanol, 1-(butylisobutylamino)-3-chloro-2-methyl-, P 254*b*.
2-Propanol, 1-(*sec*-butylisobutylamino)-3-chloro-2-methyl-, P 254*b*.
—, 1-(butyl-1-methylbutylamino)-3-chloro-, P 254*a*.
—, 1-chloro-3-dibutylamino-2-methyl-, P 254*b*
—, 1-chloro-3-diisobutylamino-2-methyl-, P 254*b*.
—, 1-chloro-3-(isobutyl-1-methylbutylamino)-, P 254*a*.

$C_{12}H_{26}Cl_2Si$ Silane, dichlorododecyl-, P 8744*a*.

$C_{12}H_{27}FO_3P$ Fluophosphoric acid, bis(1,3-dimethylbutyl) ester, 8351*b*.

$C_{12}H_{27}INO_2$ 1-(2,2-Diethoxyethyl)-1-methylpiperidinium iodide, 6974*d*.

$C_{12}H_{28}N_2$ 1-Butene-1,3-diamine, *N*,*N*,*N*',*N*'-tetraethyl-, 4248*i*.
1,4-Cyclooctanediamine, *N*,*N*,*N*',*N*'-tetramethyl-, 591*g*.
1,2-Propanediamine, $N^2$-cyclopentyl-$N^2$-isobutyl-, P 255*a*.

$C_{12}H_{28}N_2O$ 2-Butanone, 4-dibutylamino-, oxime, P 2242*b*.
Butyramide, α-butylamino-*N*,*N*-diethyl-, P 250*h*.
Urea, (1-isoamylisohexyl)-, 2166*h*.

$C_{12}H_{28}N_2O_2$ 1,4-Piperazinediethanol, 2,2,5,5-tetramethyl-, 3015*f*.

$C_{12}H_{26}N_2O_6$ Acetic acid, ethoxy-, piperazine salt, 235*e*.
$C_{12}H_{26}N_4$ Pyrimidine, 2 - (3 - diethylaminopropylamino) - 1,4,5,6 - tetrahydro-methyl-, 4273*d*.
$C_{12}H_{26}N_4S_2$ Pseudourea, 2,2′ - decamethylenebis[2-thio-, 7581*f*.
$C_{12}H_{26}O$ (See also *Dodecyl alcohol.*)
4-Dodecanol, 4637*c*.
5-Hendecanol, 2-methyl-, 107*f*.
4 - Heptanol, 4 - isopropyl - 2,6-dimethyl-, 6967*g*.
3 - Hexanol, 3 - *tert* - butyl - 2,2 - dimethyl-, 111*d*.
Hexyl ether, 2590*a*.
1-Nonanol, 2-ethyl-3-methyl-, 1374*d*.
1-Octanol, 2-butyl-, P 3438*e*.
3-Pentanol, 3-isopropyl - 2,2,4,4-tetramethyl-, 111*f*.
$C_{12}H_{26}O_2$ Acetaldehyde, diisoamyl acetal, 5365*g*.
Dodecanediol, 3780*i*, 3781*a*.
2 - Hexanol, 5 - butoxy - 2,5 - dimethyl-, 3782*i*.
$C_{12}H_{26}O_2S$ 1 - Dodecanesulfinic acid, *and salts*, 2572*d*.
$C_{12}H_{26}O_3$ 3,4,5 - Heptanetriol, 3,3 - dimethyl-4-propyl-, 2944*f*.
$C_{12}H_{26}O_3S$ See *Dodecanesulfonic acid*.
$C_{12}H_{26}O_4$ Peroxide, (1-methylpropylidene)-bis[*tert*-butyl, P 2029*g*, 6156*g*.
$C_{12}H_{26}O_5S_2$ D - Glucose, diisopropyl mercaptal, P 5625*h*; di-Pr mercaptal, P 5625*h*.
$C_{12}H_{26}O_6$ Acetone, compd. with glycerol, 7409*a*; compd. with triethylene glycol, 7409*a*.
$C_{12}H_{26}S$ (See also *Dodecanethiol.*)
*tert*-Dodecyl mercaptan, 1716*a*, 2019*b*, P 6458*a*.
Hexyl sulfide, 2956*e*.
$C_{12}H_{26}Se$ Hexyl selenide, P 6820*g*.
$C_{12}H_{27}AlO_3$ Aluminum *tert*-butoxide, 7415*e*.
$C_{12}H_{27}BO_3$ Butyl borate, P 5414*i*.
$C_{12}H_{27}ClO_3Si$ Silane, tributoxychloro-, 9028*e*.
$C_{12}H_{27}N$ (See also *Dodecylamine.*)
Hexylamine, *N*,1,3,3,4,4 - hexamethyl-, *and - HCl*, 131*h*.
Tributylamine, 2956*g*, 3353*e*, 5241*b*, P 5626*g*.
$C_{12}H_{27}NO_2$ Acetaldehyde, dibutylamino-, di-Me acetal, 6974*c*.
$C_{12}H_{27}NO_3S$ Tributylamine, compd. with $SO_3$, 5241*c*.
$C_{12}H_{27}NO_3S$ Tributylamine, compd. with $SO_3$, 5241*b*.
$C_{12}H_{27}NO_4S$ Acetone, compd. with 1-butylpiperidine bisulfite, 3355*h*.
Cyclopentanone, compd. with heptylamine bisulfite, 3356*b*.
$C_{12}H_{27}NO_4$ Ethanol, 2,2′,2″ - [nitrilotris(ethyleneoxy)]tri-, P 8712*f*.
$C_{12}H_{27}O_2PS_2$ Hexyl thiophosphate, 7859*b*.
$C_{12}H_{27}O_3P$ Butyl metaphosphate, P 6846*a*.
Butyl octyl phosphite, P 1794*b*.
Dodecyl phosphite, P 1794*b*.
$C_{12}H_{27}O_4P$ Butyl phosphate, 1555*h*, 1893*c*, P 6845*d*, 6937*a*, P 9478*b*.
Dodecyl phosphate, P 1177*c*.
Isobutyl phosphate, P 9478*b*.
$C_{12}H_{28}Br_2OSn_2$ Dipropyltin oxide, complex with dipropyltin dibromide, 7900*c*.
$C_{12}H_{28}CuN_{10}$ Biguanide, diethyl-, Cu deriv., 8222*c*, 8941*b*.
$C_{12}H_{28}N_2$ 1,3 - Butanediamine, $N^1$, $N^1$-dibutyl-, P 2242*a*.
Ethylenediamine, *N*, *N*-diamyl-, P 4703*i*.
—, *N*, *N*-diisoamyl-, P 4703*h*.
$C_{12}H_{28}N_2O$ 2 - Heptanol, 6 - (2 - dimethylaminoethylamino) - 2 - methyl-, *- HCl*, 9248*f*.
$C_{12}H_{28}N_2O_4S_2$ Butylamine, 4 - (methylsulfinyl)-, oxalate, 1725*e*.
$C_{12}H_{28}N_2O_8$ Oxalic acid, salt with 2-amino-1,5-pentanediol, 2582*c*.
$C_{12}H_{28}N_6$ See *Synthalin*.
$C_{12}H_{28}O_2Si$ Silane, diisoamyldimethoxy-, P 4287*a*, P 5033*f*.
$C_{12}H_{28}O_3Si$ Silane, tri-*sec*-butoxy-, 9028*b*.
$C_{12}H_{29}O_7P_3$ Isopropyl pyrophosphate, 1315*b*, P 9357*a*.
Propyl pyrophosphate, 1315*b*.
$C_{12}H_{28}O_3Si$ Ethanol, 2-methoxy-, silicate, 2160*c*.
$C_{12}H_{28}Pb$ Lead, tetrapropyl-, 4598*c*.
$C_{12}H_{29}NO_4S$ Isovaleraldehyde, compd. with heptylamine bisulfite, 3356*c*.
Valeraldehyde, compd. with heptylamine bisulfite, 3356*c*.
$C_{12}H_{29}NSi$ Silane, triethylhexylamino-, 5739*e*.
$C_{12}H_{30}Br_2CuN_{10}$, 8941*d*.
$C_{12}H_{30}Br_2NiP_2$, 7856*f*.
$C_{12}H_{30}Br_4P_2Pt$, 4172*h*.
$C_{12}H_{30}Cl_2CuN_{10}$, 8941*c*.
$C_{12}H_{30}Cl_2N_2Pt$, 1676*c*.
$C_{12}H_{30}CuI_2N_{10}$, 8941*d*.
$C_{12}H_{30}CuN_{10}O_4S$ *and trihydrate*, 8941*d*.
$C_{12}H_{30}CuN_{12}O_6$, 8941*d*.
$C_{12}H_{30}HgN_{14}O_3$, P 3837*g*.
$C_{12}H_{30}N_4$ 1,6-Hexanediamine, *N*, *N′*-bis(3-aminopropyl)-, P 5414*g*.
$C_{12}H_{30}OSi_2$ Disiloxane, hexaethyl-, 2178*a*, 4215*e*.
$C_{12}H_{30}O_3Si_3$ Cyclotrisiloxane, hexaethyl-, 1316*c*, 2513*a*.
$C_{12}H_{30}O_4Si_2$ Ethyl silicate, 2573*i*, 5738*f*.
$C_{12}H_{30}O_{12}P_4$ See *Ethyl tetraphosphate*.
$C_{12}H_{31}ClCuN_{10}O$, 8941*c*.
$C_{12}H_{31}Cl_3O_4Si_5$ Pentasiloxane, 1,3,5,7,-9-pentakis(chloromethyl)heptamethyl-, 2930*c*.
$C_{12}H_{31}NO_6Si_2$ Disilazane, 1,1,1,3,3,3-hexaethoxy-, 1006*b*.
$C_{12}H_{32}Cl_2O_4Si_5$ Pentasiloxane, 3,5,7-tris-(chloromethyl)nonamethyl-, 2930*c*.
$C_{12}H_{33}N_3Si_3$ Cyclotrisilazane, 2,2,4,4,6,6-hexaethyl-, 1315*i*, 6971*f*.
$C_{12}H_{34}Cl_2O_4Si_5$ Pentasiloxane, 1,9-bis-(chloromethyl)decamethyl-, 2930*b*.
$C_{12}H_{34}O_5Si_4$ Tetrasiloxane, 1,7-diethoxyoctamethyl-, P 6221*c*.
$C_{12}H_{36}Cl_2N_4Pt$, 1676*d*.
$C_{12}H_{36}Cl_4N_2O_6P_2Pt_2$, 4172*h*.
$C_{12}H_{36}Cl_4N_2P_2Pt_2$, 4172*g*.
$C_{12}H_{36}Cl_4N_4Pt_2$, 1676*e*.
$C_{12}H_{36}O_4Si_5$ Pentasiloxane, dodecamethyl-, 1867*b*, 4067*f*, P 4402*f*, P 6220*h*.
$C_{12}H_{36}Si_6$ Cyclohexasilane, dodecamethyl-, 4218*e*.
$C_{12}H_{42}I_2N_6Pt_2$, 6536*d*, 8942*b*.
$C_{12}H_{48}Bi_2N_{24}O_{50}P_2S_{12}W_{24}$, 1672*d*.
$C_{12}F_{22}$ Fluorene, docosafluorododecahydro-, P 4301*a*.
$C_{13}H_4Cl_6O_3$ Carbonic acid, bis(2,4,5-trichlorophenyl) ester, 3133*f*.
$C_{13}H_5N_3O_7$ 9 - Fluorenone, 2,4,7 - trinitro-, 1753*g*.
$C_{13}H_5Br_6N_2O$ Carbanilide, 2,2′,4,4′,6,6′-hexabromo-, 3378*c*.
$C_{13}H_6ClN_3O_4$ Phenanthridine, 6-chloro-3,8-dinitro , 1419*h*.
$C_{13}H_6Cl_2N_2O_2$ Acridine, 2,9-dichloro-7-nitro-, 7937*g*.
$C_{13}H_6Cl_3N$ Acridine, 3,6,9 trichloro , 6633*h*.
$C_{13}H_6Cl_3NO$ Cyclopentadiene-$\Delta^{1,\alpha}$-acetanilide, $\alpha$,2,3,4,5-pentachloro-, 4231*e*.
$C_{13}H_6Cl_6$ Cyclopentadiene, hexachloro-, compd. with PhC:CH, P 4693*e*.
$C_{13}H_6Cl_6N_2O$ Carbamide, 2,2′,4,4′,6,6′-hexachloro-, 348*g*, 3378*c*.
$C_{13}H_6Cl_6O$ Ether, *p*-chlorobenzyl pentachlorophenyl, 3138*b*.
$C_{13}H_6Cl_6O_2$ Phenol, methylenebis[trichloro-, 3196*b*, 1104*i*, 1201*h*, P 1587*d*, 1896*c*, 8614*h*, P 9389*i*.
$C_{13}H_6I_4O_4$ Benzoic acid, 4-(4 hydroxy-3,5-diiodophenoxy) - 3,5 - diiodo-, 2327*b*, 7585*d*.
$C_{13}H_6N_4O_6S_2$ Benzothiazole, 2-(2,4-dinitrophenylmercapto)-6-nitro-, 2022*ab*.
$C_{13}H_6O_3$ 1*H* - Benzonaphthene - 1,2,3-trione, 7378*h*.
$C_{13}H_6O_4S$ Thiaphanthrenecarboxylic acid, dihydrodioxo-, P 6608*h*, P 9467*h*.
$C_{13}H_7ClN_2O_2$ Benzo[*g*]quinoline, 4-chloro-3-nitro-, 1418*c*.
$C_{13}H_7ClN_2O_2S$ Benzothiazole, 5-chloro-6-nitro-2-phenyl-, 5776*c*.
$C_{13}H_7ClN_4O_2S$ Benzothiazole, 6-chloro-, picrate, 7476*d*.
$C_{13}H_7ClO_2$ 3 - Dibenzofurancarbonyl chloride, P 857*e*.
$C_{13}H_7Cl_2N$ Benzo[*h*]quinoline, 2,4-dichloro-, 1419*h*, P 7974*b*.
$C_{13}H_7Cl_2NO$ 9(10*H*) - Acridone, 3,6-dichloro-, 6633*h*.
$C_{13}H_7Cl_2NOS_4$ Ketone, 5 - chloro - 2-thienyl 4 - (5 - chloro - 2 - thienyl)-2-thiazolylmercaptomethyl, 5393*d*.
$C_{13}H_7Cl_3O_2$ Benzoyl chloride, 3-chloro-4-(*p*-chlorophenoxy)-, P 857*d*.
Phenol, trichloro-, benzoate, 3133*fg*.
$C_{13}H_7NO_3$ 9-Fluorenone, nitro-, 3394*g*.
$C_{13}H_7N_3O_4S_2$ Benzothiazole, 2-(2,4-dinitrophenylmercapto)-, 1210*g*, 7744*b*.
$C_{13}H_7N_3O_7 + 2H_2O$ Pteridine, picrate, 2625*b*.
$C_{13}H_8Ag_2N_2O_2S$ Semicarbazide, 1,4-bis(3-pyridylcarbonyl) - 3 - thio-, Ag deriv., 7483*i*.
$C_{13}H_8AsCl_2N$ Arsine, bis(chlorophenyl)-cyano-, 3383*d*.
$C_{13}H_8BrN$ Phenanthridine, 6-bromo-, 1420*d*.
$C_{13}H_8BrNOS$ Ketone, 5-bromo-2-thienyl 3-indolyl, 4066*c*.
$C_{13}H_8Br_2$ Fluorene, 9,9-dibromo-, 4658*h*.
$C_{13}H_8Br_2O$ Benzophenone, 4,4′-dibromo-, 1349*d*, 9333*d*.
$C_{13}H_8Br_2O_2$ Xanthydrol, 2,7-dibromo-, 3822*eg*.
$C_{13}H_8Br_4O_2$ Phenol, 2,2′-methylenebis-[4,6-dibromo-, P 1587*d*.
$C_{13}H_8ClF_3O$ Ether, *o* - chlorophenyl $\alpha,\alpha,\alpha$-trifluoro-*m*-tolyl, P 6234*h*.
$C_{13}H_8ClIO$ Benzophenone, 4-chloro-4′-iodo-, 1753*b*.
$C_{13}H_8ClN$ Acridine, 9-chloro-, 646*d*, 649*c*, P 3853*h*, 7373*e*.
Pyridine, (*p* - chlorophenylethynyl)-, *and - HCl*, 2208*a*.
$C_{13}H_8ClNO$ 9(10*H*)-Acridone, 3-chloro-, 3826*g*.
Benzoxazole, 2 - (*p* - chlorophenyl)-, 9065*f*.
$C_{13}H_8ClNO_3$ Fluorene, 2 - chloro - 7-nitro-, 7005*d*.
$C_{13}H_8ClNS$ Benzothiazole, 2-chloro-5-phenyl-, P 6670*c*.
$C_{13}H_8ClN_3O_5$ Anthranoyl chloride, 5-nitro-*N*-(*p*-nitrophenyl)-, 6176*b*.
Salicylic acid, 5-(2-chloro-4-nitrophenylazo)-, P 7699*g*.
$C_{13}H_8ClN_3O_8S$ Benzanilide, 4′-chloro 2′-mercapto-3,5-dinitro-, 7476*d*.
$C_{13}H_8ClN_3O_8S$ Salicylic acid, 5-(2-chloro-4-nitrophenylazo)-3-sulfo-, P 7699*g*.
$C_{13}H_8Cl_2I_2O_2$ Phenol, 2,2′-methylenebis[4-chloro-6-iodo-, 8614*i*.
$C_{13}H_8Cl_2N_2O_3$ Anthranoyl chloride, 4-chloro - *N* - (*p* - nitrophenyl)-, 6176*b*
Anthranoyl chloride, *N*-(chlorophenyl)-5 nitro-, 6176*b*, 7937*g*.
$C_{13}H_8Cl_2N_2O_4$ Anthranilic acid, 6-chloro *N*-(*m*-chlorophenyl)-5-nitro-, 6176*a*
$C_{13}H_8Cl_2O$ See *Benzophenone, dichloro-*.
$C_{13}H_8Cl_2O_2$ Benzoic acid, *p*-chloro-, *p*-chlorophenyl ester, 3138*a*.
1-Naphthaleneacrylic acid, 5,8-dichloro-, 3813*e*.
$C_{13}H_8Cl_2O_3$ Carbonic acid, bis(*p*-chlorophenyl) ester, 3137*i*.
$C_{13}H_8Cl_2N$ Aniline, *p*-chloro-*N*-2,6-dichlorobenzylidene-, 7626*a*.
$C_{13}H_8Cl_2NO$ Anthranoyl chloride, 4-chloro *N*-(*m*-chlorophenyl)-, 6633*g*.
$C_{13}H_8Cl_4$ Methane, dichlorobis(*p*-chlorophenyl)-, 5894*g*.
$C_{13}H_8Cl_4N_2O$ Carbanilide, 2,2′,5,5′-tetrachloro-, 3378*c*.
$C_{13}H_8Cl_4O$ Ether, 2,4 - dichlorobenzyl 2,4 dichlorophenyl, 3138*b*.
$C_{13}H_8Cl_4O_2$ Phenol, 2,2′ - methylenebis[4,6-dichloro-, P 1587*c*, 8614*i*.
$C_{13}H_8Cl_5N$ Diphenylamine, 4,4′ - dichloro *N*-(trichloromethyl)-, 2359*h*.
$C_{13}H_8Cl_6$ Cyclopentadiene, hexachloro-, compd with styrene, P 4693*d*
$C_{13}H_8F_2O$ Benzophenone, 2,4′-difluoro-, 6186*h*.
$C_{13}H_8I_2O_2$ Xanthydrol, 2,7-diiodo-, 3822*eg*
$C_{13}H_8N_2O_2$ Acridine, 4-nitro-, 648*e*
Benzo[*g*]quinoline, 3-nitro-, 1420*c*.
$C_{13}H_8N_2O_3$ Benzo[*g*]quinolin - 4 - ol, 3 nitro-, 1418*b*.
Benzoxazole, 2-(nitrophenyl)-, 9065*f*
6(5*H*)-Phenanthridone, 4-nitro-, 7487*c*.
$C_{13}H_8N_2O_4$ 1*H* - Naphtho[2,3]pyrazole-4,9-dione, acetylhydroxy-, 7019*f*.
$C_{13}H_8N_2O_5$ Benzophenone, dinitro-, 1367*g*, 4658*c*.
$C_{13}H_8N_4$ 1*H*(?) - Benzo[*g*]triazolo[*c*]quinoline, 1418*d*.
$C_{13}H_8N_4O_4$ Phenanthridine, 6-amino-3,8 dinitro-, 1419*i*.
$C_{13}H_8N_4O_6S$ 6-Benzothiazolol, picrate, 7476*e*.
$C_{13}H_8N_4O_6S_2$ 4 - Thiazolyl ketone, 2,4-dinitrophenylhydrazone, 7932*a*.
$C_{13}H_8O$ 1*H*-Benzonaphthen-1-one, 3815*i*
9-Fluorenone, 191*e*, P 2344*g*, 3917*i*, 4215*b*.
1-Propiolonaphthone, P 868*d*, 3402*d*
$C_{13}H_8OS$ Thiaxanthone, P 4420*b*.
$C_{13}H_8O_2$ Xanthone, P 350*f*, P 352*f*, 809*h*, 1349*d*, 1523*ab*, P 4420*b*, 6356*e*, P 6666*d*.
$C_{13}H_8O_3$ 1*H* - Benzonaphthen - 1 - one, 2,3-dihydroxy-, 2667*d*.
2-Naphthaleneacrylic acid, $\beta$,1-dihydroxy-, $\delta$-lactone, 3414*i*.
Naphtho[2,3-*b*]furan - 4,9 - dione, 2-methyl-, 7341*i*.
$C_{13}H_8O_2S$ Thiaxanthone, 5,5-dioxide, 2994*h*, 4273*i*.
$C_{13}H_8O_4$ 1*H* - Benzonaphthene - 1,3(2*H*)-dione, 2,2-dihydroxy-, 2667*d*.
1*H* - Benzonaphthene - 1,2,3 - trione, hydrate, 7378*h*.
2 - Biphenylcarboxylic acid, 2′,4,4′-trihydroxy-, $\delta$-lactone, 5023*d*.

Dibenzofurancarboxylic acid, hydroxy-, P 3040*e*.
2 - Naphthalenepropionic acid, 1,4-dihydro - 3 - hydroxy - 1,4 - dioxo-, γ-lactone, 1381*a*.
$C_{13}H_8O_5$ 2 - Biphenylcarboxylic acid, 2',4,4',6' - tetrahydroxy-, δ-lactone, 5023*f*.
$C_{13}H_9AlCl_2O_3$ Salicylic acid, phenyl ester, compd. with $AlCl_3$, 5770*f*.
$C_{13}H_9AsClN$ Arsine, (chlorophenyl)cyanophenyl-, 3383*b*.
$C_{13}H_9Br$ Fluorene, 9-bromo-, 4628*f*, 4658*g*.
$C_{13}H_9BrClNO$ Acetophenone, α-bromo-*p*-chloro - α - pyridyl-, *and* - *HBr*, 2208*c*.
$C_{13}H_9BrCl_2$ Methane, bromobis(*p*-chlorophenyl)-, 3137*h*.
$C_{13}H_9BrF_2$ Methane, bromobis(*p* - fluorophenyl)-, 9332*f*.
$C_{13}H_9BrMg$ 9 - Fluorenylmagnesium bromide, 9058*e*.
$C_{13}H_9BrO$ Benzophenone, 4-bromo-, 1349*d*.
$C_{13}H_9BrO_3$ 3 - Biphenylcarboxylic acid, 3'-bromo-, 2979*e*.
$C_{13}H_9BrO_3S$ Thiaxanthene, 10-bromo-, 5,5-dioxide, 2994*i*.
$C_{13}H_9BrO_4$ Acrylophenone, 5-bromo-β-2-furyl-2-hydroxy-, 5380*c*, 5446*d*.
$C_{13}H_9BrO_6$ 1,2*H* - Benzopyran - 4 - acetic acid, 6 - bromo - 7 - hydroxy - 2-oxo-, acetate, 6206*f*.
$C_{13}H_9ClBrN$ 4 - Stilbazole, bromo - 4'-chloro-, - *HBr*, 2207*i*.
$C_{13}H_9ClN_2$ Acridine, 9-aminochloro-, 7142*i*.
2-Fluorenediazonium chloride, 7468*f*.
1,10 - Phenanthroline, 7 - chloro - 3-methyl-, 2211*i*.
$C_{13}H_9ClN_2O_2$ Aniline, chloro-*N*-nitrobenzylidene-, 7626*a*.
$C_{13}H_9ClN_2O_3S_2$ 5 - Benzothiazolesulfonanilide, 4'-chloro-2-mercapto-, P 5042*h*.
$C_{13}H_9ClN_2O_3$ Benzanilide, chloro-*m*-nitro-, 1145*a*.
$C_{13}H_9ClN_2O_4$ Anthranilic acid, 4 chloro-5-nitro-*N*-phenyl-, 6176*a*.
Anthranilic acid, *N*-(*p*-chlorophenyl)-5-nitro, 7937*g*.
$C_{13}H_9ClN_2O_4S$ Benzamidyl chloride, *N*-(*p*-nitrophenylsulfonyl)-, P 6660*i*.
$C_{13}H_9ClN_2S$ Benzothiazole, 6-amino-5-chloro-2-phenyl-, 5776*c*.
$C_{13}H_9ClN_4O$ 8 - Purinol, 2 - chloro - 6-styryl-, 651*c*.
$C_{13}H_9ClO$ Benzophenone, chloro-, 5894*g*, 6155*g*.
4 Biphenylcarbonyl chloride, 2980*c*, P 8170.
$C_{13}H_9ClO_2$ Benzoyl chloride, *p*-phenoxy-, P 857*d*.
$C_{13}H_9ClO_2S$ Thiaxanthene, 10 chloro-, 5,5 dioxide, 2994*i*.
$C_{13}H_9ClO_3$ 2 - Naphthoyl chloride, 1-hydroxy-, acetate, 3415*h*.
Salicylic acid, *p*-chlorophenyl ester, P 7267*i*.
$C_{13}H_9ClO_3S$ 2 Biphenylsulfonic acid, 5-chloro 2'- hydroxy 5'- methyl-, sultone, 4249*f*.
$C_{13}H_9ClO_3S$ Benzoic acid, *p* (*p*-chlorophenylsulfonyl)-, P 862*i*.
$C_{13}H_9ClO_4$ 1,2*H* - Benzopyran - 4 - acetic acid, 6 - chloro - 7 - hydroxy - 2-oxo-, acetate, 6206*e*.
$C_{13}H_9Cl_2N$ Aniline, *N* - benzylidene - 2,6-dichloro-, 7626*a*.
Aniline, chloro - *N* - chlorobenzylidene-, 7626*a*.
Benzhydrylidenimine, *N*,4 - dichloro-, 7464*h*.
$C_{13}H_9Cl_2NO_3S$ Benzenesulfonamide, *N*-(3,5-dichlorosalicylidene)-, 6182*e*.
$C_{13}H_9Cl_2N_3O_2$ Methane, chloro(*o*-chlorophenylhydruzono)(*p* - nitrophenylazo)-, 4260*a*.
$C_{13}H_9Cl_2N_3O_2$ Benzamidine, 2,4-dichloro-, picrate, 7445*b*.
$C_{13}H_9Cl_3$ Methane, chlorobis(*p*-chlorophenyl)-, 345*i*, 9331*i*.
$C_{13}H_9Cl_3N_2$ Methane, chloro(*o*-chlorophenylazoto - chlorophenylhydruzono)-, 4259*h*.
$C_{13}H_9Cl_3O$ Ether, *p*-chlorobenzyl 2,4-dichlorophenyl, 3138*b*.
Ether *p*-chlorophenyl dichlorobenzyl, 3138*b*.
$C_{13}H_9F_3O$ Ether, phenyl α,α,α-trifluoro-*m*-tolyl, P 6234*g*.
$C_{13}H_9Li$ Lithium, 9-fluorenyl-, 9058*f*.
$C_{13}H_9N$ (See also *Acridine*.)
Benzoquinoline, 1420*g*, 2917*g*, 4622*d*, 7372*a*, 8973*b*.
2-Biphenylcarbonitrile, 1356*a*, 8364*e*.
Phenanthridine, 648*i*, 942*g*, 1430*d*.
Pyridine, 4-phenylethynyl-, 2208*a*.
$C_{13}H_9NO$ 4-Acridol, 8942*i*.
Acridone, 3826*d*, 7829*h*.
Benzo[*g*]quinolin-4-ol, 1420*b*.
6(5*H*)-Phenanthridone, 7028*g*.
$C_{13}H_9NOS$ Ketone, 3-indolyl 2-thienyl, 4665*i*.
$C_{13}H_9NOS_4$ Ketone, 2-thienyl 4-(2-thienyl)-2-thiazolylmercaptomethyl, 5393*d*.
$C_{13}H_9NO_2$ Benzo[*h*]quinoline-2,4-diol, 1419*h*.
Fluorene, 2-nitro-, 3917*f*.
$C_{13}H_9NO_2S$ Naphtho[2,1]thiazole - 9 - carboxaldehyde, 8 - hydroxy - 2-methyl-, P 8692*g*.
Phthalimide, *N*-2-thenyl-, 1763*h*.
$C_{13}H_9NO_3$ 3 - Carbazolecarboxylic acid, 2-hydroxy-, P 3040*e*.
Fluorenol, nitro-, 2981*e*, 7020*f*.
$C_{13}H_9NO_4$ Acrylophenone, β-2-furyl-*m*-nitro-, 3429*g*.
Biphenylcarboxylic acid, nitro-, 3394*ei*.
Nicotinic acid, salicylic acid ester, 756*h*.
$C_{13}H_9NO_4S$ Benzaldehyde, *p* - (*p* - nitrophenylsulfonyl)-, 7449*h*.
$C_{13}H_9NS$ 9(10*H*)-Acridinethione, 649*b*.
Benzothiazole, 2-phenyl-, 7476*a*.
Quinoline, 2-(2-thienyl)-, 7018*c*.
$C_{13}H_9NS_2$ Benzothiazole, 2-mercapto-4-phenyl-, P 1438*e*.
$C_{13}H_9N_2NaO_3S$ Hydantoin, 5-phenyl-5-(thienyl)-, Na deriv., 8611*i*.
$C_{13}H_9N_3O_2$ Benzo[*g*]quinoline, 4-amino-3-nitro-, 1418*c*.
Hydantoin, 5 - (2 - quinolylmethylene)-, 1323*b*.
$C_{13}H_9N_3O_4$ Aniline, nitro-*N*-nitrobenzylidene-, 7626*a*.
$C_{13}H_9N_3O_4S$ Benzenesulfonamide, *p* - (5,7-dihydro - 5,7 - dioxo - 6*H* - pyrrolo-[3,4-*b*]pyrid-6-yl)-, 2598*a*.
$C_{13}H_9N_3O_6$ Benzoic acid, 5-hydroxy-2-(*p*-nitrophenylazo)-, 597*c*.
Salicylic acid, 5-(*p*-nitrophenylazo)-, P 4864*d*.
$C_{13}H_9N_4O_4S$ Sulfide, dinitrotolyl nitrophenyl, 3387*eg*.
$C_{13}H_9N_3O_5S$ Salicylic acid, 5 - (*p* - nitrophenylazo)-3 sulfo-, *di-Na salt*, P 7699*f*.
Salicylic acid, 5-(4-nitro-2 sulfophenylazo)-, 4174*f*, P 4864*c*, P 5597*a*.
$C_{13}H_9N_3O_6S_2$ Thiocyanic acid, 2-thenoyl methyl ester, 2,4 - dinitrophenylhydrazone, 5393*c*.
$C_{13}H_9N_5O_8$ Resorcylaldehyde, nitro-, 2,4-dinitrophenylhydrazone, 7925*bc*.
*p*-Toluidine, *N*-(2,4-dinitrophenyl)-2,6-dinitro-, 2176*f*.
—, 2 - nitro - *N* - (2,4,6 - trinitrophenyl)-, 2176*h*.
$C_{13}H_9N_9O_6$ 6 - Pteridinecarboxaldehyde, 2-amino - 4 hydroxy-, 2,4 - dinitrophenylhydrazone, 7489*c*.
$C_{13}H_{10}$ (See also *Fluorene*.)
Acenaphthylene, 1-methyl-, 1389*b*
$C_{13}H_{10}AsClO_2$ Benzoic acid, (chlorophenylarsino)-, 3382*i*.
$C_{13}H_{10}AsNO_2$ Phenarsazine, 10-(formyloxy)-5,10 dihydro, 4675*f*.
$C_{13}H_{10}AsNO_3$ Benzanilide, 5'-arsenoso-2'-hydroxy-, 6179*a*.
$C_{13}H_{10}BrClO$ Ether, *p*-bromophenyl *p*-chlorobenzyl, 3138*a*.
$C_{13}H_{10}BrIN_2O$ Carbamilide, bromoiodo-, 7447*i*.
$C_{13}H_{10}BrN$ 4-Stilbazole, bromo-, - *HBr*, 2207*i*.
$C_{13}H_{10}BrNO$ Acetophenone, α-bromo-α-pyridyl-, *and* - *HBr*, 2208*c*, P 3045*f*.
$C_{13}H_{10}BrNO_2$ Methane, bromonitrodiphenyl-, 4217*d*.
$C_{13}H_{10}Br_2ClN$ Pyridine, 2-(α,β-dibromo-*p*-chlorophenethyl)-, *and* - *HCl*, 2207*h*.
$C_{13}H_{10}Br_2O$ Benzhydrol, *p*,*p*'-dibromo-, 7628*g*.
$C_{13}H_{10}Br_2O_2$ Methane, bis(*p*-bromophenoxy)-, 3138*a*.
1-Naphthalenepropionic acid, α,β-dibromo-, 3816*c*.
Phenol, 2,2'-methylenebis[bromo-, P 1587*d*, 8614*h*, P 9389*i*.
$C_{13}H_{10}Br_2N_2O_3S$ Benzenesulfonamide, *p*-(tribromohydroxymethoxyphenylazo)-, 9047*i*.
$C_{13}H_{10}ClIN_2O$ Carbanilide, chloroiodo-, 7447*i*.
$C_{13}H_{10}ClN$ Aniline, *N*-benzylidenechloro-, 7626*a*.
Aniline, *N*-chlorobenzylidene-, 7626*a*.
Benzhydrylidenimine, *N*-chloro-, 7464*f*.
2-Fluorenamine, 7-chloro-, 7005*e*.
Stilbazole, 4'-chloro-, *and* - *HCl*, 2207*gh*.
$C_{13}H_{10}ClNO$ Acetophenone, *p*-chloro-α-pyridyl-, *and* - *HCl*, 2208*b*.
Benzanilide, chloro-, 7464*g*.
$C_{13}H_{10}ClNO_2$ Carbanilic acid, *p*-chlorophenyl ester, 1352*b*.
5 - (2 - Carboxyvinyl) - 6 - hydroxy - 1-methylquinolinium chloride, δ-lactone, 7028*a*.
Salicylanilide, 5-chloro-, 1352*b*.
$C_{13}H_{10}ClNO_4$ Ether, *p*-chlorobenzyl *p*-nitrophenyl, 3138*a*
$C_{13}H_{10}ClNO_4S$ Benzenesulfonic acid, *m*-(5-amino-2-chloro-4-hydroxybenzoyl)-, P 8691*a*.
Benzenesulfonic acid, 5-chloro-2-nitro-, *p*-tolyl ester, 4249*e*
$C_{13}H_{10}ClN_3O$ Pyrido[3,4-*b*]quinoline, 5-amino-?-chloro-7-methoxy-, 3827*d*.
$C_{13}H_{10}ClN_3O_4S$ Salicylic acid, 5-(4-amino-2-chlorophenylazo)-3-sulfo-, P 7699*h*.
$C_{13}H_{10}ClN_3O_7$ Benzamidine, *o*-chloro-, picrate, 7445*b*.
$C_{13}H_{10}Cl_2$ Methane, bis(*p* chlorophenyl)-, 3137*h*, 5148*d*, 5894*g*, 8615*a*, P 9389*i*.
Methane, dichlorodiphenyl-, 347*a*, 7464*h*.
$C_{13}H_{10}Cl_2N_2$ Benzamidine, 2,4-dichloro-*N*-phenyl-, 7444*e*; - *HCl*, P 3456*i*.
Formamidine, *N*, *N*'-bis(chlorophenyl)-, - *HCl*, 170*d*; *and* - *HCl*, 7757*i*.
$C_{13}H_{10}Cl_2N_2O$ Carbanilide, 4,4'-dichloro-, 3138*a*.
$C_{13}H_{10}Cl_2N_2S$ Carbanilide, 4,4-dichlorothio-, 3138*a*.
$C_{13}H_{10}Cl_2O$ Benzhydrol, 4,4'-dichloro-, 3137*i*, 7628*g*.
*o*-Cresol, α-(2,4-dichlorophenyl)-, 2969*e*.
Ether, benzyl 2,4-dichlorophenyl, 3138*b*.
—, *p*-chlorobenzyl chlorophenyl, 3137*i*, 3138*b*.
$C_{13}H_{10}Cl_2O_2$ (See also *Phenol, methylenebis-[chloro-]*.
Methane, bis(*p* - chlorophenoxy)-, 1523*abde*, 1524*a*, 3137*i*, 7630*ad*.
$C_{13}H_{10}Cl_2O_3$ 1 Naphthol, 6,8-dichloro-5-methoxy-, acetate, 201*c*.
$C_{13}H_{10}Cl_2O_4$ Resorcinol, 4,4'-methylenebis[6-chloro-, 8614*i*.
$C_{13}H_{10}Cl_2OP$ Phosphine oxide, diphenyl(trichloromethyl)-, 3802*b*.
$C_{13}H_{10}Cl_4O_4$ Phthalide, 4,5,6,7-tetrachloro-3 - ethyl - 3 - hydroxy-, propionate, 2974*c*.
$C_{13}H_{10}Cl_6NSb$ Benzhydrylidenimine, *N*-chloro-, compd. with $SbCl_5$, 7464*f*.
$C_{13}H_{10}Cl_6O$ Ketone, 1,2,3,4,5,6-hexachlorocyclohexyl phenyl, 5894*f*.
$C_{13}H_{10}F_2$ Methane, difluorodiphenyl-, 2157*e*.
$C_{13}H_{10}F_2O$ Benzhydrol, 4,4'-difluoro-, 7628*g*, 9332*f*.
$C_{13}H_{10}HgO_2$ Phenylmercury benzoate, 267*e*.
$C_{13}H_{10}HgO_3$ Phenylmercury salicylate, 873*f*.
$C_{13}H_{10}INO_2$ 5-(2-Carboxyvinyl)-6-hydroxy-1-methylquinolinium iodide, δ-lactone, 7028*a*.
$C_{13}H_{10}INO_4$ Iodine phthalate, compd. with pyridine, 5689*i*.
$C_{13}H_{10}IN_3O_6$ Iodine 3,5-dinitrobenzoate, compd. with picoline, 5689*i*.
$C_{13}H_{10}I_2N_2O$ Carbanilide, duodo-, 7447*i*.
$C_{13}H_{10}KNO_2$ Methane, nitrodiphenyl-, K deriv., 4217*c*.
$C_{13}H_{10}NNaO_3$ Salicylanilide, Na deriv., 873*f*.
$C_{13}H_{10}N_2$ (See also *Acridine, amino-*.)
Benzoquinoline, amino-, 1417*g*, 1420*ac*.
9-Fluorenone, hydrazone, 1367*i*.
Methane, diazodiphenyl-, 7022*a*.
1,10-Phenanthroline, methyl-, 2211*i*.
$C_{13}H_{10}N_2O$ (See also *Pyocyanine*.)
Propionaphthone, α-diazo-, 4653*fg*.
$C_{13}H_{10}N_2O_2$ Aniline, *N*-benzylidenenitro-, 7626*a*.
Aniline, *N*-nitrobenzylidene-, 7626*a*.
Benzoic acid, phenylazo-, 1973*i*.
9*H*-Pyrid[3,4-*b*]indole-1-carboxylic acid, Me ester, 3416*f*.
2-Stilbazole, 4'-nitro-, 5894*b*.
$C_{13}H_{10}N_2O_2S$ Hydantoin, 5-phenyl-5-(thienyl)-, 760*g*.
Succinimide, *N*-(4-phenyl-2-thiazolyl)-, P 4422*b*.
$C_{13}H_{10}N_2O_3$ Anthranilaldehyde, *N*-(*o*-nitrophenyl)-, 648*d*.
Benzanilide, nitro-, 1145*a*, 4241*b*.
Benzoic acid, *p*-(3-pyridylcarbonylamino)-, 5025*e*, 6622*f*.
Nicotinamide, 6-hydroxy-, 5025*e*.
Salicylic acid, 5-phenylazo-, P 1574*h*, 2600*c*.
$C_{13}H_{10}N_2O_3S$ 5-Benzothiazolesulfonanilide, 2'-hydroxy-2-mercapto-, P 5042*h*.
$C_{13}H_{10}N_2O_4$ Malonic acid, [(4-cyano-3-indolyl)methyl]-, 4255*h*.
Methane, bis(*p*-nitrophenyl)-, 7004*e*.
—, dinitrodiphenyl-, 4217*b*.
2-Naphthoic acid, 3-(2-nitroethylideneamino)-, 1418*b*.

Resorcinol, 2,4-dinitroso-6-tolyl-, 3810*d*.
Salicylic acid, 4-(3-pyridylcarbonylamino) , 5025*d*.
$C_{13}H_{10}N_2O_4S$ Sulfide, nitrophenyl nitrotolyl, 3387*fg*.
$C_{13}H_{10}N_2O_5$ Methane, bis(*p*-nitrophenoxy)-, 3138*a*.
5(4 *H*)-Oxazolone, 4 (hydroxynitrobenzylidene)-2-methyl-, acetate, 1765*ag*
Phenol, 2,2′ - methylenebis[4 - nitro-, 8615*a*.
$C_{13}H_{10}N_2O_6S$ Salicylic acid, 5-(4-sulfophenylazo)-, 4174*g*.
$C_{13}H_{10}N_2O_7S$ Chelidamic acid, 1-sulfanilyl-, 2597*t*.
$C_{13}H_{10}N_4O_3$ Compd. m , 124°, 1742*d*.
$C_{13}H_{10}N_2O_6$ 1,2 *H*-Benzopyran-6-carboxylic acid, 7-methoxy-4-methyl-3,8-dinitro-2-oxo-, Me ester, 1045*d*.
$C_{13}H_{10}N_2S$ Benzothiazole, 2-(*p*-aminophenyl)-, P 5600*h*.
Benzothiazole, 5-amino-2-phenyl-, 5776*d*.
—, 2-anilino-, 2021*e*.
2-Benzimidazolethiol, 1-phenyl-, 7362*b*.
$C_{13}H_{10}N_3NaO_3S_2$ Sulfanilamide, *N*-2-benzothiazolyl-, Na deriv , P 3458*e*.
$C_{13}H_{10}N_4O$ 1 *H*-Benzotriazole-1-carboxamide, 8365*g*.
5 *H*-Indeno[1,2 *b*]pyridin-5 one, semicarbazone, 5403*b*
$C_{14}H_{10}N_2O_2$ Benzoic acid, *m* (5-amino-2 *H*-benzotriazol 2-yl) , P 1575*e*.
$C_{13}H_{10}N_4O_3$ Salicylic acid, 5 (5-amino-2 *H*-benzotriazol-2-yl)-, P 1574*h*, P 5965*f*
$C_{13}H_{10}N_4O_3S$ 5-Pyrazolone, 3-methyl-1-[4-(*m*-nitrophenyl) 2 thiazolyl] , 6619*h*
$C_{13}H_{10}N_4O_4$ Anthranilic acid, 5-(*p*-nitrophenylazo)-, 597*d*.
$C_{14}H_{10}N_4O_5$ Carbanilide, dinitro , 170*s*
Salicylic acid, 5 amino 3-(*p*-nitrophenylazo)-, 597*c*
$C_{13}H_{10}N_4O_6$ *p* Toluic acid, 3,5-dinitro-, furfurylidenehydrazide, 6972*e*.
*p*-Toluidine, *N*-(2,4-dinitrophenyl)nitro-, 2170*e*
$C_{13}H_{10}N_4O_6S$ Salicylic acid, (5-amino-2 *H*-benzotriazol-2-yl)sulfo-, P 1571*i*, P 1575*c*.
Salicylic acid, 5 (5-amino-6 sulfo 2 *H*-benzotriazol-2-yl) , P 1575*b*
$C_{13}H_{10}N_4O_7$ 2-Furaldehyde, (hydroxymethyl)-, 3,5-dinitrobenzoylhydrazone, 3795*b*.
$C_{13}H_{10}N_4O_8S_2$ Salicylic acid, 5-(5-amino 6 sulfo - 2 *H* - benzotriazol - 2 - yl) - 3-sulfo , P 1575*f*
$C_{14}H_{10}N_4S_2$ 4-Thiazolyl ketone, phenylhydrazone, 7932*a*
$C_{13}H_{10}N_6O_3$ Benzamidine, nitro-, picrate, P 688*i*, P 3456*g*.
$C_{13}H_{10}O$ (See also *Benzophenone* )
1 *H*-Benz[*e*]inden 1-one, 2,3-dihydro , 1757*g*.
Fluorenol, 178*h*, 191*e*, 4658*h*, 7020*f*.
$C_{13}H_{10}OS$ Benzoic acid, thiol-, Ph ester, 2597*d*.
$C_{13}H_{10}O_2$ (See also *Biphenylcarboxylic acid* )
Acrylophenone, β-2 furyl-, 9334*b*.
Benzoic acid, Ph ester, 1256, 6495*f*, 8599*h*.
Benzophenone, hydroxy , 6020*g*, 8065*i*
1-Naphthaleneacrylic acid, 3815*i*, 7093*i*
2-Naphthalenehydracrylic acid, β-lactone, P 5037*h*.
Xanthydrol, 6277*b*
$C_{13}H_{10}O_2S$ 1,3-Propanedione, 1 phenyl-3-(2-thienyl)-, 629*i*.
Thiaxanthene, 5,5-dioxide, 4273*i*.
$C_{14}H_{10}O_2$ (See also *Salol* )
Acrylophenone, β-2 furyl-*o*-hydroxy-, 5380*b*, 5146*d*.
Benzoic acid, *o*-phenoxy-, 1349*e*
Benzophenone, dihydroxy-, 2187*g*, P 4699*e*, P 6666*d*, 8065*h*.
Carbonic acid, di-Ph ester, 71*a*, 1518*f*, 3554*t*, 8599*h*, 9349*b*.
2-Furanacrylic acid, α-phenyl , 9334*c*.
Hydroquinone, benzoate, 2187*j*.
2-Naphthoic acid, 3-(1-hydroxyethoxy)-, lactone, 5860*i*.
1,4 - Naphthoquinone, 2 - (allyloxy) , 1371*i*.
3-Pentadienone, 1,5-di-2 furyl-, 4652*a*.
1,3-Propanedione, 1-(2-furyl)-3-phenyl-, 4253*h*.
*p*-Quinone, 2-methoxyphenyl-, 1372*h*.
Salicylic acid, phenyl-, *salts*, P 8694*c*.
$C_{13}H_{10}O_3S$ 2-Biphenylsulfonic acid, 2′-hydroxy-5′-methyl-, sultone, 4249*f*.
Dibenzothiophene, 4-methoxy-, 5,5-dioxide, 2987*f*.
Ketone, hydroxymethyl 2-thienyl, benzoate, 2614*i*.
10-Thiaxanthenol, 5,5-dioxide, 2994*h*, 4273*i*.
$C_{13}H_{10}O_3S_2$ Ketone, bis(5-acetyl-2-thienyl), P 6238*a*.
$C_{13}H_{10}O_4$ 9 *H*-Furo[2,3-*f*][1]benzopyran-9-one, 4-methoxy-7-methyl-, 3413*e*.
Ketone, 2-furyl hydroxymethyl, benzoate, 1392*c*.
2-Naphthoic acid, 1-hydroxy-, acetate, 3415*h*, P 8169*i*.
Visnagin, 3413*e*, 5542*d*.
$C_{13}H_{10}O_4S$ Acetic acid, (1,4-dihydro-3-methyl - 1,4 - dioxo - 2 - naphthylmercapto)-, 2704*a*.
Benzoic acid, (phenylsulfonyl)-, P 862*i*, P 7706*d*.
Propionic acid, β-(1,4-dihydro-1,4-dioxo-2-naphthylmercapto)-, 7581*e*.
$C_{13}H_{10}O_5$ Khellol, 5542*f*.
Malonic acid, (2,3-dihydro-6-hydroxy-3-methyl-5 benzofurylmethylene)-, δ lactone, 3413*a*.
2-Naphthalenepropionic acid, 1,4-dihydro - 3 - hydroxy - 1,4 - dioxo-, 1381*a*, 1387*c*.
1,2,4(3 *H*) - Naphthalenetrione, 3 - hydroxy-3-methyl-, acetate, 7000*h*.
2-Naphthoic acid, 1,4-dichloro 3-hydroxy-1,4 dioxo-, Et ester, 1380*i*.
$C_{13}H_{10}O_5S$ Benzaldehyde, *p* (2,5-dihydroxyphenylsulfonyl)-, 7449*h*.
$C_{13}H_{10}O_6$ 1,2 *H*-Benzopyran-4-acetic acid, 6-acetyl 7-hydroxy 2-oxo-, 6206*f*
2,1 *H*-Benzopyran 3,4-dicarboxylic acid, 1-oxo-, di Me ester, 1045*f*.
Maclurin, 4376*c*.
$C_{13}H_{10}O_6S$ 2 *H*-Naphtho[1,2-*b*]pyran-3-sulfonic acid, 3,4,5,6-tetrahydro-5,6-dioxo-, *Na salt*, 1386*i*.
$C_{13}H_{10}O_7$ 1,2 *H*-Benzopyran-4-acetic acid, 6 carboxy-7 hydroxy-2-oxo-, 6-Me ester, 6206*f*
$C_{13}H_{10}O_8$ 1,2 *H*-Benzopyran-4-acetic acid, 6 carboxy-7,8 dihydroxy-2-oxo-, 6-Me ester, 6206*f*
$C_{13}H_{10}S$ 9 Fluorenethiol, 1366*d*.
$C_{13}H_{11}$ Benzhydryl, 2512*a*, 5387*f*.
$C_{13}H_{11}AsClNO_3$ Arsine, chloro(nitrophenyl)-tolyl , 3382*i*.
$C_{13}H_{11}AsN_3$ Aniline, *o*-(cyanophenylarsino)-, 3383*d*.
$C_{13}H_{11}AsO_3$ Arsine acid, (*m* formylphenyl)-phenyl-, 3382*h*.
$C_{13}H_{11}AsO_4$ Benzoic acid, phenylarsinico , 3382*h*.
$C_{13}H_{11}Br$ Biphenyl, 2-(bromomethyl) , 1356*c*.
Methane, (*o*-bromophenyl)phenyl-, 1662*h*.
$C_{13}H_{11}BrINO_2$ Iodine, *p* bromobenzoate, compd. with 3 picoline, 5689*i*.
$C_{13}H_{11}BrN_2$ Benzamidine, *N*-(*p*-bromophenyl) , 7414*d*.
$C_{13}H_{11}BrN_2O$ Ketone, 4-(bromomethyl)-2-phenyl-5 pyrimidyl methyl, *and* - *HBr*, 1424*c*
$C_{13}H_{11}BrN_2O_2S$ 2-Thiophenecarboxanilide, 4′-acetamido-5-bromo-, 4666*a*.
$C_{13}H_{11}BrN_2O_3S$ Benzanilide, 2′-bromo-4′-sulfamyl-, 175*f*
$C_{13}H_{11}BrN_2O_4S$ Salicylanilide, 5-bromo-*p*′-sulfamyl , 1028*c*.
$C_{13}H_{11}BrN_4O_6$ Pyridine, 3-bromo-5-ethoxy-, picrate, 611*f*.
$C_{13}H_{11}BrO_2$ 2-Naphthaleneacetic acid, 6-bromo-, Me ester, 3363*a*
2-Naphthoic acid, 1-bromo-, Et ester, 3396*c*.
2-Propionaphthone, 4-bromo-1-hydroxy-, 7010*d*.
$C_{13}H_{11}BrO_3$ 1,2 *H*-Benzopyran-4-acetic acid, 6-bromo-7-hydroxy-2-oxo-, Et ester, 6206*f*.
$C_{13}H_{11}Br_2ClSe$ (*p*-Chlorophenyl)-*p*-tolylselenium dibromide, 8810*a*.
$C_{13}H_{11}Br_2N$ Pyridine, 4-(α,β-dibromophenethyl)-, 2207*i*
$C_{13}H_{11}Cl$ Biphenyl, 2-(chloromethyl) , 1356*c*
Methane, (*p* chlorophenyl)phenyl-, 1666*d*.
$C_{13}H_{11}ClNO_2$ Iodine, *p*-chlorobenzoate, compd. with picoline, 5689*i*.
$C_{13}H_{11}ClN_2$ Benzamidine, *N*-(chlorophenyl)-, 7444*d*.
Benzamidine, *o*-chloro-*N*-phenyl , *and* - *HCl*, 7444*e*.
Pyrimidine, 2-chloro-4-methyl-6-styryl-, 3427*c*.
$C_{13}H_{11}ClN_2O$ Benzoic acid, *o*-chlorophenylhydrazide, 5526*a*
Benzoic acid, *o*-chloro-, phenylhydrazide, 7182*h*.
Carbanilide, chloro-, 170*i*.
$C_{13}H_{11}ClN_2O_3$ Benzanilide, 3-amino-2′-chloro-4-hydroxy-, P 5146*e*.
Quinoline, 1-acetyl-4-(acetylimino)-7-chloro-1,4-dihydro-(?), 8387*e*.
$C_{13}H_{11}ClN_2O_3S$ Hydrazine, 1-*o*-chlorobenzoyl-2-(phenylsulfonyl)-, 7486*f*.
$C_{13}H_{11}ClN_2O_5S$ *p* - Benzenesulfonotoluidide, 4-chloro-2′-hydroxy-3-nitro-, P 5042*h*.
$C_{13}H_{11}ClN_4$ Methane, chlorophenylazophenylhydrazono-, 4257*i*.
$C_{13}H_{11}ClN_4O_2$ *o*-Toluidine, 4-chloro-6-(*p*-nitrophenylazo)-, 597*d*.
$C_{13}H_{11}ClN_4O_3$ Pyrimidine, 2-(2-chloro-4-nitrobenzamido)-4,6-dimethyl-, 7455*a*.
$C_{13}H_{11}ClN_4O_8$ Acetamido - 1 - (2,4 - dinitrophenyl)pyridinium chloride, 4671*b*.
$C_{13}H_{11}ClN_4O_9$ 1-(2,4,6-Trinitrophenethyl) pyridinium chloride, 1733*h*.
$C_{13}H_{11}ClO$ Benzhydrol, 4-chloro-, 6155*g*.
Ether, benzyl *p*-chlorophenyl, 3138*b*.
—, *p*-chlorobenzyl phenyl, 166*g*, 3138*b*.
1-Naphthoyl chloride, 2-ethyl-, 1040*i*.
$C_{13}H_{11}ClO_2$ 2-Naphthaleneacetic acid, 3-chloro , Me ester, 3363*b*.
2 - Propionaphthone, 4 - chloro - 1 - hydroxy-, 7010*d*.
$C_{13}H_{11}ClO_3$ 1,2 *H*-Benzopyran-4-acetic acid, 6-chloro-7-hydroxy-2-oxo-, Et ester, 6206*e*
$C_{13}H_{11}ClO_7$ Gallyl chloride, triacetate, 2974*e*
$C_{13}H_{11}Cl_2N$ Diphenylamine, 4,4′-dichloro-*N*-methyl-, 2359*h*.
$C_{13}H_{11}Cl_2NO_3S$ *p* Toluenesulfonanilide, 3′,5′-dichloro-, 1619*a*.
$C_{13}H_{11}Cl_2N_3$ Guanidine, 1,3-bis(*p*-chlorophenyl)-, 9038*h*
$C_{13}H_{11}FO_3$ 2-Naphthaleneacetic acid, 6-fluoro-, Me ester, 3362*i*.
$C_{13}H_{11}IN_2O$ Carbanilide, 3-iodo-, 7417*i*.
$C_{13}H_{11}INO_2$ Carbanilide, hydroxyiodo , 7448*a*.
$C_{13}H_{11}INO_4$ Iodine nitrobenzoate, compd with picoline, 5689*i*, 5690*a*.
$C_{13}H_{11}I_2NO_2$ Aniline, 3,5-diiodo-4-(*p*-methoxyphenoxy)-, 7585*c*.
Iodine *p* iodobenzoate, compd. with picoline, 5689*i*.
$C_{13}H_{11}N$ Acridan, 233*ce*, 646*d*.
Aniline, *N*-benzylidene-, 931*b*, 1312*i*, 1227*i*, 6991*b*, 7625*i*.
Carbazole, methyl-, 1391*bc*, 4257*a*
Fluorenamine, 193*a*, 300*c*, 3917*f*, 1246*a*.
1-Naphthonitrile, 2-ethyl-, 1040*i*
Phenanthridine, 5,6-dihydro-, 8365*g*.
Stilbazole, 1412*h*, 3394*i*, 5893*h*; *and HCl*, 2207*g*.
$C_{13}H_{11}NO$ (See also *Benzanilide*.)
Acetophenone, α pyridyl , P 3015*e*, 7025*g*, *and salts*, 2208*b*.
Anthranildehyde, *N* phenyl-, 648*i*.
Benzophenone, oxime, 5011*h*.
—, 4-amino-, 8202 .
2 Biphenylcarboxamide, 8364*e*.
2-Fluorenol, 3-amino-, 7020*f*.
Formanilide, *N*, *N*-diphenyl-, 8138*i*.
1 Naphthaleneacetonitrile, 2-methoxy-, 4250*b*
Phenol, *p*-benzylideneamino , 2838*h*
2(1 *H*)-Pyridone, styryl-, 6629*i*, 6630*c*
$C_{13}H_{11}NOSe$ Naphtho[1,2]selenazol-2 1 *H*-one, 1-ethyl-, P 7848*g*.
$C_{13}H_{11}NO_2$ Anthranilic acid, *N*-phenyl-, 3820*d*, 7861*a*.
Benzoic acid, *o*-pyridyl-, Me ester, 3394*i*.
Carbamic acid, Ph ester, 7441*bf*.
Indophenol, methyl-, 8009*d*.
Methane, nitrodiphenyl-, 4217*b*.
Nicotinic acid, benzyl ester, 2622*h*, 6516*i*
2-Quinolineacrylic acid, β-methyl-, 1412*e*
*p*-Quinone, O-benzyloxime, 5378*h*.
Salicylanilide, 873*e*, 1352*a*, 2440*f*, 3964*b*, 7734*b*, 8597*d*, 9331*e*.
$C_{13}H_{11}NO_3$ Benzhydrol, 3-nitro-, 565*e*.
γ-Fagarine, 2993*g*.
1,4-Naphthoquinone, 2-acetamido-3-methyl-, 1382*f*.
2-Pyridinemethanol, α-(3,4-methylenedioxyphenyl)-, 4266*a*, *and* - *HCl*, 2204*g*.
Salicylanilide, 4′ hydroxy-, 2603*e*
$C_{13}H_{11}NO_3S_2$ Benzoic acid, thiol-, *p*-sulfamylphenyl ester, 1739*b*.
Carbonic acid, thiol-, *O*-Et ester, ester with 4-benzylidene-2-mercapto-5(4 *H*)-thiazolone, 1400*e*.
$C_{13}H_{11}NO_4$ 2-Propionaphthone, 1-hydroxy-4-nitro-, 7010*e*.
$C_{13}H_{11}NO_4S$ Benzoic acid, (phenylsulfamyl)-, P 863*g*.
Benzoic acid, *p*-(phenylsulfonamido)-, 5995*g*.
Sulfanilic acid, *N*-benzoyl-, *Na salt*, P 4686*f*.
$C_{13}H_{11}NO_5$ Coumarin, 3-acetamido-6-hydroxy-, acetate, 6598*c*.

**$C_{13}H_{11}NO_4S$** Benzenesulfonic acid, *m*-(3-amino-4-hydroxybenzoyl)-, P 8690*i*.
Benzenesulfonic acid, *o*-nitro-, *p*-tolyl ester, 4249*e*.

**$C_{13}H_{11}NO_6$** Glutaric acid, α-phthalimido-, 2943*c*.
3-Pentenoic acid, 2,4-dihydroxy-3-methyl-, γ-lactone *p*-nitrobenzoate, 4222*b*.

**$C_{13}H_{11}NO_7$** 1,2*H*-Benzopyran-6-carboxylic acid, 7-methoxy-4-methyl-8-nitro-2-oxo-, Me ester, 2622*a*.

**$C_{13}H_{11}NS$** Benzanilide, thio-, P 1798*e*.

**$C_{13}H_{11}NSSe$** Naphtho[1,2]selenazole 2(1*H*)-thione-, 1-ethyl-, P 7848*g*.

**$C_{13}H_{11}N_3$** (See also *Proflavine*.)
Acridine, diamino-, 647*e*, 7188*i*, 7829*h*.
Benzo[*g*]quinoline, 3,4-diamino-, *and di-HCl*, 1418*c*.

**$C_{13}H_{11}N_3OSe$** Naphtho[1,2]selenazole, 1-ethyl-1,2-dihydro-2-nitrosoimino-, P 7848*f*.

**$C_{13}H_{11}N_3O_7$** Benzaldehyde, *p*-nitrophenylhydrazone, 3388*g*.
Benzamidine, *N*-(*p*-nitrophenyl)-, P 2230*g*.
Hydantoin, 5-(2-quinolylmethyl)-, 1323*b*.
Urea, 1-phenyl-3-(3-pyridylcarbonyl)-, 6162*e*.

**$C_{13}H_{11}N_3O_2S_2$** Sulfanilamide, *N*¹-benzothiazolyl-, P 3458*d*, 7476*c*.

**$C_{13}H_{11}N_3O_2S_3$** 5-Benzothiazolesulfonanilide, 4'-amino-2-mercapto-, P 5042*b*.

**$C_{13}H_{11}N_3O_3$** (See also *Salicylic acid*, 5-(*p*-aminophenylazo)-.)
Benzanilide, 3'-amino-4-nitro-, P 9466*e*.
Benzoic acid, nitrophenylhydrazide, 5526*a*.
—, nitro-, phenylhydrazide, 1145*a*, 1896*c*, 7381*i*, phenylhydrazide, *and -HCl*, 1345*d*.
Carbanilide, nitro-, 170*h*.

**$C_{13}H_{11}N_3O_3S$** *p*-(*p*-Tolylsulfamino)benzenediazonium hydroxide, inner salt, P 4201*b*.

**$H_{11}N_3O_4$** *p*-Toluic acid, 3-nitro-, furfurylidenehydrazide, 6973*b*.

**$H_{11}N_3O_4S$** Benzenesulfonamide, *N*-benzamido-*p*-nitro-, P 6660*i*.
—, 4-Methoxyphenylsulfamino]benzenediazonium hydroxide, inner salt, P 4201*b*.

**$H_{11}N_3OS$** Acetanilide, *p*-(5-nitro-2-pyridylthio)-, P 1803*i*.
Quinaldic acid, 4'-sulfamyl-, 2507*i*.

**$H_{11}N_3O_4S$** Benzenesulfonic acid, 2-amino-5-nitrobenzamido-, P 9466*e*.
Salicylic acid, 5-(4-aminosulfophenylazo-, 4174*i*, P 4481*a*, P 5963*b-d*.

**$H_{11}N_3O$** 5-H-2-Pyrazino[5,6-*b*]indole, 3-acetamido-5-acetyl-, 3428*h*.

**$H_{11}N_3OS$** Semicarbazide, 1,4-bis(3-pyridylcarbonyl)-3-thio-, 7483*i*.

**$H_{11}N_3O_2$** Benzamidine, picrate, P 2230*g*, P 3456*i*, P 5038*e*.

**$H_{11}N_3O_4S$** Guanidine, 1,3-bis(*o*-nitrophenylsulfonyl)-, 600*i*.
Guanidine, 1-(*m*-nitrophenylsulfonyl)-3-(*o*-nitrophenylsulfonyl)-, 600*i*.

**$H_{11}NO_2$** Nicotinic acid, 1,2-dihydro-2-oxo-1-methyl-, picrate, 7024*c*.

**$H_{11}Na$** Sodium, benzhydryl-, 7473*a*.

**$H_{11}OP$** Benzoic acid, anhydride with $PhH_2PO_2$, *and salts*, 6936.

**$H_{12}$** (See also *Methane, diphenyl-*.)
Acenaphthene, 1-methyl-, 1388*h*.
1,6-Heptadien-3-yne, 5-phenyl-, 119*a*.
Naphthalene, 1-allyl-, 8888*f*.

**$H_{12}AsClO$** Arsinic acid, (chlorophenyl)-tolyl-, 3382*h*.

**$H_{12}AsNO_3$** Arsine acid, (nitrophenyl)-tolyl-, 3382*h*.

**$H_{12}AsN$** Amine, *m,m'*-(cyanoarsylene)-di-, 3383*d*.

**$H_{12}BrClN_2O$** 2-Amino-5-chlorophenacyl) pyridinium bromide(?), 653*c*.

**$H_{12}BrNO$** Ketone, bromomethyl 6,7-dimethyl-4-quinolyl-, *-HBr*, 4674*h*.
1-Phenacylpyridinium bromide, 1775*i*.
2-Pyridinemethanol, bromo α-methyl-α-phenyl-, *and -HCl*, 2205*d*.
—, α,*m*-bromophenyl) α-methyl-, *and HCl*, 2205*i*.

**$C_{13}H_{12}BrNOS$** 2-Thiophenecarboxy-2,3-xylidide, 5-bromo-, 4666*a*.

**$C_{13}H_{13}Br_2N_3O$** (2-Amino-5-bromophenacyl)-pyridinium bromide(?), 653*d*.

**$C_{13}H_{13}Br_2OSe$** (*p*-Methoxyphenyl)phenylselenium dibromide, 8810*a*.

**$C_{13}H_{13}Br_2Se$** Phenyltolylselenium dibromide, 8810*a*.

**$C_{13}H_{12}ClN$** Phenanthridine, 2-chloro-7,8,9,10-tetrahydro-, 1779*a*.

**$C_{13}H_{12}ClNO$** 1-Phenacylpyridinium chloride, 1775*i*.
Pyridinemethanol, α-(chlorophenyl)-α-methyl-, 4266*b*; *and -HCl*, 2201*i*, 2205*d*.

**$C_{13}H_{12}ClNO_2$** 1-(Carboxymethyl)pyridinium chloride, Ph ester, 6977*c*.

**$C_{13}H_{12}ClNO_2S$** *p*-Toluenesulfonanilide, 3'-chloro-, 8387*c*.

**$C_{13}H_{12}ClNO_3$** Kynurenic acid, chloro-3-methyl-, Et ester, P 2646*e*, P 4303*c*, Et ester, *and -HCl*, 5401*ab*
1-Naphthalenecarbamic acid, 7-hydroxy-, 2-chloroethyl ester, P 5598*i*
3-Quinolinecarboxylic acid, 7-chloro-4-hydroxy-6-methyl-, Et ester, 1776*b*.

**$C_{13}H_{12}ClNO_3S$** Benzenesulfonic acid, 2-amino-5-chloro-, *p*-tolyl ester, 4249*e*
Benzhydrylamine, 4-chloro-, sulfo deriv., *K salt*, P 8163*c*, P 9468*f*.

**$C_{13}H_{12}ClNO_4$** 1-Phenacylpyridinium perchlorate, 1775*i*.

**$C_{13}H_{12}ClNO_6S_2$** Metanilic acid, 4-chloro-, sulfo-*o*-tolyl ester, P 5962*e*.

**$C_{13}H_{12}ClNSe$** 1,2-Dimethylnaphtho[1,2]-selenazolium chloride, P 7848*h*.

**$C_{13}H_{12}ClN_3$** Guanidine, 1-(*p*-chlorophenyl)-3-phenyl-, 9039*f*.

**$C_{13}H_{12}ClN_3O_2$** Phenol, 2-(4-amino-2-methoxyphenylazo)-4-chloro-, P 1574*i*

**$C_{13}H_{12}ClN_3O_2$** [(Nitrophenylcarbamyl)-methyl]pyridinium chloride, 1024*a*.

**$C_{13}H_{12}ClN_3O_4$** 1-(2,4-Dinitrophenyl)-1-ethoxypyridinium chloride, 6626*h*.

**$C_{13}H_{12}ClN_3O_5S$** 1-Phenol-2-sulfonic acid, 6-(5-amino-2-hydroxy-*p*-tolylazo)-4-chloro-, P 1988*g*.
1-Phenol-4-sulfonic acid, 2-(4-amino-2-methoxyphenylazo)-6-chloro-, P 5965*g*.

**$C_{13}H_{12}Cl_2N_2$** Methanediamine, *N,N'*-bis(*p*-chlorophenyl)-, 3138*a*.

**$C_{13}H_{12}Cl_2N_2O_3S$** Benzamidine, 2,4-dichloro-, benzenesulfonate, P 2231*b*, P 5038*f*, 7445*b*

**$C_{13}H_{12}Cl_2N_2O_3S_2$** Dibenzenesulfonamide, 3-amino-2',4'-dichloro-6-methyl-, P 8150*b*.

**$C_{13}H_{12}Cl_2O_2$** Malonyl chloride, allylbenzyl-, 1778*b*.

**$C_{13}H_{12}Cl_2O_4$** *o*-Orsellinic acid, 3,5-dichloro-, Me ester, diacetate, 6096

**$C_{13}H_{12}Cl_2N$** 1-(2,4-Dichlorobenzyl)picolinium chloride, 9123*e*

**$C_{13}H_{12}Cl_2NO$** 2-Quinolineethanol, β-methyl-α-(trichloromethyl)-, 1412*e*.

**$C_{13}H_{12}Cl_6O_3$** Hydracrylic acid, *p*-chloro-α-(trichloromethyl)benzyl ester acetate, 2359*h*
Succinic acid, *p*-chloro-α-(trichloromethyl)benzyl Me ester, 199*e*.

**$C_{13}H_{12}FNO_2$** Naphthalenecarbamic acid, 2-fluoroethyl ester, 348*g*, 6163*c*.

**$C_{13}H_{12}INO$** 1-Phenacylpyridinium iodide, 1775*i*.

**$C_{13}H_{12}INO_2$** Iodine benzoate, compd. with picoline, 5690*a*.
Iodine *p*-toluate, compd. with pyridine, 5089*i*

**$C_{13}H_{12}NNaO_4S$** 2-Thiophenecarboxylic acid, 4-benzamidotetrahydro-3-oxo-, Me ester, Na deriv., P 3468*c*.

**$C_{13}H_{12}NO_4P$** Benzenephosphonic acid, *p*-benzamido-, 1737*i*.

**$C_{13}H_{13}N_2$** Benzaldehyde, phenylhydrazone, P 670*h*, 2667*h*, 6182*h*
Benzamidine, *N*-phenyl-, 2594*a*, P 3456*i*.
Benzophenone, hydrazone, 5769*f*
2,7-Fluorenediamine, *and di-HCl*, 7005*c*
Formamidine, *N,N'*-diphenyl-, 1779*h*, 2595*l*, 5757*h*, 6081*h*.
Δ"(10),α-Quinolineacetonitrile, 1-ethyl-, P 7843*e*
Stilbazole, amino-, 6630*a*; *and -HCl*, 6629*h*

**$C_{13}H_{12}N_2O$** (See also *Harmine*.)
Acetophenone, α-2-pyridyl-, oxime, 7022*g*
Anisole, *p*-phenylazo-, 6919*g*.
Benzoic acid, phenylhydrazide, 5526*a*, 7182*h*, 7183*c*.
Benzophenone, 4,4'-diamino-, 1367*g*.
Carbanilide, 170*h*, 548*a*, 1038*i*, 1352*a*, P 6845*c*, 8138*i*.
Formanilide, *m*-anilino-, 647*h*
Ketone, methyl 4-methyl-2-phenyl 5-pyrimidyl, 1424*b*.
Nicotinamide, *N*-benzyl-, 5025*d*.
Nicotino-*p*-toluidide, 6622*g*.
2-Pyridineacetanilide, 4269*h*.
Salicylaldehyde, phenylhydrazone, 8727*i*.
Urea, 1,1-diphenyl-, 8138*i*.

**$C_{13}H_{12}N_2O_2$** Acetophenone, α-(4-hydroxy-6-methyl-2-pyrimidyl)-, 3395*h*.
Benzanilide, 3-amino-4-hydroxy-, P 5597*g*, P 8146*d*.
Hydrocinnamic acid, α,β-dicyano-, Et ester, 3398*f*.
3-Indolepropionic acid, 4-cyano-, Me ester, 4255*h*.
Phenanthridine, 7,8,9,10-tetrahydro-2-nitro-, 1779*a*.
Phenol, *p*-(*p*-methoxyphenylazo)-, 6919*g*.
—, 4-methoxy-2-phenylazo-, 6617*a*.
1,3-Propanedione, 1-(1-methylimidazolyl)-3-phenyl-, 8382*f*
Propionic acid, α,β-dicyano-α-phenyl-, Et ester, P 695*e*
5*H*-Pyrazolo[*a*][3,1]benzoxazin-5-one, 3-ethyl-2-methyl-, 5025*a*
*p*-Toluquinone, α-phenyl-, dioxime, 5623*c*.
Urea, naphthylacetyl-, 2169*f*

**$C_{13}H_{12}N_2O_2S$** Carbanilide, 4,4'-dihydroxythio-, P 6845*e*
2-Thiophenecarboxanilide, 4'-acetamido-, 4665*d*.

**$C_{13}H_{12}N_2O_3$** Barbituric acid, 5-allyl-5-phenyl-, 4769*b*, 8612*e*.
2-Furanilide, 4'-acetamido-, 4665*d*.
Isonicotinic acid, 3-*p*-methoxyanilino-, 3827*c*
Nicotinic acid, 4-*p*-methoxyanilino-, 3827*b*.
5-Quinolinecarboxylic acid, 7-acetamido-2-methyl-, 3002*i*.

**$C_{13}H_{12}N_2O_3S$** Benzamide, *N*-sulfamyl-, 3097*g*, 7589*g*, 9154*h*.

**$C_{13}H_{12}N_2O_3S_2$** 2-Naphthalenesulfonic acid, 2-aminothiazole salt, 1746*b*.

**$C_{13}H_{12}N_2O_4S$** Anthranilic acid, *N*-sulfanilyl-, *Na salt*, 9370*c*.
Benzenesulfonotoluidide, nitro-, 1426*f*
3-Benzothiazoleacetic acid, 2-(acetoacetylimino)-, *and Na salt*, 5022*e*.
1-Phenol-4-sulfonamide, carbanilate, 593*f*.
Thiazole, 2-*p*-hydroxybenzamido-, Et carbonate, P 6239*c*.

**$C_{13}H_{12}N_2O_5$** Orotic acid, 5-phenoxy-, Et ester, 632*g*.
Quinimic acid, 8-nitro-, Et ester, 7026*a*.

**$C_{13}H_{12}N_2O_5S$** Anthranilic acid, *N*-(4-hydroxymethanalyl)-, P 1988*b*, P 8148*c*.
1-Phenol-2-sulfonic acid, 6-amino-4-benzamido-, P 3026*d*, P 5961*a*.

**$C_{13}H_{12}N_2O_6$** 3-Cyclohexen-1-ol, 3,5-dinitrobenzoate, 7435*h*.
Hexynol, 3,5-dinitrobenzoate, 6571*f*.

**$C_{13}H_{12}N_2O_6S$** Salicylic acid, 5-(4-amino-2-sulfoanilino)-, P 1574*i*, P 4864*c*.

**$C_{13}H_{12}N_2O_8$** Aspartic acid, compd. with 2-nitro-1,3-indandione, 69*i*
Pyrocatechol, 4-nitro-5-(2-nitropropenyl)-, diacetate, 3406*a*.

**$C_{13}H_{12}N_2O_8$** Homophthalic acid, α-acetyl-4,6-dinitro-, α-Et ester, 1742*c*.

**$C_{13}H_{12}N_2O_8S$** Salicylic acid, 5-(4-amino-2-sulfoanilino)-3-sulfo-, P 4864*d*.

**$C_{13}H_{12}N_2S$** (See also *Carbanilide, thio-*.)
Urea, 1-(4-biphenylyl)-2-thio-, 348*h*.
—, 1,1-diphenyl-2-thio-, 548*c*.

**$C_{13}H_{12}N_2Se$** Naphtho[1,2]selenazole, 1-ethyl-1,2-dihydro-2-imino-, P 7848*f*.

**$C_{13}H_{12}N_4$** Phenanthridine, 3,6,8-triamino-, 1419*i*.

**$C_{13}H_{12}N_4O$** Formic acid, phenylazo-, phenylhydrazide, 9376*i*.

**$C_{13}H_{12}N_4O_2$** Benzamide, (*p*-nitrophenyl)hydrazone, 3747*d*.
Lumiflavin, 1093*b*, 7073*g*, 8282*c*.
Toluidine, (*p*-nitrophenylazo)-, 597*d*.

**$C_{13}H_{12}N_4O_2S$** Sulfanilamide, *N*¹-benzimidazolyl-, 8001*c*.
Sulfanilamide, *N*-5-indazolyl-, P 7966*a*.

**$C_{13}H_{12}N_4O_3$** Anthranilic acid, 4-nitro-*N*-phenyl-, hydrazide, 648*e*.
Oxalic acid, 2-furfurylidenehydrazide 2-phenylhydrazide, 6972*b*.

**$C_{13}H_{12}N_4O_3S$** Anthranilic acid, 5-(*p*-sulfamylphenylazo), 1485*e*, 8528*b*

**$C_{13}H_{12}N_4O_4S$** Benzenesulfonic acid, 2-(4-amino-*o*-tolylazo)-5-nitro-, P 862*e*.

**$C_{13}H_{12}N_4O_5S$** 5-Pyrimidinecarboxylic acid, 2-(*m*-nitrophenylsulfonamido)-, Et ester, P 7516*h*.

**$C_{13}H_{12}N_4O_7$** 2-Pentenoic acid, 3-(hydroxymethyl)-2-methoxy-4-oxo-, γ-lactone, 2,4-dinitrophenylhydrazone, 6980*i*, 6981*a*.
Pyridine, 2-ethyl-, picrate, 641*c*, 7022*i*.

Toluidine, picrate, 6070*g*.
$C_{12}H_{12}N_4O_7S$ Benzamidine, 3,5-dinitro-, benzenesulfonate, P 6884*i*.
$C_{12}H_{12}N_4O_8$ Pyridine, 2-ethoxy-, picrate, 2997*c*.
2(1*H*)-Pyridone, dimethyl-, picrate, 6628*ab*.
$C_{12}H_{12}N_4O_9$ Pyridine, 2-ethoxy-, 1-oxide picrate, 2997*c*.
$C_{12}H_{12}N_4S$ See *Dithizone*.
$C_{12}H_{12}N_4O_4S$ Sulfanilamide, *N*[4]-(2,4-dihydroxy-6-pteridylmethyl)-, *and salts*, P 8619*d*.
$C_{12}H_{12}N_4O_7S_2$ Sulfathiazole, dilituarate, 3262*g*.
$C_{12}H_{12}N_4O_7$ Purine, 1,6-dihydro-1-methyl-6-methylimino , picrate, 4634*i*.
$C_{12}H_{12}N_5O_8$ Guanine, *N*[2],1-dimethyl-, picrate, 4635*a*.
$C_{12}H_{12}O$ Anisole, *p*-phenyl-, 1034*a*, 3394*e*.
Benzhydrol, 191*e*, 193*a*, 1340*c*, 1368*b*, 2194*c*.
2-Biphenylmethanol, 1356*b*.
Cresol, α-phenyl-, 6622*e*, P 7696*a*.
Ether, benzyl phenyl, 3138*c*, 6622*e*.
Propionaphthone, 2608*f*, 9424*f*.
$C_{12}H_{12}OS_2$ Ketone, (benzylmercapto)methyl 2-thienyl, 1398*d*.
$C_{12}H_{12}OS_4$ Phenol, (benzyltetrathio)-, P 5992*g*.
$C_{12}H_{12}O_2$ Acetonaphthone, methoxy-, 6606*eh*, 7001*bc*.
*m*-Cresol, 5-phenoxy-, P 2232*d*.
Hydroquinone, benzyl-, 8727*i*.
Naphthaleneacetic acid, Me ester, 1499*i*, 1500*b*, 1517*h*, 1803*d*, 1894*a*, 7092*d*, 7181*f*, 8013*i*, 8597*e*.
—, α-methyl-, 4654*g*.
1-Naphthalenemethanol, acetate, 729*g*.
Naphthalenepropionic acid, 3142*h*.
1-Naphthoic acid, 2-ethyl-, 1040*i*.
Phenol, methylenedi-, P 4698*cf*, P 6666*d*, 8615*a*, P 9389*i*.
2-Propanone, 1-hydroxy-3-(2-naphthyl)-, 4659*b*.
Propionaphthone, hydroxy , 1040*h*, 7010*c*.
Resorcinol, benzyl-, 8727*i*.
$C_{12}H_{12}O_2S$ Acetic acid, 1-naphthylmercapto-, Me ester, 3365*d*.
1,4-Naphthoquinone, 2-(ethylmercapto)-3-methyl-, 7581*d*.
$C_{12}H_{12}O_2S_2$ Thiophene, 2,2′-methylenebis[5-acetyl-, P 6238*a*.
$C_{12}H_{12}O_2$ Acrylic acid, β-benzoyl-, allyl ester, 7192*h*.
*m*-Cresol, 5-(hydroxyphenoxy)-, P 2232*d*.
Hydroquinone, toloxy-, P 2232*f*.
2-Naphthaleneacetic acid, 6-methoxy-, 3363*b*.
1,4-Naphthoquinone, 2-hydroxy-3-isopropyl-, 1373*c*.
—, 2-hydroxy-3-propyl-, 1373*c*.
—, 2-isopropoxy-, 1371*i*.
Orcinol, 4-phenoxy-, P 2232*d*.
Propionic acid, β-2-naphthoxy-, P 1051*b*
$C_{12}H_{12}O_3S$ Benzenesulfonic acid, tolyl ester, P 7751*d*.
*p*-Cresol, 2-(phenylsulfonyl)-, 7006*e*.
*p*-Toluenesulfonic acid, Ph ester, P 7751*d*.
$C_{12}H_{12}O_4$ 2-Benzofuranpyruvic acid, 3,6-dimethyl-, 3413*d*.
9*H*-Furo[2,3-*f*][1]benzopyran-9-one, 2,3-dihydro-4-methoxy-7-methyl-, 3413*i*.
2-Indanacetic acid, 2-methyl-1,3-dioxo-, Me ester, P 7048*f*.
Malonic acid, (1-methyl-3-phenyl-2-propynyl)-, 1020*i*.
Orcinol, 4-(*o*-hydroxyphenoxy)-, P 2232*e*.
$C_{12}H_{12}O_5$ Acrylic acid, β-cresotyl-, acetate, 7192*h*.
5-Benzofuranacrylic acid, 2,3-dihydro-6-hydroxy-, acetate, 3412*f*.
1,2*H*-Benzopyranacetic acid, 6-ethyl-7-hydroxy-2-oxo-, 6206*e*.
—, 7-methoxy-4-methyl-2-oxo-, 7936*i*.
—, 4-methoxy-2-oxo-, Me ester, 7935*g*.
1,2*H*-Benzopyrancarboxylic acid, 7-methoxy-4-methyl-2-oxo-, Me ester, 1045*c*, 7936*h*.
—, 7-methoxy-2-oxo-, Et ester, 7936*g*.
1,3-Butanedione, 1-(6-hydroxy-4-methoxybenzofuryl)-, 3413*eg*.
Chromone, 3 - acetyl - 6,7 - dimethoxy-, 7461*f*.
Coumarilic acid, 6-hydroxy-, Et ester, acetate, 3412*d*.
Coumarin, 3 - acetyl - 6,7 - dimethoxy-, 7460*i*.
Eugenin, acetate, 1775*g*.
Herniarin, 6-hydroxy-4-methyl-, acetate, 3823*e*.
Isophthalic acid, 4-(carboxy-*tert*-butyl)-, 3,4-anhydride, 2589*c*.
Purpurogallin, di-Me ether, 3403*b*.
Scopoletin, 4-methyl-, acetate, 3823*e*.
$C_{12}H_{12}O_6$ 1,2*H*-Benzopyran-4-acetic acid, 6-ethyl-7,8-dihydroxy-2-oxo-, 6206*f*.
1,4*H*-Benzopyran-3-carboxylic acid, 6,7-dimethoxy-2-methyl-4-oxo-, 7461*h*.
Coumarin, 4-hydroxy-6,7-dimethoxy-, acetate, 7461*b*.
2-Furoic acid, 5,5′-methylenedi-, Me ester, P 1065*d*.
$C_{12}H_{12}O_7$ Coumarilic acid, 5-acetyl-6-hydroxy-4,7-dimethoxy-, 7480*i*.
$C_{12}H_{12}O_8$ Gallic acid, triacetate, 3394*b*, 7936*b*.
$C_{12}H_{12}S$ Methanethiol, diphenyl-, 1366*b*.
Sulfide, benzyl phenyl, 2178*c*, 2597*d*, 8979*a*.
$C_{12}H_{12}AsN_2O_3S$ Sulfanilamide, *N*[1]-(*p*-arsenosobenzyl)-, 176*f*.
$C_{12}H_{13}AsO_2$ Arsinic acid, phenyltolyl-, 3382*g*.
$C_{12}H_{13}As_2N_2NaO_4S$ See *Neoarsphenamine*.
$C_{12}H_{13}BrN_2O_4S_2$ α-Toluenesulfonamide, *p*-bromo-*N*-metanilyl-, P 8150*a*.
$C_{12}H_{13}BrO_3$ Herniarin, 6-bromo-3-ethyl-4-methyl-, 5024*c*.
Umbelliferone, 6 - bromo - 4 - methyl - 3-propyl-, 5024*c*.
$C_{12}H_{13}BrO_4$ Tricyclo[4.2 2.0$^{2,5}$] - 3 - decene-7,8-dicarboxylic acid, 9-bromo-10-hydroxy-, γ-lactone Me ester, 6199*b*.
$C_{12}H_{13}Cl$ Naphthalene, chloroisopropyl-, P 7633*i*.
$C_{12}H_{13}ClCuOP$ Phosphinous acid, diphenyl , Me ester, compd. with CuCl, 3802*a*.
$C_{12}H_{13}ClF_3NO_2$ 5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin 6-ol, 10-chloro-2,3,6,7-tetrahydro - 5 - methyl - 3 - (trifluoromethyl)-, P 2782*g*.
$C_{12}H_{13}ClN_2O$ 1-(Phenylcarbamylmethyl)pyridinium chloride, 6977*e*.
Pyridine, 5-chloro-2-*p*-methoxybenzylamino-, 6587*g*.
$C_{12}H_{13}ClN_2O_3S$ Benzamidine, *o*-chloro-, benzenesulfonate, 7445*b*.
$C_{12}H_{13}ClN_2O_4$ Alanine, chloroacetylglycyldehydrophenyl-, 9113*f*.
Cinnamic acid, α-[α-(α-chloroacetamido)-acetamido]-, 257*i*.
Glycine, chloroacetyldehydrophenylalanyl-, 9113*g*.
$C_{12}H_{13}ClN_2O_4S$ *p*-Toluenesulfonamide, *N*-(4-chloro *p* metanilyl-, P 8150*b*.
α - Toluenesulfonamide, *p* - chloro - *N*-metanilyl-, P 8149*i*, P 8150*a*.
$C_{12}H_{13}ClN_2O_5S_2$ Benzenesulfonic acid, [(chlorometanilyl)methylamino]-, P 7701*f*.
Metanilamide, 4-chloro-*N*[1]-(*p* methoxyphenylsulfonyl)-, P 8150*a*.
$C_{12}H_{13}ClN_2O_8$ Malonic acid, (4-chloro-2,6 dinitrophenyl) , di-Et ester, 7452*i*.
$C_{12}H_{13}ClN_4O$ Pyrimidine, 2-(4-amino-2-chlorobenzamido) - 4,6 - dimethyl-, 7455*c*
$C_{12}H_{13}ClN_4O_7$ Formamidine, *N*-(*p*-chlorophenyl) *N*′ - (4,6 - dimethoxy - 2-pyrimidyl)-, 1779*g*.
$C_{12}H_{13}ClN_4O_2S$ Urea, 1-(*p*-chlorophenyl)-3-(4,6 - dimethoxy - 2 - pyrimidyl) - 2-thio-, 1779*g*.
$C_{12}H_{13}ClN_4O_3S$ Acetanilide, *p*-(4-chloro-6-methyl-2-pyrimidylsulfamyl)-, P 7964*f*.
$C_{12}H_{13}ClN_4O_4$ 3-Dimethylamino-1-(2,4-dinitrophenyl)pyridinium chloride, 4671*b*.
$C_{12}H_{13}ClO$ Ketone, 2-chloro-1-cyclohexen-1-yl phenyl, P 6230*c*.
Naphthalene, 2-chloro-6 (1-methoxyethyl)-, 1756*c*.
$C_{12}H_{13}ClO_2$ Acrylic acid, β-(4-chloro-*m*-toluyl)-, Et ester, 7192*h*.
$C_{12}H_{13}ClO_4$ Tricyclo[4.2.2.0$^{2,5}$]-3 decene-7,8-dicarboxylic acid, 9-chloro-10-hydroxy-, γ-lactone Me ester, 6199*d*.
$C_{12}H_{13}Cl_3N_2O_2$ Antipyrine, 4-(2,2,2-trichloro-1-hydroxyethyl)-, 7177*a*.
$C_{12}H_{13}Cl_3O_3$ 1,2-Propanediol, 3-(2,4,5-trichlorophenoxy)-, diacetate, P 675*g*
$C_{12}H_{13}I$ Naphthalene, 1-iodo-2,3,4-trimethyl-, 9059*g*.
$C_{12}H_{13}KOSi$ Silanol, methyldiphenyl-, K deriv., P 7500*d*.
$C_{12}H_{13}N$ Benzhydrylamine, 2981*a*.
Benzo[*g*]quinoline, 6,7,8,9-tetrahydro-, 1420*g*.
Benzylamine, phenyl-, 1312*f*, 3316*f*, *and* - *HCl*, 1356*a*.
Cyclohexene - 1 - carbonitrile, phenyl-, 1357*f*, 8364*e*.
Δ[1],α-Cyclopentaneacetonitrile, α-phenyl-, 8359*a*.
2-Cyclopenten-1-acetonitrile, α-phenyl-, 8359*f*.
Diphenylamine, *N*-methyl-, 9118*e*.
Phenanthridine, 7,8,9,10-tetrahydro-1778*g*.
Pyridine, benzylidenedihydro-1-methyl-3202*e*.
*p*-Toluidine, *N*-phenyl-, P 3454*g*.
$C_{12}H_{13}NO$ 4-Acridol, 5,6,7,8-tetrahydro-8942*i*.
2-Biphenylamine, 4′-methoxy-, P 2647*b*.
2-Butanone, 1-(2-quinolyl)-, 7022*e*.
Ketone, 6,7-dimethyl-4-quinolyl methyl 4675*c*.
1-Naphthaleneacetamide, α-methyl-, 1743*i*, 4654*h*.
Phenol *p*-benzylamino-, 6157*c*.
4-Picoline, 2-(benzyloxy)-, 2997*h*.
2-Propanone, 1-(1-methyl-2(1*H*)-quinolylidene)-, 4262*g*.
2-Pyridineethanol, α-phenyl-, 2205*e*.
Pyridinemethanol, α-benzyl-, 4266*b*.
—, α-methyl-α-phenyl-, 4266*ab*; *an* - *HCl*, 2204*f*, 2205*d*.
—, α-(tolyl)-, 4265*i*, 4266*a*.
4(1*H*)-Pyridone, 2,6-dimethyl-1-phenyl-2999*d*.
Quinaldine, 4-allyloxy-, 1416*d*.
4-Quinolinol, 3-allyl-2-methyl-, 1415*e*.
$C_{12}H_{13}NOS$ 2-Thiophenecarboxy-*p*-toluidide 3-methyl-, 4666*e*.
2-Thiophenecarboxyxylidide, 4665*bc*.
$C_{12}H_{13}NOS_2$ 2-Thiazoline-5-carbothiolic acid 4-benzylidene-2-methylmercapto-, Me ester, P 692*h*.
$C_{12}H_{13}NO_2$ Acetamide, *N*-(methoxy-1-naphthyl)-, 7011*i*.
1-Butanone, 4-hydroxy-1-(8-quinolyl)-, 2623*i*.
*p*-Cresol, α-(*p* hydroxyanilino)-, P 3604*f*
2-Furoxylidide, 4665*bc*.
2-Indancarboxylic acid, 2-cyano-, Et ester, 4222*h*.
3-Pentenenitrile, 2 hydroxy 3-methyl-, benzoate, 4218*a*.
4-Picoline, 2 (benzyloxy)-, 1-oxide, 2997*h*.
2-Pyridinemethanol, α-(methoxyphenyl)-, 4266*a*, *and salts*, 2204*g*.
Quinolineacetic acid, Et ester, 3363*d*, 7022*f*.
$C_{12}H_{13}NO_3S$ Aniline, *p*-(*p*-tolylsulfonyl) , 6994*f*.
Benzenesulfonotoluidide, 2594*i*, 5995*f*
5 Thiazoleacetic acid, α,2-dimethyl 4-phenyl-, P 8401*e*.
—, 2-methyl-4-phenyl-, Me ester, P 8401*e*.
—, 2 methyl 4-*p*-tolyl-, P 8401*d*.
2-Thiazolemethanol, 4-methyl α-phenyl , acetate, *and* - *HCl*, 3820*h*
2-Thiopheneethanol, carbanilate, 3817*f*
*p*-Toluenesulfonanilide, 5995*f*.
$C_{12}H_{13}NO_2S_2$ 5-Thiazoleacetic acid, 2-(ethylmercapto)-4-phenyl , P 8401*f*.
5-Thiazoleacetic acid, 2 methylmercapto-4 *p*-tolyl-, P 8401*f*
5(4*H*) Thiazolone, 2-(benzylmercapto)-4-(ethoxymethylene)-, 1399*a*
$C_{12}H_{13}NO_4$ 1 Naphthaleneacrylamic acid, 7 hydroxy-, Et ester, P 5598*i*, P 5960*h*, P 5961*ab*.
1,4-Naphthoquinone, 2-(dimethylaminomethyl)-3-hydroxy-, 1384*i*.
4-Oxazolecarboxylic acid, 5-methyl 2 phenyl-, Et ester, 2989*e*.
5(4*H*)-Oxazolone, 4-(isopropoxymethylene) 2 phenyl-, 2618*f*.
Piperamide, *N*-methyl-, 1144*e*.
Pyruvic acid, cyanotolyl-, Et ester, 1746*h*.
Quinaldic acid, 3-acetyl-1,2-dihydro-, Me ester, 1412*b*.
6-Quinolinecarboxylic acid, 4-hydroxy-2-methyl-, Et ester, 6466*b*.
$C_{12}H_{13}NO_3S$ Benzenesulfonic acid, *o*-amino-, *p*-tolyl ester, 4249*e*.
5-Thiazoleacetic acid, 4-(*p*-methoxyphenyl)-2-methyl-, P 8401*e*.
$C_{12}H_{13}NO_4$ Acrylic acid, β-(acetamido-*o* toluyl)-, 7192*h*.
5,6-Indolediol, 2-methyl-, diacetate, 3406*a*.
2-Isoindolineacetic acid, α-isopropyl-1,3-dioxo-, 5743*e*.
Kynurenic acid, 7-ethoxy-3-methyl-4276*c*.
Malonic acid, (1-methyl-3-indolyl methyl)-, 3405*c*.
2-Naphthoic acid, 4-amino-1,3-dihydroxy-, Et ester, - *HCl*, 1380*i*.
1,4-Naphthoquinone, 2-hydroxy-3-(2 hydroxyethylaminomethyl)-, 1384*i*
1 - (4 - Oxo - 2,5 - cyclohexadien - 1 - yl oxy)pyridinium acetate, 5781*b*.
3-Pyrroline-3-carboxylic acid, 4-ethoxy-5-oxo-1-phenyl-, 8380*e*.

Succinic acid, α-cyano-β-phenyl-, Et ester, 2167*f*.

$C_{12}H_{13}NO_4S$ Hydroquinone, 2-(α-amino-*p*-tolylsulfonyl)-, 9376*e*.
2-Thiophenecarboxylic acid, 4-benzamidotetrahydro-3-oxo-, Me ester, P 3468*c*.

$C_{12}H_{13}NO_5$ Umbellic acid, β-(2-hydroxyethyl carbamylmethyl)-, δ-lactone, 3364*i*.

$C_{12}H_{13}NO_3S_2$ *o*-Toluenesulfonic acid, 5-(*o*-aminophenylsulfonyl)-, P 2440*h*.

$C_{12}H_{13}NO_3S$ 2-Naphthalenecarbamic acid, 6-hydroxy-8-sulfo-, Et ester, P 4481*d*.
2-Naphthol-4-sulfonic acid, 6-α-methoxyacetamido-, P 5959*h*.

$C_{12}H_{13}NO_4S_2$ *o*-Toluenesulfonic acid, 5-amino-, sulfophenyl ester, P 5962*f*.
Toluenesulfonic acid, hydroxy-, metanilate, P 5195*a*.

$C_{12}H_{13}NO_5S_2$ 1-Naphthalenecarbamic acid, 8-hydroxy-3,6-disulfo-, 1 Et ester, P 8158*g*.

$C_{12}H_{13}N_3$ (See also *Guanidine, diphenyl-*.)
Aniline, *N*-methyl-*p*-phenylazo-, 1859*d*, 2306*g*, 2310*d*, 3801*e*, 5109*e*, 5756*g*.
Quinoline, 8-(2-imidazolin-2-ylmethyl)-, P 5048*i*.
Triazene, 3-phenyl-1-*p*-tolyl-, 5621*f*.

$C_{12}H_{13}N_3O$ 2-Acetonaphthone, semicarbazone, 2608*f*.
Aniline, *p*-(*p*-methoxyphenylazo)-, P 8166*a*.
*o*-Anisidine, 4-phenylazo-, P 4476*g*, P 4477*ab*, P 5962*i*, P 8160*a*.
Anthranilic acid, *N*-phenyl-, hydrazide, 648*c*.
Benzanilide, diamino-, P 3204*i*, P 4481*cde*, P 4482*g*, P 4807*b*, P 5196*i*, P 8690*a*, 9406*e*.
Formamide, *N*, *N*-bis(*m*-aminophenyl)-, 647*e*.
Phenol, *o*-(4-amino-*m*-tolylazo)-, P 4474*d*, P 4475*f*.
Semicarbazide, 1,4-diphenyl-, 5893*h*.

$C_{12}H_{13}N_3OS$ Acetanilide, *p*-(2-pyridylaminomercapto)-, P 8400*c*.

$C_{12}H_{13}N_3O_2$ Antipyrineglycolonitrile, 7477*d*.
Creatinine, *N*-acetyl-5-benzylidene-, 6984*c*.
Isonicotinaldehyde, 3,5-dihydroxy-2-methyl-, phenylhydrazone, P 725*e*.
Mandelamide, *N*-(6-amino-2-pyridyl)-, P 3853*d*.
Phenol, *o*-(4-amino-3-methoxyphenylazo), P 4475*de*.
Quinoline, 4,6 diacetamido-, 1777*b*.
1,2,3,2*H*-Triazole-4-acrylic acid, 2-phenyl, Et ester, 2610*c*.

$C_{12}H_{13}N_3O_2S$ Barbituric acid, 5-(*p*-dimethylaminobenzylidene)-2-thio-, 8300*g*.
Benzamidine, *p* (methylsulfonyl)-*N*-2-pyridyl-, P 3456*i*, P 3457*a*.
Benzenesulfonamide, *p*-phenylguanyl-, 7444*e*.
Nicotinamidine, 6-mercapto-, benzoate, 2995*h*.
Sulfanilamide, *N*¹-benzimido-, P 6660*i*.
2-Thiazolecarbamic acid, 5-benzylideneamino-, Et ester, 1402*e*.

$C_{12}H_{13}N_3O_3S$ Carbanilide, 4-sulfamylthio-, P 7042*j*.
Sulfathiazole, reaction product with crotonaldehyde, 4238*a*.

$C_{12}H_{13}N_3O_3S$ Acetanilide, *p*-(5-amino-2-pyridylsulfonyl)-, P 1804*a*.
Acetanilide, *p*-(pyridylsulfamyl)-, P 3641, P 10660*h*, 1738*c*.
Acetic acid, (1,5-dihydro-5-oxo-6-phenyl-as triazin-3-ylmercapto)-, Et ester, 3016*b*.
4-Thiazolecarboxylic acid, 5-amino-2-benzamido-, Et ester, *and* - *HCl*, 1403*b*.

$C_{12}H_{13}N_3O_3S_2$ Thiazole, 4-methyl-2-*N*-methylacetamido-5-(*p*-nitrophenylmercapto)-, P 9086*d*.

$C_{12}H_{13}N_3O_4S$ Pyrimido[2,1-*b*]-*m*-thiazine-6,8(2*H*,7*H*)-dione, 7-(3-ethyl-4-hydroxy-2-thioxo-4-thiazolin-5-ylmethylene)3,4-dihydro-, P 8925*d*.

$C_{12}H_{13}N_3O_4S$ (See also *Proflavine*.)
Benzenesulfonamide, *p*-(α,4-dihydroxy-*m*-tolylazo)-, 3110*a*.
Benzenesulfonic acid, 2-amino-5-(aminobenzamido)-, P 9466*e*.
—, *m*-(4-amino-2-methoxyphenylazo)-, P 1574*i*.

$C_{12}H_{13}N_3O_4S$ Benzamidine, *p*-nitro-, benzenesulfonate, P 688*h*.
Benzenesulfonic acid, 3-(3-amino-4-hydroxyphenylazo)-4-methoxy-, P 4807*e*.
1-Phenol 4-sulfonic acid, 2-(4-amino-2-methoxyphenylazo)-, P 1575*d*.

$C_{12}H_{13}N_3O_5S_2$ (See also *Sulfasuxidine*.)
Acetanilide, 4-(2-pyridylsulfonyl)-2-sulfamyl-, P 7961*f*.

$C_{12}H_{13}N_5$ Methylamine, bis(benzenediazo)-, 5621*f*.

$C_{12}H_{13}N_3O_2$ Isoalloxazine, 8-dimethylamino-10-methyl-, 3008*d*.

$C_{12}H_{13}N_3O_3$ Isatin, 1-acetyl-, guanylhydrazone, Ac deriv., 3428*e*.
Urea, 1,1-bis(2-cyanoethyl)-3-(*p*-nitrophenyl)-, 168*f*.

$C_{12}H_{13}N_3O_3$ 1-Pyrrolidinepropionaldehyde, 2,5-dioxo-, 2,4-dinitrophenylhydrazone, 6170*a*.

$C_{12}H_{13}N_3O_7$ Pyridine, 2-ethylamino-, picrate, 6626*c*.

$C_{12}H_{13}N_3O_8$ 2-Furaldehyde, dimethylhydrazone, picrate, 6502*i*.
Pyridine, amino-5-ethoxy-, picrate, 641*g*, 6626*b*.

$C_{12}H_{13}N_7O_2S$ Sulfanilamide, *N*⁴-(2-amino-4-hydroxy-6-pteridylmethyl)-, *and salts*, P 8105*i*.

$C_{12}H_{13}NaOSi$ Silanol, methyldiphenyl-, Na deriv., P 3658*d*.

$C_{12}H_{13}OP$ Phosphine oxide, methyldiphenyl-, 3802*a*.
Phosphinous acid, diphenyl-, Me ester, 3802*a*.

$C_{12}H_{13}O_3P$ Methanephosphonic acid, diphenyl-, 8366*c*.

$C_{12}H_{14}$ Cyclopentacycloheptene, 2-isopropyl-, 5768*f*.
Cyclopentacycloheptene, 2 - propyl-, 5768*f*.
Naphthalene, 2-isopropyl-, 4063*f*.
—, propyl-, 2608*b*, 4454*h*, P 4518*d*, 6512*i*, 7868*e*, 8888*f*, 9424*e*.
—, trimethyl-, P 4458*a*.
Sapotalene, 6604*b*.

$C_{12}H_{14}As_2N_2O_3S$ See *Neoarsphenamine*

$C_{12}H_{14}As_2O_8$ Benzenearsonic acid, 3,3'-methylenebis[4-hydroxy-, 8615*b*.

$C_{12}H_{14}BrNO$ 4-Quinolinemethanol, α (bromomethyl)-6,7-dimethyl-, 4674*i*.

$C_{12}H_{14}BrNO_2$ 1-[1-(α-Hydroxyfurfuryl)allyl]-pyridinium bromide, P 850*e*.

$C_{12}H_{14}BrN_3O$ Valeric acid, δ-bromo-α-cyano-, benzylidenehydrazide, 4223*a*.

$C_{12}H_{14}BrN_3O_3S_2$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 6-(4-bromo-2-nitrophenylazo)-2,4-diethyl-3-thio-, 1,1-dioxide, P 4868*g*.

$C_{12}H_{14}Br_2O_3$ Propionic acid, α,β-dibromo-β (2,4,6-trimethylbenzoyl)-, 7192*h*.

$C_{12}H_{14}ClN$ Isoquinoline, 3-butyl-1-chloro-, 4207*c*.

$C_{12}H_{14}ClNO_2$ 1-(2,5-Dihydroxy-3,4-xylyl)-pyridinium chloride, 5683*c*.

$C_{12}H_{14}ClNO_2S$ 1-Naphthoic acid, 5,6,7,8-tetrahydro-4-nitrothiol-, 2-chloroethyl ester, 6192*i*.

$C_{12}H_{14}ClN_3O$ 4-Pyrimidol, 5-(*p*-chlorophenylazo) - 2 - dimethylamino - 6 - methyl-, 3423*g*.

$C_{12}H_{14}Cl_3NO_4$ Valine, *N*-[(3,4,6-trichlorophenoxy)acetyl]-, 3364*h*.

$C_{12}H_{14}F_3NO$ 5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazine, 2,3,6,7-tetrahydro-3-methyl-8-(trifluoromethyl)-, P 2782*h*.

$C_{12}H_{14}F_3NO_2$ 5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin - 6 - ol, 2,3,6,7 - tetrahydro-methyl(trifluoromethyl)-, P 2782*gh*.

$C_{12}H_{14}IN_3$ 1-Methyl-2-[2-(4-pyridylamino)-vinyl]pyridinium iodide, P 2642*h*.

$C_{12}H_{14}NNaO_4$ Phenaceturic acid, α-formyl-, Et ester, Na deriv., P 9085*b*.

$C_{12}H_{14}NO_3P$ Phosphinic acid, (α-anilinobenzyl)-, 5378*c*.

$C_{12}H_{14}N_2$ Aniline, methylenedi-, 2799*e*, P 4699*a*, 8615*a*.
Phenanthridine, 6-amino-7,8,9,10-tetrahydro-, 1779*b*.
*p*-Phenylenediamine, *N*-*p*-tolyl-, P 3204*a*.
Pyridine, 2-(α-methylaminobenzyl)-, *and ds- HCl*, 2205*i*.
—, 2-phenethylamino-(?), P 3472*c*.
Toluene - 3,4 - diamine, *N*⁴ - phenyl-, 3932*c*.

$C_{12}H_{14}N_2O$ Phenol, *p*-(*p*-aminobenzylamino)-, P 3604*f*.
Pyridine, 2-(*p*-methoxybenzylamino)-, P 3470*e*.

$C_{12}H_{14}N_2O_2$ Hydantoin, 5-ethyl-5-styryl-, 7429*g*.
4-Imidazolecarboxylic acid, 5-methyl-2-phenyl-, Et ester, 2989*e*.
4 - Isoxazolecarboxanilide, *N*,3,5 - trimethyl-, P 822*h*.
Phenol, 2-amino-5-(4-aminomethoxyphenyl)-, P 5958*ghi*, P 5959*ab*, P 7697*d*, P 8148*f*.
2 - Propanone, (6 - methoxy - 8 - quinolylamino)-, 3419*i*.
3-Pyrazoline-4-carboxaldehyde, 2,3-dimethyl-5-oxo-1-*p*-tolyl-, 7477*e*.
Pyrazinol, 3-*p*-hydroxybenzyl-5,6-dimethyl-, 3009*i*.
2 - Pyrimidinemethanol, 4 - methoxy - 6-methyl-α-phenyl-, - *HCl*, 7023*b*.
2(1*H*)-Pyrimidone, 1-benzyloxy-4,6-dimethyl-, 2998*b*.
Quinaldine, 6-acetamido-4-methoxy-, 1778*a*.
Quinolineacetamide, *N*-2-hydroxyethyl-, 3364*bc*.
Quinoline, 5-isopropyl-8-methyl 7-nitro-, 3421*i*.

$C_{12}H_{14}N_2O_2S$ Crotonic acid, β-6-benzothiazolylamino , Et ester, 7476*f*.
Formic acid, 2-(1-naphthylmethyl)-, 2-thiopseudourea salt, 565*g*.
Sulfanilo-*m*-toluidide, 4649*b*.
Toluenesulfonic acid, phenylhydrazide, 5526*a*, 7182*h*

$C_{12}H_{14}N_2O_2S_2$ Acetamide, *N*-2-hydroxyethyl-α (4 - phenyl 2 - thiazolylmercapto)-, 3365*f*.

$C_{12}H_{14}N_2O_3$ Antipyric acid, Me ester, 7477*f*.
Barbituric acid, 5-phenyl-5 propyl-, 4769*b*.
Benzoic acid, *o*-(4-ethyl-3-methyl-5-oxo-2-pyrazolin-1 yl)-, 5024*i*.
Prominal, 8611*i*, 8612*e*.
3-Pyrazoline-4-carboxylic acid, 2,3-dimethyl-5-oxo-1-*p*-tolyl-, 7477*e*.
Quininic acid, 8 amino-, Et ester, 7026*a*.
Succinimide, α-acetamido-*N*-benzyl-, 1352*i*.
*p*-Toluic acid, α (5-methyl-2-oxo-4-imidazolin-4-yl)-, Me ester, 1769*g*.
Tryptophan, *N* acetyl-, 1241*e*, P 2643*f*, P 2742*a*, 8380*a*, 8892*h*.

$C_{12}H_{14}N_2O_3S$ Acetoacetamide, *N*-(6-ethoxy , 2-benzothiazolyl)-, P 7695*a*.
*o*-Anisidine, 4-sulfanilyl-, 3518*d*.
Benzamidine, benzenesulfonate, P 2230*f*, P 5038*d*, 7445*i*.
Sulfanil-*m* anisidide, 4649*b*
3(2*H*)-Thiophenone, 4-benzamido-4,5-dihydro , oxime, Ac deriv., P 3468*d*.

$C_{12}H_{14}N_2O_3S_2$ Acetanilide, *p*-(4,5 dimethyl-2 thiazolylsulfonyl)-, 6181*c*.
Acetanilide, *p*-(5-ethyl-2-thiazolylsulfonyl)-, 6181*e*.

$C_{12}H_{14}N_2O_4$ Acetoacetanilide, 4-cyano-2,5-dimethoxy-, P 3461*i*.
1,8-Naphthyridine-3-carboxylic acid, 7-ethoxy-4-hydroxy-, Et ester, 650*g*.
4*H* - Pyrido[1,2 - *a*]pyrimidine - 3 - carboxylic acid, 7-ethoxy-4-oxo-, Et ester, 650*g*.

$C_{12}H_{14}N_2O_4S$ 2-Thiophenecarboxylic acid, 4-benzamidotetrahydro-3-oxo-, Me ester oxime, P 3468*c*.

$C_{12}H_{14}N_2O_4S_2$ Dibenzenesulfonamide, 3-amino-4-methyl-, P 8150*e*.
Gliotoxin, 6204*i*, 7076*g*.
Toluenesulfonamide, *N*-metanilyl-, P 8150*b*, P 8149*i*.
—, *N*-sulfanilyl-, P 8149*i*.
*p*-Toluenesulfonanilide, sulfamyl , 5995*f*.

$C_{12}H_{14}N_2O_4S_2$ Benzenesulfonic acid, (metanilylmethylamino)-, P 7701*d*.
Benzenesulfonic acid, (*N*¹-methylsulfanilamido)-, P 7701*f*.

$C_{12}H_{14}N_2O_4S_2$ *p*-Benzenedisulfamic acid, *N*-*p*-tolyl-, *di- Na salt*, P 3204*b*.
Sulfanilic acid, *N*-(4-hydroxymetanilyl)-*N*-methyl-, P 1988*c*.

$C_{12}H_{14}N_2O_5S$ *p*-Benzenedisulfamic acid, *N*-(*p*-methoxyphenyl)-, *di- Na salt*, P 3204*b*.

$C_{12}H_{14}N_2O_5$ Methyl ester, m. 177° (decompn.), 6199*d*.

$C_{12}H_{14}N_2S$ Thiazole, 2-(*p*-dimethylaminostyryl)-, 3427*i*.

$C_{12}H_{14}N_2S_2$ Urea, 1-methyl-3-phenyl-1-(2-thenyl)-2-thio-, 1764*a*.
Urea, 1-(3-methyl-2-thenyl)-3-phenyl-2-thio-, 2201*h*.

$C_{12}H_{14}N_2Se$ Urea, 1-ethyl-1-(1-naphthyl)-2-seleno-, P 7848*e*.

$C_{12}H_{14}N_4$ *m*-Phenylenediamine, 4-*o*-tolylazo-, P 6434*c*.

$C_{12}H_{14}N_4O$ Benzoic acid, 4-amino-2-anilino-, hydrazide, 648*e*.
Carbanilide, diamino-, P 4481*e*, P 9466*e*.
Carbohydrazide, diphenyl-, 8550*c*.

$C_{12}H_{14}N_4O_2$ 4-Pyrimidol, 5-benzamido-6-methyl-2-methylamino-(?), 3423*g*.

$C_{12}H_{14}N_4O_3$ Urea, antipyroyl-, 7477*g*.

$C_{12}H_{14}N_4O_3S$ Acetanilide, *p*-(6-methyl-3-pyridazylsulfamyl)-, 3007*h*.
Acetanilide, *p*-(4-methyl-2-pyrimidylsulfamyl)-, P 7964*f*.

$C_{12}H_{14}N_4O_4$ 1-Cyclohexene-1-carboxaldehyde, 2,4-dinitrophenylhydrazone, 8359*i*.
2-Cyclohexen-1-one, 3-methyl-, 2,4-dinitrophenylhydrazone, 9045*a*.

1-Pyrrolidinepropionaldehyde, 2,5-dioxo-, *p*-nitrophenylhydrazone, 6170*a*.

**$C_{12}H_{14}N_4O_4S$** Acetanilide, *p*-[(4-hydroxy-6-methyl - 2 - pyrimidylsulfamyl)-, P 7964*e*.

5-Pyrimidinecarboxylic acid, 2-metanilylamino-, Et ester, P 7517*c*.

**$C_{12}H_{14}N_4O_4S_2$** Acetanilide, *p*-[(4-acetyl-2-thiazolyl)sulfamyl]-, oxime, P 3852*e*.

**$C_{12}H_{14}N_4O_6$** *p*-Toluic acid, 3,5-dinitro-, cyclopentylidenehydrazide, 6972*f*.

**$C_{12}H_{14}N_4O_6S_2$** Carbanilide, 4,4′-disulfamyl-, P 6660*e*.

Succinamic acid, *N*-[5 [(4-methyl-2-thiazolyl)sulfamyl] 2-pyridyl]-, P 3847*a*.

**$C_{12}H_{14}N_4O_7$** Isovaleric acid, β-ethoxy-γ-hydroxy-α-oxo-, γ lactone, 2,4 dinitrophenylhydrazone, 6980*f*.

*p*-Toluic acid, 3,5 dinitro-, 3-carboxy-1 methylpropylidenehydrazide, 6972*f*.

**$C_{12}H_{14}N_4O_8$** Malonamide, α-(3 hydroxypropyl)-, 3,5-dinitrobenzoate, 577*g*.

**$C_{12}H_{14}O$** 2-Cyclopenten-1-one, 3,4-dimethyl-2-phenyl-, 119*c*.

Ether, α-3-buten-1 ynyl-α-methylbenzyl methyl, 118*f*.

1,5-Heptadien-4-one, 5 phenyl-, 119*c*

6-Hepten-4-yn-3-ol, 3-phenyl-, 119*a*.

**$C_{12}H_{14}O_2$** 1-Acenaphthenone, 2a,3,4,5-tetrahydromethoxy-, 4250*e*, 4251*a*

Cyclohexenecarboxylic acid, phenyl, 7428*e*, 8363*b*,*h*.

2-Cyclopentene-1-acetic acid, α phenyl-, 1388*d*.

Naphthalene, 1,4-dimethoxy-5 methyl-, 2612*h*, 2613*e*.

1,4-Naphthalenediol, 2-isopropyl, 1377*a*.

1-Naphthol, 4-isopropoxy-, 1377*a*.

Propionic acid, phenyl, Bu ester, 2592*b*

**$C_{12}H_{14}O_2$** Acrylic acid, β-cumoyl-, 607*c*

Acrylic acid, β 2,4,6-trimethylbenzoyl-, 6919*b*, 7192*h*.

Coumarin, 3-butyl-4 hydroxy, P 4701*i*

Cyclohexanone, 4-hydroxy-, benzoate, 7416*g*, 7436*c*.

Cyclopentaneacetic acid, 2-oxo 5 phenyl-, 9042*i*.

Hermarin, 3-ethyl-4-methyl-, 5024*c*

Naphthalene, trimethoxy-, 2612*a*, 7341*f*

1,2-Propanediol, 3-(naphthyloxy), 311*h*.

Umbelliferone, 4 - methyl - 6 - propyl-, 6206*g*.

**$C_{12}H_{14}O_2S$** Naphthalenesulfonic acid, isopropyl-, *Na salt*, 7315*f*.

**$C_{12}H_{14}O_4$** Acetoacetic acid, α-benzoyl, Et ester, 2991*h*, P 6655*d*

Acrylic acid, β 2,3-cresotyl-, Et ester, 7192*h*.

—, β-(6-methoxy-*m*-toluyl)-, Me ester, 607*e*.

3-Buten-1-ol, 1-(3,4-methylenedioxyphenyl)-, acetate, 3555*d*

Caproic acid, ε-benzoyl-β oxo-, 2273*i*

Chromone, 5,7 dimethoxydimethyl, 6622*c*.

Ketone, 5,6-dimethoxy-3-methyl 2-benzofuryl methyl, 7460*f*.

Lactic acid, allyl ester, benzoate, P 5037*a*.

2-Naphthoic acid, 5,6,7,8-tetrahydro 3-hydroxy-, acetate, 7011*b*.

2,4-Pentadienoic acid, 2-acetyl-5(?)-(2 furyl)-, Et ester, 9334*d*.

1,2-Propanediol, 3-(6 hydroxy-2-naphthoxy)-, P 7698*c*.

Usnetol, 5445*f*.

**$C_{12}H_{14}O_4S_2$** Acetic acid, (cinnamylidenedithio)di-, 5763*i*.

**$C_{12}H_{14}O_5$** (See also *Citrinin*.)

2,3 *H*-Benzopyran 7-carboxylic acid, 4,6-dihydro - 8 - hydroxy - 3,4,5 - trimethyl-6-oxo-, 6206*c*.

1,3-Butanedione, 1-(2,3-dihydro-6-hydroxy - 4 - methoxy - 7 - benzofuryl)-, 3413*i*.

4-Chromanone, 3-acetyl-6,7-dimethoxy-, 7461*i*.

Coumarin, 3-ethyl-4-hydroxy-6,7-dimethoxy-, 7461*d*.

—, trimethoxymethyl-, 1773*f*, 7461*c*.

Glyoxylic acid, (o-lactylphenyl)-, Et ester, 6191*e*.

Methyl ester, m. 144-5°, 6199*e*.

Piperonylic acid, tetrahydrofurfuryl ester, 3555*c*.

**$C_{12}H_{14}O_6$** 1,2,4-Butanetricarboxylic acid, 1-phenyl-, 3398*f*.

Coumarilic acid, 6-hydroxy-4,7-dimethoxy-, Et ester, 7480*i*.

1,4,6-Cycloheptatriene-1-acetic acid, 2-carboxy-4-methoxy-3-oxo-, di-Me ester, 3404*c*.

Glutaconic acid, β-(2,4-dimethoxyphenyl)-, 1408*d*.

Homophthalic acid, 6-carboxy-3-isopropyl-, 1747*i*.

Isophthalic acid, 4 (carboxy-*tert*-butyl)-, 2589*c*.

Phthalic acid, Me ester, ester with Et glycolate, P 8741*e*

4-Pyrone, 2-allyl-3 hydroxy-6 (hydroxymethyl)-, diacetate, 8385*i*.

Sinapic acid, acetate, 8452*g*.

Succinic acid, *o*-carbomethoxyphenyl Me ester, 7935*f*.

Toluene-α,α-diol, 2-hydroxy-, triacetate, 756*h*

**$C_{12}H_{14}O_7$** Hemimellitic acid, 4 methoxy-, tri Me ester, 2975*b*

Trimellitic acid, 5-methoxy-, trimethyl ester, 2975*b*

**$C_{12}H_{14}O_8$** Benzaldehyde, *p* glucuronoside-, 2702*e*.

**$C_{12}H_{14}S$** Thiophene, 2 ethyl-5 methyl-3 phenyl, 5392*h*

Thiophene, 2 isopropyl 4 phenyl, 5392*h*.

**$C_{12}H_{15}$** Benzhydrylidene (*free radical*), 192*i*

**$C_{12}H_{14}AsN_2O_5S$** *p*-Toluenearsonic acid, α-sulfanilamido, 1761

**$C_{12}H_{15}BrN_2O_4$** Malonic acid, (bromo 2-pyridylammomethylene)-, di Et ester, 650*f*

**$C_{12}H_{15}BrO_5$** Propionic acid, β bromo-β-cumoyl, P 8401*g*.

**$C_{12}H_{15}BrO_6$** Sorbitol, 6 bromo 3,5 benzylidene 1,4 anhydro, 2939*i*

**$C_{12}H_{15}ClN_2O$** 4 Carbamyl 1,6,7-trimethylquinolinium chloride, 4675*e*

**$C_{12}H_{15}ClN_2O_4$** Alanine, *N*-(*N*-chloroacetyl glycyl)phenyl-, 9113*e*, 9114*a*.

Glycine, *N*-(*N*-chloroacetylphenylalanyl), 9113*g*

Malonic acid, (chloro-2 pyridylammomethylene)-, di-Et ester, 650*f*

**$C_{12}H_{15}ClO$** Cyclopentaneacetyl chloride, 2-phenyl-, 9043*a*

**$C_{12}H_{15}ClO_4$** Hexitol, chlorobenzylideneanhydro-, 2940*c*

**$C_{12}H_{15}Cl_2NO$** Senecianilide, 3,4 dichloro *N*-ethyl-, P 5414*a*

**$C_{12}H_{15}Cl_2NO_3S$** Morpholine, 4 [β-(2,4-dichlorophenoxy)thiopropionyl]-, P 2233*e*

**$C_{12}H_{15}HgNO_2S$** 2-Naphthalenesulfonamide, *N*-(ethylmercuri) *N* methyl, P 1805*e*.

**$C_{12}H_{15}IN_2$** 1,4,6-Trimethyl-2-phenylpyrimidinium iodide, P 8167*e*

**$C_{12}H_{15}IN_2O$** 4-Carbamyl 1,6,7-trimethyl quinolinium iodide, 4675*e*

**$C_{12}H_{16}IN_3O_4$** Benzoic acid, *m* iodo, 3 carboxy - 1 - methylpropylidenehydrazide, Me ester, 6973*f*.

**$C_{12}H_{16}IO_4$** 1,4-Sorbitan, 6 iodo-6 desoxy-2-(3),5 benzylidene-, 152*a*.

**$C_{12}H_{16}N$** Benzonitrile, *o*-cyclohexyl-, 1359*f*

Carbazole, 1,2,3,4-tetrahydro-9-methyl, 1391*b*

6 *H*-Cyclopent[*g*]isoquinoline, 3,4,7,8-tetrahydro 1 methyl, 8390*f*.

4a *H* Isocarbazole, 1,2,3,4-tetrahydro-4a-methyl, 4257*a*

**$C_{12}H_{15}NO$** 3-Butenamide, *N*-allyl 4-phenyl, 2273*f*

Cyclohexanecarbonitrile, 1-hydroxy-2 phenyl, 1357*e*.

Isocaproanitrile, γ benzoyl, 2931*g*.

2-Naphthol, 1 (dimethylaminomethyl), 2183*h*

6(5 *H*) Phenanthridone, hexahydro-, 1420*e*

3-Pyridone, benzylidene-1 methyl-, *and HCl*, 4274*h*

4-Quinolinemethanol, α,6,7-trimethyl-, *and* - *HBr*, 4675*e*

4 Quinolinol, 2-methyl 3-propyl, 1417*a*

**$C_{12}H_{15}NO_2$** Acrylamide, β (2,4,6 trimethylbenzoyl)-, 7192*h*.

Butyric acid, β-cyano-γ phenyl-, Et ester, 2167*i*.

3-Indolepropionic acid, 1-methyl, Me ester, 3405*d*.

Phthalimide, *N*-amyl, P 350*c*.

—, 3 isopropyl *N*,6-dimethyl, 1747*i*

**$C_{12}H_{15}NO_2S$** 2-Naphthalenesulfonamide, *N* isopropyl-, 4630*d*.

2-Naphthalenesulfonamide, *N*-propyl, 4630*d*.

Phthalimide, *N*-(4-methylmercaptobutyl)-, 1725*c*.

Piperidine, 1-(3-thianaphthenyl)-, *S*,*S*-dioxide, 8379*j*.

**$C_{12}H_{15}NO_3$** Butyric acid, α-cyano γ-phenoxy-, Et ester, 4222*j*.

4-Hexenoic acid, 2-benzamido-, 574*d*.

Methacrylic acid, ester with lactanilide, P 3447*a*.

1-Naphthoic acid, 3-acetamido-5,6,7,8-tetrahydro-, 202*i*.

2-Oxazoline-4-carboxylic acid, 5-methyl-2-phenyl-, Et ester, 3787*a*, 9033*d*.

—, 2-phenyl-, isopropyl ester, 9033*d*.

Pentenoic acid, 2-anilino-4-oxo-, Et ester, 1412*d*.

—, 2-α-phenylacetamido-, 7932*f*.

1,2 - Propanediol, 3 - (1 - amino - 2-naphthoxy)-, P 1574*d*.

—, 3-(5-hydroxy-1-naphthylamino)-, P 858*h*.

Senecioic acid, α-benzamido, Me ester, 2618*d*.

—, α-(α-phenylacetamido)-, 2271*a*.

**$C_{12}H_{15}NO_3S$** Benzenesulfonic acid, benzylamine salt, 2593*i*, *p*-toluidine salt, 2594*i*.

1-Naphthoic acid, 5,6,7,8-tetrahydro-3-nitrothiol-, Et ester, 6193*c*.

Phthalimide, *N* - [4 - (methylsulfinyl)-butyl]-, 1725*d*.

**$C_{12}H_{15}NO_4$** Acetic acid, [α-(allylcarbamyl) *p*-toloxy]-, 3364*d*.

Acetic acid, cyano(3,5 dimethoxyphenyl)-, Et ester, 8384*a*.

Acetoacetanilide, *m*-1,3 dioxolan-2-yl-, P 4299*f*.

Benzoic acid, *p*-nitro-, cyclohexyl ester, 8600*b*.

Glycine, *N*-(*p* methoxy α methylcinnamoyl)-, 7021*e*.

Maleic acid, 2 *N*-methylanilinoethyl ester, *NH*$_4$ *salt*, P 4471*f*.

1-Naphthoic acid, 5,6,7,8-tetrahydro 3 nitro-, Et ester, 202*h*

Phenaceturic acid, α formyl, Et ester, P 1440*a*, 4067*h*, P 9085*b*.

Propionitrile, β - 3,4,5 - trimethoxybenzoyl-, 7003*f*.

Succinaldehydic acid, α benzamido-, Et ester, 7932*d*

**$C_{12}H_{15}NO_4S$** 1-(3-Hydroxybutyl)quinolinium hydrogen sulfate, cyclic ester, 2933*a*

**$C_{12}H_{15}NO_5$** Acetamide, *N*-(3,4-dihydroxyphenacyl)-*N*-methyl-, acetate, 2602*k*

Adipic acid, α-benzamido-, 4223*e*.

Adrenalone, diacetate, - *HCl*, 2601*i*

2-Hexanone, 6 hydroxy-, *p*-nitrobenzoate, 6190*f*.

1,2-Indandione, ethoxydimethoxy-, 2 oxime, 7160*c*.

Oxamic acid, [α-(carboxymethylbenzyl], Et ester, 8380*a*

Oxamic acid, *N*-(2-carboxyethyl)-, Et ester, 8380*c*.

Phthalamic acid, *N*-(1 carboxyisobutyl)-, 5713*e*.

**$C_{12}H_{15}NO_5S$** Alanine, β (2 benzoyl-1-carboxyethylmercapto), 7192*h*.

**$C_{12}H_{15}NO_6S$** Alanine, β (1-(carboxy-2-salicyl-oylethylmercapto)-, 7192*h*.

**$C_{12}H_{15}NS_2$** 2 Thiazolethiol, 4-(*p-tert* butyl phenyl)-, 633*h*.

**$C_{12}H_{15}N_3$** Pyrimidine, 2 benzylamino 4,6 dimethyl-, P 3472*e*

**$C_{12}H_{15}N_3O$** Antipyrine, 4-(methylimino methyl)-, 7477*c*

Benzamide, *N*-[2 (4 methyl-2 imidazolyl)ethyl], 7478*g*

Cyclopent[*a*]inden 8(1 *H*)-one, 2,3,3a,8a-tetrahydro, semicarbazone, 3399*b*

1,3-Ethanonaphthalen 4(1 *H*)-one, 2,3 dihydro, semicarbazone, 3398*i*.

Pyrimidine, 4 - amino 5 [(benzyloxy) methyl]-2-methyl, P 9087*b*

—, 4-amino 5-(ethoxymethyl) 2-phenyl, 1822*i*.

**$C_{12}H_{15}N_3O_2$** Histidine, 1-benzyl, 8382*d*.

2 Imidazolealanine, 1-benzyl-, 3410*i*

3-Indolepropionamide, α-acetamido, 1398*e*

1-Pyrazolecarboxamide, ethoxymethyl, 8365*e*.

4,6(1 *H*,5 *H*) Pyrimidinedione, 5 ethyl 2,3 - dihydro - 2 imino - 1 - methyl-5-phenyl, 7130*d*.

—, 5-ethyl-2,3-dihydro-2-methylimino-5-phenyl-, 7130*e*

**$C_{12}H_{15}N_3O_2S_2$** Sulfanilamide, *N*[4,5,6,7 tetrahydro 2-benzothiazolyl, P 3852*e*

Sulfathiazole, reaction product with butyr aldehyde, 4238*a*.

**$C_{12}H_{15}N_3O_3$** 1-Indancarboxylic acid, 3-oxo Et ester, semicarbazone, 3399*e*

3-Pyrazoline-3-carbamic acid, 2-methyl 5-oxo 1-phenyl-, Et ester, P 6239*h*

Quinoline, 6-methoxy-8-(2-nitroisopropylamino)-, 3419*h*.

Tryptophan, *N*-glycyl-, 7066*c*.

**$C_{12}H_{15}N_3O_3S_2$** Acetanilide, *p*-(dimethylthiazylsulfamyl)-, P 3459*b*, P 3979*f*, 6180

Acetanilide, *p*-(4-ethyl-2-thiazolylsulfamyl)-, P 3979*f*.

$C_{13}H_{14}N_4O_4$ Cinnamic acid, α-[α-(α-aminoacetamido)acetamido]-, 257*i*.
Glycine, glycyldehydrophenylalanyl-, 9113*i*.
$C_{13}H_{14}N_2O_4S_2$ Sulfanilanilide, 4'-(methylsulfamyl)-, 1908*f*, 3974*a*.
$C_{13}H_{14}N_2O_4S_2$ Propionic acid, α-(*p*-2-thiazolylsulfamylanilinomethylmercapto)-, *and salts*, P 7508*e*.
$C_{13}H_{14}N_2O_5$ *p*-Toluic acid, 3-nitro-, 3-carboxy-1-methylpropylidenehydrazide, 6973*c*.
$C_{13}H_{14}N_2O_5S$ Toluenesulfonic acid, α-(2-imino-3-methyl-5-oxo-4-imidazolidylidene)dimethoxy-, 7456*c*.
$H_{14}N_2O_7$ Propionic acid, β,β'-[(*p*-nitrophenyl)carbamylimino]di-, 168*g*.
$H_{14}N_8$ Guanidine, 1,3-bis(*p*-aminophenyl)-, *and -HCl*, 5014*b*; *tri-HCl*, 8545*h*.
Pyrimidine, 2-[4-(2-pyridyl)-1-piperazyl]-, *and -HCl*, P 4705*b*.
$H_{14}N_2O_7 + 2H_2O$ Antipyraldehyde, semicarbazone, 7477*b*.
$H_{15}N_3O_3$ 4-Piperidone, 1-acetyl-, 2,4-dinitrophenylhydrazone, 4275*c*.
$H_{15}N_3O_4S_2$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-butyl-6-(2-hydroxy-4-nitrophenylazo)-3-thio-, 1,1-dioxide, P 4868*g*.
$H_{15}N_3O_7S$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-butyl-6-(4-hydroxy-2-nitrophenylazo)-, 1,1-dioxide, P 4868*f*.
Thiazole, 2-amino-4-butyl-, picrate, 4263*g*.
$H_{15}N_3O_8S$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-(2,3-dihydroxypropyl)-6-(2-nitro-*p*-tolylazo)-, 1,1-dioxide, P 4868*f*.
$H_{16}$ 6-Cyclopentacycloheptenecarboxylic acid, 1,2,3,5-tetrahydro-, Et ester, 6203*e*.
Indene, 1,1,2,3-tetramethyl, 5762*e*.
Naphthalene, 1,2-dihydro-1,1,6-trimethyl-, 2589*b*.
$H_{17}BrNO$ Benzonitrile, *p*-(6-bromohexyloxy)-, 9048*f*.
Senecianilide, *p*-bromo-*N*-ethyl-, P 5411*a*.
$H_{18}BrNO_2S$ Piperidine, 1-(2-bromo-2,3-dihydro-3-thianaphthenyl), *S*,*S*-dioxide, 8379*f*.
$H_{19}BrNO_3$ Caproic acid, ε-benzamido-α-bromo-, 6978*a*.
Succinamic acid, 2-bromo-*N*,4,6-trimethyl-, 1343*a*.
$H_{20}BrNO_4$ 1-(4,4-Dihydroxy-2-butenyl)-3-pyridinium bromide, diacetate, 4219*i*.
$H_{18}ClNO$ Benzamide, *N*-(2-chlorocyclohexyl)-, 3373*b*.
Crotonotoluidide, chloro-*N*-ethyl-, P 5443*i*.
Senecanilide, *m*-chloro-*N*-ethyl-, P 5411*a*.
$H_{19}ClNO_3$ Butyric acid, α-benzamido-β-chloro-, Et ester, 9033*g*.
Valine, *N*-(chlorophenylacetyl), 3361*b*.
$H_{20}ClNO_4$ Pyrocatechol, 4-(1-chloro-2-methylaminoethyl)-, diacetate, *-HCl*, 2602*d*.
Valine, *N*-[(*p*-chlorophenoxy)acetyl], 3361*b*.
$H_{20}ClN_3$ Benzimidazole, chloro-2-(1-piperidylmethyl)-, 1655*e*, *and -HCl*, 2602*i*.
$H_{21}ClN_2O$ Ethanol, 2-[2-(7-chloro-4-quinolylamino)ethylamino], 1655*g*; *and di-HCl*, 1770*g*.
$H_{21}ClN_2O_3$ Cumic acid, 2-acetyl-α-chloro-, semicarbazone, 6695*g*.
1-Piperidineacetanilide, 4'-chloro-2'-nitro-, 2092*h*.
$H_{21}Cl_2N_3O_3$ Propionamide, *N*,*N'*-(3,5-dichlorosalicylidene)bis-, 6182*e*.
$H_{21}ClN_4O_3$ Morpholine, 4-[2-(2,4-dichlorophenylazo)-2-nitropropyl]-, P 8154.
$C_{13}H_{21}Cl_2N_4O_4$ 2-Pentanone, 5-chloro-4-(chloromethyl)-4-methyl-, 2,4-dinitrophenylhydrazone, 2157*h*.
$C_{13}H_{22}Cl_2O_3$ Acetic acid, (2,4-dichlorophenoxy)-, Am ester, 6775*h*, iso-Am ester, 6775*h*.
$C_{13}H_{16}HgNNaO_4$ See *Salyrgan*.
$C_{13}H_{16}IN$ 1,2,4,8-Tetramethylquinolinium iodide, 5402*g*.
$C_{13}H_{16}INO_3$ Succinanilic acid, 2-iodo-*N*,4,6-trimethyl-, 1343*b*.
Valine, *N*-(*p*-iodophenylacetyl)-, 3361*c*.
$C_{13}H_{16}INS_2$ 3-Ethyl-2-(2-methylmercaptopropenyl)benzothiazolium iodide, P 5150.
$C_{13}H_{17}NO_3P$ Phosphinic acid, (α-hydroxybenzyl)-, $PhNH_2$ salt, 5378*d*.
$C_{13}H_{18}N_2$ Cyclohexanecarbonitrile, 1-anilino-, 4415*i*.
1-Cyclohexene-1-carboxamidine, *N*-phenyl-, *and -HCl*, 7444*i*.
Quinoline, 7-amino-5-isopropyl-8-methyl-, 3421*i*.
—, 2-diethylamino-, *and -HCl*, 4276*f*.
$C_{13}H_{18}N_2O$ Acetamide, *N*-α-cyanobenzyl-*N*-isopropyl-, 6176*d*.
Isoquinoline, 1-(2-dimethylaminoethoxy)-, 4267*d*.
3-Pyrazolone, 2-isopropyl-5-methyl-4-phenyl-, 7934*i*.
$C_{13}H_{18}N_2OS$ 1-Piperidinecarboxamide, *N*-benzoylthio-, 4646*e*.
1-Propanethiol, 3-(6-methoxy-8-quinolylamino), *-HCl*, 8388*i*.
$C_{13}H_{18}N_2OS_2$ Benzothiazole, 6-(methylsulfinyl)-2-(1-piperidyl)-, 2618*b*.
$C_{13}H_{18}N_2O_2$ Acetamide, *N*-(α-cyano-*p*-methoxybenzyl)-*N*-ethyl-, 6176*e*.
2-Benzimidazolepropionic acid, 1,5,7-trimethyl-, 1343*g*.
Carbamic acid, α-cyanobenzylethyl-, Et ester, 6176*d*.
1,3-Cyclohexanedione, 2-methyl-5-phenyl-, dioxime, 7479*c*.
Formic acid, compd. with aniline, 6066*c*.
Hexamethylenimine, 2-oxo-, reaction product with phenyl isocyanate, 8365*g*.
Hydantoin, 5-ethyl-5-phenethyl-, 7429*h*.
Malonamide, *N*,*N*,*N'*,*N'*,α-pentaethyl-, P 3842*f*.
Nipecotamide, 3-benzyl-2-oxo-, P 7051*c*.
2-Propanol, 1-(6-methoxy-8-quinolylamino)-, 3419*i*.
3,5-Pyrazolidinedione, 1,4-diethyl-1-phenyl-, 579*g*.
5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazine, 10-acetamido-2,3,6,7-tetrahydro-, P 2782*h*.
Succinamide, α-cinnamyl-, 2181*h*.
Tryptophan, Et ester, *-HCl*, 1398*b*
$C_{13}H_{18}N_2O_2S$ Hydantoin, 1-cyclohexyl-5-(2-thienyl)-, 3426*f*.
4-Pyrimidol, 6-[2-(2-furyl)ethyl]-2-mercapto-, Pr deriv., 7929*i*.
Thiazole, 2-amino-4-(3,4-diethoxyphenyl)-, *and -HBr*, 2938*i*.
$C_{13}H_{18}N_2O_2S_2$ Benzothiazole, 6-(methylsulfonyl)-2-(1-piperidyl)-, 2618*a*.
$C_{13}H_{18}N_2O_3$ Acetanilide, *o*-4-morpholinylcarbonyl-, 3424*i*.
Benzamide, *N*-cyclohexyl-*m*-nitro-, 1145*a*.
Cinnamic acid, α-(*N*-methylalanyl amino)-, 257*e*.
Hydantoin, 1-(*p*-ethoxyphenyl)-5-ethyl-, 6308*i*.
$C_{13}H_{18}N_2O_3S$ 1-Cyclohexene-1-carboxanilide, *p*-sulfamyl-, 1028*c*.
3-Thiophenecarboxylic acid, tetrahydro-4-(3-phenylureido), Me ester, P 1809.
$C_{13}H_{18}N_2O_3S_2$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 2-butyl-4-phenyl-3-thio-, 1,1-dioxide, P 4868*d*.
$C_{13}H_{18}N_2O_4$ Acetoacetic acid, Et ester, *o*-carboxyphenylhydrazone, 5024*h*.
Asparagine, *N*α-acetyl-*N*-benzyl-, 1353*a*.
Malonic acid, (2-pyridylaminomethylene)-, di-Et ester, 650*f*.
Methane, 1-nitrocyclohexyl(*p*-nitrophenyl)-, 8365*a*.
Succinaldehydic acid, α-benzamido-, Et ester, oxime, 7932*e*.
$C_{13}H_{18}N_2O_4S$ Acetanilide, *p*-(senecioylsulfamyl)-, P 7960*r*.
1,2,3,4-Butanetetrol, 1-(2-mercapto-1-phenyl-4-imidazolyl), 2989*c*.
$C_{13}H_{18}N_2O_5$ β-Alanine, *N*-(*N*-carboxyglycyl)-, benzyl ester, 1448*f*.
Glycine, *N*-(*N*-carboxy-β-alanyl)-, benzyl ester, 1448*f*.
Hydantoin, 5-(1-methoxypropyl)-5-phenyl-, 6985*a*.
Succinamic acid, *N*,2,4-trimethylnitro-, 1343*e*.
Valine, *N*-(nitrophenylacetyl)-, 3361*b*
$C_{13}H_{18}N_2O_6S$ Glutaramic acid, *N*-(*N*-acetylsulfanilyl)-, 2597*f*.
Malonamic acid, *N*-(*N*-acetylsulfanilyl)-, Et ester, 2597*e*.
$C_{13}H_{18}N_2S_2$ Benzothiazole, 6-methylmercapto-2-(1-piperidyl), 2618*c*.
2-Benzothiazolesulfenamide, *N*-cyclohexyl-, 7255*f*, 7410*i*, 7744*a*.
2(3*H*)-Benzothiazolethione, 3-(1-piperidylmethyl)-, 1767*e*.
$C_{13}H_{16}N_4NaO_4S$ Novalgin, 5339*d*, 5703*c*.
$C_{13}H_{18}N_4$ Imidazolecarboxaldehyde, 1-isopropyl-, phenylhydrazone, 8381*i*.
$C_{13}H_{18}N_4O$ Pyrimidine, 2-amino-4-(methoxybenzylmethylamino)-, 2212*f*.
$C_{13}H_{18}N_4O_2$ Oxalic acid, 2-cyclopentylidenehydrazide 2-phenylhydrazide, 6972*c*.
4-Piperidone, 1-benzoyl-, semicarbazone, 4275*b*.
3-Pyridinemethanol, 5-hydroxy-4-[2-(imidazolyl)ethylimmomethyl]-6-methyl-, 1411*a*.
—, 5-hydroxy-6-methyl-4-(4,5,6,7-tetrahydro-1*H*-imidazo[*c*]pyrid-4-yl)-, 1411*b*.
$C_{13}H_{18}N_4O_2S$ Sulfanilamide, *N*¹-(5-dimethylamino-3-pyridyl)-, 1738*e*.
Sulfanilamide, *N*¹-(4,6-dimethyl-2-pyrimidylmethyl)-, P 3173*d*
—, *N*¹-(4,5,6-trimethyl-2-pyrimidyl)-, 275*e*.
$C_{13}H_{18}N_4O_2S$ Hydrazine, 1-(1-isopropylimidazolylcarbonyl)-2-(phenylsulfonyl)-, 8381*h*.
$C_{13}H_{18}N_4O_4$ Cyclohexanecarboxaldehyde, 2,4-dinitrophenylhydrazone, 8359*h*.
$C_{13}H_{18}N_4O_5$ 2-Pentanone, 5-hydroxy-, semicarbazone, *p*-nitrobenzoate, 6190*f*.
*p*-Toluic acid, 3,5-dinitro-, amylidenehydrazide, 6972*e*; isoamylidenehydrazide, 6972*e*.
$C_{13}H_{18}N_4O_4S$ 1,2,4,2*H*-Thiadiazine-3,5-(4*H*,6*H*)-dione, 6-(*o*-butoxyphenylazo)-, 1,1-dioxide, P 4868*f*.
$C_{13}H_{18}N_4O_6$ Homolevulinic acid, β-methyl-, 2,4-dinitrophenylhydrazone, 6623*h*.
$C_{13}H_{18}N_4O_7$ 3*H*-Pyrrolo[1,2-*a*]pyrrole, hexahydro-, picrate, 215*a*, 2988*d*.
$C_{13}H_{19}NO_5$ 4-Piperidone, dimethyl-, picrate, 2959*b*.
$C_{13}H_{19}NO_8S_2$ *m*-Toluenesulfonic acid, 4-[tetrahydro-2-(2-methoxyethyl)-3,5-dioxo-1,2,4,2*H*-thiadiazin-6-ylazo], 1,1-dioxide, *Na salt*, P 4868*g*.
$C_{13}H_{19}N_5O_7S_2$ Benzenesulfonamide, *N*-ethyl-4-(2-ethyltetrahydro-5-oxo-3-thioxo-1,2,4,2*H*-thiadiazin-6-ylazo)-3-nitro-, 1,1-dioxide, P 4868*g*.
$C_{13}H_{19}N_5S$ Biguanide, 1-(2-thiazolyl)-5-(2,3-xylyl), *-HCl*, 5777*d*.
$C_{13}H_{16}O$ 1-Anthraphthenol, 6,7,8,8a-tetrahydro-5-methyl-, 4250*g*.
Acetophenone, *p*-cyclopentyl-, 1375*c*, 5752*b*.
Anisole, *p*-1-cyclohexen-1-yl-, 1358*f*, 3306*d*.
3-Buten-2-one, 4-(2-pseudocumyl-, 3798*eg*.
Crotonophenone, 2,1,6-trimethyl-, 3389*i*.
Cyclopentanone, 3,4-dimethyl-2-phenyl-, 119*d*.
1-Indanone, 7-isopropyl-4-methyl-, 1747*f*.
Ketone, cyclohexyl phenyl, 1753*f*.
—, cyclopropyl mesityl, 3389*h*.
—, 5,6-dimethyl-4-indanyl methyl, 208*f*.
—, methyl 6,7,8,9-tetrahydro-5*H*-cycloheptabenzen-3-yl, 2965*e*.
1(2*H*)-Naphthalenone, 4-ethyl-3,4-dihydro-7-methyl-, 2605*i*.
4-Pentenophenone, 2,2-dimethyl-, 3716*e*, 4955*d*.
—, 2-ethyl-, 3716*e*, 4955*d*.
2-Propionaphthone, 5,6,7,8-tetrahydro-, 9424*f*.
2*H*-Pyran, 3,6-dihydro-4,6-dimethyl-2-phenyl-, P 3043*a*.
$C_{13}H_{16}OS$ Benzoic acid, thiol-, cyclohexyl ester, 7410*d*
$C_{13}H_{16}O_2$ Acetic acid, (*p*-cyclopentylphenyl)-, 1375*d*.
Acid, m. 104°, 3351*k*.
Benzoic acid, cyclohexyl ester, 5150*e*.
Butyric acid, cinnamyl ester, 9375*e*.
Cinnamic acid, Bu ester, 2591*f*.
Cyclohexanecarboxylic acid, 2-phenyl-, 2174*b*, 8363*e*, 8364*g*.
Cyclohexanone, 2-(*p*-methoxyphenyl)-, 1358*f*.
Cyclopentaneacetic acid, phenyl-, 1388*e*, 9042*i*, 9043*a*.
Cyclopentanecarboxylic acid, 3-phenyl-, Me ester, 3398*h*.
2-Furaldehyde, polymer with 1,3-butadiene, 1597*g*.
2-Hexenoic acid, tolyl ester, 2187*c*.
4-Hexen-3-one, 1-methoxy-5-phenyl-, 118*g*.
2-Hexenophenone, 2'-hydroxymethyl-, 2187*d*.
5-Indanacetic acid, Et ester, 8390*b*.
2-Naphthaleneacetic acid, 5,6,7,8-tetrahydro-, Me ester, 8390*g*.
Naphthalene, 1,4-dihydro-5,8-dimethoxy-1-methyl-, 2013*f*.
1-Naphthoic acid, 5,6,7,8-tetrahydro-2,3-dimethyl-, 208*e*.
2-Naphthol, 1,2,3,4-tetrahydro-1-methyl-, acetate, 2363*c*.
3-Pentanone, 1,2-epoxy-4,4-dimethyl-1-phenyl-, 139*c*.

Pentenoic acid, 2,2-dimethyl-5-phenyl-, 3351*h*.
—, 2-ethyl-2-phenyl-, 5769*e*.
—, 4-methyl-, tolyl ester, 2187*d*.
2-Pentenophenone, 2′-hydroxydimethyl-, 2187*e*.
1-Pentyne, 3,5-dimethoxy-1-phenyl-, 1021*d*.
Propionic acid, 1,2,3,4-tetrahydro-2-naphthyl ester, 2363*c*.
Valeric acid, δ hydroxy-γ,γ-dimethyl-δ-phenyl-, δ-lactone, 2932*g*.

**$C_{13}H_{16}O_2S$** Salicylic acid, thiol-, cyclohexyl ester, 7410*d*.

**$C_{13}H_{16}O_3$** Acetic acid, [*p*-(allyloxy)phenyl]-, Et ester, 3362*a*.
Acid, m. 89.7–90°, 1597*h*.
Butyric acid, γ-(5-ethyl-2-methoxyphenyl)-γ-hydroxy-, lactone, 1032*g*.
Caproic acid, ε-benzoyl-, 2174*g*.
Cinnamic acid, β-ethoxy-, Et ester, 6168*g*.
1,4-Cyclohexanediol, benzoate, 7436*b*.
*m*-Dioxane, 5-(allyloxy)-2-phenyl-, 7423*i*
2-Furanol, tetrahydro-4-methyl-5-phenyl-, acetate, 4255*b*.
2-Hexenoic acid, *m*-methoxyphenyl ester, 2187*c*.
2-Hexenophenone, 2′-hydroxy-3′-methoxy-, 2187*e*.
Isocaproic acid, γ-benzoyl-, 2931*g*.
Naphthalene, 1,4-dihydro-2,5,8-trimethoxy-, 2613*c*.
2(1*H*)-Naphthalenone, 3,4-dihydro-5,8-dimethoxy-1-methyl-, 2612*g*.
Propionic acid, β-*p*-toluyl, Et ester, 2605*h*.
Propiophenone, 4-hydroxy-2,5-dimethyl-, acetate, 613*i*.
Valeric acid, β-oxo-δ phenyl-, Et ester, 3392*i*.

**$C_{13}H_{16}O_4$** Acetic acid, (6-acetyl-*m*-toloxy)-, Et ester, 3413*c*.
Acetophenone, 3-allyl-4-hydroxy-2,6-dimethoxy-, 3414*a*.
—, 4-(allyloxy)-2,6-dimethoxy-, 3413*i*, 3414*a*.
Acetylsalicylic acid, Bu ester, 4574*h*.
Acrylic acid, 2-(2-phenoxyethoxy)ethyl ester, P 3030*i*.
3-Buten-2-one, 4-(3,4,5-trimethoxyphenyl)-, 1743*e*.
Butyrophenone, α-hydroxy-*p*-methoxy-, acetate, 603*h*.
3-Chromanone, 7,8-dimethoxy-2,2-dimethyl-, 1771*e*.
1,3-Cyclohexanedione, 2,2′-methylenedi-, 1336*d*.
1,2-Ethanediol, tolyl-, diacetate, P 6664*a*.
Homophthalic acid, 3-isopropyl-6-methyl-, 1747*f*.
1-Indanone, ethoxydimethoxy-, 7460*bc*.
Malonic acid, phenyl-, di-Et ester, 572*e*.
—, (*p*,α,α-trimethylbenzyl)-, 5762*g*, 7917*d*.
Piperonylic acid, Am ester, 3555*c*.
Propionic acid, β-(4-allyl-2-methoxyphenoxy)-, 3393*g*.
—, β-3-ethylanisoyl-, 1032*i*
—, β-(ethyl-2-methoxybenzoyl)-, 1032*g*.
Salicylic acid, Me ester, isovalerate, P 470*i*; Me ester, valerate, P 4701*h*.
—, 5-valeryl-, Me ester, 1032*i*.
Valeric acid, δ-anisoyl-, 3366*d*.

**$C_{13}H_{16}O_4S$** Malonic acid, [1-(benzylmercapto)isopropyl], 1722*i*, 1723*a*.
Malonic acid, phenylmercapto-, di-Et ester, 632*i*.

**$C_{13}H_{16}O_5$** Cinnamic acid, ethoxydimethoxy-, 7459*i*, 7460*c*.
Cinnamic acid, 3,4,5-trimethoxy-, Me ester, 8452*g*.
Diethylene glycol, acetate, benzoate, P 1796*a*.
Lactic acid, 2-phenoxyethyl ester, acetate, P 676*d*.
Malonic acid, phenoxy-, di-Et ester, 632*e*.
1,4-Sorbitan, 2(3),5-benzylidene-, 151*g*.

**$C_{13}H_{16}O_6$** Aldehyde, m. 111°, 3403*g*.
Butyric acid, γ-(hydroxydimethoxybenzoyl)-, 3404*a*.
3-Furoic acid, 2-methyl-5-(1,2,3,4-tetrahydroxybutyl)-, anhydro deriv., isopropylidene deriv., 4665*a*.
Hydroferulic acid, Et carbonate, 7001*e*.
Isophthalaldehydic acid, 2,6-dihydroxy-4-(2-hydroxy-1-methylpropyl)-5-methyl-, 6206*b*.
Propionic acid, β-3,4,5-trimethoxybenzoyl-, 7003*d*.

**$C_{13}H_{16}O_7$** Benzoic acid, 4-(carboxymethoxy)-3,5-dimethoxy-, di-Me ester, 1029*h*.
3,4-Furandicarboxylic acid, 2-(5-hydroxyamyl)-, acetate, P 1441*h*, P 5805*f*.

**$C_{13}H_{16}S_2$** 1,3-Benzodithiole, hexahydro-2-phenyl-, 7419*c*.
Thiophene, 3,3′-methylenebis[2,5-dimethyl-, 4666*h*.

**$C_{13}H_{17}BrN_2O_3$** Acetamide, *N*, *N*′-(5-bromo-2,4,6-trimethyl-*m*-phenylene)bis-, 1735*c*.

**$C_{13}H_{17}BrN_2O_4S_2$** Penicillin, β-bromoallylmercaptomethyl, 2274*g*, 3490*a*.

**$C_{13}H_{17}BrO$** Butyrophenone, γ-bromo-2,4,6-trimethyl-, 3390*b*.

**$C_{13}H_{17}Cl$** Methane, (1-chlorocyclohexyl)-phenyl-, 2173*i*.

**$C_{13}H_{17}ClN_2O_3$** Propionamide, *N*, *N*′-(5-chlorosalicylidene)bis-, 6182*d*.

**$C_{13}H_{17}ClN_2O_4S_2$** Penicillin, γ-chloroallylmercaptomethyl-, 2274*g*.

**$C_{13}H_{17}ClN_2O_4$** 1,3-Propanediol, 2-(4-chloro-2-nitroanilino)-2-methyl-, monopropionate, P 7694*d*.

**$C_{13}H_{17}ClN_4O_3$** Morpholine, 4-[2-(*p*-chlorophenylazo)-2-nitropropyl]-, P 8154*c*.

**$C_{13}H_{17}ClN_4O_7$** Pyrrolidine, 2-(chloromethyl)-1-ethyl-, picrate, 227*e*.

**$C_{13}H_{17}ClN_4O_8$** Morpholine, 4-(2-chloroisopropyl)-, picrate, 9054*b*.
Morpholine, 4-(2-chloropropyl)-, picrate, 9054*d*.

**$C_{13}H_{17}ClN_4S$** Urea, 1-(*p*-chlorophenyl)-3-(imino-1-piperidylmethyl)-2-thio-, 2948*i*.

**$C_{13}H_{17}ClO$** Hydrocinnamoyl chloride, 5-isopropyl-2-methyl-, 1747*f*.

**$C_{13}H_{17}ClO_2$** Caproic acid, ε-(*p*-chlorophenyl)-, Me ester, 2272*h*.

**$C_{13}H_{17}Cl_2N_5$** 1-Piperidinecarboxamidine, *N*-[(2,4 dichlorophenyl)guanyl]-, *and HCl*, 7905*f*.

**$C_{13}H_{17}Cl_2N_4O_7$** Propylamine, 3-chloro-*N*, *N*-bis(2-chloroethyl)-, picrate, 7422*d*.

**$C_{13}H_{17}IN_2$** 1-Methyl-2-propylaminoquinolinium iodide, 4276*h*.

**$C_{13}H_{17}IN_2O$** Benzoic acid, *m*-iodo-, isohexylidenehydrazide, 6973*e*.
Urea, 1-cyclohexyl-3-(*m*-iodophenyl)-, 7448*a*.

**$C_{13}H_{17}IN_2Pt$**, 8942*a*.

**$C_{13}H_{17}IN_2S$** Thiazoline, 2-(2-anilinovinyl)-, ethiodide, P 2642*i*.

**$C_{13}H_{17}IO_5$** Hydrocinnamic acid, 2-iodo-3,4,5-trimethoxy-, Me ester, 190*h*.

**$C_{13}H_{17}I_2N_2P$** Phosphine, methyldi-2-pyridyl-, dimethiodide, *monohydrate*, 1046*g*.

**$C_{13}H_{17}N$** 1-Cyclohexene-1 carbonitrile, 6-cyclohexylidene-, 1359*a*.
Isoquinoline, 2-butyl-1,2-dihydro-, 6631*c*.
Quinoline, 1-butyl-1,2-dihydro-, 6631*c*.

**$C_{13}H_{17}NO$** Acetamide, *N*-[2-(5-indanyl)-ethyl]-, 8390*f*.
Acetamide, *N*-3-methyl-2-butenyl-α phenyl-, 2269*i*, P 3574*d*.
—, *N*-2-pentenyl-α phenyl-, 2269*i*.
Cinnamamide, *N*, *N*-diethyl-, 7002*h*.
—, *N*-isobutyl-, 7002*h*.
Crotonotoluidide, *N*-ethyl-, 3109*g*, P 5413*fgh*, P 7634*a*, P 7954*f*.
Cyclohexanecarboxamide, 2-phenyl-, 2174*c*.
Isocyanic acid, α,α-diethylphenethyl ester, P 5800*h*.
Ketone, 5,6-dimethyl-4-indanyl methyl, oxime, 208*f*.
2-Pyridinemethanol, α-1-cyclohexen-1-yl-α-methyl-, 2205*a*.
5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazine, 2,3,6,7-tetrahydrodimethyl-, P 2782*h*.
Senecitoluidide, *N*-methyl-, P 5413*gh*.

**$C_{13}H_{17}NOS$** Morpholine, 4-(*p*-tolylthioacetyl)-, 1385*b*.
4-Thiazolidone, 3-butyl-2-phenyl-, 634*c*.

**$C_{13}H_{17}NO_2$** Benzamide, *N*-2-hydroxycyclohexyl-, 3372*h*.
2(3*H*)-Benzoxazolone, amylmethyl-, 6615*fg*.
—, 3-butyl-5,6-dimethyl-, 6615*h*.
—, 3-isoamyl-5-methyl-, 6615*f*.
—, 5-methyl-3-(1-methylbutyl)-, 6615*g*.
Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide, *N*-butyl-, P 4421*d*.
—, *N*-isobutyl-, P 4421*f*.
3-Buten-2-ol, 2,3-dimethyl-, carbanilate, 3777*g*.
*o*-Crotonanisidide, *N*-ethyl-, P 5414*a*.
2-Furaldehyde, polymer with 1,3-butadiene, oxime, 1597*h*.
1-Naphthoic acid, amino-5,6,7,8-tetrahydro-, Et ester, *and HCl*, 202*g*, 203*a*.
Nicotinic acid, methylcyclohexyl ester, 2622*i*.
3-Pentenenitrile, 5-(1-acetyl-2-oxocyclohexyl)-, P 6230*d*.
1-Penten-3-ol, 3-methyl-, carbanilate, 3778*b*.
Phthalimidine, 3-amoxy-, 623*g*.
4-Piperidinemethanol, 1-methyl-3-oxo-α-phenyl-, *HCl*, 4274*h*.
Propiophenone, β-4-morpholinyl-, *and HCl*, 2183*h*.
5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin-6-ol, 2,3,6,7-tetrahydrodimethyl-, P 2781*g*, P 2782*f*.
3-Pyrrolidinecarboxylic acid, 3-phenyl-, Et ester, P 695*e*.
*p*-Senecianisidide, *N*-methyl-, P 5414*a*.

**$C_{13}H_{17}NO_2S$** Valine, *N*-phenylthioacetyl-, 3362*f*.

**$C_{13}H_{17}NO_3S_2$** Valine, β-mercapto-*N*-phenylthioacetyl-, 3362*f*.

**$C_{13}H_{17}NO_3$** Acetamide, α-[*p*-(allyloxy)-phenyl]-*N*-2-hydroxyethyl-, 3362*b*.
Acetophenone, α-cyclopentylamino-3,4-dihydroxy-, *HCl*, 3388*e*.
β-Alanine, *N*-acetyl-*N*-phenyl-, Et ester, 3822*a*.
—, *N*-benzyl-*N*-formyl, Et ester, 576*a*.
Alanine, *N*-γ-phenylbutyryl-, 5765*c*.
2(3*H*)-Benzoxazolone, 3-amyl-5-methoxy-, 6615*i*.
Butyric acid, β-(α-phenylacetamido), Me ester, 7428*b*.
Caproic acid, ε-benzamido-, 6978*b*.
—, α-oxo-, *O*-benzyloxime, P 5422*e*.
Isonipecotic acid, 4-(*m*-hydroxyphenyl)-1-methyl-, P 2240*h*.
Norvaline, *N*-phenylacetyl-, 2271*a*, P 3574*b*.
2-Propanone, 1-(4-morpholinyl)-3-phenoxy-, P 4303*f*.
2-Pyridinebutyric acid, α-acetyl-, Et ester, 4267*g*.
5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazine-5-methanol, 2,3,6,7-tetrahydro-6-hydroxy-3-methyl-, P 2782*g*.
Pyruvic acid, β-phenyl-, Et ester, (o-ethyloxime, P 5422*d*.
Sorbic acid, δ-hydroxy β-methyl-γ-1-piperidylcarbonyl, δ-lactone, P 2230*i*.
Succinamilic acid, *N*,2,4 trimethyl-, 1342*h*.
Valine, *N*-phenylacetyl-, 2269*h*, 2271*h*, P 3574*b*, P 4698*a*.

**$C_{13}H_{17}NO_3S$** Butyric acid, α-acetamido α-(benzylmercapto), 7903*b*.
4-Thiazolidone, 3-butyl-2-phenyl-, 1,1-dioxide, 634*f*.
Valine, β-mercapto-*N*-phenylacetyl-, 2270*e*.

**$C_{13}H_{17}NO_3S_2$** Morpholine, 4-[(*p*-methylsulfonylphenyl)thioacetyl]-, 1739*g*.

**$C_{13}H_{17}NO_4$** Benzaldehyde, 3-*tert*-butyl-4-ethoxy-5-nitro-, P 1063*h*.
Benzoic acid, *p*-hydroxy-, Me ester, isobutylcarbamate, 593*e*
Crotonic acid, β-(2,5-dimethoxyanilino)-, Me ester, 646*a*
Norleucine, *N*-benzoyl-ε-hydroxy-, 4223*d*.
Norvaline, *N*-acetyl-δ-phenoxy-, 1007*c*.
—, β-hydroxy-*N*-phenylacetyl-, 2271*h*
1,2-Propanedione, 1-(3,4-diethoxyphenyl)-, 2-oxime, 1423*f*.
2-Propanone, 1-(*o*-hydroxyphenoxy)-3-(4-morpholinyl)-, *HCl*, P 5809*h*.
Synephrine, diacetate, *HCl*, 2601*e*.
Tyrosine, *N*-acetyl-, Et ester, 5056*a*.
Valine, *N*-carboxy-, benzyl ester, 4641*d*.
—, *N*-phenoxyacetyl-, 3364*h*.

**$C_{13}H_{17}NO_4S$**, 2-Thiophenevaleric acid, 4-carboxy-3-cyano-4,5-dihydro-, di-Me ester, P 1066*d*, P 5425*e*.

**$C_{13}H_{17}NO_5$** Adrenaline, 3,4-diacetate, *HCl*, 2601*ei*.
Peroxybenzoic acid, *p*-nitro-, 1,1,2-trimethylpropyl ester, 6189*f*.

**$C_{13}H_{17}NO_6S$** 1-Cyclohexene-1-sulfonic acid, 2-hydroxy-4,4-dimethyl-6-oxo-, pyridine salt, 9044*h*.

**$C_{13}H_{17}NO_6$** 2,3,5-Pyrroletricarboxylic acid, 4-methyl-, 3,5-di-Et 2-Me ester, 623*b*.

**$C_{13}H_{17}NO_6S_2$** Valine, *N*-[*p*-(carboxymethylmercapto)phenylsulfonyl]-, 3365*c*.

**$C_{13}H_{17}NO_7$** Glucoside, *p*-aminobenzoic acid-*N*-, 8002*a*.

**$C_{13}H_{17}NO_7S$** Ethanol, 2-[3-(*p*-nitrophenoxy)propylsulfonyl]-, acetate, 8388*f*.

**$C_{13}H_{17}NO_7S_2$** Pyrocatechol, 4-(1-mercapto-2-methylaminoethyl)-, *S*-thiosulfate, diacetate, 7137*d*.

**$C_{13}H_{17}N_3O$** (See also *Pyramidone*.)
**Antipyrine, 4-(methylaminomethyl)-, *and salts*, 7477*c*.**

yclohexanone, 4-phenyl-, semicarbazone, 160*c*, 5762*d*.
-Hexen-5-yn-2-one, 6-(1-cyclohexen-1-yl)-, semicarbazone, 8361*b*.
-Indanone, 2-propyl-, semicarbazone, 1757*f*.
–, 3,3,6-trimethyl-, semicarbazone, 7917*d*.
-Pyrazoline-1-carboxanilide, 3,5,5-trimethyl-, 8365*e*.
yrazolone, amino-4-isopropylmethylphenyl-, P 6239*i*, P 7050*a*, P 7970*d*.
–, 4-dimethylamino-3,4-dimethyl-1-phenyl-, P 3467*b*.
uinoline, 8-(2-aminopropylamino)-6-methoxy-, *and di-HCl*, 3420*a*.
$I_{17}N_3O_3$ 2-Propanol, 1-amino-3-(6-methoxy-8-quinolylamino)-, *and di-HCl*, 3419*e*.
rea, 1-phenyl-3-(1-piperidylcarbonyl)-, 5360*g*.
$I_{17}N_3O_4$ Mesitylenic acid, 4-nitro-, butylidenehydrazide, 6972*h*, *sec* butylidenehydrazide, 6972*h*.
(1*H*)-Naphthalenone, 3,4-dihydro-5,8-dimethoxy-, semicarbazone, 2612*d*.
,3-Pentanedione, 5-hydroxy-, 3-oxime 2-phenylhydrazone 5-acetate, 7019*b*.
-Toluic acid, 3-nitro-, isoamylidene hydrazide, 6973*b*.
$I_{17}N_3O_4$ Alanine, *N*-(*N*-glycylglycyl)-phenyl, 9114*d*.
arbamic acid, [(2-carbamylethyl)carbamylmethyl]-, benzyl ester, 1448*h*.
, [2-[(carbamylmethyl)carbamyl]ethyl]-, benzyl ester, 1448*h*.
lycine, *N*-(*N*-glycylphenylalanyl), 9113*h*.
–, *N*-(*N*-β-phenylalanylglycyl), *and HCl*, 8357*c*.
Piloretamide, α-acetamido-*N*-(carbamylmethyl), 5055*g*.
$H_{17}N_3O_5$ Caproic acid, ε-[3-(*p*-nitrophenyl)-ureido]-, 168*g*.
Glutamic acid, *N*-carboxy-, *N*-benzyl ester, 5-hydrazide, 6978*c*.
Mannoheptulose, phenylosotriazole, 7548*d*.
-cycloheptulose, phenylosotriazole, 7548*d*.
$H_{17}N_3O_8S_2$ Sulfamic acid, α-amino-*p*-toluenesulfonamide salt, P 686*c*.
$H_{17}N_3O_6$ β-Alanine, *N*-[(5-nitro-2-propoxyphenyl)carbamyl]-, 1688*h*.
Ethanol, 2-diethylamino-, 3,5-dinitrobenzoate, -*HCl*, 6175*c*.
Isoleucine, *N*-(2,4-dinitrophenyl)-*N*-methyl-, 3788*c*.
Leucine, *N*-(2,4-dinitrophenyl)-*N*-methyl-, 3788*d*.
$H_{17}N$ Piperidine, 1-(1-phenyl-1*H*-tetrazol-5-ylmethyl), 1864*i*, P 7972*a*.
$H_{17}NO$ Guanidine, [2-(6-methoxy-8-quinolylamino)ethyl]-, *salts*, 7485*e*.
Morpholine, 4-[1-(1-phenyl-1*H*-tetrazol-5-yl)ethyl], 1864*i*.
$H_{17}NO_2$ Morpholine, 4-[2-nitro-2-(nitrosobenzylidene)propyl], P 8154*b*.
$H_{17}NO$ Cyclohexanecarboxamidine, picrate, P 2231*a*, P 5038*g*, 7445*b*.
-Imidazoline, ethyldimethyl-, picrate, 8881*c*.
$H_{17}NO_5$ Morpholine, 4-*N*-methylacetamido-, picrate, 2594*c*.
$H_{17}NO_{10}$ Cellobioside, methyl-, heptanitrate, 4928*c*, 5007*f*.
$H_{17}O_3P$ Toluenephosphonic acid, diallyl ester, P 1220*f*, *g*.
$_{13}H_{18}$ 2-Butene, 3-methyl-1-(2,5-xylyl)-, 2887*b*.
5*H*-Cycloheptabenzene, 6,7,8,9-tetrahydro-5,5-dimethyl-, 5736*f*.
Cyclohexane, 1-methyl-2-phenyl-, 2175*b*.
*p*-Cymene, 2-isopropenyl-, 1339*g*.
3-Heptene, 4-phenyl-, 5392*g*.
2-Hexene, 5-methyl-2-phenyl-, 5392*h*.
Indan, 1,1,4,7-tetramethyl-, 2182*h*.
Naphthalene, 1,2,3,4-tetrahydroiso-propyl-, 2197*h*.
–, 1,2,3,4-tetrahydro-6-propyl-, 1370*b*.
2-Pentene, 2,4-dimethyl-4-phenyl-, 3344*f*.
Toluene, *p*-cyclohexyl-, 2175*b*.
–, (1-methylcyclopentyl)-, 2171*i*.
$C_{13}H_{18}AsNO_4$ Valine, *N*-(phenylarsinicoacetyl), 2272*f*.
$C_{13}H_{18}AsNO_5S_2$ Acetic acid, mercapto-, diester with 4-(2-hydroxyethoxy)-3-(sulfomethylamino)dithiobenzenearsonous acid, *tri Na salt*, 599*b*.
$C_{13}H_{18}BrN$ Piperidine, 1-(*p*-bromo-α-methylbenzyl)-, *and -HCl*, 7919*i*.
$C_{13}H_{18}BrNO$ 1-Benzyl-1-methyl-4-oxopiperidinium bromide, 3408*d*.
$C_{13}H_{18}BrNO_2$ 3-Carboxy-1-methylpyridinium bromide, cyclohexyl ester, 2622*i*.
$C_{13}H_{18}BrNO_2$ Alanine, *N*-(*m*-bromophenyl)-*N*-(3-hydroxypropyl)-, Me ester, P 9462*b*.
$C_{13}H_{18}BrN_5$ 1-Piperidinecarboxamidine, *N*-[(*p*-bromophenyl)guanyl]-, *and -HCl*, 9037*a*.
$C_{13}H_{18}Br_2N_2O$ *p*-Acetotoluidide, 2,6-dibromo-α-diethylamino-, *and -HCl*, 1023*a*.
$C_{13}H_{18}Br_2N_2O_3$ Benzoic acid, 4-amino-3,5-dibromo-, 2-diethylaminoethyl ester, -*HCl*, 8058*c*.
$C_{13}H_{18}ClHgNO$ Acetomesidide, *N*-[2-(chloromercuri)ethyl]-, 7449*d*.
$C_{13}H_{18}ClNO_2$ Acetaldehyde, (*m*-chlorobenzylideneamino)-, di-Et acetal, 5783*i*.
$C_{13}H_{18}ClNO_4$ Ethane, 1-butoxy-2-(3-chloro-4-nitro-*o*-toloxy)-, P 5421*g*.
$C_{13}H_{18}ClNO_5$ 4,5-Dicarboxy-3-hydroxy-1-methyl-2-picolinium chloride, di-Et ester, P 697*g*.
$C_{13}H_{18}ClN_3O$ Acetophenone, 5-(1-chloroisopropyl)-2-methyl-, semicarbazone, 6595*g*.
1-Piperidineacetanilide, 2′-amino-4′-chloro-, *and HCl*, 2992*i*.
$C_{13}H_{18}ClN_5$ 1-Piperidinecarboxamidine, *N*-[(*p*-chlorophenyl)guanyl], P 6659*b*.
$C_{13}H_{18}INOS$ Ethyl α-(4-morpholinyl)benzylidenesulfonium iodide, 5027*h*.
$C_{13}H_{18}INO_2S$ Ethyl(α-4-morpholinyl-alkylidene)sulfonium iodide, 5027*h*
(*o*-Methoxy-α-4-morpholinylbenzylidene)methylsulfonium iodide, 5027*i*.
$C_{13}H_{19}N_3$ Benzamidine, *N*-cyclohexyl-, *and -HCl*, 7414*h*
Cyclohexanecarboxamidine, *N*-phenyl-, 7441*c*.
Isocapronitrile, α-anilino-α-methyl-, 4415*g*
Valeronitrile, α-*N*-ethylanilino-, 4415*e*.
$C_{13}H_{19}N_3O$ 2,6-Acetoxylidide, α-allylamino-, *and HCl*, 1024*h*.
Oxazolidine, 3-butyl-2-imino-5-phenyl-, *and -HCl*, P 252*g*.
1-Piperidinecarboxanilide, 2-methyl-, 8365*e*.
$C_{13}H_{19}N_2O_2$ Acetamide, *N*, *N*′-(3-phenylpropylidene)bis-, 2600*i*.
Acetamide, *N*, *N*′-(2,4,6-trimethyl-*m*-phenylene)bis-, 1735*h*.
2(3*H*)-Benzoxazolone, 3-(2-diethylaminoethyl)-, -*HCl*, 6615*f*
Isovaleramide, α-(α-phenylacetamido)-, 2270*g*.
4-Morpholineaceto-*o*-toluidide, *and HCl*, 1022*c*.
Nicotinamide, 1-allyl-*N*, *N*-diethyl-1,6-dihydro-6-oxo-, P 6671*g*.
Propionamide, *N*-methyl-*o*-*N*-methylacetamido-, 4273*g*.
Urea, α-phenylcaproyl-, 2169*f*.
$C_{13}H_{19}N_2O_2S$ Barbituric acid, 5-(cycloheptenyl)-1,5-dimethyl-2-thio-, P 5039*b*.
Barbituric acid, 5-(cycloheptenyl)-5-ethyl-2-thio-, P 5039*b*
Piperidine, 1-[*p*-(methylsulfonyl)-benzamido], P 3456*h*.
$C_{13}H_{19}N_2O_4$ Acetamide, *N*-*tert*-amyl-α-(*p*-nitrophenyl)-, 2165*c*
Acetotoluidide, 4-hydroxy-α[4]-4-morpholinyl-, P 1062*c*.
Barbituric acid, 5-(cycloheptenyl)-1,5-dimethyl-, P 5039*a*.
–, 5-(cycloheptenyl)-5-ethyl-, P 5038*i*.
Benzamide, *N*, *N*-diisopropylnitro-, 1145*a*, 1896*c*, 2357*h*, 5897*g*, 7181*i*.
–, *p*-nitro-*N*, *N*-dipropyl-, 2357*h*, 5897*g*
2-Imidazoline, 2-(3,4,5-trimethoxybenzyl)-, 9249*c*, -*HCl*, P 5048*i*.
Nicotinic acid, 5-cyano-3,4,5,6-tetrahydro-4-isopropyl-2-methyl-6-oxo-, Et ester, P 3472*e*.
Succinanilic acid, 5-amino-*N*,2,4-trimethyl-, 1343*c*.
Valeric acid, α-acetyl-β-(dicyanomethyl)-γ-methyl-, Et ester, P 3472*e*.
Valine, *N*-(aminophenylacetyl)-, 3361*h*
$C_{13}H_{19}N_2O_3S$ Cyclohexanecarboxanilide, *p*-sulfamyl-, 1028*c*.
$C_{13}H_{19}N_2O_4$ Benzoic acid, *p*-(2-nitroisobutylamino)-, Et ester, 6183*f*
Homoterephthalamide, *N*, *N*′-bis(2-hydroxyethyl)-, 3362*c*.
Malonamide, *N*, *N*′-bis(2-hydroxyethyl)-α-phenyl-, 2273*e*.
Malonic acid, bis(2-cyanoethyl)-, di-Et ester, P 4089*h*, 6987*b*.
Salicylamide, 4-nitro-*N*, *N*-dipropyl-, 6596*g*.
$C_{13}H_{19}N_2O_5S$ Anthranilic acid, 5-(cyclohexylsulfamyl)-, P 7710*b*.
4-Thiazolidinecarboxylic acid, 2-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridyl]-5,5-dimethyl-, 645*a*.
$C_{13}H_{19}N_2O_4S_2$ Penicillin O, 2274*g*, 3490*a*, 8004*i*.
$C_{13}H_{19}N_2O_5$ Anisamide, *N*-2-hydroxyethyl-α-(2-hydroxyethylcarbamyl)-(?), 3364*g*.
Benzene, 1,2-diethoxy-4-(2-nitro-1-nitrosopropyl)-, 1423*b*.
Cyclohexanecarboxylic acid, 2-(hexahydro-2,4,6-trioxo-5-pyrimidyl)-, Et ester, P 1800*d*
1(2*H*)-Pyrimidineacetic acid, 5-allyl-5-ethyl-2,4,5,6-tetrahydro-2,4,6-trioxo-, Et ester, 9258*a*.
$C_{14}H_{19}N_2O_6$ Glutamic acid, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 644*f*, 723*b*.
$C_{13}H_{18}N_2S$ Isovaleronitrile, β-(benzylmercapto)-α-methylamino-, -*HCl*, P 4688*g*.
Urea, 1-(1-methylcyclopentyl)-3-phenyl-2-thio-, 2171*g*.
$C_{14}H_{18}N_2S_2$ Thiazole, 2,2′-pentamethylenebis[4-methyl-, *chloroplatinate*, 4667*e*.
$C_{13}H_{18}N_4O_2$ Oxalic acid, 2-amylidenehydrazide 2-phenylhydrazide, 6972*b*.
3-Pyridinemethanol, 5-hydroxy-4-[2-(imidazolyl)ethylaminomethyl]-6-methyl-, *di-HCl*, 1411*b*.
$C_{14}H_{18}N_4O_2$ Morpholine, 4-(2-nitro-2-phenylazopropyl), P 8154*b*.
$C_{13}H_{18}N_4O_3$ Isovaleraldehyde, α-ethoxy-, 2,4-dinitrophenylhydrazone, 2158*g*.
$C_{13}H_{18}N_4O_3S_2$ 2-Thiazolecarbamic acid, 4-carboxy-5-(3-carboxy-2-thioureido), tri Et ester, 1403*e*.
$C_{14}H_{18}N_4O_7$ Heptamethylenimine, picrate, 5400*c*.
Piperidine, 1,2-dimethyl-, picrate, 2959*c*.
$C_{13}H_{18}N_6S$ Pyrimidine, 2-[(2-dimethylaminoethyl)-2-thenylamino]-, 6587*h*.
$C_{13}H_{18}N_6$ Biguanide, 5-(*p*-cyanophenyl)-1-isopropyl-1-methyl-, -*HCl*, 2947*h*.
$C_{13}H_{18}N_4O_7$ 2-Imidazoline, 2-butylamino-, picrate, 4273*b*.
2-Imidazoline, 2-isobutylamino-, picrate, 4273*b*.
$C_{13}H_{18}N_8O_3$ Ethanol, 2-(1,4,5,6-tetrahydromethyl-2-pyrimidylamino)-, picrate, 4273*d*.
$C_{13}H_{18}O$ Anisole, *p*-cyclohexyl-, 2971*a*, 8749*f*.
Benzaldehyde, 2,4-diisopropyl-, 6182*h*.
2-Butanone, 4-*p*-pseudocumyl-, 2580*b*, 3798*e*.
3-Buten-2-one, 4-(2,6,6-trimethyl-1,3-cyclohexadien-1-yl)-, 3798*e*.
Caprophenone, α-methyl-, 2931*h*.
Cresol, cyclohexyl-, 6173*i*.
–, (1-methylcyclopentyl)-, 2171*h*.
Cyclohexanol, 1-benzyl-, 3366*d*.
Ether, cyclohexyl tolyl, 6173*i*.
4-Heptanone, 3-phenyl-, 119*d*.
1-Hepten-3-ol, 1-phenyl-, 1718*h*.
2-Pentanone, 3,4-dimethyl-4-phenyl-, 5762*d*.
–, 4-methyl-4-*p*-tolyl-, 5762*e*.
2-Propen-1-ol, 3-*p*-cumyl-2-methyl-, P 1063*d*.
Valerophenone, 2,5-dimethyl-, 6990*g*.
$C_{13}H_{18}OS$ 2-Pentanone, 4-(benzylmercapto)-4-methyl-, 7904*b*.
Thianaphthene, 2,3-dihydro-3-isopropyl-3-methoxy-5-methyl-, 7475*d*.
–, 3-ethoxy-2,3-dihydro-2,3,5-trimethyl-, 7475*c*.
$C_{13}H_{18}O_2$ Acetophenone, 4-butoxymethyl-, 3825*e*.
Acetophenone, 2,5-dimethyl-4-propoxy-, 7924*f*.
–, 4-isobutoxy-2-methyl-, 3825*f*.
Benzaldehyde, 3-*tert*-butyl-4-ethoxy-, P 1063*f*, P 8400*h*.
Benzene, 1,2-diethoxy-4-propenyl-, 1423*b*
Benzoic acid, 2,4-diisopropyl-, 6182*h*.
–, *p*-hexyl-, 2603*b*.
2-Butanol, 3-methyl-4-phenyl-, acetate, 5762*a*.
Butyric acid, 3-phenyl-, Pr ester, 9375*e*.
–, γ-mesityl-, 1378*e*, 2273*i*.
Butyrophenone, 4-ethoxy-3-methyl-, 3825*e*.
–, 2-methoxy-4,5-dimethyl-, 7924*f*.
Caproic acid, γ-*p*-tolyl-, 2605*i*.
Cyclohexanol, 1-(*p*-methoxyphenyl)-, 1358*f*, 3366*d*.
*p*-Cymenecarboxylic acid, Et ester, 1351*e*.
3-Hexanone, 1-methoxy-5-phenyl-, 118*i*.
–, 4-(*p*-methoxyphenyl)-, 603*h*.
Hydrocinnamic acid, Bu ester, 2591*d*.
Naphthalene, 1,2,3,4-tetrahydro-5,8-dimethoxy-1-methyl-, 2612*h*.

2-Pentanol, 4 methyl-, benzoate, 2604*c*.
Pentanone, 2-hydroxy-4,4-dimethyl-1-phenyl-, 139*f*.
—, 4 - (*p*-methoxyphenyl) - 4 - methyl-, 5762*h*.
Propionic acid, carvacryl ester, 613*h*, thymyl ester, 613*h*.
Propiophenone, 2 - ethyl - 3 - methoxy - 5-methyl-, 185*i*.
—, 4-hydroxyisopropylmethyl-, 613*i*.
—, 2-methyl-4-propoxy-, 3825*f*.
Valeric acid, $\gamma,\gamma$-dimethyl-$\delta$-phenyl-, 2931*h*.

**$C_{13}H_{18}O_2S$** Valeric acid, $\delta$-phenylmercapto-, Et ester, 2272*h*.

**$C_{13}H_{18}O_3$** Acetic acid, [*p* (1-ethylpropylphenoxy]-(?), 3364*d*.
Acetic acid, phenyl-, butoxymethyl ester, 6162*b*.
—, thymyloxy-, Me ester, 3364*e*.
Benzene, 1 - allyl - 2 - ethoxy - 3,4 - dimethoxy, 7451*i*.
—, 3 - ethoxy - 1,2 - dimethoxy - 4-propenyl-, 7451*i*, 7452*a*.
Bicyclo[5.3.1] - 7 - hendecene - 1 - carboxylic acid, 8 - methyl - 11 - oxo-, 7908*f*.
Bicyclo[3.3.1] - 3 - nonene - 1 - carboxylic acid, 4-methyl-9 oxo-, Et ester, 7907*g*.
4 - Cyclohexene - 1,2 - dicarboxylic anhydride, 4-amyl, 1311*f*.
3 - Cyclopentene - 1 - carboxylic acid, 3 - (butenyl) - 4 - methyl - 2 - oxo, Et ester, 1334*hi*.
Lactone, m. 162°, 5011*c*.
Marrubiin, 5011*b*.
3 - Pentanone, 1,2 - dihydroxy - 4,4 dimethyl-1-phenyl-, 139*e*.
1,2 - Propanediol, 3 - (allyltoloxy)-, 311*i*.
2-Propanone, 1-isobutoxy-2 phenoxy-, P 6235*f*.
Propionic acid, $\beta$-(*p tert*-butylphenoxy)-, 3393*f*.
—, $\beta$ thymyloxy-, 3393*g*.
Propiophenone, 3,4-diethoxy-, 1423*e*.
Salicylic acid, diisopropyl, P 8132*a*, *and salts*, P 2233*h*.

**$C_{13}H_{18}O_3S$** Benzenesulfonic acid, methylcyclohexyl-, *Na salt*, P 3640*a*.
Cyclohexanol, 2-*p*-tolylsulfonyl-, 7421*b*.
Toluenesulfonic acid, cyclohexyl ester, 7751*d*.

**$C_{13}H_{18}O_4$** Acid, m. 222–3°, 5011*c*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboxylic acid, di-Et ester, 5150*e*, P 7633*f*; Me Pr ester, P 7633*f*
Butyrophenone, (2,3 - dihydroxypropoxy)-, 312*b*.
3 - Cyclohexene - 1 - glyoxylic acid, 4,6,6-trimethyl 2-oxo-, Et ester, 1013*d*.
Cyclopentanecarboxylic acid, 2-oxo-1-(3-oxo-4-pentenyl)-, Et ester, 7432*e*.
Hydrocinnamic acid, 2,5 dimethoxy-, Et ester, 6600*a*.
—, 3,5-dimethoxy-$\alpha,\beta$-dimethyl-, 8384*i*
Methacrylic acid, ester with 2-hydroxy 4,5,5 - trimethyl - 1,3 - cyclohexanedione(?), P 2634*g*.
2,3 - Norcamphanedicarboxylic acid, 5-hydroxy-, $\gamma$-lactone, Bu ester, P 3032*h*.
Salicylic acid, 3-methoxy-, Am ester, 4242*b*, 7455*h*; iso Am ester, 4242*b*, 7455*h*.
Tricyclo[4.2.2.$0^{2,5}$]decane - 7,8 - dicarboxylic acid, mono-Me ester, 6198*i*.

**$C_{13}H_{18}O_4S$** Benzoic acid, 3,4,5 trimethoxy thiol-, isopropyl ester, 190*g*.
Cyclohexanediol, *p* toluenesulfonate, 7434*i*, 7435*f*.
Malonic acid, [2-(2-thienyl)ethyl], di-Et ester, 2082*a*.

**$C_{13}H_{18}O_5$** Acetic acid, [*p* (2,3-dihydroxypropoxy)phenyl]-, Et ester, 3362*a*.
Benzoic acid, (2,3-dihydroxypropoxy)-, iso-Pr ester, P 2233*g*; Pr ester, 312*a*, P 2233*g*, 5655*e*
Hydrocinnamic acid, ethoxydimethoxy-, 7460*ac*.
2,3 - Norcamphanedicarboxylic acid, 5-hydroxy-, $\gamma$-lactone, 2-ethoxyethyl ester, P 3032*i*.
Valeric acid, $\delta$-(hydroxydimethoxyphenyl)-, 3404*a*.
Veratric acid, 6-ethoxy-, Et ester, 7459*i*.

**$C_{13}H_{18}O_6$** Sorbitol, 4,6-benzylidene-, 5747*e*.
Vanillic acid, 2-(2-methoxyethoxy)ethyl ester, 4242*a*, 7455*g*.

**$C_{13}H_{18}O_7$** (See also *Salicin*.)
Arbutin, methyl-, 9371*g*.

**$C_{13}H_{18}O_7S$** Arlitan, 6-*p*-toluenesulfonate, 151*f*.

**$C_{13}H_{18}O_8$** Santoric acid, 2192*i*.

**$C_{13}H_{18}O_9$** Ribose, tetraacetate, 147*i*.

**$C_{13}H_{18}O_{10}$** Lyxonic acid, tetraacetate, 8358*f*.

**$C_{13}H_{18}S$** Sulfide, methylcyclohexyl phenyl, 1003*f*, 7410*d*.

**$C_{13}H_{19}BrN_2O_6$** Mannoheptulose, *p*-bromophenylhydrazone, 7548*d*.

**$C_{13}H_{19}BrO$** 3 Buten 2-one, 4-(3-bromo-2,6,6-trimethyl 1-cyclohexen-1-yl)-, 2589*b*.

**$C_{13}H_{19}ClN_2O_3$** Barbituric acid, 5-(3-chloro-2-butenyl) 5 isoamyl-, 1725*i*.

**$C_{14}H_{19}ClN_2O_4$** 1-Methyl 2 [2-(1-piperidyl) vinyl]pyridinium perchlorate, P 2642*h*

**$C_{13}H_{19}ClN_4O$** Pseudourea, 3-(*p* chlorophenyl guanyl) 2 ethyl 1 - isopropyl-, *and* - *HCl*, 2950*b*.

**$C_{14}H_{19}ClN_4S$** Pseudourea, 1 (*p* chlorophenyl)-2 - ethyl - 3 - isopropylguanyl - 2 thio, *HBr*, 2948*g*.
Urea, 1 [*N* (*p* - chlorophenyl) - *N'* ethylguanyl] - 3 isopropyl - 2 - thio, 9039*e*.

**$C_{13}H_{19}ClO$** 2 Hexen 1 one, 1-(4 chloro-3 cyclohexen 1-yl) 3 methyl, 2958*g*.

**$C_{13}H_{19}ClO_2$** Acrylic acid, $\alpha$-chloro, fenchyl ester, P 3027*e*.

**$C_{13}H_{19}ClO_3$** Cyclohexanecarboxylic acid, 1 (3 - chloro - 2 - butenyl) 2 - oxo-, Et ester, 7907*g*.

**$C_{14}H_{19}ClO_3S$** (2 Acetyl-*p* tolyl)diethylsulfonium perchlorate, 7475*e*.

**$C_{13}H_{19}ClO_4$** Adonitol, 1 chloro-1-desoxy 2,3,4,5-tetraacetyl, 571*c*.

**$C_{13}H_{19}Cl_2N$** Propylamine, *N*, *N*-bis(2-chloro ethyl)-3 phenyl, - *HCl*, 4381*c*.

**$C_{12}H_{19}Cl_2N_5$** Biguanide, 1-(2, 4-dichloro phenyl) - 5 - (1 - ethylpropyl)-, - *HCl*, 7905*f*.
Biguanide, 1-(2,4-dichlorophenyl)-5-iso amyl, - *HCl*, 7905*f*.
— , 1 - (2,4 - dichlorophenyl) - 5 - (1-methylbutyl), - *HCl*, 7905*f*

**$C_{12}H_{19}IN_2Pt$**, 2887*c*, 6536*d*, 8941*h*.

**$C_{13}H_{19}N$** Benzylamine, cyclohexyl-, P 3041*a*, *and HCl*, 1359*f*
Cyclohexanemethylamine, 2 phenyl, *and* - *HCl*, 1357*f*
1-Cyclohexene 1 carbontrile, cyclohexyl, 1359*a*
Cyclohexylamine, 1-benzyl, 9047*e*
— , *N*-methyl-*N* phenyl, 9118*e*
Piperidine, benzyl-1-methyl, *and* - *HI*, 4274*g*.
— , 1-$\alpha$ methylbenzyl-, *and* - *HCl*, 7919*i*

**$C_{13}H_{19}NO$** Acetamide, *N tert*-amyl-$\alpha$-phenyl, 2165*e*
Benzamide, 2,4-diisopropyl, 6182*i*
Benzylamine, *N* (2,3-epoxypropyl)-*N* isopropyl, 1776*d*.
Butyrophenone, $\alpha$ - (dimethylamino methyl)-, - *HCl*, 1757*g*.
Caproamide, *N* benzyl, 6590*a*
Cyclohexanecarbonitrile, 2-cyclohexylidene 1-hydroxy, 1359*a*
Hydrocinnamamide, 5 - isopropyl 2 methyl, 1747*f*
1 - Piperidinecthanol, $\alpha$ phenyl, 2314*d*
2 - Piperidinemethanol, $\alpha$-methyl $\alpha$ phenyl, *and HCl*, 2205*f*
Pivalophenone, $\beta$-dimethylamino, 4238*i*
2 - Pyridinemethanol, $\alpha$ cyclohexyl - $\alpha$-methyl, *and HCl*, 2205*a*
Toluamide, *N tert* amyl, 2165*e*

**$C_{13}H_{19}NO_2$** (See also *1,4 Benzodioxan, 2 (diethylaminomethyl)*.)
Acetamide, *N* - 2 - hydroxyethyl - $\alpha$ (mesityl)-, 3362*d*
*p* - Acetanisidide, 2,3,5,6 - tetramethyl, 180*g*
Benzylidenimine, $\alpha$ *tert* - butyl 2,3 dimethoxy-, *and HCl*, 185*f*
2-Butanol, 1 dimethylamino, benzoate, - *HCl*, 2935*a*
Butyramide, $\alpha$ ethyl $\gamma$ - (*p* methoxy phenyl), 1744*b*
Carbamic acid, 2,3,5,6-tetramethyl, Et ester, 1619*e*
Cyclohexanepropionitrile, 1 - butyryl 2 oxo, P 7040*h*
1 - Cyclohexene 1 - acetic acid, $\alpha$ cyano $\alpha$ ethyl, Et ester, 3798*a*
4 - Cyclohexene 1,2 - dicarboximide, *N*-butyl-3-methyl, P 4421*g*.
Morpholine, 4 - ethyl - 2 - methoxy - 2-phenyl, *and* - *HCl*, 4239*fh*
Nicotinic acid, heptyl ester, 2622*h*, 6316*h*.
Piperidine 3,5-dimethoxy-1 phenyl-, 2208*i*.
2-Pyridinebutyric acid, $\alpha$-ethyl, Et ester, 4267*g*.

**$C_{13}H_{19}NO_2S$** Acetamide, *N*-2-hydroxyethyl-$\alpha$-(3-phenylpropylmercapto), 3365*f*.
Acetic acid, thiocyano-, isobornyl ester, 8600*f*.
Carbamic acid, 5-hydroxyamylthio-, *p*-tolyl ester, P 3659*a*.
Valeramide, *N*-2-hydroxyethyl-$\delta$-phenylmercapto-, 2273*i*.
Valine, $\beta$-(benzylmercapto)-*N*-methyl-, P 4688*g*.

**$C_{13}H_{19}NO_3$** Acetic acid, (2-dimethylaminoethoxy)phenyl, Me ester, *and* - *HBr*, 2189*e*.
Acetophenone, $\alpha$-amylamino-3,4-dihydroxy, - *HCl*, 3388*d*.
- , $\alpha$-(1,2-dimethylpropylamino)-3,4-dihydroxy-, - *HCl*, 3388*d*.
- , $\alpha$ - (1 - ethylpropylamino) 3,4 dihydroxy, - *HCl*, 3388*e*.
$\beta$ - Alanine, *N* - 2 - hydroxyethyl - *N* - *m* tolyl, Me ester, P 9462*d*.
, *N* - (2 hydroxypropyl) - *N* - phenyl, Me ester, P 9462*b*.
Benzoic acid, *p* (2-diethylaminoethoxy)-, 6592*a*
- , *p* ethoxy, 2-ethylaminoethyl ester, - *HCl*, P 4430*d*.
— , *p* hydroxy-, 2 diethylaminoethyl ester, *and* - *HCl*, 6592*b*.
Butyric acid, $\beta$-(*N* 2 hydroxyethylamino), Me ester, P 9462*c*.
4-Morpholinecthanol, $\alpha$ phenoxymethyl, P 1812*a*, P 4304*f*, P 6242*i*.
Phenol, *m*-ethoxy-, diethylcarbamate, P 252*a*
1 Propanol, 3 *p* - cumyl - 2 - methyl 2-nitro, P 3038*c*.
Propiophenone, $\alpha$ amino-3,4 diethoxy, *and* - *HCl*, 1423*g*.
Protocatechuyl alcohol, $\alpha$ (cyclopentylaminomethyl)-, - *HCl*, 3388*e*.

**$C_{13}H_{19}NO_3S$** Acetamide, *N*-2-hydroxyethyl $\alpha$ (3 phenoxypropylmercapto)-, 3365*f*
Acetanilide, *p* (isoamylsulfonyl), 2593*e*
1 Piperidinecthanesulfonic acid, $\beta$ phenyl, 7412*a*
4 - Thiazolidinecarboxylic acid, 2,5-dimethyl 5 phenyl, compd with MeOH, - *HCl*, 1400*e*
Toluenesulfonic acid, $\alpha$-(2 aminocyclohexyl)-, *Na salt*, P 8163*b*, P 9468*e*

**$C_{13}H_{19}NO_4$** $\beta$ - Alanine, *N* (2,3 dihydroxypropyl) - *N* phenyl, Me ester, P 9462*d*
Arabinose anilide, 3,5 dimethyl, 58*aa*
Butyramide, *p* (2,3-dihydroxypropoxy), 5657*e*
Butyrophenone, *p* (2,3 dihydroxypropoxy), oxime, 312*b*
$\alpha$ - Hydromuconic acid, $\alpha$-cyano $\beta,\epsilon$ dimethyl, di-Et ester, 3796*h*.
4 Morpholinecthanol, $\alpha$ [*o*-hydroxyphenoxymethyl], *and HCl*, P 4304
**$C_{13}H_{19}NO_5$** Acetamide, $\alpha$ [*p*-(2,3 dihydroxypropoxy)phenyl] *N* - 2 - hydroxyethyl, 3362*c*
Arabonanilide, 2,3 dimethyl, 2954*b*
Cinchomeronic acid, 1,6-dihydro-5 hydroxy-1,6 dimethyl, di Et ester, P 697*g*.
Isoglucosamine, *p* tolyl, 5404*i*
Methacrylic acid, diester with *N* 2 hydroxyethyllactamide, P 3447*i*
Succinic acid, $\alpha$ acetyl $\alpha$ (2 cyanoethyl) di-Et ester, P 2635*b*

**$C_{14}H_{19}NO_5S$** 2 Thiophenevaleric acid, 1 carboxy - 3 - cyanotetrahydro 3 hydroxy-, di Me ester, P 1006*c*, P 5425*e*.

**$C_{11}H_{19}NO_{10}$** Arabitol, 1 desoxy-1-nitro, tetraacetate, 5747*f*

**$C_{13}H_{19}NS$** Caproamide, *N* benzylthio-, 6596*a*
Cyclohexanethiol, 2-*N* methylaniline-, 7420*c*.

**$C_{14}H_{19}N_2NaO_2S$** Barbituric acid, 5 isopropyl 5 (2 - methyl - 2 - pentenyl) 2 thio, Na deriv, 4768*f*.

**$C_{13}H_{19}N_3$** Pyrimidine, 1,4,5,6 tetrahydro methyl-2 phenethylamino-, 4273*d*

**$C_{13}H_{19}N_3O$** Acetophenone, *o*-butyl-, semicarbazone, 7416*a*
Benzamide, *N* 5-guanylamyl-, *HCl*, P 673*b*.
2-Butanone, 3-methyl-4 *p*-tolyl-, semicarbazone, 5762*d*.
Butyrophenone, 2,5-dimethyl, semicarbazone, 6999*g*.
2-Pentanone, methyl-4-phenyl-, semicarbazone, 5762*bc*.
—, 4-*p*-tolyl-, semicarbazone, 5762*e*

**$C_{14}H_{19}N_3O_2$** Acetophenone, 2-methyl-4 propoxy-, semicarbazone, 3825*f*.
2 - Butanone, 4 - (*p* - methoxyphenyl) - 3-methyl-, semicarbazone, 5762*g*
Butyrophenone, 4-methoxy-3 methyl-, semicarbazone, 3825*e*.

Propiophenone, 4-ethoxy-3-methyl-, semicarbazone, 3825*e*.
—, 2-methoxy-4,5-dimethyl-, semicarbazone, 7924*e*.
Urea, 1-(diethylaminoacetyl)-3-phenyl-, 6162*f*.

$C_{13}H_{19}N_3O_3$ 2-Butanone, 3-(3,5-dimethoxyphenyl)-, semicarbazone, 8385*d*.
2-Buten-1-one, 1-(4-hydroxy-3-cyclohexen-1-yl)-3-methyl-, formate semicarbazone, 2958*b*.

$C_{13}H_{19}N_3O_3S$ 2-Thiophenecaprylic acid, γ-oxo-, semicarbazone, 3817*g*.

$C_{13}H_{19}N_3O_4S$ Propionic acid, β-ethoxy-β-(*p*-sulfamylphenylhydrazono)-, Et ester, P 6930*d*.

$C_{13}H_{19}N_5$ Guanidine, 1-(5,6-dimethyl-2-benzimidazolyl)-3-isopropyl-, *HCl*, 1405*h*
1*H*-Tetrazole, 1-benzyl-5-(diethylaminomethyl)-, 1864*g*.
—, 5-(diethylaminoethyl)-1-phenyl-, 1864*i*, -*HCl*, P 7972*d*.
—, 5-(diethylaminomethyl)-1-*p*-tolyl-, 1864*g*.
—, 5-(isoamylaminomethyl)-1-phenyl-, -*HCl*, P 7972*a*.

$C_{13}H_{19}N_5O$ 1*H*-Tetrazole, 5-(diethylaminomethyl)-1-(*p*-methoxyphenyl)-, 1864*g*; -*HCl*, P 7972*a*.

$C_{13}H_{19}N_5O_2$ Benzamide, *N*-(1-carbamyl-4-guanidinobutyl)-, 6266*g*, 7520*f*.
Guanidine, 1-(5,6-dimethoxy-2-benzimidazolyl)-3-isopropyl-, *and di-HCl*, 1405*g*.

$C_{13}H_{19}N_5O_3$ 7-Pteridinecarboxylic acid, 2-diethylamino-7,8-dihydro-6-hydroxy-, Et ester, P 9087*f*.

$C_{13}H_{19}N_5O_4$ 1-Propanone, 1-(5-nitro-2-furyl)-2-(1-piperidyl)-, semicarbazone, 6735*h*.

$C_{13}H_{20}$ Benzene, (1,1,3-trimethylbutyl)-, 3345*a*.
Heptalene, 1,2,3,4,8,9,10,10a-octahydro-6-methyl-, 5375*h*.
Heptane, phenyl-, 1196*b*, 2174*h*, 6990*b*.
Pseudocumene, 3-butyl-, 3798*c*.
Toluene, 2,4-diisopropyl-, 1339*f*.
Xylene, 2-amyl-, 6990*b*.

$C_{13}H_{20}AsN_2O_3S_3$ Methanesulfonic acid, [5-dimercaptoarsino-2-(2-hydroxyethoxy)anilino]-bisthiocarbamylmethyl) ester, *Na salt*, 599*b*.

$C_{13}H_{20}BrNO_2$ 1-(4-Carboxypropyl)pyridinium bromide, Bu ester, 6977*c*.

$C_{13}H_{20}BrN_3O_4S$ Butyramide, *N*-[2-(5-bromo-2-pyridylsulfamyl)ethyl]-α,γ-dihydroxy-β,β-dimethyl-, P 3450*g*.

$C_{13}H_{20}BrN_5$ Biguanide, 5-(*p*-bromophenyl)-1-butyl-1-methyl-, P 4692*b*, 9037*a*.
Biguanide, 1-(*p*-bromophenyl)-2-ethyl-5-isopropyl-, P 684*d*, -*HCl*, P 1060*e*, 2949*b*.

$C_{13}H_{20}ClNOS$ 2-Propanol, 1-(*p*-chlorophenylmercapto)-3-diethylamino-, 6577*f*.

$C_{13}H_{20}ClNO_2$ Benzyl(2-carboxyethyl)dimethylammonium chloride, Me ester, 6977*b*.
Benzylcarboxymethyl)dimethylammonium chloride, Et ester, 6977*a*.
2-Propanol, 1-(*p*-chlorophenoxy)-3-diethylamino-, P 7015*i*.

$C_{13}H_{20}ClN_3O_2$ 1,3-Propanediamine, *N*,*N*'-(5-chloro-2-nitrophenyl)-*N*,*N*-diethyl-, *and HCl*, 3009*a*.

$C_{13}H_{20}ClN_3O_3S$ Butyramide, *N*-[2-(5-chloro-2-pyridylsulfamyl)ethyl]-α,γ-dihydroxy-β,β-dimethyl-, P 3450*g*.

$C_{13}H_{20}ClN_5$ Biguanide, 1-amyl-5-(*p*-chlorophenyl)-, P 6659*f*.
Biguanide, butyl(*p*-chlorophenylmethyl)-, *HCl*, P 684*f*, 2949*b*, 2950*a*, P 6659*a*.
—, 1-(*p*-chlorophenyl)-5,5-diethyl-1-methyl-, -*HCl*, P 6659*g*.
—, *p*-chlorophenylethylisopropyl-, 9039*e*, *HCl*, P 684*af*, P 1060*e*, 2949*a*, 2950*a*, P 6659*a*, *and -HCl*, 2948*f*.
—, *p*-chlorophenyl)ethylpropyl-, -*HCl*, P 684*i*, P 1060*e*, 2948*e*, 2949*a*, P 6659*a*.
—, (*p*-chlorophenyl)isopropyldimethyl-, -*HCl*, P 684*d*, 9039*i*; *and -HCl*, 9039*d*.
s-Triazine, 2-chloro-4,6-di-1-piperidyl-, 1126*d*.

$C_{13}H_{20}ClN_5O_2$ (See also *Paludrine*.)
Biguanide, 1-(*p*-chlorophenyl)-5-propyl-, acetate, P 684*f*.
—, 5-(*p*-chlorophenyl)-1,1,4-trimethyl-, acetate, P 684*g*, 2949*b*, P 6659*i*.

$C_{13}H_{20}FN_5O_2$ Biguanide, 1-(*p*-fluorophenyl)-5-isopropyl-, acetate, 5757*g*.

$C_{13}H_{20}INO$ 3-Hydroxy-1,1-dimethyl-3-phenylpiperidinium iodide, 4275*a*.
4-Methyl-4-phenethylmorpholinium iodide, 4376*d*.

$C_{13}H_{20}IN_5$ Biguanide, 2-ethyl-1-(*p*-iodophenyl)-5-isopropyl-, -*HCl*, P 684*d*, P 1060*f*, 2948*e*, P 6659*b*.

$C_{13}H_{20}N_2$ Benzamidine, *N'*-amyl-*N*-methyl-, 2595*f*.
Ethylenediamine, *N*-allyl-*N'*,*N'*-dimethyl-*N*-phenyl-, *and* -*HCl*, P 682*i*.
Piperidine, benzylamino-1-methyl-, 2207*b*, 6207*d*.
Pyrrolidine, 2-(benzylaminomethyl)-1-methyl-, 7019*h*.
*p*-Toluidine, α-(1-aminocyclohexyl)-, 8365*b*, 9047*e*.

$C_{13}H_{20}N_2O$ Acetamide, *N*-[α-(aminomethyl)-benzyl]-*N*-isopropyl-, 6176*f*.
Acetamide, *N*-benzyl-α-diethylamino-, 1022*c*.
Acetanilide, α-diethylamino-*N*-methyl-, 1022*b*.
Acetotoluidide, α-butylamino-, *and* -*HCl*, 1021*h*.
—, α-diethylamino-, 9257*d*, *and* -*HCl*, 1021*i*, *and salts*, 1021*i*.
2,6-Acetoxylidide, α-isopropylamino-, *and* -*HCl*, 1024*g*.
—, α-propylamino-, *and salts*, 1024*g*.
Benzamide, *N*²-diethylaminoethyl-, 1022*d*.
2,6-Propionoxylidide, β-dimethylamino-, *and* -*HCl*, 1022*g*.

$C_{13}H_{20}N_2OS$ Carbanilic acid, thiono-, 2-diethylaminoethyl ester, -*HCl*, 2703*b*.

$C_{13}H_{20}N_2O_2$ (See also *Procaine*.)
Acetamide, *N*-[α-(aminomethyl)-*p*-methoxybenzyl]-*N*-ethyl-, 6176*f*.
*m*-Acetotoluidide, α-diethylamino-4-hydroxy-, P 1062*a*.
2,6-Acetoxylidide, α-[(2-hydroxyethyl)methylamino]-, 1025*a*.
Benzoic acid, *p*-(2-aminoisobutylamino)-, Et ester, 6183*g*.
—, *p*-(2-dimethylaminoisobutylamino)-, 6183*i*.
Carbamic acid, [α-(aminomethyl)benzyl]ethyl-, Et ester, *HCl*, 6176*f*.
Monocaine, 1111*a*.
Salicylamide, 4-amino-*N*,*N*-dipropyl-, 6596*g*.

$C_{13}H_{20}N_2O_2S$ 1-Imidazoleacetic acid, α-(1-mercaptoisopropyl)-2-(2-pentenyl)-, *and* -*HCl*, 4920*f*.
Propylamine, *N*,*N*-diethyl-3-(nitrophenylmercapto)-, -*HCl*, 6179*e*, *and* -*HCl*, 6180*d*.

$C_{13}H_{20}N_2O_2S_2$ Acetic acid, (ethylmercaptomethylmercapto)-, 2-benzyl-2-thiopseudourea salt, 3304*i*.

$C_{13}H_{20}N_2O_3$ Morpholine, 4,4'-furfurylidenedi-, 7030*a*.

$C_{13}H_{20}N_2O_3S$ Caproamide, *N*-*p*-sulfamylbenzyl-, 8539*e*.

$C_{13}H_{20}N_2O_4$ Alanine, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, Et ester, *di-HCl*, 6418*h*.
Methylphenylhydrazone, m. 181–2°, of methylpentose, 3480*b*.
Oleandronic acid, phenylhydrazide, 1729*f*.
Talomethylose, methylphenylhydrazone, 1729*a*.
Valine, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 6441*f*, 7238*b*.

$C_{13}H_{20}N_2O_4S$ Butyramide, α-propoxy-*N*-sulfamlyl-, P 3035*f*.
Carbanilic acid, 2,3,5,6-tetramethyl-4-sulfamyl-, Et ester, 1619*e*.
Isobutyramide, α-propoxy-*N*-sulfamlyl-, P 3035*g*, P 7961*d*.
Methionine, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 6441*f*, 7238*b*.
Propionamide, α-butoxy-*N*-sulfanilyl-, P 3035*f*.
—, α-isobutoxy-*N*-sulfanilyl-, P 3035*f*.
Propylamine, *N*,*N*-diethyl-3-(nitrophenylsulfonyl)-, 6179*e*; *and* -*HCl*, 6180*d*.

$C_{13}H_{20}N_2O_4S_2$ 10-Camphorsulfonic acid, 2-aminothiazole salt, 609*i*.
Penicillin, isopropylmercaptomethyl-, 2274*f*, 3490*a*.
—, propylmercaptomethyl-, 2274*f*, 3490*a*.

$C_{13}H_{20}N_2O_6$ Galactose, methylphenylhydrazone, 3480*b*.
Malonic acid, acetamido(3-cyanopropyl)-, di-Et ester, 1323*f*.

$C_{13}H_{20}N_2O_6$ Arabinamine, *N*-(6-nitro-3,4-xylyl)-, P 2637*c*.
Malonic acid, acetamido(3-cyano-3-hydroxypropyl)-, di-Et ester, 1323*d*.
—, [5-(hexahydro-2-oxo-1*H*-furo-[3,4]imidazol-4-yl)amyl]-, 9149*b*.

$C_{13}H_{20}N_4O$ 1-Azabicyclo[3.3.1]-3,6-nonadiene, 3-acetyl-4,5-dimethyl-, semicarbazone, 3004*b*.

$C_{13}H_{20}N_4OS$ 4-Thiazoline-5-ethanol, 3-(4-amino-2-ethyl-5-pyrimidylmethyl)-4-methyl-, -*HCl*, P 3042*b*.

$C_{13}H_{20}N_4O_2S$ Acetamide, *p*-[(*N*,*N*-diethylguanyl)sulfamyl]-, P 1060*h*, P 4298*c*.

$C_{13}H_{20}N_4O_3$ Aspartic acid, *N*-[*N*-(α,α-diacetamidopropionyl)glycyl]-, 4643*i*.

$C_{13}H_{20}N_4O_3$ 2-Propanol, 1,1'-(methylimino)-di-, picrate, 7422*b*.

$C_{13}H_{20}N_4S_3$ Pseudourea, 2-[α-[2-(guanylmercapto)ethylmercaptomethyl]phenethyl]-2-thio-, *di-HCl*, P 4292*d*.

$C_{13}H_{20}N_6$ 2-s-Triazineacetonitrile, 4,6-diamino-α-(2-ethylhexylidene)-(?), P 3854*h*.

$C_{13}H_{20}O$ (See also *α-Ionone; β-Ionone; γ-Ionone*.)
Benzyl alcohol, α-butyl-2,5-dimethyl-, 6990*g*.
—, α-isobutyl-3,4-dimethyl-, P 5797*e*.
2-Butanol, 2-methyl-4-(2,5-xylyl)-, 2182*h*.
*m*-Cresol, 5-hexyl-, 2969*a*.
2-*p*-Cymenemethanol, α,α-dimethyl-, 1339*g*.
Ether, α-butyl-α-methylbenzyl methyl, 118*f*.
Hexyn-3-ol, (1-cyclohexen-1-yl)methyl-, 1337*b*.
Phenetole, 2-*tert*-butyl-4-methyl-, P 1063*f*, P 8400*g*.
Phenol, 2-*tert*-butyl-4-isopropyl-, P 4488*e*.
Pseudononone, 1801*a*, 6540*f*.

$C_{13}H_{20}OS$ 1-Nonanone, 1-(2-thienyl)-, 228*a*

$C_{13}H_{20}O_2$ Acetaldehyde, Bu tolyl acetal, 3783*d*.
Acrylic acid, geranyl ester, P 4686*d*, 5988*i*.
Benzyl alcohol, hydroxy α,α-diisopropyl-, 2604*a*.
2-Butanone, 3,4-epoxy-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-, 4813*i*.
3-Buten-2-one, 4-(1,3,3-trimethyl-7-oxabicyclo[4.1.0]-2-heptyl)-, 4813*f*.
Durenol, 4-(ethoxymethyl)-, 7451*a*, 7465*h*.
Ethanol, 2-(*tert*-amylphenoxy)-, P 1202*g*, P 4879*e*.
2-Hexen-1-one, 3-methyl-1-(4-oxocyclohexyl)-, 2958*f*.
2-Norcamphanepropionic acid, 2-methyl-3-methylene-, Me ester, 5383*d*.
Propiophenone, di-Et acetal, 7921*c*.

$C_{13}H_{20}O_2S$ Acetaldehyde, (benzylmercapto)-, di-Et acetal, 7903*f*.
Ethanethiol, 2-[2-(*p*-cumyloxy)ethoxy]-, P 4507*i*.

$C_{13}H_{20}O_3$ Benzyl alcohol, α-butyl-3,5-dimethoxy-, 8384*f*.
Camphocarboxylic acid, Et ester, 2607*d*.
2-Cyclohexene-1-carboxylic acid, 3-ethyl-2,6-dimethyl-4-oxo-, Et ester, 2969*b*.
—, 6-isopropyl-2-methyl-4-oxo-, Et ester, 7184*a*.
3,4-Hexanediol, 3-(*p*-methoxyphenyl)-, 603*f*.
1,2-Propanediol, 3-(*p*-butylphenoxy)-, 3111*i*, 5655*e*.
—, 3-(carvacryloxy)-, 3111*i*.
—, 3-(propyltoloxy)-, 3111*i*.
—, 3-thymyloxy-, 3111*i*.

$C_{13}H_{20}O_3S$ Benzenesulfonic acid, heptyl-, *Na salt*, P 3640*a*.

$C_{13}H_{20}O_4$ Acid, m. 188–90°, 5011*c*.
Cycloheptanepropionic acid, 1-acetyl-2-oxo-, Me ester, P 5417*i*.
3-Cyclohexene-1-carboxylic acid, 4-ethoxy-6,6-dimethyl-2-oxo-, Et ester, 1013*a*.
Malonic acid, 2-hexynyl-, di-Et ester, 6573*a*.
2,3-Norcamphanedicarboxylic acid, di-Et ester, P 7633*f*.
1,2-Propanediol, 3-(*o*-butoxyphenoxy)-, 3111*i*.

$C_{13}H_{20}O_5$ Cyclohexaneacetic acid, carboxy-2-oxo-, di-Et ester, 2613*h*.
Cyclohexanedicarboxylic acid, methyl-oxo-, di-Et ester, 2200*b*, 3807*e*.
Hendecenedioic acid, 6-acetyl-, P 6230*e*.

Oxalacetic acid, (1-hydroxyheptyl)-, γ-lactone Et ester, *and Na salt*, 4221*i*.

**$C_{12}H_{20}O_5S$** Ethanol, 2-(2-ethoxyethoxy)-, *p*-toluenesulfonate, 3784*d*.

**$C_{12}H_{20}O_5S_2$** Dimethyl(2-propionyl-*p*-tolyl)-sulfonium methyl sulfate, 7475*c*.

**$C_{12}H_{20}O_6$** 1,2,3-Cyclohexanetricarboxylic acid, 1,3-dimethyl-, di-Me ester, 1042*h*.

1,2-Cyclopentanedicarboxylic acid, 5-(4-carboxybutyl)-1-methyl-, 1335*b*.

**$C_{12}H_{20}O_6S$** 3,4-Thiophenedicarboxylic acid, 2 - (4 - carboxybutyl)tetrahydro-, di-Me ester, P 5425*d*.

**$C_{12}H_{20}O_6S_2$** D-Glucose xanthate, diacetone-, 9439*f*.

**$C_{12}H_{20}O_6$** Digitalose, triacetate, 4635*i*.

Glucomethylose, β-triacetyl-3-methyl-, 1728*i*.

Mannoside < 1,5 >, 3 - desoxy - 2,4,6-triacetyl-α-methyl-, 5750*i*.

Pentaerythritol, tetraacetate, P 3656*e*, 6105*e*.

Thevetose, triacetate, 1729*d*.

**$C_{12}H_{20}O_7$** Adonitol, 2,3,4,5-tetraacetate, 571*c*.

Sorbopyranoside, methyl, 3,4,5-triacetate, 7431*c*.

**$C_{12}H_{21}BrO_6$** Malonic acid, bromo(3-hydroxy-1-methylpropyl)-, di Et ester, acetate, P 4690*f*.

**$C_{12}H_{21}ClO$** [Bicyclohexyl]carbonyl chloride, 1376*c*, 5011*a*.

Ketone, 1-chlorocyclohexyl cyclohexyl, 5010*g*.

**$C_{12}H_{21}ClO_2$** 7-Norcamphanepropionic acid, 2 - chloro - 1,7 - dimethyl-, Me ester, 5382*i*.

**$C_{12}H_{21}ClO_4$** Lactic acid, 2 chloroallyl ester, enanthate, P 5037*a*.

**$C_{12}H_{21}ClO_4S$** Thiophene-3-ol, 4-chloro-4,5-dihydro-, 1,1-dioxide pelargonate, P 3466*f*.

**$C_{12}H_{21}ClO_6$** Malonic acid, chloro(3-hydroxy-1-methylpropyl)-, di-Et ester acetate, P 4690*d*.

**$C_{12}H_{21}IN_4O_2$** (7-Dimethylamino-4-hydroxy-2,4,6 - heptatrienylidene)dimethylammonium iodide, acetate, 1653*f*, 3359*g*.

**$C_{12}H_{21}N$** Benzylamine, butylethyl-, 7921*d*; *and* - *HCl*, 1341*a*.

Benzylamine, α - ethyl - *N* - isobutyl-, 7921*d*.

—, *N*, *N*, α-triethyl-, 7921*d*.

[Bicyclohexyl]-4-carbonitrile, 1377*d*.

Phenethylamine, *N*-isoamyl-, 7585*g*.

2-Propynylamine, 3-(1-cyclohexen-1-yl)-*N*, *N*-diethyl-, 131*d*.

**$C_{12}H_{21}NO$** Benzyl alcohol, α-(2-dimethylaminoethyl) - α - ethyl-, *and* - *HCl*, 9071*d*.

Phenethylamine, *N*-isopropyl-*p*-methoxy-α-methyl-, 1741*g*.

4 - Piperidinol, 4 - (3 - buten - 1 - ynyl)-2-ethyl-3,6-dimethyl-, 6623*a*.

———, 4 - (3 - buten - 1 - ynyl) - 1,2,3,6-tetramethyl-, 6623*b*.

2 - Pyridinemethanol, α - hexyl - α-methyl-, 2205*b*.

**$C_{12}H_{21}NOS$** 2-Propanol, 1-diethylamino-3-phenylmercapto-, 6574*e*.

**$C_{12}H_{21}NO_2$** Acetaldehyde, (3-phenylpropylamino)-, di-Me acetal, *and* - *HCl*, 6974*d*.

Caproic acid, benzylamine salt, 3351*f*.

—, α-allyl-α-cyano-β-methyl-, Et ester, P 4692*e*.

4-Pentenoic acid, 2-cyano-2-(1-ethylpropyl)-, Et ester, P 4692*g*.

—, 2-cyano-2-(1-methylisobutyl)-, Et ester, P 4692*h*.

2-Propanol, 1-isopropylamino-3-*o*-toloxy-, *and* - *HCl*, P 7045*i*.

—, 1-propylamino-3-*o*-toloxy-, *and* - *HCl*, P 7045*i*.

*1 H* - Quinolizine - 3 - carboxylic acid, 2,6,7,8,9,9a - hexahydro - 4 - methyl-, Et ester, 4268*b*.

Valeric acid, β-methyl-, benzylamine salt, 3351*f*.

**$C_{12}H_{21}NO_2S$** Aniline, *p*-(heptylsulfonyl)-, 2593*e*.

Xylenesulfonamide, *ar*-amyl-, 6990*h*.

**$C_{12}H_{21}NO_3$** Caproic acid, α-acetyl-α-(2-cyanoethyl)-, Et ester, 1011*i*.

3-Cyclohexene-1-carboxylic acid, 4-(2-dimethylaminoethyl)-2-oxo-, Et ester, - *HCl*, 7432*g*.

Norephedrine, 3,4-diethoxy-, *and* - *HCl*, 1423*dg*.

Protocatechuyl alcohol, α-(amylaminomethyl)-, - *HCl*, 3388*e*.

—, α-(1-isopropylaminopropyl)-, - *HCl*, 8057*b*.

**$C_{12}H_{21}NO_4$** Malonic acid, 5-cyanoamyl-, di-Et ester, 3792*f*.

Malonic acid, 1-piperidylmethylene-, di-Et ester, 1004*a*.

Meteloidine, 9379*g*.

Pyridine, 2,3,5,6-tetraethoxy-, 3824*h*.

Ribitylamine, *N*-3,4-xylyl-, P 678*f*, P 5044*b*.

**$C_{12}H_{21}NO_4S$** Cyclohexanone, compd. with benzylamine bisulfite, 3356*b*.

Cyclopentanone, compd. with α-methylbenzylamine bisulfite, 3356*b*; compd. with phenethylamine bisulfite, 3356*b*.

**$C_{12}H_{21}NO_5$** Malonic acid, acetamido-2-butenyl-, di-Et ester, 574*d*.

Malonic acid, acetamido-2-methylallyl-, di-Et ester, 574*c*, P 2225*d*.

Protocatechuyl alcohol, α-(propylaminomethyl)-, acetate, 3388*f*.

Sorbitylamine, *N*-*p*-tolyl-, P 5044*c*.

**$C_{12}H_{21}NO_6$** Malonic acid, acetamido(2-formylisopropyl)-, di-Et ester, 6980*d*.

**$C_{12}H_{21}N_3$** Pyridine, 1,2-dihydro-2-imino-5-(1-methyl - 2 - pyrrolidyl) - 1 - propyl-, 4138*ab*.

**$C_{12}H_{21}N_3O$** 1(2*H*)-Heptalenone, 3,4,5,6,-7,8,9,10 - octahydro-, semicarbazone, 5375*g*.

Ketone, 2-butyl-1,4-cyclohexadien-1-yl methyl, semicarbazone, 7416*c*.

**$C_{12}H_{21}N_3O_3$** Camphoric acid, 5-oxo-, mono-Et ester, semicarbazone, 5381*e*.

**$C_{12}H_{21}N_3O_3S$** Butyramide, α,γ-dihydroxy-β,β - dimethyl - *N* - [2 (2 - pyridylsulfamyl)ethyl] , P 3450*e*.

**$C_{12}H_{21}N_5$** Biguanide, 1,1-diethyl-5-*p*-tolyl , P 4691*d*, 9036*e*.

**$C_{12}H_{21}N_5O$** Biguanide, 1,1-diethyl-5-(*p*-methoxyphenyl)-, P 6659*h*.

Biguanide, 1-isopropyl-1-*p*-phenetyl , - *HCl*, P 1060*d*, 2947*g*.

*s* Triazine, 2-amino-4-butoxy-6-diallylamino-, 4269*e*.

—, 2,4-bis(allylamino)-6-butoxy-, 4269*f*.

**$C_{12}H_{21}N_5O_7$** Asparagine, $N^{\alpha}$-[*N*-(α,α-diacetamidopropionyl)glycyl]-, 4643*g*.

**$C_{12}H_{22}$** Bornylene, 4-propyl, 1345*e*

Camphane, 2-propylidene-, 1748*a*.

Camphene, 1-propyl-, 1748*a*.

**$C_{12}H_{22}IN$** Benzyltriethylammonium iodide, 8059*b*.

Diethylmethylphenethylammonium iodide, 4376*c*.

**$C_{12}H_{22}INO$** 1-Azabicyclo[3.3.1]-3-nonene, 7-acetyl - 5,6 - dimethyl-, methiodide, 3004*g*.

Diethylmethyl(2 - phenoxyethyl)ammonium iodide, 6365*d*.

Methiodide, m. 254–5°, 3004*f*.

**$C_{12}H_{22}IN_3$** 2-(6-Amino-3-pyridyl)-1-methyl-1-propylpyrrolidinium iodide, 4138*b*

**$C_{12}H_{22}N_2$** Cyclohexanecarbonitrile, 1-cyclohexylamino-, 4415*i*.

Ethylenediamine, *N* - benzyl - *N* - ethyl-*N'*, *N'*-dimethyl-, P 9039*b*.

—, *N'*-cumyl-*N*, *N*-dimethyl , 6587*g*

2,4-Mesitylenediamine, *N*, *N'*-diethyl , 1735*d*.

1,3 - Propanediamine, *N*, *N*-diethyl-*N'*-phenyl-, 593*c*; - *HCl*, P 682*i*.

—, *N*-ethyl-*N'*, *N'* - dimethyl - *N* phenyl-, P 822*d*.

**$C_{12}H_{22}N_2O$** *o*-Cresol, 4-amino-α-(butylethylamino)-, P 1062*c*.

*o* - Cresol, 4 - amino - α - hexylamino-, P 1062*b*.

—, 5-(2-diethylaminoethylamino)-, 225*f*.

Cyclohexanecarboxylic acid, cyclohexylidenehydrazide, 4233*c*.

Ethylenediamine, *N*-2 methoxyethyl-*N'*, *N'* - dimethyl - *N* - phenyl-, *and* - *HCl*, P 682*d*.

2 - Propanol, 1 - amino - 3 - (benzylisopropylamino)-, 1776*d*.

Pyridine, 2-[1-(2-dimethylaminoethoxy)butyl]-, 4266*d*.

**$C_{12}H_{22}N_2OS$** 2-Propanol, 1-(*p*-aminophenyl mercapto)-3-diethylamino-, 6574*f*.

Uracil, 6-methyl-5-octyl-2-thio-, 2326*c*.

**$C_{12}H_{22}N_2O_2$** Crotonamide, *N*-allyl-*N*-(1-dimethylcarbamylpropyl)-, P 250*g*.

2-Pentynamide, *N*-(1-dimethylcarbamyl ethyl) - *N* - ethyl - 4 - methyl-, P 249*b*.

Seneciamide, *N*-allyl-*N*-(1-dimethylcarbamylethyl)-, P 249*f*, P 4686*g*.

Sorbamide, *N* - (1 - dimethylcarbamylethyl)-*N*-ethyl-, P 249*b*.

**$C_{12}H_{22}N_2O_2S$** Aniline, (3-diethylaminopropylsulfonyl)-, 6179*c*, 6180*d*.

1-Imidazoleacetic acid, 2-amyl-α-(1-mercaptoisopropyl)-, - *HCl*, 4920*g*.

**$C_{12}H_{22}N_2O_3$** Crotonamide, *N*-ethyl-*N*-[1-(morpholinylcarbonyl)ethyl]-, P 249*e*.

Hydantoin, 5 - cyclohexyl - 5 - (isopropoxymethyl)-, P 3452*i*.

Hydantoin, 5 - cyclohexyl - 5 - (1 - methoxypropyl)-, 6985*a*.

—, 5 - cyclohexyl - 5 - propoxymethyl-, 3452*i*.

**$C_{12}H_{22}N_2O_4$** Ribitylamine, *N*-(6-amino-3,-xylyl)-, 5085*a*.

**$C_{12}H_{22}N_2O_4S$** Glycine, *N*-[α-caproylamino-(ethylmercapto)acrylyl]-, 2990*g*.

**$C_{12}H_{22}N_2O_6S$** (See also *Prostigmine*.) (*o* - Hydroxyphenyl)trimethylammonium methyl sulfate dimethylcarbamate, 7960*a*.

**$C_{12}H_{22}N_2S$** Aniline, (3-diethylaminopropylmercapto)-, 6179*c*; *and di-HCl* 6180*d*.

**$C_{12}H_{22}N_6O$** 6-Pteridinol, 4-(2-diethylaminoethylamino)-7,8-dihydro-2-methyl-, 9087*f*.

**$C_{12}H_{22}N_6O_2$** Cyclohexanone, 4-senecioyl-disemicarbazone, 2958*b*.

**$C_{12}H_{22}N_6O_4$** Glycine, *N*-[2-(2-diethylaminoethylamino) - 5 - nitro - 4 - pyrimidyl]-Me ester, P 9087*e*.

**$C_{12}H_{22}N_6O_{10}$** 2,4,6,8 - Tetrazanonane - 1,9-diol, 2,6-diacetyl-4,8-dinitro-, diacetate, 9075*f*.

**$C_{12}H_{22}O$** Borneol, 2-allyl-, 1748*b*.

2 - Butanone, 4 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, 4637*e*.

3 Buten-2-one, 4-(trimethylcyclohexyl)-4637*e*, 8362*d*

Cyclohexyl ketone, 2570*f*.

Ether, allyl [1 (4 methyl-3-cyclohexen-1-yl)isopropyl]-, 8369*d*

Ionone, dihydro-, 5550*e*.

α-Ionone, dihydro , 5549*a*.

**$C_{12}H_{22}O_2$** Acetaldehyde, 1,1 dimethyl-4-pent-2 ynyl isobutyl acetal, 124*h*.

Acrylic acid, ester with citronellol, 4686*d*, 5988*i*, ester with rhodinol 5988*i*.

1,4 *H* - Benzopyran - 8 - ol, 4a,5,6,7,8,8a - hexahydro - 2,5,5,8a - tetramethyl-, 4813*g*.

[Bicyclohexyl]carboxylic acid, 1376*a*, 5010*g*.

Butanedione, (2,2,6 - trimethylcyclohexyl)-, 4813*d*.

2 - Butanone, hydroxy - 4 (2,6,6 trimethyl 2-cyclohexen 1 yl) , 4813*a*

—, 4 - (1,3,3 - trimethyl 7 oxabicyclo[4.1.0] 2 heptyl)-, 4813*f*

Citronellic acid, allyl ester, 4633*g*.

1 - Cycloheptene - 1 - valeric acid, Me ester, 5375*e*.

Cyclohexaneacetic acid, 4 cyclopentyl-, 1375*e*.

Cyclohexanone, trimethyl(3-oxobutyl)-, 3798*g*, 4813*h*, 8499*b*.

10-Hendecenoic acid, vinyl ester, 8352*e*

10-Hendecynoic acid, Et ester, 2591*i*

1 Hexanone, 3 methyl - 1 - (4 - oxocyclohexyl)-, 2958*g*.

5 Indanbutyric acid, hexahydro , 1376*c*.

Ketone, 3798*g*.

Methacrylic acid, 3,3,5-trimethylcyclohexyl ester, P 7754*i*.

7 Norcamphanepropionic acid, 1,7-dimethyl , Me ester, 5382*i*

2-Norpinanethanol, 6,6-dimethyl , acetate, P 1807*h*

Propionic acid, ester with geraniol, 2372*g*, ester with linalool, 2372*g*, P 6219*g*, ester with nerol, 2372*g*, ester with terpineol, 2372*g*.

**$C_{12}H_{22}O_3$** Cycloheptanevaleric acid, 2-oxo-, Me ester, 5375*d*.

2 Norcamphanepropionic acid, 3-hydroxy-2,3-dimethyl-, Me ester, 5384*a*.

Succinic anhydride, nonyl , 5070*a*

**$C_{12}H_{22}O_4$** Camphoric acid, 3-propyl , 1354*g*

Caproic acid, α-acetyl-α- opropyl-δ-oxo-, Et ester, 1011*i*.

—, α-isobutyryl-γ methyl-δ-oxo-, Et ester, 1012*c*.

Cyclohexanecarboxylic acid, 1-(1-hydroxycyclohexyloxy)-, 4253*f*

1,2 - Cyclohexanedicarboxylic acid, 1-methyl-, di-Et ester, 2200*b*

**$C_{12}H_{22}O_5$** Brassylic acid, γ-oxo-, 7905*b*

Malonic acid, ethyl(2-formylisopropyl)-, di-Et ester, 6980*d*.

—, ethyl(2-formylpropyl)- di-Et ester, 6980*c*.

—, (5-methyltetrahydrofurfuryl)-, di-Et ester, 5736*a*.

Succinic acid, α-butyryl-α-methyl-, di-Et ester, 4254*g*.

**$C_{12}H_{22}O_5S$** Malonic acid, (5-methylmercapto-3-oxoamyl)-, di- ester, 7433*h*.

$C_{13}H_{12}O_6$ Malonic acid, (3-hydroxy-1-methyl-yl)-, di-Et ester, acetate, P

$C_{13}H_{12}O_8S$ Pimelic acid, α-(2-carboxyethylmercapto)-, tri-Me ester, P 1066*b*.

$C_{13}H_{22}O_{11}$ Galactopyranoside, methyl-β-glucuronosido-, 588*a*.

$C_{13}H_{12}S$, Thiophene, nonyl-, 4841*h*.

$C_{13}H_{22}AsN_3S_2$ 1-Piperidinecarbodithioic acid, methylarsylene salt, 348*g*.

$C_{13}H_{23}AuN_2O_3S_2$ Sulfilimine, *S*-(2-aminoethyl) - *N* - *p* - tolylsulfonyl-, diethylgold deriv., 7421*f*.

$C_{13}H_{23}ClN_2$ Acrylonitrile, α-chloro-β-decylamino-, 2574*i*, P 3440*d*.

$C_{13}H_{23}ClN_2O_2$ Crotonamide, β-chloro-*N*-(1-diethylcarbamylethyl) - *N* - ethyl-, P 6653*i*.

Crotonamide, β-chloro-*N*-(1-diethylcarbamylpropyl)-*N*-methyl-, P 249*i*.

$C_{13}H_{23}ClO_2$ Hendecanoic acid, 11-chloro-10-oxo-, Et ester, 7905*a*.

$C_{13}H_{23}NO$ [Bicyclohexyl]carboxamide, 1376*c*, 5011*a*.

Cyclododecanecarbonitrile, 1 - hydroxy-, 7907*a*.

$C_{13}H_{23}NO_2$ 2,3-Butanedione, 1-(2,2,6-trimethylcyclohexyl)-, 2-oxime, 4813*d*.

2-Heptyn-4-ol, 1-diethylamino-, acetate, 131*d*.

1*H* - Quinolizine - 3 - carboxylic acid, octahydro-4-methyl, Et ester, 4267*i*.

$C_{13}H_{23}NO_3$ 1-Piperidinepropionic acid, α-acetyl - α - methyl-, Et ester, *and -HCl*, 7643*b*.

Succinamic acid, *N*, *N*-dipropyl-, allyl ester, 7184*a*.

Valine, *N*-cyclohexylacetyl-, 2273*e*.

$C_{13}H_{23}NO_3S$ Acrylic acid, α-caproylamino-β (ethylmercapto)-, Et ester, 2990*c*.

$C_{13}H_{23}NO_3S_2$ 3-Thiophenecarbamic acid, *N* - ethyltetrahydrothiono-, 1,1-dioxide, 2-propylallyl ester, P 6668*f*

$C_{13}H_{23}NO_4$ Benzyltris(2 - hydroxyethyl)-ammonium hydroxide, P 8208*c*.

$C_{13}H_{23}NO_4S$ Isovaleraldehyde, compd. with α-methylbenzylamine bisulfite, 3356*i*, compd. with phenethylamine bisulfite, 3356*h*.

3-Thiophenecarbamic acid, 2,5-diethyltetrahydro , 1,1-dioxide, 2 - methyl allyl ester, P 6668*f*.

Valeraldehyde, compd with α-methyl benzylamine bisulfite, 3356*i*; compd. with phenethylamine bisulfite, 3356*i*.

$C_{13}H_{23}NO_5$ Malonic acid, acetamidobutyl , di-Et ester, 574*d*, P 7956*e*

Malonic acid, acetamidoisobutyl , di-Et ester, P 7956*e*.

--, acetamido-2-methylallyl-, di Et ester, P 2225*e*.

$C_{13}H_{23}NO_6$ Pantothenic acid, Et ester, acetate, P 823*c*.

$C_{13}H_{23}NO_7$ Streptobisoamine, 1329*i*, 6580*b*.

$C_{13}H_{23}NSi$ Silane, benzylaminotriethyl , 5739*e*.

$C_{13}H_{23}N_3$ Pyridine, 2-[butyl(2-dimethylaminoethyl)amino] , *and -HCl*, P 3472*i*.

$C_{13}H_{23}N_3Na_2O_4$, Furo[2,3-*d*]pyrimidine-4,7a-(1*H*)-diol, 4-ethoxy 2,3,4,4a,5,6-hexahydro - 2 - imino - 4a - isoamyl-, di Na deriv., 6173*f*.

$C_{13}H_{23}NO$ Cyclohexanone, 4-cyclohexyl , semicarbazone, 160*d*.

3-Cyclohexene-1-carboxaldehyde, 6-ethyl-1,3,4 - trimethyl-, semicarbazone, 1040*f*.

2 - Cyclopenten - 1 - one, 3 - ethyl - 2,4-dimethyl - 4 - propyl-, semicarbazone, 1333*f*.

1(2*H*)-Heptalenone, decahydro-, semicarbazone, 5375*h*.

Ketone, 2 - butyl - 1 - cyclohexen-1-yl methyl, semicarbazone, 7416*d*.

Pyridine, 2-[2-(2-dimethylaminoethyl)-2-ethoxyethyl)amino]-, P 3471*c*.

$C_{13}H_{23}N_3O_2$ Ketone, 2,5-diethyl-3,4-dihydro - 6 - methyl - 2*H* - pyran - 2 - yl methyl, semicarbazone, 5024*a*.

$C_{13}H_{23}N_3O_3$ Cyclohexaneacetic acid, α,4-dimethyl-3-oxo-, Et ester semicarbazone, 2605*f*.

Cyclohexanecaproic acid, ε-oxo-, semicarbazone, 3366*e*.

Cyclopentanepropionic acid, β,3-dimethyl-2 oxo-, Et ester, semicarbazone, 2585*a*.

$C_{13}H_{23}N_3O_4$ Pyrimidine, 1,3-bis(5,6-dihydro - *m* - dioxin - 5 - yl)tetrahydro - 5-methyl 5-nitro-, P 1008*i*.

$C_{13}H_{23}N_5$ Piperidine, 1-[(1-cyclohexyl-1*H*-tetrazol-5-yl)methyl]-, 1864*f*.

Pyrimidine, 2-amino-4-[4-(1-piperidyl)-butylamino]-, P 4704*g*.

$C_{13}H_{23}N_5O$ *s*-Triazine, 2-amino-4-butoxy-6-cyclohexylamino-, 4269*e*.

$C_{13}H_{23}N_5O_3S$ *p*-Toluenesulfonic acid, 1,1-diethylbiguanide salt, P 4292*h*.

$C_{13}H_{24}AuN_3O_3S_2$ Diethylgold picrate, compd. with thiourea, 9035*c*.

$C_{13}H_{24}BrNO_2$ Cyclopentaneacetic acid, α-bromo-, 2-diethylaminoethyl ester, P 4093*b*.

$C_{13}H_{24}IN$ Dodecahydro-4-methylbenzo[*ij*]-quinolizinium iodide, 5784*f*.

$C_{13}H_{24}N_2$ 3-Pentenenitrile, 2-dibutylamino-, 4415*h*.

1-Piperidineacetonitrile, α-hexyl-, 4415*f*.

$C_{13}H_{24}N_2O$ Cuscohygrine, 4256*h*, 9064*i*.

$C_{13}H_{24}N_2O_2$ Butyramide, α-(allylbutyrylamino)-*N*, *N*-dimethyl-, P 250*g*.

Butyramide, α - (allylisobutyrylamino)-*N*, *N*-dimethyl-, P 250*g*.

Crotonamide, *N*-butyl-*N*-(1-dimethylcarbamylethyl)-, P 249*g*.

—, *N* - *sec* - butyl - *N* - (1 - dimethylcarbamylethyl)-, P 248*e*, P 249*g*, P 4686*g*.

- , *N* - (1 - diethylcarbamylpropyl) - *N*-methyl-, P 249*i*.

—, *N* - (1 - dimethylcarbamylethyl) - *N*-ethyl-α,β-dimethyl-, P 4686*h*.

—, *N* - (1 - dimethylcarbamylpropyl) *N*-isopropyl-, P 250*f*.

—, *N*-(1-dimethylcarbamylpropyl)-*N*-propyl-, P 248*f*, P 250*f*, P 4686*g*, P 5793*e*.

—, *N* - ethyl - *N* - [1 - (ethylmethylcarbamyl)propyl]-, P 250*b*.

Cyclopentanecarboxamide, *N* - (1 - dimethylcarbamylethyl) - *N* - ethyl-, P 249*h*.

1,1 - Cyclopropanedicarboxamide, *N*, *N*, *N'*, *N'*-tetraethyl-, P 1797*i*, P 3842*g*.

Hydantoin, 3-amyl-5-isobutyl-5-methyl-, P 4422*c*.

—, 5,5-diamyl-, 1322*i*.

—, 5 (1-ethylamyl)-5-propyl-, 1317*g*.

—, 5 methyl-5 nonyl-, 1322*i*

Isovaleramide, *N* allyl-*N* (dimethylcarbamylethyl)-, P 249*f*, P 251*d*

—, α - (crotonylethylamino) - *N*, *N* dimethyl , P 248*f*, P 251*a*, P 4686*g*.

Senecamide, *N* (1 - dimethylcarbamylethyl)-*N*-propyl-, P 249*e*.

—, *N* - ethyl - *N* - [1 - (ethylmethylcarbamyl)ethyl] , P 249*e*.

Valeramide, *N*-allyl-*N*-(1-dimethylcarbamylethyl) , P 249*f*

—, α - (crotonylethylamino) - *N*, *N* - dimethyl-, P 250*i*.

$C_{13}H_{24}N_2O_3$ Hydantoin, 5-hexyl-5 (1-methoxypropyl)-, 6985*a*.

Pyran - 4 - carboxamide, *N* - (1 - dimethylcarbamylethyl) - *N* - ethyltetrahydro-, P 249*c*.

$C_{13}H_{24}N_2O_3$ β Alanine, *N*-(α acetamido γ hydroxy β,β - dimethylbutyryl)-, Et ester, 574*i*.

$C_{13}H_{24}N_2O_3$ 3-Pentanone, 1,5-bis(dimethylamino)-, bis(H oxalate), 7432*e*.

$C_{13}H_{24}N_2S$ Thiocyanic acid, dicyclohexyl amine salt, 578*g*.

Urea, 1,3 - bis(1 - methylcyclopentyl) - 2-thio-, 2171*g*.

$C_{13}H_{24}N_4O_2$ Cyclohexanone, 4-isovaleryl-, disemicarbazone, 2958*c*.

$C_{13}H_{26}O$ Borneol, propyl-, 1747*i*.

2 - Butanone, 4 - (2,2,6 - trimethylcyclohexyl)-, 4637*f*.

Cyclotridecanone, 7907*a*.

Ether, 1 - (4 - methyl - 3 - cyclohexen-1-yl)isopropyl propyl, 8368*i*.

1-Heptanone, 1-cyclohexyl-, 4637*d*.

3 - Hepten - 2 - one, 3 - *tert* - butyl - 6,6-dimethyl-, 1718*d*.

3 - Hexanone, 6 - cyclohexyl - 4 - methyl-, 1337*b*.

α-Ionol, dihydro-, 5549*b*.

Isoborneol, 4-propyl-, 1354*f*, 1748*a*.

Methanol, dicyclohexyl-, 2570*f*, 8600*a*.

$C_{13}H_{26}O_2$ Acrylic acid, decyl ester, P 5585*f*.

Citronellic acid, iso-Pr ester, 4633*g*; Pr ester, 4633*g*.

Cyclohendecanol, acetate, 6988*f*.

Cyclohexanone, 4 - (3 - hydroxybutyl)-3,3,5-trimethyl-, 3798*g*.

2,5-Hendecanedione, 6,10-dimethyl-, 2586*d*.

10-Hendecenoic acid, Et ester, 566*a*, 2591*e*.

4-Hendecen-1-ol, acetate, 3774*c*.

Propionic acid, ester with citronellol, 2372*g*; ester with α-methylcyclohexanepropanol, P 679*e*.

$C_{13}H_{26}O_3$ Acetic acid, (3-*p*-menthyloxy) , Me ester, 3364*e*, 8100*d*.

Acrylic acid, 2-(2-ethylhexyloxy)ethyl ester, P 3030*i*.

Caproic acid, α-acetyl-α butyl-, Me ester, 1317*d*.

—, α-pivalyl-, Et ester, 1010*a*.

Cycloheptanevaleric acid, 2-hydroxy-, Me ester, 5375*e*.

Enanthic acid, α-acetyl-α,ε-dimethyl-, Et ester, 7911*f*.

Hendecanoic acid, 10-methyl-5-oxo-, Me ester, 1373*h*.

5-Heptenoic acid, 2-hydroxy-2,6-dimethyl-, Bu ester, 5736*c*.

Lauric acid, β-methyl-γ-oxo-, 6624*c*.

Pelargonic acid, α-acetyl-, Et ester, 1007*i*.

3-Pentanol, 1,5-bis(tetrahydro-2-furyl)-, P 2039*d*.

$C_{13}H_{26}O_4$ Adipic acid, α-isopropyl , di-Et ester, 1749*e*.

Hydracrylic acid, octyl ester, acetate, 4639*g*.

Malonic acid, butylethyl-, di-Et ester, 572*f*.

—, hexyl-, di Et ester, 577*h*, 8358*b*.

Succinic acid, nonyl-, 5070*a*, 5469*d*.

2,4,8,10 - Tetroxaspiro[5.5]hendecane, 3,9-diisopropyl , 5893*h*.

Tridecanoic acid, 2-hydroxy-4-oxo , 3785*b*.

$C_{13}H_{26}O_5$ Lactic acid, 2-(2-butoxyethoxy)-ethyl ester, acetate, P 676*c*.

$C_{13}H_{26}O_6S_2$ Malonic acid, bis(2-sulfoethyl)-, di-Et di-Me ester, 7411*i*.

$C_{13}H_{26}O_{11}$ Isomaltoside, methyl, 2583*e*.

$C_{13}H_{25}ClO$ Capryl chloride, ε-ethyl-β-methyl-, 1374*b*.

Lauroyl chloride, β-methyl-, 1373*h*.

2-Tridecanone, 1-chloro-, 633*g*.

$C_{13}H_{25}ClO_2$ Lauric acid, chloromethyl ester, P 2226*h*.

$C_{13}H_{25}IS$ Dicyclohexylmethylsulfonium iodide, 996*b*.

$C_{13}H_{25}N$ Cyclohexanemethylamine, 2-cyclohexyl , *and - HBr*, 1359*b*.

1 - Cyclohexene - 1 - propylamine, α,2 6,6-tetramethyl-(?), *and salts*, 1349*g*.

Tridecanenitrile, 5893*h*.

$C_{13}H_{25}NO$ 2-Azacyclotetradecanone, 5400*d*.

Cyclotridecanone, oxime, 5400*d*.

1*H* - Quinolizine, octahydro-1-propoxymethyl-, 6210*c*.

$C_{13}H_{25}NO_2$ Caproic acid, α-ethylidene-, 3-dimethylaminopropyl ester, P 3443*g*.

Cyclohexanecarboxylic acid, 2-diethylaminoethyl ester, 1023*c*.

Dicyclohexylamine, formate, 3373*f*.

10-Hendecenamide, *N*-2-hydroxyethyl , 2273*i*.

$C_{13}H_{25}NO_2S$ 3-Thiophenine, tetrahydro-*N*-3,3,5 - trimethylcyclohexyl-, 1,1-dioxide, P 3851*c*.

$C_{13}H_{25}NO_3$ Acetoacetic acid, α-(diethylaminomethyl)-α-ethyl-, Et ester, *and - HCl*, 7643*b*.

Butyric acid, α-(ethylisovalerylamino)-, Et ester, P 251*c*.

Lactamide, *N*, *N* - dibutyl-, acetate, 3358*f*.

Malonamic acid, *N*-1,1,3,3-tetramethyl butyl , Et ester, 2165*g*.

1 - Piperidinepropionic acid, α - (1 - hydroxyethyl) - α - methyl-, Et ester, 7643*c*.

$C_{13}H_{25}NO_4$ Brassylic acid, α-amino-, 1323*h*.

Isoleucine, *N*-(α-hydroxyisovaleryl)-*N*-methyl , Me ester, 3788*e*.

$C_{13}H_{25}NO_5$ Leucine, *N*-(α,γ-dihydroxy-β,β-dimethylvaleryl)-, *Na salt*, 722*h*.

Malonaldehydic acid, caproylamino-, di-Et acetal, 2990*a*.

$C_{13}H_{25}NS$ Thiocyanic acid, 2-butyloctyl ester, 2729*d*; dodecyl ester, P 3843*f*, 8599*i*.

$C_{13}H_{25}NO$ Hexanone, cyclohexyl-, semicarbazone, 8360*i*, 8361*b*.

$C_{13}H_{25}NO_2$ 1-Butanone, 1-(4-methoxycyclohexyl) - 3 - methyl-, semicarbazone, 2958*e*.

$C_{13}H_{25}N_3$ Pyrimidine, 2-amino-4-(5-diethylaminoamylamino) , *and tri- HCl*, P 4704*e*.

Pyrimidine, 2-amino-4-(4-diethylamino-1-methylbutylamino)-, P 4704*h*.

—, 4-amino-6-(3-diethylaminopropylamino)-2,5-dimethyl-, P 6243*f*.

—, 2 - amino - 4 - [(3 - diethylaminopropyl)ethylamino]-, P 4704*g*.

—, 2 - amino - 4 - (3 - dipropylaminopropylamino)-, P 4704*g*.

$C_{13}H_{25}N_5O$ *s*-Triazine, 2-amino-4-butoxy-6-hexylamino-, 4269*d*.

*s*-Triazine, 2-butoxy-4-diethylamino-6 ethylamino-, 4269*f*.

**$C_{13}H_{26}$** Cyclohexane, 2-butyl-1,1,3 trimethyl-, 3798*h*.
Tridecene, 2156*i*, 3715*h*.
**$C_{13}H_{26}INO$** 1 - (Ethoxymethyl)decahydro-5 - methylquinolizinium iodide, 6210*c*.
**$C_{13}H_{26}N_2$** Butyronitrile, β-(*sec*-butylisoamylamino)-, P 254*i*.
Caprylonitrile, α-amylamino-, 4415*f*.
Cyclohexylamine, 4,4′-methylenebis-, P 6867*a*.
**$C_{13}H_{26}N_2O_2$** Butyramide, α (butylpropionylamino) - *N*, *N* - dimethyl-, P 250*h*, P 6654*c*.
Butyramide, α - (*sec* - butylpropionylamino) - *N*, *N* - dimethyl-, P 248*f*, P 250*i*.
—, α - (butyrylethylamino) - *N* - ethyl-*N*-methyl-, P 250*b*.
—, α - (butyrylisopropylamino) - *N*, *N*-dimethyl , P 250*f*.
—, α - (butyrylpropylamino) - *N*, *N* - dimethyl-, P 250*f*.
—, *N* - (1 - dimethylcarbamylethyl) *N*,α-diethyl-, P 249*b*.
—, *N* - (1 - dimethylcarbamylethyl)-*N*-ethyl-β,β-dimethyl-, P 249*b*
—, α - (ethylisobutyrylamino) - *N*, *N*, α-trimethyl-, P 251*c*.
—, α - (isobutyrylpropylamino) - *N*, *N*-dimethyl-, P 250*f*
Caproamide, *N*, *N* - dimethyl - α - (*N* propylacetamido)-, P 251*b*.
—, α - (ethylpropionylamino) - *N*, *N* - dimethyl-, P 251*b*.
Enanthamide, α - (*N* - ethylacetamido)-*N*, *N*-dimethyl-, P 251*b*.
Isobutyramide, *N* - (1 diethylcarbamylethyl)-*N*-ethyl-, P 249*c*.
Isovaleramide, *N* - (1 dimethylcarbamylethyl)-*N*-propyl-, P 249*e*.
—, *N* - (1 - dimethylcarbamylpropyl)-*N*-ethyl , P 249*i*.
—, *N*, *N* - dimethyl - α - (propionylpropylamino)-, P 248*f*, P 251*a*, P 6654*a*.
—, *N* - [1 - (ethylmethylcarbamyl)propyl]-*N*-methyl-, P 249*h*.
Malonamide, *N*, *N*, *N*′, *N*′,α - pentaethyl-, P 1797*h*.
—, tetraethyldimethyl , P 1797*hi*, P 3842*fg*, P 6226*h*, P 7039*h*
Pivalamide, *N* - (1 - diethylcarbamylethyl)-*N*-methyl-, P 6653*i*.
—, *N* - (1 - dimethylcarbamylethyl) - *N*-propyl-, P 249*e*, P 6653*g*.
—, *N* - (1 - dimethylcarbamylpropyl)-*N*-ethyl-, P 249*i*, P 1686*g*
—, *N* - ethyl - *N* - [1 - (ethylmethylcarbamyl)ethyl]-, P 249*c*.
Valeramide, α - (butyrylethylamino)-*N*, *N*-dimethyl-, P 250*i*, P 6653*f*.
—, *N*, *N* - diethyl - α - (*N* - ethylacetamido) , P 250*i*.
—, *N* - (1 - dimethylcarbamylethyl) - *N*-ethyl-β methyl-, P 249*b*.
—, *N* - (1 - dimethylcarbamylethyl) - *N*-propyl-, P 249*e*
—, *N*, *N* - dimethyl - α - (propionylpropylamino)-, P 251*a*, P 6654*a*.
**$C_{13}H_{26}N_2O_2S$** Butyramide, α-[ethyl[α-(ethylmercapto)propionyl]amino] - *N*, *N*-dimethyl-, P 250*a*.
Butyramide, α - [ethyl(α - methylmercaptobutyryl)amino] - *N*, *N* - dimethyl , P 250*a*
Propionamide, α - [ethyl(α - propylmercaptopropionyl)amino] - *N*, *N* - dimethyl-, P 249*h*.
**$C_{13}H_{26}N_2O_3$** Butyramide, α - [(α - ethoxypropionyl)ethylamino] - *N*, *N* - dimethyl-, P 250*a*
Butyramide, α - [ethyl(α methoxybutyryl)amino] - *N*, *N* - dimethyl-, P 250*a*.
Propionamide, α - [(α - ethoxypropionyl) isopropylamino] - *N*, *N* - dimethyl-, P 249*f*.
**$C_{13}H_{26}N_2O_2S_2$** Acetamide, *N*, *N*′ - [3 - hydroxypropylenebis(thiomethylene)]-bis[*N*-ethyl-, P 3571*h*.
**$C_{13}H_{26}O$** Cyclohexanebutanol, α-ethyl-β-methyl-, 1337*b*
Cyclohexanepropanol, α - methyl - α-propyl-, 1337*c*.
Cyclotridecanol, 6988*f*.
3-Dodecanone, 2-methyl-, 2932*f*.
2-Tridecanone, 2185*i*.
**$C_{13}H_{26}OS_2$** Xanthic acid, dodecyl-, *Na salt*, 8710*i*.
**$C_{13}H_{26}O_2$** (See also *Tridecanoic acid.*)
1,3-Butanediol, 1-(1,3,5-trimethylcyclohexyl)-, P 1058*e*.
Capric acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
—, ε-ethyl-β-methyl-, 1374*b*.
—, ζ-propyl-, 6165*e*.
Cyclohexanepropanol, hydroxytetramethyl-, 3798*g*, 4813*g*, 8499*b*.
Hendecanoic acid, 10-methyl-, Me ester, 1373*h*.
Lauric acid, Me ester, 2164*i*, 2416*c*, 2590*d*, 8025*c*.
—, methyl-, 1373*h*, 6165*e*, 6251*c*.
Propionic acid, decyl ester, 2370*i*
**$C_{13}H_{26}O_2Si_2$** Trisiloxane, 1,1,1,3,3,5,5-heptamethyl-5 phenyl , P 1803*d*
**$C_{13}H_{26}O_3$** Carbonic acid, bis(2-ethylbutyl) ester, 6168*c*.
Methanol, (decyloxy)-, acetate, 6161*i*.
Propionic acid, β ethoxy-, octyl ester, 1322*g*.
**$C_{13}H_{26}O_6S_2$** Glucoside, 2,3-dimercaptopropyl 2,3,4,6-tetramethyl-, 9251*a*.
**$C_{13}H_{27}Br$** Tridecane, 4-bromo-, 107*g*.
**$C_{13}H_{27}Cl$** Nonane, 5 butyl 5-chloro-, 1312*c*.
**$C_{13}H_{27}ClS$** Sulfide, 2 chloroethyl hendecyl, 2928*g*.
**$C_{13}H_{27}N$** Azacyclotetradecane, 5400*c*.
Piperidine, 1 octyl-, 3380*d*.
**$C_{13}H_{27}NO$** Caprylamide, *N*-*tert* amyl-, 2165*e*.
4 - Piperidinol, 4 butyl 2 - ethyl - 3,6-dimethyl , 6623*a*
—, 4 - butyl - 1,2,3,6 tetramethyl , 6623*b*.
Pivalaldehyde, dibutylamino , P 9080*i*.
**$C_{13}H_{27}NO_2$** β-Alanine, *N* decyl-, P 5978*b*.
Cyclohexanemethylamine, *N*, *N*-diethyl , acetate, P 2630*h*.
Valeric acid, α,α-dimethyl , 2-diethylaminoethyl ester, P 3143*k*
—, α - methyl α - propyl , 2 - dimethyl aminoethyl ester, P 3443*f*
**$C_{13}H_{27}NO_3$** Butyric acid, α-(diethylaminomethyl) - α - ethyl - β - hydroxy-, Et ester, 7643*d*.
**$C_{13}H_{27}N_3$** Piperidine, 1 ethyl-4 [2-(1-pyrrolidyl)ethylamino] , 2207*e*.
**$C_{13}H_{27}NO_2S_2$** Malonaldehyde acid, caproylamino-, hydrazide, di Et mercaptal, 2990*d*.
**$C_{13}H_{27}N_3O_2$** Malonaldehyde acid, caproylamino , hydrazide, di-Et acetal, 2990*b*.
**$C_{13}H_{28}$** Decane, 2,5,9 trimethyl-, 9023*d*
Heptane, 4 - isobutyl - 2,6 dimethyl , 6967*a*.
Nonane, 3,3-diethyl , 9023*f*
Tridecane, 2156*g*, 3254*g*, 3715*h*, 4521*f*, 8777*h*
**$C_{13}H_{28}ClNO$** 2 Propanol, 1 chloro 3-diamyl amino , P 253*i*
2 Propanol, 1-chloro 3 diisoamylamino , P 253*i*
**$C_{13}H_{28}ClNO_2$** (Carboxymethyl)trimethylammonium chloride, octyl ester, 6977*d*
**$C_{13}H_{28}ClO_3P$** 2 Pentanephosphonic acid, 1 chloro , di Bu ester, P 7500*a*.
**$C_{13}H_{28}N_2O$** Oxetane 3,3 bismethylamine, *N*, *N*, *N*′, *N*′-tetraethyl , *and* - *HClO*$_4$, 1314*a*.
**$C_{13}H_{28}N_4$** Bromylamidine, 7581*f*
**$C_{14}H_{28}O$** 1 Heptanol, 4 isobutyl 2,6 dimethyl , 6967*g*.
Tridecanol, 1077, 1715*d*
**$C_{13}H_{28}OS$** Ethanol, 2-(hendecylmercapto) , 2928*g*
**$C_{13}H_{28}O_2$** Methane, bis(hexyloxy) , 2590*c*.
**$C_{13}H_{28}O_4$** Peroxide, (1 ethylpropylidene)bis[*tert* butyl, P 2629*h*, 6156*h*
Peroxide, (1 methylbutylidene)bis[*tert* butyl, P 2629*h*, 6156*h*.
**$C_{13}H_{28}S$** Sulfide, amyl 2,4,4-trimethylamyl, P 6646
**$C_{13}H_{29}N$** Dodecylamine, *N* methyl , - *HCl*, 5677*h*
**$C_{13}H_{29}NO$** Amylamine, 5-butoxy-*N*-butyl-, 9026*e*.
Butylamine, *N* - (3 butoxy - 1 - ethyl propyl) , 9026*e*
2 - Heptanol, 6 - isoamylamino - 2-methyl , P 3029*e*
1 - Propanol, 3 dibutylamino - 2,2-dimethyl , P 9081*a*
**$C_{13}H_{29}NO_2$** Heptylamine, *N*, *N*-diethyl-, acetate, 131*d*.
**$C_{13}H_{29}NO_4S$** Cyclohexanone, compd. with heptylamine bisulfite, 3356*b*.
**$C_{13}H_{29}NO_5S$** 2-Pentanone, compd. with 4-butylmorpholine bisulfite, 3355*i*.
**$C_{13}H_{30}BrN$** Decyltrimethylammonium bromide, 3688*b*, 4780*b*, 7293*c*.
**$C_{13}H_{30}N_2$** 1,3-Butanediamine, $N^3$ *sec*-butyl-$N^3$ isoamyl-, P 255*a*.
**$C_{13}H_{30}N_2OS$** 2 - Propanol, 1 - diethylamino-3 - (2 - diethylaminoethylmercapto)-, 6574*e*.
**$C_{13}H_{30}N_2O_2$** Acetaldehyde, (4-diethylamino-1-methylbutylamino)-, di-Me acetal, *and di-HCl*, 6974*c*.
**$C_{13}H_{30}O_3Pb_2$** Triethyllead carbonate, 2111*g*.
**$C_{13}H_{30}O_3Si$** Silane, amoxydibutoxy-, 9028*d*.
**$C_{13}H_{31}NSi$** Silane, triethylheptylamino-, 5739*e*.
**$C_{13}H_{32}Br_2N_2$** Heptamethylenebis[trimethylammonium bromide], 2703*d*.
**$C_{14}Cl_{12}O_2$** Cyclopentadienone, trichloro(trichlorovinyl)-, dimer, 4231*f*.
**$C_{14}F_{24}$** Anthracene, tetracosafluorotetradecahydro-, P 4301*b*.
Phenanthrene, tetracosafluorotetradecahydro-, P 4301*a*.
**$C_{14}H_2Cl_8O_4$** Peroxide, bis(2,3,4,5-tetrachlorobenzoyl), 8201*i*.
**$C_{14}H_4Cl_4O_2$** Anthraquinone, 1,4,5,8-tetrachloro-, P 1576*gi*.
**$C_{14}H_4O_6$** 1,4,5,8-Naphthalenetetracarboxylic dianhydride, P 6812*d*.
**$C_{14}H_5Cl_4NO_2$** Phthalimide, 3,4,5,6 - tetrachloro-*N* phenyl-, 8368*g*.
**$C_{14}H_5Cl_3N_4O_8$** Ethane, 1,1,1 - trichloro - 2,2 bis(4 - chloro - 3,5 - dinitrophenyl) , 3137*g*.
**$C_{14}H_5N_3O_{12}$** Benzil, 2,2′,4,4′,6-pentanitro , 1733*e*.
**$C_{14}H_6Br_4O_4$** Benzil, 3,3′,5,5′-tetrabromo 4,4′-dihydroxy-, 1036*c*.
**$C_{14}H_6Br_4O_6$** β - Resorcil, 3,3′,5,5′ - tetrabromo-, 1035*h*.
**$C_{14}H_6Cl_2O_2$** Anthraquinone, dichloro-, P 1576*f*, P 7705*i*, P 7708*d*, P 8171*g*.
**$C_{14}H_6Cl_2O_2S_2$** Thianthrenedicarbonyl chloride, P 5966*i*, P 8171*g*.
**$C_{14}H_6Cl_2O_4$** Quinizarin, 6,7 dichloro-, P 9467*e*.
**$C_{14}H_6Cl_3NO_2$** Anthraquinone, 2 amino 1,3,4 trichloro-, 3399*a*
**$C_{14}H_6Cl_4O_4$** Peroxide, bis(2,4 dichlorobenzoyl), 7311*h*.
**$C_{14}H_6Cl_4O_6$** β-Resorcil, 3,3′,5,5′ tetrachloro , 1035*g*.
**$C_{14}H_6Cl_8$** Bibenzyl, α,α,α′,α′,3,3′,4,4′-octachloro-, 345*i*, 9331*i*
**$C_{14}H_6Cl_{12}$** Cyclopentadiene, hexachloro , compd with butadiene, P 4693*e*
**$C_{14}H_6I_2N_2O$** Benzonitrile, 4,4′-oxybis[3 iodo , 9049*a*.
**$C_{14}H_6N_2O_6$** Phenanthrenequinone, 2,7 dinitro-, 4248*h*
**$C_{14}H_6N_2O_8$** Anthraquinone, dihydroxydinitro-, P 6124*i*
Anthrarufin, 4,8 dinitro , P 9468*b*
Chrysazin, 4,5 dinitro-, P 9468*c*
**$C_{14}H_6N_2S_2$** Thianthrenedicarbonitrile, P 5966*k*, P 8694*a*
**$C_{14}H_6N_4O_4S_4$** Benzothiazole, 2,2′-dithiobis(6 nitro-, 2022*ab*.
**$C_{14}H_6N_4O_9$** Benzonitrile, 4,4′-oxybis[3 nitro , 9049*b*.
**$C_{14}H_7BrClNO$** Anthraquinone, aminobromochloro-, 3399*c*, 3400*d*
**$C_{14}H_7BrN_2O$** Benzonitrile, 3 bromo 1,1′ oxydi , 9049*a*
**$C_{14}H_7Br_2Cl_3O_2$** Phenol, 2,2′ (2,2,2 trichloroethylidene)bis[6 - bromo - 4 - chloro , 1890*f*
**$C_{14}H_7Br_2NO_5S$** 2 - Anthraquinonesulfonic acid, 5 amino 6,8 dibromo , P 7703*g*
**$C_{14}H_7ClHgO_2$** Anthraquinone, (chloromercuri)-, 2198*c*, 3815*c*
**$C_{14}H_7ClN_2O$** Benzonitrile, 3 chloro-4,1′ oxydi-, 9049*a*.
**$C_{14}H_7ClO_2$** Anthraquinone, chloro , 6109*d*, P 1576*i*, 2198*c*, 3815*ce*, 6356*f*
1 *H* - Benzonaphthene - 2 - carbonyl chloride, 1-oxo , 3816*b*
**$C_{14}H_7ClO_3$** Quinizarin, 6 chloro , P 6832*e*, P 9467*cd*
**$C_{14}H_7ClO_3S$** 2 - Anthraquinonesulfonyl chloride, 3815*b*
**$C_{14}H_7Cl_2NO_2$** Anthraquinone, 1-amino 2,4 dichloro-, 3399*b*, 3400*a*
Phthalimide, *N* - (2,5 dichlorophenyl) - , 7182*d*.
**$C_{14}H_7Cl_3HgN_2O_2$** 9,10 Dihydro 9,10 dioxo - 1 - anthracenediazonium chloride, compd. with $HgCl_2$, 2198*d*
**$C_{14}H_7Cl_3F_2$** Ethane, 1,1,1-trichloro 2,2 bis(chlorofluorophenyl)-, P 351*a*.
**$C_{14}H_7Cl_3N_2O_4$** Ethane, 1,1,1-trichloro 2,2-bis(4 - chloro - 2 - nitrophenyl) , 2359*h*, 3137*g*.
**$C_{14}H_7Cl_7O_2$** Phenol, 2,2′-(2,2,2-trichloroethylidene)bis[4,6 - dichloro-, 1754*i*, 1896*de*.
Phenol, *p*,*p*′ - (2,2,2 - trichloroethylidene)di-, tetrachloro deriv., 968*i*, P 2218*f*
**$C_{14}H_7FO_2$** Anthraquinone, 2-fluoro-, P 9467*i*.
**$C_{14}H_7IN_2O$** Benzonitrile, 3-iodo-4,4′-oxydi , 9049*a*.
**$C_{14}H_7NO$** 4 - Fluorenecarbonitrile, 9 - oxo-, 8377*g*.
**$C_{14}H_7NO_3S$** Anthraquinone, 1-sulfinylamino-, P 9467*i*.

$H_7NO_4$ Phenanthrenequinone, 2-nitro-, 4248*h*.

$H_7NO_5S$ Alanine, β - [1 - carboxy - 2 - (2,5-cresotyl)ethylmercapto]-, 7192*h*.

$H_7NO_7S$ 1 - Anthraquinonesulfonic acid, nitro-, *Na salt*, 2521*a*.

$H_7N_3O_3$ Benzonitrile, 3-nitro-4,4'-oxydi-, 9048*i*.

$H_7N_3O_6$ Phthalimide, *N*-(dinitrophenyl)-, 2190*c*.

$H_7N_5O_{10}$ Stilbene, 2,2',4,4',6 - pentanitro-, 1733*g*.

$H_8As_2N_2$ Arsanthrene, 5,10-dicyano-5,10-dihydro-, 3383*e*.

$H_8BrClO$ 1 - Fluorenecarbonyl chloride, 9-bromo-, 3402*a*.

$H_8BrClO_6$ 1,4-Naphthoquinone, 6-bromo - 2 - chloro - 3,5 - dihydroxy-, diacetate, 9057*i*, 9058*a*.

$H_8BrCl_3$ Ethylene, 1-(*p*-bromophenyl)-2,2 - dichloro - 1 - (*p* - chlorophenyl)-, 1753*a*.

$H_8BrNO_4$ Maleimide, α-(4-bromo-1-naphthyl)-β-hydroxy-, 1746*g*.

$H_8BrNO_5S$ 2 - Anthraquinonesulfonic acid, 1 amino-4-bromo-, 6193*f*, P 7709*i*, P 7710*a*, P 8165*b*, P 9467*g*; *Na salt*, 2521*a*.

$H_8BrNO_8S_2$ 2,7 - Anthraquinonedisulfonic acid, 1-amino-4-bromo-, P 7703*f*.

$H_8BrN_3O$ 3 - Indazolecarbonitrile, 2-(*m* - bromophenyl)-, 1 - oxide, 7934*b*.

$H_8Br_2$ Anthracene, 9,10-dibromo-, 208*g*, 1758*f*.

$H_8Br_2Cl_2$ Ethylene, 1,1 - bis(*p* - bromophenyl) - 2,2 - dichloro-, 2359*h*, P 5899*b*.

$H_8Br_2O_2$ 3 Benzofuranol, 5 - bromo - 2 (5-bromo 2-hydroxyphenyl)-, 4247*a*

Benzoic acid, *p*-bromo , anhydride, 3782*d*.

$H_8Br_2O_4$ Peroxide, bis(*p* bromobenzoyl), 6453*f*

Salicil, 5,5'-dibromo , 1037*a*, 4246*c*, 5446*d*, 5540*f*.

$H_8Br_2O_6$ Benzil, dibromotetrahydroxy-, 5387*i*.

Gentisil, 4,4' dibromo-, 1036*a*.

1,4 - Naphthoquinone, 3,6 dibromo-2,5 dihydroxy , diacetate, 9057*g*.

Resorcil, 5,5' - dibromo , 1035*h*.

$H_8ClN$ 2 Fluorenecarbonitrile, 9-chloro , 8811*g*

$H_8ClNO$ 2 - Biphenylcarbonyl chloride, 2' cyano-, 8377*f*

$H_8ClNO_2$ Anthraquinone, aminochloro-, 3390*g*, 3400*d*, P 7704*a*

Phthalimide, 3 chloro-*N* phenyl , 6600*f*. *N* (chlorophenyl) , 7182*d*

$H_8ClNO_3S$ 5(1*H*) - Oxazolone, 4 - (5-chloro - 2 - thenylidene) 2 phenyl , 7930*b*.

$H_8ClNO_5$ Benzoic acid, *o* (4 chloro 3 nitrobenzoyl) , P 7236*f*.

$H_8ClN_3O$ 3 - Indazolecarbonitrile, 2-(chlorophenyl) , 1 oxide, 7934*a*

$H_8Cl_2$ Anthracene, 9,10 dichloro-, 1758*f*.

Phenanthrene, 3,9-dichloro-, 345*h*

$H_8Cl_2N_2O_2$ Anthraquinone, 1,4-diamino 2,3 dichloro-, P 8690*g*.

$H_8Cl_2N_2O_4$ Ethylene, 1,1-dichloro 2,2-bis(nitrophenyl) , 4658*d*, 6605*a*.

Ethylene, 1,1 - dichloro - 2 - (*m* - nitro phenyl) 2 - (*p* - nitrophenyl)-, 4658*a*

$H_8Cl_2N_2O_6$ Phenol, 2,2'-(dichlorovinylidene)bis[4-nitro , 6605*a*

$H_8Cl_2N_2S$ Quinazoline, chloro(*p* chlorophenylmercapto) , 2952*h*.

$H_8Cl_2N_2S_2$ 2,2' Bibenzothiazole, 6,6'-diamino 5,5' dichloro , 5777*a*.

$H_8Cl_2O$ Anthrone, 10,10-dichloro , 618*e*.

Fluorenecarbonyl chloride, 9-chloro , 3402*a*, 3811*df*.

$H_8Cl_2OS$ Thioxanthone, dichloromethyl , 226*f*.

$H_8Cl_2O_2$ Benzil, 4,4'-dichloro-, 199*b*, 2359*h*, 3369*a*

Xanthone, dichloro-4-methyl-, 225*hi*

$H_8Cl_2O_3$ Benzoic acid, *o*-chloro-, anhydride, 8353*d*.

$H_8Cl_2O_4$ 1,4,9,10-Anthratetrol, 6,7-dichloro-, P 9467*e*.

Peroxide, bis(chlorobenzoyl), 3394*h*, 7311*i*, 8736*d*.

$H_8Cl_2I$ Ethylene, 1,1-dichloro-2-(*p*-chlorophenyl) - 2 - (*p* - iodophenyl)-, 1753*b*.

$H_8Cl_2N$ Indole, 5,7-dichloro-2-(*p*-chlorophenyl) , 622*f*.

$H_8Cl_2NO$ Acridine, trichloro-2-methoxy-, 6633*e*.

$H_8Cl_2NO_4$ Phthalanilic acid, 2',4',5'-trichloro-, 5524*i*.

$H_8Cl_3$ See *Ethylene, 1,1-dichloro-2,2-bis(chlorophenyl)-*.

$C_{14}H_8Cl_4F_2$ Ethane, 1,1-dichloro-2,2-bis(*p*-chlorophenyl) - 1,2 - difluoro-, 2359*h*.

$C_{14}H_8Cl_4N_2O_4$ Ethane, 1,1,1,2-tetrachloro-2,2 - bis(*p* - nitrophenyl)-, 4658*e*.

$C_{14}H_8Cl_3NO$ Acetamide, α,α,α-trichloro-*N*,*N* - bis(*p* - chlorophenyl)-, 2359*h*.

$C_{14}H_8Cl_4$ Bibenzyl, α,α,α',α',4,4'-hexachloro-, 3138*a*.

*p*,*p*' - Bitolyl, α,α,α,α',α',α' - hexachloro-, 345*e*, 9332*e*.

Cyclopentadiene, hexachloro-, compd. with indene, P 4603*e*.

Ethane, 1,1,1,2 - tetrachloro - 2,2 - bis(*p* chlorophenyl)-, 199*b*, 2359*h*, 3137*h*, 5894*d*, 9343*b*.

$C_{14}H_8Cl_8O_4$ 6,9,15,18 - Tetroxadispiro[4.4.-4.4] - 1,3,11,13 - octadecatetraene, 1,2,3,4,11,12,13,14 - octachloro , 4280*f*.

$C_{14}H_8CuK_2O_8$, 8222*e*.

$C_{14}H_8F_6N_2O_6S$ 3,5 - Benzenesulfonoxyladide, α,α,α,α',α',α' - hexafluoro - 4-nitro-, 4648*i*.

$C_{14}H_8HgO_2$ Anthraquinone, 1-(hydroxymercuri)-, 2198*e*.

$C_{14}H_8HgO_8S$ Anthraquinone, 1-(hydroxymercuri) , H sulfate, 2198*e*.

$C_{14}H_8INO_2$ Phthalimide, 3-iodo-*N*-phenyl , 6600*g*.

$C_{14}H_8I_2O_2$ Benzoic acid, *p*-iodo-, anhydride, 8353*d*.

$C_{14}H_8I_2O_6$ β-Resorcil, 5,5'-diiodo , 1035*h*.

$C_{14}H_8N_2O_2$ Benzonitrile, 3 hydroxy-4,4'-oxydi , 9049*b*.

Pigment, 8436*a*.

$C_{14}H_8N_2O_4$ Anthracene, 9,10-dimitro-, 1758*i*.

Maleimide, *N*, *N'* - *p* - phenylenedi-, P 4422*a*.

6 - Phenanthridinecarboxylic acid, 4-nitro , 7487*c*.

Phthalimide, *N* (nitrophenyl) , 7182*d*.

$C_{14}H_8N_2O_5$ Benzoic acid, nitro , anhydride, 1240*i*, 4241*h*.

$C_{14}H_8N_2O_6$ Diphenic acid, 5,5'-dinitro-, 2190*b*.

Peroxide, bis(nitrobenzoyl), 3394*d*, 8201*i*.

$C_{14}H_8N_2O_{10}$ β Resorcil, 5,5'-dinitro , 1035*i*.

$C_{14}H_8N_2PdS_4$ Benzothiazole, 2-mercapto-, Pd deriv., 60*g*.

$C_{14}H_8N_2RhS_4$ Benzothiazole, 2-mercapto , Rh deriv., 60*f*

$C_{14}H_8N_2S_2$ Benzothiazole, 2,2'-thiobis-, 2022., 8192*d*.

$C_{14}H_8N_2S_4$ See *Benzothiazole, 2,2' dithiobis*.

$C_{14}H_8N_2S_4Zn$ Benzothiazole, 2 mercapto-, Zn deriv , 7410*i*.

$C_{14}H_8N_2S_6$ Benzothiazole, 2,2'-tetrathiobis , 7410*i*

$C_{14}H_8N_4O_8$ 3 - Indazolecarbonitrile, 2 - (*m*-nitrophenyl) , 1 oxide, 7934*a*.

$C_{14}H_8N_4O_8$ Stilbene, tetranitro , 592*g*, 1733*f*.

$C_{14}H_8N_4O_{10}$ Diphenylamine, 2,2',4,6,6'-pentanitro 4-vinyl-, P 6372*e*.

$C_{14}H_8O_2$ (See also *Anthraquinone; Phenanthrenequinone*.)

1,2 Anthracenedione, 1248*g*.

$C_{14}H_8O_3$ Anthraquinone, hydroxy-, 3401*c*, P 3848*e*, 6085*e*, 7341*h*, 7828*d*, 7829*i*.

1*H* - Benzonaphthene - 2 - carboxylic acid, 1-oxo-, 3815*i*.

Fluorenecarboxylic acid, 9-oxo-, 1367*h*, 1753*g*, 3401*h*, 4246*b*.

$C_{14}H_8O_4$ (See also *Alizarin*.)

Anthrarufin, 3401*c*, 7341*h*, 7828*e*, 7829*i*.

Chrysazin, 3401*b*, 6356*f*, 7341*h*.

Quinizarin, 6356*f*, 7019*f*, 7341*h*, 7828*e*, 7829*i*, P 8692*d*.

$C_{14}H_8O_4S_2$ Thianthrenedicarboxylic acid, P 4484*de*, P 5966*h*, P 8691*ef*.

$C_{14}H_8O_5$ Anthraquinone, 1,4,5-trihydroxy , P 8163*c*, P 9468*e*

Flavopurpurin, 6944*g*.

Purpurin, 4810*i*, 6944*g*. 7828*e*, 7829*i*, 8238*g*.

$C_{14}H_8O_5S$ Anthraquinonesulfonic acid, 617*h*, 3400*h*, 3815*b*, *Na salt*, 2521*a*; *and K salt*, 3815*a*.

Phenoxathiindicarboxylic acid, P 4484*f*.

$C_{14}H_8O_5S_2$ Thianthrenedicarboxylic acid, *S*-oxide, P 4484*f*.

$C_{14}H_8O_6$ Anthraquinone, 1,4,5,8 tetrahydroxy-, P 8163*c*, P 9468*e*.

Dibenzo - *p* - dioxindicarboxylic acid, P 4484*c*.

Quinalizarin, 6085*i*, 7828*e*, 7829*i*.

$C_{14}H_8O_6S$ Anthraquinonesulfonic acid, hydroxy-, 3400*h*.

$C_{14}H_8O_7S$ 3 - Alizarinsulfonic acid, *Na salt*, 2521*a*.

$C_{14}H_8O_8S_2$ Anthraquinonedisulfonic acid, 3400*h*, 3815*a*; *di-Na salt*, 2521*a*.

$C_{14}H_9Br$ Anthracene, 9-bromo-, 208*g*, 7473*a*.

Phenanthrene, 9-bromo-, 1762*b*.

$C_{14}H_9BrCl_4$ Ethane, 2 - (*p* - bromophenyl)-1,1,1 - trichloro - 2 - (*p* - chlorophenyl)-, 1753*a*.

$C_{14}H_9BrO_2$ 1-Fluorenecarboxylic acid, 9-bromo-, 3402*a*.

$C_{14}H_9BrO_4$ 1,4 - Naphthoquinone, 2 - bromo-3,5-dihydroxy-, diacetate, 9057*g*.

$C_{14}H_9Br_2Cl$ Ethylene, 1,1-bis(*p*-bromophenyl)-2-chloro-, P 5046*g*.

Stilbene, 4,4'-dichloro-α-chloro-, P 2236*c*.

$C_{14}H_9Br_2ClF_2$ Bibenzyl, α,α'-dibromo-α-chloro 4,4'-difluoro-, P 2236*b*.

$C_{14}H_9Br_2Cl_3$ Bibenzyl, dibromotrichloro-, P 2236*b*, P 2236*c*.

Ethane, 2,2 - bis(*p* - bromophenyl)-1,1,1-trichloro-, 347*a*, 2359*i*, 5894*d*, 6354*g*, 7628*f*, 9342*i*, 9343*b*.

—, 1,1 - dibromo - 1 - chloro - 2,2 - bis(*p*-chlorophenyl)-, P 3969*c*.

$C_{14}H_9Br_2NO_3$ 2,4-Cresotic Acid, 3,5-dibromo-, nitrophenyl ester, 2603*i*.

$C_{14}H_9Br_3$ Stilbene, α,4,4'-tribromo-, P 2236*b*.

$C_{14}H_9Br_3Cl_2$ Bibenzyl, α,4,4'-tribromo-α,α'-dichloro-, P 2236*b*.

Ethane, 1,1,1-tribromo-2,2-bis(*p*-chlorophenyl)-, 2359*h*, 9342*i*, 9343*b*.

$C_{14}H_9Br_3F_2$ Ethane, 1,1,1-tribromo-2,2-bis-(*p*-fluorophenyl)-, P 351*a*, 9343*b*.

$C_{14}H_9Br_3I_2$ Ethane, 1,1,1-tribromo-2,2-bis(*p*-iodophenyl)-, 9343*b*.

$C_{14}H_9Br_3N_2O_3$ Allophanic acid, γ-phenyl-, 2,4,6 tribromophenyl ester, 7447*d*.

$C_{14}H_9Br_3N_2O_4$ Carbanilic acid, 4-methyl 3-nitro-, 2,4,6-tribromophenyl ester, 7448*e*.

Ethane, 1,1,1-tribromo-2,2-bis(*p*-nitrophenyl) , 4658*d*.

$C_{14}H_9Br_3O_3$ 2,4-Cresotic acid, 3,5-dibromo , *p*-bromophenyl ester, 2603*i*.

$C_{14}H_9Br_4Cl$ Ethane, 1,2 - dibromo - 1,1 - bis-(*p*-bromophenyl) 2-chloro , P 5046*g*.

$C_{14}H_9Br_5$ Ethane, 1,1,1-tribromo 2,2-bis(*p*-bromophenyl)-, 9342*i*, 9343*b*.

$C_{14}H_9ClF_2$ Stilbene, α-chloro-4,4'-difluoro-, P 2236*b*.

$C_{14}H_9ClN_2O$ 2 - (*o* - Chlorophenyl) - 4 - hydroxyphthalazinium hydroxide, 2,4-inner salt, 236*i*.

Cinnoline, 8-chloro-4-phenoxy-, 1781*i*.

1(2*H*)-Phthalazone, 2-(*o*-chlorophenyl)-, 237*b*.

$C_{14}H_9ClN_2OS$ 4-Quinazolinol, 2-(*p*-chlorophenylmercapto)-, 2952*i*.

$C_{14}H_9ClN_2O_2$ Anthraquinone, 1,4-diamino-6-chloro-, P 6832*e*.

1,4 - Phthalazinedione, 2 - (*o* - chlorophenyl)-2,3-dihydro-, 237*f*.

Sydnone, *N* (*p*-chlorophenyl)-*C*-phenyl-, 7480*d*.

$C_{14}H_9ClN_2O_4$ Ethylene, 2-chloro-1,1-bis(*p*-nitrophenyl)-, 4658*d*.

$C_{14}H_9ClN_2O_5$ Acetyl chloride, bis(*p*-nitrophenyl) , 7004*f*.

$C_{14}H_9ClN_4O_7$ Indole, 4-chloro-, picrate, 4255*f*.

$C_{14}H_9ClOS$ Thioxanthone, chloromethyl-, 226*c*.

$C_{14}H_9ClO_2$ Acetic acid, (5-chloro-2-hydroxyphenyl)phenyl-, lactone, 2496*e*.

Acetic acid, (*o*-chlorophenyl)(*o*-hydroxyphenyl)-, lactone, 2496*d*.

1 - Fluorenecarboxylic acid, 9 - chloro-, 3402*a*.

Xanthone, 1-chloro-4-methyl-, 225*c*.

$C_{14}H_9ClO_3$ Benzaldehyde, 2-chloro-5-hydroxy-, benzoate, 5387*d*.

$C_{14}H_9ClO_3S$ Thioxanthone, chloromethyl-, 5,5-dioxide, 226*h*.

$C_{14}H_9ClO_4$ 1,4,9,10-Anthratetrol, 6-chloro-, P 9467*d*.

Benzoic acid, *o*-(5-chlorosalicyloyl)-, P 2037*h*.

$C_{14}H_9ClO_5$ 1,4 - Naphthoquinone, chlorodihydroxy-, diacetate, 9057*eg*.

$C_{14}H_9Cl_2F_3$ Ethane, 2,2 - bis(*p* - chlorophenyl) - 1,1,1 - trifluoro-, 2359*h*, 3137*h*.

$C_{14}H_9Cl_2N$ Indole, dichloro-2-phenyl-, 622*e*.

$C_{14}H_9Cl_2NO$ Acridine, 6,9-dichloro-2-methoxy-, 649*e*, 6633*f*.

$C_{14}H_9Cl_2NO_2$ 9(10*H*) - Acridone, 3,6 - dichloro-2-methoxy-, 6633*e*.

Benzil, 4,4'-dichloro-, oxime, 3369*a*.

$C_{14}H_9Cl_2NO_4$ Phthalanilic acid, 2',5'-dichloro-, 3399*i*, 5524*i*.

$C_{14}H_9Cl_2N_3$ Quinazoline, 2 - chloro - 4 - *p*-chloroanilino-, 2952*e*.

$C_{14}H_9Cl_3$ Ethylene, 2-chloro-1,1-bis(*p*-chlorophenyl)-, 3137*g*.

Stilbene, α,4,4'-trichloro-, P 2235*h*, 3138*a*.

$C_{14}H_9Cl_3F_2$ (See also *Ethane, 1,1,1-trichloro-2,2 - bis(fluorophenyl)-*.)

Bibenzyl, α,α,α' - trichloro - 4,4' - difluoro-, P 2236*b*.

Ethane, 1,1,1 - trichloro - 2 - (*o* - fluorophenyl) - 2 - (*p* - fluorophenyl)-, 6186*g*, 7627*h*.

$C_{14}H_9Cl_3I_2$ Ethane, 1,1,1-trichloro-2,2-bis-(*p*-iodophenyl)-, 2359*i*, 5894*d*, 9342*i*, 9343*b*.

$C_{14}H_9Cl_3I_2N_2$ Aniline, 4,4'-(2,2,2-trichloroethylidene)bis[2,6-diiodo-, 6605*c*.

$C_{14}H_9Cl_3N_2O_3$ Allophanic acid, γ-phenyl-, 2,4,6-trichlorophenyl ester, 7447*d*.

$C_{14}H_9Cl_3N_2O_4$ Bibenzyl, α,α,α' - trichloro-4,4'-dinitro-, P 2236*c*.
Carbanilic acid, 4-methyl-3-nitro-, 2,4,6-trichlorophenyl ester, 7448*e*.
Ethane, trichlorobis(nitrophenyl)-, 3104*c*, 3137*f*, 4658*af*, 6605*b*.
—, 1,1,1 - trichloro - 2 - (*m* - nitrophenyl) - 2-(*p*-nitrophenyl)-, 4658*b*.

$C_{14}H_9Cl_3N_2O_6$ Phenol, 2,2'-(2,2,2-trichloroethylidene)bis[4-nitro-, 6605*a*.

$C_{14}H_9Cl_3O$ Acetophenone, *p*,α-dichloro-α-(*p*-chlorophenyl)-, 3369*a*.

$C_{14}H_9Cl_3O_2$ *m*-Cresol, α,α,4-trichloro-, benzoate, 5387*d*.

$C_{14}H_9Cl_3O_3$ Acetic acid, (trichlorophenoxy)-, Ph ester, 2973*g*.

$C_{14}H_9Cl_4F$ Ethane, 1,1,1 - trichloro - 2 - (*p*-chlorophenyl) - 2 - (*p* - fluorophenyl)-, P 350*i*.

$C_{14}H_9Cl_4I$ Ethane, 1,1,1 - trichloro - 2 - (*p*-chlorophenyl) - 2 - (*p* - iodophenyl)-, 1753*b*.

$C_{14}H_9Cl_5$ (See also *Ethane, 1,1,1 trichloro-2,2-bis(chlorophenyl)-*.)
Bibenzyl, pentachloro-, P 2235*i*, 3377*g*, 5386*g*.
Ethane, 1 - (pentachlorophenyl) - 1-phenyl-, 3377*g*.
—, 1,1,1 - trichloro - 2 - (*o* - chlorophenyl) - 2 - (*p* - chlorophenyl)-, 347*h*, 2359*h*, 3137*f*, P 3970*a*, 6186*d*, 6354*g*, 7627*h*.

$C_{14}H_9Cl_5O$ Phenol, 2,6-dichloro-4-[α (trichloromethyl)benzyl]-, 6356*f*.

$C_{14}H_9Cl_5O_2$ Methane, (benzyloxy)(pentachlorophenoxy)-, P 3968*f*
Phenol, 2,2' - (2,2,2 - trichloroethylidene)bis[4-chloro-, 1896*c*, 6351*g*.

$C_{14}H_9F_3N_2$ Acridine, 9-amino-3 (trifluoromethyl)-, - *HCl*, 7135*h*.

$C_{14}H_9F_3N_2O_4$ *m* - Tolualdehyde, α,α,α - trifluoro-, 2,4 - dinitrophenylhydrazone, 7918*d*.

$C_{14}H_9F_3O$ Acetophenone, α,α,α-trifluoro *p*-phenyl-, 3394*c*.

$C_{14}H_9F_5$ Ethane, 1,1,1 - trifluoro - 2,2 - bis(*p*-fluorophenyl)-, 2359*h*.

$C_{14}H_9IO_2$ 1 - Fluorenecarboxylic acid, 9-iodo-, 3402*a*.

$C_{14}H_9I_4NO_4$ Glycine, [4 - (4 - hydroxy - 3,5-diiodophenoxy) - 3,5 - diiodophenyl]-, 593*b*, 2327*b*, 7585*c*.

$C_{14}H_9N$ Fluorenecarbonitrile, 1955*di*, 5770*b*.

$C_{14}H_9NO$ 9 - Acridinecarboxaldehyde, 6631*e*.
2 - Biphenylcarboxaldehyde, 2' - cyano-, 8377*i*.
Phenanthrenequinone imine, 7013*g*.

$C_{14}H_9NOS$ Ketone, 2 benzothiazolyl phenyl, 7475*i*.

$C_{14}H_9NO_2$ (See also *Anthraquinone, amino-*.)
Anthracene, 9-nitro-, 1758*h*
Anthraquinone, monoxime, 2520*i*.
Benzo[*f*]quinoline - 3 - carboxylic acid, *and salts*, 6935*c*.
2 - Biphenylcarboxylic acid, 2' - cyano-, 8377*f*.
Maleimide, *N*-1-naphthyl-, P 4422*a*.
Phenanthrenequinone, oxime, 8377*e*.
Phthalimide, *N*-phenyl-, 8368*f*.

$C_{14}H_9NO_2S$ Anthraquinone, 2-amino-1-mercapto-, P 5966*d*, P 6427*c*.
5(4*H*) - Oxazolone, 2 - phenyl - 4 - (2-thenylidene)-, 7930*b*.
2 - Thiophenecarboxylic acid, 5 - (2-quinolyl)-, 7018*d*.

$C_{14}H_9NO_3$ Anthraquinone, 1-amino-4-hydroxy-, P 1217*e*.
Oxindole, 3 - (2 - furoylmethylene)-, 1411*f*.
Phthalimide, *N* - (*o* - hydroxyphenyl)-, 7182.

$C_{14}H_9NO_3S$ 3-Thianaphthenol, 2-(*p*-nitrophenyl)-, 3816*f*.

$C_{14}H_9NO_4S$ Phthalide, 3-(nitrophenylmercapto)-, 6179*e*.

$C_{14}H_9NO_4S_2$ Thieno[3,4 - *b*]thiophenecarboxylic acid, *p*-nitrobenzyl ester, 4667*a*.
Thiophthenecarboxylic acid, *p*-nitrobenzyl ester, 4667*a*.

$C_{14}H_9NO_5$ Benzoic acid, *o*-(*m*-nitrobenzoyl)-, 1042*d*.

$C_{14}H_9NO_5S$ 2 - Anthraquinonesulfonic acid, amino-, *and Na salt*, 2521*a*.

$C_{14}H_9NO_6$ Peroxide, benzoyl *m*-nitrobenzoyl, 8201*i*.

$C_{14}H_9NO_6S$ Phthalide, 3-(nitrophenylsulfonyl)-, 6179*e*.

$C_{14}H_9N_3O$ Benzonitrile, 3-amino-4,4'-oxydi-, 9049*a*.
1-Fluorenecarbonyl azide, 4246*c*.

$C_{14}H_9N_3O_2$ Cinnoline, 8-nitro-4-phenoxy-, 1781*i*.

$C_{14}H_9N_3O_2S$ 3-Thianaphthenol, 2-(*p*-nitrophenylazo)-, 6204*g*.

$C_{14}H_9N_3O_6$ Phenol, 3-nitro-2-(5-nitro-1,3,2 *H*-benzoxazin-2-yl)-, 1765*h*.
Stilbene, 2,4,6-trinitro-, 592*g*, 1733*d*.

$C_{14}H_9N_3O_6S$ Benzaldehyde, nitro-, 6 nitro-2-benzothiazolylhydrazone, 5395*h*.

$C_{14}H_{10}$ (See also *Acetylene, diphenyl-; Anthracene; Phenanthrene*.)
Benzazulene, 207*a*, 6203*e*, 9042*h*.

$C_{14}H_{10}AsCl_3O$ Acetophenone, α-chloro *p*-(*o*-dichloroarsinophenyl)-, 7452*f*.

$C_{14}H_{10}AsNO$ Benzaldehyde, *m*-(cyanophenylarsino)-, 3383*d*.

$C_{14}H_{10}BrNO$ 1-Fluorenecarboxamide, 9-bromo-, 3402*a*.

$C_{14}H_{10}BrNO_2$ Phthalanilic acid, 4'-bromo, 5524*i*.

$C_{14}H_{10}BrNO_5$ 2,4 - Cresotic acid, 5-bromo, nitrophenyl ester, 2603*i*.

$C_{14}H_{10}BrN_3O_3$ Glyoxylyl bromide, phenyl-, *p*-nitrophenylhydrazone, 4247*i*.

$C_{14}H_{10}Br_2$ Stilbene, α,α'-dibromo-, 1755*g*, 5754*c*.

$C_{14}H_{10}Br_2Cl_2$ Bibenzyl, 4,4'-dibromo-α,α'-dichloro-, P 2236*c*.
Ethane, 1,1 - bis(bromophenyl) - 2,2-dichloro-, P 4300*b*, P 4808*d*, 9333*f*

$C_{14}H_{10}Br_2N_2$ Aniline, *N*, *N'*-acetylenebis[*p* bromo-, 5756*a*.
Benzaldehyde, *p*-bromo-, azine, 5756*a*

$C_{14}H_{10}Br_2N_2O_3$ Allophanic acid, γ-phenyl-, 2,4-dibromophenyl ester, 7417*d*.

$C_{14}H_{10}Br_2N_2O_4$ Carbanilic acid, 4-methyl-3-nitro, 2,4-dibromophenyl ester, 7448*d*.
Oxanilide, dibromodihydroxy-, 5388*ab*

$C_{14}H_{10}Br_2O_2$ 2,2' - Stilbenediol, 5,5'-dibromo-, 4246*f*.
Xanthene, 2,7 - dibromo - 9 - methoxy-, 3822*f*.

$C_{14}H_{10}Br_2O_3$ Acetophenone, 5-bromo-α-(5-bromo - 2 - hydroxyphenyl) - 2-hydroxy-, 4247*a*.
2,4-Cresotic acid, 3,5-dibromo-, Ph ester, 2603*i*.

$C_{14}H_{10}Br_2O_4$ Benzoin, 5,5' - dibromo-2,2'-dihydroxy-, 4246*e*.

$C_{14}H_{10}Br_4$ Ethane, 1,1 - dibromo - 2,2-bis-(*p*-bromophenyl)-, P 5899*c*.

$C_{14}H_{10}ClN$ Benzoquinoline, chloromethyl-, 1417*g*, 1419*f*, 7485*c*.
Indole, 2-(*p*-chlorophenyl)-, 219*d*.
—, 5-chloro-2 phenyl-, 221*a*.
Phenanthridine, 4 - chloro - 6 - methyl-, 7487*c*.

$C_{14}H_{10}ClNO$ Benzo[*g*]quinolin-4-ol, 10-chloro-2-methyl-, 1418*e*.
2-Fluorenecarboxamide, 9-chloro-, 3811*g*.
Phthalimidine, 2 - (*o* - chlorophenyl)-, 237*b*.

$C_{14}H_{10}ClNOS$ 9(10*H*) - Acridinethione, 6-chloro-2-methoxy-, 649*d*.
Phenothiazine, 10-chloroacetyl-, 7938*d*.

$C_{14}H_{10}ClNO_2$ 9(10*H*) - Acridone, 6-chloro 2-methoxy-, 3826*g*.
Benzamide, *N* - (5 - chlorosalicylidene)-, 6182*d*.

$C_{14}H_{10}ClNO_3$ Anthranilic acid, *N*-benzoyl-6-chloro-, 4255*f*.
Phthalanilic acid, chloro-, 5524*i*, 6600*f*.

$C_{14}H_{10}ClN_3O_3S$ Acetanilide, 2-(2-chloro-4-nitrophenylmercapto)-5-nitro-, 600*h*.

$C_{14}H_{10}Cl_2$ Ethylene, 1,1-bis(*p*-chlorophenyl)-, 199*e*, 2359*h*, 3137*g*.
Ethylene, 1 - (*o* - chlorophenyl)-1-(*p*-chlorophenyl)-, 199*f*, 2359*h*.
—, 1,1-dichloro-2,2-diphenyl-, 4658*d*.
Stilbene, dichloro-, 1755*e*, 2194*e*, 3138*a*, 3369*b*.

$C_{14}H_{10}Cl_2F_2$ Ethane, 1,1-dichloro-2,2-bis-(*p*-fluorophenyl)-, 9333*f*.

$C_{14}H_{10}Cl_2I_2$ Ethane, 1,1-dichloro-2,2-bis-(*p*-iodophenyl)-, 9333*f*.

$C_{14}H_{10}Cl_2N_2O$ Acridine, 9-amino-3,6-dichloro - 2 - methoxy-, *and* - *HCl*, 6633*ef*.

$C_{14}H_{10}Cl_2N_2O_3$ Allophanic acid, γ-phenyl-, 2,4-dichlorophenyl ester, 7447*d*.
Benzoic acid, 2-amino-5-(2,4-dichlorobenzamido)-, P 5598*e*.

$C_{14}H_{10}Cl_2N_2O_4$ Carbanilic acid, 4-methyl-3-nitro-, 2,4-dichlorophenyl ester, 7448*d*.
Ethane, 1,1 - dichloro - 2,2 - bis(*p*-nitrophenyl)-, 4658*c*.

$C_{14}H_{10}Cl_2N_4O_4$ Acetophenone, *p*,α-dichloro-, 2,4 - dinitrophenylhydrazone, 6991*h*.

$C_{14}H_{10}Cl_2N_6O_7$ Guanidine, (5,6 - dichloro-2-benzimidazolyl)-, picrate, 1405*c*.

$C_{14}H_{10}Cl_2O$ Acetophenone, *p*-chloro-α-(*p*-chlorophenyl)-, P 2236*a*.
Bibenzyl, 4,4' - dichloro - α,α'-epoxy-, 3369*b*.
Ether, 4 - biphenylyl 2,2-dichlorovinyl, P 7045*h*.

$C_{14}H_{10}Cl_2O_2$ Acetic acid, bis(chlorophenyl)-, 2359*h*, 3137*h*, 5148*d*.
Benzoin, 4,4'-dichloro-, 3368*i*.

$C_{14}H_{10}Cl_2O_3$ Acetic acid, (2,4-dichlorophenoxy)-, Ph ester, 2973*g*, 6775*h*.
Benzoic acid, chloro-2-(5-chloro-*o*-tolyoxy)-, 225*hi*.

$C_{14}H_{10}Cl_2F$ Ethane, 1,1,1 - trichloro-2-(*p*-fluorophenyl)-2-phenyl-, P 350*i*.

$C_{14}H_{10}Cl_3NO$ Acetamide, α,α,α-trichloro-*N*,*N*-diphenyl-, 2359*h*.

$C_{14}H_{10}Cl_3NO_2$ Acetanilide, α-(trichlorophenoxy)-, 2973*f*.
Anthranoyl chloride, 4-chloro-*N*-(3-chloro-4-methoxyphenyl)-, 6633*d*.

$C_{14}H_{10}Cl_4$ (See also *Ethane, 1,1-dichloro-2,2-bis(chlorophenyl)-; Ethane, 1,1,1-trichloro - 2 - (p - chlorophenyl) - 2-phenyl-*.)
Bibenzyl, tetrachloro-, 345*i*, 1755*e*, P 2235*h*, 3138*a*, 5894*g*.
Ethane, 1,1 - bis(3,4 - dichlorophenyl)-, 5894*d*, P 9357*e*.
—, 1,1,1,2 - tetrachloro - 2,2 - diphenyl-, 1896*f*, 4658*e*.

$C_{14}H_{10}Cl_4O_4$ Orcinol, 2,4-dichloro-6-(4,6-dichloro - 5 - hydroxy - *m* - toloxy), 6081.
Phthalic acid, tetrachloro, diallyl ester, P 3233*b*.

$C_{14}H_{10}Cl_4S_2$ Sulfide, bis(dichlorobenzyl), 2359*h*.

$C_{14}H_{10}CoO_{10}S_2$ 1-Phenol 4-sulfonic acid, 2 formyl-, Co deriv., *Na salt*, 1678*d*

$C_{14}H_{10}CuO_4$ Copper benzoate, 125*a*

$C_{14}H_{10}CuO_{10}S_2$ 1 - Phenol - 4 - sulfonic acid, 2-formyl-, Cu deriv., *Na salt*, 1678*d*.

$C_{14}H_{10}F_2O$ Acetophenone, *p*-fluoro-α-(*p*-fluorophenyl)-, P 2236*c*.

$C_{14}H_{10}F_3NO_2$ Carbanilic acid, α,α,α-trifluoro-*m*-tolyl ester, 593*f*.

$C_{14}H_{10}F_3N_2O_2S$ Sulfanilo - 3,5 - xylidide, α,α,α,α',α',α' - hexafluoro-, 4618*g*

$C_{14}H_{10}HgO_6S$ Anthrone, 10-(hydroxymercuri)-, sulfate, 618*i*, 619*c*.

$C_{14}H_{10}INO_3$ Phthalanilic acid, 6-iodo-, 6600*g*.

$C_{14}H_{10}I_2O_2$ Xanthene, 2,7 - diiodo-9-methoxy-, 3822*f*.

$C_{14}H_{10}I_2O_3$ Benzaldehyde, 3,5 diiodo 4-(*p*-methoxyphenoxy)-, 592*i*.
Benzoic acid, 4-(benzyloxy)-3,5-diiodo-, 7585*c*.
*o*-Toluic acid, α (4-hydroxy-3,5-diiodophenyl)-, 9376*b*.

$C_{14}H_{10}KN_7O_8$ Ethane, 1 - (2,4 - dinitrophenylazo) - 1 - (*p* - nitrophenylhydrazono)-, K deriv., 4261*e*.
Ethane, 1 - (2,4 - dinitrophenylhydrazono) - 1 - (nitrophenylazo)-, K deriv., 4261*d*.

$C_{14}H_{10}NNaO_3$ 8-Quinolinepropionic acid, α - 2 - hydroxyethyl - β - oxo, γ-lactone, Na deriv., 2623*h*.

$C_{14}H_{10}N_2$ Benzonitrile, *p*-[2-pyridyl)vinyl], 5757*a*.

$C_{14}H_{10}N_2O$ Acetophenone, α-diazo-α-phenyl-, 1744*c*.
4 - Hydroxy - 2 - phenylphthalazinium hydroxide, 2,4-inner salt, 237*i*.
Phenol, (2-quinoxalyl)-, 4240*d*.
1(2*H*)-Phthalazone, 2-phenyl-, 3800*c*.
4(3*H*)-Quinazolone, 3-phenyl-, 3424*i*
4*H*-Quinolizin - 4 - one, 3 - (2 - pyridyl)-, 4270*h*.

$C_{14}H_{10}N_2OS$ 6 - Benzothiazolecarboxanilide, 7476*e*.

$C_{14}H_{10}N_2O_2$ (See also *Anthraquinone, diamino-*.)
Benzonitrile, *p* - hydroxy-, carbanilate, 593*f*.
Benzo[*g*]quinoline - 2 - carboxylic acid, 4-amino-, 1420*a*.
Benzo[*h*]quinoline, 2 - methylnitro-, 1421*a*.
Oxindole, 3 - (2 - pyrrylcarbonylmethylene)-, 1411*f*.
Phenanthridine, 6-methyl-4-nitro-, 7487*b*.
Phthalimide, *N*-anilino-, 7182*d*.
Pyrocatechol, 4-(2-quinoxalyl)-, 4240*e*.

Sydnone, *C,N*-diphenyl-, *3417h*, *3418b*, *7480c*.

$C_{14}H_{10}N_2O_3$ 2 - Acetonaphthone, α-diazo-1-hydroxy-, acetate, *3415h*.

$C_{14}H_{10}N_2O_4$ Ethylene, 1,1-bis(*p*-nitrophenyl)-, *4658e*.
1*H* - Naphtho[2,3]pyrazole - 4,9-dione, acetylhydroxy - 1 - methyl-, *7019f*, *7341i*.
Stilbene, dinitro-, *592g*, *6175a*, *9055b*.

$C_{14}H_{10}N_2O_4S$ Benzenesulfonamide, *p*-phthalimido-, P 1061*b*.
4 - Hydroxy - 2 - phenyl - ? - sulfophthalazinium hydroxide, 2,4-inner salt, *238c*.
Saccharin, reaction product with PhNCO, *8365i*.

$C_{14}H_{10}N_2O_5$ Benzoic acid, nitrobenzamido-, *1032a*.
Phthalanilic acid, nitro-, *5524i*.
4-Stilbenol, 2′,4′-dinitro-, *9055c*.

$C_{14}H_{10}N_2O_5S$ 2 - Anthraquinonesulfonic acid, 3,4-diamino-, *8947h*.

$C_{14}H_{10}N_2O_6$ Acetic acid, bis(*p*-nitrophenyl)-, *7004f*.

$C_{14}H_{10}N_2O_8S$ 2 - Anthraquinonesulfonic acid, 4,8 - diamino - 1,5 - dihydroxy-, *Na salt*, *2521a*.

$C_{14}H_{10}N_2O_{10}$ 1,2*H* - Benzopyran - 6 - carboxylic acid, 7 - hydroxy - 4 - methyl-3,8 - dinitro - 2 - oxo-, Me ester, acetate, *2622b*.

$C_{14}H_{10}N_2O_{10}S_2$ 1*H* - Benz[*de*]isoquinoline-2(3*H*) - acetic acid, 6-amino - 1,3-dioxodisulfo-, P 7710*g*.
2,2′ - Stilbenedisulfonic acid, 4,4′-dinitro-, P 1988*g*, P 2784*d*, P 4485*defghi*, P 4486*ai*, P 5198*cde*, P 7235*h*.

$C_{14}H_{10}N_4O$ Benzonitrile, 4,4′ oxybis[3-amino-, *9049b*.

$C_{14}H_{10}N_4O_2$ 4*H* - Pyrido[1,2-*a*]pyrimidine-3-carboxamide, 4 oxo-*N*-2-pyridyl-, *650h*.

$C_{14}H_{10}N_4O_2S$ Benzaldehyde, 6-nitro-2-benzothiazolylhydrazone, *5395h*

$C_{14}H_{10}N_4O_3$ 2 - Indazolecarboxanilide, nitro-, *8365h*.
5(4*H*) - Oxazolone, 4 - (acetyl *p*-triazol - 4 - ylmethylene) - 2 - phenyl-, *6621d*.
2,6,7-Pteridinetriol, 4 styryl-, *651d*.

$C_{14}H_{10}N_4O_4$ Aniline, *N,N′* - acetylenebis-[*m*-nitro-, *5756a*
Benzaldehyde, nitro-, azine, *1654e*, *5756a*.

$C_{14}H_{10}N_4O_4S$ Benzenesulfonamide, *m*-nitro-*N*-2 quinoxalyl-, P 7516*i*

$C_{14}H_{10}N_4O_6S_2$ [2,2′ - Bibenzimidazole]-*ar*,-*ar*′ - disulfonic acid, *dl*-*Na salt*, P 8174*a*.

$C_{14}H_{10}N_4O_8$ Bibenzyl, 2,2′,4,4′-tetranitro-, *7918h*.
Indolol, picrate, *1765bcf*.

$C_{14}H_{10}N_4O_8S$ Acetanilide, *p*-(picrylsulfonyl)-, *2593e*.

$C_{14}H_{10}N_4O_{12}S$ Anisole, sulfonylbis[dinitro-, *6994hi*.

$C_{14}H_{10}N_4S_2$ Benzonitrile, 3,3′-dithiobis[4-amino-, *7476g*.
2,2′ - Bibenzothiazole, diamino-, *5776i*, *5777a*.

$C_{14}H_{10}N_7NaO_4$ Ethane, 1-(2,4-dinitrophenylazo) 1 - (*p* nitrophenylhydrazono)-, Na deriv., *4261f*.
Ethane, 1 - (2,4 - dinitrophenylhydrazono) - 1 - (nitrophenylazo)-, Na deriv., *4261de*.

$C_{14}H_{10}N_8O_8$ Glyoxal, bis(2,4-dinitrophenylhydrazone), *2575f*, *6980f*.

$C_{14}H_{10}N_8S_2$ 1*H* - Tetrazole, 5,5′ - dithiobis[1-phenyl-, P 4593*c*, P 5320*e*.

$C_{14}H_{10}NiO_{10}S_2$ 1-Phenol-4-sulfonic acid, 2-formyl-, Ni deriv., *Na salt*, *1078d*.

$C_{14}H_{10}O$ Anthrol, *1237c*, *2093c*, *6085e*, *7829i*, *8102c*, *8238g*, *9484i*.
Anthrone, *618c*, *5613f*, *6085e*, *7472i*, *7829i*.
9 Fluorenecarboxaldehyde, *5770d*.
9 Phenanthrol, *4663e*.

$C_{14}H_{10}OS$ Ketone, dibenzothienyl methyl, *2987d*.
Phenoxathiin, 2-vinyl-, P 904*i*, P 1223*d*, P 1814*a*.

$C_{14}H_{10}O_2$ (See also *Benzil*.)
9,10-Anthradiol, *1312e*.
Anthrone, 10-hydroxy-, *7837e*.
Fluorenecarboxylic acid, *1367h*, *3401i*, *4246b*, *7468a*.
9,10-Phenanthrenediol, *1312e*, *6515e*.
Phthalide, 3-phenyl-, *7403h*.

$C_{14}H_{10}O_2S$ Benzoic acid, *o* - (α - hydroxybenzylmercapto)-, lactone, *5860i*.
Benzoic acid, thiol-, anhydrosulfide, *8353d*.
Ketone, methyl 2-phenoxathiinyl, P 1814*b*.

$C_{14}H_{10}O_2S_2$ Benzoyl disulfide, *1741b*, *4806e*, *8353d*.

$C_{14}H_{10}O_3$ (See also *Benzoic anhydride*.)
1,8,9-Anthratriol, *8103b*.
Benzaldehyde, *p*-hydroxy-, benzoate, *9055d*.
Benzoic acid, *o*-benzoyl-, *565h*, *4241h*.
—, *o* - (α - hydroxybenzyloxy)-, lactone, *[illegible]*
Fluorenecarboxylic acid, 9-hydroxy-, *3401i*, *3811df*.
2-Naphthaleneacrylic acid, 1-hydroxy-β-methoxy-, δ-lactone, *3415d*.
Naphtho[1,2-*b*]furan - 3 - ol, acetate, *3416a*.
Xanthone, 1-hydroxy-2-methyl-, *225g*.

$C_{14}H_{10}O_3S$ Phenanthrenesulfonic acid, *Na salt*, *1589g*, *1590g*.

$C_{14}H_{10}O_4$ (See also *Benzoyl peroxide*.)
1,4,9,10-Anthratetrol, P 9468*g*.
Benzil, 4,4′-dihydroxy-, *235c*.
Benzoic acid, *p*-β-2-furylacrylyl-, P 422*g*.
2 - Biphenylcarboxylic acid, 2′,4′-dihydroxy - 4 - methoxy-, δ-lactone, *5023h*.
Biphenyldicarboxylic acid, *2979e*, P 6240*g*, *9332e*.
Compd., m. 218° (cor.), from *Baptisia perfoliata*, *650a*.
1,5 - Hexadiene - 3,4 - dione, 1,6 di-2-furyl-, *187c*.
Malonic acid, 1 - naphthylmethylene-, *3815i*.
*p*-Quinone, 2-hydroxyphenyl-, acetate *1372h*.
Salicil, *1037a*, *5446d*.

$C_{14}H_{10}O_4S$ 9 - Anthracenesulfonic acid, 9,10-dihydro-10-oxo-, *619d*.

$C_{14}H_{10}O_5$ 2 - Biphenylcarboxylic acid, 2′,4′,6′ - trihydroxy - 4 - methoxy-, δ-lactone, *5023g*.

$C_{14}H_{10}O_6$ Benzil, 2,2′,3,3′-tetrahydroxy-, *5387i*.
Naphthazarin, diacetate, *7341e*.
1,4 - Naphthoquinone, dihydroxy-, diacetate, *9057d*.
β-Resorcil, *1035e*, *1037fh*.

$C_{14}H_{10}O_6S$ Salicylic acid, 5,5′-thiodi-, *2599g*.

$C_{14}H_{10}O_8$ Benzil, 2,2′,4,4′,5,5′-hexahydroxy-, *1036f*.
3,3′ - Biphenyldicarboxylic acid, 5,5′,-6,6′-tetrahydroxy-, *8614e*.
Pyrogallil, *1036f*, *1037g*.

$C_{14}H_{10}O_{10}S_2Zn$ 1 - Phenol - 4 - sulfonic acid, 2-formyl-, Zn deriv., *Na salt*, *1678d*

$C_{14}H_{10}S_2$ Benzoyl disulfide, P 2818*h*.

$C_{14}H_{11}AsClN$ Arsine, (chlorophenyl)cyanotolyl-, *3383c*.

$C_{14}H_{11}AsCl_2O$ Acetophenone, α-chloro-*m*-(chlorophenylarsino)-, *3383a*.

$C_{14}H_{11}AsN_2O_3$ Arsine, cyano(nitrophenyl)-*o*-tolyl-, *3383d*.

$C_{14}H_{11}BrCl_2$ Ethane, 1-bromo-1,1-bis(*p*-chlorophenyl)-, *3137h*.

$C_{14}H_{11}BrN_2O_3$ Allophanic acid, γ-phenyl-, bromophenyl ester, *7447d*.

$C_{14}H_{11}BrN_2O_4$ Carbanilic acid, 4-methyl 3-nitro-, bromophenyl ester, *7448d*.

$C_{14}H_{11}BrN_4O_2$ Δ²- 1,2,4 - Triazoline, 5-(*p*-bromophenyl) - 4 - (*p*-nitrophenyl)-, *7022c*.

$C_{14}H_{11}BrN_4O_2S$ Sulfanilamide, *N*¹-(bromo-2-quinoxalyl)-, *3384d*.

$C_{14}H_{11}BrO_2$ 2,4 - Cresotic acid, 5-bromo-, Ph ester, *2603h*.
Propionic acid, β-bromo-β-naphthoyl-, P 8401*g*.

$C_{14}H_{11}Br_2NO_2S$ Acetanilide, *p* - (3,4,5-tribromophenylsulfamyl)-, *4649a*.

$C_{14}H_{11}Cl$ Stilbene, α-chloro-, *1755d*.

$C_{14}H_{11}ClN_2$ Benzo[*g*]quinoline, 4-amino 10-chloro-2-methyl-, *1418e*.
Pyrido[3,4-*c*]isoquinoline, 6-chloro-2,4-dimethyl-, P 6242*f*.

$C_{14}H_{11}ClN_2O$ Acridine, 9-amino-6-chloro-2-methoxy-, P 698*e*, P 2242*e*; *and - HCl*, *6633g*.
1(2*H*)-Phthalazone, 3-(*o*-chlorophenyl)-3,4-dihydro-, *2378*.
Phthalimidine, 3-*p*-chloroanilino-, *623h*.

$C_{14}H_{11}ClN_2O_2$ Leucoanthraquinone, 1,4-diamino-6-chloro-, P 6832*e*.
Phthalaldehydic acid, (*o*-chlorophenyl)-hydrazone, *237c*.

$C_{14}H_{11}ClN_2O_3$ Acetanilide, 4-chloro-2-(*p*-nitrophenyl)-, *7445f*.
Allophanic acid, γ-phenyl-, chlorophenyl ester, *7447d*.

$C_{14}H_{11}ClN_2O_4$ Anthranilic acid, 4-chloro-*N*-(*p*-nitrophenyl)-, Me ester, *6176b*.
Anthranilic acid, *N*-(*m*-chlorophenyl)-5-nitro-, Me ester, *6176b*.
Carbanilic acid, 4-methyl-3-nitro-, chlorophenyl ester, *7448d*.
Ethane, 2 - chloro - 1,1 - bis(*p* - nitrophenyl)-, *4658c*.

$C_{14}H_{11}ClN_2O_6$ Anthranilic acid, 6-chloro-5-methoxy - *N* - (*p* - nitrophenyl)-, *6176a*.

$C_{14}H_{11}ClN_4$ 1*H*-Tetrazole, 1-(biphenylyl)-5-(chloromethyl)-, P 7971*g*.

$C_{14}H_{11}ClN_4O_2S$ Sulfanilamide, *N*¹-(chloro-2-quinoxalyl)-, *1748*, *3384d*.

$C_{14}H_{11}ClN_4O_4$ Acetophenone, α-chloro-, 2,4-dinitrophenylhydrazone, *348h*.

$C_{14}H_{11}ClN_8O_4$ Glyoxylyl chloride, bis(*p* nitrophenylhydrazone), *1324c*.

$C_{14}H_{11}ClN_8O_7$ Guanidine, (5-chloro-2 benzimidazolyl)-, picrate, *1405a*.

$C_{14}H_{11}ClO_2$ Benzoin, chloro-, *9072d*.
*m*-Cresol, 6-chloro-, benzoate, *5387d*.

$C_{14}H_{11}ClO_3$ Acetic acid, (4-chloro-2-biphenylyloxy)-, *3304e*.
Acetic acid, (5-chloro-2-hydroxyphenyl)-phenyl-, *Na salt*, *2496e*.
—, (chlorophenoxy)-, Ph ester, *2973f*.
—, (*o* - chlorophenyl)(*o* - hydroxyphenyl)-, *Na salt*, *2496d*.
Benzoic acid, *o*-(5-chloro-*o*-toloxy)-, *225c*.

$C_{14}H_{11}Cl_2NO$ Acetamide, α,α-bis(*p*-chlorophenyl)-, *1144e*.

$C_{14}H_{11}Cl_2NO_2$ Anthranilic acid, 4-chloro-*N* - (*m* - chlorophenyl)-, Me ester, *6633g*.
Anthranoyl chloride, *N* - (3 - chloro-4-methoxyphenyl)-, *6633f*.
Ethane, 1,1 - bis(*p* - chlorophenyl)-2-nitro-, P 5046*c*.

$C_{14}H_{11}Cl_2NO_2S$ Benzamide, *N* - (3,4 - dichlorophenylsulfonyl) - *N*-methyl-, P 2364*d*.
Benzamide, 2,5 - dichloro - *N* - *p*-tolylsulfonyl-, P 7960*g*, P 8622*b*.

$C_{14}H_{11}Cl_3$ (See also *Ethane, trichlorodiphenyl-*.)
Ethane, chloro - 1,1 - bis(*p*-chlorophenyl)-, *3137h*, *5804c*.

$C_{14}H_{11}Cl_2Hg_2O_4S_2$ Thiophene, 2,2′ - (2,2,2-trichloroethylidene)bis[5-(acetoxymercuri)-, *627f*.

$C_{14}H_{11}Cl_3N_2O_2S$ Acetanilide, *p*-(trichlorophenylsulfamyl)-, *4649ab*.

$C_{14}H_{11}Cl_3N_2$ Acetophenone, *p*-chloro-, (dichlorophenyl)hydrazone, *622d*.

$C_{14}H_{11}Cl_3O_2$ Phenol, *p,p′* - (2,2,2-trichloroethylidene)di-, *347b*, *968i*, *3137f*, *9342i*, *9343b*.

$C_{14}H_{11}CuNO_2$ Benzoin, oxime, Cu deriv., *8222c*.

$C_{14}H_{11}F$ Ethylene, 1 - (*p*-fluorophenyl)-1-phenyl-, *206a*.

$C_{14}H_{11}FO_2$ Anthraquinone, 2-fluoro-1,4,-4a,9a-tetrahydro-, P 2218*f*.
*p*-Cresol, 3-fluoro-, benzoate, *7917i*.

$C_{14}H_{11}IN_2O$ Benzoic acid, *m*-iodo-, benzylidenehydrazide, *6973f*.

$C_{14}H_{11}IN_2O_2$ Benzoic acid, *m*-iodo-, *o*-hydroxybenzylidenehydrazide, *6973f*.

$C_{14}H_{11}IN_2O_3$ Allophanic acid, γ-phenyl-, *p*-iodophenyl ester, *7447d*.

$C_{14}H_{11}IN_2O_4$ Carbanilic acid, 4-methyl-3-nitro-, *p*-iodophenyl ester, *7448d*.

$C_{14}H_{11}I_2NO_4$ Glycine, α - [4 - (*p* - hydroxyphenoxy) - 3,5 - diiodophenyl]-, *593a*.

$C_{14}H_{11}KN_4O_4$ Ethane, 1 - (2,4 - dinitrophenylhydrazono) - 1 - phenylazo-, K deriv., *4261a*.

$C_{14}H_{11}N$ (See also *Acetonitrile, diphenyl-*.)
Acridine, 9-methyl-, *6631d*.
Benzoquinoline, methyl-, P 1444*a*, *7485a*
Carbazole, vinyl-, *624c*, P 907*f*, P 2037*f*, P 6689*f*, P 7036*h*, *7260i*, *8600b*.
Indole, 2-phenyl-, P 8739*d*.
Phenanthridine, 4-methyl-, *1779e*.
Phenanthrylamine, *4604bc*.

$C_{14}H_{11}NO$ Benzoquinolinol, methyl 1418*a*, *1419fg*, *7485c*.
9-Fluorenecarboxaldehyde, oxime, *5770e*.
Fluorenecarboxamide, *1954i*, *3401i*, *4246b*.
9*H* - Indeno[2,1-*c*]pyrid-9-one, 1,3-dimethyl-, P 5809*c*.
8-Phenanthridinol, 6-methyl-, P 2647*d*.
Phthalimidine, 2-phenyl-, *238a*.

$C_{14}H_{11}NOS$ 2 - Benzothiazolemethanol, α-phenyl-, *7476a*.
Dibenzothiophene, 3-acetamido-, *9238e*.
Ketone, 3 - indolyl methyl - 2 - thienyl, *4666ef*.
—, 1-methyl-3-indolyl 2-thienyl, *4665i*.
Phenol, *p*-(6-methyl-2-benzothiazolyl)-,

$C_{14}H_{11}NO_2$ Dibenzofuran, 3-acetamido-, *9238e*.

Ketone, 2-furyl 1-methyl-3-indolyl, 4665*i*.
1-Naphthalenepropionic acid, β-cyano, 2167*g*.
Phenanthrenequinone, 2-amino-, 4248*h*.
Phthalimidine, 3-hydroxy-2-phenyl-, 3806*a*.
Stilbene, α-nitro, 9352*c*.
Xanthone, 1-amino 4-methyl-, 225*d*.

**$C_{14}H_{11}NO_2S$** Dibenzothiophene, 3-acetamido-, 5-oxide, 9238*e*.
Phthalide, 3-(aminophenylmercapto)-, 6179*e*.
Phthalimide, *N*-(5-methyl-2-thenyl)-, 1763*i*.

**$C_{14}H_{11}NO_3$** Oxindole, 3-(2-furoylmethyl), 1411*f*.
Phthalanilic acid, 5524*i*.
8-Quinolinepropionic acid, α-2-hydroxyethyl-β-oxo-, γ-lactone, 2623*h*.

**$C_{14}H_{11}NO_3S$** Acetophenone, α-(*o*-nitrophenylmercapto)-, 8367*a*.
Benzenesulfonic acid, α-cyanobenzyl ester, 2942*a*.
1,2-Benzisothiazol-3(2*H*)-one, 2-benzyl-, 1,1-dioxide, P 4422*c*.
Benzoic acid, thiol-, *p*-nitrobenzyl ester, 6975*f*.

**$C_{14}H_{11}NO_4$** Benzaldehyde, 5-(benzyloxy)-2-nitro-, 216*a*.
Benzoic acid, *o*-(3-amino-4-hydroxybenzoyl)-, P 8148*d*.
2-Biphenylcarboxylic acid, nitro, Me ester, 3394*g*.
Phthalanilic acid, 2′-hydroxy-, 5524*i*.
Salicylic acid, Me ester nicotinate, 6317*d*.
—, 5-(*m*-aminobenzoyl), P 5960*a*

**$C_{14}H_{11}NO_4S$** Benzoic acid, (nitrobenzylmercapto), 3816*g*
Phthalide, 3-(aminophenylsulfonyl)-, 6179*e*.

**$C_{14}H_{11}NO_5$** Benzoic acid, 5-(benzyloxy)-2-nitro-, 216*a*.
Salicylic acid, 5-(3-amino-4-hydroxybenzoyl), P 9466*g*.

**$C_{14}H_{11}NO_7S$** Benzoic acid, 5-hydroxy-2-nitro-, *p*-toluenesulfonate, 216*a*
Maleamic acid, *N*-(6-hydroxy-8-sulfo-2-naphthyl)-, P 4481*e*.

**$C_{14}H_{11}NO_8$** 1,2*H*-Benzopyran-6-carboxylic acid, 7-hydroxy-4-methyl-8-nitro-2-oxo, Me ester, acetate, 2622*a*.

**$C_{14}H_{11}NS$** Quinoline, 2-(3-methyl-2-thienyl)-, 4666*f*.

**$C_{14}H_{11}N_3$** Benzaldehyde, *p*-cyano, phenylhydrazone, 5761*d*.

**$C_{14}H_{11}N_3O$** 1-Benzimidazolecarboxamide, 8365*h*.
1-Imidazolecarboxamide, *N*-1-naphthyl-, 8365*g*.
Isatin, 1-phenyl-, 3-hydrazone, 6614*i*
Phthalimide, phenylhydrazone, P 8166*g*.
1-Pyrazolecarboxamide, *N*-1-naphthyl, 8365*g*.

**$C_{14}H_{11}N_3OS$** 3-Thianaphthenol, 2-(*p*-aminophenylazo)-, 6204*k*.

**$C_{14}H_{11}N_3O_2$** Amide, m. 168–70°, 9049*a*

**$C_{14}H_{11}N_3O_4$** 4-Stilbenamine, 2,6-dinitro-, 592*g*.
Urea, 1-*p*-nitrobenzoyl-3-phenyl-, 6162*f*.

**$C_{14}H_{11}N_3O_5$** Acetamide, *N*,*N*-bis(*m*-nitrophenyl)-, 169*c*.
Allophanic acid, γ-phenyl-, nitrophenyl ester, 7447*c*.
Benzoic acid, 6-amino-6′-hydroxy-3,3′-azodi-, P 4471*i*, P 7696*f*, P 8145*f*

**$C_{14}H_{11}N_3O_6$** Anthranilic acid, 5-nitro-*N*-(*p*-nitrophenyl), Me ester, 6176*b*.
Carbanilic acid, 4-methyl-3-nitro-, nitrophenyl ester, 7448*d*.

**$C_{14}H_{11}N_3O_7$** Ether, 2,4-dinitrophenyl 2-nitro-3,4-xylyl, 5758*h*.

**$C_{14}H_{11}N_5O_2 + H_2O$** 6,7-Pteridinediol, 2-amino-6-styryl-, 651*f*.

**$C_{14}H_{11}N_5O_4$** 5-Benzimidazolol, 6-(2-hydroxy-5-nitrophenylazo)-2-methyl-, P 9460*e*.
Δ²-1,2,4-Triazoline, 4,5-bis(nitrophenyl)-, 7022*bc*.

**$C_{14}H_{11}N_5O_4S$** Sulfanilamide, *N*¹-(nitro-2-quinoxalyl)-, 3384*d*.

**$C_{14}H_{11}N_5O_7S$** 1-Phenol-2-sulfonic acid, 6-(6-hydroxy-2-methyl-5-benzimidazolylazo)-4-nitro-, P 9460*d*

**$C_{14}H_{11}N_5Na_2O_4$** Ethane, 1-(2,4-dinitrophenylhydrazono)-2-phenylazo-, Na deriv., 4261*a*.

**$C_{14}H_{11}N_7O_6$** Ethane, 1-(2,4-dinitrophenylazo)-2-(*p*-nitrophenylhydrazono)-, 4261*e*.
Ethane, 1-(2,4-dinitrophenylhydrazono)-2-(nitrophenylazo)-, 4261*c*.

**$C_{14}H_{11}O$** Desyl, 1753*h*.

**$C_{14}H_{11}O_6P$** Benzoic acid, anhydride with $H_3PO_4$, *and Na salt*, 2188*c*.

**$C_{14}H_{12}$** (See also *Stilbene*.)
Anthracene, dihydro-, 619*g*, 2428*c*, 6194*b*, P 7510*i*.
Biphenyl, vinyl-, 165*h*, P 1609*h*, 2182*i*.
Ethylene, 1,1-diphenyl-, 1633*g*, 2193*c*, 7448*h*.
Naphthalene, divinyl-, P 7746*d*.
Phenanthrene, dihydro-, 5774*e*.

**$C_{14}H_{12}AsClO$** Acetophenone, *m*-(chlorophenylarsino), 3382*i*.

**$C_{14}H_{12}AsClO_2$** Benzoic acid, (chlorophenylarsino)-, Me ester, 3382*i*

**$C_{14}H_{12}AsClO_4$** 2-Biphenylarsonic acid, 4′-chloroacetyl-, 7452*f*.

**$C_{14}H_{12}AsN$** Arsine, cyanophenyltolyl, 3383*bc*.

**$C_{14}H_{12}AsNO_4$** Creosol, α-(5-arsenoso-2-hydroxyphenylimino), 599*a*

**$C_{14}H_{12}BrNO$** Acetanilide, α-(bromophenyl), 605*i*.

**$C_{14}H_{12}BrNO_2$** Acetamide, *N*-(5-acetyl-8-bromo-2-naphthyl)-, 9058*e*.

**$C_{14}H_{12}BrNO_3S$** Acetophenone, *p*-bromo, oxime, benzenesulfonate, 2594*c*

**$C_{14}H_{17}BrN_4O_2$** Biuret, 1-(bromophenyl)-5-phenyl-, 7446*f*.

**$C_{14}H_{12}BrN_3O_3$** Carbanilide, bromo-4-methyl-3-nitro-, 7448*c*.

**$C_{14}H_{12}Br_2$** Bibenzyl, α,α′-dibromo, 5754*a*
*p*,*p*′-Bitolyl, α,α′-dibromo, 3382*b*.
Ethane, 1,1-dibromo-2,2-diphenyl-, P 5899*c*.

**$C_{14}H_{13}Br_2N_3$** Acetamidine, *N*,*N*′-bis(*p*-bromophenyl), 2594*c*.

**$C_{14}H_{12}Br_2N_2O$** Acetophenone, α-(4-hydroxy-2,6-dimethyl-5-pyrimidyl), dibromo deriv., 3395*i*.

**$C_{14}H_{12}Br_2N_2O_3S$** Acetanilide, *p*-(3,5-dibromophenylsulfamyl)-, 4648*i*

**$C_{14}H_{12}Br_2N_4O_4$** 1*H*-Imidazo[*b*]pyridin-2-ol, 6-bromo-, compd. with AcOH, 1425*h*

**$C_{14}H_{12}Br_2O_2$** Phenol, 2,2′-ethylenebis[5-bromo-, 4246*h*.

**$C_{14}H_{12}Br_2O_3S$** *o*-Cresol, 6,6′-thiobis[4-bromo-, 6995*b*.

**$C_{14}H_{14}Br_2O_4$** Butyric acid, α-(4,6-dibromo-2-naphthoxy), 3813*i*.

**$C_{14}H_{12}Br_2O_4$** Hydrobenzoin, 5,5′-dibromo-2,2′-dihydroxy-, 4246*e*.

**$C_{14}H_{12}ClIN_2O$** Carbanilide, 3-chloro-3′-iodo-4-methyl-, 7448*a*.

**$C_{14}H_{12}ClNO$** Acetophenone, α-chloroanilino-, 220*i*, 2210*c*.
Benzamide, *N*-benzyl-*o*-chloro-, 6596*a*.

**$C_{14}H_{12}ClNO_2$** 5-(2-Carboxyvinyl)-6-hydroxy-1-methylquinaldinium chloride δ-lactone, 7028*b*.
Glycine, *N*-(*p*-chlorophenyl)-α-phenyl-, 7480*d*.
Phthalimide, *N*-(3-chloro-2,4-hexadienyl), P 4422*b*.

**$C_{14}H_{12}ClNO_3$** Anthranilic acid, 4-chloro-*N*-(*p*-methoxyphenyl)-, 7002*b*
Anthranilic acid, 4-chloro-5-methoxy-*N*-phenyl-, 6633*f*.

**$C_{14}H_{12}ClNO_3S$** Benzamide, *p*-chloro-*N*-*p*-tolylsulfonyl-, P 7963*b*, P 8622*b*.
Biphenylsulfonyl chloride, 2′-acetamido-, P 4297*g*.

**$C_{14}H_{12}ClNO_4$** Phthalic acid, 3-chloro-, aniline salt, 6600*f*.

**$C_{14}H_{12}ClNS$** Benzamide, *N*-benzyl-*o*-chlorothio-, 4652*e*, 6596*c*.

**$C_{14}H_{12}ClN_3O_2$** Biuret, 1-(chlorophenyl)-5-phenyl, 7446*f*

**$C_{14}H_{12}ClN_3O_3$** Carbanilide, chloro-4-methyl-3-nitro-, 7448*c*.

**$C_{14}H_{12}ClN_3O_3S$** Acetanilide, *p*-(4-chloro-3-nitrophenylsulfonamido)-, P 5042*g*

**$C_{14}H_{12}Cl_2$** Bibenzyl, dichloro-, 1755*d*, 5894*g*.
*p*,*p*′-Bitolyl, α,α′-dichloro-, 345*e*, 9332*e*
Ethane, 1,1-bis(*p*-chlorophenyl)-, 3137*h*, 5894*d*, 9343*b*, P 9357*e*.
—, dichlorodiphenyl-, 345*e*, 4658*c*, P 5899*c*, 9332*c*.

**$C_{14}H_{12}Cl_2N_2$** Acetophenone, (dichlorophenyl)hydrazone, 622*c*.
Aniline, *p*,*p*′-(dichlorovinylidene)di-, 1367*f*.
Azotoluene, 4,4′-dichloro-, 3801*c*.

**$C_{14}H_{12}Cl_2N_2O_3S$** Acetanilide, *p*-(dichlorophenylsulfamyl)-, 4648*h*, 4649*b*

**$C_{14}H_{12}Cl_2N_4S$** Urea, 1-(*p*-chlorophenyl)-3-(*p*-chlorophenylguanyl)-2-thio, *and -HCl*, 2948*i*.

**$C_{14}H_{12}Cl_2O$** Benzhydrol, 4,4′-dichloro-α-methyl-, 1523*b*, 1899*f*, 3137*i*.
Ethanol, 1,2-bis(*p*-chlorophenyl)-, 3369*b*.
Ether, 4,4′-dichlorobenzhydryl methyl, 3137*h*.

**$C_{14}H_{12}Cl_2O_2$** Ethane, bis(*p*-chlorophenoxy)-, 3137*i*.
3,8-Ethenocyclobuta[*b*]naphthalene 4,7-dione, 1,2-dichloro-1,2,2a,3,3a,7a,8,8a-octahydro-, 6200*i*.
Phenol, 2,2′-ethylidenebis[4-chloro-, 8614*i*.

**$C_{14}H_{12}Cl_2O_3$** Saligenin, 5-chloro-3-(5-chloro-2-hydroxybenzyl)-, 8614*i*.

**$C_{14}H_{12}Cl_2O_6$** Hydroquinone, 2,3-dichloro-, bis(allylcarbonate), P 2284*e*, P 4298*h*.

**$C_{14}H_{12}Cl_2S_2$** Dissulfide, bis(chlorobenzyl), 2359*h*.

**$C_{14}H_{12}ClN_6O_6Zn$** 2-Methoxy-5-nitrobenzenediazonium chlorozincate, P 9474*a*.

**$C_{14}H_{12}CuN_2O_2$** *o*-Cresol, α-imino-, Cu deriv., 4073*e*.

**$C_{14}H_{12}CuN_2O_4$** Anthranilic acid, Cu deriv., 8222*c*.
Salicylaldehyde, oxime Cu deriv., 8222*d*.

**$C_{14}H_{12}HgO_3$** Phenoxyphenylmercury hydroxide, acetate, 4236*fh*.

**$C_{14}H_{12}INO_2$** 5-(2-Carboxyvinyl)-6-hydroxy-1-methylquinaldinium iodide δ-lactone, 7028*b*.

**$C_{14}H_{12}INO_4$** Phthalic acid, 3-iodo-, aniline salt, 6600*g*.

**$C_{14}H_{12}IN_3O_2$** Biuret, 1-(iodophenyl)-5-phenyl-, 7446*g*.

**$C_{14}H_{12}IN_3O_3$** Carbanilide, iodo-4-methyl-3-nitro-, 7448*c*.

**$C_{14}H_{12}I_2N_2O_3S$** Acetanilide, *p*-(3,5-diiodophenylsulfamyl)-, 4648*h*

**$C_{14}H_{12}I_2N_4O$** Benzamidine, 4,4′-oxybis[3-iodo-, *di-HCl*, 9049*e*.

**$C_{14}H_{10}N_2$** Acridine, aminomethyl-, P 7974*d*, *and -HCl*, 6471*i*.
Acridine, 9-methylamino-, 649*d*, P 698*e*
Benzaldehyde, azine, P 670*f*, 931*b*, 1654*c*, 1055*a*, P 6657*g*.
Benzoquinoline, aminomethyl-, 1417*k*, 1418*a*, 1419*g*, 1421*a*.
2-Fluorenecarboxamidine, *and -HCl*, 3811*a*.
Phenanthridine, aminomethyl-, 1779*c*, 7487*b*.
1,10-Phenanthroline, dimethyl-, 2211*i*, 4277*d*, 8390*h*, 8979*d*

**$C_{14}H_{12}N_2NiO_2$** *o*-Cresol, α-imino-, Ni deriv., 4073*e*.

**$C_{14}H_{12}N_2O$** Benzil, hydrazone, 123*a*.
1-Fluorenecarboxylic acid, hydrazide, 4246*b*.
Phthalimidine, 3-amino-, 623*h*
5-Pyrazolone, 3-methyl-1-(2-naphthyl)-, P 8150*f*
Pyrido[3,4-*c*]isoquinolin-6(5*H*)-one, 2,4-dimethyl-, P 6242*d*.
Pyrido[4,3-*b*]quinolin-10(5*H*)-one 1,3-dimethyl-, *and -HCl*, 3826*a*

**$C_{14}H_{10}N_2OS$** Benzothiazole, 6-amino-5-methoxy-2-phenyl-, 5776*c*.
3-Benzothiazolinecarboxanilide, 8365*e*

**$C_{14}H_{12}N_2O_2$** Benzoic acid, *p*-hydrazino-, hydrazone with benzaldehyde, 5761*e*
Glyoxime, diphenyl-, P 4515*b*, 8199*i*
Hydrazine, 1,2-dibenzoyl-, 579*b*, P 670*i*, 5760*h*.
Oxindole, 3-(2-pyrrylcarbonylmethyl)-, 1411*f*.
Phenazine, dimethoxy-, 3057*i*
Phenol, *p*,*p*′-(acetylenedimethylidyne)-, 5756*a*.
—, *p*-phenylazo-, acetate, 6919*g*
Salicylaldehyde, azine, 1654*d*, P 4013*i*
Stilbenamine, nitro-, 9055*b*.
Urea, 1-benzoyl-3-phenyl-, 6162*g*

**$C_{14}H_{12}N_2O_2S$** Benzamide, *N*-benzyl-*p*-nitrothio-, 4652*f*, 6596*a*
Benzamide, *p*-hydroxythio-, carbanilate 593*f*.
Hydantoin, 1-benzyl-5-(2-thienyl)-, 3426*f*.

**$C_{14}H_{12}N_2O_3$** Acetamide, *N*-(*m*-nitrophenyl)-*N*-phenyl-, 647*i*.
Acetanilide, 2-nitro-6-phenyl-, 7487*a*
Allophanic acid, γ-phenyl-, Ph ester, 7447*c*.
Anthranilic acid, *N*-phenylcarbamyl-, 170*i*.
Benzamide, *p*-hydroxy-, carbanilate, 593*f*.
Benzanilide, *N*-methyl-4-nitro-, 4241*a*.
Benzoic acid, (aminobenzamido)-, 1032*d*
—, 2-amino-5-benzamido-, P 4865*f*, P 5194*e*, P 7701*c*.
—, *p*-hydrazino-, hydrazone with hydroxybenzaldehyde, 5764*g*; hydrazone with salicylaldehyde, 5764*g*.
—, (3-phenylureido)-, 170*i*.
Benzotuiidide, 4-nitro-, 1032*e*, 1341*b*.
Ketone, 2,6-dimethyl-4-pyridyl *p*-nitrophenyl, 4672*b*.

Phenol, *p*-1,3-benzodioxan-6-ylazo-, P 8149*c*.
Phthalimide, *N* - (hydroxymethyl)-, compd. with pyridine, 6184*h*.
2-Pyridol, 5-acetamido-, benzoate, 2998*a*.
2(1*H*) - Pyridone, 1 - methyl - 6 - (*m*-nitrostyryl)-, 6629*g*.

$C_{14}H_{12}N_2O_3S_2$ Benzenesulfonic acid, 2-amino-5 - (6 - methyl - 2 - benzothiazolyl)-, P 1575*c*.

$C_{14}H_{12}N_2O_3S_3$ 5 - Benzothiazolesulfono *p*-toluidide, 2' - hydroxy - 2 - mercapto-, P 5042*h*.

$C_{14}H_{12}N_2O_4$ Bibenzyl, 2,2'-dinitro-, 7918*h*.
Carbanilic acid, 4-methyl-3-nitro-, Ph ester, 7448*d*.
Nicotinic acid, diester with ethylene glycol, 2623*a*.
Oxanilide, dihydroxy-, 5388*ab*.
Salicylamide, *N*-benzyl-4-nitro-, 6596*g*.
Salicylic acid, 5 (*p* aminobenzamido)-, P 8157*a*.

$C_{14}H_{12}N_2O_4Pd$ Salicylaldehyde, oxime, Pd deriv., 8956*a*.

$C_{14}H_{12}N_2O_4S$ 1-Naphthalenesulfonic acid, (3 methyl-5 oxo-2-pyrazolin-1-yl)-, P 8157*g*.
Sulfide, 2 nitro-*p*-tolyl 6-nitro-*m*-tolyl, 3387*g*.

$H_{12}N_2O_5$ Isonicotinic acid, 3-(2-carboxy-4-methoxyanilino)-, 3827*c*.
Resorcinol, 2,4 - dinitroso - 6 - *o* - phenetyl, 3810*d*.

$C_{14}H_{12}N_2O_5S$ 1 - Naphthol - 3 - sulfonic acid, 6 (3 - methyl - 5 - oxo - 2 - pyrazolin-1-yl)-, P 9464*e*.
Phthalamic acid, *N*-sulfanilyl-, 2597*f*
Phthalanilic acid, 4' sulfamyl-, P 10641*b*, P 7961*i*.
Toluamide, *N* (*p* nitrophenylsulfonyl)-, P 2638*h*.

$H_{12}N_2O_5S$ Benzamide, *p* methylmercapto - *N* - (*p* nitrophenylsulfonyl)-, P 6233*h*

$H_{12}N_2O_6$ 5 - Quinolinemethanol, 6 hydroxy 8 nitro-, diacetate, 1414.

$H_{12}N_2O_6S$ Anthranilic acid, *N* (3 carboxysulfanilyl)-, P 7697*i*, P 7710*i*

$H_{12}N_2O_7$ Acetophenone, α diazo 3,4,5 trihydroxy-, triacetate, 2974*i*

$H_{12}N_2O_7S$ Benzenesulfone acid, 5 nitro 2-(2 nitrophenethyl)-, P 7694*i*
2 Furoic acid, 5 (*N* acetylsulfanilyl carbamyl)-, 2597*i*.
Glycylic acid, 5 (*p* aminobenzamido) 3 nitro-, P 1863*i*
3 amino 4 sulfobenzamido-, P 858*d*
5 (3 carboxysulfanilamido)-, P 7710*b*

$H_{12}N_2O_7S_2$ 1,5 Naphthalenedisulfonic acid, 3 (3 methyl 5 oxo 2 pyrazolin 1 yl)-, P 9464*i*

$H_{12}N_2O_8S$ Anisole, sulfonyldis(nitro)-, 5961*h*.

$H_{12}N_2O_8S_2$ See *Stilbenedisulfonic acid, 4 amino 4' nitro*

$H_{12}N_2O_8S_2$ 1*H* - Benz[*de*]isoquinolinedisulfonic acid, 6 amino 2,3 dihydro 2 (2 hydroxyethyl) 1,3 dioxo-, P 7710*b*

$H_{12}N_2O_{10}S_2$ Bibenzyl 2,2' disulfonic acid, 4,4' dinitro-, P 7694*h*.

$H_{12}N_2S$ Benzothiazole, 2 (*o* aminophenyl) 6 methyl-, 3292*i*, P 5600*g*, P 5965*i*, P 8449*i*, P 8466*d*.
Pyridine, 2 (3 thianaphthenylmethylamino)-, 1396*b*.

$C_{14}H_{12}N_2O_3S_2$ Acetamilide, *p* [(*p* nitrophenylmercapto)sulfamyl]-, P 8400*e*

$C_{14}H_{12}N_4$ Ethylene, 1,2-bis(phenylazo)-, 1654*h*.
Guanidine, 3 cyano-1,1-diphenyl-, 2947*e*

$C_{14}H_{12}N_4O_2$ Anthraquinone, 1,4,5,8 tetramino-, P 4020*g*, P 4483*h*.
Glyoxylic acid, phenylazo-, phenylhydrazone, 5696*f*.

$C_{14}H_{12}N_4O_2S$ (See also *Sulfanilamide, N quinoxalyl-*.)
Benzenesulfonanilide, 4 - (1,2,3,2*H*) triazol-2-yl)-, 2620*b*.
Metanilamide, *N*1-2-quinoxalyl-, P 7517*c*.

$C_{14}H_{12}N_4O_3$ 5 - Triazolo[2,3 - *a*]pyrimidine carboxylic acid, hydroxyphenyl-, Et ester, P 52*i*, P 4105*f*.

$C_{14}H_{12}N_4O_4$ Acetophenone, 2,4-dinitrophenylhydrazone, 6175*b*.
Buret, 1-(nitrophenyl)-5-phenyl-, 7440*i*

$C_{14}H_{12}N_4O_5$ Acetanilide, 2-hydroxy-5-(2-hydroxy - 5 - nitrophenylazo)-, P 4867*d*.
Carbanilide, methyldinitro, 7448*c*.

$C_{14}H_{12}N_4O_5S$ Salicylic acid, 3-(5-amino-6-methyl - 2*H* - benzotriazol - 2 - yl) 5 sulfo-, P 1575*b*.

$C_{14}H_{12}N_4O_7$ Isoindoline, picrate, 121*h*.

$C_{14}H_{12}N_4O_7S$ Acetanilide, *p*-(3,5-dinitrophenylsulfamyl)-, 4648*h*.
Isonicotinic acid, 2,6-dihydroxy-3-[*p*-(acetylsulfamyl)phenylazo]-, P 3571*i*.

$C_{14}H_{12}N_4O_8$ 2-Propanone, (2-pyridyl)-, picrate, 6625*g*.

$C_{14}H_{12}N_6O_3$ See *Pteroic acid*.

$C_{14}H_{12}N_8O_4$ Ethane, 1-(2,4-dinitrophenylazo) - 1 - phenylhydrazono-, 4261*b*.
Ethane, 1 - (2,4 - dinitrophenylhydrazono)-1-phenylazo-, 4261*a*.

$C_{14}H_{12}N_8O_7$ 1,3,5,3*H* - Benzotrinazepine, 2,4-diamino-, picrate, 1405*i*
Guanidine, (2 benzimidazolyl)-, picrate, 1404*i*.

$C_{14}H_{12}N_{10}O_2$ Compd. from 2-amino-6-methyl-4-pteridinol, 9452*h*.

$C_{14}H_{12}O$ (See also *Desoxybenzoin*.)
Acetaldehyde, diphenyl, 1041*c*, 1753*c*, 4632*i*.
Acetophenone, *p* phenyl, 2980*a*.
1*H* - Benz[*e*]inden - 1 - one, 2,3 - dihydro-3-methyl-, 7472*c*.
1*H* - Benzonaphthen - 1 - one, 2,3 - dihydro-3-methyl-, 3816*a*.
Benzophenone, methyl-, 1743*b*.
3-Buten-2-one, 4-(naphthyl)-, 8885*f*.
Ether, phenyl *p*-vinylphenyl, 1597*f*.
Ketone, 3-acenaphthenyl methyl, 1766*b*.
3,5 - Octadien - 7 - yn - 2 - one, 8 - phenyl, 7415*f*.
*o*-Tolualdehyde, α phenyl-, 6194*d*.

$C_{14}H_{12}OS$ Acetophenone, *p* phenylmercapto-, 3361*g*.
Benzoic acid, thiol-, benzyl ester, 2597*d*, P 3445*d*, 6975*f*
Benzophenone, 4-(methylmercapto)-, 7467*i*

$C_{14}H_{12}O_2$ (See also *Benzoin*.)
Acetic acid, 4-biphenylyl-, 1385*c*.
Acetophenone, *p* - (*p* hydroxyphenyl), 1033*i*
, 4 hydroxy 2 phenyl-, 2187*h*.
- , α phenoxy-, 1248*c*.
Acrylophenone, β-2 furyl-α-methyl-, 3429*c*
Benzoic acid, benzyl ester, P 1979*e*, P 2124*c*, 6495*f*, 8599*e*, 9349*b*, 9375*e*
Benzoic acid, *p*-tolyl ester, 1518*f*, 3554*i*, 8599*k*
Benzophenone, methoxy-, 6020*h*, P 7966*a*, P 7967*c*
2 Biphenylcarboxylic acid, Me ester, 3394*e*.
3,8 - Ethenocyclobuta[*b*]naphthalene-1,7 - diol, 2a,3,8,8a - tetrahydro-, 6198*b*.
3,8 - Ethenocyclobuta[*b*]naphthalene-4,7 - dione, 2a,3,3a,7a,8,8a - hexahydro-, 6198*a*.
Naphthaleneacrylic acid, 8 methyl-, 3815*i*, 4659*c*, 7472*c*
*o* Tolnic acid, α phenyl-, 191*g*, 4241*k*, 9376*a*.

$C_{14}H_{12}O_2S$ 2 - Phenoxathiinmethanol, α-methyl-, P 1814*b*

$C_{14}H_{12}O_3$ Acetic acid, phenoxy-, Ph ester, 2973*g*.
Benzilic acid, 191*g*, 1045*b*, 1349*e*.
5 - Benzofuranacrylic acid, 6 - hydroxy 2-isopropyl-, δ-lactone, 2993*h*.
Benzoic acid, *p*-(benzyloxy)-, 7585*a*.
Benzophenone, 2,4 - dihydroxy - 6-methyl-, 8065*i*
—, 2 hydroxy-4-methoxy-, 183*c*.
Marmesin, anhydro-, 2993*h*.
Propionic acid, β naphthoyl-, 1378*d*, P 8401*g*
Quinol, 4 phenyl-, acetate, 2181*i*.

$C_{14}H_{12}O_3S$ Acetic acid, (*p*-phenoxyphenylmercapto)-, 3365*a*.

$C_{14}H_{12}O_4$ 2-Acetonaphthone, dihydroxy-, acetate, 3416*a*, 7341*f*.
1,4-Naphthalenediol, diacetate, 1371*g*.
Salicylic acid, 3 methoxy-, Ph ester, 4242*c*, 7455*h*.
*s* Tetroxane, 3,6-diphenyl-, P 906*c*.
Vanillic acid, Ph ester, 7455*h*.

$C_{14}H_{12}O_3S$ 2 - Phenanthrenesulfonic acid, 1,2,3,4 - tetrahydro - 1 - oxo-, *and NH₃ salt*, 2214*d*.

$C_{14}H_{12}O_4$ 2 - Acetonaphthone, 1,3,4 - trihydroxy-, 3-acetate, 7341*f*.
Isokhellin, 7481*b*.
Khellin, 5024*e*, 5542*di*, 7480*f*, 8096*e*.
Malonic acid, (2,3-dihydro-6-hydroxy-5-benzofurylmethylene)-, Et ester, δ-lactone, 1406*f*.
2 - Naphthalenebutyric acid, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, 1387*bg*, 3365*i*.
2 - Naphthalenepropionic acid, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, Me ester, 1387*cg*.
4 - Pyrone, 2 - (hydroxymethyl) - 5 - phenacyloxy-, 8385*i*.
Succinic acid, 4-hydroxy-1-naphthyl ester, 3526*g*.
Visammin, 7584*b*.

$C_{14}H_{12}O_5$ Chromone, 5,7-dihydroxy-2-methyl-, diacetate, 1775*h*.

$C_{14}H_{12}O_5S_2$ *m* - Toluenesulfonic acid, 6 - hydroxy-, bimol. cyclic sulfonylide, 7006*d*.

$C_{14}H_{12}S_7$ Mitigal, P 4420*b*, P 6358*e*.

$C_{14}H_{14}$ Benzhydryl, methyl-, 5387*f*.

$C_{14}H_{13}AsClNO$ Acetanilide, *o* (chlorophenylarsino)-, 3382*i*.

$C_{14}H_{13}AsO_2$ Arsinic acid, (*m* acetylphenyl)-phenyl-, 3382*h*.

$C_{14}H_{13}AsO_4$ 2-Biphenylarsonic acid, 4'-acetyl-, 7452*f*

$C_{14}H_{13}Br$ Methane, (*m* - bromophenyl) - *p*-tolyl-, 166*d*.

$C_{14}H_{13}BrN_2$ 9 - Amino - 10 - methylacridinium bromide, 7135*h*.

$C_{14}H_{13}BrN_2O_3S$ Acetanilide, *p* (*m*-bromophenylsulfamyl)-, 4649*b*.
2 - Thiophenealanine, 5 - bromo - *N*-phenylcarbamyl-, 6613*g*.

$C_{14}H_{13}BrN_4O$ Benzamidine, 3-bromo-4,4'-oxydi-, *di*-*HCl*, 9019*e*.

$C_{14}H_{13}BrN_4O_4S$ Phthalamic acid, *N*-[2-(5-bromo - 2 - pyrimidylsulfamyl)ethyl]-, P 3450*f*.

$C_{14}H_{13}BrO_3$ Butyric acid, α-(1-bromo 2-naphthoxy)-, 3813*i*.
1,4 Naphthoquinone, 2 - (4 - bromobutyl) 3-hydroxy-, 1382*b*.

$C_{14}H_{13}Br_2N_3O_4S$ Benzenesulfonamide, *p*-(dibromohydroxyphenetylazo)-, 9047*i*.

$C_{14}H_{13}Cl$ Ethane, chlorodiphenyl-, 345*e*, 4658*c*, 9332*c*.

$C_{14}H_{13}ClIN$ 4 - (Chlorostyryl) - 1 - methyl pyridinium iodide, 7483*f*.

$C_{14}H_{14}ClN$ Azotoluene, chloro, 3801*b*.
*p* Toluamidine, *N* - (*p* - chlorophenyl)-, P 2232*c*, 7441*f*

$C_{14}H_{13}ClN_2O$ Acetophenone, α - (4 - chloro 2,6-dimethyl 5-pyrimidyl)-, 3395*h*
3,4 - Xylenol, (*p* - chlorophenylazo)-, 3385*h*.

$C_{14}H_{13}ClN_2O_7$ Benzamide, *o*-(3-chloro-4-methoxyamino)-, 6633*i*.

$C_{14}H_{13}ClN_2O_3S$ Acetanilide, *p*-(*m*-chlorophenylsulfamyl)-, 4649*b*.
Chlorosulfonic acid, 4-*m*-tolylazo-*o*-tolyl ester, 3800*i*.

$C_{14}H_{13}ClN_2O_3S$ Acetamide, α (*p* chlorophenylmercapto) - *N* sulfanilyl-, P 3036*a*.

$C_{14}H_{13}ClN_2O_4S$ Acetamide, α-(*p* chlorophenoxy) - *N* - sulfanilyl-, P 3036*a*.

$C_{14}H_{13}ClN_2S$ Carbanilide, 4 chloro-4'-methylthio-, 9039*f*.

$C_{14}H_{13}ClN_4$ 5 - Methyl - 2,3 - diphenyl - 2*H*-tetrazolium chloride, 7593*b*.

$C_{14}H_{13}ClN_4O$ Benzamidine, 3-chloro-4,4'-oxydi-, *di*-*HCl*, 9049*e*.

$C_{14}H_{13}ClN_4O_3S$ Benzenesulfonic acid, 5-(2-acetamido - 4 - aminophenylazo) - 2-chloro-, P 4863*h*.

$C_{14}H_{13}ClN_4O_4S$ Phthalamic acid, *N*-[2 (5-chloro - 2 - pyrimidylsulfamyl)ethyl]-, P 3450*g*.

$C_{14}H_{13}ClN_4O_7$ Phenethylamine, chloro-, picrate, 3378*i*, 3379*a*.

$C_{14}H_{13}ClN_6O_7$ Guanidine, 1-(*p*-chlorophenyl)-3-methyl-, picrate, 9039*b*.

$C_{14}H_{13}ClO$ Benzhydrol, α-(chloromethyl)-, 2600*e*.
Ether, *p*-chlorobenzyl *p*-tolyl, 3138*b*.

$C_{14}H_{13}ClO_2$ Benzene, 1-(*p*-chlorobenzyloxy)-4-methoxy-, 3138*b*.
1 - Naphthalenemethanol, 4 - chloro - α-methyl-, acetate, 3813*a*.

$C_{14}H_{13}ClO_3S$ 1,4 - Naphthoquinone, 2 - (butylmercapto)-3-chloro-, 7581*d*.
Sulfone, benzyl α-chlorobenzyl, 7409*g*.

$C_{14}H_{13}ClO_3$ Acetic acid, (1-chloro-2-naphthoxy)-, Et ester, P 2234*c*.
Butyric acid, α-(1-chloro-2-naphthoxy)-, 3813*i*.

$C_{14}H_{13}ClO_4$ 1,2*H* - Benzopyran - 3 - carboxylic acid, 4-(chloromethyl)-7-methoxy-2-oxo-, Et ester, 7936*h*.

$C_{14}H_{13}ClO_6$ Carbonic acid, diallyl 4-chloro-*m*-phenylene ester, P 4298*h*.

$C_{14}H_{13}ClS$ Sulfide, benzyl α-chlorobenzyl, 7409*g*.

$C_{14}H_{13}Cl_2NO$ Ethanol, 2-amino-1,2-bis(*p*-chlorophenyl)-, *and* - *HCl*, 3369*e*.

$C_{14}H_{13}Cl_2N_3$ Pyrimidine, 2,4-dichloro-6-(*p*-dimethylaminostyryl)-, 1780*f*.

$C_{14}H_{13}Cl_2N_5$ Biguanide, 1,5-bis(*p*-chlorophenyl)-, 9038*i*; - *HCl*, P 684*h*, P 1060*d*, 2949*a*.

$C_{14}H_{11}Cl_2O_2P$ Phosphinic acid, bis(*p*-chlorophenyl)-, Et ester, 599*e*.
$C_{14}H_{13}Cl_3N_2$ Aniline, (2,2,2-trichloroethylidene)di-, 1367*e*, 1752*h*, P 6237*d*, 6605*c*, P 7510*e*.
$C_{14}H_{13}Cl_3N_2O_2S$ Acetic acid, trichloro-, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.
$C_{14}H_{13}F$ Bitolyl, fluoro-, 7918*a*.
$C_{14}H_{13}IN_2O$ Carbanilide, 3-iodomethyl-, 7447*i*.
Urea, 1 - benzyl - 3 - (*m* - iodophenyl) -, 7448*a*.
$C_{14}H_{13}IN_2O_2$ Carbanilide, iodomethoxy-, 7448*a*.
1 - Methyl - 4 - (nitrostyryl)pyridinium iodide, 7483*f*.
$C_{14}H_{13}IN_2O_2S$ Acetanilide, *p*-(*p*-iodophenylsulfamyl)-, P 685*i*, 4049*b*.
$C_{14}H_{13}IN_4O$ Benzamidine, 3-iodo-4,4'-oxydi-, *di* - *HCl*, 9049*e*.
$C_{14}H_{13}N$ Aniline, *N*-α-methylbenzylidene, 4227*i*.
Carbazole, 2,4-dimethyl-, 1391*b*.
—, 9-ethyl-, 3819*d*.
Phenanthridine, 5,6-dihydro-6-methyl, 8365*g*.
$C_{14}H_{13}NO$ Acetaldehyde, diphenyl, oxime, 1041*c*.
Acetamide, α,α-diphenyl-, 611*c*, 1144*d*, 1280*g*, 1744*c*.
Acetophenone, *p*-(*o*-aminophenyl), 7452*f*.
Benzamide, *N*-benzyl-, 6596*a*
1 *H* - Benzonaphthen - 1 - one, 2,3 dihydro-3-methyl-, oxime, 3816*a*.
Benzophenone, *O* methyloxime, *and salts*, 7465*a*.
Benzotoluidide, 1654*g*.
9-Carbazoleethanol, 624*a*, P 6669*d*, *f*.
Desoxybenzoin, oxime, 7008*c*.
1 - Indanol, 1 - (2 - pyridyl)-, *and* - *HCl*, 2205*f*.
1 - Naphthaleneacrylamide, β-methyl-, 4659*d*.
$C_{14}H_{13}NO_2$ Acetamide, *N*-(acetylnaphthyl), 6606*d*,*g*,*h*, 9058*d*
Acetanilide, *p* - [2 - (2 - furyl)vinyl], 3428*c*.
Acetic acid, phenyl-, 3-pyridylmethyl ester, P 8105*h*.
Acetoacetamide, *N*-naphthyl, 1419*g*, 7485*b*.
Anthranilic acid, *N*-benzyl-, 1315*i*
Benzanisidide, 1654*g*.
Benzoic acid, benzylamino, 1345*i*
Benzoin, oxime, 1038*f*, P 4515*b*
Benzotoluidide, *ar'*-hydroxy, P 9461*b*.
Carbamic acid, benzhydryl-, 2981*c*.
Glycine, α,α-diphenyl-, 2981*b*.
Δ$^{1,\alpha}$-Indanacetic acid, α cyano-, Et ester, 8373*d*.
Indophenol, dimethyl-, 6595*e*.
Mandelanilide, 1353*g*.
Nicotinic acid, phenethyl ester, 2622*i*.
*p*-Toluquinone, *O*-benzyloxime, 5378*h*
$C_{14}H_{13}NO_2S$ Carbanilic acid, *p* hydroxythiol-, *p*-tolyl ester, P 3659*b*.
$C_{14}H_{13}NO_3$ Acetic acid, (*p*-anilinophenoxy)-, 3364*e*.
Carbanilic acid, *m*-methoxyphenyl ester, 593*f*.
—, *p*-methoxy-, Ph ester, 593*e*
Ether, benzyl nitrotolyl, 1765*d*,*h*
Glycine, *N* - (1 - naphthylacetyl), *K salt*, 8010*h*.
1,4 - Naphthoquinone, 2 - (4 morpholinyl)-, 1383*e*.
Oxamic acid, *N*-naphthyl, Et ester, 6973*g*.
5(4 *H*) - Oxazolone, 4 (ethoxymethylene) -2-styryl-, 1768*h*.
Quinolinepropionic acid, β - hydroxy - α 2-hydroxyethyl-(?), γ lactone, 2623*h*.
—, β-oxo-, Et ester, 3363*e*.
4 - Quinolinepyruvic acid, Et ester, 7022*f*.
$C_{14}H_{13}NO_4$ 5(4 *H*) - Oxazolone, 4 (hydroxymethylene) - 2 - (*p* - methoxy - α methylstyryl)-, 7021*f*
5 - Quinolinemethanol, 6 - hydroxy-, diacetate, 1414*b*.
Skimmianine, 5546*f*.
$C_{14}H_{13}NO_4S$ Acenaphthenesulfonic acid, acetamido-, 1766*b*.
Benzenesulfonic acid, phenylcarbamylmethyl ester, 2942*h*.
Benzoic acid, *p*-(benzylsulfonamido)-, 759*a*, 3502*i*, 6071*i*, 5120*h*, 5500*i*, 6318*b*.
—, (methylphenylsulfamyl)-, P 863*g*.
$C_{14}H_{13}NO_4S$ Acetanilide, *p*-(2,5 dihydroxyphenylsulfonyl)-, 2593*f*
$C_{14}H_{13}NO_4$ Adipic acid, α phthalimido, 4223*f*.
2-Heptenoic acid, 2,4-dihydroxy-, γ-lactone, *p*-nitrobenzoate, 4221*h*.
$C_{14}H_{13}NO_4S$ Anisole, 2-nitro-4,4'-sulfonyldi-, 6994*h*.
$C_{14}H_{13}NS$ Benzamide, *N*-benzylthio-, 4652*e*, 6596*c*.
1,4,2 *H* - Benzothiazine, 3,4 - dihydro - 2-phenyl-, 7421*c*.
1 - Thiaxanthenamine, 4 - methyl-, 226*i*.
$C_{14}H_{13}N_3$ Benzamidine, *p*-[2-(pyridyl)vinyl]-, - *HCl*, 5757*a*.
Pyrido[3,4 - *c*]isoquinoline, 6 - amino-2,4-dimethyl-, *and di* - *HCl*, P 6242*g*.
$C_{14}H_{13}N_3O$ Acetanilide, *p*-phenylazo-, P 4477*i*.
Pyrazolinecarboxamide, *N* 1-naphthyl-, 8365*e*.
$C_{14}H_{13}N_3O_2$ Benzaldehyde, *p* nitro-, benzylhydrazone, 7480*a*.
Biuret, 1,5-diphenyl-, 7446*f*.
Nicotinanilide, 4' acetamido-, 5025*c*
Oxamic acid, *N*-naphthyl-, ethylidenehydrazide, 6973*i*.
9 *H* - Pyrid[3,4 - *b*]indole - 1 - carbamic acid, Et ester, 3416*g*.
$C_{14}H_{13}N_3O_3$ Benzoic acid, 2 amino-5-(*p*-aminobenzamido)-, P 9466*e*.
Benzoic acid, *m*-(4-amino 3-methoxyphenylazo)-, P 4864*a*, P 7235*a*
Biuret, 1 - (hydroxyphenyl) - 5 - phenyl-, 7446*g*.
Carbanilide, 4 methyl-3-nitro, 7448*b*.
2,3-Cresotic acid, 5 (*p*-aminophenylazo), P 4486*h*.
Salicylic acid, 5-(4-amino *m*-tolylazo), P 9459*h*.
$C_{14}H_{13}N_3O_2S$ 2-Imidazolethiol, 1-acetylbenzamido-, acetate, 1401*a*.
2 - Naphthalenesulfonic acid, 2 amino pyrimidine salt, 174*b*.
Thiazole, 2 - acetamido - 4 - [(*p* - nitrophenyl)cyclopropyl]-, 635*i*, 9042*d*.
4 - Thiazoline, 5 - acetamido - 3 - acetyl 2-(benzoylimino)-, 1400*i*
$C_{14}H_{13}N_3O_4$ Carbanilide, hydroxy 4-methyl-3-nitro, 7448*c*.
Ketone, 2 furyl hydroxymethyl, semicarbazone, benzoate, 1392*c*.
Mesitylenic acid, 4-nitro-, furfurylidenehydrazide, 6972*i*.
Pyridine, 4 - (2,4 - dinitrobenzyl) 2,6-dimethyl-, 4672*d*.
Salicylic acid, 5-(4-aminomethoxyphenylazo)-, P 1574*i*, P 2440*i*
$C_{14}H_{13}N_3O_5S$ Benzenediazobenzenesulfonate, 4'-acetamido-4-hydroxy, P 9355*e*
Urea, 1 - benzyl - 3 - (*p* - nitrophenylsulfonyl)-, P 1061*f*.
$C_{14}H_{13}N_3O_5S$ Fumaranilic acid, *p*-[(4 methyl-2-thiazolyl)sulfamyl]-(?), P 3816*f*
Maleanilic acid, *p*-[(4-methyl 2 thiazolyl)-sulfamyl]-(?), P 3846*f*
$C_{14}H_{13}N_3O_5S$ 2,3-Cresotic acid, 5 (4-amino 2-sulfophenylazo)-, P 5963*d*
Salicylic acid, 5-(4 amino *o* tolylazo) 3-sulfo-, P 1575*d*, P 9459*g*
*p* - Toluenesulfono - *o* - toluidide, 4',6'-dinitro-, 3385*b*.
$C_{14}H_{13}N_3O_5S$ Sulfanilamide, *N'*-(amino 2-quinoxalyl)-, 3384*d*
Sulfanilanilide, 4' - (1,2,3,2 *H* - triazol-2-yl)-, 2620*b*.
$C_{14}H_{14}N_4O_3$ Benzamidine, 3 nitro-4,4' oxydi-, *di*-*HCl*, 9049*e*.
$C_{14}H_{13}N_5O_7$ Acetamidine, phenyl, picrate, P 3456*f*,*i*.
Benzaldehyde, methylhydrazone, picrate, 6592*h*.
$C_{14}H_{13}N_5O_9$ Phenethylamine, *p*-nitro, picrate, 7485*i*.
$C_{14}H_{14}N_7O_2S$ Sulfadiazine, dilturate, 3262*g*.
$C_{14}H_{15}O_2P$ Phosphine oxide, acetyldiphenyl-, 3802*b*.
$C_{14}H_{14}$ (See also *Bibenzyl*.)
Anthracene, tetrahydro, 5774*e*.
Ethane, diphenyl, 591*i*, 1251*c*, 5894*d*, 6994*a*.
Phenanthrene, tetrahydro-, P 7510*i*.
$C_{14}H_{14}AgNO_3S_2$ Benzyl disulfide, compd. with $AgNO_3$, 1325*h*.
$C_{14}H_{14}AsNO_3$ Arsinic acid, (*o*-acetamidophenyl)phenyl-, 3382*i*.
$C_{14}H_{14}AsNO_5S_2$ Acetic acid, [*p*-(*p*-arsonophenylsulfamyl)phenylmercapto]-, 2271*g*, 3365*c*.
$C_{14}H_{14}As_2N_2Na_2O_8S_2$ See *Sulfarsphenamine*.
$C_{14}H_{14}AuClS$ Benzyl sulfide, compd. with AuCl, 1313*d*.
$C_{14}H_{14}BrNO_2$ 1 - Benzyl - 3 - carboxypyridinium bromide, Me ester, 2622*f*.
3 - Carboxy - 1 - methylpyridinium bromide, benzyl ester, 2622*h*, 6317*h*.
2 - Naphthaleneacetamide, bromo - *N*-2 hydroxyethyl-, 3364*a*.
$C_{14}H_{14}BrNO_3S$ Benzenesulfonanilide, 4-bromo-3',5'-dimethoxy-, 4649*a*.
$C_{14}H_{14}Br_2N_2O_3$ 4-Pyrazolecarboxylic acid, 3,5 - bis(bromomethyl) - 1 - phenyl-, Et ester, 7909*c*.
$C_{14}H_{14}Br_2N_2O_3S$ *o* - Toluenesulfonanilide, 4-amino - 3',5' - dibromo - 5 - methoxy-, 4649*c*.
$C_{14}H_{14}Br_2N_2O_4$ 2 - Hepten - 1 - ol, 2,3 - dibromo-, 3,5-dinitrobenzoate, 6572*d*.
$C_{14}H_{14}Br_2O_4$ Tricyclo[4.2.2.0$^{2,5}$] - 7,9 - decadiene - 7,8 - dicarboxylic acid, 3,4-dibromo-, di-Me ester, 6199*g*.
$C_{14}H_{14}ClN$ Dibenzylamine, *N*-chloro-, 6570*h*
$C_{14}H_{14}ClNO_2$ 2 - Naphthaleneacetamide, 3 chloro - *N* - 2 - hydroxyethyl-, 3364*a*
$C_{14}H_{14}ClNO_3S$ Phenethylamine, *p*-(*p*-chlorophenylsulfonyl)-, - *HCl*, 7450*e*.
$C_{14}H_{14}ClNO_4S$ 2 - Methyl - 3 - (1 - naphthyl) 2 - thiazolinium perchlorate, P 7843*i*
$C_{14}H_{14}ClN_3$ (See also *Acriflavine*.)
Guanidine, 1-(*p*-chlorophenyl)-3-*p*-tolyl, 9039*f*.
Pyrimidine, 4-chloro-6-(*p*-dimethylaminostyryl)-, 1780*g*.
$C_{14}H_{14}ClN_3O_6$ 1 - (2,4 - Dinitrophenyl) - 4-propoxypyridinium chloride, 6626*h*.
$C_{14}H_{14}ClN_3O_3S_2$ Acetanilide, *p*-[(4-chlor metanilyl)sulfamyl]-, P 8150*a*.
$C_{14}H_{14}ClN_5$ Biguanide, 1-(*p*-chlorophenyl) phenyl-, P 4691*f*, 9036*g*.
$C_{14}H_{14}ClO_3P$ Benzyl chlorophosphate, 599 2650*a*.
$C_{14}H_{14}ClO_4P$ Chlorophosphoric acid, bis(methoxyphenyl)ester, 6178*e*.
$C_{14}H_{14}Cl_2N_2O_3S$ Sulfanilanilide, 3',5' chloro - *N*', *N*' - dimethyl-, 4648*i*.
$C_{14}H_{14}Cl_2N_2O_3S$ *o* - Toluenesulfonanilide, amino - 3',5' - dichloro - 5 - methoxy 4649*c*.
$C_{14}H_{14}Cl_2O_4$ Tricyclo[4.2.2.0$^{2,5}$] - 7,9 - decdiene - 7,8 - dicarboxylic acid, 3, dichloro-, di-Me ester, 6199*f*.
$C_{14}H_{14}Cl_2Si$ Silane, dibenzyldichloro, 4517*c*.
$C_{14}H_{14}Cl_4N_4O_3S_2$ Acetamide, *N*-(3,5-dichlorsulfanilyl)-, compd. with 3,5-dichlorsulfanilamide, 601*h*.
$C_{14}H_{14}FNO_2$ 2 - Naphthaleneacetamide, fluoro - *N* - 2 - hydroxyethyl, 3364*a*
1 Naphthalenecarbamic acid, 2 fluoropropyl ester, 6163*d*.
$C_{14}H_{14}Hg$ Mercury, dibenzyl-, 560*a*, 1749 4579*f*.
Mercury, ditolyl-, 771*d*, 4579*f*, 6585*h*
$C_{14}H_{14}HgO_2$ Mercury, bis(methoxyphenyl) 4236*i*.
$C_{14}H_{14}HgO_3$ Hydracrylic acid, β-benzoxy-α (hydroxymercuri)-, diacetate, 7192*i*
$C_{14}H_{14}IN$ 1 - Methyl - 4 - styrylpyridinium iodide, 7483*f*.
$C_{14}H_{14}INO$ 4 - (Hydroxystyryl) - 1 methyl pyridinium iodide, 7483*f*.
$C_{14}H_{14}INO_2$ 3 - Carboxy - 1 - methylpyridinium iodide, benzyl ester, 2622*i*
$C_{14}H_{14}N$ Benzamidine, *N*-methyl *N'* phenyl, 2595*f*.
$C_{14}H_{14}N_2$ (See also *2-Imidazoline*, *2-naphthylmethyl*-.)
Acetamidine, *N*, *N'*-diphenyl, 2591, 2595*e*, 6081*i*, 6994*f*.
Acridan, 1-amino-4-methyl-, 647*f*
*m*,*o'*-Azotoluene, 6315*c*.
Benzamidine, *N*-benzyl-, - *HCl*, P 3456*a*
—, methylphenyl-, P 2230*e*, P 3456*a*, 6082*a*.
Formaldehyde, benzylphenylhydrazone, 1654*i*.
Formamidine, *N* - methyl *N*, *N'* diphenyl-, 6082*d*.
—, *N* - phenyl - *N'* - tolyl-, 6081*h*
β - Hydromucononitrile, α, δ di 2 butenylidene-, P 3848*a*.
7 *H* - Pyrrolo[2,3 - *h*]quinoline, 5 iso propyl-, *and* - *HCl*, 3121*i*.
4,4'-Stilbenediamine, P 4863*b*.
*p*-Toluamidine, *N*-phenyl-, 7441*f*
$C_{14}H_{14}N_2O$ Acetamide, *N*-(*m* aminophenyl)-*N*-phenyl-, 647*i*.
Acetamide, α-anilino-α-phenyl, 9032*b*, 9033*a*
Acetanilide, *p* - (*p* - aminophenyl), P 2784*d*, P 4473*i*, P 5597*g*, P 9159*a*.
—, *m*-anilino-, 647*d*.
Acetic acid, phenyl-, phenylhydrazide, 7182*h*.
Acetophenone, α - (4,6 - dimethyl - 2 pyrimidyl)-, *and* - *HCl*, 3395*e*.
Benzamidine, *N*-(*p*-methoxyphenyl)-, 2230*g*, 7444*d*.
Benzotoluidide, 4-amino, 1344*c*.
3 - Buten - 2 - one, 4 - (2 - furyl), phenylhydrazone, 9334*e*.
Carbanilide, methyl-, 170*i*.

*m*-Cresol, 4-*o*-tolylazo-, 3801*b*.
2 - Imidazoline, 2 - (2 - methoxy - 1-naphthyl)-, - *HCl*, P 5048*i*.
Pyridine, 5 - benzylideneamino - 2-ethoxy-, P 7972*h*.
$C_{14}H_{14}N_2OS$ Thiazole, 2 - acetamido - 4-(2-phenylcyclopropyl)-, 635*e*.
$C_{14}H_{14}N_2O_2$ Acetamide, *N*-(acetylamino-2-naphthyl)-, 9058*d*.
Acetic acid, bis(*p*-aminophenyl)-, 7004*e*.
Acetophenone, *α* - (4 - hydroxy - 2,6 - dimethyl - 5 - pyrimidyl)-, *and* - *HCl*, 3395*h*.
*p* - Benzotoluidide, 3 - amino - 4 - hydroxy-, P 8146*e*.
Benzyl hyponitrite, P 5641*c*.
Butyric acid, α,γ-dicyano-α-phenyl-, Et ester, P 695*d*.
3-Indolepropionic acid, 4-cyano-, Et ester, 4255*h*.
Naphthalene, diacetamido-, 9058*c*.
Nicotinic acid, 4-anilino-2,6-dimethyl-, 3820*i*.
Pyridine, 2,6-dimethyl-4-*p*-nitrobenzyl-, 4672*a*.
3 - Pyridinemethanol, 5 - hydroxy - 6-methyl - 4 - (phenylimmomethyl)-, 1410*i*.
Salicylamide, 4-amino-*N*-benzyl-, 6596*g*.
$C_{14}H_{14}N_2O_2S$ Aniline, *N*, *N*-dimethyl-*p*-(o-nitrophenylmercapto)-, 8367*a*.
Benzamidine, *p* - (methylsulfonyl) - *N*-phenyl-, *and* - *HCl*, 7444*e*.
Pimelonitrile, γ - acetyl - γ - 2 - thenoyl-, 2582*i*.
2 - Thiophenecarboxanilide, 4' - acetamido-3 methyl-, 4666*e*.
$C_{14}H_{14}N_2O_2Se$ 2,1,3,4 *H* - Benzoxaselenazole, 5,6 - dihydro - 5,5 - dimethyl - 7-nitroso-4-phenyl-, 7470*c*.
$C_{14}H_{14}N_2O_3$ (See also *Anisole*, *p*,*p*'-*asoxydi*-.)
Barbituric acid, 5-benzylidene-1-propyl-, 2953*e*.
—, 5 (2 butenyl)-5-phenyl-, 4769*b*.
—, 5 (2-methylallyl) 5-phenyl-, 4769*b*.
2 Naphthaleneropionic acid, *β* - ureido-, 6597*i*.
Nitrone, *N* - (*α* - dimethylaminophenyl)-*α* 2 furoyl-, 1393*d*.
$C_{14}H_{14}N_2O_3S$ Benzenesulfonic acid, *p*-phenylazo-, Et ester, 7937*a*.
Thieno[3,4 - *d*]pyrimidine - 2,4(1 *H*,3 *H*)-dione, 1 - acetyltetrahydro - 3-phenyl-, P 7052*g*.
Toluamide, *N* sulfanilyl-, P 2638*bc*, P 7961*c*.
$C_{14}H_{14}N_2O_3S$ Acetamide, α-phenylmercapto-*N*-sulfanilyl-, P 3036*a*.
Benzamide, *p* - methylmercapto - *N* - sulfanilyl-, P 6233*h*.
$C_{14}H_{14}N_2O_4$ 2 - Naphthaleneacetamide, *N*-2 hydroxyethyl-1 nitro, 3364*a*.
*p* Quinone, dioxime dicrotonate, 5623*c*.
$C_{14}H_{14}N_2O_4S$ Acetamide, *α* phenoxy *N* sulfanilyl-, P 3035*i*.
Anisamide, *N*-sulfanilyl-, P 821*b*.
Anthranilic acid, 5-*p*-tolylsulfamyl-, P 7710*b*.
Benzamide, *N* - [*N* - (hydroxymethyl)-sulfanilyl-], 7077*c*.
3,5 Benzenesulfonoxylidide, 4 - nitro-, 4648*i*.
3 Biphenylsulfonic acid, 4' - acetamido-4 amino-, P 857*i*.
Carbamic acid, *p*-sulfamyl-, benzyl ester, P 1805*a*.
Pyrrolo[2,1 - *b*]thiazole - 3 - carboxylic acid, 6 - benzamidohexahydro - 5-oxo-, 7933*b*.
*p* - Toluenesulfonanilide, *N* - methyl-4' nitro-, 167*i*.
*p* - Toluenesulfono - *o* - toluidide, 4'-nitro-, P 3034*a*.
$C_{14}H_{14}N_2O_5$ Malonic acid, acetamido(3 indolylmethyl)-, P 1442*g*, P 2043*e*, P 5806*i*, 8379*i*.
$C_{14}H_{14}N_2O_5S$ Carbanilic acid, *p*-methoxy-, *p*-sulfamylphenyl ester, 593*h*.
*p* Toluenesulfon - *o* - anisidide, 4' - nitro-, 166*g*, 167*i*.
$C_{14}H_{14}N_2O_6$ 3 - Cyclohexen - 1 - ol, 4 - methyl-, 3,5 dinitrobenzoate, 7417*c*.
Heptynol, 3,5-dinitrobenzoate, 6573*b*.
Proline, compd. with 2-nitro-1,3-indandione, 69*i*.
$C_{14}H_{14}N_2O_6S_2$ (See also *Stilbenedisulfonic acid, diamino-*.)
Benzenesulfonic acid, *m*-(β-acetamido-2-aminophenylsulfonyl)-, P 2440*g*.
$C_{14}H_{14}N_2O_7$ Proline, hydroxy-, compd. with 2-nitro-1,3-indandione, 69*i*.
$C_{14}H_{14}N_2O_8$ Glutamic acid, compd. with 2-nitro 1,3 indandione, 69*i*.
Valeric acid, α,γ - dihydroxy - β,β - dimethyl-, γ-lactone, 3,5-dinitrobenzoate, 722*g*.
$C_{14}H_{14}N_2O_8S_2$ Benzenesulfonic acid, 5-amino-5'-nitro-2,2'-ethylenebis-, P 8151*g*.
$C_{14}H_{14}N_2S$ Benzophenone, 4-(methylmercapto)-, hydrazone, 7468*a*.
$C_{14}H_{14}N_4NaO_3S$ (See also *Methyl orange*.)
Urea, 1-benzyl-3-sulfanilyl-, Na deriv., P 6234*b*.
$C_{14}H_{14}N_4$ Anthranilaldehyde, azine, 123*f*, 1027*e*.
Benzil, dihydrazone, 123*d*.
$C_{14}H_{14}N_4O$ Benzamidine, *p*,*p*'-oxydi-, P 1062*h*, 8536*c*.
Urea, *N*, *N*-diphenylguanyl-, P 868*f*.
$C_{14}H_{14}N_4O_2$ Benzamidine, 3-hydroxy-4,4'-oxydi-, *di*- *HCl*, 9049*e*.
*o*-Toluamide, (*p*-nitrophenyl)hydrazone, 3747*d*.
$C_{14}H_{14}N_4O_2S$ Sulfanilamide, *N*¹-guanyl-*N*⁴-salicylidene-, 3262*g*.
$C_{14}H_{14}N_4O_4$ Ketone, 1,3-cyclohexadien-1-yl methyl, 2,4 - dinitrophenylhydrazone, 7416*h*.
Uracil, 6 - (*p* - dimethylaminostyryl) - 5-nitro-, 652*a*.
$C_{14}H_{14}N_4O_4S$ Pyridine, 2,2' - sulfonylbis[5-acetamido-, P 5050*c*.
$C_{14}H_{14}N_4O_4S$ Acetanilide, *p*-(2-nitro-4-sulfamylanilino)-, P 8143*g*.
Phthalamic acid, *N*-[2-(2-pyrimidylsulfamyl)ethyl], P 3450*f*.
$C_{14}H_{14}N_4O_6$ Compd., m. 141-1.5°, 7433*d*.
$C_{14}H_{14}N_4O_7$ Cyclopentanecarboxylic acid, 2,5-dioxo-(?), Et ester, 2,4 dinitrophenylhydrazone, 7910*f*.
2 - Hexenoic acid, 5 - hydroxy - 3 - methoxy - 5 - methyl - 4 - oxo-, δ - lactone, 2,4 - dinitrophenylhydrazone, 1722*c*.
Phenethylamine, picrate, 121*h*.
3-Picoline, 4-ethyl-, picrate, 1775*c*, 5399*h*.
$C_{14}H_{14}N_4O_8$ Ethylamine, 2 phenoxy-, picrate, 121*h*.
$C_{14}H_{14}N_4O_8S$ Benzenesulfonamide, *p*-(7-amino - 5 - methylimidazolylazo)-, P 6662*g*.
$C_{14}H_{14}N_4O_4S$ Biguanide, 1-[*p*-(*p*-nitrophenylsulfonyl)phenyl]-, 2593*f*.
$C_{14}H_{14}N_4O_6S$ Benzonitrile, 2 - (2,4 - diethyltetrahydro - 3,5 - dioxo - 1,2,4,2 *H*-thiadiazin - 6 - ylazo) - 5 - nitro-, 1,1-dioxide, P 4868*g*.
$C_{14}H_{14}N_5O_7$ Acetamidine, *N*-methyl-*N*'-2-pyridyl-, picrate, 2594*e*.
$C_{14}H_{14}O$ Anisole, *p* benzyl, 6622*e*.
Anisole, 4-*p*-tolyl, 3373*d*.
Benzyl ether, 2573*c*, 3223*i*, 5150*e*, P 5153*d*, 6622*d*, 8191*g*.
Benzhydrol, methyl-, 3810*fi*, 3811*a*.
Biphenylethanol, 2182*i*, 5768*i*.
Butyronaphthone, 6188*b*, 7928*i*.
Cresol, benzyl-, 3065*c*.
Naphthalene, 1 - methoxy - 4 - propenyl-, 2181*g*.
1(2 *H*) - Phenanthrone, 3,4,9,10 - tetrahydro-, 3430*a*.
Phenol, *o* (α-methylbenzyl)-, 2969*e*.
$C_{14}H_{14}OS$ Benzhydrol, 4 methylmercapto, 7467*h*.
Benzyl sulfoxide, 172*f*, 7410*a*.
Butyrophenone, γ 2-thienyl-, 2982*a*.
$C_{14}H_{14}O_2$ 1,2 - Acenaphthenediol, 1,2 - dimethyl-, 7014*c*.
Acetaldehyde, diphenyl acetal, 3780*c*.
1-Acetonaphthone, ethoxy-, 7001*bc*.
Cresol, 4 (benzyloxy)-, 3387*b*.
—, α-(*p*-methoxyphenyl)-, 2969*e*.
—, 4-methoxy-α-phenyl-, 2969*d*.
Hydrobenzoin, 101*f*, 2570*f*, 3776*b*.
Naphthaleneacetic acid, Et ester, 1893*d*, 6609*f*.
Naphthalenebutyric acid, 5525*g*.
Naphthalenepropionic acid, β-methyl-, 3816*a*, 4650*e*, 7472*c*.
1,4-Naphthoquinone, 2-butyl-, P 9085*f*.
Phenol, (2,5-xylyloxy)-, P 2282*f*.
Propionaphthone, methoxy-, 1040*e*, 3814*f*.
Toluene, 3-methoxy-5-phenoxy-, P 2232*a*.
2,5-Xylenol, 3-phenoxy-, P 2232*e*.
$C_{14}H_{14}O_2S$ Acetic acid, 2-naphthylmercapto-, Et ester, 3365*d*.
Benzyl sulfone, 7411*b*.
Cresol, thiodi-, P 2469*a*, 6985*b*.
1,4 - Naphthoquinone, 2 - (isopropylmercapto) 3-methyl-, 7581*e*.
Sulfone, benzhydryl methyl, 1366*c*.
$C_{14}H_{14}O_2S_2$ Thiophene, 2,2'-ethylidenebis[5-acetyl-, P 6238*b*.
α-Toluenesulfonic acid, thiol-, benzyl ester, 6975*g*.
$C_{14}H_{14}O_3$ Acrylic acid, β-(1,2,3,4-tetrahydro-2-naphthoyl)-, 607*c*.
1 - Cyclopentene - 1 - acetic acid, 5 - oxo-2-*p*-tolyl-, 3429*i*.
2 - Furanpropionic acid, 4 - methyl - 5-phenyl-, 3429*g*.
1,3 - Indandione, 2 - isovaleryl-, 4414*h*.
—, 2-pivalyl-, 4414*h*.
—, 2-valeryl-, 4414*h*.
2 - Naphthaleneacetic acid, 6 - methoxy-, Me ester, 3363*b*.
1 - Naphthalenepropionic acid, 2 - methoxy-, 4250*c*.
1,4 - Naphthoquinone, 2 - butyl - 3 - hydroxy-, 1373*c*, 2610*b*.
—, 2-*sec*-butyl-3-hydroxy-, 1373*d*.
—, 2-*tert*-butyl-3-hydroxy-, 1373*e*.
—, 2-hydroxy-3-isobutyl-, 1373*c*, 2610*b*.
β-Orcinol, 4-phenoxy-, P 2232*e*.
Orcinol, 4-*p*-toloxy-, P 2232*e*.
Pyrogallol, phenylethyl-, 8727*i*.
2,5 - Xylenol, 3 - (hydroxyphenoxy)-, P 2232*e*.
$C_{14}H_{14}O_2S$ Methanesulfonic acid, phenyl-*p*-tolyl-, *and Na salt*, 3810*c*.
Toluenesulfonic acid, benzyl ester, 7797*h*; tolyl ester, P 7751*d*.
Tolyl sulfite, P 4853*g*.
$C_{14}H_{14}O_2$ 2,2',3,3'-Biphenyltetrol, 5,5'-dimethyl-, 8614*e*.
Corticrocin, 6982*d*.
1 - Cyclopentene - 1 - acetic acid, 2 - (*p*-methoxyphenyl)-5-oxo-, 3429*i*.
2 - Indanacetic acid, 2 - methyl - 1,3-dioxo-, Et ester, P 7048*f*.
1 - Indanecarboxylic acid, 2 - acetyl - 3-oxo-(?), Et ester, 3399*d*.
1 - Indanpropionic acid, β,3 - dioxo - (?), Et ester, 3399*d*.
Marmesin, 2993*g*.
Nodakenetin, 2993*g*, 2994*a*.
Phthalic acid, diallyl ester, P 905*g*, P 3238*d*, 4891*h*, P 5626*c*, P 5641*d*, 8200*b*.
2,4,6,8,10,12 - Tetradecahexaenedioic acid, 6982*d*.
$C_{14}H_{14}O_2S$ Cresol, sulfonyldi-, P 4883*b*, 6994*g*.
Phenol, 2',4 - dimethyl - 2,4' - sulfonyldi-, 6995*d*.
$C_{14}H_{14}O_2S_2$ Thiophene, tetrahydro-3-(2-naphthylsulfonyl)-, 1,1-dioxide, P 2238*a*.
$C_{14}H_{14}O_2S_2$ *p*-Toluenesulfonyl sulfide, 6881*d*.
$C_{14}H_{14}O_2Se$ 4,7 - Selenanaphthenediol, 3,6-dimethyl-, diacetate, 6612*e*.
$C_{14}H_{14}O_3$ 5 - Benzofuranacrylic acid, 2,3 - dihydro - 6 - hydroxy - 3 - methyl-, acetate, 3413*a*.
1,2 *H* - Benzopyran - 4 - acetic acid, 6-ethyl - 7 - hydroxy - 2 - oxo-, Me ester, 6206*e*.
1,2 *H* - Benzopyran - 4 - acetic acid, 7-hydroxy - 2 - oxo - 6 - propyl-, 6206*e*.
1,2 *H* - Benzopyran - 3 - carboxylic acid, 7 - methoxy - 4 - methyl - 2 - oxo-, Et ester, 7936*h*.
Caproic acid, β-(α hydroxybenzyl)-*e*-methoxy - α,γ - dioxo-, γ - lactone, 1406*i*.
Chromone, 3 - acetyl - 6,7 - dimethoxy-2-methyl-, 7461*e*.
—, 5 - hydroxy - 7 - methoxy - 2,6 - dimethyl-, acetate, 6622*a*.
Eugenitin, acetate, 6622*a*.
2(1 *H*) - Naphthalenone, 3,4 - dihydro-5,8 dihydroxy-, diacetate, 2613*e*.
4 - Oxatetracyclo[5.2.2.0$^{2,6}$.0$^{3,5}$] - 8,10-hendecadiene - 8,9 - dicarboxylic acid, di-Me ester, 6200*h*.
Phthalic acid, allyl 2,3-epoxypropyl ester, P 8740*d*.
Purpurogallin, tri-Me ether, 3403*b*.
$C_{14}H_{14}O_3S_2$ *p*-Toluenesulfonic anhydride, 2595*a*.
$C_{14}H_{14}O_4$ 1,3 - Butanedione, 1 - (6 - hydroxy-4,7-dimethoxy-5-benzofuryl)-, 7481*a*.
Carbonic acid, diallyl phenylene ester, P 4298*i*.
Chromone, 3-hydroxy-6,7-dimethoxy-2-methyl-, acetate, 7461*g*.
Coumarilic acid, 7-acetyl-6-hydroxy-4-methoxy-, Et ester, 3413*f*.
1 - Indancarboxylic acid, 1,2 - dihydroxy-2-methyl-3-oxo-, Me ester, acetate, 1384*d*.
Khellinone, *C*-acetyl-*, 5024*f*.
Usnetic acid, 5445*f*.
$C_{14}H_{14}O_4S$ Guaiacol, 4,4'-sulfonyldi-, P 4883*c*.
$C_{14}H_{14}O_4S_2$ *p*-Toluenesulfonyl peroxide, P 6002*h*.
$C_{14}H_{14}O_7$ 1,2 *H* - Benzopyran - 3 - carboxylic acid, 4 - hydroxy - 6,7 - dimethoxy - 2-oxo-, Et ester, 7461*b*.
Carbonic acid, diallyl 5-hydroxy-*m*-phenylene ester, P 4298*i*.

2 - Furoic acid, 5,5′ - (oxydimethylene)- di-, Me ester, P 1065*d*.
**$C_{14}H_{14}O_8$** Phthalic acid, diester with hydracrylic acid, P 1053*g*.
**$C_{14}H_{14}O_{11}$** Acid and *Tl salt*, 1341*f*.
**$C_{14}H_{14}S$** Benzyl sulfide, 172*d*, 7410*d*.
Sulfide, benzhydryl methyl, 1366*c*.
—, phenethyl phenyl, 7253*d*.
**$C_{14}H_{14}S_2$** Benzyl disulfide, 1325*h*, 1399*g*, 1953*d*, 2187*i*, P 7221*h*, 7410*g*.
Tolyl disulfide, P 4820*b*.
**$C_{14}H_{14}Se$** Benzyl selenide, P 6820*g*.
**$C_{14}H_{15}AsN_2O_7S$** *m* - Arsanilic acid, *N* - (*N*-acetylsulfanilyl)-4-hydroxy-, 6593*e*.
**$C_{14}H_{15}AsO_2$** Arsinic acid, ditolyl-, 3382*g*.
Arsinic acid, phenyl-2,4-xylyl-, 3382*g*.
—, tolyltolyl-, 3382*g*.
**$C_{14}H_{15}BrO_2$** Herniarin, 6-bromo 4-methyl-3 propyl-, 5024*c*.
**$C_{14}H_{15}BrO_4$** Acetoacetic acid, α-acetyl-α-bromo - γ - phenyl-, Et ester, 7909*f*.
Pyran-3-carboxylic acid, tetrahydro , *p*-bromophenacyl ester, P 3470*a*.
**$C_{14}H_{15}Cl$** Naphthalene, chlorodiethyl-, P 7633*i*.
**$C_{14}H_{15}ClN_2O$** 1 - (Tolylcarbamylmethyl)pyridinium chloride, 6977*e*.
**$C_{14}H_{15}ClN_2O_2S_3$** Acetic acid, (3 thenylmercapto)-, 2 - (*p* - chlorobenzyl) - 2 - thio pseudourea salt, 3364*i*.
**$C_{14}H_{15}ClN_2S$** Pseudourea, 2-benzhydryl-2-thio-, - *HCl*, 1366*b*.
**$C_{14}H_{15}ClN_4$** Pyrimidine, aminochloro(*p*-dimethylaminostyryl) , 1780*f*.
**$C_{14}H_{15}ClN_6O_2S$** Sulfanilamide, *N*¹-[(*p*-chlorophenylguanyl)guanyl]-, 5868*e*.
**$C_{14}H_{15}ClN_6O_7S$** Pyrimidine, 5-chloro 2-(2 dimethylaminoethylmercapto)-, picrate, 5782*i*.
**$C_{14}H_{15}ClN_6O_8$** Pyrimidine, 5-chloro 2-(2 dimethylaminoethoxy) , picrate, 5782*i*.
**$C_{14}H_{15}ClSi$** Silane, dibenzylchloro , 2160*h*
**$C_{14}H_{16}Cl_2N$** Naphthylamine, *N*, *N*-bis(2 chloroethyl)-, 7443*c*.
**$C_{14}H_{15}Cl_3N_2O_2$** 3 - Pyrazolone, 1,5 dimethyl-2 - *p* - tolyl - 4 - (2,2,2 - trichloro 1-hydroxyethyl)-, 7477*e*.
**$C_{14}H_{15}Cl_3O$** 1 - Acetonaphthone, α,α,α - trichloro - 5,6,7,8 - tetrahydro - 2,3-dimethyl-, 208*e*.
Ether, 4 - chloro - 2 - cyclohexylphenyl 2,2-dichlorovinyl, P 7045*g*.
**$C_{14}H_{15}Cl_3O_2$** Acetic acid, trichloro , 2-phenyl cyclohexyl ester, 4220*d*.
**$C_{14}H_{15}Cl_3O_4$** 2 - Propanol, 1 - (allyloxy) - 3 (2,4,5 - trichlorophenoxy) , acetate, P 675*h*.
**$C_{14}H_{16}Cl_4NO_2$** Acetamide, *N* - cyclohexyl-α - (2,3,4,6 - tetrachlorophenoxy)-, 8086*d*.
**$C_{14}H_{16}IN_7$** 2 - (2 Anilinovinyl) - 1 - methylpyridinium iodide, P 2642*g*, P 4164*c*.
**$C_{14}H_{15}KN_4O_3S$** Acetanilide, *p*-(4,6-dimethyl-2 - pyrimidylsulfamyl) , K deriv., P 7043*d*.
**$C_{14}H_{15}N$** Benzylamine, *N*-methyl-*o*-phenyl , - *HCl*, 1356*b*.
2 - Biphenylamine, *N*, *N* - dimethyl-, P 861*h*, P 4184*i*.
Dibenzylamine, 1330*c*, 3316*f*, 4632*b*, 6066*d*, 6570*h*.
Diphenylamine, *N*-ethyl-, 9118*e*.
Ditolylamine, P 5799*f*.
Ethylamine, diphenyl-, 5027*a*, P 8163*c*, P 9468*f*; *and* - *HCl*, 5026*d*, 7008*c*.
Phenanthridine, 7,8,9,10 - tetrahydro methyl-, 1778*i*.
Phenethylamine, phenyl-, P 6240*i*, 7585*g*; *and* - *HCl*, 1357*b*.
Pyridine, 4-benzyl-2,6-dimethyl-, 4671*e*.
Xenylamine, *N*, *N*-dimethyl-, 9238*f*.
**$C_{14}H_{15}NO$** Anisidine, *N*-benzyl-, P 1178*c*.
Benzhydrol, α-(aminomethyl)-, 2600*d*.
2-Butanol 4-(1-naphthylimino) , 893*c*.
2 - Butanone, 3 - methyl - 1 - (2 - quinolyl)-, 7022*f*.
*p* - Cresol, α - (2,6 - dimethyl - 4 - pyridyl)-, 4672*d*.
1 - Cyclohexene - 1 - carbonitrile, (*p*-methoxyphenyl)-, 1358*f*.
Δ¹,α - Cyclopentaneacetonitrile, α - (*p*-methoxyphenyl)-, 8359*b*.
Morpholine, 4-(2-naphthyl) , 5860*i*.
2-Pentanone, 1-(2-quinolyl) , 7022*f*.
Phenanthridine, 7,8,9,10 - tetrahydromethoxy-, 1778*i*, 1779*a*.
Pyridinemethanol, α-benzyl-α-methyl-, 4266*b*; *and* - *HCl*, 2204*g*.
—, dimethyl - α - phenyl-, *and* - *HCl*, 2205*c*.
—, α - ethyl - α - phenyl-, *and* - *HCl*, 2204*i*, 2205*a*.
—, α - (α - methylbenzyl)-, *and* - *HCl*, 2204*f*.
—, α - methyl - α - tolyl-, *and* - *HCl*, 2204*gh*, 2205*d*.
—, α-phenethyl-, 4266*b*.
2(1*H*) - Pyridone, 1 - methyl - 6 - phenethyl , 6629*b*.
**$C_{14}H_{15}NOS$** Benzyl alcohol, α-[(*p*-aminophenylmercapto)methyl]-, 6574*c*; *and* - *HCl*, 7421*c*.
**$C_{14}H_{15}NO_2$** 9 - Acridol, 1,2,3,4 - tetrahydro-6(?)-methoxy-, 1417*c*.
9(10*H*) - Acridone, 1,2,3,4 tetrahydro-7-methoxy-, 5860*i*
Cinchoninic, 6,7-dimethyl , Et ester, 4674*c*.
2-Furanbutyranilide, 5022*h*
1 - Indanacetic acid, α - cyano-, Et ester, 8373*h*.
2 - Naphthaleneacetamide, *N* - 2 - hydroxyethyl-, 3364*a*
1,4 - Naphthoquinone, 2 - amino - 3 isobutyl , 1382*g*.
Phthalimide, *N* cyclohexyl , P 4422*b*, 7182*d*
Pyridinemethanol, α - (methoxymethyl)-α phenyl , *and* - *HCl*, 2205*a*.
- -, α - (methoxyphenyl) - α - methyl-, *and* - *HCl*, 2204*hi*, 2205*d*.
Pyrocatechol, 4 - (β - aminophenethyl) , 9204*h*
Quinaldine, 4 (allyloxy)methoxy , 1416*hi*
2,4(1*H*,3*H*) - Quinolinedione, 3 - allyl-3 ethyl , P 3472*f*
4 - Quinolinol, 3 allylmethoxy - 2-methyl-, 1416*hi*
2,4 - Xylenol, α′ ( hydroxyvanilino)-, P 3604*f*
**$C_{14}H_{15}NO_2S$** Acetamide, *N*-2 hydroxyethyl-α-naphthylmercapto , 7965*f*
Benzhydrylamine, 4 (methylsulfonyl) , 7450*e*
Benzylamine, methyl - *p* (phenylsulfonyl) , , *HCl*, 7450*e*
Phenethylamin (phenylsulfonyl)-, - *HCl*, 7450*e*
5 Thiazoleacetic acid, 4 - (*p* - ethylphenyl)-2 methyl , P 8401*d*
—, 2 - methyl 4 (3 4 - xylyl) , P 8401*e*
*p* - Toluenesulfonanilide, *N* - methyl , 167*e*, 5995*e*
*p* - Toluenesulfono - *o* toluidide, P 3033*i*, 3385*b*
**$C_{14}H_{15}NO$** Acetamide, *N*-2 hydroxyethyl α 1-naphthoxy , 7964*e*
Morpholine, 4-benzoylacrylyl , 7192*h*.
Phthalimide, *N* - (3,4 dimethyl - 2-oxobutyl)-, 635*b*
Piperamide, *N*, *N*-dimethyl , 1144*f*.
2 - Pyridinemethanol, α - (3,4 dimethoxyphenyl) , 4266*b* *and* - *HCl*, 2204*g*
Quinaldic acid, 3 acetyl 1,2 dihydro-, Et ester, 1412*b*
6 Quinolineacetic acid, 1 hydroxy - 2-methyl , Et ester, 646*b*
**$C_{14}H_{15}NO_2S$** Benzidine, (formyl , amino phenethyl)-, *Na salt*, 1 8163*b*, P 9468*f*
5 - Thiazoleacetic acid, 2 methyl 4 *p*-phenetyl-, P 8401*e*
*p* - Toluenesulfono - *o* anisidide, 166*f*
**$C_{14}H_{15}NO_3$** Acrylic acid, β (*p*-acetamidobenzoyl) , Et ester, 7402*h*
4 - Indolepropionic acid, 4 carboxy , di Me ester, 4255*h*
Kynurenic acid, 7 methoxy 3 methyl-, Et ester, 1276*d*
5(4*H*) Oxazolone, 4 - (hydroxymethylene) - 2 - (*p* - methoxy - α - methyl phenethyl) , 7021*e*
3 - Pyrroline - 3 - carboxylic acid, 1 ethyl oxy - 5 - oxo - 1 - phenyl-, Me ester, 8380*e*.
Succinic acid, α benzyl α cyano , Et ester, 2167*h*.
**$C_{14}H_{15}NO_3S$** Aniline, *p* (2,5 - dimethoxyphenylsulfonyl)-, 9376*i*
Benzenesulfonamide, 3′,4′ dimethoxy-, 2177*e*.
Hydroquinone, [*p* - (2 - aminoethyl) phenylsulfonyl] , *HCl*, 7450*e*
2 - Thiophenecarboxylic acid, 4 benzamidotetrahydro - 3 - oxo , Et ester, P 6669*e*, P 7049*d*
**$C_{14}H_{15}NO_4S_2$** 5 - Thiazolecarboxylic acid, 4-methyl 2 [*p* (methylsulfonyl) phenyl]-, Et ester, 1740*f*.
**$C_{14}H_{15}NO_5$** 2-Furanilide, *p* (2,3-dihydroxy propoxy) , 5655*e*.
2 - Isoindolineacetic acid, α - 4 - hydroxy butyl 2,3 dioxo , 4223*e*
**$C_{14}H_{15}N_3$** (See also *Aniline, N, N-dimethyl-p phenylazo-*)
Aniline, *N* methyl *p*-(tolylazo)-, 3801*f*.
2 - Imidazoline, 2 - (1 - naphthylaminomethyl)-, *HCl*, P 6240*d*.
Pyrimidine, 4 - (*p* - dimethylaminostyryl)-, 3426*h*.
Toluidine, *N* - methyl - 4 - phenylazo-, 8048*b*.
—, tolylazo , 3964*a*, P 4477*c*, P 8160*d*.
Triazene, 1,3-di-*p*-tolyl-, 5621*f*.
**$C_{14}H_{15}N_3O$** Anisidine, 5-methyl-4-phenylazo , P 4477*c*, P 8160*b*.
Benzamide, *N* - (4,6 - dimethyl - 2 - pyrimidylmethyl)-, P 3473*c*.
Phenol, *p* - (*p* - dimethylaminophenylazo)-, 2306*g*, 3801*f*.
1 - Propionaphthone, semicarbazone, 2608*g*.
Pyrazine, 2,5 - dimethyl - 3 - α - phenyl acetamido-, 7487*h*.
4 - Pyrimidol, 6 - (*p* - dimethylaminostyryl)-, 1780*g*
*m* - Toluidine, 4 - (*p* - methoxyphenylazo)-, P 8160*c*.
**$C_{14}H_{15}N_3OS$** Uracil, 6 - (*p* - dimethylaminostyryl)-2-thio-, 1780*g*.
**$C_{14}H_{15}N_3O_2$** Nitrone, *N*-(*p*-dimethylaminophenyl) - α - pyrrylcarbonyl-, 4256*e*
*m* - Phenylenediamine, *N*, *N* - dimethyl *N*′-(*p*-nitrophenyl)-, 6488*b*.
2*H* - Pyrazolo[4,3 - *c*]pyridin - 3(3*a*,*H*) one, 5 - acetyl - 4,5,6,7 - tetrahydro 2-phenyl , 9067*h*.
Uracil, 6 (*p* - dimethylaminostyryl) , 1780*f*.
**$C_{14}H_{15}N_3O_2S$** Nicotinamidine, 6-methylmercapto , benzoate, 2995*i*.
1-Thiazolecarboxylic acid, 5-benzylidene amino - 2 - methylamino-, Et ester, 3409*a*.
**$C_{14}H_{15}N_3O_3$** Nicotinamidine, 6-methoxy , benzoate, 2995*i*.
**$C_{14}H_{15}N_3O_3S$** (See also *Methyl orange*.)
Acetamide, *p* - (3 - allyl 4 - thiazolin - 2 ylidenesulfamyl)-, P 6602*d*
Benzamide, *N* - [2 - (2 pyridylsulfamyl) ethyl] , P 3450*d*.
Benzenesulfonamide, *p* - (ethylhydroxy phenylazo)-, 9048*a*.
Benzenesulfonic acid, *p*-(dimethylamino phenylazo)-, 7835*h*.
5 - Hydantoinacetamide, 1 acetyl - *N* benzyl 2 thio , 1353*b*
Urea, 1 - benzyl - 3 - sulfanilyl , P 6234*f* *and salts*, P 1061*c*.
**$C_{14}H_{15}N_3O_4$** Acetoacetic acid, Et ester, hydrazone with 3 hydrazinophthalimide, 7488*g*.
**$C_{14}H_{15}N_3O_4S$** Benzenesulfonamide, *p* (ethyl dihydroxyphenylazo)-, 9048*a*
Benzenesulfonic acid, *p*-(4-amino 5 methoxy-*o*-tolylazo)-, P 5965*h*, P 7694*i*.
Nicotinamidine, 6-methylsulfonyl , benzoate, 2996*a*.
**$C_{14}H_{15}N_3O_4S_2$** Acetanilide, *p* [(5-acetyl 4 methyl - 2 thiazolyl)sulfamyl] , P 3852*d*.
**$C_{14}H_{15}N_3O_5$** Cyclopentanecarboxylic acid, 2,5 dioxo-(?), Et ester, *p* nitrophenylhydrazone, 7910*f*.
**$C_{14}H_{15}N_3O_5S$** Acetamidine, α (*p* nitrophenyl)-, benzenesulfonate, P 2241*c*, P 5038*g*, 7445*b*.
Benzenesulfonic acid, 2 (*m*-dimethylaminoanilino)-5-nitro-, 6488*b*.
**$C_{14}H_{15}N_3O_5S_2$** Oxanilic acid, *p*-[(4-methyl-2 thiazolyl)sulfamyl]-, Et ester, P 3846*f*.
Succinanilic acid, *p*-[(4-methyl-2 thiazolyl)sulfamyl]-, P 3846*g*
5 Thiazolecarboxylic acid, 2 (*N*-acetylsulfanilamido)-, Et ester, P 2644*h*
**$C_{14}H_{15}N_3O_6$** Butyric acid, α,β-dioxo , Et ester, α-[acetyl(*p*-nitrophenyl)hydrazone], 4248*a*.
**$C_{14}H_{15}N_3O_6S_2$** Succinanilic acid, *p*-[(4 hydroxy-2-thiazolyl)sulfamyl]-, Me ester, P 3846*f*.
5-Thiazolecarboxylic acid, 2-(*N*-acetylsulfanilamido)-4-hydroxy , Et ester, P 686*h*, P 3852*b*.
**$C_{14}H_{16}N_4O_7PS$** Phosphine sulfide, dimethyl-pyridyl-, methopicrate, 1046*h*
**$C_{14}H_{15}N_5$** Biguanide, 1,5-diphenyl , - *HCl*, P 2229*g*.
1*H*-Tetrazole, 5-(dimethylaminomethyl)-1-(naphthyl)-, 1864*i*.
**$C_{14}H_{15}N_5O$** Benzamidine, 3-amino-4,4′-oxydi-, *di-HCl*, 9049*e*.
**$C_{14}H_{15}N_5O_2$** 3-Pyrazoline-3-carbonyl azide, 4 - isopropyl - 2 - methyl - 5 - oxo - 1 phenyl-, P 6240*a*.
**$C_{14}H_{15}N_5O_3S$** Acetanilide, *p*-(2-pyridylguanylsulfamyl)-, P 1060*h*.
Sulfanilic acid, *N*-(phenylguanylguanyl P 2229*h*.
**$C_{14}H_{16}N_6O_6$** Glutaraldehydic acid, α-cya-

**Et ester, 2,4-dinitrophenylhydrazone,** 577*h*.

1-Pyrrolidinepropionaldehyde, **methyl-**2,5-dioxo-, **2,4-dinitrophenylhydrazone,** 6170*bc*.

$C_{14}H_{18}N_8O_6S_2$ **Biguanide,** 1,5-**bis**(*p*-sulfophenyl)-, P 1799*g*, P 2280*a*.

$C_{14}H_{18}N_4O_2$ **Acetamidine,** *N*-**furfuryl**-*N'*-**methyl-, picrate,** 2594*e*.

Nicotinamide, 1,2-dihydro-1,2-dimethyl-, picrate, 7525*h*.

$C_{14}H_{15}O_3P$ **Phosphinic acid, di**-*p*-**tolyl-,** 2967*g*.

$C_{14}H_{15}O_2PS_2$ **Benzyl thiophosphate,** 7859*b*.

Tolyl thiophosphate, 7859*b*.

$C_{14}H_{15}O_3P$ **Benzyl phosphite,** 599*g*.

$C_{14}H_{15}O_4P$ **Benzyl phosphate,** 600*b*.

Phosphinic acid, bis(methoxyphenyl), 2967*g*.

$C_{14}H_{16}$ **Anthracene, 1,2,3,4,5,6 hexahydro-,** 2183*d*.

Benz[*e*]azulene, **1,2,3,3a,4,10b-hexahydro-,** 9043*c*.

Naphthalene, butyl-, 1370*d*, 4454*h*, 6187*i*, 6512*i*, 7928*c*, 8888*f*, 9424*e*.

, *tert*-butyl-, P 3194*c*, 8888*f*.

-, 1,2,5,6-tetramethyl-, 7926*e*.

Phenanthrene, 1,2,3,4,5,6-hexahydro-, 2183*c*.

$C_{14}H_{16}AsNO_2S_2$ **Succinic acid, mercapto-,** S diester with 3-amino-4-hydroxydithiobenzenearsonous acid, 5981.

$C_{14}H_{16}AsNO$. Bis(2-cyanoethyl)dimethylarsonium picrate, 8351*e*.

$C_{14}H_{16}BrN$ 1-Naphthalenemethylamine, *N*-(2-bromoethyl)-*N*-methyl-, -*HBr*, 7131*f*.

$C_{14}H_{16}BrN_3O_3$ 8-Oxa-6,7-diazabicyclo[3.2.0]-5-heptene, 1-bromo-2,2,4,4-tetramethyl-7-(*p*-nitrophenyl)-, 1392*g*.

$C_{14}H_{17}BrO_4$ Tricyclo[5.2.2.0$^{2,6}$]decene-7,8-dicarboxylic acid, dibromo-, di-Me ester, 6199*c*.

$C_{14}H_{16}ClN$ 1-Naphthalenemethylamine, *N*-(2-chloroethyl)-*N*-methyl-, -*HCl*, 2319*g*.

$C_{14}H_{16}ClNO$ 1-Quinolinol, 3-butyl-7-chloro-2-methyl-, 1417*b*.

$C_{14}H_{17}ClNO_3$ Valeric acid, 5-chloro-α-cyano-α-phenyl-, Et ester, P 695*g*.

$C_{14}H_{16}ClNO$ 4-Quinolinol, 1-acetyl-6-chloro-1,2,3,4-tetrahydro-2-methyl-, acetate, 8387*h*.

$C_{14}H_{16}ClNO_4$ Succinanilic acid, acetyl-*o*-chloro-, Et ester, P 8149*f*.

Succinic acid, (*m*-chlorophenylimino)-, di-Et ester, 5402*b*.

$C_{14}H_{17}ClN_2O_2$ 4,6-Diacetamido-1-methylquinolinium chloride, 1777*b*.

$C_{14}H_{16}Cl_2O_2$ Acetic acid, dichloro-, 2-phenylcyclohexyl ester, 4220*d*.

$C_{14}H_{16}Cl_2O_4$ Tricyclo[4.2.2.0$^{2,5}$]-9-decene-7,8-dicarboxylic acid, 3,4-dichloro-, di-Me ester, 6199*e*.

$C_{14}H_{18}Cl_2$ Cyclohexane, [*p*-(1,2,2,2-tetrachloroethyl)phenyl]-, P 8309*g*.

$C_{14}H_{16}FN_2OP$ Diamidophosphoryl fluoride, *N,N'*-dibenzyl-, 1314*f*.

Diamidophosphoryl fluoride, *N,N'*-dimethyl-*N,N'*-diphenyl-, 1314*f*.

$C_{14}H_{16}FNO$. 5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin-6-ol, 2,3,6,7-tetrahydro-3,5-dimethyl-8-(trifluoromethyl)-, P 2782*g*.

$C_{14}H_{16}FNO$. 5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin-6-ol, 2,3,6,7-tetrahydro-8-methoxy-5-methyl-3-(trifluoromethyl)-, P 2782*g*.

$C_{14}H_{16}IN$ 4-Ethyl-2,3-dihydro-1*H*-cyclopenta[*b*]quinolinium iodide, 3001*b*

$C_{14}H_{17}IN_2$ 1-Ethyl-2-[2-(2-pyridylamino)-vinyl]pyridinium iodide, P 2642*h*.

$C_{14}H_{16}IN_3O$ 4,6-Diacetamido-1-methylquinolinium iodide, 1777*b*.

$C_{14}H_{16}NO_3P$ Phosphinic acid, [α-(benzylamino)-*o*-hydroxybenzyl]-, 5378*c*.

$C_{14}H_{15}N$. Benzo[*c*]cinnoline, 1,2,3,4-tetrahydro-2,4-dimethyl-, 7038*g*.

α,α'-Bi-*p*-toluidine, P 2819*a*.

Ethylenediamine, *N,N'*-diphenyl-, 8727*i*.

Phenanthridine, 6-amino-7,8,9,10-tetrahydromethyl-, 1779*d*.

*m*-Phenylenediamine, *N,N*-dimethyl-*N'*-phenyl-, 647*d*.

Pyridine, 4-(*p*-aminobenzyl)-2,6-dimethyl-, 4672*c*.

Quinoline, 2-(1-piperidyl)-, *and chloroplatinate*, 4276*h*.

*o*-Toluidine, 6945*d*.

$C_{14}H_{17}NO$ 2-Butanone, 3-methyl-1-(2-quinolyl)-, oxime, 7022*f*.

Ethanol, 2-[benzyl(2-pyridyl)amino](?), 5783*c*

Formamide, *N*-(5-isopropyl-8-methyl-7-quinolyl)-, 8421*i*.

Ketone, diazomethyl 2-phenylcyclohexyl, 2174*c*.

2,6-Lutidine, 4-*p*-methoxyanilino-, 3826*i*.

Pyridine, 2-(2-benzylaminoethoxy)-, *and -HCl*, 5783*c*.

2-Pyridinemethanol, α-(*p*-dimethylaminophenyl)-, 4266*a*.

Pyrimidine, 5-(ethoxymethyl)-4-methyl-2-phenyl-, 1822*i*.

$C_{14}H_{18}N_2OS_2$ **Urea,** 1-[5-(hydroxymethyl)-2-thenyl]-1-methyl-3-phenyl-2-thio-, 2201*f*.

$C_{14}H_{18}N_2O_2$ (See also *Benzamine, dimethoxy-*.) Hydantoin, 5-isopropyl-5-styryl-, 7429*h*.

Hydantoin, 5-propyl-5-styryl-, 7429*g*.

1-Imidazoleacetic acid, 2-benzyl-, Et ester, 3363*i*.

5(4*H*)-Oxazolone, 4-(diethylaminomethylene)-2-phenyl-, 2618*e*.

Phenol, *p,p'*-(1,2-diaminoethylene)di-, *and salts*, 614*g*.

$C_{14}H_{18}N_2O_2S$ Acetic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.

Phenethylamine, *p*-sulfanilyl-, 7450*e*

Sulfanilo-3,5-xylidide, 4648*h*

*o*-Toluidine, sulfonyldi-, P 1988*a*, P 4476*g*.

$C_{14}H_{18}N_2O_2S_2$ Acetic acid, (2-thienylmercapto)-, 2-benzyl-2-thiopseudourea salt, 3364*i*.

$C_{14}H_{18}N_2O_2$ Alanine, *N*-acetyl-α-cyano-β-phenyl-, Et ester, P 6653*e*.

Antipyric acid, Et ester, 7477*f*.

Barbituric acid, 5-butyl-5-phenyl-, 4769*b*.

—, 5-isobutyl-5-phenyl-, 4769*b*.

Cyclopentanecarboxylic acid, 2,5-dioxo-(?), Et ester, phenylhydrazone, 7910*e*.

3-Pyrazoline-3-carboxylic acid, 4-isopropyl-2-methyl-5-oxo-1-phenyl-, P 6239*f*.

Tryptophan, *N*-acetyl-1-methyl-, 1397*f*, 3405*g*.

Valine, *N*-(*p*-cyanophenylacetyl)-, 3361*c*.

$C_{14}H_{18}N_2O_2S$ Acetamidine, α-phenyl-, benzenesulfonate, P 688*h*

Benzamidine, *p*-toluenesulfonate, P 2230*h*, P 5038*f*.

*p*-Toluamidine, benzenesulfonate, P 2231*c*, P 5038*g*, 7445*b*.

$C_{14}H_{18}N_2O_4$ β-Alanine, *N*-(α-acetamidocinnamoyl)-, 7427*a*

1-Pyrrolidineacetic acid, 3-benzamido-α-methyl-2-oxo-, 7933*i*

$C_{14}H_{18}N_2O_4S$ *o*-Anisidine, 5,5'-sulfonyldi-, P 1476*f*, 6994*i*

Benzenesulfonic acid, 5-amino-2-*p*-phenetidino-, P 7236*f*

Benzoic acid, α-amino-*p*-toluenesulfonamide salt, P 686*a*

Methanesulfinic acid, [6-(*p*-methoxybenzyloxy)-3-pyridylamino]-, *Na salt*, P 3471*a*

Sulfanilanilide, 3',5'-dimethoxy-, 4648*h*.

$C_{14}H_{18}N_2O_4S_2$ Dibenzenesulfonamide, 3-amino-4',6-dimethyl-, P 8150*b*.

Di-*p*-toluenesulfonamide, 3-amino-, P 8150*b*.

Metanilamide, *N*-xylylsulfonyl-, P 8150*b*

Penicillin, thiophenemethyl-, 2274*d*, 3490*a*, 4328*a*, 4921*c*.

$C_{14}H_{18}N_2O_4S_2$ Penicillin, 3-thiophenemercaptomethyl-, 2274*i*.

$C_{14}H_{18}N_2O_5$ Hippuric acid, *p*-(2,3-dihydroxyallylideneamino)-, Et ester, P 6236*e*.

$C_{14}H_{18}N_2O_5S$ Benzoic acid, *p*-hydroxy-, α-amino-*p*-toluenesulfonamide salt, P 686*a*.

Methanesulfonic acid, [6-(*p*-methoxybenzyloxy)-3-pyridylamino]-, *and alkali metal salts*, P 3470*h*.

2-Thiazolidinealanine, *N*-benzoyl-4-carboxy-, 7932*h*.

4-Thiazolidinecarboxylic acid, 3-(*N*-carboxyglycyl)-, benzyl ester, 4712*d*.

$C_{14}H_{18}N_2O_5S_2$ Benzamidine, *p*-(methylsulfonyl)-, benzenesulfonate, P 688*h*.

Benzenesulfonic acid, (amino-*N*-methyltolylsulfonamido)-, P 7701*f*.

Metanilic acid, *N*-(*o*-aminophenylsulfonyl)-*N*-ethyl-, P 2440*d*.

—, *N*-ethyl-*N*-metanilyl-, P 7701*e*.

Sulfamic acid, [*p*-(3,5-xylylsulfamyl)-phenyl]-, *Na salt*, 4648*h*.

$C_{14}H_{18}N_2O_6$ Isonicotinaldehyde, 3-hydroxy-5-(hydroxymethyl)-2-methyl-, *O*-acetyloxime, diacetate, 644*b*.

Valine, compd. with 2-nitro-1,3-indandione, 69*i*.

$C_{14}H_{18}N_2O_6S$ Methionine, compd. with 2-nitro-1,3-indandione, 69*i*.

$C_{14}H_{18}N_2O_6S_2$ Metanilic acid, *N*-ethyl-*N*-(4-hydroxymetanilyl)-, P 1988*c*.

Sulfanilic acid, *N*-ethyl-*N*-(4-hydroxymetanilyl)-, P 1988*c*, P 8148*d*.

$C_{14}H_{18}N_2O_6S_4$ **Methanesulfonic acid,** α,α'-[dithiobis(*o*-phenyleneimino)]bis-, *and Na salt*, 2180*h*.

$C_{14}H_{18}N_2S_2Zn$ **Toluenethiol, amino-,** Zn deriv., P 1438*ef*.

$C_{14}H_{18}N_4$ Piperazine, 1,4-di-2-pyridyl-, *and di-HCl*, P 4705*a*.

$C_{14}H_{18}N_4O$ Quinoline, 8-[(2-imidazolin-2-ylmethyl)amino]-6-methoxy-, *and -HCl*, P 6240*e*.

Serenium, 6113*h*.

$C_{14}H_{16}N_4O_2$ Pyridine, 2,2'-azobis[5-ethoxy-, 6626*b*.

$C_{14}H_{18}N_4O_2S$ Acetanilide, *p*-(4,6-dimethyl-2-pyrimidylsulfamyl)-, P 7963*h*, P 7964*g*.

Acetanilide, *p*-(4-ethyl-2-pyrimidylsulfamyl)-, P 7965*b*.

$C_{14}H_{16}N_4O_4$ Cyclohexene-1-carboxaldehyde, 2-methyl-, 2,4-dinitrophenylhydrazone, 1731*c*, 8360*d*.

2-Cyclohexen-1-one, 2,3-dimethyl-, 2,4-dinitrophenylhydrazone, 8362*g*.

-, 3-ethyl-, 2,4-dinitrophenylhydrazone, 9045*b*.

1*H*-Imidazo[*c*]pyridine-6-carboxylic acid, 4,5,6,7-tetrahydro-4-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridyl]-, 6145*b*.

2-Pyrazoline-3-carboxylic acid, 4-(*p*-methoxyphenylazo)-1-methyl-5-oxo-, Et ester, 4272*c*.

1-Pyrrolidinepropionaldehyde, α-methyl-2,5-dioxo-, *p*-nitrophenylhydrazone, 6170*b*.

$C_{14}H_{16}N_4O_4S$ Acetanilide, *p*-[(1,6-dihydro-1,3-dimethyl-6-oxo-4-pyridazyl-sulfamyl]-, 3007*c*.

Sulfanilamide, *N*$^4$-(*p*-dimethylaminophenyl)-3-nitro-, P 8143*h*.

$C_{14}H_{16}N_4O_4$ Ketone, 4-hydroxy-1-cyclohexen-1-yl-methyl, 2,4-dinitrophenylhydrazone, 7417*a*.

*p*-Toluic acid, 3,5-dinitro-, cyclohexylidenehydrazide, 6072*f*.

$C_{14}H_{16}N_4O_5$ Ketone, 4,5-dihydroxy-1-cyclohexen-1-yl-methyl, 2,4-dinitrophenylhydrazone, 7415*i*.

$C_{14}H_{18}N_4O_7$ 2*H*-Pyran-3-acetic acid, 3,4,5,6-tetrahydro-6-oxo-, Me ester 2,4-dinitrophenylhydrazone, 2993*f*.

*p*-Toluic acid, 3,5-dinitro-, 2-carboxyisopropylidenehydrazide, Et ester, 6972*f*, 3-carboxy-1-methylpropylidenehydrazide, Me ester, 6972*f*.

$C_{14}H_{16}N_4O_{10}$ Isatinecine, picrate, 7475*e*

$C_{14}H_{16}N_6OS$ Guanidine, (sulfinyldi-*p*-phenylene)di-, 1485*f*, 8528*b*, *di-HCl*, 8545*g*.

$C_{14}H_{16}N_6O_2 + H_2O$ [1,1-Bi-1,5-cyclohexadienyl]-3,3'-dione, disemicarbazone, 3360*f*.

$C_{14}H_{16}N_6O_2S$ Guanidine, (sulfonyldi-*p*-phenylene)di-, *di-HCl*, 5014*d*, 8545*h*.

$C_{14}H_{16}N_6O_7$ Pyrazine, 3-amino-3,5-diethyl-, picrate, 3005*e*.

Pyrimidine, 1,4-dihydro-1,2,6-trimethyl-4-methylimino-, picrate, 2595*c*.

$C_{14}H_{16}N_6O_8$ Pyrazine, (2-dimethylaminoethoxy)-, picrate, 5782*h*.

$C_{14}H_{16}O$ Acetophenone α-cyclohexylidene, 7415*h*

1(2*H*)-Anthracenone, 3,4,5,6,7,8-hexahydro-, 2183*d*.

Benz[*e*]azulen-6(1*H*)-one, 2,3,3a,4,5,-10b-hexahydro-, 9043*c*.

2-Butyronaphthone, 9424*f*.

Cyclohept[*f*]inden-5(1*H*)-one, 2,3,6,7,-8,9-hexahydro-, 2965*h*

Ketone, methyl phenylcyclohexenyl, 1358*b*, 8364*cf*.

1-Naphthol, 4-butyl-, P 4865*hi*, P 4866*b*, P 7695*d*, P 9459*e*.

3,5-Octadien-7-yn-2-one, 8-(1-cyclohexen-1-yl)-, 8361*e*.

1(2*H*)-Phenanthrone, 3,4,5,6,7,8-hexahydro-, 2183*c*.

$C_{14}H_{16}OS$ 2-Cyclohexen-1-one, 3-(ethylmercapto)-5-phenyl-, P 6230*i*.

$C_{14}H_{16}O_2$ 1-Acenaphthenone, 2a,3,4,5-tetrahydro-7-methoxy-6-methyl-, 4251*b*.

Compd. $b_{2-4}$ 195–200°, 2932*c*.

Cyclohexene-1-acetic acid, phenyl-, 1376*a*, 1388*a*.

3-Cyclohexen-1-ol, 4-methyl-, benzoate, 7417*b*.

3,8-Ethenocyclobuta[*b*]naphthalene-4,7-diol, octahydro-, 6198*d*.

2,4-Heptadien-6-ynoic acid, 7-(1-cyclohexen-1-yl)methyl-, 7438*a*, 8361*c*.

1-Indanone, 2-(hydroxymethylene)-7-isopropyl-4-methyl-, 1747*h*.

1-Naphthaleneacetic acid, 3,4-dihydro-5,8-dimethyl-, 613*h*.

2-Naphthaleneacrylic acid, 5,6,7,8-tetrahydro-β-methyl-, 4659*d*.
1-Naphthalenebutyric acid, 3,4-dihydro-, 3430*a*.
2,4-Pentadienoic acid, 3-methyl-5-phenyl-, Et ester, 2571*b*.
1-Penten-4-yn-3-ol, 5-ethoxy-3-methyl-1-phenyl-, 2571*b*.
Phthalide, 3-hexylidene-, 2974*c*.

**$C_{14}H_{16}O_2S$** Ethanethiol, 2-[2-(2-naphthoxy)-ethoxy]-, P 4507*h*.

**$C_{14}H_{16}O_2S_2$** 1,3-Benzodithiole, hexahydro-2-(3,4-methylenedioxyphenyl)-, 7419*c*.

**$C_{14}H_{16}O_3$** Acetic acid, (6,7,8,8a-tetrahydro-3-acenaphthenyloxy)-, 4250*f*.
*o*-Benzenediacetic anhydride, α,α,α′,α′-tetramethyl-, 5736*g*.
Compd. m. 116–17°, 2993*h*.
Coumarin, 3-amyl-4-hydroxy-, P 4701*i*.
Cyclohexanone, 2-*p*-anisoyl-, 2174*e*.
Herniarin, 4-methyl-3-propyl-, 5024*c*.
2,4-Hexadienophenone, 2′,4′ dihydroxy-3′,5′-dimethyl-, 2184*h*.
1-Hexen-3-one, 5-methyl-1-(3,4-methylenedioxyphenyl)-, P 1526*c*.
5-Indanvaleric acid, δ-oxo-, 2965*g*.
4-Pentyn-1-ol, 3-methoxy-5-phenyl, acetate, 1021*d*.

**$C_{14}H_{16}O_3S$** Naphthalenesulfonic acid, butyl-, 3624*a*.

**$C_{14}H_{16}O_4$** Acrylic acid, β-(4-hydroxy 5-isopropyl-*o*-toluyl)-, 7192*h*.
Acrylic acid, β-5-isopropyl-4,2-cresotyl-, 607*e*.
Cyclohexanecarboxylic acid, 4-hydroxy-, benzoate, 7437*a*.
Homolevulinic acid, ε *p*-toluyl-, 3429*g*.
Malonic acid, benzylidene-, di-Et ester, 572*e*.
Marmesin, dihydro-, 2993*h*.
Phthalic acid, 1-methyl-4 pentenyl ester, 5735*b*.
Tricyclo[4.2.2.0$^{2,5}$] - 3,9 - decadiene-7,8-dicarboxylic acid, di-Me ester, 6198*g*.
Usnetol, 4-Me ether, 5445*f*.

**$C_{14}H_{16}O_4Se$** 1,9(2*H*,6*H*)-Phenoxaselenindione, 3,4,7,8 - tetrahydro - 3,7 - dimethyl-, 10-oxide, 7479*c*.

**$C_{14}H_{16}O_5$** Allopyranoside, methyl 2,3-anhydro-4,6-benzylidene-, 1327*f*.
7 Benzofurancarboxylic acid, 6-hydroxy-4-methoxy-2,3,5-trimethyl , Me ester, 5445*f*.
2,3*H*-Benzopyran-7-carboxylic acid, 4,6-dihydro - 8 - hydroxy - 3,4,5 - trimethyl-6-oxo-, Me ester, 6206*c*.
Citrinin, Me ester, 6206*b*.
Glutaric acid, α-ethyl-α-(2-hydroxy-3 methoxyphenyl)-, γ-lactone, 625*e*.
Guloside, methyl 2,3 anhydro-4,6-benzal-, 1728*a*, 4635*h*.
Malonic acid, [3-(2-furyl)allylidene]-, di-Et ester, 9334*d*.
Mannopyranoside, methyl 2,3-anhydro-4,6-benzylidene-, 1327*h*.
Marmesic acid, 2993*i*.
Pyrocatechol, 5-allyl-3-methoxy-, diacetate, 7451*h*.
Taloside, methyl 2,3 anhydro-4,6-benzal-, 1727*i*, 1728*a*.
Tricyclo[4.2.2.0$^{2,5}$] - 3,9 - decadiene-7,8-dicarboxylic acid, oxido deriv., di-Me ester, 6199*d*.

**$C_{14}H_{16}O_5S$** Oxalacetic acid, phenylmercapto , di-Et ester, 632*c*.

**$C_{14}H_{16}O_6$** Acetin, di-, benzoate, P 1796*c*.
Oxalacetic acid, phenoxy-, di-Et ester, 632*d*.
Phenethyl alcohol, 3,4 dihydroxy-, tri acetate, 7451*e*.
Phthalic acid, mono-Et ester, ester with Et glycolate, P 8209*a*, P 8741*f*.
2-Propanone, 1-hydroxy-1-(4-hydroxy-3-methoxyphenyl)-, diacetate, 4238*e*.
Propiophenone, α,4-dihydroxy-3 methoxy-, diacetate, 4238*e*.

**$C_{14}H_{16}O_7S$** Maleic acid, hydroxy-, di-Et ester benzenesulfonate, 7380*a*.

**$C_{14}H_{16}O_8$** 3-Furoic acid, 2-methyl-5-(1,2,3,4-tetrahydroxybutyl)-, anhydro deriv., diacetate, 4664*f*.

**$C_{14}H_{16}O_{10}$** See "acetate" under "C" under *Vitamins*.

**$C_{14}H_{16}S$** 2-Naphthalenethiol, 1-isobutyl-, P 7258*d*.

**$C_{14}H_{17}BrClN_3S$** Pyridine, 5-bromo-2-[(5-chloro - 2 - thenyl)(2 - dimethylaminoethyl)amino]-, - *HCl*, 5781*g*.

**$C_{14}H_{17}BrO_3$** Valeric acid, δ-*p*-bromobenzoyl , Et ester, 1378*i*.

**$C_{14}H_{17}Br_2N_3S$** Pyridine, 5-bromo-2-[(5-bromo - 2 - thenyl)(2 - dimethylaminoethyl)amino]-, *and* - *HCl*, 5781*g*.
Pyridine, 2-[(3,5-dibromo-2-thenyl)(2-dimethylaminoethyl)amino]-, *and* - *HCl*, 5781*f*.

**$C_{14}H_{17}ClN_2O_6$** 1,3-Propanediol, 2-(4-chloro-2-nitroanilino)-2-methyl-, diacetate, P 7694*c*.

**$C_{14}H_{17}ClN_4O_7$** Picrate, m. 185°, 3827*i*.

**$C_{14}H_{17}ClN_6$** Biguanide, 1-(8-chloro-6-quinolyl)-5-isopropyl-, - *HCl*, 2947*i*.

**$C_{14}H_{17}ClO$** Cyclopentanepropionyl chloride, 2-phenyl-, 9043*b*.

**$C_{14}H_{17}ClO_2$** Acetic acid, chloro-, 2-phenylcyclohexyl ester, 4220*d*.
Cyclohexanol, 4-chloro-4-methyl-, benzoate, 7417*c*.

**$C_{14}H_{17}ClO_3$** Valeric acid, δ-*p* chlorobenzoyl-, Et ester, 1378*i*, 2272*h*.

**$C_{14}H_{17}ClO_4$** Propionic acid, β-*p*-chlorobenzoyl-α-ethoxy-, Et ester, 7192*h*.

**$C_{14}H_{17}ClO_5$** 2-Butanone, 1-chloro-4-(4-hydroxy-3-methoxyphenyl)-, Et carbonate, 7001*e*.

**$C_{14}H_{17}Cl_2N_3S$** Pyridine, 2-[(2,5-dichloro 3-thenyl)(2 - dimethylaminoethyl)-amino]-, 2987*c*; *and* - *HCl*, 5781*g*.

**$C_{14}H_{17}HgNO_6$** Phthalamic acid, *N*-[3-(acetoxymercuri) - 2 - methoxypropyl] , 7922*c*.

**$C_{14}H_{17}Hg_2NO_7$** Acetamide, α-[3,5-bis(acetoxymercuri) - 4 - hydroxyphenyl] - *N*-2-hydroxyethyl-, 3361*i*.

**$C_{14}H_{17}IO_2$** Cyclohexanol, 4-(iodomethyl) benzoate, 7436*i*.

**$C_{14}H_{17}N$** Cyclohexaneacetonitrile, α phenyl , 1280*g*.
4a*H*-Isocarbazole, 1,2,3,4-tetrahydro-4a,8-dimethyl-, 4257*a*.
Naphthylamine, *N*, *N*-diethyl-, P 3838*l*.

**$C_{14}H_{17}NO$** Benz[*cd*]indole, 1,3,4,5-tetrahydro-5-isopropoxy-, 4256*a*.
Capronitrile, γ-acetyl-γ phenyl , 2932*b*.
Enanthonitrile, ε-methyl-δ oxo-γ phenyl-, 2932*c*.
Ketone, methyl phenyl-1 cyclohexen 1-yl, oxime, 1358*c*.
Morpholine, 4-(2-indenylmethyl)-, *and* - *HCl*, P 1440*i*.
2-Naphthaleneacrylamide, 5,6,7,8 tetrahydro-β-methyl-, 4659*e*.
1-Naphthalenemethylamine, 2-methoxy *N*, *N*-dimethyl , 4249*i*.
4-Quinolinol, 3-butyl-2-methyl , 1416*a*.

**$C_{14}H_{17}NO_2$** 3 Buten-2-one, 4-(4 morpholinyl) 4-phenyl , 7819*g*.
Crotonic acid, β-diethylamino γ-hydroxy-γ-phenyl-, γ-lactone, 7459*e*.
Crotonophenone, 4 morpholinyl , 7819*g*.
Cyclohexanol, 2-methylene , carbanilate, 589*a*.
Ethanol, 2,2′ - (2 naphthylimino)di- , 7443*c*.
Δ$^{1,4}$-Indancarbamic acid, 2 ethyl , Et ester, 1390*b*.
1-Indanone, 2-(4-morpholinylmethyl) , - *HCl*, P 1440*h*.
1-Indenecarbamic acid, 2 ethyl , Et ester, 1390*b*.
1,3(2*H*,4*H*)-Isoquinolinedione, 2 amyl , P 4422*b*.
Ketone, 4-(*m*-hydroxyphenyl) 1 methyl-4-piperidyl methyl, P 2240*h*.
4,7-Quinolinediol, 3 butyl 2-methyl , 1416*a*, 1417*c*.
4-Quinolinol, 7-methoxy 2 methyl-3 propyl-, 1416*b*, 1417*a*.

**$C_{14}H_{17}NO_2S$** 2-Naphthalenesulfonamide, *N*-butyl-, 4630*d*
2-Naphthalenesulfonamide, *N sec* butyl , 4630*d*.
—, *N*, *N*-diethyl-, 4630*c*.
—, *N* isobutyl-, 4630*d*

**$C_{14}H_{17}NO_3$** Acetanilide, *N*-4-hydroxy-2 butenyl-, acetate, 650*e*
Aceturic acid, 1,2,3,4 tetrahydro-2-naphthyl ester, 2363*c*.
Coumalamide, *N*, *N* - diallyl - 4,6 - dimethyl-, P 2239*i*.
5-Heptenoic acid, 2-benzamido , 574*g*.
Penitrin, 2184*g*.
Pentenoic acid, 2-benzamido-, Et ester, 7932*d*.
—, 4-oxo-2-*o*-toluidino-, Et ester, 1412*d*.
Valine, *N*-cinnamoyl-, 2273*e*.

**$C_{14}H_{17}NO_4$** Benzoic acid, *p*-(2-carboxy-1-methylvinylamino)-, Et Me ester, 646*a*.
Butyric acid, α-carboxyamino γ-hydroxy-β,β-dimethyl-, γ-lactone, benzyl ester, 574*i*, 4224*b*.
Hydratropic acid, α-cyano-3,5-dimethoxy-, Et ester, 8384*b*.
Succinaldehydic acid, α-(α-phenylacetamido)-, Et ester, 7932*g*.
Valeric acid, α-benzoyl-α-nitroso-, Et ester, 1746*e*.

**$C_{14}H_{17}NO_4S$** Benzaldehyde, compd. with benzylamine bisulfite, 3350*c*.
2-Naphthol-5-sulfonic acid, 8-butylamino-, P 1987*f*.

**$C_{14}H_{17}NO_5$** Acetamide, *N*-(hydroxymethoxyphenacyl)-*N*-methyl-, acetate, 2602*i*.
2-Heptanone, 7-hydroxy-, *p*-nitrobenzoate, 6190*f*.
Hydrocinnamic acid, β-*N*-carboxyacetamido-(?), *N*-Et ester, 3822*d*.
Peroxybenzoic acid, *p*-nitro-, 1-methyl cyclohexyl ester, 6189*f*.

**$C_{14}H_{17}NO_5S$** Alanine, *N*-benzoyl-β-(carboxymethylmercapto)-, di-Me ester, P 3468*b*.
1 - (β - Hydroxyphenethyl)pyridinium methyl sulfate, P 850*e*.
Valine, *N*-[(*o*-carboxyphenylmercapto) acetyl]-, 3365*f*.

**$C_{14}H_{17}NO_6$** Mandelonitrile, *dl*-glucoside, 9371*g*.
2-Pyridinepyruvic acid, 1-(carboxymethyl)-1,6-dihydro-6-oxo-, di-Et ester, 6630*h*.
Sambunigrin, 9371*g*.

**$C_{14}H_{17}N_3$** Cinchoninamidine, *N*, *N*-diethyl , - *HCl*, P 5801*d*.
Diphenylamine, 4-amino 3′-dimethylamino-, 647*e*.
Pyridine, 2 - [(2 - aminoethyl)benzyl amino]-, *sulfate*, 7023*f*.

**$C_{14}H_{17}N_3O$** Antipyrine, 4-(ethylimino methyl)-, 7477*c*.
2-Cyclopenten-1-one, 3,4-dimethyl-2 phenyl-, semicarbazone, 119*e*.
Pyrazine, dihydro - 2,5 - dimethyl - 3 - α-phenylacetamido , 7487*h*.

**$C_{14}H_{17}N_3O_2$** 3-Cyclohexene-1-carboxaldehyde, 2-methyl-, *p*-nitrophenylhydrazone, 1731*c*.
1-Imidazoleacetamide, 2-benzyl *N*-2 hydroxyethyl , 3304*b*.
Ketone, 3-cyclohexen-1-yl methyl, *p*-nitrophenylhydrazone, 6157*g*.
1-Pyrazolecarboxy-*p*-toluidide, ethoxymethyl-, 8365*g*.

**$C_{14}H_{17}N_3O_2S_2$** Sulfanilamide, *N*¹-(4,5,6,7 tetrahydromethyl - 2 - benzothiazolyl)-, P 3852*g*.

**$C_{14}H_{17}N_3O_3$** Compd., m. 134.5°, 6992*g*.
Cyclohexanone, 4-hydroxy-, semicarbazone, benzoate, 7436*c*.
3 - Oxa - 6,7 diazabicyclo[3.2.0]-6 heptene, 2,2,4,4-tetramethyl-7 *p* nitrophenyl)-, 1392*g*.
3 Pyrazoline-3 carbamic acid, 2-ethyl-5 oxo-1-phenyl-, Et ester, P 7019*i*
*p*-Toluic acid, 3-nitro-, cyclohexylidene hydrazide, 6973*c*.

**$C_{14}H_{17}N_3O_3S$** Acetanilide, *p*-[2 (4 methyl-2 thiazolyl)ethylsulfamyl]-, 6181*b*

**$C_{14}H_{17}N_3O_4S_2$** See *Sulfanilanilide, N-(4-methylsulfamyl)-*.

**$C_{14}H_{17}N_3O_5$** Mesitylenic acid, 4 nitro , 3-carboxy - 1 - methylpropylidenehydrazide, 6972*i*.

**$C_{14}H_{17}N_3O_5S_2$** 5-Thiazolecarboxylic acid, 4 ethoxy-2-sulfanilamido-, Et ester, P 3852*c*.

**$C_{14}H_{17}N_3O_7$** 2-Propanone, (6 methoxy 8 quinolylamino)-, semicarbazone, 3119*g*.

**$C_{14}H_{17}N_5O_3S$** Benzenesulfonic acid, 1 phenyl biguanide salt, P 4292*i*.

**$C_{14}H_{17}N_5O_4$** 2-Pyrazoline-3-carbamic acid, 4 (*p* - methoxyphenylazo) - 1 - methyl 5 oxo-, Et ester, 4272*d*.

**$C_{14}H_{17}N_5O_5$** Acetaldehyde, 4-hexenoylamino-, 2,4-dinitrophenylhydrazone, 1768*a*
Hydrosorbamide, *N*-(formylmethyl) , 2,4-dinitrophenylhydrazone, 4920*i*

**$C_{14}H_{17}N_5O_5S$** Acetanilide, *p*-(6 amino 1,2,3,4 - tetrahydro - 1,3 - dimethyl 2,4-dioxo-5-pyrimidylsulfamyl) , P 2231*d*.

**$C_{14}H_{17}N_5O_8$** Acetamide, *N*-(1 cyano-1-methylpropyl)-*N*-methyl-, picrate, 8381*d*.

**$C_{14}H_{17}N_5O_8S_3$** 1,2,4,2*H*-Thiadiazine 3,5-(4*H*,6*H*)-dione, 2,4-bis(2-hydroxyethyl) - 6 - [2 - methylsulfonyl) - 4-nitrophenylazo]-3-thio-, 1,1-dioxide, P 4868*h*.

**$C_{14}H_{17}N_7O_7$** Pyrazine, (2-dimethylaminoethyl amino)-, picrate, 5782*h*.

**$C_{14}H_{18}$** Benzene, *p*-bis(1-methylenepropyl)-, P 7746*d*.
Cyclohept[*f*]indene, 1,2,3,5,6,7,8,8a-octahydro-, 2965*h*.
Cyclooctene, 1-phenyl-, 3366*b*.
Phenanthrene, octahydro-, P 4518*e*
*o*-Xylene, 4-(1-cyclohexen-1-yl)-, 1358*c*.

$C_{14}H_{18}BrNO$ 1,3,2*H*-Benzoxazine, 6-bromo-3-cyclohexyl-3,4-dihydro-, 3425*h*.
Crotonanilide, *p*-bromo-*N*-ethyl-, $\alpha,\beta$-dimethyl-, P 5414*b*.
Propiophenone, *p*-bromo-$\beta$-1-piperidyl-, *and* - *HCl*, 9070*b*.
$C_{14}H_{18}BrNO_3S$ Malonic acid, acetamido-(bromothenyl)-, di-Et ester, 6613*dh*.
$C_{14}H_{18}BrN_3S$ Pyridine, 5-bromo-2-[(2-dimethylaminoethyl) - 2 - thenylamino]-, *and* - *HCl*, 5781*g*.
Pyridine, 2-[(bromothenyl)(2-dimethylaminoethyl)amino]-, 2987*c*, 3103*b*, 8611*h*; - *HCl*, 3937*f*, 3938*b*; *and* - *HCl*, 5781*fg*.
$C_{14}H_{18}Br_2N_4O_7$ [2-Bromo-2-(bromomethyl)-cyclobutyl]trimethylammonium picrate, 586*h*.
(1,2 - Dibromocyclobutylmethyl)trimethylammonium picrate, 586*h*.
$C_{14}H_{18}Br_2O_4$ Tricyclo[4.2.2.$0^{2,5}$]decane-7,8-dicarboxylic acid, 3,4-dibromo-, di-Me ester, 6199*g*.
$C_{14}H_{18}Br_2O_8$ Cyclohexanetetrol, dibromo-, tetraacetate, 6581*b*.
$C_{14}H_{19}ClNO$ Crotonanilide, *m*-chloro-*N*-ethyl-$\alpha,\beta$-dimethyl-, P 5414*b*.
Propiophenone, *p*-chloro-$\beta$-1 piperidyl-, - *HCl*, 9070*b*.
*o*-Seneciotoluidide, 6-chloro-*N*-ethyl-, P 5414*a*.
$C_{14}H_{19}ClNO_2$ Cyclohexanol, 4-(chloromethyl)-, carbanilate, 7436*h*.
Enanthamide, *N*-(5-chlorosalicylidene)-, 6182*d*.
Isonipecotyl chloride, 4-(*m*-methoxyphenyl)-1-methyl-, P 2240*g*.
Ketone, chloromethyl 4-(*m* hydroxyphenyl) - 1 - methyl - 4 - piperidyl, - *HCl*, P 2240*i*.
$C_{14}H_{19}ClNO_3S$ Valine, $\beta$-(benzylmercapto)-*N*-chloroacetyl-, 4668*c*.
$C_{14}H_{19}ClN_2O$ Ethanol, 2-[2-(7-chloro 3-methyl - 4 - quinolylamino)ethylamino]-, 1655*g*, 1776*g*.
$C_{14}H_{19}ClN_2S$ Pyridine, 2-[(chlorothenyl)(2-dimethylaminoethyl)amino]-, 2987*c*, 3103*b*, 3937*f*, 3938*be*, 8611*h*; *and salts*, 5781*i*.
$C_{14}H_{19}ClN_4O_2$ Quinazoline, 2-chloro-4 (2 diethylaminoethylamino)nitro-, 2951*h*.
$C_{14}H_{19}ClO_3P$ Benzenephosphonic acid, chloro-, dimethallyl ester, P 1220*g*.
$C_{14}H_{19}Cl_2N_4$ Quinazoline, dichloro-4-(2 diethylaminoethylamino)-, 2951*h*.
$C_{14}H_{19}HgO_4S$ Acetic acid, [*o*-3-(carboxymethylmercaptomercuri) - 2 - methoxypropyl]phenoxy]-, *di-Na salt*, P 9084*b*.
$C_{14}H_{19}INS_2$ 3 - Ethyl - 2 - (2 - methylmercapto - 1 - butenyl)benzothiazolium iodide, P 5150*b*.
$C_{14}H_{19}N$ Indole, 3 (1-piperidylmethyl), 3107*h*.
Indole, 1-[2 (1-pyrrolidyl)ethyl], 4257*e*.
$C_{14}H_{19}N_3O$ Cyclohexanecarboxylic acid, benzylidenehydrazide, 4233*b*.
1,2 Cyclohexanedione, 3,5 - dimethyl-, 2 - phenylhydrazone, 7938*f*.
Pyrazolone, 2 - benzyl - 4 - isopropyl - 5-methyl-, 7934*f*.
-, 1 (*p* - *tert* - butylphenyl) - 3 - methyl-, P 1987*h*.
$C_{14}H_{19}N_3OS$ Pyridine, 2 - [$\alpha$ - (2 - dimethylaminoethoxy) - 2 - thenyl]-, 4266*d*.
$C_{14}H_{19}N_3O_2$ Acetanilide, *o* 1-piperidylcarbonyl-, 3424*f*.
Cyclohexanecarboxylic acid, hydroxybenzylidenehydrazide, 4233*b*.
1,3 Cyclohexanedione, 5,5 - dimethyl 4-phenyl-, dioxime, 7479*b*.
Hydantoin, 5 - isopropyl - 5 - phenethyl-, 7429*h*.
Hydrazine, 1 - benzoyl - 2 - cyclohexylcarbonyl-(?), 4233*b*.
3 - Indolebutyramide, *N* - 2 - hydroxyethyl-, 2273*i*.
3,5 - Pyrazolidinedione, 4,4 - diethyl - 1-methyl-2-phenyl-, 579*g*.
5 Pyrazolone, 4,4 - diethyl - 3 - methoxy-1 phenyl-, 579*g*.
$C_{14}H_{19}N_3O_3$ Barbituric acid, 5-allyl-5-(cycloheptenyl)-, P 5039*a*.
Carbamic acid, ($\alpha$-cyano-*p*-methoxybenzyl)ethyl-, Et ester, 6176*e*.
Crotonic acid, $\beta$-(*p*-acetamidoanilino)-, Et ester, 1778*a*.
Hydantoin, 1 - (*p* - butoxyphenyl) - 5-methyl-, 6308*f*.
Nipecotic acid, 1-nitroso-3-phenyl-, Et ester, P 695*eh*.
Propiophenone, - *m*-nitro-$\beta$-1-piperidyl-, - *HCl*, 5780*h*.
$C_{14}H_{19}N_3O_4$ Malonic acid, (methyl-2-pyridylaminomethylene)-, di-Et ester, 650*f*.
Succinaldehydic acid, $\alpha$-($\alpha$-phenylacetamido)-, Et ester, oxime, 7932*g*.
Thymoquinone, dioxime diacetate, 5623*e*.
$C_{14}H_{19}N_3O_4S$ Acetanilide, *p*-($\alpha,\beta$-dimethylcrotonylsulfamyl)-, P 7962*b*.
1,2,3,4 - Butanetetrol, 1 - (2 - mercapto-1-*p*-tolyl-4-imidazolyl)-, 2989*c*.
$C_{14}H_{19}N_3O_5$ $\beta$-Alanine, *N*-(*N*-carboxy-$\beta$-alanyl)-, benzyl ester, 1448*f*.
Isoleucine, *N* - (*p* - nitrophenylacetyl)-, 3361*c*.
1(2*H*) - Pyrimidineacetic acid, 5,5 - diallyl - 3,4,5,6 - tetrahydro - 2,4,6-trioxo-, Et ester, 9258*a*.
$C_{14}H_{19}N_3O_6$ Acetanilide, *m*-[bis(2-hydroxyethyl)amino]-, oxalate, P 2634*h*.
2-Furoic acid, piperazine salt, 235*e*.
2 - Pentanol, 4,4 - dimethyl-, 3,5 - dinitrobenzoate, 1309*f*.
$C_{14}H_{19}N_3O_6S$ Adipamic acid, *N*-(*N*-acetylsulfanilyl)-, 2597*f*.
$C_{14}H_{19}N_4O$ Butyramidine, $\gamma$-(6-methoxy-8-quinolylamino)-, - *HCl*, P 7051*f*.
$C_{14}H_{19}N_4O_3$ 3 - Pyrazoline - 3 - carboxylic acid, 4 - isopropyl - 2 - methyl - 5-oxo-1-phenyl-, hydrazide, P 6239*i*.
Urea, 1 - (antipyrylmethyl) - 1 - methyl-, 7477*c*.
$C_{14}H_{19}N_4O_4$ Cyclohexaneacetaldehyde, 2,4-dinitrophenylhydrazone, 3372*c*.
Cyclohexanone, 2,4-dimethyl-, 2,4-dinitrophenylhydrazone, 2998*f*.
Oxalic acid, 2-(2-carboxyisopropylidene)-hydrazide, 2-phenylhydrazide, Et ester, 6972*c*.
$C_{14}H_{19}N_4O_5$ Benzoic acid, [2-(4-morpholinyl)-1-nitroisopropylazo]-, P 8154*c*.
2-Hexanone, 6-hydroxy-, semicarbazone *p* nitrobenzoate, 6190*f*.
*p*-Toluic acid, 3,5-dinitro-, hexylidenehydrazone, 6972*e*, isohexylidenehydrazide, 6972*e*.
$C_{14}H_{19}N_4O_7$ (1-Cyclobuten-1-ylmethyl)trimethylammonium picrate, 586*g*.
Heliotridane, picrate, 5776*a*.
Trimethyl - 2 - methylenecyclobutylammonium picrate, 586*g*.
$C_{14}H_{19}N_4O_8$ Alloxantin, di-(1-propyl)-, 2953*f*.
Isoretronecanol, picrate, 3827*i*.
4-Piperidone, trimethyl-, picrate, 2959*d*.
$C_{14}H_{19}N_5$ Biguanide, 1-isopropyl-5-(6-quinolyl)-, - *HCl*, 2947*h*.
$C_{14}H_{19}N_5O_2$ [1,1'-Bi-1,5-cyclohexadienyl]-3,3'-dione, disemicarbazone, hydrate, 3366*f*.
$C_{14}H_{19}N_5O_3S_2$ Benzenesulfonic acid, *N*4-(guanylguanyl)sulfanilamide salt, P 4292*i*.
$C_{14}H_{19}N_5O_4S_3$ Benzenesulfonamide, 2 [2-(2-ethoxyethyl)tetrahydro - 5 - oxo - 3-thioxo - 1,2,4,2*H* - thiadiazin - 6-ylazo]-*N*-methyl-5-nitro-, 1,1-dioxide, P 4868*g*.
$C_{14}H_{19}N_{10}O_{14}Pt$ 2538*d*.
$C_{14}H_{18}O$ Acenaphthene, 2a,3,4,5-tetrahydro-7 methoxy-6-methyl-, 4250*f*.
1-Acetonaphthone, 5,6,7,8-tetrahydro-2,3-dimethyl-, 208*e*.
Anisole, 4 - (4 - methylcyclohexenyl)-, 3373*d*.
1-Anthrol, 1,2,3,4,5,6,7,8-octahydro-, 2183*d*.
Benz[*e*]azulen-6-ol, 1,2,3,3a,4,5,6,10b-octahydro-, 9043*c*.
2 Butyronaphthone, 5,6,7,8-tetrahydro-, 9424*f*.
Cyclohexaneacetaldehyde, $\alpha$-phenyl-, 4633*a*.
Cyclohexanone, 2-(3,4-xylyl)-, 1358*e*.
Ketone, methyl 2-phenylcyclohexyl, 8361*cf*.
1(2*H*)-Naphthalenone, 3,4-dihydro-8-isopropyl-5-methyl-, 2606*a*.
Octadienynol, (1 - cyclohexen - 1 - yl)-, 8361*d*.
4-Pentenophenone, 2-ethyl-2-methyl-, 3716*e*, 4955*d*.
Phenanthrol, 1,2,3,4,5,6,7,8-octahydro-, 2183*c*, 4251*c*.
Phenetole, *p*-(cyclohexenyl)-, 2971*b*.
Phthalan, 1,1,3,3-tetramethyl-4-vinyl-, P 7295*a*, P 7262*bc*.
$C_{14}H_{18}O_2$ Acetic acid, (*p*-cyclopentylphenyl)-, Me ester, 1375*d*.
Cyclohexaneacetic acid, phenyl-, 1376*b*, 1388*b*, 2174*b*, P 2636*d*.
Cyclohexanol, 4-methyl-, benzoate, 7437*b*.
Cyclohexanone, 5-(*p*-methoxyphenyl)-2-methyl-, 3373*c*.
Cyclopentanepropionic acid, 2-phenyl-, 9043*b*.
Heptenone, 1 - (*p* - hydroxyphenyl) - 6-methyl-, 7001*h*.
—, 6-methoxy-3-phenyl-, 119*c*.
1-Indanacetic acid, $\alpha$-propyl-, 8374*d*.
5-Indanvaleric acid, 2965*h*.
$\beta$-Isodurylic acid, 2-butenyl ester, 9051*b*; 2-methylallyl ester, 9051*bd*.
4,7-Methanoindenol, hexahydro-, methacrylate, P 4874*d*.
2-Naphthaleneacetic acid, 5,6,7,8-tetrahydro-, Et ester, 3363*c*.
Naphthalenebutyric acid, 5,6,7,8-tetrahydro-, 2183*bd*, 7011*b*.
2-Naphthalenepropionic acid, 5,6,7,8-tetrahydro-$\beta$-methyl-, 4659*e*.
1,4-Pentadien-3-ol, 1-ethoxy-3-methyl 5-phenyl-, 2571*c*.
1 - Pentyne, 5 - ethoxy - 3 - methoxy - 1-phenyl-, 1021*d*.
2-Propionaphthone, 1,2,3,4-tetrahydro-6-methoxy-, 3814*f*.
Safrole, butyl-, 3555*c*.
$C_{14}H_{18}O_3$ Bicyclo[2.2.2]-5-octene-2,3-dicarboxylic anhydride, 1-isopropyl-4-methyl-, 6601*a*.
Butyric acid, $\alpha$-benzoyl-$\beta$-methyl-, Et ester, 1009*i*.
—, $\gamma$-hydroxy-$\gamma$-(2-methoxy-5-propylphenyl)-, lactone, 1032*g*.
Caproic acid, $\gamma$-acetyl-$\gamma$-phenyl-, 2932*b*.
—, $\beta$-oxo-$\epsilon$-phenyl-, Et ester, 3392*i*.
Cyclohexanemethanol, 4-hydroxy-, benzoate, 7436*e*.
4-Cyclohexene-1,2-dicarboxylic anhydride, 4-methyl-3-(3-methyl-2-butenyl)-, 362*f*.
Enanthic acid, $\xi$-benzoyl-, 3366*e*.
—, $\epsilon$-methyl-$\delta$-oxo-$\gamma$-phenyl-, 2932*c*.
2-Hexenoic acid, *p*-ethoxyphenyl ester, 2187*c*.
Hexenophenone, 2',4'-dihydroxy-3',5'-dimethyl-, 2184*i*.
—, 4'-ethoxy-2'-hydroxy-, 2187*e*.
1-Naphthaleneacetic acid, 1,2,3,4-tetrahydro-6-methoxy-5-methyl-, 4250*f*.
2(1*H*)-Naphthalenone, 3,4-dihydro 5,8-dimethoxy-1,1-dimethyl-, 2612*f*.
2-Pentanone, 3-benzyl-4-hydroxy-, acetate, 5744*i*.
$C_{14}H_{18}O_4$ Butyric acid, $\gamma$-(5-ethyl 2,4-dimethoxyphenyl)-$\gamma$-hydroxy-, lactone, 1033*c*.
Caproic acid, $\epsilon$-*p*-anisoyl-, 2174*g*.
5*H*-Cycloheptabenzen-5-one, 6,7,8,9 tetrahydrotrimethoxy-, 3403*i*, 3404*a*.
1,3-Cyclohexanedione, 2,2'-ethylidene di-, 1336*d*.
4-Hexenophenone, 2',3,4'-trihydroxy-3',5'-dimethyl-, 2184*i*, 2185*a*.
Phthalic acid, di-Pr ester, 3678*a*.
Propionic acid, $\beta$-(2-methoxy-5-propylbenzoyl)-, 1032*g*.
Salicylic acid, Me ester, caproate, P 4701*t*.
—, 5-enanthyl-, 1033*a*.
Tricyclo[4.2.2.$0^{2,5}$]decene - 7,8 - dicarboxylic acid, di-Me ester, 6199*a*.
$C_{14}H_{18}O_5$ Allopyranoside, methyl 4,6-benzylidene-2-desoxy-, 1327*g*.
5*H*-Cycloheptabenzen-5-one, 6,7,8,9-tetrahydro - 4 - hydroxy - 2,3,6 - trimethoxy-, 3403*d*.
Galactoside, methyl 2-desoxy-4,6-benzal-, 1727*c*.
Glucopyranoside, methyl 4,6-benzylidene-3-desoxy-, 1327*g*.
Guloside, methyl 3-desoxy-4,6-benzal-, 1728*e*, 4635*k*.
Idoside, methyl 3-desoxy-4,6-benzal-, 1728*b*.
Ketonic phenol, m. 87°, 3403*e*.
Lactic acid, 2-(benzyloxy)ethyl ester, acetate, P 676*d*.
Mannopyranoside, methyl 4,6-benzylidene-3-desoxy-, 1327*h*.
4 - Oxatetracyclo[5.2.2.$0^{2,6}$.$0^{8,9}$]hendecane-8,9-dicarboxylic acid, di-Me ester, 6200*i*.
1,2-Propanediol, 3-(benzyloxy)-, diacetate, 312*b*.
—, 3-*o*-toloxy-, diacetate, 312*b*.
Propionic acid, $\beta$-2,5-diethoxybenzoyl-, 1379*a*.
—, $\beta$-(5-ethyl-2,4-dimethoxybenzoyl)-, 1033*b*.
*m*-Toluic acid, 2-(carboxymethoxy)-, di-Et ester, 1771*h*.
$C_{14}H_{18}O_5S$ Valeric acid, $\alpha$-(2-carboxyethylmercapto)-$\delta$-phenoxy-, P 7504*f*.
$C_{14}H_{18}O_6$ Acetic acid, (2-acetyl-4,5-dimethoxyphenoxy)-, Et ester, 7460*e*.
Anisic acid, 2-(carboxymethoxy)-, di-Et ester, 1771*i*.
Butyric acid, $\gamma$-(trimethoxybenzoyl)-, 3403*h*, 3404*a*.
Glucoside, methyl 4,6-benzylidene-, 3368*r*.

Isophthalaldehydic acid, 2,6-dihydroxy-4-(2-hydroxy-1-methylpropyl)-5-methyl-, Me ester, 6206*b*.
Phthalic acid, bis(2-methoxyethyl) ester, 8698*d*.
1,2-Propanediol, 3-*o*-toloxy-, succinate, 8545*d*.

**$C_{14}H_{18}O_7$** Benzoic acid, (3-carboxypropyl)-trimethoxy-, 3403*f*, 3401*b*.

**$C_{14}H_{18}O_7S$** Glucoside, methyl 2-tosyl-3,6-anhydro, 1726*i*.

**$C_{14}H_{18}O_9$** Glucal, tetraacetylhydroxy-, 8007*d*.

**$C_{14}H_{18}O_{10}$** Galactonic acid, γ-lactone tetraacetate, 8358*d*.

**$C_{14}H_{19}BrN_4O$** 1-(4-Amino-2-methyl-5-pyrimidylmethyl)-3-(2-hydroxyethyl)-2-picolinium bromide, -*HBr*, 7030*i*.

**$C_{14}H_{19}BrN_6O_3$** Acetanilide, α-bromo-*o*-nitro-, compd. with hexamethylenetetramine, 6586*i*.

**$C_{14}H_{19}BrO_2$** Acetic acid, bromophenyl-, hexyl ester, 2180*d*.

**$C_{14}H_{19}BrO_9$** Glucopyranosyl bromide, tetraacetate, 7430*g*.
Glucose, acetobromo-, 1326*h*, 5748*a*.
Glucosyl bromide, tetraacetate, P 689*i*.

**$C_{14}H_{19}ClN_2O_4S_2$** Penicillin, (γ-chlorocrotylmercaptomethyl)-, *K salt*, 575*f*.

**$C_{14}H_{19}ClN_4$** Quinazoline, 4-chloro-2-(2-diethylaminoethylamino)-, 2052*d*.

**$C_{14}H_{19}ClN_4O$** 1-(4-Amino-2-methyl-5-pyrimidylmethyl)-3-(2-hydroxyethyl)-2-picolinium chloride, -*HCl*, 7030*i*.

**$C_{14}H_{19}ClO$** Ether, 2-chloroethyl *o*-cyclohexylphenyl, 8600*a*.

**$C_{14}H_{19}IN_2$** 2-Diethylamino-1-methylquinolinium iodide, 4276*g*.

**$C_{14}H_{19}IN_2O$** Benzoic acid, *m*-iodo-, heptylidenehydrazide, 6973*e*.

**$C_{14}H_{19}I_2NO_3$** β-Alanine, *N*-(4-hydroxy-3,5-diiodophenethyl)-*N*-methyl-, Et ester, -*HCl*, 5765*f*.

**$C_{14}H_{19}N$** 1-Cyclohexene-1-acetonitrile, 2-(1-cyclohexen-1-yl), 4251*g*.
2-Fluorenecarbonitrile, 3811*b*.

**$C_{14}H_{19}NO$** Benzamide, *N*-(2-methyl-1-cyclohexyl)-, 2961*a*.
Cinnamamide, *N-tert*-amyl-, 2165*e*.
Crotonotoluidide, *N*-isopropyl-, P 5413*i*.
—, *N*,α,β-trimethyl-, P 5413*i*.
Cyclohexaneacetamide, phenyl-, 1376*b*, 2174*b*.
β-Indanvaleramide, 2965*h*.
Ketone, methyl 1-methyl-4-phenyl-4-piperidyl, *and* -*HCl*, P 2240*f*.
Propiophenone, α-1-piperidyl-, *and* -*HCl*, 232*e*.
Seneciotoluidide, *N*-ethyl-, P 5413*i*.

**$C_{14}H_{19}NOS$** Morpholine, 4-(2,5-xylylthioacetyl), 1385*b*.

**$C_{14}H_{19}NO_2$** (See also *1,4-Benzodioxan, 2-(1-piperidylmethyl)-*.)
2(3*H*)-Benzoxazolone, 3-butyl-5-propyl, 6615*g*.
—, 3-isoamyl-5,6-dimethyl-, 6615*h*.
—, 3-isobutyl-5-propyl-, 6615*g*.
Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide, *N*-amyl-, P 4421*f*.
—, *N*-butylmethyl-, P 4421*g*.
*p*-Crotonanisidide, *N*,α,β-trimethyl-, P 5414*b*.
*p*-Crotonophenetidide, *N*-ethyl-, P 5414*a*.
Cyclohexanol, 2-methyl-, carbanilate, 2961*b*.
Cyclopentanemethanol, methyl-, carbanilate, 2961*d*.
2-Furanpropionanilide, tetrahydro-5-methyl-, 5736*a*.
1-Indanol, 2-(4-morpholinylmethyl)-, -*HCl*, P 1440*h*.
2-Naphthaleneacetamide, 5,6,7,8-tetrahydro-*N*-2-hydroxyethyl-, 3364*a*.
Nipecotic acid, 3-phenyl-, Et ester, P 695*eh*.
3-Piperidinol, 1-ethyl-, benzoate, -*HCl*, 7019*i*.
—, 1-methyl-3-phenyl-, acetate, -*HCl*, 4275*a*.
Propionamide, *N*-α-propionylphenethyl-, 4226*i*.
Propiophenone, *p*-methyl-β-4-morpholinyl-, -*HCl*, 9070*b*.
3-Pyrrolidinecarboxylic acid, 1-methyl-3-phenyl-, Et ester, P 695*i*.
2-Pyrrolidinemethanol, 1-ethyl-, benzoate, -*HCl*, 227*d*.
*o*-Senecianisidide, *N*-ethyl-, P 5414*a*.

**$C_{14}H_{19}NO_2S$** Isoleucine, *N*-phenylthioacetyl-, 3362*f*.

**$C_{14}H_{19}NO_3$** Acetophenone, α-cyclohexylamino-3,4-dihydroxy-, -*HCl*, 3388*e*.
Acetophenone, 4-hydroxy-3-methoxy-α-1-piperidyl-, P 7050*h*.
Bicyclo[8.3.1]-1(14),10,12-tetradecatrien-14-ol, 12-nitro-, 161*d*.
2-Butanone, 4-(4-morpholinyl)-1-phenoxy-, P 1914*h*.
Butyric acid, 2-(α-phenylacetamido)ethyl ester, 2269*i*.
*o*-Homoveratronitrile, α-(2-ethoxyethyl)-, 6636*b*.
Isoleucine, *N*-phenylacetyl-, P 3574*b*, P 4698*d*.
Isovaleric acid, β-benzamido-, Et ester, 7427*f*.
Morpholine, 5-(methyl-1,4-benzodioxan-2-ylmethyl)-, *and* -*HCl*, P 4304*d*.
Sorbic acid, δ-hydroxy-β-methyl-γ-(2-methyl-1-piperidylcarbonyl)-, δ-lactone, P 2239*i*.
Valine, *N*-hydrocinnamoyl-, 2269*h*, 2273*f*.
—, *N*-methyl-*N*-phenylacetyl-, 2271*b*.
—, *N*-phenylacetyl-, Me ester, 2270*g*.

**$C_{14}H_{19}NO_3S$** Acetamide, *N*-ethyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.
Valine, *N*-(β-phenylmercaptopropionyl)-, 2273*f*.
—, *N*-(*p*-tolylmercaptoacetyl)-, 3365*f*.

**$C_{14}H_{19}NO_4$** Acetamide, α-methoxy-*N*-(α-methoxyacetylphenethyl)-, 4227*a*.
Benzoic acid, *p*-hydroxy-, Bu estet, dimethylcarbamate, 593*e*.
2-Butanone, 1-(*o*-hydroxyphenoxy)-4-(1-morpholinyl)-, P 1915*a*.
Δ$^{1,\alpha}$-Cyclohexaneacetic acid, 2-carboxy-α-cyano-, di-Et ester, 4279*b*.
Hydrocinnamic acid, β-carboxyamino-, di-Et ester, 3822*e*.
Malonic acid, [2-(2-pyridyl)ethyl]-, di-Et ester, 4267*f*.
Propionic acid, β,β′-(phenylimino)di-, di-Me ester, P 9462*e*.
Valine, *N*-carboxy-, benzyl Me ester, 4611*d*.
—, *N*-homoanisoyl-, 3361*c*.

**$C_{14}H_{19}NO_4S$** 1-Cyclohexene-1-methanesulfonic acid, 5,5-dimethyl-3-oxo-, pyridine salt, 9044*d*.
2-Cyclohexene-1-sulfonic acid, 2,6,6-trimethyl-4-oxo-, pyridine salts, 9044*d*.
Isovaleric acid, β-(benzylmercapto)-α-nitro-, Et ester, 1723*a*.

**$C_{14}H_{19}NO_5$** 1-Azabicyclo[3.3.1]-3,6-nonadiene, 3-acetyl-4,5-dimethyl-, oxalate, 3001*b*.
Peroxybenzoic acid, *p*-nitro-, 1,1-diethylpropyl ester, 6189*f*.

**$C_{14}H_{19}NO_5S$** Malonic acid, acetamido-2-thenyl-, di-Et ester, 6613*d*.

**$C_{14}H_{19}NO_6$** Glucosamine, *N*-phenylacetyl-, 2271*b*

**$C_{14}H_{19}NO_7$** Benzoic acid, (2,3-dihydroxypropoxy)nitro-, Bu ester, P 2233*g*.

**$C_{14}H_{19}N_3O$** Antipyrine, 4-(ethylaminomethyl)-, 7477*c*.
Benz[*e*]azulen-6(1*H*)-one, 2,3,3a,4,5,-10*b*-hexahydro-, semicarbazone, 9043*c*.
Cyclopentanone, 3,4-dimethyl-2-phenyl-, semicarbazone, 119*d*.
1-Indanone, 7-isopropyl-4-methyl-, semicarbazone, 1747*f*.
Ketone, methyl 6,7,8,9-tetrahydro-5*H*-cycloheptabenzen-3-yl, semicarbazone, 2965*e*.
1(2*H*)-Naphthalenone, 4-ethyl-3,4-dihydro-7-methyl-, semicarbazone, 2605*i*.
Pyrazolone, 5-amino-4-*sec*-butyl-1-methyl-2-phenyl-, P 7050*a*.
—, aminoethylisopropylphenyl-, P 6240*b*, P 7970*d*.
Pyridine, 2-[(2-dimethylaminoethyl)furfurylamino]-, P 3472*c*, 6587*h*; *and* -*HCl*, 4274*c*.
Quinoline, 8-(aminobutylamino)-6-methoxy-, *ds*-*HCl*, 3420*b*; *and ds*-*HCl*, 3419*e*.

**$C_{14}H_{19}N_3O_2$** Biuret, 1-cyclohexyl-5-phenyl-, 7446*g*.
Cyclohexanone, 2,4-dimethyl-, *p*-nitrophenylhydrazone, 2998*f*.
3-Pentanone, 1,2-epoxy-4,4-dimethyl-1-phenyl-, semicarbazone, 139*d*.

**$C_{14}H_{19}N_3O_2$** Isocaproic acid, γ-benzoyl-, semicarbazone, 2931*g*.
2(1*H*)-Naphthalenone, 3,4-dihydro-5,8-dimethoxy-1-methyl-, semicarbazone, 2612*g*.
Urea, 1-cyclohexyl-3-(3-nitro-*p*-tolyl)-, 7448*c*.

**$C_{14}H_{19}N_3O_4$** Valeric acid, δ-anisoyl-, semicarbazone, 3366*d*.

**$C_{14}H_{19}N_3O_4S_2$** 1-Naphthol-3,6-disulfonamide, 8-amino-*N*,*N*′-diethyl-, P 8146*g*.
1-Naphthol-3,6-disulfonamide, 8-amino-*N*,*N*,*N*′,*N*′-tetramethyl-, P 8146*g*.
*p*-Toluenesulfonic acid, α-amino-, α-amino-*p*-toluenesulfonamide salt, P 686*c*.

**$C_{14}H_{19}N_3O_4S$** Succinamide, *N*,*N*-diethyl-*N*′-(*p*-nitrophenylsulfonyl)-, P 7963*g*.

**$C_{14}H_{19}N_3O_9$** Glucose, acetoazido-, 7430*f*.

**$C_{14}H_{19}N_3S$** Pyridine, 2-[(2-dimethylaminoethyl)thenylamino]-, 3103*a*, 3937*f*, 8611*h*; *di*-*HCl*, 2700*h*; -*HCl*, 2324*d*; *and* -*HCl*, 2987*b*, 5781*c*.
Thiazole, 2-[benzyl(2-dimethylaminoethyl)amino]-, P 1914*c*.
—, 4-[(*N*-2-dimethylaminoethylanilino)-methyl]-, P 822*f*.

**$C_{14}H_{19}N_5$** Piperidine, 1-[1-(1-phenyl-1*H*-tetrazol-5-yl)ethyl]-, 1864*i*.

**$C_{14}H_{19}N_5O$** Guanidine, [3-(6-methoxy-8-quinolylamino)propyl]-, *dinitrate*, 7485*e*.

**$C_{14}H_{19}N_5O_4S_2$** Marbadal, 5824*d*.

**$C_{14}H_{19}N_5O_5$** Acetaldehyde, caproylamino-, 2,4-dinitrophenylhydrazone, 1768*a*.
Caproamide, *N*-(formylmethyl)-, 2,4-dinitrophenylhydrazone, 4920*f*.

**$C_{14}H_{19}N_5O_7$** Cyclohexanone, dimethylhydrazone picrate, 6592*i*.
2-Imidazoline, 5-ethyl-1,2,5-trimethyl-, picrate, 8381*e*.

**$C_{14}H_{19}N_5O_8$** Cyclohexanone, dimethylhydrazone, styphnate, 6592*i*.
Nipecotamide, 1-ethyl-, picrate, 6207*b*.

**$C_{14}H_{19}O_4P$** Benzenephosphonic acid, bis(2-methylallyl) ester, P 1220*fg*.

**$C_{14}H_{20}$** Irone, 5549*f*.
Naphthalene, butyl-1,2,3,4-tetrahydro-, 1370*c*, 2197*i*.
Toluene, *p*-2-methylcyclohexyl-, 2175*b*
*m*-Xylene, (1-methylcyclopentyl)-, 2171*i*.

**$C_{14}H_{20}BrNO_3$** β-Alanine, *N*-(3-bromo-4-methoxyphenethyl)-*N*-methyl-, Me ester, -*HCl*, 5705*f*.

**$C_{14}H_{20}BrN_5$** Biguanide, 1-(*p*-bromophenyl)-5-cyclohexyl-, *and* -*HCl*, P 4692*a*, 9030*i*.

**$C_{14}H_{20}BrN_5O$** Acetanilide, α-bromo-, compd. with hexamethylenetetramine, 6586*i*.

**$C_{14}H_{20}Br_2N_2O_4S$** Butyramide, *N*-[2-(3,5-dibromophenylsulfamyl)ethyl]-α,γ-dihydroxy-β,β-dimethyl-, P 3450*f*.

**$C_{14}H_{22}Br_2O_5$** 2,3,4,5-Hexanetetrol, 1,6-dibromo-, tetraacetate, 7425*b*
Mannitol, 1,6-dibromo-2,4,3,5-tetraacetyl, 2939*h*.

**$C_{14}H_{20}ClN$** Hexamethylenimine, 1-(*p*-chlorophenethyl)-, -*HBr*, 3379*a*.

**$C_{14}H_{20}ClNO$** Butyrophenone, *p*-chloro-γ-diethylamino-, 2211*b*.

**$C_{14}H_{20}ClNO_2$** Caproamide, ε-(*p*-chlorophenyl)-*N*-2-hydroxyethyl-, 2273*i*.

**$C_{14}H_{20}ClNO_4$** Ethane, 1-(4-chloro-2-nitrophenoxy)-2-(2-ethylbutoxy)-, P 5421*f*.

**$C_{14}H_{20}ClNO_6$** Benzene, 1-chloro-2,4-bis(2-ethoxyethoxy)-5-nitro-, P 5421*g*.

**$C_{14}H_{20}ClN_5$** Biguanide, 1-(*p*-chlorophenyl)-5-cyclohexyl-, P 4691*d*, P 6659*h*, 9036*i*
1-Piperidinecarboxamidine, *N*-[*N*-(*p*-chlorophenyl)-*N*′-methylguanyl]-, -*HCl*, P 6659*a*; *and* -*HCl*, 2949*b*

**$C_{14}H_{20}Cl_2N_2$** *p*-Phenylenediamine, *N*,*N*,*N*′,*N*′-tetrakis(2-chloroethyl)-, 7443*d*.

**$C_{14}H_{20}FNO$** Butyrophenone, γ-diethylamino-*p*-fluoro-, 2211*b*.

**$C_{14}H_{20}INO_2S$** Ethyl(*o*-methoxy-α-4-morpholinylbenzylidene)sulfonium iodide, 5027*i*.

**$C_{14}H_{20}N_2$** Acetamidine, *N*-cyclohexyl-α-phenyl-, -*HCl*, P 688*i*, *and* -*HCl*, P 3456*h*.
Caprylonitrile, α-anilino-, 4415*f*
Indoline, 1-[2-(1-pyrrolidyl)ethyl]-, 4257*f*.

**$C_{14}H_{20}N_2O$** Anisamidine, *N*-cyclohexyl-, -*HCl*, P 3456*h*.
Benzamide, *N*-[2-(1-piperidyl)ethyl]-, 1004*b*.
1-Piperidineaceto-*o*-toluidide, *and* -*HCl*, 1022*c*.
Propiophenone, *m*-amino-β-1-piperidyl-, -*HCl*, 5780*h*.
—, β-(4-methyl-1-piperazyl)-, *ds*-*HCl*, 9070*b*.

**$C_{14}H_{20}N_2O_2$** Acetamide, α-(*N*-ethyl-α-phenylacetamido)-*N*,*N*-dimethyl-, P 248*i*
Acetamide, *N*-methyl-*N*,*N*′-(2,4,6-trimethyl-*m*-phenylene)bis-, 1735*b*
Propionamide, *N*-α-propionylphenethyl-, oxime, 4226*i*.
*o*-Propionotoluidide, *N*-methyl-6-*N*-methylacetamido-, 4273*h*.

**$C_{14}H_{20}N_2O_3$** Caproic acid, α,α-bis(2-cyanoethyl)-β-oxo-, Et ester, 2582*g*.

Hydantoic acid, α-ethyl-α-isopropyl-5-phenyl-, 2167*c*.
Succinanilic acid, 5-amino-*N*,2,4-trimethyl-, Me ester, 1343*g*.

**$C_{14}H_{20}N_2O_3S$** Acetanilide, *p*-(cyclohexylsulfamyl)-, P 1060*h*.
Cyclopentanepropionamide, *N*-sulfanilyl-, 3097*g*.
Valine, β-(benzylmercapto)-*N*-glycyl-, *NH*$_4$ *salt*, 4668*c*.

**$C_{14}H_{20}N_2O_4$** Adipic acid, α,β-dicyano-β,γ-dimethyl-, di-Et ester, 3796*h*.
Alanine, *N*-(2-acetamido-4-methoxyphenyl)-, Et ester, 7488*b*.
Benzoic acid, *p*-(2-nitroisobutylamino)-, Pr ester, 6183*f*.
2-Propanol, 1-isopropylamino-2-methyl-, *p*-nitrobenzoate, -*HCl*, P 3038*h*.

**$C_{14}H_{20}N_2O_4S$** (See also *Flavacidin*; *Penicillin F*.)
Acetanilide, α-cyclohexyloxy-*p*-sulfamyl-, 1028*c*.
Imidazo[5,1-*b*]thiazole-3,7-dicarboxylic acid, 2,3,7,7a-tetrahydro-2,2-dimethyl-5-(3-methyl-2-butenyl)-, 4920*h*.
—, 2,3,7,7a-tetrahydro-2,2-dimethyl-5-(2-pentenyl)-, 4920*g*, 4921*d*.

**$C_{14}H_{20}N_2O_5$** 1(2*H*)-Pyrimidineacetic acid, 5-allyl-3,4,5,6-tetrahydro-5-isopropyl-2,4,6-trioxo-, Et ester, 9258*a*.
1(2*H*)-Pyrimidineacetic acid, 5-allyl-3,4,5,6-tetrahydro-2,4,6-trioxo-5-propyl-, Et ester, 9258*a*.

**$C_{14}H_{20}N_2O_6$** Acetamide, α,α′-(*p*-phenylenedioxy)bis[*N*-2-hydroxyethyl-, 3361*g*.
Acrylic acid, ester with *N*,*N*′-ethylenebislactamide, P 3447*b*.

**$C_{14}H_{20}N_2O_6S$** See *Metol*.

**$C_{14}H_{20}N_2O_9$** Mannuronamide, 1-acetamido-2,3,4-triacetyl-, 576*i*.

**$C_{14}H_{20}N_2O_3P$** Phosphinic acid, [1-(antipyrylaminolisopropyl], 5378*e*.

**$C_{14}H_{20}N_4$** Cyclohexanecarbonitrile, 1,1′-azodi-, 3354*h*.

**$C_{14}H_{21}N_3O$** 4-Quinazolinol, 2-(2-diethylaminoethylamino)-, 2952*c*.

**$C_{14}H_{20}N_4O_2$** Oxalic acid, 2-hexylidenehydrazide 2-phenylhydrazide, 6972*b*.

**$C_{14}H_{20}N_4O_4$** 2,4-Dinitrophenylhydrazone, m 142.3°, 1309*g*.
Valeraldehyde, α,γ,γ-trimethyl-, 2,4-dinitrophenylhydrazone, 1309*e*.

**$C_{14}H_{21}N_3O_7$** 1*H* Azonine, octahydro-, picrate, 5400*c*.
Cyclobutylmethyl)trimethylammonium picrate, 587*a*.
Cyclohexylamine, 3,5-dimethyl-, picrate, 2963*c*.
1,1-Diethylpyrrolidinium picrate, 9052*i*.
Trimethyl-2-methylcyclobutylammonium picrate, 586*i*.

**$C_{14}H_{21}N_3O_8$** Ethanol, 2-cyclohexylamino-, picrate, 572*i*.
1-Pyrrolidineethanol, dimethyl-, picrate, 631*e*.

**$C_{14}H_{21}N_3S$** Pyridine, 2-[(2-dimethylaminoethyl)(2-methyl-4-thiazolylmethyl)amino], P 3472*i*.

**$C_{14}H_{21}N_3O$** 2-Imidazoline, 2-amylamino-, picrate, 4273*b*.
2-Imidazoline, 2-butylaminomethyl-, picrate, 4273*c*.
, 2-isobutylaminomethyl-, picrate, 4273*c*.

**$C_{14}H_{22}O$** Anisole, cyclohexylmethyl-, 2971*a*.
Benz[*e*]indenone, octahydro-3a-methyl-(?), 3829*df*.
Caprophenone, 2,5-dimethyl-, 6990*g*.
Cyclohexanol, 1-(3,4-xylyl)-, 1358*d*.
Cyclooctanol, 1-phenyl-, 3366*a*.
Cyclopentanemethanol, α,α-dimethyl-3-phenyl-, 3398*h*.
1-Naphthol, 4-butyl-5,6,7,8-tetrahydro-, 2196*c*.
Phenetole, *p*-cyclohexyl-, 2971*a*.

**$C_{14}H_{22}OS$** Enanthic acid, thiol-, benzyl ester, P 3445*c*.

**$C_{14}H_{22}O_2$** Acetic acid, (*p*-*tert*-butylphenyl)-, Et ester, 3361*i*.
Acetophenone, 4-butoxy-2,5-dimethyl-, 7924*g*.
—, 4-ethoxy-5-isopropyl-2-methyl-, 7924*h*.
—, isoamoxymethyl-, 3825*ef*.
Benzoic acid, *p*-heptyl-, 2603*b*.
Butyrophenone, 2-methyl-4-propoxy-, 3826*a*.
Caproic acid, γ-ethyl-γ-phenyl-, 2932*b*.
Caprylic acid, γ-phenyl-, 2248*f*.
6-Chromanol, 2,2,5,7,8-pentamethyl-, 693*d*.
Cumic acid, Bu ester, P 350*e*.
1-Cyclohexene-1-acetic acid, 2-(1-cyclohexen-1-yl)-, 4251*d*.
3-Cyclohexene-1-carboxaldehyde, 1-(3-cyclohexen-1-ylhydroxymethyl)-, P 902*g*.
3-Heptanone, 1-(*p*-hydroxyphenyl)-6-methyl-, 7001*h*.
β-Isodurylic acid, *tert*-Bu ester, 9051*e*.
Isovaleric acid, 1,1-dimethyl-2-methylene-5-hexen-3-ynyl ester, 2162*h*.
4,7-Methanoinden-5-ol, octahydro-, methacrylate, P 2026*a*.
Propiophenone, 4-butoxymethyl-, 3825*e*, 3826*a*.
—, 2,5-dimethyl-4-propoxy-, 7924*f*.
—, 5-isopropyl-4-methoxy-2-methyl-, 604*d*.
*p*-Quinone, 2,5-dibutyl-, 3791*b*.
—, di-*tert*-butyl-, 5665*g*, 8199*h*

**$C_{14}H_{20}O_3$** Acetic acid, xylyloxy-, Bu ester, P 6002*e*.
Bicyclo[4.3.1]-7-decene-1-carboxylic acid, 7-methyl-10-oxo-, Et ester, 7908*c*.
Bicyclo[5.3.1]-7-hendecene-1-carboxylic acid, 8-methyl-11-oxo-, Me ester, 7908*f*.
Caprophenone, 2,4-dihydroxy-3,5-dimethyl-, 2184*i*.
Compd., m 200°, 7483*c*.
5-*o*-Cymeneglycolic acid, Et ester, 188*c*.
1,3-Dioxolane, 2,2-dimethyl-4-[(α-methylbenzyloxy)methyl]-, 7000*f*.
2-Hexen-1-one, 1-(4-hydroxy-3-cyclohexen-1-yl)-3-methyl-, formate, 2958*i*.
Salicylic acid, 5-heptyl-, 1033*a*.

**$C_{14}H_{20}O_3S$** 2-Thiophenecaprie acid, ε-oxo-, 1379*a*, 3817*g*.
2-Thiophenecaprylic acid, η-oxo-, Et ester, 3817*g*.

**$C_{14}H_{20}O_4$** Aposantonic acid, lactone, 2193*a*
Butyric acid, γ-(2,5-diethoxyphenyl)-, 1379*a*
Compd., m. 119-20.5°, 1155*g*.
Compd., m. 213-14°, 7482*e*
5*H*-Cycloheptabenzen-1-ol, 6,7,8,9-tetrahydro-2,3,8-trimethoxy-, 3103*c*.
3-Cyclohexene-1-acrylic acid, carboxydimethyl-, di-Me ester, 590*a*
Cyclohexenedicarboxylic acid, 4-methyl-3(3-methyl-2-butenyl)-, 3621
—, methylpropenyl-, di-Me ester, 589*i*
—, 4-vinyl-, di-Et ester, 2574*c*
3-Cyclohexene-1-glyoxylic acid, 6-isopropyl-4-methyl-2-oxo-, Et ester, 1013*d*
Salicylic acid, 3-methoxy-, 2-ethylbutyl ester, 1242*b*, 7455*b*
Tricyclo[4.2.2.0$^{2,5}$]decane-7,8-dicarboxylic acid, di-Me ester, 6198*i*
Vanillic acid, 2-ethylbutyl ester, 7455*g*

**$C_{14}H_{20}O_5$** Benzoic acid, (2,3-dihydroxypropoxy)-, Bu ester, 312*a*, P 2233*f*, 5655*c*, iso-Bu ester, P 2233*e*.
Hydrocinnamic acid, α-ethyl-2,4,5-trimethoxy-, 2609*d*.
Valeric acid, δ-(trimethoxyphenyl)-, 3403*h*, 3404*a*
Vanillic acid, 2-butoxyethyl ester, 1241*i*, 7455*g*

**$C_{14}H_{21}O_5S$** 1-Cyclohexene-1-acetic acid, 5-carboxy-5-methyl-2-(2-methylmercaptoethyl)-6-oxo-, 5-Me ester, 7143*i*.

**$C_{14}H_{20}O_6$** 3,4-Furandicarboxylic acid, 2-(4-hydroxybutyl)-, di-Et ester, 5022*h*
Galactopyranoside, phenyl 2,3-dimethyl-, 1327*c*.
Vanillic acid, 2-(2-ethoxyethoxy)ethyl ester, 4242*a*, 7455*g*

**$C_{14}H_{20}O_6S_2$** 1,2-Cyclohexanediol, methanesulfonate *p*-toluenesulfonate, 7134*i*

**$C_{14}H_{20}O_8$** Ethylenetetracarboxylic acid, tetra-Et ester, 4227*i*, 9334*c*.
5-Hexene-1,2,3,4-tetrol, tetraacetate, 1721*g*
Taxicatin, 1836*f*.

**$C_{14}H_{22}O_6$** Glucitol, 1,4-anhydro-, tetraacetate, 1321*i*

**$C_{14}H_{20}O_{10}$** Threose, pentaacetate, 4219*d*.

**$C_{14}H_{21}ClN_2O$** Butyrophenone, *p*-chloro-γ-diethylamino-, oxime, 2211*c*.

**$C_{14}H_{21}ClN_2O_3S$** Butyramide, *N*-[2-(*p*-chlorophenylsulfamyl)ethyl]-α,γ-dihydroxy-β,β-dimethyl-, P 3450*h*.

**$C_{14}H_{21}ClO$** Phenol, 2,6-di-*tert*-butyl-4-chloro-, P 6406*f*.

**$C_{14}H_{21}ClOS$** 2-Thophenecapryl chloride, 3817*h*.

**$C_{14}H_{21}ClO_2$** Resorcinol, 4-chloro-6-(1,1,3,3-tetramethylbutyl)-, 7923*g*.

**$C_{14}H_{21}ClO_3$** Benzene, 1-[2-(chloromethyl)-butyl]-2,4,5-trimethoxy-, 2609*e*.
Cycloheptanecarboxylic acid, 1-(3-chloro-2-butenyl)-2-oxo-, Et ester, 7908*c*.
Cyclooctanecarboxylic acid, 1-(3-chloro-2-butenyl)-2-oxo-, Me ester, 7908*e*.

**$C_{14}H_{21}ClO_4$** Malonic acid, allyl(3-chloro-2-butenyl)-, di-Et ester, 1725*i*.

**$C_{14}H_{21}ClO_5$** Compd., m. 134-5°, 571*d*.

**$C_{14}H_{21}Cl_2N_5$** Biguanide, 1-(2,4-dichlorophenyl)-5-isohexyl-, -*HCl*, 7905*f*.

**$C_{14}H_{21}FN_2O$** Butyrophenone, γ-diethylamino-*p*-fluoro-, oxime, 2211*c*.

**$C_{14}H_{21}IN_2S_2$** 3-Ethyl-2-[3-(3-ethyl-4-methyl-4-thiazolin-2-ylidene)propenyl]-2-thiazolinium iodide, 2531*c*.

**$C_{14}H_{21}N$** Cyclohexanemethylamine, α-methyl-2-phenyl-, *and* -*HCl*, 1357*i*, 1358*c*.

**$C_{14}H_{21}NO$** Acetamide, *N*-1,1-dimethylbutyl-α-phenyl-, 2165*h*.
Cyclohexanemethylamine, 2-(*p*-methoxyphenyl)-, *and* -*HCl*, 1357*i*, 1358*f*.
Cyclohexanol, 2-(methylaminomethyl)-1-phenyl-, P 5417*f*.
Furfurylamine, 4-ethyltetrahydro-5-methyl-*N*-phenyl-, 5736*a*.
4-Octynamide, 2-(2-hexynyl)-, 6573*c*.
1-Piperidineethanol, β-methyl-α-phenyl-, *and* -*HCl*, 2314*d*.
2-Piperidinemethanol, α,1-dimethyl-α-phenyl-, *and* -*HCl*, 2205*g*.
4-Quinolinol, 4-(3-buten-1-ynyl)decahydro-2-methyl-, 6023*a*.
Valeranilide, α-ethyl-α-methyl-, 6974*i*.

**$C_{14}H_{21}NO_2$** Acetamide, α-(*p*-*tert*-butylphenyl)-*N*-2-hydroxyethyl-, 3362*h*.
Acetamide, α-carvacryl-*N*-2-hydroxyethyl-, 3362*d*
—, *N*-(2-ethyl-2-hydroxybutyl)-α-phenyl-, 2269*i*.
Acetic acid, phenyl-, 2-diethylaminoethyl ester, 1023*i*.
β-Alanine, *N*-methyl-*N*-phenethyl-, Et ester, *HBr*, 5765*e*.
1-Cyclohexene-1-acetic acid, α-cyano-α-propyl-, Et ester, 3798*a*.
3-Hexanol, 2-methyl-, carbanilate, 3776*e*.
Morpholine, 2-ethoxy-4-ethyl-2-phenyl-, -*HCl*, 4239*f*, *ana*-*HCl*, 4239*h*.
Nicotinic acid, 1-methylheptyl ester, 6316*h*, *see* octyl (normal) ester, 2622*h*.
2,3-Norcamphanedicarboximide, *N*-amyl-, P 4121*g*
Phenol, 2,5-di-*tert*-butyl-4-nitroso-, 5378*h*
*p*-Quinone, 2,5-di-*tert*-butyl-, oxime, 5378*h*
Styrylamine, *N*-ethyl-β-methoxy-*N*-2-methoxyethyl-(?), -*HCl*, 4239*f*

**$C_{14}H_{21}NO_3S$** 2-Propanol, 1-(2-dimethylaminoethylmercapto)-, benzoate, -*HI*, 6184*b*.
Valine, β-(benzylmercapto)-, Et ester, -*HCl*, P 4687*h*

**$C_{14}H_{21}NO_3$** Acetamide, *N*-(formylmethyl)-α-phenyl-, di-Et acetal, 6618*g*.
Acetamide, *N*-2-hydroxyethyl-α-thymyloxy-, 3364*g*.
Acetic acid, (2-dimethylaminoethoxy)-phenyl-, Et ester, 2189*e*.
β-Alanine, *N*-(*m*-ethylphenyl)-*N*-2-hydroxyethyl-, Me ester, P 9462*d*.
—, *N*-(hydroxyphenethyl)-*N*-methyl-, Et ester, -*HCl*, 5765*e*
—, *N*-(*p*-methoxyphenethyl)-*N*-methyl-, Me ester, -*HCl*, 5765*f*
Butyric acid, β-[*N*-(3-hydroxypropyl)-anilino]-, Me ester, P 9462*b*.
Carbamic acid, diethyl-, 3-ethoxy-*p*-tolyl ester, P 252*b*.
Coumalamide, 4,6-dimethyl-*N*,*N*-dipropyl-, P 2239*g*
2-Furoic acid, tetrahydro-2,5-dimethyl-, benzylamine salt, 5736*d*.
4-Morpholinepropanol, α-phenoxymethyl-, P 1915*c*
Protocatechuyl alcohol, α-(cyclohexylaminomethyl)-, *HCl*, 3388*e*.
2-Pyridineacetic acid, α-butyl-1,6-dihydro-1-methyl-6-oxo-, Et ester, 6629*c*.
1(2*H*)-Quinolineethanol, 3,4-dihydro-3,4-dihydroxy-2,2,4-trimethyl-, P 862*d*.

**$C_{14}H_{21}NO_3S$** Caproamide, *N*-[*p*-methylsulfonyl)benzyl]-, 8539*e*

**$C_{14}H_{21}NO_4$** β-Alanine, *N*-(3,4-dihydroxyphenethyl)-*N*-methyl-, Et ester, -*HCl*, 5765*f*
β-Alanine, *N*-(3,4-dimethoxyphenethyl)-, Me ester, -*HCl*, 5765*g*.
Butyric acid, β-[*N*-(2,3-dihydroxypropyl)anilino]-, Me ester, P 9462*e*.
4-Morpholinepropanol, α-[(α-hydroxyphenoxy)methyl]-, P 1915*c*.
Propiophenone, β-dimethylamino-3,4,5-trimethoxy-, -*HCl*, 7003*e*.
Resorcinol, 4-nitro-6-(1,1,3,3-tetramethylbutyl)-, 7923*f*.
Riboseanilide, 2,3,5-trimethyl-, 2953*i*.

**$C_{14}H_{21}NO_5$** Benzoic acid, amino(2,3-dihy-

droxypropoxy)-, Bu ester *and* -*HCl*, P 2233*g*.
Galactose anilide, 2,4-dimethyl-, 583*f*.
5(6*H*)-Indanone, 4-(dimethylaminomethyl-, 7,7a-dihydro-, oxalate, 7432*f*.

**$C_{14}H_{21}NO_9$** Glucose, acetoamino-, 7430*f*.

**$C_{14}H_{21}NS$** 2-Thiopheneпropylamine, γ-cyclopentylidene-*N*, *N* dimethyl-, -*HCl*, 8359*e*.

**$C_{14}H_{21}N_3$** Benzimidazole, 2-(diisopropylaminomethyl)-, 1655*e*.
Benzimidazole, 1-(2-dimethylaminoethyl)-2-isopropyl-, 7021*i*.
—, 2-(dipropylaminomethyl)-, 1655*e*.

**$C_{14}H_{21}N_3O$** 2-Butanone, 4-*v*-pseudocumyl-, semicarbazone, 2589*c*.
4-Heptanone, 3-phenyl-, semicarbazone, 119*d*.
Imidazoline, 2-[α (2-dimethylaminoethoxy)benzyl]-, *and di-HCl*, 7023*c*.
2-Pentanone, 3,4-dimethyl-4-phenyl-, semicarbazone, 5762*d*.
—, 4-methyl-4-*p*-tolyl-, semicarbazone, 5762*e*.
1-Propanone, 1-(2,4 dimethyl-5-pyrimidyl)-3-(1-piperidyl), -*HCl*, 9070*d*.

**$C_{14}H_{21}N_3OS$** 2-Pentanone, 4-(benzylmercapto)-4-methyl-, semicarbazone, 7904*c*.

**$C_{14}H_{21}N_3O_2$** Acetophenone, 4 butoxymethyl-, semicarbazone, 3825*ei*.
Acetophenone, 2,5-dimethyl 4 propoxy-, semicarbazone, 7924*j*.
Butyrophenone, 4-ethoxy-3-methyl-, semicarbazone, 3825*e*.
Pentanone, 2 hydroxy-4,4 dimethyl-1-phenyl-, semicarbazone, 139*f*.
—, 4-(*p*-methoxyphenyl)-4-methyl-, semicarbazone, 5762*h*.

**$C_{14}H_{21}N_3O_4$** Malonaldehydic acid, (1-benzamidoethyl)-, hydrazide di-Me acetal, 7427*i*.

**$C_{14}H_{21}N_3O_4S$** Succinamide, *N*, *N*-diethyl-*N'*-sulfanilyl-, P 7963*f*.

**$C_{14}H_{21}N_3O_5$** Malonic acid, acetamido(1-methylimidazolylmethyl)-, di-Et ester, 8382*c*.

**$C_{14}H_{21}N_3O_7S$** Butyramide, α,γ-dihydroxy-β,β-dimethyl-*N*-[2-(*p*-nitrophenylsulfamyl)ethyl]-, P 3450*h*.

**$C_{14}H_{21}N_3O_{10}S$** Succinic acid, [2-(γ-amino-γ-carboxybutyrylamino)-2-[(carboxymethyl)carbamyl]ethylmercapto]-, 2704*a*.

**$C_{14}H_{21}N_5$** 1*H*-Tetrazole, 1-benzyl-5-(diethylaminoethyl)-, -*HCl*, P 7972*d*.

**$C_{14}H_{21}N_5O$** 1-Piperidinecarboxamidine, *N*-[(*p*-methoxyphenyl)guanyl]-, P 6659*h*.

**$C_{14}H_{21}N_5O_2$** Guanidine, 1-butyl-3-(5,6-dimethoxy-2-benzimidazolyl)-, *and di-HCl*, 1405*h*.

**$C_{14}H_{21}N_5O_3S$** Sulfanilic acid, *N*-(cyclohexylguanylguanyl)-, P 2229*i*.

**$C_{14}H_{22}$** Benzene, *p*-di-*sec*-butyl-, 6583*a*.
Octane, phenyl-, 10*e*, 2174*h*, 6990*i*, 8368*a*.
*p*-Xylene, 2-hexyl-, 6990*h*.

**$C_{14}H_{22}As_2Cl_2N_4Pd$** Propionutrile, β,β'-(methylarsylene)di-, compd. with $PdCl_2$, 8351*e*.

**$C_{14}H_{22}BrNO_2$** 1-(2 Carboxypropyl)pyridinium bromide, Am ester, 6977*c*.

**$C_{14}H_{22}Br_2O$** 7-Oxadispiro[5.1.5.2]pentadecane, 14,15-dibromo-, 4253*c*.

**$C_{14}H_{22}ClNO_2$** (See also *Stovaine*.)
Benzyl(carboxymethyl)dimethylammonium chloride, Pr ester, 6977*a*.
1-(1-Carboxyhexyl)pyridinium chloride, Et ester, 6977*e*.

**$C_{14}H_{22}ClNO_3S_2$** Sulfilimine, *S*-(2 chloroethyl)-*S*-2-propoxyethyl-*N*-*p*-tolylsulfonyl-, 2928*i*.

**$C_{14}H_{22}ClN_5$** Biguanide, butyl(*p*-chlorophenyl)ethyl-, *di-HCl*, 2949*b*; -*HCl*, P 684*fg*, 2949*a*, P 6659*a*.
Biguanide, (*p*-chlorophenyl)diisopropyl-, -*HCl*, P 684*ef*, 2949*a*; *and HCl*, 2949*i*.
—, 1-(*p*-chlorophenyl)-5-ethyl-2-isobutyl-, -*HCl*, P 684*f*, 2949*a*.
—, 1-(*p*-chlorophenyl)-2-ethyl-5-isopropyl-4-methyl-, -*HCl*, P 684*d*; *and* -*HCl*, 9039*f*.
—, 5-(*p*-chlorophenyl)-1-isopropyl-2-propyl-, -*HCl*, 2950*a*.

**$C_{14}H_{22}ClN_5O_7$** Biguanide, 1-butyl-5-(*p*-chlorophenyl)-, acetate, P 684*f*, P 6659*g*.
Biguanide, 5-(*p*-chlorophenyl)-4-ethyl-1,1-dimethyl-, acetate, P 684*g*, 2949*b*, P 6659*c*.
—, 5-(*p*-chlorophenyl)-1-isopropyl-1-methyl-, acetate, P 684*e*, 2951*a*.

**$C_{14}H_{22}HgN_2O_6$** Barbituric acid, 1-[3-(acetoxymercuri)-2-methoxypropyl]-5,5-diethyl-, 2169*i*.

**$C_{14}H_{22}IN$** Benzyl-1,1-dimethylpiperidinium iodide, 4274*g*.

**$C_{14}H_{22}INO$** (2,2-Dimethyl-3-oxo-3-phenylpropyl)trimethylammonium iodide, 4239*a*.
4-Methyl-4-(3-phenylpropyl)morpholinium iodide, 4376*d*.

**$C_{14}H_{22}N_2$** Cumaldehyde, diethylhydrazone, 6591*h*.
Piperazine, 1-cuminyl-, P 3558*f*.
Piperidine, benzylamino-1-ethyl-, 6207*c*; *and di-HCl*, 2207*b*.
Pyrrolidine, 2-(benzylaminomethyl)-1-ethyl-, 7019*g*.

**$C_{14}H_{22}N_2O$** *o*-Acetotoluidide, α-diethylamino-*N*-methyl-, *and perchlorate*, 1022*b*.
Acetoxylidide, α-butylamino-, 9257*e*; *and salts*, 1023*g*.
—, α-diethylamino-, 1021*i*, 9257*de*; *and* -*HCl*, 1021*s*, 1022*a*, *and perchlorate*, 1022*a*; *and salts*, 1022*a*.
—, α-isobutylamino-, 9257*e*, *and salts*, 1023*h*.
Formanilide, *N*-(3-diethylaminopropyl)-, 593*c*.
*o*-Propionotoluidide, β-diethylamino-, *and perchlorate*, 1021*i*.
Pyridine, 2-[1-cyclopropyl-1-(2-dimethylaminoethoxy)ethyl]-, *and* -*HCl*, 2206*f*.

**$C_{14}H_{22}N_2O_2$** (See also *Tutocaine*.)
Anisamide, *N*-(2-diethylaminoethyl)-, -*HCl*, 3101*h*.
Benzamide, *N*-(2-diethylaminoethyl)-methoxy-, -*HCl*, 3101*h*.
Benzoic acid, *p*-(2-aminoisobutylamino)-, Pr ester, 6183*g*.
—, *p*-amino-, isopropylamino *tert*-butyl ester, P 3038*h*.
—, *p*-(2-dimethylaminoisobutylamino)-, Me ester, 6183*i*.
Ethanol, 2-amylamino-, *p*-aminobenzoate, -*HCl*, 762*f*.

**$C_{14}H_{22}N_2O_3$** Carbamic acid, [α-(aminomethyl)-*p*-methoxybenzyl]ethyl-, Et ester, -*HCl*, 6176*f*.
2,4-Furandicarboxamide, *N*, *N*, *N'*, *N'*-tetraethyl-, P 4301*f*.
Phenol, 2-amino-6-nitro-4-(1,1,3,3-tetramethylbutyl)-, P 7698*h*.

**$C_{14}H_{22}N_2O_3S$** 2-Imidazoline, 2-butyl-, *p*-toluenesulfonate, P 5049*f*.

**$C_{14}H_{22}N_2O_4$** Isoleucine, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 641*f*, 723*b*.
Leucine, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 723*b*; *and* -*HCl*, 641*f*.
Norleucine, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 641*f*, 723*b*.

**$C_{14}H_{22}N_2O_4S$** (See also *Penicillin, amyl-*.)
Benzenesulfonamide, *N*, *N*-dibutylnitro-, 4630*e*.
—, *N*, *N*-di-*sec*-butylnitro-, 4630*e*.
—, *N*, *N*-diisobutylnitro-, 4630*e*.
Butyramide, α-butoxy-*N*-sulfanilyl-, P 3035*f*.
—, α-isobutoxy-*N*-sulfanilyl-, P 3035*f*.
Imidazo[5,1-*b*]thiazole-3,7-dicarboxylic acid, 5-amyl-2,3,7,7a-tetrahydro-2,2-dimethyl-, 4920*g*, 5908*c*.

**$C_{14}H_{22}N_2O_4S_2$** Penicillin, butylmercaptomethyl-, 2274*g*, 3490*a*.

**$C_{14}H_{22}N_2O_5$** Ribonic acid, 2,3,5-trimethyl-, phenylhydrazide, 2953*i*.

**$C_{14}H_{22}N_2O_5S$** Butyramide, α,γ-dihydroxy-β,β-dimethyl-*N*-[2-(phenylsulfamyl)ethyl]-, P 3450*h*.

**$C_{14}H_{22}N_2O_6$** 3,4-Furandicarbamic acid, 2-(4-hydroxybutyl)-, di-Et ester, 5022*i*.
Mannonic acid, 2,3-dimethyl-, phenylhydrazide, 581*cg*.

**$C_{14}H_{22}N_4O_5$** Formic acid, azodi-, di-Et hexamethylene ester, P 5626*h*.
Piperazine, 2,5-bis(carboxymethylimino)-, di-Et ester, oxalate, 3789*g*.

**$C_{14}H_{22}O$** (See also *Irone*.)
Benzyl alcohol, α-amyl-2,5-dimethyl-, 6990*h*.
3-Butenal, 2-methyl-4-trimethylcyclohexenyl-, 2173*a*.
3-Buten-2-one, 3-methyl-4-(2,6,6-trimethylcyclohexenyl)-, 8893*c*.
—, 4-(tetramethyl-3-cyclohexen-1-yl)-, 3375*i*, 3376*c*.
1-Cyclohexene-1-crotonaldehyde, α,2,6,6-tetramethyl-, P 1800*h*, 2588*d*.
4,6,10-Dodecatrien-3-one, 7,11-dimethyl-, 8893*c*.
2,5,9-Hendecatrienal, 2,6,10-trimethyl-, P 1801*a*.
3,5,9-Hendecatrien-2-one, 3,6,10-trimethyl-, 8893*c*.
Ketone, 1387*g*.
Neo-α-irone, 3374*d*.
2-Norcamphanyl ether, P 689*h*.
7-Oxadispiro[5.1.5.2]-14-pentadecene, 4253*c*.
1-Penten-3-one, 1-(2,6,6-trimethylcyclohexenyl)-, 8893*c*.
Phenol, di-*tert*-butyl-, P 3459*e*, P 4488*c*, 8881*c*.
—, 2,4-diisobutyl-, 3964*a*.

**$C_{14}H_{22}OS$** 1-Decanone, 1-(2-thienyl)-, 228*a*.

**$C_{14}H_{22}O_2$** Anisyl alcohol, α-ethyl-5-isopropyl-2-methyl-, 604*e*.
Benzene, 1-hexyl-2,4-dimethoxy-, 1033*d*.
[2,2'-Bi-1-oxaspiro[2.5]octane, 4253*d*.
Cyclohexaneacetic acid, 2-(2-methylcyclopentenyl)-, 3829*c*.
Cyclohexanone, 2-(2-acetyl-2-methylcyclopentyl)-, 3829*f*.
—, 4,4'-ethylenedi-, 590*g*.
Dispiro[cyclohexane-1,2'-(3,6-dioxabicyclo[3.1.0]hexane)-4',1''-cyclohexane], 4253*e*.
2-Hexen-1-one, 1-(4-methoxy-3-cyclohexen-1-yl)-3-methyl-, 2058*g*.
Hydroquinone, di-*tert*-butyl-, 8199*g*, 8727*i*.
—, octyl-, 7914*f*.
Longifolic acid, 2978*f*.
2,3-Pentanediol, 3,4,4-trimethyl-1-phenyl-, 130*f*.
Pyrocatechol, dibutyl-, 8727*i*.
—, di-*sec*-butyl-, 5579*i*.
—, di-*tert*-butyl-, 8727*i*.
Resorcinol, 5-(1,2-dimethylhexyl)-, 8384*g*.
—, 4-(1,1,3,3-tetramethylbutyl)-, 7923*e*.

**$C_{14}H_{22}O_2S$** 1-Penten-3-one, 5,5'-thiobis[5,5-dimethyl-, 2944*i*.
2-Thiophenecapric acid, 3817*h*.

**$C_{14}H_{22}O_2S_2$** Formic acid, thiobis[thiono-, dicyclohexyl ester, 144*d*.

**$C_{14}H_{22}O_3$** 1-Cyclohexene-1-caproic acid, ε-oxo-, Et ester, 587*f*.
Cyclopentanecarboxylic acid, 1-cyclohexyl-2-oxo-, Et ester, 2586*g*.

**$C_{14}H_{22}O_3S$** Benzenesulfonic acid, octyl-, *Na salt*, P 3640*a*.

**$C_{14}H_{22}O_3S_3$** 7-Octene-1,2,8-trithiol, triacetate, 7418*a*.

**$C_{14}H_{22}O_4$** Acetylenedicarboxylic acid, di Am ester, 2592*a*, diisoamyl ester, 2592*a*
1-Butanol, 2-(2,4,5-trimethoxybenzyl)-, 2608*i*.
Cyclopentanepropionic acid, 1-butyryl-2-oxo-, Et ester, P 5117*b*.
—, 2-(carboxymethyl)-2-hydroxy-β,3-dimethyl-, δ lactone Et ester, 2585*a*
Malonic acid, 2-heptynyl-, di-Et ester, 6573*c*.

**$C_{14}H_{22}O_4S$** Cyclopentanecarboxylic acid, 1-(5-methylmercapto-3-oxoamyl)-2-oxo-, Et ester, 7433*g*.

**$C_{14}H_{22}O_5$** Adipic acid, α-isobutylidene β oxo-, di-Et ester, 622*a*.
Camphoric acid, 5-oxo-, di Et ester, 5381*a*.
Caproic acid, α-acetyl-δ-oxo-α-3-oxobutyl-, Et ester, 1011*e*.
1,3-Cyclohexanediacetic acid, 2-oxo-, di-Et ester, 2613*i*.

**$C_{14}H_{22}O_5S_2$** (2-Isobutyryl *p*-tolyl)dimethylsulfonium methyl sulfate, 7475*c*.

**$C_{14}H_{22}O_6$** Adipic acid, α,δ-diacetyl-, di Et ester, 578*a*.
Butyric acid, diester with dianhydrosorbitol, P 4301*h*.
1,2,3-Cyclohexanetricarboxylic acid, 1,3 dimethyl-, tri-Me ester, 1042*h*.
Propionic acid, α,α'-(ethylidenedioxy)di-, diallyl ester, P 1433*i*.

**$C_{14}H_{22}O_6S$** 3,4-Thiophenedicarboxylic acid, 2-(4-carboxybutyl)tetrahydro-, tri Me ester, P 5425*d*.

**$C_{14}H_{22}O_6S_2$** Malonic acid, (2,3-dimercaptopropyl)-, diacetate di-Et ester, 9251*a*.

**$C_{14}H_{22}O_7$** Diglycolic acid, bis(tetrahydrofurfuryl) ester, 9032*f*.
Tricarballylic acid, α-acetyl-, tri-Et ester, P 6665*c*.

**$C_{14}H_{22}O_7S_2$** Propanediol, (2,3-dimercaptopropoxy)-, tetraacetate, 7423*h*, 7424*b*, 9250*i*.

**$C_{14}H_{22}O_8$** 1,1,2,2-Ethanetetracarboxylic acid, tetra-Et ester, 4217*f*.
Sorbitol, 5,6-diacetyl-1,3,2,4-diethylidene-, 2939*e*.

**$C_{14}H_{22}O_8S_4$** 2,5-Hexanedione, bis[bis(carboxymethyl)mercaptole], 564*g*.

**$C_{14}H_{23}AuN_4O_7S$** Ethylamine, 2-(ethylmercapto)-, compd. with diethylgold picrate, 7421*g*.

$C_{14}H_{23}ClN_2$ Putrescine, 1-(*p*-chlorophenyl)-$N^4$, $N^4$-diethyl-, 2211*d*.

$C_{14}H_{23}ClN_6$ Biguanide, 1-(*p*-chlorophenyl)-5-(2-diethylaminoethyl)-, *P* 6650*h*.

$C_{14}H_{23}ClO$ 1-Hexanone, 1-(2-chloro-1-cyclohexen-1-yl)-2-ethyl-, *P* 6230*c*.

$C_{14}H_{23}ClO_2$ 10-Hendecenoic acid, 2-chloroallyl ester, 8352*e*.

7-Norcamphanepropanol, 2-chloro-1,7-dimethyl-, acetate, 5383*f*.

$C_{14}H_{23}ClO_3$ Suberic acid, α-acetyl-α-chloro-, di-Et ester, 1769*c*.

$C_{14}H_{23}FN_2$ Putrescine, $N^4$, $N^4$-diethyl-1-(*p*-fluorophenyl)-, 2211*d*.

$C_{14}H_{23}IN_2O_2$ Diethyl(2-hydroxyethyl)methylammonium iodide, *p*-aminobenzoate, 7921*e*.

$C_{14}H_{23}N$ 1-Cyclohexene-1-acetonitrile, α-hexyl-, 3798*a*.

Phenethylamine, *p*-*tert*-butyl-α,α-dimethyl-, -*HCl*, P 5800*g*.

$C_{14}H_{23}NO$ Isobutylamine, 1-ethyl-3-(*p*-methoxyphenyl)-*N*-methyl-, P 6231*g*.

$C_{14}H_{23}NOS$ Benzyl acohol, α-(2-diethylaminoethylmercaptomethyl)-, 6574*c*.

1-Piperidinepropanol, α-ethyl-α-2 thienyl-, -*HCl*, 9070*g*.

2-Propanol, 1-diethylamino-3-*p*-tolylmercapto-, 6574*f*.

2-Thiophenecapramide, 3817*h*.

$C_{14}H_{23}NO_2$ Enanthic acid, benzylamine salt, 3351*f*.

2-Propanol, 1-butylamino-3-*o*-toloxy-, *and* -*HCl*, P 7045*i*.

—, 1 diethylamino-3-*o*-toloxy-, *and* -*HCl*, P 7045*i*, P 7046*a*.

Valeric acid, β-ethyl-, benzylamine salt, 3351*f*.

$C_{14}H_{23}NO_2S$ Xylenesulfonamide, *ar* hexyl, 6990*h*.

$C_{14}H_{23}NO_3$ Enanthic acid, α acetyl-α-(2-cyanoethyl)-, Et ester, P 1680*h*.

4-Piperidinol, 1-acetyl-2,3,6-trimethyl-4-vinyl-, acetate, 2960*f*.

1*H*-Quinolizine-3-carboxylic acid, 3 ethyloctahydro-4 oxo-, Et ester, 4267*i*.

$C_{14}H_{23}NO_3S$ 2-Propanol, 1-diethylamino 3-*p*-tolylsulfonyl, 6575*a*.

$C_{14}H_{23}NO_4$ Malonic acid, butyl(2-cyanoethyl)-, di-Et ester, P 4089*h*.

$C_{14}H_{23}NO_4S$ Cyclohexanone, compd. with α-methylbenzylamine bisulfite, 3356*b*, compd. with phenethylamine bisulfite, 3356*b*.

Cyclohexanone, 3-methyl, compd. with benzylamine bisulfite, 3356*b*.

1-Phenol-2 sulfonic acid, 6-amino-4-diisobutyl-, P 5961*c*.

$C_{14}H_{23}NO_5$ Protocatechuyl alcohol, α (*sec*-butylaminomethyl), acetate, 3388*f*.

Protocatechuyl alcohol, α (*tert*-butylaminomethyl)-, acetate, 3388*f*.

2,2-Pyrrolidinedipropionic acid, 5-oxo-, di-Et ester, P 4519*i*.

Sorbitylamine, *N*-3, 4-xylyl, P 5044*b*.

$C_{14}H_{23}NO_5S$ Acetone, compd. with 1-benzylmorpholine bisulfite, 3355*i*.

$C_{14}H_{23}NO_6$ Gluconamide, *N*-cyclohexyl-2,4,3,5-dimethylene-, 5007*a*.

$C_{14}H_{23}NO_6S$ 2-Thiazolidinesuccinic acid, 4-carboxy-5,5-dimethyl-, di-Et ester, 7933*d*.

$C_{14}H_{23}NO_{12}$ Chondrosin, *N*-acetyl, 5009*c*.

$C_{14}H_{23}NO_{13}$ Chondrosinic acid, *N*-acetyl-, *Ba salt*, 5009*c*.

$C_{14}H_{24}N_2$ Piperazine, 1-(2-dimethylaminoethyl)-4-phenyl-, 605*a*.

$C_{14}H_{24}N_2O_2$ 2-Hexen-1-one, 3-methyl-1-(4-oxocyclohexyl)-, monosemicarbazone, 2958*f*.

$C_{14}H_{24}N_2O_4$ Lysine, $N^α$-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 644*g*, 723*b*.

$C_{14}H_{24}N_2O_5$ 1,2-Cyclohexanedicarboxylic acid, 1-methyl-5-oxo-, di-Et ester, semicarbazone, 2200*b*.

$C_{14}H_{24}N_2O_7S_2$ Butyramide, α,γ-dihydroxy-β,β-dimethyl-*N*-[2-(*p*-sulfamylphenylsulfamyl)ethyl]-, P 3450*h*.

$C_{14}H_{24}N_2O$ *s*-Triazine, 2-methoxy-4,6-di-1-piperidyl-, 4209*f*.

$C_{14}H_{24}N_6O_2$ Biguanide, 1-isopropyl-5-*p*-tolyl-, acetate, P 684*d*.

$C_{14}H_{24}N_4O_3S$ *p*-Toluenesulfonic acid, *N*-xuanyl-1-piperidinecarboxamidine salt, P 4292*h*.

$C_{14}H_{24}$ Naphthalene, 1,2,3,4,4a,5,8,8a-octahydro-1,2,4a,7-tetramethyl-, 6604*b*.

$C_{14}H_{24}BrNO_4S$ 3-Buten-2-ol, 1-amino-, 3-bromo-8-camphorsulfonate, 6618*b*.

$C_{14}H_{24}Br_2O_2$ Cyclohexanol, 1,1′-(1,2-dibromoethylene)di-, 4253*b*.

$C_{14}H_{24}Cl_2O_4$ Sebacic acid, α,δ-dichloro-, di-Et ester, P 7957*g*.

$C_{14}H_{24}IN$ Diethylmethyl(3-phenylpropyl)-ammonium iodide, 4376*c*.

Triethylphenethylammonium iodide, 8059*b*.

$C_{14}H_{24}INO$ Triethyl(2-phenoxyethyl)ammonium iodide, 5504*e*, 6365*d*.

$C_{14}H_{24}IN_5O_2$ Diethylmethyl[2-(1,2,3,6-tetrahydro-1,3-dimethyl-2,6-dioxo-7-purinyl)ethyl]ammonium iodide, 8537*b*.

$C_{14}H_{24}N_2$ Ethylenediamine, *N*-butyl-*N*′, *N*′-dimethyl-*N*-phenyl-, *and* -*HCl*, P 822*d*.

Ethylenediamine, *N*, *N*, *N*′-triethyl-*N*′-phenyl-, P 683*c*, 9366*d*.

Glycinonitrile, *N*, *N*-dicyclohexyl-, P 4703*g*.

Isobutylamine, 2,2′-phenylenebis-, P 3456*a*, P 4296*f*, P 7263*h*.

3,5-Octadiyne-2,7-diamine, *N*, *N*′-diisopropyl-, P 5794*c*.

Phenylenediamine, *N*, *N*′-di *sec*-butyl-, 5579*i*.

Putrescine, *N*-ethyl-*N*′, *N*′ dimethyl-*N*-phenyl-, P 2229*f*.

α,α′-*p*-Xylenediamine, *N*, *N*′-dipropyl-, *and di*-*HCl*, 3382*c*.

$C_{14}H_{24}N_2O$ Ethylenediamine, *N*, *N*-diethyl-*N*′-(3 methoxy-*p*-tolyl)-, 225*f*.

Ethylenediamine, *N*-(2-ethoxyethyl)-*N*′, *N*′-dimethyl-*N*-phenyl-, *and* -*HCl*, P 682*c*.

2-Pyridinemethanol, α-(3 diethylaminopropyl)-α-methyl-, 2205*a*.

$C_{14}H_{24}N_2O_2$ Butyramide, *N*, *N*-diallyl-α-*N*-ethylacetamido-, P 6653*h*

Crotonamide, *N*-allyl-*N*-(1-diethylcarbamylethyl)-, P 249*f*

Hydrazine, 1,2-bis(cyclohexylcarbonyl)-(?), 4233*a*.

Hydroquinone, 2,5-bis(2-dimethylaminoethyl)-, *and di*-*HCl*, 3388*c*.

Senecíamide, *N*-allyl-*N*-(1-dimethylcarbamylpropyl)-, P 250*g*.

Tetrolamide, *N*-(1-diethylcarbamylpropyl)-*N*-ethyl, P 250*i*.

$C_{14}H_{24}N_2O_3$ Crotonamide, *N* ethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-, P 250*d*.

Hydantoin, 5 (butoxymethyl)-5 cyclohexyl-, P 3152*i*.

—, 5-(*sec*-butoxymethyl)-5 cyclohexyl-, P 3452*i*.

—, 5 cyclohexyl-5-(isobutoxymethyl)-, P 3452*i*.

4(3*H*)-Pyrimidone, 3 acetyl-2-ethoxy-6-hexyl-5,6-dihydro-, 236*c*.

$C_{14}H_{24}N_2O_3S$ Methanesulfinic acid, [6-(octyloxy)-3-pyridylamino]-, *Na salt*, P 3471*a*.

2-Propanol, 1,3-bis(dimethylamino)-, *p*-toluenesulfonate, 7026*g*.

$C_{14}H_{24}N_2O_4$ Adipic acid, α,δ-diacetimido-, di-Et ester, 577*i*.

Carbamic acid, hexamethylenedi-, diallyl ester, P 7263*c*.

$C_{14}H_{24}N_2O_4S$ Methanesulfonic acid, [6-(octyloxy)-3-pyridylamino]-, *and alkali metal salts*, P 3470*h*.

$C_{14}H_{24}N_2O_5S$ Valine, *N*-(*N*-caproyl-α-formylglycyl)-β-mercapto-, 2089*h*.

$C_{14}H_{24}N_2O_6$ Oxalic acid, salt with 1,2,5,6-tetrahydro-3-pyridinemethanol, 2582*b*.

$C_{14}H_{24}N_4$ Guanidine, 1-cyano-2,3-dicyclohexyl, P 1799*e*.

1,4-Piperazinediacetonitrile, α,α′-dipropyl-, 4415*h*.

$C_{14}H_{24}N_4O_2$ *m*-Phenylenediamine, $N^4$-(2 diethylaminoethyl)-$N^1$, $N^1$-dimethyl-4-nitro-, 3008*a*.

$C_{14}H_{24}N_4O_4$ Piperazine, 2,5-bis(1-carboxyethylimino)-, di-Et ester, *di*-*HCl*, 3700*e*.

$C_{14}H_{24}N_4O_4S_2$ 2,5-Piperazinedione, 3,6-bis[2-(2-amino-2-carboxyethylmercapto)-ethyl]-, 8477*f*.

$C_{14}H_{24}N_4$ Guanidine, (2,3-diisopropyl-*p*-phenylene)di-, *di*-*HCl*, 8545*g*.

Guanidine, 1,1′-*p*-phenylenebis[3-isopropyl-, *and di*-*HCl*, 5014*c*.

$C_{14}H_{24}N_4O_4$ Glycine, *N*-[6-(2-diethylaminoethylamino)-2-methyl-5-nitro-4-pyrimidyl]-, Me ester, P 9087*e*.

$C_{14}H_{24}N_4O_7$ Glycine, *N*-{*N*-[*N*-(*N*-alanylalanyl)glycyl]glycyl}glycyl-, 6249*f*.

$C_{14}H_{24}N_{10}$ *s*-Triazine, 2,2′-octamethylenebis-[4,6-diamino-, P 3662*e*.

$C_{14}H_{24}O$ 2-Cyclohexen-1-one, 3-butyl-5,5-diethyl-, P 1063*c*.

Irone, dihydro-, 3374*c*, 3375*f*, 5549*b*.

Isoirone, dihydro-, 3376*d*.

$C_{14}H_{24}O_2$ Acrylic acid, 4-*tert*-amylcyclohexyl ester, P 7754*i*.

Butyric acid, ester with linaloöl, P 6219*g*, 9375*e*; ester with nerol, 9375*e*; ester with terpineol, 9375*e*; geranyl ester, 9375*e*.

Cyclohexaneacetic acid, 4-cyclohexyl-, 1375*i*.

Cyclohexanol, 1,1′-vinylenedi-, 4253*b*.

1-Cyclohexene-1-acetic acid, α-hexyl-, 3798*b*.

10-Hendecenoic acid, allyl ester, 8352*e*.

10-Hendecynoic acid, Pr ester, 2591*i*.

1-Hexanone, 1-(4-methoxy-3-cyclohexen-1-yl)-3-methyl-, 2958*g*.

$C_{14}H_{24}O_3$ Cyclohexanecaproic acid, ε-oxo-, Et ester, 587*f*.

7-Oxadispiro[5.1.5.2]pentadecane-14,15-diol, 4253*e*.

Succinic anhydride, decyl-, 5070*a*.

12-Tridecenoic acid, 3-oxo-, Me ester, 7414*d*.

$C_{14}H_{24}O_4$ Compd., m. 133° (decompn.), 4253*e*.

1,1-Cyclobutanedicarboxylic acid, di-Bu ester, 2955*f*.

Cyclohexanecarboxylic acid, 1-(3-ethoxypropyl)-2-oxo-, Et ester, 1414*g*.

Erythrol, divalerate, 7419*f*.

Fencholic acid, 2-hydroxy-, Et ester acetate, 1749*i*.

Fumaric acid, di-Am ester, 2591*f*, diisoamyl ester, 2591*f*.

Glutaraldehydic acid, α acetyl-γ ethyl-β-propyl (?), Et ester, P 6665*c*.

Maleic acid, di-Am ester, 2591*f*; diisoamyl ester, 2591*f*.

Malonic acid, allyl-, di-Bu ester, 2591*e*.

$C_{14}H_{24}O_5$ Adipic acid, α-3-oxobutyl-, di-Et ester, 7434*c*.

1,3-Cyclopentanedicarboxylic acid, 3-hydroxy-1,4,4-trimethyl-, di-Et ester, 7462*d*.

Galactoside, methyl 2-desoxy-4,6-hexahydrobenzal-, 1727*d*

Guloside, methyl 3-desoxy 1,6 hexahydrobenzal-, 1728*d*.

Idoside, methyl 3-desoxy-4,6-hexahydrobenzal-, 1728*a*.

Suberic acid, α acetyl-, di-Et ester, P 5808*d*.

$C_{14}H_{24}O_6$ Succinic acid, mono-Bu ester, ester with Bu glycolate, P 1606*d*

$C_{14}H_{24}S$ Sulfide, methylcyclohexenyl methylcyclohexyl, 996*e*.

Thiophene, decyl-, 4841*h*.

—, diamyl-, P 691*e*, 1395*g*

—, 2,5-di-*tert*-amyl-, 1395*g*.

$C_{14}H_{24}S_2$ Disulfide, methylcyclohexenyl methylcyclohexyl, 996*f*.

$C_{14}H_{24}S_3$ Trisulfide, methylcyclohexenyl methylcyclohexyl, 996*f*.

$C_{14}H_{24}S_4$ Tetrasulfide, methylcyclohexenyl methylcyclohexyl, 996*f*.

$C_{14}H_{25}BrCoN_3O_8$, 7364*g*.

$C_{14}H_{25}BrO_4$ Sebacic acid, α-bromo-, di-Et ester, 1325*c*.

$C_{14}H_{25}Cl_3OS$ Acetic acid, trichlorothiol-, dodecyl ester, P 4046*f*.

$C_{14}H_{25}HgNO_2S_2$ [2-(Ethylmercurimercapto)-ethyl]trimethylammonium *p* toluenesulfonate, P 668*a*, P 6649*b*

$C_{14}H_{25}HgNO_7S_2$ α-Camphoramic acid, *N* [3-(mercaptomerceuri)-2-methoxypropyl]-, acid sulfate, *di*-*Na salt*, P 9084*d*.

$C_{14}H_{25}NO$ Acetamide, *N*-(4-cyclohexylcyclohexyl)-, 1377*f*.

1-Cyclohexene-1-acetamide, α-hexyl, 3798*c*.

Cyclotridecanecarbonitrile, 1-hydroxy-, 7007*a*.

Pellitorine, 2933*i*.

$C_{14}H_{25}NO_2Si$ Silane, anilinodibutoxy-, 9028*d*.

$C_{14}H_{25}NO_4$ 4-Pentenoic acid, 2-acetyl-2 (diethylaminomethyl)-, Et ester, 7643*b*.

1-Piperidinepropionic acid, α-acetyl-α-ethyl-, Et ester, *and* -*HCl*, 7643*b*.

$C_{14}H_{25}NO_3S$ Benzaldehyde, compd. with heptylamine bisulfite, 3356*c*.

Enanthaldehyde, compd. with benzylamine bisulfite, 3356*c*.

$C_{14}H_{25}NO_5$ Malonic acid, (5-dimethylamino-3-oxoamyl)-, di-Et ester, 7432*i*.

Propionic acid, β,β′-(caproylimino)di-, di-Me ester, P 4688*c*.

$C_{14}H_{25}NS_2$ 2-Thiazolethiol, 4-hendecyl-, 633*h*.

$C_{14}H_{25}NSi$ Silane, triethyl(α-methylbenzylamino)-, 5739*f*.

$C_{14}H_{25}N_3$ *m*-Phenylenediamine, *N*′-(2-diethylaminoethyl)-*N*, *N*-dimethyl-, 3007*i*.

$C_{14}H_{25}N_3O$ 2-Butanone, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, semicarbazone, 4637*e*.

3-Buten-2-one, 4-(2,2,6-trimethylcyclohexyl)-, semicarbazone, 4637*f*.

$C_{14}H_{28}N_6$ 1*H*-Tetrazole, 1-cyclohexyl-5-(cyclohexylaminomethyl)-, 1864*h*, P 7972*a*.

$C_{14}H_{29}O_{10}P_3$ Ethyl phenyl triphosphate, P 9356*h*.

$C_{14}H_{28}ClNO_4$ Isoenanthic acid, α-(α-chloroacetamido)-α-isoamyl-, 2167*d*.

$C_{14}H_{30}FO_2P$ Fluophosphoric acid, bis(2-methylcyclohexyl) ester, 121*e*.

$C_{14}H_{26}I_2N_2$ *p*-Xylylenebis[trimethylammonium iodide], 6590*i*.

$C_{14}H_{26}N_2$ Caprylonitrile, α-cyclohexylamino-, 4415*f*.

$C_{14}H_{26}N_2O_2$ Crotonamide, *N*-butyl-*N*-(1-dimethylcarbamylpropyl)-, P 250*h*, P 7955*i*.

Crotonamide, *N*-*sec*-butyl-*N*-(1-dimethylcarbamylpropyl)-, P 248*f*, P 250*i*.

—, *N*-(1-diethylcarbamylethyl)-*N*-isopropyl-, P 249*f*.

—, *N* (1 diethylcarbamylethyl)-*N*-propyl-, P 249*f*, P 6654*a*.

—, *N*-(1-dimethylcarbamylethyl)-α,β-dimethyl-*N*-propyl-, P 249*e*.

Hydantoin, 5-octyl-5-propyl-, 4637*d*.

Isovaleramide, *N*-allyl-*N*-(1-dimethylcarbamylpropyl)-, P 250*g*.

—, α-(crotonylpropylamino)-*N*, *N*-dimethyl-, P 248*f*, P 251*a*, P 6654*a*.

Malonamide, *N*, *N*, *N'*, *N'*-tetraethyl-α-isopropylidene-, P 1797*h*, P 3842*f*.

Propionamide, α-(cyclohexylpropionylamino)-*N*, *N*-dimethyl-, P 249*h*.

Seneciamide, *N*-*sec*-butyl-*N*-(1-dimethylcarbamylethyl)-, P 249*g*.

—, *N*-(1-diethylcarbamylpropyl)-*N*-methyl-, P 249*i*.

—, *N*-ethyl-*N*-[1-(ethylmethylcarbamyl)propyl]-, P 250*b*, P 6654*b*.

Valeramide, *N*-allyl-*N*-(1-dimethylcarbamylpropyl)-, P 250*g*.

$C_{14}H_{26}N_2O_3$ Butyramide, α-[allyl(α-ethoxypropionyl)amino]-*N*, *N*-dimethyl-, P 250*g*.

Butyramide, *N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-, P 250*d*.

Isovaleramide, *N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)ethyl], P 249*e*.

Pyran-4-carboxamide, *N*-(1-dimethylcarbamylpropyl)-*N*-ethyltetrahydro-, P 250*a*.

$C_{14}H_{26}N_4O$ Lauramide, *N*-(cyanoguanyl)-, P 2442*c*, P 5199*c*.

$C_{14}H_{26}N_8$ Guanidine, 3,3'-decamethylenebis-[1-cyano-, P 2636*c*.

$C_{14}H_{26}O$ 2-Butanone, 4-(2,2,3,6-tetramethylcyclohexyl)-, 3374*a*, 3375*g*, 3376*g*.

Cyclopentanone, 3-(1,5 dimethylhexyl)-2-methyl-, 1335*c*, 7911*g*.

Cyclotetradecanone, 7907*a*.

Ether, butyl 1-(4-methyl-3-cyclohexen-1-yl)isopropyl, 8369*a*.

—, 1,5-dimethyl-1-vinyl-4-hexenyl isobutyl, P 6219*g*.

—, isobutyl [1-(4-methyl-3-cyclohexen-1-yl)isopropyl], 8369*c*.

Irol, dihydro-, 5549*b*

Isoirone, tetrahydro-, 3376*e*.

$C_{14}H_{26}O_2$ Butyric acid, ester with citronellol, 9375*e*, ester with rhodinol, 9375*e*.

Camphor, di-Et acetal, 8813*d*.

Citronellic acid, Bu ester, 4633*g*, *sec*-Bu ester, 4633*g*; isobutyl ester, 4633*g*.

Compd., $b_{10}$ 116–17°, P 3042*i*

Cyclododecanol, acetate, 6988*f*.

1,1-Cyclohexanedimethanol, α-cyclohexyl-, P 902*f*.

Cyclohexanol, ethylenedi-, 5904*h*, 4253*d*.

9-Decenoic acid, 2,2,5,9-tetramethyl-, P 7037*g*.

1,2-Ethanediol, dicyclohexyl-, 573*d*, 4253*d*.

10-Hendecenoic acid, Pr ester, 2591*e*.

3,6-Octanedione, 2,4,4,5,5,7-hexamethyl-, P 9081*i*.

Tetradecenoic acid, 1580*i*, 1997*b*, 8494*e*.

$C_{14}H_{26}O_2S_2$ Cyclohexanol, 2,2'-(ethylenedithio)di-, 7421*a*.

$C_{14}H_{26}O_3$ Capric acid, δ,θ-dimethyl-γ-oxo-, Et ester, 1335*d*, 7911*f*.

Caproic acid, α-butyl-γ-ethyl-β-oxo-, Et ester, 1010*a*.

Lauric acid, oxo-, Et ester, 3780*i*, 3781*a*.

Myristic acid, μ-oxo-, 163*g*.

2,7-Octanedione, 3-ethoxy-3,6-diethyl-, 5024*b*.

$C_{14}H_{26}O_4$ Adipic acid, diisobutyl ester, P 8209*b*.

Malonic acid, dimethylamyl-, di Et ester, 1374*c*.

—, heptyl-, di-Et ester, 572*e*.

—, isohexylmethyl-, di-Et ester, 2586*b*.

Sebacic acid, di-Et ester, 2486*d*, 2590*e*.

Succinic acid, decyl-, 5070*a*, 5469*d*.

Tetradecanedioic acid, 6982*g*.

$C_{14}H_{26}O_4S_2$ Thiophene, tetrahydro-2-methyl-5-(3,3,5-trimethylcyclohexylsulfonyl)-, 1,1-dioxide, P 2238*a*.

$C_{14}H_{28}O_2$ Enanthic acid, β,β'-oxydi-, P 5037*e*.

$C_{14}H_{26}O_4S$ Succinic acid, (2-hydroxyethylmercapto)-, di-Bu ester, P 7957*d*.

$C_{14}H_{26}O_5S$ Lactic acid, sulfite, di-Bu ester, P 4853*h*.

Succinic acid, sulfo-, di-Am ester, *Na salt*, 6915*h*.

$C_{14}H_{28}S$ Sulfide, bis(2-methylcyclohexyl), 999*e*.

$C_{14}H_{28}S_2$ Disulfide, bis(2-methylcyclohexyl), 999*e*.

$C_{14}H_{28}S_3$ Cyclohexanethiol, 2-[2-(ethylmercapto)cyclohexylmercapto]-, 7420*b*.

$C_{14}H_{27}ClO_2$ Acetic acid, chloro, dodecyl ester, 4641*a*.

Lauric acid, 2-chloroethyl ester, 38*f*.

$C_{14}H_{27}FO$ 2-Tetradecanone, 1-fluoro-, P 6358*a*.

$C_{14}H_{27}FO_2$ Acetic acid, fluoro-, dodecyl ester, P 6358*a*.

$C_{14}H_{27}IO_2$ Acetic acid, iodo-, dodecyl ester, 4641*a*

$C_{14}H_{27}N$ Caprinitrile, α,α dibutyl, 568*e*.

Myristonitrile, P 3470*i*, 4629*f*.

$C_{14}H_{27}NO$ 2-Azacyclopentadecanone, 5400*e*.

Cyclohexanol, 1-[3-(1-piperidyl)propyl]-, *and HCl*, P 6241*d*.

Cyclotetradecanone, oxime, 5400*e*.

4-Quinolinol, 1-butyldecahydro-2-methyl-, 6623*a*

1*H*-Quinolizine, 1-(butoxymethyl)octahydro-, 6210*i*.

$C_{14}H_{27}NO_2$ [Bicyclohexyl]-1-amine, acetate, 1377*f*.

Caproic acid, α-ethylidene-, 2-diethylaminoethyl ester, P 3443*i*.

$C_{14}H_{27}NO_3$ Acetamide, *N*-2-hydroxyethyl-α-(3-*p*-menthyloxy)-, 3364*g*.

Acetoacetic acid, α-acetyl-α-butyl-, Et ester oxime, 1723*e*

Caproic acid, α-acetyl-α-(dimethylaminomethyl)-δ-methyl-, Et ester, 7643*b*

4-Pentenoic acid, 2-(diethylaminomethyl)-2-(1-hydroxyethyl)-, Et ester, 7643*c*.

1-Piperidinepropionic acid, α-ethyl-α-(1-hydroxyethyl)-, Et ester, 7643*c*

$C_{14}H_{27}NO_4$ Imidodicarboxylic acid, dihexyl ester, 1228*e*.

$C_{14}H_{27}NO_4S$ Tetramethylammonium camphorsulfonate, 7642*b*.

$C_{14}H_{27}N_3O$ 3-Hepten-2-one, 3-*tert*-butyl-6,6-dimethyl-, semicarbazone, 1718*e*.

$C_{14}H_{27}N_3O_2$ Lauric acid, β-methyl-γ-oxo-, semicarbazone, 6624*b*.

$C_{14}H_{27}N_5$ Pyrimidine, 2-amino-4-(6-diethylaminohexylamino)-, *and bi-HCl*, P 4704*f*.

Pyrimidine, 4-amino-6-(4-diethylamino-1-methylbutylamino)-2-methyl-, P 6243*f*.

*s*-Triazine, 2,4-diamino-6-hendecyl-, P 1814*f*.

$C_{14}H_{28}$ Octane, 1-cyclohexyl-, 10*e*.

1-Tetradecene, 1895*e*, 2156*i*, 2591*g*, P 3446*b*, 3715*h*

$C_{14}H_{28}Cl_2O_2$ Decane, 1,10-bis(2-chloroethoxy)-, P 9358*e*.

$C_{14}H_{28}Cl_2O_3Si$ Silane, tributoxy(1,2-dichlorovinyl)-, 2571*i*.

$C_{14}H_{28}Cl_4N_2O_2$ Triethylamine, 2,2'''(ethylenedioxy)bis[2',2''-dichloro-, 5505*d*

$C_{14}H_{28}Co_2N_8O_{12}$, 7364*h*.

$C_{14}H_{28}INO$ Decahydro-5-methyl-1-propoxymethylquinolizinium iodide, 6210*i*

$C_{14}H_{28}I_2N_2$ 5,7-Cyclooctadiene-1,4-diamine, *N*, *N*, *N'*, *N'*-tetramethyl-, dimethiodide, 591*g*.

$C_{14}H_{28}N_2$ Caprylamidine, *N*-cyclohexyl-, *HCl*, P 688*i*.

Ethylenediamine, *N*, *N*-dicyclohexyl-, P 4703*h*.

$C_{14}H_{28}N_2O_2$ Adipamide, *N*, *N'*-di-*tert*-butyl-, P 3028*i*.

Butyramide, *N*-(1-diethylcarbamylethyl)-*N*, β, β-trimethyl-, P 2496*b*.

—, α-[(β, β-dimethylbutyryl)ethylamino]-*N*, *N*-dimethyl-, P 249*i*.

—, α-[ethyl(α-ethylbutyryl)amino-*N*, *N*-dimethyl-, P 249*i*.

Caproamide, *N*-(1-dimethylcarbamylpropyl)-*N*-ethyl-, P 249*i*.

Isovaleramide, *N*-*sec*-butyl-*N*-(1-dimethylcarbamylethyl)-, P 249*g*.

—, *N*-ethyl-*N*-[1-(ethylmethylcarbamyl)-propyl]-, P 250*b*.

Malonamide, *N*, *N*, *N'*, *N'*, α-pentaethyl-α-methyl-, P 1797*h*, P 3842*f*.

—, *N*, *N*, *N'*, *N'*-tetraethyl-α-isopropyl-, P 1797*h*, P 3842*f*.

—, *N*, *N*, *N'*, *N'*-tetraethyl-α-propyl-, P 1797*h*.

Pivalamide, *N*-(1-dimethylcarbamylpropyl)-*N*-propyl-, P 250*f*.

—, *N*-ethyl-*N*-[1-(ethylmethylcarbamyl)propyl]-, P 250*b*.

Succinamide, *N*, *N*, *N'*, *N'*-tetraethyl-α,α-dimethyl-, P 1797*g*, P 3842*h*, P 6227*b*.

Valeramide, *N*-(1-dimethylcarbamylpropyl)-*N*-ethyl-β-methyl-, P 249*i*.

$C_{14}H_{28}N_2O_2S$ Butyramide, *N*, *N*-dimethyl-α-[methyl(α-propylmercaptoisobutyryl)amino]-, P 249*h*.

Isobutyramide, *N*-(1-dimethylcarbamylethyl)-*N*-ethyl-α-propylmercapto-, P 249*b*.

$C_{14}H_{28}N_2O_3$ Butyramide, α-[(α-ethoxybutyryl)ethylamino]-*N*, *N*-dimethyl-, P 250*a*.

Butyramide, α-[(α-ethoxypropionyl)-ethylamino]-*N*-ethyl-*N*-methyl-, P 250*b*.

—, α-[(α-ethoxypropionyl)isopropylamino]-*N*, *N*-dimethyl-, P 250*f*.

—, α-[ethyl(α-isopropoxypropionyl)-amino]-*N*, *N*-dimethyl-, P 250*a*.

—, α-[ethyl(α-propoxypropionyl)-amino]-*N*, *N*-dimethyl-, P 250*a*.

—, α-[isopropyl(α-methoxybutyryl)-amino]-*N*, *N*-dimethyl-, P 250*f*.

Caproamide, α-[(α-ethoxypropionyl)-methylamino]-*N*, *N*-dimethyl-, P 251*a*.

Propionamide, α-[(α-ethoxypropionyl)-ethylamino]-*N*, *N*-diethyl-, P 249*d*

Valeramide, α-[(α-ethoxypropionyl)ethylamino]-*N*, *N*-dimethyl-, P 250*i*.

$C_{14}H_{28}N_2O_4$ Adipic acid, α,δ-bis(1-aminoethyl)-, di Et ester, *and salts*, 577*i*

Carbamic acid, octamethylenedi-, di-Et ester, 1563*f*.

Sebacic acid, α,ε-diamino-, di-Et ester, P 1519*f*.

$C_{14}H_{28}N_2S_2$ Sulfide, bis(dipropylthiocarbamyl), 5987*a*

$C_{14}H_{28}N_2S_4$ Disulfide, bis(dipropylthiocarbamyl), 5987*a*.

$C_{14}H_{28}N_4$ Guanidine, 1-cyano-3-dodecyl-, P 2636*c*.

$C_{14}H_{28}N_4OS$ Urea, 1-lauroylguanyl-2-thio-, *HCl*, P 4292*e*

$C_{14}H_{28}N_4O_2$ 2,7 Octanedione, 3,6-diethyl-3-hydroxy-, disemicarbazone, 5024*a*

2,7 Octanedione, 3-ethoxy-3,6-dimethyl-, disemicarbazone, 5024*b*.

$C_{14}H_{28}O$ Compd., b. 192–5°, 1718*e*.

Cyclotetradecanol, 6988*g*

6-Hendecen-4-ol, 7-ethyl-2-methyl-, P 3438*c*.

Tetradecane, 1,2-epoxy-, P 3446*c*

$C_{14}H_{28}OS$ Acetic acid, thiol-, *tert*-dodecyl ester, P 3445*b*.

$C_{14}H_{28}O_2$ (See also *Myristic acid*)

Butane, 1-(3,5-dimethylcyclohexyl)-1,3-dimethoxy-, P 1058*e*.

Caproic acid, α,α-dibutyl-, 568*h*.

5-Decanone, 6-butyl-6-hydroxy-, 5368*c*.

Hendecanoic acid, 4-ethyl-5-methyl-, 1374*b*.

—, 3-methyl-, Et ester, 6160*f*.

Lauric acid, Et ester, 572*d*, 2416*i*, 2590*d*, 3612*a*, 7418*e*, 8250*h*.

$C_{14}H_{28}O_3$ Lanomyristic acid, α-hydroxy-, P 3220*b*.

Myristic acid, α-hydroxy-, P 3219*i*.

$C_{14}H_{28}O_4$ 2-Heptanone, 3-hydroxy-, dimer, 3791*b*.

Peroxide, cyclohexylidenebis[*tert*-butyl, P 2629*h*, 6156*h*.

s-Tetroxane, tetrapropyl-, 1952*g*.

$C_{14}H_{28}O_4S$ Acetic acid, (dodecylsulfonyl)-, *and Na salt*, 2573*b*.

$C_{14}H_{28}O_4S_2$ Xylose, 3,5-isopropylidene-2,4-dimethyl-, di-Et mercaptal, 7429*i*, 7430*a*.

$C_{14}H_{28}O_5S$ Acetic acid, sulfo-, dodecyl ester, *Na salt*, 6915*i*.

$C_{14}H_{29}Br$ Dodecane, 1-bromo-10-ethyl-, 3780*i*.

4-Tetradecane, bromo-, 107*g*, 2591*a*, P 3571*a*, 4912*b*.

$C_{14}H_{29}N$ Azacyclopentadecane, 5400*e*.

Dodecylamine, *N*, *N*-dimethyl-, P 8668*c*.

$C_{14}H_{29}NO$ Capramide, *N*-*tert*-butyl-, 2165*c*.

Caproamide, α,α-dibutyl-, 568*e*.

2-Heptanol, 6-cyclohexylamino-2-methyl-, P 3029*e*.

Isoenanthamide, *N*, *N*-diethyl-α-isopropyl-, 1144*e*.

$C_{14}H_{29}NO_2$ Lauramide, *N*-2-hydroxyethyl-, 2273*i*.

Tridecanoic acid, 2-amino-2-methyl-, 1823*a*.
Valeric acid, α-methyl-α-propyl-, 3-dimethylaminopropyl ester, P 3443*f*.
$C_{14}H_{29}NO_3$ Caproic acid, α-(dimethylaminomethyl) - α - (1 - hydroxyethyl) - δ-methyl-, Et ester, 7643*e*.
$C_{14}H_{29}NO_4S$ Cyclopentanone, compd. with 1-butylpiperidine bisulfite, 3355*h*.
$C_{14}H_{29}NO_4S$ Cyclohexanone, compd. with 4-butylmorpholine bisulfite, 3355*d*.
$C_{14}H_{29}N_3O$ 3-Dodecanone, 2-methyl-, semicarbazone, 2932*f*.
$C_{14}H_{30}N_2O_2$ Propionamide, α,α'-(butylimino)-bis[*N*,*N*-dimethyl-, P 4201*f*, P 5793*g*.
$C_{14}H_{29}NaO_4S$ Sodium tetradecyl sulfate, 466*g*, 2263*e*, 7776*i*.
Tetradecanol, hydrogen sulfate Na salt, 466*g*.
$C_{14}H_{30}$ See *Tetradecane*.
$C_{14}H_{30}ClNO$ 2-Propanol, 1-chloro-3-diamylamino-2-methyl-, P 251*b*.
2 Propanol, 1-chloro-3-diisoamylamino 2-methyl-, P 254*b*.
$C_{14}H_{31}Cl_2Si$ Silane, dichlorotetradecyl , P 8744*a*.
$C_{14}H_{32}N_2$ Caproamidine, α,α-dibutyl-, *and -HCl*, 568*c*.
$C_{14}H_{32}N_2O$ Isocaproamide, γ-amino-*N*, *N*-dibutyl-, P 3450*b*.
Isocaproamide, γ-amino-*N*-octyl-, P 3450*b*.
$C_{14}H_{32}NO_3P$ Benzenephosphonic acid, *p*-amino-, Et$_2$NH salt, 1737*i*.
$C_{14}H_{32}N_4$ Tetradecanediamidine, 7581*f*.
$C_{14}H_{34}N_4S_2$ Pseudouron, 2,2'-dodecamethylenebis[2-thio , 7581*f*.
$C_{14}H_{30}O$ (See also *Tetradecanol*.)
1-Dodecanol, 10-ethyl-, 3780*i*.
1-Hendecanol, 7-ethyl-2 methyl-, P 3438*c*.
Heptyl ether, 2590*a*.
$C_{14}H_{30}O_2$ Acetaldehyde, isobutoxy-, diisobutyl acetal, P 675*c*.
$C_{14}H_{30}O_4S$ Tetradecanesulfonic acid, *K salt*, 8707*g*.
$C_{14}H_{30}O_4$ Acetaldehyde, bis(2-butoxyethyl) acetal, P 1434*a*.
Peroxide, bis(1-hydroxyheptyl), 1416*i*.
—, (1,3 - dimethylbutylidene)bis[*tert*-butyl, P 2629*g*, 6156*h*.
$C_{14}H_{30}O_4S$ Tetradecanol, hydrogen sulfate, *Na salt*, 466*g*.
$C_{14}H_{30}O_5$ Peroxide, (3-hydroxy 1,3-dimethylbutylidene)bis[*tert* butyl, P 2629*c*.
$C_{14}H_{30}O_6S_2$ D-Glucose, di-Bu mercaptal, P 5625*a*.
$C_{14}H_{30}O_6$ Acetaldehyde, (ethylenedioxy)di-, bis(diethyl acetal), 2577*f*.
$C_{14}H_{30}S$ Heptyl sulfide, 2956*c*.
1-Tetradecanethiol, 2019*b*, 6455*b*, 8610*a* *art*, Tetradecyl mercaptan, 1716*a*, 2019*b*.
$C_{14}H_{30}S_2$ 2,5 Hexanedione, 1 - diethyl mercaptole), 564*g*.
$C_{14}H_{31}N$ Dodecylamine, *N*,*N* dimethyl , *HCl*, 5677*h*.
Tetradecylamine, - *HCl*, 1243*h*.
$C_{14}H_{31}NO_2$ Acetaldehyde, dibutylamino , di-Et acetal, 6974*d*.
$C_{14}H_{31}NO_4S$ Cyclohexanone, 3-methyl-, compd. with heptylamine bisulfite, 3356*b*
2 Pentanone, compd with 1-butylpiperidine bisulfite, 3355*h*.
$C_{14}H_{31}NS$ 2 Propanesulfenamide, *N*, *N*-diamyl-2-methyl-, P 1176*g*.
$C_{14}H_{31}N_5$ Biguanide, 1-butyl-5 octyl-, *and sulfate*, P 2229*h*.
$C_{14}H_{31}O_3PS_2$ Heptyl thiophosphate, 7850*b*.
$C_{14}H_{31}O_4P$ Butyl decyl phosphate, P 1791*b*
$C_{14}H_{39}Cl_2MnN_2O_4$ Choline, acetyl-, chloromanganate, 7129*f*.
$C_{14}H_{32}N_2$ 1,4-Cyclooctanediamine, *N*, *N*, *N'*, *N'*-tetramethyl-, dimethiodide, 591*g*
$C_{14}H_{32}N_2O$ 2-Heptanol, 6-(2-diethylaminoethylamino)-2-methyl-, - *HCl*, 9248*i*.
$C_{14}H_{32}N_2OS$ 2-Propanol, 1-diethylamino 3-(3 - diethylaminopropylmercapto)-, 6874*e*.
$C_{14}H_{32}N_2O_6$ Leucinol, **oxalate**, 1723*d*.
$C_{14}H_{32}N_6$ Synthalin B, 7581*f*.
$C_{14}H_{32}O_3Si$ Silane, dimoxybutoxy-, 9028*d*.
$C_{14}H_{32}O_4Si$ Butyl ethyl silicate, 9028*e*.
$C_{14}H_{33}NO_3S$ Enanthaldehyde, compd. with heptylamine bisulfite, 3356*c*.
$C_{14}H_{33}N_3$ Diisopropylamine, 2,2"-bis(diethylamino)-, 1349*g*.
$C_{14}H_{34}Br_2N_2$ Ethylenebis[triethylammonium bromide], 2703*d*.
Octamethylenebis[trimethylammonium bromide], 2703*d*.
$C_{14}H_{34}N_2$ 1,6-Hexanediamine, *N*,*N'*-ethylenedi-, P 4052*g*, P 4820*a*.
$C_{14}H_{34}Br_3N_3O$ (Hydroxyethylidynetrismethylene)tris[trimethylammonium bromide], 134*b*.
$C_{14}H_{38}Br_2N_4P_2PtS_2$, 4172*h*.
$C_{14}H_{38}Cl_4N_2O_2P_2Pt$, 4172*h*.
$C_{14}H_{38}Cl_4N_4P_2Pt$, 4172*g*.
$C_{14}H_{38}Cl_4O_2Si_4$ Hexasiloxane, 3,5,7,9-tetrakis(chloromethyl)decamethyl-, 2930*c*.
$C_{14}H_{38}I_2O_2Sn_4$ Diethyltin oxide, complex with dimethyltin diiodide, 7900*c*.
Dimethyltin oxide, complex with diethyltin diiodide and EtOH, 7900*c*.
$C_{14}H_{40}Cl_2O_5Si_6$ Hexasiloxane, 1,11-bis(chloromethyl)dodecamethyl-, 2930*b*.
$C_{14}H_{40}O_2Si_4$ 3,9-Dioxa-2,4,6,8,10-pentasilahendecane, 2,2,4,4,6,6,8,8,10,-10-decamethyl-, 563*f*, P 3056*g*.
$C_{14}H_{40}O_5Si_5$ Pentasiloxane, 1,9-diethoxydecamethyl-, P 6221*c*.
$C_{14}H_{42}O_5Si_6$ Hexasiloxane, tetradecamethyl-, 4067*d*, P 4402*f*, P 6220*h*
$C_{15}H_6BrNO_4$ 1-Anthraquinonecarbonitrile, 2-bromo-, P 866*c*, P 868*a*.
$C_{15}H_6ClNO_5$ 2-Anthraquinonecarbonyl chloride, 1-nitro-, P 1576*b*.
$C_{15}H_6Cl_4O_2$ Phthalide, 3-benzylidene-4,5,6,-7-tetrachloro-, 2974*d*.
$C_{15}H_7BrF_3NO_2$ Anthraquinone, 1-amino-4-bromo-2-(trifluoromethyl)-, P 7709*e*.
$C_{15}H_7BrO_4$ 1-Anthraquinonecarboxylic acid, 4-bromo-, 1760*c*.
$C_{15}H_7ClO_4$ Anthraquinonecarboxylic acid, 5 chloro-, 2984*e*.
$C_{15}H_7NO_5$ Flavone, 7-hydroxy-4',6,8 trinitro-, 9067*a*
$C_{15}H_7N_3O_4S$ Semicarbazide, 1,4-bis(7-oxofuro[3,4 - *b*]pyrid - 5(7 *H*) - ylidene)-3-thio-, 7483*h*.
$C_{15}H_8ClNO_3$ 2-Anthraquinonecarbonyl chloride, 1-amino-, P 1576*b*.
$C_{15}H_8Cl_6$ Propane, 1,1,1,3,3,3-hexachloro-2,2-bis(chlorophenyl)-, 345*g*, 9331*i*
$C_{15}H_8N_2O_6$ Phthalimide, *N*-*p*-nitrobenzoyl-, P 6236*f*.
$C_{15}H_8N_2O_6$ Flavone, 3',5'-dinitro-, 2621*e*.
$C_{15}H_8N_2O_7$ Flavone, 7 hydroxy-6,8-dinitro-, 9067*a*.
$C_{15}H_8OS$ 7*H*-Benzo[*jk*]thiophanthren-7-one, P 9467*g*.
$C_{15}H_8O_4$ Coumarilic acid, 3 (2,4-dihydroxyphenyl)-, δ-lactone, 1771*f*
$C_{15}H_8O_5$ Coumarilic acid, 3-(trihydroxyphenyl)-, δ-lactone, 1771*g*.
$C_{15}H_8O_6$ 2 Anthraquinonecarboxylic acid, 1,5 dihydroxy , 3062*f*, 6308*i*, 7193*g*.
$C_{15}H_8O_7$ Pseudopurpurin, *Ca salt*, 1569*f*.
$C_{15}H_8O_8$ 1,4 *H* Benzopyran 4,5,6-trione, 2 (3,4 dihydroxyphenyl) - 3,7 - dihydroxy-, 182*d*.
$C_{15}H_9BrO_2$ 9-Anthroic acid, 10-bromo-, 209*a*.
$C_{15}H_9Br_2Cl_3$ Propene, 3,3 bis(*p*-bromophenyl) 1,1,2-trichloro-, 9333*d*.
$C_{15}H_9Br_3O_3$ Chalcone, tribromodihydroxy-, 5379*fg*, 5446*d*
$C_{15}H_9ClN_2O_4$ Quinoline, 2 (chloro-2-nitrophenyl)-, 7024*i*.
$C_{15}H_9ClN_2O_4S$ Quinoline, 6-(*p* chlorophenylmercapto) 5-nitro , 8389*c*.
$C_{15}H_9ClO$ Propiolophenone, *β*-(*o*-chlorophenyl) , 6183*a*.
$C_{15}H_9Cl_2N$ Isoquinoline, 5-chloro-1-(*p*-chlorophenyl) , 7486*g*.
$C_{15}H_9Cl_4F_3$ Propene, 1,1,2 trichloro-3,3-bis-(*p*-fluorophenyl)-, 9333*d*.
$C_{15}H_9Cl_4N_3O_4$ Mesoxalanilide, 2,2',4,4'-tetrachloro , oxime, 578*c*.
$C_{15}H_9Cl_5$ Propene, 1,1,2 trichloro 3,3 bis(*p* chlorophenyl) , 3137*h*, 9333*d*.
$C_{15}H_9Cl_6O_2$ Benzyl alcohol, *p*-chloro-α-(trichloromethyl) , *p*-chlorobenzoate, 2359*h*.
$C_{15}H_9FN_4O$ Quinoline, fluoro , picrate, 5783*i*
$C_{15}H_9F_3N_2O_2$ Anthraquinone, 1,4-diamino 2-(trifluoromethyl)-, P 7700*f*.
$C_{15}H_9IO_2$ Anthraquinone, 1-iodo-2-methyl , 7472*h*.
$C_{15}H_9N$ 9-Phenanthrenecarbonitrile, 1762*c*.
$C_{15}H_9NO_2$ Indeno[2,1-*c*]indole-1,2-dione, 8,10-dihydro-, 193*e*.
$C_{15}H_9NO_3$ 2-Indolecarboxylic acid, 3-(2,4-dihydroxyphenyl)-, δ-lactone, 1772*b*.
$C_{15}H_9NO_4$ Flavone, nitro-, 2621*e*.
$C_{15}H_9NO_5$ Flavone, 7-hydroxy-8-nitro-, 9067*a*.
Propanetrione, (*m*-nitrophenyl)phenyl-, P 5130*h*.
$C_{15}H_9N_3O$ 7*H*-Dibenzo[*de*,*h*]quinazolin-7-one, 6-amino-, P 5966*d*.
$C_{15}H_9N_3O_2$ 6 *H* Quinindoline, 9-nitro-, 230*e*.
$C_{15}H_9N_3O_4$ Isoquinoline, nitro-1-(nitrophenyl)-, 7486*e*.
Quinoline, 2-(2,6-dinitrophenyl)-, 7025*a*.
$C_{15}H_9N_3O_5$ 2-Anthraquinonecarboxylic acid, nitro-, hydrazide, P 4484*a*.
Oxindole, 5-nitro-3-*o*-nitrobenzylidene-, 230*f*.
$C_{15}H_9N_3O_7$ 4-Indolecarbonitrile, picrate, 4255*f*.
$C_{15}H_9N_3O_8$ Coumarin, 3-hydroxy-5-nitro-, 2,4-dinitrophenylhydrazone, 1765*h*.
$C_{15}H_{10}BrNOS$ 2-Thiophenecarboxamide, 5-bromo-*N*-naphthyl-, 4666*a*.
$C_{15}H_{10}BrNO_2$ Anthraquinone, 1-bromo-4-methylamino-, P 3205*b*.
$C_{15}H_{10}BrNO_3$ Chalcone, 4'-bromo-4-nitro-, 5379*h*, 5446*d*.
$C_{15}H_{10}BrNO_4$ Chalcone, 5'-bromo-2'-hydroxy-4-nitro-, 5379*h*, 5446*d*.
$C_{15}H_{10}BrNO_5$ Chalcone, 5-bromo-2,4'-dihydroxy-3'-nitro-, 5379*i*, 5446*d*.
$C_{15}H_{10}Br_2N_2O_2$ Imidazole, 4,5-bis(5-bromo-2-hydroxyphenyl)-, 4247*b*.
$C_{15}H_{10}Br_2N_2O_3S$ 8-Quinolinesulfonanilide, 3',5'-dibromo-, 4649*c*.
$C_{15}H_{10}Br_2N_2O_3$ 2(5 *H*)-Imidazolone, 4,5-bis(5 - bromo - 2 - hydroxyphenyl) , 4247*b*.
$C_{15}H_{10}Br_2O_2$, Chalcone, 3,5'-dibromo-2'-hydroxy-, 5379*g*, 5446*d*.
$C_{15}H_{10}Br_2O_3$ Chalcone, dibromodihydroxy-, 5379*efg*, 5446*d*.
Phenol, 4-bromo-2-(5-bromo-3-methoxy-2 benzofuryl)-, 4247*a*.
$C_{15}H_{10}ClN$ Quinoline, 2-chloro-4-phenyl-, 228*i*.
Quinoline, 2 (*m*-chlorophenyl)-, 7024*i*.
$C_{15}H_{10}ClNO$ Indole, 1-benzoyl-4-chloro-, 4255*f*.
$C_{15}H_{10}ClNO_2$ Mandelonitrile, *o*-chloro-, benzoate, 606*a*.
Phthalimide, 3 chloro-*N*-*o*-tolyl-, 6600*f*.
$C_{15}H_{10}ClNO_4$ 1-(*m* Nitrophenyl)-2-benzopyrylium perchlorate, 5778*e*.
$C_{15}H_{10}N_2O_2$ Quinoline, *p*-chloroanilinonitro , 9037*ref*.
Quinoline, 4-chloro-2-*p*-nitroanilino-, P 7074*b*.
$C_{15}H_{10}Cl_2N_2$ Quinoline, 4-chloro-2-*p*-chloroanilino-, P 7974*a*.
$C_{15}H_{10}Cl_2O$ 1-Indanone, 6-chloro-3 (*p*-chlorophenyl)-, 7471*g*.
$C_{15}H_{10}Cl_2O_2$ Acrylic acid, *β*,*β*-bis(*p*-chlorophenyl) , 2272*i*.
$C_{15}H_{10}Cl_2O_3$ Chalcone, 3,5-dichloro-2,2'-dihydroxy-, 5379*h*, 5446*d*.
$C_{15}H_{10}Cl_2NO_4$ Benzyl alcohol, α-(trichloromethyl)-, *p*-nitrobenzoate, P 7634*g*.
$C_{15}H_{10}Cl_4FeNO_3$ 1-(*m*-Nitrophenyl)-2-benzopyrylum ferrichloride, 5778*e*.
$C_{15}H_{10}Cl_4N_2O_3$ Acetic acid, (2,4-dichlorophenoxy)-, (2,4-dichlorobenzylidene)-hydrazide, 7554*g*
$C_{15}H_{10}Cl_4N_2O_4$ Mesoxalanilide, 2,2',4,4'-tetrachloro-, hydrate, 578*d*.
$C_{15}H_{10}Cl_4O$ Ether, 4-chloro-α-(*p*-chlorophenyl) - *o* - tolyl 2,2 - dichlorovinyl, P 7045*g*.
$C_{15}H_{10}Cl_4O_3$ Benzoic acid, *p*-[*p*-chloro-α-(trichloromethyl)benzyl]-, P 6360*b*.
Benzyl alcohol, *p*-chloro-α-(trichloromethyl)-, benzoate, 2359*h*.
$C_{15}H_{10}Cl_4O_5$ *o*-Orsellinic acid, 3,5-dichloro-, ester with 2,4-dichlororcorcinol, 609*a*.
$C_{15}H_{10}INO_2$ Phthalimide, 3-iodo-*N*-tolyl-, 6600*g*.
$C_{15}H_{10}I_2O_2$ Xanthydrol, 2,7-diiodo-, acetate, 3822*g*.
$C_{15}H_{10}N_2$ Pyridocarbazole, 6631*i*.
6 *H*-Quinindoline, 230*b*.
$C_{15}H_{10}N_2O_2$ Benzonitrile, 3-methoxy-4,4'-oxydi-, 9049*b*.
Indeno[2,1 - *c*]indole - 1,2 - dione, 3,10-dihydro-, oxime, 193*f*.
Isoquinoline, 1-(*p*-nitrophenyl)-, 7486*e*.
Phenol, *p*,*p'*-methylenedi-, diisocyanate, P 8732*c*.
$C_{15}H_{10}N_2O_3S$ Quinoline, 6-(*p*-nitrophenylmercapto)-, 8389*a*
$C_{15}H_{10}N_2O_3$ Benzoic acid, *o*-(3,4-dihydro-3-oxo-2-quinoxalyl)-, 7008*h*.
Phthalimide, reaction product with PhNCO, 8365*i*.
Quinoline, nitrophenoxy-, 1776*i*.
$C_{15}H_{10}N_2O_4$ Phthalimide, *N*-nitrobenzyl-, 9047*b*.
Phthalimide, *N*-(5-nitro-*o*-tolyl)-, 7182*d*.
$C_{15}H_{10}N_2O_4S$ Quinoline, 6-(*p*-nitrophenylsulfonyl)-, 8389*c*.
$C_{15}H_{10}N_2O_6$ Acrylic acid, bis(*p*-nitrophenyl)-, 5772*h*, 7464*a*.
1 *H* - Naphtho[2,3]pyrazole - 4,9 - dione, 3,8 - dihydroxy-, diacetate, 7019*e*, 7341*i*.
Phthalamic acid, *N*-*p*-nitrobenzoyl-, P 6236*f*.
2-Stilbenecarboxylic acid, dinitro-, 3812*c*.

**$C_{15}H_{10}N_2O_7$** Acetophenone, *o*-hydroxy-, 3,5-dinitrobenzoate, 2621*b*.
1,3-Propanedione, 1-(3,5-dinitrophenyl)-3-(*o*-hydroxyphenyl)-, 2621*d*.
**$C_{15}H_{10}N_2S_4$** Benzothiazole, 2,2'-(methylenedithio)bis-, P 3737*i*.
2(3*H*)-Benzothiazolethione, 3,3'-methylenebis-, P 3737*i*.
**$C_{15}H_{10}N_2O$** Dibenzo[*de*,*h*]quinazolin-7-one, 8-amino-, P 7711*hi*.
**$C_{15}H_{10}N_4$** Quinoline, 2-(1,2,3,1*H*-benzotriazol-1-yl)-, 230*c*.
**$C_{15}H_{10}N_4O_2$** 8-Quinolinol, 5-(*p*-nitrophenylazo)-, 597*c*.
**$C_{15}H_{10}N_6O_4$** 2-Quinoxalinecarboxaldehyde, 2,4-dinitrophenylhydrazone, 3425*c*.
**$C_{15}H_{10}N_2O_{11}$** Benzophenone, 4,4'-bis(methylnitramino) - 3,3',5,5' - tetranitro-, 2982*b*.
**$C_{15}H_{10}O$** 9-Anthraldehyde, 191*h*.
Anthrone, 10-methylene-, P 868*c*, 3402*d*.
Dibenzo[*a*,*c*]cycloheptatrien - 5 - one, [illegible]
9-Phenanthrenecarboxaldehyde, 1762*a*.
**$C_{15}H_{10}OS$** 3(2*H*)-Thianaphthenone, 2-benzylidene-, P 514*b*.
**$C_{15}H_{10}O_2$** 9-Anthraldehyde, 10-hydroxy-, P 8692*g*.
Anthraquinone, 2-methyl-, 6085*f*, 6356*e*, 7828*d*, 7829*i*.
Anthroic acid, 208*h*, 2093*b*.
Benz[*a*]azulene - 7 - carboxylic acid, *and salts*, 207*f*.
Flavone, 3488*f*.
9-Fluorenone, 1-acetyl-, 3401*h*.
Indandione, phenyl-, 1041*a*, 5834*g*.
1-Phenanthrenecarboxylic acid, 4664*c*.
Phthalide, 3-benzylidene-, 6193*d*, P 7753*i*.
**$C_{15}H_{10}O_2S$** Ketone, 3-hydroxy 2-thianaphthenyl phenyl, 2200*i*.
**$C_{15}H_{10}O_3$** Anthraquinone, hydroxymethyl-, 6784*e*.
Coumarin, 4-hydroxy-3-phenyl-, P 4702*a*.
Flavone, hydroxy-, 637*i*, 640*b*, 3488*f*, 5086*g*, 5116*i*, 9067*a*.
Propanetrione, diphenyl-, 4247*i*, P 5130*h*.
**$C_{15}H_{10}O_4$** Anthraquinone, 3,5-dihydroxy-1-methyl-, 2984*h*.
Chrysazin, 4-methyl-, 2984*h*.
Chrysin, 636*i*, 638*h*.
Chrysophanic acid, 9383*i*.
Flavone, dihydroxy-, 640*a*, 1407*g*, 3104*f*, 5116*h*, 7935*d*.
Homophthalic acid, 6-hydroxy-α-phenyl-, lactone, 2496*f*.
2-Naphthaleneacrylic acid, β,1-dihydroxy-, δ-lactone, acetate, 3415*d*.
Primetin, 637*h*.
**$C_{15}H_{10}O_4S$** *m*-Toluenesulfonic acid, α-(3-oxo-2(3*H*)-thianaphthenylidene)-, P 514*b*.
**$C_{15}H_{10}O_5$** (See also *Emodin*.)
Baicalein, 1773*h*.
Chrysazin, 3-(hydroxymethyl)-, 817*c*, 2521*a*.
Flavone, trihydroxy-, 636*i*, 640*e*, 1407*h*, 1772*f*, 1774*e*, 3104*f*.
**$C_{15}H_{10}O_6$** Anthraquinone, tetrahydroxy-6-methyl-, 210*b*.
Fisetin, 3641*b*.
Flavone, tetrahydroxy-, 224*d*, 636*a*, 1408*a*, 1772*g*.
Kaempferol, 638*d*, 5542*b*.
Luteolin, 8451*a*.
**$C_{15}H_{10}O_7$** (See also *Quercetin*.)
Flavone, pentahydroxy-, 224*e*, 1772*i*, 1774*acf*, 4263*h*.
Herbacetin, 638*c*, 1772*h*.
Morin, 3488*f*, 5702*c*.
**$C_{15}H_{10}O_7S$** Flavone, 7,8-dihydroxy-, 8 sulfate, 640*c*.
**$C_{15}H_{10}O_8$** Calycopteretin, 639*f*, 3566*c*.
Flavone, hexahydroxy-, 224*f*, 1774*fi*, 4263*i*.
Gossypetin, 636*a*, 3104*f*, 5116*g*.
Myricetin, 638*d*.
Quercetagetin, 3104*g*, 5116*h*.
**$C_{15}H_{10}O_9$** Flavone, 3,3',4',5,6,7,8-heptahydroxy-, 639*f*.
Hibiscetin, 638*c*.
**$C_{15}H_{10}O_{10}S$** Quercetinsulfonic acid, 3104*f*, 5116*g*.
**$C_{15}H_{10}S_3$** 1,2 - Dithiole - 3 - thione, 4,5 - diphenyl-, 1043*a*.
**$C_{15}H_{11}BrN_4O_3S_2$** Benzenesulfonamide, *p*-(bromohydroxyphenylazo) - *N* - 2-thiazolyl-, 9048*a*.
**$C_{15}H_{11}BrN_3O_9PS$** Picrate, m. 232°, 1737*i*.
**$C_{15}H_{11}BrO$** Chalcone, bromo-, 5754*g*, 7020*h*.
Ketone, bromomethyl 2-fluorenyl, 193*i*.
**$C_{15}H_{11}BrO_3$** Chalcone, bromohydroxy-, 5379*e*, 5446*d*.
1-Fluorenecarboxylic acid, 9-bromo-, Me ester, 3402*a*.
**$C_{15}H_{11}BrO_4$** Acetophenone, α-bromo-*m*-hydroxy-, benzoate, P 3460*f*.
Chalcone, bromodihydroxy-, 5379*defg*, 5446*d*.
**$C_{15}H_{11}BrO_5$** Chalcone, 5-bromo-2,2',3',4'-tetrahydroxy-, 5379*h*, 5446*d*.
**$C_{15}H_{11}Br_2I_2NO_4$** Alanine, β-[3,5-dibromo-4-(4 - hydroxy - 3,5 - diiodophenoxy)-phenyl]-, 1109*d*.
Alanine, β-[4-(3,5-dibromo-4-hydroxyphenoxy) - 3,5 - diiodophenyl]-, 1109*d*.
**$C_{15}H_{11}Br_2N_3O_3$** Mesoxalanilide, *p*,*p*'-dibromo-, oxime, 578*c*.
**$C_{15}H_{11}Br_2O_2$** 2,4-Cresotic acid, 3,5-dibromo-, bromotolyl ester, 2603*i*.
**$C_{15}H_{11}Br_2NO_4$** Alanine, β-[3,5-dibromo-4-(3,5 - dibromo - 4 - hydroxyphenoxy)-phenyl]-, 1109*d*, 8056*a*.
**$C_{15}H_{11}Cl$** Phenanthrene, (chloromethyl)-, 7013*c*.
**$C_{15}H_{11}ClN_2$** Quinoline, aminochloro-, P 7974*b*, 9038*b*.
Quinoline, 2-*p*-chloroanilino-, 9037*d*.
**$C_{15}H_{11}ClN_2O$** 2-(*o*-Chlorophenyl)-4-hydroxy-1 - methylphthalazinium hydroxide, 2,4-inner salt, 237*d*
Indole, 2 - (*p* - chlorophenyl) - 1 - methyl-3-nitroso-, 218*d*.
Phenol, *p* - (7 - chloro - 4 - quinolylamino)-, P 7514*h*.
1(2*H*)-Phthalazone, 2-(*o* chlorophenyl) 4-methyl-, 237*f*.
5 - Pyrazolone, 1 - (*m* chlorophenyl) - 3-phenyl-, P 8150*f*
**$C_{15}H_{11}ClN_2O_2$** 1(2*H*) Phthalazone, 2-(*o*-chlorophenyl)-4-methoxy, 237*f*
**$C_{15}H_{11}ClN_4O_3S_2$** Benzenesulfonamide, *p*-(chlorohydroxyphenylazo) - *N* - 2 thiazolyl-, 9048*a*.
**$C_{15}H_{11}ClO$** Chalcone, 4'-chloro, 5754*g*.
**$C_{15}H_{11}ClOS$** Thiaxanthone, 1-chloro-2,4 dimethyl-, 226*c*.
**$C_{15}H_{11}ClO_2$** Fluorenecarboxylic acid, 9 chloro-, Me ester, 3402*a*, 3811*g*.
1,3-Propanedione, 1-(*o*-chlorophenyl)-3-phenyl, 6183*b*.
Xanthone, chlorodimethyl-, 225*hi*.
**$C_{15}H_{11}ClO_3$** Chalcone, 5-chloro-2,2'-dihydroxy-, 5379*g*, 5446*d*.
Xanthone, 1-chloromethoxy 4 methyl, 226*ab*.
**$C_{15}H_{11}ClO_4$** Apigeninidin chloride, 7935*f*
**$C_{15}H_{11}ClO_4S$** Cinnamic acid, *p*-(*p* chlorophenylsulfonyl)-, 7450*c*
**$C_{15}H_{11}ClO_5$** Pelargonidin, 7326, 3068*f*.
1-Phenyl-2-benzopyrylium perchlorate, 5778*b*.
**$C_{15}H_{11}ClO_6$** Cyanidin, 3068*f*, 8011*a*.
**$C_{15}H_{11}ClO_7$** Delphinidin, 3068*f*
**$C_{15}H_{11}Cl_2F_3$** Propane, 2,2-bis(chlorophenyl) 1,1,1-trifluoro-, 9332*i*.
**$C_{15}H_{11}Cl_2I_2NO_4$** Alanine, β-[3,5-dichloro-4-(4 - hydroxy - 3,5 - diiodophenoxy)-phenyl]-, 1109*de*.
Alanine, β-[4-(3,5-dichloro-4-hydroxyphenoxy)-3,5-diiodophenyl]-, 1109*d*.
**$C_{15}H_{11}Cl_2N$** Isoquinoline, 5 chloro 1-(*p*-chlorophenyl)-3,4-dihydro-, 7486*d*.
**$C_{15}H_{11}Cl_2NO$** 1-Indanone, 6-chloro 3 (*p*-chlorophenyl)-, oxime, 7471*g*.
**$C_{15}H_{11}Cl_2NO_2$** Acridine, dichloro-2,7-dimethoxy-, 6633*cd*.
**$C_{15}H_{11}Cl_2NO_3S$** Cinnamamide, *N*-(3,4-dichlorophenylsulfonyl)-, P 7963*e*
**$C_{15}H_{11}Cl_2N_3O_3$** Mesoxalanilide, *p*,*p*'-dichloro-, oxime, 578*c*.
**$C_{15}H_{11}Cl_3$** Propene, trichlorodiphenyl-, 346*a*, 9333*c*.
**$C_{15}H_{11}Cl_3N_4O_7$** Glyoxylic acid, chloro-, 1-(*o*-chlorophenyl) - 2 - formylhydrazide *o* chlorophenylhydrazone, 4260*d*
**$C_{15}H_{11}Cl_3O$** Propionyl chloride, β,β-bis(*p*-chlorophenyl)-, 7471*f*
**$C_{15}H_{11}Cl_3NO_2$** Benzyl alcohol, *p*-chloro α-(trichloromethyl)-, carbanilate, 2359*h*.
**$C_{15}H_{11}I_2NO_4$** Benzoic acid, 3,5-diiodo-4-(*p*-nitrophenethyloxy)-, 7585*c*.
**$C_{15}H_{11}I_2NO_4$** See *Thyroxine*.
**$C_{15}H_{11}N$** Isoquinoline, 1-phenyl-, 7485*h*.
Pyridine, (2-naphthyl)-, 3394*h*.
Quinoline, phenyl-, 3394*i*, 3418*g*, 7484*e*.
**$C_{15}H_{11}NO$** Benzoxazole, 2-styryl-, 3428*a*.
Carbostyril, 4-phenyl-, 228*h*.
Phenanthro[2,1-*d*]isoxaxole, 10,11-dihydro-, P 7054*f*.
Phenol, *p*-2-quinolyl-, 8386*g*.
Phthalimidine, 3-benzylidene-, P 7754*a*.
Quinolinol, 2-phenyl-, 227*h*, 228*h*, 3003*g*, 8941*i*.
*p*-Tolunitrile, α-benzoyl-, 4659*a*.
**$C_{15}H_{11}NOS$** Thiocyanic acid, desyl ester, 6619*h*.
2-Thiophenecarboxamide, *N*-naphthyl-, 4665*c*.
**$C_{15}H_{11}NO_2$** Anthraquinone, 1-methylamino-, P 3205*b*.
2-Furamide, *N*-naphthyl-, 4665*c*.
4-Isoxazolol, 3,5-diphenyl-, 1724*b*.
Mandelonitrile, benzoate, 2974*h*.
Phthalimide, *N*-benzyl-, 7182*d*.
—, *N*-tolyl-, 7182*d*.
Pyrocatechol, 3-(2-quinolyl)-, 8386*g*.
Resorcinol, 4-(2-quinolyl)-, 8386*g*.
**$C_{15}H_{11}NO_2S$** Cinchoninic acid, 2-(3-methyl-2-thienyl)-, 4666*f*.
5(4*H*) - Oxazolone, 4 - (methyl - 2-thenylidene)-2-phenyl-, 7930*b*.
**$C_{15}H_{11}NO_3$** Anthraquinone, 1-aminomethoxy-, P 4484*d*, P 5966*di*, P 9469*c*.
Benzo[*g*]quinoline-2-carboxylic acid, 4 methoxy-, 1420*b*.
Chalcone, nitro-, 1633*a*.
2,4 - Oxazolidinedione, 5,5 - diphenyl-, 8611*i*.
Pyrogallol, 4-(2-quinolyl)-, 8386*g*.
**$C_{15}H_{11}NO_4$** 1,3-Indandione, 2-hydroxy-2 *p* hydroxyanilino-, 7013*a*.
Propiophenone, α,β-epoxy-β-(*m*-nitrophenyl)-, 7420*f*.
**$C_{15}H_{11}NO_5$** Acetophenone, *o*-hydroxy-, nitrobenzoate, 2621*b*.
6-Benzofuranol, 2,3-dihydro-, *p*-nitrobenzoate, 3412*e*.
Chalcone, 2,2'-dihydroxy-5-nitro, 5379*i*, 5446*d*.
1,3-Propanedione, 1-(*o*-hydroxyphenyl)-3-(nitrophenyl)-, 2621*c*.
**$C_{15}H_{11}NO_6$** 2-Furanvaleric acid, γ-hydroxy-β (*p*-nitrophenyl) - α - oxo, γ-lactone, 5766*i*.
Phthalic acid, 3-nitro-, benzyl ester, 5767*d*.
**$C_{15}H_{11}NO_6S$** Cinnamic acid, *p*-(*p*-nitrophenylsulfonyl)-, 7450*c*.
**$C_{15}H_{11}NS$** Benzothiazole, 2-styryl-, 3428*a*
Thiazole, 2,4 diphenyl-, 2092*f*.
**$C_{15}H_{11}NS_2$** 2 Thiazolethiol, 4-(4-biphenylyl), 633*h*.
2-Thiazolethiol, 4,5-diphenyl-, 633*h*.
**$C_{15}H_{11}N_2NaO_2$** Hydantoin, diphenyl, Na deriv, 760*g*, 1102*g*, 1862*f*, 2699*i*, 3101*b*, 3148*a*, 4765*e*, 5861*g*, 8611*i*, 9231*g*, 9262*bc*.
**$C_{15}H_{11}N_3$** Quinoxaline, 2-(phenylimino methyl)-, 3425*c*.
**$C_{15}H_{11}N_3O_2$** Quinoline, 4 anilino-6 nitro, 1777*a*
1,2,3,2*H* - Triazole - 4 - carboxylic acid, 2 phenyl, Ph ester, 2619*d*
**$C_{15}H_{11}N_3O_2S$** Quinoline, 6 (*p* aminophenyl mercapto)-5-nitro, 8389*b*.
Thiazole, 2 - nitroanilino - 4 - phenyl, 3819*fg*.
**$C_{15}H_{11}N_3O_3$** Cinnoline, methylnitro-4 phenoxy-, 1781*h*, 1782*c*
4 - Hydroxy - 1 - methyl - 2 - (*p* - nitrophenyl)phthalazinium hydroxide, 2,4-inner salt, 238*b*.
**$C_{15}H_{11}N_3O_4$** Isoquinoline, 3,4-dihydro-7 nitro - 1 - (nitrophenyl)-, *and nitrate*, 7486*bc*.
**$C_{15}H_{11}N_3O_4S$** Quinoline, 5-nitro-6 sulfanilyl, 8389*d*.
**$C_{15}H_{11}N_3O_5$** 2-Stilbenecarboxamide, dinitro-, 3812*b*.
**$C_{15}H_{11}N_3O_7S$** Thianaphthene, 3-methyl-, picrate, 7475*e*.
**$C_{15}H_{11}N_3O_9$** Cinnamic acid, picrate, 6070*g*
**$C_{15}H_{11}N_3O_7$** + $H_2O$ Compd., decomp. above 360°, 651*g*.
**$C_{15}H_{11}N_5O_6$** Cinnamaldehyde, *p*-nitro-, 2,4-dinitrophenylhydrazone, 3000*i*
**$C_{15}H_{11}N_5O_6S_2$** Isonicotinic acid, 2,6-dihydroxy - 3 - [*p* - (2 - thiazolylsulfamyl)-phenylazo]-, P 3572*a*.
**$C_{15}H_{11}N_5O_8S_2$** Benzenesulfonic acid, 5-nitro-2-(tetrahydro - 5 - oxo - 4 - phenyl 3-thioxo - 1,2,4,2*H* - thiadiazin - 6-ylazo)-, 1,1-dioxide, *Na salt*, P 4868*f*.
**$C_{15}H_{11}N_7O_4$** 1,2,3,2*H*-Triazole-3-carboxaldehyde, 2-phenyl-, 2,4-dinitrophenylhydrazone, 2619*b*.
**$C_{15}H_{12}$** Anthracene, methyl-, 2183*a*, 8377*c*.
Benz[*a*]azulene, methyl-, 207*h*.
Compd., m. 230°, 6203*f*.
Dibenzocycloheptatriene, 942*g*.
Fluorene, 2-vinyl-, P 5804*f*.
Indene, 2-phenyl-, 4569*c*, 9042*g*.
Phenanthrene, methyl-, 2183*d*, 6609*e*.
**$C_{15}H_{12}AsNO$** Acetophenone, *m*-(cyanophenylarsino)-, 3383*d*.
**$C_{15}H_{12}AsNO_2$** Benzoic acid, (cyanophenylarsino)-, Me ester, 3383*a*.
**$C_{15}H_{12}AsN_3$** Arsine, tri-2-pyridyl-, *and tri-HCl*, 1046*h*.

**$C_{15}H_{12}BrIN_2O$** Benzoic acid, *m*-iodo-, *p*-bromo - α - methylbenzylidenehydrazide, 6973*f*.

**$C_{15}H_{12}BrNOS$** Phenothiazine, 10-(α-bromopropionyl)-, 7938*d*.

**$C_{15}H_{12}BrNO_4$** Acetic acid, (bromophenyl)-, *p*-nitrobenzyl ester, 6056*i*.

**$C_{15}H_{12}Br_2N_2O_4$** Mesoxalanilide, *p*,*p*'-dibromo-, hydrate, 578*d*.

**$C_{15}H_{12}Br_2O$** 2-Propanone, 1,3-bis(*p*-bromophenyl)-, 1385*e*.

**$C_{15}H_{12}Br_2O_2$** Xanthene, 2,7-dibromo-9-ethoxy-, 3822*f*.

**$C_{15}H_{12}Br_2O_3$** 2,4-Cresotic acid, 3,5-dibromo-, tolyl ester, 2603*i*.

**$C_{15}H_{12}Br_2O_4 + H_2O$** Acetophenone, 5-bromo-α - (5 - bromo - 2 - hydroxyphenyl) - 2-hydroxy-α-methoxy-, 4246*f*.

**$C_{15}H_{12}Br_4O_2$** Phenol, 4,4' - isopropylidenebis-[2,6-dibromo-, P 3847*d*.

**$C_{15}H_{12}ClF_3N_2O_3S$** Acetanilide, *p*-(6-chloro-α,α,α - trifluoro - *m* - tolylsulfamyl)-, 4649*a*.

**$C_{15}H_{12}ClN$** Indole, (*p*-chlorophenyl)-1-methyl-, 218*df*.

**$C_{15}H_{12}ClNO$** Acetamide, *N*-(7-chloro-2-fluorenyl)-, 7005*e*.

**$C_{15}H_{12}ClNOS$** 2-Benzothiazolemethanol, α-(*p*-chlorophenyl)-α-methyl-, 7475*i*.
Phenothiazine, 10-(β-chloropropionyl)-, 7938*d*.

**$C_{15}H_{13}ClNO_2$** 2-(2,5-Dihydroxyphenyl)isoquinolinium chloride, 5683*c*.

**$C_{15}H_{12}ClNO_3$** 9-Acridol, 1 chloro-2,7-dimethoxy-, 6633*d*.

**$C_{15}H_{12}ClNO_4$** Acetic acid, (chlorophenyl) , *p*-nitrobenzyl ester, 6056*h*.
Betanin, 7534*b*.

**$C_{15}H_{12}ClN_3$** Quinoline, amino-*p*-chloroanilino-, 9037*g*.

**$C_{15}H_{12}ClN_3O_3S$** Benzenesulfonic acid, chloro-4-quinolylhydrazide, 3410*c*.

**$C_{15}H_{12}ClN_3O_4$** Benzoic acid, *o*-[2 - [chloro-(*p* - nitrophenylazo)methylene]hydrazino]-, Me ester, 4260*a*.

**$C_{15}H_{12}Cl_2$** Cyclopropane, 1,1-bis(*p*-chlorophenyl)-, 155*b*.

**$C_{15}H_{12}Cl_2N_2O_3$** Acetic acid, (2,4 dichlorophenoxy)-, salicylidenehydrazide, 7554*g*.

**$C_{15}H_{12}Cl_2N_2O_4$** Carbanilic acid, 4 methyl 3-nitro-, dichlorotolyl ester, 7448*e*.
Mesoxalanilide, *p*,*p*'-dichloro-, hydrate, 578*d*.

**$C_{15}H_{12}Cl_2O$** 2-Propanone, 1,3-bis(*p* chlorophenyl)-, 1385*e*.

**$C_{15}H_{12}Cl_2O_3$** Propionic acid, β,β-bis(*p* chlorophenyl)-, 2272*i*, 7471*f*.

**$C_{15}H_{12}Cl_2F$** Ethane, 1,1,1-trichloro 2-(*p*-fluorophenyl)-2 tolyl , P 351*a*.

**$C_{15}H_{12}Cl_2FO$** Ethane, 1,1,1 trichloro 2-(*p*-fluorophenyl) - 2 - (*p* - methoxyphenyl)-, P 350*i*.

**$C_{15}H_{12}Cl_3$** Ethane, 1,1,1 - trichloro - 2 (*p*-chlorophenyl) - 2 - *p* - tolyl , 346*a*, P 6360*a*.

**$C_{15}H_{12}Cl_4O_2$** Phenol, 4,4'-isopropylidenebis-[2,6-dichloro-, P 3847*d*.

**$C_{15}H_{12}Cl_4O_4$** *m*-Cresol, 2',4,6,6' tetrachloro-5 methoxy-2,5'-oxydi-, 608*h*.

**$C_{15}H_{12}Cl_6$** Cyclopentadiene, hexachloro , compd. with 3a,4,7,7a-tetrahydro-4,7-methanoindene, P 4093*d*.

**$C_{15}H_{12}I_2O_2$** Xanthene, 9-ethoxy 2,7-diiodo , 3822*f*.

**$C_{15}H_{12}I_4O_3$** Propionic acid, β (4-hydroxy 3,5-diiodophenyl) - α - phenyl , 1492*d*, 5507*b*.

**$C_{15}H_{12}N_2$** Benzimidazole, 2-styryl-, P 5604*e*.
Imidazole, 4,5-diphenyl-, 8365*i*.
Pyrazole, 3,5-diphenyl-, 8365*h*.

**$C_{15}H_{12}N_2O$** Benzamide, *N*-α-cyanobenzyl-, 6176*d*.
Cinnoline, methyl-4-phenoxy-, 1781*g*, 1782*b*.
Compds., m. 234° (decompn.), 238*a*.
2 - Furaldehyde, α - naphthylhydrazone, 2014*g*.
Furazan, 4-benzyl-5-phenyl-, 2992*c*.
4 - Hydroxy - 1 - methyl - 2 - phenylphthalazinium hydroxide, 2,4-inner salt, 238*a*.
1-Indolecarboxanilide, 8365*f*.
Indole, 1-nitroso-2-*p*-tolyl-, 218*b*.
5 Pyrazolone, 1,3-diphenyl-, P 8150*f*.
1-Pyrrolecarboxamide, *N*-1-naphthyl-, 8365*e*.
4(3*H*)-Quinazolone, 2-methyl-3-phenyl-, 3425*a*, 4675*i*.
4-Quinolinol, 6-anilino-, 9038*a*.
Quinoxaline, 2 - (*p* - methoxyphenyl)-, 4240*c*.

**$C_{15}H_{12}N_2OS$** Hydantoin, 5,5-diphenyl-2-thio-, 7586*a*.

**$C_{15}H_{12}N_2O_2$** Flavone, 3',5'-diamino-, 2621*f*.
Hydantoin, 5,5-diphenyl-, 1045*a*, 3016*c*, 7586*a*.
Isoquinoline, 3,4 - dihydro - 1 - (nitrophenyl)-, 7486*cd*.
—, 3,4-dihydro-7-nitro-1-phenyl-, 7486*c*.
Phthalimide, *N*-(aminobenzyl)-, 9047*ab*.
Phthalimidine, reaction product with PhNCO, 8365*h*.
Sydnone, *C*-phenyl-*N*-*p*-tolyl-, 7480*d*.

**$C_{15}H_{12}N_2O_2S$** 4-Pyrimidol, 6-(2-furyl)-2-mercapto-, benzyl deriv., 7929*h*.
Quinoline, 6-sulfanilyl-, 8389*c*.
5-Thiazoleacetic acid, 2-amino-4-(naphthyl)-, P 8401*f*.

**$C_{15}H_{12}N_2O_2$** Anthraquinone, 1,8-diamino-4-hydroxy-5-methyl-, P 4483*h*.
3-Stilbenecarboxamide, 4-nitro-, 3805*e*.

**$C_{15}H_{12}N_2O_4$** Compd., m. 148–50°, 9042*f*.
Compd., m. 185–6°, 9042*f*.
Cyclopropane, 1,1 - bis(*p* - nitrophenyl)-, 9042*f*.

**$C_{15}H_{12}N_2O_4S$** 4-Hydroxy-1-methyl-2-phenyl-ʔ-sulfophthalazinium hydroxide, 2,4-inner salt, 238*c*.
Saccharin, reaction product with *p* tolyl isocyanate, 8365*i*.
Sulfanilamide, *N*¹-(2-oxo-1,2*H*-benzopyran-3-yl)-, 2179*e*.
*p*-Toluenesulfonamide, *N* (2,3-dioxo-6-indolinyl)-, 215*h*.

**$C_{15}H_{12}N_2O_5$** Benzoic acid, *p* (*p*-nitrobenzamido)-, Me ester, 1031*g*.
Salicylic acid, 5-(1,3-benzodioxan-6-ylazo)-, P 8149*c*.

**$C_{15}H_{12}N_2O_6$** Acetic acid, bis(*p*-nitrophenyl)-, Me ester, 7004*e*.
Benzyl alcohol, α-methyl-, dinitrobenzoate, 6195*i*.
4 - Stilbenol, 3 - methoxy - 2',4' - dinitro-, 9055*e*.

**$C_{15}H_{12}N_2O_6S_2$** *m*-Benzenedisulfonic acid, 4-[2 - (2 - benzimidazolyl)vinyl]-, *di Na salt*, P 8174*a*.

**$C_{15}H_{12}N_2O_6S$** Chelidamic acid, 1-(*N*-acetylsulfanilyl)-, 2597*i*.

**$C_{15}H_{12}N_2S$** Quinoline, 6 (*p*-aminophenylmercapto)-, *di*-*HCl*, 8389*b*.

**$C_{15}H_{12}N_2S_2$** Hydantoin, 5,5-diphenyldithio-, 6172*a*, 7586*a*.

**$C_{15}H_{12}N_3OP$** Phosphine oxide, tri 2-pyridyl-, 1046*h*.

**$C_{15}H_{12}N_3P$** Phosphine, tri 2-pyridyl-, *and -tri-HCl*, 1045*h*

**$C_{15}H_{12}N_3PS$** Phosphine sulfide, tri 2-pyridyl-, 1046*g*.

**$C_{15}H_{13}N_4$** Pyridine, 2,2',2''-nitrilotri-, *and di-HCl*, 1045*h*.
2-Quinoxalinecarboxaldehyde, phenylhydrazone, 4227*f*.

**$C_{15}H_{13}N_4O$** Benzanilide, 4'-(1,2,3,2*H*-triazol-2-yl)-, 2619*i*.
2-Biphenylcarboxaldehyde, 2'-cyano , semicarbazone, 8377*i*.
Quinoxaline, 2-(*p*-aminobenzamido)-, 174*g*.
1,2,3,2*H* - Triazole - 4 - carboxanilide, 2-phenyl-, 2619*d*.

**$C_{15}H_{13}N_4O_3$** Acetonitrile, *p*-nitrobenzoyl-, phenylhydrazone, 5395*a*, 7021*d*.
Cinnoline, 4 - anilino - 8 - methylnitro-, 1782*c*.

**$C_{15}H_{13}N_4O_3S$** Acetophenone, 6-nitro-2-benzothiazolylhydrazone, 5395*h*.
Sulfanilamide, *N*⁴ - (2 - quinoxalylmethylene)-, 3425*d*.

**$C_{15}H_{12}N_4O_4S_2$** Benzenesulfonamide, *p* phenylazo-*N*-2-thiazolyl, P 3457*g*.

**$C_{15}H_{13}N_4O_3S$** Anisaldehyde, 6 nitro-2-benzothiazolylhydrazone, 6395*h*.

**$C_{15}H_{13}N_4O_4$** Quinoxaline, 2-amino-, *p*-nitrobenzoate, 174*g*.

**$C_{15}H_{13}N_4O_4S$** Quinoline, 8-amino-5-nitro-6-sulfanilyl-, 8389*d*.
6-Quinoxalinecarboxylic acid, sulfanilamido-, 3384*d*.

**$C_{15}H_{12}N_4O_6$** *p*-Toluic acid, 3,5-dinitro-, benzylidenehydrazide, 6972*e*.

**$C_{15}H_{12}N_4O_6$** 5-Benzofurancarboxaldehyde, 2,3 - dihydro - 6 - hydroxy-, 2,4 - dinitrophenylhydrazone, 3412*e*.
Pyruvic acid, phenyl-, 2,4-dinitrophenylhydrazone, 5342*h*.
*p*-Toluic acid, 3,5-dinitro-, hydroxybenzylidenehydrazide, 6972*f*.

**$C_{15}H_{12}N_4O_7$** Indole, 6-methyl-, picrate, 1397*h*.
Pyruvic acid, (*p*-hydroxyphenyl)-, 2,4-dinitrophenylhydrazone, 5342*h*.
Skatole, picrate, 3818*b*.

**$C_{15}H_{13}N_4O_8$** 5-Indolol, 2-methyl-, picrate, 1765*g*.
2-Oxazoline, 2-phenyl-, picrate, P 7512*h*.

**$C_{15}H_{12}N_4O_4$** Benzoic acid, *p*-[*N*-(2-amino-4-hydroxy - 6 - pteridyl)formamido]-, 8441*h*, P 8448*g*.

**$C_{15}H_{12}N_4O_7$** Quinoxaline, 2-aminomethyl-, picrate, 1426*i*, 1427*a*.

**$C_{15}H_{12}N_8O_8$** Pyruvaldehyde, bis(2,4-dinitrophenylhydrazone), 3795*b*.

**$C_{15}H_{13}O$** (See also *Chalcone*.)
9-Anthracenemethanol, 191*h*.
9-Anthrol, 10-methyl-, 2520*i*.
Dibenzo[*a*,*c*][1,3]cycloheptadien - 5 - one, 8378*e*.
Ketone, 2-fluorenyl methyl, 193*h*, 1367*h*, 1753*fg*.
Phenanthrene, 9-methoxy-, 4663*e*.
3-Phenanthrol, 7-methyl-, 6609*f*.

**$C_{15}H_{12}O_2$** Acrylic acid, α,β-diphenyl-, 5026*i*, 5772*f*.
Benzofuran, 6-(benzyloxy)-, 3412*d*.
Chalcone, hydroxy-, 5117*a*, 5446*d*, 5542*a*.
Flavanone, 3488*f*, 5763*d*.
2-Fluoreneacetic acid, 7468*c*.
1-Fluorenecarboxylic acid, Me ester, 4246*b*.
Hydracrylic acid, α,α-diphenyl , lactone, 1280*g*.
1(2*H*)-Naphthalenone, 2-furfurylidene-3,4-dihydro-, 2972*a*.
Phenanthrone, dihydro(hydroxymethylene)-, 4347*c*, P 7055*a*.
Phthalide, methyl-2-phenyl-, 7463*h*.
1,3-Propanedione, 1,3-diphenyl-, 4575*c*, 7453*d*.
Propiophenone, α,β-epoxy-β-phenyl-, 7421*c*.
Stilbenecarboxylic acid, 198*g*, 199*a*.
Stilbene, 3,4-methylenedioxy , 5027*c*.
Xanthone, 1,8-dimethyl , 5399*b*.

**$C_{15}H_{12}O_2S$** 10-Thiaxantheneacetic acid, 3363*i*.

**$C_{15}H_{12}O_3$** Benzoic acid, *o*-benzoyl-, Me ester, P 3847*g*.
Benzoic acid, phenacyl ester, 1349*a*.
Chalcone, dihydroxy-, 3104*g*, 5116*hi*, 5379*d*, 5446*d*.
Glycidic acid, β,β-diphenyl-, 1041*h*.
1,3-Propanedione, 1-(*o*-hydroxyphenyl)-3-phenyl , 2620*i*.
Pyruvic acid, diphenyl-, 1041*c*, 4642*e*.
*p*-Quinone, 2-(allyloxy)phenyl-, 1372*h*.
*p*-Toluic acid, α benzoyl-, 4659*a*.

**$C_{15}H_{12}O_2S$** Cinnamic acid, 2-thenoylmethyl ester, 2614*i*.

**$C_{15}H_{12}O_4$** Benzaldehyde, 4-methoxy-3,4'-oxydi-, 3017*f*.
2-Biphenylcarboxylic acid, 2',4'-dihydroxy - 4 - methoxy - 6 - methyl-, δ-lactone, 5023*g*.
—, 2' - hydroxy - 4,4' - dimethoxy-, δ-lactone, 5023*h*.
Chalcone, 2',3,4 - trihydroxy-, 3104*f*, 5116*h*.
Flavanone, 3',4'-dihydroxy-, 5116*h*.

**$C_{15}H_{12}O_4S$** Cinnamic acid, *p*-(phenylsulfonyl)-, 7450*c*.
10-Thiaxanthenol, 5,5-dioxide acetate, 2904*h*, 4274*a*.

**$C_{15}H_{12}O_5$** Benzoic acid, 2 - anisoylhydroxy-, 6008*g*.
Benzoic acid, 3-hydroxy-2-(2-hydroxy-*p*-toluyl)-, 2984*g*.
Butein, 3104*f*, 5116*h*, 5446*d*.
5-Hexenoic acid, 3-furfurylidene-6-(2-furyl)-4-oxo-, 6334*d*.
Homophthalic acid, 6-hydroxy-α-phenyl-, *Na salt*, 2496*f*.

**$C_{15}H_{12}O_6$** Chalcone, 2',3,3',4,4'-pentahydroxy-, 5116*i*, 5446*d*.
Eriodictyol, 5116*i*.
Flavanone, tetrahydroxy-, 5116*i*, 5396*b*.
Katsuranin, 5542*b*.
Naphthazarin, 6-methyl-, diacetate, 4414*h*.
Salicylic acid, 5,5'-methylenedi-, 8615*a*.

**$C_{15}H_{12}O_6S$** Cinnamic acid, *p*-(2,5-dihydroxyphenylsulfonyl)-, 7450*c*.

**$C_{15}H_{12}O_7$** Flavanone, pentahydroxy-, 3195*bc*, 5116*i*, 5542*b*.
Glutaconic anhydride, β-(2,4-dihydroxyphenyl)-, diacetate, 1408*c*.
Quercetin, dihydro-, 9172*c*.

**$C_{15}H_{12}O_8$** 1,2*H* - Benzopyran - 4 - acetic acid, 6 - carboxy - 7 - hydroxy - 2-oxo-, 6-Me ester acetate, 6206*f*.

**$C_{15}H_{12}O_8$** Flavanone, 3,3',4',5',6,7,8-heptahydroxy-, 1775*a*.

**$C_{15}H_{11}AsN_3O_3S_2$** 2-Thiazolesulfonanilide, 4' - (3 - amino - 4 - hydroxyphenylarseno)-, P 4817*a*.

**$C_{15}H_{12}AuN_3O_4S_2$** Acetanilide, α-(auromercapto)-*p*-benzoylsulfamyl)-, 1347*h*.

**$C_{15}H_{13}Br$** 1-Propene, 3-bromo-1,2-diphenyl-, 1043*i*.

**$C_{15}H_{13}BrO$** Acetophenone, α-bromo-*p*-methyl-α-phenyl-, 2206.

**Acetophenone, α-bromo-α-p-tolyl-,** 2206*b*.

**$C_{15}H_{13}BrO_3$ Acetic acid, bromophenyl-, benzyl ester,** 2189*d*.

**$C_{15}H_{13}BrO_3$ Acetophenone, 4-(benzyloxy)-5-bromo-2-hydroxy-,** 1742*e*.

2,4-Cresotic acid, 5-bromo-, tolyl ester, 2603*i*.

**$C_{15}H_{13}BrO_6$ 1,2*H*-Benzopyran-4-acetic acid, 6-bromo-7-hydroxy-2-oxo-, Et ester acetate,** 6206*f*.

**$C_{15}H_{13}Cl$ Stilbene, α-chloro-4-methyl-,** P 2236*c*.

**$C_{15}H_{13}ClN_2O$ Acridine, 9-amino-6-chloro-2-ethoxy-,** P 2242*c*.

1(2*H*)-Phthalazone, 3-(*o*-chlorophenyl)-3,4-dihydro-4-methyl-, 237*e*.

**$C_{15}H_{13}ClN_2O_2$ Acridine, 9-amino-3-chloro-2,7-dimethoxy-,** *and* **-*HCl*,** 6633*c*.

Benzoic acid, *o*-acetyl-, (*o*-chlorophenyl) hydrazone, 237*f*.

**$C_{15}H_{13}ClN_2O_3$ Allophanic acid, γ-phenyl, chlorotolyl ester,** 7447*d*.

**$C_{15}H_{13}ClN_2O_4$ Anthranilic acid, 4-chloro-*N*-(*p*-nitrophenyl)-, Et ester,** 6176*b*.

Anthranilic acid, *N*-(*m*-chlorophenyl)-5-nitro-, Et ester, 6176*b*.

Carbanilic acid, 4-methyl-3-nitro-, chlorotolyl ester, 7448*e*.

**$C_{15}H_{13}ClN_2S$ Lepidine, 2-(5-chloro-2 thenylamino)-,** *and* **-*HCl*,** 8389*g*.

**$C_{15}H_{13}ClN_4$ Guanidine, 2-benzyl-1-(*p*-chlorophenyl)-3-cyano-,** P 6658*h*.

**$C_{15}H_{13}ClN_4O_4$ 2-Propanone, (chlorodinitrophenyl)-, phenylhydrazone,** 2184*d*, 7452*h*.

**$C_{15}H_{13}ClO_3$ Benzoic acid, *o*-(5 chloro-2,4-xylyloxy)-,** 225*h*.

Toluic acid, (chloro-*o*-toloxy)-, 225*i*, 226*a*.

**$C_{15}H_{13}ClO_4$ Anisic acid, 2-(5-chloro-*o*-toloxy)-,** 226*a*.

**$C_{15}H_{13}ClO_4S$ 2*H*-Naphtho[1,2-*b*]pyran-3-sulfonyl chloride, 3,4,5,6-tetrahydro-2,2-dimethyl-5,6-dioxo-,** 1386*g*.

**$C_{15}H_{13}ClO_5$ 1,2*H*-Benzopyran-4-acetic acid, 6-chloro-7-hydroxy-2-oxo-, Et ester acetate,** 6206*e*.

**$C_{15}H_{13}Cl_2NO$ Acetamide, α,α-bis(*p*-chlorophenyl)-*N*-methyl-,** 1144*e*.

Benzamide, *p*-chloro-*N*-(*o*-chlorophenethyl)-, 7486*a*.

**$C_{15}H_{13}Cl_2NO_3$ Anthranilic acid, 4-chloro-*N*-(3-chloro-4-methoxyphenyl)-, Me ester,** 6633*d*.

Anthranoyl chloride, *N*-(3-chloro-4-methoxyphenyl)-5-methoxy-, 6633*c*.

**$C_{15}H_{13}Cl_2NO_4$ Alanine, β-[3,5-dichloro-4-(*p*-hydroxyphenoxy)phenyl]-,** 1109*e*.

**$C_{15}H_{13}Cl_2NO_3S$** *o*-Acetotoluidide, *N*-(3,4-dichlorophenylsulfonyl)-, P 2361*b*.

**$C_{15}H_{14}Cl_2N_2O_2$ Pyruvaldehyde, dichloro-, *p*-nitrophenylhydrazone phenylhydrazone,** 6160*b*.

**$C_{15}H_{14}Cl_2$ Bibenzyl, α,α,α′-trichloro-4-methyl-,** P 2236*c*.

**$C_{15}H_{14}Cl_2O_2$ Phenol, *o*-[*p*-methoxy-α-(trichloromethyl)benzyl]-,** 1733*c*.

**$C_{15}H_{13}F$ Ethylene, 1-(*p*-fluorophenyl)-1-*p*-tolyl-,** 206*b*.

**$C_{15}H_{13}F_3O$ Ether, *m*-ethylphenyl α,α,α-trifluoro-*m*-tolyl,** P 6234*h*.

**Ether, α,α,α-trifluoro-*m*-tolyl 2,4-xylyl,** P 6234*h*.

**$C_{15}H_{13}F_3O_2$ Acetophenone, α,α,α-trifluoro-*p*-phenyl-, compd. with MeOH,** 3394*d*.

**$C_{15}H_{13}IN_2O$ Benzoic acid, *m*-iodo-, α-methylbenzylidenehydrazide,** 6973*f*.

**$C_{15}H_{13}IN_2O_4$ 2-Propanone, (2-iodo-4,6-dinitrophenyl)-, phenylhydrazone,** 2184*c*.

**$C_{15}H_{14}I_2NO_4$ Alanine, β-[4-(*p*-hydroxyphenoxy)-3,5-diiodophenyl]-,** 1109*d*.

Glycine, α-[3,5-diiodo-4-(*p*-methoxyphenoxy)phenyl]-, 593*a*.

**$C_{15}H_{13}N$ Carbazole, 9-propenyl-,** 624*c*.

Indole, 2-*p*-tolyl-, 2188*b*.

Isoquinoline, 1-phenyl-, 5026*a*.

**$C_{15}H_{13}NO$** (See also *Acetamide, N-fluorenyl-*.)

**Acetonitrile, (*m*-methoxyphenyl)phenyl-,** 4245*a*.

Acridan, 10-acetyl-, 233*f*.

**Benzo[*g*]quinoline, 4-methoxy-2-methyl-,** 1420*b*.

**Cinnamanilide,** 1654*h*, P 5413*a*, 7002*g*.

**Phthalimidine, 3-methyl-2-phenyl,** 238*h*

**4(1*H*)-Quinolone, 2,3-dihydro-1-phenyl-,** 8351*h*.

**$C_{15}H_{13}NOS$ 2-Benzothiazolemethanol, α-methyl-α-phenyl-,** 7475*i*.

**$C_{15}H_{13}NO_2$ Acetamide, *N*-hydroxyfluorenyl-,** 307*b*, 3921*f*, 7020*g*.

Acridine, 2,7-dimethoxy-, 6633*a*.

**Benzaldehyde, *p*,*p*′-(methylimino)di-,** P 2233*b*.

Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide, *N*-phenyl-, P 4421*f*.

9-Carbazolemethanol, acetate, 3819*b*.

**Cinnamic acid, 3-pyridylmethyl ester,** P 8105*h*.

Glycine, *N*-2-fluorenyl-, 5770*a*.

Phthalimidine, 2-benzyl-3-hydroxy-, 3806*a*.

—, 3-(benzyloxy)-, 623*g*.

—, 3-hydroxy-2-*p*-tolyl-, 3806*a*.

Xanthone, 4-methyl-1-methylamino-, 225*d*.

**$C_{15}H_{13}NO_2S$ 1,4,2*H*-Benzothiazin-3(4*H*)-one, 2-α-hydroxybenzyl-,** 7421*e*.

Mandelamide, thio-, benzoate, 3820*g*.

**$C_{15}H_{13}NO_3$ Benzanilide, 3′-acetyl-4′-hydroxy-,** 5779*d*.

Furo[3,2-*f*]quinoline-2-carboxylic acid, 7-methyl-, Et ester, 7028*f*.

Phthalanilic acid, methyl-, 5524*i*, 5525*a*.

Stilbene, 4-methoxy-α′-nitro-, 7008*d*.

**$C_{15}H_{13}NO_3S$ 2-Benzothiazolemethanol, *p*-toluenesulfonate,** P 3406*g*.

**$C_{15}H_{13}NO_4$ Benzoic acid, 3-amino-2-(2-hydroxy-*m*-toluyl)-,** 2984*g*.

Benzoic acid, *p*-hydroxy-, Me ester, carbanilate, 593*f*.

Salicylanilide, 4′-hydroxy-, acetate, 2603*c*.

Salicylic acid, Me ester, carbanilate, 593*f*.

**$C_{15}H_{13}NO_4S$ 2-Benzoxazolemethanol, *p*-toluenesulfonate,** P 3406*g*.

Cinnamic acid, *p*-sulfamyl-, 7450*d*.

**$C_{15}H_{13}NO_5$ Phenol, *p*-(*o*-nitrophenyl)-, Et carbonate,** P 2647*c*.

**$C_{15}H_{13}NO_6$ 5(4*H*)-Oxazolone, 4-(2,5-dihydroxybenzylidene)-2-methyl-, diacetate,** 6598*c*.

**$C_{15}H_{13}NO_7$ 1-Cyclopentene-1-carboxylic acid, 2-hydroxy-5-oxo-(?), Et ester, *p*-nitrobenzoate,** 7910*e*.

**$C_{15}H_{13}N_3$ Cinnoline, 4-anilino-8-methyl-,** 1782*b*.

Isoquinoline, 5-amino-1-(*p*-aminophenyl)-, 7486*g*.

2-Pyrazoline, 5-amino-1,3-diphenyl-, 7021*c*.

Quinoxaline, 2-benzylamino-, *and* **-*HCl*,** 7023*c*.

**$C_{15}H_{13}N_3O$ 1-Benzimidazolecarboxanilide, 2-methyl-,** 8365*h*.

5-Pyrazolone, 1-(*p*-aminophenyl)-3-phenyl-, P 5194*h*, P 9461*h*.

Urea, 1-α-cyanobenzyl-3-phenyl-, 1401*f*.

**$C_{15}H_{13}N_3O_2$ Guanidine, dibenzoyl-,** 1329*e*.

5-Pyrazolone, 3-methyl-, reaction product with 1-naphthyl isocyanate, 8365*h*.

9*H*-Pyrid[3,4-*b*]indole, 1-amino-, di-Ac deriv., 3416*f*.

**$C_{15}H_{13}N_3O_2S$ Benzenesulfonic acid, 2-quinolylhydrazide,** -*HCl*, 3410*c*.

Sulfanilamide, *N*1-6-quinolyl-, 8422*h*.

**$C_{15}H_{13}N_3O_3$ *p*-Toluic acid, 3-nitro-, benzylidenehydrazide,** 6973*b*.

**$C_{15}H_{13}N_3O_3S$ Acetanilide, *p*-(*p*-cyanophenylsulfamyl)-,** 4649*b*.

Benzothiazole, 6-nitro-2-*p*-phenetidino-, 5395*h*.

**$C_{15}H_{13}N_3O_3S_2$ Acetanilide, *p*-(6-benzothiazolylsulfamyl)-,** 7476*c*.

**$C_{15}H_{13}N_3O_3S_2$ Acetanilide, *p*-(2-mercapto-5-benzothiazolylsulfonamido)-,** P 5012*h*.

**$C_{15}H_{13}N_3O_4$ 1,5*H*-Pyrindin-2-ol, 4-amino-6,7-dihydro-, *p*-nitrobenzoate,** 9068*g*.

1,5*H*-Pyrindin-2-ol, 6,7-dihydro-4-*p*-nitrobenzamido-9068*g*

*p*-Toluic acid, 3-nitro-, *o*-hydroxybenzylidenehydrazide, 6973*b*.

**$C_{15}H_{13}N_3O_4S$ *p*-Toluenesulfonamide, *N*-(2,3-dioxo-6-indolinyl)-, oxime,** 215*h*

**$C_{15}H_{13}N_3O_5$ Benzamide, nitro-*N*-(*p*-nitrophenethyl)-,** 7486*a*.

**$C_{15}H_{13}N_3O_6$ Alanine, *N*-(dinitrophenyl)-phenyl-,** 138*c*.

Anthranilic acid, 5-nitro-*N*-(*p*-nitrophenyl)-, Et ester, 6176*b*.

2,3-Cresotic acid, 5-(2-methoxy-5-nitrophenylazo)-, P 4864*d*.

β-Resorcylic acid, 5-acetyl-3-nitro-, phenylhydrazone, 2622*c*.

**$C_{15}H_{13}N_3O_6S$ Salicylic acid, 5-(*p*-sulfamylphenylazo)-, acetate,** 3110*a*, 3385*d*.

Sulfide, *p*-tolyl 2,4,6-trinitrophenethyl, 1733*i*.

**$C_{15}H_{13}N_3O_8S_2$ 1,2*H*-Benzopyran-6-sulfonamide, 2-oxo-3-sulfanilamido-,** 2179*h*.

**$C_{15}H_{13}N_3O_7S$ Sulfoxide, *p*-tolyl 2,4,6-trinitrophenethyl,** 1733*i*.

**$C_{15}H_{14}N_4O_6S$ Sulfone, *p*-tolyl 2,4,6-trinitrophenethyl,** 1733*i*.

**$C_{15}H_{14}N_2S$ Quinoline, 5-amino-6-(*p*-aminophenylmercapto)-,** *tri-HCl*, 8389*b*.

Thiazole, 5-amino-2-anilino-4-phenyl-, 1401*g*.

**$C_{15}H_{14}N_2O$ Acetophenone, *p*-(1-methyl-1*H*-benzotriazol-5-ylazo)-,** P 3625*h*.

**$C_{15}H_{14}N_4O$ 2-*s*-Triazinol, 4-amino-6-[*p*-(*p*-aminophenylazo)phenyl]-,** P 7711*c*.

**$C_{15}H_{14}$ Cyclopropane, 1,1-diphenyl-,** 155*b*, 9042*f*.

Dibenzocycloheptadiene, 9*H*-, 8377*d*.

Ethylene, 1-phenyl-1-*p*-tolyl-, P 4516*g*.

Phenanthrene, 9,10-dihydro-9-methyl-, 8379*b*.

Stilbene, α-methyl-, 4569*c*.

Styrene, *p*-benzyl-, 1597*f*.

**$C_{15}H_{14}AsClO$ Propionyl chloride, β-(diphenylarsino)-,** 8352*a*.

**$C_{15}H_{14}AsN$ Arsine, cyanoditolyl-,** 3383*c*.

**Arsine, cyanophenyl-2,4-xylyl-,** 3383*c*.

—, cyanotolyltolyl-, 3383*c*.

**$C_{15}H_{14}BrNO$ Acetotoluidide, α-(bromophenyl)-,** 605*i*.

**$C_{15}H_{14}BrNO_4S$ 2-Thiophenealanine, 5-bromo-*N*-carboxy-, benzyl ester,** 6613*g*.

**$C_{15}H_{14}BrN_3O_2$ Biuret, 1-(bromophenyl)-5-*p*-tolyl-,** 7446*h*.

**$C_{15}H_{14}BrN_3O_4S$ Phthalamic acid, *N*-[2-(5-bromo-2-pyridylsulfamyl)ethyl]-,** P 3450*g*.

**$C_{15}H_{14}Br_2$ Methane, bis(α-bromo-*p*-tolyl)-,** 3382*c*.

**$C_{15}H_{14}ClFN_2O_5$ 1,2-Propanediol, 3-[2-chloro-4-(4-fluoro-2-nitroanilino)-phenoxy]-,** P 9470*c*.

**$C_{15}H_{14}ClN$ 2-Fluorenamine, *N*-(2-chloroethyl)-,** 7443*d*.

**$C_{15}H_{14}ClNO$ Acetamide, *N*-benzhydryl-α-chloro-,** P 677*f*.

Acetophenone, *p*-chloro-α-*N*-methylamino-, 2187*i*.

*p*-Acetotoluidide, α-(*m*-chlorophenyl)-, 605*h*.

8-Hydroxy-5,6′-dimethylphenanthridinium chloride, P 2647*d*.

Propionanilide, α-(*p*-chlorophenyl)-, 4654*f*.

**$C_{15}H_{14}ClNO_2$ 1-Naphthalenecarbamic acid, chlorobutenyl ester,** 6976*b*.

**$C_{15}H_{14}ClNO_3$ Anthranilic acid, *N*-(3-chloro-4-methoxyphenyl)-, Me ester,** 6633*d*.

Anthranoyl chloride, 5-methoxy-*N*-(*p*-methoxyphenyl)-, 6633*a*.

**$C_{15}H_{14}ClNO_4$ Anthranilic acid, 6-chloro-5-methoxy-*N*-(*p*-methoxyphenyl)-,** 6633*c*.

Phthalic acid, 3-chloro-, *o*-toluidine salt, 6600*f*.

**$C_{15}H_{14}ClNO_4S$ Alanine, β-[*p*-(chlorophenylsulfonyl)phenyl]-,** 7450*a*.

**$C_{15}H_{14}ClN_3O_2$ Biuret, 1-(chlorophenyl)-5-tolyl-,** 7446*h*

**$C_{15}H_{14}ClN_3O_4S$ Phthalamic acid, *N*-[2-(5-chloro-2-pyridylsulfamyl)ethyl]-,** P 3450*g*.

**$C_{15}H_{14}ClN_3O_2$ Methane, chloro(*p*-nitrophenylazo)-2,4-xylylhydrazono-,** 4260*a*.

**$C_{15}H_{14}Cl_2$ Propane, 2,2-bis(*p*-chlorophenyl)-,** P 9358*a*.

**$C_{15}H_{14}Cl_2N_2O_3S$ Propionanilide, β-(3,5-dichlorophenylsulfamyl)-,** 4648*h*.

**$C_{15}H_{14}Cl_2N_2O_6$ Isoalloxazine, 7,8-dichloro-10-ribityl-,** 1457*g*.

**$C_{15}H_{14}Cl_2O$ Ether, 4,4′-dichlorobenzhydryl-ethyl,** 3137*i*.

**Ether, 4,4′-dichloro-α-methylbenzhydryl-methyl,** 3137*i*.

**$C_{15}H_{14}Cl_2O_2$ *m*-Cresol, 6,6′-methylenebis[4-chloro-,** 8614*i*, P 9389*i*.

Phenol, 4,6-dichloro-4′,6′-dimethyl-2,2′-methylenedi-, 5019*c*.

—, 4,4′-isopropylidenebis[2-chloro-, 1807*i*, P 8847*d*.

**Propane, bis(*p*-chlorophenoxy)-,** 3137*i*.

**$C_{15}H_{14}Cl_2O_4$ Saligenin, 3,3′-methylenebis[5-chloro-,** 8615*a*.

**$C_{15}H_{14}INO_2$ 1-Methyl-4-(3,4-methylenedioxystyryl)pyridinium iodide,** 7483*i*.

**$C_{15}H_{14}INO_4$ Phthalic acid, 3-iodo-, toluidine salt,** 6600*g*.

**$C_{15}H_{14}IN_3O_2$ Biuret, 1-(iodophenyl)-5-*p*-tolyl-,** 7446*h*.

**$C_{15}H_{14}N_2$ Acridine, 3-dimethylamino-,** 647*d*

**Aniline, *N*-(3-phenyliminopropenyl)-,** -*HCl*, P 6225*g*.

**cinnamaldehyde, phenylhydrazone,** 1348*i*.

**Phenanthridine, 6-amino-2,4-dimethyl-,** 1779*e*.

**1,10-Phenanthroline, trimethyl-,** 2211*b*, 4277*de*, 8391*c*.

1,3 - Propanediimine, *N, N'* - diphenyl-, P 6225*h*.
Propionitrile, *β* - (diphenylamino)-, 8351*g*.
Pyridocarbazole, tetrahydro-, 6632*cde*.

$C_{15}H_{14}N_2O$ Acetamide, *N*-(7-amino-2-fluorenyl)-, *and* -*HCl*, 7005*c*.
Carbanilide, *ar*-vinyl-, P 5422*g*.
Cinnamic acid, phenylhydrazide, 7182*h*
3 - Pentanone, 4 - diazo - 1 - (2 - naphthyl)-, 4653*g*.
1(2*H*) - Phthalazone, 3,4 - dihydro - 4-methyl-3-phenyl-, 2386*b*.
Phthalimidine, 3-*p*-toluidino-, 623*h*.
2-Pyridineacetonitrile, *α*-benzyl-1,6-dihydro-1-methyl-6-oxo-, 6629*c*.
Pyridine, 2 - (allyloxy) - 5 - benzylideneamino-, P 7972*h*.
Pyrroline-1-carboxamide, *N*-1-naphthyl-, 8365*d*.
2 Stilbazole, 6 acetamido-, 6629*h*

$C_{15}H_{14}N_2OS_2$ Benzothiazole, 2-benzylamino-6-(methylsulfinyl)-, 2618*b*.

$H_{14}N_2O_2$ Acridine, 9-amino-2,7-dimethoxy-, *and* -*HCl*, 6633*a*.
Acrylic acid, *β,β* bis(*p*-aminophenyl)-, 7164*b*.
Benzamide, *N, N'*-methylenebis-, 1316*f*, 9075*e*.
Benzanilide, 4'-acetamido-, 4665*d*.
Benzoic acid, *p* hydrazino-, hydrazone with acetophenone, 5764*g*.
Nicotinamide, *N*-(2,3-dihydro-2-methyl-5 benzofuryl)-, 5025*d*.
Phenethylamine, *N* - *p* - nitrobenzylidene-, 1767*c*.
Pyrido[1,3 - *b*]quinolin - 10(5*H*) - one, 8 methoxy 1,3 dimethyl-, 3826*a*.
Terephthalaldehydic acid, Me ester, phenylhydrazone, 5761*d*.

$H_{14}N_2O_2S$ Hydantoin, 1 phenethyl-5 (2-thienyl) , 3426*f*.

$H_{14}N_2O_2S_2$ Benzothiazole, 2-benzylamino-6 (methylsulfonyl) , 2618*a*.

$H_{14}N_2O_3$ Acetic acid, (*p*-phenylazophenoxy) , Me ester, 3364*f*.
Allophanic acid, γ phenyl-, tolyl ester, 7447*c*
Benzoic acid, *p*-(*p* aminobenzamido)-, Me ester, 1031*g*
6 hydrazino-, hydrazone with hydroxyacetophenone, 5764*g*.
Glycine, *N* nitroso *N*-phenyl-, benzyl ester, 3418*b*
Hydratropanilide, 4 nitro-, 6992*e*.
Propionanilide, *α* (*p* nitrophenyl) , 1654*f*.

$H_{14}N_2O_3S$ 3,4 Xylamide, *N* - (*p* - nitrophenylmercapto)-, P 7044*b*.

$H_{14}N_2O_4$ Allophanic acid, γ-phenyl-, methoxyphenyl ester, 7447*d*.
Aniline, *N* 2,4 - dimethoxybenzylidene 6 nitro , 7022*b*.
Benzoic acid, *p* hydrazinohydrazone with dihydroxyacetophenone, 5764*h*.
Carbamic acid, methyl-, *p* (o hydroxybenzamido)phenyl ester, 2603*f*.
Carbamic acid, 4-methyl-3 nitro , tolyl ester, 7448*f*
2 Oxetone acid, 5-(*p*-aminobenzamido) , P 8158*b*
Acetanic acid, diester with 1,2-propanediol, 2623*a*

$C_{15}H_{14}N_2O_3S$ Acetamide, *N*-(*N*-salicylidene-sulfanilyl)-, 3262*g*

$C_{15}H_{14}N_2O_3S$ Acetanilide, *p*-(benzoylsulfonamido)- , 1347*h*.

$C_{15}H_{14}N_2O_4$ Carbanilic acid, 4-methyl-3-nitro-, methoxyphenyl ester, 7448*d*
Urea, (3,4 dihydroxy-1-naphthyl)-, diacetate, 1383*f*
3,4 - Xylamide, *N* - (*p* - nitrophenylsulfonyl) , P 7961*c*.

$C_{15}H_{14}N_2O_4S$ Acetanilide, *p*-(*p*-nitrobenzylsulfonyl) , 2593*f*.
Xylamide, *N* - (*p* - nitrophenylsulfonyl) , P 2638*d*, P 3458*d*, P 7043*f*, P 7044*b*

$C_{15}H_{14}N_2O_5$ Propane, 1,3-bis(*p*-nitrophenoxy) , 3381*b*.

$C_{15}H_{14}N_2O_5S$ Anisamide, 3-methyl-*N*-(*p*-nitrophenylsulfonyl)-, P 2637*i*.
Anthranilic acid, *N*-(3-carboxysulfanilyl) *N* methyl , P 7710*b*.
Pyrogallol, 2 - (2 - amino - 4 - thiazolyl)-, triacetate, 3819*g*.

$C_{15}H_{14}N_2O_5S$ 2,3 Cresotic acid, 5-(3-amino-4-sulfobenzamido)-, P 858*e*.

$C_{15}H_{14}N_2S$ Lepidine, 2-(2-thenylamino)-, *and* -*HCl*, 8389*g*.

$C_{15}H_{14}N_2S_2$ Benzothiazole, 2-benzylamino-6-methylmercapto-, 2618*c*.

$C_{15}H_{14}N_4O$ Imidazo[1,2 - *a*]pyridin - 2(3*H*)-one, 3 - (*p* - dimethylaminophenylimino) , 643*a*.
Mesoxalaldehyde, bis(phenylhydrazone), 2667*f*.

$C_{15}H_{14}N_4O_2$ Oxalic acid, 2-benzylidenehydrazide 2-phenylhydrazide, 6972*b*.

$C_{15}H_{14}N_4O_2S$ Benzenesulfonamide, *p*-(2-methylindolylazo)-, P 6662*f*.
Sulfanilamide, *N*¹-(4-amino-6 quinolyl)-, P 7965*i*.
—, *N*¹-(methylquinoxalyl)-, 174*h*, 3384*d*, 3385*c*, P 6661*eg*.

$C_{15}H_{14}N_4O_3$ Acetamide, *α*-*p*-nitrobenzoyl-, phenylhydrazone, 5395*b*.
Oxalic acid, 2-hydroxybenzylidenehydrazide 2-phenylhydrazide, 6972*b*.
Oxanilic acid, (4-amino-*o*-tolylazo)-, P 8160*fg*.

$C_{15}H_{14}N_4O_3S$ Acetanilide, *p* (5-indazolylsulfamyl)-, P 7966*a*.
Sulfanilamide, *N*¹ - (methoxy - 2 - quinoxalyl)-, 3384*de*.

$C_{15}H_{14}N_4O_4$ Biuret, 1-(nitrophenyl)-5-tolyl-, 7446*h*.

$C_{15}H_{14}N_4O_4S$ Acetophenone, *α* methylmercapto-, 2,4 - dinitrophenylhydrazone, 6574*g*.
*m* - Tolualdehyde, 6 - methylmercapto-, 2,4 - dinitrophenylhydrazone, 7746*d*.

$C_{15}H_{14}N_4O_5$ Anthranilic acid, 5,5'-ureylenedi , P 4864*b*.
Benzaldehyde, 2-ethyl-3 hydroxy-, 2,4-dinitrophenylhydrazone, 197*d*.

$C_{15}H_{14}N_4O_5S_2$ Acetanilide, *p* (6 sulfamyl 2-benzothiazolylsulfamyl)-, 6180*e*.

$C_{15}H_{14}N_4O_6$ 2-Nonen 4 ynoic acid, 6-oxo-, 2,4-dinitrophenylhydrazone, 7415*e*.

$C_{15}H_{14}N_4O_7$ Isoquinoline, tetrahydro-, picrate, 3407*i*, 4279*e*.

$C_{15}H_{14}N_4O_8$ Acetimidic acid, *N* methyl-, Ph ester, picrate, 2594*f*.
1 - Butanone, 1 (3 - pyridyl)-, picrate, 643*d*.
*β*-Resorcylaldehyde, 3,6 dimethoxy-, 2,4-dinitrophenylhydrazone, 7480*g*.

$C_{15}H_{14}N_4O_9$ 2-Pyridineacetic acid, Et ester, picrate, 7022*g*.

$C_{15}H_{14}N_4O_9$ Benzoic acid, *p* [(2 amino-4-hydroxy - 7 - methyl - 6 - pteridylmethyl)amino] , 8556*f*
Benzoic acid, *p*-[(2-amino-4 hydroxy-6-pteridylmethyl)methylamino]-, 7097*c*, 9186*i*.

$C_{15}H_{14}N_4O_4$ 1,2 Propanediol, 3 [5 (*p*-nitrophenylazo)-1 *H* benzotriazol-1 yl]-, P 3625*i*.

$C_{15}H_{14}N_4O_2S$ Sulfapyridine, dilturate, 3262*g*.

$C_{15}H_{15}N_4O_7$ Guanidine, (5-methyl 2-benzimidazolyl) , picrate, 1405*b*

$C_{16}H_{14}N_5O_8$ Guanidine, (5-methoxy-2-benzimidazolyl) , picrate, 1405*b*

$C_{15}H_{14}O$ Acetophenone, *o*-benzyl-, 6194*d*.
Acetophenone, *p*-methyl *α* phenyl-, P 2236*c*.
—, *α*-*p* tolyl-, 220*f*.
Benzophenone, dimethyl , 6515*d*, 7004*h*, 7006*i*
Lactarioviolin, P 9294*e*.
1(2*H*) - Phenanthrone, 3,4 - dihydro-methyl , 621*g*, 6609*i*.
2 Propanone, diphenyl-, 1754*a*, 5027*a*.
Propionaldehyde, *β,β* diphenyl , P 1810*h*.
Propiophenone, phenyl , 1754*a*, 4247*f*, 7819*i*.
Xanthene, 1,8-dimethyl , 5399*a*.

$C_{15}H_{14}OS$ Benzophenone, 5 methyl 2-methylmercapto-, 7474*i*

$C_{15}H_{14}OS_2$ Benzophenone, 4,4'-bis(methyl mercapto) , 7467*g*.

$C_{15}H_{14}O_2$ 1-Acenaphtheneacetic acid, Me ester, 3363*i*.
Acetic acid, 4-biphenylyl-, Me ester, 1375*i*, 1376*a*.
Acetophenone, methoxyphenyl , 183*c*, 1034*a*.
—, *p*-(*p* methoxyphenyl)-, 1034*a*.
Acrylophenone, *p*-ethyl-*β* 2-furyl-, 3429*f*.
Benzhydrol, acetate, 2194*c*.
Benzophenone, 4-ethoxy-, P 6235*h*.
4-Biphenylcarboxylic acid, Et ester, 1376*c*.
5-Indanol, 2-(*p*-hydroxyphenyl)-, 1758*b*.
9,10-Phenanthrenediol, 9,10-dihydro-9-methyl-, 2986*e*.
Propane, 1 - (2 - biphenylyloxy) - 2,3-epoxy-, P 8209*a*, P 8741*h*
Propionic acid, diphenyl-, 1379*a*, 2271*h*, 3397*a*, 5026*bi*.

$C_{15}H_{14}O_2S$ Acetic acid, (benzhydrylmercapto)-, 5018*i*.
Fluorene, 9-(ethylsulfonyl)-, 1306*d*.

$C_{15}H_{14}O_3$ Acetic acid, (benzhydryloxy)-, 4669*h*, 5018*h*.
Acetic acid, [*p*-(benzyloxy)phenyl]-, 1746*b*, 3361*a*.
—, (2 biphenylyloxy)-, Me ester, 3364*f*.
—, phenyl-, *o*-methoxy Ph ester, P 5802*h*.
Acetophenone, (benzyloxy)-2-hydroxy-, 1742*e*, 3414*e*.
Allodunnione, 3408*g*.
Benzilic acid, Me ester, P 2636*d*.
2*H* - Benz[*e*]indene - 1 - acetic acid, 3,3a,4,5-tetrahydro-2-oxo-, 3430*a*.
Benzophenone, 2,4 - dihydroxy - 3,6-dimethyl-, 8065*h*.
—, dimethoxy-, 183*c*, 1349*d*, P 4099*e*, 6515*d*.
Carbonic acid, dibenzyl ester, P 4293*c*; di-*m*-tolyl ester, 8599*h*.
2,5 - Cresotaldehyde, 4 - (benzyloxy)-, 3412*g*.
Dunnione, 3408*e*.
Hydracrylic acid, *β,β*-diphenyl , 3777*c*.
Isodunniol, 3408*f*.
*β*-Isodunnione, 3408*e*.
Lapachol, 1381*i*, 1383*g*, 1386*e*, 7581*e*.
2*H* - Naphthopyrandione, 3,4 - dihydro-2,2-dimethyl-, 1386*ef*.
1,4 - Naphthoquinone, 2 - cyclopentyl-3-hydroxy-, 1376*e*.
—, 2 - (dimethylallyl) - 3 - hydroxy-, 3408*f*.
—, 2 - hydroxy - 3 - (3 - methyl - 3-butenyl)-, 1386*f*.
—, 2 - (3 - methyl - 2 - butenyloxy)-, 3408*e*.
Propionic acid, *β*-(biphenyloxy)-, 3393*f*.
*o*-Xylorcinol, benzoate, 9044*i*.

$C_{15}H_{14}O_2S$ Acetic acid, (*p* phenoxyphenylmercapto)-, Me ester, 3365*d*.
1,3-Propanediol, 2,2-diphenyl-, cyclic sulfite, 9042*h*.

$C_{15}H_{14}O_4$ 2-Acetonaphthone, 1-hydroxy-, ester with Et H carbonate, 3414*i*, 3415*a*.
Anchusa red, 4596*h*.
Benzoic acid, 5-hydroxy 2-(2-hydroxy-4,4 - dimethyl - 6 - oxo - 1 - cyclohexen-1-yl)-, *δ*-lactone, 5023*g*.
Benzophenone, 2-hydroxy-3,4-dimethoxy-, 183*c*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboxylic acid, di - 2 - propynyl ester, P 2817*h*.
Glyceric acid, *β,β*-diphenyl-, 1041*c*.
Lomatiol, 7581*e*.
1,4-Naphthalenediol, 2-methyl-, diacetate, P 1533*b*
Peucedanin, 3416*c*.
Propionic acid, *β*-(methoxy-1-naphthoyl)-, 7012*a*.
Vitamin K₄, 9247*f*.

$C_{15}H_{14}O_4S$ Hydrocinnamic acid, *p*-(phenylsulfonyl)-, 7450*c*
1-Naphthol-8-sulfonic acid, 4-isovaleryl-, sultone, P 4020*c*.
2-Phenanthrenesulfonic acid, 1,2,3,4-tetrahydro-2-methyl 1-oxo-, 2214*c*.
—, 1,2,3,4-tetrahydro-1-oxo-, Me ester, 2214*d*.
o Toluenesulfonic acid, *o*-acetylphenyl ester, 2621*b*

$C_{15}H_{14}O_5$ Malonic acid, [(2-methoxy-1-naphthyl)methyl]-, 4250*b*.
2 Naphthalenebutyric acid, 1,4-dihydro-3 - hydroxy - 1,4 - dioxo-, Me ester, 1387*bg*.
—, 1,4 - dihydro - 3 - hydroxy - *β*-methyl-1,4-dioxo-, 1387*f*.
1,4 - Naphthalenediol, 6 - methoxy-, diacetate, 2612*a*.
—, 2-methyl-, monosuccinate, 7581*e*.
2 - Naphthalenepropionic acid, 1,4-dihydro - 3 - hydroxy - 1,4 - dioxo-, Et ester, 1381*a*.
2 - Naphthalenevaleric acid, 1,4 - dihydro-3-hydroxy-1,4-dioxo-, 1381*a*.
Phloretin, 5116*i*.
Vanillic acid, ester with guaiacol, 7455*h*.

$C_{15}H_{14}O_5S$ Mandelic acid, Me ester, benzenesulfonate, 2942*f*.

$C_{15}H_{14}O_6$ (See also *Catechol*.)
1,2*H* - Benzopyran - 4 - acetic acid, 6 - ethyl - 7 -hydroxy - 2 - oxo-, acetate, 6206*e*.
1,2*H* - Benzopyran - 3 - carboxylic acid, 7 - hydroxy - 4 - methyl - 2 - oxo-, Et ester, acetate, 7936*h*.
Chromone, 5,7 - dihydroxy - 2,8 - dimethyl-, diacetate, 6622*b*.
Epicatechol, 284*d*, 1092*g*, 3394*a*, 5116*h*.
Naphthazarin, acetonyl - 2 - methoxy - 3-methyl-, 9161*a*.
Solanione, 9160*i*, 9161*b*, 9162*b*.

$C_{15}H_{14}O_6S$ Hydrocinnamic acid, *p*-(2,5-dihydroxyphenylsulfonyl)-, 7450*c*.
2*H* - Naphtho[1,2 - *b*]pyran - 3 - sulfonic acid, 3,4,5,6 - tetrahydro - 2,2 - dimethyl-5 Acetate

**$C_{15}H_{14}O_7$** 1,2 *H*-Benzopyran-4-acetic acid, 6-carboxy-7-hydroxy-2-oxo-, Et Me ester, 6206*f*.
Gallocatechol, 3394*b*.
**$C_{15}H_{14}O_8$** 2,3,3′,4,4′,5,7 - Flavanheptol, 641*a*, 3491*b*.
**$C_{15}H_{14}S$** 2-Propene-1-thiol, 2,3-diphenyl-, 1043*i*.
**$C_{15}H_{14}S_2$** Benzophenone, 4,4′-bis(methylmercapto)thio-, 7467*i*.
**$C_{15}H_{15}$** Benzhydryl, dimethyl-, 5387*f*.
**$C_{15}H_{15}AsN_2$** Propionitrile, β-[(o-aminophenyl)phenylarsino]-, 8352*d*.
**$C_{15}H_{15}AsN_2O_4S$** Acetanilide, *p*-[(*p*-arsenosobenzyl)sulfamyl]-, 176*f*.
**$C_{15}H_{15}AsO_3$** Propionic acid, β (diphenylarsino)-, 8352*c*.
**$C_{15}H_{15}AsO_3S$** Propionic acid, β-(diphenylarsino)-, sulfide, 8352*c*.
**$C_{15}H_{15}AsO_4$** Propionic acid, β-(diphenylarsino)-, oxide, 8352*c*.
**$C_{15}H_{15}Br$** Pseudocumene, $\alpha^2$-(*m*-bromophenyl)-, 166*c*.
**$C_{15}H_{15}BrO$** Ether, benzhydryl 2-bromoethyl, P 2641*d*, P 3462*i*.
**$C_{15}H_{15}BrOS$** Methylphenacylphenylsulfonium bromide, 7474*d*.
**$C_{15}H_{15}Br_2NO_4$** 1-Naphthonitrile, dibromo-1-ethyl - 1,2,3,4 - tetrahydro 7,8 dimethoxy-4-oxo , 625*i*.
**$C_{15}H_{15}Cl$** Propane, 3-chloro-1,1 diphenyl , P 1810*h*.
**$C_{15}H_{15}ClCuOP$** Phosphinous acid, diphenyl-, allyl ester, compd. with CuCl, 3802*e*.
**$C_{15}H_{15}ClN_2O$** Acridine Red, 2917*g*.
*m*-Cresol, (*p*-chlorophenylazo)-4-ethyl-, 3385*i*.
**$C_{15}H_{15}ClN_2O_3$** Dimethyl(nitrobenzoyl)phenylammonium chloride, 4240*g*, 4241*b*.
**$C_{15}H_{15}ClN_2O_3S_2$** Acetamide, α-(*p*-chlorobenzylmercapto) - *N* - sulfanilyl , P 3036*c*.
**$C_{15}H_{15}ClN_2O_4S_2$** Acetamide, α-(4 chloro-2-methoxyphenylmercapto) - *N* - sulfanilyl-, P 3036*a*.
**$C_{15}H_{15}ClN_2O_5$** 1,2 - Propanediol, 3 - [*p* - (4-chloro - 2 - nitroanilino)phenoxy]-, P 9470*c*.
**$C_{15}H_{15}ClN_4$** 5 - Ethyl - 2,3 - diphenyl - 2 *H*-tetrazolium chloride, 7593*b*.
**$C_{15}H_{15}ClNO_7$** 2,4-Lutidine, 6-chloro 3-ethyl-, picrate, 1427*e*.
**$C_{15}H_{15}ClN_4S$** Pseudourea, 2-benzyl-3-(*p*-chlorophenylguanyl) - 2 - thio-, - *HBr*, 2950*e*.
**$C_{15}H_{15}ClN_6O_7$** Guanidine, 1-(*p* chlorophenyl)-3-ethyl-, picrate, 9039*e*.
**$C_{15}H_{15}ClO_2$** 1,4-Naphthoquinone, 2-chloro-3-isoamyl-, 1382*h*.
**$C_{15}H_{15}ClO_2S$** Sulfone, benzhydryl 2-chloroethyl, 1366*e*.
**$C_{15}H_{15}ClO_8$** Toluene-2,3,5,6-tetrol, 4-chloro , tetraacetate, 608*i*.
**$C_{15}H_{15}Cl_2N_5$** Biguanide, 1,5-bis(*p*-chlorophenyl)-2-methyl-, - *HCl*, P 684*h*, *and* - *HCl*, 2948*f*, P 6659*b*
**$C_{15}H_{15}IN_2O$** Carbanilide, iododimethyl-, 7447*i*.
**$C_{15}H_{15}IN_2O_2$** Carbanilide, 2-ethoxy 3′-iodo-, 7448*a*.
**$C_{15}H_{15}N$** Acridan, dimethyl-, 2460*g*, 8188*g*.
Carbazole, 9-propyl-, 3819*d*.
Dibenzo[*a*,*c*][1,3]cycloheptadien - 5 - amine, *and* - *HCl*, 8378*h*.
2-Fluorenamine, *N*, *N*-dimethyl-, 1367*i*.
2,5-Xylidine, *N*-benzylidene-, 9336*e*.
**$C_{15}H_{15}NO$** Acetamide, *N*-benzyl-α phenyl , 6596*a*.
Acetamide, *N* - methyl - α,α - diphenyl , 1144*d*.
Acetophenone, α - (5 - ethyl - 2 - pyridyl)-, 2208*e*.
Benzamide, *N* - phenethyl-, 1026*d*, 5027*d*.
Benzoxylidide, 4665*b*.
9-Carbazoleëthanol, α-methyl , 624*a*.
Ethanol, 2-(2-fluorenylamino)-, 7443*d*.
Hydratropanilide, 6992*e*.
1 - Naphthol, 1,2,3,4 - tetrahydro - 1 - (2-pyridyl)-, *and* - *HBr*, 2205*f*.
8 - Phenanthridinol, 5,6 - dihydro - 5,6-dimethyl-, P 2647*d*.
2-Propanone, 1-anilino-3-phenyl-, 7931*a*.
Propionamide, diphenyl-, 5026*i*, 5027*a*.
Propionanilide, α-phenyl-, 4654*f*.
Propiophenone, α - amino - β - phenyl , 4227*b*.
—, β-anilino-, 6992*f*.
*p*-Toluamide, *N*-benzyl-, 6596*a*.
**$C_{15}H_{15}NOS$** Acetamide, α-(benzhydrylmercapto)-, 5018*i*.
Acetamide, α - (benzhydryloxy)thio-, 4669*h*.
Anisamide, *N*-benzylthio-, 4652*e*, 6596*c*.
**$C_{15}H_{15}NO_2$** Acetamide, α-(benzhydryloxy) , 4669*h*, 5018*h*.
Acetophenone, *p* - (*p* - hydroxyphenyl)-α-methylamino-, *and* - *HCl*, 1034*h*.
—, α-o-methoxyanilino-, 2210*c*.
—, *p*-methoxy-α-phenyl-, oxime, 7008*d*.
—, α-(*p*-methoxyphenyl)-, oxime, 7008*d*.
Acridan, 2,7-dimethoxy-, 6633*a*.
Alanine, *N*, β-diphenyl-, 6979*e*.
Apo-β-erythroidine, 6729*f*.
Carbamic acid, diphenyl-, Et ester, 8138*i*.
2 - Dibenzofuranol, 1 - (dimethylaminomethyl)-, 1392*c*.
β Erythroidine, desmethoxy-, 6729*g*.
Homopiperonylamine, α-phenyl-, *and* - *HCl*, 5027*c*.
Isapo-β-erythroidine, 6729*g*.
5(4 *H*) - Oxazolone, 4 - cyclohexylidene-2-phenyl-, 7427*b*.
Phlorone, *O*-benzyloxime, 5378*h*.
Propionic acid, β - (diphenylamino) , 8351*h*.
3,4-Xylanilide, 2-hydroxy-, 7232*b*.
**$C_{15}H_{15}NO_3$** Benzoin, 4-methoxy , oxime, 1039*b*.
Malonamic acid, *N* 1-naphthyl , Et ester, 1419*h*.
2 Naphthoic acid, 3 acetamido-, Et ester, 1417*h*.
1 - Naphthonitrile, 1 - ethyl - 1, 4 - dihydro-7,8-dimethoxy-4 oxo-, 626*a*
2 - Pyridineacetic acid, α - benzyl - 1,6-dihydro-1-methyl-6-oxo-, 6629*b*
Salicylo-*p*-phenetidide, 2603*c*.
**$C_{15}H_{15}NO_3S$** Acetamide, α-phenyl-*N p* tolylsulfonyl-, P 7963*c*, P 8622*c*
Acetophenone, oxime, *p*-toluenesulfonate, 2594*c*.
Hydracrylic acid, α (o-aminophenylmercapto)-β-phenyl-, *K salt*, 7421*d*
**$C_{15}H_{15}NO_3S_2$** Benzamide, *p*-methylmercapto-*N*-*p*-tolylsulfonyl-, P 7963*a*.
**$C_{15}H_{15}NO_4$** 2-Naphthalenevaleramide, 1,4-dihydro-3-hydroxy-1,4 dioxo , 1381*b*
1,4 - Naphthoquinone, 2 hydroxy - 3-(4 - morpholinylmethyl)-, 1384*i*.
Thyronine, 1109*c*.
**$C_{15}H_{15}NO_4S$** Alanine, β [*p* (phenylsulfonyl)phenyl]-, 7450*a*
Anisamide, *N*-*p* tolylsulfonyl-, P 7963*b*
Hydrocinnamic acid, *p*-sulfamyl , - *HCl*, 7450*d*.
1 - Naphthol - 8 - sulfonic acid, 4 - (diethylcarbamyl)-, sultone, 204*a*.
**$C_{15}H_{15}NO_5$** Acronycidine, 648*h*
**$C_{15}H_{15}NO_5S$** Alanine, β [*p*-(*p* hydroxyphenyl sulfonyl)phenyl] , 7450*a*
2 *H* - Naphtho[1,2 - *b*]pyran 3 - sulfonamide, 3,4,5,6 - tetrahydro 2,2 dimethyl-5,6-dioxo-, 1386*c*.
**$C_{15}H_{15}NO_6$** 3,5,6-Indoletriol, 1 methyl-, triacetate, 3404*i*.
2-Isoindolinemalonic acid, 1,3 dioxo , di-Et ester, 143*c*.
**$C_{15}H_{15}NS$** *p* - Toluamide, *N* - benzylthio-, 4652*f*, 6596*c*.
**$C_{15}H_{15}NS_2$** Carbamic acid, dibenzyldithio , *Na salt*, 1111*g*.
**$C_{15}H_{15}N_3$** Acridine, 2-amino-6-dimethylamino-, 647*e*.
Acridine, 3,6 - bis(ammomethyl) , P 1913*d*.
—, 3,6 - diamino - 4,5 - dimethyl , *HCl*, 8559*c*.
**$C_{15}H_{15}N_3O$** (See also *Rivanol* )
Desoxybenzoin, semicarbazone, 2178*b*.
**$C_{15}H_{15}N_3OS$** Pimelonitrile, γ-(2 cyanoethyl) γ-2-thenoyl-, 2582*g*
**$C_{15}H_{15}N_3O_2$** Benzoic acid, *p*-hydrazino , hydrazone with aminoacetophenone, 5764*g*.
Biuret, 1-phenyl-5-tolyl , 7446*f*.
Methyl red, 7368*h*.
Oxamic acid, *N*-naphthyl , isopropylidenehydrazide, 6973*i*.
Phthalimide, 3 - (3,5 - diethyl - 1 pyrazolyl)-, 7188*i*.
Pimelonitrile, γ - (2 - cyanoethyl) - γ - 2-furoyl-, 2582*g*.
**$C_{15}H_{15}N_3O_3$** Benzoic acid, *p*-ethyl-, *p*-nitrophenylhydrazide, 7004*i*.
Biuret, 1 - (hydroxyphenyl) - 5 *p*-tolyl-, 7446*h*.
—, 1 (methoxyphenyl)-5 phenyl-, 7446*g*.
Carbanilide, dimethylnitro-, 7448*b*.
Mandelamide, *N* - (6 - amino - 2 - pyridyl)-, acetate, *and* - *HCl*, P 3853*c*.
**$C_{15}H_{15}N_3O_4$** Carbanilide, methoxy-4 methyl-3-nitro-, 7448*c*.
Salicylic acid, 5-(4-amino-5 methoxytolylazo)-, P 4477*e*, P 4486*g*, P 5195*h*, P 7702*i*, P 7703*b*.
**$C_{15}H_{15}N_3O_4S$** Succinanilic acid, *p*-(2 pyridylsulfamyl)-, P 7961*i*.
**$C_{15}H_{15}N_3O_7S$** Salicylic acid, 5-(4-amino-5-methoxy - *o* - tolylazo) - 3 - sulfo-, P 1574*i*, P 2440*b*, P 4486*g*.
**$C_{15}H_{15}N_3O_7S_2$** Sulfathiazole, vitamin C de [illegible]

[illegible], 1,3,7-trim (phenyliminomethyl)-, 3794*h*.
**$_{15}H_{15}N_5O_4$** 1-Butanone, 1-(3-pyridyl)-, 2,4 dinitrophenylhydrazone, 643*d*.
**$C_{15}H_{15}N_5O_7$** Acetamidine, *N*-methyl-*N*′ phenyl-, picrate, 2594*e*.
Benzaldehyde, dimethylhydrazone, picrate, 6592*h*.
**$C_{15}H_{15}N_5O_8$** Nicotinamide, 2-ethylidene-1,2 dihydro-1-methyl-, picrate, 705*e*.
**$C_{15}H_{16}N_2O_7S$** Sulfamerazine, diliturate, 3262*g*.
**$C_{15}H_{15}OP$** Phosphine oxide, allyldiphenyl , 3802*d*.
Phosphinous acid, diphenyl-, allyl ester, 3802*e*.
**$C_{15}H_{15}O_2P$** Formic acid, (diphenylphosphino) , oxide, Et ester, 3802*b*.
**$C_{15}H_{15}PS$** Phosphine sulfide, allyldiphenyl , 3802*e*.
Phosphinous acid, diphenylthio-, allyl ester, 3802*c*.
**$C_{15}H_{16}$** Bibenzyl, 1-methyl, 7868*e*.
**$C_{15}H_{16}BrNO$** 1 - (β - Hydroxy - α - vinylphenethyl)pyridinium bromide, P 850*c*.
**$C_{15}H_{16}BrNO_3$** 1 - Naphthonitrile, 3 - bromo 1 - ethyl - 1,2,3,4 - tetrahydro - 7,8-dimethoxy-4-oxo-, 625*i*.
**$C_{15}H_{16}BrN_5$** Biguanide, 5-(*p*-bromophenyl) 1 methyl 1 phenyl , P 4692*b*, 9037*a*
**$C_{15}H_{16}Br_2N_2O_6$** 3 Octen-1-ol, 3,4 dibromo , 3,5-dinitrobenzoate, 6572*e*.
**$C_{15}H_{16}ClNO$** 1 - (β - Hydroxy - α - vinylphenethyl)pyridinium chloride, P 850*c*.
**$C_{15}H_{16}ClNO_2S$** *p* Toluenesulfonamide, *N* (*p* chlorophenethyl) , 7486*g*.
**$C_{15}H_{16}ClNO_3$** Xenylamine, 2-chloro 2′,5′,3 trimethoxy-, P 9459*a*.
**$C_{15}H_{16}ClN_3$** Cyclohexanone, chloroisoquinolylhydrazone, 6632*d*.
Pyrimidine, 2-chloro-4 (*p* dimethylaminostyryl)-6-methyl-, 3126*i*.
**$C_{15}H_{16}ClN_3O$** See *Brilliant Cresyl Blue*.
**$C_{15}H_{16}ClN_3O_3$** 4 - Butoxy - 1 - (2,4 dinitrophenyl)pyridinium chloride, 6630*e*
**$C_{15}H_{16}ClN_3S$** (See also *Toluidine blue*.)
Toluidine Blue O, 9364*f*.
**$C_{15}H_{16}ClN_5$** Biguanide, 5-(*p*-chlorophenyl) 1 methyl-1-phenyl , P 4691*c*, 9036*e*
Biguanide, 1-(*p*-chlorophenyl) 5 *p*-tolyl , P 4691*d*, 9036*g*.
**$C_{15}H_{16}Cl_2N_2SZn$** See *Toluidine blue*.
**$C_{15}H_{15}IN$** 1 Methyl-4 (4-methylstyryl)pyridinium iodide, 7483*f*.
**$C_{15}H_{16}INO$** 4 - (Methoxystyryl) 1 - methyl pyridinium iodide, 7483*f*
**$C_{15}H_{16}INO_2$** 4 - (Hydroxy - 3 methoxystyryl) - 1 - methylpyridinium iodide, 7483*fg*.
**$C_{15}H_{16}IN_3O_4$** 1 - (2,4 - Dinitrobenzyl) 1,2,6-trimethylpyridinium iodide, 4673*e*
**$C_{15}H_{16}NO_2$** Nipecotic acid, 1-benzoyl 4 oxo-, Et ester, 4275*a*.
**$C_{15}H_{16}N_2$** Acetaldehyde, benzylphenylhydrazone, 1654*i*.
Acetamidine, methyldiphenyl , 2593*e*, 6082*b*.
Aniline, *p*,*p*′ - cyclopropylidenedi- 9042*f*.
Benzamidine, *N*, *N* - dimethyl phenyl-, 6082*a*.
Benz[*cd*]indole, 5 - allylidene - 1,3,4,5 tetrahydro-4-methylamino , 7[illegible]
Formamidine, *N*, *N*′ - ditolyl , *HCl*, 1702; *and* - *HCl*, 5757*i*, 5758*a*
2 - Imidazoline, 2 - (2 - methyl - 1 naphthylmethyl)- , - *HCl*, P 2238*f*
*p* - Toluamidine, *N* - *p* - tolyl-, P 2237444*f*.
Vomipyrine, 240*a*, 3421*h*.
**$C_{15}H_{16}N_2O$** Anisamidine, *N*-benzyl , - *HCl*, P 3456*i*.
Anisamidine, *N*-*p*-tolyl-, P 2232*h*
Benzamide, *N* - [α - (ammomethyl)-benzyl]- , - *HCl*, 6176*e*.
Carbanilide, dimethyl-, 1701, 8138*i*.
*m*-Cresol, 4-ethylphenylazo-, P
Formanilide, *N* - (2 - anilinoethyl)-, P 3028*f*.
Hydrocinnamanilide, α-amino , P 5422*d*.
2 - Imidazoline, 2-[(4 - methoxy - 1-naphthyl)methyl]-, 9249[illegible], - *HCl*, P 5048*i*.

Pseudourea, 2 - ethyl - 1,3 - diphenyl-, 6082*b*.
1 - Pyrrolidinecarboxamide, *N* - 1 - naphthyl-, 8305*d*.
$C_{15}H_{14}N_2OS$ 2 - Imidazoline, 2 - [(α - phenyl-2-thenyloxy)methyl]-, 6620*b*.
$C_{15}H_{14}N_2OSi$ Quinoxaline, 2-[5-(trimethylsilyl)-2-furyl]-, 9065*e*.
$C_{15}H_{15}N_3O_2$ Acetic acid, bis(*p*-aminophenyl)-, Me ester, and *di*-*HCl*, 7004*f*.
4 - Morpholinecarboxamide, *N* - 1 - naphthyl-, 8365*e*.
2 - Pyridineacetamide, *N* - (β - hydroxyphenethyl)-, 1413*b*.
Pyridine, 5 - benzylideneamino - 2-methoxyethoxy-, P 7972*h*.
3 - Pyridinemethanol, 4 - [(benzylimino)-methyl] - 5 - hydroxy - 6 - methyl-, 1410*f*.
$C_{15}H_{16}N_2O_2S$ Benzamidine, *p*-(ethylsulfonyl)-*N*-phenyl-, *and* -*HCl*, 7444*e*.
Carbanilide, 4,4′-dimethoxythio-, 3002*e*.
$C_{15}H_{16}N_2O_3$ Barbituric acid, 5-benzylidene-1-butyl-, 2953*f*.
Barbituric acid, 5 - benzylidene - 1 - isobutyl-, 2953*f*.
Nicotinic acid, 4-*p*-methoxyanilino-2,6-dimethyl-, 3826*i*.
$C_{15}H_{16}N_2O_3S$ (See also *Xylamide, N sulfanilyl-*.)
Acetanilide, *p* - (*m* - tolylsulfamyl) , 4649*b*.
Hydrocinnamide, *N*-sulfanilyl-, P 7961*d*.
2 Imidazoline, 2 - phenyl-, benzenesulfonate, P 5049*f*.
Pseudourea, 2 - benzyl - 2 - thio-, *p*-hydroxybenzoate, 7930*b*.
1,5*H* - Pyridin - 2 - ol, 4 - amino - 6,7-dihydro-, *p*-toluenesulfonate, 9068*g*.
2 Thiophenepropionic acid, α,α - bis(2-cyanoethyl)-β-oxo , Et ester, 2582*h*.
*p* Toluenesulfonamide, *N* - (6,7 - dihydro - 2 - hydroxy - 1,5*H* - pyridin-4-yl) , 9068*h*.
$C_{15}H_{16}N_2O_3S_2$ Acetamide, *N*-sulfanilyl-α-*p*-tolylmercapto-, P 3036*a*.
Toluamide, methylmercapto - *N* - sulfanilyl , P 5420*i*, P 7044*e*.
$C_{15}H_{16}N_2O_4$ 2 - Furanpropionic acid, α,α-bis-(2 cyanoethyl)-β-oxo , Et ester, 2582*h*.
$C_{15}H_{16}N_2O_4S$ Acetamide, *N*-sulfamlyl α-toloxy , P 3035*i*
Acetanilide, *p*-(*m*-methoxyphenylsulfamyl) , 4649*b*.
Acridine, 9 amino-, isethionate, P 698*e*.
Alanine, β (*p* sulfanilylphenyl)-, 7450*a*.
Anisamide, 3 - methyl - *N* - sulfanilyl , P 2637*i*.
1 Benzothiazolineacetic acid, 2-(acetoacetylimino) , Et ester, 5022*e*.
Methanesulfonic acid, (diphenylcarbamylmethylamino) , 6587*a*.
Propionamide, α - phenoxy - *N* - sulfanilyl , P 3036*a*.
Pyrrolo[2,1 - *b*]thiazole - 3 - carboxylic acid, 6 - benzamidohexahydro - 5-oxo-, Me ester, 7933*c*.
*p* Toluenesulfonamide, *N* - *p* - (nitrophenethyl) , 7485*i*.
Valine, β - mercapto - *N* - (5 - oxo - 2 phenyl - 2 oxazolin - 4 - ylidene methyl) , 1768*i*.
$C_{15}H_{16}N_2O_5$ 1,2 - Propanediol, 3 - [*p* - (o-nitroamino)phenoxy]-, P 9470*c*.
$C_{15}H_{16}N_2O_5S$ *p* - Toluenesulfon - *o* - anisidide, *N* methyl 4′-nitro-, 167*g*.
*p* Toluenesulfono *o* phenetidide, 4′-nitro , 167*i*.
$C_{15}H_{16}N_2O_5S$ 2 - Furamide, 5 - *tert* - butyl-*N* - (*p* - nitrophenylsulfonyl) , P 7962*i*.
$C_{15}H_{16}N_2O_6S_2$ *o* Toluenesulfonic acid, 5-(acetamido - 2 - aminophenylsulfonyl) , P 2140*e*.
$C_{15}H_{16}N_2O_6$ Glutamic acid, *N*-[*p* (2,3-dihydroxyallyldeneamino)benzoyl]-, P 6236*b*.
$C_{15}H_{16}N_2O_6$ 1,4 Cyclohexanediol, acetate 3,5-dinitrobenzoate, 7435*h*.
$C_{15}H_{16}N_2S$ Carbanilide, 4,4′-dimethylthio-, P 6845*i*.
Thiovanic acid, dibenzylamine salt, 578*g*.
$C_{15}H_{16}N_2Si$ Quinoxaline, 2-[5-(trimethylsilyl)-2-thienyl]-, 9065*d*.
$C_{15}H_{16}N_4$ Peruvaldehyde, bis(phenylhydrazone), 3795*b*.
$C_{15}H_{16}N_4O_2$ 1,4 Phthalazinedione, 5 - (3,5-diethyl - 1 - pyrazolyl) - 2,3 - dihydro-, 7488*c*.
$C_{15}H_{16}N_4O_2S$ (2*H*) - Pyridone, 6 - acetonyl - 1-methyl , *p* - nitrophenylhydrazone, 6629*i*.
$C_{15}H_{16}N_4O_4$ 1 Indanone, 4,5,6,7 - tetrahydro-, 2,4 - dinitrophenylhydrazone, 590*g*.
Ketone, methyl 2-methyl-1,4-cyclohexadien - 1 - yl, 2,4 - dinitrophenylhydrazone, 7416*a*.
$C_{15}H_{16}N_4O_4S$ Sulfanilamide, *N*¹-guanyl-*N*⁴-(3-methoxysalicylidene)-, 3262*g*.
$C_{15}H_{16}N_4O_5$ 1 -Propanone, 1-(2,5-dimethyl-3-furyl)-, 2,4-dinitrophenylhydrazone, 6204*d*.
$C_{15}H_{16}N_4O_7$ Benzylamine, *o*-ethyl-, picrate, 4218*b*.
2,4-Lutidine, 3-ethyl-, picrate, 1427*f*.
3-Picoline, 4-propyl-, picrate, 1775*d*, 5399*h*.
Pyridine, 3-butyl-, picrate, 643*d*.
—, 3,5-diethyl-, picrate, 1427*c*.
$C_{15}H_{16}N_4O_8$ Phenethylamine, *p*-methoxy-, picrate, 1026*b*, 3378*g*.
$C_{15}H_{16}N_4O_8$ Pyridine, 3,5-diethoxy-, picrate, 3824*h*.
3,4-Pyridinedimethanol, 2,6-dimethyl-, picrate, 4671*a*.
$C_{15}H_{16}O$ Benzhydrol, *p*,*p*′-dimethyl-, 7628*g*.
Ether, benzyl phenethyl, 1350*g*.
2-Isovaleronaphthone, 1382*d*.
1(2*H*) - Naphthalenone, 2 - (2 - cyclopenten-1-yl)-3,4-dihydro-, 1039*c*.
3(2*H*) - Phenanthrone, 1,9,10,10a-tetrahydro-7-methyl-, 6609*b*.
Phenetole, *p*-benzyl-, 6622*f*.
1-Propanol, 3,3-diphenyl-, P 1810*h*.
1-Propionaphthone, 2-ethyl-, 1041*a*.
2-Valeronaphthone, 6188*d*, 9424*f*.
$C_{15}H_{16}OS_2$ Benzhydrol, 4,4′-bis(methylmercapto)-, 7467*h*.
$C_{15}H_{16}O_2$ Coumarin, 3,4,5,6,7,8-hexahydro-4-phenyl-, 3418*f*.
*o*-Cresol, 4-ethoxy-α-phenyl-, 2969*d*.
6-Cyclopentacycloheptenecarboxylic acid, 4,8-dimethyl-, Et ester, 4139*b*
Methane, bis(methoxyphenyl)-, P 4698*fg*.
—, di-*p*-toloxy-, 3138*a*.
—, (*o* - methoxyphenyl)(*p* - methoxyphenyl)-, P 4698*f*
2-Naphthalenebutyric acid, α-methyl , 4654*g*.
1,4 Naphthoquinone, 2 amyl , P 9085*g*.
—, 2-isoamyl-, 1382*e*, P 9085*g*
Phenol, 2 ethyl 3,4′-methylenedi , 1971
—, *p*,*p*′-isopropylidenedi , 1639*b*, P 1996*d*, P 5421*i*, P 5424*d*, 6351*g*.
1,3-Propanediol, 2,2-diphenyl , 9042*g*.
Toluene, 2 - (benzyloxy ) 5 - methoxy , 3387*b*
Xylenol, 4-(benzyloxy) , 3387*a*.
—, 3-*o* toloxy-, P 2232*e*
$C_{15}H_{16}O_2S$ Sulfone, benzhydryl ethyl, 1366*a*.
$C_{15}H_{16}O_2S_2$ Methane, bis(benzylsulfinyl)-, 7409*h*.
$C_{15}H_{16}O_3$ Benzhydrol, dimethoxy , P 4699*c*, 7628*g*
*o* - Cresol, α - (2,3 - dimethoxyphenyl) , 2969*e*
1,4 - Cyclohexanediol, 1 - ethynyl-, 4-benzoate, 7416*h*
1 - Cyclopentene - 1 - acetic acid, 2 - (*p*-ethylphenyl)-5 oxo , 3429*i*.
—, 5-oxo 2 phenyl , Et ester, 9042*i*.
Herniarin, 8 - (3 - methyl - 2 - butenyl)-, 3416*d*.
Hydrolapachol, 1108*g*, 1370*h*, 1373*c*, 1382*e*, 1384*i*, 2610*b*.
Ketone, 4 - hydroxy 1 cyclohexen - 1-yl methyl, benzoate, 7416*h*.
1,4 Naphthoquinone, 2-amyl-3-hydroxy , 1373*c*, 2610*b*.
—, 2 - (2,2 - dimethylpropyl) - 3 hydroxy , 1373*e*
—, 2 - hydroxy - 3 - (2 - methylbutyl)-, 1373*d*.
—, 2-isoamyl , oxide, 1382*e*.
β Orcinol, 4 *m*-toloxy , P 2232*f*.
$C_{15}H_{16}O_3S$ Ethanol, 2-(benzhydrylsulfonyl)-, 1366*f*.
*p*-Toluenesulfonic acid, phenethyl ester, P 4512*e*.
$C_{15}H_{16}O_3SSe$ *p*-Toluenesulfonic acid, 2-(phenylselenyl)ethyl ester, P 7042*e*.
$C_{15}H_{16}O_4$ 1-Cyclopentene-1-acetic acid, 2-(*p*-methoxyphenyl) - 5 - oxo-, Me ester, 3429*i*.
Guaiacol, 4,4′-methylenedi , P 6664*g*.
2-Indanglyoxylic acid, 7 isopropyl-4-methyl-1-oxo-, 1747*g*.
Malonic acid, 2,4,6,8,10-dodecapentaenylidene-, 5304*a*.
Methane, bis(*p* - methoxyphenoxy)-, 3138*a*.
2 - Naphthalenelevulinic acid, 1,2,3,4-tetrahydro-1-oxo-, 3429*h*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-(3-hydroxyisoamyl)-, 1387*b*.
$C_{15}H_{16}O_4$ 1,2*H* - Benzopyran - 4 - acetic acid, 6 - ethyl - 7 - hydroxy - 2 - oxo-, Et ester, 6206*e*.
Coumarilic acid, 2,3 - dihydro - 3 - oxo - 2-(3-oxobutyl)-, Et ester, 1012*g*.
Crotonic acid, α-benzoyl-β-hydroxy-, Et ester acetate, P 6655*d*.
1,3 - Cyclopentanedicarboxylic acid, 4-oxo-5-phenyl-, di-Me ester, 3398*g*.
Fuscin, 4335*ef*.
1 - Indancarboxylic acid, 1,2-dihydroxy - 2 - (3 - methyl - 2 - butenyl) - 3-oxo-, 1384*a*.
1,4 - Naphthalenediol, 5,8 - dihydro - 6-methoxy-, diacetate, 2613*e*.
Purpurogallin, tetra-Me ether, 3403*b*.
$C_{15}H_{16}O_5$ 1,2*H* - Benzopyran - 4 - acetic acid, 6 - ethyl - 7,8 - dihydroxy - 2 - oxo-, Et ester, 6206*f*.
Malonic acid, piperonylidene-, di-Et ester, 3555*d*.
1,4 - Naphthoquinone, 2 - ethyl - 3-hydroxy-5,6,8-trimethoxy-, 2609*b*.
$C_{15}H_{16}O_7$ 1,2*H* - Benzopyran - 3 - carboxylic acid, 4,6,7 - trimethoxy - 2 - oxo-, Et ester, 7461*b*.
Coumarilic acid, 6-hydroxy-4,7-dimethoxy-, Et ester, acetate, 7480*i*.
1,3,5 - Pentanetricarboxylic acid, 3 - (2-hydroxy - 3 - methoxyphenyl)-, γ lactone, 626*g*.
$C_{15}H_{16}O_7S$ 1,4-Naphthoquinone, 2-hydroxy-3-(3-hydroxyisoamyl) , sulfate, 1386*d*.
$C_{15}H_{16}O_8$ α,α-Toluenediol, 2,5 dihydroxy-, tetraacetate, 6598*c*.
$C_{15}H_{16}O_9$ (See also *Esculin*.)
Coumarin, 6 - (galactopyranosyloxy) - 7-hydroxy-, 4670*d*.
$C_{15}H_{16}S_2$ Methane, bis(benzylmercapto) , 7409*f*.
$C_{15}H_{17}AsN_2O_3S$ *p*-Toluenearsonic acid, α-(*N*-acetylsulfanilamido)-, 176*e*.
$C_{15}H_{17}AsO_3$ Arsinic acid, tolyl-2,4-xylyl-, 3382*g*.
$C_{15}H_{17}ClN_2$ Quinoline, 7-chloro-3-methyl-4-(1 - methyl - 3 - butenylamino)-, 5401*i*.
$C_{15}H_{17}ClN_4$ See *Neutral red*.
$C_{15}H_{17}ClO_2$ Acrylic acid, β-(2,4,6-trimethylbenzoyl)-, 2-chloroethyl ester, 7192*h*.
$C_{15}H_{17}ClO_4$ 1-Indancarboxylic acid, 2-chloro-1 - hydroxy - 2 - isoamyl - 3 - oxo-, 1384*e*.
$C_{15}H_{17}ClO_5S$ 3,4 - Thiophenedicarboxylic acid, 2 - [3 - (chlorophenoxy)propyl]-tetrahydro-3-hydroxy-, P 6668*a*.
$C_{15}H_{17}Cl_2N$ 1 - Naphthalenemethylamine, *N*, *N* - bis(2 - chloroethyl) , -*HCl*, 2320*a*, 4381*c*.
1 - Naphthalenemethylamine, 4 - chloro-*N* - (2 - chloroethyl) - *N* - ethyl , -*HCl*, 2320*a*.
$C_{15}H_{17}HgNO_2S$ See *p-Toluenesulfonanilide, N-(ethylmercuri)-*.
$C_{15}H_{17}IN_2$ 1-Ethyl-2-(2-anilinovinyl)pyridinium iodide, P 2642*i*.
1 - Methyl - 2 - (2 - *N* - methylanilinovinyl)pyridinium iodide, P 2642*g*.
$C_{15}H_{17}IN_2OS_2$ 3 - Ethyl - 5 - (3 - ethyl - 2-benzothiazolinylidene) - 2 - methylmercapto - 4 - oxo - 2 - thiazolinium iodide, P 4160*f*.
$C_{15}H_{17}IN_2O_2$ 1,2,6 - Trimethyl - 4 - *p* - nitrobenzylpyridinium iodide, 4672*a*.
$C_{15}H_{17}IN_2O_2S_2$ 3 - Ethyl - 5 - (3 - ethyl - 2-benzoxazolinylidene) - 2 - methylmercapto - 4 - oxo - 2 - thiazolinium iodide, P 4160*e*.
$C_{15}H_{17}IO_5$ 1,4 - Sorbitan, 6 - iodo - 6 - desoxy-2(3),5 - benzylidene-, acetate, 152*a*.
$C_{15}H_{17}N$ Aniline, *p*-(α,α-dimethylbenzyl)-, P 6242*a*.
Benzylamine, *N*, *N*-dimethyl-*o*-phenyl-, 1355*g*.
1 - Cyclohexene - 1 - carbonitrile, (3,4-xylyl)-, 1358*e*.
Diphenylamine, *ar* - ethyl - *N* - methyl-, 9118*e*.
Phenanthridine, 7,8,9,10 - tetrahydrodimethyl-, 1778*i*.
Phenanthrylamine, tetrahydromethyl-, 4064*ab*.
Phenethylamine, benzyl-, 4374*e*, 7128*g*, 7131*a*, 7585*g*, 9118*e*; *and* -*HCl*, 5027*a*.
Propylamine, 2,3-diphenyl-, *and* -*HCl*, 596*g*.
*p* - Toluidine, *N*, *N* - dimethyl - α-phenyl-, 6622*e*.
$C_{15}H_{17}NO$ Diphenylamine, isopropoxy-, 3386*g*, P 6760*c*, P 6845*c*.
Diphenylamine, *p*-propoxy-, 3386*g*.
Ethylamine, 2-(benzhydryloxy)-, 5783*a*.
—, (*p* - methoxyphenyl)phenyl-, *and* -*HCl*, 7008*d*.

Naphthaldehyde, diethylamino-, P 2233*a*.
1(2*H*) - Naphthalenone, 2 - (2 - cyclopenten - - yl) - 3,4 - dihydro-, oxime, 1039*f*.
9 - Phenanthrenecarbonitrile, 1,2,3,4,-5,6,7,8 - octahydro - 10 - hydroxy-, 4251*f*.
3(2*H*) - Phenanthrone, 1,9,10,10a - tetrahydro - 7 - methyl-, oxime, 6609*e*.
Phenetidine, *N*-benzyl-, P 1178*c*.
Phenol, *p* - [β - (aminomethyl)phenethyl]-, - *HCl*, 596*i*.
2 - Pyridinemethanol, α - *p* - cumyl-, 4265*i*; *and* - *HCl*, 2204*f*.
—, α - isopropyl - α - phenyl-, *and* - *HCl*, 2205*a*.
—, α - methyl - α - (3,4 - xylyl)-, *and* - *HCl*, 2204*h*

**$C_{15}H_{17}NO_2$** Benzoic acid, *p* (2,5 dimethyl-1-pyrryl)-, Et ester, P 690*h*.
4 - Biphenylmethanol, 4′ - hydroxy - α-methylaminomethyl-, *and* - *HCl*, 1033*e*.
3 - Carbazolecarboxylic acid, 1,2,3,4-tetrahydro-2,4-dimethyl-, 1391*b*.
Cinchoninic acid, 3-butyl 2-methyl-, 1417*d*.
1 - Indanacetic acid, α - cyano - α - propyl-, 8374*a*.
1 - Naphthaleneacetamide, *N* - 2 - hydroxyethyl-, 2273*i*.
2 - Naphthol, 1 - (4 - morpholinylmethyl)-, 2183*h*.
1,4 - Naphthoquinone, 2 - amino - 3 - isoamyl-, 1382*g*.
Pyrocatechol, 4 - [β - (aminomethyl) phenethyl]-, - *HCl*, 596*h*.
•2,4(1*H*,3*H*) - Quinolinedione, allyl - 3 - isopropyl-, P 3472*g*.
4 - Quinolinol, 3 - (2 - butenyl) - 7 - methoxy-2-methyl-, 1416*b*.

**$C_{15}H_{17}NO_2S$** 5 - Thiazoleacetic acid, 4 - *p*-cumyl 2 methyl , P 8401*e*.

**$C_{15}H_{17}NO_3$** Cinchoninic acid, 2-ethyl-3-isopropoxy-, 227*h*.
Cinchoninic acid, 2-ethyl-3-propoxy , 227*g*.
Hippuric acid, α-cyclohexylidene-, 7427*b*.
3 - Indolepropionic acid, α - acetyl-, Et ester, P 1442*i*.
2 - Naphthaleneacetamide, *N* - 2 - hydroxyethyl-6-methoxy-, 3364*a*.
1 - Naphthalenecarbamic acid, 7 - hydroxy-, Bu ester, P 5598*c*.
1 - Naphthonitrile, 1 - ethyl - 1,2,3,4-tetrahydro - 7,8 - dimethoxy - 4 - oxo-, 625*i*.
1,4 - Naphthoquinone, 2 - (butylaminomethyl)-3-hydroxy-, 1384*h*.
2 - Pyridinemethanol, α - (3,4 - dimethoxyphenyl) - α - methyl , *and* - *HCl*, 2204*i*.
Pyruvic acid, cyanomesityl-, Et ester, 1746*g*.

**$C_{15}H_{17}NO_3S$** Phenethylamine, *p*-(*p*-methoxyphenylsulfonyl)-, 7450*e*.
*p* - Toluenesulfon - *o* - anisidide, *N* methyl-, 167*f*.
Toluenesulfonophenetidide, 166*f*, 4812*h*.

**$C_{15}H_{17}NO_4$** Kynurenic acid, 7-ethoxy 3 methyl-, Et ester, 4276*c*.
Succinic acid, α-cyano-β-phenyl-, di-Et ester, 2167*h*.

**$C_{15}H_{17}NO_4S$** Benzylamine, *p*-(2,5-dimethoxyphenylsulfonyl)-, 9376*f*.

**$C_{15}H_{17}NO_5$** Acetamide, *N*-(3,4-dihydroxyphenacyl) - *N* - methyl-, diacetate, 2602*i*.
Phthalic acid, 3-nitro-, cyclohexylmethyl ester, 5767*e*; methylcyclohexyl ester, 5767*d*.

**$C_{15}H_{17}NO_5S$** Benzocaine, compd. with 1-phenol-4-sulfonic acid, 3565*d*.

**$C_{15}H_{17}N_3O_3$** Ethanol, 2,2′-*m*-tolyliminodi-, bis(hydrogen oxalate), P 1988*h*.

**$C_{15}H_{17}N_3$** Acetamidine, α-(*N*-benzylanilino)-, - *HCl*, P 683*g*.
Aniline, *N*, *N* - dimethyl - *p* - (tolylazo)-, 304*b*, 1858*d*, 2314*b*, P 4370*d*, 7123*c*, 8048*c*, 8089*c*.
—, *N* - ethyl - *N* - methyl - *p* - phenylazo-, 3801*f*.
Cyclohexanone, isoquinolylhydrazone, 6632*ae*.
Guanidine, di-*o*-tolyl-, P 868*g*.
*m* - Toluidine, *N*, *N* - dimethyl - 4 - phenylazo-, 8048*b*.

**$C_{15}H_{17}N_3O$** Ketone, 4 - (dimethylaminomethyl) - 2 - phenyl - 5 - pyrimidyl methyl, - *HCl*, 1424*d*.
Phenol, *o*-(4-ethylamino-*o*-tolylazo)-, P 4475*e*.
2 - Pyrimidol, 4 - (*p* - dimethylaminostyryl)-6-methyl-, 3426*h*.
*m*-Toluidine, 4-(6-methoxy-*m*-tolylazo)-, P 4477*d*.

**$C_{15}H_{17}N_3OS$** Butyrophenone, γ-2-thienyl-, semicarbazone, 2982*a*.

**$C_{15}H_{17}N_3O_2S$** Benzenesulfonamide, *p*-(hydroxypropylphenylazo)-, 9047*i*, 9048*a*.
Urea, 1 - (*p* - methylbenzyl) - 3 - sulfanilyl-, P 1061*h*.

**$C_{15}H_{17}N_3O_3S_2$** Acetanilide, *p*-(4,5,6,7-tetrahydro - 2 - benzothiazolylsulfamyl)-, P 3852*f*.

**$C_{15}H_{17}N_3O_4$** 2,4(1*H*,3*H*) - Quinazolinedione, methyl - 5 - (4 - morpholinylacetyl) , - *HCl*, 6634*a*.

**$C_{15}H_{17}N_3O_4S_2$** Succinanilic acid, *p*-[(4-methyl-2 - thiazolyl)sulfamyl]-, Me ester, P 3846*h*.
4 - Thiazoleacetic acid, 2 - (*N*⁴ - acetylsulfanilamido)-, Et ester, P 2644*i*.
5 - Thiazolecarboxylic acid, 2 - (*N*⁴-acetylsulfanilamido) - 4 - methyl , Et ester, P 2644*i*.

**$C_{15}H_{17}N_3O_7S$** Toluenesulfonic acid, α-[2-(acetylimino) - 3 - methyl - 5 - oxo - 4-imidazolidylidene]dimethoxy-, 7456*c*.

**$C_{15}H_{17}N_5O_7$** 2,4 - Dinitrophenylhydrazone, m. 169–70°, 7426*g*.

**$C_{15}H_{17}N_3O_7S$** 3,1 - Cycloheptathiazine, 2-amino - 4,5,6,7,8,9 - hexahydro-, picrate, 4278*e*.

**$C_{15}H_{17}N_4O_8$** 3 - Carbamyl - 1,2 - dihydro-1,1,2 - trimethylpyridinium picrate, 7525*i*.
2 - Furaldehyde, diethylhydrazone, picrate, 6592*i*.

**$C_{15}H_{17}N_5O_9$** 2-Furaldehyde, diethylhydrazone styphnate, 6592*i*.

**$C_{15}H_{17}N_7O_2$** Urea, [(iminomethylene)bis-(immo - *p* - phenylene)]di-, - *HCl*, 8545*i*; *and* - *HCl*, 5014*e*.

**$C_{15}H_{18}$** (See also *Azulene*.)
Anthracene, 1,2,3,4,5,6 - hexahydro - 8 methyl-, 2183*e*.
Cadalene, 5590*f*.
Chamazulene, 5768*f*.
Cyclopentacycloheptene, 6 isopropyl 4,8-dimethyl , 4139*b*.
Guaiazulene, 4139*b*, 5768*f*.
Naphthalene, amyl-, 1370*d*, 1895*e*, 4063*f*, 4454*h*, 6187*i*, 6512*i*, 8888*f*, 9424*e*.
—, 2-*sec*-amyl-, 1370*a*.
—, 2-*tert*-amyl-, 1370*a*.
—, 2-ethyl-3-propyl , 1370*d*.
—, isoamyl-, 1370*b*, 1382*d*, P 4518*d*.
Phenanthrene, 1,2,3,4,5,6 - hexahydro 8-methyl-, 2183*c*.
Vetivazulene, 3566*e*.

**$C_{15}H_{18}BrN$** 1 - Naphthalenemethylamine, *N* - (2 - bromoethyl) - *N* - ethyl , - *HBr*, 3522*d*, 7582*i*, - *HCl*, 2320*d*.

**$C_{15}H_{18}BrNO_4$** Succinamic acid, β-(bromomesityl) - α - oxo-, Et ester, 1746*h*.

**$C_{15}H_{18}BrN_5$** Biguanide, 1-(6-bromo-2-naphthyl) 5 isopropyl-, 2947*h*.

**$C_{15}H_{19}ClN$** Benzyldimethylphenylammonium chloride, 6622*e*
1 - Naphthalenemethylamine, *N* - (2 chloroethyl) - *N* ethyl-, - *HCl*, 311*a*, 1110*a*, 2319*i*, 2320*a*, 4381*c*.

**$C_{15}H_{19}ClNO_4$** Malonic acid, (3-chloro-*p*-toluidinomethylene)-, di - Et ester, 1776*a*.
Succinic acid, α (*m*-chlorophenylimino) β methyl-, di-Et ester, P 2646*d*

**$C_{15}H_{18}ClN_3$** Pyrimidine, 2 - chloro - 4 - (*p*-dimethylaminophenethyl) - 6 - methyl , 3427*c*.

**$C_{15}H_{18}IN$** 4 - Benzyl - 1,2,6 - trimethylpyridinium iodide, 4671*i*.

**$C_{15}H_{18}N_2$** Aniline, methylenebis[*N*-methyl-, P 1176*i*.
Ethylenediamine, *N* - benzylphenyl , *di* - *HCl*, 6176*h*, *and* - *HCl*, P 683*b*.
Phenanthridine, 6 - amino - 7,8,9,10-tetrahydro-2,4-dimethyl , 1779*e*.

**$C_{15}H_{18}N_2O$** Hydrazobenzene, 2-ethoxy 2′-methyl-, 7927*c*.
7 - Isoquinolinol, 8 - (1 - piperidyl methyl)-, P 9086*f*.
Pyridine, 2-(*p*-isopropoxybenzylamino) , 6587*g*.

**$C_{15}H_{18}N_2OS$** Benzamide, *N*-methyl-*N* [2-(4-methyl-2 thiazolyl)isopropyl]-, 4263*c*.

**$C_{15}H_{18}N_2O_2$** Aniline, *p*,*p*′-(trimethylenedioxy)di-, *di* - *HCl*, 3381*b*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N* - 5 - cyanoamyl , P 4421*g*.
Carbamic acid, benzyl-, benzylamine salt, 1351*g*, 6157*i*.
Glutaronitrile, α - (2,3 - dimethoxyphenyl)-α-ethyl-, 625*d*.
Hydantoin, 5-isobutyl-5-styryl-, 7429*h*.
2 - Imidazolepropionic acid, 1 - benzyl-, Et ester, 3410*i*.
Phenanthridine, 6-amino-7,8,9,10-tetrahydro-, acetate, 1779*d*.
Phenol, *p*,*p*′ - (1 - amino - 2 - methylaminoethylene)di-, *di*-*HI*, 614*f*.
3 - Pyridinemethanol, 4 - (benzylaminomethyl) - 5 - hydroxy - 6 - methyl-, *di* - *HCl*, 1411*a*.

**$C_{15}H_{18}N_2O_2S$** Aniline, *N*-propyl-*p*,*p*′-sulfonyldi-, P 2637*f*.
1 - Imidazoleacetic acid, 2 - benzyl - α-(1 - mercaptoisopropyl)-, - *HCl*, 4920*g*
Propionic acid, 2 - (1 - naphthylmethyl) 2 - thiopseudourea salt, 565*g*.
Sulfanilanilide, 2′,3′,5′ - trimethyl , 4649*a*.
*p* - Toluenesulfonanilide, dimethylamino , 594*c*, 3007*i*.

**$C_{15}H_{18}N_2O_3$** Cyclohexanecarboxylic acid, piperonylidenehydrazide, 4233*c*.
Sorbic acid, ε - (*p* - dimethylaminophenylimino)-, Me ester, *N*-oxide, 6981*c*.
Tryptophan, *N*-acetyl-, Et ester, 1398*i*.

**$C_{15}H_{18}N_2O_3S$** Acetamidine, α-phenyl-, *p*-toluenesulfonate, P 2231*c*, P 5038*g*, 7445*a*.
*p* - Toluamidine, *p* - toluenesulfonate, P 2231*c*, P 5038*g*, 7445*a*.

**$C_{15}H_{18}N_2O_4$** β - Alanine, *N* - (α - benzamidosenecioyl)-, 7426*i*.

**$C_{15}H_{18}N_2O_4S$** Anisamidine, *p* toluenesulfonate, P 2231*b*, P 5038*f*, 7445*a*.
2 - Furamide, 5 - *tert* - butyl - *N* - sulfanilyl-, P 7962*d*

**$C_{15}H_{18}N_2O_4S_2$** α - Toluenesulfonanilide, *p*′-(dimethylsulfamyl)-, 4812*h*.

**$C_{15}H_{18}N_2O_5$** Carbamic acid, [4 (2,5-dioxo-4 oxazolidyl)butyl]-, benzyl ester, 57*h*, 6488*c*.

**$C_{15}H_{18}N_2O_5S$** Mandelic acid, α-amino *p* toluenesulfonamide salt, P 686*c*.
2 - Thiazolidineacetic acid, α - benzamido 4-carboxy-, α-Et ester, P 5425*h*.
Veratramidine, benzenesulfonate, P 2230*h*, P 5038*f*, 7445*b*.

**$C_{15}H_{18}N_2O_5S_2$** Benzamidine, *p*-(methylsulfonyl)-, *p*-toluenesulfonate, P 2231*b*, P 5038*f*.

**$C_{15}H_{18}N_2O_6$** Isoleucine, compd. with 2-nitro 1,3 indandione, 69*i*.
Leucine, compd. with 2-nitro-1,3 indandione, 69*i*.
1 - Pentanol, 4,4 - dimethyl - 2 - methylene-, 3,5-dinitrobenzoate, 1309*h*
2 - Penten - 1 - ol, 2,4,4 - trimethyl , 3,5-dinitrobenzoate, 1309*h*, 1310*d*.

**$C_{15}H_{18}N_2O_7$** Glutamine, $N^{\alpha}$ - carboxy - $N^{\alpha}$ (carboxymethyl)-, $N^{\alpha}$-benzyl ester, 6978*i*.

**$C_{15}H_{18}N_2O_8S_2$** 1,3 - Propanedisulfonic acid, 1 phenyl - 3 - *p* - sulfamylanilino , *di* Na *salt*, 3520*i*.

**$C_{15}H_{19}N_3$** 2-Imidazoline, 2-[2-(1 naphthylamino)ethylamino] , 4273*b*.

**$C_{15}H_{19}N_3O$** Ketone, bis(6 dimethylamino 3 pyridyl), 4094*d*.

**$C_{15}H_{19}N_3O_4$** Carbanilide, 4,4′-diamino 3,3′ dimethoxy-, P 9466*e*.

**$C_{15}H_{19}N_4O_3S$** Acetanilide, *p*-(5 dimethylamino - 3 - pyridylsulfamyl) , 1738*e*
Acetanilide, *p* - [(4,6 - dimethyl - 2 pyrimidylmethyl)sulfamyl]-, P 3473*e*

**$C_{15}H_{18}N_4O_4$** Cyclohexanone, 4 isopropylidene , 2,4 - dinitrophenylhydrazone, 6578*g*.
2 - Cyclohexen - 1 - one, 3 - isopropyl , 2,4 - dinitrophenylhydrazone, 9045*b*
—, 3 - propyl-, 2,4 - dinitrophenylhydrazone, 9045*b*.
2 - Cyclopenten - 1 - one, 3 - ethyl 2,4 dimethyl , 2,4 - dinitrophenylhydrazone, 1166*b*.
Ketone, methyl 2-methyl-1-cyclohexen-1-yl, 2,4 - dinitrophenylhydrazone, 7416*d*.
1,5 - Octadien - 4 - one, 5 - methyl , 2,4 dinitrophenylhydrazone, 1151*i*.

**$C_{15}H_{18}N_4O_7$** Malonamide, α-acetamido α (3-hydroxypropyl)-, *p* - nitrobenzoate, 143*c*.
*p* - Toluic acid, 3,5 - dinitro-, 3 carboxy - 1 - methylpropylidenehydrazide, Et ester, 6972*f*.

**$C_{15}H_{18}N_4O_8$** 4 - Piperidinol, 4 - ethynyl - 2,5 dimethyl-, picrate, 2960*e*.

**$C_{15}H_{18}N_6O_3S$** Guanidine, (thiodi-*p*-phenylene)di-, carbonate, 5014*d*.
Sulfanilamide, $N^4$ - [(*p* - methoxyphenyl guanyl)guanyl]-, 5868*c*.

**$C_{15}H_{18}N_6O_5$** 4 - Oxazolecarboxaldehyde, 5 amino - 2 - amyl-, 2,4 - dinitrophenyl hydrazone, 2203*b*.

$C_{15}H_{18}N_6O_7$ Picrate, m. 231°, 2595*d*.
$C_{15}H_{18}N_4O_7S_2$ Benzonitrile, 3-nitro-4-[tetrahydro - 2,4 - bis(2 - methoxyethyl)-5 - oxo - 3 - thioxo - 1,2,4,2*H* - thiadiazin - 6 - ylazo]-, 1,1 - dioxide, P 4868*h*.
$C_{15}H_{18}N_2S$ Carbanilide, 4,4′-diguanidinothio-, 8545*i*.
$C_{15}H_{19}O$ Acetophenone, α cyclohexylidene *o*-methyl-, 7416*b*.
1*H* - Benz[*e*]inden - 5(4*H*) - one, 2,3,3a,-9b - tetrahydrodimethyl-, 3796*e*.
1*H* - Cyclohepta[*b*]naphthalen - 1 - one, 2,3,4,6,7,8,9,10-octahydro-, 2965*g*.
Cyclohexanone, 4 - methyl - 2 - *p* - methylbenzylidene-, 7910*t*, 7911*d*.
Ketone, 2,3,5,6,7,8 - hexahydro - 1*H*-benz[*f*]inden - 4 - yl methyl, 208*f*.
1(2*H*) - Naphthalenone, 2 - cyclopentyl 3,4-dihydro, 1039*c*.
5,7-Octadien-4-one, 2-methyl-8-phenyl-, 4651*g*.
3,5 - Octadien - 7 - yn - 2 - one, 8 - (1-cyclohexen-1-yl)-6-methyl-, 7437*f*
$I_{15}O_2$ 3 - Cyclohexene - 1 - carboxylic acid, 2 phenyl-, Et ester, 8363*t*.
2 - Cyclopentene - 1 - acetic acid, α - phenethyl-, 1039*f*
acetone, m. 61.5° (cor.), 362*t*.
3 - Pentenoic acid, 4 - (5,6,7,8 - tetrahydro-2-naphthyl)-, 4659*f*.
3,4 Xylenol, compd. with *m*-cresol, P 3459*e*.
$I_{15}O_3$ (See also *Santonin*)
Acetone, compd. with phenol, 107*b*.
Acrylic acid, β (2,4,6 trimethylbenzoyl), Et ester, 7192*h*.
Butyric acid, γ - (tetrahydro - 2 - naphthoyl), 1378*f*, 4659*g*
1*H* Cycloheptabenzene - 3 butyric acid, 6,7,8,9 - tetrahydro - γ - oxo, 2965*f*
Cyclopentaneacetic acid, 2 oxo 5 phenyl, Et ester, 9042*t*
Cyclopentanecarboxylic acid, 1 benzyl 2 oxo, Et ester, 3399*b*
Dehydrotropopseudosantonin, 4242*d*
3,4 Hexadienophenone, hydroxymethoxy 3′,5′-dimethyl, 2181*h*
$I_{15}O_3S$ Naphthalenesulfonic acid, amyl, 8707*t*
Naphthalenesulfonic acid, isoamyl, 8707*t*
$I_{15}O_4$ Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboxylic acid, diallyl ester, P 2817*h*, P 2819*d*, P 7633*t*
Homolevulinic acid, *o-p* ethylbenzoyl, 3429*g*
Santonin, hydroxy-, 8537*e*.
$H_{15}O_4$ Acetophenone, 3 allyl 4 hydroxy 2,6 dimethoxy, acetate, 3414*a*
Fucin, dihydro, 4335*e*.
1 - Indancarboxylic acid, 1,2 - dihydroxy 2 isoamyl-3 oxo-, 1384*c*
Nitrophenone, 3,5 dihydroxy, diacetate, 8385*d*.
$H_{15}O_6$ Benzene, tris(hydroxymethyl), triacetate, 6202*h*
Chaulmoogric acid, β-(2,4 dihydroxyphenyl), di-Et ester, 1408*d*.
Malonic acid, piperonyl-, di-Et ester, 3555*d*.
$H_{15}O_4S$ 3,4 - Thiophenedicarboxylic acid, tetrahydrohydroxy - 2 - (3 - phenoxypropyl), P 6668*a*.
$H_{15}BrO$ Phenanthrene, 9 bromo 1,2,3,4,-5,6,7,8 - octahydro - 10 - methoxy, 4251*f*.
$H_{15}BrO_2$ Propionic acid, β-bromo, α-cyclopentylbenzyl ester, P 5797*t*
$H_{15}BrO_4$ Caproic acid, δ-hydroxy β methyl-, ester with *p*-bromo-α hydroxyacetophenone, 6166*c*.
$H_{15}Cl$ Anthracene, 9-(chloromethyl) 1,2,-3,4,5,6,7,8-octahydro, 7013*e*.
$H_{15}ClN_2O_4$ Valine, *N*-[*N* (*p* chlorobenzoyl)alanyl]-, 2272*c*.
$H_{15}ClN_4$ Toluylene blue, 773*e*, 2117*a*.
$H_{15}ClO$ 2 - Naphthalenevaleryl chloride, 1,2,3,4-tetrahydro-, 1378*f*.
$H_{15}ClO_2$ 4 - Hexenoic acid, 5 chloro - 2-(*m*-methylphenethyl)-, 6609*d*
$H_{15}ClO_3$ Cyclopentaneacetic acid, α phenoxy-, 2-chloroethyl ester, P 6229*h*
$H_{15}Cl_3O_2$ Methane, (1-methylheptyloxy)-(pentachlorophenoxy), P 3968*c*.
$H_{15}HgNO_7S$ Acetic acid, [*o*-[3-(carboxymethylmercaptomercuri) - 2 - methoxypropylcarbamyl]phenoxy]-, *di-Na salt*, P 9084*c*.
$H_{15}IN_2S$ 2 - (4 - Anilino - 1,3 - butadienyl)-3 - ethyl - 2 - thiazolinium iodide, 6929*e*
$C_{15}H_{16}N$ Piperidine, 1-(2-indenylmethyl)-, *and - HCl*, P 1440*h*.
$C_{15}H_{19}NO$ Cyclohexanecarbonitrile, 1-hydroxy-2-(3,4-xylyl)-, 1358*e*.
Ethanol, 2 - [ethyl(1 - naphthylmethyl)-amino]-, *- HCl*, 2320*a*.
1 - Indanone, 2 - (1 - piperidylmethyl)-, *- HCl*, P 1440*h*.
1(2*H*) - Naphthalenone, 2 - cyclopentyl 3,4-dihydro, oxime, 1039*f*.
3 - Pentenamide, 4 - (5,6,7,8 - tetrahydro-2-naphthyl), 4659*f*.
4 Quinolinol, 3-butyldimethyl-, 1417*b*.
—, 3-butyl-2-ethyl-, 1417*b*.
$C_{15}H_{19}NOS$ Ethylamine, *N*, *N* - dimethyl - 2-(α - phenyl - 2 - thenyloxy)-, *and - HCl*, 631*b*.
$C_{15}H_{19}NO_2$ Bicyclo[2.2.1] - 5 - heptene-2,3 - dicarboximide, *N* - cyclohexyl, P 4421*f*.
Bicyclo[3.2.1]octan - 2 - ol, carbamate, 5752*d*
2 Butyn-1-ol, 4-diethylamino, benzoate, 131*e*.
Δ¹,α - Cyclohexaneacetic acid, α cyano-2 - cyclohexyl - 2 hydroxy - (?), γ lactone, 4251*g*.
—, α - cyano - 2 - (1 - hydroxycyclohexyl)-(?), δ-lactone, 4251*g*.
Cyclohexanone, 3,5 - dimethyl-, oxime Bz deriv., 2962*g*.
Ethylamine, 2 - (α - 2 - furylbenzyloxy) *N*, *N*-dimethyl-, 6587*t*.
Hydrochloride, m. 180–1°, 3827*i*.
1 - Indenecarbamic acid, 2 - ethyl-, iso-Pr ester, 1390*b*.
Indolebutyric acid, iso-Pr ester, 2726*g*.
Isoquinoline, 6,7 diethoxy 1,3-dimethyl, 1423*h*.
1 Propanone, 1 - [4 - (*m* - hydroxyphenyl) - 1 - methyl - 4 - piperidyl]-, 9248*c*
4 - Quinolinol, 3 butylmethoxy - 2 methyl, 1416*ab*, 1417*b*
—, 3 isobutyl 7 methoxy - 2 - methyl, 1417*b*
$C_{15}H_{19}NO_3$ Benzamide, *N* 2-hydroxycyclohexyl-, acetate, 3372*t*
Hippuric acid, α-cyclohexyl-, 7427*b*
1 - Naphthoic acid, acetamido 5,6,7,8-tetrahydro, Et ester, 202*gt*.
4 Pentenoic acid, 2-α-phenylacetamido, Et ester, 7932*f*.
1 - Piperidineacetic acid, α phenacyl-, 7192*h*.
Propiophenone, 3,4 - methylenedioxy-β 1 piperidyl-, *- HCl*, 9070*c*.
$C_{15}H_{19}NO_3S$ Acetamide, *N* - allyl α [3 (3,-4 - methylenedioxyphenyl)propylmercapto], P 1903*b*.
$C_{15}H_{19}NO_4$ Caproic acid, γ cyano-γ (2,3-dimethoxyphenyl)-, 625*h*.
Cycloöctanol, *p* nitrobenzoate, 6088*e*
1 Pentanol, 4,4 - dimethyl - 2 - methylene, *p*-nitrobenzoate, 1309*h*
Pentenol, 2,4,4 trimethyl-, *p*-nitrobenzoate, 1309*i*, 1310*c*.
Phenaceturic acid, α formyl, Bu ester, P 1440*b*.
1 - Propanone, 1 - (1,4 - benzodioxan - 6-yl) 3-(4-morpholinyl)-, *- HCl*, 9070*d*.
$C_{15}H_{19}NO_4S$ Benzaldehyde, compd with α-methylbenzylamine bisulfite, 3356*c*; compd. with phenethylamine bisulfite, 3356*c*.
$C_{15}H_{19}NO_4S_2$ Malonic acid, (dithiocarboxyamino)-, *S* benzyl ester di-Et ester, 1399*b*.
$C_{15}H_{19}NO_5$ 2 Octanone, 8 hydroxy-, *p* nitrobenzoate, 6190*g*.
Peroxybenzoic acid, *p*-nitro, 1-ethylcyclohexyl ester, 6189*g*
$C_{15}H_{19}NO_5S$ 1,2 - Benzisothiazole - 2(3*H*)-acetic acid, 3-oxo-, 1,1 dioxide hexyl ester, P 4422*c*.
$C_{15}H_{19}NO_6S_2$ Methionine, compd. with 2-naphthalenesulfonic acid, 4725*a*.
$C_{15}H_{19}NO_6$ Adrenaline, triacetate, *- HCl*, 2601*f*.
$C_{15}H_{19}N_3$ Indolo[4,3-*fg*]quinoline, 9-amino-4,6,6a,7,8,9,10,10a - octahydro 7-methyl-, P 6246*e*.
$C_{15}H_{19}N_3O$ Base from reaction of 2,4 dimethyl - 8 - quinazolyl methyl ketone, HCHO and $Me_2NH$, 1780*b*.
Cyclohept[*f*]inden - 5(1*H*) - one, 2,3,6,7,8,9 - hexahydro-, semicarbazone, 2965*h*.
Enanthic acid, α-cyano-, benzylidene hydrazide, 4223*a*.
Ketone, methyl 2-phenyl - 3 - cyclohexen 1-yl, semicarbazone, 8364*f*.
3,5 - Octadien - 7 - yn - 2 - one, 8-(1-cyclohexen - 1 - yl)-, semicarbazone, 8361*e*.
1(2*H*) - Phenanthrone, 3,4,5,6,7,8-hexahydro-, semicarbazone, 2183*c*.
5 - Pyrimidinemethanol, 4 - (dimethylaminomethyl) - α - methyl - 2-phenyl-, *- HCl*, 1424*e*.
$C_{15}H_{19}N_3O_2$ 4,6(1*H*,5*H*) - Pyrimidinedione, 5 - ethyl 2,3 - dihydro - 2 - isopropylimino-5-phenyl-, 7130*e*.
$C_{15}H_{19}N_3O_4$ 5-Indanvaleric acid, α-oxo, semicarbazone, 2965*g*.
Mesitylenic acid, 4-nitro-, cyclohexylidenehydrazide, 6972*t*.
3 - Pyrazoline 3 - carbamic acid, 4-isopropyl - 2 - methyl - 5 - oxo - 1-phenyl, Me ester, P 7050*a*.
$C_{15}H_{19}N_3O_5$ Acetoacetic acid, α-acetyl γ-phenyl-, Et ester, semicarbazone, 7909*f*.
2,4(1*H*,3*H*) - Quinazolinedione, 5-[1-hydroxy - 2 - (4 - morpholinyl)ethyl] methyl, *- HCl*, 6634*b*.
$C_{15}H_{19}N_3O_5$ Mesitylenic acid, 4-nitro-, 2-carboxyisopropylidenehydrazide, Et ester, 6972*t*.
$C_{15}H_{19}N_3O_6$ β Alanine, *N* [*N* (*N*-carboxyglycyl)glycyl]-, benzyl ester, 1448*g*.
Glycine, *N* - [*N* - (*N* - carboxy - β-alanyl)glycyl]-, benzyl ester, 1448*g*.
—, *N* - [*N* - (*N* - carboxyglycyl) - β-alanyl]-, benzyl ester, 1448*g*.
$C_{15}H_{19}N_3S$ 2 Pyrimidinethiol, 4 amylamino 6 phenyl, 8395*d*.
$C_{15}H_{19}N_5$ Biguanide, 1-isopropyl-5-(2 naphthyl), *- HCl*, 7905*e*.
$C_{15}H_{19}N_5O_3S$ Benzenesulfonic acid, 1-methyl - 1 - phenylbiguanide salt, P 4292*t*
$C_{15}H_{19}N_5$ Guanidine, 1,3-bis(*p*-guanidinophenyl), *tri HCl*, 5014*a*, 8545*g*
$C_{15}H_{20}$ Anthracene, 1,2,3,4,5,6,7,8 octahydro-9-methyl, 7013*e*.
$C_{15}H_{20}BrNO$ Caproic acid, ε-benzamido α-bromo β,δ-dimethyl, 5740*t*
Valine, *N* - [γ - (*p* bromophenyl)butyryl], 2273*g*.
$C_{15}H_{20}BrNO_3S$ Valine, β - (benzylmercapto) - *N* - (α - bromopropionyl)-, 4668*h*.
$C_{15}H_{20}Br_2NO$ Rhombinine, dibromo, *and HBr*, 649*h*.
$C_{15}H_{20}ClNO_4$ Pyrocatechol, 4-(1 chloro 2-isopropylammoethyl), diacetate, *- HCl*, 2602*d*
$C_{15}H_{20}ClN_3O$ Compd, m. 131-3°, 1780*b*
2-Propanol, 1 (7-chloro-4-quinolylamino) 3-isopropylamino-, 1776*t*.
$C_{15}H_{20}ClNO_4$ 1 - Piperidinepropionanilide, 4′ - chloro β - methyl - 2′ - nitro, 2993*a*
$C_{15}H_{20}ClN_5$ s - Triazine, 2-chloro 4,6 bis(diallylamino), 1426*c*.
$C_{15}H_{21}Cl_2NO_3$ Butyramide, *N*, *N*′ (3,5 dichlorosalicylidene)bis, 6182*c*.
$C_{15}H_{20}Cl_4N_2O_2S$ Piperazine, 2,2,5,5-tetrakis(chloromethyl) 1 - *p* - tolylsulfonyl, 2936*b*
$C_{15}H_{19}F_3NO$ Butyrophenone, γ-diethylamino *m* - (trifluoromethyl), 2211*t*
$C_{15}H_{20}INO$ [(2 - Methoxy - 1 - naphthyl)-methyl]trimethylammonium iodide, 4250*a*.
$C_{15}H_{20}INOSSe$ 3 - Ethyl 5 - methoxy-2 (2-methylmercapto - 1 - butenyl)benzoselenazolium iodide, P 5154*a*
$C_{15}H_{20}INSSe$ 3 - Ethyl - 5 - methyl - 2 - (2 methylmercapto - 1 butenyl)benzoselenazolium iodide, P 5154*a*.
$C_{15}H_{20}INS_2$ 3 - Ethyl - 6 - methyl - 2 - (2-methylmercapto - 1 - butenyl)benzothiazolium iodide, P 5154*a*
$C_{15}H_{20}N_2$ Indole, 1-methyl-3-(1-piperidylmethyl)-, 1763*c*.
2-Pyrazoline, 5,5-dimethyl-3-(2-methylpropenyl)-1-phenyl-, P 1178*t*.
Quinoline, 2-dipropylamino, *and - HCl*, 4276*g*.
$C_{15}H_{20}N_2O$ Anagyrine, 650*ab*, *and salts*, 649*g*.
Cyclohexanecarboxylic acid, α methyl benzylidenehydrazide, 4233*b*.
Ethylenediamine, *N* - furfuryl - *N*′, *N*′ dimethyl- *N*-phenyl-, 6587*h*, *and di-HCl*, P 822*e*.
Monolupine, *and salts*, 649*g*.
3 - Pyrazolone, 2 - benzyl 4 - isopropyl 1,5 dimethyl-, 7934*h*.
Rhombinine, *and salts*, 649*g*.
$C_{15}H_{20}N_2OS$ Pyridine, 2 - [α - (2 - dimethylaminoethoxy) - α - methyl 2-thenyl]-, *and - HCl*, 2206*g*.
$C_{15}H_{20}N_2O_2$ Baptifoline, *and perchlorate*, 650*ab*.
Cyclohexanecarboxylic acid, anisylidene hydrazide, 4233*c*.

Hydantoin, 5 - isobutyl - 5 - phenethyl-, 7429*h*.

**$C_{15}H_{20}N_2O_4$** Acrylic acid, α-benzamido-β-diethylamino-, Me ester, 2618*e*.
Pelargonic acid, ξ,η-dioxo-, ζ-phenylhydrazone, P 5808*d*.

**$C_{15}H_{20}N_2O_4S$** 4 - Thiazolidinecarboxylic acid, 5,5 - dimethyl - 2 - (α - phenylacetamidomethyl)-, 6618*h*, 8892*f*.

**$C_{15}H_{20}N_2O_4$** Acetoacetic acid, α-ethyl-, Et ester, *o* - carboxyphenylhydrazone, 5025*a*.

1-Naphthoic acid, 5,6,7,8 - tetrahydro-3-nitro-, 2-dimethylaminoethyl ester, *and* - *HCl*, 203*b*.

**$C_{15}H_{20}N_2O_4S$** Valine, β - mercapto - *N* - (*N*-phenylacetylglycyl)-, 4668*d*.

**$C_{15}H_{20}N_2O_5$** β-Alanine, *N*-(*N*-carboxyglycyl)-, benzyl Et ester, 1448*h*.
Glycine, *N* - (*N* - carboxy - β-alanyl)-, benzyl Et ester, 1448*g*.
Malonic acid, (ethoxy-2-pyridylaminomethylene)-, di-Et ester, 650*f*.
Valine, *N*-[α-(*p*-nitrophenyl)butyryl], 2273*g*.

**$C_{15}H_{20}N_2O_5S$** Carbanilic acid, *p*-(α,β-dimethylcrotonylsulfamyl)-, Et ester, P 7961*a*.

**$C_{15}H_{20}N_2O_7$** *p* - Acetanisidide, 3-[bis(2-hydroxyethyl)amino]-, oxalate, P 2634*h*.

**$C_{15}H_{20}N_2S$** Ethylenediamine, *N*, *N*-dimethyl - *N'* - phenyl - *N'* - 2-thienyl-, 9366*d*; *and di-HCl*, P 822*f*, *and* - *HCl*, P 3039*b*.
2 - Thiopheneacetonitrile, α-1-cyclopenten - 1 - yl - α - (2 - dimethylaminoethyl)-, - *HCl*, 8359*e*.

**$C_{15}H_{20}N_4$** Pyrimidine, 2 - [benzyl(2 dimethylaminoethyl)amino]-, - *HCl*, P 3472*c*; *and* - *HCl*, P 6244*e*.

**$C_{15}H_{20}N_4O$** Methanol, bis(6-dimethylamino-3-pyridyl)-, 410*d*.

**$C_{15}H_{20}N_4O_2$** 1,2,3,2*H* - Triazole - 4 - carboxylic acid, 2-phenyl-, 2-diethylaminoethyl ester, - *HCl*, 2619*e*.
Urea, 1 - (antipyrylmethyl) - 1 - ethyl-, 7477*c*.

**$C_{15}H_{20}N_4O_4$** Cyclohexaneacetaldehyde, 1-methyl-, 2,4-dinitrophenylhydrazone, 3372*c*.
Cyclohexanone, 3-propyl-, 2,4-dinitrophenylhydrazone, 9045*c*.
—, 2,2,3 - trimethyl-, 2,4-dinitrophenylhydrazone, 8362*i*.
3-Hepten-2-one, 3-ethyl-, 2,4-dinitrophenylhydrazone, 132*c*.
Oxalic acid, 2-(3-carboxy-1-methylpropylidene)hydrazide 2 - phenylhydrazide, Et ester, 6972*c*.

**$C_{15}H_{20}N_4O_5$** *p* - Toluic acid, 3,5 - dinitro-, heptylidenehydrazide, 6972*e*.

**$C_{15}H_{20}N_4O_7$** Quinoline, decahydro-, picrate, 1415*b*.

**$C_{15}H_{20}N_4O_7S$** 1,2,4,2*H* - Thiadiazine-3,5-(4*H*,6*H*)-dione, 2,4 - bis(2 - hydroxyethyl) - 6 - *p* - phenetylazo-, 1,1-dioxide, P 4868*f*.

**$C_{15}H_{20}N_4O_8$** 4 - Piperidone, 2-ethyl-3,6-dimethyl-, picrate, 2959*g*.
4 - Piperidone, 1,2,3,4 - tetramethyl-, picrate, 2959*f*.
2 - Propanone, (1 - methyl - 2 piperidyl)-, picrate, 6625*j*.

**$C_{15}H_{20}N_6O$** Benzamide, *N* - [5 - (4,6 diamino - *s* - triazin - 2 - yl)amyl]-, P 5052*c*.
Biguanide, 1 - isopropyl - 5 - (6-methoxy - 8 - quinolyl) , - *HCl*, 2947*i*.

**$C_{15}H_{20}O$** 1 - Anthrol, 1,2,3,4,5,6,7,8-octahydro-1-methyl-, 2183*d*.
Isovaleronaphthone, 1,2,3,4 - tetrahydro-, 1382*d*.
Octadienynol, (1 - cyclohexen - 1 - yl)-methyl-, 7437*e*.
4-Pentenophenone, 2,2-diethyl-, 4955*d*.
Phenanthrene, 1,2,3,4,5,6,7,8-octahydro-9-methoxy-, 4251*e*.
2-Valeronaphthone, 5,6,7,8-tetrahydro-, 9424*f*.

**$C_{15}H_{20}O_2$** 5*H* - Cycloheptabenzene - 3 - butyric acid, 6,7,8,9-tetrahydro-, 2965*f*
Cyclohexanepropionic acid, 2-phenyl-, 2174*b*.
Cyclopentaneacetic acid, α-phenethyl-, 1039*e*.
—, 2-phenyl-, Et ester, 9043*a*.
—, 2-(xylyl)-, 3796*def*.
Cyclopentanone, 2 - [3 - (*m* - methoxyphenyl)propyl]-, 9043*f*.
Enanthic acid, octyl ester, 3779*b*.
2-Naphthalenebutyric acid, 5,6,7,8 tetrahydro-γ-methyl-, 4659*f*.
2-Naphthalenevaleric acid, tetrahydro-, 1378*f*, 4659*g*.

**$C_{15}H_{20}O_3$** Butyric acid, γ-(5-butyl-2-methoxyphenyl) - γ - hydroxy-, lactone, 1032*h*.
Caproic acid, α-benzoyl-, Et ester, 1010*i*.
Enanthic acid, β-oxo-ζ-phenyl-, Et ester, 3392*i*, 3393*a*.
1-Hepten-3-one, 1-(4 hydroxy-3-methoxyphenyl)-6-methyl-, 2185*g*.
Isovaleric acid, γ-(2,4,6-trimethylbenzoyl)-, 3390*d*.
2 Propanone, 1-(cyclohexyloxy)-3 phenoxy-, P 6235*f*.
Propionic acid, β-(*p tert*-amylbenzoyl)-, 1379*b*.
—, β (cyclohexylphenoxy)-, 3393*f*.
Propiophenone, 4 - hydroxyisopropylmethyl-, acetate, 613*i*.

**$C_{15}H_{20}O_3S$** Adipic acid, thiol-, *S* benzyl *O* ethyl ester, P 3145*d*.

**$C_{15}H_{20}O_4$** Butyric acid, γ (2,4 - dimethoxy 5 - propylphenyl) - γ - hydroxy-, lactone, 1033*c*.
Cinnamic acid, 3,5-dimethoxy-α,β dimethyl-, Et ester, 8385*a*.
1,3 Cyclohexanedione, 2,2' propylidene di-, 1336*d*.
*m*-Dioxane, 4,4 - diethyl - 2 - (3,4-methylenedioxyphenyl)-, 3555*c*
Furan, 2 - (α - ethylpiperonylmethyl) tetrahydro-, P 2639*d*.
Malonic acid, di 2 hexynyl-, 6573*a*
—, (α-methylbenzyl)-, di-Et ester, 2967*c*.
1(2*H*) - Naphthalenone, 3 - ethyl - 3,4-dihydro-5,7,8 trimethoxy-, 2609*b*
Propionic acid, β 3 butylanisoyl , 1032*i*
—, β - (butyl - 2 - methoxybenzoyl) , 1032*h*.
Salicylic acid, Me ester, enanthate, P 4701*i*.
—, 5-enanthyl-, Me ester, 1032*i*.
Santonic acid, 2192*i*.

**$C_{15}H_{20}O_4S$** Malonic acid, allylthenyl-, di Et ester, 1778*b*.

**$C_{15}H_{20}O_5$** 5*H*-Cycloheptabenzen 5-one, 6,7,8,9 - tetrahydro 2,3,4,6 - tetramethoxy-, 3403*d*.
3 - Cyclopentene - 1 - carboxylic acid, 3-(butenyl) - 1 - hydroxy 4 methyl 2 oxo-, Et ester, acetate, 1331*c*
Galactoside, methyl 2 - desoxy - 1,6-benzal-3-methyl , 1727*e*.
Guloside, methyl 3 desoxy 1,6 benzal 2 methyl-, 1728*c*.
Idoside, methyl 3-desoxy-1,6 benzal 2 methyl-, 1728*c*
Naphthalene, 1,4-dihydro 2 methoxy-5,8 - bis(methoxymethoxy)-, 2613*d*
Propionic acid, β-(2,4-dimethoxy 5 propylbenzoyl) , 1033*c*.

**$C_{15}H_{20}O_5S$** Cyclohexanediol, acetate *p*-toluenesulfonate, 7135*af*
Enanthic acid, α-(carboxymethylmercapto)-ζ-phenoxy , 7504*g*.
Valeric acid, δ-(benzyloxy)-α (2 carboxy ethylmercapto) , P 7504*i*

**$C_{15}H_{20}O_6$** Butyric acid, γ-(3,1,5-trimethoxy benzoyl)-, Me ester, 3403*h*
Galactoside, methyl 4,6-benzylidene 3 methyl-, 4636*b*.

**$C_{15}H_{20}O_9$** + 0.5 $H_2O$ Benzoic acid, 2 β-glucosidoxy-5-methoxy-, Me ester, 3393*h*.

**$C_{15}H_{21}BrN_4O_7S$** Urea, 1 (2-bromoallyl) 3-(3 - dimethylaminopropyl) 2 thio , picrate, 1016*g*.

**$C_{15}H_{21}BrO_2$** Propionic acid, β-bromo , 3,4-dimethyl - α - propylbenzyl ester, P 5797*f*.

**$C_{15}H_{21}ClN_2S$** Pyridine, 2 - [(5 - chloro-2 - thenyl)(2 - dimethylaminoethyl)amino]-, methiodide deriv., 5781*f*.

**$C_{15}H_{21}ClN_2O_2$** Morpholine, 4,1' (chlorobenzylidene)di , 7030*a*.

**$C_{15}H_{21}ClN_2O_3$** Butyramide, *N*, *N'*-(5-chlorosalicylidene)bis-, 6182*d*.

**$C_{15}H_{21}ClN_4$** Quinazoline, 2-chloro 4 (2-diethylaminoethylamino) - 7-methyl-, 2951*h*.
Quinazoline, 4-chloro-2 (3-diethylaminopropylamino)-, 2952*d*.

**$C_{15}H_{21}ClN_4O$** Quinazoline, 2-chloro-4 (2 diethylaminoethylamino) methoxy-, 2951*h*.

**$C_{15}H_{21}ClN_4O_7$** Pyrrolidine, 1 (2-chloropropyl) - 2,4 - dimethyl-, picrate, 631*e*.

**$C_{15}H_{21}ClO$** Isovalerophenone, 5-(1-chloroisopropyl)-2-methyl-, 6595*h*.

**$C_{15}H_{21}ClO_3$** 1,2 - Propanediol, 3-(*p*-chlorophenoxy)-, 1-glucoside, 312*e*.

**$C_{15}H_{21}F_3N_2O$** Butyrophenone, γ-diethylamino - *m* (trifluoromethyl)-, oxime, 2211*e*.

**$C_{15}H_{21}IN_2$** 1 - (3 - Indolylmethyl) - 1 - methylpiperidinium iodide, 3407*h*.

**$C_{15}H_{21}IO_5S$** Galactoside, methyl 2-desoxy-4-tosyl-6-Iodo-3-methyl-, 1727*f*.

**$C_{15}H_{21}N$** 2,4-Pentadienenitrile, 3-methyl-5-(2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-, 2587*h*.

**$C_{15}H_{21}NO$** Benzamide, *N* - (2 - cyclohexylethyl)-, 1026*f*.
Benzamide, *N*-3,5-dimethylcyclohexyl-, 2903*c*.
Borneol, 2-(2-pyridyl)-, *and* - *HCl*, 2205*e*.
Cinnamamide, *N*, *N*-diisopropyl-, P 350*c*.
—, *N*, *N*-dipropyl-, P 350*c*.
Crotonotoluidide, *N*-ethyl-α,β-dimethyl , P 5413*i*.
Cyclohexanepropionamide, 2-phenyl , 2174*e*.
Cyclohexanone, 2 - [(benzylmethylamino)methyl]-, - *HCl*, P 5417*f*
Cyclopentaneacetamide, 2 - (xylyl) , 3796*def*.
Fenchyl alcohol, 2-(2-pyridyl)-, *and* - *HCl*, 2205*e*.
1-Indanol, 2-(1 piperidylmethyl)-, - *HCl*, P 1440*h*.
Isocyanic acid, *p tert*-butyl α,α dimethyl phenethyl ester, P 5800*h*.
2-Naphthalenebutyramide, 5,6,7,8 tetrahydro γ methyl-, 4659*g*.
1 - Propanone, 1 - (1 - methyl - 4 phenyl 4-piperidyl)-, P 2240*g*.
Propiophenone, *p*-methyl-β 1-piperidyl - *HCl*, 9070*b*.
*o* Senecioctoluidide, *N*-isopropyl , P 5413*j*

**$C_{15}H_{21}NO_2$** (See also β-*Eucaine*.)
2(3*H*) - Benzoxazolone, amylpropyl-6615*gh*
—, 3-isoamyl-5-propyl-, 6615*g*.
—, 3-(1-methylbutyl)-5-propyl , 6615*e*
2 Buten 1-ol, 4-diethylamino-, benzoate - *HCl*, 6977*h*.
*o*-Crotonanisidide, *N*-ethyl-α,β dimethyl-, P 5414*b*.
Cyclohexanol, 3,5-dimethyl-, carbanilate, 2962*i*.
Cyclooctanol, carbanilate, 6195*c*, 6988*c*
Cyclopentanemethanol, 2,5-dimethyl carbanilate, 4255*a*.
Isonipecotic acid, 1-methyl 4 phenyl , Et ester, 1487*d*, 1868*i*, 1869*d*, 1909*i*, 2704*g*, P 3471*h*, 3519*f*, 3521*i*, 4771*i*, 5903*g*, 6311*a*, 8056*a*, 8099*d*, 8421*g*, 8552*h*, 9250*h*, 9268*b*.
Nipecotic acid, 1-methyl-3 phenyl , Et ester, *and salts*, P 695*i*.
Phenol, *m* - (4 - methyl - 1 - oxa 4 aza spiro[4.5]dec-2-yl)-, 2602*i*.
1 - Propanone, 1 - [4 - (*m* hydroxyphenyl) - 1 - methyl - 4-piperidyl], 1487*c*, 6734*f*; - *HCl*, 6733*f*.
*p*-Seneciophenetidide, *N*-ethyl , P 5414*a*

**$C_{15}H_{21}NO_3$** Actidione, anhydro-, 2999*a*
2 - Butanone, 1 - (*o* - hydroxyphenoxy) 4 (1-piperidyl)-, P 1915*a*.
Butyric acid, γ - dimethylamino α ethyl - α - (2 - hydroxy - 3 - methoxyphenyl)-, γ-lactone, *and* - *HCl*, 625*c*
Caproic acid, ε-benzamido β,δ-dimethyl-, 5740*f*.
Glutarimide, β - [2 - (3,5 - dimethyl 2 oxocyclohexylidene)ethyl] , 2999*i*
Isobutyric acid, α benzoyl - β dimethylamino-, Et ester, - *HCl*, 7643*f*.
Isoleucine, *N*-phenylacetyl-, Me ester, P 3574*b*, P 4698*b*.
Isonipecotic acid, 4-(*m*-hydroxyphenyl) 1-methyl-, Et ester, 1909*f*.
1-Naphthoic acid, 2-cyanodecahydro 2 methyl-4-oxo , Et ester, 2200*k*
Norvaline, β - ethyl - *N* - phenylacetyl-, 2271*b*, P 3574*b*, P 4698*c*.
Valeronitrile, β - (2,4,5 - trimethoxybenzyl)-, 2609*a*.
Valine, *N*-phenylbutyryl-, 2269*h*, 2273*g*
—, *N*-α-phenylisobutyryl-, 2273*g*

**$C_{15}H_{21}NO_3S$** Valine, *N* - acetyl - β - (benzylmercapto)-, Me ester, 8892*f*.

**$C_{15}H_{21}NO_4$** Acetic acid, [2 - (4-morpholinyl)ethoxy]phenyl-, Me ester, 2189*i*
Acetidione, dehydro-, 2998*i*.
Aspartic acid, *N*-benzyl-, di-Et ester, 1352*c*.
2 - Butanone, 1 - (*o* - methoxyphenoxy)-4 (4-morpholinyl)-, *and* - *HCl*, P 1915*d*
3 - Cyclohexene - 1 - carboxylic acid, 1 (2 - cyanoethyl) - 4 - ethoxy - 6 methyl-2-oxo-, Et ester, 1013*b*.
Δ1,α Cyclopentaneacetic acid, 4-carboxy-α-cyano-2,2-dimethyl , di Et ester, 7462*f*.
Glutarimide, β - [(3,5 - dimethyl-2 oxocyclohexylcarbonyl)methyl]-, 2998*i*.

Propionic acid, β-methyl-β,β'-(phenylimino)di-, di-Me ester, P 9462*d*.
—, β,β' - (*m* - tolylimino)di-, di-Me ester, P 9462*b*.
Pyrocatechol, 4 - (2 - isopropylaminoethyl)-, diacetate, - *HCl*, 2602*g*.

$C_{10}H_{21}NO_4S$ 10 - Camphorsulfonic acid, pyridine salt, 8768*f*.
Phenaceturic acid, α-formyl-γ-thio-, di-Et acetal, 3362*f*.
2 - Thiophenevaleric acid, 3-carboxy-4-cyano-2,3-dihydro-, di-Et ester, P 1066*d*.

$C_{10}H_{21}NO_4S_2$ Malonaldehydic acid, (dithiocarboxyamino)-, *S*-benzyl ester di-Et acetal, 1398*h*.

$C_{10}H_{21}NO_5$ Adrenaline, 3,4-dipropionate, - *HCl*, 2601*f*.
Malonaldehydic acid, (1-benzamidoethyl)-, Me ester, di-Me acetal, 7427*i*.
Phenaceturic acid, α-formyl-, di-Et acetal, 8802*f*.
Protocatechuyl alcohol, α-(isopropylaminomethyl)-, diacetate, *HCl*, 2601*f*.
Succinaldehydic acid, α-benzamido-, di-Et acetal, 7032*f*.

$C_{10}H_{21}NO_6$ Acetic acid, nitrilotri-, triallyl ester, P 5229*i*.
Benzyl alcohol, 3,4-diethoxy-α-1-nitroethyl-, acetate, 1423*b*.
Glucuronanilide, 2,3,4-trimethyl-, 1324*b*.

$C_{10}H_{21}NO_7S_2$ Pyrocatechol, 4-(2-isopropylamino - 1 - mercaptoethyl)-, *S*-thiosulfate diacetate, 7137*d*.

$C_{10}H_{21}N_3O$ Cyclohexanone, 2 - (3,4 - xylyl) -, semicarbazone, 1358*c*.
Quinoline, 8 - (2 - isopropylaminoethylamino) - 6 - methoxy-, *di*- *HCl*, 3119*f*.

$C_{10}H_{21}N_3OS$ Thiazole, 2-[(2-dimethylaminoethyl)(*p* - methoxybenzyl) - amino], - *HCl*, 8557*a*.

$C_{10}H_{21}N_3O_2$ (See also *Physostigmine*.)
Buret, 1-cyclohexyl-5-*p* tolyl , 7146*h*
2 Propionaphthone, 1,2,3,4 tetrahydro-6-methoxy-, semicarbazone, 3814*f*.

$C_{10}H_{21}N_3O_3$ Enanthic acid, ζ-benzoyl , semicarbazone, 3366*g*
2 1*H*) - Naphthalenone, 3,4 dihydro-5,8 - dimethoxy - 1,1 - dimethyl-, semicarbazone, 2612*f*.
*p* Toluic acid, 3 nitro-, heptylidenehydrazide, 6973*b*.
Triazane, hexahydro - 1,3,5 - trimethacrylyl-, 657*f*, 7031*e*.

$C_{10}H_{21}N_3O_4S$ Pyrimidine, 1,4-dihydro-1,2,6 trimethyl-4 methylimino , *p* toluene sulfonate, 2595*c*.

$C_{10}H_{21}N_3O_4$ Morpholine, 4,4'-(nitrobenzylidene)di-, 7030*a*.

$C_{10}H_{21}N_3S$ Pyridine, 2 - [(2 - dimethylaminoethyl)(α - methyl - 2 - thenyl)-amino]-, *and* - *HCl*, 5781*h*.

$C_{10}H_{21}N_4O$ Guanidine, [4 - (6 - methoxy-8 - quinolylamino)butyl]-, *dinitrate*, 7485*e*.

$C_{10}H_{21}N_4O_2$ Ethanol, 2-[*N* - (4 - amino-6-butoxy - *s* - triazin - 2 - yl)amilino], 4269*e*.

$C_{10}H_{21}N_4O_7$ Acetamidine, *N*-cyclohexyl *N'* methyl-, picrate, 2594*e*
2 Imidazoline, 1,5-diethyl-2,5-dimethyl , picrate, 8381*f*.

$C_{10}H_{21}O_3P$ Toluenephosphonic acid, dimethallyl ester, P 1220*g*

$C_{10}H_{22}$ 5*H* - Cycloheptabenzene, 6,7,8,9-tetrahydro - 5,5,9,9 - tetramethyl-, 5736*g*.
Naphthalene, 6-amyl-1,2,3,4-tetrahydro , 1370*c*.
—, 2 - *sec* - amyl - 1,2,3,4 - tetrahydro-, 1370*a*.
—, 2 - *tert* - amyl - 1,2,3,4 - tetrahydro , 1369*i*.
—, 6-ethyl - 1,2,3,4 - tetrahydro - 7-propyl-, 1370*c*.
—, 1,2,3,4 - tetrahydro - 2 - isoamyl-, 1370*a*.
—, 1,2,3,4 - tetrahydro - 8 - isopropyl-2,5-dimethyl-, 5590*d*.
4-Nonene, 5-phenyl-, 2604*b*.

$C_{10}H_{21}BrNO_3$ β - Alanine, *N* - (3 - bromo-4-methoxyphenethyl) - *N* - methyl-, Et ester, - *HCl*, 5765*f*.

$C_{10}H_{22}BrNO_4$ β - Alanine, *N* - (2 - bromo-4,5 - dimethoxyphenethyl) - *N*-methyl-, Me ester, - *HCl*, 5765*g*.

$C_{10}H_{22}ClN$ 2 - Naphthalenemethylamine, *N* - (2 - chloroethyl) - *N* - ethyl-5,6,7,8 - tetrahydro-, - *HCl*, 2320*a*.

$C_{10}H_{22}ClNO$ 1 - Piperidinepropionanilide, 2'-amino-4'-chloro-β-methyl-, 2993*a*.

$C_{10}H_{22}ClN_3$ 1 - Piperidinecarboxamidine, *N* - [*N* - (*p* - chlorophenyl) - *N'* ethylguanyl]-, 2949*b*.
*s*-Triazine, 2 - [bis(2 - methylallyl)-amino] - 4 - chloro - 6 - (2 - methylallylamino)-, 1426*e*.

$C_{10}H_{23}Cl_3O_4$ Malonic acid, bis(3-chloro-2-butenyl)-, di-Et ester, 1726*a*.

$C_{10}H_{23}NO$ 1 - Methyl - 1 - (α - methylphenacyl)piperidinium iodide, 232*f*.

$C_{10}H_{23}IN_2O$ (Antipyrylmethyl)trimethylammonium iodide, 7477*d*.

$C_{10}H_{22}N_2$ Caprylonitrile, α- *N*-methylanilino-, 4415*f*.

$C_{10}H_{22}N_2O$ Anagyrine, 3429*a*.
1-Piperidineaceto 2,6-xylidide, *and* - *HCl*, 1022*i*.
1 - Piperidinecarboxanilide, 2 - propyl-, 8305*e*.

$C_{10}H_{22}N_2OS$ 4 - Thiazolidone, 3-(2-diethylaminoethyl)-2-phenyl , 634*c*.

$C_{10}H_{22}N_2O_2$ Acetamide, *N*, *N'* - (2,4,6-trimethyl - *m* - phenylene)bis[*N* methyl-, 1735*a*.
1-Naphthoic acid, 3 amino 5,6,7,8 tetrahydro-, 2 - dimethylaminoethyl ester, *di*- *HCl*, 203*i*.
Propionamide, *N*, *N'* - (3 - phenylpropylidene)bis-, 2600*i*.
Sparteine, dioxo , 3828*c*, 4270*c*, 7031*f*.

$C_{10}H_{22}N_2O_2S_2$ Acetic acid, (3-methyl-2-butenylmercapto) , 2-benzyl-2-thiopseudourea salt, 3364*i*.

$C_{10}H_{22}N_2O_4$ Alanine, *N*-leucyl-β-phenyl-, 4641*f*
Benzamide, *N*, *N* diisobutyl - *p* - nitro-, 2357*h*.
*o*-Cresol, α,α di-4-morpholinyl-, 7030*a*.
Glycine, *N* - methyl - *N* - (2,6-xylylcarbamylmethyl)-, Et ester, 1025*a*.
Hydantoic acid, α,α - diisopropyl-5-phenyl-, 2167*b*.
—, α-isopropyl 5-phenyl-α propyl-, 2167*d*.
—, 5-phenyl α,α-dipropyl , 2167*c*.
Isoenanthic acid, α,α bis(2-cyanoethyl)-β oxo-, Et ester, 2582*g*.
Isovaleramide, *N* - 2 hydroxyethyl-α-(α-phenylacetamido) , 2271*b*.
Valine, *N* - [γ - (*p* - aminophenyl)butyryl]-, 2273*c*.

$C_{10}H_{22}N_2O_4S$ 2 - Pyrrolecarboxylic acid, 3,5 - dimethyl - 4 - (4 - morpholinylthiocarbonylmethyl)-, Et ester, 1393*f*.
Valine, *N* - alanyl - β - (benzylmercapto) , 4668*i*.

$C_{10}H_{22}N_2O_5$ Tyrosine, *N* - leucyl-, 1069*i*.

$C_{10}H_{22}N_2O_4S$ Benzoic acid, *p*-nitro-, 2-(2 - diethylaminoethylmercapto)ethyl ester, P 3461*c*
10 - Camphorsulfonic acid, 2-amino pyridine salt, 609*i*.
Morpholine, 4,4' - benzylidene-, compd. with $SO_2$, 7030*b*.
Penicillin, cyclopentylmethyl-, 2274*f*, 3490*a*.
Propionanilide, α - (cyclohexyloxy) - *N*-sulfanilyl-, P 3035*h*.

$C_{10}H_{22}N_2O_5$ 1(2*H*) - Pyrimidineacetic acid, 5-allyl - 5 - butyl - 3,4,5,6 - tetrahydro - 2,4,6 - trioxo , Et ester, 9258*a*.
1(2*H*) - Pyrimidineacetic acid, 5-allyl-5-*sec* - butyl - 3,4,5,6 - tetrahydro-2,4,6 trioxo-, Et ester, 9258*a*.
—, 5 - allyl - 3,4,5,6 - tetrahydro - 5-isobutyl - 2,4,6 - trioxo-, Et ester, 9258*a*.

$C_{10}H_{22}N_2O_5S$ Glutamic acid, *N*-sulfanilyl , di-Et ester, *and sulfate*, 7029*e*.

$C_{10}H_{22}N_2O_7$ 3,4 - Furandicarbamic acid, 2-(4-carboxybutyl)- , 3,4-di-Et ester, P 5805*g*.

$C_{10}H_{22}N_4O$ 4 - Quinazolinol, 2-(3-diethylaminopropylamino)-, 2952*c*.

$C_{10}H_{22}N_4O_4$ Oxalic acid, 2-heptylidenehydrazide 2-phenylhydrazide, 6972*b*.

$C_{10}H_{22}N_4O_4S$ Acetanilide, *p*-[(cyclohexylguanyl)sulfanyl]-, P 1060*k*.

$C_{10}H_{22}N_4O_4$ Acetamide, α-methoxy-*N*-(α-methoxyacetylphenethyl)-, semicarbazone, 4227*a*.
2 - Hexanone, 3 - ethyl - 3 - methyl-, 2,4-dinitrophenylhydrazone, 6974*i*.

$C_{10}H_{22}N_4O_7$ Azecine, decahydro-, picrate, 5400*d*.

$C_{10}H_{22}N_4O_8$ Picrate, m. 125°, of alkaloid from *Sedum sarmentosum*, 6625*g*.
2 - Piperidineethanol, α,1 - dimethyl-, picrate, 6625*h*.

$C_{10}H_{23}N_5O_5$ Streptidine, benzoyl-, *and sulfate*, 1329*d*.

$C_{10}H_{23}N_4O_7$ 2-Imidazoline, 2-amylaminomethyl-, picrate, 4273*c*.

$C_{10}H_{22}O$ Acetophenone, *ar*,*ar*-diisopropyl-*ar*-methyl-, 1339*h*.
Benz[*e*]indenone, decahydrodimethyl-, 1334*a*.
Enanthophenone, 2,5 dimethyl-, 6990*g*.
Isovalerophenone, 5-isopropyl-2-methyl-, 6595*g*.
4-Octanone, 2-methyl-8-phenyl-, 4651*h*.
2,4 - Pentadienal, 3 - methyl - 5 - (2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-, 2585*g*, 7413*h*.
1 - Penten - 4 - yn - 3 - ol, 3 - methyl-1-(2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-, P 6657*c*.

$C_{10}H_{22}O_2$ Acetic acid, (*p*-*tert* amylphenyl) , Et ester, 3361*i*.
Acetophenone, 2 - isoamoxy - 4,5-dimethyl-, 7924*f*.
Benzoic acid, *p*-octyl-, 2603*b*.
Butyrophenone, 4-butoxymethyl , 3825*c*, 3826*a*.
—, 2,5 - dimethyl - 4 - propoxy , 7924*g*.
Propiophenone, 4-butoxy-2,5-dimethyl-, 7924*g*.
—, 3-*tert* - butyl - 2- methoxy - 4-methyl , 7924*h*.
—, 4 - ethoxy - 5 - isopropyl - 2-methyl , 7924*h*.
—, isoamoxymethyl , 3825*f*, *i*.
α-Santalic acid, 5384*h*.
β Santalic acid, 5385*a*.

$C_{10}H_{22}O_3$ Acetic acid, (5 hexyl-*m* toloxy)-, 2969*a*.
Caprophenone, 3,5 - dimethoxy-α-methyl-, 8384*f*.
Cyclohexanecarboxylic acid, 1-(2 methyl - 2 - cyclopenten - 1 - yl)-2-oxo-, Et ester, 2586*f*.
Cyclohexanepropionic acid, 1-(1-cyclohexen-1-yl)-2-oxo-, P 6230*e*.
3 - Cyclopentene - 1 - carboxylic acid, 1-methyl - 2 - (2 - oxocyclohexyl)-, Et ester, 3829*e*.
3 Heptanone, 1-(4 - hydroxy - 3 methoxyphenyl) - 6 - methyl-, 2185*g*.
Ipomoeamarone, 8153*d*.
2,4 - Pentadienoic acid, 2-hydroxy-3-methyl - 5 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 1337*f*.
Salicylic acid, (1,1,3,3 - tetramethylbutyl)-, *Ca salt*, P 5584*i*.

$C_{15}H_{22}O_4$ Acetic acid, benzoyl-, Et ester di-Et acetal, 6168*g*.
5*H* - Cycloheptabenzene, 6,7,8,9-tetrahydro - 1,2,3,8 - tetramethoxy-, 3403*d*.
Cyclohexaneacetic acid, 2-(1-carboxy 2-methyl - 2 - cyclopenten-1-yl)-, 2587*c*.
Gentisic acid, octyl ester, 7003*h*.
3,4 - Hexanediol, 3 - (*p* - methoxyphenyl)-, acetate, 6034*g*.
Hydrocinnamic acid, 3,5-dimethoxy-α,β-dimethyl-, Et ester, 8385*b*.

$C_{15}H_{22}O_5$ Benzoic acid, (2,3 - dihydroxyisobutoxy)-, Bu ester, P 5421*c*.
Benzoic acid, *m*-(2,3-dihydroxypropoxy)-, Am ester, P 2233*g*, iso-Am ester, P 2233*g*.
Butyric acid, β - (3,5 - dimethoxyphenyl) - β - hydroxy - α - methyl-, Et ester, 8384*i*.
5*H* - Cycloheptabenzen - 5 - ol, 6,7,8,9-tetrahydro - 2,3,4,6 - tetramethoxy-, 3403*j*.
2,3 - Norcamphanedicarboxylic acid, 5-hydroxy , γ-lactone, 2-butoxyethyl ester, P 3032*i*.
Valeric acid, β - (2,4,5 - trimethoxybenzyl)-, 2609*a*.

$C_{15}H_{22}O_6$ 3,4 - Furandicarboxylic acid, 2-(5 hydroxyamyl)-, di-Et ester, P 5805*e*.

$C_{15}H_{22}O_6S$ Diginoside, methyl, 4-*p*-toluenesulfonate, 1727*g*.

$C_{15}H_{22}O_7$ Verbenalol, tetrahydro-, diacetate, 7017*h*.

$C_{15}H_{22}O_7S$ Galactoside, methyl 2-desoxy 6-tosyl-3-methyl-, 1727*g*.

$C_{15}H_{22}O_8S_2$ 1,2,3 - Pentanetriol, 4,5 dimercapto-, pentaacetate, 7424*i*, 9250*i*.

$C_{15}H_{22}O_9$ 2 - Furanacetic acid, 3-carboxy-5-(1,2,3,4 - tetrahydroxybutyl)-, di-Et ester, 5392*a*.

$C_{15}H_{22}O_{10}$ Glucoside, methyl, tetraacetate, 3795*e*, 7430*h*.
Ketohexose, 6-methyl-, 1,2,3,4-tetraacetate, 5370*f*.
Mannopyranoside, methyl, tetraacetate, 3307*c*.

$C_{15}H_{23}Cl$ Chloride, b$_8$ 136–8°, from α-santalol, 5384*h*.

$C_{15}H_{23}ClN_2O_2S_2$ Acetic acid, (isoamylmercapto)-, 2 - (*p* - chlorobenzyl) - 2-thiopseudourea salt, 3364*i*.

$C_{15}H_{23}ClN_4O_3$ Pseudourea, 3 - (*p* - chlorophenylguanyl) - 2 - ethyl - 1 - isopropyl-, acetate, 2950*b*.

**$C_{15}H_{23}Cl_3O_4$** Succinic acid, α-1-octenyl-β-(trichloromethyl)-, di Me ester, P 6226*f*.

**$C_{15}H_{23}F_3N_2$** Putrescine, $N^4$, $N^4$-diethyl-1-(α,α,α - trifluoro - *m* - tolyl)-, 2211*d*.

**$C_{15}H_{23}N$** Cyclohexanemethylamine, *N*, *N*-dimethyl-2-phenyl-, 1357*h*.
Cyclohexanemethylamine, 2-(3,4-xylyl)-, *and* - *HCl*, 1357*i*, 1358*e*.

**$C_{15}H_{23}NO$** Benzamide, *N*, *N* - dibutyl-, P 351*e*.
Benzamide, *N*, *N*-diisobutyl-, P 351*e*.
—, *N* - 1,1,3,3 - tetramethylbutyl-, 2165*g*.
Cyclohexanol, 2 - (dimethylaminomethyl)-1-phenyl-, 1357*s*, P 5417*e*.
Hexamethylenimine, 1-(*p*-methoxyphenethyl)-, -*HBr*, 3378*h*, P 3455*f*.
Mesitol, $\alpha^2$-cyclohexylamino-, *and* - *HCl*, 3425*g*.
1 - Naphthol, 2 - (dimethylaminomethyl)-1 - ethyl - 1,2,3,4 - tetrahydro-, - *HCl*, P 5417*h*.
Nupharidine, 7939*d*.
1 - Piperidinepropanol, α - methyl-α-phenyl-, *and* - *HCl*, 9071*h*.

**$C_{15}H_{23}NOS$** Acetophenone, α-(3-diethylaminopropylmercapto)-, 6574*g*.

**$C_{15}H_{23}NO_2$** Acetamide, α - (*p* - *tert*-amylphenyl)- *N*-2 hydroxyethyl-, 3362*b*.
Butyric acid, α-phenyl-, 2-isopropylaminoethyl ester, - *HCl*, P 2639*g*.
Caprylanilide, α - hydroxy -*α* methyl , 1353*g*.
1 - Cyclohexene - 1 - acetic acid, α-butyl - α - cyano-, Et ester, 3798*a*.
3-Heptanol, 2-methyl-, carbamate, 3776*f*.
4-Morpholinepropanol, α-ethyl-α-phenyl-, *and* - *HCl*, 9071*e*

**$C_{15}H_{23}NO_2S$** Piperidine, 1-[2-(benzylsulfonyl)isopropyl]-, 6995*f*.

**$C_{15}H_{23}NO_3$** Acetic acid, (2-diethylaminoethoxy)phenyl-, Me ester, 2189*e*.
Acetic acid, (2-dimethylaminoethoxy)-phenyl-, iso-Pr ester, 2189*e*.
β-Alanine, *N* - (*m* - ethylphenyl) - *N*-(3-hydroxypropyl)-, Me ester, P 9462*d*
—, *N* - (*o* - methoxyphenethyl) - *N*-methyl-, Et ester, - *HCl*, 5765*e*.
Benzoic acid, *p*-butoxy-, 2-ethylamino ethyl ester, -HCl, P 4430*c*.
—, *p* - (2 diethylaminoethoxy) , Et ester, 6592*a*.
—, *p* - ethoxy-, 2-isobutylaminoethyl ester, - *HCl*, P 4430*e*.
Butyric acid, β-(*m*-ethyl-*N*-2-hydroxyethylanilino)-, Me ester, P 9462*b*.
Carbamic acid, diethyl-, *m*-butoxyphenyl ester, P 252*a*.
Hydrocinnamic acid, α - (dimethylaminomethyl) - β - hydroxy - α-methyl-, Et ester, - *HCl*, 7643*i*.
Protocatechuyl alcohol, α (1-cyclopentylaminopropyl) , *HCl*, 8057*b*

**$C_{15}H_{23}NO_3S$** Acetanilide, *p*-(heptylsulfonyl)-, 2593*e*.

**$C_{15}H_{23}NO_4$** (See also *Acetidione*.)
Acetamide, *N* - (3,4 - diethoxy - β hydroxy-α methylphenethyl)-, 1423*g*.
β Alanine, *N* - (dimethoxyphenethyl)-*N*-methyl , Me ester , - *HCl*, 5765*fg*.
Benzoic acid, *p*-butoxy-, 2-(2-hydroxyethylamino)ethyl ester, - *HCl*, P 4430*d*.
Cyclopentaneacetic acid, 4-carboxy-α-cyano-2,2 dimethyl-, di-Et ester, 7462*g*.
Glutarimide, β - [2 - (3,5 - dimethyl 2-oxocyclohexyl) - 2 - hydroxyethyl]-, 2998*c*
4 - Morpholinepropanol, α - [(*o*-methoxyphenoxy)methyl]-, *and* - *HCl*, P 1915*d*.
Norephedrine, 3,4 - diethoxy-, acetate, *and* - *HCl*, 1423*c*.
2 - Propanol, 1 - [2 - (4 - morpholinyl)-ethoxy]-3-phenoxy-, P 3473*a*.
Rhamnose anilide, 2,3,4 trimethyl-, 584*i*.

**$C_{15}H_{23}NO_5$** Mannose anilide, 2,3,6 - trimethyl-, 581*bf*.
2 - Propanol, 1 - (*o* - hydroxyphenoxy)-3-[2 - (4 - morpholinyl)ethoxy]-, P 4431*i*.
Succinic acid, α-butyryl - α - (cyanoethyl)-, di-Et ester, P 2635*b*.

**$C_{15}H_{23}NO_6$** 1,1,5 - Pentanetricarboxylic acid, 5-cyano-, tri-Et ester, P 7505*i*.

**$C_{15}H_{23}NO_7$** 3 - Cyclohexene - 1 - carboxylic acid, 4 - (2 - dimethylaminoethyl)-2-oxo-, Et ester, oxalate, 7432*g*.

**$C_{15}H_{23}N_3OS_2$** Benzothiazole, 2-(3-diethylaminopropylamino) - 6 - (methylsulfinyl)-, *di*- *HCl*, 2618*b*.

**$C_{15}H_{23}N_3O_2$** Propiophenone, 4-butoxy-3-methyl-, semicarbazone, 3825*e*.
Propiophenone, 2,5 - dimethyl - 4-propoxy-, semicarbazone, 7924*f*.

**$C_{15}H_{23}N_3O_3S_2$** Benzothiazole, 2-(3-diethyl-, aminopropylamino) - 6(methylsulfonyl)-, *di*- *HCl*, 2618*a*.

**$C_{15}H_{23}N_3O_3$** Bicyclo[4.3.1] - 7 - decene - 1-carboxylic acid, 7-methyl - 10-oxo-, Et ester, semicarbazone, 7908*c*.

**$C_{15}H_{23}N_3O_3S$** 2 - Thiophenecapric acid, ε-oxo-, semicarbazone, 3817*h*.

**$C_{15}H_{23}N_3O_4$** Malonaldehydic acid, (1-α-phenylacetamidoethyl)-, hydrazide, dimethyl acetal, 7428*b*.

**$C_{15}H_{23}N_3S_2$** Benzothiazole, 2-(3-diethylaminopropylamino) - 6 - methylmercapto-, *di*- *HCl*, 2618*c*

**$C_{15}H_{23}N_5$** Biguanide, 1-cyclohexyl-5-*p*-tolyl-, P 4691*e*; *and* - *HCl*, 9036*f*.

**$C_{15}H_{23}N_5O$** Biguanide, 1-cyclohexyl-5-(*p*-methoxyphenyl)-, - *HCl*, P 4691*d*, 9036*f*.

**$C_{15}H_{23}N_5O_6$** Malonic acid, (2-diethylamino-5 - nitro - 4 - pyrimidylamino)-, di-Et ester, P 9088*a*

**$C_{15}H_{23}N_5O_7$** Propionamidine, *N*, *N*, *N'*-triethyl-, picrate, 2594*f*.

**$C_{15}H_{24}$** Cadinene, 3807*d*.
Calamene, 3807*i*.
Caryophyllene, 2978*c*.
Compd., b$_3$ 99–104°, 1155*i*.
Compd. b$_8$ 100 6°, 1155*i*.
Isocadinene, 1389*d*.
Nonane, 1-phenyl-, 2174*h*, 6990*i*.
α Santalene, 5384*g*.
β-Santalene, 5384*dg*.
Scoparilene, 1155*b*
Sesquiterpene, b$_8$ 101°, 9052*b*.
1,5 - Tetradecadien - 3 - yne, 5-methyl-, 6623*h*.
*p* Xylene, 2-heptyl-, 6990*h*.
Zingiberene, 2605*c*

**$C_{15}H_{24}BrNO_2$** Benzyl(1 - carboxypropyl)dimethylammonium bromide, Et ester, 6977*b*.
3 Carboxy - 1 - methylpyridinium bromide, ester with a normal *sec*-octyl alc., 2622*h*.

**$C_{15}H_{24}ClNO_2$** Benzyl(carboxymethyl)dimethylammonium chloride, Bu ester, 6977*a*.
1 - (Carboxymethyl)pyridinium chloride, octyl ester, 6977*e*.

**$C_{15}H_{21}ClN_4$** Biguanide, 2-butyl-1-(*p* chlorophenyl) - 5 - isopropyl , - *HCl*, P 684*i*, 2949*a*.
Biguanide, 1 - butyl - 5 - (*p* - chlorophenyl) - 2 - propyl-, - *HCl*, P 684*j*, 2950*a*
—, 1 - (*p* - chlorophenyl) - 2,4 - diethyl-5-isopropyl-, P 684*d*; - *HCl*, 9039*f*

**$C_{15}H_{24}ClN_5O_2$** Biguanide, 5-(*p*-chlorophenyl) - 1,1 - diethylmethyl-, acetate, P 684*g*, 2949*b*, P 6659*c*.
Biguanide, 5-(*p* chlorophenyl)-1-isopropyl - 1,4 - dimethyl-, acetate, P 684*e*, 2948*d*, P 6659*c*.

**$C_{15}H_{21}HgN_2O_6$** Barbituric acid, 1-[3-(acetoxymercuri) - 2 - ethoxypropyl]-5,5-diethyl-, 2169*i*.

**$C_{15}H_{24}INO$** 1 - (β - Hydroxy - α - methylphenethyl) - 1 - methylpiperidinium iodide, 231*d*.

**$C_{15}H_{24}INO_2$** Triethyl(2-hydroxyethyl)ammonium iodide, benzoate, 1486*i*, 2191*c*.

**$C_{15}H_{24}NO_3P$** α - Toluenephosphonic acid, *p*-nitro-, di-Bu ester, 5758*b*.

**$C_{15}H_{24}N_2$** Benzamidine, *N*, *N* - dibutyl-, *and* - *HCl*, P 5801*c*.

**$C_{15}H_{24}N_2O$** Acetanilide, α diethylamino-2,4,5-trimethyl-, 1022*i*.
Acetomesidide, α-diethylamino-, 9257*e*, *and salts*, 1022*b*.
*o*-Acetotoluidide, α dipropylamino , *and salts*, 1021*h*.
Ethylenediamine, *N*, *N* - dimethyl-*N'*-phenyl - *N'* - tetrahydrofurfuryl-, *and di*- *HCl*, P 822*e*
2,6 - Formoxylidide, *N*-(2-diethylaminoethyl)-, *and* - *HCl*, 1025*e*.
Lupanine, 1047*h*, 3429*a*, 8532*d*; *and salts*, 649*h*.
Matrine, 3016*i*.
2,6 - Propionoxylidide, diethylamino-, 1022*h*, 9257*e*; *and perchlorate*, 1022*e*.
Pyridine, 2 - [1 - (2 - dimethylaminoethoxy)cyclohexyl]-, *and di* - *HCl*, 2206*g*.
Sparteine, oxo-, 4269*g*, 7031*f*, 7490*f*.

**$C_{15}H_{24}N_2O_2$** (See also *Pontocaine*.)
Benzoic acid, *p* - (2 - dimethylaminoisobutylamino)-, Et ester, 6183*i*.
Oxepo[2,3,4-*de*]pyrrolo[2,3-*h*]quinolin - 2 (1*H*)-one, tetradecahydro - 9-methyl-, 7943*b*.

**$C_{15}H_{24}N_2O_3S$** Benzoic acid, *p* - amino-, 2-(2 - diethylaminoethylmercapto)ethyl ester, P 3461*d*.

**$C_{15}H_{24}N_2O_3$** Furfurylamine, *N*-cyclohexyl-*N*-2-nitroisobutyl-, P 5424*h*.
2 - Pyrrolecarboxylic acid, 3,5-dimethyl - 4 - [2 - (4 - morpholinyl)-ethyl]-, Et ester, 1393*f*.
1*H* - Quinolizine - 1 - carboxylic acid, 3 (2-piperidyl)octahydro-4-oxo-, *and* - *HCl*, 4270*b*.

**$C_{15}H_{24}N_2O_3S$** Caprylamide, *N*-*p*-sulfamyl benzyl-, 8539*e*.

**$C_{15}H_{24}N_2O_4$** Acetanilide, α-diethylamino 3,4,5-trimethoxy-, - *HCl*, 1023*b*.
3,4 Pyrroledicarboxylic acid, 1,2,5-trimethyl-, 2-dimethylaminoethyl Et ester, P 4302*h*.

**$C_{15}H_{24}N_2O_4S$** 1,2,6,4*H* - Thiadiazine - 3,5-(2*H*,6*H*)-dione, 2,6-dicyclohexyl , 1,1-dioxide, 2573*d*.
Valine, *N* - (2 - amyl - 5 - oxo - 4(5*H*) oxazolylidenemethyl) - β - mercapto , Me ester, 8892*g*.

**$C_{15}H_{24}N_2O_4S_2$** Penicillin, isoamylmercapto methyl-, 2274*g*, 3490*a*.

**$C_{15}H_{24}N_2O_5S$** Butyramide, *N* - [2 - (benzyl sulfamyl)ethyl] - α,γ - dihydroxy-β,β-dimethyl-, P 3450*h*.
Butyramide, α,γ - dihydroxy - β,β-dimethyl - *N* - [2 - (*p* - tolylsulfamyl)-ethyl] , P 3450*h*.
Diginonic acid, 2-benzyl-2 thiopseudo urea salt, 1727*h*.

**$C_{15}H_{24}N_2O_6$** 3,4 - Furandicarbamic acid, 2 (5 hydroxyamyl)-, di-Et ester, 1442*a*, P 5805*g*.
Galactonic acid, 2,3,6-trimethyl , phenyl hydrazide, 583*c*.
Mannonic acid, 2,3,6 trimethyl , phenyl hydrazide, 581*f*.

**$C_{15}H_{24}N_2O_6S$** Butyramide, α γ - dihydroxy *N* - [2 - (*p* methoxyphenylsulfamyl-ethyl] - β,β - dimethyl-, P 3450*h*

**$C_{15}H_{24}N_4$** Pyrimidine, 4-methyl-2,6 di-1 piperidyl , 3427*d*.

**$C_{15}H_{24}N_6O_7$** Guanidine, 1,3-dibutyl , picrate, 2203*d*.

**$C_{15}H_{24}N_6O_{24}$** 1,5,9 - Trioxacyclododecane 3,3,7,7,11,11 - hexamethanol, hexa nitrate, P 6223*i*

**$C_{15}H_{24}O$** Acoroxide, 3808*a*.
Benz[*e*]indenone, dodecahydrodimethyl , 1334*b*
Cresol, di-*tert*-butyl-, P 4457*g*, P 5992*d*, 8195*c*, 8737*h*, 8881*c*.
—, 2 isooctyl, P 4488*i*
2,6,10 Dodecatrienal, 3,7,11 trimethyl , 7900*f*, 9375*h*.
1-Heptanol, 1-(2,5-xylyl)-, 6990*h*
2 Hepten-4 one, 2 methyl 6 (4 methyl 3 cyclohexen 1 yl)-, 2605*g*
Kawahone, 7939*d*
5-Nonanol, 5-phenyl-, 2604*a*
4-Octanol, 2 methyl 8 phenyl , 1651*i*
2,4 - Pentadien - 1 - ol, 3 methyl 5 (2,6,6 - trimethyl - 2 - cyclohexen 1 yl) , 5371*c*.
Phenol, *tert*-amyl-*tert* butyl-, P 4488*i*
α-Santalol, 5382*h*, 5381*gh*.
β-Santalol, 5382*h*, 5383*g*, 5384*dg*, 5385*a*

**$C_{15}H_{24}OS$** 1-Hendecanone, 1 (2-thienyl) , 228*a*.

**$C_{15}H_{24}O_2$** Acorone, 3808*a*.
Acrylic acid, 4 cyclohexylcyclohexyl ester, P 7754*i*
Compd , b$_4$ 135-5 5°, 363*a*.
Isoacorone, 3808*a*.
Isolongifolic acid, Me ester, 2978*g*
1 - Naphthoic acid, 1,4,4a,5,6,7,8,8a octahydro - 2,5,5,8a - tetramethyl , 1749*c*.
Phenol, di-*tert*-butyl-4-methoxy-, P 6235*c*.
—, 4-methoxyoctyl-, 7914*e*.
Resorcinol, 5-(1,2,4-trimethylhexyl) , 8384*g*.

**$C_{15}H_{24}O_2S$** Ethanethiol, 2-[2 (*p*-*tert*-amylphenoxy)ethoxy]-, P 4507*i*.
Isobutyraldehyde, α - (benzylmercapto) , di-Et acetal, P 4688*c*.
2-Thiophenecapric acid, ε-methyl , 566*c*.
2-Thiophenchendecanoic acid, 566*c*.

**$C_{15}H_{24}O_3$** Acid, m. 58°, 5590*d*.
Cyclohexaneacetic acid, 2-(2 oxocyclopentyl)-, Et ester, 3829*c*.
2 - Cyclohexene - 1 - carboxylic acid, 3 butyl - 2,6 - dimethyl - 4 - oxo -, Et ester, 2969*b*.

**$C_{15}H_{24}O_3S$** Benzenesulfonic acid, nonyl-, *Na salt*, P 3040*a*.
Benzenesulfonic acid, triisopropyl-, *and Na salt*, 6041*f*.
**$C_{15}H_{24}O_4$** Adipic acid, trimethyl-, diallyl ester, P 1217*h*.
Cyclohexanepropionic acid, 1-butyryl-2-oxo-, Et ester, P 5417*c*.
Cyclopentanepropionic acid, 2-oxo-1-propionyl-, Bu ester, P 5417*b*.
Malonic acid, [2 - (2 - cyclohexen-1-yl)-ethyl]-, di-Et ester, 1377*h*.
Peroxide, benzylidenebis[*tert*-butyl, P 2629*g*, 6156*h*.
**$C_{15}H_{24}O_5$** Actidione acid, dihydro- (lactone form), 2998*g*.
1,3 - Cyclohexanedicarboxylic acid, 1,5,5 - trimethyl - 4 - oxo-, di-Et ester, 7462*c*.
Cyclopentanepropionic acid, 1-carboxy-$\beta$,3 - dimethyl - 2 - oxo-, di-Et ester, 2584*i*.
Pyran - 4 - acetic acid, tetrahydro-6 (2-hydroxy - 3,5 - dimethylcyclohexyl)-2-oxo-, 2998*g*.
**$C_{15}H_{24}O_6$** Aconitic acid, tri-Pr ester, P 7634*e*.
**$C_{15}H_{24}O_6S$** Adipic acid, $\alpha$-methyl-$\alpha$-(5-methylmercapto - 3 - oxoamyl) - $\beta$-oxo-, di Me ester, 7433*h*.
Ethanol, 2 - [2 - (2 - ethoxyethoxy)-ethoxy]-, *p* toluenesulfonate, 3784*d*
**$C_{15}H_{24}O_8$** Propanetetracarboxylic acid, tetra-Et ester, 4228*a*, P 6665*b*.
**$C_{15}H_{25}BrCoN_3O_6$**, 7364*g*.
**$C_{15}H_{25}ClN_2O_2$** See *Pontocaine*.
**$C_{15}H_{25}ClN_6$** Biguanide, 1-(*p* chlorophenyl) 5 (3-diethylaminopropyl) , P 6659*h*.
**$C_{15}H_{25}ClO$** Cyclohexanepropionyl chloride, 4 cyclohexyl-, 1375*h*
**$C_{15}H_{25}ClO_4$** Pimelic acid, $\alpha$ 3-chloro-2 butenyl-, di Et ester, 7908*b*.
**$C_{15}H_{25}HgNO$**, Azlamide, N [3 - (acetoxymercuri) 2 - methoxypropyl] , 7922*b*
**$C_{15}H_{25}HgNO_6$** Tris(2 - hydroxyethyl)(phenylmercuri)ammonium lactate, 4413*c*
**$C_{15}H_{26}IN_2O_2$** (3 - Hydroxy - 2 - methylbutyl) trimethylammonium iodide, *p* aminobenzoate, 7921*e*
**$C_{15}H_{26}NO$** Benzyl alcohol, $\alpha$ (2 diethylaminoethyl)-$\alpha$ ethyl , *HCl*, 9071*d*.
: Heptanol, 6-benzylamino-2 methyl , P 3029*e*, *HCl*, 9218*e*
**$C_{15}H_{26}NOS$** Benzyl alcohol, $\alpha$ (3 diethyl aminopropylmercaptomethyl) , 6574*c*
**$C_{15}H_{26}NO_2$** Anisyl alcohol, $\alpha$-(3 diethylaminopropyl) , P 5043*a*
Butylam , N,N diethyl , benzoate, 131*f*.
Cyclohexanol 1 - (3 diethylamino-1-propynyl) acetate, 131*d*
**$H_{26}NO_3S$** 3 Thiophenecarboxylic acid, 2-dibutylaminoethyl ester, *and HCl*, 630*g*.
Xylenesulfonamide, *ar* heptyl-, 6990*a*.
**$H_{26}NO_3$** Actidione, tetrahydroanhydro 2999*a*
Glutaramide, $\beta$ - [2 - (2 - hydroxy - 3,5 dimethylcyclohexyl)ethyl] , 2999*a*.
**$H_{26}NO_4$** Actidione, dihydro-, 2998*e*.
Cyclopentanecarboxylic acid, 1-(5-dimethylamino - 3 - oxoamyl) - 2 oxo , Et ester, *HCl*, 7132*d*.
Glutarimide, $\beta$ - [2 - hydroxy - 2 - (2-hydroxy - 3,5 - dimethylcyclohexyl)-ethyl]- , 2998*e*
**$H_{26}NO_4S$** Acetone, compd with 1-benzylpiperidine bisulfite, 3355*i*
Cyclohexanone, 3 methyl-, compd with $\alpha$-methylbenzylamine bisulfite, 3356*b*; compd with phenethylamine bisulfite, 3356*b*.
**$C_{15}H_{26}NO_5$** Protocatechuyl alcohol, $\alpha$ (1,2-dimethylpropylamino)-, acetate, 3388*l*.
Protocatechuyl alcohol, $\alpha$ (1-ethylpropylaminomethyl)-, acetate, 3388*j*.
**$C_{15}H_{26}NO_5S$** Benzaldehyde, compd. with 4 butylmorpholine bisulfite, 3355*i*.
**$C_{15}H_{27}NO_6$** Enanthic acid, $\alpha$-acetyl-$\zeta$-dimethylamino - $\delta$ - oxo-, Et ester, oxalate, 7432*g*.
**$C_{15}H_{27}N_3O$** 1 - Cyclohexene - 1 - crotonaldehyde, $\alpha$,2,6,6 - tetramethyl-, semicarbazone, 2588*d*.
$\alpha$ Ione, semicarbazone, 7644*g*.
$\beta$ Ione, semicarbazone, 7644*h*.
Semicarbazone, m. 149.5–50.5°, 1337*h*.
**$C_{15}H_{27}NO_3$** 1 - Cyclohexene - 1 - caproic acid, 6-oxo-, Et ester, semicarbazone, 587*f*.
**$C_{15}H_{25}N_3O_5$** Camphoric acid, 5-oxo-, di-Et ester, semicarbazone, 5381*a*.
**$C_{15}H_{27}N_3S$** 1 - Cyclohexene - 1 - crotonaldehyde, $\alpha$,2,6,6 - tetramethyl-, thiosemicarbazone, 2588*e*.
$\alpha$-Irone, thiosemicarbazone, 5540*c*.
$\beta$-Irone, thiosemicarbazone, 5540*c*.
$\gamma$-Irone, thiosemicarbazone, 5549*c*.
Thiosemicarbazone, m. 156–9°, 1337*h*
**$C_{15}H_{28}N_5$** Biguanide, 1-cuminyl-5-isopropyl-, 2946*g*.
**$C_{15}H_{25}N_3O$** *s*-Triazine, 2 amino-4-[bis(2 methylallyl)amino]-6-butoxy , 4269*e*.
*s*-Triazine, 2 butoxy-4,6-bis(2-methylallylamino)-, 4269*f*.
**$C_{15}H_{25}N_3O_3$** *s*-Triazine, 2-butoxy 4,6-di-4-morpholinyl-, 4269*g*.
**$C_{15}H_{25}N_3O_3S$** *p* - Toluenesulfonic acid, 1-cyclohexylbiguanide salt, P 4292*h*.
**$C_{15}H_{25}O_3P$** $\alpha$-Toluenephosphonic acid, di-Bu ester, 5758*b*.
**$C_{15}H_{26}Cl_2$** Compd., m. 78–80°, 9052*b*
**$C_{15}H_{26}IN$** Triethyl(3 - phenylpropyl)ammonium iodide, 8059*b*.
**$C_{15}H_{26}INO$** Triethyl(3 - phenoxypropyl)-ammonium iodide, 6365*d*.
**$C_{15}H_{26}NO_3P$** $\alpha$ - Toluenephosphonic acid, *p*-amino-, di-Bu ester, *and - HCl*, 5758*c*.
**$C_{15}H_{26}N_2$** (See also *Sparteine*.)
Ethylenediamine, *N* isoamyl - *N'*, *N'*-dimethyl- *N* phenyl-, P 682*e*.
Isosparteine, 3828*a*.
**$C_{15}H_{26}N_2O$** *o* - Cresol, 6 - amino - 4 - *tert*-butyl $\alpha$-diethylamino-, P 1062*c*.
*o*-Cresol, 4-amino-$\alpha$-dibutylamino-, P 1062*i*
**$C_{15}H_{26}N_2OS$** 2 - Propanol, 1 - diethylamino-3 - (*p* dimethylaminophenylmercapto)-, 6574*t*
**$C_{15}H_{26}N_2O_2$** Azelaamide, N, N'-diallyl (?), 7922*b*
Crotonamide, *N* - allyl - *N* - (1 - dimethylcarbamylpropyl) - $\alpha$,$\beta$ - dimethyl-, P 250*g*
2 Pentynamide, *N* - (1 - diethylcarbamylpropyl)-*N*-ethyl-, P 250*e*
4*H* Quinolizin - 4 - one, octahydro 1-(hydroxymethyl) - 3 (2 - piperidyl)-, 7490*e*.
Sorbamide, *N* - (1 - diethylcarbamylethyl) *N*-ethyl , P 249*d*
**$C_{15}H_{26}N_2O_3$** Hydantoin, 5-(amoxymethyl)-5-cyclohexyl-, P 3452*i*.
Hydantoin, 5-cyclohexyl - 5 - (1,2 dimethylpropoxymethyl)-, P 3452*i*
—, 5 - cyclohexyl - 5 - (1 ethylpropoxymethyl)-, P 3452*i*
—, 5 cyclohexyl 5 - (isoamoxymethyl) , P 3452*i*.
—, 5 - cyclohexyl - 5 - (1 - methylbutoxymethyl)-, P 3452*i*
Senecamide, N ethyl N [1 (4-morpholinylcarbonyl)propyl] , P 250*d*, P 6653*t*
**$C_{15}H_{26}N_2O_5$** $\beta$ - Alanine, N - ($\alpha$ - acetamido-$\gamma$ - hydroxy - $\beta$,$\beta$ - dimethylbutyryl)-, Et ester, acetate, 575*a*
Malonic acid, acetamido(4 acetamidobutyl)-, di Et ester, 1323*e*.
**$C_{15}H_{26}N_2O_7$** 3,4 - Furandicarbamic acid, 2-(4 - carboxybutyl)tetrahydro-, di Et ester, P 1442*d*, 2987*i*.
**$C_{15}H_{26}O$** (See also *Farnesol*.)
1*H* - Benz[*e*]indenol, dodecahydrodimethyl-, 1334*b*.
Calamone, 3808*a*.
Carotol, 3808*a*.
Caryophyllenic alcohol, 2978*e*
2 - Cyclopenten - 1 - one, 2,4 - dimethyl-3-octyl-, 6624*b*.
Ledol, 1155*f*.
Nerolidol, 1530*gh*, 2370*h*.
Palustrol, 1155*h*.
Sesquiterpene alc., m. 133°, 9383*f*.
1,5 - Tetradecadien - 4 one, 5-methyl-, 6624*a*.
1-Tetradecen-3-yn-5-ol, 5 methyl-, 6623*i*.
**$C_{15}H_{26}O$** Calameone, 3808*a*.
Compd. b. 68–70 , P 3043*c*.
Cyclohexanepropionic acid, 4-cyclohexyl , 1375*h*.
10-Hendecenoic acid, 2-butenyl ester, 8352*f*; methylallyl ester, 8352*f*
5-Indanbutyric acid, hexahydro-, Et ester, 1375*e*.
1-Naphthoic acid, decahydrotetramethyl-, 1748*e*, 6003*g*, 6604*a*.
**$C_{15}H_{26}O_2$** Cyclohexene - 1 - carboxylic acid, butoxy-, Bu ester, 6203*c*.
1-Naphthoic acid, decahydro-2-hydroxy-2,5,5,8a - tetramethyl-, *and Na salt*, 1749*b*.
Succinic anhydride, hendecyl-, 5070*a*.
**$C_{15}H_{26}O_4$** Cyclopentaneacetic acid, 4-carboxy - 2,2,4 - trimethyl-, di-Et ester, 7462*i*.
Cyclopentanebutyric acid, 2-carboxy-2-methyl-, di-Et ester, 3829*h*.
Lactic acid, allyl ester, pelargonate, P 5037*a*.
Malonic acid, decyl-2-hydroxyethyl-, $\gamma$-lactone, 1322*c*.
**$C_{15}H_{28}O_6$** Galactoside, methyl 2-desoxy-4,6-hexahydrobenzal-3 methyl-, 1727*e*.
**$C_{15}H_{26}O_6S$** 3,4 - Thiophenedicarboxylic acid, tetrahydro - 2 (4 - methoxybutyl)-, di Et ester, P 2645*a*.
**$C_{15}H_{28}O_6$** 1,2,4 - Butanetricarboxylic acid, 2,3-dimethyl-, tri-Et ester, 3790*h*.
Butyrin, tri , 2486*c*, 9125*a*.
3,4 - Furandicarboxylic acid, tetrahydro-2 - (5 - hydroxyamyl)-, di-Et ester, 2987*g*
Galactoside, methyl 4,6 - (cyclohexylmethylene) - 3 - methyl-, 4636*b*.
1,2,6-Hexanetricarboxylic acid, tri-Et ester, 2614*a*
1,3 - Propanediol, 2 - amyl - 2 - (hydroxymethyl)-, triacetate, 6576*b*.
**$C_{15}H_{28}O_6S$** Pimelic acid, $\alpha$-(carboxymethylmercapto) , tri-Et ester, P 7504*h*.
**$C_{15}H_{27}ClN_2$** Acrylonitrile, $\alpha$-chloro-$\beta$-dodecylamino-, 2574*s*.
**$C_{15}H_{27}NO$** Cyclohexanepropionamide, 4-cyclohexyl , 1375*h*.
Cyclotetradecanecarbonitrile, 1-hydroxy , 7907*a*.
**$C_{15}H_{27}NO_2$** Cyclohexanecarbamic acid, 4-cyclohexyl-, Et ester, 1377*f*.
1 - Cyclohexene - 1 - acetic acid, $\alpha$-methyl-, 2 - diethylaminoethyl ester, 3798*c*.
**$C_{15}H_{27}NO_2S$** Lauric acid, 2-thiocyanoethyl ester, 2705*e*, 4411*h*, 9353*b*.
**$C_{15}H_{27}NO_3$** Methacrylic acid, ester with *N*,*N*-dibutyllactamide, P 3447*a*.
**$C_{15}H_{27}NO_4$** Viridiflorine, 2625*b*.
**$C_{15}H_{27}NO_4S$** Enanthaldehyde, compd. with $\alpha$-methylbenzylamine bisulfite, 3356*c*, compd. with phenethylamine bisulfite, 3356*c*.
**$C_{15}H_{27}NO_5$** Brassylic acid, $\alpha$-acetamido-, 1323*b*.
Glutaramic acid, $\beta$-[2-hydroxy 2-(2-hydroxy - 3,5 - dimethylcyclohexyl)-ethyl]-, *Ag salt*, 2998*h*.
Lindelofine, 3827*g*.
**$C_{15}H_{27}NO_6$** Acetic acid, nitrilotri-, triisopropyl ester, P 5229*h*.
**$C_{15}H_{27}NO_6$** Streptobiosamine, *N*-acetyldesoxy-, 1328*e*.
**$C_{15}H_{27}NSi$** Silane, triethyl($\alpha$-methyphenethylamino)-, 5739*e*.
**$C_{15}H_{27}N_3$** Pyridine, 2-[(2-dimethylaminoethyl)hexylamino]-, *and mono-HCl*, 5782*f*.
**$C_{15}H_{27}N_3O$** $\beta$-Irone, dihydro-, semicarbazone, 3374*c*.
$\gamma$-Irone, dihydro-, semicarbazone, 3375*t*, 5550*g*.
Isoirone, dihydro , semicarbazone, 3376*d*.
**$C_{15}H_{27}N_3O_3$** *s*-Triazine, hexahydro-1,3,5-trisobutyryl-, 7031*e*.
*s*-Triazine, 2,4,6-tributoxy-, 9034*i*.
—, 2,4,6-tri-*sec* butoxy-, 9034*i*
—, 2,4,6 tri *tert*-butoxy-, 9034*i*.
**$C_{15}H_{27}N_3O_5$** Adipic acid, $\alpha$-3-oxobutyl-, di-Et ester, semicarbazone, 7434*c*.
**$C_{15}H_{28}N_2$** Pusilline, *and perchlorate*, 3429*a*.
**$C_{15}H_{28}N_2O$** Formamide, *N*-cyclohexyl-*N*-(2-cyclohexylaminoethyl)-, P 3028*f*.
1*H* - Quinolizine - 1 - methanol, octahydro-3-(2-piperidyl)-, 7490*e*.
**$C_{15}H_{28}N_2O_2$** Crotonamide, *N*-(1-diethylcarbamylpropyl)-*N*-propyl-, P 250*f*.
Cyclohexanecarboxamide, *N* - (1 - dimethylcarbamylethyl) - *N* - ethyl-4-methyl , P 249*c*.
1,1 - Cyclopentanedicarboxamide, *N*,*N*,*N'*,*N'*-tetraethyl-, P 1797*i*, P 3842*g*.
Hydantoin, 5 - hendecyl - 5 - methyl-, 1322*i*.
Isovaleramide, N - allyl - *N* - (1-diethylcarbamylethyl)-, P 249*f*.
Malonamide, $\alpha$ - allyl - *N*, *N*, *N'*, *N'*-tetraethyl-$\alpha$-methyl-, P 1797*i*, P 3842*j*.
—, $\alpha$ - *sec* - butylidene - *N*, *N*, *N'*, *N'*-tetraethyl-, P 3842*f*.
—, *N*, *N*, *N'*, *N'* - tetraethyl - $\alpha$-isopropenyl-$\alpha$ methyl-, P 1797*h*, P 3842*e*, P 6226*h*.
—, *N*, *N*, *N'*, *N'* - tetraethyl - $\alpha$ - 1-methylpropylidene-, P 1797*i*.
Senecamide, *N* - (1 - diethylcarbamylethyl) - *N* - isopropyl-, P 249*f*.
**$C_{15}H_{28}N_2O_3$** Butyramide, $\alpha$ - [allyl($\alpha$-isopropoxypropionyl)amino] - *N*,*N*-dimethyl-, P 250*h*.

Isovaleramide, *N* - ethyl - *N* - [1 - (4-morpholinylcarbonyl)propyl]-, P 250*d*.
Pyran - 4 - carboxamide, *N* - (1 - diethylcarbamylethyl) - *N* - ethyltetrahydro-, P 249*d*.
—, *N* - (1 - dimethylcarbamylpropyl)-tetrahydro - *N* - propyl-, P 250*f*.
Pyran - 4,4 - dicarboxamide, *N*,*N*,-*N'*,*N'* - tetraethyltetrahydro-, P 1797*f*, P 6226*i*.
Valeramide, *N* - ethyl - *N* - [1 - (4-morpholinylcarbonyl)propyl]-, P 250*d*, P 6654*a*.

$C_{15}H_{28}N_2O_4$ Actidione acid diamide, dihydro-, 2998*h*.
Glutaramide, β - [2 - hydroxy - 2 - (2-hydroxy - 3,5 - dimethylcyclohexyl)-ethyl]-, 2998*h*.

$C_{15}H_{28}N_2O_4S_2$ Glutaraldehydic acid, α-amino - γ - caproylamino - β - oxo-, di-Et mercaptal, 2990*d*.

$C_{15}H_{29}N_2O_4S$ 3,4 - Thiophenedicarboxylic acid, tetrahydro - 2 - (4-methoxybutyl)-, di-Et ester, P 2645*c*.

$C_{15}H_{28}N_2O_4$ 3,4 - Furandicarbamic acid, tetrahydro - 2 - (5 - hydroxyamyl)-, di-Et ester, P 1442*c*, 2987*h*.

$C_{15}H_{28}N_4O_2$ *s*-Triazine, 1,3-dicyclohexylhexahydro-5-nitro-, 8354*h*.

$C_{15}H_{28}O$ Cyclopentadecanone, 1909*i*, 7907*a*.
Ether, amyl [1-(4-methyl-3-cyclohexen-1-yl)isopropyl], 8369*c*.
—, isoamyl [1 - (4 - methyl - 3 - cyclohexen-1-yl)isopropyl], 8369*a*.
Norpinane, 2-(2-butoxyethyl) - 6,6-dimethyl-, P 1807*i*.
Octanone, 8-cyclohexylmethyl-, 4651*i*, 7437*g*.
Oil, $b_{10}$ 134–36°, 3808*a*.

$C_{15}H_{28}O_2$ Acrylic acid, dodecyl ester, P 5036*b*.
Cyclotridecanol, acetate, 6988*f*.
2-Dodecenoic acid, 3,7,11-trimethyl-, 1764*d*.
10-Hendecenoic acid, Bu ester, 2591*e*.
1,3 - Pentanediol, 1 - (3 - ethyl - 2-methyl - 2 - norcamphanyl) , P 1058*f*.
Propane, 1,2-epoxy-3-(3,3,5-triethylcyclohexyloxy)-, P 2634*a*.
12 - Tridecenoic acid, 2,2-dimethyl-, P 7037*h*.

$C_{15}H_{28}O_3$ Cyclohexanecarboxylic acid, butoxy-, Bu ester, 6203*c*.
Lauric acid, 2,3-epoxypropyl ester, P 907*i*.
Tridecanoic acid, methyl-3-oxo-, Me ester, 6160*f*, 6161*ab*.

$C_{15}H_{28}O_2S$ Hendecanoic acid, 11-mercapto-, Et ester acetate, P 2805*e*.

$C_{15}H_{28}O_4$ Acrylic acid, 2-[2-(2-ethylhexyloxy)ethoxy]ethyl ester, P 3030*i*.
Lauric acid, ester with hydracrylic acid, P 1053*f*.
Malonic acid, octyl-, di-Et ester, 8358*c*.
Pentadecanoic acid, 2-hydroxy-4 oxo , 3785*b*.
2*H* - Pyran, 2,2' - (pentamethylenedioxy)bis[tetrahydro , 2204*a*.
Succinic acid, decyl-, mono-Me ester, *Pb salt*, P 4512*g*.
—, hendecyl-, 5070*a*, 5469*d*.

$C_{15}H_{28}O_4S_2$ Xylose, 2,4:3,5-diisopropylidene-, di-Et mercaptal, 7429*i*.

$C_{15}H_{28}O_5$ Glycerol, dicaproate, P 5036*e*
Lactic acid, 2 - (2 - ethylhexyloxy)ethyl ester, acetate, P 676*d*.

$C_{15}H_{28}O_7S$ Caproic acid, 3-sulfopropylene ester, P 5217*a*.

$C_{15}H_{29}Br$ 2 - Dodecene, 1 bromo-3,7,11-trimethyl-, 1764*e*.

$C_{15}H_{29}ClO$ Lauroyl chloride, β,ζ,κ - trimethyl-, 1764*d*.
2-Pentadecanone, 1-chloro , 633*g*.

$C_{15}H_{29}NO$ Acrylamide, *N*-dodecyl-, P 672*f*.
2-Azacyclohexadecanone, 5400*e*
Cyclopentadecanone, oxime, 5400*e*.
Hendecenamide, *N* - isobutyl-, 2730*g*, 3965*i*, 9353*h*.

$C_{15}H_{29}NO_2$ 4 - Pentenoic acid, 2,2-diethyl-, 2-diethylaminoethyl ester, P 3443*h*.

$C_{15}H_{29}NO_2S$ 3 - Thiophenine, tetrahydro-3,5 - dimethyl - *N* - 3,3,5 - trimethylcyclohexyl-, 1,1-dioxide, P 3851*d*.

$C_{15}H_{29}NO_3S_2$ Malonaldehydic acid, caproylamino-, Et ester, di-Et mercaptal, 2990*c*.

$C_{15}H_{29}NO_5$ Malonaldehydic acid, caproylamino-, ethyl ester, di-Et acetal, 2990*a*.

$C_{15}H_{29}NO_{10}$ + $H_2O$ Streptobiosamine, *N*-acetyltetrahydro-, 1330*d*.

$C_{15}H_{29}NS_2$ 2-Thiazoline, 2-(dodecylmercapto)-, 3555*h*.

$C_{15}H_{29}N_3O$ 2-Butanone, 4-(2,2,3,6-tetramethylcyclohexyl)-, semicarbazone, 3374*b*, 3375*g*, 3376*g*.
Cyclopentanone, 3 - (1,5 - dimethylhexyl) - 2 - methyl-, semicarbazone, 1335*e*, 7911*g*.
Isoirone, tetrahydro-, semicarbazone, 3376*e*.

$C_{15}H_{29}N_3O_3$ Lauric acid, ω-oxo-, Et ester, semicarbazone, 3780*i*.
Oxamide, *N* - butyl - *N* - (1 - dimethylcarbamylethyl) - *N'*,*N'*-diethyl-, P 249*g*, P 6654*b*.

$C_{15}H_{29}N_5O$ *s*-Triazine, 2-butoxy-4,6-bis(diethylamino)-, 4269*f*.

$C_{15}H_{30}$ Pentadecene, 6399*b*.

$C_{15}H_{30}N_2$ Capronitrile, α-butyl-α-(diethylaminomethyl)-, 568*d*.

$C_{15}H_{30}N_2O$ 4 - Hexen - 3 - one, 1,4 - bis(diethylamino)-5-methyl-(?), 2164*c*.
Oxazolidine, 3-dodecyl-2-imino-, *and -IICl*, P 252*f*.

$C_{15}H_{30}N_2O_2$ Butyramide, *N*-(1-diethylcarbamylethyl) - *N* - ethyl - β,β-dimethyl-, P 249*c*.
Glutaramide, *N*,*N*,*N'*,*N'* - tetraethyl-β,β-dimethyl-, P 1797*h*, P 3842*i*, P 6227*c*.
Isovaleramide, *N* - (1 - diethylcarbamylpropyl)- *N*-ethyl-, P 250*b*.
Malonamide, hexaethyl-, P 1797*i*, P 3842*f*.
—, *N*,*N*,*N'*,*N'* - tetraethyl-α-isopropyl-α-methyl-, P 1797*i*, P 3842*f*.
—, *N*,*N*,*N'*,*N'* - tetraethyl - α-methyl-α-propyl-, P 1797*i*, P 3842*f*.
Valeramide, *N* - (1 - diethylcarbamylpropyl)- *N*-ethyl-, P 6653*k*.

$C_{15}H_{30}N_2O_3$ Butyramide, α-[butyl(α-ethoxypropionyl)amino] - *N*,*N* - dimethyl-, P 250*h*.
Butyramide, α - [butyl(α - methoxybutyryl)amino]- *N*,*N*-dimethyl-, P 250*h*.
—, *N* - (1 - diethylcarbamylethyl)-α-ethoxy - *N* - ethyl-, P 249*d*.
—, α - [(α - ethoxypropionyl)ethylamino] - *N*,*N* - diethyl-, P 250*c*.
—, α - [ethyl(α - propoxyisobutyryl)-amino]- *N*,*N*-dimethyl-, P 250*a*.
Propionamide, *N*,*N* - diethyl - α-[ethyl-α isopropoxypropionyl)amino]-, P 249*d*.
—, *N*,*N* - diethyl - α - [ethyl(α-propoxypropionyl)amino]-, P 249*d*.
—, α - [(α - ethoxypropionyl)propylamino] - *N*,*N* - diethyl-, P 249*f*.

$C_{15}H_{30}N_3PS$ Thiophosphoryl piperidide, 3353*e*.

$C_{15}H_{30}N_6O_6$ Melamine, hexakis(methoxymethyl)-, P 2444*c*, P 4050*e*, P 6428*s*.

$C_{15}H_{30}O$ Cyclohexanepentanol, α-isobutyl , 4651*i*.
Cyclopentadecanol, 6088*g*.
1 - Dodecen - 3 - ol, 3,7,11 - trimethyl-, 1764*e*.
7-Pentadecanone, 4637*c*.
4-Tetradecanone, 5-methyl-, 6624*b*.

$C_{15}H_{30}O_2$ (See also *Pentadecanoic acid*.)
Lauric acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
—, β,ζ,κ-trimethyl-, 1764*d*, 6251*c*.
Myristic acid, Me ester, 2164*i*, 2416*c*.
Propionic acid, dodecyl ester, 2370*i*.

$C_{15}H_{30}O_3$ Propionic acid, β-ethoxy-, decyl ester, 1322*g*.

$C_{15}H_{30}O_4$ Laurin, mono , P 8740*f*.
Malonaldehydic acid, Bu ester di-Bu acetal, 6168*e*.

$C_{15}H_{30}O_5$ 1,5,9 - Trioxacyclododecane-3,3,7,7,11,11 - hexamethanol, P 6223*h*.

$C_{15}H_{31}Br$ Dodecane, 1-bromo-9-propyl-, 3781*a*.

$C_{15}H_{31}N$ Azacyclohexadecane, 5400*e*.

$C_{15}H_{31}NO$ Capramide, *N*-*tert*-amyl-, 2165*e*.
Pyrrolidine, 1-[2-(1-butylamoxy)ethyl]-, 631*c*.

$C_{15}H_{31}NO_2$ β-Alanine, *N*,*N*-diethyl-, 1-propylamyl ester, P 8399*a*.
β-Alanine, *N*-dodecyl-, P 5978*b*.
Caproic acid, α-ethyl-α-methyl-, 2-diethylaminoethyl ester, P 3443*h*.
Cyclohexanepropylamine, *N*,*N*-diethyl-, acetate, 131*d*.
Enanthic acid, α,α-dimethyl-, 2-diethylaminoethyl ester, P 3443*h*.
Valeric acid, α-methyl-α-propyl-, 2-diethylaminoethyl ester, P 3443*f*.

$C_{15}H_{31}NO_4S$ Cyclohexanone, compd. with 1-butylpiperidine bisulfite, 3355*h*.

$C_{15}H_{32}$ Dodecane, 6-propyl-, 9023*e*.
Hendecane, 4-methyl-6-propyl-, 9023*d*.
Pentadecane, 3254*g*, 7764*i*, 8777*h*.
Tetradecane, 5-methyl-, 6624*a*.

$C_{15}H_{32}ClNO_2$ (Carboxymethyl)trimethylammonium chloride, decyl ester, 6977*d*.

$C_{15}H_{32}INO$ [2 - (Cyclohexylmethoxy)ethyl]-triethylammonium iodide, 6305*e*.

$C_{15}H_{33}N_3O$ Caproamide, α-butyl-α-(diethylaminomethyl)-, 568*f*.
3-Hexanone, 1,4-bis(diethylamino)-5-methyl-, 2164*c*.
Urea, 1,3-bis(1-isopropylbutyl)-, 2166*h*.

$C_{15}H_{32}N_2O$ Urea, 1,3-bis[(hexyloxy)-methyl]-, P 1200*f*.
Urea, 1 - [(dodecyloxy)methyl] - 3 - (hydroxymethyl)-, P 1200*f*.

$C_{15}H_{32}N_4$ Pentadecanediamidine, 7581*f*.

$C_{15}H_{32}O$ 1-Dodecanol, 9-propyl-, 3781*a*.
Pentadecanol, 4637*c*, 6360*a*.
5-Tetradecanol, 5-methyl-, 6623*i*.

$C_{15}H_{32}O_2$ Methane, butoxy(decyloxy)-, 6622*d*.

$C_{15}H_{32}O_3$ 1,2-Propanediol, 3-(dodecyloxy) , 4773*h*.

$C_{15}H_{32}O_{10}$ Tripentaerythritol, P 675*i*, P 3232*h*, P 7240*c*.

$C_{15}H_{32}S$ 8-Pentadecanethiol, P 2630*e*.

$C_{15}H_{33}AlO_3$ 1-Butanol, 2-methyl-, Al deriv., 6155*e*.

$C_{15}H_{33}BO_3$ Amyl borate, P 9484*e*.

$C_{15}H_{33}ClSi$ Silane, chlorotriisoamyl-, 7219*d*

$C_{15}H_{33}N_2$ Guanidine, 1-tetradecyl-, 7581*f*.
Triamylamine, 2956*g*, P 4003*d*.
Triisoamylamine, 2956*h*.

$C_{15}H_{33}N_3O_2$ Guanidine, dodecyl-, acetate, 8086*e*.

$C_{15}H_{33}O_4P$ Isoamyl phosphate, P 9478*b*.

$C_{15}H_{34}BrN$ Dodecyltrimethylammonium bromide, 3688*b*, 4780*b*, 7293*c*.

$C_{15}H_{34}ClN$ Dodecyltrimethylammonium chloride, 5677*h*, 6041*b*.

$C_{15}H_{34}INO_2$ Dibutyl(2,2-diethoxyethyl) methylammonium iodide, 6974*d*.

$C_{15}H_{34}O_3Si$ Silane, triamoxy-, 9028*bd*

$C_{15}H_{34}Br_2N_2$ Nonamethylenebis[trimethyl ammonium bromide], 2703*d*.
Trimethylenebis[triethylammonium bromide], 2703*d*.

$C_{15}H_{35}Cl_2N_3O_4P$ Choline chloride, phosphat 1720*d*.

$C_{15}H_{42}Cl_2I_4N_2O_2Sb_2$ Choline, chloride, deriv., 357*d*

$C_{16}F_{16}$ Fluoranthene, hexacosafluorohexadecahydro-, P 4301*b*

$C_{16}H_4Cl_2N_2O_2S_2$ Anthra[9,1, 10,5]dithiazole 3,8 - dicarbonyl chlorid P 5601*f*.

$C_{16}H_6Br_2N_2O_2$ See "Ciba blue 2B" und *Dyes*.

$C_{16}H_6Cl_4$ Pyrene, tetrachloro , 345*h*, P 6812

$C_{16}H_6Cl_8$ Compd., m 299°, 2080*f*.

$C_{16}H_6N_2O_4S_2$ Anthra[9,1 *d*, 10,5 *d'*]dithiazole - 3,8 dicarboxylic acid, 5601*d*.

$C_{16}H_7Cl_3$ Pyrene, trichloro-, P 6812*a*

$C_{16}H_7Br_2$ Fluoranthene, dibromo , P 8171

$C_{16}H_8Br_2N_2$ α,α' - Stilbenedicarbonitrile 4,4'-dibromo , 7007*g*.

$C_{16}H_6Br_2O_2$ 1,4 - Naphthoquinone, 6 bromo 3 - (*p* - bromophenyl) - 2 - hydroxy 1385*f*.

$C_{16}H_8Br_4O_3$ 9-Xanthenepropionic acid tetrabromo - 3,6,9 - trihydroxy , lactone, 7369*d*

$C_{16}H_8Cl_2$ Indeno[2,1 *a*]indene, 5,10 dichloro-, 4662*c*.

$C_{16}H_6Cl_2O_2$ 1,4 Naphthoquinone, 6 chloro 3 - (*p* - chlorophenyl) - 2 - hydroxy 1385*f*.
1,4-Naphthoquinone, 2-(dichlorophenyl 3-hydroxy-, 1380*f*.

$C_{16}H_6Cl_2NO_2$ Anthraquinone, 2-acetamido 1,3,4-trichloro-, 3399*h*.

$C_{16}H_6Cl_4O_4$ Succinic acid, bis(2,4,5-tri chlorophenyl) ester, 3133*f*.

$C_{16}H_8N_2$ 9,10 - Anthracenedicarbonitrile 3401*d*.

$C_{16}H_8N_2Na_2O_8S_2$ Indigo carmine, 1488 3855*h*.

$C_{16}H_8N_2O_2$ Anthraquinone, 2-diazoacetyl 6178*a*.

$C_{16}H_8O_6$ Trimellitic acid, 5-benzoyl , 1,2 anhydride, 1362*f*.

$C_{16}H_6BrClNO_2$ Juglone, 2-anilino-6 bromo 3-chloro-, 9058*a*.

$C_{16}H_6BrF_3NO_2$ Anthraquinone, 4-bromo 1 methylamino - 2 - (trifluoromethyl)- P 7709*g*.

$C_{16}H_6BrN_3O_3$ 1,4 - Naphthoquinone, 2-(*p* bromophenylazo)-3-hydroxy-, 1380*h*.

$C_{16}H_6BrO_2$ 1,4-Naphthoquinone, 2-(bromophenyl)-3-hydroxy-, 1380*e*.

$C_{16}H_6Br_2NO_2$ Juglone, 2-anilino-3,6-dibromo-, 9058*a*.

$C_{16}H_6ClN_3$ Benzonitrile, *p*,*p'*-(chlorovinylene)di-, P 2236*c*.

$H_5Cl_3N_2O_2$ 1,4-Naphthoquinone, 2-(*o*-chlorophenylazo)-3-hydroxy-, 1380*h*.
$H_5ClO_2$ 1,4-Naphthoquinone, 2-(chlorophenyl)-3-hydroxy-, 1380*e*.
$H_5Cl_2NO_3$ Anthraquinone, 1-acetamido-2,4-dichloro-, 3400*b*.
$H_5Cl_3F_3$ Ethane, 1,1,1 - trichloro - 2,2-bis(α,α,α - trifluoro *p*-tolyl)-, 9332*h*.
$H_5Cl_3N_2$ Benzonitrile, *p,p'*-(1,1,2-trichloroethylene)di-, P 2236*d*.
$H_5Cl_3N_2S_2$ Phenol, *p,p'* - (2,2,2-trichloroethylidene)di-, dithiocyanate, P 7968*h*.
$H_5Cl_9$ Butane, 1,1,1,2,2,3,3-heptachloro - 4,4 - bis(chlorophenyl)-, 9332*i*.
$H_5CuN_3O_4$ Benzoic acid, *o* - [[*o* - carboxyphenylazo)cyanomethylene]hydrazino]-, Cu complex, 6590*a*.
$H_5FO_2$ 1,4 - Naphthoquinone, 2-(*p*-fluorophenyl)-3-hydroxy-, 1380*d*.
$H_5IO_2$ 1,4 - Naphthoquinone, 2-hydroxy-3-(*p*-iodophenyl)-, 1380*f*.
$H_5NO_2$ Dibenzo[*b,f*]pyrrocoline-6,12-dione, 7930*d*
$H_5NO_2S$ Oxindole, 3-(3-oxo-2(3*H*)-thianaphthenylidene) , 6614*f*.
$H_5NO_3$ 1 - Acridanacrylic acid, 2 hydroxy-9-oxo , δ-lactone, 7028*d*
$H_5NO_3$ 1,4-Naphthoquinone, 2-hydroxy-3-(nitrophenyl) , 1380*g*.
$H_5N_3O_6S$ Sulfide, dinitro-1 naphthyl nitrophenyl, 3387*de*.
Sulfide, 2,4 dinitrophenyl 1 nitro 1-naphthyl, 3387*d*.
$H_5N_3NiO_4$ Benzoic acid, *o* - [[*o* - carboxyphenylazo)cyanomethylene]hydrazino]-, Ni complex, 6590*b*.
$H_5N_3O_7S$ Thiazolo[5,4-*f*]quinoline, picrate, 7476*f*
$H_{10}$ (See also *Pyrene* )
Fluoranthene, 2199*g*, 3252*c*, 3401*g*, 4067*f*, 4569*c*, 7014*bc*, 7473*c*.
$H_{10}BrNO_2$ Juglone, 2 anilino 3 bromo , 201*i*
$H_{10}Br_2N_2O_2S_2$ 2 - Thiophenecarboxamide, *N,N'* - *o* - phenylenebis[5 bromo , 4666*a*.
$H_{10}Br_2O_5$ 9-Xanthenepropionic acid, dibromo - 3,6,9 - trihydroxy-, γ-lactone, 7369*d*.
$H_{10}ClNO_4$ Naphthalene, 1-(*p*-chlorophenyl) , nitro deriv , 206*i*.
$H_{10}ClNO_4$ 1,4 - Naphthoquinone, 2 - *p*-chloroanilino - 3 - hydroxy-, 1383*d*
$H_{10}Cl_2N_2$ Benzonitrile, *p,p'* - (1,2 - dichloroethylene)di , P 2236.
$H_{10}Cl_2O_2$ 4,4' - Stilbenedicarbonyl chloride, 1981
$H_{10}Cl_2O_5$ 1,2 Cresotic acid, 3,5 dichloro 6 - 3,5 - dichloro - 6 - hydroxy - 4 - methoxy *o* - toloxy)-, lactone, 608*d*. Diplocem, 608*d*
$H_{10}F_3NO_2$ Anthraquinone, 1 methylamino - 2 - (trifluoromethyl)-, P 7709*g*
$H_{10}N_2$ Cinchoninonitrile, 2 phenyl , P 3470.
Dibenzo[*f,h*]quinoxaline, 7013*h*
α,1' Stilbenedicarbonitrile, 1981
$H_{10}N_2Na_2O_8S_2$ Orange G, 4111*h*, 7521*e*, 8107*h*.
$H_{10}N_2OS$ 9 - Fluorenone, 2 - (2 - mino-4-thiazolyl) , *and* - *HI*, 7005*b*
$H_{10}N_2O$ (See also *Indigotin* )
[2,2' Bisoindoline] 3,3'-dione, 7930*b*
α-Hydromuconnitrile, α,δ-difurfurylidene-, P 3848*a*.
5*H* - Pyrazolo[*a*][3,1]benzoxazin - 5 one, 2-phenyl-, 5024*i*.
Tartronitrile, phenyl-, benzoate, 2974*g*.
$C_{16}H_{10}N_2O_4$ Ketone, 5-(*p*-nitrophenyl) 3 isoxazolyl phenyl, 5394*f*, 5395*c*.
phthalene, 7 - nitro - 1 - (*p* - nitrophenyl)-, 606*d*.
Resorcinol, 4 - (naphthyl) - 2,6 - dinitroso-, 3810*de*.
2 - Stilbenecarbonitrile, 3',1' - methylenedioxy-4-nitro-, 3812*b*.
$C_{16}H_{10}N_2O_4S$ Sulfide, nitro 2-naphthyl nitrophenyl, 3387*fg*.
$C_{16}H_{10}N_2O_6$ 2,6 - Anthraquinonedicarboxylic acid, 1,5-diamino-, P 5601*c*.
Indigotin, 5,5',6,6'-tetrahydroxy-, 627*g*.
*p*-Quinone, dioxime di-2-furoate, 5623*c*.
$C_{16}H_{10}N_2O_7$ Flavone, methoxydinitro-, 2621*f*, 9067*a*.
$C_{16}H_{10}N_2O_8$ 2 - Stilbenecarboxylic acid, 3',4'-methylenedioxy-2',4-dinitro-, 3812*c*.
$C_{16}H_{10}N_2O_8S_2$ Indigodisulfonic acid, 8435*f*
$C_{16}H_{10}N_2S_2$ Quinoxaline, 2,3-di 2-thienyl-, 9063*d*.
$C_{16}H_{10}N_2OS$ 2 - Naphthol, (1,2,3 - benzothiadiazol-5-ylazo)-, 222*i*.
$C_{16}H_{10}N_2O_3$ Isatin, azine, 123*c*, 3428*f*.
$C_{16}H_{10}N_2O_7$ 2 - Pyrazoline - 3 - carboxylic acid, 1 - (*p* - nitrophenyl) - 4 - (*p* - nitrophenylazo)-5-oxo-, P 8149*f*.
$C_{16}H_{10}Na_2O_8S_2$ Sunset Yellow, 9451*e*.
$C_{16}H_{10}O_2$ Indeno[2,1 - *a*]indene - 5,10 - dione, 4b,9b-dihydro-, 4661*e*.
1,4-Naphthoquinone, 2-phenyl-, 1372*g*.
$C_{16}H_{10}O_2S$ Benzo[*c*]naphth[1,8 - *ef*][1,2]oxathiepin, 8,8-dioxide, 4249*g*.
Benzo[*c*]naphth - *o* - oxathiin, 5,5 - dioxide, 4249*g*.
5 - Oxa - 6 - thiachrysene, 6,6 - dioxide, 4249*g*.
$C_{16}H_{10}O_4$ 9,10 - Anthracenedicarboxylic acid, 2096.
Anthraquinone, 2 - acetyl - 1 - hydroxy, 7019*f*.
Coumarilic acid, 3-(2,4-dihydroxyphenyl)methyl-, δ-lactone, 1771*gi*.
—, 3 - (2 - hydroxy - 4 - methoxyphenyl)-, δ-lactone, 1771*f*.
1,3 - Dioxolo[*h*][1,4*H*]benzopyran - 6-one, 8-phenyl-, 7935*d*.
$C_{16}H_{10}O_5$ 1,4*H* - Benzopyran - 4,5,8 - trione, 7 methoxy-2 phenyl-, 637*d*.
Coumarilic acid, 3-(2,4-dihydroxyphenyl) - 6 - methoxy-, δ lactone, 1772*a*
—, 5 - methyl - 3 - (trihydroxyphenyl) , δ-lactone, 1771*h*.
9 - Xantheneacrylic acid, 3,6,9 - trihydroxy-, γ-lactone, 7369*e*.
$C_{16}H_{10}O_6$ Coumarilic acid, 6-methoxy-3-(2,3,4 - trihydroxyphenyl)-, δ-lactone, 1772*a*.
Piperil, 7007*f*.
$C_{16}H_{10}O_7$ Trimellitic acid, 5 benzoyl , 1362*e*.
$C_{16}H_{10}O_8$ Peroxide, bis(*o*-carboxyphenyl), 3394*e*.
$C_{16}H_{11}BrN_4O_6$ Chalcone, α bromo-2 -methyl-3',5'-dinitro-, 4239*d*.
$C_{16}H_{11}Cl$ Naphthalene, 1-(*p*-chlorophenyl) , 206*i*.
$C_{16}H_{11}ClF_6N_2O_3S$ Acetanilide, α - chloro - *p*-(α,α,α,α',α',α' - hexafluoro - 3,5-xylylsulfamyl)-, 4648*i*.
$C_{16}H_{11}ClHgN_2O$ 2 - Naphthol, 1 - [*p* - (chloromercuri)phenylazo]-, 614*h*.
$C_{16}H_{11}ClN_2O$ 2-Naphthol, 4-chloro-1-phenylazo , 171*a*.
$C_{16}H_{11}ClN_2O_2$ 1 - Phthalazineacetic acid, 2 (*o* - chlorophenyl) - 1,2 - dihydro - 4-hydroxy-, ε-lactone, 236*i*.
$C_{16}H_{11}ClN_2O_3$ 3 - Quinolinecarboxylic acid, 8 - *p* - chloroanilino - 4 - hydroxy , 9038*c*.
$C_{16}H_{11}ClN_4O_2$ 2,4 - Pyrimidinediol, 5 - (*p* chlorophenylazo) - 6 - phenyl-, 3423*h*.
$C_{16}H_{11}Cl_4N_3O_4S_2$ Benzenethiol, (2,2,2 - trichloroethylidene)bis[nitro-, dicarbamate, 4657*h*.
$C_{16}H_{11}Cl_3O_4$ Benzoic acid, *p,p'*-(2,2,2 trichloroethylidene)di-, 6605*b*.
$C_{16}H_{11}Cl_4N_3O_3$ Mesoxalanilide, 2,2',4,4' tetrachloro-, *N*-methyloxime, 578*c*
$C_{16}H_{11}Cl_6N_3O_2$ Benzamide, *N,N'*-(2,2,2-trichloroethylidene)bis[*p* - chloro , 2967*e*.
$C_{16}H_{11}Cl_3O_2$ Ethane, 1,1,1 - trichloro - 2,2-bis(3,5 - dichloro - 4 - methoxyphenyl) , 1896*c*.
$C_{16}H_{11}F$ Naphthalene, 1-(*p* fluorophenyl)-, 207*a*.
$C_{16}H_{11}F_3N_2O$ 5 - Pyrazolone, 1 - phenyl 3 (α,α,α - trifluoro - *m* - tolyl) , 2211*f*.
$C_{16}H_{11}F_6NO_2$ Anthraquinone, 1-amino-1-methylamino - 2 - (trifluoromethyl)-, P 7709*f*.
$C_{16}H_{11}N$ 1-Fluoranthenamine, 7014*f*.
$C_{16}H_{11}NO$ Ketone, phenyl 2-quinolyl, 7025*a*
$C_{16}H_{11}NO_2$ (See also *Cinchophen*.)
Acrylonitrile, β - (3,4 - methylenedioxy phenyl) α-phenyl-, 596*h*.
Cinnamic acid, *o* - (*o* - cyanophenyl)-, 8378*a*.
Ketone, phenyl 5 phenyl-3-isoxazolyl, 2991*h*, 5394*d*.
Maleimide, *N*-biphenylyl-, P 4422*a*.
Naphthalene, 1-(*o*-nitrophenyl)-, 3401*g*
5(4*H*) - Oxazolone, 4 - benzylidene - 2-phenyl-, 4669*a*.
Oxindole, 3-phenacylidene-, 1411*e*.
Quinolinecarboxylic acid, phenyl-, 127*g*.
8-Quinolinol, benzoate, 9347*g*.
4 - Stilbenecarboxylic acid, α - cyano-, 198*f*.
$C_{16}H_{11}NO_2S$ 4 - Thiazolecarboxylic acid, 2,5-diphenyl-, 1400*a*.
$C_{16}H_{11}NO_3$ Benzoic acid, *o*-(2-phenylcarbamyl - 1 - hydroxyvinyl)-, lactone, P 7850*c*.
Cinchoninic acid, 2-hydroxy-3-phenyl-, 3502*i*, 3920*h*.
Cinchophen, 3-hydroxy-, 3502*i*, 3929*g*.
Juglone, anilino-, 201*i*, 202*a*.
$C_{16}H_{11}NO_4$ Anthranilic acid, *N*-2-oxo-1,2*H*-benzopyran-6-yl-, 7028*d*.
2 - Anthraquinonecarboxylic acid, 1-amino-, Me ester, P 866*d*, P 867*e*, P 7709*a*.
Phthalimide, *N*-(*o*-hydroxyphenacyl)-, 653*f*.
$C_{16}H_{11}NO_5$ Benzoic acid, *p*-(2-hydroxy-1,3-dioxo - 2 - indanylamino)-, 7012*i*.
Butyric acid, γ-hydroxy-β-(*p*-nitrophenyl) - α - oxo - γ - phenyl-, γ - lactone, 5766*h*.
Flavone, 6-methoxynitro-, 2621*e*, 9067*a*.
$C_{16}H_{11}NO_5S$ Benzenesulfonamide, *p*-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl)-, 1380*c*.
Benzenesulfonic acid, *o*-nitro-, naphthyl ester, 4249*e*.
$C_{16}H_{11}NO_6$ 2 - Stilbenecarboxylic acid, 3',4'-methylenedioxy - 4 - nitro-, 3812*c*.
$C_{16}H_{11}NaO_5S$ Benzenesulfonic acid, *p*-(2 hydroxy - 1 - naphthylazo)-, Na deriv., 4930*a*, 7788*d*.
Orange I, 1488*f*.
$C_{16}H_{11}N_3O$ Quino[3,4 - *b*]quinoxalin - 6 - ol, 3-methyl-, 5403*d*.
$C_{16}H_{11}N_3O_2$ Benzoic acid, *p*-(2-quinoxalylmethyleneamino)-, 3425*c*.
5*H* - Isoquindoline, 5 - methyl - 7-nitro-, 220*e*.
5*H* - Quinindoline, 5 - methyl - 9 - nitro-, 230*g*.
$C_{16}H_{11}N_3O_3$ Naphthol, (nitrophenylazo)-, 171*a*, 597*b*, 4661*d*.
$C_{16}H_{11}N_3O_4$ Isoquinoline, 1-(2,4-dinitrobenzyl)-, 4672*h*.
1,4 - Naphthoquinone, 2 - hydroxy-, *p* nitrophenylhydrazone(?), 7008*h*.
$C_{16}H_{11}N_3O_5$ Compd., decomp 325–8°, 653*f*
$C_{16}H_{11}N_3O_5S$ Benzenesulfonamide, *p*-(1,4 dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthylazo)-, 1380*h*.
$C_{16}H_{11}N_3O_6$ Azulene, compd. with trinitrobenzene, 6201*f*.
$C_{16}H_{11}N_3O_7$ Azulene, picrate, 6201*f*.
Naphthalene, picrate, 5274*i*.
Phenol, 3 - nitro - 2 - (5 - nitro - 1,3,2*H*-benzoxazin - 2 - yl)-, acetate, 1765*i*.
2 - Stilbenecarboxamide, 3',4' - methylenedioxy - 2',4 - dinitro-, 3812*b*.
$C_{16}H_{11}N_3O_{10}S_2$ 2,7 - Naphthalenedisulfonic acid, 4,5 - dihydroxy - 3 - (*p* - nitrophenylazo)-, 597*c*, 8954*e*.
$C_{16}H_{11}N_3O_{13}S_3$ 2 - Naphthol - 3,6 - disulfonic acid, 1 - (4 - nitro - 2 - sulfophenylazo)-, 8954*d*.
$C_{16}H_{11}N_3O_{13}S_3$ 2,7 - Naphthalenedisulfonic acid, 4,5 - dihydroxy - 3 - (4 - nitro-2-sulfophenylazo)-, 8954*d*.
$C_{16}H_{11}N_3S_2$ 2*H* - Pyrrolenine, 5 - (2 - thienyl) 2 - [5 - (2 - thienyl) - 2 - pyrrylimino]-, *di*- *HCl*, P 7848*b*.
$C_{16}H_{11}N_3O$ 2 - Pyrazoline - 3 - carbonitrile, 5-oxo - 1 - phenyl - 4 - phenylazo , P 8149*f*.
$C_{16}H_{11}N_3O_4$ Benzoic acid, *o*-[[*o*-carboxyphenylazo)cyanomethylene]hydrazino]-, 6589*i*.
$C_{16}H_{12}$ Anthracene, 9-vinyl-, 165*h*.
Indeno[2,1 - *a*]indene, 5,10 - dihydro-, 4662*d*.
Naphthalene, phenyl-, 3394*e*, 4569*c*, 8885*f*, 8888*f*.
$C_{16}H_{12}AsNiO_{11}S_2$ Benzenearsonic acid, 2-(2 hydroxy - 3,6 - disulfo - 1 - naphthylazo)-5-nitro-, 4174*i*, 8954*d*
$C_{16}H_{12}AsNiO_{13}S_3$ Benzenearsonic acid, 2-(1,8 - dihydroxy - 3,6 - disulfo - 2-naphthylazo)-5-nitro-, 8954*e*.
$C_{16}H_{12}AsO_5S_4$ Arsinic acid, di-2 thienyl , anhydride, 6102*g*.
$C_{16}H_{12}BrNO_2$ Anthraquinone, 1-bromo-1 ethylamino-, P 3205*d*.
$C_{16}H_{12}BrNO_3$ Anthraquinone, 1-bromo-4-(2-hydroxyethylamino)-, P 3205*f*.
$C_{16}H_{12}BrN_3O_2$ 1,4 - Naphthoquinone imine, 8 - amino - 2 - anilino - 6 - bromo - 5-hydroxy-, P 8167*a*.
$C_{16}H_{12}BrN_3O_3S$ Benzenesulfonamide, *p*-(bromohydroxyphenylazo) *N* - 2-pyrimidyl-, 9048*b*.
$C_{16}H_{12}Br_2N_2O_2S$ 8 - Quinolinesulfonanilide, 3',5'-dibromo-2-methyl-, 4649*c*.
$C_{16}H_{12}Br_2O_4$ 1,4 - Butanedione, 1,4 - bis(3-bromo - 4 - hydroxyphenyl)-, 5388*a*.
α,2,2' - Stilbenetriol, 5,5' - dibromo-, α-acetate, 4246*i*.
$C_{16}H_{12}Br_2O_5$ Anisil, 5,5'-dibromo-2,2'-dihydroxy-, 1036*a*.
$C_{16}H_{12}ClNO$ Quinoline, 4-(benzyloxy)-7-chloro-, 2997*i*.
$C_{16}H_{12}ClNO_2$ Quinoline, 4-(benzyloxy)-7-chloro-, 1-oxide, 2997*i*.

**$C_{16}H_{12}ClNO_3$** 9(10*H*) - Acridone, 10 - acetyl-6-chloro-2-methoxy-(?), 7002*e*.
**$C_{16}H_{12}ClNO_3S_2$** 1 - Naphthol - 3,6 - disulfonic acid, 8 - (*p* - chlorophenylsulfonamido)-, P 9458*i*, P 9459*b*.
**$C_{16}H_{12}ClN_3O_2$** 5 - Methyl - 7 - nitroquindolinium chloride, 229*e*.
5 - Methyl - 9 - nitro - 6*H* - quinindolinium chloride, 230*g*.
**$C_{16}H_{12}ClN_3O_3$** Quinoline, 4 - *p* - chloroanilino-6-methoxy-8-nitro-, 9037*f*.
**$C_{16}H_{12}Cl_2$** Indeno[2,1 - *a*]indene, 5,10 dichloro - 4b,5,9b,10 - tetrahydro-, 4661*k*.
**$C_{16}H_{12}Cl_2N_2$** Quinoline, 4 - chloro - 2 - *p*-chloroanilino-3-methyl , P 7974*b*.
**$C_{16}H_{12}Cl_2N_2O_2S$** 8 - Quinolinesulfonamide, 3',5' - dichloro - 2 - methyl , 4649*c*.
**$C_{16}H_{12}Cl_4N_2O_2$** 4,4' - Biacetanilide, 2,2',-5,5'-tetrachloro-, 3729*e*.
**$C_{16}H_{12}Cl_4O_6$** 4,2 - Cresotic acid, 3,5 - dichloro-6 - (3,5 - dichloro - 6 - hydroxy - 4-methoxy-*o*-toloxy)-, 608*h*
**$C_{16}H_{12}F_6N_2O_2S$** Acetanilide, *p*-(α,α,α,α',α',α'-hexafluoro - 3,5 - xylylsulfamyl) , 4648*g*.
**$C_{16}H_{12}F_6N_2O_6S_2$** Methanesulfonic acid, [*p*-(α,α,α,α',α',α'-hexafluoro - 3,5 - xylylsulfamyl)phenylcarbamyl] , 4648*i*
**$C_{16}H_{12}INO_2$** Iodine 1-naphthoate, compd. with pyridine, 5689*i*
**$C_{16}H_{12}IN_3O_4$** 2 - Methylnitro - 1 (nitrophenyl)isoquinolinium iodide, 7486*h*.
**$C_{16}H_{12}N_2$** Benzimidazole, 2,2'-vinylenebis-, P 5217*a*.
2 - Biphenylcarbonitrile, 2' - (2 - cyanoethyl)-, 8378*d*.
Dibenzo[*a,c*][1,3]cycloheptadiene - 6 carbonitrile, 5-imino , 8378*g*.
10*H* - Pyrido[3,4 - *b*]carbazole, 11-methyl , 6632*g*.
Quinindoline, methyl , 230*d*.
**$C_{16}H_{12}N_2O$** Imidazolone, benzylidene-2-phenyl-, 4111*f*, 8382*g*.
Naphthol, phenylazo-, 170*g*, 2600*c*.
Pyrazinol, 5,6-diphenyl-, 3009*h*.
Quinoline, 8 benzamido , 1777*f*.
**$C_{16}H_{12}N_2OSe$** Compd. subliming at about 250°, 6612*g*.
**$C_{16}H_{12}N_2O_2$** Cinchophen, 1'-amino-, 3000*e*.
5(4*H*) - Imidazolone, 4 - benzylidene - 1 hydroxy-2-phenyl , 8382*i*.
Isoquinoline, 1-*p*-nitrobenzyl , 4672*g*.
Maleimide, α-anilino-*N*-phenyl-, 9334*h*.
5(4*H*) - Oxazolone, 4 - (anilinomethylene)-2-phenyl-, 2618*e*.
1 - Phthalazineacetic acid, 1,2 - dihydro-4 - hydroxy - 2 - phenyl , ε - lactone, 237*i*.
3 - Pyrazolecarboxylic acid, 1,5 - diphenyl-, 4259*b*.
1*H* - Pyrazolo[5,1 - *a*]isoindole - dione, 3,3a - dihydro - 1 - phe 238*c*.
8-Quinolinol, carbamate, 593*g*
**$C_{16}H_{12}N_2O_2S_2$** 2 - Thiophenecarboxanilide, *N,N'-o*-phenylenebis , 4665*d*.
**$C_{16}H_{12}N_2O_3$** Barbituric acid, diphenyl-, 6945*i*.
Benzoic acid, *o*-(5-oxo-3-phenyl-2-pyrazolin-1-yl)-, 5024*i*.
Phthalimide, reaction product with *p*-tolyl isocyanate, 8365*i*.
—, *N*-(ω-aminophenacyl)-, 653*e*
Quinoline, 6 - methoxy - 8 - nitro - 4-phenyl-, 7025*h*.
4*H* - Quinolizine - 1 - carboxylic acid, 4-oxo 3-(2-pyridyl) , Me ester, 3828*b*
**$C_{16}H_{12}N_2O_4$** Benzene, *m* dinitro , compd. with naphthalene, 6070*f*.
**$C_{16}H_{12}N_2O_4S$** Anisonitrile, 3,3'-sulfonyldi , 6995*b*.
Benzenesulfonic acid, *p*-(hydroxy-1-naphthylazo)-, 4175*a*, *Na salt*, 4961*e*, 7521*e*.
Benzonitrile, sulfonylbis[methoxy-, 6995*ab*.
2 - Naphthol - 6 - sulfonic acid, 1 - phenylazo-, *Na salt*, 9451*f*.
**$C_{16}H_{12}N_2O_4$** Chalcone, 2'-methyl-3',5'-dinitro-, 4239*b*.
2 - Stilbenecarboxamide, 3',4' - methylenedioxy-4-nitro , 3812*b*.
**$C_{16}H_{12}N_2O_5S$** Acetanilide, *p* (phthalimidosulfonyl)-, 2597*f*.
Benzenesulfonic acid, *p* (3,4-dihydroxy-1-naphthylazo)-, 4175*f*.
2 - Propene - 1 - thol, 3 - phenyl , 3,5-dinitrobenzoate, 1044*a*.
**$C_{16}H_{12}N_2O_5$** Acrylic acid, bis(*p*-nitrophenyl)-, Me ester, 5772*i*, 7464*a*.
**$C_{16}H_{12}N_2O_6S$** 1,2*H* - Benzopyran - 3 - carboxylic acid, 2 - oxo - 6 sulfamidoamido-, 2180*b*.
**$C_{16}H_{12}N_2O_8$** Acetophenone, 2-hydroxy-5-methoxy-, 3,5-dinitrobenzoate, 2621*b*.
**$C_{16}H_{12}N_2O_8S_2$** 2 - Naphthol - 3,6 - disulfonic acid, 1 - (*p* - sulfinophenylazo)-, 8954*e*.
**$C_{16}H_{12}N_2O_{10}S_2$** 2 - Naphthol - 3,6 - disulfonic acid, 1-(*o*-sulfophenylazo)-, 8954*d*.
1 - Phenol - 2,4 - disulfonic acid, 6 - (1-sulfo-2-naphthylazo)-, 8954*d*.
**$C_{16}H_{12}N_2O_{11}S_3$** 2,7 - Naphthalenedisulfonic acid, 4,5 - dihydroxy 3 - (*o* - sulfophenylazo)-, 4175*f*.
**$C_{16}H_{12}N_2S$** Thiazole, 2-amino-4-(2-fluorenyl)-, *and - HI*, 7005*a*.
**$C_{16}H_{12}N_2S_2$** Benzothiazoline, 2 (2 benzothiazolylmethylene) 3 - methyl , 8292*b*.
[2,2' - Bi - 3,1,4*H* - benzothiazine], 4278*b*.
**$C_{16}H_{12}N_4$** Benzimidazole, 2,2' vinylenebis-, P 4303*b*, P 6241*b*, P 8174*c*.
Lepidine, 2 - (1*H* - benzotriazol - 1 - yl)-, 230*c*.
**$C_{16}H_{12}N_4O$** Benzamide, *p* (2 quinoxalylmethyleneamino)-, 3425*d*.
**$C_{16}H_{12}N_4O_2$** Naphthylamine, (*p*-nitrophenylazo)-, 597*d*.
**$C_{16}H_{12}N_4O_3S$** 1 - Naphthalenesulfonic acid, 4 (5 - amino - 2*H* - benzotriazol - 2 - yl)-, P 1575*f*.
2*H* - Naphtho[1,2]triazolesulfonic acid, 2-(*p*-aminophenyl)-, P 1575*b*, *c*.
**$C_{16}H_{12}N_4O_4$** 1,2 - 5 - Tetrazinedicarboxylic acid, 3,6-diphenyl-(?), 3821*e*.
**$C_{16}H_{12}N_4O_4S$** Benzenesulfonamide, *m*-nitro-*N*-(4 phenyl-2-pyrimidyl)-, P 7516*h*.
2*H* - Naphtho[1,2]triazole - 8 - sulfonic acid, 2 (*p* - ammophenyl) - 6 - hydroxy-, P 4485*e*.
**$C_{16}H_{12}N_4O_6S_2$** Benzimidazolesulfonic acid, 2,2' - vinylenebis-, *di Na salt*, P 8174*c*.
1,5 - Naphthalenedisulfonic acid, 4 (5-amino - 2*H* - benzotriazol - 2 yl) , P 1575*e*.
2*H* - Naphtho[1,2]triazoledisulfonic acid, 2-(*p*-aminophenyl) , P 1575*c*, P 4486*i*.
**$C_{16}H_{12}N_4O_7$** Naphthylamine, picrate, 1757*e*, 6070*g*.
Quinaldine, picrate, 7937*f*.
**$C_{16}H_{12}N_4O_8$** Oxazole, methyl 2-phenyl-, picrate, 2989*e*
**$C_{16}H_{12}N_4O_{10}$** Acetic acid, bis(2,4-dinitrophenyl)-, Et ester, 6175*c*.
**$C_{16}H_{12}N_6O_7S$** Benzamide, 3 nitro - 4 - (tetrahydro - 3,5 - dioxo - 4 - phenyl - 1,2,-4,2*H* - thiadiazin - 6 - ylazo) , 1,1 dioxide, P 4868*f*.
**$C_{16}H_{12}N_6O_8S$** Thiazole, 5 amino 2 benzamido-, picrate, 1400*f*
**$C_{16}H_{12}N_6O_9$** α Tetrome acid, bis(2,4-dinitrophenylhydrazone), 3816*e*
**$C_{16}H_{12}NaO_7P$** Chalcone, 3,4' dihydroxy-4-methoxy-, 4'-phosphate, Na deriv., di-Na salt, P 6235*i*.
**$C_{16}H_{12}O$** Indeno[2,1 - *a*]inden 5(4b*H*) one, 9b,10 dihydro , 4662*e*
Ketone, methyl 9 phenanthryl, 1762*b*
**$C_{16}H_{12}OS$** Ketone, 2 methyl-1-naphthyl 2-thienyl, 4665*f*
Phenoxathin, divinyl-, P 1223*i*
3(2*H*)-Thianaphthenone, 2 benzylidene-5-methyl , P 514*a*.
**$C_{16}H_{12}O_2$** Anthraquinone, 1,4-dimethyl-, 7472*h*.
2 - Butene - 1,4 - dione, 1,4 - diphenyl-, 622*g*.
Indone, 2-methoxy-3 phenyl , 1041*d*
Phenanthreneacetic acid, 3363*c*.
**$C_{16}H_{12}O_2S$** Dibenzothiophene, 2,8-diacetyl-, 2987*e*.
Thiophene, 3,4-diphenyl , 1,1-dioxide, 5777*e*.
**$C_{16}H_{12}O_3$** Benzoic acid, *p* cinnamoyl-, P 422*e*.
Coumarin, 3-benzyl 4 hydroxy , P 4702*a*.
Flavone, methoxy , 638*b*, 9067*a*.
1 - Fluorenecarboxylic acid, 9 - oxo , Et ester, 3402*e*, 4246*b*
Hydracrylic acid, β benzoyl-β-phenyl , lactone, P 1056*a*.
9,10 - Phenanthrenediol, acetate, 4663*f*.
**$C_{16}H_{12}O_3S$** 1 - Naphthol, 8 - (phenylsulfonyl)-, 7006*e*.
**$C_{16}H_{12}O_4$** Acrylic acid, β-(3,4 methylenedioxyphenyl)-α-phenyl-, 5027*i*.
Anthraquinone, 1,7 - dihydroxy - 2,6 - dimethyl , 210*e*
2 - Biphenylcarboxylic acid, 2' - (2 - carboxyvinyl) , 8378*a*.
Flavone, hydroxymethoxy , 637*a*, 640*e*, 1407*g*.
Stilbenedicarboxylic acid, 198*ghi*, 2983*a*
**$C_{16}H_{12}O_5$** Flavone, dihydroxymethoxy-, 640*e*, 3414*b*.
Isowogonin, 636*i*.
Oroxylin, 5397*d*.
*p* - Quinone, 2 - cinnamoyl - 3 - hydroxy-5-methoxy-, 182*b*.
Wogonin, 638*h*.
9 - Xanthenepropionic acid, 3,6,9 - tri hydroxy-, γ-lactone, 7369*e*.
**$C_{16}H_{12}O_6$** Allopedicinin, 5396*e*.
3(2*H*) - Benzofuranone, 2 - benzyliden 4,5,7 - trihydroxy - 6 - methoxy 4264*b*, 5397*a*.
Flavone, 5,7,8 - trihydroxy - 3 - methoxy-, 636*g*.
Piperonylonl, 7007*f*
Rhamnocitrin, 6315*b*.
**$C_{16}H_{12}O_7$** Isorhamnetin, 4233*h*, 4728*a*.
**$C_{16}H_{12}S_2$** Thiophene, 2,2'-styrylidenedi 4665*g*, 4746*g*.
**$C_{16}H_{12}S_4Sn$** Tin, tetra-2-thienyl-, P 9530*i*
**$C_{16}H_{13}AsN_2$** Pyridine, 2,2'-(phenylarsylene di-, *and di-HCl*, 1045*h*.
**$C_{16}H_{13}AsN_2O_4$** Benzenearsonic acid, 2-(hydroxy-1-naphthylazo) , 8954*d*.
**$C_{16}H_{13}AsN_2O_{10}S_2$** Benzenearsonic acid, *o* hydroxy - 3,6 - disulfo - 1 - naphthylazo)-, 4174*i*, 8954*d*.
**$C_{16}H_{13}AsO_7$** Arsinic acid, 2-naphthylphenyl 3382*h*.
**$C_{16}H_{13}BrCl_4FeNO$** (*p* - Bromophenyl) methylphenylisoxazolium chloride compd. with $FeCl_4$, 7020*i*.
**$C_{16}H_{13}BrN_4O_2S$** Acetanilide, *p* [(bromo-, quinoxalyl)sulfamyl] , 3384*d*.
**$C_{16}H_{13}BrN_4O_3$** *p* - Toluic acid, 3,5 - dinitro *p* - bromo - α - methylbenzylidene hydrazide, 6972*e*.
**$C_{16}H_{13}BrO$** 9-Anthracenethanol, 10 bromo 209*c*.
**$C_{16}H_{13}BrO_2$** Acetophenone, α-bromo-4 hydroxy-3-methyl , benzoate, P 5014*i*
**$C_{16}H_{13}Br_7Cl_2$** Ethane, 2,2-bis(bromotolyl) 1,1,1-trichloro , 2359*h*, 9332*g*
**$C_{16}H_{13}Br_2N_3O_3$** Mesoxalamide, *p,p'* di bromo-, methoxyoxime, 578*i*
**$C_{16}H_{13}Cl$** Naphthalene, 4 (*p* chlorophenyl) 1,2 dihydro-, 206*i*
**$C_{16}H_{13}ClN_2$** 5 - Methyl - 6*H* - quinindolinium chloride, 230*f*
Quinoline, 4 - chloro 2 - *p* - toluidino , 7974*b*.
**$C_{16}H_{13}ClN_2O$** *p* - Cresol, α - (7 - chloro 4 quinolylamino) , 2212*f*
Phthalazine, 2 - (*o* chlorophenyl) 1,2 dihydro - 4 - methoxy 1 methylene , *and -perchlorate*, 237*d*
Quinoline, 4 - chloro 2 - *p* methoxyanilino , P 7974*b*
**$C_{16}H_{13}ClN_2O_2$** Fumaramide, α chloro 9334*h*
**$C_{16}H_{13}ClN_2O_4$** Phthalaldehydic acid, acetyl (*o* chlorophenyl)hydrazone , 237*i*.
1 - Phthalazineacetic acid, 2 - (*o* chlorophenyl) - 1,2 - dihydro 4 hydroxy 2368*h*.
**$C_{16}H_{14}ClN_2O_4S$** Hydantoin, 5 [*p* (*p* chlorophenylsulfonyl)benzyl] , 6978*f*
**$C_{16}H_{13}ClN_2O_5S_2$** 1 Naphthalenesulfonamide *N* (4-chloromethanilyl) , P 8150*h*
**$C_{16}H_{13}ClN_2O_6S$** 1 - Phthalazineacetic acid, 2 - (*o* - chlorophenyl) - 1,2 - dihydro 4-sulfo-, *mono Na salt*, 236*g*
**$C_{16}H_{13}ClN_4O_2S$** Acetanilide, *p* [(chloro 2 quinoxalyl)sulfamyl] , 174*h*, 3384*d*
**$C_{16}H_{13}ClO_7$** Chalcone, 2 chloro-β methoxy 2972*b*.
Fluorenecarboxylic acid, 9 chloro-, Et ester, 3811*e*
**$C_{16}H_{13}ClO_4$** 7 - Hydroxy 4' - methoxyflavylium chloride, P 6100*i*, P 7849*e*
**$C_{16}H_{13}ClO_7$** Petunidin, 9359*d*.
**$C_{16}H_{13}Cl_2NO_3$** Mesoxalamide, *p,p'* di chloro-, *N* methyloxime, 578*i*
**$C_{16}H_{13}Cl_2N_3S$** 2(1*H*) - 6 - Triazinethione, 4 (*p* - chloroanilino) - 1 (*p* chlorophenyl) 4 - methylamino , 2948*h*
**$C_{16}H_{13}Cl_3F_2$** Ethane, 1,1,1 trichloro bis(fluorotolyl)-, 6186*h*
**$C_{16}H_{13}Cl_3F_2O_2$** Ethane, 1,1,1 - trichloro bis(3 - fluoro - 4 - methoxyphenyl) , P 351*a*.
**$C_{16}H_{13}Cl_3N_2O_2$** Benzamide, (2,2,2 trichloroethylidene)bis , 2967*d*, 6605*a*.
**$C_{16}H_{13}Cl_3N_2O_2S_2$** Benzenethiol, *p,p'* - (2,2,2 trichloroethylidene)di-, dicarbanate, 4657*g*.
**$C_{16}H_{13}Cl_3$** Butane, 2,2,3 - trichloro - 1,1 - bis (chlorophenyl)-, 345*g*, P 7188*a*, 9332*b*
Ethane, 1,1,1 - trichloro - 2,2 - bis(chlorotolyl)-, 3137*f*, 9332*h*.
**$C_{16}H_{13}Cl_3S$** Chloral, bis(*p*-chlorobenzyl)mercaptal, P 6358*h*.
**$C_{16}H_{13}F$** Naphthalene, 4-(*p*-fluorophenyl) 1,2-dihydro-, 207*a*.
**$C_{16}H_{13}N$** (See also *Naphthylamine, phenyl-*) Aniline, *o*-1-naphthyl-, 3401*g*.

Indeno[1,7 - *gh*]quinoline, 4,5 - dihydro-9-methyl-, 193*h*.
Isoquinoline, 1-benzyl-, 4671*e*.
$H_{13}NO$ Acetamide, *N*-1-phenanthryl-, 4664*c*.
2 - Biphenylcarbonitrile, 2′ - propionyl-, 8377*g*.
Carbostyril, 8-methyl-4-phenyl-, 228*h*.
Indeno[2,1-*a*]inden-5(4b*H*)-one, 9b,10-dihydro-, oxime, 4062*e*.
Oxazole, 4-methyl-2,5-diphenyl-, 4227*b*.
Quinoline, 2-(benzyloxy)-, 2997*i*.
Quinolinol, 5-benzyl-, 5860*g*.
—, 8-methyl-2-phenyl-, 228*h*.
$H_{13}NOS$ Acetophenone, α - (3 - methyl - 2-benzothiazolinylidene)-, 4262*g*.
2 - Thiophenecarboxamide, methyl - *N*-naphthyl-, 4666*d*, *e*.
$H_{13}NO_2$ Acrylonitrile, α - (*p* - hydroxyphenyl)-β-(*p*-methoxyphenyl)-, 2607*c*.
Anthraquinone, 1-ethylamino-, P 3205*f*.
Compd., m. 166–7°, 7472*a*.
Hydrocinnamic acid, *o*-(*o*-cyanophenyl)-, 8378*a*.
1,2 - Indandione, 3 - methyl-, anil oxide, 7472*a*.
Oxindole, 3-phenacyl-, 1411*f*.
Phenanthro[2,1 - *d*]isoxazole, 10,11-dihydro-7-methoxy-, P 7054*f*.
1,6 - Quinolinediol, 2 - *p* - tolyl-, 3002*f*.
Succinimide, *N*-2 biphenylyl-, P 4422*b*
$H_{13}NO_3S$ 5(4*H*) - Oxazolone, 4 - (5 - ethyl-2 - thenylidene) - 2 - phenyl-, 7930*b*.
Phenol, *p* - (6 - methyl - 2 - benzothiazolyl)-, acetate, 3292*h*
Thiaxanthone, 1-acetamido-4-methyl-, 226*d*.
2 - Thiazoleacetic acid, 2 - methyl - 4-(naphthyl) , P 5048*e*, P 8401*e*
$H_{13}NO_2S_2$ 5 - Thiazoleacetic acid, 2 - methylmercapto - 4 - (naphthyl)-, P 8401*f*.
Thiazole, 2 - (*p* - methylsulfonylphenyl) - 4-phenyl-, 1740*e*.
$H_{13}NO_4$ Anthraquinone, 1-(2 hydroxyethylamino) , P 3205*f*
Cinnamic acid, α-benzamido , 4669*b*
2 - Indolecarboxylic acid, (benzyloxy)-, 1765*cd*.
Mandelonitrile, *p* - methoxy-, benzoate, 2974*h*.
Naphthalenepyruvic acid, β-cyano , Et ester, 1746*g*.
Phthalimide, *N*-o-phenetyl , P 4422*b*.
Xanthone, 1 - acetamido - 4 - methyl , 225*d*
$H_{13}NO_3S$ Benzenesulfonic acid, o-amino , naphthyl ester, 1249*e*
1 - Naphthalenesulfonic acid, 8 - anilino , P 5195*b*, P 5962*f*, P 7701*e*
10 - Phenothiazinebutyric acid, γ - oxo , P 3853*i*.
$H_{13}NO_4$ Evoxanthine, 648*i*
$H_{13}NO_3S$ See *Naphtholsulfonic acid, anilino-*.
$H_{13}NO_5$ 6 - Benzofuranol, 2,3 - dihydro - 7 - methyl , *p* - nitrobenzoate, 3412*h*.
$H_{13}NO_6$ Acetophenone, 2 - hydroxy - 5-methoxy , *p* - nitrobenzoate, 2621*b*
Phthalic acid, 3 nitro-, methylbenzyl ester, 5767*a*.
1,3 - Propanedione, 1 - (2 - hydroxy - 5-methoxyphenyl) - 3 - (*p* - nitrophenyl)-, 2621*d*.
Pyruvic acid, [(benzyloxy) - 2 - nitrophenyl]-, 1765*cd*.
$C_6H_{13}NO_5S$ Phthalide, dimethoxy-3-(nitrophenylmercapto) , 6179*e*
$C_{16}H_{13}NO_5S_2$ 1 - Naphthol - 3 - sulfonic acid, 6,8 sulfoamino , P 4471*i*.
$C_{16}H_{13}NO_5S$ Phthalide, dimethoxy-3-(nitrophenylsulfonyl)-, 6179*d*
$C_{16}H_{13}NO_6S_2$ 1 - Naphthol - 3,6 - disulfonic acid, 8 - phenylsulfonamido , P 9458*h*
$C_{16}H_{13}NS$ Thiazole, 4-(4-biphenylyl)-2-methylmercapto-, 633*h*.
$C_{16}H_{14}NP$ Phosphine, phenyldi-2-pyridyl-, *and di-HCl*, 1045*h*.
$C_{16}H_{14}NPS$ Phosphine sulfide, phenyldi-2-pyridyl , *and di-HCl*, 1046*e*.
$C_{16}H_{14}N_2$ Pyrazine, 3-amino-2,5-diphenyl , 3005*f*, 7487*g*.
Pyridine, 2,2′-phenyliminodi-, 1046*e*.
Quindoline, 5,11 - dihydro - 11 - imino-3 methyl-, 229*h*.
$C_{16}H_{14}N_2O$ Acetic acid, cyanophenyl-, benzylidenehydrazide, 4223*a*.
$C_{16}H_{14}N_2OS$ Thiazole, 5-amino-2-benzamido-4-phenyl , 1401*d*.
$C_{16}H_{14}N_2O_2S$ Acetanilide, *p* - (3 - hydroxy-2-thianaphthenylazo)-, 6204*h*.
$C_{16}H_{14}N_2O_3S_2$ Sulfathiazole, reaction product with BzH, 4238*a*.
$C_{16}H_{14}N_2O_3S_2$ Sulfathiazole, reaction product with salicylaldehyde, 4238*a*.
$C_{16}H_{14}N_2O_4S$ 1 - Naphthol - 3 - sulfonic acid, 6-amino-5-phenylazo-, P 4481*i*, P 8161*c*.
$C_{16}H_{14}N_2O_5$ Acetanilide, 2,6-dinitro-4-styryl-, 592*g*.
$C_{16}H_{14}N_2O_6$ Diacetamide, α,α′-bis(*p*-nitrophenyl)-, 4241*g*.
$C_{16}H_{14}N_2O_6S_2$ Gallanilide, 4′-(2-thiazolyl sulfamyl)-, 5860*h*.
$C_{16}H_{14}N_2O_7S$ Thianaphthene, 3,5-dimethyl-, picrate, 7475*d*.
$C_{16}H_{14}N_2O_8S_2$ 2,7 - Naphthalenedisulfonic acid, 3 - (*p* - aminophenylazo) - 4,5-dihydroxy-, 4175*f*.
$C_{16}H_{14}N_2O_8$ Acetic acid, phenylpicryloxy-, Et ester, 2942*g*.
$C_{16}H_{14}N_2O_3S$ Acetanilide, *p* - [(nitro - 2-quinoxalyl)sulfamyl]-, 3384*d*.
$C_{16}H_{14}N_2O_7$ Imidazole, 1-benzyl-, picrate, 3410*e*.
$C_{16}H_{14}N_7O_6$ 2 - *s* - Triazinol, 4 - amino - 6-[5 - hydroxy - 2 - (*m* - nitrophenylazo) phenoxy]methyl]-, P 7711*a*.
$C_{16}H_{13}Na_2O_7P$ Chalcone, dihydroxymethoxy-, phosphate, di-Na salt, P 6236*a*
$C_{16}H_{14}$ Anthracene, 9,10-dimethyl-, 498*b*.
Biphenyl, 4,4′-divinyl-, 165*h*, P 5803*c*, P 7746*d*
Bistyryl, 931*b*, 1634*a*, 3270*b*.
1,3-Butadiene, 2,3-diphenyl-, 7006*b*.
Fluoranthene, 1,2,3,10b - tetrahydro , 7474*a*.
Phenanthrene, dimethyl-, 211*b*, 1390*g*
—, ethyl-, 8376*h*.
$C_{16}H_{14}AsN_3O_{16}S_2$ *m* - Arsanilic acid, 6 - (2 hydroxy - 3,6 - disulfo - 1 - naphthylazo)-, 4174*i*.
$C_{16}H_{14}BrN$ Butyronitrile, γ-bromo-α,α-diphenyl-, 4243*b*, 9052*i*.
$C_{16}H_{14}BrNOS$ Phenothiazine, 10 (α-bromobutyryl) , 7938*d*.
$C_{16}H_{14}BrNO_2$ Acetamide, α-bromo-*N*-phenacyl-α-phenyl-, 7487*g*.
$C_{16}H_{14}BrN_3O_4$ *p* - Toluic acid, 3 - nitro-, *p* bromo - α - methylbenzylidenehydrazide, 6973*i*.
$C_{16}H_{14}Br_2N_2$ Acetophenone, *p*-bromo-, azine, 5756*a*.
Aniline, *N*, *N*′ - (dimethylacetylene)bis-[*p*-bromo , 5756*a*.
$C_{16}H_{14}Br_2N_2O_4S$ Phthalamic acid, *N*-[2-(3,5 - dibromophenylsulfamyl)ethyl] , P 3450*j*.
$C_{16}H_{14}Br_2O_2$ Stilbene, dibromo-3,5-dimethoxy-, 1038*c*.
Xanthene, 2,7 - dibromo - 9 - isopropoxy-, 3822*f*.
, 2,7 - dibromo - 9 - propoxy-, 3822*f*
$C_{16}H_{14}Br_2O_4S_2$ Compd., m. 117–19°, 1347*f*
$C_{16}H_{14}Br_4O_2$ Bibenzyl, tetrabromo-3,5 dimethoxy-, 1038*c*
$C_{16}H_{14}ClN$ 1-Benzylquinolinium chloride, 645*d*.
Butyronitrile, γ - chloro - α,α - diphenyl , 9052*h*.
Indole, 3-(*p*-chlorophenyl)-1-ethyl-, 218*f*.
$C_{16}H_{14}ClNOS$ Thiaxanthone, 1-(2-chloroethylamino) - 4 - methyl , 226*e*.
$C_{16}H_{14}ClNO_2$ Pyruvyl chloride, phenyl-, *O*-benzyloxime, P 5422*e*.
Xanthone, 1 - (2 - chloroethylamino) - 4-methyl-, 225*e*.
$C_{16}H_{14}ClNO_3S$ 4(1*H*) - Quinolone, 7 - chloro-2,3 - dihydro - 1 - *p* - tolylsulfonyl-, 8387*d*.
$C_{16}H_{14}ClNO_4$ Anthranilic acid, *N*-acetyl-4-chloro - *N* - (*p* - methoxyphenyl)-, 7002*c*.
$C_{16}H_{14}ClN_3$ Aminomethylquindolinium chloride, 229*f*, *g*.
$C_{16}H_{14}ClN_3O$ + $H_2O$ Quinoline, 8-amino-4-*p*-chloroanilino-6-methoxy-, 9037*h*.
$C_{16}H_{14}Cl_2$ Ethylene, 1,1 dichloro-2,2-di *p*-tolyl-, P 5899*b*.
$C_{16}H_{14}Cl_2N_2O_7$ 1′ - (2,5 - Dihydroxyphenyl) 1,4′ - bipyridinium dichloride, 5683*c*.
$C_{16}H_{14}Cl_2O_2$ Acetic acid, bis(*p*-chlorophenyl)-, Et ester, 3137*h*.
$C_{16}H_{14}Cl_6$ Ethane, 1,1,1 - trichloro - 2 - (*p*-chlorophenyl) - 2 - (2,4 - xylyl)-, 3137*f*.
$C_{16}H_{14}CuN_2O_2$ *o* - Cresol, α,α′ - (ethylenedinitrilo)di-, Cu deriv., 4073*e*.
$C_{16}H_{13}F_3N_2O_3S$ *o* - Toluenesulfono - 3,5 - xylide, 4 - amino - α²′,α³′,α⁴′,α⁵′,α⁶′-hexafluoro-5-methoxy-, 4649*c*.
$C_{16}H_{14}Hg_2O_6$ *p*,*p*′ - Biphenol, 3,3′ - bis(hydroxymercuri)-, 3,3′-diacetate, 5018*d*.
$C_{16}H_{14}IN$ 2 - Methyl - 1 - phenylisoquinolinium iodide, 6631*b*.
$C_{16}H_{14}IN_3$ 7 - Amino - 5 - methylquindolinium iodide, 229*f*.
$C_{16}H_{14}N_2$ 2 - Naphthylamine, 8 - (*p* - aminophenyl)-, 606*e*.
*m* - Phenylenediamine, *N* - naphthyl-, 647*f*.
$C_{16}H_{14}N_2O$ Benzamide, *N*-α-cyanobenzyl-*N*-methyl-, 6176*d*.
[1,2′ - Biisoindolin] - 3 - one, 623*i*.
Hydrocinnamamide, *o*-(*o*-cyanophenyl)-, 8378*d*.
1 - Indolecarboxanilide, 3 - methyl-, 8365*g*.
Indole, 5 - methyl - 1 - nitroso - 2 - *p*-tolyl-, 218*d*.
Indolo[4,3 - *fg*]quinolin - 8(6*H*) - one, 4,6a,7,9 - tetrahydro - 7 - methyl - 9-methylene-, 7031*h*.
Oxindole, 5 - methyl - 3 - *p* - tolylimino-, 1396*d*.
Phenanthridine, 4 - acetamido - 6-methyl , 7487*b*.
5 - Pyrazolone, 1 - (2 - biphenylyl) - 3-methyl-, P 2238*f*, P 2239*h*.
Pyridine, 3 - (1 - benzoyl - 2 - pyrrolin-2-yl)-, 5306*g*.
Pyrimidone, 5,6 - dihydro - 2,6 - diphenyl-, 236*d*, 3821*h*.
Quinoline, 8 - amino - 6 - methoxy - 4-phenyl-, 7025*e*.
$C_{16}H_{14}N_2OS$ Acetanilide, *p*-(6 methyl 2 benzothiazolyl)-, 3292*h*.
Hydantoin, 1 - benzyl - 3 - phenyl - 2 thio-, 4229*b*.
3(2*H*) - Thianaphthenone, 2 - (*p* - dimethylaminophenylimino)-, P 7706*i*, P 9470*h*.
Thiazole, 2 *o*-methoxyanilino-4 phenyl , 3819*g*.
$C_{16}H_{14}N_2O_2$ Alanine, *N*-9-acridyl , 3826*b*.
1,3 - Dioxolo[*g*]isoquinoline, 7,8 - dihydro - 5 - (2 - pyridylmethyl) , *and di-HCl*, 1412*g*.
—, 5,6,7,8 - tetrahydro - 5 - (2 - pyridylmethylene), 1412*g*.
Hydantoin, 1 - methyl - 5,5 - diphenyl-, 3016*c*.
Phenol, *p* - (6 - methoxy - 4 - quinolylamino)-, P 7514*h*.
4,4′ - Stilbenedicarboxamide, 4813*h*.
$C_{16}H_{14}N_2O_2S$ Dibenzothiophene, 2,8-diacetamido-, 2987*e*.
Dibenzothiophene, 2,8 - diacetyl-, dioxime, 2987*e*
$C_{16}H_{14}N_2O_3$ Cinnamohydroxamic acid, α-benzamido-, 8382*h*.
Cyclopropanecarboxanilide, (*p* - nitrophenyl)-, 635*g*, 9042*b*.
1 - Phthalazineacetic acid, 1,2 - dihydro-4 - hydroxy - 2 - phenyl-, 237*h*.
1*H* - Quinolizine - 1 - carboxylic acid, 4,9a - dihydro - 4 - oxo - 3 - (2 - pyridyl) , Me ester, 4270*b*
$C_{16}H_{14}N_2O_3S$ 5 - Pyrazolone, 3 - (*p* - methylsulfonylphenyl) - 1 - phenyl-, 1740*b*.
4 - Thiazolidone, 3 - benzyl - 2 - (*m*-nitrophenyl)-, 634*d*.
$C_{16}H_{14}N_2O_4$ Tartronamide, α-phenyl-, benzoate, 2974*g*.
$C_{16}H_{14}N_2O_4S$ Biphenylsulfonic acid, (3 methyl - 5 - oxo - 2 - pyrazolin - 1-yl)-, P 2238*f*.
Dibenzothiophene, 2,8 - diacetamido-, 5,5-dioxide, 2987*f*.
Hydantoin, 5 - [*p* - (phenylsulfonyl)benzyl]-, 6978*e*.
$C_{16}H_{14}N_2O_4S_2$ Diacetanilide, *p*-(*p*-nitrophenyldithio)-(?), 3802*h*.
Naphthalenesulfonamide, *N* - (*o* - aminophenylsulfonyl)-, P 8149*i*.
$C_{16}H_{14}N_2O_5$ Benzoic acid, *p*-(*p*-nitrobenzamido)-, Et ester, 1031*g*.
$C_{16}H_{14}N_2O_6$ Pyruvic acid, [(benzyloxy)-2-nitrophenyl]-, oxime, 1765*cd*.
$C_{16}H_{14}N_2O_6S$ Phthalamic acid, *N*-(*N*-acetylsulfanilyl)-, 2397*f*.
$C_{16}H_{14}N_2O_7S$ Succinanilic acid, *p*-(*p*-nitrophenylsulfonyl)-, P 5042*b*.
$C_{16}H_{14}N_4$ Imidazolecarboxaldehyde, 1-phenyl-, phenylhydrazone, 8381*i*.
Pyrimidine, 2 - (α - 2 - pyridylbenzylamino)-, *and di-HCl*, 2206*b*.
$C_{16}H_{14}N_4O_2$ Glycoluril, 3a,6a-diphenyl-, 348*g*.
Isatin, 1 - benzyl-, 3 - semicarbazone, 8979*i*.
$C_{16}H_{14}N_4O_3S$ Metanilamide, $N^1$-(4-phenyl-2-pyrimidyl)-, P 7517*c*.
Sulfanilamide, $N^1$ - (6 - phenyl - 3 - pyridazyl)-, 178*d*.
$C_{16}H_{14}N_4O_4S_2$ 2,2′ - Bibenzothiazole, 6,6′-diamino - 5,5′ - dimethoxy-, 5776*h*.
$C_{16}H_{14}N_4O_5$ 3 - Pyrazolidone, 4 - benzamido-1 - nitroso - 5 - phenyl-, 4669*e*.
$C_{16}H_{14}N_4O_5S$ Acetanilide, *p*-(quinazolylsulfamyl)-, P 7042*h*.

Acetanilide, *p* - (quinoxalylsulfamyl)-, 174*i*, 3385*c*.
Hydrazine, 1 - (1 - phenylimidazolylcarbonyl) - 2 - (phenylsulfonyl)-, 8381*i*.
$C_{16}H_{14}N_4O_4$ Acetophenone, *m*-nitro-, azine, 5756*a*.
Aniline, *N, N'* - (dimethylacetylene)-bis[*m*-nitro-, 5756*a*.
Succinic acid, dioxo-, bis(phenylhydrazone), 2667*g*.
$C_{16}H_{14}N_4O_4S$ 2 - Indolecarboxylic acid, 5-methyl(*p* - sulfamylphenylazo)-, P 6662*g*.
$C_{16}H_{14}N_4O_4S_2$ *p* - Benzenedisulfonamide, *N, N'* - di - 2 - pyridyl-, 4237*e*.
$C_{16}H_{14}N_4O_6$ *p* - Toluic acid, 3,5 - dinitro-, *α*-methylbenzylidenehydrazide, 6972*e*.
$C_{16}H_{14}N_4O_6$ 5 - Benzofurancarboxaldehyde, 2,3-dihydro-6-hydroxy-3-methyl-, 2,4-dinitrophenylhydrazone, 3413*a*.
Chromanone, 7 - hydroxy - 2 - methyl-, 2,4 - dinitrophenylhydrazone, 1771*c*.
—, methoxy-, 2,4 - dinitrophenylhydrazone, 1770*i*, 1771*a*.
Feruloldehyde, 2,4-dinitrophenylhydrazone, 4461*g*.
$C_{16}H_{14}N_4O_6S$ Pyruvic acid, (benzylmercapto)-, 2,4 - dinitrophenylhydrazone, 1845*a*.
$C_{16}H_{14}N_4O_6S_2$ Acetanilide, 4,4'-dithiobis[3-nitro-, 5776*d*.
Benzimidazolesulfonic acid, 2,2'-ethylenebis-, *di-Na salt*, P 8174*a*.
$C_{16}H_{14}N_4O_7$ Picrate, m. 156°, 1427*d*.
$C_{16}H_{14}N_4O_8$ 2-Oxazoline, 2-benzyl-, picrate, P 7512*h*.
$C_{16}H_{14}N_4S_2$ Urea, 1 - (2 - anilino - 5 - thiazolyl) - 3 - phenyl - 2 - thio-, 1401*h*.
$C_{16}H_{14}N_6$ Benzimidazole, 2,2' - vinylenebis-[6-amino-, P 8146*a*.
$C_{16}H_{14}N_6O$ Benzanilide, 3'-(4,6-diamino-s-triazin-2-yl)-, 238*e*.
$C_{16}H_{14}N_4O_4$ Fumaraldehyde, bis(*p* - nitrophenylhydrazone), 4219*g*.
$C_{16}H_{14}N_6O_5$ 4(1 *H*) - Pyrimidone, tetrahydro-2 - imino - 6 - phenyl-, picrate, 3793*f*.
$C_{16}H_{14}N_8O_8$ 2,3 - Butanedione, bis(2,4 - dinitrophenylhydrazone), 3795*b*.
$C_{16}H_{14}N_8O_9$ Lactaldehyde, *β*-methoxy-, 2,4-dinitrophenylosazone, 4641*i*.
$C_{16}H_{14}NaO_7P$ Chalcone, 3,4' - dihydroxy - 4-methoxy-, 4'-phosphate, Na deriv., *di-Na salt*, P 6235*i*.
$C_{16}H_{14}O$ 9 - Anthracenëthanol, 208*i*.
Chalcone, methyl-, 1633*a*, 8434*h*.
2 - Cyclopenten - 1 - one, 2 - methyl - 3-(2-naphthyl)-, 241*i*.
Dypnone, 4401*g*.
1(2 *H*) - Naphthalenone, 3,4 - dihydro-2-phenyl-, 4251*a*.
Phenanthrene, methoxymethyl-, 8377*a*.
9(10 *H*) - Phenanthrone, 10,10 - dimethyl-, 4663*e*.
$C_{16}H_{14}O_2$ Benzofuran, 6-(benzyloxy)methyl-, 3412*hi*.
Butanedione, 1,4 - diphenyl-, 2991*a*, 5394*e*, 7909*g*.
Butyric acid, hydroxydiphenyl-, lactone, P 1056*c*, 3396*h*, 4244*a*, 9054*f*.
Chalcone, 4'-hydroxy-*α*-methyl-, 8434*h*.
—, methoxy-, 7001*a*, 7453*d*.
1 - Fluorenecarboxylic acid, Et ester, 4246*b*.
Hydrobenzoin, *α*-ethynyl-, 1754*c*.
Indeno[2,1 - *a*]indene - 5,10 - diol, 4b,-5,9b,10-tetrahydro-, 4661*f*.
1,4 - Naphthoquinone, 4a,5,8,8a - tetrahydro-5-phenyl-, P 3650*f*.
9-Phenanthrol, 10-ethoxy-, 4663*f*.
4(1 *H*) - Phenanthrone, 2,3 - dihydro - 3-(methoxymethylene)-, 4347*c*.
$C_{16}H_{14}O_2S$ Acetophenone, *p,p'*-thiodi , 7450*f*.
10 - Thiaxantheneacetic acid, Me ester, 3363*i*.
$C_{16}H_{14}O_2S_2$ Acetophenone, *p,p'*-dithiodi , 7450*f*.
$C_{16}H_{14}O_2S_3$ Formic acid, thiobis[thiono-, dibenzyl ester, 144*d*.
$C_{16}H_{14}O_2S_4$ Formic acid, dithiobis[thiono-, dibenzyl ester, 6983*i*.
$C_{16}H_{14}O_3$ 5 - Acenaphthenebutyric acid, *γ*-oxo-, P 7509*g*.
Acetic acid, phenyl-, anhydride, 2110*f*.
Benzoic acid, *o*-(2-benzoylethyl)-(?), 2174*h*.
—, *o*-benzoyl-, Et ester, 191*g*, P 8741*f*.
2-Biphenylcarboxylic acid, 2'-propionyl-, 8378*b*.
Chalcone, 2'-hydroxymethoxy-, 640*g*, 1407*g*.
Flavanone, 5-methoxy-, 1407*g*.
Glycidic acid, *β,β*-diphenyl-, Me ester, 1041*b*.
Hydratropic acid, *β*-benzoyl-, 1039*h*.
1(2 *H*)-Phenanthrone, 3,4-dihydro-2-(hydroxymethylene) - 7 - methoxy-, P 7054*h*.
1,3-Propanediol, 2,2-diphenyl-, cyclic carbonate, 9042*g*.
1,3-Propanedione, 2-methoxy-1,3-diphenyl-, 4248*c*.
Pyruvic acid, diphenyl-, Me ester, 1041*c*.
$C_{16}H_{14}O_3S$ Acetic acid, (desylmercapto)-, 1753*h*.
$C_{16}H_{14}O_4$ Acetic acid, (*p*-benzoylphenoxy)-, Me ester, 3364*f*.
Acetophenone, 2-hydroxy-5-methoxy-, benzoate, 2621*b*.
Ammidin, 1910*e*.
Anisil, 1368*b*, 3010*b*, 7927*g*.
Benzaldehyde, 4 - ethoxy - 3,4' - oxydi-, 3017*h*.
Benzil, dimethoxy-, 3010*b*.
3,3'-Biacetophenone, 4,4'-dihydroxy-, 5018*c*.
*p,p'*-Biphenol, diacetate, 5017*i*.
2-Biphenylcarboxylic acid, 2'-(2-carboxyethyl)-, 8378*b*.
—, 2'-hydroxy-4,4'-dimethoxy-6-methyl-, *γ*-lactone, 5023*g*.
2,6-Biphenyldiacetic acid, 2614*a*.
4,4'-Biphenyldicarboxylic acid, di-Me ester, 9332*e*.
1,4 - Butanedione, 1,4 - bis(*p* - hydroxyphenyl)-, 5388*a*.
Chalcone, dihydroxymethoxy-, 640*h*, 1407*h*, 7935*a*.
Flavanone, hydroxymethoxy-, 7935*b*.
Hydroquinone, phenyl-, diacetate, 2182*a*.
Imperatorin, 1910*e*.
Peroxide, bis(phenylacetyl), 3394*e*.
1,3-Propanedione, 1-(2-hydroxy-5-methoxyphenyl)-3-phenyl-, 2621*d*.
Propionic acid, *α*-benzoyl-*α*-phenoxy-, 4248*e*.
—, *β* - (3,4 - methylenedioxyphenyl) - *α*-phenyl-, 5027*c*.
—, *β*-*p*-phenoxybenzoyl-, P 7509*f*.
Pyrocatechol, 4-phenyl-, diacetate, 2182*a*.
Salicylic acid, Me ester, phenylacetate, P 4702*a*.
*p* Toluic acid, *α*-anisoyl-, 4655*a*.
$C_{16}H_{14}O_4S$ Acetophenone, *p,p'*-sulfonyldi-, 7450*f*.
Benzoic acid, *p,p'*-thiodi-, di-Me ester, P 7236*i*.
$C_{16}H_{14}O_5$ Acetic acid, [5 (benzyloxy)-2-formylphenoxy]-, 3412*c*.
2-Acetonaphthone, *α*,1-dihydroxy-, diacetate, 3416*a*.
Anisic acid, 2-anisoyl-, 6608*d*.
Benzoic acid, 2-anisoyl-4-hydroxy-, Me ester, 6608*g*.
—, *p,p'*-oxydi-, di-Me ester, P 7236*i*.
2-Biphenylcarboxylic acid, 2'-hydroxy-4,4',6'-trimethoxy-, *δ*-lactone, 5023*g*.
Citrifolinol, 4669*i*.
2-Dibenzofurancarboxylic acid, 3,9*b*-dihydro - 7 - methoxy - 1,9*b* - dimethyl-3-oxo-, 5445*e*.
Peucedanin, oxy-, 3416*c*.
Propionic acid, *β*-*p*-hydroxybenzoyl-*α*-(*p*-hydroxyphenyl)-, 607*d*.
Sakuranetin, 2736*i*, 7935*a*.
$C_{16}H_{14}O_5S$ Cinnamic acid, *p*-(*p*-methoxyphenylsulfonyl)-, 7450*c*.
$C_{16}H_{14}O_6$ (See also *Hematoxylin*.)
Acetic acid, (4,4'-biphenylenedioxy)di-, 5018*a*.
2-Acetonaphthone, *α*,1,4-trihydroxy-, *α*,4-diacetate, 7341*f*.
Adinin, 8016*e*.
Anisil, 2,2'-dihydroxy-, 1035*i*.
Anisoyl peroxide, 3394*e*.
Benzil, dihydroxydimethoxy-, 1036*cd*.
Dianhydride, m. 238–42°, 6154*i*.
Diphenic acid, 4,4'-dimethoxy-, 191*c*.
Flavanone, 5,6,8-trihydroxy-7-methoxy-, 5396*b*.
Hesperetin, P 2739*f*, 5116*i*.
Homoeriodictyol, 8464*c*.
1,2,4 - Naphthalenetriol, triacetate, 1371*d*.
4-Pyrone, 2-(hydroxymethyl)-5-phenacyloxy-, acetate, 8386*a*.
$C_{16}H_{14}O_7$ Adipic acid, *β*-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-, 1387*c*.
$C_{16}H_{14}O_7S$ Anisic acid, 3-(3-carboxy-*o*-tolylsulfonyl-(?), 6995*b*.
$C_{16}H_{14}O_8$ Anisil, 2,2',5,5'-tetrahydroxy-, 1036*f*.
3,3'-Biphenyldicarboxylic acid, 5,5',6,6'-tetrahydroxy-, di-Me ester, 8614*c*.
$C_{16}H_{14}O_8S$ Anisic acid, 3-(3-carboxy-4-methoxyphenylsulfonyl)-, 6995*d*.
Anisic acid, 3,3'-sulfonyldi-, 6994*g*.
Benzoic acid, 5,5'-sulfonylbis[2-methoxy-, 6994*g*.
$C_{16}H_{14}O_{10}S_2$ Tartaric acid, dibenzenesulfonate, 7380*a*.
$C_{16}H_{15}BrN_4$ 4,4'-Stilbenedicarboxamidine, bromo-, *di-HCl*, P 1064*i*.
$C_{16}H_{15}BrO$ Cyclopentanone, 2-bromo-2-methyl-3-(2-naphthyl)-, 241*i*.
$C_{16}H_{15}BrO_2$ 1,4-Naphthoquinone, 2-bromo-cyclohexyl-, 1372*f*.
Stilbene, bromo-3,5-dimethoxy-, 1037
$C_{16}H_{15}BrO_3$ Acetophenone, *α*-bromo-*p*-methoxy-*α*-(*p*-methoxyphenyl)-, 7927*g*.
$C_{16}H_{15}Br_3O_2$ Bibenzyl, 4,*α*,*α'*-tribromo-3-dimethoxy-, 1038*b*.
$C_{16}H_{15}ClN_2$ 1-(Aminobenzyl)quinolinium chloride, *-HCl*, 5755*i*.
3 - Buten - 2 - one, 4 - chloro - 4 - phenyl-, phenylhydrazone, 7413*e*.
$C_{16}H_{15}ClN_2O$ Acridine, 6-chloro-9-ethoxy-amino-2-methoxy-, *-HCl*, P 698*e*.
$C_{16}H_{15}ClN_2O_2$ Phthalazine, 2-(*o*-chlorophenyl) - 1,2 - dihydro - 1,4 - dimethoxy-, 237*a*.
$C_{16}H_{15}ClN_2O_3$ *o* - Benzophenetidide, chloro - *β* - methoxy - 4' - nitro-, 3034*b*.
$C_{16}H_{15}ClN_2O_3S$ Phthalamic acid, *N*-[2-chlorophenylsulfamyl)ethyl]-, P 345
$C_{16}H_{15}ClN_2O_4S_2$ Acetamide, *α* - (4 - chloro-methoxybenzylmercapto) - *N* - nitrophenylsulfonyl)-, P 3036*b*.
$C_{16}H_{15}ClN_4$ 4,4' - Stilbenedicarboxamidine, chloro-, *di-HCl*, P 1064*i*.
$C_{16}H_{15}ClN_4O_7$ Acetophenone, *α* - chloro - hydroxy - 4,5 - dimethoxy-, 2,4 - nitrophenylhydrazone, 7460*f*.
$C_{16}H_{15}ClN_6O_2$ 1 *H* - Benzotriazole - 1 - ethanol, 5 - (2 - chloro - 4 - nitrophenylazo)-*α*,6-dimethyl-, P 3625*i*.
$C_{16}H_{15}ClO_2$ Acetic acid, chlorodiphenyl , ester, 3780*e*.
1,4 - Naphthoquinone, 2 - chloro - 3 - cyclohexyl-, 1377*b*.
$C_{16}H_{15}ClO_3$ Acetophenone, *α*-chloro-*p*-methoxy - *α* - (*p* - methoxyphenyl)-, 7927
$C_{16}H_{15}Cl_2NO_2$ Acetamide, *α*,*α*-bis(*p*-chlorophenyl)-*N*-2-hydroxyethyl-, 1144*e*
Acetophenone, *p* - chloro - *α* - (*p* - chlorophenyl) - *α* - (2 - hydroxyethylamino)-*-HCl*, 3369*d*.
$C_{16}H_{15}Cl_2NO_3$ Anthranilic acid, 4-chloro-(3 - chloro - 4 - methoxyphenyl) , ester, 6633*d*.
$C_{16}H_{15}Cl_2NO_3S$ *o* - Propionotoluidide, (3,4 - dichlorophenylsulfonyl)-, 2364*b*.
$C_{16}H_{15}Cl_3$ See *Ethane, 1,1,1-trichloro-2,2-di-p-tolyl-*.
$C_{16}H_{15}Cl_3N_4O_7$ Aniline, *p* chloro- *N*, *N*-bis(chloroethyl)-, picrate, 7443*b*
$C_{16}H_{15}Cl_3O_2$ See *Ethane, 1,1,1 trichloro-2, bis(methoxyphenyl)-*.
$C_{16}H_{15}Cl_3O_4$ Guaiacol, 4,4'-(2,2,2 trichloroethylidene)di-, 2359*h*.
$C_{16}H_{15}Cl_3S_2$ Ethane, 1,1,1-trichloro-2,2 bis[*p* - (methylmercapto)phenyl]-, 7187*d*.
$C_{16}H_{15}IN_2O$ 2 - (2 - Anilinovinyl) - 3 - methyl benzoxazolium iodide, P 2642*g*
Benzoic acid, *m*-iodo-, *p*,*α*-dimethylbenzylidenehydrazide, 6973*f*.
$C_{16}H_{15}IN_2O_3$ Anthranilic acid, *N*-(*m*-iodophenylcarbamyl)-, Et ester, 7448*a*
Benzoic acid, *p*-[3-(*m*-iodophenyl) ureido]-, Et ester, 7448*a*.
$C_{16}H_{15}IN_2PS$ 2 - (Di - 2 - pyridylphosphino) 1 - methylpyridinium iodide, sulfide, 1046*g*.
$C_{16}H_{15}IN_4$ 2 - (Di - 2 - pyridylamino) - 1 methylpyridinium iodide, 1046*f*.
4,4' - Stilbenedicarboxamidine, 2 - iodo-*di-HCl*, P 1064*i*.
$C_{16}H_{15}I_2NO_3$ Alanine, *β*-[4-(benzyloxy) 3,5-diiodophenyl]-, 7585*c*.
$C_{16}H_{16}N$ Butyronitrile, *α*,*α*-diphenyl-, 3392*a*.
Indole, 3-benzyl-1-methyl-, 7931*a*.
—, dimethyl 2-phenyl-, 221*a*.
—, methyl-*p*-tolyl-, 218*cf*.
Isobutyronitrile, *β*,*β'*-diphenyl-, 3356*i*.
Isoquinoline, 1 - benzyl - 3,4 - dihydro-, 4672*e*, 5026*a*.
—, dihydromethylphenyl-, 6631*b*; *and salts*, 5026*a*.
Quinoline, 1,2 - dihydro - 1 - methyl - 2-phenyl-, 6631*c*.
$C_{16}H_{15}NO$ 2 - Azetidinone, 1 - benzyl - 4-phenyl-, 9034*c*.
Cinnamanilide, *N*-methyl-, 7002*h*.
*o*-Cinnamotoluidide, 1654*h*.
2-Fluorenecarboximidic acid, Et ester, *-HCl*, 3811*c*.
$C_{16}H_{15}NOS$ 2 - Benzothiazolemethanol, methyl-*α* *p*-tolyl-, 7475*i*.

Thiaxanthene, 1 - acetamido - 4 - methyl-, 226*i*.
4 - Thiazolidone, 3 - benzyl - 2 - phenyl-, 634*c*.

$C_{16}H_{15}NO_3$ *o*-Acetotoluide, α-benzoyl-, 228*f*.
Benzamide, *N* - (α - methylphenacyl)-, 4227*b*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicar boximide, *N*-benzyl-, P 4421*f*.
9 - Carbazoleethanol, acetate, 624*b*, P 6669*ef*.
Diacetamide, α,α'-diphenyl-, 4241*f*.
1 - Fluorenecarbamic acid, Et ester, 4246*c*.

$C_{16}H_{15}NO_3S$ Benzenesulfonamide, *N*-naphthyl-, 5995*f*.
Thiaxanthone, 1 - (2 hydroxyethylamino) - 4 - methyl , 226*c*.
4 - Thiazolidinecarboxylic acid, 2,5-diphenyl-, - *HCl*, 1400*e*.

$C_{16}H_{15}NO_3S_2$ Benzoic acid, *p*-hydroxydithio , Et ester, carbamilate, 593*f*.
Valeric acid, γ,δ-dimercapto , γ-thiolactone δ - 1 - naphthalenecarbamate, 7424*d*.

$C_{16}H_{15}NO_3$ Acetophenone, α - amino - 4 - hydroxy - 3 - methyl-, benzoate, - *HBr*, P 5044*d*.
Alanine, *N*-benzoyl β-phenyl-, 7531*a*.
Benzamide, *N* - 2 - hydroxyethyl-, benzoate, 3014*e*.
Hydrocinnamic acid, β-benzamido , 3821*g*.
Malonanilic acid, *o*-methyl-α-phenyl-, 629*f*.
Propionamide, β - (3,4 - methylenedioxyphenyl) - α - phenyl-, 5027*c*.
Pyruvic acid, phenyl , *O*-benzyloxime, P 5122*e*.
Xanthone, 1 - (2 - hydroxyethylamino) - 4 - methyl , 225*d*.

$C_{16}H_{15}NO_3S$ Cinnamamide, *N* o tolylsul fonyl-, P 8622*c*.
4 - [1*H*] - Quinolone, 2,3 - dihydro - 1 - *p* tolylsulfonyl-, 8387*a*
4 - Thiazolidone, 3 - benzyl - 2 - phenyl , 1,1-dioxide, 634*f*

$C_{16}H_{15}NO_3S_2$ 2 - Benzothiazoleethanol, *p* toluenesulfonate, P 3466*g*.

$C_{16}H_{15}NO_4$ Acetoacetanilide, *N*-(3-acetyl 4-hydroxy 1-naphthyl) , 5779*d*.
Anthranilic acid, *N*-(2-hydroxy 3,4-xyloyl) , 7232*h*.
Benzamide, *N* (3,4-dihydroxyphenacyl) N methyl-, 2601*h*.
o-Cresol, ethyl-, *p*-nitrobenzoate, 1028*h*
Ethylamine, 1,2 - bis(3,4 methylene dioxyphenyl) , 7008*c*.
Propionic acid, α (*p* nitrophenyl) , benzyl ester, 4654*h*.
3,5 - Pyridinedicarboxylic acid, 4 - benzyl-2,6 dimethyl , *and di-K salt*, 4671*h*.
Salicylamilide, 3' (1,3-dioxolan 2-yl)-, P 8168*e*.

$C_{16}H_{15}NO_3S$ Phthalide, 3 (aminophenylmercapto)dimethoxy-, 6179*c*.

$C_{16}H_{15}NO_4S$ Phthalide, 3-(aminophenylsulfonyl)dimethoxy-, 6179*d*.

$C_{16}H_{15}N_3O$ Dibenzo[*a,c*][1,3]cycloheptadien 5 one, semicarbazone, 8378*f*.
1 - Pyrazolecarboxamide, 3,5 - dimethyl-N 1 naphthyl , 8365*g*.
3 Pyrazolidone, 4 - benzyl 5 - imino - 1 phenyl , 7478.
5 Pyrazolone, 1 - (4' - amino - 4 bi phenylyl)-3-methyl-, P 3624*h*.
Quinolin - 8a(5*H*) - ol, 7 - amino - 5-methyl-, 220*f*
4 - Stilbenecarboxamide, 4' - guanyl-, 4813*b*.

$C_{16}H_{15}N_3O_2$ Cinnamic acid, α-benzamido , hydrazide, 4669*b*.
3 - Pyrazolidone, 4 - benzamido - 5-phenyl-, 4669*b*.

$C_{16}H_{15}N_3O_2S$ Benzenesulfonic acid, 4-methyl-2 - quinolylhydrazide, - *HCl*, 3410*c*.

$C_{16}H_{15}N_3O_2S_2$ Sulfanilamide, *N*¹-(5-methyl-4-phenyl 2-thiazolyl)-, 2968*c*.

$C_{16}H_{15}N_3O_3$ Benzoic acid, *p*-nitro-, 2-ethylidene - 1 - *p* - tolylhydrazide, 1344*b*.
Mesitylenic acid, 4-nitro-, benzylidenehydrazide, 6972*i*.
*p* Toluic acid, 3-nitro-, α-methylbenzylidenehydrazide, 6973*c*.

$C_{16}H_{15}N_3O_3S$ Sulfanilamide, *N*¹ - (4 - hydroxy-2 - methyl - 6 - quinolyl)-, P 7973*h*.

$C_{16}H_{15}N_3O_4$ Mesitylenic acid, 4-nitro-, *o*-hydroxybenzylidenehydazide, 6972*i*.

$C_{16}H_{15}N_3O_7$ 1 - Naphthol, 5,6,7,8 - tetrahydro , compd. with 1,3,5-trinitrobenzene, 7010*h*.

$C_{16}H_{15}N_3O_5S$ Phthalamic acid, *N*-[2-(*p*-nitrophenylsulfamyl)ethyl]- P 3450*h*.

$C_{16}H_{14}N_2S$ Benzothiazole, 6-(*p*-dimethylaminobenzylideneamino)-, 7476*c*.

$C_{16}H_{14}N_2O_3S$ Acetanilide, *p*-[(amino-2-quinoxalyl)sulfamyl]-, 3384*d*.
Acetanilide, *p* - [*p* - (1,2,3,2*H* - triazol-2 - yl)phenylsulfamyl]-, 2620*a*.

$C_{16}H_{14}N_2O_3$ Benzamide, *N*-acetonyl-, 2,4-dinitrophenylhydrazone, 7478*h*.
4-Picoline, picrolonate, 4266*i*.

$C_{16}H_{15}O_7P$ Chalcone, dihydroxymethoxyphosphate, *di-Na salt*, 5117*a*; *and di-Na salt*, P 6235*i*, P 6236*a*.

$C_{16}H_{14}$ Anthracene, 9,10-dihydro-9,10-dimethyl-, 591*i*.
Butene, diphenyl-, 192*g*, 612*g*.
Cyclooctatetraene, dimer, 6200*i*.
Ethylene, 1,1-di-*p*-tolyl-, P 2235*e*.
—, 1 - (*p* - ethylphenyl) - 1 - phenyl-, 206*a*.
Naphthalene, (1 - cyclohexen - 1 - yl)-, 6399*b*.
Stilbene, dimethyl , 2597*d*, 4632*i*, 7006*c*.
Styrene, dimer, 2966*h*.

$C_{16}H_{14}AsN$ Arsine, cyanotolyl-3,4-xylyl-, 3383*c*.

$C_{16}H_{16}Br_2$ Bibenzyl, 4,4'-bis(bromomethyl)-, 3382*b*.
Butane, dibromodiphenyl-, 192*g*.
Ethane, 1,1-dibromo-2,2 di-*p*-tolyl , P 5899*c*.

$C_{16}H_{16}Br_2N_4$ 2,3 - Butanedione, bis(*p*-bromophenylhydrazone), 1328*g*.

$C_{16}H_{16}Br_2O_2$ Bibenzyl, α,α' - dibromo - 4,4'-dimethoxy-, 7927*h*.

$C_{16}H_{16}Br_4$ Bicyclo[4.2.0] - 2,4 - octadiene, 7,8-dibromo-, dimer, 6196*g*.

$C_{16}H_{16}ClN$ 4 - Stilbenamine, *N*-(2-chloroethyl)-, 7443*c*.

$C_{16}H_{16}ClNO$ Acetophenone, *p*-chloro-α-*N*-ethylanilino-, 218*f*.

$C_{16}H_{16}ClNO_2$ Crotonic acid, β-(1-chloro-2-naphthylamino)-, Et ester, 1418*e*.

$C_{16}H_{16}ClNO_3$ Anthranilic acid, *N*-(3-chloro-4 - methoxyphenyl)-, Et ester, 6633*f*
2 Carboxy - 6,7 - dimethylfuro[3,2 *f*]quinolinium chloride, Et ester, 7028*f*.

$C_{16}H_{16}ClNO_4S$ β-Alanine, *N*-(chlorophenyl) - *N* - *p* - tolylsulfonyl-, 8387*c*, 8388*d*.

$C_{16}H_{16}Cl_2$ Ethane, 1,1-dichloro-2,2-di *p*-tolyl-, 347*a*, P 5899*c*.

$C_{16}H_{16}Cl_2N_2O$ Butyranilide, *p*-chloro-β *p*-chloroanilino-, 8388*a*.

$C_{16}H_{16}Cl_2N_4O_2S_2$ Acetanilide, 5,5'-dithiobis [4 amino-2-chloro-, 5776*c*.

$C_{16}H_{16}Cl_2O_2$ Bibenzyl, α,α' dichloro 4,4'-dimethoxy-, 7927*h*.
Ethane, 1,1 - dichloro - 2,2 - bis(methoxyphenyl)-, 347*a*, P 4300*b*, P 8400*i*.

$C_{16}H_{16}Cl_2N$ Dibenzylamine, dichloro-*N*-(2-chloroethyl)-, - *HCl*, 1861*e*, 4381*c*.

$C_{16}H_{16}Cl_4$ Bicyclo[4.2.0] - 2,4 - octadiene, 7,8-dichloro-, dimer, 6196*b*.

$C_{16}H_{16}CuN_2O_2$ *o*-Cresol, α-methylimino-, Cu deriv., 4073*c*.

$C_{16}H_{16}CuN_2O_4$ Glycine, phenyl-, Cu deriv., 8222*d*.

$C_{16}H_{16}HgN_4O_4$ Benzoic acid, *p* (1,2,3,6-tetra hydro - 1,3 - dimethyl - 2,6 - dioxo - 9-purinylmercuri)-, Et ester, 7922*f*.

$C_{16}H_{16}INO_2$ 2 - Carboxy - 6,7 - dimethyl furo[3,2 - *f*]quinolinium iodide, Et ester, 7028*f*.

$C_{16}H_{16}IN_3$ Isoquinoline, amino - 1 - (amino phenyl)-, methiodide, 7486*i*.

$C_{16}H_{16}N_2$ Acetophenone, azine, 1654*e*, 5756*a*.
Aniline, *N*, *N'* - (dimethylacetylene)di , 5756*a*.
Ethylenediamine, *N*, *N'* - dibenzylidene-, 931*b*, 3388*g*.
1,10 - Phenanthroline, tetramethyl , 2211*i*, 8391*c*.
2 Pyrazoline, 4 - methyl - 1,3 - diphenyl-, 1757*g*.
Quinoline, 1 - benzimido - 1,2,3,4 - tetrahydro-, - *HCl*, P 5801*c*.
Tolualdehyde, azine, 1654*d*.

$C_{16}H_{16}N_2O$ Acetamide, *N*-(7-methylamino-2-fluorenyl)-, 7005*d*.
Benzoic acid, 2-ethylidene-1-*p*-tolylhydrazide, 1344*a*.
Carbanilide, 2-methyl-5-vinyl-, P 5422*g*.
4 - Imidazolidone, 5 - benzyl - 2 - phenyl-, 8383*a*.
1-Indolinecarboxanilide, methyl-, 8365*ef*.
Indolo[4,3 - *fg*]quinolin - 8(6*H*) - one, 4,6a,7,9,10,10a - hexahydro - 7-methyl-9-methylene-, 7032*a*.
Oxindole, 5-methyl-3-*p*-toluidino-, 1396*d*.
Phthalimidine, 3-phenethylamino-, 623*h*.
1(2*H*) - Quinolinecarboxanilide, 3,4-dihydro-, 8365*f*.

$C_{16}H_{16}N_2OS$ 2 - Benzothiazolemethanol, α-(*p* - dimethylaminophenyl)-, 7476*a*.
Phenothiazine, 10 - *N*, *N* - dimethylglycyl-, 7938*e*.
4 - Thiazolidone, 2 - (*m* - aminophenyl)-3-benzyl-, 634*d*.

$C_{16}H_{16}N_2O_2$ Acetamide, α-acetamido-*N*, *N*-diphenyl-, 6587*a*.
Acetamide, *N* - phenyl - *N*, *N'* - *m* - phenylenebis-, 647*i*.
Acrylic acid, β,β-bis(*p*-aminophenyl)-, Me ester, 7464*b*.
Anisaldehyde, azine, 1654*d*, 3675*d*, 5756*a*, 7291*d*.
*p* - Anisidine, *N*, *N'* - acetylenedi-, 5756*a*.
Benzaldehyde, methoxy-, azine, 1654*d*.
Benzamide, *N* - (α - methylphenacyl)-, oxime, 4227*b*.
—, *N* - [3 - (3 - pyridylcarbonyl)propyl]-, 5306*g*.
Benzanilide, 4' - (*N* - methylacetamido) , 1777*f*.
3 - Buten - 2 - one, 4 - (2 furyl)-, azine, 9334*f*.
*o* - Cresol, α,α' - (ethylenedinitrilo)di-, 5116*i*.
1,3 - Dioxolo[*g*]isoquinoline, 5,6,7,8-tetrahydro - 5 - (2 - pyridylmethyl)-, 1413*a*.
Hydrocinnamamide, β benzamido-, 2364*d*, 3821*h*.
2 - Imidazoline, 2 - phenyl , benzoate, P 5049*g*.
Isolysergic acid, 7031*g*, 9384*i*.
Lysergic acid, 3611, 7031*g*, 7193*g*, 9384*i*.
Naphthalimide, 4 amino-*N*-butyl-, P 7511*e*.
—, 4-amino-*N*-isobutyl-, P 7511*e*.
—, *N* - (2 - dimethylaminoethyl)-, - *HCl*, 617*b*.
3 - Oxazolidinecarboxanilide, 2 - phenyl-, 8365*f*.
Phenaceturanilide, P 1809*h*.
Pimelonitrile, γ-acetyl-γ-benzoyl-, 2582*h*.
Propiophenone, 3,4 - methylenedioxy-, phenylhydrazone, 1866.

$C_{16}H_{16}N_2O_2S$ Acetanilide, *p*,*p'*-thiobis-, 3802*h*.
Benzimidic acid, *p*-hydroxythio-, Et ester, carbanilate, - *HCl*, 593*f*.

$C_{16}H_{16}N_2O_2SSe$ $\Delta^{2,7}$-Benzoselenazolinecrotonic acid, α - cyano - 3 - methyl - β-methylmercapto-, Et ester, P 7849*g*.

$C_{16}H_{16}N_2O_2S_2$ Acetanilide, dithiobis-, 2180*f*, 3802*h*.
$\Delta^{2,7}$ - Benzothiazolinecrotonic acid, α-cyano - 3 - methyl - β - methylmercapto-, Et ester, P 7849*f*.
2,4 - Oxazolidinedione, 3 - ethyl - 5 - [2-(3 - phenyl - 2 - thiazolidinylidene)-ethylidene]-2-thio-, P 7844*a*.

$C_{16}H_{16}N_2O_3$ 1-Acetonaphthone, diacetamido-, 9058*d*.
Allophanic acid, γ-phenyl-, xylyl ester, 7447*c*.
Benzimidic acid, *p* hydroxy-, Et ester, carbanilate, - *HCl*, 593*f*.
Benzoic acid, *p*-(*p*-aminobenzamido)-, Et ester, 1031*h*.
Diacetamide, *N*-(acetamidonaphthyl)-, 9058*c*.
Hydrocinnamic acid, α-acetyl-β-(dicyanomethyl)-, Et ester, P 3472*d*.
Nicotinic acid, 5-cyano-3,4,5,6-tetrahydro - 2 - methyl - 6 - oxo - 4 - phenyl-, Et ester, P 3472*d*, P 7051*e*.
Phloretamide, α-benzamido-, 5055*i*.
Propionic acid, β-benzoyl-α-2-phenylhydrazino-, 7192*h*.
2 - Pyridineacetamide, *N* - (3,4 - methylenedioxyphenethyl)-, 1412*i*.

$C_{16}H_{16}N_2O_3S$ $\Delta^{2,7}$ - Benzoxazolinecrotonic acid, α - cyano - 3 - methyl - β - methylmercapto-, Et ester, P 7849*g*.

$C_{16}H_{16}N_2O_4$ Butane, 1,1-diphenyl-, dinitro deriv., 192*h*.
Carbanilic acid, 4-methyl-3-nitro-, xylyl ester, 7448*d*.

$C_{16}H_{16}N_2O_4S$ Acetanilide, *p*,*p'*-sulfonylbis-, P 7960*f*.

$C_{16}H_{16}N_2O_4S_2$ Benzoic acid, 3,3'-dithiobis[4-amino-, di-Me ester, 7476*g*.
Butyraldehyde, bis(nitrophenyl) mercaptal, 6179*f*.

$C_{16}H_{16}N_2O_5S$ Acetamide, *N* - [*N* - (3 - methoxysalicylidene)sulfanilyl]-, 3262*g*.
Alanine, *N* - benzoyl - β - (*p* - sulfamylphenyl)-, 7450*b*.
Carbanilic acid, *p*-(acetylsulfamyl)-, benzyl ester, P 1805*b*.
Phthalamic acid, *N* - [2 - (phenylsulfamyl)ethyl]-, P 3450*h*.

Succinanilic acid, *p* sulfanilyl-, P 5042*b*.
**$C_{16}H_{16}N_2O_6S_2$** Benzamide, *p*-(isopropylmercapto) - *N* - (*p* - nitrophenylsulfonyl)-, P 7043*h*.
2 - Naphthalenesulfonic acid, sulfanilamide salt, 174*a*.
**$C_{16}H_{16}N_2O_6$** Acetic acid, (4,4'-diamino-3,3'-biphenylenedioxy)di-, P 5964*a*, P 8144*g*.
**$C_{16}H_{16}N_2O_6S$** Acetanilide, *p*-hydroxy-, sulfate, 173*h*.
**$C_{16}H_{16}N_2O_6S_2$** 1*H* - Benz[*de*]isoquinolinedisulfonic acid, 6 - amino - 2 - butyl - 2,3-dihydro - 1,3 - dioxo-, P 7710*h*.
**$C_{16}H_{16}N_2O_6S_3$** Methionic acid, [*p*-(*N*-acetylsulfanilyl)phenylimiuomethyl]-, *di-Na salt*, P 7042*a*.
**$C_{16}H_{16}N_2S$** Benzothiazole, 2-(amino-*m*-tolyl)-dimethyl-, P 7705*e*.
**$C_{16}H_{16}N_4$** (See also *4,4' Stilbenedicarboxamidine*.)
2-Butene, 2,3 bis(phenylazo)-, 1654*h*.
Fumaraldehyde, bis(phenylhydrazone), 4219*g*.
**$C_{16}H_{16}N_4O$** 4,4' - Stilbenedicarboxamidine, hydroxy-, P 821*e*, 8536*c*.
**$C_{16}H_{16}N_4O_2$** Fumaranilide, *o,o'*-diamino-, P 4303*c*.
Oxalic acid, 2-α methylbenzylidenehydrazide 2-phenylhydrazide, 6972*e*.
**$C_{16}H_{16}N_4O_2S$** Sulfanilamide, *N*¹-(6,7-di methyl - 2 quinoxalyl)-, 174*h*.
**$C_{16}H_{16}N_4O_4$** Acetophenone, 2,5-dimethyl-, 2,4 - dinitrophenylhydrazone, 6990*g*.
3 - Butyn - 2 - one, 4 - (1 - cyclohexen - 1 - yl)-, 2,4 - dinitrophenylhydrazone, 1336*h*, 7437*h*.
Hydrocinnamaldehyde, β-methyl-, 2,4-dinitrophenylhydrazone, 3356*e*.
Oxanilic acid, (4 amino-5-methoxy-*o*-tolylazo)-, P 8160*g*.
Δ² - 1,2,4 - Triazoline, 4 (2,4 - dimethoxyphenyl) - 5 - (*p* - nitrophenyl)-, 7022*c*.
**$C_{16}H_{16}N_4O_5$** Benzaldehyde, 2-ethyl-3 methoxy-, 2,4 dinitrophenylhydrazone, 1961.
Butyraldehyde, γ - (*o* - hydroxyphenyl)-, 2,4 - dinitrophenylhydrazone, 2196*e*.
**$C_{16}H_{16}N_4O_5S$** Isophthalamide, 5-(*N*⁴-acetylsulfanilamido)-, 4648*h*.
**$C_{16}H_{16}N_4O_6S_2$** Acetamide, *N,N'*-[azobis(*p*-phenylenesulfonyl)]bis-, P 3816*b*.
**$C_{16}H_{16}N_4O_7$** Acetophenone, 2-hydroxy 4,5-dimethoxy-, 2,4 - dinitrophenylhydrazone, 7460*d*.
Pyrrolidine, 1-phenyl-, picrate, 5403*g*.
**$C_{16}H_{16}N_6$** Benzimidazole, 2,2'-ethylenebis[6-amino-, P 8145*i*.
**$C_{16}H_{16}N_6O_2$** Benzoic acid, *p* {[1-(2-amino-4-hydroxy - 6 - pteridyl)ethyl]methylamino}-, 3424*b*.
**$C_{16}H_{16}N_6O_4$** 2,3 - Butanedione, bis(*p* - nitrophenylhydrazone), 1328*g*.
**$C_{16}H_{16}N_6O_4S_2$** Pyrazine, 2,6-disulfanilamido-, 8394*f*.
**$C_{16}H_{16}N_6O_5$** Compd., m. 252–3°, P 5414*d*.
**$C_{16}H_{16}N_6O_7$** 2-Imidazoline, 2-benzylamino-, picrate, 4273*b*.
**$C_{16}H_{16}N_6O_9$** β - Alanine, *N* - guanyl - β-phenyl-, picrate, 3793*e*.
**$C_{16}H_{16}N_8O_7$** Guanidine, (5,6 dimethyl-2 benzimidazolyl)-, picrate, 1405*d*.
**$C_{16}H_{16}N_8O_9$** Guanidine, (5,6 - dimethoxy 2-benzimidazolyl)-, picrate, 1405*c*.
**$C_{16}H_{16}N_8O_{16}$** Butyric acid, α,γ-diamino-, dipicrate, 5005*g*.
**$C_{16}H_{16}O$** Acetaldehyde, di-*p*-tolyl-, 4632*i*.
Acetophenone, 2,5-dimethyl-α phenyl-, 4247*g*.
—, *p* - methyl - α - *p* - tolyl , 4632*i*.
Benzophenone, trimethyl-, 1351*e*, 1362*e*, 7006*i*, 7007*a*.
2-Butanone, diphenyl-, 1280*g*, 3393*a*
3-Buten-1-ol, 1,1-diphenyl-, 3776*i*.
1(2*H*) - Phenanthrone, 3 - ethyl - 3,4-dihydro-, 621*g*.
Phenol, *p* - (1,2,3,4 - tetrahydro - 1-naphthyl)-, 2971*b*.
Propiophenone, *o*-benzyl-, 6194*d*.
—, *o*-methyl-α-phenyl-, 4247*e*.
**$C_{16}H_{16}OS$** Acetophenone, 5-methyl 2 *p* tolylmercapto-, 7474*i*.
Thianaphthene, 2,3 - dihydro - 3 - methoxy - 5 - methyl - 3 - phenyl , 7475*d*.
**$C_{16}H_{16}O_2$** 5 - Acenaphthenebutyric acid, P 7509*g*.
Acetic acid, 4-biphenylyl-, Et ester, 1385*c*.
—, diphenyl-, Et ester, 1280*g*, 4574*g*, 6171*a*.
Acetophenone, α-ethoxy-α-phenyl-, P 444*a*.
—, α-(4-hydroxy-2,6-xylyl)-, 5773*f*.
—, 4 - methoxymethyl - α - phenyl-, 3825*a*.
Acrylophenone, β - 2 - furyl - *p* - isopropyl-, 3429*f*.
3*H* - Benz[*cd*]azulene - 8 - carboxylic acid, 4,5-dihydro-, Et ester, 6203*f*.
2-Butene, 1,4-diphenoxy-, P 4419*f*.
Butyric acid, γ-4-biphenylyl-, 1375*f*.
—, α,α-diphenyl-, 3392*a*.
1,4,5,8 - Dimethanoanthracene - 9,10-dione, 1,4,4a,5,8,8a,9a,10a - octahydro-, 4649*i*.
3,8 - Ethenocyclobuta[*b*]naphthalene, 2a,3,8,8a - tetrahydro 4,7 - dimethoxy-, 6198*d*.
5 - Indanol, 2 - (*p* - hydroxyphenyl) - 1-methyl-, 1758*a*.
Naphthaleneacrylic acid, β-methyl-, Et ester, 3816*a*, 7472*c*.
2 - Naphthalenepropionic acid, α,α - dimethyl - β - methylene-, 3814*d*.
1,4 - Naphthoquinone, 2 - cyclohexyl-, 1372*e*, 1377*a*.
9,10 - Phenanthrenediol, 9,10 dihydro 9,10-dimethyl-, 4663*e*.
4(1*H*) - Phenanthrone, 2,3 - dihydro - 7 methoxy - 2 - methyl-, 8377*b*
Propionic acid, α,α-diphenyl , Me ester, 1280*g*.
Stilbene, dimethoxy-, 1037*i*, 6606*c*, 7008*a*.
**$C_{16}H_{16}O_2S$** Acetic acid, (*p*-phenylmercaptophenyl)-, Et ester, 3361*g*.
Benzyl alcohol, α-(benzylmercapto)-, acetate, 7410*a*.
**$C_{16}H_{16}O_3$** Acetic acid, (benzhydryloxy)-, Me ester, 4669*h*
Acetic acid, [*p* - (benzyloxy)phenyl]-, Me ester, 1746*b*.
—, (*p* - phenoxyphenyl)-, Et ester, 3361*g*
Acetophenone, 4 - (benzyloxy) - 2 - hydroxy 5-methyl-, 3413*b*
—, 5 - (benzyloxy) - 2 - methoxy-, 3414*e*
—, *p* - methoxy - α - (*p* - methoxyphenyl) , 191*g*, 7008*c*.
Benzene, 1 - (benzyloxy) - 2 - (2,3 - epoxypropoxy)-, P 4432*a*.
Benzilic acid, Et ester, 573*d*.
Bibenzyl, α,α' - epoxy - 4,4' - dimethoxy-, 7927*g*.
2 - Butanone, 3,3 - bis(*p* - hydroxyphenyl)-, 8370*e*
Butyric acid, γ-hydroxydiphenyl-, 3396*h*.
—, γ - (*p* - phenoxyphenyl)-, P 7509*f*.
1,4 - Naphthoquinone, 2 - cyclohexyl-2,3 - epoxy - 2,3 - dihydro-, 1372*f*
—, 2 - cyclohexyl - 3- hydroxy , 1108*g*, 1372*g*, 1376*e*, 2610*b*, 7581*d*.
—, 2-(cyclohexyloxy)-, 1377*d*
—, 2 - (cyclopentylmethyl) - 3 - hydroxy-, 1371*h*, 2610*b*.
—, 2 - (2,3 - dimethyl - 2 - butenyl) - 3-hydroxy-, 3408*g*
2 - Phenanthrenecarboxylic acid, 1,2,3,4-tetrahydro - 7 - hydroxy - 1 - methyl , P 3850*c*.
Propionic acid, β (α phenyl-*p*-toloxy) , 3393*f*.
*o*-Tolilic acid, 188*c*.
Valeric acid, δ-naphthoyl-, 3306*e*.
**$C_{16}H_{16}O_3S$** 1 - Butanesulfonic acid, 4 - hydroxy - 2,4 - diphenyl-, sultone, 172*a*.
**$C_{16}H_{16}O_4$** Anisoin, 1368*b*, 3010*d*.
Benzoin, dimethoxy-, 3010*d*.
Benzophenone, 2,3,4-trimethoxy-, 183*c*.
Glyceric acid, β,β-diphenyl-, Me ester, 1041*c*.
Malonic acid, [α - (2,2 - dihydroxycyclohexyl)benzyl]-, di-δ-lactone, 3418*e*.
Propionic acid, β [*p*-(benzyloxy)phenoxy]-, 3393*f*.
**$C_{16}H_{16}O_4S$** Benzyl alcohol, α-(benzylsulfonyl) , acetate, 7410*a*.
2 - Phenanthrenesulfonic acid, 1,2,3,4 tetrahydro - 2 - methyl-1 oxo-, Me ester, 2214*e*.
**$C_{16}H_{16}O_5$** Asebogenin, 8603*b*.
5 - Benzofuranacrylic acid, 2,3 - dihydro-6 - hydroxy - 2 - (1 - hydroxyisopropyl) , δ-lactone acetate, 2993*g*.
2 - Biphenylcarboxylic acid, 2',4,4'-trimethoxy-, 5023*h*.
Marmesin, acetate, 2993*g*.
2 - Naphthalenebutyric acid, 1,4 - dihydro - 3 - hydroxy - β - methyl - 1,4-dioxo-, Me ester, 1387*f*.
2 - Naphthalenecaproic acid, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, 1381*b*, 1387*c*.
2 - Naphthalenevaleric acid, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, Me ester, 1387*f*.
Propiophenone, 2,6 - dihydroxy - β - (*p* hydroxyphenyl) - 4 - methoxy-, 8603*c*.
Salicylaldehyde, 4'- (benzyloxy) - 3,6 dimethoxy-, 7480*g*.
Salicylic acid, 3-methoxy-, 2-phenoxyethyl ester, 4242*c*, 7455*h*.
Vanillic acid, 2-phenoxyethyl ester, 4241*i*, 7455*g*.
**$C_{16}H_{16}O_5S$** Hydrocinnamic acid, *p*-(*p*-methoxyphenylsulfonyl)-, 7450*c*.
**$C_{16}H_{16}O_6$** 1,2*H* - Benzopyran - 4 - acetic acid, 7 - hydroxy - 2 - oxo - 6 - propyl-, acetate, 6206*e*.
2,2(1*H*) - Naphthalenedicarboxylic acid, 1 - (3 - carboxypropylidene) - 3,4 dihydro-, 3430*a*.
1,2,4 - Naphthalenetriol, 5,8 - dihydro , triacetate, 1371*f*.
Peucedanin, oxy-, hydrate, 3416*c*.
**$C_{16}H_{16}O_6Se$** 4,5,7 - Selenaphthenetriol, 3,6-dimethyl-, triacetate, 6612*h*.
**$C_{16}H_{16}O_7$** Tricyclo[4.2.2.0²·⁵] - 9 - decene 7,8 - dicarboxylic anhydride, 3,4 - di hydroxy-, diacetate, 6200*e*.
**$C_{16}H_{16}O_{10}$** Benzenepentacarboxylic acid, penta-Me ester, 6610*g*.
**$C_{16}H_{17}AsO_2$** Isobutyric acid, β-(diphenylarsino)-, 8352*c*.
**$C_{16}H_{17}AsO_3$** Isobutyric acid, β-(diphenylarsino)-, oxide, 8352*c*.
**$C_{16}H_{17}BrN_2O_4S$** Penicillin, *p*-bromobenzyl , 2274*c*, 3490*a*, 4328*a*, 4921*e*.
**$C_{16}H_{17}BrN_4O_7$** Benzylamine, *p*-bromo *N, N,* α-trimethyl-, picrate, 7920*i*
**$C_{16}H_{17}BrO$** 2 - Pentanone, 1 - bromo - 3 methyl - 5 - (1 naphthyl)-, 6610*h*.
**$C_{16}H_{17}BrO_3$** 2 - Naphthalenebutyric acid, 3 bromo - 6 - methoxy - β - methyl , 8377*a*
**$C_{16}H_{17}ClNNaO_4S$** Ethanol, 2-(*m*-chloro \ phenethylanilino) , H sulfate Na salt, P 8155*b*.
**$C_{16}H_{17}ClN_2$** Aniline, reaction product with 1 chloro 3-buten 2 one, 7937*e*
**$C_{16}H_{17}ClN_2O$** *m*-Cresol, (*p* chlorophenylazo 4 propyl-, 3385*i*
Phenol, (*p* - chlorophenylazo)diethyl , 3385*i*.
**$C_{16}H_{17}ClN_2O_2$** Carbanilic acid, chloro \ methyl-, *m*-dimethylaminophenyl ester, P 1439*cd*.
**$C_{16}H_{17}ClN_2O_3S$** 2 - Imidazoline, 2 - (*o* chlorophenyl)-, *p* - toluenesulfonate, 5049*h*
**$C_{16}H_{17}ClN_2O_4S$** Penicillin, *p*-chlorobenzyl 2274*d*, 4328*a*, 4921*e*.
**$C_{16}H_{17}ClN_2O_4S_2$** Acetamide, α - (chloro methoxybenzylmercapto) - *N* sulfanilyl-, P 3036*bc*
Naphthalenesulfonamide, *N* - (4 chloro metanilyl) - 5,6,7,8 - tetrahydro - 1 8150*d*.
**$C_{16}H_{17}ClN_2O_4S$** Acridine, 9-amino 6 chloro 2 methoxy , isethionate, P 698*e*
**$C_{16}H_{17}ClN_2O_5S_2$** 5 - (1 - Ethyl - 2(1*H*) - quinolylidene) - 3 - methyl - 2 - methylmercapto - 4 - oxo - 2 thiazolinium perchlorate, P 4160*e*
**$C_{16}H_{17}ClN_2O_5S_2$** 5 - [2 (3 - Ethyl thiazolinylidene)ethylidene] yl - 2 - methylmercapto - 4 - oxo - 2 thiazolinium perchlorate, P 4161*a*
**$C_{16}H_{17}ClN_4O_8$** 3 - Diethylcarbamyl - 1 - (2,4-dinitrophenyl)pyridinium chloride, 4671*b*.
3 - (*p* - Dimethylaminophenylimino) - 2,5 dihydro - 1 - methyl - 2 - oxo - 1*H*-imidazo[1,2-*a*]pyridinium perchlorate, 643*a*.
**$C_{16}H_{17}ClN_4O_7$** Aniline, *N*-(2-chloroethyl)-*N* ethyl-, picrate, 7443*a*.
**$C_{16}H_{17}ClN_4O_9$** Ethanol, 2,2'-(*p* chlorophenylimino)di-, picrate, 7443*b*.
**$C_{16}H_{17}ClO_2S$** Sulfone, benzhydryl 3-chloro propyl, 1306*e*.
**$C_{16}H_{17}Cl_2N$** Xenylamine, *N*, *N*-bis(2 chloro ethyl)-, 7443*b*.
**$C_{16}H_{17}Cl_2NO_2$** Ethanol, 1,2 - bis(*p* - chloro phenyl) - 2,2' - iminodi-, *and - HCl*, 3369*e*.
**$C_{16}H_{17}Cl_2N_5$** Biguanide, 1,5-bis(*p*-chlorophenyl) - 2 - ethyl-, *- HCl*, P 684*h*, *and - HCl*, 2048*f*, P 6659*b*.
**$C_{16}H_{17}Cl_2N_5O_7$** Adenine, 2,8 - dichloro (β - D - ribofuranosido)-, triacetate, 146*i*.
**$C_{16}H_{17}FN_2O_4S$** Penicillin, fluorobenzyl , 2274*e*, 3490*a*, 4328*a*, 4921*e*.
**$C_{16}H_{17}IN_2O_4S$** Penicillin, *p*-iodobenzyl- 2274*e*, 4328*a*.

$C_{16}H_{17}IN_4O$ 3 - (*p* - Dimethylaminophenylimino) - 2,3 - dihydro - 1 - methyl - 2-oxo - 1 *H* - imidazo[1,2 - *a*]pyridinium iodide, 643*a*.

$C_{16}H_{17}N$ Carbazole, 2-isopropyl-4-methyl-, 1391*c*.
Isoquinoline, 1,2,3,4 - tetrahydromethylphenyl-, *and - HCl*, 5026*e*; *and salts*, 5026*gi*.

$C_{16}H_{17}NO$ Acetamide, *N*, *N* - dimethyl - α,α-diphenyl-, 1144*d*.
Acetamide, *N*-2,2-diphenylethyl-, 5026*d*.
—, *N* - phenethyl - α - phenyl-, 2271*a*, 4672*e*, 5027*e*.
—, *N* - α - phenylphenethyl-, 5027*a*.
Acetophenone, α - (3,4 - dimethylanilino-, 220*h*.
—, α-*p*-ethylanilino-, 220*h*.
—, *p* - methyl - α - *N* - methylanilino-, 218*e*.
—, *p* methyltoluidino-, 8392*c*.
Benzamide, *N* - (methylphenethyl)-, 5026*eh*, *and - HCl*, 1026*c*.
—, *N*-(3-phenylpropyl)-, 1026*e*.
1,3,2 *H* - Benzoxazine, 3 - benzyl - 3,4-dihydro 6-methyl-, 3425*h*.
Butyramide, β,β-diphenyl-, 6162*f*.
1,4 - Cyclohexadiene - 1 carboxanilide, 4 isopropenyl-, 3797*d*.
1,4,5,8 - Dimethanoanthracen - 9(4 *H*)-one, 1,4a,5,8,8a,9a,10,10a - octahydro - 10 - imino-, *and - HCl*, 4649*h*.
Ethanol, 2-*p*-styrylanilino-, 7443*c*.
Formamide, *N* - (α - benzylphenethyl)-, 5027*b*.
Propionanilide, α-*p*-tolyl-, 4654*f*

$C_{16}H_{17}NOS$ Benzamide, *N*-[2-(benzylmercapto)ethyl] , 3015*a*.
Morpholine, 4 (2 - naphthylthioacetyl) , P 2233*e*
Sulfilimine, *N* - acetyl - *S*,*S* - dibenzyl-, *and salts*, 1721*f*.

$C_{16}H_{17}NO_2$ 1 - Acenaphtheneacetamide, *N* 2 hydroxyethyl-, 3361*a*.
Acetamide, α - 4 - biphenylyl - *N* - 2 hydroxyethyl-, 3362*d*.
, *N* - 2 hydroxyethyl - α,α - diphenyl-, 1141*e*, 2274*a*
, *N* - (β - hydroxyphenethyl) - α phenyl , 2269*a*.
, *N* - β - hydroxy - α - phenylphenethyl , 4238*b*, 6999*i*
Acetophenone, α *p* - methoxyanilino *p*-methyl , 8392*e*
Benzamide, *N* - (β - hydroxy - α - methylphenethyl) , 1238*b*, 6999*g*
Benzoic acid, *p*-benzylamino , Et ester, 1345*a*
Benzyl alcohol, α - (α - aminobenzyl)-, acetate, - *HCl*, 7000*b*
Carbamic acid, *N* benzyl-, Et ester, 8138*a*
Cinchoninic acid, 2 cyclohexyl-, 1411*d*.
o-Cresol, ethyl , carbamilate, 1028*a*.
Ethane, 2 nitro 1,1 di-*p* tolyl , P 5803*d*.
Hexanoanisanilide, α methyl , 6992*e*.
1 Homopyrocatechol, α - (1,2,3,4 tetrahydroisoquinolyl)-, P 2241*g*
Nicotinic acid, thymyl ester, 6316*i*, 6317*d*
Norpseudoephedrine, benzoate, 4238*b*, *Hcl*, 6999*g*.
Propiophenone, β-amino *p*-methoxy , 6992*e*
Propylamine, 3 (3,4 - methylenedioxyphenyl) 2 - phenyl-, 596*h*.
Spiro compd , m 290°, 1411*f*.

$C_{16}H_{17}NOS$ Acetamide, *N* - 2 - hydroxyethyl - α - (*p* - phenylmercaptophenyl) , 3362*d*
Alanine, β - (benzylmercapto) - β-phenyl-, 1399*g*
Benzyl alcohol, 5-methyl 2-methylmercapto , carbanilate, 7474*h*

$C_{16}H_{17}NO$ Acetamide, α-(2 biphenylyloxy)-*N* 2 hydroxyethyl-, 3364*g*.
Acetamide, *N* 2 - hydroxyethyl - α - (*p* phenoxyphenyl)-, 3362*d*.
Acetic acid, (*p*-anilinophenoxy)-, Et ester, 3364*f*.
Acetophenone, *p*-methoxy α (*p* methoxyphenyl) , oxime, 7008*c*.
Adrenalone, *N*-benzyl , 7456*d*.
*p* Mandelophenetidide, 1353*f*.
1,4 Naphthoquinone, 2 - acetamido - 3 isobutyl , 1382*f*.
—, 2 hydroxy - 3 - (1 - piperidylmethyl)-, 1109*e*, 1384*i*, 2701*a*.
4 Quinolinepropionic acid, 6,7 - dimethyl - β - oxo-, Et ester *and - H Br*, 4674*h*

$C_{16}H_{17}NO_2S$ Acetamide, *N* - 2 - hydroxyethyl α - (*p* - phenoxyphenylmercapto) , 3365*f*.
Cumamide, *N*-(phenylsulfonyl)-, P 8622*b*.
1 - Naphthol - 8 - sulfonic acid, 4 - (1-piperidylmethyl)-, sultone, P 2641*g*, P 4488*b*.
*p* - Toluenesulfonanilide, 2′ - (allyloxy)-, 166*g*.
3,4 - Xylamide, *N* - *p* - tolylsulfonyl-, P 8622*b*.

$C_{16}H_{17}NO_4$ Benzanilide, 4′-(2,3-dihydroxypropoxy)-, 5655*e*.
2 - Naphthalenepropionic acid, β - (carboxyamino)-, Et ester, 6597*h*.
2 - Naphthoic acid, 4 - cyano - 4 ethyl-3,4 - dihydro - 5,6 - dimethoxy-, 626*d*.
5(4 *H*) - Oxazolone, 4 - (ethoxymethylene) - 2 - (*p* - methoxy - α - methylstyryl)-, 7021*f*.
Quinaldic acid, 1,3 - diacetyl - 1,2 - dihydro-, Et ester, 1412*c*.
3 - Quinolinecarboxylic acid, 1,2,3,4,5,6,7,8 - octahydro - 1 - hydroxy - 2-oxo-4-phenyl-, 3418*f*.

$C_{16}H_{17}NO_4S$ β - Alanine, *N* - phenyl - *N*-*p*-tolylsulfonyl-, 8386*i*
$\Delta^{2(3H),7}$ - Thiophenebutyric acid, 4 - benzamido - 4,5 - dihydro - 3 - oxo-, Me ester, P 1809*e*, P 3468*e*.
$\Delta^{2(3H),5}$ - Thiophenevaleric acid, 4-benzamido - 4,5 - dihydro - 3 - oxo-, P 1809*f*, P 3468*e*.

$C_{16}H_{17}NO_5$ 1 - Naphthalenepropionic acid, 1-cyano - 1,2,3,4 - tetrahydro - 7,8-dimethoxy-4-oxo-, 626*h*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-(2 - methyl - *p* - dioxan - 2 - ylamino-methyl)-, 1384*i*.
Spiro[naphthalene - 1(4 *H*),3′ - piperidine] - 2′,4,6′ - trione, 2,3 - dihydro-7,8 dimethoxy, 626*i*.

$C_{16}H_{17}NO_4S$ 9 *H* - Indeno[2,1 - *c*]pyrid - 9-one, 1,3 - dimethyl-, isethionate, P 5809*d*.

$C_{16}H_{17}N_3$ 2-Imidazoline, 2-(2-biphenylylaminomethyl)-, *and - HCl*, P 6240*e*
2 - Imidazoline, 2 - (diphenylaminomethyl)-, *and - HCl*, P 6240*e*.
Quinoxaline, 6 - (2,5 - dimethyl - 1 - pyrryl) - 2,3 - dimethyl-, 235*b*.

$C_{16}H_{17}N_3O$ Benzophenone, 4,4′-dimethyl , semicarbazone, 7004*h*
2 - Propanone, 1,3 - diphenyl , semicarbazone, 5027*a*.

$C_{16}H_{17}N_3O_3$ Alanine, *N*-benzoyl-β-phenyl , hydrazide, 4669*d*
Benzoic acid, *p*-hydrazino-, hydrazone with *p* - dimethylaminobenzaldehyde, 5764*g*.
Biuret, 1,5-di-*p*-tolyl , 7446*g*.
—, 1 phenyl-5 xylyl , 7446*f*.
—, 1 tolyl 5-*p*-tolyl-, 7446*g*.
β - Isodurylaldehyde, *p* - nitrophenylhydrazone, 3388*g*
Oxamic acid, *N*-naphthyl-, butylidenehydrazide, 6973*i*, *sec* butylidenehydrazide, 6973*i*.
Pimelonitrile, γ - cyano - γ - (2,3 - dimethoxyphenyl)-, 626*f*

$C_{16}H_{17}N_3O_3S$ Barbituric acid, 1-allyl-5-(*p*-dimethylaminobenzylidene) - 2 - thio-, 8300*g*.
Thiazole, 2 - amino - 4 - [1 - (*p* aminophenyl)cyclopropyl] , di-Ac deriv., 9042*d*.

$C_{16}H_{17}N_3O_3$ Acetamide, *N* - 2 - hydroxyethyl-α - (4 - hydroxy - 3 - phenylazophenyl)-, 3361*h*, 3362*i*
Acetamide, *N* - 2 - hydroxyethyl - α - (*p*-phenylazophenoxy)-, 3364*g*
Benzoic acid, *p*-propyl-, *p*-nitrophenylhydrazide, 7004*i*
Biuret, 1 - (methoxyphenyl) - 5 - *p* - tolyl-, 7446*h*
—, 1-phenetyl 5-phenyl-, 7446*g*
Carbanilide, *ar*,*ar*,4 trimethyl 3 - nitro , 7448*c*.
Compd , m. 165–6°, 5406*e*.
5 - Pyrimidinecarboxylic acid, 4 - (4-morpholinylmethyl) - 2 - phenyl-, - *HCl*, 1424*g*.

$C_{16}H_{17}N_3O_3S$ 2 - Naphthalenesulfonic acid, 2 - amino - 4,6 dimethylpyrimidine salt, 174*b*.

$C_{16}H_{17}N_3O_3S_2$ Urea, 1-(*N*-acetylsulfanilyl)-3-benzyl-2-thio-, P 1061*g*

$C_{16}H_{17}N_3O_4$ Carbanilide, ethoxy-4-methyl-3-nitro-, 7448*c*.
Glycine, *N*, *N′* - (iminodi - *p* - phenylene)di-, 169*d*.
Hydrocinnamohydroxamic acid, α-benzamido - β - hydroxamino-, 8382*h*.

$C_{16}H_{17}N_3O_4S$ 4 - Thiazoline - $\Delta^{2,N}$ - carbamic acid, 5 - acetamido - 3 - acetyl - 4-phenyl-, Et ester, 1403*a*.
Urea, 1 - (*N* - acetylsulfanilyl) - 3 - benzyl-, P 1061*d*.

$C_{16}H_{17}N_3O_4S_2$ Chetomin, 7544*b*.

$C_{16}H_{17}N_3O_5$ Cytidine, 3′,5′-benzylidene-, 2170*e*.
Propiophenone, α,4 - dihydroxy - 3 - methoxy-, *p* - nitrophenylhydrazone, 4238*f*.

$C_{16}H_{17}N_3O_5S$ Urea, 1 - (3,4 - dimethylbenzyl)-3 - (*p* - nitrophenylsulfonyl)-, P 1061*h*.

$C_{16}H_{17}N_3O_5S$ Penicillin, *p*-nitrobenzyl-, 2274*d*, 4328*a*.

$C_{16}H_{17}N_3O_7S_2$ Phthalamic acid, *N*-[2-(*p*-sulfamylphenylsulfamyl)ethyl]-, P 3450*h*.

$C_{16}H_{17}N_5$ 1 *H* - Tetrazole, 5 - (*N* - ethylanilinomethyl) - 1 - phenyl-, P 7972*c*

$C_{16}H_{17}NO$ Morpholine, 4 - [1 - (naphthyl)-1 *H* - tetrazol - 5 - ylmethyl]-, 1865*a*.

$C_{16}H_{17}N_5O_2S$ 1 *H* - Benzotriazole - 1 - ethanol, 6 - methyl - 5 - [*p* - (methylsulfonyl)-phenylazo]-, P 3625*i*.

$C_{16}H_{17}N_5O_4$ Aniline, *p* - (2,4 - dinitrophenylazo) *N*, *N*-diethyl-, P 1986*e*.

$C_{16}H_{17}N_5O_6$ Ethanol, 2,2′ - [*p* - (3,5 - dinitrophenylazo)phenylimino]di-, P 9462*f*.

$C_{16}H_{17}N_5O_8S$ Benzamidine, *N*, *N*-dimethyl-*p*-(methylsulfonyl) , picrate, P 688*i*.
Benzenesulfonamide, *N* - methyl - *N*-(*N*-methylacetimido)-, picrate, 2594*h*.

$C_{16}H_{18}$ Bibenzyl, α,α′-dimethyl-, P 1440*d*, 4140*e*.
Butane, 1,1-diphenyl-, 192*g*.
Ethane, 1,1-di-*p*-tolyl , P 2228*g*, P 9357*e*.

$C_{16}H_{18}Br_2N_2$ 1,1′ - (2,4 - Hexadienylene)-bis[pyridinium bromide], 6981*d*.

$C_{16}H_{18}Br_2CuO_8$ Acetoacetic acid, γ-bromo-α-bromoacetyl , Et ester, Cu deriv., 7909*e*.

$C_{16}H_{18}ClN$ (See also *Dibenzylamine*, *N*-(2-*chloroethyl*)- )
1 - Naphthalenemethylamine, *N* - allyl-*N* (2 - chloroethyl)-, - *HCl*, 2320*a*

$C_{16}H_{18}ClNO_3S$ Ethanol, 2 - (*m* - chloro - *N*-phenethylanilino)-, H sulfate, *Na salt*, P 8155*b*.

$C_{16}H_{18}ClNO_3S$ Ethanol, 2 (*m*-chloro *N*-2-phenoxyethylanilino)-, H sulfate, P 8154*h*.
Ethanol, 2 - [*N* - [2 - (*p* - chlorophenoxy)-ethyl]anilino]-, H sulfate, P 8154*h*, P 8155*c*.

$C_{16}H_{18}ClN_3O_5$ 1 - (2,4 - Dinitrophenyl) - 4-isoamoxypyridinium chloride, 6626*h*.

$C_{16}H_{18}ClN_3S$ See *Methylene blue*.

$C_{16}H_{18}ClN_3O_7$ Isoalloxazine, 8-chloro-10-(2-diethylaminoethyl)-, *and - HCl*, 3009*a*.

$C_{16}H_{18}Cl_2N_2O$ 1,1′ - (2 Oxo - 1,3 - cyclohexylene)dipyridinium dichloride, 7912*e*.

$C_{16}H_{18}Cl_2N_2O_2$ Benzidine, 2,2′ - dichloro-5,5′-diethoxy , 4150*g*.
Hydrazine, 1,2 - bis(5 - chloro - o - phenetyl)-, 4150*g*.

$C_{16}H_{18}Cl_2N_4O_4S$ Pyrimidine, 6 amino-4-(L-arabofuranosidamino) - 5 - (2,5 - dichlorophenylazo) - 2 - (methylmercapto)-, 145*h*.
Pyrimidine, 6 - amino - 4 - (L - arabopyranosidamino) - 5 - (2,5 - dichlorophenylazo) - 2 - (methylmercapto)-, 145*i*.

$C_{16}H_{18}Cl_2N_4O_5$ Pyrimidine, 6-amino-4-D-glucosidamino - 5 - (2,5 - dichlorophenylazo)-, 146*g*.

$C_{16}H_{18}Cl_2O_4$ Phthalic acid, tetrachloro-, di-Bu ester, P 2817*f*.

$C_{16}H_{18}CuI_2O_8$ Acetoacetic acid, γ-iodo-α-iodoacetyl-, Et ester, Cu deriv., 7909*d*.

$C_{16}H_{18}CuO_8$ Cyclopentanecarboxylic acid, 2,5 dioxo-(?), Et ester, Cu deriv., 7910*e*.

$C_{16}H_{18}HgO_2$ Mercury, bis(ethoxyphenyl)-, 4237*a*.

$C_{16}H_{18}INO_2$ 4 - (Dimethoxystyryl) - 1 - methylpyridinium iodide, 7483*f*.
4 - (3 - Ethoxyhydroxystyryl) - 1 - methylpyridinium iodide, 7483*g*.

$C_{16}H_{18}I_2N_2O_7$ Glutamic acid, *N*-(*N*-acetyl-3,5-diiodotyrosyl)-, 2256*c*.

$C_{16}H_{18}I_4N_2S$ Methylene blue, periodo deriv., - *HI*, 962*h*.

$C_{16}H_{18}N_2$ Acetamidine, *N*-ethyl-*N*, *N′*-diphenyl-, 6082*a*.
Acetophenone, *p* - methyl-, methylphenylhydrazone, 218*c*; *p*-tolylhydrazone, 218*c*.
1,4,5,8 - Dimethanoanthracene - 9,10-diimine, 1,4,4a,5,8,8a,9a,10a - octahydro-, *and di- HCl*, 4650*a*.
Piperazine, 1,4-diphenyl-, 7442*i*.

$C_{16}H_{18}N_2O$ Acetamide, *N* - (*m* - dimethylaminophenyl) - *N* - phenyl-, 648*a*.

*p* - Acetotoluidide, $\alpha'$ - (2,6 - dimethyl-4-pyridyl)-, 4672*c*.
Benzamide, *N* - [$\alpha$ - (aminomethyl)-benzyl]-*N*-methyl-, 6176*e*.
Benzotoluidide, 4-dimethylamino-, 1777*f*.
—, 4-ethylamino-, 1344*be*.
Hydratropanilide, $\alpha$ - methyl-, oxime, 6993*i*.
1 - Piperidinecarboxamide, *N* - 1 - naphthyl-, 8365*d*.
Pyridine, 5 - benzylideneamino - 2 - butoxy-, P 7972*g*.
Urea, 1 - $\alpha,\alpha$ - dimethylbenzyl - 3-phenyl-, 6994*a*.

**$C_{16}H_{18}N_2O_2$** Benzoin, 4-dimethylamino-, oxime, 1038*i*.
Isolysergic acid, dihydro-, 7031*i*.
Lysergic acid, dihydro-, 7031*i*.
Piperazine, 2,5 - bis(*p* - hydroxyphenyl)-, *and di - HCl*, 2602*f*.
3 - Pyridinemethanol, 5 - hydroxy - 6-methyl - 4 - (phenethyliminomethyl)-, 1410*h*.

**$C_{16}H_{18}N_2O_2S$** Crotonic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.
Spiro[cyclohexane - 1,2' - thiazolidine]-3',4' - dicarboximide, *N* - phenyl-, 659*e*.

**$C_{16}H_{18}N_2O_2S_4$** Rhodanine, 5 - [3 - (4 - hydroxy - 3 - methyl - 2 - thioxo - 4-thiazolin - 5 - yl) - 5,5 - dimethyl - 2-cyclohexen - 1 - ylidene] - 3 - methyl-, P 56*b*.

**$C_{16}H_{18}N_2O_3$** Acetamide, $\alpha$ - (*p* - anilinophenoxy) - *N* - 2 - hydroxyethyl-, 3364*g*.
Carbamic acid, [2 - carbamyl - 1 - (2-naphthyl)ethyl]-, Et ester, 6597*i*.
Phenetole, *p*,*p*'-azoxydi-, 3075*d*.
3 - Pyridinemethanol, 5 - hydroxy - 4-[(*p* - hydroxyphenethylimino)methyl]-6-methyl-, 1410*i*.

**$C_{16}H_{18}N_2O_3S$** Acetanilide, *p* - (3,5 - xylylsulfamyl)-, 4648*h*.
2 - Imidazoline, 2 - phenyl-, *p* - toluenesulfonate, P 5049*h*.
3*H* - Thiazolo[3,4 - *a*]pyrazine - 5,8-dione, tetrahydro - 1,1 - dimethyl - 7-phenylacetyl-, 4668*c*.

**$C_{16}H_{18}N_2O_2S_2$** Benzamide, (isopropylmercapto) - *N* - sulfanilyl-, P 7043*gi*.

**$C_{16}H_{18}N_2O_3S$** Valine, *N* - [2 - (benzylmercapto) - 5 - oxo - 2 - thiazolin - 4 - ylmethylene] - $\beta$ - mercapto-, 1399*d*.

**$C_{16}H_{18}N_2O_4S$** (See also *Penicillin G*.)
Acetamide, $\alpha$ - (*p* - ethylphenoxy) - *N*-sulfanilyl-, P 3035*i*.
Acetamide, *N* - sulfanilyl - $\alpha$ - 2,5 - xylyloxy-, P 3035*i*.
Cinnamic acid, $\alpha$-amino-*p*-toluenesulfonamide salt, P 686*c*.
Hydrazine, 1 - (2 - ethyl - 3 - methoxybenzoyl) - 2 - (phenylsulfonyl) -, 196*h*.
Imidazo[2,1 - *b*]thiazole - 3 - carboxylic acid, 2,3,5,6,7,7a - hexahydro - 2,2-dimethyl - 5 - oxo - 7 - phenylacetyl-, *Na salt*, 8892*g*.
Imidazo[5,1 - *b*]thiazole - 3,7 - dicarboxylic acid, 5-benzyl-2,3,7,7a-tetrahydro - 2,2 - dimethyl-, 221*e*, 1768*f*, 4920*h*, 4921*d*.
Isobutyramide, $\alpha$ - phenoxy - *N* - sulfanilyl-, P 3036*a*.
Naphthalenesulfonamide, *N* - (*o* - aminophenylsulfonyl) - 5,6,7,8 - tetrahydro-, P 6425*a*.
Penicillinic acid, benzyl-, 460*e*.
Pyrrolo[2,1 - *b*]thiazole - 3 - carboxylic acid, 6 - benzamidohexahydro - 2,2-dimethyl-5-oxo-, 7933*c*.
1,4-Thiazepine-3-carboxylic acid, 2,3,4,5-tetrahydro - 2,2 - dimethyl - 5 - oxo - 6-$\alpha$-phenylacetamido-, 4668*g*.
$\Delta^{2(3H),\gamma}$ - Thiophenebutyric acid, 4-benzamido-4,5-dihydro-3-oxo-, Me ester oxime, P 3468*g*.
$\Delta^{2(3H),\delta}$-Thiophenevaleric acid, 4-benzamido-4,5-dihydro-3-oxo-, oxime, P 3468*h*.
*p* - Toluamidine, $\alpha$ - (methylsulfonyl)-, benzoate, 1739*f*.
Valine, *N*-[(2-benzyl-5-oxo-2-oxazolin-4-ylidene)methyl]-$\beta$-mercapto-, 221*d*, 1768*c*.

**$C_{16}H_{18}N_2O_4Se$** Penicillin, phenylselenomethyl-, 2274*h*, 3490*a*.

**$C_{16}H_{18}N_2O_5S$** Acetamide, $\alpha$-(*p*-methoxybenzylmercapto) - *N* - sulfanilyl-, P 3036*c*.
Naphthalenesulfonamide, 5,6,7,8-tetrahydro-*N*-metanilyl-, P 8150*d*.
—, 5,6,7,8-tetrahydro-*N*-sulfanilyl-, P 8149*h*.

**$C_{16}H_{18}N_2O_5$** 3-Indolepropionic acid, $\alpha$-acetamido - 2 - carboxy-, 2-Et ester, P 6238*i*.
1-Naphthalenepropionic acid, 1-cyano-1,2,3,4 - tetrahydro - 7,8 - dimethoxy-4-oxo-, oxime, 626*h*.
1,2-Propanediol, 2-methyl-3-[*p*-(*o*-nitroanilino)phenoxy]-, P 9470*c*.
3-Pyrrolidinecarboxylic acid, 3-acetamido-1-benzyl-2,5-dioxo-, Et ester, 1353*a*.

**$C_{16}H_{18}N_2O_5S$** (See also *Penicillin X*.)
Acetanilide, *p*-(dimethoxyphenylsulfamyl)-, 4648*h*, 4649*a*.
Benzenesulfonamide, *p*-(3a,4,5,6,7,7a-hexahydro - 3a,7 - dimethyl - 1,3-dioxo - 4,7 - epoxypseudoisoindol-2(3*H*)-yl)-, 2598*c*.
Imidazo[5,1 - *b*]thiazole - 3,7 - dicarboxylic acid, 2,3,7,7a-tetrahydro-5-(*p* - hydroxybenzyl) - 2,2 - dimethyl-, 4920*h*, 4921*a*
Penicillin, phenoxymethyl-, 2274*e*, 3490*a*, 4328*a*.
Pyrrolo[2,1-*b*]thiazole-3-carboxylic acid, 6 - benzamidohexahydro - 2,2 - dimethyl-5-oxo-, 1-oxide, 7933*h*.
*p* - Toluenesulfono - *o* - phenetidide, *N*-methyl-4'-nitro-, 167*g*.

**$C_{16}H_{18}N_2O_6$** Cryptol, 3,5 dinitrobenzoate, 160*i*.

**$C_{16}H_{18}N_2O_6S$** 3,5-Pyridinedicarboxylic acid, 1,4 - dihydro - 2,4,6 - trimethyl - 1-sulfanilyl-, 2597*h*.

**$C_{16}H_{18}N_2S$** Phenothiazine, 10 (2-dimethylaminoethyl)-, *and - HCl*, P 2648*b*

**$C_{16}H_{18}N_4$** 2,3-Butanedione, bis(phenylhydrazone), 1328*g*, 3795*b*, 5369*a*
2-Butanone, 3-hydroxy -, osazone, 3791*g*.
Butyraldehyde, $\alpha$-oxo-, bis(phenylhydrazone), 3791*e*, 6624*f*.

**$C_{16}H_{18}N_4O$** Guanidine, 1-cyano-2 -3 methoxypropyl)-3-(1-naphthyl)-, P 1799*c*
Isolysergic acid, hydrazide, P 2740*i*

**$C_{16}H_{18}N_4O_2$** *m*-Tolualdehyde, 6 dimethylamino-, *p* - nitrophenylhydrazone, 1412*d*.

**$C_{16}H_{18}N_4O_2S_2$** Acetanilide, 4,4'-dithiobis[3 amino-, 5776*l*
Urea, 1,1'-(dithiodi-*o* phenylene)bis[3 methyl-, 767*b*

**$C_{16}H_{18}N_4O_3$** Xanthine, 8-(benzyloxymethyl)-1,3,7-trimethyl-, 3794*f*.

**$C_{16}H_{18}N_4O_3S$** Morpholine, 4 (*p*-sulfanilylazophenyl)-, P 7846*g*.

**$C_{16}H_{18}N_4O_4$** 3-Buten-2-one, 4-(1-cyclohexen-1-yl)-, 2,4-dinitrophenylhydrazone, 8360*b*.
Febrifugine, nitroso-, 5406*d*
Isofebrifugine, nitroso-, 5406*d*
2(3*H*)-Naphthalenone, 4,4a,5,6,7,8-hexahydro-, 2,4-dinitrophenylhydrazone, 7908*a*.

**$C_{16}H_{18}N_4O_4S_2$** 2-Thiazolecarbamic acid, 5 (3 carboxy-2-thioureido)-4 phenyl-, di-Et ester, 1402*i*.

**$C_{16}H_{18}N_4O_5$** 1-Butanone, 1-(2,5-dimethyl-3-furyl)-, 2,4-dinitrophenylhydrazone, 6204*d*.
Ketone, 4-ethoxy-1,3-cyclohexadien-1-yl methyl, 2,4-dinitrophenylhydrazone, 7416*e*.

**$C_{16}H_{18}N_4O_5S$** Succinanilic acid, *p* (4,6 dimethyl - 2 pyrimidylsulfamyl) -, P 7961*i*, P 7965*c*.

**$C_{16}H_{18}N_4O_6$** Ketone, 4-hydroxy-1 cyclohexen-1-yl methyl, 2,4 dinitrophenylhydrazone, acetate, 7117*b*

**$C_{16}H_{18}N_4O_7$** Benzylamine, *N*, *N*, $\alpha$ trimethyl-, picrate, 6177*d*, 7920*i*
3,5-Diethyl-1-methylpyridinium picrate, 1427*c*.
Phenethylamine, $\beta,\beta$ dimethyl -, picrate, 6993*e*.
3-Picoline, butyl-, picrate, 643*i*, 1775*d*, 5399*h*.

**$C_{16}H_{18}N_6$** Guanidine, (vinylenedi-*p* phenylene)di-, 1485*h*, 8528*b*

**$C_{16}H_{18}N_4O_7$** Glutaraldehydic acid, $\alpha$-acetamido-$\alpha$-cyano -, Et ester, 2,4-dinitrophenylhydrazone, 143*d*.

**$C_{16}H_{18}O$** 2-Capronaphthone, 6188*f*, 9424*f*.
Cyclohexanol, 1 (1-naphthyl)-, 3366*d*.
2,4,6,8,10,12,14 - Hexadecaheptaenal, 5363*g*.
Isophorone, 6-benzylidene-, P 4420*i*.
2-Naphthaldehyde, 4-isopropyl-1,6-dimethyl-, 7928*b*.
Phenol, *o*-cuminyl-, 2969*e*.
1-Propanol, 3-phenyl 1-*o*-tolyl-, 4247*e*.

**$C_{16}H_{18}O_2$** Bibenzyl, 4,4'-dimethoxy-, 191*g*.
*p*,*p*'-Biphenol, 3,3'-diethyl-, 5018*d*.
4,4'-Biphenyldimethanol, $\alpha,\alpha'$-dimethyl-, P 5803*d*.
4,4'-Bi-2,6-xylenol, P 9428*a*.
2-Naphthalenepropionic acid, $\alpha,\alpha,\beta$-trimethyl-, 3814*d*.
1,4-Naphthoquinone, 2-cyclohexyl-5,8-dihydro-, 1372*e*.
—, 2-(1,3-dimethylbutyl)-, 1382*f*.
—, 2-hexyl-, P 9085*g*.
—, 2-isoamyl-3-methyl-, 1382*f*.
2,4,6-Nonatrien-8-ynoic acid, 9-(1-cyclohexen-1-yl)-3-methyl-, 8361*f*.
Phenol, *p*,*p*'-*sec*-butylidenedi-, P 5424*e*.
—, *p*,*p*' - (1,2 - dimethylethylene)di-, 6605*h*
—, 2-ethyl-3,4'-ethylenedi-, 198*c*.
—, 4,4',6-trimethyl-2,2'-methylenedi-, 5019*b*.

**$C_{16}H_{18}O_2S$** Anisole, 2,2'-thiobis[6-methyl-, 6995*c*.
Sulfone, benzhydryl propyl, 1366*c*.

**$C_{16}H_{18}O_2S_2$** Anisole, dithiobis[methyl -, P 5992*g*.

**$C_{16}H_{18}O_3$** Acrylic acid, $\beta$-benzoyl-, cyclohexyl ester, 7192*h*.
Acrylic acid, $\beta$-*p*-cyclohexylbenzoyl-, 607*d*.
Coumarin, 3,4,5,6,7,8 hexahydro-4 (*p*-methoxyphenyl)-, 3418*h*.
1-Cyclopentene 1-acetic acid, 2-*p*-cumyl-5-oxo-, 3420*i*.
1,3-Dioxolane, 2-ethyl-2-(6-methoxy-2-naphthyl)-, 3814*f*.
Ketone, 5-hydroxy-2-methyl-1-cyclohexen-1-yl methyl, benzoate, 7417*d*
2-Naphthalenebutyric acid, 6 methoxy-3 methyl-, 8377*a*.
1-Naphthaleneglycolic acid, Bu ester, 188*d*, iso-Bu ester, 188*d*
1,4-Naphthoquinone, 2 (dimethylbutyl) - 3-hydroxy-, 1373*e*.
—, 2-(1,3-dimethylbutyl)-, oxide, 1382*e*
—, 2-hexyl-3 hydroxy-, 1373*i*, 2610*h*
—, 2-hydroxy-3-isoamylmethyl-, 1382*f*
—, 2 hydroxyisohexyl-, 1108*g*, 1373*a*, 1383*a*, 2610*b*.
—, 2-isoamyl-3-methoxy-, 1373*d*
1,6-Octadien-3-one, 7 methyl 1 (3,4 methylenedioxyphenyl) -, P 1526*c*

**$C_{16}H_{18}O_3S$** Biphenylsulfonic acid, butyl-, Na *salt*, 20*d*, 3688*c*, 6915*h*
Ether, 2 - (benzylsulfonyl)isopropyl phenyl, 6995*f*.
Methanesulfonic acid, phenyl *p* tolyl -, Et ester, 3810*g*.

**$C_{16}H_{18}O_3S_2e$** *p*-Toluenesulfonic acid, 3 (phenylselenyl)propyl ester, P 7015*c*

**$C_{16}H_{18}O_4$** Benzene, 5-(benzyloxy) 1,2,3 trimethoxy-, 1773*d*.
Benzenediacetic acid, diallyl ester, P 3661*f*.
Bicyclo[3.2.1]octan-2-ol, H phthalate 5752*d*.
Corticrocin, di-Me ester, 6982*g*
2-Cyclopentene-1-malonic acid, $\alpha$ phenethyl-, 1039*f*.
2,4-Hexadienophenone, 2',4'-dihydroxy-3',5'-dimethyl-, acetate, 2184*b*
Hydrobenzoin, 4,4'-dimethoxy-, 7917
1,4-Naphthalenediol, 5,8 dihydro-6, dimethyl, diacetate, 1756*h*.
$\Delta^{1,\alpha}$ Phthalanacetic acid, 3 oxo-, hexyl ester, 2974*d*.

**$C_{16}H_{18}O_4S$** Anisole, 2',4-dimethyl-2,1'-sulfonyldi-, 6995*c*.
Anisole, sulfonylbis[methyl-, 6994
6995*c*.
Biphenylsulfonic acid, butylhydroxy-, Na *salt*, 20*d*, 3688*c*, 6915*h*.

**$C_{16}H_{18}O_4S_2$** Cresosol, $\alpha,\alpha'$-dithiodi-, 9438*c*
*m*-Cresol, $\alpha,\alpha'$ dithiobis[5-methoxy-, 7014*h*.

**$C_{16}H_{18}O_5$** 1,2*H*-Benzopyran-4-acetic acid, 7-hydroxy-2-oxo-6-propyl-, Et ester 6206*e*.
1-Indancarboxylic acid, 2-cyclohexyl-1,2-dihydroxy-3-oxo-, 1384*d*
—, 1,2 - dihydroxy - 2 - (3 - methyl - 2 - butenyl)-3-oxo-, Me ester, 1384*b*
Malonic acid, [$\alpha$-(2-oxocyclohexyl)-benzyl]-, 3418*d*.
1-Naphthalenebutyric acid, 2-carboxy-3,4-dihydro-6-methoxy-, 7033*e*
4-Pentenoic acid, 2-acetyl-5-(*p*-methoxyphenyl)-3-oxo-, Et ester, 2973*d*.

**$C_{16}H_{18}O_5P$** Acetic acid, anhydride with $H_3PO_4$, dibenzyl ester, 8351*d*.

**$C_{16}H_{18}O_5S$** *p*-Benzoylphenyldimethylsulfonium methyl sulfate, 7475*a*.

**$C_{16}H_{18}O_6$** 1,2,4-Naphthalenetriol, 5,6,7,8 tetrahydro-, triacetate, 1383*b*.
Usnetic acid, 4-Me ether, Me ester, 5445*f*.

**$C_{16}H_{18}O_6S$** *p*-Toluenesulfonic acid, ethylene ester, P 7751*d*.

**$C_{16}H_{18}O_7S_2$** 3,3'-Biphenyldisulfonic acid, 5-butyl-2-hydroxy-, *di-Na salt*, 3688*c*.

$_{10}O_{16}$ Glucoside, [β-(*p*-hydroxyphenyl)-Δ$^{\alpha,\beta}$-butenenolide], 4654*i*.
Tetracarboxylic acid, m. 247–50°, 6155*a*.
$_{16}H_{18}O_9$ Chlorogenic acid, 2335*d*, 4342*h*, 5116*i*.
Coumarin, 6-(galactopyranosyloxy)-7-hydroxy-4-methyl-, 4670*e*.
Esculin, 4-methyl-, 3823*a*, 4670*b*.
Scopolin, 1770*f*.
$_4H_{10}S_2$ Phenethyl disulfide, 2187*i*.
$_4H_{10}S_2Zn$ Xylenethiol, Zn deriv., P 5224*c*.
$_8H_{19}Br_2N_3$ Pyridine, 5-bromo-2-[*m*-bromobenzyl(2 - dimethylaminoethyl)-amino]-, *mono-HCl*, 5782*c*.
$_8H_{19}ClN_2$ 8-Amino-5,6-dihydro-5,5,6-trimethylphenanthridinium chloride, - *HCl*, P 2647*f*.
$_8H_{19}ClN_2O$ Pyridine, 2-[chloro-α-(2-dimethylaminoethoxy)benzyl]-, 4266*d*, *and* - *HCl*, 2206*c*.
$_8H_{19}ClO_3$ Ketone, 2-chloro-5-hydroxy-2-methylcyclohexyl methyl, benzoate, 7417*d*.
$_8H_{19}ClO_4$ Camphoric acid, *p*-chlorophenyl ester, P 1901*i*.
1-Indancarboxylic acid, 2-chloro 1-hydroxy-2-isoamyl-3-oxo-, Me ester, 1384*e*.
Malonic acid, 3-chloro-2-buteuyl(*m*-methylphenethyl)-, 6609*d*.
$_{16}H_{19}Cl_2N_3$ 1,2,3-Propanetriamine, $N^1$, $N^3$ bis(*p* - chlorophenyl) - 2 - methyl, P 2230*d*.
$_{16}H_{19}HgNO_3S$ Xylenesulfonanilide, *N*-(ethylmercuri)-, P 1805*e*.
$_{16}H_{19}IN_2$ 4 - (4 - Dimethylaminostyryl) - 1-methylpyridinium iodide, 7483*g*.
$_{16}H_{19}I_2N_3S$ Methylene blue, periodo deriv., HI, 962*h*.
$_{16}H_{19}N$ Benzhydrylamine, *N*-isopropyl-, 2981*d*.
Benzhydrylamine, *N*-propyl-, *and* - *HCl*, 1341*a*.
, *N*, *N*, α-trimethyl-, 6177*d*.
Benzylamine, α benzyl *N*, *N*-dimethyl-, *and HCl*, 6177*e*
—, *N* isopropyl-*o* phenyl-, *and* - *HCl*, 1355*g*
Dibenzylamine, α ethyl-, 7921*d*; *and* - *HCl*, 1341*b*.
Diethylamine, 1,2-diphenyl , *and* - *HCl*, 1341*a*
Diphenethylamine, 7585*f*.
Dixylylamine, P 5799*f*
$_{16}H_{19}NO$ Benzhydrol, α (2-methylaminoethyl) , *and* - *HCl*, P 5417*g*
Diphenylamine, *p*-butoxy-, 3386*g*
Ethylamine, 2 - (benzhydryloxy) - *N*-methyl-, *HCl*, P 3462*h*.
—, *N*- methyl- 2 -(α - phenyl - *o* - toloxy)-, - *HCl*, 3386*e*.
2 - Naphthol, 1 - (1 - piperidylmethyl)-, 2183*i*
9 Phenanthrenecarbonitrile, 1,2,3,4,5,6,7,8 octahydro-10 methoxy-, 4251*g*
Propylamine, 3 (*p*-methoxyphenyl)-2-phenyl-, 596*h*.
$C_{16}H_{19}NO_2$ Alkaloid, *and salts*, 3148*h*.
Ethanol, 2,2'-(4-biphenylylimino)di-, 7443*b*
1 Naphthalenecarbamic acid, ester with 3 methyl 2-butanol, 565*c*.
Phenol, *p*-[α (aminomethyl)-*p*-methoxyphenethyl]-, *and* - *HCl*, 2607*e*
$C_{16}H_{19}NO_3S$ 5(4 *H*)-Oxazolone, 5 amyl-4-[(benzylmercapto)methylene]-, 2990*h*.
3(2 *H*) Thiophenone, 2-amylidene-4-benzamido-4,5-dihydro-, P 1809*f*, P 3468*e*.
$C_{16}H_{19}NO_3S_2$ 1-Propanol, 2,3-bis(methylmercapto)-, 1-naphthalenecarbamate, 7425*e*.
$C_{16}H_{19}NO_4$ Cinchoninic acid, 3-isopropoxy-2-propyl , 227*h*.
Cinchoninic acid, 3-propoxy-2 propyl-, 227*g*.
Erythrodine, 8053*b*.
β Erythrodine, 3102*h*, 6729*f*.
1,4 - Naphthoquinone, 2 - (amylaminomethyl)-3-hydroxy-, 1384*h*.
Oxindole, 3-(cyclohexylcarbonylmethyl)-3-hydroxy , 1411*d*.
$C_{16}H_{19}NO_4S$ 1-Thi-4-azaspiro[4.5]decane-3-carboxylic acid, 4 benzoyl-, 659*e*.
*p*-Toluenesulfonanilide, *o'*-(1-hydroxyisopropyl)-, 7006*g*.
—, 2'-propoxy-, 166*f*.
*p* - Toluenesulfono - *o* - phenetidide, *N*-methyl-, 167*g*.
$C_{16}H_{19}NO_5$ Cryptol, *p*-nitrobenzoate, 160*i*.
1-Naphthalenepropionic acid, 1-cyano-1,2,3,4 - tetrahydro - 7,8 - dimethoxy-, 626*h*.
2-Naphthoic acid, 4-cyano-4-ethyl-1,2,3,4 - tetrahydro - 5,6 - dimethoxy-, 626*d*.
Succinic acid, α-benzyl-α-cyano-, di-Et ester, 2167*h*.
—, α-cyanobenzyl-, di-Et ester, P 6665*c*.
$C_{16}H_{19}NO_4S$ Benzenesulfonanilide, *N*-ethyl-3,4-dimethoxy-, 2177*f*.
Ethanol, 2-*N*-phenethylanilino-, H sulfate, P 8155*c*.
Thymohydroquinone, 6-sulfanilyl-, 2593*f*
$C_{16}H_{19}NO_4S_2$ Dibenzenesulfonamide, *N*-butyl-, 1242*e*.
$C_{16}H_{19}NO_5S$ Ethanol, 2-(*N*-2-phenoxyethylanilino)-, H sulfate, P 8154*c*, P 8155*c*.
$C_{16}H_{19}NO_5$ Malonic acid, acetamidobenzoyl-, di-Et ester, 7456*c*.
1-Naphthalenepropionic acid, 1-carbamyl-1,2,3,4 tetrahydro - 7,8 - dimethoxy-4-oxo-, 626*i*.
Phthalic acid, 3-nitro-, 2-Me 1-(2-methylcyclohexyl) ester, 5767*f*.
Pimelic acid, γ-cyano-γ-(2,3-dimethoxyphenyl)-, 626*g*.
$C_{16}H_{19}N_3$ Acetamidine, α-anilino-*N* phenethyl-, - *HCl*, P 6240*c*.
Aniline, *N*, *N* - diethyl - *p* - phenylazo-, 3801*f*, 5109*e*.
Triazene, 1,3 dixylyl-, 2727*c*.
$C_{16}H_{19}N_3O$ 3(2 *H*) Phenanthrone, 1,9,10,10a-tetrahydro-7-methyl , semicarbazone, 6609*e*.
Pyridine, 2 (*N*-benzyl-α-dimethylaminoacetamido)-, - *HCl*, 5782*g*
Semicarbazide, 1 - α - ethylbenzyl - 4-phenyl-, 3801*g*.
2 - Valeronaphthone, semicarbazone, 6188*d*.
$C_{16}H_{19}N_3O_2$ Ethanol, 2,2'-(*p*-phenylazophenylimino)di , 3801*f*.
$C_{16}H_{19}N_3O_2$ Chetomin, desthio-, 7544*c*.
Febrifugine, 1530*a*, *and di HCl*, 5406*b*.
Isofebrifugine, 1530*a*, 5406*a*.
Ketone, 4 - hydroxy - 1 - cyclohexen - 1-yl methyl, semicarbazone, benzoate, 7416*i*.
$C_{16}H_{19}N_3O_3S$ Benzenesulfonamide, *p* (butylhydroxyphenylazo) , 9048*a*.
Benzenesulfonic acid, *p*-(diethylaminophenylazo)-, 6489*c*.
Penicillin amide, 14066*b*.
4-Thiazolidinecarboxylic acid, 2 [cyano-(α - phenylacetamido)methyl] - 5,5-dimethyl-, 4668*a*.
Urea, 1 (3,4 dimethylbenzyl)-3 sulfanilyl-, P 1061*h*
$C_{16}H_{19}N_3O_3S_2$ Acetanilide, *p* [(4,5,6,7-tetrahydromethyl - 2 - benzothiazolyl)-sulfamyl]-, P 3852*g*.
$C_{16}H_{19}N_3O_4$ 1-Cyclopentene 1-acetic acid, 2-(*p*-methoxyphenyl)-5-oxo-, Me ester, semicarbazone, 3429*i*.
3-Pyridinemethanol, 5-hydroxy-4-[(3-hydroxy - 5 - (hydroxymethyl) - 2-methyl - 4 pyridylmethylimino]-methyl] 6-methyl-, 1410*i*
$C_{16}H_{19}N_3O_4$ 1-Indancarboxylic acid, 1,2-dihydroxy - 2 - (3 - methyl - 2 butenyl)-3-oxo-, semicarbazone, 1384*c*.
$C_{16}H_{19}N_3O_4S$ Hippuric acid, α-amino-*p*-toluenesulfonamide salt, P 686*c*.
$C_{16}H_{19}N_3O_4S_2$ Succinamic acid, *p*-[(4-methyl 2-thiazolyl)sulfamyl] , Et ester, P 3846*h*.
$C_{16}H_{19}N_3O_6S_2$ 5 Thiazolecarboxylic acid, 2-(*N*⁴- acetylsulfanilamido) - 4 - ethoxy (?), Et ester, P 3852*b*.
$C_{16}H_{19}N_5$ Biguanide, dimethyldiphenyl , P 4092*b*; - *HCl*, P 2230*a*; *and* - *HCl*, P 4091*i*, 9036*h*.
1 *H*-Tetrazole, 5-(diethylaminomethyl)-1-(naphthyl)-, 1804*gi*, P 7972*cd*.
$C_{16}H_{19}N_5O_2$ Hydrocinnamic acid, α-benzamido - β - hydrazino-, hydrazide, 4669*c*.
$C_{16}H_{19}N_5O_3$ 3-Carbamyl-1-ethyl-1,2-dihydro 1,2 - dimethylpyridinium picrate, 7525*i*.
$C_{16}H_{19}N_5O_3S$ 2-Thiazoleacetamide, *N*, *N*-diethyl-4-methyl-, picrate, 5021*i*.
$C_{16}H_{20}$ Compd., bp 136°, m. 33-5°, 6201*b*.
Naphthalene, 2-butyl-3-ethyl , 1370*e*.
—, diisopropyl-, 4063*f*.
—, 2-(1,3-dimethylbutyl)-, 1382*e*.
—, 2,3-dipropyl-, 1370*e*.
—, ethyl-4-isopropylmethyl-, 2606*ae*.
—, hexyl-, 4454*h*, 6188*a*, 6512*i*, 8888*f*, 9424*e*.
—, 4-isopropyl-1,2,6-trimethyl-, 7928*a*.
Phenanthrene, 8-ethyl-1,2,3,4,5,6-hexahydro-, 2183*d*.
$C_{16}H_{20}BrN_3$ Pyridine, 2-[benzyl(2-dimethylaminoethyl)amino]-5-bromo-, *mono-HCl*, 5782*c*.
Pyridine, 2-[bromobenzyl(2-dimethylaminoethyl)amino]-, *and mono-HCl*, 5782*b*.
$C_{16}H_{20}ClN$ 1-Naphthalenemethylamine, *N*-(2-chloroethyl)-*N*-isopropyl-, - *HCl*, 2320*a*.
1-Naphthalenemethylamine, *N*-(2-chloroethyl)-*N*-propyl-, - *HCl*, 2320*a*.
$C_{16}H_{20}ClNO$ 1-Naphthalenemethylamine, *N*-(2 - chloroethyl) - *N* - 2 - methoxyethyl-, - *HCl*, 2320*a*.
$C_{16}H_{20}ClN_3$ Bindschedler's Green, 8435*f*.
Pyridine, 2-[benzyl(2-dimethylaminoethyl)amino]-5-chloro-, 6587*h*; *mono-HCl*, 5782*d*.
—, 2 - [chlorobenzyl(2 - dimethylaminoethyl)amino]-, *and mono-HCl*, 5782*b*.
$C_{16}H_{20}Cl_2$ Anthracene, 9,10-bis(chloromethyl) - 1,2,3,4,5,6,7,8 - octahydro-, 7013*e*.
$C_{16}H_{20}Cl_2O$ Ether, 2,4-dichlorophenyl isobornyl, 1355*a*.
$C_{16}H_{20}CuK_2N_{10}O_8S_2$, 7365*d*.
$C_{16}H_{20}CuN_{10}Na_2O_8S_2$, 7365*d*.
$C_{16}H_{20}CuN_{10}O_6S_2$ Benzenesulfonic acid, *p*-(guanylguanidino)-, Cu deriv., 8222*c*.
$C_{16}H_{20}FN_3$ Pyridine, 2-[(2-dimethylaminoethyl) - *p* - fluorobenzylamino]-, *and mono-HCl*, 5782*b*.
$C_{16}H_{20}IN_3$ Pyridine, 2-[(2-dimethylaminoethyl)-*p*-iodobenzylamino]-, *and mono-HCl*, 5782*b*.
$C_{16}H_{20}K_2N_{10}NiO_8S_2$, 7365*d*.
$C_{16}H_{20}NO_3P$ Phosphinic acid, (α-methyl-α-*p*-phenetidinobenzyl)-, 5378*d*.
$C_{16}H_{20}N_2$ Ethylenediamine, *N*-benzyl-*N'*-methyl-*N*-phenyl-, *and* - *HCl*, P 683*b*.
Ethylenediamine, *N*, *N'* - di - *o* - tolyl-, 8188*g*.
Pyridine, 2-[α-(2-dimethylaminoethyl)-benzyl]-, 9366*d*.
$C_{16}H_{20}N_2O$ Acetamide, α-diethylamino-*N*-naphthyl-, *and* - *HCl*, 1022*c*.
Pyridine, [α-(2-dimethylaminoethoxy)-benzyl]-, 4266*de*; *and* - *HCl*, 2206*bg*.
2-Pyridinemethanol, α (2-dimethylaminoethyl)-α-phenyl-, *and di-HCl*, 2205*c*.
$C_{16}H_{20}N_2O_2$ 1,4-Naphthoquinone, 2-(2-diethylaminoethylamino)-, 1383*e*.
Phenanthridine, 6 amino-7,8,9,10-tetrahydro-2-methyl-, acetate, 1779*d*.
Phenol, *p*,*p'* [1,2-bis(methylamino)ethylene]di , *and salts*, 614*d*.
3-Pyridinemethanol, 5-hydroxy-6-methyl-4-(phenethylaminomethyl)-, *di-HCl*, 1410*i*.
$C_{16}H_{20}N_2O_2S$ Butyric acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
Sulfanilo-3,5-xylidide, $N^4$, $N^4$-dimethyl-, 4648*i*.
*p*-Toluenesulfonanilide, 3'-amino-2',4',6'-trimethyl-(?), 7920*b*.
—, dimethylamino-*N*-methyl-, 594*d*; - *HI*, 3008*c*.
$C_{16}H_{20}N_2O_2S_2Zn$ Benzenethiol, 2-amino-5-ethoxy-, Zn deriv., P 1438*f*.
$C_{16}H_{20}N_2O_3$ Oxindole, 3-(cyclohexylcarbonylmethyl)-3-hydroxy-, oxime, 1411*d*.
3 Pyridinemethanol, 5-hydroxy-4-(*p*-hydroxyphenethylaminomethyl)-6-methyl, *di*- *HCl*, 1411*a*.
$C_{16}H_{20}N_2O_3S$ Sulfanilamide, $N^4$-(3-hydroxy-4 isopropylbenzyl)-, 7539*a*.
*o*-Toluenesulfono-3,5-xylidide, 4-amino-5-methoxy-, 4649*c*.
$C_{16}H_{20}N_2O_4$ 1-Azetidineacetic acid, α-isopropyl-2-oxo-3 (α-phenylacetamido)-, *and Na salt*, 8892*g*.
Benzoic acid, compd. with ethylenediamine, 8832*e*.
Bilifuscin, 5844*f*.
Ethylenediamine, compd. with salicylaldehyde, 2082*d*.
Mesobilifuscin, 5844*f*.
$C_{16}H_{20}N_2O_4S$ Hydrocinnamic acid, α-amino-*p*-toluenesulfonamide salt, P 686*c*.
$C_{16}H_{20}N_2O_4S_2$ Dibenzenesulfonamide, 2'-amino - *ar* - isopropyl - *ar* - methyl-, P 8149*h*.
Vitachrome, diacetate, P 5807*a*.
$C_{16}H_{20}N_2O_5$ (See also *Propenidyopent*.)
Proline, 1-(*N*-carboxy-β-alanyl)-, benzyl ester, 1448*g*.
$C_{16}H_{20}N_2O_5S$ 2-Thiazolidineacetic acid, 4-carboxy - 5,5 - dimethyl - α - (α - phenylacetamido)-, 4067*g*, 6618*b*.
2-Thiazolidineacetic acid, 4-carboxy-α-(α-phenylacetamido)-, α-Et ester, P 5425*h*.
2-Thiazolidinealanine, *N*-benzoyl-4-carboxy-, α-Et ester, 7932*g*.
$C_{16}H_{20}N_2O_6$ Cyclohexanecthanol, 1-methyl-, 3,5-dinitrobenzoate, 3372*a*.
$C_{16}H_{20}N_2S_2$ Butyraldehyde, bis(aminophenyl) mercaptal, 6179*f*.

Urea, 1-(*tert*-butyl-2-thenyl)-3-phenyl-2-thio-, 2201*i*.

**$C_{16}H_{20}N_4$** Imidazolecarboxaldehyde, 1-cyclohexyl-, phenylhydrazone, 8381*i*.

**$C_{16}H_{20}N_4O$** Aniline, azoxybis[*N*, *N*-dimethyl-, 7472*b*

Isolysergic acid, dihydro-, hydrazide, P 5427*h*.

1 - Naphthaldehyde, 4 - diethylamino-, semicarbazone, P 2233*a*.

**$C_{16}H_{20}N_4O_2S$** Aniline, *N*,*N*-diethyl-*p*-sulfanilylazo-, P 7846*g*.

**$C_{16}H_{20}N_4O_3$** Febrifugine, oxime, 5406*d*.

**$C_{16}H_{20}N_4O_3S$** Hydrazine, 1-(1-cyclohexylimidazolylcarbonyl) - 2 - (phenylsulfonyl)-, 8381*i*.

**$C_{16}H_{20}N_4O_4$** Citral, 2,4-dinitrophenylhydrazone, 3374*e*.

2-Cyclohexen-1-one, 3-butyl-, 2,4-dinitrophenylhydrazone, 9045*b*.

—, 3-*sec*-butyl-, 2,4-dinitrophenylhydrazone, 9045*c*.

—, 3 *tert*-butyl-, 2,4-dinitrophenylhydrazone, 9045*c*.

—, 2-ethyl-3,5-dimethyl-, 2,4-dinitrophenylhydrazone, 2969*b*.

—, 3-isobutyl-, 2,4-dinitrophenylhydrazone, 9045*b*.

2-Cyclopentene-1-carboxaldehyde, 3-isopropyl-1-methyl-, 2,4-dinitrophenylhydrazone, 1750*c*.

**$C_{16}H_{20}N_4O_3S$** Sulfanilamide, *N*4-[ethyl(2-hydroxyethyl)amino]phenyl}-3-nitro-, P 8143*h*.

**$C_{16}H_{20}N_4O_8$** Malonic acid, 2-formylethyl-, di-Et ester, 2,4-dinitrophenylhydrazone, 577*f*.

**$C_{16}H_{20}N_4O_{10}$** Picrate, m. 205–6°, 3005*a*.

2,5-Piperazinedione, 1,4-bis(carboxymethyloxamyl)-(?), di-Et ester, 3789*i*.

**$C_{16}H_{20}N_6$** Guanidine, (3,3′-dimethyl-4,4′-biphenylene)di-, 8545*h*; *and* - *HCl*, 5014*e*.

**$C_{16}H_{20}N_6O_2$** Isoalloxazine, 8-amino-10-(2 diethylaminoethyl)-, 3008*g*.

**$C_{16}H_{20}N_6O_3$** Pyridine, 3-amino-5-(aminomethyl) - 2 - (ethoxymethyl) - 4-methyl-, picrate, P 1812*a*.

**$C_{16}H_{20}N_6O_4$** Carbanilide, 4,4′ diguanidino-, carbonate, 5014*d*.

**$C_{16}H_{20}N_{10}$** Biguanide, 1,1′-(4,4′-biphenylene)di-, P 3968*d*e.

**$C_{16}H_{20}N_{10}Na_2NiO_6S_2$**, 7365*d*.

**$C_{16}H_{20}N_{10}O_2S$** Biguanide, 1,1′-(sulfonyldi *p*-phenylene)bis-, *di*-*HCl*, 2946*h*.

**$C_{16}H_{20}O$** Decatrienynol, (1-cyclohexen-1-yl)-, 8361*fg*.

1(2*H*)-Naphthalenone, 3,4-dihydro-2-(2-methylcyclopentyl)-, 1039*c*.

2-Naphthol, 6-isohexyl-, 1383*a*.

1-Octanol, 1-(2,5-xylyl)-, 6990*h*.

4 - Pentenophenone, 2 - allyl - 2 - ethyl-, 3716*e*, 4955*d*.

**$C_{16}H_{20}O_2$** Acetophenone, α-cyclohexylidene-*p* ethoxy-, 7416*f*.

1-Cyclohexene-1-acetic acid, 4-phenyl-, Et ester, 1376*a*.

3,8 - Ethenocyclobuta[*b*]naphthalene, octahydro-4,7-dimethoxy-, 6198*d*.

1-Naphthaleneacetic acid, 3,4-dihydro-5,8-dimethyl-, Et ester, 613*b*.

2-Naphthaleneacrylic acid, 5,6,7,8-tetrahydro-β-methyl-, Et ester, 4659*e*.

*p*-Quinone, (decahydro-2-naphthyl)-, 1376*g*.

**$C_{16}H_{20}O_4$** Acrylic acid, β (2,4,6-triethylbenzoyl)-, 7192*h*.

2-Butanone, compd. with phenol, 107*b*.

Butyric acid, γ-(1,2,3,4-tetrahydro-2-naphthoyl)-, Me ester, 1378*f*.

5 *H*-Cycloheptabenzene-3-butyric acid, 6,7,8,9-tetrahydro-γ-oxo-, Me ester, 2965*e*.

5 *H*-Cycloheptabenzene-3-valeric acid, 6,7,8,9-tetrahydro-δ-oxo-, 2965*f*.

5-Indanvaleric acid, δ-oxo-, Et ester, 2965*g*.

1-Nonen-3-one, 1-(3,4-methylenedioxyphenyl)-, P 1526*c*.

**$C_{16}H_{20}O_4$** Cyclohexanemethanol, 4 hydroxy-, acetate benzoate, 7436*h*.

Cyclohexanepropionic acid, β-(*p*-methoxyphenyl)-2-oxo-, 3418*h*.

Cyclopentanemalonic acid, α-phenethyl-, 1039*d*.

Homolevulinic acid, ε-cumoyl-, 3429*g*.

Hydroquinone, cyclohexyl-, diacetate, 1372*c*.

Marasmic acid, 9149*d*.

Phthalic acid, 3,5-dimethylcyclohexyl ester, 2962*i*; 2-ethyl-1-methyl-5-pentenyl ester, 5735*b*.

Propionic acid, β-(4-ethoxy-5,6,7,8-tetrahydro-1-naphthoyl)-, 2195*g*.

Tricyclo[4.2.2.0$^{2,5}$] - 3,9 - decadiene-7,8-dicarboxylic acid, di-Et ester, 6198*g*.

**$C_{16}H_{20}O_5$** Evodione, 2994*e*.

Hydrocinnamic acid, α-acetyl-*p*-carboxy-, di-Et ester, 1769*e*.

1-Indancarboxylic acid, 1,2-dihydroxy-2-isoamyl-3-oxo-, Me ester, 1384*c*.

Ketone, methyl 5,7,8-trimethoxy-2,2-dimethyl - 1,2*H* - benzopyran - 6 - yl, 2994*f*

**$C_{16}H_{20}O_6$** 1,2,4-Butanetricarboxylic acid, 1-phenyl, tri Me ester, 3398*f*.

Ribofuranoside, methyl 5-benzoyl-2,3-isopropylidene-, 144*h*.

**$C_{16}H_{20}O_8$** Lactic acid, allyl ester maleate, P 2034*i*.

**$C_{16}H_{20}O_8S$** Glucopyranoside, methyl 3,6 anhydro-, 4 acetate 2-*p*-toluenesulfonate, 7905*h*.

**$C_{16}H_{20}O_9$** Asaronic acid, 3 acetyl-6-[1-carboxyisopropoxy) , 2994*f*.

Gentiopicrin, 9371*g*.

**$C_{16}H_{21}BrClN_3O$** 2-Propanol, 1-(3-bromo 7-chloro 4 - quinolylamino) - 3 - diethylamino-, 8886*b*

**$C_{16}H_{21}BrO_2$** Propionic acid, β-bromo , α-cyclohexylbenzyl ester, P 5797*fg*.

**$C_{16}H_{21}BrO_3$** Pelargonic acid, 8-*p*-bromobenzoyl-, 1378*i*.

**$C_{16}H_{21}BrO_{10}$** Quercitol, 6 bromo-, pentaacetate, 6581*c*.

**$C_{16}H_{21}ClIN_3O$** 2 Propanol, 1-(7-chloro-3-iodo-4 - quinolylamino) - 3 - diethylamino , 8886*b*

**$C_{16}H_{21}ClN_2O$** 4-Quinolinecthanol, 7 chloro α-(diethylaminomethyl)-, *diphosphate*, 3522*b*.

**$C_{16}H_{21}ClN_2O_7$** 1,3-Propanediol, 2-(4 chloro-2 nitroanilino)-2 methyl , ethyl carbonate propionate, P 7694*d*

**$C_{16}H_{21}ClN_2O_8$** Acetic acid, methoxy-, diester with 2 - (4 - chloro - 2 nitroanilino)-2-methyl-1,3-propanediol, P 7694*e*

1,3-Propanediol, 2-(4-chloro-2 nitroanilino)-2-methyl-, bis(ethyl carbonate), P 7694*e*.

**$C_{16}H_{21}ClN_4$** Quinazoline, 4-chloro 2 [3-(1-piperidyl)propylamino]-, 2952*d*

**$C_{16}H_{21}ClN_4O_7$** 1 *H*-Quinolizine, 1-(chloromethyl)octahydro-, picrate, 6210*d*

**$C_{16}H_{21}ClO$** Cyclohexaneacetyl chloride, α ethyl-α-phenyl-, 3392*a*.

**$C_{16}H_{21}ClO_3$** Pelargonic acid, 9-*p*-chlorobenzoyl-, 1378*i*.

**$C_{16}H_{21}ClO_{10}$** Galactonyl chloride, pentaacetate, 8358*e*.

**$C_{16}H_{21}Cl_2N_3O$** 2-Propanol, 1-(dichloro-4-quinolylamino)-3-diethylamino-, 8886*b*.

**$C_{16}H_{21}FO$** Ether, *p*-fluorophenyl isobornyl, 1354*i*.

**$C_{16}H_{21}IN_2$** Pyridine, 2,6-dimethyl-4-(*p*-methylaminobenzyl)-, methiodide, - *HI*, 4672*c*.

**$C_{16}H_{21}N$** Carbazole, 1,2,3,4 tetrahydro-2 isopropyl-4 methyl-, 1391*b*

Cyclohexaneacetonitrile, α - ethyl - α-phenyl-, 3392*a*.

10,4a(4 *H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a-hexahydro-, *and salts*, 4279*a*

Piperidine, 1 - (3 - methyl - 2 - indenylmethyl) , *and* - *HCl*, P 1441*a*.

**$C_{16}H_{21}NO$** 2-Cyclopentene-1-carboxanilide, 3-isopropyl 1 methyl , 1750*a*.

Quinoline, 1-benzoyldecahydro-, 1415*a*.

**$C_{16}H_{21}NOS$** Morpholine, 4-[(5,6,7,8 tetrahydro-2-naphthyl)thioacetyl]-, 8390*g*.

**$C_{16}H_{21}NO_2$** Cryptol, carbanilate, 161*a*.

Nicotinic acid, bornyl ester, 2622*i*.

Phthalimide, *N*-octyl-, 7182*d*.

2-Propanol, 1-(1-naphthoxy)-3-propylamino , *and* - *HCl*, P 7046*a*.

4 - Quinolinol, 3 - amyl - 7 - methoxy - 2-methyl , 1416*b*.

—, 3-butyl 7-ethoxy-2-methyl-, 1416*a*.

—, 3-butyl 7-methoxy 2,6-dimethyl-, 1417*b*.

—, 3 - isoamyl - 7 - methoxy - 2 - methyl-, 1417*b*.

**$C_{16}H_{21}NO_2S$** 2 - Naphthalenesulfonamide, *N*, *N*-diisopropyl-, 4630*d*.

2 Naphthalenesulfonamide, *N*, *N*-dipropyl-, 4630*d*.

**$C_{16}H_{21}NO_3$** (See also *Homatropine*.)

Acetanilide, 3-cyclohexyl-4-hydroxy-, acetate, 1372*b*.

Aceturic acid, 2-phenylcyclohexyl ester, 2363*c*.

Erythroidine, dihydro , 9261*g*; - *HCl*, 9260*i*.

β-Erythroidine, dihydro-, 3102*h*.

1-Propanone, 1-(1,4-benzodioxan-6-yl)-3-(1-piperidyl)-, - *HCl*, 9070*d*.

**$C_{16}H_{21}NO_3S$** Acrylic acid, β-(benzylmercapto)-α-caproylamino-, 2990*e*.

**$C_{16}H_{21}NO_4$** Caproic acid, γ-cyano-γ-(2,3-dimethoxyphenyl)-, Me ester, 625*h*.

4-Piperidineacetic acid, 1-benzoyl 4-hydroxy-, Et ester, 4276*a*.

Propionic acid, β-(4-ethoxy-5,6,7,8-tetrahydro-1-naphthoyl)-, oxime, 2195*i*.

**$C_{16}H_{21}NO_4S$** Morpholine, 4-[ [3-(3,4-methylenedioxyphenyl)propylmercapto]acetyl]-, P 1903*b*.

Morpholine, 4-[(α-methylhomopiperonylmercapto)acetyl]-, P 1903*c*.

**$C_{16}H_{21}NO_5$** Malonic acid, acetamidobenzyl , di-Et ester, P 7956*d*.

4-Morpholinecarboxylic acid, ester with Bu *p*-hydroxybenzoate, 593*h*.

Oxalacetic acid, (1-hydroxybutyl)-, compd. with aniline, γ-lactone Et ester, 4221*g*.

**$C_{16}H_{21}NO_5S$** Alanine, *N*-benzoyl-β-(carboxymethylmercapto)-, di-Et ester 6669*c*.

**$C_{16}H_{21}NO_7$** Toluene-α,α-diol, 3-*tert*-butyl-4-methoxy - 5 - nitro-, diacetate, P 1063*g*.

**$C_{16}H_{21}NO_{12}$** Inositol, nitrodesoxy-, pentaacetate, 1336*f*.

**$C_{16}H_{21}N_3$** (See also *Pyridine*, *2-[benzyl(2-dimethylaminoethyl)amino]-*.)

Cinchoninamidine, *N*, *N* - dipropyl-, - *HCl*, P 5801*e*.

1,2,3-Propanetriamine, 2-methyl-*N*1, *N* - diphenyl-, P 2230*d*.

Pyridine, 2-[α-(2-dimethylaminoethylamino)benzyl]-, *and tri*-*HCl*, 2206*a*

**$C_{16}H_{21}N_3O$** 1 *H*-Benz[*e*]inden-5(4 *H*)-one, 2,3,3a,9b - tetrahydro - 7,8 - dimethyl-, semicarbazone, 3796*e*.

1 *H* - Cyclohepta[*b*]naphthalen-1-one, 2,3,6,7,8,9,10 - octahydro-, semicarbazone, 2965*g*.

Lepidine, 2 - [2 - (4 - morpholinyl)ethylamino]-, *and di*-*HCl*, 8389*f*.

3,5-Octadien-7-yn-2-one, 8-(1-cyclohexen-1 - yl) - 6 - methyl-, semicarbazone, 7437*f*.

2 - Oxazoline, 2 - amyl - 4 - (benzylamino methylene)-5-imino , 2203*c*.

Pyridine, 2,2′-[1-(2-dimethylaminoethoxy)ethylidene]di-, *and tri*-*HBr*, 2206*f*.

**$C_{16}H_{21}N_3O_2$** Acetamide, *N*, *N*-diethyl-α (6-methoxy-8-quinolylamino) , P 3046*c*

Antipyramide, *N*, *N*-diethyl-, 7477*g*

4,6(1 *H*,5 *H*)-Pyrimidinedione, 2-(butylamino) - 5 - ethyl - 2,3 - dihydro - 5-phenyl-, 7130*d*.

**$C_{16}H_{21}N_3O_3$** Butyric acid, γ-(5,6,7,8-tetrahydro-2-naphthoyl)-, semicarbazone, 4659*g*.

Dichroine, 1530*a*, 3929*h*.

Febrifugine, dihydro-, 5406*e*.

Isofebrifugine, dihydro-, 5406*e*.

3 Pyrazoline-3-carbamic acid, 1-sec-butyl 2 methyl 5-oxo-1-phenyl , Me ester, P 7050*a*.

—, 4-isopropyl-2-methyl-5-oxo 1-phenyl-, Et ester, P 7050*a*.

**$C_{16}H_{21}N_3O_4$** Mesitylenic acid, 4-nitro-, 3-carboxy - 1 - methylpropylidenehydrazide, Et ester, 6972*i*.

**$C_{16}H_{21}N_5$** 1,2,3,2 *H*-Triazole, 4-(1-isopropyl 4,4 - dimethyl - 2 - imidazolin - 2 - yl)-2-phenyl-, 2619*e*.

**$C_{16}H_{21}N_3O_3S$** *p*-Toluenesulfonic acid, 1-benzylbiguanide salt, P 4292*h*

**$C_{16}H_{21}N_5O_5S$** Pyrimidine, 5-nitroso-6-amino-4-triacetyl - D - xylosidoamino - 2 methylmercapto-, 3423*a*.

**$C_{16}H_{21}NaO_7$** 1-Cyclopentene-1,2,4-tricarboxylic acid, 3,3-dimethyl 5-oxo-, tri Et ester, Na deriv., 1335*f*.

**$C_{16}H_{22}$** Anthracene, 1,2,3,4,5,6,7,8-octahydro-9,10-dimethyl-, 7013*e*.

Compd., b$_2$ 127–8°, 6201*a*.

1,3-Hexadien-5-yne, 3-methyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1338*h*.

Naphthalene, cyclohexyl-1,2,3,4-tetrahydro-, 2197*i*.

**$C_{16}H_{22}AsNO_{10}S_2$** Acetic acid, mercapto-, di ester with 3-amino-4-hydroxydithiobenzenearsonous acid, *N*-glucosyl deriv. *Na HSO*$_3$ *compd.*, 599*a*.

**$C_{16}H_{22}BrNO$** Benzamide, *N*-[2-(3 bromopropyl)cyclohexyl]-(?), 1414*i*.

**$C_{16}H_{22}BrNO_2$** Valine, *N*-(*p*-bromo-β,β-dimethylhydrocinnamoyl)-, 2273*h*.

**$C_{16}H_{22}BrNO_4S$** Valine, β-(benzylmercapto)-*N* - (α - bromo - β - methoxypropionyl)-, 4668*i*.

**$C_{16}H_{22}ClNO_4$** Butyric acid, β,β′-(*m*-chlorophenylimino)di-, di-Me ester, P 9462*b*.

**$C_{16}H_{22}ClN_3$** Quinoline, 7-chloro-4-(2-diethyl-

*aminoethylamino) - 3 - methyl-, *and - HCl*, 5401*f*.
Quinoline, 7-chloro-4-(3-isobutylaminopropylamino)-, 1776*f*.
$C_{16}H_{21}ClN_2O$ 2-Propanol, 1-(7-chloro-4-quinolylamino)-3-diethylamino-, 1655*g*, 7193*a*.
2-Propanol, 1-[3-(7-chloro-4-quinolylamino)propylamino]-2-methyl-, 1776*f*.
$C_{16}H_{21}Cl_3CuN_{10}$, 8222*c*.
$C_{16}H_{21}Cl_2N_7O_3$ 1,1′-[Oxybis(ethyleneoxymethylene)]bis[pyridinium chloride], 8135*c*.
$C_{16}H_{22}Cl_2O_3$ Acetic acid, (2,4-dichlorophenoxy)-, octyl ester, 6705*e*, 6775*h*.
$C_{16}H_{22}CoN_{10}O_7S_2$, 7365*d*.
$C_{16}H_{22}CuN_{10}O_6S_2$, 7365*d*.
$C_{16}H_{22}INOS$ Trimethyl[2-(α-phenyl-2-thenyloxy)ethyl]ammonium iodide, 631*c*.
$C_{16}H_{22}N_2$ Naphthalenebisethylamine, β,β′ dimethyl, P 3456*b*, P 4296*g*.
$C_{16}H_{22}N_2O$ 2,6-Acetoxylidide, α-diallylamino-, *and - HCl*, 1024*t*.
o-Cresol, 6-allyl-4 amino α-diallylamino, P 1062*e*
Isoquinoline, 1-(2-diethylaminoethoxy)-3 methyl-, 4267*d*.
-, 1-(2 dimethylaminoethoxy)-3-propyl, *and hydrochloride*, 4267*e*.
4(3 *H*)-Pyrimidone, 6 hexyl-5,6-dihydro-2 phenyl-, 2306*b*.
$C_{16}H_{22}N_2O_2$ Acetanilide, *p*-(β-1-piperidylpropionyl), - *HCl*, 9070*c*.
Ethylenediamine, *N* - furfuryl - *N* - (*p*-methoxyphenyl) - *N′*, *N′* - dimethyl, 6587*i*.
2 Indolecarboxylic acid, 3-(diethylaminomethyl)-, Et ester, P 6238*e*.
1 Piperidinecarboxamide, 2,2,6,6-tetramethyl 4-oxo-, 8365*f*.
$C_{16}H_{22}N_2O_3S$ 1 *H* Furo[3,4]imidazol-2(3 *H*)-one, 4 [4-(benzylmercapto)butyl] tetrahydro, 5023*b*, 9149*b*.
$C_{16}H_{22}N_2O_4$, 7943*c*.
Acrylic acid, α-benzamido-β-diethylamino-, Et ester, 2618*f*.
$C_{16}H_{22}N_2O_4$ Morpholine, 4,4′ piperonylidenedi-, 7030*a*.
$C_{16}H_{22}N_2O_3S$ 1 *H* Furo[3,4]imidazol-2(3 *H*)-one, 4-[4 (benzylsulfonyl)butyl]tetrahydro, 5023*b*, 9149*b*.
Valine, *N* mercapto *N* (*N* phenylacetylglycyl), *and* Na *salt*, 4668*i*.
$C_{16}H_{22}N_2O_5$ Leucine, *N* (*N*-carboxyglycyl)-, benzyl ester, 1148*b*.
Valine, *N*-(β,β-dimethyl *p*-nitrohydrocinnamoyl), 2273*h*.
$C_{16}H_{22}N_2O_5S_2$ 1 Cyclohexene 1 sulfonic acid, 2 hydroxy 4, 4 dimethyl 6-oxo, 2-benzyl 2 thiopseudourea salt, 9044*h*.
$C_{16}H_{23}N_2O_2PS$ Phosphine acid, [sulfonylbis(*p* phenyleneiminomethylidene)]di, *di-Na salt*, 5378*d*.
$C_{16}H_{23}N_3O_8S$ 10 Camphorsulfonic acid, salt with nitroaniline, 8768*f*.
$C_{16}H_{24}NO_3S$ Butyramide, α,γ dihydroxy-2,3 dimethyl *N* sulfanilyl, diacetate, P 4817.
Butyramide, α,γ dihydroxy - β,β - dimethyl *p* sulfamyl, diacetate, 2680*i*.
$C_{16}H_{24}N_4$ Pyrimidine, 2 [benzyl(2-dimethylaminoethyl)amino] 4 methyl, P 6241*e*.
Valeronitrile, α,α′ (*p* phenylenediiminomethylidyne), 4115*h*.
$C_{16}H_{24}N_4O$ Pyrimidine, 2 [benzyl(2 dimethylaminoethyl)amino] - 4 - methoxy-, 6587*h*.
Pyrimidine, 2 [(2 dimethylaminoethyl)(*o* methoxybenzyl)amino]-, 9366*e*, *and HCl*, P 6244*d*.
4 Quinazolinol, 2 [3-(1-piperidyl)propylamino], 2952*e*.
$C_{16}H_{24}N_4O_2S_2$ Thiazole, 5,5′-thiobis[2 acetamido 4 propyl-], 8381*b*.
$C_{16}H_{24}N_4O_3$ 2 Butanone, 4 cyclohexyl-, 2,4 dinitrophenylhydrazone, 7437*i*.
Cyclohexanone, 3 butyl-, 2,4 dinitrophenylhydrazone, 9045*d*.
-, 3 *tert* butyl, 2,4-dinitrophenylhydrazone, 9045*d*.
-, 3 isobutyl-, 2,4 dinitrophenylhydrazone, 9045*d*.
2 Decenal, 2,4 dinitrophenylhydrazone, 5796*e*.
Oxalic acid, 2-(3-carboxy-1-methylpropylidene)hydrazide 2-phenylhydrazide, Pt ester, 6972*c*.
$C_{16}H_{24}N_4O_4S$ Sulfadiazine, reactiou product with HCHO, 4237*h*.
$C_{16}H_{24}N_4O_5S_2$ 4 Thiazoleacetic acid, 5,5′-thiobis[2-amino-α-methyl-, di-Et ester, 8380*i*.
$C_{16}H_{24}N_4O_6$ *p*-Toluic acid, 3,5-dinitro-, 1-methylheptylidenehydrazide, 6972*e*; octylidenehydrazide, 6972*e*.
$C_{16}H_{24}N_4O_6S_2$ Methanesulfonic acid, [*p*-(2-pyridylsulfamyl)anilino]-, morpholine salt, P 4298*d*.
$C_{16}H_{24}N_4O_6S_2$ *m* - Benzenedisulfonamide, *N*, *N*, *N′*, *N′* - tetramethyl - 5 - sulfanilamido-, 4648*h*.
$C_{16}H_{24}N_4O_7$ 1 *H*-Quinolizine, octahydro-4-methyl-, picrate, 4268*a*.
$C_{16}H_{24}N_4O_8$ Alloxantin, di(1-butyl)-, 2953*f*.
Alloxantin, di(1-isobutyl)-, 2953*g*.
4-Piperidone, 2-ethyl-1,3,6-trimethyl-, picrate, 2959*g*.
$C_{16}H_{25}N_5O_2$ Pyrimidine, 4-(3-dimethylaminopropylamino) - 2 - methyl - 6 - *p* - nitroanilino-, P 6243*i*.
$C_{16}H_{25}N_5O_8$ 4(1 *H*)-Pyrimidone, 6-hexyltetrahydro-2-imino-, picrate, 3793*f*.
$C_{16}H_{22}O$ 2-Capronaphthone, 5,6,7,8-tetrahydro-, 9424*f*
Ether, isobornyl phenyl, 1354*i*.
1 Pentanone, 1-(6,7,8,9-tetrahydro 5 *H*-cycloheptabenzen 3-yl)-, 2965*e*.
Phenol, *o*-isobornyl-, 1355*c*.
$C_{16}H_{22}OSi_2$ Disiloxane, 1,1,3,3-tetramethyl-1,3-diphenyl, P 667*f*.
$C_{16}H_{22}O_2$ Citronellic acid, Ph ester, 4633*g*.
Cyclohexaneacetic acid, α-ethyl-α-phenyl, 3392*a*.
Cyclopentaneacetic acid, 2 mesityl-, 3796*g*
--, 2-methyl-α phenethyl-, 1039*g*
Cyclopentanepropionic acid, 2-phenyl-, Et ester, 9043*a*.
Hydroquinone, (decahydro-2-naphthyl)-, 1376*g*.
β-Isodurylic acid, ester with 4 hexen-3-ol, 9051*d*
2 Naphthalenecaproic acid, 5,6,7,8-tetrahydro, 4659*e*
1,4 Naphthalenediol, 2-cyclohexyl 5,8-dihydro, 1372*e*
$C_{16}H_{22}O_3$ Butyric acid, γ-(5 amyl-2-methoxyphenyl)-γ-hydroxy, lactone, 1032*h*
Caprylic acid, γ benzoyl-γ methyl-, 2031*i*
Enanthic acid, γ-benzoyl-γ ethyl, 2932*a*
1 Naphthalenebutyric acid, 4-ethoxy 5,6,7,8-tetrahydro, *and Na salt*, 2195*i*.
$C_{16}H_{22}O_4$ Butyric acid, γ-(5-butyl-2,4-dimethoxyphenyl)-γ-hydroxy-, lactone, 1033*d*.
1,3-Cyclohexanedione, 2,2′ butylidenedi-, 1336*d*.
3,5-Hexadienoic acid, 4-hydroxy-2-oxo-6-(2 6,6 - trimethyl - 1 - cyclohexen - 1-yl), Me ester, 2587*i*
-, 4-du >6-(2,6,6-trimethyl-1-cyclohexen-1 yl)-, Me ester, 2587*g*.
Malonic acid, [cyclohexyl(2,2 dihydroxycyclohexyl)methyl-, di - δ - lactone, 3418*e*.
--, (*m*-methylphenethyl), di Et ester, 6609*k*.
Phthalic acid, di-Bu ester, 436*d*, 1747*a*, P 3444*i*, 3648*e*, 3677*i*, 3678*a*, 3965*h*, 6020*a*, 6451*f*, 7161*d*, 8138*i*, 8191*g*, 8697*i*, 9524*c*, di-*sec*-Bu ester, 3678*a*; 1-ethyl-1,3-dimethylbutyl ester, *Ba salt*, 1312*g*.
Propionic acid, β-3-amylanisoyl-, 1032*i*
--, β-(amyl 2-methoxybenzoyl)-, 1032*h*
—, β-(2-methoxy-5-propylbenzoyl), Et ester, 1032*g*.
2 *H* Pyran, 2,2′-(phenylenedioxy)bis[tetrahydro-, 2204*a*.
Tricyclo[4.2.2.0$^{2,5}$]decene - 7,8 dicarboxylic acid, di-Et ester, 6199*a*.
$C_{16}H_{22}O_4S_2$ Phthalic acid, bis[2-(ethylmercapto)ethyl] ester, P 3447*g*.
$C_{16}H_{22}O_5$ Adipic acid, α [3-(*m*-methoxyphenyl)propyl]-, 9043*i*
Aposantonic acid, lactone, acetate, 2193*a*
Cinnamic acid, α-ethyl 2,4,5-trimethoxy-, Et ester, 2608*i*
Evodione, dihydro, 2994*f*.
Lactic acid, 2 (benzyloxy)ethyl ester, butyrate, P 676*e*
Propionic acid, β-(5-butyl-2,4-dimethoxybenzoyl)-, 1033*d*
$C_{16}H_{22}O_5S$ Valeric acid, α (2-carboxyethylmercapto)-δ-phenoxy-, di-Me ester, P 7504*f*.
$C_{16}H_{22}O_5S_4$ D-Glucose, di-2-thienyl mercaptal, 6986*b*.
$C_{16}H_{22}O_6$ *p*-Benzenediacetic acid, 2,5 dimethoxy-, di Et ester, 3388*a*.
Butyric acid, γ-(3,4,5-trimethoxybenzoyl)-, Et ester, 3403*h*.
Peroxyphthalic acid, di-*tert*-Bu ester, 8190*i*.
$C_{16}H_{22}O_6S$ 1,1,2-Propanetricarboxylic acid, 3-(2-thienyl)-, tri-Et ester, 6611*d*.
$C_{16}H_{22}O_7$ Benzoic acid, 6-(3-carboxypropyl)-2,3,4-trimethoxy-, di-Me ester, 3403*g*.
Bicyclo[2.1.0]pentane - 1,2,4 - tricarboxylic acid, 5,5-dimethyl-3-oxo-, tri-Et ester, 5380*h*.
$C_{16}H_{22}O_8$ Compd., m. 260–1°, 6155*a*.
Coniferin, 2282*d*, 2283*c*, 5763*i*.
2-Furoic acid, tetrahydro-, diester with dianhydrosorbitol, P 4301*h*.
2,6-Octadiene-1,1,8,8-tetrol, tetraacetate, 4219*e*.
$C_{16}H_{22}O_8S$ Glucose, 1,2 isopropylidene-, 6-*p*-toluenesulfonate, 1728*g*.
$C_{16}H_{22}O_{11}$ α D Glucopyranose, pentaacetate, 3609*b*.
D-Glucose, pentaacetate, 1326*dg*, 7922*i*, 8007*e*.
Psicose, pentaacetate, 1327*h*.
$C_{16}H_{22}O_{12}$ Galactonic acid, pentaacetate, 8358*d*.
$C_{16}H_{23}AgO$ 5-Hexen 1-yn 3-ol, 4-methyl-6-(2,6,6 - trimethyl - 1 - cyclohexen - 1-yl)-, Ag deriv., 1338*a*
$C_{16}H_{23}Br$ Bromide, b. 53–6° (omitted from abstr.), 1338*a*
$C_{16}H_{23}BrO_2$ Capric acid, ε (*p* bromophenyl)-, 1379*a*.
$C_{16}H_{23}Cl$ Chloride (omitted from abstr.), 1338*a*.
$C_{16}H_{23}ClN_4O_3$ +2H$_2$O Quinazoline, 2-chloro-4 - (2 - diethylaminoethylamino) - 6,7-dimethoxy-, 2951*i*.
$C_{16}H_{23}ClO_2$ Capric acid, ε-(*p*-chlorophenyl)-, 1378*i*.
$C_{16}H_{23}IN_2$ 2-Dipropylamino-1-methylquinolinium iodide, 4276*g*
Indole, 1-methyl 3 (1 piperidylmethyl)-, methiodide, 1763*c*.
$C_{16}H_{23}IN_2O$ Anagyrine, methiodide, 649*h*.
Monolupine, methiodide, 649*h*
Rhombinine, methiodide, 649*h*.
$C_{16}H_{23}IO$ Naphthalene, 5-ethoxy-1,2,3,4-tetrahydro 8-(4-iodobutyl), 2196*b*.
$C_{16}H_{23}N$ Capronitrile, α butyl-α-phenyl-, 568*d*.
Δ$^{1,3}$-Cyclopentanepropylamine, *N*, *N*-dimethylphenyl-, *and - HCl*, 8358*i*; *and salts*, 8359*c*.
Cyclopentene-1-propylamine, *N*, *N*-dimethyl-γ-phenyl-, *and - HCl*, 8359*df*
$C_{16}H_{23}NO$ Benzamide, *N*-(2 cyclohexylisopropyl)-, 1026*f*
1,3,2 *H*-Benzoxazine, 3-cyclohexyl-3,4 dihydro-6,8-dimethyl-, 3425*g*.
Caprylonitrile, δ - benzoyl - δ - methyl-, 2931*h*
*o*-Crotonotoluidide, *N*-isoamyl-, P 5414*a*.
1 - Indanol, 1 - methyl 2 (1 - piperidylmethyl), P 1440*i*.
Propiophenone, *p*-ethyl β-1-piperidyl-, - *HCl*, 9070*c*.
1 *H*-Quinolizine, octahydro-1-phenoxymethyl-, 6210*k*.
$C_{16}H_{23}NO_2$ Apothesine, - *HCl*, 762*f*
2(3 *H*) - Benzoxazolone, 5 - amyl - 3 - isobutyl-, 6615*h*.
Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-heptyl-, P 4421*f*.
1-Butanone, 1-[4-(*m*-hydroxyphenyl)-1-methyl-4-piperidyl]-, P 2241*a*.
Butyramide, *N*-(α-butyrylphenethyl)-, 4227*a*
*o*-Crotonophenetidide, *N*-ethyl-α,β-dimethyl, P 5414*b*.
Cyclohexanepropanol, carbanilate, 1375*f*.
Cyclooctanemethanol, carbanilate, 6195*d*.
Cyclopentanecarboxylic acid, 1-phenyl-, 2-dimethylaminoethyl ester, P 6655*h*.
Dipropylamine, 3,3′-di-2-furyl-1,1′-dimethyl-, 1349*f*.
4 - Hexen - 3 - ol, 6 - dimethylamino - 3-methyl-, benzoate, - *HCl*, 6977*i*.
Nicotinic acid, 3-*p*-menthyl ester, *and - HCl*, 2622*i*.
1-Piperidinepropanol, α-methyl-, benzoate, - *HCl*, 2935*b*
Propionic acid, 1,3-dimethyl-4-phenyl-4-piperidyl ester, - *HCl*, 2700*i*.
Propiophenone, *p*-ethoxy-α-1-piperidyl-, 232*h*.
$C_{16}H_{23}NO_3$ Butyric acid, α-benzoyl-α-(dimethylaminomethyl)-, Et ester, - *HCl*, 7643*f*.
Camphocarboxylic acid, (2-cyanoethyl)-, Et ester, 1012*i*.
1,3-Dioxolo[g]isoquinoline, 5,6,7,8-tetrahydro - 5 - isobutyl - 4 - methoxy - 6-methyl-, *and - HBr*, 2213*b*.
Isocaproic acid, 2-(α-phenylacetamido)-ethyl ester, 2269*i*.

Valine, *N*-*p*-cumylacetyl-, 3361*c*.
—, *N*-mesitylacetyl-, 3361*c*.
—, *N*-(δ-phenylvaleryl)-, 2273*h*.

$C_{16}H_{23}NO_3S$ Acetamide, *N*-butyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.
Acetamide, *N*-butyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.
—, *N*, *N*-diethyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.
—, *N*, *N*-diethyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.
—, *N* isobutyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.
—, *N*-isobutyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.

$C_{16}H_{23}NO_4$ Acetic acid, [2-(4-morpholinyl)-ethoxy]phenyl-, Et ester, 2189*f*.
3-Cyclohexene-1-carboxylic acid, 1-(2-cyanoethyl) - 4 - ethoxy - 6,6 - dimethyl-2-oxo-, Et ester, 1013*b*.
Δ$^{1}$α-Cyclopentaneacetic acid, 4-carboxy-α-cyano-2,2,4-trimethyl-, di-Et ester, 7462*h*.
Malonic acid, ethyl[2-(2-pyridyl)ethyl]-, di-Et ester, 4267*g*.

$C_{16}H_{23}NO_4S$ 10-Camphorsulfonic acid, salt with aniline, 8768*f*.

$C_{16}H_{23}NO_4S_2$ Malonaldehydic acid, (dithiocarboxyamino)-, *S*-benzyl ester di-Et acetal Me ester, 1398*h*.

$C_{16}H_{23}NO_4Si_2$ Disilazane, 1,1,3,3-tetramethoxy-1,3-diphenyl-, 1006*h*.

$C_{16}H_{23}NO_5$ Malonaldehydic acid, (1-α-phenylacetamidoethyl)-, Me ester, di-Me acetal, 7428*b*.
Phenaceturic acid, α formyl-, Me ester di-Et acetal, 8892*f*.
Protocatechuyl alcohol, α-(dimethylaminomethyl)-, 3,4 dipropionate, - *HCl*, 2601*g*.
Succinaldehydic acid, α-(α-phenylacetamido)-, di-Et acetal, 7932*g*.

$C_{16}H_{23}NO_6$ Monocrotaline, 8555*h*.

$C_{16}H_{23}NO_7$ 1-Azabicyclo[3.3.1]-3,6-nonadiene, 3-acetyl-4,5-dimethyl-, tartrate, 3004*b*.

$C_{16}H_{23}NO_{11}$ Galactonamide, pentaacetate, 8358*g*.

$C_{16}H_{22}N_2O$ Quinoline, 8-(2-isopropylaminoisopropylamino)-6-methoxy-, *and di-HCl*, 3419*h*.
Quinoline, 8-(2-isopropylaminopropylamino)-6-methoxy-, *and di-HCl*, 3419*g*.
6-Quinolinol, 8-(3-*sec*-butylaminopropylamino)-, *tri-H Br*, 7026*d*.

$C_{16}H_{22}N_2O_2$ Cyclopentanone, 2-[3-(*m*-methoxyphenyl)propyl]-, semicarbazone, 9043*f*.

$C_{16}H_{22}N_2O_3$ Mesitylenic acid, 4-nitro-, heptylidenehydrazide, 6972*h*.
*p*-Toluic acid, 3-nitro-, octylidenehydrazide, 6973*b*.

$C_{16}H_{22}N_4O_2S_2$ 1-Naphthol-3,6-disulfonamide, 8 - amino - *N*, *N'* - diisopropyl-, P 8146*g*.

$C_{16}H_{22}N_4O_3S$ Sulfanilamide, $N^4$-(2,2'-dihydroxy-*tert*-butyl)-$N^1$-ethyl-3-nitro-, diacetate, P 7694*e*.

$C_{16}H_{22}N_4S$ Thiazole, 5-[2-(*N*-2-dimethylaminoethylanilino)ethyl] - 4 - methyl-, *and di-HCl*, P 822*f*.
Thiazole, [5-[*N*-(3-dimethylaminopropyl)anilino]methyl]-2 methyl-, *and di-HCl*, P 822*f*.

$C_{16}H_{22}N_6$ 1,2,3-Propanetriamine, $N^1$, $N^3$-bis-(*p*-aminophenyl)-2-methyl-, P 2230*e*.
1,2,3,2*H*-Triazole, 4-(1-isopropyl-4,4-dimethyl - 2 - imdazolidyl) - 2-phenyl-, 2619*c*.

$C_{16}H_{22}N_4O$ Guanidine, [5-(6-methoxy-8-quinolylamino)amyl]-, *dinitrate*, 7485*e*.
*s*-Triazine, 2,4-bis(diallylamino)-6-methoxy-, 4269*f*.

$C_{16}H_{22}N_4O_7$ Acetamidine, *N*-cyclohexyl-*N'*-ethyl-, picrate, 2594*f*.

$C_{16}H_{22}N_4O_8$ Cyclohexanone, diethylhydrazone, styphnate, 6592*i*.

$C_{16}H_{24}$ Anthracene, 1,4,4a,5,8,8a,9,9a,10,-10a-decahydro-9,10-dimethyl-, 1018*d*.
Compd., b$_{1.8}$ 132–3°, 6196*c*.
5*H* - Cycloheptabenzene, 5 - *tert* - butyl-6,7,8,9-tetrahydro-5-methyl-, 5736*g*.
*p*-Cymene, 2-cyclohexyl-, 1339*f*.
Naphthalene, 6-butyl-7-ethyl-1,2,3,4-tetrahydro-, 1370*d*.
—, 1-(1-cyclohexen-1-yl)-1,2,3,5,6,7,8,-8a-octahydro-(?), 1334*c*.
—, 1,2,3,4-tetrahydro-6,7-dipropyl-, 1370*c*.

$C_{16}H_{24}As_2N_4O_2S_2$ Benzenearsonous acid, 3-amino-4-hydroxydithio-, bis(carbamylmethyl)ester, *N*-glucosyl deriv., *Na-HSO$_3$ compd.*, 599*a*.

$C_{16}H_{24}BrNO$ 1-Piperidinepropanol, α-(*p*-bromophenyl)-

$C_{16}H_{24}ClNO$ chloro-

$C_{16}H_{24}ClNO_2$ See *Metycaine*.

$C_{16}H_{24}ClNO_4$ Ethane, 1-(4-chloro-2-nitrophenoxy)-2-(2-ethylhexyloxy)-, P 5421*f*.

$C_{16}H_{24}ClN_3O$ Isovalerophenone, 5-(1-chloroisopropyl)-2-methyl-, semicarbazone, 6595*h*.

$C_{16}H_{24}INO_2$ 4 - Hydroxy - 1,1 - dimethyl - 4-phenylpiperidinium iodide, propionate, 7921*e*.

$C_{16}H_{24}INO_5$ Sinapic acid, ester with (2-hydroxyethyl)trimethylammonium iodide, *and chloroplatinate*, 8452*e*.

$C_{16}H_{24}N_2$ Caprylonitrile, α-*N*-ethylanilino-, 4415*g*.

$C_{16}H_{24}N_2O$ 2,6-Acetoxylidide, α-cyclohexylamino-, 9257*e*; *and salts*, 1024*h*.
Cyclopentanecarboxamide, *N* - (2 - dimethylaminoethyl)-1-phenyl-, *and* - *HCl*, P 7958*h*.
1-Piperidineaceto-2,6-xylidide, α methyl-, *and* - *HCl*, 1022*h*.

$C_{16}H_{24}N_2OS$ Benzamide, *m*-(allylmercapto)-*N* - (2 - diethylaminoethyl)-, - *HCl*, 3101*i*.
Benzamide, *N*-[2-[2-(1-piperidyl)ethylmercapto]ethyl]-, - *HCl*, 6184*c*.

$C_{16}H_{24}N_2OS_2$ 4-Thiazolidinecarbothiolic acid, 5-phenyl-2-thioxo-, Et$_3$N salt, P 692*h*, 1400*c*.

$C_{16}H_{24}N_2O_2$ Butyramide, *N*-(α-butyrylphenethyl)-, oxime, 4227*a*.
2,6-Diacetoxylidide, α-diethylamino-, 1025*c*.
Ethanol, 2-(1-ethyl-4-piperidylamino)-, benzoate, *di-HCl*, 2207*c*.
Nicotinamide, 1-cyclohexyl-*N*, *N*-diethyl 1,6 dihydro-6-oxo-, P 3979*i*, P 6241*h*.
—, 6-(cyclohexyloxy)- *N*, *N*-diethyl-, P 3979*i*.
3,5-Octadiyne, 2,7-di-4-morpholiuyl-, P 5794*d*.
Pelargonamide, β-benzamido-, 236*d*.
Phthalamide, *N*, *N*, *N'*, *N'*-tetraethyl-, P 5038*b*.
Piperonylamidine, *N*, *N*-dibutyl-, - *HCl*, P 5801*d*.

$C_{16}H_{24}N_2O_3$ Hydantoic acid, α-butyl-α-isopropyl-δ-phenyl-, 2167*e*.
Malonamide, *N*, *N*, *N'*, *N'*-tetraethyl-α-furfurylidene-, P 1797*g*, P 3842*g*.
Morpholine, 4,4'-anisylidenedi-, 7030*a*

$C_{16}H_{24}N_2O_3S$ 2-Imidazoline, 2-cyclohexyl-, *p*-toluenesulfonate, P 5049*g*.

$C_{16}H_{24}N_2O_4$ Isophthalic acid, bis(2-dimethylaminoethyl)ester, *and di-HCl*, 2191*c*.
Phthalic acid, bis(2-dimethylaminoethyl)-ester, *and di-HI*, 2191*c*.
Terephthalic acid, bis(2-dimethylaminoethyl) ester, *and di-HCl*, 2191*d*.

$C_{16}H_{24}N_2O_4S$ Valine, β-(benzylmercapto)-*N*-β-methoxyalanyl-, 4668*i*.

$C_{16}H_{24}N_2O_5$ 1(2*H*)-Pyrimidineacetic acid, 5 - allyl - 3,4,5,6 - tetrahydro - 5 - isoamyl-2,4,6-trioxo-, Et ester, 9258*a*.

$C_{16}H_{24}N_2O_6$ Aspartic acid, *N*-[3-hydroxy-5-(hydroxymethyl) - 2 - methyl - 4-pyridylmethyl]-, di-Et ester, *di-HCl*, 644*h*.
Methacrylic acid, ester with *N*, *N'*-ethylenebislactamide, P 3447*b*.

$C_{16}H_{24}N_2O_4S_2$ 10-Camphorsulfonic acid, salt with sulfanilamide, 8768*f*.

$C_{16}H_{24}N_2S$ Urea, 1-(2-ethylcyclohexylmethyl)-3-phenyl-2-thio-, 4218*b*.

$C_{16}H_{24}N_2S_4$ Thiazole, 2,2'-dithiobis[4-amyl-, 633*h*.

$C_{16}H_{24}N_4O_3$ Oxalic acid, 2-(1-methylheptylidene)hydrazide 2-phenylhydrazide, 6972*c*; 2-octylidenehydrazide, 2-phenylhydrazide, 6972*b*.

$C_{16}H_{24}N_4O_3S$ 3-Heptanone, 6-methyl-1-methylmercapto-6-nitro-, 4-phenylsemicarbazone, 7433*h*.

$C_{16}H_{24}N_4O_6$ Piperazine, 1,4-diacetyl-2,5-bis-(carboxymethylimino)-, di-Et ester, *di-HCl*, 3789*e*.

$C_{16}H_{24}N_4O_6P_2S$ Diamidophosphoric acid, *N*, *N''* - (sulfonyldi - *p* - phenylene)-bis[*N'*, *N'*-dimethyl-, P 7037*a*.

$C_{16}H_{24}N_4O_7$ Azacyclohendecane, picrate, 5400*d*.

$C_{16}H_{24}N_4O_8$ Pelargonic acid, β-guanidino-, picrate, 3793*d*.

$C_{16}H_{24}O$ Caprylophenone, 2,5-dimethyl-, 6990*g*.
3,5-Hexadien-2-one, 4-methyl-6-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 2587*h*.
Hexenynol, methyl-6-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1338*a*, 1339*c*, P 5798*f*.
Naphthalene, 5-butyl-8-ethoxy-1,2,3,4-tetrahydro-, 2196*c*.
1-Naphthol, 4-ethyl-1,2,3,4-tetrahydro-1-isopropyl-7-methyl-, 2606*a*.

$C_{16}H_{24}O_2$ Benzaldehyde, 2,4-di-*tert*-butyl-5-methoxy-, P 1064*a*.
Benzene, 1-(1,2-dimethyl-1-hexenyl)-3,5-dimethoxy-, 8384*f*.
Butyrophenone, 4-butoxy-2,5-dimethyl-, 7924*g*.
—, isoamoxymethyl-, 3825*i*, 3826*a*.
Caprylic acid, γ-benzyl-γ-methyl-, 2931*f*.
1-Cyclohexene-1-acetic acid, 2-(1-cyclohexen-1-yl)-, Et ester, 4251*d*.
Enanthic acid, γ-benzyl-γ-ethyl-, 2932*b*.
Hydrocinnamic acid, β, β, β-trimethyl-, Bu ester, 5702*f*.
Ketene, cyclohexyl-, dimer, 2964*e*.
1-Naphthalenebutanol, 4-ethoxy-5,6,7,8-tetrahydro-, 2196*b*.
4-Octynoic acid, 2-(2-hexynyl)-, Et ester, 6573*c*.
Propiophenone, 2 - isoamoxy - 4,5 - dimethyl-, 7924*f*.

$C_{16}H_{24}O_2S$ Ethanethiol, 2-[2-(*p*-cyclohexylphenoxy)ethoxy]-, P 4507*i*

$C_{16}H_{24}O_3$ Cyclohexanesuccinic anhydride, 3-cyclohexyl-, 1377*f*.
10-Hendecenoic acid, furfuryl ester, 8352*f*.
3-Heptanone, (dimethoxyphenyl)methyl-, 2185*g*, 8384*d*.
Hydrocinnamic acid, *p*-methoxy-α, α-dimethyl-, Bu ester, 5762*h*.
1-Naphthoic acid, 1,4,4a,5,6,7,8,8a-octahydro - 2,5,5,8a - tetramethyl-6-oxo-, Me ester, 1748*i*, 6603*e*.

$C_{16}H_{24}O_3S$ 2-Thiophenecapric acid, 5-oxo-, Et ester, 3817*h*.

$C_{16}H_{24}O_4$ Benzene, 4-[1-(2-butoxyethoxy)propyl]-1,2-methylenedioxy-, P 2639*j*
Fumaric acid, dicyclohexyl ester, P 9031
Tricyclo[4.2.2.0$^{2,5}$]decane - 7,8 - dicarboxylic acid, di-Et ester, 6198*i*.

$C_{16}H_{24}O_5$ Benzene, 4-[1-[2-(2-ethoxyethoxy)ethoxy]propyl] - 1,2 - methylenedioxy-, P 2639*d*.
Vanillic acid, 2-(2-ethylbutoxy)ethyl ester, 4241*i*, 7455*g*.

$C_{16}H_{24}O_6$ Glucoside, benzyl trimethyl-, 2951*g*

$C_{16}H_{24}O_8$ 1,2-Propanediol, 3-*o*-toloxy-, 1-glucoside, 312*c*.

$C_{16}H_{24}O_9S$ Galactopyranoside, ethyl thio-, tetraacetate, 3367*i*.
Mannopyranoside, ethyl thio-, tetraacetate, 3367*h*.
Mannoside, ethyl thio-, tetraacetate, 3367*d*.

$C_{16}H_{24}O_{10}$ Glucoside, ethyl, tetraacetate, 3795*e*.
Sorbitol, tetraacetyl-2,4-ethylidene-, 2939*e*.

$C_{16}H_{21}Cl_2N_5$ Biguanide, 1-(2,4-dichlorophenyl)-5-octyl-, - *HCl*, 7905*f*

$C_{16}H_{25}NO$ Acetamide, α phenyl-*N*-1,1,3,3-tetramethylbutyl-, 2165*g*.
Caproamide, α-butyl-α-phenyl-, 508*f*.
Caproanilide, α-butyl-, 1317*c*.
—, α-*sec*-butyl-, 1317*c*.
—, α-isobutyl-, 1317*c*.
Cyclohexanol, 2-(dimethylaminomethyl)-6-methyl-1-phenyl-, P 5417*f*.
—, 2-(dimethylaminomethyl)-1-*o* tolyl-, P 5417*f*.
Durenol, 4-(1 piperidylmethyl)-, 7451*a*.
Isocaproanilide, α-isobutyl-, 1317*c*.
1-Piperidinepropanol, α-ethyl-α-phenyl-, *and* - *HCl*, 9070*h*.

$C_{16}H_{25}NO_2$ Gravitole, 8543*d*.
3-Heptanol, 2,2-dimethyl-, carbanilate, 5735*c*.
4-Morpholinepropanol, α-isopropyl-α-phenyl-, - *HCl*, 9071*g*.
—, α-phenyl-α propyl-, - *HCl*, 9071*g*
1-Piperidineethanol, β-methyl-α-*p*-phenetyl-, *and* - *HCl*, 231*d*.

$C_{16}H_{25}NO_3$ Acetic acid, (2-diethylaminoethoxy)phenyl-, Et ester, 2189*e*.
Acetic acid, (3-dimethylaminopropoxy)-phenyl-, iso-Pr ester, 2189*f*.
β-Alanine, *N*-(*m*-ethoxyphenethyl)-*N*-methyl-, Et ester, - *HCl*, 5765*e*.
—, *N*-(*p*-methoxy-β-methylphenethyl)-*N*-methyl-, Et ester, - *HCl*, 576
Benzoic acid, *p*-ethoxy-, 2-(amylamino)ethyl ester, - *HCl*, P 4430*e*.
Benzyl alcohol, α-(2-diethylaminoethoxymethyl)-, acetate, 6574*f*.
Hydrocinnamic acid, α-(dimethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester, - *HCl*, 7643*h*.

2 *H*-Pyran-2-carboxylic acid, tetrahydro-2,6,6-trimethyl-, benzylamine salt, 5736*d*.

$C_{16}H_{29}NO_3S$ Caprylamide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.

$C_{16}H_{29}NO_4$ β-Alanine, *N*-(dimethoxyphenethyl)-*N*-methyl-, Et ester, *salts*, 5765*g*.

Cyclopentaneacetic acid, 4-carboxy-α-cyano-2,2,4-trimethyl-, di-Et ester, 7462*h*.

1,2-Propanediol, 3-(3,4-dihydro-3,4-dihydroxy - 2,2,4,7 - tetramethyl-1(2*H*)-quinolyl)-, P 862*d*.

Propiophenone, β - diethylamino-3,4,5-trimethoxy-, - *HCl*, 7003*e*.

$C_{16}H_{29}NO_5$ Benzoic acid, 3,4,5-trimethoxy-, 2-diethylaminoethyl ester, - *HCl*, 1023*b*.

Galactose anilide, 2,3,4,6-tetramethyl-, 581*bf*, 586*a*, 5009*g*.

Mannose anilide, tetramethyl-, 581*b*, 585*b*, 586*b*.

4 Morpholineethanol, α-(2-hydroxy 3-phenoxypropoxymethyl)-, *and* - *HCl*, P 1812*h*.

$C_{16}H_{29}N_3O$ Benz[*e*]indenone, decahydrodimethyl-, semicarbazone, 1334*b*.

2,4-Pentadienal, 3-methyl 5 (2,6,6-trimethyl 1-cyclohexen-1 yl)-, semicarbazone, 7414*b*.

$C_{16}H_{29}N_3OS_2$ Benzothiazole, 2-(4-diethylaminobutylamino) 6 - (methylsulfinyl)-, *di*- *HCl*, 2618*b*.

$C_{16}H_{29}N_3O_2$ Acetophenone, 2-isoamoxy-4,5-dimethyl-, semicarbazone, 7921*f*.

Butyric acid, γ-diethylamino-α-oxo-, Et ester phenylhydrazone, *and* - *HCl*, P 6238*e*.

Butyrophenone, 4 butoxy 3-methyl-, semicarbazone, 3825*e*.

$C_{16}H_{29}N_3O_2S_2$ Benzothiazole, 2-(4-diethylaminobutylamino) - 6 (methylsulfonyl)-, *di*- *HCl*, 2618*a*.

$C_{16}H_{29}N_3O_3$ Ipomoeamarone, semicarbazone, 8453*d*.

$C_{16}H_{29}N_3S_2$ Benzothiazole, 2-(4 diethylamino butylamino)-6 methylmercapto-, *di*- *HCl*, 2618.

$C_{16}H_{30}$ Benzene, *p*-di-*tert* amyl-, 6583*d*.

Decane, phenyl-, 10*e*, 8368*b*

Octane, 1 (2,5 xylyl)-, 6990*h*

$C_{16}H_{32}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, Am ester, 6977*a*.

1 (Carboxymethyl)pyridinium chloride, nonyl ester, 6977*e*.

$C_{16}H_{32}ClN_5$ Biguanide, 1,1 dibutyl-5-(*p* chlorophenyl)-, *sulfate*, P 6659*f*.

$C_{16}H_{32}ClN_5O_2$ Biguanide, 5-(*p*-chlorophenyl)-1 ethyl 1 isopropyl 1 methyl-, acetate, P 6814*e*, 2949*c*, P 6659*e*

Biguanide, 5-(*p* chlorophenyl)-1,1,4 triethyl, acetate, 2949*b*, P 6659*e*.

$C_{16}H_{32}HgN_2O_6$ Barbituric acid, 1 [3 (acetoxymercuri) 2 - isopropoxypropyl] - 5,5 diethyl-, 2169*i*.

Barbituric acid, 1-[3-(acetoxymercuri)-2-propoxypropyl] 5,5 diethyl-, 2169*i*

$C_{16}H_{32}INO$ Hexamethyleniminе, 1-(*p* methoxyphenethyl)-, methiodide, 3378*h*, P 3455*f*.

$C_{16}H_{32}N_2$ o Toluamidine, *N*, *N*-dibutyl-, *and* - *HCl*, P 5801*d*.

$C_{16}H_{32}N_2O$ Acetamide, α dibutylamino α-phenyl-, - *HCl*, 9032*i*.

2,6 Acetoxylidide, α-dipropylamino-, *and nitrate*, 1024*i*.

Amidine, *N*, *N*-dibutyl-, - *HCl*, P 5801*d*

2,6 Lutidine, 3 allyl-4-(2-diethylaminoethoxy) , 1417*a*.

1 Piperazinepropanol, α-ethyl-4 methyl-α phenyl-, - *HCl*, 9071*f*.

$C_{16}H_{32}N_2OS$ Benzamide, *N* (2-diethylaminoethyl)-*m*-(isopropylmercapto)-, - *HCl*, 3101*f*.

$C_{16}H_{32}N_2O_2$ (See also *Larocaine*.)

Benzoic acid, *p*-(2-dimethylaminoisobutylamino)-, Pr ester, 6184*a*.

2-Butanol, 1-dimethylamino-2-(dimethylaminomethyl)-, benzoate, 1151*g*, 7130*g*, 8095*b*; benzoate, - *HCl*, 762*e*.

Crotonamide, *N*-(1-diallylcarbamylpropyl)-*N*-ethyl-, P 250*d*.

$C_{16}H_{32}N_2O_2S$ Caproic acid, γ,γ-dimethyl-, 2-benzyl-2-thiopseudourea salt, 2932*e*.

$C_{16}H_{32}N_2O_3$ 2-Furanacetamide, (diethylcarbamyl) - *N*, *N* - diethylmethyl-, P 4301*f*.

3,4 Furandicarboxamide, *N*, *N*, *N'*, *N'*-tetraethyl-2,5-dimethyl-, P 4301*f*.

Hydantoin, 5-cyclohexyl-5-[(cyclohexyloxy)methyl]-, P 3452*i*.

4 *H*-Quinolizine-1-carboxylic acid, octahydro-4-oxo-3-(2-piperidyl)-, Me ester, 3828*f*.

Sorbamide, *N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-, P 250*d*.

$C_{16}H_{32}N_2O_3S$ Benzamide, *N*-(2-diethylaminoethyl) - *m* - (2,3 - dihydroxypropylmercapto)-, - *HCl*, 3101*i*.

Pelargonamide, α-methyl - *N* - sulfanilyl-, P 6233*g*.

$C_{16}H_{32}N_2O_4$ 3,4-Pyrroledicarboxylic acid, 1,2,5-trimethyl-, 2-diethylaminoethyl Me ester, P 4302*h*.

$C_{16}H_{32}N_2O_4S$ See *Penicillin K*.

$C_{16}H_{32}N_2O_5S$ Butyramide, *N*-[2-(ethylphenylsulfamyl)ethyl] - α,γ - dihydroxy-β,β-dimethyl-, P 3450*g*.

$C_{16}H_{32}N_2O_6$ Carbanilic acid, 4,5-dimethyl-2-ribitylamino , Et ester, P 5044*b*.

$C_{16}H_{32}N_2O_6S_2$ 2-Thiophenevaleric acid, 3,4-diaminotetrahydro-, sulfate benzoate complex, P 3469*e*.

$C_{16}H_{32}N_4O$ Phenol, *p*-*tert*-butyl-, compd. with hexamethylenetetramine, 5993*i*.

$C_{16}H_{33}NO_3$ Actidione, monosemicarbazone, 2998*e*.

Glutarimide, β-[2-(3,5-dimethyl 2-oxocyclohexyl)-2-hydroxyethyl]-, monosemicarbazone, 2998*e*.

$C_{16}H_{34}N_4O_8$ Formic acid, azodi-, decamethylene di Me ester, P 4293*g*, 8730*d*, 8731*e*.

$C_{16}H_{34}N_4O_7S$ Urea, 1-*tert*-butyl-3-(3-dimethylaminopropyl) 2-thio , picrate, 1016*a*.

$C_{16}H_{26}O$ Anisole, 2,4-di-*tert*-butyl-5-methyl-, P 1063*i*.

5 Hexen-3-one, 4-methyl-6-(2,6,6 trimethyl-1-cyclohexen 1-yl)-, 1337*i*

Phenol, 2,4-di *tert*-amyl-, P 4188*e*.

—, 2,6-di-*tert* butyl-4-ethyl-, 8881*e*.

$C_{16}H_{26}OS$ 1-Dodecanone, 1-(2-thienyl)-, 228*a*.

$C_{16}H_{26}O_2$ Benzene, 1-(1,2-dimethylhexyl)-3,5 dimethoxy-, 8381*f*.

Carvophyllenic formate, 2978*i*.

1-Cyclohexene-1 acetic acid, 4-cyclohexyl-, Et ester, 1375*i*

Hydroquinone, di-*tert*-amyl , 5621*e*.

1-Naphthoic acid, 1,4,4a,5,6,7,8,8a-octahydro-2,4a,7,8-tetramethyl-, Me ester, 6603*h*

Resorcinol, 5 - (1,2 - dimethyloctyl)-, 8381*e*

$C_{16}H_{28}O_3$ Cyclohexaneacetic acid, 2-(1 cyclohexen-1-yl) 1 hydroxy-, Et ester, 4251*d*

Cyclopentanecarboxylic acid, 3-(1,3 dimethylcyclohexyl)-2 oxo-, Et ester, 2587*e*.

Hydnocarpic acid, ε-oxo-, 1730*i*.

1-Naphthoic acid, decahydro-2,5,5,8a-tetramethyl-6 oxo-, Me ester, 1748*i*, 6603*e*

Pyrocollol, decyl , P 4008*b*

$C_{16}H_{28}O_3S$ Benzenesulfonic acid, decyl-, *Na salt*, P 3572*b*, 6015*h*, 8405*i*

$C_{16}H_{28}O_4$ Cyclohexanepropionic acid, 2-oxo 1-propionyl , Bu ester, P 5417*e*.

Cyclohexanesuccinic acid, 4-cyclohexyl-, 1377*f*.

Cyclopentanepropionic acid, 2-(carboxymethylene)-β,3 dimethyl , di-Et ester, 2585*a*.

2-Cyclopentene 1,2-dicarboxylic acid, 5-(1,5 - dimethylhexyl) - 1 - methyl-(?), 7911*e*

3,9 - Dodecadiyne - 2,5,8,11 - tetrol, 2,5,8,11 tetramethyl-, 3359*e*.

2,7-Octanedione, 4,5-diacetyl-3,4,5,6-tetramethyl-, P 9081*i*.

1,2 - Propanediol, 3 - (*o* - heptyloxyphenoxy)-, 311*i*.

$C_{16}H_{28}O_5$ Actidione acid, dihydro-, Me ester (lactone form), 2998*g*.

1,3-Cyclohexanedicarboxylic acid, isopropylmethyloxo , di-Et ester, 3807*f*.

Diglycolic acid, dicyclohexyl ester, 9032*e*.

Pyran-4-acetic acid, tetrahydro-6-(2 hydroxy - 3,5 - dimethylcyclohexyl) - 2-oxo-, Me ester, 2998*g*.

$C_{16}H_{28}O_7$ 1,1,7-Heptanetricarboxylic acid, 3-oxo-, tri-Et ester, 7905*a*.

Methacrylic acid, diester with tetraethylene glycol, P 2105*a*, P 4512*b*

$C_{16}H_{30}O_8$ Butanetetracarboxylic acid, tetra-Et ester, 4228*a*, P 9476*a*.

$C_{16}H_{37}BrN_2O$ Triethyl(2,6-xylylcarbamylmethyl)ammonium bromide, 1023*f*.

$C_{16}H_{37}ClN_2O$ Triethyl(2,6-xylylcarbamylmethyl)ammonium chloride, 1023*f*.

$C_{16}H_{37}ClN_6$ Biguanide, 5-(*p* chlorophenyl)-1-(2 - diethylaminoethyl) - 1 - ethyl-, P 6659*f*.

$C_{16}H_{37}ClO$ Cyclohexanebutyryl chloride, 4-cyclohexyl-, 1375*g*.

$C_{16}H_{37}HgNO_3S$ Camphoramic acid, *N*-[3-(carboxymethylmercaptomercuri) - 2-methoxypropyl]-, *di*-*Na salt*, 5867*a*.

α-Camphoramic acid, *N*-[3-(carboxymethylmercaptomercuri) - 2 - methoxypropyl]-, *di*-*Na salt*, P 9084*c*.

$C_{16}H_{37}IN_2O$ Lupanine, methiodide, 649*i*.

$C_{16}H_{37}N$ Phenethylamine, 4-*tert*-butyl-α,α,2,6-tetramethyl-, - *HCl*, P 5800*h*.

Phenethylamine, *N*, *N*-dibutyl-, P 681*i*.

—, *N*-6 methylheptyl-, 7585*g*.

$C_{16}H_{37}NO$ Triethylamine, 2-(α-propylbenzyloxy)-, P 5043*g*.

Triethylamine, 2-thymyloxy-, 9366*d*.

$C_{16}H_{37}NO_2$ 2-Cyclopentene-1-acetic acid, α-propyl-, 2-(1-pyrrolidyl)ethyl ester, *and* - *HCl*, 1388*f*.

Maleimide, *N*-dodecyl-, P 4422*a*.

$C_{16}H_{37}NO_2S$ Thiophenecarboxylic acid, 3-dibutylaminopropyl ester, *and* - *HCl*, 630*g*.

2-Thiophenine, 4-ethyl-2,5-dihydro-2-methyl - *N* - 3,5,5 - trimethyl - 2 - cyclohexen-1 yl , 1,1 dioxide, P 3851*e*.

Xylenesulfonamide, *ar*-octyl-, 6990*h*.

$C_{16}H_{37}NO_4$ Actidione, *N*-methyldihydro-, 2998*g*.

Glutarimide, β [2-hydroxy-2-(2-hydroxy-3,5 - dimethylcyclohexyl)ethyl] - *N*-methyl-, 2998*g*

$C_{16}H_{37}NO_4S$ Benzaldehyde, compd. with 1-butylpiperidine bisulfite, 3355*h*.

$C_{16}H_{37}NO_5$ Butyric acid, α,γ-dihydroxy-β,β-dimethyl-, ephedrine salt, P 3418*gi*.

$C_{16}H_{37}NO_7$ Malonic acid, (5 dimethylamino-3-oxoamyl)-, di-Et ester, oxalate, 7432*i*.

$C_{16}H_{27}N_3O$ Benz[*e*]indenone, dodecahydrodimethyl-, semicarbazone, 1334*b*.

2,6,10-Dodecatrienol, 3,7,11-trimethyl-, semicarbazone, 7900*g*

$C_{16}H_{37}N_3O_4$ Cyclohexaneacetic acid, 2-(2-oxocyclopentyl)-, Et ester, semicarbazone, 3829*c*.

1,4-Pentanediamine, $N^1$, $N^1$-diethyl-$N^4$-(5-methoxy-2-nitrophenyl)-, 1780*i*

$C_{16}H_{37}N_3O_4$ 2,4-Pyrroledicarboxylic acid, 3,5-dimethyl-, bis(2-dimethylaminoethyl) ester, P 4302*g*.

$C_{16}H_{37}N_5$ Biguanide, 1,1-dibutyl 5-phenyl-, *and sulfate*, P 2229*a*

$C_{16}H_{37}N_5O_2S_2$ Sulfanilamide, $N^1$-(5-methyl 1,3,4-thiadiazol-2 yl)-, compd. with heptylamine, P 6661*e*.

$C_{16}H_{38}$ Cyclooctene, 1-cyclooctyl , 6195*b*.

Naphthalene, 1-cyclohexyldecahydro-, 1334*d*.

$C_{16}H_{38}ClNO$ 1-(Decyloxymethyl)pyridinium chloride, 6622*d*.

$C_{16}H_{38}Cl_2O_3$ Ether, bis(chloroethoxyhexenyl), 5737*d*.

$C_{16}H_{38}N_2$ Ethylenediamine, *N*-ethyl-*N'*-2-ethylbutyl-1-phenyl-, *di*- *HCl*, 6176*h*.

3,5 Octadiyne-2,7-diamine, *N*, *N'*-dibutyl-, P 5794*d*.

—, *N*, *N*, *N'*, *N'*-tetraethyl-, P 5794*e*.

α,α'-*p*-Xylenediamine, *N*, *N'*-dibutyl-, *and di*- *HCl*, 3382*c*.

—, *N*, *N*, *N'*, *N'*-tetraethyl-, 6590*h*.

$C_{16}H_{38}N_2O$ Pyridine, 2-[1-(2-dimethylaminoethoxy)-1-isopropylisobutyl]-, *and* - *HCl*, 2206*f*.

$C_{16}H_{38}N_2O_2$ $\Delta^{1,6}$ Cyclopentanemalonamide, *N*, *N*, *N'*, *N'*-tetraethyl-, P 1797*i*, P 3842*f*.

Ethylamine, 2,2'-(2,5 - dimethoxy - *p*-phenylene)bis[*N*, *N*-dimethyl-, *and di*- *HCl*, 3388*c*.

Piperidine, 1,1'-(α,α - dimethylsuccinyl)di-, P 1797*g*, P 3842*h*.

Sorbamide, *N* - (1 - diethylcarbamylpropyl)- *N*-ethyl-, P 250*c*.

$C_{16}H_{38}N_2O_3$ Hydantoin, 5-cyclohexyl-5-[(hexyloxy)methyl]-, P 3452*i*.

$C_{16}H_{38}N_2O_4$ Acetylenedicarboxylic acid, bis(2-diethylaminoethyl) ester, 9334*h*.

Carbamic acid, hexamethylenedi-, bis(2-methylallyl) ester, P 7263*c*.

$C_{16}H_{38}N_2O_4S_2$ *p* - Benzenedisulfonamide, *N*, *N'*-bis(1-methylbutyl)-, 4237*d*.

$C_{16}H_{38}N_2O_6$ Oxalic acid, salt with 1,2,5,6-tetrahydro - 1 - methyl - 3 - pyridinemethanol, 2582*b*.

$C_{16}H_{38}N_2S_2$ 2 - Thiazolethiol, 5 - heptylideneamino-4-hexyl-, 3409*g*.

$C_{16}H_{38}N_4$ Enanthonitrile, α,α'-azobis[α-methyl-, 3354*g*.

$C_{16}H_{38}N_4O_2S_2$ 2,5 - Piperazinedione, 3,6-bis[2 - (3 - amino - 3 - carboxypropylmercapto)ethyl]-, 8477*f*.

$C_{16}H_{38}N_6O_4S$ Cyclopentanecarboxylic acid, 1 - (5 - methylmercapto - 3 - oxoamyl)-

2-oxo-, Et ester, disemicarbazone, 7433*g*.
$C_{16}H_{28}O$ 5 - Hexene - 3 - ol, 4 - methyl - 6-(2,6,6 - trimethyl - 1 - cyclohexen - 1-yl)-, 1337*h*.
$C_{16}H_{28}O_2$ Acetic acid, dicyclohexyl-, Et ester, 573*d*.
Ambrettolic acid, lactone, P 2376*c*.
Citronellic acid, cyclohexyl ester, 4633*g*.
Compd., $b_5$ 121–2°, P 3043*a*.
Cyclohexanebutyric acid, 4-cyclohexyl-, 1375*g*.
Hexadecenoic acid, 16-hydroxy-, lactone, P 2376*c*.
Hydnocarpic acid, 1730*f*.
Ketene, hexyl-, dimer, 4220*e*.
1-Naphthoic acid, decahydrotetramethyl-, Me ester, 1748*i*, 1749*c*, 6603*k*.
$C_{16}H_{28}O_3$ Menthone, 2-hydroxy-, caproate, 7915*h*.
1-Naphthoic acid, decahydrohydroxy-2,5,5,8a - tetramethyl-, Me ester, 1748*i*, 1749*b*, 6603*e*.
Succinic anhydride, dodecyl-, 5070*a*.
$C_{16}H_{28}O_4$ 1,3-Butanediol, 1-(3,5-dimethylcyclohexyl)-, diacetate, P 1058*g*.
Crotonic acid, Bu ester, dimer, P 5792*i*.
Cyclopentanepropionic acid, 2-(carboxymethyl) - β,3 - dimethyl-, di-Et ester, 2584*h*.
Fumaric acid, dihexyl ester, P 903*h*, P 2764*i*; dodecyl ester, P 2038*a*.
Maleic acid, dodecyl ester, P 2038*a*.
$C_{16}H_{28}O_4Si$ 2-Propen-1-ol, 2-methyl-, silicate, P 3235*f*.
$C_{16}H_{28}O_5$ Malonic acid, 2-formylethylhexyl-, di-Et ester, 577*h*.
$C_{16}H_{28}O_6$ 2,3,6-Heptanetricarboxylic acid, triethyl ester, 2192*i*.
$C_{16}H_{28}O_6S$ Pimelic acid, α-(2 carboxyethylmercapto) , tri-Et ester, P 6669*c*, P 7504*j*.
$C_{16}H_{29}BrN_2O_4$ Fumaric acid, bromo-, bis(2-diethylaminoethyl) ester, 9334*g*.
$C_{16}H_{29}NO$ Cyclohexanebutyramide, 4-cyclohexyl-, 1375*g*.
Cyclopentadecanecarbonitrile, 1 - hydroxy-, 7907*a*.
2,4 - Dodecadienamide, *N* - isobutyl-, 1719*f*.
Hydnocarpamide, 1731*a*.
Myristonitrile, γ,γ - dimethyl - δ - oxo-, 2932*f*.
Triethylamine, 2-thymyloxy-, 8001*c*.
$C_{16}H_{29}NO_2$ 1 - Cyclohexene - 1 - acetic acid, α - ethyl-, 2 - diethylaminoethyl ester, 3798*c*.
Cyclopentaneacetic acid, α-propyl , 2-(1-pyrrolidyl)ethyl ester, *and* - *HCl*, 1388*f*.
Succinimide, *N*-dodecyl-, P 4422*b*.
$C_{16}H_{29}NO_3$ Butyric acid, diester with *N*, *N*-bis(2 - hydroxyethyl)butyramide, P 7751*b*.
$C_{16}H_{29}NS_2$ 2-Thiazolethiol, 4-tridecyl-, 633*h*.
$C_{16}H_{29}N_3$ 2,6-Lutidine, 4-(4-diethylamino-1-methylbutylamino), *and chloroplatinate*, 3827*a*.
$C_{16}H_{29}N_3O$ Calamone, semicarbazone, 3808*a*.
2 - Cyclopenten - 1 - one, 2,4 - dimethyl-3-octyl-, semicarbazone, 6624*b*.
*o* - Phenylenediamine, *N*¹ - (4 - diethylamino - 1 - methylbutyl) - 4 - methoxy-, 1780*k*.
$C_{16}H_{29}NaO_7S$ Aerosol MA, 7297*e*.
$C_{16}H_{30}$ Bicyclooctyl, 6195*b*.
$C_{16}H_{30}Br_2$ 7 - Hexadecene, 1,16 - dibromo-, 5369*f*.
$C_{16}H_{30}Br_4$ Hexadecane, 1,7,8,16 - tetrabromo-, 5369*f*.
$C_{16}H_{30}INO_4$ Viridiflorine, methiodide, 2625*c*.
$C_{16}H_{30}I_2N_2$ (*p*-Phenylenediethylene)bis[trimethylammonium iodide], 6591*c*.
*p* - Xylenebis[ethyldimethylammonium iodide], 6590*i*.
$C_{16}H_{30}I_2N_2O_2$ [*o* - Phenylenebis(oxyethylene)]bis[trimethylammonium iodide], 6365*d*.
$C_{16}H_{30}N_2$ Caprylonitrile, α-(cyclohexylethylamino)-, 4415*i*.
1 - Piperidinepropionitrile, α,α - dibutyl-, 568*d*.
$C_{16}H_{30}N_2O$ Cyclohexanol, 2,6-di-1-piperidyl-, 7912*e*.
$C_{16}H_{30}N_2O_2$ Malonamide, α-allyl-*N*, *N*,-*N'*, *N'*,α-pentaethyl-, P 1797*i*, P 3842*f*.
Seneciamide, *N* - *sec* - butyl - *N* - (1 - diethylcarbamylethyl)-, P 249*h*.
$C_{16}H_{30}N_2O_3$ Butyramide, *N*-ethyl-β,β-dimethyl - *N* - [1 - (4 - morpholinylcarbonyl)propyl]-, P 250*d*.
Pyran - 4 - carboxamide, *N* - (1 - diethylcarbamylpropyl) - *N* - ethyltetrahydro-, P 250*c*.
Pyran - 4 -malonamide, *N*, *N*, *N'*, *N'*-tetraethyltetrahydro-, P 1797*g*.
$C_{16}H_{30}N_4$ Valeronitrile, α,α'-hexamethylenediiminodi-, 4415*h*.
$C_{16}H_{30}N_4O$ Lauramide, *N*-(cyanoguanyl)-, Et deriv., P 8694*c*.
$C_{16}H_{30}N_4O_3$ Bicarbamic acid, decamethylene di-Me ester, P 4293*d*.
Carbamic acid, [2-carboxyamino-2-(carboxyaminomethyl)trimethylene]di-, tetraethyl ester, 2936*e*.
$C_{16}H_{30}O$ Cyclohexadecanone, 7907*a*.
Cyclopentadecanone, 4-methyl-, 163*f*.
Muscone, 163*f*, 1909*i*.
$C_{16}H_{30}O_2$ [Bicyclohexyl] - 1,1' - diol, 3,3',-5,5'-tetramethyl-, 2963*a*.
Cyclopentadecanone, 2-hydroxymethyl-, 163*i*.
Cyclopentanehendecanoic acid, 1731*a*.
Cyclotetradecanol, acetate, 6988*g*.
5-Decyne-4,7-diol, 4,7-dipropyl-, 569*g*.
Hexadecenoic acid, 1201*b*, 1997*b*, 6839*c*, 7720*i*, 8494*e*.
3 - Hexyne, 2,5 - dibutoxy - 2,5 - dimethyl-, 3782*e*.
Methane, cyclohexylmethoxy[1-(methoxymethyl)cyclohexyl]-, P 902*g*.
4 - Octyne - 3,6 - diol, 3,6 - diisopropyl-2,7-dimethyl-, 569*g*.
Palmitoleic acid, 879*h*, 9490*a*.
$C_{16}H_{30}O_3$ Acetoacetic acid, dodecyl ester, 5894*a*.
Caproic acid, α-acetyl-α-*sec*-butyl-, *tert*-Bu ester, 1317*d*.
—, α - acetyl - α - isobutyl-, *tert*-Bu ester, 1317*d*.
—, α-ethyl-, anhydride, 8353*d*.
Myristic acid, γ,γ-dimethyl-δ-oxo-, 2932*f*.
—, μ-oxo-, Et ester, 163*g*.
$C_{16}H_{30}O_4$ Adipic acid, diisoamyl ester, P 1178*h*.
Malonic acid, 1,6-dimethylheptyl-, di-Et ester, 1374*c*.
—, (2 - ethyl - 3 - methylhexyl)-, di-Et ester, 1374*c*.
Pentadecanedioic acid, 3-methyl-, 163*h*.
Succinic acid, dodecyl-, 5070*a*, 5469*d*.
Tetradecanedioic acid, di-Me ester, 6982*g*.
$C_{16}H_{30}O_5$ Diglycolic acid, bis(1,3-dimethylbutyl) ester, 9032*e*; bis(2-methylamyl) ester, 9032*f*.
$C_{16}H_{30}O_7S$ Succinic acid, sulfo-, dihexyl ester, *Na salt*, 6915*h*.
$C_{16}H_{30}O_{11}$ Sucrose, bis(2-hydroxyethyl)-, 4635*e*.
$C_{16}H_{30}S_2$ Cyclohexanethiol, 2-[2-(*tert*-butylmercapto)cyclohexylmercapto]-, 7420*b*.
$C_{16}H_{31}BrO_2$ Palmitic acid, α-bromo-, 8797*a*.
$C_{16}H_{31}ClO$ Capryl chloride, ε-ethyl-β-isobutyl-, 1374*c*.
Palmitoyl chloride, 2570*g*.
$C_{16}H_{31}ClO_2$ Myristic acid, 2-chloroethyl ester, 38*f*.
$C_{16}H_{31}IN_2$ Pusilline, methiodide, 3429*a*
$C_{16}H_{31}IN_4O_2$ Acetic acid, iodo , octyl ester, compd. with hexamethylenetetramine, 4641*a*.
$C_{16}H_{31}N$ Cyclohexanemethylamine, 2-cyclohexyl-*N*-propyl-, - *HBr*, 1359*d*.
Dicyclohexylamine, 3,3',5,5' - tetramethyl-, 2963*d*.
Enanthonitrile, α-amyl-α-butyl-, 568*d*.
Palmitonitrile, 4629*f*.
$C_{16}H_{31}NO$ 2-Azacycloheptadecanone, 5400*e*.
Cyclohexadecanone, oxime, 5400*e*.
Cyclopentanehendecanamide, 1731*a*.
2-Pyrrolidone, 1-dodecyl-, P 3041*b*
$C_{16}H_{31}NO_2$ 1-Piperidinepropionic acid, α,α dibutyl-, - *HCl*, 568*h*.
Valeric acid, α-methyl α propyl-, 2 (1 piperidyl)ethyl ester, *and* - *HCl*, P 3443*f*.
$C_{16}H_{31}NO_2S$ 3 - Thiophenine, tetrahydro-*N* - 3,3,5 - triethylcyclohexyl , 1,1-dioxide, P 3851*d*.
$C_{16}H_{31}NO_3$ Caproic acid, α-acetyl-α-(diethyl aminomethyl)-δ methyl , Et ester, 7643*b*.
$C_{16}H_{31}NO_6S$ Lauric acid, ester with (2-hydroxyethylcarbamyl)methanesulfonic acid, *K salt*, P 6950*a*.
$C_{16}H_{31}N_3O$ 2-Octanone, 8-cyclohexyl-6-methyl-, semicarbazone, 7437*g*.
$C_{16}H_{31}N_3O_3$ Oxamide, *N*-(1-diethylcarbamylpropyl)-*N*, *N'*, *N'*-triethyl-, P 6653*i*.
$C_{16}H_{31}N_5$ *s* Triazine, 2,4-diamino-6-tridecyl-, P 1814*d*.
$C_{16}H_{31}N_5O$ 2-Heptanol, 6-[(1-cyclohexyl-1 *H*-tetrazol - 5 - ylmethyl)amino] - 2-methyl-, P 7972*c*.
$C_{16}H_{32}$ (See also *Hexadecene*.)
Decane, 1-cyclohexyl, 10*e*, 3715*i*.
$C_{16}H_{33}ClO_2S$ 7-Pentadecanesulfonyl chloride, 9-(chloromethyl)-, 559*f*.
$C_{16}H_{33}N$ Caprylonitrile, α-dibutylamino-, 4415*f*.
$C_{16}H_{32}N_2O$ 1-Piperidinepropionamide, α,α-dibutyl-, 568*f*.
1 *H* - Quinolizine, 1 - [(2 - diethylaminoethoxy)methyl]octahydro-, 6210*d*.
$C_{16}H_{32}N_2O_2$ Glutaramide, *N*, *N*, *N'*, *N'*-tetraethyl - α,β,β - trimethyl-, P 1797*h*, P 3842*i*.
Isovaleramide, *N* - (1 - diethylcarbamylpropyl)-*N*-isopropyl-, P 250*g*.
Succinamide, *N*, *N*, *N'*, *N'*,α,α - hexaethyl-, P 1797*g*, P 3842*h*.
$C_{16}H_{32}N_2O_3$ 2,7 - Octanedione, 3 - ethoxy-3,6 - diethyl-, disemicarbazone, 5024*b*.
$C_{16}H_{33}O$ Cyclohexadecanol, 6988*g*.
Cyclohexanebutanol, α - ethyl - β,2,2,6-tetramethyl-, 1337*i*, 1338*b*.
Cyclohexanol, 1 - (3,7 - dimethyloctyl) , 3366*a*.
2-Decen-1-ol, 2-hexyl-, P 3438*f*.
$C_{16}H_{32}O_2$ (See also *Palmitic acid*.)
Capric acid, ε-ethyl-β isobutyl-, 1374*c*.
Caproic acid, decyl ester, 6162*c*.
Caprylic acid, octyl ester, 2165*a*.
*p*-Dioxane, 2,5-bis(2,2-dimethylpropyl)-2,5-dimethyl-, 1309*g*, 1310*b*.
—, 3,6 - di - *tert* - butyl - 2,2,5,5 - tetramethyl-, 1309*i*.
Enanthic acid, α-amyl-α-butyl-, 568*h*.
3 - Hexene, 2,5 - dibutoxy - 2,5 - dimethyl-, 3782*i*.
Lauric acid, ε-ethyl-, Et ester, 3781*c*.
Myristic acid, Et ester, 2416*c*, 3612*a*.
—, γ,γ-dimethyl-, 2932*f*.
$C_{16}H_{32}O_2S$ Acetic acid, tetradecylmercapto , *and Na salt*, 3365*d*.
$C_{16}H_{32}O_3$ Lanopalmitic acid, α-hydroxy-, P 3220*b*.
Lauric acid, 2-ethoxyethyl ester, 8209*c*.
Palmitic acid, α-hydroxy-, P 3219*i*.
$C_{16}H_{32}O_4$ Aleuritic acid, 2943*a*.
$C_{16}H_{32}O_4S$ Myristic acid, 2-sulfoethyl ester, 5905*c*.
$C_{16}H_{33}Br$ Hexadecane, 1-bromo-, 2501*a*, 4912*b*.
Tridecane, 4-bromo 5-propyl-, 107*i*.
—, 1-bromo-4,8,12-trimethyl-, 1764*c*.
$C_{16}H_{35}Cl_2Si$ Silane, trichlorohexadecyl-, 7219*d*.
$C_{16}H_{33}I$ Hexadecane, 1-iodo-, 1312*d*.
$C_{16}H_{33}N$ Azacycloheptadecane, 5400*e*.
Tetradecenylamine, *N*, *N* - dimethyl , P 8668*c*.
$C_{16}H_{33}NO$ Caprylamide, *N*-1,1,3,3-tetramethylbutyl-, 2165*g*.
Enanthamide, α - amyl - α - butyl , 568*f*.
Lauramide, *N*-isobutyl-, 1719*i*.
$C_{16}H_{33}NO_2$ Caproic acid, α,α-diethyl , 2 diethylaminoethyl ester, P 3443*i*.
Caproic acid, α-methyl-α-propyl-, 2 diethylaminoethyl ester, P 3443*h*
Lauric acid, 2-dimethylaminoethyl ester, *and* - *HCl*, 7940*b*.
Myristamide, *N*-2-hydroxyethyl-, 2274*a*.
Pelargonic acid, α - amino - α - heptyl-, 1323*a*.
Valeric acid, α ethyl-α-propyl-, 2-diethyl aminoethyl ester, P 3443*h*.
—, α - isobutyl - α,γ - dimethyl-, 3-dimethylaminopropyl ester, P 3443*g*
—, α - methyl - α - propyl-, 3-diethyl aminopropyl ester, P 3443*f*.
$C_{16}H_{33}NO_3$ Caproic acid, α-(diethylamino methyl) - α - (1 - hydroxyethyl) - δ-methyl-, Et ester, 7643*e*.
$C_{16}H_{33}NO_4S$ Taurine, *N*-myristoyl-, 5905*a*
$C_{16}H_{33}NO_5$ Malonic acid, acetamido-2-formyl ethyl , di-Et ester, di-Et acetal, 143*e*.
$C_{16}H_{34}N_2O_2$ Propionamide, α,α'-(ethylimino)-bis[*N*, *N*-diethyl-, P 7038*g*.
$C_{16}H_{33}NaO_4S$ Hexadecyl sodium sulfate, 2263*c*, 5976*f*, 7776*i*.
$C_{16}H_{34}$ See *Hexadecane*.
$C_{16}H_{34}Hg$ Mercury, dioctyl-, 5004*c*.
$C_{16}H_{31}N_3O_{12}Sn$ Tartaric acid, compd. with 2,2',2'' - nitrilotriethanol, reaction product with $H_4SnO_4$, 6171*c*.
$C_{16}H_{34}O$ (See also *Hexadecanol*.)
1-Decanol, 2-hexyl-, P 3438*f*.
Octyl ether, 2590*a*.
Tridecanol, 5-propyl-, 107*h*.
—, 4,8,12-trimethyl-, 1764*d*.
$C_{16}H_{34}O_2$ Hexane, 2,5-dibutoxy-2,5-dimethyl-, 3782*i*.
$C_{16}H_{34}O_3$ Compd., $b_2$ 110–20°, 6203*d*.
$C_{16}H_{34}O_3S$ Hexadecanesulfonic acid, *K salt*, 8707*g*.

$C_{16}H_{34}O_4$ 1,7,8,16-Hexadecanetetrol, 5369*f*.
$C_{16}H_{32}O_7$ Acetaldehyde, [oxybis(ethyleneoxy)]di-, bis(diethyl acetal), 2577*g*.
$C_{16}H_{34}S$ Hexadecanethiol, 6511*i*, 8610*a*.
*tert*-Hexadecyl mercaptan, 1716*a*, 2019*b*, 8728*i*.
Octyl sulfide, 1321*e*, 2956*e*, P 7221*h*.
$C_{16}H_{34}S_2$ Octyl disulfide, 2187*i*.
$C_{16}H_{35}N$ Dihexylamine, 2,2'-diethyl-, 4401*f*.
Hexadecylamine, P 2568*d*.
$C_{16}H_{32}NO_6S$ Acetic acid, sulfo-, dodecyl ester, compd. with 2-aminoethanol, P 6050*a*.
$C_{16}H_{38}N_8$ Biguanide, 1-dodecyl-5-ethyl-, *and sulfate*, P 2229*i*.
$C_{16}H_{35}O_3PS_2$ Octyl thiophosphate, 7859*b*.
$C_{16}H_{36}ClNO$ (Dodecyl(2 - hydroxyethyl)-dimethylammonium chloride, 6978*a*.
$C_{16}H_{30}N_2O_{12}$ Tartaric acid, compd. with 2,2',2''-nitrilotriethanol, 6171*c*.
$C_{16}H_{36}O_4Si$ Butyl silicate, P 6464*h*.
$C_{16}H_{36}O_4Ti$ Butyl titanate, 2787*b*, 7239*b*, 9026*i*.
$C_{16}H_{36}O_7P_2$ Butyl pyrophosphate, 1315*b*.
$C_{16}H_{36}Si$ Silane, tetrabutyl-, 124*e*.
$C_{16}H_{37}NO_3Si$ Silane, tributoxydiethylamino-, 9028*e*.
$C_{16}H_{37}N_3$ Dipropylamine, 3,3'-bis(diethylamino)-1,1'-dimethyl-, 1349*g*.
$C_{16}H_{38}Br_2N_2$ Decamethylenebis[trimethylammonium bromide], 2703*d*.
Tetramethylenebis[triethylammonium bromide], 2703*d*.
$C_{16}H_{38}I_2N_2$ Decamethylenebis[trimethylammonium iodide], 3525*d*, 6739*gi*, 7586*c*.
$C_{17}H_{38}Cl_2NO_4$ Choline chloride orthoformate, 1720*d*
$C_{16}H_{40}O_4Si_4$ Cyclotetrasiloxane, octaethyl-, 1316*c*, 2513*a*.
$C_{16}H_{40}O_{10}Si_2$ Ethyl silicate, 2573*i*, 5738*h*.
$C_{16}H_{40}O_{12}Si_3$ Compd., m. above 250°, P 6221*f*.
$C_{16}H_{41}N_2O_4P$ Tetraethylammonium phosphate, 5499*f*.
$C_{16}H_{42}Br_2O_4Sn_2$ Diethyltin dibromide complex, 4632*e*.
$C_{16}H_{42}Cl_2O_4Sn_2$ Diethyltin dichloride complex, 4632*e*.
$C_{16}H_{41}Cd_3Cl_6N_2O_{14}P_2$ Choline, 1-glycerophosphate, compd. with $CdCl_2$, 6167*a*.
$C_{16}H_{40}N_4Si_4$ Cyclotetrasilazane, 2,2,4,4,6,6,8,8-octaethyl-, 1316*a*.
$C_{16}H_{42}O_3Si_6$ 3,7,11 - Trioxa - 2,4,6,8,10,12-hexasilatridecane, 2,2,4,4,6,6,8,8,10,10,12,12 - dodecamethyl-, 563*g*, P 3656*h*.
$C_{16}H_{42}O_5Si_6$ Hexasiloxane, 1,11-diethoxydodecamethyl, P 6221*c*
$C_{16}H_{44}O_6Si_7$ Heptasiloxane, hexadecamethyl-, 4067*f*, P 4402*f*
$C_{16}H_{48}O_8Si_8$ Cyclooctasiloxane, hexadecamethyl-, P 5791*e*.
$C_6H_{10}O_{17}$ Citric acid, compd. with MeOH, 7109*c*.
$C_{17}H_9BrO$ 7*H* - Benz[*de*]anthracen-7-one, bromo-, 1760*c*, P 7708*h*.
$C_{17}H_9ClN_2O_2$ Benz[*c*]acridine, 7-chloro-4-nitro, 1419*c*.
$C_{17}H_9ClO$ 7*H* - Benz[*de*]anthracen - 7 - one, chloro-, 1760*b*, 2984*c*.
$C_{17}H_9FO$ 7*H* - Benz[*de*]anthracen - 7 - one, 4 fluoro-, 1760*i*.
$C_{17}H_9IO$ 7*H* - Benz[*de*]anthracen - 7 - one, iodo-, 1759*h*, 1760*c*.
$C_{17}H_9NO_3$ 7*H* - Benzo[*c*]fluoren - 7 - one, 9-nitro, 3396*g*.
$C_{17}H_9NO_6S$ 1 - Naphthol - 8 - sulfonic acid, 4 *p* nitrobenzoyl, sultone, P 4020*e*.
$C_{17}H_9N_3$ *α*,4,4' - Stilbenetricarbonitrile, 198*h*.
$C_{17}H_9N_5O_3S$ Semicarbazide, 2-acetyl-1,4-bis(7 - oxofuro[3,4 - *b*]pyrid - 5(7*H*)-ylidene)-3-thio-, 7483*i*.
$C_{17}H_{10}ClN$ Benz[*b*]acridine, 12-chloro-, 1418*i*.
Quinaldine, *α* - *p* - chlorobenzylidene-, 2208*a*.
$C_{17}H_{10}Cl_2O_5S$ 1 - Naphthol - 8 - sulfonic acid, 4-(2,4-dichlorobenzoyl)-, P 8147*i*.
$C_{17}H_{10}F_6N_2O_3S$ 8-Quinolinesulfono - 3,5-xylidide, *α*,*α*,*α*,*α*',*α*',*α*'-hexafluoro-, 4649*c*.
$C_{17}H_{10}N_2O_3$ Benzacridinone, nitro-, 1420*ef*.
7*H* - Benz[*de*]anthracen - 7 - one, 3-amino-2-nitro-, 210*a*.
$C_{17}H_{10}N_2O_6$ 2 - Naphthoic acid, nitro(*p*-nitrophenyl)-, 606*d*.
$C_{17}H_{10}N_2O_9$ Reductol, *p*-nitrobenzoyl deriv., 7904*a*.
$C_{17}H_{10}O$ 7*H* - Benz[*de*]anthracen - 7 - one, 1759*a*, 1760*b*, 6948*c*, 7918*h*.
$C_{17}H_{10}O_2$ 7*H* - Benz[*de*]anthracen - 7 - one, hydroxy-, 2106, 1759*c*, 1760*bi*.
Fluoranthenecarboxylic acid, P 5966*e*, 7014*f*, 7473*i*.
$C_{17}H_{10}O_2S_2$ 3(2*H*) - Thianaphthenone, 2,2'-methylidynebis-, 2201*c*.
$C_{17}H_{10}O_4S$ 1-Naphthol-8-sulfonic acid, 4-benzoyl-, sultone, P 4020*d*.
$C_{17}H_{10}O_5$ Coumarilic acid, 3-(2,4-dihydroxyphenyl)-, *γ*-lactone, acetate, 1771*f*.
$C_{17}H_{11}BrClN$ Quinaldine, *α*-bromo-*α*-*p*-chlorobenzylidene-(?), -*HBr*, 2207*i*.
Quinaldine, *α* - (*α* - bromo - *p* - chlorobenzylidene)-(?), -*HBr*, 2207*i*.
$C_{17}H_{11}BrClNO_3$ Juglone, 6-bromo-3-chloro-2-*p*-toluidino-, 9058*a*.
$C_{17}H_{11}BrO_2$ 1,4-Naphthoquinone, 2-(bromophenyl)-3-methyl-, 1380*h*.
$C_{17}H_{11}BrO_3$ 1,4-Naphthoquinone, 2-(bromobenzyl)-3-hydroxy-, 1379*i*.
1,4-Naphthoquinone, 2 - (4 - bromo - *o*-tolyl)-3-hydroxy-, 1380*f*.
$C_{17}H_{11}Br_2NO_3$ Juglone, 3,6 - dibromo - 2 - *p*-toluidino-, 9058*a*.
$C_{17}H_{11}ClN_2O$ Benzo[*a*]phenazin-5(6*H*)-one, 6-chloro-6-methyl-, 7009*c*.
Quinaldonitrile, 1 - *p* - chlorobenzoyl-1,2-dihydro-, 9072*d*.
$C_{17}H_{11}ClO_3$ 1,4 - Naphthoquinone, 2-(chlorobenzyl) - 3 - hydroxy-, 1379*h*, 2610*b*.
1,4 - Naphthoquinone, 2 - (4 - chloro - *o*-tolyl)-3-hydroxy-, 1380*f*.
$C_{17}H_{11}Cl_2N$ Aniline, *N*-(5,8-dichloro-1-naphthylmethylene)-, 3813*d*.
$C_{17}H_{11}Cl_2N_3O_5$ Compd., m. 270°, 651*g*
$C_{17}H_{11}F_3O$ Naphthalene, 1-(*α*,*α*,*α* - trifluoro-*m*-toloxy)-, P 6234*g*.
$C_{17}H_{11}N$ Benz[*b*]acridine, 1420*g*.
Lepidine, *α*-benzylidyne-, 2208*a*.
$C_{17}H_{11}NO$ 7*H* - Benz[*de*]anthracen - 7 - one, amino-, 1759*c*, 1760*ci*.
Phenanthridine, 6-(2-furyl)-, *and* - *HCl*, 4665*e*.
$C_{17}H_{11}NO_2$ 11-*H*-Benzo[*a*]carbazolecarboxylic acid, hydroxy-, P 3040*e*.
$C_{17}H_{11}NO_4$ Benzoic acid, *o*-[2-(*m*-formylphenylcarbamyl) - 1 - hydroxyvinyl]-, lactone, P 7850*c*.
Benzoic acid, 2-(1-naphthyl)-5-nitro-, 3396*g*.
Chromone, 2-(*m*-nitrostyryl)-, 2621*e*.
1,4-Naphthoquinone, 2-methyl-3-(nitrophenyl)-, 1380*i*.
4,4'-Stilbenedicarboxylic acid, *α*-cyano-, 198*i*.
$C_{17}H_{11}NO_4S$ 1-Naphthol-8-sulfonic acid, 4 phenylcarbamyl-, sultone, 204*a*
$C_{17}H_{11}NO_5$ 1,4 Naphthoquinone, 2 hydroxy-3-*p*-nitrobenzyl-, 1380*a*
$C_{17}H_{11}NO_6$ Flavone, 7-hydroxy-8-nitro-, acetate, 9067*d*.
$C_{17}H_{11}NS$ Naphtho[2,1]thiazole, 2-phenyl-, 7011*g*.
Phenanthridine, 6-(2-thienyl) , *and* - *HCl*, 4665*e*
$C_{17}H_{11}N_3O_2$ Benz[*c*]acridine, 7-amino-4-nitro-, 1419*c*.
$C_{17}H_{11}N_3O_4$ Quinaldine, 6 nitro-*α*-*p*-nitrobenzylidene-, 3427*h*.
$C_{17}H_{11}N_3O_4S_2$ Benzenesulfonamide, *p*-phthalimido-*N*-2-thiazolyl , P 1061*b*.
$C_{17}H_{11}N_3O_5S$ 2*H*-Benzotriazole-4-carboxylic acid, 2 - (2 - hydroxy - 1 - naphthyl)-6-sulfo-, P 2784*i*.
$C_{17}H_{12}$ Benzofluorene, 4249*i*.
$C_{17}H_{12}AsN$ Arsine, cyano-2-naphthylphenyl-, 3383*d*.
$C_{17}H_{12}BrNO$ Acetophenone, *α*-bromo-*α* 4-quinolyl-, 2208*d*, P 3045*g*.
Benzamide, *N*-(7-bromo 1-naphthyl)-, 6607*b*
$C_{17}H_{12}BrNOS$ 2-Thiophenecarboxanilide, 5-bromo-4' phenyl-, 4666*a*.
$C_{17}H_{12}BrNO_2$ Pyridine, bromodiphenoxy , 642*dh*
$C_{17}H_{12}Br_2N_2O_2$ Benzonitrile, 4,4'-(trimethylenedioxy)bis[3-bromo-, 9048*g*.
$C_{17}H_{12}ClN$ Lepidine, *α*-*p*-chlorobenzylidene-, *and* - *HCl*, 2207*h*.
Quinaldine, *α*-*p*-chlorobenzylidene-, *and* - *HCl*, 2207*h*.
$C_{17}H_{12}ClNO$ Acetophenone, *p*-chloro-*α*-2-quinolyl-, 2208*b*.
$C_{17}H_{12}ClNO_3$ 2-Naphthanilide, 3'-chloro-1-hydroxy-, 7232*b*.
$C_{17}H_{12}ClNO_3$ 2-Isoindolineacetyl chloride, *α*-benzyl-1,3-dioxo-, 8357*a*.
$C_{17}H_{12}ClNO_3S$ Benzamide, *o*-chloro-*N*-(1-naphthylsulfonyl)-, P 8622*c*.
$C_{17}H_{12}ClNO_3S$ Metanilic acid, 4-chloro-*N*-(1-hydroxy-2-naphthoyl)-, 7232*b*.
$C_{17}H_{12}ClN_3O_3$ Quinoline, 2-[*N*-(*p*-chlorophenyl)acetamido]nitro-, 9037*ef*.
$C_{17}H_{12}ClN_3O_5$ 1 - (2,4 - Dinitrophenyl) - 4-phenoxypyridinium chloride, 6627*a*.
$C_{17}H_{12}Cl_2N_4O$ Compd., m. 225–6°, 650*i*.
$C_{17}H_{12}Cl_4O_3$ Acetoacetic acid, *α*,*γ*-bis(2,4-dichlorophenoxy)-, Me ester, 4248*e*.
$C_{17}H_{12}F_2N_2O_2$ Benzonitrile, 4,4'-(trimethylenedioxy)bis[3-fluoro-, 9048*g*.
$C_{17}H_{12}F_3NO_3$ Anthraquinone, 1-(2-hydroxyethylamino) - 2 - (trifluoromethyl)-, P 7709*g*.
$C_{17}H_{12}I_2N_2O_2$ Benzonitrile, 3,5-diiodo-4,4'-(trimethylenedioxy)di-, 9048*g*.
Benzonitrile, 4,4' - (trimethylenedioxy)-bis[3-iodo-, 9048*g*.
$C_{17}H_{12}N_2$ Benzacridine, amino-, 647*f*, 1418*i*; *and* - *HCl*, 1418*i*, 1419*b*, 1420*g*; *and hydrochlorides*, 1420*f*.
$(C_{17}H_{12}N_2)_n$ Benz[*b*]acridine, 12-amino-, polymer, *and* - *HCl*, 1419*a*.
$C_{17}H_{12}N_2O$ 1-Fluoranthenecarboxylic acid, hydrazide, 7014*f*.
Isoquinaldonitrile, 2-benzoyl-1,2-dihydro-, 9072*f*.
$C_{17}H_{12}N_2O_2$ Benzo[*a*]phenazin-5(6*H*)-one, 6-hydroxy-6-methyl-, 6191*i*, 7009*h*.
11 - Carboxy - 5 - methylquindolinium hydroxide, 5,11-inner salt, 229*i*.
7*H* - Dibenz[*f*,*ij*]isoquinoline - 2,7-(3*H*)-dione, 6-amino-3-methyl-, P 7711*i*.
Quinoline, (*p*-nitrostyryl)-, 3427*e*.
$C_{17}H_{12}N_2O_3$ Barbituric acid, 5-benzylidene-1-phenyl-, 2953*f*.
Benzamide, *N*-1-naphthylnitro-, 1346*e*.
Benzoic acid, *o*-(4-hydroxy-1-naphthylazo)-, P 4164*e*.
2 Naphthoic acid, 1-hydroxy-4-phenylazo , 2600*c*.
$C_{17}H_{12}N_2O_3S$ 1 Naphthol-8-sulfonic acid, 4-formyl-, sultone, phenylhydrazone, 203*h*.
$C_{17}H_{12}N_2O_4$ Anthranilic acid, *N*-5-nitro-1-naphthyl-, 1419*c*.
2 - Naphthanilide, 3 - hydroxy - 3' - nitro-, 5344*c*.
2 - Naphthoic acid, 3 - nitroanilino-, 1420*fg*.
$C_{17}H_{12}N_2O_4S$ Dibenzamide, 2,2'-dihydroxy-*N*-2-thiazolyl-, P 6239*c*.
$C_{17}H_{12}N_2O_4S_2$ Naphtho[2,1]thiazole - 8-sulfonic acid, 2-(*m*-aminophenyl)-6-hydroxy-, P 4485*dfgi*.
$C_{17}H_{12}N_2O_4S$ Aniline, *N*-2-furfurylidene-*p*-(*p*-nitrophenylsulfonyl)-, 2592*i*.
Naphth[1,2]oxazole - 8 - sulfonic acid, 2 - (*p* - aminophenyl) - 6 - hydroxy-, P 4485*i*.
$C_{17}H_{12}N_2O_5$ 2-Propanone, 1,3-dihydroxy-, bis(*p* nitrobenzoate), 7904*a*.
$C_{17}H_{12}N_2O_8S_2$ Benzoic acid, *o*-(2-hydroxy-3,6-disulfo-1-naphthylazo)-, 8954*d*.
$C_{17}H_{12}N_4O$ 1*H* - Benzotriazole - 1 - carboxamide, *N*-1 naphthyl-, 8365*g*.
$C_{17}H_{12}N_4O_4$ Propiolic acid, benzoyl-, Me ester, 2,4 - dinitrophenylhydrazone, 7459*g*.
$C_{17}H_{12}N_4O_7$ 2-Naphthol, 1-(2-hydroxy-3,5-dinitrophenylazo) - 6 - methoxy-, P 7698*a*.
Pyridine, 2-phenyl-, picrate, 5402*e*.
$C_{17}H_{12}N_4O_8$ Pyridine, phenoxy-, picrate, 642*rg*.
$C_{17}H_{12}N_8O_{16}$ Pyruvaldehyde, bis(3,5-dinitrobenzoylhydrazone), 3795*b*.
$C_{17}H_{12}O$ 7-Chrysofluorenol, 205*g*.
Indeno[2,1 - *a*]indene, 5 - methoxy-, 4662*d*.
Ketone, naphthyl phenyl, 4249*h*, 7472*d*, 7473*i*, 8371*b*.
$C_{17}H_{12}OS$ Ketone, 4-biphenylyl 2-thienyl, 4665*f*.
$C_{17}H_{12}OS_2$ 2,3'-Bithianaphthene, 3-methoxy-, 7474*f*.
$C_{17}H_{12}O_2$ Ketone, 4-biphenylyl 2-furyl, 7007*e*.
Ketone, 4-hydroxy-1-naphthyl phenyl, P 7697*i*.
4 - Pentyne - 1,3 - dione, 1,5 - diphenyl-(?), 2999*g*.
4-Pyrone, 2,6-diphenyl-, *and sulfate*, 2999*f*.
$C_{17}H_{12}O_3$ Betol, 3278*a*.
1-Fluoranthenecarboxylic acid, 1,2,3,10b-tetrahydro-3-oxo-, 7014*e*.
9-Fluorenesuccinic anhydride, 7014*e*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-*m*-tolyl-, 1380*f*.
$C_{17}H_{12}O_3S$ Ketone, 3-hydroxy-2-thianaphthenyl phenyl, acetate, 2200*i*.
1-Naphthol-8-sulfonic acid, 4-benzyl-, sultone, 204*b*.
$C_{17}H_{12}O_4$ Coumarilic acid, 3-(2-hydroxy-4-methoxyphenyl) - 7 - methyl-, *δ*-lactone, 1771*i*.

1,4 - Naphthoquinone, 2 - hydroxy - 3-(*p*-methoxyphenyl)-, 1380*f*.

**$C_{17}H_{12}O_4S$** 1-Naphthol-8-sulfonic acid, 4-(hydroxybenzyl)-, sultone, 204*f*.

**$C_{17}H_{12}O_5$** Coumarilic acid, 3-(2-hydroxy-dimethoxyphenyl)-, δ-lactone, 1771*g*.
Coumarilic acid, 3-(2-hydroxy-4-methoxyphenyl)-6-methoxy-, δ-lactone, 1772*a*.
1,3 - Dioxolo[*h*][1,4 - *H*]benzopyran - 6-one, 7-methoxy-8-phenyl-, 7935*d*.
9-Xantheneacrylic acid, 3,6,9-trihydroxy-β-methyl-, γ-lactone, 7369*e*.
9-Xanthenepropionic acid, 3,6,9 - trihydroxy - β - methylene-, γ-lactone, 7369*e*.

**$C_{17}H_{12}O_5S$** Naphtholsulfonic acid, benzoyl-, P 4481*b*, P 8147*i*.

**$C_{17}H_{12}O_6$** 1,4*H* - Benzopyran - 4,5,8 - trione, 3,7-dimethoxy-2-phenyl-, 636*f*.
2-Biphenylcarboxylic acid, 2',4,4'-trihydroxy-, δ-lactone, diacetate, 5023*g*.
4,4' - Spiro[bichroman] - 2,2' - dione, 7,7'-dihydroxy-, 1408*c*.
α,4,4'-Stilbenetricarboxylic acid, 198*i*.

**$C_{17}H_{12}O_9$** Rhodocladonic acid, 9143*g*.

**$C_{17}H_{13}BrN_2O_3$** Benzonitrile, 3-bromo-4,4'-(trimethylenedioxy)di-, 9048*g*.

**$C_{17}H_{13}BrN_2S_2$** Benzothiazoline, 2-(2-benzothiazolylmethylene) - 3 - (2 - bromoethyl)-, P 7845*c*.

**$C_{17}H_{13}BrO$** 1(4*H*)-Naphthalenone, 2-bromo-4-methyl-4-phenyl-, 8372*e*.
1-Naphthol, 2-bromo-4-methyl-3-phenyl-, 8372*f*.

**$C_{17}H_{13}Br_2N$** Quinoline, 4-(α,β-dibromophenethyl)-, -*HCl*, 2207*h*, P 3045*g*.

**$C_{17}H_{12}ClN_3O_2$** 11-Carboxy-5-methylquindolinium chloride, 229*h*.

**$C_{17}H_{13}ClN_2O_2S$** Acetoacetamide, *N*-(5-chloro - 2 - phenyl - 6 - benzothiazolyl)-, 5776*c*.

**$C_{17}H_{13}ClN_2O_4S$** 1-Naphthol-3-sulfonic acid, 6 - (3 - amino - 4 - chlorobenzamido)-, P 9463*i*.

**$C_{17}H_{13}ClN_2O_5S$** 1-Phenol-2-sulfonic acid, 4 - chloro - 6 - (2 - hydroxy - 6 - methoxy-1-naphthylazo)-, P 7698*a*.

**$C_{17}H_{13}ClN_4O_3S$** Benzenesulfonamide, *p*-(chlorohydroxyphenylazo) - *N* - 2-pyridyl-, 9048*b*.

**$C_{17}H_{13}ClN_4O_4$** 4 - Anilino - 1 - (2,4 - dinitrophenyl)pyridinium chloride, 4671*b*, 6627*b*.

**$C_{17}H_{13}ClN_4O_6$** 1 (2,4,6 - Trinitrophenethyl)-quinolinium chloride, 1733*h*.

**$C_{17}H_{13}ClN_4O_7$** Quinoline, 4-chloro-3,7-dimethyl-, picrate, 4276*d*.

**$C_{17}H_{13}ClO_3$** 2 (*p* - Hydroxystyryl)benzopyrylium chloride, P 6100*d*, P 7849*c*.

**$C_{17}H_{13}ClO_4$** 2 - (2,4 Dihydroxystyryl)-(benzopyrylium chloride, P 6100*d*, P 7849*c*.

**$C_{17}H_{12}Cl_4F_2$** Propene, 1,1,2-trichloro 3,3 bis-fluorotolyl)-, 6186*i*, 6187*a*.

**$C_{17}H_{13}F_3N_2O_2$** Anthraquinone, 1-amino-4 ethylamino - 2 - (trifluoromethyl)-, P 7709*g*.

**$C_{17}H_{13}F_3N_2O_3$** Anthraquinone, 1-amino-4-(2 - hydroxyethylamino) - 2 - (trifluoromethyl)-, P 7709*f*.

**$C_{17}H_{13}IN_2O$** Urea, 1 (*m*-iodophenyl)-3-(naphthyl)-, 7448*a*.

**$C_{17}H_{12}IN_3O_3$** Benzonitrile, 3-iodo 4,4'-(trimethylenedioxy)di-, 9048*g*.
13,14 - Dihydrobisbenzoxazolo[3,2 - *d*,-2',3' - *g*][1,4]diazep - 12 - inium iodide, P 7845*c*.

**$C_{17}H_{13}IN_2S_2$** 13,14 - Dihydrobisbenzothiazolo[3,2 - *d*, 2',3' - *g*][1,4]diazep-12-inium iodide, P 7845*b*.

**$C_{17}H_{13}IN_4O_3S$** Benzenesulfonamide, *p*-(hydroxyiodophenylazo) - *N* - 2 - pyridyl, 9048*b*.

**$C_{17}H_{11}I_4NO_4$** Thyroxine, *N*-acetyl-, 2256*b*, 2327*c*, 6298*d*.

**$C_{17}H_{13}N$** 11*H* - Indeno[2,1 *f*]quinoline, 3-methyl-, 193*c*.
Isoquinoline, 3-styryl-, *and* - *HCl*, 3820*f*.
Naphthylamine, *N*-benzylidene-, 7626*a*.
Quinaldine, α-benzylidene-, 7484*d*.
Quinoline, 6-styryl-, 3427*g*.

**$C_{17}H_{13}NO$** Acetophenone, α-quinolyl-, 2208*b*, P 3045*g*, 7022*ef*.
*o*-Cresol, α-1-naphthylimino-, 1757*c*.
Ketone, benzyl 2-quinolyl, 7024*i*.
2-Naphthol, 1-(phenyliminomethyl)-, P 8692*g*.
3 - Penten - 1 - yn - 3 - ol, 5 - imino - 1,5-diphenyl-, 3000*b*.
4(1*H*)-Pyridone, 2,6-diphenyl-, 3000*b*.

**$C_{17}H_{13}NOS$** 2-Thiophenecarboxamide, *N*-5-acenaphthenyl-, 4665*c*.
2 - Thiophenecarboxanilide, phenyl-, 4665*c*.

**$C_{17}H_{13}NOS_2$** Acetophenone, α-(4-phenyl-2-thiazolylmercapto)-, 5393*d*.
5(4*H*) - Thiazolone, 4 - benzylidene - 2-(benzylmercapto)-, 1399*c*.

**$C_{17}H_{13}NO_2$** 2 - Furamide, *N* - 5 - acenaphthenyl-, 4665*c*.
2-Furanilide, phenyl-, 4665*c*.
Indeno[1,7 - *gh*]quinoline - 7 - carboxylic acid, 4,5 - dihydro - 9 - methyl-, 193*g*.
2 - Naphthalenecarbamic acid, Ph ester, 2589*a*.
Naphthanilide, hydroxy-, 1352*a*, 1418*i*, P 3204*a*, P 7711*c*.
2-Naphthoic acid, 3-anilino-, 1418*i*.
1,4 - Naphthoquinone, 2 - anilino - 3-methyl-, 205*a*.
Pyridine, diphenoxy-, 642*e*.
Quinolinecarboxylic acid, phenyl-, Me ester, 127*i*.

**$C_{17}H_{11}NO_3$** 5(4*H*)-Oxazolone, 5-anisylidene-2-phenyl, 7458*b*.

**$C_{17}H_{11}NO_3S$** Naphthamide, *N* (phenylsulfonyl)-, P 686*a*, P 7962*h*, P 7963*c*.

**$C_{17}H_{13}NO_4$** Cinchophen, 4'-hydroxy-6-methoxy-, 1421*b*.
Indone, 2 - methyl - 3 - (*p*-nitrobenzyloxy)-, 7010*a*.
2-Isoindolineacetic acid, α-benzyl 1,3-dioxo-, 8357*a*.

**$C_{17}H_{13}NO_4S$** 5(4*H*)-Oxazolone, 4-(*p* methyl sulfonylbenzylidene) - 2 - phenyl-, 1740*c*, 7449*h*.

**$C_{17}H_{13}NO_5$** Cinnamic acid, *m*-nitro-, *o*-acetylphenyl ester, 2621*b*.
4 - Pentene - 1,3 - dione, 1 - (*o* - hydroxyphenyl)-5-(*m*-nitrophenyl)-, 2621*d*.

**$C_{17}H_{13}NO_5S$** (See also *Naphtholsulfonic acid, benzamido-*.)
Benzenesulfonic acid, *m*-(7-hydroxy-1-naphthylcarbamyl)-, P 5598*a*.
Metanilic acid, *N*-(1-hydroxy-2-naphthoyl)-, 7232*b*.
1-Naphthol-8-sulfonic acid, 4-(*p*-aminobenzoyl)-, P 4482*de*, P 8147*i*.

**$C_{17}H_{13}NO_6$** Butyric acid, γ-hydroxy-γ-(*p*-methoxyphenyl) - β - (*p* - nitrophenyl)-α-oxo-, γ-lactone, 5766*i*.

**$C_{17}H_{13}NO_7S$** Salicylic acid, 5-(5-hydroxy-7-sulfo-2-naphthylamino)-, P 5964*a*, P 7700*d*.

**$C_{17}H_{13}NO_8S_2$** 1-Naphthol-3,6-disulfonic acid, 8-benzamido , P 2882*a*, P 9458*i*.

**$C_{17}H_{13}NS$** Benzamide, *N*-2-naphthylthio-, 7011*f*.

**$C_{17}H_{13}N_3$** Benz[*c*]acridine, 4,7 diamino-, *and hydrochloride*, 1419*e*.

**$C_{17}H_{13}N_3O$** Acetylphenone, β (2-phenyl-1,2,3,2*H* triazol-4 yl) , 2619*b*.

**$C_{17}H_{13}N_3OS$** Thiazole, 2-benzamido - 5 - benzylideneamino-, 1401*b*.

**$C_{17}H_{13}N_3O_2$** Pyrazinamide, 3-hydroxy-5,6 diphenyl-, 3009*h*.
Urea, 1 - (1 - naphthyl) - 3 - (3 - pyridyl carbonyl)-, 6162*f*.

**$C_{17}H_{13}N_3O_2S$** Thiazole, 2,5 dibenzamido , 1401*b*.

**$C_{17}H_{13}N_3O_3$** Benzoic acid, *p*-nitro-, 1-(1 naphthyl)hydrazide, 1346*d*.
Oxamic acid, *N*-naphthyl-, furfurylidene hydrazide, 6973*h*.
2 - Pyrazolin - 3 - ol, 1 - benzoyl - 5-(benzovlimino) , 4272*h*.
5 - Pyrazolone, 3 - benzamido - 1 - benzoyl , 4272*i*.
Toluidine red, 9454*d*

**$C_{17}H_{13}N_3O_3S$** Acetanilide, *p*-(5-nitro 6-quinolylmercapto)-, 8389*c*.

**$C_{17}H_{13}N_3O_4$** Benzonitrile, 3 nitro 4,4'-(trimethylenedioxy)di-, 9048*g*.
6*H* - Quinindoline, 9-nitro , acetate, 230*c*.

**$C_{17}H_{13}N_3O_4S$** 3*H*-Naphth[1,2]imidazole 8-sulfonic acid, 2-(*m*-aminophenyl)-6-hydroxy , P 4485*h*, P 5961*fgh*.

**$C_{17}H_{13}N_3O_4S_2$** Sulfathiazole, reaction product with piperonal, 4238*a*.

**$C_{17}H_{13}N_3O_5S$** Acetanilide, *p*-(5-nitro-6-quinolylsulfonyl)-, 8389*c*.
Benzenesulfonamide, *p*-(1,4-dihydro-3-hydroxy - 1,4 - dioxo - 2 - naphthyl)-*N*-guanyl-, 1380*g*.

**$C_{17}H_{13}N_3O_6S_2$** See *Phthalanilic acid, 4'-(2-thiazolylsulfamyl)-*.

**$C_{17}H_{13}N_3O_6$** Naphthalene, methyl-, compd. with 1,3,5-trinitrobenzene, 2608*g*.

**$C_{17}H_{13}N_3O_7S$** Salicylic acid, 5-(2-amino-5-hydroxy - 7 - sulfo - 1 - naphthylazo)-, P 4481*h*; *di-Na salt*, P 8161*f*.

**$C_{17}H_{13}N_3O_9$** Naphthalene, methyl-, styphnate, 2608*g*.

**$C_{17}H_{13}N_3O_9S$** Phenolsulfonic acid, (2-hydroxy 6 - methoxy - 1 - naphthylazo)nitro-, P 7698*a*.

**$C_{17}H_{13}N_5$** 4-Pyrazolecarbonitrile, 5-methyl-1-phenyl-3-phenylazo-, 4258*b*.

**$C_{17}H_{13}N_5O_4$** 4-Pyrazolecarboxylic acid, 5-methyl - 1 - (*p* - nitrophenyl) - 3-phenylazo-, 4258*e*.

**$C_{17}H_{13}N_5O_6$** 2-Isoindolinepropionaldehyde, 2,3 - dioxo-, 2,4 - dinitrophenylhydrazone, 6160*h*.

**$C_{17}H_{13}N_5O_6S$** Isonicotinic acid, 2,6-dihydroxy-3 - [*p* - (2 - pyridylsulfamyl)phenylazo]-, P 3571*i*.

**$C_{17}H_{13}NO_7$** 2-Naphthamidine, picrate, P 3456*h*, P 5038*g*.

**$C_{17}H_{14}$** 1*H* - Cyclopenta[*l*]phenanthrene, 2,3-dihydro-, 7013*g*.
Naphthalene, 2-benzyl-, 4249*h*.

**$C_{17}H_{14}AsBr_3N$** Pyridine, 2-diphenylarsino-, dibromide, 1046*c*.

**$C_{17}H_{14}AsN$** Pyridine, 2-diphenylarsino , 1045*h*.

**$C_{17}H_{14}BrClN_6$** Biguanide, 1-(*p*-bromophenyl) 5-(8-chloro-5-quinolyl)-, 231*a*.

**$C_{17}H_{14}BrN$** 4-Pentenenitrile, 4-bromo-2,2 diphenyl-, 9054*h*.

**$C_{17}H_{14}BrNO$** Carbostyril, 6-*p*-bromobenzyl-4 methyl-, 645*i*.
2 - Phenacylisoquinolinium bromide, 1421*c*.
Quinoline, 6 bromo - 2 - (4 - methoxy tolyl)-, 3825*gh*.
4 - Quinolinol, 6 - *p* - bromobenzyl - 2 methyl-, 646*a*.

**$C_{17}H_{14}BrNO_2$** Anthraquinone, 1-bromo 4 isopropylamino-, P 3205*f*.
Ketone, 10-acetylacridanyl bromo methyl, 233*g*.

**$C_{17}H_{14}BrNO_3$** Anthraquinone, 1-bromo-4 (2 methoxyethylamino)-, P 3205*f*.

**$C_{17}H_{14}BrNO_4$** Anthraquinone, 1 bromo 4 (2,3 - dihydroxypropylamino)-, 1 3205*f*.

**$C_{17}H_{14}ClIN_6$** Biguanide, 1-(8-chloro-5 quinolyl)-5-(*p*-iodophenyl)-, 231*a*.

**$C_{17}H_{14}ClN$** Benz[*b*]acridine, 12-chloro-1,2,3,4-tetrahydro-, 1418*g*.

**$C_{17}H_{14}ClNO$** Carbostyril, 6-*p*-chlorobenzyl 4 methyl-, 645*i*.
4 - Quinolinol, 6 - *p* - chlorobenzyl - 2 methyl , 646*a*.

**$C_{17}H_{14}ClNO_2$** 4(1*H*)-Quinolone, 1-benzoyl-6 chloro - 2,3 - dihydro - 2 - methyl , 8387*i*.

**$C_{17}H_{14}ClNO_4S$** 2-Naphthol-7-sulfonic acid, 8-(*o*-chlorobenzylamino)-, P 1987*f*.

**$C_{17}H_{14}ClN_7O_2$** Biguanide, 1-(8-chloro-5 quinolyl)-5-(*p* nitrophenyl)-, 231*a*.

**$C_{17}H_{14}Cl_2N_2$** Lepidine, 2-(dichlorobenzylamino)-, 8389*g*.
Quinoline, 4-chloro-2-*p* chloroanilino-3 ethyl-, P 7974*c*.

**$C_{17}H_{14}Cl_2N_6$** Biguanide, 1-(*p*-chlorophenyl) 5-(8-chloro-5-quinolyl)-, 231*a*.

**$C_{17}H_{14}Cl_2O$** 1-Indanone, 2,3-dichloro 2-ethyl 3-phenyl-, 2610*e*.

**$C_{17}H_{14}Cl_2O_4$** Formic acid, chloro , diester with *p*,*p'*-isopropylidenediphenol, P 4293*e*.

**$C_{17}H_{14}Cl_4O_6$** 4,2-Cresotic acid, 3,5 dichloro 6 - (3,5 - dichloro - 6 - hydroxy - 4-methoxy-*o*-toloxy)-, Me ester, 608*g*

**$C_{17}H_{14}CuN_2O_2$** 2537*b*.

**$C_{17}H_{14}F_6N_2O_3S$** Propionanilide, *p*-(α,α,α, α',α',α' - hexafluoro - 3,5 - xylylsulfamyl)-, 4648*h*.

**$C_{17}H_{14}INO$** 2-Phenacylisoquinolinium iodide, 1776*a*.
1-Phenacylquinolinium iodide, 7775*i*.

**$C_{17}H_{14}NP$** Pyridine, 2-(diphenylphosphino) , 1045*h*.

**$C_{17}H_{14}NPS$** Phosphine sulfide, diphenyl 2-pyridyl-, 1046*c*.

**$C_{17}H_{14}N_2$** 1-Naphthamidine, *N*-phenyl , P 2232*c*.
Pyridine, 2 - diphenylamino-, 1045*h*, 4137*h*.
Quinaldine, 6 - amino - α - benzylidene , 3427*g*.
5*H*-Quinindoline, 5,11-dimethyl-, 230*g*.
Quinoline, (*p*-aminostyryl)-, 3427*e*.

**$C_{17}H_{14}N_2O$** Acetophenone, α-4-quinolyl-, oxime, 7022*f*.
Benzamide, amino-*N*-1-naphthyl-, 1346*f*.
2-Naphthol, 1-tolylazo-, 17*c*, 171*a*.
1,4 - Naphthoquinone, methylphenylhydrazone, 2596*i*.
6*H* - Quinindoline, 2 - methoxy - 11-methyl-, 230*d*.

**$C_{17}H_{14}N_2OS$** Hydantoin, 1-benzyl-4-benzylidene-2-thio-, 1400*b*.

**$C_{17}H_{14}N_2OS_2$** 3-Benzothiazolineethanol, 2-(2-benzothiazolylmethylene)-, *and* - *HBr*, P 7845*c*.
5(4*H*) - Thiazolone, 4 - (anilinomethylene) 2-(benzylmercapto)-, 1399*a*.

$C_{17}H_{13}NO_3$ Benzamide, 3-amino-4-hydroxy-*N*-1-naphthyl-, P 8146*e*.
Benzonitrile, *p,p'* - (trimethylenedioxy)-di-, 9048*f*.
Benzo[*a*] phenazin - 5(6*H*) - one, 6a,7-dihydro - 6 - hydroxy - 6 - methyl-, 6191*h*.
3 - Pyrazoline - 4 - carboxaldehyde, 2-methyl-5-oxo-1,3-diphenyl , 7477*f*.
Pyridine, 5 - benzylideneamino - 2 - (2-furfuryloxy)-, P 7972*h*.
6*H* - Quinindoline, 8,9 - dimethoxy , 230*d*.

$C_{17}H_{14}N_2O_2S$ Acetoacetamide, *N*-2-phenyl-5-benzothiazolyl-, 5776*d*.
3*H* - Thieno[2,3 - *c*]pyrazole, 3a,6a - dihydro - 3a,4 - diphenyl-, 6,6 - dioxide, 5777*e*.

$C_{17}H_{14}N_2O_2S_2$ 2 - Thiophenecarboxamide, *N,N'*-4-*m*-tolylenebis-, 4665*d*.

$C_{17}H_{14}N_2O_3$ Compd., m. 178°, 6191*e*.
3 - Pyrazoline - 4 - carboxylic acid, 2-methyl - 5 - oxo - 1,3 - diphenyl , 7477*f*.
Quindoline - 11 - carboxylic acid, 5,5a-dihydro - 5a - hydroxy - 5 - methyl , *Na salt*, 229*i*.

$C_{17}H_{14}N_2O_3S$ Acetic acid, 4 oxo-5,5-diphenyl-2 imidazolin-2-ylmercapto) , 3016*b*
Aniline, *N* - 2 - furfurylidene - *p*-sulfonyldi-, 2592*i*.

$C_{17}H_{14}N_2O_4$ 2-Furamide, *N, N'*-4 *m* tolylene-bis-, 4665*d*.
2,5 - Piperazinedione, 1 - (*m* - hydroxyphenyl) , benzoate, 2973*h*.

$C_{17}H_{14}N_2O_4S$ (See also *Naphtholsulfonic acid, (aminobenzamido)*-.)
Acetanilide, *p* - (2 - oxo - 1,2 *H* - benzopyran-3-ylsulfamyl)-, 2170*e*
2 - Naphthol - 6 - sulfonic acid, 1 - (o-methoxyphenylazo)-, 8954*e*

$C_{17}H_{14}N_2O_6$ Acrylic acid, α,β bis(*p* nitrophenyl)-, Et ester, 5772*i*.
Phthalamic acid, *N*-*p*-nitrobenzoyl , Et ester, P 6236*g*.

$C_{17}H_{14}N_2O_6S$ Salicylic acid, 5-[(aminohydroxynaphthyl)sulfamyl] , P 4471*h*.

$C_{17}H_{14}N_2O_7S_2$ 1,5 - Naphthalenedisulfonic acid, 3-(aminobenzamido)-, P 4479*g*.

$C_{17}H_{14}N_2O_8$ Phenol, (allyloxy)methoxy-, 3,5-dinitrobenzoate, 7451*g*.

$C_{17}H_{14}N_4$ Benzamidine, *N, N'*-di 2-pyridyl , 1409*d*.

$C_{17}H_{15}NO$ Lepidine, 2 (1*H* benzotriazol 1 yl)-6-methoxy , 230*c*.

$C_{17}H_{15}NO_2$ Benz[*cd*]indol 5(1*H*) one, 3,4-dihydro-, *p*-nitrophenylhydrazone, 4255*i*.
Ketone, phenyl 5 phenyl 3-isoxazolyl, semicarbazone, 2991*h*.
3 - Pyrazolone, 3 - acetyl - 1 - phenyl - 4 phenylazo-, P 8149*f*.
Quinoline, 2 - (1*H*) - benzotriazol - 1 yl) 5,6 - dimethoxy-, 230*d*.

$C_{17}H_{15}N_3O_2S$ Sulfanilamide, *N*1 2-pyrimidyl-*N*4-salicylidene-, 3262*g*.

$C_{17}H_{15}N_3O_3S$ 1-Phenol-4-sulfonamide, *N*-2-pyrimidyl-, carbanilate, 593*f*.

$C_{17}H_{15}N_3O_4$ Coumarilaldehyde, 3,6-dimethyl-, 2,4 - dinitrophenylhydrazone, 3413*d*.
5*H* - Cycloheptabenzene - 5,6(7*H*)-dione, 8,9 - dihydro-, 2,4-dinitrophenylhydrazone, 5753*c*.

$C_{17}H_{15}N_3O_5S$ Acetanilide, *p*-(8-amino-5-nitro-6-quinolylsulfonyl)-, 8389*e*.

$C_{17}H_{15}N_3O_5$ Acrylic acid, β-benzoyl-, Me ester, 2,4 - dinitrophenylhydrazone, 7459*e*.
1 - Propanone, 1,3 - di - 2 - furyl-, 2,4-dinitrophenylhydrazone, 3407*d*.

$C_{17}H_{15}N_3O_7$ Benz[*cd*]indole, 1,3,4,5-tetrahydro-, picrate, 4256*a*.
2,4 - Dinitrophenylhydrazone, m. 266°, 3412*f*.
Ketone, 6 - hydroxy - 4 - methoxy - 7-benzofuryl methyl, 2,4-dinitrophenylhydrazone, 3413*g*.
Quinoline, dimethyl-, picrate, 5402*def*, 7937*f*.
Toluquinaldine, picrate, 7027*a*.

$C_{17}H_{15}N_3O_7S$ Phenolsulfonic acid, (2-amino-6 - methoxy - 1 - naphthylazo)nitro-, P 8155*gh*.
Thiazole, 2 - benzyl - 4 - methyl-, picrate, 3820*g*.

$C_{17}H_{15}N_4O_9$ Quinoline, 2-ethoxy-, 1-oxide picrate, 2997*b*.

$C_{17}H_{16}N_2O_{10}$ 2-Oxazoline-4-carboxylic acid, 2-phenyl-, Me ester, picrate, 9033*c*.
Protocatechualdehyde, 2,4 - dinitrophenylhydrazone, ester with Me H carbonate, 7455*i*.

$C_{17}H_{16}N_4O_8$ Acetamide, *N* - (cyanoformylmethyl) - α - phenyl-, 2,4 - dinitrophenylhydrazone, 4667*i*.

$C_{17}H_{16}N_4O_8$ 2,4-Pyrrolidinedione, 3-benzamido-, 2, 4-dinitrophenylhydrazone, 2988*f*.

$C_{17}H_{16}N_4O_8$ 2-Pentenal, 4-oxo-, bis(2,4-dinitrophenylhydrazone), P 1808*i*.

$C_{17}H_{16}O$ Indone, ethylphenyl-, 1393*i*, 2610*d*, 6193*f*.
1(4*H*) - Naphthalenone, 4 - methyl - 4-phenyl-, 8372*a*.
1-Naphthol, 4-methyl-3-phenyl-, 8372*f*.
Pentadienone, 1,5 - diphenyl-, 4652*a*, 8434*h*.
2,4 - Pentadienophenone, 5 - phenyl-, 5015*e*, 5446*d*.

$C_{17}H_{16}OS$ Ketone, 2,3-dimethyl-1-naphthyl 2-thienyl, 4665*f*.

$C_{17}H_{16}O_2$ Benz[*a*]azulene-7-carboxylic acid, Et ester, 207*e*, 6203*e*.
17*H* - Cyclopenta[*a*]phenanthrene - 11,17-(12*H*) - dione, 13,14,15,16 - tetrahydro , 241*g*.
1 - Fluoranthenecarboxylic acid, 1,2,3,-10b tetrahydro-, 7014*f*.
9-Fluorenecarboxylic acid, allyl ester, 7468*a*.
—, 9 allyl-, 7468*b*.
Furan, 3-methoxy-2,5-diphenyl , 622*i*.
1-Indanone, 2,3 epoxy 2-ethyl-3-phenyl-, 2610*g*.
4 - Pentene - 1,3 - dione, 1,5 - diphenyl-, 7002*f*.
3-Phenanthreneacetic acid, Me ester, 3363*c*.
9-Phenanthrenepropionic acid, 7013*d*.

$C_{17}H_{16}O_2S$ 2-Thiabicyclo[3.1.0] 3-hexene, 4,5-diphenyl-, 2,2-dioxide, 5777*i*

$C_{17}H_{16}O_3$ Benzoic acid, *o* benzoyl , allyl ester, P 3847*f*.
Cinnamic acid, *o*-acetylphenyl ester, 2621*b*.
4 - Pentene - 1,3 - dione, 1 - (*o* - hydroxyphenyl)-5-phenyl , 2621*d*.

$C_{17}H_{16}O_3S$ 1,4 - Naphthoquinone, 2 - hydroxy - 3 - [3 - (2 - thienyl)propyl]-, 1379*g*.

$C_{17}H_{16}O_4$ Coumarin, 7-(benzyloxy)-6-hydroxy-4 methyl-, 3823*b*.
Flavone, dimethoxy-, 637*i*, 640*i*, 1407*g*, 7935*c*.
9 Fluorenesuccinic acid, 7014*e*.

$C_{17}H_{16}O_4S$ 1 Naphthol-8 sulfonic acid, 4-benzyl-, P 2641*g*, P 4488*b*, P 8148*d*, *K salt*, 204*b*.

$C_{17}H_{16}O_5$ Flavone, hydroxydimethoxy-, 636*b*, 1407*h*, 3414*f*, 5116*h*

$C_{17}H_{16}O_5S$ 1 Naphthol-8 sulfonic acid, 4-*p*-hydroxybenzyl-, P 2641*h*, P 4488*b*, P 8148*e*

$C_{17}H_{16}O_6$ 4,5,8-Flavantrione, 6,7 dimethoxy , 5306*d*.
Pedicumin, methyl-, 4264*a*
Primetin, 3,7-dimethoxy , 636*a*.

$C_{17}H_{16}O_6S_2$ 1-Naphthol-8-sulfonic acid, 4 *p*-tolylsulfonyl-, P 8147*j*

$C_{17}H_{16}O_7S_2$ 1-Naphthol-3,8-disulfonic acid, 3-*p*-tolyl ester, P 5600*f*.

$C_{17}H_{16}O_8$ Flavone, 3,4',5,6-tetrahydroxy-7,8-dimethoxy-, 3566*b*.

$C_{17}H_{17}AsO_3$ Arsine acid, naphthyl-*p*-tolyl-, 3382*h*.

$C_{17}H_{17}BrO_2$ Benzil, 3 - bromo - 2,4,6-trimethyl-, 5773*f*.

$C_{17}H_{17}Br_2N$ Valeronitrile, γ,δ-dibromo-α,α-diphenyl-, 9054*h*.

$C_{17}H_{18}ClN_3$ 5,11 - Dimethyl - 6*H* - quinindolinium chloride, 230*g*.
Lepidine, 2-(chlorobenzylamino)-, 8389*g*.

$C_{17}H_{18}ClN_3OS$ 3(2*H*) - Thianaphthenone, 6-chloro - 2 - (*p* - dimethylaminophenylimino)methyl-, P 6427*f*, P 7707*a*, P 9470*h*.

$C_{17}H_{18}ClN_3O_2$ Pyrido[3,4 - *c*]isoquinoline-1-carboxylic acid, 6 - chloro - 2,4 - dimethyl-, Et ester, P 6242*h*.
4(1*H*) - Quinolone, 1 - benzoyl - 6-chloro - 2,3 - dihydro - 2 - methyl-, oxime, 8387*i*.

$C_{17}H_{18}ClN_3O_2$ 1-Phthalazineacetic acid, 2 - (*o* - chlorophenyl) - 1,2 - dihydro-4-hydroxy-, Me ester, 236*i*.
1 - Phthalazineacetic acid, 2-(*o*-chlorophenyl) - 1,2,3,4 - tetrahydro - 3-methyl-4-oxo-, 236*i*.

$C_{17}H_{18}ClN_4O_4$ Benzoic acid, *o*-(chloroformylazo)-, *o*-carboxyphenylhydrazone di-Me ester, 4259*i*.

$C_{17}H_{18}ClN_5$ Biguanide, 1-(8-chloro-5-quinolyl)-5-phenyl-, 231*a*.

$C_{17}H_{18}ClN_5O_7$ 1,2 - Propanediol, 3 - [acetamido - 5 - (2 - chloro - 4,6 - dinitrophenylazo) - 1*H* - benzotriazol - 1-yl]-, P 3625*h*.

$C_{17}H_{18}ClO_2$ Benzoic acid, *o*-[α-(1-chloropropylidene)benzyl]-, *and Ag salt*, 2611*e*.
Chalcone, 2-chloro-β-ethoxy-, 2972*b*.
1-Indanone, 2-chloro-2-ethyl-3-hydroxy-3-phenyl-, 2610*e*.

$C_{17}H_{15}ClO_7$ Malvidin, 8450*d*, 9359*d*.

$C_{17}H_{15}Cl_2N$ Valeronitrile, γ,δ-dichloro-α,α-diphenyl-, 9054*g*.

$C_{17}H_{18}IN_2$ 5,11 - Dimethyl - 6*H* - quinindolinium iodide, 230*f*.

$C_{17}H_{18}IN_3S_2$ 3 - Methyl - 2 - [3 - methyl - 2-benzothiazolinylidene)methyl]benzothiazolium iodide, 8292*c*.

$C_{17}H_{19}N$ Benzophenanthridine, tetrahydro-, 1779*a*.
Isoquinoline, 1-benzyl-3-methyl-, 3821*c*.
2-Naphthylamine, *N*-*p*-tolyl-, 606*c*.
3-Pentenenitrile, 2,2-diphenyl-, 2202*a*.

$C_{17}H_{19}NO$ Benz[*b*]acridin - 12 - ol, 1,2,3,4-tetrahydro-, 1418*g*.
1 - Isoquinolinemethanol, α - methyl - α-phenyl-, 7310*d*.
Lepidine, 2-(benzyloxy)-, 2997*i*.
2-Naphthol, 1-(α-aminobenzyl)-, 2183*i*.
2 - Pyridinemethanol, α - methyl - α-naphthyl-, *and - HCl*, 2204*h*.
6-Quinolinemethanol, α-benzyl-, 3427*f*.
Quinoline, 2 - (4 - methoxy - *m* - tolyl)-, 3825*g*.

$C_{17}H_{18}NO_2$ Acetic acid, cyanodiphenyl-, Et ester, 4245*e*.
Acrylonitrile α,β-bis(*p*-methoxyphenyl)-, 2607*a*.
Anthraquinone, 1 - isopropylamino-, P 3205*f*.
Cinnamanilide, α-acetyl-, 5013*i*.
1,3 - Dioxolo[*g*]isoquinoline, 5 - benzyl-7,8-dihydro-, *and - HCl*, 1412*g*.
—, 7,8 - dihydro - 5 - methyl - 7 - phenyl-, 5026*b*.
Hydrocinnamic acid, α-cyano-, benzyl ester, 3357*a*.
6,7 - Isoquinolinediol, 3,4 - dihydro - 1-styryl-, - *HCl*, P 2241*i*.
—, 1-phenethyl-, P 2241*f*.
Pyrocatechol, 4 - [2 - (1 - isoquinolyl)-ethyl]-, P 2241*f*.

$C_{17}H_{18}NO_2S$ 5(4*H*) - Oxazolone, 2 - phenyl-4-(5-propyl-2-thenylidene)-, 7930*b*.

$C_{17}H_{18}NO_3$ Acetamide, *N*-2-hydroxy-3-fluorenyl-, acetate, 7020*g*.
Anthraquinone, 1 - (2 - methoxyethylamino)-, P 3205*f*.
5(4*H*) - Oxazolone, 4 - *p* - methoxybenzyl-2-phenyl-, *and - HBr*, 7457*c*.
8-Phenanthridinol, 6-methyl-, Et carbonate, P 2647*d*.
Succinamic acid, *N*-2-fluorenyl-, 5770*a*.

$C_{17}H_{18}NO_3S$ 1,4,2*H*-Benzothiazin-3(4*H*)-one, 2 - benzylidene - 6,7 - dimethoxy-(?), 8393*i*.
1 - Naphthalenesulfonic acid, 8 - *p*-toluidino-, P 7701*d*.

$C_{17}H_{18}NO_4$ Anthraquinone, 1-(2,3-dihydroxypropylamino)-, P 3205*f*.
Cinnamic acid, α-benzamido - *p* - hydroxy-, Me ester, 1399*g*.

$C_{17}H_{18}NO_4S$ 2-Naphtholsulfonic acid, 8-benzylamino-, P 1987*ef*.

$C_{17}H_{18}NO_5$ 6-Benzofuranol, 2,3-dihydro-3,5-dimethyl-, *p*-nitrobenzoate, 3413*c*.
Benzoic acid, *p*-(2-benzoyl-1-carboxyethylamino)-, 7192*h*.
2-Butanone, 3-hydroxy-1-phenyl-, *p*-nitrobenzoate, 1744*a*.
Melicopidine, 648*h*.
Melicopine, 648*h*.
Salicylanilide, 4'-hydroxy-, diacetate, 2603*f*.

$C_{17}H_{18}NO_5S$ Benzoic acid, *p*-amino-, 2-naphthalenesulfonate, 174*b*.
Cinnamic acid, *p*-(*N*-acetylsulfanilyl)-, 7450*d*.
—, α - benzamido - *p* - (methylsulfonyl)-, 7449*i*.

$C_{17}H_{18}NO_6$ Benzoic acid, *p*-(1-carboxy-2-salicyloylethylamino)-, 7192*h*.
Propiophenone, α - hydroxy - *p* - methoxy-, *p*-nitrobenzoate, 1743*h*.

$C_{17}H_{18}NO_6S_2$ 1-Naphthol-8-sulfonic acid, 5-(methylphenylsulfamyl)-, P 5600*f*.
1-Naphthol-5-sulfonic acid, 8-*p*-tolylsulfonamido-, P 4476*d*.

$C_{17}H_{18}NO_7S_2$ 1-Naphthol-8-sulfonic acid, 3-(*p*-methoxyphenylsulfamyl)-, P 6427*i*.

$C_{17}H_{18}NO_8S$ Toluene-α,α-diol, *p*-(*p*-nitrophenylsulfonyl)-, diacetate, 7449*h*.

$C_{17}H_{18}NO_9S_2$ 1-Naphthol-3,6-disulfonic acid, 8-amino-, *p*-toluenesulfonate, P 4863*e*, P 5966*a*, P 7696*b*.
1-Naphthol-3,6-disulfonic acid, 8-*p*-tolylsulfonamido-, P 9459*a*.

$C_{17}H_{19}N_3$ Pyridine, 2-(α-2-pyridylbenzylamino)-, *and di- HCl*, 2206*a*.

Quinaldine, 6-amino-α-(*p*-aminobenzylidene)-, 3427*h*.
Quinazoline, 4 - (3,4 - dihydro - 1(2*H*)-quinolyl)-, 5784*g*.
6*H*-Quinindoline, 9-amino-, 230*e*.

**$C_{17}H_{15}N_3O$** Ketone, 5-methyl-3-isoxazolyl phenyl, phenylhydrazone, 2991*d*.
1-Naphthylamine, 6-methoxy-4-phenylazo-, 2611*h*.
5-Pyrazolone, 4-(anilinomethylene)-3-methyl-1-phenyl-, P 8692*f*.

**$C_{17}H_{15}N_3O_2$** 2-Isoindolinepropionaldehyde, 2,3-dioxo-, phenylhydrazone, 6169*h*.
5 - Pyrazolol, 3 - methyl - 1 - phenyl-, carbanilate, 8365*g*.

**$C_{17}H_{15}N_3O_3S_2$** 5*H* - Thiazolo[3,2 - *a*]pyrimidine - 5,7(6*H*) - dione, 6 - [2 - (3-ethyl - 2 - benzothiazolinylidene)-ethylidene]-2,3-dihydro-, P 8925*c*.

**$C_{17}H_{15}N_3O_3$** 1-Fluorenecarboxylic acid, 9-oxo-, Et ester, semicarbazone, 3402*c*.

**$C_{17}H_{15}N_3O_4$** Isoquinoline, 3,4-dihydro 3,4 dimethyl - 7 -nitro - 1 - (*p* - nitrophenyl)-, 7486*e*.

**$C_{17}H_{15}N_3O_4S$** Acetamide, α-8-quinolyloxy-*N*-sulfanilyl-, P 3036*d*.
1-Naphthalenesulfonic acid, 4-(5-amino-6 hydroxy-*m*-tolylazo)-, P 4867*a*.

**$C_{17}H_{15}N_3O_4S_2$** Sulfanilamide, *N*⁴-(3-methoxysalicylidene)-*N*¹-2-thiazolyl-, 3262*g*.

**$C_{17}H_{15}N_3O_5$** Hydrocinnamic acid, α,β-dioxo-, Et ester, α-(*p*-nitrophenylhydrazone), 4247*i*.

**$C_{17}H_{15}N_3O_7S$** Thianaphthene, 3 ethyl - 5-methyl-, picrate, 7475*d*
Thianaphthene, 2,3,5 - trimethyl-, picrate, 7475*d*.

**$C_{17}H_{15}N_3O_7S_2$** Acetanilide, *p*-(2 oxo 6-sulfamyl - 1,2*H* - benzopyran - 3 - yl-sulfamyl)-, 2179*h*.

**$C_{17}H_{15}N_3O_8S_2$** 1 - Phenol - 2,4 - disulfonic acid, 6 - (2 - amino - 6 - methoxy - 1 naphthylazo)-, P 8155*h*.

**$C_{17}H_{15}N_3S$** 2-Pyrimidinethiol, 4-benzhydrylamino-, 8395*d*.

**$C_{17}H_{15}N_4O_4S$** 6-Quinoxalinecarboxamide, (*N*⁴-acetylsulfanilamido)-, 3384*d*.

**$C_{17}H_{15}N_4O_5S$** 3(2*H*)-Thiophenone, 4-benzamido - 4,5 - dihydro-, 3,4 - dinitrophenylhydrazone, P 3468*d*

**$C_{17}H_{15}N_5O_5S_2$** 1,2,3,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - benzyl - 6 - (4-nitro - *o* - tolylazo) - 3 - thio-, 1,1-dioxide, P 4808*g*

**$C_{17}H_{15}N_5O_6S$** Benzoic acid, 5-amino-2-(3-methyl - 5 - oxo - 1 - *p* - sulfophenyl - 2-pyrazolin-4 ylazo) , P 4865*f*, P 5194*e*.

**$C_{17}H_{15}N_5O_7$** Imidazole, 1-benzyl-2-methyl-, picrate, 3410*e*.
Succinaldehydic acid, α-benzamido-, 2,4-dinitrophenylhydrazone, 7932*e*.

**$C_{17}H_{15}N_5O_8S$** Thiazole, 2 benzylamino - 4-methyl-, picrate, 4669*f*.

**$C_{17}H_{15}N_5O_9$** 2-Imidazolemethanol, 1-benzyl , picrate, 3410*e*.

**$C_{17}H_{15}N_9O_{14}$** Imidazole, 2-(2 aminoethyl)-, dipicrate, 3410*h*.

**$C_{17}H_{16}BrN$** Butyronitrile, γ-bromo-α-phenyl-α-*p*-tolyl-, 9053*b*.
Valeronitrile, δ - bromo - α,α - diphenyl-, 9053*b*.

**$C_{17}H_{16}BrNO_2$** Acetoacetanilide, *p*-(*p*-bromobenzyl)-, 645*h*.
1 - [α - (α - Hydroxyfurfuryl)benzyl]-pyridinium bromide, P 850*d*.

**$C_{17}H_{16}BrN_3O_2$** Mesitylenic acid, 4-nitro-, *p*-bromo - α - methylbenzylidenehydrazide, 6972*i*.

**$C_{17}H_{16}BrN_7O_2S_2$** Sulfanilamide, *N*⁴-[(*p*-bromophenylguanyl)guanyl] - *N*¹ - 2-thiazolyl-, 5868*c*.

**$C_{17}H_{16}Br_2O_2$** Xanthene, 2,7-dibromo-9-butoxy-, 3822*f*.
Xanthene, 2,7 - dibromo - 9 - isobutoxy-, 3822*f*.

**$C_{17}H_{16}Br_2O_4$** Propionic acid, α-bromo-, diester with 2-methyl-1,4-naphthalenediol, P 4300*f*

**$C_{17}H_{16}ClN$** Isovaleronitrile, γ-chloro-α,α-diphenyl-, 9054*d*.

**$C_{17}H_{16}ClNO$** Quinaldine, 1-benzoyl-6-chloro-1,2,3,4-tetrahydro-, 8387*i*.

**$C_{17}H_{16}ClNO_2$** Acetoacetanilide, *p*-(*p*-chlorobenzyl)-, 645*h*.
2 - (2,5 - Dihydroxy - 3,4 - xylyl)isoquinolinium chloride, 5683*c*.
4-Quinolinol, 1-benzoyl-6-chloro-1,2,3,4-tetrahydro-2-methyl-, 8387*h*.

**$C_{17}H_{16}ClN_3O_3$** 3-Pyridinecarbamic acid, 6-chloro - 5 - cyano - 2 - methyl - 4 - phenoxymethyl-, Et ester, P 1811*f*, P 7051*c*.

**$C_{17}H_{16}ClN_7$** Biguanide, 1-(*p*-aminophenyl)-5-(8-chloro-5-quinolyl)-, 231*a*.

**$C_{17}H_{16}ClN_7O_2S_2$** Sulfanilamide, *N*⁴-[(*p*-chlorophenylguanyl)guanyl - *N*¹ - 2-thiazolyl-, 5868*c*; - *HCl*, 2179*a*.

**$C_{17}H_{16}Cl_2N_4O_7$** Guanidine, 1-(5,6-dichloro-2-benzimidazolyl) - 3 - isopropyl-, picrate, 1405*g*.

**$C_{17}H_{16}Cl_2O_3$** Butyric acid, α-chloro-α-(α-chlorobenzhydryl)-, 1394*h*.
Phenol, *p*-[*p*-(2,2-dichlorovinyloxy)-α,α-dimethylbenzyl]-, P 7045*h*.

**$C_{17}H_{16}Cl_2O_4$** Hydracrylic acid, β,β-bis(*p*-chlorophenyl)-, Et ester, 2272*h*.

**$C_{17}H_{16}CuN_2O_2$** Cresol, α,α'-(propylenedinitrilo)di-, Cu deriv., 5932*c*, 8222*d*.

**$C_{17}H_{16}IN$** 1-Benzyl-2-methylisoquinolinium iodide, 4672*g*.

**$C_{17}H_{16}IN_2P$** Methylphenyldi - 2 - pyridylphosphonium iodide, 1046*d*.

**$C_{17}H_{16}IN_3$** 1 - Methyl - 2 - (*N* - 2 - pyridylanilino)pyridinium iodide, 1046*d*.
1 - Methyl - 2 - [2 - (8 - quinolylamino)-vinyl]pyridinium iodide, P 2642*i*.

**$C_{17}H_{16}N_2$** Aniline, *N*-(5-phenylimino-1,3 pentadienyl)-, - *HCl*, 3801*e*.
Benz[*b*]acridine, 12-amino-1,2,3,4 tetrahydro-, *and* - *HCl*, 1418*g*.
Benzo[*a*]phenanthridine, 5 - amino - 1,2,3,4-tetrahydro-, 1779*e*.
Lepidine, 2-benzylamino-, *and* - *HCl*, 8389*f*.
1,3 - Propanediimine, 2 - ethyl - *N*, *N*-diphenyl-, *perchlorate*, P 6225*i*.

**$(C_{17}H_{16}N_2)_n$** Benz[*b*]acridine, 12 amino 1,2,3,4-tetrahydro-, polymer, 1418*g*.

**$C_{17}H_{16}N_2O$** Benzamide, *N* α-cyanobenzyl-*N*-ethyl-, 6176*d*
Benzoxazole, 2-(*p*-dimethylaminostyryl)-, 3428*a*.
Carbostyril, 6 - (*p* - aminobenzyl) - 4-methyl-, 645*i*
Pseudoindoxyl, 2 - (*p* - dimethylaminobenzylidene)-, 5442*h*
4 - Quinolinol, 6 - (*p* - aminobenzyl) - 2-methyl , 646*b*.

**$C_{17}H_{16}N_2O_2$** 3 - Buten - 2 one, 1 phenyl-, phenylcarbamyloxime, 1039*c*
1,2-Cyclopropanedicarboxanilide, 635*h*
Isoquinoline, 3,4 - dihydro - 3,4 - dimethyl-1-(*p*-nitrophenyl)-, 7486*d*.

**$C_{17}H_{16}N_2O_2S$** 4 - Pyrimidol, 6 - [2 - (2 - furyl)-ethyl]-2-mercapto-, benzyl derivs., 7929*i*.

**$C_{17}H_{16}N_2O_3$** Benzoic acid, *p* (2,3-dioxobutyl)-, 2-phenylhydrazone, 1769*f*.
1-Phthalazineacetic acid, 1,2,3,4 tetrahydro - 3 methyl 4 - oxo 2 phenyl-, 237*i*.
Pyrido[3,4 - *c*]isoquinoline - 1 - carboxylic acid, 5,6 - dihydro - 2,4 - dimethyl - 6-oxo-, Et ester, P 6242*h*.
Quinolizine-1-carboxylic acid, dihydro6xo-3-(2-pyridyl)-, Et ester, 4270*a*, 7490*d*.

**$C_{17}H_{16}N_2O_3S$** 2-Furoic acid, 2-(1-naphthylmethyl) 2-thiopseudourea salt, 565*h*
2-Indenecarboxamide, 3-methyl-*N*-sulfanilyl-, P 7961*d*, P 7962*c*.
Naphthamidine, benzenesulfonate, P 2231*c*, P 5038*g*.
4 - Thiazolidone, 2 - (*p* - nitrophenyl) - 3-phenethyl-, 1767*c*.

**$C_{17}H_{16}N_2O_4$** Phthalamic acid, *N*-(*p*-aminobenzoyl)-, Et ester, - *HCl*, P 6236*e*.

**$C_{17}H_{16}N_2O_4S$** 1-Naphthol-1(4*H*)-sulfonic acid, 4-oxo-, methylphenylhydrazone, *Na salt*, 2596*i*.

**$C_{17}H_{16}N_2O_4S_2$** 1-Naphthalenesulfonamide, *N*-6-methylmetanilyl-, P 8150*c*.

**$C_{17}H_{16}N_2O_5S$** 4-Thiazolidone, 2-(*p*-nitrophenyl)-3-phenethyl-, 1,1-dioxide, 1767*c*.

**$C_{17}H_{16}N_2O_6S$** Anisamide, 3-allyl-*N*-(*p*-nitrophenylsulfonyl)-, P 4695*d*.

**$C_{17}H_{16}N_2O_8S_2$** Benzenesulfonic acid, 3-(3-methyl - 5 - oxo - 2 - pyrazolin - 1 - yl)-4-*p*-tolylsulfonyl-, P 4475*c*.

**$C_{17}H_{16}N_2O_7$** 2 - Cyclopenten - 1 - one, 2 - (3-butenyl) - 5 - hydroxy - 3 - methyl-, 3,5-dinitrobenzoate, 1335*a*.
Guaiacol, 4-propyl-, 3,5-dinitrobenzoate, 8675*b*.

**$C_{17}H_{16}N_2S$** Benzothiazole, 2-(*p*-dimethylaminostyryl)-, 8292*c*.

**$C_{17}H_{16}N_4O$** 2-Biphenylcarbonitrile, 2'-propionyl-, semicarbazone, 8377*g*.

**$C_{17}H_{16}N_4O_3S$** Acetanilide, *p*-[(methyl-2-quinoxalyl)sulfamyl]-, 174*i*, 3384*d*, 3385*c*.
3(2*H*)-Thiophenone, 4-benzamido-4,5-dihydro-, *p*-nitrophenylhydrazone, P 3468*d*.

**$C_{17}H_{16}N_4O_4S$** Acetanilide, *p*-[(methoxy-2-quinoxalyl)sulfamyl]-, 3384*d*.

**$C_{17}H_{16}N_4O_4S_2$** Benzenesulfonamide, *p*-(ethyldihydroxyphenylazo) - *N* - 2 - thiazolyl , 9048*b*.

Sulfanilamide, *N*¹ - (1 - *p* - sulfamylphenyl-4(1*H*)-pyridylidene)-, 2597*h*.
Sulfanilanilide, 4' - (pyridylsulfamyl)-, 1738*g*.

**$C_{17}H_{16}N_4O_5$** *p*-Toluic acid, 3,5-dinitro-, β,α-dimethylbenzylidenehydrazide, 6972*e*.

**$C_{17}H_{16}N_4O_6S$** 1,2,4,2*H* - Thiadiazine - 3,5-(4*H*,6*H*) - dione, 2 - benzyl - 6 - (*p*-methoxyphenylazo)-, 1,1 - dioxide, P 4868*g*.

**$C_{17}H_{16}N_4O_6$** 4-Chromanone, 7-methoxy-2-methyl-, 2,4-dinitrophenylhydrazone, 1771*d*.

**$C_{17}H_{16}N_4O_7$** Isoquinoline, 3,4 - dihydrodimethyl-, picrate, 5026*g*.
Ketone, 2,3-dihydro-6 hydroxy-4-methoxy-7-benzofuryl methyl, 2,4-dinitrophenylhydrazone, 3413*h*.
Picrate, m. 186-90°, 3004*e*.
Visnagone, dihydro-, 2,4-dinitrophenylhydrazone, 3413*i*.

**$C_{17}H_{16}N_4O_7S$** Benzenesulfonic acid, 5-nitro-2-(2,3,6,7 - tetrahydro - 6 - hydroxy-5*H* - pyrido[1,2,3 - *de*] - 1,4 - benzoxazin-9-ylazo)-, P 2782*a*.

**$C_{17}H_{16}N_4O_9$** γ-Resorcylic acid, 3-acetyl-4 methoxy , Me ester, 2,4 - dinitrophenylhydrazone, 3414*b*.

**$C_{17}H_{16}N_4O_{10}$** 2-Oxazoline, 2-(3,4-dimethoxy phenyl)-, picrate, P 7512*h*.

**$C_{17}H_{16}N_8$** Guanidine, 3,3'-(methylenedi-*p* phenylene)bis[1-cyano-, P 2636*d*.

**$C_{17}H_{16}N_8O_9$** Valeraldehyde, δ hydroxy-α-oxo-, bis(2,4 - dinitrophenylhydrazone), 9061*h*.

**$C_{17}H_{16}O$** Anisole, *p*-(3,4-dihydro-1-naphthyl)-, 2971*b*.
Cyclopentanone, 3,4-diphenyl-, 2962*e*
2,4,6,8,10 - Hendecapentaenal, 11 phenyl-, P 9294*c*.
Ketone, phenyl 5,6,7,8-tetrahydronaphthyl, 194*h*, 195*g*, 4249*h*
1(2*H*) - Naphthalenone, 3,4 - dihydro 4-methylphenyl , 8372*d*, 8373*a*

**$C_{17}H_{16}O_2$** Acetic acid, diphenyl-, allyl ester 5769*a*, 7468*c*.
Benzofuran, 6 - (benzyloxy) - 3,5 - dimethyl-, 3413*b*.
Butyric acid, α-benzhydrylidene-, 1394*h*
4,6,8,10 - Hendecatetraene-2,3 dione 11-phenyl-, 187*d*.
Indene, 6 - methoxy - 2 - (*p* - methoxyphenyl)-, 1758*b*
4 Pentenoic acid, 2,2-diphenyl , 5769*b* 7468*c*
Valeric acid, γ hydroxydiphenyl , γ lactone, 2202*b*, 8372*i*, 9054*f*.

**$C_{17}H_{16}O_3$** Benzil, 4 methoxy 2,6 dimethyl 5773*e*.
Benzoic acid, *p* - (α - ethylphenacyl)-4659*a*.
Chalcone, dimethoxy-, 191*g*, P 4699*g* 5542*a*.
Cyclopentaneacetic acid, 2-(2-naphthyl) 5-oxo-, 241*f*.
Glycidic acid, β,β-diphenyl-, Et ester 1041*b*.
Hydratropic acid, β-*p*-toluyl-, 1039*h*
Hydrocinnamic acid, *o* acetylphenyl ester 2621*b*.
—, β-phenacyl-, 7002*e*.
1 - Indanone, methoxy - 2 - (*p* methoxy phenyl)-, 1757*i*.
Lapachol, acetate, 1381*i*.
1,4 - Naphthoquinone, 2 - (2 - cyclohexen-1-ylmethyl)-3-hydroxy , 1378*a*
1,3-Pentanedione, 2-phenoxy-1-phenyl , 4248*d*.
Phenanthrenecarboxylic acid, acetyl tetrahydro-, 8376*f*.
—, 3,4 - dihydro - 7 - methoxy - 1 methyl-, P 3850*b*.
Phenanthrene, trimethoxy-, 6208*f*.
Propionic acid, β-(α-phenyl-*p*-toluyl) , 1378*f*.
Pyruvic acid, diphenyl-, Et ester, 1041*c*

**$C_{17}H_{16}O_3S$** Propionic acid, β-(desylmercapto)-, 1753*h*.

**$C_{17}H_{16}O_4$** Butyric acid, γ-*p*-phenoxybenzoyl , P 7509*g*.
Chalcone, 2'-hydroxydimethoxy-, 640*h*, 1407*h*.
2-Dibenzofurancarboxylic acid, 3,9*b*-dihydro - 1,7,9,9*b* - tetramethyl - 3-oxo-, 5445*f*.
Flavanone, 4,5-dimethoxy-, 1407*h*.
Homoanisic acid, α-phenacyl-, 1039*i*.
Phenol, methylenedi-, diacetate, P 4698*ef*.
1,3-Propanediol, dibenzoate, 5367*g*.
Salicylic acid, Me ester, hydrocinnamate, P 4702*a*.
Succinic acid, α,α-diphenyl-, Me ester, 3397*a*.

$C_{17}H_{16}O_3$ Acetic acid, [2-acetyl-5-(benzyloxy)-phenoxy]-, 3412*i*.
Acetic acid, [5-(benzyloxy)-2-formyl-*p*-toloxy]-, 3412*g*.
Acetophenone, 2-hydroxy-3,4-dimethoxy-, benzoate, 7935*c*.
Anisic acid, 2-anisoyl-, Me ester, 6608*d*.
Chalcone, dihydroxydimethoxy-, 640*i*, 1407*i*.
Cyclohexanecarboxylic acid, 4-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-, 1387*d*.
2-Dibenzofurancarboxylic acid, 3,9*b*-dihydro-7-methoxy-1,6,9*b*-trimethyl-3-oxo-, 5445*e*.
9-Fluorenone, 2,3,4,7-tetramethoxy-, 190*e*.
1,3-Propanedione, 1-(2-hydroxy-3,4-dimethoxyphenyl)-3-phenyl-, 7935*d*.
Usnol, decarbo-, 5445*f*, 6698*a*.

$C_{17}H_{16}O_6$ Acetophenone, $\alpha$,2-dihydroxy-4,5-dimethoxy-, $\alpha$-benzoate, 7461*g*.
Flavanone, 5,8-dihydroxy-6,7-dimethoxy-, 5397*c*.

$C_{17}H_{16}O_7$ Phloretin, Me carbonate, 8603*c*.

$C_{17}H_{16}O_8$ 1,2*H*-Benzopyran-4-acetic acid, 6-carboxy-7-hydroxy-2-oxo-, Et Me ester acetate, 6206*f*.
1,2*H*-Benzopyran-4-acetic acid, 6-ethyl-7,8-dihydroxy-2-oxo, diacetate, 6206*f*.

$C_{17}H_{17}$ Methyl, phenyl(5,6,7,8-tetrahydro-naphthyl)-, 194*c*.

$C_{17}H_{17}Br$ Naphthalene, 5-$\alpha$-bromobenzyl-1,2,3,4-tetrahydro-, 194*i*.

$C_{17}H_{17}BrO$ Acetophenone, $\alpha$-(3-bromomesityl)-, 5773*e*.
Acetophenone 3-bromo-2,4,6-trimethyl-$\alpha$-phenyl-, 5773*d*.

$C_{17}H_{17}Cl$ Naphthalene, 6-$\alpha$-chlorobenzyl-1,2,3,4-tetrahydro-, 195*h*.

$C_{17}H_{17}ClN_2O_2$ Phthalazine, 2-(*o*-chlorophenyl)-1-ethoxy-1,2-dihydro-4-methoxy-, 237*a*.

$C_{17}H_{17}ClN_2O_4S$ 2-(2-Anilinovinyl)-3-phenyl-2-thiazolinium perchlorate, P 7843*i*.

$C_{17}H_{17}ClN_4O_3S$ 4(1*H*)-Quinolone, 7-chloro-2,3-dihydro-1-*p*-tolylsulfonyl-, semicarbazone, 8387*d*.

$C_{17}H_{17}ClN_4O_9$ Ethanol, 2-(2-chloroethylamino)-, benzoate, picrate, 7423*c*.

$C_{17}H_{17}ClN_8O_7$ Guanidine, 1-(5-chloro-2-benzimidazolyl)-3-isopropyl, picrate, 1405*f*

$C_{17}H_{17}ClO_3$ Salicylic acid, 5-*tert*-butyl-, *p*-chlorophenyl, P 4697*e*.
Salicylic acid, chloro-, *p*-*tert*-butylphenyl ester, P 7266*a*.

$C_{17}H_{17}ClO_6$ Griseofulvin, 3066*d*, 7543*i*, 9164*c*.

$C_{17}H_{17}Cl_2N_3$ 2-Imidazoline, 2-[(*p*-chloro-*N*-*p*-chlorobenzylanilino)methyl]-, *HCl*, P 5049*c*.

$C_{17}H_{17}Cl_2N_3O_2$ Acetic acid, (2,4-dichlorophenoxy)-, (*p*-dimethylaminobenzylidene)hydrazide, 7554*g*.

$C_{17}H_{17}Cl_3O_2$ Ethane, 1,1,1-trichloro-2-(*p*-methoxyphenyl)-2-*p*-phenetyl-, 1753*b*.

$C_{17}H_{17}F_3N_2O_4S_2$ Penicillin, *m*-trifluoromethylphenylmercaptomethyl-, 2274*h*, 3490*a*.

$C_{17}H_{18}IN_2O$ 2-(2-Anilinovinyl)-3-ethylbenzoxazolium iodide, P 2642*g*.
Benzoic acid, *m*-iodo-, *p*-ethyl-$\alpha$-methylbenzylidenehydrazide, 6973*f*.

$C_{17}H_{19}N$ Indole, 1-ethyl-*p*-tolyl-, 218*cf*.
Isoquinoline, benzyl-3,4-dihydromethyl, 5026*b*; *and* -*HBr*, 5026*a*.
Valeronitrile, $\alpha,\alpha$-diphenyl-, 9054*h*.

$C_{17}H_{19}NO$ Acetamide, *N*-dibenzo[*a*,*c*][1,3]-cycloheptadienyl-, 8378*h*, 8379*b*.
Acetophenone, $\alpha$-(3,4-dihydro-2(1*H*)-isoquinolyl)-, 1421*b*.
$\alpha$-(3,4-dihydro-1(2*H*)-quinolyl)-(?), 1421*c*.
Benzamide, N-$\alpha$-methylcinnamyl-, 5005*b*.
Benzanilide, *N*-2-butenyl-, 5403*h*.
Chalcone, 4-dimethylamino-, 5860*h*, 7820*a*.
5-Indanacetanilide, 8390*b*.
1(2*H*)-Naphthalenone, 3,4-dihydro-4-methyl-4-phenyl-, oxime, 8372*d*.
2*H*-Naph[2,1-*e*]isoindol-1(3*H*)-one, 3a,10,11,11a-tetrahydro-11a-methyl-, 7013*i*, 7014*a*.
3-Pentenamide, 2,2-diphenyl-, 2202*b*.
1-Penten-3-one, 5-amino-1,5-diphenyl-, 6573*h*.
2-Pyrrolidone, 1-methyl-3,3-diphenyl-, 9053*d*.
Valerimidic acid, $\gamma$-hydroxy-$\alpha,\alpha$-diphenyl-, $\gamma$-lactone, 2202*a*, 9054*g*.

$C_{17}H_{17}NO_2$ (See also *Apomorphine*.)
Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide, *N*-xylyl-, P 4421*f*.
9-Carbazoleethanol, propionate, 624*b*.
—, $\alpha$-methyl-, acetate, 624*b*.
9-Fluoreneacetamide, *N*-2-hydroxyethyl-, 3364*a*.
$\Delta^1$-$\alpha$-Indanacetic acid, 2-allyl-$\alpha$-cyano-, Et ester, 8374*e*.
3-Indeneacetic acid, $\alpha$-allyl-$\alpha$-cyano-, Et ester, 8373*c*.
6,7-Isoquinolinediol, 3,4-dihydro-1-phenethyl-, -*HBr*, P 2241*fh*.
1-Naphthol, 1,2,3,4-tetrahydro-, carbanilate, 2971*h*.
Propionitrile, $\alpha,\beta$-bis(*p*-methoxyphenyl)-, 2607*h*.

$C_{17}H_{17}NO_2S$ 10-Thiaxantheneacetamide, *N*-2-hydroxyethyl-, 3364*c*.
*p*-Toluenesulfonamide, *N*-(naphthyl)-, 5995*f*.

$C_{17}H_{17}NO_3$ Acetamide, *N*-homopiperonyl-$\alpha$-phenyl-, 1412*h*.
Acetamide, *N*-$\alpha$-phenylhomopiperonyl-, 5027*d*.
*o*-Acetanisidide, *N*-phenacyl, 2210*c*.
Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide, *N*-*o*-phenetyl-, P 4421*f*
9-Xantheneacetamide, *N*-2-hydroxyethyl-, 3364*c*.

$C_{17}H_{17}NO_3S_2$ Benzoic acid, *p*-hydroxydithio-, Et ester, *p*-methoxycarbanilate, 593*f*

$C_{17}H_{17}NO_4$ Acetamide, $\alpha$-(*p*-benzoylphenoxy)-*N*-2 hydroxyethyl-, 3364*g*.
Acetanilide, *o*-(*p*-hydroxyphenyl), Et carbonate, P 2647*d*.
Acetic acid, [*p*-(*p*-methoxybenzamido)-phenyl]-, Me ester, 3361*g*.
Alanine, *N*-benzoyl-$\beta$-(*p*-methoxyphenyl)-, 7457*a*.
2,3-Cresotanilide, 3′-(1,3-dioxolan-2-yl)-, P 8168*b*.
Phenol, 3,5-diethyl-, *p*-nitrobenzoate, 1029*b*.
Salicylo-*p*-phenetidide, acetate, 2603*c*.

$C_{17}H_{17}NO_4S$ 4(1*H*)-Quinolone, 2,3-dihydro-6-methoxy-1-*p*-tolylsulfonyl-, 8387*e*.

$C_{17}H_{17}NO_5$ Carbamic acid, (3,4-dihydroxy phenacyl)methyl-, benzyl ester, 2601*h*.
Propionic acid, $\beta$-(5-acetamidomethoxy-1-naphthoyl)-, 7012*ab*.

$C_{17}H_{17}NO_5S$ -[+$H_2O$] Hydrocinnamic acid, *p*-(*N*-acetylsulfanilyl)-, 7450*d*.

$C_{17}H_{17}NO_6$ Phenethyl alcohol, 3,4-dimethoxy-, *p*-nitrobenzoate, 7451*c*.

$C_{17}H_{17}N_3O$ Benzotoluidide, 4-(1-cyanoethylamino)-, 1344*d*.
Pimelonitrile, $\gamma$-benzoyl-$\gamma$-(2-cyanoethyl)-, 2582*g*.
5-Pyrazolone, 3-amino-4,4-dibenzyl-, 7478*c*.
Quindoline, 11-amino-5,11-dihydro-11-methoxy-5-methyl-, 229*h*.

$C_{17}H_{17}N_3OS$ 3(2*H*)-Thiophenone, 4-benzamido-4,5-dihydro-, phenylhydrazone, P 3468*d*.

$C_{17}H_{17}N_3O_2$ 1,3-Butanedione, 1,4-diphenyl-, semicarbazone, 7909*h*.
3-Pyrazolidone, 5-imino-4-(2-phenoxyethyl)-1-phenyl-, 7478*c*.
Pyrido[3,4-*c*]isoquinoline-1-carboxylic acid, 6-amino-2,4-dimethyl-, Et ester, P 6242*i*.

$C_{17}H_{17}N_3O_3$ Mesitylenic acid, 4-nitro-, $\alpha$-methylbenzylidenehydrazide, 6972*i*.
*p*-Toluic acid, 3-nitro-, *p*,$\alpha$-dimethylbenzylidenehydrazide, 6973*c*.

$C_{17}H_{17}N_3O_4$ Anthranilic acid, *N*-(*p*-phenylallophanyl)-, Et ester, 7446*g*.
Benzoic acid, (3-phenylcarbamylureido)-, Et ester, 7446*g*.
Oxamic acid, *N*-naphthyl-, 3-carboxy-1-methylpropylidenehydrazide, 6974*a*.

$C_{17}H_{17}N_3O_4S_2$ Sulfanilamide, *N*1-[4-(3,4-dimethoxyphenyl)-2-thiazolyl]-, 2968*e*.

$C_{17}H_{17}N_3O_5$ Anthranilic acid, *N*-(3-nitro-*p*-tolylcarbamyl)-, Et ester, 7448*c*.
Benzoic acid, *p*-[3-(3-nitro-*p*-tolyl)-ureido]-, Et ester, 7448*c*.

$C_{17}H_{17}N_3O_5S$ 4-Thiazoline-4-carbamic acid, 5-acetamido-3-acetyl-2-(benzoylimino)-, Et ester, 1403*c*.

$C_{17}H_{17}N_3O_7$ Salicylic acid, 5-[4-amino-5-(carboxymethoxy)-*o*-phenetylazo]-, P 4479*i*.

$C_{17}H_{17}N_4O_4S_2$ Pyridine, disulfanilamido-, 1738*eg*.

$C_{17}H_{17}N_5O_5$ 3-Butyn-2-one, 4-(1-cyclohexen-1-yl)-, (2,4-dinitrophenyl)-semicarbazone, 7437*k*.
Guanosine, 3′,5′-benzylidene-, 1325*h*.

$C_{17}H_{17}N_5O_7$ Piperidine, 2-phenylimino-, picrate, 2594*d*.
Pyridine, 2,4-dimethoxy-, picrolonate, 642*b*.

$C_{17}H_{17}N_7O_5$ Acetophenone, 2-[4-(2,3-dihydroxypropylamino)-1*H*-benzotriazol-7-ylazo]-5-nitro-, P 3626*a*.

$C_{17}H_{17}N_7O_7$ 1,2-Propanediol, 3-[5-(2,4-dinitrophenylazo)-7-methoxy-4-methyl-1*H*-benzotriazol-1-yl]-, P 3625*i*.

$C_{17}H_{18}$ Ethylene, 1-*p*-cumyl-1-phenyl-, 206*a*.

$C_{17}H_{18}As_2I_2N_2$ (2-Pyridyl-2,2′-arsylene)bis[1-methylpyridinium iodide], *and its monohydrate*, 1046*h*.

$C_{17}H_{18}BrNO_5$ 1-Benzyl-4,5-dicarboxy-3-hydroxy-2-picolinium bromide, di-Me ester, P 697*g*.

$C_{17}H_{18}BrN_3S_2$ 3-Methyl-2-[3-(3-methyl-5-methylmercapto-$\Delta^4$-1,3,4-thiadiazolin-2-ylidene)-1-cyclopenten-1-yl]benzothiazolium bromide, P 4158*f*.

$C_{17}H_{18}Br_2N_4O_2$ Benzamidine, 2,6-dibromo-4,4′-(trimethylenedioxy)di-, 3064*h*.
Benzamidine, 4,4′-(trimethylenedioxy)-bis[bromo-, 4325*i*; *di-HCl*, P 688*g*, 9049*c*.

$C_{17}H_{18}ClN$ 9-Fluorenamine, *N*-(2-chloroethyl)-*N*-ethyl-, 9250*b*.

$C_{17}H_{18}ClNO_2$ 1-Propionaphthone, 4-chloro-$\beta$-4-morpholinyl-, -*HCl*, 9070*d*.

$C_{17}H_{18}ClNO_4$ Anthranilic acid, *N*-(3-chloro-4-methoxyphenyl)-5-methoxy-, Et ester, 6633*c*.

$C_{17}H_{18}ClNO_4S$ $\beta$-Alanine, *N*-(*m*-chlorophenyl)-*N*-*p*-tolylsulfonyl-, Me ester, 8387*c*.
Alanyl chloride, $\beta$-(*p*-methoxyphenyl)-*N*-*p*-tolylsulfonyl, 7458*f*.
Butyric acid, $\beta$-[*p*-chloro-*N*-(*p*-tolylsulfonyl)anilino]-, 8388*b*.

$C_{17}H_{18}ClNO_5$ 1-Benzyl-4,5-dicarboxy-3-hydroxy-2-picolinium chloride, di-Me ester, P 697*g*.

$C_{17}H_{18}ClN_3$ Benzimidazole, 2-[[benzyl(2-chloroethyl)amino]methyl]-, 5505*e*.
2-Imidazoline, 2-(*N*-benzyl-*p*-chloroanilinomethyl)-, -*HCl*, P 683*f*, P 5049*cd*.
—, 2-(*N*,*p*-chlorobenzylanilinomethyl)-, -*HCl*, P 5049*d*.

$C_{17}H_{18}Cl_2N_4O_2$ Toluidine, *N*,*N*-bis(2-chloroethyl)-, picrate, 7443*a*.

$C_{17}H_{18}Cl_2N_4O_3$ *o*-Anisidine, *N*,*N*-bis(2-chloroethyl)-, picrate, 7443*b*.

$C_{17}H_{18}Cl_2O_2$ Phenol, 6-isopropyl-3-methyl-2,2′-methylenebis[4-chloro-, 8614*h*.
2,4-Xylenol, 6,6′-methylenebis[$\alpha^2$-chloro-, 5019*d*.

$C_{17}H_{18}Cl_6NO$ Phenol, pentachloro-, compd. with *N*-butylbenzylamine, P 4298*g*.

$C_{17}H_{18}F_2N_4O_2$ Benzamidine, 4,4′-(trimethylenedioxy)bis[3-fluoro-, *sulfate*, 9049*b*.

$C_{17}H_{18}IN_3$ 2-(2-Anilinovinyl)-1,3-dimethylbenzimidazolium iodide, 3001*b*.

$C_{17}H_{18}IN_3OS_2$ 3-Methyl-2-[3-(3-methyl-5-methylmercapto-$\Delta^4$-1,3,4-thiadiazolin-2-ylidene)-1-cyclopenten-1-yl]benzoxazolium iodide, P 4158*a*.

$C_{17}H_{18}I_2N_4$ 2,2′-(2-Pyridylimino)bis[1-methylpyridinium iodide], 1046*f*.

$C_{17}H_{18}I_2N_4O_2$ Benzamidine, diiodo-4,4′-(trimethylenedioxy)di-, 3064*h*, *di-HCl*, 9049*c*.
Benzamidine, 4,4′-(trimethylenedioxy)bis[3-iodo-, *di-HCl*, 9049*c*.

$C_{17}H_{18}N_2$ Crotonaldehyde, benzylphenylhydrazone, 1654*i*.
5,11(6*H*,12*H*)-Methanodibenzo[*b*,*f*][1,5]diazocine, 2,8-dimethyl-, 9072*g*.
Propionitrile, $\beta$-dimethylamino-$\alpha$,$\alpha$-diphenyl-, -*HCl*, 4244*h*.

$C_{17}H_{18}N_2O$ 2-Imidazoline, 2-(benzhydryloxymethyl)-, 6722*d*, 6729*c*, 7585*h*, 9366*c*; *and* -*HCl*, 4669*g*.
Phenanthridine, 8-acetamido-5,6-dihydro-5,6-dimethyl-, P 2647*d*.
1(2*H*)-Pyridinecarboxamide, 3,4-dihydro-6-methyl-*N*-1-naphthyl-, 8365*e*.

$C_{17}H_{18}N_2OS$ 4-Thiazolidone, 2-(*p*-aminophenyl)-3-phenethyl-, 1767*c*.

$C_{17}H_{18}N_2OS_2$ Carbamic acid, [(benzylcarbamyl)methyl]dithio-, benzyl ester, 1308*g*.

$C_{17}H_{18}N_2O_2$ Acetophenone, $\alpha$-4-morpholinyl-$\alpha$-pyridyl-, 2208*d*; *di-HCl*, 2208*d*; *and di-HCl*, P 3045*f*.
1,3,2*H*-Benzoxazine, 6-acetamido-3-benzyl-3,4-dihydro-, 3425*h*.
Compd., m. 86–7°, 238*a*.

*o*-Cresol, $\alpha,\alpha'$-(propylenedinitrilo)-di-, 6063*d*.
Hexamethylenimine, 2-oxo-, reaction product with 1-naphthyl isocyanate, 8365*g*.
Naphthalimide, 4-amino-*N*-amyl-, P 7511*e*.
Pyruvanilide, β-phenyl-, *O*-ethyloxime, P 5422*d*.

**$C_{17}H_{18}N_2O_2S$** Carbamic acid, [(benzylcarbamyl)methyl]thiol-, benzyl ester, 1398*g*.

**$C_{17}H_{18}N_2O_2S_2$** $\Delta^{\alpha,\gamma}$-Benzothiazolinecrotonic acid, α-cyano-3-ethyl-β-methylmercapto-, Et ester, P 7849*h*.

**$C_{17}H_{18}N_2O_3$** Benzamide, *N*-(α,β-dimethylphenethyl)-*p*-nitro-, 7486*b*.
Butyric acid, α-benzoyl-γ-cyano-α-(2-cyanoethyl)-, Et ester, 2582*h*.
$\Delta^{4,\alpha}$-Piperidineacetic acid, 1-benzoyl-α-cyano-, Et ester, 4275*h*.

**$C_{17}H_{18}N_2O_4$** Benzoin, 4-dimethylamino-3′,4′-methylenedioxy-, oxime, 1039*a*.
Glutaric acid, α,γ-di-2-pyridyl-, di-Me ester, 3828*b*.
Isovaleric acid, α-acetyl-γ,γ-dicyano-γ′-phenoxy-, Et ester, P 689*b*, P 3472*f*.
Malonic acid, [(4-cyano-3-indolyl)-methyl]-, di-Et ester, 4255*h*.
Nicotinic acid, 5-cyano-3,4,5,6-tetrahydro-2-methyl-6-oxo-4-phenoxymethyl-, Et ester, P 3472*e*.

**$C_{17}H_{18}N_2O_4S$** Anisamide, 3-allyl-*N*-sulfanilyl-, P 4695*d*.
Valine, β-mercapto-*N*-(5-oxo-2-styryl-2-oxazolin-4-ylidenemethyl)-, 1768*i*.

**$C_{17}H_{18}N_2O_4S$** Hydrazine, 1-(2-ethyl-3-hydroxybenzoyl)-2-(phenylsulfonyl)-, acetate, 197*d*.
2-Imidazoline, 2-[α-phenyl-2-thenyloxy)methyl]-, oxalate, 6620*b*.
Phthalamic acid, *N*-[2-(benzylsulfamyl)-ethyl]-, P 3450*h*.
—, *N*-[2-(*p*-tolylsulfamyl)ethyl]-, P 3450*h*.

**$C_{17}H_{18}N_2O_5$** Benzoic acid, 3,4,5-trimethoxy-2-(*p*-methoxyphenylazo)-, 190*d*.

**$C_{17}H_{18}N_2O_5S$** Phthalamic acid, *N*-[2-(*p*-methoxyphenylsulfamyl)ethyl]-, P 3450*h*.

**$C_{17}H_{18}N_2O_7$** Malonic acid, acetamido[(2-carboxy-3-indolyl)methyl]-, 2-Et ester, P 6238*i*.

**$C_{17}H_{18}N_4O$** Reductic acid, bis(phenylhydrazone), 6987*e*.

**$C_{17}H_{18}N_4O_4$** 3-Buten-2-one, 4-(6-methyl-1,3-cyclohexadien-1-yl)-, 2,4-dinitrophenylhydrazone, 8360*f*.
*p*-Cymenecarboxaldehyde, 2,4-dinitrophenylhydrazone, 5015*b*.
Propiophenone, 2,5-dimethyl-, 2,4-dinitrophenylhydrazone, 6990*g*.
Valerophenone, 2,4-dinitrophenylhydrazone, 6991*b*.

**$C_{17}H_{18}N_4O_4S$** Isobutyraldehyde, α-(benzylmercapto)-, 2,4-dinitrophenylhydrazone, P 4088*d*.

**$C_{17}H_{18}N_4O_5S_2$** 2-Naphthalenesulfonic acid, sulfaguanidine salt, 174*a*.

**$C_{17}H_{18}N_4O_7$** Propiophenone, 2-hydroxy-4,5-dimethoxy-, 2,4-dinitrophenylhydrazone, 7461*c*.
Veratraldehyde, 6-ethoxy-, 2,4-dinitrophenylhydrazone, 7459*i*.

**$C_{17}H_{18}N_4O_7S$** Sulfamerazine, vitamin C deriv., 5541*e*.

**$C_{17}H_{18}N_6$** *s*-Triazine, 2,4-diamino-6-(*N*-benzylanilinomethyl)-, P 5052*c*.

**$C_{17}H_{18}N_4O_7$** 2-Imidazoline, 2-phenethylamino-, picrate, 4273*b*.
Pyrimidine, 2-benzylamino-1,4,5,6-tetrahydro-, picrate, 4273*c*.

**$C_{17}H_{18}N_8O_7$** Alanine, *N*-[*p*-[(2,4-diamino-6-pteridylmethyl)amino]benzoyl]-, 9186*h*.

**$C_{17}H_{18}N_4O_7$** Guanidine, 1-(2-benzimidazolyl)-3-isopropyl-, picrate, 1405*f*.

**$C_{17}H_{18}N_4O_8S$** Benzenesulfonamide, 2-[1-(2,3-dihydroxypropyl)-1*H*-benzotriazol-5-ylazo]-*N*-ethyl-3,5-dinitro-, P 3625*h*.

**$C_{17}H_{18}N_4O_{12}$** Adenine, 9-D-glucopyranosido-, picrate, 146*h*.

**$C_{17}H_{18}N_8O_{14}S$** 3,4-Thiophenediamine, tetrahydro-2-methyl-, dipicrate, P 7970*i*.

**$C_{17}H_{18}N_8O_{14}$** 3-Azetidinemethanol, 3-(aminomethyl)-, dipicrate, 214*b*.

**$C_{17}H_{18}N_{10}O_{14}$** 2-Imidazoline, 2-(2-aminoethylamino)-, dipicrate, 4273*d*.

**$C_{17}H_{18}O$** Anisole, *p*-(tetrahydro-1-naphthyl)-, 2971*a*.
Benzophenone, 4-*tert*-butyl-, 206*a*.
—, 4,4′-diethyl-, 7004*h*.
—, 2,3,5,6-tetramethyl-, 8369*i*.
Isobutyrophenone, *o*-methyl-α-phenyl-, 4247*f*.
Naphthalenemethanol, 5,6,7,8-tetrahydro-α-phenyl-, 194*h*, 195*h*.
1(2*H*)-Phenanthrone, 3,4-dihydro-3-isopropyl-, 621*g*.
Stilbene, 4-isopropoxy-, 7469*g*.
Valerophenone, δ-phenyl-, 5015*e*.
Xanthene, 2,4,5,7-tetramethyl-(?), 5995*c*.

**$C_{17}H_{18}OS_2$** Benzophenone, 4,4′-bis(ethylmercapto)-, 7469*e*.

**$C_{17}H_{18}O_2$** Acetophenone, 4-ethoxy-3-methyl-α-phenyl-, 3825*e*.
Acetophenone, methoxydimethyl-α-phenyl-, 5773*c*, 7924*eg*.
Benzophenone, methoxy-2,4,6-trimethyl-, 186*gh*.
Butyric acid, γ-4-biphenylyl-, Me ester, 1375*f*.
—, γ-(α-phenyl-*p*-tolyl)-, 1378*g*.
5-Indanol, 1-ethyl-2-(*p*-hydroxyphenyl)-, 1758*a*.
—, 2-(*p*-hydroxyphenyl)-1,3-dimethyl-, 1758*d*.
2-Naphthalenepropionic acid, β-ethylidene-α,α-dimethyl-, 3814*d*.
Phenanthrenecarboxylic acid, ethyl-1,2,-3,4 tetrahydro-, 8376*g*
1-Propanol, 3,3-diphenyl-, acetate, P 1810*h*.
Valeric acid, diphenyl-, 192*h*, 8372*eh*.

**$C_{17}H_{18}O_2S$** Acetic acid, (benzhydrylmercapto)-, Et ester, 5018*i*.

**$C_{17}H_{18}O_3$** Acetic acid, (benzhydryloxy)-, Et ester, 4669*h*, 5018*h*.
Benzenone, 2-ethyl-3,4′-dimethoxy-, 197*h*.
Guaiacol, 4-propyl-, benzoate, 5589*i*.
Isobutyric acid, β-2-naphthoyl-, Et ester, 3814*d*.
1,4-Naphthoquinone, 2-(cyclohexylmethyl)-3-hydroxy-, 1374*e*, 2610*b*.
—, 2-(2-cyclopentylethyl)-3-hydroxy-, 1374*h*, 2610*b*.
—, 2-(1-heptenyl)-3 hydroxy-, 1108*g*.
2-Phenanthrenecarboxylic acid, 1,2,3,4-tetrahydro-7-hydroxy-1,2-dimethyl-, P 3849*c*.
—, 1,2,3,4-tetrahydro-7-methoxy-1-methyl-, P 3850*i*.
Phenanthro[4,5-*bcd*]furan-3-ol, 1,2,-3,3a,9a,9b-hexahydro-5-methoxy-9b-vinyl-, 4280*d*.
1,3-Propanedione, 1,3-diphenyl-, di-Me acetal, 7453*d*.
Propiophenone, β-(3,4-dimethoxyphenyl)-, 4251*b*.
Salicylic acid, *p*-*tert*-butylphenyl ester, P 7265*i*, P 8209*a*, P 8741*eh*, thymyl ester, P 7265*i*
Valeric acid, hydroxy-β,γ-diphenyl-, 8372*gi*.
—, δ-2-naphthoyl-, Me ester, 3366*e*.
—, δ-(*p*-phenoxyphenyl)-, P 7509*g*.

**$C_{17}H_{18}O_3S$** 2-Biphenylsulfonic acid, 5′-(1,1-dimethylpropyl)-2′-hydroxy-, sultone, 4249*f*
1,4-Naphthoquinone, 2-isoamyl-3-mercapto-, acetate, 1382*h*

**$C_{17}H_{18}O_4$** Glyceric acid, β,β-diphenyl-, Et ester, 1011*c*.

**$C_{17}H_{18}O_4S$** Ethanol, 2-(benzhydrylsulfonyl)-, acetate, 1366*f*.

**$C_{17}H_{18}O_5$** 1,3-Cyclohexanedione, 2,2′-furfurylidenedi-, 1336*e*.
Malonic acid, [α-(2,2-dihydroxycyclohexyl)-*p*-methoxybenzyl]-, di-δ-lactone, 3418*h*.
2-Naphthalenecaproic acid, 1,4-dihydro-3-hydroxy-1,4-dioxo-, Me ester, 1381*b*, 1387*g*.
—, 1,4-dihydro-3-hydroxy-α-methyl-1,4-dioxo-, 1381*c*, 2610*c*.
2-Naphthaleneënanthic acid, 1,4-dihydro-3-hydroxy-1,4-dioxo-, 1387*cg*.
2-Naphthalenevaleric acid, 1,4-dihydro-3-hydroxy-1,4-dioxo-, Et ester, 1381*b*.

**$C_{17}H_{18}O_5S$** 1-Naphthol-8-sulfonic acid, 4-cyclohexylcarbonyl-, P 8147*i*.

**$C_{17}H_{18}O_6$** 1,2*H*-Benzopyran-4-acetic acid, 6-ethyl-7-hydroxy-2-oxo-, Et ester acetate, 6206*e*.
2-Biphenylcarboxylic acid, 4,4′,5,6-tetramethoxy-, 190*d*.
1-Indancarboxylic acid, 1,2-dihydroxy-2-(3-methyl-2-butenyl)-3-oxo-, acetate, 1384*b*.
Sceleranecic acid, dilactone, benzoate, 3567*d*.
Usnic acid, decarbo-, 5445*f*, 6698*a*.

**$C_{17}H_{18}O_6S$** 2*H*-Naphtho[1,2-*b*]pyran-3-sulfonic acid, 3,4,5,6-tetrahydro-2,2-dimethyl-5,6-dioxo-, Et ester, 1386*i*.

**$C_{17}H_{19}BrN_2S_2$** 3-Methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]-2-thiazolinium bromide, P 7845*a*.

**$C_{17}H_{19}BrN_4O_2$** Benzamidine, 3-bromo-4,4′-(trimethylenedioxy)di-, *di*-*HCl*, 9049*c*.

**$C_{17}H_{19}Br_2N_3O_3$** (*m*-Hydroxyphenyl)trimethylammonium bromide, 2,4-dibromo-*N*-methylcarbanilate, P 1439*e*.

**$C_{17}H_{19}ClN_2$** Aniline, reaction product with 4-chloro-3-penten-2-one, 7937*e*.

**$C_{17}H_{19}ClN_4$** Methane, chloro-2,4-xylylazo-2,4-xylylhydrazono-, 4259*i*.

**$C_{17}H_{19}ClN_4S$** Urea, 1-[*N*-(*p*-chlorophenyl)-*N*′-phenylguanyl]-3-isopropyl-2-thio-, 9039*g*.

**$C_{17}H_{19}ClN_6O_{15}$** 1-Propanol, 2,2-bis(aminomethyl)-3-chloro-, dipicrate, 214*b*.

**$C_{17}H_{19}ClO_5$** 1-Indancarboxylic acid, 2-chloro-1-hydroxy-2-isoamyl-3-oxo-, acetate, 1384*e*.

**$C_{17}H_{19}Cl_2NO$** Ethylamine, 2-[4-chloro-α-(*p*-chlorophenyl-*o*-toloxy]-*N*,*N*-dimethyl-, *and*-*HCl*, 2969*h*.
Ethylamine, 2-[α-(2,4-dichlorophenyl)-*o*-toloxy]-*N*,*N*-dimethyl-, *and*-*HCl*, 2969*h*.
—, 2-(4,6-dichloro-α-phenyl-*o*-toloxy)-*N*,*N*-dimethyl-, *and*-*HCl*, 2969*h*.

**$C_{17}H_{19}Cl_2N_3Zn$** See *Acridine orange*

**$C_{17}H_{19}Cl_2N_3$** Dichlorobenzylnicotinium chloride, 9123*d*.

**$C_{17}H_{19}Cl_3NO$** Phenol, 2,3,4,6-tetrachloro-, compd. with *N*,*N*-diethylbenzylamine, P 4298*f*.

**$C_{17}H_{19}IN_2OS_2Se$** 3-Ethyl-5-[2-(3-ethyl-2-benzoselenazolinylidene)ethylidene]-2-methylmercapto-4-oxo-2-thiazolinium iodide, P 4161*i*.

**$C_{17}H_{19}IN_4O_2$** Benzamidine, iodo-4,1′-(trimethylenedioxy)di-, 3064*g*, *di*-*HCl*, P 688*f*, 9049*c*.

**$C_{17}H_{19}I_3NO_3Sb$** Morphine, compd. with $SbI_3$, 357*d*

**$C_{17}H_{19}NO$** Acetamide, *N*-(α-benzylphenethyl)-, 5027*b*.
Acetamide, *N*-(methylphenethyl)-α-phenyl-, 5026*h*.
Acetophenone, α-*N*-ethylanilino-*p*-methyl-, 218*e*.
Benzamide, *N*-(α,α-dimethylphenethyl)-, 9047*d*.
—, *N*-(α-ethylphenethyl)-, 9047*d*.
Benzamide, *N*-butyl-, 5403*i*.
3-Biphenylcarboxaldehyde, 6-diethylamino-, P 2233*a*
Ethylamine, 2-(9-fluorenyloxy)-*N*,*N*-dimethyl-, P 6671*d*.
Morpholine, 4-*o*-phenylbenzyl-, 1355*h*
Oxazolidine, 3,4-dimethyl-2,5-diphenyl-, 7640*h*.
Propiophenone, β-(benzylmethylamino)-*HCl*, P 5417*g*
—, dimethylaminophenyl-, 6177*h*, -*HCl*, 9070*c*.
9-Xanthenecethylamine, *N*,*N*-dimethyl-, 3937*j*, 3938*be*.

**$C_{17}H_{19}NOS$** Sulfilimine, *S*,*S*-dibenzyl-*N*-propionyl-, *and*-*HCl*, 1721*i*.

**$C_{17}H_{19}NO_2$** Acetophenone, *p*-methyl-α-*p*-phenetidino-, 8392*c*.
β-Alanine, α,α-diphenyl-, Et ester, 4245*e*.
Atropaldehyde, β-anilino-, di Me acetal, P 6225*h*.
Benzamide, *N*-(β-hydroxy-α-methylphenethyl)-*N*-methyl-, 1238*h*, 6999*h*.
Benzophenone, 2-[2-(dimethylaminoethoxy]-, *and*-*HCl*, 2969*h*.
Carbamic acid, α-phenylphenethyl-, Et ester, 7008*d*.
*m*-Cresol, 5-propyl-, carbanilate, 2969*a*
6,7-Isoquinolinediol, 1,2,3,4-tetrahydro-1-phenethyl-, *salts*, P 2241*h*.
2-Morpholinol, 4-benzyl-2-phenyl-, *and*-*HCl*, 4239*e*.
2-Naphthalenecarbamic acid, cyclohexyl ester, 2589*a*.
Phenethyl alcohol, 2,5-dimethyl-, carbanilate, 2182*g*.
Phenol, 3,5-diethyl-, carbanilate, 1029*a*.
Propionamide, *N*-2-hydroxyethyl-β,β-diphenyl-, 2274*a*.
Propionaphthone, β-4-morpholinyl-, *HCl*, 9070*cd*.
Pseudoephedrine, benzoate, -*HCl*, 6999*g*.

**$C_{17}H_{19}NO_3$** (See also *Dilaudid*; *Morphine*; *Piperine*.)

:nilamide, *N* - (3,4 - dimethoxyphenethyl)-, *and - HCl*, 1026*c*.
:nzyl alcohol, α-ethyl-*m*-methoxy-, carbanilate, 3385*h*.
arbamic acid, (β-hydroxy-α-methylphenethyl)-, benzyl ester, 4238*c*.
rysopine, 4281*b*, P 6074*d*.
lycine, α - (benzhydryloxy) - *N*, *N* - dimethyl-, - *HCl*, 8546*c*.
uaiacol, 4-propyl-, carbanilate, 5589*i*.
omopiperonylamine, *N* - 3 - methoxybenzyl-, - *HCl*, 602*h*.
4 - Naphthoquinone, 2 - acetamido - 3-isoamyl-, 1382*g*.
-, 2 - (cyclohexylaminomethyl) - 3 - hydroxy-, 1384*i*.
-, 2 - hydroxy - 3 - (methyl - 1 - piperidylmethyl)-, 1384*i*.
orpseudoephedrine, benzyl carbonate, 4238*c*.
- Pyridineacetic acid, α - benzyl - 1,6-dihydro - 1 - methyl - 6 - oxo-, Et ester, 6629*b*.
hebainone, *O*-desmethyl-, 5780*d*.
$_{19}NO_3S$ Hydratropamide, α-methyl *N*-*p*-tolylsulfonyl-, P 686*b*.
4 - Xylamide, *N* - 3,4 - xylylsulfonyl-, P 7963*a*.
$_{19}NO_4$ 2 - Naphthaleneacpromamide, 1,4-dihydro - 3 - hydroxy - α - methyl - 1,4-dioxo-, 1381*c*.
- Naphthaleneénanthamide, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, 1387*g*.
- Naphthoic acid, 4 - cyano - 4 - ethyl-3,4 - dihydro - 5,6 - dimethoxy-, Me ester, 626*d*.
- Oxabicyclo[2.2.2]octan - 6 - one, 1,3,3 - trimethyl - 5 - *o* - nitrobenzylidene-, 7927*a*.
iline, *N*-2-naphthoxyacetyl-, 3361*h*.
$_{19}NO_3S$ β - Alanine, *N* - phenyl - *N*-*p* - tolylsulfonyl-, Me ester, 8386*b*.
(sic) δ - Thiophenevaleric acid, 4 benzamido - 4,5 - dihydro - 3 - oxo, Me ester, 1809*f*, P 3468*e*
$_{19}NO_5$ Cinchomeronic acid, 1 benzyl-1,6 dihydro - 5 - hydroxy - 6 - methyl-, di Me ester, P 697*f*.
$_{19}NO_5S$ Alanine, *S*-(*p* methoxyphenyl)-*N* *p* tolylsulfonyl, 7458*f*.
Alanine, *N* - (*p* - methoxyphenyl) - *N*-*p* - tolylsulfonyl-, 8387*c*.
benzenesulfonic acid, *o* - nitro, *p* - *tert*-amylphenyl ester, 4249*e*.
talonic acid, formamido - 3 - thianaphthenylmethyl, di-Et ester, 631*h*
$_{19}NO_6$ 2 - Decenoic acid, 2,4 - dihydroxy, γ - lactone *p* - nitrobenzoate, 4222*a*.
Glutaric acid, α-phthalimido-, di Et ester, 2943*d*.
2,6 - Methano - 3 - benzazocine - 6(1*H*)-carboxylic acid, 3 - acetyl - 2,3,4,5-tetrahydro - 7,8 - dihydroxy, 8 - acetate, 6636*i*.
$_{19}NS$ Benzamidic acid, *N* isopropylthio-, benzyl ester, 3014*i*.
$_{19}N_5$ (See also *Acridine orange 2-Imidazoline, 2* - (*N* - *benzylanilinomethyl*-) imidazole, 1 - (2 dimethylaminoethyl) - 2 - phenyl-, *and di - HCl*, 7021*i*.
$_{20}NO$ 2 - Butanone, 1,4 - diphenyl-, semicarbazone, 3393*a*
12*H*) - Phenanthrone, 3 - ethyl - 3,4-dihydro-, semicarbazone, 621*g*.
Phenol, *m* - [benzyl(2 imidazolin - 2 - ylmethyl)amino] , - *HCl*, P 683*f*, P 5019*bd*
[*N* - (2 - imidazolin - 2 - ylmethyl)toluidino]-, 6309*f*.
2 - Pyrazoline - 1 - carboxamide, 3,5,5-trimethyl - *N* - 1 - naphthyl-, 8365*e*.
Pyridine, 2 - [α - (2 - imidazolin - 2 - ylmethoxy) - α - methylbenzyl] , 6620*a*.
2*H*) - s - Triazine, tetrahydro - 4,6-dimethyl-4,6-diphenyl-, 1782*f*.
$_{20}N_2O_3$ Urea, 1-benzyl-3-[(benzylcarbamyl)methyl]-2-thio-, 1398*f*.
$_{20}N_2O_2$ Acetophenone, 4-methoxymethyl α - phenyl-, semicarbazone, 3825*e*.
Biuret, 1-*p*-tolyl-5-xylyl-, 7446*g*.
Ketone, methyl 4-(4-morpholinylmethyl) - 2 - phenyl - 5 - pyrimidyl, - *HCl*, 1424*d*.
Valerophenone, *p*-nitrophenylhydrazone, 6991*a*.
$_{20}N_4O_3$ Biuret, 1-phenetyl-5-*p*-tolyl-, 7446*h*.
Tryptophan, *N* - acetyl - α - cyanomethyl-, Et ester, 1397*si*.
Valeric acid, δ-naphthoyl-, semicarbazone, 3366*e*.

$C_{17}H_{19}N_3O_4S$ Pseudourea, 1-(*N*-acetylsulfanilyl)-3-benzyl-2-methyl-, P 1061*h*.
Urea, 1 - (*N* - acetylsulfanilyl) - 3 - (*p*-methylbenzyl)-, P 1061*h*.
$C_{17}H_{19}N_3O_4S_2$ Succinanilic acid, *p*-(4,5,6,7-tetrahydro - 2 - benzothiazolylsulfamyl)-, P 3846*i*.
$C_{17}H_{19}N_5$ Piperidine, 1-[1-(naphthyl)-1*H*-tetrazol-5-ylmethyl]-, 1864*i*.
$C_{17}H_{19}N_3O_2$ Acetanilide, *p*,*p*'-[(iminomethylene)diimino]bis-, *and di - HCl*, 5014*b*.
Pyrimidine, 4-amino-5-nitro-2-(1-piperidyl)-6-styryl-, 651*c*.
$C_{17}H_{19}N_3O_4$ Benzamidine, 3-nitro-4,4'-(trimethylenedioxy)di-, *di- HCl*, 9049*c*.
$C_{17}H_{19}N_3O_6$ Uracil, 5-nitro-6-(*p*-nitrostyryl)-, compd. with piperidine, 651*h*.
$C_{17}H_{19}N_3O_7$ Cumaldehyde, methylhydrazone, picrate, 6592*h*.
$C_{17}H_{19}N_3O_8$ 2,6 - Acetoxylidide, α - methylamino-, picrate, 1024*g*.
$C_{17}H_{20}$ Biphenyl, amyl-, 1895*d*.
Cyclopentacycloheptene, 6 - (1 - isopropyl - 2 - methylpropenyl)-, 6203*g*.
$C_{17}H_{20}BrClN_2$ *o* - Chlorobenzylnicotinium bromide, 9123*d*.
$C_{17}H_{20}BrClN_2O_2$ (*m* - Hydroxyphenyl)trimethylammonium bromide, chloro-*N*-methylcarbanilate, P 1439*c*, 9103*b*, 9261*b*.
$C_{17}H_{20}BrIO_5S$ Glucose, 1-bromo-2-tosyl-3,4-diacetyl-6-iodo , 1727*a*.
$C_{17}H_{20}BrNO$ Ethylamine, 2-[α-(*p*-bromophenyl) - *o* - toloxy] - *N*, *N* - dimethyl-, *and - HCl*, 2969*g*.
$C_{17}H_{20}BrNO_2$ 3 - Carboxy - 1 - methylpyridinium bromide, thymyl ester, 6317*h*.
$C_{17}H_{20}ClN$ Benzhydrylamine, *N*-(2-chloroethyl) - *N* - ethyl-, - *HCl*, 311*a*, 7131*f*, 7582*i*.
$C_{17}H_{20}ClNO$ Diethylamine, 2-(2-biphenylyloxy) - 2' - chloro - *N* - methyl-, - *HCl*, 6309*b*.
Ethylamine, 2 - (chloro - α - phenyl - *o*-toloxy) - *N*, *N* - dimethyl-, 7134*h*, *and salts*, 2969*g*.
—, 2 - [α - (chlorophenyl) - *o* - toloxy]-*N*, *N*-dimethyl-, *and - HCl*, 2969*g*.
$C_{17}H_{20}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, Ph ester, 6977*b*.
$C_{17}H_{20}ClN_3$ See *Acridine Orange*.
$C_{17}H_{20}ClN_3O$ See *Brilliant Cresyl Blue*.
$C_{17}H_{20}ClN_5$ Biguanide, 5-benzyl-1-(*p*-chlorophenyl) - 2 - ethyl-, - *HCl*, 2948*e*, P 6659*a*.
$C_{17}H_{20}ClN_3O_2$ Isoalloxazine, 8-chloro-10-(3-diethylaminopropyl)-, 3009*a*.
$C_{17}H_{20}Cl_2N_2$ *p*-Chlorobenzylnicotinium chloride, 9123*d*.
$C_{17}H_{20}Cl_3NO$ Phenol, 2,4,6-trichloro-, compd. with *N*, *N*-diethylbenzylamine, P 4298*f*.
$C_{17}H_{20}Cl_4N_2Zn$ See *Acridine Orange*.
$C_{17}H_{20}NO_2$ 3 - Carboxy - 1 - methylpyridinium iodide, thymyl ester, 6317*h*.
$C_{17}H_{20}NO_3P$ 1 - Piperidinephosphonic acid, di-Ph ester, 6178*f*.
$C_{17}H_{20}N_2$ Acridan, (dimethylaminoethyl)-, 7134*h*.
Benzamidine, *N*-butyl-*N*-phenyl-, *and - HCl*, P 5801*c*.
—, *N*, *N*-diethyl-*N'*-phenyl-, 2594*a*.
10,4a(4*H*) - Iminoethanophenanthrene-11 - carbonitrile, 1,2,3,9,10,10a-hexahydro-, 4279*i*.
Isobutyraldehyde, benzylphenylhydrazone, 1654*i*.
$C_{17}H_{20}N_2O$ (See also *Centralite*.)
Acetophenone, α - diethylamino - α - 2-pyridyl-, *and - HCl*, 2208*e*.
2,6 - Acetoxylidide, α - benzylamino-, *and - HCl*, 1024*i*.
Acridanmethanol, α - (dimethylaminomethyl)-, 234*a*.
Benzophenone, 4,4' - bis(dimethylamino)-, 1349*d*, 3964*a*, P 9519*f*.
Carbanilide, diethyl-, 3226*d*.
Formamide, *N*-benzyl-*N*-(2-benzylaminoethyl)-, P 3028*f*.
1 - Piperidinecarboxamide, 2 - methyl-*N*-1-naphthyl-, 8365*e*.
Pyridine, 5 - benzylideneamino - 2 - isoamoxy-, P 7972*h*.
$C_{17}H_{20}N_2O_2$ Benzophenone, 2-ethyl-3,4'-dimethoxy-, hydrazone, 197*h*.
Carbanilic acid, dimethyl-, *m*-dimethylaminophenyl ester, P 1439*ab*.
Compd., m. 150–1°, 3420*g*.
Propiophenone, 3,4-dimethoxy-, phenylhydrazone, 186*b*.
$C_{17}H_{20}N_2O_3$ Nicotinic acid, 4-*p*-methoxyanilino - 2,6 - dimethyl-, Et ester, 3826*i*.

Pyridine, 2 - [α - (2 - dimethylaminoethoxy)piperonyl]-, 4266*d*; *and - HCl*, 2206*c*.
Thebainone, *O*-desmethyl , oxime, *and - HCl*, 5786*g*
$C_{17}H_{20}N_2O_3S$ Acetanilide, *p*-(as-pseudocumylsulfamyl)-, 4649*a*
Hydrocinnamamide, α,α-dimethyl-*N*-sulfanilyl , P 6662*c*.
Levulinic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.
$C_{17}H_{20}N_2O_3S_2$ Valine, *N* [2 (benzylmercapto) - 5 - oxo - 2 thiazolin - 4 - ylmethylene] - β - mercapto-, Me ester, 1399*e*.
$C_{17}H_{20}N_2O_4$ Alanine, *N* - [3 - hydroxy - 5-(hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-β-phenyl-, 644*e*, 723*b*.
2 - Pyridineacetamide, *N* - (β - hydroxy-3,4 - dimethoxyphenethyl)-, - *HCl*, 1413*c*.
$C_{17}H_{20}N_2O_4S$ Acid, 4921*c*.
Hydrocinnamamidine, *p* - (methylsulfonyl)-, benzoate, 1739*h*.
2 - Imidazoline, 2 - (*p* - methoxyphenyl)-, *p*-toluenesulfonate, P 5049*f*
Imidazo[2,1 - *b*]thiazole - 3 - carboxylic acid, 2,3,5,6,7,7a - hexahydro - 2,2-dimethyl - 5 - oxo - 7 - phenylacetyl-, Me ester, 8892*g*
Isovaleramide, α-phenoxy-*N*-sulfanilyl-, P 3035*i*.
Penicillin G, Me ester, 633*f*, 4921*a*, 8891*h*.
Penicillin, *p*-methylbenzyl-, 2274*f*.
—, *p*-tolylmethyl-, 3490*a*.
Pyrrolo[2,1 - *b*]thiazole - 3 - carboxylic acid, hexahydro - 2,2 - dimethyl - 5-oxo - 6 - α - phenylacetamido-, 7932*a*.
Valeramide, α-phenoxy-*N*-sulfanilyl-, P 3036*b*.
Valine, *N* - [(2 - benzyl - 5 - oxo - 2-oxazolin - 4 - ylidene)methyl] - β - mercapto-, Me ester, 1768*c*, 8892*g*.
Thieno[3,4 - *d*]pyrimidine - 5 - valeric acid, octahydro - 2,4 - dioxo - 3-phenyl-, P 7052*f*.
$\Delta^{3(3H)}$-δ - Thiophenevaleric acid, 4 - benzamido - 4,5 - dihydro - 3 - oxo , Me ester oxime, P 3468*h*
$C_{17}H_{20}N_2O_4S_2$ Penicillin, *p*-tolylmercaptomethyl-, 2274*e*, 4328*a*.
$C_{17}H_{20}N_2O_4$ Carbanilide, 3,3',4,4'-tetramethoxy-, 2177*f*
1 - Naphthonitrile, 1 - (2 - ethoxyethyl)-1,2,3,4 - tetrahydro - 7,8 - dimethoxy-3,4-dioxo-, 3-oxime, 6637*b*.
Tyrosine, *N* - [3 - hydroxy - 5 - (hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 644*f*, 723*b*
Xyloside, (*p*-phenylazophenyl), 6919*f*.
$C_{17}H_{20}N_2O_4S$ 2 - Imidazoline, 2 - (3,4 - dimethoxyphenyl)-, benzenesulfonate, P 5049*g*.
Penicillin G, Me ester *S*-oxide, 8891*i*.
Penicillin, *p*-methoxybenzyl-, 2274*d*, 3490*a*, 4328*a*, 4921*c*.
*p* - Toluenesulfon - *p* - anisidide, 2' - nitro-*N*-propyl-, 6994*b*
$C_{17}H_{20}N_2O_6$ 1 - Cyclohexene - 1 - methanol, 4-isopropyl-, 3,5 - dinitrobenzoate, 7434*f*.
$C_{17}H_{20}N_2O_6S$ Penicillin G, sulfone Me ester, 4921*d*, 8892*g*.
Penicillin, *p* - methoxyphenoxymethyl-, 2274*h*.
$C_{17}H_{20}N_2O_{14}$ Malonic acid, (3-hydroxypropyl)-, di-Et ester, 3,5-dinitrobenzoate, 577*g*.
$C_{17}H_{20}N_2S$ (See also *Phenothiazine, 10-(3-dimethylaminoisopropyl)-; Phenothiazine, 10* - (*2* - *dimethylaminopropyl*)-.) Carbanilide, diethylthio-, 3226*d*.
$C_{17}H_{20}N_2O$ Pyrimidine, 2-acetamido-4-(*p*-dimethylaminostyryl) - 6 - methyl-, 3427*d*.
$C_{17}H_{20}N_2O_2$ Benzamidine, *p*,*p*' - (trimethylenedioxy)di-, 1151*c*, 2672*b*, 3147*c*, 4325*i*, *di - HCl*, P 688*i*.
*s* - Triazine, 1,3 - dibenzylhexahydro - 5-nitro-, 8354*h*.
$C_{17}H_{20}N_2O_3$ Morpholine, 4-[2-(2-naphthylazo)-2-nitropropyl]-, P 8154*b*.
Xylose, phenylosazone, 2667*e*.
$C_{17}H_{20}N_4O_4$ Acetoacetic acid, γ-(4-antipyrylazo)-, Et ester, 1044*i*.
3 - Buten - 2 - one, 4 - (2 - methyl - 1 - cyclohexen - 1 - yl)-, 2,4 - dinitrophenylhydrazone, 8360*e*.
Uracil, 5 - nitro - 6 - styryl-, compd. with piperidine, 651*a*.
$C_{17}H_{20}N_4O_6$ (See also "$B_2$" under *Vitamins*.)
Isoalloxazine, 10-lyxityl-7,8-dimethyl-, 7532*h*.

**$C_{17}H_{20}N_4O_7$** Phenethylamine, *p,β,β*-trimethyl-, picrate, 6993*f*.
Propylamine, *N,N* - dimethyl - 3-phenyl-, picrate, 1026*d*.
**$C_{17}H_{20}N_4O_8$** Anisidine, *N,N*-diethyl-, picrate, 1348*b*.
**$C_{17}H_{20}N_4O_9$** Ethanol, 2,2′-(*o*-tolylimino)di-, picrate, 7443*a*.
Phenethylamine, 2,5 - dimethoxy - *N*-methyl-, picrate, 5766*d*.
**$C_{17}H_{20}N_8O_7$** Glutaraldehydic acid, α-acetamido - α - cyanomethyl-, Et ester, 2,4 - dinitrophenylhydrazone, 6980*d*.
**$C_{17}H_{20}N_8O_{14}$** 1,2 - Butanediamine, 2 - methyl-, dipicrate, 8381*d*.
**$C_{17}H_{20}N_{10}O_{14}$** Agmatine, dipicrate, 238*g*.
**$C_{17}H_{20}O$** Camphor, benzylidene-, 6033*d*.
*o* - Cresol, 4 - *tert* - butyl - α - phenyl-, 2969*d*.
1*H* - Cyclopenta[*l*]phenanthren - 1 - one, 2,3,4,5,6,7,8,9,10,11 - decahydro -, 7013*f*.
2-Enanthonaphthone, 9424*f*.
1-Pentanol, 1,5-diphenyl-, 5015*f*.
4-Pentenophenone, 2,2-diallyl-, 4955*e*.
**$C_{17}H_{20}O_2$** Acid, m. 153°, 7438*b*.
*o*-Cresol, 4,4′-isopropylidenedi-, P 5424*e*.
2-Isocapronaphthone, 6-methoxy-, 1382*i*.
Methane, (*o* - ethoxyphenyl)(*p* - ethoxyphenyl)-, P 4698*f*.
—, (2 - ethyl - 3 - methoxyphenyl)(*p* - methoxyphenyl)-, 197*h*.
2 - Naphthalenepropionic acid, β - ethyl-α,α-dimethyl-, 3814*d*.
1,4-Naphthoquinone, 2-heptyl-, P 9085*g*.
2,4,6 - Nonatrien - 8 - ynoic acid, 9 - (1 - cyclohexen - 1 - yl) - 3,7 - dimethyl-, *and Na salt*, 7438*b*.
Phenol, 2-(benzyloxy)-*tert*-butyl-, 8727*i*.
—, *p,p′* - (1 - ethyltrimethylene)di-, P 4699*h*.
—, [3-(*p*-hydroxyphenyl)amyl]-, P 4700*b*.
Propane, 1,3 - bis(*p* - methoxyphenyl)-, 191*g*.
Xylenol, methylenedi-, 5995*c*, 7465*d*.
**$C_{17}H_{20}O_3$** Cyclopentanone, compd. with phenol, 107*b*.
2 - Naphthalenepropionic acid, ethyl - 6-hydroxydimethyl-, 5864*h*, 6607*g*.
1,4 - Naphthoquinone, 2 - dimethylamyl-3-hydroxy-, 1373*f*.
—, 2-(3-ethylamyl)-3-hydroxy-, 1373*g*.
—, 2 - (1 - ethylisoamyl) - 3 - hydroxy-, 1373*g*.
—, 2 - heptyl - 3 - hydroxy-, 1373*c*, 2610*b*
—, 2 - hydroxy - 3 - (methylhexyl)-, 1108*g*, 1373*d*, 2610*b*.
Phenanthro[4,5 - *bcd*]furan - 3 - ol, 1,2,3,3a,8,9,9a,9b - octahydro - 5-methoxy-9b-vinyl-, 4280*f*.
2(3*H*) - Phenanthrone, 4,4a,9,10 - tetrahydro - 5,8 - dimethoxy - 4a - methyl, 2611*h*.
2 - Propanol, 1 - (benzyloxy) - 3 - *o* - tolyoxy-, 312*c*.
**$C_{17}H_{20}O_3S$** Ether, 2-(benzhydrylsulfonyl)-ethyl ethyl, 1366*g*.
4,7 - Thianaphthenedione, 6 - (3 - cyclohexylpropyl) - 5 - hydroxy-, 1383*c*
**$C_{17}H_{20}O_4$** 2 - Indanglyoxylic acid, 7 isopropyl-4 - methyl - 1 - oxo-, Et ester, 1747*g*
1,4 - Naphthoquinone, 2 - hydroxy - 3 - (5 - hydroxy - 5 - methylhexyl)-, 1387*b*.
Phthalic acid, 4 - isopropyl - 2 - cyclohexen-1-yl monoester, 161*a*.
Xylitol, 1,1-diphenyl-1-desoxy-, P 3448*c*.
**$C_{17}H_{20}O_4S$** 10 - Camphorsulfonic acid, *o*-formylphenyl ester, 6998*i*.
**$C_{17}H_{20}O_4S_2$** (2 - Benzoyl - *p* - tolyl)dimethylsulfonium methyl sulfate, 7475*c*.
**$C_{17}H_{20}O_5$** Anisic acid, 3-(5-carboxy-3-methyl-2 - pentenyl) - 2 - hydroxy - 6 - (hydroxymethyl) - 5 - methyl - (?), γ-lactone, 6184*g*.
Malonic acid, [*p*-methoxy-α-(2-oxocyclohexyl)benzyl]-, 3418*h*.
Micophenolic acid, 6184*f*.
**$C_{17}H_{20}O_5S$** Glucopyranose, 3,6-anhydro-, 1,4-diacetate 2-*p*-toluenesulfonate, 7905*i*.
**$C_{17}H_{20}O_{11}$** Trimethyl deriv., *and Ba and Ca salts*, 1342*b*.
**$C_{17}H_{21}BrN_2$** Benzylnicotinium bromide, 9123*d*.
**$C_{17}H_{21}BrN_2O$** Pyridine, 2-[*m*-bromo-α-(2-dimethylaminoethoxy) - α - methylbenzyl]-, *and* - *HCl*, 2206*e*.
**$C_{17}H_{21}ClN_2O$** Benzyldimethyl(phenylcarbamylmethyl)ammonium chloride, 6977*f*.
Pyridine, 2 - [chloro - α - (2 - dimethylaminoethoxy) - α - methylbenzyl]-, 4266*c*; *and* - *HCl*, 2206*de*.
**$C_{17}H_{21}ClO_4$** Camphoric acid, 4-chloro-*m* tolyl ester, P 1901*i*.
**$C_{17}H_{21}IN_2O$** 4 - (*p* - Acetamidobenzyl) - 1,2,6-trimethylpyridinium iodide, 4672*c*.
Benzoic acid, *m*-iodo-, hydrazone with camphor, 6973*f*.
**$C_{17}H_{21}IN_2OS$** 2 - [4 - (*N* - Acetylanilino) - 1,3-butadienyl] - 3 - ethyl - 2 - thiazolinium iodide, 6929*e*.
**$C_{17}H_{21}IN_2S_2$** 3 - Ethyl - 2 - [3 - (3 - ethyl - 2 thiazolidylidene)propenyl]benzothiazolium iodide, 2531*d*.
**$C_{17}H_{21}N$** Benzhydrylamine, *N*-butyl-, *and* - *HCl*, 1341*a*.
Benzhydrylamine, *N,N*-diethyl-, 4217*d*.
Benzylamine, *N,N* - diethyl - *o* - phenyl-, 1355*g*.
Isoquinoline, 1 - benzyl - 1,2,5,6,7,8 hexahydro - 2 - methyl-, 4279*f*.
**$C_{17}H_{21}NO$** (See also *Ethylamine, 2 (benzhydryloxy) - N,N - dimethyl* )
Benzamide, *N* - tricyclo[4.2.2.0$^{2,5}$]dec 7-yl-, 6197*i*.
Benzhydrol, α - (2 - dimethylamino ethyl)-, P 5417*f*, 6177*g*.
Diphenylamine, *p*-amoxy-, 3386*g*.
Ethylamine, *N,N*-dimethyl-2-(α-phenyltoloxy)-, *and* - *HCl*, 3386*b*.
Phenethylamine, *N* - benzylmethoxy-α-methyl-, 1109*e*.
Piperidine, 1 - [(2 - methoxy - 1 - naphthyl)methyl]-, 4250*b*.
2 - Propionaphthone, β - diethylamino-, - *HCl*, 9070*c*.
2 - Pyridinemethanol, α - carvacryl - α-methyl-, *and* - *HCl*, 2204*h*.
**$C_{17}H_{21}NOS$** Pyrrolidine, 1 - [2 - (α - phenyl-2-thenyloxy)ethyl]-, 631*c*.
**$C_{17}H_{21}NO_2$** Benzhydrol, 2 - [2 - (dimethylamino)ethoxy]-, - *HCl*, 2969*h*.
Ethanol, 2,2′ - (*o* - phenylbenzylimino)-di-, 1355*h*.
1 - Indanacetic acid, α - cyano - α - propyl-, Et ester, 8373*i*.
Propylamine, 2,3 - bis(*p* - methoxyphenyl)-, 2607*b*.
**$C_{17}H_{21}NO_2S$** Ethylamine, 2 - (benzhydrylsulfonyl) - *N,N* - dimethyl-, 1366*f*.
**$C_{17}H_{21}NO_3$** Cinchonimic acid, 2-butyl-3-hydroxypropoxy-, 227*h*.
Cinchoninic acid, 2-butyl-3-propoxy-, 227*g*.
—, 2 - isobutyl - 3 - isopropoxy-, 227*h*.
1 - Naphthalenebutyramide, *N* - 2 - hydroxyethyl-4-methoxy-, 2274*a*.
Thebainone, *O*-desmethyldihydro-, 5786*i*.
**$C_{17}H_{21}NO_3S$** Benzenesulfonic acid, *o*-amino-, *p*-*tert*-amylphenyl ester, 4249*e*.
**$C_{17}H_{21}NO_4$** (See also *Cocaine; Scopolamine.*)
1 - Cyclohexene - 1 - methanol, 4 - isopropyl-, *p* - nitrobenzoate, 7434*f*.
1 - Naphthoic acid, 3 - dimethylamino 1-ethyl - 1,2,3,4 - tetrahydro - 7,8 - dihydroxy-, γ-lactone acetate, 626*e*.
1 - Naphthonitrile, 1 - (2 - ethoxyethyl) 1,2,3,4 - tetrahydro - 7,8 - dimethoxy-4-oxo-, 6637*a*.
Pseudococaine, 1107*fg*.
3 - Quinolinebutyric acid, 4 - hydroxy - 7-methoxy-2-methyl-, Et ester, 1417*b*.
**$C_{17}H_{21}NO_4S$** Ethanol, 2-(*N*-phenethyl-*m*-toluidino)-, H sulfate, P 8155*c*.
**$C_{17}H_{21}NO_5$** Caproic acid, γ-cyano-γ-(2,3-dimethoxyphenyl) - α - (hydroxymethylene)-, Me ester, 626*c*.
Cyclodecanone, 6 - hydroxy-, *p*-nitrobenzoate, 6190*d*.
Malonic acid, allylbenzamido-, di-Et ester, 7932*a*.
11 - Oxabicyclo[4.4.1]hendecan - 1 - ol, *p*-nitrobenzoate, 6189*b*.
Peroxybenzoic acid, *p*-nitro-, octahydro 4a(2*H*)-naphthyl ester, 6189*b*.
**$C_{17}H_{21}NO_4S$** 10 - Camphorsulfonic acid α-amino-*o*-tolyl ester, *and* - *HCl*, 6998*i*; *o*-formylphenyl ester, oxime, 6998*i*.
Ethanol, 2 - (*N* - 2 - phenoxyethyl - *m*-toluidino)-, H sulfate, P 8154*g*.
—, 2-[*N*-(3-phenoxypropyl)anilino]-, H sulfate, P 8154*f*.
—, 2 - (*N* - 2 - *p* - toloxyethylanilino)-, H sulfate, P 8154*h*; *Na salt*, P 8155*c*.
**$C_{17}H_{21}NO_5$** Phthalic acid, 3-nitro-, ester with 3,3 - dimethylcyclohexanemethanol, 9044*g*.
**$C_{17}H_{21}NO_5S$** Ethanol, 2 - (hydroxy - *N*-2-phenoxyethyltoluidino)-, H sulfate, P 8155*a*.
Ethanol, 2 - (*m* - methoxy - *N* - 2-phenoxyethylanilino)-, H sulfate, P 8154*i*.
**$C_{17}H_{21}N_3$** Pyridine, 2-benzylamino-5-(1-methyl-2-pyrrolidyl)-, 4138*a*.
Pyridine, 1 - benzyl - 1,2 - dihydro-2-imino(1 - methyl - 2 - pyrrolidyl)-, 4138*a*.
**$C_{17}H_{21}N_3O$** 3 - Buten - 2 - one, 4 - (1-cyclohexen-1-yl)-, phenylsemicarbazone, 8360*b*.
2-Capronaphthone, semicarbazone, 6188*f*.
3,5,7 - Decatrien - 9 - yn - 2 - one, 10 (1-cyclohexen-1-yl)-, semicarbazone, 8361*g*.
Ketone, 4 - (diethylaminomethyl)-2 phenyl - 5 - pyrimidyl methyl, - *HCl*, 1424*e*.
2-Naphthaldehyde, 4-isopropyl-1,6-dimethyl-, semicarbazone, 7928*b*.
2(3*H*) - Naphthalenone, 4,4a,5,6,7,8 hexahydro-, phenylsemicarbazone, 7908*a*.
Pyrimidine, 4 - (*p* - dimethylamino styryl) - 2 - ethoxy - 6 - methyl, 3427*b*.
**$C_{17}H_{21}N_3O_2$** Piperidine, 1 - [*N* - (6-methoxy-8-quinolyl)glycyl]-, P 3040*d*.
5-Pyrimidinemethanol, α-methyl 4-(1-morpholinylmethyl) - 2 phenyl, *HCl*, 1421*f*
Semicarbazide, 1 - (α - ethyl - *p* - methoxybenzyl)-4 phenyl-, 3801*h*.
**$C_{17}H_{21}N_3O_3$** Ketone, 5-hydroxy 2 methyl 1 cyclohexen-1-yl methyl, semicarbazone, benzoate, 7417*d*.
Nicotinamidine, 6-butoxy-, benzoate, 2996*e*
**$C_{17}H_{21}N_3O_3S$** Benzenesulfonamide, *p*-(amyl hydroxyphenylazo)-, 9048*a*.
**$C_{17}H_{21}N_4O_9P$** Riboflavin phosphate, 9194*a*
**$C_{17}H_{21}N_5$** Biguanide, 1-(4-biphenylyl) 5-isopropyl-, - *HCl*, 2947*g*.
Biguanide, 5-isopropyl-1,1-diphenyl-, P 4691*e*, P 4692*a*, *and* - *HCl*, 9036*f*.
**$C_{17}H_{22}$** 1*H* - Cyclopenta[*l*]phenanthrene, 2,3,4,5,6,7,8,9,10,11 - decahydro -, 7013*g*.
Naphthalene, 2-butyl-3-propyl-, 1370*e*
—, heptyl-, 4454*h*, 8888*f*, 9424*e*.
**$C_{17}H_{22}BrNO$** (2 - Hydroxy - 2,2′ - diphenylethyl)trimethylammonium bromide, 6177*g*.
**$C_{17}H_{22}ClN$** 1 - Naphthalenemethylamine, *N*-butyl - *N* - (2 - chloroethyl)-, - *HCl*, 2320*a*.
1 Naphthalenemethylamine, *N*-sec-butyl-*N*-(2 chloroethyl) , - *HCl*, 2320*a*
—, *N* - (2 - chloroethyl) - *N* - isobutyl, - *HCl*, 2320*a*
**$C_{17}H_{23}ClNO_2$** Acrylic acid, β-(4-chloro-*o*-tolyl)-, 2 - diethylaminoethyl ester, - *HCl*, 7192*h*
**$C_{17}H_{17}ClN_2$** See *Auramine*.
**$C_{17}H_{22}ClN_3O$** Cyclohexanone, 2 - (3 - chloro 2 - butenyl)-, phenylsemicarbazone 7908*a*.
Pyridine, 5 - chloro - 2 - [(2 - dimethylaminoethyl) - *p* - methoxybenzyl]-, 6587*h*.
**$C_{17}H_{22}ClN_3O_3S$** 1,2,4,2*H* - Thiadiazine 3,5(4*H*,6*H*) - dione, 6 - (2 - chloro 1 nitrophenylazo) - 2,4 bis(2 ethoxyethyl)-, 1,1-dioxide, P 4868*h*.
**$C_{17}H_{22}ClN_3$** Benzimidazole, chloro 2 [4 - (3 dimethylaminopropylamino) methyl - 2 - pyrimidylamino] , P 3854*b*.
**$C_{17}H_{22}Cl_2N_6$** 4 - Amino - 6 - (2 - amino 6 methyl - 4 - pyrimidylamino - 1 methylquinaldinium chloride, metho chloride, 5905*g*, 8611*f*.
**$C_{17}H_{23}IN$** (*o* - Benzylbenzyl)trimethylammonium iodide, 6177*e*.
**$C_{17}H_{23}IN_4$** 2 - (6 - Amino - 3 - pyridyl) - 1 benzyl - 1 - methylpyrrolidinium iodide, 4138*b*.
**$C_{17}H_{22}N_2$** (See also *Ethylenediamine, N-benzyl - N′,N′ - dimethyl - N-phenyl-*
Aniline, methylenebis[*N,N*-dimethyl-, 191*h*, P 1176*i*, P 5230*e*, 5361*g*, 9519*f*, P 9520*e*.
Cyclopentene - 1 - acetonitrile, α-[2 - methylaminoethyl)-α phenyl - *HCl*, 8359*cf*.
Ethylenediamine, *N′* - benzhydryl-*N,N*-dimethyl-, *di*- *HCl*, 8540*b*
—, *N′* - benzyl - *N* - ethyl - 1 - phenyl-, *di*- *HCl*, 6176*h*.
—, *N,N* - dimethyl - *N′* - *o* - phenylbenzyl-, 1355*h*.
**$C_{17}H_{22}N_2O$** 1 - Butanone, 4-diethylamino-1-(8-quinolyl)-, 2623*i*.
Isoquinoline, 3 - methyl - 1 [2 - (1 piperidyl)ethoxy] , 4267*d*.
Pyridine, [α - (2 - dimethylamino ethoxy)methylbenzyl]-, 4266*cd*, 9306*f*; *and* - *HCl*, 2205*h*, 2206*ch*.
—, 2 - [(2 - dimethylaminoethoxy) phenethyl]-, 4266*d*; *and di*- *HCl* 2206*g*.

**$C_{13}N_2OS$** Carbanilic acid, thiono-, ester with camphor oxime, 3806*g*.
**$C_{13}N_3O_3$** Carbamic acid, benzylmethyl-, *N*-methylbenzylamine salt, 6158*a*.
Carbamic acid, phenethyl-, phenethylamine salt, 1351*f*.
Ethylenediamine, 1,2 - bis(*p* - methoxyphenyl)-*N*-methyl-, 614*f*.
10,4a(4*H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro - 11-methylnitro-, - *HCl*, 6635*g*.
Isoquinoline, 1,2,3,4,5,6,7,8 - octahydro - 2 - methyl - 1 - *p* - nitrobenzyl-, *salts*, 6635*h*.
Naphthocaine, 1111*a*.
1 - Naphthoic acid, 4-amino-, 2-diethylaminoethyl ester, 1111*a*.
Pyridine, 2 - [α - (2 - dimethylaminoethoxy)methoxybenzyl]-, 4266*d*; *and* - *HCl*, 2206*c*.
4 - Quinolinemethanol, 6,7-dimethyl-α-(4 - morpholinylmethyl)-, *and di-HBr*, 4675*b*.
—, 6 - methoxy - α - piperidylmethyl-, 231*d*.
**$H_{21}N_3O_3S$** Aniline, *N*-amyl-*p*,*p*'-sulfonyldi-, P 2637*g*.
Isovaleric acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
Valeric acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
**$C_{17}N_2O_3$** Glutaronitrile, α-(2,3-dimethoxyphenyl) - α - (2 - ethoxyethyl)-, 6636*c*.
Malonamic acid, *N*-(α-aminobenzylidene) - α - (2 - hydroxyethyl) - α-isoamyl-γ-lactone, 6173*a*.
3 - Pyrrolepropionic acid, 5-(ethyl-5-hydroxymethyl - 2*H* - pyrrolen - 2-ylidenemethyl] - 4 - methyl-, Me ester, 4257*b*.
Thebainone, *O*-desmethyldihydro-, oxime, - *HCl*, 5786*i*.
**$C_{13}N_2O_4S$** *p*-Toluenesulfon-*p*-anisidide, 2' amino-*N*-propyl-, 6994*c*.
**$C_{13}N_2O_4$** 1-Azetidineacetic acid, α-isopropyl - 2 - oxo - 3 - (α - phenylacetamido)-, Me ester, 8892*e*.
1-Pyrrolidineacetic acid, α isopropyl-2-oxo - 3 - α - phenylacetamido-, 7933*g*.
**$C_{13}N_2O_5$** β-Oxo acid, 7942*d*.
Phenaceturic acid, α-[(carboxymethyl)-ammonmethylene]-, di Et ester, P 1807*f*.
**$C_{13}N_2O_5S$** 2 Thiazolidineacetic acid, 4-carboxy - 5,5 - dimethyl - α - (α-phenylacetamido)-, Me ester, 4921*b*, 6618*b*, 8892*f*.
2-Thiazolidinealanine, *N* - benzoyl-4-carboxy - 5,5 - dimethyl-, 4-Me ester, - *HCl*, 7933*a*.
—, 4 - carboxy - *N* - phenylacetyl-, α-Et ester, 7932*i*.
2 Thiophenevaleric acid, 3-carboxytetrahydro - 4 - (3 - phenylureido)-, P 1809*c*, P 7052*e*.
Valine, β - mercapto - *N* - (*N* - phenylacetylglycyl)-, acetate, 4668*f*.
**$C_{13}N_2O_6$** 2-Decen-1-ol, 3,5-dinitrobenzoate, 5736*h*.
**$C_{13}N_2O_7$** Glutamine, *N*α-carboxy-*N*-(carboxymethyl)-, *N*α - benzyl *N*-Et ester, 6978*i*.
**$C_{13}N_2O_{11}$** Galaheptulose, 1-diazo-1-desoxy-, pentaacetate, 8358*e*.
**$C_{13}N_2O_3$** Carbanilide, 4,4'-diamino-5,5'-dimethoxy-2,2'-dimethyl-, P 9466*e*.
Oxindole, 3-(cyclohexylcarbonylmethyl)-3 hydroxy-, semicarbazone, 1411*d*.
**$C_{13}N_2O_4$** 3 - Cyclohexene - 1 - carboxaldehyde, tetramethyl-, 2,4-dinitrophenylhydrazone, 3376*b*.
2 - Cyclopenten - 1 - one, 3 - ethyl - 4-methyl - 2 - propyl-, 2,4 - dinitrophenylhydrazone, 6623*f*.
**$C_{13}N_2O_5$** Carbanilide, 4,4'-diamino-2,2',5,5'-tetramethoxy-, P 9466*h*.
**$C_{13}N_2O_6$** Isoalloxazine, dihydro-7,8-dimethyl - 10 - (2,3,4,5 - tetrahydroxyamyl) , 7355*h*
**$C_{13}N_4O_7$** Barbituric acid, 5-(6-D-ribitylamino - 3,4 - dimethylphenylimino)-, 8282*c*.
**$C_{13}N_2O_5S$** Glutamine, *N*α - (*p* - aminobenzoyl) - *N* - [(carboxymethyl(carbamylmethyl] - *N* - (mercaptomethyl)-, 3066*a*.
**$C_{13}N_2O_6$** Malonic acid, (2-formylisopropyl)-, di-Et ester, 2,4-dinitrophenylhydrazone, 6980*d*.
Malonic acid, (2-formylpropyl)-, di-Et ester, 2,4 - dinitrophenylhydrazone, 6980*c*.
4(1*H*) - Quinolone, octahydrodimethyl-, picrate, 2960*a*.
**$C_{17}H_{23}N_3O_9$** 1*H* - Quinolizine - 3 - carboxylic acid, octahydro-4-methyl-, picrate, 4268*a*.
**$C_{17}H_{23}N_3O_8$** Febrifugine, semicarbazone, 5406*d*.
**$C_{17}H_{22}O$** Naphthalene, 2-isohexyl-6-methoxy-, 1383*a*.
**$C_{17}H_{22}O_2$** 9 Anthracenepropionic acid, 1,2,3,4,5,6,7,8 - octahydro-, 7013*f*.
9-Phenanthrenepropionic acid, 1,2,3,4,-5,6,7,8-octahydro-, 7013*d*.
**$C_{17}H_{22}O_3$** 2 - Naphthoic acid, 1,2,3,4-tetrahydro - 8 - isopropyl - 5 - methyl-1-oxo-, Et ester, 2606*c*.
11 - Oxabicyclo[4.4.1]hendecan - 1-ol, benzoate, 6188*i*.
3-Pentanone, compd. with phenol, 107*b*.
Peroxybenzoic acid, octahydro-4a(2*H*)-naphthyl ester, 6188*i*.
2-Phenanthrenecarboxylic acid, 1,2,3,4,-4a,9,10,10a - octahydro - 7 - methoxy-1-methyl-, 7033*b*.
Phenanthro[4,5-*bcd*]furan - 3 - ol, 9b-ethyl - 1,2,3,3a,8,9,9a,9b - octahydro-5-methoxy-, 4280*d*.
**$C_{17}H_{22}O_4$** Compd., m. 162°, 7481*h*.
Cyclohexenecarboxylic acid, 1-(*p*-methoxyphenyl) - 1 - methyl - 2 - oxo-, Et ester, 3373*c*.
Cyclopentanemalonic acid, 2-methyl-α-phenethyl-, 1039*g*.
6 - Hepten - 3 - ol, 2,2 - dimethyl-, H-phthalate, 5735*c*.
Phthalic acid, *p*-cumyl monoester, 161*c*; 3,3 - dimethylcyclohexylmethyl ester, 9044*g*.
Propionic acid, β-(4-ethoxy-5,6,7,8-tetrahydro - 1 - naphthoyl)-, Me ester, 2195*i*.
**$C_{17}H_{22}O_5$** Isotenulin, 1389*g*.
Malonic acid, (α-acetonylbenzyl)-, di-Et ester, P 6065*b*.
Tenulin, 1389*g*.
**$C_{17}H_{22}O_6$** Malonic acid, *o*-carboxybenzyl-, tri-Et ester, 7491*a*.
Phenethyl alcohol, 3,5 dihydroxy-α,β,2-trimethyl-, triacetate, 9066*e*.
**$C_{17}H_{22}O_7$** Compd., $b_{0.8}$ 141°, 7940*h*.
**$C_{17}H_{22}O_8$** Malonic acid, (3,4,5 - trimethoxybenzoyl)-, di Et ester, 2198*c*.
**$C_{17}H_{22}O_8S$** Fuscin, compd. with thioglycolic acid, 4335*g*.
**$C_{17}H_{22}O_9$** Asaronic acid, 3-acetyl-6-(1-carboxyisopropoxy)-, Me ester, 2994*g*.
**$C_{17}H_{23}N$** 10,4a(4*H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro-11-methyl-, *and salts*, 4279*f*.
Isoquinoline, 1-benzyl-1,2,3,4,5,6,7,8-octahydro-2 methyl-, 4279*f*.
Piperidine, 1-(3-ethyl-2-indenylmethyl)-, *and* - *HCl*, P 1441*a*
**$C_{17}H_{23}NO$** Benzamide, *N*-isobornyl-, 2165*h*.
*p*-Cresol, α-(1,2,3,4,5,6,7,8 - octahydro-2 - methyl - 1 - isoquinolyl)-, *and* - *HBr*, 6635*i*.
Cyclohexanol, 2 - cyclohexylidene-1-(2-pyridyl)-, *and* - *HCl*, 2205*f*
10,4a(4*H*) - Iminoethanophenanthreuol, 1,2,3,9,10,10a - hexahydro - 11-methyl-, *and salts*, 6635*f*, P 7518*c*.
**$C_{17}H_{23}NOS$** Morpholine, 4-[(*p*-cyclopentylphenyl)thioacetyl]-, 1375*d*.
**$C_{17}H_{23}NO_2$** Δ¹,α- Cyclohexaneacetic acid, α-cyano - 2 - (1 - cyclohexen-1-yl)-, Et ester, 4251*f*
Δ¹ α-Cyclohexaneacetic acid, α-cyano-2-(2 - methyl - 2 cyclopenten - 1-yl)-(?), Et ester, 2586*g*.
1-Cyclohexene-1 methanol, 4-isopropyl-, carbanilate, 7431*f*.
1(2*H*) - Naphthalenone, 3,4 - dihydro-6-methoxy - 2 - (1 - piperidylmethyl)-, 9250*h*.
4,7 - Quinolinediol, 3-heptyl-2-methyl-, 1417*c*.
4 - Quinolinol, 3 - hexyl - 7 - methoxy-2-methyl-, 1416*b*, 1417*b*.
**$C_{17}H_{23}NO_3$** (See also *Atropine; Hyoscyamine*.)
Cyclohexanepropionic acid, 2-oxo β-phenyl-, Et ester, oxime, 3418*f*.
Erysopine, tetrahydro-, *and* - *HBr*, 4281*c*.
4-Quinolinol, 3 - (2 - butoxyethyl) - 7-methoxy-2-methyl-, 1417*b*.
—, 3 - (4 - ethoxybutyl) - 7 - methoxy-2-methyl-, 1417*b*.
**$C_{17}H_{23}NO_3S$** Piperidine, 1-[3 - (3,4-methylenedioxyphenyl)propylmercapto]-acetyl]-, P 1903*b*.
Piperidine, 1-[(α-methylhomopiperonylmercapto)acetyl]-, P 1903*c*.
**$C_{17}H_{23}NO_4$** Cyclodecanol, *p*-nitrobenzoate, 6988*f*.
Menthol, *p*-nitrobenzoate, 8100*e*.
1 - Piperidinecarboxylic acid, ester with Bu *p*-hydroxybenzoate, 593*h*.
**$C_{17}H_{23}NO_4S$** 3-Thiophenecarbamic acid, tetrahydro-5-phenyl-, 1,1 - dioxide, 1-ethyl-2-methylallyl ester, P 6668*f*.
**$C_{17}H_{23}NO_5$** Caproic acid, γ-cyano-γ-(2,3-dimethoxyphenyl)-ε-ethoxy-, 6636*d*.
1 - Naphthoic acid, 3 - dimethylamino-1-ethyl - 1,2,3,4 - tetrahydro - 7,8-dihydroxy-7-acetate, 626*e*.
Propionic acid, β,β'-(benzoylimino)di-, di-Et ester, P 4688*a*.
**$C_{17}H_{23}NO_6$** 5 - *m* - Dioxanecarbamic acid, 5-methyl-, ester with Bu *p*-hydroxybenzoate, 593*h*.
Protocatechuyl alcohol, α-(isopropylaminomethyl)-, triacetate, - *HCl*, 2601*f*.
**$C_{17}H_{23}NO_6S$** Anthranilic acid, 10-camphorsulfonate, 610*c*.
Benzoic acid, amino-, 10-camphorsulfonate, 610*c*.
**$C_{17}H_{23}NO_7$** Toluene - α,α - diol, 3-*tert*-butyl-4-ethoxy-5-nitro-, diacetate, P 1063*h*.
**$C_{17}H_{23}NO_8$** β - Alanine, *N* - homopiperonyl-*N*-methyl-, Et ester, oxalate, 5765*g*.
**$C_{17}H_{23}NO_{10}$** Glucoside, (2-cyanoethyl), tetraacetate, 7430*i*.
**$C_{17}H_{23}N_3$** 1,2,3 - Propanetriamine, 2-ethyl-*N*¹, *N*³-diphenyl-, P 2230*d*.
Pyridine, 2 - [benzyl(3 - dimethylaminopropyl)amino]-, *and* - *HCl*, P 3472*b*.
—, 2 - [α - [(2 - dimethylaminoethyl)-methylamino]benzyl]-, *and di-HCl*, 2206*a*.
—, 2 - [(2 - dimethylaminoethyl)phenethylamino]-(?), *and* - *HCl*, P 3472*b*.
**$C_{17}H_{23}N_3O$** (See also *Pyridine, 2-[(2-dimethylaminoethyl)(p - methoxybenzyl)-amino]*-).
7(1*H*) - Isoquinolone, 2 - acetyloctahydro-, phenylhydrazone, 6632*f*.
5 - Pyrimidinemethanol, 4 - (diethylaminomethyl) - α - methyl - 2-phenyl-, - *HCl*, 1424*f*.
Quinoline, 8 - (1 - ethyl - 2 - pyrrolidylmethylamino) - 6 - methoxy-, *and di-HCl*, 7019*i*.
6-Quinolinol, 4-[3-(1-piperidyl)propylamino]-, P 253*c*.
**$C_{17}H_{23}N_3O_2$** 1,3 - Dioxolo[*f*]quinoline, 5-(3-diethylaminopropylamino)-, *and hydrosoides*, 1413*f*.
Pyrimidine, 2 - [α - (2 - dimethylaminoethoxy)benzyl] - 4 - methoxy - 6-methyl-, *hydrochlorides*, 7023*c*.
**$C_{17}H_{23}N_3O_3$** 5*H* - Cycloheptabenzene - 3-valeric acid, 6,7,8,9 - tetrahydro - δ-oxo-, semicarbazone, 2965*f*.
**$C_{17}H_{23}N_3O_3S$** Acetamide, *N* - sulfanilyl-, compd. with α-methylphenethylamine, P 4297*c*.
**$C_{17}H_{23}N_3O_4S$** Butyramide, α,γ - dihydroxy-β,β - dimethyl - *N* - [2 - (2 - quinolylsulfamyl)ethyl]-, P 3450*g*.
Tyrosine, *N*-(*N*-prolylcysteinyl)-, 5016*d*.
**$C_{17}H_{23}N_3O_5$** β - Alanine, *N* - [*N* - (*N*-carboxyglycyl)glycyl]-, benzyl Et ester, 1448*h*.
**$C_{17}H_{23}N_3$** 1,2,3,2*H* - Triazole, 4 - (1-butyl-4,4 - dimethyl - 2 - imidazolin-2-yl)-2-phenyl-, *and* - *HCl*, 2619*e*.
**$C_{17}H_{23}N_3O_4S$** 1,2,4,2*H* - Thiadiazine-3,5-(4*H*,6*H*) - dione, 2,4 - dibutyl - 6-(*p* - nitrophenylazo)-, 1,1-dioxide, P 4868*f*.
**$C_{17}H_{23}N_3O_7$** Malonaldehydic acid, caproylamino-, Et ester, 2,4-dinitrophenylhydrazone, 2203*c*, 2990*d*.
**$C_{17}H_{23}N_3O_7S$** Pyrimidine, 6-amino-5-thioformamido - 4 - triacetyl - D - xylosidoamino-2-methyl-, 3423*a*.
**$C_{17}H_{24}$** 2,6 - Nonadiene, 3,7-dimethyl-9-phenyl-, 1714*c*.
**$C_{17}H_{24}ClN$** Quinoline, 7-chloro-4-(4-diethylaminobutylamino)-, 1655*g*.
Quinoline, 7-chloro-4-(3-diethylaminopropylamino)-3-methyl-, 1655*g*.
**$C_{17}H_{24}ClN_3O$** 2-Propanol, 1-(7-chloro-3-methyl - 4 - quinolylamino) - 3 - diethylamino-, 1655*g*.
**$C_{17}H_{24}ClN_3S$** Quinoline, 7 - chloro - 4 - [2-(2 - diethylaminoethylmercapto)ethylamino]-, 1655*g*.
**$C_{17}H_{24}ClN_4$** Pyrimidine, *p*-chloroanilino(2-diethylaminoethylamino)methyl-, P 6243*g*, 9038*d*.
Pyrimidine, 4 - *p* - chloroanilino - 6 - (3-dimethylaminopropylamino) - 2,5-dimethyl-, *and di-HCl*, P 6244*a*.
**$C_{17}H_{24}IN_3$** [2 - [Benzyl(2 - pyridyl)amino]-

ethyl]trimethylammonium iodide, 7921*e*.

**$C_{17}H_{24}N_2$** 10,4a(4*H*) - Iminoethanophenanthrene, amino - 1,2,3,9,10,10a-hexahydro - 11 - methyl-, *and* - *HBr*, 6635*g*.

Isoquinoline, 1 - (*p* - aminobenzyl)-1,2,3,4,5,6,7,8 - octahydro - 2-methyl-, - *HBr*, 6635*i*.

Quinoline, 2-dibutylamino-, *and* - *HCl*, 4276*g*.

**$C_{17}H_{24}N_2O$** 2 - Imidazoline, 2 - [(α - cyclohexylbenzyloxy)methyl]-, *and* - *HCl*, 6620*a*.

Isoquinoline, 3 - butyl - 1 - (2-dimethylaminoethoxy)-, 4267*d*.

—, 1 - (2 - diethylaminoethoxy)-3-ethyl-, 4267*d*.

Quinoline, 2 - (2 - diethylaminoethoxy)-4,6-dimethyl-, P 7974*c*.

8-Quinolinemethanol, α-(3-diethylaminopropyl)-, 2624*a*.

**$C_{17}H_{24}N_2O_2$** 1 - Naphthonitrile, 3-dimethylamino - 1 - ethyl - 1,2,3,4 - tetrahydro-7,8-dimethoxy-, 626*d*.

1 - Naphthonitrile, 1 - (2 - dimethylaminoethyl) - 1,2,3,4 - tetrahydro-7,8-dimethoxy-, 627*a*.

**$C_{17}H_{24}N_2O_2S$** 1*H* - Furo[3,4]imidazol-2(3*H*) - one, 4 - [5 - (benzylmercapto)amyl]tetrahydro-, 5023*c*, 9149*h*

**$C_{17}H_{24}N_2O_4S$** 1 - Naphthoic acid, 5,6,7,8-tetrahydro - 4 - nitrothiol-, 2-diethylaminoethyl ester, - *HCl*, 6193*a*.

**$C_{17}H_{24}N_2O_4$** Carbamic acid, cinnamylidenedi-, di-iso-Pr ester, 1390*a*.

Carbanilic acid, *p*-nitro-, 2-decenyl ester, 5736*h*.

Malonamic acid, *N* - (α - aminobenzylidene) - α - (2 - hydroxyethyl)-α-isoamyl-, inner salt, 6173*b*.

1-Naphthoic acid, 5,6,7,8-tetrahydro-3-nitro-, 2-diethylaminoethyl ester, *and* - *HCl*, 203*a*.

**$C_{17}H_{24}N_2O_4S$** 1*H* - Furo[3,4]imidazol-2(3*H*) - one, 4 - [5 - (benzylsulfonyl)-amyl]tetrahydro-, 5023*c*, 9149*h*.

**$C_{17}H_{24}N_2O_4S_2$** 1 - Cyclohexene - 1 - methanesulfonic acid, 5,5-dimethyl-3-oxo-, 2-benzyl-2-thiopseudourea salt, 9044*d*.

2-Cyclohexene-1-sulfonic acid, 2,6,6-trimethyl - 4 - oxo-, 2 - benzyl - 2-thiopseudourea salt, 9044*d*.

**$C_{17}H_{24}N_2O_5$** Leucine, *N* - (*N* - carboxy-β-alanyl)-, benzyl ester, 1448*c*.

**$C_{17}H_{24}N_2O_5$** β - Alanine, *N* - (α - carboxyamino - γ - hydroxy - β,β-dimethylbutyryl)-, α-benzyl ester, 4224*c*.

Butyric acid, α-(dimethylaminomethyl)-β - hydroxy - α - methyl-, Et ester *p* nitrobenzoate, - *HCl*, 7643*c*.

**$C_{17}H_{24}N_2O_5S$** Azelaamic acid, *N*-(*N*-acetylsulfanilyl)-, 2597*f*.

**$C_{17}H_{24}N_2O_7S$** Glutamic acid, *N* (*N*-acetylsulfanilyl)-, di-Et ester, 7029*d*.

**$C_{17}H_{24}N_2S$** Ethylenediamine, *N*, *N* diethyl-*N'* - phenyl - *N'* - 2 - thenyl, *and* - *HCl*, P 3039*b*.

**$C_{17}H_{24}N_4$** Pyrimidine, 2-[benzyl(2-dimethylaminoethyl)amino]-4,6-dimethyl-, P 6244*f*; - *HCl*, P 3472*c*.

**$C_{17}H_{24}N_4O_4$** 2-Butanone, 4-(2-methylcyclohexyl)-, 2,4 - dinitrophenylhydrazone, 8360*f*.

2-Hendecenal, 2,4 - dinitrophenylhydrazone, 5736*i*.

**$C_{17}H_{24}N_4O_4S$** 2 - Thiophenevaleric acid, 3-carboxytetrahydro - 4 - (3 - phenylureido)-, 3-hydrazide, P 1066*a*.

**$C_{17}H_{24}N_4O_5$** Cyclohexanone, 2-(3-ethoxypropyl)-, 2,4 - dinitrophenylhydrazone, 1414*h*.

*p*-Toluic acid, 3,5-dinitro-, nonylidenehydrazide, 6972*e*.

**$C_{17}H_{24}N_4O_7$** Piperidine, 1-cyclohexyl-, picrate, 7920*i*.

1*H*-Quinolizine, 3-ethyloctahydro, picrate, 4268*c*.

**$C_{17}H_{24}N_4O_9$** 4 - Piperidone, 2 - ethyl 6-methyl-3-propyl-, picrate, 2959*h*.

**$C_{17}H_{24}N_4O_9$** β - Alanine, *N* - cyclohexyl-, Et ester, picrate, 576*a*.

**$C_{17}H_{24}N_6O_3$** Pyrimidine, 4-(2-diethylaminoethylamino) - 2 - methyl - 6 - *p*-nitroanilino-, P 6243*i*.

**$C_{17}H_{24}O$** *p*-Cresol, 2-isobornyl-, 1355*c*.

2-Enanthonaphthone, 5,6,7,8-tetrahydro-, 9424*f*.

Ether, isobornyl tolyl, 1354*i*.

**$C_{17}H_{24}O_2$** Citronellic acid, benzyl ester, 4633*g*.

Cyclopentaneacetic acid, 2-(xylyl)-, Et ester, 3796*def*.

Ether, isobornyl *p*-methoxyphenyl, 1355*a*.

2,4,6 - Heptatrienoic acid, 5 - methyl-7 - (2,6,6 - trimethylcyclohexenyl)-, 2587*i*, 6989*f*.

Menthol, benzoate, 8100*e*.

2 - Naphthoic acid, 2-ethyl-1,2,3,4-tetrahydro - 8 - isopropyl - 5-methyl-, 2606*e*.

**$C_{17}H_{24}O_3$** Butyric acid, γ-(5-hexyl-2-methoxyphenyl) - γ - hydroxy-, lactone, 1032*h*.

Hydrocinnamic acid, β - (3,3 - dimethyl - 2 - oxobutyl)-, Et ester, 7002*f*.

**$C_{17}H_{24}O_3S$** Pinocamphenol, *p*-toluenesulfonate, 189*b*.

α-Toluenesulfonic acid, bornyl ester, P 5232*b*.

**$C_{17}H_{24}O_4$** 1,3-Cyclohexanedione, 2,2'-methylenebis[5,5-dimethyl-, 1330*f*.

Malonic acid, (*p*,α,α-trimethylbenzyl)-, di-Et ester, 5762*g*.

Propionic acid, β-3 hexylanisoyl-, 1032*i*.

—, β-(hexyl-2-methoxybenzoyl)-, 1032*h*.

**$C_{17}H_{24}O_5$** Benzoic acid, 3 allyl-4-(2,3-dihydroxypropoxy)-, Bu ester, P 2233*g*

Compd., m. 222-3°, 7482*a*

Propionic acid, β-(2,4 dimethoxy-5-propylbenzoyl)-, Et ester, 1033*c*.

**$C_{17}H_{24}O_7$** Fructoside, methyl trimethyl-, benzoate, 5749*h*, 5750*f*.

**$C_{17}H_{24}O_8$** Syringin, 1840*f*, 2283*a*.

**$C_{17}H_{24}O_{10}$** Glucoside, allyl, tetraacetate, 3795*e*.

Verbenalin, 7017*f*

**$C_{17}H_{24}O_{12}$** Xylose, *aldehydo*, hexaacetate, 5009*d*.

**$C_{17}H_{25}BrO_7$** Hendecanoic acid, (*p*-bromophenyl)-, 566*c*

**$C_{17}H_{25}ClO_2$** Hendecanoic acid, (*p*-chlorophenyl)-, 566*c*.

**$C_{17}H_{25}N$** Quinoline, 1-ethyldecahydro-4 phenyl, 3418*g*.

**$C_{17}H_{25}NO$** Cyclohexanepropionanilide, 1-ethyl, 3371*i*.

Δ$^{1,3}$ - Cyclopentanepropylamine, γ-(*p* methoxyphenyl) - *N*, *N* - dimethyl-, - *HCl*, 8359*e*.

Isocyanic acid, 4-*tert*-butyl-α,α,2,6 tetramethylphenethyl ester, P 5800*h*.

Phenol, *p* - (1 - ethyldecahydro - 4-quinolyl)-, - *HBr*, 3418*i*

1 - Piperidinepropanol, α - allyl - α-phenyl-, - *HCl*, 9071*h*

1*H*-Quinolizine, octahydro - 1 - tolxymethyl-, 6210*c*

o-Seneciololuidide, *N*-isoamyl-, P 5414*a*

**$C_{17}H_{25}NO_2$** Acetic acid, phenyl, ester with 2 - methyl - 1 - piperidinepropanol, *and* - *HCl*, P 6941*i*.

2(3*H*) - Benzoxazolone, 3,5 - diamyl-, 6615*h*.

Bicyclo[2.2.1] - 5 - heptene - 2,3 - dicarboximide, *N*-octyl-, P 4421*f*.

Cyclobutanecarboxylic acid, 1-phenyl-, 2 diethylammoethyl ester, *and* *HCl*, P 6655*h*.

Cyclododecanol, carbanilate, 6988*f*

Cyclohexaneacetic acid, α cyano-α 2 methyl - 2 - cyclopenten 1 yl (?), Et ester, 2586*g*.

Cyclohexanol, 2 - (dimethylammomethyl) - 1 - phenyl-, acetate, P 5417*e*.

Cyclopentanecarboxylic acid, 1 phenyl, 3 dimethylammopropyl ester, *and* - *HCl*, P 6655*i*.

4-*p*-Menthanol, carbanilate, 3371*g*

**$C_{17}H_{25}NO_3S$** Ethanol, 2 - [3 - (1 piperidyl)-propylmercapto]-, benzoate, - *HI*, 6184*b*.

**$C_{17}H_{25}NO_4$** (See also *Eucatropine*.)

Acetic acid, phenyl[2 - (1 piperidyl) ethoxy]-, Et ester, 2189*f*.

1,3 - Dioxolo[*g*]isoquinoline, 5,6,7,8-tetrahydro - 5 - isoamyl - 4 - methoxy - 6 - methyl-, *and* - *HBr*, 2213*b*.

Isobutyric acid, α benzoyl-β-diethylamino-, Et ester, 7643*f*.

Norvaline, *N*-phenylacetyl-, Bu ester, 2269*h*, 2270*h*.

Salicylic acid, 3-(2,6-dimethyl-1-piperidyl)propyl ester, - *HCl*, P 7509*b*, *and* - *HCl*, P 695*a*.

**$C_{17}H_{25}NO_4S$** Valine, *N* - (2,4,6 - trimethylbenzylmercaptoacetyl)-, 3365*f*.

**$C_{17}H_{25}NO_4$** Butyric acid, α-(dimethylaminomethyl) - β - hydroxy - α - methyl, Et ester benzoate, *and* - *HCl*, 7643*c*.

Propiophenone, 3,4,5 - trimethoxy-β-1-piperidyl-, - *HCl*, 7003*c*.

Pyrocatechol, 4 - (2 - isopropylaminoethyl)-, dipropionate, - *HCl*, 2602*g*.

**$C_{17}H_{25}NO_5$** Acetamide, *N* - (3,4-diethoxy-β-hydroxy - α - methylphenethyl)-, acetate, 1423*h*.

Actidione, acetate, 2998*e*.

Glutarimide, β - [2 - (3,5 - dimethyl-2-oxocyclohexyl) - 2 - hydroxyethyl], acetate, 2998*e*.

Protocatechuyl alcohol, α-(isopropylaminomethyl)-, dipropionate, - *HCl*, 2601*g*.

**$C_{17}H_{25}NS$** Piperidine, 1-[3-cyclopentylidene-3-(2-thienyl)propyl]-, - *HCl*, 8359*e*.

**$C_{17}H_{25}N_3$** Lepidine, 2-(3-diethylaminopropylamino)-, *and di-HCl*, 8389*f*.

**$C_{17}H_{25}NO$** 1-Pentanone, 1-(6,7,8,9-tetrahydro - 5*H* - cycloheptabenzen-3-yl)-, semicarbazone, 2965*e*.

Quinaldine, 4 - (3 - isopropylaminopropylamino) - 6 - methoxy-, *di-HCl*, 4276*i*.

Quinoline, 8 - (3 - *sec* - butylaminopropylamino) - 6 methoxy-, *and di HCl*, 7026*i*.

—, 8 - (3 - diethylaminopropylamino)-6-methoxy-, 9267*b*.

—, 8 - [2 - (2,2 - dimethylpropylamino)-ethylamino] - 6 - methoxy-, *di-HBr*, 3421*h*.

—, 8 - [2 - (1 - ethylpropylamino)ethylamino] 6-methoxy-, *di HBr*, 3421*h*.

—, 8 - (isopropylaminobutylamino) 6-methoxy, *and di-HCl*, 3419*eg*.

—, 6 - methoxy - 8 - [2 - (1 - methylbutylamino)ethylamino]-, *di* - *HBr*, 3421*h*

6-Quinolinol, 8 - (3 - *sec* - butylaminopropylamino) 4 - methyl-, *di-HCl*, 7026*d*.

**$C_{17}H_{25}N_3O_2$** 2 - Propanol, 1 - (6 - methoxy 8 quinolylamino) - 3 - (methylpropylamino)-, *and di-HCl*, P 254*c*.

**$C_{17}H_{25}N_3O_3$** Mesitylenic acid, 4-nitro-, 1-methylheptylidenehydrazide, 6972*h*

**$C_{17}H_{25}NO_5$** Evodione, dihydro-, semicarbazone, 2994*f*.

**$C_{17}H_{25}NO_5S$** Butyramide, α,γ-dihydroxy-β,β - dimethyl - *N* - [2 - (2 - pyridylsulfamyl)ethyl]-, diacetate, P 3450.

**$C_{17}H_{25}N_3S$** Pyridine, 2-[(2 dimethylaminoethyl)(α - propyl - 2 - thenyl)amino], 5781*g*.

**$C_{17}H_{25}N_3$** 1,2,3,2*H* - Triazole, 4-(1 butyl-4,4 - dimethyl - 2 - imidazolidyl) 2-phenyl-, 2619*c*.

**$C_{17}H_{25}N_3O_5$** 4 - Nonanone, 5 - methyl, 2,4-dinitrophenylsemicarbazone, 1317*i*

**$C_{17}H_{25}O_3P$** 2 - Indenephosphonic acid, di Bu ester, P 7969*e*.

**$C_{17}H_{26}$** Naphthalene, 6 - butyl - 1,2,3,4-tetrahydro-7-propyl-, 1370*d*.

**$C_{17}H_{26}ClN_4$** Biguanide, 5-(*p*-chlorophenyl)-1-cyclohexyl - 2 - isopropyl-, - *HCl*, 2950*a*.

**$C_{17}H_{26}ClN_3O_2$** 1 - Piperidinecarboxamidine, *N* - [*N* - (*p* - chlorophenyl) - *N'* - ethylguanyl]-, acetate, P 6659*a*.

**$C_{17}H_{26}IN$** [3 - (2 - Cyclopenten - 1 - yl) 3 phenylpropyl]trimethylammonium iodide, 8359*f*.

**$C_{17}H_{26}INO$** Decahydro - 5 - methyl - 1-phenoxymethylquinolizinium iodide, 6210*c*.

**$C_{17}H_{26}INO_4$** 5 - Butoxy - 5,6,7,8 - tetrahydro-4 - methoxy - 6,6 - dimethyl - 1,3-dioxolo[*g*]isoquinolinium iodide, 2213*i*

**$C_{17}H_{26}N_2$** Cinnamamidine, *N*, *N* dibutyl-, - *HCl*, P 5801*e*.

Piperidine, benzylidenedi-, 7643*g*.

**$C_{17}H_{26}N_2O$** Cyclopentanecarboxamide, *N*-(2 - dimethylaminoethyl) - *N* - methyl 1-phenyl-, *and* - *HCl*, P 7958*h*

Pyridine, 2 - [1 - (1 - cyclohexen - 1-yl)-1 - (2 - dimethylaminoethoxy)ethyl], *and* - *HCl*, 9206*f*.

**$C_{17}H_{26}N_2OS$** 1 - Naphthoic acid, 4-amino-5,6,7,8 - tetrahydrothiol-, 2-diethylaminoethyl ester, 6193*a*.

**$C_{17}H_{26}N_2O_2$** Benzoic acid, *p*-dimethylamino-, 2-cyclohexylaminoethyl ester, P 2640*c*

Butyramide, *N*, *N'* - (3 - phenylpropylidene)bis-, 2601*a*.

Cyclopentanecarboxamide, *N* - (2-dimethylaminoethyl) - 1 - (*p* - methoxyphenyl)-, *and* - *HCl*, P 7958*i*, P 7959*a*.

2 - Propanol, 1 - cyclohexylamino - 2-methyl-, carbanilate, - *HCl*, P 2640*a*.

Urea, 1 - cyclohexyl - 1 - (2 - hydroxyisobutyl)-3-phenyl-, P 2640*a*.

**$C_{17}H_{26}N_2O_2$** Hydantoic acid, α,α-dibutyl-5-phenyl-, 2167*c*.

Hydantoic acid, α,α-diisobutyl-5-phenyl-, 2167*c*.

**$C_{17}H_{26}N_2O_4$** Butyric acid, α (dimethyl-

•aminomethyl-β-hydroxy-α-methyl-, Et ester *p*-aminobenzoate, *and* - *HCl*, 7643*c*.
1(2*H*)Quinolineethanol, 7-acetamido-3,4-dihydro - 3,4 - dihydroxy - α,2,2,4-tetramethyl-, P 8624.
$C_{17}H_{28}N_2O_6$ Glutamic acid, *N* - [3-hydroxy-5 - (hydroxymethyl) - 2 - methyl - 4-pyridylmethyl]-, di-Et ester, *di-HCl*, 644*h*.
$C_{17}H_{28}N_2O_6S$ Penicillin G, sulfone hexahydro deriv., 4921*d*.
$C_{17}H_{28}N_2O_7$ 1,1,5 - Pentanetricarboxylic acid, 1-acetamido - 5 - cyano-, tri-Et ester, P 7505*h*.
Propionamide, *N* - 2 - hydroxyethyl-β-[(*o*-methoxyphenethyl)methylamino]-, oxalate, 5765*e*.
$C_{17}H_{28}N_4O_4$ 4-Octanone, 5-propyl-, 2,4-dinitrophenylhydrazone, 6623*e*.
$C_{17}H_{28}N_4O_7$ Cyclohexanepropylamine, *N*, *N*-dimethyl-, picrate, 1026*g*.
$C_{17}H_{26}O$ Capriphenone, α-methyl-, 2931*i*.
2 Hendecanone, 3 phenyl-, 2932*d*.
$H_{26}O_2$ Benzene, 1,3-dimethoxy-5-(1,2,4-trimethyl-1-hexenyl)-, 8384*e*.
Butyrophenone, 2 - isoamoxy - 4,5-dimethyl-, 7924*f*.
Hendecanoic acid, phenyl, 2175*g*.
6 - Nonen - 3 - ol, 6 - ethyl - 7 - (*p*-hydroxyphenyl)-, 5015*a*, 8367*c*.
2,4 - Pentadienoic acid, 3-methyl-5-(2,6,6 - trimethylcyclohexenyl)-, Et ester, 2585*h*, 5371*c*.
1 - Penten - 4 - yn - 3 - ol, 5 - ethoxy-3-methyl - 1 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 2585*h*.
α-Santalol, acetate, 5385*a*.
β-Santalol, acetate, 5385*b*.
$H_{26}O_2$ Caprylophenone, 3,5-dimethoxy-α-methyl-, 8384*f*.
2 Naphthoic acid, 1,2,3,4,6,7,8,8a-octahydro - 4 - isopropyl - 1 - methyl - 6 - oxo -, Et ester, 3807*g*.
2,4 - Pentadienoic acid, 2-hydroxy-3-methyl - 5 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, Et ester, 1337*i*.
$H_{26}O_3S$ Menthol, toluenesulfonate, P 3232*b*, 8226*h*.
$H_{26}O_4$ Bicyclo[2.2.1] - 5 - heptene - 2,3-dicarboxylic acid, di-Bu ester, P 2817*h*.
Cyclohexaneacetic acid, 2-(5 carboxy-5-methyl - 1 - cyclopenten - 1 - yl) -, di-Me ester, 3829*d*.
2,3 Norcamphanedicarboxylic acid, 5 hydroxy -, lactone, 2 ethylhexyl ester, P 3033*a*.
$H_{26}O_4$ 1,2 - Naphthalenedicarboxylic acid, decahydro 2 methyl 4 oxo-, di-Et ester, 2200*b*.
$H_{26}O_6$ Galactoside, benzyl 2,3,4,6 tetramethyl-, 2954*c*.
Glucoside, benzyl 2,3,4,6 tetramethyl-, 2954*c*.
$H_{26}O_7$ Azelaic acid, α, η diacetyl δ-oxo-, di-Et ester, 7433*b*.
1,3 - Cyclohexanediacetic acid, 1-carboxy - 2 - oxo-, tri-Et ester, 2613*i*.
Cyclohexanemalonic acid, 4-carboxy-4-methyl 3-oxo-, tri-Et ester, 2605*d*.
3 Cyclopentanedicarboxylic acid, 3-(carboxymethyl) - 1,2 - dimethyl-4-oxo -, tri-Et ester, 3796*h*.
1,2,4 Cyclopentanetricarboxylic acid, 3,3,4 - trimethyl - 5 - oxo-, tri Et ester, 5380*h*.
$H_{26}O_5$ Diethylene glycol, dimethacrylate carbonate, P 1609*b*.
$H_{26}O_{10}$ Glucoside, isopropyl, tetraacetate, 3795*e*.
$H_{25}ClN_2O_4S_2$ Acetic acid, (1-propylbutylmercapto)-, 2 - (*p* - chlorobenzyl)-2-thiopseudourea salt, 3365*b*.
$H_{27}N$ Benzylamine, *o*-cyclohexyl- *N*, *N*-diethyl-, 1359*g*.
Cyclohexanemethylamine, *N*, *N*-diethyl-2 phenyl-, 1357*h*.
$H_{27}NO$ *o*-Cresol, 4-*tert*-butyl-α-cyclohexylamino -, 3425*f*.
Cyclohexanemethanol, α-(2-dimethylaminoethyl)-α-phenyl-, - *HCl*, 9071*d*.
Cyclohexanol, 2-(diethylaminomethyl)-1-phenyl-, 1357*i*.
Ethylamine, 2 - (α - cyclohexylbenzyloxy)-*N*, *N* dimethyl-, *and* - *HCl*, 631*c*.
—, *N*, *N*-dimethyl-2-(α-phenyl-*o*-toloxy)-, hexahydro deriv., - *HCl*, 3386*e*.
1 - Piperidinepropanol, α-ethyl-β-methyl - α - phenyl-, - *HCl*, 9070*h*.
• α-ethyl-α-*p*-tolyl-, - *HCl*, 9070*g*.
• α isopropyl-α-phenyl-, - *HCl*, 7581*b*; *and* - *HCl*, 9071*h*.
—, α-phenyl-α-propyl-, - *HCl*, 7581*b*; *and* - *HCl*, 9071*h*.
$C_{17}H_{27}NO_2$ 1 - Cyclohexene - 1 - acetic acid, α-cyano-α-hexyl-, Et ester, 3798*a*.
4-Morpholinepropanol, α-butyl-α-phenyl-, *and* - *HCl*, 9071*g*.
—, α - isobutyl - α - phenyl-, *and* - *HCl*, 9071*g*.
1 - Piperidinepropanol, α-ethyl-α-(*p*-methoxyphenyl)-, - *HCl*, 9070*g*.
$C_{17}H_{27}NO_3$ Acetic acid, (2-diethylaminoethoxy)phenyl-, iso-Pr ester, 2189*e*.
Acetic acid, [*p* - (3 - diethylaminopropoxy)phenyl]-, Et ester, *and* - *HCl*, 3361*h*.
Hydrocinnamic acid, α-(diethylaminomethyl) - β - hydroxy - α - methyl-, Et ester, 7643*f*.
$C_{17}H_{27}NO_4$ β - Alanine, *N* - (3,4 - diethoxyphenethyl) - *N* - methyl , Me ester, - *HCl*, 5765*g*.
β-Alanine, *N* - (2 - ethoxy 3 - methoxyphenethyl) - *N* - methyl-, Et ester, - *HCl*, 5765*f*.
$C_{17}H_{27}NO_4S$ Cyclopentanone, compd with 1-benzylpiperidine bisulfite, 3355*h*.
$C_{17}H_{27}NO_5$ Actidione, dihydro-, acetate, 2998*e*.
Glutarimide, β - [2 - hydroxy - 2 - (2-hydroxy - 3,5 - dimethylcyclohexyl)-ethyl]-, acetate, 2998*e*.
$C_{17}H_{27}NO_6$ 1,5,5-Heptanetricarboxylic acid, 1-cyano-, tri-Et ester, P 7505*i*.
$C_{17}H_{27}NO_8$ Cyclopentanecarboxylic acid, 1-(5 - dimethylamino - 3 - oxoamyl)-2-oxo-, Et ester, oxalate, 7432*d*.
$C_{17}H_{27}NO$ 3,5 - Hexadien - 2 - one, 4-methyl - 6 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, semicarbazone, 2587*h*.
$C_{17}H_{27}NO_3$ Butyrophenone, 4-isoamoxy-3-methyl-, semicarbazone, 3826*a*.
Morpholine, 4,4' - (*p* - dimethylaminobenzylidene)di-, 7030*a*.
$C_{17}H_{27}N_5$ 1*H* - Tetrazole, 5 - (1 - dibutylaminoethyl)-1-phenyl-, P 7972*b*.
$C_{17}H_{27}O_3P$ 2 - Indanphosphonic acid, di-Bu ester, P 7969*e*.
$C_{17}H_{28}$ Decane, 2 - methyl - 2 - phenyl , P 6232*h*.
Decane, 2-*p*-tolyl-, P 6232*d*.
Hendecane, 6-phenyl-, P 6232*g*.
$C_{17}H_{28}ClNO$ 1-Lauroylpyridinium chloride, 4241*c*.
$C_{17}H_{28}ClNO_3$ 1 - (Carboxymethyl)pyridinium chloride, decyl ester, 6977*c*.
2 - Propanol, 1 - (*p* - chlorophenoxy) - 3-dibutylamino-, P 7045*i*.
$C_{17}H_{29}HgN_3O_6$ Barbituric acid, 1-[3 (acetoxymercuri) - 2 - butoxypropyl]-5,5-diethyl , 2160*i*.
Barbituric acid, 1-[3-(acetoxymercuri)-2-isobutoxypropyl]-5,5-diethyl-, 2160*i*.
$C_{17}H_{29}INO_2$ 1 - (*p* Ethoxy - β - hydroxy-α-methylphenethyl) - methylpiperidinium iodide, 231*d*.
$C_{17}H_{29}INO_3$ [2 - (*p* - Carboxyphenoxy)ethyl]-triethylammonium iodide, Et ester, 6592*a*.
$C_{17}H_{29}INO_4$ (2 - Carboxyethyl)(3,4-dimethoxyphenethyl)dimethylammonium iodide, Et ester, 5765*g*.
$C_{17}H_{29}N_3$ Ethylenediamine, *N*-benzyl- *N* cyclohexyl- *N'*, *N'*-dimethyl-, P 3039*b*.
Sparteine, ethyldehydro-, 1047*i*.
$C_{17}H_{29}N_3O$ *o*-Acetotoluidide, α-dibutylamino-, *and perchlorate*, 1021*h*.
Pyridine, 2 - [1 - cyclohexyl - 1 - (2-dimethylaminoethoxy)ethyl]-, *and* - *HCl*, 2206*f*.
$C_{17}H_{29}N_3OS$ Benzamide, *m* - (butylmercapto) - *N* - (2 - diethylaminoethyl)-, - *HCl*, 3101*h*.
Benzamide, *N* - [2 - (2 - diethylaminoethylmercapto)ethyl]- *N*-ethyl-, - *HCl*, 6184*c*.
$C_{17}H_{29}N_3O_2$ *m* - Acetotoluidide, 5-*tert*-butyl-α - diethylamino - 2 - hydroxy-, - *HCl*, P 1062*c*.
Benzamide, *m*-butoxy - *N* - (2 - diethylaminoethyl)-, - *HCl*, 3101*h*.
Benzamidine, *N*, *N* - dibutyl - 2,5-dimethoxy-, - *HCl*, P 5801*d*.
Veratramidine, *N*, *N*-dibutyl-, - *HCl*, P 5801*d*.
$C_{17}H_{29}N_3O_2S_2$ Acetic acid, (2,4 - dimethylamylmercapto)-, 2 - benzyl - 2-thiopseudourea salt, 3365*a*.
$C_{17}H_{29}N_3O_3$ Acetamide, α - [*p* - (3 - diethylaminopropoxy)phenyl] - *N* - 2 - hydroxyethyl-, 3362*c*.
2,6 - Acetoxylidide, α - [(formylmethyl)-methylamino]-, di-Et acetal, 1025*b*.
1*H* - Quinolixine - 1 - carboxylic acid, octahydro - 4 - oxo - 3 - (2-piperidyl)-, Et ester, 4270*b*, 7490*e*.
$C_{17}H_{29}N_3O_3S$ Capramide, *N* - *p* - sulfamylbenzyl-, 8539*e*.
$C_{17}H_{29}N_3O_3S_2$ Cyclohexanemethanesulfonic acid, 3,3 - dimethyl-, 2 - benzyl - 2-thiopseudourea salt, 9044*c*.
$C_{17}H_{29}N_3O_4$ Procaine, isobutyrate, 7290*d*.
$C_{17}H_{30}O$ Bicyclo[10.3.1] - 12 - hexadecen-16-one, 13-methyl-, 7908*h*.
$C_{17}H_{30}OS_2$ Mesitol, $\alpha^1,\alpha^5$-bis(butylmercapto)-, 7000*f*.
$C_{17}H_{30}O_2$ Benzene, 1,3-dimethoxy-5-(1,2,4-trimethylhexyl)-, 8384*e*.
1,4 - Pentadien - 3 - ol, 1 - ethoxy-3-methyl - 5 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, 2585*h*.
2(1*H*) - Phenanthrone, dodecahydro-10a - hydroxy - 4b,8,8 - trimethyl-, 1752*d*.
$C_{17}H_{30}O_2S$ Ethanethiol, 2 - [2 - [*p* - (5-methylhexyl)phenoxy]ethoxy]-, P 4507*i*.
Thiophenecaprie acid, ω-methyl-, Et ester, 566*c*.
—, ω,2,5-trimethyl-, 566*c*.
Thiophenehendecanoic acid, Et ester, 566*c*.
—, 2,5 dimethyl-, 566*c*.
$C_{17}H_{30}O_3$ 3 - Cyclopentene - 1 - carboxylic acid, 2 - (1,5 - dimethylhexyl) - 1-methyl-5-oxo-, Et ester, 7911*g*.
4-Pentenoic acid, hydroxy-3-methyl-5-(2,6,6 - trimethyl - 2 - cyclohexen-1-yl)-, Et ester, 5371*a*.
$C_{17}H_{30}O_4$ Cycloheptanevaleric acid, 1-carboxy-2-oxo-, di-Et ester, 5375*c*.
$C_{17}H_{30}O_8$ 1,1,3,3 - Propanetetracarboxylic acid, 2,2-dimethyl-, tetra-Et ester, 4217*f*.
$C_{17}H_{30}O_8S_2$ Arabinose, di-Et mercaptal tetraacetate, 3368*a*.
$C_{17}H_{30}O_{10}$ Verbenalin, tetrahydro-, 7017*h*.
$C_{17}H_{29}Br$ Naphthalene, 5 - (3 - bromopropyl) - 1,2,3,4,4a,5,8,8a - octahydro 1,1,4a,6 - tetramethyl-, 3808*e*.
$C_{17}H_{29}ClN_4$ Biguanide, 1-(*p*-chlorophenyl)-5 - (4 - diethylamino - 1 - methylbutyl)-, P 6659*g*.
$C_{17}H_{29}NO$ Triethylamine, 2-(α-butylbenzyloxy)-, P 5043*g*.
Triethylamine, 2 - (α - isobutylbenzyloxy)-, P 4299*d*, P 5043*g*.
$C_{17}H_{29}NO_2$ 2 - Cyclopentene - 1 - acetic acid, α - butyl-, 2 - (1 - pyrrolidyl)ethyl ester, 1388*f*.
2 - Cyclopentene - 1 - acetic acid, α-propyl-, 3 - (1 - pyrrolidyl)propyl ester, *and* - *HCl*, 1388*f*.
2 - Propanol, 1 - (4 - *tert* - amyl - *o*-toloxy) - 3 - ethylamino-, - *HCl*, P 7046*b*.
$C_{17}H_{29}NO_2S$ Benzyl alcohol, α - [3 - (2-diethylaminoethylmercapto)propoxymethyl]-, 6574*i*.
$C_{17}H_{29}NO_4$ Cyclohexanecarboxylic acid, 1 - [5 - (ethylmethylamino) - 3-oxoamyl]-2-oxo-, Et ester, 7432*i*, 7433*a*.
$C_{17}H_{29}N_3$ Benzamidine, *N*, *N*-dibutyl-*p*-dimethylamino-, - *HCl*, P 5801*d*.
$C_{17}H_{29}N_3O$ Benzamide, *m*-butylamino-*N*-(2-diethylaminoethyl)-, - *HCl*, 3101*i*.
5 - Hexen - 3 - one, 4 - methyl - 6-(2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-, semicarbazone, 1337*i*.
$C_{17}H_{29}N_3O_3$ Hydnocurpic acid, ω-oxo-, semicarbazone, 1730*i*.
$C_{17}H_{29}N_5O$ Biguanide, 1-butyl-5-(*p*-ethoxyphenyl)-2-isopropyl-, - *HCl*, 2950*a*.
*s*-Triazine, 2-butoxy-4,6-di-1-piperidyl-, 4269*g*.
$C_{17}H_{30}BrN$ 1-Dodecylpyridinium bromide, 1599*e*.
$C_{17}H_{30}ClN$ 1 - Dodecylpyridinium chloride, 20*d*, P 3772*f*, 6887*b*.
$C_{17}H_{30}IN$ 1-Dodecylpyridinium iodide, P 6948*i*.
Triethyl(*p* - isopropylphenethyl)ammonium iodide, 8059*b*.
$C_{17}H_{30}N_2$ Sparteine, ethyl-, 1047*i*.
$C_{17}H_{30}N_2O$ *o*-Cresol, 4-amino-α-diamylamino-, P 1062*c*.
Lupanol, ethyl-, 1047*i*.
Pyridine, 2 - [1 - (2 - dimethylaminoethoxy) - 1 - methylheptyl]-, *and* - *HCl*, 2206*f*.
$C_{17}H_{30}N_4O_2$ 1 - Cyclohexene - 1 - malonamide, *N*, *N*, *N'*, *N'* - tetraethyl-, P 1797*i*, P 3842*f*.
Malonamide, α,α - diallyl - *N*, *N*, *N'*, *N'*-tetraethyl-, P 1797*i*, P 3842*f*.
Piperidine, 1,1' - (β,β - dimethylglutaryl)di-, P 1797*h*, P 3842*i*.

Seneciamide, *N* - ethyl - *N* - [1-(2-methyl - 1 - piperidylcarbonyl)propyl]-, P 250*e*.

$C_{17}H_{30}N_2O_4$ 1 - Dodecylpyridinium nitrate, P 667*b*.

$C_{17}H_{30}N_2O_4S_2$ Valine, *N* - [α - caproylamino-β - (ethylmercapto)acrylyl] - β-mercapto-, Me ester, 2990*h*.

$C_{17}H_{30}O$ Civetone, 1909*i*.
1 - Naphthalenepropanol, 1,4,4a,5,6,7,-8,8a - octahydro - 2,5,5,8a-tetramethyl-, 3808*d*.
1-Pentanone, 1,5-dicyclohexyl-, 5015*f*.

$C_{17}H_{30}O_2$ Cyclohexanebutyric acid, 4-cyclohexyl-, Me ester, 1375*g*.

$C_{17}H_{30}O_3$ Cyclopentanecarboxylic acid, (1,5 - dimethylhexyl)methyloxo-, Et ester, 1335*e*, 7911*g*.

$C_{17}H_{30}O_4$ Adipic acid, β-1,5 - dimethylhexyl - β - hydroxy - α - methyl-, γ-lactone, Et ester, 1335*d*, 7911*f*.
Malonic acid, dodecyl 2-hydroxyethyl-, γ-lactone, 1322*e*.

$C_{17}H_{30}O_5$ Malonic acid, (3,7-dimethyl-2-oxooctyl)-, di-Et ester, 1335*d*.

$C_{17}H_{30}O_6$ 1,3,5 - Hexanetricarboxylic acid, 3,5-dimethyl-, tri Et ester, 7462*e*.

$C_{17}H_{31}Cl$ 7-Heptadecyne, 17 chloro, 566*i*.

$C_{17}H_{31}Cl_3O_2S$ Sulfone, octenyl 1-(2,2,2-trichloroethyl)heptyl, 2157*g*.

$C_{17}H_{31}NO$ Cyclohexadecanecarbonitrile, 1-hydroxy-, 7907*a*.

$C_{17}H_{31}NO_2$ Cyclopentaneacetic acid, α-butyl-, 2 - (1 - pyrrolidyl)ethyl ester, *and* - *HCl*, 1388*g*.
Cyclopentaneacetic acid, α propyl-, 3-(1 pyrrolidyl)propyl ester, *and* - *HCl*, 1388*f*.

$C_{17}H_{31}NO_5$ Glutamic acid, N lauroyl-, P 3841*h*.

$C_{17}H_{31}N_3O_3$ Oxamide, *N*, *N*, *N'*-triethyl-*N'* - [1 - (1 - piperidylcarbonyl)propyl]-, P 250*e*.

$C_{17}H_{32}BrCl_3O_2S$ Sulfone, 2 bromooctyl 1 - (2,2,2 - trichloroethyl)heptyl, 2157*g*.

$C_{17}H_{32}N_2O_2$ Hydantoin, 5,5-diheptyl-, 1322*i*
Hydantoin, 5-hexyl 5-octyl-, 4637*c*.

$C_{17}H_{32}O$ Cycloheptadecanone, 7907*a*
1-Pentanol, 1,5-dicyclohexyl-, 5015*f*.

$C_{17}H_{32}O_2$ Cyclopentadecanol, acetate, 6988*g*
Hendecanoic acid, cyclohexyl-, 2175*g*

$C_{17}H_{32}O_3$ Palmitic acid, β-oxo, Me ester, 140*a*.

$C_{17}H_{32}O_2S$ Lauric acid, 3-mercaptopropyl ester acetate, P 2805*d*.

$C_{17}H_{32}O_4$ Malonic acid, decyl-, di-Et ester, 577*h*, 8358*c*.
Malonic acid, methylnonyl-, di-Et ester, 6161*a*.
Pimelic acid, di-Am ester, P 7505*e*.

$C_{17}H_{32}O_4S$ Caproic acid, α-(2 carboxyethylmercapto) ε - ethoxy, di-Pr ester, P 7504*g*.

$C_{17}H_{32}O_4S$ Caprylic acid, ester with monocaproate of 2,3-dihydroxy-1-propanesulfonic acid, P 4878*f*.

$C_{17}H_{33}ClO$ 2-Heptadecanone, 1-chloro-, 633*g*.

$C_{17}H_{33}IN_2O_2$ Propionic acid, α-iodo-, octyl ester, compd. with hexamethylenetetramine, 4641*a*.

$C_{17}H_{33}N$ Cyclohexanemethylamine, 2-cyclohexyl-*N*, *N*-diethyl-, 1359*d*.
Enanthonitrile, α,α-diamyl-, 568*d*.
Pelargononitrile, α-heptyl-α-methyl-, 568*d*

$C_{17}H_{33}NO$ 2-Azacycloöctadecanone, 5400*e*.
Cycloheptadecanone, oxime, 5400*e*.
Ethylamine, 2 - [2 - (cyclohexylmethyl)-cyclohexyloxy] - *N*, *N* - dimethyl-, - *HCl*, 3386*e*.

$C_{17}H_{33}NO_2$ Caproic acid, α-butyl-, 2-(1-piperidyl)ethyl ester, P 6241*f*, P 7972*f*.
Caproic acid, α,α-diethyl-, 2-(1-piperidylethyl) ester, P 3443*i*, P 3444*a*.
—, α - methyl - α - propyl-, 2-(1-piperidyl)ethyl ester, P 3444*b*.
Valeric acid, α-methyl-α-propyl-, 3-dimethylaminocyclohexyl ester, P 3443*f*; 3-(1-piperidyl)propyl ester, P 3443*f*.

$C_{17}H_{33}N_3O_2$ Cyclopentadecanone, 2-hydroxymethyl-, semicarbazone, 163*i*.

$C_{17}H_{33}N_3O_3$ Oxamide, *N* - butyl - *N* - (1-diethylcarbamylethyl) - *N'*, *N'*-diethyl-, P 6653*h*.

$C_{17}H_{33}N_3$ Pyrimidine, 2-amino-4-(3-diamylaminopropylamino)-, P 4704*g*

$C_{17}H_{33}NO$ 2-Heptanol, 6-[[(1-cyclohexyl-1 *H* - tetrazol - 5 - yl)methyl]methylamino)-2-methyl-, 1864*h*.

$C_{17}H_{34}$ Heptadecene, P 7035*a*.

$C_{17}H_{34}N_2O_2$ Glutaramide, *N*, *N*, *N'*, *N'*-β, β-hexaethyl-, P 1797*h*, P 3842*i*.

$C_{17}H_{34}N_2S_2$ Cyclohexanecarbamic acid, *N*-ethyldithio-, compd. with *N*-ethylcyclohexylamine, 6856*h*.

$C_{17}H_{34}O$ Cycloheptadecanol, 6988*g*.
2-Heptadecanone, 3781*e*.
Tridecen-6-ol, 3,9-diethyl-, P 3438*e*.

$C_{17}H_{34}O_2$ Enanthic acid, α,α-diamyl-, 568*h*.
Margaric acid, 69*d*.
Myristic acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
—, δ,θ,μ-trimethyl-, 1764*e*.
Palmitic acid, Me ester, 567*c*, 2055*e*, 2164*i*, 2940*i*
Pelargonic acid, α-heptyl-α-methyl-, 568*h*

$C_{17}H_{34}O_3$ Caproic acid, (decyloxy)methyl ester, 6162*c*.
Carbonic acid, bis(2-ethylhexyl) ester, 6168*d*.
Methanol, tetradecyloxy, acetate, 6162*a*.

$C_{17}H_{34}O_5$ Aleuritic acid, Me ester, 2941*a*

$C_{17}H_{35}Br$ Heptadecane, 9 bromo, 108*a*
Tetradecane, 1 bromo - 5,9,13 - trimethyl-, 1764*f*

$C_{17}H_{35}ClO$ Ether, chloromethyl hexadecyl, P 6440*d*

$C_{17}H_{35}N$ Azacyclooctadecane, 5400*e*

$C_{17}H_{35}NO$ Enanthamide, α,α-diamyl-, 568*i*
Lauramide, *N-tert*-amyl-, 2165*e*.
Pelargonamide, α-heptyl α-methyl, 568*i*

$C_{17}H_{35}NO_2$ Caproic acid, α-isobutyl-α-methyl-, 2 diethylammoethyl ester, P 3443*i*.
Caproic acid, α-methyl-α-propyl-, 3 diethylaminopropyl ester, P 3443*g*.
Valeric acid, α-isobutyl α,γ-dimethyl, 2-diethylaminoethyl ester, P 3443*h*

$C_{17}H_{35}NO_3S$ Taurine, *N*-methyl *N*-myristoyl-, 5905*c*.

$C_{17}H_{35}NaO_4S$ 6-Tridecanol, 3,9-diethyl-, hydrogen sulfate Na salt, 2731*i*

$C_{17}H_{36}$ Heptadecane, 3254*c*, 6020*d*, P 7035*a*, 8777*h*.

$C_{17}H_{36}INO_2$ Choline iodide laurate, 7940*b*.

$C_{17}H_{36}N_2S$ Pseudourea, 2-hexadecyl-2 thio, - *HI*, P 4156*e*.

$C_{17}H_{36}O$ 9-Heptadecanol, 107*i*.
1-Tetradecanol, 5,9,13 trimethyl, 1764*e*.
6-Tridecanol, 3,9-diethyl-, P 3438*d*.

$C_{17}H_{36}O_4S$ 6-Tridecanol, 3,9-diethyl, hydrogen sulfate, *Na salt*, 2731*i*.

$C_{17}H_{36}S$ Heptadecanethiol, P 2630*c*.

$C_{17}H_{37}NO_4S$ Caproaldehyde, α-ethyl-, compd. with 1-butylpiperidine bisulfite, 3355*h*.

$C_{17}H_{38}BrN$ Trimethyltetradecylammonium bromide, 3688*b*, 4780*b*, 7293*i*

$C_{17}H_{38}ClN$ Trimethyltetradecylammonium chloride, 20*d*, 6887*b*.

$C_{17}H_{38}ClNO_4$ (2,3 - Dihydroxypropyl)dodecyldimethylammonium chloride, 6978*b*.

$C_{17}H_{38}N_2$ Methanediamine, *N*, *N*, *N'*, *N'*-tetrabutyl-, 7246*f*
1,3 Propanediamine, *N*, *N'* diheptyl, *di- HI Br*, 3380*d*.

$C_{17}H_{38}N_2S_2$ Carbamic acid, dibutyldithio-, compd with $Bu_2NH$, P 4508*h*

$C_{17}H_{40}Br_2N_2$ Hendecamethylenebis[trimethylammonium bromide], 2703*d*.
Pentamethylenebis[triethylammonium bromide], 2703*d*.

$C_{17}H_{42}Cl_2N_2O_2$ Choline chloride, orthoacetate, 1720*d*.

$C_{18}H_8Br_4CuN_2O_2$ 8-Quinolinol, 5,7-dibromo-, Cu deriv., P 1902*d*.

$C_{18}H_8F_2O_3$ 1,2 - Naphthalenedicarboxylic anhydride, 7 - fluoro - 4 - (*p*-fluorophenyl)-, 206*h*.

$C_{18}H_8N_2O_3$ Anhydride, m. 345°, 7012*h*.

$C_{18}H_8N_2O_7$ 2,3 - Naphthalenedicarboxylic anhydride, 7-nitro-1-(*p*-nitrophenyl)-, 606*d*.

$C_{18}H_8N_2O_{14}$ *p*-Quinone, bis(picryloxime), 5623*d*.

$C_{18}H_8O_2$ Chrysenedione, 8735*a*.

$C_{18}H_8O_2$ 2,3-Fluoranthenedicarboxylic anhydride, 7014*d*.

$C_{18}H_8O_4$ [$\Delta^{2,2'}$ - Biindan] - 1,1',3,3' - tetrone, 7012*d*.

$C_{18}H_9BrO_2S$ 9-Fluorenone, 2-(5-bromo-2-thenoyl)-, 4666*c*.

$C_{18}H_9BrO_3$ 1,2 - Naphthalenedicarboxylic anhydride, 4 - (*p* - bromophenyl)-, 8885*f*.

$C_{18}H_9ClN_2O_2$ 7 *H* - Acenaphth[1,2-*b*]indole, 8-chloro-11-nitro-, 628*f*.

$C_{18}H_9ClO_2$ Benz[*a*]anthracene - 7,12-dione, chloro-, 2985*i*.

$C_{18}H_9ClO_3$ 1,2 - Naphthalenedicarboxylic anhydride, 4-(*p*-chlorophenyl)-, 206*h*, 8885*f*.

$C_{18}H_9FO_3$ 1,2 - Naphthalenedicarboxylic anhydride, 4-(*p*-fluorophenyl)-, 206*h*, 8885*f*.

$C_{18}H_9NO_4$ Benz[*a*]anthracene - 7,12-dione, nitro-, 7918*h*.

$C_{18}H_{10}BrN$ 7 *H* - Acenaphth[1,2-*b*]indole, 10-bromo-, 628*i*.

$C_{18}H_{10}Br_2$ Chrysene, 6,12-dibromo-, P 7711*h*.

$C_{18}H_{10}Br_2O_3$ 9,10 - Ethanoanthracene 11,12 dicarboxylic anhydride, 9,10-dibromo 9,10-dihydro-, 1758*h*.

$C_{18}H_{10}Cl_2$ Benz[*a*]anthracene, 7,12-dichloro-, 7013*b*.

$C_{18}H_{10}Cl_2O_3$ 9,10 - Ethanoanthracene-11,12 dicarboxylic anhydride, 9,10 dichloro-9,10-dihydro-, 1758*h*.
1,2 - Naphthalenedicarboxylic anhydride, 7 - chloro - 4 - (*p* - chlorophenyl)-, 206*h*, 8885*f*.

$C_{18}H_{10}Cl_4$ Benz[*a*]anthracene, 7,7,12,12-tetrachloro 7,12-dihydro-, 7013*b*.

$C_{18}H_{10}Hg_2N_6O_4$ Isatin, 3 semicarbazone, Hg deriv, 8979*i*.

$C_{18}H_{10}N_2O_3$ Benzoic acid, *o*-(3,8-dihydro 8 oxoindeno[1,2]imidazol - 2 - yl)carbonyl)-, 7012*h*.
Phthalimide, *N* - (nitro - 1 - naphthyl), 8371*g*

$C_{18}H_{10}N_2O_7$ 9,10 Ethanoanthracene - 11,12 dicarboxylic anhydride, 9,10 dihydro-9,10-dinitro-, 1759*a*.

$C_{18}H_{10}N_2O_8$ 2,3 - Naphthalenedicarboxylic acid, 7 - nitro - 1 - (*p* - nitrophenyl), 606*d*.

$C_{18}H_{10}N_4O_8$ 5 *H* - Indeno[1,2-*b*]pyridin 5 one, picrate, 5103*b*.

$C_{18}H_{10}N_4O_{13}S_2$ *p* - Benzenedisulfonic acid, bis(2,4 - dinitrophenyl) ester, 2967*i*

$C_{18}H_{10}O_7$ Benz[*a*]anthracenedione, 2996, 1861*a*, 3091*b*, 7013*b*, 7918*h*.
Naphthacenequinone, 2091*i*.

$C_{18}H_{10}O_2S$ 9-Fluorenone, 2-(2-thenoyl), 4665*g*.

$C_{18}H_{10}O_3$ Benz[*a*]anthracene - 7,12 - dione, hydroxy-, 2985*h*, 3091*i*.
Naphthalenedicarboxylic anhydride, phenyl, 8885*f*.

$C_{18}H_{10}O_4$ 12 *H* - Benzo[*a*]xanthene - 11-carboxylic acid, 12 oxo-, P 4484*h*.
[2,2'-Biindan]-1,1',3,3'-tetrone, 7012*e*, 7013*a*.
Fluoranthenedicarboxylic acid, P 5966, 7473*i*.
Naphthacenequinone, 7012*e*.
Sorbic acid, β,γ - dihydroxy - α,δ-diphenyl-, di γ-lactone, 1110*d*, 7138*h*.

$C_{18}H_{10}O_4S_2$ Phthalide, 3,3 - di - 2 - thenoyl, P 2644*i*

$C_{18}H_{10}O_8 + 2H_2O$ Hydrindantin, 7012*e*.

$C_{18}H_{11}BrN_2S$ Quinoxaline, 2-(5 bromo-2 thienyl) 3 phenyl-, 4666*b*.

$C_{18}H_{11}BrOS$ Ketone, 5-bromo-2-thienyl 2 fluorenyl, 4666*c*.

$C_{18}H_{11}Br$ Benz[*a*]anthracene, 7,7,12 tribromo-7,12-dihydro-, 7013*b*.

$C_{18}H_{11}Br_3N_2O_2$ Allophanic acid, γ-naphthyl-, 2,4,6 - tribromophenyl ester, 7417*e*.

$C_{18}H_{11}Cl$ Benz[*a*]anthracene, chloro-, 2986*i*

$C_{18}H_{11}ClN_4O_8$ *m* - Phenylenediamine, 5 chloro - *N* - (2,4 - dinitrophenyl) 4,6 dinitro-*N'*-phenyl-(?), 3799*i*.

$C_{18}H_{11}ClO_3$ Benzoic acid, *o*-(chloronaphthoyl)-, 2985*i*.

$C_{18}H_{11}Cl_3N_2O_3$ Allophanic acid, γ-naphthyl-2,4,6-trichlorophenyl ester, 7447*e*.

$C_{18}H_{11}Cl_7O_4$ Phenol, 2,2' - (2,2,2 - trichloroethylidene)bis[4,6 - dichloro-, diacetate, 1754*g*.

$C_{18}H_{11}Cl_9N_2O_2$ Acetanilide, *p*, *p'* - (2,2,2-trichloroethylidene)bis[α,α,α - trichloro, 6605*c*.

$C_{18}H_{11}N$ 7 *H* - Acenaphth[1,2-*b*]indole, 628*b*.

$C_{18}H_{11}NO_2$ Benz[*a*]anthracene-7,12-dione, 2-amino-, 2985*g*.
Phthalimide, *N*-naphthyl-, P 4422*b*, 7182*d*.
7,12 - Pleiadenedione, 1-amino, 2985*g*.

$C_{18}H_{11}NO_3$ 9,10 - Ethanoanthracene - 11,12-dicarboxylic anhydride, 9,10-dihydro 9-nitro-, 1758*h*.
Maleamic acid, *N*-1-anthraquinonyl-, P 410*h*.

$C_{18}H_{11}NO_3S$ 1,2 *H* - Benzopyran - 3 - sulfonamide, 2 - oxo - *N* - (2 - oxo - 1,2 *H*-benzopyran-6-yl)-, 2179*f*.

$C_{18}H_{12}$ (See also *Benzanthracene; Chrysene; Naphthacene; Triphenylene.*)
Acenaphthylene, 1-phenyl-, 1389*c*.
Benzo[*c*]phenanthrene, 4560*g*, 6905*i*.

$\Delta^{1,6}$-Biindene, 6609*a*.

$C_{18}H_{12}BrNO_4$ Juglone, anilinobromo-, acetate, 201*i*.

$C_{18}H_{12}Br_2Cl_2O_2$ 3,10 - Ethanocyclobut[*b*]anthracene - 4,9 - dione, dibromo-1,2-dichlorooctahydro-, 6199*i*.

$C_{18}H_{12}Br_2N_2O_3$ Allophanic acid, γ-naphthyl-, 2,4 - dibromophenyl ester, 7447*eg*.

$C_{18}H_{12}Br_2O_6S$ Salicylic acid, 5,5′-thiobis[3-bromo-, diacetate, 2000*a*.

$C_{18}H_{12}ClNO_4$ Benzoic acid, 2-chloro-5-(1-hydroxy - 2 - naphthoylamino)-, 7232*b*.

Juglone, anilinochloro-, acetate, 201*ah*.

$C_{18}H_{13}ClN_2O_2$ 1 - Acenaphthenone, 2-chloro-5-nitrophenylhydrazone, 628*f*.

$C_{18}H_{13}ClN_2O_7$ Acetic acid, [5-(5-chloro-2-hydroxy - 3 - nitrophenylazo) - 6-hydroxy-2-naphthoxy]-, P 7698*a*.

$C_{18}H_{13}ClN_4$ Pteridine, 2-amino-4-chloro-6,7-diphenyl-, 4268*f*

$C_{18}H_{13}Cl_3$ Fulvene, 6,6 - bis(*p* - chlorophenyl)-, 5246*d*.

$C_{18}H_{12}Cl_2N_2O_2$ 2 - Acetonaphthone, 4 (2,5-dichlorophenylazo) - 1 - hydroxy-, 5779*a*.

Triphenylamine, 4,4′ - dichloro-4″-nitro-, 9038*a*.

$C_{18}H_{12}Cl_2N_2O_4$ Allophanic acid, γ-naphthyl-, 2,4 - dichlorophenyl ester, 7447*eg*.

$C_{18}H_{12}Cl_2N_4O_2S_2$ 2,2′ - Bibenzothiazole, 6,6′ - diacetamido - 5,5′-dichloro-, 5777*a*.

$C_{18}H_{12}Cl_2O_2$ 3,10 - Ethenocyclobut[*b*]anthracene - 4,9 - dione, 1,2 - dichloro-1,2,2a,3,10,10a - hexahydro-, 6199*h*.

$C_{18}H_{12}Cl_2O_4S_2$ Cinnamic acid, α,α′-dithiobis[*m*-chloro , 605*f*.

$C_{18}H_{12}Cl_2O_6S_2$ *p* - Benzenedisulfonic acid, bis(chlorophenyl) ester, 2967*h*

$C_{18}H_{13}Cl_2NO_6S_2$ Benzenesulfonic acid, 4,5 dichloro - 2 - [*p* - (*p* - chlorophenoxy)-phenylsulfonamido] , P 857*d*.

$C_{18}H_{15}Cl_3O_4PS$ Thiophosphoric acid, tris(*p* -chlorophenyl) ester, 9353*g*

$C_{18}H_{12}Cl_3Sb$ Stibine, tris(*p*-chlorophenyl) , P 2168*b*.

$C_{18}H_{17}Cl_3O$ 3(?*H*) - Retenone, tetrachloro-, 2985*j*

$C_{18}H_{12}CuN_2O_2$ 8-Quinolinol, Cu deriv , 803*c*, P 1902*b*, 1993*d*, 2355*g*, 4018*g*, 8222*d*, 9327*e*

$C_{18}H_{11}F_3N_2$ 4 - Fluoro - 1 - (4 - quinolyl)-quinolinium fluoride, 5783*g*

$C_{18}H_{11}F_4N_3O_3S$ 8 - Quinolinesulfono-3,5-xylidide, α,α,α,α′,α′,α′ - hexafluoro-2 methyl-, 4649*c*.

$C_{18}H_{12}N_2$ Benzonitrile, *p*-[2 (quinolyl) vinyl] , 5757*a*.

Biquinoline, 3000*f*, 7025*a*.

3 Isoquinolineacetonitrile, α benzylidene , 3820*i*

Phenanthridine, 6 (pyridyl)-, P 5051*b*, 7446*e*

$C_{18}H_{12}N_2O$ [1,4′(4*H*) - Biquinolin] - 4 one (?), 5783*i*.

9*H* Pyrid[3,4-*b*]indole, 9-benzoyl , 6627*d*

$C_{18}H_{12}N_2O_3S$ 2 - Naphthamide, *N* - 2-benzothiazolyl-3-hydroxy-, P 4498*i*.

$C_{18}H_{12}N_2O_3S_2$ Thianaphthenecarboxaldehyde, 3 hydroxy-, azine, 2201*d*.

$C_{18}H_{12}N_2O_4Pd$ 8-Quinolinol, Pd deriv , 8950*a*.

$C_{18}H_{12}N_2O_4U$ 8-Quinolinol, U deriv , 8953*a*

$C_{18}H_{12}N_2O_4$ Benzoic acid, 3 (1-hydroxy-2-naphthoylamino) - 5 - nitro-, 7232*b*.

$C_{18}H_{12}N_2O_8$ 9,10 - Ethanoanthracene - 11,12-dicarboxylic acid, 9,10-dihydro-9,10-dinitro-, 1758*i*.

$C_{18}H_{12}N_2O_8S_2$ *p* - Benzenedisulfonic acid, bis(nitrophenyl) ester, 2967*h*.

$C_{18}H_{12}N_2O_{12}$ Peroxide, bis(2-carboxynitrobenzoyl), di-Me ester, 3394*fg*.

$C_{18}H_{13}NO$ Furan, 2,5 - di - 2 - benzimidazolyl , P 5426*e*.

$C_{18}H_{12}N_4OS$ Acenaphtho[1,2-*b*]pyrimido-[1,5-*e*]pyrazin-11-ol, 9-(ethylmercapto)-, 2212*h*.

$C_{18}H_{12}N_4O_3$ 2 - Indazolecarboxamide, *N*-1-naphthylnitro-, 8365*h*.

$C_{18}H_{13}N_3O_2$ 5*H* - Indeno[1,2-*b*]pyridine, picrate, 5403*a*.

$C_{18}H_{13}N_3O_3S_2$ Furan, 2,5 - bis(*ar*-sulfo-2-benzimidazolyl)-, *di-Na deriv.*, P 8174*b*.

Phenol, *p*-(2,4-dinitroanilino)-, ester with *p*-nitrophenyl H sulfate, 173*g*.

$C_{18}H_{10}N_4$ 2 - Quinoxaline - carboxaldehyde, azine, 3425*c*.

$C_{18}H_{12}N_6O_3S$ Dibenzo[*f*,*h*]pyrimido[4,5-*b*]-quinoxalinesulfonic acid, 11,13-diamino-, 4269*a*.

$C_{18}H_{12}N_8O_4$ Pteridine, 2,4-diamino-6,7-bis(*m*-nitrophenyl)-, 4269*a*.

$C_{18}H_{12}O$ Benz[*a*]anthracen-4-ol, 3092*a*.

7*H*-Benz[*de*]anthracen-7-one, methyl-, 1760*i*, 3396*e*.

7*H* - Benzo[*c*]fluoren - 7 - one, methyl-, 3396*d*.

1-Chrysenol, 9207*i*.

Ketone, fluoranthenyl methyl, 7473*f*.

$C_{18}H_{12}OS$ Ketone, 2-fluorenyl 2-thienyl, 4665*f*.

$C_{18}H_{12}O_2$ 7*H* - Benz[*de*]anthracene - 7 - one, 2-methoxy-, 209*f*

6,12-Chrysenediol, 3402*f*.

11-Chrysofluorenone, 7-methoxy , 205*g*.

3,10 - Ethenocyclobut[*b*]anthracene 4,9 dione, 2a,3,10,10a - tetrahydro-, 6198*e*.

8-Fluoranthenecarboxylic acid, Me ester, 7473*i*.

Naphthacene, photoxide, 7341*c*.

$C_{18}H_{12}O_3$ Benzoic acid, *o*-naphthoyl-, 209*g*

9,10 - Ethanoanthracene 11,12 - dicarboxylic anhydride, 9,10-dihydro-, P 2819*d*.

8,9 - Fluoranthenedicarboxylic anhydride, 7,8,9,10 - tetrahydro-, 7014*c*.

$C_{18}H_{12}O_4$ 1,4 - Naphthoquinone, 2 - (*p* acetylphenyl) 3 - hydroxy-, 1380*g*

$C_{18}H_{12}O_4S$ 2,5 - Thiophenedicarboxylic acid, di-Ph ester, 630*c*.

3,4-Thiophenediol, dibenzoate, P 2237*b*

$C_{18}H_{12}O_4$ Coumarinic acid, 3-(2,4-dihydroxyphenyl)methyl , δ lactone, acetate, 1771*g*.

$C_{18}H_{12}O_6$ Coumarilic acid, 3-(2,4-dihydroxyphenyl) - 6 - methoxy , δ lactone, acetate, 1772*a*.

2 - Naphthoic acid, 4 - (2 - carboxy 6 hydroxyphenyl) - 8 - hydroxy , 3396*f*

Quinizarin, diacetate, 7341*h*

$C_{18}H_{12}O_7$ Succinic acid, (3,6,9 trihydroxy-9 - xanthylmethylene) , γ lactone, 7369*e*

$C_{18}H_{12}BrN_3$ 1 Acenaphthenone, *p*-bromophenylhydrazone, 628*f*

$C_{18}H_{13}BrN_2O_4$ Allophanic acid, γ naphthyl-, bromophenyl ester, 7447*ef*.

$C_{18}H_{13}BrN_4O_4$ Pyridine, 2 (benzyloxy) 5-bromo , picrate, 2997*h*

$C_{18}H_{11}BrO_4$ 2,4 Cresotic acid, 5 bromo-, 2 naphthyl ester, 2603*i*

1,4 Naphthoquinone, 2 - (bromophenethyl) 3 hydroxy , 1379*i*, 2610*b*.

$C_{18}H_{13}Br_2NO_2$ Acetanilide, α 1,6 dibromo-2 naphthoxy)-, 3813*h*

$C_{18}H_{13}ClMg$ *p* - Terphenyl - 4 - ylmagnesium chloride, 5768*h*

$C_{18}H_{13}ClN_2O_4$ Allophanic acid, γ naphthyl , chlorophenyl ester, 7447*ef*

$C_{18}H_{13}ClO_3$ 2 (3,4 Methylenedioxystyryl)-benzopyrylium chloride, P 6100*e*, P 7849*c*.

1,4 Naphthoquinone, 2 (chlorophenethyl) 3 hydroxy , 1109*i*, 1379*i*, 2610*b*

$C_{18}H_{13}ClNO_3S_2$ Benzenesulfonic acid, 4,5-dichloro - 2 - (*p* phenoxyphenylsulfonamido)-, P 857*d*

$C_{18}H_{13}Cl_2N_3O_6S_2$ Metanilamide, 4-(*p*-chlorophenoxy) - *N*1 - (3,4 - dichlorophenylsulfonyl) , P 8150*a*.

$C_{18}H_{13}Cl_3O$ 3(?*H*)-Retenone, trichloro-, 2985*j*

$C_{18}H_{11}FO_3$ 1,4 - Naphthoquinone, 2-(*p*-fluorophenethyl) - 3 - hydroxy-, 1379*i*

$C_{18}H_{13}FN_2O_2$ Anthraquinone, 4-(allyl amino) 1 - amino - 2 - (trifluoromethyl)-, P 7709*f*.

$C_{18}H_{13}IN_2O_2$ Allophanic acid, γ naphthyl , *p*-iodophenyl ester, 7447*eg*

$C_{18}H_{13}N$ Benz[*a*]acridine, 7 methyl , 6742*h*

Benz[*a*]anthracen-2-amine, 2985*h*

$C_{18}H_{13}NO$ 7*H* Benz[*de*]anthracen 7-one, methylamino , 1759*h*, 2984*f*

Benzonitrile, 3-methoxy 2 (naphthyl)-, 205*ce*.

Ketone, fluoranthenyl methyl, oxime, 7473*g*.

$C_{18}H_{13}NOS$ Benzo[*h*]quinolin-4-ol, 2 (5-methyl-2-thienyl) , 4666*g*.

2 - Thiophenecarboxamide, *N* - 2 fluorenyl-, 4665*d*.

$C_{18}H_{13}NO_2$ 11*H* - Indeno[2,1-*c*]quinoline-1-carboxylic acid, 3-methyl , 193*b*.

6-Quinolineacrylic acid, α phenyl , 3427*f*.

Terphenyl, nitro-, 4656*i*, 4657*ab*.

$C_{18}H_{13}NO_3$ 1 - Naphthaldehyde, 4-hydroxy , carbanilate, 593*f*.

2-Naphthanilide, 3′-formyl-1-hydroxy-, P 8169*i*.

Phthalamic acid, *N*-1-naphthyl-, 5525*a*.

$C_{18}H_{13}NO_4$ Anthranilic acid, *N*-(1-hydroxy-2-naphthoyl)-, 7232*b*.

Benzoic acid, *m*-(1-hydroxy-2-naphthoylamino)-, 7232*b*.

Juglone, anilino-, acetate, 202*a*.

5(4*H*) - Oxazolone, 4-*p*-hydroxybenzylidene - 2 - phenyl-, acetate, 1399*g*.

Phthalamic acid, *N*-(7-hydroxy-1-naphthyl)-, P 8155*i*.

$C_{18}H_{13}NO_4S$ Benzoic acid, *o* - [2 - (5-oxo-2-phenyl - 2 - oxazolin - 4 - ylidene)-ethylmercapto]-, 2201*c*.

1 - Naphthol - 8 - sulfonic acid, 4-(methylphenylcarbamyl)-, sultone, 204*a*.

—, 4 - *o* - tolylcarbamyl-, sultone, 204*a*.

$C_{18}H_{13}NO_5$, 6209*i*.

5 - Hexenoic acid, 4-hydroxy-3 (*p*-nitrophenyl) - 2 - oxo - 6 - phenyl-, γ-lactone, 5766*i*.

$C_{18}H_{13}NO_5S$ Benzenesulfonamide, *p* - (1,4-dihydro - 3 - hydroxy - 1,4 - dioxo-2-naphthyl)-, acetate, 1380*c*.

$C_{18}H_{13}NS$ Benzo[*f*]quinoline, 3 (5-methyl-2-thienyl) , 4666*g*.

$C_{18}H_{12}N_4Na_2O_6S_2$ See "Azogrenadin S" under *Dye*.

$C_{18}H_{13}N_4O$ 1 - Benzimidazolecarboxamide, *N* 1-naphthyl , 8365*h*.

Rutecarpine, 7194*d*.

$C_{18}H_{13}N_3O_2$ 1 - Acenaphthenone, nitrophenylhydrazone, 628*cf*

$C_{18}H_{14}N_2O_3$ Cinchophen, 4′-(α-isonitrosoacetamido) , 3000*g*

Urea, 1 (1 naphthyl) - 3 *p* nitrobenzoyl , 6162*f*

$C_{18}H_{11}N_2O$ Allophanic acid, γ-naphthyl-, nitrophenyl ester, 7447*ef*.

$C_{18}H_{14}N_2O_6$ Acetanilide, *o* phthalimidoacetyl , nitro deriv., 653*j*

$C_{18}H_{14}N_2O_7$ Acetic acid, [6 hydroxy-5 (2-hydroxy - 4 - nitrophenylazo) - 2-naphthoxy]-, P 7698*a*

$C_{18}H_{12}N_2S_2$ Thiazole, 2,2′ - iminobis[4-phenyl-, 2992*f*.

$C_{18}H_{12}N_2S_3$ Benzothiazole, 2,2′-(thiazolin-2 ylmethylene)di-, P 5807*h*.

$C_{18}H_{13}N_3O$ 2 - Naphthol, 1 - [4 - (1,2,3,2*H*-triazol - 2 - yl)phenylazo] , 2620*a*

4 - Pteridinol, 2 - amino - 6,7 - diphenyl , 8491*d*, 8555*f*.

$C_{18}H_{13}N_3O_3$ Ketone, phenyl 2 pyridyl, 2,4-dinitrophenylhydrazone, 1409*a*.

Resorcinol, 4 - [*p* - (*p* - nitrophenylazo)-phenylazo] , 597*e*.

$C_{18}H_{13}N_3O_3S$ 2 - Naphthol - 4 - sulfonic acid, 1 - (6 - hydroxy - 2 - methyl - 5-benzimidazolylazo) - 6 - nitro-, P 9460*d*.

$C_{18}H_{14}$ (See also *Terphenyl*.)

Acenaphthene, 1-phenyl-, 1389*c*.

Anthracene, 9,10-divinyl-, 165*h*.

Fluoranthene, 1,3 - dimethyl-, 3401*e*, 9059*e*.

Fulvene, 6,6-diphenyl-, 5246*d*.

1,5 - Hexadien - 3 - yne, 1,2 - diphenyl-, 6624*j*.

Naphthalene, α - methylenebenzyl-, 1388*i*.

—, styryl-, 1756*d*

$C_{18}H_{14}AsN$ Arsine, cyanonaphthyl-*p*-tolyl-, 3383*d*.

$C_{18}H_{14}As_2N_4O_4S_4$ Benzenesulfonamide, 4,4′-arsenobis[*N*-2-thiazolyl-, P 4817*a*.

$C_{18}H_{13}BaN_3O_4$ Isatin, 3-semicarbazone, Ba deriv., 8979*i*.

$C_{18}H_{14}BrNO$ Acetamide, α - (bromophenyl) - *N* - 2 - naphthyl-, 606*b*.

$C_{18}H_{14}BrNO_2$ Acetanilide, α-(1-bromo-2-naphthoxy)-, 3813*h*.

$C_{18}H_{14}BrNO_3$ Cinchophen, 6-bromo-4′-methoxymethyl-, 3825*gh*.

$C_{18}H_{14}BrN_3O_2$ Biuret, 1-(bromophenyl)-5-(naphthyl)-, 7446*i*, 7447*a*.

$C_{18}H_{14}Br_2N_2O_4S_2$ *p* - Benzenedisulfonanilide, 3′,3″-dibromo-, 4237*e*.

$C_{18}H_{14}Br_2O_2$ Anthraquinone, dibromo - 2-butyl-, 1762*a*.

$C_{18}H_{14}Br_2O_4$ Benzoin, 5,5′-dibromo-2,2′-dihydroxy-, diacetate, 4246*g*.

α,α′,2′,2′ - Stilbenetetrol, 5,5′ - dibromo-, α,α′-diacetate, 4246*h*.

$C_{18}H_{14}Br_4NO_2$ Anthraquinone, 1-amino-?,?,?-tribromo - 2 - *tert* - butyl , 1761*c*.

$C_{18}H_{14}ClHgN_3O_2$ Benzoic acid, 4-(4-amino-3-methyl - 1 - naphthylazo) - 2 - (chloromercuri)-, 7545*i*.

$C_{18}H_{14}ClNO$ Naphthalene, 1-(*p*-chlorophenyl)-, acetamido deriv., 206*i*.

$C_{18}H_{14}ClNO_2$ Acetanilide, α-(1-chloro-2-naphthoxy)-, 3813*h*.

$C_{18}H_{14}ClN_3O_2$ Biuret, 1-(chlorophenyl)-5-(naphthyl)-, 7446*i*, 7447*a*.
$C_{18}H_{14}ClN_3O$ Acridine, 9 - (2 - amino - 5-pyrimidylamino) - 6 - chloro - 2 - methoxy-, P 4703*g*.
$C_{18}H_{14}Cl_2HgO_4$ 2 - Butene - 1,4 - diol, 2-chloro - 3 - (chloromercuri)-, dibenzoate, 7413*b*.
$C_{18}H_{14}Cl_2N_2O_4S_2$ *p* - Benzenedisulfonanilide, dichloro-, 4237*d*.
$C_{18}H_{14}Cl_2N_2O_4S_2$ Metanilamide, *N*¹-(3,4-dichlorophenylsulfonyl) - 4 - phenoxy-, P 8150*b*.
$C_{18}H_{14}Cl_2N_4$ Quinazoline, 4,4'-(ethylenediimino)bis[6-chloro-(?), 5784*i*.
$C_{18}H_{14}Cl_2O$ 3(?*H*)-Retenone, dichloro-, 2985*e*.
$C_{18}H_{14}Cl_2O_2$ 3,10 - Ethenocyclobut[*b*]anthracene - 4,9 - dione, 1,2 - dichloro-1,2,2a,3,3a,9a,10,10a - octahydro-, 6199*g*.
$C_{18}H_{14}Cl_2O_4Pb$ Bis(2 - chlorovinyl)lead dibenzoate, 1717*b*.
$C_{18}H_{14}Cl_4O$ 3-Retenol, tetrachloro-, 2985*f*.
$C_{18}H_{14}CrN_3O_6$ Quinoline, compd. with $CrO_3$, 2534*c*.
$C_{18}H_{14}IN_3O_3$ Biuret, 1-(iodophenyl)-5-(naphthyl)-, 7446*i*, 7447*a*.
$C_{18}H_{14}I_2N_2O_7$ Tyrosine, 3,5-diiodo-, compd. with 2-nitro-1,3-indandione, 69*i*.
$C_{18}H_{14}N_2Na_2O_7S_2$ Ponceau R, 7521*d*.
$C_{18}H_{14}N_2O$ Benzo[*f*]pyrido[4,3 - *b*]quinolin-12(7*H*)-one, 9,11-dimethyl-, 3827*a*.
Ketone, methyl 11-methyl-6*H*-quinindol-6-yl, 230*d*.
Phthalimidine, 3 - (2 - naphthylamino)-, 623*h*.
Pyridine, 5 - benzylideneamino - 2-phenoxy-, P 7972*h*.
$C_{18}H_{14}N_2OS$ Thiazole, 2-acetamido-4-(2 fluorenyl)-, 7005*a*
$C_{18}H_{14}N_2O_2$ 2 - Acetonaphthone, 1 - hydroxy-4-phenylazo-, 5778*h*.
Isoindigotin, 1,1'-dimethyl-, 3428*g*.
3-Pyridol, diphenylcarbamate, P 4702*g*.
Triphenylamine, 4-nitro-, 8946*a*.
$C_{18}H_{14}N_2O_2Se$ 2,1,3,4*H* - Benzoxaselenazole, 5,6 - dihydro - 7 - nitroso - 4,5 - diphenyl-, 7479*b*.
$C_{18}H_{14}N_2O_3$ Allophanic acid, γ-naphthyl-, Ph ester, 7447*df*.
Allophanic acid, γ-phenyl-, naphthyl ester, 7447*c*.
Barbituric acid, 1-benzyl-5-benzylidene, 2953*f*.
Cinchophen, 4'-acetamido-, 3000*e*.
$C_{18}H_{14}N_2O_3S$ Benzenesulfonic acid, *p*-phenylazo-, Ph ester, 7037*a*.
Ketone, phenyl 2-pyridyl, oxime, *O*-benzenesulfonate, 1409*b*.
$C_{18}H_{14}N_2O_4$ Acetanilide, *o*-phthalimidoacetyl-, 653*f*.
Benz[*cd*]indol - 5 - ol, 1,3,4,5 - tetrahydro-, *p*-nitrobenzoate, 4256*a*.
Benzoic acid, 3-amino-5-(1-hydroxy-2-naphthoylamino)-, 7232*b*.
Carbanilic acid, 4-methyl-3-nitro-, naphthyl ester, 7448*d*.
1,3 - Cyclobutanedione, 2,4 - dibenzamido-, 2988*e*.
2,4 - Pyrrolidinedione, 3 - benzamido - 1-benzoyl-, 2988*e*, 7427*e*.
2(5*H*) - Pyrrolone, 3 - benzamido - 4 - hydroxy-, benzoate, 2988*f*.
$C_{18}H_{14}N_2O_4S$ Dibenzamide, 2,2'-dihydroxy *N* - (4 - methyl - 2 - thiazolyl)-, P 6239*e*.
$C_{18}H_{14}N_2O_4S_2$ *p*-Benzenedisulfonamide, *N,N'*-4,4'-biphenylene deriv., 4237*e*.
$C_{18}H_{14}N_2O_4S_2$ *p*-Benzenedisulfonamide, *N,N'*-(thiodi-*p*-phenylene), deriv., 4237*f*.
$C_{18}H_{14}N_2O_4S$ Acetamide, *N*-[α-(5-oxo-2-phenyl - 2 - oxazolin - 4 - ylidene) - *p* - tolylsulfonyl]-, 7449*i*.
$C_{18}H_{14}N_2O_4$ Anthraquinone, 2-butyldinitro-, 1761*gi*.
Anthraquinone, 2 - *tert* - butyldinitro, 1761*ad*.
$C_{18}H_{14}N_2O_4S_2$ *p*-Quinone, dioxime, dibenzenesulfonate, 5623*d*.
$C_{18}H_{14}N_2O_4S_2$ *p* - Benzenedisulfonamide, *N,N'* - (sulfonyldi - *p* - phenylene)-deriv., 4237*f*.
$C_{18}H_{14}N_2O_5S$ 1,2*H* - Benzopyran - 3 - carboxylic acid, 6 - ($N^4$ - acetylsulfanilamido)-2-oxo-, 2180*a*.
$C_{18}H_{14}N_2O_6$ 1 - Propanol, 1,3 - di - 2 - furyl-, 3,5-dinitrobenzoate, 3407*d*.
$C_{18}H_{14}N_4$ Azobenzene, 4-phenylazo-, 1654*h*.
$C_{18}H_{14}N_4Na_2O_{10}S_2$ See *Prontosil soluble*.
$C_{18}H_{14}N_4O_2$ Diphenylamine, *p*-(*p*-nitrophenylazo)-, 597*d*.
Ketone, phenyl 2-pyridyl, *p* nitrophenylhydrazone, 1409*a*.
$C_{18}H_{14}N_4O_2S$ Sulfanilamide, *N*¹-benzo[*f*]quinoxalyl-, 174*h*.
$C_{18}H_{14}N_4O_2S_2$ 2,2' - Bibenzothiazole, diacetamido-, 5776*i*, 5777*a*.
Urea, 1 - (2 - benzamido - 5 - thiazolyl)-3-benzoyl-2-thio-, 1400*g*.
$C_{18}H_{14}N_4O_4$ Biuret, 1-(naphthyl)-5-(nitrophenyl)-, 7446*i*, 7447*a*.
1,4 - Phthalazinedione, 2,3 - dihydro, compd. with 8 - nitro - 1 - naphthylamine, 8371*h*.
$C_{18}H_{14}N_4O_4S$ Benzenesulfonanilide, 4'-nitro-4-phenylazo-, 7937*a*.
$C_{18}H_{14}N_4O_5S$ 2 - Naphthol - 4 - sulfonic acid, 1 - (6 - hydroxy - 2 - methyl - 5 - benzimidazolylazo)-, P 9460*d*.
$C_{18}H_{14}N_4O_6S_2$ Salicylic acid, 5-[*p*-(2-thiazolylsulfamyl)phenylazo]-, acetate, 3385*e*.
$C_{18}H_{14}N_4O_7$ Coumarilaldehyde, 6-hydroxy-3-methyl-, 2,4 - dinitrophenylhydrazone acetate, 3412*h*.
Phthalimide, 3 - (2,4,5 - trimethyl 3,6-dinitrobenzamido)-, 7488*i*.
Pyridine, 4-benzyl-, picrate, 6622*d*.
$C_{18}H_{14}N_4O_7S$ Thiazole, 4-(phenylcyclopropyl)-, picrate, 635*f*, 9042*e*.
$C_{18}H_{14}N_4O_8$ Pyridine, 4-(benzyloxy)-, picrate, 2997*f*.
$C_{18}H_{14}N_4O_8S_2$ Benzenesulfonamide, *N,N'*-*p*-phenylenebis[*p*-nitro-, 5860*h*.
$C_{18}H_{14}N_4O_9$ Pyridine, 4-(benzyloxy) , 1-oxide picrate, 2997*g*.
4(1*H*) - Pyridone, 1 - (benzyloxy)-, picrate, 2997*g*.
$C_{18}H_{14}N_4O_{12}$ 2,3 - Butanediol, bis(3,5 - dinitrobenzoate), 3782*c*.
$C_{18}H_{14}N_4S_2$ Bithiazole, 2,2'-diaminodiphenyl-, 2202*gi*.
Quinoline, 5,5' - dithiobis[6 - amino-, 7476*h*.
$C_{18}H_{14}N_6$ Pteridine, 2,4-diamino-6,7-diphenyl-, 4268*e*, 8491*d*, 8555*f*.
$C_{18}H_{14}N_6O_2$ Pteridine, 2,4-diamino 6,7-bis(*p*-hydroxyphenyl)-, 4268*e*.
$C_{18}H_{14}N_6O_7$ 2 - Imidazoleacetonitrile, 1 benzyl-, picrate, 3410*g*.
$C_{18}H_{15}N_3O_4Sr$ Isatin, 3-semicarbazone, Sr deriv., 8979*i*.
$C_{18}H_{14}N_8O_9$ Cyclopentanetrione, methyl-, bis(dinitrophenylhydrazone), 6987*h*
$C_{18}H_{14}N_8O_{10}$ 2,3 - Butanedione, bis(3,5 - dinitrobenzoylhydrazone), 3795*b*.
Glutacon-α aldehydic acid, γ-oxo-, Me ester, bis(2,4 - dinitrophenylhydrazone), P 1809*a*.
$C_{18}H_{16}O$ 17*H* - Cyclopenta[*a*]phenanthren-17 - one, 15,16 - dihydro - 12 - methyl, 621*i*.
Indeno[2,1 - *a*]indene, 5 - ethoxy-, 4662*e*.
Ketone, 4 methyl-1-naphthyl phenyl, 1950*b*.
Phenol, biphenylyl-, 611*a*, 4655*e*.
$C_{18}H_{16}OS$ Ketone, 4-biphenylyl methyl 2-thienyl, 4666*df*.
$C_{18}H_{16}O_2$ 9 Anthrol, 10-vinyl-, acetate, 2520*i*.
Hexadienedione, 1,6-diphenyl-, 607*g*, 3812*e*, 7452*i*.
Ketone, *p*-methoxyphenyl 1-naphthyl, 8371*f*
2 Naphthoic acid, 1-tolyl-, 3396*ce*.
1,4 - Naphthoquinone, 2 - methyl - 3-tolyl-, 1380*h*.
*o*-Terphenyl-4,4"-diol, 4655*e*.
Toluic acid, (1 naphthyl)-, 3396*de*.
$C_{18}H_{16}O_2S_2$ [2,2' - Bithianaphthene] - 3,3'(2*H*,2'*H*) - dione, 2,2' - dimethyl-, 3816*i*.
$C_{18}H_{16}O_3$ 1 - Acrylonaphthone, β - 2 - furyl-4-methoxy-, 3429*g*.
Benzoic acid, 3-methoxy-2-(naphthyl)-, 2054*d*.
Chromone, 6-methoxy-2-styryl-, 2621*e*.
Ketone, 2-hydroxy-3-methoxyphenyl 1-naphthyl, 2054*d*.
1,4 - Naphthoquinone, hydroxymethyltolyl-, 1385*ef*.
—, 2 - hydroxy - 3 - phenethyl-, 1379*b*.
—, 2 - hydroxy - 3 - (2,4 - xylyl)-, 1380*f*.
*o*-Terphenyl-4,4',4"-triol, 4655*f*.
$C_{18}H_{16}O_3S$ Terphenylsulfonic acid, P 5991*d*; *and Na salt*, 4655*c*.
$C_{18}H_{16}O_4$ Adipic acid, β,γ-dihydroxy-β,γ-diphenyl-, dilactone, P 1056*c*.
2 - Butyne - 1,4 - diol, dibenzoate, 11*d*, 2578*d*, 4911*f*.
Cinnamoyl peroxide, 3394*f*.
Compd., m. 180-0.5°, 6608*d*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-*p*-phenetyl-, 1380*f*.
9,10 - Phenanthrenediol, diacetate, 4663*f*.
Succinic acid, dibenzylidene-, 615*e*.
$C_{18}H_{16}O_4S$ 1 - Naphthol - 8 - sulfonic acid, 4 - (2 - hydroxy - 5 - methylbenzyl)-, sultone, 204*c*.
$C_{18}H_{16}O_5$ Coumarin, 4-hydroxy-3-(2-salicyloylethyl)-, P 4702*a*, P 7050*f*.
1,4 - Naphthoquinone, 2 - hydroxy - 6-methoxy - 3 - (*p* - methoxyphenyl)-, 1385*f*.
Vulpinic acid, 5077*d*.
$C_{18}H_{16}O_4S_2$ 1 - Naphthol - 8 - sulfonic acid, 4 - (*p* - tolylsulfonylmethyl)-, sultone, 203*g*, P 2641*g*, P 4488*b*.
$C_{18}H_{16}O_6$ 3(2*H*) - Benzofuranone, 5,6 - dimethoxy - 2 - piperonylidene-, 7460*h*.
Coumarilic acid, 3 - (2 - hydroxydimethoxyphenyl) - 6 - methoxy-, δ - lactone, 1772*a*.
Maleic anhydride, compd. with $C_{10}H_{10}$, 6201*i*.
$C_{18}H_{14}O_6S_2$ *p* - Benzenedisulfonic acid, di-Ph ester, 2967*h*.
*o* - Terphenyl - 4,4" - disulfonic acid, *di- K salt*, 4655*d*.
$C_{18}H_{16}O_7$ Succinic acid, (3,6,9-trihydroxy 9 xanthylmethyl)-, γ-lactone, 7369*e*.
$C_{18}H_{16}O_7S$ 2,5 - Cresotic acid, α - (4 - hydroxy 5 - sulfo - 1 - naphthyl)-, P 2641*g*, P 4488*b*, P 8148*e*.
$C_{18}H_{14}O_8$ Peroxide, bis(*o*-carboxybenzoyl), di-Me ester, 3394*e*.
$C_{18}H_{14}O_8S$ Salicylic acid, 5,5'-thiodi-, di acetate, 2599*i*.
$C_{18}H_{14}O_9S_3$ *o* - Terphenyl - 4,4',4" - trisulfonic acid, *tri- K salt*, 4655*e*.
$C_{18}H_{15}$ Methyl, (4-methyl-1-naphthyl) phenyl-, 194*e*.
$C_{18}H_{15}AlN_3O_6$ Hydroxylamine, *N*-nitroso-*N*-phenyl-, Al deriv., 2488*g*.
$C_{18}H_{15}As$ Arsine, triphenyl-, 23*a*, 2592*d*, 4647*h*, P 5041*g*, 6114*d*, 8786*f*.
$C_{18}H_{15}AsO_2$ Phenyl arsenite, P 4891*c*.
$C_{18}H_{15}B$ Borine, triphenyl-, 7448*e*.
$C_{18}H_{15}BeLi$ Berylium, diphenyl-, complex with PhLi, 5758*a*.
$C_{18}H_{15}Bi$ Bismuthine, triphenyl-, 5660*i*, 8786*f*.
$C_{18}H_{16}BiN_3O_6$ Hydroxylamine, *N*-nitroso-*N*-phenyl-, Bi deriv., 2488*g*.
$C_{18}H_{15}BrGe$ Triphenylgermanium bromide, 6990*d*.
$C_{18}H_{15}BrN_2S_2$ Benzothiazole, 2 - (2 benzothiazolylmethylene) - 3 - (3 - bromopropyl)-, P 7845*e*.
7,8 - Dihydro - 6*H* - bisbenzothiazolo[3,2 - *a*,2',3' - *d*][1,5]diazoc - 5-inium bromide, P 7845*f*.
$C_{18}H_{15}BrO$ Furan, 3-(bromomethyl)-4 methyl-2,5-diphenyl-, 3400*d*.
$C_{18}H_{15}BrO_2$ Anthraquinone, 1 bromo-2 butyl-, 1762*a*.
$C_{18}H_{15}Br_2N_3O_3$ Salicylamide, *N*-antipyryl 3,5-dibromo-, P 693*b*, P 7513*c*.
$C_{18}H_{15}Br_3N_2O_2$ Anthraquinone, 1,5-diamino 2,4,8 - tribromo - 6 - *tert* - butyl, 1761*f*.
$C_{18}H_{15}Br_3O_4$ Acetic acid, [(2,2,2-tribromoethylidene)di - *p* - phenylene]di-, P 2364*f*.
Chalcone, α,5,5' - tribromo - 2,2',4'-trimethoxy-, 1742*h*.
$C_{18}H_{15}Cl$ Naphthalene, 1-α-chlorobenzyl 4-methyl-, 195*b*.
$C_{18}H_{15}ClN_2O_3$ 3 - Quinolinecarboxylic acid, 8 - *p* - chloroanilino - 4 - hydroxy-, Et ester, 9038*c*.
$C_{18}H_{15}ClN_2O_3S$ 3 - Carbazolesulfonic acid, *p* chloroaniline salt, 6205*b*.
$C_{18}H_{15}ClN_2O_5S$ Benzenesulfonic acid, 5 chloro - 4' - nitro - 2 - biphenylamine salt, 7445*e*.
$C_{18}H_{15}ClN_4$ (See also *Phenosafranine*.) Brilliant safranine, 1461*b*.
$C_{18}H_{15}ClO_2$ Anthraquinone, 2-butyl-1-chloro-, 1762*a*.
1,3 - Butanedione, 1 - (9 - chloro - 1-fluorenyl)-2-methyl-, 3402*b*.
- (*p* - Methoxystyryl)benzopyrylium chloride, P 6100*e*, P 7849*c*.
$C_{18}H_{15}ClO_2Si$ Silane, chlorotriphenoxy-, 1006*i*.
$C_{18}H_{15}ClO_3$ Cyclopentanecarboxylic acid, 1-(3 - chloro - 1,4 - dihydro - 1,4 - dioxo-2-naphthyl)-2-oxo-, Et ester, 1377*d*.
$C_{18}H_{15}ClPb$ Triphenyllead chloride, 5600*i*, 2188*h*.
$C_{18}H_{15}Cl_2N_2Sb$ Benzenediazonium chloride, compd. with $Ph_3SbCl_2$, 1738*a*.
$C_{18}H_{15}Cl_2N_3O_2S$ Benzenesulfonanilide, 3',5'-dichloro - 4 - (2,4 - diaminophenylazo)-, 4648*f*.
$C_{18}H_{15}Cl_2Sb$ Stibine, triphenyl-, dichloride, 1738*a*.
$C_{18}H_{16}Cl_2N_2O_2$ 3 - Pyrazolone, 1 methyl-

•2,5 - diphenyl - 4 - (2,2,2 - trichloro-1-hydroxyethyl)-, 7477*f*.

$C_{18}H_{16}Cl_3N_5O_2S$ Sulfanilamide, $N^1$-(5-chloro-2 - pyrimidyl) - $N^4$ - [(2,4 - dichlorophenylguanyl)guanyl]-, *and* - *HCl*, 2179*b*.

$C_{18}H_{18}Cl_2O_4$ Acetic acid, [(2,2,2-trichloroethylidene)di - *p* - phenylene]di-, P 2364*f*.

$C_{18}H_{19}FSi$ Silane, fluorotriphenyl-, 5377*e*.

$C_{18}H_{19}F_3N_2O_2$ Anthraquinone, 1-amino-4-(2-methoxyethylamino) - 2 - (trifluoromethyl)-, P 7709*g*.

Anthraquinone, 4 - (2 - hydroxyethylamino) - 1 - methylamino - 2 - (trifluoromethyl)-, P 7709*f*.

$C_{18}H_{19}FeN_3O_6$ Hydroxylamine, *N*-nitroso-*N*-phenyl-, Fe deriv., 2488*g*.

$C_{18}H_{19}LiZn$ Zinc, diphenyl-, complex with PhLi, 5758*a*.

$C_{18}H_{19}N$ 1 - Naphthylamine, *N* - phenyl - *N*-vinyl-, P 7036*i*.

Terphenylamine, 4655*e*, 4657*ab*.

Triphenylamine, 3648*a*, 8786*e*.

$C_{18}H_{19}NO$ Acetamide, *N*-2-naphthyl *α*-phenyl-, 606*b*.

Methanol, diphenylpyridyl-, 3292*f*, *and* - *HCl*, 2205*b*.

2 - Naphthol, 1 - (*α* - methylhumnol zyl)-, 3000*b*.

3 - Penten - 1 - yn - 3 - ol, 5 - methylhumno-1,5 diphenyl-, 3000*b*.

1(1*H*) - Pyridone, 1 - methyl - 2,6 - diphenyl-, 3000*b*.

$C_{18}H_{19}NOS$ 2 - Thiophenecarboxanilide, 3-methyl-4'-phenyl-, 4666*e*.

$C_{18}H_{11}NO_2$ Naphthalene, 2,4 dimethyl-1-(o-nitrophenyl)-, 3401*f*.

Naphthalene, 7 - methyl - 1 - *p* - tolyl-, nitro deriv., 615*e*.

2 - Naphthol, 1 - [(*p* - methoxyphenylimino)methyl], P 8692*g*.

1,4 - Naphthoquinone, 2 - methyl - 3-toluidino, 205*a*.

Quinolinecarboxylic acid, phenyl, Et ester, 128*a*.

$C_{18}H_{19}NO_3S$ *o* - Terphenyl - 4 - sulfonamide, 4655*d*.

4 - Thiazolecarboxylic acid, 2,5 - diphenyl-, Et ester, 1400*a*.

$C_{18}H_{19}NO$ Cinchophen, 4'-methoxymethyl, 3825*th*.

2 - Naphthamide, 3 - hydroxy-, P 3203*i*.

1,4 - Naphthoquinone, 2 - (benzylamino methyl) 3 hydroxy, 1381*b*.

$C_{18}H_{19}NO_3S$ Naphthamide, *N*-*p*-tolylsulfonyl, P 7963*d*.

*o* - Terphenyl - 3 - sulfonic acid, 4-amino, Na *salt*, 4655*f*.

Toluamide, *N* - 2 - naphthylsulfonyl)-, P 7963*b*, P 7963*b*.

$C_{18}H_{19}NO_4$ Anthraquinone, 2 butyl-1 nitro, 1761*c*.

Anthraquinone, 2 - *tert* - butyl - 1 - nitro-, 1761*a*.

Indeno[2,1 - *c*]indole - 1 - carboxylic acid, 1,2,3,10 - tetrahydro - 1 - hydroxy - 2-oxo -, Et ester, 193*d*.

5(4*H*) - Oxazolone, 4 - (2,5 - dimethoxybenzylidene)-2 phenyl-, 6598*h*

Pyrrolidinecarboxylic acid, 4,5 - dioxo - 1,2 diphenyl-, Me ester, 8380*e*.

Pyrroline - 3 - carboxylic acid, 4 - methoxy - 5 - oxo - 1,2 - diphenyl-, 8380*d*.

Petenequinone, nitro-, 4252*d*, 7470*h*.

$C_{18}H_{19}NO_5S$ Glycine, *N* - (6 - hydroxy - 2-naphthylsulfonyl) - *N* - pheuyl-, P 1987*a*.

1 - Naphthol - 3 - sulfonic acid, 6 - *p*-methylbenzamido-, P 7702*a*.

$C_{18}H_{19}NO_5S$ Metanilic acid, *N*-(1-hydroxy-2-naphthoyl) - 4 - methoxy-, 7232*b*.

$C_{18}H_{19}N_2O_3P$ Amidophosphoric acid, *N*-(*p*-nitrophenyl)-, di-Ph ester, 6178*f*.

$C_{18}H_{19}N_3$ Benzamidine, *N*-phenyl-*N'*-2-pyridyl, 2594*a*.

Benzamidine, *p* - [2 - (quinolyl)vinyl]-, - *HCl*, 5757*a*.

Nicotinamidine, *N* - 2 - biphenylyl-, P 5051*d*, 7445*i*.

Picolinamidine, *N* - 2 - biphenylyl-, P 5051*d*, 7445*i*.

-, *N*, *N*-diphenyl-, P 3456*i*.

$C_{18}H_{19}NO$ 2 - Indancarboxylic acid, 2-cyano-, benzylidenehydrazide, 4223*a*.

$C_{18}H_{19}NO_3$ Benzoic acid, *p*-(2-quinoxalylmethyleneamino)-, Et ester, 3425*c*.

Biuret, 1-(naphthyl)-5-phenyl-, 7446*f*.

$C_{18}H_{19}N_3O_3S$ Benzenesulfonanilide, 4-phenylazo-, 7937*a*.

$C_{18}H_{19}N_3O_3S_2$ Sulfathiazole, reaction product with cinnamalaldehyde, - *HCl*, 4238*a*.

$C_{18}H_{19}N_5O_3$ Biuret, 1-(hydroxyphenyl)-5-(naphthyl)-, 7446*i*, 7447*a*.

1 - Fluoranthenecarboxylic acid, 1,2,3,-10b - tetrahydro - 3 - oxo-, semicarbazone, 7014*e*.

2 - Pyrazolin - 3 - ol, 5 - (benzoylimino)-1-methyl-, benzoate, 4272*e*.

5 - Pyrazolol, 3 - benzamido - 1 - methyl-, benzoate, 4272*e*.

Urea, 1 - (naphthyl) - 3 - (3 - nitro - *p*-tolyl)-, 7448*c*.

$C_{18}H_{19}N_3O_3S$ Sulfanilamide, $N^1$ - 2 - pyridyl-$N^4$-salicylidene-, 3262*g*.

$C_{18}H_{19}N_3O_5$ Salicylic acid, 5-[*p*-(3-methyl 5-oxo - 2 - pyrazolin - 1 - yl)benzamido]-, P 858*a*.

$C_{18}H_{19}N_3O_3S_2$ Phthalanilic acid, 4'-[(4-methyl-2-thiazolyl)sulfamyl]-, P 3846*g*.

$C_{18}H_{19}N_3O_6$ Naphthalene, ethyl-, compd. with 1,3,5-trinitrobenzene, 2608*g*.

$C_{18}H_{19}N_3O_7$ Naphthalene, dimethyl-, picrate, 2943*c*, 6201*i*.

$C_{18}H_{19}N_3O_7S$ Benzenesulfonic acid, 4,4'-dinitro - 2 - biphenylamine salt, 7445*e*.

$C_{18}H_{19}N_3O_8$ Naphthalene, ethyl-, styphnate, 2608*g*.

$C_{18}H_{19}N_3O_2S_2$ Benzenesulfonamide, *p* (2-methylindolylazo) - *N* - 2 - thiazolyl-, P 6662*i*.

$C_{18}H_{19}N_3O_6$ 2 - Isoindolinepropionaldehyde, methyl - 1,3 - dioxo-, 2,4 - dinitrophenylhydrazone, 6169*i*.

$C_{18}H_{19}N_3O_6S$ Isonicotinic acid, 2,2-dihydroxy-3 - [*p* - (6 - methyl - 2 - pyridylsulfamyl)phenylazo]-, P 3572*a*.

$C_{18}H_{19}N_3O_7$ 1 - Naphthaleneacetamidine, picrate, 7445*b*.

$C_{18}H_{19}N_3O_9S$ 4 - Thiazolecarboxylic acid, 2-amino - 5 - phenyl-, Et ester, picrate, 1399*i*.

$C_{18}H_{19}N_7O$ 4 - Pteridinol, 2 - amino - 6,7-bis(*p*-aminophenyl)-, 8491*d*.

$C_{18}H_{19}N_7O_3$ Ethanol, 2 - [9 - (*p* - nitrophenylazo) - 1*H* - naphtho[2,3]triazol - 4-ylamino]-, P 3626*b*.

$C_{18}H_{19}N_9O_{14}$ 1,2,3 - Benzenetriamine, dipicrate, 3384*e*.

$C_{18}H_{19}NaOSi$ Silanol, triphenyl-, Na deriv., P 3658*d*.

$C_{18}H_{19}OP$ Phosphine oxide, triphenyl, 6178*h*, 6202*g*.

$C_{18}H_{19}O_3P$ Phenyl phosphite, 6356*e*.

$C_{18}H_{19}O_4P$ See *Phenyl phosphate*

$C_{18}H_{19}P$ Phosphine, triphenyl, 8786*e*.

$C_{18}H_{19}PS$ Phosphine sulfide, triphenyl-, 7420*e*.

$C_{18}H_{19}PS_3$ Phenyl thiophosphite, 560*i*.

$C_{18}H_{19}Sb$ Stibine, triphenyl-, 1737*i*, 6356*f*, 8786*e*.

$C_{18}H_{16}$ 15*H* - Cyclopenta[*a*]phenanthrene, 16,17-dihydromethyl-, 621*i*, 7573*i*.

Fluoranthene, dihydro - 1,3 - dimethyl-, 9059*e*.

Naphthalene, *α*-methylbenzyl, 1388*i*, 1389*a*

–, 7 methyl-1 *p*-tolyl-, 615*g*.

Oil, $b_{20}$ 225-35°, 1389*a*

$C_{18}H_{16}As_2N_2O_2S$ Benzenesulfonanilide, 4-(3-amino - 4 - hydroxyphenylarseno)-, P 4817*a*.

$C_{18}H_{19}BK$ Borine, triphenyl, compd. with KH, 7448*i*.

$C_{18}H_{19}BLi$ Borine, triphenyl-, compd. with LiH, 7448*i*.

$C_{18}H_{19}BNa$ Borine, triphenyl, compd with NaH, 7448*g*.

$C_{18}H_{19}BrClN_3O_2S$ Sulfanilamide, $N^4$ - [(*p*-bromophenylguanyl)guanyl] - $N^1$ - (5-chloro - 2 - pyrimidyl)-, *and* - *HCl*, 2179*b*.

$C_{18}H_{19}BrNO$ Quinoline, 6 - bromo - 2 - (4-methoxytolyl) - 3 - methyl-, 3825*gh*.

Quinoline, 6 - bromo - 2 - (3 - methyl - *p*-phenetyl)-, 3825*g*.

$C_{18}H_{19}BrNO_2$ Anthraquinone, 1 - amino - 4-bromo-2-butyl-, 1761*h*.

Anthraquinone, 1 - amino - 4 - bromo - 2-*tert*-butyl-, 1761*c*.

$C_{18}H_{19}Br_2O_4$ 2,3 - Butanediol, bis(bromobenzoate), 3782*c*.

Chalcone, 5,5' - dibromo - 2,2',4' - trimethoxy-, 1742*f*.

$C_{18}H_{19}Br_2O_6$ Benzil, 5,5' - dibromo - 2,2'-bis(methoxymethoxy)-, 4246*g*.

Benzil, 5,5' - dibromo - 2,2',4,4' - tetramethoxy-, 1036*a*.

*β* - Resorcil, 3,3' - dibromo - 5,5' - diethyl-, 1037*f*.

Salicil, 5,5' - dibromo - 4,4' - diethoxy-, 1036*a*.

Veratril, 5,5'-dibromo-, 5387*i*.

$C_{18}H_{19}Br_4CoN_2$, 5305*a*.

$C_{18}H_{16}Br_4O_4$ Propiophenone, *α*,*β*,5 - tribromo - *β* - (5 - bromo - 2 - methoxyphenyl) - 2,4 - dimethoxy-, 1742*g*.

$C_{18}H_{16}CaN_4O_8S_2$ Acetanilide, *p*-(cyanosulfamyl)-, Ca deriv., P 4208*a*.

$C_{18}H_{16}ClIN_5O_2S$ Sulfanilamide, $N^1$-(5-chloro-2 - pyrimidyl) - $N^4$ - [(*p* - iodophenylguanyl)guanyl]-, *and* - *HCl*, 2179*c*.

$C_{18}H_{16}ClN_3O$ Quinazoline, 6-chloro-4-(3,4-dihydro - 6 - methoxy - 1(2*H*) - quinolyl)-, 5784*e*.

$C_{18}H_{16}ClN_5O_2S$ Sulfanilamide, $N^1$ - (5-chloro - 2 - pyrimidyl) - $N^4$ - [(*p* - nitrophenylguanyl)guanyl], *and* - *HCl*, 2179*c*.

$C_{18}H_{16}Cl_2N_4O_2S$ Sulfanilamide, $N^4$-[(*p*-chlorophenylguanyl)guanyl] - $N^1$(5-chloro-2-pyrimidyl)-, 5868*d*, *and* - *HCl*, 2179*b*.

$C_{18}H_{16}Cl_2O$ 3-Retenol, 2,9-dichloro-, 2985*c*.

$C_{18}H_{16}Cl_2O_4$ *o* - Toluic acid, 3,5 - dichloro-4,6 - dimethoxy-, 4,6 - dichloro - 5-methoxy - *m* - tolyl ester, 609*a*.

$C_{18}H_{16}Cl_2O_6$ Anisic acid, 3,5-dichloro-6 (3,5-dichloro - 6 - hydroxy - 4 - methoxy-*o*-toloxy)-2-methyl-, Me ester, 608*g*.

$C_{18}H_{16}F_6N_2O_4S$ Butyranilide, *p*-(*α*,*α*,*α*',*α*',*α*' - hexafluoro - 3,5 - xylylsulfamyl)-, 4048*h*.

$C_{18}H_{16}Ge$ Germane, triphenyl-, 6990*d*.

$C_{18}H_{16}IN$ 2 - Methyl - 3 - styrylisoquinolinium iodide, 3821*a*.

$C_{18}H_{16}INO$ 3 - Methyl - 2 - phenacylisoquinolinium iodide, 1776*a*.

$C_{18}H_{16}IN_3O_4$ 2,3,4 - Trimethyl - 7 - nitro - 1 (*p* - nitrophenyl)isoquinolinium iodide, 7486*h*.

$C_{18}H_{16}I_2N_2O_5$ Alanine, *N*-acetyl-*β*-[3,5-diiodo - 4 - (*p* - nitrobenzyloxy)phenyl]-, 5868*i*.

$C_{18}H_{16}NO_3P$ Amidophosphoric acid, *N*-phenyl-, di-Ph ester, 6178*f*.

$C_{18}H_{16}N_2$ Cinnamaldehyde, azine, 1654*e*, 1655*a*.

Hydrazine, (2' - phenyl - 4 - biphenylyl)-, 4656*d*.

1 - Naphthaleneacetamidine, *N* - phenyl-, 7444*h*.

2 - Naphthamidine, *N* - *o* - tolyl-, 7444*c*.

*p* - Phenylenediamine, *N*, *N'* - diphenyl-, P 6760*c*, 8724*b*.

$C_{18}H_{16}N_2O$ Benzamide, *p*-methylamino-*N*-1-naphthyl-, 1340*g*.

Cinchoninamide, 6,7-dimethyl-2-phenyl-, 4675*d*.

2 - Furaldehyde, benzylphenylhydrazone, 1655*a*.

2-Naphthol, 1-(2,4-xylylazo)-, 171*a*.

1,4 - Naphthoquinone, 2 - methyl, methylphenylhydrazone, 6166*b*.

5*H* - Quinindoline, 2 - methoxy - 5,11-dimethyl-, 230*g*.

$C_{18}H_{16}N_2OS_2$ 3 - Benzothiazolinepropanol, 2 - (2 - benzothiazolylmethylene)-, *and* - *HBr*, P 7845*e*.

$C_{18}H_{16}N_2O_2$ Lepidine, 2-piperonylamino-, *and* - *HCl*, 8389*h*.

Nicotinic acid, 2,6-dimethyl-4-(2-naphthylamino)-, 3827*a*.

$C_{18}H_{16}N_2O_2S$ 2-Thiazolemethanol, 4 methyl-*α*-phenyl-, carbanilate, 3820*g*.

$C_{18}H_{16}N_2O_2$ 5(4*H*) - Imidazolone, 4 - *p* - ethoxybenzylidene - 1 - hydroxy - 2-phenyl-, 8383*b*.

Tryptophan, *N*-benzoyl-, 1397*i*, 8892*h*.

$C_{18}H_{16}N_2O_3S$ Acetic acid, (1-methyl-4-oxo-5,5 - diphenyl - 2 - imidazolin - 2 - ylmercapto)-, 3016*c*.

Acetoacetamide, *N* - (5 - methoxy - 2-phenyl - 6 - benzothiazolyl)-, 5776*c*.

2 - Pyrazoline - 3 - carboxylic acid, 5-oxo - 1 - phenyl - 4 - phenylmercapto-, Et ester, 632*i*, 633*a*.

3(2*H*) - Thiophenone, 4 - benzamido - 4,5-dihydro-, oxime, Bz deriv., P 3468*d*.

$C_{18}H_{16}N_2O_4$ Benzaldehyde, hydroxy-, azine diacetate, 3675*e*, 7291*f*.

1 - Phthalazineacetic acid, 1,2 - dihydro-4-hydroxy-2-phenyl-, acetate, 237*h*.

$C_{18}H_{16}N_2O_4S$ Acetamide, *α*-naphthoxy-*N*-sulfanilyl-, P 3036*a*.

Pyridine, 2 - benzamido-, benzenesulfonate, 1409*f*.

$C_{18}H_{16}N_2O_4S_2$ *m* - Benzenedisulfonanilide, 5995*f*.

Benzoic acid, *o*-(formylmethylmercapto)-, azine, 2201*b*.

$C_{18}H_{16}N_2O_5$ Phthalimide, 3 - (2,5 - dihydroxy-3,4,6-trimethylbenzamido)-, 7488*i*.

$C_{18}H_{16}N_2O_5S$ Benzenesulfonic acid, 4'-nitro-2-biphenylamine salt, 7445*e*.

$C_{18}H_{16}N_2O_6$ Alamine, phenyl-, compd. with 2-nitro-1,3-indandione, 70*a*.

**$C_{18}H_{16}N_2O_6S$** See *Quinoso* .
**$C_{18}H_{16}N_2O_7$** Hydrocinnamic acid, β-(2-methyl - 3,5 - dinitrophenacyl)-, 4239*d*.
**$C_{18}H_{16}N_2O_8$** 2,3 - Butanediol, bis(nitrobenzoate), 3782*b*.
Chavicol, 2,6 - dimethoxy-, 3,5 - dinitrobenzoate, 7451*h*.
Phenol, 6 - allyl - 2,3 - dimethoxy-, 3,5-dinitrobenzoate, 7451*i*.
**$C_{18}H_{16}N_2O_8S_2$** Benzoic acid, 4,4′-dithiobis-[3 nitro , di-Et ester, 3803*a*.
1,5 - Naphthalenedisulfonic acid, 3 - [α-(*p* - aminophenoxy)acetamido] , P 4479*f*.
**$C_{18}H_{16}N_2O_9$** Chrysazin, 4-nitro 5-(2,2′,2″-trihydroxy - *tert* - butylamino)-, P 9468*c*.
Diglycolic acid, bis(*p*-nitrobenzyl)ester, 6459*e*.
**$C_{18}H_{16}N_2O_{10}S$** Benzoic acid, 4,4′-sulfonylbis[3-nitro-, di-Et ester, 3803*b*.
**$C_{18}H_{16}N_4O$** Ketone, methyl 5-methyl-1-phenyl - 3 - phenylazo - 4 - pyrazolyl, 4258*d*.
**$C_{18}H_{16}N_4O_2S$** Sulfanilamide, $N^1$-(4-methyl-2-pyrimidyl) - $N^4$ - salicylidene-, 3262*g*.
**$C_{18}H_{16}N_4O_4$** Cyclopent[*a*]inden - 8(1 *H*) - one, 2,3,3a,8a - tetrahydro-, 2,4 - dinitrophenylhydrazone, 3399*a*
1,3 - Ethanonaphthalen - 4(1 *H*) - one, 2,3 - dihydro-, 2,4 - dinitrophenylhydrazone, 3398*d*.
1 - Indanone, 2 - allyl-, 2,4 - dinitrophenylhydrazone, 8374*f*.
2,4 - Pentadienal, 3 - methyl - 5 - phenyl , 2,4 - dinitrophenylhydrazone, 2571*c*.
**$C_{18}H_{16}N_4O_4S$** Sulfanilamide, $N^4$-(3-methoxysalicylidene) - $N^1$ - 2 - pyrimidyl-, 3262*g*.
**$C_{18}H_{16}N_4O_4S_2$** Benzenesulfonic acid, ? - amino ? - (6 - methyl - 2 - benzothiazolyl) ? - (3 - methyl - 5 - oxo - 2 - pyrazolin-1-yl)-(?), P 9466*g*.
**$C_{18}H_{16}N_4O_6$** *p* - Toluic acid, 3,5 - dinitro , α-methylcinnamylidenehydrazide, 6972*e*.
**$C_{18}H_{16}N_4O_6S$** 6 - Quinoxalinecarboxylic acid, ($N^4$ - acetylsulfanilamido) , Me ester, 3384*d*.
**$C_{18}H_{16}N_4O_7$** 5 - Benzofuranearboxaldehyde, 2,3-dihydro-6-hydroxy-3 methyl-, 2,4-dinitrophenylhydrazone, acetate, 3413*a*.
Quinoline, trimethyl-, picrate, 5402*g*, 7027*a*, 7937*i*.
**$C_{18}H_{16}N_4O_7S_2$** 2,5 - Furandicarboxanilide, 4,4″-disulfamyl-, 2598*b*.
**$C_{18}H_{16}N_4O_8$** Khellinone, 2,4 - dinitrophenylhydrazone, 7181*a*.
1 - Naphthalenemethylamine, 2 - methoxy-, picrate, 4250*a*
3-Quinolinol, 2-propyl-, picrate, 227*i*.
**$C_{18}H_{16}N_4O_8S_2$** 2,5 - Thiophenedicarboxanilide, 3,4 - dihydroxy - 4′,4″ - disulfamyl-, 2598*c*.
**$C_{18}H_{16}N_4O_9S_2$** 2,5 - Furandicarboxanilide, 3,4 - dihydroxy - 4′,4″ - disulfamyl-, 2598*b*.
**$C_{18}H_{16}N_4O_{10}$** 2 - Oxazoline - 4 - carboxylic acid, 2-phenyl-, Et ester, picrate, 9033*d*.
**$C_{18}H_{16}N_4O_{10}S_4$** See *Prontosil soluble*.
**$C_{18}H_{16}N_8$** Pteridine, 2,4-diamino-6,7-bis(aminophenyl) , 4268*g*, 4269*a*.
**$C_{18}H_{16}O$** 6 *H*-Benz[*de*]anthracen-6-one, 1,2,-4,5-tetrahydro-3-methyl , 6610*d*.
3(2 *H*) - Chrysenone, 1,11,12,12a - tetrahydro-, 6609*f*.
2 - Cyclohexen - 1 - one, 3 - (biphenylyl) , 610*i*, 6185*h*
17 *H* - Cyclopenta[*a*]phenanthren - 17-one, 11,12,15,16 - tetrahydro - 12-methyl-, 621*i*.
2 - Cyclopenten - 1 - one, 4 - methyl 2,3-diphenyl-, 6624*i*.
17-Equilenone, 14,15-dehydro , 6610*e*
$\Delta^{1,3,5,10,8,14}$ - Estrahexaen - 17 - one, 3018*i*.
1,5 - Hexadien - 3 - one, 1,2 - diphenyl , 6624*h*.
5 - Hexen - 3 - yn - 2 - ol, 1,2 - diphenyl , 6624*g*.
Indone, 3-isopropyl-2-phenyl-, 6193*e*.
1 - Naphthalenemethanol, 4 - methyl - α-phenyl-, 195*b*.
**$C_{18}H_{16}OSi$** Silanol, triphenyl-, 8366*d*.
**$C_{18}H_{16}O_2$** Anthraquinone, 2-butyl-, 1761*g*.
Anthraquinone, 2 - *tert* - butyl-, 1761*a*, 8139*h*.
1,3 - Cyclohexanedione, 4,5 - diphenyl-, 7479*d*.
17 *H* - Cyclopenta[*a*]phenanthrene - 11,-17(12 *H*) - dione, 13,14,15,16 - tetrahydro - 13 - methyl-, 241*d*.
Furan, 3-ethoxy-2,5-diphenyl-, 622*i*.
3 - Hexene - 1,6 - dione, 1,6 - diphenyl-, 7453*a*.
1,3 - Naphthalenediol, 7 - methyl - 2 - *p*-tolyl-, 1385*d*.
Naphthalene, 7 - methoxy - 1 - (*p* - methoxyphenyl)-, 606*f*.
1(2 *H*) - Naphthalenone, 2 - anisylidene-3,4-dihydro-, 2971*g*.
**$C_{18}H_{16}O_2S$** Thiophene, 3,4 di-*p*-tolyl-, 1,1-dioxide, 5777*f*
**$C_{18}H_{16}O_2$** Benzoic acid, *o*-benzoyl-, 2-methylallyl ester, P 3847*h*.
Benzoic acid, *o* (tetrahydronaphthoyl)-, 7010*h*.
Diphenic anhydride, 4′-isopropyl-3-methyl-, 3815*h*.
Hydrocinnamic acid, β-(2-benzoylethyl) - β - hydroxy , β - lactone, P 1056*c*.
**$C_{18}H_{16}O_2Si$** Silane, triphenoxy-, 9028*c*.
**$C_{18}H_{16}O_4$** Acetophenone, 2 - hydroxy - 5-methoxy-, cinnamate, 2621*b*.
2-Butene-1,4-diol, dibenzoate, 2578*e*.
Coumarilic acid, 6-(benzyloxy)-, Et ester, 3412*c*.
Coumarin, 7 - (benzyloxy) - 6 - methoxy-4-methyl-, 3823*d*.
1 - Cyclopentene - 1 - acetic acid, 2 - (4-methoxy - 1 - naphthyl) - 5 - oxo , 3429*i*.
3,8 - Ethenocyclobuta[*b*]naphthalene-4,7 - diol, 2a,3,8,8a - tetrahydro , diacetate, 6198*b*.
β - Hydromuconic acid, β,γ-diphenyl-, 3402*f*.
1,3 - Naphthalenediol, 7 - methoxy - 2-(*p*-methoxyphenyl)-, 1385*e*.
4 - Pentene - 1,3 - dione, 1 - (2 - hydroxy-5 - methoxyphenyl) - 5 - phenyl , 2621*d*.
4,4′ - Stilbenedicarboxylic acid, di-Me ester, 2983*a*.
Succinic acid, α-benzyl-β-benzylidene-, 5017*a*.
**$C_{18}H_{16}O_5$** Flavone, trimethoxy-, 637*a*, 1407*h*, 1772*f*, 1773*h*, 3414*g*
1 - Phenanthrenecarboxylic acid, trimethoxy-, 6208*f*
**$C_{18}H_{16}O_5S$** 1 - Naphthol - 8 - sulfonic acid, 4-*p*-methoxybenzyl , P 8148*e*.
**$C_{18}H_{16}O_6$** Acetylsalicylic acid, *o*-acetoxybenzyl ester, P 7647*e*
Anisic acid, 2 - [α - (carboxymethylene)-*p*-methoxybenzyl]-(?), 6608*h*.
Biphenyltriol, triacetate, 1372*g*.
Flavone, hydroxytrimethoxy-, 638*d*, 1407*i*, 1772*f*, 1773*h*, 5398*a*.
*p* - Quinone, 2 - cinnamoyl - 3,5,6 trimethoxy-, 4264*g*
**$C_{18}H_{16}O_7$** (See also *Usnic acid* )
Chrysin, 3,4′,8-trimethoxy , 227*a*.
1,4 - Ethanonaphthalene - 5,6,9,10 tetracarboxylic dianhydride, 1,4,4a,5,6,7 - hexahydro - 3 - methoxy - 7 methyl , 1757*b*, 2970*a*.
Flavone, 5,7 - dihydroxy - 3,3′,4′ - trimethoxy-, 636*i*.
Primetin, 3,4′,7-trimethoxy , 638*e*.
Tambulin, 227*b*.
Usnolic acid, 5445*e*.
**$C_{18}H_{16}O_8$** Flavone, 5,7,8 trihydroxy-3,3′,4′-trimethoxy-, 636*i*.
Succinic acid, 1,4-naphthylene ester, 3527*a*.
Usnonic acid, 5445*e*.
**$C_{18}H_{16}S_2$** Thiophene, dimethylstyrylidenedi-, 4665*h*, 4746*g*.
**$C_{18}H_{16}Si$** Silane, triphenyl-, 124*f*.
**$C_{18}H_{17}AsIN$** 2 - Diphenylarsino - 1 - methylpyridinium iodide, 1046*c*
**$C_{18}H_{17}AsN_4O_6$** *m* - Arsanilic acid, N - acetyl-4 - hydroxy - 5 - (6 - methoxy - 8-quinolylazo) , 8099*e*.
**$C_{18}H_{17}As_2N_3O_4S$** Sulfanilamide, 4′-(3-amino-4 - hydroxyphenylarseno)-, P 4817*a*.
**$C_{18}H_{17}BrClN_3O$** *o* - Cresol, 6 - (7 - bromo - 4-quinolylamino) - 4 - chloro - α - ethylamino-, *di* - *HCl*, P 7515*f*.
**$C_{18}H_{17}BrN_8O_2S$** Sulfanilamide, $N^4$ - [(*p*-bromophenylguanyl)guanyl] - $N^1$ - 2-pyrimidyl-, 5868*d*.
**$C_{18}H_{17}BrO_4$** Chalcone, bromotrimethoxy-, 1742*f*.
**$C_{18}H_{17}ClN_2O$** 1 - (*p* - Acetamidobenzyl)quinolinium chloride, 5755*i*.
2 - Methoxy - 5,11 - dimethyl - 6 *H* - quindolinium chloride, 230*g*.
Quinoline, 7 - chloro - 4 - (*p* - methoxybenzylmethylamino)-, 2212*f*.
**$C_{18}H_{17}ClN_2O_3$** 1-Phthalazineacetic acid, 2-(*o*-chlorophenyl) - 1,2 - dihydro - 4 - hydroxy-, Et ester, 236*i*.
**$C_{18}H_{17}ClN_2O_{10}S_2$** Anthraquinone, 6 - chloro-1,4 - bis(2 - hydroxyethylamino)-, bis(hydrogen sulfate), P 4483*i*, P 9467*d*.
**$C_{18}H_{17}ClN_4$** Biguanide, 1-(8-chloro-5-quinolyl) - 5 - *p* - tolyl-, 231*a*.
**$C_{18}H_{17}ClN_4O$** Biguanide, 1 - (8 - chloro - 5-quinolyl) - 5 - (*p* - methoxyphenyl)-, 231*a*.
**$C_{18}H_{17}ClN_4O_2S$** Sulfanilamide, $N^4$ - [(*p* chlorophenylguanyl)guanyl] - $N^1$ - 2-pyrimidyl-, 5868*d*; - *HCl*, 2179*a*.
Sulfanilamide, $N^1$ - (5 - chloro - 2 - pyrimidyl) - $N^4$ - (phenylguanylguanyl)-, *and* - *HCl*, 2179*b*.
**$C_{18}H_{17}ClO_2$** Benzoic acid, *o*-[α-(1-chloropropylidene)benzyl]-, Me ester, 2611*f*.
Chalcone, 2-chloro-β-propoxy-, 2972*b*.
1 - Indanone, 2 - chloro - 2 - ethyl - 3-methoxy-3 phenyl-, 2611*a*.
**$C_{18}H_{17}Cl_3N_2O_2$** Acetanilide, *p*,*p*′ - (2,2,2 trichloroethylidene)bis-, 1752*h*.
*p* - Toluamide, *N*, *N*′ - (2,2,2 - trichloroethylidene)bis-, 2967*e*.
**$C_{18}H_{17}Cl_3N_2O_2S_2$** α - Toluenethiol, *p*,*p*′-(2,2,2 - trichloroethylidene)di-, dicarbamate, 4657*i*.
**$C_{18}H_{17}FN_6O_4$** 2 - Butanone, 3 - [5 - (2 - fluoro 4 - nitrophenylazo) - 4 - methoxy - 6 methyl - 1 *H* - benzotriazol - 1 - yl]-, P 3625*i*.
**$C_{18}H_{17}HgNO_2S$** 2 - Naphthalenesulfonanilide, *N*-(ethylmercuri) , P 1805*e*.
**$C_{18}H_{17}INP$** Methyldiphenyl - 2 - pyridylphosphonium iodide, 1046*b*.
**$C_{18}H_{17}INPS$** 2 - (Diphenylphosphino) - 1 methylpyridinium iodide, sulfide, 1046*c*.
**$C_{18}H_{17}IN_2$** 2 - Diphenylamino - 1 - methylpyridinium iodide, 1046*a*.
**$C_{18}H_{17}IN_2OS$** 2 - [2 - (*N* - Acetylamino) vinyl] - 3 - methylbenzothiazolium iodide, 3001*c*.
**$C_{18}H_{17}IN_2O_2$** 2 - [2 - (*N* - Acetylamino)-vinyl] - 3 - methylbenzoxazolium iodide, 3001*c*.
**$C_{18}H_{17}I_2NO_4$** Alanine, *N*-acetyl-β-[4 (benzyloxy) - 3,5 - diiodophenyl]-, 7585*c*.
**$C_{18}H_{17}N$** Aniline, *o*-(2,4 dimethyl-1-naphthyl)-, 3401*f*.
**$C_{18}H_{17}NO$** Benzonitrile, 3 methoxy 2 (1,2,3,4 - tetrahydro - 2 - naphthyl) , 205*h*
3(2 *H*) - Chrysenone, 1,11,12,12a - tetrahydro-, oxime, 6609*h*
Quinoline, 2 - (4 - methoxy - *m* - tolyl) 3-methyl-, 3825*g*.
- , 2-(methoxyxylyl)-, 7924*h*, 7925*a*
- , 2 - (3 - methyl - *p* phenetyl) , 382*g*
**$C_{18}H_{17}NO_2$** Anthraquinone, 1-amino 2-butyl , 1761*h*.
Anthraquinone, 1 - amino - 2 - *tert* - butyl , 1761*b*.
Benzonitrile, *p* - (α - ethyl - *p* - methoxyphenacyl) , 9055*g*
Carbostyril, 6 - *p* - methoxybenzyl - 4 methyl-, 645*i*.
Cinnamotoluidide, α acetyl , 5013*i*
1,3 - Dioxolo[*g*]isoquinoline, 5 - benzylidene 5,6,7,8 - tetrahydro - 6 methyl , 1412*g*.
Diphenimide, 4′ - isopropyl - 3 - methyl , 3815*h*.
Isobutyric acid, α cyano-β,β′ diphenyl , Me ester, 3356*h*.
6,7 - Isoquinolinediol, 3,4 - dihydro 3-methyl - 1 - styryl-, - *HCl*, P 2241*i*
5(4 *H*) - Isoxazolone, 4,4 - dibenzyl 3 methyl-, 1723*i*.
Phenanthreneacetamide, *N* - 2 - hydroxyethyl , 3364*h*.
4 - Quinolinol, 3 - benzyl - 7 methoxy - 2 methyl , 1417*b*.
—, 6-*p*-methoxybenzyl 2-methyl , 640*d*
Retene, 4-nitro , 7470*g*.
**$C_{18}H_{17}NO_3$** 3-Retenol, 9-nitro-, 7470*h*.
**$C_{18}H_{17}NO_3S$** Benzenesulfonic acid, 2-biphenyl amine salt, 7445*e*.
**$C_{18}H_{17}NO_4$** Acetanilide, α-benzoyl-*m* 1,3 dioxolan-2-yl-, P 4299*f*, P 8162*a*.
Corydaldine, 2-benzoyl-, 656*g*.
**$C_{18}H_{17}NO_5$** Cinnamic acid, α-benzamido-2,5 dimethoxy-, 6598*i*.
Hippuric acid, α-carboxyphenethyl ester, 4712*b*.
Oxanilic acid, *N*-[α-(carboxymethyl)benzyl]-, Me ester, 8380*c*.
**$C_{18}H_{17}NO_6$** Benzoic acid, *p*-[1-carboxy-2-(2,5 cresotyl)ethylamino]-, 7192*h*.
Usnamide, 5445*e*.
**$C_{18}H_{17}NO_6S_2$** 1 - Naphthol - 8 - sulfonic acid, 3 - (ethylphenylsulfamyl)-, P 5600*e*.
**$C_{18}H_{17}N_3$** Phthalazine, 1-(*p*-dimethylaminostyryl)-, 3428*b*.
**$C_{18}H_{17}N_3O$** Antipyrine, 4-benzylidenecamino-, 5860*h*.

Antipyrine - (phenyliminomethyl)-, 7477*b*.

$C_{18}H_{17}N_3O_2$ Antipyrine, 4-(2-methyl-4-oxo-2,5 - cyclohexadien - 1 - ylidene-amino)-, 1044*g*.

Butyric acid, α-cyano γ-phenoxy-, benzylidenehydrazide, 4223*a*.

2 - Isoindolinepropionaldehyde, methyl-1,3 - dioxo-, phenylhydrazone, 6169*hi*.

4,6(1 *H*,5 *H*) - Pyrimidinedione, 5 - ethyl-2,3 - dihydro - 5 - phenyl - 2 - phenylimino-, 7130*d*.

$C_{18}H_{17}N_3O_2S_2$ 5 *H* - Thiazolo[3,2 - *a*]pyrimidine - 5,7(6 *H*) - dione, 6 - [2 - (3 - ethyl-6 - methyl - 2 - benzothiazolinylidene)-ethylidene]-2,3-dihydro-, P 8925*b*.

$C_{18}H_{17}N_3O_3$ Acenaphthenol, 6,7,8,8a - tetrahydro(*p* - nitrophenylazo)-, 4250*g*.

5 - Hydantoinacetamide, *N* - benzyl - 3-phenyl-, 1353*b*.

Salicylamide, *N* - (2,3 - dimethyl - 5-oxo - 1 - phenyl - 3 - pyrazolin - 4 - yl), P 6239*c*.

Succinimide, *N* - benzyl - α - (benzylnitrosoamino), 1352*g*.

*p* - Toluic acid, 3 - nitro, α - methylcinnamylidenehydrazide, 6973*c*.

$C_{18}H_{17}N_3O_3S$ 5 *H* - Thiazolo[3,2 - *a*]pyrimidine - 5,7(6 *H*) - dione, 6 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene]-2,3-dihydro-, P 8925*d*.

$C_{18}H_{17}N_4O_3S_2$ Acetanilide, *p* - (5 - methyl - 4 - phenyl - 2 - thiazolylsulfamyl), 2968*b*

$C_{18}H_{17}N_3O_4S$ Acetanilide, *p* - (4 - hydroxy - 2 - methyl - 6 - quinolylsulfamyl)-, P 7973*h*.

$C_{18}H_{17}N_3O_6$ 1,4 - Phthalazinedione, 5 - (2,5 - dihydroxy - 3,4,6 - trimethylbenzamido), 7480*a*

$C_{18}H_{17}N_3O_7$ 4 - Oxazolidinecarboxylic acid, 2,5 - bis(*p* - nitrophenyl)-, Et ester, 7456*a*

Oxime, *N* - *p* - nitrobenzylidene - β - (*p*-nitrophenyl), Et ester, 7455*i*

$C_{18}H_{17}N_3O_4S$ Thianaphthene, 3-isopropyl 5-methyl, picrate, 7475*d*

$C_{18}H_{18}N_2O_3S_2$ 2,2' - Stilbenedisulfonic acid, 4 - amino 4' - (3 - methyl - 5 - oxo - 2-pyrazolin - 1 - yl) -, P 4472*cfghi*, P 4479*b*, P 4865*dfg*, P 5194*c*

$C_{18}H_{18}N_8$ Pyridoglyoxaldehyde, bis(phenylhydrazone), 1256*b*

$C_{18}H_{18}N_2O_3S$ Benzenesulfonamide, *p* - (4 - hydroxy - 2 - pyrimidylsulfanilamido) - *N* - 2 - pyrimidyl-, 9045*b*

$C_{18}H_{18}N_4O_5$ 4 - Piperidone, 1 - benzoyl - 2,4 - dinitrophenylhydrazone, 1275*b*

$C_{18}H_{18}NO$ Phenacetanilic acid, α - formyl -, Me ester, 2,4 - dinitrophenylhydrazone, P 9085*a*

Succinaldehydic acid, α - (α - phenylacetamido) -, 2,4 - dinitrophenylhydrazone, 7932*g*

$C_{18}H_{18}N_2O_3S$ Benzenesulfonic acid, 3,5 - dinitro - 2 - (2,3,6,7 - tetrahydro - 6-hydroxy - 5 - methyl - 5 *H* - pyrido-[1,2,3 - *de*] - 1,4 - benzoxazin - 9 - yl)-, P 2782*b*.

$C_{18}H_{18}N_2O_4$ Aspartic acid, *N* - pteroyl -, 8556*f*, 9186*j*

$C_{18}H_{18}N_2O_4S$ Sulfanilamide, $N^4$ - [(*p* - nitrophenylguanyl)guanyl] - $N^1$ - 2 - pyrimidyl -, 5868*d*, *HCl*, 2179*a*

$C_{18}H_{18}O_3$ Butanoic acid, 3 - hydroxy - 2,4 - diphenoxy -, Et ester Na deriv., 4248*d*

$C_{18}H_{18}O_3S$ Equilenin, H sulfate, Na salt, 7032*g*.

$C_{18}H_{18}$ (See also *Retene*.)

Anthracene, 9,10 - diethyl -, 498*b*

Chrysene, 4b,5,6,10b,11,12 - hexahydro -, 3402*l*

Cyclohexene, diphenyl -, 4233*d*.

Fluoranthene, 1,2,3,10b - tetrahydro - 1,3 - dimethyl -, 9059*e*

Hexadiene, diphenyl -, 493*b*, 611*r*, 612*acd*.

Methane, cyclopentylidenediphenyl-, 3797*b*

Naphthalene, 1,2 - dihydro - 6 - methyl - 4 - *p* - tolyl -, 615*h*.

*p* - Terphenyl, tetrahydro -, P 7510*i*

$C_{18}H_{18}BrNO_2$ Crotonic acid, β - [α - (*p* - bromophenyl) - *p* - toluidino] -, Me ester, 646*a*.

$C_{18}H_{18}BrNO_4$ 8 - Hydroxy - 5,6 - dimethylphenanthridinium bromide, Et carbonate, P 2647*d*.

$C_{18}H_{18}Br_2O_6$ Benzoin, 5,5'-dibromo-2,2'-bis(methoxymethoxy)-, 4246*d*.

$C_{18}H_{18}Br_4$ Bibenzyl, α,α'-bis(1,2-dibromoethyl)-, 612*c*.

$C_{18}H_{18}ClN$ Trimethyl - 2 - phenylquinolinium chloride, 4675*e*.

$C_{18}H_{18}ClNO_2$ Crotonic acid, β-[α-(*p*-chlorophenyl) - *p* - toluidino]-, Me ester, 646*a*.

$C_{18}H_{18}ClNO_4$ Benzoic acid, *p* - hydroxy-, Bu ester, *p*-chlorocarbanilate, 593*g*.

Carbamic acid, [α-(chloroformyl)-*p* methoxyphenethyl]-, benzyl ester, 7458*c*.

$C_{18}H_{18}ClN_3O$ *o* - Cresol, 4 - (7 - chloro 4-quinolylamino) - α - ethylamino-, P 7514*i*; *di*-*HCl*, P 7515*e*.

$C_{18}H_{18}ClN_3O_4S$ Benzenesulfonic acid, 7-chloro - 3 - methyl - 4 - quinolylhydrazide, acetate, -*HCl*, 3410*c*

$C_{18}H_{18}ClN_5O_{10}S$ Ethanol, 2,2' - [*p* - (3,5 - di - nitrophenylazo)phenylimino]di-, chlorosulfoacetate, P 9462*f*.

$C_{18}H_{18}Cl_4N_2O_2$ Bis(3,4 - dichlorophenylcarbamylmethyl)dimethylammonium chloride, P 4420*a*.

$C_{18}H_{18}IN$ 1 - Benzyl - 2,3 - dimethylisoquinolinium iodide, 3821*c*.

Trimethyl - 2 - phenylquinolinium iodide, 4675*e*.

$C_{18}H_{18}INO_2$ 7,8 - Dihydro - 5,6 - dimethyl-7 - phenyl - 1,3 - dioxolo[*g*]isoquinolinium iodide, 5027*d*.

$C_{18}H_{18}INS_2$ 3 - Ethyl - 2 - (β - methylmercaptostyryl)benzothiazolium iodide, P 515*b*.

$C_{18}H_{18}I_2N$ 1,5,6 - Trimethyl - 2 - phenylquinolinium triiodide, 4675*e*

$C_{18}H_{18}I_8N_6O_2Sb_2$ Nicotinamide, Sb deriv., 357*d*.

$C_{18}H_{18}N_2$ Isoquinoline, 1,2,3,4 tetrahydro-2 - (3 - indolylmethyl), *and* -*HCl*, 3407*l*.

$C_{18}H_{18}N_2O$ Lepidine, 2 - (*p* methoxybenzylamino)-, *and* *HCl*, 8389*g*.

$C_{18}H_{18}N_2O_2$ Acrylanilide, β-benzoyl-*p*-dimethylamino-, 7192*h*

Alanine, *N* - 9 - acridyl, Et ester, *and* -*HCl*, 3826*b*.

Anthraquinone, diamino 2-butyl-, 1761*i*.

--, diamino-2-*tert*-butyl-, 1761*d*

1,3 - Cyclohexanedione, 4,5 - diphenyl-, dioxime, 7479*b*.

Piperazine, 1,4 - bis(*p* - formylphenyl)-, P 2233*b*.

Quinaldine, 7 - methoxy 4 - *m* - methoxyanilino -, 1416*g*

3 - Retenamine, 4 - nitro-, *and* -*HCl*, 7470*b*

Succinimide, *N* benzyl α - benzylamino-, *and* *HCl*, 1352*g*

$C_{18}H_{18}N_2O_2S$ 8 - Quinolinesulfono - 3,5 - xylide, 2-methyl-, 4649*c*.

3(2 *H*) - Thianaphthenone, 2 - (*p* - dimethylaminophenylimino) - 6 - ethoxy-, P 7707*a*, P 9470*h*.

$C_{18}H_{18}N_4O_3S$ Benzenesulfinic acid, 2 - (1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

Piperazine, 1,4 - bis(thiosalicyloyl), 5027*s*.

$C_{18}H_{18}N_2O_3$ Naphthalimide, *N* [2 (4 morpholinyl)ethyl], -*HCl*, 617*b*.

1 Phthalazineacetic acid, 1,2 - dihydro-4 hydroxy - 2 - phenyl, Et ester, 237*t*.

$C_{18}H_{18}N_2O_3S$ Tetrolic acid, γ-hydroxy-γ-phenyl-, 2 benzyl - 2 - thiopseudourea salt, 7459*b*.

$C_{18}H_{18}N_2O_3S_2$ Benzenesulfonic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

1,2 - Butanediol, 3,4 - dimercapto -, anhydride, dicarbanilate, 7424*g*

$C_{18}H_{18}N_2O_4$ Acetic acid, benzoyl, Et ester, *o* - carboxyphenylhydrazone, 5024*t*.

Cinnamohydroxamic acid, α benzamido-*p*-ethoxy -, 8383*b*

Salipyrine, 5541*b*.

$C_{18}H_{18}N_2O_4S_2$ 1 - Phenol 4 - sulfonic acid, 2 (1 - naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

$C_{18}H_{18}N_2O_6$ Benzoic acid, azoxydi-, di-Et ester, 3675*d*

$C_{18}H_{18}N_2O_6$ Benzoic acid, *p* hydroxy -, Bu ester, *p* nitrocarbanilate, 593*h*.

Cinnamic acid, α - cyano - *p* - dimethylamino-, 2 - hydroxyethyl ester H maleate, P 5600*b*.

*p*-Cymenemethanol, 3,5-dinitrobenzoate, 5015*d*.

$C_{18}H_{18}N_2O_6S_2$ 2 - Naphthalenesulfonic acid, *N* - sulfanilylacetamide salt, 174*a*.

$C_{18}H_{18}N_2O_6S_2$ 1 *H* - Benz[*de*]isoquinolinedisulfonic acid, 6-amino-2-cyclohexyl-2,3-dihydro-1,3-dioxo -, P 7710*h*.

$C_{18}H_{18}N_2S_2$ Piperazine, 1,4-bis(thiobenzoyl)-, 5027*i*.

$C_{18}H_{18}N_3OP$ Phosphoramide, *N*, *N'*, *N''*-triphenyl-, 3353*i*.

$C_{18}H_{18}N_3PS$ Thiophosphoramide, *N*, *N'*, *N''*-triphenyl-, 3353*dg*.

$C_{18}H_{18}N_4$ Benzimidazole, 2,2'-ethylenebis[1-methyl-, P 4488*a*.

2 - Imidazoline, 2,2' - (4,4' - biphenylene)di-, *di* -*HCl*, P 6240*f*; *and* *di* -*HCl*, P 3852*h*.

$C_{18}H_{18}N_4O$ Antipyraldehyde, phenylhydrazone, 7477*b*.

Ketone, methyl 5 - methyl - 1 - phenyl-3 - (2 - phenylhydrazino) - 4 - pyrazolyl, 4258*f*.

4(1 *H*) - Quinolone, 2,3 - dihydro-, oxime, compd. with 4-aminoquinoline, 8387*b*.

$C_{18}H_{18}N_4O_2$ Oxalic acid, 2-α-methylcinnamylidenehydrazide 2 phenylhydrazide, 6972*c*.

4,6(1 *H*,5 *H*) - Pyrimidinedione, 2 - (*p*-aminophenylimino) - 5 - ethyl - 2,3-dihydro-5-phenyl-, 7130*e*.

$C_{18}H_{18}N_4O_3$ Phthalimide, 3-(2,5-diamino-3,4,6-trimethylbenzamido)-, 7488*i*.

$C_{18}H_{18}N_4O_3S$ Acetanilide, *p*-[(5,6-dimethyl 2-quinoxalyl)sulfamyl]-, 174*h*.

$C_{18}H_{18}N_4O_4$ 5 *H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin-6-ol, 2,3,6,7-tetrahydro-3-methyl - 9 - (*p* - nitrophenylazo)-, 2781*i*.

$C_{18}H_{18}N_4O_4S_2$ *p*-Benzenedisulfonic acid, bis(2-phenylhydrazide), 4237*e*.

$C_{18}H_{18}N_4O_5$ 2-Hexenophenone, 2'-hydroxy, 2,4-dinitrophenylhydrazone, 2187*d*.

2-Pentenophenone, 2'-hydroxy-4-methyl-, 2,4-dinitrophenylhydrazone, 2187*e*.

5 *H* - Pyrido[1,2,3 - *de*] - 1,4 - benzoxazine-5-methanol, 2,3,6,7-tetrahydro-6-hydroxy-9-(*p*-nitrophenylazo)-, P 2782*a*.

*p*-Toluic acid, 3,5-dinitro-, *p*-ethyl α-methylbenzylidenehydrazide, 6972*e*.

$C_{18}H_{18}N_4O_5$ Isoquinoline, 1-(ethoxymethyl)-3,4-dihydro-, picrate, 3408*b*

$C_{18}H_{18}N_4O_8S_4$ *p* - Benzenedisulfonanilide, 4',4''-disulfamyl-, 4237*e*.

$C_{18}H_{18}N_4O_9$ 2,4-Pentanedione, 3-[2-(2-pyridyl)ethyl]-, picrate, 4267*h*.

$C_{18}H_{18}N_6$ Benzimidazole, 2,2'-vinylenebis-[amino-1-methyl-, P 8146*a*

$C_{18}H_{18}N_6O_2$ Ketone, 3-amino 5-methyl-1-phenyl-4-pyrazolyl methyl, *p*-nitrophenylhydrazone, 4258*g*

$C_{18}H_{18}N_6O_5$ Nicotinamide, 2-ethylidene 1,2-dihydro-, picrolonate, 705*f*.

$C_{18}H_{18}N_6O_5S_2$ 2-Pyrazoline-3 carboxylic acid, 5-oxo-*p* sulfamylphenyl 4-(*p*-sulfamylphenylazo)-, Et ester, P 8149*e*.

$C_{18}H_{18}N_6O_8$ Quinoline, 8 (2-aminoethylamino)-6-methoxy-, picrate, 7485*f*.

$C_{18}H_{18}N_6O_{10}$ Lysine, $N^{\alpha}$, $N^{\epsilon}$ bis(dinitrophenyl)-, 138*c*, 575*e*.

$C_{18}H_{18}N_8O_2S$ Sulfanilamide, $N^4$-[(phenylguanyl)guanyl] - $N^1$ - 2 - pyrimidyl -, 5868*d*.

$C_{18}H_{18}N_8O_5$ Aspartic acid, *N*-[*p* [(2,4-diamino - 6 - pteridylmethyl)amino]-benzoyl]-, 763*f*, 7097*d*, 8491*d*, 9109*g*, 9186*h*, 9249*e*

$C_{18}H_{18}N_8O_{10}$ Acetaldehyde, (ethylenedioxy)-di-, bis(2,4 dinitrophenylhydrazone), 2577*g*.

$C_{18}H_{18}N_8O_{12}S$ Lactamide, *N*-[1-(2-hydroxyethyl) - 5 - [2 - (methylsulfonyl) - 4,6-dinitrophenylazo] - 1 *H* - benzotriazol-4 yl]-, H sulfate, *N H*$_4$ *salt*, P 3625*i*.

$C_{18}H_{18}O$ Cyclopentanone, 4-methyl-2,3-diphenyl-, 6624*i*.

17-Equilenone, 6609*i*.

$\Delta^{1,3,5(10),6,8}$-Estrapentaen-16-one, 3019*g*.

3-Retenol, 2985*d*.

$C_{18}H_{18}O_2$ (See also *Equilenin*; *Phenol*, *p*, *p'*-(*1,2 diethylideneethylene*)*di*-.)

Acetic acid, diphenyl-, 2 butenyl ester, 5769*d*, methylallyl ester, 5769*bc*

Benzil, tetramethyl-, 5773*f*.

Benzofuro[3,2 *b*]benzofuran, 4b,9b-dihydrotetramethyl, 8370*f*.

1,3-Butadiene, bis(*p*-methoxyphenyl)-, 5756*a*, 8371*a*.

Hexanedione, 1,6-diphenyl-, 7453*a*, P 9081*i*.

4-Hexenoic acid, 2,2-diphenyl-, 5769*d*.

Indene, 6-methoxy-2-(*p*-methoxyphenyl)-3-methyl-, 1758*a*.

Indeno[2,1-*a*]indene, 4b,5,9b,10-tetrahydro-5,10-dimethoxy-, 4661*i*.

Ketone, *p*-methoxyphenyl 5,6,7,8-tetrahydro-2-naphthyl, 7007*c*.

Naphthalene, 1,2-dihydro-6-methoxy-4-(*p*-methoxyphenyl)-, 606*f*.

4-Pentenoic acid, methyl-2,2-diphenyl-, 5769*ce*.

2-Phenanthrenecarboxylic acid, 1-ethylidene-1,2,3,4-tetrahydro-2-methyl-, P 3850*h*.

1-Phenanthrenepropionic acid, 3,4-dihydro-2-methyl-, 6610*b*.

—, 1,2,3,4 - tetrahydro - 1 - hydroxymethyl-, γ-lactone, 621*h*, 6610*i*.
**$C_{16}H_{18}O_2S_2$** Formic acid, thiobis[thiono-, diphenethyl ester, 144*d*.
**$C_{16}H_{18}O_2S_4$** Formic acid, dithiobis[thiono-, diphenethyl ester, 6983*i*.
**$C_{16}H_{18}O_3$** Benzoic acid, 2-benzoyl-*tert*-butyl-, 8139*h*.
3 - Buten - 1 - one, 1,3 - bis(*p* - methoxyphenyl)-, 4640*b*.
Isobutyric acid, *p*-phenylphenacyl ester, 2580*g*.
2-Phenanthrenecarboxylic acid, 1-ethylidene - 1,2,3,4 - tetrahydro - 7 hydroxy-2-methyl-, P 3849*n*, P 7048*i*.
—, 1,2,3,4 - tetrahydro - 7 - methoxy - 2-methyl 1-methylene-, P 3849*i*.
Propionic acid, β-phenethylbenzoyl-, 7004*c*.
**$C_{16}H_{18}O_4$** Adipic acid, β,γ diphenyl-, 3402*f*.
*p*-Anol, 2,6 dimethoxy-, benzoate, 1030*d*
Benzoic acid, *p*-(α ethyl-*p*-methoxyphenacyl)-, 4655*b*, 9055*g*.
4,4′ Bi-*o*-cresol, diacetate, 5017*i*.
4,4′ Bi-1,3-dioxolane, 2,2′-diphenyl, 4219*d*
2-Biphenylcarboxylic acid, 2′-(2-carboxyethyl)-, di Me ester, 8378*c*.
1,4-Butanedione, 1,4-bis(*p*-methoxyphenyl)-, 5388*a*.
Chalcone, trimethoxy-, 640*h*, 1742*f*
Diphenic acid, 4′-isopropyl-3-methyl, 3815*h*.
Erythritol, dibenzylidene-, 8355*e*
1,7 - Octadien - 4 - yne - 3,6 - diol, 1,8-di-2 furyl-3,6 dimethyl-, 6573*g*
2-Phenanthrenecarboxylic acid, 1,2,3,4 tetrahydro-7-methoxy-2-methyl-1-oxo, Me ester, P 7969*h*.
1,2 - Phenanthrenedicarboxylic anhydride, hexahydro 7-methoxymethyl, 8376*i*.
Succinic acid, α,α diphenyl, Et ester, 3396*i*.
*p*-Toluic acid, α anisoyl-, Et ester, 4655*a*
Valeric acid, δ *p*-phenoxybenzoyl, 1378*g*.
*o*-Veratril, 1368*b*.
2,4-Xylenol, oxalate, 2973*b*.
**$C_{16}H_{18}O_4S$** Retenesulfonic acid, 3-hydroxy-, 4251*h*.
**$C_{16}H_{18}O_4S_2$** Benzoic acid, *p*, *p*′-(ethylenedithio)di-, di-Me ester, P 7236*i*
**$C_{16}H_{18}O_5$** Acetic acid, [2 acetyl-5 (benzyloxy)-*p*-toloxy]-, 3113*b*.
Acetic acid, [5-(benzyloxy)-2 formylphenoxy], Et ester, 3412*c*.
Acetoacetic acid, α,γ-diphenoxy, Et ester, 4218*d*.
Chalcone, hydroxytrimethoxy-, 182*a*, 640*h*, 1407*i*, 1772*d*, 1773*g*, 4264*f*.
Flavanone, trimethoxy-, 640*h*, 1407*i*, 1772*e*, 1773*g*, 1774*e*.
Hydrocinnamic acid, β,β′-oxybis-, P 5037*e*.
**$C_{16}H_{18}O_5S$** Equilenin, H sulfate, *Na salt*, 7032*g*.
**$C_{16}H_{18}O_6$** Acetic acid, (3,3′-dimethyl-4,4′-biphenylenedioxy) di-, 5018*b*.
Acetophenone, 4-(4-hydroxy-3-methoxyphenacyloxy)-3-methoxy-, 3610*f*.
Benzil, 2,2′,4,4′-tetramethoxy-, 1036*d*.
Flavanone, 5-hydroxy-6,7,8-trimethoxy-, 5396*d*, 5397*c*.
Isopedicin, 4264*e*, 5396*b*.
Pedicin, 3823*g*, 4264*a*.
Peroxide, bis(*o*-ethoxybenzoyl), P 7753*e*.
β-Resorcil, 5,5′-diethyl-, 1037*f*.
Salicil, 4,4′-diethoxy-, 1036*a*.
**$C_{16}H_{18}O_6S$** Phenol, 2′,4-dimethyl-2,4′-sulfonyldi-, diacetate, 6995*d*.
**$C_{16}H_{18}O_7$** Acetic acid, [3-(benzyloxy)-6-formyl - 2,5 - dimethoxyphenoxy]-, 7480*h*.
Adipic acid, β-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-, di-Me ester, 1387*c*.
Obtusatic acid, 5077*c*.
Propiophenone, 2,6-dihydroxy-β (*p*-hydroxyphenyl)-4-methoxy-, Me carbonate, 8603*c*.
Usnic acid, dihydro-, 5445*e*, 6698*a*.
**$C_{16}H_{18}O_8$** 3,3′-Biphenyldicarboxylic acid, 5,5′,6,6′-tetrahydroxy-, di-Et ester, 8614*e*.
Pyrogallil, 5,5′-diethyl-, 1037*g*.
Vanillic acid, ethylene ester, 4242*b*, 7455*h*.
**$C_{16}H_{18}O_8S_2$** Phenol, 4,4′-(1,2-diethylethylene)di-, disulfate, *salts*, P 1915*g*.
**$C_{16}H_{18}O_9$** Phloroglucinol, tris(allyl carbonate), P 4298*i*.
**$C_{18}H_{18}O_{12}$** Mellitic acid, hexa-Me ester, 376*h*.
**$C_{16}H_{18}S_2$** Cinnamyl disulfide, 1044*c*.
**$C_{16}H_{18}S_4$** Cinnamyl trisulfide, 1044*c*.
**$C_{16}H_{19}AsI_2N_2$** 2,2′-(Phenylarsylene)bis[1-methylpyridinium iodide], 1046*f*.
**$C_{16}H_{19}ClN_4O$** Acetophenone, *p*-chloro-α-1-piperidyl-α-pyridyl-, *and - HCl*, 2208*e*.
**$C_{16}H_{19}ClN_4O_2S$** Sulfanilamide, *N*¹-(6-chloro-8-isopropyl - 5 - methyl - 2-quinoxalyl)-, 3384*e*.
**$C_{16}H_{19}ClN_4O_7$** Acetanilide, 5-[bis(2-hydroxyethyl)amino] - 2 - (2 - chloro - 4,6 - dinitrophenylazo)-, P 1986*d*.
**$C_{16}H_{19}ClO_2$** 1-Naphthalenebutyric acid, α-3-chloro-2-butenyl-, 6609*h*.
**$C_{16}H_{19}ClO_3$** Butyric acid, α chloro-α-(α-methoxybenzhydryl)-, 1394*h*.
**$C_{16}H_{19}Cl_2N$** 4-Stilbenamine, *N*, *N*-bis(2-chloroethyl), 7443*d*.
**$C_{16}H_{19}Cl_2NO$** Acetamide, α,α-bis(*p*-chlorophenyl) *N*, *N*-diethyl-, 1141*e*
Acetophenone, α-butylamino *p* chloro α-(*p*-chlorophenyl), - *HCl*, 3369*d*.
—, *p* - chloro - α - (*p* - chlorophenyl) - α-diethylamino, - *HCl*, 3369*d*
**$C_{16}H_{19}Cl_2NO_2$** 2-Morpholinol, 2,3-bis(*p*-chlorophenyl) 4-ethyl, - *HCl*, 3369*e*
**$C_{16}H_{19}Cl_3$** Ethane, 1,1,1-trichloro 2,2-bis(*p*-ethylphenyl)-, 3137*f*
Ethane, 1,1,1 trichloro - 2,2 - dixylyl-, 3137*f*, 9333*e*.
**$C_{16}H_{19}Cl_3O_2$** Ethane, 1,1,1-trichloro 2,2 di-*p* phenetyl, 347*a*, P 8400*b*, 9343*a*.
**$C_{16}H_{19}Cl_3O_4$** Ethane, 1,1,1 trichloro 2,2 bis (2,5-dimethoxyphenyl), P 8401*a*
**$C_{16}H_{19}I_2N_3$** 2,2′ (Phenylimino)bis[1-methylpyridinium iodide], 1046*d*
**$C_{16}H_{19}N$** Quinoline, 1,2-dihydro 2,2,4-trimethyl-6 phenyl-, 2460*g*, 8188*g*
Quinoline, 1,2,3,4-tetrahydro 1-methyl 6 styryl, 3127*i*.
**$C_{16}H_{19}NO$** Cyclopentanecarboxanilide, phenyl-, 3398*e*
1 Indanone, 2 - [(benzylmethylamino)-methyl], - *HBr*, P 1411*a*.
1 Piperidone, 3-methyl-2,6 diphenyl-, *and - HCl*, 1110*a*.
2 Pyrrolidone, dimethyldiphenyl, 611*i*, 7467*ab*.
—, 1 ethyl-3,3-diphenyl-, 9053*e*
3 Retenol, 9-amino, *and HCl*, 7470*i*
**$C_{16}H_{19}NOS$** Morpholine, 4 (4 biphenylylthioacetyl)-, 1385*c*
**$C_{16}H_{19}NO_2$** 9 Carbazoleethanol, butyrate, 624*b*, P 6669*e*, *g*.
9 - Carbazoleethanol, α - methyl-, propionate, 624*b*.
Retene, 9,10 dihydro 2-nitro-, 4252*d*
**$C_{16}H_{19}NO_3$** Acetic acid, phenyl-, 2 (α-phenylacetamido)ethyl ester, P 3547*e*, P 4697*h*.
Acetoacetanilide, *p* (*p* methoxybenzyl), 645*h*.
Benzamide, *N* - (β - hydroxy - α - methyl phenethyl)-, acetate, 6999*h*
5 - Benzyl - 7,8 - dihydro - 6 methyl 1,3 - dioxolo[*g*]isoquinolinium hydroxide, 1412*g*.
Erythraline, *and - HBr*, 5544*i*.
Hydrocinnamic acid, β-benzamido, Et ester, 3821*g*.
Malonanilic acid, *o*-methyl-α-phenyl, Et ester, 629*f*.
Ompavine, *and - HCl*, 2384.
8 - Phenanthridinol, 5,6 - dihydro - 5,6-dimethyl-, Et carbonate, P 2647*d*.
Thebenine, - *HCl*, 2384.
**$C_{16}H_{19}NO_4$** Benzoic acid, *p*-hydroxy, Bu ester, carbanilate, 593*f*; iso-Bu ester, carbanilate, 593*f*.
Carbanilic acid, *p*-carboxy-, 4-Bu 1-Ph ester, 593*g*.
Homopiperonylamine, 5 - methoxy - *N*-*m*-methoxybenzylidene-, 9046*f*.
Tyrosine, *N*-benzoyl-, Et ester, 5056*a*, 9113*a*.
**$C_{16}H_{19}NO_5$** Alanine, *N*-benzoyl β-(2,5-dimethoxyphenyl)-, 6599*a*.
Alanine, *N* - carboxy - β - (*p* - methoxyphenyl)-, benzyl ester, 7458*b*.
Propionic acid, β-(5-acetamido-2-methoxy-1-naphthoyl)-, Me ester, 7012*a*.
**$C_{16}H_{19}NO_7$** 2 - Isoindolinemalonic acid, α-2-formylethyl - 1,3 - dioxo-, di - Et ester, 143*d*.
**$C_{16}H_{19}NS$** Quinoline, 3-butyl-6-methyl-2-(2-thienyl)-, 228*b*.
**$C_{16}H_{19}N_3O$** Quindoline, 11-amino-11-ethoxy-5,11 - dihydro - 5 - methyl-, 229*g*.
**$C_{16}H_{19}N_3O_3$** 3 - Pyrazolidone, 5 - imino - 4-(3 - phenoxypropyl) - 1 - phenyl-, 7478*c*.
3 - Pyridinemethanol, 5 - hydroxy - 4-[2 - (3 - indolyl)ethyliminomethyl] - 6-methyl-, 1410*i*.
**$C_{16}H_{19}N_3O_5$** Phenanthrenecarboxylic acid, *p* - acetyl - 1,2,3,4 - tetrahydro-, semicarbazone, 8376*g*.
4 - Piperidineacetic acid, 1 - benzoyl-α,4-dicyano-, Et ester, 4275*i*.
*p*-Toluic acid, 3-nitro-, *p*-ethyl-α-methylbenzylidenehydrazide, 6973*c*.
**$C_{16}H_{19}N_3O_4$** Anthranilic acid, *N*-(γ-*p*-tolylallophanyl)-, Et ester, 7446*h*.
Asparagine, *N* - benzyl - *N*α - phenylcarbamyl-, 1353*b*.
Benzoic acid, (3 - *p* - tolylcarbamyl ureido)-, Et ester, 7446*h*.
Oxamic acid, *N*-naphthyl-, 2-carboxy isopropylidenehydrazide, Et ester, 6974*a*; 3 - carboxy - 1 - methylpropylidenehydrazide, Me ester, 6974*a*
Phloretamide, α - benzamido - *N* - (carbamylmethyl)-, 5055*g*.
**$C_{16}H_{19}N_3O_4S$** 1,3 - Propanedisulfonic acid, 1 - phenyl - 3 - (*p* - 2 - thiazolylsulfamylanilino)-, *di-Na salt*, 7593*h*
**$C_{16}H_{19}N_3O_4$** 3 - Buten - 2 - one, 4 - (*p* - dimethylaminophenyl)-, 2,4 - dinitrophenylhydrazone, 633*b*
**$C_{16}H_{19}N_3O_7$** 2 - Cyclopenten - 1 - one, 2 - (2 - butenyl) - 5 - hydroxy - 3 - methyl semicarbazone, 3,5 - dinitrobenzoate 1335*a*.
1,3,1 *H* - Diazepine, 2 - benzyl - 4,5,6,7 tetrahydro-, picrate, P 5049*i*
Hexamethylenimine, 2-phenylnitroso, picrate, 2594*d*.
**$C_{16}H_{19}N_3O_8S$** 1,3,1 *H* - Diazepine, 4,5,6,7 tetrahydro - 2 - [*p* - (methylsulfonyl) phenyl]-, picrate, P 5049*i*.
**$C_{16}H_{19}N_7O_3S_2$** Sulfanilamide, *N*⁴ - [(*p* - methoxyphenylguanyl)guanyl] - *N*¹ - 2 thiazolyl-, *HCl*, 2179*a*.
**$C_{16}H_{19}N_7O_7S$** Glutamic acid, *N*-[*N*-(2 amino 4 hydroxy - 6 - pteridylmethyl)-*p* anilyl], 7029*b*.
**$C_{16}H_{19}NaO_4S$** Equilin, H sulfate, Na salt 7032*g*.
**$C_{16}H_{20}$** Cyclohexane, 1,2-diphenyl-, 4233.
Ethylene, 1 - (*p* - *tert* - butylphenyl) phenyl, 206*a*.
Retene, dihydro, 3182*i*, 4252*d*.
Stilbene, α,α′ diethyl-, 612*a*.
**$C_{16}H_{20}BrNO_4S$** *p* - Toluenesulfonamide, *N*-(α - bromoacetyl *p* - methoxyphenethyl), 7458*h*.
**$C_{16}H_{20}Br_2N_2O_4$** Benzoic acid, bromo, piperazine salt, 235*d*.
**$C_{16}H_{20}ClIN_2OS_2$** 5 - [2 - (5 - Chloro - 3 ethyl - 2 - benzothiazolinylidene)isopropylidene] - 3 - ethyl - 2 - methylmercapto 4 - oxo - 2 thiazolinium iodide, 4161*d*
**$C_{16}H_{20}ClNO$** 1 - Propionaphthone, 1 chloro 3-1 piperidyl, - *HCl*, 9079*d*
**$C_{16}H_{20}ClNO_2$** Cyclohexanol, 4 (chloromethyl), 1 - naphthalenecarbamate 7136*h*
**$C_{16}H_{20}ClNO_3S$** *p* - Toluenesulfonamide, (α - chloroacetyl - *p* - methoxyphenethyl), 7458*h*.
**$C_{16}H_{20}ClN_3S$** *o* - Chlorobenzylnicotinium thiocyanate, 9123*d*.
**$C_{16}H_{20}ClN_3O_5$** Acetanilide, 5-[bis(2 hydroxyethyl)amino] - 2 (4 chloro 2 - nitrophenylazo), P 1986*e*.
**$C_{16}H_{20}Cl_2$** Ethane, 1,1-dichloro-2,2 dixylyl 9333*e*
**$C_{16}H_{20}Cl_2N_2O_3S$** Butyramide, *p*-3,5-chlorophenylsulfamyl) - α - ethyl 4648*h*
**$C_{16}H_{20}Cl_2N_2O_4$** Benzoic acid, chloro, piperazine salt, 235*d*.
**$C_{16}H_{20}HgN_2O_{12}S_2$** Alanine, β (4 hydroxysulfophenyl)-, Hg deriv, *Na* salt 1673*a*.
**$C_{16}H_{20}INS_2$** 1 - Ethyl - 2 - (2 methylmercapto - 1 - butenyl)naphtho[1,2]thiazolium iodide, P 516*a*.
**$C_{16}H_{20}IN_3$** Isoquinoline, 7 - amino - 1 - (*p* - aminophenyl) - 3,4 - dimethyl methiodide, 7486*f*.
**$C_{16}H_{20}N_2$** Butyronitrile, γ-dimethylamino α,α-diphenyl-, - *HCl*, 7138*e*, *a* - *HCl*, 9052*f*; *and salts*, 7407*e*.
Carbazole, 9 - [2 - (1 - pyrrolidyl)ethyl 4257*g*.
Ethylenediamine, *N*, *N*′ - bis(α - methylbenzylidene)-, 5756*a*.
Piperidine, 1-*N*-phenylbenzimido-, 5038*e*.
3,4-Retenediamine, *and salts*, 7470*g*.
**$C_{16}H_{20}N_2O$** Acetophenone, α-1-piperidylpyridyl-, *di - HCl*, 2208*e*; *and HCl*, P 3045*f*; *and - HCl*, 2208*d*.
2 - Furaldehyde, tetrahydro, benzylphenylhydrazone, 9061*a*.

2 - Imidazoline, 2 - (4 - methylbenzhydryloxymethyl)-, *and - HCl*, 6620*a*.
4 - Quinazolinol, 3,4 - dihydro - 2 - methyl-3-phenyl-4-propyl-, 4676*a*.

$C_{18}H_{20}N_2OS$ Phenothiazine, 10-(*N*, *N*-diethylglycyl)-, 7938*e*.
Phenothiazine, 10 - (α - dimethylaminobutyryl)-, 7938*e*.

$C_{18}H_{20}N_2O_2$ Acetophenone, α,α' - (ethylenediimino)di-, *and salts*, 3800*d*.
Benzaldehyde, *p*,*p*' - [ethylenebis(methylimino)]di-, P 2233*b*.
2-Imidazoline, 2 - (4 - methoxybenzhydryloxymethyl)-, - *HCl*, 6620*a*.
Isovaleranilide, β-benzamido-, 7427*g*.
Mesitylenaldehyde, 2-hydroxy-, azine, 5995*b*.
Naphthalimide, *N* - (2 - diethylaminoethyl)-, - *HCl*, 6117*b*.
8 - Phenanthridinecarbamic acid, 5,6-dihydro - 5,6 - dimethyl-, Et ester, *and - HCl*, P 2647*i*.

$C_{18}H_{20}N_2O_2S_2$ Propionanilide, *o*,*o*'-dithiobis-, 6858*h*.

$C_{18}H_{20}N_2O_3$ Allophanic acid, γ-phenyl-, thymyl ester, 7447*c*.
Asparagine, *N*, *N*α-dibenzyl-, 1352*i*.
Isobutyramide, α-benzamido-*N*-(benzyloxy)-, 8383*e*.
Malamide, *N*, *N*'-dibenzyl-, 1352*e*.

$C_{18}H_{20}N_2O_3S_2$ $\Delta^{1,7}$ - Benzothiazolinecrotonic acid, α - cyano - β - (ethylmercapto)-3 - (2 - hydroxyethyl)-, Et ester, P 7849*i*.

$C_{18}H_{20}N_2O_4$ Acetamide, *N*-2-hydroxyethyl-α - [*p* - (*p* - methoxybenzamido)-phenyl] , 3362*b*.
1,3-Butanediol, dicarbanilate, 6976*a*.

$C_{18}H_{20}N_2O_4S$ Propionamide, α-(cinnamyloxy) *N*-sulfanilyl-, P 3036*d*.

$C_{18}H_{21}NO_3S$ Carbamic acid, *p*-3,4-xylovl sulfamyl-, Et ester, P 7962*e*.
Phthalamic acid, *N*-[2-(ethylphenyl sulfamyl)ethyl]-, P 3450*g*.

$C_{18}H_{22}N_2O_6$ Acetophenone, α,α' - (ethylenediimino)bis[3,4 - dihydroxy-, 3800*d*
Galactoside, (*p*-phenylazophenyl), 6919*e*.
Glucoside, (*p*-phenylazophenyl), 6919*e*.

$C_{18}H_{22}N_2O_3S_2$ Acetanilide, *p*,*p*'-(ethylenedisulfonyl)bis , 6180*a*.

$C_{18}H_{22}N_2O_4$ Phthalic acid, compd. with ethylenediamine, 8832*g*.

$C_{18}H_{22}N_2S$ Benzothiazole, 2 (aminoxylyl) 1,6,7 trimethyl-, P 5600*h*.
Phenothiazine, 10 - [2 - (1 - pyrrolidyl)-ethyl] , - *HCl*, 6311, 7596.
Urea, 1 - [2 - (5 indanyl)ethyl] - 3 phenyl 2 thio , 8390*b*.

$C_{18}H_{22}N_2O$ 3 Buten - 2 - one, 4 - (*p* dimethylaminophenyl)-, *p* - nitrophenyl hydrazone, 633*b*.

$C_{18}H_{22}N_2O_4$ 1,2 - Cyclohexanedione, 3,4,5 trihydroxy-, bis(phenylhydrazone), 4726*h*.
Glucose, 3,6-anhydro , phenylosazone, 1726*i*.

$C_{18}H_{22}N_2O_4S$ 2,4 - Cyclohexadiene - 1 - sulfonic acid, 3,5 - bis(*p* - ammoanilino)-, *and salts*, 2596*a*.

$C_{18}H_{22}N_2O_5$ Acetophenone, *o* butyl-, 2,4-dinitrophenylhydrazone, 7416*c*.
Butyrophenone, 2,5-dimethyl-, 2,4-dinitrophenylhydrazone, 6990*g*.
Caprophenone, 2,4 - dinitrophenylhydrazone, 6991*b*.
1,2 Cyclohexanedione, 3,4,5,6 - tetrahydroxy , bis(phenylhydrazone), 153*g*.
Piperazine, 1,4 - bis(*p* - nitrobenzyl)-, - *HCl*, 1484*g*.

$C_{18}H_{22}N_2O_5$ 1 - Azabicyclo[3.3.1] - 3,6 - nonadiene, 3 - acetyl - 4,5 - dimethyl-, picrate, 3004*b*.
1 - Butanone, 1 - (4 - propyl - 3 - pyridyl)-, picrate, 643*e*.
Isoquinoline, 1 - (ethoxymethyl) - 1,2,3,4-tetrahydro-, picrate, 3408*b*.

$C_{18}H_{22}N_2O_{11}$ Retronecine, diacetyl deriv., picrate, 6208*i*.

$C_{18}H_{22}N_4$ Benzimidazole, 2,2'-ethylenebis- 6*a*.
bis(*p* - nitro- *b*.
Acetaldehyde, (1-acetylethoxy)-, bis(*p* - nitrophenylhydrazone), 1328*g*.

$C_{18}H_{22}N_6O_7$ Pyrimidine, 2-benzylamino-1,4,5,6 - tetrahydromethyl-, picrate, 4273*d*.
Pyrimidine, 1,4,5,6 - tetrahydro - 2-piperethylamino-, picrate, 4273*d*.

$C_{18}H_{23}N_5O_5$ Threonine, *N*-[*p*-[(2,4-diamino-6 - pteridylmethyl)amino]benzoyl]-, 9186*h*, 9249*e*.

$C_{18}H_{20}N_8O_7$ Guanidine, 1 - isopropyl - 3 - (5-methyl - 2 - benzimidazolyl)-, picrate, 1405*g*.

$C_{18}H_{20}N_8O_8$ Guanidine, 1 - isopropyl - 3 - (5-methoxy - 2 - benzimidazolyl)-, picrate, 1405*f*.

$C_{18}H_{20}N_6O_8S$ Benzenesulfonamide, 2 - [1-(2,3 - dihydroxypropyl) - 4 - methyl-1*H* - benzotriazol - 5 - ylazo] - *N*-ethyl - 3,5 - dinitro-, P 3625*h*.

$C_{18}H_{23}N_9O_{14}$ Pyrrolidine, 1-(2-aminoethyl)-, dipicrate, 2207*d*.

$C_{18}H_{24}N_8O_{18}$ Cyclohexanetetrol, diamino-, dipicrate, 6581*g*.

$C_{18}H_{26}N_4O_{14}$ 2 - Imidazoline, 2 - (2 - aminoethylamino)methyl-, dipicrate, 4273*e*.

$C_{18}H_{26}O$ Acetophenone, α-duryl-, 5773*e*.
Acetophenone, tetramethyl - α - phenyl-, 5773*d*.
, α - (2,3,4,6 - tetramethylphenyl)-5773*e*.
Butyrophenone, α,α-dimethyl-γ-phenyl-, P 5800*h*.
Ether, cyclohexylphenyl phenyl, P 812*h*.
3-Hexanone, 1,2-diphenyl-, 6224*i*.
Methanol, cyclopentyldiphenyl-, 3797*a*.
2-Retenol, 9,10-dihydro-, 4252*e*.

$C_{18}H_{26}O_2$ See *Stilbenediol, α,α'-diethyl-*.
Acetophenone, 2-methyl-α-phenyl-4-propoxy-, 3825*f*.
Acrylophenone, β - 2 - furyl - *p* - 1 - methylbutyl-, 3429*f*.
Benzophenone, methoxytetramethyl-, 186*gi*, 187*a*.
Benzyl alcohol, α-butyl-, benzoate, P 7968*a*.
Equilin, 7124*g*, 8427*e*, 8613*b*.
5 - Indanol, 1 - ethyl - 2 - (*p* - hydroxyphenyl)-3-methyl-, 1758*d*.
—, 2 - (*p* - hydroxyphenyl) - 1 - isopropyl-, 1758*a*.
—, 2 - (*p* - hydroxyphenyl) - 1 - propyl-, 1758*a*.
Isobutyric acid, β,β'-diphenyl-, Et ester, 6969*a*.
2 - Phenanthrenecarboxylic acid, 1 - ethyl 1,2,3,4 - tetrahydro - 2 - methyl-, P 3850*h*.
Phenol, *p* - [*p* - (allyloxy) - α,α - dimethylbenzyl] , P 5046*f*.
—, *p*,*p*' - (1 - ethyl - 2 - ethylideneethylene)di , 6605*g*.
Stilbene, 4,4' - dimethoxy - α,α' - dimethyl-, 6605*g*.
—, 2-ethyl-3,4'-dimethoxy , 198*b*.
4,4' Stilbenediol, tetramethyl-, 8370*h*, 8371*a*.

$C_{18}H_{26}O_3$ Acetophenone, α (2-ethyl-3-methoxyphenyl) - *p* - methoxy-, 198*a*.
Benzophenone, dimethoxy - 2,4,6 - trimethyl-, 186*fi*, 8370*a*.
2 - Butanone, 3,3 - bis(4 - hydroxy - *m*-tolyl)-, 8370*e*.
—, 3,3 - bis(*p* - methoxyphenyl)-, 8370*e*.
Caproic acid, ε - (*p* - phenoxyphenyl)-, 1378*g*.
Estrone, 16 keto , 2301*d*, 7535*a*.
1 - Naphthaleneenanthic acid, δ - methyl-γ-oxo , 6610*i*.
1,4 - Naphthoquinone, 2 - (2 - cyclohexylethyl)-3-hydroxy-, 1374*e*, 2610*b*.
—, 2 - (3 - cyclopentylpropyl) - 3 - hydroxy , 1374*h*, 2610*b*.
—, 2 - hydroxy - 3 - (1 - methylcyclohexylmethyl)-, 1374*e*.
Phenanthrenecarboxylic acid, 1 - ethyl-1,2,3,4 - tetrahydro - 7 - hydroxy - 2-methyl-, 1474*c*, P 2641*i*, P 3848*i*, P 3850*b*, P 6667*d*, P 7048*i*; *and Na salt*, 8034*c*.
—, 1,4,4a,9,10,10a - hexahydro - 2-methyl - 4 - oxo-, Et ester, 2200*a*.
—, 1,2,3,4 - tetrahydro - 7 - methoxy-1,2-dimethyl-, P 3849*bi*, P 5047*f*.
1 - Phenanthrenepropionic acid, 1,2,3,4 tetrahydro - 1 - hydroxy - 2 - methyl-, 6611*a*.
Phenanthro[4,5 - *bcd*]furan, 1,2,3,3a,-9a,9b - hexahydro - 3,5 - dimethoxy-9b-vinyl-, 4280*d*.
*o*-Tolilic acid, Et ester, 188*c*.

$C_{18}H_{26}O_4$ Butyric acid, β,γ-bis(*p*-methoxyphenyl)-, 2273*a*.
3 - Chromancarboxylic acid, 5,6,7,8 - tetrahydro - 2 - oxo - 4 - phenyl-, Et ester, 3418*d*.
Hydrolapachol, propionate, 1373*c*.
Myrtenol, acid phthalate, 2975*h*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-isohexyl-, acetate, 1373*d*.
Propiophenone, 4 - (benzyloxy) - 3,5 - dimethoxy-, 1030*d*.
Valeric acid, α,β - bis(*p* - hydroxyphenyl)-α-methyl-, 613*d*.
*o*-Veratroin, 1368*b*.

$C_{18}H_{26}O_5$ 2 - Naphthalenecaproic acid, 1,4-dihydro - 3 - hydroxymethyl - 1,4-dioxo-, Me ester, 1381*c*, 1387*f*.
2 - Naphthalenecaprylic acid, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, 1387*cf*.
2 - Naphthaleneenanthic acid, 1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo-, Me ester, 1387*g*.
—, 1,4 - dihydro - 3 - hydroxymethyl - 1,4-dioxo-, 1381*d*, 2610*c*.
1,2 - Phenanthrenedicarboxylic acid, hexahydro - 7 - methoxymethyl-, 8376*i*.

$C_{18}H_{26}O_5S$ Equilin, *H* sulfate, *Na salt*, 7032*g*.

$C_{18}H_{26}O_6$ 1,2*H* - Benzopyran - 4 - acetic acid, 7 - hydroxy - 2 - oxo - 6 - propyl-, Et ester acetate, 6206*e*.
2 - Biphenylcarboxylic acid, 4,4',5,6-tetramethoxy-, Me ester, 190*f*.
1 - Indancarboxylic acid, 1,2 - dihydroxy - 2 - (3 - methyl - 2 - butenyl)-3-oxo-, Me ester, acetate, 1384*b*.

$C_{18}H_{26}O_8$ Tricyclo[4.2.2.$0^{2,5}$] - 7,9 - decadiene - 7,8 - dicarboxylic acid, 3,4-dihydroxy-, di-Me ester diacetate, 6200*e*.

$C_{18}H_{26}O_8S$ α - Toluenesulfonic acid, α - (4-hydroxy - 3 - methoxyphenacyl) - 3,4-dimethoxy-, 5763*d*.

$C_{18}H_{26}O_9$ Arabinose, 2,3,4-triacetyl-5-benzoyl-, 145*f*.
Ribose, 5 - benzoate, 1,2,3 - triacetate, 144*i*.

$C_{18}H_{26}O_{12}$ Mannitol, hexaacetate, 2939*d*.
Sorbitol, hexaacetate, 2939*d*.

$C_{18}H_{21}AsCl_2N_2$ Aniline, compd. with $AsCl_3$, 6899*h*.

$C_{18}H_{21}AsI_2N_3$ Arsine, tri-2-pyridyl-, trimethiodide, 1046*i*.

$C_{18}H_{21}BrN_2$ Benzyl(3 - indolylmethyl)dimethylammonium bromide, 3407*g*.

$C_{18}H_{21}BrO_3$ 2 - Naphthalenepropionic acid, bromo - β - ethyl - 6 - methoxy - α,α-dimethyl-, 9214*g*.

$C_{18}H_{21}ClN_2$ Piperazine, 1 - (4 - chlorobenzhydryl)-4-methyl-, - 2 *HCl*, 9252*i*.

$C_{18}H_{21}ClN_2O$ 8 - Acetamido - 5,6 - dihydro-5,5,6 - trimethylphenanthridinium chloride, P 2647*f*.

$C_{18}H_{21}ClN_4 + H_2O$ Benzo[*g*]quinazoline, 2-chloro - 4 - (2 - diethylaminoethylamino)-, 2951*i*.

$C_{18}H_{21}ClN_2S$ Urea, 1 - [*N* - (*p* - chlorophenyl) - *N*' - *p* - tolylguanyl] - 3-isopropyl-2-thio-, 9039*g*.

$C_{18}H_{21}ClN_4O_2$ Ethylenediamine, *N*'-(5-chloro - 2 - nitrophenyl) - *N*, *N* - diethyl-, picrate, 3008*i*.

$C_{18}H_{21}ClN_8O_7$ Biguanide, 1 - (*p* - chlorophenyl) - 5 - isopropyl - 2 - methyl-, monopicrate, 2948*d*, 9038*i*.

$C_{18}H_{21}ClO_3$ 1 - Indancarboxylic acid, 2-chloro - 1 - hydroxy - 2 - isoamyl - 3-oxo-, Me ester, acetate, 1384*e*.

$C_{18}H_{22}Cl_2NO$ Ethanol, 1,2 - bis(*p* - chlorophenyl) 2 - diethylamino-, *and - HCl*, 3369*f*.
Ethanol, 2 - butylamino - 1,2 - bis(*p*-chlorophenyl)-, *and - HCl*, 3369*e*.

$C_{18}H_{21}Cl_2NO_2$ Ethanol, 1,2 - bis(*p* - chlorophenyl) - 2,2' - (ethylimino)di-, *and - HCl*, 3369*f*.

$C_{18}H_{21}IN_2O$ 8 - Acetamido - 5,6 - dihydro-5,5,6 - trimethylphenanthridinium iodide, P 2647*f*.

$C_{18}H_{21}IN_2SSe$ 3 - Ethyl - 2 - [3 - (3 - ethyl - 4-methyl - 4 - thiazolin - 2 - ylidene)-propenyl]benzoselenazolium iodide, 2531*e*.

$C_{18}H_{21}IN_2S_2$ 3 - Ethyl - 2 - [3 - (3 - ethyl - 4-methyl - 4 - thiazolin - 2 - ylidene)-propenyl]benzothiazolium iodide, 2531*c*.
3 - Methyl - 2 - [3 - (3 - methyl - 2 - benzothiazolinylidene) - 1 - cyclohexen - 1-yl] - 2 - thiazolinium iodide, P 7844*i*.

$C_{18}H_{21}N$ Piperidine, 1-*o*-phenylbenzyl-, 1355*h*.
2-Retenamine, 9,10-dihydro-, 4252*e*.

$C_{18}H_{21}NO$ Acetamide, *N*, *N* - diethyl - α,α-diphenyl-, 1144*d*.
Acetamide, *N* - (10 - ethyl - 5,6,7,8-tetrahydro - 2 - phenanthryl)-, 4664*b*.
Benzamide, *N* - (α - ethyl - α - methylphenethyl)-, 9047*d*.
—, α-propylphenethyl-, 9047*e*.
1 - Indanol, 2 - [(benzylmethylamino)-methyl]-, P 1441*b*.
3 - Pentanone, 1 - anilino - 4 - methyl - 1-phenyl-, 7429*f*.
2 - Piperidinemethanol, α,α - diphenyl-, *and - HCl*, 2205*g*.

Propionaphthone, β-1-piperidyl-, -*HCl*,

$C_{18}H_{21}NO_2$ Acetamide, *N*, *N*-bis(2-hydroxyethyl)-α,α-diphenyl-, 1144*e*.
Acetic acid, diphenyl-, 2-dimethylaminoethyl ester, -*HCl*, 8546*b*.
Butyric acid, γ-dimethylamino-α,α-diphenyl-, 9053*d*.
Caproamide, ε - (*p* - phenoxyphenyl)-, 1378*g*.
Cinnamic acid, β-ethyl-, benzylamine salt, 3351*g*.
Ethane, 2 - nitro - 1,1 - di - 3,4 - xylyl-, P 5803*e*.
Ethanol, 2,2′ - (*p* - styrylphenylimino)di-, 7443*d*.
Hydrocinnamic acid, β-benzylamino-, Et ester, *and* -*HCl*, 9034*a*.
—, β-vinyl-, benzylamine salt, 3351*g*.
Isobutyramide, *N* - 2 - hydroxyethyl-β,β′-diphenyl-, 2274*a*.
6,7 - Isoquinolinediol, 1,2,3,4 - tetrahydro - 3 - methyl - 1 - phenethyl-, -*HCl*, P 2241*i*.
1-Pentanol, 5-phenyl-, carbanilate, 2576*g*.
Pentenoic acid, phenyl-, benzylamine salt, 3351*gh*.
2 - Phenanthrenecarboxylic acid, 1-(aminomethyl) - 1,2,3,4 - tetrahydro-2-methyl-, Me ester, 7014*a*.
Pyrocatechol, 4 - [2 - (1,2,3,4 - tetrahydro - 2 - isoquinolyl)propyl]-, P 2241*g*.

$C_{18}H_{21}NO_3$ (See also *Codeine*.)
β - Alanine, α - (benzhydryloxy) - *N*, *N*-dimethyl-, -*HCl*, 8546*c*.
Carbamic acid, (*p*-methoxy-α-phenylphenethyl)-, Et ester, 7008*d*.
—, [α - (*p* - methoxyphenyl)phenethyl]-, Et ester, 7008*d*.
Codeinone, dihydro-, 2126*d*.
Erysodine, 4281*b*, 5544*i*, P 6674*c*.
Erysovine, P 6674*d*; *and salts*, 4281*b*
Erythraline, dihydro-, 5545*a*.
Erythramine, 5545*a*
Homopiperonylamine, *N* - 3 - methoxybenzyl - *N* - methyl-, -*HCl*, 602*h*.
Morphinone, methyldihydro-, 1869*d*, 1909*f*, 9373*a*.
1 - Phenanthrenecarboxylic acid, 1,4,4a, 9,10,10a - hexahydro - 2 - methyl - 4-oxo-, Et ester, oxime, 2200*a*.

$C_{18}H_{21}NO_4$ (See also *Eucodal*.)
Erysodine, *N*-oxide, 4281*d*
Homopiperonylamine, 5 - methoxy - *N* - *m*-methoxybenzyl-, 2320*d*, *HCl*, 2212*b*; *and* - *HCl*, 602*f*, 9046*g*
3 - Quinolinecarboxylic acid, 1,2,3,4,5,6,7,8 - octahydro - 1 - hydroxy - 2-oxo-4-phenyl-, Et ester, 3418*f*.

$C_{18}H_{21}NO_5$ 2 - Naphthoic acid, 4 - cyano - 4 (2 - ethoxyethyl) - 3,4 - dihydro - 5,6 - dimethoxy, 6636*f*.

$C_{18}H_{21}NO_5S$ Acetanilide, *p*-(3,6-dihydroxycarvacrylsulfonyl)-, 2593*i*.
β - Alanine, *N* - (*p* - methoxyphenyl) *N* - *p* - tolylsulfonyl-, Me ester, 8387*e*.

$C_{18}H_{21}N_2O_3$ 2 - Pentanone, 4 - anilino - 4 - methyl, *N*-oxide *N*-phenyloxime, free radical, 5310*f*.

$C_{18}H_{21}N_3$ 3 - Buten - 2 - one, 4 - (*p* - dimethylaminophenyl)-, phenylhydrazone, 633*b*.
2 - Imidazoline, 2 - [2 - (*N* - benzylanilino)ethyl] , -*HCl*, P 683*e*.
—, 2 - (*N* - phenethylanilinomethyl)-, -*HCl*, P 692*e*, P 5049*c*, P 6241*a*.
Piperazine, 1 - benzimido - 4 - benzyl , *di* - *HCl*, P 5801*c*.
Pyrimidine, 2 - (*N* - benzylanilinomethyl)-tetrahydro-, *and* - *HCl*, P 683*h*
—, 4 - methyl - 2 - (1 - piperidyl) - 6 - styryl-, 3427*e*.

$C_{18}H_{21}N_3O$ Acetamide, *N* - [1 - (4 - dimethylamino - 3,4 - dihydrobenz[*cd*]indol-5(1*H*) - ylidenemethyl)vinyl]-, 7031*i*.
2 - Imidazoline, 2 - [(*N* - benzylmethoxyanilino)methyl]-, P 683*d*; -*HCl*, P 692*e*, P 5049*b*.
—, 2 - (*N* - *p* - methoxybenzylanilinomethyl)-, -*HCl*, P 5049*cd*.
1(2*H*) - Phenanthrone, 3,4 - dihydro - 3-isopropyl-, semicarbazone, 621*g*.

$C_{18}H_{21}N_3O_2$ Acetophenone, 4 ethoxy-3-methyl-α-phenyl-, semicarbazone, 3825*e*.
Biuret, 1 - cyclohexyl - 5 - (naphthyl) , 7447*ab*.
Caprophenone, *p*-nitrophenylhydrazone, 6991*a*.
3-Pyridinemethanol, 5-hydroxy 4-[2-(3-indolyl)ethylaminomethyl]-6-methyl , -*HCl*, 1410*i*.

$C_{18}H_{21}N_3O_3$ Propiophenone, β-(3,4-dimethoxyphenyl)-, semicarbazone, 4251*b*.

$C_{18}H_{21}N_3O_4$ (See also *Rivanol*.)
Ethanol, 2,2′-(*p*-1,3-benzodioxan-6-ylazophenylimino)di-, P 8149*c*.

$C_{18}H_{21}N_3O_4S_2$ Penicillin G, thiocyanate deriv., 4921*a*.

$C_{18}H_{21}N_3S$ Pyridine, 2-[(2-dimethylaminoethyl)(3 - thianaphthenylmethyl)amino]-, -*HCl*, 1396*b*.

$C_{18}H_{21}N_3S_3$ *s*-Triazine, hexahydro-1,3,5-tri-2-thenyl-, 1763*f*.

$C_{18}H_{21}N_5$ 1*H*-Tetrazole, 1-(biphenylyl)-5-(diethylaminomethyl) , 1864*g*; -*HCl*, P 7972*d*

$C_{18}H_{21}N_5O_6$ Acetanilide, 5-[bis(2-hydroxyethyl)amino] 2-(*o*-nitrophenylazo)-, P 1986*e*.

$C_{18}H_{21}N_5O_7$ Cumaldehyde, dimethylhydrazone, picrate, 6592*h*
Valeramidine, *N*-*p*-tolyl-, picrate, 7444*c*.

$C_{18}H_{21}N_5O_8$ Cumaldehyde, dimethylhydrazone styphnate, 6592*h*.

$C_{18}H_{21}N_5O_9$ 1,2,3,4 Butanetetrol, 1-(2 amino 4-hydroxypteridyl)-, tetraacetate, 7028*i*.

$C_{18}H_{21}N_5O_9S$ Benzamidine, *N*, *N*-diethyl-*p*-(methylsulfonyl)-, picrate, P 3456*h*.

$C_{18}H_{21}N_9O_{12}S$ Lactamide, *N* [1-(2-hydroxyethyl) - 5 [2 - (methylsulfonyl) - 4,6-dinitrophenylazo] - 1*H* benzotriazol-4-yl]-, H sulfate $NH_4$ salt, P 3625*a*.

$C_{18}H_{22}$ Bibenzyl, α,α′-diethyl-, 612*a*
Bibenzyl, tetramethyl-, 188*f*, P 1440*c*, 2182*g*.
Ethane, 1,1 dixylyl-, P 2228*g*, P 9357*e*
Phenanthrene, 2-ethyl-1,2,3,4 tetrahydro-2,8-dimethyl-, 1390*g*
Retene, tetrahydro , 3182*i*

$C_{18}H_{22}BrClN_2O_2$ (*m* Hydroxyphenyl)trimethylammonium bromide, 2 chloro dimethylcarbamlate, P 1439*i*

$C_{18}H_{22}ClN$ Dibenzylamine, *N* (2-chloroethyl)dimethyl , -*HCl*, 4381*c*
Phenethylamine, *N* benzyl *N* (2 chloroethyl)-α methyl-, *HCl*, 760*f*

$C_{18}H_{22}ClNO$ Triethylamine, 2 (diphenylyloxy)-2′-chloro , -*HCl*, 311*a*, 6309*b*

$C_{18}H_{22}ClNO_2$ Dibenzylamine, *N*-(2 chloroethyl) *p*, *p*′-dimethoxy , -*HCl*, 1861*c*

$C_{18}H_{22}ClN_3O_4S_2$ 3 Methyl-2 [3 (3 methyl-2 thiazolidinylidene) 4 phenylimino 1 butenyl]-2-thiazolinium perchlorate, 2530*d*.

$C_{18}H_{22}ClN_5O_2$ Biguanide, 5-(*p* chlorophenyl) 1,4 dimethyl 1 - phenyl-, acetate, 2949*b*, P 6659*c*.
Biguanide, 1-(*p*-chlorophenyl)-2 methyl 5 *p*-tolyl , acetate, P 684*g*

$C_{18}H_{22}ClN_5O_8$ Picrolonate, m. 205°, 3827*i*

$C_{18}H_{22}N_2$ Indoline, 1-(2 dimethylaminoethyl) 2 phenyl-, *and* - *HCl*, 4257*f*
Mesitylene, 2,2′ azodi-, 1312*e*
Piperazine, 1,4-dibenzyl , 310*gh*, *and* - *HCl*, 1484*g*

$C_{18}H_{22}N_2O$ Acetamide, α diethylamino *N*, *N* diphenyl , 1022*e*
Butyramide, γ-dimethylamino α,α diphenyl-, *HCl*, 4245*g*.
Pyridine, 5-benzylideneamino-2-(hexyloxy) , P 7972*h*.
—, 2-[1 (2-dimethylaminoethoxy)indanyl]-, *and* - *HCl*, 2206*g*
10*H*-Pyrido[3,4-*b*]carbazole, 10-acetyl-1,2,3,4,4a,5,11,11a - octahydro 11 methyl , 6632*g*

$C_{18}H_{22}N_2OS$ Phenothiazine, 10 (2-dimethylaminoisopropyl)-2 methoxy-, P 2648*c*

$C_{18}H_{22}N_2O_2$ (See also *Phenacaine*.)
2-Butanol, 4 benzylamino-, carbanilate, 2935*b*.
Carbanilic acid, trimethyl , *N*-dimethyl aminophenyl ester, P 1439*de*
Piperazine, 1,4-bis(*p* hydroxybenzyl) , 3110*h*, *HCl*, 1484*h*.
—, 2,5 - bis(*p* - hydroxyphenyl) - 1,4 dimethyl , *and di*- *HCl*, 2602*f*.

$C_{18}H_{22}N_2O_3$ Caproimidic acid, *N*-(1-cyano 2-hydroxyvinyl)-, Et ester, benzoate, 2203*b*.
Mesitol, $\alpha^2,\alpha^{2\prime}$-nitrosoiminodi-, 5995*b*.
4-Morpholineethanol, β-methyl , 1-naphthalenecarbamate, 9054*a*.
Pentose, 2-desoxy-, benzylphenylhydrazone, 5747*f*.

$C_{18}H_{22}N_2O_4S_2$ Butyramide, *N*-sulfanilyl α-3,4-xylylmercapto-, P 3036*a*.

$C_{18}H_{22}N_2O_4$ Piperazine, 2,5-bis(3,4-dihydroxyphenyl)-1,4 dimethyl , *and di*-*HCl*, 2602*e*.

$C_{18}H_{22}N_2O_4S$ Acetamide, α-(*p*-isobutylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
Acetamide, *N* sulfanilyl α-thymyloxy-, P 3035*i*.

Acetanilide, α-(*p*-butylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
—, α-(*p*-*tert*-butylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
Butyramidine, γ - (*p* - methylsulfonylphenyl)-, benzoate, 1740*a*.
Caproamide, α-phenoxy-*N*-sulfanilyl-, P 3036*b*.
Imidazo[5,1 - *b*]thiazole - 3,7 - dicarboxylic acid, 5-benzyl-2,3,7,7a-tetrahydro-2,2-dimethyl-, di-Me ester, 8802*g*.
Isocaproamide, α-phenoxy-*N*-sulfanilyl-, P 3036*b*.
Methyl ester, 4921*c*.
Pyrrolo[2,1-*b*]thiazole-3-carboxylic acid, hexahydro - 2,2 - dimethyl - 5 - oxo-6-α-phenylacetamido-, Me ester, 7933*d*.
Δ$^{3(6)}$-Thiophenevaleric acid, 3-acetamido-4-benzamido 4,5-dihydro-, P 3041*a*, P 3468*i*
2 Thiophenevaleric acid, 3-acetamido-4-benzamido-4,5-dihydro-, P 3041*a*, P 3468*i*.

$C_{18}H_{22}N_2O_5$ Malonic acid, acetamido(3-indolylmethyl)-, di-Et ester, 137*g*, P 1442*f*, P 2643*e*, P 5806*h*, 8379*i*.

$C_{18}H_{22}N_2O_5S$ Biotin, ester with mandelic acid, P 3469*a*.

$C_{18}H_{22}N_2O_6S_2$ Penicillin, β-phenoxyethylmercaptomethyl-, 2274*h*, 3490*a*.
Pyrimidine, 1,4,5,6-tetrahydro 2 [*p* (methylsulfonyl)phenyl] , *p*-toluenesulfonate, P 5049*i*.

$C_{18}H_{22}N_2O_6S$ 3,4-Pyrroledicarboxylic acid, 2,5-dimethyl-1-*p*-sulfamylphenyl-, di-Et ester, 2598*d*.

$C_{18}H_{22}N_2O_8$ 1-Propanol, 1,3-bis(tetrahydro 2 furyl) , 3,5-dinitrobenzoate, 3407*e*.

$C_{18}H_{22}N_2O_{10}$ Gallic acid, piperazine, salt, 235*e*.

$C_{18}H_{22}N_2S$ Phenothiazine, 10-(2-diethylaminoethyl)-, 7129*ah*, 7130*h*, 7133*i*, 9103*b*, *and* - *HCl*, P 2648*b*.

$C_{18}H_{22}N_2S_2$ Formamidine, [5,5′-dimethyl 2,2′ - bis(methylmercapto)benzhydryl] , -*HCl*, 7474*g*.

$C_{18}H_{22}N_4O_2$ Suberonitrile, γ,δ-diacetyl-γ,δ-bis(2 cyanoethyl)-, 2582*i*.

$C_{18}H_{22}N_4O_2S$ Thebainone, *O*-desmethyl , thiosemicarbazone, *and* - *HCl*, 5786*g*

$C_{18}H_{22}N_4O_5$ Fucose, osazone, 1430*d*.

$C_{18}H_{22}N_4O_4S_2$ Sulfathiazole, compd. with norephedrine, P 9389*h*.

$C_{18}H_{22}N_4O_4$ Ethylenediamine, 1,2 bis α methoxyphenyl) - *N*, *N*′ - dimethyl-*N*, *N*′-dinitroso-, 614*e*.
Galactose, phenylosazone, 60*g*, 3795*b*
D Glucose, phenylosazone, 60*g*, 580*i*.
2 Oxabicyclo[2.2.2]octan-6-one, 1,3,3 trimethyl-5-*o*-nitrobenzylidene , semicarbazone, 7927*a*.

$C_{18}H_{22}N_4O_4S_2$ *o*-Acetamisidide, 5,5′ dithobis[4-amino-, 5776*b*.
Sulfathiazole, compd. with neosynephrine, P 9389*h*.

$C_{18}H_{22}N_4O_5$ *p* Toluic acid, 3,5-dinitro , 2,5 dimethyl - 2,6 - octadienylidenehydrazide, 6972*f*; hydrazide, hydrazone with camphor, 6972*f*, hydrazide, hydrazone with fenchone, 6972*f*

$C_{18}H_{22}N_4O_7$ 1 Azabicyclo[3.3.1] 3,6 nonadiene, 3-ethyl-4,5-dimethyl , picrate, 3004*d*
Benzylamine, *N*, *N*-diethyl-*m*-methyl , picrate, 6584*h*.
Vitamin $B_{12}$, hydroxymethyl ether, 7938*g*

$C_{18}H_{23}N_3O_8$ 1 - Azabicyclo[3.3.1] - 3,6 nonadiene - 3 - methanol, α,4,5 trimethyl-, picrate, 3004*c*.
1 Azabicyclo[3.3.1]-3-nonene, 7-acetyl 5,6-dimethyl-, picrate, 3004*f*.
Picrate, m. 221–2°, 3004*e*.

$C_{18}H_{23}N_3O_9$ 1-Azabicyclo[3.3.1] 3-nonene, 7-acetyl-5,6-dimethyl, *N*-oxide, picrate, 3005*b*.
Benzyl alcohol, α [(ethyl(2-hydroxyethyl)amino]methyl]-, picrate, 4240*a*.
Picrate, m. 260°, 3005*a*.

$C_{18}H_{23}N_3O_{10}$ Mescaline, *N*, *N* dimethyl-, picrate, 121*h*.
Tartronic acid, 2-formylethyl-, di-Et ester, 2,4-dinitrophenylhydrazone, acetate, 577*i*.

$C_{18}H_{24}N_8O_4$ 1,3,5,7-Tetrazocine, 1,5-dibenzyloctahydro-3,7-dinitro , 8354*h*

$C_{18}H_{24}N_4O_9$ Ethylenediamine, *N*, *N*-diethyl-*N*¹-(*m*-nitrophenyl)-, picrate, 3008*g*.
*N*², 2-di-

$C_{18}H_{24}N_8O_{14}$ 1,2-Butanediamine, methyl-, dipicrate, 8381*c*.

$C_{18}H_{32}O$ 2-Caprylonaphthone, 9424*f*.
Ether, 9 - (1 - cyclohexen - 1 - yl) - 3,7 - dimethyl - 2,6 - nonadiene - 4,8 - diynyl methyl, 1337*d*.

2-Hexanol, 1,2-diphenyl-, 6624*g*.

$C_{18}H_{22}O_2$ (See also *Estrone*; *Phenol*, *p*,*p*'-(*1,2-diethylethylene*)*di*-.)

Bibenzyl, 4,4'-dimethoxy-α,α-dimethyl-, 6605*h*.

—, 2-ethyl-3,4'-dimethoxy-, 1988*b*.

1-Naphthalenecaprylic acid, 1839*a*.

Naphthalene, 2-cyclohexyl-1,4-dimethoxy-, 1877*c*.

2-Naphthalenepropionaldehyde, β-ethyl-6-methoxy-α,α-dimethyl-, 3814*h*.

1,4-Naphthoquinone, 2-octyl-, P 9085*g*.

Phenol, 3,3'-ethylenebis[2-ethyl-, 196*e*.

—, 2 ethyl-3-(α-ethyl-*p*-hydroxyphenethyl), 198*d*.

—, *p*,*p*'-(1-ethyl-2 methyltrimethylene)di-, 2180*c*.

—, *p*-[3-(*o*-hydroxyphenyl)hexyl]-, P 4700*b*.

$C_{18}H_{22}O_2S_2$ Phenetole, dithiobis[methyl-, P 5092*g*.

$C_{18}H_{22}O_3$ 2 Butanol, 3,3-bis(4-hydroxy-*m*-tolyl), 8370*h*.

Cyclohexanone, compd. with phenol, 107*b*.

1-Cyclopentene-1-acetic acid, 2-(*p*-1-methylbutylphenyl)-5-oxo-, 3429*i*.

Estradiol, 16-keto-, 3870*f*.

$\Delta^{1,3,5}$-Estratriene, 3,17(α)-dihydroxy-16-keto-, 3434*g*.

Estrolic acid, lactone, 8034*c*.

Lactone, m. 335–40°, 3870*f*.

2-Naphthalenepropionic acid, β-ethyl-6-methoxy-α,α-dimethyl-, 3814*h*, 6607*g*.

1,4-Naphthoquinone, 2-dimethylhexyl-3-hydroxy-, 1373*f*.

—, 2-(2-ethylhexyl)-3-hydroxy-, 1373*g*.

—, 2-(2-ethylisohexyl)-3-hydroxy-, 1373*g*.

—, 2-hydroxy-3-(methylheptyl)-, 1108*g*, 1373*d*, 2610*b*.

—, 2-hydroxy-3-octyl, 1373*c*, 2610*b*.

1-Phenanthrenepropionic acid, 1,2,3,4,4a,9,10,10a-octahydro-2,7-dihydroxy-2-methyl, δ-lactone, 8034*i*.

Phenanthro[4,5-*bcd*]furan, 1,2,3,3a,8,9,9a,9b-octahydro-3,5-dimethoxy-9b-vinyl, 4280*f*.

$C_{18}H_{22}O_4$ (See also *Pyrocatechol*, *4,4'-(2,3-dimethylbutylmethylene)di-*.)

Acetaldehyde, bis(2-phenoxyethyl) acetal, P 1434*a*.

Benzyl alcohol, 4-benzyloxy-α-ethyl-3,5-dimethoxy-, 1030*e*.

2,2',3,3'-Biphenyltetrol, 5,5'-dipropyl-, 8014*c*.

Chrysanthemummonocarboxylic acid, piperonyl ester, P 2732*i*.

Coumarilic acid, 6-cyclohexylmethoxy-, Et ester, 3412*d*.

1-Cyclohexene-1-methanol, 4-isopropyl-, acid phthalate, 7434*f*.

Enanthotoxin, 6336*b*.

Hydrobenzoin, α,α'-diethyl-4,4'-dihydroxy-, P 6237*e*, P 7510*e*.

—, 2,2'-dihydroxy-α,α',4,4'-tetramethyl-, 8370*g*.

Malonic acid, (1,2,3,4,5,6,7,8-octahydro-9-anthrylmethyl)-, 7013*j*.

*l*(-)-*p*-Menthen-3-ol, acid phthalate, 2976*b*.

2-Naphthaleneglyoxylic acid, 1,2,3,4-tetrahydro-8-isopropyl-5-methyl-1-oxo-, Et ester, 2606*b*.

1,4-Naphthoquinone, 2-(4-butoxybutyl)-3-hydroxy-, 1381*e*.

2-Phenanthrenecarboxylic acid, 1,2,3,4,4a,9,10,10a-octahydro-7-methoxy-2-methyl-1-oxo-, Me ester, 3431*e*.

Pinacamphenol, acid phthalate, 2977*ac*.

Xylitol, 1-phenyl-1-*p*-tolyl-1-desoxy-, P 3448*d*.

$C_{18}H_{22}O_5$ Glucitol, 1,1-diphenyl-1-desoxy-, P 3448*b*.

9-Xanthenecarboxylic acid, 1,2,3,4,5,6,7,8-octahydro-3,3,6,6-tetramethyl-1,8-dioxo-, 2965*c*.

$C_{18}H_{22}O_4S$ Estrone-16-sulfonic acid, $NH_4$ *salt*, 2214*k*.

$C_{18}H_{22}O_6$ 1,2,4-Benzenetriol, 5-cyclohexyl-, triacetate, 1372*d*.

Ethanol, 2,2'-(*p*-phenylenedioxy)di-, dimethacrylate, P 4512*b*.

Phthalic acid, bis(2-allyloxyethyl) ester, P 7755*c*.

$C_{18}H_{22}O_8$ Methacrylic acid, acetylene ester, P 2034*e*.

$C_{18}H_{24}BrN_2O_2$ (*m*-Hydroxyphenyl)trimethylammonium bromide, dimethylcarbanilate, P 1439*b*, 9261*a*.

$C_{18}H_{24}BrN_2O_3$ (*m*-Hydroxyphenyl)trimethylammonium bromide, *p*-methoxy-*N*-methylcarbanilate, P 1439*c*.

$C_{18}H_{25}BrO_6$ Malonic acid, bromo(3-hydroxy-1-methylpropyl)-, di-Et ester, benzoate, P 4690*f*.

$C_{18}H_{22}ClN_3$ Base, -*HCl*, m. 288°, 5401*i*.

4-(*p*-Diethylaminostyryl-1-methylpyridinium chloride, 7581*g*.

$C_{18}H_{22}ClN_3O$ Benzyldimethyl(*o*-tolylcarbamylmethyl)ammonium chloride, 6977*f*.

$C_{18}H_{22}ClN_3O_2$ See *Phenacaine*.

$C_{18}H_{23}ClO$ 1-Phenanthrenecarbonyl chloride, 1,2,3,4,4a,9,10,10a-octahydro-1,4a,7-trimethyl-, 1752*b*.

$C_{18}H_{23}ClO_4$ Camphoric acid, 4-chloro-3,5-xylyl ester, P 1901*i*.

$C_{18}H_{23}ClO_6$ Malonic acid, chloro(3-hydroxy-1-methylpropyl)-, di-Et ester, benzoate, P 4690*f*.

$C_{18}H_{23}Cl_3S_2$ Thiophene, 2,2'-(2,2,2-trichloroethylidene)bis[5-*tert*-butyl-, 627*f*.

$C_{18}H_{23}IN_2$ 4-(4-Diethylaminostyryl)-1-methylpyridinium iodide, 7483*g*.

$C_{18}H_{23}IO_2$ Estradiol, iodo-, 3081*g*.

$C_{18}H_{27}IO_8S$ Glucoside, methyl 3,4-diacetyl-2-tosyl-6-iodo-, 3368*c*.

$C_{18}H_{23}N$ Dibenzylamine, *o*,*o*'-diethyl-, -*HCl*, 4218*b*.

Diphenethylamine, α,α'-dimethyl-, 1349*f*.

Diphenylamine, 3,3',4,4',5,5'-hexamethyl-, P 5799*f*.

Isobutylamine, *N*,*N*-dimethyl-3,3-diphenyl-, -*HBr*, 4243*g*; *and* -*HCl*, 611*h*.

Phenethylamine, *N*,*N*-diethyl-*o*-phenyl-, 1357*b*.

—, *N*-(ethylphenyl)-*N*,α-dimethyl-, 9118*d*.

Propylamine, *N*,*N*,1-trimethyl-3,3-diphenyl-, *and* -*HBr*, 7466*i*, *HCl*, 1366*h*; *and salts*, 192*f*, 4243*g*.

$C_{18}H_{23}NO$ Benzhydrol, α-(2-dimethylaminoethyl)-2-methyl-, P 5417*g*.

2-Butanol, 4-dimethylamino-1,2-diphenyl-, P 5417*g*.

1-Butyronaphthone, γ-diethylamino-, 2211*b*.

Caproamide, α-ethyl-*N*-1-naphthyl-, 1719*e*.

Diphenylamine, *p*-(hexyloxy)-, 3386*g*.

Ethylamine, *N*,*N*-dimethyl-2-[*o*-(α-methylbenzyl)phenoxy]-, *and* -*HCl*, 2969*h*.

—, *N*,*N*-dimethyl-2-(α-phenylphenethyloxy)-, *and* -*HCl*, 631*c*.

—, *N*,*N*-dimethyl-2-(α²-phenyl-2,4-xylyloxy)-, *and* -*HCl*, 2909*f*.

Isopropylamine, 2-(benzhydryloxy)-*N*,*N*-dimethyl-, -*HCl*, 8546*b*.

—, *N*-[2-(benzhydryloxy)ethyl], -*HCl*, P 3462*i*.

—, 2-(*o*-benzylphenoxy)-*N*,*N*-dimethyl-, *and* -*HCl*, 3386*c*.

—, *N*-[2-(*o*-benzylphenoxy)ethyl], -*HCl*, 3386*d*.

—, *N*,*N*-dimethyl-2-(α-phenyl-*o*-tolyloxy)-, 7134*h*.

Isoquinoline, 1,2,5,6,7,8-hexahydro-1-methoxybenzyl-2-methyl-, 6635*e*, P 7518*c*.

Phenol, *p*-(*p*-amino-α,β-diethylphenethyl)-, 9056*b*.

Propylamine, 2-(benzhydryloxy)-*N*,*N*-dimethyl-, -*HCl*, 8546*b*, *and* -*HCl*, P 3463*c*.

—, *N*,*N*-dimethyl(α-phenyl-*o*-toloxy), *and* -*HCl*, 3386*cd*.

Triethylamine, 2-(2-biphenylyloxy)-, -*HCl*, 3109*a*, 6309*c*.

$C_{18}H_{23}NO_2$ Acetaldehyde, dibenzylamino, di-Me acetal, *and* -*HCl*, 6974*d*.

Camphor, 3-*p*-phenetylimino-, 4812*g*.

Ethylamine, 2-[α-(*p*-methoxyphenyl)-*o*-toloxy]-*N*,*N*-dimethyl-, *and* -*HCl*, 2969*g*.

—, 2-(4-methoxy-α-phenyl-*o*-toloxy)-*N*,*N*-dimethyl-, *and* -*HCl*, 2969*f*.

Hydrocinnamic acid, β-ethyl-, benzylamine salt, 3351*g*.

Mesitol, α³,α³'-iminodi-, 5995*a*.

$C_{18}H_{23}NO_3$ Cinchoninic acid, 2-amyl-3-isopropoxy-, 227*h*.

Cinchoninic acid, 2-isoamyl-3-isopropoxy-, 227*h*.

—, 2-isoamyl-3-propoxy-, 227*g*.

Codeine, dihydro-, 4280*b*.

Erysodine, dihydro-, 5545*e*.

Erythraline, tetrahydro-, *and* -*HI*, 5545*a*.

Thebainone, dihydro-, 5787*b*.

$C_{18}H_{23}NO_4$ Adrenalone, *N*-benzyl-, compd. with EtOH, 7456*d*.

Diveratrylamine, 2177*a*.

Malonamic acid, α-[α-(2-oxocyclohexyl)-benzyl]-, Et ester, 3418*d*.

$C_{18}H_{23}NO_5$ α-Longilobine, 6208*h*, 9076*e*.

Malonamic acid, *N*-hydroxy-α-[α-(2-oxocyclohexyl)benzyl]-, Et ester, 3418*f*.

Malonic acid, allyl(α-phenylacetamido)-, di-Et ester, 7932*f*.

2-Naphthoic acid, 4-cyano-4-(2-ethoxyethyl)-1,2,3,4-tetrahydro-5,6-dimethoxy-, 6636*f*.

Seneciphylline, 280*c*, 1427*g*, 3975*e*.

$C_{18}H_{23}NO_6$ Riddelliine, 9076*e*.

Seneciphylline, *N*-oxide, 280*c*.

$C_{18}H_{23}N_3$ Piperidine, [benzyl(2-pyridyl)-amino]-1-methyl-, 2207*e*; *and* -*HCl*, 6207*e*.

Tolualdehyde, 4-diethylamino-, phenylhydrazone, P 2232*i*, P 2233*a*.

$C_{18}H_{23}N_3O$ Antipyrine, 4-(cyclohexyliminomethyl)-, 7477*b*.

Pyridine, 2-(*N*-benzyl-α-diethylaminoacetamido)-, -*HCl*, 5782*g*.

$C_{18}H_{23}N_3O_3$ *p*-Toluic acid, 3-nitro-, hydrazide, hydrazone with camphor, 6973*c*; hydrazide, hydrazone with fenchone, 6973*c*.

$C_{18}H_{23}N_3O_3S$ Benzenesulfonamide, *p*-(hexylhydroxyphenylazo)-, 9048*a*.

Benzenesulfonic acid, *p*-(dipropylaminophenylazo)-, 6489*c*.

$C_{18}H_{23}N_3O_6$ 2-Furancarbamic acid, 3-(1-piperidyl)propylene ester, *and* -*HCl*, 6204*e*.

$C_{18}H_{23}N_4O_{12}P$ Uridine, phosphate, 2170*i*.

$C_{18}H_{23}N_5O_2S_2$ Sulfanilamide, $N^1$-(5-methyl-1,3,4-thiadiazol-2-yl)-, compd. with α-methylphenethylamine, P 6661*b*.

$C_{18}H_{23}N_5O_3$ Heliotridane, picrolonate, 5776*a*.

$C_{18}H_{23}N_5O_8$ Isoretronecanol, picrolonate, 3827*i*.

$C_{18}H_{24}$ Naphthalene, 2,3-dibutyl-, 1370*e*.

Naphthalene, octyl-, 4454*h*, 8888*f*, 9424*e*.

—, 1,1,3,3-tetramethylbutyl-, P 3194*c*.

Triphenylene, dodecahydro-, 1629*i*.

$C_{18}H_{24}BrNO$ (2-Benzhydryloxyethyl)trimethylammonium bromide, P 2640*h*, P 2641*c*, 7921*f*.

$C_{18}H_{24}ClN$ 1-Naphthalenemethylamine, *N*-amyl-*N*-(2-chloroethyl)-, -*HCl*, 2320*a*.

$C_{18}H_{24}ClNO$ (2-Benzhydryloxyethyl)trimethylammonium chloride, P 2640*h*.

Quinaldine, 4-chloro-3-heptyl-7-methoxy-, 1416*b*, 1417*d*.

$C_{18}H_{24}ClN_3$ Quinoline, 7-chloro-4-[1-methyl-4-(1-pyrrolidyl)butylamino]-, 3420*g*.

$C_{18}H_{24}ClN_3O$ Cycloheptanone, 2-(3-chloro-2-butenyl)-, phenylsemicarbazone, 7908*d*.

$C_{18}H_{24}ClN_3$ Benzimidazole, chloro-2-[4-(2-diethylaminoethylamino)-6-methyl-2-pyrimidylamino]-, P 3854*b*.

$C_{18}H_{24}INO$ (2-Benzhydryloxyethyl)trimethylammonium iodide, P 2640*h*, 7921*e*.

$C_{18}H_{24}INOS$ 1-Methyl-1-[2-(α-phenyl-2-thenyloxy)ethyl]pyrrolidinium iodide, 631*c*.

$C_{18}H_{24}INO_4$ (4-Carboxy-4-ethyl-1,2,3,4-tetrahydro-5,6-dihydroxy-2-naphthyl)trimethylammonium iodide, γ-lactone, 6-acetate, 620*e*.

$C_{18}H_{24}N_2$ Bi[phenethylamine], β,β'-dimethyl-, P 7263*h*.

α,α'-Bi-*p*-toluidine, α,α'-diethyl-, P 3464*c*.

Carbazole, 1,2,3,4-tetrahydro-9-[2-(1-pyrrolidyl)ethyl]-, -*HCl*, 4257*g*.

Compd., m. 87–8°; *and* -*HCl*, *m. 246°*, 1341*b*.

Ethylenediamine, *N*-benzhydryl-*N*,*N*',*N*'-trimethyl-, *di*-*HCl*, 8546*b*.

—, *N*-benzyl-*N*',*N*'-dimethyl-*N*-*o*-tolyl-, P 683*c*.

—, *N*-cumenyl-1-phenyl-, *di*-*HCl*, 6176*h*.

—, *N*,*N*-dimethyl-*N*'-phenethyl-*N*'-phenyl-, P 683*d*.

α,4-Toluenediamine, $N^{\alpha}$-benzyl-$N^4$,$N^4$-diethyl-, *di*-*HCl*, 9374*h*.

$C_{18}H_{24}N_2O$ 1-Butyronaphthone, γ-diethylamino-, oxime, 2211*c*.

Ethylenediamine, *N*-benzyl-*N*-(methoxyphenyl)-*N*',*N*'-dimethyl-, P 683*c*.

—, *N*-methoxybenzyl-*N*',*N*'-dimethyl-*N*-phenyl-, P 683*d*; -*HCl*, P 5420*b*.

Isoquinoline, 3-ethyl-1-[2-(1-piperidyl)-ethoxy]-, 4267*d*.

Pyridine, 2-[α-(2-diethylaminoethoxy)-benzyl]-, 4266*d*.

—, 2-[α-(2-dimethylaminoethoxy)dimethylbenzyl]-, *and* -*HCl*, 2206*cd*.

—, 2-[α-(2-dimethylaminoethoxy)-α-ethylbenzyl]-, *and* -*HCl*, 2206*e*.

—, 2-[α-(2-dimethylaminoethoxy)-α-methylbenzyl]methyl-, *and* -*HCl*, 2206*h*.

—, [α-(2-dimethylaminoethoxy)methylphenethyl]-, 4266*c*; *and di-HBr*, 2206*c*; *and - HCl*, 2206*b*.
—, 2 - [1 - (2 - dimethylaminoethoxy) - 3-phenylpropyl]-, 4266*d*.
—, 2-[α-(2-dimethylaminoisopropoxy)-*p*-methylbenzyl]-(?), 4266*e*.
—, 2-[(3-dimethylaminopropoxy)methylbenzyl]-, 4266*e*; *and - HCl*, 2206*h*.
4-Quinolinemethanol, 6,7-dimethyl-α-(1-piperidylmethyl)-, *and di-HBr*, 4675*b*.

**$C_{18}H_{24}N_2OS$** Urea, 1-benzoyl-3-(3-*p*-menthen-3-yl)-2-thio-, 4232*e*.

**$C_{18}H_{24}N_2O_2$** Benzyl alcohol, α,α'-[ethylenebis(iminomethylene)]di-, *di-HCl*, 3800*d*.
Ethylenediamine, 1,2 - bis(*p* - methoxyphenyl)-*N*,*N'*-dimethyl-, *and salts*, 614*e*.
Pyridine, 2-[α-(2-dimethylaminoethoxy)-methoxy-α-methylbenzyl]-, *and - HCl*, 2206*d*.

**$C_{18}H_{24}N_2O_2Pt$**, 8942*a*.

**$C_{18}H_{24}N_2O_2S$** Caproic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
Isocaproic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.

**$C_{18}H_{24}N_2O_3S$** 2-Thiophenevaleric acid, 3-acetamido-4-benzamidotetrahydro-, P 3469*ab*.

**$C_{18}H_{24}N_2O_5$** Valine, *N*-(*N*-carboxyprolyl)-, benzyl ester, 4041*f*.

**$C_{18}H_{24}N_2O_5S$** Butyramide, α,γ-dihydroxy-β,β - dimethyl - *N* - [2 - (2 - naphthylsulfamyl)ethyl]-, P 3450*g*.
2-Thiazolidineacetic acid, 4 carboxy-5,5-dimethyl - α - (*N* - methyl - α - phenylacetamido)-, Me ester, *Na salt*, 8892*g*.
—, 4-carboxy-5,5-dimethyl-α-(α-phenylacetamido)-, di-Me ester, 4921*b*, 8892*f*; Et ester, 4667*i*, 4921*b*, 8892*f*.
2-Thiazolidinealanine, 4 carboxy-5,5-dimethyl-*N*-phenylacetyl , 4-Me ester, - *HCl*, 7933*a*.

**$C_{18}H_{24}N_2O_6$** Crotonic acid, dinitro *sec*-octyl phenyl ester, 7177*a*.
2-Hendecen-1-ol, 3,5-dinitrobenzoate, 5736*h*.

**$C_{18}H_{24}N_2O_6S$** Acetanilide, *p* [(α,γ-dihydroxy-β,β-dimethylbutyryl)sulfamyl]-, di acetate, P 4817*f*.
Glutamic acid, *N*-(*N*-2,3-dihydroxyallylidenesulfanilyl) , di-Et ester, 7029*c*.

**$C_{18}H_{24}N_2O_7$** Diamide, 1342*c*.

**$C_{18}H_{26}N_4$** Piperazine, 1,4-bis(*p*-aminobenzyl)-, 3104*h*, - *HCl*, 1484*g*.

**$C_{18}H_{24}N_4O_3S$** Thebainone, *O*-desmethyldihydro-, thiosemicarbazone, - *HCl*, 5786*i*.

**$C_{18}H_{24}N_4O_4$** 3-Buten-2-one, 4-(dimethylcyclohexyl)-, 2,4-dinitrophenylhydrazone, 8362*cd*.
2 - Cyclohexen - 1 - one, 2 - butyl - 3,5-dimethyl-, 2,4-dinitrophenylhydrazone, 2969*c*.
—, 2-ethyl-5-isopropyl-3-methyl-, 2,4-dinitrophenylhydrazone, 2969*c*.
Ketone, 2 - butyl - 1 - cyclohexen - 1 - yl methyl, 2,4-dinitrophenylhydrazone, 7416*d*.

**$C_{18}H_{24}N_4O_5$** Cyclodecanone, 6-hydroxy-, semicarbazone *p*-nitrobenzoate, 6190*d*.

**$C_{18}H_{24}N_4O_7$** 1-Azabicyclo[3.3.1]-3-nonene, 7-ethyl-5,6-dimethyl-, picrate, 3004*h*.
Julolidine, hexahydro-, picrate, 5784*e*.

**$C_{18}H_{24}N_4O_8$** 1-Azabicyclo[3.3.1]-6-nonene 3 methanol, α,3,4-trimethyl-, picrate, 3004*g*.
1-Isogranatanine, 3-acetyl-4,5-dimethyl-, picrate, 3004*h*.
Julolidine, hexahydro-, styphnate, 5784*f*.
Malonic acid, ethyl-2-formylethyl-, di-Et ester, 2,4-dinitrophenylhydrazone, 577*h*.
4(1*H*)-Quinolone, octahydro-1,2,7-trimethyl-, picrate, 2960*b*.

**$C_{18}H_{24}N_4O_8S$** Pyrimidine, 6-acetamido-4-triacetyl - D - xylosidoamino - 2 - methylmercapto-, 3423*a*.

**$C_{18}H_{24}N_4O_9$** Isoalloxazine, 10-(2-diethylaminoethyl)-8-dimethylamino-, *and - HCl*, 3008*b*.

**$C_{18}H_{24}N_4O_9S_2$** Benzenesulfonamide, *p*-hydrazino-, osazone with glucose, 601*c*.

**$C_{18}H_{24}O_2$** (See also *Estradiol*.)
2-Naphthalenepropanol, γ-ethyl-6-methoxy-β,β-dimethyl-, 3814*i*.
7-Nonene-1,5-diyn-4-ol, 1-(1-cyclohexen-1 - yl) - 9 - methoxy - 3,7 - dimethyl-, 1337*c*.
1-Phenanthrenecarboxylic acid, 1,2,3,4,-4a,9,10,10a - octahydro - 1,4a,7 - trimethyl-, 1752*b*.
9-Phenanthrenepropionic acid, 1,2,3,4,-5,6,7,8-octahydro-, Me ester, 7018*d*.

**$C_{18}H_{24}O_3$** (See also *Estriol*.)
Acrylic acid, β-2,5-di-*tert*-butylbenzoyl-, 607*c*.
5*H*-Cycloheptabenzene-3-valeric acid, 6,7,8,9-tetrahydro-δ-oxo-, Et ester, 2965*f*.
Isoestriol A, 3435*a*.
2-Pentanone, 4-methyl-, compd. with phenol, 107*b*.
2-Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,4,4a,9,10,10a - octahydro - 7-hydroxy-2-methyl-, 3085*d*, P 3849*e*, 3935*g*, 6716*h*.
—, 1,2,3,4,4a,9,10,10a-octahydro-7-methoxy-1,2-dimethyl-, 7032*i*.
Phenanthro[4,5 - *bcd*]furan, 9b - ethyl-1,2,3,3a,8,9,9a,9b - octahydro - 3,5-dimethoxy-, 4280*e*.

**$C_{18}H_{24}O_3S$** Naphthalenesulfonic acid, dibutyl-, *Na salt*, P 5899*g*.
Naphthalenesulfonic acid, di-*tert*-butyl-, *Na salt*, P 3638*h*.

**$C_{18}H_{24}O_4$** Cyclohexanepropionic acid, β-(*p*-methoxyphenyl)-2-oxo-, Et ester, 3418*i*.
Cyclopentanecarboxylic acid, 1-[3-(*m*-methoxyphenyl)propyl]-2-oxo-, Et ester, 9043*e*.
1-Propanol, 1,3-bis(tetrahydro-2-furyl)-, benzoate, 3407*e*.
Propionic acid, β-(4-ethoxy-5,6,7,8 tetrahydro-1-naphthoyl) , Et ester, 2195*h*.

**$C_{18}H_{24}O_6$** Acetic acid, bis(4,4-dimethyl-2,6-dioxocyclohexyl)-, 2965*a*.
Malonic acid, (3-hydroxy-1-methylpropyl)-, di Et ester, benzoate, P 4690*f*.
Phthalic acid, Bu ester, ester with Bu glycolate, P 2034*b*.
—, 3-hydroxy , di-Bu ester acetate, P 4895*c*.
Sorbic acid, glycidol ester, dimer, P 3240*h*.

**$C_{18}H_{24}O_6S$** 2,5 Thophenedipropionic acid, α,α'-diacetyl , di-Et ester, 630*e*.

**$C_{18}H_{24}O_7$** Tricyclo[4.2.2.0$^{2,5}$]decane-7,8-dicarboxylic acid, 3,4-dihydroxy , di-Me ester, diacetate, 6200*e*.

**$C_{18}H_{24}O_9$** Asarone acid, 3-acetyl 6-(1 carboxyisopropoxy)-, di Me ester, 2994*g*.

**$C_{18}H_{21}O_9S$** Quinovoside, methyl, 3,4-diacetate 2-*p*-toluenesulfonate, 7905*h*.

**$C_{18}H_{24}O_{10}$** Propionic acid, ester with vitamin C, P 3154*e*.

**$C_{18}H_{24}O_{10}P_2$** Phenol, *p*,*p'*-(1,2-diethylethylene)di-, bis(acid phosphate), P 2236*e*.

**$C_{18}H_{24}O_{12}$** Inositol, hexaacetate, 588, , 2175*d*.

**$C_{18}H_{28}BrN_3$** (2 *N* Benzylaminoethyl)trimethylammonium bromide, 7921*f*.

**$C_{18}H_{25}BrO_2$** Propionic acid, β-bromo-, α cyclohexyl-3,4-dimethylbenzyl ester, P 5797*g*.

**$C_{18}H_{23}ClN_6$** Formamidine, *N* - (*p* chlorophenyl)-*N'* - [4 - (2 - diethylaminoethylamino)-6-methyl-2-pyrimidyl]-, 1779*g*.

**$C_{18}H_{25}ClN_2S$** Urea, 1-(*p*-chlorophenyl)-3-[4-(2 - diethylaminoethylamino) - 6-methyl-2-pyrimidyl]-2 thio-, 1779*f*.

**$C_{18}H_{25}Cl_2N_3$** Quinoline, dichloro 4-(4-diethylamino-1 methylbutylamino) , 8886*b*.

**$C_{18}H_{26}Cl_2O_2$** Lauric acid, 2,4,5-trichlorophenyl ester, 3133*f*, P 3460*b*.

**$C_{18}H_{25}Cl_3O$** Ether, dodecyl pentachlorophenyl, 5893*i*.

**$C_{18}H_{23}IN_2$** (2 *N* - Benzylaminoethyl)trimethylammonium iodide, 7921*e*.

**$C_{18}H_{23}N$** 4a(2*H*)-Phenanthreneëthylamine, 1,3,4,10a - tetrahydro - *N*,*N* - dimethyl-, 4279*h*.

**$C_{18}H_{23}NO$** Acetamide, *N*-isobornyl-α-phenyl-, 2165*h*.
10,4a(4*H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro - 6 - methoxy-11-methyl-, - *HBr*, 6635*g*; *and* - *HBr*, P 7518*d*.
10,4a(4*H*) - Iminoethanophenanthrenol, 11-ethyl-1,2,3,9,10,10a - hexahydro-, - *HBr*, 6635*h*.
Isoquinoline, 1,2,3,4,5,6,7,8-octahydro-1-*p*-methoxybenzyl-2-methyl-, *and* - *HCl*, 6635*e*, P 7518*cd*.

**$C_{18}H_{23}NOS$** 4-Quinolinethiol, 3-heptyl-7-methoxy-2-methyl-, 1416*b*, 1417*e*.
4 - Quinolinol, 3 - heptyl - 2 - methyl - 7-methylmercapto-, 1416*b*, 1417*c*.

**$C_{18}H_{25}NO$** Base, m. 114°, 5545*g*.
Base, oil, 5545*f*.
2-Heptyn-4-ol, 1-diethylamino-, benzoate, 131*e*.
4-Quinolinol, 7-butoxy-3-butyl-2-methyl-, 1416*a*, 1417*c*.
—, 3-heptyl-7-methoxy-2-methyl-, 1415*i*, 1416*b*, 1417*b*.

**$C_{18}H_{25}NO_2S$** 2 - Naphthalenesulfonamide, *N*,*N*-dibutyl-, 4630*e*.
2-Naphthalenesulfonamide, *N*,*N*-diisobutyl-, 4630*e*.

**$C_{18}H_{25}NO_3$** 1-Butanone, 1-[4-(*m*-hydroxyphenyl)-1-methyl-4-piperidyl]-, acetate, - *HCl*, P 2241*a*.
Cyclopentanecarboxylic acid, 1-phenyl , 2-(4-morpholinyl)ethyl ester *and* - *HCl*, P 6229*e*.
Erysocine, tetrahydro-, - *HBr*, 4281*c*.
Erysodine, tetrahydro-, 5545*a*; *and* - *HBr*, 4281*c*.
1-Piperidinepropionic acid, α-benzoyl-α-methyl-, Et ester, - *HCl*, 7643*f*.

**$C_{18}H_{25}NO_3S$** Acetamide, *N*-cyclohexyl-α-[3(3,4 - methylenedioxyphenyl)propylmercapto]-, P 1903*b*.
Acetamide, *N*-cyclohexyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.
Acrylic acid, β-(benzylmercapto)-α caprolyamino-, Et ester, 2990*e*.

**$C_{18}H_{25}NO_4$** Cyclohexanepropionic acid, β-(*p*-methoxyphenyl)-2-oxo-, Et ester, oxime, 3418*i*.

**$C_{18}H_{25}NO_4S$** Hydrocinnamaldehyde, β methyl-, compd. with α-methylbenzylamine bisulfite, 3356*e*.
4-Quinolinesulfonic acid, 3-heptyl-7-methoxy-2-methyl , 1416*b*, 1417*d*.

**$C_{18}H_{25}NO_5$** Aquaticine, 8011*b*.
Caproic acid, γ-cyano-γ-(2,3-dimethoxyphenyl)-ε-ethoxy-, Me ester, 6636*e*.
Resin, m. 220-3°, 211*c*.
Senecionine, 9075*i*, 9076*e*.

**$C_{18}H_{25}NO_5S$** 10-Camphorsulfonic acid, α-(2 amino-1-hydroxyethyl)phenyl ester, 6999*a*.

**$C_{18}H_{25}NO_6$** Adrenaline, tripropionate, - *HCl*, 2001*f*.
β-Longilobine, 6208*h*, 9076*e*.
Malonic acid, acetamido(3 phenoxypropyl)-, di Et ester, 1007*c*.
Senkirkine, 3017*a*.

**$C_{18}H_{25}NO_{11}$** Quercitol, 6-amino-, hexaacetate, 149*d*.

**$C_{18}H_{25}N_3$** Cinchonimamidine, *N*,*N*-dibutyl , - *HCl*, P 5801*e*.
1,2,3-Propanetriamine, 2-methyl-*N*,*N*-di-*p* tolyl-, P 2230*e*.
Pyridine, 2-[benzyl(2-isopropylmethylaminoethyl)amino]-, 6587*i*.

**$C_{18}H_{25}N_3O$** Antipyrine, 4-(cyclohexylaminomethyl)-, 7477*b*.
7(1*H*) Isoquinolone, 2-acetyloctahydro-8 methyl-, phenylhydrazone, 6632*f*.
Piperidine, 1 - (1 - piperidylmethylene anthranoyl) , 3424*g*.
Pyridine, 2-[*p*-dimethylamino-α (2-dimethylaminoethoxy)benzyl] , 1266*d*.
—, 2-[(3-dimethylaminopropyl)-*p* methoxybenzylamino]-, P 3472*b*.
Quinoline, 8-(2-cyclohexylaminoethyl amino)-6-methoxy-, *and di-HCl* 3419*f*.
—, 6 methoxy-8 [2-(2-piperidyl)isopropylamino]-, 4769*i*.
—, 6-methoxy-4-[3-(1-piperidyl)propylamino]-, *and di-HCl*, P 2538*b*.

**$C_{18}H_{25}N_3OS$** Cinchoninamide, *N*-(2 diethylaminoethyl)-2-(ethylmercapto) , 7647*d*.

**$C_{18}H_{25}N_3O_2$** Acetamide, *N*,*N*-diisopropyl-α (6 - methoxy - 8 - quinolylamino)-, 3046*d*.
Acetamide, α-(6-methoxy-8-quinolylamino)-*N*,*N*-dipropyl-, P 3046*d*.

**$C_{18}H_{25}N_3O_5$** Malonic acid, acetamido-2-formylethyl-, di-Et ester, phenylhydrazone, 143*b*.

**$C_{18}H_{25}N_3O_{10}S$** Sulfanilamide, *N*¹-ethyl-3-nitro - *N*⁴ - (2,2',2'' - trihydroxy *tert*-butyl)-, triacetate, P 7694*e*.

**$C_{18}H_{25}N_3O_7$** Pyrimidine, 5,6-diamino-4-(tetraacetyl-D-glucosidamino)-, 146*g*.

**$C_{18}H_{25}N_7O_4S_2$** Methanesulfonic acid, [*p*-(2 pyridylsulfamyl)anilino]-, hexamethylenetetramine salt, P 4431*i*.

**$C_{18}H_{25}O_4P$** Estradiol, 17-monophosphate, P 7056*f*, P 7969*a*.

**$C_{18}H_{26}$** Benzene, bis(1-methycyclopentyl) , 2171*i*.
Phenanthrene, 1,2,3,4,4a,9,10,10a-octahydro-1,1,4a,7-tetramethyl-, 1752*d*.

**$C_{18}H_{26}As_2N_2O_4P_2$** Phosphinic acid, [arsenobis(hydroxyphenyleneiminoisopropylidene)]di-, *di-Na salt*, 5378*e*.

**$C_{18}H_{26}BrN_3S$** Pyridine, 5-bromo-2-[(5 *tert*-butyl - 2 - thenyl)(2 - dimethylaminoethyl)amino]-, - *HCl*, 5781*g*.

**$C_{18}H_{26}CaN_2O_6$** Ipral calcium, 3147*i*.

**$C_{18}H_{26}ClN_3$** (See also *Quinoline, chloro 4-(4-diethylamino-1-methylbutylamino)-*.)

Quinoline, chloro-4-(4-diethylaminobutylamino)-8-methyl-, 1655*g*.

$C_{26}ClN_3S$ Quinoline, 7-chloro-4-[2-(2-diethylaminoethylmercapto)ethylamino]-3-methyl-, 1655*g*.

Quinoline, 7-chloro-4-[3-(2-diethylaminoethylmercapto)propylamino]-, 1655*g*.

$C_{26}ClN_3$ Pyrimidine, 4-*p*-chloroanilino-6-(2-diethylaminoethylamino)-2,5-dimethyl-, *and di-HCl*, P 6244*a*.

Pyrimidine, 4-*p*-chloroanilino-6-(3-diethylaminopropylamino)-2-methyl-, P 6243*h*.

Pyrimidine, 4-*p*-chloroanilino-6-(3-dimethylaminopropylamino)-5-ethyl-2-methyl-, *di-HCl*, P 6244*b*.

$C_{26}ClN_7$ Guanidine, 1-(*p*-chlorophenyl)-3-[4-(2-diethylaminoethylamino)-6-methyl-2-pyrimidyl]-, 9038*d*.

$C_{26}HgN_2O_6S_2$ *p*-Toluenesulfonamide, *N*-2-hydroxyethyl-, Hg deriv., 2943*g*.

$C_{26}IN$ 10,4a(4*H*)-Iminoethanophenanthrene, 1,2,3,9,10,10a-hexahydro-11-methyl-, methiodide, 4279*h*.

$C_{26}N_2$ Carbazole, 1,2,3,4,4a,9a-hexahydro-9-[2-(1-pyrrolidyl)ethyl]-, *and -HCl*, 4257*g*.

1-Naphthamidine, *N*,*N*-dibutyl-, *-HCl*, P 5801*d*.

Putrescine, $N^4$,$N^4$-diethyl-1-(1-naphthyl)-, 2211*c*.

$C_{26}N_2O$ Ethylenediamine, *N*-*p*-cumyl-*N*-furfuryl-*N*′,*N*′-dimethyl-, 6587*h*.

$C_{26}N_2OS$ Urea, 1-benzoyl-3-(menthyl)-2-thio-, 4232*f*.

$C_{26}N_2O_2$ Morpholine, 4,4′-decamethylene-di-, *and di-HCl*, 3380*b*.

$C_{26}N_2O_2S$ *p*-Acrylotoluidide, α-caproylamino-β-(ethylmercapto)-, 2990*g*.

Caproamide, *N*-[1-(benzylcarbamyl)-2-ethylmercapto)vinyl]-, 2990*g*.

$C_{26}N_2O_2$ 2-Furanacetic acid, 4-carboxy-5-methyl-, dipiperidide, P 4301*e*.

$C_{26}N_2O_3S$ 1-Naphthone acid, 5,6,7,8-tetrahydromitrothiol-, 3-diethylaminopropyl ester, *HCl*, 6193*b*.

$C_{26}N_2O_4$ Carbanilic acid, *p*-nitro-, 2-hendecenyl ester, 5736*h*.

Cinnamamide, *N*-(1-dimethylcarbamylethyl)-*N*-ethyl-3,4-dimethoxy-, P 249*c*.

1-Naphthone acid, 5,6,7,8-tetrahydro-3-nitro-, 3-diethylaminopropyl ester, *HCl*, 203*c*.

Quinone, dioxime dicaproate, 5623*c*.

$C_{26}N_2O_6$ Butyric acid, α-(dimethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester *p*-nitrobenzoate, *and -HCl*, 7643*d*.

Lumivdrine, 3929*d*.

$C_{26}N_2O_6S$ Sebacamic acid, *N*-(*N*-acetylsulfanilyl)-, 2597*f*.

$C_{26}N_2O_6S_2$ 2-Naphtholdisulfonic acid, morpholine salt, P 3300*hi*.

$C_{26}N_2O_{11}$ Cyclohexanetetrol, diamino-, hexa Ac deriv., 6582*a*.

$C_{26}N_2O_{16}S_2$ 2,7-Naphthalenedisulfonic acid, 4,5-dihydroxy-, morpholine salt, P 3300*hi*.

$C_{26}N_2O_4S_2$ 4-Thiazoleacetic acid, 5,5′-thiobis[2-amino-α-ethyl-, di-Et ester, 8481*a*.

$C_{26}N_2O_6$ *p*-Toluic acid, 3,5-dinitro-, decylidenehydrazide, 6972*e*.

$C_{26}N_2O_2$ 4-Piperidone, 2-ethyl-1,6-dimethyl-3-propyl-, picrate, 2959*i*.

1*H*-Quinolizine-3-methanol, octahydro-α,1-dimethyl-, picrate, 4268*b*.

$C_{26}H_{26}N_6O$ Biguanide, 1-isopropyl-5-(6-methoxy-8-quinolyl)-2-propyl-, *-HCl*, 2950*a*.

$C_{26}N_4O_2$ Pyrimidine, 4-(2-diethylaminoethylamino)-2,5-dimethyl-6-*p*-nitroanilino-, *and di-HCl*, P 6244*c*.

$C_{26}H_{26}O$ Acetophenone, *ar*-cyclohexyl-*ar*-isopropyl-*ar*-methyl-, 1339*i*.

2-Caprylonaphthone, 5,6,7,8-tetrahydro-, 9424*f*.

Ether, cyclohexyl cyclohexylphenyl, 6173*h*.

—, 1,5-dimethyl-1-vinyl-4-hexenyl phenethyl, P 6219*g*.

—, isobornyl xylyl, 1355*a*.

3,5,7-Octatrien-2-one, 6-methyl-8-(2,6,6-trimethylcyclohexenyl)-, 2588*a*, 5371*e*, P 5418*gi*, 6989*g*.

Phenol, dicyclohexyl-, 6173*h*.

2,4-Xylenol, 6-isobornyl-, 1355*b*.

$C_{26}H_{26}O_2$ Benzene, 4-(hendecenyl)-1,2-methylenedioxy-, 1086*g*.

Cyclohexanone, 4-(α,β-diethyl-*p*-hydroxyphenethyl)-, 2194*h*, 2195*e*.

Cyclohexenone, 4,4′-(1,2-diethylethylene)di-, 6187*f*, 6370*d*.

— 4-[1-ethyl-2-(4-hydroxy-1,5-cyclohexadien-1-yl)butyl]-, 6187*d*.

Cyclopentaneacetic acid, 2-mesityl-, Et ester, 3796*g*.

3-Hexanone, 6-(4-ethoxy-5,6,7,8-tetrahydro-1-naphthyl)-, 2196*a*.

Hydroquinone, dicyclohexyl-, 1376*i*.

Isanic acid, *and salts*, 3630*bc*.

17-Octadecene-9,11-diynoic acid, 3630*c*.

$C_{18}H_{26}O_3$ Butyric acid, γ-(5-heptyl-2-methoxyphenyl)-γ-hydroxy-, lactone, 1032*i*.

1-Naphthalenebutyric acid, 4-ethoxy-5,6,7,8-tetrahydro-, Et ester, 2196*a*

$C_{18}H_{26}O_4$ Butyric acid, γ-(5-hexyl-2,4-dimethoxyphenyl)-γ-hydroxy-, lactone, 1033*d*.

Phthalic acid, di-Am ester, 3678*a*, 8138*i*.

Propionic acid, β-(5-heptyl-2-methoxybenzoyl)-, 1032*h*.

—, β-(5-hexyl-2-methoxybenzoyl)-, Me ester, 1032*h*.

$C_{18}H_{26}O_5$ Δ1,α-Cyclohexaneacetic acid, 2-(1-carboxy-2-oxocyclopentyl)-(?), di-Et ester, 2587*a*.

1-Cyclohexene-1-acetic acid, 6-(1-carboxy-2-oxocyclopentyl)-(?), di-Et ester, 2587*a*.

Methyl ester, m. 153–4°, 7482*f*.

Propionic acid, β-(5-butyl-2,4-dimethoxybenzoyl)-, Et ester, 1033*d*.

—, β-(5-hexyl-2,4-dimethoxybenzoyl), 1033*d*.

$C_{18}H_{26}O_5S$ Valeric acid, α-(2-carboxyethylmercapto)-δ-phenoxy-, di-Et ester, P 7504*f*.

$C_{18}H_{26}O_{10}S_2$ 2,3,4,5-Hexanetetrol, 1,6-dimercapto-, hexaacetate, 7425*b*.

$C_{18}H_{26}O_{12}$ Mannitol, hexaacetate, 7425*a*.

Sorbitol, hexaacetate, 7425*b*.

$C_{18}H_{26}O_{14}S$ Citric acid, tri-Me ester, sulfite, P 5796*d*

$C_{18}H_{27}BrO_{18}Pb_5$ Lead acetate bromide, 2112*d*.

$C_{18}H_{27}ClIN_3$ [2-(2-*p*-Chloroanilino-6-methyl-4-pyrimidylamino)ethyl]diethylmethylammonium iodide, 9038*d*.

$C_{18}H_{27}ClN_4$ Quinoline, 8-amino-7-chloro-4-(4-diethylamino-1-methylbutylamino)-, *and salts*, 7027*d*.

$C_{18}H_{27}HgN_3O_6S$ α-Camphoramic acid, *N*-[2-methoxy-3-(1,4,5,6-tetrahydro-4,6-dioxo-2-pyrimidylmercapto mercuri)propyl]-, *Na salt*, P 9084*d*

$C_{18}H_{27}IN_2$ 2-Dibutylamino-1-methylquinolinium iodide, 4276*g*.

$C_{18}H_{27}IN_2O_2$ (4-Cyano-4-ethyl-1,2,3,4-tetrahydro-5,6-dimethoxy-2-naphthyl)-trimethylammonium iodide, 626*e*.

$C_{18}H_{27}IO_{18}Pb_5$ Lead acetate iodide, 2112*c*.

$C_{18}H_{27}MgNaO_{24}U_3$ Magnesium sodium uranyl acetate, 7367*i*.

$C_{18}H_{27}N$ 4a(2*H*)-Phenanthreneethylamine, 1,3,4,9,10,10a-hexahydro-*N*,*N*-dimethyl-, 4279*i*.

$C_{18}H_{27}NO$ 1,3,2*H*-Benzoxazine, 6-*tert*-butyl-3-cyclohexyl-3,4-dihydro-, 3425*e*.

Cyclohexanol, 1-phenyl-2-(1-piperidylmethyl)-, P 5417*f*.

Quinoline, 1-ethyldecahydro-4-(*p*-methoxyphenyl)-, *and -HCl*, 3418*i*.

$C_{18}H_{27}NO_2$ Benzamide, *N*-[2-(3-ethoxypropyl)cyclohexyl]-, 1414*h*.

Butyric acid, α-phenyl-, 2-cyclohexyl aminoethyl ester, *-HCl*, P 2639*h*.

Cyclohendecanol, carbamate, 6988*f*.

Cyclohexaneacetic acid, α-phenyl-, 2-dimethylaminoethyl ester, P 679*g*, P 7041*a*.

Cyclohexanecarboxylic acid, 1-*p*-tolyl-, 2-dimethylaminoethyl ester, P 7959*c*.

Cyclohexanol, 2-(dimethylaminomethyl)-1-phenyl-, propionate, P 5417*e*.

Cyclopentanecarboxylic acid, 1-phenyl-, 2-diethylaminoethyl ester, 1107*b*, 1486*f*, 1487*a*, 3109*h*, 4373*i*, 4374*e*, 6733*bd*, 7127*f*, 7128*g*, 7130*i*, 7131*c*, 8133*ci*; *and -HCl*, P 6229*c*, P 6656*a*, P 7959*c*; 2-(isopropylmethylamino)ethyl ester, *and -HCl*, P 6229*d*.

—, 1-*m*-tolyl-, 3-dimethylaminopropyl ester, *and -HCl*, P 6655*i*.

3-Hexanone, 6-(4-ethoxy-5,6,7,8-tetrahydro-1-naphthyl)-, oxime, 2196*a*.

$C_{18}H_{27}NO_2S$ 1-Propanol, 3-[3-(1-piperidyl)-propylmercapto]-, benzoate, 6184*c*.

$C_{18}H_{27}NO_3$ (See also *Capsaicin*.)

Acetic acid, phenyl[2-(1-piperidyl)ethoxy]-, iso-Pr ester, 2189*f*.

Butyric acid, α-benzoyl-α-(diethylaminomethyl)-, Et ester, *-HCl*, 7643*f*.

1-Piperidinepropionic acid, α-(α-hydroxybenzyl)-α-methyl-, Et ester, 7643*g*.

$C_{18}H_{27}NO_3S$ Acetamide, *N*,*N*-diisopropyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.

Acetamide, *N*,*N*-diisopropyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.

—, α-[3-(3,4-methylenedioxyphenyl)-propylmercapto]-*N*,*N*-dipropyl-, P 1903*b*.

—, α-(α-methylhomopiperonylmercapto)-*N*,*N*-dipropyl-, P 1903*c*.

$C_{18}H_{27}NO_4$ Butyric acid, α-(dimethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester benzoate, *and -HCl*, 7643*d*.

$C_{18}H_{27}NO_5$ (See also *Platyphylline*.)

α-Longilobine, tetrahydro-, 6209*f*.

$C_{18}H_{27}NO_5S$ Camphorsulfonic acid, salt with *p*-phenetidine, 7642*c*.

$C_{18}H_{27}NO_6$ Platyphylline, *N*-oxide, 280*c*.

$C_{18}H_{27}NO_7$ Scleratine, 3567*d*.

$C_{18}H_{27}NO_8$ β-Alanine, *N*-(dimethoxyphenethyl)-*N*-methyl-, Et ester oxalate, 5765*f*.

$C_{18}H_{27}N_3$ Quinoline, 4-(4-diethylamino-1-methylbutylamino)-, 1655*g*, 1776*f*, 2209*f*.

$C_{18}H_{27}N_3O$ Lepidine, 8-(3-*sec*-butylaminopropylamino)-6-methoxy-, *and di-HCl*, 7026*d*.

Quinaldine, 4-(3-isobutylaminopropylamino)-6-methoxy-, *and di-HCl*, 4276*i*.

Quinoline, 8-[3-(2,2-dimethylpropylamino)propylamino]-6-methoxy-, *-HBr*, 3421*g*.

—, 8-[3-(1-ethylpropylamino)propylamino]-6-methoxy-, *di-HBr*, 3421*g*.

—, 8-(5-isopropylaminoamylamino)-6-methoxy-, 1826*b*, 3108*a*, 4769*h*, 5860*g*, 7193*a*, 9255*b*, 9264*f*.

—, 8-(4-isopropylamino-1-methylbutylamino)-6-methoxy-, 4769*h*, 7193*a*, 9264*f*.

$C_{18}H_{27}N_3O_2$ 2-Propanol, 1-(ethylisopropylamino)-3-(6-methoxy-8-quinolylamino)-, *and di-HCl*, P 254*d*.

2-Propanol, 1-(6-methoxy-8-quinolylamino)-2-methyl-3-(methylpropylamino)-, *and di-HCl*, P 254*f*.

$C_{18}H_{27}N_3O_2$ *p*-Toluic acid, 3-nitro-, decylidenehydrazide, 6973*b*.

$C_{18}H_{27}N_3O_6S_2$ 1-Naphthol-3,6-disulfonamide, 8-amino-*N*,*N*,*N*′,*N*′-tetraethyl-, P 8146*g*.

$C_{18}H_{27}N_3S$ Pyridine, 2-[(5-*tert*-butyl-2-thienyl)(2-dimethylaminoethyl)-amino]-, *and -HCl*, 5781*f*.

$C_{18}H_{27}N_5$ 1*H*-Tetrazole, 1-cyclohexyl-5-[methyl(β-methylphenethyl)aminomethyl]-, P 7972*b*.

$C_{18}H_{27}N_5O$ Pyrimidine, 4-(2-diethylaminoethylamino)-6-*p*-methoxyanilino-2-methyl-, P 6243*h*.

$C_{18}H_{27}N_7O_6$ Isospherophysine, acetyl-, picrate, 238*g*.

Smirnovine, picrate, 238*g*.

Spherophysine, acetyl-, picrate, 238*g*.

$C_{18}H_{28}$ Naphthalene, 6,7-dibutyl-1,2,3,4-tetrahydro-, 1370*d*.

Phenanthrene, 1,2,3,4,4a,4b,5,6,10,10a-decahydro-1,1,4a,7-tetramethyl-, 1752*f*.

$C_{18}H_{28}BrNO$ 5-Benzyldecahydro-3-(hydroxymethyl)-4-methylquinolizinium bromide, 4268*e*.

1-Piperidinepropanol, α-(*p*-bromophenyl)-α-butyl-, *-HCl*, 9070*g*.

$C_{18}H_{28}ClNO$ Triethylamine, 2-chloro-2′-(*o*-cyclohexylphenoxy)-, *-HCl*, 6309*c*.

$C_{18}H_{28}Cl_2O_3$ Phenol, 2-chloro-5-[2-(2-chloroethoxy)ethoxy]-4-(1,1,3,3-tetramethylbutyl)-, 7923*h*.

$C_{18}H_{28}INO$ Decahydro-5-methyl-1-toloxymethylquinolizinium iodide, 6210*c*.

$C_{18}H_{28}INO_4$ 5-Butoxy-6-ethyl-5,6,7,8-tetrahydro-4-methoxy-6-methyl-1,3-dioxolo[*g*]isoquinolinium iodide, 2213*a*.

5,6,7,8-Tetrahydro-5-isoamoxy-4-methoxy-6,6-dimethyl-1,3-dioxolo[*g*]isoquinolinium iodide, 2213*a*.

$C_{18}H_{28}N_2O$ Cyclopentanecarboxamide, *N*-(2-diethylaminoethyl)-1-phenyl-, P 7958*f*.

Cyclopentanecarboxamide, *N*-(2-dimethylaminoethyl)-1-(3,4-xylyl)-, *and -HCl*, P 7959*a*.

$C_{18}H_{28}N_2OS$ 1-Naphthoic acid, amino-5,6,7,8-tetrahydrothiol-, 3-diethylaminopropyl ester, *-HCl*, 6193*bc*.

$C_{18}H_{28}N_2O_2$ Benzoic acid, *p*-dimethylamino-, 2-cyclohexylaminoisopropyl ester, *-HCl*, P 2640*d*.

1-Naphthoic acid, 3-amino-5,6,7,8-tetrahydro-, 3-diethylaminopropyl ester, *-HCl*, 203*d*.

$C_{18}H_{28}N_2O_3S$ Benzimidazolesulfonic acid, 2-hendecyl-, P 1900*i*.

$C_{18}H_{28}N_2O_4$ Butyric acid, α-(dimethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester *p*-aminobenzoate, *and* -*HCl*, 7643*d*.

Veratramide, *N*-(1-diethylcarbamylpropyl)-*N*-methyl-, P 6653*h*.

$C_{18}H_{28}N_2O_5$ Propionamide, β-[(2,5-dimethoxyphenethyl)methylamino] - *N* - 2-hydroxyethyl-, oxalate, 5765*f*.

$C_{18}H_{28}N_2O_{10}$ (*m*-Hydroxyphenyl)trimethyl ammonium acid mucate, dimethyl carbamate, P 6878*b*.

$C_{18}H_{28}N_2S_4$ Thiazole, 2,2′-dithiobis[4-hexyl-, 633*h*.

$C_{18}H_{28}N_4O_7$ Azacyclotridecane, picrate, 5400*d*.

Piperidine, 1-(1-methylhexyl)-, picrate, 7920*i*.

$C_{18}H_{28}O$ 3-Buten-2-one, 4-(1,4,4a,5,6,7,8,-8a - octahydro - 2,5,5,8a - tetramethyl-1-naphthyl)-, 8369*f*.

Laurophenone, P 6358*e*.

3,5,9,13 - Pentadecatetraen - 2 - one, 6,10,14-trimethyl-, 8369*d*.

$C_{18}H_{28}O_2$ Benzene, 1-(1,2-dimethyl-1-octenyl)-3,5-dimethoxy-, 8384*f*.

Cyclohexanol, 4-(α,β-diethyl-*p*-hydroxyphenethyl)-, 2194*g*, 2195*b*, 7007*i*.

2-Cyclohexen-1-one, 4-[1-ethyl-2-(4-oxocyclohexyl)butyl]-, 6187*f*

Hendecanoic acid, *p*-tolyl-, 5666*b*

Ketene, (cyclohexylmethyl)-, dimer, 2964*e*.

Parinaric acid, 4031*g*; *and salts*, 134*i*.

$C_{18}H_{28}O_2Si_3$ Trisiloxane, 1,1,1,5,5,5-hexamethyl-3,3-diphenyl-, P 6220*i*.

$C_{18}H_{28}O_3$ Bicyclo[10.3.1]-12-hexadecene 1-carboxylic acid, 13-methyl-16-oxo-, 7908*g*.

3-Hendecanone, 1-(4-hydroxy-3-methoxyphenyl)-, 2185*h*.

Licanic acid, P 2034*e*.

Methanol, (decyloxy)-, benzoate, 6162*b*.

$C_{18}H_{28}O_4$ Embelin, 1838*e*.

$C_{18}H_{28}O_5$ Benzene, 4 [1-[2-(2-butoxyethoxy) ethoxy]propyl] - 1,2 - methylenedioxy-, P 2639*d*.

Cyclohexaneacetic acid, 2-(1-carboxy 2-oxocyclopentyl)-, di-Et ester, 2587*a*.

$C_{18}H_{28}O_7$ Cyclohexanemalonic acid, 4-carboxy-α,4 - dimethyl - 3-oxo-, tri - Et ester, 2605*e*.

Malonic acid, [(2-carboxy-2-methyl cyclopentylcarbonyl)methyl]-, tri-Et ester, 3829*h*.

$C_{18}H_{28}O_8$ 1-Butene-1,1,2,4-tetracarboxylic acid, 3,3-dimethyl-, tetra-Et ester, 1335*g*.

$C_{18}H_{28}O_{10}$ Glucoside, *tert*-butyl, tetraacetate, 3795*f*.

$C_{18}H_{28}O_{12}$ Cyclodecane, 1,1,6,6-tetrakis(hydroperoxy)-, tetraacetate, 6189*i*.

$C_{18}H_{29}ClN_2O_2S_2$ Acetic acid, (1-propylamyl mercapto)-, 2-(*p* chlorobenzyl)-2-thiopseudourea salt, 3365*b*.

$C_{18}H_{29}ClN_4O_2$ Tributylamine, 2 (*p*-chlorophenylazo)-2-nitro-, P 8153*i*.

$C_{18}H_{29}ClO$ Ether, *p*-chlorophenyl dodecyl, 5893*i*.

$C_{18}H_{29}N$ Benzylamine, *N* amyl-*N* cyclohexyl-, P 2734*a*.

$C_{18}H_{29}NO$ Lauranilide, 4241*c*.

1-Piperidinepropanol, α-butyl-α-phenyl, -*HCl*, 7581*b*; *and* -*HCl*, 9071*h*.

—, α-*sec*-butyl-α-phenyl-, -*HCl*, 9071*i*.

—, α-*tert*-butyl-α-phenyl-, -*HCl*, 9071*i*.

—, α-isobutyl-α-phenyl-, *and* -*HCl*, 9071*h*.

Triethylamine, 2-(α-cyclopentylbenzyloxy)-, P 5043*fhi*.

$C_{18}H_{29}NO_2$ 2-Cyclopentene-1-carboxylic acid, 2 - cyano - 5 - (1,5 - dimethylhexyl) - 1-methyl-, Et ester, 7911*h*.

4 - Morpholinepropanol, α - isoamyl - α-phenyl-, -*HCl*, 9071*e*.

$C_{18}H_{29}NO_3$ Acetic acid, (2-dimethylaminoethoxy)phenyl-, hexyl ester, 2189*e*.

Hydrocinnamic acid, α-(diethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester, -*HCl*, 7643*h*.

Syntropan, 6733*c*.

$C_{18}H_{29}NO_3S$ Capramide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.

$C_{18}H_{29}NO_4$ β-Alanine, *N*-(3,4-diethoxyphenethyl)-*N*-methyl-, Et ester, -*HCl*, 5765*g*.

$C_{18}H_{29}NO_4S$ Cyclohexanone, compd. with 1-benzylpiperidine bisulfite, 3355*h*.

$C_{18}H_{29}NO_5$ Benzoic acid, 3-diethylamino-4-(2,3-dihydroxypropoxy)-, Bu ester, P 2283*g*.

Senecionine, tetrahydro-, 9076*b*.

$C_{18}H_{29}NO_6$, 6210*a*.

$C_{18}H_{29}NO$ 2-Hendecanone, 3-phenyl-, semicarbazone, 2932*d*.

$C_{18}H_{29}N_3O_2$ Nicotinamide, *N*-(1-diethylcarbamylpropyl) - *N*-ethyl - 1,6 - dihydro-2,4-dimethyl-6-oxo-, P 250*d*.

$C_{18}H_{29}N_3O_4$ Benzoic acid, *p*-(2-nitroisobutylamino)-, 3-diethylaminopropyl ester, 6183*h*.

$C_{18}H_{29}N_3O_7$ Cyclohexanemalonic acid, 4 carboxy-4-methyl-3-oxo , tri-Et ester, semicarbazone, 2605*d*.

$C_{18}H_{29}N_5O_8$ Succinamic acid, *N*-cyclohexyl-*N* - [(1 - cyclohexyl - 1*H* - tetrazol - 5-ylmethyl]-, 1864*h*.

$C_{18}H_{29}N_3O_8$ Smirnovine, dihydro-, picrate, 238*h*.

$C_{18}H_{30}$ Benzene, hexaethyl-, P 1175*d*, 3262*d*, 4067*f*, 4140*e*.

Benzene, 1,3,5-tri-*sec* butyl-, 6583*a*.

Decane, 2 (2,4 xylyl)-, P 6232*e*.

Dodecane, phenyl , 10*e*, P 6232*f*, 7868*e*.

$C_{18}H_{30}Br_2N_2$ Dibutylnicotinium dibromide, P 5152*a*

$C_{18}H_{29}Br_5O_2$ Stearic acid, hexabromo-, 135*g*.

$C_{18}H_{30}I_2N_2O_4$ (2 Hydroxyethyl)trimethylammonium iodide, isophthalate, 1486*a*, 2191*c*; phthalate, 1486*a*, 2191*c*, terephthalate, 1486*a*, 2191*d*

$C_{18}H_{30}N_2$ 8-Octadecenedinitrile, 5369*f*.

$C_{18}H_{30}N_2Na_2O_{16}S_2$ Glucose, Na bisulfite addn. compd , reaction product with *p*-phenylenediamine, P 7958*b*.

$C_{18}H_{30}N_2O$ Lauramide, *p* amino , P 4296*d*.

Nicotinamide, *N*-dodecyl , 5025*d*.

Piperidine, 2-[α (2-dimethylaminoethoxy)-α-methylbenzyl]-1-methyl-, *and di*-*HCl*, 2206*a*

Urea, 1 (1-isoamylisohexyl)-3-phenyl-, 2166*h*.

$C_{18}H_{30}N_2O_2$ Benzoic acid, *p*-amino , (1-methylhexylamino) *tert* butyl ester, P 3038*h*

$C_{18}H_{30}N_2O_6P_2$ Phosphonitrilic acids, diallyl ester, trimer, 6971*b*.

$C_{18}H_{30}N_4O_8$ Formic acid, azodi-, decamethylene di Et ester, P 5626*i*.

$C_{18}H_{30}N_4S_4$ Compd., m 212–15°, 3409*g*.

$C_{18}H_{30}O$ Phenol, 4-butyl-2,6 di-*tert*-butyl-, 6996*i*.

Phenol, 4 *tert* butyl-2-isooctyl , P 4488*b*.

-, 2,4,6-tri-*tert* butyl-, 8881*c*.

$C_{18}H_{30}O_2$ (See also *Eleostearic acid; Linolenic acid.*)

Benzene, 1 (1,2-dimethyloctyl) 3,5 dimethoxy-, 8384*f*.

Cyclohexanone, 4,4′-(1,2-diethylethylene)di-, 6187*d*.

Ethanol, 2 di(*tert* amylphenoxy)-, P 1202*g*, P 4879*e*.

Guaiacol, 4-hendecyl-, 2185*h*

2-Naphthoic acid, 1,2,3,4,4a,5,8,8a octahydro - 4 isopropyl 1,6 dimethyl-, Et ester, 3807*g*

Octadecatrienoic acid, 6839*c*.

$C_{18}H_{30}O_2S$ Ethanethiol, 2-[2 (*p*-1,1,3,3 tetramethylbutylphenoxy)ethoxy] , P 4507*h*

$C_{18}H_{30}O_3$ Acid, m. 86–7°, 4027*d*

$C_{18}H_{30}O_3S$ See *Benzenesulfonic acid, dodecyl-*.

$C_{18}H_{30}O_4$ Cyclohexanesuccinic acid, 4-cyclohexyl-, Et ester, 1377*g*

$C_{18}H_{30}O_6$ Aconitic acid, tri Bu ester, 8737*h*, 9334*c*.

$C_{18}H_{30}O_7$ Lactic acid, ester with vitamin C, 3498*a*.

$C_{18}H_{30}O_8$ 1,1,2,4 Butanetetracarboxylic acid, 3,3-dimethyl , tetra-Et ester, 1335*g*.

$C_{18}H_{31}N$ Pyridine, 4-tridecyl-, P 6961

$C_{18}H_{31}NO$ 3-Heptanol, 1-diethylamino-6 methyl-3-phenyl-, *HCl*, 9071*d*.

Propylamine, *N*, *N* - diethyl 1 - (α - isobutylbenzyloxy)-, P 5043*h*

Triethylamine, 2-(3,4 dimethyl α propylbenzyloxy)-, P 5043*g*

$C_{18}H_{31}NO_2$ 2-Cyclopentene 1-acetic acid, α-butyl-, 3-(1-pyrrolidyl)propyl, *and* -*HCl*, 1388*g*.

Heptylamine, *N*, *N*-diethyl-, benzoate, 131*f*.

2-Propanol, 1-(*p*-*tert*-amylphenoxy)-3-isobutylamino-, -*HCl*, P 7046*a*.

—, 1-(*p*-*tert*-butylphenoxy)-3 isoamylamino-, -*HCl*, P 7046*b*.

—, 1-dibutylamino 3-*o*-toloxy-, P 7046*a*.

$C_{18}H_{31}NO_3$ Succinamic acid, β-(4-cyclohexylcyclohexyl)-, Et ester, 1377*g*.

$C_{18}H_{31}N_3$ Piperidine, 4-[benzyl(2-dimethylaminoethyl)amino]-1-ethyl-, 2207*f*.

$C_{18}H_{31}N_3O_2$ Benzoic acid, *p*-(2-aminoisobutylamino) , 3-diethylaminopropyl ester, 6183*h*.

$C_{18}H_{32}BrNO$ Dimethyloctyl(2-phenoxyethyl)-ammonium bromide, P 1158*d*.

$C_{18}H_{31}Br_4O_2$ Stearic acid, tetrabromo-, 1201*d*.

$C_{18}H_{32}N_2$ α,α′-*p*-Xylenediamine, *N*, *N*′-diamyl-, *and di*-*HCl*, 3382*c*.

$C_{18}H_{32}N_2O_2$ 1-Cyclohexene-1-malonamide, *N*, *N*, *N*′, *N*′ - tetraethyl - α-methyl-, P 1797*i*, P 3842*f*.

$C_{18}H_{32}N_2O_4S_2$ *p* - Benzenedisulfonamide, *N*, *N*′ - bis(1,3 - dimethylbutyl)-, 4237*d*.

$C_{18}H_{33}N_2O_6S$ Butacaine, sulfate, 762*f*, 1111*a*.

$C_{18}H_{32}N_2O_{16}S_2$ Glucose, bisulfite addn compd., reaction product with *p*-phenylenediamine, *di*-*Na salt*, P 7958*b*.

$C_{18}H_{32}N_2O_{18}S_3$ Sulfanilamide, *N*¹, *N*⁴-bis-(glucosesulfonate), *di*-*Na salt*, P 4817*c*.

$C_{18}H_{32}O$ 2-Butanone, 4-(decahydro-2,5,5,8a tetramethyl-1-naphthyl)-, 8369*g*.

$C_{18}H_{32}O_2$ (See also *Chaulmoogric acid; Linoleic acid; Octadecadienoic acid.*)

Hydnocarpic acid, Et ester, 1731*a*.

Isolinoleic acid, 8707*c*.

Isolinolenic acid, 5857*d*.

11-Octadecynoic acid, 5661*i*.

$C_{18}H_{37}O_3$ Succinic anhydride, tetradecyl , 5070*a*.

$C_{18}H_{32}O_4$ Malonic acid, 2-hydroxyethyltridecyl-, γ-lactone, 1322*c*.

Margaric acid, α,γ-dioxo-, Me ester, 140*a*

8-Octadecenedioic acid, 5369*e*.

Stearoxylic acid, P 6761.

$C_{18}H_{32}O_5$ Suberic acid, γ-acetyl-, di-Bu ester, P 6226*b*.

$C_{18}H_{32}O_6$ 1,3,5-Heptanetricarboxylic acid, 2,6-dimethyl-, tri-Et ester, 3807*f*

$C_{18}H_{32}O_{16}$ +5$H_2O$. See *Raffinose*.

$C_{18}H_{33}BrGe$ Tricyclohexylgermanium bromide, 6990*a*.

$C_{18}H_{33}ClGe$ Tricyclohexylgermanium chloride, 6989*i*.

$C_{18}H_{33}ClO$ Oleoyl chloride, 2187*d*, 3218*a*, 5368*g*, 8353*e*.

$C_{18}H_{33}Cl_3O_2$ Stearic acid, α,β,ε-trichloro-, 2164*e*.

$C_{18}H_{33}GeI$ Tricyclohexylgermanium iodide, 6990*e*.

$C_{18}H_{33}N$ Oleonitrile, P 3836*g*, P 4286*c*, P 7502*h*.

$C_{18}H_{33}NO$ Cycloheptadecanecarbonitrile, 1-hydroxy-, 7907*a*.

$C_{18}H_{33}NO_2$ 1-Cyclohexene 1-acetic acid, α butyl , 2-diethylaminoethyl ter, 3798*a*.

Cyclopentaneacetic a α butyl pyrrolidylpropyl ester, *and* H 1388*g*

$C_{18}H_{33}NO_2Si$ Silane, anilinotributoxy- 9028*c*

$C_{18}H_{33}NO_6$ Acetic acid, nitrilotri , tri Bu ester, P 5229*h*

$C_{18}H_{33}NS_2$ 2-Thiazolethiol, 4 pentadecyl , 633*h*.

$C_{18}H_{33}N_3O$ Pyridine, 2 [3 diethylamino 1 2 dimethylaminoethoxy) 1 methyl butyl] , *and tri*-*HCl*, 2206*f*

$C_{18}H_{33}N_3O_3$ s Triazine, 2,4,6 trimonoxy , 9034*i*.

$C_{18}H_{33}N_3S$ 2-Pyrimidinethiol, 4-tetradecylamino , 8395*d*

$C_{18}H_{33}N_5$ 1*H*-Tetrazole, 5-[allyl(1 methyl hexyl)amino]methyl]-1 cyclohexyl , P 7972*c*.

$C_{18}H_{33}NaO_5S$ Ricinoleic acid, hydrogen sulfate Na salt, 8698*f*, 8711*b*, 9505*g*.

$C_{18}H_{33}O_{10}P_3$ Phenyl propyl triphosphate, P 9356*h*.

$C_{18}H_{34}$, 5589*i*.

Hexane, 1,6 dicyclohexyl , 1375*f*.

$C_{18}H_{34}Br_2O_2$ Stearic acid, α,β dibromo-, 1318*e*.

$C_{18}H_{34}Ge$ Germane, tricyclohexyl , 6990*c*.

$C_{18}H_{34}GeO$ Tricyclohexylgermanium hydroxide, 6990*b*.

$C_{18}H_{34}I_2N_2$ *p*-Xylylenebis[diethylmethylammonium iodide], 6590*a*

$C_{18}H_{34}I_2N_2O$ [Phenylenebis(oxyethylene)] bis[ethyldimethylammonium iodide], 6365*d*.

$C_{18}H_{34}KNO_5$ Stearic acid, hydroxynitro-, K deriv., *K salt*, 1319*c*.

$C_{18}H_{34}N_2O_2$ Malonamide, α (cyclohexylmethyl)-*N*, *N*, *N*′, *N*′-tetraethyl , P 1797*i*, P 3842*f*.

$C_{18}H_{34}N_2O_4S$ 2,5-Thiophenedicarboxylic acid, tetrahydro-, bis(2-diethylaminoethyl) ester, 6612*b*.

$C_{18}H_{34}N_2O_5$ Petroselinic acid, reaction product with $N_2O_3$, 1318*e*.

$C_{18}H_{34}N_2O_6$ Nitrosate, decomp. 17–20°, 1319*a*.

Petroselinic acid, reaction product with $N_2O_4$, 1318*b*.

Stearic acid, hydroxynitro-, nitrous ester, 1319*c*.

$C_{18}H_{34}N_2O_6S$ Valine, *N*-(*N*-caproyl-α-formyl [lycyl)-β-mercapto-, di-Et acetal, 10*b*.

$H_{24}N_4$ Caprylonitrile, α,α′-ethylenediiminodi-, 4415*i*.
$H_{34}O$ Cyclooctadecanone, 7907*a*.
$H_{34}O_2$ (See also *Elaidic acid; Oleic acid.*)
Cyclohexadecanol, acetate, 6988*g*.
Citronellic acid, octyl ester, 4633*g*.
Cyclohexanecapric acid, ι,4-dimethyl-, 5666*b*.
Cyclohexanehendecanoic acid, 4-methyl-, 5666*b*.
Cyclohexanol, 4,4′-(1,2-diethylethylene)di-, 2194*f*, 2195*e*.
8,9 Hexadecanedione, 7,10-dimethyl-, 4227*h*.
Isooleic acid, 2449*c*, 5209*h*.
2,3 Isooleic acid, 1582*c*.
Methanol, (1,3-dimethylcyclohexyl)(2-hydroxy - 4,4,6 - trimethylcyclohexyl)-, P 1058*f*.
Octadecenoic acid, 566*g*, 1582*c*, 8023*h*, 8494*e*.
Petroselinic acid, 1318*dh*, 8573*e*.
Propane, 1,2-epoxy-3 (3,3,5-tripropylcyclohexyloxy)-, P 2634*a*.
Stearic acid, γ-hydroxy-, lactone, 6883*g*.
Vaccenic acid, 566*g*, 1408*h*, 2651*t*, 3217*a*, 7083*f*, 8474*c*.
$H_{34}O_3$ (See also *Ricinoleic acid.*)
Lactarinic acid, 3366*g*.
Palmitic acid, ν-ethyl ε-oxo, 3780*g*
Stearic acid, θ,ι-epoxy-, 126*f*, P 2224*f*
, oxo, P 676*t*, 3217*c*, 3357*f*, 3612*b*, 3781*b*.
$H_{34}O_4$ Adipic acid, α-(1,5-dimethylhexyl), Et ester, 2587*c*.
Lauric acid, ester with Bu glycolate, P 2468*c*.
Malonic acid, (4-ethyl-1-methyloctyl), di Et ester, 1374*c*
, (1-methyldecyl, di Et ester, 1374*c*.
, (3,7,11 trimethyldodecyl), 1764*e*
Octadecanedioic acid, 5360*f*, *di K salt*, 4075*f*.
Sebacic acid, di Bu ester, P 3444*i*, 3678*a*, 5629*a*, 5944*h*, P 8209*b*, di-*sec*-Bu ester, P 5184*a*
Succinic acid, tetradecyl, 5070*a*.
$C_{34}H_{66}O_6$ Sorbitan, monolaurate, 8610*b*
Triethylene glycol, bis(α-ethylbutyrate), P 3664*b*
$C_{34}H_{64}O_8S$ Ricinoleic acid, hydrogen sulfate, *Na salt*, 8698*f*, 8711*b*, 9505*g*
$C_{34}H_{62}S$ Geranolene, compd. from $H_2S$ and, 1001*b*
$C_{34}H_{67}BrO_2$ Stearic acid, α-bromo, P 3840*f*.
$C_{34}H_{65}ClO$ Stearoyl chloride, P 5586*b*.
$C_{34}H_{65}ClO_2$ Acetic acid, chloro-, hexadecyl ester, 4644*a*
Palmitic acid, 2-chloroethyl ester, 38*f*
$C_{34}H_{67}IO_2$ Acetic acid, iodo-, hexadecyl ester, 4644*a*
$C_{35}H_{67}N$ Stearonitrile, P 682*f*, P 2786*a*, P 3628*f*, P 4286*f*, 4629*f*, P 5033*d*
$C_{35}H_{69}NO$ Azacyclononadecan-2-one, 5400*f*
Cyclooctadecanone, oxime, 5400*f*
Oleamide, 2652*a*, P 3836*g*, 8353*e*, 8354*a*, P 8712*g*
$C_{35}H_{69}NO_2$ Caproic acid, α-ethyl-α-methyl-, 3-(ethylmethylamino)cyclohexyl ester, P 3413*i*
Caproic acid, α-isobutyl-α-methyl-, 2-(1-piperidyl)ethyl ester, P 3444*a*.
Stearamide, θ,ι-epoxy-, 8354*b*.
Valeric acid, α-isobutyl-α,γ-dimethyl-, 2-(1-piperidyl)ethyl ester, P 3444*a*.
$C_{35}H_{69}N_3O_2$ 3-Oxazolidinepropionamide, *N*-dodecyl-2-amino-, *and -HCl*, P 252*h*.
$C_{35}H_{70}N_4O_2$ Malonamide, *N*, *N*, *N*′, *N*′-tetraethyl-α-methyl-α-[2-(4-morpholinyl)ethyl], *t* 1797*g*, P 3842*g*.
Oxamide, *N*-butyl-*N*-(1-diethylcarbamylpropyl)-*N*′, *N*′-diethyl, P 6653*t*.
$C_{35}H_{69}N_5$ s-Triazine, 2,4-diamino-6-pentadecyl, P 1814*d*.
$C_{35}H_{69}NaO_3S$ 9-Octadecenyl sodium sulfate, 6915*h*.
$C_{36}H_{72}$ Dodecane, 1-cyclohexyl-, 10*e*.
Octadecene, P 3446*c*, P 3606*b*, 7837*f*, 9111*d*.
$C_{36}H_{76}ClNO_4$ (1,2-Dihydroxypropyl)trimethylammonium chloride, dicaprate, P 5980*b*.
$C_{36}H_{76}I_2N_2O$ 1,1′-(2-Hydroxy-1,3-cyclohexylene)bis[1-methylpiperidinium iodide], 7912*e*.
$C_{36}H_{68}N_2$ Caprylonitrile, α-diamylamino-, 4415*f*.
$C_{36}H_{72}N_2O_2$ Oxamide, tetrabutyl-, P 7258*f*.
$C_{36}H_{72}N_2S_4$ Sulfide, bis(dibutylthiocarbamyl), 5987*a*.
$C_{36}H_{72}N_2S_4$ Disulfide, bis(dibutylthiocarbamyl), 5987*a*.
$C_{36}H_{76}N_2O_8$ Acetaldehyde, (2-methylallylamino)-, di-Me acetal, oxalate, 6974*c*.
$C_{36}H_{76}N_6$ Pyrimidine, 2-amino-4-[bis(3-diethylaminopropyl)amino]-, *and tetra-HCl*, P 4704*h*.
$C_{36}H_{72}O$ Cyclohexanol, 1-dodecyl-, 3366*a*.
Cyclooctadecanol, 6988*h*.
Octadecane, 1,2-epoxy-, P 3446*c*.
7-Octadecanone, 6020*d*.
9-Octadecen-1-ol, 5609*g*, 8027*a*, 8706*i*.
2-Pentadecanone, 6,10,14-trimethyl-, 8369*i*.
$C_{36}H_{70}O_2$ (See also *Stearic acid.*)
1-Octadecanol, 9,10-epoxy-, P 2224*g*, P 3660*f*.
Palmitic acid, Et ester, 567*c*, 3612*a*, 6034*b*, 7940*f*, 8250*h*, 9442*h*.
—, ν-ethyl-, 3780*f*.
Tridecanoic acid, 4,8,12-trimethyl-, Et ester, 1764*d*.
$C_{36}H_{70}O_2S$ Acetic acid, (hexadecylmercapto)-, P 7224*f*, P 8131*b*.
$C_{36}H_{70}O_3$ (See also *Stearic acid, hydroxy-.*)
Acid, m. 100.5–1.0°, 4027*e*.
Cyclohexane, tributoxy-, 6203*d*.
Lanostearic acid, α-hydroxy-, P 3220*ab*.
$C_{36}H_{70}O_3S$ Acetic acid, (hexadecylsulfinyl)-, P 8131*b*.
$C_{36}H_{70}O_4$ See *Stearic acid, dihydroxy-.*
$C_{36}H_{68}O_6$ Aleuritic acid, Et ester, 5369*f*.
Stearic acid, trihydroxy-, 2941*e*, 3357*h*.
$C_{36}H_{68}O_8$ Stearic acid, tetrahydroxy-, 135*g*, 1319*d*.
$C_{36}H_{68}S_2$ Geraniolene, compd. from $H_2S$ and, 1001*b*.
$C_{36}H_{77}Cl_3Si$ Silane, trichlorooctadecyl-, P 9494*t*.
$C_{36}H_{77}N$ Azacyclononadecane, 5400*f*.
Hexadecenylamine, *N*, *N*-dimethyl-, P 8668*c*.
$C_{36}H_{71}NO$ (See also *Stearamide.*)
Acetamide, *N*-hexadecyl-, P 2033*d*.
Capramide, *N*-1,1,3,3-tetramethylbutyl-, 2165*g*.
Myristamide, *N*-*tert*-butyl-, 2165*d*.
Palmitamide, ν-ethyl-, 3780*g*
$C_{36}H_{71}NO_2$ Glycine, hexadecyl ester, 4641*b*.
4-Octene-1,3-diol, 2-amino-, 6267*d*
Palmitamide, *N*-2-hydroxyethyl-, 2274*a*
Sphingosine, 4724*f*, 6267*c*
Stearic acid, amino-, 1319*a*, 2166*f*.
$C_{36}H_{71}NO_3$ Stearamide, θ,ι-dihydroxy-, 8353*e*.
Stearic acid, aminohydroxy-, 1318*g*, 1319*b*, P 2224*g*
$C_{36}H_{72}N_2O_2$ Propionamide, α,α′-(butylimino)bis[*N*, *N*-diethyl-, P 7954*h*.
$C_{36}H_{72}N_2O_4$ Lauramide, *N*-[1,1-bis(2-hydroxyethyl)guanyl]guanyl-, P 4878*t*.
$C_{36}H_{71}NaO_4S$ Octadecyl sodium sulfate, 2263*c*, 7776*i*.
$C_{36}H_{74}$ Decane, 5,6-dibutyl-, 188*f*
Octadecane, 10*e*, 2465*t*, 3254*g*, 4067*e*, 8777*h*.
$C_{36}H_{74}ClNO_2$ Dodecyl(2-hydroxyethyl)dimethylammonium chloride, acetate, 7132*e*
$C_{36}H_{73}Cl_2Si$ Silane, dichlorooctadecyl-, P 8744*a*.
$C_{36}H_{74}N_2O$ Stearic acid, hydrazide, P 5978*t*, P 7729*d*, P 9497*h*.
$C_{36}H_{74}N_2OS$ Urea, 1-(hexadecyloxymethyl)-2-thio-, P 2008*g*.
$C_{36}H_{76}N_2O_2$ Compd., m. 107–8°, 1318*i*.
Stearic acid, diamino-(?), 1318*hi*, 1319*a*.
$C_{36}H_{78}O$ See *Octadecanol.*
$C_{36}H_{72}O_2$ Acetaldehyde, bis(2-ethylhexyl) acetal, P 1434*a*.
$C_{36}H_{70}O_4$ Glyoxal, bis(dibutyl acetal), 4401*g*.
$C_{36}H_{68}O_6$ Acetaldehyde, bis[2-(2-butoxyethoxy)ethyl] acetal, P 1434*a*.
$C_{36}H_{72}O_8$ Acetaldehyde, [ethylenebis(oxyethyleneoxy)]di-, bis(diethyl acetal), 2577*g*.
$C_{36}H_{78}O_{12}S$ Citric acid, tri-Et ester, sulfite, P 4466*h*.
$C_{36}H_{74}S$ 1-Octadecanethiol, 8610*a*.
$C_{36}H_{68}S_4$ 2,5-Hexanedione, bis(dipropyl mercaptol), 564*g*.
$C_{36}H_{76}Cl_2NO$ [2-(2-Chloroethoxy)ethyl]dodecyldimethylammonium chloride, 3885*b*
$C_{36}H_{77}N$ (See also *Octadecylamine.*)
Trihexylamine, P 4003*d*.
$C_{36}H_{78}O_2$ Octadecanediol, amino-, P 2224*t*.
$C_{36}H_{99}O_4P$ Hexyl phosphate, 4915*g*, P 9478*b*.
Phosphoric acid, tris(2-ethylbutyl) ester, 4915*g*.
$C_{36}H_{99}O_7P$ Ethanol, 2-butoxy-, phosphate, 3677*i*, P 9478*b*.
$C_{36}H_{76}ClNO_2$ Dodecyltris(2-hydroxyethyl)ammonium chloride, 6041*b*.
$C_{36}H_{80}N_2O_3$ Dodecyltriethylammonium nitrate, P 6676*b*.
$C_{36}H_{80}O_3Si$ Silane, tris(hexyloxy)-, 9028*c*.
$C_{36}H_{74}HgNO_4S_2$ [2-(Dodecylmercurimercapto)ethyl]trimethylammonium-methyl sulfate, P 6649*b*.
$C_{36}H_{74}N_2$ Dibutylamine, 4,4′-bis(diethylamino)-1,1′-dimethyl-, 1349*h*.
$C_{36}H_{74}Br_2N_2$ Dodecamethylenebis[trimethylammonium bromide], 2703*d*.
$C_{36}H_{72}OSn_2$ Tripropyltin oxide, 7900*a*.
$C_{36}H_{72}O_8$ Oxalic acid, compd. with $Et_2O$, 7409*a*.
$C_{36}H_{72}O_{10}P_2$ 6-Hepten-3-ol, 2,2-dimethyl-, compd. with $H_3PO_4$, 5735*d*.
$C_{36}H_{66}I_2O_4Sn_2$ Diethyltin oxide, complex with dimethyltin diiodide and EtOH, 7900*c*.
$C_{36}H_{82}O_5Si_7$ Heptasiloxane, 1,13-diethoxytetradecamethyl-, P 6221*c*.
$C_{36}H_{84}O_7Si_8$ Octasiloxane, octadecamethyl-, 4067*df*, P 4402*f*.
$C_{36}H_8N_8O_{16}$ 2,5-Cyclohexadien-1-one, 4-(4,4′-dihydroxy-3,3′,5,5′-tetranitrobenzhydrylidene)-2,6-dinitro-(?), 2982*c*.
$C_{20}H_9NO_2$ Benz[*a*]anthracene-3-carbonitrile, 7,12-dihydro-7,12-dioxo-, 2986*b*.
$C_{20}H_{10}BrN_3$ Dibenzo[*f*,*h*]pyrido[2,3-*b*]quinoxaline, 12-bromo-, 1425*f*.
$C_{20}H_{10}Br_4O_5S$ See *Bromophenol blue.*
$C_{20}H_{10}Cl_2N_2O_2$ Phenanthridine, 2-chloro-6-(*p*-chlorophenyl)-8-nitro-, 7446*c*.
$C_{20}H_{10}F_6$ Methane, tris(2,5-difluorophenyl)-, 9054*i*.
$C_{20}H_{10}O_4$ Benz[*a*]anthracene-3-carboxylic acid, 7,12-dihydro-7,12-dioxo-, 2986*b*.
$C_{20}H_{10}O_6$ 7*H*-Benz[*de*]anthracenedicarboxylic acid, 7-oxo-, P 6426*i*, P 6427*a*.
$C_{20}H_{11}Cl_2NO$ Acridine, 3,6-dichloro-9-phenoxy-, 6633*h*.
$C_{20}H_{11}Cl_2NO_3S$ Benzenesulfonic acid, 4,5-dichloro-2-(3-dibenzofurylcarbonylamino)-, P 857*e*.
$C_{20}H_{11}Cl_4NO_3S$ Benzenesulfonic acid, 4,5-dichloro-2-[3-chloro-4-(*p*-chlorophenoxy)benzamido]-, P 857*d*.
Benzenesulfonic acid, 4,5-dichloro-2-[*p*-(2,4-dichlorophenoxy)benzamido]-, *Na salt*, P 685*a*.
$C_{20}H_{11}ClN_2O_2$ Phenanthridine, 6-(*p*-chlorophenyl)-8-nitro-, P 5051*b*, 7446*b*.
$C_{20}H_{11}FO_3$ 1,2-Naphthalenedicarboxylic anhydride, 4-(*p*-fluorophenyl)-7-methyl-, 8885*f*.
1,2-Naphthalenedicarboxylic anhydride, 7-fluoro-4-*p*-tolyl-, 206*h*.
$C_{20}H_{11}N$ Benz[*a*]anthracenecarbonitrile, 2986*b*, 8375*b*.
$C_{20}H_{11}NO_3S$ 1-Naphthol-8-sulfonic acid, 4-phthalimidomethyl-, sultone, 204*i*.
$C_{20}H_{11}N_3O_4$ Phenanthridine, 3,8-dinitro-6-phenyl-, P 5051*b*, 7446*c*.
Phenanthridine, 8-nitro-6-(*p*-nitrophenyl)-, P 5051*b*, 7446*c*.
$C_{20}H_{11}N_3O_5$ 2-Naphthaleneacrylic acid, β,1-dihydroxy-α-*p*-nitrophenylazo-, δ-lactone, 3415*d*.
$C_{20}H_{12}BrClN_2$ Quinoline, 2-(6-bromo-2-naphthylamino)-4-chloro-, P 7974*b*.
$C_{20}H_{12}BrN_3$ Pyrido[2,3]pyrazine, 7-bromo-2,3-diphenyl-, 1425*f*.
$C_{20}H_{12}Br_2O_3$ Acrylonaphthone, bromo-β-(5-bromo-2-hydroxyphenyl)hydroxy-, 5380*ab*, 5446*e*.
$C_{20}H_{12}Cl_2N_2$ Benzo[*h*]quinoline, 4-chloro-2-*p*-chloroanilino-, P 7974*b*.
$C_{20}H_{12}Cl_2O_3S$ *o*-Terphenyl-4-carbonyl chloride, (chlorosulfonyl)-, 4656*a*.
$C_{20}H_{12}Cl_2NO_3S$ Benzenesulfonic acid, 4,5-dichloro-2-[*p*-(*o*-chlorophenoxy)-benzamido]-, P 814*c*.
$C_{20}H_{12}Cl_4N_2O_5S$ Benzenesulfonic acid, 5-chloro-2-[4-chloro-2-[3-(3,4-dichlorophenyl)ureido]phenoxy]-, *Na salt*, 7186*d*, 8089*d*.
$C_{20}H_{12}N_2O_2$ 2,6′-Biquinoline-4-carboxylic acid, 3000*f*.
Phenanthridine, 6-(*p*-nitrophenyl)-, P 5051*a*, 7446*b*.
$C_{20}H_{13}N_3O_3$ Aniline, nitro-*N*-9-xanthylidene-, 7022*a*.
$C_{20}H_{12}N_2O_4$ Acetamide, *N*-(2-nitro-7-oxo-7*H*-benz[*de*]anthracen-3-yl)-, 210*a*.
Benzoic acid, *o*-(3,8-dihydro-8-oxoindeno-[1,2]imidazol-2-ylcarbonyl)-, Me ester, 7012*h*.
$C_{20}H_{12}N_2O_4S_2$ Benzenesulfonamide, *p*-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-*N*-2-thiazolyl-, 1380*g*.
$C_{20}H_{13}N_3O_6$ 6-Quinolinol, 5,5′-methylenebis[8-nitro-(?), 1414*d*.
$C_{20}H_{12}O$ 1*H*-Benzonaphthen-1-one, 3-phenyl-, 7472*e*.
$C_{20}H_{12}O_2$ Benz[*a*]anthracene-3-carboxylic acid, 2986*b*.
Benz[*a*]anthracene-7,12-dione, methyl-, 8375*e*.
7*H*-Benz[*de*]anthracen-7-one, 3-acetyl-, P 868*d*, 3402*d*.

7,8-Benzoflavone, 6356*e*.
$C_{19}H_{12}O_2S$ 9 - Fluorenone, 2 - (methyl - 2-thenoyl)-, 4666*ef*.
$C_{19}H_{12}O_3$ 1,2-Naphthalenedicarboxylic anhydride, 4-*p*-tolyl-, 8885*f*.
$C_{19}H_{12}O_4$ 1-Naphthaleneacetic acid, 3-carboxy - 2 - hydroxy - α - phenyl-, lactone, 2496*e*.
1,2-Naphthalenedicarboxylic anhydride, 7-methoxy-4-phenyl-, 8885*f*.
$C_{19}H_{12}O_6$ See *Coumarin, 3,3'-methylenebis-[4-hydroxy-*.
$C_{19}H_{12}O_7$ Coumarilic acid, 3-(2,3,4-trihydroxyphenyl)-, δ-lactone, diacetate, 1771*g*.
$C_{19}H_{12}O_8$ 2-Anthraquinonecarboxylic acid, 4,5-dihydroxy-, diacetate, 3062*g*.
$C_{19}H_{12}S$ 6*H*-Benz[4,5]indeno[1,2-*c*]thianaphthene, 2982*a*.
$C_{19}H_{13}BrO_2$ 2-Acrylonaphthone, 4-bromo-1-hydroxy-β-phenyl-, 5446*e*.
$C_{19}H_{13}BrO_3$ 2-Acrylonaphthone, 4-bromo-1-hydroxy-β-(o-hydroxyphenyl)-, 5380*a*, 5446*e*.
Acrylonaphthone, β-(5-bromo-2-hydroxyphenyl)hydroxy-, 5380*ab*, 5446*e*.
$C_{19}H_{13}Cl$ Benz[*a*]anthracene, 7-(chloromethyl)-, 621*a*.
$C_{19}H_{13}ClN_2$ Quinoline, 4-chloro-2 (2-naphthylamino)-, P 7974*b*.
$C_{19}H_{13}ClN_2O$ Benzonitrile, *p*-[2-(4-chloro-6-methoxy-2-quinolyl)vinyl]-, 5757*b*.
$C_{19}H_{13}ClN_2O_6$ 1-Naphthalenemethanol, 4-chloro - α - methyl-, 3,5 - dinitrobenzoate, 3813*a*.
$C_{19}H_{13}ClN_4$ 2 - Phenylbenzo[*c*]tetrazolo[2,3-*a*]cinnol-4-inium chloride, 5314*a*
$C_{19}H_{13}ClO$ Benzophenone, 2-chloro 4'-phenyl-, 7007*d*.
Ketone, 5-acenaphthenyl o-chlorophenyl, 7007*d*.
$C_{19}H_{13}ClO_4$ 1,4-Naphthoquinone, 2-*p* chlorobenzyl-3-hydroxy-, acetate, 1379*h*.
$C_{19}H_{13}Cl_2NO_3S$ Cinnamamide, 3,4-dichloro-*N*-(2-naphthylsulfonyl)-, P 7963*c*.
$C_{19}H_{13}Cl_2NO_4$ 1-Naphthalenemethanol, 5,8 dichloro - α - methyl, *p*-nitrobenzoate, 3813*e*.
$C_{19}H_{13}Cl_2NO_3S$ Benzenesulfonic acid, 4,5 dichloro - 2 - *p* - phenoxybenzamido, P 857*d*.
$C_{19}H_{13}Cl_2N_5O_7$ Benzamidine, 2,4-dichloro-*N*-phenyl-, picrate, 7444*e*
Formamidine, *N, N'* bis(chlorophenyl)-, picrate, 5757*i*.
$C_{19}H_{13}Cl_3$ Methane, (*o* chlorophenyl)bis(*p*-chlorophenyl)-, P 9358*b*.
$C_{19}H_{13}Cl_3O$ Methanol, tris(*p*-chlorophenyl)-, 2359*h*.
$C_{19}H_{13}F_3$ Methane, tris(fluorophenyl) , 9054*i*
$C_{19}H_{13}F_3O_3$ 1,4-Naphthoquinone, 2-hydroxy-3 - [*m* - (trifluoromethyl)phenethyl]-, 1380*a*, 2610*b*.
$C_{19}H_{13}N$ Acridine, 9 phenyl , 4622*d*.
Phenanthridine, 6-phenyl-, 649*a*, P 5051*b*, 7446*h*.
$C_{19}H_{13}NO$ 1-Naphthol, 2-(2-quinolyl) , 8386*g*
$C_{19}H_{13}NO_2$ Acetamide, *N*-(7-oxo-7*H*-benz[*de*]anthracenyl) , 210*a*, 1759*i*, 1760*i*
7,8-Benzoflavone, 6-amino-, 5778*i*
1,3(2*H*,4*H*)-Isoquinolinedione, 2-(2-naphthyl)-, 229*c*.
4,6 - Quinolinediol, 2 - (2 - naphthyl) , 3002*g*.
$C_{19}H_{13}NO_2S$ Benzoquinolinecarboxylic acid, (methyl-2-thienyl)-, 4666*g*.
$C_{19}H_{13}NO_3$ 1,3 - Isochromandione, 4-(2 - methyl - 4(1*H*) - quinolylidene)-, 229*b*.
$C_{19}H_{13}NO_3S$ 1,2-Benzisothiazol-3(2*H*) - one, 6 - (2 - biphenylyl)-, 1,1 - dioxide, 4655*g*.
o-Terphenyl-3-sulfonic acid, 4 cyano-, *Na salt*, 4655*g*.
$C_{19}H_{13}NO_5$ 2-Acetonaphthone, 1-hydroxy-4-nitro-, benzoate, 5779*a*.
2-Indolecarboxylic acid, 1-acetyl-3-(2,4-dihydroxyphenyl)-, δ-lactone, acetate, 1772*b*.
$C_{19}H_{13}NO_6$ Isophthalic acid, 5-(1-hydroxy-2-naphthoylamino)-, 7232*b*.
Phthalic acid, 3-nitro-, 1-naphthylmethyl ester, 5767*d*.
$C_{19}H_{13}NO_6S_2$ Protocatechualdehyde, 6-nitro-, dibenzenesulfonate, 627*h*.
$C_{19}H_{13}N_3O_2$ Acridine, 9-nitroanilino-, 649*c*.
$C_{19}H_{13}N_3O_5S$ Benzenesulfonamide, *p*-phthalimido-*N*-2-pyridyl-, P 1061*b*.
$C_{19}H_{13}N_3O_6$ Benzamide, *N, N*-bis(*m*-nitrophenyl)-, 169*c*.
$C_{19}H_{13}N_3O_6$ Acenaphthylene, 1-methyl-, trinitrobenzene compd., 1389*b*.
$C_{19}H_{13}N_3O_6S$ Aniline, *N*-*m*-nitrobenzylidene-*p*-(*p*-nitrophenylsulfonyl)-, 2592*i*.
$C_{19}H_{13}N_3O_7$ Acenaphthylene, 1-methyl-, picrate, 1389*b*.
$C_{19}H_{13}N_3O_7S$ Salicylic acid, [*p*-(*p*-nitrophenylsulfonyl)phenylazo]-, P 4818*b*.
$C_{19}H_{13}N_7O_{13}$ 1 - (2,4,6 - Trinitrophenethyl)-pyridinium picrate, 1733*h*.
$C_{19}H_{13}PO_3$ Coumarin, 3,3'-methylenebis[4-hydroxy-, monophosphate, P 7050*f*.
$C_{19}H_{14}$ Benz[*a*]anthracene, methyl-, 8375*ab*.
Benzo[*c*]phenanthrene, 6 - methyl-, 8375*b*.
Naphthacene, 5-methyl-, 8377*c*.
$C_{19}H_{14}BrN_3O_7$ Benzamidine, *N*-(*p*-bromophenyl)-, picrate, 7444*d*.
$C_{19}H_{14}ClIN_4$ 3 - (*p* - fodophenyl) - 2,5 - diphenyl - 2*H* - tetrazolium chloride, 8060*h*.
$C_{19}H_{14}ClNO_4$ 1-Naphthaleneethanol, chloro-, *p*-nitrobenzoate, 3813*bd*.
1 - Naphthalenemethanol, 7 - chloro - α-methyl-, *p*-nitrobenzoate, 3813*c*.
$C_{19}H_{14}ClN_3O_2$ Benzamidine, *p*-chloro-*N*-(4'-nitro-2-biphenylyl)-, P 5051*d*, 7445*g*.
$C_{19}H_{14}ClN_5O_7$ Benzamidine, *o*-chloro-*N*-phenyl-, picrate, 7444*c*.
$C_{19}H_{14}Cl_2N_2O_3S$ Sulfanilanilide, 3',5'-dichloro-*N*⁴-salicylidene-, 4648*i*.
$C_{19}H_{14}Cl_2O_2$ Phenol, 2,2'-benzylidenebis-[4-chloro-], 8614*i*.
$C_{19}H_{14}CuN_4O$ Phenol, *o*-(α-phenylhydrazonobenzylazo)-, Cu complex, 6589*e*.
$C_{19}H_{14}N_2O$ Benz[*b*]acridine, 12-acetamido-, 1419*a*.
Benz[*g*]indolo[2,3-*a*]quinolizinone, dihydro-, 7490*h*.
1-Indolecarboxamide, *N*-1-naphthyl-, 8365*f*.
$C_{19}H_{14}N_2OS$ Naphtho[2.1]thiazol-8-ol, 2-methyl - 9 - (phenyliminomethyl)-, P 8692*g*.
10-Phenothiazinecarboxamilide, 8365*h*.
$C_{19}H_{14}N_2O_2$ 1,3-Dioxolo[*g*]isoquinoline, 7,8-dihydro - 5 - (quinolyl)-, *and salts*, 1421*f*, 1422*ce*.
9 - Fluorenamine, 2 nitro - *N* - phenyl , 2981*gh*.
1,3(2*H*,4*H*)-Isoquinolinedione, 4-(2-methyl - 4(1*H*) - quinolylidene)-, 229*c*.
5(4*H*) - Isoxazolone, 1 - (2 - methyl-4(1*H*) - quinolylidene) - 3 - phenyl , 229*b*.
Phthalimidine, reaction product with 1-naphthyl isocyanate, 8365*h*.
Pyridine, 2 (dibenzoylamino)-, 4274*c*.
6 - Quinolinol, 5,5' - methylenedi-, *and salts*, 1413*i*
$C_{19}H_{14}N_2O_2S$ *o*-Terphenyl-3 sulfonamide, 4-cyano-, 4655*g*.
$C_{19}H_{14}N_2O_3$ Benzo[*a*]phenazin-5(6*H*)-one, 6-hydroxy-6-methyl-, acetate, 6192*a*, 7009*h*.
Strychninone, dehydro-, 6637*c*.
$C_{19}H_{14}N_2O_4S$ Aniline, *N*-benzylidene-*p*-(*p*-nitrophenylsulfonyl) , 2592*g*.
$C_{19}H_{14}N_2O_5S$ *o* Cresol, α-[*p*-(*p*-nitrophenylsulfonyl)phenylimino]-, 2592*i*.
$C_{19}H_{14}N_4O_4S_2$ Benzaldehyde, hydroxy-, bis(nitrophenyl) mercaptal, 6179*f*.
$C_{19}H_{14}N_2O_5S$ Benzoic acid, *o*-(4-acetyl-1-hydroxy - 8 - sulfo - 2 - naphthylazo)-, P 8147*g*.
$C_{19}H_{14}N_2O_8S_2$ 1*H*-Benz[*de*]isoquinolinedisulfonic acid, 6-amino-2 benzyl-2,3-dihydro-1,3-dioxo-, P 7710*h*.
1*H* - Benz[*de*]isoquinolinedisulfonic acid, 6 - amino - 2,3 - dihydro - 1,3 - dioxo-2-*p*-tolyl-, P 7710*g*.
$C_{19}H_{14}N_2S$ Thiazole, 2-(2-naphthylamino)-4-phenyl-, 3819*g*.
$C_{19}H_{14}N_4$ Pyrido[2,3]pyrazine, 6-amino-2,3-diphenyl-, 1425*f*.
$C_{19}H_{14}N_4NiO$ Phenol, *o*-(α phenylhydrazonobenzylazo)-, Ni complex, 6589*f*.
$C_{19}H_{14}N_4O$ Urea, 1,3-di 6-quinolyl-, 7025*f*
$C_{19}H_{14}N_4O_4$ Benzamidine, *N*-(4,4'-dinitro-2-biphenylyl)-, P 5051*c*, 7445*h*.
Benzamidine, *p* - nitro - *N* - (4' - nitro-2-biphenylyl)-, P 5051*c*, 7445*g*.
$C_{19}H_{14}N_4O_6$ *p*-Toluic acid, 3,5-dinitro-, 2 - naphthylmethylenehydrazide, 6972*f*.
$C_{19}H_{14}N_4O_9$ Benzoic acid, *o*-pyridyl-, Me ester, picrate, 3394*i*.
$C_{19}H_{14}N_4O_{13}$ 2-Pentanone, 1,5-dihydroxy-, bis(3,5-dinitrobenzoate), 9061*a*.
$C_{19}H_{14}N_6O_2$ 2-*s*-Triazinol, 4-amino-6-[*p*-(2-hydroxy - 1 - naphthylazo)phenyl]-, P 7711*b*.
$C_{19}H_{14}N_6O_6$ Benzamidine, *N*-(*o*-nitrophenyl)-, picrate, P 3456*i*.
$C_{19}H_{14}O$ 7*H*-Benzo[*c*]fluoren-7-one, 8,10-dimethyl-, 3396*b*.
Chrysene, 1-methoxy-, 9207*h*.
2,4 - Cyclohexadien - 1 - one, 6 - benzhydrylidene-, 3292*e*.
Fuchsone, 8683*g*, 9451*c*.
$C_{19}H_{14}OS$ Ketone, 2-fluorenyl methyl-2-thienyl, 4666*df*.
4(5*H*) - Thianaphthenone, 6,7 - dihydro - 5 - (1 - naphthylmethylene)-, 2981*i*.
$C_{19}H_{14}O_2$ (See also *Benzaurin*.)
2 - Acrylonaphthone, 1 - hydroxy - β-phenyl-, 5446*e*.
Acrylophenone, β - 2 - furyl - *p* - phenyl-, 3429*g*.
1-Fluoranthenecarboxylic acid, Et ester, 7014*f*.
Naphthaleneacrylic acid, phenyl-, 1756*i*, 7472*d*.
1(2*H*) - Phenanthrone, 2 - furfurylidene-3,4-dihydro-, 3429*g*.
o-Terphenyl-4-carboxylic acid, 4655*i*.
$C_{19}H_{14}O_3$ 2-Acrylonaphthone, 1-hydroxy β-(*o*-hydroxyphenyl)-, 5379*i*, 5446*e*.
Aurin, 5771*e*, 9451*c*; *and - HCl*, 5772*b*.
5,6-Benzoflavanone, 2'-hydroxy-, 5380*i*.
1,3 - Propanedione, 1 - (1 - hydroxy - 2-naphthyl)-3-phenyl-, 5778*f*.
Salicylic acid, 4-biphenylyl ester, P 7265*i*.
Toluic acid, (2-naphthoyl)-, 8375*g*.
$C_{19}H_{14}O_4$ 1,4-Naphthoquinone, 2-hydrocinnamoyl-3-hydroxy-, 2610*c*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-(*p*-methylphenacyl)-, 1387*e*.
$C_{19}H_{14}O_5$ 5*H* - Furo[3,2 - *g*][1]benzopyran-5 - one, 4,9 - dimethoxy - 7 - phenyl , 7481*d*.
1-Naphthaleneacetic acid, 3-carboxy-2 hydroxy-α phenyl-, *Na salt*, 2496*e*
Vulpinic acid, 5445*g*.
$C_{19}H_{14}O_6S$ (See also *Phenolsulfonephthalein*.)
1 - Naphthol - 8 - sulfonic acid, 4 - (hydroxybenzyl)-, sultone, acetate, 2011*i*.
o-Terphenyl-4-carboxylic acid, sulfo-, 4656*a*.
$C_{19}H_{14}O_6$ Flavone, dihydroxy-, diacetate, 6440*c*, 1407*g*
Ulmic acid, 1942*c*
$C_{19}H_{14}O_6S$ 2,5-Cresotic acid, α (4-hydroxy-sulfo - 1 - naphthyl)-, Me ester, sultone, 2048
$C_{19}H_{14}O_8$ 2-Biphenylcarboxylic acid, 2',4,4',6'-tetrahydroxy- , δ lactone, tri acetate, 5023*i*.
$C_{19}H_{15}$ See *Triphenylmethyl*
$C_{19}H_{15}AsN_4O_6$ Arsinic acid, (*m*-formylphenyl)phenyl , 2,4-dinitrophenyl hydrazone, 3382*h*
$C_{19}H_{15}BrN_2S$ Quinaldine, α-[3-(2-bromoethyl)benzothiazolinylidene]-, P 7845*d*.
$C_{19}H_{15}BrO_2$ 1-Naphthol, 2-bromo-4-methyl-3 phenyl-, acetate, 8372*f*
$C_{19}H_{15}BrO_3$ 1,4-Naphthoquinone, 2-[3-(*p* bromophenyl)propyl] - 3 - hydroxy-, 1379*i*.
$C_{19}H_{15}Cl$ Methane, chlorotriphenyl-, 2876*a*, 6896*c*, 7430*c*, 7431*c*.
$C_{19}H_{15}ClN_2$ Benzamidine, *N*-(chlorophenyl)-*N'* phenyl-, 2594*b*.
$C_{19}H_{15}ClN_2O_3$ Allophanic acid, γ-naphthyl-, chlorotolyl ester, 7447*dg*.
$C_{19}H_{15}ClN_4$ 2,3,5 - Triphenyl - 2*H* - tetrazolium chloride, 2290*c*, 5313*f*, 5813*c*, 6281*i*, 7593*b*, 8406*i*, 8440*h*, 9175*a*.
$C_{19}H_{15}ClN_4O_2$ Pyrimidine, 2-chloro 4 *N* methylanilino - 5 - nitro - 6 - styryl-, 651*a*.
$C_{19}H_{15}ClN_4O_7$ Phenanthridine, 2-chloro 7,8,9,10-tetrahydro-, picrate, 1779*a*
$C_{19}H_{15}ClO_3$ 1,4-Naphthoquinone, 2 - (4-chloro - 3 - methylphenethyl) - 3-hydroxy-, 1380*a*.
1,4 - Naphthoquinone, 2 - [3 - (*p* chlorophenyl)propyl] - 3 - hydroxy-, 1109*c*, 1379*i*, 2610*b*.
$C_{19}H_{15}Cl_2N_3O_3S$ Benzoic acid, 3,5-diamino-2 - [*p* - (3,5 - dichlorophenylsulfamyl)-phenylazo]-, 4648*i*.
$C_{19}H_{15}F$ Methane, fluorotriphenyl-, 5377*c*.
$C_{19}H_{15}FO_3$ 1,4-Naphthoquinone, 2-[3-(*p*-fluorophenyl)propyl] - 3 - hydroxy-, 1109*c*, 1379*i*.
$C_{19}H_{15}IN_2O$ Carbanilide, 3-iodo-4'-phenyl-, 7448*a*.
9*H* - Pyrido[3,4 - *b*]indole, 9 - benzoyl-2-methiodide, 6627*e*.
$C_{19}H_{15}IN_2S$ 14,15 - Dihydrobenzothiazolo[3,2-*d*]quino[2,1-*g*][1,4]diazep - 16-ium iodide, P 7845*e*.
$C_{19}H_{16}O_3$ 1,4-Naphthoquinone, 2-hydroxy-

3 - [3 - (*p* - iodophenyl)propyl]-, 1879*i*.

$C_{19}H_{15}N$ Benz[*c*]acridine, 7,10-dimethyl-, 6742*h*.
Carbazole, 9-benzyl-, 3819*d*.

$C_{19}H_{15}NO$ *o* - Terphenyl - 4 - carboxamide, 4656*a*.

$C_{19}H_{15}NO_2$ Carbamic acid, diphenyl-, Ph ester, 7912*d*.
1-Fluoranthenecarbamic acid, Et ester, 7014*f*.

$C_{19}H_{15}NO_3$ Methanol, (nitrophenyl)diphenyl-, 7005*f*.

$C_{19}H_{15}NO_3S$ Benzophenone, oxime, benzenesulfonate, 2593*i*.
Cinnamamide, *N* - (2 - naphthylsulfonyl)-, P 8622*c*.

$C_{19}H_{15}NO_4$ 2-Naphthamide, *N*-benzodioxan-6-yl-3-hydroxy-, P 8151*i*.
1-Naphthoic acid, 4-hydroxy-, Me ester, carbanilate, 593*f*.
Quinaldic acid, 3-acetyl-1-benzoyl-1,2-dihydro-, 1412*b*.

$C_{19}H_{15}NO_4S$ 1-Naphthol-8-sulfonic acid, 4-(ethylphenylcarbamyl)-, sultone, 204*a*.

$C_{19}H_{15}NO_5$ Anisic acid, 3-(1-hydroxy-2-naphthoylamino)-, 7232*b*.
Benzoic acid, *o* - [2 - (*m* - 1,3 - dioxol - 2-ylphenylcarbamyl) - 1 - hydroxyvinyl]-, lactone, P 7850*b*.

$C_{19}H_{16}N_2$ Acridine, 2-amino-9-(*p*-aminophenyl)-, 3066*c*.

$C_{19}H_{16}N_4O$ 5-Pyrazolone, 3-methyl-1-phenyl-4 (2-quinolyl)-, 8386*g*.

$C_{19}H_{17}N_3O_2$ Benzamidine, *N*-2-biphenylyl-*p*-nitro-, *and* - *HCl*, P 5051*c*, 7445*g*.
Oxamic acid, *N*-naphthyl-, benzylidenehydrazide, 6973*h*.

$C_{19}H_{18}N_2O_3$ Benzanilide, 2-anilino-4-nitro-, 648*f*.
Benzoic acid, *p*-nitro-, 2-ethylidene-1-(1-naphthyl)hydrazide, 1346*a*.
Oxamic acid, *N*-naphthyl-, hydroxybenzylidenehydrazide, 6973*h*, 6974*a*.
Salicylic acid, 5-(4'-amino-4-biphenylylazo) , P 4473*d*, P 4486*h*.
Strychnone, dehydro-, oxime, 6637*h*.

$C_{19}H_{19}N_3O_4$ Hydrazine, 2-acetyl-1-(1-naphthyl) , 1-*p*-nitrobenzoyl-, 1346*d*.

$C_{19}H_{19}N_3O_3S$ Aniline, *N*-*m*-nitrobenzylidene-*p*,*p*'-sulfonyldi- , 2592*i*.

$C_{19}H_{19}NO_5S$ Phthalamic acid, 4'-(2-pyridylsulfamyl)-, P 1061*b*, P 7961*i*, P 7962*a*.

$C_{19}H_{20}N_2O_4$ Acenaphthene, 1 methyl-, trinitrobenzene compd., 1389*c*.

$C_{19}H_{20}N_2O_5S$ Benzenesulfonamide, *p*-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl) - *N* - guanyl-, acetate, 1380*c*.

$C_{19}H_{20}N_2O_7$ Acenaphthene, 1-methyl-, picrate, 1389*c*

$C_{19}H_{20}N_2O_8$ Resorcinol, 4-[4-(*p*-nitrophenylazo) *o* tolylazo]-, 597*c*.

$C_{19}H_{20}N_2O_5$ Salicylic acid, 5-[*p*-(5-amino-2,4-dihydroxyphenylazo)phenylazo]-, P 1480*c*

$C_{19}H_{21}N_3O$ Benzamidine, *N*-phenyl-, picrate, 2594*a*.

$C_{19}H_{21}N_3O_8$ Phenanthridine, 7,8,9,10 - tetrahydro 2 nitro-, picrate, 1779*a*.

$C_{19}H_{23}Na$ Sodium, triphenylmethyl-, 559*g*, 2621*a*, 7173*a*.

$C_{19}H_{24}$ (See also *Methane, triphenyl-*.)
Fluoranthene, 1,2,3 - trimethyl-, 3401*k*, 9059*c*.

$C_{19}H_{25}BrNO$ Ketone, bromomethyl 6,7 - dimethyl - 2 - phenyl - 4 - quinolyl, 1675*c*.

$C_{19}H_{25}BrNO_2$ 1-Benzyl-3-carboxypyridinium bromide, phenyl ester, 6317*h*.

$C_{19}H_{25}BrNO_3$ Cinchophen, 6-bromo-4'-ethoxy 3' methyl-, 3825*g*.
Cinchophen, 6 - bromo - 4' - methoxydimethyl , 3825*gh*, 7925*a*.

$C_{19}H_{25}Br_2N_3O_2$ Benzonitrile, 4,4'-(pentamethylenedioxy)bis[3-bromo-, 9048*g*.

$C_{19}H_{25}ClNO_2$ Benzyl alcohol, *p*-chloro-*α*-methyl-, 1-naphthalenecarbamate, 6992*a*.
1 (Carboxymethyl)pyridinium chloride, 4 biphenylyl ester, 6977*e*.
1 - Naphthaleneethanol, chloro-, carbanilate, 3813*bd*.
1 Naphthalenemethanol, 7 - chloro - *α*-methyl , carbanilate, 3813*c*.
2 Naphthanilide, 4' - chloro - 2' - ethyl-3 hydroxy-, P 8155*f*.

$C_{19}H_{25}ClN_4O_6$ Compd. sintering about 310°, 1032*b*

$C_{19}H_{25}ClN_4O_7$ 1,2-Propanedi..., 3-[5-(5-chloro 2 hydroxy - 3 - nitrophenylazo)-6 hydroxy-2-naphthoxy]-, P 7698*a*.

$C_{19}H_{25}Cl_2N_3O_2$ Benzonitrile, 4,4'-(pentamethylenedioxy)bis[3-chloro-, 9048*g*.

$C_{19}H_{25}Cl_2N_3O_2S$ Benzamidine, 2,4-dichloro-*N*-phenyl-, benzenesulfonate, 7444*e*.

$C_{19}H_{25}I_2N_3O_2$ Benzonitrile, 4,4'-(pentamethylenedioxy)bis[3-iodo-, 9048*h*.

$C_{19}H_{25}N_3$ Benzamidine, *N*-2-biphenylyl-, P 5051*c*; *and* - *HCl*, 7445*g*.
Benzamidine, *N*,*N*'-diphenyl-, 2594*b*, 2595*e*, 6082*a*; *and* - *HCl*, 7445*c*.
Benz[*g*]indolo[2,3-*a*]quinolizine, 1,2,3,4-tetrahydro-, 3016*e*.
Benzophenone, phenylhydrazone, 1026*i*, 8727*i*.
Carbazole, 9-(anilinomethyl)-, 3819*e*.
Sempervirine, 3016*e*, 7194*d*.
Yobyrine, 648*f*, 5406*f*, 7194*d*.

$C_{19}H_{15}N_3O$ Benzanilide, 4'-(*p*-aminophenyl)-, P 1575*d*.
Benzanilide, 2'-anilino , 3810*a*.
Nicotinamide, *N*-benzhydryl-, P 8620*e*.
Quinaldine, 6-acetamido-*α*-benzylidene-, 3427*g*.

$C_{19}H_{16}N_2OS$ 3-Benzothiazolineethanol, 2-(2 quinolylmethylene)-, *and* - *HBr*, P 7845*d*.

$C_{19}H_{16}N_2O_2$ 1,3-Dioxolo[*g*]isoquinoline, 5,6,-7,8 - tetrahydro - 5 - (quinolyl)-, 1421*g*, 1422*cf*.
Ketone, 2-methoxy-11-methyl-6 *H*-quinindol-6-yl methyl, 230*d*.
Phthalimide, *N*-[2-(1-methyl-3-indolyl)-ethyl]-, 3405*e*.
2-Propionaphthone, 1-hydroxy-4-phenylazo-, 7010*e*.

$C_{19}H_{17}N_2O_2S$ Aniline, *N*-benzylidene-*p*,*p*-sulfonyldi-, 2592*h*.

$C_{19}H_{16}N_2O_2S_3$ $\Delta^{3,\alpha}$-Benzothiazolineacetic acid, *α*-2-benzothiazolyl- 3 - methyl - , Et ester, 8292*c*.

$C_{19}H_{16}N_2O_3$ Allophanic acid, *γ*-naphthyl-, tolyl ester, 7447*dj*.
Cinchoninamide, *N*-homopiperonyl-, *and* - *HCl*, 1421*e*
Ketone, 8,9-dimethoxy-6 *H*-quinindol-6-yl methyl, 230*d*
Pyridine, 2-benzamido-, benzoate, 4274*c*
Quinolinecarboxamide, *N* - homopiperonyl , *and* - *HCl*, 1422*be*.
Strychninolone, dehydro-, 6637*c*.

$C_{19}H_{16}N_2O_3S$ *o*-Cresol, *α* - (*p* - sulfanilylphenylimino)-, 2592*i*.
Ketone, phenyl 2-pyridyl, oxime, *O*-*p*-toluenesulfonate, 1409*b*.
*o* - Terphenyl - 4 - carboxamide, sulfamyl-, 4656*a*.

$C_{19}H_{16}N_2O_4$ Acetamide, *N*, *N*'-[5-(4-oxo-1,-4 *H* - benzopyran - 2 - yl) - *m* - phenylene]bis-, 2621*f*.
Allophanic acid, *γ*-naphthyl-, methoxyphenyl ester, 7447*eg*.

$C_{19}H_{16}N_2O_5$ Alanine, *β*-phenyl-*N*-(phthalimidoacetyl)-, 8356*i*.
3,4-Furandicarbamic acid, 2-methyl-, diphenyl ester, P 1442*b*, P 5805*h*.

$C_{19}H_{16}N_2O_6S_2$ Dibenzenesulfonamide, *N*-(nitrotolyl) , 1426*f*.

$C_{19}H_{16}N_2O_7$ Benzoic acid, *p*,*p*'-[(2-oxotrimethylene) bis(formylimino)]di-, 5404*b*.

$C_{19}H_{16}N_2S_2Se$ Benzothiazole, 2 - [3 - (3 - ethyl-2 - benzoselenazolinylidene)propenyl]-, 8291*i*.

$C_{19}H_{16}N_2S_2$ Benzothiazoline, 2 [3-(2-benzothiazolyl)allylidene]-3-ethyl-, 8291*h*.

$C_{19}H_{16}N_4$ Toluene, *α*-phenylazo-*α*-phenylhydrazono-, 59*c*, 5313*f*.

$C_{19}H_{16}N_4O$ Phenol, *o*-(*α* phenylhydrazonobenzylazo)-, 6589*d*.

$C_{19}H_{16}N_4O_5$ 2-Propanone, 1-hydroxy-3-(2-naphthyl) , 2,4 - dinitrophenylhydrazone, 4659*b*.

$C_{19}H_{16}N_4O_6$ Benzonitrile, 3,3'-(pentamethylenedioxy)bis[3-nitro , 9048*h*.

$C_{19}H_{16}N_4O_6S$ Acetanilide, *p*-(8-acetamido-5-nitro-6 quinolylsulfonyl)-, 8389*d*.

$C_{19}H_{16}N_4O_7$ 7,8,9,10 - Tetrahydrobenzo[*b*] quinolizinium picrate, 3016*g*.

$C_{19}H_{18}N_4O_8$ 2-Butanone, 1-(2-quinolyl)-, picrate, 7022*e*.
Chromone, 3-acetyl-6,7-dimethoxy-, 2,4-dinitrophenylhydrazone, 7461*f*.
Coumarin, 3-acetyl-6,7-dimethoxy-, 2,4-dinitrophenylhydrazone, 7460*s*.
4 - Picoline, 2 - (benzyloxy)-, picrate, 2997*h*.

$C_{19}H_{18}N_4O_8S_2$ + $1.5H_2O$ 2,6-Pyridinedicarboxylic acid, 1,4-dihydro-1-*p*-sulfamylphenyl-4-sulfanilylimino-, 2597*g*.

$C_{19}H_{18}N_4O_9S$ 1 - (2,4,6 - Trinitrophenethyl)-pyridinium benzenesulfonate, 1733*h*.

$C_{19}H_{18}N_6$ Pteridine, 2-amino-4-methylamino-6,7-diphenyl-, 4268*f*.

$C_{19}H_{16}N_6O_4$ Urea, {[*p*-(2-hydroxy-1-naphthylazo)benzoyl]guanyl}-, P 7711*b*.

$C_{19}H_{16}O$ 1 *H*-Benzonaphthen-1-ol, 2,3-dihydro-3-phenyl-, 7472*f*.
*p*-Cresol, *α*,*α*-diphenyl-, 8684*i*.
17 *H* - Cyclopenta[*a*]phenanthren - 17-one, 12-ethyl-15,16-dihydro-, 621*i*.
Ketone, m. 130°, 4659*h*.
Methanol, triphenyl-, 1349*b*, 1753*h*, 2194*c*, 3292*f*, 7005*e*, 7136*a*.
1(2 *H*) - Naphthalenone, 2 - cinnamylidene-3,4-dihydro-, 2972*a*.

$C_{19}H_{16}OS$ Thiophene, 2-[*α*-(*p*-methoxyphenyl)styryl] , 4746*f*.

$C_{19}H_{16}O_2$ Acetophenone, 3-methoxy-2-(2-naphthyl)-, 205*h*.
Methanol, (*p* hydroxyphenyl)diphenyl-, 8683*h*.
1-Naphthalenepropionic acid, *β*-phenyl-, 7472*e*.
2-Naphthoic acid, 1-*m*-tolyl-, Me ester, 3396*c*.
—, 1-(3,5-xylyl)-, 3396*b*.
1-Naphthol, 4-methyl-3-phenyl-, acetate, 8372*e*.
Phenol, *p*,*p*'-benzylidenedi-, 8683*f*.
2,4-Xylic acid, 6-(1-naphthyl)-, 3396*c*.

$C_{19}H_{16}O_3$ (See also *Benzaurin*.)
Cyclohexenecarboxylic acid, diphenyloxo-, 157*c*.
16 *H* - Cyclopenta[*a*]phenanthrene - 15-acetic acid, 11,12,13,17 - tetrahydro-16-oxo-, 3430*b*.
1 - Cyclopentene - 1 - acetic acid, 2 - (4-biphenylyl)-5-oxo-, 3429*i*.
5-Hexenoic acid, 4-hydroxy-4-methyl-2-oxo-3,6-diphenyl-, *γ*-lactone, 157*e*.
Ketone, 2,3-dimethoxyphenyl naphthyl-, 205*de*.
1 - Naphthalenehydracrylic acid, *β*-phenyl-, 7472*d*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-(*p*-methylphenethyl)-, 1379*d*.
—, 2 - hydroxy - 3 - (3 - phenylpropyl)-, 1379*b*, 2610*b*.
1-Phenanthrenesuccinic anhydride, 3,4-dihydro-2 methyl-, 6610*b*.

$C_{19}H_{16}O_4$ Coumarin, 3-(*α* acetonylbenzyl) 4-hydroxy-, 5808*f*.
2 - (*p* - Hydroxystyryl)benzopyrylium acetate, P 6100*e*, P 7849*d*.
2,4 - Pentadienoic acid, 5 - hydroxy 3,5 - bis(*p* - methoxyphenyl) , *δ*-lactone, 4639*i*.

$C_{19}H_{16}O_4S$ 1-Naphthol-8-sulfonic acid, 4-(2-hydroxy-*α* mesityl)-, sultone, 204*g*.

$C_{19}H_{16}O_5$ Coumarin, 7 (benzyloxy)-6-hydroxy-4-methyl-, acetate, 3823*b*.

$C_{19}H_{16}O_6$ 3(2 *H*)-Benzofuranone, 2-acetyl-5,6 - dimethoxy-, enol, benzoate, 7460*g*.
Flavone, 8-hydroxy-4',5-dimethoxy-, acetate, 3414*f*.
Khellinone, benzoate, 7481*d*.
1,3 - Propanedione, 1 - (6 - hydroxy-4,7 - dimethoxy - 5 - benzofuryl) - 3-phenyl-, 7481*d*.

$C_{19}H_{16}O_7$ Flavone, 6,7,8-trimethoxy-3',4'-methylenedioxy-, 1774*h*.

$C_{19}H_{16}O_8$ 1,4 *H*-Benzopyran-4,5,8-trione, 2 - (3,4 - dimethoxyphenyl) - 3,7 - dimethoxy-, 182*d*.
1,4 *H*-Benzopyran-4,5,8-trione, 3,6,7-trimethoxy - 2 - (*p* - methoxyphenyl)-, 181*h*.
Flavone, 3-hydroxy-6,7,8-trimethoxy-3',4'-methylenedioxy-, 1774*h*.

$C_{19}H_{18}S$ Methanethiol, triphenyl-, 1753*h*.
Thiophene, 2-methyl-5-(*α*-phenylstyryl)-, 4746*f*.

$C_{19}H_{18}S_2$ Benzaldehyde, di-Ph mercaptal, 2597*c*.

$C_{19}H_{17}BrN_2OS_2$ 2 - (3 - Ethyl - 2 - benzothiazolinylidenemethyl) - 4 - oxo - 3-phenyl - 2 - thiazolinium bromide, P 7845*i*.

$C_{19}H_{17}BrN_2O_2$ Benzonitrile, 3-bromo-4,4'-(pentamethylenedioxy)di-, 9048*h*.
3 - Hydroxy - 1 - methylpyridinium bromide, diphenylcarbamate, P 4702*h*.

$C_{19}H_{17}BrN_2O_3S$ Benzamidine, *N*-(*p*-bromophenyl)-, benzenesulfonate, 7444*d*.

$C_{19}H_{17}ClCuOP$ Phosphine oxide, benzyldiphenyl-, compd. with CuCl, 3802*c*.

$C_{19}H_{17}ClN_2O_3$ Carbamic acid, [1-(chloroformyl) - 2 - (3 - indolyl)ethyl]-, benzyl ester, 4712*c*.

$C_{19}H_{17}ClN_2O_3S$ Benzamidine, *N*-(chlorophenyl)-, benzenesulfonate, 7444*d*.

$C_{19}H_{17}ClN_2O_3S_2$ Benzenesulfonamide, *N*,*N*'-(5-chlorosalicylidene)bis-, 6182*d*.
Metanilamide, *N*¹ - (*p* - chlorophenylsulfonyl-toloxy-)-4-*o*, P 8150*b*.

**$C_{19}H_{17}ClN_2O_8S$** 1-Phenol-2-sulfonic acid, 4 - chloro - 6 - (2,3 - dihydroxypropoxy) - 2 - hydroxy - 1 - naphthylazo]-, P 7698*a*.

**$C_{19}H_{17}ClN_4$** 2,3,5 - Triphenyl - *2H* - tetrazolium chloride, 59*b*.

**$C_{19}H_{17}ClN_4O$** Acridine, 6-chloro-2-methoxy-9-(4 - methyl - 2 - imidazolylmethylamino)-, 7478*g*.

**$C_{19}H_{17}ClO_2$** 1-Indanone, 2-chloro-2-ethyl-3-hydroxy-3-phenyl-, acetate, 2610*i*.

**$C_{19}H_{17}ClO_4$** 3,11-Dimethoxy-6-methyl-6-[1]benzopyrano[4,3 - *b*][1]benzopyrylium chloride, 1771*d*.

**$C_{19}H_{17}ClO_8$** 3,11 Dimethoxy-6-methyl-6-[1]-benzopyrano[4,3 - *b*][1]benzopyrylium perchlorate, 1771*d*.

**$C_{19}H_{17}Cl_4FeO_4$** 3,11-Dimethoxy-6-methyl-6-[1]benzopyrano[4,3 - *b*][1]benzopyrylium ferrichloride, 1771*d*.

**$C_{19}H_{17}F_3N_2O_4$** Anthraquinone, 1-amino-4-[2-(2 - hydroxyethoxy)ethylamino] - 2-(trifluoromethyl)-, P 7709*g*.

**$C_{19}H_{17}F_3N_4O_4$** 5 *H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin - 6 - ol, 2,3,6,7 - tetrahydro-3 - methyl - 9 - (*p* - nitrophenylazo)-8-(trifluoromethyl)-, P 2782*a*.

**$C_{19}H_{17}IN_2O_2$** Benzonitrile, 3-iodo-4,4′-(pentamethylenedioxy)di-, 9048*h*.

**$C_{19}H_{17}N$** Benzhydrylamine, *N*-phenyl, 2981*d*, - *HCl*, 193*a*.
Cyclohexenecarbonitrile, 2,6 - diphenyl-, 2964*a*.
Indeno[3,4 - *bc*]phenanthridine, 1,2,3,4-10,11-hexahydro-, 1779*b*.
1 *H* - Indeno[2,1 - *c*]pyridine, 2,3 - dihydro - 2 - methyl - 9 - phenyl-, - *HBr*, P 5808*g*.
Phenanthridine, 6-cyclohexenyl-, 7146*a*
—, 7,8,9,10 - tetrahydro - 2 - phenyl-, 1779*a*.
Pyridine, benzhydrylidenedihydro - 1-methyl-, 3292*e*.
*p*-Toluidine, α,α-diphenyl-, 192*i*.

**$C_{19}H_{17}NO$** Benzophenone, 4-(2,5-dimethyl-1-pyrryl)-, 7007*f*.
Diphenylamine, *p*-(benzyloxy)-, 3386*g*.
Ketone, 6,7 - dimethyl - 2 - phenyl - 4-quinolyl methyl, 4675*c*.
1 - Naphthaleneacetanilide, α - methyl-, 4654*g*.
3 - Penten - 1 - yn - 3 - ol, 5 - (ethylimino)-1,5-diphenyl-, 3000*b*.
4 - Piperidone, 3,5 - dibenzylidene-, - *HCl*, 9068*a*, *and* - *HCl*, 4275*g*.

**$C_{19}H_{17}NO_2$** Benzamide, *N* - [(2 - methoxy-1-naphthyl)methyl]-, 4249*i*.
Naphthaleneethanol, carbanilate, 2183*a*.
Naphthalene, 1,2,3 - trimethyl - 4 (*o*-nitrophenyl)-, 9059*h*.
4 - Piperidone, 1 - benzoyl - 3 - benzylidene-, 4275*g*.
2 - Quinolinebutyric acid, β - phenyl, 7022*i*.

**$C_{19}H_{17}NO_2S$** Benzhydrylamine, 4-(phenylsulfonyl)-, 7450*e*.

**$C_{19}H_{17}NO_3$** Cinchophen, 4′-ethoxy-3′-methyl-, 3825*g*.
Cinchophen, 3-isopropoxy-, 227*h*.
—, methoxydimethyl-, 3825*gh*, 7924*h*, 7925*a*.
—, 3-propoxy-, 227*g*.
Cusparine, 3527*i*.

**$C_{19}H_{17}NO_3S$** Naphthamide, *N*-(3,4-xylylsulfonyl)-, P 686*b*, P 7961*d*, P 7963*d*, P 8622*b*.
3,4 - Xylamide, *N* - (naphthylsulfonyl), P 7962*i*, P 7963*c*, P 8622*c*.

**$C_{19}H_{17}NO_4$** 1,2 *H* - Benzopyran - 4 - acetanilide, 6-ethyl-7-hydroxy-2 oxo-, 6206*e*
1,2 *H* - Benzopyran - 3 - acetanilide, 7 - methoxy - 4 - methyl - 2 - oxo-, 7936*i*.
Naphthanilide, hydroxy - 2′,5′ - dimethoxy-, P 8178*b*.
3-Pyrrolidinecarboxylic acid, 4,5-dioxo-1,2-diphenyl-, Et ester, 8380*e*.
3-Pyrroline-3-carboxylic acid, 4-ethoxy-5-oxo-1,2-diphenyl-, 8380*d*.
—, 4-methoxy-5-oxo-1,2-diphenyl-, Me ester, 8380*d*.

**$C_{19}H_{17}NO_4S$** 2-Naphthamide, 3-methoxy-*N*-*p*-tolylsulfonyl-, P 7963*d*.
2-Phenanthrenesulfonic acid, 1,2,3,4-tetrahydro - 1 - oxo-, pyridine salt, 2214*d*.

**$C_{19}H_{17}N_4$** Guanidine, triphenyl-, P 868*g*, 1352*b*, 3648*a*.
Parafuchsin, 7856*a*.
Triazene, 3-benzyl-1,3-diphenyl-, 5621*f*.

**$C_{19}H_{17}N_3O$** Benzamide, *N*, *N*-bis(*m*-aminophenyl)-, 169*c*.
Evodiamine, 7194*d*.
Propionamide, *N* - (3,6 - diphenyl - 2-pyrazinyl)-, 3005*f*.

**$C_{19}H_{17}N_3O_2$** Aniline, *p*,*p*′-(*p*-nitrobenzylidene)di-, 185*b*.
Biuret, 1-(naphthyl)-5-tolyl-, 7446*gi*, 7447*a*.
Quinaldine, α - (*p* - dimethylaminobenzylidene) 6-nitro-, 3427*g*.

**$C_{19}H_{17}N_3O_2S$** Barbituric acid, 5-(*p*-dimethylaminobenzylidene) - 1 - phenyl - 2-thio-, 8300*g*.
2 - Thiazolecarbamic acid, 5 - benzylideneamino - 4 - phenyl-, Et ester, 1403*a*.
4 - Thiazoline, 5 - acetamido - 3 - acetyl-4-phenyl-2-phenylimino-, 1401*g*.

**$C_{19}H_{17}N_3O_3$** Biuret, 1-(methoxyphenyl)-5-(naphthyl)-, 7446*i*, 7447*b*.

**$C_{19}H_{17}N_3O_4S$** Carbanilic acid, *p*-(2-pyridylsulfamyl)-, benzyl ester, P 1805*a*.
Sulfanilamide, *N*[1] - (3 - methoxysalicylidene)-*N*[1]-2-pyridyl-, 3262*g*.

**$C_{19}H_{17}N_3O_4S$** Phthalamic acid, *N*-[2 (2-quinolylsulfamyl)ethyl]-, P 3450*g*.

**$C_{19}H_{17}N_3O_4S_2$** 2-Naphthalenesulfonic acid, sulfathiazole salt, 174*a*.

**$C_{19}H_{17}N_3O_6$** Hydrocinnamic acid, α,β-dioxo-, Et ester, α [acetyl(*p*-nitrophenyl)hydrazone], 4248*a*
Naphthalene, propyl-, compd. with 1,3,5-trinitrobenzene, 2608*h*.
Sapotalene, compd. with 1,3,5 trinitrobenzene, 6604*b*.

**$C_{19}H_{17}N_3O_7$** Naphthalene, propyl-, picrate, 2608*c*.
1,2 - Propanediol, 3 - [6 - hydroxy - 5-(2 - hydroxy - 4 - nitrophenylazo) - 2-naphthoxy]-, P 7698*a*.

**$C_{19}H_{17}N_3O_8$** Naphthalene, 1,4-dimethoxy-5-methyl-, compd with 1,3,5-trinitrobenzene, 2612*h*, 2613*g*.
Sapotalene, styphnate, 6604*b*

**$C_{19}H_{17}N_3O_9$** Naphthalene, 1,4-dimethoxy 5-methyl-, picrate, 2612*h*, 2613*g*.

**$C_{19}H_{17}N_3O_{10}$** Naphthalene, 1,4,6 trimethoxy-, picrate, 2612*c*

**$C_{19}H_{17}N_3O_{10}S$** 1 Phenol-2-sulfonic acid, 6-[6-(2,3 - dihydroxypropoxy) - 2 - hydroxy - 1 - naphthylazo] - 4 - nitro-, P 7698*a*.

**$C_{19}H_{17}N_5O_3S$** Semicarbazide, 1,2,4 triacetyl-1,4 - bis(3 - pyridylcarbonyl) - 3-thio-, 7483*i*

**$C_{19}H_{17}N_5O_4S_2$** Quinolinamlide, 4′,4″ - disulfamyl-, 2598*a*.

**$C_{19}H_{17}N_5O_7$** Compd., decomp. above 275°, 651*g*.

**$C_{19}H_{17}N_5O_7S_2$** 2,6 - Pyridinedicarboxanilide, 1,4 - dihydro - 4 - oxo - 4,1″ - disulfamyl-, 2598*c*

**$C_{19}H_{17}OP$** Phosphine oxide, benzyldiphenyl, 3802*c*.
Phosphinous acid, diphenyl-, benzyl ester, 3802*c*.

**$C_{19}H_{17}PS$** Phosphine sulfide, benzyldiphenyl-, 3802*d*.
Phosphinous acid, diphenylthio-(?), benzyl ester, 3802*d*.

**$C_{19}H_{18}$** 15 *H* - Cyclopenta[*a*]phenanthrene, 12-ethyl-16,17-dihydro-, 621*i*
Fluoranthene, 3,10b - dihydro - 1,3,3-trimethyl-, 9059*c*.
Fluorene, 9 - (1,3 - dimethyl - 2 - butenylidene)-, 9058*g*, 9059*b*.

**$C_{19}H_{18}Au_2Cl_2N_2$** 7856*a*.

**$C_{19}H_{18}Au_2Cl_{10}N_4$** 7856*a*.

**$C_{19}H_{18}BrNO$** 4-Quinolinemethanol, α-(bromomethyl) - 6,7 - dimethyl - 2-phenyl-, - *HBr*, 4675*d*.

**$C_{19}H_{18}Br_2N_6O_5$** Glutamic acid, *N*-[3,5-dibromo - 4 - [(2,4 - diamino - 6 - pteridylmethyl)amino]benzoyl]-, 9249*c*.

**$C_{19}H_{18}Br_2O_2$** Chalcone, 5,5′-dibromo-β,2,-2′,4′-tetramethoxy-, 1742*h*.

**$C_{19}H_{18}ClN$** Cyclohexanecarbonitrile, 4-chloro-2,6-diphenyl-, 2964*b*.

**$C_{19}H_{18}ClN_5O_6$** 5 *H* - Pyrido[1,2,3 - *de*] - 1,4-benzoxazin 6 - ol, 9 - (2 - chloro - 4,6-dinitrophenylazo) - 2,3,6,7 - tetrahydro 3,10-dimethyl-, P 2781*i*.

**$C_{19}H_{18}ClN_7O$** Acetanilide, *p*-[(8-chloro-5-quinolyl)guanylguanidino]-, 231*a*.

**$C_{19}H_{18}Cl_2O_2S$** Retenesulfonyl chloride, chloro-3-methoxy-, 4252*a*.

**$C_{19}H_{19}NO_3P$** Amidophosphoric acid, *N*-benzyl-, di Ph ester, 6178*f*.

**$C_{19}H_{19}N_3$** Benz[*g*]indolo[2,3 - *a*]quinolizine, 5,7,8,13,13*b*,14 - hexahydro-, *and* - *HCl*, 7492*a*.
1,3,5 - Heptatrienylamine, *N* - phenyl-7-phenylimino-, - *HBr*, 2617*a*.
Indole, 3,3′ - methylenebis[1 - methyl-, 3405*f*.
Isoquinoline, 3 - (*p* - dimethylaminostyryl)-, 3821*a*.

**$C_{19}H_{18}N_2O$** Benzamide, *p*-dimethylamino-*N*-1-naphthyl-, 1346*h*.
Benzamide, ethylamino-*N*-1-naphthyl-, 1346*bg*.

**$C_{19}H_{18}N_2OS$** Benzaldehyde, hydroxy-, bis(aminophenyl)mercaptal, 6179*f*.

**$C_{19}H_{18}N_2O_2$** *p*-Acetotoluidide, α[4]-(hydroxymethyl-6-quinolyl)-, 645*i*, 646*b*.
5,11 - Dimethyl - 6 *H* - quinindolinium acetate, 230*h*.
4 - Pyrazolecarboxylic acid, 3 - methyl-1,5-diphenyl-, Et ester, P 6655*e*.

**$C_{19}H_{18}N_2O_2S$** Benzoic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.
3 *H* - Thieno[2,3 - *c*]pyrazole, 3a,6a - dihydro - 3a,4 - di - *p* - tolyl-, 6,6 - dioxide, 5777*g*.

**$C_{19}H_{18}N_2O_3$** Homophthal-1-amic acid, *N* [2-(3-indolyl)ethyl]-, 7490*g*, 7491*h*

**$C_{19}H_{18}N_2O_3S$** 2-Imidazoline, 2-(2 naphthyl)-, benzenesulfonate, P 5049*g*.
Salicylic acid, 2 (1-naphthylmethyl)-2 thiopseudourea salt, 565*h*.

**$C_{19}H_{18}N_2O_4$** Tryptophan, *N*-carboxy-, benzyl ester, 4712*c*.
Tryptophan, *N*-phenoxyacetyl-, 1398*a*

**$C_{19}H_{18}N_2O_6$** Hexenynol, (1-cyclohexen-1-yl), 3,5-dinitrobenzoate, 8360*h*, 8361*a*.

**$C_{19}H_{18}N_2O_6S$** 11-Carboxy-5-methylquindolinium methyl sulfate, Me ester, 229*h*.

**$C_{19}H_{18}N_2O_6$** 1,3-Cyclohexanedione, 2,2′-(2,4-dinitrobenzylidene)di-, 1836*e*.
3 - Pentanone, 4 - hydroxy - 1 - (*p* methoxyphenyl)-, 3,5 - dinitrobenzoate, 1744*a*.

**$C_{19}H_{18}N_4O_2$** Benzimidazole, acetamido-2-(*p* acetamidostyryl)-, P 5604*e*.

**$C_{19}H_{18}N_4O_2S_2$** 4-Thiazolecarboxylic acid, 2 anilino - 5 - (3 - phenyl - 2 - thioureido)-, Et ester, 3409*e*.

**$C_{19}H_{18}N_4O_4S$** Sulfanilamide, *N*[1] - (2,6 - dimethyl - 4 - pyrimidyl)-, reaction product with salicylaldehyde, - *HCl*, 4238*a*.

**$C_{19}H_{18}N_4O_4S$** Benzenesulfonamide, *p* (ethyl dihydroxyphenylazo) - *N* - 2 - pyridyl-, 9048*b*.
Sulfanilamide, *N*[4] - (3 - methoxysalicylidene) - *N*[1] - (4 - methyl - 2 - pyrimidyl)-, 3262*g*.

**$C_{19}H_{18}N_4O_5$** Compd., m. 335-40°, 650*i*

**$C_{19}H_{18}N_4O_5S_2$** Acetanilide, *p*-[*p*-(pyridylsulfamyl)phenylsulfamyl]-, 1738*h*

**$C_{19}H_{18}N_4O_6S_4$** Acetanilide, *p*,*p*′-(2 thiazolyl iminodisulfonyl)bis, P 3457*h*, 3978*f*.

**$C_{19}H_{18}N_4O_7$** 6 *H* - Cyclopent[*g*]isoquinoline, 3,4,7,8 - tetrahydro - 1 - methyl, picrate, 8390*f*.

**$C_{19}H_{18}N_4O_8$** 3-Indolepropionic acid, 1 methyl-, Me ester, picrate, 3405*d*.

**$C_{19}H_{18}N_4O_{10}$** 2-Oxazoline-4-carboxylic acid, 5 - methyl - 2 - phenyl, Et ester, picrate, 9033*d*.
2 - Oxazoline - 4 - carboxylic acid, 2 phenyl-, isopropyl ester, picrate, 9033*d*.

**$C_{19}H_{18}N_6O_7$** Glutamic acid, *N*-[*p* [(2,4 dihydroxy - 6 - pteridylmethyl)amino] benzoyl]-, P 9389*a*.

**$C_{19}H_{18}O$** 17 *H* - Cyclopenta[*a*]phenanthren 17 - one, 12 - ethyl - 11,12,15,16-tetrahydro-, 621*i*.

**$C_{19}H_{18}O_2$** Benzofulvene, 6-methoxy-2 (*p* methoxyphenyl)-3-methyl-, 1758*i*
Cyclohexanecarboxylic acid, 4 - hydroxy-2,6-diphenyl-, δ-lactone, 2963*g*.
$\Delta^{1,3,5,10,4,8,14}$ - Estrahexaen - 17 - one, 3-methoxy-, 3018*i*.
Furan, 2,5-diphenyl-3-propoxy, 622*g*.
2-Naphthaleneacrylic acid, 5,6,7,8-tetrahydro-β-phenyl-, 4659*h*.

**$C_{19}H_{18}O_2S$** 2-Thiabicyclo[3.1.0]-3-hexene, 4,5 - di - *p* - tolyl-, 2,2 - dioxide, 5777*i*.

**$C_{19}H_{18}O_3$** Benzophenone, 4,4′-bis(allyloxy)-, 7469*d*.
3 - Pentadienone, 1,5 - bis(*p* - methoxyphenyl)-, 6035*f*.
Phenanthrene, trimethoxy - 1 - vinyl-, 6208*e*.
Retenequinone, 3-methoxy-, 4252*a*.
1,8(2 *H*, 5 *H*) - Xanthenedione, 3,4,6,7 tetrahydro-9-phenyl-, 1336*e*.

**$C_{19}H_{18}O_4$** Cyclohexanecarboxylic acid, 1-hydroxy - 5 - oxo - 2,3 - diphenyl-, 157*e*.
Homolevulinic acid, ε - (4 - biphenylcarbonyl)-, 3429*g*.

2 - Phenanthrenelevulinic acid, 1,2,3,4-tetrahydro-1-oxo-, 3429*h*.
1-Phenanthrenesuccinic acid, 3,4-dihydro-2-methyl-, 6610*a*.
Propionic acid, α,β-dibenzoyl-, Et ester, 2991*i*.
Succinic acid, (β-methyl-α-phenylstyryl)-(?), 4247*f*.
1,8(2*H*,5*H*) - Xanthenedione, 3,4,6,7-tetrahydro - 9 - (*o* - hydroxyphenyl)-(?), 1336*e*.

$C_{19}H_{18}O_5$ Dibenzo[*a*,*c*]cycloheptatrien - 5-one, 1,2,3,9-tetramethoxy-, 2986*e*.
2,4 - Pentadienoic acid, 5 - hydroxy - 3,5-bis(*p*-methoxyphenyl)-, 4640*a*.
3 - Pentadienone, 1,5 - bis(4 - hydroxy-3-methoxyphenyl)-, P 2339*i*.
2 Pentanone, 1,5-dihydroxy-, dibenzoate, 9061*a*.

$C_{19}H_{18}O_6$ Anthraquinone, 1,2,3,7-tetramethoxy-6 methyl-, 210*d*.
Brazilone, *O*-trimethyl, P 2868*a*.
Dibenz[*b*,*e*]oxonin - 7,13(6*H*,8*H*) - dione, 3,10,11-trimethoxy-(?), 2868*a*.
Flavone, tetramethoxy-, 636*d*, 1407*i*, 1772*g*, 1774*af*.

$C_{19}H_{18}O_7$ Acetophenone, α,2-dihydroxy-4,5-dimethoxy-, 2-acetate α-benzoate, 7461*g*.
Chalcone, 2′ - hydroxy - 3′,4′,5′ - trimethoxy-3,4-methylenedioxy-, 1774*g*.
Flavanone, 6,7,8 - trimethoxy - 3′,4′-methylenedioxy-, 1774*g*.
Flavone, hydroxytetramethoxy-, 636*h*, 639*i*, 1772*h*, 1774*a*, 4263*i*, 5396*f*, 5398*h*, 8449*i*
Atranorin, 5077*i*.
Calycopterin, 3565*h*, 3566*b*.
Flavone, 5,7 - dihydroxy - 3,3′,4′,5′-tetramethoxy, 638*i*.
Primetin, tetramethoxy, 181*i*, 182*c*, 636*h*, 639*i*, 4263*i*.

$C_{19}H_{18}O_8$ Flavone, 5,7,8 - trihydroxy - 3,3′,-4′,5′ tetramethoxy-, 638*h*

$C_{19}H_{19}BrO_4$ Compd., m. 145°, 191*a*.
1 Indanone, 4 - (3 - bromo - 4 - methoxyphenyl) - 5,6,7 - trimethoxy-, 2198*i*.

$C_{19}H_{19}ClN_2O$ 4 Carbamyl 1,6,7 trimethyl 2-phenylquinolinium chloride, 4675*e*

$C_{19}H_{19}ClN_2O_3S$ 2 - (4 - Anilino - 1,3 - butadienyl) - 3 - ethylbenzothiazolium perchlorate, 6928*i*.

$C_{19}H_{19}ClN_2O_4Se$ 2 - (4 - Anilino - 1,3 - butadienyl) - 3 - ethylbenzoselenazolium perchlorate, 6929*b*.

$C_{19}H_{19}ClN_4O_2S$ Sulfanilamide, $N^4$ - [(*p*-chlorophenylguanyl)guanyl] - $N^1$ - (4-methyl-2 pyrimidyl)-, 5868*d*; - *HCl*, 2179*a*
Sulfanilamide, $N^1$ - (5 - chloro - 2 - pyrimidyl) - $N^4$ - (*p* - tolylguanylguanyl), *and* - *HCl*, 2179*i*.

$C_{19}H_{19}ClN_4O_3S$ Sulfanilamide, $N^1$-(5 chloro-2 pyrimidyl) - $N^4$ - [(*p* - methoxyphenylguanyl)guanyl], *and* - *HCl*, 2179*i*.

$C_{19}H_{19}ClO$ 1 Indanone, 2-chloro-3-ethoxy 2-ethyl 3 phenyl, 2611*a*.

$C_{19}H_{19}ClO_3S$ Retenesulfonyl chloride, 3-methoxy-, 4252*b*.

$C_{19}H_{19}ClO_3$ Malonic acid, 3-chloro-2-butenyl-(2 (1-naphthyl)ethyl]-, 6609*g*.

$C_{19}H_{19}Cl_3NO$ Acetophenone, *p*-chloro-α-(*p*-chlorophenyl) α - 1 - piperidyl-, - *HCl*, 3369*e*.
Piperidine, 1 - [bis(*p* - chlorophenyl)-acetyl], 1144*c*.

$C_{19}H_{19}Cl_2N_3S$ 2(1*H*) - Triazinethione, 4-butylamino - 6 - (*p* chloroanilino)-1-(*p* chlorophenyl)-, 2948*g*.

$C_{19}H_{19}Cl_3$ Propene, 1,1,2-trichloro-3,3-dixylyl-, 9333*d*.

$C_{19}H_{19}F_3O_4$ 1,4 - Naphthoquinone, 2 - hydroxy - 3 - [2 - [3 - (trifluoromethyl)-cyclohexyl]ethyl]-, 1382*b*, 2610*b*.

$C_{19}H_{19}IN$ 2 - (2 - Anilinovinyl) - 1,6 - dimethylquinolinium iodide, 3001*b*.

$C_{19}H_{19}IN_2O$ 2 - (4 - Anilino - 1,3 - butadienyl) - 3 - ethylbenzoxazolium iodide, 6929*d*
4 - Carbamyl - 1,6,7 - trimethyl - 2-phenylquinolinium iodide, 4675*e*.

$C_{19}H_{19}IN_2O_2S$ 3 - Ethyl - 5 - (1 - ethylnaphth[1,2]oxazol - 2(1*H*) - ylidene)-2 - methylmercapto - 4 - oxo - 2 - thiazolinium iodide, P 4160*g*.

$C_{19}H_{19}IN_2S$ 2 - (4 - Anilino - 1,3 - butadienyl)-3 - ethylbenzothiazolium iodide, 6928*i*.

$C_{19}H_{19}IN_2Se$ 2 - (4 - Anilino - 1,3 - butadienyl) - 3 - ethylbenzoselenazolium iodide 6929*b*.

$C_{19}H_{19}N$ Aniline, *o*-(2,3,4-trimethyl-1-naphthyl)-, 9059*h*.
1*H*-Indeno[2,1 - *c*]pyridine, 2,3,4,9-tetrahydro - 2 - methyl - 9 - phenyl-, 4385*i*, 4764*a*, 6487*h*, 9366*d*; *salts*, P 5808*i*.

$C_{19}H_{19}NO$ Cyclohexanecarbonitrile, 4-hydroxy-2,6-diphenyl-, 2963*c*.
Cyclohexanone, 2 - (5 - acenaphthenyliminomethyl)-, 1779*b*.
Quinoline, 3 - ethyl - 2 - (4′ - methoxy-*m*-tolyl)-, 3825*g*.
—, 2 - (6 - methoxy - 3,4 - xylyl) - 3-methyl-, 7924*h*.
—, 3 - methyl - 2 - (3 - methyl - *p* - phenetyl)-, 3825*g*.

$C_{19}H_{19}NOS_2$ Cinnamic acid, α-(dithiocarboxyamino)thiol- (?), *S* - benzyl *S*,*S*-Et ester, 1400*c*.

$C_{19}H_{19}NO_2$ Acrylanilide, β-(2,4,6-trimethylbenzoyl)-, 7192*h*.
Acrylonitrile, α - (2 - ethyl - 3 - methoxyphenyl) - β - (*p* - methoxyphenyl), 198*e*.
Chalcone, 4-morpholinyl-, 7819*i*.
$\Delta^{1,9}$-Indancarbamic acid, 2-ethyl-, benzyl ester, 1390*b*.
1-Indenecarbamic acid, 2-ethyl-, benzyl ester, 1390*b*.
4-Piperidone, 1-(diphenylacetyl)-, 4275*b*.
Valerimidic acid, *N*-acetyl-γ-hydroxy-α,α-diphenyl-, γ-lactone, 2202*a*.

$C_{19}H_{19}NO_3S$ Cinchoninic acid, 3-butyl 6-methyl-2-(2-thienyl)-, 228*b*.
Senecioic acid, α-benzamidothio-, benzyl ester, 2618*c*.

$C_{19}H_{19}NO_3$ 2-Furanbutanol, 1 naphthalenecarbamate, 5022*h*.

$C_{19}H_{19}NO_4$ Bulbocapnine, 9239*d*.
1-Naphthalenesuccinic acid, α-cyano-, di-Et ester, 2167*g*.

$C_{19}H_{19}NO_4S_2$ 5-Methoxy-1,2-dimethylthianaphtheno[7,6 - *d*]thiazolium *p*-toluenesulfonate, P 513*h*.

$C_{19}H_{19}NO_5$ 2-Hexanone, 3-hydroxy-1-phenyl-, *p* nitrobenzoate, 1744*b*.
Oxamic acid, *N*-[α (carboxymethyl)-benzyl]-, Et ester, 8380.

$C_{19}H_{19}NO_6$ Aspartic acid, *N* carboxy-, di benzyl ester, 4642*g*
Brazilone, *O* - trimethyl, monoxime, 2868*d*.
Carbamic acid, (α-piperonylpiperonyl)-, Et ester, 7008*d*.
1,3-Cyclohexanedione, 2,2′-(nitrobenzylidene)di-, 1336*c*.
Dibenz[*b*,*e*]oxonin - 7,13(6*H*,8*H*)-dione, 3,10,11 - trimethoxy-(?), monoxime, 2868*d*.
Hydracrylic acid, Ph ester, hydracrylate, carbamate, 3393*i*.
3 - Pentanone, 4 - hydroxy - 1 - (*p*-methoxyphenyl)-, *p* - nitrobenzoate, 1744*a*.
Usnamide, *N*-methyl-, 5445*e*.

$C_{19}H_{19}N_3$ Quinaldine, 6-amino-α-(*p*-dimethylaminobenzylidene)-, 3427*g*.

$C_{19}H_{19}N_3O$ 6*H*-Benz[*de*]anthracen-6-one, 1,2,4,5 - tetrahydro - 3 - methyl-, semicarbazone, 6610*d*
2 - Cyclohexen - 1 - one, 3 - (4 - biphenylyl)-, semicarbazone, 610*i*.
2 - Cyclopenten - 1 - one, 4 - methyl - 2,3-diphenyl, semicarbazone, 6624*i*.
17 - Equilenone, 14,15 - dehydro-, semicarbazone, 6610*f*.
Yobyrine, tetrahydro-*N*-nitroso-, 5407*h*.

$C_{19}H_{19}N_3O_2$ Nitrone, *N*-(*p*-dimethylaminophenyl) - α - (methylindolylcarbonyl)-, 4256*cd*.
5*H* - Pyrido[1,2,3 - *de*] - 1,4 - benzoxazine, 9 - (*p* - acetylphenylazo)-2,3,6,7 tetrahydro, P 2781*i*.

$C_{19}H_{19}N_3O_2S_4$ [$\Delta^{2,2'}$ - Bithiazolidine] - 2′,-4,4′ - trione, 3,3′ - diethyl - 5 - (3-ethyl - 2 - benzothiazolinylidene) - 2′-thio-, P 4162*f*.

$C_{19}H_{19}N_3O_3$ 4-Acenaphthenol, 6,7,8,8a-tetrahydro - 5 - methyl(*p* - nitrophenylazo), 4250*g*.

$C_{19}H_{19}N_3O_3S$ 2-Thiophenecarboxylic acid, 4 - benzamidotetrahydro - 3 - oxo-, Me ester, phenylhydrazone, P 3468*c*.

$C_{19}H_{19}N_3O_3SSe$ Pyrimido[2,1-*b*]-*m*-thiazine-6,8(2*H*,7*H*)-dione, 7-[2-(3-ethyl-6-methoxy - 2 - benzoselenazolinylidene)-ethylidene]-3,4-dihydro-, P 8925*c*.

$C_{19}H_{19}N_3O_4$ 1-Cyclopentene-1-acetic acid, 2 - (4 - methoxy - 1 - naphthyl) - 5-oxo-, semicarbazone, 3429*i*.

$C_{19}H_{19}N_3O_5$ Hydrocinnamic acid, α,β-dioxo-, Et ester, α-[ethyl(*p*-nitrophenyl)hydrazone], 4248*a*.

$C_{19}H_{19}N_3O_5S_2$ Acetanilide, *p*-[4-(3,4-dimethoxyphenyl) - 2 - thiazolylsulfamyl]-, 2968*d*.
Benzenesulfonamide, *p*-phenylguanyl-, benzenesulfonate, 7444*e*.

$C_{19}H_{19}N_3O_7$ Butyrophenone, 2,4,6-trimethyl-3,5-dinitro(nitrophenyl)-, 3390*c*.

$C_{19}H_{19}N_5O_5$ Guanosine, 2′-acetyl-3′,5′-benzylidene-, 1326*a*.

$C_{19}H_{19}N_5O_7$ 1-Cyclohexene-1-carboxamidine, *N*-phenyl-, picrate, 7444*d*.
Malonaldehydic acid, (1-benzamidoethyl)-, Me ester, 2,4-dinitrophenylhydrazone, 7427*i*.
Phenaceturic acid, α-formyl-, Et ester, 2,4 - dinitrophenylhydrazone, P 1440*a*, 4667*h*.
Succinaldehydic acid, α-benzamido-, Et ester, 2,4-dinitrophenylhydrazone, 7932*e*.

$C_{19}H_{19}N_5O_6$ Imidazole, 2-(aminomethyl)-4-methyl-, bis(*p* - nitrobenzoate), 7478*g*.

$C_{19}H_{19}N_7O$ Ketone, methyl 5-methyl-1-phenyl - 3 - phenylazo - 4 - pyrazolyl, semicarbazone, 4258*d*.

$C_{19}H_{19}N_7O_6$ Glutamic acid, *N*-[*p*-[(2-amino-6 - pteridylmethyl)amino]benzoyl]-, 8491*d*, 8555*f*.

$C_{19}H_{19}N_7O_6$ See *Folic acid*; "Bc" under *Vitamins*

$C_{19}H_{19}N_{13}O_{11}$ See *Leucopterin*.

$C_{19}H_{20}$ Fluoranthene, 1,2,3,10b-tetrahydro-trimethyl-, 9059*cf*.
Methane, cyclohexylidenediphenyl-, 3797*b*.

$C_{19}H_{20}BrNO_5$ 1-Indanone, 4-(3-bromo-4-methoxyphenyl) - 5,6,7 - trimethoxy-, oxime, 2198*b*.

$C_{19}H_{20}Br_2N_2S_2$ 3,3′ - Trimethylenebis[2-methylbenzothiazolium bromide], P 3737*h*.

$C_{19}H_{20}ClNO_3S$ Retenesulfonamide, chloro-3-methoxy-, 4252*b*.

$C_{19}H_{20}ClNO_4$ Carbamic acid, (α-chloroacetyl-*p*-methoxyphenethyl)-, benzyl ester, 7458*e*.

$C_{19}H_{20}ClNO_5$ Benzoic acid, *p*-hydroxy-, Bu ester, 4-chloro 2-methoxycarbanilate, 593*g*

$C_{19}H_{20}ClN_3O_3$ Cresorcinol, 6-(5-chloro-8-methoxy 4 - quinolylamino) - α-ethylammo-, *di HCl*, P 7515*g*.

$C_{19}H_{20}Cl_2O_2$ Butyric acid, α-chloro-α-(α-chlorobenzhydryl)-, Et ester, 1394*b*.

$C_{19}H_{20}Cl_4NO$ Phenol, pentachloro-, compd. with 1-phenethylpiperidine, P 4298*g*.

$C_{19}H_{20}HgN_2O_2$ Phthalimide, *N*-[2-(2,4,6-trimethylanilino)ethylmercuri]-, 7449*d*.

$C_{19}H_{20}IN_4$ 3 [(*p* - Dimethylaminophenylimino)methyl] - 2 - methylisoquinolinium iodide, 3821*b*.

$C_{19}H_{20}N_2$ Cyclohexenecarboxamidine, *N*-2-biphenylyl-, 7445*i*.
Isoquinoline, 3 (3-ethyl-2-indolyl)-5,6,-7,8-tetrahydro, 5406*f*.
Yobyrine, tetrahydro-, 648*f*; *and* - *HCl*, 5407*g*.

$C_{19}H_{20}N_2OS$ Phenothiazine, 10-(1-piperidylacetyl)-, 7938*e*.

$C_{19}H_{20}N_2O_2$ Acetanilide, *p*,*p*′-cyclopropylidenedi-(?), 9042*g*.
Lepidine, 2-(2,3-dimethoxybenzylamino)-, 8389*h*
—, 2-veratrylamino-, 8389*h*.

$C_{19}H_{20}N_2O_2S$ $\Delta^{2(3H),\gamma}$ - Quinolinecrotonic acid, α - cyano - 1,6 - dimethyl - β-methylmercapto-, Et ester, P 7849*f*.
Thiophene, 3,4 - dibenzamidotetrahydro-2-methyl-, P 7970*i*.

$C_{19}H_{20}N_2O_3$ Acetoacetanilide, *p*-(*p*-acetamidobenzyl)-, 645*i*.
Phenaceturic acid, α-(anilinomethylene)-, Et ester, P 1807*e*.
4 - Piperidinol, 1-benzoyl-, carbanilate, 4275*d*.

$C_{19}H_{20}N_2O_3S$ 1-Naphthaleneacetamidine, *p*-toluenesulfonate, 7445*a*.

$C_{19}H_{20}N_2O_3S_2$ *p*-Toluenesulfonic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

$C_{19}H_{20}N_2O_4$ Acetic acid, bis(*p*-acetamidophenyl)-, Me ester, 7004*f*.
2,7 - Fluorenedicarbamic acid, di Et ester, 1368*a*.
Ornithuric acid, 2188*c*.

$C_{19}H_{20}N_2O_4S$ Acrylanilide, *p*-sulfamyl-β-(2,-4,6-trimethylbenzoyl)-, 7192*h*.

$C_{19}H_{20}N_2O_5$ Alanine, *N*-(*N*-carboxyglycyl)-phenyl-, benzyl ester, 701*f*, 1448*b*.
3,4-Furandicarbamic acid, tetrahydro-2-methyl-, diphenyl ester, P 1442*c*.

$C_{19}H_{20}N_2O_4$ 1,3-Propanediol, 2-methyl-2-o-

nitroanilino-, acetate benzoate, P 7694*f*.

$C_{19}H_{20}N_2O_8S$ Malonic acid, [*p*-(*p*-nitrophenylsulfonyl)anilino]-, di-Et ester, 2593*f*.

$C_{19}H_{20}N_4O$ 2-Propanone, (6-methoxy-8-quinolylamino)-, phenylhydrazone, 3419*i*, 3420*a*.

$C_{19}H_{20}N_4O_2S$ 2-Thiophenepropionic acid, tetrahydro-3,4-dioxo-, bis(phenylhydrazone), P 7040*e*.

$C_{19}H_{20}N_4O_4$ Acetophenone, *p*-cyclopentyl-, 2,4-dinitrophenylhydrazone, 5752*b*.

1-Indanone, 7-isopropyl-4-methyl-, 2,4-dinitrophenylhydrazone, 1747*f*.

5*H*-Pyrido[1,2,3-*de*]-1,4-benzoxazin-6-ol, 2,3,6,7-tetrahydro-3,5-dimethyl-9-(*p*-nitrophenylazo)-, P 2781*i*.

$C_{19}H_{20}N_4O_4S_2$ Benzenesulfonamide, *p*-(butyldihydroxyphenylazo)-*N*-2-thiazolyl-, 9048*b*.

$C_{19}H_{20}N_4O_5$ Benzamide, *m*-nitro-*N*-(nitro-α-1-piperidylbenzyl)-, 3805*h*.

2-Furaldehyde, polymer with 1,3-butadiene, 2,4-dinitrophenylhydrazone, 1597*h*.

2-Hexenophenone, 2′-hydroxymethyl-, 2,4-dinitrophenylhydrazone, 2187*e*.

2-Pentenophenone, 2′-hydroxydimethyl-, 2,4-dinitrophenylhydrazone, 2187*e*.

$C_{19}H_{20}N_4O_6$ 2-Hexenophenone, 2′-hydroxy-3′-methoxy-, 2,4-dinitrophenylhydrazone, 2187*e*.

$C_{19}H_{20}N_4O_7$ 1-Indanone, ethoxydimethoxy-, 2,4-dinitrophenylhydrazone, 7460*bc*.

$C_{19}H_{20}N_4O$. 2,4-Dinitrophenylhydrazone, m. 196°, 3403*g*.

$C_{19}H_{20}N_8O_3S$ Sulfanilamide, $N^4$-[(*p*-methoxyphenylguanyl)guanyl]-$N^1$-2-pyrimidyl-, 5868*d*.

$C_{19}H_{20}N_8O_6$ See *Glutamic acid, N*-[*p*-[(*2,4-diamino-6-pteridylmethyl*)*amino*]*benzoyl*]-.

$C_{19}H_{20}O$ Furan, 2-ethylidenetetrahydro-5-methyl-3,3-diphenyl-, 2202*b*

Ketone, benzyl 6,7,8,9-tetrahydro-5*H*-cycloheptabenzen-3-yl, 2965*e*.

2-Pentanone, 4-(9-fluorenyl)-4-methyl-, 9058*g*.

$C_{19}H_{20}O_2$ Acetophenone, 3-methoxy-2-(1,2,-3,4-tetrahydro-2-naphthyl), 205*i*.

Acrylophenone, *p*-cyclohexyl-β-2-furyl-, 3429*g*.

Butyric acid, α-benzhydrylidene-, Et ester, 1394*b*.

Cyclohexanol, 4-phenyl-, benzoate, 160*c*.

Cyclopentaneacetic acid, 2-(5-acenaphthenyl)-, 3796*g*.

1,2-Fluoranthenediol, 1,2,3,10b-tetrahydro-1,3,3-trimethyl-, 9059*f*.

Indene, 3-ethyl-6-methoxy-2-(*p*-methoxyphenyl)-, 1758*a*.

Naphthaleneacetic acid, α-benzyltetrahydro-, 7011*c*.

2-Naphthalenepropionic acid, 5,6,7,8-tetrahydro-β-phenyl-, 4659*h*.

2-Phenanthrenecarboxylic acid, 1-ethylidene-1,2,3,4-tetrahydro-2-methyl-, Me ester, P 3850*h*.

1-Phenanthrenepropionic acid, 3-ethyldihydro-, 621*h*.

—, 3-ethyl-1,2,3,4-tetrahydro-1-hydroxy-, γ-lactone, 621*h*

4-Stilbenecarboxylic acid, α,β-diethyl-, 4659*a*.

$C_{19}H_{20}O_3$ 3-Buten-1-one, 3-(*p*-methoxyphenyl)-1-(3-methoxy-*p*-tolyl)-, 4640*c*.

Chalcone, α-ethyl-4,4′-dimethoxy-, P 4699*i*.

Cyclohexanecarboxylic acid, 4-hydroxy-2,6-diphenyl-, 2963*h*.

Hydrocinnamic acid, β-phenacyl-, Et ester, 7002*f*.

Naphthaleneacetic acid, tetrahydro-α-*p*-hydroxybenzyl-, 7011*d*.

1,4-Naphthoquinone, 2-[3-(cyclohexen-1-yl)propyl]-3-hydroxy-, 1108*g*, 1109*c*, 1378*a*.

2-Phenanthrenecarboxylic acid, 1-ethylidene-1,2,3,4-tetrahydro-7-methoxy-2-methyl-, P 2642*c*, P 3850*a*, P 7048*h*.

—, 1,2,3,4-tetrahydro-7-methoxy-2-methyl-1-methylene-, Me ester, P 3849*bh*.

Salicylic acid, cyclohexylphenyl ester, P 7265*i*.

4-Stilbenecarboxylic acid, α,α′-diethyl-4′-hydroxy-, 9055*k*.

$C_{19}H_{20}O_4$ Colchinol, deamino-, Me ether, 190*d*.

Cyclohexanecarboxylic acid, 1,5-dihydroxy-2,3-diphenyl-, 157*d*.

1,3-Cyclohexanedione, 2,2′-benzylidenedi-, 1336*d*.

Isovaleric acid, α-hydroxy-, *p*-phenylphenacyl ester, 3788*b*.

Malonic acid, 2,4,6,8,10,12,14-hexadecaheptaenylidene-, 5363*i*.

Phenanthrene, 2,3,4,7-tetramethoxy-9-methyl-, 2986*e*.

Phenol, methylenedi-, dipropionate, P 4698*fg*.

1,3-Propanediol, 2,2-diphenyl-, diacetate, 9042*g*.

$C_{19}H_{20}O_4S$ Retensulfonic acid, 3-methoxy-, 4251*i*.

$C_{19}H_{20}O_5$ Acetic acid, [2-acetyl-5-(benzyloxy)phenoxy]-, Et ester, 3412*i*.

Acetic acid, [5-(benzyloxy)-2-formyl-*p*-toloxy]-, Et ester, 3412*g*.

Brazilin, *O*-trimethyl-, 2868*a*.

Chalcone, 2′,3′,4′,6′-tetramethoxy-, 182*b*

1,3-Cyclohexanedione, 2,2′-(*m*-hydroxybenzylidene)di-, 1336*e*

Hydrocinnamic acid, *p*-methoxy-β-(*p*-methoxyphenacyl)-, 4640*b*.

1-Indanone, 5,6,7-trimethoxy-4-(*p*-methoxyphenyl)-, 191*a*, 2198*b*.

1,4-Pentadien-3-ol, 1,5-bis(4-hydroxy-3-methoxyphenyl)-, P 2339*i*.

*p*-Toluic acid, α-(*p*-carboxyphenoxy)-, di-Et ester, P 7236*i*.

$C_{19}H_{20}O_5S$ Propionic acid, α-(phenylsulfonyl)-β-(2,4,6-trimethylbenzoyl)-, 7192*h*.

$C_{19}H_{20}O_6$ Acetophenone, 4-(3,4-dimethoxyphenacyloxy)-3-methoxy-, 3610*f*

Chalcone, hydroxytetramethoxy-, 1772*g*, 1773*i*, 1774*e*, 5396*g*.

Flavanone, tetramethoxy-, 1773*i*, 1774*f*, 5396*e*.

Galactopyranoside, phenyl 4,6-benzylidene-, 1327*b*

2-Naphthalenepelargonic acid, 1,4-dihydro-3-hydroxy-8,1,4-trioxo-, 3365*h*.

$C_{19}H_{20}O_{10}$ Khellinin, 5542*e*, 5543*a*, 7584*b*.

$C_{19}H_{21}BrO_6$ Hydrocinnamic acid, 2-bromo-3,4,5-trimethoxy-6-(*p*-methoxyphenyl)-, 190*h*, 2197*i*.

$C_{19}H_{21}ClN_2O_4S$ 2-(*p*-Dimethylaminostyryl)-3-phenyl-2-thiazolinium perchlorate, P 7844*a*

$C_{19}H_{21}ClN_2O_4S_2$ 3-Ethyl-5-[2-(1-ethyl-2(1*H*)-quinolylidene)ethylidene]-2-methylmercapto-4-oxo-2-thiazolinium perchlorate, P 4161*b*.

$C_{19}H_{21}ClO_2$ 1,4-Naphthoquinone, 2-chloro-3-(3-cyclohexylpropyl)-, 1382*g*.

$C_{19}H_{21}ClO_4$ Butyric acid, α-chloro-α-(*p*-hydroxybenzhydryl)-, Et ester, 1394*c*.

$C_{19}H_{21}Cl_2NO$ 1-Piperidineethanol, α,β-bis-(*p*-chlorophenyl), *and -HCl*, 3369*f*

$C_{19}H_{21}HgN_3O_6$ Phthalamic acid, *N*-[3-methoxy-2-(1,2,3,6-tetrahydro-1,3-dimethyl-2,6-dioxopurinylmercuri]-, 9335*i*.

$C_{19}H_{21}IN_2$ 1,2,3,4-Tetrahydro-2-(3-indolylmethyl)-2-methylisoquinolinium iodide, 3408*a*.

$C_{19}H_{21}IN_2OS_2$ 3-Ethyl-5-[2-(1-ethyl-4(1*H*)-quinolylidene)ethylidene]-2-methylmercapto-4-oxo-2-thiazolinium iodide, P 4161*d*

$C_{19}H_{21}K_3O_{12}S_3$ 1,2,4-Naphthalenetriol, 3-(3-cyclohexylpropyl)-, tris(K sulfate), 1374*f*.

$C_{19}H_{21}N$ 1*H*-Indeno[2,1-*c*]pyridine, 2,3,4,-4a,9,9a-hexahydro-2-methyl-9-phenyl-, *salts*, P 5808*i*

$C_{19}H_{21}NO$ Benzamide, *N*-(1-benzylcyclopentyl)-, 9047*e*

$\Delta^{1,3,5,16}$-Estratetraene, 3-hydroxy-17-cyano-, 5330*f*.

Ketone, diethylaminomethyl 2-fluorenyl, -*HCl*, 194*b*.

Piperidine, 1-diphenylacetyl-, 1144*e*

4-Piperidone, dimethyl-2,6-diphenyl-, *and -HCl*, 1410*bc*.

1-Propanone, 1-(9,10-dihydro-9-anthryl)-3-dimethylamino-, -*HCl*, P 365*h*

4-Stilbenecarboxamide, α,β-diethyl-, 4659*a*.

$C_{19}H_{21}NO_2$ 9-Carbazoleethanol, α-methyl-, butyrate, 624*b*.

Cyclohexanol, 4-phenyl-, carbanilate, 160*c*.

1*H*-Indeno[2,1-*c*]pyridine-4a,9a-diol, 2,3,4,9-tetrahydro-2-methyl-9-phenyl-, 6488*a*.

Ketone, 4-hydroxy-1-methyl-4-phenyl-3-piperidyl phenyl, 9050*c*.

4-Morpholineethanol, α-2-fluorenyl-, -*HCl*, 194*b*.

Morpholine, 4-[2-(9-fluorenyloxy)-ethyl]-, P 6671*d*.

Propiophenone, β,β′-(methylimino)di-, -*HCl*, 9050*c*.

—, β-4-morpholinyl-α-phenyl-, *and -HCl*, 9070*c*.

Valeronitrile, α,β-bis(*p*-methoxyphenyl)-, 613*e*.

$C_{19}H_{21}NO_2S$ Morpholine, 4-[*p*-(benzyloxy)-phenylthioacetyl]-, 1746*b*.

$C_{19}H_{21}NO_3$ (See also *Thebaine*.)

Crotonic acid, β-[α-(*p*-methoxyphenyl)-*p*-toluidino]-, Me ester, 646*a*.

Diphenamic acid, isopropyldimethyl-, 3815*h*.

Isothebaine, 6207*h*, 7194*d*.

Oripavine, *O*-methyl-, 238*i*.

$C_{19}H_{21}NO_3S$ Acetamide, *N*-benzyl-α-[3-(3,-4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.

Acetamide, *N*-benzyl-α-(α-methylhomopiperonylmercapto)-, P 1903*i*.

Valine, *N*-benzoyl-β-(benzylmercapto)-, 2618*c*.

$C_{19}H_{21}NO_4$ (See also *Boldine*.)

Alanine, *N*-benzoyl-β-(*p*-methoxyphenyl)-, Et ester, 7457*g*.

1,3-Dioxoloisoquinoline, tetrahydromethoxy(*m*-methoxybenzyl)-, 2320*e*, -*HCl*, 2212*c*.

Morphine, 6-acetate, 702*c*.

2-Pentanol, 3-benzyl-, *p*-nitrobenzoate, 5744*g*.

Tubocurarine, 2191*e*.

$C_{19}H_{21}NO_4S$ 1,6,7-Trimethyl-2-phenylquinolinium methyl sulfate, 4675*e*.

$C_{19}H_{21}NO_5$ Benzoic acid, *p*-hydroxy-, Bu ester, methoxycarbanilate, 593*g*

Colchicinic acid, trimethyl-, 4347*e*.

Formamide, *N*-*m*-methoxybenzyl-*N*-5-methoxyhomopiperonyl-, 9040*g*

Hydrocinnamic acid, *p*-methoxy-β-(*p*-methoxyphenacyl)-, oxime, 4640*b*.

1-Indanone, 5,6,7-trimethoxy-4-(*p*-methoxyphenyl)-, oxime, 191*a*, 2198*b*

Oxime, m. 209–12° of ketone, m. 141° 191*a*.

$C_{19}H_{21}NO_7$ *o*-Veratric acid, 6-[5-(3,4-dihydroxyphenyl)-3-methyl-2-oxazolidyl]-, 2002*i*.

$C_{19}H_{21}NS$ Quinoline, 3-amyl-6-methyl-2-(2-thienyl)-, 228*c*.

Quinoline, 3-hexyl-2-(2-thienyl)-, 228*c*.

$C_{19}H_{21}N_3$ Pyrido[3,4-*c*]isoquinoline, 2,4-dimethyl-6-(1-piperidyl)-, P 6242*g*

$C_{19}H_{21}N_3O$ Cyclopentanone, 4-methyl-2,5-diphenyl-, semicarbazone, 6624*i*

Quinaldine, 4-(*p*-dimethylaminoanilino)-6-methoxy-, *di-HCl*, 4276*i*.

$C_{19}H_{21}N_3O_2S$ 3,4-Thiazolidinedicarboxamide, 5,5-dimethyl-, 6618*c*.

$C_{19}H_{21}N_3O_3$ Benzamide, *m*-nitro-*N*-α-1-piperidylbenzyl-, 3805*h*.

Benzamide, *N*-(nitro-α-1-piperidylbenzyl)-, 3805*h*.

$C_{19}H_{21}N_3O_4$ Oxamic acid, *N*-naphthyl-, 3-carboxy-1-methylpropylidenehydrazide, Et ester, 6974*a*.

Tryptophan, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, 644*f*, 723*b*.

$C_{19}H_{21}N_3O_4S$ Sulfanilamide, $N^1$-[4-(3,4-diethoxyphenyl)-2-thiazolyl]-, 2968*h*

$C_{19}H_{21}N_3O_4S_2$ Carbamic acid, [2-ethoxy-1-(2-sulfamylphenylcarbamyl)vinyl]dithio-(?), benzyl ester, 1399*b*.

$C_{19}H_{21}N_3O_5$ Barbituric acid, 5-(1-cyclohexen-1-yl)-1,5-dimethyl-3-(*p*-nitrobenzyl)-, 9375*b*.

Pyridine, 2-[α-(2-imidazolin-2-yl-methoxy)-α-methylbenzyl]-, oxalate, 6620*c*.

$C_{19}H_{21}N_5$ Piperidine, 1-{[1-(4-biphenylyl)-1*H*-tetrazol-5-yl]methyl}-, 1861*g*

1,2,3,2*H*-Triazole, 4-(4,4-dimethyl-1-phenyl-2-imidazolidyl)-2-phenyl-, 2619*c*.

$C_{19}H_{21}N_5O$ Benzamidine, *N*-cyclohexyl-, picrate, 7444*h*.

Cyclohexanecarboxamidine, *N*-phenyl-, picrate, 7444*c*.

$C_{19}H_{21}N_5O_2S$ Benzenesulfonamide, 2-[6-acetamido-1-(2,3-dihydroxypropyl)-1*H*-benzotriazol-5-ylazo]-*N*-ethyl-3,5-dinitro-, P 3625*h*.

$C_{19}H_{21}NaO_3$ 1,4-Naphthoquinone, 2-(3-cyclohexylpropyl)-3-hydroxy-, Na deriv., 1374*f*.

$C_{19}H_{22}$ Fluorene, 9-(1,3-dimethylbutyl)-, 9059*b*.

$C_{19}H_{22}BrNO_4$ Hydrocinnamohydroxamic acid, 2-bromo-3,4,5-trimethoxy-6-(*p*-methoxyphenyl)-, 190*i*.

$C_{19}H_{22}Br_2N_4O_2$ Benzamidine, 4,4′-(penta-

methylenedioxy)bis[3 - bromo-, *di-HCl*, 9049*c*.

$C_{19}H_{22}Br_2O_2$ Pentane, 1,5-bis(4-bromo-*o*-toloxy)-, 9048*i*.

$C_{19}H_{22}ClNO$ Allylamine, *N*-[2-(2-biphenylyloxy)ethyl]-*N*-(2-chloroethyl)-, *-HCl*, 6309*b*.

$C_{19}H_{22}ClN_3S$ Lepidine, 2-[(5-chloro-2-thenyl)-(2 - dimethylaminoethyl)amino]-, 8389*i*.

$C_{19}H_{22}Cl_2N_4O_2$ Benzamidine, 4,4'-(pentamethylenedioxy)bis[3 - chloro-, *di-HCl*, 9049*c*.

$C_{19}H_{22}INO_2$ 5,6-Dihydro-8-hydroxy-5,5 - trimethylphenanthridinium iodide, Et carbonate, P 2047*f*.

$C_{19}H_{22}I_2N_4O_2$ Benzamidine, 4,4'-(pentamethylenedioxy)bis[3 - iodo-, *di-HCl*, 9049*d*.

$C_{19}H_{22}N_2$ (See also *Valeronitrile, γ-dimethylamino-α,α-diphenyl-*.)

Hydrocinchene, 4676*e*.

Isohydrocinchene, 4677*b*.

Isoquinoline, 2,2'(1*H*,1'*H*)-methylenebis[3,4-dihydro-, 3407*h*.

Isovaleronitrile, γ-dimethylamino-α,α-diphenyl-, 3391*f*, *- HCl*, 7138*e*; *and - HCl*, 2193*i*, 4243*d*; *and salts*, 7466*d*.

Propionitrile, β - diethylamino - α,α-diphenyl , 1280*g*.

$C_{19}H_{23}NO$ (See also *Cinchonidine; Cinchonine*.)

Apoquinamine, 7490*b*.

Benzamide, *N* - α -1 - piperidylbenzyl-, 3805*h*

*h* Cinchonine, 4678*i*.

Cinchotoxine, 231*b*.

Isoquinamine, anhydro , *and sulfates*, 7489*i*, 7490*a*.

4 Quinazolinol, 4 - butyl - 3,4 - dihydro 2-methyl-3-phenyl-, 4676*a*.

Yohimbone, 7491*g*.

$C_{19}H_{23}NOS$ Phenothiazine, 10- *N*, *N*-diethylalanyl , 7938*e*.

$C_{19}H_{24}NO_2$ Acetophenone, α,α'-(trimethylenedimmo)di-, *and salts*, 3800*d*.

Veratrylmethanol, 10 - acetyl - α - (dimethylammomethyl - , *HCl*, 234*a*.

1,3,3(2*H*,4*H*) Isoquinolinedione, hexahydro 2 [2-(3 indolyl)ethyl] , 7492*c*.

Naphthalimide, *N* - (3 - diethylaminopropyl)-, *- HCl*, 617*b*.

$H_{24}NO_3S$ Benzamide, *N*, *N'* - [3 hydroxypropylenebis(thiomethylene)]- bis , P 3571*h*, P 6223*a*.

$H_{24}N_2O_4$ Acetanilide, *p*,*p'* (trimethylenedioxy)bis , 3381*b*.

Glutaric acid, α,γ-di-2-pyridyl-, di-Et ester, 7490*d*

$H_{25}NO_3S$ Penicillin, *p*-allyloxybenzyl-, 2271*c*, 4921*f*

Pheno[3,4 - *d*]pyrimidine - 5 - valeric acid, 1 - acetyloctahydro - 2,4 - dioxo 3-phenyl-, P 7052*f*.

$H_{25}NO_4$ Acetophenone, α,α'-(trimethylenedimmo)bis[3,4 - dihydroxy- 3800*f*

Cyclohexanecarboxylic acid, 5-(1,3-benzodioxan - 6 - ylazo) - 2,2 - dimethyl-1,6-dioxo-, Et ester, P 8149*c*.

$H_{25}NS$ Phenothiazine, 10 - [2 - (1 pyrrolidyl)propyl]-, *- HCl*, 631*g*.

Urea, 1 - phenyl - 3 - [2 - (5,6,7,8 tetrahydro - 2 - naphthyl)ethyl] - 2 - thio-, 8390*b*

$C_{19}H_{25}N_3$ Quinoxaline, 2-[benzyl(2-dimethylaminoethyl)amino]-, *- HCl*, 7023*d*.

$C_{19}H_{25}N_3O_2S$ Benzenesulfonamide, *N*, *N*-diethyl *p* (2 - methyl - 3 - indolylazo) , P 0662*h*.

$C_{19}H_{26}N_4O_4$ Benzaldehyde, 2,4-diisopropyl-, 2,4 dinitrophenylhydrazone, 6182*i*.

Caprophenone, α-methyl-, 2,4-dinitrophenylhydrazone, 2931*h*.

Enanthophenone, 2,4-dinitrophenylhydrazone, 6991*b*

$C_{19}H_{27}NO_2$ Piperidine, benzyl-1-methyl-, picrate, 4274*g*.

Piperidine, 1-α-methylbenzyl-, picrate, 7920*i*

$C_{19}H_{27}N_3O_{12}S$ Sulfaguanidine, vitamin C deriv., 5541*e*.

$C_{19}H_{27}N_5O_4$ Morpholine, 4-[2-nitro-2-(*p*-phenylazophenylazo)propyl]-, P 8154*c*.

$C_{19}H_{27}N_5O_6$ Benzamidine, 4,4'-(pentamethylenedioxy)bis[3 - nitro-, *di-HCl*, 9049*d*.

$C_{19}H_{27}N_5O_7$ Pyrimidine, 1,4,5,6 tetrahydro methyl 2 - phenethylamino-, picrate, 4273*d*.

$C_{19}H_{27}N_9O_7$ Guanidine, 1-(5,6-dimethyl-2-benzimidazolyl)-3-isopropyl-, picrate, 1405*h*.

$C_{19}H_{31}N_9O_9$ Guanidine, 1-(5,6-dimethoxy-2-benzimidazolyl) - 3 - isopropyl-, picrate, 1405*g*.

$C_{19}H_{32}N_2O_{14}$ Piperidine, 3-amino-1-ethyl-, dipicrate, 6207*c*.

Pyrrolidine, 2-(aminomethyl)-1-ethyl-, dipicrate, 7019*h*.

$C_{19}H_{32}O$ Anisole, 3-ethyl-2-(1,2,3,4-tetrahydro-2-naphthyl)-, 205*i*.

Benzophenone, 4,4'-dipropyl-, 7004*h*.

—, 2,2',3,5-6,6'-hexamethyl-, 8370*a*.

Butyrophenone, 2,4,6-trimethylphenyl-, 3390*bc*.

*o*-Cresol, 4-cyclohexyl-α-phenyl-, 2969*d*.

Isovalerophenone, *p*-methyl-β-*p*-tolyl , 7917*b*.

Methanol, cyclohexyldiphenyl-, 3797*a*.

$C_{19}H_{32}OS_2$ Benzophenone, 4,4'-bis(propylmercapto), 7469*e*.

$C_{19}H_{32}O_2$ Acetophenone, 4-butoxymethyl-α-phenyl-, 3825*i*, 3826*a*.

Acetophenone, 2,5-dimethyl-α-phenyl-4-propoxy-, 7924*i*.

—, 4 - isobutoxy - 2 - methyl - α - phenyl-, 3826*a*.

2-Furanol, 2-ethyltetrahydro-5-methyl-3,3-diphenyl-, 2202*b*.

Indan, 5 - methoxy - 2 - (*p* methoxy phenyl)-1,3-dimethyl-, 1758*d*.

5-Indanol, 1-butyl-2-(*p*-hydroxyphenyl) , 1758*a*.

—, 2 - (*p* - hydroxyphenyl) - 1 - isobutyl , 1758*a*.

—, 2 - (*p* - hydroxyphenyl) - 1 - isopropyl-3-methyl-, 1758*d*.

—, 2 - (*p* - hydroxyphenyl) - 3 - methyl-1-propyl-, 1758*d*.

1,4 - Naphthoquinone, 2 - (3 - cyclohexylpropyl)-, 1382*g*.

4-Stilbenol, α,α' diethyl - 4' - methoxy-, 5773*b*, 7114*d*.

$C_{19}H_{32}O_3$ (See also *2-Phenanthrenecarboxylic acid, ethyl - 1,2,3,4 - tetrahydro - 7-methoxymethyl-*.)

Auroglaucin, 7913*a*.

Benzoic acid, *p* (α,β-diethylhydroxy phenethyl) , 4659*a*, 9055*i*.

Benzophenone, dimethoxy-2,3,5,6 tetramethyl-, 186*gh*, 8370*a*.

1-Cyclopentene 1-acetic acid, 2-(*p*-cyclohexylphenyl)-5 oxo-, 3429*i*.

3 - Cyclopentene 1 - carboxylic acid, 1 - methyl - 5 - (1,2,3,4 - tetrahydro-1 oxo 2 - naphthyl) , Et ester, 3829*i*.

Estrone, 16 (hydroxymethylene) , 245*f*.

1-Naphthalenebutyric acid, α-methyl-α-propionyl , Me ester, P 3850*g*

2-Naphthalenepropionic acid, β ethylidene - 6 - methoxy - α,α dimethyl-, Me ester, 3814*g*.

1,4-Naphthoquinone, 2 - (cyclohexylpropyl)-3-hydroxy-, 1108*g*, 1374*ef*, 1384*d*, 2610*b*.

—, 2-(cyclooctylmethyl)-3-hydroxy-, 1374*h*.

—, 2 (4 cyclopentylbutyl)-3-hydroxy , 1374*h*, 2610*b*.

—, 2 - hydroxy - 3 - (2 - methyl - 2-octenyl) , 1381*g*.

—, 2-hydroxy-3 (8-nonenyl)-, 2610*c*.

2-Phenanthrenecarboxylic acid, 1,2-diethyl - 1,2,3,4 - tetrahydro - 7 - hydroxy , P 3849*f*.

—, 1 ethyl - 1,2,3,4 - tetrahydro - 7-hydroxy-1,2-dimethyl-, P 3850*e*.

—, 1 - ethyl - 1,2,3,4 - tetrahydro - 7-hydroxy - 2 methyl-, Me ester, P 3849*a*.

Seneciophenone, 4 - (1,3,5 - heptatrienyl) - 2,5 - dihydroxy - 3 - methyl , 7913*a*, 7915*a*.

Valerophenone, *p* - methoxy - β - (*p* methoxyphenyl)-, P 4699*g*.

$C_{19}H_{32}O_3S$ Cyclohexanol, 4-phenyl-, *p*-toluenesulfonate, 160*c*.

$C_{19}H_{32}O_4$ Malonic acid, [2-(1-naphthyl)-ethyl]-, di Et ester, 6609*g*.

1-Naphthalenebutyric acid, α acetyl-6-methoxy-, Et ester, P 3850*f*.

—, α-acetyl-6-methoxy-α-methyl-, Me ester, P 3850*f*.

1,4 - Naphthoquinone, 3 - (3 - cyclohexylpropyl)-2,6-dihydroxy-, 1383*a*.

—, 2 - hydroxy - 3 - [3 - (4 - hydroxycyclohexyl)propyl]-, 1381*h*, 2610*c*.

—, 2 - hydroxy - 3 - (2 - methyl - 7 - oxooctyl)-, 1387*f*.

2 Phenanthrenecarboxylic acid, 1,2,3,4-tetrahydro - 1 - hydroxy - 7 - methoxy-1,2-dimethyl-, Me ester, P 3849*b*, P 7969*h*.

Valeric acid, α,β-bis(*p*-methoxyphenyl)-, 613*e*.

$C_{19}H_{32}O_5$ 3-Chromancarboxylic acid, 5,6,7,-8 - tetrahydro - 4 - (*p* - methoxyphenyl)-2-oxo-, Et ester, 3418*g*.

2-Naphthalenecaprylic acid, 1,4-dihydro-3 - hydroxy - 1,4 - dioxo-, Me ester, 1387*f*.

2-Naphthalenoënanthic acid, 1,4-dihydro - 3 - hydroxymethyl - 1,4 - dioxo-, Me ester, 1381*d*, 1387*f*.

3-Pentanone, 1,5-bis(4-hydroxy-3-methoxyphenyl)-, P 2339*i*.

Pyrocatechol, 4-propyl-, carbonate, P 4299*a*.

$C_{19}H_{32}O_6$ Hydrocinnamic acid, 3,4,5-trimethoxy - 2 - (*p* - methoxyphenyl)-, 190*h*, 2198*a*.

9,10-Phenanthrenediol, 9,10-dihydro-2,3,4,7 - tetramethoxy - 9 - methyl-, 2986*e*.

$C_{19}H_{22}BrN_2$ Epihydrocinchonidine, bromide, *and dinitrate*, 4676*g*.

Epihydrocinchonine, bromide, *and - H Br*, 4676*e*.

Hydrocicuchonidine, bromide, *and salts*, 4670*g*.

*h*-Hydrocinchonidine, bromide, *and dinitrate*, 4670*g*.

Hydrocinchonine, bromide, *and salts*, 4676*e*.

*h*-Hydrocinchonine, bromide *and salts*, 4676*e*.

(3 - Indolylmethyl)dimethylphenethylammonium bromide, 3407*g*.

$C_{19}H_{23}BrN_4O_2$ Benzamidine, 3-bromo-4,4'-(pentamethylenedioxy)di-, *di-HCl*, P 688*f*, 9049*c*.

$C_{19}H_{23}BrO_{10}S$ Glucose, 2 tosylacetobromo-, 1726*i*.

Glucosyl bromide, 3,4,6-triacetate 2-*p*-toluenesulfonate, 3368*c*.

$C_{19}H_{23}ClN_2$ *p*-Toluidine, reaction product with 4-chloro-3-penten-2-one, 7937*e*.

$C_{19}H_{21}ClN_2O_4S_4$ *p*-Dithiane, 2-(chloromethyl) - 1,1,4,4 - tetrahydro - 1,4-bis(*p*-tolylsulfonylimino)-, 7030*c*.

$C_{19}H_{23}ClN_4O_9$ 1,3-Propanediamine, *N*-(5-chloro - 2 - nitrophenyl) - *N*, *N* - diethyl-, picrate, 3009*a*.

$C_{19}H_{23}ClO_4$ 1-Indancarboxylic acid, 2-chloro-2 - (3 - cyclohexylpropyl) - 1 - hydroxy-3-oxo-, 1384*e*.

$C_{19}H_{23}Cl_2N_5$ Biguanide, 1,2 - bis(*p* - chlorophenyl) - 4 - ethyl - 5 - isopropyl-, P 684*c*, 9039*h*.

$C_{19}H_{23}Cl_2N_5O_2$ Biguanide, 1,2-bis(*p*-chlorophenyl) - 5 - isopropyl-, acetate, P 684*c*, 9039*h*.

$C_{19}H_{23}D_2NO_4$ Malonic acid-$d_2$, butyl-, *N*, *N*-dimethylbornylamine salt, 3392*g*.

$C_{19}H_{23}IN_2OS$ 3 - Ethyl - 2 - [5 - (3 - ethyl - 2-thiazolidylidene) - 1,3 - pentadienyl]-benzoxazolium iodide, 6930*a*.

$C_{19}H_{23}IN_2O_2$ 8 - Carboxyamino - 5,6 - dihydro - 5,5,6 - trimethylphenanthridinium iodide, Et ester, P 2647*f*.

$C_{19}H_{23}IN_2S$ 1 - Ethyl - 4 - [3 - (3 - ethyl - 2-thiazolidylidene)propenyl]quinolinium iodide, 2531*d*.

$C_{19}H_{23}IN_2S_2$ 3 - Ethyl - 2 - [5 - (3 - ethyl - 2-thiazolidylidene) - 1,3 - pentadienyl]-benzothiazolium iodide, 6929*f*.

$C_{19}H_{23}IN_4O_2$ Benzamidine, 3-iodo-4,4'-(pentamethylenedioxy)di-, *di-HCl*, 9049*d*.

$C_{19}H_{23}IO_{10}S$ Glucose, 1,3,4-triacetyl-2-tosyl-6-iodo-, 1726*h*.

$C_{19}H_{23}N$ 9 - Fluoreneëthylamine, *N*, *N*-diethyl-, *and sulfate*, P 1810*g*.

Phenethylamine, *N*-cinnamyl-*N*,β-dimethyl-, 8554*b*.

Piperidine, 3 - benzhydryl - 1 - methyl-, *and - HCl*, P 1810*g*.

$C_{19}H_{23}NO$ Benzophenone, 4,4'-dipropyl-, oxime, 7004*h*.

Cyclohexanecarboxamide, 3,3 - dimethyl-*N*-1-naphthyl-, 9044*f*.

2 - Fluorenemethanol, α - (diethylaminomethyl)-, *- HCl*, 194*b*.

*p* - Hydrocinnamotoluidide, *p*,β,β-trimethyl-, 7917*c*.

Isovalerophenone, *p*-methyl-β-*p*-tolyl-, oxime, 7917*b*.

Methanol, (1 - methyl - 3 - piperidyl)-diphenyl-, *and - HCl*, P 7513*h*.

Morpholine, 4 - (3,3 - diphenylpropyl)-, *and - HCl*, P 1810*f*.

1 - Naphthol, 2 - (dimethylaminomethyl)-1,2,3,4-tetrahydro-1-phenyl-, P 5417*g*.

2 - Pentanone, 5 - dimethylamino - 3,3-diphenyl-, *- HCl*, 7467*c*, 9053*e*.

4-Piperidinol, 3,5-dibenzyl-, *- HCl*, 4275*g*.

Pyrrolidine, 1 - [2 - (benzhydryloxy)-

ethyl]-, *and* -*HCl*, 631*a*; *and salts*, P 2235*c*, P 5804*d*.
—, 1 - [2 - (*o* - benzylphenoxyethyl]-, *and* -*HCl*, 3386*d*.
Triethylamine, 2 - (9 - fluorenyloxy)-, P 6671*d*.

**$C_{19}H_{23}NOS$** Thiamorphiline, 4-[2-(benzhydryloxy)ethyl]-, -*HBr*, P 2235*c*, P 5804*d*.

**$C_{19}H_{23}NO_2$** *β*-Alanine, *N*, *N*-dimethyl-*α*,*α*-diphenyl-, Et ester, *and* -*HCl*, 4245*f*.
Benzhydrol, *α* - (2 - dimethylaminoethyl)-, acetate, P 5417*f*.
Benzylamine salt, m. 119°, 3351*h*.
*m* - Cresol, 2 - ethyl - 5 - isopropyl-, carbanilate, 2969*c*.
Hydrocinnamic acid, *α*-methyl-*β*-vinyl-, benzylamine salt, 3351*h*.
6,7 - Isoquinolinediol, 2 - ethyl - 1,2,3,4-tetrahydro - 1 - phenethyl-, -*HBr*, P 2241*f*.
Isovaleric acid, *γ*-dimethylamino-*α*,*α* diphenyl-, *and salts*, 611*g*.
Morpholine, 4 - benzyl - 2 - ethoxy - 2-phenyl-, -*HCl*, 4239*f*.
—, 4 - [2 - (benzhydryloxy)ethyl]-, 9366*e*; -*HCl*, P 2235*c*, P 3462*h*, P 5804*c*; *and* -*HCl*, P 1064*f*.
—, 4 - [2 - (*α* - phenyl - *o* - toloxy)-ethyl]-, -*HCl*, 3386*d*.
4-Pentenoic acid, 2-methyl-5-phenyl, benzylamine salt, 3351*h*.
3 - Piperidinemethanol, 4 - hydroxy - 1-methyl - *α*,4 - diphenyl-, -*HCl*, 9050*i*, 9051*a*.
Propionamide, *N* - 2 - hydroxyethyl - *β*,-*β*-di-*p*-tolyl-, 2274*a*.
Propionic acid, *α*,*α*-diphenyl-, 2-dimethylaminoethyl ester, -*HCl*, 3392*b*.
Triethylamine, 2 - (9 - xanthyloxy)-, P 6671*d*.
Valeric acid, *γ*-dimethylamino-*α*,*α*-diphenyl-, 3391*b*; *and salts*, 611*e*, 7466*i*.

**$C_{19}H_{23}NO_3$** Acetamide, *N*-[2,3-bis(*p*-methoxyphenyl)propyl]-, 2607*c*.
Acetic acid, (2-dimethylaminoethoxy)-phenyl-, benzyl ester, -*HBr*, 2189*e*.
Cyclohexanemethanol, 4-methoxy-, 1-naphthalenecarbamate, 7437*c*.
Cyclohexanol, 4 - (methoxymethyl)-, 1-naphthalenecarbamate, 7436*g*.
Erysodine, methoxy-, P 6674*d*.
Erysotrine, 4281*d*.
6,7,8 - Isoquinolinetriol, 1,2,3,4 - tetrahydro - 1 - methyl - 2 - (3 - phenylpropyl)-, -*HI*, P 2241*g*.
1,4 - Naphthoquinone, 2 - (3 - cyclohexylpropyl)-3-hydroxy-, oxime, 1374*e*.

**$C_{19}H_{23}NO_3S$** Hydrocinnamamide, *N* - (carvacrylsulfonyl)-, P 8622*c*.
3-Thiopheneglycolic acid, *α*-phenyl-, 2-(1-piperidyl)ethyl ester, -*HCl*, 3521*e*.

**$C_{19}H_{23}NO_4$** (See also *α-Fagarine*.)
Carbamic acid, [*p*-methoxy-*α*-(*p*-methoxyphenyl)phenethyl]-, Et ester, 7008*d*.
Homopiperonylamine, 5 - methoxy - *N*-*m* - methoxybenzyl - *N* - methyl-, 2320*d*; -*HCl*, 2212*c*; *and* -*HCl*, 602*c*, 9046*d*.
1 - Indanamine, 5,6,7 - trimethoxy - 4 - (*p*-methoxyphenyl)-, -*HCl*, 2198*b*.
1-Pentanol, 2-amino-, dibenzoate, 2579*h*.

**$C_{19}H_{23}NO_4S$** $\Delta^{2,(3H)e}$ - Thiophenecaproic acid, 4 - benzamido - 4,5 - dihydro - 3-oxo-, Et ester, P 1809*f*, P 3468*e*.

**$C_{19}H_{23}NO_5$** Ethylamine, 2 - (benzhydryloxy)-*N*,*N*-dimethyl-, oxalate, P 3462*h*.

**$C_{19}H_{24}N_2$** 2 - Imidazoline, 2 - (*N* - benzylanilino)propyl)-, -*HCl*, P 683*d*, P 692*e*, P 5049*c*.

**$C_{19}H_{25}N_3O$** Acetophenone, *α* - [2,4 - dimethyl-6 - (1 - piperidyl) - 5 - pyrimidyl] , *and* -*HCl*, 3395*i*.
3 - Hexanone, 1,2 - diphenyl-, semicarbazone, 6624*i*.
2 - Imidazoline, 2 - [2 - (*N* - benzyl - *o*-methoxyanilino)ethyl]-, -*HCl*, P 692*e*
—, 2 - [(*N* - benzylphenetidino)methyl]-, P 683*d*; -*HCl*, P 692*e*, P 5049*b*.

**$C_{19}H_{23}N_3O_2$** (See also *Ergonwine*.)
Isolysergamide, *N*-(2-hydroxyisopropyl)-, P 2741*b*.
Oxamic acid, *N*-naphthyl-, heptylidenehydrazide, 6973*i*.

**$C_{19}H_{23}N_3O_3$** Hydrocinchonine, 5-nitro-, 6635*a*.
Isolysergamide, *N* - (2,2′ - dihydroxyisopropyl)-, P 2243*a*.
Isoquinamine, nitroso-, 7489*i*.
Lysergamide, *N* - (2,2′ - dihydroxyisopropyl)-, P 2242*i*.

**$C_{19}H_{23}N_3O_{11}$** Malonic acid, acetamido(3-hydroxypropyl)-, di-Et ester, 3,5-dinitrobenzoate, 143*c*.

**$C_{19}H_{23}N_3S$** Lepidine, 2-[2-(dimethylaminoethyl) - 2 - thenylamino]-, 8389*i*.

**$C_{19}H_{23}N_5$** 1 - Piperidinecarboxamidine, *N*-(*N*, *N*-diphenylguanyl) , 9036*f*.

**$C_{19}H_{23}N_5O_9$** 2,6 - Acetoxylidide, *α* - [(2 - hydroxyethyl)methylamino]-, picrate, 1025*a*.

**$C_{19}H_{23}N_7O_3S$** 1 *H* - Benzotriazole - 1 - ethanol, 4 - bis(2 - hydroxyethyl)amino - 7-[2 - (methylsulfonyl) - 4 - nitrophenylazo]-, P 3026*a*.

**$C_{19}H_{24}ClNO$** Isopropylamine, *N*-[2-(2-biphenylyloxy)ethyl] - *N* - (2 - chloroethyl) , -*HCl*, 6309*b*
Propylamine, 3 - (4 - biphenylyloxy) - *N*-(2 - chloroethyl) - *N* - ethyl-, -*HCl*, 6300*c*.
—, *N* - [2 - (2 biphenylyloxy)ethyl] - *N*-(2 chloroethyl)-, *HCl*, 6309*b*.
—, *N* - [2 - (2 biphenylyloxy)ethyl] - 3-chloro *N* ethyl , -*HCl*, 6309*b*.

**$C_{19}H_{24}ClNO_4$** See *Dionine*.

**$C_{19}H_{24}ClN_3O$** Capri blue, 6732*d*.

**$C_{19}H_{24}ClN_5O_2$** Biguanide, (*p* - chlorophenyl)-5 - isopropylphenyl-, acetate, P 6844, 9039*g*.

**$C_{19}H_{24}ClN_3$** Benzimidazole, chloro - 2 - [4 methyl - 6 - [2 - (1 - piperidyl)ethylamino] - 2 - pyrimidylamino]-, P 3854.

**$C_{19}H_{24}INO_3$** Erysodine, methiodide, 4281*b*
Homopiperonyl - *m* - methoxybenzyldimethylammonium iodide, 602*h*.

**$C_{19}H_{24}NO_4P$** 1 - Piperidinephosphonic acid, bis(*o* methoxyphenyl) ester, 6178*g*.

**$C_{19}H_{24}N_2$** Benz[*g*]indolo[2,3 *a*]quinolizine, 1,2,3,4,4a,5,7,8,13,13a,13b,14,14a-dodecahydro , *and salts*, 7491*g*.
Compd , m. 180 1°, *and* -*HI*, 7492*a*
Hydrocinchomidine, desoxy-, 4676*i*.
*h* Hydrocinchomidine, desoxy-, 4676*h*, 4678*a*
Hydrocinchonine, desoxy-, 4676*i*.
*n* Hydrocinchonine, desoxy-, *and* -*HI*, 4677*g*
Iso - *h* - hydrocinchonine, desoxy-, *and* -*HI*, 4677*i*

**$C_{19}H_{24}N_2O$** Acetamide, *N* - (2 - dimethylaminoethyl) - *N* - *o* - phenylbenzyl-, 1355*h*
Acridanmethanol, *α* - (diethylaminomethyl) , 2334, 5860*h*.
Cinchonamine, 4678*i*
Ephydrocinchonidine, 4676*g*
Ephydrocinchonine, 4676*i*
Hydrocinchonidine, 4676*g*.
Hydrocinchonine, 4676*d*
*h* Hydrocinchonine, 4676*c*
Isoquinamine, dihydroanhydro-, *sulfate*, 7490*b*.
1 - Piperidinecarboxamide, *N* - 1 - naphthyl 2-propyl-, 8365*c*.
Pyridine, 2 - [*α* methyl - *α* - 2 - (1 - pyrrolidyl)ethoxybenzyl] , *and* -*HCl*, 2200*i*
Urea, 1,3 - bis(*α*,*α* - dimethylbenzyl)-, 6994*a*.
Valeramide, *γ* dimethylamino - *α*,*α* - diphenyl-, 7466*i*

**$C_{19}H_{24}N_2OS$** Phenothiazine, 10 - (2 - diethylaminoethyl) - 2 - methoxy-, *and* -*HCl*, P 2648*b*.

**$C_{19}H_{24}N_2O_2$** Anthranilic acid, *N* phenyl , 2 diethylaminoethyl ester, -*HCl*, P 4697*c*.
Isoquinamine, *and* -*HCl*, 7489*h*
Morpholine, 4 - [2 - (*α* methyl - *α* - 2-pyridylbenzyloxy)ethyl]-, *and* -*HCl*, 2206*i*
Quinamine, 4678*i*, 7489*h*.

**$C_{19}H_{24}N_2O_4$** Cyclohexanecarboxylic acid, 2 [[2 - (3 - indolyl)ethyl]carbamyl-methyl] , 7492*c*

**$C_{19}H_{24}N_2O_4S$** Acetamide, *α*-(*p*-isoamylphenoxy)- *N* sulfanilyl-, P 3036*a*.
Isovaleramide, *N* - sulfanilyl - *α* - 3,4-xylyloxy-, P 3036*b*.
$\Delta^{2(3H),e}$ - Thiophenecaproic acid, 4 - benzamido - 4,5 - dihydro - 3 - oxo-, Et ester oxime, P 3468*h*.
Thiophenevaleric acid, 3-acetamido-4-benzamido - 4,5 - dihydro-, Me ester, P 3040*i*, P 3468*i*.

**$C_{19}H_{24}N_2O_4S_2$** Penicillin, *γ*-phenylpropylmercaptomethyl-, 2274*h*.

**$C_{19}H_{24}N_2O_5$** Carbanilide, 4,4′ - diethoxy-3,3′-dimethoxy-, 2177*g*.
Carbanilide, *N* - ethyl - 3,3′,4,4′ - tetramethoxy-, 2177*j*.
Urea, 1,3-diveratryl-, 2177*a*.

**$C_{19}H_{24}N_2O_6$** Cyclohexanol, 4 - cyclohexyl-, 3,5 - dinitrobenzoate, 160*e*.

**$C_{19}H_{24}N_2O_6S$** 2 - Thiazolidineacetic acid, 3 acetyl - 4 - carboxy - 5,5 - dimethyl-*α* - (*α* - phenylacetamido)-, Me ester, 8892*g*.

**$C_{19}H_{24}N_2O_7$** Glutamic acid, *N*-[*p*-(2,3-dihydroxyallylideneamino)benzoyl]-, di-Et ester, P 6236*b*.

**$C_{19}H_{24}N_2O_9$** Malonic acid, acetamido(3-hydroxypropyl)-, di-Et ester, *p*-nitrobenzoate, 143*c*.

**$C_{19}H_{24}N_2S$** Phenothiazine, 10-(3-diethylaminopropyl)-, P 2648*b*.
Phenothiazine, 10 - (2,2 - dimethyl - 3-dimethylaminopropyl)-, P 2648*c*.

**$C_{19}H_{24}N_4$** Pyrimidine, 4-(*p*-dimethylaminostyryl) - 6 - (1 - piperidyl)-, 1780*g*

**$C_{19}H_{24}N_4O$** Pyrimidine, 4 - (*p* - dimethylaminostyryl) - 6 - methyl - 2 - (4 - morpholinyl)-, 3427*a*.

**$C_{19}H_{24}N_4O_2$** Benzamidine, *p*,*p*′-(pentamethylenedioxy)di-, 310*f*, 3147*c*, 8536, 9263*h*.

**$C_{19}H_{24}N_4O_2S$** Benzenesulfonamide, *N*, *N* diethyl - *p* - [2 - (2 - methyl - 3 - indolyl)-hydrazino]-, P 6662*h*.

**$C_{19}H_{24}N_4O_2S_2$** Sulfathiazole, compd. with *N*,*α* - dimethylphenethylamine, P 9389*h*.

**$C_{19}H_{24}N_4O_5$** Ribose, 3,5-dimethyl-, phenylosazone, 2953*i*.

**$C_{19}H_{24}N_4O_5S_2$** Sulfathiazole, compd. with ephedrine, P 9389*h*.

**$C_{19}H_{24}N_4O_4$** *α* - Ionone, 2,4 - dinitrophenylhydrazone, 3374*e*.
*β* - Ionone, 2,4 - dinitrophenylhydrazone, 3374*e*.
Ketohexose, 6-methyl-, phenylosazone, 5370*f*.
1,5 *H* - Pyrindin - 2 - ol, 3,3′ - methylene-bis[4 - amino - 6,7 - dihydro - (?), acetate, 9069*a*.

**$C_{19}H_{24}N_4O_5$** Mannoheptulose, phenylosazone, 7548*d*.
Perseulose, phenylosazone, 8358*i*
Sedoheptulose, phenylosazone, 7548*d*

**$C_{19}H_{24}N_4O_6$** 2 - Cyclohexene - 1 - carboxylic acid, 3 - ethyl - 2,6 - dimethyl - 4 oxo-, Et ester, 2,4 - dinitrophenylhydrazone, 2969*b*.

**$C_{19}H_{24}N_4O_8$** 2 - Pyridinemethanol, *α* - hexyl *α*-methyl-, picrate, 2205*b*
Vitamin $B_{12}$ (hydroxymethoxy)methyl ether, 7938*i*.

**$C_{19}H_{24}N_4O_{16}$** 3 - Cyclohexene - 1 - carboxylic acid, 4 - (2 - dimethylaminoethyl) - 2 oxo-, Et ester, picrate, 7432*g*.

**$C_{19}H_{24}O$** 2-Pelargonomaphthone, 9424*i*

**$C_{19}H_{24}O_2$** 1,4 - Androstadiene - 3,17 - dione 4271*c*.
Butane, 2 - (*p* methoxybenzyl) - 1 - (*p* methoxyphenyl)-, P 4699*i*
Estrone, Me ether, 3432*a*.
—, 1-methyl-, 3090*a*, 4270*i*
1,4 - Naphthoquinone, 2 - nonyl- P 9085*g*.
Pentane, 1,3 - bis(*p* - methoxyphenyl)- P 4699*h*.
Phenol, *p* - (*α*,*β* - diethyl *p* methoxyphenethyl)-, 2104*i*, P 3979*g*, 7007*i*
—, (1,3 - diethyltrimethylene)di-, P 4700*b*.
—, *p* - [ethyl - 3 - (*o* - hydroxyphenyl amyl]-, P 4700*b*.
—, 4,4′ - methylenebis[2,3,6 trimethyl-, 7465*e*.
Propionaldehyde, *β*,*β* - diphenyl , di - Et acetal, P 1810*h*.

**$C_{19}H_{24}O_3$** $\Delta^{4,5}$ - Androstene, 3,11,17 triketo-, P 4432*e*.
$\Delta^4$ - Androstene - 3,11,17 - trione, 3019*i*.
Cyclohexanone, 3-methyl-, compd with phenol, 1076*b*.
$\Delta^{1,3,5}$ - Estratriene, 3 - methoxy - 17(*α*) hydroxy-16-keto-, 3434*g*.
2 - Naphthalenepropionic acid, *β* - ethyl 6 - methoxy - *α*,*α* - dimethyl-, Me ester, 3814*h*.
1,4 - Naphthoquinone, 2 - (2,6 dimethyl heptyl)-3-hydroxy-, 1108*g*, 1373*f*.
—, 2-(3-ethylheptyl)-3-hydroxy-, 1373*g*.
—, 2 - (2 - ethyl - 3 - methylhexyl) - 3-hydroxy-, 1373*g*.
—, 2 - hydroxy - 3 - (methyloctyl)-, 1108*g*, 1109*c*, 1373*de*, 2610*b*.
—, 2-hydroxy-3-nonyl-, 1373*c*, 2610*b*
—, 2 - hydroxy - 3 - (3 - propylhexyl)-, 1373*g*.
1 - Phenanthreneacetic acid, 1,2,3,4,4a,-9,10,10a - octahydro - 2 - (hydroxymethyl) - 7 - methoxy - 2 - methyl-, δ-lactone, 1762*e*.
2 - Phenanthrenecarboxylic acid, 1 - ethyl 1,2,3,4,9,10 - hexahydro - 7 - methoxy-2-methyl-, 7033*f*.

$C_{19}H_{24}O_4$ 2 - Cyclohexene - 1 - malonic acid, α-phenyl-, di-Et ester, 1388*a*.
Homolevulinic acid, ε-*p*-cyclohexylbenzoyl-, 3429*g*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-(hydroxymethyloctyl)-, 1381*g*, 1387*c*.

$C_{19}H_{24}O_6$ Glucitol, 1-phenyl-1-*p*-tolyl-1-desoxy-, P 3448*c*.
1 - Indancarboxylic acid, 2 - (3 - cyclohexylpropyl) - 1,2 - dihydroxy - 3-oxo-, 1384*d*.
3 - Pentanol, 1,5 - bis(4 - hydroxy - 3-methoxyphenyl)-, P 2339*i*.
1 - Phenanthreneacetic acid, 2 - carboxy-1,2,3,4,4a,9,10,10a - octahydro - 7-methoxy-2-methyl-, 3431*h*.

$C_{19}H_{40}O_3S$ Estrone - 16 - sulfonic acid, 1-methyl-, 2214*h*.
Estrone - 16 - sulfonic acid, Me ester, 2214*g*.

$C_{19}H_{24}O_6$ Malonic acid, piperonylidene-, di-Bu ester, 3555*d*.
Veratryl alcohol, α - [(4 - (1 - hydroxyethyl) - 2 - methoxyphenoxy]methyl]-, 3610*f*.

$C_{19}H_{24}O_8$ Malonic acid, [*p*-methoxy-α-(2-oxocyclohexyl)benzyl] , compd. with AcOH, 3418*h*.

$C_{19}H_{24}O_{10}S_2$ α - Toluenesulfonic acid, 4 - (3,4-dimethoxy - β - sulfophenethyloxy)-3 - methoxy - α - methyl-, *and Ba salt*, 3610*f*.

$C_{19}H_{24}O_{12}S_4$ 1,2,4 - Naphthalenetriol, 3 - (3-cyclohexylpropyl)-, tris(H sulfate), *tri K salt*, 1374*f*

$C_{19}H_{27}BrN_2O_2$ (2 - Hydroxy - 5 - phenylbenzyl)trimethylammonium bromide, dimethylcarbamate, 4305*c*, 7132*b*, 7133*a, t*, 7134*cdef*, 9103*b*.
(*o* - Hydroxyphenyl)trimethylammonium bromide, trimethylcarbanilate, P 1139*d*

$C_{19}BrO_2$ Androstene - 3,17 - dione, 2-bromo-, 4271*bc*.

$C_{19}N$ Benzylamine, *N*, *N* - diisopropyl-*o* phenyl-, *and* - *HCl*, 1355*h*.
Benzylamine, *N* - isopropyl - *o* - phenyl-*N*-propyl-, 1355*g*.
-, *o* - phenyl - *N*, *N* - dipropyl-, *and* - *HCl*, 1355*g*.
Isoquinoline, 1 - (3,4 - dimethylbenzyl)-1,2,5,6,7,8 - hexahydro - 2 - methyl-, P 7518*h*.
Propylamine, *N*, *N* - diethyl - 3,3 - diphenyl-, *and* - *HCl*, P 1810*g*.

$C_{19}NO$ Aniline, *p* - (α,β - diethyl - *p*-methoxyphenethyl)-, 9056*a*.
Butylamine, 2 - (benzhydryloxy) - *N*, *N*-dimethyl-, P 3463*e*.
*iso* Butylamine, 2 - (benzhydryloxy)-*N*, *N* dimethyl-, - *HCl*, 8546*b*
Diphenylamine, *p* (heptyloxy)-, 3386*g*.
Isobutylamine, 2 - (benzhydryloxy)-*N*, *N*-dimethyl-, - *HCl*, 8546*b*.
-, 1 - ethyl - *N* - methyl - 3 - (*p* - phenoxyphenyl)-, P 3657
Pentanol, dimethylammodiphenyl-, - *HCl*, 3391*e*, *and* - *HCl*, 9070*s*.
Trimethylamine, 2 - (benzhydryloxy)-, P 5043*h*, - *HCl*, P 3462*h*, 8546*b*; *and HCl*, P 1064*f*.
-, 2 - (α - phenyl - *o* - toloxy) , *and* - *HCl*, 3386*c*.

$C_{19}NO_2$ 2 - Cyclopentene - 1 - acetic acid, α - phenyl-, 2 - (1 - pyrrolidyl)ethyl ester, *and* - *HCl*, 1388*d*.
Diethylamine, 2 - (2 - methoxybenzhydryloxy) - *N* - methyl-, P 3462*h*; *and HBr*, P 1064*j*.
Ethylamine, 2 - (4 - ethoxy - α - phenyl-*o* - toloxy) - *N*, *N* - dimethyl-, *and* - *HCl*, 2969*g*.
10,4a(4*H*) - Iminoethanophenanthrenol, 1,2,3,9,10,10a - hexahydro - 11-methyl , acetate, P 7518*d*; - *HBr*, 6635*h*.
Isobutylamine, 1 - ethyl - 3 - [*p* - (*p*-methoxyphenoxy)phenyl]-, P 3657*d*.
1 - Naphthalenecarbamic acid, 1 - propylamyl ester, 6154*f*.
Phenol, *p* - [*p* - (3 - ethylaminoamyl)-phenoxy ]-, *and* - *HCl*, P 3657*c*.
—, *p* - [*p* - (2 - methyl - 3 - methylaminoamyl)phenoxy]-, P 3657*c*.
ropylamine, 1 - ethyl - 3 - [4 - (4 - methoxyphenoxy)phenyl] - *N* - methyl-, P 3657*b*.

$C_{19}N_2O_2S$ Propylamine, 3 - (ethylsulfonyl) - *N*, *N* - dimethyl - 3,3 - diphenyl-, - *HCl*, 1367*a*.
Propylamine, *N*, *N*,1 - trimethyl - 3-(methylsulfonyl) - 3,3 - diphenyl-, 1366*i*, 1367*a*.

$C_{19}N_2O_3$ Ethylamine, 2 - [α - (2,3 - dimethoxyphenyl) - *o* - toloxy] - *N*,*N* - dimethyl-, 2969*h*.
Phenanthro[4,5 - *bcd*]furan - 3 - ol, 9b-(2 - dimethylaminoethyl) - 1,2,3,3a,-9a,9b - hexahydro - 5 - methoxy-, 4280*c*.

$C_{19}H_{28}NO_4$ 4 - Piperidinepropionic acid, α-acetyl - 1 - methyl - β - oxo - 4 - phenyl-, Et ester, P 2240*g*.

$C_{19}H_{29}NO_4S$ Benzaldehyde, compd. with 1-benzylpiperidine bisulfite, 3355*i*.

$C_{19}H_{29}NO_4S$ 2 - Thiophenevaleric acid, 3-carboxytetrahydro - 4 - phenylcarbamyl-, di-Me ester, P 5425*f*.

$C_{19}H_{29}NO_5$ Malonaldehydic acid, [β - cyano-β - (2 - ethoxyethyl) - 2,3 - dimethoxyphenethyl]-, Me ester, 6636*e*.

$C_{19}H_{29}NO_7$ Aspartic acid, *N*-benzoyl-*N*-(carboxymethyl)-, tri-Et ester, 1352*f*.

$C_{19}H_{29}N_3$ Piperidine, 4 - [benzyl(2 - pyridyl)amino]-1-ethyl-, 2207*e*, 6207*d*.

$C_{19}H_{22}N_2O$ Cinchonidine, 6-aminodihydro-, 1485*b*, 8528*b*.
1(2*H*) - Heptalenone, 3,4,5,6,7,8,9,10-octahydro-, phenylsemicarbazone, 5375*g*.
Hydrocinchonine, 5-amino-, 6635*a*.

$C_{19}H_{32}N_2O_2$ 2 - Naphthalenepropionaldehyde, β - ethyl - 6 - methoxy - α,α - dimethyl-, semicarbazone, 3814*h*.
2 - Propanol, 1 - diallylamino - 3 - (6-methoxy - 8 - quinolylamino)-, *and di-HCl*, P 2546.

$C_{19}H_{28}N_2O_2$ Mestylenic acid, 4-nitro-, 2,7-dimethyl - 2,6 - octadienylidenehydrazide, 6972*i*; hydrazide, hydrazone with camphor, 6972*i*; hydrazide, hydrazone with fenchone, 6972*i*.

$C_{19}H_{28}N_2O_2S$ Benzenesulfonamide, *p*-(heptylhydroxyphenylazo)-, 9048*a*.

$C_{19}H_{28}N_2O_2S$ *p* - Toluenesulfonanilide, *N*-(2 - diethylaminoethyl) - 3' - nitro-, 3008*f*.

$C_{19}H_{28}N_4O$ Biguanide, 1 - isopropyl - 5 - (*p*-3,5 - xylyloxyphenyl) , - *HCl*, 2947*h*
s - Triazine, 2 - butoxy - 4,6 - bis(diallylamino)-, 4269*i*.

$C_{19}H_{28}N_4O_2S_2$ Sulfanilamide, *N*¹-(5 methyl-1,3,4 - thiadiazol - 2 - yl)-, compd. with *N*,α-dimethylphenethylamine, P 6661*b*.

$C_{19}H_{28}N_4O_2S_2$ Sulfanilamide, *N*¹ - (5 - methyl-1,3,4 - thiadiazol - 2 - yl)-, compd. with *p* - (2 - methylaminopropyl)-phenol, P 6661*c*.

$C_{19}H_{28}N_4O_4$ Uracil, 6 - (*p* - dimethylaminostyryl) - 5 - nitro-, compd. with pyridine, 652*a*.

$C_{19}H_{28}N_4O_9$ Malonic acid, acetamido(2-formylisopropyl) , di-Et ester, 2,4-dinitrophenylhydrazone, 6980*d*.

$C_{19}H_{30}$ Naphthalene, 6-isopropyl-1-methyl-2 (1-methylbutyl)-, 6601*i*.
Naphthalene, nonyl-, 4454*h*, 8888*i*, 9424*e*.
Phenanthrene, 1,2,3,4,4a,10a - hexahydro - 7 - isopropyl - 1,4a - dimethyl-, 6602*d*.

$C_{19}H_{32}BrNO$ (2 - Benzhydryloxyethyl)ethyldimethylammonium bromide, P 2640*h*.

$C_{19}H_{28}Br_2O_2$ Androstane - 3,17 - dione, dibromo-, 4271*ab*.

$C_{19}H_{30}ClN$ 1 - Naphthalenemethylamine, *N*-(2 - chloroethyl) - *N* - hexyl-, - *HCl*, 2320*a*.

$C_{19}H_{29}ClNO_3$ 5 - Androsten - 17 - one, 3(β)-chloro-6-nitro-, 246*h*.

$C_{19}H_{29}ClN_3$ Pyrimidine, 4-*p*-chloroanilino-2-methyl - 6 - [3 - (1 - piperidyl)propylamino]-, P 6243*h*.

$C_{19}H_{29}ClN_4$ Benzimidazole, chloro-2-[4-(3-diethylamnopropylamino) - 6 - methyl - 2 - pyrimidylamino]-, P 3854*b*.
Benzimidazole, chloro - 2 - [4 - [3 - (isopropylmethylammo)propylamino] - 6-methyl - 2 - pyrimidylamino]-, P 3854*c*.

$C_{19}H_{34}IN$ Trimethyl(1 - methyl - 3,3 - diphenylpropyl)ammonium iodide, 192*f*, 7466*i*.

$C_{19}H_{34}INO$ (2 - Benzhydryloxyethyl)ethyldimethylammonium iodide, P 2640*h*.
[2 - (*o* - Biphenylyloxy)ethyl]diethylmethylammonium iodide, 6366*e*.
[2 - (*p* - Methoxybenzhydryloxy)ethyl]trimethylammonium iodide, 7921*e*.

$C_{19}H_{34}INO_2$ Diethyl[2 - (2' - hydroxy - 2-biphenylyloxy)ethyl]methylammonium iodide, 6366*e*.

$C_{19}H_{34}INO_3$ α - Longilobine, methiodide, 6209*b*.

$C_{19}H_{36}N_2$ Ethylenediamine, *N* - benzyl-*N'*, *N'*-diethyl-*N*-phenyl-, P 683*c*.
Ethylenediamine, *N*, *N* - diethyl - *N'* - *o*-phenylbenzyl-, *and sulfate*, 1355*h*.
α,4 - Toluenediamine, *N*⁴, *N*⁴ - diethyl *N*α - α - methylbenzyl-, *di* - *HCl*, 9374*h*.
Yohyrine, decahydro-, 5407*h*.

$C_{19}H_{26}N_2O$ Ethylenediamine, *N* - benzyl-*N'*, *N'* - dimethyl - *N* - *o* - phenetyl-, P 683*c*.
Ethylenediamine, *N* - [2 - (benzyloxy)-ethyl] - *N'*, *N'* - dimethyl - *N*-phenyl-, P 682*c*.
10,4a(4*H*) - Iminoethanophenanthrene, acetamido - 1,2,3,9,10,10a - hexahydro-11-methyl-, 6635*h*.
1,3 - Propanediamine, *N* - benzyl - *N*-(*o* - methoxyphenyl) - *N'*, *N'* - dimethyl-, - *HCl*, P 683*a*.
Pyridine, 2 - [α - (2 - diethylaminoethoxy)methylbenzyl]-, 4266*d*; *and* - *H Br*, 2206*h*.
—, 2 - [α - (2 - dimethylaminoethoxy)-cumnyl]-, 4266*d*; *and* - *HCl*, 2206*b*.
—, 2 - [α - (2 - dimethylaminoethoxy) - α-isopropylbenzyl]-, *and* - *HCl*, 2206*c*.
—, 2 - [α - (2 - dimethylaminoethoxy)-α,3,4 - trimethylbenzyl]-, *and* - *HCl*, 2206*d*.

$C_{19}H_{28}N_2O_2$ Benzoic acid, *p*-(2,5-dimethyl-1-pyrryl) , 2 - diethylaminoethyl ester, *and* - *HCl*, P 690*h*.
Benzyl alcohol, α,α' - [trimethylenebis-(iminomethylene)]di-, *di-HCl*, 3800*d*.
Compd., m. 204°, 7489*s*.
Isoquinamine, dihydro-, 7489*t*.

$C_{19}H_{28}N_2O_2S$ Enanthic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

$C_{19}H_{28}N_2O_3$ Benzamide, *N*, *N*-dicyclohexyl-*m*-nitro-, 1145*a*.
Pyridine, α - [α - (2 - dimethylaminoethoxy) - α - methylveratryl]-, *and* - *HCl*, 2206*d*.

$C_{19}H_{28}N_2O_4$ Carbamic acid, (methoxyphenethyl)-, methoxyphenethylamine salt, 1351*t*.
Dinitro compd., m. 133-4°, 6601*h*.
Lunarine, *and salts*, 1074*c*.

$C_{19}H_{28}N_2O_4S$ 2 - Thiophenevaleric acid, 3-acetamido - 4 - benzamidotetrahydro-, Me ester, P 3469*ab*.

$C_{19}H_{28}N_2O_5$ 2 - Imidazoline, 2 - [(α - cyclohexylbenzyloxy)methyl]-, oxalate, 6620*a*.

$C_{19}H_{28}N_2O_6S$ 2 - Thiazolidineacetic acid, 4-carboxy - 5,5 - dimethyl - α - (α - phenylacetamido) , Et Me ester, 4921*b*, 8892*g*.
2 - Thiazolidinealanine, 4 - carboxy - 5,5-dimethyl - *N* - phenylacetyl-, α-Et ester, - *HCl*, 7933*a*.
2 - Thiophenevaleric acid, 3 - carboxytetrahydro - 4 - (3 phenylureido)-, di-Me ester, P 1809*c*.

$C_{19}H_{28}N_4$ Pyrimidine, 2-diethylamino-4-(*p*-dimethylaminostyryl) - 6 - methyl-, 3427*a*.

$C_{19}H_{28}N_4O_2$ Ethanol, 2,2' - [4 - (*p* - dimethylaminostyryl) - 6 - methyl - 2 - pyrimidylimino]di-, 3427*b*.

$C_{19}H_{28}N_4O_4$ 3 - Buten - 2 - one, 4 - (trimethylcyclohexyl)-, 2,4 - dinitrophenylhydrazone, 4637*f*, 8362*d*.
Phenazine, 2,4 - diamino - 7,8 - dimethyl-10 - ribityl - 5,10 - dihydro-, 5084*i*.

$C_{19}H_{28}N_4O_8$ Malonic acid, ethyl(2 - formylisopropyl)-, di-Et ester, 2,4-dinitrophenylhydrazone, 6980*d*.
Malonic acid, ethyl(2 - formylpropyl)-, di-Et ester, 2,4-dinitrophenylhydrazone, 6980*c*.

$C_{19}H_{28}N_4O_9$ 1*H* - Quinolizine - 3 - carboxylic acid, octahydro - 4 - methyl-, Et ester picrate, 4268*a*.

$C_{19}H_{28}N_6O_2$ Benzamidine, 4,4' - (pentamethylenedioxy)bis[3 - amino-, *di*-*HCl*, 9049*d*.

$C_{19}H_{28}O$ $\Delta^{3,5}$-Androstadien-17-one, 3018*i*, 5067*b*.

$C_{19}H_{28}O_2$ (See also *Androstenedione*.)
Citronellic acid, cinnamyl ester, 4633*g*.
Estradiol, 1-methyl-, 3090*a*, 4271*d*.
1 - Phenanthrenecarboxylic acid, 1,2,3,-4,4a,9,10,10a - octahydro - 1,4a,7-trimethyl-, Me ester, 1751*i*.

$C_{19}H_{28}O_2$ Acrylic acid, β-2,5-di-*tert*-butylbenzoyl-, Me ester, 607*c*.
3,11,17-Androstanetrione, 3019*g*.
Butyrone, compd. with phenol, 1075*b*.
3,11,17-Etiocholanetrione, 3019*g*, 5067*i*.
2 - Naphthalenepropionic acid, β - ethylidene - 1,2,3,4 - tetrahydro - 6 - methoxy - α,α - dimethyl-, Me ester, 3814*g*.

2 - Naphthoic acid, 1 - ethyl - 1,2,3,4-tetrahydro - 8 - isopropyl - 5 - methyl - 1-oxo-, Et ester, 2606*d*.
1,4 - Naphthoquinone, 2 - (3 - cyclohexylpropyl) - 5,6,7,8 - tetrahydro - 3-hydroxy-, 1383*b*.
3-Pentanone, 2,4-dimethyl-, compd. with phenol, 107*b*.
1 - Phenanthreneacetic acid, 1,2,3,4,4a,4b,5,6,7,8,10,10a - dodecahydro - 2-(hydroxymethyl) - 2,4b - dimethyl - 7-oxo-, δ-lactone, 1762*f*.
2 - Phenanthrenecarboxylic acid, 1-ethyl - 1,2,3,4,4a,9,10,10a - octahydro - 7 - hydroxy - 2,5 - dimethyl-, 4270*i*.
—, 1 - ethyl - 1,2,3,4,4a,9,10,10a - octahydro - 7 - methoxy - 2 - methyl-, 7033*c*.

$C_{19}H_{26}O_4$ Fencholic acid, 2-hydroxy-, Et ester benzoate, 1749*g*.
3,5,7 - Octatrienoic acid, 4 - hydroxy - 6-methyl - 2 - oxo - 8 - (2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-, Me ester, 2587*i*.

$C_{19}H_{36}O_6$ Glucoside, α-methyl tetraallyl-, 5989*a*.

$C_{19}H_{36}O_6S$ Galactose, 1,2,3,4-diisopropylidene-, 6-*p*-toluenesulfonate, 150*f*.

$C_{19}H_{36}O_{10}S$ Galactoside, methyl 2,4 diacetyl-3 - methyl - 6 - *p* - tolylsulfonyl-, 4636*d*.

$C_{19}H_{36}O_{14}$ Galaheptulose, hexaacetate, 8358*f*
Perseulose, hexaacetate, 8358*f*.

$C_{19}H_{27}Br_3Cl_3O_2$ Methane, (dibromotrichlorophenoxy)(dodecyloxy)-, P 3968*c*.

$C_{19}H_{27}ClN_2O_7$ Pyridine, 2 - [α - (2 - dimethylaminoethoxy) - α - methylbenzyl]-, 2 - hydroxyethochloride, 2205*h*.

$C_{19}H_{27}ClO$ Androsten - 17 - one, 3 - chloro-, 246*g*, 1048*gh*, 5067*c*, 6216*d*

$C_{19}H_{27}ClO_2$ 6,17 - Androstanedione, 3(β)-chloro-, 246*h*.
Androsterone, 3-chlorodehydro-, 6727*e*.

$C_{19}H_{27}Cl_3O_2$ Methane, (dodecyloxy)(pentachlorophenoxy)-, P 3968*i*.

$C_{19}H_{27}IN_2O$ [2 - (*N* - *p* - Methoxybenzylanilino)ethyl]trimethylammonium iodide, 7921*e*.

$C_{19}H_{27}IN_2O$ [2 - [*p* - Methoxybenzyl(2 - pyridyl)amino]ethyl} trimethylammonium iodide, 7921*e*.

$C_{19}H_{27}N$ 10,4a(4*H*) Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro-6,7,11 - trimethyl-, *and* - *HBr*, P 7518*c*.
Isoquinoline, 1 - (3,4 - dimethylbenzyl) 1,2,3,4,5,6,7,8 - octahydro - 2-methyl-, *and* - *HBr*, P 7518*b*.
Piperidine, 1 - [3 - (1 - cyclopenten - 1-yl) - 3 - phenylpropyl]-, - *HCl*, 8359*e*.

$C_{19}H_{27}NO$ $\Delta^{4,5}$ - Androstadien - 17 - one, oxime, 5067*b*.

$C_{19}H_{27}NO_2$ Cinnamamide, *N* - cyclohexyl-*N* - 2 - hydroxyisobutyl-, P 2639*i*.
Cinnamic acid, 2 - cyclohexylamino - *tert*-butyl ester, - *HCl*, P 2639*i*.
Cyclohexanol, 4 - cyclohexyl-, carbanilate, 160*e*.
Cyclopentaneacetic acid, α - phenyl, 2 - (1 - pyrrolidyl)ethyl ester, *and* - *HCl*, 1388*e*.
Cyclopentanecarboxylic acid, 1-phenyl, 2 - (1 - piperidyl)ethyl ester, P 6655*i*, P 6656*b*.
4 - Quinolinol, 7 - methoxy - 2 - methyl - 3-octyl-, 1416*b*, 1417*b*

$C_{19}H_{27}NO_2S$ Cinnamic acid, 2-[3-(1-piperidyl)propylmercapto]ethyl ester, - *HCl*, 6184*c*.

$C_{19}H_{27}NO_3$ Acrylic acid, β-(2,4,6-trimethylbenzoyl)-, 2 - diethylaminoethyl ester, - *HCl*, 7192*h*.
Phenanthro[4,5 - *bcd*]furan - 3 - ol, 9b-(2 - dimethylaminoethyl) - 1,2,3,3a,-8,9,9a,9b - octahydro - 5 - methoxy-, 4280*c*.
1 - Piperidinepropionic acid, α - benzoyl-α-ethyl-, Et ester, - *HCl*, 7643*f*.

$C_{19}H_{27}NO_4S$ Benzaldehyde, *p*-*sec*-butyl-, compd. with α-methylbenzylamine bisulfite, 3356*d*.

$C_{19}H_{27}NO_5$ Oxalacetic acid, (1-hydroxyheptyl)-, compd. with aniline, γ-lactone Et ester, 4221*i*.

$C_{19}H_{27}NO_4S$ [2 - (Benzhydryloxy)ethyl]trimethylammonium methyl sulfate, P 3468*a*.

$C_{19}H_{27}NO_6$ Protocatechuyl alcohol, α-(dimethylaminomethyl)-, tripropionate, - *HCl*, 2601*g*.
Tricarboxylic acid, m. 310–15°, 211*f*.

$C_{19}H_{27}NO_6S$ Camphorsulfonic acid, salt with benzocaine, 7642*c*.

$C_{19}H_{27}N_3$ Pyridine, 2-[cuminyl(2-dimethylaminoethyl)amino]-, P 3427*b*.

$C_{19}H_{17}N_3O$ 1(2*H*) - Heptalenone, decahydrophenylsemicarbazone, 5375*h*.
1 - Phenanthrenecarboxaldehyde, 1,2,3,-4,4a,9,10,10a - octahydro - 1,4a,7-trimethyl-, semicarbazone, 1752*c*.
Pyridine, 2 - [(2 - dimethylaminoethyl)-*p* - isopropoxybenzylamino]-, 6587*i*.
Quinaldine, 4 - (4 - dimethylaminocyclohexylamino) 6 - methoxy-, *di* - *HCl*, 4277*a*.
Quinoline, 8 - (2 - cyclohexylaminoisopropylamino) - 6 - methoxy-, *and di* - *HCl*, 3419*h*.
Quinoline, 8 - (2 - cyclohexylaminopropylamino) - 6 - methoxy-, *and di* - *HCl*, 3419*f*.

$C_{19}H_{27}N_3O_2$ *p* - Dioxino[*f*]quinoline, 2,3-dihydro - 6 - (5 - isopropylaminoamylamino)-, *and salts*, 1413*g*.

$C_{19}H_{27}N_3O_4$ Cyclopentanecarboxylic acid, 1-[3 - (*m* - methoxyphenyl)propyl] - 2-oxo , Et ester, semicarbazone, 9043*f*.

$C_{19}H_{27}N_4O_5$ Malonic acid, acetamido(2 - formylpropyl)-, di -Et ester, phenylhydrazone, 6980*d*

$C_{19}H_{27}N_3O_4S_2$ [2 - (Butylmercapto)ethyl]-methyl(2 - phenoxyethyl)sulfonium dilituarate, 708*c*.

$C_{19}H_{27}N_7$ Benzimidazole, 2 - [4 - (2 - diethylaminoethylamino) - 6 - methyl - 2-pyrimidylamino]methyl-, P 3854*c*.

$C_{19}H_{27}O_3P$ 2 - Indenephosphonic acid, Bu cyclohexyl ester, P 7969*e*.

$C_{19}H_{28}$ Abietine, 9442*i*.
Abietene, dehydro-, 3182*i*.
Compd. $b_{0.03}$ 112–17°, 6602*g*.
Compd., $b_{0.03}$ 116–21°, 6602*f*.
Compd , $b_{0.03}$ 122.7°, 6601*h*.
Compd., m. 80.5°, 6602*g*.
1,3,5,7 - Octatetraene, 3,7 - dimethyl - 1-(2,6,6 - trimethylcyclohexen - 1 - yl)-, 1729*i*, 6297*b*, 6989*f*.

$C_{19}H_{28}BrN_3$ Quinoline, bromo - 4 - (4 - diethylamino - 1 - methylbutylamino) 3-methyl-, 1655*g*.

$C_{19}H_{28}Br_2N_2$ Trimethylenebis[dimethylphenylammonium bromide], 2703*d*.

$C_{19}H_{28}ClN_3$ Quinaldine, 7-chloro 4-(4-diethylamino - 1 - methylbutylamino)-, 1655*g*
Quinoline, chloro 4 - (4 diethylamino-1 - methylbutylamino)methyl-, 1776*f*, 5401*i*, 5402*a*, 7193*a*, 7587*f*, 8886*b*; *H sulfate*, 3522*b*.

$C_{19}H_{28}ClN_3O$ Quinoline, 7 - chloro - 4 (4 - diethylamino - 1 - methylbutylamino) 6 methoxy-, 8886*b*.

$C_{19}H_{28}ClN_3S$ Quinoline, 7 - chloro - 4 - [3 - (2 diethylaminoethylmercapto) propyl amino]-3-methyl-, 1655*g*.

$C_{19}H_{28}ClN_5$ Pyrimidine, 4 *p*-chloroanilino-6 (2 - diethylaminoethylamino) - 5 ethyl - 2 - methyl-, *di* - *HCl*, P 6244*b*
Pyrimidine, 4 - *p* - chloroanilino - 6 - (3 diethylaminopropylamino) - 2,5 - di methyl-, *and di* - *HCl*, P 6244*a*.
*s* - Triazine, 2,4 - bis[bis(2 - methylallyl)-amino] 6-chloro-, 1426*e*.

$C_{19}H_{28}FN_3$ Quinoline, 4 - (4 - diethylamino 1 - methylbutylamino)fluoro - 3-methyl-, 1655*g*.

$C_{19}H_{28}INO_5$ Senecionine, methiodide, 9075*i*.

$C_{19}H_{28}INO_6$ β Longilobine, methiodide, 6209*c*.

$C_{19}H_{28}IN_3$ Quinoline, 4 - (4 - diethylamino-1 - methylbutylamino)iodo - 3-methyl-, 1655*g*.

$C_{19}H_{28}I_2N_2$ (Methylenediphenylene)bis[trimethylammonium iodide], 6737*e*.

$C_{19}H_{28}I_2N_2O$ Pyridine, 2-[α-(2-dimethylaminoethoxy) - α - methylbenzyl]-, dimethiodide, 2205*h*.

$C_{19}H_{28}N_2$ Quinoline, 2-diamylamino-, *and chloroplatinate*, 4276*g*.

$C_{19}H_{28}N_2O$ Cadaverine, *N*-isopropyl-*N'*-(6-methoxy - 1 - naphthyl)-, *and di* - *HCl*, 7026*e*.
Isoquinoline, 1 - (2 - dibutylaminoethoxy)-, 4267*d*.
1,4 - Pentanediamine, $N^1$ - isopropyl-$N^4$ - (6 - methoxy - 1 - naphthyl)-, *and di* - *HCl*, 7026*f*.

$C_{19}H_{28}N_2O_2$ $\Delta^4$ - Androstene - 3,17 - dione, dioxime, 1048*e*.
Malonamide, *N*, *N*, *N'*, *N'* - tetraallyl-α - isopropenyl - α - methyl-, P 1797*i*, P 3842*g*.

$C_{19}H_{28}N_2O_4S$ (2 - Benzhydrylaminoethyl)trimethylammonium methyl sulfate, 8546*b*.

$C_{19}H_{28}N_2O_5$ β - Alanine, *N* - (α - carboxy-amino - γ - hydroxy - β,β - dimethylbutyryl)-, Et benzyl ester, 875*a*.
Butyric acid, α - (diethylaminomethyl)-β - hydroxy - α - methyl-, Et ester *p*-nitrobenzoate, - *HCl*, 7643*c*.

$C_{19}H_{28}N_2O_5S$ Valine, *N* - (β - benzamido - α-formylbutyryl) - β - mercapto-, di-Me acetal, 7428*a*.

$C_{19}H_{28}N_4O_2S$ Pyrimidine, 4-(3-diethylaminopropylamino) - 6 - methyl - 2 - (*p*-methylsulfonylphenyl)-, *and di* - *HCl*, 1740*e*.

$C_{19}H_{28}N_4O_7$ 1 - Cyclohexene - 1 - propylamine, α,2,6,6 - tetramethyl - (?), picrate, 1349*g*.

$C_{19}H_{28}N_4O_7S_2$ Benzenesulfonamide, 2-(2,4-dibutyl - 5 - oxo - 3 - thioxo - 1,2,4,2*H*-thiadiazin - 6 - ylazo) - *N* - ethyl - 3-nitro-, 1,1-dioxide, P 4868*g*.

$C_{19}H_{28}O$ Androstenone, 3018*i*, P 4432*h*, 5067*b*, 7941*g*, 8034*h*.
*o*-Cresol, dicyclohexyl-, 6173*i*.
2 - Pelargononaphthone, 5,6,7,8 - tetrahydro-, 9424*f*.

$C_{19}H_{28}O_2$ (See also *Androsterone*, *dehydro-*, *Isoandrosterone*, *dehydro-*; *Testosterone*.)
3,17 - Androstanedione, 243*f*, 295*h*, 3018*i*, 5067*e*, 7099*h*.
Androstenolone, 3018*i*, 5067*g*.
5 Androsten-6-ol-17-one, 1048*h*.
Cyclohexanone, 4 - (α,β - diethyl - *p*-methoxyphenethyl)-, 2195*a*
3,17 - Etiocholanedione, 295*h*, 3018*i*, 5067*e*.
Etiocholen-3-ol-17-one, 3018*i*, 5067*h*
2-Naphthoic acid, 2-ethyl-1,2,3,4-tetrahydro - 8 - isopropyl - 5 - methyl, Et ester, 2606*e*.
13 - Nor - $\Delta^{13(18)}$ - *D* - homoandrostene, 3(β)-hydroxy-17 keto-, 7942*a*
1 - Phenanthrenecarboxylic acid, 1,2,3,4,4a,4b,5,6,10,10a - decahydro-1,-4a,7-trimethyl-, Me ester, 1751*f*

$C_{19}H_{28}O_2$ Androstan-3 ol-11,17-dione, 3019*a*.
$\Delta^5$-Androstene, 3(β),17(α) - dihydroxy-16-keto-, 3434*f*
Etiocholan - 3 - ol - 11,17 - dione, 3019*a*, 5067*i*.
Flavoglaucin, 7913*a*.
2 - Naphthalenepropionic acid, 5 ethyl 1,2,3,4 - tetrahydro - 6 - methoxy α,α-dimethyl-, Me ester, 3814*g*.
1 - Phenanthreneacetic acid, 1,2,3,4,4a,4b,5,6,7,8,10,10a - dodecahydro-7 hydroxy - 2 (hydroxymethyl) 2,4b dimethyl-, δ lactone, 1762*e*
Senecionenone, 4 heptyl - 2,5 - dihydroxy-3-methyl , 7913*a*, 7915*a*

$C_{19}H_{28}O_3$ Benzoic acid, *p*-hydroxy , laurate, P 418*e*
Malonic acid, di-2 hexynyl-, di Et ester, 6573*a*.
Propionic acid, β-(5-hexyl-2 methoxybenzoyl)-, Et ester, 1032*h*.
Salicylic acid, laurate, P 418*e*

$C_{19}H_{28}O_3$ $\Delta^{5,6}$ - Etiobutienic acid, 3 hydroxy , 2213*i*.

$C_{19}H_{28}O_3S$ Enanthic acid, α (carboxymethylmercapto) - ζ - phenoxy , di Et ester, P 7504*g*.
Valeric acid, δ-(benzyloxy)-α (2 carboxyethylmercapto)-, di-Et ester, P 7504*i*

$C_{19}H_{29}BrO_2$ Hendecanoic acid, (*p* bromophenyl)-, Et ester, 566*c*.

$C_{19}H_{29}ClO$ 17-Androstanone, chloro-, 3018*a*, P 7056*c*.
5-Androsten-17-ol, 3-chloro-, 6216*e*

$C_{19}H_{29}ClO_2$ Hendecanoic acid, (*p*-chlorophenyl)-, Et ester, 566*c*

$C_{19}H_{29}IO_2$ Hendecanoic acid, (iodophenyl)-, Et ester, 5534*b*.

$C_{19}H_{29}NO$ Androsten-17-one, oxime, 5067*b*
1-Naphthol, 1-cyclohexyl 2-(dimethylaminomethyl) - 1,2,3,4 - tetrahydro-, - *HCl*, P 5417*h*.
Pyrrolidine, 1 - [2 - (α - cyclohexylbenzyloxy)ethyl]-, *and* - *HCl*, 631*d*.

$C_{19}H_{29}NO_3$ β - Alanine, *N*, *N* - diethyl-, α-cyclopentylbenzyl ester, P 5797*l*.
Cyclododecanol, carbanilate, 6988*f*.
2 - Cyclohexene - 1 - acetic acid, α-2-cyclopenten - 1 - yl-, 2 - (1-pyrrolidyl)ethyl ester, *and* - *HCl*, 1388*e*
Cyclopentanecarboxylic acid, 1-tolyl-, 2-diethylaminoethyl ester, *and* - *HCl*, P 6229*f*, P 6655*i*, P 6656*ab*, P 7958*e*.
—, 1 - (3,4 - xylyl)-, 3 - dimethylaminopropyl ester, *and* - *HCl*, P 6655*i*.
4 - Morpholinepropanol, α-cyclohexyl-α-phenyl-, *and* - *HCl*, 9071*e*.

$C_{19}H_{29}NO_3$ Cyclopentaneacetic acid, α-phenoxy-, 2-diethylaminoethyl ester, - *HCl*, P 6229*h*.

Cyclopentanecarboxylic acid, 1-(methoxyphenyl)-, 2-diethylaminoethyl ester, *and* - *HCl*, P 6229*e*.
1 - Piperidinepropionic acid, α-ethyl-α-(α-hydroxybenzyl)-, Et ester, - *HCl*, 7643*h*.

$C_{19}H_{29}NO_2S$ 1,2 - Benzisothiazol-3(2*H*)-one, 2-dodecyl-, 1,1-dioxide, P 4422*c*.

$C_{19}H_{29}NO_4$ Butyric acid, α-(diethylaminomethyl) - β - hydroxy - α - methyl-, Et ester benzoate, *and* - *HCl*, 7643*c*.

$C_{19}H_{29}NO_6$ Actidione, dihydro-, diacetate, 2998*e*.
Glutarimide, β - [2 - hydroxy - 2 - (2-hydroxy - 3,5 - dimethylcyclohexyl)-ethyl]-, diacetate, 2998*e*.

$C_{19}H_{29}N_3$ Quinoline, 4-(4-diethylamino-1-methylbutylamino)-3-methyl-, 1655*g*.

$C_{19}H_{30}N_2O$ (See also *Pamaquine*.)
3,5,7 - Octatrien - 2 - one, 6-methyl-8-(2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-, semicarbazone, 2588*a*.
1 - Propanone, 3 - (1 - piperidyl) - 2 - (1-piperidylmethyl) - 1 - (3 - pyridyl)-, *and di-HCl*, 9070*e*.
Quinoline, 8 - [5 - (butylamino)amylamino]-, 6-methoxy-, - *HBr*, 3421*g*.
, 8 - [5 - (*sec* - butylamino)amylamino]-6-methoxy-, - *HBr*, 3421*f*
, 8 - [4 - (dimethylpropylamino)butylamino] 6 - methoxy-, - *HBr*, 3421*g*, *HCl*, 3421*g*.
, 8 - [5 - (isobutylamino)amylamino]-6-methoxy , - *HBr*, 3421*f*.

$C_{19}H_{30}N_4O$ 2 - Propanol, 1 - dipropylamino-3 - (6 - methoxy - 8 - quinolylamino)-, *and di HCl*, P 254*d*.
2 - Propanol, 1 - (ethylisopropylamino)-3 - (6 - methoxy - 8 - quinolylamino) - 2-methyl , *and di- HCl*, P 254*e*.

$C_{19}H_{30}N_4O$ Pyrimidine, 4 - (2 - diethylaminoethylamino) - 6 - *p* - methoxyanilino-2,5 dimethyl-, *and di- HCl*, P 6243*c*.
Pyrimidine, 4 - (3 - diethylaminopropylamino) - 6 - *p* - methoxyanilino - 2-methyl-, P 6244*a*.
, 4 - (3 - dimethylaminopropylamino)-5-ethyl - 6 - *p* - methoxyanilino - 2-methyl , P 6244*b*.

$H_{30}$ Abietene, 9442*e*.
Androstene, 7941*g*.
Pseudoandrostene, 7941*e*.

$H_{30}ClNO$ Diethyl(2 - hydroxyethyl)-methylammonium chloride, 1-phenylcyclopentanecarboxylate, P 5790*h*.

$H_{30}INO_3$ Hendecanamide, *N* - 2 hydroxyethyl 9 (*p* iodophenyl)-, 2274*a*.

$H_{30}N_2O$ Cyclohexanecarboxamide, *N*-(2 dimethylammoethyl) - *N* - ethyl-1 phenyl , *and* - *HCl*, P 7959*a*.
Cyclopentanecarboxamide, *N* - (2-diethylammoethyl) *N* - methyl - 1-phenyl , P 5797*d*
—, *N* - (2 diethylammoethyl) - 1 - *p*-tolyl , *and* - *HCl*, P 7958*h*.
Pyridine, 2 - [2 - (2 - dimethylammoethoxy)bornyl]-, *and di- HCl*, 2206*g*.
—, 2 - [2 - (2 - dimethylammoethoxy)-fenchyl]-, *and* - *HCl*, 2206*g*.

$_{30}H_{30}NOS$ Benzamide, *m*-(cyclohexylmercapto) - *N* - (2 - diethylaminoethyl)-, - *HCl*, 3101*i*.
Cinnamamide, *N* - [2 - (2 - diethylaminoethylmercapto)ethyl] - *N* - ethyl-, - *HCl*, 6184*d*.

$_{30}N_2O_2$ Benzoic acid, *p*-diethylamino-, lohexylaminoethyl ester, - *HCl*, P 2640.
Be acid, *p* - dimethylamino-, 2-cyclohexylaminobutyl ester, - *HCl*, P 2640*d*.
Cyclopentanecarboxamide, *N* - (2-diethylaminoethyl) - 1 - (*p* - methoxyphenyl)-, *and* - *HCl*, P 7958*h*.
Glutaramide, *N*, *N*, *N'*, *N'* - tetraallyl-β,β dimethyl-, P 1797*h*, P 3842*i*.
Isonipecotic acid, 1-methyl-4-phenyl , diethylammoethyl ester, 4426*f*.

$C_{19}H_{30}N_2O_3$ Hydantoic acid, α,α - diisoamyl-5-phenyl-, 2167*d*.

$C_{19}H_{30}N_2O_4$ Butyric acid, α-(diethylaminomethyl) - β - hydroxy - α - methyl-, Et ester *p*-aminobenzoate, *and* - *HCl*, 7643*c*.

$_{30}N_2O_7$ Procaine, *N* - glucoside, - *HCl*. - *HCl*, 758*e*.

$C_{19}H_{30}N_2O_{10}$ Pimelic acid, α,β,γ,ε - tetrahydroxy-, salt with miotine, P 687*d*.

$C_{19}H_{30}N_4O + 0.5H_2O$ 4-Quinazolinol, 2-(3-dibutylaminopropylamino)-, 2952*d*.

$C_{19}H_{30}N_4O_4$ 3-Dodecanone, 2-methyl-, 2,4-dinitrophenylhydrazone, 2

$C_{19}H_{30}O$ Androstanone, 3018*i*.
3-Etiocholanone, 3018*i*.
3,5,7 - Octatrien - 2 - ol, 2,6 - dimethyl-8 - (2,6,6 - trimethylcyclohexen-1-yl)-, 1729*i*, 1730*a*, 6989*h*.
3-Pseudoandrostanol, 7941*g*.

$C_{19}H_{30}O_2$ (See also *Androsterone*.)
3(β)-Androstanol, 17-keto-, 243*f*.
Androstan - 17 - ol - 3 - one, 1048*e*, 3018*i*, 3088*h*, 3089*b*, 7099*g*, 7124*g*, 8532*g*.
Androstenediol, 743*b*, 3018*i*, 3870*e*, 5307*g*, 6727*f*, 7124*h*, 8032*d*.
Etiocholan - 3 - ol - 17 - one, 295*g*, 3018*i*, 5067*h*, 6727*e*.
Isoandrosterone, 295*h*, 1048*e*, 3018*i*, 5068*d*, 8034*h*.
3 - Nonene, 4 - ethyl - 7 - methoxy - 3-(*p*-methoxyphenyl)-, 5014*i*, 8367*c*.
13 - Nor - *D* - homoandrostane, 3(β)-hydroxy-17-keto-, 7942*b*.
Parinaric acid, Me ester, 135*d*.
*p* - Toluquinone, 3 - heptyl - 6 - isoamyl-, 7914*b*.

$C_{19}H_{30}O_3$ Androstane - 3,11 - diol - 17 - one, 3018*i*, 5067*h*.
Bicyclo[10.3.1] - 12 - hexadecene - 1-carboxylic acid, 13-methyl-16-oxo , Me ester, 7908*g*.
Etiocholane - 3,17 - diol - 11 - one, 3019*g*.
16 - Etiocholanone, 3(α),12(α) - dihydroxy-, 7493*g*.
3 - Hexanol, 4 - (4 - hydroxycyclohexyl)-3-(*p*-methoxyphenyl)-, 2195*g*.
1 - Phenanthreneacetic acid, tetradecahydro - 7 - hydroxy - 2 - (hydroxymethyl) - 2,4*b* - dimethyl-, δ-lactone, 1762*f*.

$C_{19}H_{30}O_4$ Cyclohexaneacetic acid, 2-(1-carboxy - 2 - methyl - 2 - cyclopenten-1-yl)-, di-Et ester, 2587*c*.
$\Delta^{5,6}$ - Etiobilienic - 17 - acid - 16 - carbinol, 3-hydroxy-, 2214*b*.
Gentisic acid, dodecyl ester, 7003*i*.

$C_{19}H_{30}O_5$ (See also *Toluene*, α-[2-(2-*butoxyethoxy*)*ethoxy*] - 4,5 - *methylenedioxy*-2-*propyl*-.)
Gallic acid, dodecyl ester, P 6665*e*.

$C_{19}H_{30}O_7$ Azelaic acid, δ - oxo - α,η - dipropionyl-, di-Et ester, 7433*c*.

$C_{19}H_{31}Cl$ Dodecane, 1-chloro-1-*p* tolyl-, P 4431*e*.

$C_{19}H_{31}ClO_2$ Cyclotridecanecarboxylic acid, 1 - (3 - chloro - 2 - butenyl) - 2 - oxo , Me ester, 7908*g*

$C_{19}H_{31}N$ Cyclohexanemethylamine, 2 phenyl-*N*, *N*-dipropyl-, 1357*h*.

$C_{19}H_{31}NO$ Cyclohexanemethanol, (2-diethylaminoethyl) - α - phenyl , - *HCl*, 9071*d*.
Cyclohexanol, 2 - (dipropylamino methyl)-1-phenyl-, 1357*i*.
1 - Piperidinepropanol, α - amyl - α-phenyl-, *and* - *HCl*, 9071*i*.
—, α - isoamyl - α - phenyl , - *HCl*, 7581*b*; *and* - *HCl*, 9071*d*.
Triethylamine, 2 - (α - cyclohexylbenzyloxy)-, P 5043*g*

$C_{19}H_{31}NO_2$ β - Alanine, *N*, *N* - diethyl-, 3,4-dimethyl - α - propylbenzyl ester, P 5797*e*.
Butyric acid, α-phenyl-, 2-(1-propylbutylamino)ethyl ester, - *HCl*, P 2639*h*.
3(α)-Etiocholanol-17-one, oxime, 5067*h*.
Hendecanamide, *N* - 2 - hydroxyethyl-3-phenyl , 2274*b*.
Samandarine, 3519*i*.

$C_{19}H_{31}NO_2S$ Benzoic acid, *p*-butoxy-, 2-(2 - diethylaminoethylmercapto)ethyl ester, P 3461*e*.

$C_{19}H_{31}NO_5$ Senecionine, tetrahydro-, Me ester, 9076*b*.

$C_{19}H_{31}NO_6$ Cyclohexanecarboxylic acid, 1-[5 - (ethylmethylamino) - 3 - oxoamyl] - 2 - oxo-, Et ester, oxalate, 7433*a*.

$C_{19}H_{31}N_3O$ 3 - Buten - 2 - one, 4 - (1,4,4a,-5,6,7,8,8a - octahydro - 2,5,5,8a-tetramethyl - 1 - naphthyl)-, semicarbazone, 8369*g*.
Quinoline, 8 - (4 - diethylamino - 1-methylbutylideneamino) - 1,2,3,4-tetrahydro-6-methoxy-, P 5050*g*.

$C_{19}H_{31}N_3O_4$ 3 - Pyrroleacrylic acid, 5-carboxy - 1,2,4 - trimethyl-, bis(2-dimethylaminoethyl) ester, P 4303*a*.

$C_{19}H_{32}$ Dodecane, 2-*p*-tolyl-, P 6232*c*.
Hendecane, 6-(xylyl)-, P 6232*f g*.
Heptane, 1-(4-isoamyl-*o*-tolyl)-, 7913*g*.
Tridecane, 7-phenyl-, P 6232*g*.

$C_{19}H_{32}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, octyl ester, 6977*b*.

$C_{19}H_{32}N_2$ Ethylenediamine, *N'* - *p* - cyclohexylbenzyl- *N*, *N*-diethyl-, 1359*g*.
Sparteine, butyldehydro-, 1047*i*.

$C_{19}H_{32}N_2OS$ Benzamide, *N* - (2 - diethylaminoethyl) - *m* - (hexylmercapto)-, - *HCl*, 3101*i*.

$C_{19}H_{32}N_2O_2$ (See also *Octacaine*.)
Carbamic acid, ethyl[α - [(2 - ethylbutylamino)methyl]benzyl]-, Et ester, - *HCl*, 6176*g*.

$C_{19}H_{32}N_2O_3S$ Pseudourea, 2 - [2 - [2 - (*p*-*tert* - octylphenoxy)ethoxy]ethyl] - 2-thio-, - *HCl*, 8086*e*.

$C_{19}H_{32}N_2O_3$ Benzoic acid, *p* - (2 - diethylaminoethoxy)-, 2 - diethylaminoethyl ester, 6592*d*.

$C_{19}H_{32}N_2O_3S$ Lauramide, *N* - (5 - amino-*o*-tolylsulfonyl)-, P 4867*h*.
Lauramide, *N*-*p*-sulfamylbenzyl-, 8539*e*.

$C_{19}H_{32}N_2O_9$ Procaine, gluconate, 7290*d*.

$C_{19}H_{32}O$ 17-Androstanol, 3018*i*, 7941*e*.
1-Dodecyl, 1-*p*-tolyl-, P 4431*e*.
Phenol, 4-*tert*-amyl-2-isooctyl-, P 5960*g*.
3(β)-Pseudoandrostanol, 7941*h*.

$C_{19}H_{32}O_2$ 3,17-Androstanediol, 295*h*, 3018*i*, 3087*g*, 3088*h*, 3089*b*, 7124*g*.
Androsterone, dihydro-, 5478*f*.
Etiocholanediol, 295*h*, 1824*f*, 3018*i*, 8043*c*.
Linolenic acid, Me ester, 5366*a*.
4-Nonanol, 4-ethyl-7-methoxy-3-(*p*-methoxyphenyl)-, 5014*i*.
13 - Nor - *D* - homoandrostane, 3(β),17-dihydroxy-, 7942*b*.
Propanol, (di-*tert*-amylphenoxy)-, P 1202*g*, P 4879*e*.
*p* - Toluhydroquinone, 3 - heptyl - 6-isoamyl-, 7914*a*.

$C_{19}H_{32}O_2S$ 3 - Thiophenecapric acid, ι,2,5-trimethyl-, Et ester, 566*c*.
3 - Thiophenehendecanoic acid, 2,5-dimethyl-, Et ester, 566*c*.

$C_{19}H_{32}O_3$ Androstane, 3(β),16(α),17(α)-trihydroxy-, 3435*b*.
Gentisyl alcohol, 4-heptyl-α-isobutyl-3-methyl-, 7913*d*.
4-Nonanol, 4-ethyl-7-methoxy-3-(*p*-methoxyphenyl)-, 8367*b*.

$C_{19}H_{32}O_4$ Cyclohexanemalonic acid, 4-cyclohexyl-, di-Et ester, 1377*e*.
Lichesterinic acid, 1322*e*.

$C_{19}H_{32}O_5$ Compd. from oxidation of Me linolenate, 5366*d*.

$C_{19}H_{32}O_8$ Capric acid, ester of the hydracrylate of the hydracrylate of hydracrylic acid, P 1053*f*.

$C_{19}H_{33}ClN_2O_2$ See *Octacaine*.

$C_{19}H_{33}NO$ Triethylamine, 2 - (α-butyl-3,4-dimethylbenzyloxy)-, P 5043*g*.

$C_{19}H_{33}NO_2$ 2 - Propanol, 1 - (*p* - *tert*-amylphenoxy) - 3 - isoamylamino-, - *HCl*, P 7046*a*.
2 - Propanol, 1 - (4 - *tert* - amyl - *o*-toloxy) - 3 - butylamino-, - *HCl*, P 7046*b*.

$C_{19}H_{33}N_3O$ 2,6 - Propionoxylidide, α,β-bis-(diethylamino)-, *and di- HCl*, 1025*e*.
Quinoline, 8 - (4 - diethylamino-1-methylbutylamino) - 1,2,3,4 - tetrahydro-6-methoxy-, P 5050*g h*.

$C_{19}H_{33}N_3OS$ Benzamide, *N*-(2-diethylaminoethyl) - *m* - (5 - methylaminoamylmercapto)-, - *HCl*, 3101*i*.

$C_{19}H_{34}$ 1,3 - Cyclohexadiene, 2-heptyl-5-isoamyl-3-methyl-, 7913*e*.
Fichtelite, 6601*f*.

$C_{19}H_{34}ClN$ Benzyldecyldimethylammonium chloride, 4780*b*.
1 - Methyl - 4 - tridecylpyridinium chloride, P 696*f*.

$C_{19}H_{34}N_2$ Pyridine, 2 - [(2,2 - dibutylhexyl)-amino]-, 4265*f*.
Sparteine, butyl-, 1047*i*.

$C_{19}H_{34}N_2O$ *o* - Cresol, 4-amino - α - diheXylamino , P 1062*c*
Lupanol, butyl-, 1047*i*.

$C_{19}H_{34}N_2O_2$ Carbazic acid, 2,4 - dimethylcyclohexylidene-, 3-*p*-menthyl ester, 2998*f*.

$C_{19}H_{34}N_2O_4$ Glutaric acid, α,γ - di - 2-piperidyl-, di-Et ester, 7490*d*.

$C_{19}H_{34}O_2$ Acrylic acid, 2,4 diamylcyclohexyl ester, P 7754*i*.
Isolinoleic acid, Me ester, 8275*b*, 8707*d*.
Linoleic acid, Me ester, 1105*a*, 2789*i*, 3357*i*, 3634*g*, 5365*i*, 5366*a*, 5974*g*, 7561*g*, 7721*d*.
10,12 - Octadecadienoic acid, Me ester, 7721*d*.

$C_{19}H_{34}O_4$ Malonic acid, 2 - hydroxyethyltetradecyl-, γ-lactone, 1322*c*.
Succinic acid, α-(1-hydroxytetradecyl)-β-methyl-, γ-lactone, 1322*e*.

$C_{19}H_{34}O_5$ Azelaic acid, γ-acetyl-, di-Bu ester, P 6226*c*.
Brassylic acid, α-acetyl-, diethyl ester, 163*g*.

Hydrogenation product of compd. from oxidation of Me linolenate, 5366*e*.
Reduction product of compd. from oxidation of Me linoleate, 5366*b*.
$C_{19}H_{34}O_6$ Compd. from oxidation of Me linoleate, 5366*a*.
Hydrogenation product of compd. from oxidation of Me linoleate, 5366*e*.
$C_{19}H_{33}NO$ Cyclooctadecanecarbonitrile, 1-hydroxy-, 7907*a*.
$C_{19}H_{33}NO_5$ Glutamic acid, *N*-myristoyl-, P 3841*h*.
$C_{19}H_{35}NO_{11}$ Galactopyranoside, methyl hexamethyl - 6 - β - glucuronosido-, amide, 582*i*.
$C_{19}H_{35}N_3O_3$ Oxamide, *N, N, N'* - triethyl-*N'* - [1 - (4 - methylcyclohexylcarbamyl)propyl]-, P 250*e*.
$C_{19}H_{36}$ Heptane, 1,1-dicyclohexyl-, 4911*b*.
$C_{19}H_{36}Cl_2O_2$ Stearic acid, dichloromethyl ester, 842*a*.
$C_{19}H_{36}N_2O_4S_2$ Valine, *N* - (*N* - caproyl-α-formylglycyl) - β - methoxy-, di-Et mercaptal, 2990*e*.
$C_{19}H_{36}O$ Cyclononadecanone, 7907*a*.
$C_{19}H_{36}O_2$ Cycloheptadecanol, acetate, 6988*g*.
Oleic acid, Me ester, 2654*a*, 2780*i*, P 3030*e*, 3357*ai*, P 3838*c*, P 4289*a*, P 4685*f*, 5271*f*, 8025*c*, 8353*f*.
Stearic acid, γ-hydroxy-γ-methyl-, γ-lactone, 3781*g*.
$C_{19}H_{36}O_3$ Acrylic acid, β-(2-ethylhexyloxy)-, 2-ethylhexyl ester, 6168*e*.
Margaric acid, ξ-ethyl-θ-oxo-, 3780*h*.
—, θ-oxo-, Et ester, 3781*b*.
8-Octadecenoic acid, 10-hydroxy-, Me ester, 3357*e*.
Oleic acid, hydroxy-, Me ester, 3357*e*.
Palmitic acid, 2,3-epoxypropyl ester, P 907*i*.
Stearic acid, methyl - η - oxo-, 6160*g*, 6161*ab*.
—, oxo-, Me ester, P 676*i*, 3357*f*.
$C_{19}H_{36}O_4$ Adipic acid, β-1,5-dimethylhexyl-α-methyl-, di-Et ester, 1335*d*.
Azelaic acid, diamyl ester, P 5624*h*.
Hydroperoxide, 1 - (7 - carboxyheptyl)-2-decenyl, Me ester, 3357*d*.
—, 10 - carboxy - 1 - heptyl - 2 - decenyl, Me ester, 3357*d*.
—, 1 - (6 - carboxyhexyl) - 2 - undecenyl, Me ester, 3357*d*.
—, 9 - carboxy - 1 - octyl - 2 - nonenyl, Me ester, 3357*d*.
Malonic acid, dodecyl-, di-Et ester, 8358*c*.
—, (2 - ethyl - 3 - methylnonyl)-, di-Et ester, 1374*c*.
Oleic acid, hydroperoxido-, Me ester, 4574*d*, 6841*a*.
$C_{19}H_{36}O_7S$ Caprylic acid, 3-sulfopropylene ester, P 4878*d*.
$C_{19}H_{37}BrO_2$ Propionic acid, α-bromo-, hexadecyl ester, 4641*a*.
$C_{19}H_{37}ClO_2$ Stearic acid, chloromethyl ester, 842*a*.
$C_{19}H_{37}IO_2$ Propionic acid, α-iodo-, hexadecyl ester, 4641*a*.
$C_{19}H_{37}N$ Cyclohexanemethylamine, 2-cyclohexyl - *N, N* - dipropyl-, *and* -*HCl*, 1359*d*.
$C_{19}H_{37}NO$ Azacycloeicosan-2-one, 5400*f*.
Cyclononadecanone, oxime, 5400*f*.
1-Octadecanol, isocyanate, P 9476*d*.
Oleamide, *N*-methyl-, 8353*g*.
$C_{19}H_{37}NO_2$ Oleamide, *N* - (hydroxymethyl)-, P 5978*f*, P 7728*bc*, P 8094*f*, P 8712*f*, P 8713*c*.
Stearamide, θ, ι - epoxy - *N* - methyl-, 8354*b*.
$C_{19}H_{37}NO_3$ Stearic acid, λ-oxo-, Me ester oxime, 3357*f*.
$C_{19}H_{37}NO_3S$ Methanesulfonic acid, oleoylamino-, P 9498*g*.
$C_{19}H_{37}N_3O_7$ 4,4 - Piperidinedicarboxamide, *N, N, N', N'*, 1 - pentaethyl - 2,6-dimethyl-, P 1797*g*, P 3842*g*.
$C_{19}H_{37}N_3O_3$ Lactarinic acid, semicarbazone, 3366*g*.
Stearic acid, oxo-, semicarbazone, 3357*f*.
$C_{19}H_{38}$ Heptane, 1-(4-isoamyl-2-methylcyclohexyl)-, 7913*f*.
$C_{19}H_{38}ClNO_2$ (4 - Carboxy - 2 - hydroxybutyl)dodecyldimethylammonium chloride, lactone, 6978*b*.
$C_{19}H_{38}N_2$ Ethylenediamine, *N'*-(2-cyclohexylcyclohexylmethyl) - *N, N*-diethyl-, 1359*d*.
$C_{19}H_{39}NO$ Morpholine, 4 - [10 - (1-piperidyl)decyl]-, *-2 HCl*, 3269*b*.
$C_{19}H_{40}O$ Cyclononadecanol, 6988*h*.
Pentadecen-8-ol, 5,11-diethyl-, P 3438*f*.
$C_{19}H_{40}O_2$ 1,4 - Cyclohexanediol, 2-heptyl-5-isoamyl-3-methyl-, 7913*c*.
Margaric acid, α,β-dimethyl-, 6251*c*.
—, ξ-ethyl-, 3780*f*.
Nonadecanoic acid, 69*d*, 3781*e*.
Palmitic acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
Propionic acid, hexadecyl ester, 2370*i*.
Stearic acid, Me ester, 842*a*, 2164*i*, 2940*f*, P 3235*b*, 8658*d*.
—, methyl-, 3781*d*, 6160*c*, 6251*c*.
Tuberculostearic acid, 6160*c*.
$C_{19}H_{40}O_3$ Stearic acid, λ-hydroxy-, Me ester, P 676*i*, 3357*f*.
$C_{19}H_{40}O_4$ Palmitin, mono, 570*f*, 6034*b*.
Stearic acid, dihydroxy-, Me ester, 3357*e*.
$C_{19}H_{40}O_5$ Stearic acid, θ, ι, κ-trihydroxy-, Me ester, 3357*h*.
$C_{19}H_{39}Br$ Nonadecane, 1-bromo-, 3781*e*.
$C_{19}H_{39}N$ Azacycloeicosane, 5400*f*.
Piperidine, 1-methyl-4-tridecyl, P 696*g*.
$C_{19}H_{39}NO$ Margaramide, ξ-ethyl-, 3780*h*.
Myristamide, *N*-*tert*-amyl-, 2165*e*.
Nonadecanamide, 3781*fh*.
Stearamide, methyl-, 3781*dh*, 6160*h*, 6161*ab*.
$C_{19}H_{39}NO_2$ Alanine, hexadecyl ester, 4641*b*.
Stearamide, *N* - (hydroxymethyl)-, P 5199*a*, P 5217*i*, P 5978*e*, P 7726*e*, P 7728*d*, P 8713*d*.
$C_{19}H_{39}NO_3$ Stearic acid, hydroxymethylamino-, P 2224*h*.
$C_{19}H_{39}N_3O$ 2 - Pentadecanone, 6,10,14 trimethyl-, semicarbazone, 8369*i*.
$C_{19}H_{40}$ Nonadecane, 3254*g*.
$C_{19}H_{40}N_2O$ Myristamide, *N* (3 - dimethylaminopropyl)-, P 4431*a*.
$C_{19}H_{40}O$ 1-Nonadecanol, 3781*f*.
8-Pentadecanol, 5,11-diethyl, P 3438*f*.
$C_{19}H_{40}O_2$ 1,2-Propanediol, 3-(hexadecyloxy)-, 311*h*.
$C_{19}H_{42}BrN$ Hexadecyltrimethylammonium bromide, P 2742*c*, 3143*h*, 3525*c*, 3688*b*, 3884*i*, 4774*d*, 4780*b*, 4799*a*, 5976*f*, 6365*f*, P 6796*d*, 6887*b*, P 6948*i*, 7293*e*, 8142*e*, 8609*d*.
$C_{19}H_{42}ClN$ Hexadecyltrimethylammonium chloride, 20*f*, 6041*b*.
$C_{19}H_{44}Br_2N_2$ Heptamethylenebis[triethylammonium bromide], 2703*d*
Tridecamethylenebis[trimethylammonium bromide], 2703*d*.
$C_{19}H_{46}N_4O_2S$ Sulfanilamide, *N*¹ - (dodecylguanyl)-, P 7965*e*.
$C_{20}H_6Cl_2I_4O_5$ See *Rose Bengal*
$C_{20}H_8I_4Na_2O_5$ Eosin Bluish, 7521*e*.
$C_{20}H_7Br_2Cl_2NO_2S$ Oxindole, 5,7-dibromo-3-dichlorooxonaphthothiophenylidene)-, P 7706*g*.
Pseudoindoxyl, 5,7 - dibromo - 2 - (6,9 dichlorooxonaphthothiophenylidene)-, P 7706*g*.
$C_{20}H_7Br_4NO_2S$ Oxindole, 5,7-dibromo-3-(6,7 - dibromo - 1 - oxonaphtho[2,1-*b*]thiophen-2(1*H*)-ylidene)-, P 7706*g*.
$C_{20}H_8BrClO_2S$ 3(2*H*) - Thianaphthenone, 2 - (6 - bromo - 2 - oxo - 1 - acenaphthenylidene)-7-chloro-, 4855*h*.
$C_{20}H_8BrClO_4S_2$ 3(2*H*) - Thiophanthrenone, 9 - bromo - 6 - chloro - 2 - (3 - oxo-2(3*H*) - thianaphthenylidene)-, P 7706*g*.
$C_{20}H_8Br_2HgNa_2O_6$ See *Mercurochrome*.
$C_{20}H_8Br_4Na_2O_{10}S_2$ Bromosulfalein, 1476*a*, 1869*i*, 2657*i*, 3111*h*, 5819*h*, 7539*i*.
$C_{20}H_8Br_4O_5$ See *Eosin*.
$C_{20}H_8Cl_2O_2S$ 3(2*H*) - Thianaphthenone, 7-chloro - 2 - (6 - chloro - 2 - oxo - 1-acenaphthenylidene)-, 4855*h*.
$C_{20}H_8Cl_2O_3S_2$ Naphthothiophenone, 6,9-dichloro - 2 - (3 - oxo - 2(3*H*) - thianaphthenylidene)-, P 7706*gi*.
$C_{20}H_8I_4O_5$ See *Erythrosin*.
$C_{20}H_9ClO_2S$ 3(2*H*) - Thianaphthenone, 7-chloro - 2 - (2 - oxo - 1 - acenaphthenylidene)-, 4855*g*.
$C_{20}H_{10}Cl_4O_4$ Phenolphthalein, 4,5,6,7-tetrachloro-, 2319*f*.
$C_{20}H_{10}Cl_8O_6$ *p,p'* - Biphenol, octachloro-, bis(allyl carbonate), P 4299*a*.
$C_{20}H_{10}I_2O_5$ Fluorescein, diiodo-, 1856*f*.
$C_{20}H_{10}I_4O_4$ Phenolphthalein, tetraiodo, 968*i*, 5078*d*, 8521*c*.
$C_{20}H_{10}N_4O_4S_2$ Benzothiazole, 2,2'-phenylenebis[6-nitro-, 5776*g*.
$C_{20}H_{10}N_6O_{12}$ *p* - Quinone, dioxime bis(3,5-dinitrobenzoate), 5623*c*.
$C_{20}H_{10}Na_2O_5$ See *Uranin*.
$C_{20}H_{10}O$ Fluoreno[*klmna*]xanthene, 7929*f*.
Perylo[1,12]furan, 7929*c*.
$C_{20}H_{11}Cl_2N_3O_5S$ 2-Anthraquinonesulfonic acid, 1 - amino - 4 - (3,4,5 - trichloroanilino)-, *Na salt*, 6194*a*.
$C_{20}H_{11}NO_4$ Anthraquinone, 2-(nitrophenyl), 7918*g*.
$C_{20}H_{11}N_3Na_2O_{10}S_2$ Amaranth, 1488*f*, 6493*d*.
$C_{20}H_{11}N_3O_8S$ Sulfide, 2,4-dinitro-1-naphthyl 4-nitro-1-naphthyl, 3387*d*.
$C_{20}H_{12}$ (See also *Benzopyrene; Perylene*.) Benzofluoranthene, 5389*f*, 7929*e*.
$C_{20}H_{11}BrCl_2$ Ethylene, 1-bromo-1 (*p*-chlorophenyl) - 2,2 - bis(*p*-iodophenyl)-, 7469*b*.
$C_{20}H_{12}BrCl_3$ Ethylene, bromotris(*p*-chlorophenyl)-, 7469*b*.
$C_{20}H_{12}Br_2N_2O_2$ Quinoxaline, 2,3-bis(5-bromo - 2 - hydroxyphenyl)-, 4247*b*.
$C_{20}H_{12}Br_4N_2O_4$ *p*-Quinone, dioxime bis(*m*-bromobenzoate), 5623*d*.
$C_{20}H_{12}Br_2O_2S$ 2-Naphthol, thiobis[6-bromo-, 2600*b*.
$C_{20}H_{12}Br_4Cl$ Ethylene, 1-bromo-2,2-bis(*p*-bromophenyl) - 1 - (*p* - chlorophenyl), 7469*b*.
$C_{20}H_{12}ClNO_2$ 5(4*H*) - Oxazolone, 4-(3-chloro - 2 - naphthylmethylene) - 2-phenyl-, 3363*a*.
$C_{20}H_{12}ClN_3O_8$ 2 - (*o* - Chlorophenyl) - 4-hydroxyphthalazinium hydroxide 2,4-inner salt, picrate, 237*a*.
$C_{20}H_{12}Cl_2N_2$ 2,2'-Azonaphthalene, 1,1'-dichloro-, *and di-HCl*, 6570*e*.
$C_{20}H_{12}Cl_2N_2O_4$ *p*-Quinone, dioxime bis(chlorobenzoate), 5623*c*.
$C_{20}H_{12}Cl_2N_2O_8S$ 2 - Anthraquinonesulfonic acid, 1 - amino - 4 - (dichloroamlino), *Na salt*, 6193*i*.
$C_{20}H_{12}Cl_2N_2S_2$ Quinazoline, 2,4 - bis(*p*-chlorophenylmercapto)-, 2952*i*.
$C_{20}H_{12}Cl_2N_4S_2$ Benzothiazole, 2,2'-phenylenebis[6-amino 5-chloro-, 5776*efg*.
$C_{20}H_{12}Cl_2O_2S$ 2 Naphthol, thiobis[6-chloro-, 2599*h*.
$C_{20}H_{12}Cl_{12}$ Cyclopentadiene, hexachloro-, compd. with 3a,4,7,7a tetrahydro-4,7-methanoindene, P 4693*e*.
$C_{20}H_{12}CuN_2O_4$ Quinaldic acid, Cu deriv., 8222*e*.
8-Quinolinecarboxylic acid, Cu deriv., 8222*e*.
$C_{20}H_{12}N_2Na_2O_7S_2$ (See also "Fast Red" under *Dyes*.)
Bordeaux Red, 7521*e*.
$C_{20}H_{12}N_2O_3$ 7*H*-Acenaphth[1,2-*b*]indole, 7-acetylnitro-, 628*d*.
Ketone, 9-acridyl *p*-nitrophenyl, 4673*a*.
Nicotinamide, *N*-1-anthraquinonyl, 5025*d*.
$C_{20}H_{12}N_2O_4$ 7*H* - Acenaphth[1,2-*b*]indole-7 carboxylic acid, nitro-, Me ester, 628*d*.
$C_{20}H_{12}N_2O_6$ Anthrarufin, 4 anilino-8 nitro-, P 9468*c*.
$C_{20}H_{12}N_2S_2$ Benzothiazole, 2,2' *p* phenylenedi-, 5776*d*
$C_{20}H_{12}N_4O_4$ β - Hydromuconomtrile, α,δ bis(*m*-nitrobenzylidene)-, P 3848*a*
Quinoxaline, 2,3 - bis(*p* - nitrophenyl 2341.
$C_{20}H_{12}N_4O_8$ *p*-Quinone, dioxime bis(nitrobenzoate), 5623*d*.
$C_{20}H_{12}N_6O_3$ Compd. m. 335–8°, 3008*f*
$C_{20}H_{12}O$ Benzo[*j*]fluoranthen-1 ol(?), 7929
1-Perylenol, 7929*c*.
$C_{20}H_{12}O_2$ Anthraquinone, 2 phenyl, 7918*g*
Dinaphtho[1,2-*b*,1',2'-*e*] *p*-dioxin, 1757*d*
$C_{20}H_{12}O_3$ Fluoran, 2319*e*.
1,4 - Naphthoquinone, 2-hydroxy-3-(naphthyl)-, 1109*c*, 1380*g*.
$C_{20}H_{12}O_4$ Cyclobuta[1,2-*b*, 3,4-*b'*]dinaphthalene - 5,6,11,12 - tetrone, 5a,5b, 11a,11b-tetrahydro-, 2985*c*.
Fumaric acid, bis(β-hydroxystyryl)-, di-γ lactone, 7192*h*.
Maleic acid, bis(β-hydroxystyryl), di-γ lactone, 7192*h*.
$C_{20}H_{12}O_5$ (See also *Fluorescein*.)
Hydroquinonephthalein, 184*a*.
$C_{20}H_{12}O_7$ Dibenzofuran - 2,8 dicroto acid, γ,γ'-dioxo-, 7192*h*.
Gallein, 2319*e*.
$C_{20}H_{12}O_8$ Acetic acid, bis(4 - hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, 5399*d*.
$C_{20}H_{13}Br$ Anthracene, 9-(*p*-bromophenyl)-, 4663*c*.
$C_{20}H_{13}BrClNO_2$ Ethylene, 1-bromo-2-(*p*-chlorophenyl) - 1 - (*p* - nitrophenyl)-2-phenyl-, 200*b*.
$C_{20}H_{13}BrN_3O_2$ Anthraquinone, 1-amino-4-anilino-2-bromo-, P 4483*d*.
$C_{20}H_{13}Br_3Cl$ Ethylene, 1,1-bis(*p*-bromophenyl) - 2 - (*p* - chlorophenyl), 7469*b*.
$C_{20}H_{13}Cl$ Anthracene, 9-(*p*-chlorophenyl)-, 6194*f*.
$C_{20}H_{13}ClI_2$ Ethylene, 2 - (*p* - chlorophenyl)-1,1 - bis(*p* - iodophenyl) 7469*b*.

$C_{20}H_{13}ClN_4O$ 2 - Naphthol 1 - (4-chloro-1-naphthylazo)-, 616*f*.
$C_{20}H_{13}ClN_2O_2$ Anthraquinone, 1 - amino-4-anilino-2-chloro-, 3400*c*.
$C_{20}H_{13}ClN_2O_5S$ 2 - Anthraquinonesulfonic acid, 1 - amino - 4 - (chloroanilino)-, *Na salt*, 6193*i*.
$C_{20}H_{13}ClN_2O_8S_2$ Anthraquinonedisulfonic acid, 1 - amino - 4 - *m* - chloroanilino-, P 5197*hi*.
$C_{20}H_{13}ClN_4O_6S_2$ Benzimidazolesulfonic acid, 2,2' - (chloro - *p* - phenylene)bis-, *di-Na salt*, P 8174*b*.
$C_{20}H_{13}ClO$ Anthrone, 10-chloro-10-phenyl-, 620*be*.
$C_{20}H_{13}ClO_4$ Phthalide, 3-(chloronaphthyl)-3-hydroxy-, acetate, 2985*i*.
$C_{20}H_{13}Cl_2N$ Indole, 2-(4-biphenylyl)-5,7-dichloro-, 622*f*.
$C_{20}H_{13}Cl_2NO_2$ Acridine, dichloro-2-methoxy-9-phenoxy-, 6633*ef*.
$C_{20}H_{13}Cl_2N_3$ Quinoxaline, 6-amino-2,3-bis(*o*-chlorophenyl)-, 234*i*.
$C_{20}H_{13}Cl_3$ Ethylene, tris(*p*-chlorophenyl)-, 7469*b*.
$C_{20}H_{13}Cl_3N_2O$ Acridine, 3,6 - dichloro-9-*p*-chloroanilino - 2 - methoxy-, *and* - *HCl*, 6633*e*.
$C_{20}H_{14}Cl_6$ Ethane, 1 - (pentachlorophenyl)-1,2-diphenyl-, 3377*g*.
$C_{20}H_{13}F$ Anthracene, 9-(*p*-fluorophenyl)-, 6194*f*.
$C_{20}H_{13}N$ Benz[*a*]anthracene - 7 - carbonitrile, 12-methyl-, 8375*b*.
Dibenzocarbazole, 5774*c*.
$C_{20}H_{13}NO$ 7*H* - Acenaphth[1,2-*b*]indole, 7-acetyl-, 628*c*.
9*H* - Fluoreno[3,2]oxazole, 2-phenyl-, 7020*g*.
$C_{20}H_{13}NO_2$ 7*H* - Acenaphth[1,2-*b*]indole-7-carboxylic acid, Me ester, 628*c*.
$C_{20}H_{13}NO_2$ Isobenzofuran, 1-(*m*-nitrophenyl)-3-phenyl-, 1042*c*.
$C_{20}H_{13}NO_4S$ Dibenzocarbazolesulfonic acid, *Na salt*, 8417*e*.
$C_{20}H_{13}NO_4$ Benzene, 1-benzoyl-2-*m*-nitrobenzoyl-, 1042*c*.
Sanguinarine, 361*d*.
$C_{20}H_{14}NO_3$ 1 - Naphthalenebutyric acid, γ-hydroxy - β - (*p* - nitrophenyl) - α-oxo-, γ-lactone, 5766*i*
$C_{20}H_{14}NO_6$ 3,6 - Carbazoledicrotonic acid, $\gamma,\gamma'$-dioxo-, 7192*h*.
$C_{20}H_{14}N_2Na_2O_4S$ See "Roccelin" under *Dyes*.
$C_{20}H_{14}N_2O_3S$ Benzenesulfonamide, *p*-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo-2-naphthyl) - *N* - 2 - pyrimidyl-, 1380*g*.
$C_{20}H_{14}N_2O_6$ Benzanilide, 4'-nitro-2-*m*-nitrobenzoyl-, 1042*d*.
Benz[*e*]azulene, compd. with 1,3,5-trinitrobenzene, 9043*d*.
$C_{20}H_{15}N_3O_8$ Benzhydrol, 3-nitro-, 3,5-dinitrobenzoate, 565*e*.
$C_{20}H_{15}NO_3S$ Aniline, *p* - (*p* - nitrophenylsulfonyl) - *N* - (6 - nitropiperonylidene), 2592*i*.
Sulfanilamide, $N^1$ - (4,8 - dihydroxy-5-nitro-1-anthraquinonyl)-, P 9468*c*.
$C_{20}H_{14}N_2O_4$ 2 - Biphenylcarboxaldehyde, 2' - cyano -, 2,4 - dinitrophenylhydrazone, 8377*i*.
$C_{20}H_{13}N_2O_5$ 4 - Hydroxy - 2 - phenylphthalazinium hydroxide, 2,4-inner salt, picrate, 238*a*.
$C_{20}H_{14}NaO$ 9 - Anthrol, 10 - phenyl-, Na deriv., 620*e*.
$C_{20}H_{14}$ Anthracene, 9 phenyl-, 2983*f*.
Benz[*k*]acephenanthrylene, 4,5-dihydro-, 8375*a*.
Binaphthyl, 3402*h*, 4648*a*.
Cholanthrene, 498*b*, 8375*a*.
$C_{20}H_{14}AsCl$ Arsine, chlorodi-2-naphthyl-, 3383*a*.
$C_{20}H_{14}AsCl_2N_2$ Naphthalenediazonium chloride, compd. with $C_{20}H_7AsCl_2$, 4647*i*.
$C_{20}H_{14}BiCl$ Bismuthine, chlorodi-1-naphthyl-, 560*b*.
$C_{20}H_{14}BrCl$ Ethylene, bromo(*p* - chlorophenyl)diphenyl-, 199*i*, 7469*b*.
$C_{20}H_{14}BrNO_2$ Ethylene, 1-bromo-1-(*p*-nitrophenyl)-2,2-diphenyl-, 200*a*.
$C_{20}H_{14}Br_2$ Ethylene, 1-bromo-1-(*p*-bromophenyl) - 2,2 - diphenyl-, 7469*c*.
$C_{20}H_{12}Br_2O_2$ Xanthene, 9-(benzyloxy)-2,7-dibromo-, 3822*f*.
$C_{20}H_{14}ClNO_2$ Acridine, 3-chloro-2-methoxy-9-phenoxy-, 6633*g*.
Ethylene, 1 - (*p* - chlorophenyl) - 1,2-diphenyl, nitro deriv., 200*a*.
$C_{20}H_{14}ClNO_4$ Anthranilic acid, *N*-benzoyl-4-chloro-*N*-phenyl-, 3826*g*.
$C_{20}H_{14}Cl_2N_2O$ Acridine, 9-anilino-3,6-dichloro - 2 - methoxy-, *and* - *HCl*, 6633*e*.
Acridine, 3 - chloro - 9 - *p* - chloroanilino-2-methoxy-, *and* - *HCl*, 6633*g*.
$C_{20}H_{14}Cl_2N_2OS$ Naphthothiophenone, 6,9-dichloro - 2 - (*p* - dimethylaminophenylimino)-, P 7707*d*.
$C_{20}H_{14}CuN_2O_2$ *o* - Cresol, α,α' - (*o*-phenylenedinitrilo)di-, Cu deriv., 4073*e*.
$C_{20}H_{14}CuN_4O_2$ Benzoic acid, *o* - (α - phenylhydrazonobenzylazo)-, Cu complex, 6589*b*.
$C_{20}H_{14}Hg$ Mercury, di-1-naphthyl-, 560*a*, 4570*f*.
$C_{20}H_{14}N_2$ β - Hydromucononitrile, α,δ-dibenzylidene-, P 3847*i*.
$C_{20}H_{14}N_2O$ 9-Acridinecarboxanilide, 6631*h*.
Benz[*g*]indolo[2,3 - *a*]quinolizin - 5(13*H*)-one, 1-methyl-, 1422*g*.
Indole, 2-(4-biphenylyl)-1 nitroso-, 218*b*.
Nitrone, α-9-acridyl-*N*-phenyl-, 6631*h*.
$C_{20}H_{14}N_2O_2$ Acridine, 9-*p*-nitrobenzyl-, 4672*i*.
1,8 - Naphthalimide, *N* - (*p* - methylbenzylideneamino)-, 2982*d*.
Naphthalic anhydride, azine with *p*-tolylacetaldehyde, 2982*e*.
Quinoxaline, 2,3-bis(*p* hydroxyphenyl)-, 235*a*.
$C_{20}H_{14}N_2O_2S$ Anthraquinone, 1-amino-4-anilino-2-mercapto-, P 4483*d*.
$C_{20}H_{14}N_2O_3$ Naphthalic anhydride, azine with anisaldehyde, 2982*g*.
Phenanthridine, 6-(*p*-methoxyphenyl)-8-nitro-, 7446*b*.
$C_{20}H_{14}N_2O_4$ Benzanilide, 2-*m*-nitrobenzoyl-, 1042*d*.
Benzene, 1 - benzoyl - 2 - *m* - nitrobenzoyl-, oxime, 1042*c*.
*p*-Quinone, dioxime dibenzoate, 5623*c*.
$C_{20}H_{14}N_2O_4S$ Benzenesulfonanilide, 4-phthalimido-, P 1061*b*.
1 - Naphthalenesulfonic acid, 2-(2-hydroxy-1-naphthylazo)-, 8965*h*.
Phenanthridine, 6 - [*p* - (methylsulfonyl)phenyl]-8-nitro-, 7446*b*.
$C_{20}H_{14}N_2O_4S$ 2 - Anthraquinonesulfonic acid, 1-amino-4-anilino-, *Na salt*, 6193*h*.
$C_{20}H_{14}N_2O_6$ 2 - Isoindolinemalonic acid, α-(3 - indolylmethyl) - 1,3 - dioxo-, P 2643*f*.
$C_{20}H_{14}N_2O_6S$ Aniline, *p* - (*p* - nitrophenylsulfonyl) - *N* - piperonylidene-, 2592*i*.
$C_{20}H_{14}N_2O_8S_2$ *o* - Toluenesulfonic acid, α,α' - [vinylenebis(cyanomethylidyne)]di-, *di-Na salt*, P 3848*a*.
$C_{20}H_{14}N_2O_8S_2$ 1 - Naphthol - 3,6 - disulfonic acid, 8 - (2 - hydroxy - 1 - naphthylazo), P 4482*a*.
$C_{20}H_{14}N_4$ Benzimidazole, 2,2' - *p* - phenylenebis-, P 6430*b*.
$C_{20}H_{14}N_4NiO_2$ Benzoic acid, *o*-(α-phenylhydrazonobenzylazo)-, Ni complex, 6589*d*.
$C_{20}H_{14}N_4OS$ Dibenzo[*f,h*]pyrimido[4,5-*b*]-quinoxalin - 13 - ol, 11 - (ethylmercapto)-, 2212*h*.
$C_{20}H_{14}N_4O_4$ Isatin, 1 acetyl-, 3,3'-azine, 3428*f*.
$C_{20}H_{14}N_4O_6S_2$ Benzimidazolesulfonic acid, 2,2' - *p* - phenylenebis-, *di-Na salt*, P 8174*b*.
$C_{20}H_{14}N_4O_7$ Carbazole, 9-vinyl-, picrate, P 6669*f*.
1-Phenanthrylamine, picrate, 4664*c*.
$C_{20}H_{14}N_4O_7S$ Quinoline, 2 - (3 - methyl-2-thienyl)-, picrate, 4666*f*.
$C_{20}H_{14}N_4S_2$ Benzothiazole, 2,2'-phenylenebis[amino-, 5776*efg*.
$C_{20}H_{14}N_6O_4$ 2,5 - Piperazinedione, 1,4-bis-(1,2,3,4 - tetrahydro - 1,4 - dioxo-5-phthalazinyl)-, 7488*f*.
$C_{20}H_{14}O$ 9-Anthrol, 10-phenyl-, 620*d*.
Anthrone, 10-phenyl-, 620*a*.
Isobenzofuran, 1,3 - diphenyl-, 1041*g*, 2985*d*, 7017*i*.
Ketone, fluorenyl phenyl, 195*c*, 196*a*, 4642*e*.
$C_{20}H_{14}O_2$ Anthracene, 9-phenyl-, photoöxide, 2983*g*.
Anthrone, 10 - hydroxy - 10 - phenyl-, 620*g*, 9060*e*.
Benzene, dibenzoyl-, 1041*d*, 5385*i*.
3,3'-Bi-1-naphthol, 1756*a*.
Fluoranthene, diacetyl-, 7473*g*.
Phthalide, 3,3-diphenyl-, 2319*c*.
$C_{20}H_{14}O_2S$ 2-Naphthol, thiodi-, 2599*h*.
$C_{20}H_{14}O_2S_2$ 1-Naphthol, trithiodi-, 2599*g*.
$C_{20}H_{14}O_2S_4$ 2-Naphthol, tetrathiodi-, P 5992*g*.
$C_{20}H_{14}O_3$ Hydroperoxide, (9,10-dihydro-10-oxo-9-phenyl-9-anthryl), 620*ad*.
Isobenzofuran, 1,3 - diphenyl-, photoxide, 1041*i*.
Naphthalenedicarboxylic anhydride, 4-(*p*-ethylphenyl)-, 206*g*, 8885*f*.
—, 7-methyl-*p*-tolyl-, 206*h*, 615*g*, 8885*f*.
Phthalide, 3 - (*p* - hydroxyphenyl) - 3-phenyl-, 2319*c*.
1-Pyrenebutyric acid, γ-oxo-, 2274*b*.
$C_{20}H_{14}O_3S$ 1 - Naphthol, 8 - (1 - naphthylsulfonyl)-, 7006*e*.
$C_{20}H_{14}O_4$ (See also *Phenolphthalein*.)
Benzophenone, 2,5 - dihydroxy-, 5-benzoate, 2187*g*.
Fluoranthenedicarboxylic acid, di-Me ester, 7473*i*.
Hydroquinone, dibenzoate, 182*c*, 2187*f*.
—, dibenzoyl-, 7016*h*.
Phthalic acid, diphenyl ester, P 3662*i*, P 5633*b*.
Phthalide, 3 - (dihydroxyphenyl) - 3-phenyl-, 2319*d*.
—, 3 - (*o* - hydroxyphenyl) - 3 - (*p*-hydroxyphenyl)-, 2319*d*.
$C_{20}H_{14}O_5$ Acrylic acid, β-benzoyl-, anhydride, 7192*h*.
7*H* - Benzo[*c*]fluorene - 6 - carboxylic acid, 2,9-dimethoxy-7-oxo-, 606*f*.
Fluorescin, 5078*g*.
1-Indancarboxylic acid, 1,2-dihydroxy-2-(2-naphthyl)-3-oxo-, 1384*d*.
Naphthalenedicarboxylic anhydride, 6,7-dimethoxy-4-phenyl-, 8885*f*.
—, methoxy(methoxyphenyl)-, 606*e*, 615*ef*, 8885*f*.
Phthalide, 3 - (dihydroxyphenyl)-3-(*p*-hydroxyphenyl)-, 2319*e*.
—, 3 - phenyl - 3 - (trihydroxyphenyl)-, 2319*d*.
$C_{20}H_{14}O_6$ Coumarin, 3,3'-ethylidenebis[4-hydroxy-, 9108*a*.
Phthalide, 3,3 - bis(3,4 - dihydroxyphenyl)-, 2319*e*.
—, 3 - (*p* - hydroxyphenyl) - 3 - (trihydroxyphenyl)-, 2319*e*.
Salicylic acid, *m* phenylene ester, P 1979*g*.
Ulmic acid, 376*e*.
$C_{20}H_{14}O_7$ Coumarilic acid, 5-methyl-3-(trihydroxyphenyl)-, δ-lactone, diacetate, 1771*h*.
$C_{20}H_{14}O_8$ 2 - Anthraquinonecarboxylic acid, 4,5-dihydroxy-, diacetate Me ester, 3062*g*.
Coumarilic acid, 6-methoxy-3-(2,3,4-trihydroxyphenyl)-, δ-lactone, diacetate, 1772*a*.
$C_{20}H_{14}O_8S_2$ Naphthalenesulfonic acid, sulfonyldi-, P 6095*b*.
$C_{20}H_{14}S_2Zn$ 1 - Naphthalenethiol, Zn deriv., P 5224*c*.
$C_{20}H_{14}$ Methyl, fluorenylphenyl-, 194*ef*.
$C_{20}H_{15}Br$ Ethylene, 2 - (*p* - bromophenyl)-1,1-diphenyl-, 7469*c*.
Ethylene, bromotriphenyl-, 1454*b*, 5754*d*, 7106*h*.
Fluorene, 1-α-bromobenzyl-, 196*a*.
$C_{20}H_{15}BrN_2O_2$ Benzimidic acid, *N*-(2-bromo - *p* - tolyl)-, *o* - nitrophenyl ester, 1777*g*.
*p*-Benzotoluidide, 2' - bromo - *N* - (*o*-nitrophenyl)-, 1777*g*.
$C_{20}H_{15}BrO$ Benzophenone, 2-benzyl-4'-bromo-, 4663*c*, 6194*d*.
$C_{20}H_{15}BrO_2$ Phenol, *p,p'* - (β-bromostyrylidene)di-, 7469*h*.
$C_{20}H_{15}Br_2ClO$ Ethanol, 1,1-bis(*p*-bromophenyl)-2-(*p*-chlorophenyl)-, 7469*a*.
$C_{20}H_{15}Br_2N_3O_7$ Acetamidine, *N, N'*-bis(*p*-bromophenyl)-, picrate, 2594*c*.
$C_{20}H_{15}Cl$ Ethylene, (*p* - chlorophenyl)diphenyl-, 199*i*, 7469*b*.
Ethylene, chlorotriphenyl-, 7561*b*, 8036*h*, 9334*e*.
$C_{20}H_{15}ClIN_3S_2$ 2 - [3 - (5 - Chloro - 3 - methyl-2 - benzothiazolinylidene) - 1 - cyanopropenyl] - 3 - methylbenzothiazolium iodide, P 7843*a*.
$C_{20}H_{15}ClI_2O$ Ethanol, 2 - (*p* - chlorophenyl)-1,1 - bis(*p* - iodophenyl)-, 7469*a*.
$C_{20}H_{15}ClN_2$ Pyrimidine, 2-chloro-4,6-distyryl-, 3427*c*.
$C_{20}H_{15}ClN_2O$ Acridine, 9-anilino - 3-chloro-2-methoxy-, *and* - *HCl*, 6633*g*.
$C_{20}H_{15}ClN_2OS$ 3(2*H*) - Thiophanthrenone, 9 - chloro - 2 - (*p* - dimethylaminophenylimino)-, P 7707*a*.
$C_{20}H_{15}ClN_2O_3$ 5 - Methyl - 6 - (*p*-nitrophenyl)phenanthridinium chloride, P 5051*a*.
Phenol, *p* - (6 - chloro - 2 - methoxy-9-acridylamino)-, P 1068*c*.
$C_{20}H_{15}ClO$ Benzophenone, 2-benzyl-4'-chloro-, 4663*b*, 6194*d*.
$C_{20}H_{15}Cl_2NO$ Acetophenone, α-anilino-*p*-chloro - α - (*p* - chlorophenyl)-, *and* - *HCl*, 3369*d*.
$C_{20}H_{15}Cl_3$ Ethane, 1,1,1 - trichloro-2,2,2-triphenyl-, 345*f*, 9332*i*.

Ethane, 1,1,1-tris(chlorophenyl)-, 9333*a*.
$C_{20}H_{15}Cl_3O$ Ethanol, 1,1,2 - tris(*p*-chlorophenyl)-, 7469*a*.
$C_{20}H_{15}Cl_3O_2$ 2,6 - Xylenol, 4-chloro-$\alpha,\alpha'$-bis(5 - chloro - 2 - hydroxyphenyl)-, 8615*a*.
$C_{20}H_{15}FO$ Benzophenone, 2-benzyl-4'-fluoro-, 6194*d*.
$C_{20}H_{15}IO_4$ Benzene, iodoso-, dibenzoate, P 5231*d*.
$C_{20}H_{15}N$ 7*H* - Acenaphth[1,2-*b*]indole, 7-ethyl-, 628*c*.
Acetonitrile, triphenyl-, 1312*d*.
Acridine, 9-benzyl-, *and nitrate*, 4671*e*.
Benz[*g*]isoquinoline, 1-benzyl-, 8390*i*.
Di-2-naphthylamine, 606*b*.
Indole, 2-(4-biphenylyl)-, 218*b*.
Phenanthridine, 6-*p*-tolyl-, 649*a*.
$C_{20}H_{15}NO$ Isocyanic acid, triphenylmethyl ester, 4645*i*.
Phenanthridine, 6-(*p*-methoxyphenyl)-, 7446*b*.
$C_{20}H_{15}NOS$ Methanol, 2-benzothiazolyldiphenyl-, 7475*i*.
$C_{20}H_{15}NO_2$ 1*H* - Benz[*e*]indene - 1,2(3*H*)-dione, 3-methyl-, anil oxide, 7472*d*.
9-Carbazolemethanol, benzoate, 3819*b*.
Ethylene, 2 - (*p* - nitrophenyl) - 1,1-diphenyl-, 200*a*.
$C_{20}H_{15}NO_2S$ Phenanthridine, 6-[*p*-(methylsulfonyl)phenyl]-, P 5051*b*, 7446*b*.
$C_{20}H_{15}NO_3$ Anthranilic acid, *N*-benzoyl-*N*-phenyl-, 3826*f*.
5(4*H*) - Oxazolone, 4 - (3,6 - dimethyl-2 benzofurylmethylene) - 2 - phenyl-, 3413*d*.
$C_{20}H_{15}NO_4$ Cinnamic acid, *m*-(1-hydroxy-2-naphthoylamino)-, 7232*b*.
Sanguinarine, dihydro-, 361*d*.
$C_{20}H_{15}NO_5S_2$ See *1-Naphthol-3-sulfonic acid, 6,6'-iminobis-*.
$C_{20}H_{15}NS$ Thiocyanic acid, triphenylmethyl ester, 4645*i*.
$C_{20}H_{16}N_2$ 1-Naphthylamine, 4-(2-naphthylazo)-, 3964*c*.
2*H* - Pyrrolenine, 5-phenyl - 2 - (5-phenyl - 2 - pyrrylimino) , *salts*, P 7848*a*.
Quinoxaline, 6 - amino - 2,3 - diphenyl-, 234*i*.
$C_{20}H_{16}N_2OS_2$ Thiazole, 2,2'-(acetylimino)-bis[4-phenyl , 2992*f*.
$C_{20}H_{16}N_2O_2$ 2*H* - Pyrrolenine, 5 - (*p* - hydroxyphenyl) - 2 - [5 - (*p* - hydroxyphenyl) - 2 - pyrrylimino]-, *di-HCl*, P 7848*b*.
Quinoxaline, 6 - amino - 2,3 - bis(*p*-hydroxyphenyl)-, 234*i*.
$C_{20}H_{16}N_2O_3$ 2,3 - Anthraquinonedicarbonitrile, 1-butylamino-4-hydroxy-, 8163*a*, P 8165*a*.
Benzoic acid, nitro-, 2-benzylidene-1-phenylhydrazide, 1345*c*.
$C_{20}H_{16}N_2O_3S$ Aniline, *N* - (6 - nitropiperonylidene) - *p*,*p'* - sulfonyldi-, 2592*i*.
$C_{20}H_{16}N_2O_6S_2$ Naphthionic acid, 3-(4 sulfo-1-naphthylazo)-, *di-Na salt*, 4961*f*.
$C_{20}H_{16}N_2O_8S_2$ 1 - Naphthol - 3,6 - disulfonic acid, 8 - (aminohydroxynaphthylazo)-, 4467*h*.
$C_{20}H_{16}N_2S$ Ketone, 2 - benzothiazolyl phenyl, phenylhydrazone, 7475*i*.
$C_{20}H_{16}N_2O_5$ Benzoic acid, 2-[6-hydroxy-1-(2 - methoxyethyl) - 1*H* - naphtho-[1,2]triazol - 5 - ylazo] - 3,5-dinitro-, P 3626*a*.
$C_{20}H_{16}O$ Benzhydryl, $\alpha$-benzoyl-, 1753*h*.
$C_{20}H_{16}$ Anthracene, 9,10-dihydro-9-phenyl , 2983*g*.
Benz[*a*]anthracene, dimethyl-, 498*h*, 3095*c*, 4363*e*, 6315*i*, 8375*a*.
Chrysene, 11,12 - dimethyl-, 8375*a*.
Ethylene, triphenyl-, 199*f*, 5731*e*, 5754*d*, 9334*h*.
*o*-Terphenyl, 4-vinyl-, 4056*f*.
$C_{20}H_{16}BeCl_2N_4O_4$ 2 - Naphthylamine, 8-nitro-, compd. with $BeCl_2$, 4172*f*.
$C_{20}H_{16}BrNO_4$ 2 - Naphthanilide, 4-bromo-3' - (1,3 - dioxolan - 2 - yl) - 1-hydroxy-, P 8169*h*.
$C_{20}H_{16}ClN$ 5-Methyl-6-phenylphenanthridinium chloride, P 2646*i*.
$C_{20}H_{16}ClNO_4$ 2 - Naphthanilide, 4-chloro-3' - (1,3 - dioxolan - 2 - yl) - 1 - hydroxy-, P 8169*h*.
$C_{20}H_{16}ClN_3O$ Acridine, 6-chloro-2-methoxy - 9 - (2 - phenylhydrazino)-, *and - HCl*, P 2242*d*.
$C_{20}H_{16}ClN_3OS$ *o* - Cresol, 4 - (7 - chloro-4-quinolylamino) - $\alpha$ - (1,4,4*H* - thiazin-4-yl)-, *di-HCl*, P 7514*e*.
$C_{20}H_{16}ClN_3O_2$ *o*-Cresol, 4-(7-chloro-4-quinolylamino) - $\alpha$ - (1,4,4*H* - oxazin-4-yl)-, *di-HCl*, P 7514*e*.
$C_{20}H_{16}ClN_3O_7$ *p* - Toluamidine, *N* - (*p*-chlorophenyl)-, picrate, 7444*f*.
$C_{20}H_{16}Cl_2N_2$ Acetophenone, *p*-phenyl-, (dichlorophenyl)hydrazone, 622*c*.
$C_{20}H_{16}Cl_2N_2O_2S$ Acetanilide, *p*-(3,5-dichlorophenylsulfamyl) - $\alpha$ - phenyl-, 4648*h*.
Sulfanilanilide, *N*[4] - anisylidene-3',5'-dichloro-, 4648*i*.
$C_{20}H_{16}Cl_2N_2S$ *p* - Phenylenediamine, *N'*-(6,9 - dichloronaphtho[1,2-*b*]thiophen-3(2*H*)-ylidene)-*N*, *N*-dimethyl-, P 9470*i*.
$C_{20}H_{16}Cl_2O_6S$ Phenol, 4,4' - sulfonylbis[2-chloro-, bis(allyl carbonate), P 4298*h*.
$C_{20}H_{16}IN$ 5 - Methyl - 6 - phenylphenanthridinium iodide, P 2646*i*.
$C_{20}H_{16}N_2$ [Binaphthylamine], 5774*cd*; *and di-HCl*, 1756*a*.
Carbodiimide, triphenylmethyl-, 4645*a*.
Hydrazine, 1,2-dinaphthyl-, 5774*bc*.
Naphthidine, 5774*d*.
$C_{20}H_{16}N_2O$ Acenaphthenequinone imine, *N*-(*p*-dimethylaminophenyl)-, P 9470*h*.
Acridine, 9-*p*-methoxyanilino-, 649*c*.
Benzanilide, benzylideneamino-, 1345*e*.
Benz[*g*]indolo[2,3-*a*]quinolizinone, dihydro-1-methyl, 234*de*, 1422*fi*, 5786*a*, 7490*fi*, 7491*a*.
Benzonitrile, *p* - [2 - (6 - ethoxy - 2-quinolyl)vinyl]-, 5757*b*.
1 - Indolecarboxamide, 3-methyl-*N*-1-naphthyl-, 8365*g*.
5(6*H*) - Phenanthridinecarboxanilide, 8365*g*.
9*H* - Pyrid[3,4-*b*]indole, 9-hemellitoyl-, 6627*d*, 7490*f*.
Pyrido[3,4-*c*]isoquinoline, 2,4-dimethyl-6-phenoxy-, P 6242*g*.
$C_{20}H_{16}N_2O_2$ *o*-Cresol, $\alpha,\alpha'$-(*o*-phenylenedinitrilo)di-, 5116*i*.
Hemellitic acid, $\alpha^2$-9*H*-pyrid[3,4-*b*]indol-1-yl-, 1422*g*.
1,3(2*H*,4*H*) - Isoquinolinedione, 2-methyl - 4 - (2 - methyl - 4(1*H*)-quinolylidene)-, 229*c*.
$C_{20}H_{16}N_2O_2Pd$ 8-Quinolinol, 5-methyl-, Pd deriv., 7371*f*.
$C_{20}H_{16}N_2O_2S_2$ $\Delta^2,\alpha$-Benzothiazolineacetic acid, $\alpha$ - 2 - benzothiazolyl - 3 - ethyl-, Et ester, 8292*c*.
$C_{20}H_{16}N_2O_3$ 1,3 - Dioxolo[*g*]isoquinoline, 7,8 - dihydro - 5 - (6-methoxy-4-quinolyl)-, *and salts*, 1421*i*.
$C_{20}H_{16}N_2O_3S$ 2 - Naphthamide, *N* - (6-ethoxy - 2 - benzothiazolyl) - 3-hydroxy-, P 4701*c*.
$C_{20}H_{16}N_2O_4S$ Aniline, *N* - piperonylidene-*p*,*p'*-sulfonyldi-, 2592*i*.
$C_{20}H_{16}N_2O_5S$ Aniline, *N* - anisylidene-*p*-(*p*-nitrophenylsulfonyl)-, 2592*h*.
Aniline, *N* - *o* - methoxybenzylidene-*p*-(*p*-nitrophenylsulfonyl)-, 2592*h*.
Phthalanilic acid, 4'-(phenylsulfamyl)-, P 1061*b*.
$C_{20}H_{16}N_2O_6S_2$ Benzaldehyde, hydroxymethoxy-, bis(nitrophenyl) mercaptal, 6179*f*.
$C_{20}H_{16}N_2S$ 3,1,4*H* - Benzothiazine, 1,2-dihydro - 1 - phenyl - 2 - phenylimino-, 4278*d*.
$C_{20}H_{16}N_2S_2$ 4,4' - Bithiazole, 5,5'-dimethyl-2,2'-diphenyl-, 2202*f*.
$C_{20}H_{16}N_4$ Nitron, 8971*h*; *salts*, 8971*h*.
Quinoxaline, 2,3-bis(*p*-aminophenyl)-, 235*a*.
$C_{20}H_{16}N_4OS$ 4 - Pteridinol, 2-(ethylmercapto)-6,7-diphenyl-, 2212*g*, 3010*i*.
$C_{20}H_{16}N_4O_2$ Anthraquinone, 1,4,5-triamino-8-anilino-, P 4483*i*.
Benzoic acid, *o* - ($\alpha$ - phenylhydrazonobenzylazo)-, 6589*b*.
$C_{20}H_{16}N_4O_2S$ Acetanilide, *p* - (benzo[*f*]-quinoxalylsulfamyl)-, 174*h*.
$C_{20}H_{16}N_4O_4$ 3,5 - Octadien - 7 - yn - 2 - one, 8-phenyl-, 2,4-dinitrophenylhydrazone, 7415*f*.
*p*-Quinone, dioxime dicarbanilate, 5623*c*.
Salicylic acid, 5-[*p*-(aminobenzamido)-phenylazo]-, P 5962*g*, P 9459*h*.
$C_{20}H_{16}N_4O_4S$ *p* - Toluenesulfonic acid, 2-(3-nitrobenzo[*g*]quinol - 4 - yl)hydrazide, 1420*c*.
$C_{20}H_{16}N_4O_5$ *p* - Toluic acid, 3,5 - dinitro-, 1-(t
$C_{20}H_{16}N_4$
sulfam
$C_{20}H_{16}N_4O_7$ Carbazole, 9-ethyl-, picrate, 3819*d*.
2 - Pyrazoline - 3 - carboxylic acid, 1-(*p*-carboxyphenyl) - 4 - (*p* - carboxyphenylazo) - 5 - oxo-, 3-Et ester, P 8149*f*.
$C_{20}H_{16}N_4O_{12}$ 1,2 - - - - nediol, methyl-, bis(3, - dinitrobenzoate), 2173*d*.
1,3 - Propanediol, bis(3,5-dinitrobenzoate), 6756*e*.
$C_{20}H_{16}N_4$ Benzimidazole, 2,2' - *p* - phenylenebis[6-amino-, P 5194*f*, P 8146*a*.
$C_{20}H_{16}N_4O$ Pteridine, 4-acetamido - 2-amino-6,7-diphenyl-, 4268*f*.
$C_{20}H_{16}N_{10}O_4S_2$ 4,4' - Bithiazole, 2,2'-diamino - 5,5' - dimethyl-, dipicrate, 2202*f*.
$C_{20}H_{16}O$ Acetaldehyde, triphenyl-, 4632*h*.
Acetophenone, *p*-2-biphenylyl-, 4655*h*.
Benzophenone, 2-benzyl-, 6194*d*.
4-Fluorenemethanol, $\alpha$-phenyl-, 195*f*.
$C_{20}H_{16}OS$ Acetophenone, $\alpha$-mercapto-$\alpha$,$\alpha$-diphenyl-, 1753*h*.
$C_{20}H_{16}O_2$ 1 - Acrylonaphthone, methoxy-$\beta$-phenyl-, 7001*bc*.
Benz[*k*]acephenanthrylene - 5a,6(6*H*)-diol, 4,5-dihydro-, 8375*c*.
2,5 - Cyclohexadien - 1 - one, 4-benzhydrylidene-2-methoxy-, 8683*g*, 9451*c*.
Ketone, 5-acenaphthenyl *p*-methoxyphenyl, 7007*d*.
Phenol, *p*-2-biphenylyl-, acetate, 4655*e*.
—, *p*,*p'*-styrylidenedi-, 7469*f*.
Phlorone, $\alpha,\alpha'$-diphenyl-, 7016*i*.
Terphenylcarboxylic acid, Me ester, 4656*a*, 5768*i*.
$C_{20}H_{16}O_3$ 2,5-Cyclohexadien-1-one, 4-(4-hydroxybenzhydrylidene) - 2-methoxy-, 9451*c*.
2,5 - Cyclohexadien - 1 - one, 4 - (4-hydroxy - 3 - methoxybenzhydrylidene)-, - *HCl*, 8683*e*.
Succinic anhydride, bis(*p*-methylbenzylidene)-, 615*g*.
$C_{20}H_{16}O_4$ 2,5 - Cyclohexadien - 1 - one, 4-(4,4'' - dihydroxybenzhydrylidene)-2-methoxy-, 9451*c*; - *HCl*, 5772*e*.
Ketone, 2 - hydroxy - 3 - methoxyphenyl 1-naphthyl, acetate, 205*d*.
2,3 - Naphthalenedicarboxylic acid, 7-methyl-1-*p*-tolyl-, 615*c*.
1,4 - Naphthoquinone, 2 - ($\alpha$ - acetonylbenzyl)-3-hydroxy-, 1379*g*, 5779*h*.
—, 2 - hydroxy - 3 - (2 - *p* - toluylethyl)-, 1387*e*.
$C_{20}H_{16}O_5$ Benzoic acid, *p* - [3 - (1,4 - dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl)propyl]-, 1387*e*.
Succinic anhydride, bis(*o*-methoxybenzylidene)-, 615*e*.
—, dianisylidene-, 615*f*.
$C_{20}H_{16}O_5S$ 1 - Naphthol - 8 - sulfonic acid, 4 - (2 - hydroxy - 5 - methylbenzyl)-, sultone, acetate, 204*c*.
$C_{20}H_{16}O_6$ Chromone, 6,7 - dimethoxy-2-(3,4 - methylenedioxystyryl)-, 7461*e*.
Elliptone, 3966*g*.
Fumaric acid, diphenacyl-, 7192*h*.
5*H* - Furo[3,2-*g*][1]benzopyran - 5 - one, 4,9 - dimethoxy - 7 - (*p* - methoxyphenyl)-, 7481*f*.
2,3 - Naphthalenedicarboxylic acid, methoxy - 1 - (methoxyphenyl)-, 606*e*, 615*c*.
$C_{20}H_{16}O_7$ Flavone, 5,8-dihydroxy-4'-methoxy-, diacetate, 3414*h*.
5*H* - Furo[3,2-*g*][1]benzopyran - 5 - one, 6,7 - dihydro - 4,9 - dimethoxy - 7-(3,4 - methylenedioxyphenyl) , 7481*d*.
Oroxylin, diacetate, 5397*d*.
2 - Propen - 1 - one, 1 - (6 - hydroxy - 4,7-dimethoxy - 5 - benzofuryl) - 3 - (3,4-methylenedioxyphenyl)-, 7481*c*.
$C_{20}H_{16}O_{10}$ Polymer, m. 196-9°, 2974*b*.
$C_{20}H_{17}BrN_2$ 9 - Amino - 10 - methyl 4-phenylacridinium bromide, 7135*g*.
$C_{20}H_{17}BrN_2OS$ 2 - [1 - Methyl - 2(1*H*)-quinolylidenemethyl] - 4 - oxo - 3-phenyl - 2 - thiazolinium bromide, P 7845*i*.
$C_{20}H_{17}BrO_4$ 1 - Fluorenepropionic acid, acetyl - 9 - bromo - $\beta$ - oxo-, Et ester, 3402*b*.
$C_{20}H_{17}BrS$ Thiophene, 3 - ($\beta$ - bromo-$\alpha$-phenylstyryl) - 2,5 - dimethyl-, 4746*c*.
$C_{20}H_{17}ClO$ Ethanol, 2 - (*p* - chlorophenyl)-1,1-diphenyl-, 7469*a*.
Ethanol, 2-chloro-1,1,2 - triphenyl-, 2600*e*.
Indeno[2,1-*a*]indene, 5 - butoxy - 10-chloro-, 4662*d*.
$C_{20}H_{17}ClO_3$ 1,4 - Naphthoquinone, 2-[3-(4-chloro - *m* - tolyl)propyl] - 3-hydroxy-, 1380*a*.
$C_{20}H_{17}ClO_4$ 1 - Fluorenepropionic acid, $\alpha$-acetyl - 9 - chloro - $\beta$ - oxo-, Et ester, 3402*b*.
$C_{20}H_{17}Cl_2NO$ Ethanol, 2 - anilino - 1,2-bis(*p* - chlorophenyl)-, *and - HCl*, 3369*e*.

$C_{20}H_{17}F_3N_2O_4$ β - Alanine, *N* - [4-methylamino - 3 - (trifluoromethyl) - 1 - anthraquinonyl]-, Me ester, P 7709*g*.

$C_{20}H_{17}IN_2O_3$ 1,3 - Dioxolo[*g*]isoquinoline, 7,8 - dihydro - 5 - (quinolyl)-, methiodide, 1421*f*, 1422*cf*.

$C_{20}H_{17}IO_4$ 1 - Fluorenepropionic acid, α-acetyl - 9 - iodo - β - oxo-, Et ester, 3402*b*.

$C_{20}H_{17}N$ Benz[*a*]acridine, 12-isopropyl-, 6742*h*.

Benzhydrylamine, *N* - benzylidene-, 2981*d*.

Phenanthridine, 5,6 - dihydro - 5-methyl-6-phenyl-, P 2646*i*.

$C_{20}H_{17}NO$ Benzamide, *N*-benzhydryl-, 2981*d*.

$C_{20}H_{17}NO_2$ Acetic acid, diphenyl-, 3-pyridylmethyl ester, P 8105*h*.

Cyclohexanecarboxylic acid, 1-cyano-4-hydroxy - 2,6 - diphenyl-, δ-lactone, 2963*g*.

6*H* - Cyclopent[*g*]isoquinoline, 7,8-dihydro - 1 - piperonyl-, 8390*e*.

1,3 - Dioxolo[*g*]isoquinoline, 5-(5-indanylmethyl)-, *and* - *HCl*, 8390*f*.

$C_{20}H_{17}NO_3$ Cyclohexanecarboxylic acid, 1-cyano - 4 - oxo - 2,6 - diphenyl-, 2963*f*.

$C_{20}H_{17}NO_4$ (See also *Berberine*.)

2 - Naphthanilide, 3′ - (1,3 - dioxolan-2-yl)-1-hydroxy-, P 8169*h*.

Quinaldic acid, 3-acetyl-1-benzoyl-1,2-dihydro-, Me ester, 1412*b*.

$C_{20}H_{17}N_3O$ Aniline, *N*-anisylidene-*p*-phenylazo-, 3675*d*, 7291*f*.

5 - Pyrazolone, 3-methyl - 4 - (2-methyl-4(1*H*) - quinolylidene) - 1 - phenyl-, 229*b*.

$C_{20}H_{17}N_3O_2$ Biuret, 1 - (4 - biphenylyl)-5-phenyl-, 7446*f*.

Biuret, 1,1,5-triphenyl-, 5369*g*.

Diacetamide, *N* - (3,6 - diphenyl - 2-pyrazinyl)-, 3005*f*.

$C_{20}H_{17}N_3O_3$ Anisamidine, *N* - (4′ - nitro-2-biphenylyl)-, 7445*h*.

Carbanilide, 4 - methyl - 3 - nitro - 4′-phenyl-, 7448*c*.

$C_{20}H_{17}N_3O_3S$ 4 - Thiazoline, 5 - acetamido-3-acetyl - 2 - (benzoylimino) - 4-phenyl, 1401*e*.

$C_{20}H_{17}N_3O_3S$ Benzamidine, *p* - (methylsulfonyl) - *N* - (4′ - nitro - 2 - biphenylyl)-, 7445*g*.

$C_{20}H_{17}N_3O_6$ Tryptophane, compd. with 2-nitro-1,3-indandione, 70*a*.

$C_{20}H_{17}N_3O_6S$ Salicylic acid, 5-[4-(4-amino-*o*-tolylazo) - 2 - sulfophenylazo]-, P 5963*d*.

$C_{20}H_{17}N_3O_7$ *p* - Toluamidine, *N* - phenyl-, picrate, 7444*f*.

$C_{20}H_{17}N_3O_8$ Benzamidine, *N* - (*p* - methoxyphenyl)-, picrate, 7444*d*.

Compd., m. 255–6°, 1742*d*.

$C_{20}H_{17}N_5S$ Pteridine, 4-amino-2-(ethylmercapto)-6,7-diphenyl-, 3011*c*.

$C_{20}H_{17}O_2PS$ β - Styrenephosphonic acid, thio-, di-Ph ester, P 7500*a*.

$C_{20}H_{17}O_3P$ β - Styrenephosphonic acid, *p*-2-biphenylyl-, 4656*h*.

β-Styrenephosphonic acid, di-Ph ester, P 7499*i*.

$C_{20}H_{18}$ Benzene, *p*-dibenzyl-, 5386*a*.

2,2′ - Binaphthyl, 3,3′,4,4′-tetrahydro-, 205*f*.

Ethane, 1,1,2-triphenyl-, 6177*c*.

Phenanthrene, 9-(1-cyclohexen-1-yl)-, 3366*h*.

$C_{20}H_{18}BeCl_2N_2$ Quinaldine, compd. with $BeCl_2$, 4175*f*.

$C_{20}H_{18}BrNO_2$ 1 - Benzyl - 3 - carboxypyridinium bromide, benzyl ester, 2622*i*, 6317*h*.

$C_{20}H_{18}Br_2N_2O_2S$ Acetamidine, *N*, *N*′-bis(*p*-bromophenyl)-, benzenesulfonate, 2594*c*.

$C_{20}H_{18}Cl_2N_2O$ Compd., m. 169°, 4234*i*.

$C_{20}H_{18}Cl_2N_2O_2$ Benzonitrile, 4,4′-(hexamethylenedioxy)bis[3-chloro-, 9048*h*.

$C_{20}H_{18}Cl_2N_2Zn$ Isoquinoline, 3-methyl-, compd. with $ZnCl_2$, 3820*h*.

$C_{20}H_{18}Cl_2N_4O_7$ 2 - Naphthylamine, *N*, *N*-bis(2-chloroethyl)-, picrate, 7443*c*.

$C_{20}H_{18}Cl_2O_2$ 3 - Retenol, 2,9-dichloro-, acetate, 2985*e*.

$C_{20}H_{18}I_2N_2O_2$ Benzonitrile, 4,4′-(hexamethylenedioxy)bis[3-iodo-, 9048*h*.

$C_{20}H_{18}N_2$ Benzaldehyde, benzylphenylhydrazone, 1654*i*.

Benzamidine, *N* - benzyl - *N* - phenyl-, 2593*i*.

—, *N*-methyl-*N*, *N*′-diphenyl-, 2594*b*.

—, *N* - phenyl - *N*′ - *p* - tolyl-, 2594*b*.

[illegible]dibenzyli-

9*H* - Pyrido[3,4-*b*]indole, 9 - methyl-1-o-methylbenzyl-, *and* - *HCl*, 3016*e*.

$C_{20}H_{18}N_2O$ Anisamidine, *N*-2-biphenylyl-, 7445*g*.

Benzanilide, benzylamino-, 1345*f*.

I - Indolinecarboxamide, 2-methyl-*N*-1-naphthyl-, 8365*e*.

2(1*H*) - Isoquinolinecarboxamide, 3,4-dihydro-*N*-1-naphthyl-, 8365*f*.

Nicotinamide, *N* - α - phenylphenethyl-, 8053*c*, P 8620*e*, 9254*d*.

1(2*H*) - Quinolinecarboxamide, 3,4-dihydro - *N* - 1 - naphthyl-, 8365*f*.

Urea, triphenylmethyl-, 4645*d*.

$C_{20}H_{18}N_2O_2$ Antipyrine, 4-(2-benzoylvinyl)-, 7477*b*.

1,4,4*H* - Benzoxazine - 4 - carboxamide, 2,3 - dihydro - 3 - methyl - *N* - 1-naphthyl-, 8365*f*.

1,3(2*H*,4*H*) - Isoquinolinedione, 2-[2-(3 indolyl)ethyl] - 5 - methyl-, 234*h*, 1423*a*.

3-Oxazolidinecarboxamide, *N*-1-naphthyl - 2 - phenyl-, 8365*f*.

*p* Quinone, bis(benzyloxime), 5623*d*.

$C_{20}H_{18}N_2O_2S$ Benzamidine, *N* - 2 - biphenylyl - *p* - (methylsulfonyl)-, P 5051*d*, 7445*g*.

$C_{20}H_{18}N_2O_2S_2$ $\Delta^{2(3H)}$,α - Naphtho[1,2]thiazolecrotonic acid, α-cyano-1-methyl-β-methylmercapto-, Et ester, P 7849*g*.

2,4 - Oxazolidinedione, 3-ethyl-5-[2-[3-(1 - naphthyl)thiazolinylidene]ethylidene]-2-thio-, P 7844*a*.

$C_{20}H_{18}N_2O_3$ Allophanic acid, γ-naphthyl-, xylyl ester, 7447*ef*.

1,3 - Dioxolo[*g*]isoquinoline, 5,6,7,8-tetrahydro - 5 - (6 - methoxy - 4-quinolyl)-, *and* - *HCl*, 1421*i*.

2-Furaldehyde, (hydroxymethyl)-, diphenylacetylhydrazone, 3795*b*.

5(4*H*)-Oxazolone, 4-(anilinomethylene)-2-(*p*-methoxy-α-methylstyryl)-, 7021*g*.

$C_{20}H_{18}N_2O_3S$ Aniline, *N*-anisylidene-*p*, *p*′-sulfonyldi-, 2592*h*.

Aniline, *N* - *o* - methoxybenzylidene-*p*, *p*-sulfonyldi-, 2592*h*.

Benzanilide, 2 - *p* - tolylsulfonamido-, 7006*h*.

$C_{20}H_{18}N_2O_4$ Benzoic acid, 3-dimethylamino-5 - (1 - hydroxy - 2 - naphthoylamino)-, 7232*b*.

Isonicotinic acid, 3-[bis(*p*-methoxyphenyl)amino]-, 3827*b*.

Iminamide, *N* - homopiperonyl-, *and* - *HCl*, 1421*h*.

Strychnidine, dehydro-, compd. with MeOH, 6637*h*.

$C_{20}H_{18}N_2O_4S_2$ *p* - Benzenedisulfonamide, *N*, *N*′ - (3,3′ - dimethyl - 4,4′-biphenylene) deriv., 4237*f*.

$C_{20}H_{18}N_2O_5$ Acetamide, *N* - (9,10 - dihydro - 7 - isopropyl - 1 - methyl - 4-nitro - 9,10 - dioxo - 3 - phenanthryl)-, 7470*e*.

$C_{20}H_{18}N_2O_5S$ Phthalamic acid, *N*-[2-(2-naphthylsulfamyl)ethyl]-, P 3450*g*.

$C_{20}H_{18}N_2O_5S_2$ *o* - Toluenesulfonic acid, 5-(2-amino - 5 - benzamidophenylsulfonyl)-, P 2440*f*.

$C_{20}H_{18}N_2O_6$ Streptose, bisdesoxy, bis(*p*-nitrobenzoate), 1328*g*.

$C_{20}H_{18}N_2S$ Urea, 2-thio-1-triphenylmethyl-, 4645*a*.

$C_{20}H_{18}N_4OS$ 4 - Pteridinol, 2 - (ethylmercapto)dihydro - 6,7 - diphenyl-, 3011*c*.

$C_{20}H_{18}N_4O_2$ 4,4′ - Bi - 2 - pyrazoline, 5,5′-dibenzoyl-, 7453*a*.

Phthalic acid, bis(2-phenylhydrazide), P 6846*b*.

5 - Pyrazolone, (4,4′ - biphenylene)bis[3-methyl-, P 7695*b*.

$C_{20}H_{18}N_4O_2S_2$ Urea, 1 - (2 - benzamido-5-thiazolyl) - 3 - benzoyl - 2 - thio-, di-Me deriv., 1400*h*.

$C_{20}H_{18}N_4O_3$ Nicotin - *o* - anisidide, 4′-(*m*-methoxyphenylazo)-, 5025*e*.

$C_{20}H_{18}N_4O_4S_2$ 2,2′ - Bibenzothiazole, 6,6′-diacetamido-5,5′-dimethoxy-, 5776*h*.

$C_{20}H_{18}N_4O_5$ Glutamic acid, *N* - (*p* - quinazolylaminobenzoyl)-, P 1914*b*.

$C_{20}H_{18}N_4O_5S$ Hydrazine, 1-(4-nitro-*N*-phenylanthranoyl) - 2 - *p* - tolylsulfonyl-, 648*e*.

Phthalanilic acid, 4′-(4,6-dimethyl-2-pyrimidylsulfamyl)-, P 7962*a*.

$C_{20}H_{18}N_4O_5S_2$ 2 - Naphthalenesulfonic acid, sulfadiazine salt, 174*a*.

$C_{20}H_{18}N_4O_7$ Ethylamine, 2,2-diphenyl-, picrate, 5026*d*.

Phenanthridine, 7,8,9,10 - tetrahydromethyl-, picrate, 1778*i*.

Pyridine, 4 - benzyl - 2,6 - dimethyl-, picrate, 4671*i*.

$C_{20}H_{18}N_4O_8$ Chromone, 3-acetyl-6,7-dimethoxy - 2 - methyl-, 2,4 - dinitrophenylhydrazone, 7461*e*.

Ethanol, 2 - (2 - biphenylylamino)-, picrate, 7443*b*.

2-Pentanone, 1-(2-quinolyl)-, picrate, 7022*f*.

Phenanthridine, 7,8,9,10 - tetrahydromethoxy-, picrate, 1778*i*, 1779*a*.

$C_{20}H_{18}N_4O_8S$ 2 - Phenanthrenesulfonic acid, 1,2,3,4 - tetrahydro - 1 - oxo-, 2,4-dinitrophenylhydrazine salt, 2214*d*.

$C_{20}H_{18}N_4O_8S_2$ Benzenesulfonamide, *N*, *N*′-*p* - phenylenebis[*N* - methylnitro-, P 860*ab*.

2,2′ - Biphenyldisulfonic acid, 4,4′-bis-(3 - methyl - 5 - oxo - 2 - pyrazolin-4-yl)-, P 1987*c*.

$C_{20}H_{18}N_4O_8S_2$ Thieno[3,4]-*p*-dioxin-5,7-dicarboxanilide, 2,3 - dihydro-4′,4″-disulfamyl-, 2598*c*.

$C_{20}H_{18}N_4O_9$ Coumarilic acid, 7-acetyl-6-hydroxy - 4 - methoxy-, Et ester, 2,4-dinitrophenylhydrazone, 3413*f*.

$C_{20}H_{18}N_4O_9S_2$ Furo[3,4] - *p* - dioxin - 5,7-dicarboxanilide, 2,3 - dihydro-4′,4″-disulfamyl-, 2598*b*.

$C_{20}H_{18}N_4O_7$ Pyrimidine, 4 - (*p* - dimethylaminostyryl)-, picrate, 3426*h*.

$C_{20}H_{18}N_8Na_2O_8S_2$ Pteridine, 2,4 - diamino-6,7 - bis[*p* - [(hydroxymethyl)amino]-phenyl]-, bis(H sulfite) di-Na salt, 4268*h*.

$C_{20}H_{18}N_8O_4Pb$ Isatin, 1-methyl-, 3-semicarbuzone, Pb deriv., 8979*i*.

$C_{20}H_{18}N_{10}O_{14}$ Guanidine, (*p*-aminobenzyl)-, dipicrate, 5014*f*.

Guanidine, (α - amino - *p* - tolyl)-, dipicrate, 5014*e*.

$C_{20}H_{18}O$ Cyclohexanone, dibenzylidene-, 4652*a*.

17*H* - Cyclopenta[*a*]phenanthren - 17-one, 15,16 - dihydro - 12 - isopropyl-, 621*i*.

*p*-Terphenyl-4-ethanol, 5768*i*.

*o* - Terphenyl - 4 - methanol, α - methyl, 4656*f*.

$C_{20}H_{18}O_2$ Creosol, α,α-diphenyl-, 8684*i*.

2,5 - Xylohydroquinone, α,α′ - diphenyl-, 7017*a*.

$C_{20}H_{18}O_2S$ Sulfone, benzhydryl *p*-tolyl, 1366*c*.

$C_{20}H_{18}O_3$ 4 - Acephenanthryleneacetic acid, 1,2,3,5 - tetrahydro - 3 - methyl - 5-oxo-, Me ester, 6610*f*.

16*H* - Cyclopenta[*a*]phenanthrene - 15-acetic acid, 11,12,13,17 - tetrahydro-16-oxo-, Me ester, 3430*b*.

Methanol, (4 - hydroxy - 3 - methoxyphenyl)diphenyl-, 8684*f*.

1,4 - Naphthoquinone, 2 - (dimethylphenethyl)-3-hydroxy-, 1379*d*.

—, 2 - (ethylphenethyl) - 3 - hydroxy-, 1379*d*.

—, 2 - hydroxy - 3 - (phenylbutyl)-, 1379*bd*.

—, 2 - hydroxy - 5,8 - dimethyl - 3 - (2,5-xylyl)-, 1385*f*, 2610*b*.

1,4 - Naphthoquinone, 2 - hydroxy - 3-(*p*-tolylpropyl)-, 1108*h*, 1379*d*.

2 - Pentene - 1,5 - dione, 4 - (methoxymethylene) - 2 - methyl - 1,5 - diphenyl-, 7453*e*.

Phenol, 2 - methoxy - 4,4′ - benzylidenedi-, 8683*d*.

$C_{20}H_{18}O_4$ 6,12 - Chrysenedione, 4b,5,10b,11-tetrahydro - 2,8 - dimethoxy-, 3402*h*.

Creosol, α,α - bis(*p* - hydroxyphenyl)-, 5772*c*.

1,5 - Hexadiene - 3,4 - diol, dibenzoate, 1721*i*.

Indeno[2,1 - *a*]indene - 5,10 - diol, 4b,-5,9b,10 - tetrahydro-, diacetate, 4661*g*.

6 - Indenol, 2 - (*p* - hydroxyphenyl) - 3-methyl-, diacetate, 1758*d*.

1,4 - Naphthoquinone, 2 - hydroxy - 3-[3 - (*p* - methoxyphenyl)propyl]-, 1379*g*.

2,4 - Pentadienoic acid, 5 - hydroxy - 3-(*p* - methoxyphenyl) - 5 - (4 - methoxy-*m*-tolyl)-, δ-lactone, 4640*c*.

Retenequinone, 3-hydroxy-, acetate, 7471*a*.

Suberic acid, β,ε-dihydroxy-β,ε-diphenyl-, dilactone, P 1056*c*.

Succinic acid, bis(*p*-methylbenzylidene)-, 615*g*.

$C_{20}H_{18}O_5$ 2 - (4 - Hydroxy - 3 - methoxystyryl)benzopyrylium acetate, P 6100*b*, P 7849*d*.

1,4 - Naphthoquinone, 2 - hydroxy - 8-methoxy - 3 - (5 - methoxy - *m* - tolyl)-5-methyl-, 1385*g*.

$C_{20}H_{18}O_6$ Fagarol, 5546*f*.
5 *H* - Furo[3,2 - *g*][1]benzopyran - 5 - one, 6,7 - dihydro - 4,9 - dimethoxy - 7-(*p*-methoxyphenyl)-, 7481*c*.
Hydroquinone, 2-phenyl-, bis(allyl carbonate), P 4298*i*.
2 - Propen - 1 - one, 1 - (6 - hydroxy - 4,7-dimethoxy - 5 - benzofuryl) - 3 - (*p*-methoxyphenyl)-, 7481*c*.
Pyrocatechol, 4,4' - (2,3 - dimethyltetramethylene)di-, cyclic carbonate, P 7047*g*.
Sesamin, 3555*d*, P 5151*ac*, 5893*h*, 8769*g*.
Succinic acid, bis(*o*-methoxybenzylidene)-, 615*d*.
—, dianisylidene-, 615*f*.
$C_{20}H_{18}O_6S$ 2 - Methyl - 4,6 - diphenylpyrylium carboxymethanesulfonate, P 1988*d*, P 6100*b*.
$C_{20}H_{18}O_6S_2$ *p* - Benzenedisulfonic acid, ditolyl ester, 2967*h*.
$C_{20}H_{18}O_6U$ 1,3-Butanedione, 1-phenyl-, uranyl deriv., 8264*d*.
$C_{20}H_{18}O_7$ Citrifoliol, diacetate, 4670*a*.
Khellinone, anisate, 7481*d*.
1,3 - Propanedione, 1 - (6 - hydroxy - 4,7-dimethoxy - 5 - benzofuryl) - 3 - (*p*-methoxyphenyl)-, 7481*f*.
Sakuranetin, diacetate, 2736*h*.
$C_{20}H_{18}O_8$ Flavone, 3,6,7,8-tetramethoxy-3',4'-methylenedioxy-, 1774*h*.
Usnic acid, acetyl-, 5445*e*.
$C_{20}H_{18}O_8S$ Phenol, *p*,*p*'-sulfonyldi-, bis(allyl carbonate), P 4298*i*.
$C_{20}H_{18}O_9$ Galactoside, 8-hydroxy-1-anthraquinonyl, 5019*h*.
Glucoside, hydroxyanthraquinonyl, 5019*gi*.
$C_{20}H_{18}O_{11}$ Arabinoside, luteolin-, 8451*a*.
$C_{20}H_{18}S$ Thiophene, 2,5-dimethyl-3-(α-phenylstyryl)-, 4746*f*.
$C_{20}H_{19}BrN_2O_3SSe$ 2 - (3 - Ethyl - 5 - methoxy-2 - benzoselenazolinylidenemethyl) - 4-oxo - 3 - phenyl - 2 - thiazolinium bromide, P 7845*i*.
$C_{20}H_{19}BrS$ Dibenzylphenylsulfonium bromide, 2178*e*.
$C_{20}H_{19}ClN_2$ Sempervirine, methochloride, 3016*g*.
1,2,3,4 - Tetrahydro - 13 - methyl - 13 *H*-benz[*g*]indolo[2,3 - *a*]quinolizinium chloride, 3016*g*.
Yobyrine, methochloride, 5406*h*.
$C_{20}H_{19}ClN_2O_3S$ *p* - Toluamidine, *N* - (*p*-chlorophenyl)-, benzenesulfonate, 7444*f*.
$C_{20}H_{19}ClN_4O$ Acridine, 6 - chloro - 2 - methoxy - 9 - [2 - (4 - methyl - 2 - imidazolyl)ethylamino]-, 7478*h*.
$C_{20}H_{19}ClN_4O_4$ Acetoacetanilide, α-(chloro-*o*-tolylazo) - 4 - cyano - 2,5 - dimethoxy P 3461*i*.
$C_{20}H_{19}ClO$ 2,4 - Pentadienophenone, 5 - (*p*-chlorophenyl) - 2',4',6' - trimethyl-, 3390*e*.
$C_{20}H_{19}Cl_3O_4$ Hydrocinnamic acid, *p*,*p*'-(2,2,2 - trichloroethylidene)bis-, P 2364*f*.
$C_{20}H_{19}F_3N_2O_4$ Anthraquinone, 1 - (2 - hydroxyethylamino) - 4 - (2 - methoxyethylamino) - 2 - (trifluoromethyl)-, P 7709*g*.
$C_{20}H_{19}IN_2$ 3 - (Anilinomethylene) - 2,3 - dihydro - 4 - methyl - 1 *H* - cyclopenta-[*b*]quinolinium iodide, 3001*c*.
$C_{20}H_{19}IN_2O_3$ Benzonitrile, 3-iodo-4,4'-(hexamethylenedioxy)di-, 9048*h*.
$C_{20}H_{19}IN_2O_3$ Homopiperonylcarbamyl - 1-methylquinolinium iodide, 1421*e*, 1422*e*.
$C_{20}H_{19}N$ Dibenzylamine, *o*-phenyl-, *and* - *HCl*, 1355*i*.
$C_{20}H_{19}NO$ Acetanilide, *o*-(2,4-dimethyl-1-naphthyl)-, 3401*g*.
Ethanol, 2 - amino - 1,1,2 - triphenyl-, 2600*e*.
2 - Naphthol, 1 - [α - (isopropylimino)-benzyl]-, 3000*b*.
3 - Penten - 1 - yn - 3 - ol, 5 - (isopropylimino)-1,5-diphenyl-, 3000*b*.
2 - Pyridinemethanol, α,α - dibenzyl-, *and* - *HCl*, 2205*a*.
$C_{20}H_{19}NO_2$ 1,3 - Dioxolo[*g*]isoquinoline, 7,8-dihydro - 5 - (5 - indanylmethyl)-, 8390*e*.
Quinolinecarboxylic acid, phenyl-, Bu ester, 128*b*.
$C_{20}H_{19}NO_2S_2$ Sulfilimine, *S*,*S*-dibenzyl-*N*-(phenylsulfonyl)-, 172*e*.
$C_{20}H_{19}NO_3$ Acronycine, 648*h*.
Anthraquinone, 1 - acetamido - 2 - butyl-, 1761*h*.
Cinchophen, 4' - ethoxy - 3,3' - dimethyl-, 3825*g*.
—, 3 - ethyl - 4' - methoxy - 3' - methyl-, 3825*g*.
—, 2' - methoxy - 3,4',5' - trimethyl-, 7924*h*.
—, 2' - methyl - 4' - propoxy-, 3825*h*.
Cyclohexanecarboxylic acid, 1-cyano-4-hydroxy-2,6-diphenyl-, 2963*g*.
$C_{20}H_{19}NO_3S$ *p* - Toluenesulfon - *o* - anisidide, *o*'-phenyl-, 166*g*.
$C_{20}H_{19}NO_3S_2Se$ 1 - Methyl - 2 - methylmercaptonaphtho[1,2]selenazolium *p*-toluenesulfonate, P 7848*g*.
$C_{20}H_{19}NO_4$ 8 *H* - Benzo[*g*][1,3]benzodioxolo-[5,6 - *a*]quinolizine, 5,6 - dihydro-9,10-dimethoxy-, 6631*c*.
Benzoic acid, *p* - [β - (2,4,6 - trimethylbenzoyl)acrylylamino]-, 7192*h*.
3 - Pyrroline - 3 - carboxylic acid, 4-ethoxy - 5 - oxo - 1,2 - diphenyl-, Me ester, 8380*d*.
—, 4 - methoxy - 5 - oxo - 1,2 - diphenyl-, Et ester, 8380*d*.
3 Retenol, 9-nitro-, acetate, 7470*i*.
$C_{20}H_{19}NO_4S$ 1 - Phenacylpyridinium *p* - toluenesulfonate, 1775*i*.
2 - Phenanthrenesulfonic acid, 1,2,3,4-tetrahydro - 2 - methyl-1-oxo-, pyridine salt, 2214*e*.
$C_{20}H_{19}NO_5$ (See also *Berberine*.)
Ketone, 5,6 - dimethoxy - 1 - isoquinolyl 3,4-dimethoxyphenyl, 4277*h*.
Protopine, 8616*g*.
1,2 - Pyrrolidinedicarboxylic acid, 5-oxo-, dibenzyl ester, 7019*i*.
$C_{20}H_{19}N_3O$ Benzamidine, *p* - [2 - (6 - ethoxy-2-quinolyl)vinyl]-, - *HCl*, 5757*b*.
17 *H* - Cyclopenta[*a*]phenanthren - 17-one, 12 - ethyl - 15,16 - dihydro-, semicarbazone, 621*i*.
Semicarbazide, 1-benzhydryl-4-phenyl-, 3801*h*.
Semicarbazone, m. 198-200°, 4659*h*.
$C_{20}H_{19}N_3O_2$ Acetophenone, 3-methoxy-2-(2-naphthyl)-, semicarbazone, 205*h*.
Biuret, 1 - (naphthyl) - 5 - xylyl-, 7446*i*, 7447*a*.
$C_{20}H_{19}N_3O_3$ Biuret, 1 - (naphthyl) - 5 - phenetyl-, 7446*i*, 7447*b*.
Cyclohexenecarboxylic acid, diphenyloxo-, semicarbazone, 157*d*.
$C_{20}H_{19}N_3O_3S$ Hydrazine, 1-*N*-phenylanthranoyl - 2 - *p* - tolylsulfonyl-, 648*c*.
$C_{20}H_{19}N_3O_4S_2$ 3 - Methyl - 2 - [2 - (2 - thiazolylamino)vinyl]benzoxazolium *p*-toluenesulfonate, P 2642*h*.
$C_{20}H_{19}N_3O_5S$ Acetamidine, α-(*p*-nitrophenyl) - *N* - phenyl-, benzenesulfonate, P 2232*c*, 7444*c*.
$C_{20}H_{19}N_3O_6$ Naphthalene, butyl-, compd. with 1,3,5-trinitrobenzene, 6188*bc*.
Naphthalene, 2 - *sec* - butyl-, trinitrobenzene compd., 1389*b*.
$C_{20}H_{19}N_3O_6S_2$ Sulfanilo - 3,5 - xylidide, *N*⁴-(*p* - nitrophenylsulfonyl)-, 4648*e*, 4649*a*.
$C_{20}H_{19}N_3O_7$ Naphthalene, butyl-, picrate, 6188*bc*.
Naphthalene, 2-*sec*-butyl-, picrate, 1389*b*.
$C_{20}H_{19}N_5$ Biguanide, triphenyl-, P 868*g*.
$C_{20}H_{19}N_3S$ Pteridine, 4-amino-2-(ethylmercapto)dihydro - 6,7 - diphenyl-, 3012*d*.
$C_{20}H_{19}N_7O_7$ Glutamic acid, *N*-[*p*-[*N*-(2-amino - 4 - hydroxy - 6 - pteridylmethyl)formamido]benzoyl]-, 8441*h*.
$C_{20}H_{20}$ 15 *H* - Cyclopenta[*a*]phenanthrene, 16,17 - dihydro - 12 - isopropyl-, 621*i*.
$C_{20}H_{20}AgN_4O_8S_2$, 6539*d*.
$C_{20}H_{20}AsIN_2O_3S$ Arsinic acid, (*o*-iodophenyl)phenyl-, salt with 2-benzyl-2-thiopseudourea, 8352*d*.
$C_{20}H_{20}BeCl_2N_4O_3$ 5 - Pyrazolone, 3 - methyl-1-phenyl-, compd. with $BeCl_2$, 4172*f*.
$C_{20}H_{20}BrIO_4$ Sorbitol, 1 - bromo - 6 - iodo-2,4,3,5-dibenzylidene-, 2939*i*.
$C_{20}H_{20}BrNO_4$ Isoquinoline, 1-(α-bromoveratryl)-5,6-dimethoxy-, *and* - *HCl*, 4277*i*.
$C_{20}H_{20}Br_2O_4$ Sorbitol, 1,6-dibromo-2,4,3,5-dibenzylidene-, 2939*i*.
$C_{20}H_{20}Br_2O_5$ Chalcone, 5,5' - dibromo - β-ethoxy - 2,2',4' - trimethoxy-, 1742*h*.
$C_{20}H_{20}Br_2O_6$ β - Resorcil, 3,3' - dibromo-5,5'-dipropyl-, 1037*f*.
$C_{20}H_{20}ClNO_4$ 2 - Naphthanilide, 3 - chloro-3' - (1,3 - dioxolan - 2 - yl) - 5,6,7,8-tetrahydro-1-hydroxy-, P 7511*i*.
$C_{20}H_{20}ClN_3$ Diamond fuchsin, 1461*a*.
Rosaniline, 7521*d*.
$C_{20}H_{20}ClN_3O$ *o* - Cresol, 4 - (7 - chloro - 4-quinolylamino) - α - (1 - methylallylamino)-, *di*-*HCl*, P 7515*f*.
$C_{20}H_{20}ClN_3OS$ *o* - Cresol, 4 - (7 - chloro - 4-quinolylamino) - α - 4 - thiamorpholinyl-, *di* - *HCl*, P 7514*e*.
$C_{20}H_{20}ClN_3O_2$ *o* - Cresol, 4 - (7 - chloro - 4-quinolylamino) - α - 4 - morpholinyl-, *di* - *HCl*, P 7514*di*.
$C_{20}H_{20}Cl_2CuN_4O_4$, 2114*b*.
Pyridine, $Cu(ClO_4)_2$ complex, 3699*g*.
$C_{20}H_{20}CuN_4O_8$, 8222*e*.
$C_{20}H_{20}F_6N_2O_2S$ Valeranilide, *p* - (α,α,α-α',α',α' - hexafluoro - 3,5 - xylylsulfamyl)-α-methyl-, 4648*i*.
$C_{20}H_{20}NO_3P$ Amidophosphoric acid, *N*-phenyl-, bis(*o* - methoxyphenyl)ester, 6178*g*.
$C_{20}H_{20}N_2$ 3 *H* - Phenanth[3,4]imidazole, 9-isopropyl - 2,5 - dimethyl-, *and* - *HCl*, 7470*f*.
*p*-Phenylenediamine, *N*, *N*'-dibenzyl-, 1180*a*, 5386*d*.
Yobyrine, *N*-methyldihydro-, 5407*b*.
$C_{20}H_{20}N_2O$ Benzamide, *p* - (ethylmethylamino)-*N*-1-naphthyl-, 1346*h*.
Benzamide, *N* - 1 - naphthyl - *o* - propylamino-, 1346*g*.
$C_{20}H_{20}N_2O_2$ Indole, 2,2'-ethylidenebis[3-methoxy-, 629*e*.
Maleimide, *N* - (2 - dimethylaminoethyl) - α,β - diphenyl-, - *HCl*, 617*i*.
4(1 *H*) - Pyridone, 1,1' - *p* - phenylenebis-[2,6-dimethyl-, 2999*e*.
$C_{20}H_{20}N_2O_2S$ Acetic acid, phenyl-, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.
2 - Benzothiazoleacetic acid, α - (*p*-dimethylaminobenzylidene)-, Et ester, 8292*d*.
$C_{20}H_{20}N_2O_2S_2$ Benzaldehyde, hydroxymethoxy-, bis(aminophenyl) mercaptal, 6179*f*.
$C_{20}H_{20}N_2O_3$ Acetamide, *N* - (7 - isopropyl-1 - methylnitro - 3 - pheuanthryl)-, 7470*de*.
Anthraquinone, acetamidoamino - 2 - *tert*-butyl-, 1761*e*.
Homophthal - 1 - amic acid, *N* - [2 - (3 - indolyl)ethyl]-, Me ester, 7490*g*, 7491*h*.
—, *N* - [2 - (3 - indolyl)ethyl] - 6 - methyl-, 234*g*.
2 - Methoxy - 5,11 - dimethyl - 6 *H* - quindolinium acetate, 230*h*.
$C_{20}H_{20}N_2O_3S$ Anisic acid, 2 (1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.
4 - Quinazolineacetic acid, α - acetyl-1,2,3,4 - tetrahydro - 3 - phenyl - 2 - thioxo-, Et ester, 1047*b*.
Sulfanilanilide, 4'-(3,5-xylyloxy)-, 4648*e*.
$C_{20}H_{20}N_2O_4$ 3 - Pyrazolecarboxylic acid, 5-ethoxy - 4 - phenoxy - 1 - phenyl-, Et ester, 632*g*.
$C_{20}H_{20}N_2O_4S$ Benzamidine, *N* - (*p* - methoxyphenyl)-, benzenesulfonate, 7444*f*.
$C_{20}H_{20}N_2O_4S_2$ *p* - Benzenedisulfonotoluidide, 4237*d*.
Penicillin, β - naphthylmercaptomethyl 2274*h*.
$C_{20}H_{20}N_2O_5$ Adipaldehyde, α,γ-dibenzamido-β-hydroxy-, 1329*i*.
Glutaranilic acid, α-acetyl-γ-cyano-β-2-furyl-, Et ester, P 4818*e*.
$C_{20}H_{20}N_2O_5S_2$ Glycine, *N*-thiolcarboxy-, S-benzyl ester, anhydride, 1398*g*.
$C_{20}H_{20}N_2O_6S$ 3 - Hydroxy - 1 - methylpyridinium methyl sulfate, diphenylcarbamate, P 4702*h*.
$C_{20}H_{20}N_2O_6S_2$ *p* - Benzenedisulfonanisidide 4237*d*.
Succinanilic acid, *o*,*o*'-dithiodi-, 2180*g*.
$C_{20}H_{20}N_2O_8$ Acetic acid, [(4,4'-diacetamido biphenylene)dioxy]di-, P 2442*f*.
$C_{20}H_{20}N_2O_8S$ Acetoacetanilide, *p*-hydroxy sulfate, 173*h*.
$C_{20}H_{20}N_2O_8S_2$ 2,6 - Anthraquinonedisulfonic acid, 1 - amino - 4 - cyclohexylamino-, P 4483*a*, P 8164*g*.
$C_{20}H_{20}N_2O_{10}$ Acrylic acid, β,β-bis(*p*-aminophenyl)-, Me ester, dioxalate, 7404*b*.
$C_{20}H_{20}N_2S$ 1 *H* - Indeno[2,1 - *c*]pyridine 2,3,4,9 - tetrahydro - 2 - methyl - 9 - phenyl-, thiocyanate, P 5808*i*.
$C_{20}H_{20}N_4O_4$ Acetophenone, α-cyclohexylidene-, 2,4 - dinitrophenylhydrazone 7415*h*.
$C_{20}H_{20}N_4O_4S$ 2 - Thiophenecarboxylic acid, 4-benzamidotetrahydro - 3 - oxo-, Et ester, *p* - nitrophenylhydrazone, 7049*d*.
$C_{20}H_{20}N_4O_8$ Indan, 3 - (3,5 - dinitro - *p* - tolyl)-1,1,3,5 - tetramethyl - 4,6 - dinitro-, 1340*a*.
1 - Naphthalenemethylamine, 2 - methoxy - *N*, *N* - dimethyl-, picrate 4250*a*.

Quinoline, 2 - ethyl - 3 - propoxy-, picrate, 227*i*.

$C_{20}H_{20}N_4O_9$ Ethanol, 2,2'-(naphthylimino)-di-, picrate, 7443*c*.

$C_{20}H_{20}N_6$ Guanidine, (2,3 - diphenyl - *p*-phenylene)di-, *di* - *HCl*, 8545*h*.

$C_{20}H_{20}N_4O_4S$ Benzenesulfonic acid, *p*-[4-(antipyrylazo) - 5 - hydroxy - 3-methyl-1-pyrazolyl]-, P 8150*i*.

$C_{20}H_{20}N_4O_6S_2$ Pyrazine, 2,6-bis(*N*⁴-acetylsulfanilamido)-, 8394*f*.

$C_{20}H_{20}N_4O_2$ Pteridine, 2,4-diamino-6,7-bis-[*p* - [(hydroxymethyl)amino]phenyl]-, 4268*h*.

$C_{20}H_{20}N_8O_4S_2$ Pteridine, 2,4-diamino-6,7-bis[(sulfinomethylamino)phenyl]-, *di-Na salt*, 4268*h*, 4269*a*.

$C_{20}H_{20}N_8O_6S_2$ Pteridine, 2,4-diamino-6,7-bis[*p* - [(hydroxymethyl)amino]phenyl]-, bis(H sulfite), *di-Na salt*, 4268*h*.

$C_{20}H_{20}N_8O_{14}S$ Thiazole, 4-methyl-2-(2-methylaminopropyl)-, dipicrate, 4263*c*.

$C_{20}H_{20}N_{12}O_6S_2$ 2,2' - Stilbenedisulfonic acid, 4,4' - bis(4,6 - diamino - *s* - triazin - 2-ylamino)-, P 7242*g*.

$C_{20}H_{20}O$ 17*H* - Cyclopenta[*a*]phenanthren-17 one, 11,12,15,16 - tetrahydro - 12-isopropyl-, 621*i*.

Indone, 3-isoamyl-2-phenyl-, 6193*f*.

$C_{20}H_{20}O_2$ Benzofulvene, 3-ethyl-6-methoxy-2-(*p*-methoxyphenyl)-, 1758*c*.

Furan, 3-isobutoxy-2,5-diphenyl-, 622*h*.

$C_{20}H_{20}O_3$ Acetophenone, compd. with phenol, 107*b*.

Acrylic acid, *β*-(2,4,6-trimethylbenzoyl)-, benzyl ester, 7192*h*.

Equilenin, acetate, 3018*i*.

2 - Phenanthrenecarboxylic acid, 1-allylidene - 2 - ethyl - 1,2,3,4 - tetrahydro-7-hydroxy-, P 3849*d*.

$C_{20}H_{20}O_4$ 3 - Butenoic acid, 2 - methoxy - 3-methyl-, *p* - phenylphenacyl ester, 6975*c*.

Butyric acid, *γ*-benzoyl-*α*-ethyl-*α*-(2-hydroxy - 3 - methoxyphenyl)-, *γ* - lactone, 625*h*.

Cinnamic acid, *α*-methyl-, dimer, 1744*i*.

1,4-Cyclohexanediol, dibenzoate, 7436*b*.

Isosafrole, dimer, 7924*a*.

2 - Phenanthrenecarboxylic acid, 1-ethylidene - 1,2,3,4 - tetrahydro - 7 hydroxy 2 methyl-, acetate, P 7048*h*.

1 - Phenanthrenesuccinic acid, 3,4 - dihydro 2 - methyl-, Me ester, 6610*a*.

$C_{20}H_{20}O_5$ Flavone, 5,7-diethoxy-6-methoxy, 5397*d*

2,4 Pentadienoic acid, 5 - hydroxy - 3,5-bis(*p* - methoxyphenyl)-, Me ester, 4640*a*

, 5 - hydroxy - 3 - (*p* - methoxyphenyl)-5 - (4 - methoxy - *m* - tolyl)-, 4640*c*.

Styracitol, dibenzylidene-, 2940*e*.

$C_{20}H_{20}O_6$ Coumarilic acid, 6-(benzyloxy)-4,7-dimethoxy-, Et ester, 7480*h*.

1,3 - Cyclohexanedione, 2,2' - piperonylidenedi-, 1346*e*.

*β* - Hydromuconic acid, *β*,*γ* - bis(*p*-methoxyphenyl)-, 3402*g*.

$C_{20}H_{20}O_7$ Auranetin, 3822*i*.

Flavone, pentamethoxy-, 224*e*, 638*e*, 1772*h*, 1774*c*, 3822*i*, 4263*i*, 5396*i*.

Usnolic acid, Et ester, 5445*e*.

$C_{20}H_{20}O_8$ Flavone, hydroxypentamethoxy-, 638*d*, 639*g*, 1774*c*, 5398*b*.

$H_{20}O_9$ Primetin, pentamethoxy-, 638*f*, 639*h*.

$H_{20}O_{14}$ Gossypitrin, 5116*h*.

$H_{20}O_{16}$ D-Glucose, digalloyl-, 1341*f*.

$H_{20}Si$ Silane, ethyltriphenyl-, 8366*e*.

$C_{20}H_{21}AsN_2O_3S$ Arsinic acid, diphenyl-, salt with 2 - benzyl - 2 - thiopseudourea, 8352*c*.

$C_{20}H_{21}BrO_2$ 1,4 - Naphthoquinone, 2 - bromo-3-(decahydro-2 naphthyl)-, 1376*h*.

$C_{20}H_{21}ClN_2$ 2,5 - Dimethyl - 3 - [2 - (1 - methyl - 4(1*H*) - pyridylidene)ethylidene]-1 - phenyl - 3 - pyrroleninium chloride, 7581*g*.

$C_{20}H_{21}ClN_2O_4$ Anthraquinone, 6-chloro-1,4-bis(2 - hydroxyisopropylamino)-, P 7236*a*.

$C_{20}H_{21}ClN_4O$ *o* - Cresol, 4 - (7 - chloro - 4-quinolylamino) - *α* - 1 - piperazyl-, *bis* - *HCl*, P 7514*e*.

$C_{20}H_{21}ClN_4O_3S$ Acetanilide, *p* - [(6 - chloro-8 - isopropyl - 5 - methyl - 2 - quinoxalyl)sulfamyl]-, 3384*e*.

$C_{20}H_{21}ClN_6O_2S$ Sulfanilamide, $N^4$ - [(*p*-chlorophenylguanyl)guanyl] - $N^1$-(4,6 - dimethyl - 2 - pyrimidy )-, 5868*d*.

Sulfanilamide, $N^1$ - (5 - chloro - 2 - pyrimidyl) - $N^4$ - (2,3 - xylylguanyl)-, *and* - *HCl*, 2179*c*.

$C_{20}H_{21}ClO_3S$ Retenesulfonyl chloride, 3-ethoxy-, 4252*c*.

$C_{20}H_{21}ClN_2O_3$ Valine, *N*-[*β*,*β*-bis(*p*-chlorophenyl)propionyl]-, 2274*a*.

$C_{20}H_{21}IN_2$ 3 - (*p* - Dimethylaminostyryl) - 2-methylisoquinolinium iodide, 3821*a*

$C_{20}H_{21}IO_5$ 1,4 - Sorbitan, 6 - iodo - 6 - desoxy - 2(3),5 - benzylidene-, benzoate, 152*b*.

$C_{20}H_{21}I_2NO_4Sb$ Papaverine, compd. with $SbI_3$, 357*d*.

$C_{20}H_{21}N$ Benz[*g*]isoquinoline, 1 - benzyl-3,4,6,7,8,9 - hexahydro-, 8390*i*.

$C_{20}H_{21}NO$ Acetamide, *N* - (7 - isopropyl - 1-methyl-3-phenanthryl)-, 7470*d*.

Cyclohexanecarbonitrile, 4 - methoxy-2,6-diphenyl-, 2963*i*.

Quinoline, 2 - (4 - butoxy - *m* - tolyl)-, 3825*g*.

—, 2 - (propoxy - 2,5 - xylyl)-, 7924*i*.

$C_{20}H_{21}NO_3$ Isoquinoline, 6,7 - diethoxy - 3-methyl - 1 - phenyl-, *and* - *HCl*, 1423*i*.

3 - Retenol, 9 - amino-, acetate, *and* - *HCl*, 7470*i*.

$C_{20}H_{21}NO_3S$ Cinchoninic acid, 3-amyl-6-methyl - 2 - (2 - thienyl)-, 228*c*.

Cinchoninic acid, 3-hexyl-2-(2-thienyl)-, 228*c*.

$C_{20}H_{21}NO_4$ Acetophenone, *p*-hydroxy-*α*-1-piperidyl-, benzoate, P 7050*h*.

Benzamide, *N* - 2 - hydroxycyclohexyl-, benzoate, 3372*h*.

Galipine, 3527*i*.

Homopiperonylamide, *N* - [2 - (5 - indanyl)ethyl]-, 8390*d*.

5 - Indanacetamide, *N* - homopiperonyl-, 8390*e*.

Oxazole, 5 - (3,4 - diethoxyphenyl) - 4-methyl - 2 - phenyl-, *and* - *HCl*, 1424*a*.

Retene, 3-ethoxy-9-nitro-, 7471*c*.

$C_{20}H_{21}NO_4$ (See also *Papaverine*.)

Isoquinoline, 5,6 - dimethoxy - 1 - veratryl-, 4277*e*.

Glutaranilic acid, *α* - ethyl - *α* - (2 hydroxy - 3 - methoxyphenyl)-, *γ* - lactone, 625*f*.

2 - Naphthanilide, 3' - (1,3 - dioxolan - 2-yl) - 5,6,7,8 - tetrahydro - 1 - hydroxy-, P 7511*h*.

$C_{20}H_{21}NO_4S$ Ethanol, 2 - [*N* - 2 - (1 - naphthyl)ethylamino] , H sulfate, P 8155*c*.

$C_{20}H_{21}NO_4S_2$ 2 - Ethyl - 5 - methoxy - 1-methylthianaphtheno[7,6 - *d*]thiazolium *p*-toluenesulfonate, P 513*h*.

$C_{20}H_{21}NO_5$ Acetophenone, 4-hydroxy-3-methoxy - *α* - 4 - morpholinyl-, benzoate, *salts*, P 7050*i*.

Ketone, 3,4 - dihydro - 5,6 - dimethoxy-1 - isoquinolyl - 3,4 - dimethoxyphenyl, 4277*h*.

$C_{20}H_{21}NO_4S$ Ethanol, 2-[*N*-2-(1-naphthoxy) ethylanilino]-, H sulfate, P 8155*a*.

$C_{20}H_{21}N_3O_3$ Nicotinic acid, 4 (6-methoxy quinolylamino) - 2,6 - dimethyl-, Et ester, *and* - *HCl*, 3827*a*.

$C_{20}H_{21}N_3O_4$ Cyclohexanecarboxylic acid, 1-hydroxy - 5 - oxo - 2,3 - diphenyl-, semicarbazone, 157*c*.

$C_{20}H_{21}N_3O_5$ Glutamic acid, *N*-carboxy-, *N*-benzyl ester, *γ*-benzylidenehydrazide, 6978*i*.

$C_{20}H_{21}N_3O_5S$ Glutamine, *N* - [1 - [(carboxymethyl)carbamyl] - 2 - (1,4 - dihydro 1,4 - dioxo - 2 - naphthylmercapto)-ethyl]-, 2704*a*.

$C_{20}H_{21}N_5$ 1*H* - Tetrazole, 5 - (diethylaminomethyl)-1-(3-phenanthryl)-, P 7972*d*.

$C_{20}H_{21}N_3O_2S$ 3,5 - Benzenesulfonoxylidide, 4-(2,4-diaminophenylazo)-, 4648*i*.

$C_{20}H_{21}N_3O_5S$ Benzenesulfonamide, *p*-(butyldihydroxyphenylazo) - *N* - 2 - pyrimidyl-, 9048*b*.

$C_{20}H_{21}N_3O_7$ Indole, 1 - [2 - (1 - pyrrolidyl)-ethyl]-, picrate, 4257*f*.

Succinaldehydic acid, *α*-(*α*-phenylacetamido)-, Et ester, 2,4-dinitrophenylhydrazone, 7932*g*.

$C_{20}H_{21}N_3O_8$ Imidazole, 2-(2-aminoethyl)-4-methyl-, bis(*p*-nitrobenzoate), 7478*h*.

$C_{20}H_{21}N_3O_8$ Glutamic acid, *N*-[*p*-[(2-amino-4 - hydroxy - 7 - methyl - 6 - pteridylmethyl ) amino ] benzoyl]-, 1094*f*, 8471*b*.

Glutamic acid, *N*-[*p*-[1-(2-amino-4-hydroxy - 6 - pteridyl)ethylamino]benzoyl]-, 3424*a*.

—, 9-methylpteroyl-, 9186*i*.

$C_{20}H_{22}BrN_3O$ *o* - Cresol, 4 - bromo - 5 - (6,7-dimethyl - 4 - quinolylamino) - *α*-ethylamino-, *di* - *HCl*, P 7515*f*.

*o* - Cresol, 4 - (7 - bromo - 4 - quinolylamino) - *α* - diethylamino-, *di* - *HCl*, P 7515*a*.

$C_{20}H_{22}ClN$ 2,3,4,9 - Tetrahydro - 2,2 - dimethyl - 9 - phenyl - 1*H* - indeno[2,1-*c*]pyridinium chloride, P 5809*a*.

$C_{20}H_{22}ClN_3O$ *o* - Cresol, *α* - butylamino - 4-(7 - chloro - 4 - quinolylamino)-, - *HCl*, P 7515*e*.

*o* - Cresol, 4 - (7 - chloro - 4 - quinolylamino)-*α*-diethylamino-, 3522*b*, 7193*a*, P 7514*ci*.

—, 4 - (7 - chloro - 4 - quinolylamino)-*α*-isobutylamino-, - *HCl*, P 7515*f*.

$C_{20}H_{22}Cl_2N_2O_4$ Acetamide, *N*, *N'* - [1,2-bis(*p* - methoxyphenyl)ethylene]bis[*α*-chloro-, 614*f*.

4,4' - Bi - *o* - acetophenetidide, 5,5'-dichloro-, 4151*a*.

$C_{20}H_{22}D_2N_2O_4$ Malonic acid-$d_2$, benzyl-, nicotine salt, 3392*g*.

$C_{20}H_{23}I_4NO_4Sb$ Papaverine, -HI, compd. with $SbI_3$, 357*d*.

$C_{20}H_{22}N_2$ Indole, 2-phenyl-1-[2-(1-pyrrolidyl)ethyl]-, 4257*f*.

1 - Pyrrolidinebutyronitrile, *α*,*α* - diphenyl-, 9052*g*.

Quinaldine, dihydro , dimer, 955*h*.

Yobyrine, *N* - methyltetrahydro-, *and* - *HI*, 5407*a*.

$C_{20}H_{22}N_2O$ Isoquinoline, 1-(2-benzylaminoethoxy)-3-ethyl-, - *HCl*, 4267*d*.

4 - Morpholinebutyronitrile, *α*,*α* - diphenyl-, 3391*g*, 9052*g*.

$C_{20}H_{22}N_2OS$ Phenothiazine, 10-(*N*-cyclohexylglycyl)-, 7938*e*.

Phenothiazine 10 - (*α* - 1 - piperidylpropionyl)-, 7938*e*.

Urea, 1 - (*tert* - butyl - 2 - thenyl) - 3 - (1-naphthyl)-, 2201*i*.

$C_{20}H_{22}N_2O_2$ See *Diocaine*.

$C_{20}H_{22}N_2O_3$ Acetoacetic acid, *α*-acetyl-, Et ester, diphenylhydrazone, 7909*a*.

Benzamide, *N* - (*α* - 1 - piperidylpiperonyl)-, 3805*h*.

Crotonic acid, *β*-[*α*-(*p*-acetamidophenyl)-*p*-toluidino]-, Me ester, 646*a*.

Phenaceturic acid, *α* - (benzylaminomethylene)-, Et ester, P 1807*e*.

$C_{20}H_{22}N_2O_4$ Carbamic acid, 2-butenylidenedi-, dibenzyl ester, 1390*a*.

Indan, 1,1,3,5 - tetramethyl - 6 - nitro-3 - (3 - nitro - *p* - tolyl)-, 1339*i*, 1340*a*.

$C_{20}H_{22}N_2O_5$ Alanine, *N* - (*N* - carboxy - *β*-alanyl)phenyl-, benzyl ester, 1448*b*.

Oxalacetic acid, phenoxy-, di-Et ester, phenylhydrazone, 632*g*.

1,2 - Propanediol, 3 - (allyloxy)-, dicarbanilate, 7423*g*.

Streptamine, *N*, *N'* - dibenzoyldesoxy-, 1329*h*.

$C_{20}H_{22}N_2O_5$ 2-Imidazoline, 2-(4-methoxybenzhydryloxymethyl)-, oxalate, 6020*a*.

$C_{20}H_{22}N_4$ Imidazoline, 2,2' - (4,4' - biphenylene)bis[methyl-, *and di* - *HCl*, P 3853*a*, P 6240*f*.

$C_{20}H_{22}N_4O_4$ Ketone, methyl 2-phenylcyclohexyl, 2,4 - dinitrophenylhydrazone, 8364*g*.

Oxalic acid, 2 - (3 - carboxy - 1 - methylpropylidene)hydrazide 2 - phenylhydrazide benzyl ester, 6972*c*.

$C_{20}H_{22}N_4O_4S_2$ Metanilamide, *N*, *N'* - *p*-phenylenebis[*N*-methyl-, P 858*g*.

Sulfanilamide, $N^1$, $N^1$ - *p* - phenylenebis[$N^1$-methyl-, P 859*e*.

$C_{20}H_{22}N_4O_5$ o - Toluamide, 5 - nitro - *N* - (nitro - *α* - 1 - piperidylbenzyl)-, 3805*g*.

$C_{20}H_{22}N_4O_6$ 2 - Hexenophenone, 4' - ethoxy-2' - hydroxy-, 2,4 - dinitrophenylhydrazone, 2187*e*.

$C_{20}H_{22}N_4O_7$ 5*H* - Cycloheptabenzen - 5 - one, 6,7,8,9 - tetrahydrotrimethoxy-, 2,4-dinitrophenylhydrazone, 3403*i*, 3404*b*.

$C_{20}H_{22}N_4O_8$ 5*H* - Cycloheptabenzen - 5 - one, 6,7,8,9 - tetrahydro - 4 - hydroxy-2,3,6 - trimethoxy-, 2,4 - dinitrophenylhydrazone, 3403*d*.

$C_{20}H_{23}N_3O_2$ 3 - Piperidinol, 1 - ethyl-, benzoate picrate, 227*d*.

3 - Pyrrolidinecarboxylic acid, 1 - methyl-3 - phenyl-, Et ester, picrate, P 695*i*.

2 - Pyrrolidinemethanol, 1 - ethyl-, benzoate picrate, 227*d*.

$C_{20}H_{23}N_4O_{11}$ Malonic acid, [2-(2-pyridyl)-ethyl]-, di-Et ester picrate, 4267*f*.

$C_{20}H_{23}N_4O_{12}Sb_2$ Disiloxane, 1,3-bis(hydroxymethyl) - 1,1,3,3 - tetramethyl-, bis-(3,5 - dinitrobenzoate), 6158*i*.

$C_{20}H_{23}N_3S_4$ 1,3,5,2*H* - Thiadiazine - 2-thione, 5,5' - ethylenebis[tetrahydro-3-phenyl-, 4415*c*.

$C_{20}H_{32}N_7NaO_{14}$ (Cyclobutylmethyl)trimethylammonium picrate, compd. with Na picrate, 587*a*.

$C_{20}H_{22}N_8O_2S$ Sulfanilamide, $N^1$ - (5 - chloro-2 - pyrimidyl) - $N^4$ - (2,3 - xylylguanylguanyl)-, 5868*d*.
$C_{20}H_{22}N_8O_2S$ Sulfanilamide, $N^4$ - [(*p* - methoxyphenylguanyl)guanyl] - $N^1$ - (4-methyl - 2 - pyrimidyl)-, - *HCl*, 2179*a*.
$C_{20}H_{23}N_9O_5$ (See also *Glutamic acid, N-[p-[(2,4 - diamino - 6 - pteridylmethyl)-methylamino]benzoyl]-*.)
Glutamic acid, 4-amino-9-methylpteroyl-, 9249*e*.
$C_{20}H_{22}O$ Acetophenone, *p*-(α,β-diethylstyryl)-, 200*a*.
$C_{20}H_{22}O_2$ Acetophenone, *p* - (α,β - diethyl-*p*-hydroxystyryl)-, 9056*c*.
Acetophenone, *p* - (α,β - diethylstyryl)-α-hydroxy-, 4659*a*.
Benzil, 2,4,6-triethyl-, 5773*e*.
1,3 - Butadiene, 2,3 - bis(4 - methoxy - o-tolyl)-, 8371*b*.
Chrysene, 4b,5,6,10b,11,12 - hexahydro-2,8-dimethoxy, 3402*h*.
2,4 - Hexadiene, 3,4 - bis(*p* - methoxyphenyl)-, 8032*a*.
Indene, 3 - isopropyl - 6 - methoxy - 2-(*p* - methoxyphenyl)-, 1758*a*.
—, 6 - methoxy - 2 - (*p* - methoxyphenyl)-3-propyl-, 1758*a*.
1,4 - Naphthoquinone, 2 - (decahydro - 2-naphthyl)-, 1376*h*.
1 - Phenanthrenepropionic acid, 1,2,3,4-tetrahydro - 1 - hydroxy - 3 - isopropyl-, γ-lactone, 621*h*.
$C_{20}H_{22}O_2S_2$ Adipic acid, dithiol-, dibenzyl ester, P 3445*d*.
Disulfide, bis[(allyloxy)tolyl], P 5992*g*.
$C_{20}H_{22}O_3$ Acetoacetic acid, α,γ-ditolyl-, Et ester, 1385*c*.
Chroman, 2,2'-oxybis[2-methyl-, 7001*h*.
Cyclohexanecarboxylic acid, 4 - methoxy-2,6-diphenyl-, 2963*i*.
Equilin, acetate, 3018*i*.
1,4 - Naphthoquinone, 2 - (decahydro - 2-naphthyl)-3-hydroxy-, 1376*e*, 2610*b*.
2 - Phenanthrenecarboxylic acid, 2 - ethyl-1 - ethylidene - 1,2,3,4 - tetrahydro-7-methoxy-, P 3849*f*.
—, 1 - ethylidene - 1,2,3,4 - tetrahydro-7 - methoxy - 2 - methyl-, Me ester, P 2642*b*, P 3848*h*, P 3849*i*.
—, 1,2,3,4 - tetrahydro - 7 - methoxy - 2-methyl-1-propylidene-, P 7048*g*.
4 - Stilbenecarboxylic acid, α,α' - diethyl-4'-methoxy-, 4655*b*, 9055*h*.
$C_{20}H_{22}O_4$ Benzil, 2,2' - diethyl - 3,3' - dimethoxy-, 197*a*
Benzoic acid, *p*-(α-ethyl-*p*-methoxyphenacyl)-, Et ester, 4655*b*.
2,6 - Biphenyldiacetic acid, di-Et ester, 2614*a*.
Butane, 2,3-dipiperonyl-, P 7047*g*.
Butenoic acid, 3,4 - bis(*p* - methoxyphenyl)-, Et ester, 2272*i*.
1,3 - Cyclohexanedione, 2,2' - (*p* - methylbenzylidene)di-, 1336*e*.
Diphenic acid, 4' - isopropyl - 3 - methyl-, di-Me ester, 3815*h*.
Isovaleric acid, α methoxy-, *p*-phenylphenacyl ester, 6975*b*.
1,4 - Naphthalenediol, 2 - cyclohexyl-, diacetate, 1372*f*.
1,4 - Naphthoquinone, 2 - γ - cyclohexylbutyryl - 3 - hydroxy-, 2610*c*.
2 - Phenanthrenecarboxylic acid, 1 - ethyl-1,2,3,4 - tetrahydro - 7 - hydroxy - 2-methyl-, acetate, P 6667*d*, P 7048*i*.
Phenol, 4,4',6 - trimethyl - 2,2' - methylenedi-, diacetate, 5019*b*.
$C_{20}H_{22}O_4S$ Retenesulfonic acid, 3-methoxy-, Me ester, 4252*c*.
$C_{20}H_{22}O_5$ Acetic acid, [2-acetyl-5-(benzyloxy)-*p*-toloxy]-, Et ester, 3413*b*.
1,3 - Cyclohexanedione, 2,2' - anisylidenedi-, 1336*e*.
Hydrocinnamic acid, β,β' - oxybis[*p*-methyl-, P 5037*f*.
1,2 - Phenanthrenedicarboxylic acid, tetrahydro - 7 - methoxy - 2 - methyl-, di-Me ester, 8377*b*.
$C_{20}H_{22}O_6S$ 1,4 - Cyclohexanediol, benzoate *p*-toluenesulfonate, 7435*f*.
$C_{20}H_{22}O_6$ Adipic acid, β,γ-bis(*p*-methoxyphenyl)-, 3402*h*.
2,3-Butanediol, dianisate, 3782*c*.
Chalcone, 2',3,4,4',6' - pentamethoxy-, 5117*a*.
1,3 - Cyclohexanedione, 2,2' - vanillylidenedi-, 1336*e*.
2 - Naphthalenecapric acid, 1,4 - dihydro - 3 - hydroxy - ε,1,4 - trioxo-, 3365*i*.
2 - Naphthalenepelargonic acid, 1,4 - dihydro - 3 - hydroxy - ε,1,4 - trioxo-, Me ester, 3365*h*.
Pedicellin, 4264*d*, 5396*f*.
β-Resorcil, 5,5'-dipropyl-, 1037*f*.
Sorbitol, dibenzylidene-, P 9299*b*.
$C_{20}H_{22}O_7$ Acetic acid, [3-(benzyloxy)-6-formyl - 2,5 - dimethoxyphenoxy]-, Et ester, 7480*h*.
Chalcone, hydroxypentamethoxy-, 1772*h*, 1774*bf*.
Coccell acid, 5077*c*.
Flavanone, pentamethoxy-, 1772*h*, 1774*bf*.
Glucoside, 3 - hydroxy - 5 - styrylphenyl, 5017*g*.
Lactone, P 4466*ds*.
$C_{20}H_{22}O_7S$ 1,4 - Sorbitan, 2(3),5 - benzylidene, 6 - *p* - toluenesulfonate, 151*h*
$C_{20}H_{23}O_8$ Adipic acid, β,γ-dihydroxy-β,γ-bis(*p* - methoxyphenyl)-, 3402*g*.
3,3' - Biphenyldicarboxylic acid, 5,5',6,6' - tetrahydroxy-, di - Pr ester, 8614*e*.
Pyrogallol, 5,5'-dipropyl-, 1037*g*.
$C_{20}H_{22}O_9$ Benzoic acid, 3,4,5-trimethoxy-, anhydride, 190*f*.
Salireposide, 7924*b*.
$C_{20}H_{22}O_{10}S_2$ Tartaric acid, di-Et ester di benzenesulfonate, 7379*g*.
$C_{20}H_{23}BrN_2O$ Epiquinine, bromide, 4677*e*
Quinine, bromide, *and di-HBr*, 4677*e*.
$C_{20}H_{23}BrO_6$ Hydrocinnamic acid, 2-bromo-3,4,5 - trimethoxy - 6 - (*p* - methoxyphenyl) , Me ester, 190*i*.
$C_{20}H_{23}ClN_2$ Yobyrine, tetrahydro-, methochloride, 5407*g*.
$C_{20}H_{23}ClN_2OS$ Thiaxanthone, 7-chloro-1-(2-diethylaminoethylamino) - 4 - methyl-, *and - HCl*, 226*f*.
$C_{20}H_{23}ClN_7O_2$ Xanthone, chloro - 1 - (2 - diethylaminoethylamino) - 4 methyl , *and - HCl*, 224*i*, 225*i*.
$C_{20}H_{24}ClN_4O_2$ Acridine, 2 - chloro - 9 - (3-diethylaminopropylamino) - 7 - nitro , *and di- HCl*, 7937*h*.
$C_{20}H_{25}ClN_4O_7$ Hexamethylenimine, 1-(*p*-chlorophenethyl)-, picrate, 3379*a*, P 3455*g*.
$C_{20}H_{25}ClN_4S$ Quinazoline, (2-diethylamino ethylamino) - (*p* - chlorophenylmercapto)-, 2952*f*.
$C_{20}H_{25}ClN_6O_2 + 1.5\ H_2O$, Quinazoline, 2-*p*-chloroanilino - 4 - (2 - diethylaminoethylamino)nitro-, *and di- HCl*, 2951*i*.
$C_{20}H_{25}ClO_3$ Butyric acid, α-chloro-α-(α-methoxybenzhydryl)-, Et ester, 1394*e*.
$C_{20}H_{25}Cl_2NOS$ Thamorpholine, 4-[3-(4,4'-dichlorobenzhydryloxy)propyl]-, *and - HCl*, P 5804*e*.
$C_{20}H_{25}Cl_2N_5$ Quinazoline, chloro - 2 - *p* chloroanilino - 4 - (2 - diethylaminoethylamino)-, *di-HCl*, 2951*i*; *and di- HCl*, 2951*i*.
$C_{20}H_{26}Cl_2O_2$ Ethane, 1,1,1 - trichloro - 2,2-bis(*p*-propoxyphenyl)-, 9343*ac*.
$C_{20}H_{24}IN_3$ 3 - (3 - Ethyl - 2 - indolyl) - 5,6,7,8 - tetrahydro - 2 - methylisoquinolinium iodide, 5407*e*.
Yobyrine, tetrahydro-, methiodide, 5407*g*.
$C_{20}H_{24}IN_3S$ 1 - Ethyl[3 - (3 - ethyl - 4 - methyl-4 - thiazolin - 2 - ylidene)propenyl]-quinolinium iodide, 2531*b*.
$C_{20}H_{24}IN_3S_2$ 3 - Methyl - 2 - [3 - [2 - (3-methyl - 2 - benzothiazolinylidene)-ethylidene] - 1 - cyclohexen - 1 - yl]-2 - thiazolinium iodide, P 7844*i*.
$C_{20}H_{25}N$ 1*H* - Indeno[2,1 - *c*]pyridine, 2-ethyl - 2,3,4,4a,9,9a - hexahydro - 9-phenyl-, - *HBr*, P 5808*i*, P 5809*a*.
Phenanthridine, 6-heptyl-, P 5051*b*, 7446*c*.
Piperidine, 1 - [2 - (9 - fluorenyl)ethyl]-, *and - HCl*, P 1810*g*.
$C_{20}H_{25}NO$ Acetamide, *N*-(9,10-dihydro-7-isopropyl - 1 - methyl - 2 - phenanthryl)-, 4252*e*.
Acetamide, α - phenyl - *N* - [2 - (5,6,7,8-tetrahydro - 2 - naphthyl)ethyl]-, 8390*h*
Benzamide, *N* - (1 - benzylcyclohexyl)-, 9047*e*.
1,3,2*H* - Benzoxazine, 3 - cyclohexyl-3,4-dihydro-6-phenyl-, 3425*h*.
2 - Fluorenemethanol, α - 1 - piperidyl-methyl-, - *HCl*, 194*b*.
Naphthalenebutyranilide, 1,2,3,4 - tetrahydro-, 2183*b*.
1 - Piperidineethanol, α - 2 - fluorenyl-, - *HCl*, 194*b*.
Piperidine, 1 - [2 - (9 - fluorenyloxy)-ethyl]-, P 6671*d*.
4 - Piperidone, 3 - isopropyl - 2,6 - diphenyl-, *and - HCl*, 1410*b*.
—, trimethyl - 2,6 - diphenyl-, *and - HCl*, 1410*c*.
Triethylamine, 2 - (9 - anthryloxy)-, P 6671*d*.
—, 2 - (9 - phenanthryloxy)-, *and - HCl*, 4663*e*.
$C_{20}H_{25}NO_3$ Acetic acid, diphenyl-, 2-(1-pyrrolidyl)ethyl ester, *and - HCl*, 1388*i*.
9 - Fluorenecarboxylic acid, 2 - diethylaminoethyl ester, 4771*b*.
Ketone, benzyl 4 - (*m* - hydroxyphenyl) 1-methyl-4-piperidyl, P 2241*b*.
1 - Naphthalenecarbamic acid, 4 - isopropyl - 2 - cyclohexen - 1 - yl ester, 161*a*.
9 - Phenanthrol, 10 - (2 - diethylaminoethoxy)-, *and - HCl*, 4663*f*.
$C_{20}H_{25}NO_4$ Acetic acid, diphenyl-, 2-(4 morpholinyl)ethyl ester, *salts*, P 6673*f*.
Acetic acid, phenoxyphenyl-, 2-(1 pyrrolidyl)ethyl ester, *and - HCl*, 1388*e*.
2 - Oxazoline, 5 - (3,4 - diethoxyphenyl) 4 - methyl - 2 - phenyl-, - *HCl*, 7000*b*.
Phenanthrol, (2 - dimethylaminoethyl dimethoxy-, 6208*g*.
$C_{20}H_{25}NO_4S$ 4 - Thiazolidone, 2 - (3 - methoxy-*p*-phenetyl)-3-phenethyl , 1767*h*
Valine, *N* - benzoyl - β - (benzylmercapto)-, Me ester, 2618*d*.
—, β - (benzylmercapto) - *N* - phenylacetyl-, 2270*d*.
$C_{20}H_{25}NO_5$ Benzamide, *N* - (3,4 - diethoxy-α-methylphenacyl)-, 1424*a*.
Benzilic acid, 2-(4-morpholinyl)ethyl ester, - *HCl*, P 9086*h*.
Benzoic acid, *p* hydroxy-, Bu ester, *N* ethylcarbanilate, 593*g*.
Papaverine, dihydro-, 2700*c*.
2 - Propanone, 1 - [*o* - (benzyloxyphenoxy] - 3 - (4 - morpholinyl)-, P 5800*g*.
3,5 - Pyridinedicarboxylic acid, 4 benzyl 2,6-dimethyl-, di-Et ester, 4671*g*.
Valine, *N*-[*p*-(benzyloxy)phenylacetyl], 3361*b*.
$C_{20}H_{25}NO_4S$ Benzamide, *N* 2-hydroxycyclohexyl-, *p*-toluenesulfonate, 3372*i*.
$C_{20}H_{25}NO_5S$ Acetone, compd. with 1-(*o* aminobenzoyl) - 2 - naphthol bisulfite, 3356*b*
$C_{20}H_{25}NO_5$ Homopiperonylamine, 5 methoxy *N* - *m* - methoxybenzyl , oxalate, 9046*g*.
$C_{20}H_{25}NO_{11}S$ Saccharin, methyl triacetyl-β-D-glucopyranoside deriv., 7906*a*.
$C_{20}H_{26}NO_{12}$ Glucoside, nitrophenyl, tetra acetate, 5007*h*.
$C_{20}H_{27}N_3$ Pyridine, 2 - [(2 - dimethylamino ethyl) - 1 - naphthylmethylamino], *and mono- HCl*, 5782*f*.
$C_{20}H_{25}N_3O$ 2 - Pentanone, 4 - (9 fluorenyl, 4-methyl-, semicarbazone, 9058*i*.
$C_{20}H_{25}N_3O_2$ Acetophenone, 3-methoxy-2 (1,2,3,4 - tetrahydro - 2 - naphthyl)-, semicarbazone, 205*i*.
Benzoyl azide, *p*-(α,β-diethyl *p* methoxy phenethyl)-, 9056*a*.
$C_{20}H_{25}N_3O_3$ *o* - Toluamide, 5 - nitro - *N* - *a* piperidylbenzyl-, 3805*g*.
$C_{20}H_{25}N_3O_5$ Hydrocinnamic acid, *p*-methoxy β - (*p* - methoxyphenacyl) , semicarbazone, 4640*b*.
Semicarbazone, m. 210–12° (decompn. of ketone, m. 141–4°, 191*a*.
$C_{20}H_{25}N_3$ 1,2,3,2*H* - Triazole, 4 - (4,4 - dimethyl - 1 - *p* - tolyl - 2 - imidazolidyl)-2-phenyl-, 2619*c*.
$C_{20}H_{25}N_3O_5$ Propionamide, *N*-α-propionyl phenethyl-, 2,4 - dinitrophenylhydrazone, 4226*i*.
$C_{20}H_{25}N_3O_7$ Acetamide, α - methoxy - *N* (α - methoxyacetylphenethyl)-, 2,4-dinitrophenylhydrazone, 4227*a*.
$C_{20}H_{25}N_5O_5$ Isoalloxazine, 8-amino-10 (2-diethylaminoethyl)-, violurate, 3008*g*.
$C_{20}H_{34}$ Indan, 1,1,3,5 - tetramethyl 3 *p* tolyl-, 7917*a*.
Pentene, 4 - methyl - 2,4 - di - *p* - tolyl-, 7917*a*.
Styrene, *p*,α - dimethyl-, dimer, P 5799*c*
$C_{20}H_{34}Ba_3Co_2N_6O_{16}$, 7364*h*.
$C_{20}H_{34}BrNO_3$ 4 - Ethyl - 2 - hydroxy - 4 - phenacyl - 2 - phenylmorpholinium bromide, 4240*a*.
$C_{20}H_{34}BrN_3$ Pyrimidine, 4 - (6 - bromo - 2 naphthylamino) - 6 - (3 - dimethylaminopropylamino) - 2 - methyl-, 6243*i*.
$C_{20}H_{34}Br_2O_2$ Hexane, 1,6-bis(4-bromo-o tolyloxy)-, 9048*i*.
$C_{20}H_{34}Br_4N_2$ Benzidine, *N*, *N*, *N'*, *N'* - tetrakis(2- -ethyl)-, 7443*e*.
$C_{20}H_{34}CaCo_2N_6O_{16}$, 7364*h*.
$C_{20}H_{34}ClN_5$ Quinazoline, 4 - *p* - chloroanilino-2 - (2 - diethylaminoethylamino)-, *di- HCl*, 2952*e*.

$C_{20}H_{24}Cl_2N_2O$ Acetamide, α - chloro - *N*, *N*-diphenyl-, compd. with hexamethylenetetramine, 6587*a*.

$C_{20}H_{24}Cl_2N_4O_3$ Benzamidine, 4,4′ - (hexamethylenedioxy)bis[3 - chloro-, *di*-*HCl*, P 688*g*, 9049*d*.

$C_{20}H_{24}Cl_4N_2$ Benzidine, *N*, *N*, *N*′, *N*′-tetrakis(2-chloroethyl)-, 7443*e*.

$C_{20}H_{24}O_{12}MgN_4O_{18}$, 7364*h*.

$C_{20}H_{24}$ IN 2,3,4,4a,9,9a -

$C_{20}H_{24}I_2$ ... ylenedioxy)bis[iodo-, *di*-*HCl*, 9049*d*.

$C_{20}H_{24}I_6N_2O_2Sb_2$ Quinidine, compd. with $SbI_3$, 357*d*.

Quinine, compd. with $SbI_3$, 357*d*.

$C_{20}H_{24}N_2$ Butyronitrile, γ-diethylamino-α,α-diphenyl-, 9052*g*; - *HCl*, 7138*e*.

Indeno[2,1 - *a*]indene - 5,10 - diamine, 4b,5,9b,10 - tetrahydro - *N*,*N*,*N*′,*N*′ - tetramethyl-, *and chloroaurate*, 4662*ab*.

Indoline, 2 - phenyl - 1 - [2 - (1 - pyrrolidyl)ethyl]-, *and* - *HCl*, 4257*f*.

$C_{20}H_{24}N_2OS$ Phenothiazine, 10-(α-diethylaminobutyryl)-, - *HCl*, 7938*e*.

Thiaxanthone, 1 - (2 - diethylaminoethylamino) - 4 - methyl-, - *HCl*, 7553*c*, 9252*a*; *and* - *HCl*, 225*a*, 226*d*.

$C_{20}H_{24}N_2O_3$ (See also *Quinidine*; *Quinine*.)

Benzaldehyde, *p*,*p*′ - [ethylenebis(ethylimino)]di-, P 2233*b*.

*h*-Quinine, 4678*i*.

Xanthone, 1 - (2 - diethylaminoethylamino) - 4 - methyl-, *and* - *HCl*, 224*i*, 225*e*.

$C_{20}H_{24}N_2O_3S$ Cyclopentanecarboxylic acid, phenyl-, 2 - benzyl - 2 - thiopseudourea salt, 3398*e*.

Thiaxanthone, 1 - (2 - diethylaminoethylamino) - 4 - methoxy-, - *HCl*, 226*f*.

$C_{20}H_{24}N_2O_4$ Asparagine, *N*, $N^{\alpha}$ - dibenzyl-, Et ester, - *HCl*, 1352*i*.

4 - Quinolinemethanol, 2 - hydroxy - 6 - methoxy - α - (5 - vinyl - 2 - quinuclidyl)-, 6267*g*.

$C_{20}H_{24}N_2O_3S$ Thiaxanthone, (2-diethylaminoethylamino)methyl-, 5,5 - dioxide, *and* - *HCl*, 226*h*.

$C_{20}H_{24}N_2O_4$ Acetamide, *N*, *N*′ - [1,2 - bis(*p* - hydroxyphenyl) ethylene] bis [*N*-methyl-, 614*f*.

1,4 - Hexanediol, dicarbanilate, 4254*c*.

$C_{20}H_{24}N_2O_7$ 2 - Butanone, 4 - hydroxy - 4-(2,6,6 - trimethyl - 2 - cyclohexen 1-yl)-, 3,5 - dinitrobenzoate, 4814*a*.

$C_{20}H_{24}N_2S$ Phenothiazine, 10 - [2 - (dimethyl-1 - pyrrolidyl)ethyl]-, - *HCl*, 631*g*.

$C_{20}H_{24}N_4O_4$ Caprylophenone, 2,4 - dinitrophenylhydrazone, 6991*b*.

$C_{20}H_{24}N_4O_5$ Acetamide, α-methoxy-*N*-(α-methoxyacetylphenethyl)-, *p* - nitrophenylhydrazone, 4227*a*.

$C_{20}H_{24}N_4O_8$ Acetic acid, (*p*-nitrophenyl)-, piperazine salt, 235*f*.

$C_{20}H_{24}N_4O_8$ 4,5 - Octanedione, bis(*p* - nitrophenylhydrazone), 5369*c*.

$C_{20}H_{24}N_6O_4$ Guanidine, 1 - butyl - 3 - (5,6 - dimethoxy - 2 - benzimidazolyl)-, picrate, 1405*h*.

$C_{20}H_{24}N_{14}O_{21}Pt$, 2538*c*.

$C_{20}H_{24}O$ Acetophenone, 2,4,6-triethyl-α-phenyl-, 5773*d*.

Acetophenone, α-(2,4,6-triethylphenyl)-, 5773*e*.

Benzophenone, 2,2′,3,4′,5,6,6′ - heptamethyl-, 8370*c*.

$C_{20}H_{24}O_2$ Acetophenone, 4 - butoxy - 2,5 - dimethyl-α-phenyl-, 7924*g*.

Acetophenone, *p* - (α,β - diethyl - *p*-hydroxyphenethyl)-, 9056*c*.

—, 4 - isoamoxy - 3 - methyl - α - phenyl-, 3826*a*.

Estradiol, ethynyl-, 3870*e*, P 7054*e*, 7560*c*, 9203*e*.

2′ - Flavanol, 2,4,4,4′,7 - pentamethyl-, 809*h*, 810*f*.

Indan, 1 - ethyl - 5 - methoxy(*p* - methoxyphenyl)methyl-, 1740*i*, 1758*d*, 2180*d*, 6608*c*.

—, 1 - isopropyl - 5 - methoxy - 2 - (*p*-methoxyphenyl)-, 1758*a*.

5 - Indanol, 1 - butyl - 2 - (*p* - hydroxyphenyl)-3-methyl-, 1758*d*.

Metanetholе, 1740*i*, 2180*d*, 6606*c*.

1,4 - Naphthoquinone, 2 - (4 - cyclohexylbutyl)-, 1382*g*.

1 - Pentene, 1,3 - bis(*p* - methoxyphenyl)-2-methyl-, 2180*b*.

Stilbene, diethyldimethoxy-, 1978, 2946*i*, 6031, P 1534*b*, 5773*b*, 6606*b*, 7561*a*, 8082*a*.

—, 4,4′ - dimethoxytetramethyl-, 8371*a*.

$C_{20}H_{24}O_3$ Benzoic acid, *p*-(α,β-diethyl-*p*-hydroxyphenethyl)-, Me ester, 9055*i*.

Benzoic acid, *p* - (α,β - diethyl - *p* - methoxyphenethyl)-, 9055*i*.

2 - Butanone, 3,3 - bis(4 - methoxytolyl)-, 8370*i*.

Butyrophenone, α - (2 - ethyl - 3 - methoxyphenyl) - *p* - methoxy-, 198*c*.

Durenol, 4 - (ethoxymethyl)-, benzoate, 7451*a*.

Estrone, acetate, 3018*i*.

1,4 - Naphthoquinone, 2 - (cyclohexylbutyl) - 3 - hydroxy-, 1108*g*, 1374*g*, 2610*b*.

—, 2 - (3 - cyclohexylmethylpropyl) - 3-hydroxy-, 1374*g*.

—, 2 - (3 - cyclohexylpropyl) - 3 - methoxy-, 1374*e*.

—, 2 - (5 - cyclopentylamyl) - 3 - hydroxy-, 1374*h*, 2610*b*.

—, 2 - (9 - decenyl) - 3 - hydroxy-, 1108*g*, 1378*a*.

—, 2 - hydroxy - 3 - [3 - (4 - methylcyclohexyl)propyl]-, 1374*g*.

2 - Phenanthrenecarboxylic acid, 1,2-diethyl - 1,2,3,4 - tetrahydro - 7-methoxy , P 3849*f*, P 5047*f*.

—, 1 - ethylidene - 1,2,3,4,9,10 - hexahydro - 7 - methoxy - 2 - methyl , Me ester, 7033*e*, P 7969*f*.

—, 2 - ethyl - 1,2,3,4 - tetrahydro - 7-hydroxy-1-propyl-, P 3840*d*.

—, 1 - ethyl - 1,2,3,4 - tetrahydro - 7 methoxy-1,2-dimethyl-, P 3850*e*

—, 1 - ethyl - 1,2,3,4 - tetrahydro - 7 methoxy - 2 - methyl-, Me ester, P 6667*c*.

—, 1,2,3,4 - tetrahydro - 7 - methoxy - 2 methyl-1-propyl-, P 7048*h*.

$C_{20}H_{24}O_4$ Acid, bp.$_3$ 208–12°, 6201*c*.

Benzoin, 2,2′ - diethyl - 3,3′ - dimethoxy-, 197*a*.

Benzophenone, 3′,4′,5′ - trimethoxy-2,3,5,6 - tetramethyl-, 186*h*.

Crocetin, 2093*h*.

Dusoeugenol, P 1586*d*.

Estrolic acid, lactone acetate, 3870*f*, 8034*d*.

1 - Naphthalenebutyric acid, 6 - methoxy-α - methyl - α - propionyl-, Me ester, P 3850*g*.

1,4 - Naphthoquinone, 2 - hydroxy - 3-(6 - methylheptyl)-, acetate, 1373*d*.

—, 2 - hydroxy - 3 - (oxodecyl)-, 1387*cg*.

2 - Phenanthrenecarboxylic acid, 1 - ethyl-1,2,3,4 - tetrahydro - 1 - hydroxy - 7-methoxy - 2 - methyl-, Me ester, P 2642*a*, P 3848*g*, P 3849*i*, P 6667*c*, P 7969*g*.

1-Phenanthrenepropionic acid, 1,2,3,4,-4a,9,10,10a - octahydro - 2,7 - dihydroxy-2-methyl-, δ-lactone, acetate, 8034*c*.

Valeric acid, α,β-bis(*p*-methoxyphenyl)-, Me ester, 613*f*.

—, α,β-bis(*p*-methoxyphenyl)-α-methyl-, 613*g*.

$C_{20}H_{24}O_5$ 1,4-Naphthalenediol, 2-isoamyl-3-methoxy-, diacetate-, 1373*d*.

2-Naphthalenepelargonic acid, 1,4-dihydro-3-hydroxy-1,4-dioxo-, Me ester, 1387*f*.

1,2-Phenanthrenedicarboxylic acid, hexahydro-7-methoxymethyl-, di-Me ester, 8376*i*.

$C_{20}H_{24}O_6S_2$ 1,4 - Cyclohexanediol, di - *p*-toluenesulfonate, 7435*f*.

$C_{20}H_{24}O_7$ Glucoside, 3-hydroxy-5-styrylcyclohexadienyl, 5017*g*.

$C_{20}H_{24}O_8$ Benzoic acid, 3,4,5-trimethoxy-, 3,4,5-trimethoxybenzyl ester, 190*g*.

$C_{20}H_{24}O_9$ Benzene, glucosyl-, tetraacetate, 1326*i*.

$C_{20}H_{24}O_9S$ Glucoside, phenyl tetraacetylthio-, 1326*g*.

$C_{20}H_{24}O_{10}$ Glucoside, phenyl, tetraacetate, 5007*h*, 7430*i*, 7923*a*.

$C_{20}H_{24}O_{11}$ Glucoside, *o*-hydroxyphenyl-, tetraacetate, 7923*c*.

$C_{20}H_{24}O_{11}S$ Sulfone, phenyl tetraacetylglucosyl, 1326*h*.

$C_{20}H_{25}BrN_2O$ Epihydroquinine, bromide, 4677*d*.

Hydroquinine, bromide, 4677*d*.

$C_{20}H_{25}BrO_3$ 1,4-Naphthoquinone, 2-(10-bromodecyl)-3-hydroxy-, 1382*b*.

1,4-Naphthoquinone, 6-bromo-3-(3,7-dimethyloctyl)-2-hydroxy-, 1383*b*.

$C_{20}H_{25}ClN_2O_3$ Anthranilic acid, 4-chloro-*N*-(*p*-methoxyphenyl)-, 2-diethylaminoethyl ester, - *HCl*, P 4007*e*.

$C_{20}H_{25}ClN_4$ Quinazoline, amino-2-*p*-chloroanilino - 4 - (2 - diethylaminoethylamino)- *hydrochlorides*, 2952*b*.

$C_{20}H_{25}ClO_4$ 1-Indancarboxylic acid, 2-chloro-2 - (3 - cyclohexylpropyl) - 1 - hydroxy-3-oxo-, Me ester, 1384*e*.

$C_{20}H_{25}IN_2$ (3-Cyano-3,3-diphenylisobutyl)-trimethylammonium iodide, 7466*d*.

(3 - Cyano - 1 - methyl - 3,3 - diphenylpropyl)trimethylammonium iodide, 7466*d*.

$C_{20}H_{25}IN_2O_2S_2$ 2-[3-(5,6-Dimethoxy-3-methyl - 2 - benzothiazolinylidene) - 1 - cyclohexen - 1 - yl] - 3 - methyl - 2-thiazolinium iodide, P 7844*i*.

$C_{20}H_{25}IN_4O_3$ Benzamidine, iodo-4,4′-(hexamethylenedioxy)di-, 3064*h*; *di*-*HCl*, 9049*d*.

$C_{20}H_{25}N$ Piperidine, 1-(3,3-diphenylpropyl)-, - *HCl*, 4243*i*, 7467*f*; *and* - *HCl*, P 1810*f*.

Propane, diphenyl-1-piperidyl-, 4426*e*.

$C_{20}H_{25}NO$ Hexanone, dimethylaminodiphenyl-, - *H Br*, 3391*b*; - *HCl*, 7467*c*, *and* - *HCl*, 4244*c*, 9053*f*; *and salts*, 7466*e*.

2(1 *H*)-Isoquinolinepropanol, α-ethyl-3,4 - dihydro - α - phenyl-, *and* - *HCl*, 9071*e*.

Morpholine, 4-(3,3-diphenylisobutyl)-, - *HCl*, 4243*h*.

—, 4-(1-methyl-3,3-diphenylpropyl)-, - *HCl*, 4243*g*.

2-Pentanone, 5-dimethylamino-4-methyl-3,3-diphenyl-, *and* - *H Br*, 7467*a*.

Piperidine, 1-[2-(benzhydryloxy)ethyl]-, *and* - *H Br*, P 1064*f*; *and* - *HCl*, P 2235*b*, P 3462*h*, P 5803*i*.

—, 1-[2-(α-phenyl-*o*-toloxy)ethyl]-, *and* - *HCl*, 3386*d*.

1-Piperidinepropanol, diphenyl-, - *HCl*, 7581*b*; *and* - *HCl*, 9071*b*.

4-Piperidinol, 1,3,5-trimethyl-2,6-diphenyl-, *and* - *HCl*, 1410*e*.

Propylamine, *N*, *N*-diethyl-3-(9-fluorenyloxy)-, P 6671*d*.

Pyrrolidine, 1-[2-(α-phenylphenethyloxy)ethyl]-, *and* - *HCl*, 631*b*.

1 *H*-Quinolizine, octahydro-1-(1-naphthoxymethyl)-, 6210*c*.

$C_{20}H_{25}NO_2$ (See also *Trasentin*.)

Acetic acid, 4-biphenylyl-, 2-diethylaminoethyl ester, *and* - *HCl*, 2980*h*.

—, diphenyl-, 2-*sec*-butylaminoethyl ester, - *HCl*, P 2639*h*; 2-isopropylaminoisopropyl ester, - *HCl*, P 2639*i*.

Benzhydrol, α-(2-dimethylaminoethyl)-, propionate, *and* - *HCl*, P 5417*f*.

Benzylamine salt, m. 145.5°, 3351*h*.

Butyric acid, γ-diethylamino-α,α-diphenyl-, *and* - *HCl*, 9053*e*.

—, γ-dimethylamino-α,α-diphenyl-, Et ester, *and* - *HCl*, 9053*c*.

—, α,α-diphenyl-, 2-dimethylaminoethyl ester, - *HCl*, 3392*b*.

Butyrophenone, γ-diethylamino-*p*-phenoxy-, 2211*c*.

Cyclohexanecarboxylic acid, 2-phenyl-, benzylamine salt, 8364*a*.

6,7-Isoquinolinediol, 1,2,3,4-tetrahydro-1,3 - dimethyl - 2 - (3 - phenylpropyl)-, - *HCl*, P 2241*i*.

Morpholine, 4-[2-(benzhydryloxy)isopropyl]-, *and* - *HCl*, P 5804*d*.

4-Morpholinebutanol, β,β-diphenyl-, *and* - *HCl*, 3391*e*.

4-Pentenoic acid, 2,2-dimethyl-5-phenyl-, benzylamine salt, 3351*k*.

Valeric acid, γ-dimethylamino-α,α-diphenyl-, Me ester, - *HCl*, 611*e*; *and salts*, 7466*i*.

$C_{20}H_{25}NO_2S$ Piperidine, 1-[2-(benzhydrylsulfonyl)ethyl]-, 1366*f*.

$C_{20}H_{25}NO_3$ Acetamide, *N*, *N*-bis(2-hydroxy-α-mesityl-, 5995*ad*.

Phenanthro[4,5 - *bcd*]furan - 9b(3a *H*)-ethylamine, 3,9a-dihydro-3,5-dimethoxy- *N*, *N*-dimethyl-, 4280*f*.

$C_{20}H_{25}NO_4$ Benzamide, *N*-(3,4-diethoxy-β-hydroxy - α - methylphenethyl)-, 1423*dh*.

Isobutylamine, *N*, *N*-dimethyl-3,3-diphenyl-, oxalate, 611*k*.

4-Morpholineethanol, α-[o-(benzyloxy)-phenoxymethyl]-, P 4304*e*.

3,5-Pyridinedicarboxylic acid, 4-benzyl-1,4-dihydro-2,6-dimethyl-, di-Et ester, 4671*f*.

$C_{20}H_{25}NO_5$ Homoveratramide, *N*-(2,3-dimethoxyphenethyl)-, 4277*h*.

Propylamine, 2-(benzhydryloxy)- *N*, *N*-dimethyl-, oxalate, P 3463*c*.

$C_{20}H_{25}NO_7$ Glutaric acid, α-acetyl-γ-cyano-β-

(3,4-dimethoxyphenyl)-, di-Et ester, P 689*d*.

$C_{20}H_{25}N_3$ Phenanthridine, 4-(2-diethylaminoethylamino)-6-methyl-, 7487*b*.

$C_{20}H_{25}N_3O$ Benzophenone, 4,4′-dipropyl-, semicarbazone, 7004*h*.
Prodigiosine, 273*d*.

$C_{20}H_{25}N_3O_3$ Acetophenone, 4-butoxy-3-methyl-α-phenyl-, semicarbazone, 3825*i*.
Acetophenone, 2,6-dimethyl-α-phenyl-4-propoxy-, semicarbazone, 7924*f*.
Caprylophenone, *p*-nitrophenylhydrazone, 6991*a*.
Isolysergamide, *N*-[1 (hydroxymethyl)-propyl]-, P 2242*i*.
Lysergamide, *N*-[1-(hydroxymethyl)-propyl]-, P 2242*i*.
Oxamic acid, *N*-naphthyl-, 1-methylheptylidenehydrazide, 6973*i*.

$C_{20}H_{25}N_3O_3$ Bicyclo[3.3.1]-3-nonene-1-carboxylic acid, 4-methyl-9-oxo-, Et ester, phenylsemicarbazone, 7907*g*.
3-Heptanone, 1-(*p*-hydroxyphenyl)-6-methyl-, *p*-nitrophenylhydrazone, 7001*h*.

$C_{20}H_{25}N_3O_7$ Cumaldehyde, diethylhydrazone, picrate, 6592*h*.

$C_{20}H_{25}N_5O_8$ 2,6-Acetoxylidide, α-diethylamino-, picrate, 1022*a*.

$C_{20}H_{30}BaBr_2Co_2N_4O_{16}$, 7364*g*.

$C_{20}H_{26}BrNO_2$ 4-(2-Benzhydryloxyethyl)-4-methylmorpholinium bromide, P 2641*ad*.

$C_{20}H_{26}Br_2CaCo_2N_4O_{16}$, 7364*g*.

$C_{20}H_{26}Br_2Co_2MgN_4O_{16}$, 7364*g*.

$C_{20}H_{26}ClNO$ Butylamine, *N*-[2-(2-biphenylyloxy)ethyl] - *N* - (2 - chloroethyl) , - *HCl*, 2320*c*, 6309*b*, 7131*g*.
*sec*-Butylamine, *N*-[2-(2-biphenylyloxy) ethyl]- *N*-(2-chloroethyl)-, - *HCl*, 6309*b*.
Isobutylamine, *N*-[2-(2-biphenylyloxy)-ethyl]- *N*-(2-chloroethyl)-, - *HCl*, 6309*b*.

$C_{20}H_{26}ClNO_3$ (2-Benzhydryloxyethyl)(carboxymethyl)dimethylammonium chloride, Me ester, P 5045*i*.

$C_{20}H_{25}ClN_2O_3$ Cyclohexanecarboxylic acid, 1-(3 - chloro - 2 - butenyl) - 2 - oxo-, Et ester, phenylsemicarbazone, 7907*g*.

$C_{20}H_{25}ClN_2O_7S$ Pyridine, 2-[(5-chloro-2-thenyl)(2 - dimethylaminoethyl)amino]-, citrate, 5781*f*.

$C_{20}H_{26}ClN_5O_2$ Biguanide, 1-(*p*-chlorophenyl)-5-isopropyl-2-*p*-tolyl-, acetate, P 684*c*, 9039*h*.

$C_{20}H_{24}INO$ 1-[2-(Benzhydryloxy)ethyl]-1-methylpyrrolidinium iodide, 631*a*.

$C_{20}H_{26}INO_2$ 4-(2-Benzhydryloxyethyl)-4-methylmorpholinium iodide, P 2641*ad*.

$C_{20}H_{24}INO_4$ *m*-Methoxybenzyl-5-methoxyhomopiperonyldimethylammonium iodide, 602*g*.

$C_{20}H_{25}I_4N_3O_3Sb$ Quinine, -HI, compd. with $SbI_3$, 357*d*.

$C_{20}H_{26}N_2$ Caprylamidine, *N*-2-biphenylyl-, P 5051*d*, 7445*i*.
Piperidine, 1-[2-(*N*-benzylanilino)ethyl]-, P 683*d*.

$C_{20}H_{26}N_2O$ Acetamide, α-4-biphenylyl-*N* (2-diethylaminoethyl)-, 2980*i*.
*h*-Hydrocinchonidine, Me ether, *and* - *HBr*, 4678*f*.
*h*-Hydrocinchonine, Me ether, 4678*ef*.
Piperazine, 1-[2-(benzhydryloxy)ethyl]-4-methyl-, *and di-HCl*, 631*a*.
Piperidine, 1-[2-(α-methyl-α-2-pyridylbenzyloxy)ethyl]-, *and* - *HCl*, 2206*h*.
Pyridine, 5-benzylideneamino-2-(octyloxy)-, P 7972*h*.
Urea, 1,3-bis(α,α-dimethylbenzyl)-1-methyl-, 6994*a*.

$C_{20}H_{26}N_2O_2$ Butyrophenone, γ-diethylamino-*p*-phenoxy-, oxime, 2211*c*.
Carbamic acid, [α-(benzylaminomethyl)-benzyl]ethyl-, Et ester, - *HCl*, 6176*g*.
*h*-Hydroquinole, 4678*g*.
Piperazine, 2,5-bis(*p*-methoxyphenyl)-1,4-dimethyl-, *and* - *HCl*, 2602*f*.
Xanthydrol, 1-(2-diethylaminoethyl amino)-4-methyl-, 225*a*.

$C_{20}H_{26}N_2O_2S_2$ Acetic acid, (cuminylmercapto)-, 2-benzyl-2-thiopseudourea salt,

$C_{20}H_{26}N_2O_3$ Benzophenone, 2 - (2 - diethylaminoethylamino) - 2′,6 - dihydroxy-5-methyl-, 225*a*.
2-Furanacetamide, *N*, *N*-diallyl-4-(diallylcarbamyl)-5-methyl , P 4301*f*.

$C_{20}H_{26}N_2O_3$ Procaine, benzoate, 7290*d*.
*p*-Toluic acid, piperazine salt, 235*g*.

$C_{20}H_{26}N_2O_3S$ Acetamide, α-(*p*-hexylphenoxy)-*N*-sulfanilyl-, P 3036*a*.

$C_{20}H_{26}N_2O_4S$ 10-Camphorsulfonic acid, 8-amino-6-methoxyquinoline salt, 600*i*.

$C_{20}H_{26}N_2O_6$ Acetic acid, phenoxy-, piperazine salt, 235*f*.
Benzoic acid, methoxy-, piperazine salt, 235*e*.

$C_{20}H_{26}N_2O_6S$ 2-Thiazolidineacetic acid, 3-acetyl - 4 - carboxy - 5,5 - dimethyl-α-(α-phenylacetamido)-, Et ester, 8892*g*.

$C_{20}H_{26}N_2O_{10}$ Arabinamine, *N*-(2-nitro-*p*-tolyl)-, tetraacetate, P 2637*d*.

$C_{20}H_{26}N_2O_{10}S$ Diacetanilide, *p*-(2,2′,2″-trihydroxy - *tert* - butylsulfamyl)-, triacetate, 3383*f*.

$C_{20}H_{26}N_2S$ 1-Thiaxanthenamine, *N*-2-diethylaminoethyl) - 4 - methyl - , *and* - *HCl*, 226*i*.

$C_{20}H_{26}N_4$ Pyrimidine, 4-(*p*-dimethylaminostyryl) - 6 - methyl - 2 - (1 - piperidyl)-, 3427*a*.
*m*-Tolualdehyde, 6-dimethylamino-, azine, 1412*e*.

$C_{70}H_{26}N_4O_2$ Benzamidine, *p*, *p*-(hexamethylenedioxy)di-, 4325*i*, 8536*c*.

$C_{20}H_{26}N_4O_4$ 1-Cyclohexene-1-crotonaldehyde, α, 2, 6, 6-tetramethyl-, 2, 4-dinitrophenylhydrazone, 2588*e*.
2,4-Dinitrophenylhydrazone, m. 169–70°, 1337*h*.
α-Ionone, 2²-methyl-, 2,4-dinitrophenylhydrazone, 7644*e*.
Irone, 2,4 dinitrophenylhydrazone, 3375*e*, 5549*e*, 7644*f*.

$C_{20}H_{26}O$ 2-Caprinaphthone, 9424*f*.
Phenol, 2,6-di-*tert*-butyl-4-phenyl-, 8881*c*

$C_{20}H_{26}O_2$ Bibenzyl, diethyldimethoxy-, 1976, 198*d*, 8032*a*, 3812*f*.
Estrone, 1-methyl-, Me ether, 4271*d*.
1,4-Naphthoquinone, 2-decyl-, P 9085*g*.
Phenol, *o* [2-ethyl-3-(*p* hydroxyphenyl)-1-methylamyl]-, P 4700*b*.
—, *p*, *p*′-octamethylenedi-, P 2034*a*.
Xylenol, butylidenedi , 7254*h*, P 7257*c*.

$C_{20}H_{26}O_2S$ Thymol, thiodi-, P 2469*a*.

$C_{20}H_{26}O_3$ 2-Butanol, 3,3-bis(4-methoxytolyl)-, 8370*i*.
Dihydroxy keto steroid, P 7051*f*, P 7978*h*.
1,4-Naphthoquinone, 2-decyl-3-hydroxy-, 1108*g*, 1373*c*, 2610*b*.
—, 2-(dimethyloctyl)-3-hydroxy-, 1108*g*, 1109*c*, 1373*f*.
—, 2 - (3 - ethyl - 4 - methylheptyl) - 3 - hydroxy-, 1373*g*.
—, 2-(2-ethyloctyl)-3-hydroxy-, 1373*g*.
—, 2-hydroxy-3-(methylnonyl)-, 1373*de*, 2610*b*.
—, 2-methoxy-3-(2-methyloctyl) , 1373*e*.
2-Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,4,9,10 - hexahydro - 7 - methoxy-2-methyl-, Me ester, P 7960*f*.

$C_{20}H_{26}O_4$ 2-Cyclopentene-1-malonic acid, α-phenethyl-, di-Et ester, 1039*f*.
Hydrobenzoin, 4,4′ - dimethoxytetramethyl-, 8370*i*.
1,4-Naphthoquinone, 2-hydroxy-3-(8-hydroxy-8-methylnonyl)-, 1387*g*.

$C_{20}H_{26}O_5$ 1-Indancarboxylic acid, 2-(4-cyclohexylbutyl) - 1,2 - dihydroxy - 3 - oxo-, 1384*d*.
1-Indancarboxylic acid, 2-(3-cyclohexylpropyl)-1,2-dihydroxy-3-oxo-, Me ester, 1384*d*.
Malonic acid, [α-(2-oxocyclohexyl)benzyl]-, di-Et ester, 3418*d*.
1,4-Naphthoquinone, 2-(9,10-dihydroxydecyl)-3 hydroxy-, 1381*i*.
1-Phenanthreneacetic acid, 2-carboxy-1,2,3,4,4a,9,10,10a - octahydro - 7-methoxy-2-methyl-, 2-Me ester, 3431*i*.
1-Phenanthrenepropionic acid, 2-carboxy-1,2,3,4,4a,9,10,10a - octahydro - 7-methoxy-2-methyl-, 3431*i*, 3432*a*.
9-Xanthenecarboxylic acid, 1,2,3,4,5,6,-7,8 - octahydro - 3,3,6,6 - tetramethyl-1,8-dioxo-, Et ester, 2965*d*.

$C_{20}H_{26}O_5S$ Estrone-16-sulfonic acid, 1-methyl-, Me ester, 2214*h*.

$C_{20}H_{26}O_5S_2$ D-Glucose, ditolyl mercaptal, P 5625*h*.

$C_{20}H_{26}O_6$ Naphtho[2,3]-1,3-dioxole-5,6-dicarboxylic acid, 5,6,7,8-tetrahydro-7-methyl-, di-Pr ester, 2705*f*, 4411*h*.
4-Pentene-1,2,2-tricarboxylic acid, 5-phenyl-(?), tri-Et ester, 2181*g*.

$C_{20}H_{26}O_8$ 1,1,2,2-Ethanetetracarboxylic acid, 1-phenyl-, tetra-Et ester, 4227*i*.

$C_{20}H_{26}O_{11}$ Hexamethyl deriv., 1342*b*.

$C_{20}H_{26}O_{11}S$ Glucoside, methyl, 2,3,4-triacetate 2-*p*-toluenesulfonate, 3368*c*.

$C_{20}H_{27}BrN_2$ Irone, *p*-bromophenylhydrazone, 5550*a*.

$C_{20}H_{27}ClN_2O_3$ Isoquinamine, methochloride, 7489*h*.

$C_{20}H_{27}ClO$ Abietyl chloride, dehydro-, 6602*c*.

$C_{20}H_{27}ClO_2$ 4-Etiocholenoyl chloride, 3-keto-, 4680*i*.

$C_{20}H_{27}ClO_4$ Malonic acid, 3-chloro-2-butenyl-(*m*-methylphenethyl)-, di-Et ester, 6609*d*.

$C_{20}H_{27}IN_2O$ *h*-Hydrocinchonine, methiodide, 4678*b*.

$C_{20}H_{27}IN_2O_2$ Isoquinamine, methiodide, 7489*h*.

$C_{20}H_{27}N$ Phenethylamine, *o*-phenyl-*N*, *N*-dipropyl-, 1357*b*.

$C_{20}H_{27}NO$ $\Delta^{5,16}$-Androstadiene, 3-hydroxy 17-cyano-, 5336*f*.
Benzhydrol, α-(3-diethylaminopropyl)-, *and* - *HCl*, P 5423*i*.
Diphenylamine, *p*-(octyloxy)-, 3386*g*.
Ethylamine, 2-(α-cumyl-*o*-toloxy)-*N*, *N*-dimethyl-, *and* - *HCl*, 2969*g*.
3-Hexanol, 6-dimethylamino-4,4-diphenyl-, *nitrate*, 3391*d*.
Isobutylamine, *N*,1-diethyl-3-(*p*-phenoxyphenyl)-, P 365*c*.
1-Piperidinepropanol, α-ethyl-α-1-naphthyl-, - *HCl*, 9070*g*.
Triethylamine, 2-(α-methylbenzhydryloxy)-, 4657*c*.

$C_{20}H_{27}NO_2$ 2-Butanol, 3-(2-dimethylamino ethoxy)-2,3-diphenyl-, *and* - *HCl*, 2205*i*.
2-Cyclohexene-1-acetic acid, α-phenyl-2-(1-pyrrolidyl)ethyl ester, *and HCl* 1388*d*.
2-Cyclopentene-1-acetic acid, α-phenyl-3-(1-pyrrolidyl)propyl ester, *and* - *HCl* 1388*e*.
Isobutylamine, 1-ethyl-3-(4-methoxy-3-phenoxyphenyl)-*N*-methyl-, P 365*a*.
—, 1-ethyl-3-[*p*-(*p*-methoxyphenoxyphenyl]-*N*-methyl-, P 365*d*.
Phenol, *p*-[*p*-(3-ethylamino-2-methylamyl)phenoxy]-, *and* - *HCl*, P 365*d*.
2 - Propanol, 1 - benzylamino - 3 - (*p*-*tert*-butylphenoxy)-, - *HCl*, P 7016*f*.
Propylamine, *N*,1-diethyl-3-[*p*-(*p*-methoxyphenoxy)phenyl]-, P 365*d*.

$C_{20}H_{27}NO_2S$ Propylamine, 3-(ethylsulfonyl)-*N*, *N*, 1 - trimethyl - 3,3 - diphenyl-, 6733*f*; - *HCl*, 1367*a*; and - *HCl*, 1367*b*.

$C_{20}H_{27}NO_3$ 4-Quinolinol, 3-heptyl-7-methoxy-2-methyl-, acetate, 1417*d*.

$C_{20}H_{27}NO_4$ Erysodine, tetrahydro-, acetate 4281*c*.

$C_{20}H_{27}NO_5$ Malonic acid, (1-methyl-4-phenyl-4-piperidylcarbonyl)-, di Et ester, and - *HCl*, P 2240*f*.

$C_{20}H_{27}NO_8$ Arabinamine, *N*-*p* tolyl-, tetra acetate, P 2637*d*.

$C_{20}H_{27}N_3O$ Ionone, phenylsemicarbazone 5010*g*, 5753*a*.

$C_{20}H_{27}N_3O_2$ 2-Butanone, 3,4-epoxy-4-(2,6,6 trimethyl - 2 - cyclohexen - 1 - yl) , phenylsemicarbazone, 4813*i*.
3-Buten-2-one, 4-(1,3,3-trimethyl-7-oxabicyclo[4.1.0]-2-heptyl)-, phenylsemicarbazone, 4813*f*.
1-Cyclohexene-1-crotonaldehyde, α,2,6,6-tetramethyl-, *p*-nitrophenylhydrazone, 2588*e*.
2-Propanol, 1-diallylamino-3-(6-methoxy-8-quinolylamino)-2-methyl-, *and di-HCl*, P 254*f*.

$C_{20}H_{27}N_3O_3S$ Benzenesulfonic acid, *p*-(dibutylaminophenylazo)-, 6489*c*.

$C_{20}H_{27}N_3O_4$ 1-Phenanthreneacetic acid, 2-formyl - 1,2,3,4,4a,9,10,10a - octahydro - 7 - methoxy - 2 - methyl-, semicarbazone, 3434*h*.

$C_{20}H_{27}N_3O_4S$ Penicillin G, 2-dimethylaminoethyl ester, - *HCl*, 633*f*.

$C_{20}H_{27}N_3O_5$ 1-Indancarboxylic acid, 2-(3-cyclohexylpropyl) - 1,2 - dihydroxy - 3-oxo-, semicarbazone, 1384*d*.

$C_{20}H_{27}N_3O_6S_2$ Pyrimidine, 6 amino-5-thioformamido - 4 - D - glucosidoamino - 2-(methylmercapto)-, tetraacetate, 146*e*.

$C_{20}H_{27}N_3O_8$ *m*-Phenylenediamine, $N^1$-(2-diethylaminoethyl) - $N^1$, $N^1$ - dimethyl-4-nitro-, picrate, 3008*a*.

$C_{20}H_{27}O_4P$ 1,2-Propanediol, 3-(*o*-methoxyphenoxy)-, phosphate, P 6232*i*.

$C_{20}H_{28}$ Decane, 1-(naphthyl)-, 1370*e*, 4454*h*, 8888*f*, 9424*e*.
Naphthalene, 2,3-diamyl-, 1370*e*.
1,3,5,7-Nonatetraene, 3,7-dimethyl-9-(2,6,6 - trimethyl - 2 - cyclohexen - 1 - ylidene)-, 6297*e*.

$C_{20}H_{28}BrNO_2$ 1-(2-Hydroxyethyl)-1-methylpyrrolidinium bromide α-phenyl-2-cyclopentene-1-acetate, 1388*e*.

$C_{20}H_{28}CuN_2O_6S_4$ Sulfathiazole, complex with Cu(OH)$_2$ and ethylenediamine, 6990*f*.

$C_{20}H_{28}F_6O_6P_2$, 2111*e*.

$C_{20}H_{28}INO_2$ 1-(2-Hydroxyethyl)-1-methyl-

pyrrolidinium iodide, *α*-phenyl-2-cyclopentene-1-acetate, 1388*e*.

$C_{20}H_{28}INO_3$ Trimethyl[2-(1,3,3a,9a-tetrahydro-3-hydroxy-5-methoxyphenanthro[4,5-*bcd*]fur-9b(2*H*)-yl)-ethyl]ammonium iodide, 4280*c*.

$C_{20}H_{28}N_2$ Benzidine, *N*,*N*′-dibutyl-, *and di-HCl*, 3380*h*.

Bi[phenethylamine], *β*,*β*,*β*′,*β*′-tetramethyl-, P 7263*h*.

Isobutylamine, 2,2′-biphenylenebis-, P 3456*a*, P 4296*g*.

Isoquinoline, 3-(3-ethyl-2-indolyl)decahydro-2-methyl-, *and* -*HI*, 5407*e*.

Propanediamine, *N*-benzyl-*N*′,*N*′-diethyl-*N*-phenyl-, *and* -*HCl*, P 683*a*.

—, $N^1$,$N^1$-diethyl-$N^2$-*o*-phenylbenzyl-, 1355*i*.

*α*,4-Toluenediamine, $N^4$,$N^4$-diethyl-$N^{\alpha}$-*α*-ethylbenzyl-, *di-HCl*, 9374*h*.

—, $N^4$,$N^4$-diethyl-$N^{\alpha}$-(*α*-methylphenethyl)-, *di-HCl*, 9374*h*.

—, $N^4$,$N^4$-diethyl-$N^{\alpha}$-(3-phenylpropyl)-, *di-HCl*, 9374*i*.

$C_{20}H_{28}N_2O$ Aspidospermine, desacetyl-, 5407*i*.

Ethylenediamine, *N*-benzyl-*N*′,*N*′-dimethyl-*N*-(5-methyl-*o*-phenethyl)-, P 683*c*.

1-Naphthamidine, *N*,*N*-dibutylmethoxy-, -*HCl*, P 5801*d*.

$C_{20}H_{28}N_2O_2$ Aspidospermine, desacetyl-, *N*-oxide, 1427*e*.

Phthalamide, *N*,*N*′-dicyclohexyl-, 1354*e*.

4-Quinolinol, 3-butyl-7-(2-diethylaminoethoxy)-2-methyl-, 1416*a*.

$C_{20}H_{28}N_2O_2S$ Caprylic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.

$C_{20}H_{28}N_2O_4$ Ethanol, 2,2′,2″,2‴-(4,4′-biphenylenedinitrilo)tetra-, 7443*d*.

$C_{20}H_{28}N_2O_6$ Crotonic acid, decyldinitrophenyl ester, 3553*h*.

1-Piperidinepropionic acid, *α*-(1-hydroxyethyl)-*α*-methyl-, Et ester *p*-nitrobenzoate, -*HCl*, 7643*c*.

1-Propanol, 2-amino-3-phenyl-, oxalate, 1723*f*.

$C_{20}H_{28}N_2O_4$ 1-Propanol, 2-amino-3-(*p*-hydroxyphenyl)-, oxalate, 6079*c*.

$C_{20}H_{28}N_4$ Pyrimidine, 4-(*p*-dimethylaminophenethyl)-6-methyl-2-(1-piperidyl)-, 3427*b*.

$C_{20}H_{28}N_4O_4$ Irone, dihydro-, 2,4-dinitrophenylhydrazone, 3374*c*, 3375*f*.

Isoirone, dihydro-, 2,4-dnitrophenylhydrazone, 3376*e*.

$C_{20}H_{28}N_4O_7$ Cyclohexanecarboxylic acid, 1-(3-ethoxypropyl)-2-oxo-, Et ester, 2,4-dinitrophenylhydrazone, 1414*g*.

$C_{20}H_{28}N_4O_8S_2$ 4,4′-Stilbenedicarboxamidine, disethionate, 2982*g*.

$C_{20}H_{28}N_6O_7$ *m*-Phenylenediamine, *N*′-(2-diethylaminoethyl)-*N*,*N*-dimethyl-, picrate, 3007*i*.

$C_{20}H_{28}O$ Ketone, benzyl 4-cyclohexylcyclohexyl, 1377*e*.

2,4,6,8 Nonatetraenal, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, P 5418*b*.

Retinene$_1$, 157*i*, 2294*g*, 3077*e*.

$C_{20}H_{28}O_2$ Abietic acid, dehydro-, 1390*d*, 6605*d*, P 6665*f*, 6837*e*, *Na salt*, 8724*i*.

Eicosahexaenoic acid, 8179*c*.

$\Delta^4$ *D*-Homoandrostene, 3,17a-diketo-*, P 7055*f*.

2,4,6,8 Nonatetraenoic acid, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 5374*c*.

$C_{20}H_{28}O_3$ $\Delta^{5,6}$-Androsten-3(*β*)-ol-17-one, 16-(hydroxymethylene)-, 245*b*.

Cafestol, 9377*h*.

Chrysanthemummonocarboxylic acid, 3-(butenyl)-4-methyl-2-oxo-3-cyclopenten-1-yl ester, 1335*a*.

Etiocholenic acid, 3-keto-, P 1070*a*, P 2244*c*, P 5428*f*.

13-Nor-$\Delta^{13\alpha}$-*D*-homoandrostene, 3(*β*)-hydroxy-17-keto-, formate, 7942*a*.

Pelargonic acid, *θ* (5,6,7,8-tetrahydro-2-naphthoyl)-, 1379*b*.

2-Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,1,4a,9,10,10a-octahydro-7-methoxy-2-methyl-, Me ester, P 3849*e*.

$C_{20}H_{28}O_3S$ Naphthalenesulfonic acid, diamyl-, *Na salt*, P 3040*a*.

$C_{20}H_{28}O_4$ Bicyclo[2.2.2]-5-octene-2,3-dicarboxylic acid, 1-isopropyl-4-methyl-, diallyl ester, P 2819*e*.

Cyclopentanemalic[illegible] di-Et ester, 1039*d*.

Marrubin, 7481*f*.

Tricyclo[4.2.2.$0^{2,5}$] - 3,9 - decadiene-7,8-dicarboxylic acid, di-Bu ester, 6198*g*; diisobutyl ester, 6198*g*.

$C_{20}H_{28}O_5$ 1,3-Cyclohexanediacetic acid, 2-hydroxy-2-phenyl-, di-Et ester, 2613*i*.

1-Indancarboxylic acid, 2-(3,7-dimethyloctyl)-1,2-dihydroxy-3-oxo-, 1384*d*.

Malonic acid, [2-(2,4,6-trimethylbenzoyl)-isopropyl]-, di-Et ester, 3390*d*.

$C_{20}H_{28}O_5$ Pimelic acid, *α*-(*m*-methoxyphenethyl)-*β*-oxo-, di-Et ester, 7033*d*.

$C_{20}H_{28}O_5S$ Thiophene, 2,5-bis(2,2-dicarboxyethyl)-, tetra-Et ester, 630*e*.

$C_{20}H_{28}O_{14}$ + $5H_2O$ Salicylic acid, 5-methoxy-, Me ester, *β*-primeveroside, 3393*i*.

$C_{20}H_{28}O_{14}$ Galactose, *aldehydo*-, heptaacetate, 5009*d*.

$C_{20}H_{28}Sn$ Tin, dibutyldiphenyl-, P 8739*d*.

$C_{20}H_{29}ClN_6$ Formamidine, *N*-(*p*-chlorophenyl)-*N*′-[4-(2-diethylaminoethylamino)-5-ethyl-6-methyl-2-pyrimidyl]-, 1779*g*.

$C_{20}H_{29}ClN_6S$ Urea, 1-(*p*-chlorophenyl)-3-[4-(2-diethylaminoethylamino)-5-ethyl-6-methyl-2-pyrimidyl]-2-thio-, 1779*g*.

$C_{20}H_{29}HgNO_5S$ *α*-Camphoramic acid, *N*-[2-methoxy-3-(phenylmercaptomercuri)propyl]-, *Na salt*, P 9084*d*.

$C_{20}H_{29}IN_2$ Yobyrine, decahydro-, methiodide, 5407*h*.

$C_{20}H_{29}NO$ 6-Hepten-3-one, 4-phenyl-4-[2-(1-piperidyl)ethyl]-, -*HCl*, 4244*f*.

Lauronitrile, *γ*-benzoyl-*γ*-methyl-, 2932*a*.

Triethylamine, 2-[1-(1-naphthyl)butoxy]-, P 5043*h*.

$C_{20}H_{29}NO_2$ Cyclohexaneacetic acid, *α*-phenyl-, 2-(1-pyrrolidyl)ethyl ester, *and* -*HCl*, 1388*d*.

2-Cyclohexene-1-acetic acid, *α*-phenyl-, 2-diethylaminoethyl ester, P 679*h*.

Cyclopentaneacetic acid, *α*-phenyl-, 3-(1-pyrrolidyl)propyl ester, *and* -*HCl*, 1388*e*.

Cyclopentanecarboxylic acid, 1-phenyl-, 3-(1-piperidyl)propyl ester, P 7959*c*.

Phthalimide, *N*-dodecyl-, P 4422*b*.

4-Quinolinol, 3-butyl-7-(hexyloxy)-2-methyl-, 1416*a*.

$C_{20}H_{29}NO_3$ Cyclopentanecarboxylic acid, 1-(3,4-xylyl)-, 2-(4-morpholinyl)ethyl ester, *and* -*HCl*, P 6229*f*.

Phenanthro[4,5-*bcd*]furan-9b(2*H*)-ethylamine, 1,3,3a,8,9,9a-hexahydro-3,5-dimethoxy-*N*,*N*-dimethyl-, 4280*e*.

$C_{20}H_{29}NO_4$ 1-Piperidinepropionic acid, *α*-(1-hydroxyethyl)-*α*-methyl-, Et ester benzoate, -*HCl*, 7643*c*.

$C_{20}H_{29}NO_4$ Resin, 211*c*.

$C_{20}H_{29}NO_5$ Protocatechuyl alcohol, *α*-(isopropylaminomethyl)-, tripropionate, -*HCl*, 2601*g*.

$C_{20}H_{29}N_3$ Cinchoninamidine, *N*,*N*-diamyl-, -*HCl*, P 5801*e*.

$C_{20}H_{29}N_3O$ $\Delta^{3,5}$-Androstadien-17-one, semicarbazone, 5067*b*.

2-Butanone, 4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, phenylsemicarbazone, 4637*e*.

3-Buten-2-one, 4-(2,2,6-trimethylcyclohexyl)-, phenylsemicarbazone, 4637*f*.

Pyridine, 2-[*α*-(2-dimethylaminoethoxy)-*α*-(2-dimethylaminoethyl)benzyl]-, *di-HBr*, 2206*e*.

Quinoline, 8-(2-cyclohexylaminobutylamino)-6-methoxy-, *and di-HCl*, 3419*g*.

$C_{20}H_{29}N_3OS$ Cinchoninamide, 2-(butylmercapto)-*N*-(2-diethylaminoethyl)-, 3101*i*.

$C_{20}H_{29}N_3O_2$ (See also *Dibucaine*.)

Acetamide, *N*,*N*-dibutyl-*α*-(6-methoxy-8-quinolylamino)-, P 3046*d*.

—, *N*,*N*-diisobutyl-*α*-(6-methoxy-8-quinolylamino)-, P 3040*d*.

1,3-Butanedione, 1-(2,2,6-trimethylcyclohexyl)-, monophenylsemicarbazone, 4813*f*.

2-Butanone, hydroxy-4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-, phenylsemicarbazone, 4813*i*.

—, 4-(1,3,3-trimethyl-7-oxabicyclo-[4.1.0]-2-heptyl)-, phenylsemicarbazone, 4813*f*.

$C_{20}H_{29}N_3O_6$ Glucuronic acid, $NH_4$ salt, *p*-toluidine complex, 6314*h*.

$C_{20}H_{29}N_7O$ Benzimidazole, 2-[4-(3-diethylaminopropylamino)-6-methyl-2-pyrimidylamino]methoxy-, P 3854*c*.

$C_{20}H_{30}$ Axerophthene, 4233*i*, 6297*b*.

Isoaxerophthene, 3370*i*.

$C_{20}H_{30}ClNO_3$ Pseudoandrostene, 3(*β*)-formyloxy-, nitrosochloride, 7941*g*.

$C_{20}H_{30}ClN_3$ Quinoline, chloro(2-diisobutylaminoethylamino)-3-methyl- *and di-HCl*, 4277*a*.

$C_{20}H_{30}ClN_3O_2$ See *Dibucaine*.

$C_{20}H_{30}ClN_5$ Pyrimidine, 4-*p*-chloroanilino-6-(4-diethylamino-1-methylbutylamino)-2-methyl-, P 6243*h*.

Pyrimidine, 4-*p*-chloroanilino-6-(3-diethylaminopropylamino)-5-ethyl-2-methyl-, *di-HCl*, P 6244*b*.

$C_{20}H_{30}ClN_5O$ Pyrimidine, 4-*p*-chloroanilino-6-[3-(2-diethylaminoethoxy)propylamino]-2-methyl-, P 6243*h*.

$C_{20}H_{30}INO_3$ [2-(1,3,3a,8,9,9a-Hexahydro-3-hydroxy-5-methoxyphenanthro-[4,5-*bcd*]fur-9b(2*H*)-yl)ethyl]trimethylammonium iodide, 4280*c*.

$C_{20}H_{30}N_2$ Cyclohexaneacetonitrile, *α*-(2-diethylaminoethyl)-*α*-phenyl-, 1280*g*.

$C_{20}H_{30}N_2O_2S$ 1-Cycloheptene-1-valeric acid, 2-benzyl-2-thiopseudourea salt, 5375*f*.

$C_{20}H_{30}N_2O_4$ 1-Piperidinepropionic acid, *α*-(1-hydroxyethyl)-*α*-methyl-, Et ester *p*-aminobenzoate, *and* -*HCl*, 7643*c*.

$C_{20}H_{30}N_2O_5$ Butyric acid, *α*-(diethylaminomethyl)-*α*-ethyl-*β*-hydroxy-, Et ester *p*-nitrobenzoate, -*HCl*, 7643*d*.

$C_{20}H_{30}N_2O_6S$ Valine, *N*-[*α*-formyl-*β*-(*α*-phenylacetamido)butyryl]-*β*-mercapto-, di-Me acetal, 7428*c*.

$C_{20}H_{30}N_4O_2$ 1-Piperidineacetamide, *N*,*N*′-phenylenebis-, *and di-HCl*, 1024*e*.

$C_{20}H_{30}N_4O_4$ 2-Butanone, 4-(2,2,3,6-tetramethylcyclohexyl)-, 2,4-dinitrophenylhydrazone, 3374*b*, 3375*g*, 3376*g*.

Isoirone, tetrahydro-, 2,4-dinitrophenylhydrazone, 3376*e*.

$C_{20}H_{30}O$ (See also "A" under *Vitamins*.)

2-Caprinaphthone, 5,6,7,8-tetrahydro-, 9424*f*.

Cryptopinone, 1390*f*.

Isopimarinol, 1390*e*.

$C_{20}H_{30}O_2$ (See also *Abietic acid; Testosterone, methyl-*.)

Benzene, dicyclohexyldimethoxy-, 1376*i*.

2-Cyclohexen-1-ol, 1,1′-ethynylenebis[3,5,5-trimethyl-(?), 569*h*.

Dextropimaric acid, 1390*c*, 5550*g*, 6185*e*; *Na salt*, 8724*i*.

Eicosapentaenoic acid, 2260*e*, 8179*c*.

*D*-Homoandrostane, 3,17a-diketo-, P 7055*c*.

$\Delta^4$-*D*-Homoandrostene, 17a-hydroxy-3-keto-, P 7055*e*, P 7978*a*.

Isodextropimaric acid, *Na salt*, 8724*i*.

Isopimaric acid, 1390*dei*.

Levopimaric acid, 1390*ce*, 3809*e*, 6185*e*; *Na salt*, 8724*i*.

Neoabietic acid, 1390*de*; *Na salt*, 8724*i*.

2,7-Nonadien-4-yne-1,6-diol, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, P 679*c*, P 1802*a*, P 7959*e*.

Proabietic acid, 1390*d*, 6185*e*.

Pseudoandrostene, 3(*β*)-formyloxy-, 7941*f*.

Resin acid, 5971*d*.

Sapinic acid, 3809*e*, 6185*e*.

$C_{20}H_{30}O_3$ 3(*β*)-Androstanol, 17-keto-, formate, 243*e*.

Androstan-3(*β*)-ol-17-one, 16-(hydroxymethylene)-, 244*h*.

$\Delta^5$-Androstene, 3(*β*)-methoxy-17(*α*)-hydroxy-16-keto-, 3434*i*.

5-Androsten-17-ol-3-carboxylic acid, 6216*d*.

Lauric acid, *γ*-acetyl-*γ*-phenyl-, 2932*d*.

—, *γ*-benzoyl-*γ*-methyl-, 2932*a*.

13-Nor-*D*-homoandrostane, 3(*β*)-hydroxy-17-keto-, formate, 7942*b*.

1-Tridecen-3-one, 1-(4-hydroxy-3-methoxyphenyl)-, 2185*i*.

$C_{20}H_{30}O_3S$ Benzenesulfonic acid, bis(methylcyclohexyl)-, *Na salt*, P 3640*a*.

$C_{20}H_{30}O_4$ Agathenediacid, 1751*k*.

Etiocholanic acid, 3(*α*)-hydroxy-11-keto-, 6212*c*.

14,15-Etiocholenic acid, 3,11-dihydroxy-, P 2244*a*.

Phthalic acid, dihexyl ester, 3678*a*.

Propionic acid, *β*-(5-heptyl-2-methoxybenzoyl)-, Et ester, 1032*i*.

Tricyclo[4.2.2.$0^{2,5}$]decene-7,8-dicarboxylic acid, di-Bu ester, 6199*a*.

$C_{20}H_{30}O_4S_2$ Phthalic acid, bis[2-(butylmercapto)ethyl] ester, P 3447*g*.

$C_{20}H_{30}O_4Si_4$ Cyclotetrasiloxane, 2,2,4,6-tetraethyl-4,6-diphenyl-, 2513*a*.

$C_{20}H_{30}O_5$ Abietic acid, trihydroxy-, P 1913*h*.

Andrographolide, 3565*g*.

$\Delta^{5,6}$-Etiobilienic acid, 3-hydroxy-, 17-Me ester, 2213*i*.

$\Delta^{5,6}$-Homoetiobilienic acid, 3-hydroxy-, 2214*a*.

Propionic acid, *β*-(5-hexyl-2,4-dimethoxybenzoyl)-, Et ester, 1033*d*.

Pseudoandrostene, 3(β)-formyloxy-, ozonide, 7941*f*.

$C_{20}H_{30}O_8$ Phthalic acid, bis[2-(2-ethoxyethoxy)ethyl] ester, P 1960*b*.

$C_{20}H_{30}Se$ Bicyclo[3.1.1]-2-heptene, 2,2'-selenodimethylenebis[6,6-dimethyl-, 2975*i*.

$C_{20}H_{31}ClO$ 1,5,7-Nonatrien-3-ol, 9-chloro-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, P 7041*b*.

$C_{20}H_{31}IN_2$ 2-Diamylamino-1-methylquinolinium iodide, 4276*g*.

$C_{20}H_{31}N$ Abietylamine, dehydro-, 9379*a*.

$C_{20}H_{31}NO$ 1-Piperidinepropanol, α-cyclohexyl-α-phenyl-, -*HCl*, 7581*a*; *and* -*HCl*, 9071*e*.

$C_{20}H_{31}NO_2$ β-Alanine, *N*,*N*-diethyl-, α-cyclohexylbenzyl ester, *and* -*HCl*, P 5797*fg*.

Butyramide, *N*-cyclohexyl-*N*-2-hydroxyisobutyl-α-phenyl-, P 2640*a*.

Butyric acid, α-phenyl-, 2-cyclohexylamino-*tert*-butyl ester, -*HCl*, P 2640*a*

Cyclohexaneacetic acid, α-ethyl-α-phenyl-, 2-dimethylaminoethyl ester, -*HCl*, 3392*c*.

—, α-phenyl-, diethylaminoethyl ester, 4381*a*, 4770*i*; -*HCl*, P 7041*b*; *and* -*HCl*, P 8453*ef*.

2-Cyclohexene-1-acetic acid, α-2-cyclopenten-1-yl-, 3-(1-pyrrolidyl)propyl ester, 1388*f*.

Cyclopentanecarboxylic acid, 1-(3,4-xylyl)-, 2-diethylaminoethyl ester, *and* -*HCl*, P 6229*f*, P 6655*i*, P 6656*b*.

Cyclotridecanol, carbanilate, 6988*g*.

$C_{20}H_{31}NO_3$ Benzoic acid, *p*-butoxy-, 3-(2-methyl-1-piperidyl)propyl ester, -*HCl*, P 7509*c*; *and* -*HCl*, P 694*g*.

Cyclopentaneacetic acid, α-*m*-toloxy-, 2-diethylaminoethyl ester, P 7958*c*.

$C_{20}H_{31}NO_3S$ Acetamide, *N*,*N*-dibutyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, P 1903*b*.

Acetamide, *N*,*N*-dibutyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.

$C_{20}H_{31}NO_4$ Acetic acid, [2-(4-morpholinyl)-ethoxy]phenyl-, hexyl ester, 2189*f*.

Butyric acid, α-(diethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester benzoate, *and* -*HCl*, 7643*d*.

$C_{20}H_{31}NO_4$ Cyclohexaneacetic acid, α-[3-(carboxymethyl)cyclohexylidene] - 3-oxo-, di-Et ester oxime, 1730*e*.

$C_{20}H_{31}N_3$ Quinoline, 4-(4-diethylamino-1-methylbutylamino)dimethyl-, 8886*b*.

$C_{20}H_{31}N_3O$ Androsten-17-one, semicarbazone, 5067*b*.

Quinoline, 8-[5-(amylamino)amylamino]-6-methoxy-, -*HBr*, 3421*g*.

—, 4-(4-diethylamino-1-methylbutylamino)methoxy-3-methyl-, 8886*b*.

—, 8-[5-(dimethylpropylamino)amylamino]-6-methoxy-, -*HCl*, 3421*f*; -*HBr*, 3421*g*.

—, 8-[5-(1-ethylpropylamino)amylamino]-6-methoxy-, *diphosphate*, 3421*f*.

—, 8-[5-(isoamylamino)amylamino]-6-methoxy-, -*HBr*, 3421*g*.

—, 6-methoxy-8-[5-(methylbutylamino)-amylamino]-, -*HBr*, 3421*f*; -*HCl*, 3421*f*.

$C_{20}H_{31}N_3OS$ Carbanilic acid, thiono-, 2,2'-di-1-piperidylisopropyl ester, *and di*-*HCl*, 2703*b*.

$C_{20}H_{31}N_3O_2$ Androsterone, dehydro-, semicarbazone, 8909*f*.

2-Butanone, 4-(2,2,3,6-tetramethylcyclohexyl)-, *p*-nitrophenylhydrazone, 3374*b*.

Cyclohexanone, 4-(α,β-diethyl-*p*-methoxyphenethyl)-, semicarbazone, 2195*a*.

13-Nor-$\Delta^{17\alpha}$-*D*-homoandrostene, 3(β)-hydroxy-17-keto-, semicarbazone, 7942*a*.

2-Propanol, 1-(butylisopropylamino)-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*e*.

—, 1-dipropylamino-3-(6-methoxy-8-quinolylamino)-2-methyl-, *and di*-*HCl*, P 254*f*.

—, 1-(isobutylisopropylamino)-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*d*.

$C_{20}H_{31}N_3O_2S_2$ Malonaldehydic acid, caproylamino-, benzylidenehydrazide, di-Et mercaptal, 2990*d*.

$C_{20}H_{31}N_3O_4$ Malonaldehydic acid, caproylamino-, benzylidenehydrazide, di-Et acetal, 2990*b*.

$C_{20}H_{31}N_3O_5$ 3,4-Furandicarbamic acid, 2-[4-(1-piperidylcarbonyl)butyl]-, di-Et ester, P 1442*c*.

$C_{20}H_{31}N_3O$ Pyrimidine, 4-(2-diethylaminoethylamino)-5-ethyl-6-*p*-methoxyanilino-2-methyl-, *di*-*HCl*, P 6244*b*.

*s*-Triazine, 2,4-bis[bis(2-methylallyl)amino]-6-methoxy-, 4269*f*.

$C_{20}H_{32}$ Decane, 1-(5,6,7,8-tetrahydro-2-naphthyl)-, 1370*d*.

Naphthalene, 6,7-diamyl-1,2,3,4-tetrahydro-, 1370*d*.

$C_{20}H_{32}ClNO_4$ 1-(1,2-Dihydroxypropyl)dinium chloride, dicaproate, P 59

$C_{20}H_{32}Cl_2O_4$ Abietic acid, dichlorodihydrodihydroxy-, 9482*a*.

$C_{20}H_{32}N_2O$ Cyclohexaneacetamide, (2-diethylaminoethyl)-α-phenyl-, 1280*g*, P 2636*e*, P 3453*f*.

Cyclopentanecarboxamide, *N*-butyl-*N*-(2-dimethylaminoethyl)-1-phenyl-, P 7959*a*.

Cyclopentanecarboxamide, *N*-(2-diethylaminoethyl)-*N*-methyl-1-*m*-tolyl-, *and* -*HCl*, P 7958*i*.

—, *N*-(2-diethylaminoethyl)-1-(3,4-xylyl)-, *and* -*HCl*, P 7958*i*.

$C_{20}H_{32}N_2O_2$ Benzoic acid, *p*-diethylamino-, 2-cyclohexylaminoisopropyl ester, -*HCl*, P 2640*d*.

$C_{20}H_{32}N_2O_4$ Butyric acid, α-(diethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester *p*-aminobenzoate, *and* -*HCl*, 7643*d*.

Isophthalic acid, bis(2-diethylaminoethyl) ester, *and di*-*HCl*, 2191*c*.

Phthalic acid, bis(2-diethylaminoethyl) ester, 2191*c*.

Terephthalic acid, bis(2-diethylaminoethyl) ester, *and* -*HI*, 2191*d*.

$C_{20}H_{32}N_2O_6$ (*m*-Hydroxyphenyl)trimethylammonium acid suberate, dimethylcarbamate, P 687*d*.

$C_{20}H_{32}N_2O_{11}S_2$ 2,7-Naphthalenedisulfonic acid, 4,5-dihydroxy-, salt with morpholine and 1,1'-iminodi-2-propanol, P 3300*hi*.

$C_{20}H_{32}N_4$ Guanidine, 1-cyano-2-dodecyl-3-phenyl-, P 1799*e*.

$C_{20}H_{32}N_4O_5$ 5-Decanone, 6-butyl-6-hydroxy-, 2,4-dinitrophenylhydrazone, 5368*g*.

$C_{20}H_{32}N_4O_8$ Piperazine, 2,5-bis(1,2-dicarboxyethylimino)-, tetra-Et ester, *di*-*HCl*, 3790*eg*.

$C_{20}H_{32}N_4O_2$ 3-Cyclohexen-1-one, 4,4'-(1,2-diethylethylene)di-, disemicarbazone, 8370*d*.

$C_{20}H_{32}N_4O_8$ Piperazine, 2,5-bis[(carboxymethyl)carbamylmethyl]carbamylmethylimino]-, di-Et ester, *di*-*HCl*, 3790*f*.

$C_{20}H_{32}O$ (See also *Cardanol*.)

4,6,8-Nonatrien-3-ol, 3,7-dimethyl-9-(2,6,6-trimethyl-2-cyclohexen-1-yl)-, 5371*g*.

Phenol, 2,6-di-*tert*-butyl-4-cyclohexyl-, 8881*c*.

$C_{20}H_{32}O_2$ Abietic acid, dihydro-, 1390*d*, 6185*e*; *Na salt*, 8724*i*.

Abietic acid, tetrahydrohydroxy-, lactone, 2192*d*.

Androstan-17-ol-3-one, 17-methyl-, 3088*h*, 3089*b*, P 7058*a*, 7124*g*.

Androstenediol, methyl-, 3870*f*, 8032*e*.

Arachidonic acid, 2651*h*, 3539*f*, 5974*d*.

Congoic acid, 9052*a*.

Hendecanoic acid, *p*-tolyl-, Et ester, 5066*b*.

*D*-Homoandrostane, 17a-hydroxy-3-keto-, P 7055*c*.

Ketene, (2-cyclohexylethyl)-, dimer, 2964*e*.

Lauric acid, γ-benzyl-γ-methyl-, 2932*a*.

—, γ-ethyl-γ-phenyl-, 2932*d*.

2,4,7-Nonatriene-1,6-diol, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, P 679*c*, P 1802*a*.

3(β)-Pseudoandrostanol, formate, 7941*h*.

$C_{20}H_{32}O_2$ $\Delta^5$-Androstene, 3(β)-methoxy-16,17-dihydroxy-, 3434*i*.

3-Tridecanone, 1-(4-hydroxy-3-methoxyphenyl)-, 2185*i*.

$C_{20}H_{32}O_4$ Etiocholanic acid, 3,11-dihydroxy-, P 2244*a*, P 3046*h*.

Tricyclo[4.2.2.0$^{2,5}$]decane-7,8-dicarboxylic acid, di-Bu ester, 6198*i*.

$C_{20}H_{32}O_5$ Abietic acid, oxydihydrodihydroxy-, 9482*b*.

Etiocholanic acid, 3,11,14-trihydroxy-, P 2244*a*.

$C_{20}H_{32}O_5S$ Androsterone-16-sulfonic acid, Me ester, 2214*g*.

$C_{20}H_{32}O_6$ 1,3-Cyclohexanedicarboxylic acid, 5-isopropyl-2-methyl-6-oxo-1-(3-oxobutyl)-, di-Et ester, 3807*f*.

$C_{20}H_{33}BrO_3$ Abietic acid, bromotrihydroxy-, P 1441*c*.

$C_{20}H_{33}N$ 1-Phenanthrenemethylamine, 1,2,3,4,4a,4b,5,6,7,9,10,10a-dodecahydro-1,4a,7-trimethyl-7-vinyl-, 9379*a*.

$C_{20}H_{33}NO$ 1-Piperidinepropanol, α-butyl-α-(*p*-ethylphenyl)-, -*HCl*

$C_{20}H_{33}NO_2$ β-Alanine, *N*,*N*-diethyl-, α-isobutyl-3,4-dimethylbenzyl ester, 5797*e*.

Triethylamine, 2-(α-cyclohexyl-*o*-methoxybenzyloxy)-, P 5043*h*.

$C_{20}H_{33}NO_3$ Acetic acid, (2-diethylaminoethoxy)phenyl-, hexyl ester, 2189*e*.

$C_{20}H_{33}NO_3S$ Lauramide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.

$C_{20}H_{33}NO_5$ Lindelofamine, 3827*g*.

$C_{20}H_{33}N_3$ Piperidine, 4-[benzyl[2-(1-pyrrolidyl)ethyl]amino]-1-ethyl-, 2207*f*.

$C_{20}H_{33}N_3O_2$ Androstan-17(β)-ol-3-one, semicarbazone, 1048*e*.

Androsterone, semicarbazone, 8909*c*.

3(α)-Etiocholanol-17-one, semicarbazone, 5067*c*.

Isoandrosterone, semicarbazone, 1048*e*.

13-Nor-*D*-homoandrostane, 3(β)-hydroxy-17 keto-, semicarbazone, 7942*b*

$C_{20}H_{33}N_3O$ Lauramide, *N*-(phenylguanyl)-, P 2442*c*.

$C_{20}H_{34}$ Dodecane, 2-(*p*-ethylphenyl)-, P 6232*d*.

Tetradecane, 1-phenyl-, 10*e*.

$C_{20}H_{34}ClNO$ Lauroyldimethylphenylammonium chloride, 4241*c*.

$C_{20}H_{34}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, nonyl ester, 6977*f*.

$C_{20}H_{34}I_2N_2O_4$ Ethyl-2-hydroxyethyldimethylammonium iodide, isophthalate, 2191*c*.

$C_{20}H_{34}N_2O_2$ Benzoic acid, *p*-amino-, 2-(isobutylisoamylamino)butyl ester, -*HCl*, P 3038*g*.

$C_{20}H_{34}N_2O_2S$ Capric acid, γ,γ-dimethyl-, 2-benzyl-2-thiopseudourea salt, 2932*e*.

$C_{20}H_{34}N_2O_3$ 2-Furanacetamide, 4-(dipropylcarbamyl)-5-methyl-*N*,*N*-dipropyl-, P 4301*f*.

$C_{20}H_{34}N_2O_4$ 3,4-Pyrroledicarboxylic acid, 1,2,5-trimethyl-, 3-dipropylammoniopropyl, Et ester, P 4302*h*.

$C_{20}H_{34}N_6$ + $H_2O$ Quinazoline, 2,4-bis(2-diethylaminoethylamino)-, *and tri* HCl, 2952*g*.

$C_{20}H_{34}N_2O$ 3,4-Xylenol, compd. with hexamethylenetetramine, 5993*f*.

$C_{20}H_{34}O$ Ether, bis(4-isopropyl-1-cyclohexen-1-ylmethyl), 7434*f*.

Manoöl, 1748*e*, 1751*i*.

Theasin, 1582*f*.

$C_{20}H_{34}OS$ Cresol, α-(amylmercapto)-*n*-octyl-, P 845*b*.

$C_{20}H_{34}O_2$ Abietic acid, tetrahydro-, *Na salt*, 8724*i*.

Androstanediol, methyl-, 3088*h*, 3089*b*, 7099*h*, 7124*g*, 8032*e*.

Citronellic acid, geranyl ester, 4633*g*

$C_{20}H_{34}O_2S$ Ethanethiol, 2-[2-(2,4-di-*tert*-amylphenoxy)ethoxy]-, P 4508*a*

1-Propanethiol, 2-[2-(*p*-(1,1,3,3-tetramethylbutylphenoxy)isopropoxy]-, P 4507*i*.

$C_{20}H_{34}O_3$ Abietic acid, tetrahydrohydroxy-, *salts*, P 896*h*.

Citronellic anhydride, 4633*h*.

$C_{20}H_{34}O_3S$ Benzenesulfonic acid, *tert*-butyldecyl-, *Na salt*, P 3640*a*.

Benzenesulfonic acid, diheptyl-, *Na salt*, P 3640*a*.

Ethanethiol, 2-[2-[2-(*p*-(1,1,3,3-tetramethylbutylphenoxy)ethoxy]ethoxy]-, P 4507*i*.

$C_{20}H_{34}O_4$ Abietic acid, dihydrotetrahydroxy-, 9482*c*.

Abietic acid, tetrahydroxy-, *acid Na salt*, P 3462*b*.

Adipic acid, α-[2-(carboxymethyl)cyclohexyl]-, tri-Et ester, 3829*b*.

Pimelic acid, α-(2-carboxy-2-methylcyclopentyl)-, tri-Et ester, 3829*f*.

Sebacic acid, tetrahydrofurfuryl ester, 6462*d*.

$C_{20}H_{34}O_7$ 1,1,11-Hendecanetricarboxylic acid, 3-oxo-, tri-Et ester, 7905*b*.

$C_{20}H_{34}O_{14}$ Phenolphthalein, di-β-glucoside, 2319*e*.

$C_{20}H_{34}Se$ Selenide, di-4(5)-*p*-menthen-3-yl, 2976*c*.

$C_{20}H_{34}ClN_2O$ Benzyl(3-caprylylaminopropyl)-dimethylammonium chloride, P 2631*b*.

$C_{20}H_{35}N$ Abietylamine, dihydro-, 9379*a*.

$C_{20}H_{35}N_3O_2$ Benzoic acid, *p*-(2-dimethylaminoisobutylphenoxy)-, 3-diethylaminopropyl ester, 6184*a*.

$C_{20}H_{35}N_5$ Biguanide, 1-dodecyl-5-phenyl-, -*HCl*, P 2239*i*.

*s*-Triazine, 2,4-diamino-6-(3,11-heptadecadienyl)-

$H_{38}NPO_3S$ Sulfanilic acid, *N*-(dodecylguanyl[guanyl])-, P 2229*i*.
$H_{38}ClN$ 1-Tetradecyl-4-picolinium chloride, 31*f*
$H_{38}GeO_3$ [illegible]hexylgermanium acetate, [illegible]
$H_{38}N_4O_2$ Morpholine, 4,4'-[(2-amino-4-pyrimidylimino)ditetramethylene]di-, *and tetra-HCl*, P 4704*h*.
$H_{38}N_4O_3S$ Sulfanilamide, *N*4-(dodecylguanylguanyl)-, *and -HCl*, P 2229*i*.
$H_{38}O_2$ Citronellic acid, ester with citronellol, 4633*g*; menthyl ester, 4633*g*.
Eicosadienoic acid, 8494*e*.
Linoleic acid, Et ester, 1105*a*, 1249*c*, 4934*bd*, 5271*f*, 7987*c*.
Oleic acid, vinyl ester, P 7036*i*.
$H_{38}O_4$ Succinic anhydride, hexadecyl-, 5070*a*.
$H_{38}O_4$ Erythrol, dicaprylate, 7419*g*.
Fumaric acid, bis(2-ethylhexyl) ester, P 903*h*; dioctyl ester, P 2764*i*.
Maleic acid, bis(2-ethylhexyl) ester, 4401*f*.
Malonic acid, (2-hydroxypropyl)tetradecyl-, γ-lactone, 1322*c*.
8-Octadecenedioic acid, di-Me ester, 5369*f*.
2-Pentadecenedioic acid, 3-methyl-, di-Et ester, 163*h*.
$H_{38}O_4$ Malonic acid, decyl-2-formylethyl-, di-Et ester, P 7506*a*.
$H_{38}O_6$ 2,6,10,14,17,18-Hexoxatricyclo-[11.3.1.1$^{4,8}$]octadecane, 4,4,8,8,-12,12,16,16-octamethyl-, 6577*i*.
$H_{38}O_{12}$ Galactoside, methyl 6-(2,3,4-trimethyl - D - glucuronosido) - 2,3,4-trimethyl-, Me ester, 1324*a*.
$H_{38}S$ Thiophene, 2,5-bis(1,1,3,3-tetramethylbutyl)-(?), 1395*g*.
Thiophene, 2,5-dioctyl-, 1395*g*.
—, 2-hexadecyl-, 1395*g*.
$H_{37}Br_2N_5$ *s*-Triazine, 2,4-diamino-6-(8,9-dibromoheptadecyl), P 5052*a*.
$H_{37}ClO_3$ Ricinoleic acid, 2-chloroethyl ester, P 6222*c*.
$H_{37}ClO_4S$ Thiophene-3-ol, 4-chlorotetrahydro-, 1,1-dioxide palmitate, P 3466*e*.
$H_{37}Cl_2N_5$ *s*-Triazine, 2,4-diamino-6-(1,1-dichloroheptadecyl)-, P 1814*d*, P 5051*g*.
$H_{37}N$ Abietylamine, tetrahydro-, 9379*a*.
$H_{37}NO$ Cyclononadecanecarbonitrile, 1-hydroxy-, 7907*a*.
$H_{37}NO_2$ Acetic acid, dicyclohexyl-, diethylaminoethyl ester, P 7041*b*; *and -HCl*, P 679*g*, *and salts*, P 2234*h*.
1-Cyclohexene-1-acetic acid, α-hexyl-, 2-diethylaminoethyl ester, 3798*c*.
Linoleamide, *N*-2-hydroxyethyl-, 2274*b*.
Oleamide, *N*-acetyl-, 8353*i*.
$C_{39}H_{37}NO_3$ Stearamide, *N*-acetyl-θ,ι-epoxy-, 8354*b*
$C_{39}H_{37}N_5$ *s*-Triazine, 2,4-diamino-6-(8-heptadecenyl) , P 1814*d*.
$C_{39}H_{37}NaO_3S$ See *Aerosol OT*.
$C_{39}H_{38}Br_2N_2$ Xylylenebis[triethylammonium bromide], 8059*c*.
$C_{39}H_{38}Cl_2N_2$ *p* Xylylenebis[triethylammonium chloride], 8059*b*.
$C_{39}H_{38}I_2N_2$ *p* Xylylenebis[triethylammonium iodide], 6591*a*.
$C_{39}H_{38}I_2N_2O_2$ [Phenylenebis(oxyethylene)]-bis[diethylmethylammonium iodide], 6365*d*
$C_{39}H_{38}NNaO_3S$ Igepon T, 3051*c*.
$C_{39}H_{38}N_2O$ Acetamide, α,α-dicyclohexyl-*N*-(2-diethylaminoethyl)-, P 2227*g*.
$C_{39}H_{38}N_2O_4S$ 2,5 Thiophenedicarboxylic acid, tetrahydro-, bis(3-diethylaminopropyl) ester, 6612*b*.
$C_{39}H_{38}N_4$ Caprylonitrile, α,α'-[ethylenebis-(methylimino)]di-, 4415*g*.
$C_{39}H_{38}N_4O$ Stearamide, *N*-(cyanoguanyl)-, P 4499*b*, P 5199*e*.
$C_{39}H_{40}O$ Cycloeicosanone, 7907*a*.
2-Hexadecenal, 3,7,11,15-tetramethyl-, P 2221*h*.
$C_{39}H_{40}O_2$ Cyclooctadecanol, acetate, 6988*h*.
Eicosenoic acid, 12016, 4220*a*, 8494*e*, 9488*d*.
Furan, 2,2'-ethylenebis[5-*tert*-butyl-5-methyl-, 5736*b*.
Oleic acid, Et ester, 127*g*, 466*a*, 8025*c*.
$C_{39}H_{40}O_3$ Arachidic acid, κ,λ-epoxy-, 4220*b*.
Arachidic acid, ε-oxo-, 3366*g*.
Palmitic acid, ν-ethyl-ι-oxo-, Et ester, 3780*g*.
Stearic acid, λ-oxo-, Et ester, 3781*b*.
$C_{39}H_{40}O_4$ Pentadecanedioic acid, 3-methyl-, di-Et ester, 163*h*.
Succinic acid, bis(2-ethylhexyl) ester, P 868*h*, hexadecyl ester, 4088*f*, 8797*i*.
—, hexadecyl-, 5070*a*, 5469*d*.
$C_{39}H_{40}O_4$ [illegible] acid, bis(2-ethylhexyl) ester, dioctyl ester, 9032*f*.
Pentadecanedioic acid, 3-hydroxy-3-methyl-, di-Et ester, 1[illegible]
$C_{39}H_{39}O_5S$ Oleic acid, 2-sulfoethyl ester, P 9498*g*; *Na salt*, 6915*i*, P 7266*a*.
$C_{39}H_{39}O_7S$ Succinic acid, sulfo-, dioctyl ester, *Na salt*, 6915*h*.
$C_{39}H_{39}O_9$ Diglycolic acid, bis[2-(2-butoxyethoxy)ethyl] ester, 9032*e*.
$C_{39}H_{39}O_{10}$ Oxalic acid, compd. with acetone, 7409*a*.
$C_{39}H_{39}O_{11}$ Lactoside, methyl heptamethyl-, 2954*d*.
$C_{39}H_{39}Br$ 2-Hexadecene, 1-bromo-3,7,11,15-tetramethyl-, P 1806*f*.
$C_{39}H_{39}ClO_2$ Acetic acid, chloro-, octadecyl ester, 4641*a*.
Stearic acid, 2-chloroethyl ester, 38*f*.
$C_{39}H_{39}ClO_3$ Arachidic acid, chlorohydroxy-, 4220*b*.
$C_{39}H_{39}IN_4O_3$ Acetic acid, iodo-, dodecyl ester, compd. with hexamethylenetetramine, 4641*a*.
$C_{39}H_{39}IO_2$ Acetic acid, iodo-, octadecyl ester, 4641*a*.
$C_{39}H_{39}N$ Pelargononitrile, α-butyl-α-heptyl-, 568*d*.
$C_{39}H_{39}NO$ Azacycloheneicosan-2-one, 5400*f*.
Cycloeicosanone, oxime, 5400*f*.
11-Eicosenamide, 4220*b*.
$C_{39}H_{39}NO_2$ 11-Eicosenamide, *N*-hydroxy-, 4220*b*.
Oleamide, *N*-2-hydroxyethyl-, P 4878*g*, P 7241*g*, 8353*i*.
$C_{21}H_{39}NO_3$ Formic acid, ester with *N*-2-hydroxyethyloleamide, P 4878*g*.
Ricinoleamide, *N* - 2 - hydroxyethyl-, 2274*b*.
Sphingosine, *N*-acetyl-, 6267*c*.
Stearamide, θ,ι-epoxy-*N*-2-hydroxyethyl-, 8354*b*.
$C_{39}H_{39}NO_4$ Caprylic acid, diester with 2,2'-iminodiethanol, *-HCl*, P 674*g*.
$C_{39}H_{39}NO_4S$ Taurine, *N*-oleoyl-, *Na salt*, 8710*g*.
$C_{39}H_{39}N_3O_2$ 3-Oxazolidinepropionamide, 2-imino-*N*-tetradecyl-, *and -HCl*, P 252*h*.
$C_{39}H_{39}N_5$ *s*-Triazine, 2,4-diamino-6-heptadecyl-, P 1814*d*.
$C_{39}H_{40}$ Tetradecane, 1-cyclohexyl-, 10*e*.
$C_{39}H_{40}ClNO_8$ Tetrakis(2-hydroxyethyl)ammonium chloride, dicaproate, P 5980*b*.
$C_{39}H_{40}Co_2N_{10}O_{14}S_2$, 8941*g*.
$C_{39}H_{40}N_2$ 2-Imidazoline, 2-heptadecyl-, 3553*g*, 4413*c*, P 5002*e*, 6775*f*, 7176*i*, 9327*e*.
1,8-Octanediamine, *N*, *N'*-dicyclohexyl-, *and di-HCl*, 3380*b*.
$C_{39}H_{40}N_2O$ 11-Eicosenoic acid, hydrazide, 4220*c*.
$C_{39}H_{40}N_2O_2$ Succinamide, *N*, *N*, *N'*, *N'*-tetrabutyl-, P 7258*f*.
$C_{39}H_{40}N_2O_4$ 1,12-Octadecanediol, dicarbamate, P 4690*h*.
$C_{39}H_{40}N_2O_3$ Cyclohexanepropanol, β-amino-4 hydroxy-, oxalate, 573*a*.
$C_{39}H_{40}N_4$ Guanidine, 1-cyano-3-octadecyl-, P 2636*c*.
$C_{39}H_{40}N_4$ Pyrimidine, 2-amino-4-[bis(4-diethylaminobutyl)amino]-, *and tetra-HCl*, P 4704*f*.
$C_{39}H_{40}O$ Cycloeicosanol, 6988*h*.
Cyclohexanol, 1-tetradecyl-, 3366*a*.
Phytol, P 1806*de*, 8101*d*.
$C_{39}H_{40}O_2$ (See also *Arachidic acid*.)
Nonadecanoic acid, 3-methyl-, 6251*c*.
Palmitic acid, ν-ethyl-, Et ester, 3780*g*.
Pelargonic acid, α-butyl-α-heptyl-, 568*h*.
Phytanic acid, 6251*c*.
Stearic acid, Et ester, 127*g*, 8789*h*, 9424*c*.
—, dimethyl-, 3781*d*, 4375*h*, 6251*c*.
—, α-ethyl-, 6251*c*.
$C_{39}H_{40}O_2S$ Acetic acid, octadecylmercapto-, P 8131*b*.
$C_{39}H_{40}O_3$ Lanoarachidic acid, α-hydroxy-, P 3220*b*.
Stearic acid, 2-hydroxyethyl ester, 8610*b*.
$C_{39}H_{40}O_3S$ Acetic acid, (octadecylsulfinyl)-, P 8131*b*.
$C_{39}H_{40}O_4S_2$ Thiophene-3-ol, 4-(hexadecylsulfonyl)tetrahydro-, 1,1-dioxide, P 2238*g*.
$C_{39}H_{40}S_2$ 3-Octanethiol, 2-(1-ethyl-1,5-dimethyl - 4 - hexen - 1 - ylmercapto)-3,7-dimethyl-(?), 1001*h*.
3-Octanethiol, 7-(1-isopropyl-4-methyl-4-hexen - 1 - ylmercapto) - 2,6 - dimethyl-(?), 1001*g*.
$C_{39}H_{41}N$ Azacycloheneicosane, 5400*f*.
Octadecenylamine, *N*, *N*-dimethyl-, P 8668*c*.
$C_{39}H_{41}NO$ Lauramide, *N*-1,1,3,3-tetramethylbutyl-, 2165*g*.
Pelargonamide, α-butyl-α-heptyl-, 568*f*.
Stearamide, α,β-dimethyl-, 3781*ei*.
$C_{39}H_{41}NO_2$ Glycine, octadecyl ester, 4641*b*.
Palmitic acid, 2-dimethylaminoethyl ester, *and -HCl*, 7940*b*.
Stearamide, *N*-2-hydroxyethyl-, P 2004*e*, P 4878*h*.
$C_{39}H_{41}NO_3$ Arachidamide, κ,λ-dihydroxy-, 4220*b*.
Stearic acid, dimethylaminohydroxy-, P 2224*h*.
—, ethylaminohydroxy-, P 2224*h*.
$C_{39}H_{41}NO_4$ Stearamide, θ,ι-dihydroxy-*N*-2-hydroxyethyl-, 8353*i*.
Stearoylamide, *N* - 2 - hydroxyethyl-, 2274*b*.
$C_{39}H_{41}N_3O_2$ Urea, (stearoylaminomethyl)-, P 6227*g*.
$C_{39}H_{42}$ Eicosane, 10*e*, 3254*g*, 6165*a*.
Tetradecane, 7,8-diisopropyl-, 107*d*.
$C_{39}H_{42}BrN$ 2 - Hexyl - 1 - methyl - 1 - octylpiperidinium bromide, P 696*d*.
$C_{39}H_{42}N_2O$ Stearamide, *N*-(2-aminoethyl)-, P 4289*c*.
$C_{39}H_{42}N_2O_4$ Caprylic acid, piperazine salt, 235*d*.
$C_{39}H_{42}N_4$ 2 - Imidazoline, 1 - [2 - (2 - dodecylaminoethyl)aminoethyl] - 2 - methyl-, P 6406*g*.
$C_{39}H_{42}N_4O$ 1-Piperazineethanol, 2,2,5,5-tetramethyl - 4 - [2 - (2,2,5,5 - tetramethyl - 1 - piperazyl)ethyl]-, 3015*i*.
$C_{39}H_{42}N_4O$ Urea, 1-(guanylguanyl)-3-heptadecyl-, P 5552*g*.
$C_{39}H_{42}O$ 1-Eicosanol, 1182*g*, 8609*i*.
Ether, bis(3,7-dimethyloctyl), 6020*c*.
$C_{39}H_{42}O_3S$ Decyl sulfite, P 4853*g*, P 6219*h*.
$C_{39}H_{42}O_{10}$ Acetone, compd. with arabitol, 7409*a*.
$C_{39}H_{42}Se$ Decyl selenide, 6400*a*.
$C_{39}H_{43}NO_2$ Stearamide, *N*-2-hydroxyethyl-, P 4500*e*.
$C_{39}H_{43}NO_4S$ Acetone, compd. with 1-dodecylpiperidine bisulfite, 3355*i*.
$C_{39}H_{44}ClNO$ Hexadecyl(2 - hydroxyethyl)-dimethylammonium chloride, 6978*a*.
$C_{39}H_{44}Co_2N_{10}O_{12}S_2$, 8941*g*.
$C_{39}H_{44}N_2$ Ethylenediamine, *N'*-(2,2-dibutylhexyl)-*N*, *N*-diethyl-, 4265*g*.
1,6-Hexanediamine, *N*, *N'*-diheptyl-, *salts*, 3379*g*; *and salts*, P 3455*d*.
$C_{39}H_{44}N_4S$ Pseudourea, 2-[2,2'-bis(diisobutylamino)isopropyl]-2-thio-, 8559*c*.
$C_{39}H_{44}N_4O$ Lauramide, *N*-{[2-[2-(2-aminoethylamino)ethylamino]ethyl]guanyl}-guanyl]-, P 4879*d*.
$C_{39}H_{44}O_4Si$ Amyl silicate, 5737*i*, 9028*b*.
$C_{39}H_{44}O_4Ti$ Isoamyl titanate, 9026*i*.
$C_{39}H_{44}O_7P_2$ Amyl pyrophosphate, P 9357*a*.
$C_{39}H_{44}Si$ Silane, tetraamyl-, 124*f*.
$C_{39}H_{44}Br_2N_2$ Octamethylenebis[triethylammonium bromide], 2703*d*.
$C_{39}H_{45}O_{16}P_3$ 6-Hepten-3-ol, 2,2,3-trimethyl-, compd. with $H_3PO_4$, 5735*d*.
$C_{39}H_{50}O_{13}Si_4$ Ethyl silicate, 2573*i*, 5738*h*.
$C_{39}H_{52}O_{14}P_2Pt$, 4172*h*.
$C_{39}H_{56}O_5Si_5$ Octasiloxane, 1,15-diethoxyhexadecamethyl-, P 6221*c*.
$C_{39}H_{60}O_9Si_9$ Nonasiloxane, eicosamethyl-, P 4402*f*.
$C_{21}H_9Cl_3O_3S$ 8*H* - Naphtho[2,3 - *c*]thiaxanthene-5,8,14-trione, 9,12-dichloro-, P 9468*i*.
$C_{21}H_9Br_2ClO_3S_2$ Naphtho[2,1-*b*]thiophen-1(2*H*)-one, 6,9-dibromo-2-(6-chloro-4 - methyl - 3 - oxo - 2(3*H*) - thianaphthenylidene)-, P 7706*g*.
$C_{21}H_9Cl_2N_3O_3$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 6-chloro-2-(2,5-dichlorophenyl)-, P 8166*b*.
$C_{21}H_9Cl_2O_3S_2$ Naphtho[1,2-*b*]thiophen-3-(2*H*)-one, 6,9-dichloro-2-(6-chloro-4 - methyl - 3 - oxo - 2(3*H*) - thianaphthenylidene)-, P 7706*g*.
$C_{21}H_{10}ClN_3O_4$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 6-chloro-2-(*p*-nitrophenyl)-, P 8166*b*.
$C_{21}H_{10}Cl_2NO_3S$ Oxindole, 6-chloro-3-(6,9-dichloro - 3 - oxonaphtho[1,2 - *b*]thiophen - 2(3*H*) - ylidene) - 7 - methyl-, P 7706*g*.
$C_{21}H_{10}O_3S$ 8*H*-Naphtho[2,3-*c*]thiaxanthene-5,8,14-trione, P 9468*i*.
$C_{21}H_{11}BrClNO_2$ Anthraquinone, 1-benzamido-2-bromo-4-chloro-, 3400*d*.
$C_{21}H_{11}ClN_3O_3$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 6-chloro-2-phenyl-, P 8165*h*.
$C_{21}H_{11}ClN_2O_3$ Naphth[2,3-*c*]acridine-5,8,14-(13*H*)-trione, 7-amino-11-chloro-, P 1986*h*.
$C_{21}H_{11}ClO_3S$ 3(2*H*)-Thianaphthenone, 7-

chloro - 2 - (8 - methoxy - 2 - oxo - 1-acenaphthenylidene)-, 4855*i*.

$C_{21}H_{11}Cl_2NO_2$ Anthraquinone, benzamidodichloro-, 3400*b*, P 7704*g*, P 9468*g*.

$C_{21}H_{13}ClNO_3$ Anthraquinone, 1-benzamidochloro-, P 866*d*, P 867*e*, P 1576*e*, 3400*d*, P 7709*a*.

$C_{21}H_{13}ClN_2O_3$ Quinoline, 2-(chloro-2-nitrophenyl)-, picrate, 7024*i*.

$C_{21}H_{13}N_3O_3$ Naphth[2,3-*c*]acridine-5,8,14-(13*H*)-trione, 6-amino-, P 864*c*, P 5966*e*, P 6427*c*, P 7706*ab*, P 8170*c*.

$C_{21}H_{12}N_2O_5$ 1-Anthraquinonecarboxanilide, 4'-nitro-, 7918*h*.

$C_{21}H_{12}N_6O_{11}$ Quinoline, 2-(2,6-dinitrophenyl)-, picrate, 7025*a*.

$C_{21}H_{12}O$ 5*H*-Dibenzo[*c,mn*]phenanthren-5-one, 4663*a*.

$C_{21}H_{12}O_4$ 1-Fluorenecarboxylic acid, benzoyl-9-oxo-, 7473*f*.

$C_{21}H_{12}O_5$ 1,4-Cyclohexadiene-1-carboxylic acid, 3-(3-carboxy-4-hydroxybenzhydrylidene)-6-oxo-, β-lactone, 5770*h*.

Salicylic acid, 5,5'-(α-hydroxybenzylidene)di-, di-β-lactone, 5770*h*.

$C_{21}H_{12}O_6$ 1,4-Naphthoquinone, 2,2'-methylenebis[3-hydroxy-, 1383*c*.

$C_{21}H_{12}O_6S_2$ 1-Naphthol-8-sulfonic acid, 4,4'-methylenebis-, disultone, 203*f*, P 2641*g*, P 4488*b*.

$C_{21}H_{12}O_7$ 6*H*,7*H*,8*H*-Bis[1]benzopyrano-[4,3-*b*, 3',4'-*e*]pyran-7-carboxylic acid, 6,8-dioxo-, Me ester, 5399*e*.

$C_{21}H_{13}BrO$ Indone, 3-(*p*-bromophenyl)-2-phenyl-, 6193*e*.

$C_{21}H_{13}ClN_4O_7$ Quinoline, 2-(*m*-chlorophenyl)-, picrate, 7024*i*.

$C_{21}H_{13}ClN_6O_9$ Quinoline, 2-*p*-chloroanilino-nitro-, picrate, 9037*def*.

$C_{21}H_{13}ClO$ Indone, 2-(*m*-chlorophenyl)-3-phenyl-, 208*c*.

$C_{21}H_{13}N$ Benzonitrile, *p*-9-anthryl-, 4663*d*.

$C_{21}H_{13}NO_3$ 1-Anthraquinonecarboxanilide, 7918*g*.

$C_{21}H_{13}NO_4S$ 1-Naphthol-8-sulfonic acid, 4-(naphthylcarbamyl)-, sultone, 204*a*.

$C_{21}H_{13}NS$ Benz[*a*]acridine, 12-(2-thienyl)-, 4665*e*.

$C_{21}H_{14}AsN$ Arsine, cyanodi-2-naphthyl-, 3383*d*.

$C_{21}H_{14}ClN_3O_7$ Phenanthrene, 1-(chloromethyl)-, picrate, 7013*c*.

$C_{21}H_{14}ClN_3O_7$ Quinoline, 2-*p*-chloroanilino-, picrate, 9037*d*.

$C_{21}H_{14}ClN_5O_8$ 2-(*o*-Chlorophenyl)-4-hydroxy-1-methylphthalazinium hydroxide, 2,4-inner salt, picrate, 237*d*.

$C_{21}H_{14}CuN_4O_4$ Benzoic acid, *o*-{[α-(*o*-carboxyphenylazo)benzylidene]hydrazino}-, Cu complex, 6589*h*.

$C_{21}H_{14}F_6N_2O_2S$ Benzanilide, 4'-(α,α,α,α',α',α')-hexafluoro-3,5-xylylsulfamyl), 4648*i*.

$C_{21}H_{14}N_2$ 5*H*-Indolo[3,2-*c*]quinoline, 5-phenyl-, *and* -*HCl*, 8351*h*.

$C_{21}H_{14}N_2OS_2$ Methanol, di-2-benzothiazolyl-phenyl-, 7475*i*.

$C_{21}H_{14}N_2O_2$ Benzo[*h*]quinoline, 6-nitro-2-styryl-, 1421*a*.

$C_{21}H_{14}N_2O_3$ See *Anthraquinone, aminobenzamido-*.

$C_{21}H_{14}N_2O_4$ 7*H*-Acenaphth[1,2-*b*]indole-7-carboxylic acid, nitro-, Et ester, 628*e*.

2-Anthraquinonecarboxylic acid, 4-(*p*-aminoanilino)-, P 8170*d*.

$C_{21}H_{14}N_2O_4S$ Benzenesulfonamide, *p*-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-*N*-2-pyridyl-, 1380*f*.

$C_{21}H_{14}N_2O_6$ Anthrarufin, 4-nitro-8-*p*-toluidino-, P 9468*c*.

4-Stilbenol, 2',4'-dinitro-, benzoate, 9055*d*.

$C_{21}H_{14}N_2O_6S_2$ Benzenesulfonamide, *p*-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-*N*-2-thiazolyl-, acetate, 1380*g*.

$C_{21}H_{14}N_2O_{10}S_2$ Benzoic acid, *m*-(4-aminodisulfo-1-anthraquinonylamino)-, P 5197*h*, P 5198*a*.

$C_{21}H_{14}N_4NiO_4$ Benzoic acid, *o*-{[α-(*o*-carboxyphenylazo)benzylidene]hydrazino}-, Ni complex, 6589*i*.

$C_{21}H_{14}N_4O_4$ Pyrazole, 1-(2,4-dinitrophenyl)-3,5-diphenyl-, 7453*d*.

$C_{21}H_{14}N_4O_7$ Pyridine, (2-naphthyl)-, picrate, 3394*h*.

Quinoline, phenyl-, picrate, 3394*i*.

$C_{21}H_{14}N_4O_8$ Benzoxazole, 2-styryl-, picrate, 3428*a*.

$C_{21}H_{14}N_6O_7$ Compd. m. 310°, 3008*e*.

$C_{21}H_{14}O$ 9-Anthraldehyde, 10-phenyl-, 9059*i*.

Indone, 2,3-diphenyl-, 208*c*, 6193*e*.

Ketone, 9-anthryl phenyl, 9060*b*.

1-Naphthyl ketone, 188*d*.

$C_{21}H_{14}O_2$ Benzoic acid, (9-anthryl)-, 4662*h*.

$C_{21}H_{14}O_2S$ 13*H*-Dibenzo[*a,g*]fluorene-11-sulfonic acid, *Na salt*, 8417*e*.

$C_{21}H_{14}O_3$ Furobenzopyranone, 4-methoxy-7-(3,4-methylenedioxystyryl)-, 3413*f*, 3414*b*.

$C_{21}H_{14}O_5$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl), Me ester, 5399*e*.

$C_{21}H_{18}AsN_4O_8$ Arsine oxide, tri-2-pyridyl-, monopicrate, 1046*i*.

$C_{21}H_{18}AsNiO_3$ Arsine, triphenyl-, complex with nickel carbonyl, 6202*e*.

$C_{21}H_{18}BrN_3O_4S$ *p*-Toluenesulfonamide, *N*-(4-amino-3-bromo-1-anthraquinonyl)-, 3400*e*.

$C_{21}H_{18}BrO_3$ Acetophenone, α-bromo-*p*-(*p*-hydroxyphenyl)-, benzoate, 1034*g*.

$C_{21}H_{19}Cl$ Fluorene, 2-(*p*-chlorostyryl)-, 7468*e*.

$C_{21}H_{19}ClN_2$ Quinoline, 3-(chloroanilino)-2-phenyl-, 8391*i*, 8392*a*.

$C_{21}H_{19}ClN_2O_2$ Anthraquinone, 1-amino-2-chloro-4-*p*-toluidino, 3400*e*.

$C_{21}H_{19}ClN_4O_4$ Anthraquinone, 1,4-diamino-(chloromethyl)-2-phenoxy-, P 8163*g*.

$C_{21}H_{19}ClO$ Acrylophenone, β-(*o* chlorophenyl)-β-phenyl-, 6183*b*.

$C_{21}H_{15}Cl_2NO_2$ Acetanilide, α-(4-biphenylylcarbonyl) 2,5-dichloro-, P 7703*i*.

$C_{21}H_{15}Cl_2N_3O$ 5,6 *as* Triazinedione, 1 (*o*-chlorophenyl) - 1,4 - dihydro - 4-phenyl-, *o*-chlorophenylhydrazone, 4260*h*.

6-*as* Triazinol, 1-(*o*-chlorophenyl)-5-(*o*-chlorophenylazo) - 1,4 - dihydro - 4-phenyl-, 4260*h*.

$C_{21}H_{15}CoO_3P$ Phosphine, triphenyl-, complex with cobalt carbonyl, 6202*e*.

$C_{21}H_{15}NO$ 9-Anthrol, 10 (phenyliminomethyl)-, P 8692*g*.

Benzamide, *N*-1 phenanthryl-, 4664*c*.

Benzonitrile, *p*-(α-phenyl-*o*-toluyl)-, 4663*b*.

9*H*-Fluoreno[3,2]oxazole, 2-benzyl-, 7020*g*.

1-Phenanthrenecarboxanilide, 4664*c*.

$C_{21}H_{15}NO_2$ 7*H*-Acenaphth[1,2-*b*]indole-7-carboxylic acid, Et ester, 628*c*.

Fluorene, 2-(nitrostyryl), 7468*e*.

1,2 Indandione, 3,3-diphenyl-, 2 oxime, P 8739*f*.

1,4 - Naphthoquinone, 2 - methyl - 3-(2-naphthylamino), 205*a*.

$C_{21}H_{15}NO_3$ Benzaldehyde, *p,p',p''* nitrilotri-, P 2233*b*.

7,8-Benzoflavone, 6-acetamido-, 5778*i*.

Benzoic acid, *p*-(α phenylphenacylideneamino)-, 4812*h*.

Ketone, 2 fluorenyl *p* nitrobenzyl, 7468*e*.

$C_{21}H_{15}NO_3S$ 1 Naphthamide, *N*-(2-naphthylsulfonyl)-, P 7961*d*, P 7963*b*, P 8622*e*.

$C_{21}H_{15}N_3$ Acetonitrile, [*p*-(9-acridylamino)-phenyl], P 698*d*.

$C_{21}H_{15}N_3O_4$ 1,2,3-Propanetrione, diphenyl-, 2-(*p*-nitrophenylhydrazone), 4247*i*.

$C_{21}H_{15}N_3O_6$ Benz[*e*]azulene, compd. with 2,4,6 trinitrotoluene, 9043*d*.

Benzoic acid, *p*-[*p*-(*p*-nitrobenzamido)-benzamido]-, 1032*b*.

9-Carbazoleethanol, 3,5-dinitrobenzoate, 624*b*.

$C_{21}H_{15}N_3O_7$ Phenanthrene, 2-methyl-, picrate, 6609*e*.

$C_{21}H_{15}N_3O_8$ 3-Phenanthrol, 7-methyl-, picrate, 6609*f*.

$C_{21}H_{15}N_3O_{11}S_2$ Salicylic acid, 5-[4-(4-nitro-2-sulfostyryl) - 3 - sulfophenylazo]-, P 8151*c*.

$C_{21}H_{15}N_3O_4$ 4-Hydroxy-1-methyl-2-phenylphthalazinium hydroxide, 2,4-inner salt, picrate, 238*b*.

$C_{21}H_{15}N_3O_9$ Isoquinoline, 3,4-dihydro-1-(*m*-nitrophenyl)-, picrate, 7486*d*.

$C_{21}H_{15}N_3O_7PS$ Phosphine sulfide, tri-2 pyridyl-, monopicrate, 1046*g*.

$C_{21}H_{15}N_6O_8P$ Phosphine oxide, tri-2-pyridyl-, monopicrate, 1046*h*.

$C_{21}H_{15}N_7O_7$ Pyridine, 2,2',2''-nitrilotri-, monopicrate, 1046*f*.

$C_{21}H_{15}NiO_3P$ Phosphine, triphenyl-, complex with nickel carbonyl, 6202*d*.

$C_{21}H_{15}NiO_3Sb$ Stibine, triphenyl-, complex with nickel carbonyl-, 6202*e*.

$C_{21}H_{16}$ (See also *Cholanthrene, methyl-*.)

Anthracene, 9-*p*-tolyl, 6194*f*.

1,2'-Binaphthyl, methyl-, 8375*f*.

Fluorene, 2-styryl-, 7468*c*.

Phenanthrene, 9-benzyl-, 1762*d*.

$C_{21}H_{16}ClNO_3$ Acetanilide, α-(4-biphenylylcarbonyl)-*p*-chloro-, P 7703*i*.

$C_{21}H_{16}ClNO_3$ Acridine, chloro-2,7-dimethoxy-9-phenoxy-, 6633*cd*.

$C_{21}H_{16}ClNO_4$ Anthranilic acid, *N*-benzoyl-chloro - *N* - (*p* - methoxyphenyl) 3826*h*.

$C_{21}H_{16}Cl_2N_2O_2$ Acridine, 3-chloro-9-*p*-chloranilino-2,7-dimethoxy-, *and* -*HC* 6633*c*.

Acridine, 3-chloro-9-(3-chloro-4-methoxyanilino)-2-methoxy-, -*HCl*, 6633

—, 3,6-dichloro-2-methoxy-9-*p*-methoxyanilino-, *and* -*HCl*, 6633*e*.

$C_{21}H_{16}Cl_2N_2O_3$ Benzamide, *N,N'*-(3,5-chlorosalicylidene)bis-, 6182*e*.

$C_{21}H_{16}Cl_2O$ Ether, 2,2-dichlorovinyl α, diphenyl-*p*-tolyl, P 7045*h*.

Propiophenone, β,β-bis(*p*-chlorophenyl) 7471*f*.

$C_{21}H_{16}Cl_4O_3$ *o*-Orsellinic acid, 3,5-dichloro ester with dichlorooörcinol, triacetat 609*a*.

$C_{21}H_{16}N_2$ Pyrazole, 1,3,5-triphenyl-, 3389

Quinoline, 4-anilino-3-phenyl-, *and* -*HC* 3003*f*.

$C_{21}H_{16}N_2O$ Indole, 2-(4-biphenylyl)methy nitroso-, 218*de*.

Quinoxaline, 6-methoxy-2,3-diphenyl 1781*c*.

$C_{21}H_{16}N_2O_2$ 1-Indanone, anilinohydroxyphe ylimino-, 7012*i*.

$C_{21}H_{16}N_2O_4S$ Aniline, *N*-cinnamylidene-*p*-( nitrophenylsulfonyl)-, 2592*i*.

$C_{21}H_{16}N_2O_4S_2$ Benzenesulfonamide, *N*-[ (phenylsulfonyl) - 4(1*H*) - quinolyl dene]-, 8387*b*.

$C_{21}H_{16}N_2O_5S$ 2-Anthraquinonesulfonic acid 1-amino-4-toluidino-, *Na salt*, 6193*i* P 8165*c*.

$C_{21}H_{16}N_2O_8S_2$ 2,6-Anthraquinonedisulfon acid, 1-amino-4-*m*-toluidino-, P 7703*h*

$C_{21}H_{16}N_2O_9S_2$ 1-Naphthol-3-sulfonic acid 6,6'-ureylenebis-, P 2441*c*, P 2781*a* P 4480*cde*, P 8146*e*.

$C_{21}H_{16}N_2O_{10}$ Purpurogallin, tri-Me ether 3,5-dinitrobenzoate, 3403*b*.

$C_{21}H_{16}N_2S$ Benzothiazole, 2-(*p*-benzylidene aminophenyl)-6-methyl-, 3292*h*.

$C_{21}H_{16}N_4O$ Pyrido[2,3]pyrazine, 6-acetam do-2,3-diphenyl-, 1425*g*.

$C_{21}H_{16}N_4O_4 + H_2O$ Benzoic acid, *o*-{[α (*o*-carboxyphenylazo)benzylidene]hy drazino}-, 6589*g*.

$C_{21}H_{16}N_4O_8$ *p*-Toluic acid, 3,5-dinitro-, benz hydrylidenehydrazide, 6972*f*.

$C_{21}H_{16}N_4O_9$ Acridine, 2,7-dimethoxy-, pi rate, 6633*a*.

$C_{21}H_{16}N_4O_{16}S_2$ Anthranilic acid, 5-[4 (4 nitro 2 - sulfostyryl) - 3 - sulfophenylazo], 9466*a*.

$C_{21}H_{16}N_4S$ Formic acid, 2-naphthylazo thiono-, 2 - naphthylhydrazide, 9057*a*

$C_{21}H_{16}N_4O$ 3 - Pentadienone, 1,5 - bis(2 phenyl - 1,2,3,2*H* - triazol 4 - yl)-, 2619*b*.

$C_{21}H_{16}O$ 9 - Anthracenemethanol, α - phenyl-, 9060*b*.

Anthracene, 9-methoxy-10-phenyl-, 620

9 - Anthrol, 10 - benzylidene - 9,10 - dihydro-, 9060*b*.

Benz[*k*]acephenanthrylene, 4,5 - dihydro-6-methoxy-, 8375*d*.

2-Indanone, 1,3-diphenyl-, 1041*d*, 3397*d*

$C_{21}H_{16}O_2$ Anthrone, 10-methoxy-10-phenyl-, 9060*f*.

2 - Indanone, 1 - hydroxy - 1,3 - diphenyl-, 1041*d*, 3397*c*.

2 - Naphthol, 1,1' - methylenedi-, 7465*e*, 7740*f*, 8615*a*, 9516*g*.

$C_{21}H_{16}O_3$ Acetophenone, *p* - (*p* - hydroxyphenyl)-, benzoate, 1034*e*.

Anthracene, 9 - methoxy - 10 - phenyl-, photoöxide, 620*f*.

Benzoic acid, *o*-(α-phenyl-*o* toluyl)-, 4662*i*.

1,2 - Naphthalenedicarboxylic anhydride, 4-*p*-cumyl-, 206*h*, 8885*f*.

Peroxide, 9,10 - dihydro - 10 - oxo - 9 phenyl - 9 - anthryl methyl, 620*g*.

Phthalide, 3 - (*p* - methoxyphenyl) - 3-phenyl-, 2319*e*.

1,3 - Propanedione, 2 - phenoxy - 1,3 diphenyl-, 4248*c*.

Resorcinol, 5-styryl-, benzoate, 5017*l*.

$C_{21}H_{16}O_4$ Isoxylic acid, $\alpha^2,\alpha^2$ - dihydroxy - $\alpha^1$-(2 - naphthyl) - (?), γ - lactone acetate, 8375*g*.

Phthalide, 3 - (*p* - hydroxyphenyl) - 3-(4 - hydroxy - *m* - tolyl)-, 2319*f*.

—, 3 - (*p* - hydroxyphenyl) - 3 - (*p* - methoxyphenyl)-, 2319*e*.

2,4 - Xylic acid, $\alpha^1,\alpha^2$ - dihydroxy - $\alpha^1$-(2 - naphthyl) - (?), γ - lactone acetate, 8375*g*.

$C_{21}H_{16}O_5$ 7*H* - Benzo[*c*]fluorene - 6 - carboxylic acid, dimethoxy - 7 - oxo-, Me ester, 606*f*, 3396*f*.

$C_{21}H_{16}O_3$ Coumarin, 3,3' - propylidenebis[4-hydroxy-, P 3470*a*.

$C_{21}H_{16}O_7S$ 2,5 - Cresotic acid, α - (4 - hydroxy - 5 - sulfo - 1 - naphthyl)-, Me ester sultone acetate, 204*h*.

$C_{21}H_{16}O_8$ 1,4*H* - Benzopyran - 3 - carboxylic acid, 6,7 - dimethoxy - 2 - (3,4 - methylenedioxystyryl) - 4 - oxo-, 7461*i*.
Flavone, trihydroxy-, triacetate, 637*b*, 1407*h*, 1774*e*.

$C_{21}H_{17}AsN_2O_4S_2$ Benzoic acid, *p*-mercapto-, ester with dithio-*p*-ureidobenzenearsonous acid, 8559*c*.

$C_{21}H_{17}BrS$ Sulfide, *p* - (2 - bromo - 1,2 - diphenylvinyl)phenyl methyl, 7467*g*.

$C_{21}H_{17}ClN_2O_2$ Acridine, 9 - anilinochloro-2,7 - dimethoxy-, *and - HCl*, 6633*cd*.
Acridine, 9 - chloroanilino - 2,7 - dimethoxy-, *and - HCl*, 6633*b*.
—, 3 - chloro - 2 - methoxy - 9 - *p* - methoxyanilino-, *- HCl*, 6633*g*.

$C_{21}H_{17}ClN_2O_3$ Benzamide, *N*, *N'* - (5 - chlorosalicylidene)bis-, 6182*d*.

$C_{21}H_{17}ClN_2O_3S_2$ Rhodanine, 5-[2-(*p*-chlorophenoxy) - 2 - (3 - methyl - 2(3*H*)-benzoxazolylidene)ethylidene] - 3-ethyl-, P 4157*e*.

$C_{21}H_{17}ClN_2O_4S$ 2,4 - Oxazolidinedione, 5 - [2-(5 - chloro - 3 - methyl - 2(3*H*) - benzoxazolylidene) - 2 - phenoxyethylidene] - 3 - ethyl - 2 - thio-, P 4157*e*.

$C_{21}H_{17}ClO$ Xanthene, 9 - chloro - 1,8 - dimethyl-9-phenyl-, 5399*a*.

$C_{21}H_{17}ClO_2$ Hydracrylic acid, α - (*m* - chlorophenyl) - β,β - diphenyl-, 208*b*.

$C_{21}H_{17}ClO_3$ Apigeninidin chloride, triacetate, 7936*a*.

$C_{21}H_{17}ClS$ Benz[*a*]anthracene, 7 - [(2 - chloroethylmercapto)methyl]-, 621*c*.

$C_{21}H_{17}Cl_2NO$ Propiophenone, β,β - bis(*p*-chlorophenyl)-, oxime, 7471*f*.

$C_{21}H_{17}IN_2$ 15,16 - Dihydrodiquino[1,2 - *d*, 2',1' - *g*][1,4]diazep - 14 - inium iodide, P 7845*b*.

$C_{21}H_{17}IN_2O_2$ 10 Methyl 9 - *p* - nitrobenzylacridinium iodide, 4673*a*.

$C_{21}H_{17}N$ Indole, (4-biphenylyl)methyl-, 218*lef*.
Indole, phenyl *p*-tolyl-, 220*a*.
Isoquinoline, 3,4 - dihydrodiphenyl-, *and - HCl*, 5026*ab*

$C_{21}H_{17}NO$ Benzo[*f*]quinoline, 3-methyl-1-*p*-toloxy-, 1417*g*
Phenanthridine, 6 - *p* - methoxybenzyl-, P 2647*b*.
1 - Propen - 1 - ol, 1,3 - diphenyl - 3-phenylimino-, 3000*c*.

$C_{21}H_{17}NOS$ Ketone, 3,4 - dihydrophenyl-1,4,2*H* - benzothiazinyl phenyl, 7121*c*.

$C_{21}H_{17}NO_2$ 9 - Carbazoleethanol, benzoate, 624*b*.
Phenanthridine, 8 - methoxy - 6 - (*p* - methoxyphenyl)-, P 2647*b*.

$C_{21}H_{17}NO_3$ Acridine, 2,7 - dimethoxy - 9-phenoxy , 6633*a*.

$C_{21}H_{17}N_3O$ 5 - Pyrazolone, 3 - amino - 1 - (2'-phenyl-4-biphenylyl)-, 4656*d*.

$C_{21}H_{17}N_3O_4$ Diacetamide, *N*-(6-acetyl-6*H*-quinindol-9-yl)-, 230*e*.
*p*-Toluic acid, 3-nitro-, benzhydrylidenehydrazide, 6973*c*.

$C_{21}H_{17}N_3O_4S$ Benzenesulfonic acid, 7-phenoxy-4-quinolylhydrazide, *-HCl*, 3410*c*.

$C_{21}H_{17}N_3O_5$ Benzoic acid, *p*-[*p*-(*p*-aminobenzamido)benzamido]-, 1032*b*.

$C_{21}H_{17}N_3O_6$ Nicotinic, tri-, 1469*h*, 2023*a*.

$C_{21}H_{17}N_3O_6S$ Quinolin - 3 - anilic acid, *p* - (*N*-acetylsulfanilyl)-, P 7042*d*.

$C_{21}H_{17}N_3O_7S_3$ Benzanilide, 4-amino-4'-(6-methyl - 2 - benzothiazolyl)-, disulfo deriv , P 4479*c*.

$C_{21}H_{17}N_3O_7$ 4(1*H*) - Quinolone, 2,3 - dihydro-1 phenyl-, 2,4 - dinitrophenylhydrazone, 8351*h*.

$C_{21}H_{17}N_3O_{10}S_4$ 1 - Naphthol - 3,6 - disulfonic acid, 7 - acetamido - 2 - (*p* - 2 - thiazolylsulfamylphenylazo)-, *di- Na salt*, 5433*a*.

$C_{21}H_{18}BrNO_2$ 1 Benzyl - 3 - carboxypyridinium bromide, 1 - methylheptyl ester, 6317*h*.

$C_{21}H_{18}Br_2N_4O_4$ Carbanilide, 3,3' - dibromo-4,4' - bis(3 - methyl - 5 - oxo - 2-pyrazolin-1-yl)-, P 9461*h*.

$C_{21}H_{18}ClN$ 6 - Benzyl - 5 - methylphenanthridinium chloride, P 2647*a*.

$C_{21}H_{18}ClN_3O_2$ *o*-Cresol, α-amino-4-(6 chloro-2 - methoxy - 9 - acridylamino) , *di-HCl*, P 7516*c*.

$C_{21}H_{18}Cl_2N_4O_2S$ Carbanilide, 3,3'-dichloro-4,4' - bis(3 - methyl - 5 - oxo - 2-pyrazolin-1-yl)thio-, P 9461*i*.

$C_{21}H_{18}Cl_2N_4O_2$ Carbanilide, dichloro-4,4'-bis(3 - methyl - 5 - oxo - 2 - pyrazolin-1-yl)-, P 9461*h*.

$C_{21}H_{18}Cl_2OS$ Xanthene, 9-chloro-1,8-dimethyl-9-phenyl-, compd. with HCl, 5399*a*.

$C_{21}H_{18}Cl_2O_3$ Mesitol, $\alpha^2,\alpha^4$-bis(5-chloro-2-hydroxyphenyl)-, 5019*d*.

$C_{21}H_{18}N_2$ Amarine, 8365*h*.
Indole, 1 - methyl - 2,3 - diphenyl , amino deriv., P 5965*d*.

$C_{21}H_{18}N_2O$ 5(6*H*) - Phenanthridinecarboxanilide, 6-methyl-, 8365*g*.
4 - Quinazolinol, 3,4 - dihydro - 2 - methyl-3,4-diphenyl-, 4676*a*.

$C_{21}H_{18}N_2O_2$ Acridine, 9-anilino-2,7-dimethoxy-, *and - HCl*, 6633*b*.
Quinoline, 5,5' - methylenebis[6 - methoxy-, *and sulfate*, 1413*i*.
Toluenediamine, di-Bz deriv., 9047*ab*.

$C_{21}H_{18}N_2O_2S_2$ Rhodanine, 5 - [2 - (3 - ethyl-2(3*H*) - benzothiazolylidene) - 2-methoxyethylidene] - 3 - phenyl-, P 4157*f*.
Rhodanine, 3 - ethyl - 5 - [2 - (3 - methyl-2(3*H*) - benzothiazolylidene) - 2-phenoxyethylidene]-, P 4157*a*.

$C_{21}H_{18}N_2O_2$ Benzoin, phenylcarbamyloxime, 1038*f*.

$C_{21}H_{18}N_2O_4$ 2 - Indolecarboxylic acid, 3,3'-methylenebis[1-methyl-, 3405*h*.
Strychninolone, dehydro-, acetate, 6637*d*.

$C_{21}H_{18}N_2O_6S_2$ 2 - Naphthalenesulfonic acid, (diaminomethylene)di-, *and Ag salt*, P 5047*d*.

$C_{21}H_{18}N_2S$ Naphtho[1,2]thiazole, 2 - (*p*-dimethylaminostyryl)-, 3428*a*.

$C_{21}H_{18}N_4O$ Propiophenone, β - phenylazo - β phenylhydrazono-, 4259*b*.

$C_{21}H_{18}N_4OS$ 4(3*H*) - Pteridinone, 2 - (ethylmercapto) 3 - methyl - 6,7 - diphenyl , 3011*b*.

$C_{21}H_{18}N_4O_2$ Antipyrine, 4 - (2 - hydroxy - 1-naphthylazo)-, 1044*h*.

$C_{21}H_{18}N_4O_3$ Benzoic acid, *o*-(3,4-dihydro-3 oxo - 2 - quinoxalyl)-, salt with *o* phenylenediamine, 7008*h*.

$C_{21}H_{18}N_4O_4$ 1(2*H*) - Phenanthrone, 3,4 - dihydro - 3 - methyl-, 2,4 - dinitrophenylhydrazone, 621*g*.
Salicylic acid, 5-[*p*-(4-amino-o tolylazo)-benzamido]-, P 8158*b*.

$C_{21}H_{18}N_4O_4S_2$ 4 - Thiazolecarboxylic acid, 2-benzamido - 5 - (3 - benzoyl - 2 - thioureido)-, Et ester, 1403*c*.

$C_{21}H_{18}N_4O_4S$ 2 - Naphthol - 6 - sulfonic acid, 1-(antipyrylazo) , P 8150*h*.

$C_{21}H_{18}N_4O_6S_2$ Coumarin, 3,6 disulfanilamido-, 2179*i*.

$C_{21}H_{18}N_4O_7$ Carbazole, 9-propyl-, picrate, 3819*d*.

$C_{21}H_{18}N_4O_8S_2$ 2 - Naphthol - 3,6 - disulfonic acid, 1-(antipyrylazo) , P 8150*h*.

$C_{21}H_{18}N_4O_9$ Homopiperonylamine, α-phenyl-, picrate, 5027*d*.

$C_{21}H_{18}N_4O_{12}$ 1,2 - Cyclohexandiol, 3 - methyl-, bis(3,5 - dinitrobenzoate), 2173*d*.

$C_{21}H_{18}N_6O_6S$ Benzenesulfonic acid, 5-nitro-2 - (1 - tetrahydrofurfuryl - 1*H* - naphtho[1,2]triazol - 5 - ylazo)-, P 3626*a*.

$C_{21}H_{18}O$ Acetophenone, *o*-benzyl-α-phenyl-, 6194*d*.
Benzophenone, 1 - benzyl - 4' - methyl-, 6194*d*
—, 2-α-methylbenzyl-, 6194*d*.
—, 4-phenethyl-, 7007*a*.
Ketone, 7 - methyl - 4 indanyl 1 - naphthyl, 2625*i*.
1,3,6,8 - Nonatetraen - 5 - one, 1,9 - diphenyl , 6035*f*.
2 Propanone, 1,1,1-triphenyl-, 4632*h*.

$C_{21}H_{18}O_2$ 1 - Acrylonaphthone, ethoxy - β-phenyl-, 7001*bd*.
Biphenylethanol, benzoate, 2182*i*.
*p*-Cresol, α,α-diphenyl-, acetate, 8684*i*.
2,5 Cyclohexadien - 1 - one, 4 - (4 - hydroxy - 2 - methylbenzhydrylidene) - 3-methyl , 5398*g*.
1 - Naphthaleneacrylic acid, β - phenyl-, Et ester, 7472*d*.
Xanthydrol, 1,8 - dimethyl - 9 - phenyl-, 5398*h*.

$C_{21}H_{18}O_2S$ Acetic acid, (triphenylmethylmercapto)-, 1753*h*.

$C_{21}H_{18}O_3$ Hydracrylic acid, α,β,β-triphenyl-, 208*b*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-[2-(5-indanyl)ethyl]-, 1379*e*.

$C_{21}H_{18}O_4$ Benzoic acid, 2,5-bis(benzyloxy)-, 7003*g*.
2,5 - Cyclohexadien - 1 - one, 4 - (4 - hydroxy - 3 - methoxybenzhydrylidene)-2-methoxy-, 9451*c*.
2*H* - Naphtho[2,3 - *b*]pyran - 5,10 - dione, 3,4 - dihydro - 2 - methoxy - 2-methyl-4-phenyl-, 5779*h*.
1,4 - Naphthoquinone, 2 - (4 - benzoyl butyl)-3-hydroxy-, 1387*e*.

$C_{21}H_{18}O_5$ 2,5 - Cyclohexadienone, 4 - (4,4'-dihydroxy - 3 - methoxybenzhydrylidene)-2-methoxy-, 5772*g*, 9451*c*.

$C_{21}H_{18}O_5S$ 1 - Naphthol - 8 - sulfonic acid, 4-(2 - hydroxy - α - mesityl)-, sultone, acetate, 204*g*.

$C_{21}H_{18}O_7$ Benzophenone, 4,4' - dihydroxy-, bis(allyl carbonate), P 4298*i*.
5*H* - Furo[3,2 - *g*][1]benzopyran - 5 - one, 7 - (3,4 - dimethoxyphenyl) - 4,9-dimethoxy-, 7481*f*.

$C_{21}H_{19}$ Methyl, phenyl(1,2,3,4-tetrahydro-9-phenanthryl)-, 194*e*.

$C_{21}H_{19}AsO$ Propiophenone, β-(diphenylarsino)-, 8352*b*.

$C_{21}H_{19}Br$ Phenanthrene, 9 - α - bromobenzyl-1,2,3,4-tetrahydro-, 195*a*.

$C_{21}H_{19}BrN_2S_2$ 3 - Methyl - 2 - [3 - (3 - methyl-2 - benzothiazolinylidene) - 1 - cyclopenten - 1 - yl]benzothiazolium bromide, P 4158*f*.

$C_{21}H_{19}BrO_2$ 1,4 - Naphthoquinone, 2 - [5-(*p* - bromophenyl)amyl] - 3 - hydroxy-, 1380*a*, 2610*b*.

$C_{21}H_{19}ClN_2$ 1 - Methyl - α - (1 - methyl-2(1*H*) - quinolylidene)quinaldinium chloride, 1826*b*.

$C_{21}H_{19}ClN_2O_4S$ 2 - (2 - Anilinovinyl) - 3 - (1-naphthyl) - 2 - thiazolinium perchlorate, P 7843*i*.

$C_{21}H_{19}ClO$ Ether, 2-chloroethyl triphenylmethyl, 4657*e*.

$C_{21}H_{19}ClO_2$ 1,4 Naphthoquinone, 2 - [5-(*p* - chlorophenyl)amyl] - 3 - hydroxy-, 1380*a*, 2610*b*.

$C_{21}H_{19}Cl_2N_3S_2$ 5 - Chloro - 2 - [2 - (5 - chloro-3 - methyl - 2 - benzothiazolin - 2 - ylidene)methyl] - 1 - butenyl] - 3 - methylbenzothiazolium chloride, 6884*e*.

$C_{21}H_{19}IN_2OS$ 3 - Methyl - 2 - [3 - (3 - methyl-2 - benzothiazolinylidene) - 1 - cyclopenten - 1 - yl]benzoxazolium iodide, P 4157*h*.

$C_{21}H_{19}IN_2O_2$ 3 - Methyl - 2 - [3 - (3 - methyl-2 - benzoxazolinylidene) - 1 - cyclopenten - 1 - yl]benzoxazolium iodide, P 4158*a*.

$C_{21}H_{19}IN_2O_7S_2$ 5 - [2 - (3 - Ethyl - 2 - benzoxazolinylidene)ethylidene] - 2 - methylmercapto - 4 - oxo - 3 - phenyl - 2 - thiazolinium iodide, P 4160*h*.

$C_{21}H_{19}N$ Phenanthridine, 6-benzyl-5,6-dihydro-5-methyl-, P 2647*a*.

$C_{21}H_{19}NO$ Acetamide, triphenylmethyl-, 4646*e*.
Acetophenone, α - anilino - *p* - methyl-α-phenyl-, 220*b*.
—, α - anilino - α - *p* - tolyl-, *and - HBr*, 220*c*.
—, α - *N* - methylanilino - *p* - phenyl-, 218*e*.
Benzamide, *N*-2,2-diphenylethyl-, 5026*e*.
—, *N*-α-phenylphenethyl-, 5027*a*.

$C_{21}H_{19}NOS$ Sulfilimine, *N*-benzoyl-*S*,*S*-dibenzyl-, 172*i*.

$C_{21}H_{19}NO_2$ Benzoic acid, *m*-dibenzylamino-, 1345*h*.
Biphenylethanol, carbanilate, 2182*i*, 5768*i*.
Homoanisanilide, 4'-phenyl-, P 2647*a*.

$C_{21}H_{19}NO_3$ Anisanilide, 2'-(*p*-methoxyphenyl)-, P 2647*b*.
Benzanilide, 4 - methoxy - 2' - (*p* - methoxyphenyl)-, P 2647*b*.

$C_{21}H_{19}NO_4$ 2,4 - Oxazolidinedione, reaction product with xanthydrol, 1406*a*.

$C_{21}H_{19}N_3$ 4(1*H*) - Quinolone, 2,3 - dihydro-1-phenyl-, phenylhydrazone, 8351*h*.

$C_{21}H_{19}N_3O$ 5 - Pyrazolone, 3 - methyl - 4-(2 - methyl - 4(1*H*) - quinolylidene)-1-tolyl-, 229*b*.

$C_{21}H_{19}N_3O_2$ Benzophenone, 4,4' - dimethyl-, *p* - nitrophenylhydrazone, 7004*h*.
Biuret, 1-(4-biphenylyl)-5-*p*-tolyl-, 7446*g*.
9 - Fluorenamine, *N* - (*p* - dimethylaminophenyl) - 2 - nitro-, 2981*e*.

$C_{21}H_{19}N_3O_3$ Mesitylenic acid, 4-nitro-, 1-(2-naphthyl)ethylidenehydrazide, 6972*h*.
Phthalimide, *N* - [2 - (6 - methoxy - 8-quinolylamino)isopropyl]-, 3420*a*.

$C_{21}H_{19}N_3O_4$ Anthranilic acid, *N*-(γ-naphthylallophanyl)-, Et ester, 7447*ab*.
Benzoic acid, *p*-[3-(naphthylcarbamyl)-ureido]-, Et ester, 7447*ab*.
Phthalimide, *N* - [2 - hydroxy - 3 - (6-methoxy - 8 - quinolylamino)propyl]-, 3419*e*.
—, *N*, *N'* - [(methylimino)diethylene]di-, 348*g*.

$C_{21}H_{19}N_3O_4S$ *p* - Toluidine, *N*, *N* - dimethyl-α - [*p* - (*p* - nitrophenylsulfonyl)phenylimino]-, 2592*i*.

$C_{21}H_{19}N_3O_4S_2$ Benzaldehyde, dimethylamino-, bis(nitrophenyl)mercaptal, 6179*f*.
$C_{21}H_{19}N_3O_6S_2$ 2 - Naphthalenesulfonic acid, sulfapyridine salt, 174*a*.
$C_{21}H_{19}N_3O_6$ Glycine, *N*-[*N*-(*p*-phthalimidohydrocinnamoyl)glycyl]-, 8357*b*.
$C_{21}H_{19}N_3O_2S_2$ Acridine, 9-amino-, compd. with sulfathiazole, P 2738*f*.
$C_{21}H_{19}N_3O_4S$ Thiazole, 2-benzyl-4-methyl-, picrolonate, 3820*g*.
$C_{21}H_{19}N_3O_6$ 1 - Naphthonitrile, 1 - ethyl - 1,4-dihydro - 7,8 - dimethoxy - 4 - oxo-, 2,4 - dinitrophenylhydrazone, 626*a*.
$C_{21}H_{19}N_3O_7$ Acetamidine, *N'*-methyl-*N*,*N*-diphenyl-, picrate, 2594*e*.
Formamidine, *N*, *N'*-ditolyl-, picrate, 5757*i*, 5758*a*.
*p* - Toluamidine, *N* - *p* - tolyl-, picrate, 7444*f*.
$C_{21}H_{19}N_3O_7S$ Salicylic acid, 5-[4-(4-amino-5-methoxy - *o* - tolylazo) - 2 - sulfophenylazo]-, P 5963*d*.
$C_{21}H_{19}N_3O_7S_2$ 2,7 - Naphthalenedisulfonic acid, 3 - amino - 4 - (antipyrylazo)-, P 8150*h*.
$C_{21}H_{19}N_3O_8S$ 2 - Imidazoline, 2 - [(α - phenyl-2 - thenyloxy)methyl]-, picrate, 6620*b*.
$C_{21}H_{19}N_3O_9$ 2 - Pyridineacetamide, *N* - (β-hydroxyphenethyl)-, picrate, 1413*b*.
$C_{21}H_{20}Br_2N_2$ 1,1' - Trimethylenebis[quinolinium bromide], 2703*d*.
$C_{21}H_{20}F_3N_3O_7$ 5*H* - Pyrido[1,2,3 - *de*] - 1,4-benzoxazin - 6 - ol, 9 - (*p* - acetylphenylazo) - 2,3,6,7 - tetrahydro - 5 methyl - 3 - (trifluoromethyl)-, P 2782*a*.
$C_{21}H_{20}IN$ 5,6 - Dihydro - 5,5 - dimethyl - 6-phenylphenanthridinium iodide, P 2647*e*.
$C_{21}H_{20}NO_5P$ Anthranilic acid, *N*-phosphono , Et di-Ph ester, 6178*f*.
$C_{21}H_{20}N_2$ Acetophenone, *p*-phenyl-, methylphenylhydrazone, 218*d*; *p*-tolylhydrazone, 218*e*.
2 - Propanone, 1,3 - diphenyl-, pheuylhydrazone, 5027*a*.
$C_{21}H_{20}N_2O$ 2 - Imidazoline, 2 - [(α - 1 - naphthylbenzyloxy)methyl]-, - *HCl*, 6620*a*.
$C_{21}H_{20}N_2O_2$ 1,4,4*H* - Benzoxaziue - 4 - carboxamide, 2,3 - dihydro - 3,5 - dimethyl - *N* - 1 - naphthyl-, 8365*f*.
$C_{21}H_{20}N_2O_2S$ Cinnamic acid, 2 - (1 - naphthylmethyl)-2-thiopseudourea salt, 565*h*.
$C_{21}H_{20}N_2O_3$ Alstonine, 648*f*.
Formanilide, 4 - amino - 2,5 - bis(benzyloxy)-, P 4165*g*.
2 - Naphthanilide, 3 - hydroxy - 4' - (4-morpholinyl)-, P 8162*i*.
$C_{21}H_{20}N_2O_3$ Cyclohexanemethanol, 2 - hydroxy-, bis(*p* - nitrobenzoate), 588*h*.
$C_{21}H_{20}N_2O_{10}$ 5*H* - Cycloheptabenzen - 5 - one, 6,7,8,9 - tetrahydroxy - 4 - hydroxy-2,3,6 - trimethoxy-, 3,5 - dinitrobenzoate, 3403*d*.
3,5 - Dinitrobenzoate, m. 168°, 3403*e*.
$C_{21}H_{20}N_4OS$ 4(3*H*) - Pteridinone, 2 - (ethylmercapto) - dihydro - 3 - methyl - 6,7-diphenyl-, 3012*a*.
$C_{21}H_{20}N_4O_3S_2$ 2 - Naphthalenesulfonic acid, sulfamerazine salt, 174*a*.
$C_{21}H_{20}N_4O_4$ Ketone, 4 - hydroxy - 1 - cyclohexen - 1 - yl methyl, 2,4 - dinitrophenylhydrazone, benzoate, 7416*i*.
$C_{21}H_{20}N_4O_7$ Maleic acid, 2-hydroxy-3-(4,5,8-triamino - 1 - anthraquinonylamino)-propyl monoester, P 1986*g*.
Phenanthridine, 7,8,9,10 - tetrahydrodimethyl-, picrate, 1778*i*.
9 - Phenanthrylamine, 1,2,3,4 - tetrahydro-4-methyl-, picrate, 4664*b*.
Phenethylamine, α-benzyl-, picrate, 5027*b*.
$C_{21}H_{20}N_6O_2$ Antipyrine, 4 - (3 - methyl - 5-oxo - 1 - phenyl - 2 - pyrazolinylazo)-, 1044*h*.
$C_{21}H_{20}N_6O_2S_2$ Acridine, 3,6-diamino-, compd. with sulfathiazole, P 2738*f*.
$C_{21}H_{20}N_6O_2$ Carbanilide, 4,4' - bis(3 - methyl-5 - oxo - 2 - pyrazolin - 1 - yl)-, P 9461*g*.
$C_{21}H_{20}N_4O_{11}$ 2,4(1*H*,3*H*) - Quinazolinedione, methyl - 5 - (4 - morpholinylacetyl)-, picrate, 6634*b*.
$C_{21}H_{20}N_2O_{14}$ *m* - Phenylenediamine, *N*, *N*, - *N'*-trimethyl-, dipicrate, 3008*d*.
$C_{21}H_{20}N_2O_{15}$ Pyridine, 2-(2-dimethylaminoethoxy)-, dipicrate, 5783*a*.
$C_{21}H_{20}N_{12}O_{14}$ Guanidine, *p*-guanidinobenzyl-, dipicrate, 5014*f*.
$C_{21}H_{20}O$ Indone, 2-cyclohexyl-2-phenyl-, 6198*e*.
9 - Phenanthrenemethanol, 1,2,3,4 - tetrahydro - α - phenyl-, 194*i*.
$C_{21}H_{20}OS$ Ethanol, 1 - (*p* - methylmercaptophenyl)-1,2-diphenyl-, 7467*f*.
$C_{21}H_{20}O_2$ 9,10 - Ethanoanthracene - 11 - methanol, 9,10 - dihydro-, methacrylate, P 2025*i*.
4,6,8,10,12,14 - Pentadecahexaene - 2,3-dione, 15-phenyl-, 187*e*.
$C_{21}H_{20}O_3$ 4 - Acephenanthryleneacetic acid, 1,2,3,5 - tetrahydro - 3 - methyl - 5-oxo-, Et ester, 6610*g*.
3 - Cyclohexene - 1 - carboxylic acid, 6-acetyl-2,5-diphenyl-, 1040*d*.
1 - Naphthalenehydracrylic acid, β-phenyl-, Et ester, 7472*d*.
1,4 - Naphthoquinone, 2 - [3 - (*p* - ethylphenyl)propyl] - 3 - hydroxy-, 1379*e*.
—, 2 - hydroxy - 3 - (5 - phenylamyl)-, 1379*b*, 2610*b*.
—, 2 - hydroxy - 3 - (2 - methyl - 4-phenylbutyl)-, 1379*d*.
—, 2 - hydroxy - 3 - [3 - (xylyl)propyl]-, 1379*d*.
$C_{21}H_{20}O_4$ Cyclohexanecarboxylic acid, 1,5-dihydroxy - 2,3 - diphenyl-, γ-lactone, acetate, 157*d*.
1,4 - Naphthoquinone, 2 - hydroxy - 3-[4 - (*p* - methoxyphenyl)butyl]-, 1379*g*, 2610*c*.
$C_{21}H_{20}O_4S$ 2 - Naphthalenesulfonic acid, 6-(5,6,7,8 - tetrahydro - 2 - naphthylmethoxy)-(?), P 7969*c*.
$C_{21}H_{20}O_5$ Guaiacol, 4,4'-(*p*-hydroxybenzylidene)di-, 5772*d*.
1,4 - Naphthoquinone, 2 - [3 - (2,5 - dimethoxyphenyl)propyl] - 3 - hydroxy-, 1379*g*.
$C_{21}H_{20}O_6$ Benzaldehyde, 3,4,4' - trimethoxy-6,6' - divinyl - 2,3' - oxydi-, 3017*g*.
$C_{21}H_{20}O_6$ Flavone, 7-hydroxy-3,3',4',5-tetramethoxy-, acetate, 5398*d*.
Khellinone, veratrate, 7481*f*.
1,3 - Propanedione, 1 - (3,4 - dimethoxyphenyl) - 3 - (6 - hydroxy - 4,7 - dimethoxy - 5 - benzofuryl)-, 7481*f*.
Rufin, 9271*h*.
$C_{21}H_{20}O_{10}$ Genistin, 5542*b*.
$C_{21}H_{20}O_{11}$ See *Quercitrin*.
$C_{21}H_{20}O_{12}$ Isoquercitrin, 5542*a*.
Quercetin, 3-galactoside, 5542*a*.
Quercimeritrin, 5542*a*.
$C_{21}H_{20}O_{13}$ Gossypin, 3104*f*, 3823*i*, 5116*a*.
Gossypitrin, 3104*f*.
Quercetagitrin, 4265*b*.
$C_{21}H_{20}O_{14}$ Hibiscetin, 3-monoglucoside, 1408*a*.
Hibiscitrin, 1408*a*.
$C_{21}H_{20}S_2$ Benzaldehyde, dibenzyl mercaptal, 2507*c*, 7409*g*.
$C_{21}H_{21}AsN_6O_3$ Arsine, tris(*p*-ureidophenyl)-, 5014*h*.
$C_{21}H_{21}BrClN_3O$ *o* - Cresol, 4 - (7 - bromo - 4-quinolylamino) - 5 - chloro - α - 1-piperidyl-, P 7515*a*.
$C_{21}H_{21}BrN_4O$ 7 - Quinolinecarbonitrile, 4-(2 - bromo - α - diethylamino - 5 - hydroxy-*p*-toluidino)-, P 7515*b*.
$C_{21}H_{21}ClN_2O_4$ (4 - Anilino - 1,3 - butadienyl)-1 - ethylquinolinium perchlorate, 6928*f*.
$C_{21}H_{21}ClN_2O_4S_2$ 3 - Phenyl - 2 - [3 - (3 - phenyl - 2 - thiazolinylidene)propenyl] - 2-thiazolinium perchlorate, P 7843*i*.
$C_{21}H_{21}ClN_2O_5S_2$ 3 - Ethyl - 5 - [2 - (1 - ethylnaphtho[1,2]thiazol - 2(1*H*) - ylidene)ethylidene] - 2 - methylmercapto-4 - oxo - 2 - thiazolinium perchlorate, P 4161*a*.
$C_{21}H_{21}ClN_4O_4S$ [Hydroxy[*p* - (*p* - nitrophenylsulfonyl)phenylazo]phenyl]trimethylammonium chloride, P 4818*b*.
$C_{21}H_{21}ClO_{10}$ Pelargonidin, 3-glucoside, 732*a*, 5087*f*.
$C_{21}H_{21}ClSi$ Silane, tribenzylchloro-, P 3237*g*.
$C_{21}H_{21}FSi$ Silane, fluorotri-*p*-tolyl-, 5377*f*.
$C_{21}H_{21}IN_2$ (4 - Anilino - 1,3 - butadienyl) - 1-ethylquinolinium iodide, 6928*f*.
3 - Ethyl - 2 - [3 - (3 - ethyl - 2 - benzothiazolinylidene)propenyl]benzothiazolium iodide, 8291*i*.
$C_{21}H_{21}IN_2OS$ 2 - [4 - (*N* - Acetylanilino) - 1,3-butadienyl] - 3 - ethylbenzothiazolium iodide, 6928*i*.
$C_{21}H_{21}IN_2OS_2$ 3 - Ethyl - 2 - [3 - (3 - ethyl-2 - benzothiazolinylidene)propenyl]-hydroxybenzothiazolium iodide, 9454*a*.
$C_{21}H_{21}IN_2OSe$ 2 - [4 - (*N* - Acetylanilino)-1,3 - butadienyl] - 3 - ethylbenzoselenazolium iodide, 2929*c*.
$C_{21}H_{21}IN_2O_2$ 2 - [4 - (*N* - Acetylanilino) - 1,3-butadienyl] - 3 - ethylbenzoxazolium iodide, 6929*d*.
$C_{21}H_{21}IN_2O_2S$ 2 - (3 - Ethyl - 5,6 - dimethyl-2 - benzoxazolinylidenemethyl) - 4-oxo - 3 - phenyl - 2 - thiazolinium iodide, P 7846*a*.
$C_{21}H_{21}IN_2O_2S_2$ 3 - Ethyl - 2 - [3 - (3 - ethyl-hydroxy - 2 - benzothiazolinylidene)-propenyl]hydroxybenzothiazolium iodide, 9453*g*.
$C_{21}H_{21}IN_2O_4$ 4 - Homopiperonylcarbamyl - 6-methoxy - 1 - methylquinolinium iodide, 1421*h*.
$C_{21}H_{21}N$ 1*H* - Indeno[2,1 - *c*]pyridine, 2,3-dihydro - 2,7 - dimethyl - 9 - *p* - tolyl-, - *HBr*, P 5808*h*.
1*H* - Indeno[2,1 - *c*]pyridine, 2,3 - dihydro - 2 - isopropyl - 9 - phenyl-, - *HBr*, P 5808*h*.
Tribenzylamine, 6570*i*, 7793*a*.
$C_{21}H_{21}NO$ *p*-Anisidine, *N*, *N*-dibenzyl-, P 1178*c*.
$C_{21}H_{21}NO_2$ Cyclohexanecarbonitrile, 4-hydroxy - 2,6 - diphenyl-, acetate, 2964*a*.
1*H* - Indeno[2,1 - *c*]pyridine, 2,3 - dihydromethoxy - 9 - (*m* - methoxyphenyl)-2-methyl-, P 5808*h*.
2 - Naphthol, 1 - (α - 4 - morpholinylbenzyl)-, 2183*i*.
$C_{21}H_{21}NO_2S_2$ Sulfilimine, *S*,*S* - dibenzyl - *N*-*p* - tolylsulfonyl-, 172*e*.
$C_{21}H_{21}NO_3$ Cinchophen, 4' - butoxy - 3'-methyl-, 3825*g*.
Cinchophen, dimethylpropoxy-, 3825*h*, 7924*i*.
—, 4' - ethoxy - 3 - ethyl - 3' - methyl-, 3825*g*.
—, 4' - isobutoxy - 2' methyl-, 3825*h*
—, 5' - isopropyl - 4' - methoxy - 2'-methyl-, 7924*i*.
$C_{21}H_{21}NO_3S$ 1 - Naphthamide, *N* - (duryl sulfonyl)-, P 7961*d*, P 7963*d*, P 8622*b*
$C_{21}H_{21}NO_5$ 4 - Piperidone, 3,5 - dimethyl 2,6 - bis(3,4 - methylenedioxyphenyl)-, *and* - *HCl*, 1410*c*.
$C_{21}H_{21}NO_6$ 3 - Isoquinolinecarboxylic acid, 6,7 - dimethoxy - 1 - veratryl-, *and Na salt*, 6733*a*.
$C_{21}H_{21}NO_7$ Carbamic acid, (3,4 - dihydroxyphenacyl)methyl-, benzyl ester diacetate, 2601*i*.
$C_{21}H_{21}N_3$ 2 - Imidazoline, 2 - [(benzylnaphthylamino)methyl]-, P 683*d*; - *HCl*, P 692*e*, P 5049*bd*.
$C_{21}H_{21}NO$ Acetophenone, *p* - (*p* - hydroxyphenyl) - α - methylamino-, phenyl hydrazone, 1035*a*.
Quinaldine, 6 - acetamido - α - (*p* - dimethylaminobenzylidene)-, 3427*h*
$C_{21}H_{21}N_3O$ Semicarbazide, 1 - (4 - methoxy benzhydryl)-4-phenyl-, 3801*h*.
$C_{21}H_{21}N_3O_2S$ *p* - Toluidine, *N*, *N* - dimethyl α - (*p* - sulfanilylphenylimino)-, 2592*i*, 3518*d*.
$C_{21}H_{21}N_3O_2S$ 2*H* - Pyrimido[2,1 - *b*]benzothiazole - 2,4(3*H*) - dione, 3 - [2 - (3-ethyl - 2 - benzothiazolinylidene)ethylidene] - 5a,6,7,8,9,9a - hexahydro-, P 8925*d*.
$C_{21}H_{21}N_3O_2S_2$ [$\Delta^{2,5'}$ - Bithiazoline] - 2',4,4'-trione, 3,3' - diethyl - 5 - (1 - ethyl-2(1*H*) - quinolylidene) - 2' - thio-, P 4162*g*.
$C_{21}H_{21}N_3O_3$ 4 - Stilbenecarbonyl azide, α,α'-diethyl - 4' - hydroxy-, acetate, 9056*d*.
$C_{21}H_{21}N_3O_3S_2$ [$\Delta^{2,5'}$ - Bithiazolidine] - 2',4,4' - trione, 3,3' - diethyl - 5 - [2-(3 - ethyl - 2 - benzoxazolinylidene)-ethylidene]-2'-thio-, P 4162*h*.
$C_{21}H_{21}N_3O_4S_2$ 2,4 - Oxazolidinedione, 3 - ethyl - 5 - [3 - ethyl - 5 - [2 - (3 - ethyl-2-benzoxazolinylidene)ethylidene]- 4 - oxo - 2 - thiazolidylidene] - 2 - thio-, P 4164*a*.
$C_{21}H_{21}N_3O_5$ Glycine, *N* - (*N* - carboxytryptophyl)-, benzyl ester, 4712*d*.
Tryptophan, *N* - (*N* - carboxyglycyl)-, benzyl ester, 4712*c*.
$C_{21}H_{21}N_3O_6$ Naphthalene, amyl-, compd. with 1,3,5 - trinitrobenzene, 6188*de*.
$C_{21}H_{21}N_3O_6S_2$ Benzenesulfonamide, *N*, *N'*-(2,4,6 - trimethyl - 5 - nitro - *m*-phenylene)bis-, 1736*b*.
$C_{21}H_{21}N_3O_7$ Cacotheline, 8961*e*.
$C_{21}H_{21}N_3O_7$ Adipic acid, α-cyano-, bis(benzylidenehydrazide), 4223*a*.
$C_{21}H_{21}N_3O_8S$ Benzoic acid, 3,5-diamino-2-[*p* - (3,5 - xylylsulfamyl)phenylazo]-, 4648*i*.
$C_{21}H_{21}N_3O_9$ 1 - Naphthonitrile, 1 - ethyl-1,2,3,4 - tetrahydro - 7,8 - dimethoxy - 4 - oxo-, 2,4 - dinitrophenylhydrazone, 625*i*.
$C_{21}H_{21}N_3O_9S_2$ Pyridine, bis($N^4$ - acetylsulfanilamido)-, 1738*dg*.
$C_{21}H_{21}N_3O_7$ 2 - Imidazoline, 2 - [2 - (1 - naph-

thylamino)ethylamino]-, picrate, 4273*b*.

$C_{21}H_{21}O_4P$ See *Tolyl phosphate*.

$C_{21}H_{21}O_7P$ Phosphoric acid, tris(*o* - methoxyphenyl) ester, 6178*g*.

$C_{21}H_{22}ClNO_4$ Fagarine II, anhydromethochloride, 4281*a*.

α-Fagarine, anhydromethochloride, - *HCl*, 4280*h*.

$C_{21}H_{22}ClN_3O$ *o* - Cresol, 4 - (7 - chloro - 4-quinolylamino) - α - 1 - piperidyl-, *and di- HCl*, P 7514*si*.

$C_{21}H_{22}ClN_3O_2$ *o* - Cresol, 4 - (7 - chloro - 3-methyl - 4 - quinolylamino) - α - 4-morpholinyl-, P 7515*a*; *di- HCl*, P 7514*f*.

Cresorcinol, 6 - (7 - chloro - 4 - quinolylamino) - α - 1 - piperidyl-, P 7514*i*.

$C_{21}H_{22}Cl_2N_2O$ 4 - Quinolinemethanol, 5-chloro - 2 - (*p* - chlorophenyl) - α-diethylaminomethyl)-, *di- HCl*, 5860*f*.

4 - Quinolinemethanol, 5,8 - dichloro - α-(diethylaminomethyl) - 2 - phenyl-, - *HCl*, 5860*f*.

$C_{21}H_{22}Cl_2O_4$ Propionic acid, β,β' - [isopropylidenebis(2 - chloro - *p* - phenyleneoxy)]di-, P 1054*c*.

$C_{21}H_{22}Cl_4O_4$ *o* - Toluic acid, 3,5 - dichloro - 6-(3,5 - dichloro - 6 - ethoxy - 4 - methoxy - *o* - toloxy) - 4 - methoxy-, Me ester, 608*g*.

$C_{21}H_{22}IN_3$ 3 - (*p* - Dimethylaminophenylimino) - 2,3 - dihydro - 4 - methyl-1*H* - cyclopenta[*b*]quinolinium iodide, 3001*c*.

$C_{21}H_{22}N_2$ Indole, 2,2' - methylenebis[1,3-dimethyl-, 8892*h*.

$C_{21}H_{22}N_2O$ Benzamide, *p*-diethylamino-*N*-1-naphthyl-, 1346*h*.

$C_{21}H_{22}N_2O_2$ (See also *Strychnine*.)

Isostrychnine, 1783*b*.

Neostrychnine, 239*b*.

*m* - Tolunitrile, 4,4' - (pentamethylenedioxy)di-, 9048*i*.

$C_{21}H_{22}N_2O_3$ Homophthalamic acid, *N* - [2-(3 - indolyl)ethyl] - 6 - methyl-, Me ester, 234*h*, 1423*a*, 7490*i*.

Neostrychnine, ?-hydroxy-(?), 239*d*.

Pseudostrychnine, 239*b*.

$C_{21}H_{22}N_2O_3S$ *p* - Toluamidine, *N* - *p* - tolyl-, benzenesulfonate, 7444*f*.

$C_{21}H_{22}N_2O_4$ Benzonitrile, 4,4' - (pentamethylenedioxy)bis[3 - methoxy-, 9048*g*.

Ketone, 240*a*.

Strychninolone, acetyldihydro-, 6637*f*.

$C_{21}H_{22}N_2O_4S$ 4 - Quinazolinemalonic acid, 1,2,3,4 - tetrahydro - 3 - phenyl - 2-thioxo-, di Et ester, 1047*b*.

$C_{21}H_{22}N_2O_4S_2$ Benzenesulfonamide, *N*, *N'*-(2,4,6 - trimethyl - *m* - phenylene)-bis , 1735*d*

$C_{21}H_{22}N_2O_4S$ Veratramidine, *N*-phenyl-, benzenesulfonate, P 5049*g*.

$C_{21}H_{22}N_2O_6$ Glutaric acid, α,γ-dibenzamido-, di Me ester, 5006*e*.

$C_{21}H_{22}N_2O_8S_2$ 2,6 - Anthraquinonedisulfonic acid, 1 - amino - 4 - (1 - methylcyclohexylamino)-, P 8164*h*.

$C_{21}H_{22}N_2S$ 1*H* - Indeno[2,1 - *c*]pyridine, 2-ethyl - 2,3,4,9 - tetrahydro - 9 - phenyl , thiocyanate, P 5808*i*.

$C_{21}H_{23}N_3O_3$ *o* - Cresol, 4 - (6 - nitro - 4 - quinolylamino) - α - 1 - piperidyl-, *di- HCl*, P 7514*g*.

$C_{21}H_{23}N_4O_3S$ Pseudourea, 2-benzyl-2-thio-, compd. with 4-*p*-methoxyanilinonicotinic acid, 3827*b*.

$C_{21}H_{27}N_3O_4$ Acetophenone, α - cyclohexylidene *o* - methyl-, 2,4 - dinitrophenylhydrazone, 7416*b*.

Carbamic acid, {[1 - carbamyl - 2 - (3 - indolyl)ethyl]carbamylmethyl}-, benzyl ester, 4712*c*.

3,7 - Octadien - 4 - one, 2 - methyl - 8-phenyl-, 2,4 - dinitrophenylhydrazone, 4651*g*.

$C_{21}H_{28}N_4O_3$ Quinoline, 3-propoxy-2-propyl-, picrate, 227*i*.

$C_{21}H_{28}N_4O_4S_4$ Sulfathiazole, condensation product with HCHO, P 6234*c*, P 8401*a*.

4 - Thiazoline, 3,3' - methylenebis[2-{[*N* - (hydroxymethyl)sulfanilyl]-imino}-, 7077*d*.

$C_{21}H_{28}N_4O_5$ β - Alanine, *N* - formyl - *N* - 3-pyridyl-, Et ester, picrolonate, 576*c*.

$C_{21}H_{28}N_4O_{11}$ 2,4(1*H*,3*H*) - Quinazolinedione, 5 - [1 - hydroxy - 2 - (4 - morpholinyl)-ethyl]methyl-, picrate, 6634*b*.

$C_{21}H_{30}O_7$ Propiophenone, compd. with phenol, 107*b*.

$C_{21}H_{30}O_4$ 1,3 - Cyclohexanedione, 2,2' - cinnamylidenedi-, 1336*e*.

Cyclohexanemethanol, 4 - hydroxy-, dibenzoate, 7436*e*.

2 - Phenanthrenecarboxylic acid, 1-ethynyl - 1,2,3,4 - tetrahydro - 1-hydroxy - 7 - methoxy - 2 - methyl-, Et ester, P 8848*h*.

1 - Phenanthrenepropionic acid, 2 - carboxy - 3,4 - dihydro - 3 - isopropyl-, 622*b*.

1 - Phenanthrenesuccinic acid, 3,4 - dihydro-2-methyl-, Et ester, 6610*g*.

4 - Stilbenecarboxylic acid, α,α' - diethyl-4'-hydroxy-, acetate, 9055*h*.

$C_{21}H_{22}O_3$ Eugenol, carbonate, P 4299*c*.

Isochavibetol, carbonate, P 4299*b*.

1,8(2*H*,5*H*) - Xanthenedione, 9 - (3,4-dimethoxyphenyl) - 3,4,6,7 - tetrahydro-, 1336*e*.

$C_{21}H_{22}O_5$ Flavone, hexamethoxy-, 182*c*, 224*f*, 636*i*, 640*a*, 1774*i*.

Nobiletin, 4263*g*.

Usnic acid, diacetyldecarbo-, 5445*f*.

$C_{21}H_{22}O_6$ Flavone, 3-hydroxyhexamethoxy-, 1408*b*, 1774*i*.

Gardenin, 3823*g*, 5779*f*.

$C_{21}H_{22}Si$ Silane, tribenzyl-, 2160*g*.

$C_{21}H_{23}ClN_2$ 1 - [3 - (3,4 - Dihydro - 1(2*H*)-quinolyl)allylidene] - 1,2,3,4 - tetrahydroquinolinium chloride, 2617*c*.

$C_{21}H_{23}ClN_2O_4$ 2 - (4 - Anilino - 1,3 - butadienyl) - 1,3,3 - trimethyl - 3*H* - pseudoindolium perchlorate, 6929*c*.

$C_{21}H_{23}ClN_4O$ *o* - Cresol, α - (3 - amino - 1-piperidyl) - 4 - (7 - chloro - 4 - quinolylamino)-, *tri- HCl*, P 7514*e*.

$C_{21}H_{23}ClN_4O_2$ Acridine, 2-chloro-7-nitro-9-[3 - (1 - piperidyl)propylamino]-, 7938*a*.

$C_{21}H_{23}ClO_2$ Enanthic acid, ?-chloro-, *p*-phenylphenacyl ester, 100*g*.

$C_{21}H_{23}Cl_2N$ Lepidine, 2 - [dichlorobenzyl(2-dimethylaminoethyl)amino]-, 8389*i*.

$C_{21}H_{23}Cl_2N_3O$ Acridine, 3,6 - dichloro - 2-methoxy - 9 - [2 - (1 - piperidyl)ethylamino] , *and di- HCl*, 6633*e*.

$C_{21}H_{23}I_2N_3O_2Sb$ Strychnine, -HI, compd. with $SbI_3$, 357*d*.

$C_{21}H_{23}N$ Piperidine, 1 - (3 - phenyl - 2 - indenylmethyl)-, *and* - *HCl*, P 1441*a*.

$C_{21}H_{23}NO$ Quinoline, 2 - (4 - isoamoxy - *m*-tolyl)-, 3825*g*.

Quinoline, 3 - methyl - 2 - (propoxy - 2,5-xylyl)-, 7925*a*.

$C_{21}H_{23}NO_2$ Isoquinoline, 1 - benzyl - 6,7-diethoxy - 3 - methyl-, *and* - *HCl*, 1423*i*.

$C_{21}H_{23}NO_3$ 4 - Quinolinol, 7 - methoxy - 2-methyl - 3 - (4 - phenoxybutyl)-, 1417*b*.

Vomicine, desazadesoxy-, 7948*d*.

$C_{21}H_{23}NO_4$ Acetophenone, 4-hydroxy-3-methoxy - α - 1 - piperidyl-, benzoate, - *HCl*, P 7050*h*.

Butyric acid, α - cyano - γ - phenoxy - α-2 - phenoxyethyl-, Et ester, 4222*i*.

$C_{21}H_{23}NO_5$ (See also *α-Fagarine; Heroine*.)

Allocryptopine, 4280*i*, 8616*g*.

Fagarine II, and salts, 4280*i*.

Thebainone, *O*-desmethyl-, diacetate, 5786*g*.

$C_{21}H_{23}NO_6$ Colchiceine, 3728*f*, 4347*c*, 8376*b*.

3 - Isoquinolinecarboxylic acid, 3,4 - dihydro - 6,7 - dimethoxy - 1 - veratryl-, *and Na salt*, 6733*a*.

$C_{21}H_{24}N_2O_4P$ Neostrychninephosphoric acid, bisanhydro-, 239*h*.

Pseudostrychninephosphorous acid, anhydro-, *and perchlorate*, 239*g*.

$C_{21}H_{24}N_2O_2$ *o* - Cresol, 4 - (6 - methoxy - 4-quinolylamino) - α - 1 - pyrrolidyl-, P 7515*b*.

*o* - Cresol, 4 - (6 - methyl - 4 - quinolylamino) - α - 4 - morpholinyl-, *and di- HCl*, P 7514*f*.

$C_{21}H_{24}N_2O_3$ *o* - Cresol, 4 - (6 - methoxy - 4-quinolylamino) - α - 4 - morpholinyl-, *di- HCl*, P 7514*f*.

$C_{21}H_{24}N_2O_4$ 3 - Quinolinecarboxylic acid, 4 - [3 - (aminomethyl) - 4 - hydroxy-5 - methylanilino] - 6 - methoxy-, Et ester, *di- HCl*, P 7515*g*.

$C_{21}H_{24}N_2O_5$ *o* - Toluamide, 5 - nitro - *N* - (α-1 - piperidylpiperonyl)-, 3805*h*.

$C_{21}H_{24}N_2O_5S_2$ Acetanilide, *p* - [4 - (3,4 - diethoxyphenyl) - 2 - thiazolylsulfamyl]-, 2968*g*.

$C_{21}H_{24}N_2O_6$ Acrylic acid, β,β-bis(*p*-nitrophenyl)-, 2 - diethylaminoethyl ester, 4641.

$C_{21}H_{24}N_2O_6S$ Glutamine, *N* - [1 - [(carboxymethyl)carbamyl] - 2 - (1,4 - dihydro-3 - methyl - 1,4 - dioxo - 2 - naphthylmercapto)ethyl]-, 2704*a*.

$C_{21}H_{24}N_2O_6$ 5*H* - Cycloheptabenzene - 3 - butyric acid, 6,7,8,9 - tetrahydro-, picrate, 2965*f*.

$C_{21}H_{24}N_2S_2$ Benzaldehyde, dimethylamino-, bis(aminophenyl)mercaptal, 6179*f*.

$C_{21}H_{24}N_4O_2S$ Sulfanilamide, *N*¹ - (2,6 - dimethyl - 4 - pyrimidyl)-, reaction product with *p* - dimethylaminobenzaldehyde, - *HCl*, 4238*a*.

$C_{21}H_{24}N_4O_3S$ *p* - Toluenesulfonic acid, 1,1-diphenylbiguanide salt, P 4292*h*.

$C_{21}H_{24}N_4O_7$ β - Alanine, *N* - phenyl-, Et ester, picrolonate, 576*a*.

Indole, 1-methyl-3-(1-piperidylmethyl)-, picrate, 1768*c*.

Phenaceturic acid, α-formyl-, Bu ester, 2,4-dinitrophenylhydrazone, P 1440*b*.

$C_{21}H_{24}N_4O_8$ Anagyrine, picrate, 649*g*.

Monolupine, picrate, 649*g*.

Rhombinine, picrate, 649*g*.

$C_{21}H_{24}N_4O_9$ Baptifoline, picrate, 650*ab*.

$C_{21}H_{24}N_7O_6$ Glutamic acid, *N*-[*p*-[(1-(2-amino - 4 - hydroxy - 6 - pteridyl)-ethyl]methylamino]benzoyl]-, 3424*b*.

$C_{21}H_{24}BrN_3O$ Quinoline, 6-bromo 4-(4-methoxy - α - propylamino - *m* - toluidino)-5-methyl-, *di- HCl*, P 7515*i*.

$C_{21}H_{24}Br_2O_4$ Isovaleric acid, α-bromo-, diester with 2-methyl-1,4-naphthalenediol, P 4300*f*.

$C_{21}H_{24}ClN$ Lepidine, 2-[chlorobenzyl(2-dimethylaminoethyl)amino]-, *and di- HCl*, 8389*i*.

$C_{21}H_{24}ClN_3O$ Acridine, 3-chloro-2-methoxy-9-[2 - (1 - piperidyl)ethylamino]-, *and di- HCl*, 6633*g*.

*o* - Cresol, α - amylamino - 4 - (7 - chloro-4-quinolylamino)-, *di- HCl*, P 7515*e*.

—, α-butylamino-4-(7-chloro-3-methyl-4-quinolylamino), P 7515*a*.

—, 4 - (7 - chloro - 3 - methyl - 4 - quinolylamino)-α-diethylamino-, *di- HCl*, P 7514*c*.

Quinoline, 7-chloro-4-(α-diethylamino-4-methoxy-*m*-toluidino)-, P 7515*g*.

—, 7-chloro-4-(α-isobutylamino-4-methoxy-*m*-toluidino)-, *di- HCl*, P 7515*i*.

$C_{21}H_{24}ClN_3O_2$ *o*-Cresol, 4-chloro-α-diethylamino - 6 - (6 - methoxy - 4 - quinolylamino)-, P 7515*b*.

*o*-Cresol, 4-(5-chloro-8-methoxy-4-quinolylamino)-α-diethylamino-, P 7515*b*.

$C_{21}H_{24}N_2$ 1-Piperidinebutyronitrile, α,α-diphenyl-, 4243*b*, 9052*g*; - *HCl*, 7138*e*; *and salts*, 7467*d*.

$C_{21}H_{24}N_2O$ Aniline, *p*,*p'*-furfurylidenebis-[*N*, *N*-dimethyl-, P 9432*h*.

Ethylenediamine, compd. with triphenylmethanol, 2082*d*.

Isoquinoline, 1-(ethoxymethyl)-1,2,3,4-tetrahydro - 2 - (3 - indolylmethyl)-, 3408*b*.

4-Morpholinebutyronitrile, methyl-α,α-diphenyl-, 4243*d*, 9054*c*; *and* - *HCl*, 9053*a*.

—, α-phenyl-α-*p*-tolyl-, *and* - *HCl*, 9053*b*.

4-Morpholinevaleronitrile, α,α-diphenyl-, *and* - *HCl*, 9053*b*.

3-Pentadienone, 1,5-bis(*p*-dimethylaminophenyl)-, 633*b*.

Pyridine, 2-[1-(2-dimethylaminoethoxy)-1-(naphthyl)ethyl]-, *and* - *HCl*, 2206*d*.

$C_{21}H_{24}N_2OS$ Phenothiazine, 10-(α-1-piperidylbutyryl)-, - *HCl*, 7938*e*.

$C_{21}H_{24}N_4OS_2$ Rhodanine, 3-ethyl-5-[4-(1-ethyl - 3,3 - dimethyl - 2 - indolinylidene)-2-butenylidene]-, 4910*h*.

$C_{21}H_{24}N_2O_2$ Butyric acid, γ-(benzylmethylamino) - α - cyano - α - phenyl-, Et ester, P 695*i*.

Ketone, 10-acetylacridanyl diethylaminomethyl, *and* - *HCl*, 233*h*.

4-Morpholinebutyronitrile, α-(*m*-methoxyphenyl)-α-phenyl-, 4245*a*.

$C_{21}H_{24}N_2O_3$ Alstonine, tetrahydro-, 648*f*.

Benzoic acid, *o*-(1-piperidyl-4-pyridylacetyl)-, Et ester, *di- HCl*, P 3045*g*.

Pseudostrychnine, dihydro-, 239*b*.

Strychnine, dihydro-?-hydroxy-(?), 239*e*.

$C_{21}H_{24}N_2O_4$ Cyclohexanemethanol, 4-hydroxy-, dicarbanilate, 7436*d*.

Enanthic acid, α,γ-dibenzamido-, 5006*b*.

$C_{21}H_{24}N_2O_4S$ Phenothiazine, 10-[2-(1-pyrrolidyl)propyl]-, oxalate, 631*g*.

$C_{21}H_{24}N_2O_7$ Resorcinol, 2,4-dimitro-6-(1,1,-3,3-tetramethylbutyl)-, 3-benzoate, 7923*f*.

$C_{21}H_{24}N_2O_8$ Glucoside, methyl, 2,3-dicarbanilate, 3368*h*.

$C_{21}H_{24}N_2S$ Aniline, *p*,*p'*-2-thenylidenebis-[*N*, *N*-dimethyl-, P 9432*h*.

$C_{21}H_{24}N_3PS$ Thiophosphoramide, *N*, *N'*, *N''*-tribenzyl-, 3353*e*.

$C_{21}H_{24}N_4$ Pyridine, 3,3'-benzylidenebis[6-dimethylamino-, 410*h*.

Pyridine, 2-[(2-dimethylaminoethyl)-α-2-——dylbenzylamino]-, *and tri-HCl*,

$C_{21}H_{24}N_4O$ o-Cresol, 4-(6-amino-4-quinolylamino)-α-1-piperidyl-, *tri* -*HCl*, P 7514*g*.
Methanol, bis(6-dimethylamino-3-pyridyl)phenyl-, 410*i*.

$C_{21}H_{24}N_4O_4$ 2-Isovaleronaphthone, 1,2,3,4-tetrahydro-, 2,3-dinitrophenylhydrazone, 1382*d*.

$C_{21}H_{24}N_4O_4S_2$ Benzenesulfonamide, *p*-(hexyldihydroxyphenylazo) - *N* - 2 - thiazolyl-, 9048*b*.

$C_{21}H_{24}N_4O_5$ 5*H*-Cycloheptabenzen-5-one, 6,7,8,9 - tetrahydro - 2,3,4,6 - tetramethoxy-, 2,4-dinitrophenylhydrazone, 3403*d*.

$C_{21}H_{24}N_4O_{10}$ Butyric acid, γ-dimethylamino-α - ethyl - α - (2 - hydroxy - 3 - methoxyphenyl)-, γ-lactone, picrate, 625*g*.

$C_{21}H_{24}N_6O_3S$ Benzenesulfonamide, *N*-ethyl-3,5 - dinitro - 2 - (2,3,6,7 - tetrahydro - 6 - hydroxy - 3,10 - dimethyl - 5*H*-pyrido[1,2,3 - *de*] - 1,4 - benzoxazin-9-ylazo)-, P 2782*a*.

$C_{21}H_{24}N_8O_5$ Glutamic acid, 4-amino-9,10-dimethylpteroyl-, 9186*h*, 9249*e*.
Glutamic acid, *N*-{*p*-[(1-(2,4 diamino 6-pteridyl)ethyl]methylamino}benzoyl}-3424*c*.

$C_{21}H_{24}O$ Cyclohexanone, 2,6-dibenzyl 2-methyl-, 2961*h*.

$C_{21}H_{24}OSi_2$ Disiloxane, trimethyltriphenyl, 667*cf*.

$C_{21}H_{24}O_2$ Acetophenone, *p*-(α,β-diethyl-*p*-methoxystyryl)-, 9056*c*.
Cyclopentaneacetic acid, 2 (5-acenaphthenyl)-, Et ester, 3796*g*.
Indene, 3-butyl-6-methoxy-2 (*p* methoxyphenyl)-, 1758*a*.
—, 3-isobutyl-6-methoxy-2-(*p* methoxyphenyl)-, 1758*a*.

$C_{21}H_{24}O_3$ Compd., m. 136 8°, 198*b*.
2-Furanol, 2-ethyltetrahydro 5-methyl-3,3-diphenyl , acetate, 2202*b*.
1,4-Naphthoquinone, 2-(4-cyclopentylcyclohexyl)-3-hydroxy-, 1376*e*.
Propane, 2-[*p*-(allyloxy)phenyl] 2-[*p*-(2,3-epoxypropoxy)phenyl]-, P 5017*a*
4,4'-Stilbenediol, α,α'-diethyl , monopropionate, P 2641*f*.

$C_{21}H_{24}O_3Si_3$ Cyclotrisiloxane, 2,4,6-trimethyl-2,4,6-triphenyl-, 2513*a*.

$C_{21}H_{24}O_4$ Benzoic acid, *p* (α,β-diethyl-*p*-hydroxyphenethyl)-, acetate, 9055*i*.
Diphenic acid, 4'-isopropyl-3-methyl , Pr ester, 3815*h*.
Isovaleric acid, α-ethoxy-, *p* phenylphenacyl ester, 6975*d*.
1,4-Naphthoquinone, 2-(3-cyclohexylpropyl)-3-hydroxy-, acetate, 1374*e*, 3365*g*.
2-Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,4 - tetrahydro - 7 - hydroxy - 2 methyl-, propionate, P 3849*a*, P 7048*i*.
Propane, 2,2-bis[*p*-(2,3-epoxypropoxy)-phenyl]-, P 5421*i*.
,1'-Spirobiindan-6,6',7,7'-tetrol, 3,3,-3',3'-tetramethyl-, P 4511*f*.

$C_{21}H_{24}O_4S$ Retenesulfonic acid, 3-methoxy , Et ester, 4252*c*.

$C_{21}H_{24}O_5$ 1,4-Naphthoquinone, 2-hydroxy-3-[3 - (4 - hydroxycyclohexyl)propyl]-, 4-acetate, 1381*h*.

$C_{21}H_{24}O_5S$ Cyclohexanemethanol, 4-hydroxybenzoate *p*-toluenesulfonate, 7436*e*.

$C_{21}H_{24}O_6$ 1,3-Cyclohexanedione, 2,2'-veratrylidenedi-, 1336*e*.
Galactopyranoside, phenyl 4,6-benzylidene-2,3-dimethyl-, 1327*c*.
2-Naphthalenecapric acid, 1,4-dihydro-3-hydroxy-4,1,4-trioxo-, Me ester, 3365*i*.
1,2,4-Naphthalenetriol, 3-isoamyl-, triacetate, 1373*d*.
Xylose, dibenzylidene-, di-Me acetal, 1323*i*.

$C_{21}H_{24}O_7$ Divaricatic acid, 5077*d*.
Glucoside, 3-methoxy-5-styrylphenyl, 5017*e*

$C_{21}H_{24}O_7S$ Galactoside, methyl 2-desoxy-3-tosyl-4,6-benzal-, 1727*c*.

$C_{21}H_{24}O_8$ Chalcone, 2'-hydroxy-3,3',4,4',-5,5'-hexamethoxy-, 1774*h*.
Flavanone, 3',4',5',6,7,8-hexamethoxy-, 1774*i*.

$C_{21}H_{24}O_8S$ Galactoside, methyl 4,6-benzylidene-, *p*-toluenesulfonate, 1727*i*.
Galactoside, methyl 4,6-benzylidene-2-*p*-tolylsulfonyl-, 4636*a*.

$C_{21}H_{24}O_9$ Rhapontin, 9383*i*.

$C_{21}H_{24}O_9S_2$ Glucofuranoside, methyl 3,6-anhydro-, 2,5-bis(*p*-toluenesulfonate), 7905*i*.
Glucoside, methyl 2,4-ditosyl-3,6-anhydro-, 1727*a*.

$C_{21}H_{24}O_{10} + 2H_2O$ See *Phlorizin*.

$C_{21}H_{25}BrN_2$ 1 Benzyl-1-(3-indolylmethyl)-piperidinium bromide, 3407*h*.

$C_{21}H_{25}BrO_3$ Resorcinol, 4-bromo-6-(1,1,3,3-tetramethylbutyl)-, 3-benzoate, 7923*f*.

$C_{21}H_{25}ClN_4$ Quinoline, 2-*p*-chloroanilino(2-diethylaminoethylamino)-, -*HCl*, 9037*hi*.

$C_{21}H_{25}ClN_4O_2$ Acridine, 2-chloro-9-(4-diethylaminobutylamino)-7-nitro-, *di*-*HCl*, 7937*h*.
3 - (*o* - Carboxyphenyl) - 5 - heptyl - 2-phenyl - 2*H* - tetrazolium chloride, 5314*a*.

$C_{21}H_{25}ClN_4S$ Quinazoline, (3-diethylaminopropylamino)(*p* - chlorophenylmercapto)-, 2952*f*.

$C_{21}H_{25}ClO_2$ Butyric acid, α-chloro-α-(α-ethoxybenzhydryl)-, Et ester, 1394*g*.
Resorcinol, 4-chloro-6-(1,1,3,3-tetramethylbutyl)-, 1-benzoate, 7923*g*.

$C_{21}H_{25}ClO_5$ 1-Indancarboxylic acid, 2-chloro-2 - (3 - cyclohexylpropyl) - 1 - hydroxy-3-oxo , acetate, 1384*e*.

$C_{21}H_{25}Cl_2N_3S$ Pyridine, 2-[(5-chloro-2-thenyl)(2 - dimethylaminoethyl)-amino] , benzylchloride deriv., 5781*f*.

$C_{21}H_{25}IN_2$ Yobyrine, *N*-methyltetrahydro-, methiodide, 5407*d*.

$C_{21}H_{25}IN_2S$ 1-Ethyl[5-(3-ethyl 2-thiazolidylidene) - 1,3 - pentadienyl]quinolinium iodide, 6929*f*.

$C_{21}H_{25}N$ Quinoline, 6-(α,α-dimethylbenzyl)-1,2 - dihydro - 2,2,4 - trimethyl-, P 6242*a*.

$C_{21}H_{25}NO$ 1-Piperidinebutyraldehyde, α,α-diphenyl-, *and* - *HCl*, 4244*h*
4-Piperidone, 3,5-diethyl-2,6-diphenyl-, - *HCl*, 1410*b*.
—, 1-ethyl 3,5-dimethyl-2,6-diphenyl-, *and* - *HCl*, 1410*d*.
—, 3-isopropyl-1-methyl-2,6-diphenyl-, *and* - *HCl*, 1410*c*.
1-Propanone, 1-[9-(2-dimethylaminopropyl)-9-fluorenyl]-, *and salts*, 5770*d*.

$C_{21}H_{25}NO_2$ Acetic acid, diphenyl-, 3-(1-pyrrolidyl)propyl ester, *and* - *HCl*, 1388*d*
9-Anthroic acid, 9,10-dihydro-, 2 diethylaminoethyl ester, 9306*d*.
1 Cyclohexene-1-methanol, 4-isopropyl-, 1-naphthalenecarbamate, 7434*f*.
1-Naphthol, 4-butyl-5,6,7,8-tetrahydro-, carbanilate, 2196*c*.
—, 2-(dimethylaminomethyl)-1,2,3,4-tetrahydro-1-phenyl-, acetate, *and* - *HCl*, P 5417*g*.
2-Pentanone, 5-(4-morpholinyl)-3,3 diphenyl-, *and* - *HCl*, 9053*h*.
4-Penteuoic acid, 2,2-diphenyl-, 2-dimethylaminoethyl ester, 3392*d*.
1-Piperidinebutyric acid, α,α-diphenyl-, 4244*a*; *and salts*, 7467*e*.
4-Stilbenecarboxylic acid, 2-diethylaminoethyl ester, *HCl*, 2980*e*.

$C_{21}H_{25}NO_3$ Acetic acid, diphenyl-, 2-(4-morpholinyl)isopropyl ester, - *HCl*, P 6673*f*; 3-(4-morpholinyl)propyl ester, *and* - *HCl*, P 6673*f*.
2-Naphthaleuehendecanenitrile, 1,4-dihydro-3-hydroxy-1,4-dioxo-, 1382*b*.
1-Phenanthrene-ethylamine, trimethoxy-*N*,*N*-dimethyl-, 6208*d*.
9-Phenanthrylamine, 9,10-dihydrotrimethoxy - *N*,*N* - dimethyl - 8 - vinyl-, 6208*c*.
4-Piperidone, 2,6-bis(*p*-methoxyphenyl)-3,5-dimethyl-, *and* - *HCl*, 1410*b*.
Propionic acid, β,β-diphenyl-, 2-(4-morpholinyl)ethyl ester, P 9086*i*.

$C_{21}H_{25}NO_4$ 2-Butanone, 1-[*o*-(benzyloxy)phenoxy]-4-(4-morpholinyl)-, P 1915*a*.
1,3-Cyclohexanedione, 2,2'-(*p*-dimethylaminobenzylidene)di-, 1336*e*.
*p*-Mandelophenetidide, α-methylbutyrate, 1353*f*.
Papaverine, 1,2 - dihydro - 2 - methyl-, 6631*c*.
Propylamine, 2,3-bis(*p*-methoxyphenyl)-, diacetyl deriv., 2607*c*.

$C_{21}H_{25}NO_5$ Acetamide, *N*-[5,6,7-trimethoxy-4 - (*p* - methoxyphenyl) - 1 - indanyl]-, 2198*b*.
4-Piperidone, 2,6-bis(4-hydroxy-3-methoxyphenyl)-3,5-dimethyl-, *and* - *HCl*, 1410*b*.
Resorcinol, 4 - nitro - 6 - (1,1,3,3 - tetramethylbutyl)-, 3-benzoate, 7923*f*.

$C_{21}H_{25}NS$ Quinoline, 3-heptyl-6-methyl-2-(2-thienyl)-, 228*c*.

$C_{21}H_{25}N_2O_4P + 0.5H_2O$ Compd., decompg. 312°, 239*i*.

$C_{21}H_{25}N_2O_5P$ Strychninephosphorous acid, dihydro-, *perchlorate*, 289*h*.

$C_{21}H_{26}N_2$ Lepidine, 2-[benzyl(2-dimethylaminoethyl)amino]-, 8389*i*.

$C_{21}H_{26}N_2O_2$ *o*-Cresol, α-diethylamino-4-(6-methoxy-4-quinolylamino)-, *di*-*HCl*, P 7514*c*.
Glutaramide, *N*-benzyl-β-[2-(benzylimino)ethyl]-, 2998*i*.

$C_{21}H_{26}N_2O_3$ Piperidine, 3-(*N*-benzyl-*p*-nitrobenzamido)-1-ethyl-, - *HCl*, 6207*c*.

$C_{21}H_{26}N_2O_7$ Acetic acid, [3-(benzyloxy)-6-formyl-2,5-dimethoxyphenoxy]-, Et ester, semicarbazone, 7480*h*.
Lysergamide, *N*-(2,2'-dihydroxyisopropyl)-, oxalate, P 2243*c*.

$C_{21}H_{26}N_2O_7S$ Benzenesulfonamide, *N*-2-hydroxyethyl - 5 - nitro - 2 - (2,3,6,7-tetrahydro - 6 - hydroxy - 3,5 - dimethyl - 5*H* - pyrido[1,2,3 - *de*] - 1,4-benzoxazin-9-ylazo)-, P 2781*i*.

$C_{21}H_{26}BrN_5$ Pyrimidine, 4'(6 bromo-2-naphthylamino) - 6 - (2 - diethylaminoethylamino)-2-methyl-, P 6243*i*.

$C_{21}H_{26}ClN_3O$ Acridine, 6-chloro-9-(2-diethylaminopropylamino)-2-methoxy-, *and* *di*-*HCl*, P 256*a*.

$C_{21}H_{26}ClN_3$ Quinazoline, 2-*p*-chloroanilino-4 (2 - diethylaminoethylamino) - 7 methyl-, *di*-*HCl*, 2952*a*.
Quinazoline, 4-*p*-chloroanilino-2-(3-diethylaminopropylamino)-, 2952*e*.

$C_{21}H_{26}ClN_3O$ Quinazoline, 2-*p*-chloroanilino-4 - (2 - diethylaminoethylamino)methoxy-, *di*-*HCl*, 2952*a*.

$C_{21}H_{26}Cl_2O_2$ Thymol, 2,2'-methylenebis[6-chloro , 8615*b*.

$C_{21}H_{26}Cl_2N_2O_3$ 1,1',1''-[Glyceryltris(oxymethylene)]tris[pyridinium chloride], 8136*c*.

$C_{21}H_{26}Cl_2NO$ Phenol, pentachloro-, compd with *N*,*N*-dibutylbenzylamine, P 4298*g*.

$C_{21}H_{26}F_3N_3O_7$ Putrescine, $N^4$,$N^4$-diethyl-1 (α,α,α-trifluoro *m*-tolyl)-, picrate, 2211*d*.

$C_{21}H_{26}INO_3$ [2-(Hydroxydimethoxy-1-phenanthryl)ethyl]trimethylammonium iodide, 6208*g*.
Isothebaine, Me ether methiodide, 6208*a*

$C_{21}H_{26}IN_3S_2$ 3-Ethyl-2-[3-(3-ethyl-4 methyl-4 - thiazolin - 2 - ylidene) - 4 - phenylimino-1-butenyl]-2-thiazolinium iodide, 2530*b*.

$C_{21}H_{26}N_2$ 2-Imidazoline, 1-butyl 2-(2,2 diphenylethyl)-, P 1810*i*.
Valeronitrile, diethylamino - α,α - diphenyl-, - *HCl*, 7138*e*; *and* - *HCl*, 9052*g*

$C_{21}H_{26}N_2O$ Anhydro base, m. 170°, 2213*e*
1-Piperidinebutyramide, α,α-diphenyl-, 7467*e*; *and* - *HCl*, 4245*f*.
4 - Stilbenecarboxamide, *N* - (2 - diethylaminoethyl)-, *and* - *HCl*, 2981*a*.
Strychnidine, dehydrodihydro-, 2213*f*.
—, dihydro-, 2213*g*.

$C_{21}H_{26}N_2OS$ Thiaxanthone, 1-(2 diethylaminoethylamino) - 2,4 - dimethyl-, 226*f*.
Thiaxanthone, 1-(3-diethylaminopropylamino)-4-methyl-, *and* - *HCl*, 226*e*.

$C_{21}H_{26}N_2O_2$ Acetophenone, α,α'-(pentamethylenediimino)di-, *and salts*, 3800*e*.
Acridanmethanol 10-acetyl-α-(diethylaminomethyl)-, *and* - *HCl*, 233*i*
5,11(6*H*,12*H*) - Methanodibenzo[*b*,*f*][1,5]diazocine-2,8-diol, 1,3,4,7,9,10-hexamethyl-, 181*a*.
Pimelanilide, α-ethyl-, P 7506*a*.
*h*-Quinine, Me ether, 4678*h*.
Xanthone, 1-(diethylaminoethylamino)-dimethyl-, 226*a*, - *HCl*, 225*h*

$C_{21}H_{26}N_2O_2S$ Cyclohexanecarboxylic acid, 2-phenyl-, 2-benzyl-2-thiopseudourea salt, 2174*c*, 8363*f*.

$C_{21}H_{26}N_2O_3$ (See also *Yohimbine*.)
Apocupreine, (2-hydroxyethyl) , P 673*i*
Corynanthine, 3105*g*, 7584*d*, 9372*a*, *fluocolumbate*(*V*), 5786*a*.
Xanthone, 1-(2-diethylaminoethylamino)-methoxy-4-methyl-, *and* - *HCl*, 226*b*

$C_{21}H_{26}N_2O_4$ Acetamide, *N*-methyl-*N*,*N*'-[1,2 - bis(*p* methoxyphenyl)ethylene]bis-, 614*f*.
Malonic acid, bis[2-(2-pyridyl)ethyl]-, di-Et ester, 4267*f*.
2-Phenanthrenecarboxylic acid, 1-(3-diazoacetonyl) - 1,2,3,4,4a,9,10,10a-octahydro-7-methoxy-2-methyl-, Me ester, 3431*i*.

$C_{21}H_{26}N_2O_5$ Acetophenone, α,α'-(pentameth-

ylenediimino)bis[3,4-dihydroxy-, *and di- HCl*, 3800*f*.

$C_{21}H_{26}N_2O_7$ Malonic acid, acetamido[(2-carboxy-3-indolyl)methyl]-, tri-Et ester, P 6238*e*.

$C_{21}H_{26}N_2O_8$ Glucuronide, *p*-acetamidophenyl-, benzylamine salt, 6314*g*.

$C_{21}H_{26}N_2S$ Phenothiazine, 10-[2-(dimethyl-1-pyrrolidyl)propyl]-, *and - HCl*, 631*g*.

$C_{21}H_{26}N_4$ Quinoline, 6-anilino-4-(2-diethylaminoethylamino)-, *and - HCl*, 9038*b*.

$C_{21}H_{26}N_4O_2$ Benzoic acid, *o*-(1-phenylhydrazonoöctylazo)-, 5314*a*.

$C_{21}H_{26}N_4O_4$ Acetophenone, *ar,ar*-dilsopropyl-*ar*-methyl-, 2,4-dinitrophenylhydrazone, 1339*h*.

Pelargonophenone, 2,4-dinitrophenylhydrazone, 6991*b*.

2,4-Pentadienal, 3-methyl-5-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 2,4-dinitrophenylhydrazone, 2585*i*.

$C_{21}H_{26}N_4O_8$ Hexanmethylenimine, 1-(*p*-methoxyphenethyl)-, picrate, 3378*h*, P 3455*f*.

$C_{21}H_{26}N_8O_{14}$ Pyrrolidine, 1-(4-aminoamyl)-, dipicrate, 3420*i*.

$C_{21}H_{26}N_8O_{16}$ Ethanol, 2-(1-ethyl-4-piperidylamino)-, dipicrate, 2207*c*.

Oxetane-3,3-bismethylamine, *N,N,N',N'*-tetramethyl-, dipicrate, 134*a*.

$C_{21}H_{26}O$ Benzophenone, 4-*sec*-butyl-2,3,5,6-tetramethyl-, 8370*a*.

Benzophenone, 4,4'-dibutyl-, 7004*h*.

$C_{21}H_{26}O_2$ Acetophenone, *p*-(α,β diethyl-*p*-methoxyphenethyl)-, 9056*c*.

Acetophenone, 2-isoamoxy-4,5-dimethyl-α phenyl-, 7924*f*.

2-Heptene, 3,5-bis(*p*-methoxyphenyl)-, P 4700*a*.

Indan, 5-methoxy-2-(*p*-methoxyphenyl)-3-methyl-1-propyl-, 1758*d*.

$C_{21}H_{26}O_4$ 1,4-Naphthoquinone, 2-(5-cyclohexylamyl)-3-hydroxy-, 1108*g*, 1374*g*, 2610*b*.

1,4-Naphthoquinone, 2-hydroxy-3-(menthylmethyl)-, 1374*g*.

2 Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,4 - tetrahydro 7 - methoxy - 2-propyl-, P 5047*g*.

Resorcinol, 4 - (1,1,3,3 - tetramethyl butyl)-, benzoate, 7923*e*.

Salicylic acid, 5 *tert*-butyl-, *p*-*tert* butylphenyl ester, P 4697*e*, P 7265*i*; 3,5-diethylphenyl ester, P 7266*a*.

Valerophenone, α-ethyl-*p*-methoxy-β-(*p*-methoxyphenyl)-, P 4699*i*.

$C_{21}H_{26}O_4$ 1-Naphthalenebutyric acid, 6-methoxy-α methyl-α-propionyl-, Et ester, P 3850*g*.

1,4 Naphthoquinone deriv., m. 90.5-92°, 1387*c*.

1,4-Naphthoquinone, 2-hydroxy-3-(2-methyloctyl)-, acetate, 1373*e*

2 Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,4 - tetrahydro - 1 - hydroxy - 7-methoxy-2 methyl-, Et ester, P 3848*g*.

$C_{21}H_{26}O_4$ 2 Naphthalenepelargonic acid, 1,4-dihydro-3-hydroxy-1,4 dioxo-, Et ester, 1381*i*, 1382*a*.

Δ$^{9(10)}$-Phenanthreneacetic acid, 2-carboxy - 3,4,4a,9,10,10a - hexahydro-7-methoxy-2-methyl-, di-Me ester, 3471*g*.

$C_{21}H_{26}O_4S_2$ Cyclohexanemethanol, 4-hydroxy-, di-*p*-toluenesulfonate, 7436*e*.

$C_{21}H_{26}O_9$ Glucoside, benzyl, tetraacetate, 3795*e*, 7430*i*.

$C_{21}H_{26}O_{11}$ Glucoside, *o*-methoxyphenyl, tetraacetate, 7923*b*.

$C_{21}H_{26}O_{12}$ Benzoic acid, 2-β-glucosidoxy-5-methoxy-, Me ester, triacetate, 3393*i*.

$C_{21}H_{26}O_{12}S$ Glucose, 1,3,4,6-tetraacetate 2-*p*-toluenesulfonate, 1726*h*, 3368*c*.

$C_{21}H_{26}O_{13}$ Fabiatrin, 1770*d*.

$C_{21}H_{27}ClN_2O_3S$ Acetic acid, [*p*-(1-ethylpropyl)phenoxy]-(?), salt with 2-(*p*-chlorobenzyl)-2-thiopseudourea, 3364*d*.

$C_{21}H_{27}ClO_2$ Phenol, 3'-*tert*-butyl-4-chloro-6-isopropyl - 3 - methyl - 2,2' - methylenedi-, 8615*b*.

Thymol, 6 - chloro - 2,6' - methylenedi-, 8615*b*.

$C_{21}H_{27}N$ 4-Hexenylamine, *N, N*,1-trimethyl-3,5-diphenyl-, *and hydrochlorides*, 192*c*.

Piperidine, 1-(4,4 diphenylbutyl)-, *and - HCl*, P 1810*g*.

—, 1-(3,3-diphenylisobutyl)-, *- HCl*, 1243*g*, *and - HCl*, P 1810*g*.

—, 1 (1-methyl-3,3-diphenylpropyl)-, *HCl*, 4243*g*.

$C_{21}H_{27}NO$ (See also *3-Heptanone, dimethylamino 1,4-diphenyl-; 3-Hexanone, 6-dimethylaminomethyl-4,4-diphenyl-*.)

Benzophenone, 4,4'-dibutyl-, oxime, 7004*h*.

Cyclohexanol, 2-[(benzylmethylamino)-methyl]-1-phenyl-, P 5417*f*.

Cyclohexylamine, *N*-[2-(*o*-benzylphenoxy)ethyl]-, *and - HCl*, 3386*e*.

2-Fluorenemethanol, α-(dipropylaminomethyl)-, *- HCl*, 194*d*.

2-Pipecoline, 1-[2-(α-phenyl-*o*-toloxy)-ethyl]-, *and - HCl*, 3386*d*.

Piperidine, 1-[2-(benzhydryloxy)isopropyl]-, P 5804*e*.

—, 1-[(benzhydryloxy)propyl]-, *and salts*, P 5804*d*.

—, 1-[2-(methylbenzhydryloxy)ethyl]-, 4057*d*; *and - HCl*, 3810*h*.

—, 1-[3-(α-phenyl-*o*-toloxy)propyl]-, *and - HCl*, 3386*c*.

1 - Piperidinebutanol, α,α - diphenyl-, *- HCl*, P 6241*e*.

1-Piperidinepropanol, α-benzyl-α-phenyl-, *- HCl*, 9071*i*.

$C_{21}H_{27}NO_2$ Acetic acid, diphenyl-, 2-(1-ethylpropylamino)ethyl ester, *- HCl*, P 2639*h*; 2-(1-methylbutylamino)ethyl ester, *- HCl*, P 2639*h*.

Benzhydrol, α-(2-dimethylaminoethyl)-2-methyl , propionate, P 5417*g*.

Butyric acid, α,α-diphenyl-, 2-dimethylaminoisopropyl ester, *- HCl*, 3392*c*.

Isoquinoline, 2-ethyl-1,2,3,4-tetrahydro-6,7-dimethoxy-1-phenethyl-, P 2241*f*.

Isovaleric acid, γ-dimethylamino-α,α-diphenyl-, Et ester, *- HCl*, 611*g*.

4-Morpholinepropanol, α-ethyl-α,β-diphenyl-, *and - HCl*, 9070*i*.

1-Naphthalenecarbamic acid, 3-cyclohexyl-1-methylpropyl ester, 8360*h*.

*p*-Quinone, 2,5-di-*tert*-butyl-, *O*-benzyloxime, 5378*h*.

Valeric acid, δ-diethylamino-α,α-diphenyl-, 9053*d*.

—, γ-dimethylamino-α,α-diphenyl-, Et ester, *and - H Br*, 7466*i*; Et ester, *- HCl*, 611*e*, 3390*f*, 3391*b*.

—, α,α-diphenyl-, 2-dimethylaminoethyl ester, *- HCl*, 3392*d*.

$C_{21}H_{27}NO_2S$ Acetic acid, (benzhydrylmercapto)-, 2-diethylaminoethyl ester, 5018*i*.

Piperidine, 1-[3-(benzhydrylsulfonyl)-propyl]-, *and - HCl*, 1366*e*.

—, 1-[3-(methylsulfonyl)-3,3-diphenylpropyl]-, 1366*i*.

$C_{21}H_{27}NO_3$ Acetic acid, (benzhydryloxy)-2-diethylaminoethyl ester, *and - HCl*, 5018*i*.

Acetic acid, (2-diethylaminoethoxy)-phenyl-, benzyl ester, 2189*e*.

Carbanilic acid, *p*-(α,β-diethyl-*p* methoxyphenethyl)-, Me ester, 9056*a*.

Vomicine, tetrahydrodeazadesoxy-, 7948*f*.

$C_{21}H_{27}NO_4$ Acetamide, *N*-(3,4-diethoxy-β-hydroxy - α - methylphenethyl) - α-phenyl-, 1423*eh*.

$C_{21}H_{27}NO_5$ Colchiceine, tetrahydro-, 8376*f*.

$C_{21}H_{27}NO_7$ Moschatine, 7060*f*.

$C_{21}H_{27}N_3O_4P$ +0.5$H_2O$ Pseudostrychninephosphorous acid, anhydrotetrahydro-, 239*h*.

$C_{21}H_{27}N_3O_4P$ Neostrychninephosphoric acid, anhydrodihydro-, 239*i*.

Neostrychninephosphoric acid, bisanhydrodihydro-, hydrate, 239*i*.

$C_{21}H_{27}N_3O_5$ Acrylic acid, β,β-bis(*p*-aminophenyl)-, 2-diethylaminoethyl ester, 7464*c*.

Pelargonophenone, *p*-nitrophenylhydrazone, 6991*a*.

$C_{21}H_{27}N_3O_6$ Bicyclo[4.3.1]-7-decene-1-carboxylic acid, 7-methyl-10-oxo-, Et ester, phenylsemicarbazone, 7908*c*.

$C_{21}H_{27}N_3O_6$ Lysine, $N^{\epsilon}$-benzoyl-$N^{\alpha}$-[3-hydroxy - 5 - (hydroxymethyl) - 2-methyl-4-pyridylmethyl]-, 644*i*.

$C_{21}H_{27}N_3O_6S_2$ 10-Camphorsulfonic acid, sulfapyridine salt, 609*i*.

$C_{21}H_{27}N_3S_3$ *s*-Triazine, hexahydro-1,3,5-tris-(5-methyl-2-thenyl)-, 1763*f*.

$C_{21}H_{27}N_3O_4S$ Acetophenone, α-(3-diethylaminopropylmercapto)-, 2,4-dinitrophenylhydrazone, 6574*g*.

$C_{21}H_{27}N_3O_8$ Acetomesidide, α-diethylamino-, picrate, 1022*b*.

$C_{21}H_{28}BrNO_3$ (2-Benzhydryloxyethyl)(carboxymethyl)dimethylammonium bromide, Et ester, P 5045*i*.

$C_{21}H_{28}BrNO_6$ Colchiceine, bromotetrahydro-, 8376*c*.

$C_{21}H_{28}Br_2Cl_2O_2$ 3,20-Pregnanedione, 6,6-dibromo-21,21-dichloro-, P 824*b*.

$C_{21}H_{28}ClN$ Hexylamine, 4-chloro-*N, N*,1-trimethyl-3,3-diphenyl-, *and - HCl*, 192*b*.

$C_{21}H_{28}ClNO$ Amylamine, *N*-[2-(2-biphenylyloxy)ethyl] - *N* - (2 - chloroethyl)-, *- HCl*, 6309*b*.

$C_{21}H_{28}ClNO_3$ (2-Benzhydryloxyethyl)(carboxymethyl)dimethylammonium chloride, Et ester, P 5045*i*.

$C_{21}H_{28}INO$ 1 - (2 - Benzhydryloxyethyl) - 1-methylpiperidinium iodide, P 2640*i*, P 2641*c*.

Decahydro - 5 - methyl - 1 - (1 - naphthoxymethyl)quinolizinium iodide, 6210*c*.

$C_{21}H_{28}INO_2$ Diethyl(2 - hydroxyethyl)-methylammonium iodide, diphenylacetate, 7921*e*.

2-Hydroxyethyltrimethylammonium iodide, α,α-diphenylbutyrate, 3392*b*.

$C_{21}H_{28}N_2$ Hexylamine, 4-iminotrimethyl-3,3-diphenyl-, 3391*h*, 4244*b*, 7467*a*; *hydrochlorides*, 3391*g*.

$C_{21}H_{28}N_2O$ Acetamide, *N*-(2-diethylaminoethyl)-*N*-*o*-phenylbenzyl-, 1355*i*.

Acridanmethanol, α - (dipropylaminomethyl)-, 234*a*.

*h*-Hydrocinchonine, Et ether, 4677*c*.

Piperidine, 1-[2-(*N*-(*m*-methoxybenzyl)-anilino]ethyl]-, P 683*d*.

Strychnidine, tetrahydrodichano-, 2213*h*.

$C_{21}H_{28}N_2O_2$ (See also *Optochine*.)

Compd., m. 160°, 2213*g*

*h*-Hydroquinine, Me ether, 4678*h*.

Strychnidine, hydroxytetrahydrodichano-, 2213*e*.

$C_{21}H_{28}N_2O_2S$ Valeric acid, γ,γ-dimethyl-δ-phenyl-, 2-benzyl-2-thiopseudourea salt, 2931*h*.

$C_{21}H_{28}N_2O_3$ Carbamic acid, ethyl[α-[(*p*-methoxybenzylamino)methyl]benzyl]-, Et ester, *- HCl*, 6176*g*.

$C_{21}H_{28}N_2O_3S$ 2-Methylallylnicotinium *p*-toluenesulfonate, P 1904*a*.

$C_{21}H_{28}N_2O_4$ Procaine, phenylacetate, 7290*d*.

$C_{21}H_{28}N_2O_5$ Carbanilide, 4,4'-diethoxy-*N*-ethyl-3,3'-dimethoxy- 2177*g*.

Carbanilide, *N, N'*-diethyl-3,3',4,4'-tetramethoxy-, 2177*f*.

Pyridine, 2-[α-(2-dimethylaminoethoxy)-α-methylbenzyl]-, succinate, 2205*h*, 2315*g*, 8551*e*.

Tyrosine, *N* - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-, Bu ester, 644*h*.

Urea, 1,3 - bis(4 - ethoxy - 3 - methoxybenzyl)-, 2177*b*.

$C_{21}H_{28}N_2O_6S$ 2-Thiazolidineacetic acid, 4-carboxy - 3 - isobutyryl - 5,5 - dimethyl-α-(α-phenylacetamido)-, Me ester, 8892*g*.

$C_{21}H_{28}N_2O_{10}$ Arabinamine, *N*-(6-nitro-3,4-xylyl)-, tetraacetate, P 2637*d*.

$C_{21}H_{28}N_4$ Pyrimidine, 2-cyclohexylamino-4-(*p* - dimethylaminostyryl) - 6-methyl-, 3427*a*.

$C_{21}H_{28}N_4O_2$ *m*-Toluamidine, 4,4'-(pentamethylenedioxy)di-, *di- HCl*, 9049*d*.

$C_{21}H_{28}N_4O_4$ Benzamidine, 4,4'-(pentamethylenedioxy)bis[3-methoxy-, *di- HCl*, 9049*d*.

$C_{21}H_{28}N_4O_4S_2$ Azclaanilide, *p,p'*-disulfamyl-, 2597*g*.

$C_{21}H_{28}N_4O_{10}S$ Pyrimidine, 6-acetamido-4-(tetraacetyl - D - glucosidamino) - 2-(methylmercapto)-, 146*d*.

$C_{21}H_{28}N_4O_{11}$ Cyclopentanecarboxylic acid, 1-(5 - dimethylamino - 3 - oxoamyl) - 2-oxo-, Et ester, picrate, 7432*d*.

$C_{21}H_{28}O_2$ (See also *Testosterone, ethynyl-*.)

Durenol, 4,4'-methylenedi-, 7450*i*, 7465*d*.

Heptane, 3,5-bis(*p*-methoxyphenyl)-, P 4700*a*.

Hexane, 3-(*p*-methoxybenzyl)-4-(*p*-methoxyphenyl)-, P 4700*a*.

Phenol, 4,4'-isopropylidenebis[2-isopropyl-, P 9084*h*.

—, 2,2' - methylenebis[4 - *tert* - butyl-, 8615*b*.

Pregnadiene-3,20-dione, 1783*e*, 3018*i*, P 7977*h*, P 8402*f*.

Progesterone, 6-dehydro-, P 7056*c*.

Thymol, 6,6'-methylenedi-, 8615*b*.

$C_{21}H_{28}O_3$ Corticosterone, Δ$^{11}$-anhydro-, 6640*c*.

4,11-Etiocholadienic acid, 3-keto-, Me ester, 1788*g*, 4282*e*, P 8402*g*.

Isoestriol A, acetonide, 3435*a*.

1,4-Naphthoquinone, 2-(4,8-dimethylnonyl)-3-hydroxy-, 1373*f*.

—, 2-hendecyl-3-hydroxy-, 1373*c*, 2610*b*.

—, 2 - hydroxy - 3 - isoamyl - 6 - isohexyl-, 1383*a*.

—, 2-hydroxy-3-(9-methyldecyl)-, 1109*c*, 1373*d*, 2610*b*.

Δ$^{4,11}$ - Pregnadiene - 3,20 - dione, 21 - hydroxy-, 3431*c*.

$\Delta^4$-Pregnene-3,20-dion-21-al, P 3476*d*.
4-Pregnene-3,20-dione, 16,17-oxido-, 3430*f*.
Propionic acid, monoester with estradiol, P 6248*a*.

$C_{21}H_{32}O_5$ Corticosterone, dehydro-, 1428*i*, 1788*b*, P 5812*a*, 8493*h*.
3,5,7,9-Decatetraenoic acid, 4-hydroxy-8-methyl-2-oxo-10-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, Me ester, 2588*b*.
1,4-Naphthoquinone, 2-hydroxy-3-(9-hydroxy-9-methyldecyl)-, 1382*a*, 2610*b*.
—, 2-hydroxy-3-(10-methoxydecyl)-, 1381*e*.
$\Delta^4$-Pregnen-21-ol-3,11,20-trione, P 5812*a*.

$C_{21}H_{32}O_6$ Corticosterone, 17-hydroxy-11-dehydro-, 7566*h*, 8544*b*, 9201*i*, 9202*a*.
1-Phenanthreneacetic acid, 2-carboxy-1,2,3,4,4a,9,10,10a-octahydro-7-methoxy-2-methyl-, di-Me ester, 3431*h*.

$C_{21}H_{32}O_6$ 1-Phenanthreneacetic acid, 2-carboxy-1,2,3,4,4a,9,10,10a-octahydro-1-hydroxy-7-methoxy-2-methyl-, di-Me ester, 3431*f*.

$C_{21}H_{33}ClO_2$ Abietic acid, 6-(chloromethyl)-dehydro-, *and Na salt*, P 6665*f*.

$C_{21}H_{33}Cl_2NO$ Phenol, 4-*tert*-butyl-2,6-dichloro-, compd. with *N*-butylbenzylamine, P 4298*f*.

$C_{21}H_{33}IN_2$ (4-Imino-2-methyl-3,3-diphenylamyl)trimethylammonium iodide, 7467*a*.

$C_{21}H_{33}N$ Benzylamine, *N*,*N*-dibutyl-*o*-phenyl-, *and* -*HCl*, 1355*h*.

$C_{21}H_{33}NO$ Ethylamine, 2-(4-*tert*-butyl-$\alpha$-phenyl-*o*-toloxy)-*N*,*N*-dimethyl-, *and* -*HCl*, 2969*f*.
3-Heptanol, dimethylamino-4,4-diphenyl-, 4244*g*; -*HCl*, 3390*g*, 3391*d*; *and* -*HCl*, 1911*i*, 3391*c*.
3-Hexanol, 6-dimethylamino-5-methyl-4,4-biphenyl-, *and* -*HCl*, 3391*bc*.
Triethylamine, 2-($\alpha$-ethylbenzhydryloxy)-, 4657*d*.

$C_{21}H_{33}NO_3$ 2-Cyclohexene-1-acetic acid, $\alpha$-phenyl-, 3-(1-pyrrolidyl)propyl ester, *and* -*HCl*, 1388*d*.
Isobutylamine, *N*,1-diethyl-3-[*p*-(*p*-methoxyphenoxy)phenyl]-, P 365*d*.
—, *N*,1-diethyl-3-(4-methoxy-3-phenoxyphenyl)-, P 365*d*.
—, 1-ethyl-3-[4-(*p*-methoxyphenoxy)-*m*-tolyl]-*N*-methyl-, P 365*d*.
—, 1-ethyl-3-(4-methoxy-3-toloxyphenyl)-*N*-methyl-, P 365*d*.

$C_{21}H_{33}NO_3S$ Propylamine, *N*,*N*-diethyl-3-(ethylsulfonyl)-3,3-diphenyl-, -*HCl*, 1367*a*.

$C_{21}H_{33}NO_3$ Isobutylamine, 1-ethyl-3-[4-methoxy-3-(*o*-methoxyphenoxy)phenyl]-*N*-methyl-, P 365*e*.
1,4-Naphthoquinone, 2-(11-aminohendecyl)-3-hydroxy-, *and* -*HCl*, 1382*c*.
—, 2-(decylaminomethyl)-3-hydroxy-, 1384*h*.

$C_{21}H_{33}NO_6$ Colchiceine, hexahydro-, 8376*c*.
Dicarboxylic acid, m. 323–6°, 211*e*.

$C_{21}H_{33}NO_7$ Colchiceine, hexahydro-, epoxide, 8376*d*.
Tricarboxylic acid, decompg. 258–61°, 210*f*.

$C_{21}H_{33}NO_7S$ Erysotrine, dimethyl sulfate, 4281*d*.

$C_{21}H_{33}NO_8$ Arabinamine, *N*-3,4-xylyl-, tetraacetate, P 2637*d*.

$C_{21}H_{33}N_3O$ 1-Cyclohexene-1-crotonaldehyde, $\alpha$,2,6,6-tetramethyl-, phenylsemicarbazone, 2588*d*.
2,5,9-Hendecatrienal, 2,6,10-trimethyl-, phenylsemicarbazone, P 1801*a*.
$\alpha$-Irone, 4-phenylsemicarbazone, 3375*d*, 5549*e*, 7644*i*.
$\gamma$-Irone, 4-phenylsemicarbazone, 3375*c*, 5550*g*, 7644*i*.

$C_{21}H_{33}N_3O_2$ Propionic acid, $\beta$,$\beta$-bis(*p*-aminophenyl)-, 2-diethylaminoethyl ester, 7464*c*.
Strychnidine, hydroxytetrahydrodichano-, oxime, 2213*e*.

$C_{21}H_{33}N_3O_4$ 1-Phenanthreneacetic acid, 2-formyl-1,2,3,4,4a,9,10,10a-octahydro-7-methoxy-2-methyl-, Me ester, semicarbazone, 3434*h*.

$C_{21}H_{33}N_3O_5$ 1-Indancarboxylic acid, 2-(3-cyclohexylpropyl)-1,2-dihydroxy-3-oxo-, Me ester, semicarbazone, 1384*d*.

$C_{21}H_{33}N_3O_7$ Quininic acid, 8-(2-diethylamino-[illegible])-6-methoxy-, Et ester, oxalate, 7886*b*.

$C_{21}H_{33}O_3P$ 2-Indenephosphonic acid, dicyclohexyl ester, P 7969*e*.

$C_{21}H_{34}$ Hendecane, 1-(naphthyl)-, 4454*h*.

$C_{21}H_{34}BrNO$ (2-Benzhydryloxyethyl)triethylammonium bromide, P 2640*i*, P 2641*c*.

$C_{21}H_{34}BrNO_2$ 1-Ethyl-1-(2-hydroxyethyl)-pyrrolidinium bromide, $\alpha$-phenyl-2-cyclopentene-1-acetate, 1388*e*.
1-(2-Hydroxyethyl)-1-methylpyrrolidinium bromide $\alpha$-phenyl-2-cyclohexene-1-acetate, 1388*d*.

$C_{21}H_{34}Br_2N_4O_6S_2$ Benzamidine, 4,4′-(trimethylenedioxy)bis[3-bromo-, diisethionate, P 688*g*, 9049*c*.

$C_{21}H_{34}ClNS$ Quinoline, 7-chloro-4-(dodecylmercapto)-, 3419*a*.

$C_{21}H_{34}ClN_7O$ Benzimidazole, chloro-2-[4-[3-(2-diethylaminoethoxy)propylamino]-6-methyl-2-pyrimidylamino]-, P 3854*c*.

$C_{21}H_{34}HgN_4Na_2O_8$ Mercupurin, 310*d*, 1112*g*, 3105*i*, 8541*d*.

$C_{21}H_{34}INO_2$ 1-Ethyl-1-(2-hydroxyethyl)pyrrolidinium iodide, $\alpha$-phenyl-2-cyclopentene-1-acetate, 1388*c*.

$C_{21}H_{34}N_2$ Aniline, *p*,*p*′-methylenebis[*N*-butyl-, *and di-HCl*, 3381*h*.
Aniline, methylenebis[*N*,*N*-diethyl-, P 1176*i*, P 1177*b*, P 9520*e*.
Ethylenediamine, *N*′-*o*-phenylbenzyl-*N*,*N*-dipropyl-, 1355*i*.

$C_{21}H_{34}N_2O$ Pyridine, 3-[$\alpha$-(2-dimethylaminoethoxy)-5-isopropyl-$\alpha$,2-dimethylbenzyl]-, *and* -*HCl*, 2206*d*.
Strychnidine, hexahydrodichano-, 2213*f*.

$C_{21}H_{34}N_2O_2$ Benzyl alcohol, $\alpha$,$\alpha$′-[pentamethylenebis(iminomethylene)]di-, *and di-HCl*, 3800*e*.
Compd. from *p*-methoxy-*N*-methylphenethylamine and HCHO, *and* -*HCl*-, 6594*d*.
$\Delta^5$-Pregnen-3-ol-20-one, 21-diazo-, P 2376*g*.

$C_{21}H_{34}N_2O_2S$ Pelargonic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.
Quinoline, 6-(dodecylmercapto)-5-nitro-, 3419*a*.

$C_{21}H_{34}N_2O_3S$ Cyclohexanemethanesulfonic acid, 3,3-dimethyl-, benzidine salt, 9044*e*.

$C_{21}H_{34}N_2O_4S$ Cyclohexanemethanesulfonic acid, 5-hydroxy-3,3-dimethyl-, benzidine salt, 9044*e*.

$C_{21}H_{34}N_2O_5$ Carbamic acid, (3,4-dimethoxyphenethyl)-, 3,4-dimethoxyphenethylamine salt, 1351*f*.
1-Piperidinepropionic acid, $\alpha$-ethyl-$\alpha$-(1-hydroxyethyl)-, Et ester *p*-nitrobenzoate, -*HCl*, 7643*e*.

$C_{21}H_{34}N_4O_4$ 2-Cyclopenten-1-one, 2,4-dimethyl-3-octyl-, 2,4-dinitrophenylhydrazone, 6624*b*.

$C_{21}H_{34}N_4O_{12}$ Lindelofine, picrate, 3827*h*.

$C_{21}H_{34}O_2$ (See also *Progesterone*.)
Abietic acid, dehydro-, Me ester, 6605*d*
Androstenediol, ethynyl-, P 6246*g*, 8032*e*.
Cannabinol, tetrahydro-, 8383*f*.
2,4,6,8-Nonatetraenoic acid, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, Me ester, 5374*h*.
$\Delta^{5,16}$-Pregnadien-3-ol-20-one, 3018*i*.
Pregnene 3,20-dione, P 366*d*, P 2378*a*, 3018*i*, P 7978*f*.
Testosterone, vinyl-, 3018*i*, P 5810*f*, 7124*h*, 8508*h*.

$C_{21}H_{34}O_2S$ Abietic acid, 6-(mercaptomethyl)-dehydro-, P 6666*b*.

$C_{21}H_{34}O_3$ (See also *Corticosterone*, *desoxy*-), 6211*e*.
Abietic acid, 6-hydroxydehydro-, Me ester, P 3462*b*.
—, 6-(hydroxymethyl)dehydro-, P 6665*h*.
3,6,20-Allopregnanetrione, 5068*a*.
Androsten-3-ol-17-one, acetate, 3018*i*, 5067*c*.
Androsterone, dehydro-, acetate, 1048*c*, 2957*i*.
Compd., m. 238–40°, 5068*e*.
Etiocholenic acid, 3-keto-, Me ester, P 1070*b*, P 2244*d*, P 8402*f*.
Etiocholen-3-ol-17-one, acetate, 3018*i*.
Hydroxy diketo steroid, m. 280°, P 7058*b*.
Isoandrosterone, dehydro-, acetate, 1048*f*, 2213*i*, 3018*i*, 5068*d*.
Isovalerone, compd. with phenol, 1078.
3,11,20-Pregnanetrione, 3019*g*, 6215*f*.
$\Delta^4$-Pregnene-17,20-diol-3-on-21-al, P 7055*hi*.
$\Delta^5$-Pregnene-20,21-dione, 3-hydroxy-, P 2377*a*.
$\Delta^4$-Pregnen-3-ol, 20,21-diketo-, P 1916*bk*.
$\Delta^4$-Pregnenol-3,20-dione, 3018*i*, P 3476*d*.
$\Delta^4$-Pregnen-17-ol-3-one, 20,21-epoxy-, 3018*i*.
Progesterone, hydroxy-, 1783*h*, P 3476*a*, P 6248*a*, 7032*d*.
Testosterone, acetate, P 2377*b*, 3018*i*, P 3572*f*.

$C_{21}H_{34}O_3S$ Naphthalenesulfonic acid, trimethyl(1,1,3,3-tetramethylbutyl)-, *Na salt*, P 3640*a*.

$C_{21}H_{34}O_4$ (See also *Corticosterone*.)
Androstan-3-ol-11,17-dione, acetate, 3019*g*.
Cyclopentanemalonic acid, 2-methyl-$\alpha$-phenethyl-, di-Et ester, 1039*g*.
$\Delta^{5,6}$-Etiobilienic-17-acid-16-carbinol, 3-hydroxy-, lactone acetate, 2214*b*.
Etiocholanol-11,17-dione, acetate, 3019*g*, 5067*i*.
Etiocholan-3-ol-17-one, 5,6-epoxyacetate, 3018*i*.
$\Delta^4$-Pregnene-17,21-diol-3,20-dione, P 3474*e*.
$\Delta^4$-Pregnene-3,20-dione, 12($\alpha$),21-dihydroxy-, 3431*a*.

$C_{21}H_{34}O_5$ Corticosterone, 17-hydroxy-, 302*a*, Humulone, 1525*g*, 3142*c*, 3559*b*, 6780*i*, 9361*f*.

$C_{21}H_{34}O_{12}S_2$ Glucoside, (2,3-dimercaptopropyl), hexaacetate, 7423*f*, 9251*a*.

$C_{21}H_{31}BrO_2$ 3,20-Allopregnanedione, 2-bromo-, P 2378*b*.

$C_{21}H_{41}ClN_2$ 3-(3-Ethyl-2-indolyl)decahydro-2,2-dimethylisoquinolinium chloride, 5407*f*.

$C_{21}H_{31}ClO_2$ 3,20-Allopregnanedione, 2-chloro-, P 2378*b*.
5-Androsten-17-ol, 3-chloro-, acetate, 6216*f*.
3,20-Pregnanedione, 5-chloro-, P 3475*e*.

$C_{21}H_{31}Cl_2N_3O_4S_2$ 2,2′-[3-Ethyl-4-methyl-4-thiazoliu-2-ylidene)-1,4-pentadienylene]bis[3-ethyl-2-thiazolium perchlorate], 2530*f*.

$C_{21}H_{31}IN_2$ 3-(3-Ethyl-2-indolyl)decahydro-2,2-dimethylisoquinolinium iodide, 5407*f*.

$C_{21}H_{31}IN_4O_{10}S_2$ Benzamidine, 3-iodo-4,4′-(trimethylenedioxy)di-, diisethionate, 9049*c*.

$C_{21}H_{31}KO_8S$ 16-Allopregnen-3($\beta$)-ol-20-one, sulfate, K salt, 6216*h*.

$C_{21}H_{31}NO$ 1-Naphthanilide, 1,2,3,4,4a,5,6,7,8,8a-decahydro-2,5,5,8a-tetramethyl-, 1749*a*, 6603*g*, 6604*a*.

$C_{21}H_{31}NO_2$ Abietic acid, 6-(aminomethyl)dehydro-, *and* -*HCl*, P 6666*a*.
Cyclohexaneacetic acid, $\alpha$-phenyl-, 2-(1-piperidyl)ethyl ester, P 7041*a*; 2-(1-piperidyl)ethyl ester, *and* -*HCl*, P 679*f*; 3-(1-pyrrolidyl)propyl ester, *and* -*HCl*, 1388*d*.
Cyclopentanecarboxylic acid, 1-(3,4-xylyl)-, 2-(1-piperidyl)ethyl ester, *and* -*HCl*, P 6229*f*.
4-Quinolinol, 3-decyl-7-methoxy-2-methyl-, 1416*b*.

$C_{21}H_{31}NO_3$ $\Delta^5$-Pregnen-3-ol-20-one, 21-isonitroso-, P 1916*b*.

$C_{21}H_{31}NO_4$ 4-Pentenoic acid, 2-(diethylaminomethyl)-2-(1-hydroxyethyl)-, Et ester benzoate, -*HCl*, 7643*e*.
1-Piperidinepropionic acid, $\alpha$-ethyl-$\alpha$-(1-hydroxyethyl)-, Et ester benzoate, -*HCl*, 7643*e*.

$C_{21}H_{31}NO_{13}$ Streptobiosamine, tetraacetyl-, 6580*e*.

$C_{21}H_{31}N_3O$ Quinaldine, 4-(4-diethylaminocyclohexylamino)-6-methoxy-, di-*HCl*, 4277*a*.
Quinoline, 8-[5-(cyclohexylamino)amylamino]-6-methoxy-, -*HCl*, 3421*f*.

$C_{21}H_{31}N_3O_2S$ Quinoline, 8-amino-6-dodecylmercapto)-5-nitro-, 3419*a*.

$C_{21}H_{31}N_3O_3$ 13-Nor-$\Delta^{13\alpha}$-D-homoandrostene, 3($\beta$)-hydroxy-17-keto-, semicarbazone, formate, 7942*b*.

$C_{21}H_{31}N_3$ Pyrimidine, 2-(2-diethylaminoethylamino)-4-(*p*-dimethylaminostyryl)-6-methyl-, 3427*a*.

$C_{21}H_{32}$ 1,3,5,7-Nonatetraene, 3,6,7-trimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 6297*b*.

$C_{21}H_{32}BrN$ 2-Dodecylisoquinolinium bromide, 3885*b*, 7591*i*, 9347*h*.

$C_{21}H_{32}Br_2N_2$ Pentamethylenebis(dimethylphenylammonium bromide), 2703*d*.

$C_{21}H_{32}ClN_3$ Quinoline, chloro-4-(4-diethylamino-1-methylbutylamino)-3-propyl-, 1655*g*.

$C_{21}H_{33}ClN_2$ Pyrimidine, 4-*p*-chloroanilino-6-(4-diethylamino-1-methylbutylamino)-2,5-dimethyl-, P 6244*a*.

$C_{21}H_{32}Cl_2N_2O_2$ Enanthamide, *N*,*N*′-(3,5-dichlorosalicylidene)bis-, 6182*e*.

$C_{21}H_{32}D_2O_2$ Pregnen-11,12-$d_2$-3($\alpha$)-ol-20-one, 4328*f*.

$H_{31}INO_3$ [2-(1,3,3a,8,9,9a-Hexahydro-3,5-dimethoxyphenanthro[4,5-*bcd*]-fur-9b(2*H*)-yl)ethyl]trimethylammonium iodide, 4280*f*.

$H_{34}IN_3O_2$ [2-[(2-Butoxy-4-quinolylcarbonyl)amino]ethyl]diethylmethylammonium iodide, 7921*e*.

$H_{35}N_3O$ Pivalophenone, β,β′-di-1-piperidyl-, *di*-*HCl*, 9070*e*.

4-Quinolinemethanol, α-(dibutylaminomethyl)-6,7-dimethyl-, *di*-*HBr*, 4675*a*.

$H_{32}N_2O_2$ Progesterone, dioxime, 1048*f*.

$H_{32}N_2O_3$ Isoandrosterone, dehydro-, acetate, dioxime, 1048*f*.

$H_{32}N_2O_4$ 1-Piperidinepropionic acid, α-ethyl-α-(1-hydroxyethyl)-, Et ester *p*-aminobenzoate, *and*-*HCl*, 7643*e*.

$H_{33}N_2O_2S$ Benzamide, *N*-[2-(2-diethylaminoethylmercapto)ethyl]-, citrate, 6184*c*.

$H_{37}NS$ Quinoline, 5-amino-6-(dodecylmercapto)-, *and di*-*HCl*, 3419*b*.

$H_{34}O$ Allopregnen-20-one, 3018*i*, 5068*c*.

Ether, *p*-*tert*-amylphenyl isobornyl, 1355*a*.

—, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenyl methyl, 1339*e*, P 1801*d*, P 3152*f*, 5372*a*, P 6657*e*, P 9083*ci*, P 9391*b*.

Phenol, *m*-pentadecadienyl-, P 4497*i*, 6298*g*.

Δ⁴ Pregnen-20-one, P 7056*a*, P 7649*c*.

$H_{37}O_2$ (See also *Pregnenolone*; *Urushiol*.)

3,20 Allopregnanedione, 3018*i*, 5067*d*, 6638*e*.

16-Allopregnen-3(β)-ol-20-one, 6216*i*.

5 Androsten-17-ol, acetate, 6216*g*.

Cardol, 1348*e*.

Eicosapentaenoic acid, Me ester, 2260*f*.

Δ⁴ D-Homoandrostene, 17(α) hydroxy-17(α)-methyl-3-keto-, P 5428*c*, P 5810*g*.

Nonadienynol, 9-methoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl), P 1801*c*, P 6657*d*, P 9082*h*, P 9083*g*.

3,20-Pregnanedione, 3018*i*, 5067*d*.

Testosterone, ethyl-, 3018*i*, P 7057*a*, 8032*e*.

3,11-Uranedione, 3019*g*

$H_{36}O_3$ Androstan-17-ol-3-one, acetate, 3018*i*

Δ⁵ Androstene-3,17-diol, acetate, 3018*i*

5 Androsten-17-ol, 3 carbomethoxy-, 6216*g*

Androsterone, acetate, 3018*i*, 5067*d*, 7099*h*.

Compd., m. 117–18°, 5067*c*

Compd., m. 174–5°, 5067*h*

Compd., m. 275–7°, P 6246*h*, P 7978*h*.

Etiocholan-3-ol 17-one, acetate, 3018*i*, 5067*c*

17 Etiocholanone, 3(α)-acetoxy-, 7032*f*.

Isoandrosterone, acetate, 3018*i*.

3,20 Pregnanedione, 17(α)-hydroxy-, 7032*f*.

Pregnanoldione, 3019*g*, 6211*df*, P 7056*i*.

Pregnanolone, 3,9-epoxy-, 3019*g*.

—, oxido-, 6215*dg*.

Pregnenedilone, 3018*i*, 3430*f*, P 5052*d*, 6214*g*.

$C_{21}H_{36}O_4$ 3(β),17(α)-Androstanediol, difor mate, 7941*e*.

Etiocholanic acid, 3-hydroxy-11-keto-, Me ester, 3019*g*.

17-Iso-Δ⁴-pregnene-17(β),20,21-triol-3-one, 6210*i*.

Pregnanedioldione, 6210*g*, 6213*af*, P 7056*i*.

Δ⁵·⁶-Pregnene-3,17,21-triol-20-one, P 3476*c*.

$C_{21}H_{32}O_5$ Δ⁵·⁶-Etiobilienic acid, 3-hydroxy-, di-Me ester, 2213*i*.

Etiocholanic acid, 3,7-dihydroxy-12-keto-, Me ester, 3019*g*.

$C_{21}H_{36}O_5S$ 16-Allopregnen-3(β)-ol-20-one, sulfate, *K salt*, 6216*h*.

$C_{21}H_{32}O_6$ Alloetiobilianic acid, 3(β)-acetoxy-, 2214*f*.

$C_{21}H_{35}O_6S$ Isoandrosterone-16-sulfonic acid, acetate, 2214*f*.

$C_{21}H_{35}ClO$ 20-Pregnanone, 5-chloro-, P 7056*c*.

$C_{21}H_{35}ClO_3$ 20-Pregnanone, 3(β)-hydroxy-5-chloro-, P 3475*e*.

$C_{21}H_{41}I_2N_4Pt$, 2887*c*.

$C_{21}H_{39}NO_4$ Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide, *N*-dodecyl-, P 4421*f*.

Cyclohexaneacetic acid, α-phenyl-, diethylaminopropyl ester, P 3453*d*, P 7041*a*; 2-(1-methylbutylamino)ethyl ester, -*HCl*, P 3640*a*.

Cyclotetradecanol, carbanilate, 6988*g*.

$C_{21}H_{39}NO_2$ Oxime, m. 172–7°, 5067*d*.

Oxime, m. 245–7°, P 6246*h*.

$C_{21}H_{39}NO_4$ Caproic acid, α-(dimethylaminomethyl)-α-(1-hydroxyethyl)-δ-methyl-, Et ester benzoate -*HCl*, 7643*e*.

$C_{21}H_{39}NO_6$ Adipic acid, α-[2-(carboxymethyl)cyclohexyl]-α-cyano-, tri-Et ester, 3829*b*.

Pimelic acid, α-(2-carboxy-2-methylcyclopentyl)-α-cyano-, tri-Et ester, 3829*f*.

$C_{21}H_{39}NO_{11}$ Streptobiosamine, tetraacetyl-bisdesoxy-, 1328*c*.

$C_{21}H_{39}NO_{12}$ Streptobiosamine, tetraacetyl-desoxy-, 1328*d*.

$C_{21}H_{39}NO_{13}$ Streptobiosamine, tetraacetyldihydro-, 6580*f*.

$C_{21}H_{39}N_3$ Quinoline, 4-(4-diethylamino-1-methylbutylamino)trimethyl-, 8886*b*.

$C_{21}N_{39}N_3O$ Isopimarinol, semicarbazone, 1390*f*.

Quinoline, 4-(4-diethylamino-1-methylbutylamino)ethoxy-3-methyl-, 2209*e*, 4276*d*, 8886*b*.

$C_{21}H_{39}N_3O_2$ 2-Propanol, 1-(butyl-*sec*-butylamino)-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*d*.

2-Propanol, 1-(butylisobutylamino)-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*e*.

—, 1-(*sec*-butylisobutylamino)-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*c*.

—, 1-dibutylamino-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*d*.

—, 1-diisobutylamino-3-(6-methoxy-8-quinolylamino)-, *and di*-*HCl*, P 254*c*.

—, 1-(isobutylisopropylamino)-3-(6-methoxy-8-quinolylamino)-2-methyl-, *and di*-*HCl*, P 254*f*.

$C_{21}H_{39}N_3O$ Pyrimidine, 4-(4-diethylamino-1-methylbutylamino)-6-*p*-methoxyanilino-2-methyl-, P 6243*i*.

s-Triazine, 6-hendecyl-1,2,3,4-tetrahydro-2,4-diimino-1-(*p*-methoxyphenyl)-, P 5216*f*.

$C_{21}H_{38}BrNO_2$ Triethyl(2-hydroxyethyl)ammonium bromide 1-*p*-tolylcyclopentanecarboxylate, P 7958*e*.

$C_{21}H_{34}Br_2O$ Ether, 3,6-dibromo-3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-4,8 nonadienyl methyl, 1339*e*.

$C_{21}H_{38}N_2O$ Cyclohexanecarboxamide, *N*-(2-diethylaminoethyl)-*N*-ethyl-1-phenyl-, *and*-*HCl*, P 7958*i*.

Cyclopentanecarboxamide, *N*-(2-diethylaminoethyl)-*N*-ethyl-1-*o*-tolyl-, *and*-*HCl*, P 7958*i*.

Pyridine, 2-[1-(2-dimethylaminoethoxy)-1-fenchylethyl]-, *and*-*HCl*, 2206*i*.

Strychnidine, decahydrotetrachano-, 2213*h*.

$C_{21}H_{38}N_2O_2$ Benzoic acid, *p*-diethylamino-, 2-cyclohexylaminobutyl ester, -*HCl*, P 2640*d*.

$C_{21}H_{38}O$ Alcohol, 6727*f*.

20-Allopregnanone, P 3475*d*.

12 Pregnanone, 3019*g*.

$C_{21}H_{38}O_2$ Allopregnan-3-olone, P 824*g*, 3018*i*, 5067*j*, 5068*d*, 6638*d*.

20-Allopregnanone, 3(β)-hydroxy-, P 3475*d*.

Androstan-17-ol-3-one, 17-ethyl-, P 7058*a*.

Arachidonic acid, Me ester, 2260*e*, 2791*g*.

Congoic acid, Me ester, 9052*a*.

Epiallopregnan-3-ol-20-one, P 821*c*.

17-Isopregnan-3-ol-20-one, 3018*i*, 5067*g*.

Nonatrienol, 9-methoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, P 1801*d*, 5373*b*, P 9082*i*, P 9083*h*.

Pregnan-3-ol-20-one, 1824*f*, 3018*i*, 5067*f*, 8034*g*.

Pregnenediol, 2299*g*.

$C_{21}H_{38}O_3$ Allopregnanediolone, 5068*a*, 6642*e*.

20-Allopregnanone, 3(β),17(α)-dihydroxy-, 7032*f*.

3,17-Androstanediol, acetate, P 1916*a*, 3018*i*, 7099*h*, 7124*g*.

Compd., m. 185–6°, 5067*h*.

Compd., m. 192–4°, 5068*b*.

Compd., m. 209–10°, 5068*e*.

Epipregnane-3,20-diol-11-one, 3019*g*.

17-Iso-Δ⁵-pregnene-3(β),17(β),20-triol, 6210*h*.

8-Nonen-4-yne-3,6-diol, 1-methoxy-3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1339*c*.

Pregnanedilone, 3018*i*, 5068*a*, 6211*g*, 6214*e*, 6215*fh*.

20-Pregnanone, 3(α),17(α)-dihydroxy-, 7032*e*.

-Tridecanone, 1-(3,4-dimethoxyphenyl)-, 2186*a*.

$C_{21}H_{38}O_4$ Etiocholanic acid, 3(α),12(β)-dihydroxy-, Me ester, P 5428*h*.

Gentisic acid, tetradecyl ester, 7003*i*.

Hendecanoic acid, (3,4-dimethoxyphenyl)-, Et ester, 566*c*.

17-Iso-Δ⁵-pregnene-3(β),17(β),20,21-tetrol, 6210*i*.

2,3-Norcamphanedicarboxylic acid, 5-hydroxy-, γ-lactone, dodecyl ester, P 3032*i*.

Pregnanetriol-11-one, 6212*b*, 6213*bd*.

20-Pregnanone, 3(α),7(α),20(α)-trihydroxy-, P 3475*d*.

Δ⁵·⁶·³,17,20,21-Pregnenetetrol, P 3476*c*.

$C_{21}H_{38}O_5$ Pregnane-3(α),17(α),20,21-tetrol-11-one, 6214*i*, 6215*c*.

$C_{21}H_{38}O_5S$ Allopregnanolone, sulfate, *K salt*, 5068*c*.

$C_{21}H_{38}O_7$ Azelaic acid, γ-acetyl-, bis(tetrahydrofurfuryl)ester, P 6226*c*.

$C_{21}H_{38}ClN_3O_3$ 1-[2-Hydroxyethylcarbamyl)-methyl]pyridinium chloride, laurate, 3884*i*.

$C_{21}H_{38}CrN_7O_4PS_4$ Choline, reineckate, ester with 2,2-dimethyl-1,3-dioxolan-4-ylmethyl Ph H phosphate, 6166*h*.

$C_{21}H_{39}NO$ Cyclohexaneëthanol, β-(2-dimethylaminopropyl)-α-ethyl-β-phenyl-, 3391*d*.

1-Piperidinepropanol, α-heptyl-α-phenyl-, *and*-*HCl*, 9071*i*.

$C_{21}H_{39}NO_2$ Butyric acid, α-phenyl-, 2-(1-isobutylisoamylamino)ethyl ester, -*HCl*, P 2639*h*.

1-Dodecanol, 10-ethyl-, carbanilate, 3780*i*.

$C_{21}H_{39}NO_3$ Acetic acid, (2-dibutylaminoethoxy)phenyl-, iso-Pr ester, 2189*f*.

Acetic acid, (3-diethylaminopropoxy)-phenyl-, hexyl ester, 2189*f*.

3(α),6-Allopregnanediol-20-one, oxime, 5068*a*.

Bicyclo[2.2.1]-5-heptene-2-carboxylic acid, 3-dodecylcarbamyl-, P 5205*f*.

Oxime, m. 275°, 5068*e*.

3(α),17(α)-Pregnanediol-20-one, oxime, 5068*a*.

$C_{21}H_{39}NO_4$ β-Alanine, *N*-(3,4-diethoxyphenethyl)-*N*-methyl-, Am ester, -*HCl*, 5765*g*.

$C_{21}H_{39}N_3O_2$ Lauramide, *N*-[(*p*-methoxyphenylguanyl)guanyl]-, P 4878*i*, P 5216*e*.

$C_{21}H_{39}N_3O_3$ 3-Hexanone, 1,4-bis(diethylamino)-5-methyl-, picrate, 2164*c*.

$C_{21}H_{38}BrNO$ 3-Acetyl-1-tetradecylpyridinium bromide, P 696*c*.

$C_{21}H_{38}ClN$ 1-Allyl-4-tridecylpyridinium chloride, P 696*f*.

$C_{21}H_{38}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, decyl ester, 6977*b*.

$C_{21}H_{38}N_2OS$ Benzamide, *N*-(2-diethylaminoethyl)-*m*-(1-methylheptylmercapto)-, -*HCl*, 3101*i*.

$C_{21}H_{38}N_2O_2$ Benzoic acid, *p*-diethylamino-, 2-(1-methylheptylamino)ethyl ester, -*HCl*, P 2640*c*.

Benzoic acid, *p*-dimethylamino-, 2-(1-isobutylisoamylamino)isopropyl ester, -*HCl*, P 2640*d*.

$C_{21}H_{38}N_2O_3S$ Myristamide, *N*-*p*-sulfamylbenzyl-, 8539*e*.

$C_{21}H_{38}N_2O_4$ Cyclohexanecarbamic acid, diester with 2-hydroxycyclohexanemethanol, 4233*a*.

$C_{21}H_{38}N_4O_2$ 2-Pentanone, 4,4′,4″-[nitrilotris(ethylenenitrilo)]tris-, P 3840*a*.

$C_{21}H_{38}O$ 20(β)-Allopregnanol, 6642*d*.

Phenol, *m*-pentadecyl-, P 4498*c*.

$C_{21}H_{38}O_2$ (See also *Pregnanediol*.)

3(β),20(α)-Allopregnanediol, 6210*f*.

Hydrocardol, 1348*f*.

Pyrocatechol, 3-pentadecyl-, P 3571*a*, 6298*g*.

Resorcinol, 5-pentadecyl-, P 884*d*, 1348*k*.

$C_{21}H_{38}O_3$ 5-Allopregnane, 3,17,20-trihydroxy-, 1787*c*.

Allopregnanetriol, 6210*g*, 6641*i*.

17-Iso-5-allopregnane-3(β),17(β),20-triol, 6210*h*.

4,8-Nonadiene-3,6-diol, 1-methoxy-3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1339*d*.

$C_{21}H_{38}O_3S$ Pentadecanesulfonic acid, Ph ester, 3678*a*.

$C_{21}H_{38}O_4$ 17-Iso-5-allopregnane-3(β),17(β),-20,21-tetrol, 6210*h*.

$C_{21}H_{38}O_6$ Aconitic acid, tris(2-methylbutyl) r, P 7684*e*.

**$C_{11}H_{17}NO_4S$** Benzaldehyde, *p-sec*-butyl-, compd. with menthylamine bisulfite, 3356*e*.
**$C_{21}H_{36}BrN$** 1-Amyl-2-hendecylpyridinium bromide, P 696*b*.
4-Butyl-1-dodecylpyridinium bromide, P 696*b*.
1-Decyl-4-hexylpyridinium bromide, P 696*b*.
Ethyl-1-tetradecylpyridinium bromide, P 696*d*.
1-Hexadecylpyridinium bromide, 1244*a*.
1-Propyl-4-tridecylpyridinium bromide, P 696*f*.
**$C_{21}H_{38}ClN$** Benzyldodecyldimethylammonium chloride, 20*d*, 4780*b*, 7151*e*.
Hexadecylpyridinium chloride, 3688*d*, 3884*i*, 5265*d*, 5534*a*, 6364*a*, 6698*i*, 7085*g*, 7303*f*, 9147*f*.
**$C_{21}H_{38}INO_3$** 1-Hexadecylpyridinium iodate, 3268*i*, 7303*f*, 7836*b*.
**$C_{21}H_{38}N_2O_3$** 1-Hexadecylpyridinium nitrate, P 667*c*.
Parabanic acid, 1-octadecyl-, P 4024*b*.
**$C_{21}H_{38}O_2$** Acrylic acid, 9-octadecenyl ester, P 4686*d*.
**$C_{21}H_{38}O_3$** Oleic acid, 2,3-epoxypropyl ester, P 907*i*.
**$C_{21}H_{38}O_4$** Malonic acid, hexadecyl-2-hydroxyethyl-, γ-lactone, 1322*c*.
**$C_{21}H_{38}O_5$** Azelaic acid, γ-butyryl-, di-Bu ester, P 6226*c*.
**$C_{21}H_{38}O_4S$** Pimelic acid, α-(2-carboxyethylmercapto)-δ ethyl-, tri-Pr ester, P 7504*f*.
**$C_{21}H_{39}ClO_4$** Stearic acid, θ,ι-dihydroxy-, 2 chloroallyl ester, P 8211*g*.
**$C_{21}H_{39}NO$** Cyclocicosanecarbonitrile, 1-hydroxy-, 7907*a*.
**$C_{21}H_{39}NO_5$** Glutamic acid, *N*-palmitoyl-, P 3841*h*.
**$C_{21}H_{39}N_7O_{12}$** See *Streptomycin*.
**$C_{21}H_{40}O_4P$** Cyclohexanol, methyl-, phosphate, P 9478*b*.
**$C_{21}H_{40}BrNO_2$** Diethyl(2-hydroxyethyl)-methylammonium bromide, dicyclohexylacetate, P 679*g*, P 2234*i*.
**$C_{21}H_{40}I_2N_2$** [*p*-(Diethylaminomethyl)phenethyl]triethylammonium iodide, ethiodide, 8059*c*.
**$C_{21}H_{40}N_2O$** Acetamide, *N*-(2-cyclohexylcyclohexylmethyl) - *N* - (2 - diethylaminoethyl)-, 1359*d*.
**$C_{21}H_{40}O_2$** Cyclononadecanol, acetate, 6988*h*.
11-Eicosenoic acid, Me ester, 4220*b*.
**$C_{21}H_{40}O_3$** Arachidic acid, ε-oxo-, Me ester, 3366*g*.
Margaric acid, ξ-ethyl-θ-oxo-, Et ester, 3780*h*.
Ricinoleic acid, iso-Pr ester, P 6222*b*.
**$C_{21}H_{40}O_4$** Malonic acid, (4-ethyl-1-isobutyloctyl)-, di-Et ester, 1374*d*.
Malonic acid, tetradecyl-, di-Et ester, 8358*c*.
Olein, mono-, 2072*b*, 3875*d*, 8610*a*.
Stearic acid, θ,ι-dihydroxy-, allyl ester, P 8211*g*.
**$C_{21}H_{40}O_5$** Ricinolein, mono-, 7161*c*.
**$C_{21}H_{40}O_7S$** Capric acid, ester with monocaprylate of 2,3-dihydroxy-1-propanesulfonic acid, P 4878*e*.
**$C_{21}H_{41}NO$** Oleamide, *N*-propyl-, 8353*g*.
**$C_{21}H_{41}NO_3$** Formic acid, ester with *N*-2-hydroxyethylstearamide, P 4878*h*.
**$C_{21}H_{41}NO_4S$** Taurine, *N*-methyl-*N*-oleoyl-, P 9498*g*; *Na salt*, P 2008*g*, 6915*h*.
**$C_{21}H_{41}NO_5S$** Ethanesulfonic acid, 2-(oleoylaminomethoxy)-, *Na salt*, P 9496*e*.
**$C_{21}H_{41}N_7O_{12}$** Streptomycin A, dihydro-, *salts*, 6369*cd*.
**$C_{21}H_{41}N_7O_{14}$** Streptomycin, dihydro-, 3518*hi*, 3519*a*.
**$C_{21}H_{42}ClNO_4$** (2,3-Dihydroxypropyl)dodecyldimethylammonium chloride, diacetate, 7132*f*.
**$C_{21}H_{42}N_2O$** Oxazolidine, 2-imino-3-octadecyl-, *and - HCl*, P 252*g*.
**$C_{21}H_{42}N_4O_2$** Carbamic acid, (carbamylguanyl)-, octadecyl ester, P 5552*f*.
**$C_{21}H_{42}N_6O_6$** Melamine, *N*, *N*, *N'*, *N'*, *N''*,-*N''*-hexakis(ethoxymethyl)-, P 4050*e*.
**$C_{21}H_{42}O$** 11-Heneicosanone, 2185*i*.
**$C_{21}H_{42}O_2$** Margaric acid, ξ-ethyl-, Et ester, 3780*h*.
Nonadecanoic acid, Et ester, 3781*f*.
Stearic acid, iso-Pr ester, 2164*i*; Pr ester, 2164*i*.
—, methyl-, Et ester, 3781*e*, 6160*g*, 6161*ab*.
**$C_{21}H_{42}O_3$** Carbonic acid, didecyl ester, 6168*d*.
Stearic acid, monoester with 1,2-propanediol, 8610*b*.
**$C_{21}H_{42}O_4$** Malonaldehydic acid, 2-ethylbutyl ester bis(2-ethylbutyl) acetal, 6168*e*.
Stearin, 1-mono-, 570*f*.
**$C_{21}H_{41}I$** Heneicosane, 1-iodo-, 7900*h*.
**$C_{21}H_{43}NO_2$** Carbamic acid, octadecyl-, Et ester, P 8712*h*.
Stearic acid, α-amino-, trimethylbetaine, P 4014*d*.
**$C_{21}H_{44}$** Compd., m. 62–3°, 3977*d*.
Heneicosane, 4841*c*, 5363*e*.
**$C_{21}H_{44}ClNO_2$** Choline chloride palmitate, 7940*b*.
**$C_{21}H_{44}INO_2$** Choline, iodide palmitate, 7288*a*, 7940*b*.
**$C_{21}H_{45}N$** Piperidine, 1-(10-dipropylaminodecyl)-, *di- HCl*, 3269*b*.
**$C_{21}H_{46}O$** Methane, bis(decyloxy)-, 6162*c*, 6622*d*.
**$C_{21}H_{46}O_2$** Batyl alcohol, 311*h*, 6737*f*.
**$C_{21}H_{45}N$** Triheptylamine, P 4003*d*.
**$C_{21}H_{46}O_4P$** Ethanol, 2-isoamoxy-, phosphate, P 9478*b*.
**$C_{21}H_{46}BrN$** Trimethyloctadecylammonium bromide, 2491*d*, 4780*b*.
**$C_{21}H_{46}BrNO_3$** Trimethyloctadecylammonium bromate, 2491*d*, 3269*c*, 7303*f*.
**$C_{21}H_{46}ClN$** Trimethyloctadecylammonium chloride, 2491*d*, 7303*f*.
**$C_{21}H_{46}ClNO_6$** Tris(2,3-dihydroxypropyl)-dodecylammonium chloride, 6041*b*.
**$C_{21}H_{46}INO_3$** Trimethyloctadecylammonium iodate, 2491*d*.
**$C_{21}H_{46}N_2$** Cadaverine, *N*, *N'*-dioctyl-, *di-II Br*, 3380*d*.
1,7-Heptanediamine, *N*, *N'*-diheptyl-, *di-II Br*, 3379*g*, P 3455*d*.
Methanediamine, *N*, *N*, *N'*, *N'*-tetraisoamyl-, 7246*f*
**$C_{21}H_{46}N_2O_3$** Trimethyloctadecylammonium nitrate, 1244*a*, 2491*d*, 7303*f*.
**$C_{21}H_{46}O_3Si$** Silane, tris(heptyloxy)-, 9028*c*.
**$C_{21}H_{47}N_3O_8S$** Succinamic acid, *N*-dodecyl *N*-methylsulfo-, bis(2-aminoethanol) salt, P 1798*b*.
**$C_{21}H_{48}Br_2N_2$** Nonamethylenebis[triethylammonium bromide], 2703*d*.
**$C_{21}H_{48}Cl_2I_8N_2O_8Sb_2$** Choline, acetyl-, chloride, Sb deriv., 357*d*.
**$C_{22}H_{10}O_2$** Dibenzo[*cd*, *jk*]pyrene-6,12 dione, 1760*a*.
**$C_{22}H_{11}Br_4N_3O_2$** 3-Isoxanthone, 2,4,5,7-tetrabromo - 9 - [*o* - (4,6 - diamino - *s*-triazin-2-yl)phenyl]-6-hydroxy-, P 5051*g*.
**$C_{22}H_{11}ClN_2O$** 15 *H*-Isoquino[2,3,4-*no*]quindolin-15-one, 6-chloro-, 7930*i*.
**$C_{22}H_{11}ClO_2S$** 8 *H* - Naphtho[2,3 - *c*]thiaxanthene - 5,8,14 - trione, 9 - chloro - 12-methyl-, P 9469*a*.
**$C_{22}H_{12}$** Benzo[*ghi*]perylene, 2839*e*.
**$C_{22}H_{12}BrCl_2NO_2S$** Pseudoindoxyl, 2-(9-bromo - 6 - chloro - 3 - oxo - 2(3 *H*)thiophanthrenylidene) - 5 - chloro - 7-methoxy-4-methyl-, P 7706*g*.
**$C_{22}H_{12}Cl_2N_2$** Quino[3,4-*b*]quinoline, dichloro-6-phenyl-, 2210*g*.
**$C_{22}H_{12}Cl_2O_2S_2$** Naphtho[1,2-*b*]thiophen-3-(2 *H*)-one, 6,9-dichloro-2-(6-ethoxy-3-oxo-2(3 *H*)-thianaphthenylidene)-, P 7706*g*.
**$C_{22}H_{12}Br_2Cl_2$** Ethane, 2,2-bis(bromonaphthyl)-1,1,1-trichloro-, 9332*g*.
**$C_{22}H_{13}ClN_2$** Quino[3,4-*b*]quinoline, 12-chloro-6-phenyl-, 2210*f*.
**$C_{22}H_{12}ClN_2O$** 15 *H*-Isoquino[2,3,4-*no*]quindolin-15-one, 6-chloro-4b,9-dihydro-, 7930*i*.
Quino[3,4-*b*]quinolin-12-ol, 10-chloro-6-phenyl-, 8393*a*.
**$C_{22}H_{13}ClO_4$** 2-Anthraquinonecarboxylic acid, 1-chloro-, benzyl ester, P 865*i*, P 866*c*, P 7708*h*.
**$C_{22}H_{13}Cl_3$** Ethane, 1,1,1-trichloro-2,2-bis-(chloronaphthyl)-, 3137*g*.
**$C_{22}H_{13}NO_2S$** Benzoxazole, 2,2'-(2-benzothiazolylmethylene)di-, P 5807*h*.
**$C_{22}H_{13}N_3S_2$** Benzothiazole, 2,2',2''-methylidynetri-, P 5807*g*.
**$C_{22}H_{14}$** (See also *Dibenzanthracene*.)
Benzo[*c*]chrysene, 8375*b*.
Dibenzo[*b*, *k*]phenanthrene, 1365*c*, 4569*g*, 9234*e*.
Pentacene, 3713*b*, 9234*e*.
Picene, 9234*e*.
**$C_{22}H_{14}Br_2O_5$** Fluorescein, 2,7-dibromo-4,5-dimethyl-, 1984*e*.
**$C_{22}H_{14}ClNO_4S$** 5(4 *H*)-Oxazolone, 4-[*p*-(chlorophenylsulfonyl)benzylidene] - phenyl-, 7449*i*.
**$C_{22}H_{14}ClNO_4S$** Anthraquinone, 1-chloro-5-[*m*-(methylsulfonyl)benzamido]-, P 8171*h*.
**$C_{22}H_{14}ClN_3O_2$** Quinoline, 2-[*N*-(*p*-chlorophenyl)benzamido]-5-nitro-, 9037*e*.
**$C_{22}H_{14}Cl_2N_2O$** Benzimidic acid, *N*-phenyl-, 5,7-dichloro-8-quinolyl ester, 1777*i*.
Quinoline, 5,7-dichloro-8-*N*-phenylbenzamido-, 1777*i*.
**$C_{22}H_{14}Cl_2O_5$** Fluorescein, 3',6'-dichloro-4,5-dimethyl-, 1984*k*.
**$C_{22}H_{14}Cl_2O_6$** 1,4 - Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 3 - chloro - 8 - (*p* - chlorophenyl)-1,4,4a,5,6,7-hexahydro-, 206*e*.
**$C_{22}H_{14}Cl_6$** Benzene, *p*-diphenethyl-, octachloro deriv., 5386*g*.
**$C_{22}H_{14}CoO_4$** Naphthaldehyde, hydroxy-, Co deriv., 1678*g*.
**$C_{22}H_{14}CuO_4$** Naphthaldehyde, hydroxy-, Cu deriv., 1678*g*.
**$C_{22}H_{14}F_2O_6$** 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 3-fluoro-8 - (*p* - fluorophenyl) - 1,4,4a,5,6,7-hexahydro-, 206*e*.
**$C_{22}H_{14}I_2O_5$** Fluorescein, 2,7-diiodo-4,5-dimethyl-, 1984*f*.
**$C_{22}H_{14}N_2$** Benzonitrile, *p*-[2-(6-phenanthridyl)vinyl]-, 5757*b*.
**$C_{22}H_{15}N_3O$** Quino[3,4-*b*]quinolin-12-ol, 6 phenyl-, 8393*a*.
**$C_{22}H_{16}N_2O_2$** Isoindigotin, 1-phenyl-, 6614*f*.
**$C_{22}H_{16}N_2O_5$** 1,4-Naphthoquinone, 2-(4 biphenylylazo)-3-hydroxy-, 1380*h*.
**$C_{22}H_{16}N_2O_6$** 1,4 Naphthoquinone, 2-hydroxy-3-(*p*-phenoxyphenylazo)-, 1380*h*.
**$C_{22}H_{16}N_2O_8$** *p*-Quinone, dioxime, bis(H phthalate), 5623*d*.
**$C_{22}H_{17}N_2O_6S_2$** 1 *H*-Benz[*de*]isoquinolinedisulfonic acid, 6 amino-2,3-dihydro-2-(2 naphthyl)-1,3-dioxo-, P 7710*h*.
**$C_{22}H_{18}N_4O_2S_2$** 3-Thianaphthenol, 2,2'-(*p*-phenylenebisazo)bis-, 6204*i*.
**$C_{22}H_{18}N_4O_3S_2$** Uracil, 5-[4-(2-benzothiazolyl)-4 - (2 - benzoxazolyl) - 1,3 - butadienyl]-6 hydroxy-2-thio-, P 4159*i*, P 8928*c*.
Uracil, 5-[4,4-bis(2-benzothiazolyl)-1,3-butadienyl]-6-hydroxy-, P 4159*c*, P 8928*c*.
**$C_{22}H_{14}NiO_4$** Naphthaldehyde, hydroxy-, Ni deriv., 1678*g*.
**$C_{22}H_{14}O_2$** Benzo[*j*]fluoranthen-1-ol(?), acetate, 7929*d*.
**$C_{22}H_{14}O_3$** 9-Anthracenecrotonic acid, 10-(2-furyl)-γ-hydroxy-, γ-lactone, 4252*g*.
2-Furanol, 5-[10-(2-furyl)-9-anthryl]-, 4252*g*.
5,12[3',4'] - Furanonaphthacene - 14,16-dione, 13,17-dihydro-, 7341*d*.
1,4-Naphthoquinone, 2-(4-biphenylyl)-3-hydroxy-, 1380*g*.
**$C_{22}H_{14}O_4$** [1,1'-Binaphthalene] - 3,3' - dicarboxylic acid, 8885*g*.
Naphthoyl peroxide, 3394*eh*.
**$C_{22}H_{14}O_4Zn$** Naphthaldehyde, hydroxy-, Zn deriv., 1678*g*.
**$C_{22}H_{14}O_5$** Naphthacenequinone, 6,11 dihydroxy-, diacetate, 7012*e*.
**$C_{22}H_{14}O_6S$** 2-Naphthoic acid, thiobis[hydroxy-, 2599*h*.
**$C_{22}H_{14}O_7$** 6 *H*,7 *H*,8 *H*-Bis[1]benzopyrano[4,3 - *b*, 3',4' - *e*]pyran - 7 - carboxylic acid, 6,8-dioxo-, Et ester, 5399*e*.
**$C_{22}H_{14}O_8$** 6 *H*,7 *H*,8 *H*-Bis[1]benzopyrano[4,3 - *b*, 3',4' - *e*]pyran - 7 - carboxylic acid, 6,8-dioxo-, 2-hydroxyethyl ester, 5399*e*.
**$C_{22}H_{14}O_9$** Aurintricarboxylic acid, *N H₄ salt*, 2117*b*.
**$C_{22}H_{15}ClN_2O$** Benzimidic acid, *N*-(*o*-chlorophenyl)-, 8-quinolyl ester, 1777*h*.
**$C_{22}H_{15}ClN_2O_4$** Benzoic acid, *o*-(2-chloro-5,11-dihydro-11-quindolinyl)-, 7930*i*.
Cinchophen, 3-(chloroanilino)-, 2210*d*, 8391*f*.
**$C_{22}H_{15}ClN_2O_5$** Phthalazine, 2-(*o*-chlorophenyl) - 1 - (2,4 - dinitrobenzylidene)-1,2-dihydro-4-methoxy-, 237*e*.
**$C_{22}H_{15}ClN_2O_{10}$** Quinoline, 4-*p*-chloroanilino-6-methoxy-8-nitro-, picrate, 9037*g*.
**$C_{22}H_{15}ClO_4$** 2-Fluoreneacetic acid, α-*p*-chlorobenzylidene-, 7468*d*.
**$C_{22}H_{15}ClO_6$** 1,4-Ethanophthalene-5,6,9,10-tetracarboxylic dianhydride, 8-(*p* chlorophenyl) - 1,4,4a,5,6,7 - hexahydro-, 206*e*.
**$C_{22}H_{15}Cl_3$** Ethane, 1,1,1-trichloro-2,2-dinaphthyl-, 3137*g*.
**$C_{22}H_{15}FO_6$** 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 8-(*p* fluorophenyl) - 1,4,4a,5,6,7 - hexahydro-, 206*d*.
**$C_{22}H_{15}FeO_6P$** Phosphine, triphenyl-, complex with iron carbonyl, 6202*d*.
**$C_{22}H_{15}NO_3$** Ketone, 4,5-diphenyl-3-isoxazolyl phenyl, 2992*b*.
**$C_{22}H_{15}NO_3$** Flavone, benzamido-, 5779*e*.
**$C_{22}H_{15}NO_4$** 2-Fluoreneacetic acid, α-*p*-nitrobenzylidene-, 7468*d*.
**$C_{22}H_{15}NO_4S$** 5(4 *H*)-Oxazolone, 2-phenyl-4

[*p* phenylsulfonyl)benzylidene]-, 7449*i*.

$C_{18}N_2OS_4$ 2(3*H*)-Thiazolethione, 3-allyl-5 - [2,2 - bis(2 - benzothiazolyl)vinyl]-4-hydroxy-, P 4158*i*, P 8028*b*.

$C_{18}N_2O_2S$ Phthalimide, *N*-(1,2,3,4-tetrahydro - 3 - phenyl - 2 - thioxo - 4-quinazolyl)-, 1047*c*.

$C_{18}N_2O_2S_2$ 2(3*H*)-Thiazolethione, 3-allyl-5 - [2 - (2 - benzothiazolyl) - 2 - (2-benzoxazolyl)vinyl]-4-hydroxy-, P 4159*b*, P 8028*b*.

$C_{18}N_2O_3S_2$ 2(3*H*)-Thiazolethione, 3-allyl-5 - [2,2 - bis(2 - benzoxazolyl)vinyl]-4-hydroxy-, P 4159*a*, P 8927*c*.

$C_{18}N_2O_6$ Stilbene, 2-(2,4,6-trinitrostyryl)-2,4,6-trinitro-2′-styryl-, 592*h*.

$C_{18}N_2O_{11}S_2$ 2 - Naphthol - 3,6 - disulfonic acid, [*p* - (*p* - nitrophenylsulfonyl)-phenylazo]-, *di-Na salt*, P 4818*a*.

$C_{18}N_2O_{12}S_2$ 2,7-Naphthalenedisulfonic acid, 4,5-dihydroxy-?-[*p*-(*p*-nitrophenylsulfonyl)phenylazo]-, *di-Na salt*, P 4818*b*.

$C_{18}N_6$ 4-Pyrazolecarbonitrile, 1,5-diphenyl-3-phenylazo-, 4258*c*.

$C_{18}N_4O_4$ 1-Naphthol, 4-[*p*-(*p*-nitrophenylazo)phenylazo]-, 597*d*.

$C_{18}N_4O_{10}$ 4*H*-Quinolizine-1-carboxylic acid, 4-oxo-3-(2-pyridyl)-, Me ester, picrate, 3828*b*.

$C_{18}N_{10}O_{16}$ Aniline, 4,4′-[4-methylimino-3,5 - dinitro - 2,5 - cyclohexadienylidenemethylene]bis[*N* - methyl-*N*,2,6-trinitro, 2982*c*.

$C_{18}H_{10}$ 13*H*-Dibenzo[*a*,*g*]fluorene, methyl, 2981*i*.

Ethylene, 1,2-dinaphthyl-, 1756*g*.

—, 1 - (1 - naphthyl) - 2 - (2 - naphthyl)-, 1756*f*.

Naphthalene, diphenyl-, 1041*h*, 8885*g*.

$C_{18}Br_2O_2$ Xanthene, 2,7-dibromo-9-(cinnamyloxy)-, 3822*f*.

$C_{18}ClNO_4S$ 1-Naphthalenesulfonic acid, 8 - [*p* - (*p* - chlorophenoxy)anilino], P 7696*d*.

$C_{18}ClN_4O_6S_2$ 2,7-Anthraquinonedisulfonic acid, 4-(3-acetamido-4-chloroanilino)-1-amino-, P 5197*f*.

$C_{18}ClN_3O_2$ 3-Pyrazolecarboxanilide, 2′-chloro - 5 - hydroxy - 1 - phenyl - 4-phenylazo-(?), P 8149*f*.

$C_{18}Cl_2N_4O_4S_2$ 2,2′-Bibenzothiazole, 6,6′-bis(α - acetylacetamido) - 5,5 - dichloro-, 5777*a*.

$C_{18}N_2$ Quinoline, 2-(*p*-benzylideneaminophenyl)-, 3000*e*.

$C_{18}N_2O$ Benzimidic acid, *N*-phenyl-, 8-quinolyl ester, 1777*g*.

Quinoline, 8 - *N* - phenylbenzamido-, 1777*h*.

$C_{18}H_{18}N_2O_2$ Acetophenone, α-phenyl-α-(5 phenyl-4-furazanyl)-, 2992*b*.

Cinchophen, 3-anilino-, 8391*f*.

$C_{18}H_{17}N_2O_3S$ Aniline, *p*,*p*′-thiobis[*N*-furfurylidene-, 4427*a*.

$C_{18}H_{16}N_2O_2S_2$ 4′,4‴-Bi-2-thiophenecarboxanilide, 4665*d*.

$C_{18}H_{16}N_2O_3$ Allophanic acid, γ-naphthyl-, naphthyl ester, 7447*ef*.

$C_{18}H_{16}N_2O_4$ Acetophenone, α,α′-(*o*-phenylenedinitrilo)bis[*o* hydroxy-, 4240*d*.

4′,4‴-Bi-2-furanilide, 4665*d*.

$C_{18}H_{16}N_2O_4S$ Anthraquinone, 1-amino[*m*-(methylsulfonyl)benzamido]-, P 7708*d*, P 8171*cg*

2 Propene-1-thiol, 2,3-diphenyl-, 3,5-dinitrobenzoate, 1043*i*.

$C_{18}H_{12}N_2O_4$ 7*H* Acenaph[1,2-*b*]indole 7-carboxylic acid, 6b,11b-dihydro-6b-hydroxy-11b-nitro-, Me ester acetate, 628*d*

$C_{18}H_{16}N_2O_5S_2$ 1-Naphthol-8-sulfonic acid, 4-acetyl - 2 - (2 - hydroxy - 4 - sulfo - 1-naphthylazo)-, P 8147*h*.

$C_{18}H_{16}N_2O_{16}S_2$ Benzoic acid, *m*-(4-amino-3,7-disulfo - 1 - anthraquinonylamino)-, mono-Me ester, P 5198*a*.

$C_{18}H_{16}N_2O$ Sudan III, 6035*c*.

$C_{18}H_{16}N_2O_3$ Ketone, 5-(*p*-nitrophenyl)-3-isoxazolyl phenyl, phenylhydrazone, 5394*g*.

$C_{18}H_{16}N_4O_4$ 1-Naphthol-8-sulfonic acid, 2,4-bis(phenylazo)-, 203*i*.

$C_{18}H_{16}N_4O_4$ 1-Fluorenecarboxylic acid, 9-oxo-, Et ester, 2,4-dinitrophenylhydrazone, 3402*c*.

$C_{18}H_{16}N_4O_7S_2$ Benzenesulfonic acid, 6′-(2-hydroxy - 1 - naphthylazo) - 2,3′-azodi-, *di-Na salt*, 8103*c*.

$C_{18}H_{16}N_4O_7PS$ Phosphine sulfide, phenyldi-2-pyridyl-, monopicrate, 1046*e*.

$C_{18}H_{16}N_4O_7$ 8-Quinolinol, 5-[4-(*p*-nitrophenylazo)-*o*-tolylazo]-, 597*e*.

$C_{18}H_{16}N_6O_7$ Pyridine, 2,2′-phenyliminodi-, monopicrate, 1046*c*.

$C_{18}H_{16}N_{10}O_{16}$ Methanol, tris[4 - (methylnitramino)-3,5-dinitrophenyl]-, 2982*b*.

$C_{18}H_{16}O$ Indone, 3-benzyl-2-phenyl-, 6193*e*.

Indone, 2-phenyl-3-tolyl-, 6193*e*.

$C_{18}H_{16}O_2$ Benzoic acid, (9-anthryl)-, Me ester, 4662*i*, 4663*d*.

2-Fluoreneacetic acid, α-benzylidene-, 7468*d*.

$C_{18}H_{16}O_3$ 1,4-Naphthoquinone, 2-hydroxy-3-[2-(2-naphthyl)ethyl]-, 1379*e*.

$C_{18}H_{16}O_4$ 9-Anthracenecrotonic acid, 10(2-furyl)-γ-hydroxy-, 4252*g*.

9,10-Anthradiol, 9,10-di-2-furyl-9,10-dihydro-, 4252*f*.

6,12-Chrysenediol, diacetate, 3402*f*.

Cyclobuta[1,2-*b*, 3,4-*b*′]dinaphthalene-5,6,11,12-tetrone, 5a,5b,11a,11b-tetrahydrodimethyl-, 2985*c*.

Flavone, 7-(benzyloxy)-5-hydroxy-, 6381*i*.

$C_{18}H_{16}O_5$ Benzophenone, 2,5-dihydroxy-, 2-acetate, 5-benzoate, 2187*g*.

Fluorescein, 4,5-dimethyl-, 1983*g*.

Primetin, 7-(benzyloxy)-, 6396.

$C_{18}H_{16}O_6$ Acetic acid, bis(2-oxo-1,2*H*-benzopyran-3-yl)-, Et ester, 7995*i*.

Phthalide, 3 - phenyl - 3 - (3,4,5 - trihydroxyphenyl)-, acetate, 2319*d*.

$C_{18}H_{16}O_7$ Compd., m. 226°, 7481*b*.

Compd., m. 239°, 7481*b*.

$C_{18}H_{16}O_8$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, Et ester, 5399*e*, 5870*a*.

$C_{18}H_{16}O_9$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, 2-hydroxyethyl ester, 5399*f*.

Maleic anhydride, compd. with $C_{10}H_{10}$, 6201*i*.

$C_{18}H_{16}S$ Thianaphthene, 3-(α-phenylstyryl)-, 7007*f*.

$C_{18}H_{17}BrN_2O_6S$ 2-Anthraquinonesulfonic acid, 1-amino-4-(bromo-2,6-dimethylanilino)-, P 4867*f*.

$C_{18}H_{17}ClO$ Acetophenone, *p*-[β-(*p*-chlorophenyl)styryl]-, 1991*i*.

$C_{18}H_{17}ClO_4$ 3,6-Dihydroxy-9-(*p*-methoxystyryl)xanthylium chloride, P 6100*h*.

$C_{18}H_{17}LiSSi$ Lithium, (5-triphenylsilyl-2-thienyl)-, 4277*b*.

$C_{18}H_{17}NO$ Benzo[*g*]quinoline, 4-methoxy-2-styryl-, 1420*b*.

$C_{18}H_{17}NO_2$ 2-Anthro-*o*-toluidide, 3-hydroxy-, 5344*c*.

1,3-Dioxolo[*g*]isoquinoline, 7,8-dihydro-5,7-diphenyl-, 5026*b*.

2-Fluoreneacetic acid, α-(*p*-aminobenzylidene)-, 7468*e*.

$C_{18}H_{17}NO_4$ Benzanilide, 3′-benzoylacetyl-4′-hydroxy-, 5779*e*.

$C_{18}H_{17}NO_4S$ 1-Naphthalenesulfonic acid, 8-*p*-phenoxyanilino-, P 5597*e*, P 7696*b*.

$C_{18}H_{17}NO_5S$ Cinnamic acid, α-benzamido-*p*-(phenylsulfonyl)-, 7449*i*.

$C_{18}H_{17}N_3$ Benzamidine, *p*-[2-(6-phenanthridyl)vinyl]-, *HCl*, 5757*b*.

$C_{18}H_{17}N_3O$ 1-Imidazolecarboxanilide, 4,5-diphenyl-, 8365*i*.

1-Pyrazolecarboxanilide, 3,5-diphenyl-, 8365*h*.

$C_{18}H_{17}N_3O_2$ Anthraquinone, 1-(*p*-dimethylaminophenylazo)-, 5334*d*.

Biuret, 1,5-dinaphthyl-, 7446*i*, 7447*a*.

—, 1 - (1 - naphthyl) - 5 - (2 - naphthyl)-, 7446*i*.

$C_{18}H_{17}N_3O_4S$ Benzenesulfonic acid, *m*-(2-styryl - 5 - benzimidazolylcarbamyl)-, *Na salt*, P 8174*b*.

$C_{18}H_{17}N_3O_6$ Benzoic acid, *p*-[*p*-(*p*-nitrobenzamido)benzamido]-, Me ester, 1031*h*.

9 Carbazoleethanol, α-methyl-, 3,5-dinitrobenzoate, 624*c*.

$C_{18}H_{17}N_3O_7$ Phenanthrene, 1,2-dimethyl-, picrate, 211*b*.

$C_{18}H_{17}N_4O_6S_2$ 2,7-Anthraquinonedisulfonic acid, 4 - (*p* - acetamidoanilino) - 1-amino-, P 7703*f*.

1-Naphthol-3,6-disulfonic acid, 8-(4-acetamido - 8 - hydroxy - 1 - naphthylazo)-, 4467*h*.

$C_{18}H_{17}N_4O_7P$ Phosphine, tri-2-pyridyl-, monomethopicrate, *monohydrate*, 1046*g*.

$C_{18}H_{17}N_4O_7PS$ Phosphine sulfide, tri-2-pyridyl-, methopicrate, 1046*g*.

$C_{18}H_{17}N_7O_7$ Pyridine, 2,3′,2″-nitrilotri-, monomethopicrate, 1046*f*.

$C_{18}H_{18}$ Cholanthrene, dimethyl-, 2626*a*.

Ethane, 1,2-di-2-naphthyl-, 2183*b*.

Fluoranthene, 6b,7,10,10a-tetrahydro-7-phenyl-, 2986*c*.

$C_{18}H_{18}BrClO_2$ Ethylene, 1-bromo-1-(*p*-chlorophenyl) - 2,2 - bis(*p* - methoxyphenyl)-, 7469*b*.

$C_{18}H_{18}Br_2O_6$ α,α′,2,2′-Stilbenetetrol, 5,5′-dibromo-, tetraacetate, 4246*i*.

$C_{18}H_{18}ClNO$ Acetophenone, *p*-[β-(*p*-chlorophenyl)styryl]-, oxime, 199*i*.

$C_{18}H_{18}INO$ 2-[1-Cyano-3-(3-methyl-2-benzoxazolinylidene)propenyl] - 1 - methylquinolinium iodide, P 7843*c*.

$C_{18}H_{18}IN_3S_2$ 2-[3-Cyano-5-(3-methyl-2-benzothiazolinylidene) - 1,3 - pentadienyl]-3-methylbenzothiazolium iodide, P 7842*h*, P 7844*c*.

$C_{18}H_{18}N_2$ β-Hydromuconononitrile, α,δ-bis(*p*-methylbenzylidene)-, P 3847*i*.

Pyrazole, diphenyl-*p*-tolyl-, 3389*f*.

Quinoline, 3-anilino-2-*p*-tolyl-, 8392*f*.

—, 2-phenyl-3-*m*-toluidino-, 8391*i*.

$C_{18}H_{18}N_2O$ Benzamide, *N*-benzyl-*N*-α-cyanobenzyl-, 6176*e*.

Indole, 2-(4-biphenylyl)-1-ethyl-3-nitroso-, 218*e*.

Quinoline, 3-*p*-methoxyanilino-2-phenyl-, 8391*i*.

$C_{18}H_{18}N_2O_2$ Benzo[*f*]quinoline-1-carboxylic acid, 3-(*p*-dimethylaminophenyl)-, 8391*g*.

β-Hydromuconononitrile, α,δ-bis(*o*-methoxybenzylidene)-, P 3848*a*.

Naphthalic anhydride, azine with cumaldehyde, 2982*g*.

5-Quinolineacrylic acid, 2-(*p*-dimethylaminostyryl)-6-hydroxy-, δ-lactone, 7028*a*.

$C_{18}H_{18}N_2O_4$ *p* Quinone, dioxime bis(phenylacetate), 5623*c*.

$C_{18}H_{18}N_2O_4S$ 1-Naphthol-3-sulfonic acid, 6-benzidino-, P 4485*h*.

$C_{18}H_{18}N_2O_5S$ 2-Anthraquinonesulfonic acid, 1-amino-4-(2,4-dimethylanilino)-, *Na salt*, 6193*h*.

$C_{18}H_{18}N_2O_6$ *p*-Quinone, dioxime dianisate, 5623*c*.

$C_{18}H_{18}N_2O_6S$ Phthalanilic acid, 4′-(*N*-acetylsulfanilyl)-, P 7042*d*.

$C_{18}H_{18}N_2O_8$ 2,3-Naphthalenedicarboxylic acid, 7-nitro-1-(*p*-nitrophenyl)-, di-Et ester, 606*d*.

$C_{18}H_{18}N_4O_2$ Ketone, 3-(hydroxynaphthylazo) - 5 - methyl - 1 - phenyl - 4-pyrazolyl methyl(?), 4258*h*.

1,4-Naphthoquinone imine, 8-amino-2,6-dianilino-5-hydroxy-, P 8167*a*.

$C_{18}H_{18}N_4O_2S_2$ Benzothiazole, 2,2′-phenylenebis[6-amino-5-methoxy-, 5776*ef*.

$C_{18}H_{18}N_4O_2S_2$ Thiazole, 5,5′-thiobis[2-acetamido-4-phenyl-, 8380*h*.

$C_{18}H_{18}N_4O_4S_2$ 2,2′-Bibenzothiazole, bis(α-acetylacetamido)-, 5776*i*, 5777*a*.

$C_{18}H_{18}N_4O_6$ Benzamide, *N*, *N*′-*p*-phenylenebis[*N*-methyl-*p*-nitro-, P 859*i*.

$C_{18}H_{18}N_4O_7$ Isoquinoline, 3,4-dihydromethylphenyl-, picrate, 5026*eg*.

$C_{18}H_{18}N_4O_8 + H_2O$ Alloxantin, di-(1-benzyl)-, 2953*g*.

$C_{18}H_{18}N_4O_8S_2$ Benzimidazolesulfonic acid, 2,2′-*p*-phenylenebis[6-methoxy-, *di-Na salt*, P 8174*b*.

$C_{18}H_{18}N_4O_{16}S$ Salicylic acid, 5-(4-*m*-nitrobenzamido - 5 - methoxy - *o* - tolylazo)-3-sulfo-, P 9459*f*.

$C_{18}H_{18}N_4O_{16}S_2$ Benzenesulfonic acid, 2,2′-(*p*-phenylenebis[(methylimino)carbonyl]]bis[5-nitro-, P 860*c*.

$C_{18}H_{18}N_6O_2$ Pteridine, 2,4-diacetamido-6,7-diphenyl-, 4268*f*.

$C_{18}H_{18}O$ Acetophenone, *p*-(2,2-diphenylvinyl)-, 199*g*.

Anthracene, 9-α-methoxybenzyl-, 9060*c*.

Fluorene, 2-(*p*-methoxystyryl)-, 7468*e*.

1(2*H*) - Naphthalenone, 3,4 - dihydromethyl - 2 - (1 - naphthylmethylene)-, 2982*a*.

$C_{18}H_{18}O_2$ Acetophenone, α-2-fluorenyl-*p*-methoxy-, 7468*h*.

Anthrone, 10-ethoxy-10-phenyl-, 9060*e*.

1,4-Butanedione, 1,2,4-triphenyl-, 2991*i*.

1,3,7,9-Decatetraene-5,6-dione, 1,10-diphenyl-, 187*c*.

2-Indanone, 1-hydroxy-3-methyl-1,3-diphenyl-, 1041*f*, 3397*e*.

—, 1-methoxy-1,3-diphenyl-, 1041*e*, 3397*d*.

$C_{18}H_{18}O_3$ Benz[*k*]acephenanthrylene-5a,6-(6*H*)-diol, 4,5-dihydro-, 6-acetate, 8375*c*.

1,2-Naphthalenedicarboxylic anhydride, 4-(*p*-*tert*-butylphenyl)-, 206*h*, 8885*f*.

—, 7-*tert*-butyl-4-phenyl-(?), 206*h*.

3-Stilbenol, 5-methoxy-, benzoate, 5017*f*.

$C_{18}H_{18}O_3S$ Acetic acid, (α-benzoylbenzhydrylmercapto)-, 1753*h*.

$C_{18}H_{18}O_4$ Glyoxal, [3,4-bis(benzyloxy)-phenyl]-, 4240*d*.

Phthalide, 3,3-bis(4-hydroxy-*m*-tolyl)-, 2819*f*.

—, 8,3-bis(*p*-methoxyphenyl)-, 2319*e*.
*o*-Terphenyl-4,4″-diol, diacetate, 4655*e*.
*o*-Xylorcinol, dibenzoate, 9044*i*.
$C_{22}H_{12}O_3$ Benzophenone, 2-hydroxy-3,4-dimethoxy-, benzoate, 183*d*.
$C_{22}H_{12}O_4$ 3,10-Ethenocyclobut[*b*]anthracene-4,9-dione, 1,2,2a,3,10,10a-hexahydro-1,2-dihydroxy-, diacetate, 6200*g*.
$C_{22}H_{12}O_4S_2$ 2-Naphthalenesulfonic acid, ethylidenedi-, *and salts*, P 5047*b*.
$C_{22}H_{12}O_{10}$ Epicatechol, gallate, 3394*a*.
*β*-Resorcil, tetraacetate, 1035*i*.
$C_{22}H_{12}O_{11}$ Gallocatechol, gallate, 3394*b*.
$C_{22}H_{12}SSi$ Thiophene, 2-(triphenylsilyl)-, 8366*d*.
$C_{22}H_{12}BrO$ Ethylene, 1-bromo-2-*p*-phenetyl-1,2-diphenyl-, P 6666*f*.
$C_{22}H_{12}ClO_2$ Ethylene, 2-(*p*-chlorophenyl)-1,1-bis(*p*-methoxyphenyl)-, 7469*b*.
$C_{22}H_{12}Cl_2N_4O_7S$ Ethanol, 2-[*N*-[2-(*p*-chlorophenoxy)ethyl]-*p*-(2,6 dichloro-4-nitrophenylazo)anilino]-, H sulfate, P 8154*g*.
$C_{22}H_{12}F_3N_3O_2$ 2-Naphtho-*m*-toluidide, *α*,*α*,*α*-trifluoro-3-hydroxy-6′-(4-morpholinyl)-, P 8162*h*.
$C_{22}H_{12}N$ Indole, (4-biphenylyl)-1-ethyl-, 218*dg*.
Indole, 1-methylphenyl-*p*-tolyl-, 220*a*.
Isoquinoline, benzyl-3,4-dihydrophenyl-, 5026*a*; *and - HCl*, 5026*b*.
$C_{22}H_{12}NO$ Acetanilide, *p*-(2,2-diphenylvinyl)-, 199*h*.
Acetophenone, *p*-(2,2-diphenylvinyl)-, oxime, 199*g*.
2-Azetidinone, 1-benzhydryl-4-phenyl-, 9034*d*.
Chalcone, *β*-benzylamino-, 7819*i*.
Ketone, 1-benzyl-3-phenyl-2-aziridyl phenyl, 3389*be*.
$C_{22}H_{12}NO_2$ Acetophenone, *α*-2-fluorenyl-*p*-methoxy-, oxime, 7468*h*.
Acetophenone, *α*-(*p*-phenetylimino)-*α*-phenyl-, 4812*g*.
Benzamide, *N*-(*α*-benzylphenacyl)-, 4227*b*.
9-Carbazoleethanol, phenylacetate, 624*b*.
—, *α*-methyl-, benzoate, 624*i*.
2-Fluoreneacetic acid, *α*-(*p*-aminobenzyl)-, 7468*g*.
$C_{22}H_{12}NO_3$ Acetophenone, *p*-(*p*-hydroxyphenyl)-*α*-methylamino-, benzoate, 1035*a*.
Benzamide, *N*-*α*-phenylhomopiperonyl, 5027*d*.
$C_{22}H_{12}NO_3S$ Acrylamide, *β*,*β*-diphenyl-*N*-*p*-tolylsulfonyl-, P 686*b*.
$C_{22}H_{12}NO_4$ 2-Naphthanilide, 3′-(1,3-dioxolan-2-yl)-1-hydroxy-, acetate, P 8169*h*.
$C_{22}H_{12}NO_5S$ Benzenesulfonamide, *p*-(1,3,4-trihydroxy-2-naphthyl)-, triacetate, 1380*d*.
$C_{22}H_{12}N_2$ Acridine, 9-(*p*-dimethylaminophenyliminomethyl)-, 6631*e*.
Acridine, 9-(*p*-ethylaminophenyliminomethyl)-, 6631*g*.
2*H*-Pyrrolenine, 5-*p*-tolyl-2-(5-*p*-tolyl-2-pyrrylimino)-, *di- HCl*, P 7848*b*.
$C_{22}H_{12}N_2O$ Nitrone, *α*-9-acridyl-*N*-(*p*-dimethylaminophenyl)-, 6631*e*.
Nitrone, *α*-9-acridyl-*N*-(*p*-ethylaminophenyl)-, 6631*g*.
$C_{22}H_{12}N_2O_2$ Oxamic acid, *N*-naphthyl-, *α*-methylcinnamylidenehydrazide, 6973*i*.
Phthalimide, *N*-[2-(benzyl-2-pyridylamino)ethyl]-, 7023*e*.
2*H*-Pyrrolenine, 5-(*p*-methoxyphenyl)-2-[5-(*p*-methoxyphenyl)-2-pyrrylimino]-, *di- HCl*, P 7848*b*.
Quinoxaline, 6-amino-2,3-bis(*p*-methoxyphenyl)-, 234*i*.
$C_{22}H_{12}N_2O_3$ Mesitylenic acid, 4-nitro-, benzhydrylidenehydrazide, 6972*i*.
$C_{22}H_{12}N_2O_4S$ Anthraquinone, 1-amino-4-(*p*-aminoanilino)-2-(2-hydroxyethylmercapto)-, P 4483*f*.
$C_{22}H_{12}N_2O_4$ Benzanilide, 3′-[2-(*p*-nitrobenzamido)ethyl]-, 7486*a*.
Benzoic acid, *p*-[*p*-(*p*-aminobenzamido)-benzamido]-, Me ester, 1031*i*.
$C_{22}H_{12}N_2O_4PS$ Phosphinimide, *p*,*p*,*p*-tri-2-pyridyl-*N*-*p*-tolylsulfonyl-, 1046*h*.
$C_{22}H_{12}N_5$ Biguanide, 1,5-di-2-naphthyl-, P 2230*a*.
$C_{22}H_{20}$ Benz[*a*]anthracene, 7,12-diethyl-, 8375*a*.
Benz[*a*]anthracene, 7,8,9,12-tetramethyl-, 8375*a*.
$C_{22}H_{20}BrClN_2$ 1-Benzylquinolinium chloride, compd. with *p*-bromoaniline, 645*d*.
$C_{22}H_{20}ClIN_2$ 1-Benzylquinolinium chloride, compd. with *p*-iodoaniline, 645*d*.
$C_{22}H_{20}ClNO$ 6-*p*-Methoxybenzyl-5-methylphenanthridinium chloride, P 2647*b*.
Propiophenone, benzylaminochloro-*β*-phenyl-, *and - HCl*, 3389*c*.
$C_{22}H_{20}ClNO_2$ 8-Methoxy-6-(*p*-methoxyphenyl)-5-methylphenanthridinium chloride, P 2647*c*.
$C_{22}H_{19}ClN_2O_2$ 1-Benzylquinolinium chloride, compd. with *p*-nitroaniline, 645*d*.
5-(2-Carboxyvinyl)-*α*-(*p*-dimethylaminophenylimino)-6-hydroxy-1-methylquinaldinium chloride, lactone, 7028*c*.
$C_{22}H_{20}ClN_7O_3S$ 1*H*-Benzotriazole-1-ethanesulfonic acid, 7-chloro-4-ethyl-5-(*p*-phenylazophenylazo)-, P 3626*a*.
$C_{22}H_{20}Cl_2N_2$ Acridan, 3,9-dichloro-9-(*p*-dimethylaminophenyl)-10-methyl-, 8559*c*.
1-Benzylquinolinium chloride, compd. with *p*-chloroaniline, 645*d*.
$C_{22}H_{20}Cl_2N_4O_7S$ Ethanol, 2-[*p*-(2,6-dichloro-4-nitrophenylazo)-*N*-2-phenoxyethylanilino]-, H sulfate, P 8154*g*.
$C_{22}H_{20}Cl_2N_8$ 2,2′-*p*-Phenylenebis[5-methyl-3-phenyl-2*H*-tetrazolium chloride], 7593*b*.
$C_{22}H_{20}IN$ 3,4-Dihydro-2-methyl-1,4-diphenylisoquinolinium iodide, 5026*e*.
$C_{22}H_{20}IN_3S_2$ 2-[1-Cyano-3-(3-ethyl-2-benzothiazolinylidene)propenyl]-3-ethylbenzothiazolium iodide, P 7843*b*.
$C_{22}H_{20}I_4N_2O_5$ Glutamic acid, *N*-[*N*-acetyl-*β*-[4-(4-hydroxy-3,5-diiodophenoxy)-3,5-diiodophenyl]alanyl]-, 2256*c*.
$C_{22}H_{20}N_2$ Cinnamaldehyde, benzylphenylhydrazone, 1654*i*.
1-Naphthylamine, 4,4′-ethylenebis-, P 2819*a*.
*p*-Toluidine, *N*,*N*′-terephthalylidenedi-, 5386*d*.
$C_{22}H_{20}N_2OS$ Urea, 1-acetyl-2-thio-3-triphenylmethyl-, 4646*d*.
$C_{22}H_{20}N_2OS_2$ 4-Thiazolidone, 3-ethyl-5-(3-ethyl-2-benzothiazolinylidene)-2-(3(2*H*)-thianaphthenylidene)-, P 4164*a*.
$C_{22}H_{20}N_2O_2$ Acridine, 2,7-dimethoxy-9-*p*-toluidino-, *and - HCl*, 6633*b*
Benzamide, *N*-(*α*-benzylphenacyl)-, oxime, 4227*b*.
Hydrocinnamanilide, *β*-benzamido-, 3821*h*.
Pyruvanilide, *β*-phenyl-, *O*-benzyloxime, P 5422*e*.
Urea, 1-acetyl-3-triphenylmethyl-, 4645*c*.
$C_{22}H_{20}N_2O_2SSe$ $\Delta^{2,7}$-Benzoselenazolinecrotonic acid, *α*-2-benzothiazolyl-, 3-ethyl-, Et ester, 8292*b*.
$C_{22}H_{20}N_2O_2S_2$ $\Delta^{2,7}$-Benzothiazolinecrotonic acid, *α*-2-benzothiazolyl-3-ethyl-, Et ester, 8291*i*.
$\Delta^{2,7}$-Benzothiazolinecrotonic acid, *β*-(benzylmercapto)-*α*-cyano-3-methyl-, Et ester, P 7849*i*.
Benzothiazoline, 3,3′-ethylenebis[2-acetonylidene-, P 8167*d*.
$C_{22}H_{20}N_2O_2S_3$ Rhodanine, 3-ethyl-5-[2-(3-methyl-2(3*H*)-benzothiazolylidene)-2-*m*-toloxyethylidene]-, P 4157*b*.
$C_{22}H_{20}N_2O_3$ Acridine, 2,7-dimethoxy-9-*p*-methoxyanilino-, *and - HCl*, 6633*b*.
$C_{22}H_{20}N_2O_3S_2$ 2-Naphthalenesulfonic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.
2,4-Oxazolidinedione, 3-ethyl-5-[2-(3-methyl-2(3*H*)-benzothiazolylidene)-2-*m*-toloxyethylidene]-2-thio-, P 4157*b*.
$C_{22}H_{20}N_2O_4S_2$ Phthalimide, *N*,*N*′-[ethylenebis(thioethylene)]di-, 348*g*.
$C_{22}H_{20}N_2O_5$ Compd., m. 288–9.5°, 4234*f*.
$C_{22}H_{20}N_2O_8S_2$ Disulfide, bis(5,6,7,8-tetrahydronitro-1-naphthoyl), 6192*h*, 6193*b*.
$C_{22}H_{20}N_2O_8$ 9,10-Ethanoanthracene-11,12-dicarboxylic acid, 9,10-dihydro-9,10-dinitro-, di-Et ester, 1758*i*.
$C_{22}H_{20}N_4O_2S$ 4-Pteridinol, 2-(ethylmercapto)-6,7-bis(methoxyphenyl)-, 3010*i*.
$C_{22}H_{20}N_4O_4$ 1(2*H*)-Phenanthrone, 3-ethyl-3,4-dihydro-, 2,4-dinitrophenylhydrazone, 621*g*.
Propiophenone, *o*-methyl-*α*-phenyl-, 2,4-dinitrophenylhydrazone, 4247*e*.
$C_{22}H_{20}N_4O_5$ Salicylic acid, 5-[4-(*p*-aminobenzamido)-5-methoxy-*o*-tolylazo]-, P 4479*e*.
Salicylic acid, 5-[*p*-(4-amino-5-methoxy-*o*-tolylazo)benzamido]-, P 8158*b*.
$C_{22}H_{20}N_4O_7$ Isoquinoline, 1,2,3,4-tetrahydro-[illegible]-1-[illegible]
3,6-dimethoxy-, 2,4-dinitrophenylhydrazone, 7480*g*.
$C_{22}H_{20}N_4O_8S$ Salicylic acid, 5-[4-(amino benzamido)-5-methoxy-*o*-tolylazo-3-sulfo-, P 4487*g*, P 5196*b*, P 9459*f*.
$C_{22}H_{20}N_4O_8S_2$ 2,2′-Stilbenedisulfonic acid, 4,4′-bis(5-hydroxy-3-methyl-pyrazolyl)-, P 7696*f*.
$C_{22}H_{20}N_6O_4$ 2,4(1*H*,3*H*)-*s*-Triazinedione, 6,6′-tetramethylenebis[1-phenyl-, 1444*i*.
$C_{22}H_{20}N_8O_2$ Pteridine, 6,7-bis(*p*-acetamidophenyl)-2,4-diamino-, 4268*g*.
$C_{22}H_{20}O$ Acetophenone, phenethyl-*α*-phenyl-, 5386*b*.
Butyrophenone, *p*-2-biphenylyl-, 4656*b*
Fluorene, 2-(*p*-methoxyphenethyl)-, 7468*h*.
$C_{22}H_{20}O_2$ Chrysene, 6,12-diethoxy-, 3402*g*.
3,10,5,8-Diethenodicyclobut[*b*,*i*]anthracene-4,9-dione, 2a,3,3a,4a,5,5a,7a,8,8a,9a,10,10a-dodecahydro-, 6198*i*.
1,2-Indandiol, 2-methyl-1,3-diphenyl-, 1041*e*, 3397*e*.
Isobutyric acid, *α*,*β*,*β*′-triphenyl-, 1351*a*.
$C_{22}H_{20}O_2S$ Propionic acid, *β*-(triphenylmethylmercapto)-, 1753*h*.
$C_{22}H_{20}O_3$ Acetophenone, 2,5-bis(benzyloxy)-, 7003*g*.
Creosol, *α*,*α*-diphenyl-, acetate, 8084*i*.
1,4-Naphthoquinone, 2-hydroxy-3-[3-(5-indanyl)propyl]-, 1379*e*.
—, 2-hydroxy-3-(4-phenylcyclohexyl)-, 1376*f*.
—, 2-hydroxy-3-[2-(1,2,3,4-tetrahydro-2-naphthyl)ethyl]-, 1379*e*.
$C_{22}H_{20}O_4$ Acetophenone, 2,3-bis(benzyloxy)-6-hydroxy-, 3414*d*.
1,4-Naphthoquinone, 2-hydroxy-3-*p*-tolylpropyl-, acetate, 1379*d*.
$C_{22}H_{20}O_5$ 3,10-Ethenocyclobut[*b*]anthracene-4,9-dione, 1,2,2a,3,3a,9a,10,10a-octahydro-1,2-dihydroxy-, diacetate, 6200*g*.
2,3-Naphthalenedicarboxylic acid, 7-methoxy-1-(*p*-methoxyphenyl)-, di-Me ester, 606*e*.
2-Naphthoic acid, 4-(2-carboxy-6-methoxyphenyl)-8-methoxy-, di-Me ester, 3396*f*.
Rubrophen, P 3627*c*.
$C_{22}H_{20}O_6$ Tambulin, 227*b*.
Usnic acid, diacetyl-, 5445*e*, 6698*a*
$C_{22}H_{20}O_{12}$ Carminic acid, 2521*a*, 8949*a*.
$C_{22}H_{20}S_2$ Ethylene, 1,1-bis(*p*-methylmercaptophenyl)-2-phenyl-, 7467*g*.
$C_{22}H_{21}BrI_2N$ Pyrido[2,3]pyrazine, 7-bromo-2,3-diphenyl-, trimethiodide, 1425*f*.
$C_{22}H_{21}BrN_2S$ 4-[1-Ethyl-2(1*H*)-quinolylidene]-1,2,3,4-tetrahydropyrido[2,1-*b*]benzothiazolium bromide, P 8293*h*.
$C_{22}H_{21}BrN_2SSe$ 3-Methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]benzoselenazolium bromide, P 4158*h*.
$C_{22}H_{21}BrN_2S_2$ 4-[(2,3-Dihydro-1*H*-pyrido[2,1-*b*]benzothiazol-4-yl)methylene]-1,2,3,4-tetrahydropyrido[2,1-*b*]benzothiazolium bromide, P 8294*a*
3-Methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]benzothiazolium bromide, P 4158*b*
$C_{22}H_{21}ClN_2$ 2-[2-(1,2-Dimethyl-3-indolyl)vinyl]-1-methylquinolinium chloride, 3930*e*.
$C_{22}H_{21}ClN_2O$ Acetophenone, *p*-chloro-*α*-1-piperidyl-*α*-2-quinolyl-, 2208*f*.
$C_{22}H_{21}ClN_4O_7S$ Ethanol, 2-[*p*-(2-chloro-4-nitrophenylazo)-*N*-2-phenoxyethylanilino]-, H sulfate, P 8154*f*.
$C_{22}H_{21}ClN_2O_2$ Isoalloxazine, 8-chloro-10-(2-diethylaminoethyl)-, picrate, 3009*a*.
$C_{22}H_{21}ClO$ Phenethyl alcohol, *α*,*α*-dibenzyl-*β*-chloro-, 2600*e*.
$C_{22}H_{21}ClO_2$ Ethanol, 2-(*p*-chlorophenyl)-1,1-bis(*p*-methoxyphenyl)-, 7469*a*.
$C_{22}H_{21}IN_2OS$ 3-Methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]benzoxazolium iodide, P 4158*a*.
$C_{22}H_{21}N$ 6*H*-Cyclopent[*g*]isoquinoline, 7,8-dihydro-1-(5-indanylmethyl)-, 8390*d*.
$C_{22}H_{21}NO$ Acetamide, *N*-2,2-diphenylethyl-*α*-phenyl-, 5026*e*.
Acetamide, *α*-phenyl-*N*-*α*-phenylphenethyl-, 5027*a*.
Acetophenone, *α*-*N*-ethylanilino-*p*-phenyl-, 218*e*.
—, *α*-*N*-methylanilino-*α*-*p*-tolyl-, 220*c*.
—, *p*-methyl-*α*-*N*-methylanilino-*α*-phenyl-, 220*b*.
Benzamide, *N*-(*α*-benzylphenethyl)-, 5027*b*.
[illegible],*β*,*β*′-triphenyl-, 1351*a*.

1,2-Pentadien-4-yn-3-ol, 1,5-diphenyl-1-piperidyl-, 3000*c*.
Phenanthridine, 5,6-dihydro-6-*p*-methoxybenzyl-5-methyl-, P 2647*b*.
Propionaphthone, β-(3,4-dihydro-2(1*H*)-isoquinolyl)-, - *HCl*, 9070*d*.

$C_{22}H_{21}NO_2$ Cinchoninic acid, 6-methyl-2-(6,7,8,9 - tetrahydro - 5*H* - cycloheptabenzen-3-yl)-, 2965*f*.
Phenanthridine, 5,6-dihydro-8-methoxy-6-(*p*-methoxyphenyl)-5-methyl-, P 2647*c*.
Propiophenone, α-benzylamino-β-hydroxy-β-phenyl-, - *HCl*, 3389*c*.
o-Terphenyl, 4-butyl-?-nitro-, 4656*c*.

$C_{22}H_{21}NO_3$ Cyclohexanecarboxylic acid, 1-cyano-4-oxo-2,6-diphenyl-, Et ester, 2963*f*.
4 Quinolinepropionic acid, 6,7-dimethyl-β-oxo-2-phenyl-, Et ester, 4675*d*.

$C_{22}H_{21}NO_4$ Benzoic acid, *p*-hydroxy-, Bu ester, 1-naphthalenecarbamate, 593*g*.

$C_{22}H_{21}NO_2S$ 4-Thiazolidone, 3-ethyl-5-[2-(3-ethyl - 2 - benzoxazolinylidene)ethylidene]-2-phenylimino-, P 4163*i*.

$C_{22}H_{21}N_3O_2$ Phthalimide, *N*-[4-(6-methoxy-8-quinolylamino)butyl]-, 3419*d*.
Phthalimide, *N*-[1-(6-methoxy-8-quinolylaminomethyl)propyl]-, 3420*b*.

$C_{22}H_{21}N_3O_4S$ 3 - Methyl - 2 - [2 - (2 - pyridylamino)vinyl]benzoxazolium *p*-toluenesulfonate, P 2642*h*.

$C_{22}H_{21}N_3O_6$ Acetoacetanilide, 4-cyano-α-(4-cyano - 2,5 - dimethoxyphenylazo)-2,5-dimethoxy-, P 3461*i*.

$C_{22}H_{21}NO_3$ *o*-Benzotoluidide, 4-dimethylamino-, picrate, 1777*g*.

$C_{22}H_{22}$ Benzene, *p* diphenethyl-, 5386*b*.
o-Terphenyl, 4-butyl-, 4656*c*.

$C_{22}H_{22}Br_2N_2S_2$ 1,1'-Ethylenebis[2-methylmercaptoquinolinium bromide], P 8926*e*.

$C_{22}H_{22}ClN$ 6 - Benzyl - 5,6 - dihydro - 5,5-dimethylphenanthridinium chloride, P 2647*e*.
Phenethylamine, *N*,*N*-dibenzyl-β-chloro-, *HCl*, 4381*c*.

$C_{22}H_{22}ClNO$ Piperidine, 1-(4-chloro-2,5-diphenyl-3-furylmethyl)-, 3406*f*.

$C_{22}H_{22}ClNO_2$ Morpholine, 4-[4-chloromethyl) - 2,5 - diphenyl - 3 - furylmethyl]-, - *HCl*, 3406*d*.

$C_{22}H_{22}Cl_2N_2S_2$ 3,3'-Ethylenebis[2-methyl 4-phenylthiazolium chloride], P 3737*i*.

$C_{22}H_{22}IN$ 6 Benzyl-5,6-dihydro-5,5-dimethylphenanthridinium iodide, P 2647*e*.

$C_{22}H_{22}I_2N_2O_2$ 7,8-Dihydro-5 (6 methoxy-4-quinolyl) - 6 - methyl - 1,3 - dioxolo[*g*]isoquinolinium iodide, methiodide, 4271*i*.

$C_{22}H_{22}N_2$ Acetophenone, *p* phenethyl-α-phenyl , hydrazone, 5386*b*.
Acetophenone, *p*-phenyl-, ethylphenylhydrazone, 218*d*.
Propiophenone, *p* - methyl-, β - phenylphenylhydrazone, 3389*h*.

$C_{22}H_{22}N_2O$ Acetophenone, α-1-piperidyl-α-quinolyl-, - *HCl*, 2208*de*, P 3045*g*.
Benzamide, *N*-[α-(aminomethyl)benzyl]-*N*-benzyl-, - *HCl*, 6176*f*.
3*H*-Phenanth[3,4]imidazole, 3-acetyl-9-isopropyl-2,5-dimethyl-, 7470*f*.

$C_{22}H_{22}N_2O_2$ 3-Oxazolidinecarboxamide, 4-ethyl *N*-1-naphthyl-2-phenyl-, 8365*f*.

$C_{22}H_{23}NO_4$ Acetanilide, 4-amino-2,5-bis(benzyloxy)-, P 4165*g*.
Allophanic acid, γ-naphthyl-, carvacryl ester, 7447*ef*; thymyl ester, 7447*df*

$C_{22}H_{22}N_2O_4$ Anthraquinone, diacetamido-2-butyl-, 1761*i*.
4,4'-Bi[acetoaceto-*o*-toluidide], P 7695*a*.
Carbamic acid, 4-amino-2,5-bis(benzyloxy)-, Me ester, P 4165*g*.

$C_{22}H_{22}N_2O_3S$ Acetamide, α-(*p*-phenethylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
Acetanilide, *p*-[*p*-(3,5-xylyloxy)phenylsulfamyl]-, 4649*b*.

$C_{22}H_{23}NO_3$ 8-Quinolinecarbamic acid, 6-methoxy-, ester with Bu *p*-hydroxybenzoate, 503*h*.

$C_{22}H_{23}NO_4$ 3,5-Octadien-7-yn-2-ol, 8-(1-cyclohexen-1-yl)-6-methyl-, 3,5-dinitrobenzoate, 7437*g*.

$C_{22}H_{24}N_4O_2$ Benzamide, *N*, *N'*-*p*-phenylenebis[4-amino-*N*-methyl-, P 858*i*.
5-Pyrazolone, (3,3'-dimethyl-4,4'-biphenylene)bis[3-methyl-, P 7695*b*.

$C_{22}H_{24}N_4O_2$ Tryptophan, *N*-tryptophyl-, 7066*c*.

$C_{22}H_{22}N_4O_3S$ 4-Pteridinol, 2-(ethylmercapto)-dihydro - 6,7 - bis(methoxyphenyl)-, 3011*f*.

$C_{22}H_{22}N_4O_4$ 2-Capronaphthone, 2,4-dinitrophenylhydrazone, 6188*f*.

$C_{22}H_{22}N_4O_4S_2$ Acetanilide, *p*,*p'*-[*p*-phenylenebis(iminosulfonyl)]bis-, 5860*g*.

$C_{22}H_{23}N_4O_7$ Benzhydrylamine, *N*, *N*,α-trimethyl-, picrate, 6177*d*.

$C_{22}H_{23}N_4O_7S$ Ethanol, 2-[*p*-(*p*-nitrophenylazo)-*N*-2-phenoxyethylanilino]-, II sulfate, P 8154*f*.

$C_{22}H_{24}N_4O_6S_2$ Benzenesulfonic acid, 3,3'-[*p*-phenylenebis[(methylimino)carbonyl]]bis[6-amino-, P 860*d*.
Metanilic acid, 6,6'(*p*-phenylenebis-[(methylimino)carbonyl]]di-, P 860*c*.

$C_{22}H_{22}N_4O_6S_2$ Benzimidazole, 2,2'-vinylenebis[*ar*-(α-sulfoacetamidomethyl , *di-Na salt*, P 8174*a*.

$C_{22}H_{24}N_4O_2$ 2(1*H*)-*s*-Triazone, 4,4'-tetramethylenebis[5,6 - dihydro - 6 - imino-5-phenyl-, P 1444*h*.

$C_{22}H_{22}N_4O_{14}$ Pyridine, 3-(diethylamino methyl)-, dipicrate, 121*h*.

$C_{22}H_{22}O$ Cyclohexanone, 2,6-bis(*p*-methylbenzylidene)-, 7910*i*, 7911*d*.
1 - Propanol, 2 - benzyl - 2,3 - diphenyl , 1350*g*.

$C_{22}H_{22}OS_2$ Ethanol, 1,1-bis(*p*-methylmercaptophenyl)-2-phenyl-, 7467*g*.

$C_{22}H_{22}O_2$ Ethanol, 1-*p*-phenetyl 1,2-diphenyl-, P 6666*h*.
3,5-Octadiyne-2,7-diol, 2,7-di-*p*-tolyl-, 1368*c*.

$C_{22}H_{22}O_3$ 3-Buten-2-one, 4-phenyl-, compd. with phenol, 107*b*.
1,4-Naphthoquinone, 3-*p*-cumyl-2-hydroxy-6-isopropyl-, 1385*f*.
—, 2 - (3 - *p* - cumylpropyl) - 3 - hydroxy-, 1379*e*
—, 2 - hydroxy - 3 - (3 - mesitylpropyl)-, 1379*c*.
—, 2-hydroxy-3-(6-phenylhexyl)-, 1379*b*, 2610*b*.

$C_{22}H_{22}O_4$ 1,4-Naphthoquinone, 2-hydroxy-3-[5-(*p*-methoxyphenyl)amyl]-, 1379*g*, 2610*c*.
Oxalic acid, bis(1,2,3,4-tetrahydronaphthyl)ester, 179*e*, 2363*c*.
Phenol, *p*,*p'*-(diethylideneëthylene)di-, diacetate, P 5804*h*, P 7968*i*, 8032*a*.

$C_{22}H_{22}O_6$ Butyric acid, γ,γ'-[ethylenebis-(phenylene)]bis[γ-oxo-, 700*c*.
1,7-Octadien-4 yne-3,6-diol, 1,8-di-2-furyl-3,6-dimethyl-, diacetate, 6573*g*.

$C_{22}H_{22}O_8$ Asebogenin, triacetate, 8603*d*.
2,2',3,3' Biphenyltetrol, 5,5'-dimethyl-, tetraacetate, 8614*e*.
Propiophenone, 2,6-dihydroxy-β-(*p*-hydroxyphenyl)-4-methoxy-, triacetate, 8603*d*.

$C_{22}H_{22}O_8S_2$ Cinnamic acid, α,α'-dithiobis-[3,4-dimethoxy-, 3820*d*.

$C_{22}H_{22}O_9$ Coumarin, 7-(benzyloxy)-6-galactopyranosyloxy)-, 4670*c*.
Flavone, 8 hydroxy-3,3',4',5,7-pentamethoxy-, acetate, 5398*e*.
Usnic acid, diacetyldihydro-, 5445*e*, 6698*a*.

$C_{22}H_{17}O_{11}$ Leptosin, 3104*g*, 5116*h*.

$C_{22}H_{18}S$ Thiophene, 3-[α-(*p*-ethylphenyl)-styryl]-2,5-dimethyl-, 4746*f*.

$C_{22}H_{23}Cl_3O_4$ Butyric acid, γ,γ'-[(2,2,2-trichloroethylidene)di-*p*-phenylene]di-, P 2361*f*.

$C_{22}H_{23}IN_2OS_2$ 3-Ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene) - 2 - methylmercaptopropenyl]benzoxazolium iodide, P 4160*a*.

$C_{22}H_{23}IN_2S_2$ 3-Methyl-2-[3-(3-methylnaphtho[2,1]thiazol - 2(3*H*) - ylidene) - 1-cyclohexen-1-yl]-2-thiazolinium iodide, P 7844*i*.

$C_{22}H_{23}N$ 6*H* - Cyclopent[*g*]isoquinoline, 3,4,7,8 - tetrahydro - 1 - (5 - indanylmethyl)-, 8390*d*.
1*H*-Indeno[2,1-*c*]pyridine, 2 butyl-2,3-dihydro-9-phenyl-, - *HBr*, P 5808*h*.
o-Terphenyl-?-amine, butyl-, 4656*c*.

$C_{22}H_{23}NO$ Benzylamine, *N*-[2-(benzhydryloxy)ethyl]-, *and* - *HBr*, 5783*b*.
2-Naphthol, 1-(α-1-piperidylbenzyl)-, 2183*i*.
Phenethyl alcohol, β-amino-α,α-dibenzyl-, 2600*e*.
*p*-Phenetidine, *N*, *N*-dibenzyl-, P 1178*c*.
Piperidine, 1 - (2,5 - diphenyl - 3 - furylmethyl)-, 3406*f*.
1-Propanol, 2-benzylamino-1,3-diphenyl-, - *HCl*, 3389*c*.

$C_{22}H_{23}NO_2$ Morpholine, 4-(4-methyl-2,5-diphenyl-3-furylmethyl)-, 3406*c*.

$C_{22}H_{23}NO_3$ Acetamide, *N*-(3-hydroxy-7-isopropyl-1-methyl-9-phenanthryl)-, acetate, 7470*i*.
2-Butene-1,4-dione, 2-methyl-3-(4-morpholinylmethyl)1,4-diphenyl-, 3406*g*.
Cinchophen, 4'-butoxy-8,3'-dimethyl-, 3825*g*.
—, isoamoxymethyl-, 3825*gk*.
—, 2',3,5'-trimethyl-α*r*'-propoxy-, 7924*i*, 7925*a*.
3 - Furanmethanol, 4 - (4 - morpholinylmethyl)-2,5-diphenyl-, 3406*c*.

$C_{22}H_{22}NO_3S_2Se$ 1-Ethyl-2-(ethylmercapto)-naphtho[1,2]selenazolium *p*-toluenesulfonate, P 7848*h*.

$C_{22}H_{23}NO_4$ Benzoic acid, *p*-[β-(2,4,6-trimethylbenzoyl)acrylylamino]-, Et ester, 7192*h*.

$C_{22}H_{23}NO_5$ 4-Piperidone, 1,3,5-trimethyl-2,6 - bis(3,4 - methylenedioxyphenyl)-, *and* - *HCl*, 1410*d*.

$C_{22}H_{23}NO_7$ See *Narcotine*.

$C_{22}H_{23}N_3O_2S_2$ Rhodanine, 3-ethyl-5-[3-ethyl-5 - [2 - (3 - ethyl - 2 - benzothiazolinylidene)isopropylidene] - 4 - oxo - 2-oxazolidylidene]-, P 4162*i*.

$C_{22}H_{23}N_3O_4$ + 0.5 $H_2O$ Pseudostrychninenitromethane, anhydro-, 239*b*.

$C_{22}H_{23}N_3O_4S_2$ Acenaphthenesulfonic acid, acetamido-, 2 - benzyl - 2 - thiopseudourea salt, 1766*b*.

$C_{22}H_{23}N_3O_5$ Alanine, *N*-(*N*-carboxytryptophyl)-, benzyl ester, 4712*d*.

$C_{22}H_{23}N_3O_6$ Naphthalene, hexyl-, compd. with 1,3,5-trinitrobenzene, 6188*ef*.
Naphthalene, 4-isopropyl-1,2,6-trimethyl-, trinitrobenzoate, 7928*b*.

$C_{22}H_{23}N_3O_7$ Naphthalene, 4-isopropyl-1,2,6-trimethyl-, picrate, 7928*b*.

$C_{22}H_{23}N_4O_8$ Naphthalene, 4-isopropyl-1,2,6-trimethyl-, styphnate, 7928*b*.

$C_{22}H_{23}N_3O_2$ Pimelic acid, α-cyano-, bis(benzylidenehydrazide)-, 4223*a*.

$C_{22}H_{23}N_3O_4S_2$ 3,5 - Pyridinedicarboxanilide, 2,4,6 - trimethyl - 4',4" - disulfamyl-, 2598*c*.

$C_{22}H_{24}BrNO_5$ Epieudesamin, bromonitro-, 1018*g*.

$C_{22}H_{24}Br_2O_4$ Phenol, *p*,*p'*-(1,2-dibromo-1,2-diethylethylene)di-, diacetate, 7927*i*.

$C_{22}H_{24}Br_2O_5$ Epieudesamin, dibromo-, 1018*h*.
β - Resorcil, 3,3' - dibromo - 5,5' - dibutyl-, 1037*f*.

$C_{22}H_{21}ClN_2O$ α - (*p* - Acetamidobenzylidene)-6 - dimethylamino - 1 - methylquinaldinium chloride, 3522*c*, 7581*f*.
o - Cresol, 4 - (7 - chloro - 3 - methyl - 4-quinolylamino) - α - 1 - piperidyl-, *di-HCl*, P 7514*f*.
—, 4 - (7 - chloro - 4 - quinolylamino) - α-cyclohexylamino-, *di- HCl*, P 7515*f*.
—, 4 - (7 - chloro - 4 - quinolylamino) - α-(2 - methyl - 1 - piperidyl)-, *di- HCl*, P 7514*ei*.

$C_{22}H_{21}Cl_2N_3O$ 4 - Quinolinemethanol, α-(*sec* - butylaminomethyl) - 7 - chloro-2 - (*p* - chlorophenyl) - 8 - methyl-, - *HCl*, 5860*f*.

$C_{22}H_{24}Cl_2N_6O_7S$ Pyrimidine, 6-amino-4-(L-arabofuranosidamino) - 5 - (2,5 - dichlorophenylazo) - 2 - (methylmercapto)-, triacetate, 145*h*.
Pyrimidine, 6 - amino - 4 - triacetyl - L-arabopyranosidamino - 5 - (2,5 - dichlorophenylazo) - 2 - methylmercapto-, 145*h*, 3423*a*.
— 6 - amino - 4 - triacetyl - D - ribopyranosidoamino - 5 - (2,5 - dichlorophenylazo)-2-methylmercapto-, 3423*a*.

$C_{22}H_{24}Cl_2O_4$ Phenol, *p*,*p'* - (1,2 - dichloro-1,2 - diethylethylene)di-, diacetate, 7927*i*.

$C_{22}H_{24}N_2$ α,α' - *p* - Xylenediamine, *N*, *N'*-di-*p*-tolyl-, 5386*d*.

$C_{22}H_{24}N_2O$ Compd., m. 147.5°, *and* - *HCl*, 4234*f*.
Pyridine, 2 - [α - (2 - dimethylaminoethoxy)benzhydryl]-, *and* - *HCl*, 2206*e*.

$C_{22}H_{24}N_2O_3$ Acetonitrile, [4-(*m*-methoxyphenyl) - 1 - methyl - 4 - piperidylcarbonyl]-phenyl-, P 2241*b*.
Maleimide, *N* - (2 - diethylaminoethyl)-α,β-diphenyl-, - *HCl*, 617*c*.
*m* - Tolunitrile, 4,4' - (hexamethylenedioxy)di-, 9048*i*.

$C_{22}H_{24}N_2O_3$ Compd., m. 123.5°, 4234*h*.
Vomicine, desoxy-, 7942*d*.
—, neodesoxy-, 7946*a*.

$C_{22}H_{24}N_2O_3S$ Acetamidine, α-phenyl-*N*-*p*-tolyl-, *p* - toluenesulfonate, P 2232*c*, 7444*c*.

$C_{22}H_{24}N_2O_4$ Butyramide, γ,γ' - [ethylenebis-(phenylene)]bis[γ-oxo-, 7004*c*.
Vomicine, 7942*d*.

$C_{22}H_{24}N_2O_4S$ Anisamidine, *N*-*p*-tolyl-, *p*-toluenesulfonate, 7444*f*.

$C_{22}H_{24}N_2O_4S_2$ *p* - Benzenedisulfonoxylidide, 4227*d*.

Benzenesulfonamide, *N* - methyl - *N*, *N'*-(2,4,6 - trimethyl - *m* - phenylene)bis-, 7919*e*.

$C_{22}H_{24}N_2O_6$ Acetamide, *N*, *N'*-[1,2-bis(*p*-hydroxyphenyl)ethylene]bis-, diacetate, 614*g*.

$C_{22}H_{24}N_2O_6S_2$ *p* - Benzenedisulfonophenetidide, 4237*d*.

$C_{22}H_{24}N_4O_{10}$ 5*H* - Cycloheptabenzen - 5 - ol, 6,7,8,9 - tetrahydro - 2,3,4,6 - tetramethoxy-, 3,5 - dinitrobenzoate, 3403*f*.

Epieudesamin, dinitro-, 1018*g*.

Peroxybenzoic acid, *p*-nitro-, 1,1,4,4-tetramethyltetramethylene ester, 6190*a*.

$C_{22}H_{24}N_4$ Benzimidazole, 2,2'-vinylenebis[isopropyl-, P 6241*c*, P 8174*c*.

$C_{22}H_{24}N_4O_5$ Acetophenone, α-cyclohexylidene-*p* - ethoxy-, 2,4 - dinitrophenylhydrazone, 7416*f*.

$C_{22}H_{24}N_4O_6S$ 2,4 - Cyclohexadiene - 1 - sulfonic acid, 3,5 - bis(*p* - acetamidoanilino)-, 2596*b*.

$C_{22}H_{24}N_4O_7$ 10,4a(4*H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro-, picrate, 4280*a*.

$C_{22}H_{24}N_4O_8$ Cinnamic acid, *p*-nitro-, piperazine salt, 235*f*.

1,4 - Piperazinediethanol, bis(*p* - nitrobenzoate), 2579*d*.

Quinoline, 2 - butyl - 3 - propoxy-, picrate, 227*i*.

$C_{22}H_{24}N_4O_9$ Pyrazolidine, 4-allyl-1-phenyl, picrolonate, 3776*a*.

$C_{22}H_{24}N_6O_4S_2$ Pyrazine, 2,6-bis(*N*⁴-acetylsulfanilamido)-, acetate, 8394*f*.

$C_{22}H_{24}N_{10}$ Biguanide, 1,1'-*p*-phenylenebis[5-phenyl-, P 2229*h*.

$C_{22}H_{24}O_2$ 1',2',16,17 - Benzo - $\Delta^{1,3,5}$ - estratriene - 3',4' - diol, 245*f*.

Benzofulvene, 3 - butyl - 6 - methoxy - 2-(*p*-methoxyphenyl)-, 1758*c*.

$C_{22}H_{24}O_4$ 5 - Indanol, 2 - (*p* - hydroxyphenyl)1-propyl-, diacetate, 1758*b*.

1 - Phenanthrenepropionic acid, 2 - carboxy - 3,4 - dihydro - 3 - isopropyl-, Me ester, 622*b*.

Stilbenediol, α,α'-diethyl-, diacetate, 6606*c*, 7927*h*.

—, tetramethyl-, diacetate, 8370*h*, 8371*a*.

$C_{22}H_{24}O_5$ 2 - Butanone, 3,3 - bis(4 - hydroxy-*m*-tolyl)-, diacetate, 8370*e*.

Malonic acid, α-phenacylbenzyl-, di-Et ester, P 6665*b*.

$C_{22}H_{24}O_6$ Cyclohexanecaproic acid, 4-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl)-ε-oxo-, 1387*d*.

Valeric acid, α,β - bis(*p* - hydroxyphenyl)-α-methyl-, diacetate, 613*d*.

$C_{22}H_{24}O_7$ Flavone, 7 - ethoxy - 3,3',4',5,6-pentamethoxy-, 4265*c*.

$C_{22}H_{24}O_8$ Chalcone, 3,4' - dihydroxy - 4 methoxy-, 4'-glucoside, 5116*i*.

Flavone, heptamethoxy-, 638*f*, 639*i*, 1775*a*.

$C_{22}H_{24}O_{11}$ Chalcone, 2',3,4',6' - tetrahydroxy - 4 - methoxy-, 4' - glucoside, 5117*a*.

$C_{22}H_{21}BrO_6$ Epieudesamin, bromo-, 1018*h*.

$C_{22}H_{23}ClO_3$ 1,4 - Naphthoquinone, 2 - chloro-3 - (4 - cyclohexylcyclohexyl)-, 1377*b*.

$C_{12}H_{23}IN_2S$ 2 - [4 - (*p* - Dimethylaminophenyl) - 2 - methyl - 1,3 - butadienyl]-3 - ethylbenzothiazolium iodide, 633*c*.

$C_{22}H_{23}NO$ 5 - Indanacetamide, *N* - [2 - (5-indanyl)ethyl]-, 8390*c*.

$C_{22}H_{23}NO_2S$ Cinchoninic acid, 3-heptyl-6-methyl - 2 - (2 - thienyl)-, 228*c*.

$C_{22}H_{23}NO_3$ 1,4 - Butanedione, 2 - methyl - 3-(4 - morpholinylmethyl) - 1,4 - diphenyl-, 3406*g*.

Fluorenecarboxylic acid, [2 - (4 - morpholinyl)ethyl]-, Et ester, *and* - *HCl*, 4245*d*.

Ketone, 4 - hydroxy - 1 - methyl - 4 - phenyl - 3 - piperidyl phenyl, propionate, *and phosphate*, 9050*i*.

$C_{22}H_{23}NO_3S_2$ 1 - Ethyl - 2 - [2 - (ethylmercapto)vinyl]quinolinium *p* - toluenesulfonate, P 7842*i*, P 7844*e*.

$C_{22}H_{23}NO_4$ Isoquinoline, 1 - (3,4 - dimethoxyphenyl) - 6,7 - diethoxy - 3-methyl-, *and* - *HCl*, 1423*i*.

$C_{22}H_{23}NO_5$ Acetophenone, 4 - hydroxy - 3-methoxy - α - 1 - piperidyl-, anisate, - *HCl*, P 7050*h*.

$C_{22}H_{23}NO_5S$ Cyclopentanone, compd. with 1 - (α - aminobenzyl) - 2 - naphthol bisulfite, 8356*b*.

$C_{22}H_{23}NO_6$ See *Colchicine*.

$C_{22}H_{23}NO_7$ Epieudesamin, nitro-, 1018*f*.

$C_{22}H_{23}N_3$ Pyridine, 2 - [*p*,*p'* - bis(dimethylamino)benzhydryl]-, P 9432*h*.

$C_{22}H_{23}N_3O$ *o*-Cresol, 4-(6-methyl-4-quinolylamino) - α - 1 - piperidyl-, *di*- *HCl*, P 7514*f*.

$C_{22}H_{23}N_3O_2$ *o*-Cresol, 4-(6-methoxy-4-quinolylamino) - α - 1 - piperidyl-, P 7515*a*; *di*- *HCl*, P 7514*f*.

Lepidine, 2-[(2-dimethylaminoethyl)-piperonylamino]-, 8389*i*.

Oxamic acid, *N*-naphthyl-2,7-dimethyl-2,6-octadienylidenehydrazide, 6973*i*.

$C_{22}H_{24}N_2O_2$ Diphenic acid, 6,6'-dinitro-, conhydrine salt, 7937*c*.

$C_{22}H_{24}N_4O_4S$ Benzenesulfonamide, *p*-(hexyldihydroxyphenylazo) - *N* - 2 - pyrimidyl-, 9048*b*.

$C_{22}H_{25}N_3O_6S_2$ 3,5 - Pyridinedicarboxanilide 1,4 - dihydro - 2,4,6 - trimethyl-4',4''-disulfamyl-, 2598*b*.

$C_{22}H_{25}N_7$ Aniline, *N*, *N'*-diguanyl-2-methyl-4,4',4''-methylidynetri-, P 5046*f*.

$C_{22}H_{26}$ 1,9-Decadiene, 1,10-diphenyl-, 493*b*.

$C_{22}H_{26}BrN_3O$ Quinoline, 7-bromo-4-[3-(isopropylaminomethyl) - *p* - phenetidino]-3-methyl-, *di*- *HCl*, P 7515*i*.

$C_{22}H_{26}CaN_4O_6S_2$ Irgamide, Ca deriv., P 7043*b*.

$C_{22}H_{26}ClN_3O$ *o*-Cresol, 4-(7-chloro-4-quinolylamino) - α - hexylamino-, *di*- *HCl*, P 7515*e*.

Quinoline, 4 - (α - amylamino - 4 - methoxy - *m* - (toluidino) - 7 - chloro-, *di*- *HCl*, P 7515*i*, P 7516*a*.

—, 7 - chloro - 4 - (α - diethylamino- 4-methoxy - *m* - toluidino) - 3 -methyl-, P 7515*h*.

—, 7 - chloro - 4 - [3 - (diethylaminomethyl) *p*-phenetidino]-, P 7515*h*

$C_{22}H_{26}ClN_3O_2$ Acridine, chloro-2,7-dimethoxy - 9 - [2 - (1 - piperidyl)ethylamino]-, *and di HCl*, 6633*d*.

$C_{22}H_{26}ClN_5$ Pyrimidine, 4-*p*-chloroanilino-6-(2 - diethylaminoethylamino) - 2-phenyl-, P 6244*c*.

Quinazoline, 4 - *p* - chloroanilino - 2-[3 - (1 - piperidyl)propylamino]-, *di*- *HCl*, 2952*c*.

$C_{22}H_{26}Cl_4N_2O_4S_2$ Piperazine 2,2,5,5-tetrakis(chloromethyl) - 1,4 - bis(*p* - tolylsulfonyl)-, 2936*b*.

$C_{22}H_{26}CuCl_2N_{10}$ Guanidine, 1 - (5 - chloro 2-benzimidazolyl) - 3 - isopropyl-, Cu deriv., 1405*f*.

$C_{22}H_{26}INO_5$ Fagarine II, methiodide, 4281*a*.

α-Fagarine, methiodide, 4280*h*.

$C_{22}H_{26}NO_4$ Fagarine III, *and* - *HCl*, 4280*i*.

$C_{22}H_{28}N_2$ 1-Piperidinebutyronitrile, methyl-α,α-diphenyl-, 4243*d*, *HCl*, 7138*e*; *and* - *HCl*, 9053*a*.

1 - Piperidinevaleronitrile, α,α - diphenyl-, 4245*g*.

$C_{22}H_{28}N_2O$ 4-Morpholinebutyronitrile, 2,6-dimethyl - α,α - diphenyl-, *and* - *HCl*, 9052*g*

4 - Morpholinebutyronitrile, α,α - di - *p*-tolyl-, 9052*h*.

4-Morpholinecapronitrile, α,α-diphenyl-, 9053*c*.

$C_{22}H_{28}N_2O_2$ 2-Decenedianilide, 2184*g*.

Piperazine, 1,4 - dibenzoyl - 2,2,5,5-tetramethyl, 3015*e*.

Urea, 1 (α - amylfurfuryl) - 1 - methyl-3-(1-naphthyl)-, 3407*b*.

—, 1 - amyl - 1 - α - methylfurfuryl - 3-(1-naphthyl)-, 3407*a*.

—, 1 - butyl - 1 - (α - ethylfurfuryl) - 3-(1-naphthyl)-, 3407*a*.

—, 1 - (α - butylfurfuryl) - 1 - ethyl - 3-(1-naphthyl)-, 3407*b*.

—, 1 - α - isoamylfurfuryl - 1 - methyl - 3-(1 naphthyl)-, 3407*b*.

—, 3 - (1 - naphthyl) - 1 - propyl - 1 - α-propylfurfuryl-, 3407*a*.

Valeric acid, δ-(benzylmethylamino) - α - cyano - α - phenyl-, Et ester, P 695*i*.

$C_{22}H_{28}N_2O_4$ Corynantheine, *fluocolumbate* (*V*), 5786*a*.

Morpholine, 4 - [(4 - morpholinyl)diphenylacetyl]-, P 7974*e*.

Pseudostrychnine, dihydro-, Me ether, 239*d*.

9*H* - Pyrido[1,2,3 - *lm*]pyrrolo[2,3 *d*]-carbazol - 9 - one, 1,2,3,10,12,13,-13a,13c - octahydro - 7,13a - dihydroxy - 1 - methyl - 12 - (1 - methylpropenyl)-, 7942*i*.

Vomicidine, 240*a*.

Vomicine, dihydroneodesoxy-, 7946*b*.

$C_{22}H_{28}N_2O_4$ Cinnamic acid, piperazine salt, 235*d*.

Piperazine, 2,5-bis(*p*-hydroxyphenyl)-1,4-dimethyl-, diacetate, *and di*- *HCl*, 2602*f*.

$C_{22}H_{28}N_2O_6S$ Valine, β-(benzylmercapto) *N* - (*N* - phenylacetylglycyl)-, *and N H₂ salt*, 4668*d*.

$C_{22}H_{28}N_2O_8$ Alanine, *N*-(*N*-carboxy-β-alanyl)phenyl-, benzyl Et ester, 1448*g*.

Mesitol, $\alpha^3,\alpha^{3'}$-nitrosoiminodi-, diacetate, 5995*b*.

$C_{22}H_{29}N_3O_6$ Alanine, *N*-9-acridyl-, Et ester, diacetate, 3826*b*.

Hydrocinnamic acid, α-(dimethylaminomethyl)-β-hydroxy-α-methyl-, Et ester *p*-nitrobenzoate, *and* - *HCl*, 7643*f*.

$C_{22}H_{30}N_2O_7$ Actidione, *p*-nitrobenzoate, 2998*d*.

Glutarimide, β - [2 - (3,5 - dimethyl - 2 oxocyclohexyl) - 2 - hydroxyethyl], *p*-nitrobenzoate, 2998*d*.

$C_{22}H_{30}N_4$ Calcanthine, 7194*d*.

Imidazoline, 2,2'-(4,4'-biphenylene)bis[4,5-dimethyl, *and di*- *HCl*, P 3853*a*, P 6240*f*.

Valeronitrile, α,α'-*p*-biphenylenediimino-di-, 4415*h*.

$C_{22}H_{30}N_4O_3$ Nitrone, α,α' - (1,3 - butadienylene)bis[*N* - (*p* - dimethylamino phenyl)-, 6981*d*.

$C_{27}H_{30}N_4O_7S_2$ Pseudourea, 2-benzyl-2 thio-, salt with hibiscic acid, 7044*d*.

$C_{22}H_{30}N_4O_8$ Evodione, dihydro-, 2,4-dinitrophenyl hydrazone, 2994*f*.

1*H* - Quinolizine, octahydro - 1 - phenoxymethyl-, picrate, 6210*c*.

$C_{22}H_{30}N_4O_{11}$ Malonic acid, ethyl[2-(2-pyridyl)ethyl], di-Et ester picrate, 4267*g*.

$C_{22}H_{35}N_5O_4$ Pyrimidine, 5-nitro-4-(*p*-nitrostyryl)-2,6-di 1-piperidyl-, 651*i*.

$C_{22}H_{30}N_6O_8S$ Benzenesulfonamide, *N*-2-methoxyethyl - 3,5 - dinitro - 2 - (2,3,6,7-tetrahydro - 6 - hydroxy - 3,5 - dimethyl - 5*H* - pyrido[1,2,3 - *de*]-1,4-benzoxazin-9-ylazo)-, P 2781*i*.

$C_{22}H_{30}N_{12}O_{14}$ 2-Imidazoline, 2,2'-(ethylenediimino)bis[methyl-, dipicrate, 4273*e*.

$C_{22}H_{30}O$ Cyclohexanone, 2,6-dibenzyl-2,6-dimethyl-, 2962*b*.

$C_{22}H_{30}O_2$ 1,4-Naphthoquinone, 2-(4-cyclohexylcyclohexyl)-, 1377*a*.

2,5 - Xylenol, 4,4' - (diethylidenediethylene)di-, 614*a*.

$C_{22}H_{30}O_3$ 1,4-Naphthoquinone, 2-(4-cyclohexylcyclohexyl) - 3 - hydroxy, 1109*c*, 1371*a*, 1376*f*, 2610*b*

1,4-Naphthioquinone, 2-(4-cyclopentylcyclohexylmethyl)-3-hydroxy-, 1374*i*

—, 2 - [2 - (decahydro - 2 - naphthyl)ethyl]-3-hydroxy-, 1374*i*.

—, 2 - [3 - (hexahydro - 5 - indanyl)propyl]-3-hydroxy-, 1374*i*.

2-Phenanthrenecarboxylic acid, 2-ethyl-1-ethylidene - 1,2,3,4 - tetrahydro - 7 methoxy-, Et ester, P 3849*f*.

4 - Stilbenecarboxylic acid, α,α' - diethyl 4'-methoxy-, Et ester, 4655*b*.

$C_{22}H_{30}O_4$ Benzoic acid, *p*-(α,β-diethyl-*p* hydroxyphenethyl)-, Me ester, acetate, 9055*i*.

1,3 - Cyclohexanedione, 2,2' - cuminylidenedi-, 1336*e*.

1,4 - Naphthoquinone, 2 - (4 - cyclohexylbutyl) - 3 - hydroxy-, acetate, 1374*g*, 3305*h*.

—, 2 - (3 - cyclohexylpropyl) - 3 - hydroxy-, propionate, 1374*e*.

Pelargonic acid, 6-*p*-phenoxybenzoyl-, 1378*g*.

Phenol, *p*,*p'* - (1,2 - diethylethylene)-di-, diacetate, P 2236*d*.

$C_{22}H_{30}O_5S$ Retenesulfonic acid, 3-methoxy-, Pr ester, 4252*c*.

$C_{22}H_{30}O_5$ $\Delta^{1,3,5}$-Estratriene, 3,17(α)-dihydroxy-16-keto-, diacetate, 3434*g*

$C_{22}H_{30}O_6$ Benzil, 2,2',4,4'-tetraethoxy-, 1036*a*.

Epieudesamin, 1018*f*.

Hydrobenzoin, α,α'-diethyl-*p*,*p'*-dihydroxy-, diacetate, P 5804*h*, P 7968*i*.

Peroxybenzoic acid, 1,1,4,4 - tetramethyltetramethylene ester, 6190*a*

β-Resorcil, 5,5'-dibutyl-, 1037*f*.

$C_{22}H_{30}O_8S$ Galactoside, methyl 4,6-benzylidene - 3 - methyl - 2 - *p* - tolylsulfonyl-, 4636*b*.

$C_{22}H_{30}O_8S_2$ 2-Cyclohexen-1-one, 3-hydroxy-5,5-dimethyl-, *p*-benzenedisulfonate, 2967*i*.

$C_{22}H_{27}BrN_2O_3$ Vomicine, oxy-, 7944*e*.

$C_{22}H_{27}ClN_4O_2$ Acridine, 2-chloro-9-(5-diethylaminoamylamino) - 7 - nitro-, *di*- *HCl*, 7937*i*.

Acridine, 2 - chloro - 9 - (3 - dipropylaminopropylamino) - 7 - nitro-, *di*- *HCl*, 7937*i*.

**$C_{21}H_{17}Cl_3NO$** Acetophenone, *p*-chloro-α-(*p*-chlorophenyl) - α - octylamino-, - *HCl*, 3369*d*.

**$C_{21}H_{17}Cl_3O_2$** Ethane, 2,2-bis(*p*-butoxyphenyl)-1,1,1-trichloro-, 9343*c*.
Thymol, (2,2,2 - trichloroethylidene)di-, 347*b*.

**$C_{21}H_{17}N$** 6*a*(4*H*) - Fluoranthenecthylamine, *N*, *N*-diethyl-5,6-dihydro-, 3929*a*.
Phenanthridine, 6-nonyl-, 7446*c*.

**$C_{21}H_{17}NO$** 3-Hexanone, 4,4-diphenyl-6 (1-pyrrolidyl)-, *and* - *HCl*, 9053*f*; *phosphate*, 4244*e*.
1 - Naphthol, 1,2,3,4 - tetrahydro - 1-phenyl - 2 - (1 - piperidylmethyl)-, P 5417*h*.
2 - Pentanone, 3,3 - diphenyl - 5 - (1-piperidyl)-, *and salts*, 7467*d*.
4 - Piperidone, 3,5 - diethyl - 1 - methyl-2,6-diphenyl-, *and* - *HCl*, 1410*c*.

**$C_{21}H_{17}NO_2$** (See also *Lobeline*.)
Acetic acid, diphenyl-, 2 - cyclohexylaminoethyl ester, - *HCl*, P 2039*h*.
3 - Hexanone, 6 - (4 - morpholinyl) - 4,4-diphenyl-, - *HCl*, 4244*d*; *and* - *HCl*, 3391*a*, 9053*g*.
1 - Naphthol, 2 - (dimethylaminomethyl) - 1,2,3,4 - tetrahydro - 1-phenyl-, propionate, P 5417*h*.
1 Piperidinebutyric acid, α,α-diphenyl-, Me ester, - *HBr*, 7467*e*.
4 - Piperidinol, 1,3,5 - trimethyl - 2,6-diphenyl , acetate, *and* - *HCl*, 1410*e*.
Triethylamine, 2 - (10 - ethoxy - 9-phenanthryloxy)-, *and* - *HCl*, 4663*f*.

**$C_{21}H_{17}NO_3S$** Piperidine, 1-[2-[9-(ethylsulfonyl) - 9 - fluorenyl]ethyl]-, - *HCl*, 1366*e*.

**$C_{21}H_{17}NO_4$** Acetic acid, diphenyl-, 4-(4-morpholinyl)butyl ester, - *HCl*, P 6673*f*; 2-(4-morpholinyl)isobutyl ester, - *HCl*, P 6673*f*.
Acetic acid, phenyl[2-(1-piperidyl)ethoxy] , benzyl ester, - *HBr*, 2189*f*.
1 Butanone, 1-[*o*-(benzyloxy)phenoxy] 4-(1-piperidyl) , P 1914*e*.
3 Hexanone, 4-(*m*-hydroxyphenyl) 6-(4-morpholinyl)-4-phenyl , - *HCl*, 4245*a*.
4 Morpholinebutanol, β,β-diphenyl-, acetate, - *HCl*, 3391*e*.
4 Morpholinebutyric acid, α,α-diphenyl , Et ester, *and* - *HCl*, 3391*a*, 9053*d*.
4 - Piperidone, 2,6 - bis(*p* - methoxyphenyl) - 1,3,5 - trimethyl-, *and* - *HCl*, 1410*d*.

**$C_{21}H_{17}NO_5$** Hydrocinnamic acid, α-(dimethylammoniomethyl) - β - hydroxy - α-methyl , Et ester benzoate, *and* - *HCl*, 7643*f*.

**$C_{21}H_{17}NO_6$** Phenaceturic acid, β benzyl-α-formyl-, di-Et acetal, 8892*f*.

**$C_{21}H_{17}NO_7S$** Isovaleraldehyde, compd. with 1 - (α - aminobenzyl) - 2 - naphthol bisulfite, 3356*c*.
Valeraldehyde, compd. with 1-(α-aminobenzyl) 2-naphthol bisulfite, 3356*c*.

**$C_{21}H_{17}NO_7$** *o*-Veratric acid, 6 [5-(3,4-dimethoxyphenyl) - 3 - methyl - 2 - oxazolidyl] , Me ester, 2602*i*.

**$C_{21}H_{17}NS$** Quinoline, 6-methyl-3-octyl-2-(2-thienyl) , 228*d*.

**$C_{21}H_{17}NO$** *o*-Cresol, α-diethylamino-4-(6,7-dimethyl-4 quinolylamino)-, P 7515*b*.
Lepidine, 2 - [(2 - dimethylaminoethyl)-(*p* methoxybenzyl)amino] , 8389*i*.

**$C_{21}H_{17}N_3O$** Acridine, 2,7-dimethoxy-9-[2-(1-piperidyl)ethylamino]-, *and di-HCl*, 6633*b*.

**$C_{21}H_{17}NO_2S$** Carbamic acid, thiono-, 3 (1-piperidyl)propylene ester, 6204*f*.

**$C_{21}H_{17}N_3O_4$** Diothane, 762*f*.

**$C_{21}H_{17}NO_4S$** 10-Camphorsulfonic acid, *p*-phenylazoaniline salt, 610*c*.

**$C_{21}H_{17}N_3O_{12}$** Nitrophenylhydrazone, m. 207°, 7940*a*.

**$C_{21}H_{17}N_3O_2$** Hydrocinnamic acid, α-benzamido - β - isopropylidenehydrazino , isopropylidenehydrazide, 4669*d*.
Pyrimidine, 5-nitro-2,4-di-1-piperidyl-6-styryl , 615*b*.

**$C_{21}H_{17}N_3O_2$** Butyramide, *N*-(α-butyrylphenethyl)-, 2,4 - dinitrophenylhydrazone, 4227*a*.

**$C_{21}H_{17}N_3O_3$** 2-pyrimidylamino)-, P 3854*d*.

**$C_{21}H_{17}N_3O_4$** Isoalloxazine, 10-(2-diethylaminoethyl) - 8 - dimethylamino-, violurate, 3008*a*.

**$C_{21}H_{18}$** Bicyclohexyl, 4-(naphthyl)-, 1877*c*.

**$C_{21}H_{18}Br_2O_2S$** Phenol, thiobis[*tert*-amyl-, Ba deriv., P 6405*h*.

**$C_{21}H_{18}BrNO_3$** 2-Ethoxy-4-ethyl-4-phenacyl-2-phenylmorpholinium bromide, 4240*a*.

**$C_{21}H_{18}BrN_3$** Pyrimidine, 4-(6-bromo-2-naphthylamino) - 6 - (3 - diethylaminopropylamino)-2-methyl-, P 6243*i*.

**$C_{21}H_{18}CaO_2S$** Phenol, thiobis[*tert*-amyl-, Ca deriv., P 4460*c*.

**$C_{21}H_{18}ClN_3$** Acridine, 1-chloro-9-(4-diethylamino-1-methylbutylamino)-, P 5427*b*.

**$C_{21}H_{18}ClN_3O$** Acridine, chloro-9-(diethylaminobutylamino)methoxy-, *di* - *HCl*, 7549*h*; *and di-HCl*, P 255*a*.
Acridine, 6 - chloro - 9 - (3 - dimethylamino - 1 - ethylisobutylamino) - 2-methoxy-, P 1068*a*.
—, 6 - chloro - 2 - methoxy - 9 [3-(methylpropylamino)butylamino]-, *and di-HCl*, P 256*a*.

**$C_{21}H_{18}ClN_3O_2 + 0.5H_2O$** Quinazoline, 2-*p*-chloroanilino - 4 - (2 - diethylaminoethylamino) - 6,7 - dimethoxy-, *di-HCl*, 2952*a*.

**$C_{21}H_{18}Cl_4N_4$** *o*-Tolidine, *N*, *N*, *N'*, *N'*-tetrakis(2-chloroethyl)-, 7443*e*.

**$C_{21}H_{18}Cl_4N_2O_2$** Benzidine, *N*, *N*, *N'*, *N'*-tetrakis(2 - chloroethyl) - 3,3 - dimethoxy-, 7443*e*.

**$C_{21}H_{18}Cl_5NO$** Phenol, pentachloro-, compd. with *N*, *N* - dibutylphenethylamine, P 4298*g*.

**$C_{21}H_{18}N_2$** Butyronitrile, γ-dipropylamino-α,α-diphenyl-, *and* - *HCl*, 9052*i*.
Ethylenediamine, *N*, *N'* - bis(2,4,6 - trimethylbenzylidene)-, 3388*g*.
1,8 - Octanediamine, *N*, *N'* - dibenzylidene-, 3379*e*.

**$C_{21}H_{18}N_2O$** Morpholine, 4-(4-imino 3,3 diphenylhexyl)-, 3391*g*.
1 - Piperidinevaleramide, α,α-diphenyl-, *and* - *HCl*, 4245*g*.

**$C_{21}H_{18}N_2O_2$** 7944*c*.
9*H* - Pyrido[1,2,3 - *lm*]pyrrolo[2,3 - *d*]-carbazol - 9 - one, 12 - *sec* - butyl-1,2,3,10,12,13,13a,13c - octahydro-7-hydroxy-1-methyl-, 7943*f*.
Quinazoline, 3,4 - dihydro - 6 - methoxy-3 - (4 - methoxy - *as* - pseudocumyl)-5,7,8-trimethyl-, 181*a*.
Suberanilide, α,ζ-dimethyl-, 6992*f*.
Succinamide, *N*, *N'*-dibenzyl-*N*, *N'*-diethyl-, 2177*c*.

**$C_{21}H_{18}N_2O_3$** (See also *Corynantheine*.)
Corynantheidine, 9378*b*.

**$C_{21}H_{18}N_2O_4$** (See also *Corynantheine*.)
Acetamide, *N*, *N'* - [1,2 - bis(*p* - methoxyphenyl)ethylene]bis[*N* - methyl-, 614*e*.
1,4 - Heptanediol, 3 - methyl-, dicarbamate, 4254*f*.
Hydrocinnamic acid, α-(dimethylaminomethyl) - β - hydroxy - α - methyl-, Et ester *p*-aminobenzoate, *and* - *HCl*, 7643*f*.

**$C_{21}H_{18}N_4O_4$** 2-Propanol, 1-diethylamino-3-(2,3 - dimethoxy - 6 - nitro - 9 - acridylamino)-, 1868*a*, - *2HCl*, 4382*d*.

**$C_{21}H_{18}N_4O_5$** Hippuric acid, piperazine salt, 235*e*.

**$C_{21}H_{18}N_4S$** Quinazoline, 4-(3-diethylaminopropylamino) - 2 - (*p* - tolylmercapto) , 2952*g*.

**$C_{21}H_{18}N_6$** Pyridine, 3,3',3'' - methylidynetris[6-dimethylamino-, 410*e*.

**$C_{21}H_{18}N_6O$** Methanol, tris(6-dimethylamino-3-pyridyl)-, 409*h*.

**$C_{21}H_{18}N_{10}O_{14}$** Spherophysine, dipicrate, 238*g*.

**$C_{21}H_{20}O$** Benzophenone, 4'-*tert*-butyl-2,2',3,5,6-pentamethyl-, 8370*a*.
Naphthalene, 1 - (4 - cyclohexylcyclohexyloxy)-, 1377*b*.
1 - Naphthol, 2 - (4 - cyclohexylcyclohexyl)-, 1377*b*.

**$C_{21}H_{20}O_2$** Indan, 1-butyl-5-methoxy 2-(*p*-methoxyphenyl)-3-methyl-, 1758*d*.
Naphthalene, 1,4 - bis(cyclohexyloxy)-, 1377*c*.

**$C_{21}H_{20}O_3$** Capric acid, ε-(*p*-phenoxyphenyl)-, 1378*g*.
Phenol, *p* - (α,β - diethyl - *p* - methoxyphenethyl)-, propionate, P 3979*h*.
Salicylic acid, 5-*tert*-butyl-, *p*-*tert*-amylphenyl ester, P 4697*e*.

**$C_{21}H_{20}O_4$** Crocetin, dimethyl ester, 4728*a*.
Estradiol, diacetate, 3018*i*.
1,4 - Naphthoquinone, 2 - decyl - 3 - hydroxy-, acetate, 1373*c*.
—, 2 - (3,7 - dimethyloctyl) - 3 - hydroxy-, acetate, 1373*f*.
—, 2 - hydroxy - 3 - (2 - methyloctyl)-, propionate, 1373*e*.
2 - Phenanthrenecarboxylic acid, 1,2 - diethyl - 1,2,3,4 - tetrahydro - 1 - hydroxy - 7 - methoxy-, Et ester, P 3849*f*.

**$C_{21}H_{20}O_5$** Lactone, compd. with EtOH, P 4466*de*.

**$C_{21}H_{20}O_5S_2$** Galactoside, methyl 2-desoxy-4,6-ditosyl-3-methyl-, 1727*f*.

**$C_{21}H_{20}O_{14} + 3H_2O$** Scopoletin β-gentiobioside, 1770*f*.

**$C_{21}H_{21}BrN_2O_4S_2$** 1 - Cyclohexen - 1 - acetic acid, 5 - carboxy - 5 - methyl - 2 - (2-methylmercaptoethyl) - 6 - oxo-, 5-Me ester, 2 - (*p* - bromobenzyl) - 2-thiopseudourea salt, 7433*i*.

**$C_{21}H_{21}ClNO$** Ethanol, 1,2-bis(*p*-chlorophenyl) - 2 - octylamino-, *and* - *HCl*, 3369*e*.

**$C_{22}H_{22}NO$** Acetamide, *N*, *N*-dibutyl-α,α-diphenyl-, 1144*e*.
Heptanone, dimethylaminomethyldiphenyl-, *and* - *HCl*, 7467*b*; *and nitrate*, 7466*f*.
3 - Hexanone, 6 - diethylamino - 4,4 - diphenyl-, *and* - *HCl*, 9053*f*.
—, 6 - dimethylamino - 2,5 - dimethyl-4,4-diphenyl-, *and* - *HBr*, 7467*b*.
4 - Octanone, 7 - dimethylamino - 5,5-diphenyl-, *and salts*, 7466*e*.
2 - Pipecoline, 1-[3 - (α-phenyl-*o*-toloxy)-propyl]-, *and* - *HCl*, 3386*c*.
Piperidine, 1 - [2 - (benzhydryloxy)-propyl]-2-methyl-, P 5804*e*.
—, 1 - [2 - (α -ethylbenzhydryloxy)-ethyl]-, 4657*d*.
1 - Piperidinebutanol, α - methyl - β,β-diphenyl-, - *HCl*, 4244*g*.
1 - Piperidinepropanol, α - ethyl - α,β-diphenyl-, *and* - *HCl*, 9070*h*.

**$C_{22}H_{23}NO_2$** Butyric acid, γ-diethylamino-α,α-diphenyl- Et ester, 1053*c*.
Butyric acid, α,α diphenyl , 3-diethylaminoethyl ester, *HCl*, 3392*b*.
Morpholine, 4 - [5 - (benzhydryloxy)-amyl]-, P 5804*e*.
—, 4 - [3 - (benzhydryloxy) - 2,2 - dimethylpropyl] , *and* - *HBr*, P 5804*d*.
4 - Morpholinebutanol, α - ethyl - β,β-diphenyl-, *and nitrate*, 3391*d*.
Valeric acid, γ-dimethylamino-α,α-diphenyl-, isopropyl ester, - *HCl*, 611*g*.

**$C_{22}H_{23}NO_2S$** Acetic acid, 6-(thiocyanomethyl)dehydro-, P 6666*a*.
Acetic acid, diphenyl-, 2-(2-diethylaminoethylmercapto)ethyl ester, - *HCl*, 3395*b*.
Piperidine, 1 - [3 - (ethylsulfonyl) - 3,3-diphenylpropyl]-, 1367*a*.

**$C_{22}H_{23}NO_3$** Acetic acid, (2-diethylamino ethoxy)diphenyl-, Et ester, P 3462*c*.
4 - Piperidinol, 2,6 - bis(*p* - methoxyphenyl) - 1,3,5 - trimethyl-, *and* - *HCl*, 1410*e*.
Pyrrolidine, 1 - [2 - [*p* - methoxy - α - (*p*-methoxyphenyl)phenethyloxy]-ethyl]-, 631*c*.
Thebenine, *O* methyl - *N* - methyl-, methiodide, 239*a*.

**$C_{22}H_{23}NO_5$** 2-Propanol, 1-[*o*-(benzyloxy)-phenoxy] - 3 - [2 - (4 - morpholinyl)-ethoxy]-, P 4432*a*.

**$C_{22}H_{23}NO_6$** Veratramide, *N*-(3,4-diethoxy-β-hydroxy-α-methylphenethyl)-, 1423*dh*.

**$C_{22}H_{23}NO_7S$** Isothebaine, Me ether methosulfate, 6208*a*.
Thebenine, *O*-methyl-*N*-methyl-, compd. with $H_2SO_4$, 239*a*.

**$C_{22}H_{23}N_3O_3$** Acetophenone, 2-isoamoxy-4,5-dimethyl - α - phenyl-, semicarbazone, 7924*f*.

**$C_{22}H_{23}N_3O_4$** 3-Heptanone, 1-(3,4-dimethoxyphenyl) - 6 - methyl-, *p* - nitrophenylhydrazone, 2185*g*.

**$C_{22}H_{23}N_3O$** Quinazoline, 2-(3-diethylaminopropylamino) - 4 - (*p* - methoxyanilino)-, *di-HCl*, 2952*f*.

**$C_{22}H_{23}N_3O_5$** Julolidine, hexahydro-, picrolonate, 5784*f*.

**$C_{22}H_{24}BrNO$** 1 - [2 - (benzhydryloxy)propyl]-1 - methylpiperidinium bromide, P 5804*f*.

**$C_{22}H_{24}BrNO_3$** 1 - Allyl - 1 - (2 - hydroxyethyl)pyrrolidinium bromide, α-phenyl - 2 - cyclopentene - 1 - acetate, 1388*e*.
Triethyl(2 - hydroxyethyl)ammonium bromide, diphenylacetate, 7921*f*.

**$C_{22}H_{24}BrNO_3$** (2 - Benzhydryloxyethyl)(1-carboxyethyl)dimethylammonium bromide Et ester, P 5046*a*.

**$C_{22}H_{24}BrNO_4$** (Carboxymethyl)ethyl[2 - (2-methoxybenzhydryloxy)ethyl]methylammonium bromide Me ester, P 5046*b*.

**$C_{22}H_{24}ClN$** Dicuminylamine, *N* - (2 - chloroethyl)-, 4381*c*.

**$C_{22}H_{24}ClNO$** Hexylamine, *N* - [2 - (2 - biphenylyloxy)ethyl] - N - (2 - chloroethyl)-, - *HCl*, 6309*b*.

$C_{22}H_{30}ClNO_3$ (2 - Benzhydryloxyethyl)(carboxymethyl)dimethylammonium chloride, iso-Pr ester, P 5046*a*.

$C_{22}H_{30}Cl_2N_2$ 1,6-Hexanediamine, *N*, *N'*-bis-(*p* - chlorophenethyl)-, *di-H Br*, 3379*a*, P 3455*g*.

$C_{22}H_{30}CuN_{10}O_8S_2$ Sulfadiazine, complex with Cu(OH)$_2$ and ethylenediamine, 6996*h*.

$C_{22}H_{30}CuO_4$ Camphor, formyl-, Cu deriv., 8222*d*.

$C_{22}H_{30}INO$ 1 - (2 - Benzylhydryloxyethyl)-1,2 - dimethylpiperidinium iodide, P 2641*ad*.

Trimethyl(1 - methyl - 4 - oxodiphenylhexyl)ammonium iodide, 7466*e*, 7921*e*.

$C_{22}H_{30}INO_2$ 4-(Benzhydryloxyethyl) - 4-propylmorpholinium iodide, P 2641*a*.

$C_{22}H_{30}I_2N_2$ Indeno[2,1 - *a*]indene - 5,10 - diamine, 4*b*,5,9*b*,10 - tetrahydro - *N*,*N*,*N'N'* - tetramethyl-, dimeth- iodide, 4662*c*.

$C_{22}H_{30}I_2N_2O_2$ Phenol, 4,4'-[hexamethylenebis(iminoethylene)]bis[2-iodo-, 3378*h*.

$C_{22}H_{30}N_2$ Capramidine, *N*-2-biphenylyl-, 7446*a*.

$C_{22}H_{30}N_2O$ Acetamide, *N*-(2-diethylamino-isopropy) - *N* - *o* - phenylbenzyl-, 1355*i*.

Piperidine, 2 - [α - (2 - dimethylamino-ethoxy)benzhydryl]-, *and di-HCl*, 2206*i*.

$C_{22}H_{30}N_2OS$ Acetamide, *N* - [2 - (2 - diethylaminoethylmercapto)ethyl] - α,α - diphenyl-, 3395*e*.

$C_{22}H_{30}N_2O_2$ Aspidospermine, 1427*b*, 5407*i*.

Quinazoline, 1,2,3,4 - tetrahydro - 6-methoxy - 3 - (4 - methoxy - *as*-pseudocumyl) - 5,7,8 - trimethyl-, *and* - *HCl*, 181*c*.

$C_{22}H_{30}N_2O_2S$ Caproic acid, γ-ethyl-γ-phenyl-, 2 - benzyl - 2 - thiopseudourea salt, 2932*b*.

$C_{22}H_{30}N_2O_3$ Acetic acid, (2-dimethylaminoethoxy)diphenyl-, 2-dimethylaminoethyl ester, P 3462*f*.

Aspidospermine, *N*-oxide, 1427*d*.

9*H* - Pyrido[1,2,3 - *lm*]pyrrolo[2,3 - *d*]-carbazol - 9 - one, 12 - *sec* - butyl - 1,-2,3,10,11,11a,12,13,13a,13c - decahydro - 7,13a - dihydroxy - 1 - methyl, 7942*i*.

Strychnane, desformylmethoxymethylchanodihydro-, *and perchlorate*, 658*a*.

$C_{22}H_{30}N_2O_4$ Piperazine, 2,5-bis(3,4-dimethoxyphenyl)-1,4-dimethyl-, 2602*e*.

Procaine, hydrocinnamate, 7290*d*.

$C_{22}H_{30}N_2O_5$ Benzoic acid, *p*-ethoxy-, piperazine salt, 235*e*.

$C_{22}H_{30}N_4O_3$ Benzamidine, *p*,*p'*-(octamethylenedioxy)di-, 8536*c*.

*m* - Toluamidine, 4,4' - (hexamethylenedioxy)di-, *di-HCl*, 9049*d*.

$C_{22}H_{30}N_4O_4$ 2-Pyrrolecarboxylic acid, 4-ethyl - 5 - formyl - 3 - methyl-, Et ester azine, 4257*e*.

$C_{22}H_{30}N_4O_6S_2$ Sebacanilide, *p*,*p'*-disulfamyl-, 2597*g*.

$C_{22}H_{30}N_6O_{16}$ 1,4-Pentanediamine, *N*$^1$, *N*$^1$-diethyl - *N*$^4$ - (5 - methoxy - 2 - nitrophenyl)-, picrate, 1780*i*.

$C_{22}H_{30}O$ Benzophenone, *4'-tert*-butyl-2,2',-3,5,6 - pentamethyl-, dihydro deriv., 8370*b*.

Lauronaphthone, P 6358*e*, 9424*f*.

1(2*H*) - Naphthalenone, 2 - (4 - cyclohexylcyclohexyl) - 3,4 - dihydro-, 1377*g*.

$C_{22}H_{30}O_2$ 4,4' - Bi - *o* - cresol, 6,6' - di - *tert*-butyl-, P 9428*b*.

Δ$^4$ - *D* - Homoandrostene, 17a - ethynyl-17a-hydroxy-3-keto-, P 7055*g*.

1,4 - Naphthoquinone, 2 - dodecyl , P 9085*g*.

—, 2-hendecyl-3-methyl-, 1380*h*.

2,7-Octanediol, 2,7-di-*p*-tolyl-, 1368*e*.

2,5 - Xylenol, 4,4' - (1,2 - diethylethylene)di-, 614*b*.

$C_{22}H_{30}O_2S$ Phenol, 2,2' - thiobis[4 - *tert*-amyl-, 8188*g*.

$C_{22}H_{30}O_3$ Anacardic acid, P 4498*a*.

Cyclohexaneacetic acid, 4-cyclohexyl-α-phenacyl-, 1377*g*.

1 - Cyclohexene - 1 - carboxylic acid, 2 - [2,6 - dihydroxy - 4 - (1,2 - dimethylhexyl)phenyl] - 4 - methyl-, δ-lactone, 8388*f*.

Isoandrosterone, 16 - methylenedehydro-, acetate, 1429*e*.

1,4 - Naphthoquinone, 2 - dodecyl - 3-hydroxy-, 1373*c*, 2610*b*.

—, 2 - (5 - ethyl - 2 - methylnonyl) - 3-hydroxy-, 1109*e*, 1373*g*.

—, 2 - hydroxy - 3 - (2 - methylhendecyl)-, 1373*e*.

$C_{22}H_{30}O_4$ 2,2',3,3' - Biphenyltetrol, 5,5'-diamyl-, 8614*e*.

[illegible]ethanol, 6,6 - [1,6 - [illegible]]bis-(*p* - phenyleneoxy)]di-, 8370*d*.

Hydroquinone, dicyclohexyl-, diacetate, 1376*i*.

1-Naphthalenebutyric acid, α-(1-hydroxy-1 - methylpropyl) - 6 - methoxy - α-methyl-, Et ester, P 3850*d*.

Umbelliferone, 6 - lauroyl - 4 - methyl-, 6621.

$C_{22}H_{30}O_5S_2$ Arabinose, 2,3,4-triacetyl-5-benzoyl-, di-Et mercaptal, 145*f*.

$C_{22}H_{31}ClO_3$ Abietic acid, 6-(chloromethyl)-dehydro-, Me ester, P 6665*g*.

Δ$^4$ - Pregnene, 21 - chloro - 17 - methyl-3,20-diketo-, 3831*d*.

$C_{22}H_{31}ClO_3$ Δ$^5$-Etiocholenyl chloride, 3(β)-acetoxy-, 6638*c*.

$C_{22}H_{31}ClO_5$ Δ$^{5,6}$ - Etiobilienic - 16 - acid chloride, 3 - acetoxy-, 17 - Me ester, 2214*a*.

$C_{22}H_{31}D_2NO_4$ Malonic acid-*d*$_2$, benzyl-, *N*, *N*-dimethylbornylamine salt, 3392*g*.

$C_{22}H_{31}IN_2$ (4-Imino-2-methyl-3,3-diphenylhexyl)trimethylammonium iodide, 7467*a*.

$C_{22}H_{31}NO$ Propylamine, 3 - (benzhydryloxy)-*N*, *N*-diethyl-2,2-dimethyl-, P 3403*d*.

$C_{22}H_{31}NO_3$ Cyclohexaneacetic acid, α-phenyl-, ester with tropine, P 7041*a*; *and* - *HCl*, P 679*g*.

Isobutylamine, *N*,1 - diethyl - 3 - (4-methoxy-3-*p*-toluxyphenyl)-, P 365*d*.

Maleimide, *N* - (*p* - dodecylphenyl)-, P 4422*a*.

Triethylamine, 2 - (*p* - phenoxy - α-propylbenzyloxy)-, P 5043*h*.

$C_{22}H_{31}NO_5$ Isobutylamine, *N*,1-diethyl-3-[4-methoxy - 3 - (*o* - methoxyphenoxy)-phenyl]-, P 365*e*.

$C_{22}H_{31}NO_6$ Monomethyl ester, m. 229–32° of dicarboxylic acid, m. 323–6°, 211*f*.

$C_{22}H_{31}NO_7$ Monomethyl ester, m. 210–15° of tricarboxylic acid, decompg. 258–61°, 210*h*.

$C_{22}H_{31}N_3O_{12}S_2$ Thiazole, 2-galactosylamino-4 - (*N* - galactosylsulfanilylmethyl) , 7931*e*.

Thiazole, 2-glucosylamino-4-(*N*-glucosylsulfanilylmethyl)-, 7931*e*.

$C_{22}H_{32}$ Dodecane, 1-(naphthyl)-, 4454*h*, 8888*f*, 9424*e*.

2,6,10 - Tridecatriene,3,7,11 - trimethyl-13-phenyl-, 1714*d*.

$C_{22}H_{32}ClNO$ Hexylamine, 4-chloro-*N*, *N*,1-trimethyl - 3,3 - diphenyl-, compd. with MeOH, - *HCl*, 192*c*.

$C_{22}H_{32}INO_2$ 1 - Ethyl - 1 - (2 - hydroxyethyl)pyrolidinium iodide, α-phenyl-2-cyclohexene-1-acetate, 1388*d*.

$C_{22}H_{32}N_2$ Benzylamine, *p*,*p'* - ethylenebis-[*N*-propyl-, *and di-HCl*, 3382*d*.

4,4' - Bi[benzylamine], *N*, *N'*-dibutyl-, *and di-HCl*, 3382*c*.

α,α' - Bi - *p* - toluidine, *N*, *N'* - dibutyl-, *and di-HCl*, 3381*b*.

1,6-Hexanediamine, *N*, *N'*-diphenethyl-, *di-H Br*, 3379*c*, P 3455*d*.

1,8-Octanediamine, *N*, *N'*-dibenzyl-, *and di-HCl*, 3379*e*.

Phenethylamine ethylenebis[β,β - dimethyl-, P 3456*b*, P 4296*g*, P 7263*h*.

$C_{22}H_{32}N_2O_3$ Phenol, *p*,*p'*-(hexamethylenebis-(iminoethylene)]di-, *di-HCl*, 3378*h*.

$C_{22}H_{32}N_2O_2S$ Capric acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

$C_{22}H_{32}N_2O_3S$ Cinchoninic acid, 2-hutoxy-, 2 - (2 - diethylaminoethylmercapto)-ethyl ester, - *HCl*, 6184*d*.

$C_{22}H_{32}N_2O_3S$ Penicillinic acid, benzyl-, compd. with iso-Pr$_2$O, 460*f*.

$C_{22}H_{32}N_2O_4S_2$ Benzenesulfonamide, *p*,*p'*-(ethylenedioxy)bis[*N*-butyl-, 5860*h*.

$C_{22}H_{33}N_3O_3$ Tributylamine, 2-(2-naphthylazo)-2-nitro-, P 8153*i*.

$C_{22}H_{33}N_3O_5$ Malonic acid, 2-formylethylhexyl-, di-Et ester, 2,4-dinitrophenylhydrazone, 577*h*.

$C_{22}H_{34}O$ Ether, 3,7-dimethyl-9-(2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-2,6,8 - nonatrien - 4 - ynyl ethyl, 1339*e*.

$C_{22}H_{34}O_2$ Docosahexaenoic acid, 8179*c*.

Δ$^4$-*D*-Homopregnene, 3,20-diketo-, P 7055*h*.

2,4,6,8 - Nonatetraenoic acid, 3,7-dimethyl - 9 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, Et ester, 5874*e*.

Spirotetrahydrofuran-2(3*H*),3'-[1,3]dioxolan]-5'-one, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 5874*e*.

Vitamin A, acetate, P 1803*b*, 2293*b*, 5372*e*, 5374*g*, 6080*c*, 9138*f*.

$C_{22}H_{34}O_3$ (See also "propionate" under *Testosterone*.)

Abietic acid, 6-methoxydehydro-, Me ester, P 3462*c*.

Anacardic acid, 1348*e*, 6298*g*.

Δ$^4$ - *D* - Homoandrostene, 17a - hydroxy-3-keto-, 17-acetate, P 7055*e*.

Isoandrosterone, dehydro-, propionate, 3018*i*.

—, 16-methyldehydro-, 1429*e*.

2,7 - Nonadien - 4 - yne - 1,6 - diol, 3,7-dimethyl - 9 - (2,6,6 - trimethyl - 1-cyclohexen - 1 - yl)-, 1 - acetate, 1802*c*.

Testosterone, 16 - methyl-, acetate, 1429*i*.

Umbelliferone, 6 - dodecyl - 4 - methyl-, 6621*i*.

$C_{22}H_{34}O_3S$ Naphthalenesulfonic acid, do decyl-, 8707*f*.

$C_{22}H_{34}O_4$ 5-Androsten-3-carboxylic acid, 17 acetoxy-, 6216*h*.

Δ$^5$-Etiocholenic acid, 3-acetoxy-, P 7520*b*

Tricyclo[4.2.2.0$^{2,5}$] - 3,9 - decadiene 7,8-dicarboxylic acid, diisoamyl ester 6198*g*.

$C_{22}H_{34}O_5$ Etiocholanic acid, 3(β)-acetoxy-11 keto-, P 5812*b*.

Etiocholanic acid, 3-keto-12-hydroxy-12-acetate, P 5428*e*.

$C_{22}H_{32}O_6$ Δ$^{5,6}$-Etiobilienic acid, 3-hydroxy-17-Me ester, acetate, 2214*a*.

$C_{22}H_{32}O_{10}$ Butyric acid, ester with vitamin C P 3154*c*.

$C_{22}H_{33}ClO_3$ Δ$^5$-Pregnene, 21-chloro-3(β)-hydroxy-17-methyl-20-keto-, 3831*d*.

$C_{22}H_{33}ClO_5$ Etioallocholanyl chloride, 3(β) acetoxy-, 6638*d*.

$C_{22}H_{33}NO_2$ Atisine, *and* - *HCl*, 210*e*.

Isoatisine, 210*e*.

$C_{22}H_{33}NO_3$ Benzoic acid, *p*-(cyclohexyloxy)-3 - (2 - methyl - 1 - piperidyl)propyl ester, -HCl, 8100*a*.

$C_{22}H_{33}NO_3S$ Spiro[androstane-3,2'-thiazolidine] - 4' - carboxylic acid, 17 keto-, 659*d*.

$C_{22}H_{33}N_3O_3$ Acetamide, *N*, *N* - diamyl - (6 - methoxy - 8 - quinolylamino)-, 3046*d*.

2 - Propanol, 1 - (cyclopentylisobutyamino) - 3 - (6 - methoxy - 8 - quinolylamino)-, *and di-HCl*, P 254*e*.

$C_{22}H_{33}N_3O_3S$ Cinchoninamide, 2-butoxy-*N*-[2-(2 - diethylaminoethylmercapto)-ethyl]-, 6184*d*.

$C_{22}H_{33}NO_4$ Androsterone, dehydro-, acetate semicarbazone, 1048*c*.

$C_{22}H_{34}$ *p*-Cymene, dicyclohexyl-, 1339*i*.

1,3,5,7 - Hendecatetraene, 3,7 - dimethyl - 1 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, 6297*b*.

$C_{22}H_{34}ClN_3$ Pyrimidine, 4-*p*-chloroanilino-(3 - dibutylaminopropylamino) - 2-methyl-, P 6243*h*.

$C_{22}H_{34}Co_2N_6O_{16}$ 7364*f*.

$C_{22}H_{34}N_4$ Caprylonitrile, α,α' - *p* - phenylenediiminodi-, 4415*h*.

$C_{22}H_{34}N_4O$ Capramide, *N*-benzyl-*N*-[2-(4,5-diamino - *s* - triazin - 2 - yl)ethyl]-P 5052*c*.

$C_{22}H_{34}N_4O_3$ Pyrimidine, 4-(3-dibutylaminopropylamino) - 2 - methyl - 6 - *p* - nitroanilino-, P 6243*i*.

$C_{22}H_{34}O$ Ether, 3,7-dimethyl-9-(2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-2,4,6,8-nonatetraenyl ethyl, 1339*f*.

2-Lauronaphthone, 5,6,7,8-tetrahydro-9424*f*.

$C_{22}H_{34}O_2$ Abietic acid, Et ester, 3678*a*.

Δ$^5$-Androsten-17-ol, propionate, P 7978*d*

Docosapentaenoic acid, 8179*c*.

1,7 - Nonadien - 5 - yn - 4 - ol, 9 - ethoxy - 3,7 - dimethyl - 1 - (2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-, 1339*d*.

Δ$^5$ - Pregnene, 3(β) - hydroxy - 17-1-20-keto-, 3831*c*.

-3(β)-ol-20-one, Me ether, 3018*h*

$C_{22}H_{34}O_3$ 5-Androstene, 3(β),17-dihydroxy-16-methyl-, 17-acetate, 1429*h*.

Δ$^{5,6}$ - Androstene - 3 - *trans*,17 - *trans*-diol, 17-propionate, P 1915*i*.

2,4,7 - Nonatriene - 1,6 - diol, 3,7-dimethyl - 9 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, 1-acetate, 1802*b*, 5372*b*.

4,6,8 - Nonatrienoic acid, 3 - hydroxy-3,7 - dimethyl - 9 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, Et ester, 5874*e*.

Spiro[17*H* - cyclopenta[*a*]phenanthrene-3(2*H*),2' - [1,3]dioxolan] - 17 - ol, 1,6,7,8,9,10,11,12,13,14,15,16 - d

decahydro - 10,13,17 - trimethyl-, P 7057*b*.

$C_{22}H_{32}O_4$ 1,7 - Octadiyne - 3,6 - diol, 1,8-bis(1 - hydroxycyclohexyl) - 3,6 - dimethyl-, 3359*e*.

$C_{22}H_{40}O_5$ Etiocholanic acid, 3,12-dihydroxy-, 12-acetate, P 5428*e*.

$C_{22}H_{34}O_4S$ Isoandrosterone-16-sulfonic acid, Me ester, acetate, 2214*f*.

$C_{22}H_{34}O_4S$ Phthalic acid, 4-sulfo-, 2-ethylbutyl 2-ethylhexyl ester, *Na salt*, P 2375*d*.

$C_{22}H_{41}NO_2$ β-Alanine, *N*, *N*-diethyl-, α-cyclohexyl - 3,4 - dimethylbenzyl ester, P 5797*g*.

Cyclohexaneacetic acid, α-ethyl-α-phenyl-, 2-diethylaminoethyl ester, - *HCl*, 3392*c*.

Cyclopentadecanol, carbanilate, 6988*g*.

Isoandrosterone, 16 - (dimethylaminomethyl)dehydro-, *and* - *HCl*, 1429*d*.

$C_{22}H_{43}NO_3$ Bicyclo[16.3.1] - 1(22),18,20-docosatrien-22-ol, 20-nitro-, 161*d*.

$C_{22}H_{43}NO_3S$ Acetamide, *N*, *N*-diamyl-α-[3-(3,4 - methylenedioxyphenyl)propylmercapto]-, P 1903*b*.

Acetamide, *N*, *N*-diamyl-α-(α-methylhomopiperonylmercapto)-, P 1903*c*.

Spiro[androstane - 3,2' - thiazolidine]-4' - carboxylic acid, 17 - hydroxy-, 659*de*.

$C_{22}H_{43}NO_{12}$ Streptobiosaminide, methyl tetraacetyldesoxy-, 1328*f*.

$C_{22}H_{43}N_3O$ Allopregnen-20-one, semicarbazone, 5068*c*.

Quinaldine, 4 - (3 - diisobutylaminopropylamino)-6-methoxy-, 4276*i*

$C_{22}H_{43}N_3O_2$ 2-Propanol, 1-(butylisobutylamino) - 3 - (6 - methoxy - 8 - quinolylamino) - 2 - methyl-, *and di-HCl*, P 254*f*.

2 - Propanol, 1 - (*sec* - butylisobutylamino) - 3 - (6 - methoxy - 8 - quinolylamino)-2-methyl-, *and di-HCl*, P 254*e*.

—, 1 - (butyl - 1 - methylbutylamino)-3 - (6 - methoxy - 8 - quinolylamino)-, *and di-HCl*, P 254*d*.

—, 1 - dibutylamino - 3 - (6 - methoxy-8 quinolylamino) - 2 - methyl-, *and di-HCl*, P 254*f*.

—, 1 - diisobutylamino 3 - (6 - methoxy-8-quinolylamino)-2-methyl-, *and di-HCl*, P 254*e*.

—, 1 - (isobutyl - 1 - methylbutylamino)-3 - (6 - methoxy - 8 - quinolylamino)-, *and di HCl*, P 254*d*.

$C_{22}N_3O_2$ Etioallocholanone, 3 - acetoxy, semicarbazone, 8909*c*.

$C_{22}N_3O_2$ 1*H* - Quinolizine, 1-[(2 - diethylaminoethoxy)methyl]octahydro-, picrate, 6210*d*.

$C_{22}N_3O_4$ 2(1*H*) - Phenanthrone, dodecahydro - 7 - hydroxy - 4b - methyl - 1-(3 - oxobutyl)-, disemicarbazone, formate, 7941*i*.

$C_{22}O$ Palmitophenone, 4575*c*.

$C_{22}O_2$ Bisnor-5-cholene, 3(β),22-dihydroxy-, 3432

Ketene, (3-cyclohexylpropyl)-, dimer, 2964*f*

1,5,7 - Nonatrien - 4 - ol, 9 - ethoxy - 3,7-dimethyl - 1 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, 1339*e*.

$C_{22}O_2S$ Cyclopentanehendecanoic acid, (2-thienyl) , Et ester, 566*d*.

$C_{22}O_4$ Anacardic acid, tetrahydro-, 1348*f*.

Androstane - 3 - *trans* - 17 - *trans* - diol, 17-propionate, P 1916*a*.

17(α) - Androstanol 3 - one, propionate, 7099*g*.

8 - Nonen - 4 - yne - 3,6 - diol, 1 - ethoxy-3,7 - dimethyl - 9 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 1339*e*.

$C_{22}O_2S$ Pregnane - 3(α),20(α) - diol - 21-thiol-11-one, 21-Me ether, 6215*e*.

$C_{22}O_5$ Pregnane - 3(α),17(α),20,21 - tetrol-11-one, 20-methyl-, 6212*i*.

$C_{22}Cl_2N_2O$ (2,5 - Dichlorophenylcarbamylmethyl)dodecyldimethylammonium chloride, P 3034*f*.

$C_{22}IO_5$ 7,8 - Pentadecanediol, 15 - (2-iodo-5-methoxyphenyl)-, 9050*b*.

$C_{22}H_{27}NO_2$ Laurophenone, *p*-(2-dimethylaminoethoxy)-, P 7508*i*, P 7509*a*.

Nicotinic acid, hexadecyl ester, 2622*h*.

$C_{22}H_{27}NO_3S$ Myristamide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.

$C_{22}H_{28}$ Benzene, dioctyl-, 8368*b*.

Hexadecane, 1-phenyl-, 10*e*.

$C_{22}H_{28}Cl_2N_2O$ (*p* - Chlorophenylcarbamylmethyl)dodecyldimethylammonium chloride, P 3034*e*.

$C_{22}N_2$ Sparteine, **heptyldehydro-**, 1048*a*.

$C_{22}H_{28}N_2O_3S$ Palmitamide, *N*-metanilyl-, P 4867*g*.

Palmitanilide, *p*-sulfamyl-, 1028*b*.

$C_{22}H_{28}N_2O_3$ (See also *Enniatine C*.)

Enniatine B, 3788*di*.

$C_{22}H_{28}N_4O_3$ Tetrabutylammonium picrate, 7279*c*.

$C_{22}H_{28}OS$ 1-Octadecanone, 1-(2-thienyl)-, P 2644*c*.

$C_{22}H_{28}O_4S_2$ Formic acid, thiobis[thiono-, dimenthyl ester, 1181*g*.

$C_{22}H_{28}O_2S_4$ Formic acid, dithiobis[thiono-, dimenthyl ester, 1181*g*.

$C_{22}H_{28}O_2$ 4,8-Nonadiene-3,6-diol, 1-ethoxy-3,7 - dimethyl - 9 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 1339*d*.

$C_{22}H_{28}O_3S$ Benzenesulfonic acid, dioctyl-, *Na salt*, P 3640*a*.

$C_{22}H_{28}O_4$ Oxalic acid, menthyl ester, 589*f*.

$C_{22}H_{28}O_7$ Palmitic acid, ester with vitamin C, 3498*a*.

$C_{22}H_{28}BrN_2O$ Dodecyldimethyl(phenylcarbamylmethyl)ammonium bromide, P 3034*f*.

$C_{22}H_{28}ClN_2O$ Dodecyldimethyl(phenylcarbamylmethyl)ammonium chloride, P 3034*e*.

$C_{22}H_{28}ClO_2S$ Thiophene-3-ol, 4-chlorotetrahydro-, 1,1-dioxide oleate, P 3466*d*.

$C_{22}H_{28}Cl_2NO_4$ [2 - [2 - [4 - Chloro - 5 - hydroxy - 2 - (1,1,3,3 - tetramethylbutyl)phenoxy]ethoxy]ethyl](2 - hydroxyethyl)dimethylammonium chloride, 7923*i*.

$C_{22}H_{28}NO_3$ Benzyltrimethylammonium laurate, 20*d*.

$C_{22}H_{28}NO_4$ 2 - Oxazoline - 4,4 - dimethanol, 2-amyl-, dicaproate, P 5992*a*.

$C_{22}H_{28}NO_6$ Acetic acid, dicyclohexyl-, 3-diethylaminoethyl ester, oxalate, P 2234*h*.

$C_{22}H_{28}NO_6S$ Succinic acid, α-(1-hydroxytetradecyl) - β - methylene-, γ-lactone, cysteine deriv., 1322*d*

$C_{22}H_{29}O_3P$ Benzenephosphonic acid, dioctyl ester, P 7752*e*.

$C_{22}H_{30}BrN$ Amyl-1-dodecylpyridinium bromide, P 696*d*.

1 - Butyl - 4 - tridecylpyridinium bromide, P 696*b*.

2,4 - Diheptyl - 1 - propylpyridinium bromide, P 696*c*.

4 - Hendecyl - 1 - hexylpyridinium bromide, P 696*e*.

(2 - Methyloctyl) - 1 - octylpyridinium bromide, P 696*de*

4 - Nonyl - 1 - octylpyridinium bromide, P 696*h*.

4 - Propyl - 1 - tetradecylpyridinium bromide, P 696*d*.

$C_{22}H_{30}BrNO$ Dodecyldimethyl(phenoxyethyl)ammonium bromide, P 1158*d*, 9377*a*, P 9302*d*.

$C_{22}H_{30}ClN$ 4 - Amyl - 1 - dodecylpyridinium chloride, P 696*b*.

Trimethyl(1 - *p* - tolyldodecyl)ammonium chloride, P 4431*f*.

$C_{22}H_{30}ClNO$ Dodecyldimethyl(2 - phenoxyethylammonium chloride, P 1158*d*.

$C_{22}H_{30}Cl_2N_2Pt$, 1676*f*.

$C_{22}H_{30}Cl_4N_2Pt_2$, 1676*f*.

$C_{22}H_{30}N_2O_3$ Acetaldehyde, diallylamino-, di-Me acetal, oxalate, 6974*b*.

$C_{22}H_{30}N_2O_4$ 3,4 - Pyrroledicarboxylic acid, 1 - (2 - diethylaminoethyl) - 2,5 - dimethyl-, bis(2 - dimethylaminoethyl) ester, P 4302*g*.

$C_{22}H_{30}N_4$ Pyrimidine, 2-amino-4-[bis[4-(1-piperidyl)butyl]amino]-, *and* - *HCl*, P 4704*e*.

$C_{22}H_{30}O_2$ Docosadienoic acid, 1201*b*.

$C_{22}H_{30}O_3$ Acetic acid, (3-*p*-menthyloxy)-, 3-*p*-menthyl ester, 8100*e*.

$C_{22}H_{30}O_4$ Behenic acid, μ, ν-dioxo-, P 676*i*.

Malonic acid, hexadecyl(2-hydroxypropyl)-, γ-lactone, 1322*c*.

$C_{22}H_{31}NO_3$ Acetoacetamide, *N*-octadecenyl-, P 4289*c*.

$C_{22}H_{31}NO_3$ Butyric acid, α-ethyl-, diester with α - ethyl - *N*, *N* - bis(2 - hydroxyethyl)butyramide, P 7751*b*.

$C_{22}H_{31}NO_4S$ Dodecyl(methoxyphenyl)dimethylammonium methyl sulfate, P 8620*d*.

$C_{22}H_{31}O_{12}P_3$ Butyl phenyl triphosphate, P 9356*h*.

$C_{22}H_{32}BrNO_2$ Triethyl(2 - hydroxyethyl)-ammonium bromide, dicyclohexylacetate, P 679*g*, P 2234*i*.

$C_{22}H_{32}Cl_2N_2O_4$ 1,12-Octadecanediol, bis[(chloromethyl)carbamate], P 4489*a*.

$C_{22}H_{32}I_2N_2$ (Phenylenediethylene)bis[triethylammonium iodide], 1486*i*, 6591*c*, 8059*c*.

$C_{22}H_{32}I_2N_2O_2$ [Phenylenebis(oxyethylene)]-bis[triethylammonium iodide], 1486*i*, 5504*e*, 6365*d*.

$C_{22}H_{32}N_2O$ 2-Imidazoline-1-ethanol, 2-(heptadecenyl)-, P 4459*g*.

$C_{22}H_{32}N_4$ Caprylonitrile, α,α'-hexamethylenediiminodi-, 4415*h*.

$C_{22}H_{32}N_6O$ Stearamide, *N*-[(2,4-diamino-*s*-triazin-2-yl)methyl]-, P 5052*c*.

$C_{22}H_{32}O_2$ (See also *Erucic acid*.)

Brassidic acid, 1319*d*, 6161*d*.

Cetoleic acid, 8027*a*.

Cycloeicosanol, acetate, 6988*h*.

Docosenoic acid, 9490*a*.

$C_{22}H_{32}O_2S_2$ Formic acid, thiobis[thiono-, didecyl ester, 144*c*.

$C_{22}H_{32}O_3$ Behenic acid, oxo-, P 676*i*, 3366*g*.

Ricinoleic acid, Bu ester, P 6222*b*.

$C_{22}H_{32}O_4$ Adipic acid, bis(2-ethylhexyl) ester, 5944*h*.

Octadecanedioic acid, di Et ester, 7271*d*.

Oleic acid, 2 (2-hydroxyethoxy)ethyl ester, 7161*d*.

Stearic acid, θ, -dihydroxy-, 2-methylallyl ester, P 8211*g*.

$C_{22}H_{32}O_4S$ Acetic acid, thiodi-, monooctadecyl ester, P 6224*f*.

Caproic acid, α-ethyl-, diester with 3,3'-thiodi-1-propanol, P 3606*e*.

$C_{22}H_{34}O_5$ Diglycolic acid, bis(3,5,5-trimethylhexyl) ester, 9032*f*.

$C_{22}H_{34}O_4S$ Succinic acid, (2-hydroxyethylmercapto)-, bis(2-ethylhexyl) ester, P 7957*d*.

$C_{22}H_{42}O_6$ Caprylic acid, triethylene glycol diester, P 8209*b*.

Sebacic acid, bis(butoxyethyl) ester, 3678*a*.

Sorbitan, monopalmitate, P 2443*e*, P 2712*h*, 8610*b*.

$C_{22}H_{43}NO$ Oleamide, *N*-butyl-, 8353*g*.

$C_{22}H_{43}NO_3$ Oleamide, *N*, *N*-bis(2-hydroxyethyl)-, P 4878*h*.

$C_{22}H_{43}N_3$ 2-Imidazoline, 1-(2-aminoethyl)-2-(heptadecenyl)-, P 5180*d*, P 9427*b*.

$C_{22}H_{43}N_3O_2$ 3-Oxazolidinepropionamide, *N*-hexadecyl-2-imino-, *and* - *HCl*, P 252*g*.

$C_{22}H_{43}N_3O$ *s*-Triazine-(2*H*)-ethanol, 6-heptadecyl - 3,4 - dihydro - 2,4 - diimino-, P 5216*d*.

$C_{22}H_{43}O_4P$ Butyl 9-octadecenyl phosphate, P 1180*c*.

$C_{22}H_{44}$ Hexadecane, 1-cyclohexyl-, 10*e*.

$C_{22}H_{44}ClN$ 1-Allyl-1-methyl-4-tridecylpiperidinium chloride, P 696*g*.

$C_{22}H_{44}N_2$ 1,10 - Decanediamine, *N*, *N'*-dicyclohexyl-, *and di-HCl*, 3380*b*.

$C_{22}H_{44}N_2O$ Oleamide, *N*-(2-dimethylaminoethyl)-, P 2008*g*.

$C_{22}H_{44}N_2O_2$ Adipamide, *N*, *N*, *N'*, *N'*-tetrabutyl-, P 7258*e*.

$C_{22}H_{44}N_2S_2$ Sulfide, bis(diamylthiocarbamyl), 5987*a*.

$C_{22}H_{44}N_2S_4$ Disulfide, bis(diamylthiocarbamyl), 5987*a*.

$C_{22}H_{44}N_4$ Pyrimidine, 2-amino-4-[bis(5-diethylaminoamyl)amino]-, *and tetra-HCl*, P 4704*f*.

Pyrimidine, 2-amino-4-[bis(4-diethylamino - 1 - methylbutyl)amino]-, P 4704*h*.

$C_{22}H_{44}O$ Compd., bs 169–72°, 1718*e*.

Cyclohexanol, 1-hexadecyl-, 3366*a*.

$C_{22}H_{44}O_2$ Behenic acid, 1182*g*, 2451*a*, 3366*h*, 4496*bh*.

Lauric acid, decyl ester, 3676*h*.

Stearic acid, α-butyl-, 7897*a*.

—, λ-ethyl-, Et ester, 3781*c*.

—, tetramethyl-, *NH*$_4$ *salt*, 4886*c*.

$C_{22}H_{44}O_3$ Behenic acid, ν-hydroxy-, P 676*i*.

$C_{22}H_{44}O_4$ Behenic acid, μ, ν-dihydroxy-, P 676*i*, 1319*d*.

$C_{22}H_{44}O_4S_2$ Thiophene, tetrahydro-3-(octadecylsulfonyl)-, 1,1-dioxide, P 2228*c*.

$C_{22}H_{45}NO$ Myristamide, *N*-1,1,3,3-tetramethylbutyl, 2165*g*.

Stearamide, *N*-*tert*-butyl-, 2165*d*.

$C_{22}H_{45}NO_2$ Stearic acid, 2-dimethylaminoethyl ester, *and* - *HCl*, 7940*b*.

$C_{22}H_{45}NO_3$ Stearic acid, diethylaminohydroxy-, P 2224*h*.

$C_{22}H_{45}N_3$ 2 - Imidazoline, 1 - (2 - aminoethyl)-2-heptadecyl-, P 6406*g*.

$C_{22}H_{45}N_3O_2$ Stearamide, *N* - [(2 - hydroxyethylguanyl)guanyl]-, P 700*a*, P 4879*c*, P 5216*d*.

$C_{22}H_{46}$ Docosane, 1182*g*, 2480*d*.

$C_{22}H_{46}BrN$ Ethyldimethyl-9-octadecenylammonium bromide, 3884*h*, 7095*g*.

1 - Methyl - 1 - propyl - 4 - tridecylpiperidinium bromide, P 696*g*.

$C_{22}H_{46}N_2O_4$ Pelargonic acid, piperazine salt, 235*f*.

$C_{22}H_{46}O$ Docosanol, 1182*g*, 5245*h*, 5363*e*, 8609*i*.
$C_{22}H_{46}O_4$ Acetaldehyde, bis[2-(2-ethylhexyloxy)ethyl] acetal, P 1434*a*.
$C_{22}H_{46}S_4$ 2,5 - Hexanedione, bis(dibutyl mercaptole), 564*g*.
$C_{22}H_{47}NO_2$ Trimethyloctadecylammonium formate, 2491*d*, 3269*c*, 7303*f*.
$C_{22}H_{47}NO_4$ Stearic acid, hydroxy-, salt with 2 - amino - 2 - methyl - 1 - propanol, P 1053*b*.
$C_{22}H_{47}NO_4S$ 2-Pentanone, compd. with 1-dodecylpiperidine bisulfite, 3355*i*.
$C_{22}H_{47}NO_5$ Stearic acid, hydroxy-, salt with 2 - amino - 2 - methyl - 1,3 - propanediol, P 1053*b*.
$C_{22}H_{47}NO_6$ Stearic acid, hydroxy-, salt with 2 - amino - 2 - (hydroxymethyl) - 1,3-propanediol, P 1053*b*.
$C_{22}H_{47}NO_7$ Stearic acid, $\theta,\iota$-dihydroxy-, salt with 2 - amino - 2 - (hydroxymethyl)-1,3-propanediol, P 1053*b*.
$C_{22}H_{48}N_2$ 1,10 - Decanediamine, *N, N'*-dihexyl-, *di-HBr*, 3379*g*.
1,8 - Octanediamine, *N, N'* - diheptyl-, *di-HBr*, 3379*g*, P 3455*d*.
$C_{22}H_{50}Br_2N_2$ Decamethylenebis[triethylammonium bromide] 2703*d*.
$C_{22}H_{50}N_2O_{16}P_2S$ Choline, sulfate, diester with 2,2 - dimethyl - 1,3 - dioxolan-4-ylmethyl di-H phosphate, 6166*i*.
$C_{22}H_{50}N_4$ 1,10-Decanediamine, *N, N'*-bis(2-diethylaminoethyl)-, *and tetra-HBr*, 3380*d*.
$C_{22}H_{32}O_{10}$ Fructose, compd. with $Et_2O$, 7409*a*.
$C_{22}H_{54}O_3Si_3$ 3,9,15 - Trioxa - 2,4,6,8,10,12,14,16 - octasilaheptadecane, 2,2,4,4,6,6,8,8,10,10,12,12,14,14,16,16-hexadecamethyl-, P 3656*h*.
$C_{22}H_{54}O_{10}Si_9$ Nonasiloxane, 1,17-diethoxyoctadecamethyl-, P 6221*c*.
$C_{22}H_{56}O_9Si_{10}$ Decasiloxane, docosamethyl-, P 4402*f*.
$C_{24}H_{12}N_2O_3$ [1]Benzazepodibenzo[*bf*]pyrrocolinedione, 7930*f*.
$C_{28}H_{12}O$ 8*H* - Dibenzo[*b,fg*]pyren - 8 - one, 5390*e*.
6*H* - Naphtho[1,2,3 - *cd*]pyren - 6 - one, 5390*d*.
$C_{22}H_{12}NO_2S$ Oxindole, 1-benzoyl-3-(3-oxo-2(3*H*)-thianaphthenylidene), 6614*f*.
$C_{22}H_{14}$ 8*H*- Dibenzo[*b,fg*]pyrene, 5390*f*.
6*H*-Naphtho[1,2,3-*cd*]pyrene, 5390*b*
$C_{22}H_{14}ClNO$ 7*H*-Benz[*de*]anthracen-7-one, 6-*p*-chloroanilino-, 2984*f*.
$C_{22}H_{14}N_2O$ 15*H* - Isoquino[2,3,4 - *no*]-quindolin-15-one, methyl-, 7930*i*.
$C_{22}H_{14}N_2O_3$ 7*H* - Benz[*de*]anthracen - 7 - one, 6-*p*-nitroanilino-, 2984*f*.
$C_{22}H_{14}N_4O_2S$ Phenanthridine, 6-(2-thienyl)-, picrate, 4665*e*.
$C_{22}H_{14}N_4O_8$ Phenanthridine, 6-(2-furyl)-, picrate, 4665*e*.
$C_{22}H_{14}O$ Ketone, fluoranthenyl phenyl, 7473*e*.
$C_{22}H_{15}ClN_2$ Quino[3,4-*b*]quinoline, 12-chloromethyl-6-phenyl-, 2210*g*.
$C_{22}H_{15}ClN_2O$ Quino[3,4 - *b*]quinoline, 12-chloromethoxy-6-phenyl-, 2210*g*.
$C_{22}H_{15}NO$ 7*H* - Benz[*de*]anthracen - 7 - one, 6-anilino-, 2984*f*.
3-Fluoranthenecarboxanilide, 7473*e*.
Ketone, 3-fluoranthenyl phenyl, oxime, 7473*e*.
$C_{22}H_{15}N_3O_5$ Ketone, 4-hydroxy-3-(2-hydroxy - 4 - nitrophenylazo) - 1 - naphthyl phenyl, P 7697*i*.
$C_{22}H_{18}N_2O_9S$ Eriochromecyanin R, 1681*d*.
$C_{22}H_{16}$ Fluoranthene, 3-methyl-1-phenyl, 9059*b*.
Pentacene, 6,13 - dihydro - 6 - methylene-, 8377*c*.
—, 6-methyl-, 8377*c*.
Pyrene, 1-benzyl-, 5390*i*.
$C_{22}H_{16}ClN_3O_2$ 2 - (*p* - Carboxyphenyl) - 3-phenyl - 3*H* - naphtho[1,2]triazolium chloride, 7593*c*.
$C_{22}H_{16}N_2$ 12*H* - Dibenzo[*a,c*]cyclopenta[*h*]phenazine, 13,14-dihydro-, 6161.
$C_{22}H_{16}N_2O$ 15*H* - Isoquino[2,3,4 - *no*]-quindolin - 15 one, 4b,9 - dihydro-6-methyl-, 7930*i*.
Quino[3,4 - *b*]quinolin - 12 - ol, methyl - 6-phenyl-, 8393*a*.
$C_{22}H_{16}N_2O_2$ Quino[3,4 - *b*]quinolin - 12 - ol, methoxy-6-phenyl-, 8393*ab*.
$C_{22}H_{16}N_2O_4$ Cinnamic acid, *o*-(*o*-cyanophenyl)-, *p*-nitrobenzyl ester, 8378*a*.
$C_{22}H_{16}N_2O_5S$ 2-Naphthol, [*p*-(*p*-nitrophenylsulfonyl)phenyliminomethyl]-, 2592*i*.
$C_{22}H_{16}N_2O_6S$ Benzenesulfonamide, *p*-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl) - *N* - 2 - pyridyl-, acetate, 1380*f*.
$C_{22}H_{16}N_4O_4$ Ketone, naphthyl phenyl, 2,4-dinitrophenylhydrazone, 7473*i*.
$C_{22}H_{18}N_4O_7$ Isoquinoline, 3-styryl-, picrate, 3820*i*.
$C_{22}H_{16}N_4O_9$ Pyridine, 2,4-diphenoxy-, picrate, 642*e*.
$C_{22}H_{16}O_2$ Acrylic acid, $\alpha,\beta$-di-2-naphthyl-, 1756*g*.
1-Naphthoic acid, 4,7-diphenyl-, 8885*f*.
$C_{22}H_{16}O_3$ 9*H* - Indeno[1,2 - *b*] - *p* - dioxin-9 - one, 2,3 - dihydro - 2,3 - diphenyl-, 2985*a*.
1,4 - Naphthoquinone, 2 - benzhydryl-3-hydroxy-, 3111*e*.
$C_{22}H_{16}O_4$ 1,4-Naphthoquinone, 2 hydroxy-3-*p*-phenoxybenzyl-, 1370*g*, 2610*b*.
$C_{22}H_{16}O_7$ 6*H*,7*H*,8*H* - Bis[1]benzopyrano-[4,3 - *b*, 3',4' - *e*]pyran - 7 - carboxylic acid, 6,8-dioxo-, iso Pr ester, 5399*e*; Pr ester, 5399*e*
$C_{22}H_{16}O_8$ 6*H*,7*H*,8*H* - Bis[1]benzopyrano, [4,3 - *b*, 3',4' - *e*]pyran - 7 - carboxylic acid, 6,8-dioxo , hydroxypropyl ester, 5399*e*.
$C_{22}H_{17}AsN_4O_7$ Pyridine, 2 diphenylarsino-, monopicrate, 1046*c*
$C_{22}H_{17}AsN_4O_8$ Pyridine, 2 diphenylarsino , oxide, monopicrate, 1046*c*.
$C_{22}H_{17}BrN_2O$ Benzimidic acid, *N*-(2-bromo-*p* tolyl) , 8-quinolyl ester, 1777*h*.
$C_{22}H_{17}ClO_2$ 7 - Hydroxy 4 - (*p* - hydroxystyryl)flavylium chloride, P 6100*b*, P 7849*c*.
$C_{22}H_{17}ClO_3$ 1-Indancarboxylic acid, 2-benzhydryl - 2 - chloro - 1 - hydroxy - 3-oxo , 1384*f*.
$C_{22}H_{17}FO_6$ 1,4-Ethanonaphthalene-5,6,9,10 tetracarboxylic dianhydride, 3 fluoro-1,4,4a,5,6,7 - hexahydro - 8 - *p*-tolyl-, 206*e*.
$C_{22}H_{17}N$ Quinoline, 2 ( ,2 diphenylvinyl)-, 7484*d*
$C_{22}H_{17}NO$ 2 Naphthol, 1 $\alpha$ phenyliminobenzyl-, 2999*i*
3 - Penten 1 yn 3 ol, 1,5 - diphenyl-5 phenyliminio , 2999*i*
4(1*H*)-Pyridone, 1,2,6 triphenyl-, 2999*h*
$C_{23}H_{17}NO_2$ Pyridine, 2,4,6-triphenoxy-, 612*f*
$C_{23}H_{17}NO_3S$ 5(4*H*) Oxazolone, 4 - [*p* - (*p*-methoxyphenylsulfonyl)benzylidene]-2-phenyl , 7449*i*
$C_{23}H_{17}NS$ Compd , m 202°, 7011*g*
$C_{23}H_{17}N_3O$ Quino[3,4 *b*]quinoline, 12-amino 10 - methoxy - 6 - phenyl-, 2211*a*.
$C_{23}H_{17}N_3OS$ Thiazole, 2 benzamido 5-benzylideneamino 4-phenyl-, 1401*f*.
$C_{23}H_{17}N_3O_2S_3$ 2(3*H*)-Oxazolethione, 5-[4,4-bis(2 - benzothiazolyl) - 1,3 - butadienyl] - 3 - ethyl - 4 - hydroxy-, P 4159, P 8927*b*
$C_{24}H_{17}N_3O_5$ Acetic acid, [2-(dibenzoylmethylene) - 1 - (*p* nitrophenyl)hydrazide], 4248*a*.
$C_{23}H_{17}N_3O_{11}S_2$ Anthranilic acid, *N*-(4-amino - 3 sulfo - 1 anthraquinonyl)-5 - [(carboxymethyl)sulfamyl]-, P 7710*c*.
$C_{71}H_{17}N_4O_7P$ Pyridine, 2 (diphenylphosphino) , monopicrate, 1046*b*.
$C_{23}H_{17}N_5O_2$ Toluene, $\alpha$-(naphthylazo)-$\alpha$-(*p*-nitrophenylhydrazono) , 4261*f*, 4262*a*.
Toluene, $\alpha$ - 1 - naphthylhydrazono - $\alpha$-(*p*-nitrophenylazo) , 4262*a*.
$C_{23}H_{17}N_5O_7$ Naphthol, [1 (*p* - nitrophenylazo) *o*-tolylazo]-, 597*e*
$C_{23}H_{17}N_5O_4$ Ketone, benzyl 2 quinolyl, 2,4-dinitrophenylhydrazone, 7024*i*.
$C_{71}H_{17}N_6O_7$ Pyridine, 2-diphenylamino-, monopicrate, 1046*a*.
$C_{23}H_{17}N_3O_4S_2$ 1*H* - Naphtho[1,2]triazole - 6-sulfonic acid, 1-allyl-4-hydroxy-5-(2-hydroxy - 5 - sulfo - 1 - naphthylazo)-, P 3626*b*.
$C_{24}H_{17}N_5O_{10}S_2$ 2,7-Naphthalenedisulfonic acid, 4,5 - dihydroxy - 3 - [4 - (*p*-nitrophenylazo)-*o*-tolylazo]-, 597*f*.
$C_{23}H_{18}$ 13*H* - Dibenzo[*a,g*]fluorene, dimethyl , 2981*i*.
$C_{23}H_{18}BrNO$ Quinoline, 6-bromo-2-(4-methoxy - *m* tolyl) - 3 - phenyl-, 3825*g*
$C_{23}H_{18}Br_2O_3$ Chalcone, 4'-(benzyloxy)-5,5'-dibromo - 2' - hydroxy - 2 - methoxy-, 1742*g*.
$C_{23}H_{19}ClNO_2$ 2-Naphthalenemethanol, 6-chloro $\alpha$ - methyl-, 2-*naphthalenecarbamate*, 1756*c*.
$C_{23}H_{19}Cl_2N_2O$ 1-Indanone, 6-chloro-3-(*p*-chlorophenyl) - 2 - (*p* - dimethylaminophenylimino)-, 7471*k*.
$C_{23}H_{18}Cl_2N_2O_2$ 3,4 - Isoquinolinedione, 6-chloro - 1 - (*p* - chlorophenyl) - 2 - (*p*-dimethylaminophenyl) - 1,2 - dihydro-1-hydroxy-, 7471*k*.
$C_{23}H_{19}NO$ Benzimidic acid, *N*-*o*-tolyl-, 8-quinolyl ester, 1777*h*.
Benzo[*g*]quinoline, 4 - acetamido - 2-styryl, 1419*i*.
2-Naphthanilide, 3-anilino-, 1418*i*.
2*H* - Pyrido[3,2 - *h*] - 1,3 - benzoxazine, 3,4 - dihydro - 2,4 - diphenyl-, P 2766*b*.
Quinoline, 8 - *N* - *o* - tolylbenzamido-, 1777*h*.
$C_{23}H_{19}NO_3$ Benzoic acid, *o*-(5,11-dihydro-2-methyl-11-quindolinyl)-, 7930*i*.
Cinchophen, 3-*m*-toluidino-, 2210*e*, 8391*f*.
5(4*H*) - Imidazolone, 4 - benzylidene - 1-(benzyloxy)-2-phenyl-, 8383*c*.
1,4 - Naphthoquinone, 2 - benzidino - 3-methyl-, 205*a*.
$C_{23}H_{19}N_2O_2$ Cinchophen, 3-(methoxyanilino)-, 2210*de*, 8391*f*.
2-Isoindolineacetanilide, $\alpha$-benzyl-1,3-dioxo-, 8357*b*.
$C_{23}H_{19}N_2O_3S$ 2-Naphthol, [(*p*-sulfanilylphenylimino)methyl]-, 2592*i*.
$C_{23}H_{19}N_2O_4$ Hydrocinnamic acid, *o*-(*o* cyanophenyl)-, *p*-nitrobenzyl ester, 8378*a*
6-Quinolinol, 5,5'-methylenedi-, diacetate, 1413*i*.
$C_{23}H_{19}N_2O_6$ 7*H* - Acenaphth[1,2 - *b*]indole-7 - carboxylic acid, 6b,11b - dihydro-6b - hydroxy - 11b - nitro-, Et ester, acetate, 628*e*.
$C_{23}H_{19}N_2O_9$ Resorcinol, 5-ethyl-2-methyl-, bis(*p*-nitrobenzoate), 2185*b*.
$C_{23}H_{19}N_2O_{10}S_2$ 1 - Naphthol - 8 - sulfonic acid, 2 - (2 - hydroxy - 5 - sulfophenylazo ) - 4 - *p* - tolylsulfonyl-, P 8147*f*
$C_{24}H_{18}N_4$ Toluene, $\alpha$ (naphthylazo)-$\alpha$-phenylhydrazono-, 4261*f*.
Toluene, $\alpha$ - 1 - naphthylhydrazono $\alpha$-phenylazo-, 4261*g*.
$C_{23}H_{18}N_4O_8$ *p*-Toluic acid, 3,5-dinitro-, $\alpha$-phenylcinnamylidenehydrazide, 6972*e*
$C_{23}H_{19}N_3O_7$ Benzophenanthridine, tetrahydro-, picrate, 1779*a*.
Isoquinoline, 1 - benzyl - 3 - methyl-, picrate, 3821*c*.
$C_{23}H_{19}N_4O_8$ Lepidine, 2-(benzyloxy)-, picrate, 2997*i*.
$C_{23}H_{19}N_4O_9$ 1,3 - Dioxolo[*g*]isoquinoline, 7,8-dihydro - 5 - methyl - 7 - phenyl-, picrate, 5027*d*.
$C_{23}H_{19}N_6O_7PS$ Phosphine sulfide, phenylbis(2-pyridyl , monomethopicrate, 1046*e*
$C_{23}H_{19}N_6O_7$ Pyridine, 2,2'-phenyliminodi-, monomethopicrate, 1046*d*.
$C_{23}H_{18}O$ Indone, 6-methyl-2 phenyl-3-*p*-tolyl-, 208*c*.
Ketone, phenyl 4,5,6,6a-tetrahydro-3-fluoranthenyl, 7474*a*.
$C_{23}H_{18}O_2$ 2-Fluoreneacetic acid, $\alpha$-anisylidene-, 7468*d*.
1,4-Naphthoquinone, 2-hydroxy-3-(naphthyl)propyl] , 1379*f*.
$C_{23}H_{18}O_4$ 9 - Anthracenecrotonic acid, 10-(2 - furyl) - $\gamma$ - hydroxy-, Me ester, 4252*f*.
Benz[*a*]anthracene - 7,12 - diol, methyl diacetate, 8376*a*.
Resorcinol, 5-styryl-, acetate, benzoate, 5017*f*.
$C_{23}H_{18}O_5$ Flavone, 7-(benzyloxy)-5 hydroxy-8-methoxy-, 639*c*.
$C_{23}H_{18}O_6$ 1,4 - Ethanonaphthalene - 5,6,9,10 - tetracarboxylic dianhydride, 1,4,4a,5,6,7 - hexahydro - 8 - *p*-tolyl-, 206*b*.
$C_{23}H_{18}O_8$ Acetic acid, bis(4 - hydroxy - 3 - yl) oxo - 1,2 *H* - benzopyran - 3 - yl)-, iso-Pr ester, 5399*e*; Pr ester, 5399*e*
Acetic acid, bis(4-methoxy-2-oxo-1,2-benzopyran-3-yl)-, Me ester, 5399*b*.
$C_{24}H_{18}O_9$ Acetic acid, bis(4-hydroxy-2-oxo-1,2 *H* - benzopyran - 3 - yl)-, hydroxypropyl ester, 5399*f*.
$C_{23}H_{18}O_{10}$ Anthraquinone, 1,2,3,7-tetrahydroxy-6-methyl-, tetraacetate, 210*d*.
Flavone, 4',6,7,8-tetrahydroxy-, tetraacetate, 1774*f*.
$C_{24}H_{19}BrN_2O_5S$ 2 - Anthraquinonesulfonic acid, 1 - amino - 4 - (3 - bromo - 2,4,6-trimethylanilino-, P 5197*b*.
$C_{23}H_{19}BrN_2O_6S$ 2 - Anthraquinonesulfonic acid, 1-amino-4-(3-bromo-4-methoxy-2,6-dimethylanilino)-, P 4867*f*.
$C_{23}H_{19}ClN_2O_6S$ 2 - Anthraquinonesulfonic acid, 1 - amino-4-(3 - chloro-2,4,6-trimethylanilino)-, P 4867*f*.
$C_{23}H_{19}IN_2S_2$ 1 - Methyl - $\alpha$ - [1 - methyl-2-

(1 *H*) - naphtho[1,2]selenazolylidene]-lepidinium iodide, P 7848*i*.
1 - Methyl - α - [1 - methyl - 2(1 *H*) - naphtho[1,2]selenazolylidene]quinaldinium iodide, P 7848*h*.

$C_{22}H_{19}N$ Acrylonitrile, α,β-diphenyl-β-xylyl-, 7006*i*.

$C_{22}H_{19}NO$ Acetanilide, *p*-[2-(2-fluorenyl)-vinyl]-, 7468*f*.
Acetophenone, α - (5 - methylphenyl - 1-indolyl)-, 220*i*.
Acrylonitrile, β - (4 - methoxy - *o* - tolyl)-α,β-diphenyl-, 7007*b*.
Quinoline, 2 - (4 - methoxy - *m* - tolyl)-3-phenyl-, 3825*g*.

$C_{22}H_{19}NO_2$ 1,3 - Dioxolo[*g*]isoquinoline, 5-benzyl - 7,8 - dihydro - 7 - phenyl-, *and - HCl*, 5026*b*.

$C_{22}H_{19}NO_4S$ 1-Naphthalenesulfonic acid, 8-toloxyanilino-, P 7696*d*.

$C_{22}H_{19}NO_5$ Adrenalone, dibenzoate, - *HCl*, 2601*i*.

$C_{22}H_{19}N_3O$ 1-Pyrazolecarboxy *p*-toluidide, 3,-5-diphenyl-, 8365*h*.

$C_{22}H_{19}N_3O_4$ 1,2,3-Propanetrione, diphenyl, 2 - [ethyl(*p* - nitrophenyl)hydrazone], 4248*b*.

$C_{22}H_{19}N_3O_4S$ Anthraquinone, amino[*p*-(dimethylsulfamyl)benzamido], P 864*bd*.

$C_{22}H_{19}N_3O_6$ Benzoic acid, *p*-[*p*-(*p*-nitrobenzamido)benzamido]-, Et ester, 1031*h*.
3 - Dibenzofurancarboxanilide, 2 - hydroxy - 4' - (4 - morpholinyl) - 3'-nitro-, P 8162*i*.

$C_{22}H_{19}N_3O_8S_2$ 2,7 - Anthraquinonedisulfonic acid, 4 - (3 - acetamido - *p* - toluidino)-1-amino-, P 5197*f*.
2,6 - Anthraquinonedisulfonic acid, 1-amino - 4 - (*m* - *N* - methylacetamidoanilino)-, P 5197*i*.

$C_{22}H_{19}N_3O_{10}$ Phenanthrene, trimethoxy-, picrate, 6208*f*.

$H_{20}N_2O$ 1-Naphthylamine, 6 methoxy-bis(phenylazo)-, 2611*i*.

$H_{20}N_2O_3S$ Salicylic acid, 5-[4 (4'-amino-3-sulfo - 4 - biphenylylazo) - 5 - hydroxy - 4 - methyl - 1 - pyrazolyl]-, P 858*a*.

$H_{20}N_4O_4$ *o* Toluamide, *N*,*N*'-(nitrobenzylidene)bis[5-nitro-, 3812*c*.

$H_{20}N_4O_5$ Isoquinoline, 3,4-dihydro-3,4-dimethyl - 1 - (*p* - nitrophenyl)-, picrate, 7486*d*.

$H_{20}N_4O_{10}$ 1*H* - Quinolizine-1-carboxylic acid, 2,3 - dihydro - 4 - oxo - 3 - (2-pyridyl)-, Et ester, picrate, 7490*d*.

$H_{20}$ Fluoranthene 1,2,3,10b tetrahydro 3 methyl 1-phenyl-, 9059*a*.

$H_{21}BrN_4O_5$ Acetoacetanilide, *p*-(*p*-bromobenzyl)-, 2,4 - dinitrophenylhydrazone, 645*h*.

$H_{22}Br_4O_6$ Phenol, 4,4'-isopropylidenebis [2,6 - dibromo-, bis(allyl carbonate), P 3847*e*.

$H_{23}ClNO$ 1 Indanone, 3 (*p*-aminophenyl) - 2 - chloro - 2 - ethyl - 3-phenyl-, 2611*c*.

$H_{23}ClNO_3$ 9 (*p* - Dimethylaminostyryl)-3,6 - dihydroxyxanthylium chloride, P 6100*i*.

$H_{23}ClN_5O_5$ Acetoacetanilide, *p*-(*p*-chlorobenzyl)-, 2,4 - dinitrophenylhydrazone, 645*h*.

$H_{24}ClN_5O_6S$ Benzonitrile, 3-chloro-2-[*p*-[(2 hydroxyethyl)phenethylamino]-phenylazo] 5 - nitro-, H sulfate, P 8155*b*.
Benzonitrile, 2 - [2 - chloro - 4 - [(2-hydroxyethyl)phenethylamino]phenylazo]-5 nitro-, H sulfate, P 8155*b*.

$H_{26}ClN_3O_7S$ Benzonitrile, 2-[*p*-[2-(*p*-chlorophenoxy)ethyl](2 - hydroxyethyl)amino]phenylazo] - 5 - nitro-, H sulfate, P 8155*c*.

$H_{28}Br_2Cl_4O_6$ Phenol, 4,4'-isopropylidenebis [2,6 - dichloro-, bis(allyl carbonate), P 3847*e*.

$H_{28}N_2$ Carbodiimide, allyltriphenylmethyl, 4645*f*.
Quinoline, 3 - toluidino - 2 - *p* - tolyl-, 8392*f*.
Quinoxaline, 2 - methyl - 3 - (8 - phenyl-1,3,5,7 octatetraenyl)-, 187*a*.

$C_{22}H_{28}N_2O$ Formamide, *N*-naphthyl-*N*-[2-(naphthylamino)ethyl]-, P 3028*f*.
Quinoline, 3 - *p* - methoxyanilino - 2 - *p*-tolyl-, 8392*f*.
3-*p*-phenetidino-2-phenyl-, 8391*i*.

$C_{22}H_{28}N_2O_8$ Acetophenone, *p*-methyl-α-(1,2,3,4 - tetrahydro - 2 - phenyl - 3-thioxo-1-quinazolyl)-, 10475.

$C_{22}H_{28}N_2O_2S$ 2-Naphthoic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

$C_{22}H_{28}N_2O_3$ Cinnamide, α-benzamido-*N*-(benzyloxy)-, 8383*c*.

$C_{22}H_{28}N_2O_3S$ Anthraquinone, 4-anilino-2-(2-hydroxyethylmercapto) - 1 - methylamino-, P 4483*e*.
1-Naphthamidine, *N*-phenyl-, benzenesulfonate, 7444*g*.

$C_{22}H_{28}N_2O_4$ 3-Dibenzofurancarboxanilide, 2 - hydroxy - 4' - (4 - morpholinyl)-, P 8162*h*.

$C_{22}H_{28}N_2O_4S$ Anthraquinone, 1-amino-4-anilino - 2 - (dihydroxypropylmercapto)-, P 4483*e*.

$C_{22}H_{28}N_2O_5S$ 2-Anthraquinonesulfonic acid, 1 - amino - 4 - (2,4,5 - trimethylanilino)-, *Na salt*, 6193*h*.

$C_{22}H_{29}N_2O_4PS$ Amidophosphoric acid, *N*-[*p*-(2 - pyridylsulfamyl)phenyl]-, di-Ph ester, 6178*f*.

$C_{22}H_{30}N_4O_4$ 1(2 *H*) Naphthalenone, 3,4-dihydro - 4 methyl - 4 - phenyl-, 2,4-dinitrophenylhydrazone, 8372*d*.

$C_{22}H_{30}N_4O_5$ 3 - Carbazolecarboxanilide, 2-hydroxy - 4' - (4 - morpholinyl) - 3'-nitro, P 8162*h*.

$C_{22}H_{30}N_4O_5S$ 1,2,4,2 *H* - Thiadiazine - 3,5-(4 *H*,6 *H*) - dione, 6 - *o* - phenetylazo - 2,4 - diphenyl-, 1,1 - dioxide, P 4868*h*.

$C_{22}H_{30}N_4O_6$ 1 Indanone, methoxy-2-(*p*-methoxyphenyl), 2,4 - dinitrophenylhydrazone, 1757*i*
Toluamide, *N*, *N*' benzylidenebis[nitro-, 3805*d*,*e*, 3812*c*.

$C_{22}H_{30}N_4O_7$ Isoquinoline, benzyl-3,4-dihydromethyl-, picrate, 5026*h*, 5027*b*.

$C_{23}H_{29}N_4O_5$ Acetophenone, α,2-dihydroxy-4,5 - dimethoxy , 2,4 dinitrophenylhydrazone, α benzoate, 7461*g*.

$C_{24}H_{30}N_6O_8S_2$ Carbanilide, 4,4'-bis(2-pyridylsulfamyl)-, P 3458*h*.

$C_{21}H_{30}N_6O_7S$ 1 - Phenol 4 - sulfonic acid, 2 - [5 (antipyrylazo) 2,4 - dihydroxyphenylazo] , P 8150*i*.

$C_{22}H_{30}O$ 2 Butanone, 4-(9-fluorenyl)-4-phenyl-, 9058*h*.
1(2 *H*) - Naphthalenone, 3,4 - dihydro-dimethyl - 2 - (1 naphthylmethylene)-, 2982*a*
Propiophenone, *p* (2,2 diphenylvinyl)-, 199*h*.

$C_{22}H_{30}O_3$ Acetic acid, benzoyldiphenyl-, Et ester, 6171*b*
Xanthydrol, 1,8-dimethyl-9 phenyl-, acetate, 5399*b*.

$C_{22}H_{30}O_4$ Acetic acid, (benzhydryloxy)-, phenacyl ester, 5018*b*
Chalcone, 4' (benzyloxy) - 2' - hydroxy 2-methoxy , 1742*g*.

$C_{22}H_{30}O_5$ 1,4 - Naphthoquinone, 2 - (4-benzoylbutyl) 3 - hydroxy-, acetate, 1387*c*

$C_{22}H_{30}O_6S_2$ 2-Naphthalenesulfonic acid, isopropylidenedi-, *and Ag salt*, P 5047*c*.

$C_{22}H_{21}BrO$ Ethylene, 1-bromo-1,2-diphenyl-1-*p*-propoxyphenyl-, P 6666*f*.

$C_{22}H_{21}BrO_2$ Benzophenone, 3'-methoxy-2,4,6 - trimethyl - 4' - phenyl-, Br deriv., 186*g*.
Ethylene, 1 - bromo 2 - (*p* - methoxyphenyl) - 2 - *p* - phenetyl - 1 - phenyl-, 9334*e*.

$C_{22}H_{21}ClN_2$ 1 - Methyl - 2 - [3 - (1 - methyl-2(1 *H*) - quinolylidene)propenyl]quinolinium chloride, 3930*f*, 7581*g*.

$C_{22}H_{21}ClN_2O_4$ 5 - (2 - Carboxyvinyl) - α-(*p* - dimethylaminobenzylidene) - 6-hydroxy - 1 - methylquinaldinium chloride, δ-lactone, 7028*b*.

$C_{21}H_{21}Cl_2N$ Benz[*a*]anthracene- 7 methylamine, *N*, *N* - bis(2 - chloroethyl)-, 621*b*

$C_{22}H_{21}IN_2$ 2,3 - Dihydro - 4 - methyl - 3 - (1-methyl - 2(1 *H*) - quinolylidene) - 1 *H*-cyclopenta[*b*]quinolinium iodide, 3001*e*.

$C_{22}H_{21}IN_2O$ 2,3 - Dihydro - 4 - methyl - 3-[2 - (3 - methyl - 2 - benzoxazolinylidene)ethylidene] - 1*H* - cyclopenta-[*b*]quinolinium iodide, 3001*i*.

$C_{22}H_{21}IN_2O_2$ 5 - (Carboxyvinyl) - α - (*p*-dimethylaminobenzylidene) - 6 - hydroxy - 1 - methylquinaldinium iodide, δ-lactone, 7028*b*.

$C_{22}H_{21}IN_2S$ 2 - (4 - Anilino - 1,3 - butadienyl)-3 - ethylnaphtho[2,1]thiazolium iodide, 6929*a*.
2,3 - Dihydro - 4 - methyl - 3-[2-(3-methyl-2 - benzothiazolinylidene)ethylidene]-1 *H* - cyclopenta[*b*]quinolinium iodide, 3001*i*.

$C_{22}H_{21}N$ Hydrocinnamonitrile, α-phenethyl-α-phenyl-, 1350*i*.
Indole, 1-ethylphenyl-*p*-tolyl-, 220*ab*.
Isoquinoline, 1,3 - dibenzyl - 3,4 - dihydro-, 5026*b*.
Pivalonitrile, β,β',β''-triphenyl-, 3357*b*.

$C_{22}H_{21}NO$ Acrylamide, α,β-diphenyl-β-2,5-xylyl-, 7006*i*.
2 - Butanone, 4 - (9 - fluorenyl) - 4-phenyl-, oxime, 9058*h*.
Chalcone, α - (benzylmethylamino)-, 7819*i*.
Isoquinoline, 2 - benzoyl - 1,2,3,4 - tetrahydro-1-methyl-4-phenyl-, 5026*e*.
Ketone, 1 - benzyl - 3 - phenyl - 2 - aziridyl *p*-tolyl, 3388*h*, 3389*bf*.
—, 1 - benzyl - 3 - *p* - tolyl - 2 - aziridyl phenyl, 3389*f*.
Propionanilide, *p* - (2,2 - diphenylvinyl)-, 199*h*.
Propiophenone, *p* - (2,2 - diphenylvinyl)-, oxime, 199*h*.

$C_{22}H_{21}NO_2$ Acetophenone, α,α'-(*p*-tolylimino)di-, 220*i*.
9-Carbazoleethanol, α-methyl-, phenylacetate, 624*c*.

$C_{22}H_{21}NO_3$ Acetamide, α-phenyl-*N*-α-phenylhomopiperonyl-, 5027*d*.
*o*-Acetanisidide, α - (4 - biphenylylcarbonyl)-5-methyl-, P 7703*i*.

$C_{22}H_{21}NO_4$ Acetanilide, α-(4-biphenylylcarbonyl)-2,5-dimethoxy-, P 7704*a*.
1-Propanol, 3-phenyl-1-*o*-tolyl-, *p*-nitrobenzoate, 4247*e*.

$C_{22}H_{21}NO_5$ 1-Naphthoic acid, 2-[(*m*-1,3-dioxolan - 2 - ylphenyl)carbamyl]-, Et ester, P 8169*h*.

$C_{22}H_{21}N_2O$ 3-Pyrazolidone, 4,4-dibenzyl-5-imino-1-phenyl-, 7478*d*.

$C_{22}H_{21}N_2O_2$ Pyrido[3,2 - *c*, 5,6 - *c*']di[1]-pyridine - 5,7 - diol, 1,2,3,6,9,10,-11,12-octahydro-6-phenyl-, 9069*b*.

$C_{22}H_{21}N_2O_3S_2$ [$\Delta^{2,2'}$ - Bithiazolidine] - 2',-4,4' - trione, 3,3'-diethyl-5-(1-ethylnaphth[1,2]oxazol - 2(1 *H*) - ylidene)-2'-thio-, P 4162*g*.

$C_{23}H_{21}N_3O_4$ Benzoic acid, *p*-[*p*-(*p*-aminobenzamido)benzamido]-, Et ester, 1031*i*.

$C_{22}H_{21}N_3S$ Benzothiazole, 2-(*p* - (*p* - dimethylaminobenzylideneamino)-phenyl]-6-methyl-, 3292*h*.

$C_{22}H_{21}N_3O_3$ 2-Imidazoline, 2-(benzhydryloxymethyl)-, picrate, 4669*g*.

$C_{22}H_{21}N_5O_3S_2$ Quinolinamide, *N*, *N*'-bis(*N*-acetylsulfanilyl)-, 2597*f*.

$C_{22}H_{21}N_9O$ 2-s-Triazinol, 4-amino-6-[*p*-[*p* - (*p* - dimethylaminophenylazo)-phenylazo]phenyl]-, P 7711*c*.

$C_{22}H_{22}ClNO$ Propiophenone, benzylaminochloro - *p* - methyl - β - phenyl-, - *HCl*, 3388*i*, 3389*c*.

$C_{22}H_{23}ClN_2O_3$ *o*-Cresol, 4-(6-chloro-2-methoxy - 9 - acridylamino) - α - ethylamino-, *di- HCl*, P 1068*d*, P 7516*c*.

$C_{22}H_{22}ClN_3O_2$ Ethanol, 2-[5-(6-chloro-2-methoxy - 9 - acridylamino) - 2 - hydroxybenzylamino]-, *di- HCl*, P 7516*c*.

$C_{22}H_{22}ClN_5O_3S$ Ethanol, 2-[4-(2-chloro-4,6-dinitrophenylazo) - *N* - 2 - phenoxyethyl - *m* - toluidino]-, H sulfate, P 8154*h*.

$C_{22}H_{22}Cl_2N_2O$ See *Rhodamine 5G*.

$C_{22}H_{22}Cl_2O_6$ Phenol, 4,4'-isopropylidenebis-[chloro-, bis(allylcarbonate), P 2234*d*, P 3847*d*, P 5998*c*.

$C_{22}H_{22}IN_3O_4S_2$ 3 - Ethyl - 2 - [3 - (3 - ethyl - 4-hydroxy - 2 - benzothiazolinylidene)-propenyl] - 6 - nitrobenzothiazolium iodide, acetate, 9454*c*.

$C_{22}H_{22}N_2O$ Urea, 1-allyl-3-triphenylmethyl-, 4645*g*.

$C_{22}H_{22}N_2O_2$ Benzamide, *N*, *N*'-(3-phenylpropylidene)bis-, 2600*i*.
*o*-Malonotoluidide, α-phenyl-, 629*f*.
Urea, 1 - (β,β - diphenylbutyryl) - 3-phenyl-, 6162*f*.

$C_{22}H_{22}N_2O_3S_2$ Rhodanine, 3-ethyl-5-[2-(3-ethyl - 2(3 *H*) - benzothiazolylidene)-2-*m*-toloxyethylidene]-, P 4157*c*.

$C_{22}H_{22}N_2O_3$ Hydrocinnamanilide, α-benzamido-*p*-methoxy-, 7457*d*.

$C_{22}H_{22}N_2O_3S_2$ 2,4 - Oxazolidinedione, 3-ethyl - 5 - [2 - (3 - ethyl - 2(3 *H*) - benzothiazolylidene) - 2 - *m* - toloxyethylidene]-2-thio-, P 4157*d*.

$C_{22}H_{22}N_2O_5$ 2 - Imidazoline, 2-[(α - 1 - naphthylbenzyloxy)methyl]-, oxalate, 6620*a*.

$C_{22}H_{22}N_4S$ Urea, 1-allyl-2-thio-3-triphenylmethyl-, 4645*g*.

$C_{22}H_{22}N_4S_2$ Thiazole, 2,2'-pentamethylenebis[4-phenyl-, *and di- HBr*, 4667*d*.

$C_{22}H_{22}N_4O_3S$ 4(3 *H*)-Pteridinone, 2-(ethyl-

mercapto) - 6,7 - bis(methoxyphenyl)-3-methyl-, 3011*b*.

$C_{28}H_{32}N_4O_4$ 1(2*H*)-Phenanthrone, 3,4-dihydro - 3 - isopropyl-, 2,4 - dinitrophenylhydrazone, 621*g*.

$C_{28}H_{32}N_4O_7$ Isoquinoline, 3-benzyl-1,2,3,4-tetrahydro - 1 - methyl-, picrate, 5027*b*.

$C_{28}H_{33}N_4O_2S$ Benzimidic acid, *N*-isopropylthio-, benzyl ester, picrate, 3014*i*.

$C_{28}H_{33}N_4O_3$ Malonamide, *N*, *N'*-bis(4-amino - 2 - methyl - 6 - quinolyl)-, *di-HCl*, 1778*c*.

$C_{28}H_{33}N_4O_{11}$ Verbenalol, bis(2,4-dinitrophenylhydrazone), 7017*g*.

$C_{28}H_{32}O$ 9-Fluorenepropanol, α-methyl-γ-phenyl-, 9059*a*.

$C_{28}H_{32}O_3$ Benzophenone, 3'-methoxy-2,4,6-trimethyl-4'-phenyl-, 186*f*.

2-Butanone, 4-triphenylmethoxy-, 1336*i*.

Hydrocinnamic acid, α-phenethyl-α-phenyl-, 1350*i*.

1,2 - Indandiol, 2,3 - dimethyl - 1,3 - diphenyl-, 1041*f*, 3397*e*.

$C_{28}H_{32}O_3S$ Acetic acid, (triphenylmethylmercapto)-, Et ester, 1753*h*.

$C_{28}H_{32}O_3$ Hydracrylic acid, α-phenyl-β,β-di-*p*-tolyl-, 2088*b*.

Hydracrylic acid, α,β,β-triphenyl-, Et ester, 1394*e*.

1,4 - Naphthoquinone, 2 - hydroxy - 3-(4-phenylcyclohexylmethyl)-, 1376*f*.

—, 2 - hydroxy - 3 - [3 - (tetrahydro - 2-naphthyl)propyl]-, 1108*h*, 1379*e*.

Salicylic acid, 5-*tert*-butyl-, 4-biphenylyl ester, P 4697*e*.

$C_{28}H_{32}O_4$ Acetophenone, 2,3-bis(benzyloxy)-6-methoxy-, 3414*d*.

$C_{28}H_{32}O_6$ (See also *Rotenone*.)

Deguelin, 3966*g*.

$C_{28}H_{32}O_7$ Toxicarol, 3966*g*.

$C_{28}H_{32}S_2$ Cinnamaldehyde, dibenzylmercaptol, 1321*d*.

$C_{28}H_{33}BrN_2O_3S_2$ 2 - [3 - (5,6 - Dimethoxy - 3-methyl - 2 - benzothiazolinylidene) - 1-cyclopenten - 1 - yl] - 3 - methylbenzothiazolium bromide, P 4158*g*.

$C_{28}H_{33}ClN_2$ 1-Benzylquinolinium chloride, compd. with *p*-toluidine, 645*d*.

$C_{28}H_{33}ClN_2O$ 1-Benzylquinolinium chloride, compd. with *p*-anisidine, 645*d*.

$C_{28}H_{33}ClN_2O_3$ [4 - (*N* - Acetylanilino) - 1,3-butadienyl] - 1 - ethylquinolinium perchlorate, 6928*f*.

$C_{28}H_{33}ClN_4O_7S$ Ethanol, 2 - [*p* - (2 - chloro-4 - nitrophenylazo) - *N* - (3 - phenoxypropylanilino)-, H sulfate, P 8154*g*.

$C_{28}H_{33}ClN_2O_3$ Isoalloxazine, 8-chloro-10-(3-diethylaminopropyl)-, picrate, 3009*a*.

$C_{28}H_{33}IN_2O$ [4 - (*N* - Acetylanilino) - 1,3-butadienyl] - 1 - ethylquinolinium iodide, 6928*f*.

$C_{28}H_{33}IN_2OS$ 2 - [3 - (3 - Ethyl - 2 - benzothiazolinylidene) - 1 - cyclohexen - 1-yl] - 3 - methylbenzoxazolium iodide, P 4158*b*.

3,5,6 - Trimethyl - 2 - [3 - (3 - methyl-2 - benzothiazolinylidene) - 1 - cyclopenten - 1 - yl]benzoxazolium iodide, P 4158*e*.

$C_{28}H_{33}IN_2O_3S_2$ 3 - Ethyl - 2 - [3 - (3 - ethyl-2 - benzothiazolinylidene)propenyl]-hydroxybenzothiazolium iodide, acetate, 9454*a*.

$C_{28}H_{33}IN_2S_2$ 2 - [3 - (3 - Ethyl - 2 - benzothiazolinylidene) - 1 - cyclohexen-1 - yl] - 3 - methylbenzothiazolium iodide, P 4158*c*.

$C_{28}H_{33}NO$ Acetamide, *N*-(α-benzylphenethyl)-α-phenyl-, 5027*b*.

Acetophenone, α - *N* - ethylanilino - *p*-methyl-α-phenyl-, 220*b*.

—, α - *N* - ethylanilino - α - *p* - tolyl-, 220*c*.

Camphor, 3-(2-fluorenylimino)-, 4812*g*.

Hydrocinnamamide, α - phenethyl - α-phenyl-, 1350*i*.

Pivalamide, β,β',β''-triphenyl-, 3356*i*.

$C_{28}H_{33}NO_3$ Ethanol, 2,2' - (benz[*a*]anthracen - 7 - ylmethylimino)di-, *and - HCl*, 621*b*.

Propiophenone, α-benzylamino-β-hydroxy - *p* - methyl - β - phenyl-, *- HCl*, 3389*e*.

$C_{28}H_{33}N_3O$ 2-Imidazoline, 2-[(*N*-benzyl-*p*-phenoxyanilino)methyl]-, *- HCl*, P 5049*bd*.

$C_{28}H_{33}N_3O_3$ Benzophenone, 4,4'-diethyl-, *p*-nitrophenylhydrazone, 7004*h*.

$C_{28}H_{33}N_3O_4S$ *p* - Toluidine, *N*, *N* - diethyl-α - [*p* - (*p* - nitrophenylsulfonyl)-phenylimino]-, 2592*i*.

$C_{28}H_{33}N_3O_7$ Benzamidine, *N*, *N*-diethyl-*N'*-phenyl-, picrate, 594*a*.

$C_{28}H_{34}N_2O_3S$ $\Delta^{2(3H),\delta}$ - Thiophenevaleric acid, 4 - benzamido - 4,5 - dihydro-3 - oxo-, Me ester 2,4-dinitrophenylhydrazone, P 1809*f*, P 3468*e*.

$C_{28}H_{34}N_4O_8S$ Ethanol, 2 - [4 - (2,4 - dinitrophenylazo) - *N* - 2 - phenoxyethyl - *m*-toluidino]-, H sulfate, P 8154*g*.

$C_{28}H_{34}BrNO_5$ Caproic acid, γ-cyano-γ-(2,3-dimethoxyphenyl)-, *p* - bromophenacyl ester, 625*i*.

$C_{28}H_{34}Br_2N_2$ 1,1' - Pentamethylenebis-[quinolinium bromide], 2708*d*.

$C_{28}H_{34}Br_2N_2O_6S_2$ Benzenesulfonamide, *N*,*N'* - (2,4,6 - trimethyl - *m* - phenylene)bis[*p* - bromo - *N* - methyl-, 7920*a*.

$C_{28}H_{34}Br_2N_2S_2$ 1,1' - Trimethylenebis[2-methylmercaptoquinolinium bromide], P 8926*f*.

3,3' - Trimethylenebis[2 - methyl - 4-phenylthiazolium bromide], P 3737*h*.

$C_{28}H_{34}ClNO$ 5,6 - Dihydro - 6 - *p* - methoxybenzyl - 5,5 - dimethylphenanthridinium chloride, P 2647*e*.

$C_{28}H_{34}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, 4 - biphenylyl ester, 6977*f*.

$C_{28}H_{34}INO$ 5,6 - Dihydro - 6 - *p* - methoxybenzyl - 5,5 - dimethylphenanthridinium iodide, P 2647*e*.

$C_{28}H_{34}INO_2$ 5,6 - Dihydro - 8 - methoxy - 6-(*p* - methoxyphenyl) - 5,5 - dimethylphenanthridinium iodide, P 2647*e*.

$C_{28}H_{34}I_2N_2$ 1,1' - Trimethylenebis[lepidinium iodide], P 3737*h*.

$C_{28}H_{34}NO_7P$ Benzoic acid, *p*-phosphonoamino-, Et bis(*o*-methoxyphenyl) ester, 6178*g*.

$C_{28}H_{34}N_2O_3$ Propionanilide, 4-amino-2,5-bis-(benzyloxy)-, P 4165*g*.

$C_{28}H_{34}N_2O_4$ Carbanilic acid, 4-amino-2,5-bis(benzyloxy)-, Et ester, P 4165*g*.

*sec*-Pseudostrychnine, *N*-acetyl-, 239*c*.

$C_{28}H_{34}N_2O_9$ Malonic acid, [α-(2-methyl-3,5-dinitrophenacyl)benzyl]-, di-Et ester, 4239*d*.

$C_{28}H_{34}N_4O_3S$ 4(3*H*)-Pteridinone, 2-(ethylmercapto)dihydro - 6,7 - bis(methoxyphenyl)-3-methyl-, 3012*b*.

$C_{28}H_{34}N_4O_4$ 1*H* - Cyclopenta[*l*]phenanthrene-1 - one, 2,3,4,5,6,7,8,9,10,11 - decahydro-, 2,4 - dinitrophenylhydrazone, 7013*f*.

$C_{28}H_{34}N_4O_5S$ $\Delta^{2(3H),\delta}$ - Thiophenevaleric acid, 4 - benzamido - 4,5 - dihydro-3-oxo-, Me ester *p*-nitrophenylhydrazone, P 1809*f*, P 3468*e*.

$C_{28}H_{34}N_4O_6$ 2(3*H*) - Phenanthrone, 4,4a,-9,10 - tetrahydro - 5,8 - dimethoxy-4a - methyl-, 2,4 - dinitrophenylhydrazone, 2613*a*.

$C_{28}H_{34}N_4O_7$ Benzhydrylamine, *N*, *N*-diethyl-, picrate, 4217*c*.

$C_{28}H_{34}N_4O_7S$ Ethanol, 2 - [*p* - (*p* - nitrophenylazo) - *N* - (3 - phenoxypropyl)-anilino]-, H sulfate, P 8154*f*.

$C_{28}H_{34}N_4O_8$ Formic acid, azodi-, mono-Et ester diester with *p*,*p'*-isopropylidenediphenol, P 4293*g*.

$C_{28}H_{34}N_4O_8S_2$ Benzenesulfonamide, *N*, *N'*-(2,4,6 - trimethyl - *m* - phenylene)bis-[*N*-methyl-*p*-nitro-, 7920*d*.

$C_{28}H_{34}N_6O_2S$ Carbanilide, 2,2'-dimethyl-4,4'-bis(3 - methyl - 5 - oxo - 2 - pyrazolin-1-yl)thio-, P 9461*i*.

$C_{28}H_{34}N_6O_2S_2$ Sulfanilamide, *N*¹-(5-methyl-1,3,4 - thiadiazol - 2 - yl)-, compd. with 2-(1-naphthylmethyl)-2-imidazoline, P 6661*c*.

$C_{28}H_{34}N_6O_2$ Carbanilide, 4,4'-bis(3-ethyl-5-oxo-2-pyrazolin-1-yl)-, P 9461*h*.

Carbanilide, 3,3' - dimethyl - 4,4' - bis(3-methyl - 5 - oxo - 2 - pyrazolin - 1 - yl)-, P 9461*h*.

$C_{28}H_{34}N_6O_4$ Carbanilide, 3,3'-dimethoxy-4,4'-bis(3 - methyl - 5 - oxo - 2 - pyrazolin-1-yl)-, P 9461*h*.

$C_{28}H_{34}N_8O_{14}$ Ethylenediamine, *N*-isopropyl-1-phenyl-, dipicrate, 6176*h*.

2,4 - Mesitylenediamine, *N*, *N'* - dimethyl-, dipicrate, 1735*a*, 7919*b*.

$C_{28}H_{34}O$ 1-Butanol, 2-benzyl-2,4-diphenyl-, 1351*a*.

Ether, butyl triphenylmethyl, P 2732*c*.

Ketone, 1,2,3,6,7,8,8a,9,10,10a - decahydro - 4 - pyrenyl phenyl, 5390*a*.

$C_{28}H_{34}O_2$ Ethanol, 1,2 - diphenyl - 1 - *p*-propoxyphenyl-, P 6666*h*.

$C_{28}H_{34}O_3$ Cinnamic acid, *p* - (α,β - diethyl - *p*-methoxystyryl) - β - (hydroxymethyl)-, γ-lactone, 4655*a*.

Mesitol, $\alpha^2,\alpha^6$ - bis(6 - hydroxy - *m*-tolyl)-, 5019*d*.

1,4 - Naphthoquinone, 2 - [3 - (*p*'- *tert*-butylphenyl)propyl] - 3 - hydroxy-, 1379*e*.

—, 2 - (3 - carvacrylpropyl) - 3 - hydroxy-, 1379*e*.

—, 2 - hydroxy - 3 - (7 - phenylheptyl)-, 1379*c*, 2610*b*.

1,4 - Phenanthrenequinone, 2 - (3 - cyclohexylpropyl) - 3 - hydroxy-, 1383*c*.

$C_{28}H_{34}O_4$ Azelaic acid, dibenzyl ester, P 5624*h*.

2,4 - Pentadienoic acid, 5 - hydroxy - 5-(5 - methoxycavacryl) - 3 - (*p* - methoxyphenyl)-, δ-lactone, 4640*d*.

$C_{28}H_{34}O_5$ Cyclohexanecarboxylic acid, 1,5-dihydroxy - 2,3 - diphenyl-, diacetate, 157*d*.

Phenol, *p*,*p'* - isopropylidenedi-, bis(allyl carbonate, P 4298*i*.

$C_{28}H_{34}O_6$ Galactopyranoside, phenyl 4,6-benzylidene-, 2,3-diacetate, 1327*h*.

$C_{28}H_{34}O_6$ Coumarin, 7-(benzyloxy)-6-(galactopyranosyloxy) - 4 - methyl-, 4670*d*.

Coumarin, 7 - (benzyloxy) - 6 - (glucopyranosyloxy) - 4 - methyl-, 3823*i*.

$C_{28}H_{35}BrN_2O_5S$ 2 - (1 - Ethyl - 3,3,5 - trimethyl - 2 - indolinylidenemethyl) - 4-oxo - 3 - phenyl - 2 - thiazolinium bromide, P 7845*i*.

$C_{28}H_{35}ClN_2$ See *Malachite green*.

$C_{28}H_{35}ClN_2O_2$ Methanol, (2 - chloro - 5-hydroxyphenyl)bis(*p* - dimethylaminophenyl)-, 5387*d*.

$C_{28}H_{35}ClN_2O_4Se$ 2 - [3 - (3 - Ethyl - 2 - benzoselenazolinylidene)propenyl] - 1,3,3-trimethyl - 3*H* - pseudoindolium perchlorate, 2531*f*.

$C_{28}H_{35}ClN_2O_5S$ [4 - (2 - Chloro - 4' - dimethylamino - 5 - hydroxybenzhydrylidene) - 2,5 - cyclohexadien - 1-ylidene]dimethylammonium hydrogen sulfate, 5387*e*.

$C_{28}H_{35}Cl_2N_3O$ Quinoline, 6,7-dichloro-4-[3 (1 - piperidylmethyl) - *p* - phenetidino]-, P 7515*i*.

$C_{28}H_{35}IN_2$ 3 - (*p* - Dimethylaminobenzylidene) - 4 - ethyl - 2,3 - dihydro - 1*H*-cyclopenta[*b*]quinolinium iodide, 3001*i*.

$C_{28}H_{35}IN_2S$ 2 - [3 - (3 - Ethyl - 2 - benzothiazolinylidene)propenyl] - 1,3,3 - trimethyl - 3*H* - pseudoindolium iodide, 2531*f*.

$C_{28}H_{35}N$ *o* - Terphenyl - 4 - amine, *N* - amyl-, 4657*a*.

$C_{28}H_{35}NO$ Benzhydrol, α - [2 - benzylmethylamino)ethyl]-, *and - HCl*, P 5417*g*

Ethylamine, 2 - (2 - benzhydrylphenoxy)-*N*, *N*-dimethyl-, *and -HNO*$_3$, 2960*a*

—, *N*, *N* - dimethyl - 2 - (triphenylmethoxy)-, *- HCl*, 8546*b*.

$C_{28}H_{35}NO_2$ 3 - Furanmethanol, 2,5 - diphenyl - 4 - (1 - piperidylmethyl)-, 3406*e*.

$C_{28}H_{35}NO_3$ Cinchophen, 4'-butoxy 3-ethyl-5'-methyl-, 3825*g*.

Cinchophen, 3' - *tert* - butyl - 2' - methoxy - 3,4' - dimethyl-, 7924*i*.

—, 4' - ethoxy - 5' - isopropyl - 2',3 - dimethyl-, 7924*i*.

—, 2' - isoamoxydimethyl-, 3825*h*, 7924*i*.

$C_{28}H_{35}NO_4$ Benzoic acid, *p* - [β - (2,4,6 trimethylbenzoyl)acrylylamino]-, propyl ester, 7192*h*.

1*H* - Indeno[2,1 - *c*]pyridine, 2,3,4,9-tetrahydro - 2,7 - dimethyl - 9 - *p*-tolyl-, oxalate, P 5809*a*.

—, 2,3,4,9 - tetrahydro - 2 - isopropyl-9-phenyl-, oxalate, P 5809*a*.

$C_{28}H_{35}NO_5$ 3 - Isoquinolinecarboxylic acid, 6,7 - dimethoxy - 1 - veratryl-, Et ester, 6733*a*.

$C_{28}H_{35}NO_7$ Ketone, 4 - hydroxy - 1 - methyl-4 - phenyl - 3 - piperidyl phenyl, acetate, oxalate, 9050*h*.

$C_{28}H_{35}N_3$ 3 - Biphenylcarboxaldehyde, *p*-diethylamino-, phenylhydrazone, P 2233*a*.

$C_{28}H_{35}NO_2S$ *p* - Toluidine, *N*, *N* - diethyl-α - (

$C_{28}H_{35}N_3O$ [illegible] valeranilid hydro 1065*h*.

$C_{28}H_{35}N_3O_2$ Ergonovine, maleate, 1148*h*.

$C_{28}H_{35}N_3O_7$ 10, 4a(4*H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro-11 - methyl - 6 - nitro-, picrate, [illegible]

$C_{28}H_{35}ClNO$ Phenol, chloro - *o* - phenyl-, compd. with *N*, *N* - diethylbenzylamine, P 4298*f*.

$C_{28}H_{35}ClN_2O$ *o* - Cresol, 6 - allyl - 4 - (7-

chloro - 4 - quinolylamino) - α - diethylamino-, P 7514*i*, P 7515*a*.

$I_{36}I_2N_2O_4Sb$ Brucine, compd. with $SbI_3$, 3578.

$I_{28}N_2$ Aniline, *p*,*p*′ - benzylidenebis[*N*, *N*-dimethyl-, 184*i*, P 9519*f*.

$I_{28}N_2O$ Cresol, α,α-bis(*p*-dimethylaminophenyl)-, P 9432*g*.

$I_{28}N_2O_2$ 4 - Quinolinemethanol, 6,7 - dimethyl - α - (4 - morpholinylmethyl)-2-phenyl-, - *H Br*, 4675*c*.

$I_{28}N_2O_3S$ Benzamidine, *N*, *N*-diethyl-*N*′-phenyl-, benzenesulfonate, 2594*a*.

$I_{28}N_2O_4$ (See also *Brucine*.)

Aricine, 7194*d*.

Fogaturonic acid, compd. with brucine, 5008*h*.

Vomicine, methyl-, 7943*g*.

$I_{28}N_2O_4S_2$ Benzenesulfonamide, *N* - ethyl-*N*, *N*′ - (2,4,6 - trimethyl - *m* - phenylene)bis-, 1735*e*.

Benzenesulfonamide, *N*, *N*′ - (2,4,6-trimethyl - *m* - phenylene)bis[*N*-methyl-, 7919*c*.

*p* - Toluenesulfonamide, *N*, *N*′ - (2,4,6-trimethyl - *m* - phenylene)bis-, 7920*b*.

$I_{28}N_2O_5$ 2 - Furanvaleric acid, 3,4 - dibenzamidotetrahydro-, 2988*a*.

$I_{28}N_2O_6S$ 1 - Pyrrolidinecarboxylic acid, 2-[2 - (benzylmercapto) - 1 - carboxyethyl]carbamyl]-, 1 - benzyl ester, 5016*f*.

$I_{28}N_2O_6$ Glutaric acid, α,γ - dibenzamido-, di-Et ester, 5000*g*.

$I_{28}N_2O_6$ Xyloside, (*p* - phenylazophenyl), triacetate, 6919*f*.

$I_{28}N_4O_2$ *o* - Cresol, 4 - (6 - acetamido - 4-quinolylamino) - α - 1 - piperidyl-, *di HCl*, P 7514*g*.

$I_{28}N_4O_2S$ 1*H* - Thieno[3,4]imidazole - 4-valeramide, 2,3,3a,4,6,6a - hexahydro - 2 - oxo - 1 - phenylcarbamyl-, P 6670*i*.

$I_{28}N_4O_7$ 10,4a(4*H*) - Iminoethanophenanthrene, 1,2,3,9,10,10a - hexahydro-11 methyl-, picrate, 4279*gh*.

Quinoline, 1 - benzyl - 1,2,3,4,5,6,7,8-octahydro - 2 - methyl-, picrate, 4279*f*.

$I_{28}N_4O_8$ Quinoline, 2 - isoamyl - 3 - propoxy -, picrate, 227*i*.

$I_{28}N_4O_8S_2$ Acaprine, 7025*d*.

$I_{28}N_6$ Pyrimidine, 4,6 - bis(4 - diethylamino - 1 - methylbutylamino) - 2-methyl -, P 6244*c*.

$I_{28}N_6O_7$ 1,2,3,2*H* Triazole, 4 - (1 - butyl - 4,4 - dimethyl - 2 - imidazolin-2 - yl) - 2 - phenyl-, picrate, 2619*e*.

$I_{28}O_4$ Acetophenone, *p* - (α,β - diethyl-*p* - methoxystyryl) - α - hydroxy-, acetate, 4655*b*.

- Indanol, 2 - (*p* - hydroxyphenyl) - 1-isopropyl - 3 - methyl-, diacetate, 1758*d*.

- Phenanthrenepropionic acid, 2 - carboxy - 3,4 - dihydro - 3 - isopropyl-, di-Me ester, 622*b*.

$I_{28}O_5$ Evodione, benzylidenedihydro-, 2991*f*

2,4 - Pentadienoic acid, 5 - hydroxy - 5-(5 - methoxycarvacyl) - 3 - (*p* - methoxyphenyl)-, 4640*d*.

$I_{28}O_6$ Cyclohexanecaproic acid, 4-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl) - ε - oxo-, Me ester, 1387*d*.

$I_{28}O_6$ Fructoside, methyl dimethyl-, dibenzoate, 5749*i*, 5750*f*.

$I_{28}Sn$ Tin, tribenzylethyl-, P 9519*a*.

$C_{23}H_{29}BrN_2O_4$ Methyldesoxyvomicinium bromide, 7945*b*.

Methylneodesoxyvomicinium bromide, 7946*d*

$C_{23}H_{29}ClN_2O_3S_2$ 5 - [2 - [3 - (2 - Carboxyethyl) - 2 - benzothiazolinylidene]-ethylidene] - 3 - (carboxymethyl) - 2-(ethylmercapto) - 4 - oxo - 2 - thiazolinium perchlorate, di-Et ester, P 4160*i*.

$C_{23}H_{29}ClN_4O_4$ Quinoline, 2-*p*-chloroanilino(2-diethylaminoethylamino)-, oxalate, 9037*i*.

$C_{23}H_{29}ClO_5$ 1,4 - Naphthoquinone, 2 - chloro-3 - [3 - (decahydro - 2 - naphthyl)-propyl]-, 1382*g*.

$C_{23}H_{29}ClO_6$ Malonic acid, 3-chloro-2-butenyl-[2 - (1 - naphthyl)ethyl]-, di-Et ester, 6609*g*.

$C_{23}H_{29}IN_2O_4$ Methyldesoxyvomicinium iodide, 7945*a*.

Methylneodesoxyvomicinium iodide, 7946*a*.

$C_{23}H_{29}NO$ 1 - Propanone, 1 - (9,10 - dihydro-9 - anthryl) - 2 - methyl - 3 - (1 - piperidyl-, *and* - *HCl*, P 5655*h*.

$C_{23}H_{29}NO_3S$ Cinchoninic acid, 6-methyl-3-octyl-2-(2-thienyl)-, 228*c*.

$C_{23}H_{29}NO_3S$ Cyclohexanone, compd. with 1-(α - aminobenzyl) - 2 - naphthol bisulfite, 3356*b*.

$C_{23}H_{29}NO_4$ Carbanilic acid, *p*-carboxy-, 4-Bu ester, ester with Bu *p*-hydroxybenzoate, 593*h*.

3 - Isoquinolinecarboxylic acid, 3,4 - dihydro - 6,7 - dimethoxy - 1 - veratryl-, Et ester, 6733*a*.

$C_{23}H_{27}NO_5$ See *Narceine*.

$C_{23}H_{27}N_3O$ Lepidine, 2-[benzyl[2-(4-morpholinyl)ethyl]amino]-, 8390*a*.

$C_{23}H_{27}N_3O_2$ 7 - Quinolinol, 4 - (5 - allyl - α-butylamino - 4 - hydroxy - *m* - toluidino)-, *di*- *HCl*, P 7515*g*.

$C_{23}H_{27}N_3O_4$ Acetoacetanilide, α-(*p*-diethylaminophenylimino) - *m* - 1,3 - dioxolan-2-yl-, P 8162*d*.

Quinoline, 6,7 - dimethoxy - 4 - (4 - methoxy - α - 4 - morpholinyl-*m*-toluidino)-, P 7515*i*.

$C_{23}H_{27}N_3O_6S_2$ Compd., m. 166–7°, 1325*h*.

$C_{23}H_{27}N_3O_6$ 2 - Imidazoline, 2 - [(α - cyclohexylbenzyloxy)methyl]-, picrate, 6620*a*.

$C_{23}H_{27}N_3O_9$ 1 - Naphthonitrile, 1 - (2 - dimethylaminoethyl) - 1,2,3,4 - tetrahydro-7,8-dimethoxy-, picrate, 627*a*.

$C_{23}H_{27}N_7O_3$ Aniline, *N*, *N*′ - diguanyl - 2-methyl - 4,4′,4″ - methylidynetri-, carbonate, 5014*d*, P 5046*f*.

$C_{23}H_{27}N_9$ Aniline, 2 - methyl - 4,4′,4″ - methylidynetris[*N* - guanyl-, 5014*d*, P 5046*f*.

$C_{23}H_{28}ClN_3O$ Acridine, chloromethoxy - 9-[4 - (1 - piperidyl)butylamino]-, *di*-*HCl*, 7549*h*.

*o* - Cresol, 4 - (7 - chloro - 4 - quinolylamino) - α - heptylammo-, *salts*, P 7515*e*.

$C_{23}H_{28}N_2$ Cyclohexaneacetonitrile, 1-(dimethylaminomethyl) - α,α - diphenyl-, 4243*e*.

Cyclohexanepropionitrile, 1 - dimethylamino - α,α - diphenyl-, 4243*d*.

1 - Piperidinebutyronitrile, 2,6 - dimethyl-α,α - diphenyl , *and* - *HCl*, 9053*a*.

$C_{23}H_{28}N_2O_7$ Compd., m. 175° from $Ac_2O$ reaction with hydroxytetrahydrodichanostrychnidine, 2213*c*.

$C_{23}H_{28}N_2O_8S$ Caproamide, *N* [1-(benzylcarbamyl) - 2 - (benzylmercapto)vinyl]-, 2990*h*.

$C_{23}H_{28}N_2O_4$ Base, 7946*i*

Neostrychnine, methoxymethyldihydro-, 657*g*

$C_{23}H_{28}N_2O_4S$ Valine, β - (benzylmercapto)-*N* - (*N* - phenylacetylglycyl)-, Me ester, 4668*d*

$C_{23}H_{28}N_2O_5$ Strychnone, methoxymethylchanodihydro-, 657*g*

$C_{23}H_{28}N_2O_6$ Hydrocinchene, tartrate, 4676*f*.

Hydrocinnamic acid, α-(dimethylaminomethyl) - α - ethyl - β - hydroxy-, Et ester *p* - nitrobenzoate, *and* - *HCl*, 7643*h*.

Isovalеronitrile, γ - dimethylaminodiphenyl , tartrate, 2193*i*, 7466*d*.

Valeronitrile, γ - dimethylamino - α,α-diphenyl-, tartrate, 2193*h*, 3390*e*, 7466*g*.

$C_{23}H_{28}N_2O_6$ Glucoside, methyl 4,6-dimethyl-, 2,3-dicarbanilate, 3368*h*.

$C_{23}H_{28}N_2O_7$ Barbituric acid, 5-[4-(1,3-diethyl-2(3*H*) - benzimidazolylidene) - 2-butenylidene] - 1,3 - diethyl-, 4910*h*.

$C_{23}H_{28}N_2O_8S$ 1 - Pyrrolidinecarboxylic acid, 2-[[2 - (benzylmercapto) - 1 - carboxyethyl]carbamyl]-, 1 - benzyl ester hydrazide, 5016*f*.

$C_{23}H_{28}N_4O_7$ Quinoline, 1 - ethyldecahydro - 4-phenyl-, picrate, 3418*g*.

$C_{23}H_{28}N_4O_8$ Bicarbamic acid, mono-Et ester diester with *p*,*p*′-isopropylidenediphenol, P 4293*e*.

1*H* - Quinolizine, octahydro - 1 - toloxymethyl-, picrate, 6210*c*.

$C_{23}H_{28}O$ Benzophenone, 4′ - cyclohexyl-2,3,5,6 - tetramethyl-, 8369*i*.

$C_{23}H_{28}O_2$ 1′,2′,16,17 - Benzo - $\Delta^{4,9}$ - androsten - 4′ - ol - 3 - one, 245*e*.

$C_{23}H_{28}O_3$ 1 - Naphthalenebutanol, 4 - ethoxy-5,6,7,8-tetrahydro-, benzoate, 2196*b*.

1,4 - Naphthoquinone, 2 - (4 - cyclohexylcyclohexylmethyl) - 3 - hydroxy-, 1376*e*, 2610*b*.

—, 2 - [3 - (decahydronaphthyl)propyl]-3-hydroxy-, 1108*g*, 1374*i*, 1375*b*, 2610*b*, 3107*h*.

$C_{23}H_{28}O_4$ Phenol, *p*,*p*′ - (1,2 - diethyltrimethylene)di-, diacetate, P 4700*c*.

$C_{23}H_{28}O_7$ 1 - Indancarboxylic acid, 2 - (3-cyclohexylpropyl) - 1,2 - dihydroxy-3-oxo-, diacetate, 1384*d*.

Spherophorin, 5077*d*.

$C_{23}H_{28}O_{11}$ Benzoic acid, 2-β-glucosidoxy-5-methoxy-, Me ester, tetraacetate, 3393*h*.

$C_{23}H_{29}ClN_2$ 2 - [2 - (1 - Amyl - 2,5 - dimethyl-3 - pyrryl)vinyl] - 1 - methylquinolinium chloride, 3930*e*.

$C_{23}H_{29}NO$ 3 - Heptanone, 4,4 - diphenyl - 6-(1 - pyrrolidyl)-, - *HCl*, 4244*d*.

3 - Hexanone, 4,4 - diphenyl - 6 - (1 - piperidyl)-, - *H Br*, 7467*d*; - *HCl*, 4244*d*; *nitrate*, 3391*a*; *salts*, 9053*g*.

$C_{23}H_{29}NO_2$ Acetic acid, diphenyl-, 2-cyclohexylaminoisopropyl ester, - *HCl*, P 2639*i*.

Butyric acid, α,α - diphenyl-, ester with 1-piperidineethanol, 3392*b*.

Heptanone, (4 - morpholinyl)diphenyl-, 9250*h*; - *HCl*, 4244*d*, 9053*h*; *and* - *HCl*, 9053*h*; *salts*, 3390*i*; *and salts*, 9054*e*.

3 - Heptanone, 5 - methyl - 6 - (4 - morpholinyl) - 4,4 - diphenyl-, - *HCl*, 4244*d*; *and* - *HCl*, 3391*a*, 9054*e*.

—, 6 - (2 - methyl - 4 - morpholinyl) - 4,4-diphenyl-, *and* - *HCl*, 9053*g*.

—, 6 - (4 - morpholinyl) - 4 - phenyl - 4-*p*-tolyl-, 9053*h*.

1 - Piperidinebutyric acid, α,α - diphenyl-, Et ester, 9053*c*; Et ester, - *H Br*, 7467*e*; Et ester, *and* - *HCl*, 4243*i*.

4 - Piperidinol, 1,3,5 - trimethyl - 2,6-diphenyl-, propionate, *and* - *HCl*, 1410*e*.

$C_{23}H_{29}NO_2S$ 9 - Anthroic acid, 9,10 - dihydro-, 2 - (2 - diethylaminoethylmercapto)ethyl ester, - *HCl*, 3395*e*.

$C_{23}H_{29}NO_3$ Acetic acid, diphenyl-, 2,2-dimethyl - 3 - (4 - morpholinyl)propyl ester, *and* - *HCl*, P 6673*f*.

3 - Hexanone, 4 - (*m* - methoxyphenyl) - 6-(4 - morpholinyl) - 4 - phenyl-, - *HCl*, 4245*a*.

4 - Morpholinebutyric acid, γ - methyl-α,α-diphenyl-, Et ester, - *HCl*, 4245*b*.

1,4 - Naphthoquinone, 2 - [3 - (decahydro-2 - naphthyl)propyl] - 3 - hydroxy-, oxime, 1375*b*.

$C_{23}H_{29}NO_4$ Hydrocinnamic acid, α - (dimethylaminomethyl) - α - ethyl - β - hydroxy-, Et ester benzoate, *and* - *HCl*, 7643*h*.

$C_{23}H_{29}NO_5$ 4 - Piperidone, 2,6 - bis(3,4 - dimethoxyphenyl) - 3,5 - dimethyl-, *and* - *HCl*, 1410*c*.

Valine, *N* - [γ,γ - bis(*p* - methoxyphenyl)-butyryl]-, 2274*b*.

$C_{23}H_{29}NO_6$ α-Fagarine, compd. with EtOH, *salts*, 4280*g*.

$C_{23}H_{29}NS$ Quinoline, 6 - methyl - 3 - nonyl - 2-(2-thienyl)-, 228*d*.

$C_{23}H_{29}N_3O_2$ Lepidine, 2-[(2,3 - dimethoxybenzyl)(2 - dimethylaminoethyl)-amino]-, 8389*i*.

Lepidine, 2 - [(2 - dimethylaminoethyl)-veratrylamino]-, 8389*i*.

$C_{23}H_{29}N_3O_2S_2$ 3 - Ethyl - 5 - [3 - ethyl - 5 - (3-ethyl - 2 - benzothiazolinylidene) - 4-oxo - 2 - thiazolidylidene] - 2 - (ethylmercapto) - 4 - oxo - 2 - thiazolinium ethyl sulfate, P 4163*a*.

$C_{23}H_{29}N_5$ Pyridine, 3,3′ - (*p* - dimethylaminobenzylidene)bis[6 - dimethylamino-, 409*e*.

$C_{23}H_{29}N_5O$ Methanol, (*p* - dimethylaminophenyl)bis(6 - dimethylamino - 3-pyridyl)-, 409*g*.

$C_{23}H_{29}N_3O_3S$ 3 - Thiophenecarboxylic acid, tetrahydro - 2 - (4 - phenylcarbamylbutyl) - 4 - (3 - phenylureido)-, hydrazide, P 6670*h*.

2 - Thiophenevaleranilide, 3 - (aminocarbamyl)tetrahydro - 4 - (3 - phenylureido)-, P 1065*i*.

$C_{23}H_{30}BrNO_2$ Allyl(3 - hydroxy - 3,3 - diphenylpropyl)dimethylammonium bromide, propionate, P 5417*f*.

$C_{23}H_{30}BrNO_4$ 4 - (2 - Benzhydryloxyethyl) - 4-(carboxymethyl)morpholinium bromide, Et ester, P 5046*a*.

$C_{23}H_{30}ClNO_3$ Morpholine, 4 - [3 - (4 - chloro-2′ - methylbenzhydryloxy) - 2,2 - dimethylpropyl]-, P 5804*e*.

$C_{23}H_{30}ClN_3O$ See *Quinacrine*.

$C_{23}H_{30}Cl_2NO$ 1 - Dodecylpyridinium chlorophenoxide, P 5801*b*.

$C_{23}H_{30}N_2$ Piperidine, 1 - (4 - imino - 3,3 - diphenylhexyl)-, 3391*g*.

$C_{23}H_{30}N_2O$ Acetamide, *N* - (4 - dimethylamino - 1 - ethyl - 2,3 - diphenylamylidene)-, *and* - *HCl*, 3391*h*.

Acetamide, *N* - (4 - dimethylamino - 1-ethyl - 2,2 - diphenylisoamylidene)-, 3391*h*.
Morpholine, 4 - (4 - imino - 2 - methyl-3,3-diphenylhexyl)-, 3390*i*, *and* - *HCl*, 9054*e*.

$C_{23}H_{30}N_2O_2$ Acridanmethanol, 10-acetyl-$\alpha$-(dipropylaminomethyl)-, - *HCl*, 234*a*.
5,11(6*H*,12*H*) - Methanodibenzo[*b*,*f*]-[1,5]diazocine, 2,8 - dimethoxy - 1,3,-4,7,9,10 - hexamethyl-, *and* - *HCl*, 180*h*.
Strychnidine, tetrahydrodichano-, acetate, 2213*h*.

$C_{23}H_{30}N_2O_3$ 6*H* - Pyrido[3,2,1 - *jk*]carbazol-6 - one, 3 - *sec* - butylidene - 11b - (2-dimethylaminoethyl) - 1,2,3,5,11b,-11c - hexahydro - 1,8 - dihydroxy-, 7945*i*.
6*H* - Pyrido[3,2, 1 - *jk*]carbazol - 6 - one, 11b - (2 - dimethylaminoethyl) - 1,2,-3,5,11b,11c - hexahydro - 1,8 - dihydroxy - 3 - (1 - methylpropenyl)-, 7945*h*.

$C_{23}H_{30}N_2O_4$ Hydrocinnamic acid, $\alpha$ - (dimethylaminomethyl) - $\alpha$ - ethyl - $\beta$ - hydroxy-, Et ester *p*-aminobenzoate, *and* - *HCl*, 7643*h*.
Strychnane, methoxymethylchanodihydro-, 657*i*.
Strychnone, desoxomethoxymethylchanodihydro-, 657*i*.

$C_{23}H_{30}N_2O_5$ Strychnol, methoxymethylchanodihydro-, 657*h*.

$C_{23}H_{30}N_4O_4$ Capriphenone, $\alpha$ - methyl-, 2,4-dinitrophenylhydrazone, 2931*i*.
2 - Hendecanone, 3 - phenyl-, 2,4 - dinitrophenylhydrazone, 2932*d*.

$C_{23}H_{30}O$ Benzophenone, 4 *tert* - butyl 2,2',-3,5,6,6' - hexamethyl-, 8370*a*

$C_{23}H_{30}O_2$ 1',2',16,17 - Benzo - $\Delta^{5,6}$ - androstene-3($\beta$),4'-diol, 245*b*.
2 - Heptene, 4 - ethyl - 3,5 - bis(*p* - methoxyphenyl)-, P 4700*a*.

$C_{23}H_{30}O_4$ Corticosterone, $\Delta^{11}$-anhydro-, acetate, 6639*f*.
Hydrolapachol, caprylate, 1373*c*.
Pregnadiene - 3,20 - dione, 21 - hydroxy-, acetate, 3430*f*, P 8402*f*.
4,11 - Pregnadien - 21 - ol - 3,20 - dione, 21-acetate, 1788*a*, P 8402*g*.

$C_{23}H_{30}O_5$ Corticosterone, dehydro-, acetate, 1788*h*, P 5812*c*.
$\Delta^4$ - Pregnene - 3,12,20 - trione, 21 - hydroxy-, acetate, 6640*d*.
$\Delta^4$ - Pregnen - 21 - oltrione, acetate, 3019*g*, P 5812*c*.

$C_{23}H_{30}O_6$ $\Delta^{4,6}$ - Pregnene, 3,11,20 - triketo-17($\beta$) - hydroxy - 21 - acetoxy-, P 4432*e*.

$C_{23}H_{30}O_7$ Lactone, compd. with isopropyl alc., P 4466*e*, compd. with PrOH, P 4466*e*.

$C_{23}H_{30}O_{13}$ 2 - Furanacetic acid, 3 - carboxy-5 - (1,2,3,4 - tetrahydroxybutyl)-, di-Et ester, tetraacetate, 5392*a*.

$C_{23}H_{31}BrO_3$ Pregnan 21 - ol - 3,11,20-trione, 4-bromo-, acetate, P 5812*b*.

$C_{23}H_{31}NO$ Dibutylamine, *N* - [2 - (9 - fluorenyloxy)ethyl]-, P 6671*d*.
Ethylamine, 2 - (4 - cyclohexyl - $\alpha$ - phenyl - *o* - toloxy) - *N*,*N* - dimethyl, *and* - *HCl*, 2909*f*.
3 - Heptanone, 7 - diethylamino - 4,4-diphenyl-, 9053*h*.
2(1*H*) - Isoquinolinepropanol, 3,4 - dihydro - $\alpha$ - isoamyl - $\alpha$ - phenyl-, - *HCl*, 9071*f*.
5 - Nonanone, 2 - dimethylamino - 4,4-diphenyl-, *and salts*, 7466*f*.
Piperidine, 1 - [3 (2 - methylbenzhydryloxy)isobutyl]-, P 5804*e*.
Pyrrolidine, 1 - [4 - (benzhydryloxy)-butyl]-2,5-dimethyl-, P 5804*d*.

$C_{23}H_{31}NO_2$ Acetic acid, diphenyl-, 2-[(1-ethylpropyl)amino]butyl ester, - *HCl*, P 2639*i*.
Butyric acid, $\alpha$,$\alpha$-diphenyl , 2-diethylaminoisopropyl ester, - *HCl*, 3392*c*; 3 - diethylaminopropyl ester, - *HCl*, 3392*c*.
3 - Heptanol, dimethylamino - 4,4 - diphenyl-, acetate, - *HCl*, 192*a*, 3390*g*, 3391*ca*; *and* - *HCl*, 4244*h*.
3 - Hexanol, 6 - dimethylamino - 5-methyl - 4,4 - diphenyl-, acetate, - *HCl*, 3391*c*.
Morpholine, 4 - [6 - (benzhydryloxy)-hexyl]-, *and* - *HCl*, P 5804*d*.
4 - Morpholinebutanol, $\alpha$ - ethyl - $\delta$-methyl - $\beta$,$\beta$ - diphenyl-, *and* - *HCl*, 3391*d*.
1 - Naphthalenecarbamic acid, 5 - cyclohexyl - 1 - methylamyl ester, 8361*a*.
—, 3 - cyclohexyl - 1 - propylpropyl ester, 8360*i*.
Pyrrolidine, 1 - [3 - (3 - ethoxybenzhydryloxy)butyl]-, P 5804*e*.
Valeric acid, $\delta$-diethylamino-$\alpha$,$\alpha$-diphenyl-, Et ester, 9053*d*.

$C_{23}H_{31}NO_2S$ Piperidine, 1 - [4 - (ethylsulfonyl) - 4,4 - diphenylbutyl]-, 1367*a*.
Piperidine, 1 - [3 - (ethylsulfonyl) - 1-methyl - 3,3 - diphenylpropyl]-, 1367*a*.

$C_{23}H_{31}NO_3$ 4 - Quinolinol, 3 - heptyl - 7-methoxy - 2 - methyl-, Me succinate, 1417*d*.

$C_{23}H_{31}NO_7$ Colchiceine, hexahydro-, acetate, 8376*e*.

$C_{23}H_{31}N_3O_4S$ Benzenesulfonamide, *p* - (5-hendecyl - 3,6 - dihydroxy - 2 - *p*-quinonylazo)-, 9047*h*.

$C_{23}H_{32}ClNO$ Isobutylamine, 3 - (3 - chlorobenzhydryloxy) - *N*,*N* - diisopropyl-, P 3463*d*.

$C_{23}H_{32}ClNO_3$ (2 - Benzhydryloxyethyl)(carboxymethyl)dimethylammonium chloride, Bu ester, P 5046*a*.

$C_{23}H_{32}Cl_2N_2O$ See *Quinacrine*.

$C_{23}H_{32}INO_2$ 1 - [2 - [*p* - Methoxy - $\alpha$ - (*p*-methoxyphenyl)phenethyloxy]ethyl]-1 - methylpyrrolidinium iodide, 631*c*.

$C_{23}H_{32}N_2O$ Acetamide, *N* - (2 - dipropylaminoethyl) - *N* - *o* - phenylbenzyl-, 1355*i*.

$C_{23}H_{32}N_2O_2$ Valeric acid, $\gamma$-dimethylamino-$\alpha$,$\alpha$ - diphenyl-, 2 - dimethylaminoethyl ester, *di*- *HCl*, 611*c*.

$C_{23}H_{32}N_2O_3$ Base, m. 177°, 7947*g*.

$C_{23}H_{32}N_2O_4$ Formamidine, *N*,*N'* - diphenyl-, bis($\alpha$ - methylbutyrate), 1353*i*.
Procaine, $\gamma$-phenylbutyrate, 7290*d*.

$C_{23}H_{32}N_2O_5$ Carbanilide, 4,4' - diethoxy-*N*,*N'* - diethyl - 3,3' - dimethoxy-, 2177*g*.
Urea, 1,3 - diethyl - 1,3 - diveratryl-, 2177*b*.

$C_{23}H_{32}N_2O_6$ Ethylenediamine, *N*,*N* - diethyl-*N'* - *o* - phenylbenzyl-, tartrate, 1355*h*.

$C_{23}H_{32}N_4O_3S_2$ Adipic acid, $\beta$-methoxy-, salt with 2 - benzyl - 2 - thiopseudourea, 4228*e*.

$C_{23}H_{32}O_2$ 1',2',16,17 - Benzandrostan - 3($\beta$),-4'-diol, 245*a*.
Heptane, 4 - ethyl - 3,5 - bis(*p* - methoxyphenyl)-, P 4700*b*.
Naphthalenecapric acid, *t*-methyl-, Et ester, 566*d*.
Naphthalenehendecanoic acid, Et ester, 566*d*.
Phenol, 2,2' - methylenebis[4 - *tert*-amyl-, 8615*b*.
Testosterone, 17 - ethynyl-, 3 - enol Et ether, P 3476*e*.

$C_{23}H_{32}O_2$ $\Delta^5$ - Androstene - 3,17 - diol, 17-ethynyl-, diacetate, P 7978*h*.
1 - Cyclohexene - 1 - carboxylic acid, 2-[2,6 - dihydroxy - 4 - (1,2,6 - trimethylhexyl)phenyl] - 4 - methyl-, $\delta$-lactone, 8384*e*.
1,4 - Naphthoquinone, 2 - (3 - ethyl - 4-methyldecyl) - 3 - hydroxy-, 1373*g*.
—, 2 - hydroxy - 3 - tridecyl , 1373*c*, 2610*b*.
$\Delta^{5,8,20,22}$ - Norcholadienic acid, 3,21 - dihydroxy-, lactone, P 5810*h*, P 6247*a*, P 7054*a*.
$\Delta^{5,16}$ - Pregnadien - 3 - ol - 20 - one, acetate, 3018*i*.
Spiro[17*H* - cyclopenta[*a*]phenanthrene-3(2*H*),2' - [1,3]dioxolan] - 17 - ol, 17 - ethynyl - 1,6,7,8,9,10,11,12,13,-14,15,16 - dodecahydro - 10,13 - dimethyl-, P 7057*ab*

$C_{23}H_{32}O_4$ (See also "acetate" under *Corticosterone, desoxy-*.)
Acetate of hydroxy diketo steroid, m. 198°, P 7058*b*.
17 - Isocorticosterone, desoxy-, acetate, P 7978*f*.
Odorigenone B, 7034*c*.
11 - Pregnene - 3,20 - dione, 21 - hydroxy-, acetate, P 8402*g*.
5 - Pregnen - 3($\beta$) - ol - 20 - one, 16,17-oxido-, acetate, 3430*e*.
Progesterone, hydroxy-, acetate, 1783*h*, P 3476*b*.

$C_{23}H_{32}O_5$ $\Delta^5$ - Androstene, 3($\beta$),17($\alpha$) - dihydroxy - 16 - keto-, 3,17 - diacetate, 3434*f*.
Compd., m. 234-5°, 4680*b*.
Corotoxigenin, 4679*i*.
14 - Iso - 20 - ketopregnane - 21 - acid, 3($\beta$) - acetoxy - 14 - hydroxy-, lactone(21-14), 2627*a*.
Pregnan - 21 - ol - 3,11,20 - trione, acetate, 3018*i*, 3019*g*, P 5812*b*.
Pregnenedioldione, acetate, 1788*b*, 3018*i*.
$\Delta^4$ - Pregnene - 17,20 - diol - 3 - one - 21 al, 20-acetate, P 4433*b*.

$C_{23}H_{32}O_6$ (See also *Strophanthidin*.)
Alloglaucotoxigenin, 4679*i*.
Compd., m. 257°, 4680*a*.
Glaucotoxigenin, 4679*i*.
Pregnane - 17($\alpha$),21 - diol - 3,11,20 - trione, 21-acetate, 7493*h*.
$\Delta^{4,5}$ - Pregnene, 3,11 - diketo - 17($\beta$),20 dihydroxy - 21 - acetoxy-, P 4432*d*
Sarmentosigenin A, 1430*c*.

$C_{23}H_{33}BrO_4$ 3,20 - Pregnanedione, 5 - bromo 12($\alpha$)-acetoxy-, 1783*g*.

$C_{23}H_{33}Br_3O_3$ Pregnane, 3($\beta$) - acetoxy - 20 keto - 5,6,17 - tribromo-, 8396*f*.

$C_{23}H_{33}ClO_3$ $\Delta^5$ - Etiocholenyl chloride, 3($\beta$) acetoxy-17-methyl-, 3830*i*.

$C_{23}H_{33}NO$ Amylamine, *N*,*N* - diethyl - 4 (4-methylbenzhydryloxy)-, P 3463*e*.
Dipropylamine, *N* - [2 - (4,4' - dimethyl benzhydryloxy)ethyl]-, P 3462*h*, *and* - *HCl*, P 1064*f*.

$C_{23}H_{33}NO_3$ Dimethyl ester, m. 193-5° o acid, m. 323–6°, 211*e*.

$C_{23}H_{33}NO_7$ Dimethyl ester, m. 240-5° of tr carboxylic acid, decompg. 258-61° 210*h*.

$C_{23}H_{33}N_3O_3S$ Quinoline, 8 - acetamido - 6 (dodecylmercapto) - 5 - nitro , 3419*d*

$C_{23}H_{33}N_3O_4$ 3,4 - Pyrroledicarboxylic acid 1 - benzyl - 2,5 - dimethyl - bis(2 dimethylaminoethyl)ester, P 4302*b*
Umbelliferone, 6 - lauroyl - 4 - methyl semicarbazone, 6021*i*.

$C_{23}H_{34}$ Tridecane, 1-(naphthyl) , 4415 8888*f*.

$C_{23}H_{34}BrNO$ (2 - Benzhydryloxyethyl)butyl diethylammonium bromide, P 2640*a* P 2641*c*.

$C_{23}H_{34}ClN_7$ Benzimidazole, chloro - 2 - [4 (3 - dibutylaminopropylamino) - 6 methyl - 2 - pyrimidylamino] , 3854*c*.

$C_{23}H_{34}N_2$ Aniline, methylenebis[*N* - is amyl-, P 1176*i*, P 1177*c*.
Benzylamine, *p*,*p'* - methylenebis[*N* butyl-, *and di*- *HCl*, 3382*d*.
1,7 - Heptanediamine, *N*,*N'* - d phenethyl-, *di*- *HBr*, 3379*c*, P 345
$C_{23}H_{34}N_2OS$ Quinoline, 5-acetamido-8-(d decylmercapto)-, 3419*b*.

$C_{23}H_{34}N_2O_2$ Carbamic acid, (*p*-isopropy phenethyl) , *p* - isopropylphenethy amine salt, 1351*g*.

$C_{23}H_{34}N_2O_2S$ Hendecanoic acid, 2-(1-naph thylmethyl) - 2 - thiopseudourea salt 565*h*.

$C_{23}H_{34}N_2O_3$ Compd., m. 194–5°, 7947*h*.

$C_{23}H_{34}N_2O_3S$ Cinnamamide, *N*-[2-(2-diethy aminoethylmercapto)ethyl]-, citrate 6184*c*.

$C_{23}H_{34}N_2O_9$ 1 - Naphthoic acid, 3 - amino-5, 6,7,8 - tetrahydro-, 2 - diethylamino ethyl ester, citrate, 203*b*.

$C_{23}H_{34}O$ Ether, 4,8 - dimethyl - 10 - (2,6,6 trimethyl - 1 - cyclohexen - 1 - yl 3,7,9 - decatrien - 5 - ynyl ethyl 1338*f*.

$C_{23}H_{34}O_2$ Thevetigenin, 3,14-bisdesoxy 3018*b*.

$C_{23}H_{34}O_3$ 5 - Allo - $\Delta^{16}$ - pregnene, 3($\beta$) - ace toxy-20-keto-, 1787*c*.
16 - Allopregnen - 3($\beta$) - ol - 20 - one acetate, 6216*i*.
$\Delta^{11,12}$ - Bisnorcholenic acid, 3 - keto , M ester, P 5428*g*.
17 - Iso - $\Delta^5$ - pregnen - 3 - ol - 20 - one acetate, P 7978*f*, 8396*d*.
2,7 - Nonadien - 5 - yn - 4 - ol, 9 - meth oxy - 3,7 - dimethyl - 1 - (2,6,6 tri methyl - 1 - cyclohexen - 1 - yl) , ace tate, 1801*f*.
$\Delta^{20,22}$ - Norallocholenic acid, 3,21 - dih droxy-, lactone, P 7975*g*, P 7976 P 7977*cfg*
Norcholenic acid, 3,21 - dihydroxy-, la tone, P 7975*hi*, P 7976*b*, P 7977*d*
—, 3-keto-, 4282*b*.
Pregnenolone, acetate, 295*c*, 300*f*, 366*b*, 1048*e*, 3018*hi*, 5029*e*, 6214 8032*e*, 8396*e*.
Progesterone, 3-enol acetate, P 366*e*
Testosterone, 16-methyl-, propionate, 1429*h*.
Theoetigenin, 14-desoxy-, 3018*b*.

$C_{23}H_{34}O_4$ Acetate, m. 270–2°, P 6246*h*.
5 - Allopregnane, 3($\beta$) - acetoxy - 16($\alpha$), 17($\alpha$) - oxido - 20 - keto-, 1787*c*.
Allopregnan - 20($\beta$) - ol - 3,16 - dione, 20($\beta$)-acetate, 6642*a*
16 - Allopregnen - 3($\beta$) - ol - 20 - one, 16,17-epoxy- acetate, 6216*i*.
$\Delta^5$ - Androstene - 3,17 - diol, diacetate,

* 3018*i*; 3 - formate 17 - propionate, P 1915*i*.
Bisnorcholanic acid, 3,9-epoxy-11-keto-, Me ester, 3019*g*.
Digitoxigenin, 3567*a*, 7034*b*, 9372*b*.
Etiocholenic acid, 3($\beta$) acetoxy - 17-methyl-, 3830*i*.
—, 3($\alpha$) - hydroxy-, Me ester, acetate, P 5428*i*.
Norcholenic acid, trihydroxy-, lactone, P 6247*a*, P 7975*h*.
Odorigenin B, 7034*c*.
3,20 - Pregnanedione, 12($\alpha$) - acetoxy-, 1783*f*.
—, 12($\alpha$) - hydroxy-, 12($\alpha$) - acetate, P 3475*c*.
Pregnanoldione, acetate, 3019*g*, 6211*df*.
$\Delta^5$ - Pregnenediol - 20 - one, acetate, 3018*i*, P 5052*e*.
Pregnenolone, 21-acetoxy-, 295*e*, 300*f*.
Uzarigenin, 7034*d*.

$C_{22}H_{34}O_6$ Aglucon, 2371*h*.
Coroglaucigenin, 4679*i*.
Etiocholane - 3,17 - diol - 11 - one, diacetate, 3019*g*.
Gitoxigenin, 3567*a*.
Pregnanedioldione, acetate, 3018*i*, 3019*g*, P 5812*b*, 6212*h*, 6213*ef*.

$C_{22}H_{44}O_4S_4$ Isoandrosterone, dehydro-, bis(carboxymethyl) mercaptole, 658*h*.

$C_{22}H_{44}O_6$ Sarmentosigenin B, 1430*f*.

$C_{22}H_{44}O_7$ Ouabagenin, 1792*d*.

$C_{22}H_{44}O_{10}$ Yatanoside, 9377*g*.

$C_{22}H_{35}BrClIN_2O$ [2 - (5 - Chloro - 7 - iodo - 8 - quinolyloxy)ethyl]decyldimethylammonium bromide, P 9392*c*.

$C_{22}H_{35}ClO_2$ 20 - Pregnanone, 3($\beta$) - hydroxy-5 chloro-, acetate, P 3475*b*.

$C_{22}H_{15}Cl_3O_2$ Methane, (hexadecyloxy)(pentachlorophenoxy)-, P 3968*a*.

$C_{22}H_{35}NOS$ Lepidine, 2 - (dodecylmercapto) - 6-methoxy , 3419*a*.

$C_{22}H_{35}NO_2$ Cyclohexaneacetic acid, $\alpha$ ethyl-$\alpha$ phenyl , ester with 1-piperidineethanol, - *HCl*, 3392.
1 - Piperidinebutyric acid, $\alpha$ - cyclohexyl-$\alpha$ phenyl-, Et ester, - *HCl*, 4245*d*
1 - Quinolinol, 3 - dodecyl - 7 - methoxy-2-methyl , 1416*b*.

$C_{22}H_{35}NO_4$ Abietic acid, 6 (aminomethyl)dehydro , acetate, P 6665*i*.

$C_{22}H_{35}NO_5$ $\Delta^{5,6}$ - Homoetiobiliene acid 16-amide, 3 acetoxy-, 17 Me ester, 2214*a*.

$C_{22}H_{35}NO_{10}$ Streptobiosamine, pentaacetyldesoxy , 1328*e*.

$C_{22}H_{35}NO_{11}$ Streptobiosamine, pentaacetyldihydro-, 6580*k*.

$C_{22}H_{35}N_3OS$ Quinoline, 8 - acetamido - 5-amino - 6 - (dodecylmercapto)-, 3419*b*.

$C_{22}H_{35}N_3O_3$ Isoandrosterone, 16-methylidehydro , semicarbazone, 1429*e*.

$C_{22}H_{36}ClN_3$ Quinoline, 7-chloro-4 (2 dihexylaminoethylamino) , 1655*g*.

$C_{22}H_{36}Cl_2O_2$ 20($\beta$) - Allopregnanol, 3,16 dichloro , acetate, 6642*c*.

$C_{22}H_{36}I_2N_2O_4$ [Pentamethylenebis(oxy-*o*-phenylene)]bis[trimethylammonium iodide], 8559*a*.

$C_{22}H_{37}NO$ 4-Quinolinemethanol, $\alpha$-(diamylaminomethyl) - 6,7 - dimethyl , *di-HBr*, 4675*a*.

$C_{22}H_{38}N_2O_2$ Enanthamide, *N*, *N'*-cinnamylidenebis , 2600*g*.

$C_{22}H_{38}N_2O_2$ Progesterone, disemicarbazone, P 5812*d*.

$C_{22}H_{38}O$ Ether, 4,8 - dimethyl - 10-(2,6,6 trimethyl - 1 - cyclohexen - 1 - yl)-2,5,7,9 - decatetraenyl ethyl, 1338*c*.

$C_{22}H_{38}O_2$ Bisnor - 5 - cholenaldehyde, 3-methoxy-, 6581.
1,7 - Decadien - 5 - yn - 4 - ol, 10 ethoxy-3,7 dimethyl - 1 - (2,6,6 - trimethyl 1 cyclohexen 1-yl)-, 1338*c*.
Hydroabietyl alcohol, acrylate, P 7754*i*.
Naphthalenecaprie acid, tetrahydro-*l* methyl-, Et ester, 566*d*.
Naphthalenehendecanoic acid, tetrahydro-, Et ester, 566*d*.

$C_{22}H_{38}O_3$ Allopregnan - 3 - ol - 20 - one, acetate, 3018*i*, 5067*f*, 5068*d*, 6638*d*.
20 - Allopregnanone, 3($\beta$) - hydroxy-, acetate, P 3475*d*.
$\Delta^{5,6}$ - Androstene - 3 - *trans*, 17-*trans*-diol, 17-butyrate, P 1916*a*; isobutyrate, P 1916*a*.
$\Delta^5$ - Androstene, 3($\beta$) - methoxy-10($\alpha$),17($\alpha$)-dihydroxy-, acetonide, 3435*a*.
17 - Isoallopregnan - 3($\beta$) - ol - 20 - one, triacetate, 5028*d*.
17 - Isopregnan - 3 - ol - 20 - one, acetate, 3018*i*.
2,5,7 - Nonatrien - 4 - ol, 9 - methoxy-3,7-dimethyl - 1 - (2,6,6 - trimethyl 1-cyclohexen-1-yl)-, acetate, P 1801*f*.
Pregnan - 3 - ol - 20 - one, acetate, 1824*h*, 3018*i*, 5067*g*.
Spiro[17*H* - cyclopenta[*a*]phenanthrene-3(2*H*),2' - [1,3] - dioxolan] - 17-ol, 17 - ethyl - 1,6,7,8,9,10,11,12,13,-14,15,16 - dodecahydro - 10,13-dimethyl-, P 7057*b*.

$C_{22}H_{38}O_4$ Allopregnane - 3($\beta$),20($\beta$) - diol-16-one, 20($\beta$)-acetate, 6642*b*.
20 - Allopregnanone, 3($\beta$),17($\alpha$) - dihydroxy-, acetate, 7032*f*.
3,17-Androstanediol, diacetate, 3018*i*.
Bisnorcholanic acid, 3-hydroxy-11-keto-, Me ester, 3019*g*.
Pregnanediolone, 3-acetate, 3018*i*, 6210*h*, 6211*e*, 6214*c*.
20-Pregnanone, dihydroxy-, acetate, P 3474*h*, 7032*e*.
5 - Pregnene - 3($\beta$),17($\alpha$) - diol - 20-one, ethylene acetal, 3430*f*.

$C_{22}H_{38}O_5$ 14 - Isoetiocholanic acid, 3($\beta$)-acetoxy - 14 - hydroxy-, Me ester, 2627*a*.
Pregnanetriolone, acetate, 3018*i*, 6212*a*, 6213*de*, 6214*f*.

$C_{22}H_{38}O_6$ Dodecanedioic acid, 2-acetyl-2-(2 - cyclopenten - 1 - yl) - 3 - oxo-, di-Et ester, 1730*h*.

$C_{22}H_{38}O_{14}$ 1,3 - Propanediol, 2,2' - [methylenebis(oxymethylene)bis[2 - (hydroxymethyl) , hexaacetate, P 4290*i*.

$C_{22}H_{37}NO_2$ Cyclohexadecanol, carbanilate, 6988*g*.

$C_{22}H_{37}NO_4$ Caproic acid, $\alpha$-(diethylaminomethyl) - $\alpha$ - (1 - hydroxyethyl)-$\delta$-methyl-, Et ester benzoate, - *HCl*, 7643*e*.

$C_{22}H_{37}NO_9$ 2 - Cyclopentene - 1 - acetic acid, $\alpha$ - butyl-, 2 (1 pyrrolidyl)ethyl, citrate, 1388*f*.

$C_{22}H_{37}N_3O_2$ 4,4 - Piperidinedicarboxamide, *N*, *N*, *N'*, *N'* - tetraethyl - 2,6-dimethyl 1-phenyl-, P 1797*g*.
Pregnen - 3($\beta$) - ol - 20 - one, Me ether, semicarbazone, 3018*h*.
2 - Propanol, 1 - diamylamino - 3 - (6-methoxy - 8 - quinolylamino)-, and *di-HCl*, P 2544*d*.
—, 1-disoamylamino - 3 - (6-methoxy-8-quinolylamino)-, *and di-HCl*, P 2544*d*.

$C_{22}H_{37}N_3O$ *s*-Triazine, 2,4-bis[bis(2-methylallyl)amino] - 6 - butoxy-, 4269*f*.
*s*-Triazine, 6 - hendecyl - 1,2,3,4-tetrahydro - 2,4 - diimino - 1 - (*p*-isopropoxyphenyl)-, P 5216*g*.

$C_{22}H_{38}INO_2$ Isoandrosterone, 16-(dimethylaminomethyl)dehydro-, methiodide, 1429*e*.

$C_{22}H_{38}N_2O$ Cyclohexanecarboxamide, *N*-(2 - diethylaminoethyl) - *N* ethyl-1-(3,4-xylyl) , P 5797*h*.

$C_{22}H_{38}N_2O_2$ Enanthamide, *N*, *N'* - (3-phenylpropylidene)bis-, 2601*a*.

$C_{22}H_{38}O_2$ 3($\beta$),20 Allopregnanediol, acetate, 6210*f*.
20($\beta$)-Allopregnanol, acetate, 6642*d*.
Benzene, 1,3-dimethoxy 5-(1-pentadecen-1-yl)-, 1348*h*.
1,5,7 - Decatrien - 4 - ol, 10 - ethoxy-3,7-dimethyl - 1 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 1338*f*.
Veratrole, (1-pentadecenyl)-, P 3571*b*, 6999*c*.

$C_{22}H_{38}O_3$ Androstane - 3 - *trans* - 17 - *trans*-diol, 17-butyrate, P 1916*a*; 17-isobutyrate, P 1916*a*.
1 - Decen - 5 - yne - 4,7 - diol, 10-ethoxy-3,7 - dimethyl - 1 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 1338*c*.
8 - Nonen - 4 - yne 3,6 - diol, 1 - isopropoxy - 3,7 - dimethyl - 9 - (2,6,6-trimethyl 1 cyclohexen 1-yl)-, 1339*d*.

$C_{22}H_{38}O_4$ 3,16,20 - Allopregnanetriol, acetate, 6642*a*.
Gentisic acid, hexadecyl ester, 7003*i*.

$C_{22}H_{38}O_5$ Azelaic acid, $\gamma$-acetyl-, dicyclohexyl ester, P 6226*i*.

$C_{22}H_{39}ClN_2O_2$ 1 - (2 - Hydroxyethylcarbamylmethyl)pyridinium chloride, myristate, 7776*i*.

$C_{22}H_{39}Cl_3NO_4$ 4 - [2 - [2 - [4 - Chloro - 5-hydroxy - 2 - (1,1,3,3 - tetramethylbutyl)phenoxy]ethoxy}ethyl] - 4-methylmorpholinium chloride, 7928*i*.

$C_{22}H_{39}HgNO_2$ Pyridine, (hydroxymercuri)-, stearate, 2446*f*, 6356*e*.

$C_{22}H_{39}NO_4S$ Spiro[androstane - 3,2'-thiazolidine] - 4' - carboxylic acid, 17$\alpha$-hydroxy-, compd. with MeOH, 659*ds*.

$C_{22}H_{39}N_5O_2$ Lauramide, *N* - [($p$ - isopropoxyphenylguanyl)guanyl]-, P 5216*g*.

$C_{22}H_{40}BrNO$ 3 - Acetyl - 1 - hexadecylpyridinium bromide, P 696*c*.

$C_{22}H_{40}ClNO_2$ Dodecyl(2 - hydroxyethyl)dimethylammonium chloride, benzoate, P 3034*c*.

$C_{22}H_{40}INO_2$ Iodine stearate, compd. with pyridine, 5689*f*.

$C_{22}H_{40}N_2O$ Palmitic acid, *o*-tolylhydrazide, P 4498*f*.

$C_{22}H_{40}N_2O_3$ Benzoic acid, $p$ - diethylamino,-2 - (1 - isobutylisoamylamino)isopropyl ester, - *HCl*, P 2640*d*.

$C_{22}H_{40}N_2O_3S$ Palmitamide, *N* - $p$ - sulfamylbenzyl-, 8539*e*.

$C_{22}H_{40}O$ $p$ - Cresol, 2,6 - bis(1,1,3,3 - tetramethylbutyl)-, P 6663*b*.

$C_{22}H_{40}O_2$ Hydrocardol, di-Me ether, 1348*f*.
Pentadecane, 1 - (3,5 - dimethoxyphenyl)-, 1348*h*.
Veratrole, 3-pentadecyl-, P 3571*c*.

$C_{22}H_{40}O_3$ 1,5 - Decadiene - 4,7 - diol, 10-ethoxy - 3,7 - dimethyl - 1 - (2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1338*g*.
1 - Pentadecanol, 1 - (dimethoxyphenyl)-, 1348*h*, 6999*c*.

$C_{22}H_{40}O_3S$ $p$ - Toluenesulfonic acid, hexadecyl ester, 5003*d*.

$C_{22}H_{41}BrClNO$ [2 - (Bromobenzyloxy)ethyl]-dodecyldimethylammonium chloride, P 3034*c*.

$C_{22}H_{41}Cl_2NO$ [2 - (Chlorobenzyloxy)ethyl]-dodecyldimethylammonium chloride, P 3034*c*.

$C_{22}H_{41}NO_2$ 1 - Piperidinebutyric acid, $\alpha$,$\alpha$-dicyclohexyl-, Et ester, - *HCl*, 4245*d*.

$C_{22}H_{41}NO_5$ Glutamic acid, *N*-oleoyl-, P 3841*h*.

$C_{22}H_{41}N_3OS$ 1 - Octadecanone, 1 - (2-thienyl)-, semicarbazone, P 2644*c*.

$C_{22}H_{42}BrN$ 1 - Amyl - 4 - tridecylpyridinium bromide, P 696*e*.
4 - Butyl - 1 - tetradecylpyridinium bromide, P 696*d*.
1,4-Dinonylpyridinium bromide, P 696*h*.
1 - Dodecylhexylpyridinium bromide, P 696*d*.
Ethyl - 1 - hexadecylpyridinium bromide, P 696*bd*.
2 - Hendecyl - 1 - heptylpyridinium bromide, P 696*e*.
Octadecylpyridinium bromide, 1244*a*, 2024*b*.

$C_{22}H_{42}BrNO_2$ Allyldiethyl(2 - hydroxyethyl)-ammonium bromide, dicyclohexylacetate, P 679*g*, P 2234*h*.

$C_{22}H_{42}ClN$ Benzyldimethyltetradecylammonium chloride, 4780*b*.
4 - Ethyl - 1 - hexadecylpyridinium chloride, P 696*d*.
1-Octadecylpyridinium chloride, 1244*a*.

$C_{22}H_{42}ClNO$ Dodecyldimethyl(2 - toloxyethyl)ammonium chloride, P 7960*d*.

$C_{22}H_{42}INO_3$ 1 - Octadecylpyridinium iodate, 3268*i*, 7303*f*, 7836*b*.

$C_{22}H_{42}I_2N_2O_3$ [2 - ($p$ - Carboxyphenoxy)-ethyl]triethylammonium iodide, ester with triethyl(2 - hydroxyethyl)ammonium iodide, 1486*i*, 6592*d*.

$C_{22}H_{43}N_1O$ *o*-Cresol, 4-amino-$\alpha$-dioctylamino-, P 1062*c*.

$C_{22}H_{42}N_2O_3$ 1-Octadecylpyridinium nitrate, 1244*a*.

$C_{22}H_{42}O_2$ Tricosynoic acid, 7414*c*.

$C_{22}H_{42}O_3$ Oleic acid, tetrahydrofurfuryl ester, 3678*a*.
22-Tricosenoic acid, 13-oxo-, 7414*e*.

$C_{22}H_{42}O_4$ Azelaic acid, $\gamma$-acetyl-, bis(1,3-dimethylbutyl) ester, P 6226*c*.

$C_{22}H_{42}ClO_4S$ Thiophene - 3 - ol, 2 - chlorotetrahydro - 4 - methyl-, 1,1-dioxide stearate, P 3466*c*.

$C_{22}H_{43}NO$ Tricosynamide, 7414*i*, 7415*b*.

$C_{22}H_{43}NO_4S$ Desogen, 6363*i*.

$C_{22}H_{43}NO_4$ Glutamic acid, *N*-stearoyl-, P 3841*h*.

$C_{22}H_{43}NO_3S$ Dodecyldimethyl - $p$ - phenetylammonium methyl sulfate, P 2228*i*.

$C_{22}H_{43}N_3$ Pyridine, [(2,2 - dibutylhexyl)(2-dimethylaminoethyl)amino]-, *and di-HCl*, 4265*f*.

$C_{22}H_{43}N_3O_2$ 4,4 - Piperidinedicarboxamide, 1-cyclohexyl - *N*, *N*, *N'*, *N'* - tetraethyl-2,6-dimethyl-, P 3842*g*.

$C_{22}H_{44}Br_2O_2$ Tricosanoic acid, 22,23-dibromo-, 7414*g*.

$C_{22}H_{44}I_2N_2O$ (4-Methoxy-*m*-phenylenediethylene) bis[triethylammonium iodide], 6591*g*.

$C_{22}H_{45}N_3O$ Formamide, *N* - cyclohexyl-*N*-[1 - (1 - cyclohexylaminoethyl)octyl]-, P 3028*g*.

$C_{22}H_{44}O_2$ 22-Tricosenoic acid, 7414*c*.

$C_{22}H_{44}O_3$ Acrylic acid, $\beta$-(decyloxy)-, decyl ester, 6168*e*.

$C_{22}H_{44}O_4$ Behenic acid, $\gamma$-methoxy-$\alpha$-oxo-, 6161*e*.

1,4-Hendecanediol, dicaproate, P 6652*b*.
Malonic acid, hexadecyl-, di-Et ester, 8358*c*.

$C_{22}H_{45}NO$ Oleamide, *N*-amyl-, 8353*h*.
22-Tricosenamide, 7414*f*.

$C_{22}H_{46}N_2$ Nonadecanenitrile, 2-diethylamino-, 4415*g*.

$C_{22}H_{45}N_5$ *s*-Triazine, 2,4-diamino-6-(2-octadecylaminoethyl)-, P 5052*c*.

$C_{23}H_{46}O$ Tricosanone, 191*g*, 2160*e*, 3676*h*, 6171*a*, 8223*f*.

$C_{22}H_{44}O_2$ Behenic acid, α-methyl-, 3781*d*.
Stearic acid, iso-Am ester, 7777*e*.

$C_{22}H_{44}O_4$ Behenic acid, ω-hydroxy-ν-methoxy-, 6161*e*.

$C_{22}H_{47}NO$ Behenamide, α-methyl-, 3781*di*.
Stearamide, *N-tert*-amyl-, 2165*e*.

$C_{22}H_{47}NO_2$ Stearamide, *N*-amyl-θ,ι-dihydroxy-, 8353*i*.

$C_{23}H_{47}NO_4S$ Cyclohexanone, compd. with 1-dodecylpiperidine bisulfite, 3355*i*.

$C_{23}H_{48}$ Tricosane, 4815*b*, 4841*c*, 9030*c*.

$C_{23}H_{48}BrN$ 4 - Amyl - 1 - dodecyl - 1-methylpiperidinium bromide, P 696*c*.
1 - Methyl - 4 - nonyl - 1 - octylpiperidinium bromide, P 696*h*.

$C_{23}H_{48}INO_2$ Choline, iodide stearate, 7288*a*, 7940*b*.

$C_{22}H_{48}N_2O$ Stearamide, *N* - (3 - dimethylaminopropyl)-, P 2631*a*.
Urea, 1,3 - bis(1 - isoamylisohexyl)-, 2166*i*.

$C_{23}H_{48}O$ 12-Tricosanol, 191*g*.

$C_{23}H_{48}S$ 12-Tricosanethiol, P 2630*c*.

$C_{23}H_{49}O_3P$ 12 - Tricosanephosphonic acid, 12-hydroxy-, P 1794*b*.

$C_{23}H_{50}N_2$ 1,9 - Nonanediamine, *N*, *N'*-diheptyl-, *di- H Br*, 3370*g*, P 3455*d*.

$C_{23}H_{51}NO_3S$ Succinamic acid, *N*-methylsulfo - *N* - tetradecyl-, bis(2-aminoethanol) salt, P 1798*b*.

$C_{24}H_{14}F_6$, 2534*b*.

$C_{24}H_{12}Br_6$ Coronene, tetrabromo-, 5020*d*.

$C_{24}H_{12}Cl_2O_2S_2$ 3(2*H*) - Thiophanthrenone, 9-chloro - 2 - (dichlorodixonaphthothiophenylidene)-, P 7706*g*.

$C_{24}H_{10}Br_2$ Coronene, dibromo-, 5020*d*.

$C_{24}H_{10}Cl_2O_2S$ Naphtho[2,1-*b*]thiophen-1(2*H*) - one, 6,9 - dichloro - 2 - (2-oxo - 1 - acenaphthenylidene)-, P 7706*g*.

$C_{24}H_{10}N_2O_4$ Coronene, dinitro-, 5020*d*.

$C_{24}H_{10}O_2$ Coronenedione, 5020*e*.

$C_{24}H_{11}ClO_2S$ 3(2*H*) - Thianaphthenone, 7-chloro - 2 - (1 - oxo - 2 - acenaphthenylidene)-, 4855*i*.

$C_{24}H_{11}Cl_2NO_2S$ 1*H* - Benz[*e*]indol-1-one, 6,9 - dichloro - 2,3 - dihydro - 2 - (1-oxonaphtho[2,1 - *b*]thiophen-2(1*H*)-ylidene)-, P 8173*g*.

$C_{24}H_{11}NO_2$ Coronene, nitro-, 5020*c*.

$C_{24}H_{12}$ Coronene, 1629*i*, 3319*f*, 3672*i*, 5020*a*, 5171*c*.

$C_{24}H_{12}Cl_2N_2O_2$ Anthraquinone, 2,4-dichloro - 1 - (2 - hydroxy - 1-naphthylazo)-, 3400*b*.

$C_{24}H_{12}Cl_2O_8S_2$ Dibenzo[*a*,*h*]pyrene - 7,14-diol, 2,9-dichloro-, disulfate, *di-Na salt*, 8417*e*.

$C_{24}H_{12}Cl_8O_4Si$ Silicic acid, tetrakis(dichlorophenyl) ester, 4631*e*.

$C_{24}H_{12}O_2$ Dibenzo[*a*,*h*]pyrene - 7,14-dione, P 2442*b*.

$C_{24}H_{12}O_8$ Perylenetetracarboxylic acid, *Na salt*, 7824*e*.

$C_{24}H_{12}O_{12}$ Apocrenic acid, 7617*c*.

$C_{24}H_{12}O_{16}$ Crenic acid, 7617*c*.

$C_{24}H_{13}ClO_2$ 7*H* - Benz[*de*]anthracen-7-one, 3-*o*-chlorobenzoyl-, P 868*d*, 3402*e*.

$C_{24}H_{13}N$ Coronenamine, 5020*c*.

$C_{24}H_{14}ClN_3O_7$ Benz[*a*]anthracene, chloro-, picrate, 2986*a*.

$C_{24}H_{14}O_2$ 7*H* - Benz[*de*]anthracen - 7 - one, 3-benzoyl-, P 868*c*, 3402*d*.

$C_{24}H_{14}O_3$ 1,4 - Anthracenedione, 2-hydroxy-3-(2-naphthyl)-(?), 1385*g*.
Benzoic acid, *o*-(fluoranthenylcarbonyl) , 7473*h*.
1,2 - Naphthalenedicarboxylic anhydride, 4,7-diphenyl-, 8885*f*.
1,4 - Phenanthrenequinone, hydroxynaphthyl-, 1385*g*.

$C_{24}H_{14}O_4$ Benzenediacrylic acid, dihydroxy-θ,θ'-diphenyl-, di-δ-lactone, 7017*df*.

$C_{24}H_{14}O_8S_2$ Dibenzo[*a*,*h*]pyrene - 7,14-diol, disulfate, *di-Na salt*, 8417*e*.

$C_{24}H_{15}Cl_3$ Benzene, 1,3,5 - tris(*p*-chlorophenyl)-, 451*a*.

$C_{24}H_{15}NO_3$ Benzamide, *N* - (7 - oxo - 7*H*-benz[*de*]anthracen-6-yl)-, 1760*c*.

$C_{24}H_{16}N_2O_2$ 2,6'-Biquinoline, 2'-(*p*-nitrophenyl)-, 3000*i*.

$C_{24}H_{16}N_4O_6$ Acenaphthylene, 1-phenyl-, trinitrobenzene compd., 1389*c*.

$C_{24}H_{16}N_4O_7$ Acenaphthylene, 1-phenyl-, picrate, 1389*c*.

$C_{24}H_{16}N_2S_2$ Lepidine, α,α - di - 2 - benzothiazolyl-, P 5807*h*.
Quinaldine, α,α - di - 2 - benzothiazolyl-, P 5807*h*.

$C_{24}H_{15}N_3O_7$ Phenanthridine, 6-(pyridyl)-, picrate, 7446*c*.

$C_{24}H_{15}N_3O_3$ 4(1*H*) - Quinolone, 1-(4-quinolyl)-(?), picrate, 5783*g*.

$C_{24}H_{16}$ Acenaphthylene, dimer, 2984*a*, 6486*c*.

$C_{24}H_{15}BrO_4S$ 2 - Naphthol, thiobis[6-bromo-, diacetate, 2600*b*.

$C_{24}H_{15}ClNO_3$ Quinaldic acid, ester with chlorobenzoin, 9072*d*.

$C_{24}H_{15}Cl_2O_4S$ 2 - Naphthol, thiobis[6-chloro-, diacetate, 2599*h*.

$C_{24}H_{15}Cl_2I_2O_4S$ Bis(*p*-chlorophenyl)iodonium sulfate, 268*fi*.

$C_{24}H_{15}N_3O_8S$ 2-Naphthol, thiobis[6-nitro-, diacetate, 2600*b*.

$C_{24}H_{16}N_2O_4$ Ketone, fluoranthenyl methyl, 2,4-dinitrophenylhydrazone, 7473*g*.

$C_{24}H_{16}N_4O_4S_2$ Azobenzene, 4,4'-bis(*p*-nitrophenylmercapto)-, 3802*i*.

$C_{24}H_{16}N_2O_6S_2$ 2,2' - Stilbenedisulfonic acid, 4 - (2*H* - naphtho[1,2]triazol - 2 - yl)-4'-nitro-, P 4474*h*.

$C_{24}H_{16}N_2O_{10}S$ Phthalamic acid, *N*-[7-hydroxy - 8 - (2 - hydroxy - 5 - nitro-3-sulfophenylazo)-1-naphthyl]-, P 8155*i*.

$C_{24}H_{16}N_4O_{11}S_2$ 2*H* - Naphtho[1,2]triazole-sulfonic acid, 2 - [4 - (4 - nitro - 2-sulfostyryl) - 3 - sulfophenyl]-, P 5964*h*, P 5965*bd*.

$C_{24}H_{16}N_4O_{14}S_4$ 2*H* - Naphtho[1,2]triazole-6,8 - disulfonic acid, 2-[4-(4-nitro-2-sulfostyryl)-3-sulfophenyl]-, P 5965*ac*.

$C_{24}H_{16}N_2O_8$ 2,3 - Naphthalenedicarboxaldehyde, bis(2,4 - dinitrophenylhydrazone), 8372*a*.

$C_{24}H_{16}O$ Furan, 2 - (10 - phenyl - 9-anthryl)-, 2199*b*.

$C_{24}H_{16}O_2$ 2 - Furanol, 5 - (10 - phenyl-9-anthryl)-, 2198*i*.

$C_{24}H_{16}O_2$ 9,10 - Ethanoanthracene - 11,12-dicarboxylic anhydride, 9,10-dihydro-9-phenyl-, 2983*g*.

$C_{24}H_{16}O_4$ 1,4 - Naphthalenediol, dibenzoate, 1371*k*.
Phenolnaphthalein, 2319*f*.

$C_{24}H_{17}BrS$ Thiophene, 2-(β-bromo-α-phenylstyryl)-5-phenyl-, 4746*f*.

$C_{24}H_{17}Cl_3N_2O_2$ Acetanilide, *p*,*p'* - (2,2,2 trichloroethylidene)bis[α,α,α - trichloro-, compd. with benzene, 6605*c*.

$C_{24}H_{17}NO$ Anthrone, 10-(2-methyl-4(1*H*)-quinolylidene)-, 2296*b*.
7*H* - Benz[*de*]anthracen - 7 - one, 6- *N*-methylanilino-, 1760*d*.
—, 6-*p*-toluidino-, 2984*f*.

$C_{24}H_{17}NO_2$ Isoquinaldic acid, ester with benzoin, 9072*f*.
Quinaldic acid, ester with benzoin, 9072*d*.

$C_{24}H_{17}N_3$ 2,6' - Biquinoline, 2' - (*p*-aminophenyl)-, 3000*i*.

$C_{24}H_{17}N_3OS_4$ 2(3*H*) - Thiazolethione, 3-allyl - 5 - [4,4 - bis(2 - benzothiazolyl) - 1,3 - butadienyl] - 4 - hydroxy-, P 4159*b*, P 8928*b*.

$C_{24}H_{17}N_3O_2$ Quinoline, 2 - [*p* - (*p* - nitrocinnamylideneamino)phenyl]-, 3000*h*.

$C_{24}H_{17}N_3O_4$ 5 - Pyrazolol, 3 - benzamido-1-benzoyl-, benzoate, 4272*i*.

$C_{24}H_{17}N_3O_6$ Acenaphthene, 1-phenyl-, trinitrobenzene compd., 1389*c*.
Fluoranthene, 1,3 - dimethyl-, compd. with 1,3,5-trinitrobenzene, 3401*e*.
Naphthalene, α-methylenebenzyl-, trinitrobenzene compd., 1388*i*, 1389*a*.

$C_{24}H_{17}N_3O_7$ Fluoranthene, 1,3-dimethyl-, picrate, 3401*e*.
Naphthalene, 2 - α - methylenebenzyl-, picrate, 1388*i*.

$C_{24}H_{17}N_3S_2$ 4 - Thiazoline, 3,4-diphenyl-2-(4-phenyl-2-thiazolylimino)-, 3819*g*.

$C_{24}H_{17}N_7O_7S_2$ 4,4' - Bithiazole, 2,2'-diamino-5,5'-diphenyl-, picrate, 2202*g*.

$C_{24}H_{18}$ Benzene, 1,3,5-triphenyl-, 1629*i*, 8223*i*.
Biphenyl, 3,3'-diphenyl-, 6185*i*.
Quaterphenyl, 1361*a*, 4242*i*, 5768*i*.
*p*-Terphenyl, 3-phenyl-, 611*b*.

$C_{24}H_{18}BaO_6 + 2H_2O$ 2-Indancarboxylic acid, 1,3 - dioxo-, Et ester, Ba deriv., 3398*b*.

$C_{24}H_{18}BrNO_3$ Cinchoninic acid, 6-bromo-2-(4-methoxytolyl)-3-phenyl-, 3825*gh*.

$C_{24}H_{18}O_6 + 2H_2O$ 2-Indancarboxylic acid, 1,3-dioxo-, Et ester, Ca deriv., 3398*a*.

$C_{24}H_{18}ClN$ Pyridine, 2-chloro - 5 - (triphenylmethyl)-, 3417*e*.

$C_{24}H_{18}Cl_2N_4O_4$ 3(?*H*) - Retenone, dichloro-, 2,4-dinitrophenylhydrazone, 2985*e*.

$C_{24}H_{18}CoN_2O_2$ Naphthol, [ethylenebis(nitrilomethylidyne)]di-, Co deriv., 1678*h*.

$C_{24}H_{18}CuN_2O_2$ Naphthol, [ethylenebis(nitrilomethylidyne)]di-, Cu deriv., 1678*h*, 4073*e*.

$C_{24}H_{18}HgO_2$ Mercury, bis(phenoxyphenyl)-, 4236*g*.

$C_{24}H_{18}MgO_8 + 2H_2O$ 2-Indancarboxylic acid, 1,3 - dioxo-, Et ester, Mg deriv., 3398*a*.

$C_{24}H_{18}N_2$ β - Hydromuconononitrile, α,δ-dicinnamylidene-, P 3848*a*.
Quinoxaline, 2,3-distyryl-, 3812*e*.

$C_{24}H_{18}N_2NiO_2$ Naphthol, [ethylenebis(nitromethylidyne)]di-, Ni deriv., 1678*h*.

$C_{24}H_{18}N_2O$ 5(6*H*) - Phenanthridinecarboxamide, *N*-1-naphthyl-, 8305*g*.

$C_{24}H_{18}N_2O_3$ Quino[3,4-*b*]quinolin-12-ol, 10-ethoxy-6-phenyl-, 8393*a*.
Quinoxaline, m. 197.5°, 6608*e*.

$C_{24}H_{18}N_2O_3$ Azoxybenzene, 4,4'-bis[2-(2-furyl)vinyl]-, 3428*c*.
1,4-Naphthoquinone imine, 2-anilino-5-hydroxy- *N*-phenyl-, acetate, 200*i*.

$C_{24}H_{18}N_2O_4$ *p*-Quinone, dioxime dicinnamate, 5623*d*.

$C_{24}H_{18}N_2O_{10}$ Indigotin, 5,5',6,6' - tetrahydroxy-, tetraacetate, 628*a*.

$C_{24}H_{18}N_2$ Benzimidazole, 2,2'-(*p*-phenylene divinylene)bis-, P 8174*c*.
Phenazine, 2-anilino - 2,5 - dihydro - 3-imino-5-phenyl-, 3932*b*.

$C_{24}H_{18}N_2OS_2$ Δ$^{3,\alpha}$-Benzothiazolineacetic acid, α-2-benzothiazolyl-3-methyl-, benzylidenehydrazide, 8292*c*.

$C_{24}H_{18}N_2O_2S_2$ Urea, 1-(2-benzamido-4-phenyl - 5 - thiazolyl) - 3 - benzoyl-2-thio-, 1401*e*.

$C_{24}H_{18}N_2O_6$ Ketone, 2-hydroxy 3 methoxy phenyl 1-naphthyl, 2,4-dinitrophenyl hydrazone, 205*d*.

$C_{24}H_{18}N_4O_4S_2$ Benzo[1,2,4,5]bisimidazole, 1,7 - dihydro - 2,6 - bis(*o* sulfoxyaryl)-, *di-Na salt*, P 8174*b*.

$C_{24}H_{18}N_4O_8$ Formic acid, azodi , dibenzyl *p* phenylene ester, P 4293*f*.

$C_{24}H_{18}N_4O_8S_2$ 1-Phenol-3-sulfonic acid, 4,4'-(*p*-biphenylenebisazo)di-, *salts*, 2595*i*.

$C_{24}H_{18}N_4O_{10}S_2$ Benzenesulfonic acid, 5,5'-(*p* - biphenylenebisazo)bis[2,4 dihydroxy-, *salts*, 2596*a*.

$C_{24}H_{18}N_4O_{12}S_2$ 1 - Naphthol - 3,6 - disulfonic acid, acetamido - ? - [*p* - (*p* nitrophenylsulfonyl)phenylazo]-, *di-Na salt*, P 4818*a*.

$C_{24}H_{18}N_6O$ Phenol, 2,4,6-tris(phenylazo)-, 2600*c*.

$C_{24}H_{19}N_3O_7$ Benzamidine, *N* - phenyl *N'*-2-pyridyl-, picrate, 2594*a*.
Nicotinamidine, *N* - 2 - biphenylyl-, picrate, 7445*i*.
Picolinamidine, *N* - 2 - biphenylyl-, picrate, 7445*i*.

$C_{24}H_{18}N_4O_{14}$ 1,1' - Dimethyl - 2,2' - bipyridinium dipicrate, 1046*e*.

$C_{24}H_{18}O$ Furan, 2-(α-4-biphenylyl-styryl)-, 4746*g*, 7007*e*.

$C_{24}H_{18}OS$ Thiophene, 2 - [α - (*p* - phenoxyphenyl)styryl]-, 4746*g*.

$C_{24}H_{18}O_2$ 9 - Anthrol, 9 - (2 - furyl) - 9,10-dihydro-10-phenyl-, 2199*a*.
2-Butyne, 1,4-di-2-naphthoxy-, 7413.

$C_{24}H_{18}O_2S_2$ Biphenyl, 4,4' - bis(3 - methyl 2-thenoyl)-, 4666*f*.

$C_{24}H_{18}O_3$ 9,10 - Anthradiol, 9 - (2-furyl) 9,10 - dihydro - 10 - phenyl-, 2198*i*.
Cyclopropane, 1,2,3-tribenzoyl-, 6993*a*.
1,4 - Naphthoquinone, 2 - [2 - (4-biphenylyl)ethyl]-3-hydroxy-, 1379*f*.
—, 2-(2,2-diphenylethyl)-3-hydroxy-, 1379*c*.

$C_{24}H_{18}O_4$ 1,4 - Naphthoquinone, 2-hydroxy 3-*p*-phenoxyphenethyl-, 1379*g*, 2610*b*.
*p*-Quinone, phenyl-, compd. with phenylhydroquinone, 2182*b*.

$C_{24}H_{18}O_4S$ 2-Acetonaphthone, thiobis[1-hydroxy-, 2599*h*.
Naphthol, thiodi-, diacetate, 2599*hi*.

$C_{24}H_{18}O_4S_2$ 1,2 - Ethanediol, 1,2 - di-2-thienyl-, dibenzoate, 9063*f*.

$C_{24}H_{18}O_6$ Hydroquinone, 2,3-dibenzoyl-, diacetate, 7017*f*.
Phenolphthalein, diacetate, 2319*e*.

$C_{24}H_{18}O_7$ 6*H*,7*H*,8*H* - Bis[1]benzopyrano[4,3-*b*:3',4'-*e*]pyran - 7 - carboxylic acid, 6,8-dioxo-, Bu ester, 5399*i*; iso-Bu ester, 5399*e*.
Phthalide, 3-phenyl - 3 - (3,4,5-trihydroxyphenyl)-, diacetate, 2319*d*.

$C_{24}H_{19}O_6Br$ 2-Indancarboxylic acid, 1,3-dioxo-1 Et ester, Sr deriv., 3398*b*.

$C_{24}H_{18}S$ Thiophene, 2-(α-4-biphenylylstyryl)-, 4666*f*.

Thiophene, 2-phenyl-5-(α-phenylstyryl)-, 4746f.

$C_{19}H_{18}AsNO_7$ Pyridine, 2-diphenylarsino-, monomethopicrate, 1046c.

$C_{19}H_{19}BrN_2O$ Benzimidic acid, *N* - (6-bromo - 2,4 - xylyl)-, 8-quinolyl ester, 1777h.

$C_{19}H_{19}BrO_2$ 2,4 - Pentanedione, 3-benzoyl-3-bromo-1,5-diphenyl-, 7909i.

$C_{19}H_{19}BrO_4$ Phenol, *p*,*p*' - (β - bromostyrylidene)di-, diacetate, 7469h.

$C_{19}H_{19}ClO_2$ Furan, 2-chloro-5-(triphenylmethoxymethyl)-, 7015a.

$C_{19}H_{19}ClO_4$ 1 - Indancarboxylic acid, 2-benzhydryl - 2 - chloro - 1 - hydroxy-3-oxo-, Me ester, 1384f.

$C_{19}H_{19}Cl_2N_3O_8$ 3-Retenol, 2,9-dichloro-, picrate, 2985e.

$C_{19}H_{19}N$ Pyridine, 3-(triphenylmethyl)-, 3417e.

$C_{19}H_{19}NO$ 2-Naphthol, 1-(α-tolyliminobenzyl)-, 3000a.

1,2 - Pentadien - 4 - yn - 3 - ol, 1 - *N*-methylanilino-1,5-diphenyl-, 3000c.

3-Penten-1-yn-3-ol, 1,5-diphenyl-5-tolylimino-, 2999i.

2 Pyridol, 5-triphenylmethyl-, 3417c.

4(1*H*)-Pyridone, 2,6-diphenyl-1-tolyl-, 3000a.

$C_{19}H_{19}NO_3$ Cinchoninic acid, 2-(4-methoxytolyl)-3-phenyl-, 3825g*h*.

$C_{19}H_{19}NO_5$ Isacen, 2319f.

$C_{19}H_{19}NO_7S_2$ Metanilic acid, *N*-(1-hydroxy-2 - naphthoyl) - 4 - *m* - tolylsulfonyl-, 7232b.

$C_{19}H_{19}N_3$ Triazene, bis(biphenylyl)-, P 897*dh*.

$C_{19}H_{19}N_3O$ Pyrazine, 2,5-diphenyl-3-α-phenylacetamido-, 7487g.

Quino[3,4 *b*]quinoline, 12 - amino - 10-ethoxy 6-phenyl-, 8393c.

$C_{19}H_{19}N_3O_7$ Biuret, 1-(4-biphenylyl)-5-(naphthyl)-, 7446i, 7447a.

Biuret, 5 - (naphthyl) - 1,1 - diphenyl-, 7447*ab*.

Dibenzo[*a*,*c*]phenazine, 7 isopropyl-1-methylnitro-, 4252d, 7470*h*.

$C_{19}H_{19}N_3O_8$ Naphthalene, α-methylbenzyl-, trinitrobenzene compd., 1388i, 1389a.

$C_{19}H_{19}N_3O_7$ Naphthalene, α-methylbenzyl-, picrate, 1388i, 1389a.

$C_{19}H_{19}N_3O_{11}S_2$ Benzoic acid, 2-acetamido-4-(4-amino - 3,6 - disulfo - 1 - anthraquinonylamino)-, Me ester, P 5197c

$C_{19}H_{19}N_3O_2P$ Pyridine, 2-(diphenylphosphino)-, monomethopicrate, 1046b

$C_{19}H_{19}N_4NiO$ Phenol, *o*-(α-phenylhydrazonobenzylazo)-, Ni complex, pyridine addn. compd., 6589f.

$C_{19}H_{19}N_2O_7$ 1 - Naphthaleneacetamidine, *N*-phenyl-, picrate, 7444h.

2-Naphthamidine, *N*-o-tolyl-, picrate, 7444g.

$C_{19}H_{19}N_3O_{10}$ Histidine, compd. with 2-nitro 1,3-indandione, 69i.

$C_{19}H_{19}N_3O_8$ Salicylic acid, amino[4-[*p* (3-carboxy - 4 - hydroxyphenylazo)-phenylazo] 5 - hydroxy - 3 - methoxy - 1 - pyrazolyl]-, P 4486f*i*.

$C_{19}H_{19}O_4P$ 2-Biphenylyl phenyl phosphate, P 8209b.

$C_{19}H_{20}$ 2-Butene, 1,1-di-1-naphthyl-, P 7188a.

1,3 - Cyclohexadiene, (4 - biphenylyl)-phenyl-, 611a, 6185i, 6186a.

$C_{19}H_{20}AlLi$ Aluminum, triphenyl-, complex with PhLi, 5758a.

$C_{19}H_{20}As_2N_2O_4S_2$ Benzenesulfonanilide, 4,4'' - arsenobis-, P 4817a.

$C_{19}H_{20}As_2O$ Bis(diphenylarsenic) oxide, 2592d.

$C_{19}H_{20}As_2S$ Bis(diphenylarsenic) sulfide, P 8732c.

$C_{19}H_{20}BLi$ Borine, triphenyl-, complex with PhLi, 5758a, 7449a.

$C_{19}H_{20}BrClO$ Acrylophenone, 3-bromo-β-(*p* - chlorophenyl) - 2,4,6 - trimethyl-α-phenyl-, 5773d.

$C_{19}H_{20}Ca_2La_2O_{20}$, 4969h.

$C_{19}H_{20}Ca_2Nd_2O_{20}$, 4969h.

$C_{19}H_{20}CuN_2O_2$ 2 - Naphthol, 1 - (methyliminomethyl)-, Cu deriv., 4073e.

$C_{19}H_{20}Ge$ Germane, tetraphenyl-, 6990c.

$C_{19}H_{20}N_2$ Benzidine, diphenyl-, 4549a, 6935e.

$C_{19}H_{20}N_2O$ Benzamide, *p*-benzylamino-*N*-1-naphthyl-, 1346h.

$C_{19}H_{20}N_2O_2$ [3,3' - Bi - 1 - naphthylamine], *N*,*N*'-diacetyl-, 1756b.

Cinchophen, 4' - methyl - 3 - toluidino-, 8392e.

$C_{19}H_{20}N_2O_2S$ 3(2*H*) - Thianaphthenone, 2-[2 - (dimethylaminophenyl) - 2 - hydroxy-3(2*H*)-indolylidene]-, 6615e.

$C_{19}H_{20}N_2O_3$ Cinchophen, 3-*p*-methoxyanilino-4'-methyl-, 8392d.

Cinchophen, 3-*p*-phenetidino-, 8391f.

$C_{19}H_{20}N_2O_6S_2$ 2,6 - Anthraquinonedisulfonic acid, 1 - amino - 4 - (1,2,3,4 - tetrahydronaphthylamino)-, P 6164*h*.

$C_{19}H_{20}N_2S_2Zn$ 3 - Biphenylthiol, 2-amino-, Zn deriv., P 1438e.

$C_{19}H_{20}N_2O_2$ Quinoline, 3-isopropoxy-2-phenyl-, picrate, 227i.

Quinoline, 2-phenyl - 3 - propoxy-, picrate, 227i.

$C_{19}H_{20}N_4$ Toluene, α - naphthylazo-α-*p*-tolylhydrazono-, 4261*hi*.

Toluene, α - 1 - naphthylhydrazono-α-*p*-tolylazo-, 4261i.

$C_{19}H_{20}N_4O_2$ Ketone, methyl 5-(phenoxymethyl) - 1 - phenyl - 3 - phenylazo-4-pyrazolyl, 4258c.

$C_{19}H_{20}N_4O_4$ 2 - Cyclohexen - 1 - one, 3-(biphenylyl)-, 2,4 - dinitrophenylhydrazone, 610i, 6185*h*.

$C_{19}H_{20}N_4O_8$ Phthalic acid, 2 - (4,5,8 - triamino - 1 - anthraquinonylamino)-ethyl ester, P 1986f.

$C_{19}H_{20}N_4O_2$ *o* - Toluamide, *N*,*N*'-piperonylidenebis[5-nitro-, 3812c.

$C_{19}H_{20}N_4O_6S_2$ 1 - Naphthol - 3 - sulfonic acid, 6 - (6 - aminobenzamido) - 2 - (2-methoxy - 5 - sulfophenylazo)-, P 7700*h*.

$C_{19}H_{20}N_4O_{10}S_2$ 1 - Naphthol - 3,6 - disulfonic acid, 8 - (3,8 - diacetamido - 4-hydroxy - 1 - naphthylazo)-, 4467i.

$C_{19}H_{20}N_4O_6S$ Salicylic acid, 5-[4 - [4 - (*p*-aminobenzamido) - 3 - sulfophenylazo] - 5 - hydroxy - 3 - methyl-1-pyrazolyl]-, P 857*h*.

$C_{19}H_{20}N_2O_2Sn$ Hydroxylamine, *N*-nitroso-*N*-phenyl-, Sn deriv., 2488g.

$C_{19}H_{20}O$ Indone, 1-*p*-cumyl-2-phenyl-, 208c.

$C_{19}H_{20}OSb_2$ Bis(diphenylantimony) oxide, 3696d.

$C_{19}H_{20}O_2$ 2,4 - Pentanedione, 3-benzoyl-1,5-diphenyl-, 7909h.

$C_{19}H_{20}O_4$ 9-Anthracenecrotonic acid, 10-(2 - furyl) - γ - hydroxy-, Et ester, 4252f.

Coumarin, benzyl - 7 - (benzyloxy)-8-hydroxy-4-methyl-(?), 3823c.

—, 6,7 - bis(benzyloxy) - 4 - methyl-, 3823c.

Phenol, *p*,*p*' - styrylidenedi-, diacetate, 7469g.

Umbelliferone, benzyl - 6 - (benzyloxy)-4-methyl-(?), 3823c.

$C_{19}H_{20}O_4Se$ 1,9(2*H*,6*H*) - Phenoxaselenindione, 3,4,7,8 - tetrahydro - 3,7-diphenyl-, 10-oxide, 7479c.

$C_{19}H_{20}O_4Si$ Phenyl silicate, 4631*d*, 5737*i*

$C_{19}H_{20}O_5$ Flavone, 7-(benzyloxy)-5,8-dimethoxy-, 639e.

$C_{19}H_{20}O_6$ 6,12 - Chrysenediol, 2,8-dimethoxy-, diacetate, 3402*h*.

1,4 - Ethanonaphthalene - 5,6,9,10-tetracarboxylic dianhydride, 8-(*p*-ethylphenyl) - 1,4,4a,5,6,7 - hexahydro-, 206d.

—, 1,4,4a,5,6,7 - hexahydro - 3 - methyl-8-*p*-tolyl-, 206e.

Flavone, 7-(benzyloxy) - 5 - hydroxy-3,4'-dimethoxy-, 227*a*, 5398*b*.

Glycerol, tribenzoate, 5367e.

*o* - Terphenyl - 4,4',4'' - triol, triacetate, 4655f.

$C_{19}H_{20}O_7$ Acetophenone, 2,6-dihydroxy-, dianisate, 3414*h*.

Primitin, 7 - (benzyloxy) - 3,4' - dimethoxy-, 227*b*.

$C_{19}H_{20}O_8$ Acetic acid, bis(4-hydroxy-2-oxo - 1,2*H* - benzopyran - 3 - yl)-, Bu ester, 5399e; iso-Bu ester, 5399e.

Acetic acid, bis(4-methoxy-2-oxo-1,2*H*-benzopyran-3-yl)-, Et ester, 5390f.

$C_{19}H_{20}Pb$ Lead, tetraphenyl-, 560*a*, 1717e, 8704e.

$C_{19}H_{20}S$ Thiophene, 2,5-dimethyl-4-(α-2-naphthylstyryl)-, 4746f.

$C_{19}H_{20}SSb_2$ Bis(diphenylantimony) sulfide, P 8732c.

$C_{19}H_{20}Si$ Silane, tetraphenyl-, 124e, 8764e.

$C_{19}H_{20}Sn$ Tin, tetraphenyl-, 8764e.

$C_{19}H_{21}ClN_{10}O_{16}S$ Vitamin $B_1$, dipicrate, 3902d.

$C_{19}H_{21}ClN_{10}O_{16}S$ Styphnic acid, compd. with vitamin $B_1$, 3902b.

$C_{19}H_{21}Cl_2NO$ Benz[*a*]anthracene - 7 - acetamide, *N*, *N* - bis(2 - chloroethyl)-, 621d.

$C_{19}H_{21}N$ Acrylonitrile, α,β-diphenyl-β-(2,4,5-trimethylphenyl)-, 7007a.

$C_{19}H_{21}NO$ Acetophenone, α-(5-ethylphenyl-1-indolyl)-, 221a.

Acrylonitrile, α,β - diphenyl - β - *p*-propoxyphenyl-, 4746d, 7007a.

Ketone, 3,4 - dihydro - 1(2*H*) - quinolylmethyl 2-fluorenyl, 194c.

Quinoline, 2 - (6 - methoxy - 3,4 - xylyl)-3-phenyl-, 7924i.

$C_{19}H_{21}NO_2$ 2 - Fluoreneacetic acid, α-(*p*-dimethylaminobenzylidene)-, 7468d.

Hydroperoxide, triphenylmethyl, compd. with pyridine, -*HCl*, 6190a.

Isobutyric acid, α-cyano-β,β'-diphenyl-, benzyl ester, 3356*h*.

$C_{19}H_{21}NO_4$ Acetic acid, nitrilotri-, tri-Ph ester, P 5229f.

$C_{19}H_{21}NO_7$ Usnanilide, hydroxy-, 5445e.

$C_{19}H_{21}N_3OS$ 2 - Benzothiazoleacetanilide, α-(*p* - dimethylaminobenzylidene)-, 8292d.

$C_{19}H_{21}N_3O_3$ 7*H* - Cyclopenta[*b*]pyrazino[*d*]-pyridin - 5 - ol, 8,9 - dihydro - 2,3-diphenyl-, acetate, 9068i.

*s*-Triazine, 1,3,5 - tribenzoylhexahydro-, 657*f*, 1316e, 5405e.

$C_{19}H_{21}N_3O_4S$ 2 - Anthraquinonesulfonic acid, 1 - amino - 4 - (3 - *N* - methylacetamido - *p* - toluidino)-, P 4483g.

$C_{19}H_{21}N_3O_8S_2$ 2,7 - Anthraquinonedisulfonic acid, 4 - (3 - acetamido - 2,4 - dimethylanilino)-1-amino-, P 5197g.

$C_{19}H_{21}N_3O_{12}S_2$ Anthranilic acid, *N*-(4-amino - 3 - sulfo - 1 - anthraquinonyl)-5 - [methyl(2 - sulfoethyl)sulfamyl]-, P 7710c.

$C_{19}H_{21}N_3O_4S$ 2 - Naphthol - 4 - sulfonic acid, 1 - [4 - (4 - amino - 5 - methoxy - *o*-tolylazo) - 2 - hydroxyphenylazo]-, P 4482b.

$C_{19}H_{21}N_4O_3$ 3 - Retenamine, 4-nitro-, picrate, 7470f.

$C_{19}H_{21}N_7O_7$ Ketone, methyl 5-methyl-1-phenyl - 3 - phenylazo - 4 - pyrazolyl, *p*-nitrophenylhydrazone, 4258d.

$C_{19}H_{21}N_3O_{14}$ Imidazole, 2-(2-aminoethyl)-1-benzyl-, dipicrate, 3410*h*.

$C_{19}H_{21}NiO_2P$ Phosphine, tritolyl-, complex with nickel carbonyl, 6202e.

$C_{19}H_{22}As_2N_4O_4S_2$ Sulfanilanilide, 4',4'''-arsenobis-, P 4817a.

$C_{19}H_{22}As_2N_4O_6S_2$ Sulfanilanilide, 3',3'''-arsenobis[6'-hydroxy-, 6593e.

$C_{19}H_{22}BrClO_2$ Ethylene, 1-bromo-1-(*p*-chlorophenyl) - 2,2 - di - *p* - phenetyl-, 7469c.

$C_{19}H_{22}CaN_2O_6S_2$ Acetanilide, *p*-(2-pyrimidylsulfamyl)-, Ca deriv., P 7043de.

$C_{19}H_{22}ClNO_2S$ Carbamic acid, (benz[*a*]-anthracen - 7 - ylmethyl)-, 2-(2-chloroethylmercapto)ethyl ester, 621e.

$C_{19}H_{22}Cl_2N_2O$ Urea, 3-(benz[*a*]anthracen-7-ylmethyl) - 1,1 - bis(2 - chloroethyl)-, 621d.

$C_{19}H_{22}Cl_2N_2O_4$ Terephthal - *o* - anisidide, 4',4'' - dichloro - 5',5'' - dimethyl-, P 7695a.

$C_{19}H_{22}Cl_2N_2O_6$ Terephthalanilide, 5',5''-dichloro - 2',2'',4',4''' - tetramethoxy-, P 7695a.

$C_{19}H_{22}Cl_2N_2P_2$ Triphosphornitrile dianilide, dichlorodiphenyl-, 5365a.

$C_{19}H_{22}Cl_4N_2$ Bis(dichlorobenzyl)nicotinium dichloride, P 5152a.

$C_{19}H_{22}INO_2$ 5 - Benzyl - 7,8 - dihydro - 6-methyl - 7 - phenyl - 1,3 - dioxolo[*g*]-isoquinolinium iodide, 5027d.

$C_{19}H_{22}IN_3S_2$ 2 - [3 - Cyano - 5 - (3 - ethyl-2-benzothiazolinylidene) - 1,3 - pentadienyl] - 3 - ethylbenzothiazolium iodide, P 7842*h*, P 7844d.

$C_{19}H_{22}N_2O_4$ Quinoline, 6-methoxy-4-*p*-methoxyanilino-2-*p*-tolyl-, *and* - *HCl*, 3002f.

$C_{19}H_{22}N_2O_2S$ Benzamide, *N* - [1 - (benzylcarbamyl) - 2 - (benzylmercapto)-vinyl]-, 2990i.

2 - Indolinol, 2 - (dimethylaminophenyl)-3 - (3 - hydroxy - 2(3*H*) - thianaphthenylidene)-, 6615a.

$C_{19}H_{22}N_2O_3S_2$ 4 - Thiazolidone, 3-ethyl-5-[2 - (3 - ethyl - 2 - oxazolidinylidene)-ethylidene] - 2 - (3(2*H*) - thianaphthenylidene)-, P 4164e.

$C_{19}H_{22}N_2O_2S$ 2 - Naphthamidine, *N* - *o*-tolyl-, benzenesulfonate, 7444g.

$C_{19}H_{22}N_2O_4$ Succinimide, *N* - [4 - amino-2,5-bis(benzyloxy)phenyl]-, P 4165g.

Thymoquinone, dioxime dibenzoate, 5623e.

$C_{19}H_{22}N_2O_5S$ α - (*p* - Acetamidobenzylidene)-5 - (2 - carboxyvinyl) - 6 - hydroxy-1-methylquinaldinium methyl sulfate, 7028d.

$C_{19}H_{23}N_4O_2P_2$ 1,3,2,4 - Diazadiphosphetidine, 2,4 - dianilino - 1,3 - diphenyl-, tide, 3354f.

— 2,2' - Bibenzothiazole, 6,6'-(α - acetylacetamido) - 5,5' - dimethoxy-, 5776h.

*p*-Toluic acid, α-anisoyl-, Et

ester, 2,4-dinitrophenylhydrazone, 4655*a*.

$C_{24}H_{22}N_4O_8S$ Quinoline, 3-butyl-6-methyl-2-(2-thienyl)-, picrate, 2285*b*.

$C_{24}H_{22}N_4O_8$ Acetamide, *N, N'* - *p* - phenylenebis[*N* - methyl - *α* - (*p* - nitrophenoxy)-, P 860*a*.

Bicarbamic acid, dibenzyl *p*-phenylene ester, P 4293*d*.

3-Retenol, 9-amino-, picrate, 7471*d*.

$C_{24}H_{23}N_4P_2S_2$ 1,3,2,4 - Diazadiphosphetidine, 2,4 - dianilino - 1,3 - diphenyl-, 2,4-disulfide, 3353*b*, 3354*f*.

$C_{24}H_{22}O_3$ Naphthalene, 1,4-bis(benzyloxy)-5,8-dihydro-, 1371*h*.

$C_{24}H_{22}O_2S$ Sulfide, bis[2 (2-naphthoxy)-ethyl], 348*f*.

$C_{24}H_{22}O_4$ 9,10 - Ethanoanthracene - 11,12-dicarboxylic acid, 9,10-dihydro-, diallyl ester, P 2819*e*.

2,5 - Xylohydroquinone, *α,α'* - diphenyl-, diacetate, 7017*a*.

$C_{24}H_{22}O_4$ Phenol, 2-methoxy-4,4'-benzylidenedi-, diacetate, 8683*e*.

$C_{24}H_{22}O_5$ Benzoic acid, *p,p'* - (*p* - phenylenedioxy)di-, di-Et ester, P 7236*i*.

$C_{24}H_{22}O_{12}$ 3,3' - Biphenyldicarboxylic acid, 5,5',6,6' - tetrahydroxy-, di-Me ester tetraacetate, 8614*e*.

$C_{24}H_{23}AsO_2$ Propiophenone, *β,β'*-(phenylarsylene)di-, 8352*a*.

$C_{24}H_{23}BrO_4$ Butyrophenone, 3,4-bis(benzyloxy)-*α*-bromo-, P 4696*c*.

$C_{24}H_{23}ClN_2O_4$ Acridine, 9-benzylamino-6-chloro-2-methoxy-, lactate, P 698*f*.

$C_{24}H_{23}ClO_2$ Ethylene, 1-chloro-2,2-di-*p*-phenetyl-1-phenyl-, 7469*g*.

Ethylene, 2 - (*p* - chlorophenyl) - 1,1-di-*p*-phenetyl-, 7469*a*.

$C_{24}H_{24}Cl_2N_2O$ Acridine, 3,6-dichloro-9-(*p*-diethylaminoanilino) - 2 - methoxy-, *di- HCl*, 6633*e*.

$C_{24}H_{23}IN_2S$ 3-Methyl-2-[3-(1-methyl-2(1 *H*)-quinolylidene) - 1 - cyclohexen - 1-yl]benzothiazolium iodide, P 4158*c*.

$C_{24}H_{23}NO$ 2(1 *H*) - Isoquinolineethanol, *α*-2-fluorenyl-3,4-dihydro-, -HCl, 194*c*.

$C_{24}H_{23}NO_2$ Acetophenone, *α,α'* - (*p* - ethylphenylimino)di-, 220*h*.

$C_{24}H_{23}NO_3$ Benz[*a*]anthracene - 7 - acetamide, *N, N* - bis(2 - hydroxyethyl)-, 621*c*.

Diphenanilic acid, isopropylmethyl-, 3815*h*.

$C_{24}H_{23}NO_3S$ Alanine, *N*-benzoyl-*β* (benzylmercapto)-*β*-phenyl-, Me ester, 1399*f*

$C_{24}H_{23}NO_3S$ Benzaldehyde, compd. with 1 - (*α* - aminobenzyl) - 2 - naphthol bisulfite, 3356*c*.

$C_{24}H_{23}N_3$ Acridine, 9 - (*p* - diethylamino phenyliminomethyl)-, 6631*f*.

$C_{24}H_{23}N_3O$ Compd., m. 124–5°, 9072*f*.

Nitrone, *α* - 9 - acridyl - *N* - (*p*-diethylaminophenyl)-, 6631*f*.

$C_{24}H_{23}N_3O_2$ Phenanthridine, 3,8 - diacetamido - 5,6 - dihydro - 5-methyl-6-phenyl-, P 2647*e*.

$C_{24}H_{23}N_3O_6$ Acetoacetanilide, *p* - (*p*-methoxybenzyl)-, 2,4 - dinitrophenylhydrazone, 645*i*.

$C_{24}H_{23}N_3O_7$ Piperidine, 1 - *N* - phenylbenzimido-, picrate, 2594*a*.

3,4-Retenediamine, picrate, 7470*g*.

$C_{24}H_{23}N_3O_{10}$ 2 - Isoindolinemalonic acid, *α* - 2 - formylethyl - 1,3 - dioxo-, di-Et ester, 2,4 - dinitrophenylhydrazone, 143*d*.

$C_{24}H_{24}$ Biphenyl, 4 - (3 - phenylcyclohexyl), 611*b*.

Styrene, trimer, 2966*h*.

$C_{24}H_{24}Br_2N_2O_3$ Barbituric acid, 5-allyl-1,3-bis(bromobenzyl)-5-isopropyl-, 9375*c*.

$C_{24}H_{24}Br_2N_4O_4$ Bis(*p*-nitrobenzyl)nicotinium dibromide, P 5152*a*.

$C_{24}H_{24}CaN_4O_4S_2$ Sulfanilamide, $N^1$ - (6-methyl - 2 - pyridyl)-, Ca deriv., P 3458*c*.

$C_{24}H_{24}ClN_3$ *α* - (3,6 - Dimethyl - 2 - phenylpyrimidylidene) - 1 - ethylquinaldinium chloride, 3930*f*, 7581*g*, P 8167*f*.

$C_{24}H_{24}ClN_3O$ Acridine, 3-chloro-9-(*p*-diethylaminoanilino) - 2 - methoxy-, *di- HCl*, 6633*g*.

$C_{24}H_{24}Cl_2N_2O$ Acetophenone, *p*-chloro-*α*-(*p*-chlorophenyl) - *α* - (*p* - diethylaminoanilino)-, *di- HCl*, 3369*d*.

$C_{24}H_{24}Cl_2N_2O_3$ Barbituric acid, 5-allyl-1,3-bis(chlorobenzyl) - 5 - isopropyl-, 9375*c*.

$C_{24}H_{24}Cl_2N_3P_3$ Triphosphornitrile tetraanilide, dichloro-, *and - HCl*, 5364*g*.

$C_{24}H_{24}Cl_2N_2$ Bis(*p* - chlorobenzyl)nicotinium dichloride, P 5152*a*.

$C_{24}H_{24}CuK_2N_{10}O_8S_2$, 7365*d*.

$C_{24}H_{24}CuN_{10}Na_2O_8S_2$, 7365*d*.

$C_{24}H_{24}INO_5$ Morphine, iodosalicylate, 3148*d*.

$C_{24}H_{24}IN_3$ *α* - (3,6 - Dimethyl - - phenyl-4(3 *H*) - pyrimidylidene) - 1 - ethylquinaldinium iodide, P 8167*e*.

$C_{24}H_{24}IN_3OS_2$ 3 - Ethyl - 2 - [[3 - ethyl - 5-(3 - ethyl - 2 - benzothiazolinylidene)-4 - oxo - 2 - thiazolidylidene]methyl]-benzothiazolium iodide, P 4161*f*.

$C_{24}H_{24}IN_3S$ 2 - [1 - Cyano - 3 - (1,3,3 - trimethyl - 2 - indolinylidene)propenyl]-3 - ethylbenzothiazolium iodide, P 7843*c*.

$C_{24}H_{24}K_2N_{10}NiO_8S_2$, 7365*d*.

$C_{24}H_{24}N_2$ Butyronitrile, *γ*-(benzylmethylamino) - *α,α* - diphenyl-, *and - HCl*, 9052*i*.

$C_{24}H_{24}N_2O_3$ Acetamide, *N, N'* - *p* - phenylenebis[*N*-benzyl-, 5386*d*.

3 - Buten - 1 - one, 1,3 - bis(*p* - methoxyphenyl)-, phenylhydrazone, 4640*b*.

$C_{24}H_{24}N_2O_3$ Urea, 3-(benz[*a*]anthracen-7-ylmethyl) - 1,1 - bis(2 - hydroxyethyl)-, 621*d*.

$C_{24}H_{24}N_2O_4$ Carbamic acid, (*p*-methoxy-*α*-phenylcarbamylphenethyl)-, benzyl ester, 7458*d*.

$C_{24}H_{24}N_2O_4S$ 2 - (2 - Anilinovinyl) - 3-ethylbenzoxazolium *p* - toluenesulfonate, P 2642*g*, P 4164*c*.

3 - Methyl - 2 - (2 - *p* - toluidinovinyl)-benzoxazolium *p* - toluenesulfonate, P 2642*g*.

$C_{24}H_{24}N_2O_4S_2$ 1 - Naphthoic acid, 5,6,7,8-tetrahydro - 4 - nitrothiol-, ethylene ester, 6192*i*.

$C_{24}H_{24}N_2O_{12}S$ Aniline, *p, p'*-sulfonyldi-, vitamin C deriv., 5541*c*.

$C_{24}H_{24}N_4$ *β* - Hydromuconononitrile, *α,δ*-bis-(*p* - dimethylaminobenzylidene)-, P 3848*a*.

$C_{24}H_{24}N_4O_2$ 2,5 - Piperazinedione, 3,6-bis(1-methyl - 3 - indolylmethyl)-, 1397*g*.

$C_{24}H_{24}N_4O_2S_3$ [$\Delta^{2,2',2'',3''}$ - Terthiazolidine]-2'',4,4',4'' - tetrone, 3,3',3'' - triethyl - 5 - (3 - ethyl - 2 - benzothiazolinylidene)-2'' thio-, P 4163*e*.

$C_{24}H_{24}N_4O_4$ Acetic acid, dianilpyryl-, 7477*a*.

$C_{24}H_{24}N_4O_6$ Acetophenone, *α* - (2 - ethyl-3-methoxyphenyl) - *p* - methoxy - 2,4-dinitrophenylhydrazone, 198*a*.

$C_{24}H_{24}N_4O_7$ Barbituric acid, 5 allyl - 5-isopropyl - 1,3 bis(*p* nitrobenzyl)-, 9375*c*.

$C_{24}H_{24}N_4O_{10} + 6H_2O$ Lysine, compd. with 2-nitro-1,3-indandione, 69*i*.

$C_{24}H_{24}N_4Si$ Silane, tetraanilino-, 4632*a*

$C_{24}H_{24}N_6$ Cyclopentanetrione, methyl-, tris(phenylhydrazone), 6987*i*

$C_{24}H_{24}N_6O_6S_4$ Succinanilide, *p, p'* - bis[(4 methyl - 2 - thiazolyl)sulfamyl]-, 3846*g*.

$C_{24}H_{24}N_6O_{10}$ Arginine, compd with 2 nitro - 1,3 - indandione, 70*a*.

$C_{24}H_{24}N_{10}Na_2NiO_8S_2$, 7365*d*.

$C_{24}H_{24}O_2$ Benzophenone, benzyl - 3'-methoxy - 2,4,6 - trimethyl , 1865*i*.

Benzophenone, 2' - (*o* - methoxyphenyl)-2,3,5,6-tetramethyl-, 187*a*.

1 - Propanol, 2 - benzyl - 2,3 - diphenyl , acetate, 1350*h*.

$C_{24}H_{24}O_3$ Butyrophenone, 3,4 - bis(benzyloxy)-, P 4696*c*.

Hydracrylic acid, *α* - *p* - cumyl - *β,β*-diphenyl , 2085.

1,4 - Naphthoquinone, 2 - hydroxy - 3-[4 - (1,2,3,4 - tetrahydro - 2 - naphthyl)butyl]-, 1379*f*.

$C_{24}H_{24}O_9$ Usnic acid, diacetyl-, Et ether, 5445*f*.

$C_{24}H_{25}ClN_2O$ 1 - Benzylquinolinium chloride, compd. with *p*-phenetidine, 645*d*.

$C_{24}H_{25}ClN_2O_4S_2$ 1 - Ethyl - 2 - [3 - (3 - ethyl-2 - benzothiazolinylidene) - 2-methylmercaptopropenyl]quinolinium perchlorate, P 4159*i*.

$C_{24}H_{25}ClN_4$ Pyrimidine, 2-chloro-4,6-bis(*p*-dimethylaminostyryl)-, 3426*i*.

$C_{24}H_{25}ClO_3$ Ethanol, 2 - (*p* - chlorophenyl)-1,1 - di - *p* - phenetyl-, 7469*a*.

$C_{24}H_{25}NO$ Butyrophenone, *γ* - dimethylamino-*α,α*-diphenyl-, *- HCl*, 4244*e*; *and - HCl*, 9053*f*.

$C_{24}H_{25}NO_2$ Hydrocinnamic acid, *β*-benzhydrylamino-, Et ester, *and - HCl*, 9034*b*.

$C_{24}H_{25}NO_3S$ Acetamide, *N* - (durylsulfonyl)-*α,α*-diphenyl-, P 6886*b*.

$C_{24}H_{25}NO_4$ Diacetamide, *N* - (3 - hydroxy-7-isopropyl - 1 - methyl - 9 - phenanthryl)-, acetate, 7470*i*.

$C_{24}H_{25}NO$ *o* - Cresol, 4-(9-acridylamino)-*α*-diethylamino-, *di- HCl*, P 1068*f*, P 7516*d*.

$C_{24}H_{25}NO_3S$ Methanol, 2-benzothiazolylbis-(*p*-dimethylaminophenyl)-, 7475*i*, 7476*a*.

$C_{24}H_{25}N_3O_5$ Proline, 1-(*N*-carboxytryptophyl)-, benzyl ester, 4712*d*.

$C_{24}H_{25}N_3O_6$ 2 - Isoindolinemalonic acid, *α* - 2 - formylethyl - 1,3 - dioxo-, di-Et ester, phenylhydrazone, 143*d*.

$C_{24}H_{25}N_5O_2$ Pyrimidine, 4-*N*-methylanilino - 5 - nitro - 2 - (1 - piperidyl)-6-styryl-, 651*b*.

$C_{24}H_{26}$ Coronene, 1,2,2a,3,4,4a,6a,7,8,8a-,9,10,10a,12a - tetradecahydro (?), 5020*a*.

$C_{24}H_{26}Br_2N_2$ Dibenzylnicotinium dibromide, P 5152*a*.

$C_{24}H_{26}Br_2N_2S_2$ 1,1' - Tetramethylenebis[2-methylmercaptoquinolinium bromide], P 8926*f*.

$C_{11}H_{26}CaN_4O_4S_2$ Sulfamethazine, Ca deriv., 318*a*, P 7043*ce*.

$C_{24}H_{26}ClNO_2$ Benzyl(carboxymethyl)dimethylammonium chloride, *α*-phenyl-*p*-tolyl ester, 6977*f*.

$C_{24}H_{26}ClN_3O$ *o* - Cresol, 6-allyl - 4 - (7-chloro - 4 - quinolylamino) - *α* - 1-piperidyl-, P 7515*a*.

$C_{24}H_{26}ClN_3 + 3H_2O$ Benzo[*g*]quinazoline, 2 - *p* - chloroanilino - 4 - (2-diethylaminoethylamino)-, *di- HCl*, 2952*a*.

$C_{24}H_{26}Cl_2N_2O$ Ethanol, 1,2 - bis(*p* - chlorophenyl) - 2 - (*p* - diethylaminoanilino)-, *and - HCl*, 3369*e*.

$C_{24}H_{26}Cl_2N_6O_9$ Pyrimidine, 6-amino-4-*D*-glucosidamino - 5 - (2,5 - dichlorophenylazo)-, tetraacetate, 146*g*.

$C_{24}H_{26}CuN_{10}O_8S_2$, 7365*d*.

$C_{24}H_{26}IN_3S_2$ 4 - [2 - (6 - Dimethylamino)-3-ethyl - 2 - benzothiazolinylidene)ethylidene] 1,2,3,4 - tetrahydropyrido[2,1-*b*]benzothiazolium iodide, P 8294*c*.

3 - Ethyl - 2 - [3 - (3 - ethyl - 2 - benzothiazolinylidene) 4 - phenylimino - 2-butenyl] - 2 - thiazolinium iodide, 2529*i*.

3 - Ethyl - 2 - [3 - (3 - ethyl - 2 - thiazolylidene) - 4 - phenylimino - 1-butenyl]benzothiazolium iodide, 2530*d*.

$C_{24}H_{26}N_2O$ Acetamide, *N* - benzhydryl-*α*-(*α*-methylphenethylamino)-, P 677*i*.

Urea, 1,1 - diethyl - 3 - triphenylmethyl-, 4646*a*.

$C_{21}H_{26}N_2O_2$ Acetyl deriv., m. 142.5–3°, 4234*h*.

Compd., m. 143°, 4234*h*.

$C_{24}H_{26}N_2O_3$ Barbituric acid, 5-allyl - 1,3-dibenzyl-5-isopropyl-, 9375*c*

Butyranilide, 4-amino 2,5 bis(benzyloxy)-, P 4165*g*.

Isobutyranilide, 4 - amino - 2,5 - bis(benzyloxy)-, P 4165*g*.

Stearamide, *N* - (2 - acetoacetylamino ethyl)-, P 4289*c*.

$C_{24}H_{26}N_2O_3S$ Piperidine, 1-*N*-phenylbenzimido-, benzenesulfonate, P 2230*g*, 2594*b*, P 5038*e*.

$C_{24}H_{26}N_2O_4$ Carbanilic acid, 4 amino 2,5 bis(benzyloxy)-, Pr ester, P 4165*g*.

Neovomicine, desoxy-, acetate, 7946*d*.

$C_{24}H_{26}N_2O_4S$ Hydrocinnamanilide, *p* methoxy - *N* - methyl - *α* - *p* - tolylsulfonamido-, 7458*g*.

$C_{24}H_{26}N_2O_6$ Piperazine, 1,4 - diacetyl - 2,5-bis(4 - hydroxyphenyl)-, diacetate, 2602*f*.

$C_{24}H_{26}N_2O_{10}$ Indigotin, tetrakis(methoxymethoxy)-, 627*e*.

$C_{24}H_{26}N_4O$ 2-Pyrimidol, 4,6-bis(*p*-dimethylaminostyryl)-, 3426*h*.

$C_{24}H_{26}N_4O_4$ Acetamide, *N, N'* - *p* - phenylenebis[*α* - (*p* - aminophenoxy) - *N*-methyl-, P 859*e*.

$C_{24}H_{26}N_4O_7$ Isobutylamine, *N, N* - dimethyl-3,3-diphenyl-, picrate, 611*h*.

Propylamine, *N, N*,1 - trimethyl - 3,3-diphenyl-, picrate, 192*f*.

$C_{24}H_{26}N_4O_{12}$ Erythraline, tetrahydro-, picrate, 5545*e*.

$C_{24}H_{26}N_5O_7P$ Adenylic acid, dibenzyl ester, 2650*c*.

$C_{24}H_{26}N_6O_6$ Pyridine, 2 - (*N* - benzyl-*α*-diethylaminoacetamido)-, picrate, 5782*g*.

$C_{24}H_{26}N_7P_3$ Triphosphornitrile dianilide diamide, diphenyl-, 5365*b*.

$C_{24}H_{25}NO_5$ See *Glutamic acid, pteroyl-α-glutamyl-*.

$C_{24}H_{28}N_{10}NiO_8S_2$, 7365*d*.

$C_{24}H_{28}O_5$ Ethanol, 1,1-bis[*p* - (ethylmercapto)phenyl]-2-phenyl-, 7469*a*.

$_{26}O_3$ **Ketone**, 6-benzyl-4-methoxy-2,4-cyclohexadien-1-yl mesityl, 1861.

$_{26}O_3$ 3 - Cyclohexene - 1 - butyric acid, *p*-phenylphenacyl ester, 1878*a*.

, 4-Naphthoquinone, 2-hydroxy-3-(phenyloctyl)-, 1879*cf*, 2610*b*.

$_{26}O_4$ 3,7 - Decadiyne - 2,5,6,9 - tetrol, 2,9 - dimethyl - 5,6 - diphenyl-, 571*f*.

'henol, *p*,*p*' - (diethylideneëthylene)di-, dipropionate, P 823*g*, 2318*i*.

$_{26}O_5$ **Acetophenone**, *p* - (α,β - diethyl-*p*-hydroxystyryl) - α - hydroxy-, diacetate, 9056*d*.

- Indeneglyoxylic acid, 6-methoxy-2-(*p*-methoxyphenyl) - 3 - propyl-, Et ester, 1758*c*.

$_{26}O_6$ **Butyric acid**, γ,γ' - [ethylenebis-(phenylene)]bis[γ-oxo-, di-Me ester, 7004*c*.

$_{26}O_{10}$ **Glucoside**, 1-naphthyl, tetraacetate, 7928*c*.

$_{26}O_{12}$ **Glucoside**, [β - (*p* - hydroxyphenyl)-Δ$^{\alpha,\beta}$ - butenolide], tetraacetate, 4654*i*.

'anillic acid, ethylene ester, bis(Et carbonate), 4242*b*.

$_{26}O_{12}$ **Scopolin**, tetraacetate, 1770*f*.

$_{25}BrO_{11}S_2$ **Glucose**, 2,6 - ditosylacetobromo-, 1726*i*.

Glucosyl bromide, 3,4-diacetate 2,6-di-*p*-toluenesulfonate, 3368*b*.

$_{25}NO$ **Ethylamine**, 2 - (α,α' - diphenyl-2,6-xylyloxy) - *N*,*N* - dimethyl-, - *HCl*, 3386*e*.

ketone, decahydro - 1 - quinolylmethyl 2 fluorenyl, 194*i*

—, 2 fluorenyl octahydro - 1(2 *H*)-quinolylmethyl, 194*i*.

$_{25}NO_3$ 1 Naphthalenecarbamic acid, ester with 6-(1 cyclohexen - 1 - yl) - 4-methyl 5-hexyn 3-ol, 1337*b*.

$_{25}NO_3$ Cinchophen, 2' isoamoxy-3,4',5'-trimethyl-, 7924*i*.

$_{25}NO_4$ Benzoic acid, *p* - [β - (2,4,6-trimethylbenzoyl)acrylylamino]-, Bu ester, 7192*h*

$_{25}NO_5$ 3,5 Piperidinedicarboxylic acid, 1 methyl - 4 - oxo - 2,6 - diphenyl-, di-Et ester, *and* - *HCl*, 1410*d*.

$_{25}NO_6$ Phthalic acid, 3-nitro-, ester with 4 methyl-6-(2,6,6-trimethyl-1-cyclohexen 1-yl) 5-hexen - 1 yn - 3 - ol, 1338*a*.

$H_{27}NO_7$ Ketone, 4 hydroxy - 1 - methyl 1 - phenyl 3 - piperidyl phenyl, propionate, oxalate, 9050*i*.

$H_{27}N_3O_6S_3$ *s*-Triazine, hexahydro-2,4,6-tris(*p* tolylsulfonyl)-, 5995*f*.

$H_{27}N_6O_{10}P_2$ Adenosinediphosphoric acid, dibenzyl ester, 9040*c*.

$H_{28}N_2O_6$ Isoalloxazine, 10 - (2-d ethylammoethyl) - 8 - dimethylamino , picrate, 3008*b*

$H_{17}O_4P$ Xylyl phosphate, P 6002*c*

$H_{29}ClN_4O_2$ Theophylline, 8 chloro , compd. with 2-(benzhydryloxy)-*N*,*N*-dimethylethylamine, 6319*a*, 7193*a*, 9366*e*

$H_{29}N_2O$ Aniline, *p*,*p*' - anisylidenebis-[*N*,*N* dimethyl-, P 9432*g*.

Pyridine, 2 - [α - benzyl - α - (2 - dimethylaminoethoxy)phenethyl] , *and di HCl*, 2206*e*.

4 Quinolinemethanol, 6,7-dimethyl-2-phenyl - α - (1 - piperidylmethyl)-, *and salts*, 4675*c*

$H_{29}N_2O_2$ Creosol, α,α - bis(*p* - dimethylaminophenyl) P 9432*g*.

Guaiacol, 6 - [*p*,*p*' - bis(dimethylamino)-benzhydryl]-, P 9432*g*.

$H_{29}N_2O_3$ Compd., m. 123.5°, 4234*h*.

$H_{28}N_2O_4$ 1,8-Octanediamine, *N*,*N*'-dipiperonylidene-, 3379*e*.

$H_{27}N_3O_5$ 2 - Furanvaleric acid, 3,4-dibenzamidotetrahydro-, Me ester, 2988*a*.

$H_{28}N_2O_4S_2$ *p* - Toluenesulfonamide, *N*-propyl - *N*,*N*' - (4 - methoxy - *o*-phenylene)bis-, 6994*c*.

$N_2O_6$ Acetamide, *N*,*N*' - [1,2 - bis-(*p* - hydroxyphenyl)ethylene]bis[*N*-methyl-, diacetate, 614*f*.

$H_{28}N_2O_6S_2$ **Benzenesulfonamide**, *N*,*N*'-(2,5 - dimethoxy - *p* - phenylenediethylene)bis-, 3388*a*.

$H_{28}N_2O_2$ Crotonanilide, β,β'-(ethylenediimino)bis[*N*-methyl-, P 822*h*.

$H_{28}N_4O_7$ 4a(2 *H*) - **Phenanthreneëthylamine**, 1,3,4,10a - tetrahydro-*N*,*N*-dimethyl-, picrate, 4279*h*.

$H_{28}N_4O_9$ Picrate, m. 205–6°, 5545*g*.

Picrate, m. 216–19°, 5545*g*.

$C_{24}H_{28}N_4O_{13}$ Aquaticine, picrate, 8011*b*.

Senecionine, picrate, 9076*a*.

$C_{24}H_{28}N_4O_{13}$ Senkirkine, picrate, 3017*b*.

$C_{24}H_{28}N_6O_{14}$ Chondrosin, *p*-nitrophenylosazone, 5008*h*.

$C_{24}H_{28}N_2O_5$ Glutamic acid, pteroyl-α-glutamyl-, 1094*e*.

$C_{24}H_{28}N_2O_{14}$ 5,7 - Cyclooctadiene - 1,4 - diamine, *N*,*N*,*N*',*N*' - tetramethyl-, dipicrate, 591*g*.

$C_{24}H_{28}N_3P_3$ Triphosphornitrile diamide tetraanilide, 5365*b*.

$C_{24}H_{28}O_2$ 2 - Phenanthrenecarboxylic acid, 1 - allylidene - 7 - ethoxy - 2 - ethyl-1,2,3,4-tetrahydro-, Et ester, P 3849*d*.

$C_{24}H_{28}O_4$ Butyrophenone, α-4-hydroxycyclohexyl - *p* - methoxy-, benzoate, 2195*f*.

Crotonic acid, phenethyl ester, dimer, P 5792*i*.

Estradiol, 17-ethynyl-, diacetate, P 7978*i*.

5-Indanol, 2-(*p*-hydroxyphenyl)-1-propyl-, dipropionate, 1758*b*.

1,4-Naphthoquinone, 2-(4-cyclohexylcyclohexyl) - 3 - hydroxy-, acetate, 1376*f*.

4,4' - Stilbenediol, α,α' - diethyl-, dipropionate, 359*h*, 1113*f*, 2318*i*, 6605*g*, P 7048*c*

$C_{24}H_{28}O_5$ Acetophenone, *p* - (α,β - diethyl-*p*-hydroxyphenethyl) - α - hydroxy-, diacetate, 9056*d*.

2,4,10,12 - Tetroxadispiro[5.1.5.3]hexadecan - 7 - ol, 3,11 - diphenyl-, P 6656*g*.

$C_{24}H_{28}O_6$ Carbonic acid, ethyl ester, diester with α,α' - diethyl-4,4'-stilbenediol, P 2641*f*.

$C_{24}H_{28}O_6$ Bicyclo[4.2.0] - 2,4 - octadiene-7,8-diol, diacetate, dimer, 6196*h*.

2 - Naphthalenecaprylic acid, 1,3,4-trihydroxy-, triacetate, 1387*g*.

$C_{24}H_{29}ClN_2$ 2 - (*p* - Diethylaminostyryl)-1 - ethyl - 6 - methylquinolinium chloride, 3522*a*.

$C_{24}H_{29}NO$ 1 Hepten - 4 - one, 5,5 diphenyl - 7 - (1 - piperidyl)-, - *HCl*, 4244*f*.

1(2 *H*)-Quinolinecéthanol, α-2-fluorenyl-octahydro-, - *HCl*, 194*c*.

$C_{24}H_{29}NO_3S$ Cinchoninic acid, 6-methyl-3-nonyl-2-(2-thienyl)-, 228*d*.

$C_{24}H_{29}NO_4$ Isoquinoline, 1 - (3,4 - diethoxyphenyl) - 6,7 diethoxy - 3 - methyl-, *and* - *HCl*, 1423*i*

Perparine, *and* - *HCl*, 7027*g*.

$C_{24}H_{29}NO_3S$ Cyclohexanone, 3-methyl-, compd. with 1 - (α - aminobenzyl)-2-naphthol bisulfite, 3356*b*.

Estrone - 16 sulfonic acid, 1-methyl-, pyridine salt, 2214*h*.

$C_{24}H_{29}N_3O$ Quinoline, 4 - (4 - methoxy-α 1-piperidyl - *m* - toluidino) - 5,7 - dimethyl-, *di*-*HCl*, P 7515*h*.

$C_{24}H_{29}N_3O_3S$ Barbituric acid, 1,3-diethyl-5-[4 - (1 - ethyl - 3,3 - dimethyl - 2-indolinylidene) 2 - butenylidene]-2-thio , 4910*h*.

$C_{24}H_{29}N_5O_3$ Aniline, *N*,*N*' - diguanyl-2,2'-dimethyl - 4,4',4'' - methylidynetri-, carbonate, 5014*d*.

$C_{24}H_{29}N_5O_7$ Isoalloxazine, 10 - (4-diethylamino - 1 - methylbutyl) - 7 - (hexahydro - 5 - hydroxy - 2,4,6-trioxo-5-pyrimidyl)-8-methoxy-, 1781*b*.

$C_{24}H_{30}ClN_3O$ Acridine, 6-chloro-9-(4-diethylaminocyclohexylamino) - 2-methoxy-, 1485*b*, 8528*b*.

*o* - Cresol, 4 - (7 - chloro - 4 quinolylamino) - α - dibutylamino-, P 7514*i*.

, 4 - (7 - chloro - 4 - quinolylamino)-α-octylamino-, P 7515*f*.

$C_{24}H_{30}ClN_5$ Pyrimidine, 4 - *p* - chloroanilino-6 - (3 - diethylaminopropylamino)-2-methyl-5-phenyl-, P 6244*c*.

$C_{24}H_{30}ClN_3O_3$ + $H_2O$ Quinazoline, 4-*p*-chloroanilino - 2 - [3 - (1 - piperidyl)-propylamino]-, acetate, 2952*f*.

$C_{24}H_{30}CoK_4N_{12}O_6S_2$, 7365*f*.

$C_{24}H_{30}CoN_{12}Na_2O_6S_2$, 7365*f*.

$C_{24}H_{30}N_2O$ Acridanmethanol, α-(octahydro-1(2 *H*) - quinolylmethyl)-, - *HCl*, 234*d*.

$C_{24}H_{30}N_2O_2$ Acetamide, *N* - [1 - ethyl - 4-(4 - morpholinyl) - 2,2 - diphenylbutylidene]-, - *HCl*, 3391*h*.

$C_{24}H_{30}N_2O_3S$ Valine, β-(benzylmercapto)-*N* - (β - methoxy - *N* - phenylacetylalanyl)-, 4668*i*.

$C_{24}H_{30}N_2O_4$ Hydrocinnamic acid, α-(diethylaminomethyl) - β - hydroxy - α-methyl-, Et ester *p*-nitrobenzoate, *and* - *HCl*, 7643*g*.

$C_{24}H_{30}N_2O_7S$ Methyldesoxyvomicinium methyl sulfate, 7944*i*.

$C_{24}H_{30}N_2O_{11}$ Lactoside, (*p*-phenylazophenyl), 6919*f*.

$C_{24}H_{30}N_4$ Pyridine, 5 - [*p*,*p*' - bis(dimethylamino)benzhydryl] - 2 - dimethylamino-, 410*f*.

$C_{24}H_{30}N_4O$ Methanol, bis(*p*-dimethylaminophenyl)(6 - dimethylamino - 3-pyridyl)-, 409*i*.

$C_{24}H_{30}N_4O_4$ Acetophenone, *ar* - cyclohexyl-*ar* - isopropyl - *ar* - methyl-, 2,4-dinitrophenylhydrazone, 1339*i*.

$C_{24}H_{30}N_4O_6$ 3 - Indolepropanol, β-amino-, oxalate, 7020*b*.

$C_{24}H_{30}N_4O_7$ 4a(2 *H*) - Phenanthreneëthylamine, 1,3,4,9,10,10a - hexahydro-*N*,*N*-dimethyl-, picrate, 4279*i*.

$C_{24}H_{30}N_4O_8$ Quinoline, 1 - ethyldecahydro-4-(*p*-methoxyphenyl)-, picrate, 3418*i*.

$C_{24}H_{30}OSi_2$ Disiloxane, 1,1,1 - tribenzyl-3,3,3-trimethyl-, P 667*g*.

$C_{24}H_{30}O_2$ Acetoacetic acid, α,γ-di-*p*-cumyl-, Et ester, 1385*c*.

1,4 - Naphthoquinone, 2 - [2 - (4 - cyclohexylcyclohexyl)ethyl] - 3 - hydroxy-, 1109*c*, 1376*e*, 2610*b*.

—, 2 - [4 - (decahydro - 2 - naphthyl)-butyl] - 3 - hydroxy-, 1375*b*.

—, 2 - [3 - (decahydro - 2 - naphthyl)-propyl]-3-methoxy-, 1375*b*.

—, 2 - (2,2 - dicyclohexylethyl) - 3 - hydroxy-, 1374*h*.

$C_{24}H_{30}O_3Si_2$ Cyclotrisiloxane, 2,4,6-triethyl - 2,4,6 - triphenyl-, 2513*a*.

$C_{24}H_{30}O_4$ 1,4 *H* - Benzopyran - 6 - acrylic acid, 3 - decyl - 7 - hydroxy - β,2-dimethyl-4-oxo-, δ-lactone, 6621*i*.

3,7-Decadiene - 2,5,6,9 - tetrol, 2,9-dimethyl-5,6-diphenyl-, 571*g*.

2 - Phenanthrenecarboxylic acid, 1-allyl - 7 - ethoxy - 2 - ethyl - 1,2,3,4-tetrahydro - 1 - hydroxy-, Et ester, P 3849*c*.

Phenol, *p*,*p*' - (1,2 - diethylethylene)di-, dipropionate, 359*h*, 2318*i*.

Sebacic acid, dibenzyl ester, 3678*a*, 5629*a*.

$C_{24}H_{30}O_5$ Acetic acid, [3 - (4 - cyclohexylbutyl) - 1,4 - dihydro - 1,4 - dioxo-2-naphthoxy]-, Et ester, 1374*g*.

$C_{24}H_{30}O_6$ Estriol, triacetate, 3018*i*.

Phenol, *p*,*p*' - (1,2 - diethylethylene)di-, bis(Et carbonate), P 7048*d*.

β-Resorcil, 5,5'-diisoamyl-, 1037*f*.

$C_{24}H_{30}O_7$ Glucoside, [*p* - (α,β - diethyl-*p*-hydroxystyryl)phenyl], P 7048*a*.

$C_{24}H_{30}O_8$ Phenol, 4,4'-(1,2-diethylethylene)-di-, glucuronide, 2662*i*.

$C_{24}H_{30}O_{10}$ Propionic acid, β,β' - (4,4',-5,5',6,6' - hexamethoxy - 2,2'-biphenylene)di-, 191*d*.

$C_{24}H_{31}ClN_2$ 2 - [2 - (1 - Amyl - 2,5 - dimethyl - 3 - pyrryl)vinyl] - 1,6-dimethylquinolinium chloride, 3522*b*, 3930*c*.

1 - Amyl - 3 - [2 - (1,6 - dimethyl-2(1 *H*)-quinolylidene)ethylidene] - 2,5 - dimethyl - 3 - pyrroleninium chloride, 7581*f*.

$C_{24}H_{31}ClN_2O$ 2 - [2 - (1 - Amyl - 2,5 - dimethyl - 3 - pyrryl)vinyl] - 6-methoxy - 1 - methylquinolinium chloride, 3930*e*.

$C_{24}H_{31}ClN_2O_2$ Acridine, 2-chloro-9-(3-dibutylaminopropylamino) - 7 - nitro-, *di*-*HCl*, 7938*a*.

$C_{24}H_{31}Cl_2N_3O_4S_2$ 2,2' - [3 - (3 - Ethyl - 2-benzothiazolylidene) - 1,4 - pentadienylene]bis[3 - ethyl - 2 - thiazolinium perchlorate], 2530*e*.

3 - Ethyl - 2 - [3 - (3 - ethyl - 2 - thiazolidylidene) - 5 - (2 - thiazolin - 2 - yl)-1,4 - pentadienyl]benzothiazolium perchlorate, ethoperchlorate, 2530*h*.

$C_{24}H_{31}Cl_3O_2$ Ethane, 2,2 - bis(*p* - amoxyphenyl) - 1,1,1 - trichloro-, 9343*c*.

$C_{24}H_{31}NO$ Heptanone, diphenyl(1 - piperidyl)-, - *HCl*, 4244*d*; *salts*, 7467*d*.

3-Hexanone, 4-benzyl - 4 - phenyl - 6-(1-piperidyl)-, *and* - *HCl*, 4244*f*.

—, methyl - 4,4 - diphenyl - 6 - (1-piperidyl)-, 5860*d*; *and* - *HCl*, 4244*e*.

—, 6 - (methyl - 1 - piperidyl) - 4,4-diphenyl-, 9053*g*.

2(1 *H*) - Isoquinolinepropanol, α - cyclohexyl - 3,4 - dihydro - α - phenyl-, *and* - *HCl*, 9071*f*.

$C_{24}H_{31}NO_2$ Acetamide, *N*-cyclohexyl-*N*-2-hydroxyisobutyl - α,α - diphenyl-, P 2640*a*.

Acetic acid, diphenyl-, 2-cyclohexylaminobutyl ester, - *HCl*, P 2639*i*; 2 - cyclohexylamino - *tert* - butyl ester, - *HCl*, P 2640*a*.

Butyric acid, α,α-diphenyl-, ester with α - methyl - 1 - piperidineethanol, - *HCl*, 3392*c*; ester with 1-piperidinepropanol, - *HCl*, 3392*c*.
3 - Hexanone, 6 - (2,6 - dimethyl-4-morpholinyl) - 4,4 - diphenyl-, *and* - *HCl*, 9053*g*.
—, 6 - (4 - morpholinyl) - 4,4 - di - *o*-tolyl-, - *HCl*, 9053*h*.
3 - Octanone, 8 - (4 - morpholinyl)-4,4-diphenyl-, 9053*h*.
1 - Piperidinebutyric acid, γ - methyl-α,α - diphenyl-, Et ester, 4245*b*.
1 - Piperidinevaleric acid, α,α-diphenyl-, Et ester, - *HCl*, 4245*b*.
4 - Piperidinol, 1,3,5 - trimethyl - 2,6-diphenyl-, butyrate, *and* - *HCl*, 1410*e*.

**$C_{24}H_{31}NO_3$** Acetic acid, diphenyl-, 6-(4-morpholinyl)hexyl ester, - *HCl*, P 6673*f*.
4 - Morpholinebutanol, α - ethyl - β,β-diphenyl-, acetate, - *HCl*, 3391*d*.

**$C_{24}H_{31}NO_4$** Hydrocinnamic acid, α-(diethylaminomethyl) - β - hydroxy - α-methyl-, Et ester benzoate, *and* - *HCl*, 7643*g*.
Isoquinoline, 1 - (3,4 - diethoxybenzyl)-6,7 - diethoxy - 3,4 - dihydro-, 7027*i*.
4 - Piperidinol, 2,6 - bis(*p* - methoxyphenyl) - 1,3,5 - trimethyl-, acetate, *and* - *HCl*, 1410*f*.

**$C_{24}H_{31}NO_5$** 4 - Piperidone, 2,6-bis(3,4-dimethoxyphenyl) - 1,3,5 - trimethyl-, *and* - *HCl*, 1410*d*.

**$C_{24}H_{31}NO_5S$** Enanthaldehyde, compd. with 1 - (α - aminobenzyl) - 2 - naphthol bisulfite, 3356*c*.

**$C_{24}H_{31}NS$** Quinoline, 3 - decyl - 6 - methyl-2-(2-thienyl)-, 228*d*.

**$C_{24}H_{31}N_3$** Lepidine, 2-[benzyl(3-diethylaminopropyl)amino]-, 8300*a*.

**$C_{24}H_{31}N_3O$** Quinoline, 4 - (4 - diethylamino - 1-methylbutylamino) - 7 - phenoxy-, 2209*e*.

**$C_{24}H_{31}N_3O_4S$** 10 - Camphorsulfonic acid, 4-*o*-tolylazo - *o* - toluidine salt, 610*c*.

**$C_{24}H_{31}N_3O_5$** Strychnone, methoxymethylchanodihydro-, semicarbazone, 657*h*.

**$C_{24}H_{31}NaO_{12}$** 3 - Cyclopentene - 1,3 - dicarboxylic acid, 4 - hydroxy - 1 - methyl-5 - oxo-, di - Et ester, Na deriv., 6988*a*.

**$C_{24}H_{32}BrNO_3$** 1 - (2 - Benzhydryloxyethyl) - 1-(carboxymethyl)piperidinium bromide, Et ester, P 5046*a*.

**$C_{24}H_{32}ClNO$** Acridine, 6 - chloro - 9 - (2-dibutylaminoethylamino) - 2 - methoxy-, *di*- *HCl*, P 4703*i*.
Acridine, 6 - chloro - 9 - (3 - diethylamino - 1 - ethylisobutylamino) - 2-methoxy-, *di*- *HCl*, P 1068*a*.
—, 6 - chloro - 9 - (2 - diisobutylaminoethylamino) - 2 - methoxy-, *di* - *HCl*, P 4703*i*, P 4704*a*.
—, 6 - chloro - 9 - (4 - diisopropylaminobutylamino) - 2 - methoxy-, *di* - *HCl*, P 1067*g*.
—, 6 - chloro - 9 - (3 - diisopropylamino-1 - methylpropylamino) - 2 - methoxy-, *and di*- *HCl*, P 2242*c*.

**$C_{24}H_{32}Co_2N_{12}O_{10}$** 7856*e*.

**$C_{24}H_{32}N_2$** Butyronitrile, γ-dibutylamino-α,α-diphenyl-, 9052*g*.

**$C_{24}H_{32}N_2O$** Propionamide, *N* - (4 - dimethylamino - 1 - ethyl - 2,2 - diphenylamylidene)-, *and* - *HCl*, 3391*h*.

**$C_{24}H_{32}N_2O_2$** 4,4′ - Bi - *o* - cresol, 6,6′ - diallyl - α,α′ - bis(dimethylamino)-, *di*- *HCl*, P 4695*i*.
1,8 - Octanediamine, *N*, *N*′ - dianisylidene-, 3379*f*.
Propionanilide, *p*,*p*′ - (1,2 - diethylethylene)bis-, P 3464*e*.

**$C_{24}H_{32}N_2O_3$** Quinazoline, 1 - acetyl - 1,2,3,4-tetrahydro - 6 - methoxy - 3 - (4 - methoxy - *as* - pseudocumyl) - 5,7,8 - trimethyl-, 181*d*.

**$C_{24}H_{32}N_2O_4$** Ethanol, 2,2′ - [(5,5′ - diallyl-4,4′ - dihydroxy - 3,3′ - biphenylene)-bis(methyleneimino)]di-, P 4696*a*.
Hydrocinnamic acid, α - (diethylaminomethyl) - β - hydroxy - α - methyl-, Et ester *p* - aminobenzoate, - *HCl*, 7643*g*.
1,8-Octanediamine, *N*, *N*′-dipiperonyl-, *and di*- *HCl*, 3379*f*.

**$C_{24}H_{32}N_2O_{12}S$** Aniline, *p*,*p*′ - sulfonyldi-, *N*, *N*′-digalactoside, 1908*f*.

**$C_{24}H_{32}N_4O_2$** Propionanilide, *p*,*p*′-(azodipropylidene)di-, P 3464*d*.

**$C_{24}H_{32}N_4O_4$** 3 - Buten - 2 - one, 4 - (1,4,4a,5,-6,7,8,8a - octahydro - 2,5,5,8a - tetramethyl - 1 - naphthyl)-, 2,4 - dinitrophenylhydrazone, 8369*g*.
3,5,9,13 - Pentadecatetraen - 2 - one, 6,10,14 - trimethyl-, 2,4 - dinitrophenylhydrazone, 8369*e*.

**$C_{24}H_{32}N_4O_5S$** Isophthalamide, 5 - (*N*⁴ - acetylsulfanilamido) - *N*, *N*, *N*′, *N*′ - tetraethyl-, 4648*h*.

**$C_{24}H_{32}N_4O_{10}S$** Benzenesulfonamide, 2 - [1-(2,3 - dihydroxypropyl) - 1,2,3,4 - tetrahydro - 3,4 - dihydroxy - 2,2,4,7-tetramethyl-6-quinolylazo]-*N*-ethyl-3,-5-dinitro-, P 862*f*.

**$C_{24}H_{32}N_6O_{14}$** 1,4 - Cyclooctanediamine, *N*, *N*, *N*′, *N*′ - tetramethyl-, dipicrate, 591*g*.

**$C_{24}H_{32}N_{10}O_{14}$** Pyrimidine, 2 - (3 - diethylaminopropylamino) - 1,4,5,6 - tetrahydromethyl-, dipicrate, 4273*d*.

**$C_{24}H_{32}O_2$** Naphthalene, 2 - (4 - cyclohexylcyclohexyl) - 1,4 - dimethoxy-, 1377*c*.

**$C_{24}H_{32}O_3$** $\Delta^{6,8,20,22}$-Norcholadienic acid, 3 hydroxy - 21 - (hydroxymethylene)-, δ-lactone, P 7054*d*.
2 - Phenanthrenecarboxylic acid, 7-ethoxy - 2 - ethyl - 1,2,3,4 - tetrahydro - 1 - propyl-, Et ester, P 3849*d*.

**$C_{24}H_{32}O_4$** Estradiol, dipropionate, 1474*d*, 2698*e*, 3508*e*, 4776*f*, 5506*g*, P 6248*a*, 8481*g*.

**$C_{24}H_{32}O_5$** Abietic acid, compd. with maleic anhydride, 7719*c*.
Umbelliferone, 6 - lauroyl - 4 - methyl-, acetate, 6621*i*.

**$C_{24}H_{32}O_7$** Glucoside, [*p* - (α,β - diethyl - *p*-hydroxyphenethyl)phenyl], P 7048*a*.

**$C_{24}H_{32}O_8$** Lactone, compd. with *tert*-BuOH, P 4466*e*.

**$C_{24}H_{32}O_{10}$** Glucoside, thymyl, tetraacetate, 7923*b*.

**$C_{24}H_{33}AsCl_4N_2$** 3,4 - Xylidine, compd. with $AsCl_3$, 6899*h*.

**$C_{24}H_{33}IN_2O_3$** 6 *H* - Pyrido[3,2,1 - *jk*]carbazol-6 - one, 3 - *sec* - butylidene - 11b - (2-dimethylaminoethyl) - 1,2,3,5,11b,-11c - hexahydro - 1,8 - dihydroxy-, methiodide, 7947*i*.
6 *H* - Pyrido[3,2,1 - *jk*]carbazol - 6 - one, 11b - (2 - dimethylaminoethyl) - 1,2,-3,5,11b,11c - hexahydro - 1,8 - dihydroxy - 3 - (1 - methylpropenyl)-, methiodide, 7947*i*.

**$C_{24}H_{33}NO$** 3 - Hexanone, 6 - dipropylamino-4,4-diphenyl-, 9053*f*.
1 - Piperidinepropanol, α - butyl - α,β-diphenyl-, *and* - *HCl*, 9070*i*.

**$C_{24}H_{33}NO_2$** Acetic acid, diphenyl-, 2-(1-propylbutylamino)isopropyl ester, - *HCl*, P 2639*i*.
3 - Heptanol, 6 - dimethylamino - 4,4-diphenyl-, propionate, - *HCl*, 192*b*, 3391*c*.
1 - Naphthol, 1,2,3,4 - tetrahydro - 1-phenyl - 2 - (1 - piperidylmethyl)-, compd. with EtOH, P 5417*h*.

**$C_{24}H_{33}NO_2S_2$** Mesitol, $\alpha^1,\alpha^2$ - bis(butylmercapto)-, carbanilate, 7000*f*.

**$C_{24}H_{33}NO_3$** 3 - Heptanol, 6 - dimethylamino-4,4 - diphenyl-, ester with Et H carbonate, - *HCl*, 3391*c*.

**$C_{24}H_{33}NO_4$** $\Delta^{17}$ - Pregnene - 3(α),21 - diol - 11-one, 20-cyano-, 21-acetate, 7493*i*.

**$C_{24}H_{33}NO_5$** Acetamide, *N* - (3,4 - diethoxyphenethyl) - α - (3,4 - diethoxyphenyl)-, 7027*h*.

**$C_{24}H_{33}NO_6$** Benzamide, *N* - (3,4 - diethoxy-β - hydroxy - α - methylphenethyl)-3,4-diethoxy-, 1423*dh*.

**$C_{24}H_{33}NO_6S$** 5,6,7,8 - Tetrahydro - 5 - isobutyl - 4 - methoxy - 6,6 - dimethyl-1,3 - dioxolo[*g*]isoquinolinium *p*-toluenesulfonate, 2213*b*.

**$C_{24}H_{33}NO_6S$** Propylamine, 3-(ethylsulfonyl)-*N*, *N*,1 - trimethyl - 3,3 - diphenyl-, tartrate, 1367*b*.

**$C_{24}H_{33}N_3O_3$** 2,6 - Acetoxylidide, α,α′ - (butylimino)bis-, *and* - *HCl*, 1023*h*.

**$C_{24}H_{34}$** Octane, 2,7 - dimethyl - 2,7 - di - *p*-tolyl-, 5762*g*.

**$C_{24}H_{34}Cl_2N_2$** 1,8 - Octanediamine, *N*, *N*′-bis(chlorophenethyl)-, *di*- *H Br*, 3379*b*, P 3455*g*.

**$C_{24}H_{34}Cl_4O_4$** Phthalic acid, tetrachloro-, bis-(2-ethylhexyl) ester, P 4513*g*; dioctyl ester, P 4513*g*.

**$C_{24}H_{34}CuN_2O_2$** Camphor, [ethylenebis(nitrilomethylidyne)]di-, Cu deriv., 8222*a*.

**$C_{24}H_{34}N_2Na_2O_{12}S_2$** See *Promin*.

**$C_{24}H_{34}N_2O_2S$** Caprylic acid, γ-benzyl-γ-methyl-, 2 - benzyl - 2 - thiopseudourea salt, 2931*i*.

**$C_{24}H_{34}N_2O_3$** $\Delta^6$ - Pregnene, 3(β) - acetoxy - 21-diazo - 17 - methyl - 20 - keto-, 3831*a*.

**$C_{24}H_{34}N_2O_3S$** Cinchoninic acid, 2-butoxy-, 2 - [3 - (1 - piperidyl)propylmercapto]-ethyl ester, -

**$C_{24}H_{34}N_2O_4$** 1,4 - Piperazinediethanol, α,α′-bis(*o*-toloxymethyl)-, P 7046*b*.

**$C_{24}H_{34}N_2O_{10}$** Acid, 4324*a*.
Ethylenediamine, *N* - furfuryl - *N* - (*p*-methoxyphenyl) - *N*′, *N*′ - dimethyl-, disuccinate, 6588*d*.

**$C_{24}H_{34}N_2O_{12}$** Streptidine, octaacetyl-, 3367*c*; *di*- *H Br*, 1329*c*.

**$C_{24}H_{34}N_4O_4S_2$** Vitamin $B_1$, disulfide, P 4433*g*.

**$C_{24}H_{34}O$** 2 - Myristonaphthone, 9424*f*.

**$C_{24}H_{34}O_2$** Bibenzyl, α,α′,2,2′ - tetraethyl-3,3′-dimethoxy-, 197*g*.
*p*,*p*′ - Biphenol, 2,2′ - di - *tert* - butyl-6,6′-diethyl-, P 9428*b*.
1,4 - Naphthoquinone, 2 - methyl - 3-tridecyl-, 1380*h*.
Phenol, 2,2′ - butylidenebis[6 - *tert*-butyl-, P 7257*d*.

**$C_{24}H_{34}O_3$** $\Delta^4$-Choladienic acid, 3-keto-, P 3980*a*.
$\Delta^{1,3,5}$ - Cholatrienic acid, 3 - hydroxy - 1-methyl-10-normethyl-, 7494*f*.
Cyclohexaneacetic acid, 4-cyclohexyl-α-phenacyl-, Et ester, 1377*g*.
1-Cyclohexene-1-carboxylic acid, 2-[2,6-dihydroxy - 4 - (1,2 - dimethyloctyl)-phenyl]-4-methyl-, δ-lactone (omitted from abstr.), 8383*f*.
1,4-Naphthoquinone, 2-hydroxy-3-tetradecyl-, 1373*c*, 2610*b*.

**$C_{24}H_{34}O_4$** Bufalin, 2626*i*.
Corticosterone, desoxy-, propionate, P 1916*f*.
Hydrobenzoin, α,α′,2,2′-tetraethyl-3,3′-dimethoxy-, 197*f*.
Phthalic acid, bis(3,5-dimethylcyclohexyl) ester, 2962*i*.

**$C_{24}H_{34}O_5$** (See also *Dehydrocholic acid*.)
Corotoxigenin, cyclic hemiacetal, 4680*b*.
Norcholanic acid, 3,11,12-triketo-, Me ester, 3019*g*.

**$C_{24}H_{34}O_6$** Alloglaucotoxigenin, cyclic hemiacetal, 4680*a*.
Pregnane-3(α),21-diol-11,20-dione, 3-acetate 21-formate, 6212*g*.

**$C_{24}H_{34}O_7$** Estradiol, monoglucoside, P 1533*b*, P 2376*i*.

**$C_{24}H_{35}BrO_3$** $\Delta^5$-Pregnene, 3(β)-acetoxy-21-bromo-17-methyl-20-keto-, 3831*b*.

**$C_{24}H_{35}ClOSi$** Silane, chloro(dodecyloxy)diphenyl-, P 6430*e*.

**$C_{24}H_{35}ClO_3$** $\Delta^5$-Pregnene, 21-chloro-3(β)-hydroxy-17-methyl-20-keto-, 3(β) acetate, 3831*b*.

**$C_{24}H_{35}NO$** Benzhydrol, α-(3-dibutylaminopropyl)-, - *HCl*, P 5424*a*.
Dibutylamine, *N*-[3-(benzylphenoxypropyl]-, *and* - *HCl*, 3386*de*.
Diphenylamine, *p*-(dodecyloxy)-, 3386*g*.

**$C_{24}H_{35}NO_2$** 1,4-Naphthoquinone, 2-(10-diethylaminodecyl)-3-hydroxy-, 1382*c*.

**$C_{24}H_{35}NO_3$** Hydrosorbamide, *N*-[2,2 bis(3,4-dimethyl - 2,6 - dioxocyclohexyl)-ethyl]-, 4920*e*.

**$C_{24}H_{35}NO_7$** Trimethyl ester of acid, decomps 258–61°, 210*g*.

**$C_{24}H_{35}NO_8$** Bilianic acid, 6-amino-, 4323*i*.

**$C_{24}H_{35}NO_8S$** 1-Propanol, 3-[3-(1 piperidyl)-propylmercapto]-, benzoate citrate, 6184*c*.

**$C_{24}H_{38}$** Tetradecane, 1-(2-naphthyl)-, 1454*h*, 8888*f*, 9424*e*.

**$C_{24}H_{38}Cl_2O_4$** Phthalic acid, dichloro-, bis(2-ethylhexyl) ester, P 2817*f*.

**$C_{24}H_{38}Fe_2O_8Pb_3$** 2111*e*.

**$C_{24}H_{38}N_2$** Benzylamine, *p*,*p*′-ethylenebis[N-butyl-, *and di*- *HCl*, 3382*e*.
α,α′-Bi-*p*-tolidine, *N*, *N*′-diamyl-, *and di*- *HCl*, 3380*i*, 3381*a*.
1,8-Octanediamine, *N*, *N*′-diphenethyl-, *di*- *H Br*, 3379*c*, P 3455*e*.

**$C_{24}H_{38}N_2O_2$** 4,4′-Bi 2,6-xylenol, $\alpha^2,\alpha^2$-bis-(diethylamino)-, *di*- *HCl*, P 4696*a*.
1,6-Hexanediamine, *N*, *N*′ bis(*p*-methoxyphenethyl)-, *di*- *H Br*, P 3455*f*, *and di*- *H Br*, 3378*g*.
1,8-Octanediamine, *N*, *N*′-bis(*p*-methoxybenzyl)-, *and di*- *HCl*, 3379*f*.
Triethylamine, 2,2′′′-(4,4′-biphenylenedioxy)bis-, *and di*- *HCl*, 3381*e*.

**$C_{24}H_{38}N_2O_3S$** Dodecylamine, *N*-*p*-sulfanilylphenyl-, P 2637*g*.
Lauric acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.

**$C_{24}H_{38}N_4O_4$** 2-Butanone, 4-(decahydro-2,5,-5,8a-tetramethyl-1-naphthyl)-, 2,4-dinitrophenylhydrazone, 8369*h*.

**$C_{24}H_{38}O$** Phenol, tricyclohexyl-, 3-(1,2-di-

**$C_{24}H_{38}O_3$** 6 *H*-Dibenzopyran-1-ol, 3-(1,2-dimethylhexyl) - 7,8,9,10 - tetrahydro-6,6,9-trimethyl-, 8383*g*.
Vitamin A, butyrate, 5372*d*.

**$C_{24}H_{38}O_5$** Bisnor-5-cholenaldehyde, 3-acetoxy-, 6584*i*.

Cibleuic acid, 3,21-dihydroxy-, lactone, P 7976*d*.
—, 3-keto-, P 2244*d*, P 3980*c*.
Nor-4-cholenic acid, 3-keto-, Me ester, 4282*b*.
$\Delta^5$-Pregnene, 3(*β*)-hydroxy-17-methyl-20-keto-, 3(*β*)-acetate, 3831*c*.
$C_{24}H_{36}O_4$ 5-Androstene, 3(*β*),17-dihydroxy-16-methyl-, diacetate, 1429*h*.
$\Delta^{9,11}$-Cholenic acid, 3(*α*)-hydroxy-12-keto-3434*a*.
Norcholanic acid, 11,12-diketo-, Me ester, 3019*g*.
—, 3,9-epoxy-11-keto-, Me ester, 3019*g*.
Pregnane-20(*β*),21-diol-3,11-dione, acetonide, 6212*d*.
$C_{24}H_{36}O_5$ Testosterone, 17-(1,2,3-trihydroxypropyl)-, 20-acetate, P 4433*a*.
$C_{24}H_{36}O_{10}$ Glucoside, isoborneol-, tetraacetate, P 5428*b*.
Lauric acid, ester with vitamin C triacetate, P 3154*a*.
$C_{24}H_{37}ClO_4$ Phthalic acid, chloro-, bis(2-ethylhexyl) ester, P 2817*f*.
$C_{24}H_{37}Cl_3O$ Ether, octadecyl pentachlorophenyl, 5893*i*.
$C_{24}H_{37}NO_3S$ Acetamide, *N*,*N*-dicyclohexyl-*α*-[3-(3,4-methylenedioxyphenyl)-propylmercapto]-, P 1903*b*.
Spiro[androstane-3,2′-thiazolidine]-4′-carboxylic acid, 17-keto-, Et ester, 659*d*.
Spiro[pregnane-3,2′-thiazolidine]-4′-carboxylic acid, 20-keto-, 659*d*.
$C_{24}H_{37}NO_{14}$ Streptobiosaminide, methyl pentaacetyldihydro-, 3367*e*.
$C_{24}H_{37}N_3O_3$ $\Delta^4$-Pregnen-3-ol-20-one, acetate, semicarbazone, 1048*c*.
$C_{24}H_{37}N_3O_5$ Dehydrocholic acid, dilactam 7-oximino acid deriv., 4323*h*.
$C_{24}H_{37}N_7O$ Benzimidazole, 2-[4-(3-dibutylaminopropylamino)-6-methyl-2-pyrimidylamino]methoxy-, P 3854*c*.
$C_{24}H_{39}BaO_{20}$ Aldobionic acid, Ba deriv., 1324*a*.
$C_{24}H_{38}Br_2NO$ Palmitanilide, tribromo-*ω*-ethyl-, 3780*g*.
$C_{24}H_{40}Ge$ Germane, tricyclohexylphenyl-, 6990*a*.
$C_{24}H_{38}N_2OS$ Quinaldine, 4-(2-diethylaminoethylmercapto)-3-heptyl-7-methoxy-, 1416*b*, 1417*e*.
$C_{24}H_{38}N_2O_4S$ Camphorsulfonic acid, salt with tutocaine, 7642*c*.
$C_{24}H_{38}N_2Si_2$ Silane, (azodiphenylene)bis[triethyl-, 1737*d*.
$C_{24}H_{38}N_4$ Benzidine, *N*,*N*′-bis(2-diethylaminoethyl)-, *and tri-HCl*, 3381*g*.
$C_{24}H_{38}O$ Ether, butyl 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenyl, P 1801*e*, 5372*a*.
2-Myristonaphthone, 5,6,7,8-tetrahydro-, 9124*f*.
$C_{24}H_{38}O_2$ 5-Choleu-24-al, 3(*β*)-hydroxy-, 3433*a*.
2,7-Nonadien-5-yn-4-ol, 9-butoxy-3,7-dimethyl-1-(2,6′,6-trimethyl-1-cyclohexen-1-yl)-, P 1801*d*, 5373*d*.
$C_{24}H_{38}O_4$ $\Delta^{5,6}$ Androstene-3-*trans*-17-*trans*-diol, 17-valerate, P 1916*a*.
Bisnor-5-cholene, 3(*β*),22-dihydroxy-, 3-acetate, 3432*f*.
Cholenic acid, 3-hydroxy-, 3018*i*.
2,4,7-Nonatriene-1,6-diol, 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1-butyrate, 5372*c*.
$C_{24}H_{38}O_3Si$ Silane, tris(cyclohexyloxy)phenyl-, P 3657*b*.
$C_{24}H_{38}O_4$ 5-Allocholanic acid, 3(*β*)-hydroxy-7-keto-, 246*e*.
Cholanic acid, 3-hydroxy-11,12-epoxy-, 3018*i*.
—, 3-hydroxyketo-, P 702*a*, 4679*d*.
Cholenic acid, dihydroxy-, 1790*c*, 3018*i*, 3434*b*.
Norcholanic acid, 3-hydroxy-11-keto-, Me ester, 3019*g*.
Octoil, 435*g*, 3678*a*, P 4028*f*, 5628*b*, 6020*a*.
Phthalic acid, bis(1-methylheptyl) ester, 5629*b*; dioctyl ester, 5628*b*, 5629*b*, 9524*c*.
Pregnane-3(*α*),20(*β*),21-triol-11-one, 20,21-acetonide, 6212*c*.
$C_{24}H_{38}O_5$ Cholanic acid, dihydroxyketo-, 3019*g*, 4679*d*; *salts*, 269*d*.
Pregnane-3(*α*),17(*α*),20(*β*),21-tetrol-11-one, 20,21-acetonide, 6214*h*.
$C_{24}H_{38}O_6$ Phthalic acid, bis(5-ethoxyhexyl) ester, 9026*c*.
$C_{24}H_{38}O_{10}S$ Citric acid, sulfite, tri-Et ester, P 4853*d*, P 5796*d*.
$C_{24}H_{39}ClO$ Acetophenone, *α*-chloro-*p*-hexadecyl-, 6334*h*.
$C_{24}H_{39}ClO_2$ Stearic acid, (chlorophenyl)-, 9028*g*.
$C_{24}H_{39}NO$ Oleanilide, 8333*i*.
$C_{24}H_{39}NO_2$ Cycloheptadecanol, carbanilate, 6988*g*.
Isoandrosterone, 16-(diethylaminomethyl)dehydro-, 1429*e*.
Stearanilide, *θ*,*ι*-epoxy-, 8354*b*.
$C_{24}H_{39}NO_3S$ Spiro[androstane-3,2′-thiazolidine]-4′-carboxylic acid, 17*α*-hydroxy-, Et ester, 659*e*.
$C_{24}H_{39}NO_4$ Cassaine, 8101*b*.
$C_{24}H_{39}NO_5$ Acetic acid, nitrilotri-, tricyclohexyl ester, P 5230*a*.
$C_{24}H_{39}NO_7$ Bilianic acid, desoxy-, amino acid deriv., 4323*h*.
$C_{24}H_{39}NO_9$ 2-Cyclopentene-1-acetic acid, *α*-butyl-, 3-(1-pyrrolidyl)propyl ester, citrate, 1388*g*.
$C_{24}H_{39}NO_{14}$ Streptobiosaminide, methyl tetraacetyl-, di-Me acetal, 3367*e*.
$C_{24}H_{39}N_3O_3$ 2-Propanol, 1-diamylamino-3-(6-methoxy-8-quinolylamino)-2-methyl-, *and di-HCl*, P 254*f*.
2-Propanol, 1-diisoamylamino-3-(6-methoxy-8-quinolylamino)-2-methyl-, *and di-HCl*, P 254*f*.
$C_{24}H_{39}N_3O_3$ Allopregnan-3(*β*)-ol-20-one, semicarbazone, acetate, 6638*d*.
$C_{24}H_{39}N_3O$ *s*-Triazine, 1-(*p*-butoxyphenyl)-6-hendecyl-1,2,3,4-tetrahydro-2,4-diimino-, P 5216*h*.
$C_{24}H_{40}ClIN_2O_3S$ Stearanilide, chloroiodo-*p*-sulfamyl-, 1028*b*.
$C_{24}H_{40}ClNO_4$ 1-(1,2-Dihydroxypropyl)pyridinium chloride dicaprylate, P 5050*a*.
$C_{24}H_{40}HgO_2$ Phenylmercury stearate, 7734*d*
$C_{24}H_{40}INO_4$ 6-Decyl-5-ethoxy-5,6,7,8-tetrahydro-5-methoxy-6-methyl-1,3-dioxolo[g]isoquinolinium iodide, 2213*a*.
5-(Decyloxy)-6-ethyl-5,6,7,8-tetrahydro-4-methoxy-6-methyl-1,3-dioxolo[g]isoquinolinium iodide, 2213*a*.
$C_{24}H_{40}N_2$ Conessine, 1868*h*, 2327*d*, 3564*g*, 8101*a*.
Cyclohexanone, 4-cyclohexyl-, azine, 1377*e*.
Isoconessine, 1868*h*, 2327*d*.
Neoconessine, 1868*h*, 2327*d*.
$C_{24}H_{40}N_2O$ Oleamlide, *p*-amino-, P 4499*d*.
$C_{24}H_{40}N_2O_3S$ Benzimidazolesulfonic acid, 2-heptadecyl-, P 886*d*.
Oleanilide, *p*-sulfamyl-, 1028*b*.
$C_{24}H_{40}N_2O_{12}S_2$ Malonic acid, [ethylenebis(thioethylene)]bis[acetamido-, tetra-Et ester, P 7956*e*.
$C_{24}H_{40}N_2Si_2$ Hydrazobenzene, bis(triethylsilyl)-, 1737*e*.
$C_{24}H_{40}O_2$ Cholanic acid, P 7509*f*.
5-Cholene, 3(*β*),24-dihydroxy-, 3432*g*.
Ketene, 4-cyclohexylbutyl-, dimer, 2964*e*.
2,5,7-Nonatrien-4-ol, 9-butoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, P 1801*e*, 5373*e*.
Stearic acid, phenyl-, 2175*f*, 9028*e*.
$C_{24}H_{40}O_2S$ Stearic acid, *α*-phenylmercapto-, *Na salt*, P 1308*g*.
$C_{24}H_{40}O_3$ Androstane-3-*trans*,17-*trans*-diol, 17-valerate, P 1916*a*.
Lithocholic acid, 3018*i*, P 7509*g*.
8-Nonen-4-yne-3,6-diol, 1-*tert*-butoxy-3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 1339*d*.
$C_{24}H_{40}O_4$ (See also *Desoxycholic acid*.)
Chenodesoxycholic acid, 6298*a*, 7572*d*.
Cholanic acid, dihydroxy-, 3018*i*, 7572*c*.
2,5-Cresotic acid, *α*-hexadecyloxy-, *Na salt*, P 1064*a*.
Hyodesoxycholic acid, 7572*d*.
Ursodesoxycholic acid, 6298*a*.
$C_{24}H_{40}O_4S$ Stearic acid, *α*-(phenylsulfonyl)-, *and Ca salt*, P 1308*f*.
$C_{24}H_{40}O_5$ See *Cholic acid*.
$C_{24}H_{41}Cl_2NO$ Benzyl alcohol, dichloro-*α*-(dioctylaminomethyl)-, 5860*f*; *-HCl*, 5860*f*.
$C_{24}H_{41}Cl_2NO_3$ 4-[2-[2-[4-Chloro-5-hydroxy-2-(1,1,3,3-tetramethylbutyl)phenoxy]ethoxy]ethyl]-4-ethylmorpholinium chloride, 7924*a*.
$C_{24}H_{41}NO$ Stearanilide, P 3221*b*, P 7238*c*.
$C_{24}H_{41}NO_3$ Acetic acid, (2-dibutylaminoethoxy)phenyl-, hexyl ester, 2189*f*.
Stearic acid, anilinohydroxy-, P 2224*i*.
$C_{24}H_{41}NO_3S$ Palmitamide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.
$C_{24}H_{41}NO_5$ Maleic acid, 2-oleoylaminoethyl ester, P 4500*e*; 2-oleoylaminoethyl ester, *Na salt*, P 8713*a*.
$C_{24}H_{41}N_3O_3$ Lauramide, *N*-[(*p*-butoxyphenylguanyl)guanyl]-, P 5216*h*.
$C_{24}H_{41}O_3P$ *β*-Styrenephosphonic acid, bis(2-ethylhexyl) ester, P 7499*i*.
$C_{24}H_{42}Ca_2O_{23}$ Melibionic acid, Ca salt, compd. with CaO, 5744*e*.
$C_{24}H_{42}I_2N_2O_4$ Triethyl(2-hydroxyethyl)ammonium iodide, isophthalate, 1486*i*, 2191*d*; phthalate, 1486*i*, 2191*c*; terephthalate, 1486*i*, 2191*d*.
$C_{24}H_{42}I_2N_2O_6$ (2-Hydroxyethyl)trimethylammonium iodide, hemimellitate, 2191*d*; trimellitate, 1486*i*.
$C_{24}H_{43}NO$ Stearanilide, *p*-amino-, P 4499*c*.
$C_{24}H_{43}NO_2$ Malonamide, *α*-allyl-*N*,*N*′-dicyclohexyl-*N*,*N*′,*α*-triethyl-, P 3842*g*.
$C_{24}H_{43}NO_2S$ Myristic acid, *γ*,*γ*-dimethyl-, 2-benzyl-2-thiopseudourea salt, 2932*f*.
$C_{24}H_{43}NO_3S$ Stearamide, *N*-metanilyl-, P 5600*i*.
Stearanilide, *p*-sulfamyl-, 1028*b*.
$C_{24}H_{43}NO_5$ (See also *Enniatine*.)
Enniatine A, 3788*a*i.
Lauranilide, *p*-sorbitylamino-, P 4296*e*.
$C_{24}H_{42}O$ 1-Octadecanol, phenyl-, 9029*a*.
Phenol, *p*-octadecyl-, P 3222*a*.
$C_{24}H_{42}O_3$ Cycloheptanecarboxaldehyde, trimer, 6197*d*.
$C_{24}H_{42}O_3S$ Benzenesulfonic acid, dinonyl-, *Na salt*, P 3640*a*.
$C_{24}H_{42}O_4$ Adipic acid, bis(5-butoxy-2-pentenyl) ester, 9026*c*.
Ethanol, 2-[2-[2-[2-(octylphenoxy)-ethoxy]ethoxy]ethoxy]-, P 1177*f*.
Stearic acid, 2-hydroxyethyl ester, monoester with maleic acid, Na salt, P 8713*b*.
$C_{24}H_{42}O_7$ Stearic acid, ester with vitamin C, 3498*a*.
$C_{24}H_{44}AgO_2$ 22-Tricosynoic acid, Me ester, Ag deriv., 7414*h*.
$C_{24}H_{44}ClN_2O$ Benzyl(3-lauroylaminopropyl)-dimethylammonium chloride, P 2631*b*, P 4431*b*.
$C_{24}H_{45}NO_3S$ Benzaldehyde, compd. with 1-dodecylpiperidine bisulfite, 3355*i*.
$C_{24}H_{45}NO_5$ Maleic acid, 2-stearoylaminoethyl ester, P 4500*e*, P 8712*i*.
Succinic acid, 2-oleoylaminoethyl ester, *Na salt*, P 8713*b*.
$C_{24}H_{45}NO_6$ Acetic acid, dicyclohexyl-, 2-diethylaminoethyl ester, tartrate, P 2234*h*.
$C_{24}H_{44}BrN$ 4-(1-Butylamyl)-1-decylpyridinium bromide, P 696*e*.
1-Decyl(2-methyloctyl)pyridinium bromide, P 696*de*.
1-Hexyl-4-tridecylpyridinium bromide, P 696*e*.
$C_{24}H_{44}O_2$ Tetracosadienoic acid, 1580*i*.
Tricosynoic acid, Me ester, 7414*i*, 7415*a*.
$C_{24}H_{44}O_4$ Fumaric acid, didecyl ester, P 2764*i*.
Ricinoleic acid, Bu ester acetate, 6861*g*.
$C_{24}H_{44}O_6$ Sorbitan, monodleate, 8610*b*, P 8621*e*.
$C_{24}H_{44}O_7$ Sorbitan, monoricinoleate, P 5155*i*.
$C_{24}H_{44}I_2N_2$ (4,6-Dimethyl-*m*-phenylenediethylene)bis[triethylammonium iodide], 6591*e*.
$C_{24}H_{44}N_4O_7$ Margaramide, *λ*-hydroxy-*N*,*N*-bis(2-hydroxyethyl)-, tricarbamate, P 4690*h*.
$C_{24}H_{46}O_2$ Erucic acid, Et ester, 1843*a*, 5363*e*.
Stearic acid, cyclohexyl-, 2175*f*.
12,13-Tetracosanedione, 3791*i*.
7-Tetradecyne-6,9-diol, 6,9-diamyl-, 569*g*.
22-Tricosenoic acid, Me ester, 7414*f*.
$C_{24}H_{46}O_3$ Behenic acid, *γ*-ethyl-*ι*-oxo-, 3780*i*.
Lauric anhydride, 4241*c*.
Stearic acid, *α*-acetyl-*α*-ethyl-, Et ester, 7897*a*.
Tetracosanoic acid, 6-oxo-, 3366*g*.
$C_{24}H_{46}O_4$ Adipic acid, bis(3,5,5-trimethylhexyl) ester, 3678*a*.
Lauroyl peroxide, P 876*i*, P 905*a*, P 4023*c*, P 5584*c*, 7311*h*, P 8740*g*.
Thapsic acid, dibutyl ester, 4537*e*.
$C_{24}H_{46}O_4S$ Lauric acid, *α*,*α*′-thiodi-, P 3840*e*.
$C_{24}H_{46}O_6$ Adipic acid, bis(5-butoxyamyl) ester, 9026*c*.
Sorbitan, stearate, P 2712*h*, 6915*h*, 8610*b*, 9281*h*, P 9433*c*.
$C_{24}H_{46}O_7S$ Succinic acid, sulfo-, bis(3,7-dimethyloctyl) ester, *Na salt*, 6915*h*.
$C_{24}H_{47}IN_4O_3$ Acetic acid, iodo-, hexadecyl ester, compd. with hexamethylenetetramine, 4641*a*.
$C_{24}H_{47}NO$ Oleamide, *N*-hexyl-, 8353*h*.
$C_{24}H_{47}NO_3$ Stearamide, *θ*,*ι*-epoxy-*N*-hexyl-, 8354*b*.
$C_{24}H_{47}NO_7$ Galactoside, sphingosine-, 6267*d*.
$C_{24}H_{47}N_3O_2$ 2-Oxazolidinepropionamide, 2-imino-*N*-octadecyl-, *and -HCl*, P 252*g*.

$C_{24}H_{48}N_2$ 2-Imidazoline, 1-[2-(2-aminoethylamino)ethyl] - 2 - (8 - heptadecenyl)-, P 5180*e*.
$C_{24}H_{48}N_6$ Pyrimidine, 2-amino-4-[bis(6-diethylaminohexyl)amino]-, *and tetra-HCl*, P 4704*f*.
$C_{24}H_{48}N_{16}O_{48}S_{18}Zn_4W_{12}$, 1672*a*.
$C_{24}H_{48}O$ Cyclohexanol, 1-octadecyl-, 3366*a*.
$C_{24}H_{48}O_2$ (See also *Lignoceric acid*.)
Behenic acid, Et ester, 1843*a*.
—, *r*-ethyl-, 3780*h*.
Heneicosanoic acid, 18-propyl-, 3780*h*.
Stearic acid, λ-hexyl-, 3780*h*.
Tetracosanoic acid, 1182*g*, 1580*i*, 5611*e*.
12-Tetracosanone, 13-hydroxy-, 3791*h*.
Tricosanoic acid, methyl-, 4375*h*, 7901*b*.
$C_{24}H_{48}O_{12}$ Glucose, compd. with acetone, 7409*a*.
$C_{24}H_{49}Br$ Tricosane, 1-bromo-2-methyl-, 7901*a*.
$C_{24}H_{49}ClN_2O_3$ Triethyl[(2-hydroxyethylcarbamyl)methyl]ammonium chloride, myristate, P 6949*a*.
$C_{24}H_{49}NO$ Behenamide, *r*-ethyl-, 3781*a*.
Heneicosanamide, 18-propyl-, 3781*b*.
$C_{24}H_{49}NO_3$ Oleic acid, salt with 4-amino-4-methyl-2-pentanol, 3688*d*, 6885*f*.
$C_{24}H_{50}$ Octadecane, 9,10-dipropyl-, 107*h*.
Tetracosane, 1182*g*, 4841*c*.
Tetradecane, 7,8-diisoamyl-, 107*d*.
$C_{24}H_{50}BrN$ 2-Ethyl-1-hexadecyl-1-methylpiperidinium bromide, P 696*c*.
$C_{24}H_{50}Cl_2O_2Si$ Silane, dichlorobis(dodecyloxy)-, P 5033*h*, P 6430*e*.
$C_{24}H_{50}N_2O$ Isocaproamide, γ-amino-*N*-octadecyl-, P 3450*b*.
$C_{24}H_{50}N_2O_4$ Capric acid, piperazine salt, 235*d*.
$C_{24}H_{50}N_2O_4S$ Trimethyl(2-oleoylaminoethyl)-ammonium methyl sulfate, P 2008*g*.
$C_{24}H_{50}O$ Lignoceryl alcohol, 5947*d*.
1-Tetracosanol, 8609*i*.
1-Tricosanol, 2-methyl-, 7901*a*.
$C_{24}H_{50}OSe$ Dodecyl selenoxide, 6399*i*.
$C_{24}H_{50}O_2$ 12,13-Tetracosanediol, 3791*i*.
$C_{24}H_{50}O_3S_2$ 1-Dodecanesulfonic acid, ester with 1-dodecanethiol, 2572*e*.
$C_{24}H_{50}O_3Se$ Dodecyl selenone, 6400*a*
$C_{24}H_{50}S$ Dodecyl sulfide, P 7221*h*.
$C_{24}H_{50}Se$ Dodecyl selenide, 6400*a*.
$C_{24}H_{50}Te$ Dodecyl telluride, P 6820*b*.
$C_{24}H_{51}ClO_3Si$ Silane, chlorotris(octyloxy)-, P 6430*e*.
$C_{24}H_{51}NO_4S$ Acetone, compd. with 1-hexadecylpiperidine bisulfite, 3355*i*.
$C_{24}H_{51}NO_3S_2$ Didodecanesulfonamide, *N*-hydroxy-, 2572*i*.
$C_{24}H_{51}N_3O_7$ [(2-Hydroxy-*s*-phenenyl)trimethylene]tris[(2 - hydroxyisopropyl)dimethylammonium hydroxide], P 8208*c*.
$C_{24}H_{51}O_4P$ Dodecyl phosphate, P 1177*c*, P 1794*b*.
1-Hexanol, 2-ethyl-, phosphate, 3677*i*, 5628*b*.
$C_{24}H_{52}N_2$ 1,10-Decanediamine, *N*, *N'*-diheptyl-, *di-HBr*, 3379*g*, P 3455*c*.
1,8-Octanediamine, *N*, *N'*-dioctyl-, *di-HBr*, 3379*h*, P 3455*dh*.
$C_{24}H_{52}O_4Si$ Hexyl silicate, 9028*c*.
$C_{24}H_{52}O_7P_2$ Dodecyl pyrophosphate, P 1180*c*.
Hexyl pyrophosphate, P 9357*a*.
$C_{24}H_{54}N_3O_6P_3$ Phosphonitrilic acid, di-Bu ester, trimer, 6970*i*.
$C_{24}H_{54}O_{18}Sn_4$ Dimethyltin diacetate, complex with $Me_2SnO$, trimer, 7899*i*.
$C_{24}H_{56}Br_4NiP_2$ Phosphine, tributyl-, complex with HBr and $NiBr_2$, 6202*f*.
$C_{24}H_{56}O_{12}Si_2$ Compd., m. 219–20°, P 6221*f*.
$C_{24}H_{58}I_2O_4Sn_4$ Dipropyltin oxide, complex with dipropyltin diiodide, 7900*c*.
$C_{24}H_{60}Cl_2N_4Pt$, 1676*d*.
$C_{24}H_{60}Cl_4N_4Pt_2$, 1676*d*.
$C_{24}H_{60}Cl_4O_{12}P_4Pt_2$, 4172*h*.
$C_{24}H_{60}O_{16}Si_4$ Ethyl silicate, 4631*c*, 5738*h*.
$C_{24}H_{70}O_{11}Si_{10}$ Decasiloxane, 1,19-diethoxyeicosamethyl-, P 6221*c*.
$C_{24}H_{72}O_{10}Si_{11}$ Hendecasiloxane, tetracosamethyl-, P 4402*f*.
$C_{25}H_{15}BrNO_2$ Anthra[2,3]oxazole-5,10-dione, 2-(4-bromoanthryl)-, P 7706*a*.
$C_{25}H_{15}NO_3$ Benzo[*a*]naphtho[2,3-*h*]acridine-5,8,13(14*H*)-trione, 2776*f*.
Caledon Red BN, 4580*c*.
$C_{25}H_{14}Cl_2N_2O_2$ 7,8-Benzoflavone, 6-(2,5-dichlorophenylazo)-, 5770*a*.
$C_{25}H_{14}N_2O_2$ 7*H*-Acenaphth[1,2-*b*]indole, 7-benzoylnitro-, 628*d*.
$C_{25}H_{15}NO$ 7*H*-Acenaphth[1,2-*b*]indole, 7-benzoyl-, 628*c*.
$C_{25}H_{15}N_3O_6$ Phenanthridine, 6-(*p*-nitrophenyl)-, picrate, P 5051*a*, 7446*b*.
$C_{25}H_{16}Cl_2N_2O_2$ 2-Acetonaphthone, 4-(2,5-dichlorophenylazo) - 1 hydroxy-, benzoate, 5779*b*.
1,3-Propanedione, 1-[4-(2,5-dichlorophenylazo) - 1 - hydroxy - 2 - naphthyl]-3-phenyl-, 5779*b*.
$C_{25}H_{16}Cl_6O$ Benzophenone, 4,4'-bis(*p*-chlorophenyl)-, 7927*e*.
$C_{25}H_{16}Cl_4$ Methane, (*m*-chlorophenyl)tris(*p*-chlorophenyl)-, P 9358*b*.
$C_{25}H_{16}N_2O_2$ 7,8-Benzoflavone, 6-phenylazo-, 5778*i*.
$C_{25}H_{16}N_4O_7$ Phenanthridine, 6-phenyl-, picrate, P 5051*b*, 7446*b*.
$C_{25}H_{16}N_4O_{10}S_2$ 2*H*-Naphtho[1,2]triazole-4-carboxylic acid, 2-[4-(4-nitro-2-sulfostyryl)-3-sulfophenyl]-, P 5965*c*.
$C_{25}H_{16}O$ Indone, 2-phenyl-3-(naphthyl)-, 6193*e*.
$C_{25}H_{16}O_3$ 7*H*-Benz[*de*]anthracen-7-one, 3-anisoyl-, P 868*d*, 3402*e*.
7*H*-Benzo[*de*]anthracen-7-one, 3-*m* methoxybenzoyl-, P 868*d*, 3402*e*.
Benzoic acid, *o*-(fluoranthenylcarbonyl)-, Me ester, 7473*h*.
$C_{25}H_{16}O_4$ Compd., m. 244–5°, 3415*b*.
$C_{25}H_{16}O_5$ 1,4-Naphthoquinone, 2,2'-methylenebis[3-hydroxy-, diacetate, 1383*c*.
$C_{25}H_{16}O_9$ Muscarufin, 6744*h*.
$C_{25}H_{17}ClN_6O_9$ Benzamidine, *p*-chloro-*N*-(4'-nitro-2-biphenylyl)-, picrate, 7445*g*.
$C_{25}H_{17}N$ Naphthaleneacrylonitrile, α,β-diphenyl-, 7007*b*.
$C_{25}H_{17}NO_3S$ *p*-Toluenesulfonamide, *N*-(7,12-dihydro - 7,12 - dioxo - 1 - pleiadenyl)-, 2985*g*.
$C_{25}H_{17}N_3O_9$ 1,3 Dioxolo[*g*]isoquinoline, 7,8-dihydro-5-(quinolyl)-, picrate, 1421*f*, 1422*ce*.
$C_{25}H_{17}N_7O_{11}$ Benzamidine, *N*-(4,4'-dinitro-2-biphenylyl)-, picrate, 7445*i*.
Benzamidine, *p*-nitro-*N*-(4'-nitro-2-biphenylyl)-, picrate, 7445*g*.
$C_{25}H_{18}ClN_5O_7$ Benzamidine, *N*-(chlorophenyl)-*N'*-phenyl-, picrate, 2594*b*
$C_{25}H_{18}N_2$ Carbazole, 9,9'-methylenedi-, 3819*e*.
Quinoline, 3-(2-naphthylamino)-2-phenyl, 8391*i*.
$C_{25}H_{18}N_2O_2$ 1,3(2*H*,4*H*)-Isoquinolinedione, 4 - (2 - methyl - 4(1*H*) - quinolylidene)-2-phenyl-, 229*c*.
$C_{25}H_{18}N_2O_3$ 2-Acetonaphthone, 1-hydroxy-4-phenylazo-, benzoate, 5778*h*.
1,3-Propanedione, 1-(2 hydroxy-1-naphthyl)-3-phenyl-2-phenylazo-, 5779*b*
—, 1-(1-hydroxy-4-phenylazo-2-naphthyl)-3-phenyl-, 5778*h*.
$C_{25}H_{18}N_2O_5$ 2(5*H*)-Pyrrolone, 3-benzamido-1-benzoyl-4-hydroxy-, benzoate, 2988*f*.
$C_{25}H_{18}N_2O_6S$ 7*H*-Dibenz[*f*,*ij*]isoquinoline-4-sulfonic acid, 3-acetyl-2,3-dihydro-2,7-dioxo-6-*o*-toluidino-, *Na salt*, P 8165*e*.
$C_{25}H_{18}N_4O_6$ 2-Naphthamide, *N*-1,3-benzodioxan - 6 - yl - 3 - hydroxy - 4 - (*p*-nitrophenylazo)-, P 8152*ac*.
$C_{25}H_{18}N_4O_8$ 3-Buten-2-one, 4-phenyl-1-(2-quinolyl)-, picrate, 7022*i*.
$C_{25}H_{18}N_6O_9$ Benzamidine, *N*-2-biphenylyl-*p*-nitro-, picrate, P 5051*c*, 7445*g*.
$C_{25}H_{18}O$ Benzophenone, 4,4'-diphenyl-, 2980*a*.
$C_{25}H_{18}O_4$ 1,4-Naphthoquinone, 2-[3-dibenzofuryl)propyl]-3-hydroxy-, 1379*h*.
$C_{25}H_{18}O_7$ 1-Indancarboxylic acid, 1,2-dihydroxy-2-methyl-3-oxo-, dibenzoate, 1384*d*.
$C_{25}H_{19}BrO$ Naphthalene, 1-[β-bromo-α-(*p*-methoxyphenyl)styryl]-, 7007*e*.
$C_{25}H_{19}ClN_2Se_2$ 1-Methyl-2-[1-methyl-2(1*H*)-naphtho[1,2]selenazolylidenemethyl]-naphtho[1,2]selenazolium chloride, P 7848*i*.
$C_{25}H_{19}ClN_4O_7S$ Acetic acid, [2-[6-(4-aminobenzamido) - 3 - sulfo - 2 - naphthylazo]-4-chlorophenoxy}-, P 7700*i*.
$C_{25}H_{19}Cl_3OP$ Phosphine oxide, (4-biphenylyldiphenylmethyl)dichloro-, 1346*i*.
$C_{25}H_{19}N$ Phenanthridine, 5,6-dihydro-6,6-diphenyl-, 649*a*.
$C_{25}H_{19}NO_2$ Phenol, *m*-4-biphenylyl-, carbanilate, 611*a*.
Toluene, 2,3,6-triphenyl-, nitro deriv., 4657*c*.
$C_{25}H_{19}N_3$ Acridine, 3,6-dianilino-, 647*b*.
$C_{25}H_{19}N_3O$ 5-Pyrazolone, 4-(2-methyl-4(1*H*)-quinolylidene)-1,3-diphenyl-, 229*b*.
$C_{25}H_{19}N_3OS_4$ 2(3*H*)-Thiazolethione, 5-[6,6-bis(2 - benzothiazolyl) - 1,3,5 - hexatrienyl] - 3 - ethyl - 4 - hydroxy-, P 4159*c*, P 8928*a*.
$C_{25}H_{19}N_3O_6$ Fluoranthene, 1,2,3-trimethyl-, compd. with 1,3,5-trinitrobenzene, 3401*h*.
$C_{25}H_{19}N_3O_7$ Benzamidine, *N*-2-biphenylyl-, picrate, 7445*g*.
Benzamidine, *N*, *N*-diphenyl-, picrate, 7444*h*.
$C_{25}H_{19}N_3O_9$ 1,3-Dioxolo[*g*]isoquinoline, 5,6,7,8-tetrahydro-5-(quinolyl)-, picrate, 1421*g*, 1422*cf*.
$C_{25}H_{19}N_5O_{10}$ Cinchoninamide, *N*-homopiperonyl-, picrate, 1421*e*.
Quinolinecarboxamide, *N*-homopiperonyl-, picrate, 1422*be*.
$C_{25}H_{20}$ Methane, tetraphenyl-, 3417*f*.
Toluene, 2,3,6-triphenyl-, 4657*c*.
$C_{25}H_{20}ClN$ Pyridine, 2-chloro-3-methyl-5-triphenylmethyl-, 3417*e*.
$C_{25}H_{20}Cl_2O_4P$ (3,4-Dichlorobenzyl)triphenyl phosphonium perchlorate, P 4420*a*
$C_{25}H_{20}Cl_2P$ (3,4-Dichlorobenzyl)triphenyl phosphonium chloride, 6178*h*.
$C_{25}H_{20}N_2$ Benzamidine, *N*, *N*, *N'*-triphenyl-, 2594*b*.
$C_{25}H_{20}N_2O$ 5(6*H*) Phenanthridinecarboxamide, 6 - methyl - *N* - 1 - naphthyl-, 8365*g*.
$C_{25}H_{20}N_2O_3$ 11*H*-Benzo[*a*]carbazole-3-carbox-*p*-anisidide, 2-hydroxy-2'-methyl-, 5344*c*.
$C_{25}H_{20}N_4O_6$ Cyclohexenecarboxylic acid, 6-phenyloxo-, 2,4-dinitrophenylhydrazone, 157*d*.
$C_{25}H_{20}N_4O_7$ Indeno[3,4-*bc*]phenanthridine 1,2,3,4,10,11-hexahydro-, picrate 1779*b*.
Phenanthridine, 7,8,9,10-tetrahydro-2-phenyl-, picrate, 1779*a*.
$C_{25}H_{20}O$ Anisole, *p*-(α-1-naphthylstyryl)-, 4746*e*, 7007*d*.
*p*-Cresol, α,α,α-triphenyl-, 7005*h*.
$C_{25}H_{20}O_3$ Acetoacetic acid, α,γ-di-1-naphthyl-, Me ester, 1385*c*.
1,4-Naphthoquinone, 2-[3-(3 acenaphthenyl)propyl]-3-hydroxy-, 1379*f*
—, 2-(*p*-benzylphenethyl)-3-hydroxy 1379*f*.
—, 2-[3-(4-biphenylyl)propyl]-3-hydroxy-, 1379*f*.
—, 2 (3,3 diphenylpropyl)-3-hydroxy 1379*c*.
—, 2 hydroxy-3-(*p*-methyl-β phenylphenethyl)-, 1379*c*.
$C_{25}H_{20}O_4$ 1,4-Naphthoquinone, 2 hydroxy-3-[3-(*p*-phenoxyphenyl)propyl]-, 1379*b*, 2610*b*.
$C_{25}H_{20}O_7$ Flavone, 8 - hydroxy - 4',5,6 methoxy, anisate, 3414*g*.
$C_{25}H_{20}O_{12}$ Flavone, pentahydroxy-, pentacetate, 1772*e*, 1774*c*.
$C_{25}H_{20}S$ Sulfide, phenyl triphenylmethyl 1753*h*.
Thiophene, 2-(α 4-biphenylylstyryl) methyl-, 4666*d*
$C_{25}H_{21}BrN_2S$ 10-[1-Ethyl 2(1*H*)-quinolylidene] - 9,10 - dihydro - 8*H* - naphtho[2,1 - *d*]pyrrolo[2,1 - *b*]thiazolium bromide, P 8293*g*
$C_{25}H_{21}ClN_2O_3S$ Benzamidine, *N*-(chlorophenyl)-*N'*-phenyl-, benzenesulfonate, 2594*b*
$C_{25}H_{21}ClN_2O_3S$ Anthraquinone, 1-chloro-[*p* - (diethylsulfamyl)benzamido]- P 8641*d*.
$C_{25}H_{21}IN_2O_2$ 3-Methyl-2-[3 (3-methyl 2(3*H*)-naphth[2,1]oxazolylidene) - 1 - cyclopenten - 1 - yl]benzoxazolium iodide P 4157*i*.
$C_{25}H_{21}N$ 2-Naphthaleneacrylonitrile, 5,6,7,8-tetrahydro - α,β - diphenyl-, 4746*e*, 7007*c*.
Pyridine, 3-methyl-5-triphenylmethyl 3417*e*.
Toluene, 2,3,6-triphenyl-, amino deriv., 4657*c*.
$C_{25}H_{21}NO$ Butyrophenone, β-phenyl-γ-quinolyl-, 7022*h*
2 - Pyridol, methyltriphenylmethyl 3417*cd*.
$C_{25}H_{21}NO_3$ Cinchoninic acid, 2-(6-methoxy-3,4-xylyl)-3-phenyl-, 7924*h*.
Cinchoninic acid, 2-(3-methyl *p*-phenetyl)-3-phenyl-, 3825*g*.
Diacetanilide, *p*-(2-fluorenylcarbonylmethyl)-, 7468*i*.
$C_{25}H_{21}NO_3S$ *o*-Benzenesulfonotoluidide, α-hydroxy-α,α-diphenyl-, 7006*g*.
$C_{25}H_{21}N_3O_2$ Skatole, 2,2'-(nitrobenzylidene)di-, 629*d*.
$C_{25}H_{21}N_3O_3S_3$ [$\Delta^{2,2'}$-Bithiazolidine]-2',4,4'-trione, 3-ethyl-5-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene] - 3' - phenyl-2'-thio-, P 4164*a*.
$C_{25}H_{21}N_3O_4$ Indole, 2,2'-(nitrobenzylidene)bis[3-methoxy-, 629*e*.
$C_{25}H_{21}N_3O_7$ Fluorene, 9-(1,3-dimethyl-2-butenylidene)-, picrate, 9059*b*.
$C_{25}H_{21}N_3O_8$ Phthalic acid, 3-(5,8-diamino-

hydroxy - 1 - anthraquinonylamino)-2-hydroxypropyl monoester, P 1986*g*.

$C_{21}H_{21}NO_{10}$ Phenanthrene, trimethoxy-1-vinyl-, picrate, 6208*e*.

$C_{21}H_{21}NO_7$ Isoquinoline, 3 - (*p* - dimethylaminostyryl)-, picrate, 3821*a*.

$C_{21}H_{21}O_3P$ Methanephosphonic acid, 4-biphenylyldiphenyl-, 1347*c*.

$C_{21}H_{22}ClNO_2$ 4-(*p*-Dimethylaminostyryl)-7-hydroxyflavylium chloride, P 6100*b*, P 7849*a*.

$C_{21}H_{21}ClN_2O_4S_2$ 5-(3-Ethyl-2-benzothiazolinylidene) - 2 - methylmercapto - 4-oxo - 1,3 - diphenyl - 2 - imidazolinium perchlorate, P 4160*g*.

$C_{21}H_{22}N_2$ Skatole, 2,2′-benzylidenedi-, 629*d*.

$C_{21}H_{22}N_2O$ Benzamide, *p*-(benzylmethylamino)-*N*-1-naphthyl-, 1346*h*.

Butyrophenone, β-phenyl-γ-2-quinolyl-, oxime, 7022*h*.

$C_{21}H_{22}N_2O_2$ Indole, 2,2′-benzylidenebis[3-methoxy-, 629*e*.

$C_{21}H_{22}N_2O_3$ 2-Anthranilide, 3-hydroxy-4′-(4-morpholinyl)-, P 8162*h*.

Cinchophen, 4′-methyl-3-*p*-phenetidino-, 8392*d*.

$C_{21}H_{22}N_2O_3S$ Benzamidine, *N*, *N*′-diphenyl-, benzenesulfonate, 2594*h*, 7445*d*.

$C_{21}H_{22}N_4O_7$ Cyclohexanecarboxylic acid, 1-hydroxy-5-oxo-2,3-diphenyl-, 2,4-dinitrophenylhydrazone, 157*c*.

Phthalic acid, 2-hydroxy-3-(4,5,6-triamino - 1 - anthraquinonylamino)propyl monoester, P 1986*g*.

$C_{21}H_{22}N_4O_8S_2$ 3-Biphenylylsulfonic acid, 4,4′-ureylenebis[4-amino-, P 857*i*.

$C_{21}H_{22}N_4O_4S_2$ Coumarin, 3,6-bis(*N*⁴-acetylsulfanilamido)-, 2179*i*.

$C_{21}H_{22}O$ Ether, 3-methyl-2-penten-4-ynyl triphenylmethyl, P 1793*h*.

$C_{21}H_{22}OSi$ Silane, (*p*-methoxyphenyl)triphenyl-, 8366*d*.

$C_{21}H_{22}O_3$ Benzophenone, compd. with phenol, 107*b*.

1,3,7-Heptanetrione, 1,5,7-triphenyl-, 7002*f*.

$C_{21}H_{22}O_6$ 1,4 Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 8 *p*-cumyl-1,4,4a,5,6,7-hexahydro-, 206*d*.

Flavone, 7-(benzyloxy)-3,4′,5-trimethoxy-, 5398*c*.

1 Indancarboxylic acid, 1,2-dihydroxy-3-oxo-2-[3-(*p*-phenoxyphenyl)propyl], 1384*e*.

$C_{22}H_{22}O_3$ Flavone, 7-(benzyloxy)-5 hydroxy-trimethoxy-, 227*b*, 5398*c*.

$C_{22}H_{22}O_8$ Acetophenone, 2,3-dihydroxy-6-methoxy-, dianisate, 3414*g*.

$C_{22}H_{22}O_{11}$ Arabinoside, 8 hydroxy-1-anthraquinonyl, triacetate, 5019*b*.

$C_{22}H_{22}O_{12}$ Flavanone, 3,3′,4′,5,7-pentahydroxy, pentaacetate, 3195*b*.

$C_{22}H_{22}As_2N_4Na_2O_8S_2$ Sulfanilanilide, *N*⁴-(hydroxymethyl) - 3′,3‴ - arsenobis[6′-hydroxy-, sulfoxylate, Na salt, 6593*g*.

$C_{22}H_{22}IN_2$ 2,3-Dihydro-4-methyl-3-[2-(1-methyl - 2(1*H*) - quinolylidene)ethylidene] - 1*H* - cyclopenta[*b*]quinolinium iodide, 3001*g*.

2,3 - Dihydro - 3 - [2 - (1 - methyl - 4(1*H*)-quinolylidene)ethylidene] - 4 - methyl 1*H* cyclopenta[*b*]quinolinium iodide, 3001*h*.

$C_{22}H_{23}IN_2OS$ 2-[4-(*N*-Acetylanilino)-1,3-butadienyl) - 3 - ethylnaphtho[2,1]-thiazolium iodide, 6929*a*.

$C_{22}H_{23}NO$ Acrylonitrile, β-(*p*-butoxyphenyl)-α,β-diphenyl-, 4746*d*, 7007*a*.

$C_{22}H_{23}NO_4$ Acetophenone, α-(3,4-dihydro-2(1*H*) - isoquinolyl) - 4 - hydroxy - 3-methoxy , benzoate, P 7050*h*.

$C_{22}H_{23}NO_5$ 1,4-Naphthoquinone, 3-hydroxy-2,2′ methylenebis-, compd. with $NH_2Et_2$, 1385*a*.

$C_{22}H_{23}N_3O_4S$ Anthraquinone, 1-amino-4-[*p*-(diethylsulfamyl)benzamido]-, P 804*e*.

$C_{22}H_{23}N_3O_5S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - (diethylsulfamyl)-, P 7710*c*.

$C_{22}H_{23}N_3O_6$ 4-Piperidone, 1-(diphenylacetyl)-, 2,4-dinitrophenylhydrazone, 4275*b*.

$C_{22}H_{23}NO_7$ Cyclohexenecarboxamidine, *N*-2-biphenylyl-, picrate, 7445*i*.

Yohyrine, tetrahydro-, picrate, 5407*g*.

$C_{22}H_{24}$ Longifolene, 2078*c*.

$C_{22}H_{24}As_2N_4O_8S_2$ Sulfanilanilide, *N*⁴-(hydroxymethyl) - 3′,3‴ - arsenobis[6′-hydroxy-, sulfoxylate, Na salt, 6593*g*.

$C_{22}H_{24}BrN_3O_2$ *o* - Cresol, 4 - (6 - bromo - 2-methoxy-9 acridylamino)-α-4- morpholinyl-, P 1068*f*.

$C_{22}H_{24}ClNO_3$ 9-(*p*-Diethylaminostyryl)-3,6-dihydroxyxanthylium chloride, P 6100*h*.

$C_{22}H_{24}ClNO_3S$ Retenesulfonanilide, chloro-3-methoxy-, 4252*b*.

$C_{22}H_{24}IN_3$ 2-[1-Cyano-3-(1,3,3-trimethyl-2-indolinylidene)propenyl] - 1 - methylquinolinium iodide, P 7843*b*.

$C_{22}H_{24}N_2O$ Benzamide, *N*-cuminyl-*N*-α-cyanobenzyl-, 6176*e*.

$C_{22}H_{24}N_2O_2$ Anthraquinone, 1-amino-2-butyl-4-*p*-toluidino-, 1761*h*.

Anthraquinone, 1-amino-2-*tert*-butyl-4-*p*-toluidino-, 1761*c*.

$C_{22}H_{24}N_2O_3$ Benzamide, *N*-phenacyl-*N*-(2-phenacylaminoethyl)-, 3800*d*.

$C_{22}H_{24}N_2O_4$ Carbamic acid, cinnamylidenedi-, dibenzyl ester, 1390*a*.

5-(2-Carboxyvinyl) - 2 - (*p* - dimethylaminostyryl) - 6 - hydroxy - 1 - methylquinolinium acetate δ-lactone, 7028*b*.

$C_{22}H_{24}N_4O_4$ 2,4-Dinitrophenylhydrazone, m. 184–7°, 9058*i*.

Quinoline, 5,5′ - methylenebis[8 - acetamido-6-methoxy-, 1414*f*.

$C_{22}H_{24}N_4O_8$ Phenanthrenecarboxylic acid, acetyl 1,2,3,4-tetrahydro , Et ester 2,4-dinitrophenylhydrazone, 8376*g*.

$C_{22}H_{24}N_4O_7S$ Quinoline, 3-amyl-6-methyl-2-(2-thienyl)-, picrate, 228*c*.

Quinoline, 3-hexyl-2-(2-thienyl)-, picrate, 228*c*.

$C_{22}H_{24}N_8O_{14}S_2$ Thiazole, 2,2′-pentamethylenebis[4-methyl-, dipicrate, 4667*e*.

$C_{22}H_{24}O$ Valerophenone, *p*-(β-phenylstyryl)-, 190*h*.

$C_{22}H_{24}O_2$ 4,4′-Stilbenediol, α,α′-diethyl-, monobenzoate, P 2641*f*.

$C_{22}H_{24}O_4$ 2-Phenanthrenecarboxylic acid, 1-ethyl - 1,2,3,4 - tetrahydro - 7 - hydroxy-2-methyl-, 7-benzoate, P 3849*a*, P 7048*i*.

$C_{22}H_{24}O_6$ Pomiferin, 5117*a*.

$C_{22}H_{24}O_{11}$ Catechol, pentaacetate, 1341*f*.

$C_{22}H_{25}BrN_2$ 1-Ethyl-2-[3-(1-ethyl-2(1*H*)-quinolylidene)propenyl]quinolinium bromide, 5976*e*.

$C_{22}H_{25}BrO_3$ Ethylene, 1-bromo-2-*p*-phenetyl-1-phenyl-2-*p*-propoxyphenyl-, P 6666*f*.

$C_{22}H_{25}ClN_2$ Pinacyanol chloride, 2093*g*.

$C_{22}H_{25}ClN_2O$ [2-(2,5-Dimethyl-1-phenyl-3-pyrryl)vinyl] - 6 - methoxy - 1 - methylquinolinium chloride, 3930*d*.

$C_{22}H_{25}ClN_2O_3$ 2 - Carboxy - 7 - (*p* - dimethylaminostyryl) - 6 - methylfuro[3,2 - *f*]-quinolinium chloride, Et ester, 7028*f*.

$C_{22}H_{25}Cl_2N_3O_2$ *o*-Cresol, 6-chloro-4-(6-chloro-2 - methoxy - 9 - acridylamino) - α-diethylamino-, *di*-*HCl*, P 1068*e*, P 7516*c*.

$C_{22}H_{25}HgI_2N_3$ 1-Ethyl-2-[3-(1-ethyl-2(1*H*)-quinolylidene)propenyl]quinolinium iodide, compd. with HgI₂, 5692*d*.

$C_{22}H_{25}IN_4$ 1 - Ethyl - 2 - [3 - (1 - ethyl - 2(1*H*)-quinolylidene)propenyl]quinolinium iodide, 5692*c*.

Pinacyanol, 6066*e*.

$C_{22}H_{25}IN_2O$ 4-Ethyl-3-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene] - 2,3 - dihydro - 1*H* - cyclopenta[*b*]quinolinium iodide, 3001*i*.

$C_{22}H_{25}IN_2O_3$ 2-Carboxy-7-(*p*-dimethylaminostyryl) - 6 - methylfuro[3,2-*f*]quinolinium iodide, Et ester, 7028*f*.

$C_{22}H_{25}IN_2O_4S_2$ 3-Ethyl-2-[3-(3-ethylhydroxy-2 - benzothiazolinylidene)propenyl]-hydroxybenzothiazolium iodide, diacetate, 9453*h*.

$C_{22}H_{25}IN_2S$ 4-Ethyl-3-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene] - 2,3 - dihydro - 1*H* - cyclopenta[*b*]quinolinium iodide, 3001*i*.

$C_{22}H_{25}IN_2S_2$ 2-[3-[2-(3-Ethyl-2-benzothiazolinylidene)ethylidene] - 1 - cyclohexen-1-yl]-3-methylbenzothiazolium iodide, P 4158*d*.

$C_{22}H_{25}IN_4O_2S_2$ 3-Ethyl-2-{[3-ethyl-5-[2-(3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-amino}benzothiazolium iodide, P 4162*e*.

$C_{22}H_{25}IN_4O_2S_2$ 3-Ethyl-2-[3-[3-ethyl-4-(nitrophenyl) - 4 - thiazolin - 2 - ylidene]-propenyl] - 4 - (nitrophenyl)thiazolium iodide, P 2532*d*.

$C_{22}H_{25}NO$ 4-Piperidone, 1-benzyl-3-methyl-2,6-diphenyl-, *and* - *HCl*, 1410*d*.

Valerophenone, *p* - (β - phenylstyryl)-, oxime, 199*i*.

$C_{22}H_{25}NO_3S$ Retenesulfonanilide, 3-methoxy-, 4252*c*.

$C_{22}H_{25}NO_5$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, Me ester, $Et_3NH$ salt, 5399*f*.

$C_{22}H_{25}N_3$ Pyrimidine, 2-(1-piperidyl)-4,6-distyryl-, 3427*c*.

$C_{22}H_{25}N_3O_{12}S_2$ Glycine, *N*, *N*′-(2,4,6-trimethyl - 5 - nitro - *m* - phenylene)bis-[*N*-(phenylsulfonyl)-, 1735*i*.

$C_{22}H_{26}N_2O_3$ Isoquinamine, anhydro-, picrate, 7490*a*.

$C_{22}H_{26}AsIO_3$ Bis(2-benzoylethyl)methylphenylarsonium iodide, 8352*b*.

$C_{22}H_{26}BrNO_3$ Benzamide, *p*-bromo-*N*, *N*-bis(2-hydroxy-α-mesityl)-, 5995*a*.

$C_{22}H_{26}ClN_3O_2$ *o*-Cresol, (6-chloro-2-methoxy-9 - acridylamino) - α - diethylamino-, *di*-*HCl*, P 1062*b*, P 1068*c*.

$C_{22}H_{26}N_2O$ 1-Piperidinecarboxamide, *N*-triphenylmethyl-, 4646*c*.

$C_{22}H_{26}N_2O_2$ Aniline, *p*-(5-aminoamyl)-, di-Bz deriv., 9047*c*.

3-Buten-1-one, 3-(*p*-methoxyphenyl)-1-(3-methoxy-*p*-tolyl)-, phenylhydrazone, 4640*c*.

$C_{22}H_{26}N_2O_3$ 1,8(2*H*,5*H*)-Xanthenedione, 3,-4,6,7 - tetrahydro - 3,3,6,6 - tetramethyl-9-(2-quinoxalyl)-, 3425*c*.

$C_{22}H_{26}N_2O_4$ 1,4-Butanediol, 2-methyl-1-phenyl-, dicarbanilate, 4255*c*.

Estrone, 16-(hydroxymethylene)-, *p*-nitroanil, 245*f*.

Hydrocinnamic acid, *p*-methoxy-β-(*p*-methoxyphenacyl)-, phenylhydrazone, 4640*c*.

$C_{22}H_{26}N_2O_4S_2$ 3-Ethyl-2-(2-*p*-methoxyanilinovinyl)benzothiazolium *p*-toluenesulfonate, P 2642*i*.

$C_{22}H_{26}N_2O_5S$ 3-Ethyl-2-(2-*p*-methoxyanilinovinyl)benzoxazolium *p*-toluenesulfonate, P 2642*i*.

$C_{23}H_{26}N_4O_6S_2$ Glycine, *N*, *N*′-(2,4,6-trimethyl - *m* - phenylene)bis[*N* - (phenylsulfonyl)-, 1735*h*.

$C_{22}H_{26}N_4O_3$ Acetic acid, diantipyryl-, Me ester, 7477*d*.

$C_{22}H_{26}N_4O_3S$ Benzanilide, 4′-(*N*-acetylsulfanilylazo)-2′,5′-diethoxy-, P 7846*f*.

$C_{22}H_{26}N_4O_{10}$ Erysodine, methoxy-, picrate, P 6674*d*.

Erysotrine, picrate, 4281*d*.

$C_{22}H_{26}N_4O_{11}$ 1-Indanamine, 5,6,7-trimethoxy-4-(*p*-methoxyphenyl)-, picrate, 2198*b*.

$C_{22}H_{26}N_6O_2$ Glutaramide, *N*, *N*′-bis(4-amino-2-methyl-6-quinolyl)-, *di*-*HCl*, 1778*c*.

Malonamide, *N*, *N*′-bis(4-amino-2-methyl - 6 - quinolyl) - α,α - dimethyl-, *di*-*HCl*, 1778*d*.

$C_{22}H_{26}N_6O_{11}$ Piperidine, benzylamino-1-methyl-, dipicrate-, 2207*b*, 6207*d*.

Pyrrolidine, 2-(benzylaminomethyl)-1-methyl-, dipicrate, 7019*h*.

$C_{22}H_{26}O_2$ Benzophenone, 4′-benzyl-3′-methoxy-2,3,5,6-tetramethyl-, 186*g*.

$C_{22}H_{26}O_3$ 1,4-Naphthoquinone, 2-[3-(*p*-cyclohexylphenyl)propyl] - 3 - hydroxy-, 1379*f*.

$C_{22}H_{27}BrN_2$ 1-[7-(3,4-Dihydro-1(2*H*)-quinolyl) - 2,4,6 - heptatrienylidene] - 1,2,-3,4-tetrahydroquinolinium bromide, 2617*e*.

$C_{22}H_{27}BrO_3$ 1,4-Naphthoquinone, 2-[9-(*p*-bromophenyl)nonyl] - 3 - hydroxy-, 1380*a*, 2610*b*.

$C_{22}H_{27}ClO_3$ 1,4-Naphthoquinone, 2-[9-(*p*-chlorophenyl)nonyl] - 3 - hydroxy-, 1380*a*, 2610*b*.

$C_{22}H_{27}NO$ 4-Piperidinol, dimethyl-2,4,6-triphenyl-, *and* - *HCl*, 1410*f*.

Valerophenone, γ dimethylamino-α,α-diphenyl-, *salts*, 7466*f*.

$C_{22}H_{27}NO_3$ Benzamide, *N*, *N*-bis(2-hydroxy-α-mesityl)-, 5995*a*.

$C_{22}H_{27}NO_3S$ Retenesulfonic acid, 3-hydroxy-, *p*-toluidine salt, 4251*i*.

$C_{22}H_{27}N_2NaO_7S_2$ Cyanol, 742*b*.

$C_{22}H_{27}N_3O_2$ Acridine, 9-(*p*-diethylaminoanilino)-2,7-dimethoxy-, *and* *di*-*HCl*, 6633*b*.

Aspartamide, *N*, *N*′, *N*ᵅ - tribenzyl-, 1352*g*.

Benzophenone, 4,4′-dipropyl-, *p*-nitrophenylhydrazone, 7004*h*.

$C_{22}H_{27}N_3O_4$ Cresorcinol, 5-(2,3-dimethoxy-9-acridylamino) - α - propylamino-, *di*-*HCl*, P 1008*f*.

$C_{22}H_{28}Br_2N_2S_2$ 1,1′-Pentamethylenebis[2-methylmercaptoquinolinium bromide], P 8926*f*.

$C_{22}H_{28}Cl_2N_4O_9S$ Pyrimidine, 6-amino-4-(tetraacetyl - D - galactofuranosidamino) - 5 - (2,5 - dichlorophenylazo)-2-(methylmercapto)-, 145*a*.

Pyrimidine, 6-amino-4-(tetraacetyl-D-galactopyranosidamino) - 5 - (2,5 - dichlorophenylazo) - 2 - (methylmercapto)-, 145*c*.

—, 6-amino-4-(tetraacetyl-D-glucopyranosidamino) - 5 - (2,5 - dichlorophenylazo)-2-(methylmercapto)-, 145*d*.

$C_{25}H_{25}N_3$ Butylamine, 4-imino-*N*, *N*,1-trimethyl-3,3,4-triphenyl-, - *HCl*, 7466*f*.
$C_{25}H_{25}F_3O$ Benzamide, *N*-[α-(aminomethyl)-benzyl]-*N*-cuminyl-, - *HCl*, 6176*f*.
$C_{25}H_{25}N_3O_2$ Anthranilic acid, *N*-4-biphenylyl-, 2-diethylaminoethyl ester, - *HCl*, P 4697*c*.
$C_{25}H_{25}N_3O_3$ Anthranilic acid, *N*-(*p*-phenoxyphenyl)-, 2-diethylaminoethyl ester, - *HCl*, P 4697*d*.
$C_{25}H_{25}N_3O_4$ Compd., m. 190°, 239*g*.
$C_{25}H_{25}N_3O_4S_2$ 3-Ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene] - 2-(ethylmercapto) - 4 - oxo - 2 - thiazolinium *p*-toluenesulfonate, P 4161*b*.
$C_{25}H_{25}N_3O_4S$ 2-Thiazolidineacetic acid, 3-benzoyl - 4 - carboxy - 5,5 - dimethyl-α-(α-phenylacetamido)-, di-Me ester, 8892*g*.
$C_{25}H_{25}N_3O_6S_2$ Glycine, *N*-[3-(*N*-ethylphenylsulfonamido)mesityl] - *N* - (phenylsulfonyl)-, 1736*a*.
$C_{25}H_{25}N_4O_{10}$ Isoalloxazine, 10-lyxityl-7,8-dimethyl-, tetraacetate, 7533*b*.
$C_{25}H_{25}NO_{11}S$ *p*-Toluenesulfonanilide, *N*-(2-diethylaminoethyl)-3′-nitro-, picrate, 3008*f*.
$C_{25}H_{26}O_2$ Ketone, 6-benzyl-4-methoxy-2,4-cyclohexadien-1-yl duryl, 186*i*.
$C_{25}H_{26}O_3$ (See also "benzoate" under *Estradiol*.)
$\Delta^{1,3,5}$-Estratriene, 3-(benzyloxy)-17(α)-hydroxy-16-keto-, 3434*g*.
Ethanol, 1-*p*-phenetyl-2-phenyl-1-*p*-propoxyphenyl-, P 6666*h*.
Mesitol, $\alpha^2,\alpha^4$-bis(hydroxy-3,5-xylyl)-, 5019*c*.
1,4-Naphthoquinone, 2-hydroxy-3-(9-phenylnonyl)-, 1109*c*, 1379*c*, 2610*b*.
$C_{25}H_{26}O_4$ Phenol, *p*,*p*′-(diethylideneethylene)-di-, butyrate propionate, P 823*f*.
$C_{25}H_{26}O_7$ Cyclohexanecaproic acid, 4-(1,4-dihydro - 3 - hydroxy - 1,4 - dioxo - 2-naphthyl)-4-oxo-, Me ester, acetate, 1387*d*.
$C_{25}H_{26}S_3$ Methane, tris(6-methylmercapto-*m*-tolyl)-, 7474*g*.
$C_{25}H_{26}BrN_2O_2$ (2-Hydroxy-5-phenylbenzyl)-trimethylammonium bromide *N*,*p*-dimethylcarbanilate, P 1439*e*.
$C_{25}H_{26}NO$ Triethylamine, 2-triphenylmethoxy-, 4657*d*.
$C_{25}H_{26}NO_2S$ Propylamine, *N*, *N*,1-trimethyl-3,3 - diphenyl - 3 - *p* - tolylsulfonyl-, - *HCl*, 1367*a*.
$C_{25}H_{25}NO_5$ 3,5-Piperidinedicarboxylic acid, 1-ethyl-4-oxo-2,6-diphenyl-, di-Et ester, 4674*d*.
$C_{25}H_{26}N_2O_4$ 3-Quinolinecarboxylic acid, 4-(4-hydroxy - α - 1 - piperidyl - *m* - toluidino)-6-methoxy-, Et ester, *di*- *HCl*, P 7514*g*.
$C_{25}H_{26}N_2O_6$ Naphthalene, 6-isopropyl-1-methyl-2-(1-methylbutyl)-, compd. with $1,3,5\text{-}C_6H_3(NO_2)_3$, 6601*i*.
$C_{25}H_{26}N_2O_6S_2$ Benzenesulfonamide, *N*, *N*′-(2,4,6 - trimethyl - 5 - nitro - *m*-phenylene)bis[*N*-ethyl-, 1736*b*.
$C_{25}H_{26}N_2O_7$ Yobyrine, decahydro-, picrate, 5407*h*.
$C_{25}H_{26}N_2O_{12}$ Pyrimidine, 4-amino-6-(3-dimethylaminopropylamino) - 2,5 - dimethyl-, bis(3,5-dinitrobenzoate), P 6243*e*.
$C_{25}H_{26}$ 15*H*-Cyclopenta[*a*]phenanthrene, 17-(1,5 - dimethylhexyl) - 16,17 - dihydro-, 7574*a*.
$C_{25}H_{27}ClN_2$ See *Crystal violet*.
$C_{25}H_{28}Cl_2O_6$ Phenol, 4,4′-isopropylidenebis[3-chloro-, bis(butyl carbonate), P 5998*d*.
$C_{25}H_{28}N_2O_4S_2$ Benzenesulfonamide, *N*, *N*′-(2,4,6 - trimethyl - *m* - phenylene)bis[*N*-ethyl-, 1735*f*.
*p*-Toluenesulfonamide, *N*, *N*′-(2,4,6-trimethyl - *m* - phenylene)bis[*N* - methyl-, 7920*c*.
$C_{25}H_{28}N_2O_5S$ 1-Pyrrolidinecarboxylic acid, 2-{[2 - (benzylmercapto) - 1 - carboxyethyl]carbamyl}-, 1-benzyl ester, 2-Et ester, 5016*f*.
$C_{25}H_{28}N_2O_4$ 1-Piperidinepropionic acid, α-(α-hydroxybenzyl)-α-methyl-, Et ester *p*-nitrobenzoate, *and* - *HCl*, 7643*g*.
$C_{25}H_{28}N_2O_9$ Cyclohexanone, 3,3,5-trimethyl-4-(3-oxobutyl)-, bis(2,4-dinitrophenylhydrazone), 8499*c*.
2,4-Dinitrophenylhydrazone, 3709*a*.
1 - Hexanone, 3 - methyl - 1 - (4 - oxocyclohexyl)-, bis(2,4-dinitrophenylhydrazone), 2958*g*.
$C_{25}H_{28}O$ 2-Pentadienone, 1,5-dicarvacryl-, 5015*b*.
3-Pentadienone, 1,5-dithymyl-, 5015*b*.
$C_{25}H_{28}O_2$ Cyclohexanecarboxylic acid, 4-phenyl-, 4-phenylcyclohexyl ester, 1376*h*.
$C_{25}H_{28}O_3$ Cyclohexanone, 4-(α,β-diethyl-*p*-hydroxyphenethyl)-, benzoate, 2195*e*.
$C_{25}H_{28}O_4$ (See also *Bixin*.)
Chlorophorin, 5388*b*.
1,4-Naphthoquinone, 2-[3-(decahydro-2-naphthyl)propyl]-3-hydroxy-, acetate, 1374*i*.
$C_{25}H_{30}O_3$ Azelaic acid, γ-acetyl-, dibenzyl ester, P 6226*c*.
$C_{25}H_{30}O_4S$ 1,4-Naphthalenediol, 2-(3-cyclohexylpropyl)-3-mercapto-, triacetate, 1382*h*.
$C_{25}H_{30}O_6$ 1,2,4-Naphthalenetriol, 3-(3-cyclohexylpropyl)-, triacetate, 1374*e*.
$C_{25}H_{30}O_{12}S_2$ Glucoside, methyl, 3,4-diacetate 2,6 - di - *p* - toluenesulfonate, 1726*i*, 3368*b*.
$C_{25}H_{31}ClN_4O_6$ Quinoline, 2-*p*-chloroanilino-8-(2-diethylaminoethylamino)-, tartrate, 9037*h*.
$C_{25}H_{31}NO_3S$ Cinchoninic acid, 3-decyl-6-methyl-2-(2-thienyl)-, 228*d*.
$C_{25}H_{31}NO_4$ Isoquinoline, 1-(3,4-diethoxybenzyl) - 6,7 - diethoxy - 3 - methyl-, *and* - *HCl*, 1423*i*.
1-Piperidinepropionic acid, α-(α-hydroxybenzyl)-α-methyl-, Et ester benzoate, *and* - *HCl*, 7643*g*.
$C_{25}H_{31}NO_4S$ [2-(Benzhydryloxy)ethyl]ethyldimethylammonium benzenesulfonate, P 3463*b*.
[2 - (Benzhydryloxy)ethyl]trimethylammonium *p*-toluenesulfonate, P 3463*b*.
$C_{25}H_{31}NO_5$ Acrylic acid, β,β-bis(*p*-methoxyphenyl)-, 2-diethylaminoethyl ester, oxalate, 7464*d*.
3-Heptanone, 6-(4-morpholinyl)-4,4-diphenyl-, oxalate, 9054*e*.
$C_{25}H_{31}NO_6$ Acrylic acid, β,β-bis(*p*-methoxyphenyl)-, 2-diethylaminoethyl ester, oxalate, 7464*d*.
$C_{25}H_{31}N_3$ Aniline, *p*,*p*′,*p*″-methylidynetris[*N*, *N*-dimethyl-, P 9519*f*.
$C_{25}H_{31}N_3O_2$ Valeronitrile, γ, δ-di-4-morpholinyl-α,α-diphenyl-, 9054*h*.
$C_{25}H_{31}BrNO_5$ Colchiceine, bromotetrahydro-, diacetate, 8376*c*.
$C_{25}H_{32}N_2O$ Acetamide, [1-ethyl-2,2-diphenyl-4 - (1 - piperidyl)butylidene]-, - *HCl*, 3391*h*.
Propionamide, *N* - [1 - ethyl - 4 - (4-morpholinyl) - 2,2 - diphenylbutylidene]-, - *HCl*, 3391*h*.
$C_{25}H_{32}N_2O_2$ Acetamide, *N*-[1-ethyl-4-(4-morpholinyl) - 2,2 - diphenylisoamylidene]-, - *HCl*, 3390*i*.
$C_{25}H_{32}N_2O_4$ 1-Piperidinepropionic acid, α-(α-hydroxybenzyl)-α-methyl-, Et ester *p*-aminobenzoate, *and* - *HCl*, 7643*g*.
$C_{25}H_{32}N_2O_5$ Alanine, *N*-(*N*-carboxyleucyl)-β-phenyl-, benzyl Et ester, 4641*f*.
$C_{25}H_{32}N_2O_6$ Hydrocinnamic acid, α-(diethylaminomethyl) - α - ethyl - β - hydroxy-, Et ester, *p*-nitrobenzoate, *and* *HCl*, 7643*h*.
$C_{25}H_{32}N_2O_8$ Glucuronic acid, compd. with cinchonidine, 5008*hi*.
$C_{25}H_{32}O_3$ Cyclohexanol, 4-(α,β-diethyl-*p*-hydroxyphenethyl)-, benzoate, 2194*g*, 2195*c*.
1,4-Naphthoquinone, 2-[3-(4-cyclohexylcyclohexyl)propyl] - 3 - hydroxy-, 1376*e*, 2610*b*.
$C_{25}H_{32}O_4$ Durenol, 4,4′-methylenedi-, diacetate, 7450*i*.
$C_{25}H_{32}O_5$ Adipic acid, α-[2-methyl-1-(1-naphthylmethyl)propyl] - β - oxo-, di-Et ester, 622*a*.
1,2,4-Naphthalenetriol, 3-(2-methyloctyl)-, triacetate, 1373*e*.
$C_{25}H_{32}O_6$ Phenol, *p*,*p*′-isopropylidenedi-, bis(butyl carbonate), P 5998*c*.
$C_{25}H_{33}ClN_2$ 2-[2-(1-Amyl-2,5-dimethyl-3-pyrryl)vinyl] - 1 - ethyl - 6 - methylquinolinium chloride, 3930*e*.
$C_{25}H_{33}NO$ 6 - Hepten - 3 - one, 4 - (2 - diethylaminoethyl) - 4,7 - diphenyl-, - *HCl*, 4244*f*.
3-Hexanone, 6-(2,6-dimethyl-1-piperidyl)-4,4-diphenyl-, 9053*g*.
$C_{25}H_{33}NO_2$ 4-Morpholinebutanol, α-ethyl-δ-methyl-β,β-diphenyl-, acetate, - *HCl*, 3391*d*.
$C_{25}H_{33}NO_4$ 4-Piperidinol, 2,6-bis(*p*-methoxyphenyl)-1,3,5-trimethyl-, propionate, *and* - *HCl*, 1410*f*.
$C_{25}H_{33}NO_5$ Propionic acid, β,β-di-*p*-tolyl-, 2-diethylaminoethyl ester, oxalate, 7464*d*.
$C_{25}H_{33}NO_7$ 3-Heptanone, 6-dimethylamino-4,4-diphenyl-, tartrate, 2193*f*.
3-Hexanone, 6-dimethylamino-5-methyl-4,4-diphenyl-, tartrate, 2193*g*, 7467*b*.
$C_{25}H_{33}NO_9$ Colchiceine, hexahydro-, diacetate, 8376*c*.
$C_{25}H_{33}NO_9$ Colchiceine, hexahydro-, epoxide diacetate, 8376*d*.
2-Cyclopentene-1-acetic acid, α-phenyl-, 2-(1-pyrrolidyl)ethyl ester, citrate, 1388*e*.
$C_{25}H_{34}N_2O_4S$ 2-Thiazolidineacetic acid, 4-carboxy - 5,5 - dimethyl - α - (α - phenylacetamido)-, mono-Et ester, compd. with $PhCH_2NH_2$, 8892*g*.
$C_{25}H_{34}N_2O_4$ Piperidine, 1-ethyl-4-[2-(1-pyrrolidyl)ethylamino]-, dipicrate, 2207*e*.
$C_{25}H_{34}ClN_3$ Quinazoline, 4-*p*-chloroanilino-2 - (3 - dibutylaminopropylamino)-, *di*- *HCl hydrate*, 2952*f*.
$C_{25}H_{34}INO_2$ 1-(2-Hydroxypropyl)-1-methylpiperidinium iodide, α,α-diphenylbutyrate, 3392*b*.
$C_{25}H_{34}N_2$ Piperidine, 1,1′-[methylenebis(*p*-phenylenemethylene)]di-, *and* *di*- *HCl*, 3381*f*.
$C_{25}H_{34}N_2O$ 2(1*H*)-Isoquinolinepropanol, 3,4-dihydro - α,α - dimethyl - γ - phenyl-β-1-piperidyl-, 7025*c*.
$C_{25}H_{35}N_3O_2$ Acridanmethanol, 10-acetyl-α-(dibutylaminomethyl)-, - *HCl*, 234*b*.
$C_{25}H_{35}N_3O_4$ Benzoic acid, *p*-hydroxy-, Bu ester, *N*-(3-diethylaminopropyl)carbanilate, 593*g*.
Hydrocinnamic acid, α-(diethylaminomethyl)-α-ethyl-β-hydroxy-, Et ester *p*-aminobenzoate, 7643*h*.
$C_{25}H_{35}N_5O_5$ 3(α)-Etiocholanol-17-one, 2,4-dinitrophenylhydrazone, 5067*h*.
$C_{25}H_{36}N_4O_{10}$ Oxetane-3,3-bismethylamine, *N*, *N*, *N*′, *N*′-tetraethyl-, dipicrate, 134*a*.
$C_{25}H_{36}O_2$ Hendecanoic acid, biphenylyl-, Et ester, 566*c*.
$C_{25}H_{36}O_3$ 1,4-Naphthoquinone, 2-(9-cyclohexylnonyl)-3-hydroxy-, 1374*h*.
$C_{25}H_{36}O_4$ Chlorophorin, tetrahydro-, 5388*c*.
$\Delta^{5,6,20,22}$-Norcholadienic acid, 3,21-dihydroxy , lactone, 3-acetate, P 5811*a*, P 7054*ac*, P 7975*r*.
$C_{25}H_{36}O_5$ Corotoxigenin, acetate, 4680*b*.
$\Delta^4$-Pregnene-3,20-dione, 12(α),21-dihydroxy-, diacetate, 3430*i*.
$C_{25}H_{36}O_7$ Acetate, m. 141-2°, 4680*a*.
Acid, m. 218-20°, 4680*b*.
$\Delta^4$-Pregnene-3,20-dione, 12(α),21-dihydroxy-, 21-succinate, 3431*a*.
Sarmentosigenin A, acetate, 1430*d*.
Strophanthidin, 3-acetate, 313*d*.
$C_{25}H_{37}BrO_5$ 3,20-Pregnanedione, 3(α),21-dihydroxy-4-bromo-, 3,21-diacetate, 3430*i*.
$C_{25}H_{37}NO$ 1-Piperidinepropanol, α-isoamyl-α,β-diphenyl-, - *HCl*, 9070*i*.
$C_{25}H_{37}NO_2$ Acetic acid, diphenyl-, 2-(1-isobutylisoamylamino)ethyl ester, - *HCl*, P 2639*h*.
$C_{25}H_{37}NO_3$ Acetic acid, (2-dibutylaminoethoxy)phenyl-, benzyl ester, 2189*f*.
Piperidine, 1-[4-(4,4′-dimethoxybenzhydryloxy)amyl]-, P 5804*e*.
$C_{25}H_{38}NO_5$ Acetamide, *N*-(3,4-diethoxy-β-hydroxy - α - methylphenethyl) - α-(3,4-diethoxyphenyl)-, 1423*eh*.
Corotoxigenin, oxime, acetate, 4680*b*.
$C_{25}H_{38}NO_6S$ 6-Ethyl-5,6,7,8-tetrahydro-5-isobutyl - 4 - methoxy - 6 - methyl-1,3 - dioxolo[*g*]isoquinolinium *p*-toluenesulfonate, 2213*b*.
5,6,7,8 - Tetrahydro - 5 - isoamyl - 4 - methoxy - 6,6 - dimethyl - 1,3 - dioxolo[*g*]isoquinolinium *p*-toluenesulfonate, 2213*c*.
$C_{25}H_{39}NO_2S$ Propylamine, *N*, *N*,1-trimethyl-3,3 - diphenyl - 3 - (propylsulfonyl)-, tartrate, 1367*a*.
$C_{25}H_{39}N_3O_6$ Lindelofine, picrolonate, 3827*h*.
$C_{25}H_{52}$ Dodecane, 2-benzyl-1-phenyl-, 4140*e*.
$C_{25}H_{53}NO$ Acridanmethanol, α - (diamylaminomethyl)-, 234*b*.
$C_{25}H_{54}N_2O_3$ Urea, 1,3-bis(4-ethoxy-3-methoxybenzyl)-1,3-diethyl-, 2177*b*.
$C_{26}H_{36}O_3$ Choladienic acid, 3-keto-, Me ester, P 3980*a*, 7494*f*.
1,4-Naphthoquinone, 2-(5-ethyl-2-isobutylnonyl)-3-hydroxy-, 1373*g*.
—, 2 - hydroxy - 3 - pentadecyl-, 1109*c*, 1373*c*, 2610*b*.
$C_{26}H_{36}O_4$ $\Delta^{3,5}$-Androstadiene-3,17(α)-diol, dipropionate, 3018*i*.
$\Delta^{20,22}$-Norallocholenic acid, 3,21-dihydroxy-, lactone, 3-acetate, P 7975*b*, P 7976*f*, P 7977*ceg*.
$\Delta^{20,22}$-Norcholenic acid, 3,21-dihydroxy-, lactone, 3-acetate, P 7975*hi*, P 7976*i*, P 7977*d*.

$\Delta^{5,17}$-Pregnadiene-3($\beta$),20-diol, enol diacetate, 8396*f*.
Testosterone, dipropionate, 7124*g*.
$C_{24}H_{38}O_4$ $\Delta^4$-Norcholenic acid, 3,20,21-trihydroxy-, lactone 3-acetate, P 5811*a*, P 6247*a*, P 7975*e*.
Odorigenin B, acetate, 7034*c*.
Pregnenediolone, diacetate, P 5052*e*, 6214*g*.
5-Pregnen-3($\beta$)-ol-20-one, 16,17-oxido-, acetate, ethylene acetal, 3430*e*.
$C_{24}H_{38}O_5$ $\Delta^4$-Androstene, 3($\beta$),16($\alpha$),17($\alpha$)-trihydroxy-, triacetate, 3434*i*.
$\Delta^5$-Androstene-3,16,17-triol, triacetate, 3018*i*.
17 - Isoallopregnane - 3,21 - diol - 11,20-dione, diacetate, P 7978*g*.
Periplogenin, 3-acetate, P 3046*h*.
Pregnane-20($\beta$),21-diol-3,11-dione, diacetate, 6212*e*.
3,20 Pregnanedione, 3($\alpha$),21-dihydroxy-, 3,21-diacetate, 3430*i*.
$C_{24}H_{40}O_7$ Etiocholanic acid, 3,7-diacetoxy-12-keto-, Me ester, 3019*g*.
Pregnane - 17($\alpha$),20($\beta$),21 - triol - 3,11-dione, diacetate, 6214*i*.
$C_{24}H_{37}Cl_4NO$ Phenol, 4-*tert*-butyl-2,6-dichloro-, compd. with *N*,*N*-dibutylbenzylamine, P 4298*f*.
$C_{24}H_{37}NO_3S$ 4-[6-(Benzhydroxyloxy)hexyl]-4-methylmorpholinium methyl sulfate, P 5804*f*.
$C_{24}H_{37}N_3O_3S$ Quinoline, 5,8-diacetamido-6-(dodecylmercapto)-, 3419*b*.
$C_{25}H_{52}$ Pentadecane, 1-(2-naphthyl)-, 4454*h*.
$C_{24}H_{38}Br_2O_3$ Allocholanic acid, 2,4-dibromo-3-keto-, Me ester, 7494*e*.
$C_{24}H_{38}N_2$ Aniline, *p*,*p'*-methylenebis[*N*,*N*-dipropyl-, P 9520*e*.
Benzylamine, *p*,*p'*-methylenebis[*N*-amyl- *and di- HCl*, 3382*d*.
1,9-Nonanediamine, *N*,*N'*-diphenethyl-, *di- HBr*, 3379*d*, P 3455*e*.
$C_{24}H_{38}N_2O_2$ Compd. from 4-methoxy-*N*,*N*,3-trimethylphenethylamine and HCHO, *HCl*, 6594*d*.
$C_{24}H_{38}N_2O_4S$ [2-(2-Butoxyethoxy)ethyl]nicotinium *p*-toluenesulfonate, P 1904*a*.
$C_{24}H_{40}O$ Naphthalene, 1 - (tetradecyloxymethyl)-, P 2732*d*.
$C_{24}H_{40}O_2$ 6*H*-Dibenzopyran-1-ol, 7,8,9,10-tetrahydro - 6,6,9 - trimethyl - 3-(1,2,4-trimethylhexyl), 8383*g*.
$\Delta^{2,13}$ - Norcholadien - 12($\alpha$) - ol, acetate, 9077*b*.
$C_{24}H_{38}O_3$ $\Delta^{11}$-Cholenic acid, 3-keto-, Me ester, P 3980*bc*.
Coumarin, 3-hexadecyl-4-hydroxy-, P 4701*b*.
$H_{40}O_4$ $\Delta^5$-Androstene-3,17-diol, dipropionate, 3018*i*.
$\Delta^{11,12}$-Bisnorcholenic acid, 3($\alpha$)-hydroxy-, Me ester acetate, P 5428*h*.
Cholanic acid, 3,12-diketo-, Me ester, 3019*g*.
—, 3,9-epoxy-11-keto-, Me ester, 3019*g*.
Cholenic acid, 3($\alpha$)-hydroxy-12-keto-, Me ester, 3433*f*.
—, 3-keto-12-hydroxy-, Me ester, 4282*h*.
$\Delta^{20}$-Pregnene-3($\alpha$),12($\alpha$)-diol, diacetate, 9076*b*.
$_{40}O_5$ 5-Allopregnane, 3($\beta$),20($\beta$)-diacetoxy-16($\alpha$),17($\alpha$)-oxido-, 1787*h*.
Allopregnanediolone, diacetate, 5068*a*, 6642*bc*.
20-Allopregnanone, 3,21-diacetoxy-, P 7977*b*.
Diacetate, m. 102.5–3.5°, 5068*e*; m. 128–9°, 5068*b*.
Epipregnane-3,20-diol-11-one, diacetate, 3019*g*.
17 - Iso - $\Delta^5$ - pregnene - 3($\beta$),17($\beta$),20($\beta$)-triol, 3,20-diacetate, 8396*c*.
Norcholanic acid, 3-acetoxy-20,21-dihydroxy-, lactone, P 7976*b*, P 7977*d*.
Pregnanediolone, diacetate, 3018*i*, 3019*g*, 5068*a*, 6211*ce*, 6215*fh*.
20-Pregnanone, 3,21-diacetoxy-, P 7976*c*.
$\Delta^5$-Pregnene-3($\beta$),17($\alpha$),20($\beta$)-triol, 3,20-diacetate, 8396*c*.
Testosterone, 17 - (1,2,3 - trihydroxypropyl)-, acetone deriv., P 4433*a*.
$_{40}H_{62}O_5$ 17-Isoallopregnane-3,11,21-triol-20-one, 3,21-diacetate, P 7978*g*.
$_{40}H_{62}O_6$ Pregnanetriol-11-one, diacetate, 6211*i*, 6212*bc*, 6213*gh*, 6214*f*, 6216*b*.
$_{40}O_3$ Pregnane-3($\alpha$),17($\alpha$),20($\beta$),21-tetrol-11-one, 3,21-diacetate, 6215*a*.
$_{40}NO_2$ Isoandrosterone, 16-(1-piperidylmethyl)dehydro-, 1429*a*.
$_{40}NO_3$ Alkaloid, m. 84–5°, *and salts*, 4676*b*.
$_{40}NO_4$ Alkaloid, m. 147–9°, *and salts*, 4676*b*.

$C_{24}H_{39}NS_2$ 2-Thiazolethiol, 4-(*p*-hexadecylphenyl)-, 633*h*.
$C_{24}H_{39}Br_2NO$ Margaranilide, tribromo-$\xi$-ethyl-, 3780*h*.
Stearanilide, tribromomethyl-, 3781*d*.
$C_{24}H_{40}N_2O$ 4-Quinolinemethanol, $\alpha$-(dihexylaminomethyl)-6,7-dimethyl-, *di- HBr*, 4675*b*.
$C_{24}H_{40}N_4$ Ethylenediamine, *N*,*N''*-(methylenedi - *p* - phenylene)bis[*N'*,*N'* - diethyl-, *and tetra - HCl*, 3381*i*.
$C_{24}H_{40}N_4O_4$ 2-Pentanone, 4,4'-[2,2-bis(1-methyl - 3 - oxybutylideneaminomethyl)trimethylenedinitrilo]di-, P 4687*e*.
$C_{24}H_{40}O_2$ Oleic acid, tolyl ester, 2187*d*.
$C_{24}H_{40}O_3$ Allocholanic acid, 3-keto-, Me ester, 7494*e*.
$\Delta^{9,11}$-Cholenic acid, 3($\alpha$)-hydroxy-, Me ester, 3433*h*.
$C_{24}H_{40}O_4$ 3($\beta$),20 - Allopregnanediol, diacetate, 6210*fi*.
Benzoic acid, *p*-hydroxy-, stearate, P 418*e*.
Cholanic acid, 3-hydroxy-11-keto-, Me ester, 3019*g*.
$\Delta^{9,11}$-Cholenic acid, 3,12-dihydroxy-, Me ester, 3434*b*.
—, 3-hydroxy-12-methoxy-, 3018*i*.
3,20-Pregnanediol, diacetate, 1825*b*, 3018*i*.
Salicylic acid, stearate, P 418*e*.
$C_{24}H_{40}O_5$ 5-Allopregnane, 3,17,20-trihydroxy-, diacetate, 1787*h*.
3,16,20-Allopregnanetriol, diacetate, 6642*a*.
$C_{24}H_{40}O_6$ Glucoside<1,5>, 17-keto-3($\beta$)-androstanyl, 243*e*.
$C_{24}H_{40}O_7$ Glucoside, androsterone-, P 5428*b*.
$C_{24}H_{41}ClO_2$ Stearic acid, (chlorotolyl)-, 9028*g*.
$C_{24}H_{41}N$ Stearonitrile, tolyl-, P 7968*f*.
$C_{24}H_{41}NO$ o-Oleotoluidide, 8353*i*.
$C_{24}H_{42}NO_2$ Cyclooctadecanol, carbanilate, 6988*h*.
$C_{24}H_{43}NO_4$ 3,12-Pregnanediol-20-amine, diacetate, - *HCl*, 3018*i*.
$C_{24}H_{43}NO_4S$ Spiro[pregnane-3,2'-thiazolidine]-4'-carboxylic acid, 20-keto-, compd. with MeOH, 659*d*.
$C_{24}H_{43}N_3$ *s*-Triazine, 4-hendecyl-1,2-dihydro-2 - imino - 6 - (isopropylxylylamino)-, P 5216*d*.
$C_{24}H_{42}$ Hydrocarbon, m. 158–9°, 7926*d*.
$C_{24}H_{42}ClN_3O_2$ 1-Carboxy-3-hexadecyl-1*H*-benzotriazolium chloride, Et ester, P 7971*b*.
$C_{24}H_{43}Cl_3N_2O$ 1-(*p*-Chlorophenylcarbamylmethyl) - 1 - dodecylpiperidinium chloride, P 3034*e*.
$C_{24}H_{44}O$ Ketone, m. 208–9°, 7926*b*.
$C_{24}H_{44}O_2$ Stearic acid, tolyl-, 9028*f*.
$C_{24}H_{44}O_3$ Stearic acid, $\iota$-(hydroxyphenyl), Me ester, P 5044*h*, P 6466*d*.
$C_{24}H_{44}O_4$ Gentisic acid, octadecyl ester, 7003*i*.
Mesitylenic acid, $\alpha^3$ - (hexadecyloxy) - 2-hydroxy-, *and Na salt*, P 1064*c*.
$C_{24}H_{44}ClN_3O_4$ 1-[(2-Hydroxyethylcarbamyl)-methyl]pyridinium chloride, palmitate, P 6948*i*, 7776*i*.
$C_{24}H_{45}NO_3S$ Stearamide, *N*-*p*-tolylsulfonyl-, P 2795*g*.
$C_{24}H_{45}NO_4$ 1,5,5-Pentadecanetricarboxylic acid, 1-cyano-, tri-Et ester, P 7506*a*.
$C_{24}H_{45}N_3O_2$ Benzoic acid, *p*-stearoylamino-, hydrazide, P 3639*a*, P 9498*a*.
$C_{24}H_{45}N_5O$ Lauramide, *N* [(*N*-isopropyl-*N*-xylyl-guanyl)guanyl]-, P 700*a*, P 5216*c*.
$C_{24}H_{46}$ Hydrocarbon, m. 155–6°, 7926*e*; m. 165–6°, 7926*b*.
$C_{24}H_{46}BrN$ 1-Phytylpyridinium bromide, P 2221*i*.
$C_{24}H_{46}N_2O_3S$ Stearamide, *N*-(5-amino-*o*-tolylsulfonyl)-, P 4867*i*.
Stearamide, *N*-*p*-sulfamylbenzyl-, 8539*e*.
$C_{24}H_{46}N_2O_4S$ Stearamide, *N*-(6-methoxymetanilyl)-, P 4867*h*.
$C_{24}H_{46}O$ Alcohol, m. 193–4°, 7926*b*.
$C_{24}H_{46}O_5$ Ethanol, 2-[2-[2-[2-(octyltoloxy)ethoxy]ethoxy]ethoxy]-, P 1177*f*.
$C_{24}H_{46}ClN_3O$ Methyldioctyl(phenylcarbamylmethyl)ammonium chloride, P 3034*f*.
$C_{24}H_{46}NO_4S$ 4-Methyl-4-(1-*p*-tolyldodecyl)-morpholinium methyl sulfate, P 3045*b*.
$C_{24}H_{46}ClN$ Benzylhexadecyldimethylammonium chloride, 20*f*, 4780*b*, 6587*b*.
$C_{24}H_{46}NO_4S$ Dodecyidiethyl(methoxyphenyl)-ammonium ethyl sulfate, P 8020*d*.
Dodecylethylmethyl - *p* - phenethylammonium ethyl sulfate, P 2229*a*.
$C_{24}H_{47}N_3$ Pyridine, 2-[(2,2-dibutylhexyl)(2-diethylaminoethyl)amino]-, *and di- HCl*, 4265*f*.

$C_{24}H_{46}O_2$ 12-Docosenoic acid, 3,12,15-trimethyl-, 4375*g*.
$C_{24}H_{48}O_2$ Myristic acid, $\alpha$-decyl-$\beta$-oxo-, Me ester, 6170*i*.
Tetracosanoic acid, 6-oxo-, Me ester, 3366*g*.
$C_{24}H_{48}O_4$ Azelaic acid, bis(2-ethylhexyl) ester, P 5184*a*.
$C_{24}H_{48}INO_2$ Propionic acid, $\alpha$-iodo-, hexadecyl ester, compd. with hexamethylenetetramine, 4641*a*.
$C_{24}H_{50}N_2O_2$ Azelaamide, *N*,*N*,*N'*,*N'*-tetrabutyl-, P 7258*f*.
$C_{24}H_{50}O_2$ Behenic acid, trimethyl-, 4375*g*.
Margaric acid, $\theta$-octyl-, 3780*h*.
Pentacosanoic acid, 3781*d*.
Tetracosanoic acid, 3-methyl-, 3781*d*.
Tricosanoic acid, dimethyl-, 4375*g*.
$C_{24}H_{50}O_{15}$ 1,5,9,13,17-Pentoxacycloeicosane 3,3,7,7,11,11,15,15,19,19 - decamethanol, 6223*f*.
$C_{25}H_{51}NO$ Pentacosanamide, 3781*gh*.
Tetracosanamide, 3-methyl-, 3781*i*.
$C_{25}H_{51}NO_2$ Tetracosanamide, 3-methyl-, 3781*f*.
$C_{25}H_{51}N_2O_4S$ 1-Propanesulfonic acid, 2-hydroxy - 3 - [(2 - hydroxyethyl)(2-stearoylaminoethyl)amino]-, *Na salt*, P 7242*g*.
$C_{25}H_{54}ClNO_4$ Tris(2,3-dihydroxypropyl)-hexadecylammonium chloride, 6041*b*.
$C_{25}H_{44}N_2O_4S$ Succinamic acid, *N*-hexadecyl-*N*-methylsulfo-, bis(2-aminoethanol) salt, P 1798*a*.
$C_{25}H_{56}Br_2N_2$ Tridecamethylenebis[triethylammonium bromide], 2703*d*.
$C_{25}H_{12}N_4O_7$ Bisbenzimidazodiazopyrenedione, P 9469*i*.
$C_{25}H_{12}O_4$ Benzo[*a*]pentacene-7,9,14,16-tetrone, 1362*h*.
$C_{26}H_{14}$ Dibenzo[*b*,*pqr*]perylene, 5390*e*.
$C_{25}H_{14}N_2O_3$ Compd., m. 275–8°, 7009*a*.
$C_{26}H_{14}N_2O_4$ 3,4,9,10-Perylenetetracarboxylic diimide, *N*,*N'*-dimethyl-, P 9470*a*.
$C_{26}H_{14}O_2$ Dibenzo[*a*,*c*]naphthacene-10,15-dione, 1303*d*.
$C_{26}H_{13}BrN_2S$ Dibenzo[*f*,*h*]quinoxaline, 2-(5-bromo-2-thienyl)-3-phenyl-, 4666*b*.
$C_{25}H_{15}NO$ Acetamide, *N*-coronenyl-, 5020*d*.
$C_{26}H_{16}$ Anthra[1,2-*b*]phenanthrene, 1365*d*.
Benzo[*a*]pentacene, 1362*c*.
$\Delta^{9,9'}$-Bifluorene, 3263*c*.
Dibenzo[*a*,*c*]naphthacene, 1303*c*.
$C_{26}H_{16}Br_4Cl_2$ Ethane, 1,1,2,2-tetrakis(*p*-bromophenyl)-1,2-dichloro-, 7006*b*.
$C_{26}H_{16}Cl_2F_4$ Ethane, 1,2-dichloro-1,1,2,2-tetrakis(*p*-fluorophenyl)-, 9332*f*.
$C_{26}H_{16}Cl_2O_6S_2$ Anthracenedisulfonyl chloride, 9,10-diphenyl-(?), 3815*fg*.
$C_{26}H_{16}Cl_4$ Ethylene, 1,1-dichloro-2,2-bis(4'-chloro-4-biphenylyl)-, 7927*e*.
Ethylene, tetrakis(*p* - chlorophenyl)-, 5148*d*.
$C_{26}H_{16}Cl_4N_2O_2$ 4',4'''-Bibenzanilide, 2',2''',5',5'''-tetrachloro-, 3729*e*.
$C_{26}H_{16}Cl_4N_2O_2S$ Aniline, *p*,*p'*-sulfonylbis[*N*-dichlorobenzylidene-, 5541*g*.
$C_{26}H_{16}Cl_4O$ Acetophenone, *p*-chloro-$\alpha$,$\alpha$,$\alpha$-tris(*p*-chlorophenyl)-, 5148*d*.
$C_{26}H_{16}Cl_8$ Ethane, 1,2-dichloro-1,1,2,2-tetrakis(*p*-chlorophenyl)-, 7006*b*.
$C_{26}H_{16}F_4$ Ethylene, tetrakis(*p*-fluorophenyl)-, 9332*f*.
$C_{26}H_{16}N_2$ 9,9'-Biacridine, 2336, 646*d*, P 3853*h*.
Compd., *di- HCl*, m. 267°, 5025*h*.
$C_{26}H_{16}N_2O_{12}S$ 2-Naphthoic acid, thiobis[3-hydroxy-7-nitro-, diacetate, 2600*c*.
$C_{26}H_{16}N_4O_7$ Dibenzocarbazole, picrate, 5774*c*.
9-Fluorenone, trinitro-, compd. with 1-fluorenamine, 4246*c*.
$C_{26}H_{16}O$ Dibenzo[*a*,*c*]naphthacen - 10(15*H*) - one, 1363*f*.
$C_{26}H_{18}O_2$ Benzoic acid, o-triphenylenylcarbonyl-, 1363*d*.
$C_{26}H_{18}O_4$ Terephthalic acid, 2-benzoyl-5-(1-naphthoyl)-(?), 1362*f*.
$C_{26}H_{17}ClN_4O_{16}S_4$ 2,7-Naphthalenedisulfonic acid, 5-chloro-4,4',5'-trihydroxy-3,3'-(*p*-phenylenebisazo)bis-, *tetra- Na salt*, P 7847*g*.
$C_{26}H_{17}ClO_2S$ 2-Anthracenesulfonyl chloride, 9,10-diphenyl-, 3815*f*.
$C_{26}H_{17}Cl_3$ Ethane, 1,1,1-trichloro-2,2-bis(4'-[illegible]yl)-, 7927*e*.
$C_{26}H_{17}NO_3$ 7,8-Ben[illegible]vone, 6-benzamido-, 5779*d*.
$C_{26}H_{17}NS_2$ Quinoline, 4,4'-(2-benzothiazolylmethylene)di-, P 5807*i*.
$C_{26}H_{17}N_3O_{10}$ Phenanthridine, 6-(*p*-methoxyphenyl)-5-nitro-, picrate, 7446*c*.
$C_{26}H_{18}N_2O_{11}S_3$ 2,2'-Stilbenedisulfonic acid, 4 - nitro - 4' - (7 - *p* - sulfophenylbenzo-

[1,2,3,4]bistriazol - 2(7 *H*) - yl)-, P 1574*e*.

$C_{26}H_{17}N_7O_{14}S_4$ 2,2′-Stilbenedisulfonic acid, 4 - [7 - (2,5 - disulfophenyl)benzo-[1,2,3,4]bistriazol - 2(7 *H*) - yl] - 4′-nitro-, P 1574*e*.

$C_{26}H_{18}$ Anthracene, 9,10-diphenyl-, 2983*f*, 3815*e*.

$C_{26}H_{18}Br_2$ Ethylene, 1,1-bis(*p*-bromophenyl)-2,2-diphenyl-, 7006*a*.

$C_{26}H_{18}Br_2O_7$ Fluorescein, 2,7-dibromo-4,5-dimethyl-, diacetate, 1984*f*.

$C_{26}H_{18}ClN$ Aniline, *N*-(10-chloro-10-phenyl-9(10 *H*)-anthrylidene)-, 9060*e*.

$C_{26}H_{18}Cl_2$ Ethylene, 1,1-bis(4-biphenylyl)-2,2-dichloro-, 2979*i*.

$C_{26}H_{18}Cl_2N_2$ 9,10-Anthracenediamine, *N*, *N*′-bis(chlorophenyl)-, 7823*e*.

$C_{26}H_{18}Cl_2N_2O_2$ Acridine, 6-chloro-9-(3-chloro 4 - phenoxyanilino) - 2 - methoxy- P 4703*e*.

$C_{26}H_{18}Cl_2N_2O_2S$ Aniline, *p*, *p*′-sulfonylbis[*N*-chlorobenzylidene-, 5541*f*.

$C_{26}H_{18}Cl_2O_7$ Fluorescein, 3′,6′-dichloro-4,5-dimethyl-, diacetate, 1984*h*.

$C_{26}H_{18}Cl_4O_2$ Benzopinacol, 4,4′,4″,4‴-tetrachloro-, 6515*e*.

$C_{26}H_{18}I_2O_7$ Fluorescein, 2,7-diiodo-4,5-dimethyl-, diacetate, 1984*g*.

$C_{26}H_{18}N$ Anilino, *N*-(10-phenyl-9-anthryl)-, 9060*f*.

9-Anthryl, 9,10-dihydro-9-phenyl-10-phenylimino-, 9060*f*.

$C_{26}H_{18}N_2O$ 9-Anthramine, *N*-nitroso-*N*,10-diphenyl-, 9060*g*.

$C_{26}H_{18}N_2O_2$ Cinchophen, 3 - (2 - naphthylamino)-, 8391*f*.

$C_{26}H_{18}N_2O_4$ 2-Naphthoic acid, 3-(4-hydroxy-2 - methylbenzo[*h*]quinol - 3 - ylcarbonylamino)-, *and Na salt*, 1417*i*.

$C_{26}H_{18}N_4O_4$ Ketone, 2-fluorenyl phenyl, 2,4-dinitrophenylhydrazone, 7474*a*.

$C_{26}H_{18}N_4O_4S$ Aniline, *p*, *p*′-thiobis[*m*-nitrobenzylidene-, 4427*a*.

$C_{26}H_{18}N_4O_7$ Benz[*g*]isoquinoline, 1-benzyl-, picrate, 8390*i*.

$C_{26}H_{18}N_4O_8$ Phenanthridine, 6-(*p*-methoxyphenyl)-, picrate, 7446*b*.

$C_{26}H_{18}N_4O_8S$ Quinolinanilic acid, 4′,4‴-sulfonylbis-, *and di-Na salt*, P 6233*b*.

$C_{26}H_{18}N_4O_8S$ Phenanthridine, 6-[*p*-(methylsulfonyl)phenyl]-, picrate, 7446*b*.

$C_{26}H_{18}N_4O_{16}S_4$ 2,7-Naphthalenedisulfonic acid, 3,3′-(*p*-phenylenebisazo)bis [4,5-dihydroxy-, *tetra-Na salt*, P 7847*i*.

$C_{26}H_{18}N_6O_8S_2$ 2-Naphthalenesulfonic acid, 8-amino - 5 - [4 - (*p* - nitrophenylazo)-7-sulfo-1-naphthylazo]-, P 5599*e*.

$C_{26}H_{18}O$ 2-Anthrol, 9,10-diphenyl-, 3815*g*.

9-Fluorenyl ether, 4658*h*.

$C_{26}H_{18}O_3$ Anthracene, 9,10-diphenyl-, photooxide, 620*h*, 2983*g*.

$C_{26}H_{18}O_3$ Anthrone, 10,10-bis(*p*-hydroxyphenyl)-, 2319*f*.

$C_{26}H_{18}O_3S$ 2-Anthracenesulfonic acid, 9,10-diphenyl-, *and Na salt*, 3815*f*.

$C_{26}H_{18}O_4$ *p*, *p*′-Biphenol, dibenzoate, 5018*a*.

7,14 - Ethanodibenz[*a*,*h*]anthracene - 15,16-dicarboxylic acid, 7,14-dihydro-, *di-Na salt*, 2275*f*.

$C_{26}H_{18}O_3S_2$ Thiaxanthene, 10,10′-oxybis-, bis(5,5-dioxide), 2994*i*.

$C_{26}H_{18}O_6S_2$ Anthracenedisulfonic acid, 9,10-diphenyl-(?), 3815*f*.

*p*-Benzenedisulfonic acid, dinaphthyl ester, 2967*i*.

$C_{26}H_{18}O_8S$ 2 - Naphthoic acid, thiobis[hydroxy-, diacetate, 2599*i*.

$C_{26}H_{19}ClN_2$ See "Quinoline Red" under *Dyes*.

$C_{26}H_{19}ClN_2O$ Acridine, 9-(4-biphenylylamino)-6-chloro-2-methoxy-, P 4703*d*.

$C_{26}H_{19}Cl_3NO_2$ 4-Piperidone, 1-benzoyl-3,5-bis(*p*-chlorobenzylidene)-, 4275*e*.

$C_{26}H_{19}Cl_2N_3$ Quinoxaline, 2,3-bis(*o*-chlorophenyl) - 6 - (2,5 - dimethyl - 1 - pyrryl)-, 235*b*.

$C_{26}H_{19}Cl_3$ Ethane, 2,2-bis(4-biphenylyl)-1,1,-1-trichloro-, 2979*g*.

$C_{26}H_{19}N$ 9-Anthramine, *N*,10-diphenyl-, 9060*g*.

Pseudoisoindole, 1,1,3-triphenyl-, 7464*i*.

$C_{26}H_{19}NO$ 9-Anthrol, 9,10-dihydro-9-phenyl-10-phenylimino-, *and - HCl*, 9060*d*.

Naphthaleneacrylonitrile, methoxy-α, β-diphenyl-, 7007*b*.

—, α - (*p* - methoxyphenyl) - β - phenyl-, 7007*b*.

$C_{26}H_{19}NO_2$ 1,4-Epoxy-2,3,1 *H*-benzoxazine, 3,4-dihydro-1,3,4-triphenyl-, 7017*i*.

$C_{26}H_{19}NO_2S$ 2-Anthracenesulfonamide, 9,10-diphenyl-, 3815*f*.

$C_{26}H_{19}NO_4$ Benzamide, *N*-(3-acetyl 4-hydroxy-1-naphthyl)-, benzoate, 5779*c*.

Benzamide, *N*-(3-benzoylacetyl-4-hydroxy-1-naphthyl)-, 5779*c*.

$C_{26}H_{19}N_3O$ 1-Pyrazolecarboxamide, *N*-1-naphthyl-3,5-diphenyl-, 8365*h*.

$C_{26}H_{19}N_3O_5$ 4-Piperidone, 1-benzoyl-3,5-bis-(nitrobenzylidene)-, 4275*e*.

$C_{26}H_{19}N_3O_4$ Δ²-1,2,4-Triazoline, 4,5-bis(*p*-nitrophenyl)-3,3-diphenyl-, 7022*c*.

$C_{26}H_{19}N_3O_8S_2$ Naphthol-4-sulfonic acid, [4 - (4 - aminosulfo - 1 - naphthylazo)-2-hydroxyphenylazo]-, P 4481*fghi*, P 4482*ab*, P 8161*e*.

$C_{26}H_{19}N_3O_{12}S_3$ 2,7-Naphthalenedisulfonic acid 3 - [*p* - (8 - amino - 1 - hydroxy - 5-sulfo - 2 - naphthylazo)phenylazo]-4,5-dihydroxy-, *tri-Na salt*, P 7847*h*.

$C_{26}H_{19}N_3O_{16}S_4$ 2,7-Naphthalenedisulfonic acid, 5 - amino - 4,4′,5 - trihydroxy-3,3′ - (*p* - phenylenebisazo)bis , *tetra-Na salt*, P 7847*c*.

1-Naphthol-5,7-disulfonic acid, 8-amino-2 - [*p* - (1,8 - dihydroxy - 3,6 - disulfo-2-naphthylazo)phenylazo]-, *tetra-Na salt*, P 7847*h*.

$C_{26}H_{20}$ Anthracene, 9,10-dihydro-9,10-diphenyl-, 2983*g*.

Ethylene, tetraphenyl-, 193*a*, 3270*b*, 5731*e*.

$C_{26}H_{20}Br_2N_2O$ 7 *H*-Dibenz[*f*, *ij*]isoquinolin-7-one, bis(bromomethyl) methyl-*p*-toluidino-, P 8163*h*.

$C_{26}H_{20}ClNO_6$ 2-Naphthamide, *N* 1,3-benzodioxan - 6 - yl - 4 - (5 - chloro - 2 - methoxyphenyl)-3-hydroxy-, P 8152*i*.

$C_{26}H_{20}ClN_3O_4$ 2-Naphthamide, *N*-1,4-benzodioxan - 6 - yl - 4 - (5 - chloro - *o* - tolylazo)-3-hydroxy-, P 8153*a*

$C_{26}H_{20}Cl_2$ Ethane, 1,2-dichloro-1,1,2,2-tetraphenyl-, 7005*i*.

$C_{26}H_{20}CuN_2O_2$ *o*-Cresol, α-phenylimino-, Cu deriv., 4073*e*.

$C_{26}H_{20}N_2$ Benzidine, *N*, *N*′-dibenzylidene-, 3675*d*, 7291*f*

Benzophenone, azine, P 670*g*

Carbodiimide, phenyltriphenylmethyl, 4645*h*

Phenylenediamine, *N*, *N*′-di-2-naphthyl-, 7740*f*, 9517*a*.

$C_{26}H_{20}N_2O$ Benzanilide, *N*-(*N*-phenylbenzimido)-, 2594*i*.

$C_{26}H_{20}N_2O_2$ 2′,2‴-Bibenzanilide, 3810*a*.

1,3(2 *H*,4 *H*) - Isoquinolinedione, 4 - (2-methyl - 4(1 *H*) - quinolylidene) - 2-*p* tolyl-, *and - HCl*, 229*e*

$C_{26}H_{20}N_2O_3S$ *o*-Cresol, α,α′ [thiobis(*p*-phenylenenitrilo)]di-, 4427*a*.

$C_{26}H_{20}N_2O_3S_2$ Benzanilide, 2′,2‴-dithiobis-, 7252*f*.

$C_{26}H_{20}N_2O_3$ 1,3-Dioxolo[*g*]isoquinoline, 6-benzoyl - 5,6,7,8 - tetrahydro - 5-(quinolyl)-, 1421*g*, 1422*c*

$C_{26}H_{20}N_2O_4S_2$ Anthracenedisulfonamide, 9,10-diphenyl-(?), 3815*fg*.

*p*-Benzenedisulfonamide, *N*, *N*′-dinaphthyl-, 4237*e*.

$C_{26}H_{20}N_2S$ Aniline, *p*, *p*′-thiobis[*N* benzylidene-, 4426*i*.

$C_{26}H_{20}N_4O_3$ 2-Pyrazoline-3-carboxylic acid, 1 - (naphthyl) - 4 - (naphthylazo) - 5-oxo-, Et ester, P 8149*e*.

$C_{26}H_{20}N_4O_6$ 2-Naphthamide, *N*-1,3-benzodioxan - 6 - yl - 3 - hydroxy - 4 - (5-nitro-*o*-tolylazo) , P 8152*a*, P 8153*a*.

$C_{26}H_{20}N_4O_7$ 2-Naphthamide, *N*-1,3-benzodioxan - 6 - yl - 3 - hydroxy - 4 - (2-methoxy - 5 - nitrophenylazo)-, P 8152*a*, P 8153*a*.

$C_{26}H_{20}N_4O_8$ 1,3-Dioxolo[*g*]isoquinoline, 5-(5-indanylmethyl)-, picrate, 8390*f*.

$C_{26}H_{20}N_4O_8S_2$ 2-Pyrazoline 3 carboxylic acid, 5 - oxo - 1 - (1 - sulfonaphthyl) - 4 - (1-sulfonaphthylazo) , 3-Et ester, P 8149*f*

$C_{26}H_{20}N_4O_{13}S_4$ 3-Pyrazolecarboxylic acid, 1-(4,8 - disulfo - 2 - naphthyl) - 4 - (4,8-disulfo - 2 - naphthylazo) - 5 - hydroxy-(?), 3-Et ester, *tetra-Na salt*, P 8149*f*.

$C_{26}H_{20}N_6O_{10}$ Anisamidine, *N*-(4′-nitro-2-biphenylyl)-, picrate, 7445*h*.

$C_{26}H_{20}N_6O_{11}S$ Benzamidine, *p*-(methylsulfonyl) - *N* - (4′ - nitro - 2 - biphenylyl)-, picrate, 7445*g*.

$C_{26}H_{20}N_6O_{11}S_2$ 1-Naphthol-4-sulfonic acid, 2 - [2 - nitro - 4 - [β - oxo - α - (*p* - sulfophenylazo)butyrylamino]phenylazo ] -, P 9463*b*.

$C_{26}H_{20}N_6O_{16}S_4$ 1-Naphthol-3,6-disulfonic acid, 2,2′ - (*p* - phenylenebisazo)bis[8-amino-, *tetra-Na salt*, P 7847*g*.

$C_{26}H_{20}O$ Benzophenone, 2-benzhydryl-, 6194*d*.

$C_{26}H_{20}OS$ Acetophenone, α,α-diphenyl-α-phenylmercapto-, 1753*h*.

Benzoic acid, thiol-, triphenylmethyl ester, 1753*h*.

$C_{26}H_{20}O_2$ 1 *H*-Benzonaphthen-1-ol, 2,3-dihydro-3-phenyl-, benzoate, 7472*g*.

$C_{26}H_{20}O_2$ 1,6-Heptadiene-3,5-dione, 4-benzoyl-1,7-diphenyl-, 7002*f*.

1,4-Naphthoquinone, 2-[3-(2-fluorenyl)-propyl]-3-hydroxy-, 1379*g*.

$C_{26}H_{20}O_7$ Fluorescein, 4,5-dimethyl-, diacetate, 1983*h*.

$C_{26}H_{20}O_8$ Phthalide, 3-phenyl-3-(3,4,5-trihydroxyphenyl)-, triacetate, 2310*d*

$C_{26}H_{20}O_9$ 5 *H*-Dibenzo[*a*, *j*]xanthene-14 val-eric acid, α, β, γ, δ, 9-pentahydroxy - oxo-(?), 141*i*.

$C_{26}H_{21}BrO_7$ Ribopyranosyl bromide, 2,3,4-tribenzoyl-, 1721*bd*.

$C_{26}H_{21}ClN_4O_4$ 2-Naphthanilide, 4′-chloro-2′-ethyl - 3 - hydroxy - 4 - (2 - nitro - *p*-tolylazo)-, P 8155*f*.

$C_{26}H_{21}ClN_8O_{11}S_2$ Benzenesulfonic acid, 4-chloro - 3 - [5 - hydroxy - 3 - methyl-4 - [2 - nitro - 4 - [β - oxo - α - (*p*-sulfophenylazo)butyrylamino]phenylazo] - 1 - pyrazolyl], P 9463*b*.

$C_{26}H_{21}N$ Benzhydrylamine, *N*-benzhydrylidene-, 2981*e*.

Phenanthridine, 5,6-dihydro-6-phenyl-6-*p*-tolyl-, 6496

$C_{26}H_{21}NO_2$ 4-Piperidone, 1-benzoyl-3,5-dibenzylidene-, 4275*e*.

$C_{26}H_{21}NO_4$ 1(2 *H*)-Pyridineacetic acid, 5-triphenylmethyl-, 3417*f*.

$C_{26}H_{21}NO_6$ Oxindole, 1 acetyl-3,3 bis(*p* hydroxyphenyl) , diacetate, 2319*i*.

$C_{26}H_{21}N_3$ Quinoxaline, 6-(2,5-dimethyl-1-pyrryl)-2,3-diphenyl-, 235*b*.

$C_{26}H_{21}N_3O_7$ Benzamidine, *N* benzyl *N* phenyl-, picrate, 2593*i*.

Benzamidine, *N* - methyl - *N*, *N*′-diphenyl-, picrate, 2594*b*.

9 *H*-Pyrid[3,4 *b*]indole, 9 methyl-1-methylbenzyl-, picrate, 3016*e*

Semperivirine, methopicrate, 3016*a*

1,2,3,4-Tetrahydro-13-methyl-13 *H* benz[*g*]indolo[2,3 - *a*]quinolizinium picrate, 3016*g*.

$C_{26}H_{21}N_3O_8$ Anisamidine, *N*-2-biphenylyl, picrate, 7445*g*.

$C_{26}H_{21}N_3O_8S$ Benzamidine, *N*-2-biphenylyl-*p*-(methylsulfonyl)-, picrate, 7445*g*.

$C_{26}H_{21}N_3O_{10}$ Benzamide, *N*-[3 hydroxymethyl) - 1 - *p* - nitrobenzoyl - 2-azetidyl]methyl] - *p* - nitro-, *p* nitrobenzoate, 214*b*.

$C_{26}H_{21}N_3O_{11}$ Quininamide, *N*-homopiperonyl-picrate, 1421*h*.

$C_{26}H_{22}$ Bibenzyl, 4,4′-diphenyl-, 8075.

Ethane, 1,1,2,2-tetraphenyl , 1027*a*, 2194*b*.

$C_{26}H_{27}ClN_4O_{10}$ Benzamide, *N*, *N*′-bis(chloromethyl) - 2 - (hydroxymethyl, trimethylene[bis[*p* - nitro , *p* nitro-benzoate, 214*b*

$C_{26}H_{22}HgN_4S_2$ Dithizone, compd with Hg, 6107*d*.

$C_{26}H_{22}N_2O$ Urea, 1-phenyl-3-triphenylmethyl-, 4645*h*.

$C_{26}H_{22}N_2O_3S$ Benzoic acid, *o* benzoyl-, naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.

$C_{26}H_{22}N_2S$ Urea, 1-phenyl-2-thio 3-triphenylmethyl-, 4645*h*.

$C_{26}H_{22}N_4O_2$ Dibenzo[*a*,*c*]phenazine, 3 acetamido - 7 - isopropyl - 1 - methyl - 4-nitro-, 7470*e*.

$C_{26}H_{22}N_4O_8$ 1,3-Dioxolo[*g*]isoquinoline, 7,8-dihydro-5-(5-indanylmethyl)-, picrate, 8390*e*.

$C_{26}H_{22}N_4O_{12}$ Ketone, 5,6-dimethoxy 1-nitroquinolyl 3,4-dimethoxyphenyl, picrate, 4277*i*.

$C_{26}H_{22}N_{12}O_{16}S$ Guanidine, (sulfonyldi *p* phenylene)di-, dipicrate, 5014*d*.

$C_{26}H_{22}O$ Benzhydryl ether, 600*b*.

$C_{26}H_{22}O_2$ Benzopinacol, 619*f*, 6194*b*, 6515*e*.

$C_{26}H_{22}O_3$ 1,3,5,9,11,13 - Tetradecahexaene - 7,8-dione, 1,14-diphenyl-, 187*c*.

$C_{26}H_{22}O_3$ Acetoacetic acid, α,γ-dinaphthyl-, Et ester, 1385*c*.

1,4-Naphthoquinone, 2-(2,4-dimethyl-5-phenylphenethyl)-3-hydroxy-, 1379*g*.

—, 2-hydroxy-3-(*p*-methyl-β-*p*-tolylphenethyl)-, 1379*c*.

—, 2-hydroxy-3-(3-phenyl-3-*p*-tolylpropyl)-, 1379*d*.

—, 2-hydroxy-3-[3-(α-phenyl-*p*-tolyl)-propyl]-, 1379*f*.

$C_{26}H_{22}O_4$ 1,4-Naphthoquinone, 2-hydroxy-3-[4-(*p*-phenoxyphenyl)butyl]-, 1379*g*, 2610*b*.

$C_{26}H_{22}O_6S_2$ 2-Propionaphthone, 1,3-bis[1-hydroxy-, 7010*c*.

$C_{26}H_{22}O_6$ Coumarin, benzyl-7-(benzyloxy)-6-

hydroxy - 4 - methyl - (?), acetate, 3823*c*.
7 - Hydroxy - 4 - (*p* - methoxystyryl)-flavylium acetate, P 6100*c*, P 7849*d*.
Umbelliferone, benzyl-6-(benzyloxy)-4-methyl-(?), acetate, 3823*c*.

$C_{26}H_{32}O_7$ Ribitol, 1,5-anhydro-, tribenzoate, 1721*c*.

$C_{26}H_{32}O_8$ Ribose, 2,3,4-tribenzoate, 1721*f*.

$C_{28}H_{32}O_2$ 14*H*-Dibenzo[*a*,*j*]xanthene-14-valeric acid, α,β,γ,δ,5,9 hexahydroxy-(?), 142*a*.

$C_{28}H_{32}O_{10}$ Caproic acid, ε-(2,4-dihydroxy-1-naphthyl) - α,β,γ,δ - tetrahydroxy-ε - (2 - hydroxy - 4 - oxo - 1(4*H*)-naphthylidene)-(?), 141*i*.

$C_{28}H_{33}BrN_4O_3S_2$ 3-Ethyl-2-[4-hydroxy-5-(*o*-methoxyphenylazo) - 3 - phenyl - 4-thiazolin - 2 - ylidenemethyl]benzothiazolium bromide, P 7846*a*.

$C_{28}H_{37}BrN_4O_4S_2Se$ 3 Ethyl-2-[4-hydroxy-3-phenyl - 5 - (*p* - sulfophenylazo) - 4-thiazolin - 2 - ylidenemethyl] - 5 - methoxybenzoselenazolium bromide, P 7846*a*.

$C_{28}H_{37}IN_2S_2$ 11-[2-(3-Ethyl-2-benzothiazolinylidene)ethylidene] - 8,9,10,11 - tetrahydronaphtho[2,1 - *d*]pyrido[2,1 - *b*]-thiazolium iodide, P 8294*c*.

$C_{28}H_{33}N$ Dibenzylamine, 2,2'-diphenyl-, - *HCl*, 1356*b*.
Pyrrole, 2,5-dimethyl-1-[*p*-(α-phenylstyryl)phenyl]-, 4746*f*, 7007*f*.

$C_{28}H_{33}NO$ 2-Naphthaleneacrylonitrile, 5,6,7,8 - tetrahydro - β - (*p* - methoxyphenyl)-α-phenyl-, 7007*c*.
2 Naphthol, 1-[α-(mesitylimino)benzyl]-, 3000*d*.
3 Penten 1-yn 3-ol, 5 mesitylimino-1,5 diphenyl , 3000*a*.

$C_{28}H_{33}NO_4$ Cinchoninic acid, 3 phenyl 2 (4-propoxy-*o* tolyl)-, 3825*h*.

$C_{28}H_{33}NO_3S$ *p*-Toluenesulfono-*o*-toluidide, α'-hydroxy α',α'-diphenyl , 7006*g*.

$C_{28}H_{33}N_3O_2S$ 4 Thiazolidone, 3 ethyl 5 [2-(3 - ethyl - 2 - benzoxazolinylidene)-ethylidene] - 2 - (1 - naphthylimino)-, P 4163*i*.
4 Thiazoldone, 3-ethyl-5-[2-(3 ethyl-2-benzoxazolinylidene)ethylidene] 2-(quinolylmethylene)-, P 4162*d*

$C_{28}H_{33}N_3O_8S_2$ Anthranilic acid, *N*-(4 amino-3 - sulfo - 1 - anthraquinonyl) - 5 (1-piperidylsulfonyl) , P 7710*c*.

$C_{28}H_{34}N_4O_7$ 3*H*-Phenanth[3,4]imidazole, 9 isopropyl-2,5-dimethyl-, picrate, 7470*f*.

$C_{28}H_{34}N_2O_{10}$ Homophthal-2 amic acid, *N*-[2 - (3 - indolyl)ethyl] - 6 - methyl-, picrate, 1423*a*.

$C_{28}H_{34}N_4O_{12}S_2$ *p*-Benzenedisulfonic acid, [α - [3 - nitro - 4 (α - phenylcarbamyl-acetonylazo)phenylcarbamyl]acetonylazo]-, P 9463*b*.

$C_{28}H_{35}N_{13}O_{21}$ Pyridine, 3-amino 4,5-bis-(ammonethyl) 2-methyl-, tripicrate, 4674*b*.

$C_{28}H_{37}O_4P$ Benzhydryl phosphite, 600*b*

$C_{28}H_{34}ClNO_2$ 4-(*p* Dimethylaminostyryl) 7-methoxyflavylium chloride, P 6100*b*, P 7849*c*.

$C_{28}H_{34}NO_3P$ Benzhydryl amidophosphate, 600*b*.

$C_{28}H_{34}N_2$ Xenylamine, 4',4'''-ethylenebis-, P 2819*a*.

$C_{28}H_{34}N_2O$ Ketone, 10 acetylacridanyl dihydro 2(1*H*)-isoquinolylmethyl, 234*b*

$C_{28}H_{34}N_2O_3S$ Benzamidine, *N*-phenyl-*N'*-*p*-tolyl , benzenesulfonate, 2594*b*.

$C_{28}H_{34}N_4O_6$ Succinic acid, 2-(5,8-diamino 1-amino - 4 - anthraquinonylamino)-ethyl monoester, P 1980*g*.

$C_{28}H_{37}N_4O_7$ Benz[*g*]isoquinoline, 1-benzyl-3,4,6,7,8,9 - hexahydro-, picrate, 8390*i*
Butyric acid, γ-benzoyl-α-ethyl-α-(2-hydroxy 3-methoxyphenyl)-, γ-lactone, 2,4 dinitrophenylhydrazone, 625*h*.
Phthalic acid, 3-(5,8-diamino-4 methylamino - 1 - anthraquinonylamino) - 2-hydroxypropyl monoester, P 1986*g*.

$C_{28}H_{34}N_4O_8$ 3-Retenol, 9-amino-, acetate, picrate, 7470*i*.

$C_{28}H_{34}N_4O_{11}$ Isoquinoline, 5,6-dimethoxy-1-veratryl-, picrate, 4277*i*.

$C_{28}H_{34}N_4O_{12}$ Ketone, 3,4-dihydro-5,6-dimethoxy 1-isoquinolyl 3,4-dimethoxyphenyl, picrate, 4277*h*.

$C_{28}H_{34}N_8O_4 + H_2O$ Pteridine, 2,4-diacetamido - 6,7 - bis(*p* - acetamidophenyl)-4268*i*.

$C_{28}H_{34}N_{10}O_{16}$ 1-(4-Amino-2-methyl-5-pyrimidylmethyl) - 3 - (2 - hydroxyethyl)-2-picolinium dipicrate, 7080*i*.

$C_{28}H_{34}N_2O_6S_2$ 2,2'-Stilbenedisulfonic acid, 4-(4 - amino - 6 - *m* - sulfoanilino - *s*-triazin - 2 - ylamino) - 4' - (4,6 - diamino-*s*-triazin-2-ylamino)-, P 7242*h*.

$C_{28}H_{34}O_2$ Ethylene, 1,1-bis[*p*-(allyloxy)phenyl]-2-phenyl-, 7409*f*.

$C_{28}H_{34}O_4$ Phenol, *p*,*p'*-styrylidenedi-, dipropionate, 7469*g*.

$C_{28}H_{34}O_6$ 1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride, 8-(*p*-*tert*-butylphenyl) - 1,4,4a,5,6,7 - hexahydro, 206*d*.

$C_{28}H_{34}O_7$ Creosol, α,α-bis(*p*-hydroxyphenyl)-, triacetate, 5772*c*.
Flavone, 7-(benzyloxy)-3,3',4',5-tetramethoxy-, 5398*d*.

$C_{28}H_{34}O_8$ Acetic acid, bis(4-hydroxy-2-oxo 1,2*H*-benzopyran-3-yl) , hexyl ester, 5399*e*.
Flavone, 8-(benzyloxy)-5-hydroxy-3,3',-4',7-tetramethoxy-, 5398*e*

$C_{28}H_{34}O_{10}$ Caproic acid, ε,ε-bis(2,4-dihydroxy - 1 - naphthyl) - α,β,γ,δ-tetrahydroxy-(?), 142*a*.

$C_{28}H_{35}IN_2$ 3-[2-(1,6-Dimethyl-2(1*H*)-quinolylidene)ethylidene] - 2,3 - dihydro - 4 methyl - 1*H* - cyclopenta[*b*]quinolinium iodide, 3001*g*.

$C_{28}H_{35}NO_2$ 4 Piperidone, 1-benzoyl-3,5 dibenzyl-, 4275*f*

$C_{28}H_{35}NO_3$ 1*H* - Indeno[2,1 - *c*]pyridine, 2,3,4,9 - tetrahydro - 2 - methyl - 9-phenyl-, salicylate, P 5808*i*.

$C_{28}H_{35}NO_3S$ Cyclohexanecarbonitrile, 4-hydroxy 2,6-diphenyl-, *p*-toluenesulfonate, 2964*a*

$C_{28}H_{35}NO_6$ Aspartic acid, *N*-carboxy-, tribenzyl ester, 4642*g*.

$C_{28}H_{35}NSi$ Aniline, *N*,*N*-dimethyl-*p*-(triphenylsilyl)-, 8366*d*.

$C_{28}H_{35}N_3O_4SSe$ 5*H*-Thiazolo[3,2-*a*]pyrimidine-5,7(6*H*)-dione, 6-[1-(3-ethyl-6 methoxy - 2 - benzoselenazolylidene-methyl)propylidene] - 2,3 - dihydro-3-phenyl-, P 8925*c*.

$C_{28}H_{36}N_2O_5$ 2-Pentanone, 4-(9-fluorenyl)-4-methyl-, (2,4-dinitrophenyl)semicarbazone, 9058*g*.

$C_{28}H_{36}N_2O_{15}$ Quinoline, 8-(4-aminobutylamino) 6-methoxy-, dipicrate, 7485*f*.

$C_{28}H_{36}Br_2N_4O_4$ Barbituric acid, 1,3-bis(bromobenzyl) - 5 - (1 - cyclohexen - 1-yl)-5 ethyl-, 9375*c*.

$C_{28}H_{36}ClN_3$ Quinoline, 7-chloro-4-(4-diphenylamino-1-methylbutylamino)-, *diphosphate*, 9266*c*.

$C_{28}H_{36}ClN_3O_2$ *o*-Cresol, 4-(6-chloro-2 methoxy - 9 - acridylamino) - α - 1 - piperidyl-, *di HCl*, P 1068*d*, P 7516*c*.

$C_{28}H_{36}Cl_2N_2O_3$ Barbituric acid, 1,3-bis (chlorobenzyl) - 5 - (1 - cyclohexen - 1-yl)-5-ethyl-, 9375*c*.

$C_{28}H_{36}Cl_2N_4O_2Pt$ 1-(Phenylcarbamylmethyl)-pyridium chloroplatinate, 6977*f*.

$C_{28}H_{36}IN_3OS_2$ 3-Ethyl-2-[3-ethyl-5-(1-ethyl-2(1*H*) - quinolylidene) - 4 - oxo - 2-thiazolidylidene]methyl]benzothiazolium iodide, P 4161*h*.

$C_{28}H_{36}IN_3O_3S$ 3-Ethyl-2-[3-ethyl-5-[2-(3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-methyl]benzoxazolium iodide, P 4163*g*.

$C_{28}H_{36}IN_3O_3S_2$ 2-[3-Ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene] - 4-oxo - 2 - thiazolidylidene]methyl] - 3-(2 - hydroxyethyl)benzothiazolium iodide, P 4163*h*.
3 - Ethyl - 2 - [3 - ethyl - 5 - [2 - (3 - ethyl-2 - benzoxazolinylidene)ethylidene]-4 - oxo - 2 - thiazolidylidene]methyl]-benzothiazolium iodide, P 4161*i*.

$C_{28}H_{37}IN_2O_3S$ 3-Ethyl-2-[3-ethyl-5-[2-(3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-methyl]benzoxazolium iodide, P 4162*a*.

$C_{28}H_{38}N_2O_2$ Acridanmethanol, 10-acetyl-α-(dihydro - 2(1*H*) - isoquinolylmethyl)-, - *HCl*, 234*c*.

$C_{28}H_{38}N_2O_3S$ 2-(2-Anilinovinyl)-1-ethylquinolinium *p*-toluenesulfonate, P 4164*c*.

$C_{28}H_{38}N_2O_4$ Naphthoic acid, piperazine salt, 235*f*.

$C_{28}H_{38}N_4O_2$ 5-Pyrazolone, 1-[*p*-(*p*-butylphenoxy)phenyl] - 4 - (*p* - hydroxyphenylazo)-3-methyl-, P 4164*e*.

$C_{28}H_{38}N_4O_6$ Isoquinamine, *p*-nitrobenzoyl-nitroso-, 7489*i*.

$C_{28}H_{38}N_4O_7$ Barbituric acid, 5-(1-cyclohexen-1 - yl) - 5 - ethyl - 1,3 - bis(*p* - nitrobenzyl)-, 9375*c*.
Phenanthridine, 6-heptyl-, picrate, 7446*c*.

$C_{28}H_{38}N_4O_{11}$ Isoquinoline, 3,4-dihydro-5,6-dimethoxy-1-veratryl-, picrate, 4277*h*.

$C_{28}H_{38}O_2S_2$ Ethane, 1,2-bis[2-(2-naphthoxy)-ethylmercapto]-, 348*f*.

$C_{28}H_{38}O_6$ Benzoic acid, *p*,*p'*-(*p*-xylylenedioxy)di-, di-Et ester, P 7236*i*.

$C_{28}H_{38}O_{12}$ 3,3'-Biphenyldicarboxylic acid, 5,5',6,6'-tetrahydroxy-, di-Et ester tetraacetate, 8614*e*.

$C_{28}H_{37}BrN_2S_2$ 3-Ethyl-2-[3-(3-ethyl-2-benzothiazolinylidenemethyl) - 2 - cyclohexen - 1 - ylidene]methyl]benzothiazolium bromide, P 56*b*.

$C_{28}H_{37}BrO_2$ Ethylene, 1-bromo-2,2-bis(*p*-isopropoxyphenyl)-1-phenyl-, P 6666*f*.
Ethylene, 1-bromo-1-phenyl-2,2-bis(*p*-propoxyphenyl)-, P 6666*f*, 7469*h*.

$C_{28}H_{37}ClN_2O_3$ See *Rhodamine 6G*.
Rhodamine 6G Extra, P 7696*h*, P 7697*a*.

$C_{28}H_{37}ClO_2$ Ethylene, 1-chloro-2,2-bis(*p*-isopropoxyphenyl)-1-phenyl-, 7469*h*.
Ethylene, 1-chloro-1-phenyl-2,2-bis(*p*-propoxyphenyl)-, 7469*h*.

$C_{28}H_{37}ClO_3$ 1-Indancarboxylic acid, 2-chloro-2 - (3 - cyclohexyl propyl) - 1 - hydroxy-3-oxo-, benzoate, 1384*e*.

$C_{28}H_{37}IN_2$ 2,3-Dihydro-4-methyl-3-[2-(1,3,3-trimethyl - 2 - indolinylidene)ethylidene] - 1*H* - cyclopenta[*b*]quinolinium iodide, 3001*d*.

$C_{28}H_{37}IN_2S_2$ 2-[5,5-Dimethyl-3-(3-methyl 2 - benzothiazolinylidenemethyl) - 2-cyclohexen - 1 - ylidene]methyl] - 3-methylbenzothiazolium iodide, P 55*b*.

$C_{28}H_{37}NO_2$ Butyrophenone, γ-4-morpholinyl-α,α-diphenyl-, - *HCl*, 4244*e*.
4-Piperidinol, 1-benzoyl-3,5-dibenzyl-, 4275*f*.

$C_{28}H_{37}NO_2S_2$ Valine, *N*-benzoyl-β-(benzyl mercapto)thio-, benzyl ester, 2618*d*.

$C_{28}H_{37}NO_3$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, Et ester $Et_2NH$ salt, 5390*f*.

$C_{28}H_{37}N_3O_4$ 1,3-Cyclohexadiene-1-carboxanilide, 5-(*p*-diethylaminophenylimino)-3'-(1,3-dioxolan-2-yl)-2-oxo-, P 8168*d*.

$C_{28}H_{37}N_3O_{12}$ Glucoside, [*p*-(*m*-nitrophenylazo)phenyl], tetraacetate, 6919*g*.

$C_{28}H_{37}N_9O_{14}$ Benzimidazole, 1-(2-dimethylaminoethyl)-2-isopropyl-, dipicrate, 7021*i*.

$C_{28}H_{38}ClN_3O$ *o*-Cresol, 4-(6-chloro-2,3-dimethyl - 9 - acridylamino) - α - diethylamino-, *di- HCl*, P 7516*d*; - *HCl*, P 1068*f*.

$C_{28}H_{38}IN_3S$ 1-Ethyl-4-[3-(3-ethyl-2-thiazolidinylidene) - 4 - phenylimino - 1-butenyl]quinolinium iodide, 2530*c*.

$C_{28}H_{38}N_2O$ Cinchonine, benzyl-, 5028*c*.

$C_{28}H_{38}N_2O_2$ *p*-Acetotoluidide, *N*, *N'*-*p*-xylylenebis-, 5386*d*.
Hydrocinchonine, benzoyl-, *and* - *HCl*, 4677*d*.
*b* Hydrocinchonine, benzoyl-, 4678*b*.
Phthalide, 3,3-bis(4-dimethylamino-*m*-tolyl)-, P 252*c*.

$C_{28}H_{38}N_2O_4$ Compd., m. 148°, 4234*i*.

$C_{28}H_{38}N_2O_7S_2$ Phenylsulfonyl deriv., m. 211-13°, 5406*f*.

$C_{28}H_{38}N_2O_{10}$ Galactoside, (*p*-phenylazophenyl), tetraacetate, 6919*f*.
Glucoside, (*p*-phenylazophenyl), tetraacetate, 6919*e*.

$C_{28}H_{38}N_2O_{10}S$ 2-Thiophenevaleric acid, tetrahydro-3,4-dihydroxy-, iso-Pr ester, bis(*p*-nitrobenzoate), P 5806*d*.

$C_{28}H_{38}N_2S_4$ Thiazole, 2,2'-dithiobis[4-(*p*-*tert*-butylphenyl)-, 633*i*.

$C_{28}H_{38}N_4O_4$ Acetic acid, diantipyryl-, Et ester, 7477*d*.

$C_{28}H_{38}N_4O_6$ Butyrophenone, α-(2-ethyl-3-methoxyphenyl) - *p* - methoxy-, 2,4-dinitrophenylhydrazone, 198*d*.

$C_{28}H_{38}N_6O_2$ Adipamide, *N*, *N'*-bis(4-amino-2-methyl-6-quinolyl)-, *di- HCl*, 1778*c*.
Malonamide, *N*, *N'*-bis(4-amino-2-methyl - 6 - quinolyl) - α - ethyl - α - methyl-, *di- HCl*, 1778*d*.

$C_{28}H_{38}N_6O_4$ 4,6(1*H*,5*H*)-Pyrimidinedione, 1,1' - ethylenebis[5 - ethyl - 2,3 - dihydro-2-imino-5-phenyl-, 7130*e*.

$C_{28}H_{38}N_8O_{14}$ Piperidine, benzylamino-1-ethyl-, dipicrate, 2207*b*, 6207*c*.
Pyrrolidine, 2-(benzylaminomethyl)-1-ethyl-, dipicrate, 7019*g*.

$C_{28}H_{38}O_2$ Ethylene, 1,1-bis(*p*-isopropoxyphenyl)-2-phenyl-, 7469*f*.
Ethylene, 2-phenyl-1,1-bis(*p*-propoxyphenyl)-, 7469*f*.

$C_{28}H_{38}O_3$ Benzophenone, 4'-benzyl-3',5'-dimethoxy-2,3,5,6-tetramethyl-, 186*h*.
Phenol, 4-(α,β-diethyl-*p*-methoxyphenethyl)-, benzoate, 2194*i*.

$C_{28}H_{38}O_4$ 1',2',16,17-Benzo-$\Delta^{1,4,8}$-estratriene-3',4'-diol, diacetate, 245*f*.

$C_{26}H_{28}O_6$ Galactopyranoside, phenyl 2,3-dibenzyl-, 1327*f*.
$C_{26}H_{28}O_{14}$ Cellobioside, 8-hydroxy-1-anthraquinonyl, 5019*h*.
Esculin, 4-methyl-, pentaacetate, 3823*d*.
Glucoside, 9,10-dihydro-9,10-dioxoanthrylene di-, 5019*i*.
Lactoside, 8-hydroxy-1-anthraquinonyl, 5019*h*.
$C_{26}H_{28}O_{13}$ Anthrapurpurin diglucoside, 5020*a*.
Flavopurpurin, diglucoside, 5019*i*.
$C_{26}H_{29}ClN_2O_{14}$ Putrescine, 1-(*p*-chlorophenyl)-$N^4$, $N^4$-diethyl-, dipicrate, 2211*d*.
$C_{26}H_{29}FN_2O_{14}$ Putrescine, $N^4$, $N^4$-diethyl-1-(*p*-fluorophenyl)-, dipicrate, 2211*d*.
$C_{26}H_{29}NO$ 3-Hexanone, 6-(benzylmethylamino)-4,4-diphenyl-, 9053*f*; - *HCl*, 4244*e*.
2-Hexanone, 5-dimethylamino-1,3,3-triphenyl-, *salts*, 7466*g*.
1-Piperidinepropanol, $\alpha,\alpha,\beta$-triphenyl-, *and* - *HCl*, 9070*i*.
Piperidine, 1 - [2 - (triphenylmethoxy)ethyl]-, 4657*e*.
4-Piperidinol, trimethyl-2,4,6-triphenyl-, *and* - *HCl*, 1410*g*.
$C_{26}H_{29}NO_3S$ Retenesulfonic acid, 3-methoxy-, *p*-toluidine salt, 4251*i*.
$C_{26}H_{30}ClNO_3$ (2-Benzhydryloxyethyl)(carboxymethyl)dimethylammonium chloride benzyl ester, P 5046*b*.
$C_{26}H_{30}ClN_3O_8$ Acridine, 6-chloro-9-[$\alpha$-(3-diethylaminopropyl)thenylamino] - 2-methoxy-, *di-HCl*, 2211*f*.
$C_{26}H_{30}IN$ 2,6-Bis(*p*-dimethylaminostyryl)-1-methylpyridinium iodide, 7024*e*.
$C_{26}H_{30}N_2O$ Hydrocinchonine, benzyl-, 5028*b*.
Hydrocuichotoxine, *N*-benzyl-, 5028*a*.
$C_{26}H_{30}N_2O_3$ Furan, 3,4-bis(4-morpholinylmethyl)-2,5-diphenyl-, 3406*h*.
$C_{26}H_{30}N_2O_5$ Alanine, *N*-benzoyl-$\beta$-(2,5-dimethoxyphenyl)-, $\alpha$-methylbenzylamine salt, 6599*b*.
$C_{26}H_{30}N_2O_6$ Piperazine, 2,5 - bis(3,4 - dihydroxyphenyl) - 1,4 - dimethyl-, tetraacetate, *and* - *HCl*, 2602*e*.
$C_{26}H_{30}N_2O_9$ Hibiscic acid, quinine salt, 7644*d*.
$C_{26}H_{30}N_2O_{12}$ Indigotin, tetrakis(methoxymethoxy)-, acetate, 627*i*.
$C_{26}H_{30}N_4O_3$ Malonic acid, [$\alpha$-(2-oxocyclohexyl)benzyl]-, di-Et ester, 2,4-dinitrophenylhydrazone, 3418*d*.
$C_{26}H_{30}N_6O_{14}$ 2-Pyridinemethanol, $\alpha$-(3-diethylaminopropyl)-$\alpha$-methyl-, dipicrate, 2205*a*.
$C_{26}H_{30}N_{10}O_{14}$ Cyclohexanetetrol, diamino-, dipicrolonate, 6581*g*.
$C_{26}H_{30}OS_2$ Ethanol, 2-phenyl-1,1-bis(*p*-propylmercaptophenyl)-, 7469*e*.
$C_{26}H_{30}O_2$ *o*-Cresol, 4,4'-(diethylideneëthylene)bis[6-allyl-, 4247*c*.
2,4-Hexadiene, 3,4-bis[4-(allyloxy)-*m*-tolyl]-, 4247*d*.
$C_{26}H_{30}O_3$ Ethanol, 1,1 - bis(*p* - isopropoxyphenyl)-2-phenyl-, P 6606*h*.
Ethanol, 2-phenyl-1,1-bis(*p*-propoxyphenyl)-, P 6666*f*.
$C_{26}H_{30}O_4$ 1,4-Naphthoquinone, 2-hydroxy-3-[9-(*p*-methoxyphenyl)nonyl]-, 1379*h*, 2610*c*.
1,4-Naphthoquinone, 2-hydroxy-3-(10-phenoxydecyl)-, 2610*c*.
Phenol, *p*,*p*'-(1,2-diethylideneëthylene)di-, dibutyrate, P 3464*b*.
2,5-Xylenol, 4,4'-(diethylideneëthylene)di-, diacetate, 614*a*.
$C_{26}H_{30}O_5$ (See also *Limonin*.)
2,2',3,3'-Biphenyltetrol, 5,5'-dipropyl-, tetraacetate, 8614*e*.
Physodic acid, 5077*c*.
$C_{26}H_{30}O_{12}S_2$ D-Glucose, 1,3,4-triacetate 2,6-di-*p*-toluenesulfonate, 1720*g*, 3368*b*.
$C_{26}H_{31}ClN_2O$ Hydrocinchonine, compd. with benzyl chloride, 5028*a*.
$C_{26}H_{31}NO_3$ 2-Naphthamide, *N*-[4-(*p*-*tert*-amylphenoxy)butyl]-1-hydroxy-, P 8293*c*.
$C_{26}H_{31}NO_{12}S$ 1,2,3,4-Tetraacetylglucose-6-pyridinium tosylate, 7906*a*
$C_{26}H_{31}N_3O_2$ *o*-Toluic acid, 5-dimethylamino-$\alpha,\alpha$-bis(*p*-dimethylaminophenyl)-, P 3463*e*.
$C_{26}H_{31}N_9O_{24}$ *m*-Phenylenediamine, *N'*-(2-diethylaminoethyl) - *N*, *N* - dimethyl-, dipicrate, 3007*i*.
$C_{26}H_{32}$ Ethylene, 2-(4-cyclohexylcyclohexyl)-1,1-diphenyl-, 1376*d*.
$C_{26}H_{32}Br_2O_6$ $\beta$-Resorcil, 3,3'-dibromo-5,5'-dihexyl, 1037*f*.
$C_{26}H_{32}ClNO_3$ Benzylethyl[2-(2-methoxybenzhydryloxy)ethyl]methylammonium chloride, P 2641*bd*.
$C_{26}H_{32}N_2O_2$ Acridanmethanol, 10-acetyl-$\alpha$-(octahydro - 1(2*H*) - quinolylmethyl)-, - *HCl*, 234*c*.
$C_{26}H_{32}N_2O_4$ $\Delta^{5,6}$-Androsten-3($\beta$)-ol-17-one, 16-(hydroxymethylene)-, *p*-nitroanil, 245*b*.
Benzoic acid, *p*-[$\beta$-(2,4,6-trimethylbenzoyl)acrylylamino]-, 2-diethylaminoethyl ester, - *HCl*, 7192*h*.
1,4-Butanedione, 2,3-bis(4-morpholinylmethyl)- 1,4-diphenyl-, *and di-HCl*, 3406*h*.
Indan, 1-(3-cyclohexyl-5-nitro-*p*-tolyl)-1,3,3,6 - tetramethyl - 5 - nitro-, 1340*a*.
$C_{26}H_{32}N_2O_5$ 1-Piperidinepropionic acid, $\alpha$-ethyl-$\alpha$-($\alpha$-hydroxybenzyl)-, Et ester *p*-nitrobenzoate, *and* - *HCl*, 7643*h*.
$C_{26}H_{32}N_2O_8$ Xyloside, (*p*-phenylazophenyl), tripropionate, 6919*f*.
$C_{26}H_{32}N_2O_9$ Glucuronic acid, formyl-, compd. with cinchonidine, 5008*i*.
$C_{26}H_{32}N_4O_6S_2$ Benzenesulfonamide, *p*-(5-hendecyl - 3,6 - dihydroxy - 2 - *p* - quinonylazo)-2-thiazolyl-, 9047*h*.
$C_{26}H_{32}O_2$ Isoandrosterone, dehydro-, benzoate, 3018*i*, 5068*d*.
Testosterone, benzoate, 3018*i*.
$C_{26}H_{32}O_4$ 1,4-Naphthoquinone, 2-[2-(4-cyclohexylcyclohexyl)ethyl] - 3 - hydroxy-, acetate, 1376*e*.
4,4'-Stilbenediol, $\alpha,\alpha'$-diethyl-, dibutyrate, P 2641*e*.
$C_{26}H_{32}O_6$ 1,2,4-Naphthalenetriol, 3-(4-cyclohexylbutyl)-, triacetate, 1374*g*.
$C_{26}H_{32}O_{12}$ Glucoside, 5-styryl-*m*-phenylenedi-, 5017*f*.
$C_{26}H_{33}BrClN_3O$ *o*-Cresol, 6-(7-bromo-4-quinolylamino) - 4 - chloro - $\alpha$-diamylamino-, P 7515*d*.
$C_{26}H_{33}Cl_2N_3$ See *Methyl green*.
$C_{26}H_{33}Cl_2N_3O_8S_2$ 1-Ethyl-4-[3-(3-ethyl-2-thiazolidylidene) - 5 - (2 - thiazolin - 2-yl) - 1,4 - pentadienyl]quinolinium perchlorate, ethoperchlorate, 2530*i*.
2,2' - [3 - [1 - Ethyl - 4(1*H*) - quinolylidene] - 1,4 - pentadienylene]bis[3-ethyl-2-thiazolinium perchlorate] 2528*e*.
$C_{26}H_{33}NO_4$ Mandelanilide, (menthyloxy)acetate, 1353*g*.
1-Piperidinepropionic acid, $\alpha$-ethyl-$\alpha$-($\alpha$-hydroxybenzyl)-, Et ester benzoate, *and* - *HCl*, 7643*h*.
$C_{26}H_{33}NO_4S$ [2-(Benzhydryloxy)ethyl]ethyldimethylammonium *p* - toluenesulfonate, P 3463*b*.
$C_{26}H_{33}NO_6S$ Acetic acid, diphenyl-, 2-(2-dimethylaminoethylmercapto)ethyl ester citrate, 3395*b*.
$C_{26}H_{33}N_3$ 1,2,4,1*H*-Triazole, 3-heptadecyl-5-methyl-1-phenyl-, P 7730*c*.
$C_{26}H_{33}N_3O_5S$ Penicillin G, ephedrine salt, 4382*c*.
$C_{26}H_{33}N_3O_7$ Ornithine, $N^5$-carboxy-$N^{\alpha}$-(*N*-carboxyvalyl)-, dibenzyl ester, 4041*e*.
$C_{26}H_{33}N_3O_{12}S$ + $2H_2O$ Glycerol, nitrate, sulfate, brucine salt, 5368*e*.
$C_{26}H_{34}BrN_3O$ Quinoline, 7-bromo-4-[3-(dipropylaminomethyl) - *p* - phenetidino]-3,6-dimethyl-, *di-HBr*, P 7515*h*.
$C_{26}H_{34}Br_2N_2O_4$ Benzil, 5,5'-dibromo-2,2'-bis(2-diethylaminoethoxy)-, *and* - *HCl*, 4246*i*.
$C_{26}H_{34}ClN_3O$ Acridine, 6-chloro-9-[2-(cyclopentylisobutylamino)propylamino] - 2-methoxy-, *and di-HCl*, P 256*a*.
*o*-Cresol, 4-(7-chloro-4-quinolylamino) $\alpha$-diamylamino-, *di-HCl*, P 7515*c*.
$C_{26}H_{34}Cl_4$ Dodecane, 1 - [*p* - [*p* - chloro-$\alpha$-(trichloromethyl)benzyl]phenyl]-, P 6360*b*.
$C_{26}H_{34}Cu_2N_{10}O_2$, 8941*d*
$C_{26}H_{34}N_2O_4$ Androstan-3($\beta$)-ol 17-one, 16-(hydroxymethylene)-, *p*-nitroanil, 244*i*.
1-Piperidinepropionic acid, $\alpha$-ethyl-$\alpha$-($\alpha$-hydroxybenzyl)-, Et ester *p*-aminobenzoate, *and* - *HCl*, 7643*i*.
$C_{26}H_{34}N_2O_6S_2$ Dimethylnicotiniumbis(*p*-toluenesulfonate), P 1903*e*.
$C_{26}H_{34}N_2O_{10}S$ + $H_2O$ Glycerol, sulfate, brucine salt, 5368*d*.
$C_{26}H_{34}N_4O_4$ Isopimarinal, 2,4-dinitrophenylhydrazone, 1390*f*.
$C_{26}H_{34}O$ Ether, 3,7-dimethyl-9-(2,6,6-trimethyl - 1 - cyclohexen - 1 - yl) - 2,4,-6,8-nonatrienyl phenyl, P 1801*f*, 5372*a*.
$C_{26}H_{34}O_2$ Carvacrol, 5,5'-(diethylideneëthylene)di-, 614*b*.
2-Fluorenecapric acid, $\omega$-methyl-, Et ester, 566*d*.
2-Fluorenoic acid, Et ester, 566*d*.
2,7-Nonadien-5-yn-4-ol, 3,7-dimethyl-9-phenoxy - 1 - (2,6,6 - trimethyl - 1-cyclohexen-1-yl)-, P 1801*e*, 5373*h*.
Thymol, 6,6'-(diethylideneëthylene)di-, 614*a*.
$C_{26}H_{34}O_2$ $\Delta^{5,6}$-Androstene-3-*trans*-17-*trans*-diol, 17-benzoate, P 1916*a*.
Androsterone, benzoate, 3018*i*, 5067*g*.
Etiocholan-3-ol-17-one, benzoate, 3018*i*, 5067*h*.
Isoandrosterone, benzoate, 5068*d*.
1,4-Naphthoquinone, 2-[4-(4-cyclohexylcyclohexyl)butyl]-3-hydroxy-, 2610*b*.
—, 2-[2-cyclohexyl-2-(2,4-dimethylcyclohexyl)ethyl]-3-hydroxy, 1374*h*.
$C_{26}H_{34}O_4$ $\Delta^{5,6,20,22}$-Norcholadienic acid, 3-hydroxy - 21 - (hydroxymethylene) - 3-lactone, 3-acetate, P 7054*d*.
2,5-Xylenol, 4,4'-(1,2-diethylethylene)-di-, diacetate, 614*b*.
$C_{26}H_{34}O_6$ Hydrobenzoin, $\alpha,\alpha'$-diethyl-4,4'-dihydroxy - 2,2',5,5' - tetramethyl-, 4,4'-diacetate, 613*i*.
$\Delta^{4,11}$-Pregnadiene - 3,20 - dione, 21 - hydroxy-, hydrogen succinate, Me ester, 3431*c*, 6040*c*.
$\beta$-Resorcil, 5,5'-dihexyl-, 1037*f*.
$C_{26}H_{34}O_8$ Pyrogallil, 5,5'-dihexyl-, 1037*g*.
$C_{26}H_{35}BrO_{17}$ Glucopyranosyl bromide, 6-glucopyranosyl-, heptaacetate, 2583*e*.
$C_{26}H_{35}ClN_2$ 2-[2-(1-Amyl-2,5-dimethyl-3-pyrryl)vinyl] - 6 - methyl - 1 - propylquinolinium chloride, 3930*e*.
$C_{26}H_{35}ClN_4O_3$ Acridine, 2-chloro-9-(3-diamylaminopropylamino)-7-nitro-, *di-HCl*, 7938*a*.
$C_{26}H_{35}Cl_3O_2$ Ethane, 1,1,1-trichloro-2,2 bis(5-ethoxycarvacryl)-, 5860*i*.
$C_{26}H_{35}NO_2$ 1-Piperidinebutyric acid, 5-ethyl-2 - methyl - $\alpha$, $\alpha$ - diphenyl-, Et ester, 4245*c*.
$C_{26}H_{35}NO_3$ 5-Androsten-17-on-3($\beta$)-ol, 4-phenylsemicarbazone, 243*b*.
$C_{26}H_{35}N_3O_{17}$ Cellobiose, acetoazido-, 7430*g*
Maltose, acetoazido-, 7430*f*.
$C_{26}H_{36}$ 15*H*-Cyclopenta[*a*]phenanthrene, 17 - (1,5 - dimethylhexyl) - 11,12,13,14,16,17 - hexahydro - 13 - methyl-, 7573*i*.
Indan, 1-(4-*o*-cymyl)-5-isopropyl-1,3-3,6-tetramethyl-, 1339*i*.
$C_{26}H_{36}BrN_5$ Pyrimidine, 4-(6-bromo-2-naphthylamino) - 6 - (3 - dibutylammoniopropylamino)-2-methyl-, P 6243*i*.
$C_{26}H_{36}ClNO_4$ 1-(2-Benzhydryloxyethyl)-1-(carboxymethyl)piperidinium chloride, Bu ester, P 5046*a*.
$C_{26}H_{36}ClN_3O$ Acridine, 6-chloro 9 (2-diamylaminoethylamino) - 2 - methoxy-, *di-HCl*, P 4703*i*.
Acridine, 6 - chloro - 9 - (3 - dibutylamino - 1 - methylpropylamino) - 2 methoxy-, *and di-HCl*, P 2242*c*
—, 6 - chloro - 9 - (2 - diisoamylaminoethylamino) - 2 - methoxy-, *di-HCl*, P 4703*i*.
$C_{26}H_{36}CuN_{10}O_4$ + 0.5 $H_2O$ Guanidine, 1-(5 6 dimethoxy - 2 - benzimidazolyl) - 3-isopropyl-, Cu deriv., 1405*g*.
$C_{26}H_{36}N_2$ 4,4' - Bi[benzylamine], *N*, *N'*-dicyclohexyl-, *and di-HCl*, 3382*c*.
$C_{26}H_{36}N_2O$ 2 - Butanol, 2,4 - diphenyl - 3,4-di-1-piperidyl-, 7025*d*.
$C_{26}H_{36}N_2O_2$ Acetanilide, *p*,*p*'-ethylenebis[*N*-butyl-, 3381*a*.
$C_{26}H_{36}N_2O_4$ 1,8 - Octanediamine, *N*, *N'*-diveratrylidene-, 3379*f*.
$C_{26}H_{36}N_2O_6$ Oxamide, *N*, *N'* - bis(4 - ethoxy-3 - methoxybenzyl) - *N*, *N'* - diethyl-, 2177*c*.
$C_{26}H_{36}N_2O_9$ Quinidine, gluconate, 9365*a*
$C_{26}H_{36}O_2$ 2,5,7 - Nonatrien - 4 - ol, 3,7 - dimethyl - 9 - phenoxy - 1 - (2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-, P 1801*e*, 5374*a*.
$C_{26}H_{36}O_2$ Androstanediol, benzoate, P 1916*ab*.
$C_{26}H_{36}O_5$ Cholanic acid, 7,12-diketo-3-(carboxymethyleneoxy)-, 1431*c*.
Compd., m. 278°, 1431*e*.
$C_{26}H_{36}O_7$ $\Delta^4$ - Pregnene - 3,20 - dione, 12($\alpha$),21 - dihydroxy-, 21 - succinate, Me ester, 3431*a*.
$C_{26}H_{37}NO$ 3-Hexanone, 6-dibutylamino-4,4-diphenyl-, 9053*f*.
$C_{26}H_{37}NO_2$ Acetic acid, diphenyl-, 2-(1-isobutylisoamylamino)isopropyl ester, - *HCl*, P 2639*f*.
$C_{26}H_{37}NO_3$ See *Jervine*.
$C_{26}H_{37}NO_3S$ Isoandrosterone - 16 - sulfonic acid, acetate, pyridine salt, 2214*f*.

$C_{26}H_{37}NO_{17}$ Cellobiose, acetoamino-, 7430*g*.
Maltose, acetoamino-, 7430*f*.
$C_{26}H_{38}ClN$ 9 - Phenanthrenethylamine, *N, N* - diamyl - β - chloro - 1,2,3,4-tetrahydro-, - *HCl*, 7470*a*.
$C_{26}H_{38}Cl_2N_2$ 1,10 - Decanediamine, *N, N'*-bis(chlorophenethyl)-, *di- HBr*, 3379*bc*, P 3455*g*.
$C_{26}H_{38}I_2N_2O_2$ Phenol, 4,4' - [decamethylenebis(iminoethylene)]bis[2 - iodo-, 3378*i*.
$C_{26}H_{38}N_4$ 1,8 - Octanediamine, *N, N'* - bis(*p*-dimethylaminobenzylidene)-, 3370*f*.
$C_{26}H_{38}O$ 2-Palmitonaphthone, 9424*f*.
Phenol, diisobornyl-, 1355*c*.
$C_{26}H_{38}O_2$ Carvacrol, 5,5'-(1,2-diethylethylene)di-, 614*c*.
Thymol, 6,6' - (1,2 - diethylethylene)di-, 614*b*.
$C_{26}H_{38}O_2$ 1,4 - Naphthoquinone, 2 - hexadecyl-3-hydroxy-, 1378*c*.
$C_{26}H_{38}O_4$ $\Delta^{20,22}$ - Cholenic acid, 3,21 - dihydroxy-, lactone, 3-acetate, P 7976*d*.
Cyclopentaneacetic acid, 2,2'-(dimethylphenylene)bis-, di-Et ester, 3796*ef*.
Lupulone, 1525*f*, 3142*c*, 3522*c*, 3559*b*, 5444*i*, 6780*i*, 9361*f*.
Umbelliferone, 4 - methyl - 6 - palmitoyl-, 6621*h*.
$C_{26}H_{38}O_5$ $\Delta^{9,11}$ - Cholenic acid, 3 - acetoxy - 12-keto-, 3019*g*.
Dehydrocholic acid, Et ester, 1431*b*.
$C_{26}H_{38}O_6$ Gitoxigenin, 16-acetate, 7034*d*.
$C_{26}H_{38}O_7$ Ouabagenin, acetone-, 1792*g*.
$C_{26}H_{38}O_{12}S_4$ D-Glucose xanthogen disulfide, diacetone-, 1181*g*, 9439*f*.
$C_{26}H_{39}N$ 9 - Phenanthrenethylamine, *N*, *N*-diamyl - 1,2,3,4 - tetrahydro-, *and salts*, 7470*c*.
$C_{26}H_{39}NO$ 9 - Phenanthrenemethanol, α-(diamylaminomethyl) - 1,2,3,4 - tetrahydro-, 7469*h*.
$C_{26}H_{39}NO_2$ 1 - Dodecanol, 9 - propyl-, 1-naphthalenecarbamate, 3781*a*.
$C_{26}H_{39}NO_3$ Dibutylamine, *N* - [2 - (2,2'-dimethoxybenzhydryloxy)propyl]-, P 3163*e*.
$C_{26}H_{39}NO_4$ Umbelliferone, 4-methyl-6 palmitoyl-, oxime, 6621*h*.
$I_{39}NO_3$ 2 - Cyclohexene - 1 - acetic acid, α-2 - cyclopenten - 1 - yl-, 3 - (1 - pyrrolidyl)propyl ester, citrate, 1388*f*.
$I_{39}N_1O_4$ $\Delta^{1,4}$ - Choladienic acid, 3 - keto-, Me ester, semicarbazone, 7494*f*.
$H_{46}$ Hexadecane, 1-(naphthyl)-, 4454*h*, 8888*f*, 9424*e*.
$H_{46}BrNO$ [2 - (4,4' - Dimethylbenzhydryloxy)ethyl]isopropyldipropylammonium bromide, P 2641*ad*.
$H_{46}Co_2N_{20}O_{18}$, 8941*f*.
$H_{39}N_1$ Benzylamine, *p, p'*-ethylenebis[*N*-amyl-, *and di- HCl*, 3382*e*.
1,10 - Decanediamine, *N, N'* - diphenethyl-, *di- HBr*, 3379*d*, P 3455*e*.
1,8 - Octanediamine, *N, N'* - bis(*p*-methylphenethyl)-, *di- HBr*, P 3455*h*.
—, *N, N'* - bis(3 - phenylpropyl)-, *di- HBr*, 3379*d*, P 3455*g*.
$H_{46}N_2O_2$ Phenol, *p, p'* - [decamethylenebis(iminoethylene)]di-, *di- HCl*, 3378*h*.
$H_{46}N_2O_2S$ Myristic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.
$H_{46}N_2O_4$ 1,6 - Hexanediamine, *N, N'*-bis(3,4 - dimethoxyphenethyl)-, *di- HBr*, 3378*f*, P 3455*e*.
1,8 - Octanediamine, *N, N'* - diveratryl-, *and di- HCl*, 3379*f*.
$H_{46}O_2$ 6*H* - Dibenzopyran - 1 - ol, 3 - (1,2-dimethyloctyl) - 7,8,9,10 - tetrahydro-6,6,9-trimethyl-, 8383*g*.
$H_{46}O_3$ 5 - Cholen - 24 - al, 3(β) - hydroxy-, acetate, 3433*a*.
Umbelliferone, 4-hexadecyl-4-methyl-, 6621*i*
$H_{46}O_3S$ Bisnor-5-cholenic acid, 3(β)-hydroxythiol-, Et ester acetate, 3432*f*.
$H_{46}O_4$ Allocholanic acid, 3(β)-acetoxy-17-hydroxy-, lactone, 6638*a*.
Bisnor - 5 - cholene, 3(β), 22 - dihydroxy-, diacetate, 3432*g*.
$\Delta^{9,11}$-Cholenic acid, 3-acetoxy-, 3018*i*.
$H_{46}O_5$ $\Delta^{9,11}$-Cholenic acid, 3(α),12(α)-dihydroxy-, 12-acetate, 3434*d*.
Norcholanic acid, 3-acetoxy-11-keto-, Me ester, 3019*g*.
Pregnane - 3(α), 20, 21 - triol - 11 - one, 3-acetate 20,21-acetonide, 6211*i*.
Pregnane - 3(α), 17(α), 20(β), 21-tetrol-11-one, 3-acetate 20,21-acetonide, 6215*ch*.
$H_{46}O_5S$ Pregnane - 3(α), 17(α), 20(β) - triol - 21 - thiol - 11 - one, 3, 20 - diacetate 21-Me ether, 6216*a*.

$C_{26}H_{41}NO_3S$ Spiro[pregnane - 3,2' - thiazolidine] - 4' - carboxylic acid, 20 - keto-, Et ester, 659*d*.
$C_{26}H_{41}NO_4$ Testosterone, ester with 2-diethylaminoethyl carbonate, 7993*h*.
$C_{26}H_{42}$ Cyclopenta[*a*]fluorene, 3 - (1,5 - dimethylhexyl) - 1,2,3,3a,4,5,5a,5b,-6,7,10a,10b - dodecahydro - 3a,5b-dimethyl-, 3018*d*.
$C_{26}H_{42}Cl_2O_2$ Acetic acid, (2,4-dichlorophenoxy)-, octadecyl ester, 6705*e*, 6775*h*.
$C_{26}H_{42}I_2N_2O_2$ [4,4'- Biphenylenebis(oxyethylene)]bis[diethylmethylammonium iodide], 6365*e*.
$C_{26}H_{42}N_4$ Benzidine, *N, N'*-bis(3-diethylaminopropyl)-, 3381*h*.
1,8 - Octanediamine, *N, N'* - bis(*p* - dimethylaminobenzyl)-, *and tetra- HCl*, 3379*f*.
$C_{26}H_{42}O$ β-Norcholestenone, 1789*g*.
2 - Palmitonaphthone, 5,6,7,8 - tetrahydro-, 9424*f*.
$C_{26}H_{42}O_2$ Acid, m. 249–50°, 7926*c*.
$C_{26}H_{42}O_2S$ 5 - Cholenic acid, 3(β) - hydroxythiol-, Et ester, 3432*f*.
$C_{26}H_{42}O_3$ 5 - Cholene, 3(β),24 - dihydroxy-, 3-acetate, 3432*g*.
Hydroxy lactone, m. 236–7°, 7926*d*.
$C_{26}H_{42}O_4$ $\Delta^{9,11}$ - Cholenic acid, 3(α) - hydroxy - 12(α) - methoxy-, Me ester, 3434*d*.
Phthalic acid, bis(3,5,5 - trimethylhexyl) ester, 3678*a*.
Salicylic acid, Me ester, stearate, P 4701*i*.
$C_{26}H_{42}O_5$ Cholanic acid, 3,12-dihydroxy-7-oxo-, Et ester, P 7500*h*.
$\Delta^{1,2}$ - Cyclohexaneacetic acid, 2 - [1 - carboxy - 3 - (1,5 - dimethylhexyl) - 2-oxocyclopentyl]-, di-Et ester, 2587*d*.
$C_{26}H_{42}O_6$ Terephthalic acid, bis(5-butoxyamyl)ester, 9026*c*.
$C_{26}H_{42}O_7S$ Phthalic acid, 4-sulfo-, octadecyl ester, *di-Na salt*, P 2375*d*.
$C_{26}H_{43}ClO_2$ Stearic acid, (chlorophenethyl)-, 9028*g*.
$C_{26}H_{43}NO$ 11-Eicosenanilide, 4220*b*.
$C_{26}H_{43}NO_2$ Cyclononadecanol, carbanilate, 6988*h*.
$C_{26}H_{43}NO_5$ See *Glycocholic acid*.
$C_{26}H_{43}N_3O$ Quinaldine, 4 - (3 - diethylamino - 1 - methylpropylamino) - 3-heptyl 7-methoxy-, 1416*b*.
$C_{26}H_{43}N_3$ *s* - Triazine, 6 - heptadecyl - 1,2,3,4-tetrahydro - 2,4 - diimino - 1 - phenyl-, P 5216*e*.
$C_{26}H_{44}AsNO_3S_2$ Acetic acid, mercapto-, octyl ester, diester with 3-amino-4-hydroxydithiobenzenearsonous acid, 598*i*.
$C_{26}H_{44}BrN_3O_2$ 1 - (Carboxymethyl) - 3 - hexadecyl - 1*H* - benzotriazolium bromide, Et ester, P 7971*b*.
$C_{26}H_{44}N_2O_2$ Stearanilide, *m*-acetamido-, P 3221*c*.
$C_{26}H_{44}O$ β-Norcholesterol, 1789*a*.
$C_{26}H_{44}O_3$ Allocholane, 3(β) - hydroxy - 17,-24 - oxido - 24,24 - dimethyl-, 6638*i*.
Allocholane, 3 - ketohydroxy - 24,24-dimethyl-, 6638*bc*.
$\Delta^5$ - Cholene, 3(β),20 - dihydroxy - 24,-24-dimethyl-, 6638*c*.
Stearic acid, xylyl-, 9028*f*; *Ca salt*, 4081*c*.
Veratrole, 4 - ethyl - 5 - (1 - hexadecenyl)-, 2624*g*.
$C_{26}H_{44}O_4$ Stearic acid, ι - (*p* - hydroxyphenyl)-, Et ester, P 5044*i*.
Stearic acid, ι - (6 - hydroxy - *m* - tolyl)-, Me ester, P 5044*h*.
$C_{26}H_{44}O_4$ Stearic acid, (2,5-dimethoxyphenyl)-, 9028*g*.
Stearic acid, ι - (*p* - hydroxyphenyl)-, 2-hydroxyethyl ester, P 5044*h*.
$C_{26}H_{44}O_5$ Cyclohexaneacetic acid, 2-[1-carboxy - 3 - (1,5 - dimethylhexyl) - 2-oxocyclopentyl]-, di-Et ester, 2587*d*.
$C_{26}H_{44}ClN_3O$ 1 - Dodecyl - 1 - (phenylcarbamylmethyl)pipecolinium chloride, P 3034*e*.
$C_{26}H_{45}NO$ 1 - Piperidinepropanol, α - dodecyl - α - phenyl-, - *HCl*, 9071*i*.
$C_{26}H_{45}NO_2$ Isoquinoline, 1,2,3,4 - tetrahydro - 6,7 - dimethoxy - 1 - pentadecyl-, 2624*g*.
$C_{26}H_{45}NO_3S$ Stearamide, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.
$C_{26}H_{45}NO_7S$ See *Taurocholic acid*.
$C_{26}H_{45}NO_2$ Acetic acid, dicyclohexyl-, 2-diethylaminoethyl ester, citrate, P 2234*k*.
$C_{26}H_{45}N_3O_4$ 3,4 - Pyrroledicarboxylic acid, 1-cyclohexyl - 2,5 - dimethyl-, bis(2-diethylaminoethyl) ester, P 4302*f*.
$C_{26}H_{46}N_2O$ Stearamide, *N*-(phenylguanyl-guanyl)-, P 4499*c*, P 4879*b*, P 5216*a*.

$C_{26}H_{46}$ Benzene, didecyl-, 8368*b*.
Eicosane, phenyl-, 4637*h*.
$C_{26}H_{46}ClNO_2$ (2 - Hydroxyethyl)methyldioctylammonium chloride, benzoate, P 3034*d*.
$C_{26}H_{46}INO_2$ 3(α),12(α) - Pregnanediol, 20-dimethylamino-, 12(α) - acetate, methiodide, 9076*i*.
$C_{26}H_{46}O_2$ Allocholane, dihydroxy - 24,24-dimethyl-, 6688*bd*.
$C_{26}H_{46}O_3$ Allocholane, 3(β),17,24-trihydroxy-24,24-dimethyl-, 6638*b*.
$C_{26}H_{47}ClN_2O$ Benzyldimethyl(3 - myristoylaminopropyl)ammonium chloride, P 4431*a*.
Hexadecyldimethyl(phenylcarbamylmethyl)ammonium chloride, P 3034*f*.
$C_{26}H_{47}N$ Dimethylamine, 1,1' - bis(2 - cyclohexylcyclohexyl)-, - *HCl*, 1359*b*.
$C_{26}H_{47}NO_4S$ 1 - Methyl - 1 - (1 - *p* - tolyldodecyl)piperidinium methyl sulfate, P 3044*i*.
$C_{26}H_{47}NO_{18}S$ Succinic acid, [(β - carboxy - α-sulfopropionyl)octadecylamino]-, *tri-Na salt*, 6915*h*.
$C_{26}H_{47}N_3O_4$ 2,4 - Pyrroledicarboxylic acid, 3,5 - dimethyl-, bis(3 - dipropylaminopropyl) ester, P 4302*g*.
$C_{26}H_{48}BrN$ 4 - (1 - Butylamyl) - 1 - dodecylpyridinium bromide, P 696*e*.
1 - Dodecyl - 4 - (2 - methyloctyl)pyridinium bromide, P 696*e*.
$C_{26}H_{48}BrNO$ Hexadecyldimethyl(2 - phenoxyethyl)ammonium bromide, P 1158*d*.
$C_{26}H_{48}O_2$ Hexacosadienoic acid, 1580*i*.
13,19 - Tricosadienoic acid, 3,13,19 - trimethyl-, 4375*g*.
$C_{26}H_{48}O_4$ Suberic acid, γ-acetyl-, bis(2-ethylhexyl) ester, P 6226*b*.
$C_{26}H_{48}NO_4S$ Hexadecyl(*p* - methoxyphenyl)-dimethylammonium methyl sulfate, P 8620*d*.
$C_{26}H_{50}$ Cyclooctene, 1-octadecyl-, 3366*b*.
$C_{26}H_{50}O_3$ Behenic acid, ν-ethyl-ι-oxo-, Et ester, 3780*i*.
Cerotic acid, η-oxo-, 3366*g*.
Heneicosanoic acid, 9-oxo-18-propyl-, Et ester, 3781*a*.
Ricinoleic acid, 2-ethylhexyl ester, P 6222*c*.
Tetracosanoic acid, 3-methyl-5-oxo-, Me ester, 3781*f*.
$C_{26}H_{50}O_4$ Adipic acid, didecyl ester, 4537*c*.
Hexacosanedioic acid, 4537*e*.
Oxalic acid, didodecyl ester, 4537*d*.
Phellogenic acid, di-Et ester, 4537*e*.
Sebacic acid, bis(2-ethylhexyl) ester, 3678*a*, P 3936, P 5184*a*, 5629*a*; dioctyl ester, 4537*e*.
$C_{26}H_{50}O_5$ Adipic acid, bis(5-amoxyamyl)ester, 9026*c*; bis(5-butoxyhexyl)ester, 9026*c*; bis(5-isobutoxyhexyl)ester, 9026*c*.
$C_{26}H_{51}IN_4O_3$ Acetic acid, iodo-, octadecyl ester, compd. with hexamethylenetetramine, 4641*a*.
$C_{26}H_{51}NO$ Oleamide, *N*-octyl-, 8353*k*.
$C_{26}H_{51}NO_2$ Erucic acid, 2-dimethylaminoethyl ester, *and - HCl*, 7940*b*.
$C_{26}H_{51}N_3O_2$ Ethanol, 2,2' - [2 - [2 - (8 - heptadecenyl) - 2 - imidazolin - 1 - yl]-ethylimino]di-, P 5180*e*.
$C_{26}H_{52}$ Eicosane, cyclohexyl-, 4637*h*.
$C_{26}H_{52}O$ Cyclohexanol, 1 - (3,7,11,15 - tetramethylhexadecyl)-, 3366*a*.
$C_{26}H_{52}O_2$ (See also *Cerotic acid*.)
Behenic acid, ν-ethyl-, Et ester, 3780*i*.
—, α, μ, π, υ - tetramethyl-, 4375*h*.
Phthioic acid, 4375*f*.
Stearic acid, λ-hexyl-, Et ester, 3781*b*.
Tricosanoic acid, trimethyl-, 4375*g*.
$C_{26}H_{53}NO_2S_2$ Didodecanesulfonamide, *N*-hydroxy-, acetate, 2573*b*.
$C_{26}H_{54}N_2$ 2-Imidazoline, 1-[2-[2-(2-aminoethylamino ) ethylamino ] ethyl]-2-(8-heptadecenyl)-, P 5180*e*.
$C_{26}H_{54}$ Eicosane, 9,11-dipropyl-, 107*d*.
Hexacosane, 1182*g*, 2480*d*, 3676*g*, 4140*e*.
Pentacosane, 13-methyl-, 4841*c*.
Tetracosane, 3-ethyl-, 4140*e*.
$C_{26}H_{54}N_2O_4S$ Diethylmethyl(oleoylaminoethyl)ammonium methyl sulfate, 3857*e*, 5905*c*, 6253*i*.
$C_{26}H_{54}NIO_2P_2$ Phosphine, tributyl-, complex with nickel carbonyl, 6202*e*.
$C_{26}H_{54}O$ Hexacosanol, 469*h*, 8609*i*.
$C_{26}H_{54}O_2$ Acetaldehyde, didodecyl acetal, P 1434*a*.
$C_{26}H_{54}O_6S_2$ Ethane, 1,2-bis(1-amylheptylsulfonyl)-, 2572*i*.
Ethane, 1,2-bis(dodecylsulfonyl)-, 2572*g*.
$C_{26}H_{54}S_2$ Ethane, 1,2-bis(1-amylheptylthio)-, 2572*h*.
,2 - bis(dodecylmercapto)-,

$C_{36}H_{56}Cl_6N_2O_4Pt$ (Carboxymethyl)trimethylammonium chloroplatinate dioctyl ester, 6977*d*.

$C_{36}H_{56}N_2$ 1,10 - Decanediamine, *N, N'*-bis(2 - ethylhexyl)-, *di- HCl*, P 3455*d*; *salts*, 3379*h*.

1,8 - Octanediamine, *N, N'* - dinonyl-, *di- HBr*, 3379*h*, P 3455*h*.

$C_{36}H_{56}N_2O_6$ 1,6 - Hexanediamine, *N, N'*-diheptyl-, dilactate, 3379*g*, P 3455*d*.

$C_{36}H_{56}N_2O_8$ Acetaldehyde, dibutylamino-, di-Me acetal, oxalate, 6974*c*.

$C_{36}H_{56}N_8O$ Stearamide, *N*-{[2-[2-(2-aminoethylamino)ethylamino]ethylguanyl}-guanyl]-, P 4879*d*.

$C_{36}H_{60}N_4O_4Pt$, 1676*d*.

$C_{36}H_{62}O_{16}$ Oxalic acid, compd. with BuOH, 7409*c*.

$C_{36}H_{76}O_{12}Si_{11}$ Hendecasiloxane, 1,21-diethoxydocosamethyl-, P 6221*c*.

$C_{36}H_{78}O_{11}Si_{12}$ Dodecasiloxane, hexacosamethyl-, P 4402*f*.

$C_{37}H_{13}Br_6GaN_4O_2$ 8 - Quinolinol, 5,7 - dibromo-, Ga deriv., 8952*e*.

$C_{37}H_{13}Br_6N_4O_2Tl$ 8 - Quinolinol, 2,5 - dibromo-, Tl deriv., 8306*a*.

$C_{37}H_{14}O_2$ 9 - Fluorenone, 2,2' - carbonyldi-, 6604*i*.

$C_{37}H_{18}ClO_4$ 1,4 - Naphthoquinone, 2,2'-(chlorobenzylidene)bis[3 - hydroxy-, 1383*d*.

$C_{37}H_{16}Br_4N_2O_3$ Urea, 1,3 - bis(2,7 - dibromo-9-xanthyl)-, 3822*g*.

$C_{37}H_{16}ClNO_4S$ Anthraquinone, 1-chloro-5-[*p* - (phenylsulfonyl)benzamido]-, P 7708*a*, P 8171*f*.

$C_{37}H_{16}Cl_2N_4O_4$ Acridine, 6-methoxy-7'-nitro-9,9' - iminobis[2 - chloro-, 7938*b*.

$C_{37}H_{16}N_2O_4$ 7 *H* - Acenaphth[1,2 - *b*]indole, 7-cinnamoylnitro-, 628*e*.

$C_{37}H_{16}N_4O_7S$ Benz[*a*]acridine, 12 - (2 - thienyl)-, picrate, 4665*e*.

$C_{37}H_{16}O$ 8*H*-Cyclopent[*a*]acenaphthylen-8-one, 7,9-diphenyl-, 2614*f*.

$C_{37}H_{16}O_2$ Benzo[*j*]fluoranthen - 1 - ol(?), mono-Bz deriv., 7929*d*.

$C_{37}H_{16}O_3$ 6 *H* - Naphtho[1,2,3 - *cd*]pyrene - 6-succinic anhydride, 5390*c*.

$C_{37}H_{16}O_6$ Glutaric acid, α,γ-bis[hydroxy(1-hydroxy - 2 - naphthyl)methylene]-, di-δ-lactone, 3415*e*.

$C_{37}H_{17}NO$ 7 *H* - Acenaphth[1,2 - *b*]indole, 7-cinnamoyl-, 628*c*.

7 *H* - Benz[*de*]anthracen - 7 - one, 6-naphthylamino-, 2984*f*.

$C_{37}H_{17}N_3$ Terquinoline, 3000*h*.

$C_{37}H_{17}N_3O_3$ 7 *H* - Naphtho[1,2,3 - *de*]phthalazine - 3,7(2 *H*) - dione, 6 - (*p* - phenylazoanilino)-, P 8166*b*.

$C_{37}H_{17}N_3O_7$ 5 *H* - Indolo[3.2 - *c*]quinoline, 5-phenyl-, picrate, 8352*a*.

$C_{37}H_{17}N_7O_{10}S_2$ Benzoic acid, *m*-{7-[4-(4-nitro - 2 - sulfostyryl) - 3 - sulfophenyl]benzo[1,2,3,4]bistriazol - 2(7 *H*)-yl}-, P 1574*e*.

$C_{37}H_{17}N_7O_{11}S_2$ Salicylic acid, 5-{7-[4-(4-nitro - 2 - sulfostyryl) - 3 - sulfophenyl]-benzo[1,2,3,4]bistriazol - 2(7 *H*) - yl}-, P 1574*e*.

$C_{37}H_{17}N_7O_{14}S_3$ Salicylic acid, {7-[4-(4-nitro-2 - sulfostyryl) - 3 - sulfophenyl]-benzo[1,2,3,4]bistriazol - 2(7 *H*) - yl}-sulfo-, P 1574*e*.

Salicylic acid, 5 - {7 - [4 - (4 - nitro - 2-sulfostyryl) - 3 - sulfophenyl] - 5 - sulfobenzo[1,2,3,4]bistriazol - 2(7 *H*)-yl}-, P 1574*e*.

$C_{37}H_{17}N_7O_{17}S_4$ Salicylic acid, 5-{7-[4-(4-nitro - 2 - sulfostyryl) - 3 - sulfophenyl]-5 - sulfobenzo[1,2,3,4]bistriazol-2-(7 *H*)-yl}-3-sulfo-, P 1574*e*.

$C_{37}H_{18}AsN_9O_{14}$ Arsine, tri-2-pyridyl-, dipicrate, 1046*h*.

$C_{37}H_{18}ClN$ Acrylonitrile, β-4-biphenylyl-β-(*o* - chlorophenyl) - α - phenyl-, 7007*c*.

$C_{37}H_{18}CrN_3O_3$ 8-Quinolinol, Cr deriv., 2543*c*, 8953*c*.

$C_{37}H_{18}InN_3O_3$ 8-Quinolinol, In deriv., 8952*h*.

$C_{37}H_{19}N_3O_5S$ Anthraquinone, 1-amino-5(*p*-phenylsulfonylbenzamido)-, P 7708*a*.

Anthraquinone, 1 - amino[*p* - (phenylsulfonyl)benzamido]-, P 8171*f*.

$C_{37}H_{19}N_3O_3Tl$ 8 - Quinolinol, Tl deriv., 8306*a*.

$C_{37}H_{19}N_6O_{14}P$ Phosphine, tri-2-pyridyl-, dipicrate, 1046*g*.

$C_{37}H_{20}O$ Ketone, phenyl 10-phenyl-9-anthryl, 9060*a*.

$C_{37}H_{20}O_2$ Benzene, 1,3,5-tribenzoyl-, 7453*e*.

7 *H* - Benzonaphtheno[1,2] - *p* - dioxin - 7-one, 9,10 - dihydro - 9,10 - diphenyl-, 2985*a*.

Ketone, 5 - hydroxy - 2,3 - diphenylbenzofuryl phenyl, 7017*b*.

$C_{37}H_{18}O_4$ 6 *H* - Naphtho[1,2,3 - *cd*]pyrene - 6-succinic acid, *and di- Na salt*, 5390*d*.

$C_{37}H_{18}O_6$ Acetate, m. 234–5°, 3415*f*.

Benzophenone, 2,5-dihydroxy-, dibenzoate, 2187*g*.

$C_{37}H_{18}O_8$ Phloroglucinol, tribenzoate, 7936*b*.

$C_{37}H_{18}O_9$ Acetic acid, bis(4-hydroxy-2-oxo-1,2 *H* - benzopyran - 3 - yl)-, benzyl ester, 5399*f*.

$C_{37}H_{19}CdNO_6$, 2538*h*.

$C_{37}H_{19}N$ 5 - Acenaphtheneacrylonitrile, α,β-diphenyl-, 4746*e*, 7007*c*.

Acrylonitrile, β - 4 - biphenylyl - α,β - diphenyl-, 4746*d*, 7007*c*.

$C_{37}H_{19}NNiO_6$, 2538*h*.

$C_{37}H_{19}NO$ 2-Naphthol, 1-[α-(naphthylimino)-benzyl]-, 3000*a*.

3 - Penten - 1 - yn - 3 - ol, 5 - (naphthylimino)-1,5-diphenyl-, 3000*a*.

4(1 *H*) - Pyridone, 1 - naphthyl - 2,6 - diphenyl-, 3000*a*.

$C_{37}H_{19}NO_2$ Dibenzo[*cd,jk*]pyrene - 6,12-dione, 4-(1-piperidyl)-, 1760*b*.

$C_{37}H_{19}N_3O_8S_2$ 1 - Naphthol - 8 - sulfonic acid, 4 - (*p* - aminobenzoyl) - 2 - (2 - hydroxy - 4 - sulfo - 1 - naphthylazo)-, P 8147*i*.

$C_{37}H_{19}N_3O_7$ Quinoline, 4-anilino-3-phenyl-, picrate, 3003*g*.

$C_{37}H_{19}N_3O_8S_2$ Salicylic acid, 5-[4-(4-amino-6 - sulfo - 1 - naphthylazo) - 6 - sulfo-1 naphthylazo]-, P 5599*c*.

$C_{37}H_{20}N_2O_3$ Benzanilide, 4',4'''-carbonylbis-, 1367*g*.

$C_{37}H_{20}N_2O_6$ *o* - Terphenyl - 4 - methanol, α-methyl-, 3,5 - dinitrobenzoate, 4656*g*.

$C_{37}H_{20}N_4O_2$ Anthraquinone, 1 - amino - 2 - methyl - 4 - (*p* - phenylazoanilino)-, P 3626*i*.

$C_{37}H_{20}N_4O_7$ Indole, phenyl-*p*-tolyl-, picrate, 220*a*.

Isoquinoline, 3,4 - dihydro - 1,4 - diphenyl-, picrate, 5026*e*.

$C_{37}H_{20}N_4O_{16}S_4$ 2,7 - Naphthalenedisulfonic acid, 3,3' - (*p* - tolylenebisazo)bis[4,5 - dihydroxy-, *tetra-Na salt*, P 7847*h*.

$C_{37}H_{20}N_4O_{17}S_4$ 2,7 - Naphthalenedisulfonic acid, 3,3' - (2 - methoxy - *p* - phenylenebisazo)bis[4,5 - dihydroxy-, *tetra-Na salt*, P 7847*i*.

$C_{37}H_{20}N_{12}O_6Pb_2$ Isatin, 3-semicarbazone, Pb deriv., 8979*i*.

$C_{37}H_{20}O$ 9 - Anthracenemethanol, α,10-diphenyl-, 9059*i*.

Anthrone, benzhydryl-, 7473*b*.

$C_{37}H_{20}O_2$ Benzophenone, 4,4''-methylenedi-, 5386*a*.

$C_{37}H_{20}O_3S$ Benzoic acid, thiol-, α-benzoylbenzhydryl ester, 1753*h*.

$C_{37}H_{20}O_5$ Cyclopentanone, 3-phenyl-2,5-dipiperonylidene-, 3398*i*.

$C_{37}H_{20}O_6S_3$ 2 - Naphthalenesulfonic acid, benzylidenedi-, *and salts*, P 5047*b*.

$C_{37}H_{20}O_9$ Salicylic acid, 5,5'-(α-hydroxybenzylidene)di-, anhydride, triacetate, 5770*i*.

$C_{37}H_{21}BrN_2Se_2$ 1 - Methyl - 2 - [3 - (1 - methyl-2(1 *H*) - naphtho[1,2]selenazolylidene)propenyl]naphtho[1,2]selenazolium bromide, P 7848*i*.

$C_{37}H_{21}BrO$ Acenaphthene, 5-[β-bromo-α-(*p*-methoxyphenyl)styryl]-, 7007*e*.

Anisole, *p* - [*p* - (β - bromo - α - phenylstyryl)phenyl]-, 4746*e*.

Ethylene, 1 - (4 - biphenylyl) - 2 - bromo-1 - (*p* - methoxyphenyl) - 2 - phenyl-, 4746*d*, 7007*e*.

—, 1 - bromo - 2 - (4' - methoxy - 4 - biphenylyl) - 1,2 - diphenyl-, 4746*e*.

$C_{37}H_{21}MnNO_7$, 2538*h*.

$C_{37}H_{21}NO$ Acrylamide, β-4-biphenylyl-α,β-diphenyl-, 7007*c*.

Aniline, *N* - (10 - methoxy - 10 - phenyl-9(10 *H*)-anthrylidene)-, 9060*e*.

$C_{37}H_{21}NO_2$ Acetanilide, *p*-2-biphenylyl-α-benzoyl-, 4656*e*.

$C_{37}H_{21}N_3O_8S_2$ 2 - Naphthol - 4 - sulfonic acid, 1 - [4 - (4 - amino - 6 - sulfo - 1 - naphthylazo) - 6 - hydroxy - *m* - tolylazo]-, P 4482*a*.

$C_{37}H_{21}N_3O_{12}S_3$ 2,7 - Naphthalenedisulfonic acid, 3 - [4 - (8 - amino - 1 - hydroxy-5 - sulfo - 2 - naphthylazo) - *o* - tolylazo] - 4,5 - dihydroxy-, *tri* - *Na salt*, P 7847*k*.

$C_{37}H_{21}N_3O_{15}S_3$ 2,7 - Naphthalenedisulfonic acid, 3 - [4 - (8 - amino - 1 - hydroxy-5 - sulfo - 2 - naphthylazo) - 2 - methoxyphenylazo] - 4,5 - dihydroxy-, *tri-Na salt*, P 7847*i*.

$C_{37}H_{21}N_3O_{18}S_4$ 1 - Naphtholdisulfonic acid 8 - amino - 2 - [4 - (1,8 - dihydroxy 3,6 - disulfo - 2 - naphthylazo) - *m* tolylazo]-, *tetra-Na salt*, P 7847*h*.

$C_{37}H_{21}N_3O_{19}S_4$ 1 - Naphtholdisulfonic acid 8 - amino - 2 - [4 - (1,8 - dihydroxy 3,6 - disulfo - 2 - naphthylazo) - 3 methoxyphenylazo]-, *tetra-Na salt*, P 7847*i*.

$C_{37}H_{21}N_9S_6$ Melamine, *N, N', N''*-tris(2 benzothiazolylmercaptomethyl)-, I 2024*h*.

$C_{37}H_{21}N_3$ Carbodiimide, benzyltriphenyl methyl-, 4645*i*.

Cyanamide, benzyltriphenylmethyl, 4645*b*.

$C_{37}H_{22}N_2OS$ Urea, 1-benzoyl-2-thio-3-triphenylmethyl-, 4646*d*.

$C_{37}H_{22}N_2O_3$ Acetophenone, *p*-(*p*-hydroxyphenyl)-, benzoate, phenylhydrazone, 1034*f*.

Quinoline, 6 - methoxy - 4 - *p* - methoxyanilino - 2 - (2 - naphthyl)-, *and - HCl*, 3002*f*.

Urea, 1 - benzoyl - 3 - triphenylmethyl-, 4646*b*.

$C_{37}H_{22}N_2O_4$ 1,3 - Dioxolo[*g*]isoquinoline, 5 benzoyl - 5,6,7,8 - tetrahydro - 6 - (6 - methoxy - 4 - quinolyl)-, 1421*f*.

$C_{37}H_{22}N_4O_2S_2$ 4 - Thiazolidone, 3 - ethyl - 5 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 2 - (naphth[2,1]thiazol-2-ylimino)-, P 4162*e*.

$C_{37}H_{22}N_4O_2S_3$ Compd., m. 233–5°, P 6209*e*.

$C_{37}H_{22}N_6O_{16}S_2$ 1 - Naphthol - 5 - sulfonic acid, 2 - (2 - hydroxy - 5 - nitrophenylazo) - 8 - [1 - [(*o* - methoxyphenyl)carbamyl]acetonylazo]-, *Na salt*, P 8156*e*.

$C_{37}H_{22}N_6O_{18}S_4$ 1 - Naphthol - 3,6 - disulfonic acid, 2,2' - (*p* - 2 - tolylenebisazo)bis[8-amino-, *tetra-Na salt*, P 7847*p*.

$C_{37}H_{22}O$ Acenaphthene, 5 - [α - (*p* - methoxyphenyl)styryl]-, 4746*e*, 7007*e*.

Ethylene, 1 - (4 - biphenylyl) - 1 - methoxyphenyl) - 2 - phenyl-, 4746*e*, 7007*e*.

$C_{37}H_{22}O_2$ Benzophenone, 4,4' bis(benzyloxy)-, 7469*d*.

$C_{37}H_{22}O_{14}$ Flavone, 3',4',5',6,7,8 - hexahydroxy-, hexaacetate, 1774*e*.

$C_{37}H_{23}AsN_4O_4$ Propiophenone, β-(diphenylarsino)-, 2,4 - dinitrophenylhydrazone, 8352*b*.

$C_{37}H_{23}ClN_2$ 1,6 - Dimethyl - 2 - [2 - (2 - phenyl - 1 - pyrrocolinyl)vinyl]quinolinium chloride, 3930*f*.

$C_{37}H_{22}IO_7$ 1,4 - Sorbitan, 6 - iodo - 6 - desoxy-2,3,5-tribenzoate, 152*c*.

$C_{37}H_{24}$ Methane, bis(*p*-benzylphenyl)-, 5386*a*.

$C_{37}H_{24}ClIN_4O_3S$ 2 - [5 - (*p* - Chlorophenylazo)-4 - hydroxy - 3 - phenyl - 4 - thiazolin-2 - ylidenemethyl] - 3 - ethyl - 5,6 - dimethylbenzoxazolinium iodide, P 7846*b*.

$C_{37}H_{24}ClNO_3$ 4 - [4 - (*p* - Dimethylaminophenyl) - 1,3 - butadienyl] - 7 - hydroxyflavylium chloride, P 6100*i*, P 7849*d*.

$C_{37}H_{24}Cl_2O_6$ Mesitol, $\alpha^2,\alpha^6$-bis(5 chloro-2 hydroxyphenyl)-, triacetate, 5019*d*.

$C_{37}H_{24}Cl_3N_3O_3$ *s* - Triazine, 1,3,5 - tris(*p* chlorophenylacetyl)hexahydro -, 5405*i*.

$C_{37}H_{24}IN_3O_2S$ 5 - [2 - (3 - Ethyl - 2 - benzoxazolinylidene)ethylidene] - 2 - methyl mercapto - 4 - oxo - 1,3 - diphenyl - 2 imidazolinium iodide, P 4160*h*.

$C_{37}H_{24}N_2$ Quinoxaline, 2 - methyl - 3 - (12 phenyl - 1,3,5,7,9,11 - dodecahexaenyl)-, 187*f*.

$C_{37}H_{24}N_2O$ Benzanilide, 3-dibenzylamino-, 1345*h*.

Urea, 1 - benzyl - 3 - triphenylmethyl-, 4645*b*.

$C_{37}H_{24}N_2O_2$ Benzanilide, 4 - amino - 2,5 - bis(benzyloxy)-, P 4165*g*.

$C_{37}H_{24}N_2O_3S_2$ 2 - (Anilinovinyl) - 1 - methylnaphtho[1,2]thiazolium *p* - toluenesulfonate, P 2642*g*.

$C_{37}H_{24}N_2O_4$ Formanilide, *N*, *N'*-diphenyl-, dibenzoate, 1354*a*.

Tryptophan, *N*-acetyl-, *p*-phenylphenacyl ester, 1398*b*.

$C_{37}H_{24}N_2S$ Urea, 1-benzyl-2-thio-3-triphenylmethyl-, 4645*i*.

$C_{37}H_{24}N_4$ Acetaldehyde, (*o*-benzoylphenyl)-, bis(phenylhydrazone), 5778*f*.

$C_{37}H_{24}O$ Mesitol, $\alpha^2,\alpha^4,\alpha^6$-triphenyl-, 3316*j*.

$C_{37}H_{24}O_2$ Methane, [*o* - (benzyloxy)phenyl]-, [*p* - benzyloxy)phenyl]-, 2 - hydroxy-3 - [3 - (1,2,3,4 - tetrahydro - 9 - phenanthryl)propyl]-, 1379*g*.

$C_{37}H_{24}O_3$ 1,4 - Naphthoquinone, 2 - hydroxy-3 - [3 - (1,2,3,4 - tetrahydro - 9 - phen-

$C_{27}H_{14}O_4$ 1,4 - Naphthoquinone, 2 - hydroxy-3 - [5 - (*p* - phenoxyphenyl)amyl]-, 1379*k*, 2610*b*.

$C_{27}H_{34}O_2$ 2,5 - Cyclohexadien - 1 - one, 4-(4,4' - dihydroxy - 3 - methoxybenzhydrylidene) - 2 - methoxy-, triacetate, 5772*g*.

Ribopyranoside, methyl 2,3,4-tribenzoyl-, 1721*d*.

$C_{27}H_{26}S_4$ Benzophenone, 4,4'-bis(methylmercapto)-, di-Ph mercaptole, 7407*i*, 7468*a*.

$C_{27}H_{23}Cl_2IN_2S_2$ 2 - [3,7 - Dichloro - 9 - (3-ethyl - 2 - (benzothiazolinylidene) - 1,3,-5,7 - nonatetraenyl] - 3 - ethylbenzothiazolium iodide, 8291*e*.

$C_{27}H_{29}IN_2$ 3 - (2,4 - Dihydro - 4 - methyl - 1 *H*-cyclopenta[*b*]quinolin - 3 - ylmethylidyne) - 2,3 - dihydro - 4 - methyl - 1 *H*-cyclopenta[*b*]quinolinium iodide, 3001*f*.

$C_{27}H_{29}IN_2OS$ 3,5,6 - Trimethyl - 2 - [3 - (1-methylnaphtho[1,2]thiazol - 2(1 *H*)-ylidene) - 1 - cyclopenten - 1 - yl]benzoxazolium iodide, P 4158*e*.

$C_{27}H_{29}NO_3$ Cinchoninic acid, 2',5'-dimethyl-2,3 - diphenyl - *ar'* - propoxy-, 7925*a*.

$C_{27}H_{29}N_3O_5$ Levoglucosan, tricarbanilate, 1331*g*.

Tricarbanilate, 154*b*.

$C_{27}H_{29}N_3O_5S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5-(cyclohexylsulfamyl)-, P 7710*c*.

$C_{27}H_{29}N_3O_{10}S$ 2 - Thiophenecarboxylic acid, 5 - {[2 - dimethylaminoethyl) - 2 pyridylamino]methyl}-, dipicrate, 5781*h*.

$C_{27}H_{29}O_4P$ Benzhydryl benzyl phosphate, 690*c*.

$C_{27}H_{26}ClN_3O_4$ *o* - Cresol, 4 - (6 - chloro - 2-methoxy - 9 - acridylamino) - *α* - diallylamino-, P 1068*d*.

$C_{27}H_{30}N_2$ Benzylamine, *N*,*N'*-(methylenedi *p* phenylene)bis-, 5386*e*.

$C_{27}H_{30}N_2O_3$ 1,4 Naphthoquinone, 2 - [4,4' bis(dimethylamino)benzhydryl] - 3-hydroxy-, 1382*c*.

$C_{27}H_{30}N_4O_2Zn$, 2538*g*.

$C_{27}H_{34}N_4O_{12}$ Fagarine II, picrate, 4281*a*

α-Fagarine, picrate, 4280*b*.

$C_{27}H_{30}N_4O_6$ *sec* - Pseudostrychnine, 2,4 - dinitrophenylhydrazone, 239*c*.

$C_{27}H_{30}N_4O_{12}$ Acrylic acid, *β*,*β*-bis(*p* nitrophenyl)-, 2 - diethylaminoethyl ester, picrate, 7464*b*.

$C_{27}H_{30}O_4$ Acetic acid, bis(4-hydroxy 2-oxo-1,2 *H* - benzopyran - 3 - yl)-, heptyl ester, 5399*e*.

Flavone, 8 - (benzyloxy) - 3,3',4',5,7-pentamethoxy-, 5398*e*

Guaiacol, 4,4' - (*p* - hydroxybenzylidene)di-, triacetate, 5772*d*.

$C_{27}H_{30}O_9$ Acetophenone, 4 - [4 - (4 - hydroxy - 3 - methoxyphenacyloxy) - 3-methoxyphenacyloxy] - 3 - methoxy-, 3610*f*.

$C_{27}H_{28}O_{10}$ Acetate, m. 140–2°, 3394*b*.

$C_{27}H_{31}ClO$ Acrylophenone, *β*-(*p*-chlorophenyl) - 2,4,6 - triethyl - *α* - phenyl-, 5773*d*.

$C_{27}H_{27}ClO_5$ 1 - Indancarboxylic acid, 2 - benzhydryl - 2 - chloro - 1 - hydroxy - 3-oxo-, compd. with $Et_2O$, 1384*f*.

$C_{27}H_{27}Cl_2IN_2S_2$ 5 - Chloro - 2 - {[3 - (5 - chloro-3 - ethyl - 2 - benzothiazolinylidenemethyl) - 5 - methyl - 2 - cyclohexen-1 - ylidene]methyl} - 3 - ethylbenzothiazolium iodide, P 56*a*.

$C_{27}H_{27}IN_2$ 4 - Ethyl - 3 - [2 - (1 - ethylquinolylidene)ethylidene] - 2,3 dihydro - 1 *H*-cyclopenta[*b*]quinolinium iodide, 3001*gh*.

1 - Ethyl - 4 - [5 - (1 - ethyl - 2(1 *H*)-quinolylidene) - 1,3 - pentadienyl] quinolinium iodide, 6930*a*.

$C_{27}H_{27}IN_2S$ 2 - [3 - [2 - (1 - Ethyl - 2(1 *H*)-quinolylidene)ethylidene] - 1 - cyclohexen - 1 - yl] - 3 - methylbenzothiazolium iodide, P 4158*g*.

$C_{27}H_{27}IN_2S_2$ 3 - Ethyl - 2 - [9 - (3 - ethyl - 2-benzothiazolinylidene) - 1,3,5,7 - nonatetraenyl]benzothiazolium iodide, 2617*b*, 8291*e*.

$C_{27}H_{27}IN_2Se_2$ 3 - Ethyl - 2 - [9 - (3 - ethyl - 2-benzoselenazolinylidene) - 1,3,5,7-nonatetraenyl]benzoselenazolium iodide, 8291*e*.

$C_{27}H_{27}NO_8$ Acetic acid, nitrilotri-, tribenzyl ester, P 5230*a*; tritolyl ester, P 5229*i*.

$C_{27}H_{27}N_3O_8S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - (diethylsulfamyl)-, Et ester, P 7709*i*.

$C_{27}H_{27}N_3O_4$ *sec* - Pseudostrychnine, *p* - nitrophenylhydrazone, 239*c*.

$C_{27}H_{27}N_3O_{15}$ Dipicrate, m. 92–4°, 1780*b*.

$C_{27}H_{28}Br_2O_5S$ See *Bromothymol blue*.

$C_{27}H_{28}IN_3S$ 1 - Ethyl[3 - (3 - ethyl - 4 - methyl-4 - thiazolin - 2 - ylidene) - 4 - phenylimino - 2 - butenyl]quinolinium iodide, 2530*a*.

$C_{27}H_{28}N_2O_4S$ 1 - Ethyl - 2 - (2 - *p* - methoxyanilinovinyl)quinolinium *p* - toluenesulfonate, P 2642*i*.

$C_{27}H_{28}N_2O_6$ Anthraquinone, 1 - [*β* - [2 - (2-hydroxyethoxy)ethoxy] - *p* - phenetidino) - 4 - methylamino-, P 3205*e*.

$C_{27}H_{28}N_4O_2$ 4 - Piperidone, 1 - benzoyl - 3,5-dibenzyl-, semicarbazone, 4275*f*.

$C_{27}H_{28}N_4O_4S_2$ Malonamidine, *N*,*N''*-diphenyl-, dibenzenesulfonate, 7444*c*.

$C_{27}H_{28}N_4O_7S$ Quinoline, 3 - heptyl - 6 - methyl-2 - (2 - thienyl)-, picrate, 228*c*.

$C_{27}H_{28}N_4O_{10}$ 1 - Phenanthrenеthylamine, trimethoxy - *N*,*N* - dimethyl-, picrate, 6208*d*.

$C_{27}H_{29}ClN_2O$ 2 - [2 - (2,5 - Dimethyl - 1-phenetyl - 3 - pyrryl)vinyl] - 1,6 - dimethylquinolinium chloride, 3930*d*.

$C_{27}H_{29}ClO_5$ 1 - Indancarboxylic acid, 2-chloro - 2 - (3 - cyclohexylpropyl) - 1-hydroxy - 3 - oxo-, Me ester, benzoate, 1384*e*.

$C_{27}H_{29}IN_2O_3$ Quinine, iodosalicylate, 3148*d*.

$C_{27}H_{29}IN_2S$ 3 - Methyl - 2 - [3 - [2 - (1,3,3-trimethyl - 2 - indolinylidene)ethylidene] - 1 - cyclohexen - 1 - yl]benzothiazolium iodide, P 4158*d*.

$C_{27}H_{29}IN_2S_2$ 3 - Ethyl - 2 - {[3 - (3 - ethyl - 2-benzothiazolinylidenemethyl) - 5-methyl - 2 - cyclohexen - 1 - ylidene]-methyl}benzothiazolium iodide, P 55*d*.

$C_{27}H_{29}NO$ Butyrophenone, *α*,*α* - diphenyl-*γ* (1 - piperidyl)-, - *HBr*, 7467*e*.

$C_{27}H_{29}NO_2$ 2 - Pentanone, 5 - (4 - morpholinyl) - 1,3,3 - triphenyl-, - *HCl*, 4244*e*.

$C_{27}H_{29}NO_3S$ 2,3,4,9 - Tetrahydro - 2,2 - dimethyl - 9 - phenyl - 1 *H* - indeno-[2,1 - *c*]pyridinium *p* - toluenesulfonate, P 5809*a*.

$C_{27}H_{29}NO_5$ Acetic acid, bis(4-hydroxy-2-oxo-1,2 *H* - benzopyran - 3 - yl)-, Pr ester, $Et_2NH$ salt, 5399*f*.

$C_{27}H_{29}N_3O_4$ 1,3 - Cyclohexadiene - 1 - carboxanilide, 5 - (*p* - diethylaminophenylimino) - 3' - (1,3 - dioxolan - 2 yl)-3-methyl-2-oxo-, P 8168*d*.

$C_{27}H_{29}N_5O_8$ 2,4 - Dinitrophenylhydrazone, m. 103–7°, 8376*d*

$C_{27}H_{30}ClN_3O_2$ *o* - Cresol, 4 - (6 - chloro - 2-methoxy - 9 - acridylamino) - *α* - hexylamino-, *di*-*HCl*, P 7516*c*.

$C_{27}H_{30}N_2O_2$ *h*-Hydroquinine, benzoyl , 4678*g*.

$C_{27}H_{30}N_2O_{11}$ Glucoside, [*p* - (*p* - methoxyphenylazo)phenyl], tetraacetate, 6919*f*.

$C_{27}H_{30}N_4O_7$ 4 - Hexenylamine, *N*, *N*,1 - trimethyl-3,3-diphenyl-, picrate, 192*d*.

$C_{27}H_{30}N_6O_2$ Malonamide, *N*, *N'*-bis(4-amino 2 - methyl - 6 - quinolyl) - *α*,*α* - diethyl-, *di*- *HCl*, 1778*d*.

Malonamide, *N*, *N'* - bis(4 - amino - 2-methyl - 6 - quinolyl) - *α* - methyl - *α*-propyl-, *di*- *HCl*, 1778*d*.

Pimelamide, *N*, *N'* - bis(4 - amino - 2-methyl-6-quinolyl)-, 1778*c*.

$C_{27}H_{30}O_4$ $\Delta^{1,3,5}$ - Estratriene, 3 - (benzyloxy) - 17(*α*) - hydroxy - 16 - keto , 17-acetate, 3434*g*.

$C_{27}H_{30}O_5S$ See *Thymolsulfonephthalein*.

$C_{27}H_{30}O_{16}$ See *Rutin*.

$C_{27}H_{31}Br_2NO_2$ Acrylic acid, bis(*p*-bromophenyl)-, 2 - diethylaminoethyl ester, citrate, 7464*d*.

$C_{27}H_{31}ClN_4O_7$ Hexylamine, 4-chloro-*N*, *N*,1-trimethyl - 3,3 - diphenyl-, picrate, 192*c*.

$C_{27}H_{31}ClO_{15}$ Cyanin chloride, 3104*g*, 5116*h*. Mecocyanin, 7860*i*.

$C_{27}H_{31}Cl_2NO_2$ Acrylic acid, *β*,*β*-bis(*p*-chlorophenyl)-, 2 - diethylaminoethyl ester, citrate, 7464*c*.

$C_{27}H_{31}F_2NO_2$ Acrylic acid, *β*,*β*-bis(*p*-fluorophenyl)-, 2 - diethylaminoethyl ester, citrate, 7464*c*.

$C_{27}H_{31}NO_3S$ Piperidine, 1 - (3,3 - diphenyl-3 - *p* - tolylsulfonylpropyl)-, - *HCl*, 1367*a*.

$C_{27}H_{31}NO_4$ 4 - Piperidinol, 2,6 - bis(*p* - methoxyphenyl) - 3,5 - dimethyl - 4 - phenyl-, *and* - *HCl*, 1410*f*.

$C_{27}H_{31}N_3O_2$ Benzophenone, 4,4'-dibutyl-, *p*-nitrophenylhydrazone, 7004*h*.

$C_{27}H_{31}N_3O_{11}$ Acrylic acid, *β*,*β*-bis(*p*-nitrophenyl)-, 2 - diethylaminoethyl ester, citrate, 7464*b*.

$C_{27}H_{31}N_3O_5$ + $H_2O$ Strychnidine, tetrahydrodichano-, picrate, 2213*h*.

$C_{27}H_{31}N_3O_9$ Colchiceine, tetrahydro-, 2,4-dinitrophenylhydrazone, 8376*f*.

$C_{27}H_{31}N_7O_4$ Compd., m. 275–8°, 651*g*.

$C_{27}H_{32}BrNO_2$ (2 - Benzhydryloxyethyl) - *α*-carboxybenzyldimethylammonium bromide, Et ester, P 5046*a*.

$C_{27}H_{32}FNO_4$ Acrylic acid, *β* - (*p* - fluorophenyl) - *β* - phenyl-, 2 - diethylaminoethyl ester, citrate, 7464*c*.

$C_{27}H_{32}I_2N_2O_2$ 8,8' - (Pentamethylenedioxy)-bis[1 - ethylquinolinium iodide], 1486*d*, 8559*a*.

$C_{27}H_{33}N_3O_6$ Anilide, m. 299–302° of tricarboxylic acid, decompg. 258–61°, 210*i*.

Urea, 1,1 - bis(4 - ethoxy - 3-methoxybenzyl) - 3 - phenyl - (?), 2177*b*.

$C_{27}H_{32}N_2O_4S_2$ Glycine, *N* - [3 - (*N* - ethylphenylsulfonamido)mesityl] - *N*-(phenylsulfonyl)-, Et ester, 1786*a*.

$C_{27}H_{32}N_4O_6$ Etiocholadienic acid, 3-keto-, Me ester 2,4-dinitrophenylhydrazone, 4282*d*.

$C_{27}H_{32}N_6O$ Compd., m. 249–51°, 650*i*.

$C_{27}H_{32}N_6O_2$ Urea, bis(4-isopropyl-2-methyl-5 - oxo - 1 - phenyl - 3 - pyrazolin - 3-yl)-, P 6240*a*.

$C_{27}H_{32}N_6O_{14}$ Isosparteine, dipicrate, 3828*h*. Sparteine, dipicrate, 3016*d*, 3828*h*.

$C_{27}H_{32}O_{14}$ Hibiscitrin, hexamethyl-, 1408*a*. Naringin, 5117*a*, 7935*e*.

$C_{27}H_{32}O_{15}$ Butrin, 5117*a*.

$C_{27}H_{33}BrN_4O$ 7 - Quinolinecarbonitrile, 4 - (2-bromo - *α* - diamylamino - 5 - hydroxy-*p*-toluidino)-, P 7515*d*.

$C_{27}H_{33}Br_2NO_2$ Propionic acid, *β*,*β*-bis(*p*-bromophenyl)-, 2 - diethylaminoethyl ester, citrate, 7464*d*.

$C_{27}H_{33}ClN_2$ See *Brilliant green*.

$C_{27}H_{33}F_2NO_2$ Propionic acid, *β*,*β*-bis(*p*-fluorophenyl)-, 2 - diethylaminoethyl ester, citrate, 7464*d*.

$C_{27}H_{33}NO_4S$ 4 - [2 - (Benzhydryloxy)ethyl] - 4-methylmorpholinium *p* - toluenesulfonate, P 3463*b*.

$C_{27}H_{33}NO_5S$ 9 - Fluorenecarboxylic acid, 3-(2 - dimethylaminoethylmercapto)propyl ester, citrate, 3395*c*.

$C_{27}H_{33}N_3O_4$ 3,4 - Pyrroledicarboxylic acid, 1-methyl - 2,5 - diphenyl-, bis(2 - dimethylaminoethyl) ester, P 4701*a*.

$C_{27}H_{33}N_3S_3$ *s* - Trithiane, 2,4,6 - tris(*p* - dimethylaminophenyl)-, 5860*i*.

$C_{27}H_{33}N_3O_2S$ Benzenesulfonamide, *p* - (5-hendecyl - 3,6 - dihydroxy - 2 - *p*-quinonylazo) - *N* - 2 - pyrimidyl-, 9047*h*.

$C_{27}H_{34}FNO_2$ Propionic acid, *β*-(*p*-fluorophenyl) - *β* - phenyl-, 2 - diethylaminoethyl ester, citrate, 7464*d*.

$C_{27}H_{34}N_2$ 1,2 - Propanediamine, $N^2$ - benzyl-$N^1$, $N^1$ - diethyl - $N^2$ - *o* - phenylbenzyl-, 1355*i*.

$C_{27}H_{34}N_2O_3S$ Caprylamidine, *N*-2-biphenylyl-, *p* - toluenesulfonate, 7445*i*.

$C_{27}H_{34}N_2O_5$ 6 *H* - Pyrido[3,2,1 - *jk*]carbazol-6 - one, 11b - (2 - dimethylaminoethyl) - 1,2,3,5,11b,11c - hexahydro-1,8 - dihydroxy - 3 - (1 - methylpropenyl)-, diacetate, 7948*a*.

$C_{27}H_{34}N_4O_8$ Progesterone, 2,4 - dinitrophenylhydrazine deriv., 1690*f*.

$C_{27}H_{34}N_4O_8$ $\Delta^1$ - Etioallocholenic acid, 3-keto-, Me ester 2,4-dinitrophenylhydrazone, 4282*c*.

$C_{27}H_{34}O_2$ Vitamin A, benzoate, 5372*d*.

$C_{27}H_{34}O_3$ Testosterone, 16-methyl-, benzoate, 1429*g*.

$C_{27}H_{34}O_4$ 1',2',16,17 - Benzo - $\Delta^{5,6}$ - androstene - 3(*β*) - 4' - diol, diacetate, 245*c*.

4,4' - Stilbenediol, *α*,*α'* - diethyl-, caproate propionate, P 3979*d*.

$C_{27}H_{34}O_5$ 2 - Naphthalenepelargonic acid, 1,3,4 - trihydroxy-, Et ester, triacetate, 1382*a*.

$C_{27}H_{34}NO_4S$ [2 - (Benzhydryloxy)ethyl]dimethylpropylammonium *p* - toluenesulfonate, P 3463*b*.

$C_{27}H_{34}NO_6$ 3,5 - Piperidinedicarboxylic acid, 1,4 - diethyl - 4 - hydroxy - 2,6 - diphenyl-, di-Et ester, 4674*e*.

$C_{27}H_{34}NO_7S$ Camphorsulfonic acid, salt with morphine, 7642*c*.

$C_{27}H_{34}NO_8S$ Acetic acid, diphenyl-, 2-(2-dimethylaminoethylmercapto)isopropyl ester, citrate, 3395*c*.

$C_{27}H_{34}N_2O_7$ Leucine, *N* - ($N^\alpha$, $N^\delta$ - dicarboxyornithyl)-, dibenzyl ester, 4641*f*.

Ornithine, $N^\delta$ - carboxy - $N^\alpha$ - (*N* - carboxyvalyl)-, dibenzyl Me ester, 4641*e*.

$C_{27}H_{38}N_2O$ 4 - Quinolinemethanol, α - (dibutylaminomethyl) - 6,7 - dimethyl-2-phenyl-, *di-HBr*, 4675*b*.

$C_{27}H_{38}N_2O_2S$ Sparteine, α-ethyl-*N*-(2-naphthylsulfonyl)-, 1047*i*.

$C_{27}H_{38}N_4O_4$ Etioallocholanic acid, 3-keto-, Me ester 2,4-dinitrophenylhydrazone, 4282*c*.

$C_{27}H_{38}N_4O_8$ 2,3 - Butanedione, 1 - (2,2,6-trimethylcyclohexyl)-, bis(phenylsemicarbazone), 4813*d*.
Cyclohexanone, trimethyl(3 - oxobutyl)-, bis(phenylsemicarbazone), 4813*h*, 8499*b*.

$C_{27}H_{38}O_2$ 5 - Androstene, 3(β),17 - dihydroxy-16-methyl-, 17-benzoate, 1429*f*.
5 - Androstene - 3(β),17(α) - diol, 17(β)-methyl-, 3(β)-benzoate, 243*b*.
*D* - Homoandrostane, 17a - hydroxy - 3-keto-, 17-benzoate, P 7055*d*.
1,4 - Naphthoquinone, 2 - [5 - (4 - cyclohexylcyclohexyl)amyl] - 3 - hydroxy-, 2610*b*.
—, 2 - [12 - (2 - cyclopenten - 1 - yl)dodecyl]-3-hydroxy-, 1378*a*.
2,4,7 - Nonatriene - 1,6 - diol, 3,7 - dimethyl - 9 - (2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-, 1 - benzoate, 5372*c*.

$C_{27}H_{38}O_4$ 1',2',16,17 - Benzandrostan-3(β),4'-diol, diacetate, 245*a*.

$C_{27}H_{38}O_5$ Alloglaucotoxigenin, diacetate, 4680*a*.
Glaucorigenin, diacetate, 4680*c*.

$C_{27}H_{38}O_6$ Acid, m. 181°, 4680*a*.

$C_{27}H_{39}NO_5$ Alloglaucotoxigenin, oxime, diacetate, 4680*a*.

$C_{27}H_{39}NO_6$ Glaucorigenin, oxime, diacetate, 4680*c*.

$C_{27}H_{37}N_3O_2$ *o* - Cresol, α - diamylamino - 4-(6 - methoxy - 4 - quinolylamino)-, *di-HCl*, P 7515*d*.
Quinoline, 4 - [3 - (dibutylaminomethyl)-*p* - phenetidino] - 6 - methoxy-, *di-HCl*, P 7515*h*.

$C_{27}H_{38}ClN_3O$ Acridine, 9-[3-(*sec*-butylisoamylamino)butylamino] - 6 - chloro-2 - methoxy-, *and di-HCl*, P 256*a*.
Acridine, 9 - [3 - (*sec* - butylpropylamino) - 1 - ethylisobutylamino] - 6-chloro-2-methoxy-, P 1068*a*.

$C_{27}H_{38}I_2N_2O_2$ Compd. decompg. 230–40°, 3017*g*.

$C_{27}H_{38}N_2$ Benzylamine, *p,p'* - methylenebis-[*N* - cyclohexyl-, *and di-HCl*, 3382*d*.

$C_{27}H_{38}N_2O_2S_2$ Strychnone, methoxymethylchanodihydro-, di-Et mercaptal, 657*i*.

$C_{27}H_{38}N_2O_4$ Valeric acid, α-hydroxy-β-(hydroxymethyl) - β - methyl-, quinine salt, 4226*d*.

$C_{27}H_{38}N_4O_6$ 3(α),6 - Allopregnanediol - 20-one, dinitrophenylhydrazone, 5068*a*.

$C_{27}H_{38}N_4O_7$ Urea, 1,3 - bis(2 - benzamido - 1-formylpropyl)-, bis(dimethyl acetal), 7428*a*.

$C_{27}H_{38}O_2$ 1,4 - Naphthoquinone, 2 - (12 - cyclopentyldodecyl) - 3 - hydroxy-, 1374*h*.

$C_{27}H_{38}O_4$ 1,4 - Naphthoquinone, 2 - hydroxy-3 - (oxoheptadecyl) - (?), 1387*c*.

$C_{27}H_{38}O_5$ $\Delta^{20,22}$ - Norcholenic acid, 3,12,21-trihydroxy-, lactone, 3,12 - diacetate, P 7975*h*.

$C_{27}H_{38}O_7$ Coroglaucigenin, diacetate, 4680*c*
Digoxigenin, 3,11-diacetate, P 2243*d*, P 2244*a*.
$\Delta^{17}$ - 16 - Pregnenone, 3(α),12(α),20 - triacetoxy-, 7493*g*.

$C_{27}H_{38}O_9$ Etiocholanic acid, 3-succinoxyacetoxyketo-, Me ester, 3019*g*.

$C_{27}H_{38}O_{10}$ Ouabagenin, diacetate, 1792*g*.

$C_{27}H_{38}O_{12}$ Glucopyranoside, methyl 6-α-D-glucopyranosyl-, 2583*e*.

$C_{27}H_{39}BrO_3$ 4 - Cholenic acid, 3 - keto - 6-bromo - 12(α) - hydroxy-, Me ester acetate, 1790*e*.

$C_{27}H_{39}NO_3$ Veratramine, 5866*h*.

$C_{27}H_{39}NO_4$ Jervine, 658*d*.
Jervone, $\Delta^4$-dihydro-, 658*f*.

$C_{27}H_{39}NO_{17}$ Streptobiosamine, heptaacetyl-, 6580*i*.

$C_{27}H_{40}$ 2,6,10,14 - Heptadecatetraene, 3,7,-11,15 - tetramethyl - 17 - phenyl-, 1714*d*.

$C_{27}H_{40}ClNO_3$ (2 - Benzhydryloxyethyl)(carboxymethyl)dimethylammonium chloride 2-ethylhexyl ester, P 5046*b*.

$C_{27}H_{40}I_2N_2$ 1,1' - [Methylenebis(*p* - phenyleneethylene)]bis(1 - methylpiperidinium iodide), 3381*f*.

$C_{27}H_{40}N_4O_3$ 11*H* - Naphth[2',1',4,5]indeno-[2,1 - *c*]pyridazine - 8 - butanol, 1,2,-3,4, 4a, 4b, 5, 6, 6a, 11a, 11b, 12-dodecahydro - 2 - hydroxy - β,4a,6a,7-tetramethyl-, 655*f*.

$C_{27}H_{40}N_2O_2$ Jervone, $\Delta^4$-dihydro-, oxime, 658*f*.

$C_{27}H_{40}N_2O_{10}$ Malonic acid, decyl(3-hydroxypropyl)-, di-Et ester, 3,5-dinitrobenzoate, 577*i*.

$C_{27}H_{40}O$ $\Delta^{1,3,4,5,6,7}$ - 3 - Cholestatrienone, 7495*a*.
*p*-Cresol, 2,6-diisobornyl-, 1355*c*.
Ether, isobornyl 4 - isobornyl - *o* - tolyl(?), 1354*i*.

$C_{27}H_{40}O_2$ $\Delta^{\alpha,\beta}$ - Butenolide, β - (3 - hydroxy-$\Delta^{5,6}$ - norcholen - 23 - yl)-, P 7977*b*.
Pesogenin, 655*c*.
1,4 - Naphthoquinone, 2 - heptadecyl - 3-hydroxy-, 1109*c*, 1373*c*.
Pseudocryptogenin, 655*d*.

$C_{27}H_{40}O_4$ 1,4 - Naphthoquinone, 2 - (9-butyl - 9 - hydroxytridecyl) - 3 - hydroxy-, 1382*a*, 2610*b*.

$C_{27}H_{40}O_5$ $\Delta^{9,11}$ - Cholenic acid, 3 - acetoxy - 12-keto-, Me ester, 3019*g*.
Cholenic acid, 3(α)-hydroxy-12-keto-, Me ester, acetate, 3434*b*.
—, 3 - keto - 12(α) - hydroxy-, Me ester acetate, 1790*d*.

$C_{27}H_{40}O_6$ Cholanic acid, 3,6-diketo-12(α)-hydroxy-, Me ester acetate, 1790*e*.
$\Delta^{17,20}$ - Pregnene - 3,12,20 - triol, triacetate, 3018*i*.
Testosterone, 17 - (1,2,3 - trihydroxypropyl)-, 20-acetate acetone deriv., P 4433*a*.

$C_{27}H_{40}O_7$ Pregnane - 3(α),20,21 - triol - 11-one, triacetate, 6212*ae*, 6214*bc*.
20 - Pregnanone, 3(α),7(α),20(α) - trihydroxy-, triacetate, P 3475*d*.

$C_{27}H_{40}O_8$ Pregnane - 3(α),17(α),20,21 - tetrol 11-one, triacetate, 6215*ab*.
$\Delta^4$ - Pregnene - 3,20 - dione, 21 - (β - glucosyl)-, P 5811*c*.

$C_{27}H_{41}BrO$ $\Delta^{1,3,4,6}$ - 3 - Cholestadienone, 6-bromo-, 7495*a*.
Cholesterilene, 6-bromo-7-keto-, 5307*g*.

$C_{27}H_{41}BrO_3$ Cholanic acid, 3-keto-4-bromo-12(α) - hydroxy-, Me ester acetate, 1790*d*.

$C_{27}H_{41}BrO$ Cholestenone, 2,4,6-tribromo-, 4681*a*.

$C_{27}H_{41}NO_2$ 3,12-Solanidanedione, 7939*i*.
$\Delta^5$ - Solaniden - 3(β) - ol - 12 - one, 7939*h*.

$C_{27}H_{41}NO_3$ Jervine, dihydro-, *and* - *HCl*, 658*e*.
Jervonol, $\Delta^4$-β-dihydro-, 658*e*.

$C_{27}H_{41}NO_4$ Umbelliferone, 4-methyl-6-palmitoyl-, semicarbazone, 6621*h*.

$C_{27}H_{42}ClNO_2$ See *Phemerol*.

$C_{27}H_{42}N_2$ Heptylamine, *N, N'* - (methylenedi - *p* - phenylene)bis-, *and di-HCl*, 3381*h*.

$C_{27}H_{42}N_2O_2$ Jervonol, $\Delta^4$-β-dihydro-, oxime, 658*e*.

$C_{27}H_{42}N_2O_4$ 1,7 - Heptanediamine, *N, N'*-bis(3,4 - dimethoxyphenethyl)-, *and di-HCl*, 3378*f*; *salts*, P 3455*e*.

$C_{27}H_{42}O$ Cholestadienone, 1818*g*, 3018*i*, 3019*g*, 3021*e*, 3022*a*, 7494*i*.
Cholesterilene, 7-keto-, 5307*g*.
Ketone, m. 85-7°, 3830*c*.

$C_{27}H_{42}O_2$ $\Delta^5$ - Cholestene - 3,4 - dione, 5028*g*.
Cinnamic acid, 9-octadecenyl ester, 8026*g*.
Diosterol, 4281*e*.

$C_{27}H_{42}O_3$ $\Delta^5$ - Androstene, 3(β) - acetoxy - 17-(1-oxoisohexyl)-, 6638*c*.
Cholestene - 6[7 - dicarboxylic anhydride, 246*a*.
Diosgenin, 655*b*.
Pseudodiosgenin, 655*b*.

$C_{27}H_{42}O_4$ $\Delta^{11}$ - Cholenic acid, 3(α) - acetoxy , Me ester, 9076*h*.
Cryptogenin, 655*b*.
$\Delta^{20,22}$ - Norallocholenic acid, 3 - acetoxy-, Me ester, P 7976*e*.

$C_{27}H_{42}O_4S_2$ $\Delta^5$-Androstene, 3(β),17(α)-dihydroxy - 16 - keto-, di - Et mercaptal, 3,17-diacetate, 3434*f*.

$C_{27}H_{42}O_5$ 5 - Allocholanic acid, 3(β) - hydroxy-7-keto-, Me ester acetate, 246*e*.
Cholanic acid, 3-acetoxyketo-, Me ester, 3019*g*.
$\Delta^{9,11}$-Cholenic acid, dihydroxy-, Me ester, acetate, 3434*c*.

$C_{27}H_{42}O_6$ 3,16,20 - Allopregnanetriol, triacetate, 6641*i*.
Bisnorcholanic acid, 3(α),12(α) - dihydroxy-, Me ester, diacetate, 9077*b*.

$C_{27}H_{43}Br$ Cholesteryl bromide, 7-dehydro-, 3020*e*, 4679*a*, P 5810*c*, 7195*f*, 9241*g*.

$C_{27}H_{43}BrCl_3N_3O$ [2 - (5,7 - Dichloro - 8-quinolyloxy)ethyl]dodecyldiethylammonium bromide, P 5910*e*, P 9292*c*.

$C_{27}H_{43}BrO$ Cholestenone, bromo-, 4282*e*, 7494*i*.

$C_{27}H_{43}Br_3O$ Cholestanone, tribromo-, 968*i*. Coprostanone, 2,4,4-tribromo-, 4681*a*.

$C_{27}H_{43}Br_3O_2$ Tribromoacetate, m. 237–8°, 7926*b*.

$C_{27}H_{43}Cl$ Cholesteryl chloride, 7-dehydro-, 3020*e*, 4679*a*, P 5810*c*, 7195*f*.

$C_{27}H_{43}NO$ Solanidine, 7939*e*.

$C_{27}H_{43}NO_2$ Rubijervine, 4380*g*, 7939*e*.

$C_{27}H_{43}NO_3$ Jervinol, dihydro-, *and* - *HCl*, 658*e*.

$C_{27}H_{43}NO_4$ Caprylanilide, α-hydroxy-α-methyl-, (menthyloxy)acetate, 1353*g*.

$C_{27}H_{43}NO_5$ Cevine, 4380*g*.
Germine, 4380*g*.

$C_{27}H_{44}$ Cholestadiene, 243*h*, 1784*a*, 7494*c*, 7573*i*.
$\Delta^{3,5}$-Cholesterilene, 5307*g*.

$C_{27}H_{44}BrCl$ $\Delta^5$-Cholestene, 3-chloro-7-bromo-, 4679*b*.
Cholesteryl chloride, 7-bromo-, 3020*b*, P 5810*c*.

$C_{27}H_{44}BrNO_3$ Benzyldiethyl(2 - hydroxyethyl)ammonium bromide, dicyclohexylacetate, P 679*g*, P 2234*i*.

$C_{27}H_{44}Br_2$ $\Delta^5$-Cholestene, 3,7-dibromo-, 4679*b*.
Cholesteryl bromide, 7-bromo-, 3020*c*, P 5810*c*.

$C_{27}H_{44}Br_2O$ Coprostanone, dibromo-, 4681*a*, 7495*a*.

$C_{27}H_{44}Cl_2$ $\Delta^5$-Cholestene, 3,7-dichloro-, 4679*b*.

$C_{27}H_{44}N_2O_6$ Cholesteryl nitrate, 6-nitro-, 245*i*.

$C_{27}H_{44}O$ (See also *Cholestenone; Cholesterol, 7-dehydro-*; "$D_3$" under *Vitamins*.)
4,6-Cholestadien-3(β)-ol, 3020*d*.
*i* Cholesten-6-one, 247*b*.
Ketone, 3830*c*.
Precalciferol, 9181*a*.
Zymosterol, 7493*c*.

$C_{27}H_{44}O_2$ Cholestanedione, 247*g*, 7495*c*.
Cholesterol, 7-keto-, 5307*g*, 7578*d*
Coprostane, 3-keto-4(β), 5-oxido-, 1785*d*
o Diketone, m. 116–17°, 7495*c*.
Methyl ester, m. 166°, 7926*c*.
Stearic acid, indanyl-, 9028*g*.

$C_{27}H_{44}O_3$ Androstane, 3(β)-acetoxy-17-(1-oxoisohexyl)-, 6638*d*.
Cholestane, 3(β) - hydroxy - 3,7 - diketo-, 246*f*.

$C_{27}H_{44}O_4$ Chlorogenin, 1788*h*.
Cholestane-6[7-dicarboxylic acid, 3(β)-hydroxy-, lactone, 246*b*.
Cryptogenin, 16-dihydro-, 655*c*.
Mesitylenic acid, $\alpha^5$-(9-octadecenyloxy)-2-hydroxy-, *and Na salt*, P 1064*b*.

$C_{27}H_{44}O_5$ Allocholanic acid, 3(β), 6(β), 12(α)-trihydroxy-, Me ester, 12(α)-acetate, 1790*e*.

$C_{27}H_{44}O_7$ Compd., m. 179–81°, 8554*d*.

$C_{27}H_{45}Br$ Cholesteryl bromide, 3020*b*.

$C_{27}H_{45}BrO$ 3-Cholestanone, 2-bromo-, P 366*f*.

$C_{27}H_{45}Cl$ Cholesteryl chloride, 5307*g*.

$C_{27}H_{45}ClO$ Cholestan-6-one, 3(α)-chloro-, 246*a*, 247*c*.

$C_{27}H_{45}ClO_4$ Cholesterol, 7-dehydro-, perchlorate, 7494*c*.

$C_{27}H_{45}N$ Solanidane, 7940*a*.

$C_{27}H_{45}NO$ 2-Cholesten-6-one, oxime, 247*d*.
3(β)-Solanidanol, 7940*a*.

$C_{27}H_{45}NO_2$ Cycloeicosanol, carbanilate, 6988*h*.

$C_{27}H_{45}NO_4$ 3(α), 12(α)-Norcholanediol, 23-amino-, diacetate, 9077*a*.

$C_{27}H_{45}NO_{11}S_2$ Streptobiosaminide ethyl tetraacetyl - β - thio-, di - Et mercaptal, 3367*d*.

$C_{27}H_{45}NO$ β-Norcholestenone, semicarbazone, 1789*h*.

$C_{27}H_{46}$ Cholestene, 3831*f*, 5307*g*.

$C_{27}H_{46}Cl_2O$ Cholesterol, dichloride, 968*i*.

$C_{27}H_{46}O$ (See also *Cholesterol*.)
Allocholesterol, 243*f*.
Cholestane, oxido-, 3831*e*.
Cholestanone, 191*e*, 243*e*, 244*a* 3018*i*, 3832*e*, 5307*g*.
Cholestene, 3(β)-hydroxy-, 3830*g*.
—, α-oxide, 5028*g*.
Cholestenol, 3018*i*, 5307*g*, 7941*c*, 9077*bd*.
Coprostanone, 191*e*, 3018*i*, 5307*g*, 7495*b*.
Pseudocholesterol, 5307*g*.

$C_{27}H_{46}O_2$ (See also *δ-Tocopherol*.)
5 - Benzofuranol, 2,3 - dihydro - 2,4,6,7-tetramethyl - 2 - (3,7,11 - trimethyldodecyl)-, 1764*f*.
Cholestane, 3-keto-5-hydroxy-, 1784*h*.
Cholestan-3-ol-5-one, 245*i*, 3018*i*.
6-Cholestanone, hydroxy-, 247*ae*.

Cholestene, 3(β), 4(β)-dihydroxy-, 1785*i*.
olestenediol, 3021*d*, 5028*g*.
olesterol, 7-hydroxy-, 3021*a*, 4333*g*, 6641*d*.
Chromanol, dimethyl - 2 - (4,8,12-trimethyltridecyl)-, 2620*g*.
prostane, 3-hydroxy-4(β), 5-oxido-, 1785*d*, 3830*g*.
, 3-keto-5-hydroxy-, 1786*c*, 1787*a*.
aric acid, cumyl-, 9028*f*.
$_{10}O_4S$ Cholesteryl sulfate, *and salts*, 6641*g*.
$_{10}O_5$ Cholestane-6||7-dicarboxylic acid, 3(β)-hydroxy-, 246*a*.
$_{10}Cl$ Cholestane, 3(α)-chloro-, 246*a*.
$_{10}ClN_2O_5$ 1 - (2 - Hydroxyethylcarbamyl methyl)pyridinium chloride, stearate, 7776*i*.
$_{10}ClO_5$ Cholesterol, perchlorate, 7494*c*.
$_{10}F_3OP$ Cholesterol, fluophosphate, 7494*c*.
$_{10}NO$ Cholestanone, oxime, 244*a*, 3832*e*.
$_{10}NO_2$ Cholestane, 3-keto-5-hydroxy-, oxime, 1784*h*.
$_{10}NO_3$ Bicyclo[2.2.1] - 5 - heptene - 2-carboxylic acid, 3-octadecylcarbamyl-, P 5205*f*.
$_{10}N_2O_2$ Allocholane, 3-ketohydroxy-24,24 - dimethyl-, semicarbazone, 6638*be*.
$_{10}N_2O$ Stearamide, *N*-[(benzylguanyl)-guanyl]-, P 700*a*.
caramide, *N* - [(methylphenylguanyl)-guanyl]-, P 4879*b*.
$_{10}$ Cholestane, 3831*g*, 7574*a*.
oprostane, 7574*a*.
$_{16}ClNO_2$ Hexadecyl(2 - hydroxyethyl)-dimethylammonium chloride, benzoate, P 3034*d*.
$_{16}O$ Cholestanol, 243*e*, 307*e*, 2894*f*, 3018*i*, 3831*e*.
holesterol, dihydro-, 191*e*
picholestanol, 2894*j*, 3831*g*.
picoprostanol, 191*e*.
$_{16}O_2$ Cholestane, dihydroxy-, 1784*ab*, 1785*b*, 5408*gh*, 6641*b*.
holestanediol, 3018*i*, 3021*d*, 3831*g*.
oprostane, 3,5 - dihydroxy-, 1785*b*, 1786*fi*, 3830*e*, 5408*i*.
$_{16}O_3$ 3(β), 6,7-Cholestanetriol, 9077*e*.
oprostane, 3(α), 4,5-trihydroxy-, 1786*d*.
$_{16}N_2O_{17}$ See *Streptomycin B*.
$_{16}ClN$ Benzyldimethyloctadecylammonium chloride, 4780*b*, 4812*e*.
$_{16}N_2O_{13}$ Carbamic acid, ureylenebis-[2,2 - bis(carboxyaminomethyl)ethylene]di-, hexa-Et ester, 2936*e*.
$_{16}O_4$ Azelaic acid, γ-acetyl-, bis(2-ethylhexyl) ester, P 6226*c*.
Suberic acid, γ-propionyl-, bis(2-ethylhexyl) ester, P 6226*b*.
$_{16}O_4$ Caprylin, tri-, 1857*i*.
Valeric acid, α-propyl-, triglyceride, 6165*f*.
$_{16}O_5$ Pimelic acid, γ-oxo-, bis(5-isobutoxyhexyl) ester, 9026*e*.
$_{17}NO_4S$ Dimethyloctadecylphenylammonium methyl sulfate, P 7728*g*.
$_{17}N_3O_{21}$ Streptomycin B, dihydro-, 3367*e*, 3518*h*; *tri-HCl*, 1328*b*.
$_{18}O_3$ Cerotic acid, η-oxo-, Me ester, 3306*g*.
Hexacosanoic acid, 2-methyl-7-oxo-, 7901*f*.
Pentacosanoic acid, 7-oxo-, Et ester, 3781*g*.
$_{18}O_4$ Laurin, di-, 5207*b*.
$_{18}$ Heneicosane, 11-cyclohexyl-, 4911*b*.
$_{18}Br_4N_2$ (Phenenyltrimethylene)tris[triethylammonium bromide], 8059*c*.
$_{18}INO_2$ Choline iodide erucate, 7940*b*.
$_{18}O_2$ Hexacosanoic acid, 2-methyl-, 7900*g*.
Margaric acid, 6-octyl-, Et ester, 3781*c*.
Pentacosanoic acid, 2,13 - dimethyl-, 4375*h*.
Tetracosanoic acid, 3-methyl-, Et ester, 3781*f*.
$_{18}O_4$ Malonaldehydic acid, 2-ethylhexyl ester bis(2-ethylhexyl) acetal, 6168*e*.
$_{19}Br$ Hexacosane, 1-bromo-2-methyl-, 7901*c*.
$_{19}NO$ Hexacosanamide, 2-methyl-, 7901*e*.
$_{19}NO_2S$ Cyclohexanone, compd. with 1-hexadecylpiperidine bisulfite, 3355*i*.
$_{20}$ Heptacosane, 1049*a*.
$_{21}NO$ Formamide, *N*-dodecyl-*N*-(2-dodecylaminoethyl)-, P 3028*f*.
$_{22}N_2O_3$ Urea, 1,3-bis[(dodecyloxy)-methyl]-, P 1200*f*.
$_{27}O_4P$ 1-Hexanol, 3,5,5-trimethyl-, phosphate, 3677*i*.

$C_{27}H_{50}ClNO$ Didodecyl(2 - hydroxyethyl)-methylammonium chloride, 6078*a*.
$C_{28}H_{36}N_2$ 1,9-Nonanediamine, 2,8-dimethyl - *N*, *N'* - dioctyl-, *di-HBr*, 2380*a*.

P 8172*f*.
$C_{28}H_{12}Br_2N_2O_4$ Indanthrene, 7,16-dibromo-, 3399*g*.
$C_{28}H_{12}Cl_2N_2O_4$ Indanthrene, dichloro-, 3399*f*.
$C_{28}H_{12}Cl_2N_2O_4$ Pyrazine, tetrakis(3,5-dichloro-2-hydroxyphenyl)-, 6182*e*.
$C_{28}H_{12}N_2O_2$ Flavanthrone, P 8172*e*.
$C_{28}H_{14}$ Phenanthro[1,10,9,8-*fghij*]perylene, 1361*b*.
$C_{28}H_{14}HgO_4$ Anthraquinone, mercuridi-, 2198*gh*.
$C_{28}H_{14}N_2$ Diphenanthro[9,10, 1-*def*, 1',-10', 9'-*hij*]phthalazine, 7928*d*.
$C_{28}H_{14}N_2O_2S_2$ Anthra[2,1,6,5]dithiazole-6,12-dione, 2,8-diphenyl-, P 3626*f*, P 7049*f*.
$C_{28}H_{14}N_2O_4$ Indanthrene, 3399*e*, 5189*g*.
Indanthrene Blue RS, 2483*e*.
$C_{28}H_{14}O_2$ Dibenzo[*b*,*m*]perylene-15,16-dione, 7928*d*.
Helianthrone, 5391*b*.
$C_{28}H_{15}ClN_2O_4$ Naph[2,3 - *c*]acridine - 5,8,14-(13*H*) - trione, 6 - benzamido - 9-chloro-, P 9469*b*.
Naphth[2,3 - *c*]acridine - 5,8,14(13*H*)-trione, 6-*p*-chlorobenzamido-, P 8170*e*.
$C_{28}H_{16}NO_4$ Anthraquinone, iminodi-, P 1576*f*.
$C_{28}H_{16}$ Dibenzo[*a*,*o*]perylene, 5391*a*.
$C_{28}H_{16}ClN_3O_2$ Quino[3,4-*b*]quinolin-12-ol, 10-chloro-6-phenyl-, picrate, 8393*a*.
$C_{28}H_{16}Cl_2O_2$ [9,9'-Bifluorene]dicarbonyl chloride, 3811*fg*.
$C_{28}H_{16}Cl_4$ 1,2,3 - Butatriene, tetrakis(*p*-chlorophenyl)-, 4246*a*.
$C_{28}H_{16}Cl_4N_2O_4$ Pyrazine, tetrakis(5-chloro-2-hydroxyphenyl)-, 6182*d*.
$C_{28}H_{16}N_2$ [9,9'-Bifluorene]dicarbonitrile, 3811*fg*.
$C_{28}H_{16}N_2O_4$ [2,2' - Bibenzo[*g*]quinoline]-4,4' - dicarboxylic acid, *and salts*, 5025*g*.
$C_{28}H_{16}N_4O_4$ Indanthrene, 8,17-diamino-, 3400*e*.
$C_{28}H_{16}N_4PtS_2$ Benzothiazole, 2-mercapto-, Pt deriv., 60*e*.
$C_{28}H_{16}O_2$ 7*H*-Benz[*de*]anthracen-7-one, 3-(1-naphthoyl)-, P 868*d*, 3402*e*.
$\Delta^{16,16'}$-Bianthrone, 618*e*.
$C_{28}H_{17}ClN_2O$ Quino[3,4 - *b*]quinoline, 10-chloro-12-phenoxy-6-phenyl-, 8392*i*.
$C_{28}H_{17}ClN_2O_3$ 2-Anthraquinonecarboxylic acid, 4 - [*p* - (*p* - chlorobenzamido)-anilino]-, P 8170*e*.
$C_{28}H_{17}NO$ 18*H* - Tetrabenzo[*a*,*c*,*h*,*j*]phenoxazine, 7013*g*.
$C_{28}H_{17}N_3O_2$ Quino[3,4 - *b*]quinolin - 12 - ol, 6-phenyl-, picrate, 8393*a*.
$C_{28}H_{18}$ Bianthryl, 7472*g*.
Fluoranthene, 1,3-diphenyl-, 9059*a*.
$C_{28}H_{18}Cl_4$ 2-Butene, 2,3-dichloro-1,1,4,4-tetrakis(*p*-chlorophenyl)-, 4245*i*.
$C_{28}H_{18}Cl_8$ Butane, 2,2,3,3 - tetrachloro-1,1,4,4 - tetrakis(*p* - chlorophenyl)-, 7184*d*.
$C_{28}H_{18}CuN_4O_2$ 2-Naphthol, 1,1'-[*o*-phenylenebis(nitrilomethylidyne)]di-, Cu deriv., 4073*e*.
$C_{28}H_{18}HgO_2$ Anthrone, 10,10'-mercuridi-, 618*d*.
$C_{28}H_{18}N_2O$ Quino[3,4 - *b*]quinoline, 12-phenoxy-6-phenyl-, 8392*i*.
$C_{28}H_{18}N_2O_2$ Isoindigotin, 1,1'-diphenyl-, 6614*i*.
$C_{28}H_{18}N_4O_2S_2$ 3-Thianaphthenol, 2,2'-(4,4' - biphenylenebisazo)bis-, 6204*g*.
$C_{28}H_{18}N_4O_4$ Anthraquinone, triamino-1,1'-iminodi-, P 3627*b*.
$C_{28}H_{18}O_2$ 10,10'-Bi-9-anthrol, 618*e*.
10,10'-Bianthrone, 618*d*, 7472*g*.
$C_{28}H_{18}O_2$ 1,4-Naphthoquinone, 3-(4-biphenylyl) - 2 - hydroxy - 6 - phenyl-, 1385*g*.
$C_{28}H_{18}O_4$ [9,9' - Bifluorene]dicarboxylic acid, 3811*fg*.
Phthalide, 3,3 - bis(3 - hydroxy - 1-naphthyl)-, 2319*f*.
$C_{28}H_{19}AsN_2O_{14}$ Pyridine, 2,2' - (phenylarsylene)di-, dipicrate, 1046*f*.
$C_{28}H_{19}Cl_3$ Ethane, 1,1,1-trichloro-2,2-di-2-fluorenyl-, 6604*i*.
$C_{28}H_{19}N_3$ 2*H* - Pyrrolenine, 5 - (1 - naphthyl) - 2 - [5 - (1 - naphthyl) - 2-pyrrylimino]-, *di-HCl*, P 7848*b*.
$C_{28}H_{20}N_2O_4$ Anthraquinone, 5-amino-1,4-dibenzamido-, P 1575*g*, P 1576*b*.
$C_{28}H_{20}N_2O_6S$ Anthraquinone, 1-benzamido-4-*p*-sulfamylbenzamido-, P 863*i*.
$C_{28}H_{20}N_2O_{11}S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - (*o*-carboxyphenylsulfamyl)-, P 7709*h*, P 7710*a*.
$C_{28}H_{20}N_2O_{12}S_2$ Salicylic acid, 5-[*N*-(4-amino - 2 - sulfo - 1 - anthraquinonyl)-3-carboxysulfanilamido]-, P 7710*b*.
$C_{28}H_{19}N_4NaO_6S_4$ Thiazole yellow, 4598*a*.
$C_{28}H_{19}N_7O_{14}S_2$ Salicylic acid, 3-[5-methyl-7-[4 - (4 - nitro - 2 - sulfostyryl) - 3-sulfophenyl]benzo[1,2,3,4]bistriazol-2(7*H*)-yl]-5-sulfo-, P 1574*e*.
$C_{28}H_{19}N_4O_{14}P$ Phosphine, phenyldi-2-pyridyl-, dipicrate, *dihydrate*, 1046*d*.
$C_{28}H_{20}$ 9,10[9',10'] - Anthracenoanthracene, 9,10,11,16-tetrahydro-, 619*h*, 6194*b*.
$C_{28}H_{20}Cl_2N_2O_2$ Anthraquinone, 1,4-dianilinobis(chloromethyl)-, P 8163*g*, P 8164*a*.
$C_{28}H_{20}Cl_2N_4O_4S_2$ Benzothiazole, 2,2'-phenylenebis[6-*a*-acetylacetamido-5 - chloro-, 5776*fg*.
$C_{28}H_{20}Cl_{10}$ Ethane, 1,2-dichloro-1,1,2,2-tetraphenyl-, compd. with $CCl_4$, 7005*i*.
$C_{28}H_{20}N_2$ Succinonitrile, tetraphenyl-, 5621*f*.
$C_{28}H_{20}N_2O_2$ [9,9'-Bifluorene]dicarboxamide, 3811*fg*.
$C_{28}H_{20}N_2O_4S$ Aniline, *p*,*p'*-thiobis[*N*-piperonylidene-, 4427*a*.
$C_{28}H_{20}N_2O_6S$ Phthalamilic acid, 4',4''' - sulfonyldi-, P 7042*c*.
$C_{28}H_{20}N_4O_2S$ 5 - Pyrazolol, 4 - [4 - (2 - benzothiazolyl) - 4 - (2 - benzoxazolyl)-1,3 - butadienyl] - 3 - methyl - 1-phenyl-, P 8928*a*.
$C_{28}H_{20}N_4O_6$ 1,3 - Dioxolo[*g*]isoquinoline, 7,8-dihydro-5,7-diphenyl-, picrate, 5027*d*.
$C_{28}H_{20}N_4O_{16}S_4$ 2,2' - Stilbenedisulfonic acid, 4,4''-azobis[4'-nitro-, P 4486*efghi*.
$C_{28}H_{20}N_4O_{17}S_4$ 2,2' - Stilbenedisulfonic acid, 4,4''-azoxybis[4'-nitro-, P 4486*efghi*.
$C_{28}H_{20}O_3$ 3,4(2*H*,5*H*) - Furandione, 2,2,-5,5-tetraphenyl-, 3405*a*.
$C_{28}H_{20}O_4$ Benzilide, 7468*b*.
$C_{28}H_{20}O_4S_2$ 2 - Naphthalenesulfonic acid, piperonylidenedi-, *and salts*, P 50476.
$C_{28}H_{20}O_8Si$ Benzoic acid, anhydride with silicic acid, 1743*a*, 4631*g*.
$C_{28}H_{21}Cl_3N_2O_3$ Benzanilide, 4',4'''-(2,2,2-trichloroethylidene)bis-, 1367*f*.
$C_{28}H_{21}NO_3$ 4-Piperidone, 1-benzoyl-3,5-dipiperonylidene-, 4275*e*.
$C_{28}H_{21}N_3O_2$ 5 - Pyrazolone, 3-benzamido - 1-(2'-phenyl-4-biphenylyl)-, 4656*d*.
$C_{28}H_{21}N_3O_8S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - *p*-tolylsulfamyl-, P 7710*c*.
$C_{28}H_{21}N_4O_2S$ 5 - Pyrazolol, 4 - [4 - (2-benzothiazolyl) - 4 - (2 - benzoxazolyl)-1,3 - butadienyl] - 3 - methyl - 1-phenyl-, P 4159*c*.
$C_{28}H_{21}N_3O_7$ Quinoline, 3-anilino-2-*p*-tolyl-, picrate, 8392*f*.
$C_{28}H_{22}$ 1,3-Butadiene, 1,1,4,4-tetraphenyl-, 1634*b*.
Fluoranthene, tetrahydrodiphenyl-, 2986*c*, 9059*a*.
Fluorene, 9 - (1,3 - diphenylpropylidene)-, 9058*i*.
$C_{28}H_{22}Cl_4$ Ethane, 1,2-dichloro - 1,1,2,2-tetraphenyl-, compd. with $CHCl_3$, 7005*i*.
$C_{28}H_{22}N_2$ Quinoxaline, 2,3-bis(4-phenyl-1,3-butadienyl)-, 187*c*.
$C_{28}H_{22}N_2OS$ 2(1*H*) - Quinazolinethione, 4-desyl - 3,4 - dihydro - 3 - phenyl-, 1047*b*.
$C_{28}H_{22}N_2O_2$ Quinoxaline, 2 - [3,4 - bis(benzyloxy)phenyl]-, 4240*d*.
4,4'-Stilbenedicarboxanilide, 198*i*.
$C_{28}H_{22}N_2O_3$ Anthraquinone, 2-butyl-1-(hydroxynaphthylazo)-, 1761*h*.
Anthraquinone, 2-*tert*-butyl-1-(hydroxynaphthylazo)-, 1761*b*.
Benzanilide, 4' - [α - (4 - biphenylylcarbonyl)acetamido]-,
$C_{28}H_{22}N_4$ [9,9' - Bifluorene] - 2,2' - dicarboxamidine, *di-HCl*, 3811*i*.
$C_{28}H_{22}N_4O_2$ Phthalimidine, 3,3'-(4,4'-biphenylenediimino)di-, 623*i*.
$C_{28}H_{22}N_4O_4S_2$ Benzothiazole, 2,2'-phenylenebis[α-acetylacetamido-, 5776*fg*.
$C_{28}H_{22}N_4O_7$ Isoquinoline, benzyl-3,4-dihydrophenyl-, picrate, 5027*e*.
$C_{28}H_{22}N_6O_{12}$ 1,1' - (2 - Oxo - 1,3 - cyclohexylene)dipyridinium dipicrate, 7912*e*.
$C_{28}H_{22}O$ Anthracene, 9-*m*-methoxybenzyl-10-phenyl-, 9060*a*.

Propiophenone, β - 9 - fluorenyl - β-phenyl-, 9058*h*.

**$C_{28}H_{22}O_2$** 10,10'-Bi-9-anthrol, 9,9',10,10'-tetrahydro-, 7472*h*.
1,4 - Butanedione, 1,2,3,4-tetraphenyl-, 5020*f*.
2 - Butyne - 1,4 - diol, 1,1,4,4 - tetraphenyl-, 3405*a*.

**$C_{28}H_{22}O_3S$** Acetophenone, α,α'-thiobis[α-phenyl-, 1753*h*.

**$C_{28}H_{22}O_3S$** 2 - Anthracenesulfonic acid, 9,10-diphenyl-, Et ester, 3815*f*.

**$C_{28}H_{22}O_4$** 4,4' - Bi - *o* - cresol, dibenzoate, 5018*a*.
Hydrobenzoin, dibenzoate, 612*i*.

**$C_{28}H_{22}O_6S$** 2-Acetonaphthone, thiobis[1-hydroxy-, diacetate, 2599*i*.

**$C_{28}H_{22}O_7S_2$** 2 - Naphthalenesulfonic acid, anisylidenedi-, *and salts*, P 5047*b*.

**$C_{28}H_{22}O_8$** Phenolphthalein, bis(allyl carbonate), P 4298*i*.

**$C_{28}H_{22}O_8S_2$** 2 - Naphthalenesulfonic acid, vanillylidenedi-, *and salts*, P 5047*b*.

**$C_{28}H_{23}NO$** Propiophenone, β - 9 - fluorenyl-β-phenyl-, oxime, 9058*h*.

**$C_{28}H_{23}NO_3$** 2 - Naphthaleneacrylonitrile, 6-ethoxy - α - (*p* - methoxyphenyl) - β-phenyl-, 7007*c*.

**$C_{28}H_{23}NO_3$** Acetanilide, *p* - 2 - biphenylyl α-*o*-methoxybenzoyl-, 4656*e*.

**$C_{28}H_{23}N_3O$** 2 - 1midazoline - 1 - carboxanilide, 2,4,5-triphenyl-, 8365*h*.

**$C_{28}H_{23}N_3O_3$** 1 - [4,5 Dimethyl - 6 - oxo - 3-(5 - oxo - 1,3 - diphenyl - 4(5*H*) - pyrazolylidene) - 1,4 - cyclohexadienyl]-pyridinium hydroxide, 5683*f*

**$C_{28}H_{23}N_3O_4$** Benzoin, phenylcarbamyloxime carbamate, 1038*f*.

**$C_{28}H_{23}N_5O_{16}S_4$** 1-Naphtholdisulfonic acid, 8 - amino - 2 - [4 - (1,8 - dihydroxy-3,6 - disulfo - 2 - naphthylazo) - 5-methoxy - *o* - tolylazo]-, *tetra-Na salt*, P 7847*h*.

**$C_{28}H_{23}N_5O_{17}S_4$** 1 - Naphthol - 3,6 - disulfonic acid, 8 - amino - 2 - [4 - (1,8 - dihydroxy - 3,6 - disulfo - 2 - naphthylazo) - 2,5 - dimethoxyphenylazo]-, *tetra-Na salt*, P 7847*i*.

**$C_{28}H_{24}$** 1-Butene, 1,1,3,3-tetraphenyl-, 2569*d*.
Cyclobutane, tetraphenyl-, 2569*g*, 2983*d*, 5020*e*, 6486*a*.
Fluorene, 9-(1,3-diphenylpropyl) , 9058*i*.
Indan, 1 - methyl - 1,3,3 - triphenyl-, 2193*c*, 2569*d*.
Stilbene, dimer, 5020*e*.

**$C_{28}H_{24}AsN_3O_3$** (2 - Benzoylethyl)methyldiphenylarsonium picrate, 8352*b*.

**$C_{28}H_{24}BrN_3O_2S_2$** 2 - [5 - (6 - Ethoxy - 2-benzothiazolylazo) - 4 - hydroxy - 3-phenyl - 4 - thiazolin - 2 - ylidenemethyl] - 3 - ethylbenzothiazolium bromide, P 7846*b*.

**$C_{28}H_{24}BrNaO_{10}$** 4 - Pyrone, 2 - (hydroxymethyl) - 5 - phenacyloxy-, compd. with NaBr, 8386*a*.

**$C_{28}H_{24}ClNaO_{10}$** 4 - Pyrone, 2 - (hydroxymethyl) - 5 - phenacyloxy-, compd. with NaCl, 8386*a*.

**$C_{28}H_{24}K_2$** Butane, 1,1,4,4 - tetraphenyl , di-K deriv., 7448*i*.

**$C_{28}H_{24}Li_2$** Butane, 1,1,4,4 - tetraphenyl-, di-Li deriv., 7448*i*.

**$C_{28}H_{24}N_2$** 9,10 - Anthracenediamine, *N*, *N'*-ditolyl-, 7823*e*.

**$C_{28}H_{24}N_2O$** 1,3 - Butanedione, 1,4 - diphenyl-, diphenylhydrazone, 7909*g*.

**$C_{28}H_{24}N_2O_2$** 9,10 - Anthracenediamine, *N*, *N'*-bis(*o*-methoxyphenyl)-, 7823*e*.
1,4 - Epoxy - 2,3,1*H* - benzoxazine, 3-(*p* - dimethylaminophenyl) - 3,4 - dihydro-1,4-diphenyl-, 7018*a*.

**$C_{28}H_{24}N_2O_2S$** Aniline, *p*,*p'*-thiobis[*N*-anisylidene, 4427*a*.

**$C_{28}H_{24}N_2S_2$** Benzophenone, 4 (methylmercapto)-, azine, 7468*a*.

**$C_{28}H_{24}N_4O_6S_2$** 2,2' - Stilbenedisulfonic acid, 4,4' - bis(*p* - aminobenzamido)-, *salts*, P 5881*g*.

**$C_{28}H_{24}N_4O_9$** Cinchoninic acid, 6-methyl-2-(6,7,8,9 - tetrahydro - 5*H* - cycloheptabenzen - 3 - yl)-, picrate, 2985*f*.

**$C_{28}H_{24}Na_2$** Butane, 1,1,4,4 - tetraphenyl-, di-Na deriv., 7448*h*.

**$C_{28}H_{24}O$** 9-Fluorenepropanol, α,γ-diphenyl-, 9058*i*.

**$C_{28}H_{25}NO_3$** Diphenamic acid, isopropylmethyl-*N*-1-naphthyl-, 3815*h*.

**$C_{28}H_{25}NO_4$** 4-Piperidone, 3,5-dianisylidene-1-benzoyl-, 4275*e*.

**$C_{28}H_{25}N_5O$** Benzamide, *N*-[α-(*N*, *N'* - diphenylguanylmethyl)benzyl]-, *and* - *HCl*, 3821*i*.

**$C_{28}H_{25}N_5O_2$** Quinoxaline, 6-(2,5-dimethyl-1-pyrryl) - 2,3 - bis(*p* - methoxyphenyl)-, 235*b*.

**$C_{28}H_{25}N_5O_5$** 3*H* - Phenanth[3,4]imidazole, 3 - acetyl - 9 - isopropyl - 2,5 - dimethyl-, picrate, 7470*f*.

**$C_{28}H_{25}O_3P$** Desyl benzyl phosphate, 600*c*.

**$C_{28}H_{26}$** Butane, 1,1,4,4-tetraphenyl-, 6177*f*, 7448*h*.

**$C_{28}H_{26}As_2N_4O_8S_2$** Sulfanilanilide, 3',3''' - arsenobis[*N*⁴ - acetyl - 6' - hydroxy-, 6593*g*.

**$C_{28}H_{26}ClO_3P$** Phosphine oxide, (4-biphenylyldiphenylmethyl)chloroisopropoxy-, 1347*a*.

**$C_{28}H_{26}IN_3$** 2 - [3 - Cyano - 5 - (1 - ethyl - 2(1*H*) - quinolylidene) - 1,3 - pentadienyl] - 1 - ethylquinolinium iodide, P 7842*s*, P 7844*f*.

**$C_{28}H_{26}IN_3OS_3$** 1 - Ethyl - 2 - [[3 - ethyl - 5-(3 - ethyl - 2 - benzothiazolinylidene)-4 - oxo - 2 - thiazolidylidene]methyl]-naphtho[1,2]thiazolium iodide, P 4161*g*.

**$C_{28}H_{26}IN_3O_2S_2$** Ethyl - 2 - [[3 - ethyl - 5-(3 - ethyl - 2 - benzothiazolinylidene)-4 - oxo - 2 - thiazolidylidene]methyl]-naphthoxazolium iodide, P 4161*ef*.

**$C_{28}H_{26}IN_3S$** 2 - [1 - Cyano - 7 - (1 - ethyl-4(1*H*) - quinolylidene) - 1,3,5 - heptatrienyl] - 3 - ethylbenzothiazolium iodide, P 7843*c*.

**$C_{28}H_{26}IN_3SSe$** 3 - Ethyl - 2 - [3 - (3 - ethyl - 2-benzoselenazolinylidene) - 4 - phenylimino - 2 - butenyl]benzothiazolium iodide, 2529*h*.

**$C_{28}H_{26}IN_3S_2$** 3 - Ethyl - 2 - [3 - (3 - ethyl - 2-benzothiazolinylidene) - 4 - phenylimino - 1 - butenyl]benzothiazolium iodide, 2529*g*.

**$C_{28}H_{26}N_2O_3$** Acetanilide, 4-amino-2,5-bis(benzyloxy)-α-phenyl-, P 4165*g*.

**$C_{28}H_{26}N_2O_3S_2$** 3 - Ethyl - 2 - [2 - (2-naphthylamino)vinyl]benzothiazolium *p* - toluenesulfonate, P 2642*s*.

**$C_{28}H_{26}N_2O_4S$** 2 - Indolinol, 2 - (dimethylaminophenyl) - 3 - (3 - hydroxy-2(3*H*) - thianaphthenylidene)-, diacetate, 6615*a*.

**$C_{28}H_{26}N_2O_8P$** Cytidine, 3',5' - benzylidene, *N*⁴,2'-bis(diphenyl phosphate), 2170*f*.

**$C_{28}H_{26}N_4O_4S_2$** 1 - Naphthalenesulfonamide, *N*, *N'* - *p* - phenylenebis[amino - *N*-methyl-, P 860*e*.

**$C_{28}H_{26}N_4O_7$** 6*H* - Cyclopent[g]isoquinoline, 3,4,7,8 - tetrahydro - 1 - (5 - indanylmethyl)-, picrate, 8390*d*.

**$C_{28}H_{26}N_4O_{10}$** 2 - Butene - 1,4 - dione, 2-methyl - 3 - (4 - morpholinylmethyl)-1,4-diphenyl-, picrate, 3406*g*.

**$C_{28}H_{26}N_4O_6S_2$** 2,2' - Stilbenedisulfonic acid, 4,4' - bis(*m* - tolyltriazeno)-, *di-Na salt*, 1280*s*.

**$C_{28}H_{26}N_{12}O_{14}$** Guanidine, (3,3'-dimethyl-4,4' - biphenylene)di-, picrate, 5014*e*.

**$C_{28}H_{26}N_{16}O_{28}$** 1,2,3-Propanetriamine, 2-(aminomethyl)-, tetrapicrate, 2936*d*.

**$C_{28}H_{26}O$** Ether, bis(4-methylbenzhydryl), 3810*f*.

**$C_{28}H_{26}O_2S_2$** Benzopinacol, *s*-4,4'-bis(methylmercapto)-, 7467*h*.

**$C_{28}H_{26}O_5$** Ribopyranoside, ethyl 2,3,4-tribenzoyl-, 1721*e*.

**$C_{28}H_{26}O_{13}$** Galactoside, 8-hydroxy-1-anthraquinonyl, tetraacetate, 5019*g*.
Glucoside, hydroxyanthraquinonyl, tetraacetate, 5019*gi*.

**$C_{28}H_{27}IN_2O_4$** Strychnine, iodosalicylate, 3148*d*.

**$C_{28}H_{27}NO$** 2-Naphthol, 1-[α-(*p*-*sec*-butylbenzylideneamino)benzyl]-, 3356*d*.

**$C_{28}H_{27}NO_3S$** *p*-Toluenesulfono-*o*-toluidide, α' - hydroxy - α',α' - di - *p* - tolyl-, 7006*g*.

**$C_{28}H_{27}NO_7$** Colchiceine, benzoate, 8376*c*.

**$C_{28}H_{27}N_3O_6$** Tyrosine, *N*-(*N*-carboxytryptophyl)-, benzyl ester, 4712*d*.

**$C_{28}H_{27}N_3O_7S_2$** Febrifugine, bis(phenylsulfonyl) deriv., 5406*d*.
Isofebrifugine, bis(phenylsulfonyl) deriv., 5406*d*.

**$C_{28}H_{28}ClN_3O_4S_2$** 3 - Ethyl - 2 - [[3 - ethyl - 5-[2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]-methyl] - 4 - phenylthiazolium perchlorate, P 4162*a*.

**$C_{28}H_{28}ClN_3O_{14}$** Quinoline, 7-chloro-4-(2-diethylaminoethylamino) - 3 - methyl-, dipicrate, 5401*f*.

**$C_{28}H_{28}IN_3OS$** 1 - Ethyl - α - [3 - ethyl - 5 - (1 - ethyl-2(1*H*) - quinolylidene) - 4 - oxo - 2-thiazolidylidene]lepidinium iodide, P 4163*f*.
1 - Ethyl - α - [3 - ethyl - 5 - (1 - ethyl-2(1*H*) - quinolylidene) - 4 - oxo - 2-thiazolidylidene]quinaldinium iodide, P 4163*f*.

**$C_{28}H_{28}IN_3OS_2$** 3 - Ethyl - 2 - [[3 - ethyl - 5-[2 - (1 - ethyl - 2(1*H*) - quinolylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]methyl]benzothiazolium iodide, P 4162*b*.

**$C_{28}H_{28}IN_3O_2S$** 1 - Ethyl - α - [3 - ethyl - 5-[2 - (3 - ethyl - 2 - benzoxazolinylidene)-ethylidene] - 4 - oxo - 2 - thiazolidylidene]lepidinium iodide, P 4163*f*.
1 - Ethyl - α - [3 - ethyl - 5 - [2 - (3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-quinaldinium iodide, P 4161*i*.
3 - Ethyl - 2 - [[3 - ethyl - 5 - [2 - (1-ethyl - 2(1*H*) - quinolylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-methyl]benzoxazolium iodide, P 4163*h*.

**$C_{28}H_{28}IN_3O_2S_2$** 3 - Ethyl - 2 - [[3 - ethyl - 5-[4 - (3 - ethyl - 2 - benzoxazolinylidene) - 2 - butenylidene] - 4 - oxo-2 - thiazolidylidene]methyl]benzothiazolium iodide, P 4162*d*.

**$C_{28}H_{28}N_2O_4$** Cinchotoxine, *N*-benzyl-, acid oxalate, 5028*c*.

**$C_{28}H_{28}N_2O_6S_2$** Benzenesulfonamide, *N*, *N'*-[1,2 - bis(*p* - methoxyphenyl)ethylene]bis-, 614*g*.

**$C_{28}H_{28}N_2O_8$** Resorcinol, 4-(1,1,3,3-tetramethylbutyl)-, bis(*p* - nitrobenzoate), 7923*f*.

**$C_{28}H_{28}N_4O_2$** 3 - Acridinecarbonitrile, 9-[α - (2,5 - dimethyl - 1 - pyrrolidyl)-4 - hydroxy - *m* - toluidino] - 7 - methoxy-, *di-HCl*, P 1068*f*.
5 - Pyrazolone, 4 - [3 - (5 - hydroxy - 3-methyl - 1 - phenyl - 4 - pyrazolyl)-5,5 - dimethyl - 2 - cyclohexen - 1-ylidene] - 3 - methyl - 1 - phenyl-, P 56*b*.

**$C_{28}H_{28}N_4O_4S$** Pseudourea, 2 benzyl 2 thio-, compd. with 3-[bis(*p*-methoxyphenyl)-amino]isonicotinic acid, 3827*b*.

**$C_{28}H_{28}O_4Se$** 1,9(2*H*,6*H*) - Phenoxaselenandione, 3,4,7,8 - tetrahydro - 3,3,7,7 - tetramethyldiphenyl-, 10 - oxide, 7479*d*.

**$C_{28}H_{28}O_4Si$** Benzyl silicate, 9028*c*.
Tolyl silicate, 4631*d*, P 6464*h*.

**$C_{28}H_{28}O_4Sn$** Tin, tetrakis(*p*-methoxyphenyl)-, 8764*e*.

**$C_{28}H_{28}O_4Ti$** *m*-Tolyl titanate, 9026*i*.

**$C_{28}H_{28}O_6$** Acetic acid, bis(4-hydroxy-2-oxo-1,2*H* - benzopyran - 3 - yl) , octyl ester, 5399*e*.

**$C_{28}H_{28}O_9$** Acetophenone, 4-[4-(3,4 dimethoxyphenacyloxy) - 3 - methoxyphenacyloxy]-3-methoxy-, 3610*f*.

**$C_{28}H_{28}Si$** Silane, tetratolyl-, 124*e*.

**$C_{28}H_{28}Sn$** Tin, tetra-*p*-tolyl-, 8764*e*.

**$C_{28}H_{29}ClN_2$** 1 - Amyl - 2 - [2 - (1 - amyl-2,5 - dimethyl - 3 - pyrryl)vinyl] - 9-methylquinolinium chloride, 3930*e*.

**$C_{28}H_{29}ClN_2O_7$** Quinazoline, 4 *p*-chloroanilino - 2 - [3 - (1 - piperidyl)propylamino]-, picrate, 2952*f*.

**$C_{28}H_{29}Cl_2IN_2S_2$** 5 - Chloro - 2 - [[3 - (5-chloro - 3 - ethyl - 2 - benzothiazolinylidenemethyl) - 5,5 - dimethyl - 2-cyclohexen - 1 - ylidene]methyl] - 3-ethylbenzothiazolium iodide, P 5*c*.

**$C_{28}H_{29}N_3O_4$** Acetanilide, α-benzoyl-α-(*p*-diethylaminophenylimino) - *m* - 1,3-dioxolan-2-yl-, P 8162*d*.

**$C_{28}H_{29}N_3O_6$** Compd., m. 240°, 239*e*.

**$C_{28}H_{29}N_3O_{15}$** Quinoline, 8-(2-isopropylaminoisopropylamino) - 6 - methoxy-, dipicrate, 3419*h*.
Quinoline, 8 - (2 - isopropylaminopropylamino)-6-methoxy-, dipicrate, 3419*g*.

**$C_{28}H_{30}BBr_2Li_2O$** Borine, triphenyl-, PhLi-LiBr-Et₂O complex, 7449*a*.

**$C_{28}H_{30}CaN_4O_8S_2$** Acetanilide, *p*-(4,6 dimethyl - 2 - pyrimidylsulfamyl)-, Ca deriv., P 7043*c*.

**$C_{28}H_{30}ClN_3O_4$** *o*-Cresol, 5-allyl-4-(6-chloro-2 - methoxy - 9 - acridylamino) - α-diethylamino-, *di-HCl*, P 1068*e*, P 7516*b*.

**$C_{28}H_{30}Cl_6N_4O_{12}Pt$** 1 - (Tolylcarbamylmethyl)-pyridinium chloroplatinate, 6977*e*.

**$C_{28}H_{30}IN_3$** 2 - [3 - Cyano - 5 - (1,3,3 - trimethyl - 2 - indolinylidene) - 1,3 - pentadienyl] - 1,3,3 - trimethyl - 3*H*-pseudoindolium iodide, P 7842*h*, P 7844*e*.

**$C_{28}H_{30}IN_3O_2S_2$** 3 - (2 - Ethoxyethyl) - 2-[[3-ethyl - 5 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2-thiazolidylidene]methyl]benzothiazolium iodide, P 4163*f*.

$C_{28}H_{30}N_2O_2$ Valeric acid, α-cyano-δ-dibenzylamino-α-phenyl-, Et ester, P 695*h*.
$C_{28}H_{30}N_2O_4$ Hydrocinchotoxine, *N*-benzyl-, acid oxalate, 5028*a*.
$C_{28}H_{30}N_2O_6$ Anthraquinone, 1-ethylamino-4-[β-[2-(2-hydroxyethoxy)eth-o'
$C_{28}H_{30}N_4$ ethylene-benzylimino]di-, 5785*c*.
$C_{28}H_{30}N_4O_3S$ 3,4-Thiazolidinedicarboxanilide, 5,5-dimethyl-2-(α-phenylacetamidomethyl)-, 6618*f*.
$C_{28}H_{30}N_4O_4$ Antipyrine, compd. with hydroquinone, 107*a*.
$C_{28}H_{30}N_4O_7$ Phenanthridine, 6-nonyl-, picrate, 7446*c*.
$C_{28}H_{30}N_4O_7S$ Quinoline, 6-methyl-3-octyl-2-(2-thienyl)-, picrate, 228*d*.
$C_{28}H_{30}N_4O_8S_2$ Benzamidine, *p*,*p*'-(ethylenedioxy)di-, bis(benzenesulfonate), P 2230*h*, P 5038*f*.
$C_{28}H_{30}N_6O_2$ Malonamide, α-allyl-*N*,*N*'-bis(4-amino-2-methyl-6-quinolyl)-α-ethyl-, *di-HCl*, 1778*d*.
$C_{28}H_{30}O_4$ Carvacrol phthalein, 2319*f*.
Resorcinol, 4-(1,1,3,3-tetramethylbutyl)-, dibenzoate, 7923*e*.
Thymolphthalein, 2319*f*.
$C_{28}H_{30}O_4$ 3,7-Decadiyne-2,5,6,9-tetrol, 2,9-dimethyl-5,6-diphenyl-, diacetate, 571*f*.
$C_{28}H_{30}O_8S_2$ 2-Naphthalenesulfonic acid, octylidenedi-, *and Ag salt*, P 5047*c*.
$C_{28}H_{30}O_{10}S_2$ Galactoside, methyl 4,6-benzylidene-, di-*p*-toluenesulfonate, 1727*i*.
$C_{28}H_{30}O_{12}$ 3,3'-Biphenyldicarboxylic acid, 5,5',6,6'-tetrahydroxy-, di-Pr ester tetraacetate, 8614*e*.
$C_{28}H_{31}ClFN_3O$ Acridine, 6-chloro-9-[α-(3-diethylaminopropyl)-*p*-fluorobenzylamino]-2-methoxy-, *di-HCl*, 2211*e*.
$C_{28}H_{31}ClN_2O_3$ See *Rhodamine B*.
$C_{28}H_{31}Cl_2N_3O$ Acridine, 6-chloro-9-[*p*-chloro-α-(3-diethylaminopropyl)benzylamino]-2-methoxy, *di-HCl*, 2211*e*.
$C_{28}H_{31}IN_2S_2$ 3-Ethyl-2-[[3-(3-ethyl-2-benzothiazolylidenemethyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]-methyl]benzothiazolium iodide, P 55*c*.
$C_{28}H_{31}IN_2Se_2$ 3-Ethyl-2-[[3-(3-ethyl-2-benzoselenazolinylidenemethyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]benzoselenazolium iodide, P 55*d*.
$C_{28}H_{31}I_2N_3S_2$ 3-Ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-5-(2-thiazolin-2-yl)-1,4-pentadienyl]-benzothiazolium iodide, ethiodide, 2530*h*.
2,2'-[3-(3-Ethyl-2-thiazolidinylidene)-1,4-pentadienylene]bis[3-ethylbenzothiazolium iodide], 2529*e*.
$C_{28}H_{32}NO_5$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, Bu ester, Et$_2$NH salt, 5399*f*, isobutyl ester, Et$_2$NH salt, 5399*f*.
$C_{28}H_{32}NO_{10}$ Acetic acid, bis(4-hydroxy-2-oxo-1,2*H*-benzopyran-3-yl)-, Et ester, salt with N(CH$_2$CH$_2$OH)$_3$, 5399*f*.
$C_{28}H_{33}N_5O_6$ Erythraline, tetrahydro-, picrolonate, 5545*e*.
$C_{28}H_{33}Cl_3N_3P_3$ Triphosphonitrile tetra *p*-toluidide, dichloro-, 5364*h*.
$C_{28}H_{32}D_2N_2O_4$ Malonic acid-$d_2$, ethyl-, brucine salt, 3392*g*.
$C_{28}H_{32}N_2O_2$ Benzhydrol, compd. with ethylenediamine, 2082*d*.
$C_{28}H_{32}N_2O_4$ See *Khedamine B*.
$C_{28}H_{32}N_4O_2S_4$ Thiazole, 4,4'-octamethylenebis[2-[*p*-(methylsulfonyl)phenyl]-, 1740*f*.
$C_{28}H_{32}N_6O_2$ Malonamide, *N*,*N*'-bis(4-amino-2-methyl-6-quinolyl)-α-ethyl-α-propyl-, *di-HCl*, 1778*d*.
$C_{28}H_{32}N_{12}O_{24}$ Piperidine, 3-(2-dimethylaminoethylamino)-1-methyl-, tripicrate, 6207*d*.
$C_{28}H_{32}O_4Si_4$ Cyclotetrasiloxane, 2,4,6,8-tetramethyl-2,4,6,8-tetraphenyl-, 2513*a*.
$C_{28}H_{32}O_6$ Glucitol, 1,1-diphenyl-1-desoxy-, pentaacetate, P 3448*b*.
$C_{28}H_{32}O_7$ 3-Heptanol, 6-dimethylamino-4,4-diphenyl-, benzoate, *-HCl*, 3391*c*.
$C_{28}H_{32}N_4O_7$ Capramidine, *N*-2-biphenylyl-, picrate, 7446*a*.
$C_{28}H_{32}N_2O_{16}$ Strychnane, desformylmethoxymethylchanodihydro-, picrate, 658*a*.
$C_{28}H_{32}O_{11}$ Senkirkine, picrolonate, 3017*b*.
$C_{28}H_{32}N_2$ 1,1'-Decamethylenebisquinolinium bromide], 2703*d*.
$C_{28}H_{33}NO$ 1-[2-(Benzhydryloxy)propyl]-1-benzylpiperidinium chloride, P 5804*f*.
$C_{28}H_{33}N_3O_2$ 3-Heptanol, 6-dimethylamino-4,4-diphenyl-, carbanilate, *-HCl*, 3391*c*.
$C_{28}H_{33}N_4O_4S$ Benzenesulfonamide, *p*-(5-hendecyl-3,6-dihydroxy-2-*p*-quinonylazo)-*N*-2-pyridyl-, 9047*h*.
$C_{28}H_{34}N_2O_4$ Ketene, cyclohexyl-, dimer, bis(*p*-nitrophenylhydrazone), 2964*e*.
$C_{28}H_{34}N_2O_6$ Putrescine, $N^4$,$N^4$-diethyl-1-(1-naphthyl)-, picrolonate, 2211*d*.
$C_{28}H_{34}O_2$ Ethanol, 1,1-bis(*p*-butoxyphenyl)-2-phenyl-, P 6666*h*.
Ethanol, 1,1-bis(*p*-*sec*-butoxyphenyl)-2-phenyl-, P 6666*g*.
$C_{28}H_{34}O_4$ 2,5-Xylenol, 4,4'-(diethylideneethylene)di-, dipropionate, 614*a*.
$C_{28}H_{34}O_{14}$ Citrifolioside, 4669*h*.
$C_{28}H_{34}O_{15}$ Chalcone, 2',3,4',6'-tetrahydroxy-4-methoxy-, rhamnoglucoside, 5542*a*.
Hesperidin, 3931*e*, 5117*a*, 5542*a*, P 6791*g*, 7003*c*, 8404*b*.
Neohesperidin, P 1914*b*, P 2739*f*.
$C_{28}H_{34}NO_2$ Benzoic acid, *o*-[2-(*p*-dodecylphenylcarbamyl)-1-hydroxyvinyl]-, lactone, P 7850*d*.
$C_{28}H_{35}NO_3S$ 9-Fluorenecarboxylic acid, 2-(2-diethylaminoethylmercapto)-ethyl ester, citrate, 3395*c*.
$C_{28}H_{35}N_3O_4S_2$ Propionic acid, β,β'-(phenylimino)di-, salt with 2-benzyl-2-thiopseudourea, 8351*g*.
$C_{28}H_{36}$ 1-Butene, 4-(4-cyclohexylcyclohexyl)-1,1-diphenyl-, 1375*h*.
$C_{28}H_{36}ClN_3O$ Acridine, 6-chloro-9-(2-dicyclohexylaminoethylamino)-2-methoxy-, *di-HCl*, P 4703*h*.
$C_{28}H_{36}N_2O_6$ Succinic acid, α,β-diphenyl-, bis[2-(4-morpholinyl)ethyl] ester, P 9086*h*.
$C_{28}H_{36}N_4O_{16}$ Cyclohexanol, 2,6-di-1-piperidyl-, dipicrate, 7912*e*.
$C_{28}H_{36}O_3$ 2,7-Nonadien-5-yn-4-ol, 9-methoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-, benzoate, P 1801*f*.
5-Pregnen-3(β)-ol-20-one, benzoate, 243*c*.
$C_{28}H_{36}O_4$ Pregnan-20(β)-ol-3,11-dione, benzoate, 6211*c*.
4,4'-Stilbenediol, α,α'-diethyl-, divalerate, P 2641*e*.
$C_{28}H_{36}O_5$ 1,4-Naphthalenediol, 2-[3-(decahydro-2-naphthyl)propyl]-3-methoxy-, diacetate, 1375*b*.
$C_{28}H_{36}O_5S$ Progesterone, 12(α)-hydroxy-, *p*-toluenesulfonate, 1783*h*.
$C_{28}H_{37}NO_4$ 2-Naphthalenepropionic acid, β-ethyl-6-methoxy-α,α-dimethyl-, ephedrine salt, 6608*a*.
$C_{28}H_{37}NO_4S$ [2-(Benzhydryloxy)ethyl]-butyldimethylammonium *p*-toluenesulfonate, P 3463*b*.
$C_{28}H_{37}N_3O_2$ 5-Androsten-17-on-3(β)-ol, acetate, 4-phenylsemicarbazone, 243*b*.
$C_{28}H_{37}N_3O_7$ Leucine, *N*-($N^{\alpha}$,$N^{\delta}$-dicarboxy-L-ornithyl)-, dibenzyl Me ester, 4641*f*.
$C_{28}H_{38}ClN_3O$ *o*-Cresol, 4-(7-chloro-4-quinolylamino)-α-dihexylamino-, *and di-HCl*, P 7515*c*.
$C_{28}H_{38}Cl_2N_6O_2$ Benzimidazole, 2,2'-vinylenebis[*ar*-[(α-dimethylaminoacetamido)methyl]-, bis(methyl chloride) deriv., P 8174*c*.
$C_{28}H_{38}N_2O_3S$ Acetamide, *N*-[2-(2-diethylaminoethylmercapto)ethyl]-α,α-diphenyl-, citrate, 3395*e*.
$C_{28}H_{38}O_3$ Allopregnan-20-on-3(β)-ol, benzoate, 243*c*.
$C_{28}H_{38}O_4$ 1,4*H*-Benzopyran-6-acrylic acid, 7-hydroxy-β,2-dimethyl-4-oxo-3-tetradecyl-, δ-lactone, 6621*i*.
1,3,7,9-Decatetraene-5,6-dione, 3,8-dihydroxy-1,10-bis(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 2588*b*.
1,7-Octadiene, 1,8-bis(2-ethyl-4,5-dimethoxyphenyl)-, 2624*d*.
Pregnane-3(α),20(β)-diol-11-one, 20-benzoate, 6211*c*.
2,5-Xylenol, 4,4'-(1,2-diethylethylene)di-, dipropionate, 614*b*.
$C_{28}H_{38}O_5S$ Pregnan-20(β)-ol-3,11-dione, *p*-toluenesulfonate, 6211*d*.
$C_{28}H_{38}O_8S_2$ Dehydrocholic acid, 3-bis(carboxymethyl mercaptal), 7033*h*.
$C_{28}H_{38}O_{19}$ Cellobiose, octaacetate, 3609*b*.
Glucopyranose, 6-α-D-glucopyranosyl-, octaacetate, 2583*d*.
Isomaltose, octaacetate, 5748*g*.
$C_{28}H_{39}Cl_3O_2$ Ethane, 1,1,1-trichloro-2,2-bis(5-propoxycarvacryl)-, 5860*i*.
$C_{28}H_{39}N_3O_6$ Pantothenic acid, cinchonidine salt, 7903*d*.
$C_{28}H_{38}BaO_8S$ Phenol, thiobis[1,1,3,3-tetramethylbutyl-, Ba deriv., P 3904, P 6405*i*.
$C_{28}H_{40}ClN_3O$ Acridine, 6-chloro-9-(3-diisoamylamino-1-methylpropylamino)-2-methoxy-, *and di-HCl*, P 2242*d*.
Acridine, 6-chloro-9-[1-ethyl-3-(methyl-1-methylhexylamino)isobutylamino]-2-methoxy-, P 1068*a*.
$C_{28}H_{40}N_2$ Benzylamine, *p*,*p*'-ethylenebis[*N*-cyclohexyl-, *and di-HCl*, 3382*e*.
$C_{28}H_{40}N_2O_2$ 4,4'-Bi-*o*-cresol, 6,6'-diallyl-α,α'-bis(diethylamino)-, *di-HCl*, P 4695*i*, P 4696*a*.
$C_{28}H_{40}N_2O_2S_4$ Adipaldehyde, α,γ-dibenzamido-β-hydroxy-, tetra-Et mercaptal, 1329*i*.
$C_{28}H_{40}N_2O_4$ Isoquinoline, 1,1'-hexamethylenebis[1,2,3,4-tetrahydro-6,7-dimethoxy-, 2624*d*.
$C_{28}H_{40}N_2O_6$ Ethanol, 2,2',2'',2''' - [(5,5'-diallyl-4,4'-dihydroxy-3,3'-biphenylene)bis(methylenenitrilo)]tetra-, P 4696*a*.
Succinamide, *N*,*N*'-bis(4-ethoxy-3-methoxybenzyl)-*N*,*N*'-diethyl-, 2177*c*.
$C_{28}H_{40}O$ Ether, benzyl *m*-1-pentadecenylphenyl, 6999*c*.
$C_{28}H_{40}O_2$ Cyclopentanehendecanoic acid, naphthyl-, Et ester, 5664*d*.
$C_{28}H_{40}O_5$ Umbelliferone, 4-methyl-6-palmitoyl-, acetate, 6621*h*.
$C_{28}H_{40}O_{12}$ Etiocholanic acid, hexahydroxy-, tetraacetate, 1792*eh*.
$C_{28}H_{41}ClO_2$ Stearic acid, (chloronaphthyl)-, 9028*g*.
$C_{28}H_{41}N$ Stearonitrile, naphthyl-, P 7968*f*.
$C_{28}H_{41}NO$ Oleamide, *N*-naphthyl-, 8353*i*.
$C_{28}H_{41}NO_3$ Phthalamic acid, *N*-menthyl-, ester with 4-isopropyl-1-cyclohexene-1-methanol, 7434*f*.
$C_{28}H_{41}N_3O_3S$ Cinchoninamide, 2-butoxy-*N*-[2-(2-diethylaminoethylmercapto)-ethyl]-, citrate, 6184*d*.
$C_{28}H_{41}N_2O_2S$ Lauric acid, γ-benzyl-γ-methyl-, 2-benzyl-2-thiopseudourea salt, 2932*a*.
$C_{28}H_{42}N_4O_2S_4$ 4,4'-Bithiazole, 2,2'-diamino-5,5'-dimethyl-, camphorsulfonate, 2202*f*.
$C_{28}H_{42}O$ (See also *Ergosterol, dehydro-*.)
Ergosterone, 7493*e*.
Ether, benzyl *m*-pentadecylphenyl, 6999*c*.
Isoergosterone, 7493*f*.
Sterol C, 6367*e*.
$C_{28}H_{42}O_2$ 1-Pentadecanol, 1-[*m*-(benzyloxy)phenyl]-, 6999*c*.
Stearic acid, naphthyl-, 9028*g*.
$C_{28}H_{42}O_4$ Umbelliferone, 4-methyl-6-stearoyl-, 6621*h*.
$C_{28}H_{42}O_6$ Oleic acid, 2-hydroxyethyl ester, monoester with phthalic acid, *Na salt*, P 8713*b*.
$C_{28}H_{42}O_7$ Cholanic acid, 3-hydroxy-12-keto-, 3-succinate, P 702*a*.
$C_{28}H_{42}O_{18}$ Phenolphthalein, di-β-glucoside, tetraacetate, 2319*f*.
$C_{28}H_{43}NO$ Diphenylamine, *p*-(hexadecyloxy)-, 3380*g*.
$C_{28}H_{43}NO_4$ Umbelliferone, 4-methyl-6-stearoyl-, oxime, 6621*h*.
$C_{28}H_{43}NO_5$ Phthalic acid, monoester with *N*-2-hydroxyethyloleamide, *Na salt*, P 8713*a*.
$C_{28}H_{43}NO_5S$ Cyclohexaneacetic acid, α-phenyl-, 2-(2-diethylaminoethylmercapto)ethyl ester, citrate, 3395*d*.
$C_{28}H_{44}N_2O$ $\Delta^{1,3,4,5,6,7}$-3-Cholestatrienone, semicarbazone, 7495*a*.
$C_{28}H_{44}Br_2O_4$ Compd., m. 139–141.5°, 3432*g*.
$C_{28}H_{44}ClNO_3$ Benzyldimethyl[2-[2-(1,1,-3,3-tetramethylbutyltoloxy)ethoxy]-ethyl]ammonium chloride, 3884*i*.
$C_{28}H_{44}Cl_6N_2O_4Pt$ 1-(1-Carboxyhexyl)-pyridinium chloroplatinate, di-Et ester, 6977*e*.
$C_{28}H_{44}N_2$ Benzidine, *N*,*N*,*N*',*N*'-tetrabutyl-, *and di-HCl*, 3380*f*.
1,10-Decanediamine, *N*,*N*'-bis(*p*-methylphenethyl)-, *di-HBr*, P 3455*h*.
—, *N*,*N*'-bis(3-phenylpropyl)-, *di-HBr*, 3379*d*, P 3455*g*.
1,8-Octanediamine, *N*,*N*'-bis(4-phenylbutyl)-, *di-HBr*, 3379*d*, P 3455*h*.
$C_{28}H_{44}N_2O$ Aniline, *p*,*p*'-oxybis[*N*,*N*-dibutyl-, *di-HCl*, 3381*b*.
$C_{28}H_{44}N_2O_2$ 4,4'-Bi-*o*-cresol, α,α'-bis-

(diethylamino) - 6,6' - dipropyl-, *di-HCl*, P 4696*a*.
1,10 - Decanediamine,, *N, N'* - bis(*p*-methoxyphenethyl)-, *di-HBr*, 3378*h*, P 3455*c*.
$C_{28}H_{44}N_2O_2S$ Palmitic acid, 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*h*.
$C_{28}H_{44}N_2O_4$ 1,8-Octanediamine, *N, N'*-bis-(3,4 - dimethoxyphenethyl)-, *and di-HCl*, 3378*f*; *salts*, P 3455*f*.
2 - Propanol, 1,1' - (ethylenediimino)-bis[3 - (*p* - *tert* - butylphenoxy)-, *-HCl*, P 7046*b*.
$C_{28}H_{44}N_2O_6$ 1,6 - Hexanediamine, *N, N'*-diphenethyl-, dilactate, 3379*c*, P 3455*d*.
$C_{28}H_{44}O$ (See also *Ergosterol*; "$D_4$" under *Vitamins*.)
Precalciferol, 8312*b*.
$C_{28}H_{44}O_2$ $\Delta^4$ - Norcholesten - 3 - ol - 25 - one, acetate, 1048*e*.
Umbelliferone, 4 - methyl - 6 - octadecyl-, 6621*h*.
$C_{28}H_{44}O_2S$ 5 - Cholenic acid, 3(*β*) - hydroxy-thiol-, Et ester acetate, 3432*g*.
$C_{28}H_{44}O_4$ 5-Cholene, 3(*β*),24-dihydroxy-, diacetate, 3432*h*.
$C_{28}H_{44}O_4$ Stearic acid, 2-hydroxyethyl ester, monoester with phthalic acid, *Na salt*, P 8713*b*.
$C_{28}H_{44}O_7$ Desoxycholic acid, 3-succinate, P 701*a*.
$C_{28}H_{44}O_8S_2$ Cholanic acid, 7,12-dihydroxy-3-oxo-, bis(carboxymethyl mercaptal), 7033*i*.
$C_{28}H_{45}ClO$ 3-Cholesterylcarbonyl chloride, 2215*a*.
$C_{28}H_{45}ClO_5$ Ergosterol, perchlorate, 7494*c*.
$C_{28}H_{45}N_3O$ $\Delta^{4,6,6,7}$- 3 - Cholestadienone, semicarbazone, 7494*i*.
$C_{28}H_{46}$ 7(8), 22(23)-Coproergostadiene, 7493*f*.
$C_{28}H_{46}I_2N_2O_2$ [Biphenylenebis(oxyethylene)]-bis[triethylammonium iodide], 6365*e*.
$C_{28}H_{46}O$ Ascosterol, 7493*c*.
$\Delta^{3}$-Cholestene, 2-formyl-, P 6674*f*.
$\Delta^{7(8),9(11)}$-Ergostadien-3(*β*)-ol, 7493*d*.
7-Ergosten-3-one, 243*d*.
Ergosterol, dihydro-, 1428*f*, 7493*f*.
Fecosterol, 7493*c*.
Stearonaphthone, tetrahydro-, P 6358*e*.
Steroid, m. 164–6°, 9384*g*.
$C_{28}H_{46}O_2$ 3-Cholestanone, *α*-(hydroxymethylene)-, 244*d*.
4 - Cholesten - 3 - one, 7 - methoxy-, 3022*b*.
Ethyl ester, m. 99–100°, 7926*c*.
*β*-Norcholesterol, acetate, 1789*e*.
$C_{28}H_{46}O_3$ Allocholane, 3(*β*) - hydroxy - 17,-24 - oxido - 24,24 - dimethyl-, acetate, 6638*b*.
Cerevisterol, 6367*d*.
$\Delta^5$ - Cholene, 3(*β*),20 - dihydroxy - 24,24-dimethyl-, 3(*β*)-acetate, 6638*c*.
Cholestane, 3(*α*),5 - dihydroxy-, carbonate, 1785*a*.
Coprostane, 3(*β*),5-dihydroxy-, carbonate, 1787*b*.
*β*-Norcholesterol, oxide, acetate, 1790*b*.
$C_{28}H_{46}O_4$ Cholestane-6||7-dicarboxylic acid, 3(*β*)-hydroxy-, lactone, Me ester, 246*b*.
$C_{28}H_{46}O_7$ Etiocholanic acid, 3(*β*)-thevetopyranosyloxy)-, Me ester, 1792*b*.
$C_{28}H_{46}O_8$ 14-Isopregnan-20-one, 3(*β*)-(thevetopyranosyloxy)- 14,21 - dihydroxy, 1791*i*, 1792*a*.
$C_{28}H_{47}NO$ $\Delta^4$ - Cholestene, 2-formyl-, oxime, P 6674*f*.
3-Cholesterylcarboxamide, 2215*a*.
$C_{28}H_{47}NO$ $\Delta^4$-Cholesten-3-one, semicarbazone, 1048*a*.
$C_{28}H_{47}N_3O_3$ Androstane, 3(*β*) - acetoxy - 17-(1 - oxoisohexyl)-, semicarbazone,
$C_{28}H_{47}N_3$ *s*-Triazine, 6-heptadecyl - 1,2,3,4-tetrahydro - 2,4 - diimino - 1 - xylyl-, P 4499*c*.
$C_{28}H_{47}N_3O$ *s*-Triazine, 1 - (*o* - ethoxyphenyl)-6 - heptadecyl - 1,2,3,4 - tetrahydro-2,4-diimino-, P 5216*g*.
$C_{28}H_{48}$ 7(8)-Coproergostene, 7493*f*.
$C_{28}H_{49}AsNO_6S_2$ Acetic acid, mercapto-, octyl ester, diester with 3-amino-4-(2-hydroxyethoxy)dithiobenzenearsonous acid, 599*b*.
$C_{28}H_{49}O_{20}S_4$ Reineckate, decompd. 160–70°, 7940*i*.
$C_{28}H_{48}N_2O_{18}$ Mucoitinsulfuric acid, 3480*b*.
$C_{28}H_{48}N_2S$ Pseudourea, 2-cholesteryl-2-thio-, *salts*, 659*h*.
$C_{28}H_{48}N_2S_4$ Thiazole, 2,2'-dithiobis[4-hendecyl-, 633*h*.
$C_{28}H_{48}O$ (See also *Ergosterol*.)
Cholesteryl methyl ether, 5307*g*.
Ether, *i*-cholesteryl methyl, 659*gh*.
$C_{28}H_{48}O_2$ (See also *β-Tocopherol; γ-Tocopherol*.)
Behenic acid, phenyl-, 566*d*.
5 - Benzofuranol, 2,3 - dihydro - 2,4,6,7-tetramethyl - 2 - (4,8,12 - trimethyltridecyl)-, 1764*f*.
3(*β*)-Cholestanol, formate, 243*e*.
4-Cholesten-3-one, 7-methoxy-, 3022*a*.
Cholesterol, 7-methoxy-, 3021*h*.
3-Coprostanone, 7-methoxy-, 3022*c*.
*β* - Norcholesterol, dihydro-, acetate, 1790*a*.
$C_{28}H_{48}O_3$ Allocholane, dihydroxy-24,24-dimethyl-, acetate, 6638*bd*.
3,5,6-Cholestanetriol, 5028*g*.
$C_{28}H_{48}O_4$ Allocholane, 3(*β*),17,24-trihydroxy-24,24 - dimethyl-, 3(*β*) - acetate, 6638*b*.
Cholestane, 3(*β*)-hydroxy - 6,7 - diketo-, compd. with MeOH, 246*f*.
$C_{28}H_{48}S$ Cholesterol, thio-, Me deriv., 7034*a*.
$C_{28}H_{49}BrN_4O$ 1 - (Diethylcarbamylmethyl)-3 - hexadecyl - 1*H* - benzotriazolium bromide, P 7971*b*.
$C_{28}H_{49}N_5$ 2-Imidazoline, 1-triethylenetriamino-2-abietyl-, P 6406*g*.
$C_{28}H_{49}N_3O$ Stearamide, *N*-(xylylguanylguanyl)-, P 4499*f*, P 4879*c*.
$C_{28}H_{49}N_3O_2$ Stearamide, *N* - [(*o* - ethoxyphenylguanyl)guanyl]-, P 5216*g*.
$C_{28}H_{49}NO_3$ 3(*α*),12(*α*)-Norcholanediol, 23-dimethylamino-, 12(*α*)-acetate, methiodide, 9077*a*.
$C_{28}H_{50}O$ *i*-Cholestanyl methyl ether, 5307*g*.
3(*α*)-Coproergostanol, 7493*g*.
3(*β*)-Ergostanol, 7493*g*.
$C_{28}H_{50}O_4$ 3,6,9,12-Tetradecanetetrone, 2,-4,4,5,5,7,7,8,8,10,10,11,11,13-tetradecamethyl-, P 9081*i*.
$C_{28}H_{50}O_4S$ Cholestane, 3(*β*),5-dihydroxy-, 3(*β*)-methanesulfonate, 1784*b*.
$C_{28}H_{51}NO_2$ Hexadecylamine, 1 - (2 - ethyl-4,5 - dimethoxyphenyl) - *N, N* - dimethyl-, 2624*g*.
$C_{28}H_{51}N_3O_6$ Trimethyloctadecylammonium 3,5-dinitro-*o*-cresoxide, P 5801*b*.
$C_{28}H_{52}ClN_3O$ Benzyldimethyl(3 - palmitoylaminopropyl)ammonium chloride, P 2631*b*.
$C_{28}H_{52}N_2O_4S$ Trimethyl(*p* - stearoylaminophenyl)ammonium methyl sulfate, P 2008*g*, P 2375*d*.
$C_{28}H_{52}N_4O_8S_2$ 1-Hexanol, 2-ethyl-, sulfate, compd. with vitamin $B_1$, P 4433*f*.
$C_{28}H_{52}O_4$ Suberic acid, *γ*-butyryl-, bis(2-ethylhexyl) ester, P 6226*b*.
$C_{28}H_{52}O_6$ Capric acid, ester with the hydracrylate of dodecyl hydracrylate, P 1053*h*.
$C_{28}H_{53}NO_4$ Caproic acid, *α*-ethyl-, diester with *α* - ethyl - *N, N* - bis(2 - hydroxyethyl)caproamide, P 7751*bc*.
$C_{28}H_{54}I_2N_2$ (*p*-Phenylenediethylene)bis[tripropylammonium iodide], 6591*c*.
$C_{28}H_{54}O_2$ 14,15-Octacosanedione, 3791*i*.
$C_{28}H_{54}O_3$ Heptacosanoic acid, 3-methyl-5-oxo-, 7900*g*.
$C_{28}H_{54}O_4$ Sebacic acid, bis(3,5,5-trimethylhexyl) ester, 3678*a*.
$C_{28}H_{54}O_6$ Diglycolic acid, didodecyl ester, 9032*e*.
$C_{28}H_{54}O_{14}$ Tartaric acid, compd. with acetone, 7409*a*.
$C_{28}H_{55}NO$ Oleamide, *N*-decyl-, 8353*h*.
$C_{28}H_{55}NO_2$ Stearamide, *N*-decyl-*θ*,*ι*-epoxy-, 8354*b*.
$C_{28}H_{55}NO_4$ Lauric acid, diester with 2,2'-iminodiethanol, *-HCl*, P 674*g*.
$C_{28}H_{56}O_3$ Heptacosanoic acid, 3-methyl-, 7900*g*.
14-Octacosanone, 15-hydroxy-, 3791*h*.
$C_{28}H_{57}NO$ Heptacosanamide, 3-methyl-, 7900*i*.
$C_{28}H_{57}NO_2$ Stearamide, *N*-decyl-*θ*,*ι*-dihydroxy-, 8353*i*.
$C_{28}H_{58}$ Docosane, 11,12-dipropyl-, 107*d*.
Octacosane, 4067*e*, 4937*e*.
$C_{28}H_{58}N_2O_4$ Lauric acid, piperazine salt, 235*e*.
$C_{28}H_{58}O$ 1-Octacosanol, 8609*i*.
$C_{28}H_{59}ClO_2Si$ Silane, chlorododecylbis(6-methylheptyloxy)-, P 6430*e*.
Silane, chlorododecylbis(octyloxy)-, P 6430*e*.
$C_{28}H_{60}N_2$ 1,10-Decanediamine, 2,9-dimethyl - *N, N'* - dioctyl-, *di-HBr*, 3380*b*.
$C_{28}H_{60}N_2O_4$ 1,10-Decanediamine, *N, N'*-dihexyl-, dilactate, 3379*g*.
1,8 - Octanediamine, *N, N'* - diheptyl-, dilactate, 3379*g*, P 3455*d*.
$C_{28}H_{60}O_4Si$ Heptyl silicate, 9028*e*.
$C_{28}H_{64}I_2O_2Sn_4$ Dipropyltin oxide, complex with dipropyltin diiodide and EtOH, 7900*c*.
$C_{28}H_{70}O_{18}Si_4$ Ethyl silicate, 5738*h*.
$C_{28}H_{54}O_{13}Si_{13}$ Tridecasiloxane, octacosamethyl-, P 4402*f*.
$C_{29}H_{13}N_3O_6$ 1-Anthraquinonecarbonitrile, 5 - nitro - 2 - (5 - nitro - 1 - anthraquinonylamino)-, P 9469*h*.
$C_{29}H_{12}NO_6$ Dinaphthacridinepentone, P 9469*e*.
$C_{29}H_{14}N_2O_6$ Dinaphthacridinepentone, amino, P 7708*hi*, P 7709*a*; *and sulfate*, P 866*ceh*, P 867*fhi*, P 868*a*.
$C_{29}H_{15}ClN_2O_4$ Indanthrene, (chloromethyl)-, P 8163*f*.
$C_{29}H_{14}N_4O_6$ Dinaphthacridinepentone, diamino-, P 9469*h*.
$C_{29}H_{16}Cl_2N_2O_6S$ Naphth[2,3 - *c*]acridine-5,8,14(13*H*) - trione, 10,12 - dichloro - 6 - (*p* - methylsulfonylbenzamido)-, P 7706*d*.
$C_{29}H_{16}N_4O_4$ 1-Anthraquinonecarbonitrile, 5-amino - 2 - (5 - amino - 1 - anthraquinonylamino)-, P 9469*h*.
$C_{29}H_{16}N_4O_7$ 1-Fluoranthenamine, compd. with 2,4,7 - trinitro - 9 - fluorenone, 7014*f*.
$C_{29}H_{17}ClN_2O_6S$ Naphth[2,3-*c*]acridine-5,8,-14(13*H*) - trione, 9 - chloro - 6 - (*p*-methylsulfonylbenzamido)-, P 7706*d*.
$C_{29}H_{17}N_3O_7$ 6*H* - Naphtho[1,2,3 - *cd*]-pyrene, picrate, 5390*b*.
$C_{29}H_{17}NO_3$ Ketone, 3-fluoranthenyl phenyl, picrate, 7473*e*.
$C_{29}H_{18}N_2O_6S$ Naphth[2,3-*c*]acridine-5,8,14-(13H)-trione, 6-(methylsulfonylbenzamido)-, P 7706*c*.
$C_{29}H_{18}N_4O_9$ Ketone, 3-fluoranthenyl phenyl, 2,4-dinitrophenylhydrazone, 7473*e*.
$C_{29}H_{18}O$ 2*H* - Cyclopenta[*l*]phenanthren-2-one, 1,3-diphenyl-, 2585*d*, 2614*b*.
$C_{29}H_{18}O_3$ Benz[*j*]fluoranthen-1-ol(?), mono-Ac mono-Bz deriv., 7929*d*.
Benzofuranacrylic acid, 5-hydroxy-*β*,2,3-triphenyl-, *δ*-lactone, 7017*be*.
$C_{29}H_{18}O_5$ Coumarin, 7-benzoyl-6-hydroxy-4-phenyl-, benzoate, 7017*c*.
$C_{29}H_{18}N_2O_6$ Fluoranthene, 3-methyl-1-phenyl-, compd. with 1,3,5-trinitrobenzene, 9059*b*.
$C_{29}H_{19}N_3O_{13}$ Phenethyl alcohol, 3,4-dihydroxy-, tris(*p*-nitrobenzoate), 7451*e*.
$C_{29}H_{19}NO_3$ Quino[3,4 - *b*]quinolin - 12 - ol, methyl-6-phenyl-, picrate, 8393*a*.
$C_{29}H_{19}NO_6$ Quino[3,4 - *b*]quinolin - 12 - ol, methoxy-6-phenyl-, picrate, 8393*ab*.
$C_{29}H_{20}N_2O$ Quino[3,4 - *b*]quinoline, methyl 12-phenoxy-6-phenyl-, 8392*i*, 8393*a*
$C_{29}H_{20}N_2O_2$ Quino[3,4 - *b*]quinoline, methoxy - 12 - phenoxy - 6 - phenyl-, 8392*i*, 8393*a*.
$C_{29}H_{20}N_2O_6$ Compd., m. 225°, 628*e*.
$C_{29}H_{30}O$ Bisnor - 5,20 - choladiene, 22-phenyl-3-methoxy-, 3018*g*.
Cyclopentadienone, tetraphenyl-, 2614*f*.
$C_{29}H_{20}O_4$ Ketone, 5 - hydroxy - 2,3 - diphenylbenzofuryl phenyl, acetate, 7017*be*.
$C_{29}H_{20}O_5$ Hydroquinone, dibenzoyl-, acetate, benzoate, 7017*ce*.
$C_{29}H_{20}O_7S_2$ 1 - Naphthol - 8 - sulfonic acid, 4,4' - (2 - hydroxy - 5 - methyl - *m*-xylylene)bis-, disultone, 204*c*.
$C_{29}H_{21}NO_2$ 2 - Naphthanilide, 1 - hydroxy-4'-(2-biphenylyl)-, 4656*e*.
$C_{29}H_{21}NO_3$ Benzanilide, 3'-benzoylacetyl-4'-hydroxy-, benzoate, 5779*e*.
$C_{29}H_{21}NO_4$ 1,4-Naphthoquinone, 2,2'-(*p*-dimethylaminobenzylidene)bis[3 - hydroxy-, 1383*d*.
$C_{29}H_{21}N_3$ Quino[3,4 - *b*]quinoline, 7,12-dihydro - 8 - methyl - 6 - phenyl - 12-phenylimino-, 8393*e*.
$C_{29}H_{21}N_3O$ Quino[3,4 - *b*]quinoline, 7,12-dihydro - 12 - (*p* - methoxyphenylimino) - 6 - phenyl-, 8393*d*.
Quino[3,4 - *b*]quinoline, 7,12 - dihydro-10 - methoxy - 6 - phenyl - 12 - phenylimino-, 8393*d*.
$C_{29}H_{21}NO_4S$ Anthraquinone, benzamido-[*p* - (methylsulfamyl)benzamido]-, P 863*i*, P 864*a*.
$C_{29}H_{21}N_3O_{11}S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - [(*o*-carboxyphenyl)methylsulfamyl]-, P 7710*c*.
$C_{29}H_{21}N_5O_7S$ Salicylic acid, 5-[4' - (2 - amino-5 - hydroxy - 7 - sulfo - 1 - naphthylazo)-4-biphenylylazo]-, P 4019*f*, P 7697*b*.
$C_{29}H_{23}AsNO_3$ Cinchophen, arsinomethyl-, oxide,

**$C_{29}H_{42}As_2N_6O_{14}$** Arsine, tri-2-pyridyl-, dimethopicrate, 1046*i*.

**$C_{29}H_{32}N_4O_2S$** 2(3*H*) - Imidazolethione, 4-[4,4 - bis(2 - benzoxazolyl) - 1,3 - butadienyl] - 1 - ethyl - 5 - hydroxy - 3-phenyl-, P 4159*c*, P 8927*c*.

**$C_{29}H_{32}N_4O_4$** Ketone, phenyl tetrahydrofluoranthenyl, 2,4 - dinitrophenylhydrazone, 7474*a*.

**$C_{29}H_{32}N_{10}O_{14}$** Pyridine, 2,2',2'' - nitrilotri-, dimethopicrate *dihydrate*, 1046*f*.

**$C_{29}H_{32}O_3$** Phenanthro[9,10] - *p* - dioxin, 2,3-dihydro - 2 - phenyl - 3 - *p* - tolyl-, 2984*d*.

**$C_{29}H_{32}O_4$** 9-Anthracenecrotonic acid, 10-(2-furyl)-γ-hydroxy-, benzyl ester, 4252*f*.

**$C_{29}H_{33}ClN_2O_2S_3$** Anthraquinone, 1,4-diamino-(chloromethyl) - 2,3 - bis(*p* - tolylmercapto)-, P 8163*g*.

**$C_{29}H_{33}N$** Acrylonitrile, β-(*p*-phenethylphenyl)-α,β-diphenyl-, 7007*a*.

**$C_{29}H_{33}N_3O_{10}S_2$** Anthranilic acid, *N*-(2-amino-3 - sulfo - 1 - anthraquinonyl) - 5-[(*o* - methoxyphenyl)sulfamyl]-, Me ester, P 7709*i*.

**$C_{29}H_{33}N_3O_7$** Quinoline, 3-toluidino-2-*p*-tolyl-, picrate, 8392*f*.

**$C_{29}H_{33}N_3O_8$** Quinoline, 3-*p*-methoxyanilino-2-*p*-tolyl-, picrate, 8392*f*.

**$C_{29}H_{34}N_2O_2$** Benzanilide, 4',4'''-cyclopropylidenedi-(?), 9042*g*.

**$C_{29}H_{34}N_4O_4$** 2-Butanone, 4 - (9 - fluorenyl) - 4-phenyl-, 2,4-dinitrophenylhydrazone, 9058*h*.

**$C_{29}H_{34}N_4O_7$** Isoquinoline, 1,3-dibenzyl-3,4-dihydro-, picrate, 5027*b*.

**$C_{29}H_{34}N_4O_8$** Nicotinic acid, tetraester with pentaerythritol, 2623*a*.

**$C_{29}H_{34}O_4$** 1,3-Propanediol, 2,2-diphenyl-, dibenzoate, 9042*g*.

**$C_{29}H_{34}O_4S$** 2,4-Diphenyl-6-(4-phenyl-1,3-butadienyl)pyrrylium carboxymethanesulfonate, P 6100*g*, P 7849*d*.

**$C_{29}H_{34}O_7$** 1 - Indancarboxylic acid, 1,2-dihydroxy - 2 - (3 - methyl - 2 - butenyl)-3-oxo-, dibenzoate, 1384*c*.

**$C_{29}H_{34}O_{16}$** Flavone, 3,3',4',5,6,7,8-heptahydroxy-, heptaacetate, 1775*a*.

**$C_{29}H_{35}BrN_2S_2Se$** 2 - [3 - (1 - Ethylnaphtho[1,2]thiazol - 2(1*H*) - ylidene) - 2-methylmercaptopropenyl] - 1 - methyl naphtho[1,2]selenazolium bromide, P 4159*g*.

**$C_{29}H_{35}ClN_2O_4S_2$** 3 - (1 - Naphthyl) - 2 - [3-[3 - (1 - naphthyl) - 2 - thiazolinylidene]propenyl] - 2 - thiazolinium perchlorate, P 7843*i*.

**$C_{29}H_{35}N_3O_2S_2$** 2 - [3 - Cyano - 5 - (3 - methyl-2 - benzothiazolinylidene)- 1,3 - pentadienyl] - 3 - methylbenzothiazolium *p*-toluenesulfonate, P 7842*g*, P 7844*c*.

**$C_{29}H_{35}N_3O_{13}$** Pyridine, 2-[α-(2-imidazolin-2-ylmethoxy) - α - methylbenzyl]-, dipicrate, 6620*c*.

**$C_{29}H_{35}N_3O_4$** *o*-Terphenyl-?-amine, butyl-, *p*-nitrobenzoyl deriv., 4656*c*.

**$C_{29}H_{36}N_4O_8$** 3,5-Dinitrobenzoate, m. 227°, 4234*h*.

**$C_{29}H_{36}O_2$** Propionic acid, β,β-diphenyl-, β-phenylphenethyl ester (?), 1379*c*.

**$C_{29}H_{36}O_4$** Acetophenone, 2,3,6-tris(benzyloxy)-, 3414*d*.

**$C_{29}H_{36}O_7$** 1-Indancarboxylic acid, 1,2-dihydroxy - 2 - isoamyl - 3 - oxo-, dibenzoate, 1384*c*.

**$C_{29}H_{37}Hg_2N_3O_4$** Phthalimide, *N*,*N'*-[(mesitylimino)bis(ethylenemercuri)]di-, 7449*d*.

**$C_{29}H_{37}NO_2$** 1-Propanol, 2-benzyl-2,3-diphenyl-, carbanilate, 1350*h*.

**$C_{29}H_{37}NO_5S$** 2-(*p*-Dimethylaminostyryl)-4,6-diphenylpyrylium carboxymethanesulfonate, P 6100*f*, P 7849*d*.

**$C_{29}H_{37}N_3$** 2 - Pyrazoline, 4 - benzylamino-1,5-diphenyl-3-*p*-tolyl-, 3389*g*.

**$C_{29}H_{38}N_2S$** Urea, tetrabenzylthio-, P 1798*f*.

**$C_{29}H_{38}N_4O_2$** Benzamidine, *p*,*p'*-(trimethylenedioxy)bis[*N*-phenyl-, 7444*f*.

**$C_{29}H_{38}N_4O_4$** 6 - (*p* - Acetamidobenzamido)-α - (*p* - aminobenzylidene) - 1 - methylquinaldinium acetate, 2275*f*, 7078*i*.

**$C_{29}H_{38}IN_3$** 4 - Ethyl - 3 - (4 - ethyl - 2,4 - dihydro - 1*H* - cyclopenta[*b*]quinolin-3 - ylmethylidyne) - 2,3 - dihydro-1*H* - cyclopenta[*b*]quinolinium iodide, 3001*f*.

**$C_{29}H_{38}IN_3O_2S_4$** 3 - Ethyl - 2 - {[3 - ethyl - 5-[3 - ethyl - 5 - (3 - ethyl - 2 - benzothiazolinylidene) - 4 - oxo - 2 - thiazolidylidene] - 4 - oxo - 2 - thiazolidylidene]methyl}benzothiazolium iodide, P 4164*a*.

**$C_{29}H_{39}N$** Benzylamine, *N*,*N*-dimethyl-α-(1,2,2 - triphenylethyl) - (?), *and* -*HCl*, 6177*d*.

Ethylamine, *N*,*N* - dimethyl - 2,2 - diphenyl - 1 - (α - phenyl - *o* - tolyl) - (?), *and* -*HCl*, 6177*d*.

**$C_{29}H_{39}NO_3$** Cinchoninic acid, 2-(6- isoamoxy-3,4-xylyl)-3-phenyl-, 7924*i*.

**$C_{29}H_{39}N_3O_8S_2$** Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5-(cyclohexylsulfamyl)-, Et ester, P 7709*i*.

**$C_{29}H_{39}N_3O_3$** Diethylamine, *N*-methyl-2,2'-bis(*p*-phenylazophenoxy)-, 348*h*.

**$C_{29}H_{39}N_3O_5$** *sec*-Pseudostrychnine, *N*-acetyl-, *p*-nitrophenylhydrazone, 239*c*.

**$C_{29}H_{39}N_3O_{10}$** Methyldesoxyvomicinium picrate, 7945*b*.

Methylneodesoxyvomicinium picrate, 7946*c*.

**$C_{29}H_{39}N_3O_{13}$** Quinoline, 8-(1-ethyl-2-pyrrolidylmethylamino) - 6 - methoxy-, dipicrate, 7019*i*.

**$C_{29}H_{39}O_3P$** Methanephosphonic acid, 4-biphenylyldiphenyl-, di-Et ester, 1347*a*.

**$C_{29}H_{39}ClN_2O_2$** *o*-Cresol, 6-allyl-4-(6-chloro-2-methoxy - 9 - acridylamino) - α - 1-piperidyl-, P 1068*e*.

**$C_{29}H_{39}ClN_2O_{14}$** Quinoline, 7-chloro-4-(3-diethylaminopropylamino) - 3 - methyl-, dipicrate, 5401*f*.

**$C_{29}H_{40}N_2$** Dibenzylamine, 4,4''-methylenebis-, *and di-HCl*, 3382*d*.

**$C_{29}H_{40}N_4O_7$** Acetophenone, *p*-(α,β-diethyl-*p*-methoxystyryl) - α - hydroxy-, 2,4-dinitrophenylhydrazone, acetate, 4655*b*.

**$C_{29}H_{40}N_4O_2$** Malonamide, α,α - diallyl-*N*,*N'* - bis(4 - amino - 2 - methyl - 6-quinolyl)-, *di-HCl*, 1778*d*.

**$C_{29}H_{40}N_{10}$** Biguanide, 1,1'-(methylenedi-*p*-phenylene)bis[5 - phenyl-, *and di-HCl*, P 2230*a*.

**$C_{29}H_{40}O_7$** Arabofuranoside, methyl triphenylmethyl-, diacetate, 7430*d*.

**$C_{29}H_{41}ClF_3N_3O$** Acridine, 6-chloro-9-[α-(3-diethylaminopropyl) - *m* - (trifluoromethyl)benzylamino] - 2 - methoxy-, *di-HCl*, 2211*e*.

**$C_{29}H_{41}I_2N_3S_2Se_2$** 2,2' - [3 - (3 - Ethyl - 4-methyl - 4 - thiazolin - 2 - ylidene) - 1,4-pentadienylene]bis[3 - ethylbenzoselenazolium iodide], 2529*d*

**$C_{29}H_{41}I_2N_3S_2$** 2,2' - [3 - (3 - Ethyl - 4-methyl - 4 - thiazolin - 2 - ylidene)-1,4 - pentadienylene]bis[3 - ethylbenzothiazolium iodide], 2529*d*.

**$C_{29}H_{41}N_3O_{15}$** Quinoline, 8-(2-isopropylaminobutylamino) - 6 - methoxy-, dipicrate, 3419*g*.

**$C_{29}H_{42}N_2O_3$** Benzylidene deriv., m. 185°, 7944*f*.

**$C_{29}H_{42}N_2O_5$** Anthraquinone, 1-[β-(2-ethoxyethoxy) - *p* - phenetidino] - 4 - (2-methoxyethylamino)-, P 3205*e*.

**$C_{29}H_{42}N_2O_7$** Anthraquinone, 1-{β-[2-(2-hydroxyethoxy)ethoxy] - *p* - phenetidino} - 4 - (2 - methoxyethylamino) -, P 3205*e*.

**$C_{29}H_{42}N_4O_7S$** Quinoline, 6-methyl-3-nonyl-2-(2-thienyl)-, picrate, 228*d*.

**$C_{29}H_{42}N_4O_8S_2$** Benzamidine, *p*,*p'*-(trimethylenedioxy)di-, bis(benzenesulfonate), P 2231*a*, P 5038*g*.

**$C_{29}H_{42}N_4O_{11}$** Acrylic acid, β,β-bis(*p*-methoxyphenyl)-, 2-diethylaminoethyl ester, picrate, 7464*d*.

**$C_{29}H_{42}N_4O_2$** Malonamide, α-allyl-*N*,*N'*-bis-(4 - amino - 2 - methyl - 6 - quinolyl)-α-propyl-, *di-HCl*, 1778*d*.

**$C_{29}H_{42}O_{11}$** Glucoside, 3-methoxy-5-styrylphenyl, tetraacetate, 5017*e*.

**$C_{29}H_{42}ClN_7O_4$** Emitine, dehydro-, chloride, 656*a*.

**$C_{29}H_{42}NO_{11}$** Acetic acid, bis(4 - hydroxy - 2-oxo - 1,2*H* - benzopyran - 3 - yl)-, Pr ester, salt with $N(CH_2CH_2OH)_3$, 5309*f*.

**$C_{29}H_{42}N_2O_6S_2$** Glycine, *N*,*N'* -(2,4,6-trimethyl - 5 - nitro - *m* - phenylene)bis-*N* - (phenylsulfonyl)-, di - Et ester, 1736*c*.

**$C_{29}H_{42}N_8O_{12}$** See *Glutamic acid, pteroyldiglutamyl-*.

**$C_{29}H_{43}ClN_2O_2$** *o* - Cresol, 4 - *tert* - butyl - 6-(6 - chloro - 2 - methoxy - 9 - acridylamino) - α - diethylamino-, *di-HCl*, P 1068*d*, P 7516*c*.

*o*-Cresol, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - dibutylamino-, *di-HCl*, P 1068*d*.

**$C_{29}H_{43}N_3O_6$** Uvitic acid, α,α-bis(*p* - dimethylaminophenyl) - α - hydroxy-, P 4968*a*.

**$C_{29}H_{43}N_3O_6S_2$** Glycine, *N*,*N'* - (2,4,6 - trimethyl - *m* - phenylene)bis[*N* - (phenylsulfonyl)-, di-Et ester, 1736*g*.

**$C_{29}H_{43}N_4O_4$** Butyranilide, 5-(*p*-acetamidophenylazo) - α - (*p* - amylphenoxy) - 2-hydroxy-, P 4164*g*.

**$C_{29}H_{44}N_6O_2$** Azelaamide, *N*,*N'* - bis(4 - amino - 2 - methyl - 6 - quinolyl)-, *di-HCl*, 1778*c*.

Malonamide, *N*,*N'* - bis(4 - amino - 2-methyl - 6 - quinolyl) - α,α - dipropyl-, di- *HCl*, 1778*d*.

**$C_{29}H_{44}N_{12}O_{11}$** Piperidine, 4-(2-dimethylaminoethylamino) - 1 - ethyl-, tripicrate, 2207*c*.

**$C_{29}H_{44}O_4$** Benzoic acid, 2,5-bis(benzyloxy)-, octyl ester, 7003*h*.

**$C_{29}H_{45}IN_2$** 1-Isoamyl-α-(1-isoamyl-4(1*H*)-quinolylidene)lepidinium iodide, 8444*d*.

**$C_{29}H_{46}NO_2$** 3-Heptanol, 6-dimethylamino-4,4 - diphenyl-, phenylacetate, - *HCl*, 3391*c*.

**$C_{29}H_{33}N_3$** Pyrimidine, 4,6-bis(*p*-dimethylaminostyryl)-2-(1-piperidyl)-, 3427*a*.

**$C_{29}H_{46}ClNO_2$** 2-Naphthamide, 4-chloro-*N*-[2 - (2,4 - di - *tert* - amylphenoxy)-ethyl] - 1 - hydroxy-, P 8293*c*.

**$C_{29}H_{46}N_2O_4$** Emetine, tetrahydrodehydro-, 656*a*.

**$C_{29}H_{46}N_2O_7$** Butyric acid, α,γ-dihydroxy-β,β-dimethyl-, γ-lactone, complex with brucine, P 1056*g*.

**$C_{29}H_{46}N_2O_{11}$** Glucuronic acid, brucine salt, 2943*c*.

**$C_{29}H_{46}N_2O_2S$** Benzenesulfonamide, *p*-[8-(4-diethylamino - 1 - methylbutylamino)-6 - methoxy - 5 - quinolylazo] - *N* - 2-pyrimidyl-, 9267*b*.

**$C_{29}H_{46}O_4$** 1,2,4-Naphthalenetriol, 3-[3-(decahydro - 2 - naphthyl)propyl]-, triacetate, 1375*a*.

**$C_{29}H_{47}NO_2$** 2-Naphthamide, *N*-[2-(2,4-di-*tert*-amylphenoxy)ethyl] - 1 - hydroxy-, P 8293*c*.

**$C_{29}H_{47}NO_2$** Acrylic acid, β,β-di-*p*-tolyl-, 2 - diethylaminoethyl ester, citrate, 7464*d*.

**$C_{29}H_{48}N_2O_4$** Psychotrine, *O*-methyl-, 656*f*.

**$C_{29}H_{48}N_2O_4S_2$** Benzenesulfonamide, *N*,*N'*-(2,4,6 - trimethyl - *m* - phenylene)bis-[*N*-butyl-, 1735*g*.

**$C_{29}H_{48}N_2O_6$** Compd., m. 235–8°, 210*i*.

**$C_{29}H_{48}N_4O_4S$** Penicillin G, procaine salt, 3146*h*.

**$C_{29}H_{48}O_4$** 5-Androstene, 3(β),17-dihydroxy-16 - methyl-, 3- acetate, 17-benzoate, 1429*f*.

Chlorophorin, tetra-Me ether, 5388*b*.

1,4-Naphthoquinone, 2-[12-(2-cyclopenten - 1 - yl)dodecyl] - 3 - hydroxy -, acetate, 1378*a*.

**$C_{29}H_{49}ClN_2O$** 4-Quinolinemethanol, 5-chloro-α - (dihexylaminomethyl) - 2 - phenyl-, *di-HCl*, 5860*f*.

**$C_{29}H_{49}NO_2$** Propionic acid, β,β - di - *p* - tolyl-, 2-diethylaminoethyl ester, citrate, 7464*d*.

**$C_{29}H_{49}NO_2S$** Acetic acid, diphenyl-, 3-(2-diethylaminoethyl)propyl ester, citrate, 3395*b*.

**$C_{29}H_{49}NO_{10}S$** Benzilic acid, 3-(2-diethylaminoethylmercapto)propyl ester, citrate, 3395*c*.

**$C_{29}H_{49}ClN_2O$** *o*-Cresol, 4-(7-chloro-3-methyl-4 - quinolylamino) - α - dihexylamino-, *di-HCl*, P 7516*d*.

**$C_{29}H_{50}N_2O$** 4-Quinolinemethanol, α-(diamylaminomethyl) - 6,7 - dimethyl - 2-phenyl-, *di-H Br*, 4675*b*.

**$C_{29}H_{50}N_2O_2S$** Sparteine, ω-butyl-*N*-(2-naphthylsulfonyl)-, 1048*a*.

**$C_{29}H_{50}N_2O_4$** See *Emetine*.

**$C_{29}H_{50}N_4O_4$** Bisnor-5-cholenaldehyde, 3-methoxy-, 2,4 - dinitrophenylhydrazone, 658*i*.

**$C_{29}H_{50}O_2$** Bisnor-5-cholenaldehyde, 3-(benzyloxy)-, 658*i*.

**$C_{29}H_{50}O_3$** 2-Phenanthrenecarboxylic acid, 1 - ethyl - 1,2,3,4 - tetrahydro - 7-methoxy - 2 - methyl-, menthyl ester, P 5805*b*.

**$C_{29}H_{50}O_{13}$** Yatanoside, triacetate, 9377*h*.

**$C_{29}H_{51}ClO$** Bisnor-5-cholene, 22-phenyl-3-methoxy-22-chloro-, 3018*g*.

**$C_{29}H_{51}NO_4$** Jervine, *N*-acetyl-, 658*f*.

**$C_{29}H_{51}NO_{10}$** Glucosamine, octaacetylmannosido-*N*-methyl-, 3367*f*.

**$C_{29}H_{47}ClN_2O$** Acridine, 9-[3-(*sec*-butylisoamylamino) - 1 - ethylisobutylamino]-6-chloro-2-methoxy- P 1068*a*.

**$C_{29}H_{52}Cl_2O_4$** Resorcinol, 2,2'-methylenebis-[4 - chloro - 6 - (1,1,3,3 - tetramethylbutyl)-, 7923*h*.

**$C_{29}H_{52}O_2$** Bisnor-5-cholene, 22-phenyl-3-methoxy-22-hydroxy-, 658*i*, 3018*g*.

**$C_{29}H_{52}O_4$** $\Delta^{\alpha,\beta}$ - Butenolide, β - (3 - hy-

(3 - ethyl - 2- thiazolidylidene) - 1,4-pentadienyl] - 1 - ethylquinolinium iodide, ethiodide, 2530*i*.

$C_{30}H_{33}N_3O_5S_3$ 3 - Ethyl - 2 - [{3 - ethyl - 5-[2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene}methyl] - 4 - methylthiazolium *p* - toluenesulfonate, P 4163*h*.

$C_{30}H_{34}N_2O_6$ *p*-Quinone, dioxime bis(amoxybenzoate), 5623*c*.

$C_{30}H_{34}O_4$ Compd., m. 168–8.5°, 3797*h*.

*o*-Cresol, 4,4'-(diethylideneëthylene)bis-[6 - allyl-, diacetate, 4247*d*.

$C_{30}H_{34}O_{13}$ See *Picrotoxin*.

$C_{30}H_{33}IN_2S_2$ 3 - Ethyl - 2 - [{3 - (3 - ethyl - 5-methyl - 2 - benzothiazolinylidenemethyl) - 5,5 - dimethyl - 2 - cyclohexen - 1 - ylidene]methyl] - 5 - methylbenzothiazolium iodide, P 55*d*.

$C_{30}H_{36}$ Styrene, *p*,α-dimethyl-, trimer, P 1224*g*.

$C_{30}H_{38}N_2O$ 2(1*H*) - Isoquinolinepropanol, 3,4 - dihydro - α - methyl - α,γ - diphenyl-β-1-piperidyl-, 7025*c*.

$C_{30}H_{38}N_2O_8S_4$ Thiazole, 4,4'-decamethylenebis[2 - [*p* - (methylsulfonyl)phenyl]-, 1740*f*.

$C_{30}H_{38}N_2O_{10}$ Galactoside, (*p*-phenylazophenyl), tetrapropionate, 6919*f*.

Glucoside, (*p* - phenylazophenyl), tetrapropionate, 6919*e*.

$C_{30}H_{38}N_4O_9$ Propionic acid, ester with 6-dimethylamino - 4,4 - diphenyl - 3-heptanol, picrate, 192*b*.

$C_{30}H_{38}N_6O_2$ Sebacamide, *N*, *N'* - bis(4-amino - 2 - methyl - 6 - quinolyl)-, di-*HCl*, 1778*c*.

$C_{30}H_{36}O_6$ Cyclohexane, 1,3,5-tris(*p*-methoxybenzyl)-, 3797*e*.

$C_{30}H_{37}ClN_4O_2$ 2,4-Xylenol, 6-(6-chloro-2-methoxy - 9 - acridylamino) - α², α⁴-bis(diethylamino)-, *tri*-*HCl*, P 1068*e*, P 7516*c*.

$C_{30}H_{37}N_3O_5$ $\Delta^{1,3,5}$-Cholatrienic acid, 3-hydroxy - 1 - methyl - 10 - normethyl-, *p*-nitrophenylazo deriv., 7494*g*.

$C_{30}H_{37}N_5O_5$ Ergosine, P 3474*d*, 4776*a*, 7128*a*.

$C_{30}H_{38}IN_3$ 2,6 - Bis(*p* - diethylaminostyryl) - 1-methylpyridinium iodide, 7024*e*.

$C_{30}H_{38}N_4O_5S_2$ Valine, β,β'-dithiobis[*N*-(*N*-phenylacetylglycyl)-, 4668*e*.

$C_{30}H_{38}N_4O_4$ Ketone, (cyclohexylmethyl)-, dimer, bis(*p* - nitrophenylhydrazone), 2964*e*.

$C_{30}H_{38}O_2$ Phenol, 4,4'-(1,2-diethylideneethylene)bis[2 - cyclohexyl-, 3812*i*.

$C_{30}H_{38}O_4$ Carvacrol, 5,5'-(diethylideneethylene)di-, diacetate, 614*b*.

Thymol, 6,6'-(diethylideneëthylene)di-, diacetate, 614*a*.

$C_{30}H_{38}O_7S$ 4 - Pregnene - 12(α),21 - diol-3,20 - dione, 21 - acetate 12(α) - *p*-toluenesulfonate, 1788*c*.

$C_{30}H_{38}IN_2O_4$ Emetin, tetrahydrodehydro-, methiodide, 656*h*.

$C_{30}H_{39}NO_3$ 2 - Naphthamide, *N* - [4 - (4-*tert*-amyl - 1 - butyl - phenoxy)butyl] - 1-hydroxy-, P 8293*c*.

2 - Naphthamide, *N* - [3 - (2,4 - di - *tert*-amylphenoxy)propyl] - 1 - hydroxy-, P 8293*d*.

$C_{30}H_{39}N_5O_5$ Ergosine, dihydro-, P 3474*d*.

$C_{30}H_{39}O_4P$ Phenol, *p* - *tert* - butyl-, phosphate, P 2716*b*.

$C_{30}H_{40}ClN_3O$ Acridine, 6 - chloro - 9 - (3-dicyclohexylamino - 1 - methylpropylamino) - 2 - methoxy-, *and di*-*HCl*, P 2242*d*.

Acridine, 6 - chloro - 9 - (3 - dicyclopentylamino - 1 - ethylisobutylamino)-2-methoxy-, P 1068*a*.

$C_{30}H_{40}ClN_3O_2$ *o*-Cresol, 6-allyl-4-(5-chloro-8-methoxy - 4 - quinolylamino) - α-diamylamino-, P 7515*e*.

$C_{30}H_{40}Cl_2N_4O_2$ 1 - Piperidinepropionanilide, 2',2'' - azoxybis[4' - chloro - α-methyl-, 2993*b*.

$C_{30}H_{40}CuN_2O_6$ Copper complex, m. 228–30°, 2999*a*.

$C_{30}H_{40}N_2O_4S$ Camphorsulfonic acid, salt with quinine, 7642*c*.

$C_{30}H_{40}O$ 4,23-Choladien-3-one, 24-phenyl-, 4281*i*.

$C_{30}H_{40}O_2$ 4-Cholene, 3,24-diketo-24-phenyl-, 3433*e*.

$C_{30}H_{40}O_4$ 4,4'-Stilbenediol, α,α'-diethyl-, dicaproate, P 2641*e*.

$C_{30}H_{40}O_5$ Pregnane-3(α),20(β)-diol-11-one, 3-acetate 20-benzoate, 6211*b*.

$C_{30}H_{40}O_6$ Pregnane - 3(α),17(α),20(α) - triol - 11 - one, 3 - acetate 20 - benzoate, 6213*b*.

$C_{30}H_{40}O_{13}$ Glucoside, [(diethylvinylene)di-*p*-phenylene]di-, P 3039*h*.

$C_{30}H_{41}NO_2S$ Isobutyric acid, β,β'diphenyl-, 2 - (2 - diethylaminoethylmercapto)-ethyl ester, citrate, 3395*d*.

$C_{30}H_{41}NO_2S_2 + H_2O$ Acetic acid, diphenyl-, 2 - [2 - (2 - diethylaminoethylmercapto)ethylmercapto]ethyl ester, citrate, 3395*c*.

$C_{30}H_{41}N_3O_4$ 3-Quinolinecarboxylic acid, 4-(α - diamylamino - 4 - hydroxy - *m*-toluidino) - 6 - methoxy-, Et ester, *di*-*HCl*, P 7515*d*.

$C_{30}H_{42}$ 1,3,7,9-Decatetraen 5-yne, 3,8-dimethyl - 1,10 - bis(2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 2588*d*.

$C_{30}H_{42}ClN_3O$ *o*-Cresol, 4-(7-chloro-8-quinolylamino) - α - diheptylamino-, *and di*-*HCl*, P 7515*c*.

$C_{30}H_{42}N_4O_4$ 2,4,6,8 - Tetrazanonane, 2-(4 - hydroxy - α - mesityl) - 1,9 - bis-(4-hydroxy-3,5-xylyl)-(?), 5995*c*.

$C_{30}H_{42}N_4O_5$ 5 - Cholen - 24 - al,3(β) - hydroxy-, 2,4 - dinitrophenylhydrazone, 3433*a*.

$C_{30}H_{42}O$ 5,23 - Choladien - 3(β) - ol, 24-phenyl-, 4281*h*.

$C_{30}H_{42}O_2$ 5 - Cholene, 3(β) - hydroxy - 24-keto-24-phenyl-, 3433*f*.

Phenol, 4,4' - (1,2 - diethylethylene)bis-[2-cyclohexyl-, 3812*i*.

$C_{30}H_{42}O_3$ Stearic acid, (dibenzofuryl)-, 9028*g*.

$C_{30}H_{42}O_4$ 1,4 *H* - Benzopyran - 6 - acrylic acid, 3-hexadecyl-7-hydroxy-β,2-dimethyl - 4 - oxo-, δ-lactone, 6621*h*.

Carvacrol, 5,5'-(1,2-diethylethylene)di-, diacetate, 614*c*.

Estrone, (menthyloxy)acetate, 3432*b*.

Thymol, 6,6' - (1,2 - diethylethylene)di-, diacetate, 614*b*.

$C_{30}H_{42}O_6$ Hydrobenzoin, α,α'-diethyl 4,4'-dihydroxydiisopropyldimethyl-, 4,4'-diacetate, 613*i*, 614*a*.

$C_{30}H_{42}O_7S$ Etiocholanic acid, 3(α),12(β)-dihydroxy-, Me ester 3(α)-acetate 12(β)-*p* toluenesulfonate, P 5428*h*.

Pregnane - 3(α),17(α),20(α)-triol-11 one, 3 - acetate 20 - *p* toluenesulfonate, 6214*f*.

$C_{30}H_{42}O_{10}$ Hellebrin, desgluco-, 7141.

Ouabagenin, acetone-, diacetate, 1792*g*.

$C_{30}H_{42}O_{12}$ Glucoside, [(1,2 - diethylethylene)di-*p*-phenylene]di , P 7048*b*.

$C_{30}H_{43}IN_2O_4S$ Oleanilide, *p*-(*p*-iodophenylsulfamyl)-(?), 4649*b*.

$C_{30}H_{43}N$ Stearonitrile, biphenylyl-, P 7968*f*.

$C_{30}H_{43}NO_4$ Glutaric acid, α-(α-diethylaminobenzyl) - β - phenyl-, di-*tert*-Bu ester, 7002*h*.

$C_{30}H_{43}NO$ *o* - Cresol, α-dihexylamino - 4-(6,7 - dimethyl - 4 - quinolylamino)-, P 7515*b*.

$C_{30}H_{44}N_2O_2$ Bisnor-5-cholenaldehyde, 3-(benzyloxy)-, semicarbazone, 6581.

$C_{30}H_{44}N_4O_2$ Phenol, *p*-cyclohexyl-, compd. with hexamethylenetetramine, 5993*i*.

$C_{30}H_{44}O_2$ 5-Cholene-3(β),24-diol, 24-phenyl-, 3433*b*.

Stearic acid biphenylyl-, 2175*g*, 9028*g*.

$C_{30}H_{44}O_4$ 1,14 - Picenedione, 2,3,4,4a,5,6,-6a,6b,7,8,8a,9,10,11,12,12a - hexadecahydro - 10 - hydroxy - 2,2,4a,6a,-6b,9,9,12a-octamethyl-, 5385*g*.

Stearic acid, (phenoxyphenyl), 9028*g*.

$C_{30}H_{44}O_4$ Lanostenone, triketodihydro-, 7495*f*.

$C_{30}H_{44}O_5$ Umbelliferone, 4-methyl-6-stearoyl , acetate, 6621*h*.

$C_{30}H_{46}O_6$ Cholanic acid, 7,12-diketo-3-(carboxymethylene)-, di-Et ester, 1431*c*.

Ethyl ester, m. 150–1°, 1431*e*.

$C_{30}H_{46}O_9$ Cymarin, 1430*g*, 2371*b*.

$C_{30}H_{46}O_{10}$ Cymarylic acid, *and K salt*, 1430*g*.

$C_{30}H_{48}NO_6$ Dehydrocholic acid, ester with 4-morpholineëthanol, P 1814*f*.

$C_{30}H_{49}N_3O_4S$ Camphorsulfonic acid, salt with dibucaine, 7642*c*.

$C_{30}H_{50}$ Isoagnostadiene, 3830*b*.

$C_{30}H_{48}Cl_2N_2O_6$ 1,8 - Octanediamine, *N*, *N'*-bis(*o* - chlorophenethyl)-, dilactate, 3379*b*.

$C_{30}H_{48}I_2N_2O_4$ Isoquinoline, 1,1'-hexamethylenebis[1,2,3,4 - tetrahydro-6,7 - dimethoxy-, dimethiodide, 2624*g*.

$C_{30}H_{48}N_2$ 4,4' - Stilbenediamine, *N*, *N*, *N'*, *N'* - tetrabutyl-, *and di*-*HCl*, 3380*i*.

$C_{30}H_{48}N_2O_2$ Triethylamine, 2,2''' - [diethylvinylenebis(*p* - phenyleneoxy)]bis-, 8060*a*.

$C_{30}H_{48}N_2O_4Si$ Acetic acid, [1 - (triethylsilyl)-ethylmercapto]-, compd. with quinine, 5003*i*.

$C_{30}H_{48}O_2$ Arnidione, 1750*g*.

2,8 - Decadien - 5 - yne - 4,7 - diol, 3,8-dimethyl - 1,10 - bis(2,6,6 - trimethyl-1-cyclohexen-1-yl)-, 2588*f*.

Faradione, 1750*h*.

Lanostene, diketo-, 242*f*.

Stearic acid, (dimethylnaphthyl)-, 9028*g*.

$C_{30}H_{48}O_3$ Stearic acid, (ethoxynaphthyl)-, 9028*g*.

$C_{30}H_{48}O_4$ Lanosterol, triketodihydro-, 7495*f*.

$C_{30}H_{48}O_5$ Ketone, m. 265°, 7463*f*.

$C_{30}H_{48}O_7$ Cholanic acid, 3-hydroxy-7,12-diketo - 3 - (carbethoxymethyl)-, Et ester, 1431*d*.

Odoroside, 7034*b*.

Somalin, P 823*d*.

$C_{30}H_{48}O_8$ Nerilifolin, 1791*e*.

Sarmentocymarin, 1430*a*.

$C_{30}H_{48}O_9$ Compd., m. 80°, from ozonization of α-elemolic acid, 7463*e*.

$C_{30}H_{47}BrO_3$ Betulinic acid, bromo-, 730*c*.

$C_{30}H_{47}N$ Heterolupenonitrile, 1750*i*.

$C_{30}H_{47}NO_3$ Dehydrocholic acid, 2-diethylaminoethyl ester, P 1814*f*.

$C_{30}H_{47}NO_3S$ Cyclohexaneacetic acid, α-phenyl-, 2 - (3 - diethylaminopropylmercapto)isopropyl ester, citrate, 3395*d*.

$C_{30}H_{48}$ Isolanostadiene, 3830*c*.

$C_{30}H_{48}Cl_6CO_2N_{28}$, 8941*g*.

$C_{30}H_{48}Cl_6Cr_2N_{28}$, 8941*g*.

$C_{30}H_{48}Co_2N_{28}O_{12}S_2$, 8941*g*.

$C_{30}H_{48}Co_2N_{28}O_{18}$, 8941*g*.

$C_{30}H_{48}Cr_2N_{28}O_{12}S_2$, 8941*g*.

$C_{30}H_{48}Cr_2N_{28}O_{18}$, 8941*g*.

$C_{30}H_{48}N_2$ 4,4'-Bi[benzylamine], *N*, *N*, *N'*, *N'*-tetrabutyl-, *di*-*HBr*, 3381*e*

α,α' - Bi - *p* - toluidine, *N*, *N*, *N'*, *N'*-tetrabutyl-, *and di*-*HCl*, 3380*i*.

1,10-Decanediamine, *N*, *N'* - bis(4-phenylbutyl)-, *di*-*HBr*, 3379*d*, P 3455*h*.

Heptylamine, *N*, *N'* - [ethylenebis(*p*-phenyleneethylene)]bis- *and di*-*HCl*, 3382*e*.

1,8-Octanediamine, *N*, *N'*-bis(5-phenylamyl)-, *di*-*HBr*, 3379*e*, P 3455*h*.

$C_{30}H_{48}N_2O_2$ Aniline, *p*,*p'*-(ethylenedioxy)-bis[*N*, *N* - dibutyl-, *di*-*HCl*, 3381*c*

Triethylamine, 2,2,''' - [1,2 - diethylethylenebis(*p* - phenyleneoxy)]bis-, 8060*a*.

$C_{30}H_{48}N_2O_2S$ Octadecylamine, *N*-*p*-sulfanilylphenyl-, P 2637*g*.

Stearic acid, 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.

$C_{30}N_{48}N_2O_4$ 1,10-Decanediamine, *N*, *N'*-bis-(3,4 - dimethoxyphenethyl)-, *salts*, P 3455*f* *and salts*, 3378*f*.

$C_{30}H_{48}N_2O_6$ 1,8-Octanediamine, *N*, *N'*-di phenethyl-, dilactate, 3379*c*, P 3455*c*.

$C_{30}H_{48}O$ Agnostenone, dihydro-, 7495*i*.

Alc., m. 114.5°, 4041*i*.

β-Amyradienol, 5385*c*.

Butyrospermone, 7463*b*.

Heterolupenal, 1750*i*.

$C_{30}H_{48}O_2$ Acetate, m. 141–3°, 9384*g*.

Cholesterol, 7 - dehydro-, propionate, P 700*g*.

$\Delta^{7(8),9(11)}$-Ergostadien-3(β)-ol, acetate, 7493*d*.

Ergostenol, dehydro-, acetate, 7492*i*

Ergosterol, dihydro-, acetate, 1428*a*.

Heterolupenic acid, 1751*a*.

Lanostane, diketo-, 242*g*.

$C_{30}H_{48}O_3$ Betulinic acid, 730*b*.

Butulonic acid, dihydro-, 730*c*.

Echinocystic acid, 2-desoxy-, 212*i*.

α-Elemolic acid, 7463*e*.

β-Elemolic acid, 7463*f*.

Lanostanone, diketo-, 242*f*.

Oleanolic acid, 1748*e*.

Platanin, 730*d*.

Platanol, 730*b*.

Platanolic acid, 730*d*.

$(C_{30}H_{48}O_3)_n$ Acid from Congo copal, 9052*c*.

Acid, m. 140–55°, 9052*a*.

Compd. from Congo copal, 9052*c*.

Compd., m. 140–55°, 9052*c*.

$C_{30}H_{48}O_4$ Cholesterol, 7-(formyloxy)-, acetate, 3021*a*.

Malonic acid, *i*-cholesteryl-, 3430*b*.

Sumaresinolic acid, 211*i*.

$C_{30}H_{48}O_5$ Asiatic acid, 8053*h*.

$C_{30}H_{48}O_9$ Compd. from ozonization of dihydro-α-elemolic acid, 7463*e*.

$C_{30}H_{48}O_{10}$ Caproic acid, ester with vitamin C, P 3154*c*.

Stearic acid, ester with vitamin C triacetate, P 3154*a*.

$C_{30}H_{48}O_{13}$ Periplocin, P 5811*b*.

$C_{30}H_{48}NO$ Heterolupenal, oxime, 1750*i*.

$C_{30}H_{48}NO_3$ Betulonic acid, dihydro-, oxime, 730*c*.

$C_{30}H_{50}$ (See also *Squalene*.)
Ambratriene, *and tri-HCl*, 3808*c*.
Compd., m. 184–5°, 3809*a*.
Heterolupene, 1750*h*.
$\Delta^2$-Lupene, 3809*a*.
Taraxastene, 1750*g*.
$C_{30}H_{50}Br_2NO$ Behenanilide, tribromo-*r*-ethyl-, 3781*a*.
Henelcosananilide, tribromo-18-propyl-, 3781*b*.
$C_{30}H_{50}N_2O_2$ Malonamide, *i*-cholesteryl-, 3480*c*.
$C_{30}H_{50}N_2O_4$ *p*-Quinone, dioxime dilaurate, 5623*c*.
$C_{30}H_{50}N_4$ Sarothamnine, 5543*b*.
$C_{30}H_{50}O$ (See also *Amyrin*.)
Agnosterol, dihydro-, 7495*i*.
Butyrospermol, 7462*i*.
Butyrospermone, dihydro-, 7463*c*.
Compd., m. 118.5°, 4041*i*.
Compd., m. 190–1°, 3809*c*.
Euphorol, 9512*f*.
Friedelin, 7925*i*.
Germanicol, 5385*b*.
Heterolupeol, 1750*f*.
Isocuphorol, 9512*f*.
Lanosterol, 242*c*, 3830*b*, 7495*f*.
Lupeol, 1751*c*.
Taraxasterol, 1750*f*.
Viscol, 1751*c*.
$C_{30}H_{50}O_2$ Arnidenediol, 1750*f*.
Diol, m. 128–30°, 3830*b*.
Diol, m. 140–2°, 3830*b*.
Ergosteneol, acetate, 1428*b*, 2680*h*, 7492*i*, 7493*a*.
Faradiol, 1750*f*.
Germanicol, oxy-, 5385*d*.
$\Delta^{12,13}$-Oleanene, 2,7-dihydroxy-, 211*i*.
Stearic acid, (cyclohexylphenyl)-, 9028*g*.
$C_{30}H_{50}O_3$ Cholesterol, 7-methoxy-, acetate, 3021*g*.
α-Elemolic acid, dihydro-, 7463*e*.
β-Elemolic acid, dihydro-, 7463*f*.
γ-Elemolic acid, 7463*e*.
Lanostanol, diketo-, 242*e*.
Oleanene, trihydroxy-, 1750*e*.
Ozonide, m. 165–70°, 3809*d*.
$C_{30}H_{50}O_3S$ 6-Chromanol, dimethylmethylmercapto - 2 - (4,8,12 - trimethyltridecyl)-, acetate, 2620*g*.
$C_{30}H_{50}O_4$ Compd. from oxidation of squalene, 7405*i*.
$C_{30}H_{50}O_8$ [2,2′-Binaphthalene]-1,1′-dicarboxylic acid, eicosahydro-6-hydroxy-2,2′,4′a,5,5,7′,8′,8a - octamethyl-, 6602*i*.
1-Indanacetic acid, 1-(1,5-dimethylhexyl)hexahydro - 5 - (4 - hydroxy - 1-methyl - 2 - oxocyclohexyl) - 7a-methyl-, Me ester acetate, 1789*h*.
$C_{30}H_{50}S$ Sulfide from squalene, 1001*i*.
$C_{30}H_{51}NO_2S$ Spiro[cholestane-3,2′-thiazolidine)-4′-carboxylic acid, 659*b*.
$C_{30}H_{52}BrNO$ Stearanilide, *p*-bromo-λ-hexyl-, 3781*b*.
$C_{30}H_{52}N_2$ 1,10-Decanediamine, *N*, *N*′-bis-(1,1-diallyl-3-butenyl)-, *and salts*, 3379*i*.
$C_{30}H_{52}N_2O_6$ Oleanilide, *p*-(*N*-D-sorbitylamino)-, P 4499*d*.
$C_{30}H_{52}N_2S_4$ Thiazole, 2,2′-dithiobis[4-dodecyl-, 633*h*.
$C_{30}H_{52}N_4O_8$ 12-Tetracosanone, 13-hydroxy-, 2,4-dinitrophenylhydrazone, 3791*h*.
$C_{30}H_{52}O$ Ambrein, 1748*e*.
Butyrospermol, dihydro-, 7463*c*.
Epilupan-2-ol, 3808*h*.
Lanosterol, dihydro-, 7495*h*.
Lupan-2-ol, 3808*h*.
1 - Naphthalenebutanol, α - [2 - (2,2 - dimethyl - 6 - methylenecyclohexyl)-ethyl] - 1,4,4a,5,6,7,8,8a - octahydro-α,2,5,5,8a-pentamethyl-, 3808*e*.
$C_{30}H_{52}O_2$ 6-Chromanol, 5,7-diethyl-2-methyl-2-(4,8,12-trimethyltridecyl)-, P 821*i*.
6-Chromanol, 8-ethyl-2,5,7-trimethyl-2-(4,8,12-trimethyltridecyl)-, P 822*a*.
Diol, 3830*c*.
Diol, m. 189–90°, 3809*c*.
Ergostanol, acetate, 1428*b*, 2680*h*, 9241*g*.
Heterolupanediol, 1751*b*.
Stearic acid, (diisopropylphenyl)-, 9028*f*.
—, (triethylphenyl)-, 9028*f*.
Taraxastanediol, 1751*b*.
$C_{30}H_{52}O_3S$ 2,3-Cholestanediol, acetate, methanesulfonate, 3832*a*.
$C_{30}H_{52}N_2O_3$ Oleamide, *N*-[2-[acetoacetyl(2-acetoacetylaminoethyl)amino]ethyl]-, P 4289*c*.
$C_{30}H_{54}Co_3N_{18}O_6$, 8941*f*.
$C_{30}H_{54}Co_4N_{12}O_{24}$, 7364*h*.
$C_{30}H_{54}Cr_2N_{18}O_6$, 8941*g*.
$C_{30}H_{54}N_2O_4$ Octadecylnicotinium acetate, P 3909*a*.
$C_{30}H_{54}N_2O_6$ Stearanilide, *p*-(*N*-D-sorbitylamino)-, P 4499*d*.
$C_{30}H_{54}O_6$ Aconitic acid, tris(2-ethylhexyl) ester, P 7634*e*.
$C_{30}H_{56}ClN_3O$ Benzyldimethyl(3-stearoylaminopropyl)ammonium chloride, P 2630*i*.
$C_{30}H_{56}N_2$ 1,10-Decanediamine, *N*, *N*′-digeranyl-, *di-HBr*, 3380*a*.
$C_{30}H_{56}O_2$ Stearic acid, (4-cyclohexylcyclohexyl)-, 2175*g*.
$C_{30}H_{56}O_4$ Caproic acid, β-propyl-, triglyceride, 6165*f*.
Enanthic acid, β-ethyl-, triglyceride, 6165*g*.
1,3 - Propanediol, 2 - amyl - 2 - (hydroxymethyl)-, trienanthate, 6576*c*.
$C_{30}H_{57}NO_4$ Caproic acid, α-ethyl-, diester with α-ethyl-*N*, *N*-bis(2-hydroxypropyl)caproamide, P 7751*c*.
$C_{30}H_{58}N_4$ Tridecanenitrile, 2,2′-ethylenediiminobis[α-methyl-, 4415*h*.
$C_{30}H_{59}NO$ Oleamide, *N*-dodecyl-, 8353*h*.
$C_{30}H_{59}NO_2$ Stearamide, *N*-dodecyl-θ,ι-epoxy-, 8354*b*.
$C_{30}H_{59}NO_4$ Imidodicarboxylic acid, ditetradecyl ester, 4228*g*.
$C_{30}H_{60}N_2O_4$ Ethanol, 2,2′-[[2-[2-(8-heptadecenyl) - 2 - imidazolin - 1 - yl]ethylimino]bis(ethyleneoxy)]bis-, P 5180*e*.
$C_{30}H_{60}I_4N_2O_2$ [Phenenyltris(oxyethylene)]-tris[triethylammonium iodide], 5501*g*, 5504*e*, 5873*h*, 6365*e*, 7132*b*, 8099*g*, 8558*i*.
$C_{30}H_{60}N_2O$ 1-Piperazineethanol, 2,2,5,5-tetramethyl - 4 - [2 - [2,2,5,5 - tetramethyl - 4 - [2 - (2,2,5,5 - tetramethyl - 1 - piperazyl)ethyl] - 1 - piperazyl]-ethyl]-, 3015*h*
$C_{30}H_{60}N_3P_3$ Triphosphornitrile hexapiperidide, 5364*h*.
$C_{30}H_{62}$ Tetracosane, 2,6,10,15,19,23-hexamethyl-, P 3153*e*.
$C_{30}H_{62}N_{14}O_9$ See *Clupein*.
$C_{30}H_{62}O$ See *Myricyl alcohol*.
$C_{30}H_{62}O_4$ Acetaldehyde, bis[2-(dodecyloxy)-ethyl]acetal, P 1434*a*.
$C_{30}H_{62}S_4$ 2,5-Hexanedione, bis(dihexyl mercaptole), 564*g*.
$C_{30}H_{64}Cl_2N_2O_4Pt$ (Carboxymethyl)trimethylammonium chloroplatinate, didecyl ester, 6977*d*.
$C_{30}H_{64}N_2$ 1,10-Decanediamine, *N*, *N*, *N*′, *N*′-tetraamyl-, 3380*f*.
$C_{30}H_{64}N_2S_2$ 1,10-Decanediamine, *N*, *N*′-diheptyl-, dilactate, 3379*g*, P 3455*c*.
1,8-Octanediamine, *N*, *N*′-dioctyl-, dilactate, 3379*h*.
$C_{30}H_{66}N_4O_4S$ Ethyl(2-hydroxyethyl)dimethylammonium sulfate, dibutylcarbamate, 6309*c*.
$C_{30}H_{66}Si_2$ Disilane, hexaamyl-, 124*f*.
$C_{30}H_{70}I_2O_4Sn_4$ Dipropyltin oxide, complex with dipropyltin diiodide and PrOH, 7900*c*.
$C_{30}H_{90}O_{13}Si_{14}$ Tetradecasiloxane, triacontamethyl, P 4402*f*.
$C_{31}H_{15}ClO_2$ Aceanthra[2,1-*a*]aceanthrylene-5,13-dione, (chloromethyl)-, P 7709*d*, P 8163*f*, P 8164*a*.
$C_{31}H_{15}N_3O_6$ Dinaphth[2,3-*c*, 2′,3′-*h*]acridine 5,8,11,16,18(17*H*)-pentone, 4-acetamido-, P 866*c*.
$C_{31}H_{16}O$ Ketone, coronenyl phenyl, 5020*d*.
$C_{31}H_{16}O_3$ Compd., m. 282–4°, 4661*h*.
$C_{31}H_{17}NO_3$ Anthraquinone, 1-(7-oxo-7*H*-benz[*de*]anthracenylamino)-, P 7236*b*.
$C_{31}H_{18}Cl_2N_4O_2$ 1,3-Propanedione, 2-(2,5-dichlorophenylazo) - 1 - [4 - (2,5 - dichlorophenylazo) - 1 - hydroxy - 2-naphthyl]-3-phenyl-, 5779*a*.
$C_{31}H_{18}N_2O_3$ Anthraquinone, 5-amino-1-(7-oxo - 7*H* - benz[*de*]anthracen - 7-ylamino)-, P 8170*h*.
$C_{31}H_{20}N_2O_4$ Compd., decompg. above 180°, 3415*g*.
$C_{31}H_{21}Cl_2NSSi$ Quinoline, 4,7-dichloro-2-[5-(triphenylsilyl)-2-thienyl]-, 4277*b*.
$C_{31}H_{21}N_3O_7$ 15*H* - Cyclopenta[*a*]phenanthrene, 16,17-dihydro-12-methyl-, compd. with 2,4,7-trinitro-9-fluorenone, 621*i*.
$C_{31}H_{22}N_4O_2$ 1,3-Propanedione, 1-(1-hydroxy-4 - phenylazo - 2 - naphthyl) - 3-phenyl-2-phenylazo-, 5778*g*.
$C_{31}H_{22}O_6S_2$ 1-Naphthol-8-sulfonic acid, 4,4′-(2 - hydroxy - 5 - methyl - *m* - xylylene)bis-, disulfone, acetate, 204*c*.
$C_{31}H_{22}Cl_2OP$ Phosphine oxide, [bis(4-biphenylyl)phenylmethyl]dichloro-, 1347*b*.
$C_{31}H_{23}NSSi$ Quinoline, 2-[5-(triphenylsilyl)-2-thienyl]-,
$C_{31}H_{25}N_3O_7$ Benzamidine, *N*, *N*, *N*′-triphenyl-, picrate, 2594*c*.
$C_{31}H_{25}AsN_7O_{14}$ Pyridine, 2-diphenylarsino-, dimethopicrate, 1046*c*.
$C_{31}H_{24}ClN$ Pyridine, 5-(4-biphenylyldiphenylmethyl)-2-chloro-3-methyl-, 3417*e*.
$C_{31}H_{25}N_3O_3$ Salicylanilide, 4′-hydroxy-, 2-acetate 4′-carbonate, 2603*e*.
$C_{31}H_{25}N_5O_2S$ Carbanilide, 4,4′-bis(5-oxo-3-phenyl-2-pyrazolin-1-yl)thio-, P 9461*i*.
$C_{31}H_{25}N_5O_2$ Carbanilide, 4,4′-bis(5-oxo-3-phenyl-2-pyrazolin-1-yl)-, P 9461*h*.
$C_{31}H_{25}N_5O_9$ Salicylic acid, 5-[4-[4′-(3-carboxy - 4 - hydroxyphenylazo) - 3 - hydroxy - 3′ - methoxy - 4 - biphenylylazo] - 5 - hydroxy - 3 - methyl - 1-pyrazolyl]-, P 8148*h*.
$C_{31}H_{25}N_5O_{14}$ Indole, 3,3′-methylenebis[1-methyl-, dipicrate, 3405*f*.
$C_{31}H_{31}BrN_2S_4$ 11-[(9,10-Dihydro-8*H*-naphtho[2,1 - *d*]pyrido[2,1 - *b*]thiazol - 11-yl)methylene] - 8,9,10,11 - tetrahydronaphtho[2,1 - *d*]pyrido[2,1 - *b*]-thiazolium bromide, P 8294*a*.
$C_{31}H_{32}Br_2O_5$ Glutaric acid, β-(carboxymethyl)-, tris(*p*-bromophenacyl) ester, 2998*i*.
$C_{31}H_{33}N$ Pyridine, 3-(4-biphenylyldiphenylmethyl)-5-methyl-, 3417*e*.
*p* - Toluidine, *N*,α,α,α - tetraphenyl-, 7005*g*.
$C_{31}H_{33}NO$ 2-Pyridol, 5-(4-biphenylyldiphenylmethyl)-3-methyl-, 3417*d*.
$C_{31}H_{33}NO_7$ Carbamic acid, (3,4-dihydroxyphenacyl)methyl-, benzyl ester dibenzoate, 2601*i*.
$C_{31}H_{33}N_3O$ Quino[3,4-*b*]quinoline, 7,12-dihydro - 8 - methyl 12 - *p* - phenetylimino-6-phenyl-, 8393*e*.
$C_{31}H_{33}N_3O_2$ Quino[3,4-*b*]quinoline, 7,12-dihydro - 10 - methoxy - 12 - *p* - phenetylimino-6-phenyl-, 8393*e*.
Quino[3,4-*b*]quinoline, 10-ethoxy-7,12-dihydro - 12 - (*p* - methoxyphenylimino)-6-phenyl-, 8393*e*.
$C_{31}H_{33}OP$ Phosphine oxide, diphenyltriphenylmethyl-, 3802*b*.
$C_{31}H_{35}O_3P$ Methanephosphonic acid, bis(4-biphenylyl)phenyl-, 1347*b*.
$C_{31}H_{36}N_2O_3$ Equilenin, *p*-phenylazobenzoate, 5787*g*.
$C_{31}H_{36}N_2O_8$ 1,3-Propanediol, 2-(hydroxymethyl)-2-*o*-nitroanilino-, tribenzoate, P 7694*f*.
$C_{31}H_{36}N_4O_3S_2$ Rhodanine, 3-ethyl-5-[4-[2 (3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 5 - oxo - 1,3 - diphenyl - 2-imidazolidylidene]-, P 4162*i*.
$C_{31}H_{36}N_4O_4$ Anisanilide, 3′-[2-(6-*p*-methoxybenzamido - 2 - benzimidazolyl)vinyl]-, P 8174*c*.
$C_{31}H_{36}N_4O_{10}$ Nicotinic acid, ester with α-methyl-D-glucopyranoside, 1469*i*.
$C_{31}H_{37}N_3O_8S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - *p*-tolylsulfamyl-, iso-Pr ester, P 7709*i*.
$C_{31}H_{38}IN_3O_2S_2$ 3-Benzyl-2-[(3-ethyl-5-[2-(3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-methyl]benzothiazolium iodide, P 4163*h*.
$C_{31}H_{38}N_2O_3$ Equilin, *p*-phenylazobenzoate, 5787*g*.
$C_{31}H_{38}N_2O_7$ Carbonic acid, ester with salicylo-*p*-phenetidide, 2603*d*.
$C_{31}H_{38}N_4O_2$ Pyruvaldehyde, bis(diphenylacetylhydrazone), 3795*b*.
$C_{31}H_{38}N_2O_{18}$ Glutaric acid, α,γ-di-2-pyridyl-, di-Et ester, dipicrate, 7490*d*.
$C_{31}H_{39}NO_3$ *o*-Terphenyl-*i*-amine, butyl-, benzoylacetyl deriv., 4656*e*.
$C_{31}H_{39}N_3O$ Acetic acid, 2-[α-(1-benzyl-3-phenyl - 2 - aziridyl) - *p* - methylbenzylidene]-1-phenylhydrazide, 3389*f*.
Acetic acid, 2-[α-(1-benzyl-3-*p*-tolyl-2-aziridyl)benzylidene] - 1 - phenylhydrazide, 3389*f*.
$C_{31}H_{39}ClN_2O_2$ *o*-Cresol, 6-(6-chloro-2-methoxy - 9 - acridylamino) - α - diethylamino-4-phenyl-, *di-HCl*, P 1068*e*, P 7516*c*.
$C_{31}H_{39}N_3O_2$ Acetanilide, *p*,*p*′-methylenebis-[*N*-benzyl-, 5386*e*.
$C_{31}H_{39}N_3O_3$ Estrone, *p*-phenylazobenzoate, 5787*f*.
$C_{31}H_{40}N_2O_4$ 4-Piperidone, 3,3′-benzylidenebis[1-benzoyl-, 4275*g*.
$C_{31}H_{40}N_4O_8$ 3,5-Dinitrobenzoate, m. 176.5°, 4234*i*.
$C_{31}H_{40}N_4O_2S$ Malonamide, α-allyl-*N*, *N*′-bis-(4 - amino - 2 - methyl - 5 - quinolyl)-α-thenyl-, 1778*d*.
$C_{31}H_{40}O_2$ Benzophenone, 4′-benzyl-2′-(o-

methoxyphenyl) - 2,3,5,6 - tetramethyl-, 187*a*.

**$C_{31}H_{31}IN_2$** 1-Ethyl-2-[9-(1-ethyl-2(1*H*)-quinolylidene) - 1,3,5,7 - nonatetraenyl]-quinolinium iodide, 8291*e*.

**$C_{31}H_{31}IN_4O_2S_2$** 1-Ethyl-α-{3-ethyl-5-[3-ethyl-5 - (3 - ethyl - 2 - benzothiazolinylidene) - 4 - oxo - 2 - thiazolidylidene]-4 - oxo - 2 - thiazolidylidene}quinaldinium iodide, P 4163*b*.

**$C_{31}H_{31}IN_4O_3S_2$** 3-Ethyl-2-{[3-ethyl-5-[3-ethyl-5 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene} - 4 - oxo - 2 - thiazolidylidene]methyl}benzothiazolium iodide, P 4163*b*.

**$C_{31}H_{31}NO_3S$** 2-(*p*-Diethylaminostyryl)-1,6-diphenylpyrylium carboxymethanesulfonate, P 6100*f*, P 7849*d*.

**$C_{31}H_{31}NO_3S$** 2-(*p*-Dimethylaminostyryl)-4,6-bis(*p*-methoxyphenyl)pyrylium carboxymethanesulfonate, P 6100*g*, P 7849*d*.

**$C_{31}H_{31}N_5O_{14}$** Piperidine, [benzyl(2 pyridyl)amino]-1-ethyl-, dipicrate, 2207*e*, 6207*d*.

**$C_{31}H_{32}O_4$** 1,4-Naphthoquinone, 2-hydroxy-3-[9-(*p*-phenoxyphenyl)nonyl]-, 1379*h*, 2610*b*.

**$C_{31}H_{32}O_{14}$** Coumarin, 7-(benzyloxy)-6 (galactopyranosyloxy)-4-methyl-, tetraacetate, 4670*d*.

Coumarin, 7-(benzyloxy)-6-(glucopyranosyloxy) - 4 - methyl-, tetraacetate, 3823*c*.

**$C_{31}H_{33}ClN_4$** Quino[3,4-*b*]quinoline, 10-chloro-12 - (4 - diethylamino 1 methylbutylamino)-6-phenyl-, 2210*i*.

**$C_{31}H_{33}N_3O_5$** 3,5-Piperidinedicarboxylic acid, 1-ethyl-4-oxo-2,6-diphenyl-, di-Et ester, 2,4 - dinitrophenylhydrazone, 4674*d*.

**$C_{31}H_{33}N_5O_{10}P_2$** Adenosinediphosphoric acid, tribenzyl ester, 2650*d*, 9040*c*.

**$C_{31}H_{33}N_3O_{15}$** Quinoline, 8-(2-cyclohexylamino isopropylamino) 6-methoxy-, dipicrate, 3419*h*.

Quinoline, 8-(2-cyclohexylaminopropylamino)-6-methoxy-, dipicrate, 3119*f*.

**$C_{31}H_{33}O_3P$** Methanephosphonic acid, 4-biphenylyldiphenyl-, di-Pr ester, 1347*a*.

**$C_{31}H_{34}ClN_3O_{14}$** Quinoline, 7-chloro-4-(5-diethylaminoamylamino)-3-methyl-, dipicrate, 5401*g*.

**$C_{31}H_{34}IN_3S$** 2-[4-(*p*-Dimethylaminophenyl)-2 - (*p* - dimethylaminostyryl) - 1,3-butadienyl] - 3 - ethylbenzothiazolium iodide, 633*c*.

**$C_{31}H_{34}O_6$** Mesitol, $\alpha^2,\alpha^6$-bis(hydroxy-3,5-xylyl)-, triacetate, 5019*cd*.

Sorbofuranose, 2,3:4,6-disopropylidene-1-triphenylmethyl , 7431*e*.

**$C_{31}H_{34}O_6$** Galactoside, methyl 2,4-diacetyl-3-methyl-6-triphenylmethyl-, 4636*c*.

**$C_{31}H_{35}Br_2N_3O_4$** Succinanilic acid, 2,4-dibromo-*N*,6-dimethyl-, cinchonidine salt, 1343*d*.

**$C_{31}H_{35}NO_5$** 3,5-Piperidinedicarboxylic acid, 1-ethyl-4-hydroxy-2,4,6 triphenyl-, di-Et ester, 4674*e*.

**$C_{31}H_{36}BrN_3O_2$** *o*-Cresol, 6-allyl-4-(6-bromo-2-methoxy - 9 - acridylamino) - α-heptylamino-, *di-HCl*, P 7516*e*.

**$C_{31}H_{36}Br_2O_6$** Actidione acid, dihydro-, bis(*p*-bromophenacyl) ester, 2998*g*.

Glutaric acid, β-[2-hydroxy-2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl]-, bis(*p*-bromophenacyl)ester, 2998*g*.

**$C_{31}H_{36}N_4O_4$** 1(2*H*)-Naphthalenone, 2,4-bis-(dimethylaminophenylimino) - 3-ethyl - 3,4 - dihydro - 5,7,8 - trimethoxy-, 2609*b*.

**$C_{31}H_{36}N_2O_6$** 3,17-Androstanedione, bis(2,4-dinitrophenylhydrazone), 5067*e*.

3,17-Etiocholanedione, bis(2,4-dinitrophenylhydrazone), 5067*e*.

**$C_{31}H_{36}N_6O_3$** Malonamide, *N*, *N'*-bis(4-amino-2-methyl-6-quinolyl)-α,α-dibutyl-, *di-HCl*, 1778*d*.

**$C_{31}H_{36}O_{17}$** Hesperidin, ester with Et carbonate, 5117*a*.

**$C_{31}H_{39}ClN_2O_4$** 2-Naphthamide, 4-chloro-*N*-{2 - [α - (2,4 - di - *tert* - amylphenoxy)-acetamido]ethyl}-1-hydroxy-, P 8293*c*.

**$C_{31}H_{39}NO_3S$** 9-Fluorenecarboxylic acid, 2-[3-(1 - piperidyl)propylmercapto]isopropyl ester, citrate, 3395*d*.

**$C_{31}H_{39}N_5O_5$** Ergocornine, 4776*a*.

**$C_{31}H_{40}ClNO_3$** 2-Naphthamide, 4-chloro-*N*-[4 - (2,4 - di - *tert* - amylphenoxy)-butyl]-1-hydroxy-, P 8293*c*.

**$C_{31}H_{40}N_2O_4$** 2-Naphthamide, *N*-{2-[α-(2,4-di-*tert* - amylphenoxy)acetamido]ethyl}-1-hydroxy-, P 8293*c*.

**$C_{31}H_{40}N_4O_6S_2$** Glutaric acid, β-(carboxymethyl)-, salt with 2-benzyl-2-thiopseudourea, 2998*i*.

**$C_{31}H_{41}NO_3$** 2-Naphthamide, *N*-[4-(2,4-di-*tert* - amylphenoxy)butyl] - 1 - hydroxy-, P 8293*c*.

**$C_{31}H_{41}N_3O_4$** 3,4-Pyrroledicarboxylic acid, 1-methyl-2,5-diphenyl-, bis(2-diethylaminoethyl) ester, P 4701*a*.

**$C_{31}H_{41}N_5O_5$** See *Ergocornine, dihydro-*.

**$C_{31}H_{42}ClN_3$** See *Ethyl violet*.

**$C_{31}H_{42}N_4O_6$** 5-Cholen-24-al, 3(β)-hydroxy-, 2,4-dinitrophenylhydrazone, formate, 3433*b*.

**$C_{31}H_{42}N_4O_7$** Δ⁴-Cholenic acid, 3-keto-12-hydroxy-, Me ester 2,4-dinitrophenylhydrazone, 4282*h*.

**$C_{31}H_{42}N_4O_{15}$** Picrate, m. 182-5°, 4676*b*.

**$C_{31}H_{42}O_2S$** Bisnor-5-cholenic acid, 3(β) hydroxythiol-, benzyl ester acetate, 3432*e*.

**$C_{31}H_{42}O_{12}$** Ouabagenin, tetraacetate, 1792*d*.

**$C_{31}H_{43}NO_6$** Cholanic acid, 7,12-diketo 3-(cyanoacrbethoxymethylene)-, Et ester, 1431*c*.

**$C_{31}H_{43}NO_3S$** Isobutyric acid, β,β'-diphenyl-, 2 - (3 - diethylaminopropylmercapto)-ethyl ester, citrate, 3395*d*.

**$C_{31}H_{43}N_3O_3S_2$** *p*-Toluenesulfonamide, *N*-(3-diethylaminopropyl) - *N'* - propyl-*N*, *N'* - (5 - methoxy - *o* - phenylene)-bis-, 6994*d*.

**$C_{31}H_{44}N_2O$** 1-Quinolinemethanol, α-(dihexylaminomethyl) - 6,7 - dimethyl - 2-phenyl-, *di-HBr*, 4675*b*.

**$C_{31}H_{44}N_2O_4$** 11*H*-Naphth[2',1',4,5]indeno-[2,1-*c*]pyridazine 8 butanol, 1,2,3,-4,4a,4b,5,6,6a,11a,11b,12 - dodecahydro - 2 - hydroxy - 8,10,6a,7 - tetramethyl-, diacetate, 655*i*.

**$C_{31}H_{44}N_2O_3SSi$** Acetic acid, [1 (triethylsilyl) ethylmercapto] , compd. with strychnine, 5003*i*.

**$C_{31}H_{46}O_3$** Bisnor-5-cholene, 22 phenyl 3-methoxy-22-acetoxy-, 3018*g*

5-Cholene, 3(β),24-dihydroxy , benzoate, 3432*h*

—, 3(β) hydroxy 24-keto-24-(*p*-methoxy phenyl) , 3433*f*

**$C_{31}H_{46}O_5$** Fesogenin, diacetate, 655*c*.

Pseudocryptogenin, diacetate, 655*d*

**$C_{31}H_{46}O_8S_2$** Dehydrocholic acid, 3-bis(carboxymethyl mercaptal), tri-Me ester, 7033*h*.

**$C_{31}H_{45}ClN_2$** 2-[2 (1 Dodecyl 2,5-dimethyl 3 pyrryl)vinyl] - 1,6 - dimethylquinolinium chloride, 3930*d*.

**$C_{31}H_{46}NO_2$** 5-Cholene, 3(β)-hydroxy-24-keto 24-(*p*-methoxyphenyl)-, oxime, 3433*f*.

**$C_{31}H_{46}N_2O_{12}$** Chondrosinite, compd. with cinchonidine, 5009*c*.

**$C_{31}H_{46}N_2O_6S_2$** Benzimidazoledisulfonic acid, 1-benzyl 2-heptadecyl-, *Na salt*, P 2375*d*.

**$C_{31}H_{46}O_2$** See "K₁" under *Vitamins*.

**$C_{31}H_{46}O_5$** Pseudodiosgenin, diacetate, 655*d*

**$C_{31}H_{46}O_6$** Cryptogenin, diacetate, 655*g*

**$C_{31}H_{46}O_{10}$** Cymarylic acid, Me ester, 1430*h*

**$C_{31}H_{47}ClO_6$** Cryptogenin, diacetate, compd with HCl, 655*g*.

**$C_{31}H_{47}NO_5$** Dehydrocholic acid, ester with 1-piperidinoethanol, P 1811*f*.

**$C_{31}H_{48}O_3$** 1',2',2,3 Benzocholestan - 4' - ol, 244*h*.

**$C_{31}H_{48}O_4$** 1,4 Naphthoquinone, 2-(9-hexyl-9-hydroxypentadecyl) - 3 - hydroxy-, 1382*b*, 2610*c*.

**$C_{31}H_{48}O_6$** Cryptogenin, 16-dihydro-, diacetate, 655*d*.

**$C_{31}H_{48}O_7$** [2,2'-Binaphthalene]-1,1',4a(2*H*) tricarboxylic acid, octadecahydro-1,4 dihydroxy - 2,2',5',5',7,7,8'a - heptamethyl-, γ-lactone, Me ester, 213*h*.

**$C_{31}H_{48}O_9$** Allocholanic acid, 3(β),6(β),12(α)-trihydroxy , Me ester, 12(α)-acetate, 3(β)-succinate, 1790*e*.

**$C_{31}H_{49}NO_5$** Dehydrocholic acid, 3-diethylaminopropyl ester, P 1814*f*.

**$C_{31}H_{50}N_2O_2$** Aniline. *p*,*p'*-(trimethylenedioxy)bis[*N*, *N* - dibutyl-, *di-HCl*, 3381*c*.

**$C_{31}H_{50}N_2O_4$** 1,2*H*-Benzopyran-6-ol, 2,5,7,8-tetramethyl - 2 - (4,8,12 - trimethyltridecyl)-, allophanate, P 1918*d*.

**$C_{31}H_{50}N_2O_8$** 1,9-Nonanediamine, *N*, *N'*-diphenethyl-, dilactate, 3379*d*, P 3455*e*.

**$C_{31}H_{50}O_2$** Chondrillasterol, acetate, 4271*e*.

Heterolupenic acid, Me ester, 1751*a*.

Δ⁷,⁸,²²,²³-Poriferastadien-3-ol, acetate, 4271*e*.

Spinasterol, acetate, 1428*d*.

Spinusterol, acetate, 1428*d*.

Stigmusterol, acetate, 5307*g*.

**$C_{31}H_{50}O_3$** Echinocystic acid, 2-desoxy-, Me ester, 213*c*.

α-Elemolic acid, Me ester, 7463*e*.

**$(C_{31}H_{50}O_3)_n$** Methyl ester, m. 60–75°, 9052*a*.

Methyl ester, m. 130–80°, 9052*c*.

**$C_{31}H_{50}O_4$** Cholestenediol, diacetate, 5028*g*.

Cholesterol, 7-acetoxy-, acetate, 3021*a*, 3022*b*.

Hederagenin, 1156*f*.

Δ⁸,⁹ - Norcholestene, 3,6 - diacetoxy - 5-methyl-, 5028*g*.

Norfriedelenedioic acid, di-Me ester, 7925*i*.

**$C_{31}H_{50}O_4S_2$** Δ⁴ Cholesten-3-one, bis(carboxymethyl mercaptal), 7033*i*.

**$C_{31}H_{50}O_7$** Compd. from Me α-elemolate, 7463*e*.

**$C_{31}H_{51}Cl_3N_4$** Sarothamnine, compd. with $CHCl_3$, 5513*d*.

**$C_{31}H_{51}N_3O$** Agnostenone, dihydro-, semicarbazone, 7495*i*.

**$C_{31}H_{52}O$** Stigmasterol, 3-Et ether, 658*i*.

**$C_{31}H_{52}O_2$** Chondrillastenyl acetate, 4271*g*

**$C_{31}H_{52}O_3$** α-Tocopherol, acetate, 3894*f*.

**$C_{31}H_{52}O_3S_2$** 6 Chromanol, 2,8-dimethyl-5,7 bis(methylmercapto) - 2 - (4,8,12 - trimethyltridecyl)-(?), acetate, 2620*f*.

**$C_{31}H_{52}O_4$** Cholestane, dihydroxy-, diacetate, 1785*h*, 5108*h*, 6641*b*.

2,3-Cholestanediol, diacetate, 3831*g*

**$C_{31}H_{52}O_5$** Coprostane, 3(α),4,5-trihydroxy , diacetate, 1786*d*.

**$C_{31}H_{52}O_6$** Cholestane-6,7-dicarboxylic acid, 3(β) hydroxy-, acetate, 246*b*.

**$C_{31}H_{54}BrNO$** Margaranilide, *p* bromo *n*. octyl-, 3781*c*

**$C_{31}H_{56}S_2$** 3-Cholestanone, diethyl mercaptole, P 1532*n*.

**$C_{31}H_{59}NO_4S$** Diethyloctadecyl *p* tolylammonium ethyl sulfate, P 5899*a*

**$C_{31}H_{60}NO_6$** Pelargonic acid, diester with *N*, *N* - bis(2 - hydroxyethyl)pelargonamide, P 7751*b*.

**$C_{31}H_{62}O_2$** Myristin, 1,3 di-, 570*i*.

**$C_{31}H_{62}O$** 16 Hentriacontanone, 2940*i*

**$C_{31}H_{64}$** Hentriacontane, P 3153*f*, 1811*i*

**$C_{31}H_{64}O$** See *Myricyl alcohol*.

**$C_{31}H_{64}S$** 16 Hentriacontanethiol, P 2630

**$C_{32}Cl_{17}CuN_8$** Phthalocyanine, hexadecachloro-, Cu deriv., P 7705*d*

**$C_{32}H_8Cl_8CuN_8$** Phthalocyanine, octachloro-, Cu deriv , P 7710*e*.

**$C_{32}H_{17}AlCl_2N_8O_6S_4$** Phthalocyaninetetrasulfonyl chloride, Al deriv., P 8168*i*.

**$C_{32}H_{12}Br_4CuN_8$** Phthalocyanine, tetrabromo-, Cu deriv , P 7710*e*.

**$C_{32}H_{12}Cl_4CuN_8$** Phthalocyanine, tetrachloro-, Cu deriv , P 7710*d*.

**$C_{32}H_{12}Cl_4CuN_8O_8S_4$** Phthalocyaninetetrasulfonyl chloride, Cu deriv , P 7704*f*, P 8168*h*, P 8692*h*.

**$C_{32}H_{13}Cl_3CuN_8O_6S_3$** Phthalocyaninetrisulfonyl chloride, P 8169*a*.

**$C_{32}H_{11}Cl_2CuN_8O_4S_2$** Phthalocyaninedisulfonyl chloride, P 8169*d*.

**$C_{32}H_{15}ClCuN_8O_2S$** Phthalocyaninesulfonyl chloride, P 8169*a*.

**$C_{32}H_{13}Cl_2N_8O_6S_3$** Phthalocyaninetrisulfonyl chloride, P 7704*f*.

**$C_{32}H_{16}Br_2O_2$** Aceanthra[2,1-*a*]aceanthrylene-5,13 dione, bis(bromomethyl) , P 7709*d*, P 8163*h*.

**$C_{32}H_{16}Cl_2O_2$** Aceanthra[2,1-*a*]aceanthrylene-5,13-dione, bis(chloromethyl)-, P 7709*d*, P 8163*f*, P 8164*a*.

**$C_{32}H_{16}CuN_8$** Phthalocyanine, Cu deriv., 1272*g*, 3731*h*, 8222*d*

**$C_{32}H_{16}MgN_8$** Phthalocyanine, Mg deriv., 43*c*, 44*a*, 1272*g*.

**$C_{32}H_{18}N_2O_2$** Compd., m. 353°, 7930*d*.

**$C_{32}H_{16}N_8Cu$** Phthalocyanine, Cu deriv., 2483*e*.

**$C_{32}H_{18}N_8$** See *Phthalocyanine*.

**$C_{41}H_{19}ClN_2O_3$** 13*H*-Benzo[*g*]naphtho[2,3-*a*]carbazole-7,12-dione, 6-benzamido (chloromethyl)-, P 8163*h*.

**$C_{32}H_{18}NO_2$** Anthraquinone, 1-(6-chrysenylamino)-, P 7711*e*.

**$C_{32}H_{19}NO_7$** *p*-Nitrobenzoate, m. 258 60°, 3415*g*.

**$C_{32}H_{19}N_3O_9$** 1-Fluoranthenecarboxylic acid, Et ester, complex with 2,4,7-trinitro-9-fluorenone, 7014*f*.

**$C_{32}H_{20}O_4$** Dibenzo[*a*,*o*]perylene-7,16-diol, diacetate, 5391*c*.

**$C_{32}H_{20}O_6$** 3a,11b(10*H*,13*H*)-Epidioxydibenzo[*a*,*o*]perylene-7,16-diol, diacetate, radical from, 5391*c*.

**$C_{32}H_{11}N_3O_7$** Fluoranthene, 1,2,3-trimethyl , compd. with 2,4,7-trinitro-9-fluorenone, 9059*h*.

**$C_{32}H_{22}N_2O_4$** Isoindigotin, 1,1'-bis(phenylacetyl)-, 6614*f*.

**$C_{32}H_{21}NO_7S$** 2-Naphthol-6-sulfonic acid, 1-

[3,3′ - dihydroxy - 4′ - (2 - hydroxy - 1-naphthylazo)-4-biphenylylazo]-, P 8157*f*.

$C_{32}H_{32}N_6Na_4O_8S_2$ See *Congo red*.

$C_{32}H_{32}N_6O_{17}$ 1,3-Dioxolo[*g*]isoquinoline, 7,8-dihydro - 5 - (6 - methoxy - 4 - quino-

$C_{32}H_{32}O$ Indeno[2,1′-*a*]indene, 5,5′-oxybis-[4b,5-dihydro-(?), 4661*h*.

$C_{32}H_{32}O_2$ Phenanthro[9,10]-*p*-dioxin, 2,3-dihydro - 2 - (2 - naphthyl) 3 - phenyl-, 2984*i*.

$C_{32}H_{32}NO_4$ Anthraquinone, 2-butyl-1,1′-iminodi-, 1761*h*.

Anthraquinone, 2-*tert*-butyl-1,1′-iminodi-, 1761*b*.

$C_{32}H_{33}N_3$ 2*H*-Pyrrolenine, 2-(3,5-diphenyl 2-pyrrylimino)-3,5-diphenyl-, P 7848*c*.

$C_{32}H_{33}N_3O_7$ 15*H* - Cyclopenta[*a*]phenanthrene, 12 - ethyl - 16,17 - dihydro , compd. with 2,4,7-trinitro-9-fluorenone, 621*i*, 622*a*.

$C_{32}H_{34}$ Ethylene, 1,1-bis(4-biphenylyl) 2-phenyl-, 4746*g*.

$C_{32}H_{34}CdN_2O_6$, 2538*g*.

$C_{32}H_{34}CoN_2O_6$, 2538*g*.

$C_{32}H_{34}CuN_2O_6$, 2538*g*.

$C_{32}H_{34}Hg_2$ Triphenylene, 2,3 bis(methylmercuri)-1,4-diphenyl-, 2614*f*.

$C_{32}H_{34}Hg_2O_8S_2$ 2-Naphthalenesulfonic acid, 3,3′-methylenedi-, phenylmercuric salt, 5523*g*.

$C_{32}H_{37}N_2NiO_6$, 2538*g*.

$C_{32}H_{38}N_2O_4$ Salicylanilide, 4′,4‴-o-phenylenebis-, 4656*f*.

$C_{32}H_{38}N_2O_6S$ Naphth[2,3-*c*]acridine-5,8,14 (13*H*) - trione, 6 - (*p* - butylsulfonylbenzamido)-, P 7706*c*.

$C_{32}H_{38}N_4O$ Furan, 2,5-bis(1-benzyl-2 benzimidazolyl)-, P 8174*b*.

$C_{32}H_{38}N_4O_8S_2$ See *Congo red*.

$C_{32}H_{38}N_4O_{17}$ 1,3 - Dioxolo[*g*]isoquinoline, 5,6,7,8 - tetrahydro - 5 - (6 - methoxy 4-quinolyl)-, dipicrate, 1421*i*.

$C_{32}H_{38}N_{10}O_{16}S_2$ 1-Naphthol-3,6-disulfonic acid, 8-amino-2 [2-nitro-4-[*β*-oxo-*α* (*p* - sulfophenylazo)butyrylamino]-phenylazo]-7-(*p*-nitrophenylazo)-, P 9463*b*.

$C_{32}H_{40}O_2$ Anthracene, 9,10 dihydro 9,10 dimethoxy - 9,10 - bis(phenylethynyl)-, 3401*d*.

Isobutyric acid, *β*,*β*′-di-9-phenanthryl-, 7013*d*.

$C_{32}H_{40}O_8$ Cyclobutane, 1,2,3,4-tetrakis(*p*-carboxyphenyl)-, 2983*a*.

$C_{32}H_{45}Br$ Ethane, (bromophenyl)tetraphenyl-, 2907*h*.

$C_{32}H_{45}Cl$ Ethane, (chlorophenyl)tetraphenyl-, 2607*h*.

$C_{32}H_{45}NOSSi$ Quinoline, 6-methoxy-2-[5-(triphenylsilyl)-2-thienyl]-, 4277*b*.

$C_{32}H_{46}NO_3S$ 2-Anthracenesulfonic acid, 9,10-diphenyl-, aniline salt, 3815*f*.

$C_{32}H_{46}NO_6S_2$ Anthracenedisulfonic acid, 9,10-diphenyl-(?), aniline salt, 3815*fg*.

$C_{32}H_{38}N_2$ Carbazole, 9,9′-(phenylimmodimethylene)di-, 3819*e*.

$C_{32}H_{38}N_2O$ 2 - Imidazoline - 1 - carboxamide, *N* - 1 - naphthyl - 2,4,5 - triphenyl , 8365*h*.

$C_{32}H_{38}N_2O_6S$ Naphth[2,3-*c*]acridine 5,8,14-(13*H*)-trione, 6-[*p*-(diethylsulfamyl)-benzamido]-, P 864*c*.

$C_{32}H_{38}N_2O_7$ Fluoranthene, 1,2,3,10b tetrahydro-1,2,3-trimethyl-, compd. with 2,4,7-trinitro-9-fluorenone, 9059*g*.

$C_{32}H_{38}N_7O_{11}S_2$ 1-Naphthol-3-sulfonic acid, 7-anilino - 2 - [2 - nitro - 4 - [*β* - oxo - *α*-(*p* - sulfophenylazo)butyrylamino]-phenylazo]-, P 9463*b*.

$C_{32}H_{38}$ Ethane, pentaphenyl-, 196*b*, 5387*f*, 5731*h*.

$C_{32}H_{38}Cl_4N_4O_4$ 1,1,4,4-Butanetetramine, *N*,*N*′,*N*″,*N*‴ - tetrabenzoyl 2,2,3,3-tetrachloro-, 2967*d*.

$C_{32}H_{38}Hg$ Fluoranthene, 8,9-bis(ethylmercuri)-7,10-diphenyl-, 2614*f*.

$C_{32}H_{39}MnN_5O_4$ Isatin, 1-benzyl-, 3-semicarbazone, Mn deriv., 8980*a*.

$C_{32}H_{40}N_2$ Quinoxaline, 2,3-bis(6-phenyl-1,3,5-hexatrienyl)-, 187*c*.

$C_{32}H_{40}N_2O_8S$ Benzanilide, *N*-(*N*-phenylbenzimido)-, benzenesulfonate, 2595*a*.

$C_{32}H_{40}N_4O_6$ Acetamide, *N*,*N*′-*p*-phenylenebis[*N* - methyl - *α* - (1 - nitro - 2-naphthoxy)-, P 860*b*.

$C_{32}H_{40}N_8O_8Pb$ Isatin, 1-benzyl-, 3-semicarbazone, Pb deriv., 8980*a*.

$C_{32}H_{40}N_{16}O_8S_4$ Phthalocyaninetetrasulfonic acid, tetrahydrazide, P 4487*c*.

$C_{32}H_{40}O_2$ 10,10′-Blanthrone, 1,1′,4,4′-tetramethyl-, 7472*h*.

$C_{32}H_{40}O_4$ [9,9′-Bifluorene]dicarboxylic acid, di-Et ester, 3811*eg*.

$C_{32}H_{40}O_8$ Pedicin, dibenzoate, 4264*b*.

$C_{32}H_{37}IN_4S_2$ 11-[1-(9,10-Dihydro-8*H*-naphtho[2,1 - *d*]pyrido[2,1 - *b*]thiazol - 11-yl)ethylidene] - 8,9,10,11 - tetrahydronaphtho[2,1 - *d*]pyrido[2,1 - *b*]-thiazolium iodide, P 8294*b*.

$C_{32}H_{37}N$ Benzhydrylamine, *N*-(*α*,*α*-diphenyl-*p*-tolyl)-, 192*i*.

$C_{32}H_{37}N_3O_8S$ Anthraquinone, benzamido[*p*-(diethylsulfamyl)benzamido]-, P 863*i*, P 864*a*.

$C_{32}H_{37}N_3O_{11}S_2$ Anthranilic acid, *N*-(4-amino-3 - sulfo - 1 - anthraquinonyl) - 5 - (*o*-carboxyphenylsulfamyl)-, di-Et ester, P 7709*h*.

$C_{42}H_{28}Cl_2N_2O_2$ Anthraquinone, bis(chloromethyl)-1,4-bis(dimethylanilino)-, P 8163*g*.

$C_{32}H_{38}Cl_2N_2O_6S_2$ 2-Mesitylenesulfonic acid, 4,4′ - [(6,7 - dichloro - 9,10 - dihydro-9,10 - dioxo - 1,4 - anthrylene)diimino]di-, P 2783*de*.

$C_{32}H_{38}N_2$ Suberonitrile, *α*,*α*,*ζ*,*ζ*-tetraphenyl-, 9053*c*.

$C_{32}H_{38}N_2O_2$ [9,9′-Bifluorene]-2,2′-dicarboximidic acid, di-Et ester, *di-HCl*, 3811*h*.

Dibenzo[*cd*, *jk*]pyrene-6,12-dione, 4,10-di 1-piperidyl-, 1760*b*.

$C_{32}H_{38}N_4O_6S_2$ Anthraquinone, 1,4-bis[*p*-(dimethylsulfamyl)benzamido]-, P 864*b*.

$C_{42}H_{28}N_2S_4$ Benzothiazole, 2,2′-(azodi-*p*-phenylene)bis[6-methyl-, bis(methylmercaptomethyl) deriv., P 8146*i*.

$C_{32}H_{38}N_{12}O_{12}S_4$ 2,2′-Stilbenedisulfonic acid, 4,4′ - bis(4 - amino 6 - *m* - sulfoanilino-*s*-triazin-2-ylamino)-, P 7242*h*.

$C_{32}H_{38}O$ Furan, 3,4-diethylidenetetrahydro-2,2,5,5-tetraphenyl-, 3405*b*.

$C_{32}H_{38}O_{17}$ Gallic acid, 4-ester with 4-(3,4,5-trimethoxybenzoate) of gallic acid, tetraacetate, 5387*a*.

$C_{42}H_{29}ClN_2O_8S_2$ 2-Mesitylenesulfonic acid, 4,4′ - [(6 - chloro - 9,10 dihydro-9,10 - dioxo - 1,4 - anthrylene)diimino]di-, P 2783*afg*.

$C_{32}H_{30}ClN_{11}O_{14}$ Quinazoline, 4-*p* chloroanilino - 2 - (2 diethylaminoethyl amino) , dipicrate, 2952*e*.

$C_{32}H_{30}IN_3OS_2$ 1 Ethyl 2-[[3-ethyl-5-[2-(1 ethyl - 2(1*H*) - quinolylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]-methyl]naphtho[1,2]thiazolium iodide, P 4163*h*.

$C_{32}H_{30}N_2O_6$ Benzoic acid, *o*-benzoyl-, piperazine salt, 235*d*.

$C_{27}H_{30}N_2O_{10}S_2$ 2,2′-Stilbenedisulfonic acid, 4,4′ - bis(*o* - ethoxybenzamido)-, P 5977*i*.

$C_{32}H_{30}N_4O_2$ 2,3-Butanedione, bis(diphenylacetylhydrazone), 3795*b*.

$C_{32}H_{30}N_4O_4$ Acetamide, *N*,*N*′-*p*-phenylene bis[*α* - (1 - amino - 2 - naphthoxy) *N*-methyl-, P 859*f*.

$C_{32}H_{30}N_4O_8S_2$ 4(1*H*)-Quinolone, 2,3-dihydro-1-*p* tolylsulfonyl , azine, 8387*a*.

$C_{32}H_{30}N_4O_8S_2$ *m*-Benzenisidide, 6′,6‴-dithiobis[4′-acetamido-, 5776*c*.

$C_{32}H_{30}O_4$ Phenol, *p*,*p*′-(1-propyltrimethylene)di-, dibenzoate, P 4700*c*.

$C_{32}H_{30}O_6$ Butyric acid, *β*,*β*′-oxybis[*α*,*α*-diphenyl-, P 5037*f*.

$C_{32}H_{31}BrN_4O_4$ Anthraquinone, 1,5-diamino-2 - bromo - 6 - *tert* - butyl - 4,8 - di - *p*-toluidino-, 1761*f*.

$C_{42}H_{31}IN_2S_2$ 3-Ethyl-2-[[3-(3-ethyl-2-benzothiazolinylidenemethyl) - 5 - phenyl-2 - cyclohexen - 1 - ylidene]methyl]-benzothiazolium iodide, P 56*a*.

$C_{32}H_{31}I_2N_3O_2S$ 2,2′-[3-(3-Ethyl-2-benzothiazolinylidene) - 1,4 - pentadienylene]-bis[3-ethylbenzoxazolium iodide], 2528*g*.

$C_{32}H_{31}I_2N_3O_2Se$ 2,2′-[3-(3-Ethyl-2-benzoselenazolinylidene) - 1,4 - pentadienylene]bis[3 - ethylbenzoxazolium iodide], 2529*a*.

$C_{32}H_{31}I_2N_3SSe$ 2,2′-[3-[3-Ethyl-2-benzothiazolinylidene) - 1,4 - pentadienylene]bis[3 - ethylbenzoselenazolium iodide], 2528*i*.

$C_{32}H_{31}I_2N_3S_2Se$ 2-[5-(2-Benzoselenazolyl)-3-(3 - ethyl - 2 - benzothiazolinylidene)-1,4 - pentadienyl] - 3 - ethylbenzothiazolium iodide, ethiodide, 2530*g*.

2,2′ - [3 - (3 - Ethyl - 2 - benzoselenazolinylidene) - 1,4 - pentadienylene]bis-[3 - ethylbenzothiazolium iodide], 2529*a*.

$C_{32}H_{31}NO_6S$ Retenesulfonic acid, 3-hydroxy-, benzoate *p*-toluidine salt, 4251*i*.

$C_{32}H_{32}$ Ethane, cyclohexyltetraphenyl-, 2608*a*.

Styrene, tetramer, 2966*h*.

$C_{32}H_{32}N_2O_6S_4$ 3,3′-Ethylenebis[2-methylbenzothiazolium *p*-toluenesulfonate], P 3737*h*.

$C_{32}H_{32}N_8$ Cyclobutane, 1,2,3,4-tetrakis(*p*-guanylphenyl)-, 2982*g*.

$C_{32}H_{33}N_3O_3S$ Benzenesulfonamide, *m*-[4-(8-diethylamino - 5,10 - dihydro - 10-phenyl - 2 - phenazinylazo) - 3 - methyl-5-oxo-2-pyrazolin-1-yl]-, 7589*c*.

$C_{32}H_{32}O_2$ 3,4-Furandiol, 3,4-diethyltetrahydro-2,2,5,5-tetraphenyl-, 3405*b*.

$C_{32}H_{32}S_2O_5$ Compd., m. 223°, 1366*h*.

$C_{32}H_{33}NO$ 3-Hexanone, 6-dibenzylamino-4,4-diphenyl-, *and* - *HCl*, 9053*f*.

$C_{42}H_{33}NO_3S$ Spiro[cholestane-3,2′-thiazolidine]-4′-carboxylic acid, 3′-acetyl-, 659*c*.

$C_{37}H_{33}NO_6S_2$ 1,3-Naphthalenedisulfonic acid, 7 - [bis(tetrahydronaphthylmethyl)-amino]-, P 9498*h*.

$C_{37}H_{34}Br_2O_5$ Fluorescein, dibromo-2′,7′-dihexyl-, 3806*f*.

$C_{32}H_{34}ClN_3O$ +$H_2O$ Acridine, 6-chloro-9-[4-diethylamino - 1 - (1 - naphthyl)butylamino]-2-methoxy-, *di-HCl*, 2211*e*.

$C_{32}H_{34}NO_3P$ Amidophosphoric acid, *N*-cyclohexyl-, dibenzhydryl ester, 600*b*.

$C_{37}H_{34}N_4O_5$ Testosterone, 6-dehydro-, benzoate 2,4 - dinitrophenylhydrazone, 4282*h*.

$C_{32}H_{34}N_4O_7S_2$ Penicillin G, anhydride, 633*d*.

$C_{32}H_{34}O_4$ 1,4-Naphthoquinone, 2-[10-(4-hiphenylyloxy)decyl] - 3 - hydroxy-, 2610*c*.

$C_{32}H_{34}O_8$ 3,7-Decadiyne-2,5,6,9-tetrol, 2,9-dimethyl-5,6-diphenyl-, tetraacetate, 571*f*.

$C_{32}H_{34}O_9$ Sorboside, methyl 1-triphenyl methyl-, 3,4,5-triacetate, 7431*c*.

$C_{32}H_{36}I_2N_2S$ 4,4′-[3-(3-Ethyl-2-thiazolidinylidene) - 1,3 - pentadienylene]bis[1-ethylquinolinium iodide], 2529*e*.

$C_{32}H_{36}N_2O_5S$ Tyrosine, *N*-[*β*-(benzylmercapto) - *N* - (1 - carboxyprolyl)alanyl] , *N*-benzyl ester, 5016*h*.

$C_{32}H_{36}N_4O_{16}$ Quinoline, 8-(2-cyclohexylaminobutylamino)-6-methoxy-, dipicrate, 3419*g*.

$C_{32}H_{36}ClN_9O_{14}$ Quinoline, 7-chloro-4-(6-diethylaminohexylamino)-3-methyl-, dipicrate, 5401*g*.

$C_{32}H_{36}ClN_{11}O_{14}$ Pyrimidine, 4-*p*-chloroanilino-6 - (4 - diethylamino - 1 - methylbutylamino)-2-methyl-, dipicrate, P 6243*h*.

$C_{32}H_{36}ClN_{11}O_{16}$ Pyrimidine, 4-*p*-chloroanilino-6 - [3 - (2 - diethylaminoethoxy)propylamino]-2-methyl-, dipicrate, P 6243*h*.

$C_{32}H_{36}N_4$ Quino[3,4-*b*]quinoline, 12-(4-diethylamino - 1 - methylbutylamino)-10-methyl-6-phenyl-, 2210*h*.

$C_{32}H_{36}N_6O_4S_2$ Valine, *β*,*β*′-dithiobis[*N*-[2-cyano - 2 - (*α* - phenylacetamido)-ethylidene]-, 4668*b*.

$C_{32}H_{36}O_4$ Cyclohexanol, 4-(*α*,*β*-diethyl-*p*-hydroxyphenethyl)-, dibenzoate, 2195*c*.

$C_{32}H_{37}O_4Si$ Xylyl silicate, 4631*e*.

$C_{32}H_{36}O_4Sn$ Tin, tetrakis(*p*-ethoxyphenyl)-, 8764*f*.

$C_{32}H_{36}O_5$ Fluorescein, 2′,7′-dihexyl-, 3806*d*.

$C_{32}H_{36}O_8S$ 2-Naphthalenesulfonic acid, 4,6-bis(carvacrylmethoxy)-(?), *Na salt*, P 7969*d*.

$C_{32}H_{36}S$ Silane, tetrakis(*p*-ethylphenyl)-, 2160*h*.

$C_{32}H_{37}N_3O_3S_2$ Methanesulfonic acid, [*p*-(2-pyridylsulfamyl)anilino]-, quinine salt, P 7044*a*.

$C_{32}H_{38}BrN_3O_4$ Succinanilic acid, 2-bromo-*N*,4,6-trimethyl-, cinchonidine salt, 1343*a*.

$C_{32}H_{38}ClN_3O_5$ Quinoline, 7-chloro-4-(4-diethylamino-1-methylbutylamino)-, di-*β*-resorcylate, 5401*f*.

$C_{32}H_{38}IN_3O_4$ Succinanilic acid, 2-iodo-*N*,4,6-trimethyl-, cinchonidine salt, 1843*b*.

$C_{32}H_{38}N_4O_6$ Succinanilic acid, *N*,2,4-trimethyl-6-nitro-, cinchonidine salt, 1343*f*.

$C_{32}H_{38}N_4O_8S_4$ *p*-Toluenesulfonamide, *N*,*N*′-[2 - *p* - tolylsulfonamido - 2 - (*p* - tolylsulfonamidomethyl) - 1,3 - trimethylene]bis-, 2936*b*.

$C_{32}H_{38}N_{10}O_{12}S$ Putrescine, *N*$^4$,*N*$^4$-diethyl-1-(2-thienyl)-, dipicrolonate, 2211*d*.

$C_{32}H_{38}O_4$ *o*-Cresol, 4,4′-(diethylideneethylene)bis[6-allyl-, dipropionate, 4247*d*.

$C_{32}H_{38}O_8$ 3,7-Decadiene-2,5,6,9-tetrol, 2,9-dimethyl-5,6-diphenyl-, tetraacetate, 571*h*.

$C_{32}H_{38}O_{19}$ Glucoside, chrysazin-6-cellobioside-, 5019*h*.

$C_{28}H_{39}Cl_4N_3O_7S_2$ Quinoline, 8-(2-diisobutylaminoethylamino)-6-methoxy-, bis-(2,5-dichlorobenzenesulfonate), P 698*a*.

$C_{28}H_{40}N_2$ 1,10-Octanediamine, *N,N'*-bis[2-(1-naphthyl)ethyl]-, *di-HBr*, P 3455*h*.

$C_{28}H_{40}N_4O_4$ $\Delta^{1,4}$-Androstadien-17-ol-3-one, cyclohexanecarboxylate, 2,4-dinitrophenylhydrazone, 4282*d*.

$C_{28}H_{40}O_4Si_4$ Cyclotetrasiloxane, 2,4,6,8-tetraethyl-2,4,6,8-tetraphenyl-, 2513*a*.

$C_{28}H_{40}O_5S$ $\Delta^4$-Pregnene-3,20-dione, 12($\alpha$),21-dihydroxy-, 21-succinate, 12-*p*-toluenesulfonate, 3431*b*.

$C_{28}H_{40}O_{10}Se_2$ 1,9(2*H*,6*H*)-Penoxaselenindione, 3,4,7,8-tetrahydro-3,7-dimethyl-, 10-oxide, compd. with AcOEt, 7479*c*.

$C_{28}H_{40}O_{10}$ Salicylic acid, 5-methoxy-, Me ester, $\beta$-pyrimeveroside, hexaacetate, 3393*i*.

$C_{28}H_{41}BrN_4O_6$ $\Delta^1$-Androsten-17-ol-3-one, 2-bromo-, cyclohexanecarboxylate, 4282*d*.

$C_{28}H_{41}N_3O_5$ Ergocryptine, 4776*a*.

$C_{28}H_{42}N_4O_7$ 9-Phenanthreneëthylamine, *N,N*-diamyl-1,2,3,4-tetrahydro-, picrate, 7470*c*.

$C_{28}H_{42}N_4O_8$ 9-Phenanthrenemethanol, $\alpha$-(diamylaminomethyl)-1,2,3,4-tetrahydro-, picrate, 7470*c*.

$C_{28}H_{42}N_2O_4$ Ketene, (2-cyclohexylethyl)-, dimer, bis(*p*-nitrophenylhydrazone), 2964*e*.

$C_{28}H_{42}O$ Lycopenal, P 9294*e*.

$C_{28}H_{42}O_4$ Carvacrol, 5,5'-(diethylideneëthylene)di-, dipropionate, 614*b*.
Thymol, 6,6'-(diethylideneëthylene)di-, dipropionate, 614*a*.

$C_{28}H_{43}NO_2S$ Isobutyric acid, $\beta,\beta'$-diphenyl-, 2-[3-(1-piperidyl)propylmercapto]-ethyl ester, citrate, 3395*d*.

$C_{28}H_{43}N_3O_5$ Ergocryptine, dihydro-, 3929*a*, 4776*b*, 7128*b*, 9249*a*.

$C_{28}H_{44}$ Indan, 5-cyclohexyl-1-(3-cyclohexyl-*p*-tolyl)-1,3,3,6-tetramethyl-, 1340*a*.

$C_{28}H_{44}Br_2O_2$ 5,23-Choladien-3($\beta$)-ol, 24-phenyl-, tetrabromide acetate, 4281*i*.

$C_{28}H_{44}N_4O_6$ Androstan-17-ol-3-one, cyclohexanecarboxylate 2,4-dinitrophenylhydrazone, 4282*c*.
5-Cholen-24-al, 3($\beta$)-hydroxy-, 2,4-dinitrophenylhydrazone, acetate, 3433*a*.

$C_{28}H_{44}O_2$ 5,23-Choladien-3($\beta$)-ol, 24-phenyl-, acetate, 4281*h*.

$C_{28}H_{44}O_3$ 5-Cholene, 3($\beta$)-hydroxy-24-keto-24-phenyl-, 3-acetate, 3433*c*.

$C_{28}H_{44}O_3S$ 5-Cholenic acid, 3($\beta$)-hydroxy-thiol-Ph ester acetate, 3432*e*.

$C_{28}H_{44}O_3$ Cholanic acid, 3-hydroxy-12-oxo-, Me ester, benzoate, P 7509*g*.

$C_{28}H_{44}O_3S$ Pregnane-3($\alpha$),20($\beta$),21-triol-11-one, 3,21-diacetate *p*-toluenesulfonate, 6212*f*.

$C_{28}H_{44}O_3S$ Pregnane-3($\alpha$),17($\alpha$),20($\beta$),21-tetrol-11-one, 3,20-diacetate *p*-toluenesulfonate, 6215*i*.

$C_{28}H_{45}ClO_2$ 23-Cholen-3($\beta$)-ol, 5-chloro-24-phenyl-, acetate, 4282*a*.

$C_{28}H_{45}ClN_2O$ *o*-Cresol, 4-(7-chloro-4-quinolylamino)-$\alpha$-dioctylamino-, *and di-HCl*, P 7515*c*.

$C_{28}H_{46}N_2O_2S$ Sparteine, $\omega$-heptyl-*N*-(2-naphthylsulfonyl)-, 1048*a*.

$C_{28}H_{46}O_2$ 2-Fluorenecapric acid, $\omega$-octyl-, Me ester, 566*d*.
2-Fluorenepelargonic acid, $\theta$-nonyl-, Me ester, 566*d*.

$C_{28}H_{46}O_4$ Carvacrol, 5,5'-(1,2-diethylethylene)di-, dipropionate, 614*c*.
1,14-Picenedione, 2,3,4,4a,5,6,6a,6b,-7,8,8a,9,10,11,12,12a-hexadecahydro-10-hydroxy-2,2,4a,6a,6b,9,-9,12a-octamethyl-, acetate, 5385*g*.
Thymol, 6,6'-(1,2-diethylethylene)di-, dipropionate, 614*b*.

$C_{28}H_{46}O_{12}$ Compd., m. 128–30°, 1792*a*.
Cymarin, acetate, 1430*h*.

$C_{28}H_{46}O_{11}+0.5H_2O$ Cymarylic acid, acetate, *and K salt*, 1430*h*.

$C_{28}H_{47}NO$ *o*-Cresol, $\alpha$-diisoheptylamino-4-(6,7-dimethyl-4-quinolylamino)-, P 7515*d*.

$C_{28}H_{47}N_3O_3$ Glutamic acid, *N*-[*p*-[1-(2-amino-4-hydroxy-6-pteridyl)ethylamino]-benzoyl]-, cyclohexylamine salt, 3424*a*.

$C_{28}H_{48}$ 2,6,10,14,18-Heneicosapentaene, 3,7,11,15,19-pentamethyl-21-phenyl-, 1714*d*.

$C_{28}H_{46}N_2O_2$ 4,4'-Bi-*o*-cresol, 6,6'-diallyl-$\alpha,\alpha'$-bis(dipropylamino)-, *di-HCl*, P 4696*a*.

$C_{28}H_{48}O_5$ Echinocystic acid, 2-desoxy-16-acetyl-, keto lactone, 213*e*.
Lanosterol, triketodihydro-, acetate, 7495*f*.

$C_{28}H_{48}O_7$ [2,2'-Binaphthalene]-1,1',4a(2*H*)-tricarboxylic acid, octadecahydro-1-hydroxy-2,2',5',5',7,7,8'a-heptamethyloxo-, $\gamma$-lactone, Me ester, 214*a*, 1748*g*.

$C_{28}H_{48}O_5$ 5-Cholenic acid, 3($\beta$),12($\alpha$)-dihydroxy-, 3($\alpha$)-acetate 12($\beta$)-succinate di-Me ester, 1790*f*.

$C_{28}H_{48}O_7$ 14-Etiocholenic acid, 3($\beta$)-(thevetopyranosyloxy)-, Me ester, diacetate, 1792*b*.
Neriifolin, acetate, 1791*f*.
—, acetyl-, 5787*i*.
Oleandrin, 7034*d*.
Veneniferin, 5787*i*.

$C_{28}H_{49}BrO_4$ Betulinic acid, bromo-, acetate, 730*c*.

$C_{28}H_{48}NO_2$ Cevadine, 2363*c*, 4380*g*, 9384*f*.

$C_{28}H_{50}Cl_2N_2O_6$ 1,10-Decanediamine, *N,N'*-bis(chlorophenethyl)-, dilactate, 3379*bc*.

$C_{28}H_{50}I_2N_2O_4$ 1,1'-Hexamethylenebis-[1,2,3,4-tetrahydro-6,7-dimethoxy-1,1-dimethylisoquinolinium iodide], 2024*e*.

$C_{28}H_{50}O_2$ Acetate, m. 124°, 4041*i*.
$\beta$-Amyradienol, acetate, 5385*e*.
*p,p'*-Biphenol, 2,2',6,6'-tetra-*tert*-amyl-, P 9428*b*.
Octadecane, 1,18-bis(*p*-methoxyphenyl)-, 1379*h*.
Phenol, 2,2'-butylidenebis[6-(1,1,3,3-tetramethylbutyl)-, P 7257*d*.

$C_{28}H_{50}O_2$ $\Delta^{12,13}$-Oleanene, 2-acetoxy-7-keto-, 212*g*.

$C_{28}H_{50}O_4$ Echinocystic acid, 2-desoxy-16-acetyl-, 213*d*.
Lanostanol, dehydrodiketo-, acetate, 7495*g*.

$C_{28}H_{50}O_6$ [2,2'-Binaphthalene]-1,1'-dicarboxylic anhydride, eicosahydro-6-hydroxy-2,2',4'a,5,5,7',8',8a-octamethyl-, acetate, 6603*a*.

$C_{28}H_{50}O_7$ [2,2'-Binaphthalene]-1,1',4a(2*H*)-tricarboxylic acid, octadecahydro-1,4-dihydroxy-2,2',5',5',7,7,8'a-heptamethyl-, $\gamma$-lactone, di-Me ester, 213*h*.

$C_{28}H_{50}O_7$ Etiocholanic acid, 3($\beta$)-(thevetopyranosyloxy)-, Me ester, diacetate, 1792*b*.

$C_{28}H_{50}O_{10}$ 14-Isoetiocholanic acid, 3($\beta$)-thevetopyranosyloxy)-14-hydroxy-, Me ester diacetate, 1792*a*.

$C_{28}H_{51}NO_4$ Betulonic acid, dihydro-, oxime acetate, 730*c*.

$C_{28}H_{51}NO_4S$ Cholesteryl sulfate, pyridine salt, 6641*g*.

$C_{28}H_{51}NO_5$ Protoveratridine, 4380*g*.

$C_{28}H_{52}ClN_3O_4Pt$ 1-(Carboxymethyl)pyridinium chloroplatinate, dinonyl ester, 6977*e*.

$C_{28}H_{52}N_2$ Benzidine, *N,N,N',N'*-tetraamyl-*and di-HCl*, 3380*h*.

$C_{28}H_{52}N_2O_4$ 1,8-Octanediamine, 1,8-bis(2-ethyl-4,5-dimethoxyphenyl)-*N,N,N',N'*-tetramethyl-, 2624*f*.

$C_{28}H_{52}N_2O_6$ 1,10-Decanediamine, *N,N'*-diphenethyl-, dilactate, 3379*d*, P 3455*e*.
1,8-Octanediamine, *N,N'*-bis(3-phenylpropyl)-, dilactate, 3379*d*.

$C_{28}H_{52}N_2O_{10}$ 1,6-Hexanediamine, *N,N'*-bis-(3,4-dimethoxyphenethyl)-, dilactate, 3378*f*, P 3455*e*.

$C_{28}H_{52}O_2$ Amyrin, acetate, 4041*i*.
Butyrospermol, acetate, 7463*a*.
Ether, 7-dehydrocholesteryl tetrahydrofurfuryl, P 5810*e*.
Euphorol, acetate, 9512*f*.
Germanicol, acetate, 5385*d*.
Vitamin A, laurate, 5372*i*.

$C_{28}H_{52}O_3$ $\alpha$-Amyrane, 2-acetoxy-12-keto-, 6602*i*.
$\Delta^{13,18}$-Oleanene, 2,7-dihydroxy-, 2-acetate, 212*f*.

$C_{28}H_{52}O_4$ Lanostanol, diketo-, acetate, 242*d*, 7495*g*.

$C_{28}H_{52}O_6$ [2,2'-Binaphthalene]-1,1'-dicarboxylic acid, eicosahydro-2,2',4'a,5,-5,7',8',8a-octamethyl-6-oxo-, di-Me ester, 6603*d*.

$C_{28}H_{54}N_2O_2$ Malonamide, $\alpha$-allyl-*N,N,N',-N'*-tetracyclohexyl-$\alpha$-ethyl-, P 1798*a*.

$C_{28}H_{54}O_2$ Butyrospermol, dihydro-, acetate, 7463*c*.
Lanosterol, dihydro-, acetate, 7495*h*.

$C_{28}H_{54}O_2$ $\alpha$-Tocopherol, propionate, P 365*f*.

$C_{28}H_{56}O_4Sn$ Dibutyltin dilaurate, 8737*h*.

$C_{28}H_{54}O_5$ [2,2'-Binaphthalene]-1,1'-dicarboxylic acid, eicosahydro-6-hydroxy-2,2',4'a,5,5,7',8',8a-octamethyl-, di-Me ester, 6603*c*.

$C_{28}H_{55}NO$ 3-Cholesterylcarboxamide, *N,N*-diethyl-, 2215*a*.

$C_{28}H_{55}NO_2S$ Spiro[cholestane-3,2'-thiazolidine]-4'-carboxylic acid, Et ester, *and -HCl*, 659*c*.

$C_{28}H_{56}N_2S_4$ Thiazole, 2,2'-dithiobis[4-tridecyl-, 633*i*.

$C_{28}H_{56}N_4O$ Sarothamnine, compd. with EtOH, 5543*e*.

$C_{28}H_{57}N_3O_4$ 3,4-Pyrroledicarboxylic acid, 1-cyclohexyl-2,5-dimethyl-, bis(3-dipropylaminopropyl) ester, P 4302*f*.

$C_{28}H_{60}N_4O_4$ 3,4-Pyrroledicarboxylic acid, 1-(2-diethylaminoethyl)-2,5-dimethyl-, bis(3-dipropylaminopropyl) ester, P 4302*g*.

$C_{28}H_{60}N_6$ Guanidine, (2,3-didodecyl-*p*-phenylene)di-, *di-HCl*, 8545*h*.
Guanidine, 1,1'-*p*-phenylenebis[3-dodecyl-, *di-HCl*, 5014*c*.

$C_{28}H_{62}O_2$ 16,17-Dotriacontanedione, 3791*i*.

$C_{28}H_{62}O_4$ Palmitoyl peroxide, 1373*a*.
Sebacic acid, dihendecyl ester, P 5184*a*.

$C_{28}H_{63}NO$ Oleamide, *N*-tetradecyl-, 8353*h*.

$C_{28}H_{64}O$ Cyclohexanol, 1-hexacosyl-, 3366*a*.

$C_{28}H_{64}O_2$ 16-Dotriacontanone, 17-hydroxy-, 3791*h*.

$C_{28}H_{66}$ Docosane, 11-decyl-, 4911*b*.
Dotriacontane, 6890*c*.
Eicosane, 9,10,11,12-tetrapropyl-, 107*di*.

$C_{28}H_{66}N_2O_4$ Hexadecyl hyponitrite, P 5641*c*.

$C_{28}H_{66}O$ Hexadecyl ether, 5003*d*, 5893*g*.

$C_{28}H_{66}S$ Hexadecyl sulfide, 6511*h*, P 6820*i*.

$C_{28}H_{66}S_2$ Hexadecyl disulfide, 6511*i*.

$C_{28}H_{66}S_3$ Hexadecyl trisulfide, 6511*i*.

$C_{28}H_{66}S_4$ Hexadecyl tetrasulfide, 6511*i*.

$C_{28}H_{66}Se$ Hexadecyl selenide, 6400*a*.

$C_{28}H_{66}Te$ Hexadecyl telluride, P 6820*h*.

$C_{28}H_{67}O_4P$ Hexadecyl phosphate, 1483*h*.

$C_{28}H_{68}N_2$ 1,10-Decanediamine, *N,N'*-dihendecyl-, *di-HBr*, 3379*h*, P 3455*h*.

$C_{28}H_{68}N_2O_6$ 1,8 Octanediamine, *N,N'*-dinonyl-, dilactate, 3379*h*.

$C_{28}H_{68}O_7P_2$ 1-Hexanol, 2-ethyl-, pyrophosphate, P 9357*a*.
Octyl pyrophosphate, P 9357*a*.

$C_{28}H_{72}O_{13}Si_8$ Compd., m. 190–5°, P 6221*f*.

$C_{28}H_{68}O_{14}Si_{13}$ Pentadecasiloxane, dotriacontamethyl-, P 4402*f*.

$C_{28}H_{19}ClN_6O_4$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 6-[*p*-(4-chloro-2-nitrophenylazo)anilino]-2-phenyl-, P 8166*a*.

$C_{28}H_{19}Cl_2N_5O_2$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 2-(2,5-dichlorophenyl)-6-(*p*-phenylazoanilino)-, P 8166*b*.

$C_{28}H_{20}N_6O_4$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 2-(*p*-nitrophenyl)-6-(*p*-phenylazoanilino)-, P 8166*a*.

$C_{28}H_{21}N_5O_2$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 2-phenyl-6-(*p*-phenylazoanilino)-, P 8165*i*.

$C_{28}H_{22}N_4OS_2$ 4-Thiazolol, 5-[4,4-bis(2-benzothiazolyl)-1,3-butadienyl]-2-diphenylamino-, P 4159*b*, P 8927*b*.

$C_{28}H_{22}N_6O_2$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 6-[*p*-(*p*-aminophenylazo)anilino]-2-phenyl-, P 8166*a*.

$C_{28}H_{22}N_4O_{14}$ 1,2'-Binaphthyl, methyl-, dipicrate, 8375*f*.

$C_{28}H_{15}N_6Na_4O_{28}$ Chlorazol Fast Pink, 3102*h*.

$C_{28}H_{23}N_7O_{14}$ Indole, 3-(4-biphenylyl)-1-methyl-, dipicrate, 218*g*.

$C_{28}H_{24}InN_6S_3$ 2,2'-Bipyridine, compd. with In(CNS)$_3$, 6932*i*.

$C_{28}H_{28}N_2O_7$ 15*H*-Cyclopenta[*a*]phenanthrene, 16,17-dihydro-12-isopropyl-, compd. with 2,4,7-trinitro-9-fluorenone, 622*a*.

$C_{28}H_{28}N_2O_3$ Quinoline, 6-methoxy-4-*p*-methoxyanilino-2-(2-naphthyl)-, picrate, 3002*f*.

$C_{28}H_{28}O_3S_2$ 2-Naphthalenesulfonic acid, benzhydrylidenedi-, *and salts*, P 5047*c*.

$C_{28}H_{28}N_4O_2$ Glyoxal, (4'-hydroxy-4-biphenylyl)-, benzoate bis(phenylhydrazone), 1034*g*.

$C_{28}H_{28}N_4O_{28}S_6$ 1,3,6-Naphthalenetrisulfonic acid, 8,8'-[ureylenebis(*p*-phenylenesulfonylimino)]di-, *hexa-Na salt*, 3855*h*.

$C_{28}H_{28}N_6O_{16}S_2$ 1-Naphthol-5-sulfonic acid, 2,2'-(3-hydroxy-3'-methoxy-4,4'-biphenylenebisazo)bis[8-amino-, P 8148*i*.

$C_{28}H_{28}O_2$ Isobutyric acid, $\beta,\beta'$-di-9-phenanthryl-, Me ester, 7018*d*.

$C_{28}H_{28}O_9$ Flavone, 3-anisoyl-5-hydroxy-4',5-dimethoxy-, anisate, 3414*g*.

Ribopyranose, tetrabenzoate, 1721*b*.
$C_{28}H_{26}$ Ethane, tetraphenyltolyl-, 2608*a*, 5387*f*.
$C_{28}H_{28}N_2O_5$ Tryptophan, *N*-phenoxyacetyl-, *p*-phenylphenacyl ester, 1398*b*.
$C_{28}H_{28}N_6O_2S$ Carbanilide, 4,4′-bis[*p*-(3-methyl - 5 - oxo - 2 - pyrazolin - 1 - yl)-phenyl]thio-, P 9461*i*.
$C_{28}H_{28}N_8O_6S_2$ Melamine, $N^2$, $N^4$-bis(4′-amino - 3′ - sulfo - 4 - biphenylyl) - *N*⁶-phenyl-, P 857*i*.
$C_{28}H_{28}NO_3P$ Amidophosphoric acid, *N*-benzyl-, dibenzhydryl ester, 600*b*.
$C_{28}H_{30}N_2O_5S_2$ 5-Methoxy-2-[3-(5-methoxy-1-methylthianaphtheno[7,6 - *d*]thiazol-2(1*H*) - ylidene) - 2 - methylpropenyl]-1 - methylthianaphtheno[7,6 - *d*]thiazolium *p*-toluenesulfonate, P 513*d*.
$C_{28}H_{30}N_2O_6$ Galactopyranoside, phenyl 4,6-benzylidene-, 2,3 - dicarbanilate, 1327*e*.
$C_{28}H_{30}N_{10}O_6S_2$ 5-Pyrazolol, 4,4′-(3-hydroxy-3′ - methoxy - 4,4′ - biphenylenebisazo)bis[3 - methyl - 1 - *m* - sulfamylphenyl-, P 8148*h*.
$C_{28}H_{30}N_{10}O_{14}$ Pyridine, 3,3′-benzylidenebis[6-dimethylamino-, dipicrate, 410*h*.
$C_{29}H_{31}ClN_{10}O_{14}$ Quinoline, 2-*p* chloroanilino-(2-diethylaminoethylamino)-, dipicrate, 9037*h*.
$C_{29}H_{31}N_3O_2$ Ketone, 4- *N*-benzylacetamido-1,5 - diphenyl - 3 - *p* - tolyl - 2 - pyrazolin-4-yl methyl, 3389*h*.
$C_{31}H_{37}IN_2O_7$ Cinchonine, iodosalicylate, 3148*d*.
$C_{31}H_{38}N_6O_2$ Malonamide, α-allyl-*N*, *N*′-bis-(4 - amino - 2 - methyl - 6 - quinolyl)-α-benzyl-, *di HCl*, 1778*d*.
$C_{31}H_{38}N_6O_{18}$ Malonic acid, bis[2-(2-pyridyl)-ethyl], di Et ester dipicrate, 4267*f*.
$C_{31}H_{39}N_{10}O_{14}$ Quinoline, 6 amino-4-(2-diethylaminoethylamino) -, dipicrate, 9038*h*.
$C_{34}H_{32}O_6$ Galactopyranoside, phenyl 2,3-dibenzyl 4,6-benzylidene -, 1327*f*.
$C_{34}H_{32}O_7$ 1-Indancarboxylic acid, 2-(3-cyclohexylpropyl) - 1,2 - dihydroxy - 3-oxo-, dibenzoate, 1381*d*.
$C_{35}H_{37}N_5O_5$ Ergotamine, dehydro , 8051*f*.
$C_{35}H_{35}D_2N_5O_5$ Malonic acid-$d_2$, benzyl-, brucine salt, 3302*g*.
$C_{35}H_{38}N_2O_8S$ Naphthalenesulfinic acid, brucine salt, 9056*h*.
$C_{35}H_{38}N_4O_3$ Phyllocrythrin, 5832*e*.
$C_{35}H_{37}N_5O_5$ See *Ergotamine*
$C_{35}H_{37}BrN_4O_8$ 3 Carboxy 1-methylpyridinium bromide, tetraester with pentaerythritol, 2623*a*.
$C_{37}H_{38}N_4O_6$ See *Bilirubin*.
$C_{37}H_{40}O_3$ 2,4-Xylenol, 6,6′-methylenebis[α-(2-hydroxy-3,5-xylyl)-, 5019*d*
$C_{37}H_{41}N_5O_5$ Ergotamine, dihydro-, 4374*h*, 4375*d*, 4381*h*, 4763*g*, 4776*b*, 7128*b*, 8539*b*.
$C_{37}H_{37}O_4P$ Methanephosphonic acid, 4-biphenylyldiphenyl-, di Bu ester, 1347*a*; diiso-Bu ester, 1347*a*.
$C_{37}H_{39}N_7O_2$ Benzoic acid, phenylazo-, ester with vitamin $A_2$, 2659*f*.
$C_{39}H_{44}N_8O_8$ Progesterone, bis(2,4-dinitrophenylhydrazone), 1690*f*.
$C_{39}H_{46}O_4$ 5-Androstene-3(β),17-diol, dibenzoate, 243*c*.
$C_{39}H_{50}O_{10}$ Fabiatrin, hexaacetate, 1770*g*.
$C_{39}H_{49}N_3O_3$ 5-Audrosten-17-on-3(β)-ol, benzoate, 4-phenylsemicarbazone, 243*b*.
$C_{39}H_{40}N_4O_6$ Mesobilirubin, 3082*c*.
$C_{39}H_{46}N_8O_6$ 3,20-Allopregnanedione, bis(2,4-dinitrophenylhydrazone), 5067*d*.
$C_{39}H_{46}N_8O_8$ 3,20-Pregnanedione, bis(2,4-dinitrophenylhydrazone), 5067*e*.
$C_{39}H_{50}O_{10}$ Robinin, 5542*b*.
$C_{39}H_{47}BrN_4O$ 2,6-Xylenol, 4-(6-bromo 2,3-dimethyl - 9 - acridylamino) - diamylamino-, *di-HCl*, P 7516*e*.
$C_{39}H_{47}ClN_4O_2$ *o*-Cresol, 4-(6-chloro-2-methoxy - 9 - acridylamino) - α - dihexylamino-, *di-H Br*, P 1068*d*; *salts*, P 7516*e*.
$C_{39}H_{47}N_5O_5$ See *Urobilin*.
$C_{39}H_{47}OBr$ Isoandrosterone, dehydro-, dibenzyl mercaptole, 658*h*.
$C_{39}H_{47}O_4$ Benzoic acid, 2,5-bis(benzyloxy)-, dodecyl ester, 7003*h*.
$C_{39}H_{52}O_8S$ Δ⁴-Pregnene-3,20-dione, 12(α),21-dihydroxy-, 21-succinate, 12-*p*-toluenesulfonate, Me ester, 3431*b*.
$C_{39}H_{51}BrO_8S$ 3,20-Pregnanedione, 4-bromo-12(α),21-dihydroxy-, 21-succinate 12-(α)-*p*-toluenesulfonate Me ester, 6640*b*.
$C_{39}H_{51}N_3O_4$ 2-Naphthamide, *N*-[4-[α-(2,4-di-*tert* - amylphenoxy)acetamido]butyl]-1-hydroxy-, P 8293*c*.
$C_{39}H_{44}N_4O$ Mesobilirubinogen IXa, 2660*g*.
$C_{39}H_{46}N_4O_2$ Mesobilirubinogen IXa, 1452*i*.
$C_{39}H_{46}N_4O_6$ Mesobilirubinogen IXa, 3081*d*, 3082*b*, 3918*f*, 4322*h*, 8484*e*, 8522*g*, 9110*f*.
$C_{39}H_{48}O_5S$ 3,20-Pregnanedione, 12(α),21-dihydroxy-, 21-succinate 12(α)-*p*-toluenesulfonate Me ester, 6640*b*.
$C_{39}H_{45}NO_5S_2$ *p*-Toluenesulfonic acid, α-(3-oxo-2(3*H*) - thianaphthenylidene) - 2-stearoylamino-, P 514*c*.
$C_{39}H_{49}N_3O_4$ 3,4-Pyrroledicarboxylic acid, 1-methyl-2,5-diphenyl-, bis(2-diethylaminopropyl) ester, P 4701*a*.
$C_{39}H_{49}N_3O_{13}$ Chondrosin, *N*-acetyl-, compd. with cinchonidine, 5009*c*.
$C_{39}H_{49}N_{12}O_{28}P$ Choline picrate, phosphate, 1720*i*.
$C_{39}H_{49}N_4O_4$ Cholestadien-3-one, 2,4-dinitrophenylhydrazone, 4282*d*.
$C_{39}H_{49}N_4O_6$ Stercobilin, 3082*c*, 9110*g*.
$C_{39}H_{50}N_4O_7$ Cryptogenin, 2,4-dinitrophenylhydrazone, 655*e*.
$C_{39}H_{46}O_3S$ 5-Cholenic acid, 3(β)-hydroxythiol-, benzyl ester acetate, 3432*c*; Et ester benzoate, 3432*f*.
$C_{39}H_{48}O_4$ 5-Cholene, 3(β),24-dihydroxy-, 3-acetate 24-benzoate, 3432*h*.
$C_{39}H_{46}O_{11}$ Glucoside, testosterone-, tetraacetate, P 5428*b*
$C_{39}H_{47}BrN_4O_4$ Δ¹-Cholesten-3-one, 2-bromo-, 2,4-dinitrophenylhydrazone, 4282*d*.
$C_{39}H_{47}N_3O_{13}$ Chondrosinite, *N*-acetyl-, compd. with cinchonidine, 5009*c*.
$C_{39}H_{48}N_4O_4$ Cholesten-3-one, 2,4-dinitrophenylhydrazone, 4282*d*.
$C_{39}H_{48}O_2$ *B*-Norcholesterol, benzoate, 1789*f*.
$C_{39}H_{48}O_5$ 1′,2′,2,3 - Benzocholestan - 4′ - ol-3′,5′-dicarboxylic acid, 244*g*.
$C_{39}H_{48}O_{11}$ Cymarylic acid, Me ester, acetate, 1430*i*.
$C_{39}H_{49}BrO$ Ether, 7-bromocholesteryl phenyl, P 5810*f*.
$C_{39}H_{49}NO_2$ Nicotinic acid, cholesteryl ester, 2622*i*.
$C_{39}H_{49}NO_6$ Jervinol, *N*-acetyl-β-dihydro-, diacetate, 658*f*.
$C_{39}H_{50}N_4O_4$ 3 Cholestanone, 2,4-dinitrophenylhydrazone, 4282*c*.
$C_{39}H_{50}O_2$ Cholesterol, 7-phenoxy-, 3022*d*.
$C_{39}H_{50}O_5$ Echinocystic acid, 2-keto-16-acetyl-, Me ester, 213*b*.
$C_{39}H_{56}O_{11}$ Maltoside, desoxycorticosterone-, P 5428*b*.
$C_{39}H_{51}BrO_4$ Betulinic acid, bromo-, acetate, Me ester, 730.
$C_{39}H_{51}NO_5$ Echinocystic acid, 2-keto-16-acetyl-, Me ester, oxime, 213*c*.
$C_{39}H_{51}N_3O_4$ *p*-Nitrobenzylnicotinium palmitate, P 3969*a*.
$C_{39}H_{52}INO_4$ (Carboxymethyl)[2 - (4,4′ - dimethyl benzhydryloxy)ethyl]dipropylammonium iodide octyl ester, P 5046*a*.
$C_{39}H_{52}N_2O_2$ Benzylnicotinium palmitate, P 3969*a*.
$C_{39}H_{52}O_2$ Stearic acid, (amylnaphthyl)-, 9028*g*
$C_{39}H_{52}O_5$ Echinocystic acid, 16-acetyl-, Me ester, 213*b*.
$C_{39}H_{52}O_{11}S$ Allocholanic acid, 3(β),6(β),12-(α)-trihydroxy-, 12(α)-acetate 3(β)-acid succinate 6(β)-methanesulfonate, di-Me ester, 1790*f*.
$C_{39}H_{53}N_3O_4$ 3,4-Pyrroledicarboxylic acid, 1-benzyl-2,5-dimethyl-, bis(3-dipropylaminopropyl) ester, P 4302*i*.
$C_{39}H_{54}N_2$ Aniline, methylenebis[*N*, *N*-diamyl-, P 1176*i*; *and di-HCl*, 3380*h*.
$C_{39}H_{54}N_2O_2$ Aniline, *p*, *p*′-(methylenedioxy)-bis[*N*, *N*-diamyl-, *di-HCl*, 3381*c*.
$C_{39}H_{54}N_{10}$ Biguanide, 1,1′-(methylenedi-*p*-phenylene)bis[5-octyl-, P 2230*a*.
$C_{39}H_{55}NO$ Piperidine, 1-cholesterylcarbonyl-, 2215*a*.
$C_{39}H_{56}O$ Stigmasterol, 3-Bu ether, 659*a*.
4-Stigmasterol, Bu ether, 659*a*.
$C_{39}H_{56}O_6$ Glucoside, cholesterol-, P 5428*b*.
$C_{39}H_{56}O_8$ Mesitylenic acid, $\alpha^2$,$\alpha^5$-bis(dodecyloxy)-2-hydroxy-, *and Na salt*, P 1064*b*.
$C_{39}H_{56}O_8$ Glucoside<1,5>, 3(β)-cholestanyl-, 243*e*.
$C_{39}H_{60}I_2N_2O_6$ Triethyl(2-hydroxyethyl)ammonium iodide, hemimellitate, 1486*i*, 2191*d*; trimellitate, 1486*i*; trimesate, 2191*e*.
$C_{39}H_{62}N_2O_2$ Octadecylnicotinium valerate, P 3969*a*.
$C_{39}H_{54}NO_4P$ α-Tocopherol, phosphate, Et$_3$NH salt, P 4702*e*.
$C_{39}H_{54}NO_7P$ α-Tocopherol, phosphate, salt with 2,2′-iminodiethanol, P 4702*e*.
$C_{39}H_{62}O_4$ Caprin, tri-, 1344*k*.
Enanthic acid, γ-propyl-, triglyceride, 6165*f*.
$C_{39}H_{64}NO_8P$ 2-Glycerophosphoric acid, 1,3-dimyristate, 2-aminoethyl ester, 570*h*.
$C_{39}H_{66}N_6O_6$ Melamine, *N*, *N*, *N*′, *N*′, *N*″, *N*″-hexakis(butoxymethyl)-, P 4050*e*.
$C_{39}H_{69}ClO_3Si$ Silane, chloro(dodecyloxy)-(octadecyloxy)propoxy-, P 6430*e*.
$C_{34}H_{16}O_2$ Isoviolanthrone, P 6237*g*.
Violanthrone, 2984*c*.
$C_{34}H_{16}O_7$ 6,15-Ethanonaphtho[2,3-*c*]pentaphene-19,20-dicarboxylic anhydride, 5,6,9,14,15,18 - hexahydro - 5,9,14,18-tetraoxo-, 1365*a*.
$C_{34}H_{17}NO_2$ Violanthrone, amino-, P 8171*f*.
$C_{34}H_{18}O_2$ [Bi-7*H*-benz[*de*]anthracene]-7,7′ dione, 1760*d*, 2984*c*.
$C_{34}H_{19}NO_2$ 7*H*-Benz[*de*]anthracen-7-one, iminobis-, 1759*i*.
$C_{34}H_{20}I_2N_4Na_4O_{14}S_4$ Trypan blue, diiodo deriv., 4368*b*.
$C_{34}H_{20}O_2$ Benzo[*j*]fluoranthen-1-ol(?), di-Bz deriv , 7929*e*.
10,17 - Ethanodibenzo[*a*,*c*]pentacene-19,20-dicarboxylic anhydride, 10,17-dihydro-, 1364*d*.
$C_{34}H_{21}ClN_2O_6S$ Anthraquinone, 1-benzamido-4 - [*p* - (*p* - chlorophenylsulfonyl)-benzamido]-, P 8621*i*, P 5966*f*.
Anthraquinone, 1-benzamido-6-chloro-4 [*p*-(phenylsulfonyl)benzamido]-, P 8631*b*.
--, 1-*p*-chlorobenzamido-4-[*p*-phenylsulfonyl)benzamido] , P 8631*b*.
$C_{34}H_{21}IN_4Na_4O_{16}S_4$ Trypan blue, hydroxy iodo deriv., 4368*b*.
$C_{34}H_{21}N_3O$ Fluoranthene, 1,3-diphenyl-, picrate, 9059*a*.
$C_{34}H_{22}$ Phenanthrene, 1,8-di-2-naphthyl-(?), 7929*b*.
$C_{34}H_{17}As_4N_4$ Arsanthrene, 5,10-dicyano-5,10-dihydro-, compd. with benzene, 3383*e*.
$C_{34}H_{22}N_2O_2$ Anthraquinone, 1,4-bis(2-naphthylamino)-, P 7704*a*.
$C_{34}H_{22}N_2O_6S$ Anthraquinone, 1-benzamido-4-[(phenylsulfonyl)benzamido]-, P 8621*i*, P 7706*e*.
$C_{34}H_{22}N_4Na_4O_{16}S_4$ Trypan blue, dihydroxy deriv., 4368*b*.
$C_{34}H_{22}N_4O_6S$ 2-Naphthoic acid, thiobis[3-hydroxy-7-phenylazo-, 2600*d*.
$C_{34}H_{22}O_2$ Benzodifuran, tetraphenyl-, 2202*d*, 7016*g*.
$C_{34}H_{22}O_4$ Acid, m. above 360°, 2984*c*.
6,15 - Ethanonaphtho[2,3 - *c*]pentaphene-19,20-dicarboxylic acid, 5,6,9,-14,15,18 - hexahydro - 5,14 - dihydroxy-, dilactone, 1365*b*.
Ketone, 5-hydroxy-2,3-diphenylbenzofuryl phenyl, benzoate, 7017*ae*.
$C_{34}H_{22}O_5$ Acid, m. 258–60°, 2984*c*.
$C_{34}H_{22}O_6$ Hydroquinone, dibenzoyl-, dibenzoate, 7016*h*.
Phenolphthalein, dibenzoate, 2319*e*.
$C_{34}H_{23}N_3O_6S$ Anthraquinone, benzamido[*p*-(phenylsulfamyl)benzamido]-, P 8631, P 8644*a*.
$C_{34}H_{23}N_3O_7$ 7*H*-Naphtho[1,2,3-*de*]phthalazine-3,7(2*H*)-dione, 6-[*p*-(*p*-methoxyphenylazo)anilino]-2-phenyl-, P 8166*a*.
$C_{34}H_{24}Br_4N_2O_6$ Barbituric acid, 1,3-bis(2,7-dibromo - 9 - xanthyl) - 5,5 - diethyl-3822*h*.
$C_{34}H_{24}CuN_2O_2$ 2-Naphthol, 1-(phenyliminomethyl)-, Cu deriv., 4073*e*.
$C_{34}H_{24}N_2$ 9,10-Anthracenediamine, *N*, *N*′-diphaphthyl-, 7823*e*.
$C_{34}H_{24}N_2O_2$ [3,3′ - Bi - 1 - naphthylamine], *N*, *N*′-dibenzoyl-, 1756*b*.
$C_{34}H_{24}N_2O_6S$ 2-Naphthol, 1,1′-[sulfonylbis-(*p* - phenylenenitrilomethylidye)]di-, 5541*g*.
$C_{34}H_{24}N_4O_4$ Diquindolo[10,11-*ab*, 10′,11′-*ef*][1,5]diazocine - 6,17 - dione, 11,11a,22,22a - tetrahydro - 11a,22a-dihydroxy-11,22-dimethyl-, 230*a*.
$C_{34}H_{24}N_4O_8S_2$ 2,2′-Stilbenedisulfonic acid, 4,4′ - bis(2 - hydroxy - 1 - naphthylazo)-, 8965*i*.
$C_{34}H_{24}N_6Na_4O_{14}S_4$ Evans blue, 713*g*, 737*c*, 2320*i*, 3102*h*, 3871*c*, 8428*d*.
Trypan blue, 3855*gh*, 4766*a*, 9236*e*.
$C_{34}H_{24}N_6Na_4O_{16}S_4$ Niagra Sky Blue, 2093*g*.
$C_{34}H_{25}ClN_8O_{10}S_2$ 1-Phenol-4-sulfonic acid, 2 - [3 - [4′ - [4 - (2 - chloro - 5 - sulfophenylazo) - 3 - methyl - 5 - oxo - 2-pyrazolin - 1 - yl] - 4 - biphenylylazo]-2,4-dihydroxyphenylazo]-, P 3624*i*.
$C_{34}H_{26}N_2$ Cyclobutane, di-3-isoquinolyldiphenyl-, 3821*b*.
$C_{34}H_{26}N_6Na_2O_6S_2$ Benzopurpurin, 922*d*.
Benzopurpurin 4B, 7785*e*.

$C_{34}H_{26}N_6O_3S_2$ 3-Pyrazolecarboxylic acid, 5-hydroxy-1-[*p*-(6-methyl-2-benzothiazolyl)phenyl]-4-[*p*-(6-methyl-2-benzothiazolyl) phenylazo]-, Et ester, P 8149*f*.
$C_{34}H_{26}N_6O_6S_2$ 2,2′-Stilbenedisulfonic acid, 4,4′-bis(4-amino-1-naphthylazo)-, *di-Na salt*, 5519*i*.
$C_{34}H_{26}O_2$ 1-Butene 1,4-diol, 1-[10-(2-furyl)-9-anthryl]-4,4-diphenyl-, 4252*g*.
$C_{34}H_{28}Hg_2$ Triphenylene, 2,3-bis(ethylmercuri)-1,4-diphenyl-, 2614*f*.
$C_{34}H_{28}N_2O_3$ Compd., m. 202–3°, 4234*i*.
$C_{34}H_{28}N_2O_4S_2$ [3,3′-Bi-1-naphthylamine], *N*,*N*′-bis(*p*-tolylsulfonyl)-, 1756*b*.
$C_{34}H_{28}N_{12}O_{10}S_2$ 2,2′-Stilbenedisulfonic acid, 4,4′-bis(4-amino-6-*m*-carboxyanilino-*s*-trinzin-2-ylamino)-, P 7242*h*.
$C_{34}H_{28}O_2$ Anthracene, 9,10-diethoxy 9,10 dihydro-9,10-bis(phenylethynyl), 3401*d*.
Ethylene, 1,1-bis[*p*-(benzyloxy)phenyl]-2-phenyl-, 7469*f*.
$C_{34}H_{29}IN_4OS_2$ 3-Ethyl 2-{[4-(3-ethyl-2-benzothiazolinylidene) 5-oxo-1,3-diphenyl-2-imdazolidylidene]methyl}-benzothiazolium iodide, P 4161*h*
$C_{34}H_{30}$ Ethane, (*p*-ethylphenyl)tetraphenyl, 2608*a*.
Ethane, 1,1,1,2-tetraphenyl-2-(xylyl), 6496*d*.
—, 1,1,1-triphenylditolyl-, 5387*g*
$C_{34}H_{30}ClO_3P$ Phosphine oxide, [bis(4-biphenylyl)phenylmethyl]chloroisopropoxy-, 1347*b*.
$C_{34}H_{30}Hg_2$ Mercury, (tetraphenyl-*o* phenylene)bis[ethyl-, 2614*f*.
$C_{34}H_{30}IN_3OS_2$ 1-Ethyl-2-{[3-ethyl-5-[2-(1-ethylnaphtho[1,2]thiazol-2(1*H*)-ylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl}naphtho[1,2]-thiazolium iodide, P 4163*i*.
$C_{34}H_{30}N_4O_6S_2$ Bithiazole, 2,2′-diaminodiphenyl, mandelate, 2202*h*
$C_{34}H_{30}O_3$ Ethanol, 1,1-bis[*p*-(benzyloxy)phenyl]-2-phenyl-, 7469*e*.
$C_{34}H_{30}O_{10}S$ Arlitan, 2,3,5-tribenzoate, 6 *p*-toluenesulfonate, 152*c*.
$C_{34}H_{32}ClN_{11}O_{14}$ Pyrimidine, 4-*p*-chloroanilino-6-(2-diethylaminoethylamino)-2-phenyl-, dipicrate, P 6244*i*.
$C_{34}H_{32}N_2O_4$ Acetophenone, α,α′,α″,α‴-(ethylenedinitrilo)tetra-, *and di-HCl*, 3800*e*.
$C_{34}H_{32}N_4O_2S_4$ Benzothiazole, 2,2′-(azodi-*p*-phenylene)bis[6-ethoxy-, bis(methylmercaptomethyl) deriv., P 8146*i*
$C_{34}H_{32}N_4S_4$ Benzothiazole, 2,2′-(azodi-*p*-phenylene)bis[6-methyl-, bis(ethylmercaptomethyl) deriv., P 8147*a*
$C_{34}H_{33}I_2N_3SSe$ 2-[5-(2-Benzoselenazolyl)-3-(3-ethyl-2-benzothiazolinylidene)-1,4-pentadienyl]-1-ethylquinolinium iodide, ethiodide, 2531*a*.
$C_{34}H_{33}I_2N_3S_2$ 4-[5-(2-Benzothiazolyl)-3-(3-ethyl-2-benzothiazolinylidene)-1,4-pentadienyl]-1-ethylquinolinium iodide, ethiodide, 2530*f*.
2,2′-[3-(1-Ethylquinolylidene)-1,4-pentadienylene]bis(3-ethylbenzothiazolium iodide], 2528*d*, 2530*g*.
$C_{34}H_{34}IN_3O_2S_5$ 3-Ethyl-2{[3-ethyl-5-[3-ethyl-5-[3-ethyl-5-(3-ethyl-2-benzothiazolinylidene)-4-oxo-2-thiazolidylidene]-4-oxo-2-thiazolidylidene]-4-oxo-2-thiazolidylidene}-methyl}benzothiazolium iodide, P 4163*d*.
$C_{34}H_{34}I_2N_2O_5$ Quinine, iodosalicylate, 3148*d*
$C_{34}H_{34}N_2O_6$ Daphnoline, 6787*g*.
$C_{34}H_{34}N_4$ *p*-Phenylenediamine, *N*,*N*″-*p*-xylylenebis[*N*′-benzyl-, 5386*c*.
$C_{34}H_{34}N_4O_4$ Protoporphyrin, 1474*i*, 2282*a*, 3512*b*, 4356*a*, 5444*e*, 6690*g*, 8019*b*.
$C_{34}H_{34}N_2O_7$ Rhodine $G_7$, P 7648*b*.
$C_{34}H_{34}N_4O_{10}S_4$ 2-Naphthalenesulfonic acid, ethylidenedi-, compd. with sulfanilamide, P 5047*c*.
$C_{34}H_{34}N_6O_3$ $+H_2O$ Antipyrine, 4,4′,4″-methylidynetri-, 7477*e*.
$C_{34}H_{44}O$ Cyclohexanone, 2,2,6,6-tetrabenzyl-, 2962*e*.
$C_{34}H_{33}IN_3S_2$ 3-Ethyl-2-{[3-(3-ethyl-5-methyl-2-benzothiazolinylidenemethyl)-5-phenyl-2-cyclohexen-1-ylidene]-methyl}-5-methylbenzothiazolium iodide, P 56*a*.
$C_{34}H_{36}Cl_2N_4O_{14}$ 1,6-Hexanediamine, *N*,*N*′-bis(*p*-chlorophenethyl)-, dipicrate, 3379*a*.
$C_{34}H_{34}I_2N_4O_2S_2$ 4-Thiazoline, 3,3′-ethylenebis[2-[3-(2-benzoxazolyl)allylidene]-4-methyl-, diethiodide, P 3737*b*.
$C_{34}H_{34}N_2O_6$ Pseudomorphine, 3973*e*.
$C_{34}H_{36}N_2O_{10}$ Hydrazine, 1,2-bis(4,4′,5,6-tetramethoxy-2-biphenylylcarbonyl)-, 190*f*.
$C_{34}H_{36}N_4O_6$ Bilipurpurine, 5818*i*.
Chlorine e6, P 7648*b*.
$C_{34}H_{38}I_2N_2O_4$ [1,2-Bis(*p*-methoxyphenyl)-ethylene]bis[anisylidenemethylammonium iodide], 614*e*.
$C_{34}H_{38}N_4O_{10}$ Threonine, *N*-*p*-nitrobenzoyl-, 8355*h*.
$C_{34}H_{38}N_8O_{18}$ Ethanol, 2,2′,2″,2‴-(3,3′-dimethyl-4,4′-biphenylenedinitrilo)-tetra-, dipicrate, 7443*e*.
$C_{34}H_{38}N_8O_{20}$ Ethanol, 2,2′,2″,2‴-(3,3′-dimethoxy-4,4′-biphenylenedinitrilo)-tetra, dipicrate, 7443*e*.
$C_{34}H_{38}NaO_{12}P$ Phosphoric acid, bis[2,2′-bis-(*o* methoxyphenoxy)isopropyl] ester, Na salt, P 665*h*
$C_{34}H_{38}O_{16}S_3$ Mannitol, 1,2,5,6-tetra-*p*-toluenesulfonate, 1721*h*
$C_{34}H_{39}BrO_{13}$ 2,4-Pentanedione, 3-benzoyl-3-bromo-1,5-diphenyl-, compd with AcOH, 7909*i*
$C_{34}H_{39}N_3O_3S$ See *Neutral violet*.
$C_{34}H_{39}N_3O_5S$ Tyrosine, *N* [β (benzylmercapto)-*N*-(1-carboxyprolyl)alanyl], *N*-benzyl ester, Et ester, 5016*g*
$C_{34}H_{39}O_{13}P$ Phosphoric acid, bis[2,2′-bis(*o* methoxyphenoxy)isopropyl] ester *and its Na salt*, P 665*h*.
$C_{34}H_{40}ClF_6N_2O_7$ $+3H_2O$ Morphine, fluocolumbate(V), 5786*a*.
$C_{34}H_{40}N_2O_4$ Benzyl alcohol, α,α′,α″,α‴-[ethylenebis(nitrilodimethylene)]-tetra-, *and di-HCl*, 3800*e*
$C_{34}H_{40}O_5$ Δ[20,22] Bisnorcholen-11-one, 3,9-epoxy-22,22′-diphenyl-, 3019*g*.
$C_{34}H_{42}Cl_6N_4O_2Pt$ Benzyldimethyl(phenylcarbamylmethyl)ammonium chloroplatinate, 6977*f*
$C_{34}H_{42}N_2O_2$ 2,3-Quinoxalinediethenol, α,α′-bis[2-(2,6,6-trimethyl-1-cyclohexen-1-yl)vinyl], 2588*g*.
$C_{34}H_{42}N_4O$ Amine, *p*,*p*′,*p*″,*p*‴-(oxydimethylidyne)tetrakis[*N*,*N*-dimethyl-, 191*h*.
$C_{34}H_{42}O$ Δ[7,9,12] Bisnorcholen-3-ol-11-one, 22,22′-diphenyl-, 3019*g*
$C_{34}H_{37}O_4$ Phenol, 4,4′-(1,2-diethylidenediethylene)bis[2-cyclohexyl-, diacetate, 3812*i*.
$C_{34}H_{46}N_2O_6$ (See also "dinitrobenzoate" under "D" under *Vitamins*.)
Cholesterol, 7-dehydro-, 3,5-dinitrobenzoate, 3020*c*.
Precalciferol, 3-dinitrobenzoate, 9180*i*.
$C_{34}H_{46}N_4O_4$ Ketene, (3-cyclohexylpropyl)-, dimer, bis(*p*-nitrophenylhydrazone), 2964*e*.
$C_{34}H_{46}N_{12}O_{24}$ Choline picrate, orthoformate, 1720*h*.
$C_{34}H_{46}O_2$ Diosterol, benzoate, 4281*f*.
$C_{34}H_{46}O_4$ Phenol, 4,4′-(1,2-diethylethylene)-bis[2-cyclohexyl-, diacetate, 3812*i*.
1,3,5,9,11,13-Tetradecahexaene-7,8-dione, 5,10-dihydroxy-3,12-dimethyl-1,14-bis(2,6,6-trimethyl-1-cyclohexen-1-yl)-, 2588*c*.
$C_{34}H_{47}NO_3$ Rubijervine, benzoate, 7939*g*.
Solanidan-3(β)-ol-12-one, benzoate, 7939*i*.
$C_{34}H_{47}NO_{11}$ See *Aconitine*.
$C_{34}H_{48}Br_2O_6$ β-Resorcil, 3,3′-dibromo-5,5′-didecyl-, 1037*g*.
$C_{34}H_{48}N_2O_7$ 6-Cholestanone, 3-hydroxy-, 3,5-dinitrobenzoate, 247*af*.
$C_{34}H_{48}O_2$ 4,6-Cholestadien-3(β)-ol, benzoate, 3020*d*.
Cholesterol, 7-dehydro-, benzoate, 3020*d*.
$C_{34}H_{48}O_3$ Benzoate, m. 119°, 7495*c*.
Benzoate, m. 162°, 7495*c*.
Cholesterol, 7-keto-, benzoate, 5307*g*.
$C_{34}H_{48}O_4$ 5-Cholene-3(β),24-diol, 24-phenyl-, diacetate, 3433*d*.
4,4′-Stilbenediol, α,α′-diethyl-, dicaprylate, P 2641*e*.
$C_{34}H_{49}BrO_2$ Cholesterol, 7-bromo-, benzoate, 3020*bf*.
$C_{34}H_{49}ClO_2$ Cholesterol, 7-chloro-, benzoate, 3020*g*.
$C_{34}H_{49}IO_2$ Cholesterol, 7-iodo-, benzoate, 3020*g*.
$C_{34}H_{49}NO_3$ Rubijervine, dihydro-, benzoate, 7939*i*.
$C_{34}H_{50}N_4O_4$ Δ[1]-Cholestenone, methyl(2,4-dinitrophenyl)hydrazone, 4282*i*.
$C_{34}H_{50}N_4O_5$ 4-Cholesten-3-one, 7-methoxy-, 2,4-dinitrophenylhydrazone, 3022*c*.
$C_{34}H_{50}O_2$ Cholesten-3-ol, benzoate, 3018*i*.
Cholesterol, benzoate, 5307*g*.
$C_{34}H_{50}O_3$ Cholestan-3(β)-ol-7-one benzoate, 243*d*.
6-Cholesten-5(α)-ol, 3(β)-benzoxy-, 3021*c*.
Cholesterol, 7-hydroxy-, benzoate, 3021*d*, 5307*g*.
$C_{34}H_{50}O_4$ β Resorcil, 5,5′-didecyl-, 1037*f*.
$C_{34}H_{50}O_{10}$ Neriifolin, diacetate, 1791*f*.
$C_{34}H_{51}BrO$ Ether, benzyl 7-bromocholesteryl, P 5810*f*
$C_{34}H_{51}ClO_5$ Sumaresinolyl chloride, diacetate, 212*d*.
$C_{34}H_{51}NO$ 3-Cholesterylcarboxanilide, 2215*a*
$C_{11}H_{52}INO_2$ 3-Carboxy-1-methylpyridinium iodide, cholesteryl ester, 2622*i*.
$C_{34}H_{52}N_4O_4$ Cholestanone, methyl(2,4-dinitrophenyl)hydrazone, 4282*i*.
$C_{34}H_{53}N_3O_5$ 3-Caprostanone, 7-methoxy-, 2,4-dinitrophenylhydrazone, 3022*c*.
$C_{34}H_{52}O_3S$ 6-Cholestanone, 3-hydroxy-, *p*-toluenesulfonate, 247*bf*.
$C_{41}H_{52}O_5$ Sumaresinolaldehyde, diacetate, 212*d*.
$C_{34}H_{52}O_{11}$ 11-Isopregnan-20-one, 3(β)-(thevetopyranosyloxy)-14,21-dihydroxy-, triacetate, 1792*a*
$C_{34}H_{53}NO$ 3-Cholesterylcarboxamide, dihydro-, 2215*b*
$C_{21}H_{54}O_2$ *p*-Cresol, 2,2′-butylidenebis[6-(1,1,3,3-tetramethylbutyl)-, P 7257*d*
$C_{34}H_{54}O_3$ Armidenediol, diacetate, 1750*g*.
Faradiol, diacetate, 1750*g*
$C_{34}H_{54}O_3S$ Cholestane, 3,5-dihydroxy-, *p*-toluenesulfonate, 1784*c*
$C_{34}H_{56}N_2$ α,α′-Bi-*p*-toluidine, *N*,*N*,*N*′,*N*′-tetraamyl, *and di-HCl*, 3380*i*
$C_{34}H_{56}N_2O$ Amine, *p*,*p*′-(ethylenedioxybis[*N*,*N*-diamyl, *di-HCl*, 3381*c*.
$C_{34}H_{56}N_2O_6$ 1,10-Decanediamine, *N*,*N*′-bis(3-phenylpropyl)-, dilactate, 3379*d*
1,7-Octanediamine, *N*,*N*′-bis(4-phenylbutyl), dilactate, 3379*d*
$C_{34}H_{57}ClN_2O$ Dimethyl-1-naphthylmethyl(3-stearoylaminopropyl)ammonium chloride, P 2631*c*.
$C_{34}H_{58}N_3O_{16}P_3S$ Choline, sulfate, diester with 2,2-dimethyl-1,3-dioxolan-4-ylmethyl Ph H phosphate, 6166*h*.
$C_{34}H_{58}N_4O_6$ Sarothamnine, compd. with dioxane, 5543*d*.
$C_{34}H_{58}O_4S$ Phthalic acid, 4-sulfo-, 2-ethylhexyl octadecyl ester, P 6236*i*.
$C_{34}H_{59}NO$ 3-Cholesterylcarboxamide, *N*,*N*-dipropyl-, 2215*a*.
$C_{34}H_{60}N_2O_6$ 14-Octacosanone, 15-hydroxy-2,4-dinitrophenylhydrazone, 3791*h*
$C_{34}H_{61}NO$ 3-Cholesterylcarboxamide, dihydro-*N*,*N*-dipropyl-, 2215*b*.
$C_{34}H_{62}Br_2N_2$ Didodecylnicotinium dibromide, P 5152*a*.
$C_{34}H_{62}Cl_2N_2$ Didodecylnicotinium dichloride, P 5152*a*.
$C_{34}H_{62}CuO_4$ Palmitic acid, β-oxo-, Me ester, Cu deriv., 140*a*.
$C_{34}H_{67}NO$ Oleamide, *N*-hexadecyl-, 8353*h*
$C_{34}H_{68}N_2O_8$ 1,10-Decanediamine, *N*,*N*,*N*′,*N*′-tetrabutyl-, acid succinate, 3380*e*
$C_{34}H_{68}N_{10}O_{18}S$ Viscotoxin, 2942*i*, 7940*f*
$C_{34}H_{70}$ Octadecane, 9,10-dioctyl-, 107*d*
$C_{34}H_{70}Br_4N_4$ α[1],α[2],α[4],α[5]-Durenetetramine, *N*,*N*,*N*′,*N*′,*N*″,*N*″,*N*‴,*N*‴-octaethyl-, tetrakis(ethobromide), 8059*c*.
$C_{35}H_{19}Br_3ClN_5$ Phthalocyanine, tris(bromomethyl)-, Cu deriv., P 8172*g*.
$C_{35}H_{19}Cl_3CuN_8$ Phthalocyanine, tris(chloromethyl)-, Cu deriv., P 8172*g*, P 8173*c*.
$C_{35}H_{19}NO_8$ [1,1′-Bianthraquinone]-4,4′-dicarboxylic acid, pyridine salt, 1760*e*
$C_{35}H_{20}N_2O_3$ Anthraquinone, 5-benzamido-1,1′-iminodi-, P 1576*e*.
$C_{35}H_{21}Cl_2N_8$ Phthalocyanine, tris(chloromethyl)-, P 8173*c*.
$C_{35}H_{24}N_2O_7S$ Anthraquinone, 1-benzamido-4-[*p*-(*p*-methoxyphenylsulfonyl)benzamido]-, P 862*h*, P 5966*g*.
$C_{35}H_{25}AsN_4O_{10}$ Cinchophen, 3-(diphenylarsinomethyl)-, oxide, picrate, 8352*h*.
$C_{35}H_{25}N_3O_6S$ Anthraquinone, benzamido[*p*-(methylphenylsulfamyl)benzamido]-, P 863*i*, P 864*a*.
$C_{35}H_{35}N_{17}O_{21}$ Toluene, 2,4,6-trinitro-, compd. with tetryl, 6901*g*.

$C_{36}H_{28}N_2O_6$ 9-Fluorenepropanol, α,γ-diphenyl-, 3,5-dinitrobenzoate, 9059*a*.
$C_{36}H_{28}N_4O_{11}S_2$ 1-Naphthol-3-sulfonic acid, 7,7′ - [ureylenebis(*p* - phenylenecarbonylimino)]bis-, P 4480*h*.
$C_{36}H_{28}N_6O_{10}S_2$ 2-Biphenylsulfonic acid, 4-(5-hydroxy - 3 - methyl - 1 - *p* - sulfophenyl - 1 - pyrazolylazo) - 4′ - (*p* - hydroxyphenylazo)-, *p*-toluenesulfonate, P 9465*a*.
$C_{36}H_{28}N_8O_{10}$ 5-Pyrazolol, 4,4′-(3-hydroxy-3′-methoxy - 4,4′ - biphenylenebisazo)bis[1 - (3 - carboxy - 4 - hydroxyphenyl)-3-methyl-, P 8148*i*.
$C_{36}H_{30}N_2O_7$ Strychninonic acid, dibenzylidene-, hydrate, 240*a*.
$C_{36}H_{32}$ Ethane, *p*-cumyltetraphenyl-, 2608*a*
Ethane, tetraphenyl-*p*-propylphenyl-, 2608*a*.
$C_{36}H_{32}N_4O_8S$ 2-Naphthoic acid, 1,4′-methylenebis[3-hydroxy-, compd. with vitamin $B_{12}$, P 4433*f*.
$C_{36}H_{34}I_2N_2S_2$ 2,2′ - [(Methylimino)bis(*p*-phenyleneviny lene)]bis[3 - ethylbenzothiazolium iodide], P 4160*b*
$C_{36}H_{34}O_3P$ Methanephosphonic acid, bis(4-biphenylyl)phenyl-, di-Et ester, 1347*b*.
$C_{36}H_{34}N_2O_4S_2$ Benzenesulfonamide, *N*, *N*′ (2,4,6 - trimethyl - *m* - phenylene)bis[*N*-benzyl-, 1735*g*.
$C_{36}H_{34}N_2O_5S_3$ 1-Ethyl 2 [3 (1-ethyl-5-methoxythianaphtheno[7,6 - *d*]thiazol-2(1*H*) - ylidene) - 2 - methylpropenyl] 5 - methoxythianaphtheno[7,6 - *d*]-thiazolium *p*-toluenesulfonate, P 513*g*.
$C_{36}H_{36}O_{12}$ Glucoside, 3-hydroxy 5 styrylphenyl, 2,3,4,6 tetraacetate, benzoate, 5017*t*.
$C_{36}H_{37}N_3O_7$ Quinaldic acid, 3-acetyl-1,2-dihydro-, brucine salt, 1412*a*.
$C_{36}H_{38}Cl_2N_2O_7S_2$ Quinacrine, bis(2,5-dichlorobenzenesulfonate), P 698*a*
$C_{36}H_{40}N_2O_6$ Biliverdine, 3082*b*, 4729*h*, 5818*i*
$C_{36}H_{40}N_4O_8$ Ergocristinine, P 3574*d*, 7128*a*
$C_{36}H_{50}IN_3O_4$ Succinamic acid, 2 iodo-4,6 dimethyl-, brucine salt, 1313*d*.
$C_{36}H_{41}N_5O_6$ Ergocristinine, dihydro-, P 3471*d*, 3928*i*, 4776*b*, 9219*a*
$C_{36}H_{44}NaO_6$ 1,1,1-Hendecanetricarboxylic acid, tribenzyl ester Na deriv., 6161*d*.
$C_{36}H_{42}O_2$ $\Delta^{22}$-Norcholen 11-one, 3,9 epoxy-23,23′-diphenyl-, 3019*g*.
$C_{36}H_{42}O_3$ Norcholan 23 ol-11-one, 3,9 epoxy-23,23′-diphenyl-, 3019*g*.
$C_{36}H_{42}O_{12}$ Glucoside, [*p*-(α,β diethyl-*p*-hydroxystyryl)phenyl], tetraacetate *p*-propionate, P 7047*i*.
$C_{36}H_{44}N_4O_8S_4$ *p*-Toluenesulfonamide, *N*, *N*′-[2 - (*N* - methyl - *p* - tolylsulfonamido methyl) - 2 - *p* - tolylsulfonamido 1,3 trimethylene]bis[*N*-methyl-, 2936.
$C_{36}H_{44}O_2S_2$ Isoandrosterone, dehydro-, dibenzyl mercaptole, acetate, 658*h*
$C_{36}H_{46}INO_4$ Vitamin $D_2$, 4 iodo-3-nitrobenzoate, 2839*b*.
$C_{36}H_{46}O_2$ Bisnor-5-cholene, 22-phenyl-3-(benzyloxy)-22-hydroxy-, 658*i*.
$C_{36}H_{46}O_6$ Benzoic acid, 2,5 bis(benzyloxy)-, tetradecyl ester, 7003*h*.
$C_{36}H_{46}O_4S$ Bisnor-5 cholene, 22-phenyl 3,22 dihydroxy, 3 - *p* - toluenesulfonate, 3018*f*.
$C_{36}H_{47}N_4O_2$ $\Delta^5$ - Solaniden - 3(β) - ol - 12 - one, benzoate, semicarbazone, 7939*h*.
$C_{36}H_{58}N_{12}O_{24}$ Choline picrate, orthoacetate, 1720*i*.
$C_{36}H_{44}O_2$ Ergosterol, benzoate, 7493*d*.
$C_{36}H_{46}O_4$ 1,2,4-Naphthalenetriol, 3 (9-butyl 9-hydroxytridecyl)-, tetraacetate, 1382*a*.
$C_{36}H_{48}O_{12}$ Glucoside, desoxycorticosterone, tetraacetate, P 5428*b*.
$\Delta^4$-Pregnene-3,20-dione, 21-(β-glucosyl)-, tetraacetate, P 5812*a*.
—, 21-(tetraacetylglucosido)-, P 2243*d*.
$C_{36}H_{48}O_{13}$ Convallatoxin, triacetate, 1431*a*
$C_{36}H_{48}O_{14}$ Convallatoxin acid, triacetate, 1431*a*.
$C_{36}H_{49}NO_{18}$ Morphine-3-trisaccharide, 360*h*.
$C_{36}H_{50}N_2O_3S$ Benzenesulfonic acid, 4-(heptadecylmethylamino) - 3 - (1 - hydroxy-2-naphthoylamino)-, 7232*b*.
$C_{36}H_{50}O_2$ Ergostadien-3(β)-ol, benzoate, 243*d*, 7493*d*.
$C_{36}H_{50}O_4$ Cholesterol, phthalate, 6641*c*.
$C_{36}H_{50}O_5$ Cholesterol, 7-hydroxy-, 3-phthalate, 6641*c*.
$C_{36}H_{52}N_4O_6$ 3-Cholestanone, 2-acetoxy-, 2,4-dinitrophenylhydrazone, 4282*c*.
$C_{36}H_{52}O_2$ $\Delta^6(9)$-Ergosten-3(β)-ol, benzoate, 7492*i*.
$C_{36}H_{52}O_3$ Cholesterol, 7-methoxy-, benzoate, 3021*h*.
Cholesterol, 7-phenoxy-, acetate, 3022*d*.
$C_{36}H_{52}O_4$ 1,4-Naphthalenediol, 2-methyl-3-phytyl-, diacetate, P 1917*d*.
$C_{36}H_{52}O_{18}$ Convalloside, 818*c*.
3 - [D - Glucosido - L - rhamnosido]strophanthidin, 818*d*.
$C_{36}H_{54}N_2O_2$ Benzylnicotinium oleate, P 3969*a*.
$C_{36}H_{54}O_2$ 3(β)-Ergostanol, benzoate, 14286.
Stearic acid, (amylbiphenylyl)-, 9028*g*.
$C_{36}H_{54}O_{14}$ Uzarin, 6786*d*.
$C_{36}H_{56}N_4O_5$ Sumaresinolaldehyde, diacetate, semicarbazone, 212*e*.
$C_{36}H_{56}N_2O_2$ Benzylnicotinium stearate, P 3969*a*.
$C_{36}H_{56}O_{12}$ See *Gitalin*
$C_{36}H_{56}O_{14}$ See *Digitalin*
$C_{36}H_{58}N_2O_2$ Aniline, *p*,*p*′-(trimethylenedioxy)bis[*N*, *N*-diamyl-, *di*-*HCl*, 3381*d*.
$C_{36}H_{58}N_2O_3S$ Octadecylnicotinium *p*-toluene sulfonate, P 1904*a*.
$C_{36}H_{60}I_2N_2$ (Methylenedi-*p*-phenylene)bis[diamylmethylammonium iodide], 3380*h*.
$C_{36}H_{60}O$ Ether, 7-dehydrocholesteryl octyl, P 5810*e*.
$C_{36}H_{68}O$ 9,26 Pentatriacontadien 18-one, P 7678*g*
$C_{36}H_{70}O$ 18 Pentatriacontanone, 2940*h*.
$C_{36}H_{72}$ Pentatriacontane, P 3153*f*.
$C_{36}H_{74}N_2O_6$ 1,3-Propanediamine, *N*, *N*′-di tridecyl-, dilactate, 3380*e*
$C_{36}Co_{12}Fe_3K_{12}N_{36}$ Cobalt potassium ferrocyanide, 961*a*.
$C_{36}H_{18}ClN_3O_8$ 2-Anthraquinonecarboxamide, *N* - (11 - chloro - 5,8,13,14 - tetrahydro - 5,8,14 - trioxonaphth[2,3 - *c*]acrid 7-yl)-1-nitro-, P 1986*i*
$C_{36}H_{17}ClN_2O_7$ Dinaphth[2,3-*c*, 2′,3′-*h*]acridine 5,8,11,16,18(17*H*)-pentone, 4-chlorobenzamido-, P 866*c*.
$C_{36}H_{18}N_4O_8$ Dinaphth[2,3-*c*, 2′,3′*h*]acridine 5,8,11,16,18(17*H*)-pentone, 6-benzamido 10-nitro-, P 9469*h*.
$C_{36}H_{18}Cl_2O_2$ Isoviolanthrone, bis(chloromethyl), P 8163*f*
Violanthrone, bis(chloromethyl)-, P 8163*f*, P 8164*a*
$C_{36}H_{19}N_2O_6$ Dinaphthacridinepentone, benzamido-, P 866*bch*.
$C_{37}H_{15}O_4$ 19*H*,21*H*-Tetrabenz[*a*,*fg*,*rs*,*o*]-oxiro[*s*]pentaphen - 19,21 - dione 7928*e*
$C_{36}H_{19}O_4$ Violanthreno[15,20-*cde*][1,4]dioxocin 5,10 dione, 17,18 dihydro-, P 2789*a*
$C_{36}H_{12}N_4O_4$ 1-Anthraquinonecarbonitrile, 2 (5 - benzamido - 1 - anthraquinonylamino), P 866*f*, P 868*a*.
$C_{36}H_{19}N_3O_6$ Dinaphth[2,3-*c*, 2′,3′-*h*]acridine 5,8,11,16,18(17*H*) pentone, 6-amino-10-benzamido, P 9469*h*.
$C_{36}H_{20}$ Dinaphtho[1,2-*b*, 2′,1′-*n*]perylene[?], 7928*d*
$C_{36}H_{20}N_2O_7$ 2 Anthraquinonecarboxylic acid, 1 - (benzamidoanthraquinonylamino)-, P 866*adh*, P 867*dch*
$C_{36}H_{20}O_4$ Caledon Jade Green, 2776*i*
Violanthrone, 16,17-dimethoxy-, P 2789*a*.
$C_{36}H_{20}O_8$ 1-Naphthoic acid, 2,2′-(9,10-dihydro - 9,9,10 - trihydroxy - 1,8-phenanthrylene)di-(?), di-ε-lactone, 7928*i*.
$C_{36}H_{20}O_8$ 1-Naphthoic acid, 2,2′-(9,10-dihydro - 9,10 - dioxo - 1,8 - phenanthrylene)di-(?), 7928*f*.
$C_{36}H_{22}Cl_2O_7$ Fluorescein, 3′,6′ dichloro 4,5-dimethyl-, dibenzoate, 1984*h*.
$C_{36}H_{22}N_2O_3$ 13*H* Benzo[*g*]naphtho[2,3-*a*]carbazole-7,12-dione, 6-(*N*-2-naphthylacetamido)-, P 7704*d*.
$C_{36}H_{22}N_2O_4$ Cinnamamide, *p*-phenyl *N*-(5,8,13,14 - tetrahydro - 5,8,14 - trioxonaphth[2,3-*c*]acrid 6-yl)-, P 8170*i*
$C_{36}H_{22}N_4$ 2,6′:2′,6″-2″,6‴ Quaterquinoline, 3001*a*.
$C_{36}H_{23}Cl_3N_4O_6$ 2-Naphthoic acid, 4,4′ [(2,2,2 - trichloroethylidene)bis(*p*-phenyleneazo)]bis[3-hydroxy-, 6005*c*.
$C_{36}H_{24}$ Benz[*a*]anthracene, dimer, 2985*d*.
Benzene, tri-2-naphthyl-, 1629*i*.
$C_{36}H_{24}Br_4InN_6$ +2H2O 1,10-Phenanthroline, compd. with $InBr_3$, 6932*i*.
$C_{36}H_{24}Cl_2N_6O_8Ru$, 7363*a*.
$C_{36}H_{24}Cl_3InN_6$ 1,10-Phenanthroline, compd. with $InCl_3$, 6933*a*.
$C_{36}H_{24}CoInN_{12}O_{12}$, 6933*a*.
$C_{36}H_{24}I_4InN_6$ 1,10-Phenanthroline, compd. with $InI_3$, 6933*a*.
$C_{36}H_{24}N_2O_4$ Anthraquinone, 1-(*N*-2-naphthylacetamido) - 4 - (2 - naphthylamino)-, P 7704*d*.
$C_{36}H_{24}N_4$ 2,6′-Biquinoline, 2′-[*p*-[3-(6-quinolyl)allylideneamino]phenyl]-, 3001*a*.
$C_{36}H_{24}O_7$ Fluorescein, 4,5-dimethyl-, dibenzoate, 1983*i*.
$C_{36}H_{26}$ *p*-Sexiphenyl, 1361*a*.
$C_{36}H_{27}N_3O_{11}$ Nicotinic acid, ester with galactose, 1469*i*; ester with D-glucose, 1469*i*, 2023*a*.
$C_{36}H_{28}Cl_2N_4O_4$ 2-Naphthol, 1,1′-(2,2′-dichloro - 5,5′ - diethoxy - 4,4′ - biphenylenebisazo)di-, 4151*a*.
$C_{36}H_{28}N_4O_{10}S_2$ 2-Naphthalenesulfonic acid, (*p* - hydroxyphenylazo)(3 - sulfo - 4-*o*-toloxyphenylazo)-, *p*-toluenesulfonate, P 7096*gi*, P 7697*b*, P 9465*d*.
$C_{36}H_{28}O_4$ 2,4-Hexadiene-1,6-dione, 1,6-diphenyl-, dimer, 7453*a*.
$C_{36}H_{28}O_3Se$ +2H2O 1,9(2*H*,6*H*)-Phenoxaselenindo 3,4,7,8-tetrahydrotetraphenyl-, 10 oxide, 7479*d*.
$C_{36}H_{28}O_5S$ Ribopyranoside, 2-naphthyl 1 thio, tribenzoate, 1721*c*.
$C_{36}H_{70}N_6O_{11}S$ Salicylic acid, 5-[4 {4′-[2,4-dihydroxy - 5 - (2 - hydroxy - 5 - sulfamylphenylazo)phenylazo] - 3 - hydroxy - 3′ - methoxy - 4 - biphenylylazo} - 5 - hydroxy - 3 - methyl - 1-pyrazolyl]-, P 8148*i*, P 8149*a*
$C_{36}H_{39}Br_2NiP_2$ Phosphine, triphenyl-, complex with $NiBr_2$, 6202*e*
$C_{36}H_{39}Br_2P_2Zn$ Phosphine, triphenyl-, complex with $ZnBr_2$, 6202*e*.
$C_{36}H_{30}CeCrN_{12}S_6$, 4970*c*.
$C_{36}H_{30}ClCuP_2$ Phosphine, triphenyl, complex with CuCl, 6202*e*.
$C_{36}H_{30}Cl_2N_6O_8S_2$ Benzenesulfonic acid, 3,3′-[(2,5 - dichloro - 3,6 - dioxo - 1,4 - cyclohexadien - 1,4 - ylene)diimino]bis[6-(1,2 dimethyl - 6 - benzimidazolylamino)-, *di Na salt*, P 7236*c*.
$C_{36}H_{30}Cl_2P_2Zn$ Phosphine, triphenyl, complex with $ZnCl_2$, 6202*e*.
$C_{36}H_{30}CrErN_{12}S_6$, 4970*c*.
$C_{36}H_{30}CrN_{12}NdS_6$, 4970*c*.
$C_{37}H_{30}GeO$ Bis(triphenylgermanium) oxide, 6990*d*.
$C_{36}H_{30}N_2$ Quinoxaline, 2,3-bis(8-phenyl-1,3,5,7-octatetraenyl)-, 187*d*.
$C_{36}H_{30}N_2O_6P_2S$ Amidophosphoric acid, *N*, *N*′-(sulfonyldi-*p*-phenylene)bis-, tetra-Ph ester, 6178*g*.
$C_{36}H_{30}OSi_2$ Disiloxane, hexaphenyl-, P 667*e*, 8366*d*.
$C_{36}H_{30}O_2$ 1,7-Octadien-4-yne-3,6-diol, 1,8-diphenyl-3,6-distyryl-, 6573*h*.
$C_{36}H_{30}O_3Si_3$ Cyclotrisiloxane, hexaphenyl, 2513*a*
$C_{36}H_{31}AsN_2O_3$ + $H_2O$ Cinchophen, 3-(diphenylarsinomethyl)-, oxide benzylamine salt, 8352*b*.
$C_{36}H_{34}NO_7$ 1,5-Pentanedione, 1,3,5-triphenyl - 2 - (α - 2 - pyridylmethyl-benzyl) (?), 7022*h*.
$C_{36}H_{32}$ Naphthalene, 1,2,3,4-tetrahydro-(1,2,2,2-tetraphenylethyl)-, 194*e*.
$C_{36}H_{32}Hg_2$ Triphenylene, 1,4-diphenyl-2,3-bis(propylmercuri)-, 2614*f*.
$C_{36}H_{32}N_2$ Dibenzo[*a*,*c*]naphtho[1,2-*h*]phenazine, 3,16-diisopropyl-7,10-dimethyl-, 7470*g*.
$C_{36}H_{32}N_4O_{10}$ Acetophenone, α-(benzylmethylamino)-3,4-bis(benzyloxy)-, picrate, 7456*e*.
$C_{36}H_{32}N_4O_4$ Benzanilide, 4′,4‴-[*p*-phenylenebis[(methylimino)carbonyl]]bis[4-amino-, P 860*e*.
$C_{36}H_{32}N_2O$ 2-Pyrazoline-4-methanol, 4-benzylamino - α,1,5 - triphenyl - 3 - *p*-tolyl, 3389*h*.
$C_{36}H_{34}$ Ethane, (*p*-butylphenyl)tetraphenyl-, 2608*a*.
Ethane, (*p*-*sec*-butylphenyl)tetraphenyl-, 2608*a*.
—, (*p* - *tert* - butylphenyl)tetraphenyl-, 2608*a*.
$C_{36}H_{34}CaN_4O_8$ Salipyrine, Ca deriv., 5540*i*.
$C_{36}H_{34}MgN_4O_8$ Salipyrine, Mg deriv., 5541*a*.
$C_{36}H_{34}N_4O_8Zn$ Salipyrine, Zn deriv., 5541*a*.
$C_{36}H_{34}N_3P_3$ Triphosphornitrile tetraanilide, diphenyl-, 5365*b*.
$C_{36}H_{34}N_2O_{10}$ 4-Quinolinemethanol, 6,7-dimethyl - 2 - phenyl - α - (1 - piperidylmethyl)-, dipicrate, 4675*c*.
$C_{36}H_{34}O_4$ 2,5-Xylenol, 4,4′-(diethylidene ethylene)di-, dibenzoate, 614*a*.
$C_{36}H_{34}O_{12}$ Acetophenone, 4-[4-[4-(4-hydroxy-3 - methoxyphenacyloxy) - 3 - methoxyphenacyloxy] - 3 - methoxyphenacyloxy]-3-methoxy-, 3610*f*.
$C_{36}H_{35}I_2N_3S$ [3-(3-Ethyl-2-benzothiazolinylidene) - 1,4 - pentadienylene]bis[1-ethylquinolinium iodide], 2528*f*.
$C_{36}H_{35}I_2N_3Se$ 2,2′-[3-(3-Ethyl-2-benzoselenazolinylidene) - 1,4 - pentadienylene]-bis[1-ethylquinolinium iodide], 2528*i*.
$C_{36}H_{35}N_3O_{11}S_2$ Anthranilic acid, *N*-(4-amino-

3 - sulfo - 1 - anthraquinonyl) - 5 - (*o*-carboxyphenylsulfamyl)-, di-Bu ester, P 7709*i*.

$C_{36}H_{36}CoK_3N_{15}O_9S_3$, 7365*f*.

$C_{36}H_{36}CoN_{15}Na_3O_9S_3$, 7365*f*.

$C_{36}H_{38}N_2O_2$ 1,7-Octadien-4-yne-3,6-diol, 3,6-bis(*β* - aminophenethyl) - 1,8 - diphenyl-, 6573*h*.

$C_{36}H_{38}N_4O_4$ 2,5 - Piperazinediacetamide, *N*, *N'*,1,4 - tetrabenzyl - 3,6 - dioxo-(?), 1352*f*.

$C_{36}H_{38}N_4O_7S_3$ 3 Ethyl-5-(3-ethyl-2-benzoxazolinylidene) 2 - [3 - ethyl - 5 - (3-ethyl - 2 - benzoxazolinylidene) - 4-oxo - 2 - thiazolidylidene]methyl] - 1-oxo-2-thiazolinium *p*-toluenesulfonate, P 4163*d*.

$C_{36}H_{38}N_9P_3$ Triphosphornitrile hexaanilide, *-salts*, 5365*c*.

$C_{36}H_{38}Br_2O_7$ Fluorescein, dibromo-2',7'-dihexyl-, diacetate, 3806*f*.

$C_{36}H_{38}N_2O_6$ Aromoline, 6787*g*.
Bebeerine, 2626*b*.
Chondocurine, P 1914*g*, 2626*b*.
Isochondrodendrine, 2626*b*.

$C_{36}H_{38}N_2O_{10}S_2$ 2,2'-Stilbenedisulfonic acid, 4,4' - bis(*o* - butoxybenzamido)-, P 5977*i*.

$C_{36}H_{40}N_4O_4$ Ethylenediamine, *N*, *N'*-bis(3-aminopropyl)-, tetra-Bz deriv., P 5414*f*.

$C_{36}H_{40}N_4O_8$ (See also *Coproporphyrin*.)
Coproporphyrin III, 2671*b*.

$C_{36}H_{40}N_4O_{10}S_4$ 2-Naphthalenesulfonic acid, ethylidenedi-, compd. with α-amino-*p*-toluenesulfonamide, P 5047*c*.

$C_{36}H_{40}O_4$ 2,5-Xylenol, 4,4'-(1,2-diethylethylene)di-, dibenzoate, 611*b*.

$C_{36}H_{40}Cl_2N_4O_8Se$ 2,2'-[3-(3-Ethyl-2-benzoseleuazolinylidene) - 1,4 - pentadienylene]bis[1,3,3 - trimethyl - 3 *H*-pseudoindolium perchlorate], 2529*c*.

$C_{36}H_{38}CoN_{15}O_9S_3$, 7365*f*.

$C_{36}H_{40}Cl_2N_2O_{14}$ 1,8-Octanediamine, *N*, *N'*-bis(chlorophenethyl)-, dipicrate, 3379*b*.

$C_{36}H_{40}N_{12}O_{12}$ Piperidine, 4-[benzyl(2-dimethylaminoethyl)amino] - 1 - ethyl-, tripicrate, 2207*f*.

$C_{36}H_{40}O_7$ Fluorescein, 2',7'-dihexyl-, diacetate, 3806*f*.

$C_{36}H_{41}IN_4$ 2,4,6-Tris(*p*-dimethylaminostyryl) - 1 - methylpyridinium iodide, 7024*e*.

$C_{36}H_{42}N_2O_5$ Psychotrine, *N*-benzoyl-*O*-methyl-, 656*g*.

$C_{36}H_{42}N_4O_2$ Urea, 1,1'-hexamethylenebis[3-α-phenylphenethyl-, 7008*e*.

$C_{36}H_{42}N_4O_2$ [Bicyclohexyl]-3,3,3',3',5,5,-5',5'-octapropionitrile, 4,4'-dioxo-, 1335*i*, P 2228*a*.

$C_{36}H_{42}N_8O_2S$ 1,1,3,3-Cyclohexanetetrapropionitrile, 5,5'-thiobis[2-oxo-, P 2228*c*.

$C_{36}H_{42}N_8O_3$ 1,1,3,3-Cyclohexanetetrapropionitrile, 5,5'-oxybis[2-oxo-, P 2228*c*.

$C_{36}H_{42}N_8O_{16}$ 1,6-Hexanediamine, *N*, *N'*-bis(*p*-methoxyphenethyl)-, dipicrate, 3378*g*.

$C_{36}H_{42}O$ $\Delta^{4,20,22}$-Cholatriene, 3-keto-24,24-diphenyl-, P 3475*a*.

$C_{36}H_{42}O_{21}$ Scopoletin β-gentiobioside, heptaacetate, 1770*f*.

$C_{36}H_{42}NO_2$ Acetophenone, α-(benzylmethylamino)-3,4-bis(benzyloxy)-, oxalate, compd. with EtOH, 7456*e*.

$C_{36}H_{42}N_2O_7$ Valine, *N*-phenylacetyl , brucine salt, P 4698*a*.

$C_{36}H_{44}BaN_2O_{22}P_2$ Uridine, phosphate, Ba deriv., 2171*b*.

$C_{36}H_{44}Br_2O_8S_2$ Phenol, *p*,*p'*-(1,2-dimethylethylene)di-, bis(3-bromo-8-camphorsulfonate), 6605*h*.

$C_{36}H_{44}ClbF_3N_2O_7$ Codeine, fluocolumbate(V), 5786*a*.

$C_{36}H_{44}O$ $\Delta^{4,20}$-Choladiene, 3-keto-24,24-diphenyl-, P 3475*e*.
$\Delta^{5,20,22}$-Cholatriene, 3(*β*)-hydroxy-24,24-diphenyl-, P 3475*a*.

$C_{36}H_{44}O_2$ $\Delta^{16}$-Cholen-11-one, 3,9-epoxy-24,24'-diphenyl-, 3019*g*.

$C_{36}H_{44}O_3$ $\Delta^{20,22}$-Choladien-3-one, 12(*α*),21-dihydroxy-24,24-diphenyl-, 6639*g*.

$C_{36}H_{44}O_4$ Bisnor-5-cholene, 3(*β*),22-dihydroxy-, dibenzoate, 3432*g*.

$C_{36}H_{44}O_4S_2$ Dehydrocholic acid, 3-di-Ph mercaptal, 7033*i*.

$C_{36}H_{45}ClO$ $\Delta^{20,22}$-Choladiene, 3(*β*)-hydroxy-5-chloro-24,24-diphenyl-, P 3475*e*.

$C_{36}H_{45}NO_3$ Jervine, *N*-acetyl-, benzoate, 658*f*.

$C_{36}H_{46}$ $\Delta^{20,22}$-Choladiene, 24,24-diphenyl-, P 3475*d*.

$C_{36}H_{46}Cl_6N_4O_2Pt$ Benzyldimethyl(*o*-tolylcarbamylmethyl)ammonium chloroplatinate, 6977*f*.

$C_{36}H_{46}O$ $\Delta^{20,22}$-Allocholadiene, 3(*β*)-hydroxy-24,24-diphenyl-, P 3475*c*.

$C_{36}H_{46}O_2$ $\Delta^{20,22}$-Choladiene, 3(*α*),12(*α*)-dihydroxy-24,24-diphenyl-, P 3475*c*.

$C_{36}H_{46}O_3$ $\Delta^{20,22}$-Choladiene, 3(*α*),7(*α*),12(*α*)-trihydroxy-24,24-diphenyl-, P 3475*d*.
Cholan-24-ol-11-one, 3,9-epoxy-24,24'-diphenyl-, 3019*g*.

$C_{36}H_{46}O_4$ Phenol, 4,4'-(1,2-diethylidene⊟thylene)bis[2-cyclohexyl-, dipropionate, 3812*i*.

$C_{36}H_{48}O_{18}$ Rubellin, 3150*a*.

$C_{36}H_{49}N_2NaO_{22}Sb_2$ Stibamine, glucoside, 9266*g*.

$C_{36}H_{50}N_4O_4$ Ketene, 4-cyclohexylbutyl , dimer, bis(*p*-nitrophenylhydrazone), 2964*e*.

$C_{36}H_{50}O_4$ Phenol, 4,4'-(1,2-diethylethylene)-bis[2-cyclohexyl-, dipropionate, 3812*i*.

$C_{36}H_{50}O_{14}$ Convallatoxin acid, Me ester, triacetate, 1431*a*.

$C_{36}H_{50}O_{18}$ [Bicyclohexyl]-3,3,3',3',5,5,5',5'-octapropionic acid, 4,4'-dioxo-, 1335*i*, P 2228*b*.

$C_{36}H_{51}NO_{11}$ Veratridine, 2363*c*, 4380*g*, 9384*f*.

$C_{36}H_{52}Br_2O_2$ 5,22-Stigmastadien-3(*β*)-ol, 22,23-dibromo-, benzoate, 243*d*

$C_{36}H_{52}O_2$ Chondrillasterol, benzoate, 4271*e*.
$\Delta^{7,8,22,24}$-Poriferastadien-3-ol, benzoate, 4271*e*.
Spinasterol, benzoate, 1428*d*.

$C_{36}H_{52}O_4$ Cholesterol, 7-acetoxy-, benzoate, 3021*b*.
Cholesterol, 7-benzoxy-, acetate, 3021*c*.

$C_{36}H_{57}O_{15}$ Hellebrin, 7141.

$C_{36}H_{52}NO_3$ α-Tocopherol, *p* nitrobenzoate, P 1810*d*.

$C_{36}H_{53}NO_{15}$ Hellebrin, oxime, 715*a*.

$C_{36}H_{54}O$ Phenol, trisobornyl , 1355*c*.
Stigmasterol, 3 benzyl ether, 659*a*.
*i*-Stigmasterol, benzyl ether, 659*a*.

$C_{36}H_{54}O_2$ Clionasterol, benzoate, 2626*h*.
Spinastenol, benzoate, 1428*d*.

$C_{36}H_{54}O_3$ Cholesterol, 7-ethoxy-, benzoate, 3022*a*.

$C_{36}H_{54}O_4$ Lauric acid, 4,4'-biphenylene ester, 5018*b*.

$C_{36}H_{54}O_{14}$ See *Strophanthin*.

$C_{36}H_{55}NO_2$ α-Tocopherol, *p*-aminobenzoate, P 1810*d*.

$C_{36}H_{56}N_2O_2$ 4,4'-Bi-*o*-cresol, 6,6'-diallyl-α,α'-bis(dibutylamino)-, *di-HCl*, P 1696*a*

$C_{36}H_{56}O_{18}$ Thevebioside, 1791*e*.

$C_{36}H_{56}O_{14}$ Transvaalin, 3150*a*.

$C_{36}H_{56}O_{18}$ Sarmentoside B, 1430*a*.

$C_{36}H_{56}N_2O_6$ 1,10-Decanediamine, , *N N'*-bis(4-phenylbutyl)-, dilactate, 3379*d*
1,8-Octanediamine, *N*, *N'*-bis(5-phenylamyl)-, dilactate, 3379*e*.

$C_{36}H_{60}O_2$ Vitamin A, palmitate, P 1802*c*, 5372*d*.

$C_{36}H_{61}NO_6S$ Phthalic acid, 4-sulfo-, 2-ethylhexyl 2-stearoylaminoethyl ester, *N H₄ salt*, P 4878*d*.

$C_{36}H_{62}I_2N_2$ (Ethylenedi-*p*-phenylene)bis[diamylmethylammonium iodide], 3380*i*.

$C_{36}H_{62}N_2$ Octadecadienenitrile, dimer, P 3147*d*.

$C_{36}H_{62}N_2O_2S$ Butacaine sulfate, 3522*i*, 7190*g*, 8095*b*.

$C_{36}H_{62}N_4S_2$ Didodecylnicotinium dithiocyanate, P 5152*a*.

$C_{36}H_{62}O_3$ 2,4,7-Nonatriene-1,6-diol, 3,7-dimethyl - 9 - (2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-, 1-palmitate, 5372*c*.

$C_{36}H_{62}O_{11}S$ Citric acid, tri-Bu ester, sulfite, P 5796*d*.

$C_{36}H_{64}O_2$ Stearic acid, (dodecylphenyl)-, 2175*g*, 9028*f*.

$C_{36}H_{68}O_2$ Oleic acid, 9-octadecenyl ester, P 3030*e*, 8026*i*.

$C_{36}H_{68}O_4$ Erythrol, dipalmitate, 7419*g*.

$C_{36}H_{68}O_6$ Capric acid, α-methyl-, triglyceride, 6165*f*.
Caprylic acid, δ-propyl-, triglyceride, 6165*f*.
Hendecanoin, tri-, 134*h*.

$C_{36}H_{68}O_{17}$ Citric acid, compd. with acetone, 7409*a*.

$C_{36}H_{70}N_2O_2$ 9-Octadecenyl hyponitrite, P 5641*c*.

$C_{36}H_{70}O_2$ 18,19-Hexatriacontanedione, 3791*i*.
Stearic acid, (4-dodecylcyclohexyl)-, 2175*g*.

$C_{36}H_{70}O_4$ Stearoyl peroxide, 1373*b*, P 4023*c*.

$C_{36}H_{70}O_4Pb$ Lead stearate, P 2038*a*, 4871*c*, 8801*d*.

$C_{36}H_{70}O_4S$ Stearic acid, α,α'-thiodi-, P 3840*f*.

$C_{36}H_{70}O_4Zn$ Zinc stearate, P 1602*c*, 2399*h*, 4871*c*, 8801*d*.

$C_{36}H_{70}O_{13}$ Ricinoleic acid, ester with nonaethylene glycol, 1226*d*.

$C_{36}H_{70}O_{19}$ Sucrose, compd. with acetone, 7409*a*.

$C_{36}H_{71}NO$ Oleamide, *N*-octadecyl-, 8353*h*.

$C_{36}H_{72}O_2$ 18-Hexatriacontanone, 19-hydroxy-, 3791*h*.
Stearic acid, octadecyl ester, P 9080*e*.

$C_{36}H_{72}NO_2$ Stearamide, θ,ι-dihydroxy-*N*-octadecyl-, 8353*i*.

$C_{36}H_{74}$ Hexatriacontane, 3781*g*, 4937*g*.

$C_{36}H_{74}N_2$ Diamine, $b_{0.01}$ 230–50° (mol still), P 3447*e*.

$C_{36}H_{74}N_2O_2$ Octadecyl hyponitrite, P 5641*c*

$C_{36}H_{75}ClO_2Si$ Silane, chlorotris(dodecyloxy) , P 5033*h*.

$C_{36}H_{75}N$ Dioctadecylamine, P 2568*d*, 6400*c*.

$C_{36}H_{75}NO_2S_2$ Tridodecanesulfonamide, *N*-oxide, 2573*a*.

$C_{36}H_{56}O_{12}P_2$ 3-Heptanol, 2,2-dimethyl , compd. with $H_3PO_4$, 5735*e*.

$C_{36}H_{66}O_{14}$ Tartaric acid, compd. with BuOH, 7409*c*.

$C_{37}H_{22}N_2O_7$ 2-Anthraquinonecarboxylic acid, 1 - (5 - benzamido - 2 - anthraquinonylamino)-, Me ester, P 866*d*, P 867*e*

$C_{37}H_{37}Cl_2OP$ Phosphine oxide, dichloro[tris(4-biphenylyl)methyl]-, 1347*b*.

$C_{37}H_{39}O_3P$ Methanephosphonic acid, tris(4-biphenylyl)-, 1347*c*.

$C_{37}H_{40}$ Naphthalene, 4-methyl-1-(1,2,2,2-tetraphenylethyl)-, 194*e*.

$C_{37}H_{36}N_4O_{11}S_2$ 2,2'-Stilbenedisulfonic acid, 4-[4 - anilino - 6 - (5 - hydroxy - 7 - sulfo-2 - naphthylamino) - *s* - triazin - 2-ylamino] - 4' - (3 - methyl - 5 - oxo - 2-pyrazolin-1-yl)-, P 4172*h*, P 4173*d*.

$C_{37}H_{31}N_3O_3S$ *o*-Terphenyl-4-sulfonic acid, 1,2,3-triphenylguanidine salt, 1655*d*

$C_{37}H_{39}N_4O_{12}S_4$ 1 - Naphthol - 3,6 - disulfonic acid, 2-[5 (ethylphenylsulfamyl)-2-phenoxyphenylazo] - 8 - *p* - tolylsulfonamido-, P 9465*h*

$C_{37}H_{38}N_2O_6$ Strychninonic acid, diamsel idene , hydrate, 210*a*

$C_{37}H_{38}NO_3$ Butyrophenone, α benzhydrel amino-3,4-bis(benzyloxy) , -*HCl*, P 4696*d*.

$C_{37}H_{45}N_2NaO_6S_2$ See "Acid Green LX" under *Dyes*.

$C_{37}H_{38}N_4O_3S_4$ 3-Ethyl-2-[[3-ethyl-5-[2-(3-ethyl - 2 - benzoxazolinylidene)ethylidene] - 4 - oxo - 2 - thiazolidylidene]methyl]naphtho[2,1]thiazolium *p*-toluenesulfonate, P 4163*g*.

$C_{37}H_{38}N_6O_2$ Carbanilide, 3,3'-dimethyl-4,4'-bis[4 - (3 - methyl - 5 - oxo - 2 - pyrazolin-1-yl)-*o*-tolyl]-, P 9461*h*.

$C_{37}H_{36}O_{12}$ Acetophenone, 4-[4-[4-(3,4-dimethoxyphenacyloxy) - 3 - methoxyphenacyloxy] - 3 - methoxyphenacyloxy] - 3-methoxy-, 3610*f*

$C_{37}H_{38}I_2N_4S_2$ 2,2'-[Methylenebis[*p*-methylimino) - *p* - phenylenevinylene]]bis[3-ethylbenzothiazolium iodide], P 4160*b*

$C_{37}H_{38}N_2O_4$ Cepharanthine, 1485*c*, 8528*b*

$C_{37}H_{38}N_2O_6S_2$ Metanilic acid, 6,6'-benzylidenebis[*N*-benzyl- *N*-ethyl-, P 9519*f*

$C_{37}N_{40}N_2O_6$ Reposndine, 3017*c*.

$C_{37}H_{40}N_2O_{14}$ Piperidine, 1,1'-[methylenebis(*p*-phenylenemethylene)]di-, dipicrate, 3381*f*.

$C_{37}H_{41}N_3O_7$ 1,1,3,3-Cyclohexanetetrapropionitrile, 5,5'-methylenebis[2-oxo-, P 2228*c*.

$C_{37}H_{44}O_4$ Malonic acid, bis(1,2,3,4,5,6,7,8-octahydro-9-anthrylmethyl)-, di-Et ester, 7013*f*.

$C_{37}H_{36}ClN_3O_2$ *o*-Cresol, 4-(6-chloro-2-methoxy - 9 - acridylamino) - α - dioctylamino-, *di-HCl*, P 7516*e*.

$C_{37}H_{40}N_4O_9$ Cryptogenin, 2,4-dinitrophenylhydrazone, diacetate, 655*e*.

$C_{37}H_{38}O_4$ Benzoic acid, 2,5-bis(benzyloxy)-, hexadecyl ester, 7003*h*.

$C_{37}H_{51}NO_{10}$ Taxine, 1836*e*.

$C_{37}H_{51}NO_{23}$ Mannosidostreptobiosamine, nonaacetyldihydro-, 3367*e*.

$C_{37}H_{38}N_2O_4$ 3,4-Pyrroledicarboxylic acid, 1-methyl-2,5-diphenyl-, bis(3-dipropylaminopropyl) ester, P 4701*a*.

$C_{37}H_{41}N_2O_2S$ Spiro[15 *H*-cyclopenta[*a*]phenanthrene - 3(2 *H*),2' - thiazolidine]-3',4'-dicarboximide, 17-(1,5-dimethylhexyl)tetradecahydro - 10,13 - dimethyl-*N*-phenyl-, 659*d*.

$C_{37}H_{44}O_2$ Butyrospermol, benzoate, 7463*b*.

$C_{37}H_{44}N_2O_3$ Compd. from *p*-methoxy-*N*, *N*-dimethylphenethylamine and HCHO, 6594*g*.

$C_{37}H_{46}NaO_6$ 1',2',2,3-Benzocholestan-4'-ol 3',5'-dicarboxylic acid, di-Et ester, Na deriv., 244*e*.

$C_{37}H_{46}Cl_2N_2O_2$ Phenol, 2,2'-methylenebis[4

chloro-, compd. with dicyclohexylamine, 8614*i*.
$C_{37}H_{56}N_2O_6$ Formamidine, *N*,*N'*-diphenyl-, bis[(menthyloxy)acetate], 1353*h*.
$C_{37}H_{56}O_2$ Butyrospermol, dihydro-, benzoate, 7463*c*.
Epilupan-2-ol, benzoate, 3808*i*.
$C_{37}H_{56}O_6$ 1′,2′,2,3 - Benzocholestan - 4′ - ol-3′,5′-dicarboxylic acid, di-Et ester, 244*e*.
$C_{37}H_{60}O_4$ Corticosterone, desoxy-, palmitate, P 2648*f*.
$C_{37}H_{72}Cl_2N_4O_2$ 1,1′-[Methylenebis[(lauroylimino)methylene]]bis[pyridinium chloride], 1798*i*.
$C_{37}H_{70}O_4S_2$ Stearic acid, α-mercapto-, trithiocarbonate, P 7955*g*.
$C_{37}H_{70}O_4S_2$ Stearic acid, α-mercapto-, dithiolcarbonate, P 7955*f*.
$C_{37}H_{74}NO_8P$ 2-Glycerophosphoric acid, 2-aminoethyl ester, 1,3-dipalmitate, P 1052*h*.
$C_{38}H_{18}Cl_2N_2O_4$ 3,4,9,10-Perylenetetracarboxylic diimide, bis(chloromethyl)-*N*,*N'*-bis(*p*-chlorophenyl)-, P 8163*g*.
$C_{38}H_{20}Cl_2N_2O_4$ 3,4,9,10-Perylenetetracarboxylic diimide, bis(chloromethyl)-*N*,*N'*-diphenyl-, P 8163*g*, P 8164*a*.
$C_{38}H_{32}N_2O_6$ 3,4,9,10-Perylenetetracarboxylic diimide, *N*,*N'* - bis(*p* - methoxyphenyl)-, P 9470*a*.
$C_{38}H_{22}O_6$ 1-Naphthoic acid, 2,2′-(9,10-dihydro - 9,9,10 - trihydroxy - 1,8 - phenanthrylene)di-(?), di-ε-lactone, acetate, 7928*i*.
$C_{38}H_{24}Br_4N_2O_6$ Barbituric acid, 1,3-bis(2,7-dibromo - 9 - xanthyl) - 5 - ethyl - 5-phenyl-, 3822*h*.
$C_{38}H_{24}Cl_4$ Methyl, (2,2′,6,6′-tetrachloro-4,4′ - biphenylene)bis[diphenyl-, 6604*d*.
$C_{38}H_{24}I_4N_2O_6$ Barbituric acid, 1,3-bis(2,7-diiodo - 9 - xanthyl) - 5 - ethyl - 5-phenyl-, 3822*h*.
$C_{38}H_{24}N_2$ Compd., m 275 6°, 649*b*.
$C_{38}H_{24}O_2S_2$ Isoviolanthrone, bis(methylmercaptomethyl)-, P 8164*b*.
$C_{38}H_{24}O_4$ Violanthrone, 16,17-diethoxy-, P 2789*d*.
$C_{38}H_{24}O_6$ 1-Naphthoic acid, 2,2′-(9,10-dihydro - 9,10 - dioxo - 1,8 - phenanthrylene)di (?), di-Me ester, 7928*g*.
$C_{38}H_{26}Cl_2N_2O_{11}S_2$ 1-Naphthol 3,6-disulfonic acid, 8-amino-2-[4′-[4-(2-chloro-5-sulfophenylazo) - 3 - methyl - 5 - oxo-1 - pyrazolin - 1 - yl] - 4 - biphenylylazo]-7-(2,5-dichlorophenylazo), P 3624*h*
$C_{38}H_{27}N_2O_4$ Anthraquinone, 1,4-diamino-2,3-bis(4-biphenylyloxy)-, P 8690*h*.
$C_{38}H_{28}N_2O_6$ Anthraquinone, 1,4-diamino-2,3-bis(*p*-phenoxyphenoxy)-, P 8690*i*.
$C_{38}H_{27}Cl_3N_4O_8$ 2-Naphthoic acid, 4,4′-[(2,2,2 - trichloroethylidene)bis(*p*-phenyleneazo)]bis[3-hydroxy-, di-Me ester, 6605*d*.
$C_{38}H_{28}$ Benz[*a*]anthracene, methyl-, dimer, 7012*c*.
Methyl, 3,3′-biphenylenebis[diphenyl-, 6601*d*.
$C_{38}H_{32}CuN_4S_4$ Phthalocyanine, tris(methylmercaptomethyl)-, Cu deriv., P 8172*i*, P 8173*e*.
$C_{38}H_{32}N_2$ Methyl, (azodi-*o*-phenylene)bis[diphenyl-, 6604*e*.
$C_{38}H_{32}N_2O_4$ Anthraquinone, 2-butyl-1,5-bis(hydroxynaphthylazo)-, 1761*i*.
Anthraquinone, 2-*tert*-butyl-1,5-bis(hydroxynaphthylazo)-, 1761*e*.
$C_{38}H_{34}N_2O_8S$ Salicylic acid, 5-[*p*-[4-[6-(*p*-aminobenzamido) - 1 - hydroxy - 3-sulfo - 2 - naphthylazo] - *o* - tolylazo]-benzamido]-, P 8158*c*.
$C_{38}H_{34}N_{10}O_{16}S_2$ Salicylic acid, 5-[*p*-[4-anilino-6 - [5 - hydroxy - 6 - (2 - hydroxy - 5-sulfamylphenylazo) - 7 - sulfo - 2-naphthylamino] - *s* - triazin - 2 - ylamino]phenylazo]-, P 7690*d*, P 8161*h*.
$C_{38}H_{30}$ Ethane, hexaphenyl-, 5011*g*.
$C_{38}H_{30}NIO_2P_2$ Phosphine, triphenyl-, complex with nickel carbonyl, 6202*e*.
$C_{38}H_{32}Cl_2N_8O_4$ 5,5′-*p*-Phenylenebis[3-(*p*-carboxyphenyl) - 2 - phenyl - 2*H* - tetrazolium chloride], di-Et ester, 7593*b*.
$C_{38}H_{32}Cl_2N_6Pd_2$, 7856*a*.
$C_{38}H_{33}N_2O_{14}P$ Uridine, 3′,5′-benzylidene-, 2′-phenyl phosphate, 2171*a*.
$C_{38}H_{34}Au_2Cl_{10}N_4Pd$, 7856*b*.
$C_{38}H_{34}N_2O_{12}S_2$ Orthoform compd. with ethylidenedi-2-naphthalenesulfonic acid, P 5047*c*.
$C_{38}H_{34}N_4O_4S_2$ 4-Thiazolidone, 2,2′-(enedinitrilo)bis[3 - ethyl - 5 - ethyl - 2 - benzoxazolinylidene)ethylidene]-, P 4162*f*.
$C_{38}H_{37}I_2N_3$ 2,2′-[3-[1-Ethyl-4(1*H*)-quinolylidene] - 1,4 - pentadienylene]bis[1-ethylquinolinium iodide], 2528*c*.
$C_{38}H_{38}I_2N_4S_2$ Piperazine, 1,4-bis[*p*-[2-(2-benzothiazolyl)vinyl]phenyl]-, diethiodide, P 4160*b*.
$C_{38}H_{38}I_2N_4Se_2$ Piperazine, 1,4-bis[*p*-[2-(2-benzoselenazolyl)vinylphenyl]-, diethiodide, P 4160*b*.
$C_{38}H_{40}I_2N_4S_2$ 2,2′-[Ethylenebis[(methylimino) - *p* - phenylenevinylene]]bis[3-ethylbenzothiazolium iodide], P 4160*b*.
$C_{38}H_{40}N_4S_4$ Benzothiazole, 2,2′-(azodi-*p*-phenylene)bis[6-methyl-, bis(butylmercaptomethyl) deriv., P 8147*a*.
$C_{38}H_{47}N_7O_{13}P_2$ Adenylpyrophosphoric acid, tetrabenzyl ester, 2650*d*.
$C_{38}H_{48}N_2O_6$ Isochondrodendrine, di-Me ether, 2626*c*.
Isotetrandine, 1485*c*, 8528*b*.
$C_{38}H_{42}N_{12}O_{21}$ Piperidine, 4-[benzyl[2-(1-pyrrolidyl)ethyl]amino]-1-ethyl-, tripicrate, 2207*f*.
$C_{38}H_{52}O_7$ Bisnorcholanic acid, 3-keto-12-hydroxy-, Me ester, 12-(2-anthraquinonecarboxylate)-, P 5428*f*.
$C_{38}H_{43}ClN_7O_4S_2Se$ 2-[2-(Decylmercapto)-3-(1 - ethylnaphtho[1,2]thiazol - 2(1*H*)-ylidene)propenyl] - 1 - methylnaphtho-[1,2]selenazolium perchlorate, P 4159*g*.
$C_{38}H_{41}N_{13}O_{21}$ Quinazoline, 2,4-bis(2-diethylaminoethylamino)-, tripicrate, 2952*g*.
$C_{38}H_{44}CbF_6N_2O_7 + 5H_2O$ Thebaine, fluocolumbate(V), 5786*a*.
$C_{38}H_{44}Cl_2N_2O_6$ (See also *Tubocurarine*.) Chondocurarine chloride, P 1914*g*.
Chondocurine, dimethochloride, 3938*g*.
$C_{38}H_{44}Cl_2N_2O_{14}$ 1,10 - Decanediamine, *N*,*N'* - bis(chlorophenethyl)-, dipicrate, 3379*bc*.
$C_{38}H_{44}I_2N_2O_6$ Chondocurarine iodide, P 1914*g*.
$C_{38}H_{44}N_2O_7S$ Equilin, H sulfate, quinidine salt, 7032*h*.
$C_{38}H_{44}N_2O_{18}$ Cellobioside, (*p* - phenylazophenyl), heptaacetate, 6919*f*.
$C_{38}H_{45}BrO_3$ $\Delta^{20,22}$ - Choladien - 3 - one, 12(α) - hydroxy - 21 - bromo - 24,24-diphenyl-, 12-acetate, 3430*g*.
$C_{38}H_{46}CbF_6N_2O_3 + H_2O$ Cinchonidine, fluocolumbate(V), 5786*a*.
Cinchonine, fluocolumbate(V), 5785*i*.
$C_{38}H_{46}N_2O_4$ 2 - Naphthalenepropionic acid, β - ethyl - 6 - methoxy - α,α - dimethyl-, quinine salt, 6607*g*.
$C_{38}H_{46}N_4O_4$ Urea, 1,1′ - hexamethylenebis[3 - (*p* - methoxy - α - phenylphenethyl)-, 7008*e*.
Urea, 1,1′ - hexamethylenebis[3 - [α-(*p*-methoxyphenyl)phenethyl]-, 7008*e*.
$C_{38}H_{46}N_4O_8S_4$ Bithiazole, 2,2′-diaminodiphenyl-, camphorsulfonate, 2202*gi*.
$C_{38}H_{46}N_8O_{14}$ 1,8 - Octanediamine, *N*,*N'*-bis(3 - phenylpropyl)-, dipicrate, 3379*d*.
$C_{38}H_{46}O_2$ $\Delta^{5,10,22}$ - Cholatriene, 3(β) - hydroxy - 24,24 - diphenyl-, acetate, P 3475*a*.
$C_{38}H_{46}O_3$ $\Delta^{20,22}$ - Choladien - 3 - one, 12(α)-hydroxy-24,24-diphenyl-, 12-acetate, 3430*g*.
$C_{38}H_{47}ClO_2$ $\Delta^{20,22}$ - Choladiene, 3(β)-hydroxy - 5 - chloro - 24,24 - diphenyl-, acetate, P 3475*b*.
$C_{38}H_{48}O_2$ $\Delta^{20,22}$ - Allocholadiene, 3(β)-hydroxy - 24,24 - diphenyl-, acetate, P 3475*c*.
$\Delta^{5,22}$ - Choladien - 3 - ol, 24,24 - diphenyl-, acetate, P 4706*g*.
$C_{38}H_{48}O_3$ $\Delta^{20,22}$ - Choladiene, 3(α),12(α)-dihydroxy - 24,24 - diphenyl-, 12(α)-acetate, P 3475*c*.
$C_{38}H_{47}ClO_2$ $\Delta^{22}$ - Cholene, 3(β) - hydroxy-5-chloro - 24,24 - diphenyl-, acetate, P 3474*i*.
$C_{38}H_{50}N_2O_4$ Phthalic acid, 4-isopropyl-2-cyclohexen - 1 - yl monoester, piperazine salt, 161*a*.
$C_{38}H_{50}N_4O_2$ 3 - Acridinecarbonitrile, 9-(α-dioctylamino - 4 - hydroxy - *m*-toluidino) - 7 - methoxy-, P 7516*e*.
$C_{38}H_{50}O_4$ 1,3,5,7,11,13,15,17 - Octadecaoctaene - 9,10 - dione, 7,12 - dihydroxy - 3,16 - dimethyl - 1,18-bis-(2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-, 2588*d*.
$C_{38}H_{50}O_2$ [3,3′ - Bi - 5 - androsten]-17,17′-diol, 6216*g*.
$C_{38}H_{50}O_4$ Lauric acid, 3,3′-dimethyl-4,4′-biphenylene ester, 5018*c*.
$C_{38}H_{50}Cl_2O_4$ Ethane, 1,1,1 - trichloro - 2,2-bis[*p* - (dodecyloxy)phenyl]-, P 8400*i*.
$C_{38}H_{52}O_2$ Vitamin A, oleate, 5372*i*.
$C_{38}H_{54}O_2$ Vitamin A, stearate, 5372*i*.
$C_{38}H_{70}N_4O_8$ 16 - Dotriacontanone, 17-hydroxy-, 2,4 - dinitrophenylhydrazone, 3791*h*.
$C_{38}H_{72}O_4$ Oleic acid, Me ester, dimer, 5974*i*.
$C_{38}H_{75}O_{12}P_3$ Triphosphoric acid, 2-ethylhexyl phenyl ester, P 9356*h*.
$C_{38}H_{76}N_2O_2$ Stearamide, *N*,*N'*-ethylenebis-, P 5999*b*.
$C_{38}H_{78}$ Octatriacontane, 3781*f*.
$C_{38}H_{78}CrN_{17}O_{18}S_4$ Viscotoxin, purate Reinecke salt, 2943*a*.
$C_{38}H_{78}O_{12}$ Acetaldehyde, bis[2-[2-[2-[2-[2-(2 - ethylhexyloxy)ethoxy]ethoxy]-ethoxy]ethoxy]ethyl] acetal, P 1434*a*.
$C_{38}H_{78}S_4$ 2,5 - Hexanedione, bis(dioctyl mercaptole), 564*g*.
$C_{39}H_{32}BrN_3O_2$ Anthraquinone, benzamido-1 - (12 - bromo - 6 - chrysenylamino)-, P 7711*hi*, P 7712*a*.
$C_{39}H_{24}InN_9S_3$ 1,10 - Phenanthroline, compd. with In(CNS)$_3$, 6933*a*.
$C_{39}H_{33}N_3O_6$ Benz[*b*]acridin-12(5*H*)-one, 2-nitro-, compd. with $C_9H_{21}N$, 1420*f*.
$C_{39}H_{77}N_3O_3$ Benzamide, *N*,*N* - bis[*m*-(2-hydroxynaphthylazo)phenyl]-, 169*d*.
$C_{39}H_{30}$ Fluorene, (1,2,2,2 - tetraphenylethyl)-, 194*ef*.
$C_{39}H_{30}FeO_4PSb$ Phosphine, triphenyl-, complex with iron carbonyl and triphenylstibine, 6202*e*.
$C_{39}H_{30}FeO_6P_2$ Phosphine, triphenyl-, complex with iron carbonyl, 6202*d*.
$C_{39}H_{30}N_2$ Carbodiimide, bis(triphenylmethyl)-, 4645*b*.
$C_{39}H_{30}N_2O_6S_2$ 1 - Naphthalenesulfonic acid, 8 - anilino - 5 - [4 - [*m* - [methyl(sulfophenyl)sulfamyl]phenylazo] - 1-naphthylazo]-, P 7701*e*.
$C_{39}H_{31}N_3O_5$ Levoglucosan, tris(1-naphthalenecarbamate), 1331*h*.
Tris(1-naphthalenecarbamate), 154*c*.
$C_{39}H_{31}N_7O_8S$ Salicylic acid, 5 - [*p* - [4-[6-(*p*-aminobenzamido) - 1 - hydroxy - 3-sulfo - 2 - naphthylazo] - 2,5 - xylylazo]benzamido]-, P 8158*c*.
$C_{39}H_{31}N_7O_{16}S$ Salicylic acid, 5-[*p*-[4-[6-(*p*-aminobenzamido) - 1 - hydroxy - 3-sulfo - 2 - naphthylazo] - 5 - methoxy-*o*-tolylazo]benzamido]-, P 8158*c*.
$C_{39}H_{32}N_2O$ Urea, 1,3-bis(triphenylmethyl)-, 4645*f*.
$C_{39}H_{34}I_2N_4S_2$ Benzothiazoline, 3,3′-methylenebis[2 - (2 - quinolylmethylene)-, diethiodide, P 3736*f*.
$C_{39}H_{36}CrErN_{12}O_2S_6$, 4970*a*.
$C_{39}H_{36}CrN_{12}O_2S_6Y$, 4970*a*.
$C_{39}H_{40}N_4O_{10}S_2$ Benzocaine, compd. with (diaminomethylene)di - 2 - naphthalenesulfonic acid, P 5047*d*.
$C_{39}H_{41}ClN_2$ *m* - Toluidine, 4,4′ - *o* - chlorobenzylidenebis[*N* - benzyl - *N*-ethyl-, P 9519*f*.
$C_{39}H_{41}N_3O_6$ β-Alanine, *N*-[α-hydroxy-β-(hydroxymethyl) - β - methylvaleryl]-, cinchonidine salt, 4226*f*.
$C_{39}H_{41}O_3P$ Methanephosphonic acid, bis(4-biphenylyl)phenyl-, diiso-Bu ester, 1347*b*.
$C_{39}H_{42}N_{12}O_{12}$ 3,6,20 - Allopregnanetrione, tris(2,4 - dinitrophenylhydrazone), 5068*b*.
$C_{39}H_{44}O$ Ether, 3,7 - dimethyl - 9-(2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-2,4,6,8 - nonatetraenyl triphenylmethyl, P 3152*e*.
$C_{39}H_{44}O_{12}$ Glucoside, [*p* - (α,β - diethyl-*p*-hydroxyphenethyl)phenyl]-, *p*-benzoate tetraacetate, P 7048*a*.
$C_{39}H_{46}I_2N_4O_6$ Oxyacanthine, *N*-methyl-, iodide, 3103*f*.
$C_{39}H_{46}N_2O_6$ Tubocurarine, methyl-, 7133*c*.
$C_{39}H_{46}N_2O_8$ Phthalic acid, 1-ethyl-1,3-dimethylbutyl ester, brucine salt, 1312*g*.
$C_{39}H_{46}N_6O_2$ 1,1,3,3 - Cyclohexanetetrapropionitrile, 5,5′ - isopropylidenebis-[2-oxo-, P 2228*c*.
$C_{39}H_{53}I_2N_3O_2$ Pentamethylenebis[(2-benshydryloxyethyl)dimethylammonium iodide], 3929*d*.
$C_{39}H_{54}I_2N_2O_6$ Tropic acid, ester with 8,8′-pentamethylenedi - 3 - nortropanol di-MeI, 3929*d*.
$C_{39}H_{54}O_4$ Benzoic acid, 2,5 - bis(benzyloxy)-, octadecyl ester, 7003*h*.
$C_{39}H_{61}NO_7$ Malonic acid, cholesteryl-, adrenaline salt, P 6674*i*.
$C_{39}H_{70}Cr_2N_{10}O_{17}S_{12} + 2H_2O$ Streptomycin B, trireineckate, 1328*a*.
$C_{39}H_{72}O_6$ Olein, di-, 3875*e*, 5207*b*.
$C_{39}H_{74}O_6$ Lauric, tri-, 134*h*, 2297*i*.

Pelargonic acid, ε-propyl-, triglyceride, 6165*f*.

$C_{39}H_{76}Cl_2N_2O_2$ Stearamide, *N*, *N'* - methylenebis[*N*-(chloromethyl)-, P 6430*f*.

$C_{39}H_{76}O_2$ Stearin, di-, 5207*b*.

$C_{39}H_{81}ClO_3Si$ Silane, chlorobis(octadecyloxy)propoxy-, P 6430*e*.

$C_{40}H_{20}$ Benzo[1,2,3-*cd*, 4,5,6-*c'd'*]diperylene, 1360*c*.

$C_{40}H_{24}Cl_2N_2O_4$ 3,4,9,10 - Perylenetetracarboxylic diimide, bis(chloromethyl)-*N*,*N'*-di-*o*-tolyl-, P 8163*g*.

$C_{40}H_{34}Cl_2N_2O_8S_2$ Anthraquinone, 1,4-bis[*p*-(*p* - chlorophenylsulfonyl)benzamido]-, P 863*a*.

$C_{40}H_{24}O_8$ 1 - Naphthoic acid, 2,2' - (9,10-dihydro - 9,9,10,10 - tetrahydroxy-1,8 - phenanthrylene)di - (?), di ε lactone, diacetate, 7929*a*.

$C_{40}H_{26}N_2O_4S_4$ 3,4,9,10 - Perylenetetracarboxylic diimide, bis(methylmercaptomethyl)-*N*,*N'*-diphenyl-, P 8164*b*

$C_{40}H_{26}N_2O_8S_2$ Anthraquinone, 1,4 bis[*p*-(phenylsulfonyl)benzamido], P 863*a*, P 5966*g*.

$C_{40}H_{26}O_4$ Peroxide, bis(9,10 - dihydro-10 oxo-9-phenyl-9-anthryl), 620*a*.

$C_{40}H_{28}Cl_2N_2O_8S_2$ Anthraquinone, 1,4-bis(4-chlorobenzhydrylamino)-, disulfo deriv., P 9468*f*.

$C_{40}H_{28}N_2O_2$ 2 - Naphthol, 1,1' - [*p* phenylenenitrilo(phenylmethylidyne)]di-, 3000*b*.

3 - Penten - 1 - yn - 3 - ol, 5,5' - (*p*-phenylenedinitrilo)bis[1,5 - diphenyl, 3000*a*.

4(1*H*) - Pyridone, 1 - [*p* - [α - (2 - hydroxy - 1 - naphthyl)benzylideneamino]phenyl] 2,6 - diphenyl, 3000*a*.

4(1*H*) - Pyridone, 1,1' - *p* - phenylenebis[2,6-diphenyl, 3000*b*.

$C_{40}H_{28}N_2O_{10}S_2$ 2 - Anthraquinonesulfonic acid, benzidine salt, 3815*b*

$C_{40}H_{28}N_4O_6S_2$ 4,4' - Bithiazole, 2,2' diamino - 5,5' - diphenyl-, salt with 2,2' - dihydroxy - [1,1' - binaphthalene] - 3,3' - dicarboxylic acid, 2202*g*.

$C_{40}H_{28}O_2$ 5,12,6,11 - Diepoxycyclooctа-[1,2,5,6]dibenzene, 5,6,11,12-tetrahydro-5,6,11,12-tetraphenyl-, 2985*d*

$C_{40}H_{30}FeP_2O_4$, 2111*f*.

$C_{40}H_{30}O_4$ Anthracene, 1,4 - bis(benzyloxy)-9,10-diphenyl-, 5313*b*.

$C_{40}H_{30}O_6S$ Compd., m. 202°, 7010*d*.

$C_{40}H_{32}ClN_8NaO_{16}$ 4 - Pyrone, 2-(hydroxymethyl) - 5 - phenacyloxy-, compd. with NaCl, 2,4 dinitrophenylhydrazone, 8386*a*.

$C_{40}H_{32}N_8O_3$ Anthraquinone, 1,5-bis(methylamino) - 4,8 - bis(*p* - phenylazoanilino)-, P 8164*d*.

$C_{40}H_{33}NO$ Acetamide, *N*, *N* - bis(triphenylmethyl)-, 4646*e*.

$C_{40}H_{32}NO_2$ 1,5 - Pentanedione, 1,3,5 triphenyl - 2 - (α - 2 - quinolylmethylbenzyl)-(?), 7022*h*.

$C_{40}H_{34}$ Phenanthrene, 1,2,3,4 - tetrahydro-9-(1,2,2,2-tetraphenylethyl)-, 194*e*.

$C_{40}H_{34}ClO_2P$ Phosphine oxide, chloroisopropoxy[tris(4 - biphenylyl)methyl]-, 1347*c*.

Phosphine oxide, chloropropoxy[tris(4 biphenylyl)methyl]-, 1347*c*.

$C_{40}H_{35}I_2N_3S_2Se$ 2,2' - [3 - (3 - Ethyl - 2-benzoselenazolinylidene) - 1,4 - pentadienylene]bis[3 - ethylnaphth[2,1]-thiazolium iodide], 2529*b*.

$C_{40}H_{38}N_4O_{11}$ Acetophenone, α,α',α'',α'''-(ethylenedinitrilo)tetra-, picrate, 3800*e*.

$C_{40}H_{39}ClN_4NaO_8$ 4 - Pyrone, 2 - (hydroxymethyl) - 5 - phenacyloxy-, compd. with NaCl, phenylhydrazone, 8386*a*.

$C_{40}H_{38}N_4O$ 9*H* - Pyrid[3,4-*b*]indole, 3,3'-oxybis[2,3 - dihydro - 2 - methyl - 1-*o* - methylbenzyl-, *and di·HCl*, 5406*h*.

$C_{40}H_{38}N_4O_4S_2$ Benzamidine, *p*,*p'* - (ethylenedioxy)bis[*N* - phenyl-, dibenzenesulfonate, 7444*g*.

$C_{40}H_{38}N_4O_{16}$ Uroporphyrin, 2094*f*.

$C_{40}H_{38}N_4O_{10}$ Acetoacetanilide, α,α' - (3,3'-dimethoxy - 4,4' - biphenylenebisazo)-bis[4 - cyano - 2,5 - dimethoxy-, P 3461*i*.

$C_{40}H_{39}BrCl_2NiP_2$ Phosphine, triphenyl-, complex with 1-bromobutane and $NiCl_2$, 6202*e*.

$C_{40}H_{39}Br_2NiP_2$ Phosphine, triphenyl-, complex with 1-bromobutane and $NiBr_2$,

$C_{40}H_{40}$ Styrene, pentamer, 2966*h*.

$C_{40}H_{40}Ag_4N_8O_{36}SiW_{12}$, 1671*i*.

$C_{40}H_{42}N_4S_2$ 3,3' - Ethylenebis[2-(*p*-dimethylaminostyryl) - 4 - phenylthiazolium iodide], P 3737*g*.

$C_{40}H_{40}N_2O_{10}S_2$ Benzocaine, compd. with ethylidenedi - 2 - naphthalenesulfonic acid, P 5047*c*.

$C_{40}H_{40}N_4O_7S_3$ 3 - Ethyl - 5 - [2 - (3-ethylbenzoxazolinylidene)ethylidene] - 2-[[3 - ethyl - 5 - [2 - (3 - ethyl - 2-benzoxazolinylidene)ethylidene]-4-oxo-2 - thiazolidylidene]methyl] - 4-oxo-2-thiazolinium *p*-toluenesulfonate, P 4163*e*.

$C_{40}H_{40}N_6O_6S$ Nile Blue A, 2093*g*, 7589*c*.

$C_{40}H_{40}O_{12}$ Benzoic acid, 2-β-glucosidoxy 5-methoxy-, Me ester, triacetate, trityl deriv., 3393*h*.

$C_{40}H_{47}N_4O_{10}$ Antipyrine, compd. with hydroquinone, 107*a*.

Urea, 1,1' - hexamethylenebis[3 - [3,4-methylenedioxy - α - (3,4 - methylenedioxyphenyl)phenethyl]-, 7008*e*.

$C_{41}H_{12}O_4$ Carvacrol, 5,5' - (diethylideneethylene)di-, dibenzoate, 614*b*.

Thymol, 6,6' - (diethylideneethylene)di-, dibenzoate, 614*a*.

$C_{40}H_{42}O_{21}$ Cellobioside, 8 - hydroxy - 1 - anthraquinonyl, heptaacetate, 5019*h*.

Lactoside, 8-hydroxy - 1 - anthraquinonyl, heptaacetate, 5019*h*.

Maltoside, 8 - hydroxy - 1 - anthraquinonyl, heptaacetate, 5019*h*.

$C_{40}H_{44}Br_2N_4S_2$ 3,3' - Hexamethylenebis[2-(*p*-dimethylaminostyryl)benzothiazolium bromide], P 1160*b*.

$C_{40}H_{44}I_2N_4S_2$ 2,2'-[Ethylenebis[(ethylimino)-*p* - phenylenevinylene]]bis[3 - ethylbenzothiazolium iodide], P 4160*b*

$C_{40}H_{44}N_2O_8$ Repandinemethine, *O* methyl-, 3017*f*.

$C_{40}H_{46}N_4O_8$ Coproporphyrin III, tetra Me ester, 2671*c*

$C_{40}H_{46}O_4$ Carvacrol, 5,5' (1,2-diethylethylene)di-, dibenzoate, 614*c*.

Thymol, 6,6' - (1,2 - diethylethylene)di-, dibenzoate, 614*c*

$C_{40}H_{48}O_8$ Bisnorcholanic acid, 3(α),12-dihydroxy-, Me ester, 3(α)-acetate 12-(2-anthraquinonecarboxylate), P 5428*e*.

$C_{40}H_{48}I_2N_2O_6$ Repandine, *O* methyl-, di-MeI, 3017*e*.

Tubocurarine iodide, di Me ether, 3938*g*, 5121*g*.

—, dimethyl-, 7132*ab*.

$C_{40}H_{50}O_4$ See *Astacin*

$C_{40}H_{48}O_6$ $\Delta^{20,22}$ - Choladien - 3 - one, 12(α),-21 - dihydroxy - 24,24 - diphenyl-, di acetate, 3430*h*, 6639*f*.

$C_{40}H_{48}O_6$ $\Delta^{20,22}$ - Choladien - 3 - one, 12(α), 21 - dihydroxy 24,24 - diphenyl, 21 succinate, 6639*h*.

$C_{40}H_{50}CbF_6N_4O_5$ Quinidine, fluocolumbate (V), 5785*f*

Quinine, fluocolumbate(V), 5785*i*.

$C_{40}H_{50}N_2O_2$ 2,3 Quinoxalinedicthenol, α,α - bis[2 - methyl - 4 - (2,6,6-trimethyl - 1 - cyclohexen - 1 - yl) - 1,3 butadienyl]-, 2588*d*.

$C_{40}H_{50}N_2O_4S_2$ Dehydrocholic acid, 3-bis (acetamidophenyl mercaptal), 7033*i*.

$C_{40}H_{50}N_4O_6$ Urea, 1,1'-hexamethylenebis[3 [*p* - methoxy - α - (*p* - methoxy phenyl)phenethyl]-, 7008*e*.

$C_{40}H_{50}N_8O_{14}$ Benzidine, *N*, *N*, *N'*, *N'*-tetrabutyl-, dipicrate, 3380*g*.

$C_{40}H_{50}N_8O_{15}$ Aniline, *p*,*p'* - oxybis[*N*, *N*-dibutyl-, dipicrate, 3381*b*.

$C_{40}H_{50}O_4$ $\Delta^{20,22}$ - Choladiene, 3(α),12(α)-dihydroxy - 24,24 - diphenyl-, diacetate, P 3474*h*.

$C_{40}H_{51}BrO_4$ $\Delta^{22}$ - Cholene, 3(α),12(α) - dihydroxy - 22 - bromo - 24,24-diphenyl-, diacetate, P 3474*h*.

$C_{40}H_{51}N_7O_3$ Benzoic acid, *p*-phenylazo-, ester with 2,8-dimethyl-2-(4,8,12-trimethyltridecyl) - 6 - chromanol(?), 2620*g*.

$C_{40}H_{52}O_2$ Cholesterol, 7 - phenoxy-, benzoate, 3022*d*.

$C_{40}H_{54}O_{27}$ Cellotriose, hendecaacetate, 3609*b*.

$C_{40}H_{55}NO_8S$ Cholesterol, 7-hydroxy, 3-acid phthalate 7-acid sulfate, pyridine salt, 6641*e*.

$C_{40}H_{56}$ See *Carotene; Lycopene*.

Neo-β carotene, 7152*f*, 7560*f*, 8456*g*.

Neo-β-carotene U, 7152*f*.

Pro-γ-carotene, 9180*e*.

$C_{40}H_{56}N_2O_{10}S_2$ Camphorsulfonic acid, salt with quinine, 7642*c*.

$C_{40}H_{56}O$ Cryptoxanthin, 2291*h*, 2708*h*, 4353*i*, 7560*f*, 8024*f*, 8456*g*.

Neocryptoxanthin, 2708*h*.

Neocryptoxanthin U, 9180*d*.

$C_{40}H_{56}O_2$ (See also *Xanthophyll*.)

Zeaxanthin, 3878*g*.

$C_{40}H_{56}O_3$ Antheraxanthin, 4233*d*.

Mutatoxanthin, 4233*f*.

$C_{40}H_{58}$ Carotene, dihydro-, 3798*d*.

$C_{40}H_{58}O_3$ Abietic anhydride, P 4051*b*.

Capsanthin, 6366*a*.

$C_{40}H_{64}$ ζ-Carotene, 1311*g*.

2,10,12,14,16,18,20,22,30 - Dotriacontanonaene, 2,6,10,14,19,23,27,31-octamethyl-, 1311*g*.

Lycopene, 5,5',6,6',7,7',8,8' - octahydro, 1311*g*.

Phytofluene, 3565*f*, 7544*f*.

$C_{40}H_{64}O$ Phytofluenol, 3565*f*.

$C_{40}H_{56}BaO_4S_2$ Cresol, α - (amylmercapto)-*ar*-octyl-, Ba deriv., P 845*b*.

$C_{40}H_{66}FeO_4Pb_2$, 2111*f*.

$C_{40}H_{68}Cl_4N_2O_4Pt$ Benzyl(carboxymethyl)dimethylammonium chloroplatinate, dinonyl ester, 6977*f*.

$C_{40}H_{68}O_{12}$ Abietic acid deriv., *Na salt*, m. 220-50° (decompn.), P 1441*c*.

$C_{40}H_{71}N_{13}O_{23}S$ Viscotoxin, picrate, 2912*i*

$C_{40}H_{74}N_2O_2$ Octadecylnicotinium laurate, P 3969*a*.

$C_{40}H_{74}O_5$ Oleic acid, diester with diethylene glycol, 3030*e*.

$C_{40}H_{76}O_4$ Erythrol, distearate, 7419*g*.

$C_{40}H_{80}N_2O_2$ Suberamide, *N*, *N'*-dihexadecyl, P 5890*k*.

$C_{40}H_{82}N_2O$ Formamide, *N* - dodecyl - *N*-[(dodecylammomethyl)tetradecyl]-, P 3028*f*.

$C_{40}H_{82}O_{18}$ Sucrose, compd. with $Et_2O$, 7409*a*

$C_{41}H_{24}N_2O_3$ 13*H* - Benzo[g]naphtho[2,3-a]carbazole - 7,12 - dione, 6 - (*N*-2 naphthylbenzamido)-, P 7704*d*

$C_{41}H_{24}N_2O_3S$ Anthraquinone, 5 (*p* phenylsulfonylbenzamido) - 1,1' - iminodi-, P 7708*c*.

$C_{41}H_{29}N_9O_{18}S$ 2 - Naphthol - 4 - sulfonic acid, 6 - nitro - 1 - [5 - oxo - 1 - [*p* - [3 - (5 - oxo - 3 - phenyl - 2 - pyrazolin-1-yl)phenyl]ureido]phenyl - 3 - phenyl-2-pyrazolin-4-ylazo]-, P 5194*c*.

$C_{41}H_{32}N_{10}O_{10}$ Salicylic acid, 5 - [4 - [*m* - [4' - (3 - carboxy - 4 - hydroxyphenylazo) - 3 - hydroxy - 3' - methoxy - 4 - biphenylylazo] - 5 - hydroxy-3 - methyl - 1 - pyrazolyl]phenylazo]-5 - hydroxy - 3 - methyl - 1 - pyrazolyl]-, P 8148*h*.

$C_{41}H_{34}N_7O_8$ Streptamine, pentabenzoyl desoxy-, 1329*h*.

$C_{41}H_{34}O_{27}$ Chebulinic acid, 1341*f*.

$C_{41}H_{37}O_3P$ Methanephosphonic acid, tris(4-biphenylyl) , di Et ester, 1347*c*

$C_{41}H_{39}I_2N_4O_2S_2$ Benzothiazoline, 3,3' trimethylenebis [3 - (2 - benzoxazolyl)allylidene -, diethiodide, P 3737

$C_{41}H_{38}I_2N_4S_2$ Benzothiazoline, 3,3'-trimethylenebis[2 - (2 - quinolylmethylene) -, diethiodide, P 3737*a*.

$C_{41}H_{38}N_{14}O_{21}$ Pyridine, 3,3' - (*p* - dimethylaminobenzylidene)bis[6 - dimethylamino-, tripicrate, 409*f*.

$C_{41}H_{40}N_4O_8S_2$ Benzamidine, *p*,*p'* - (trimethylenedioxy)bis[*N*-phenyl-, dibenzenesulfonate, 7444*f*.

$C_{41}H_{42}BrN_3O_{11}$ 3 - Carboxy - 1 - methylpyridinium bromide, pentaester with D glucose, 2623*b*.

$C_{41}H_{42}N_2O_{10}S_2$ Benzocaine, compd. with isopropylidenedi - 2 - naphthalenesulfonic acid, P 5047*c*.

$C_{41}H_{43}N_3O_6$ Quinoline, 4 - (4 - diethylamino-1 - methylbutylamino)-, salt with 4,4' - methylenebis[3 - hydroxy-2-naphthoic acid], 1776*f*.

$C_{41}H_{43}N_{11}O_{12}$ Acrylic acid, β,β - bis(*p*-aminophenyl)-, 2 - diethylaminoethyl ester, dipicrolonate, 7464*c*.

$C_{41}H_{44}O_8$ 2,4 - Xylenol, 6,6' - methylenebis-[α²-(2 - hydroxy - 3,5 - xylyl)-, tetraacetate, 5019*e*.

$C_{41}H_{43}N_{11}O_{12}$ Propionic acid, β,β - bis(*p*-aminophenyl)-, 2 - diethylaminoethyl ester, dipicrolonate, 7464*c*.

$C_{41}H_{50}I_2N_2O_6$ Repandine, *O*-ethyl-, di-MeI, 3017*h*.

$C_{41}H_{50}O_6$ Δ ²⁰·²² - Choladien - 3 - one, 12(α), 21 - dihydroxy - 24,24 - diphenyl-, 21 succinate Me ester, 6639*i*.

Cryptogenin, dibenzoate, 655*e*.

$C_{41}H_{51}NO_4$ Rubijervine, dibenzoate, 7939*f*.

$C_{41}H_{52}N_2O_{14}$ Aniline, *p*,*p'* - methylenebis [*N*, *N*-dibutyl-, dipicrate, 3380*h*.

$C_{41}H_{52}N_2O_{16}$ Aniline, *p*,*p'* - (methylenedioxy)bis[*N*, *N* - dibutyl-, dipicrate, 3381*c*.

$C_{41}H_{53}NO_4$ Rubijervine, dihydro-, dibenzoate, 7939*i*.

$C_{41}H_{56}O_4$ Cholesterol, 7-hydroxy-, dibenzoate, 5307*g*.

$C_{41}H_{58}N_2O$ *o* - Cresol, α - didecylamino - 4-(2 - methyl - 9 - acridylamino)-, *di-HCl*, P 7516*e*.

$C_{41}H_{66}I_2N_2O_6$ Hydratropic acid, β,β'-(pentamethylenedioxy)di-, ester with tropine-MeI, 3029*c*.

$C_{41}H_{66}O_{13}$ See *Digitoxin*.

$C_{41}H_{64}O_{14}$ (See also *Digoxin*.) Gitoxin, 3566*i*.

$C_{41}H_{66}O_{13}$ Evonoside, 2371*h*.

$C_{41}H_{66}O_{16}$ Glucoside, cholestanol-, tetraacetate, P 5428*b*.

$C_{41}H_{80}NO_8P$ Ethanolamine, phosphatidyl-, 4318*a*.

$C_{41}H_{82}N_2O_2$ Azelaamide, *N*, *N'*-dihexadecyl-, P 5890*i*.

$C_{41}H_{82}N_2O_4$ Urea, 1,1' - methylenebis[3 (stearoylaminomethyl)-, P 6227*g*.

$C_{41}H_{86}Br_2N_2$ Benzene, pentakis(diethylaminomethyl)-, pentakis(ethobromide), 8059*c*.

$C_{42}Cd_{10}Fe_7KN_{12}$ Cadmium potassium ferricyanide, 2113*b*, 7365*b*.

$C_{42}Co_8Fe_7K_{12}N_{42}$ Cobalt potassium ferrocyanide, 961*a*.

$C_{42}H_{20}N_2O_4S_2$ 6,6' - Bibenzothiazole, 2,2' di - 2 - anthraquinonyl-, P 3626*f*.

$C_{42}H_{22}N_2O_6$ Anthraquinone, bis(1-anthraquinonylamino)-, P 1576*f*.

$C_{42}H_{74}O_4$ Dibenzo[*a*,*o*]perylene - 7,16 - diol, dibenzoate, 5391*d*.

$C_{42}H_{74}O_6$ 3a,11b(10*H*,13*H*) - Epidioxydibenzo[*a*,*o*]perylene - 7,16 - diol, dibenzoate, radical from, 5391*e*

$C_{42}H_{78}N_4O_8S_2$ Indanthrene, 8,17 - bis(*p*-tolylsulfonamido)-, 3399*f*

$C_{42}H_{38}N_4O_{16}S_4$ Stilbenedisulfonic acid, 4,4'-bis(4 - amino - 3 - sulfo - 1 - anthraquinonylamino)-, P 9467*f*

$C_{42}H_{28}O_2$ Naphthacene, 5,6,11,12 - tetraphenyl-, photooxide, 7341*d*

$C_{42}H_{28}O_6$ Dinaphtho[1,2-*b*, 2',1'-*n*]perylene-19,19a,20(19b*H*) - triol(?), triacetate, 7928*f*

$C_{42}H_{30}$ Benzene, 1,3,5 - trisbiphenylyl, 1629*g*.

$C_{42}H_{30}Hg_2$ Mercury, (tetraphenyl - *o*-phenylene)bis[phenyl, 2614*f*.

$C_{42}H_{32}$ Cholanthrene, 3 methyl-, dimer, 7012*c*.

$C_{42}H_{32}N_2O_6S_2$ Anthraquinone, 1,4-bis[*p*-(methylphenylsulfamyl)benzamido], P 864*c*.

$C_{42}H_{32}N_4S_4$ Benzothiazole, 2,2' - (azodi-*p*-phenylene)bis[6 - methyl-, bis(benzylmercaptomethyl) deriv., P 8147*a*.

$C_{42}H_{42}N_4O_{10}S_2$ 1 - Naphthol - 4 sulfonic acid, 2,2' - {*p* - phenylenebis[(methylimino)carbonyl - *p* - phenyleneazo]}-bis-, P 858*i*.

$C_{42}H_{42}N_6O_{16}S_4$ 2 - Naphthol - 3,6 - disulfonic acid, 1,1' - {*p* - phenylenebis[methylimino)carbonyl - *p* - phenyleneazo]}-bis-, P 859*c*.

$C_{42}H_{44}N_2O_6S_2$ Anthraquinone, 1,4 bis(α-phenylphenethylamino)-, disulfo deriv., *di Na salt*, P 8163*c*, P 9468*f*.

$C_{42}H_{44}N_8O_{16}S_4$ 1 - Naphthol - 5,7 - disulfonic acid, 2,2' - {*p* - phenylenebis[(methylimino)carbonyl - *p* - phenyleneazo]}-bis[8-amino-, P 858*i*.

$C_{42}H_{46}O_2$ Butane, 1,3 - bis(triphenylmethoxy)-, 6976*a*.

$C_{42}H_{46}N_2$ 2 - Biphenylamine, 5,5' - [(4 methylimino - 3 - phenyl - 2,4 cyclohexadienylidene)methylene]bis[*N*, *N*-dimethyl-, *and salts*, P 4485*a*.

$C_{42}H_{48}N_4O_8$ 1,7 - Octadien - 4 - yne - 3,6-diol, 3,6 - bis(β - aminophenethyl) - 1,8-diphenyl-, picrate, 6573*h*.

$C_{42}H_{48}N_4O_3$ Triethylamine, 2,2',2'' - tris(*p*-phenylazophenoxy)-, 348*h*.

$C_{42}H_{48}Cl_2N_4O_4S_6$ 2,2' - [1,4 - Bis[2 - (3-methyl - 2 - benzothiazolinylidene)-1-methylmercaptoethylidene]tetramethylene]bis[3 - methylbenzothiazolium perchlorate], P 5684*g*.

$C_{42}H_{48}N_4O_9$ D - Glucose, 1,2 - isopropylidene-, tris(1 - naphthalenecarbamate), 1331*h*.

$C_{42}H_{42}N_4O_4$ Acetanilide, *N*, *N'* - *p*-xylenebis[*p* - *N* - benzylacetamido-, 5386*c*.

$C_{42}H_{42}OSi_2$ Disiloxane, hexabenzyl-, P 667*g*.

$C_{42}H_{44}Cl_2N_4O$ 9*H* - Pyrid[8,4-*b*]indole, 3,3'-oxybis[2,3 - dihydro - 2 - methyl-1-*o*-methylbenzyl-, dimethochloride, 5407*a*.

$C_{42}H_{44}I_2N_4O$ 9*H* - Pyrid[3,4-*b*]indole, 3,3'-oxybis[2,3 - dihydro - 2 - methyl-1-*o*-methylbenzyl-, dimethiodide, 5407*a*

$C_{42}H_{44}O_{11}$ Glucoside, 9,10 - dihydro - 9,10 dioxoanthrylene di-, octaacetate, 5019*i*.

$C_{42}H_{44}O_{23}$ Anthrapurpurin, diglucoside, octaacetate, 5020*a*.

Flavopurpurin, diglucoside, octaacetate, 5019*i*.

$C_{42}H_{46}ClBrF_4N_4O_3$ Strychnine, fluocolumbate(V), 5786*a*.

$C_{42}H_{48}N_3P_3$ Triphosphornitrile hexa-*p*-toluidide, 5364*h*.

$C_{42}H_{48}O_{20}$ Glucoside, 5 - styryl - *m*-phenylene di-, octaacetate, 5017*e*.

$C_{42}H_{48}O_{21}$ Citrifolioside, heptaacetate, 4669*h*

$C_{43}H_{52}I_2N_2O_6$ Oxyacanthinemethine, *O* methyl-di-MeI, 3017*f*.

Repandinemethine, *O*-methyl-, di-MeI, 3017*f*.

$C_{42}H_{52}N_8O_{14}$ 4,4' - Stilbenediamine, *N*, *N*, *N'*, *N'*-tetrabutyl, dipicrate, 3380*i*

$C_{42}H_{52}O_6$ $\Delta^{20,22}$ - Choladiene, 3(α),7(α),-12(α) - trihydroxy - 24,24 - diphenyl, triacetate, P 3475*d*.

$C_{42}H_{52}IN_4$ 2,4,6 - Tris(*p* - diethylaminostyryl) - 1 methylpyridinium iodide, 7024*e*.

$C_{42}H_{54}ClBrF_4N_4O_7$ + $4H_2O$ Corynanthine, fluocolumbate(V), 5786*a*.

$C_{42}H_{54}N_8O_{14}$ α,α' - Bi - *p* - toluidine, *N*, *N*, *N'*, *N'* - tetrabutyl, dipicrate, 3380*i*.

$C_{42}H_{54}N_8O_{16}$ Aniline, *p*,*p'* - (ethylenedioxy)-bis[*N*, *N* - dibutyl-, dipicrate, 3381*c*.

$C_{42}H_{64}O_{19}$ See *k-Strophanthoside*.

$C_{42}H_{66}O_{18}$ See *Thevetin*.

$C_{42}H_{74}N_2O_4$ *p*-Quinone, dioxime distearate, 5623*c*.

$C_{42}H_{76}N_4O_5$ 18 - Hexatriacontanone, 10-hydroxy-, 2,4 - dinitrophenylhydrazone, 3791*h*

$C_{42}H_{76}N_6O_2S_2$ [4,4' - Bi - 2 - pyrazolone]-1,1'-dicarboxamide, 3,3' - diheptadecyl-5,5'-dioxodithio-, P 5319*c*.

$C_{42}H_{76}O_7$ Sorbitan, dioleate, 8610*b*.

$C_{47}H_{78}O_8S$ Succinic acid, (2 hydroxyethylmercapto)-, di 9-octadecenyl ester, P 7957*e*

$C_{42}H_{78}O_6$ Aconitic acid, tridodecyl ester, P 7634*f*.

$C_{42}H_{80}NO_{10}P$ Serine, phosphatidyl-, 4318*a*

$C_{42}H_{80}O_6$ Capric acid, γ-propyl-, triglyceride, 6165*f*.

Lauric acid, γ methyl-, triglyceride, 6165*f*.

Tridecanoin, tri-, 134*h*.

$C_{42}H_{86}$ Tetratriacontane, 17,18-dibutyl, 7897*a*.

$C_{43}H_{22}N_2O_7$ Dinaphthacridinepentone, dibenzamido, P 9469*b*.

$C_{43}H_{21}N_4O_9$ 2 - Anthraquinonecarboxamide, *N* - (5,8 - dibenzamido - 1 - anthraquinonyl)-1 nitro-, P 1576*b*.

$C_{43}H_{28}N_4O_4S$ 16*H* Dinaphtho[2,3-*a*, 2',3'-*i*]carbazole - 5,10,15,17 - tetrone, 4 benzamido - 9 - [*m* - (methylsulfonyl)-benzamido]-, P 8171*d*.

$C_{43}H_{28}N_2O_7$ 2 - Anthraquinonecarboxylic acid, 1 - (benzamidoanthraquinonylamino)-, benzyl ester, P 866*ah*, P 867*th*.

$C_{43}H_{28}O_{10}$ Anthraquinone, 1,2,3,7 - tetrahydroxy - 6 - methyl-, tetrabenzoate, 210*d*

$C_{43}H_{27}N_3O_6S$ Anthraquinone, benzamido-4-[*m* - (methylsulfonyl)benzamido]-1,1'-iminodi-, P 7707*h*, P 8171*de*.

$C_{43}H_{29}ClN_4O_4$ Indanthrene, (chloromethyl)-8,17-di-*p*-toluidino-, P 8163*g*, P 8164*a*.

$C_{43}H_{30}N_2O_{13}S_2$ Carbanilide, bis[4 - (carboxyhydroxysulfophenylazo) - *m* - tolylcarbamyl]-, P 9459*g*.

$C_{43}H_{30}N_{10}O_{13}S_2$ Carbanilide, 4,4' - bis[4-(3 carboxy - 1 - hydroxyphenylazo)-3-sulfophenylazo] - 2,2' - dimethoxy-5,5'-dimethyl-, P 5963*b*.

$C_{43}H_{31}N_3O$ Pararosaniline, *N*, *N*, *N'*, *N'*, *N''*, *N''* - hexamethyl - 3,3',3''-triphenyl-, hydroxide, P 861*i*

$C_{43}H_{36}O_{16}$ Aniline, *p*,*p'* - (trimethylenedioxy)bis[*N*, *N* - dibutyl-, dipicrate, 3381*c*.

$C_{43}H_{72}O_5$ Erucin, 3-stearo-1-, 570*i*.

$C_{43}H_{29}N_3O_8$ Dinaphth[2,3-*c*, 2',3'-*h*]acridine - 5,8,11,16,18(17*H*) - pentone, 4 - (2 - anthraquinonylcarbonylamino)-, P 866*c*.

$C_{43}H_{37}Al_2O_{12}$ 2538*h*.

$C_{43}H_{32}N_6O_{16}S_2$ Anthraquinone, 4,5' - bis[*m*-(methylsulfonyl)benzamido] - 1,1'-iminodi-, P 8171*d*;

Anthraquinone, 1,1' - iminobis[4 - [*m*-(methylsulfonyl)benzamido-, P 8171*d*.

$C_{43}H_{36}N_4O_8S$ Anthraquinone, benzamido[*p*-(dimethylsulfamyl)benzamido] - 1,1'-iminodi-, P 864*g*, P 865*a*.

$C_{43}H_{38}Cl_2N_{14}O_{11}S_2$ 2,2' - Stilbenedisulfonic acid, 4 - [4 - anilino - 6 - [3 - carboxy-4 - (3 - methyl - 5 - oxo - 2 - pyrazolin-4 - ylazo)anilino] - *s* - triazin - 2-ylamino] - 4' - [3 - methyl - 5 - oxo-4-(2,3,5 - trichloro - 6 - hydroxyphenylazo) - 2 - pyrazolin - 1 - yl]-, P 4865*g*.

$C_{44}H_{31}N_3O_7$ Fluoranthene, 1,2,3 - trimethyl-, picrate, 3401*h*.

$C_{44}H_{37}I_2N_3O_2S$ 2,2' - [3 - [3 - Ethylnaphth-[2,1]thiazol - 2(3*H*) - ylidene] - 1,4-pentadienylene]bis[3 - ethylnaphth-[2,1]oxazolium iodide], 2528*h*.

$C_{44}H_{38}Cl_2I_2N_4S_4$ 4 - Thiazoline, 3,3'-ethylenebis[2 - [3 - (5 - chloro - 2 - benzothiazolyl)allylidene] - 4 - phenyl-, diethiodide, P 3737*c*.

$C_{44}H_{40}I_2N_4O_2S_2$ 4 - Thiazoline, 3,3' - ethylenebis[4 - phenyl - 2 - [3 - (2-benzoxazolyl)allylidene], diethiodide, P 3737*b*.

$C_{44}H_{40}I_2N_4S_2$ 4 - Thiazoline, 3,3' - ethylenebis[4 - phenyl - 2 - (2 - quinolylmethylene)-, diethiodide, P 3736*i*.

$C_{44}H_{40}I_2N_4S_4$ 4 - Thiazoline, 3,3' - ethylenebis[2 - [3 - (2 - benzothiazolyl)allylidene]-4-phenyl-, diethiodide, P 3737*d*.

$C_{44}H_{40}N_4O_4$ Estradiol, bis(*p* - phenylazobenzoate), 5787*g*.

$C_{44}H_{40}N_6O_4S_2$ 4 - Thiazolidone, 2,2'-(4,4'-biphenylenedinitrilo)bis[3 - ethyl-5-[2 - (3 - ethyl - 2 benzoxazolinylidene)ethylidene]-, P 4163*i*.

$C_{44}H_{40}O_5$ Arabinoside, methyl 3,5 - bis(triphenylmethyl)-, 7430*c*.

$C_{44}H_{42}Cl_2I_2N_2S_4$ Benzothiazoline, 3,3'-ethylenebis[2 - [3 - (5 - chloro - 2-benzothiazolyl) - 2 - ethylallylidene]-, diethiodide, P 3737*g*

$C_{44}H_{42}N_{10}O_{14}$ Hydrocinchotoxine, *N*-benzyl-, phenylhydrazone, dipicrate, 5028*b*.

$C_{44}H_{42}O_4$ Compd., m. 205–20°, 1760*d*.

$C_{44}H_{46}CuN_8O_{12}S_6$ Phthalocyanine, tris-(methylmercaptomethyl)-, Cu deriv., $Me_2SO_4$ deriv., P 8173*a*.

$C_{44}H_{46}O_4$ Phenol, 4,4' - (1,2 - diethylideneethylene)bis[2 - cyclohexyl-, dibenzoate, 3812*i*.

$C_{44}H_{48}Br_2N_4O_4$ Ethylenebis[strychninium bromide], 2703*d*.

$C_{44}H_{48}ClBrF_4N_2O_{15}$ + $H_2O$ Narcotine, fluocolumbate(V), 5786*a*.

$C_{44}H_{50}N_2O_6$ Santalol, acid phthalate, strychnine salt, 5385*ab*.

$C_{44}H_{50}O_4$ Phenol, 4,4' - (1,2 - diethylethylene)bis[2 - cyclohexyl-, dibenzoate, 3812*i*.

$C_{44}H_{54}N_{14}O_{21}$ + $2H_2O$ Benzidine, *N*, *N'*-bis(3 - diethylaminopropyl)-, tripicrate, 3381*h*.

$C_{44}H_{52}N_2O_{11}$ α-Fagarine, compd. with EtOH, *HBr*, 4280*h*.

$C_{44}H_{52}O_4$ 5 - Cholene - 3(β),24 - diol 24-phenyl-, dibenzoate, 3433*d*.

$C_{44}H_{54}ClBrF_4N_4O_7$ Cornantheine, fluocolumbate(V), 5786*a*.

$C_{44}H_{54}N_4O_{10}$ Saccharic acid, compd. with cinchonidine, 5008*i*.

$C_{44}H_{58}N_8O_{14}$ Benzidine, *N*, *N*, *N'*, *N'*-tetraamyl-, dipicrate, 3380*h*.

$C_{44}H_{58}N_8O_{16}$ Aniline, *p*,*p'* - oxybis[*N*, *N*-diamyl-, dipicrate, 3381*b*.

$C_{44}H_{62}O_4$ Vitamin A, succinate, 5372*g*.

$C_{44}H_{74}O_2$ Ergosterol, palmitate, 8433*g*.

$C_{44}H_{76}O_4$ Stearic acid, phenylenedi-, di-Me ester, 9029*b*.

$C_{44}H_{82}N_2O_4$ Oleamide, *N*, *N'* - (acetoacetyliminodiethylene)bis-, P 4289*c*.

$C_{44}H_{82}O_7$ Oleic acid, tetraethylene glycol diester, P 3242*h*.

$C_{44}H_{88}O_2$ 12 - Tetracosyne - 11,14 - diol, 11,14 - didecyl-, 569*g*.

$C_{45}H_{24}N_6O_6$ *s* - Triazine, 2,4,6 - tris(1-anthraquinonylamino)-, P 9468*a*.

$C_{45}H_{28}N_4O_9$ 2 - Anthraquinonecarboxamide, *N* - [5,8 - bis(*p* - methylbenzamido)-1-anthraquinonyl]-1-nitro-, P 1576*c*.

$C_{45}H_{28}N_4O_{13}S_2$ 2 - Anthraquinonecarboxamide, *N* - [5,8 - bis(*p* - methylsulfonylbenzamido) - 1 - anthraquinonyl]-1-nitro-, P 1576*c*.

$C_{45}H_{32}N_6O_{14}$ Diphenic acid, 4,4',6,6'-tetranitro-, di-Me ester, compd. with 1-methylacenaphthene, 1388*i*.

$C_{45}H_{33}N_{13}O_{13}S_2$ Salicylic acid, 5-{*p*-[4-[*p*-(3 - carboxy - 4 - hydroxyphenylazo)-anilino] - 6 - [5 - hydroxy - 6 - (2-hydroxy - 5 - sulfamylphenylazo) - 7-sulfo - 2 - naphthylamino] - *s* - triazin-2-ylamino]phenylazo}-, P 7699*e*, P 8161*h*.

$C_{45}H_{35}BrN_{14}O_{12}S_2$ 2,2' - Stilbenedisulfonic acid, 4 - [4 - anilino - 6 - [3 - carboxy-

4 - (3 - methyl - 5 - oxo - 2 - pyrazolin-4 - ylazo)anilino] - *s* - triazin - 2-ylamino} - 4′ - [4 - (4 - bromo - 2-carboxyphenylazo) - 3 - methyl - 5-oxo-2-pyrazolin-1-yl]-, P 4865*d*.

**$C_{48}H_{38}N_8O_{17}S_2$** Carbanilide, bis[4 - (3-carboxy - 4 - hydroxy - 5 - sulfophenylazo) - 6 - methoxy - *m* - tolylcarbamyl]-, P 4487*g*, P 9459*g*.

**$C_{48}H_{42}I_2N_4$** Quinoline, 1,1′ - trimethylenebis[1,4 - dihydro - 4 - (2 - quinolylmethylene)-, diethiodide, P 3737*a*

**$C_{48}H_{42}I_2N_4O_2S_2$** 4 - Thiazoline, 3,3′ - trimethylenebis[2 - [3 - (2 - benzoxazolyl)allylidene] - 4 - phenyl-, diethiodide, P 3737*f*.

**$C_{48}H_{42}O_9$** Arabinoside, methyl 2-methyl-3,5 bis(triphenylmethyl)-, 7430*d*.

**$C_{48}H_{45}O_3P$** Methanephosphonic acid, tris(4 biphenylyl)-, di-Bu ester, 1347*c*.

**$C_{48}H_{46}Br_2N_4O_2S_4$** 2,2′ - [Trimethylenebis[-oxy[(3 - ethyl - 2 - benzothiazolinylidenemethyl)vinylene]]]bis[3 - ethylbenzothiazolium bromide], P 5684*d*.

**$C_{48}H_{50}Br_2N_4O_4$** Trimethylenebis[strychninium bromide], 2703*d*.

**$C_{48}H_{51}CeCrN_{15}O_{15}S_6$**, 4970*b*.

**$C_{48}H_{51}CrErN_{16}O_{15}S_6$**, 4970*b*.

**$C_{48}H_{51}CrLaN_{15}O_{15}S_6$**, 4970*b*.

**$C_{48}H_{51}CrN_{15}NdO_{15}S_6$**, 4970*b*.

**$C_{48}H_{51}CrN_{15}O_{15}PrS_6$**, 4970*b*.

**$C_{48}H_{51}CrN_{15}O_{15}S_6Y$**, 4970*b*.

**$C_{48}H_{56}N_2O_{18}$** Lactoside, (*p*-phenylazophenyl), heptapropionate, 6919*f*.

Maltoside, (*p* - phenylazophenyl), heptapropionate, 6919*f*.

**$C_{48}H_{60}N_8O_{16}$** Aniline, *p*,*p*′ - (methylenedioxy)bis[*N*, *N* - diamyl-, dipicrate, 3381*c*.

**$C_{48}H_{60}N_8O_6S_2$** Benzenesulfonamide, *N*, *N*′-(2,4,6 - trimethyl - 3 - nitro - *m*-phenylene)bis[*N* - dodecyl-, 1736*c*.

**$C_{48}H_{70}N_2O_4S_2$** Benzenesulfonamide, *N*, *N*′-(2,4,6 - trimethyl - *m* - phenylene)bis-[*N*-dodecyl-, 1735*g*.

**$C_{48}H_{72}NO_{16}$** Solanine-*s*, 8617*i*.

**$C_{48}H_{76}NO_{10}P$** 2 - Glycerophosphoric acid, ester with *N*-2-hydroxyethylphthalimide 1,3-dipalmitate, P 1052*h*.

**$C_{48}H_{78}O_2$** Oleic acid, cholesteryl ester, 453*d*, 8026*g*.

**$C_{48}H_{86}O_8$** See "tri-" under *Myristin*.

**$C_{46}H_{88}NO_8P$** 2 - Glycerophosphoric acid, 1-erucate 3 - stearate 2 - aminoethyl ester, 570*h*.

**$C_{48}H_{22}N_2O_6$** Dinaphth[2,3-*c*, 2′,3′-*h*]acridine - 5,8,11,16,18(17*H*) - pentone, (7 - oxo - 7*H* - benz[*de*]anthracen - 3-ylamino)-, P 7708*i*.

**$C_{48}H_{26}N_2O_4$** 6,12 - Chrysenediamine, *N*, *N*′-di - 1 - anthraquinonyl-, P 7711*d*.

**$C_{48}H_{30}$** Ethane, 1,2 - diphenyl - 1,2 - di - 1 pyrenyl-, 5390*f*.

**$C_{46}H_{30}N_2O_6$** Anthraquinone, 1,5 - bis(1-anthraquinonylamino) - 2 - butyl-, 1761*i*.

Anthraquinone, 1,5 - bis(1 - anthraquinonylamino)-2-*tert*-butyl-, 1761*e*.

**$C_{46}H_{32}$** Compd., m. 420°, 8377*d*.

**$C_{46}H_{34}N_4O_8S$** Anthraquinone, 4 benzamido-4′ - [*p* - (diethylsulfamyl)benzamido]-1,1′-iminodi-, P 864*e*.

**$C_{46}H_{34}N_2O_{10}S_2$** Anthraquinone, 4,5′-bis[*p*-(dimethylsulfamyl)benzamido] - 1,1′-iminodi-, P 865*a*.

**$C_{46}H_{38}N_2O_4S_2$** 3,4,9,10 - Perylenetetracarboxylic diimide, bis(butylmercaptomethyl) - *N*, *N*′ - diphenyl-, P 8164*b*.

**$C_{46}H_{44}I_2N_4O_2S_2$** 4 - Thiazoline, 3,3′-ethylene bis[2 - [3 - (5 - methyl - 2 - benzoxazolyl)allylidene] - 4 - phenyl-, diethiodide, P 3737*d*.

**$C_{46}H_{46}N_2O_{17}$** Narcophine, 5535*h*.

**$C_{46}H_{46}N_4O_{10}S_2$** Benzenesulfonamide, *N*, *N*′-*p* - phenylenebis[*m* - (2,3 - dihydroxypropylamino) - 8 - hydroxy - 1-naphthylazo]-*N*-methyl-, P 858*h*.

**$C_{46}H_{47}Cl_2N_7O_{21}$** Quinazoline, 4-chloro-2-(2-diethylaminoethylamino)-, sesquipicrate, 2952*d*.

**$C_{46}H_{46}Cl_6N_2O_4Pt$** Benzyl(carboxymethyl)dimethylammonium chloroplatinate bis(4 - biphenylyl) ester, 6977*f*.

**$C_{46}H_{64}CbF_6N_4O_5$** + $4H_2O$ Brucine, fluocolumbate(V), 5786*a*.

**$C_{46}H_{66}O_{20}$** Glucoside, [(diethylvinylene)di-*p*-phenylene] di-, octaacetate, P 3039*h*.

**$C_{46}H_{66}O_{20}$** Glucoside, [(1,2 - diethylethylene)-- - phenylene]di-, octaacetate, P

**$C_{46}H_{66}Br_2O$** Ether, 7-bromocholesteryl triphenylmethyl, P 5810*e*.

**$C_{46}H_{68}N_2O_{14}$** *α*,*α*′ - Bi - *p* - toluidine, *N*, *N*, *N*′, *N*′ - tetraamyl-, dipicrate, 3380*i*.

**$C_{46}H_{68}N_8O_{16}$** Aniline, *p*,*p*′ - (ethylenedioxy)bis[*N*, *N* - diamyl-, dipicrate, 3381*c*.

**$C_{46}H_{68}O_{20}$** Sarmentoside B, dehydro-, acetate, 1430*e*.

**$C_{46}H_{68}O_{18}$** Thevebioside, pentaacetate, 1701*f*.

**$C_{46}H_{68}O_{20}$** Sarmentoside B, acetate, 1430*e*.

**$C_{46}H_{90}O_6$** Acetaldehyde, bis[2 - [2 - (9-octadecenyloxy)ethoxy]ethyl] acetal, P 1434*a*.

**$C_{46}H_{92}N_2O_2$** Sebacamide, *N*, *N*′-dioctadecyl-, P 5890*i*.

**$C_{46}H_{94}S_4$** 2,5-Hexanedione, bis(didecyl mercaptole), 564*g*.

**$C_{46}H_{96}Cl_2N_4O_2$** [Ethylidenebis[(stearoylimino)methylene]]bis[trimethylammonium chloride], P 1798*i*.

**$C_{47}H_{20}N_2O_8S_2$** 7*H* - Benzanthracen - 7 - one, 3,9 - bis(6,11 - dihydro - 6,11-dioxoanthra[2,1]thiazol-2-yl)-, P 6427*d*.

**$C_{47}H_{48}N_{10}O_{17}S_4$** Carbanilide, 4,4′-bis[*p*-(2 - amino - 8 - hydroxy - 3,6 - disulfo - 1 - naphthylazo)phenylcarbamyl]-, P 8690*d*.

**$C_{47}H_{44}O_6$** Sorbofuranose, 2,3 - isopropylidene 1,6 - bis(triphenylmethyl)-, 7431*e*.

**$C_{47}H_{58}Br_2N_4O_4$** Pentamethylenebis[strychninium bromide], 2703*d*.

**$C_{47}H_{56}N_4O_9$** Cryptogenin, 2,4 - dinitrophenylhydrazone, dibenzoate, 655*e*.

**$C_{47}H_{64}N_8O_{16}$** Aniline, *p*,*p*′ - (trimethylenedioxy)bis[*N*, *N* - diamyl, dipicrate, 3381*d*.

**$C_{47}H_{90}O_6$** Palmitin, 2,3 - dimyristo - 1-, 8784*d*.

**$C_{48}H_{22}N_2O_7$** Nicotinamide, *N* (5,10,15,16,-17,22,23,24 - octahydro - 5,10,15,-17,22,24 - hexaoxodinaphtho[2,3-*a*, 2′,3′-*i*]naph[2′,3′,6,7]indolo[2,3-*c*]-carbazol-18-yl)-, P 7705*a*.

**$C_{48}H_{28}N_4O_7$** Nicotinamide, *N* - [5,8 bis(1-anthraquinonylamino) - 1 - anthraquinonyl], P 7704*i*.

**$C_{48}H_{27}N_3O_8S$** 16*H* - Dinaphtho[2,3-*a*, 2′,3′-*i*]carbazole - 5,10,15,17-tetrone, benzamido - 9 - [*p* - (phenylsulfonyl) benzamido]-, P 8171*d*.

**$C_{48}H_{28}N_2O_8S$** Anthraquinone, benzamido [*p* (phenylsulfonyl)benzamido]-1,1′-iminodi-, P 5602*a*, P 7708*b*, P 8171*e*.

**$C_{48}H_{32}Cl_4N_6O_4$** 2 - Naphthanilide, 4,4″ [(2,2,2 - trichloroethylidene)bis(*p* phenyleneazo)]bis[3-hydroxy-, 6605*d*.

**$C_{48}H_{32}N_6O_{12}S_2$** Oxalamide, *N*, *N*′ - bis[5 [*p* - (dimethylsulfamyl)benzamido]-1-anthraquinonyl]-, P 865*b*.

**$C_{48}H_{36}O_{12}$** Inositol, hexabenzoate, 2175*d*.

**$C_{48}H_{38}N_2O_{10}$** Cyclohexanetetrol, diamino-, hexabenzoyl deriv., 6582*i*.

**$C_{48}H_{38}N_8O_{16}S_2$** Anthraquinone, 1-[*p*-(diethylsulfamyl)benzamido] - 4′-[*p*-(dimethylsulfamyl)benzamido] - 1,1′ iminodi-, P 864*d*

**$C_{48}H_{40}Br_4NiP_2$** Phosphine, triphenyl-, complex with $NiBr_2$ and PhBr, 6202*e*.

**$C_{48}H_{40}O_4Si_4$** Cyclotetrasiloxane, octaphenyl-, 2513*a*

**$C_{48}H_{50}O_{25}$** Phenolphthalein *β*,*β*′ - diglucoside, octaacetate, P 689*i*

**$C_{48}H_{57}ClN_2O_4Pt$** Benzyl(carboxymethyl)dimethylammonium chloroplatinate, bis(*α* - phenyl *p* - tolyl) ester, 6977*f*.

**$C_{48}H_{58}N_4O_{16}$** Uroporphyrin III, octamethyl ester, 2671*c*.

**$C_{48}H_{68}O_6S$** $\Delta^{20,22}$ - Choladien - 3 - one, 12(*α*),21 dihydroxy - 24,24 - diphenyl-, 21-succinate, 12(*α*) - *p*-toluenesulfonate Me ester, 6640*a*.

**$C_{48}H_{70}N_2O_{12}$** 3(*β*),6,7 - Cholestanetriol, tris-(*p* nitrobenzoate), 9077*e*.

**$C_{48}H_{74}N_2O_{10}$** Malonic acid, cholesteryl-, diadrenaline salt, P 6674*i*.

**$C_{48}H_{80}O_7$** Phenol, 2,2′ - butylidenebis[4,6-bis(1,1,3,3 - tetramethylbutyl)-, P 7257*d*.

Stearic acid, phenyl-, phenyloctadecyl ester, 9029*a*.

**$C_{48}H_{80}O_9$** Oleic acid, hexaethylene glycol diester, P 3242*h*.

**$C_{48}H_{82}O_6$** Pentadecanoin, tri-, 134*g*.

**$C_{48}H_{100}O_7P_2$** Dodecyl pyrophosphate, P 9357*a*.

**$C_{49}H_{22}ClN_3O_7$** Dinaphtho[2,3-*a*, 2′,3′-*i*]-naph[2′,3′,6,7]indolo[2,3-*c*]carbazole - 5,10,15,17,22,24 - hexone, 18 - *p* - chlorobenzamido - 16,23-dihydro-, P 7705*a*.

**$C_{49}H_{23}N_3O_7$** Dinaphtho[2,3-*a*, 2′,3′-*i*]-naph[2′,3′,6,7]indolo[2,3-*c*]carbazole - 5,10,15,17,22,24 - hexone, 18 - benzamido - 16,23 - dihydro-, P 7705*a*, P 9468*h*.

**$C_{49}H_{45}ClN_4O_7$** Anthraquinone, 1,4 - bis(1-anthraquinonylamino) - 5 - *p*-chlorobenzamido-, P 7704*i*.

**$C_{49}H_{37}N_3O_7$** Anthraquinone, 1,4 - bis(1 anthraquinonylamino) - 5-benzamido , P 7704*h*.

**$C_{49}H_{32}N_4O_8S$** Anthraquinone, 4-benzamido-4′ - [*p* - (methylphenylsulfamyl)benzamido] - 1,1′ - iminodi-, P 864*f*.

**$C_{49}H_{38}N_{12}O_{17}S_2$** Carbanilide, 4,4′ - bis[4-[1 - (3 - carboxy - 4 - hydroxyphenyl)-5 - hydroxy - 3 - methyl - 4 - pyrazolylazo] - 3 - sulfophenylcarbamyl] , P 857*h*.

**$C_{49}H_{48}N_6O_{13}P_2$** Adenosinetriphosphoric acid, acridine salt, 9040*e*.

**$C_{49}H_{48}O_7$** Sorbofuranose, 2,3 - isopropylidene - 1,6 - bis(triphenylmethyl)-, acetate, 7431*d*.

**$C_{49}H_{50}I_2N_4S_2$** Benzothiazoline, 3,3′ - trimethylenebis[2 - [3 - (4 - quinolyl)-allylidene]-, bis(butyl iodide), P 3737*f*.

**$C_{49}H_{55}AlN_4O_{17}$**, 2538*h*.

**$C_{49}H_{60}N_4O_{17}S_2$** Glycerol, sulfate, brucine salt, 5368*d*.

**$C_{49}H_{60}N_{15}O_9$** Aniline, 2-methyl-4,4′,4″ - methylidynetris[*N* - guanyl-, carbonate, 5014*d*, P 5040*f*.

**$C_{49}H_{61}N_{13}O_{24}$** Glutamic acid, pteroylhexaglutamyl-, 1094*f*, 3895*e*, 8471*b*, 9157*d*

**$C_{49}H_{62}N_4O_{14}$** Lyxonic acid, glucuronido-, compd. with cinchonidine, 5008*i*.

**$C_{49}H_{72}N_2O_{10}$** Malonic acid, ergosteryl-, diadrenaline salt, P 6674*i*.

**$C_{49}H_{76}O_2$** Digilanid C, 4380*h*.

**$C_{49}H_{76}O_8$** 1,3 - Propanediol, 2-amyl-2 (hydroxymethyl)-, diabietate, 6576*b*

**$C_{49}H_{76}O_{19}$** Digilanid A, 4380*h*.

Lanatoside A, 3106*a*.

**$C_{49}H_{76}O_{20}$** Lanatoside C, 1908*a*, 3106*a*, 9255*d*.

**$C_{49}H_{92}O_6$** Myristin, 2 oleo 1,3-di , 7425*g*

**$C_{50}H_{100}O_6$** Palmitin, myristodi , 7720*i*, 8784*d*

Stearin, 2,3 dimyristo-1-, 8784*d*.

**$C_{50}H_{50}Cl\text{-}CuN_{12}S_4$** Phthalocyanine, 3,6 dichloro - 4′,4″,4‴ tris(*p*-ammo phenylmercapto)-, Cu deriv , P 7695*a*

**$C_{50}H_{32}N_4O_6$** 6,12 - Chrysenediamine, *N*, *N* bis(5 - acetamido - 1 - anthraquinonyl)-, P 7711*g*.

**$C_{50}H_{34}Cl_2N_{14}O_{16}S_2$** 1 - Naphthol - 3 - sulfonic acid, 6 - [*m* - [1 - (2,5 - dichloro - 4 sulfophenyl) - 3 methyl - 5 - oxo - 2 pyrazolin - 4 - ylazo]benzamido] - 2 [4 - [*p* - (2,4 - dihydroxyphenylazo phenylazo] - 2 - methoxy 6 - sulfo 1 - naphthylazo] , P 861*b*

**$C_{50}H_{30}N$** Di *p* tolylamine, *α*,*α*,*α*,*α*′,*α*′,*α*′ hexaphenyl , 7905*g*.

**$C_{50}H_{42}N_4O_{16}$** 2,2′,3,3′ - Biphenyltetrol, 5,5′ diamyl-, tetrakis(*p* - nitrobenzoate), 8614*e*.

**$C_{50}H_{42}N_8O_{10}$** Streptidine, hexabenzoyl , 1329*i*.

**$C_{50}H_{44}N_4O_{10}S_2$** Anthraquinone, 1,1′ iminobis[4 - [*p* - (diethylsulfamyl)benzamido] , P 864*e*.

**$C_{50}H_{48}N_4O_6$** Succinic acid, phenethyl , cinchonidine salt, 5380*e*.

**$C_{50}H_{62}N_2O_{12}S_6$** Di-*tert* butylamine, 2,2′,2″, 2‴,2⁗,2⁗′ hexakis(*p* - tolylsulfonamido)-, 2936*d*.

**$C_{50}H_{66}N_8O_{14}$** Chondrosinic acid, compd with cinchonidine, 5009*c*.

**$C_{50}H_{76}N_2O_{10}$** Malonic acid, stigmasteryl-, diadrenaline salt, P 6674*i*.

**$C_{50}H_{80}O_4$** 1,4 - Stilbenediol, *α*,*α*′-diethyl , dipalmitate, P 2641*e*.

**$C_{50}H_{93}NO_{29}$** Demissine, 5551*b*.

**$C_{50}H_{96}O_{17}$** Acetaldehyde, bis[2-[2-[2-[2 - (1,1,3,3 - tetramethylbutylphenoxy)ethoxy]ethoxy]ethoxy]-ethyl] acetal(?), P 1434*a*.

**$C_{50}H_{99}N_3O_7$** 2 - Imidazoline - 1 - ethanol, 2-(8 - heptadecenyl)-, carbonate, ester with diethylene glycol, *di*- *HCl*, P 5180*e*.

**$C_{50}H_{99}N_3O_9$** 2 - Imidazoline - 1 - ethanol, 2-(11 - hydroxy - 8 - heptadecenyl)-, carbonate, ester with diethylene glycol, *di*- *HCl*, P 5180*f*.

**$C_{50}H_{92}N_2O_4$** Dioctadecylnicotinium diacetate, P 5152*a*.

**$C_{50}H_{94}N_2O_7$** 2 - Imidazoline - 1 - ethanol, 2-heptadecyl-, carbonate, ester with diethylene glycol, *di*- *HCl*, P 5180*f*

**$C_{50}H_{101}NO$** 9 - Octadecenylamine, *N*-hexadecyl-12-(hexadecyloxy)-, P 4408*b*.

**$C_{51}H_{48}N_8Na_6O_{28}S_6$** See *Bayer 205*.

**$C_{51}H_{50}N_8O_{23}S_6$** Carbanilide, 4,4′ - bis[4-(4,6,8 - trisulfo - 1 - naphthylcarbamyl) - *o* - tolyl]carbamyl]-, *hexa*-*Na salt*, 9955*g*.

$C_{61}H_{46}N_{14}O_{16}S_4$ 2,2′-Stilbenedisulfonic acid, 4-[4-anilino-6-[3-carboxy-4-(3-methyl-5-oxo-1-*p*-sulfophenyl-2-pyrazolin-4-ylazo)anilino]-*s*-triazin-2-ylamino]-4′-[4-(2-carboxy-4-sulfophenylazo)-3-methyl-5-oxo-2-pyrazolin-1-yl]-, P 4865*f*.

$C_{51}H_{43}NO_4$ 1,7-Heptanedione, 4-benzoyl-1,3,5,7-tetraphenyl-2-(α-2-pyridylmethylbenzyl)-(?), 7022*h*.

$C_{51}H_{45}I_2N_8S_3$ 2,2′,2″-[Nitrilotris(*p*-phenylenevinylene)]tris[3-ethylbenzothiazolium iodide], P 4160*b*.

$C_{51}H_{45}I_2N_8Se_3$ 2,2′,2″-[Nitrilotris(*p*-phenylenevinylene)]tris[3-ethylbenzoselenazolium iodide], P 4160*b*.

$C_{51}H_{82}O_{20}$ Maltoside, estradiol-, heptaacetate 3-benzoate, P 5428*c*.

$C_{51}H_{98}O_6$ Palmitin, hexadecenodi-, 7720*h*

$C_{51}H_{98}O_6$ See "tri-" under *Palmitin*.

$C_{52}H_{32}N_4O_4$ Anthraquinone, 1,1′-(2,6-naphthylenediimino)bis[4-benzamido-, P 4483*g*.

$C_{52}H_{34}N_2O_4S_2$ 3,4,9,10-Perylenetetracarboxylic diimide, bis(benzylmercaptomethyl)-*N*,*N*′-diphenyl-, P 8164*b*.

3,4,9,10-Perylenetetracarboxylic diimide, *N*,*N*′-diphenylbis(*p*-tolylmercaptomethyl)-, P 8164*b*.

$C_{52}H_{46}N_6O_4$ Anthraquinone, 1,5-dibenzamido-4,8-bis(*p*-phenylazoanilino)-, P 8164*c*.

$C_{57}H_{41}N_{13}O_{14}S_2$ 2,2′-Stilbenedisulfonic acid, 4-[4-anilino-6-[3-carboxy-4-(3-methyl-5-oxo-2-pyrazolin-4-ylazo)anilino]-*s*-triazin-2-ylamino]-4′-[4-(4-benzamido-2-carboxyphenylazo)-3-methyl-5-oxo-2-pyrazolin-1-yl]-, P 4865*c*.

$C_{58}H_{44}I_2N_4S_4$ 4-Thiazoline, 3,3′-ethylenebis[2-[3-(naphtho[1,2]thiazol-2-yl)-allylidene]-4-phenyl-, diethiodide, P 3737*c*.

$C_{52}H_{44}N_2O_4S_2$ *p*-Toluenesulfono-*o*-toluidide, α,α‴-oxybis[α′,α″-diphenyl-, 7006*g*.

$C_{62}H_{52}Cl_2N_4O_4S_2$ 4-Thiazoline, 3,3′-ethylenebis[4-phenyl-2-[3-(4-quinolyl)allylidene]-, bis(butyl perchlorate), P 3737*d*.

$C_{52}H_{56}N_4O_{12}$ Malachite green, oxalate, 4804*h*

$C_{57}H_{56}O_{19}$ Glucoside, chrysazin-6-cellobiosido-, decaacetate, 5019*h*.

$C_{51}H_{64}N_4O_{12}$ Butyric acid, α,γ-dihydroxy-β,β-dimethyl-, brucine double salt, -*HCl*, P 7038*i*.

$C_{52}H_{67}N_5O_{16}$ Chondrosinic acid, *N*-acetyl-, compd. with cinchonidine, 5009*c*.

$C_{52}H_{70}O_{35}$ Cellotetraose, tetradecaacetate, 3609*b*.

$C_{53}H_{70}BrO_7$ Ethylene, 1-bromo-2,2-bis[*p*-(hexadecyloxy)phenyl]-1-phenyl-, P 6666*f*.

$C_{53}H_{70}O_3$ Ethanol, 1,1-bis[*p*-(hexadecyloxy)phenyl]-2-phenyl-, P 6666*f*.

$C_{54}H_{86}O_3S$ β-Norcholesterol, sulfite, 1789*g*

$C_{59}H_{86}O_4$ Benzestrol, dipalmitate, P 4700*c*.

$C_{72}H_{106}N_2O_7$ Hexacosyl hyponitrite, P 5641*c*.

$C_{61}H_{38}N_6O_{18}S_4$ 1-Naphthol-3-sulfonic acid, 2,2′-(3-hydroxy-3′-methoxy-4,4′-biphenylenebisazo)bis[6-(5-hydroxy-7-sulfo-2-naphthylamino)-, P 8148*i*.

$C_{51}H_{40}N_{12}O_{12}S_2$ 2,2′-Stilbenedisulfonic acid, 4-[4-anilino-6-[4′-(3-carboxy-2-hydroxyphenylazo)-4-biphenylylamino]-*s*-triazin-2-ylamino]-4″-[4-(o-carboxyphenylazo)-3-methyl-5-oxo-2-pyrazolin-1-yl]-, P 4473*d*.

$C_{53}H_{80}O_{10}$ Bisnorcholanic acid, 3(α),12-dihydroxy-, Me ester bis(2-anthraquinonecarboxylate), P 5428*g*.

$C_{53}H_{56}N_4O_8$ Succinic acid, benzyl-, strychnine salt, 1747*e*.

$C_{53}H_{97}O_4$ Desoxycholic acid, compd. with 2,2-dimethylpropane, 3429*c*.

$C_{57}H_{98}O_6$ Olein, hexadecenopalmito-, 7720*h*.

$C_{53}H_{100}O_6$ Palmitin, 2-elaido-1,3-di-, 7425*g*.

Palmitin, oleodi-, 7425*g*, 7720*h*.

$C_{53}H_{102}O_6$ Palmitin, stearodi-, 570*c*, 7720*h*.

Stearin, 2-myristo-1,3-di-, 8784*d*.

$C_{64}H_{71}N_3O_{10}S_2$ 16*H*-Dinaphtho[2,3-*a*,2′,3′-*i*]carbazole-5,10,15,17-tetrone, 4,11-bis[*p*-(phenylsulfonyl)benzamido]-, P 8171*d*.

$C_{54}H_{38}N_4O_{10}S_2$ Anthraquinone, 4,5′-bis[*p*-(phenylsulfonyl)benzamido]-1,1′-iminodi-, P 8171*e*.

Anthraquinone, 1,1′-iminobis[5-(*p*-phenylsulfonylbenzamido)-, P 7708*a*, P 8171*f*.

$C_{54}H_{42}MoO_{12}N_8O_{32}P_4V_2$, 7374*e*.

$C_{54}H_{44}N_8O_{18}S_2$ 2,2′-Stilbenedisulfonic acid, 4,4′-bis[4-anilino-6-[3-carboxy-4-(3-methyl-5-oxo-2-pyrazolin-4-ylazo)anilino]-*s*-triazin-2-ylamino]-, P 4864*e*.

$C_{54}H_{53}ClO_{21}$ 4′,5,7-Tris[6-(carboxydihydroxyphenyl)glucosyloxy]flavylium chloride, 7935*h*.

$C_{54}H_{80}O_{27}$ Chebulinic acid, methylo deriv., 1341*h*.

$C_{54}H_{88}O_4$ 4,4′-Stilbenediol, α,α′-diethyl-, disteurate, P 2641*e*.

$C_{54}H_{88}O_{22}$ Asiaticoside, 8053*g*

$C_{54}H_{90}$ Bicholesteryl, 2214*i*, 2215*a*.

$C_{54}H_{90}ClFeO_4S_2$ Cholesteryl sulfate, ferric complex, 6641*g*.

$C_{54}H_{90}FeO_4S_2$ Cholesteryl iron sulfate, 6641*g*.

$C_{54}H_{90}O$ Cholesteryl ether, 6641*c*, 7573*i*.

$C_{54}H_{104}O_6$ Intarvin, 134*g*.

$C_{54}H_{110}S_4$ 2,5-Hexanedione, bis(didodecyl mercaptole), 564*g*.

$C_{55}H_{45}NO_2$ 1,7-Heptanedione, 4-benzoyl-1,3,5,7-tetraphenyl-2-(α-2-quinolylmethylbenzyl)-(?), 7022*h*.

$C_{56}H_{89}NO_{23}$ Glucoside, morphine-3-decaacetyl-6-β-cellobiosido-, β-D-, 360*i*

$C_{55}H_{70}MgN_4O_6$ Protochlorophyll, 1465*a*.

$C_{55}H_{90}O_{22} + 2H_2O$ Steroid saponin, 8554*c*.

$C_{55}H_{90}O_{29}$ See *Digitonin*.

$C_{55}H_{96}O_8$ Desoxycholic acid, compd. with 3,3-dimethylpentane, 3429*d*, compd. with 2,2,3-trimethylbutane, 3429*d*

$C_{55}H_{100}O_6$ Olein, linoleopalmito-, 7720*h*.

Stearin, linolenopalmito-, 4026*c*.

$C_{55}H_{102}O_6$ Olein, palmitodi-, 7720*h*.

$C_{55}H_{104}O_6$ Stearin, oleopalmito-, 7720*h*.

$C_{55}H_{106}O_6$ Stearin, palmitodi-, 570*c*.

$C_{56}H_{28}N_4O_8$ Dinaphtho[2,3-*a*,2′,3′-*i*]naphth[2′,3′,6,7]indolo[2,3-*c*]carbazole-5,10,15,17,22,24-hexone, dibenzamido-16,23-dihydro-, P 7705*h*

$C_{56}H_{32}N_4O_8$ Anthraquinone, (1-anthraquinonylamino)benzamido(benzamido-1-anthraquinonylamino)-, P 9468*h*

$C_{56}H_{34}N_4O_{12}S_2$ Oxamide, *N*,*N*′-bis[5-[*p*-(phenylsulfonyl)benzamido]-1-anthraquinonyl]-, P 8171*g*

$C_{56}H_{38}CuN_{12}S_4$ Phthalocyanine, tetra-1-(*p*-aminophenylmercapto)-, Cu deriv., P 7705*a*.

$C_{58}H_{40}CuN_8S_8$ Phthalocyanine, tris(benzylmercaptomethyl)-, Cu deriv., P 8173*e*

$C_{56}H_{42}N_{16}O_8S_4$ Phthalocyaninetetrasulfonic acid, tetrakis(2-phenylhydrazide), P 4187*c*

$C_{56}H_{42}N_{16}O_{16}S_4$ Phthalocyaninetetrasulfonic acid, tetrakis(*p*-sulfophenylhydrazide), P 4187*d*

$C_{58}H_{48}I_2N_4O_2S_2$ 4-Thiazoline, 3,3′-ethylenebis[4-phenyl-2-[3-(5-phenyl-2-benzoxazolyl)allylidene]-, diethiodide, P 3737*e*

$C_{58}H_{54}N_4Si$ Silane, tetrakis(dibenzylamino)-, 4632*b*.

$C_{58}H_{86}O_{27}$ Chebulinic acid, permethylo compd., 1341*i*.

$C_{58}H_6Cl_3N_{12}O_{21} + H_2O$ Quinazoline, 4-chloro-2-(3-dibutylaminopropylamino)-, sesquipicrate, 2952*d*

$C_{58}H_{98}O_4$ Desoxycholic acid, compd. with 2,2,3,3-tetramethylbutane, 3429*e*.

$C_{58}H_{100}O_{10}$ Palmitic acid, ester with vitamin C acetate, P 3154*b*.

$C_{57}H_{34}O_4$ Dinaphtho[1,2-*b*,2′,1′-*n*]perylene-19,19a,20(19b*H*)-triol(?), tribenzoate, 7928*f*.

$C_{57}H_{43}IN_3O_{10}$ Streptidine, iodoheptabenzoyl-, 1329*g*.

$C_{57}H_{45}N_6O_{10}$ Streptidine, heptabenzoyl desoxy-, 1329*g*.

$C_{57}H_{45}N_6O_{11}$ Streptidine, heptabenzoyl-, 1328*h*, 6580*a*.

$C_{57}H_{48}N_4O_6$ Estriol, tris(*p*-phenylazobenzoate), 5787*g*.

$C_{57}H_{98}O_6$ (See also *Eleostearin*.)

Linolenin, tri-, 4026*d*, 4639*b*.

$C_{57}H_{98}O_6$ Linolenin, linoleodi-, 4026*d*.

$C_{57}H_{98}O_6$ Linolenin, oleodi-, 4026*c*.

$C_{57}H_{98}O_6$ Linolein, tri-, 4639*b*.

Olein, linolenolinoleo-, 4026*c*.

$C_{57}H_{104}O_6$ (See also "tri-" under *Olein*.)

Elaidin, tri-, 8494*c*.

$C_{57}H_{104}O_9$ Ricinolein, tri-, P 1955*c*.

$C_{57}H_{106}O_7$ 2*H*-Pyran-3,3,5(4*H*)-trimethanol, 5,6-dihydro-4-hydroxy-5-methyl-, tetralaurate, P 9528*a*.

$C_{57}H_{108}O_6$ Stearin, 2-elaido-1,3-di-, 7425*g*.

Stearin, 2-oleo-1,3-di-, 7425*g*.

$C_{57}H_{110}O_6$ (See also "tri-" under *Stearin*.)

1,3-Propanediol, 2-amyl-2-(hydroxymethyl)-, tripalmitate, 6576*b*.

$C_{58}H_{48}N_4O_{12}S_2$ Anthraquinone, 1,5-bis[4-[(*m*-methylsulfonyl)benzamido]-1-anthraquinonylamino]-, P 7708*d*, P 8171*g*.

$C_{58}H_{48}N_6O_{12}S$ Streptidine, mesylheptabenzoyl-, 1329*f*.

$C_{58}H_{66}N_4O_{12}$ Succinic acid, phenethyl-, brucine salt, 5380*e*.

$C_{59}H_{48}N_6O_{12}$ Streptidine, acetylheptabenzoyl-, 1329*b*.

$C_{59}H_{100}O_2$ Cyclohexanone, acetal with cholesterol, P 3980*g*.

$C_{60}H_{36}CuN_{12}O_4$ Phthalocyanine, tetra-4-(*p*-aminobenzoyl)-, Cu deriv., P 7695*a*.

$C_{60}H_{36}N_4O_6$ 6,12-Chrysenediamine, *N*-(4-benzamido-1-anthraquinonyl)-*N*′-(5-benzamido-1-anthraquinonyl)-, P 7711*g*.

6,12-Chrysenediamine, *N*,*N*′-bis(4-benzamido-1-anthraquinonyl)-, P 7711*f*.

$C_{60}H_{48}N_4O_{10}S_2$ Fluoranthene, bis[4-[*m*-(methylsulfonyl)benzamido]-1-anthraquinonylamino]-, P 8171*f*.

$C_{60}H_{40}CuN_8S_4$ Phthalocyanine, tetrakis(*p*-tolylmercapto)-, Cu deriv., P 7710*e*.

$C_{60}H_{42}N_6O_{12}S_2$ Anthraquinone, 2,6-bis[5-[*p*-(dimethylsulfamyl)benzamido]-1-anthraquinonylamino]-, P 865*a*.

$C_{65}H_{100}N_7O_8S_2$ Hexadecyltrimethylammonium ethylidenedi-2-naphthalenesulfonate, P 5047*c*.

$C_{60}H_{100}S_6$ Sulfide from squalene, 1001*i*.

$C_{60}H_{102}Co_2Cu_3N_{60}O_{18}S_6$, 7365*d*.

$C_{60}H_{104}Co_2N_{60}Ni_3O_{18}S_6$, 7365*d*.

$C_{60}H_{107}N_3O_6$ Oleic acid, λ-hydroxy-, triglyceride tricarbamate, P 5968*d*.

$C_{60}H_{108}O_8$ Sorbitan, trioleate, P 5938*f*.

$C_{60}H_{113}N_3O_6$ Stearic acid, λ-hydroxy-, triglyceride tricarbamate, P 5968*d*.

$C_{60}H_{114}O_6$ Aconitic acid, trioctadecyl ester, P 7634*f*.

$C_{62}H_{38}N_4O_{12}S_2$ Fluoranthenedicarboxamide, *N*,*N*′-bis[5-[*m*-(methylsulfonyl)-benzamido]-1-anthraquinonyl]-, P 8171*g*.

$C_{62}H_{40}Cl_4$ Methyl, (2,2′,6,6′-tetrachloro-4,4′-biphenylene)bis[bis(4-biphenylyl)-, 6604*d*

$C_{62}H_{40}N_4O_8$ 6,12-Chrysenediamine, *N*,*N*′-bis(5-benzamido-8-methoxy-1-anthraquinonyl), P 7711*f*.

$C_{63}H_{87}N_9O_{11}$ Streptidine, heptabenzoyl-, compd. with $C_6H_6$, 1329*a*.

$C_{63}H_{86}O$ Benzyl alcohol, *p*-[*p*-[*p*-[*p*-[*p*-[*p*-(*p*-benzylbenzyl)benzyl]benzyl]-benzyl]benzyl]benzyl]benzyl]-(?), 5759*i*, 5760*i*.

$C_{63}H_{116}Cl_3N_3O_{12}$ Oleic acid, κ-hydroxy-, glyceride tris[(chloromethyl)carbamate], P 4489*a*.

$C_{63}H_{119}N_3O_9$ Stearic acid, λ-hydroxy-, triglyceride tris[(hydroxymethyl)carbamate], P 5968*g*.

$C_{64}H_{40}N_4O_6$ 6,12-Chrysenediamine, *N*,*N*′-bis(5-cinnamoylamino-1-anthraquinonyl)-, P 7711*h*.

$C_{64}H_{50}N_6O_{17}$ Streptidine, octabenzoyl-, 1329*b*.

$C_{64}H_{51}N_9O_{12}S$ Streptidine, tosylheptabenzoyl-, 1329*g*.

$C_{64}H_{86}O_{31}$ Cellopentaose, heptadecaacetate, 3609*b*.

$C_{65}H_{52}N_6O_{13}$ Streptidine, anisoylheptabenzoyl-, 1329*b*.

$C_{65}H_{74}N_6O_{12}S_2$ Glycine, *N*,*N*′-(2,4,6-trimethyl-*m*-phenylene)bis[*N*-(phenylsulfonyl)-, quinine salt, 1735*h*

$C_{65}H_{80}O_{18}Th_2$, 2538*h*.

$C_{66}H_{52}N_{10}O_{18}S_4$ 2,2′-Stilbenedisulfonic acid, 4,4′-bis[4-anilino-6-[3-carboxy-4-(3-methyl-5-oxo-1-*p*-sulfophenyl-2-pyrazolin-4-ylazo)anilino]-*s*-triazin-2-ylamino]-, P 5959*e*.

$C_{66}H_{104}N_4O_9S_3$ Cholestenone-6-sulfonic acid, compd. with vitamin $B_1$, P 4433*f*.

$C_{66}H_{114}O_{11}$ Mannitol, pentalaurate, 5741*a*.

$C_{66}H_{132}N_3O_9$ Stearic acid, λ-hydroxy-, triglyceride tris[(methoxymethyl)carbamate], P 5968*i*.

$C_{68}H_{46}N_4O_{12}S_2$ Anthraquinone, 2,7-bis[5-[*p*-(phenylsulfonyl)benzamido]-1-anthraquinonylamino]-, P 7708*e*, P 8171*f*.

$C_{68}H_{84}N_8O_{38}$ Isomaltose, octakis(*p*-nitrobenzoate), 5748*g*.

$C_{68}H_{70}O_{28}S$ Thiolignin, 7225*i*, 7226*a*.

$C_{70}H_{38}N_4O_{16}$ Pentaanthraquinonetetracarbazole, P 1576*h*.

$C_{70}H_{38}N_4O_{16}$ Anthraquinone, 1,4,5,8-tetrakis(anthraquinonylamino)-, P 1576*fg*.

$C_{70}H_{52}N_{22}O_{18}S_2$ 2,2′-Stilbenedisulfonic acid, 4-[4,6-bis[*p*-(3-carboxy-4-hydroxyphenylazo)anilino]-*s*-triazin-2-ylamino]-4′-[4-[*p*-(3-carboxy-4-hydroxyphenylazo)anilino]-6-[3-

carboxy - 4 - (3 - methyl - 5 oxo - 2-pyrazolin - 4 - ylazo)anilino] - *s* - triazin - 2 - yl amino}-, *di-Na salt*, P 5195*i*.

$C_{70}H_{76}N_{10}O_{16}$ See *Gynergen*.

$C_{70}H_{124}N_2O_4$ Didodecylnicotinium dioleate, P 5152*a*.

$C_{70}H_{138}O_6$ Phleimycolic acid, 3878*a*.

$C_{71}H_{51}NO_{23}Th_2$, 2538*h*.

$C_{71}H_{52}N_{10}O_{18}S_2$ 2,2′ - Stilbenedisulfonic acid, 4 - {4,6 - bis[*p* - (3 - carboxy - 4 - hydroxyphenylazo)anilino] - *s* - triazin-2-ylamino} - 4′ - {4 - [*p* - (3 - carboxy 4-hydroxyphenylazo)anilino] - 6 - [*p*-(*p* sulfophenylazo)anilino] - *s* - triazin-2-ylamino}-, *di-Na salt*, P 5196*a*.

$C_{71}H_{80}N_4O_{13}$ Streptidine, acetylheptabenzoyl-, compd. with $2C_6H_6$, 1329*b*.

$C_{71}H_{92}O_{23}S$ Thiolignin, trimethyl-, 7225*h*.

$C_{71}H_{139}NO_{16}P_2$ 2 -. Glycerophosphoric acid, 1,3-dimyristate, quinoline salt, 571*b*.

$C_{72}H_{84}N_{20}O_{18}S_2$ 2,2′ - Stilbenedisulfonic acid, 4,4′ - bis{4,6 - bis[*p* - (3 - carboxy-4-hydroxyphenylazo)anilino] - *s* - triazin - 2 - ylamino}-, P 7235*e*.

$C_{72}H_{72}CeCrN_{18}O_8S_6$, 4969*i*.

$C_{72}H_{72}CrErN_{18}O_8S_6$, 4969*i*.

$C_{72}H_{72}CrLaN_{18}O_8S_6$, 4969*i*.

$C_{72}H_{72}CrN_{18}NdO_8S_6$, 4969*i*.

$C_{72}H_{72}CrN_{18}O_8PrS_6$, 4969*i*.

$C_{72}H_{72}CrN_{18}O_8S_6Y$, 4969*i*.

$C_{72}H_{140}O_8Si$ Stearic acid, tetraanhydride with orthosilicic acid, 4632*a*.

$C_{72}H_{148}O_4Si$ Octadecyl silicate, P 8175*d*.

$C_{72}H_{146}O_7P_2$ Octadecyl pyrophosphate, P 9357*a*.

$C_{74}H_{70}N_6O_{16}$ Streptidine, anisoylheptabenzoyl-, compd. with 3MeCO, 1329*b*.

$C_{74}H_{81}N_3O_{28}S$ Thiolignin, *p*-nitrophenylhydrazone, 7226*c*.

$C_{74}H_{88}O_{28}S$ Thiolignin, hexamethyl deriv., 7225*h*.

$C_{75}H_{137}N_3O_9$ Oleic acid, λ-hydroxy, triglyceride tris[(butoxymethyl)carbamate], P 5969*a*.

$C_{76}H_{103}O_{31}$ Cellohexaose, eicosaacetate, 3609*c*.

$C_{76}H_{152}N_4O_8Si$ Stearamide, *N* - (hydroxymethyl)-, silicate, P 8175*d*.

$C_{77}H_{132}O_8$ Linoleic acid, ester with pentaerythritol, 4639*b*.

$C_{77}H_{132}O_{12}$ Desoxycholic acid, compd with 2-methylbutane, 3429*c*.

$C_{78}H_{134}O_{12}$ Desoxycholic acid, compd. with dimethylbutane, 3429*d*; compd. with 3-methylpentane, 3429*d*, compd. with hexane, 3429*d*.

$C_{78}H_{146}O_{12}$ Mannitol, hexalaurate, 5741*b*.

$C_{79}H_{136}O_{12}$ Desoxycholic acid, compd. with 3,3-dimethylpentane, 3429*d*, compd. with 2,2,3-trimethylbutane, 3429*d*.

$C_{80}H_{88}N_{22}O_{22}S_2$ 2,2′ - Stilbenedisulfonic acid, 4,4′ - bis{4,6 - bis[4 - (3 - carboxy-4-hydroxyphenylazo) - 6 - methoxy-*m*-toluidino] - *s* - triazin - 2 - ylamino}-, *di-Na salt*, P 5195*h*.

$C_{80}H_{86}N_4O_{23}S$ Thiolignin, phenylosazone, 7226*c*.

$C_{80}H_{138}O_{12}$ Desoxycholic acid, compd. with dimethylhexane, 3429*d*, compd with 2,2,3,3 - tetramethylbutane, 3429*e*; compd. with trimethylpentane, 3429*de*.

$C_{80}H_{146}O_{25}$ Polymer contg. 2 free HO groups, 6577*i*.

$C_{81}H_{140}O_{12}$ Desoxycholic acid, compd. with 2,6-dimethylheptane, 3429*e*, compd. with methyloctane, 3429*e*.

$C_{81}H_{154}O_9$ 2*H* - Pyran - 3,3,5(4*H*) - trimethanol, 5,6 - dihydro 4 - hydroxy-5 - methyl-, tetrastearate, P 9528*a*

$C_{82}H_{66}O_9$ Camphor, compd. with α,α′-diethyl-4,4′-stilbenediol, P 6066*d*

$C_{82}H_{142}O_{12}$ Desoxycholic acid, compd. with methylnonane, 3429*e*; compd. with 2,2,3,4 - tetramethylhexane, 3429*e*; compd. with 3,3,5 - trimethylheptane, 3429*e*.

$C_{83}H_{72}N_{15}O_{31}P_6$ Adenosinetriphosphoric acid, acridine salt, 9040*f*.

$C_{88}H_{64}CuN_8S_8$ Phthalocyanine, octakis(*p*-tolylmercapto)-, Cu deriv., P 7710*e*.

$C_{88}H_{107}NO_{52}$ Rutin, compd. with methylglucamine, P 1800*g*.

$C_{88}H_{174}O_3$ Mycolic acid, anhydro-, 8433*b*.

$C_{88}H_{176}O_4$ Mycolic acid, 3878*a*; *and K salt*, 8432*i*.

$C_{88}H_{178}O_3$ Mycolic alcohol, 8433*b*.

$C_{88}H_{178}O_4$ Mycolic acid, methyl ester, 8433*a*.

$C_{88}H_{78}N_{22}O_{28}S_4$ 2,2′ - Stilbenedisulfonic acid, 4,4′ - bis{4 - [*p* - (3 - carboxy - 4-hydroxyphenylazo)anilino] - 6 - {*p*-[4 - (3 - carboxy - 4 - hydroxy - 5-sulfophenylazo) - 6 - methoxy - *m*-tolylcarbamyl]anilino} - *s* - triazin-2-ylamino}-, P 5196*c*.

$C_{90}H_{123}CoN_6O_6$, 6836*f*.

$C_{90}H_{178}O_5$ Mycolic acid, acetate, 8433*a*.

$C_{91}H_{180}O_5$ Mycolic acid, Me ester acetate, 8433*a*.

$C_{92}H_{94}O_{28}S$ Thiolignin, tri-Me ether tribenzoate, 7226*b*.

$C_{92}H_{100}O_{31}S_4$ Thiolignin, tri-Me ether tri-*p*-toluenesulfonate, 7226*a*.

$C_{94}H_{102}O_{32}S_4$ Thiolignin, tri-Me ether acetate tri-*p*-toluenesulfonate, 7226*b*.

$C_{98}H_{83}N_7O_{23}$ Streptomycin, hendecabenzoyl-, 1328*f*.

$C_{99}H_{98}O_{29}S$ Thiolignin, tri-Me ether tetrabenzoate, 7226*b*.

$C_{100}H_{190}O_{10}$ 1,1,3,3 - Cyclohexanetetramethanol, 2 - hydroxy-, pentastearate, P 9528*a*.

$C_{101}H_{172}O_{16}$ Desoxycholic acid, compd. with pentane, 3429*c*.

$C_{102}H_{174}O_{16}$ Desoxycholic acid, compd. with 2-methylpentane, 3429*d*.

$C_{103}H_{176}O_{16}$ Desoxycholic acid, compd. with dimethylpentane, 3429*d*; compd. with heptane, 3429*d*; compd. with methylhexane, 3429*d*.

$C_{104}H_{178}O_{16}$ Desoxycholic acid, compd with octane, 3429*d*, compd with 2,2,4 - trimethylpentane, 3429*e*.

$C_{105}H_{80}N_7O_{24}$ Streptomycin, dodecabenzoyldihydro-, 1329*e*.

$C_{106}H_{182}O_{16}$ Desoxycholic acid, compd. with decane, 3429*e*, compd. with 2,7-dimethyloctane, 3429*e*, compd. with 2-methylnonane, 3429*e*, compd with 2,2,3,4 - tetramethylhexane, 3429*e*, compd with 3,3,5 - trimethylheptane, 3429*e*

$C_{108}H_{122}N_{16}Si$ Silane, tetraanilino, compd. with $PhNH_2$, 4632*a*

$C_{104}H_{180}Al_2O_{20}S_6$ Aluminum cholesteryl sulfate, 6641*g*

$C_{110}H_{100}O_{31}S$ Thiolignin, hexabenzoate, 7226*b*.

$C_{110}H_{112}O_{37}S_7$ Thiolignin, hexa-*p*-toluenesulfonate, 7226*a*.

$C_{117}H_{114}O_{38}S_7$ Thiolignin, acetate hexa-*p*-toluenesulfonate, 7226*b*.

$C_{114}H_{202}O_{16}$ Ricinolein, 3-(9,11-octadecadieno)-1,2 di, dimer, P 675*d*.

$C_{117}H_{104}O_{22}S$ Thiolignin, heptabenzoate, 7226*b*.

$C_{178}H_{103}N_7O_{31}$ Streptomycin *B*, tetradecabenzoyl-, 6580*a*.

$C_{149}H_{283}O_{24}$ Desoxycholic acid, compd. with 2-methylbutane, 3429*c*.

$C_{150}H_{284}O_{24}$ Desoxycholic acid, compd with dimethylbutane, 3429*d*, compd with hexane, 3429*d*, compd. with 2-methylpentane, 3429*d*

$C_{151}H_{286}O_{24}$ Desoxycholic acid, compd with 2,4-dimethylpentane, 3429*d*, compd. with heptane, 3429*d*.

$C_{152}H_{288}O_{24}$ Desoxycholic acid, compd. with 2-methylheptane, 3429*d*.

$C_{153}H_{290}O_{24}$ Desoxycholic acid, compd. with 2,6 - dimethylheptane, 3429*e*; compd. with methyloctane, 3429*e*

$C_{154}H_{292}O_{24}$ Desoxycholic acid, compd. with methylnonane, 3429*e*.

$C_{160}H_{346}N_8O_{10}$ [Bicyclohexyl] - 3,3,3′,3′,5,5,-5′,5′-octapropionamide, *N*, *N*′,*N*″-*N*‴, *N*⁗, *N*⁗′, *N*⁗″, *N*⁗‴, *N*⁗⁗ octakis(octadecyl) - 4,4′ - dioxo-, P 2228*b*.

$C_{189}H_{175}N_{21}O_{16}$ Tricarbanilate, m. 214-15°, from Schardinger β-dextrin, 154*e*.

$C_{197}H_{392}O_{32}$ Desoxycholic acid, compd. with pentane, 3429*c*.

$C_{199}H_{396}O_{32}$ Desoxycholic acid, compd with dimethylpentane, 3429*d*; compd. with 3-methylhexane, 3429*d*.

$C_{200}H_{398}O_{32}$ Desoxycholic acid, compd. with octane, 3429*d*.

$C_{202}H_{402}O_{32}$ Desoxycholic acid, compd. with decane, 3429*e*.

$CaCl_2$ See *Calcium chloride*.

$CaCl_2O_2$ See *Calcium hypochlorite*

$CaCl_2O_6$ See *Calcium chlorate*.

$CaCl_2O_8$ Calcium perchlorate, 5680*b*.

$CaCl_2Mg_2$ + $12H_2O$ See *Tachhydrite*.

$CaCl_6Sr_2$ + $12H_2O$ Calcium strontium chloride, 2743*d*.

$CaCrO_4$ See *Calcium chromate*.

$CaCr_2O_4$ Calcium chromite, 9405*b*.

$CaF_2$ See *Calcium fluoride; Fluorite*.

$CaF_6U$ Calcium uranium fluoride, 8768*d*.

$CaFeO_6Si_2$ See *Hedenbergite*.

$CaFe_2O_4$ See *Calcium ferrate(III)*.

$CaH_2$ Calcium hydride, 6916*c*.

$CaHO_4P$ See *Calcium phosphate*.

$CaH_2$ See *Calcium hydride*.

$CaH_2O_2$ See *Calcium hydroxide*.

$CaH_2S_2$ Calcium sulfide, 1604*f*, 6449*f*.

$CaH_4N_4O_9$ + $2H_2O$ Ammonium calcium nitrate, 1637*i*.

$CaH_4O_4P_2$ See *Calcium hypophosphite*.

$CaH_4O_8P_2$ See *Calcium phosphate*.

$CaH_6O_{10}S_2$, 2483*i*.

$CaI_2$ See *Calcium iodide*.

$CaLi_2O_3Si$ Calcium lithium silicate, 3723*a*.

$CaMgO_4Si$ See *Monticellite*.

$CaMgO_6Si_2$ See *Diopside*.

$CaMg_2$, 4594*h*.

$CaMoO_4$ (See also *Powellite*.) Calcium molybdate, 3722*e*.

$CaN_2O_6$ See *Calcium nitrate*.

$CaNaO_3PS$ Calcium sodium thiophosphate, 4170*e*.

$CaNa_2O_3Si$ Calcium sodium silicate, 9404*f*

$CaNi_5$, 7771*b*.

$CaO$ See *Lime*.

$CaO_3S$ See *Calcium sulfite*.

$CaO_3Si$ See *Calcium silicate; Wollastonite*

$CaO_3Sn$ Calcium stannate, 3723*a*, 5245*a*

$CaO_3Ti$ (See also *Perovskite*.) Calcium titanate, 2388*e*, 2877*h*, 7205*b*

$CaO_3W$ See *Calcium tungstate*.

$CaO_3Zr$ Calcium zirconate, 3723*a*

$CaO_4S$ See *Anhydrite; Calcium sulfate, Gypsum*.

$CaO_4U$ Calcium uranate, 3709*i*, 3710*b*

$CaO_4V_2$ Calcium vanadate(III), 4172*b*

$CaO_4W$ (See also *Scheelite*.) Calcium tungstate, 3716*i*, 3722*i*, 4119*f*, 5312*b*, 7347*e*

$CaO_4SiTi$ See *Sphene*.

$CaO_6S_2$ See *Calcium dithionate*.

$CaO_6Sb_2$ Calcium antimonate, 2392*g*

$CaO_6V_2$ Calcium vanadate(V), 8247*e*

$CaO_{12}P_2U_2$ See *Autunite*.

$CaO_{12}U_2V_2$ See *Tyuyamunite*

$CaS$ See *Calcium sulfide*

$CaSe$ Calcium selenide, 3724*b*.

$CaSi$ Calcium silicide, 5275*c*.

$CaSi_2$ Calcium silicide, 5275*c*.

$CaSn_3$, 5275*c*

$Ca_2Cl_2H_7O_7$ + $H_2O$ Calcium chloride, P 5555*g*

$Ca_2Cl_2H_7O_8$ Calcium chlorate, P 5555*g*

$Ca_2Cl_6Mg$ + $6H_2O$ Calcium magnesium chloride, 2743*d*.

$Ca_2FNaO_4Si$ Calcium silicate, compd with NaF, 1535*f*

$Ca_2H_2Mg_5O_{24}Si_8$ See *Tremolite*.

$Ca_2K_2MgO_{16}S_4$ + $2H_2O$ See *Polyhalite*

$Ca_2MgO_7Si_2$ See *Akermanite*.

$Ca_2Na_2O_6Si_3$ Calcium sodium silicate, 3723*a*

$Ca_2O_4Si$ See *Bredigite; Calcium silicate, Larnite*.

$Ca_2O_4Sn$ Calcium stannate, 3723*a*.

$Ca_2O_7P_2$ Calcium pyrophosphate, 3723*a*, 5670*c*, 6716*f*, 8894*b*.

$Ca_2O_8S_2$ + $H_2O$ See *Plaster of Paris*

$Ca_2Si$ Calcium silicide, 5275*c*.

$Ca_2Sn$, 5275*c*.

$Ca_4Cl_2H_4O_6$ Calcium hypochlorite, P 1927*a*

$Ca_4Cr_2O_{12}Si_3$ See *Uvarovite*.

$Ca_4Fe_2O_{12}Si_3$ See *Andradite*.

$Ca_4MgO_8Si_2$ See *Merwinite*.

$Ca_4Mo_{24}O_{80}P_2$ + $58H_2O$ Calcium phosphomolybdate, 2537*f*.

$Ca_4N_2$ See *Calcium nitride*.

$Ca_4O_4Si$ See *Alite*.

$Ca_4O_6P_2S_2$ Calcium thiophosphate, 4170*e*

$Ca_4O_4W$ Calcium tungstate, 3722*i*.

$Ca_4O_7Si_2$ See *Calcium silicate*.

$Ca_4O_8P_2$ See *Calcium phosphate; Whitlockite*

$Ca_4O_{80}P_2W_{24}$ + $48H_2O$ Calcium phosphotungstate, 2537*g*.

$Ca_4FH_{16}KO_{28}Si_8$ See *Apophyllite*.

$Ca_4F_2O_7Si_2$ See *Cuspidine*.

$Ca_5FO_{13}P_3$ See *Apatite*.

$Ca_5HO_{13}P_3$ See *Hydroxyapatite*.

$Ca_5H_4N_{12}O_{31}$ + $10H_2O$ Ammonium calcium nitrate, 1637*i*.

$Ca_5I_2O_{12}$ Calcium periodate, 7367*f*.

$Ca_5O_9P_2$ Calcium phosphate, 3717*b*.

$Ca_5O_{13}P_2Si$ See *Silicocarnotite*.

$Ca_6Cr_6O_{24}$, 2110*f*.

$Ca_{12}CeH_{16}NdO_{14}$, 4969*h*.

$CbCl_5$ Columbium chloride, 2513*i*, 7851*h*.

$CbH_5$ Columbium hydride, 2490*e*.

$CbKO_3$ Potassium columbate, 8783*h*.

$CbN$ See *Columbium nitride*.

$CbNaO_3$ Sodium columbate, 8783*h*.

$CbO$ See *Columbium oxide*.

$CbO_2$ See *Columbium oxide*.

$Cb_2O_5$ See *Columbium oxide*.

$Cb_2O_5$ See *Columbium oxide*.

$CdCl$ Cadmium chloride, 2863*h*, 3712*g*.

$CdCl_2$ See *Cadmium chloride*.

$CdCl_2Cu_3H_8O_6$ Cadmium copper chloride, 8929*g*.

$CdCl_3Cs$ Cesium chlorocadmate, 4595*d*.

**$CdCl_2K$** Potassium chlorocadmate, 4595*d*.
**$CdCl_2Rb$** Rubidium chlorocadmate, 4595*d*.
**$CdCl_2Cs_2$** Cesium chlorocadmate, 4595*d*.
**$CdCl_4K_2$** Potassium chlorocadmate, 4595*d*.
**$CdCl_4Mg$** Cadmium magnesium chloride, 6104*d*.
**$CdCl_4Na_2$** Sodium chlorocadmate, 4595*d*.
**$CdCl_4Rb_2$** Rubidium chlorocadmate, 4595*d*.
**$CdCl_6H_{18}N_4$** Ammonium cadmium chloride, 1623*a*.
**$CdCl_6Mg_2$** Cadmium magnesium chloride, 6104*d*.
**$CdCl_6Ni_2 + 12H_2O$** Cadmium nickel chloride, 2064*g*.
**$CdCr_2O_4$** Cadmium chromite, P 1051*a*.
**$CdF$** Cadmium fluoride, 6918*c*.
**$CdF_2$** See *Cadmium fluoride*.
**$CdGa_2O_4$** Cadmium gallate, 4171*c*.
**$CdH_2O_2$** See *Cadmium hydroxide*.
**$CdI$** Cadmium iodide, 2863*h*, 3712*i*.
**$CdI_2$** See *Cadmium iodide*.
**$CdI_4Na_2$** Sodium iodocadmate, 2110*f*
**$CdMoO_4$** Cadmium molybdate, 3722*e*.
**$CdN_2O_6$** See *Cadmium nitrate*.
**$CdO$** See *Cadmium oxide*.
**$CdO_3Si$** Cadmium silicate, 3723*a*
**$CdO_3Sn$** Cadmium stannate, 3723*a*.
**$CdO_4S$** See *Cadmium sulfate*
**$CdO_4W$** Cadmium tungstate, 3717*a*, 3722*i*, 5312*b*.
**$CdO_6V_2$** Cadmium vanadate(V), 8247*f*.
**$CdS$** See *Cadmium sulfide; Greenockite*.
**$CdSb$**, 3260*g*
**$CdSe$** Cadmium selenide, 35*a*, 482*e*, 3294*g*, 4102*g*, 8896*a*.
**$CdTe$** Cadmium telluride, 35*a*, 3294*g*.
**$CdTl$** Cadmium thallide, 8896*a*.
**$Cd_2Cl_6Mg$**, Cadmium magnesium chloride, 6104*d*
**$Cd_2O_4Si$** Cadmium silicate, 3723*a*.
**$Cd_2O_7P_2$** Cadmium pyrophosphate, 3723*a*, P 6518*a*.
**$Cd_2Mo_{24}O_{86}P_2 + 58H_2O$** Cadmium phosphomolybdate, 7366*b*
**$Cd_3O_8P_2$** Cadmium phosphate, 3723*a*, P 7831*i*.
**$Cd_3O_{86}P_2W_{24} + 48H_2O$** Cadmium phosphotungstate, 7366*d*.
**$Cd_3O_8S$** Cadmium sulfate, 2403*a*.
**$Cd_3Cu_3$**, 4917*a*.
**$CeCl_3$** Cerium chloride, 3709*h*, 8212*h*.
**$CeCl_3O_{16}$** Cerium perchlorate, 7349*h*.
**$CeF_4K$** Cerium potassium fluoride, 3709*i*.
**$CeF_4Na$** Cerium sodium fluoride, 3709*i*.
**$CeH_3$** Cerium hydride, 2810*i*.
**$CeMg$**, 9012*b*
**$CeMg_3$**, 9012*b*.
**$CeMg_9$**, 9012*b*.
**$CeN_3O_9$** See *Cerium nitrate*
**$CeNi_5$**, 7771*b*.
**$CeO_2$** See *Cerium oxide*
**$CeO_4P$** Cerium phosphate, 15*e*.
**$CeO_8S_2$** See *Cerium sulfate*.
**$CeSi_2$** Cerium silicide, 6484*h*
**$Ce_2O_2S$** Cerium oxysulfide, 3709*i*, 6484*f*.
**$Ce_2O_3$** Cerium oxide, P 1661*c*, P 1662*c*, P 7832*g*, 9440*f*.
**$Ce_2O_{12}S_3$** See *Cerium sulfate*.
**$Ce_2S_3$** Cerium sulfide, 3709*i*, 6484*e*.
**$Ce_3O_{16}P_4$** Cerium phosphate, 7785*d*.
**$Ce_3S_4$** Cerium sulfide, 3709*i*, 6484*f*.
**$ClCoH_{12}N_6O_4$**, 7806*e*.
**$ClCoH_{18}I_2N_5$**, 2855*c*.
**$ClCoH_{18}N_4O_4S$**, 8295*b*.
**$ClCoH_{18}N_7O_6$**, 2855*d*.
**$ClCs$** See *Cesium chloride*.
**$ClCs_2O_4$** Cesium perchlorate, 5689*b*.
**$ClCu$** See *Copper chloride*.
**$ClCuHO$** Copper chloride, 8929*i*, 8930*a*.
**$ClCu_2H_3O_3$** (See also *Atacamite*.) Copper chloride, 8929*i*, 8930*b*.
**$ClD$** Hydrochloric acid-*d*, 4574*a*, 5734*c*.
**$ClD_4N$** Ammonium-$d_4$ chloride, 2866*a*.
**$ClF$** Chlorine fluoride, 6500*f*, 6793*e*.
**$ClFO_3S$** Sulfuryl chloride fluoride, 3742*a*.
**$ClFPb$** Lead chloride fluoride, 5332*c*, 6050*a*, 8971*h*.
**$ClF_3$** Chlorine fluoride, 6793*d*, 7821*d*, 8887*d*.
**$ClGeH_3$** Germane, chloro-, 8275*d*.
**$ClH$** See *Hydrochloric acid*.
**$ClHMgO$** Magnesium chloride, 9393*e*.
**$ClHNiO$** Nickel chloride, 8929*i*.
**$ClHO$** See *Hypochlorous acid*.
**$ClHO_2$** Chlorous acid, 2075*b*.
**$ClHO_2Pb_2$** Lead chloride, 2112*e*.
**$ClHO_3S$** See *Chlorosulfonic acid*.
**$ClHO_4$** See *Perchloric acid*.
**$ClH_3HgN$** See "ammonobasic" under *Mercury compounds*.
**$ClH_2N$** See *Chloramide*.
**$ClH_2NiO_2$** Nickel chloride, 8929*i*.
**$ClH_3Si$** Silane, chloro-, 1658*d*, 5241*d*, 8275*d*.
**$ClH_4InLi_2O_4S_2 + 10H_2O$**, 2883*h*.
**$ClH_4N$** See *Ammonium chloride*.
**$ClH_4NO_4$** See *Ammonium perchlorate*.
**$ClH_5N_2O_4$** Hydrazine, perchlorate, 8934*b*.
**$ClH_5N_2O_4Pt$**, 7277*h*.
**$ClH_6N_4O_4Pt$**, 5665*c*.
**$ClH_9N_4O_7Pt$**, 7277*i*.
**$ClH_9N_4O_8Pt$**, 2537*i*.
**$ClH_{12}N_4$**, 8807*g*.
**$ClH_{18}N_6O_8Pt$**, 1673*f*, 7278*a*.
**$ClHg$** See *Mercury chloride*.
**$ClI$** See *Iodine chloride*.
**$ClIn$** See *Indium chloride*.
**$ClK$** See *Potassium chloride; Sylvite*.
**$ClKMgO_4S + 3H_2O$** See *Kainite*.
**$ClKO_3$** See *Potassium chlorate*.
**$ClKO_4$** See *Potassium perchlorate*.
**$ClK_2NO_3$** Potassium chloride nitrate, 6902*h*.
**$ClK_2N_4O_8Pt$**, 7277*h*.
**$ClLi$** See *Lithium chloride*.
**$ClLiO_4$** See *Lithium perchlorate*.
**$ClMn$** Manganese chloride, 1264*c*.
**$ClNO$** See *Nitrosyl chloride*.
**$ClNO_2$** See *Nitryl chloride*.
**$ClNO_7Ti$** Titanyl chloride nitrate, 6496*a*
**$ClNO_3$** Nitrosyl perchlorate, 8936*a*.
**$ClNO_6$** Nitryl perchlorate, 460*d*
**$ClNa$** See *Sodium chloride*
**$ClNaO$** See *Sodium hypochlorite*.
**$ClNaO_2$** See *Sodium chlorite; Textone*.
**$ClNaO_3$** See *Sodium chlorate*.
**$ClNaO_4$** See *Sodium perchlorate*.
**$ClO$** See *Chlorine oxide*.
**$ClOSb$** Antimony chloride, 9363*e*.
**$ClO_2$** See *Chlorine oxide*.
**$ClO_2PbSb$** See *Nadorite*.
**$ClO_2S$** Chlorosulfonyl (*free radical*), 1248*i*.
**$ClO_4Tl$** See *Thallium perchlorate*.
**$ClRb$** See *Rubidium chloride*.
**$ClTl$** See *Thallium chloride*.
**$ClZn$** Zinc chloride, 2863*h*, 3712*i*.
**$Cl_2Co$** See *Cobalt chloride*.
**$Cl_2CoCu_2H_6O_6$** Cobalt copper chloride, 8929*g*.
**$Cl_2CoH_{18}IN_5$**, 2855*b*.
**$Cl_2CoH_{18}N_6O_2$**, 2855*d*.
**$Cl_2CoH_{18}N_6O_4$**, 2855*c*.
**$Cl_2Cr$** See *Chromium chloride*.
**$Cl_2CrO_2$** See *Chromyl chloride*.
**$Cl_2Cu$** See *Copper chloride*.
**$Cl_2CuNO$**, 3305*h*.
**$Cl_2CuO_2$** Copper hypochlorite, 4411*i*.
**$Cl_2CuO_8$** Copper perchlorate, 8913*i*.
**$Cl_2Cu_2H_2O_4$** Copper chloride, 8930*c*.
**$Cl_2Cu_2H_6MgO_6$** Copper magnesium chloride, 8929*g*
**$Cl_2Cu_2H_6NiO_6$** Copper nickel chloride, 8929*g*.
**$Cl_2Cu_2H_6O_6Zn$** Copper zinc chloride, 8929*g*.
**$Cl_2Cu_2H_8O_6$** Copper chloride, 2443*i*.
**$Cl_2Eu$** Europium chloride, 2501*a*.
**$Cl_2FOP$** Phosphoryl chloride fluoride, 121*c*.
**$Cl_2F_2Si$** Silane, dichlorodifluoro-, P 6220*a*.
**$Cl_2Fe$** See *Iron chloride*.
**$Cl_2H_2MoO_2$** Molybdenum chloride, P 9431*b*.
**$Cl_2H_2Si$** Silane, dichloro-, 8185*h*.
**$Cl_2H_2N_2Pd$**, 4954*d*.
**$Cl_2H_4N_2Pt$**, 29*i*, 1674*c*, 7277*h*
**$Cl_2H_4N_4O_4Pt$**, 5664*h*.
**$Cl_2H_7N_3OPt$**, 3683*c*, 7278*a*
**$Cl_2H_8Mg_3O_{14}$** Magnesium chlorate, 7286*c*.
**$Cl_2H_8N_2O_2Pt$**, 7278*a*.
**$Cl_2H_9N_3Pt$**, 2537*i*, 7277*i*.
**$Cl_2H_{12}N_4O_2Pt$**, 4954*a*.
**$Cl_2H_{12}N_4Pt$**, 7277*i*, 7278*a*.
**$Cl_2Hg$** See *Mercury chloride*.
**$Cl_2Hg_2O_3$** Mercury chloride, 2110*i*.
**$Cl_2Hg_4O_3$** Mercury chloride, 2110*i*.
**$Cl_2Hg_3O_4$** Mercury chloride, 2111*a*.
**$Cl_2In$** See *Indium chloride*.
**$Cl_2K_2N_2O_4Pt$**, 7277*h*.
**$Cl_2Mg$** See *Magnesium chloride*.
**$Cl_2MgO_8$** See *Magnesium perchlorate*.
**$Cl_2Mn$** See *Manganese chloride*.
**$Cl_2Ni$** See *Nickel chloride*.
**$Cl_2OS$** See *Thionyl chloride*.
**$Cl_2OTh$** Thorium chloride, P 7838*e*.
**$Cl_2OU$** Uranium chloride, 8529*g*.
**$Cl_2OZr$** See *Zirconyl chloride*.
**$Cl_2O_2S$** See *Sulfuryl chloride*.
**$Cl_2O_2U$** Uranyl chloride, 1242*g*, 4138*e*.
**$Cl_2O_4Pb$** Lead chlorite, 8971*h*.
**$Cl_2O_8P_2Pb_4$** Lead chloride phosphate, 7361*g*.
**$Cl_2O_8Pb$** Lead perchlorate, 472*e*, 8277*b*, 8812*a*.
**$Cl_2O_8Sr$** See *Strontium perchlorate*.
**$Cl_2O_8Zn$** Zinc perchlorate, 22*d*.
**$Cl_2O_{16}U$** Uranyl perchlorate, 8941*a*.
**$Cl_2Pb$** See *Cotunnite; Lead chloride*.
**$Cl_2Pt$** See *Platinum chloride*.
**$Cl_2Ra$** Radium chloride, 2828*b*.
**$Cl_2S$** See *Sulfur chloride*.
**$Cl_2S_2$** See *Sulfur chloride*.
**$Cl_2Sm$** Samarium chloride, 2510*a*.
**$Cl_2Sn$** See *Tin chloride*.
**$Cl_2Sr$** See *Strontium chloride*.
**$Cl_2Ta$** Tantalum chloride, 1620*b*.
**$Cl_2Ti$** See *Titanium chloride*.
**$Cl_2Tl$** Thallium chloride, 3305*i*.
**$Cl_2Yb$** Ytterbium chloride, 2510*a*.
**$Cl_2Zn$** See *Zinc chloride*.
**$Cl_2CoH_{12}N_4$**, 8295*b*.
**$Cl_2CoH_{12}N_2O_2$**, 8295*c*.
**$Cl_2CoH_{18}N_6$**, 2855*f*.
**$Cl_2CoH_{16}N_4O_2$**, 7805*h*, 8295*c*.
**$Cl_2CoH_{17}N_5O$**, 7805*h*.
**$Cl_2CoH_{18}N_6$**, 6508*f*, 7805*h*, 8295*b*.
**$Cl_2Cr$** See *Chromium chloride*.
**$Cl_2CuK_2$** Potassium chlorocuprate(I), 7771*c*.
**$Cl_2Eu$** Europium chloride, 2093*a*, 8242*i*.
**$Cl_2Fe$** See *Iron chloride; Molysite*.
**$Cl_2FeO_{12}$** Iron perchlorate, 499*e*.
**$Cl_2Ga$** See *Gallium chloride*.
**$Cl_2GeH$** Germane, trichloro-, 5321*e*.
**$Cl_2HSi$** Silane, trichloro-, P 2221*b*, 2571*h*, 4401*h*, 9028*b*.
**$Cl_2H_4KNPt$**, 7277*h*, 7278*i*.
**$Cl_2H_{12}InN_4$** Hydrazine, compd. with $InCl_3$, 6932*i*.
**$Cl_2H_{14}N_4Pt$**, 1673*h*.
**$Cl_2H_{18}N_4OPt + H_2O$**, 1673*g*.
**$Cl_2HgNO$**, 3305*h*.
**$Cl_2In$** Indium chloride, 2109*g*, 2883*e*, 3306*a*, 4172*d*.
**$Cl_2In_2Li_2S_3$**, 2883*h*.
**$Cl_2KMg$** (See also *Carnallite*.) Magnesium potassium chloride, 1278*g*, 2107*c*.
**$Cl_2K_2NO_2Pt$**, 7277*h*.
**$Cl_2La$** See *Lanthanum chloride*.
**$Cl_2LaO_{12}$** Lanthanum perchlorate, 5265*i*.
**$Cl_2MgNa$** Magnesium sodium chloride, 2107*c*.
**$Cl_2MgRb$** Magnesium rubidium chloride, 2107*c*.
**$Cl_2MnNO$**, 3305*h*.
**$Cl_2N$** See *Nitrogen chloride*.
**$Cl_2NOZn$**, 3305*h*.
**$Cl_2Nd$** Neodymium chloride, 3709*h*, 7337*e*.
**$Cl_2NdO_{12}$** Neodymium perchlorate, 7337*e*.
**$Cl_2Np$** Neptunium chloride, 2106*i*, 3709*h*.
**$Cl_2OP$** See *Phosphoryl chloride*.
**$Cl_2P$** See *Phosphorus chloride*.
**$Cl_2PS$** Thiophosphoryl chloride, 5739*f*, 7821*g*, 9394*h*.
**$Cl_2Pr$** Praseodymium chloride, 3709*h*, 8242*h*.
**$Cl_2Pt$**. See *Platinum chloride*.
**$Cl_2Pu$** Plutonium chloride, 3709*h*, 8889*i*.
**$Cl_2Sb$** See *Antimony chloride*.
**$Cl_2Sc$** Scandium chloride, 6031*h*.
**$Cl_2Sm$** Samarium chloride, 8242*i*.
**$Cl_2Ti$** See *Titanium chloride*.
**$Cl_2Tl$** See *Thallium chloride*.
**$Cl_2Tl_2$** Thallium chloride, 3305*i*.
**$Cl_2U$** Uranium chloride, 3709*h*, 7853*f*.
**$Cl_2V$** Vanadium chloride, 6031*h*.
**$Cl_4CuK_2$** Potassium chlorocuprate(II). 8222*d*.
**$Cl_4Cu_2$** Copper chlorocuprate(III), 7362*g*.
**$Cl_4FeH$** Chloroferric(III) acid, 2489*g*.
**$Cl_4FeNO$**, 3305*i*.
**$Cl_4GaNO$**, 3305*i*.
**$Cl_4Ge$** See *Germanium chloride*.
**$Cl_4H_6N_2Pt$**, 7278*a*.
**$Cl_4H_8MgN_2$** Ammonium magnesium chloride, 6104*b*.
**$Cl_4H_8N_2Pt$** Ammonium chloroplatinate(II), P 53*c*, 7277*b*.
**$Cl_4H_9N_2Pt$**, 7278*ab*.
**$Cl_4H_{12}N_4Pt$**, 4535*i*, 7278*a*.
**$Cl_4H_{12}N_4Pt_2$**, 7277*i*.
**$Cl_4H_{14}N_4O_2Pt_2$**, 3683*d*.
**$Cl_4H_{16}N_4Pt$**, 1673*f*, 7278*a*, 7287*b*.
**$Cl_4H_{18}N_6Pt$**, 1673*g*, 7278*ab*.
**$Cl_4Hf$** Hafnium chloride, 2828*b*.
**$Cl_4Hg_2O$** Mercury chloride, 2110*h*.
**$Cl_4InNO$**, 3305*i*.
**$Cl_4K_2Mg$** Magnesium potassium chloride, 2107*c*.
**$Cl_4K_2Pb$** Lead potassium chloride, 7316*c*.
**$Cl_4K_2Pd$** Potassium chloropalladate(II), 8943*d*.
**$Cl_4K_2Pt$** Potassium chloroplatinate(II), 7277*h*.
**$Cl_4K_2Zn$** Potassium zinc chloride, 7316*d*.
**$Cl_4Li_2Mg$** Lithium magnesium chloride, 6104*b*.
**$Cl_4MgNa_2$** Magnesium sodium chloride, 2107*c*, 6104*b*.
**$Cl_4MgRb_2$** Magnesium rubidium chloride, 2107*c*.
**$Cl_4MgZn$** Magnesium zinc chloride, 6104*d*.
**$Cl_4NOTl$**, 3305*i*.
**$Cl_4NOV$**, 8934*a*.
**$Cl_4Na_2Pt$** Sodium chloroplatinate(II), 7277*h*.
**$Cl_4Np$** Neptunium chloride, 2106*i*, 8889*h*.
**$Cl_4Pt$** See *Platinum chloride*.
**$Cl_4Se$** Selenium chloride, 2159*e*.
**$Cl_4Si$** See *Silicon chloride*.
**$Cl_4Sn$** See *Tin chloride*.
**$Cl_4Te$** Tellurium chloride, 6891*b*.

**$Cl_4Th$** See *Thorium chloride.*
**$Cl_4Ti$** See *Titanium chloride.*
**$Cl_4U$** Uranium chloride, 7773*a*, 8270*c*, 8529*g*, 8889*h*, 9240*g*.
**$Cl_4V$** See *Vanadium chloride.*
**$Cl_4Zr$** See *Zirconium chloride.*
**$Cl_6Cs_2Rh$** Cesium chlororhodate(III), 6535*h*.
**$Cl_6FeH_2K_2O$**, 3301*g*, 3747*i*.
**$Cl_6FeH_8N_2$** + $H_2O$, 3301*f*.
**$Cl_6FeH_{10}N_2O$**, 3301*f*.
**$Cl_6FeK_2$** (See also *Erythrosiderite.*) 3301*g*.
**$Cl_6FeMg$** Iron magnesium chloride, 6104*d*.
**$Cl_6H_2KNPt$**, 7278*ab*.
**$Cl_6H_2InN_2$** + $H_2O$ Ammonium chloroindate, 1236*b*.
**$Cl_6KPb_2$** Lead potassium chloride, 7316*c*.
**$Cl_6KZn_2$** Potassium zinc chloride, 7316*e*.
**$Cl_6Mg_2Na$** Magnesium sodium chloride, 2107*c*.
**$Cl_6N_2O_2Tl$**, 3305*i*.
**$Cl_6P$** See *Phosphorus chloride.*
**$Cl_6Sb$** See *Antimony chloride.*
**$Cl_6Ta$** Tantalum chloride, 2513*i*, 7851*h*.
**$Cl_6U$** Uranium chloride, 8270*c*, 8529*ag*, 8928*i*.
**$Cl_6CoH_{18}N_6Tl$**, 63*h*.
**$Cl_6Cs_2Pu$** Cesium chloroplutonate(IV), 3709*i*.
**$Cl_6Cs_2Rh$** Cesium chlororhodate(IV), 6535*h*.
**$Cl_6Cs_2Rh$** Cesium chlororhodate(III), 6535*h*.
**$Cl_6H_2Te$** + $2H_2O$ Chlorotellurous acid, 4167*h*.
**$Cl_6H_8N_2Pd$** Ammonium chloropalladate(IV), P 53*c*.
**$Cl_6H_{16}N_4Pt_2$**, 7277*i*.
**$Cl_6K_2Pt$** See *Potassium chloroplatinate(IV).*
**$Cl_6K_2Re$** Potassium chlororhenate(IV), P 2105*e*.
**$Cl_6K_2Sn$** Potassium chlorostannate(IV), 3294*d*.
**$Cl_6Mg_2Mn$** + $12H_2O$ Magnesium manganese chloride, 2064*g*.
**$Cl_6H_8N_2Pt$** Ammonium chloroplatinate(IV), 7277*i*, 7367*g*.
**$Cl_6NOSb$** Nitrosyl chloroantimonate(V), 8935*h*.
**$Cl_6N_2O_2Sn$**, 3305*h*.
**$Cl_6N_2O_2Ti$**, 3305*h*.
**$Cl_6N_2O_2Ti_2$**, 3305*i*.
**$Cl_6N_3P_3$** Phosphonitrile chloride, trimer, 5364*d*, 8282*h*.
**$Cl_6Na_2Pt$** Sodium chloroplatinate(IV), 7278*a*.
**$Cl_6PtTl_2$** Thallium chloroplatinate(IV), 63*h*
**$Cl_6S$** Sulfur chloride, 2828*b*.
**$Cl_6U$** Uranium chloride, 3709*i*, 3710*d*.
**$Cl_7HN_3O_4P_3$** Phosphonitrile chloride, trimer, perchlorate, 5365*c*.
**$Cl_7K_2Zn_2$** Potassium zinc chloride, 7316*d*.
**$Cl_7NOV_2$**, 8934*a*.
**$Cl_8N_4P_4$** Phosphonitrile chloride, tetramer, 8282*h*.
**$Cl_8N_2O_8V_2$**, 8934*a*.
**$Cl_{10}H_2N_4O_8P_4$** Phosphonitrile chloride, tetramer, diperchlorate, 5365*c*.
**$Cl_{10}H_2Si_4$**, 8931*f*.
**$Cl_{17}Fe_2Mg_3$** Iron magnesium chloride, 6104*d*
**$Cl_{12}Si_{10}$** Silicon chloride, 8931*b*.
**$Cl_{32}Si_{13}$** Silicon chloride, 8931*d*
**$CoCs_2O_8S_2$** + $12H_2O$ Cesium cobalt alum, 8785*i*.
**$CoCs_2N_2O_{12}$** + $H_2O$ Cesium nitrocobaltate-(III), 7367*h*.
**$CoF_3$** See *Cobalt fluoride.*
**$CoF_3$** See *Cobalt fluoride.*
**$CoF_7K_2$** Potassium fluocobaltate(IV), 8940*c*.
**$CoFe_2O_4$** Cobalt ferrate(III), 3304*f*, 5354*i*, 6017*a*, 7315*c*.
**$CoHOS$** Cobalt sulfide, 2077*a*, 2108*i*.
**$CoH_2O_2$** See *Cobalt hydroxide.*
**$CoH_2O_2$** See *Cobalt hydroxide.*
**$CoH_4KN_6O_8$**, 7800*f*.
**$CoH_4N_2$** Cobalt amide, 2887*d*.
**$CoH_7N_4O_2$**, 2888*b*.
**$CoH_8N_2O_8S_2$** + $6H_2O$ Ammonium cobalt sulfate, 1280*d*.
**$CoH_8N_8O_8$**, 7806*f*.
**$CoH_{12}N_7O_8$**, 7806*f*.
**$CoH_{12}IN_6O_4$**, 7806*f*.
**$CoH_{12}N_7O_7$**, 7806*f*.
**$CoH_{14}N_7O_{10}$**, 7806*g*.
**$CoH_{15}IN_5O_8S$**, 2855*c*.
**$CoH_{15}IN_7O_6$**, 2855*b*.
**$CoH_{15}I_2N_5O_3$**, 2855*d*.
**$CoH_{15}I_2N_5O_3$**, 2855*c*.
**$CoH_{15}I_2N_5$**, 2855*b*.
**$CoH_{15}N_6O_8S$**, 8295*b*.
**$CoH_{15}N_6O_7S$**, 2855*c*.
**$CoH_{15}N_6O_{11}$**, 8295*c*.
**$I_{16}N_6O_8$**, 2855*c*.
**$O_3$**, 2855*c*, 7807*f*.
**$N_5O$**, 7805*h*.
**$N_5$**, 7805*h*.
2888*b*, 7364*c*, 7805*h*.
**$CoI_2$** See *Cobalt iodide.*
**$CoI_2O_6$** Cobalt iodate, 5267*a*.
**$CoI_2Na$** Cobalt sodium iodide, 2110*f*.
**$CoN$** Cobalt nitride, 2887*d*.
**$CoN_2O_6$** See *Cobalt nitrate.*
**$CoN_6Na_3O_{12}$**, 7806*f*.
**$CoO$** See *Cobalt oxide.*
**$CoO_4S$** See *Cobalt sulfate.*
**$CoO_4V_2$** Cobalt vanadate(III), 6519*d*.
**$CoO_6V_2$** Cobalt vanadate(V), 8247*f*.
**$CoO_8RbS_2$** + $12H_2O$ Cobalt rubidium alum, 8785*i*.
**$CoO_8Re_2$** Cobalt perrhenate, 5688*e*.
**$CoP$** Cobalt phosphide, 2061*e*.
**$CoS$** See *Cobalt sulfide.*
**$CoS_2$** Cobalt sulfide, 2052*d*.
**$CoSb_2$** Cobalt antimonide, 2052*d*.
**$CoSe_2$** Cobalt selenide, 2052*d*.
**$CoTe_2$** Cobalt telluride, 2052*d*.
**$Co_2H_{18}Mo_{10}N_4O_{38}$** + $12H_2O$ Ammonium molybdocobaltate(III), 4167*b*
**$Co_2H_{17}N_{11}O_{13}$**, 7806*f*.
**$Co_2H_{19}N_{12}O_{12}$**, 7806*f*.
**$Co_7H_{76}N_{12}O_{14}$**, 2888*c*.
**$Co_2K_6Mo_{10}O_{38}$** Potassium molybdocobaltate(III), 4167*b*.
**$Co_2K_6Mo_{12}O_{42}$** Potassium molybdocobaltate(III), 4167*b*
**$Co_2N$** Cobalt nitride, 5322*e*.
**$Co_7O_8S$** Cobalt sulfate, 2493*a*.
**$Co_2P$** Cobalt phosphide, 2061*e*.
**$Co_2S_3$** See *Cobalt sulfide.*
**$Co_3Mo_{21}O_{80}P_7$** + $58H_2O$ Cobalt phosphomolybdate, 7366*b*.
**$Co_3N$** Cobalt nitride, 5322*e*.
**$Co_3O_4$** See *Cobalt oxide.*
**$Co_3O_8P_2$** See *Cobalt phosphate.*
**$Co_3O_{80}P_2W_{24}$** + $48H_2O$ Cobalt phosphotungstate, 7366*c*.
**$Co_3H_{42}N_{20}O_{39}$**, 7806*f*.
**$Co_3S_4$** Cobalt sulfide, 2531*i*.
**$CrCs_2O_8S_2$** Cesium chromium alum, 8785*i*, 8879*a*.
**$CrCs_2O_8Se_2$** + $12H_2O$ Cesium chromium selenium alum, 8785*i*
**$CrCu_2O_8Zn$** Copper zinc chromate, 6775*f*.
**$CrF_3$** See *Chromium fluoride.*
**$CrH$** Chromium hydride, 3260*i*.
**$CrH_2O_4$** See *Chromic acid.*
**$CrH_3O_3$** See *Chromium hydroxide*
**$CrH_4NO_8S_2$** Ammonium chromium alum, 916*h*, 2053*g*, P 4870*b*, 8785*i*, 8879*a*
**$CrH_4NO_8Se_2$** + $12H_2O$ Ammonium chromium selenium alum, 8785*i*.
**$CrH_4NO_8S_2$** + $12H_2O$, 8785*i*.
**$CrH_6N_3$** Chromium amide, 6101*e*.
**$CrH_8N_2O_4$** Ammonium chromate, 5651*k*.
**$CrH_{16}N_6O_8$**, 6101*f*.
**$CrHg_2O_4$** Mercury chromate, 3963*i*.
**$CrHg_2O_4$** Mercury chromate, 2543*c*, 7367*g*, 8953*b*.
**$CrKO_8S_2$** + $12H_2O$ Chromium potassium alum, 916*h*, 2007*a*, 2053*g*, 6930*b*, 7316*f*, 7763*d*, 8785*i*, 8879*a*.
**$CrKO_8Se_2$** + $12H_2O$ Chromium potassium selenium alum, 8785*i*.
**$CrK_2O_4$** See *Potassium chromate*
**$CrN_3O_9$** Chromium nitrate, 5226*b*.
**$CrN_3O_9$** See *Chromium nitrate*
**$CrNaO_8S_2$** + $12H_2O$ Chromium sodium alum, 8785*i*.
**$CrNaSe_2$** Sodium selenochromite, 919*c*.
**$CrNa_2O_4$** See *Sodium chromate.*
**$CrO$** Chromium oxide, 5322*b*.
**$CrO_2$** See *Chromium oxide.*
**$CrO_3$** See *Chromic acid; Chromium oxide.*
**$CrO_4P$** Chromium phosphate, 2543*c*, 8953*b*.
**$CrO_4Pb$** See *Lead chromate.*
**$CrO_4S$** Chromium sulfate, P 884*a*.
**$CrO_4Sn$** Tin chromate, P 3833*i*, P 3834*a*.
**$CrO_4Sr$** See *Strontium chromate.*
**$CrO_4Tl_2$** Thallium chromate, 63*h*.
**$CrO_4V$** Chromium vanadate(V), 6033*b*.
**$CrO_4Zn$** See *Zinc chromate.*
**$CrO_8RbS_2$** Chromium rubidium alum, 8785*i*, 8879*a*.
**$CrO_8RbSe_2$** + $12H_2O$ Chromium rubidium selenium alum, 8785*i*.
**$CrO_8S_2Tl$** + $12H_2O$ Chromium thallium alum, 8785*i*.
**$CrO_8Se_2Tl$** + $12H_2O$ Chromium thallium selenium alum, 8785*i*.
**$CrRbS_2$** Rubidium thiochromite, 919*c*.
**$CrRbSe_2$** Rubidium selenochromite, 919*c*.
**$CrS$** Chromium sulfide, 1621*c*.
**$CrSb$** Chromium antimonide, 2052*d*.
**$CrTe$** Chromium telluride, 7278*i*.
**$Cr_2CuO_4$** Copper chromite, 5653*i*.
**$Cr_2Cu_2O_4$** Copper chromite, 5653*i*, 6336*b*.
**$Cr_2FeO_4$** See *Chromite.*
**$Cr_2H_8N_2O_7$** See *Ammonium dichromate.*
**$Cr_2H_{32}N_2O_{18}S_4$** Ammonium chromium sulfate, 4172*i*.
**$Cr_2KSe_4$** Potassium selenochromite, compd. with $CrSe_2$, 919*c*.
**$Cr_2K_2O_7$** See *Potassium dichromate.*
**$Cr_2K_2O_{16}S_4$** Chromium potassium sulfate, 4172*i*.
**$Cr_2Li_2Na_2O_8$** + $6H_2O$ Lithium sodium chromate, 2063*c*.
**$Cr_2Li_2O_{16}S_4$** Chromium lithium sulfate, 4172*i*.
**$Cr_2MgO_4$** Magnesium chromite, 4171*c*, 4533*i*.
**$Cr_2MgO_{16}S_4$** Chromium magnesium sulfate, 4172*i*.
**$Cr_2MnO_{16}S_4$** Chromium manganese sulfate, 4172*i*.
**$Cr_2N$** Chromium nitride, 6101*f*.
**$Cr_2Na_2O_7$** See *Sodium dichromate.*
**$Cr_2Na_2O_{16}S_4$** Chromium sodium sulfate, 4172*i*.
**$Cr_2O_3$** See *Chromium oxide.*
**$Cr_2O_4Zn$** See *Zinc chromite.*
**$Cr_2O_9S_3$** Chromium sulfate, 4141*k*.
**$Cr_2O_{12}S_3$** See *Chromium sulfite.*
**$Cr_2O_{16}Rb_2S_4$** Chromium rubidium sulfate, 4172*i*.
**$Cr_2P$** Chromium phosphide, 5719*b*.
**$Cr_4K_2O_{17}Zn_4$** + $3H_2O$ Potassium zinc chromate, 8697*f*.
**$CsF$** Cesium fluoride, 941*f*, 8763*a*.
**$CsFeO_8S_2$** + $12H_2O$ Cesium iron alum, 8785*i*.
**$CsFeO_8Se_2$** + $12H_2O$ Cesium iron selenium alum, 8786*a*.
**$CsGe_4$** Cesium germanide, 5321*e*.
**$CsH$** See *Cesium hydride.*
**$CsHO$** See *Cesium hydroxide.*
**$CsH_2O_4P$** Cesium phosphate, P 369*b*.
**$CsI$** See *Cesium iodide.*
**$CsNO_3$** See *Cesium nitrate.*
**$CsO_8S_2V$** + $12H_2O$ Cesium vanadium alum, 8785*i*
**$CsSi_2$** Cesium silicide, 5321*e*.
**$Cs_2H_4O_6Te$** + $3H_2O$ Cesium tellurate, 518*c*
**$Cs_2O$** See *Cesium oxide.*
**$Cs_2O_2$** Cesium peroxide, 2828*i*.
**$Cs_2O_4S$** See *Cesium sulfate.*
**$CuF_2$** See *Copper fluoride.*
**$CuF_2H_{12}N_4$**, 9341*d*.
**$CuF_6K_2$** Potassium fluocuprate(III), 8910.
**$CuFeO_2$** See *Delafossite.*
**$CuFeS_2$** See *Chalcopyrite.*
**$CuFe_2O_4$** Copper ferrate(III), 6017*a*.
**$CuFe_2S_3$** See *Cubanite.*
**$CuH_2O_2$** See *Copper hydroxide.*
**$CuH_4N_2O_6S_2$** Copper sulfamate, 8913*i*.
**$CuH_4NiO_4$** Copper nickel hydroxide, 8929*f*
**$CuH_4O_5Si$** See *Chrysocolla.*
**$CuH_4O_6Te$** Copper tellurate, 518*c*.
**$CuH_{12}N_4O_4S$** + $H_2O$, P 1928*h*.
**$CuH_{12}N_6O_6$**, 8222*e*.
**$CuH_{16}Mo_6N_4O_{21}$** + $6H_2O$ Ammonium molybdocuprate (II), 4167*b*.
**$CuI$** See *Copper iodide.*
**$CuI_2$** See *Copper iodide.*
**$CuK_2O_8S_2$** + $6H_2O$ Copper potassium sulfate, 4568*e*.
**$CuN_2O_6$** See *Copper nitrate.*
**$CuO$** See *Copper oxide; Tenorite.*
**$CuO_4S$** See *Chalcanthite; Copper sulfate.*
**$CuO_6S_5$** Copper pentathionate, 7651*g*.
**$CuO_6V_2$** Copper vanadate(V), 8247*f*.
**$CuO_{12}P_2U_2$** See *Metatorbernite; Torbernite.*
**$CuPbS_2Sb$** See *Bournonite.*
**$CuS$** See *Copper sulfide; Covellite.*
**$CuSe$** (See also *Klockmannite.*) Copper selenide, 8982*d*.
**$CuZn$**, 4917*a*, 8864*e*.
**$Cu_2Fe_4S_7$** See *Valleriite.*
**$Cu_2H_2O_2$** Copper hydroxide, 7362*g*.
**$Cu_2I_2$** See *Copper iodide.*
**$Cu_2Mg$**, 2148*b*.
**$Cu_2O$** See *Copper oxide; Cuprite.*
**$Cu_2O_3$** + $3H_2O$ Copper oxide, 7362*g*.
**$Cu_2O_{12}U_2V_2$** See *Sengierite.*
**$Cu_2S$** See *Chalcocite; Copper sulfide.*
**$Cu_2Te$** See *Weissite.*
**$Cu_2Ge$**, 2876*b*.
**$Cu_2H_2Mo_2O_{10}$** See *Lindgrenite.*
**$Cu_2O_8P_2$** Copper phosphate, P 7035*b*, 8905*d*.
**$Cu_3P$** Copper phosphide, 5719*b*.
**$Cu_3P_2$** Copper phosphide, P 825*d*.
**$Cu_3Te_2$** See *Rickardite.*
**$Cu_4FeNi_2$**, 3761*i*.
**$Cu_4H_6O_{10}S$** (See also *Brochantite.*) Copper sulfate, 7301*i*.
**$Cu_4O_6Si$** Copper silicate, 1670*i*.
**$Cu_4O_7S$** Copper sulfate, 2492*i*.
**$Cu_5FeS_4$** See *Bornite.*
**$Cu_5Zn_8$**, 4917*a*, 6880*e*.
**$Cu_6O_4$** Copper oxide, 7362*g*.
**$Cu_9S_5$** Copper sulfide, 6102*c*.
**$Cu_{31}Sn_8$**, 4917*a*.

**DHO** See "heavy" under *Water.*
**DRb** Rubidium hydride-*d*, 2826*i*.

**$D_2O$** See "heavy" under *Water*.
**$D_2O_4S$** Sulfuric acid-*d*$_2$, 1247*g*.
**$D_3La$** Lanthanum hydride-*d*$_3$, 4122*d*.
**$D_3U$** Uranium hydride-*d*$_3$, P 948*c*, 7853*b*.
**$DyH_3O_3$** Dysprosium hydroxide, 2108*d*.
**$DyO_4V$** Dysprosium vanadate(V), 6033*b*.
**$Dy_2O_{12}S_3$** + 8$H_2O$ Dysprosium sulfate, 2093*a*.

**$ErH_3O_3$** Erbium hydroxide, 2108*e*, 8244*g*.
**$ErN_3O_9$** + 6$H_2O$ Erbium nitrate, 5304*b*.
**$ErO_4V$** Erbium vanadate(V), 6033*b*.
**$Er_2O_{12}S_3$** + 8$H_2O$ Erbium sulfate, 5304*b*, 6917*h*.
**$EuO_4V$** Europium vanadate(V), 6033*b*.
**$Eu_2O_3$** Europium oxide, 8305*b*.
**$Eu_2O_{12}S_3$** See *Europium sulfate*.

**FH** See *Hydrofluoric acid*.
**$FHO_3S$** See *Fluosulfonic acid*.
**$FH_2O_3P$** Fluophosphoric acid, P 5583*a*.
**$FH_4N$** See *Ammonium fluoride*.
**FHg** See *Mercury fluoride*.
**FK** See *Potassium fluoride*.
**FLi** See *Lithium fluoride*.
**FMn** Manganese fluoride, 1264*c*.
**FNa** See *Sodium fluoride*.
**$F_2Fe$** See *Iron fluoride*.
**$F_2HK$** See *Potassium fluoride*.
**$F_2HO_3P$** Fluophosphoric acid, P 5583*a*.
**$F_2Hg$** See *Mercury fluoride*.
**$F_2Mg$** See *Magnesium fluoride*.
**$F_2Mn$** See *Manganese fluoride*.
**$F_2Ni$** See *Nickel fluoride*.
**$F_2O$** Oxygen fluoride, 518*g*, 6793*f*.
**$F_2OPb_2$** Lead fluoride, 451*g*, 459*b*.
**$F_2OSe$** Selenium oxyfluoride, 6793*f*.
**$F_2OW$** Tungsten fluoride, 1671*d*.
**$F_2O_2S$** Sulfuryl fluoride, 3742*a*
**$F_2O_2U$** Uranyl fluoride, 3709*i*, 3710*a*, 8270*c*, 8529*ag*, 9240*g*.
**$F_2Pb$** See *Lead fluoride*.
**$F_2S$** Sulfur fluoride, 7355*a*.
**$F_2S_2$** Sulfur fluoride, 6793*f*, 7355*a*.
**$F_2Zn$** See *Zinc fluoride*.
**$F_3Fe$** See *Iron fluoride*.
**$F_3In$** Indium fluoride, 2109*g*.
**$F_3La$** Lanthanum fluoride, 8971*h*.
**$F_3Mn$** See *Manganese fluoride*.
**$F_3Np$** Neptunium fluoride, 2106*i*.
**$F_3P$** Phosphorus fluoride, 4141*f*.
**$F_3Pb$** Lead fluoride, 6793*d*.
**$F_3Sb$** See *Antimony fluoride*.
**$F_3Ti$** Titanium fluoride, 6793*d*.
**$F_3FeK$** Potassium fluoferrate(III), 4031*a*.
**$F_3KLa$** Lanthanum potassium fluoride, 3709*i*.
**$F_3KTi$** Potassium fluotitanate(III), 4031*a*.
**$F_3LaNa$** Lanthanum sodium fluoride, 3709*i*.
**$F_3NaPu$** Plutonium sodium fluoride, 3709*i*.
**$F_3Np$** Neptunium fluoride, 2106*i*.
**$F_3Pb$** See *Lead fluoride*.
**$F_3Pt$** Platinum fluoride, 6793*d*
**$F_3S$** Sulfur fluoride, 7355*a*.
**$F_3Se$** Selenium fluoride, 6793*f*
**$F_3Si$** See *Silicon fluoride*.
**$F_3Th$** Thorium fluoride, 7857*d*
**$F_3U$** Uranium fluoride, 3739*f*, 8246*f*, 8270*c*, 8529*g*, 8768*d*, 9240*g*.
**$F_3W$** Tungsten fluoride, 1671*c*.
**$F_3FeH_{16}N_7O$**, 3748*i*.
**$F_3I$** Iodine fluoride, 518*g*, 3774*i*.
**$F_3KU$** Potassium uranium fluoride, 8768*d*
**$F_3NaU$** Sodium uranium fluoride, 6102*i*
**$F_3P$** Phosphorus fluoride, 2828*d*
**$F_3U$** Uranium fluoride, 3709*i*.
**$F_3FeK_3$** Potassium fluoferrate(III), 8940*c*.
**$F_3H_2Si$** See *Fluosilicic acid*.
**$F_3H_8N_2Zr$** Ammonium fluozirconate, P 6456*c*
**$F_3K_2Ni$** Potassium fluonickelate(IV), 8940*c*
**$F_3K_2Pt$** Potassium fluoplatinate(IV), 3739*g*.
**$F_3K_2Si$** See *Potassium fluosilicate*.
**$F_3K_2Th$** Potassium thorium fluoride, 3709*i*.
**$F_3K_2Ti$** Potassium fluotitanate(IV), 3723*b*, 7652*c*.
**$F_3K_2U$** Potassium uranium fluoride, 3709*i*, 8768*d*.
**$F_3K_2Zr$** Potassium fluozirconate, P 1927*h*
**$F_3MgSi$** Magnesium fluosilicate, 5892*i*, 5894*i*.
**$F_3Na_2Si$** See *Sodium fluosilicate*.
**$F_3Na_2Th$** Sodium thorium fluoride, 3709*i*.
**$F_3Na_2Ti$** Sodium fluotitanate(IV), P 6450*h*.
**$F_3Na_2U$** Sodium uranium fluoride, 3709*i*.
**$F_3NiSi$** Nickel fluosilicate, 5251*d*.
**$F_3Np$** Neptunium fluoride, 2106*i*.
**$F_3S$** See *Sulfur fluoride*.
**$F_3Se$** See *Selenium fluoride*.
**$F_3SiSr$** Strontium fluosilicate, P 5160*c*.
**$F_3SiZn$** Zinc fluosilicate, 5892*i*, 5894*i*.
**$F_3Te$** See *Tellurium fluoride*.
**$F_3U$** See *Uranium fluoride*.
**$F_3Na_4U$** Sodium uranium fluoride, 3709*i*, 8768*d*.

**$F_3NaTh_2$** Sodium thorium fluoride, 3709*i*.
**$F_3Na_5U$** Sodium uranium fluoride, 6102*e*.
**$F_4U_3$** Uranium fluoride, 3709*i*.
**$F_{10}S_2$** Sulfur fluoride, 7355*a*.
**$FeHO_2$** Ferric(III) acid, 7316*c*.
**$FeH_2O_2$** See *Iron hydroxide*.
**$FeH_3O_3$** See *Iron hydroxide*.
**$FeH_4NO_8S_2$** Ammonium iron alum, 4141*i*, 8785*i*.
Ammonium iron sulfate, 7245*e*.
**$FeH_4NO_8Se_2$** + 12$H_2O$ Ammonium iron selenium alum, 8786*a*.
**$FeH_4O_8P_2$** Iron phosphate, 7375*f*.
**$FeH_8N_2O_8S_2$** Ammonium iron sulfate, 2508*b*, 7763*b*, 7767*c*, 7821*hi*, 8142*d*.
**$FeI_2$** See *Iron iodide*.
**$FeKO_8S_2$** + 12$H_2O$ Iron potassium alum, 7763*b*, 7767*d*, 8785*i*.
**$FeK_2O_4$** Potassium ferrate(VI), P 1950*g*, 6338*h*.
**$FeLaO_3$** Lanthanum ferrate(III), 8783*h*.
**FeMo**, 7881*i*.
**$FeN_3O_9$** Iron nitrate, 2830*a*.
**$FeN_3O_9$** See *Iron nitrate*.
**$FeNaO_2$** See *Sodium ferrate(III)*.
**$FeNa_2O_4$** See *Sodium ferrate(VI)*.
**$FeNi_3S_4$** See *Violarite*.
**FeO** See *Iron oxide*.
**$FeO_3Ti$** See *Ilmenite; Iron titanate*.
**$FeO_4P$** See *Iron phosphate, Strengite*
**$FeO_4S$** See *Iron sulfate; Melanterite*
**$FeO_4V_2$** Iron vanadate(III), 6519*d*.
**$FeO_7Ta_2$** See *Tapiolite*.
**$FeO_8V_2$** Iron vanadate(V), 8248*i*
**$FeO_8RbS_2$** + 12$H_2O$ Iron rubidium alum, 8785*i*.
**$FeO_8RbSe_2$** + 12$H_2O$ Iron rubidium selenium alum, 8786*a*.
**$FeO_8Re_2$** Iron perrhenate, 5688*c*
**$FeO_8S_2Tl$** + 12$H_2O$ Iron thallium alum, 8785*i*.
**$FeO_8V_2$** Iron vanadate(V), 8247*f*.
**$FeO_{12}Re_2$** Iron perrhenate, 5688*c*.
**$FePb_4S_{14}Sb_6$** See *Jamesonite*.
**FeS** See *Iron sulfide; Troilite*.
**$FeS_2$** See *Iron sulfide; Marcasite, Pyrite*.
**$FeS_4Sb_2$** See *Berthierite*
**$FeSb_2$** Iron antimonide, 2052*d*.
**$FeSe_2$** Iron selenide, 2052*d*.
**FeSi** Iron silicide, 477*c*, 918*i*, 4546*d*, 7885*f*.
**$FeSn_2$**, 8284*f*.
**$FeTe_2$** Iron telluride, 2052*d*.
**$Fe_2H_8N_2O_{16}S_4$** Ammonium iron sulfate, 4172*i*.
**$Fe_2H_{24}Mo_{12}N_6O_{42}$** + 11$H_2O$ Ammonium molybdoferrate(III), 4167*b*.
**$Fe_2K_2O_{16}S_4$** Iron potassium sulfate, 4172*i*.
**$Fe_2Li_2O_{16}S_4$** Iron lithium sulfate, 4172*i*.
**$Fe_2MgO_4$** (See also *Magnesioferrite*.) Magnesium ferrate(III), 4533*i*, 6017*a*.
**$Fe_2MgO_{16}S_4$** Iron magnesium sulfate, 4172*i*.
**$Fe_2MnO_4$** Manganese ferrate(III), 6017*a*.
**$Fe_2MnO_{16}S_4$** Iron manganese sulfate, 4172*i*.
**$Fe_2N$** See *Iron nitride*.
**$Fe_2Na_4S_6$** Iron sodium sulfide, 2109*b*.
**$Fe_2NiO_4$** Nickel ferrate(III), 3304*f*, 5351*i*, 6017*a*, 6018*e*.
**$Fe_2O_3$** See *Goethite; Hematite; Iron oxide; Limonite; Martite; Stilpnosiderite; Turgite*.
**$Fe_2O_4Si$** (See also *Fayalite*.) Iron silicate, 2869*g*, 8282*a*.
**$Fe_2O_4Ti$** See *Iron titanate*.
**$Fe_2O_4Zn$** Zinc ferrate(III), 4171*cg*, 4533*i*, 4988*f*, 6017*a*, 8933*h*.
**$Fe_2O_5Ti$** See *Pseudobrookite*.
**$Fe_2O_{12}S_3$** See *Iron sulfate*.
**$Fe_2O_{16}Na_2S_4$** Iron sodium sulfate, 4172*i*.
**$Fe_2O_{16}Rb_2S_4$** Iron rubidium sulfate, 4172*i*.
**$Fe_2Ti$**, 1546*e*
**$Fe_2Zr$**, 4546*f*
**$Fe_3H_6KO_{14}S_2$** See *Jarosite*.
**$Fe_3Mo_3$**, 7397*i*, 7882*a*.
**$Fe_3N$** See *Iron nitride*.
**$Fe_3O_4$** See *Iron oxide; Magnetite*
**$Fe_3O_8P_2$** See *Ludlamite; Vivianite*.
**$Fe_3P$** Iron phosphide, 5719*b*.
**$Fe_3Si_2$** Iron silicide, 7885*f*.
**$Fe_4N$** See *Iron nitride*.
**$Fe_4O_8S$**, 2493*b*.
**$Fe_4O_8S$**, 2493*c*.
**$Fe_4O_{12}Ti_3$** Iron titanate, 8297*a*.
**$Fe_4O_{22}S_5$** + 17$H_2O$ See *Copiapite*.
**$Fe_6O_{16}S_7$**, 2493*b*.
**$Fe_8N_4$** Iron nitride, 3765*c*.

**$GaH_3O_3$** Gallium hydroxide, 8052*e*.
**$GaLaO_3$** Lanthanum gallate, 8783*h*.
**$GaLi_3N_2$** Gallium lithium nitride, 4170*h*.
**$GaO_4V$** Gallium vanadate(V), 6033*a*.
**GaPr**, 8339*d*.
**$GaPr_3$**, 8339*d*.
**$Ga_2O_3$** See *Gallium oxide*.
**$Ga_2Pr$**, 8339*d*.

**$Ga_2Pr_3$**, 8339*d*.
**$GdH_3O_3$** Gadolinium hydroxide, 2108*d*.
**GdN** Gadolinium nitride, 5253*a*.
**$GdO_4V$** Gadolinium vanadate(V), 6033*b*.
**$GeH_2O_3$** See *Germanic acid*.
**$GeH_4O_4$** Germanic acid, 2075*b*, 7789*h*.
**$GeK_2O_3$** Potassium germanate, 22*g*.
**$GeMg_2$**, 8343*a*.
**$GeMg_2O_4$** Magnesium germanate, P 7831*d*.
**GeO** Germanium oxide, 2510*h*.
**$GeO_2$** See *Germanium oxide*.
**$GeO_4Zn_2$** Zinc germanate, 7827*g*.
**GeS** Germanium sulfide, 2510*h*.
**GeSe** Germanium selenide, 2510*h*.
**GeTe** Germanium telluride, 2510*h*.
**$Ge_4K$** Potassium germanide, 5321*e*.
**$Ge_4Rb$** Rubidium germanide, 5321*e*.
**$Ge_6H_2O_{11}$** Germanic acid, 22*f*, 7789*h*.

**$HHg_2O_4P$** Mercury phosphate, 5677*b*.
**HI** See *Hydriodic acid*.
**HIO** Hypoiodous acid, 2075*b*, 8249*gi*.
**HIOPb** Lead iodide, 2112*b*.
**$HIO_2Pb_2$** Lead iodide, 2112*f*.
**$HIO_3$** See *Iodic acid*.
**$HIO_4$** See *Periodic acid*.
**$HIO_5Th$** + 5$H_2O$ Thorium periodate, 6940*b*.
**$HIO_5Te_2$**, 3304*b*.
**$HInO_3S$** + 5$H_2O$ Indium sulfate, 2109*f*.
**$HInO_8S_2$** Indium sulfate, 2109*f*.
**HK** See *Potassium hydride*.
**HKO** See *Potassium hydroxide*.
**HKS** See *Potassium sulfide*.
**$HK_2O_4P$** See *Potassium phosphate*.
**$HK_7O_{42}SiW_{12}$** Potassium silicotungstate, 8938*c*.
**HLi** See *Lithium hydride*.
**HLiO** See *Lithium hydroxide*.
**HMg** Magnesium hydride, 6910*c*
**$HMgO_4P$** See *Magnesium phosphate*.
**$HMnO_2$** See *Groutite; Manganite*.
**$HMnO_2Pb$** See *Quenselite*.
**$HMnO_4$** See *Permanganic acid*.
**HN** See *Imidogen*.
**$HNNa_2O_7S_2$** Sodium hydroxylamine-*N*, *N*-disulfonate, P 3440*i*.
**$HNO_2$** See *Nitrous acid*.
**$HNO_3$** See *Nitric acid*
**$HNO_4$** Peroxynitric acid, 2110*c*.
**$HNO_5S$** Nitrosylsulfuric acid, 5265*b*.
**$HNO_9S_2$**, 931*d*.
**$HN_3$** See *Hydrazoic acid*.
**HNa** See *Sodium hydride*.
**HNaO** See *Sodium hydroxide*.
**$HNaO_3S$** See *Sodium sulfite*
**$HNaO_4S$** See *Sodium sulfate*.
**HNaS** See *Sodium sulfide*.
**$HNa_2O_3PS$** Sodium thiophosphate, 4170*e*.
**$HNa_2O_4P$** See *Sodium phosphate*.
**HNiOS** Nickel sulfide, 2077*a*, 2108*i*.
**HO** See *Hydroxyl*.
**HORb** Rubidium hydroxide, 6055*a*.
**HOTl** Thallium hydroxide, 6055*a*.
**$HO_3$**, 5651*c*.
**$HO_3Sc$** Scandium hydroxide, 2532*i*.
**$HO_3P$** See *Metaphosphoric acid*.
**$HO_3V$** See *Vanadic acid*.
**$HO_4Re$** Perrhenic acid, 8794*b*.
**$HO_7P_2Sc$** Scandium pyrophosphate, 8305*e*.
**HRb** Rubidium hydride, 8231*b*.
**$H_2HgO_2$** Mercury hydroxide, 2830*a*.
**$H_2KN$** Potassium amide, 2981*a*.
**$H_2KN_3Ti$** Potassium titanium imide, 8938*f*.
**$H_2KN_3V$** Potassium vanadium imide, 6101*g*.
**$H_2KN_3O_9$**, 3306*b*, 3716*b*.
**$H_2KO_4P$** See *Potassium phosphate*.
**$H_2LiN$** See *Lithium amide*.
**$H_2MgO_2$** See *Brucite; Magnesium hydroxide*.
**$H_2MgO_8S_2$** Magnesium sulfite, 5947*f*.
**$H_2Mg_3O_8S_2$** Magnesium sulfite, P 6796*a*
**$H_2Mg_3O_{12}Si_4$** See *Soapstone; Steatite; Talc*.
**$H_2Mg_7O_{24}Si_8$** See *Anthophyllite*.
**$H_2MnNa_4O_{21}W_5$** Sodium tungstomanganate(IV), 926*a*.
**$H_2MnO_3$** See *Manganese hydroxide*.
**$H_2MoO_4$** See *Molybdic acid*.
**$H_2N$** Amidogen, 490*i*, 2509*a*, 7797*i*.
**$H_2NNa$** See *Sodium amide*.
**$H_2NNaO_3S$** Sodium sulfamate, 3699*d*, P 7726*e*.
**$H_2NNaO_4S$** Sodium hydroxylamine-*N*-sulfonate, P 3440*i*.
**$H_2N_2Na_4O_4S_2$**, 3699*f*.
**$H_2N_2O_3$** See *Nitramide*.
**$H_2N_2O_8Pb_3$** Lead nitrate, 2073*i*, 2892*g*.
**$H_2N_2Na_2O_2$**, 3306*b*.
**$H_2NaO_2P$** See *Sodium phosphate*.
**$H_2Na_2O_6P_2$** + 6$H_2O$ Sodium hypophosphate, 8937*d*.
**$H_2Na_4O_7P_2$** Sodium pyrophosphate, 4856*g*, 6535*a*.
**$H_2NiO_2$** See *Nickel hydroxide*.
**$H_2O$** See *Water*.
**$H_2O_2$** See *Hydrogen peroxide*.

**$H_2O_2Pb$** See *Lead hydroxide*.
**$H_2O_2S$** Sulfoxylic acid, 515*c*, 2886*c*, 5689*f*.
**$H_2O_2S_2$** Thiosulfurous acid, 515*c*, 5689*f*.
**$H_2O_2Sr$** See *Strontium hydroxide*.
**$H_2O_2Zn$** See *Zinc hydroxide*.
**$H_2O_3S$** See *Sulfurous acid*.
**$H_2O_3S_2$** See *Thiosulfuric acid*.
**$H_2O_3Se$** See *Selenious acid*.
**$H_2O_3Si$** See *Silicic acid*.
**$H_2O_3Ti$** See *Titanic acid*.
**$H_2O_3PRb$** Rubidium phosphate, P 369*b*.
**$H_2O_3PTl$** Thallium phosphate, P 369*b*.
**$H_2O_4S$** See *Sulfuric acid*.
**$H_2O_4Se$** See *Selenic acid*.
**$H_2O_4Te$** See *Telluric acid*.
**$H_2O_4W$** See *Tungstic acid*.
**$H_2O_5S$** Peroxymonosulfuric acid, 2121*h*.
**$H_2O_6S_4$** Tetrathionic acid, 7651*g*.
**$H_2O_6S_5$** Pentathionic acid, 7651*g*.
**$H_2O_7S_2$** Pyrosulfuric acid, 931*d*, 5652*h*, 6901*d*.
**$H_2O_8S_2$** See *Peroxydisulfuric acid*.
**$H_2O_8Si_2Zn_4$** + $H_2O$ See *Hemimorphite*.
**$H_2S$** See *Hydrogen sulfide*.
**$H_2S_2$** Hydrogen sulfide, 3156*f*, 3305*e*, 3745*a*.
**$H_2S_3$** Hydrogen sulfide, 2884*b*, 3156*f*, 3305*e*.
**$H_2S_4$** Hydrogen sulfide, 2884*c*, 3305*e*.
**$H_2Se$** See *Hydrogen selenide*.
**$H_2Ta$** Tantalum hydride, 2490*e*.
**$H_2Tl$** Titanium hydride, 2490*e*.
**$H_2I_2In_2O_{12}$** + $6H_2O$ Indium periodate, 2883*h*.
**$H_2I_2In_4O_{18}$** Indium periodate, 2883*i*.
**$H_2I_4N_2$** Nitrogen iodide, 4856*a*.
**$H_2I_6In_6O_{24}$** + $5H_2O$ Indium periodate, 2883*i*.
**$H_2InO_3$** Indium hydroxide, 2532*i*, 4072*i*, 8952*g*.
**$H_2K_3O_{42}SiW_{12}$** Potassium silicotungstate, 8938*c*.
**$H_2LaO_3$** See *Lanthanum hydroxide*.
**$H_2La_2O_{12}P_2$** Lanthanum phosphate, 6535*c*.
**$H_2N$** See *Ammonia*.
**$H_2NNa_4O_6PtS_2$**, 1675*g*.
**$H_2NNa_4O_9PtS_3$**, 1674*e*.
**$H_2NO$** See *Hydroxylamine*.
**$H_2NO_3S$** See *Sulfamic acid*.
**$H_2NO_7S$**, 931*d*.
**$H_2NdO_3$** Neodymium hydroxide, 2108*d*, 3709*h*.
**$H_3O_2P$** See *Hypophosphorous acid*.
**$H_3O_2PS_2$** Thiophosphoric acid, 4170*d*, P 4845*d*.
**$H_3O_3P$** See *Phosphorous acid*.
**$H_3O_3PS$** Thiophosphoric acid, 4170*d*.
**$H_3O_3Pr$** Praseodymium hydroxide, 2108*d*, 3709*h*.
**$H_3O_3Sc$** Scandium hydroxide, 2532*i*, 4072*i*.
**$H_3O_3Sm$** Samarium hydroxide, 2108*d*, 8241*g*.
**$H_3O_3Tl$** Thallium hydroxide, 8940*c*.
**$H_3O_3Y$** Yttrium hydroxide, 2064*d*, 2108*d*, 8244*g*.
**$H_3O_3Yb$** Ytterbium hydroxide, 3864*d*.
**$H_3O_4P$** See *Phosphoric acid*.
**$H_3O_9P_3$** Metaphosphoric acid, tri-, 4088*h*.
**$H_3P$** See *Phosphine*.
**$H_3PS_4$** Thiophosphoric acid, 4170*c*.
**$H_3Sb$** Stibine, 3930*b*.
**$H_3U$** Uranium hydride, 7853*b*, 8270*c*
**$H_4Hg_2N_2O_4S$**, P 3837*f*.
**$H_4IN$** See *Ammonium iodide*.
**$H_4INO_3$** See *Ammonium iodate*.
**$H_4IP$** Phosphonium iodide, 7277*d*.
**$H_4K_2O_6Te$** + $3H_2O$ Potassium tellurate, 518*c*.
**$H_4K_4O_{40}SiW_{12}$** Potassium silicotungstate, 8938*c*.
**$H_4Li_2O_6Te$** Lithium tellurate, 518*b*.
**$H_4MgNO_4P$** Ammonium magnesium phosphate, P 2381*b*, 7796*d*, 8229*a*
**$H_4Mg_2O_{10}Si_3$** See *Sepiolite*.
**$H_4Mg_3N_2O_{10}$** + $4H_2O$ Magnesium nitrate, 2885*e*.
**$H_4Mg_3O_9Si_2$** See *Chrysotile; Picrolite, Serpentine*.
**$H_4MnO_5P_2$** Manganese phosphate, 7375*f*.
**$H_4NNaO_4S$** Ammonium sodium sulfate, 1917*i*.
**$H_4NO_3P$** Amidophosphoric acid, 2110*d*.
Ammonium metaphosphate, 6449*c*.
**$H_4NO_3V$** See *Ammonium vanadate(V)*.
**$H_4NO_4PZn$** Ammonium zinc phosphate, 8971*h*.
**$H_4NO_8S_2V$** + $12H_2O$ Ammonium vanadium alum, 8785*i*.
**$H_4N_2$** See *Hydrazine*.
**$H_4N_2Ni$** Nickel amide, 2536*a*.
**$H_4N_2O_2S$** Sulfamide, 2573*c*.
**$H_4N_2O_3$** See *Ammonium nitrite*.
**$H_4N_2O_3PbS_2$** Lead sulfamate, 8812*a*.
**$H_4N_2O_4S$**, 5241*i*.
**$H_4N_4O_8Pb$** Ammonium lead nitrate, 518*h*.
**$H_4Na_2O_6Te$** Sodium tellurate, 518*c*, 2534*f*.
**$H_4Na_2O_7P_2$** Sodium phosphate, dimer, 4088*f*.
**$H_4O_4Si$** Silicic acid, P 1558*i*, 2075*b*.
**$H_4O_4Sn$** See *Stannic acid*.
**$H_4O_4Ti$** See *Titanic acid*.
**$H_4O_6Rb_2Te$** + $3H_2O$ Rubidium tellurate, 518*e*.
**$H_4O_6U$** Uranium peroxide, 2890*a*.
**$H_4O_7P_2$** See *Pyrophosphoric acid*.
**$H_4O_8P_2Zn$** Zinc phosphate, 7375*f*.
**$H_4O_9P_2Zr$** Zirconyl phosphate, 3313*d*.
**$H_4O_{13}S_3Zr_5$** Zirconium sulfate, P 2442*e*.
**$H_4Zr$** Zirconium hydride, 2877*i*.
**$H_5IO_6$** See *Periodic acid*.
**$H_5K_3O_{42}SiW_{12}$** Potassium silicotungstate, 8938*c*.
**$H_5NNaO_4P$** Ammonium sodium phosphate, 6534*i*.
**$H_5NNa_2O_7P_2$** Ammonium sodium pyrophosphate, 6535*b*.
**$H_5NO$** See *Ammonium hydroxide*.
**$H_5NO_4S$** See *Ammonium sulfate*.
**$H_5NS$** See *Ammonium sulfide*.
**$H_5NSe$** Ammonium selenide, 6053*a*.
**$H_5I_2N_2Pt$**, 1675*b*, 7277*i*.
**$H_5InO_4P_3$** Indium hypophosphite, 2883*i*.
**$H_5KO_6Sb$** Potassium antimonate, 1669*i*.
**$H_5K_2O_{42}SiW_{12}$** Potassium silicotungstate, 8938*c*.
**$H_5K_4O_{16}P_3$** Potassium phosphate, 6535*a*.
**$H_5Mg_4N_2O_{12}$** + $8H_2O$ Magnesium nitrate, 2885*e*
**$H_6NO_2P$** Ammonium hypophosphite, P 1552*c*.
**$H_6NO_4P$** See *Ammonium phosphate*.
**$H_6N_2Na_2O_6PtS_2$**, 1674*d*, 1675*d*
**$H_6N_2O$** See "hydrate" under *Hydrazine*.
**$H_6N_2O_3S$** See *Ammonium sulfamate*.
**$H_6N_2O_{12}Pb_4$** Lead nitrate, 2892*h*.
**$H_6N_3Ti$** Titanium amide, 8938*e*
**$H_6N_3V$** Vanadium amide, 6101*f*.
**$H_6N_4O_4Pt$**, 7277*h*.
**$H_6N_4O_6Pt$**, 1675*b*, 4953*i*
**$H_6N_4O_9$**, 3306*b*
**$H_6N_6O_6Pt$**, 5664*h*
**$H_6Na_2O_{12}P_3$** Sodium phosphate, trimer, 4088*f*.
**$H_6O_6Te$** Telluric acid, 518*a*, 2534*c*, 8934*i*.
**$H_6O_{18}P_6$** Metaphosphoric acid, hexa-, 4088*i*
**$H_6Si_2$** Disilane, 2078*c*.
**$H_7KO_{42}SiW_{12}$** Potassium silicotungstate, 8938*c*.
**$H_7O_{42}PW_{12}$** Phosphotungstic acid, 925*i*
**$H_8Mg_3N_2O_{14}$** Magnesium nitrate, 2885*f*, 7286*c*
**$H_8MnN_2O_8S_2$** Ammonium manganese sulfate, P 8918*i*.
**$H_8N_2Na_2O_{10}P_2$** Ammonium sodium triphosphate, 6103*e*.
**$H_8N_2NiO_8S_2$** + $6H_2O$ Ammonium nickel sulfate, 5305*e*.
**$H_8N_2O$**, 8221*a*.
**$H_8N_2O_3S$** See *Ammonium sulfite*
**$H_8N_2O_3S_2$** See *Ammonium thiosulfate*.
**$H_8N_2O_4S$** See *Ammonium sulfate, Mascagnite*.
**$H_8N_2O_7U_2$** Ammonium uranate, 8529*bg*, 9240*g*.
**$H_8N_2O_8S_2$** See *Ammonium peroxydisulfate*.
**$H_8N_2S$** Ammonium sulfide, 2531*i*, P 7221*h*, 7375*d*.
**$H_8N_4O_3S$**, 8781*h*.
**$H_8N_4O_6Pt$**, 5664*h*.
**$H_8N_6O_8Pd$** Ammonium nitropalladate(II), P 6100*a*.
**$H_8N_6O_{17}Pb$** Ammonium lead nitrate, 518*h*.
**$H_8N_8NaO_{17}Rh$** Ammonium sodium nitrorhodate(III), 6047*i*.
**$H_8O_{10}PbS_2$**, 2483*i*
**$H_8O_{10}S_2Sr$**, 2483*i*.
**$H_8O_{42}SiW_{12}$** Silicotungstic acid, 2887*a*, 3741*c*.
**$H_8Si_3$** Trisilane, 2078*c*.
**$H_9IrK_3N_3O_9S_3$** + $3H_2O$, 1676*c*.
**$H_9IrN_3Na_3O_9S_3$** + $6H_2O$, 1676*c*.
**$H_9N_2O_4P$** See *Ammonium phosphate*
**$H_9N_2O_4PtS$**, 2538*b*
**$H_9N_3O_6S_2$** Ammonium imidodisulfate, 9326*d*.
**$H_9N_5O_8Pt$**, 2538*a*.
**$H_9N_5O_9Pt$**, 2538*a*.
**$H_9N_6O_6Rh$**, 6047*g*
**$H_{10}N_4Ni$**, 2536*a*.
**$H_{10}O_{12}Si_6$** Silicic acid, 8931*f*.
**$H_{11}N_4O_4Pt$**, 2538*a*.
**$H_{12}I_2N_4Pt$**, 7277*i*.
**$H_{12}I_4InN_8$** Hydrazine, compd. with $InI_3$, 6932*i*.
**$H_{12}Mo_{12}N_3O_{40}P$** Ammonium phosphomolybdate, 7367*i*, 8971*dg*.
**$H_{12}N_2O_6Te$** Ammonium tellurate, 518*d*.
**$H_{12}N_3O_4P$** See *Ammonium phosphate*.
**$H_{12}N_3O_4V$** See *Ammonium vanadate*.
**$H_{12}N_4O_8S_3$** Ammonium nitridotrisulfate, 9326*d*.
**$H_{12}N_6O_4Pt$**, 7277*i*.
**$H_{12}N_6O_6Pt$**, 7277*i*.
**$H_{12}O_{42}W_{12}$** Tungstic acid, 925*i*.
**$H_{13}N_3O_8S_2$** Ammonium sulfate, 7344*g*.
**$H_{16}N_4NaO_{10}P_3$** Ammonium sodium triphosphate, 6103*e*.
**$H_{16}N_{10}O_{12}Pb$** Ammonium lead nitrate, 518*h*.
**$H_{21}IrN_6O_8S_3$** + $3H_2O$, 1676*b*.
**$H_{27}N_9Na_2O_{21}S_7$**, 3699*e*.
**$H_{24}MnMo_8N_6O_{32}$** Ammonium molybdomanganate(IV), 8297*d*.
**$H_{24}Mo_6N_6NiO_{22}$** Ammonium molybdonickelate(II), 4167*b*.
**$H_{24}Mo_7N_6O_{24}$** Ammonium molybdate, 960*e*, P 2745*a*, 5651*g*, P 9430*c*.
**$H_{24}Mo_9N_6NiO_{32}$** Ammonium molybdonickelate(IV), 4167*a*, 8298*a*.
**$H_{40}N_{10}O_{41}W_{12}$** Ammonium tungstate, 8938*a*.
**$HfO_2$** See *Hafnium oxide*.
**HgI** See *Mercury iodide*.
**$HgI_2$** See *Mercury iodide*.
**$HgI_4K$** Potassium iodomercurate(II), 2110*e*
**$HgI_4K_2$** Potassium iodomercurate(II), 8103*c*
**$HgNO_3$** See *Mercury nitrate*.
**$HgN_2O_6$** See *Mercury nitrate*.
**HgO** See *Mercury oxide*.
**$HgO_3V$** Mercury vanadate(V), 8247*f*.
**$HgO_4S$** See *Mercury sulfate*.
**$HgO_6V_2$** Mercury vanadate(V), 8247*f*.
**HgS** See *Cinnabar, Mercury sulfide*.
**HgTe** See *Coloradoite*.
**$Hg_2U$**, 7770*d*
**$Hg_3O_4P$** Mercury phosphate, 5677*a*.
**$Hg_3U$**, 7770*d*.
**$Hg_4U$**, 7770*e*
**$Ho_7O_{12}S_3$** + $8H_2O$ Holmium sulfate, 6947*b*

**$IInO_3$** Indium periodate, 2883*i*.
**IK** See *Potassium iodide*
**IKNiO** Potassium periodatonickelate(IV), 4167*f*.
**$IKO_3$** See *Potassium iodate*.
**$IKO_4$** Potassium periodate, 1630*d*
**ILi** See *Lithium iodide*.
**$ILiO_4$** Lithium periodate, 5814*i*
**IMn** Manganese iodide, 1261*c*
**INa** See *Sodium iodide*.
**$INaNiO_6$** Sodium periodatonickelate IV), 4167*f*.
**$INaO_3$** See *Sodium iodate*
**$INaO_4$** Sodium periodate, 888*a*, 3096*a*, 8240*i*, 8820*f*.
**$IO_3Tl$** See *Thallium iodate*.
**IPb** Lead iodide, 483*b*.
**IRb** See *Rubidium iodide*.
**ITl** See *Thallium iodide*
**IZn** Zinc iodide, 2863*a*, 3712*i*.
**$I_2Mg$** Magnesium iodide, 22*i*, 2107*c*
**$I_2Mn$** See *Manganese iodide*.
**$I_2Ni$** See *Nickel iodide*.
**$I_2Pb$** See *Lead iodide*
**$I_2Pd$** Palladium iodide, 8971*i*.
**$I_2Sn$** See *Tin iodide*.
**$I_2Sr$** See *Strontium iodide*
**$I_2Zn$** See *Zinc iodide*
**$I_3In$** See *Indium iodide*.
**$I_4K$** Potassium iodide, 8857*b*
**$I_4La$** Lanthanum iodide, 3709*a*.
**$I_4Np$** Neptunium iodide, 2107*a*, 3709*a*.
**$I_4Pu$** Plutonium iodide, 3709*a*.
**$I_4Sb$** See *Antimony iodide*.
**$I_4Th$** Thorium iodide, 8932*a*.
**$I_4Ti$** Titanium iodide, 4066*e*.
**$I_4U$** Uranium iodide, 3709*h*.
**$I_4O_{12}Pu$** Plutonium iodate, 7319*g*.
**$I_4Sn$** See *Tin iodide*.
**$InKS_2$** Potassium thioindate, 2883*h*.
**$InLiS_2$** Lithium thioindate, 2883*h*
**$InNaS_2$** Sodium thioindate, 2883*h*.
**$InNa_5O_{14}P_4$** + $7H_2O$ Indium sodium pyrophosphate, 2884*a*.
**$InO_4P$** Indium phosphate, 2883*i*, 8952*h*.
**$InO_4V$** Indium vanadate(V), 4079*e*, 6033*a*
**$InO_9P_3$** Indium metaphosphate, 2883*i*.
**InS** Indium sulfide, 8896*a*, 8952*g*.
**InSe** Indium selenide, 482*g*, 483*b*, 8896*a*
**$In_2Na_3O_{17}P_3$** Indium sodium phosphate, 2883*i*.
**$In_2O_3$** Indium oxide, 2109*e*, 2828*g*, 2886*a*, 8952*g*.
**$In_2O_{12}S_3$** Indium sulfate, 2109*e*.
**$In_2S_3$** Indium sulfide, 8952*g*.
**$In_4Na_8O_{28}P_{10}$** Indium sodium pyrophosphate, 2884*a*.
**$In_4Na_{20}O_{46}P_{16}$** + $28H_2O$ Indium sodium pyrophosphate, 2884*a*.
**$In_4O_{21}P_8$** Indium pyrophosphate, 2883*i*.
**$Ir_2S_3$** Iridium sulfide, 7363*a*.

**$KMnO_4$** See *Potassium permanganate*.
**$KNO_2$** See *Potassium nitrite*.
**$KNO_3$** See *Potassium nitrate*.
**KNa**, 3712*b*.
**$KO_2$** Potassium superoxide, 5321*g*.
**$KO_3$** Potassium oxide, 4169*h*.
**$KO_3Sb$** Potassium antimonate, 2392*g*, 9363*c*.
**$KO_3Ta$** Potassium tantalate, 8783*h*.

**$KO_4Re$** Potassium perrhenate, 8821*g*.
**$KO_6UV$** See *Carnotite*.
**$KSi_3$** Potassium silicide, 5321*e*.
**$K_2Li_2O_{10}Si_4$** Lithium potassium silicate, 5557*i*.
**$K_2MgO_8S_2$** (See also *Picromerite*.) Magnesium potassium sulfate, 8878*g*.
**$K_2Mg_2O_{12}S_3$** See *Langbeinite*.
**$K_2MnO_4$** Potassium manganate, 7333*h*.
**$K_2MoO_5$** Potassium peroxymolybdate, 7855*c*.
**$K_2N_2O_4S$**, 5241*i*, 8781*h*.
**$K_2N_2O_8S_2$** Potassium azodisulfonate, P 5642*b*.
**$K_2N_4O_8Pd$** Potassium nitropalladate(II), P 6100*a*, 8256*g*.
**$K_2N_4O_8Pt$** Potassium nitroplatinate(II), 7277*h*.
**$K_2O$** See *Potassium oxide*.
**$K_2O_7$** Potassium peroxide, 2535*i*.
**$K_2O_2Zn$** Potassium zincate, 6521*f*, 8907*c*.
**$K_2O_3S$** See *Potassium sulfite*.
**$K_2O_3S_2$** See *Potassium thiosulfate*.
**$K_2O_3Te$** Potassium tellurite, 3877*g*.
**$K_2O_4P$** See *Potassium phosphate*.
**$K_2O_4S$** See *Potassium sulfate*.
**$K_2O_4W$** Potassium tungstate, P 7201*c*.
**$K_2O_5S_2$** Potassium pyrosulfite, 5689*h*, 8568*b*.
**$K_2O_5Te$** + $2H_2O$ Potassium peroxytellurate, 3304*b*.
**$K_2O_6S_4$** Potassium tetrathionate, 2886*e*.
**$K_2O_6S_4Se$** Potassium selenopentathionate, 7855*g*.
**$K_2O_6S_5$** Potassium pentathionate, 2886*g*, 4968*e*.
**$K_2O_6S_6$** Potassium hexathionate, 4968*e*.
**$K_2O_7S_2$** See *Potassium peroxydisulfate*.
**$K_2O_{10}S_2U$** + $2H_2O$ Potassium uranyl sulfate, 4974*d*, 4138*e*.
**$K_4Li_2O_{11}Si_2$** Lithium potassium silicate, 5557*i*.
**$K_4O_7P_2$** See *Potassium pyrophosphate*.
**$K_4O_7Sb_2$** Potassium antimonate, P 1950*c*.
**$K_4O_7Te$** Potassium tellurite, 5188*l*.
**$K_8O_{40}SiW_{12}$** Potassium silicotungstate, 8938*e*.
**$K_{10}Li_2O_{14}Si_4$** Lithium potassium silicate, 5558*a*
**$K_{10}Li_2O_{16}Si_4$** Lithium potassium silicate, .....
**$K_{10}Li_2O_{14}Si_4$** Lithium potassium silicate, 5557*i*.
**$K_{14}O_{71}Si_4W_{36}$** Potassium silicotungstate, 8938*e*.

**$LaN_3O_9$** See *Lanthanum nitrate*
**$LaNi_5$**, 7771*b*.
**$LaO_4P$** Lanthanum phosphate, 15*e*, 6535*c*
**$LaO_4V$** Lanthanum vanadate(V), 6033*a*.
**$LaZn_5$**, 7771*b*.
**$La_2O_2S$** Lanthanum oxysulfide, P 3296*f*, 3709*i*, 6484*f*
**$La_2O_3$** See *Lanthanum oxide*.
**$La_2O_9Si_2$** Lanthanum silicate, 3723*a*, P 1582*d*.
**$La_2O_{12}S_3$** Lanthanum sulfate, 8242*i*
**$La_2S_3$** Lanthanum sulfide, 3709*i*, 6484*e*.
**LiMgN** Lithium magnesium nitride, 4170*g*.
**$LiNO_3$** See *Lithium nitrate*.
**LiNZn** Lithium zinc nitride, 4170*g*
**LiNaO** Lithium sodium oxide, 5322*h*.
**$LiO_3Sb$** Lithium antimonate, 2392*g*.
**$Li_2MoO_4$** Lithium molybdate, 3722*e*.
**$Li_2Mo_2O_7$** Lithium molybdate, 3722*e*.
**$Li_2O$** See *Lithium oxide*.
**$Li_4O_4Si$** See *Lithium silicate*.
**$Li_2O_4S$** See *Lithium sulfate*.
**$Li_2O_4W$** Lithium tungstate, 3722*i*.
**$Li_2O_5Si_2$** See *Lithium silicate*.
**$Li_2O_7W_2$** Lithium tungstate, 3722*i*.
**$Li_2S$** Lithium sulfide, P 7221*h*
**LiN** See *Lithium nitride*.
**$Li_6O_6Si$** Lithium silicate, 3723*a*
**$LuO_4V$** Lutecium vanadate(V), 6033*b*

**$MgMoO_3O_{10}$** Magnesium molybdat
**$MgN_2O_6$** See *Magnesium nitrate*.
**$MgNa_2O_8S_2$** + $4H_2O$ See *Bloedite*.
**MgO** See *Magnesia; Periclase*.
**$MgO_3S_2$** See *Magnesium thiosulfate*.
**$MgO_3Si$** See *Clinoenstatite; Enstatite, Magnesium silicate*.
**$MgO_3Sn$** Magnesium stannate, 3723*a*.
**$MgO_3Ti$** (See also *Geikielite*.) Magnesium titanate, 2388*e*, 2877*h*, 7205*b*
**$MgO_3V$** Magnesium vanadate(IV), 4172*a*.
**$MgO_3Zr$** Magnesium zirconate, P 6803*e*
**$MgO_4Rh_2$** Magnesium rhodate(III), 4171*c*.
**$MgO_4S$** See *Epsomite; Magnesium sulfate*.
**$MgO_4V_2$** Magnesium vanadate(III), 4171*a*.
**$MgO_4W$** Magnesium tungstate, 3722*i*, 4112*h* 7347*e*.
**$MgO_8Si_2$** Magnesium silicate, P 4907*g*.
**$MgO_8V_2$** Magnesium vanadate(V), 8247*f*.
**$MgO_8S_2$** Magnesium peroxydisulfate, 5673*d*.
**MgZn**, 2836*h*, 5719*e*
**$MgZn_2$**, 2148*b*, 2836*h*, 2915*d*, 4535*b*, 5273*b*, 5719*e*.
**$MgZn_{11}$**, 2836*h*, 4535*b*, 5273*b*.
**$Mg_2O_4Si$** See *Forsterite; Magnesium silicate*.
**$Mg_2O_4Sn$** Magnesium stannate, 3723*a*.
**$Mg_2O_4Ti$** Magnesium titanate, 3722*b*.
**$Mg_2O_4V$** Magnesium vanadate(IV), 4171*b*, 4172*a*.
**$Mg_2O_4W$** Magnesium tungstate, 3717*a*.
**$Mg_2O_7P_2$** See *Magnesium pyrophosphate*.
**$Mg_2O_7Sb_2$** Magnesium antimonate, 2392*g*.
**$Mg_2Pb$**, 4741*i*, 5273*b*, 7363*h*, 8341*f*.
**$Mg_2Si$** See *Magnesium silicide*.
**$Mg_2Sn$**, 4741*i*, 4528*g*, 4533*f*, 5273*b*, 6558*f*, 7363*h*, 8342*a*.
**$Mg_2Sr$**, 4594*h*.
**$Mg_2Zn_3$**, 2148*b*.
**$Mg_3Mo_{24}O_{80}P_2$** + $58H_2O$ Magnesium phosphomolybdate, 7366*a*.
**$Mg_3N_2$** See *Magnesium nitride*.
**$Mg_3O_8P_2$** See *Magnesium phosphate*.
**$Mg_3O_{80}P_2W_{24}$** + $48H_2O$ Magnesium phosphotungstate, 7366*c*.
**$Mg_4O_{10}Si_3$** See *Dewevlite*.
**$Mg_4Sr$**, 4594*h*.
**$Mg_7Zn_3$**, 2148*b*.
**$Mg_9Sr$**, 4594*h*.
**$MnMo_9O_{32}Rb$** Rubidium molybdomanganate (IV), 8297*d*.
**$MnN_2O_6$** See *Manganese nitrate*.
**$MnNa_6O_{20}W_5$** + $18H_2O$ Sodium tungstomanganate(IV), 4167*c*.
**$MnNi_5$**, 7815*i*.
**MnO** See *Manganese oxide*.
**$MnO_2$** See *Manganese oxide; Pyrolusite; Ramsdellite*
**$MnO_3Ti$** See *Pyrophanite*.
**$MnO_3S$** See *Manganese sulfate*.
**$MnO_3V$** Manganese vanadate(III), 6519*d*.
**$MnO_3W$** See *Huebnerite*.
**$MnO_3V_2$** Manganese vanadate(V), 8247*f*.
**$MnO_4Re_2$** Manganese perrhenate, 5688*e*.
**MnS** See *Manganese sulfide*
**$MnS_2$** Manganese sulfide, 2052*d*.
**$MnSb$** Manganese antimonide, 7885*f*.
**$MnSb_2$** Manganese antimonide, 2052*d*.
**MnSe** Manganese selenide, 11*a*, 8840*d*
**$MnSe_2$** Manganese selenide, 2052*d*.
**$MnTe_2$** Manganese telluride, 2052*d*.
**$MnZn_2$**, 5719*e*
**$Mn_2O_3$** See *Manganese oxide*.
**$Mn_2O_5Si$** Manganese silicate, 2869*g*, 7317*e*.
**$Mn_2O_7P_2$** Manganese pyrophosphate, 7333*h*.
**$Mn_2O_{12}S_3$** Manganese sulfate, P 5161*e*
**$Mn_3Sb$** Manganese antimonide, 7885*g*
**$Mn_3Mo_{24}O_{80}P_2$** + $58H_2O$ Manganese phosphomolybdate, 7366*b*.
**$Mn_3O_4$** See *Manganese oxide*
**$Mn_3O_{80}P_2W_{24}$** + $48H_2O$ Manganese phosphotungstate, 7366*c*.
**$Mn_3P$** Manganese phosphide, 5719*b*
**$MoNa_2O_4$** Sodium molybdate, 3722*e*.
**$MoO_2$** See *Molybdenum oxide*
**$MoO_3$** See *Molybdenum oxide*.
**$MoO_4Pb$** See *Lead molybdate; Wulfenite*.
**$MoO_4Sr$** Strontium molybdate, 3722*k*.
**$MoO_4Zn$** Zinc molybdate, 3722*g*.
**$MoO_4Sr_2$** Strontium molybdate, 3722*g*.
**$MoO_4P_2$** Molybdenum phosphate, 2415*h*.
**$MoO_4S_2$** Molybdenum sulfate, 6052*d*.
**$MoS_2$** See *Molybdenite; Molybdenum sulfide*
**$MoS_3$** See *Molybdenite; Molybdenum sulfide*.
**$Mo_2Na_2O_7$** Sodium molybdate, 3722*e*.
**$Mo_2O_3$** See *Molybdenum oxide*.
**$Mo_2O_5$** See *Molybdenum oxide*.
**$Mo_3O_{11}$** Molybdenum oxide, 4072*h*, 5686*g*.
**$Mo_3Na_6O_{24}$** Sodium molybdate, 960*e*
**$Mo_8O_{23}$**, 3261*a*.
**$Mo_9NiO_{32}Rb_6$** Rubidium molybdonickelate-(IV), 8298*a*.
**$Mo_{10}O_{26}$**, 3260*i*.
**$Mo_{12}Ni_3O_{50}P_2$** + $58H_2O$ Nickel phosphomolybdate, 7366*b*.
**$Mo_{12}O_{36}P_2Sr_3$** + $58H_2O$ Strontium phosphomolybdate, 2537*f*.
**$Mo_{12}O_{36}P_2Zn_3$** + $58H_2O$ Zinc phosphomolybdate, 7366*b*.

**$NNaO_2$** See *Sodium nitrite*.
**$NNaO_3$** See *Sodium nitrate*.
**$NNi_2$** Nickel nitride, 2536*a*.
**NO** (See also *Nitrogen oxide*.) Nitrosyl (*free radical*), 10*h*.
**$NO_2$** See *Nitrogen oxide*.
**$NO_3Tl$** Thallium nitrite, 3305*i*.
**$NO_3Tl$** See *Thallium nitrate*.
**$NTa_2$** Tantalum nitride, 6030*h*.
**NTh** Thorium nitride, 918*d*.
**NTi** Titanium nitride, 2885*g*, 3731*h*, P 5162*b*, 9006*i*.
**NU** Uranium nitride, 918*d*, 8270*c*.
**NV** See *Vanadium nitride*.
**NZr** See *Zirconium nitride*.

**$N_2NiO_6$** See *Nickel nitrate*.
**$N_2Ni_3$** Nickel nitride, 2536*a*.
**$N_2O$** See *Nitrogen oxide*.
**$N_2O_3$** See *Nitrogen oxide*.
**$N_2O_4$** See *Nitrogen oxide*.
**$N_2O_6Sr$** See *Strontium nitrite*.
**$N_2O_8$** See *Nitrogen oxide*.
**$N_2O_8Tl$**, 5241*i*.
**$N_2O_8Tl_2$**, 8781*h*.
**$N_2O_6Pb$** See *Lead nitrate*.
**$N_2O_6Pd$** Palladium nitrate, P 6099*h*.
**$N_2O_6Sr$** See *Strontium nitrate*.
**$N_2O_6Zn$** See *Zinc nitrate*.
**$N_2O_8U$** See *Uranyl nitrate*.
**$N_2Zn_3$** See *Zinc nitride*
**$N_3Na$** See *Sodium azide*.
**$N_3NdO_9$** Neodymium nitrate, 4169*e*, 7337*e*, 8808*a*, 8881*c*.
**$N_3O_9Pr$** Praseodymium nitrate, 8808*a*, 8881*c*.
**$N_3O_9Sm$** Samarium nitrate, 8881*c*.
**$N_3O_9Tm$** Thulium nitrate, 8881*c*.
**$N_3O_{10}P$** Phosphoryl nitrate, 6496*b*.
**$N_3Sr$** Strontium azide, P 4966*b*.
**$N_3U$** Uranium nitride, 7853*f*.
**$N_3O_{17}Th$** See *Thorium nitrate*.
**$N_4O_{12}Zr$** See *Zirconium nitrate*.
**$N_4S_4$** Sulfur nitride, 2516*g*.
**$N_5Ta_3$** Tantalum nitride, P 5162*b*.
**$N_6Pb$** See *Lead azide*.
**$N_{12}Nd_2O_{36}Zn_3$** Neodymium zinc nitrate, 7337*e*, 8885*a*.
**$NaNi_2O_{10}P_3$** Nickel sodium triphosphate, 6103*e*.
**$NaO_2$** Sodium superoxide, 7363*f*.
**$NaO_3P$** See *Sodium metaphosphate*.
**$NaO_3PSSr$** Sodium strontium thiophosphate, 4170*e*.
**$NaO_4Ta$** Sodium tantalate, 8783*h*.
**$NaO_4V$** See *Sodium vanadate(V)*.
**$NaO_4W$** Sodium tungstate, 5719*g*.
**$NaO_6UV$** Sodium uranyl vanadate(V), P 6796*f*.
**$Na_2O$** See *Sodium oxide*.
**$Na_2O_2$** See *Sodium peroxide*.
**$Na_2O_2Pb$** Sodium plumbite, 8812*b*.
**$Na_2O_3S$** See *Sodium sulfite*.
**$Na_2O_3S_2$** See *Sodium thiosulfate*.
**$Na_2O_3Se$** Sodium selenite, 4743*h*.
**$Na_2O_3Si$** See *Sodium silicate*.
**$Na_2O_3Sn$** Sodium stannate, 3297*b*, 5553*i*, P 6850*c*, P 8109*b*.
**$Na_2O_3Ti$** Sodium titanate, 5323*i*.
**$Na_2O_3Zr$** Sodium zirconate, 3723*a*.
**$Na_2O_4S$** See *Mirabilite; Sodium sulfate; Thenardite*.
**$Na_2O_4S_2$** See *Sodium dithionite*.
**$Na_2O_4Se$** See *Sodium selenate*.
**$Na_2O_4Te$** Sodium tellurate, 2534*h*.
**$Na_2O_4W$** Sodium tungstate, 925*f*, P 1126*h*, P 3210*a*, 3722*i*, 5704*a*, P 5729*c*.
**$Na_2O_5S_2$** Sodium pyrosulfite, 5680*g*, 7157*c*.
**$Na_2O_8SiZr$** Sodium zirconium silicate, 3723*a*.
**$Na_2O_9Si_2$** See *Sodium silicate*.
**$Na_2O_9Ti_2$** Sodium titanate, 5323*i*.
**$Na_2O_9W$** + $H_2O$ Sodium peroxytungstate, 7855*c*.
**$Na_2O_8S_4$** Sodium tetrathionate, 6934*e*, 7578*f*.
**$Na_2O_8S_4Se$** + $3H_2O$ Sodium selenopentathionate, 7855*g*.
**$Na_2O_8S_4Tl_2$** Sodium thallium thiosulfate, 3315*d*.
**$Na_2O_7Ti_2$** Sodium titanate, 5323*i*.
**$Na_2O_7U_2$** Sodium uranate, P 6377*d*, P 6796*f*, 8529*g*, 9240*g*.
**$Na_2O_7W_2$** Sodium tungstate, 3722*i*.
**$Na_2O_8S_2$** See *Sodium peroxydisulfate*.
**$Na_2O_{11}Ti_2$** Sodium titanate, 5323*i*.
**$Na_2O_{12}S_2Zr$** + $4H_2O$ Sodium zirconium sulfate, P 2381*f*.
**$Na_2S$** See *Sodium sulfide*.
**$Na_2S_2$** Sodium sulfide, 9439*ei*.
**$Na_2S_4$** Sodium sulfide, P 8194*i*.
**$Na_2Sn$**, 4632*d*.
**$Na_2NiO_{10}P_3$** Nickel sodium triphosphate, 6103*e*.
**$Na_3OPS_3$** Sodium thiophosphate, 4170*f*.
**$Na_3O_3PS$** Sodium thiophosphate, 4170*e*.
**$Na_3O_4P$** See *Sodium phosphate*.
**$Na_3O_4V$** Sodium vanadate(V), 6107*h*.
**$Na_3O_6S_3Tl$** Sodium thallium thiosulfate, 3315*d*.
**$Na_3O_9P_3$** See *Sodium metaphosphate*.
**$Na_4O_4Si$** See *Sodium silicate*.
**$Na_4O_7P_2$** See *Sodium pyrophosphate*.
**$Na_4O_{12}P_4$** See *Sodium metaphosphate*.
**$Na_5O_{10}P_3$** Sodium triphosphate, P 2380*e*, 6103*d*, 6534*h*, P 9495*d*.
**$Na_6O_7Si_2$** Sodium silicate, 2082*e*.
**$Na_6O_{10}$**, 6533*h*.
**$Na_6O_{12}PtS_4$** Sodium sulfitoplatinate(II), 1674*d*, 1675*d*.
**$Na_6O_{13}P_4$** Sodium tetraphosphate, 6534*h*.
**$Na_6O_{18}P_6$** See *Sodium metaphosphate*.
**$NdO_4P$** Neodymium phosphate, 15*f*.

**NdO₄V** Neodymium vanadate(V), 6033*b*.
**Nd₂O₃** Neodymium oxide, 2886*a*, 8789*b*, 8832*a*.
**Nd₂O₁₂S₃** See *Neodymium sulfate*.
**NiO** See *Nickel oxide*.
**NiO₄S** See *Nickel sulfate; Retgersite*.
**NiO₄Se** + 6H₂O Nickel selenate, 7340*c*.
**NiO₄V₂** Nickel vanadate(V), 8247*f*.
**NiO₈Re₂** Nickel perrhenate, 5688*e*.
**NiPt**, 7888*b*.
**NiS** See *Millerite; Nickel sulfide*.
**NiSSb** See *Ullmannite*.
**NiS₂** Nickel sulfide, 2052*d*, 6483*g*.
**NiSb** See *Breithauptite*.
**NiSb₂** Nickel antimonide, 2052*d*.
**NiSe₂** Nickel selenide, 2052*d*.
**NiTe₂** Nickel telluride, 2052*d*.
**NiTh**, 985*i*.
**NiTh₂**, 985*i*.
**Ni₂O₂** See *Nickel oxide*.
**Ni₁₀O₄₀P₂W₂₄** + 48H₂O Nickel phosphotungstate, 7306*c*.
**Ni₂P** Nickel phosphide, 5719*b*.
**Ni₂Pt**, 7888*b*.
**Ni₃S₂** See *Nickel sulfide*.
**Ni₃S₄** Nickel sulfide, P 3188*f*.
**Ni₄O₆S** Nickel sulfate, 4968*b*.
**Ni₄W**, 3764*g*.
**Ni₄Th**, 985*i*.
**Ni₅Th₂**, 987*i*.
**Ni₆S₈** Nickel sulfide, 2532*h*.
**Ni₆Th**, 985*i*.
**NpOS** Neptunium oxysulfide, 2107*a*.
**NpO₂** Neptunium oxide, 2090*a*.
**NpSi₂** Neptinium silicide, 6484*h*.
**Np₂S₃** Neptunium sulfide, 2107*a*.
**Np₂O₅** Neptunium oxide, 7855*a*.

**OP** Phosphorus oxide, 5240*f*.
**OPb** See *Lead oxide*.
**OPd** See *Palladium oxide*.
**ORb₂** Rubidium oxide, 3323*h*.
**OS** Sulfur oxide, 4145*a*.
**OSZr** Zirconyl sulfide, 3261*c*.
**OS₂Sb₂** See *Kermesite*.
**OSb** Antimony oxide, 5240*f*.
**OSi** See *Silicon oxide*.
**OSn** See *Tin oxide*.
**OSr** See *Strontium oxide*.
**OTe** Tellurium oxide, 2885*a*.
**OTh** Thorium oxide, 918*d*, 4980*b*.
**OTi** See *Titanium oxide*.
**OTl₂** Thallium oxide, 2886*a*, 3305*i*.
**OU** Uranium oxide, 918*d*.
**OV** See *Vanadium oxide*.
**OZn** See *Zinc oxide*.
**O₂Pb** See *Lead oxide*.
**O₂Pr** Praseodymium oxide, 2886*a*, 8789*b*.
**O₂Pt** See *Platinum oxide*.
**O₂Pu₂S** Plutonium oxysulfide, 3709*i*, 6484*f*
**O₂Ra** Radium peroxide, 2828*i*.
**O₂S** See *Sulfur dioxide*.
**O₂STl₂** Thallium sulfoxylate, 8932*h*.
**O₂Se** See *Selenium oxide*.
**O₂Si** See *Amethyst; Chalcedony; Cristobalite; Hyalite; Lechatelierite; Metacristobalite; Opal; Quartz; Silica; Tridymite*.
**O₂Sn** See *Cassiterite; Tin oxide*.
**O₂Te** See *Tellurium oxide*.
**O₂Th** See *Thorium oxide*.
**O₂Ti** See *Anatase; Brookite; Rutile; Titanium oxide*.
**O₂U** See *Uranium oxide*.
**O₂W** See *Tungsten oxide*.
**O₂Zn** See *Zinc peroxide*.
**O₂Zr** See *Zirconium oxide*.
**O₃PbSi** Lead silicate, 3723*a*.
**O₃PbTi** Lead titanate, 515*d*, 5919*a*.
**O₃Pb₂** Lead oxide, 451*h*.
**O₃Pr₂** Praseodymium oxide, 8789*b*.
**O₃Pt₂** Platinum oxide, 7278*a*.
**O₃S** See *Sulfur trioxide*.
**O₃S₂Tl₂** Thallium thiosulfate, 3315*d*.
**O₃Sb₂** See *Antimony oxide*.
**O₃Sc₂** Scandium oxide, 2828*f*, 8305*a*, 9093*d*.
**O₃SeSr** Strontium selenite, 8277*f*.
**O₃SiSr** Strontium silicate, 3720*a*, 3723*a*.
**O₃SiZn** See *Zinc silicate*.
**O₃Sm₂** See *Samarium oxide*.
**O₃SnSr** Strontium stannate, 3723*a*.
**O₃SnZn** Zinc stannate, 3723*a*.
**O₃SrTi** Strontium titanate, 2054*f*, 2388*e*, 2877*h*, 5919*a*, 6015*h*, 7205*b*.
**O₃SrZr** Strontium zirconate, 3723*a*.
**O₃Te** Tellurium oxide, 3304*b*.
**O₃Tl₂** See *Thallium oxide*.
**O₃U** See *Becquerelite; Paraschoepite; Uranium oxide*.
**O₃V₂** See *Vanadium oxide*.
**O₃W** See *Tungsten oxide*.
**O₃Y₂** See *Yttrium oxide*.
**O₄Os** See *Osmium oxide*.
**O₄PPr** Praseodymium phosphate, 15*g*.
**O₄PbS** See *Anglesite; Lead sulfate*.
**O₄PbW** Lead tungstate, 3722*i*, 7347*e*.
**O₄Pb₂Si** See *Lead silicate*.
**O₄Pb₃** See *Lead Oxide*.
**O₄PrV** Praseodymium vanadate(V), 6033*b*.
**O₄Rb₂S** See *Rubidium sulfate*.
**O₄Rh₂Zn** Zinc rhodate(III), 4171*c*.
**O₄S** Sulfur oxide, 8910*e*.
**O₄SSn** Tin sulfate, 3297*b*.
**O₄SSr** See *Celestite; Strontium sulfate*.
**O₄STl₂** See *Thallium sulfate*.
**O₄SZn** See *Zinc sulfate*.
**O₄S₂Zn** Zinc dithionite, 409*f*, P 406*b*, 6410*g*.
**O₄ScV** Scandium vanadate(V), 6033*a*.
**O₄SiSr₂** Strontium silicate, 3723*a*, 8277*f*.
**O₄SiTh** See *Thorite*.
**O₄SiZn₂** See *Willemite; Zinc silicate*.
**O₄SiZr** (See also *Zircon*.) Zirconium silicate, 3723*a*.
**O₄SmV** Samarium vanadate(V), 6033*b*.
**O₄SnSr₂** Strontium stannate, 3723*a*.
**O₄SnZn₂** Zinc stannate, 3723*a*.
**O₄Sn₂** Tin oxide, 2108*c*.
**O₄SrU** Strontium uranate, 3709*i*, 3710*c*.
**O₄SrV₂** Strontium vanadate(III), 4172*b*
**O₄SrW** Strontium tungstate, 3722*i*.
**O₄TbV** Terbium vanadate(V), 6033*b*.
**O₄TlV** Thallium vanadate(V), 6033*a*.
**O₄TmV** Thulium vanadate(V), 6033*b*.
**O₄U** Uranium peroxide, 2890*a*, 8270*c*, 8529*g*.
**O₄VY** Yttrium vanadate(V), 6033*b*.
**O₄VYb** Ytterbium vanadate(V), 6033*b*.
**O₄VZn₂** Zinc vanadate(IV), 4172*b*.
**O₄V₂Zn** Zinc vanadate(III), 4171*c*, 4172*b*. 6519*d*.
**O₄WZn** Zinc tungstate, 3722*i*.
**O₄P₂** See *Phosphorus oxide*.
**O₄Pb₂S** Lead sulfate, 871*a*, 3720*b*, 4968*c*.
**O₄Sr₂W** Strontium tungstate, 3722*i*.
**O₅Ta₂** See *Tantalum oxide*.
**O₅V₂** See *Vanadium oxide*.
**O₅W₂** See *Tungsten oxide*.
**O₆P₄** Phosphorus oxide, 6015*h*.
**O₆P₄S₄** Phosphorus oxysulfide, 6015*h*
**O₆PbS₂** See *Lead dithionate*.
**O₆PbSb₂** Lead antimonate, 2392*g*.
**O₆PbV₂** Lead vanadate(V), 8247*f*.
**O₆Pb₂S** Lead sulfate, 4968*c*.
**O₆SU** Uranyl sulfate, 497*d*, 1636*h*, 3745*i*, 4138*e*, 5671*g*.
**O₆S₂Sr** See *Strontium dithionate*.
**O₆Sb₂Sn** Tin antimonate, 2392*g*.
**O₆Sb₂Sr** Strontium antimonate, 2392*g*.
**O₆Sb₂Zn** Zinc antimonate, 2392*g*
**O₆SrV₂** Strontium vanadate(V), 8247*f*.
**O₆Sr₂W** Strontium tungstate, 3722*i*.
**O₆V₂Zn** Zinc vanadate(V), 8247*f*.
**O₇P₂Zn₂** Zinc pyrophosphate, 3723*a*, 8971*h*.
**O₇P₂Zr₂** Zirconium pyrophosphate, 3723*a*.
**O₇Pb₂S** + H₂O Lead sulfate, 4968*d*.
**O₇SZn₄** Zinc sulfate, 2492*i*.
**O₇TiV₂** Titanium vanadate(V), 7803*b*.
**O₈P₂Pb₃** See *Lead phosphate*.
**O₈P₂Sr₃** See *Strontium phosphate*.
**O₈P₂Zn₃** Zinc phosphate, 2399*h*, 3723*a*, 4528*f*.
**O₈Pb₂S** Lead sulfate, 4968*c*.
**O₈RbS₂V** + 12H₂O Rubidium vanadium alum, 8785*i*.
**O₈S₂Sn** Tin sulfate, 9150*e*.
**O₈S₂TlV** + 12H₂O Thallium vanadium alum, 8785*i*.
**O₈S₂Zr** See *Zirconium sulfate*.
**O₈U₂** See *Uranium oxide*.
**O₁₀P₄** Phosphorus oxide, 6015*h*.
**O₁₁P₂U₃** Uranyl pyrophosphate, 8952*i*.
**O₁₁P₂Zr₃** Zirconyl phosphate, 3313*e*.
**O₁₁W₄** Tungsten oxide, 5707*i*.
**O₁₁Zn₂V₄** Zinc vanadate(IV), 4171*c*.
**O₁₂S₂Ti₂** See *Titanium sulfate*.
**O₁₆PbU₄** See *Fourmarierite*.
**O₁₆P₄Sn₂** Tin phosphate, 7785*c*.
**O₁₆P₄Th₂** Thorium phosphate, 7785*c*.
**O₁₈S₂U₂** + 9H₂O Uranyl sulfate, 3293*d*.
**O₈₀P₂Sr₃W₂₄** + 48H₂O Strontium phosphotungstate, 2537*g*.
**O₈₀P₂W₂₄Zn₃** + 48H₂O Zinc phosphotungstate, 7366*c*.
**OsS₄** Osmium sulfide, 7363*a*.

**P₂S₃** See *Phosphorous sulfide*.
**P₂S₅** See *Phosphorus sulfide*.
**P₂Zn₃** Zinc phosphide, 3140*d*, 3967*fg*, 6311*f*.
**P₄S₃** See *Phosphorus sulfide*.
**P₄S₇** See *Phosphorus sulfide*.
**PbS** See *Galena; Lead sulfide*.
**PbS₄Sb₂** (See also *Zinckenite*.) Lead thioantimonite, 8936*h*.
**PbSe** See *Lead selenide*.
**PbTe** See *Altaite; Lead telluride*.
**Pb₁₃S₁₈Sb₈** (See also *Fülöppite*.) Lead thioantimonite, 8936*h*.
**Pb₁₃S₇Sb₂** See *Meneghinite*.
**Pb₁₉S₁₁Sb₄** See *Boulangerite; Falkmanite, Venerite*.
**Pb₁₉S₁₁Sb₈** (See also *Plagionite*.) Lead thioantimonite, 8936*h*.
**Pb₆S₈Sb₂** Lead thioantimonite, 8936*h*.
**Pb₇S₇Sb₁₂** Lead thioantimonite, 8936*h*
**Pb₉S₁₁Sb₈** (See also *Semseyite*.) Lead thioantimonite, 8936*h*.
**PdS** Palladium sulfide, 7363*a*.
**PtS₂** Platinum sulfide, 7363*a*.
**PuSi₂** Plutonium silicide, 6484*h*.
**Pu₂S₃** Plutonium sulfide, 3709*i*.

**RbSi₂** Rubidium silicide, 5321*e*.
**Re₂S₇** Rhenium sulfide, 2507*d*.
**Rh₂S₃** Rhodium sulfide, 7363*a*
**Ru₂S₃** Ruthenium sulfide, 7363*a*.

**SSi** Silicon sulfide, 2510*h*, 4612*b*, P 4624*i*, P 7891*f*, P 7893*f*.
**SSn** See *Tin sulfide*.
**SSr** See *Strontium sulfide*.
**STl₂** See *Thallium sulfide*.
**SZn** See *Sphalerite; Wurtzite; Zinc sulfide*
**S₂Si** Silicon sulfide, 2881*e*, 4630*e*.
**S₂Ti** Titanium sulfide, P 1959*g*.
**S₂W** Tungsten sulfide, P 1959*g*, P 2220*i*, 5273*d*, 5321*i*.
**S₂Zr** Zirconium sulfide, 483*b*
**S₃Sb₂** See *Antimony sulfide; Stibnite*.
**S₃W** Tungsten sulfide, P 3188*f*, 5273*e*, 5321*i*
**S₄Sb₂Sn** Tin thioantimonite, 6902*b*.
**S₄SnTl₄** Thallium thiostannate, 63*h*
**S₅Sb₂** Antimony sulfide, 3161*i*.
**SbSn**, 4917*a*.
**SbZn**, 3260*g*.
**Sb₂Se₃** Antimony selenide, 483*b*, 8896*b*.
**Sb₂Tl₇**, 4917*a*.
**SeSi** Silicon selenide, 2510*h*.
**SeSn** Tin selenide, 483*a*, 2510*h*, 8896*a*
**SeSr** Strontium selenide, 2515*f*, 3723*a*, 6508*i*, 8277*f*.
**SeTl₂** Thallium selenide, 483*a*.
**SeZn** Zinc selenide, 5670*h*.
**Se₂U** Uranium selenide, 483*b*.
**Se₂V** Vanadium selenide, 8896*b*.
**Se₂W** Tungsten selenide, 5322*a*.
**Se₂Zr** Zirconium selenide, 483*b*, 8896*b*
**Se₃W** Tungsten selenide, 5322*a*.
**SiTe** Silicon telluride, 2510*h*.
**SiU** Uranium silicide, 6484*i*.
**SiU₂** Uranium silicide, 3709*i*, 6485*a*.
**Si₂U** Uranium silicide, 6484*h*.
**Si₃U₂** Uranium silicide, 3709*i*, 6485*a*.
**SnTe** Tin telluride, 2510*h*.
**Sn₃U**, 7770*e*.

# IV. NUMERICAL PATENT INDEX

## BELGIAN PATENTS

| PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. | PAT. NO. | C. A. COL. |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 467190- | 989*a* | 470022-1202*i* | | 470772-1170*g* | | 471772-1436*g* | | 472643- 992*c* | | 475010-4022*e* | | 475891-4623*i* | | 476659-4807*d* | |
| 517-1160*e* | | 065-1160*e* | | 891- 976*b* | | 877-1170*h* | | 944-3770*a* | | 037-3972*d* | | 892-4623*i* | | 669-4820*b* | |
| 699-1079*a* | | 077-1160*d* | | 892- 976*c* | | 941-1436*h* | | 473700-4030*f* | | 146-3748*e* | | 893-4624*a* | | 700-4820*d* | |
| 468301-1148*f* | | 160-1167*a* | | 893-1160*i* | | 993-1218*b* | | 726-3979*b* | | 230-4022*a* | | 476001-5036*c* | | 728-4808*f* | |
| 469140-2396*g* | | 240-1200*b* | | 471025- 988*h* | | 472009-3733*g* | | 742-3967*i* | | 291-4299*h* | | 174-4896*c* | | 764-4869*d* | |
| 188-1170*h* | | 254-1167*b* | | 030-1166*i* | | 019-4290*c* | | 925-4295*f* | | 441-3734*b* | | 346-4828*d* | | 830-4835*b* | |
| 299-1436*g* | | 384- 992*b* | | 328-1126*c* | | 084- 958*c* | | 474148-3984*b* | | 471-4042*g* | | 394-3967*i* | | 880-4877*f* | |
| 692-1437*c* | | 610-1202*e* | | 385-1436*i* | | 218-1167*b* | | 416-4033*c* | | 498-3994*d* | | 465-4877*e* | | 972-4854*i* | |
| 825-1437*d* | | 620-3733*h* | | 386-4022*f* | | 480-1170*e* | | 417-4033*d* | | 585-3994*a* | | 488-4877*c* | | 477025-4854*i* | |
| 925-1170*e* | | 621-4205*g* | | 422-3978*g* | | 566-1148*e* | | 904-4008*h* | | 732-3732*i* | | 489-4877*e* | | 060-4800*b* | |
| 470021-1160*f* | | 768-1146*c* | | 440-1217*i* | | | | | | | | | | | |

## BRITISH PATENTS

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| 472949-9079*a* | 572770-7658*e* | 572986-9526*c* | 573238-5729*i* | 73510-2234*a* | 573759-3242*i* | 573975-4594*e* | 574716- 886*c* | |
| 569036-9522*c* | 771-7352*h* | 987-7745*c* | 240-5938*h* | 514-2740*g* | 761-4006*g* | 982-4835*g* | 725- 512*b* | |
| 042-9534*i* | 776-7404*g* | 989-9527*g* | 241-5900*h* | 521-1709*f* | 763-4288*c* | 983-4589*c* | 736-1883*h* | |
| 076-9408*g* | 778-7712*d* | 994-9536*a* | 244 6244*h* | 524-2004*d* | 767-2786*d* | 984-4588*b* | 737- 555*g* | |
| 085-9082*f* | 779-7404*d* | 995-9448*e* | 247 6220*b* | 525-2028*a* | 768-4023*b* | 985-4588*h* | 738-1058*h* | |
| 096-9078*f* | 782-7406*a* | 997-7275*a* | 263-5902*b* | 527-2219*b* | 770-4296*h* | 988-2024*f* | 739- 902*h* | |
| 097-9078*g* | 790-7714*h* | 998-7633*g* | 264-6003*f* | 529-2803*g* | 771-3738*a* | 574247- 900*h* | 742-1064*g* | |
| 098-9078*g* | 793-7677*e* | 999-7360*a* | 266-6222*g* | 530 2803*h* | 775-4014*d* | 252- 876*g* | 771- 826*b* | |
| 099-9082*d* | 796-7405*b* | 573001-4524*i* | 270 6866*e* | 531-3025*f* | 776-4008*h* | 266- 895*b* | 773-1067*b* | |
| 100-9082*e* | 798-7756*a* | 002-4589*e* | 285-5649*b* | 532-2216*e* | 778-4284*d* | 272- 895*c* | 776- 839*b* | |
| 101-9082*e* | 800-7652*i* | 006-4828*d* | 286-5649*b* | 533-2806*e* | 779-4030*d* | 275- 830*i* | 785- 855*f* | |
| 105 8757*f* | 801-7402*i* | 013-4846*b* | 289-5673*a* | 536-2024*e* | 785-4052*a* | 279-1067*b* | 790-2030*d* | |
| 112-9310*f* | 803-7504*c* | 014-6236*g* | 295-6218*d* | 539-1708*h* | 786-1918*c* | 282- 814*c* | 791-2030*e* | |
| 185-9129*b* | 806-7677*i* | 015-5967*d* | 304-5729*d* | 544-2532*b* | 787-2004*a* | 321- 500*h* | 792-2030*f* | |
| 186-8919*e* | 810-7952*f* | 016-6001*h* | 306-6001*c* | 550-2518*d* | 788-4284*h* | 341- 856*c* | 800- 844*e* | |
| 187-9429*f* | 814-7401*b* | 017-6227*f* | 308-6863*f* | 558-2784*h* | 789-1915*g* | 358-1050*b* | 804- 902*d* | |
| 188 9476*b* | 817-7660*g* | 018-5031*c* | 310-5726*i* | 559-3023*b* | 790-4022*c* | 360- 450*c* | 807- 883*i* | |
| 363 9088*b* | 818-7646*i* | 022-5729*a* | 318-6221*a* | 561-3024*d* | 795-3736*a* | 382- 900*h* | *814-2443*d* | |
| 409-9530*c* | 821-7450*b* | 024-4890*i* | 324-6000*c* | 562-2223*g* | 798-3738*b* | 408- 856*g* | 818-1994*f* | |
| 413-9527*f* | 822 7720*a* | 025-8159*g* | 325-6832*i* | 563-3027*d* | 805-4049*f* | 445- 844*i* | 826-1994*b* | |
| 414-9527*f* | 823-7720*b* | 026-4881*b* | 326 6868*a* | 564-2566*g* | 809-4052*a* | 454- 901*c* | 828- 855*i* | |
| 415-9527*f* | 825-7273*f* | 044-5046*d* | 327 5967*g* | 565-3026*c* | 811-4046*g* | 459- 901*b* | 832-1927*h* | |
| 570159 9175*e* | 826-7756*b* | 045-4876*i* | 333-6863*g* | 567-2805*e* | 812-4014*d* | 473- 825*d* | 834- 895*a* | |
| 111 9149*b* | 827-7753*i* | 046-6218*b* | 334-7039*a* | 573-3026*a* | 813-3984*a* | 477-1004*d* | 835-2024*e* | |
| 631-9475*b* | 828-7751*f* | 047-4835*a* | 336-6565*f* | 574-2786*c* | 814-3950*d* | 479- 554*g* | 839-2217*d* | |
| 696-9176*h* | 829-7751*h* | 049-5999*e* | 337-6566*a* | 575-3028*i* | 815-4032*h* | 482- 901*g* | 842-1926*d* | |
| 745-9429*a* | 830-4876*i* | 050-4890*e* | 338-6566*a* | 576-2646*a* | 819-4003*i* | 483-1057*d* | 843-1936*d* | |
| 571954 9176*f* | 835-7511*b* | 051-5034*a* | 339-6860*e* | 578-2738*f* | 826-4030*b* | 485- 825*b* | 851-1980*f* | |
| 572352-7650*a* | 836-7609*d* | 053-4892*c* | 340-6818*g* | 589-2713*d* | 831-4020*h* | 486- 821*e* | 863-2035*b* | |
| 124-7611*a* | 843-7608*e* | 054-5992*h* | 347-6812*a* | 591-2648*f* | 832-3970*b* | 488- 900*i* | 866-1904*d* | |
| 434-7611*a* | 844-7713*e* | 055-6000*g* | 364-6810*e* | 592-3032*c* | 834-4023*a* | 494- 500*g* | 870-1666*b* | |
| 516 7668*g* | 848-7360*h* | 057-5729*e* | 366- 901*f* | 593-2566*c* | 835-4051*h* | 504- 886*g* | 872-1915*d* | |
| 572-7756*b* | 852-9464*a* | 058-5968*a* | 368-5999*c* | 594-3024*f* | 839-4050*f* | 511- 555*e* | 874-1984*c* | |
| 637-6781*g* | 853-7403*i* | 062-5991*e* | 369-6866*d* | 595-2568*g* | 840-4050*g* | 514- 825*f* | 875-1712*b* | |
| 638-6825*h* | 857-2814*e* | 063-5649*c* | 371-6762*f* | 596-3027*b* | 841-4050*g* | 515- 825*c* | 879-1984*b* | |
| 640-6859*a* | 858-7750*g* | 067-4899*g* | 375-6832*i* | 597-3040*g* | 842-4052*b* | 518- 856*b* | 881-1884*a* | |
| 641-6782*g* | 860-7745*b* | 071-5951*a* | 376-7035*c* | 598-3772*h* | 844-5030*d* | 532- 825*f* | 882-1986*c* | |
| 642-6781*f* | 861-9020*g* | 077-4624*h* | 377-7046*e* | 599-3039*b* | 845-4897*a* | 535- 844*g* | 885-1618*a* | |
| 643-6781*c* | 862-9535*i* | 079-4872*g* | 383-6798*c* | 616-2569*a* | 848-4588*e* | 544- 852*c* | 892-1955*i* | |
| 644-6826*a* | 866-7358*b* | 081-5967*h* | 384-7038*h* | 622-2814*f* | 856-4800*a* | 548-1050*b* | 898-2024*i* | |
| 645 7037*e* | 868-7686*b* | 083-4894*c* | 386-6820*a* | 623-2567*i* | 865-4021*d* | 549-1059*a* | 899-1916*i* | |
| 656 6563*a* | 875-9530*c* | 085-5729*c* | 389-6562*d* | 624-2223*f* | 866-4040*g* | 558- 832*d* | 901-2024*f* | |
| 662-6795*i* | 878-9531*g* | 086-4807*b* | 393-6763*d* | 625-3027*c* | 867-4822*h* | 567- 843*e* | 903-2025*a* | |
| 664-6781*c* | 885-9419*g* | 087-6239*a* | 394-6532*e* | 626-2814*g* | 868-4822*h* | 577- 831*a* | 911-1618*b* | |
| 669-7036*i* | 886-7669*a* | 089-5729*i* | 403-6826*d* | 627-3027*f* | 870-4003*h* | 580- 788*c* | 919-2025*b* | |
| 670-6864*g* | 891-9079*a* | 105-3735*i* | 408-6770*d* | 630-3025*c* | 872-5033*b* | 583- 555*c* | 936-2629*h* | |
| 671-7257*h* | 895-9447*d* | 109-5886*f* | 410-6804*a* | 631-2627*h* | 873-4843*e* | 598- 554*e* | 939-1957*e* | |
| 672-6563*h* | 897-7274*h* | 110-5990*h* | 430-6861*a* | 636-2525*a* | 878-4894*i* | 606- 901*c* | 956-1990*f* | |
| 676-6864*h* | 898-7953*c* | 111-5929*c* | 432-6833*e* | 642-3029*g* | 887-4899*c* | 621- 849*a* | 958-2215*h* | |
| 679-6804*d* | 899-8758*b* | 112-5991*g* | 437-6863*e* | 648-2634*e* | 888-4021*c* | 623- 901*d* | 963-1951*b* | |
| 683-6861*h* | 902-9477*e* | 113-5729*g* | 445-6811*g* | 651-2637*e* | 902-4784*g* | 641- 825*e* | 971-2039*a* | |
| 690-6797*b* | 905-9408*e* | 114-5999*e* | 449-6804*e* | 659-2768*a* | 903-4878*a* | 642- 902*b* | 973-1955*f* | |
| 695-7755*a* | 906-9446*g* | 115-6000*d* | 455-6865*e* | 662-2795*h* | 906-5033*e* | 645-1057*d* | 979-1927*a* | |
| 696-6819*a* | 910-9528*e* | 116-5888*b* | 456-7037*b* | 664-2734*a* | 907-4824*d* | 646- 895*a* | 981-1990*e* | |
| 697-7677*g* | 914-9528*e* | 117-5729*h* | 466-6563*c* | 670-2629*a* | 909-5044*g* | 648-1049*h* | 984-1884*f* | |
| 703-7404*i* | 915-9080*f* | 120-6231*e* | 467-2632*e* | 689-2732*e* | 917-3735*h* | 649- 816*a* | 995-1904*d* | |
| 706-7678*c* | 917-9421*a* | 142-5918*c* | 468-2223*h* | 693-3033*b* | 923-4835*h* | 652- 832*c* | 996-1666*d* | |
| 720-6859*c* | 919-9520*h* | 145-5977*i* | 470-6844*h* | 699-3994*d* | 924-4836*a* | 653-1051*b* | 999-1665*a* | |
| 728-7685*c* | 923-9518*i* | 147-5952*g* | 471-6764*a* | 702-2634*f* | 925-4836*a* | 661- 849*c* | 575544-9433*d* | |
| 730-7744*g* | 946-9531*i* | 148-5907*i* | 472-6764*b* | 711-2719*d* | 927-5030*b* | 678-1049*d* | 675-9478*e* | |
| 738-7753*a* | 950-8918*g* | 149-5728*i* | 473-6805*a* | 712-2732*b* | 928-5041*g* | 679-1057*a* | 696-9478*e* | |
| 740-7686*c* | 954-9497*g* | 154-6224*f* | 474-6865*a* | 719-2741*c* | 930-4810*b* | 680- 876*g* | 576263-9475*b* | |
| 741-7756*e* | 958-9302*a* | 169-5929*d* | 475-7035*b* | 720-3026*d* | 932-4897 | 681- 876*g* | 644- 855*g* | |
| 747-7720*d* | 959-9448*e* | 171-5888*i* | 476-7045*b* | 721-3047*a* | 933-5051 | 682- 877*a* | 577256-9449*a* | |
| 748-6865*c* | 960-9019*e* | 175-6221*g* | 477-7045*a* | 722-2629*d* | 937-4811*g* | 688- 901*d* | 587810- 689*a* | |
| 752-7502*d* | 961-9019*f* | 176-5732*b* | 478-7044*g* | 723-4288*a* | 938-4620*g* | 689- 554*c* | 885- 700*i* | |
| 753-7746*f* | 962-9448*f* | 180-5969*a* | 479-7044*i* | 724-4287*g* | 939-4825*b* | 692- 876*h* | 588503-2463*c* | |
| 759-6781*d* | 963-9078*h* | 186-5909*a* | 482-7266*b* | 727-4284*a* | 943-4826*b* | 694-1049*f* | 592827- 689*e* | |
| 762-7638*e* | 964-9020*a* | 201-5918*b* | 484-6819*i* | 741-3990*c* | 958-5050*f* | 698- 849*a* | 970- 866*i* | |
| 763-7638*f* | 965-9408*d* | 202-6222*b* | 495-7037*d* | 745-3735*i* | 960-4896*f* | 707- 790*a* | 593023- 513*c* | |
| 765-7668*h* | 978-9020*f* | 216-5902*b* | 499-6811*d* | 752-3021*i* | 961-4791*f* | 711- 554*i* | 024-5048*d* | |
| 767-7753*b* | 982-9398*f* | 228-5952*a* | 507-1795*f* | 756-4283*e* | 965-4891*a* | 712-1067*c* | -8401*d* | |
| 768-7744*i* | 985-9520*a* | 230-5881*f* | 509-2229*a* | 757-4285*e* | 966-4899*h* | 713- 901*a* | 571-3838*d* | |

* Corrected patent number.

No. Col.

593734-3842*d*
596293- 351*b*
362- 687*h*
597091- 350*h*
598175- 698*h*
533- 699*d*
691- 262*e*
911- 688*f*
599702- 699*a*
600090-8166*g*
568-3157*e*
703-8174*c*
739-8174*e*
827- 253*a*
893- 248*c*
601266-8161*h*
802- 678*a*
602011- 666*e*
025-1809*f*
238- 664*h*
332- 253*e*
351- 254*g*
724- 826*a*
755- 692*f*
814- 825*d*
816-2381*a*
832- 677*i*
833- 405*a*
851-1224*e*
866-2366*g*
878-1574*c*
879- 49*i*
880- 681*i*
882- 696*i*
934- 686*a*
974- 444*f*
975-1575*g*
603069- 683*i*
070-1059*e*
076- 442*c*
081-2423*g*
082- 844*b*
099- 663*i*
103- 691*g*
133-2381*c*
160- 691*i*
167- 697*i*
175- 669*d*
189- 676*f*
220- 685*h*
256-7955*b*
267-1574*e*
280-3300*i*
289- 725*c*
290- 725*e*
304- 667*h*
317-1576*a*
338-2380*b*
344- 665*a*
422-1808*h*
423-1228*h*
439-1436*d*
442-1067*d*
463- 690*c*
471-1049*i*
492-4156*h*
495-1576*d*
496-1576*h*
497- 681*e*
498- 681*b*
533-1068*b*
536- 692*b*
537- 678*f*
616- 690*a*
699-1051*a*
700-1051*b*
735-2382*a*
753-7694*i*
779-2380*e*
794-2381*b*
809-1433*d*
811- 697*e*
815-1049*i*
823-1050*c*
824-1050*h*
825-1793*g*
855- 660*h*
987-4497*i*
604011- 907*d*
032- 688*g*
073-7236*g*
074-7236*h*
075-7236*i*
119-1137*a*
179- 674*h*
204- 686*i*
215-7242*d*
217- 54*i*
259-1061*c*
269- 672*a*
278- 390*a*
279- 698*c*

No. Col.

604282-8182*a*
284- 443*f*
328- 700*f*
351-4499*a*
360- 665*d*
363- 682*h*
375-1067*f*
376- 840*c*
377- 844*c*
386- 668*g*
387- 669*a*
394- 687*b*
491- 868*b*
492-1051*g*
498- 365*e*
535-2222*d*
544- 905*d*
563-1158*h*
579-1434*c*
580- 905*h*
599-1217*a*
600-4155*i*
675- 822*c*
677- 509*d*
679- 682*b*
680- 682*d*
687- 958*h*
693-1060*g*
760- 670*i*
830-1179*d*
831- 428*h*
832- 414*h*
833-3626*i*
864- 404*i*
874 408*d*
875- 415*e*
879-1220*a*
884- 668*e*
901- 686*b*
902-1221*b*
916-7705*g*
921- 857*e*
959-2636*e*
976-1537*g*
981-8170*d*
983-2235*g*
985-1223*g*
605021- 690*f*
031- 693*a*
107- 693*c*
108-5530*f*
208- 679*b*
277-1793*d*
284- 680*f*
311- 677*a*
318-2364*e*
339- 510*b*
357- 404*h*
393-1067*h*
402- 667*a*
442- 5528*g*
444-1056*g*
448-2879*g*
456-1176*c*
466- 863*b*
471-1436*c*
472-1159*f*
548-1061*a*
599-1202*f*
606- 906*g*
617- 415*g*
633- 380*e*
634- 380*g*
635- 381*a*
653- 426*a*
693-1437*b*
694-1159*e*
701- 862*g*
707-1161*c*
710- 822*d*
714- 337*c*
724- 958*c*
737-2233*e*
772- 679*c*
784 2220*d*
838- 379*i*
848- 670*b*
849- 670*f*
861-3158*a*
863-4050*h*
868-3188*f*
870-1068*b*
912- 404*e*
915-1064*d*
916-1064*f*
918- 690*e*
922-1064*i*
929-1223*a*
936-1179*e*
952- 672*g*
973- 660*d*
983-1159*d*

No. Col.

605995- 426*b*
999- 693*h*
606008-1440*e*
026- 677*g*
037-1061*i*
050-1224*f*
080- 905*b*
085-1224*g*
095- 364*g*
096- 672*b*
097-2817*f*
099-2817*i*
112- 382*b*
116-2817*g*
150-2818*g*
181-3471*h*
182-3471*c*
187-3470*e*
188-3468*a*
189-3468*b*
190-3468*c*
191-3468*d*
192-3468*g*
193-3468*h*
194 3469*a*
195-3469*c*
196-3467*f*
197-3469*d*
198-3469*e*
199-3469*f*
200-3469*h*
230-7949*d*
261-3464*c*
273-5037*g*
301-1607*h*
317-3462*f*
321-2408*a*
364-1609*h*
400-1608*c*
407-1562*e*
431-1158*a*
456-2381*e*
480-1533*d*
482-1158*g*
554-1433*b*
559-1158*b*
564-1435*g*
568-2380*c*
607-3839*c*
608 4692*i*
610-3209*a*
636-2920*c*
637-6146*d*
638 6146*d*
639 6146*d*
640-6146*d*
641-6146*d*
642-6146*d*
643-6146*d*
644-6146*d*
661-1605*e*
664-1958*g*
665 1437*g*
681-2381*f*
685-1219*b*
702-2034*e*
714-3473*b*
716-1608*f*
731-7695*c*
745-2380*f*
764-1442*i*
765-1552*c*
797-1958*a*
798 1958*i*
799-1958*c*
800-1957*i*
811-1958*d*
814-8153*e*
863-1171*b*
872-8146*c*
898-2630*c*
901-1436*e*
930-1709*a*
940-1158*h*
954-4290*i*
962-1436*e*
965-1440*a*
607003-1190*d*
004-3982*a*
008-1158*d*
064-1202*c*
103-1444*e*
104-1606*b*
113-2233*i*
130-2222*a*
134-2642*a*
186-1158*f*
204-2220*c*
209- 990*b*
219-7703*h*
222-1158*c*
231-2380*i*

No. Col.

607233-1211*g*
253-1222*b*
256-1538*h*
258-3462*i*
289-3472*h*
296-1172*c*
309-1158*e*
326-1525*c*
328-7704*a*
366-2224*d*
367-2645*a*
426-1504*i*
427-1505*b*
445-1928*c*
467-3205*a*
489-1804*d*
490-1804*e*
499-3659*i*
538-1806*h*
539-4688*c*
540-1273*h*
608 9470*d*
664-1534*b*
720-4691*a*
721-2003*g*
762-2142*f*
765 2233*b*
772-4696*b*
792-7816*g*
811-1607*i*
831-2233*h*
888-1609*c*
911 1609*i*
918 2781*c*
920-2232*i*
944 2919*i*
945 3191*i*
946-3192*b*
947-3192*c*
948-3192*c*
949 3192*e*
955 4483*b*
956-4483*i*
980-2376*h*
608067 2238*e*
068 1929*c*
069-1929*c*
080-2920*h*
111-2628*e*
115-2441*a*
140-1532*h*
143-2382*b*
146-2006*g*
165 2227*e*
186-3662*e*
208-2617*f*
237-2381*i*
272-5043*i*
295-5048*g*
296-5049*a*
478-4683*b*
482-5052*f*
492-4697*b*
516-2814*i*
520-3302*b*
538-4702*c*
539-2224*e*
540-4700*f*
565-4700*g*
595-1552*g*
605-4460*g*
606-4460*h*
612 1537*a*
697-2382*c*
698-3658*i*
885-1536*h*
897-8159*d*
943 1586*h*
955-3237*i*
956-3238*a*
609033-4591*g*
039-8148*a*
040-4488*b*
138-3235*f*
156 3236*c*
166-1537*i*
184-2223*i*
275-7695*e*
299-4476*a*
300-4476*a*
301-4476*a*
302-4476*c*
324-2221*b*
364-1915*e*
454-2640*g*
455-2641*b*
467-2805*e*
482-2636*h*
487-2745*a*
488-2242*a*
505 4436*c*
507-2221*a*

No. Col.

609533-2226*c*
535-1902*a*
571-2637*g*
585-8163*b*
594-1666*a*
609-2036*e*
689-1308*e*
692-2038*h*
722-1796*g*
731-1537*e*
756-1536*i*
763-2240*e*
785-2380*d*
790-2468*d*
792-2228*h*
807-1928*h*
812-2642*e*
814-4164*b*
821-1586*b*
825-2228*f*
841-1795*a*
850 1306*e*
871 1228*d*
924-1813*d*
910-2035*e*
994-2808*d*
610005-1537*b*
009-1559*h*
017-1558*e*
033-1666*a*
038-1802*i*
056-1803*d*
064-7845*a*
080 1538*i*
117-3205*h*
126-3207*a*
135 4052*b*
136 4519*a*
138-4052*d*
139-4052*f*
166 3029*e*
172-3439*i*
186-1956*e*
187-2215*h*
188 2216*f*
189 3453*i*
198-3462*e*
203-3228*g*
223 4283*d*
263-3455*i*
264-4519*b*
293-3459*d*
304-4519*d*
311-4052*f*
326-3439*i*
341-2366*f*
379-4292*g*
397-4287*f*
421-4007*d*
505-4289*e*
546 2408*b*
548-8625*b*
549-8625*d*
566-7848*e*
569-7849*e*
570-2742*e*
613-4284*i*
619-2646*d*
649-2742*c*
703-3188*d*
710 2791*e*
713-2566*f*
714-3198*b*
731-2742*d*
752-2632*b*
772 3204*h*
808-3205*f*
814-2774*h*
843-2628*a*
857-2440*h*
859-2742*f*
876-2643*b*
878-2567*a*
898-3441*d*
899-3441*e*
915-2646*f*
952-4686*h*
611012-4050*b*
013-4050*d*
072-4700*d*
080-2048*f*
081-4013*c*
100-4106*g*
106-9388*g*
208-7506*i*
210-3151*e*
213-3194*a*
234-7187*c*
235-3206*c*
242-3463*a*
255-5419*d*
256-5419*f*

No. Col.

611303-7498*g*
316-3454*f*
320-3203*f*
353-3197*d*
411-3157*f*
417-3132*i*
425-3441*f*
430-3157*h*
442-2753*b*
476-3455*a*
494-4050*a*
495-3238*b*
518-5427*c*
529-4298*h*
551-3040*a*
554-2641*h*
593-3440*g*
600 3445*d*
665-3197*a*
674-4589*b*
682-2785*i*
700-4517*a*
716-4297*b*
786 7706*a*
800 2152*b*
851 3041*c*
905-3189*f*
906-3339*c*
915 3437*g*
917-2756*c*
919-2804*c*
984-6926*f*
991-3045*e*
612014-3220*c*
056 3235*i*
077-3029*i*
107 3339*d*
109-3190*i*
122-2756*g*
125 5033*g*
169-3219*d*
174 9466*b*
222 7709*d*
266 3238*c*
271-3114*e*
311-2819*b*
312 2819*d*
314-3469*i*
322-3986*a*
323-2740*a*
346 3442*i*
390-3186*i*
429-3228*i*
517 3157*g*
530-3158*h*
559-3119*h*
589-3027*d*
590-3439*a*
603-3158*f*
615-3159*i*
617-2920*i*
622-6617*d*
616-6648*b*
667-3637*d*
692-2878*e*
693-6670*d*
712-4286*i*
806-3634*d*
807-3634*d*
808 5206*i*
822-4286*i*
893-4292*i*
980-5038*d*
992-4284*g*
613016-6666*d*
040-5047*b*
047-3457*a*
076-8166*i*
080-4429*i*
109-5809*f*
110-8144*i*
111-5800*e*
130-8162*e*
139-3954*e*
168-4702*e*
195-3954*d*
207-3166*i*
210-5046*f*
219-4518*e*
276-4304*g*
280-4203*b*
317-4293*f*
319-8165*a*
367-5799*g*
444-4301*g*
458-4159*d*
463-3605*e*
489-3574*a*
490-3574*c*
491-3574*c*

No. Col.

613492-3574*d*
509-3605*h*
519-4295*h*
564-4402*d*
648-3656*i*
649-4682*e*
651-3599*b*
684-3604*i*
696-5420*b*
704-4692*d*
705-4692*f*
735-5421*a*
770-3845*a*
775-5415*i*
778-4433*d*
781-8168*h*
782-4487*b*
807-5414*e*
824-4702*h*
834-3839*a*
835-3638*h*
836-8170*e*
850-3628*e*
853 5411*d*
867-3844*g*
926-3844*i*
938-3250*c*
939 8158*i*
980 8163*d*
616033-4466*c*
982-8164*a*
983-8164*a*
992-3490*e*
993-3339*b*
611010-4685*d*
914 4153*a*
018-4696*f*
032-5049*c*
038-4152*b*
039 4152*d*
053 3576*b*
056 3835*i*
072-5050*i*
131 3573*a*
164-4703*e*
165 4682*i*
191 7696*a*
193 5810*b*
194 5810*d*
215-3813*h*
235 3847*i*
276 3984*i*
295-4090*i*
354 7694*i*
389 4516*a*
391-4184*i*
406-3994*i*
407-8692*h*
433 4011*a*
443-3984*a*
456 5032*i*
471-8602*f*
532 4029*a*
533-4029*d*
538 4705*d*
581 3981*b*
625-6865*e*
626-4002*d*
636-4003*a*
640-3984*g*
652-4020*a*
763-5800*i*
772-8105*h*
916-7507*a*
926-5427*c*
931-4693*c*
938-5425*f*
969-8164*i*
983-7510*e*
990-4434*b*
615006-7512*g*
079-5413*b*
136-5417*c*
137-5413*e*
190-4504*i*
205 8293*e*
210-8158*c*
252-7849*a*
310-9079*g*
328-7516*f*
335-4894*a*
349-4210*a*
363-5639*g*
370-5036*f*
381-4447*f*
404-9085*h*
419-9079*h*
429-4895*g*
438-3984*d*
455-7974*d*
513-4412*f*
521-7953*h*
523-7954*a*

No. Col.

615543-5791*g*
566-4005*a*
571-5790*g*
606-8146*f*
624-5181*i*
628-4687*g*
634-4685*g*
641-4435*d*
647-3994*i*
665-4500*e*
685-7850*h*
697-8166*c*
705-5183*b*
715-5412*a*
720-4209*a*
770-4450*d*
772-4431*d*
793-9079*a*
807-4449*g*
837-8165*g*
838-4488*i*
847-4433*c*
884-5602*i*
901-5805*h*
908-5805*c*
909-5805*i*
954-5602*h*
980-3984*h*
616033-4466*c*
044-4874*b*
073-5804*g*
103-4135*b*
142 4133*d*
190-4877*b*
197-5411*a*
198 5112*f*
201 5809*a*
247-5218*g*
260-5419*b*
268-4818*g*
276 4890*c*
278 4882*f*
285 4873*c*
307-5181*a*
309-5802*i*
318 5175*a*
319 5176*a*
320 5637*f*
330 5121*g*
331-4431*c*
346 5181*b*
438 4433*d*
450 4588*a*
453-5040*j*
454 5190*b*
455 5190*c*
456 5190*d*
499 4418*e*
521 4085*c*
671 5418*i*
694 5078*c*
710 4836*b*
710 5419*a*
751 5636*c*
762 5425*a*
811 4837*a*
829 5042*i*
841 6231*a*
849-5413*a*
853-5414*c*
894 5420*b*
898 4856*c*
904-5427*c*
915-6219*b*
939-4818*g*
977 8145*i*
617010-5319*g*
090 5410*c*
137-6796*d*
190-7509*b*
191 7509*c*
260 8401*b*
335-5790*a*
342-5790*d*
347-5791*c*
427 5727*h*
435 7052*c*
418-7045*e*
482-5798*b*
522-6434*a*
523-6434*d*
709-7050*g*
778-5555*g*
799-5194*g*
810-7039*i*
820-7045*i*
869-5574*c*
892-7037*g*
896-5729*b*
920-7034*h*
929 5612*g*
930 5612*h*

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 617931-5592*a* | 618613-6227*h* | 619403-5794*f* | 620129-5237*c* | 620756-6795*h* | 621392-7505*d* | 621962-8132*e* | 622935-7508*b* |
| 958-4098*g* | 638-5806*e* | 497-6658*e* | 134-6237*c* | 775-6762*h* | 401-7189*e* | 977-7266*e* | 937-8397*h* |
| 969-7041*e* | 682-4964*c* | 498-6658*h* | 142-6227*f* | 782-9469*b* | 412-6657*a* | 982-7518*i* | 941-8690*d* |
| 979-6797*c* | 691-5585*e* | 515-9084*a* | 145-5977*e* | 792-6669*i* | 434-6372*c* | 622015-6527*b* | 944-7753*d* |
| 980-5701*b* | 693-5798*h* | 536-5968*b* | 257-8156*g* | 800-6650*d* | 460-6666*g* | 129-8130*i* | 977-7257*c* |
| 618007-5222*b* | 767-5614*c* | 572-5820*e* | 258-7517*h* | 801-7842*g* | 468-7190*a* | 265-6762*a* | 623063-7953*e* |
| 039-6240*f* | 826-5796*f* | 576-6866*i* | 287-7204*a* | 802-7843*a* | 469-7190*a* | 266-7507*b* | 082-6782*g* |
| 073-7843*e* | 838-6230*h* | 577-5796*b* | 296-6218*h* | 837-7359*a* | 477-6653*c* | 297-7045*h* | 114-9085*b* |
| 168-5641*b* | 894-5807*f* | 645-5805*b* | 298-6219*b* | 855-6644*h* | 512-5928*d* | 298-7039*e* | 116-8294*f* |
| 175-5635*c* | 926-5586*f* | 659-5801*b* | 314-6241*i* | 621004-7257*b* | 520-6650*f* | 305-6791*h* | 147-6562*c* |
| 189-5788*g* | 955-5929*e* | 677-5798*a* | 315-8624*a* | 009-7500*d* | 531-6650*h* | 323-8398*a* | 160-7838*e* |
| 251-5517*d* | 965-7502*d* | 688-8160*h* | 320-5794*h* | 024-6414*i* | 552-7190*c* | 324-7212*h* | 193-6526*e* |
| 295-5641*d* | 994-5797*i* | 707-6866*i* | 339-5808*f* | 031-5930*a* | 555-7497*b* | 388-7507*h* | 206-7752*i* |
| 313-5555*e* | 999-5981*d* | 776-5574*a* | 387-5938*f* | 037-6436*i* | 569-7201*b* | 419-6143*c* | 212-6564*f* |
| 358-6220*d* | 619008-5792*i* | 827-5800*d* | 402-5237*f* | 080-6414*d* | 599-7746*d* | 463-8208*d* | 217-7634*c* |
| 390-5795*f* | 014-7497*g* | 857-5802*e* | 413-7504*i* | 104-6439*d* | 619-6795*g* | 482-7753*f* | 224-6844*e* |
| 403-5801*g* | 018-5799*g* | 873-5799*i* | 415-7505*a* | 117-6647*g* | 620-6013*c* | 504-9084*i* | 227-8397*e* |
| 406-5157*e* | 034-8690*g* | 877-5799*e* | 436-5357*b* | 146-6403*i* | 639-6398*b* | 510-9083*e* | 255-6702*a* |
| 409-5881*h* | 035-8173*b* | 886-6143*d* | 498-6418*c* | 158-5912*c* | 642 8149*g* | 516-7752*e* | 264-7652*f* |
| 412-5214*d* | 063-7509*a* | 898-9082*f* | 505-6404*b* | 179-6057*f* | 654 7197*e* | 529 8399*b* | 276-7685*h* |
| 416-6283*h* | 087 5809*b* | 915-9087*c* | 581-5981*b* | 188-6437*e* | 672-6795*b* | 559 7954*d* | 305-6562*d* |
| 432-5796*h* | 134-6794*e* | 937-6143*d* | 588-5574*d* | 198-6664*f* | 705 9468*i* | 560-7652*a* | 309-7755*a* |
| 440-5644*b* | 160-5726*h* | 961-5977*f* | 590-8623*g* | 209-6054*f* | 713 8164*b* | 561-8400*h* | 425-7959*b* |
| 447-5798*i* | 206-5794*c* | 976-5650*b* | 608-7508*b* | 219-6650*i* | 742-6464*g* | 564-6791*i* | 722-7959*f* |
| 449-5644*d* | 231-5788*e* | 982-9088*f* | 692-7262*d* | 225-7244*f* | 743-7049*a* | 642 7759*h* | 826 9391*c* |
| 451-5625*a* | 235-5155*g* | 620011-6332*e* | 693-7262*f* | 231 7513*f* | 747-6781*e* | 675-7751*h* | 907 8620*h* |
| 452-5625*d* | 275-5639*i* | 026-6230*g* | 713-6798*a* | 243-7500*f* | 749-6762*f* | 690-6663*b* | 966-7404*b* |
| 453-5625*e* | 283-5685*a* | 029-5048*i* | 726-6414*f* | 284-6662*a* | 765 6844*i* | 706-7760*d* | 624108-8621*a* |
| 455-5573*d* | 356 6338*i* | 030-5796*d* | 733-6669*d* | 289-6661*d* | 812 6838*b* | 725-9088*d* | 380-8401*a* |
| 459-6221*a* | 357-8173*f* | 043-5977*e* | 734-6669*f* | 292-6656*i* | 883-6164*g* | 735 7726*a* | 696 9388*e* |
| 478-6001*i* | 373-8145*g* | 114 6237*d* | 744-6669*h* | 321-7241*g* | 892 6793*h* | 743 7751*f* | 855-8651*a* |
| 480-5999*h* | 377-6142*g* | -7510*e* | 745-5913*b* | 362-7237*a* | 902-8121*a* | 746 8680*h* | 625004-8623*i* |
| 591-7956*b* | 394-6645*a* | 116-6867*a* | 753-7214*f* | 374-6666*e* | 904-6793*g* | 758 7755*e* | 626491-8623*i* |
| 608-6220*e* | 395-6644*b* | | | | | | |


## CANADIAN PATENTS


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|---|---|---|---|---|---|---|---|
| 446897 7648*e* | 451081-3120*e* | 451645-3233*e* | 452136-3230*b* | 452626-3223*a* | 453032-5574*f* | 453552 5566*g* | 454735-7652*d* |
| 449664 9407*f* | 204 2879*g* | 647-2922*c* | 208-3120*f* | 669-3206*f* | 141-5517*b* | 676-5624*e* | 756-7686*e* |
| 450645-3234*i* | 205 3242*a* | 648 2922*c* | 209-3120*g* | 679-5358*a* | 160-5626*h* | 841-7746*a* | 776-7403*e* |
| 719-3227*g* | 251-2881*d* | 656-3161*a* | 253-5633*h* | 764-5554*c* | 165-5612*d* | 842 7744*g* | 777-7403*g* |
| 750-2921*h* | 319-3457*b* | 667 2922*a* | 330-3232*d* | 857-5318*i* | 173-5591*b* | 971 7730*c* | 455185 9534*g* |
| 780 3207*b* | 379-3456*h* | 673-3160*b* | 350-3454*c* | 858 5319*a* | 230-5594*a* | 997 7610*i* | 449-7360*d* |
| 865 2878*h* | 384 3161*b* | 674-3160*d* | 351-3198*b* | 868-5633*a* | 257 5633*f* | 151012 7658*b* | 691-9526*f* |
| 867-3198*g* | 385-3189*g* | 770-5618*e* | 409-5556*g* | 878-7619*b* | 266-5565*h* | †040 7608*d* | 802-9498*d* |
| 924-7403*e* | 391-2882*d* | 854-3233*h* | 410-5518*e* | 911-5642*f* | 274-5518*h* | 128 7972*e* | 868-9529*b* |
| 965-3466*a* | 453-3235*e* | 864 3234*h* | 413-5518*f* | 972-5644*h* | 278 5318*g* | 131-7686*g* | 456855-7686*d* |
| 966-3452*d* | 479 2878*i* | 910-5360*c* | 422-3228*b* | 980-5553*c* | 289 5643*c* | 186 7358*e* | 457001-7358*f* |
| 967 4889*i* | 605 3164*a* | 985-3454*b* | 428-5643*g* | 981-5554*a* | 324-5794*a* | 187-7358*d* | 594-7358*g* |
| 968 3208*i* | 622-3234*g* | 452012-2880*d* | 481-5593*b* | 985 5565*a* | 468 5569*a* | 193-7752*b* | 700-7657*a* |
| 451006-3198*d* | 638-2879*d* | 070-3436*f* | 566 5553*a* | 990-5320*g* | 477-5624*c* | 507-9448*d* | 458001-7686*f* |
| 028 3466*b* | 639 2879*c* | 117-3208*g* | 577-3214*d* | 453009-5357*h* | 549-5626*c* | 703-7402*b* | 067-7658*e* |
| 042 3235*e* | | | | | | | |


## DANISH PATENTS


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|---|---|---|---|---|---|---|---|
| 67221-3160*e* | 67408-3161*c* | 67547-2880*i* | 67605-3154*d* | 67896-3458*h* | 68379 6375*a* | 68670-9300*a* | 68836-8919*f* |
| 266-3160*f* | 494-2823*i* | 561-3152*c* | 632 2824*a* | 974-6231*i* | 403 6235*c* | 834-8757*f* | |


## DUTCH PATENTS


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|---|---|---|---|---|---|---|---|
| 61 11- 432*b* | 62063-4786*c* | 62284-4844*b* | 62562-5426*i* | 62753-5409*i* | 63011 5186*i* | 63216-6388*h* | 63614-8741*b* |
| 743- 379*g* | 077-1568*c* | 285-4791*g* | 563-5427*a* | 751-5174*e* | 012-5412*c* | 219-6429*f* | 616-8740*h* |
| 745- 390*c* | 081-4843*c* | 286-5039*g* | 567-5230*i* | 755-5174*f* | 013-5412*g* | 221-6371*d* | 624-8579*e* |
| 746- 682*g* | 117-1605*c* | 287-4792*a* | 568-5186*d* | 756-5186*h* | 015-5418*c* | 290-6334*f* | 625-8666*d* |
| 747- 660*e* | 154-1592*g* | 299-4868*i* | 569-5418*g* | 757-5421*i* | 018 5138*a* | 306-6334*d* | 626-8665*h* |
| 749- 664*c* | 165-1552*f* | 359-4817*a* | 570-5423*g* | 758-5410*h* | 020 5215*e* | 319-6665*d* | 627-8665*e* |
| 823- 417*c* | 171-1508*h* | 394-4592*a* | 571-5418*i* | 759-5422*b* | 021-5224*c* | 332-6873*h* | 628 8664*d* |
| 830- 417*e* | 220-1532*c* | 395-2881*h* | 572-5181*d* | 760-5409*h* | 022-5223*e* | 333-7198*d* | 629-8218*f* |
| 868- 364*b* | 223-1504*b* | 396-4592*b* | 606-4907*d* | 761-5410*a* | 023-6456*c* | 334-7507*e* | 631-8580*g* |
| 899- 330*c* | 247-1612*a* | 432-4525*c* | 693-4998*g* | 966-5174*h* | 024-6013*b* | 335-7502*a* | 641-8293*b* |
| 906- 51*a* | 256-1274*f* | 436-3209*a* | 699-5188*c* | 977-5161*d* | 035-6674*f* | 337-7164*e* | 729-8347*c* |
| 913-5039*h* | 262-1611*b* | 462-2870*i* | 700-5409*f* | 983-4966*c* | 039-8284*c* | 505-7242*b* | 768-8620*b* |
| 914-5040*b* | 269-4786*a* | 468-3189*b* | 708-5158*e* | 994-5220*b* | 040-6654*h* | 550-7197*i* | 778-8576*g* |
| 915 5039*i* | 272-4582*c* | 469-3190*c* | 724-4907*c* | 998-5161*b* | 042-6646*f* | 555-6966*d* | 848-9487*b* |
| 916-4882*e* | 273-1502*f* | 470-3194*b* | 727-5200*a* | 63002-5130*g* | 116-6415*b* | 575-6966*d* | 875-9300*h* |
| 937-4625*e* | 276-4817*b* | 471-3188*i* | 738-5417*h* | 006-5231*e* | 187 6340*d* | 604-7265*d* | 937 9450*b* |
| 983-1308*i* | 277-4890*a* | 480-3162*c* | 739-5156*f* | 007-5409*g* | 193-6429*a* | 605-7503*d* | 969-8759*e* |
| 62005-4594*a* | 280-5036*d* | 496-4590*d* | 740-5166*g* | 008-5186*c* | 215-6388*g* | 607-7265*b* | 997-9505*e* |
| 032-1309*a* | 282-3453*g* | 553-3222*e* | 752-5182*h* | 010-5180*i* | | | |


## FRENCH PATENTS


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|---|---|---|---|---|---|---|---|
| 861224- 251*i* | 864161-1172*a* | 864348-1174*b* | 864842- 989*i* | 865268-1200*e* | 865539-1166*b* | 865728- 990*f* | 866120-5035*d* |
| 862273-1808*f* | 184- 989*i* | 393-1980*a* | 914-1444*d* | 315-1212*b* | 562-1148*d* | 757-1166*d* | 132-4895*e* |
| 395- 663*c* | 208- 991*c* | 398-1710*g* | 987-1202*c* | 316-1212*b* | 680- 916*a* | 762-1219*a* | 144-4625*d* |
| 670- 085*f* | 221- 992*a* | 428-1188*i* | 988-1126*d* | 388-1558*d* | 686-1166*b* | 771-1166*c* | 145-4587*i* |
| 928-1812*g* | 241- 948*h* | 470-1200*f* | 865013-1126*d* | 398-1432*f* | 691-1148*b* | 840-1160*c* | 150-5034*a* |
| 974- 668*f* | 245- 956*f* | 475-1434*h* | 127-1206*h* | 407-1217*e* | 704- 914*i* | 887-1160*a* | 175-5042*e* |
| 863481-1804*i* | 251- 990*g* | 596-1435*f* | 209-1437*e* | 408-1217*f* | 706-1172*e* | 918-1217*e* | 202-4589*a* |
| 503- 660*g* | 252- 990*g* | 661- 989*b* | 210-1439*g* | 444- 989*d* | 709-1166*a* | 941-1187*i* | 229-5038*a* |
| 820-1174*e* | 331-1188*i* | 758-1433*d* | 211-1439*i* | 511- 990*f* | 710-1166*a* | 946- 992*a* | 266-4821*b* |
| 823- 666*i* | 347-1174*a* | 820-1437*a* | 227-1148*d* | 529-1172*c* | 727- 989*c* | 866045-1159*h* | 312-4807*d* |


* Corrected patent number
† This is the correct patent number for *C.A.* 43, 7608*d*, 9298*c*.

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 866320-4869*d* | 866892-4822*d* | 869103-4822*a* | 870619-4877*i* | 871565-5082*f* | 872936-4791*f* | 930269-5216*b* | 932008-8122*d* |
| 322-4843*i* | 944-4822*e* | 104-4822*a* | 626-5040*c* | 566-5035*d* | 937-4791*f* | 302-5158*b* | 038-8196*h* |
| 482-5050*b* | 947-4588*f* | 132-4873*b* | 627-5032*h* | 745-4807*b* | 873093-4822*g* | 368-5412*i* | 039-7838*i* |
| 491-4587*h* | 969-4838*d* | 238-4626*d* | 650-4835*c* | 747-4626*c* | 112-4835*a* | 463-5152*d* | 236-8182*d* |
| 545-5033*c* | 867023-5042*b* | 388-4837*c* | 652-5038*b* | 757-4821*g* | 929751-5157*c* | 514-5684*c* | 301-8180*g* |
| 569-5043*c* | 028-4820*i* | 392-4810*d* | 714-5038*h* | 771-4872*i* | 752-5157*d* | 643-5156*i* | 573-8076*c* |
| 570-5044*c* | 066-5035*h* | 528-4845*a* | 943-5034*f* | 996-4792*e* | 753-5157*d* | 681-5427*f* | 933470-8107*h* |
| 619-5041*i* | 256-4838*b* | 534-4844*d* | 944-5034*g* | 872035-4838*c* | 804-5158*c* | 682-5413*d* | 500-8180*h* |
| 685-4625*g* | 737-4588*i* | 638-4838*a* | 871225-4846*d* | 059-4822*i* | 805-5174*i* | 725-4964*f* | 537-7840*h* |
| 760-4821*i* | 770-2507*d* | 729-5045*f* | 333-4873*d* | 143-4837*d* | 821-5222*a* | 814-5152*c* | 934619-7838*g* |
| 766-4894*d* | 868182-5034*e* | 799-4876*i* | 345-4817*h* | 345-4894*b* | 960-5161*d* | 931127-4999*c* | 935047-8178*i* |
| 780-4822*f* | 244-2008*d* | 870113-5039*c* | 352-4877*i* | 454-4837*d* | 930029-5158*d* | 228-5224*f* | 324-7894*c* |
| 787-5040*h* | 732-2241*h* | 211-4836*h* | 353-4877*i* | 466-4854*g* | 077-5135*d* | 283-5223*c* | 341-8122*a* |
| 886-4822*b* | 733-2241*e* | 237-4852*g* | 372-4846*g* | 551-4837*d* | 140-5415*g* | 485-5221*b* | 357-8122*b* |
| 889-4822*c* | 767-1880*h* | 350-4626*a* | 373-4842*f* | 686-4838*a* | 168-4966*i* | 681-5228*g* | 380-8137*h* |
| 890-4822*d* | 788-1952*b* | 353-4877*b* | 374-4843*i* | 835-4838*b* | 185-5162*g* | 701-8100*a* | 383-8138*b* |
| 891-4822*d* | 793-2004*a* | 610-4526*c* | 399-4835*f* | 867-4845*f* | 263-5161*c* | 765-8109*a* | 384-8137*c* |


## HUNGARIAN PATENTS


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|---|---|---|---|---|---|---|---|
| 129851-4033*b* | 132763-4301*i* | 133971-3852*c* | 134396-2223*h* | 135247-9535*i* | 138263-1989*e* | 138409 1990*g* | 139149-8758*c* |
| 131203-4300*e* | 133121-4284*d* | 972-3852*e* | 548-1913*c* | 342-9389*c* | 272 1618*e* | 412-1880*i* | 153-8758*g* |
| 346-3980*d* | 776-3852*a* | 980-2226*f* | 557-1988*i* | 138047-3978*e* | 285-1990*h* | 472-1618*f* | 198-9473*h* |
| 474-3979*g* | 783-1274*g* | 981-2226*g* | 564-2040*a* | 237-1708*f* | 309-1532*b* | 481-1913*d* | 207 9398*g* |
| 475-3979*e* | 938 1709*g* | 992 4900*b* | 643 9356*d* | 244-1708*g* | 326-1525*b* | 487-1955*a* | 219-9115*i* |
| 783-4200*g* | 941-1502*g* | 134133-1989*g* | 746-9294*b* | 248-1995*d* | 351-3846*e* | 139126-9536*a* | 239-9146*c* |
| 784-4037*f* | 944-2226*e* | 244-1501*a* | 833-9356*e* | 252-3573*b* | 379-1883*g* | 140-9298*d* | 247-8920*h* |
| 132575-3980*i* | 964-1989*i* | 391-2239*c* | 849-9389*d* | 258-1913*g* | 399-1951*a* | 141-9022*a* | 299-9446*a* |


## INDIAN PATENTS


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|---|---|---|---|---|---|---|---|
| 32100- 427*d* | 34380- 697*h* | 34410- 352*c* | 31411- 687*g* | 34693- 364*c* | 34700 105*a* | 35974- 418*e* | 36107- 367*a* |
| 33473- 687*i* | | | | | | | |


## ITALIAN PATENTS


| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 412937-2878*d* | 420477-1995*h* | 422145-4881*i* | 424362-4872*i* | 426137-5616*h* | 427883-8109*d* | 429235 8623*d* | 431384-8651*i* |
| 416525-2879*e* | 505-4816*b* | 307-4895*f* | 381-5607*e* | 138-4876*g* | 912-7957*h* | 269-8623*e* | 385 8696 |
| 418821-4588*d* | 771-4846*f* | 325-5602*d* | 427-4189*a* | 150-5881*d* | 945-7036*a* | 292-8605*a* | 389 8623*e* |
| 948-4786*b* | 784-3669*d* | 326-3637*c* | 535-5963*a* | 168-4845*a* | 428102-7896*i* | 435 8722*a* | 404-8596*e* |
| 986-4524*h* | 806-4966*a* | 330-4854*h* | 581-4525*a* | 240-5524*c* | 132 8072*f* | 444 8739*i* | 411-8601*i* |
| 419016-1607*f* | 822-4963*e* | 505-4210*b* | 584-5614*a* | 334-5516*i* | 147 8108*i* | 445-8624*f* | 442 8623*f* |
| 062-4625*d* | 421089-5982*h* | 763-4511*g* | 590-4284*b* | 436-7197*h* | 148-9538*c* | 446-8743*e* | 484 8601*e* |
| 173-4808*c* | 241-3638*c* | 847-4874*f* | 671-4884*b* | 498-4625*h* | 165-8138*a* | 565-8624*f* | 570-8734*a* |
| 212-4627*a* | 349-4807*e* | 940-4846*e* | 711-5682*f* | 514-4804*f* | 168-8110*a* | 568 8623*e* | 607 8624*a* |
| 527-4895*g* | 495-5206*e* | 984-4153*b* | 708-4821*h* | 600-5611*e* | 241-8110*d* | 582-8626*c* | 777-8344*i* |
| 579-4868*h* | 551-4807*b* | 423065-4836*f* | 833-5644*b* | 661-7840*c* | 242-8110*c* | 624-8680*f* | 942-8623*b* |
| 771-4628*b* | 586-3220*d* | 066-4626*a* | 854-5529*g* | 427069-8208*g* | 337-8182*e* | 739-8604*i* | 953 8712*c* |
| 784-4588*i* | 590-4899*d* | 074-3558*e* | 857-4808*b* | 249-7651*i* | 352-8109*a* | 430078 8662*h* | 958 8218*d* |
| 810-1538*b* | 626-5047*g* | 082-4511*i* | 910-5529*f* | 372-7652*h* | 546-8110*b* | *491-9397*g* | 432036 8316*i* |
| 420072-4828*e* | 627-5047*i* | 084-4512*a* | 425383-5000*a* | 438-8075*c* | 568-7760*a* | 520-8218*e* | 056-8289*d* |
| 208-4877*d* | 628-5048*b* | 158-3662*h* | 623-4624*h* | 535-7688*d* | 583-7760*g* | 654-8744*a* | 082-8604*g* |
| 247-1168*b* | 630-3638*f* | 163-4784*c* | 682-5565*f* | 629-7632*h* | 584-7726*b* | 821-8711*h* | 153 8652*h* |
| 343-1607*e* | 705-4876*g* | 207-3341*c* | 750-4842*i* | 651-7892*f* | 590-8090*e* | 931-8682*h* | 158 8596*d* |
| 369-4626*e* | 709-3618*a* | 230-4873*e* | 884-4892*b* | 709-8138*c* | 615-7896*b* | 949-8604*h* | 471-8289*e* |
| 381-4626*h* | 740-3164*i* | 361-4843*a* | 939-5881*d* | 792-8397*d* | 665-8186*c* | 431191-8744*b* | 553-8712*h* |
| 382-1187*h* | 763-3562*a* | 642-3561*e* | 426007-5632*f* | 875-8129*f* | 772-8345*a* | 253-8576*f* | 872-8667*a* |
| 416-1578*a* | 922-4153*h* | 649-8290*d* | 035-5034*a* | 877-7840*b* | 873-8218*d* | 376-8744*d* | 880-8290*e* |
| 475-4873*a* | 982-4808*c* | 424328-3132*h* | 043-5032*e* | 880-7870*h* | 429186-8638*d* | | |


## JAPANESE PATENTS


| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 152862-6795*a* | 153805-3454*a* | 156791-6338*b* | 161378-1433*a* | 162025-2456*d* | 162890-5000*i* | 172287-6362*c* | 172375-6563*i* |
| 923-6796*e* | 824-3451*h* | 829-6376*c* | 386-1434*i* | 057-3833*h* | 163026-4965*e* | 289-6143*g* | 376-6518*c* |
| 954-6796*g* | 860-3464*g* | 845-6377*d* | 433-2231*i* | 066-2646*a* | 172051-6764*c* | 290-6397*c* | 377-6563*f* |
| 153167-6796*g* | 861-4844*e* | 157133-9362*b* | 484-1435*e* | 067-3848*b* | 055-0778*g* | 293-6334*f* | 381-6850*b* |
| 338-5132*d* | 870-3833*i* | 177-9397*f* | 485-1435*e* | 118-3639*e* | 075-7497*h* | 296-0342*b* | 384-6802*g* |
| 348-3847*b* | 919-3318*e* | 290-9390*d* | 491-1710*b* | 133-2230*b* | 076-7497*f* | 297-6673*h* | 385-6802*g* |
| 365-3467*b* | 925-3417*h* | 330-9299*a* | 496-1665*b* | 145-3851*i* | 079-7201*a* | 298-6673*i* | 387-7041*h* |
| 367-3031*g* | 934-3416*f* | 332-9475*h* | 506-2008*e* | 163-1917*a* | 085-7496*i* | 299-6096*b* | 391-7041*i* |
| 368-3190*e* | 992-3444*c* | 345-9298*f* | 540-1988*e* | 173-3835*d* | 086-7497*a* | 301-6833*c* | 392-6808*b* |
| 433-3034*c* | 154006-3453*a* | 624-8417*h* | 544-2236*g* | 209-2228*c* | 087-7505*b* | 302-6820*i* | 393-6797*b* |
| 434-3034*d* | 015-3464*f* | 786-8712*d* | 610-3041*i* | 210-2228*d* | 090-7170*d* | 303-6821*c* | 394 6771*h* |
| 438-5420*d* | 040-3837*f* | 158119-7951*h* | 699-1162*b* | 211-2637*c* | 106-7202*d* | 304-6781*i* | 395-6804*h* |
| 448-2794*c* | 050-3844*a* | 120-7951*a* | 700-3576*f* | 228-3835*b* | 107-7506*a* | 305-6865*h* | 399-6562*h* |
| 480-3023*f* | 079-3452*b* | 164-8622*d* | 721-1437*a* | 258-3600*a* | 110-7840*c* | 306-6804*h* | 404-6858*g* |
| 514-3463*g* | 087-3299*h* | 557-8620*c* | 732-3655*e* | 285-2228*i* | 111-8623*h* | 307-6808*e* | 405-6868*c* |
| 522-3458*g* | *098-3540*d* | 610-6376*b* | 763-2219*a* | 289-2241*c* | 112-6926*b* | 312-6527*e* | 422-6562*i* |
| 529-3032*e* | 110-3835*e* | 669-7035*f* | 769-2645*g* | 291-2713*a* | 114-6965*b* | 313-6526*c* | 423-6563*a* |
| 562-3040*f* | 151-3846*a* | 670-7037*d* | 770-3841*i* | 292-2713*b* | 251-6926*b* | 315-6527*c* | 426-6763*f* |
| 567-3220*c* | 176-3572*h* | 671-7035*h* | 800-3642*b* | 293-2216*d* | 252-6966*e* | 317-6792*c* | 427-6770*c* |
| 599-3027*h* | 197-3837*h* | 691-7034*i* | 810-3605*a* | 299-1955*d* | 253-7500*i* | 319-6810*f* | 429-6528*c* |
| 615-3471*g* | 233-3606*h* | 730-5162*c* | 811-3844*c* | 332-2232*h* | 255-6792*d* | 320-6791*c* | 461-6565*a* |
| 628-3219*h* | 283-3843*g* | 756-7037*b* | 831-3576*g* | 353-2644*f* | 256-6774*g* | 322-6868*f* | 471-6778*e* |
| 629-3220*a* | 155323-6527*h* | 765-6844*g* | 875-1929*i* | 508-3833*e* | 259-6762*e* | 335-6758*e* | 472-6866*h* |
| 632-3605*d* | 522-6376*f* | 835-7048*e* | 884-4299*a* | 608-3570*e* | 260-6794*h* | 337-6833*c* | 473-6562*h* |
| 634-3220*f* | 790-6096*i* | 894-7971*a* | 905-3835*c* | 641-2030*g* | 264-6763*f* | 340-6846*c* | 474-6796*c* |
| 661-3231*i* | 854-6375*h* | 958-7035*b* | 907-3843*b* | 716-2242*d* | 275-6096*g* | 342-6759*c* | 478-6796*a* |
| 693-3554*c* | 875-6375*b* | 959-7036*d* | 947-3834*a* | 726-2637*e* | 279-6358*b* | 344-6825*e* | 487-6792*d* |
| 696-3206*d* | 897-6796*i* | 159002-7950*i* | 965-2040*e* | 743-3340*g* | 280-6466*g* | 351-6528*a* | 488-6796*b* |
| 713-3223*e* | 933-6376*b* | 037-5160*c* | 969-3845*i* | 744-3340*h* | 282-6374*b* | 363-6526*d* | 491-6778*d* |
| 746-3186*a* | 156505-6375*d* | 086-7957*i* | 970-3839*d* | 745-3340*k* | 283-6456*g* | 364-6792*b* | 493-6833*d* |
| 756-3153*e* | 678-6377*c* | 161274-2788*i* | 985-3639*f* | 816-3249*h* | 284-6416*e* | 368-6868*f* | 499-6838*b* |
| 769-3176*h* | 683-6376*e* | 318-1148*c* | 999-2381*g* | 824-6378*b* | 285-6758*f* | 369-6562*h* | 502-6854*b* |


* Corrected patent number.

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 172508-7036*d* | 172596-6795*i* | 172746-6965*e* | 174839-6930*f* | 174899-7893*g* | 174942-7163*g* | 174999-6844*d* | 175047-5529*c* |
| 509-6810*g* | 601-6825*d* | 748-6926*d* | 842-7206*f* | 900-7164*b* | 943-6927*a* | 175001-5950*h* | 055-5318*f* |
| 512-6804*a* | 604-7244*g* | 754-7200*i* | 845-6964*f* | 901-7198*b* | 946-7163*e* | 005-6217*g* | 060-5607*d* |
| 515-7039*d* | 607-7164*e* | 768-7201*b* | 849-6925*h* | 902-7198*b* | 947-6477*b* | 006-5938*i* | 062-5607*h* |
| 524-7051*g* | 608-7838*b* | 769-7204*b* | 854-7163*f* | 903-7214*f* | 948-6791*d* | 010-5881*h* | 063-5530*g* |
| 525-6764*c* | 615-7257*a* | 795-7507*i* | 863-6966*i* | 906-7239*f* | 949-7838*a* | 011-5888*c* | 064-5524*d* |
| 536-6859*a* | 616-7262*h* | 803-6926*h* | 870-7507*e* | 907-7240*c* | 950-6477*b* | 015-5938*i* | 066-5556*h* |
| 537-6844*h* | 621-6925*i* | 814-7201*f* | 876-6965*a* | 909-7206*c* | 951-7202*c* | 016-5939*i* | 067-5555*b* |
| 540-7051*i* | 631-6964*g* | 831-7501*b* | 878-7188*f* | 910-7204*b* | 952-7051*f* | 021-6224*i* | 068-5568*i* |
| 541-7051*h* | 652-6964*e* | 836-6966*g* | 879-7204*c* | 911-7198*b* | 956-6794*i* | 022-6225*a* | 069-5794*g* |
| 542-6850*f* | 653-6966*h* | 837-6966*h* | 880-7201*g* | 912-7198*c* | 958-6563*e* | 027-5928*d* | 074-5568*h* |
| 547-6563*f* | 661-7242*a* | 843-7229*b* | 882-6966*f* | 913-7652*b* | 963-6838*e* | 034-5902*e* | 081-5554*b* |
| 549-7041*b* | 682-7190*e* | 858-6965*e* | 883-6966*g* | 921-7496*h* | 964-6528*d* | 035-5977*d* | 082-5358*c* |
| 551-6867*d* | 722-7508*c* | 880-7960*b* | 884-7507*d* | 923-6966*a* | 976-6778*e* | 036-5902*c* | 084-5529*f* |
| 555-6803*f* | 728-7206*c* | 174801-7202*a* | 885-7511*d* | 924-6925*h* | 979-6859*b* | 037-5902*c* | 085-5358*d* |
| 560-6796*h* | 731-6925*h* | 802-7202*b* | 889-7229*c* | 930-7262*i* | 983-6792*h* | 039-5952*a* | 089-5608*g* |
| 572-6528*c* | 732-6964*g* | 835-7200*f* | 890-7229*c* | 934 7633*a* | 984-6794*g* | 040-5992*f* | 092-5553*b* |
| 573-6704*b* | 740-7164*f* | 836-6563*g* | 891-7230*a* | 936-7230*b* | 987-6791*g* | *043-6926*c* | 099-5556*c* |
| 583-6838*g* | 744-7236*b* | 838-7501*a* | 896-7164*a* | 939-7230*c* | 991-7037*f* | 044-5317*g* | 100-5552*e* |
| 586-6826*e* | 745-7170*d* | | | | | | |

## NORWEGIAN PATENTS

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|---|---|---|---|---|---|---|---|
| 65071-6378*g* | 65889-7651*h* | 71063-6095*f* | 72691-5726*b* | 73812-2920*f* | 73904-3159*g* | 74138-6374*d* | 74156-5682*d* |
| 835-7651*f* | 68968-5680*e* | 72025-2920*d* | | | | | |

## RUSSIAN PATENTS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 66099-5174*g* | 67816-3668*i* | 67947-5050*i* | 68313-5811*b* | 68451-6389*c* | 68784-6660*e* | 69127-9408*b* | 69412-9408*h* |
| 863-5221*b* | 817-3590*i* | 948-5039*c* | 314-3627*c* | 452-6465*b* | 785-6660*e* | 141-9506*d* | 430-8759*a* |
| 67599-8118*a* | 823-3250*b* | 949-3572*d* | 315-5133*h* | 453-4907*d* | 786-6660*b* | 142-9506*c* | 434-9362*e* |
| 601 3153*a* | 828-3249*g* | 951-3587*a* | 316-5424*f* | 468-6386*e* | 788-6357*c* | 143-9506*d* | 437-8758*d* |
| 602-3219*d* | 856-3249*a* | 952 3588*c* | 317-3854*e* | 469-6386*d* | 789-6670*a* | 145-9506*d* | 451-8760*e* |
| 604-3144*b* | 860-3250*e* | 953-3544*c* | 319-5168*a* | 470-6386*g* | 790-6389*f* | 156-9407*e* | 476-9362*c* |
| 605-3452*e* | 866-3249*g* | 957-3628*b* | 320-3562*d* | 471-6386*f* | 792-6658*d* | 161-8758*d* | 477-8757*e* |
| 609-3185*c* | 867-3590*h* | 978-3603*i* | 321-3248*i* | 478-6386*f* | 793-6144*a* | 164-9300*h* | 478-9391*a* |
| 610-3187*i* | 869-3548*g* | 68060-3572*c* | 322-3300*e* | 479-4906*h* | 794-6402*h* | 173-6397*b* | 480-9529*c* |
| 611-2920*b* | 873-3302*b* | 061-3562*b* | 323-4908*g* | 485-6404*e* | 795-6448*b* | 177-9433*e* | 481-9485*e* |
| 612-3187*g* | 874-3250*b* | 063-3590*h* | 324-3599*a* | 490-5179*g* | 796-6372*a* | 178-6404*d* | 484-9470*c* |
| 613-3241*g* | 878-3603*i* | 064-5188*b* | 325-3490*g* | 529-6143*h* | 797-6434*e* | 179-9431*a* | 492-9408*b* |
| 614-3234*a* | 879-3548*g* | 065-4297*c* | 327-3576*c* | 531-6338*a* | 798-6345*e* | 180-9512*a* | 497-9408*b* |
| 615-2880*g* | 894-3588*f* | 066-3576*g* | 328-4908*a* | 532-5206*c* | 815-6389*d* | 181-9310*d* | 515-9022*c* |
| 616-3473*g* | 898-3250*e* | 067-3847*a* | 329 3299*e* | 533-5206*d* | 818-6448*f* | 183-9022*c* | 518-9419*b* |
| 617-3167*a* | 910-4588*c* | 068-3250*g* | 330 3848*e* | 534-6434*b* | 829-6362*g* | 184-8917*i* | 550 8898*c* |
| 618-3215*f* | 911-3318*f* | 069-3250*h* | 331-3575*f* | 535-5156*a* | 832-6370*h* | 185-6376*h* | 553-9421*a* |
| 619-3216*b* | 912-3318*f* | 070-3250*h* | 332-5220*a* | 536-4907*b* | 833-6148*a* | 186-9408*c* | 554-9535*g* |
| 620-3234*b* | 913-5036*h* | 078-3249*h* | 357-4907*d* | 537-6014*a* | 834-6150*a* | 187-9408*f* | 555-9388*e* |
| 622-3192*f* | 914-3642*b* | 089-3650*d* | 362-4907*b* | 544-6458*g* | 848-6345*b* | 189 9535*f* | 556-9535*h* |
| 623-3216*e* | 915-3642*a* | 091-3554*b* | 366-5231*h* | 547-4906*g* | 864-6346*f* | 190 6362*f* | 557-9535*h* |
| 625-3227*b* | 916-4820*h* | 092-3587*e* | 384-3339*a* | 548-4906*g* | 866-6010*e* | 191-8981*a* | 566-9476*b* |
| 626-3196*h* | 917-3339*e* | 109-3249*g* | 387-5186*f* | 554-5140*i* | 867-6345*b* | 192-8759*f* | 570-8759*a* |
| 627-3208*b* | 918-3144*c* | 116-3588*e* | 397-6011*b* | 573-5159*f* | 870-6114*h* | 202-9410*b* | 571-9310*i* |
| 628 3241*f* | 919-4821*g* | 142-6397*d* | 401-6403*e* | 579-6386*h* | 872-6148*b* | 248-9294*d* | 576-9388*f* |
| 644-3241*g* | 920-3573*a* | 143-3250*e* | 415-6433*b* | 588-6144*c* | 917-8759*b* | 249-9294*d* | 579-9086*d* |
| 675-2881*a* | 921-3632*i* | 144-3587*d* | 428-5410*d* | 593-6340*c* | 921-6010*i* | 259-8758*c* | 580-9408*c* |
| 682-2923*d* | 924-4588*g* | 150-3250*e* | 429-5135*a* | 594-6340*d* | 922-6397*b* | 292-9475*h* | 581-9512*d* |
| 687-2826*a* | 925-4894*c* | 153-3250*e* | 430-4908*b* | 598-6010*b* | 941-6143*i* | 293-9512*b* | 583-8917*i* |
| 688-3220*h* | 926-3604*d* | 158-3548*i* | 431-5161*g* | 612-6009*f* | 951-6010*i* | 294-9410*f* | 591-9407*e* |
| 689 3224*b* | 927-3604*e* | 195-5166*d* | 433-6437*b* | 613-6009*i* | 960-6398*d* | 295-9410*f* | 592-9362*e* |
| 690-3224*c* | 929-3650*d* | 198-3249*f* | 434-4908*f* | 615-6009*f* | 964-6398*d* | 296-8926*b* | 593-8758*a* |
| 691 3186*h* | 930-3590*g* | 199-4907*c* | 435-6416*c* | 617-6010*i* | 993-6090*a* | 297-9452*a* | 594-8758*c* |
| 692-3200*c* | 931-4526*a* | 254-4908*b* | 436-6389*d* | 621-6386*i* | 995-6371*f* | 300-9362*a* | 595-8758*c* |
| 694-3140*i* | 932-3616*g* | 260-3541*c* | 437-6390*f* | 628-6114*f* | 69000-9447*b* | 301-9419*c* | 596-9390*i* |
| 695-3151*g* | 933-3591*a* | 265-5166*e* | 438-6452*c* | 633-6402*d* | 002-6650*d* | 302-8918*e* | 597-9410*h* |
| 696-3166*g* | 934-3592*a* | 281-5000*c* | 439-6390*c* | 638-6014*e* | 003-6670*a* | 308-9021*a* | 598-9411*b* |
| 697-3166*e* | 937-3606*g* | 282-4999*c* | 440-6143*f* | 649-6397*c* | 004-6371*b* | 309-9020*c* | 599-9434*a* |
| 698-3157*c* | 938-4604*g* | 303-3340*c* | 441-6387*b* | 651-6428*b* | 009-6655*g* | 310-9408*h* | 630-9018*c* |
| 700-2922*g* | 939-3617*a* | 305-6094*f* | 442-5200*b* | 706-6362*g* | 012-9407*e* | 315-8917*h* | 631-9018*b* |
| 701-3216*e* | 940-3572*d* | 306-4998*f* | 444-6371*f* | 714-9300*g* | 025-8760*c* | 318-8917*g* | 632-9018*c* |
| 715-3197*h* | 941-3985*d* | 307-3250*a* | 445-6388*i* | 726-6010*g* | 084-8918*a* | 325-9024*a* | 633-9018*c* |
| 718-3185*d* | 942-3599*a* | 308-3853*h* | 446-6012*f* | 744-6010*d* | 089-9391*c* | 392-9493*g* | 719-9362*d* |
| 723-2826*a* | 943-3633*a* | 309-5427*b* | 447-6284*a* | 761-6345*c* | 091-6661*i* | 393-9300*e* | 725-9362*e* |
| 740-3164*g* | 944-3634*c* | 310-3854*f* | 448-6456*f* | 762-6345*c* | 097-9018*h* | 394-9408*f* | 727-9362*d* |
| 744-2826*b* | 945-5034*c* | 311-3627*a* | 449-5186*b* | 763-6386*d* | 101-9020*c* | 395-9407*d* | 888-9428*f* |
| 749-2826*a* | 946-5050*h* | 312-3848*a* | 450-6389*c* | 783-6371*a* | 113-8760*b* | | |

## SWEDISH PATENTS

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 120961-3638*c* | 121440-3617*b* | 121752-3154*c* | 123080-6662*e* | 123534-6415*e* | 123913-8760*e* | 124283-8919*h* | 124600-8758*e* |
| 962-3638*e* | 535-2880*h* | 807-3444*d* | 267-6416*f* | 563-6236*c* | 971-9019*g* | 320-9294*d* | 732-8758*f* |
| 121040-2879*f* | 537-3467*a* | 810-3466*h* | 268-6655*e* | 612-5649*b* | 124025-9446*d* | 321-9294*e* | 975-9447*f* |
| 276-3191*a* | 576-3438*g* | 122126-3464*f* | 269-6227*e* | 613-6218*i* | 028-9019*d* | 374-9447*g* | 125001-9018*d* |
| 305-3176*h* | 682-2919*i* | 608-3197*f* | 270-6661*a* | 617-5727*f* | 071-9166*h* | 414-9448*a* | 106-9536*d* |
| 341-3232*c* | 716-2879*a* | 766-6377*f* | 314-5950*f* | 780-9447*e* | 075-9019*c* | 436-9447*h* | 175-8919*e* |
| 439 3197*g* | 740-3198*a* | 123026-6333*g* | 381-6457*f* | 841-9447*e* | 202-9447*i* | 599-9426*i* | 235-9018*f* |

## SWISS PATENTS

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|---|---|---|---|---|---|---|---|
| 214903-4296*g* | 215396-4587*i* | 217949-4480*a* | 217963-4479*d* | 218078-4471*g* | 220923-2377*b* | 220966-2239*i* | 220972- 679*f* |
| 215046- 891*b* | 217120-5884*a* | 958-4478*i* | 964-4479*f* | 219801- 252*i* | 924-2377*a* | 967-2239*i* | 973- 679*g* |
| 047- 892*a* | 226- 251*g* | 959-4479*a* | 965-4479*f* | 220865-1059*d* | 926-4498*e* | 968-2239*i* | 974- 679*g* |
| 048- 892*a* | 628-9392*a* | 960-4479*b* | 966-4479*g* | 920- 359*c* | 930-3473*i* | 969-2239*i* | 975- 679*g* |
| 049- 892*b* | 629-9392*b* | 961-4479*c* | 967-4479*h* | 921- 821*c* | 956- 365*g* | 970-2376*i* | 221104-11 |
| 050- 892*b* | 948-4479*i* | 962-4479*d* | 979-4483*f* | 922-2378*e* | 969- 364*h* | 971-2376*i* | 117- |

* Corrected patent number.

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 221118-823*d* | 222173-823*f* | 223016-2242*i* | 224961-2376*d* | 227355-3207*c* | 228848-6426*e* | 230217-4483*h* | 231406-4480*f* |
| 159-4818*e* | 178-1060*i* | 067-2221*h* | 225102-1916*h* | 455-3476*e* | 849-6426*e* | 221-2644*h* | 407-4480*g* |
| 164-689*c* | 229-856*h* | 076-1202*d* | 108-2236*d* | 471-3176*c* | 854-3453*f* | 222-2644*i* | 408-4480*h* |
| 165-689*d* | 245-1434*c* | 159-3572*e* | 109-2236*e* | 493-5410*g* | 917-3118*b* | 223-2644*i* | 409-4475*c* |
| 173-1988*f* | 257-844*h* | 161-1812*h* | 154-2243*d* | 494-4473*a* | 919-5238*g* | 224-2644*i* | 410-4475*d* |
| 205-2440*b* | 387-821*h* | 166-7646*g* | 155-2442*c* | 495-4473*b* | 922-2154*a* | 262-3474*e* | 411-4475*e* |
| 206-2440*c* | 441-824*d* | 201-3572*f* | 257-7048*b* | 496-4473*c* | 929-3041*e* | 264-5597*f* | 412-4475*f* |
| 216-692*c* | 451-3221*b* | 205-1916*b* | 260-6794*a* | 497-4481*f* | 931-3033*d* | 268-4517*i* | 413-4475*g* |
| 217-693*d* | 452-3221*c* | 210-2636*d* | 356-1916*f* | 498-4481*g* | 932-4791*c* | 291-3669*a* | 414-4488*b* |
| 219-679*h* | 453-3222*a* | 211-2796*c* | 357-2796*e* | 499-4482*b* | 933-3467*e* | 301-2154*h* | 415-4488*c* |
| 220-822*f* | 454 3222*a* | 212-2796*d* | 362-4475*a* | 500-4481*h* | 935-4482*f* | 356-3669*a* | 416-4488*d* |
| 221-822*h* | 455-694*b* | 213-2796*d* | 365-4474*f* | 501-4481*h* | 936-4474*d* | 364-3038*c* | 417-4488*e* |
| 222-822*i* | 456-694*e* | 217-1990*i* | 370-5965*d* | 502-4482*a* | 938-2436*e* | 367-3472*i* | 418-4488*f* |
| 304-332*c* | 458-1064*a* | 219-2227*g* | 492-2634*g* | 503-4481*i* | 940-2437*e* | 368-3454*i* | 419-4488*g* |
| 306-8*d* | 459-1064*b* | 232-1915*g* | 493-2634*h* | 504-4482*a* | 229027-2477*a* | 406-3046*g* | 420-4488*h* |
| 309-421*g* | 460-1064*b* | 351-1709*h* | 494-2634*h* | 505-4481*i* | 075-3030*h* | 407-3046*g* | 421-4488*i* |
| 510-677*g* | 461-1064*c* | 431-1810*c* | 508-6697*a* | 506-4481*i* | 079-3457*f* | 408-3046*g* | 424-2448*c* |
| 515-3458*b* | 462-7711*d* | 432-1532*a* | 555-3220*i* | 509-4019*e* | 080-3457*h* | 409-4498*i* | 491-3670*h* |
| 516-3458*c* | 463-7711*e* | 433-1587*e* | 557-4701*c* | 510-4019*h* | 081-3457*h* | 430-2637*i* | 494-7701*h* |
| 517-3458*c* | 464-7711*e* | 484 2234*g* | 560-4473*d* | 511-4020*a* | 082 3457*i* | 431-2638*b* | 607 3457*i* |
| 518-3458*c* | 465 7711*f* | 538-2796*c* | 561-1995*h* | 512-4474*a* | 083 3458*a* | 432-2638*c* | 667-3457*i* |
| 519-3453*d* | 466 7711*g* | 541-1987*i* | 594-3341*h* | 513-4474*c* | 084-2645*f* | 433-2638*d* | 696-3208*i* |
| 523-3464*b* | 467 7711*g* | 543-1587*c* | 713-4483*g* | 514-4474*c* | 085-2739*e* | 439 2741*b* | 697-7726*e* |
| 593-1070*a* | 468-7711*g* | 654-1441*c* | 714-6832*e* | 515-4474*c* | 124-3476*c* | 440 2641*e* | 709-2740 |
| 596-666*i* | 469-7711*h* | 701-2224*a* | 778-4499*e* | 545-2153*d* | 125-3222*b* | 441-2641*e* | 713 6428*a* |
| 603-8350*b* | 470 7711*h* | 703-3624*h* | 885-2376*a* | 557-2785*d* | 140-4432*e* | 442-2641*e* | 731-3668*i* |
| 706-394*b* | 471-7711*i* | 704-3621*i* | 886-2375*c* | 579-2478*a* | 141-2638*e* | 443 2641*e* | 737 2524*d* |
| 732-509*b* | 472-7712*a* | 705-1988*b* | 920-2244*c* | 585-4020*g* | 179-3143*f* | 444-2641*e* | 777-3186*i* |
| 737 267*d* | 492-823*a* | 706-1988*c* | 930-7044*e* | 595-3198*d* | 184-7699*i* | 445-2641*e* | 791-3476*d* |
| 804-700*b* | 493-823*c* | 707 1988*c* | 931-7044*f* | 628-2922*b* | 185-4474*c* | 446-2641*f* | 836 2796*a* |
| 805-700*d* | 543-886*b* | 708-1988*c* | 932 7044*g* | 703-3458*e* | 186-4483*i* | 447-2641*f* | 837 2796*b* |
| 806-700*e* | 515 1995*g* | 709-1987*c* | 933-7044*g* | 704-3462*c* | 194-4408*e* | 448 2641*f* | 838-2796*b* |
| 807-700*e* | 688-823*g* | 710-1987*d* | 934-7044*g* | 706-5794*i* | 299-3732*i* | 496 5909*b* | 843 7700*i* |
| 808-814*b* | 689-824*e* | 775-1610*h* | 226014-2225*g* | 794 2477*b* | 304-2375*b* | 497-4432*h* | 890-4186*a* |
| 809-684*i* | 690 824*g* | 777-2411*b* | 015-2781*c* | 804-3198*e* | 305 2795*h* | 498-5428*c* | 902 3132*g* |
| 810-857*c* | 691-2140*c* | 784-1274*d* | 016-2781*d* | 885-3453*e* | 306-2634*b* | 502 4050*b* | 903 3575*e* |
| 811-857*d* | 692-2140*d* | 870-1444*f* | 017-7696*e* | 917 3020*h* | 350 5961*h* | 596-2740*a* | 904 2318*a* |
| 812-857*d* | 693-2140*d* | 884-1574*b* | 018 7976*f* | 975 3041*g* | 351-5965*a* | 620 4188*e* | 905-3731*b* |
| 813-857*d* | 694-2140*e* | 892-3140*h* | 118-7963*h* | 976-2469*g* | 352-5965*b* | 625 5198*c* | 935-2924*a* |
| 814-857*e* | 695 2140*f* | 937 1590*a* | 176-3140*g* | 978-4019*f* | 353 5965*b* | 626-5198*c* | 936 2924*b* |
| 819-3473*e* | 696 2140*f* | 938-1590*i* | 180-6358*g* | 984-2458*a* | 354-5965*c* | 627 5198*d* | 995 3157*c* |
| 820-3472*d* | 697-2440*g* | 939-1590*b* | 400 2781*b* | 985 3656*e* | 355-5965*c* | 628-5198*d* | 232019-3159*a* |
| 821-3472*e* | 698-2140*g* | 940-1590*c* | 459-3341*i* | 228019-3343*b* | 356-7702*e* | 629-5198*e* | 020-3159*b* |
| 822-3472*e* | 699-2440*h* | 224001-1273*f* | 570-6844*e* | 020-3343*b* | 357 7702*f* | 642 2636*e* | 021-3159*c* |
| 823-886*d* | 700 2441*d* | 068 1534*d* | 608-4481*a* | 131-4488*g* | 358-7702*f* | 679 2452*g* | 022-3159*a* |
| 824-441*e* | 701-1986*f* | 069-1917*b* | 609 4481*b* | 206 5238*f* | 359-7702*g* | 680-4022*g* | 049 4472*i* |
| 825 441*f* | 702-1986*f* | 070-1804*f* | 610-4481*d* | 208-5236*g* | 360-7702*g* | 686 2268*c* | 050 4475*i* |
| 826-441*f* | 703-1986*g* | 118-2238*f* | 611-4481*d* | 211-4131*e* | 361 7702*g* | 696-7696*f* | 051 4475*i* |
| 827-441*g* | 704-1986*g* | 119 2239*a* | 612-4481*d* | 335 3458*f* | 363-4626*i* | 707 2356*b* | 053-2924*b* |
| 828-441*h* | 705-1986*g* | 216 1992*a* | 613-4481*e* | 336-3460*h* | 408-3241*i* | 719-2568*f* | 054-2924*c* |
| 842-1806*d* | 706 1986*g* | 253-1709*i* | 614-4481*e* | 337-3460*i* | 410 5512*a* | 808-3152*h* | 076 2720*i* |
| 843 1806*e* | 707-440*d* | 314-1811*g* | 615-4481*e* | 371-2780*h* | *413-3947*d* | 836 4422*e* | 114-4300*d* |
| 844-1806*f* | 708-440*e* | 346 1987*d* | 616-4481*e* | 372-2781*a* | 422 5410*e* | 840-3046*h* | 121-4487*i* |
| 846-1918*c* | 709-440*e* | 347 1987*e* | 617-4481*e* | 373-2781*a* | 432 3132*d* | 841-2152*h* | 123-2517*i* |
| 847-1917*e* | 710-440*e* | 348-1987*f* | 618-4481*f* | 374-2781*a* | 433-6345*f* | 842-3639*a* | 124-4028*i* |
| 849-3152*i* | 711-440*e* | 349-1987*f* | 684-2243*c* | 405-2476*f* | 464-2151*c* | 843-2452*i* | 132 2786*h* |
| 850-3472*f* | 712-440*e* | 350 1987*f* | 688-2231*d* | 409-8693*g* | 465-2151*d* | 845-5962*i* | 168-2923*a* |
| 851-3472*g* | 713-440*e* | 351-1987*g* | 691 2781*b* | 415-9477*f* | 523-2738*h* | 846-2471*i* | 236-3162 |
| 879-831*b* | 714-440*e* | 352-1987*h* | 698-1626*i* | 429-2795*i* | 525-2739*e* | 855-3036*e* | 237-3157*a* |
| 919-7*b* | 715-440*e* | 353-1986*h* | 748-8130*b* | 437-4480*h* | 600-2881*c* | 856-3036*f* | 270-4498*i* |
| 923-885*h* | 727-3571*i* | 615-1580*c* | 786-2643*a* | 440-2448*c* | 606 3042*d* | 857-3036*f* | 271 4498*h* |
| 926 2440*a* | 728-3571*i* | 647-2441*f* | 790-1913*h* | 542-3732*h* | 610-5960*f* | 858-3036*f* | 276 4050*e* |
| 929-1986*e* | 729-3572*a* | 651-1580*d* | 816-2376*g* | 551-4431*i* | 611-2471*h* | 859-3034*h* | 277 4878*i* |
| 930-1988*d* | 730 3572*a* | 653-1307*a* | 819-2796*g* | 644-3476*a* | 705-3948*h* | 860-3034*i* | 278 4878*i* |
| 938-6*h* | 732-1137*i* | 682-914*h* | 833-4500*d* | 652-4498*d* | 741-4130*a* | 861-3035*a* | 279-4879*a* |
| 996 556*h* | 733-1438*a* | 791 1918*a* | 834-4500*d* | 653-2437*d* | *742 3979*b* | 862-3035*b* | 280-4879*a* |
| 222066-509*a* | 734-1438*a* | 832-2376*e* | 840-4476*e* | 654-2437*e* | 743 2644*g* | 863-3035*b* | 281-4879*b* |
| 074-364*i* | 735 1438*b* | 833-1916*c* | 841-4476*f* | 681-4489*b* | 744-2644*h* | 864-3035*b* | 282-4879*b* |
| 076-821*b* | 736-1914*k* | 834-1916*e* | 842-4476*f* | 760-2452*i* | 747-3470*a* | 865-3035*h* | 283-4879*c* |
| 077-821*a* | 737-1915*b* | 845-2231*e* | 843-4476*f* | 770-2738*i* | 778-3470*d* | 868-2732*i* | 284-4879*c* |
| 078-821*d* | 738 1914*i* | 846-2231*e* | 844-4476*f* | 771-2881*a* | 790-2634*b* | 896-2710*d* | 296-4472*a* |
| 121-365*h* | 739-1915*c* | 847-2231*f* | 845-4476*g* | 817-4485*c* | 791-2648*f* | 897-3117*d* | 309-3458*d* |
| 122-366*c* | 740-1915*a* | 848-2231*g* | 846-4476*g* | 818-4485*e* | 792-3035*d* | 901-2525*f* | 311-3473*a* |
| 123-366*d* | 741 1915*c* | 849-2231*g* | 852-2438*a* | 819-4485*f* | 838-5423*d* | 906-5961*b* | 358-6246*g* |
| 124-366*f* | 797-4482*g* | 850-2231*h* | 853-2786*g* | 820-4485*g* | 979-4432*a* | 909-2793*h* | 378-3143*e* |
| 126-1987*g* | 799-4475*b* | 851-2231*h* | 854-2786*g* | 821-4485*g* | 982-4431*g* | 231014-3151*i* | 459-6232*i* |
| 133-3626*c* | 807-3300*d* | 852-2364*b* | 930-2784*c* | 822-4485*h* | 984 2774*f* | 015-3151*h* | 460-6239*g* |
| 134-3626*d* | 901 1916*f* | 853-2364*b* | 932 2458*b* | 823-4485*i* | 230069 3034*f* | 016-3474*d* | 464-6226*c* |
| 135-3626*d* | 945 5884*b* | 854-2364*c* | 227031-3458*d* | 824-4485*i* | 072 5962*g* | 017-3474*d* | 465-6233*c* |
| 136-3626*d* | 946-1915*h* | 855 2364*d* | 033-6242*i* | 825-4486*e* | 077-2438*d* | 056-3669*b* | 483-6359*b* |
| 137-3626*d* | 947-1916*a* | 856-2364*d* | 071-4487*a* | 826-4486*f* | 108-2922*a* | 061-3222*c* | 503-7699*i* |
| 139-4472*d* | 948 1916*a* | 857-1588*c* | 073-4487*b* | 827-4486*f* | 196 5959*g* | 067-5597*h* | 504-7700*a* |
| 140-4472*f* | 949-1916*a* | 858 1588*d* | 094-4440*g* | 828-4486*g* | 197-5959*h* | 076-2567*c* | 505-7700*b* |
| 141-4472*f* | 950-1916*a* | 859 1588*d* | 117-2518*a* | 829-4486*h* | 198-5959*h* | 151-4702*a* | 506-7700*c* |
| 142-4472*f* | 951-1916*a* | 860-1588*e* | 119-4433*a* | 830-4486*h* | 199-5959*h* | 190-4297*d* | 507-7700*d* |
| 143-4472*f* | 952-1916*a* | 874-2783*g* | 124-3471*e* | 833-6425*b* | 200-4477*f* | 191-4297*e* | 508-7700*d* |
| 144-4472*g* | 953-1916*a* | 875-2783*h* | 126-4477*e* | 834-6425*e* | 201-4477*g* | 192-4297*e* | 509-7700*e* |
| 145-4472*g* | 954-1916*a* | 876-2783*i* | 127-7702*c* | 835-6425*e* | 202-4477*g* | 193-4297*e* | 510-7700*e* |
| 146-4472*h* | 955-1916*a* | 877-2783*i* | 136-2348*d* | 836-6425*f* | 203-4477*h* | 194-4297*e* | 541-5899*e* |
| 147-4472*i* | 956-1916*a* | 878-2784*a* | 137-2104*a* | 837-6425*f* | 204-4477*h* | 195-4297*f* | 545-5899*g* |
| 148-4472*i* | 957-1916*a* | 879-2784*a* | 139-2154*b* | 838-6425*g* | 205-4477*h* | 249-3733*h* | 591-4396*g* |
| 151-2782*i* | 958-2226*i* | 880-5966*c* | 265-2155*a* | 839-6425*g* | 206-4477*a* | 254-2632*e* | 597-7707*h* |
| 152-2783*c* | 970-2223*g* | 881-5966*d* | 266-3035*b* | 840-6425*h* | 207-4477*b* | 256-5598*g* | 604-6233*h* |
| 153-2783*d* | 971-2223*g* | 882-5966*d* | 291-2795*g* | 841-6425*i* | 208-4477*b* | 258-5600*i* | 608-7235*h* |
| 154-2783*e* | 989-1988*h* | 883-5966*d* | 292-2784*i* | 842-6425*i* | 209-4477*c* | 262-3132*e* | 610-4855*c* |
| 155-2783*f* | 990-1811*e* | 884-5966*d* | 293-3044*h* | 843-6426*b* | 210-4477*c* | 358-3734*c* | 825-7697*b* |
| 156-2783*f* | 997-1987*a* | 885-5966*d* | 294-3045*a* | 844-6426*c* | 211-4477*d* | 402-4480*b* | 831-8130*c* |
| 169-821*i* | 998-1987*b* | 886-5966*e* | 295-4486*i* | 845-6426*c* | 214-4483*h* | 403-4480*d* | 832-8130*c* |
| 170-822*a* | 223000-1577*b* | 887-5966*e* | 349-3039*c* | 846-6426*d* | 215-4483*h* | 404-4480*e* | 835-7357*f* |
| 172-823*f* | 015-2242*i* | 945-2008*f* | 352-4476*g* | 847-6426*d* | 216-4483*h* | 405-4480*f* | 836-3979*d* |


* Corrected patent number.

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 232843-9357*d* | 234583-5416*a* | 235484-7057*b* | 236533-5194*b* | 238284-5809*h* | 239332-5962*c* | 240149-5043*i* | 240727-7961*h* |
| 887-5043*b* | 714-5967*b* | 485-7057*b* | 538-7043*f* | 329-5218*c* | 333-5962*d* | 150-6660*g* | 728-7963*e* |
| 890-7236*c* | 780-6246*i* | 486-7057*b* | 577-4791*b* | 330-5218*b* | 334-5958*g* | 151-6660*g* | 789-7977*k* |
| 903-5360*a* | 783-5426*f* | 487-7058*a* | 582-7054*b* | 336-7701*b* | 335-5958*g* | 152-6660*h* | 796-6832*g* |
| 904-5360*a* | 786-8689*e* | 488-7040*i* | 583-5194*c* | 337-7705*c* | 336-5958*h* | 153-6660*h* | 797-7702*i* |
| 927-6114*h* | 787-9467*c* | 489-7041*a* | 584-5196*e* | 394-4590*e* | 337-5958*i* | 154-6660*h* | 798-6427*c* |
| 928-4526*b* | 822-9019*b* | 490-7041*a* | 585-5195*a* | 440-4878*b* | 338-5959*a* | 155-6660*i* | 803-6466*a* |
| 233039-5910*d* | 823-8347*i* | 491-7041*a* | 586-5198*a* | 441-4878*d* | 339-5959*a* | 156-6660*i* | 845-5000*e* |
| 083-9462*g* | 830-4808*e* | 492-7041*b* | 594-5999*d* | 442-4878*e* | 340-5959*b* | 157-6660*i* | 847-4212*a* |
| 084-9462*i* | 880-6241*e* | 493-7041*b* | 679-9477*i* | 443-4878*f* | 341-5959*b* | 158-6660*i* | 908-7972*e* |
| 085-9461*c* | 887-6241*h* | 494-7047*h* | 683-7708*a* | 444-8143*h* | 342-5963*e* | 159-6660*i* | 992-6427*g* |
| 135-4835*e* | 888-6234*e* | 495-7048*a* | 684-7708*b* | 445-8144*a* | 343-5963*f* | 160-6655*g* | 993-6426*f* |
| 159-9498*f* | 923-6248*h* | 496-7048*b* | 685-7708*c* | 446-8144*a* | 344-5963*g* | 161-6655*h* | 994-5600*h* |
| 170-4398*a* | 926-5048*e* | 497-7042*f* | 686-7708*c* | 447-8144*b* | 345-5963*g* | 162-6655*h* | 241064-5359*a* |
| 171-4526*b* | 931-6241*c* | 507-7055*h* | 687-7708*d* | 448-8144*c* | 382-6645*b* | 163-6655*i* | 106-4824*b* |
| 176-6643*e* | 932-6241*e* | 509-7049*h* | 688-7708*e* | 449-8144*c* | 464-5594*e* | 164-6655*i* | 140-7969*a* |
| 183-6652*b* | 934-5414*b* | 510-7050*a* | 690-7235*g* | 450-8144*d* | 478-7726*g* | 165-6655*i* | 141-4852*i* |
| 185-9458*g* | 935-5423*h* | 511-7050*a* | 693 7607*g* | 451-8144*e* | 479-7726*h* | 166-6655*i* | 142-7728*b* |
| 187-9458*f* | 936-5423*i* | 512-6239*i* | 694-7697*h* | *452-8691*b* | 480-7726*i* | 167 6655*i* | 143-7728*c* |
| 227-7895*a* | 937-9465*a* | 513-6240*b* | 708-7049*d* | 453-8144*f* | 481-7701*i* | 168-6656*a* | 144-7728*d* |
| 303-6231*e* | 938-9465*c* | 514-6226*h* | 712-7051*e* | 454-8144*g* | 537 6651*c* | 169-6656*a* | 145-5598*e* |
| 338-9497*c* | 939-9465*d* | 515-6226*i* | 759-7054*c* | 455-8144*g* | 538-6643*f* | 218-4880*c* | 146-5600*g* |
| 339-9497*d* | 940-9465*e* | 516-6227*b* | 762-4808*d* | 456-8144*g* | 643-6371*e* | 225-7235*f* | 147-5600*h* |
| 340-9497*e* | 941-9465*f* | 517-6227*c* | 764-7235*b* | 457-8144*h* | 644-7044*e* | 226-7236*e* | 148-5600*h* |
| 341 9497*f* | 942-9465*g* | 548-9474*i* | 876-7038*f* | 458-8144*h* | 698-7960*d* | 228-4518*a* | 167-8104*h* |
| 342-9497*f* | 943-9465*h* | 550-9472*h* | 939-7696*h* | 459-8144*i* | 699-7965*b* | 315-4727*h* | 207-5597*a* |
| 353-7698*f* | 944-9458*h* | 555-4058*c* | 940-7697*a* | 460-8146*b* | 700-7965*a* | 316-7647*b* | 211-9496*f* |
| 354-7698*h* | 945-9458*i* | 563-5216*i* | 997-8689*f* | 461-8146*c* | 701-7965*b* | 351-5810*f* | 346-5598*f* |
| 355-7698*h* | 946-9458*i* | 719-7043*a* | 237130-8689*g* | 462-8146*c* | 702-7965*c* | 353-5216*c* | 347-5598*g* |
| 356-7698*i* | 947-9459*a* | 720-7037*a* | 131-5229*a* | 463-8153*b* | 703-7956*f* | 354-5216*d* | 410-4816*h* |
| 357 7698*i* | 948-9459*a* | 756-6097*a* | 186-7700*g* | 464-8153*c* | 708-5529*e* | 355-5216*e* | 415-9460*e* |
| 358-7699*a* | 949-9466*a* | 758-7055*e* | 187-7697*d* | 465-8153*d* | 717-6388*a* | 356-5216*e* | 416-6425*b* |
| 359-8691*c* | 950-9467*d* | 763-7046*d* | 229 5900*g* | 466-8153*d* | 719-6386*e* | 357-5216*f* | 417-4627*b* |
| 360-8691*d* | 951-9467*e* | 764-7049*c* | 274-6386*c* | 516-5810*h* | 746-4898*h* | 358-5216*g* | 420-4898*a* |
| 388-4397*b* | 974-6233*h* | 770-8690*i* | 322-7043*b* | 517-5807*a* | 747-4898*h* | 359-5216*h* | 459-4963*c* |
| 391-4397*a* | 975 7964*f* | 835-7360*f* | 323-7043*c* | 518-7697*f* | 748-4895*i* | 364-7700*i* | 470-4999*e* |
| 394-4398*a* | 977-6240*c* | 865-7046*c* | 324-7043*d* | 521-6010*a* | 750 5036*a* | 370-5552*i* | 597-6358*e* |
| 399-4198*e* | 978-6240*c* | 866-4154*g* | 325-7043*e* | 547-5358*b* | 751-5035*g* | 371-4686*f* | 599-7187*f* |
| 509-4792*f* | 979-6240*d* | 910 7056*a* | 326-7043*c* | 594-6662*c* | 752-5036*b* | 372-4686*f* | 645-7978*e* |
| 570-8689*h* | 980-6240*d* | 911-7056*c* | 327-7043*e* | 597-6793*b* | 755-7972*h* | 373-4686*f* | 646-7978*c* |
| 579-4513*g* | 981-6240*d* | 912-7056*c* | 328-8619*i* | 623-4471*f* | 757-7697*i* | 374-4686*f* | 650-5030*b* |
| 607-3770*g* | 982-6240*d* | 913-7055*f* | 329-7043*i* | 624-4471*f* | 758-7234*i* | 375-4686*g* | 652-7970*d* |
| 627-8290*b* | 983-6240*d* | 914-7055*g* | 344-6386*i* | 625-4471*g* | 760-4517*d* | 376-4686*g* | 715-4963*a* |
| 683-4304*b* | 984-6240*e* | 915-7055*g* | 377-4398*b* | 626-4471*g* | 762-6660*b* | 377-4686*g* | 716-5360*b* |
| 685-4299*c* | 985-6240*e* | 916-7058*a* | 380-7609*b* | 627-4484*b* | 764-6465*h* | 378-4686*g* | 717-5002*f* |
| 726-5156*b* | 986-6240*f* | 934-4301*d* | 388-4852*h* | 628-4484*c* | 765-6465*i* | 379-4686*h* | 782-7958*c* |
| 729-6239*a* | 987 6240*c* | 935 4301*f* | 394-4880*d* | 629-4481*d* | 766 5144*d* | 380-7955*h* | 783-7647*a* |
| 730-6239*b* | 988-6240*e* | 936-4301*f* | 397-7703*a* | 630-4484*d* | 850-7961*a* | 381-6653*g* | 819-8694*d* |
| 731-6239*c* | 989-6240*d* | 937-4301*f* | 401-4895*b* | 631-4484*e* | 878-6414*i* | 382-6653*h* | 820-8694*e* |
| 732-6239*c* | 990-6240*e* | 938-4301*f* | 403-5100*g* | 632 4481*e* | 883-7970*c* | 383-6653*h* | 821-8694*f* |
| 733-6239*c* | 991 6240*f* | 939-4301*f* | 498-6386*c* | 633-4484*f* | 884-7970*d* | 384-6653*h* | 822-8694*f* |
| 734-6239*c* | 992-6240*f* | 940-4301*f* | 501-6792*g* | 634-4484*g* | 953-7706*d* | 385-6653*h* | 823-8694*f* |
| 735-6239*c* | 235027-9473*d* | 941-4301*f* | 508-7042*i* | 635-4484*g* | 956-9511*d* | 386-6653*i* | 824-5964*g* |
| 736-6239*c* | 029-9472*f* | 942-4304*d* | 509-7044*a* | 636-4484*h* | 240070-7974*d* | 387-6653*i* | 896-4525*c* |
| 737-6239*d* | 038 4499*a* | 943-4304*f* | 510-7049*g* | 638-4507*e* | 098 7975*d* | 388-6653*i* | 899-6012*e* |
| 738-6239*d* | 040-4589*d* | 944-4304*f* | 512-6793*b* | 688-5806*h* | 099-7975*e* | 389-6653*i* | 903-5599*a* |
| 739-6239*d* | 189-5199*c* | 945-4298*c* | 513-7039*g* | 758-6094*f* | 100-7975*g* | 390-6653*i* | 904-5600*b* |
| 740-6239*d* | 190 5199*e* | 946-4298*d* | 558-4517*i* | 763-7039*b* | 101-7975*h* | 391-6653*i* | 907-5183*d* |
| 766-7964*a* | 191-7056*h* | 947-4298*d* | 559-4517*i* | 764-7039*c* | 102-7975*i* | 392-6654*a* | 920-4494*e* |
| 767-7964*d* | 192-7056*i* | 948-4298*d* | 560-4517*i* | 785-8694*c* | 103-7975*i* | 393-6654*a* | 974-4898*c* |
| 768-7964*d* | 193-7056*i* | 949-4298*e* | 581-5899*b* | 786-7237*b* | 104-5199*a* | 394-6654*a* | 242050-5909*a* |
| 769-6233*d* | 214-9463*h* | 950-4298*e* | 621-9496*i* | 787-7237*c* | 105-5199*c* | 395-6654*a* | 051-5909*c* |
| 770-6654*d* | 224-4304*a* | 951-4303*a* | 624-5046*g* | 788-7237*c* | 106-5199*c* | 396-6654*a* | 053-7965*f* |
| 771-6235*e* | 225-4301*b* | 952-4303*b* | 625-5046*g* | 842-5807*i* | 107-5199*c* | 397-6654*a* | 054-7965*i* |
| 772-6235*f* | 226-4304*b* | 953-4303*b* | 637-5686*b* | 941-5529*d* | 108-5427*h* | 398-6654*b* | 148-4397*d* |
| 773-6235*f* | 227-3978*g* | 954-4303*b* | 651-4725*e* | 944-4879*e* | 109-6241*a* | 399-6654*b* | 153-7726*c* |
| 844-8692*a* | 229-4299*f* | 955-4303*b* | 758-6398*d* | 945-4880*a* | 110-6241*b* | 400-6654*b* | 156-7956*h* |
| 845-7235*d* | 230-4429*e* | 956-4013*e* | 780-5150*g* | 946-4880*b* | 111-6241*b* | 401-6654*b* | 159-5959*c* |
| 846-7697*c* | 231-4429*f* | 236012-4153*i* | 817-4588*g* | 947-3969*c* | 112-6241*c* | 402-6654*b* | 160-5597*b* |
| 847-7702*h* | 232-4429*g* | 013-5052*d* | 831-4518*a* | 948-4878*g* | 113-5962*e* | 411-5899*d* | 161-5598*a* |
| 848-7235*c* | 233-4429*g* | 017-5034*g* | 880-7043*e* | 949-4878*h* | 114-5962*f* | 457-5428*a* | 163-6452*b* |
| 856-6000*f* | 234 4429*g* | 110-4590*f* | 881-7042*b* | 950-4878*h* | 115-5965*e* | 461-7705*b* | 164-6452*b* |
| 857-4821*e* | 235-4429*h* | 130-7043*a* | 916-6098*a* | 988-7239*e* | 116-5965*f* | 467-4588*c* | 245-7958*f* |
| 930-4526*c* | 236-4429*h* | 161-7051*d* | 945-5573*f* | 239000-7727*c* | 117-5965*f* | 501-9474*b* | 247-7961*i* |
| 231030 9463*c* | 237-4429*h* | 162-7051*b* | 970-4507*c* | 001-7632*b* | 118-5965*g* | 570-4020*c* | 248-7968*i* |
| 031-9463*d* | 238-4429*h* | 169-7048*c* | 972-6386*g* | 006-7705*d* | 119-5965*g* | 571-4020*d* | 274-7976*c* |
| 032-9463*f* | 239-4429*i* | 170-7043*g* | 238059-4434*e* | 014-4507*d* | 120-5965*h* | 572-4020*e* | 276-5607*f* |
| 033-9463*g* | 240-4429*i* | 171-7043*h* | 089-7014*c* | 056-4963*b* | 121-5965*h* | 573-3968*d* | 277-5607*f* |
| 082-9498*a* | 279-7649*c* | 172-7043*i* | 141-5238*a* | 111-4819*b* | 122-5965*i* | 574-3968*e* | 278-5607*g* |
| 108-4297*a* | 290-4837*a* | 173-7964*g* | 142-5236*h* | 142-7055*c* | 123-5965*i* | 575-3968*e* | 279-5607*g* |
| 153 5237*h* | 320-4153*d* | 174-7964*i* | 144-5811*c* | 143-7055*d* | 124-5966*a* | 578-7967*c* | 285-7962*a* |
| 247-4587*f* | 336-4625*c* | 222-7053*h* | 146-5415*f* | 161-8691*a* | 125-5966*a* | 579-7967*d* | 286-7958*b* |
| 252-6233*i* | 431-7055*b* | 223-7056*f* | 148-5217*a* | 169-7964*i* | 126-5966*b* | 580-7965*c* | 287-7959*b* |
| 292-4431*f* | 432-7054*e* | 226-5047*d* | 149-7697*e* | 206-5882*i* | 129-8691*f* | 581-7965*d* | 288-7959*c* |
| 332-9474*g* | 434-7042*c* | 227-5046*c* | 183-4587*g* | 207-7726*e* | 133-5043*e* | 582-7954*g* | 289-7959*c* |
| 350-4499*e* | 435-7042*d* | 229-4451*e* | 186-4624*e* | 214-7712*f* | 134-5043*g* | 583-7954*h* | 291-7962*d* |
| 452-6229*b* | 436-7050*b* | 230-8690*c* | 258-5812*c* | 298-7042*a* | 135-5043*g* | 584-7963*g* | 292-7960*a* |
| 453-6224*h* | 437-7050*c* | 231-8691*e* | 259-7978*g* | 300-7039*i* | 136-5043*g* | 608-9477*b* | 300-9356*f* |
| 512-8691*d* | 438-7050*c* | 235-6418*e* | 260-7978*h* | 320-5803*d* | 137-5043*g* | 614-6643*g* | 335-6757*h* |
| 513-9459*e* | 440-7042*d* | 309-7056*c* | 264-7701*a* | 321-5803*f* | 138-5043*g* | 616-5792*g* | 343-6014*d* |
| 514-9459*g* | 444-7050*c* | 350-7050*f* | 265-5197*b* | 322-5961*c* | 139-5043*h* | 618-6832*f* | 350-7962*e* |
| 515-9459*g* | 462-9459*b* | 364-6386*h* | 266-5197*f* | 323-5961*d* | 140-5043*h* | 622-4628*a* | 355-5229*g* |
| 516-9459*g* | 463-9459*c* | 386-5425*c* | 267-5197*f* | 324-5961*e* | 141-5043*h* | 642-5358*e* | 356-4963*d* |
| 517-9459*h* | 464-9459*d* | 390-7703*c* | 268-5197*h* | 325-5961*f* | 142-5043*g* | 679-4854*i* | 497-5963*h* |
| 518-9459*h* | 465-9459*d* | 391-7703*f* | 269-5197*f* | 326-5961*g* | 143-5043*h* | 712-7975*a* | 498-5964*a* |
| 519-9459*i* | 479-7056*i* | 528-5195*g* | 270-5197*g* | 327-5961*h* | 144-5043*g* | 718-[illegible] | 499-5964*a* |
| 520-9459*i* | 480-7057*a* | 529-5195*i* | 271-5197*i* | 328-5961*i* | 145-5043*h* | 725-[illegible] | 500-5964*b* |
| 521-9460*a* | 481-7057*a* | 530-5196*a* | 272-5197*h* | 329-5962*a* | 146-5043*i* | 730-[illegible] | 501-5964*b* |
| 544-5899*a* | 482-7057*a* | 531-5196*b* | 273-5197*i* | 330-5962*a* | 147-5043*i* | [illegible] | 502-5964*c* |
| 581-9498*e* | 483-7057*b* | 532-5194*a* | 274-5198*a* | 331-5962*b* | 148-5043*i* | [illegible] | 503-5964*c* |


* Corrected patent number.

No. Col.

242504-5964*d*
505-5964*d*
506-5964*e*
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508-5964*f*
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007-4867*i*
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016-6671*g*
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034-5051*d*
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098-6660*c*
100-4300*b*
101-7978*e*
102-8643*a*

No. Col.

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516-4883*c*
517-4884*a*
583-9476*i*
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597-4500*b*
598-5049*i*
599-4487*i*
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960-4288*h*
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964-4864*d*
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966-5959*i*
969-7508*d*
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No. Col.

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No. Col.

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No. Col.

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No. Col.

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No. Col.

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070 8712*h*
071-8712*h*
130-8290*b*
133 7238*i*
302-8722*a*
303-8722*c*
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362-7405*c*
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530-6216*c*
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No. Col.

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590-7893*c*
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255102-6000*i*
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321-6427*i*
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323-6427*d*
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337-7188*i*
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617 7963*b*
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619 7963*b*
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622 7963*i*
623 7963*i*
624 7963*d*
625-7963*a*
626 7963*d*
627 7963*d*
628 7963*d*
629-7963*d*
630-7963*e*
640 7633*a*
710 7404*c*
886 7633*c*
912 5918*a*
955-5512*i*
956-5513*a*
958 7760*c*
959-7760*f*
962 6002*d*
970-6001*c*
978 6002*f*
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414-6096*h*
479-9495*d*
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785-8349*a*
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841-9395*f*
259255-8921*a*

# UNITED STATES PATENTS


| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
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| *23037- 102e | 2439814-3627e | 2440662-8150g | 2448265- 349e | 2448927- 356b | 2449627- 385i | 2450132-1056a | 2450612- 671d |
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| 085-3548i | 703-1914c | 996- 550c | 391-1223c | 978- 443a | 738- 385h | 222- 393g | 642-3439e |
| 100-6664d | 708-1914g | 997- 500e | 400- 389h | 979- 673f | 768- 105d | 224- 391f | 646-1051e |
| 111-5556b | 2441069-1440g | 2447004-4792g | 405- 350f | 985- 832a | 785-1168a | 234- 903i | 650- 509h |
| 115-7187c | 2442706- 334c | 005-4792h | 408- 690g | 987- 422a | 787-1146c | 235- 884f | 652-1175c |
| 118-7241h | 707- 334d | 006-4792i | 425- 826i | 991- 433a | 793- 386b | 254- 391i | 658-1066g |
| 119-7240d | 729-1068i | 009-1996e | 434- 885a | 993- 105h | 804-2815f | 255- 392b | 659-1066e |
| 124-7501b | 760- 812h | 050- 679d | 439- 370c | 996- 694g | 809- 329r | 258- 374f | 675-3439f |
| 128-7496h | 768-4407b | 052- 334a | 448- 868e | 997- 694i | 812- 850r | 260- 786e | 676-3439f |
| 134-8174g | 2443062- 252d | 064-2452d | 479- 500d | 998- 695a | 815-1051d | 266-1159i | 677-3439f |
| 135-9519b | 092- 252c | 148- 698g | 488- 678i | 2449001- 673c | 816 2028h | 272-1062d | 678-3439f |
| 140-9433a | 429-3126d | 175-1814c | 489- 679a | 004- 680e | 821-1051h | -5421f | 682-3233b |
| 134140-9388c | 450-6466c | 176-1814e | 491- 826h | 006- 856d | 822- 8g | 276-1160h | 683- 890a |
| 466487-9484h | 630- 660c | 177-1811e | 506-1057b | 010- 386e | 828-1996a | 289- 914g | 685-1067a |
| 560834-8918c | 728-2098a | 194-1797e | 507- 53h | 011- 865d | 836- 53h | 296 2878i | 686-1067a |
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| 589-8925i | 827- 678a | 288- 665f | 513- 510c | 028- 350g | 876-2033e | 321-1177e | 710- 364e |
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| 617170-9528c | 903-1796h | 372-2635h | 517- 500f | 040-2224a | 891 370f | 333- 843d | 746- 958i |
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| 784-8018b | 131- 387e | 475-2733a | 521- 441b | 071- 827a | 908- 698g | 339- 103i | 754-3451f |
| 623706-9390f | 258- 387i | 476-2732g | 525- 53i | 075- 551h | 917- 103a | 340- 102c | 764- 844e |
| 638891-9535f | 269- 393h | 504-3024i | 531- 903g | 088- 813c | 919- 516a | 342-1901e | 766-1161c |
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| 671918-9078h | 301-3451e | 544 2643d | 542- 54b | 107- 428b | 928- 896e | 367- 698d | 771- 898d |
| 676043-9536e | 395-4430c | 545-2643e | 549- 388e | 114- 390d | 929- 896g | 377- 901e | 773- 415i |
| 866-9532a | 399-3442d | 587- 248g | 552- 54e | 130- 858b | 933- 666a | 381- 7e | 774- 330i |
| 680058-9022h | 400-3461f | 593- 662g | 566-1435i | 149- 849e | 940- 667e | 384- 895f | 775- 330d |
| 707526 9358d | 545- 386i | 599- 679h | 567-1178g | 152- 674r | 949-2038g | 386-3456e | 777-5042g |
| 723656 9533g | 582-8670b | 615- 251e | 571- 856d | 153- 56d | 951-2037r | 389- 671e | 778-1712b |
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| 737061-8980g | 610- 389b | 715-1052f | 599- 332a | 163- 671g | 956-1058d | 394-1161b | 795-2879i |
| 740715-9021d | 650- 386f | 716- 449c | 601- 389i | 173- 690i | 959-2817h | 395 1709d | 804- 843h |
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| 752287-9020h | 832- 388c | 822-1068g | 609- 432d | 209- 849f | 970-3235r | 400- 514c | 810- 333d |
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* The patents numbered from 23,037 to 23,140 are reissues.
† The entries numbered from 84,140 to 789,055 are published patent applications.
‡ Corrected patent number.

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|---|---|---|---|---|---|---|---|
| 2451064- 509e | 2451737 1801g | 2452390 1579c | 2453108-1800e | 2453706-2240a | 2454420-1124c | 2454949-1812c | 2455659-1564a |
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| 228-2034*g* | 588-3460*d* | 117-2268*e* | 798-2745*c* | 456 3650*h* | 113-2766*f* | 618-2506*g* | 077 2710*b* |
| 230-8155*f* | 589-7706*f* | 122-2048*b* | 804-2375*e* | 469-2152*d* | 114-2766*f* | 630-2525*g* | 084 2476*e* |
| 231-1606*c* | 590-3450*b* | 139-3446*d* | 805-3459*f* | 480-2758*a* | 115-2766*g* | 636-3189*d* | 103 3214*f* |
| 233-2049*a* | 593-2156*b* | 141-1914*e* | 808-3627*f* | 484 3030*d* | 116-2766*i* | 651-3232*b* | 105 2818*g* |
| 235-2155*b* | 594-2156*c* | 146-2469*a* | 820-4430*g* | 485-3040*b* | 119-3772*f* | 653-2714*i* | 117-2794*g* |
| 243-1601*c* | 595-2443*e* | 152-6527*d* | 823-8149*d* | 486-2922*h* | 123-2023*b* | 677-3026*i* | 126 2714*h* |
| 251-1612*c* | 597-1805*f* | 154-2820*f* | 825-3465*f* | 487-6012*a* | 124-3159*f* | 684-3032*f* | 140-2750*b* |
| 255-1608*e* | 599-3440*g* | 158-3587*b* | 837-3162*e* | 494-2468*i* | 125-2471*c* | 686-3448*f* | 143-3460*e* |
| 258-1803*g* | 609-4212*i* | 160-2421*d* | 838 7713*e* | 495-2278*f* | 126 2463*e* | 690 3842*b* | 144-3460*b* |
| 260-1557*i* | 617-2049*c* | 169-2526*e* | 847 2436*a* | 502-2154*e* | 127-2468*b* | 693-6518*g* | 151-2763*i* |
| 262-2820*e* | 621-2037*d* | 186-2526*d* | 848-2448*i* | 504 2102*h* | 128-3470*b* | 694-6518*f* | 177-2803*i* |
| 265-1602*c* | 624-4212*b* | 188-1914*d* | 853-3628*d* | 505 2108*d* | 129-2532*f* | 696-2740*e* | 181-3242*d* |
| 268-1932*a* | 627-2030*h* | 191-2048*g* | 860 2438*e* | 509-2568*b* | 135-3465*i* | 706-3028*b* | 182-3443*d* |
| 269-1548*d* | 628-2037*a* | 203-1915*f* | 861-2152*e* | 512-2643*g* | 136-2531*g* | 708-2785*b* | 186-2814*a* |
| 271-1610*e* | 629-2031*b* | 204-3443*b* | 866-3437*i* | 513-2643*h* | 137-2466*g* | 710-3046*i* | 187 2814*d* |
| 274-7710*d* | 633 2740*g* | 209-2466*c* | 872-3230*d* | 514-2644*a* | 138-2732*f* | 714-2746*a* | 188 4419*a* |
| 279-2106*a* | 641-2795*b* | 215-2568*h* | 873-3239*c* | 515 2408*h* | 139 2742*b* | 717-4459*c* | 191-3030*a* |
| 281-2102*g* | 642-1960*b* | 224-3237*a* | 882-3438*f* | 519 2644*b* | 144 3031*a* | 718-2765*d* | 195-2817*b* |
| 283-2444*d* | 643-1939*c* | 225 3442*c* | 887-2742*a* | 520 2644*d* | 146 3044*f* | 725-3032*b* | 201-2518*c* |
| 288-2442*g* | 647-4686*c* | 226-2739*f* | 917-3158*c* | 521-2644*e* | 149-3205*b* | 736-4508*i* | 206-2784*e* |
| 295 1611*c* | 650-2461*d* | 227-4397*c* | 932 4702*d* | 523-2151*h* | 161-2568*a* | 739-2806*h* | 233-3460*b* |
| 297-1880*e* | 655-2795*d* | 229-3235*g* | 933 2101*b* | 525 2525*c* | 164-3242*b* | 740-2803*f* | 239-3448*g* |
| 301-2443*d* | 656 2795*i* | 238-3236*i* | 957 4120*d* | 526-2766*b* | 176-2815*e* | 742-2807*d* | 240-3448*i* |
| 313-1579*f* | 661-2795*a* | 247-2048*a* | 959-2763*b* | 527-2766*c* | 191-3043*d* | 744-2807*f* | 241-2789*d* |
| 314-3633*b* | 670-2790*e* | 261-3240*g* | 962-2803*d* | 533-4442*b* | 192-3044*c* | 745-2802*i* | 243-3438*h* |
| 315-2630*g* | 671-2790*c* | 271 3236*g* | 963-2410*a* | 535-3193*d* | 203-4442*f* | 746-3233*e* | 252-2524*h* |
| 316 2639*c* | 672-1955*i* | 279 2816*g* | 970 2716*f* | 540-2731*b* | 209-4442*g* | 748-2803*i* | 255-3240*i* |
| 318-4512*b* | 683-3025*g* | 300 3240*h* | 971-2746*e* | 551-3437*a* | 217 3038*f* | 754-3037*i* | 256-3241*b* |
| 326 1931*b* | 684-2340*d* | 306-3236*a* | 988-3461*f* | 554-2791*f* | 219-3768*e* | 759-3033*c* | 259-2568*d* |
| 329-2421*g* | 686-1917*d* | 315-3541*a* | 2458001 2805*b* | 562 2803*c* | 222 3208*a* | 760-7035*g* | 265-3038*b* |
| 336-1562*a* | 688 2135*e* | 328-3446*b* | 013 2526*b* | 581 3170*g* | 225-2524*e* | 761-2804*b* | 266 4444*a* |
| 338-1559*c* | 691 2311*a* | 329 3660*f* | 017-3461*a* | 585-3170*i* | 226-3042*h* | 763-2808*e* | 267-4444*b* |
| 344-2034*a* | 692-1959*b* | 331 2164*i* | 032-2466*i* | 603-3441*i* | 236-2786*i* | 764-3160*g* | 268-3164*g* |
| 348 1558*h* | 717-2033*d* | 334 2568*e* | 034 2765*a* | 636-2469*d* | 256-2566*h* | 767-8023*i* | 282-3119*g* |
| 350-2633*a* | 721-3161*a* | 335-3229*f* | 035 2566*e* | 639 2470*e* | 266-2532*e* | 775-8435*g* | 284-3152*a* |
| 351-2384*b* | 722 1955*g* | 357 3198*a* | 039 2396*h* | 651-2153*h* | 279-3242*b* | 777-4703*h* | 285-3152*b* |
| 354-3651*b* | 723 1955*h* | 361-3451*d* | 044 3189*h* | 655-2153*e* | 289 3158*b* | 779-3033*e* | 291-3039*g* |
| 357-1607*a* | *727-3558*e* | 371-3035*c* | 049 3187*a* | 656 2732*h* | 291-2785*h* | 780-4300*g* | 300-2815*h* |
| 358 1607*c* | 742-3029*h* | 375 4130*e* | 067-3436*i* | 660 2154*i* | 298 3242*g* | 781-4301*c* | 301-2765*b* |
| 360 3658*d* | 750 1913*g* | 392-3415*c* | 073-2567*h* | 661-2154*i* | 302 2824*e* | 782-4301*e* | 303-2763*g* |
| 363-1814*f* | 752 3031*d* | 401-4894*e* | 075 3441*i* | 662-3769*c* | 315-2742*d* | 783-3844*d* | 324-3598*i* |
| 366-2468*c* | 759 2034*f* | 405-4894*f* | 082 3023*i* | 663-3769*b* | 338-4695*h* | 803-3208*e* | 333-3161*e* |
| 367-2382*e* | 761-1666*i* | 406-4894*e* | 104 2517*c* | 676 2524*h* | 342-3215*e* | 804-3208*f* | 334-3164*e* |
| 368-2382*i* | 767-1901*g* | 449 2018*b* | 107 3178*a* | 679 3542*b* | 353-2720*c* | 813-8155*h* | 344-3158*d* |
| 370 2103*f* | 768-4683*f* | 458 2018*c* | 139-2476*e* | 680 2712*a* | 359-3043*i* | 817-3040*h* | 347-3340*a* |
| 377-1811*a* | 769-1709*b* | 480-2567*f* | 145-1940*c* | 688 2154*a* | 360-3045*h* | 818-4033*d* | 356-3164*c* |
| 378-1808*g* | 773 2240*c* | 481-3045*b* | 166-2163*f* | 691-2518*c* | 364 3198*f* | 820-3216*a* | 365-3160*i* |
| 379-7050*i* | 774 2241*d* | 493-3236*d* | 168-2106*b* | 703-3441*i* | 365-2525*b* | 831-9473*a* | 367-3164*i* |
| 380-1811*b* | 783-2036*a* | 515-2344*a* | 170 2793*g* | 715-2155*d* | 366-3205*g* | 834 3818*f* | 372-2785*a* |
| 382-2171*a* | 785-3027*i* | 518 3231*i* | 171 2310*g* | 718-2715*g* | 367-4704*i* | 835-3037*f* | 375-2776*d* |
| 387-2471*b* | 796-1952*b* | 539-3837*d* | 184-2526*f* | 741 3448*d* | 369-2802*g* | 836-2763*e* | 376-4514*d* |
| 393-3984*i* | 824 3216*a* | 542-3227*a* | 191-2466*e* | 750 2040*d* | 375 2476*i* | 848-2525*h* | 377-3207*f* |
| 395 1813*e* | 836-1914*a* | 544-2921*a* | 207-3441*f* | 764-2746*d* | 387-2815*d* | 851-3197*c* | 389-2710*e* |
| 408-1996*c* | 851-1903*d* | 545-2921*b* | 214-3151*e* | 772-2470*a* | 403-2824*b* | 868-3768*f* | 393-3230*c* |
| 413-2467*f* | 897-2102*c* | 546 2921*c* | 221 6156*i* | 776 8157*i* | 404-3191*d* | 874-2786*e* | 397-5052*a* |
| 428-2468*h* | 899 1935*e* | 547-2921*c* | 222-2463*a* | 777-2421*f* | 408-3242*f* | 886-2526*a* | 400-2785*g* |
| 435-1174*g* | 911-3046*b* | 548-2921*d* | 232-2568*i* | 780-3042*g* | 410-3436*g* | 891-3240*e* | 409-3854*a* |
| 437-1587*a* | 918-1708*i* | 549-2921*d* | 243-3988*b* | 796-2448*c* | 414-3159*e* | 895-3158*e* | 423-3249*f* |
| 430-2154*f* | 919 2033*a* | 550-2921*e* | 253-2567*c* | 818-2764*d* | 420-3440*b* | 896-2712*i* | 436-3447*f* |
| 443-7047*e* | 931 2880*c* | 551-2921*f* | 261-2798*g* | 819-2628*c* | 423-3024*a* | 897-2712*i* | 437-4430*a* |
| 452-7048*e* | 933 4211*b* | 552 2920*i* | 266-3146*a* | 823-3461*i* | 424-7704*g* | 901-2710*g* | 439-2710*c* |
| 454-2470*c* | *935-3340*e* | 553-2921*g* | 285-2750*a* | 827-6526*i* | 425 3187*i* | 903-3161*d* | 457-3237*b* |
| 462-2467*i* | 937-1880*f* | 556-2422*e* | 286 2517*f* | 839 6526*i* | 430-3029*b* | 907-2478*a* | 491-6666*d* |
| 467 2468*g* | 938 1708*h* | 560 2656*d* | 292-6794*c* | 841-3227*b* | 431-2710*h* | 913-3204*c* | 503-3248*i* |
| 469-2152*h* | 947-2922*e* | 564-2422*i* | 295 3030*f* | 843-3228*d* | 432-2476*g* | 916-2808*f* | 508-3175*c* |
| 470-7041*c* | 968-1666*e* | 566-2422*b* | 328-3463*e* | 847-2745*d* | 433-2177*a* | 927-2774*e* | 514-3587*a* |
| 471-1989*a* | 972-2025*d* | 577-3842*a* | 337-3440*a* | 857-3465*e* | 434-2764*e* | 944-2476*g* | 516-3119*d* |
| 496-1177*i* | 975-1957*b* | 582-2425*d* | 351-2162*i* | 862-3191*c* | 438-3157*c* | 949-3849*g* | 535-4420*c* |
| 500-7041*i* | 984-2153*f* | 586-2126*c* | 352-2470*d* | 866 2764*d* | 439-4516*e* | 950-3850*e* | 536-3446*g* |
| 503-2635*f* | 991-1902*h* | 591-1995*a* | 355-3650*i* | 870-3175*f* | 440 3193*b* | 951-2734*f* | 537-2924*c* |
| 509-2744*i* | 995 1666*f* | 600-2448*g* | 356-6819*i* | 878-2526*g* | 442-2763*d* | 952-3627*c* | 550-2739*d* |
| 514-4165*g* | 996-2790*a* | 603-2631*c* | 357-6819*g* | 886-3227*e* | 444-3832*i* | 955-3240*e* | 564-3463*h* |
| 515-1881*a* | 2457003-2715*b* | 611-3837*i* | 358-6819*h* | 888 3030*g* | 449-2764*f* | 964-3843*a* | 565-3463*i* |
| 517-2634*i* | 021 1665*c* | 634-3186*c* | 359 6819*h* | 893-2798*f* | 451-3023*e* | 966-5725*d* | 567-4507*g* |
| 524-2347*e* | 025-1902*a* | 640-3039*d* | 373-3836*d* | 895-2104*d* | 454-3023*g* | 967-5725*h* | 573-2818*a* |
| 525-1932*c* | 033-4022*d* | 641-2803*a* | 376-2106*d* | 902-2919*h* | 464-3126*f* | 987-3188*h* | 574-2817*d* |
| 539-1601*e* | 035-2037*i* | 642-2375*g* | 378-2469*e* | 905-2106*e* | 467-8148*e* | 991-2711*a* | 578-4515*g* |
| 543-2635*b* | 047-3042*e* | 651-2518*f* | 397-2442*h* | 908-2153*c* | 483-2766*i* | 995-3192*i* | 579-4515*i* |
| 545-2632*a* | 048-3038*i* | 656-3029*c* | 403-2106*c* | 912-6527*f* | 488-2813*g* | 2460002-7973*f* | 581-3229*g* |
| 549-2632*f* | 054-1662*e* | 657-2469*h* | 404-3440*i* | 914-3237*e* | 492-2567*e* | 009-4433*e* | 582-3660*i* |
| 555-2639*f* | 055-4210*e* | 660-3028*g* | 408-3654*d* | 960-3436*e* | 501-3236*b* | 011-2720*b* | 590-2878*g* |
| 556-2640*b* | 057-2348*d* | 661-2469*h* | 411-6010*h* | 977-3188*b* | 512-3185*e* | 019-3023*a* | 592-3026*e* |
| 557-1174*e* | 059-2880*a* | 674-4418*h* | 412-6010*g* | 996-2408*i* | 518 2741*g* | 025-4458*f* | 595-2922*d* |
| 558-3238*f* | 060-2880*b* | 677-4402*e* | 420-3446*h* | 2459002-3033*h* | 520-2754*a* | 035-2764*h* | 600-3230*a* |
| 561-4007*b* | 063-1880*g* | 678-4442*h* | 421-3447*a* | 014-3039*e* | 521-4156*c* | 036-2720*b* | 602-3572*g* |
| 562-2347*e* | 074-3037*d* | 684-2804*i* | 422-3447*c* | 049-7497*a* | 525-2732*c* | 038-2819*f* | 603-4288*g* |
| 565-2468*b* | 078-3042*b* | 686-2048*e* | 423-3447*d* | 052-3628*a* | 526-2732*d* | 040-3054*c* | 606-6859*c* |
| 567-2436*f* | 079-3041*a* | 688-2808*a* | 425-2765*f* | 054-2793*i* | 531-2764*a* | 041-2765*i* | 618-7699*a* |
| 568-2444*c* | 080-3041*a* | 696-3442*a* | 428-4028*f* | 056-3188*a* | 539-3025*d* | 043-7969*d* | 627-3120*d* |
| 569-3193*e* | 081-3041*b* | 701-2806*a* | 430-1914*b* | 059-3448*e* | 540-3187*e* | 056-3435*i* | 632-4459*f* |
| 576-2746*c* | 087-1883*c* | 707-2339*g* | 432-2805*c* | 062-4430*h* | 544-3462*a* | 065-2713*e* | 680-4022*d* |
| 577-2746*c* | 091-1884*c* | 719-3162*d* | 433-2764*b* | 063-2734*h* | 547-3196*h* | 066-2714*b* | 692-5641*h* |
| 578-2746*d* | 093-2422*a* | 735-3186*e* | 434-2764*c* | 076-4291*a* | 548-8718*d* | 067-2714*b* | 705-4296*d* |
| 581-3459*c* | 097-2806*f* | 738-2467*e* | 435-2764*c* | 082-2824*a* | 550-3175*g* | 068-2714*d* | 706-3249*a* |
| 582-3459*d* | 098-2422*b* | 741-2793*e* | 438-2716*b* | 088-2630*i* | 563-2734*f* | 069-2714*e* | 708-3030*b* |
| 583-3200*e* | 108-2471*i* | 754-2366*h* | 439-2467*d* | 090-3441*a* | 566-2739*b* | 070-2714*c* | 710-4419*g* |
| 584-3435*f* | 109-3046*e* | 768-2448*f* | 442-2105*e* | 108-2456*e* | 570 2774*i* | 071-2714*f* | 719-3604*g* |
| 585-3438*h* | 110-2340*h* | 769-2448*e* | 450-3442*i* | 109-4051*c* | 574-2734*g* | 072-2714*f* | 724-5631*d* |
| 586-3140*h* | 111-3451*i* | 775-3987*b* | 451-3662*c* | 111-3450*c* | 581-4511*h* | 073-2714*g* | 733-3447*e* |

* Corrected patent number.

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 2460734-3544c | 2461180 3344c | 2461704-3240b | 2462200-3840d | 2462703-3660d | 2463453-3988h | 2463983-5232h | 2464537-6099g |
| 742-3166h | 191 3837b | 726-2870f | 202-3340a | 712-5045g | 454-4156b | 986-4024a | 546-4057a |
| 745-4302e | 192-3230e | 730-6346c | 209-3656c | 730-5033b | 456-4285f | 989-4687i | 572-4285b |
| 747-3452f | 193-3230g | 735-3660h | 210-4038b | 736-3839e | 457-4285i | 994-3989d | 581-4058a |
| 761-3164b | 220-3839g | 740-8176a | 221-3845f | 737-3658g | 461-3979c | 998-4291i | 588-4494b |
| 772-4286c | 228-3299g | 750-3948c | 228-3544a | 738-5035f | 462-5045c | 2464004-5682c | 591-5001f |
| 776-3978d | 229-3341i | 751-3948d | 230-3804a | 739-3949c | 464-4406h | 008-4154a | 596-3772b |
| 777-4023c | 276-3193d | 761-3656a | 237-3604f | 742-4046e | 466-4285i | 033-4286h | 597-4299e |
| 779-3214g | 278-3153b | 807-3637f | 241-3296g | 758-4034a | 467-3986b | 036-4056h | 600-4300a |
| 783-3215b | 280-3340d | 808-3637g | 242-3544e | 760-3540f | 468-3768i | 043-3950f | 610-3771e |
| 785-3451c | 300-3220e | 809-6096a | 251-3451g | 763-3342e | 471-5051e | 044-4694f | 611-3972a |
| 787-3242e | 301-3847e | 813-3986b | 252-3656b | 782-4431b | 478-4701b | 049-4683d | 617-4405g |
| 788-4285c | 302-3210c | 814-3250f | 253-3656c | 783-3339g | 481-4397a | 053-3573f | 632-3949a |
| 793-3036g | 325-3550a | 817-3986b | 255-3769f | 792-4458a | 482-4283g | 056-5230f | 682-4005i |
| 795-3229d | 331-4682e | 820-3833g | 256-3769g | 793-4458b | 483-3734d | 060-6468a | 685-4287b |
| 796-2704i | 334-3250g | 824-3549a | 267-3657f | 798-3986d | 496-3772c | 062-5641i | 692-4296f |
| 799-3234a | 335-4460c | 829 3241h | 270-4456f | 803-3655c | 497-3639b | 072-4058e | 693-7263c |
| 801-3249a | 336-4689g | 838-5134i | 277-3640e | 811-4493e | 500-4302b | 075-3663b | 707-4408d |
| 802-3249a | 339-3851g | 840-6802i | 289-3588d | 817-3658e | 501-5228e | 081-4037f | 714-4151c |
| 803-3447i | 340-3851e | 841-3987c | 293-3249g | 829-4460d | 541-3968a | 089-3985a | 717-6861i |
| 805-3238b | 341-3851b | 842-3841d | 301 3300f | 830-3968f | 554-4166g | 094 4289a | 723-4286b |
| 809-3224f | 346 3453c | 847 4688g | 331-4520g | 831-3638g | 561-3771h | 120-5636c | 740 5037a |
| 811-5135b | 349-3228g | 852-7634a | 337-3634a | 832-4046h | 565-4154i | 127-4004d | 741-4896d |
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| 825-3465d | 362-3834c | 894-3839i | 352-4520h | 861-3904e | 575 7260i | 155 4186f | 765 3978i |
| 834-3250g | 365-3176i | 896-3206b | 354-4895i | 863-5132a | 596-5231g | 158 4689i | 758 4682h |
| 844-3239b | 371-3194e | 901-3223f | 357-3840c | 870-4152h | 608-4288e | 163-3770g | 759-3606p |
| 852-3605f | 383-3238i | 906-3835g | 358-4289b | 871-3768i | 610-3733e | 167-5036e | 767-3769d |
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| 891-3116i | 460-3853h | 920-4290c | 390-4869e | 912 4873f | 666-3968i | 187 5031d | 780 8925b |
| 896-3341g | 463-7042d | 921-3571d | 391 3605c | 917-4589f | 677-4037h | 189-4037d | 783 4490i |
| 897-3342h | 467 3739b | 933-3300h | 398 3542a | 923-3638b | 678-4442e | 192-4028h | 784 4853b |
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| 035-2880e | 552-3229e | 053-3657e | 612-3548h | 188 3983f | 856-4513h | 311-4002g | 2465012-4689d |
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| 139-3222h | 632-4021i | 157-4153d | 665-4210f | 327-4406i | 941-4698d | 487-3669e | 109-8925f |
| 141-3845h | 651-3540g | 158-4518f | 668-4687e | 342-3772a | 942-4697f | 488-6866b | 122-6002a |
| 142-3834e | 661-4684e | 159-3659c | 669-3726e | 363-4396h | 943-4433f | 497-4458i | 126-5990f |
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| 156-3852h | 701-3841e | 196-3842a | 697-3850h | 449-6518a | 977-4517g | 520-4295i | 228-4590b |
| 163-3822e | 702-3153g | 197-3800d | 699-3670a | 452-6868c | 979-4441f | 533-4448e | 229-4057e |

| No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. | No. Col. |
|---|---|---|---|---|---|---|---|
| 2465233-3982*b* | 2465828-4398*d* | 2466419-5037*d* | 2467053-9518*d* | 2467436-5640*c* | 2468086-5643*h* | 2468660-5727*e* | 2469285-6340*i* |
| 235-6398*a* | 834-5412*b* | 420-5037*f* | 054-5223*c* | 438-4870*c* | 089-5184*i* | 664-5410*f* | 288-5228*e* |
| 237-4450*i* | 854-4420*f* | 423-4591*i* | 055-5229*b* | 439-6238*a* | 094-6467*b* | 670-5421*d* | 290-5789*i* |
| 243-5206*a* | 855-4420*h* | 429-4512*d* | 058-4964*d* | 442-6225*b* | 098-5940*g* | 677-5512*f* | 293-6873*h* |
| 247-4209*f* | 858-6341*c* | 434-4894*g* | 068-6098*a* | 443-6011*h* | 099-5940*f* | 681-5555*c* | 295-5231*a* |
| 264-6376*c* | 865-6244*d* | 435-4449*c* | 082-4821*c* | 446-5160*i* | 103-5726*h* | 704-6143*h* | 303-5153*e* |
| 278-4443*e* | 868-4703*e* | 445-4870*b* | 089-5133*i* | 449-5607*i* | 111-5642*b* | 710-5415*h* | 309-5135*i* |
| 279-4448*d* | 870-4810*d* | 450-4403*c* | 095-5795*g* | 451-6229*i* | 131 5318*g* | 711-5566*f* | 314-5583*b* |
| 280-4448*f* | 875-6332*h* | 457-4869*c* | 101-5888*g* | 453-5130*i* | 159-5626*f* | 713-5422*f* | 317-5152*e* |
| 281-4448*f* | 882-6230*h* | 487-4434*a* | 105-6219*a* | 460-6247*b* | 162-6378*f* | 716-6428*c* | 318-5634*a* |
| 282-4448*f* | 883-5602*e* | 491-6011*c* | 109-6012*a* | 470-6013*e* | 163-5001*h* | 718-7505*a* | 319-5634*b* |
| 283-4439*i* | 888-4508*a* | 492-6437*c* | 114-5001*g* | 484-5518*c* | 165-5631*i* | 720-6448*c* | 320-5634*c* |
| 284-4402*d* | 892-6224*b* | 501-5035*i* | 118-5584*e* | 491-5151*g* | 168-5805*i* | 722-7240*a* | 322-5584*c* |
| 292-4515*d* | 893-4209*d* | 503-6009*h* | 122-5020*a* | 498-5643*d* | 172-8147*c* | 724-5608*h* | 326-5231*b* |
| 293-4701*d* | 900-5040*i* | 505-5165*i* | 123 5424*a* | 523-5517*g* | 173-6096*f* | 725-5414*g* | 329-7222*f* |
| 295-6001*d* | 901-4508*c* | 506-5165*f* | 126-5423*g* | 526-5638*f* | 174-6096*f* | 730-5136*d* | 330-5151*d* |
| 296-5999*i* | 902 5184*f* | 507-5165*g* | 130 6232*c* | 527-5638*h* | 175-6096*f* | 738-6965*f* | 334-5583*e* |
| 299-5907*i* | 905-4784*h* | 508-5166*a* | 131 6232*d* | 528-5918*d* | 176-6096*f* | 739-5790*h* | 335-5583*b* |
| 303-5037*h* | 906-4785*b* | 509-5165*h* | 132 6232*e* | 530 6406*h* | 177-6096*f* | 744-5512*g* | 338-5796*e* |
| 307-5041*a* | 907-4784*g* | 510-5166*b* | 137 5185*e* | 540-6340*e* | 180-5180*b* | 746-5173*i* | 340-6357*i* |
| 308-4694*h* | 912-5185*g* | 517-6406*g* | 144-5919*d* | 544-5000*g* | 181-5180*g* | 747-5608*a* | 342-7262*g* |
| 313-4448*d* | 914-4853*f* | 588-750*.e* | 145-5183*h* | 550-5642*g* | 188-5522*e* | 748-5608*c* | 344-5583*d* |
| 314-4448*d* | 915-4853*a* | 593-4457*a* | 146-5183*i* | 551-5928*i* | 189-5522*f* | 753-5612*i* | 348-6834*b* |
| 315-4448*d* | 948-4842*g* | 597-4402*c* | 147-5183*i* | 553-5636*b* | 204-8151*a* | 755-5519*c* | 353-5568*g* |
| 316-5044*i* | 950-4693*c* | 601-6380*b* | 148-5184*a* | 580-6095*b* | 232-5592*d* | 756-5182*a* | 354-5582*b* |
| 317-5045*b* | 951-6232*a* | 617-5174*i* | 149 6403*f* | 599-6012*c* | 233-5592*e* | 759-5804*h* | 355-5791*d* |
| 318-4897*f* | 952-6232*b* | 632-6439*b* | 152 5040*f* | 602-6223*a* | 239-5626*a* | 762-6235*f* | 356-5568*f* |
| 319-4896*g* | 953-4460*d* | 633 5591*a* | 159-5680*a* | 647-5160*d* | 260 5556*d* | 764-6217*k* | 358-6652*e* |
| 320-6235*i* | 955-6378*c* | 641 7498*g* | 160-5230*b* | 675-4999*g* | 277-8149*a* | 766-4964*h* | 368-4998*h* |
| 327-4854*f* | 958-5424*g* | 642 4815*b* | 162-5134*h* | 689-4959*a* | 309-5625*g* | 769-5637*b* | 370-6651*f* |
| 329-4211*e* | 959-5791*a* | 645 1845*i* | 164-5730*d* | 692-6242*c* | 318-6014*d* | 770-5639*a* | 371-5794*d* |
| 335-4420*e* | 961-5185*d* | 647-4844*g* | 169-5918*i* | 693-6242*c* | 324-5808*a* | 771-6833*a* | 372-5990*g* |
| 336-4508*f* | 963-6332*i* | 649-6416*d* | 170-6232*g* | 701-4625*i* | 329-5144*c* | 779-5205*f* | 376-6845*a* |
| 337-4494*d* | 967 6334*g* | 655-7505*d* | 171-5421*h* | 705-4892*a* | 330-5232*c* | 792-5179*g* | 377-6845*c* |
| 338-4342*g* | 969-5215*d* | 656-8172*b* | 174-6403*d* | 706-4892*a* | 345 5632*h* | 798-5639*b* | 378-6840*a* |
| 339 6220*a* | 974-4683*d* | 657-7513*f* | 176-5184*c* | 707-4892*a* | 352-7505*f* | 799-5613*a* | 379-5918*e* |
| 340-4434*g* | 978-4210*c* | 660-4963*g* | 177-6222*h* | 708-4892*a* | 354-6009*i* | 803-5161*h* | 395-5592*g* |
| 343-4854*c* | 979-8151*a* | 662 6448*d* | 178-5187*a* | 712-5810*a* | 357-6149*b* | 822-5630*h* | 396-6646*g* |
| 346-6437*i* | 980-4105*h* | 663 7617*c* | 186-5232*c* | 713-5584*h* | 363-7499*c* | 825-5317*e* | 398-7206*d* |
| 347-5593*a* | 984-4693*i* | 665-6672*h* | 192-5205*f* | 715-6453*a* | 393-5232*·* | 826-6874*f* | 404-6001*e* |
| 357-4434*g* | 987-6149*b* | 667-5728*b* | 196-5603*a* | 731-5583*f* | 394 5154*c* | 831-5582*i* | 407-5603*c* |
| 363-4507*b* | 988-7512*d* | 670-6236*a* | 197-5582*g* | 742-6011*h* | 401-7512*i* | 838-7228*i* | 408-5603*f* |
| 375-4825*b* | 989-5102*e* | 671-4822*e* | 198-5799*b* | 769-9518*f* | 402 5565*e* | 857-5134*b* | 409-5604*a* |
| 383-4151*e* | 991-7503*a* | 672 5643*e* | 205-6244*g* | 774-5230*g* | 413-5228*h* | 859-5428*d* | 410-5320*a* |
| 387-4408*i* | 997-6011*a* | 673-5179*d* | 206-6234*i* | 780-5002*e* | 414-5228*i* | 861-5412*e* | 413-6795*c* |
| 391-5796*i* | 2466001-6339*h* | 674-5179*f* | 207-6850*c* | 789-5224*b* | 423-7508*f* | 862-6873*h* | 414-5886*c* |
| 410-6378*d* | 014-6333*h* | 675-5517*f* | 208-5789*e* | 796 5232*g* | 426-7504*d* | 864-7170*g* | 416-5518*f* |
| 412-1160*b* | 027-4890*c* | 677-6095*a* | 211 4836*i* | 798-5790*g* | 431-5977*g* | 865-7170*f* | 418-5358*g* |
| 424-4593*b* | 037-4057*d* | 678-6225*i* | 212 5232*a* | 799-6099*f* | 432-5231*i* | 868-5564*i* | 420-6404*c* |
| 431-4057*a* | 038-4897*g* | 679-6230*d* | 215 4907*e* | 802-6811*a* | 436-7502*g* | 869-5420*e* | 421-5190*e* |
| 443-4211*d* | 039-4870*c* | 680-6230*e* | 222-5418*d* | 803-6810*h* | 443-5982*d* | 872-6874*b* | 422-4998*d* |
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| 462 4446*g* | 046-4843*a* | 682-5920*d* | 228-4874*d* | 832-5231*i* | 455-5556*e* | 890-5181*g* | 428-6452*e* |
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| 464-4449*g* | 048-4843*a* | 695-6429*b* | 231-5231*c* | 843-6218*a* | 458-5682*f* | 908-6430*c* | 433-5899*e* |
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| 505-5804*g* | 092-5186*i* | 739-7040*f* | 271-5161*a* | 859-5150*i* | 501-5585*d* | 952-5425*i* | 457-5112*d* |
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| 672 4441*g* | 232-6669*a* | 889-5631*b* | 340-5229*i* | 927-6222*f* | 544-5887*g* | 088-5357*d* | 625-6430*d* |
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| 713-4824*e* | 261-4784*c* | 894-5131*a* | 342-5632*h* | 956-5000*b* | 561-6012*b* | 101-5626*e* | 684-5518*b* |
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* Corrected patent number.

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820-7514*c* 482-8080*h* 140-8209*i* 815 8400*f* 435-8399*b* 166-8075*b* 302 8919*c* 269-9468*a*
821-7514*h* 485-8662*a* 145-7657*b* 818 8732*a* 443-7891*e* 168-8620*i* 311-8345*g* 320-8757*g*
822-7515*b* 506-9460*a* 157-7678*f* 819-8732*a* 454-8108*g* 181-9448*i* 326-8667*d* 326-9086*i*
823-7515*e* 517-8116*c* 159-7638*b* 821-8732*c* 459-8082*b* 182-8619*h* 366-9430*f* 329-9080*g*
824-7516*d* 520-9537*c* 165-7955*g* 822-8194*f* 465-8398*b* 186-8920*i* 374-9532*i* 332-9493*i*
827-7223*d* 529-7832*e* 166-7955*f* 823-8346*c* 469-7891*b* 189-8289*h* 382-8621*e* 347-9527*h*
831-7652*i* 530-9468*d* 168-8194*i* 824-8195*g* 487 9463*a* 191-9389*g* 403-9310*h* 348-9527*i*
834-8129*i* 557-8211*f* 170-8399*h* 827-8194*e* 491-9391*a* 194-8578*f* 407-9432*c* 349-9488*a*
838-7506*h* 564-7966*g* 178 7240*e* 829-8739*e* 502-8663*b* 8289*f* 409 9535*d* 352-8732*i*
839-7506*f* 565-8116*b* 204 7760*g* 830-8743*g* 503-7894*f* 9528*f* 410-9485*b* 374-8760*f*
845 7213*a* 567 7966*i* 205-7274*h* 832-8738*g* 505 8072*e* 266 9294*f* 417-9536*g* 426-9020*d*
851 8284*b* 568-7650*b* 206-7274*h* 833-8195*b* 539 8186*i* 298 9295*a* 418 9530*b* 432-8348*h*
859-7679*d* 581-7402*c* 208-7403*a* 845-8661*i* 541-8621*b* 319 9301*a* 420-9420*b* 448-8348*e*
863-7406*e* 583-8194*d* 222-7891*g* 846-8662*c* 548-9538*a* 322 9536*i* 423-8345*h* 449 9432*f*
869-7670*f* 587-8207*h* 235-7632*f* 855-8176*c* 549-8682*g* 331-9476*c* 424-9433*c* 450 9432*g*
874-7950*d* 589-7680*b* 240-7850*i* 859-8398*e* 551 8743*a* 345-8347*f* 435-9419*i* 453-8918*f*
881-8130*d* 592 9302*b* 242 8072*a* 879-8712*b* 553-8108*d* 354-9494*c* 439-9420*f* 455-9022*b*
888 7608*g* 601 7893*b* 259 8157*a* 890-9388*h* 554-8108*f* 369-8925*f* 441-9528*a* 471-9493*h*
890 7712*b* 605-7949*h* 260-8155*i* 891-9081*f* 558 8072*c* 378-9531*b* 446-8920*e* 178-8732*h*
896 7755*b* 607-7892*i* 261-9464*f* 903 7760*e* 561 7892*d* 379-9447*f* 450-9519*c* 485-9483*h*
897-7755*h* 616-7850*d* 263-9397*d* 919-8739*a* 579 7839*a* 404 8418*g* 451-9300*f* 514-9526*b*
901-7950*e* 626-8075*f* 264-7968*c* 920-8076*g* 580-7839*a* 417 8608*f* 470-8669*c* 517-9088*a*
902-7950*f* 629-7634*d* 270-9079*e* 922-8740*c* 595-8218*d* 418-8683*c* 490-9520*b* 520-9299*f*
903-7950*f* 642-7894*a* 271-8668*c* 925-8101*i* 605-8576*c* 419-8684*b* 496-8650*h* 551-9531*h*
909 7712*i* 643 8742*e* 281-8714*c* 936-8742*d* 608-8209*a* 420 8346*i* 501-9537*a* 556 9389*e*
910 8578*d* 648 8742*f* 282-8174*i* 937 8705*d* 609-8209*b* 431-9533*d* 513 9432*a* 564-8669*a*
911 7608*i* 650-9300*b* 283-8175*b* 939-8739*b* 610-8209*b* 451-9484*a* 516-9485*f* 579-9495*h*
915-7605*c* 664-7754*b* 284-8107*f* 950-8705*a* 611-8209*b* 461-9019*a* 519-8711*i* 592-9496*i*
916 8109*b* 672 8693*a* 286 7839*h* 951-8705*b* 612 8209*b* 473-8620*f* 520-8578*b* 615-9533*b*
923 7713*h* 674-9082*b* 287 9471*a* 952-8706*b* 613-8209*b* 490-9526*f* 522-9532*h* 620-9526*e*
924 7223*a* 676 7890*i* 296 7892*c* 957-7895*d* 614-8209*b* 495-9529*f* 540-8634*a* 625-9429*d*
931 7515*g* 678 7685*g* 304-7760*b* 967 8732*d* 621-9081*h* 501 9450*i* 541-8634*a* 627-9428*c*
952 7274*i* 697-7248*f* 305-8652*a* 968 8710*b* 631-8176*a* 519 9299*d* 561-8651*a* 628-9299*b*
963-7892*d* 699-7221*h* 306-8580*b* 972 8131*d* 636 8121*d* 618 9294*a* 564-9022*d* 638-9434*d*
979 6965*i* 713 8128*i* 308-9494*i* 979-8107*g* 638 8665*d* 619 8218*h* 595-8348*c* 647-8668*i*
989 8619*i* 718-7510*i* 331-9445*e* 989 8290*h* 639 8129*h* 626-8633*c* 596 8348*d* 660-9432*h*
996 9498*c* 727-7678*d* 335-8110*e* 2477000 9448*g* 641 9525*c* 627-9532*e* 615 9021*h* 664-9431*g*
2475002 7746*b* 752-9396*i* 341-9519*f* 015-8196*c* 654-9486*a* 634-9528*g* 618 9530*d* 666-9433*b*
005 8208*a* 754-8116*i* 345-7893*h* 018 8195*a* 655 9486*f* 652-8344*e* 625-8759*d* 670-9426*i*
016 8212*c* 766 7686*h* 347-8739*h* 019 7608*h* 656-8741*c* 661-9388*i* 628-9302*b* 673-9432*i*
023 8760*a* 781 7208*i* 351-9390*i* 070 7832*b* 657-8741*f* 675-9397*a* 629-9302*c* 723-8350*d*
025 7760*h* 792 7069*b* 358 7648*a* 072-7870*k* 658 8741*h* 682-9419*d* 641 9018*h* 730-9495*c*
034 9537*i* 793 7069*b* 370-8683*b* 080 8104*f* 659-8711*h* 692-9022*h* 643-9526*d* 732-8757*h*
053 7744*h* 802 8710*a* 411-7661*b* 087-9079*i* 661-8178*b* 694 8668*f* 644-8694*a* 738-9362*f*
062 7755*c* 805 7892*b* 412-7605*a* 091 7966*c* 664-8129*g* 703 9519*h* 670-8917*d* 743-8620*a*
068 7955*i* 822-7760*i* 413 8346*e* 116 8705*c* 665 9085*d* 707 9522*b* 671-8732*f* 746-9467*g*
081 9082*i* 828-7678*a* 416 8667*b* 139-7895*f* 671-8666*a* 718 9520*a* 722-8758*a* 748-9018*i*
093 7670*m* 838-7605*f* 417 8132*e* 156 9475*c* 695-8076*f* 723-8348*a* 745-9294*h* 749-9525*f*
094 7969*c* 852 9086*i* 418 7893*d* 157 8662*b* 715-9084*a* 721-8348*b* 751-9126*a* 750-9525*i*
095 8140*i* 855-8130*a* 420 8344*d* 165-9471*a* 717 9528*d* 737-9519*d* 762-8349*d* 751-9525*i*
097-7970*b* 861-8920*a* 422 8739*d* 171 8106*f* 737 8109*g* 738-9520*d* 766-9310*i* 752-9526*a*
122 8194*i* 872 9086*c* 430 9519*i* 171-8122*b* 738 8110*d* 755 8349*b* 781-9396*i* 753-9298*g*
128 8080*i* 879 8693*i* 433-9482*i* 181 9022*i* 740 9078*e* 756 8349*c* 814-9018*g* 761-8722*d*
129 7248*c* 886 7738*b* 472-7670*d* 190-8130*g* 742-8576*c* 757-9410*i* 850-9390*a* 766-9533*e*
133 8071*i* 916-7967*e* 474-8742*g* 192-8106*h* 751-9128*b* 820 9391*d* 857 9483*e* 769-9494*h*
134 7850*i* 917 7648*c* 477-7760*c* 196-8744*c* 763-8106*e* 826-8733*b* 882-8898*d* 771-8919*a*
136-8294*i* 920-7649*a* 500 8398*f* 208-7759*h* 767-7605*c* 827-8733*b* 883-9299*g* 775-8692*k*
141 8194*b* 921-8076*a* 508 8105*c* 209 7759*h* 768-7605*c* 831-9410*g* 884-9299*i* 810-9531*g*
150 7754*a* 929-7973*f* 514-8605*b* 218 9080*a* 772 9419*h* 841-8922*a* 885 9299*i* 869-8624*h*
155 7609*h* 932-9086*e* 527 8076*d* 219-8662*f* 776-8706*d* 856-8345*d* 890-9473*g* 904-8624*b*
157-7840*b* 940-8919*f* 529-8743*h* 220-9431*d* 779-8175*c* 860-9532*f* 900-8667*e* 2481019-8580*d*
161-7754*a* 944-6968*a* 536-7851*b* 225-8210*a* 784-8742*i* 873 9389*a* 901-8667*f* 585-9431*h*
191 8194*b* 945-7404*h* 544-7850*h* 236 8706*a* 791-8075*d* 874-8619*c* 902-8667*f* 596-9527*d*
194 8633*b* 946-7404*h* 557-8105*i* 241-8132*b* 799-8345*b* 875-9390*g* 903-8667*g* 599-9020*i*
201 9085*c* 953 7685*c* 570-8115*e* 255-8075*h* 808-8917*f* 879-9535*a* 904-9398*c* 825-9298*h*
214-8120*g* 957-7670*b* 581-7606*b* 262-8116*h* 809-8196*f* 897-8349*f* 905-9398*a* 838-9520*i*
228 9402*c* 959-7273*i* 590 8290*f* 268 9538*f* 812-8106*d* *899-9420*h* 918-9530*h* 876-9521*b*
231 8742*h* 965-7609*i* 598-8080*i* 272-8075*e* 841-7895*i* *900 9430*g* 938-9356*g* 879-9525*c*
246 7678*h* 966-7954*b* 606-8740*f* 277-9482*h* 842-9080*g* 917-8669*a* 939-9356*i* 933-9512*b*
253 8578*d* 968-7760*c* 609-9080*e* 279-7840*d* 851-7895*e* 934-8760*b* 943-9467*i* 976-9021*b*
255 7274*d* 970-7680*d* 619 7832*d* 280-8195*g* 861-7610*d* 942-8343*h* 948-9428*a* 2482038-9530*e*
261-8718*g* 977-7670*e* 627-8744*f* 290 8666*b* 869 9076*b* 943-9536*b* 951-9485*h* 048-9530*g*
273 9081*g* 980-8212*e* 642-9467*f* 292-8621*d* 870 9079*c* 954-8350*c* 957-9530*d* 070-9495*a*
282 9422*a* 981-7404*f* 644-7831*b* 296-8132*c* 872-9082*c* 964 9018*g* 979-8346*a* 094-9301*b*
285 8107*i* 984-9300*d* 649 7840*f* 310-7894*i* 912-8212*i* 971-8718*b* 983-8920*f* 252-9525*a*
286 8107*i* 990-7223*c* 654-7831*h* 311 8132*a* 913-8131*e* 974-9478*f* 988-9482*f* 382-9021*d*
287 7652*i* 993-7950*g* 655-8399*i* 312 8308*d* 921-8109*e* 984-8619*e* 999-9420*d* 389-9530*i*
288 7632*d* 996-7952*h* 661-9519*a* 314-7669*c* 928-8106*b* 988 8608*f* 2480006-9549*e* 578-9476*d*
296-8212*h* 2476000-8211*i* 666-8347*a* 318 7676*g* 935 9019*d* 2479041-9081*d* 007-9533*i* 594-9446*i*
297 8212*b* 004 8402*d* 676-7832*a* 321-8662*e* 943 9081*b* 061-9426*g* 008-9534*c* 725-9078*h*
299-8209*c* 008-7842*e* 681-7832*k* 323-8925*h* 2478008-8357*c* 090-9527*b* 009-9534*e* 748-9084*h*
328-7224*d* 015 8129*b* 687-8107*c* 327-7957*b* 015-9537*e* 094-8346*d* 010-8606*c* 832-9390*d*
330-7832*h* 026-9080*d* 688-8195*h* 329-8290*g* 036-8196*c* 097-8347*g* 020-9412*a* 938-9390*b*
334-7609*e* 027-9519*d* 696-8120*d* 336-8176*b* 037-7892*h* 102-9018*f* 050 8760*f* 948-9019*i*
347 8209*e* 037-7224*g* 699-8116*e* 338 8195*e* 038-8209*f* 108-8759*b* 071 9085*f* 978-9020*b*
351-8604*b* 042-8920*c* 700-7893*i* 342-9084*e* 043-8071*g* 109-8578*i* 072-9085*e* 2483008-9475*g*
357-7405*d* 052-7951*e* 714-8739*f* 344-9448*b* 045-8195*i* 110-8664*g* 084-8694*c* 075-9022*d*
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361-7686*d* 064-8194*g* 750-7677*e* 367-8662*h* 066-8666*g* 141-9419*d* 090-8417*g* 182-9532*h*
364-7952*c* 065-8738*i* 758-8186*d* 373-8664*h* 070-8706*c* 146-9532*c* 092-9482*h* 194-9581*f*
368-7606*e* 069-8693*e* 760-7669*b* 380-8397*f* 089-9494*f* 202-9434*a* 103-8576*f* 253-9495*f*
370-8662*i* 072 7606*c* 771 8398*a* 383-9495*i* 093-8105*b* 211-9086*a* 124-8920*e* 287-8918*i*
409-7679*a*


* Corrected patent number.

# ABBREVIATIONS* USED IN CHEMICAL ABSTRACTS

A. Ångström unit(s)
abs. absolute
abstr. abstract
Ac acetyl ($CH_3CO$, not $CH_3COO$) (AcH, acetaldehyde; AcOH, acetic acid)
a.c. alternating current
addn. addition
addnl. additional
alc. alcohol, alcoholic
alk. alkaline (not alkali)
alky. alkalinity (alkys. for alkalinities is not approved)
Am amyl (not ammonium)
amp. ampere(s)
amt. amount (as a noun)
anhyd. anhydrous
app. apparatus
approx. approximate (as an adjective), approximately
aq. aqueous
assoc. associate(s)
assocd. associated
assocn. association
at. atomic (not atom)
atm. atmosphere(s), atmospheric
at. wt. atomic weight
av. average (except as a verb)
b. (followed by a figure denoting temperature) boils at, boiling at (similarly $b_{13}$, at 13 mm. pressure)
bacteriol. bacteriological
Bé. Baumé
biol. biological
B.O.D. biochemical oxygen demand
b.p. boiling point
B.t.u. British thermal unit(s)
Bu butyl (normal)
Bz benzoyl (not benzyl)(BzH, benzaldehyde; BzOH, benzoic acid)
cal. calorie(s)
calc. calculate
calcd. calculated
calcg. calculating
calcn. calculation
cc. cubic centimeter(s)
c.d. current density
chem. chemical (as an adjective) (not chemistry nor chemically)
cm. centimeter(s)
coeff. coefficient
com. commercial
compd. compound (as a noun)
compn. composition
conc. concentrate (as a verb)
concd. concentrated
concg. concentrating
concn. concentration
cond. conductivity (conds. for the plural is not approved)
const. constant
contg. containing
cor. corrected
crit. critical
cryst. crystalline (not crystallize)
crystd. crystallized
crystg. crystallizing
crystn. crystallization
cu. m. cubic meter(s)
d. density ($d_{13}$ specific gravity at 13° referred to water at 4°; $d^{20}_{20}$, at 20° referred to water at the same temperature)
d.c. direct current
decomp. decompose(s)
decompd. decomposed
decompg. decomposing
decompn. decomposition
deriv. derivative
det. determine
detd. determined
detg. determining
detn. determination
diam. diameter
dil. dilute
dild. diluted
dilg. diluting
diln. dilution
dissoc. dissociate(s)
dissocd. dissociated
dissocn. dissociation
distd. distilled
distg. distilling
distn. distillation
dm. decimeter(s)
elec. electric, electrical (not electrically)
e.m.f. electromotive force
en ethylenediamine (used in formulas only)
equil. equilibrium(s)
equiv. equivalent
est. estimate (as a verb)
estd. estimated
estg. estimating
estn. estimation
Et ethyl ($Et_2O$, ethyl ether)
$\eta$ viscosity
e.v. electron volt(s)
evap. evaporate
evapd. evaporated
evapg. evaporating
evapn. evaporation
examd. examined
examg. examining
examn. examination
expt. experiment (as a noun)
exptl. experimental
ext. extract
extd. extracted
extg. extracting
extn. extraction
f.p. freezing point
ft. foot, feet
g. gram(s)
$\gamma$ microgram(s)
geol. geological
ha. hectare(s)
hr. hour
in. inch(es)
inorg. inorganic
insol. insoluble
iso-Bu, iso-Pr, etc isobutyl, isopropyl, etc
kcal. kilocalorie(s)
kg. kilogram(s)
kv. kilovolt(s)
kv.-amp. kilovolt-ampere(s)
kw. kilowatt(s)
kw.-hr. kilowatt-hour
l. liter(s)
lab. laboratory
lb. pound(s)
m. meter(s); also (followed by a figure denoting temperature) melts at, melting at
*M* molar (as applied to concn.)
ma. milliampere(s)
manuf. manufacture
manufd. manufactured
manufg. manufacturing
math. mathematical
max. maximum(s)
Mc. megacycle
mc. millicurie
Me methyl (MeOH, methanol)
mech. mechanical
m.e.v. million electron volts
mg. milligram(s)
min. minimum (also minute(s))
mixt. mixture
ml. milliliter(s)
mm. millimeter(s)
$m\mu$ millimicron(s)
mol. molecule, molecular
mol. wt. molecular weight
m.p. melting point
$\mu$ micron(s)
mv. millivolt(s)
$n$ index of refraction ($n^{t}_{D}$ for 20° and sodium light)
*N* normal (as applied to concn.)
neg. negative (as an adjective)
no. number
org. organic
pathol. pathological
p.d. potential difference
petr. ether petroleum ether
Ph phenyl
pharmacol. pharmacological
phys. physical
physiol. physiological
pos. positive (as an adjective)
powd. powdered (as an adjective)
p.p.m. parts per million
ppt. precipitate
pptd. precipitated
pptg. precipitating
pptn. precipitation
Pr propyl (normal)
prep. prepare
prepd. prepared
prepg. preparing
prepn. preparation
py pyridine (used only in formulas)
qual. qualitative (not qualitatively)
quant. quantitative (not quantitatively)
resp. respectively
r.p.m. revolutions per minute
sapon. saponification
sapond. saponified
sapong. saponifying
sat. saturate
satd. saturated
satg. saturating
satn. saturation
sec. second(s)
sep. separate
sepd. separated
sepg. separating
sepn. separation
sol. soluble
soln. solution
soly. solubility (solys. for solubilities is not approved)
sp. gr. specific gravity
sp. heat specific heat
sp. vol. specific volume
sq. cm. square centimeter(s)
sym. symmetrical
tech. technical
temp. temperature
U.S.P. United States Pharmacopeia
v. volt(s)
vol. volume (not volatile)
w. watt(s)
wt. weight

*When prefixes are added to words normally abbreviated the newly formed words may also be abbreviated, as microchem. for microchemical, photoelec. for photoelectric, and recrysta. for recrystallization.

# CHEMICAL ABSTRACTS

Vol. 43 DECEMBER 25, 1949 No. 24

# II. SUBJECT INDEX

## KEY

In using this index the following should be borne in mind:

1. **Subjects,** not words, have been indexed.

2. **Abstracts,** not merely their titles, have been considered in indexing.

3. The **italic letter** which accompanies each reference number designates the fraction of the column in ninths in which the subject being indexed is first considered.

4. "P" before a column number indicates that the abstract is of a **patent.**

5. The **alphabeting of index headings** has been done on the basis first of that part which comes before the comma in such headings as Copper, metallurgy of and Phenol, *p*-nitro-. E.g., these headings come before the headings Copper compounds and Phenol condensation products, respectively.

6. **Organic compounds** are indexed on the basis of "parent compounds" or, more accurately, "index compounds" (see Introduction), the names of substituent radicals following in alphabetical order. The system of naming organic compounds which has been used is outlined in the Introduction below (fully described in the Introduction to the 1945 Subject Index). Esters and salts of organic acids are, in general, indexed under the names of the acids; notes in the index under the appropriate headings explain the few exceptions.

7. An **asterisk** (*) following the name of an organic compound entered in the index signifies that the name, or numbering, or both are the author's own and may not conform to the system of nomenclature used in this index. This sign is used where it has seemed inadvisable, owing to incomplete information, to attempt to make the name conform to the system, or where the author's name, differing widely from the one given to the compound by the indexer, is given as an extra entry. Such authors' names are occasionally slightly modified. Authors' names for inorganic compounds have also occasionally been marked with an asterisk.

8. A **dagger** (†), which follows the names of some compounds, signifies that the entry is an extra one, the name being only slightly less favored than the one chosen for the other entry. The preferred name can be determined by reference to the Formula Index.

## SPECIAL NOTE

*An index should be able to stand on its own feet. It should be readily and effectively usable without the need of an elaborate introduction. The index which follows the Introduction given below is not dependent on the latter. Numerous cross references are given throughout the index, and guiding notes appear at suitable points. Nevertheless for the best results in the use of any index the user must meet the index maker part way in an understanding of the indexing problem and, in particular, of nomenclature. A large proportion of the headings in the index to a chemical abstract journal must be the names of chemical compounds and accordingly systematic chemical nomenclature plays an important role in the building of such an index and in its use. In 1945 in the Introduction to the Subject Index to Volume 39 of Chemical Abstracts a full discussion (109 pages) of the naming of chemical compounds for indexing was published. This includes a classified bibliography and six appendixes devoted to lists of (1) chemical prefixes, (2) inorganic groups and radicals, (3) anions, (4) organic groups and radicals, and (5) organic suffixes, and to (6) the 1945 index of ring systems. This long Introduction cannot well be reproduced each year, but reprints at fifty cents each are available to the index user or student of chemical nomenclature who wishes more information than furnished in the more or less general outline given below. A revision and extension of the long 1945 discussion of the naming and indexing of compounds will be published in due time. Some modifications and additions are briefly discussed below.*

# INTRODUCTION

**General policy.** The indexing of subjects, as opposed to word indexing, has been emphasized. This avoids omissions, scattering, and unnecessary entries; with the abundant cross references used it means that one should be able to find all of the references on any subject with certainty and with a minimum of effort. The words used as subject headings or modifying phrases are not necessarily to be found in the abstracts, but an expression of the idea suggested will be found within or beginning in the ninth of the column designated by the *italic* letter following the column number. Chemical compounds have been named and entered systematically; the system used is described below. All new compounds and all elements, compounds, and other substances for which new data are given have been indexed, with the single exception of new compounds for which no names or structures have been given. Such compounds are entered only in the Formula Index. The Subject Index is in no other respect altered because of the Formula Index.

In general, the sound indexing principle has been followed of using for index headings words or names commonly in use (with cross references under less common synonymous words or names) so that index users will be more likely to turn to the right places at once. Exceptions are made to meet the requirements of systematic nomenclature, so essential for consistency. In accordance with this principle trade names have frequently been used as headings. If not so used, such names have usually been entered as cross references. Another example of the application of this principle is the use of mineral names instead of strictly chemical names for naturally occurring minerals and for synthetic compounds having the same crystal structure as natural minerals and customarily referred to by mineral names. Dana's "Textbook of Mineralogy," 4th edition, and "Dana's System of Mineralogy," 7th edition, Volume I ("Elements, Sulfides, Sulfosalts, Oxides") are used as standard sources for information on mineral names. Volumes II and III of the latter are still in preparation.

*Chemical Abstracts* has been thoroughly indexed—from the chemical viewpoint, of course. In deciding on subject entries to be made for an abstract, many factors need to be taken into consideration. Among these are the author's purpose, his point of view, the new data reported, new or modified methods and apparatus used in obtaining these data, significant relations brought out (as between color and chemical constitution in a chemical study of dyes), theories formulated, new substances prepared, suggested or likely uses for new substances (as in indexing patents), possibilities for the utilization of material (as certain so-called waste material), desirable groupings based on properties, processes, or operations, and effects such as industrial poisoning. Chemical compounds have been indexed except when insignificant information only is provided, as with common reagents, ordinary solvents, and the like.

**Modifying phrases.** In writing such phrases for the entries under any index heading the words have been arranged, if too much awkwardness does not result, so that the idea considered to be the most important is expressed at the beginning whenever feasible, and this procedure, as well as the selection of the words for this purpose, has been governed by numerous formulated general principles and specific rules. E.g., "detection of" has been used consistently whenever correct, regardless of what words may have been used in the text, at the beginning of the modifications in indexing subjects treated from a qualitative analytical point of view, instead of permitting a scattering under such additional phrases as "test for" and "reaction for." The entries under some headings lend themselves in part to a definite system of classification, and modifications are written accordingly. For example, under "Sugar manufacture" the modifications are so worded as to provide grouping of entries related to "boiling," "clarification," "crystn.," "extn.," "refining," etc. In alphabeting modifying phrases, prepositions and conjunctions at the beginning have been ignored.

**Cross references.** Cross references are of importance both to the index maker and to the index user. They help the indexer to build consistently and they are likely to be fruitful in searches. The "see also" cross references are intended, of course, principally to lead the index user to related subjects or headings, but occasionally, when information is indefinite, it has been necessary to use separate index headings for what may be like substances, plants, animal organisms, or the like, with "see also" cross references both ways. In these situations the "see also" cross references have special significance.

Compounds designated by numbers or by numbers and letters are indexed under their chemical names, when known. Cross references appear under the common names or designations. If the common designation includes letters and numbers, it is alphabeted according to the letters only, the numbers being ignored; e.g., "G 410. See *Phenol, pentachloro-*," is alphabeted at G (only). If the designation is only by numbers, the numbers are completely spelled out and alphabeted; as, "Six hundred and sixty-six (666). See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*." If the number is commonly spoken in some other manner, a cross reference is also introduced at that name; as, "666 ("Six six six"). See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*."

When an established heading normally accompanied by one or more "see also" cross references has no entries for a given year, the cross references have occasionally been published nevertheless, when thought helpful, after having been given the form "No entry this year. See—." The "see also" form is considered incorrect and a direct "see" form might be misleading (might be misconstrued to mean that the heading, which is to be used for entries later, as needed, had been discontinued).

**Inorganic compounds.** The simpler inorganic compounds have been entered under the usual names, as Sodium chloride and Ammonia. As the first example indicates, inorganic salts have been entered with the more electropositive part of the name first and the more electronegative part second.

The *names adopted* for indexing inorganic compounds are based, in general, on the best American usage and on the "Rules for Naming Inorganic Compounds" (Report of the Committee of the International Union of Chemistry for the Reform of Inorganic Chemical Nomenclature, 1940).[1] Another criterion in selecting names for indexing is the

[1] Jorissen, *et al.*, *J. Am. Chem. Soc.* **63**, 889-97(1941).

representation of structure so far as it is known and so far as this can be done in line with general indexing policy. Many of the older names for inorganic compounds are not now considered correct, in view of structural information obtained by modern x-ray and electron-diffraction methods; if, however, these names are firmly established, it has seemed unwise to attempt to change them for indexing. Where usage varies or is ambiguous or where new compounds are involved, the name selected for indexing is the one that best indicates the structure.

Final but very important criteria in the *selection of index headings* are the general indexing policies of indexing subjects, not words, of putting first as significant a word as possible, and of grouping related subjects or compounds. To this end specific compounds have usually been indexed under the simplest general names, i.e., those based on the constituents of compounds and preferably on the structure, but not always indicating the oxidation state of simple groups or cations and not indicating stoichiometric composition or polymerization. Formulas (bold-face if more than one compound is represented) have been used for the individual compounds under these group headings. Thus the various oxides of nitrogen have been grouped under the heading Nitrogen oxides, with bold-face formulas to set off the individual oxides, instead of being scattered under Nitrous oxide (or Dinitrogen oxide), Nitric oxide (or Nitrogen oxide), etc. Ferrous and ferric compounds have been grouped under headings such as Iron sulfates, and compounds of gold, copper, tin, etc., are similarly grouped under headings beginning with the names of the elements themselves, instead of "aurous," "auric" "cuprous," "cupric," "stannous," "stannic," etc.

Larger *groupings by classes* (for more general studies only) have also been made; e.g., Alkali metals, Alkaline earth chlorides, Helium group gases, Platinum metal alloys, Rare earth nitrates, Sulfates, Sodium halides, Alkali metal chalcogenides (oxides, sulfides, selenides, and tellurides). Headings like Iron salts, Iron compounds (including complex coördination compounds), and Iron preparations (including pharmaceuticals and mixtures) have been used. The heading Ammines comprises compounds containing coördinated ammonia. The most general of all the headings for groups of compounds is Chemical compounds. Cross references have been used freely and formulas introduced wherever they might prove helpful. The Formula Index, which follows the Subject Index, should be particularly helpful in locating complex compounds.

For *binary compounds* the order of decreasing electropositivity for nonmetallic elements given in the report of the German Commission for Nomenclature[8] has been followed: Sb, As, B, Si, C, P, Te, Se, S, I, Br, Cl, N, O, F, except that the headings Nitrogen chloride, Nitrogen iodide, etc., have been used.

*Binary compounds of hydrogen* have been indexed for the most part under the names most commonly used, e.g., Arsine, Hydrochloric acid, and Hydrogen sulfide. Cf. §19. (The sign § refers to sections in the Introduction to the 1945 Subject Index, "The Naming and Indexing of Chemical Compounds by *Chemical Abstracts*.") Silane, Disilane, etc., have replaced Silicane, Disilicane, etc., starting with Vol. 40. (See paragraph below entitled Silicon compounds.) For the indexing of other binary compounds see §§20–7.

Compounds that seem most suitably named as *double salts* have been entered twice when there are two cations (e.g., at Ammonium magnesium phosphate and Magnesium ammonium phosphate) and have been entered singly when anions instead of cations are doubled, the anions being given in alphabetical order (e.g., Tin bromide chloride). Cf. §§28–9 and §§30–5 for the indexing of other ternary and quaternary compounds.

*Mixed oxides* are named as salts of hypothetical acids when such names have been established by usage, even though structure studies indicate that the compounds contain no discrete oxygenated anions (e.g., Calcium titanate rather than Calcium titanium oxide).

*Oxygen (and thio) acids and their salts* have been entered for the most part under the simplest, most inclusive names or those conforming best with usage. E.g., with a few exceptions, as the phosphoric acids and phosphates, groupings have been made under such headings as Silicic acids or Sodium periodates (guiding cross references have been entered), with the avoidance of headings with prefixes such as meso-, meta-, ortho-, para-, pyro-, di-, tri- and poly-; the prefixes hypo-, per-, and peroxy-, however, are retained (cf. §§36–9). For heteropoly acids, a few well-established names such as phosphomolybdic, phosphotungstic, silicomolybdic, and silicotungstic acids have been used consistently in the *C.A.* indexes, but in some other cases uncertainties with regard to structure have led to more than one name.

*Acid salts and basic salts* with a few exceptions, such as uranyl salts, have been grouped under the simple names for the neutral or normal salts, e.g., Calcium phosphates, Copper chlorides, and Bismuth chlorides, with the formulas or "acid" or "basic" given in the modifications. This is a change from the former practice of entering some basic salts under such names as Bismuth oxyhalides and Magnesium oxychloride.

*Coördination compounds* (often complex) have been entered under their own names when definite names could be selected that are suitable for index entries and conform with usage or with the rules of the Commission on the Reform of the Nomenclature of Inorganic Chemistry of the International Union of Chemistry (*loc. cit.*). In general, names have been favored in which all coördinating groups are named before the central coördinating element; exceptions have still been made for the well-established names ferri- and ferrocyanide and nitroprussides (and the corresponding acid names); with Vol. 41 the old names cobalti- and cobaltocyanide and cobalti- and cobaltonitrite were changed to cyanocobaltate(III), cyanocobaltate(II), nitrocobaltate(III), and nitrocobaltate(II), respectively. Other examples of preferred names are: chloroplatinate(IV), fluosilicate, cyanomanganate(I), and nitropalladate(II) instead of platinichloride, silicofluoride, manganocyanide, and palladonitrite, respectively. (Stock's system of using an invariable "ic" or "-ate" ending and a Roman numeral to denote the oxidation state of the central coordinating element has been used for anions for which systems based on the use of -ate and -ite, -ic and -ous, hypo- and per- are inadequate and ambiguous.) Cf. §43.

[8] Meyer; *Helv. Chim. Acta* 20, 159–75(1937).

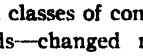
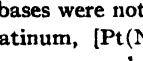
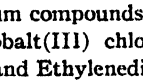
*Compounds that cannot be given names suitable for index entries* have been indexed, in each case, under a heading based on the significant element and also, in the case of coördination compounds, often under headings for the coordinated groups if they are significant, unusual, or specially stressed. Thus, in addition to the significant-element entry an entry has been made at Ammines (for compounds containing coördinated ammonia) or at the heading for a specific organic base that plays a similar role to $NH_3$ (before Vol. 41 both classes of compounds were entered at Ammino compounds—changed now to Ammines—and the specific organic bases were not always indexed). E.g., dibromodiammineplatinum, $[Pt(NH_3)_2Br_2]$, would be indexed under Platinum compounds and Ammines, and tris-(ethylenediamine)cobalt(III) chloride, $[Co\,en_3]Cl_3$, under Cobalt compounds and Ethylenediamine.

Use of the special headings Acetato compounds and Oxalato compounds for specific compounds has been discontinued after Vol. 40. Occasionally special entries have been made under headings like Thiosulfates where the interest in the negative coördinated groups seemed to warrant it; positive coördinated groups and neutral groups other than bases have also been considered to merit entries at times. Cf. §44.

*Intermetallic compounds* specifically mentioned have been indexed under headings like Beryllium compounds and Copper compounds. Metal systems, as in phase-rule studies, have been entered under "system" under the headings for all metals concerned. Headings like Beryllium alloys (with a "see also" cross reference to "system" under Beryllium) take care of studies in which the emphasis is on alloys as such. Formula Index entries have been made wherever possible.

Except for general studies of *alloys*, entries have been made under such headings as Copper alloys for each constituent of a given alloy down to small percentage or slight significance. Alloy trade names (very numerous) have been entered as headings, as Duralumin, with suitable cross references to direct the index user to these names "Engineering Alloys," by Norman E. Woldman and Roger J. Metzler (American Society for Metals, 1945), has been used for reference.

**Deuterium compounds** have been named for indexing by the modified Boughton system favored by the Nomenclature, Spelling, and Pronunciation Committee of the American Chemical Society.[3] According to this system the substitution of deuterium for hydrogen in a compound is designated by the use of *d* following the common name, or parts thereof, for the hydrogen compound as shown by the examples given below. To indicate the position of deuterium in a compound, the *d* is attached to the part of the name designating the hydrogen which is replaced. If more than one type of hydrogen atom is replaced (as in acetic acid), the positions of the entering deuterium are indicated exactly.

| | |
|---|---|
| $NH_2D$ | ammonia-*d* |
| $NHD_2$ | ammonia $d_2$ |
| $ND_3$ | ammonia-$d_3$ |
| $DNO_3$ | nitric acid-*d* |
| NaOD | sodium hydroxide-*d* |
| HDS | hydrogen-*d* sulfide |
| $D_2S$ | hydrogen-$d_2$ sulfide |
| $CH_3D$ | methane-*d* |
| $CD_2Br_2$ | methane-$d_2$, dibromo- |
| $CH_3CO_2D$ | acetic acid-*d* |
| $CH_2DCOOH$ | acetic-*d* acid |
| $ClCD_2COOD$ | acetic-$d_2$ acid-*d*, chloro- |
| $CD_3CONHC_6H_5$ | acetanilide-$\alpha,\alpha,\alpha$-$d_3$ or acet-$d_3$-anilide |
| $DOOCCH_2CH_2COOD$ | succinic acid-$d_2$ |
| $HOOCCHDCHDCOOH$ | succinic-$\alpha,\beta$-$d_2$ acid |
|  | succinic-$\alpha,\beta$-$d_2$ anhydride |
|  | pyrrole-1-*d* |
|  | pyrrole-2,3,4,5-$d_4$ |

If an inorganic salt contains deuterium, the index entry has been made under the usual name for the salt and the deuterium has been indicated by formula in the index modification; e.g., $KD_2PO_4$ has been indexed under Potassium phosphates. If the number of the deuterium atoms is not known, the fact that deuterium is present has been indicated by "heavy" in the index modification

This method serves to keep the deuterium compounds close to the corresponding hydrogen compounds in the index. It also avoids the longer and sometimes confusing names arrived at by the use of "deuterio," in the manner commonly employed in organic chemistry to designate substituents. The modified Boughton names depart least from established nomenclature, are suitable for both inorganic and organic compounds, contribute to ease of thinking, are convenient for other use as well as indexing, and fit the conception that compounds containing deuterium are, after all, compounds of a form of hydrogen. It has been found that the "deuterio" system results in many strange names which have to be deciphered only to find the compounds old friends in disguise. With D used as the symbol for deuterium, cross references from the Formula Index to the Subject Index have been used or entries in both indexes have been made.

**Tritium compounds** ($H^3$ = T) have been named and indexed in a similar manner. E.g., $CH_2TI$ is entered as Methane-*t*, iodo-.

**Silicon compounds.** There is a recently adopted official nomenclature for silicon compound. It is described in *Chem. Eng. News* **24**, 1233-6(1946). (Reprints can be obtained from *Chemical Abstracts* without charge.) This nomenclature has been followed in the 1949 index, with suitable cross references in the index to help in the transition from the older nomenclature. See the paragraph below on Organic Groups and Radicals for new radical names introduced for silicon compounds.

**Organic compounds.** Except for changes noted in the Introduction to the 1945 Subject Index and those listed in the note below, the system used for naming and indexing organic compounds is essentially the same as that in use starting with the 1916 volume. An explanation of it by Austin M. Patterson and Carleton E. Curran, who are its originators, has appeared in another journal of the Society.[4] The system is based on existing usage and follows this as far as is practicable, so that a great many familiar

[3] Crane, *Ind. Eng. Chem., News Ed.* 13, 200-1(1935).

[4] Patterson and Curran, *J. Am. Chem. Soc.* 39, 1623-38(1917).

names are unaffected. Only the general principles will be given here, but in the index itself will be found abundant cross references and also notes under Alcohols, Ketones, etc., indicating how compounds of these classes are named.[5]

1. The "chief function" of a compound is expressed *in the main part of the name* wherever possible, and not as a substituent, thus: Pyrrolecarboxylic acid, not carboxypyrrole; Ethyl alcohol or Ethanol, not hydroxyethane; Pentanone, not oxopentane.

2. In compounds of mixed function, the chief function is determined from the following order of precedence[6]: *"onium" compound, acid* (carboxylic, arsonic, sulfonic, stibonic, others), *acid halide, amide, imide, amidine, aldehyde, nitrile, isocyanide, ketone, alcohol, phenol, thiol, amine, imine, ether, sulfide* (and *sulfoxide* and *sulfone*). Thus, hydroxybenzonitrile, not cyanophenol; aminophenol, not hydroxyaniline.

3. A multiple chief function is expressed where feasible as -diol, -dicarboxylic acid, etc., rather than as hydroxy— ol, carboxy— acid, etc. But amino and imino groups attached to cyclic bases are treated as substituents; as, aminopyridine.

4. The index compound should be as large, and the substituents as small, as is practicable in conformity with the above rules; as, ethylbenzene, not phenylethane. But such names as diphenylethane and triphenylmethanol are exceptions. When the chief function is in a side chain attached to a complex nucleus, "additive" names are preferred in order to harmonize 1 and 4; thus, Naphthaleneacetic acid, not naphthylacetic acid (with the result that the compound is indexed with other naphthalene derivatives instead of under acetic acid: see 5).

5. The main part of the name with its functional ending, if any, is placed *first* in the index, the names of substituents following; thus, chloroacetic acid would appear in the index as Acetic acid, chloro- and dihydroxyanthraquinone as Anthraquinone, dihydroxy-. The part thus placed first is called the "index compound": it may or may not be the "parent compound" (in the second example the parent compound is anthracene).

6. Names in which two functions are expressed in the index compound, as propanolone, cyclopentanonecarboxylic acid, are avoided, except that a few very common ones, such as Phenolsulfonic acid, are used (indicated by cross references).

7. The names of the substituent radicals in the name of a compound are arranged *in alphabetical order*, as, benzylethylmethylphenylammonium chloride. The number of radicals of each kind does not affect the order (e.g., *benzyl* precedes *ethyl* no matter how many of each are present); but the compound name of a substituted radical is treated as a unit with its own alphabetic position; thus *dimethylamino*, $Me_2N$-, follows *benzyl* but precedes *ethyl*. When the complete name has been formed, it is alphabeted as any other word.

8. Parentheses, brackets and even braces are used where necessary to mark off complex radical names.

9. Arabic numerals are given preference for numbering, although Greek letters are used in accordance with common practice with "trivial" names of aliphatic acids, aldehydes, etc., and for some side chains. The numbering of each parent ring system is shown by ring formulas in the index under its name. This numbering conforms to the "Proposed International Rules for Numbering Organic Ring Systems"[7] with the following exceptions: acridine, anthracene, carbazole (and isocarbazole), cyclopenta[*a*]phenanthrene, phenanthrene, purine (and β-purine), xanthene (and isoxanthene)

10. When two or more numberings are equally indicated, that one is chosen which gives the smallest number or numbers for the *chief function, then for double bonds* if these must be regarded, *then for triple bonds, then for point of attachment* (doubled molecules), *then for substituents.*

11. Numbers and letters enclosed in brackets within the name of a parent ring system are used for distinguishing isomers.[8]

12. Numbers followed by *H* are used to indicate the position of hydrogen necessary to the existence of the compound; thus, 1,3,2*H*-Oxazine denotes an oxazine in which there is a $CH_2$ group instead of CH at position 2 (O at 1, N at 3); 4(3*H*)-Quinolone is equivalent to 3,4-dihydro-4-oxoquinoline. The older ring cuts have not been replaced.

13. Doubled molecules or radicals are indicated by names commencing with *bi-*(as, *o,o'*-Biphenol, Biphenyl, $\Delta^{4,4'}$-Bipiperidine). *Bis-, tris-, tetrakis-*, etc., are used before complex expressions; as, bis(dimethylamino).

In using the *cross references*, the *general* nature of them should be kept in mind; thus, the reference "Benzene, ethoxy-. See *Phenetole.*" is applicable not only to this compound itself but to derivatives which are indexed under it rather than under Benzene.

NOTE. Since Volume 41 begins a new collective-index period, certain modifications of previous practice which had been waiting for adoption were then introduced. They have been made in order that the system may be rendered more consistent and may conform as nearly as is practicable with the latest published decisions[9] of the international and American committees on organic nomenclature. These changes are indicated in the index itself as far as possible by cross references, explanations under headings, etc. For changes in silicon nomenclature, introduced in the 1946 index, see the above paragraph entitled Silicon compounds.

The principal changes introduced in this index are (the sign §, to repeat, refers to sections in the above-mentioned Introduction to the 1945 Subject Index):

*a.* Use of certain *trivial names* (§60) is discontinued. α-Toluic acid is replaced by Acetic acid, phenyl-. "Di" names for most acids (as Dipicolinic acid) are avoided because names of their amides conflict with names of secondary amides.

[5] For the principles used in naming certain parent ring systems, and especially in distinguishing isomeric forms by the use of bracketed numbers and letters in the middle of a name, see Patterson, *J. Am. Chem. Soc.* **50**, 3074-87(1928), Patterson and Capell, "The Ring Index," pp. 20-7.

[6] This order is an attempt to express not the relative chemical importance of functions but general usage in selecting one of them for the ending of the name. For a study of the literature on this question, see Patterson, *Rec. trav. chim.* **48**, 1012-17(1929).

[7] Patterson, *J. Am. Chem. Soc.* **47**, 543-61(1925); Patterson and Capell, "The Ring Index" (American Chemical Society Monograph No. 84).

[8] Patterson, *J. Am. Chem. Soc.* **50**, 3083 (1928).

[9] Decisions made at the Amsterdam meeting of the International Union of Pure and Applied Chemistry held in September, 1949, had not been officially reported when this index went to the printer.

*b. Inversion* (§61) of names beginning with anhydro-, dehydro-, desoxy-, etc., is practiced so as to bring them together with the name of the parent compound; as, 7-dehydrostigmasterol is indexed at Stigmasterol, 7-dehydro-*. However, a few very common names like Dehydroascorbic acid remain uninverted. Names of xanthic acids like Ethylxanthic, become Xanthic acid, ethyl-, etc.

*c.* For changes in *radical names* (§73) see the list below.

*d. "Bi" names* in the aliphatic series (§79) are replaced by Geneva or "carboxylic" names; thus, Biacetyl becomes 2,3-Butanedione, Bimalonic acid becomes 1,1,2,2-Ethanetetracarboxylic acid; see 13, above.

*e. The letter H* follows numbers denoting "extra hydrogen" (§§105, 339–40); see 12, above.

*f.* The "oxa-aza" (or "a") nomenclature (§§123-5, 192, etc.) is used somewhat more freely, both for cyclic and acyclic compounds, where it provides less cumbersome names than by older methods.

*g.* Compounds of the structures RCONHOH and RCONR'OH are named as *hydroxamic acids* (§159) instead of as *N*-hydroxy amides.

*h.* The use of *"aldehydic acid"* names (§166) is extended. Thus, Valeric acid, δ-formyl- becomes Adipaldehydic acid.

*i.* The longer forms *anisidide, phenetidide, toluidide* and *xylidide* are used instead of aniside, phenetide, toluide and xylide (§210).

*j.* The compounds $RC(:NOH)NH_2$, formerly called *hydroxamamides*, are now named *amidoximes* (§216). As a substituting radical the group $-C(:NOH)NH_2$ is named hydroxyguanyl.

*k.* More additive names are used for *cyclic amines* (§235); as, Pyranamine instead of Pyranylamine.

*l. Betaines* (§§250–1) are named slightly differently; as, Glycine, dimethylphenylbetaine instead of Glycine, *N*-methyl-*N*-phenyl-, methyl ester, betaine. Entries or cross references are also made under Ammonium compounds, substituted.

*m. Esters* of organic derivatives of inorganic acids (§§282–3) are entered at the name of the acid; as, Amidophosphoric acid, *N*-cyclohexyl-, dibenzyl ester, not Benzyl *N*-cyclohexylamidophosphate.

*n.* In *glycerides* numbers instead of Greek letters are used to designate positions, as Stearin, 2-butyro-3-palmito-1- instead of Stearin, β-butyro-γ-palmito-α-(§287).

*o. "Phenone" and "naphthone" names* (§333) are formed from Geneva names of acids as well as from trivial names. The Geneva chain is marked with plain numbers and the cyclic portion with primes.

*p. Hydroperoxide* is used as a heading for non-acyl compounds of the type R—O—O—H (§378); as, Hydroperoxide, 2-chlorethyl instead of Hydrogen peroxide, 2-chloroethyl. Simple hydroperoxides have their own headings; as, Methyl hydroperoxide.

*q. Peroxy acids* (§379) are now entered as such, instead of as "per" acids; as, Peroxyacetic acid, not Peracetic acid.

**Organic groups and radicals.** In the Introduction to the 1945 Subject Index, as Appendix IV, pages 5963–67, was given a fairly complete list of the organic radical names used in the Index at that time. That list is still in effect, subject to the following changes and additions:

*Changes*

| | |
|---|---|
| benzohydryl | *becomes* benzhydryl |
| benzohydrylidene | *becomes* benzhydrylidene |
| biphenylenedisazo | *becomes* biphenylenebisazo |
| cetyl | *becomes* hexadecyl |
| fenchanyl | *becomes* fenchyl |
| fenchyl | *not limited to 2-form* |
| guanido | *becomes* guanidino |
| phenylenedisazo | *becomes* phenylenebisazo |
| phthalidene | *becomes* phthalidylidene |
| silicono | *is removed* |
| silicyl | *becomes* silyl |
| silicylene | *becomes* silylene |
| toluino | *becomes* toluidino |
| α-toluyl | *becomes* phenylacetyl |
| triazo | *becomes* azido |

*Additions*

| *By Names* | *By Formula* |
|---|---|
| borono $(HO)_2B-$ | $BH_3O_2$ borono |
| cyanato NCO— | CNO cyanato<br>isocyanato |
| disilanoxy $H_3SiSiH_2O-$ | $C_3H_8O_3$ glyceroyl |
| disilanyl $H_3SiSiH_2-$ | $C_6H_5N_4$ pteridyl |
| disilanylamino $H_3SiSiH_2NH-$ | $C_{14}H_{11}N_5O_2$ pteroyl |
| disilanylene $-SiH_2SiH_2-$ | |
| disilazanoxy $H_3SiNHSiH_2O-$ | HSi silylidyne |
| disilazanyl $H_3SiNHSiH_2-$ | $H_3OSi$ siloxy |
| disilazanylamino $H_3SiNHSiH_2NH-$ | |
| disiloxanoxy $H_3SiOSiH_2O-$ | $H_4NSi$ silylamino |
| disiloxanyl $H_3SiOSiH_2-$ | $H_4Si_2$ disilanylene |
| disiloxanylamino $H_3SiOSiH_2NH-$ | $H_3OSi_2$ disilanoxy<br>disiloxanyl |
| glyceroyl $CH_2OHCHOHCO-$ | $H_5O_2Si_2$ disiloxanoxy |
| | $H_5Si_2$ disilanyl |
| isocyanato OCN— | $H_4NOSi_2$ disilazanoxy<br>disiloxanylamino |
| pteridyl $C_6H_5N_4-$ | $H_6NSi_2$ disilanylamino<br>disilazanyl |
| pteroyl $C_{14}H_{11}N_5O_2$ | $H_4Si_3$ trisilanylene |
| siloxy $H_3SiO-$ | $H_7N_2Si_2$ disilazanylamino |
| silylamino $H_3SiNH-$ | $H_7Si_3$ 1-silyldisilanyl<br>trisilanyl |
| 1-silyldisilanyl $(H_3Si)_2SiH-$ | |
| silylidyne $HSi\equiv$ | |
| trisilanyl $H_3SiSiH_2SiH_2-$ | |
| trisilanylene $-SiH_2SiH_2SiH_2-$ | |

## INDEX OF RING SYSTEMS

The following index of *ring complexes* is arranged as shown by the bold-face figures: 1-Ring System, with single figures indicating simple rings of 3, 5, etc., members; 2-Ring Systems, two figures denoting double rings of 3 and 5, 3 and 6, etc., members; then the triple and still more complex forms. Under each combination of figures the kind and number of atoms in the ring or rings are expressed in formulas. These formulas are arranged so that their initial rings are in the same order as in the Formula Index (see Key at the beginning of it). If the initial rings are alike, the second rings of the formula are considered, and so on. By this means the reader will be able to learn the name used in the index for the simplest parent compound containing any particular ring or combination of rings and by turning to this name in the index he will find the compound listed and, perhaps, cross references to names of derivatives. In the few instances in which rings are included for which definite names are not available, column

references to abstracts are given. Rings which are united but which have no atoms in common (e.g., Biphenyl) are not regarded as ring complexes nor included in this index. "Spiro" compounds, which are characterized by two rings having one atom in common, are included.

| | |
|---|---|
| To illustrate: 6,6,6 $C_5N$-$C_6$-$C_6$ | Acridan |
| | Acridine |
| | Benzisoquinoline |
| | Benzoquinoline |
| | 2,6-Methano-3-benzazocine |
| | Phenanthridine |
| | Spiro[naphthalene-1(4*H*),3′-piperidine] |

(1) This designates a complex ring of three components, each of six members; (2) the first is heterocyclic, containing five carbon atoms and one nitrogen atom and the other two are carbocyclic rings of six atoms each; (3) parent compounds of this configuration will be found in the index under the seven names given. If derivatives are indexed a structural formula will be found with the proper numbering and also appropriate cross references to derivatives having other names, if any such are in the index.

It should be noted that the classification is made with reference to the smallest rings which, placed together, will constitute the plane formula. Thus Norcamphane is treated as a 5,5 complex although a third ring of six members (composed of atoms from the two five-membered rings) is also present.

**1-RING SYSTEMS**

3 $C_2N$ Aziridine
Ethyleumine
$C_2O$ Ethylene oxide
Oxirane
Oxirene
$C_2S$ Ethylene sulfide
Thiirane
$C_3$ Cyclopropane
4 $C_2N_2$ Diazete
Diazetidine
Urete
Uretidine
$C_2OS$ Oxathietane
$C_3N$ Azete
Azetidine
$C_3O$ Oxetane
$C_4$ Cyclobutadiene
Cyclobutane
Cyclobutene
$N_2P_2$ Diazadiphosphetidine
5 $CN_4$ Tetrazole
$C_2AsS_2$ Dithiarsenole
$C_2NS_2$ Dithiazole
Dithiazolidine
$C_2N_2O$ Furazan
Oxadiazole
$C_2N_2S$ Thiadiazole
$C_2N_3$ Triazole
Triazolidine
Triazoline
$C_2O_2S$ Dioxathiolane
$C_3NO$ Isoxazole
Isoxazoline
Oxazole
Oxazolidine
Oxazoline
$C_3NS$ Azathiolium
Isothiazole
Isothiazolidine
Thiazole
Thiazolidine
Thiazoline
$C_3NSe$ Selenazole
$C_3N_2$ Imidazole
Imidazolidine
Imidazoline
Isoimidazole
Isopyrazole
Isopyrazoline
Pyrazole
Pyrazolidine
Pyrazoline
$C_3OS$ Oxathiolane
Oxathiole
$C_3O_2$ 1,3-Dioxolane
1,3-Dioxole
$C_3S_2$ Dithiolane
Dithiole
$C_4N$ Pyrrole
Pyrrolenine
Pyrrolidine
Pyrroline
$C_4O$ Furan
$C_4S$ Thiophene
$C_4Se$ Selenophene
$C_5$ Cyclopentadiene
Cyclopentane
Cyclopentene
6 $B_3N_3$ *s*-Triazatriborine
$B_3O_3$ 1,3,5,2,4,6-Trioxatriborinane
$C_2N_3S$ Thiatriazine
$C_2N_4$ Tetrazine
$C_2O_4$ Tetroxane
$C_3BO_2$ 1,3,2-Dioxaborin
$C_3NS_2$ Dithiazine
$C_3N_2O$ Oxadiazine
$C_3N_2S$ Thiadiazine
$C_3N_3$ Triazine
$C_3O_2S$ Dioxathiane
$C_3O_3$ Trioxane
$C_3S_3$ *s*-Trithiane
$C_4NO$ Morpholine
Oxazine
$C_4NS$ Azathionium
Thiamorpholine
Thiazane
Thiazine
$C_4N_2$ Piperazine
Pyrazine
Pyridazine
Pyrimidine
$C_4OS$ Oxathiane
$C_4O_2$ Dioxane
Dioxin
$C_4S_2$ Dithiane
Dithiin
$C_5N$ Piperidine
Pyridine
$C_5O$ Pyran
Pyrylium
$C_5S$ Thiapyran
Thiapyrylium
$C_5Si$ Silacyclohexane
$C_6$ Benzene
Cyclohexadiene
Cyclohexane
Cyclohexene
$N_3Si_3$ Cyclotrisilazane
$O_3Si_3$ Cyclotrisiloxane
$Si_6$ Cyclohexasilane
7 $C_2HgN_2O_2$ Dioxadiazamercurepine
$C_4N_2O$ Oxadiazepine
$C_4N_3$ Triazepine
$C_4OS_2$ Oxadithiepane
$C_5NS$ Thiazepine
$C_5N_2$ Diazepine
Homopiperazine
$C_5S_2$ Dithiepane
Dithiepin
$C_6N$ Azepine
Hexamethylenimine
Isoazepine
$C_6O$ Hexamethylene oxide
Oxepin
$C_7$ Cycloheptane
Cycloheptatriene
Cycloheptene
8 $C_2O_2Si_4$ Dioxatetrasilocane
$C_4N_2O_2$ Dioxadiazocine
$C_4N_4$ Tetrazocine
$C_5N_3$ 1,2,4-Triazocine
$C_7N$ Azocine
Heptamethylenimine
$C_7O$ Oxocane
$C_8$ Cyclooctadiene
Cyclooctane
Cyclooctatetraene
Cyclooctatriene
Cyclooctene
$N_4Si_4$ Cyclotetrasilazane
$O_4Si_4$ Cyclotetrasiloxane
9 $C_6O_2S_2$ Dioxadithionane
$C_8N$ Azonine
$C_9$ Cyclononane
10 $C_9N$ Azecine
$C_{10}$ Cyclodecane
$O_5Si_5$ Cyclopentasiloxane
11 $C_{10}N$ Azacyclohendecane
$C_{11}$ Cyclohendecane
12 $C_9O_3$ 1,5,9-Trioxacyclododecane
$C_{11}N$ Azacyclododecane
$C_{12}$ Cyclododecane

**13** $C_{13}N$ Azacyclotridecane
$C_{13}$ Cyclotridecane
**14** $C_{13}N$ Azacyclotetradecane
$C_{14}$ Cyclotetradecane
**15** $C_{14}N$ Azacyclopentadecane
$C_{15}$ Cyclopentadecane
**16** $C_{15}N$ Azacyclohexadecane
$C_{16}$ Cyclohexadecane
$O_8Si_8$ Cyclooctasiloxane
**17** $C_{16}N$ Azacycloheptadecane
$C_{16}O$ Oxacycloheptadecene
$C_{17}$ Cycloheptadecane
**18** $C_{17}N$ Azacyclooctadecane
$C_{18}$ Cyclooctadecane
**19** $C_{18}N$ Azacyclononadecane
$C_{19}$ Cyclononadecane
**20** $C_{15}O_5$ Pentoxacycloeicosane
$C_{19}N$ Azacycloeicosane
$C_{20}$ Cycloeicosane
**21** $C_{20}N$ Azacycloheneicosane
**28** $C_{21}O_7$ Heptoxacyclooctacosane

## 2-RING SYSTEMS

**3,4** $C_3$-$C_4$ Bicyclo[2.1.0]pentane
**3,5** CNO-$C_2N_2O$ Furoxan
$C_2O$-$C_4O$ 3,6-Dioxabicyclo[3.1.0]hexane
$C_3O$-$C_4$ 6-Oxabicyclo[3.1.0]hexane
$C_3$-$C_4S$ 2-Thiabicyclo[3.1.0]hexene
5-Thiospiro[2.4]heptene
$C_3$-$C_4$ Bicyclo[3.1.0]hexane
**3,6** $C_2O$-$C_4O$ 2,7-Dioxabicyclo[4.1.0]heptane
$C_3O$-$C_4$ 7-Oxabicyclo[4.1.0]heptane
7-Oxabicyclo[4.1.0]heptene
1-Oxaspiro[2.5]octane
$C_3S$-$C_4$ 7-Thiabicyclo[4.1.0]heptane
$C_3$-$C_4$ Norcarane
Norcarene
**3,7** $C_3O$-$C_7$ 8-Oxabicyclo[5.1.0]octane
$C_3$-$C_7$ Bicyclo[5.1.0]octadiene
**3,8** $C_3O$-$C_8$ 9-Oxabicyclo[6.1.0]nonane
9-Oxabicyclo[6.1.0]nonatriene
**4,4** $C_4$-$C_4$ Spiro[3.3]heptane
**4,5** $C_3NO$-$C_4N$ 7-Ox-1-azabicyclo[3.2.0]heptane
$C_2N_3$-$C_2N_3$ 2,3,5,6-Tetrazabicyclo[2.1.1]hexene
$C_2N_2$-$C_4O$ 3-Oxa-6,7-diazabicyclo[3.2.0]heptene
$C_3$-$C_4N$ 3-Azabicyclo[3.2.0]heptane
$C_4$-$C_5$ Bicyclo[3.2.0]heptene
**4,6** $C_3S_2$-$C_4S_2$ 3,6,7-Trithiabicyclo[3.1.1]heptane
$C_3O$-$C_4$ 7-Oxabicyclo[4.2.0]octatriene
$C_4$-$C_4$ Bicyclo[3.1.1]heptene
Bicyclo[4.2.0]octadiene
Bicyclo[4.2.0]octane
Bicyclo[4.2.0]octatriene
Bicyclo[4.2.0]octene
Norpinane
**5,5** $C_3NO$-$C_3NO$ Oxazoloöxazole
$C_3NS$-$C_3N_2$ Imidazothiazole
$C_3NS$-$C_3N$ Pyrrolothiazole
$C_3NS$-$C_4$ 1-Thi-4-azaspiro[4.4]nonane
$C_3N_2$-$C_3N_2$ Imidazimidazole
$C_3N_2$-$C_4N$ Pyrrolopyrazole
$C_3N_2$-$C_4O$ Furoimidazole
$C_3N_2$-$C_4S$ 7-Thia-1,2-diazaspiro[4.4]nonadiene
Thienoimidazole
Thienopyrazole
$C_3N_2$-$C_5$ 1,3-Diazaspiro[4.4]nonane
$C_3OS$-$C_3OS$ 7-Oxa-2,5-dithiabicyclo[2.2.1]heptane
$C_3O_2$-$C_4O$ 1,4,7-Trioxaspiro[4.4]nonane
1,3,6-Trioxaspiro[4.4]nonene
$C_3S_2$-$C_3S_2$ 2,5,7-Trithiabicyclo[2.2.1]heptane
$C_4N$-$C_4N$ Pyrrolopyrrole
$C_4O$-$C_4O$ Furofuran
7-Oxabicyclo[2.2.1]heptane
$C_4O$-$C_4Se$ Selenofuran
$C_4S$-$C_4S$ Thienothiophene
Thiophthene
$C_4$-$C_5$ Bicyclo[2.2.1]heptene
Norcamphane
Pentalene
**5,6** $CN_4$-$C_5N$ Pyridotetrazole
$C_2NOSe$-$C_6$ Benzoxaselenazole
$C_2N_2O$-$C_6$ Benzofurazan
$C_2N_2S$-$C_6$ Benzothiadiazole
$C_2N_3$-$C_2N_3$ Triazolotriazine
$C_2N_3$-$C_4N_2$ Triazolopyrimidine
$C_2N_3$-$C_5N$ Pyridotriazole
$C_2N_3$-$C_6$ Benzotriazole
$C_2HgO$-$C_6$ Benzoic acid, 4 amino-2-(hydroxymercuri)-, cyclic anhydride
$C_2NO$-$C_6$ Benzisoxazole
Benzoxazole
Benzoxazoline
1-Ox-3-azaspiro[4.5]decane
1-Ox-4-azaspiro[4.5]decane
$C_2NS$-$C_4N_2$ Thiazolopyrazine
Thiazolopyrimidine
$C_2NS$-$C_6$ Benzisothiazole
Benzothiazole
Benzothiazoline
1-Thi-4-azaspiro[4.5]decane
3-Thi-1-azaspiro[4.5]decane
$C_2NSe$-$C_6$ Benzoselenazole
Benzoselenazoline
$C_2N_2$-$C_4N_2$ Purine
$C_2N_2$-$C_5N$ Imidazopyridine
Imidazopyridinium
Pyrazolopyridine
$C_3N_2$-$C_6$ Benzimidazole
1,3-Diazaspiro[4.5]decane
1,3-Diazaspiro[4.5]decene
Indazole
Isoindazole
$C_3OS$-$C_6$ Benzoxathiole
$C_3O_2$-$C_6$ 1,3-Benzodioxole
1,4-Dioxaspiro[4.5]decane
$C_3S_2$-$C_6$ Benzodithiole
$C_4N$-$C_5N$ 8-Azabicyclo[3.2.1]octane
Nortropane
Nortropidine
Pyrrolopyridine
$C_4N$-$C_6$ Indole
Indoline
Isoindole
Isoindoline
Pseudoindole
Pseudoisoindole
$C_4O$-$C_4N_2$ Furopyrimidine
$C_4O$-$C_4O_2$ Furodioxin
$C_4O$-$C_5N$ Furopyridine
$C_4O$-$C_5O$ Furopyran
$C_4O$-$C_6$ Benzofuran
Isobenzofuran
6-Oxabicyclo[3.2.1]octane
1-Oxaspiro[4.5]decane
$C_4S$-$C_4NS$ 8-Thi-3-azabicyclo[3.2.1]octane
$C_4S$-$C_4N_2$ Thienopyrimidine
$C_4S$-$C_4OS$ 3-Oxa-8-thiabicyclo[3.2.1]octane
$C_4S$-$C_4O_2$ Thienodioxin
$C_4S$-$C_6$ Isothianaphthene
Thianaphthene
$C_4Se$-$C_6$ Selenanaphthene
$C_5$-$C_4N_2$ 7,9-Diazaspiro[4.5]decane
$C_5$ $C_5N$ Pyrindine
$C_5$ $C_5O$ Cyclopentapyran
3-Oxabicyclo[3.2.1]octane
$C_5$-$C_5$ Bicyclo[3.2.1]octane
Indan
Indene
**5,7** $CN_4$ $C_5N$ Azepotetrazole
$C_4O$-$C_5NO$ Furoöxazepine
$C_5$-$C_7$ Azulene
Cyclopentacycloheptene
**6,6** $C_2N_2$-$C_3N_2$ 1,3,5,7-Tetrazabicyclo[3.3.1]nonane
$C_3N_2$-$C_5O$ Pyranotriazine
$C_3O_2S$-$C_6$ Benzodioxathiin
$C_4NO$-$C_4N_2$ Oxazinopyrimidine
$C_4NO$-$C_6$ Benzoxazine
$C_4NS$-$C_4N_2$ Pyrimidothiazine
$C_4NS$-$C_6$ Benzothiazine
$C_4N_2$-$C_4N_2$ 1,4-Diazabicyclo[2.2.2]octane
Pteridine
$C_4N_2$ $C_5N$ Pyridopyrazine
Pyridopyrimidine
$C_4N_2$-$C_6$ Cinnoline
Phthalazine
Quinazoline
Quinoxaline
$C_4OS$-$C_6$ Benzoxathian
$C_4O_2$-$C_4O_2$ Dioxinodioxin
2,4,8,10-Tetroxaspiro[5.5]hendecane
$C_4O_2$ $C_6$ Benzodioxan
Benzodioxin
$C_5N$-$C_5N$ 1-Azabicyclo[3.3.1]nonadiene
1-Azabicyclo[3.3.1]nonene
Isogranatanine
Naphthyridine
Quinolizine
Quinolizinium
Quinuclidine
$C_5N$-$C_6$ 2-Azabicyclo[3.3.1]nonane
Isoquinoline
Quinoline
$C_5O$-$C_6$ Benzopyran
Benzopyrylium
Chroman
Isochroman
2-Oxabicyclo[2.2.2]octane
$C_6$-$C_6$ Bicyclo[3.3.1]nonane
Bicyclo[3.3.1]nonene
Bicyclo[2.2.2]octane
Bicyclo[2.2.2]octene
Naphthalene
**6,7** $C_4NS$-$C_7$ Cycloheptathiazine
$C_6$-$C_4N_2$ Benzotriazepine
$C_6$-$C_5N_2$ Benzodiazepine
$C_6$-$C_5O_2$ Benzodioxepin
$C_6$-$C_5O$ Benzoxepin
$C_6$-$C_7$ Bicyclo[4.3.1]decene
Cycloheptabenzene
**6,8** $C_6$-$C_8$ Bicyclo[5.3.1]hendecatriene
Bicyclo[5.3.1]hendecene
**6,9** $C_6$-$C_9$ Bicyclo[6.3.1]dodecatriene
**6,11** $C_6$-$C_{11}$ Bicyclo[8.3.1]tetradecatriene
**6,13** $C_6$-$C_{13}$ Bicyclo[10.3.1]hexadecene
**6,19** $C_6$-$C_{19}$ Bicyclo[16.3.1]docosatriene
**7,7** $C_4N_2$-$C_4N_2$ 1,3,5,7-Tetrazabicyclo[3.3.2]decane
$C_6O$-$C_4O$ 11-Oxabicyclo[4.4.1]hendecane
$C_7$-$C_7$ Heptalene

## 3-RING SYSTEMS

3,4,6 $C_8O$-$C_4$-$C_6$ 3-Oxatricyclo[5.2.0.$0^{2,4}$]nonene
3,5,5 $C_5O$-$C_3N_2$-$C_4S$ Oxirothienopyrazole
$C_8$-$C_4$-$C_3$ Tricyclo[2.2.1.$0^{2,6}$]heptane
3,5,6 $C_9O$-$C_3$-$C_6$ Oxirindene
$C_3$-$C_4N$-$C_6$ Spiro[cyclopropane-1,3′-indoline]
3,6,6 $C_{10}O$-$C_6$-$C_6$ Oxironaphthalene
4,4,4 $C_4$-$C_4$-$C_4$ Tricyclo[4.2.0.$0^{2,5}$]octane
4,5,5 $C_6$-$C_4O$-$C_4O$ Dispiro[furan - 2(5*H*),1′-cyclobutane 2′,2″-(5″*H*)-furan]
$C_6$-$C_5$-$C_5$ Spiro[cyclobutane-1,2′-norcamphane]
4,6,6 $C_6$-$C_6$-$C_4$ Cyclobutadibenzene
Tricyclo[4.2.2.$0^{2,5}$]decadiene
Tricyclo[4.2.2.$0^{2,5}$]decane
Tricyclo[4.2.2.$0^{2,5}$]decatriene
Tricyclo[4.2.2.$0^{2,5}$]decene
5,5,5 $C_4N$-$C_4O$-$C_4O$ Epoxypseudoisoindole
$C_4N$-$C_5$-$C_5$ 4,7-Methanoisoindole
$C_4O$-$C_4O$-$C_4O$ 4,7-Epoxyisobenzofuran
$C_4O$-$C_5$-$C_5$ 4,7-Methanoisobenzofuran
6-Oxatricyclo[3.2.1.$1^{3,6}$]nonane
$C_5$-$C_5$-$C_5$ 4,7-Methanoindene
5,5,6 $C_3NO_2$-$C_4O$-$C_6$ 1,4-Epoxy-2,3,1*H*-benzoxazine
$C_2N_6$-$C_2N_3$-$C_6$ Benzobistriazole
$C_2NS$-$C_2NS$-$C_6$ Benzobisthiazole
$C_3NS$-$C_3N_2$-$C_6$ Spiro[cyclohexane - 1,3′(1′*H*) imidazo[1,5-*c*] thiazole]
$C_3NS$-$C_4S$-$C_6$ Thianaphthenothiazole
$C_3N_2$-$C_3N_2$-$C_6$ Benzobisimidazole
$C_4N_2$-$C_4N$-$C_6$ Imidazoindole
Pyrazoloisoindole
$C_3N_2$-$C_6$-$C_5$ Indenoimidazole
Spiro[indan-1,4,-[2]pyrazoline]
$C_2O_2$-$C_4N$-$C_6$ Dioxoloindole
$C_4O$-$C_4O$-$C_4O_2$ 1,6,9,13-Tetroxadispiro[4.2.4.2]tetradecane
$C_4O$-$C_4O$-$C_6$ Benzodifuran
$C_4S$-$C_4S$-$C_6$ Benzodithiophene
$C_5$-$C_6$-$C_6O$ 5,8-Methano-1,2*H* benzopyran
$C_5$-$C_6$-$C_6$ Cyclopentindene
1,4-Methanonaphthalene
5,5,10 $C_8$-$C_8$-$C_8O_4$ 6,9,15,18 - Tetroxadispiro[4.4.4.4]octadecatetraene
6,6,6 $C_2N_2O$-$C_6$-$C_6$ Naphthoxadiazole
$C_2N_2S$-$C_6N$-$C_6$ Thiadiazoloquinoline
$C_2N_3$-$C_6$-$C_6$ Naphthotriazole
$C_3NO$-$C_6$-$C_6$ Naphthoxazole
$C_3NS$-$C_4N_2$-$C_4N_2$ Thiachromine
$C_3NS$ $C_4N_2$-$C_6$ Pyrimidobenzothiazole
$C_3NS$-$C_5N$ $C_6$ Pyridobenzothiazole
Pyridobenzothiazolium
Thiazoloquinoline
$C_3NS$-$C_6$-$C_6$ Naphthothiazole
$C_3NSe$-$C_6$-$C_6$ Naphthoselenazole
$C_3N_2$-$C_4NO$-$C_6$ Pyrazolobenzoxazine
$C_3N_2$-$C_6$-$C_6$ Naphthimidazole
Naphthopyrazole
$C_4OS$-$C_6$-$C_6$ Naphthoxathiole
$C_5O_2$-$C_4N$-$C_6$ Dioxoloisoquinoline
Dioxoloquinoline
$C_5O_2$ $C_6O$ $C_6$ Dioxolobenzopyran
$C_6O_2$-$C_6$ $C_6$ Naphthodioxole
$C_4N$ $C_3N_2$-$C_6$ Triazinoindole
$C_4N$-$C_5N$-$C_6$ Pyridindole
Pyrroloquinoline
$C_4N$-$C_6$-$C_6$ Benzindole
Carbazole
Isocarbazole
$C_4O$-$C_5N$-$C_6$ Furoquinoline
$C_4O$-$C_5O$-$C_6$ Furobenzopyran
$C_4O$ $C_6$ $C_6$ Dibenzofuran
1,4a(8a*H*)-(Epoxymethano)naphthalene
4,7-Ethanoisobenzofuran
Naphthofuran
7-Oxadispiro[5.1.5.2]pentadecane
7-Oxadispiro[5.1.5.2.]pentadecene
$C_6S$-$C_6$-$C_6$ Dibenzothiophene
Naphthothiophene
Thiophanthrene
$C_5$ $C_4N_2$-$C_5N$ Cyclopentapyrazinopyridine
$C_5$ $C_4O_2$-$C_6$ 9*H*-Indeno[1,2-*b*]-*p*-dioxin
$C_5$ $C_5N$-$C_6$ 1*H*-Cyclopenta[*b*]quinoline
Cyclopentisoquinoline
Indenopyridine
$C_5$-$C_6$-$C_6$ Acenaphthene
Acenaphthylene
Benzindene
1,3-Ethanonaphthalene
Fluorene
5,6,7 $C_4O$-$C_4N$-$C_4NO$ Spiro[furo[3,4-*f*]-1,2-oxazepine-2(6*H*),1′ pyridine]
$C_5$ $C_6$-$C_7$ Benzazulene
Cyclohept[*f*]indene
6,6,6 $C_2N_2S$-$C_2N_2S$-$C_4N_2$ 2-Thia-1,3,5,7-tetrazatricyclo[3.3.1.$1^{3,7}$]decane
$C_2N_2$-$C_2N_2$-$C_2N_2$ Hexamethylenetetramine
$C_2N_2$-$C_4O$-$C_4$ 5,8-Ethano-6*H*-pyrano[4,3-*e*]-*as*-triazine
$C_4As_2N$-$C_6$-$C_6$ Phenarsazine
$C_4As_2$-$C_6$-$C_6$ Arsanthrene
$C_4NO$-$C_4N$-$C_6$ Pyridobenzoxazine
$C_4NO$-$C_6$-$C_6$ Phenoxazine
$C_4NS$-$C_6$-$C_6$ Isophenothiazine
Phenothiazine
$C_4NSe$-$C_6$-$C_6$ Phenoselenazine
$C_4N_2$-$C_4N_2$-$C_5N$ Pyridopyrimidopyrazine
$C_4N_2$-$C_4N_2$-$C_6$ Pyrimidoquinoxaline
$C_4N_2$-$C_5N$-$C_5N$ Dipyridopyrazidiinium
$C_4N_2$-$C_6$-$C_6$ Benzocinnoline
Benzoquinazoline
Benzoquinoxaline
Perimidine
Phenazine
$C_4OS$-$C_6$-$C_6$ Dibenzoxathiin
Phenoxathiin
$C_4OSe$-$C_6$-$C_6$ Phenoxaselenin
$C_4O_2$-$C_4O_2$-$C_6$ 2,4,10,12-Tetroxadispiro[5.1.5.3]hexadecane
$C_4O_2$-$C_5N$-$C_6$ Dioxinoquinoline
$C_4O_2$-$C_5O$-$C_6$ 8a,3(Epoxymethano)-1,8a*H*-benzopyran
$C_4O_2$-$C_6$-$C_6$ Dibenzo-*p*-dioxin
Naphthodioxin
$C_6S_2$-$C_6$-$C_6$ Thianthrene
$C_5N$-$C_5N$-$C_5N$ 1,5-Methano-2-pyrido[1,2-*a*][1,5]diazocine
$C_6N$-$C_6N$-$C_6$ Benzoquinolizine
Benzoquinolizinium
Phenanthroline
Pyridoisoquinoline
Pyridoquinoline
$C_5N$-$C_5O$-$C_6$ Pyranoquinoline
$C_6N$ $C_6$-$C_6$ Acridan
Acridine
Benzisoquinoline
Benzoquinoline
2,6-Methano-3-benzazocine
Phenanthridine
Spiro[naphthalene-1(4*H*),3′-piperidine]
$C_6O$-$C_6O$-$C_6$ Benzodipyran
$C_6O$-$C_6$-$C_6$ Dibenzopyran
Isoxanthene
Naphthopyran
Xanthene
Xanthylium
$C_6S$-$C_6$-$C_6$ Thiaxanthene
$C_6$-$C_6$-$C_6$ Anthracene
Benzonaphthene
1,4-Ethanonaphthalene
Phenanthrene
6,6,7 $C_2N_2S$-$C_2N_2S$-$C_4N_2$ 11-Thia-1,3,5,7-tetrazatricyclo[3.3.2.-$1^{3,7}$]hendecane
$C_4N_2$-$C_6$-$C_6O$ 1,4-(Epoxyethano)phthalazine
$C_6$-$C_6$-$C_6O_2$ Dibenzodioxepin
$C_6$-$C_6$-$C_6N$ Dibenzazepine
$C_6$-$C_6$-$C_6O$ Dibenzoxepin
$C_6$-$C_6$-$C_7$ Cycloheptanaphthalene
Dibenzocycloheptadiene
Dibenzocycloheptatriene
6,6,8 $C_6$-$C_6$-$C_4NS_3$ Dibenzotrithiazocine
$C_6$-$C_6$-$C_4O_2S_2$ Dibenzodioxadithiocin
$C_6$-$C_6$-$C_6N_2$ Phenhomazine
6,6,9 $C_6$-$C_6$-$C_6O$ Dibenzoxonin
6,6,10 $C_4$ $C_6$-$C_6O$ Salicylic acid, 5,5′-(α-hydroxybenzylidene)di-, anhydride triacetate
6,6,12 $C_4O_2$-$C_4O_2$-$C_8O_4$ 2,6,10,14,17,18-Hexoxatricyclo[11.3.1.$1^{5,9}$]-octadecane
$C_6$-$C_6$-$C_8N_2S_2$ *p*-Benzenedisulfonamide, *N*,*N*′-*p*-phenylene deriv.

## 4-RING SYSTEMS

3,4,6,6 $C_2O$-$C_4$ $C_6$-$C_6$ 4-Oxatetracyclo[5.2.2.$0^{2,6}$.$0^{3,5}$]hendecadiene
4-Oxatetracyclo[5.2.2.$0^{2,6}$.$0^{3,5}$]hendecane
4-Oxatetracyclo[5.2.2.$0^{2,6}$.$0^{3,5}$]hendecene
3,5,6,6 $C_2O$-$C_4O$-$C_6$-$C_6$ Dispiro[cyclohexane 1,2′ - (3,6 - dioxabicyclo[3.1.0]hexane) - 4′1″-cyclohexane]
4,5,6,6 $C_4$-$C_4N$-$C_6$-$C_6$ 4,7-Ethano-2*H*-cyclobut[*f*]isoindole
4,7-Etheno-2*H*-cyclobut[*f*]isoindole
$C_4$-$C_4O$-$C_6$-$C_6$ 4,7-Ethanocyclobut[*f*]isobenzofuran
4,7-Ethenocyclobut[*f*]isobenzofuran
1,5-Methanocyclobut[*e*]isobenzofuran
4,6,6,6 $C_4$-$C_6$-$C_6$-$C_6$ 3,8-Ethenocyclobuta[*b*]naphthalene
5,5,5,5 $C_5$-$C_5$-$C_5$ $C_5$ 1,4,5,8-Dimethanonaphthalene
5,5,6,6 $C_3NO$-$C_5$-$C_6$-$C_6$ Fluorenoöxazole
$C_3NS$-$C_4N$-$C_6C_6$ Naphthopyrrolothiazolium
$C_4N$ $C_5$-$C_6$-$C_6$ Indenoindole
$C_4O$-$C_4O$-$C_6$-$C_6$ Benzofurobenzofuran
4,8-Ethano-1*H*,3*H*-benzo[1,2-*c*,4,5-*c*′]difuran
$C_5$-$C_5$-$C_6$ $C_6$ Cyclopentacenaphthylene
Cyclopentafluorene
Indenoindene
Spirobiindan
5,6,6,6 $CN_4$-$C_4N_2$-$C_6$-$C_6$ Benzotetrazolocinnolinium
$C_2N_3$-$C_5N$-$C_6$-$C_6$ Benzotriazoloquinoline
$C_3NO$-$C_6$-$C_6$-$C_6$ Anthroxazole
Phenanthroisoxazole
$C_3NS$-$C_5N$-$C_6$-$C_6$ Naphthopyridothiazole
Naphthopyridothiazolium
$C_3NS$-$C_6$-$C_6$-$C_6$ Anthrathiazole
$C_3N_2$-$C_4$-$C_6$-$C_6$ Anthrimidazole
Phenanthrimidazole
$C_4N$-$C_4N$-$C_6$-$C_6$ Dibenzopyrrocoline
Indoloquinoline
Isoquindoline
Pyridocarbazole
Quindoline
Quinindoline
$C_4N$-$C_5O$-$C_6$-$C_6$ Benzopyranoindole
$C_4N$-$C_6$-$C_6$-$C_6$ Benzocarbazole
Naphthisoindole
$C_4O$-$C_5O$-$C_6$-$C_6$ Benzofurobenzopyran
Spiro[furanxanthene]

$C_4O$-$C_6$-$C_6$-$C_6$ **Phenanthrofuran**
**Spiro[furan-2(5*H*),1′(2′*H*)-phenanthrene]**
$C_6S$-$C_6$-$C_6$-$C_6$ **Benzothiophanthrene**
$C_6$-$C_6N$-$C_6$-$C_6$ **Indenoquinoline**
$C_6$-$C_6O$-$C_6$-$C_6$ **Benzindenopyran**
$C_6$-$C_6$-$C_6$-$C_6$ **Aceanthrene**
**Acephenanthrylene**
**Benzofluorene**
**Chrysofluorene**
**Cyclopentaphenanthrene**
**Fluoranthene**

**5,6,6,7** $C_4N$-$C_5N$-$C_6$-$C_6O$ **Oxepopyrroloquinoline**
$C_6$-$C_6$-$C_6$-$C_6O$ **Benzindenoöxepin**

**6,6,6,6** $C_4N_2$-$C_4N_2$-$C_6$-$C_6$ **5,11(6*H*,12*H*) - Methanodibenzo[*b*,*f*][1,5]-diazocine**
$C_4N_2$-$C_5N$-$C_6$-$C_6$ **Quinoquinoxaline**
$C_4N_2$-$C_6$-$C_6$-$C_6$ **Benzophenazine**
**Dibenzoquinazoline**
**Dibenzoquinoxaline**
**10,4a(4*H*)-Iminoethanophenanthrene**
**Naphthophthalazine**
$C_4OS$-$C_6$-$C_6$-$C_6$ **Benzonaphthoxathin**
**Oxathiachrysene**
$C_4O_2$-$C_4O_2$-$C_6$-$C_6$ **9,10-Epidioxyanthracene**
$C_4O_2$-$C_6$-$C_6$-$C_6$ **Benzonaphthenodioxin**
**Phenanthrodioxin**
$C_5N$-$C_5N$-$C_5N$-$C_5N$ **7,14-Methanodipyridodiazocine**
$C_6N$-$C_6N$-$C_6$-$C_6$ **Benzopyridoquinoline**
**Quinoquinoline**
$C_5N$-$C_6O$-$C_6$-$C_6$ **Pyranoacridine**
$C_6N$-$C_6$-$C_6$-$C_6$ **Benzacridine**
**Benzophenanthridine**
**Dibenzisoquinoline**
**Thebainone, *O* desmethyl ***
$C_6O$-$C_6O$-$C_6$-$C_6$ **Benzopyranobenzopyrylium**
**Dioxapyrene**
**Spirobichroman**
$C_6O$-$C_6$-$C_6$-$C_6$ **Benzoxanthene**
**Phenanthropyran**
$C_6$-$C_6$-$C_6$-$C_6$ **Benzanthracene**
**Benzophenanthrene**
**Chrysene**
**1,4-Ethanoanthracene**
**9,10-Ethanoanthracene**
***D*-Homoandrostene***
**Naphthacene**
**Nor-*D*-homoandrostane***
**Nor-*D*-homoandrostene***
**Pyrene**
**Triphenylene**

**6,6,6,7** $C_7$-$C_6$-$C_6$-$C_6OS$ **Benzonaphthoxathiepin**
$C_6$-$C_6$-$C_6$-$C_7$ **Pleiadene**

**6,6,6,16** $C_8$-$C_6$-$C_6$-$C_{12}N_2S_2$ ***p*-Benzenedisulfonamide, *N*,*N*′-4,4′ biphenylene deriv.**

**6,6,6,17** $C_8$-$C_6$-$C_6$-$C_{12}N_2S_2$ ***p*-Benzenedisulfonamide, *N*,*N*′-(thiodi-*p*-phenylene) deriv.**

## 5-RING SYSTEMS

**3,4,5,6,6** $C_2O$-$C_4$-$C_4O$-$C_6$-$C_6$ **2,6 - Ethanoöxiro[3,4]cyclobut[1,2-*f*]-isobenzofuran**
**2,6 - Ethenooxiro[3,4]cyclobut[1,2-*f*]-isobenzofuran**

**3,5,5,6,6** $C_2O$-$C_5$-$C_5$-$C_6$-$C_6$ **Cyclopentoxirofluorene**
$C_3$-$C_5$-$C_5$-$C_6$-$C_6$ ***i*-Cholesterol**

**3,5,6,6,6** $C_2O$-$C_5$-$C_6$-$C_6$-$C_6$ **5-Allopregnane, 16,17-oxido-***
**16-Allopregnen-3(*β*)-ol-20-one, 16,17-epoxy-***
**Cholanic acid, 3(*α*)-hydroxy-11(*α*),12(*α*)-epoxy-***
**Cholestane, oxido-***
**Cholesterol, 5,6-oxide**
**Coprostane, 4,5-oxido-***
**Etiocholan-3(*β*)-ol-17-one, 5,6-epoxy ***
**Pregnene, 16,17-oxido-***

**4,6,6,6,6** $C_4$-$C_6$-$C_6$-$C_6$-$C_6$ **Cyclobutadinaphthalene**
**3,10-Ethenocyclobut[*b*]anthracene**

**5,5,5,5,6** $C_6$-$C_5$-$C_5$-$C_5$-$C_6$ **1,4,5,8-Dimethanoanthracene**

**5,5,6,6,6** $C_2NS$-$C_2NS$-$C_6$-$C_6$-$C_6$ **Anthrabisthiazole**
**Anthradiisothiazole**
$C_2NS$-$C_5$-$C_6$-$C_6$-$C_6$ **Spiro[15*H*-cyclopenta[*a*]phenanthrene-3(2*H*),2′-thiazolidine]**
$C_3O_2$-$C_5$-$C_6$-$C_6$-$C_6$ **Δ⁵-Androstene, 3(*β*)-methoxy-16(*α*), 17-(*α*)-dihydroxy-*, acetonide**
**Isoestriol A*, acetonide**
**Spiro[17*H* - cyclopenta[*a*]phenanthrene-3(2*H*),2′-[1,3]dioxolane]**
$C_4N$-$C_4N$-$C_5N$-$C_6$-$C_6$ **Pyridopyrrolocarbazole**
$C_4N$-$C_4O$-$C_5N$-$C_6$-$C_6$ **Strychnane, methoxymethylchanodihydro-***
$C_4N$-$C_5$-$C_6$-$C_6$-$C_6$ **Acenaphthindole**
$C_4O$-$C_4O$-$C_4O_2$-$C_6$-$C_6$ **5,12,6,11 - Diepoxycycloöcta[1,2,5,6]-dibenzene**
$C_4O$-$C_4O$-$C_6$-$C_6$-$C_6$ **6,9[3′,4′]-Furanonaphthofuran**
$C_4O$-$C_6$-$C_6$-$C_6$-$C_6$ **6-Cholestaneacetic acid,* γ-lactone**
**Fluoranthenofuran**
**$\Delta^{5,6,20,22}$-Norcholadienic acid, 3-acetoxy-17-hydroxy-, γ-lactone**
$C_4S$-$C_6$-$C_6$-$C_6$-$C_6$ **Benzindenothianaphthene**
$C_5$-$C_5$-$C_5N$-$C_5N$-$C_5N$ **Pyridodipyrindine**

**5,5,6,6,7** $C_2NO$-$C_2NO$-$C_6$-$C_6$-$C_5N_2$ **Bisbenzoxazolodiazepinium**
$C_2NS$-$C_2NS$-$C_6$-$C_6$-$C_6N_2$ **Bisbenzothiazolodiazepinium**

**5,5,6,6,8** $C_2NS$-$C_2NS$-$C_6$-$C_6$-$C_6N_2$ **Bisbenzothiazolodiazocinium**

**5,6,6,6,6** $C_2O_2$-$C_6O$-$C_6$-$C_6$-$C_6$ **Pseudoandrostene, 3(*β*)-formyloxy-, ozonide***
$C_2O_2$-$C_5N$-$C_5N$-$C_6$-$C_6$ **Benzobenzodioxoloquinolizine**
$C_6N$-$C_6N$-$C_5N$-$C_6$-$C_6$ **Benzindoloquinolizine**
**Benzindoloquinolizinium**
**Indoloquinazopyridine**
$C_6N$-$C_6$-$C_6$-$C_6$-$C_6$ **Dibenzocarbazole**
**Naphthocarbazole**
$C_6O$-$C_5N$-$C_6$-$C_6$-$C_6$ **Codeine**
**Morphine**
$C_6O$-$C_5O$-$C_6O$-$C_6$-$C_6$ **Benzofurobenzopyranopyran**
$C_6O$-$C_5O$-$C_6$-$C_6$-$C_6$ **Spiro[isobenzofuran - 1(3*H*),9′ - xanthene]**
$C_6O$-$C_6$-$C_6$-$C_6$-$C_6$ **Furanoanthracene**
$C_6$-$C_4N_2$-$C_4N_2$-$C_6$-$C_6$ **Acenaphthopyrimidopyrazine**
$C_6$-$C_5N_2$-$C_6$-$C_6$-$C_6$ **Naphthindenopyridazine**
$C_6$-$C_4O_2$-$C_6$-$C_6$-$C_6$ **Carbonic acid, ester with 3(*α*),5-dihydroxycholestane**
**Carbonic acid, ester with 3(*β*),5-dihydroxycoprostane**
$C_6$-$C_5N$-$C_6$-$C_6$-$C_6$ **Indenophenanthridine**
$C_6$-$C_6O$-$C_6O$-$C_6$-$C_6$ **Alloglaucotoxigenin*, cyclic hemiacetal**
**Corotoxigenin*, cyclic hemiacetal**
$C_6$-$C_6O$-$C_6$-$C_6$-$C_6$ **Allocholane, 3(*β*)-hydroxy-17,24-oxido-24,24-dimethyl-***
**Allocholanic acid, 3(*β*)-acetoxy-17-hydroxy-*, lactone**
**Bisnorcholanic acid, 3(*α*),9(*α*)-epoxy-11-keto-***
**Cholanic acid, 3(*α*),9(*α*)-epoxy-11-keto-***
**Norcholanic acid, 3(*α*),9(*α*)-epoxy-11-keto-***
**Pregnan-20-ol 11-one, 3(*α*),9(*α*)-epoxy-***
$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Benzaceanthrylene**
**Benzacephenanthrylene**
**Benzocholestane***
**Benzocyclopentenophenanthrene**
**Benzofluoranthene**
**Cholanthrene**
**Dibenzofluorene**
**Naphthofluorene**

**5,6,6,6,7** $C_3NS$-$C_5N$-$C_6$-$C_6$ $C_5N_2$ **Benzothiazoloquinodiazepinium**
$C_4N$-$C_5N$-$C_6$-$C_6$-$C_6O$ **Strychnone, methoxymethylchanodihydro-***

**5,6,6,6,9** $C_4N$-$C_5N$-$C_6$-$C_6$-$C_6N$ **Methyldesoxyvomicinium salts***
**Methylneodesoxyvomicinium salts***
**Vomicine, neodesoxy ***

**6,6,6,6,6** $C_4NO$-$C_4NO$-$C_6$-$C_6$-$C_6$ **Triphenodioxazine**
$C_4N_2$-$C_4N_2$-$C_6$ $C_6$-$C_6$ **Dibenzopyrimidoquinoxaline**
$C_4N_2$-$C_5N$-$C_6$-$C_6$-$C_6$ **Dibenzopyridoquinoxaline**
$C_4N_2$-$C_6$-$C_6$-$C_6$-$C_6$ **Dibenzophenazine**
$C_4O_2$-$C_4$-$O_2$-$C_6$-$C_6$-$C_6$ **Epidioxynaphthacene**
$C_4O_2$-$C_6$-$C_6$-$C_6$-$C_6$ **Dinaphthodioxin**
$C_5N$-$C_6$-$C_6$-$C_6$-$C_6$ **Naphthacridine**
$C_5O$-$C_6O$-$C_6O$-$C_6$-$C_6$ **Bisbenzopyranopyran**
$C_6O$-$C_6$-$C_6$-$C_6$-$C_6$ **Dibenzoxanthene**
$C_6S$-$C_6$-$C_6$-$C_6$-$C_6$ **Naphthothiaxanthene**
$C_6$-$C_6$-$C_6$ $C_6$-$C_6$ **Benzochrysene**
**Benzopyrene**
**Dibenzanthracene**
**Dibenzophenanthrene**
**Pentacene**
**Perylene**
**Picene**

**6,6,6,6,7** $C_5N$-$C_5N$-$C_6$-$C_6$-$C_5N_2$ **Diquinodiazepinium**
$C_6$-$C_6$-$C_7$-$C_6$-$C_6O$ **Dinaphthoxepin**

**6,6,6,6,18** $C_6$-$C_6$-$C_6$-$C_6$ $C_{16}O_2$ **Oxyacanthinemethine, *O*-methyl ***
**Repandinemethine, *O*-methyl ***

## 6-RING SYSTEMS

**5,5,5,6,6,6** $C_2NS$-$C_2N_2$-$C_6$-$C_6$-$C_6$-$C_6$ **Spiro[15*H* - cyclopenta[*a*]phenanthrene - 3(2*H*),3′(1′*H*)-imidazo[1,5-*c*]thiazole]**

**5,5,6,6,6,6** $C_4N$-$C_4N$ $C_5N$-$C_5N$-$C_6$-$C_6$ **Strychninolone, dehydro ***
**Strychninone, dehydro ***
**Vomicine, desoxy-***

**5,5,5,6,6,7** $C_4N$-$C_4N$-$C_5N$-$C_6$-$C_6$-$C_6O$ **Vomicine deriv., 7943*e***
$C_6O$-$C_6$-$C_6$-$C_6$-$C_7$-$C_6O$ **Compd., m 234-5°, 4089*b***

**5,6,6,6,6,6** $C_4N$-$C_5N$-$C_5N$-$C_6$ $C_6$-$C_6$ **Isoquinoquindoline**
$C_4N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Benzonaphthocarbazole**
$C_4O$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **5,12[3′,4′]-Furanonaphthacene**
**Perylofuran**
$C_6$-$C_4N_2$-$C_6$-$C_6$-$C_6$-$C_6$ **Dibenzocyclopentaphenazine**
$C_6$-$C_6O$-$C_6$-$C_6$-$C_6$-$C_6$ **Fluorenoxanthene**

**5,6,6,6,6,7** $C_4N$-$C_5N$-$C_5N$-$C_6$-$C_6$-$C_6O$ **Neostrychnine, methoxymethyldihydro-***
$C_4N$-$C_4N$-$C_6$-$C_6$-$C_6$-$C_6N$ **Benzazepodibenzopyrrocoline**

**5,6,6,6,7,9** $C_4N$-$C_5N$-$C_6$-$C_6$-$C_6O$-$C_6N$ **Vomicine**

**6,6,6,6,6,6** $C_6N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Benzonaphthacridine**
$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Anthraphenanthrene**
**Benzopentacene**
**Benzoperylene**
**Dibenzonaphthacene**
**Dibenzopyrene**
**7,14-Ethanodibenzanthracene**
**Naphthopyrene**

## 7-RING SYSTEMS

**4,4,6,6,6,6,6** $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **3,10,5,8 - Diethenodicyclobut-[*b*,*i*]anthracene**

**5,5,6,6,6,6,7** $C_4N$-$C_4N$-$C_5N$-$C_5N$-$C_6$-$C_6$-$C_6O$ **Strychnine**

**5,6,6,6,6,6,6** $C_4N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Dinaphthocarbazole**

**6,6,6,6,6,6,6** $C_4NO$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Tetrabenzophenoxazine**
$C_4N_2$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Anthrazine**
**Dibenzonaphthophenazine**
$C_6N$-$C_6N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ **Anthradiisoquinoline**

* $C_{28}N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Dinaphthacridine
$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Coronene
Dibenzopentarene
Dibenzoperylene
Dinaphthanthracene
**6,6,6,6,6,6,8** $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_8$ 9,10[9′,10′] - Anthracenoanthracene
**6,6,6,6,6,6,18** $C_4N$-$C_3N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_{16}O_2$ Repandine*
Tubocurarine

**8-RING SYSTEMS**

**5,5,6,6,6,6,6,6** $C_4N_2$-$C_3N_2$-$C_6N$-$C_3N$-$C_6$-$C_6$-$C_6$-$C_6$ Bisbenzimidazodiazapyrene
$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Aceanthraaceanthrylene
**6,6,6,6,6,6,6,6** $C_6N_2$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Diphenanthrophthalazine
$C_4O_2$-$C_4O_2$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ 3a,11b(10*H*,13*H*)-Epidioxydibenzo[*a*,*o*]-perylene
$C_5N$-$C_3N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Flavanthrine
$C_6$-$C_6$ $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Benzonaphthenoperylene
10,17 - Ethanodibenzo[*a*,*c*]-pentacene
6,15 - Ethanonaphtho[2,3-*c*]pentaphene
Phenanthroperylene

**9-RING SYSTEMS**

**5,5,5,5,6,6,6,6,16** $C_4N$-$C_4N$-$C_4N$-$C_4N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_8N_8$ Phthalocyanine
**5,5,6,6,6,6,6,6,8** $C_4N$-$C_4N$-$C_3N$-$C_3N$-$C_6$ $C_6$-$C_6$-$C_6$-$C_6N_2$ Diquindolodiazocine
**5,6,6,6,6,6,6,6,6** $C_4N$-$C_3N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Naphthonaphthindoloacridine
$C_4N$-$C_6S$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ $C_6$ Anthrathiapyranonaphthocarbazole
$C_4O$-$C_6$-$C_6$-$C_6$-$C_6$ $C_6$-$C_6$-$C_6$ $C_6$ 10,17[3′,4′] - Furanodibenzo[*a*,*c*]pentacene
6,15[3′,4′] - Furanonaphtho[2,3 - *c*]-pentaphene
**6,6,6,6,6,6,6,6,6** $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Dinaphthoperylene

**10-RING SYSTEMS**

**3,6,6,6,6,6,6,6,6,6** $C_2O$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Tetrabenzoxiropentaphene
**6,6,6,6,6,6,6,6,6,8** $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6O_2$ Violanthrenodioxonin
**6,6,6,6,6,6,6,6,7,7** $C_6$-$C_6$-$C_6$-$C_7$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6O$-$C_6O$ 6,15 - Ethanonaphtho-[2,3-*c*]-pentaphene-19,-20 - dicarboxylic acid, 5,6,9,14,15,-18 - hexahydro - 5,14-dihydroxy-, dilactone

**11-RING SYSTEMS**

**5,5,6,6,6,6,6,6,6,6,6** $C_4N$-$C_4N$-$C_6$ $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Dinaphthonaphthindolocarbazole
**16,6,6,6,6,6,6,6,6,6,6** $C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Benzodiperylene

**15-RING SYSTEM**

**5,5,6,6,6,6,6,6,6,6,6,6,6,6,6** $C_4N$-$C_4N$-$C_6S$-$C_6S$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Dyes, P 9468*h*

**19-RING SYSTEM**

**5,5,5,5,6,6,6,6,6,6,6,6,6,6,6,6,6,6,6** $C_4N$-$C_4N$-$C_4N$-$C_4N$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$-$C_6$ Pentaanthraquinonetetracarbazole*

## BOTANICAL AND ZOÖLOGICAL NOMENCLATURE

For the commoner animals and plants the common names, as Opossum and Wheat, have been used in accordance with the basic indexing principle that it is best to make entries where most of the index users will look first. For most of the less common animals and plants the scientific names have been used wherever possible. Cross references have usually been entered in both cases, sometimes for several common names. Because of insufficient information, sometimes even in original papers, both types of name (with cross references both ways) have occasionally had to be used for what may be the same organism. Sometimes headings have been given the form "Chrysomphalus aonidum and(or) Florida red scale."

For **insects** our authority has been "Common Names of Insects Approved by the American Association of Economic Entomologists."[10]

For **bacteria** the classification given in Bergey's "Manual of Determinative Bacteriology," sixth edition, has been followed as far as possible, with numerous cross references.

E. J. CRANE, *Editor*

[10] *J. Econ. Entomol.* **39**, 427–48(1946).

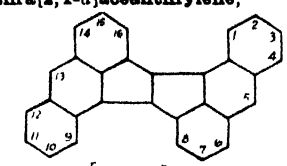
**AATP.** See *Parathion*.
**Abaca.** See *Manila hemp*.
**Abadole.** See *Thiazole, 2-amino-*.
**Abbattoirs.** See *Slaughterhouse*.
**Abbé number.** See *Refractometry*.
**Abdomen.** No entries this year. See *Ascites; Peritoneal fluid; Peritoneum; Viscera;* etc.
**Abdominal diaphragm,** amino acid concn. by, 9120*a*.
**Abelmoschus.** See *Hibiscus*.
**ABH.** See "α-" under *Cyclohexane, 1,2,3,-4,5,6-hexachloro-*.
**Abies.** See *Fir*.
**Abietene*,** 9442*i*.
———, **dehydro-*,** in tar oils, 3182*i*.
**Abietic acid.** (See also *Tall oil abietic acid.*) 1748*e*.
alkali metal salts, reaction with α,α'-dichlorodimethyl ether and thiourea, slipproofing agent for textiles from, P 2795*i*.
benzyl ester, vapor pressure of, 3678*a*.
in coal characterization, 4830*d*.
compd. with maleic anhydride, 7719*c*.
compd. with nicotine, antifouling properties of, 3964*b*.
corrosion-inhibiting value of, and their Pb and Sn salts in turbine lubricants, 842*a*.
cryst., from amorphous resin acids, P 3637*f*.
dehydrogenation of, 6605*d*.
deriv., Na salt, P 1441*c*.
detection of, 4402*d*.
in Douglas fir wood, 3195*a*.
ester (di-) with 2-amyl-2-(hydroxymethyl)-1,3-propanediol, 6576*b*.
esterification (re-) of phthalic anhydride complex ester with glycerol-9,11-octadecadienoic acid α-monoester with, drying oil by, P 4873*b*.
esters of polyhydric alcs., resins from maleic anhydride and, emulsions of waxes and salts of, P 9495*b*.
isomer, 2605*b*.
lead salts of (α + β) and (γ-), as driers, 8699*i*.
*l*-, from resin acid, 2977*h*.
macrocrystals of, and its complexes with maleic acids, 8704*b*.
metallic imino salts, P 5978*d*.
mixts. with resin oil for reclaiming rubber and GR-S rubber scraps, P 6458*h*.
oxidation of, 6185*e*.
from *l*-pimaric and *d*-sapinic acids (attempted), 3809*e*.
from pine oleoresin, 1390*d*.
prepn. and properties of pure, 5768*f*
prepn., oxidation with $KMnO_4$ and reaction with NaClO, 9481*i*.
from proabietic acid of Kraft, 1390*e*.
reaction products with basic alk. earth compds., molding compns. from, P 4051*b*.
reactions of, and fichtelite, 6601*g*.
sodium salt, elec. cond. and osmotic activity of, 20*d*.
sodium salt, reaction with dichlorodimethyl ether and then $Me_3N$, fiber-interlocking agent by, P 2796*a*.
soly. of, 6886*i*.
structure of, 1042*e*.
**Abietic acid, 6-(aminomethyl)dehydro-*,** and salts, P 6665*i*.
———, **bromotrihydroxy-*,** P 1441*c*.
———, **6-(chloromethyl)dehydro-*,** and derivs., P 6665*f*.
———, **dehydro-*,** and derivs., P 6665*f*.
detection in resins, 6837*e*.
and methyl ester, 6605*d*.
from pine oleoresin, 1390*d*.
sodium salt, chem. structure and emulsifying activity in GR-S rubber polymerization, 8724*i*.
———, **dichlorodihydrodihydroxy-*,** 9482*a*.
———, **dihydro-*,** oxidation of, 6185*e*.
from pine oleoresin, 1390*d*.
sodium salt, chem. structure and emulsifying activity in GR-S rubber polymerization, 8724*i*.
———, **dihydrotetrahydroxy-*,** 9482*c*.
———, **6-hydroxydehydro-*,** methyl ester, methylation of, P 3462*b*.
———, **6-(hydroxymethyl)dehydro-*,** and thiocyanate, P 6665*h*.
———, **6-(mercaptomethyl)dehydro-*,** P 6666*b*.
———, **6-methoxydehydro-*,** methyl ester, P 3462*c*.
———, **oxydihydrodihydroxy-*,** 9482*b*.
———, **tetrahydro-*,** sodium salt, chem structure and emulsifying activity in GR-S rubber polymerization, 8724*i*.
———, **tetrahydrohydroxy-*,** alkali metal salts, as emulsifiers in polymerization of vinyl hydrocarbons, P 896*h*.
lactone, structure of, 2192*d*.
sodium salt (acid), P 3462*b*.
———, **6-(thiocyanomethyl)dehydro-*,** P 6666*a*.
———, **7,8,14-trihydroxy-*,** P 1913*h*.
**Abietic anhydride,** molding compn. from, P 4051*b*.
**Abietine*,** 9442*i*.
**Abietylamine, dehydro-*,** from rosin amine, 9379*a*.
———, **dihydro-*,** from rosin amine, 9379*a*.
———, **tetrahydro-*,** from rosin amine, 9379*a*.
**Abietyl chloride, dehydro-*,** pyrolysis of, 6602*c*.
**Ablastin,** production of, effect of pantothenic acid on, 6730*a*.
**Abortion,** acetylcholine in placenta and, 8479*i*.
in avitaminosis E, 1851*d*.
colloid state of blood serum in, 1102*f*.
**Abrasin oil.** See *Tung oil*.
**Abrasion.** (*For studies on the results of abrasion tests see under the specific materials abraded as* Rubber.)
measurement of, of coarse aggregate, 4398*f*.
measurement of, of textiles, app. for, 3623*b*, 5193*e*.
resistance to, of coatings, measurement of, 4786*f*, 5606*c*, 7239*c*.
of concrete floors, measurement of, 2752*e*.
of leather, measurement of, 1592*b*.
measurement of, 8729*h*.
multipurpose tester for, 6831*c*.
of paints, measurement of, 4489*f*
of rubber, measurement of, 429*b*, 4400*a*.
of textiles, measurement of, 7232*i*.
**Abrasions.** See *Wounds*.
**Abrasives** (See also *Emery cloth or paper, Grinding apparatus; Polishing materials; Sandpaper.*)
alumina, 1934*acd*, P 7658*e*
from alumina and $Cr_2O_3$ or $V_2O_5$, P 1936*d*.
articles of, P 6804*d*, P 7658*e*, P 9408*g*
binding materials for, B aluminate as, 6801*i*.
from casein, P 9408*h*.
from HCHO, furfuryl alc. and urea, P 5631*g*.
from PhOH condensation products, P 9526*d*.
waterproofing of resinous, P 2033*a*
from carbon (cryst.), P 3164*i*
ceramic bonded, P 8116*b*.
cloth or paper, P 1544*e*.
coating contg., for paper blackboards, P 1612*b*
coating with, app. for, P 4442*d*.
corundum, structure of binder in, 1164*a*.
from cracking catalysts (spent), P 370*e*.
cutting-off wheel, P 8116*b*
diamond, binder for, P 6868*g*
diamond sintered, P 8116*e*, P 8634*i*
diamond wheels (resin-bonded), 2029*e*.
effect of durability and type of, in detg. rubber resistance to abrasive wear, 8729*h*.
from fireclay, kaolin and Na silicate, P 9408*h*
of India, 525*c*.
industry in 1946, 2125*i*.
lab. for, 8112*b*
manuf. in Canada, 2343*d*.
pigments (Fe-oxide) as, 5201*e*, 8607*d*.
quartzite of Sioux, S. Dak., as, 2905*a*.
resin-bonded, P 832*a*
rubber-bonded, P 898*i*, P 2034*e*, P 3164*i*
sintered, for grinding metal pins, P 5357*i*.
for stainless steel, 2100*b*.
for superfinish, 7205*c*
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
waterproof flexible sheet, P 4826*b*.
wheels or grindstones, P 4442*e*, P 7206*d*.
cooling compds. for, P 0819*b*.
from $SiO_2$, P 7206*f*.
for steel sparking, 3314*i*.
for wood-pulp manuf.—see *Paper pulp*.
**Abrine** (*the amino acid*). See *Tryptophan, N-methyl-*.
**Abrus,** oil of—see *Oils*.
**Absolute zero.** See *Zero, absolute*.
**Absorbents.** (See also *Bleaching agents; Decolorizing agents; Drying agents; Filtering materials.*)
for alk. earth metal ions, carboxylated resin, P 7162*i*.
carbon dioxide detn. in liquid, 7866*c*.
diffusion of heat and water through, 3623*e*.
for gases from CuO and soda CaO, P 8578*b*.
gels in spherical form, P 370*d*.
from glass fibers, P 3987*e*.
heat-treatment of particles of, P 6339*i*.
for hydrogen sulfide, P 8623*g*.
mol.-sieve, P 1618*b*.
for oxygen in gas analysis, $CrCl_2$ as, 4599*g*.
paper—see *Paper*.
for plant nutrients, anion-exchange resins as, P 5517*i*, P 6339*cg*.
regeneration of, P 2764*b*.
for respirators—see *Respirators*.
for sound—see *Sound*.
for sugar manuf.—see *Sugar manufacture*
for sulfur dioxide, from flue gas, P 7201, formates as, P 7201*g*.
$Ag_3VO_4$ as, and its prepn., 8303*f*.
**Absorptiometers,** photoelec., 7270*g*.
Spekker, extending range of, 2474*g*
**Absorption.** (See also *Absorption (biological); Adsorption; Heat of absorption, Imbibition; Occlusion; Penetration, Solution; Sorption; Swelling.*)
of acetylene by water, 1939*f*.
of ammonia by $H_2SO_4$, 2841*f*.
of barium ions by $SiO_2$ gel, concn. and pH in relation to, 2498*f*.
book: des Gaz et des vapeurs, 7161*b*
of bromine by $Na_2CO_3$ soln., 2378*d*.
of Caledon Red BN and Caledon Jade Green dyes by cotton, 2776*f*.
of carbon dioxide and $H_2S$ from natural gas, 2711*g*.
of carbon dioxide and(or) $H_2S$, nomograph for NaOH solns. for, 3157*a*.
of carbon dioxide, in carbonation of $NH_4^+$ salt solns., 3155*h*.
from gases, P 8121*d*.
by hydroxide solns., rate of, 1631*a*, 1632*c*.
from natural gas, 1882*d*, 2343*b*.
by $K_2CO_3$ solns., equil. in, 8806*d*
of catalysts from hydrocarbon conversion products, P 2764*a*.
of Chrysophenine G, effect of carboxyl groups in viscose sheet on, 4015*h*.
of Congo red by cellulose, 4848*i*.
diffusion coeff. (variable) effect on rate of, 8789*f*
of dodecylamine by quartz, 8321*i*.
of dyes—see also *Dyeing*
of foaming agent from lubricating oil, by active charcoal, MgO, Porocel and silica gel, 6816*b*.
by fuller's earth, 9395*f*.
gas analysis by, 7673*d*.
of gases, 4054*d*.
efficiency in, 5646*f*
by fluidized materials, P 8218*h*.
by liquid films, 6053*f*
of gasoline from gas—see *Gasoline*
of heat—see *Heat*.
of helium and liquids by carbonaceous solids, 5653*f*
of hydrocarbons, 385*d*, 4001*i*.
of hydrocarbons from natural gas, 7220*e*
of hydrochloric acid by water in air analysis, 8971*d*.
of hydrogen by metals, 6553*b*, 8903*f*
by steel and effect of pickling thereon, 1301*h*.
by steel in cathodic polarization in $H_2SO_4$, effect of Te on, 9526
by steels during electrolytic pickling, fragility from, 6962*a*.
of hydrogen sulfide and liquefied petroleum gas from natural gas, 3180*a*
ion-exchange, by $Al_2O_3$, 6035*b*.
of ions by clays and soils, 7618*b*
of ions by organolites in analysis, 577*i*
kinetics of, with simultaneous chem. reaction, 23*f*.
max. recovery in, 8213*i*.
measurement of, by building stone, 4397*i*
of gases by liquids, 3270*c*.
of gases during org. reactions, app. for, 8749*h*.
of hydrocarbons from benzine, 2415*c*
of ink by paper, 402*e*.
of kerosene by aggregate, 7207*e*
of oil by leaded ZnO, 1577*h*.
of O in rubber-aging study, 8721*i*
of water by flour and nonfat milk solids, 2336*h*.
of water by leather, 4503*g*.
of water by paints, 4489*g*.
of water by parchment in detg. activity of wetting agents, 9505*g*.
of water by phenolic resins, 3229*h*

*measurement of*, of water by pregelatinized flours, 325*b*.
of water by sheet plastics, 9521*i*.
of water by soybean flour, 6842*a*.
of water by toweling, app. for, 6423*i*.
of mercury vapor by clothing, 7607*a*.
by metals, 7769*d*.
of methylene blue and Orange G by fibrin, effect of dye and salt concns. and pH on, 411*i*.
of nitrogen by γ-Fe, 7314*i*.
of nitrogen in elec.-arc welding, 9017*b*.
of nitrogen oxides in manuf. of $HNO_3$, 9391*f*.
of odors and flavors by peanuts, and its reduction, 3534*i*.
of oils by pigments, 3630*g*, 6835*i*, 6837*a*, 7715*i*.
of olefins (di-) from gaseous hydrocarbons, P 7275*a*.
of org. vapors by films of polystyrene, 437*c*.
of oxygen by $Fe(OH)_2$ in water, 81*b*.
of oxygen by linseed-oil $TiO_2$-pigmented paint, wave length of light and, 2787*f*.
of oxygen by $Na_2O_2$, 7363*e*.
of oxygen by water, kinetics of, 2494*f*.
by paper, polyethylenimine effect on, 403*h*.
by peats of Nova Scotia, 5348*g*.
of petroleum—see *Petroleum; Petroleum refining*.
of potassium dicromate by nylon and chrome-dyed nylon, 1560*i*.
of propane from petroleum-refinery gases by oil, 2762*e*.
re-, of kaliborite and sylvite by polyhalite, 8995*d*.
of resins by leather, 7247*d*.
review on, 1227*g*.
in scrubbers, 3270*g*.
of sodium hydroxide by mercerized cellulose, 7233*g*.
of sulfur dioxide by water, 4905*a*.
sulfur dioxide recovery by—see *Sulfur dioxide*.
of sulfuric acid fumes by $H_2SO_4$, 3981*d*.
in sulfuric acid Gay-Lussac towers, 9392*g*.
theory of chem., 23*g*.
of vapors by solvents, 468*h*.
of water—see also *Hygroscopicity*.
of water by bentonite and kaolin, 8233*d*.
by bentonite, improvement of, 3580*i*.
by casein, 6882*b*.
by corn-stalk insulating board, 9443*f*.
by cotton textiles, increasing, P 418*a*.
by dry-salted goatskins, effect of curing methods on, 7736*f*.
by ebonite, effect of $MgCO_3$ filler on, 430*e*.
by horn keratin, 2073*c*.
by jaggery, compn. and, 2453*i*.
by leathers, 427*f*.
by lubricating greases, 5936*h*.
by $MgNH_4PO_4$, 7796*g*.
by nylon, 5191*d*.
by proteins, 467*b*.
by proteins, phys. structure and, 7787*h*.
by Spanish clays and kaolins, 8690*c*.
of water vapor by $Al_2O_3$ and $SiO_2$ gel, humidity and, 6881*h*.

**Absorption** (*biological*). (See also *Resorption.*)
of aluminum by pine, 7172*b*.
of amino acids by kidneys, liver and muscle, 5845*b*.
of anayodin, chiniofon, diodoquin and vioform, 7586*h*.
of anions and cations through plant roots, temp. coeff. of, and its dependence on salt concn., 7089*fh*.
of antibacterial substances by *Bacterium lactis aerogenes*, 6274*a*.
of atropine, 4767*e*.
by barley seedlings, effect of salt solns. on, 7554*i*.
of basic substances by plant cells, 3493*b*.
of calcium, 737*i*, 7556*h*.
effect of citric acid on, in relation to antirachitic action, 5464*c*.
by normal and tubercular subjects, and effect of Mg phosphate thereon, 3512*c*.
by rectal mucosa, 5470*h*.
of calcium (radioactive) by peanut fruit, 5087*c*.
of carbon dioxide in blood of *Triton cristatus*, curve for, 5123*c*.
of carbon disulfide by man, 7576*i*.
of caronamide, 759*a*.
of carotene and fat, 9211*h*.
of β-carotene, solvent and, 9196*e*.
of carotenoids and cryptoxanthin, 8024*f*.
of cations by plants, soil factors influencing, 1836*i*.
of colloids in fluid from joints, 8504*g*.
of copper (parenterally and enterally), 1452*d*.
of copper (radioactive), 3098*e*.
of copper (radioactive) after administration of high doses and after pretreatment with Cu or Fe, 3098*g*.
of estrogens administered percutaneously, 2318*i*.
of estrogens through skin, toxic effects of, 8506*h*.
of ethyl alc. by lymph and blood, 8536*i*, 9197*h*.
of ethyl alc., effect of dinitrophenol and dinitrocresol on, 7127*c*.
of fats, 8509*a*.
in celiac disease, dietary starch and, 8026*b*.
continuous enteral diffusion in studies on, 4359*e*.
in diarrhea in Addison's disease, 4759*g*.
effect of fat acids on, 1842*i*.
effect of internal secretion on, 9198*c*.
of fats and fluids from intestine in thoracic duct fistula, 8522*c*.
of fats and oils, 1842*d*.
of fluid in forearm, effect of local cooling on, 8039*c*.
of fluorides, 8052*d*.
of fluorine by buckwheat, peaches and tomatoes, 3129*f*.
of galactose from intestines of normal and thyrotoxic subjects, 2684*a*.
of germination inhibitor from spores of *Tilletia tritici* by soil, 8085*d*.
of glucose and xylose, effect of intravenous $CaCl_2$ on, 5466*i*.
of glucose, in alloxan diabetes, effect of insulin on, 317*d*.
effect of anesthetics and barbiturates on, 4767*g*.
effect of thiamine on, 5838*e*.
by stomach after extirpation of vegetative nervous system section, 295*i*.
in traumatic shock, 1100*g*.
of glutamic acid and glutamine, 766*d*.
of homosulfanilamide-HCl, 9132*a*.
hormonal and vitamin factors in, 8496*d*.
of hormones (fat-sol.) by skin, 3928*d*.
of iodine, 5846*i*.
of iodine, effect of goitrogens on, 3918*a*.
of ions and water by roots, 1464*b*.
of ions and water, root capacity for distribution and, 5452*d*.
of iron, blood serum content during, 6737*i*.
effect of diet and P on, 8478*i*.
effect of vitamin C on, 8468*b*.
effect of vitamin PP on, 9185*b*.
by human subjects, 287*g*.
in pyridoxine deficiency, 6291*e*.
of iron (radioactive), 4354*c*.
of lipides, 2296*bcd*.
of lipides, pancreatic function and, 3909*e*, 3485*b*.
of manganese by plants, effect of S and thiosulfates on, 4802*d*.
of manganese by thyroid gland, 7105*a*.
of manganese chloride by plant tissue, effect of prepn. on, 3068*b*.
of medicinal agents from Carbowax vehicle, 8609*f*.
of medicinal and toxic substances, blood and lymphatic routes in, 3936*a*.
of metals from dust by plants and rats, 4988*c*.
of 3-methylglucose from small intestine, 3911*e*.
of nicotine by smokers, 8550*a*.
of nitrate by wheat roots, effect of 2,4-dichlorophenoxyacetic acid on, 6288*b*.
of nitrogen by sugar cane, 7091*d*.
of oxygen, by blood, effect of cholesterol on, 9244*i*.
measurement of, 8750*b*.
by skin, 8409*i*.
of penicillin, 1111*h*.
by mucous membrane, action of hyaluronidase on, 3104*d*.
vehicle for delaying, 7189*h*.
of penicillin-depot prepns., 4809*h*.
of phenylmercuric acetate by vaginal tract, 5865*h*.
of phosphate by yeast, effect of K ions on, 6697*d*.
of phospholipides, 701*c*.
of phosphorus and K by plants, 3492*d*.
of phosphorus by pine roots, 1464*b*.
by plants, 1841*g*.
growth and, 1826*b*.
*by plants*, light intensity and, 9313*c*.
in relation to transpiration and ash accumulation, 5454*b*.
by poultry, 2291*b*.
of proteins, amino acid pattern of blood after, 8505*c*.
of quinine-degradation product, 4321*a*.
of radiopaque substances, action of hyaluronidase on, 3477*d*, 8418*f*.
by rice, soybeans and sugar cane, 6775*b*.
by roots, effect of growth substances on, 804*g*.
by roots, respiration and, 2288*d*.
of steroid hormones, bile and, 8035*i*.
of sucrose by plant cells, effect of P on, 1086*c*.
of sulfathiazole, 6308*h*.
of sulfonamides intraperitoneally administered, 8543*b*.
of toxaphene by skin, 8052*g*.
by trees on rendzinas, 8455*g*.
of uranium compds. through skin, 8529*a*.
of urea by plant cells, effect of pH of cell sap and environment on, 5829*f*.
of vitamin A, from aq. and oily menstruum, 734*c*.
effect of choline on, 7072*h*, 9181*d*.
by newborn, 6710*b*.
by ruminants and rats, 8475*c*.
in sprue, 9189*h*.
of vitamins $B_1$ and $B_2$ and N, effect of live yeast on, 7559*c*.
of water, by roots, 1464*b*.
of water in auxin-induced water uptake by aerated potato disks, 282*i*.

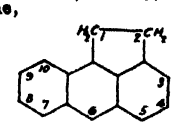
**Absorption** (*of rays or waves*). (See also *Energy; Extinction coefficients; Opacity; Spectra; Spectra, x-ray;* "filters" under *Light;* also see the specific kinds of rays, particles or waves, as *Alpha-rays, Beta-rays, Cosmic rays, Electrons, Gamma-rays, Heat, Hertzian waves, Microwaves, Neutrons, Sound, Ultrasonic waves and X-rays.*)
by alc.-amine systems in ultraviolet, 4138*i*.
by atoms, mass photoelec. absorption coeff., mass scattering coeff. and, 483*c*.
by bismuth thiocyanate anion, 7300*g*.
by blacks in infrared, 944*b*.
carbon monoxide detn. in mine damp by infrared, 6008*g*.
catalysts with, 8251*e*.
cells for spectrographic, 6006*i*.
by cerebrospinal fluid and its relation to chem. compn., 5468*b*.
by chlorophyll and fucoxanthin, photosynthetic activity and, 2281*f*.
coeff. of, of light-diffusing medium, 2868*g*.
by complex inorg. ions, 1669*h*.
by cyclohexene and cyclohexene hydroperoxide in ultraviolet, 4934*c*.
by 2,6-dibromoquinone chloroimidephenol reaction products and their butanol exts., 4185*a*.
diffusion of solutes in agar-agar gels and, 7788*c*.
by electrolytes in aq. soln., ratio of visible to infrared, 7821*i*.
by electrolytes in detn. of degree of dissocn., 2868*i*.
by functional groups in complex naphthas in infrared, 1687*f*.
by gold, 4957*f*.
by indophenol dyes, 7231*i*.
of infrared light by N and O, 5307*i*.
of infrared light in control of pilot plant, 5131*i*.
by isoprene and *cis-* and *trans*-piperylenes in vapor and in *n*-$C_7H_{16}$ soln. in ultraviolet, 3291*g*.
by leaf cuticular and waxy layers in ultraviolet, 1834*e*.
by leaves, 1079*i*.
by lignin in ultraviolet, 7680*h*.
by mangano-allanite, 3320*c*.
measurement of, in analysis, 6107*a*, 7858*i*.
to det. conjugated constituents and to calc. poly-unsatd. constituents, 7722*b*.
Se microphotoelement in, 3667*i*.
by metal organosols during coagulation, 7292*b*.
by nucleic acids in cells in ultraviolet, 7981*e*.
by oxygen in ultraviolet, pressure and, 7339*c*.
in photosynthesis—see *Photosynthesis*.
by pleochroic minerals, effect on conoscopic figures, 4979*c*.
by potassium chloropalladate-KI-$H_2O$ system, 8043*d*.

by potassium or Na vanadyl *d*-tartrate, 2830*i*, 2831*a*.
by pyridine or quinoline salt compds. with amines, 407*i*.
by quebracho tannin components, 3641*a*.
sepn. control by, P 3191*d*.
by sodium chloride crystals colored by Na vapor and x-rays, 6907*d*.
of solar wave lengths in extreme ultraviolet by N and O, 4095*e*.
sugar-quality detn. by ultraviolet, 9499*d*.
temp. and, in ZnO, ZnS and $TiO_2$, 5667*c*.
by textiles in infrared, 3201*d*.
of ultraviolet light, direction in oriented silk fibroin and, 6422*c*.
**Absorption apparatus.** (See also *Orsat apparatus; Scrubbers.*)
for benzene removal from coal gas, P 6812*a*.
calcn. and theory of, 3246*e*.
for carbon dioxide, 4054*f*.
columns, rate of absorption in, 23*h*
for detn. of C and H, 2*f*.
for detn. of concn. of disinfectants in air, 4798*h*.
for detn. of galacturonic acid and methoxy group in pectins, 9290*f*.
for gas-analysis app., P 3249*g*, 8962*b*, 8970*i*.
for gases, 1615*i*, P 3023*a*, 6471*e*.
for gasoline from natural gas—see *Gasoline.*
for hydrocarbons from natural gas, 7220*ef*.
hydrochloric acid manuf. in Karbate falling-film-type, 9391*e*.
max. recovery in, 8213*i*.
for oxygen, 8750*c*.
for sulfur dioxide, 4905*b*.
towers, coeff. of packed, 1939*f*.
for liquid-vapor contact, P 7224*i*.
for $HNO_3$ manuf., 9391*g*.
packing for, P 1228*h*, P 4526*b*.
for $H_2SO_4$ manuf., P 8623*c*.
with trays, P 8759*c*.
**Absorption bands.** See *Spectra.*
**Absorption oils.** (See also *Creosote oil; Tar oils.*)
for benzene, 6808*i*.
benzene recovery from, P 2767*a*.
benzene recovery from, steam stripping and distg. unit for, P 6403*b*.
for benzene, tar aromatic oils as, 7667*a*
cooling of, $C_2H_2$ in, 382*g*.
regeneration of, P 380*g*, P 4450*c*.
sludge formation in, from reactions of S compds. with unsatd. hydrocarbons, 5932*e*.
used, polymerizing unsatd. compds. in, and printing ink from, P 5607*g*.
**Absorption spectrum.** See *Spectra.*
**Absorption towers.** See *Absorption apparatus.*
**Abstracting,** scientific, services, 6875*i*.
UNESCO conferences on, 6876*a*.
**Abstracts.** See *Literature.*
**Acacia.** (See also *Gum arabic; Wattle bark.*)
*arabica*—see *Sunt.*
bacterial metabolism-inhibiting substances in leaves of, 9165*b*.
*catechu*, exts. of—see *Catechu.*
*decurrens*, paper pulp from wood of, 847*ab*.
false—see "black" under *Locust trees.*
*speadicigera*, vitamin C in Belt particles of, 8015*d*.
**Acanthias,** oil of—see "shark" under *Oils.*
**Acanthine, oxy-.** See *Oxyacanthine*
**Acanthopsyche junodi,** control of, 346*h*
**Acanthorhynchus,** control of, 7177*h*.
**Acaprine,** prepn. of, 7025*d*.
**Acardite*,** detection in explosives, 8138*i*.
**Acaricides.** See *Insecticides.*
**Acaroid resin,** 8704*c*.
**Acceleration,** effect on renal function, 3088*e*.
**Accelerators.** (See also *Betatron; Catalysts; Cyclotron; Enzymes; Growth substances; Promotors; Synchrotron.*)
elec. generators for—see *Electric generators.*
for electrons and particles, 2083*f*.
for electrons, corrugated wave guides and assocd. components for linear, 4945*e*.
linear, 4109*c*, 4945*cd*, 6908*h*.
magnetic resonance, 2087*b*.
microwave linear, 8850*f*.
operation of Yale linear, 4095*i*.
for six million volts, 7326*h*, 7811*e*.
for gamma-ray production, microwave, 4095*i*.
ion, 2087*a*, 7811*g*.
ion source for, 5660*i*.
linear, 4093*a*.
beam dynamics in, 4093*b*.
*linear*, control of field distribution in cavity of, 4093*b*.
oscillator and coupling system for, 4093*b*.
phenomena of, pantograph and tilting stage for use with nuclear plates in study of, 8852*c*.
Van de Graaff-type, 8850*cg*.
vulcanization—see *Rubber; Rubber, substitute and synthetic.*
**Accidents,** with arc reduction furnaces, prevention of, 6519*b*.
in chemical industry—see *Chemical industry.*
lab., 7159*h*.
**Accroides gum.** See *Acaroid resin.*
**Accumulators.** See *Storage batteries.*
**Acenanthra[2,1-*a*]acenanthrylene,**

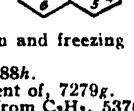


[2,1-*a*]

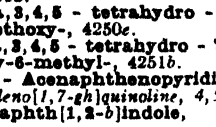
**Acenanthra[2,1-*a*]acenanthrylene - 5,13-dione, bis(bromomethyl)-,** as dye intermediate, P 7709*d*, P 8163*h*.
——, **bis(chloromethyl)-,** as dye intermediate, P 7709*d*, P 8163*f*, P 8164*a*.
——, **(chloromethyl)-,** as dye intermediate, P 7709*d*, P 8163*f*, P 8164*a*.
**Acenanthrene,**



**1 - Acenanthrenone, 2 - (7 - chloro - 3-oxo - 2(3*H*) - thianaphthenylidene)-†,** 4855*i*.
**8,9-Ace-4-azaphenanthrene.** See *Indeno[1,7-gh]quinoline.*
**3,4'-Ace-1,2-benzanthracene.** See *Benz[k]acephenanthrylene, 4,5-dihydro-.*
**Acecyclone.** See *8H-Cyclopent[a]acenaphthylen-8-one, 7,9-diphenyl-.*
**Acedianthrone.** See *Acenanthra[2,1-a]acenanthrylene-5,13-dione.*
**5-Acenaphthenamine,** reaction with pyruvic acid, 193*f*.
**Acenaphthene** (*1,2-dihydroacenaphthylene*),

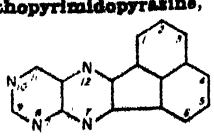


compression and freezing under pressure, 4067*f*.
derivs., 1388*h*.
elec. moment of, 7279*g*.
formation from $C_2H_2$, 5376*d*.
hydrogenated derivs. of, in spindle-oil fractions, 4001*h*.
hydrogenation (partial) of, P 7510*i*.
mutagenic activity and type of mutation of chromosomes induced by, 9170*e*.
in scintillation counters, 4111*f*.
spectrum of, 4140*e*, 7818*f*.
structure of, 930*c*.
as synergist with hexachlorocyclohexane, 7175*g*.
system: $AcNH_2$-, 3699*d*.
system: dibenzofuran-fluorene-, 7803*c*.
in tetraploid production in *Lobelia inflata*, 4347*e*.
**Acenaphthene, acetyl-.** See *Ketone, acenaphthenyl methyl.*
——, **benzoyl-.** See *Ketone, acenaphthenyl phenyl.*
——, **bromo-,** in chigger control, 8600*a*.
——, **5 - [β - bromo - α - (*p*-methoxyphenyl)styryl]-,** 7007*e*.
——, **dihydro-,** P 7510*i*.
——, **1,2-diketo-.** See *Acenaphthenequinone.*
——, **1,2-dioxo-.** See *Acenaphthenequinone.*
——, **eicosafluorodecahydro-,** P 4300*i*.
——, **5-[α-(*p*-methoxyphenyl) styryl]-,** 7007*e*.
estrogenic action of, 4746*e*.
——, **1-methyl-,** and derivs., 1388*h*.
——, **1-phenyl-,** and trinitrobenzene compd., 1389*c*.
——, **2a,3,4,5-tetrahydro-,** Mills-Nixon effect and, 4250*c*.
reaction with $N_2CHCO_2Et$, 6203*f*.
——, **2a,3,4,5-tetrahydro-7-methoxy-6-methyl-,** 4250*f*.
**1-Acenaphtheneacetamide, *N*-2-hydroxyethyl-,** 3364*a*.
**1-Acenaphtheneacetic acid,** methyl ester, 3363*i*.
**5-Acenaphtheneacrylonitrile** (*β-5-acenaphthenylacrylonitrile*).
——, **α,β-diphenyl-,** estrogenic action of, 4746*e*.
stereoisomers, 7007*c*.
**Acenaphtheneamine.** See *Acenaphthenamine.*
**5-Acenaphthenebutyric acid,** P 7509*g*.
——, **γ-oxo-,** reduction of, P 7509*g*.
**1,2-Acenaphthenediol, 1,2-dimethyl-,** *trans-,* ring closure of, 7014*c*.
**1,2-Acenaphthenedione.** See *Acenaphthenequinone.*
**Acenaphthene glycol.** See *Acenaphthenediol.*
**Acenaphthenequinone** (*1,2-dioxoacenaphthene*), dyes from, P 7707*a*.
naphthalic anhydride from, 1786*a*.
**Acenaphthenequinone imine,** *N*-(*p*-dimethylaminophenyl)-, dye from, P 9470*h*.
**Acenaphthenesulfonic acid, acetamido-,** 1766*b*.
——, **amino-,** 1766*b*.
**3-Acenaphthenol, 6,7,8,8a-tetrahydro-,** 4250*d*.
——, **6,7,8,8a-tetrahydro(*p*-nitrophenylazo)-,** 4250*g*.
**4-Acenaphthenol, 6,7,8,8a-tetrahydro-,** 4250*d*.
——, **6,7,8,8a - tetrahydro - 5 - methyl-,** 4250*g*.
——, **6,7,8,8a - tetrahydro - 5 - methyl-(*p*-nitrophenylazo)-,** 4250*g*.
——, **6,7,8,8a - tetrahydro(*p* - nitrophenylazo)-,** 4250*g*.
**1-Acenaphthenone,** and hydrazones, 628*e*
——, **5-bromo-2-(7-chloro-3-oxo-2(3*H*)-thianaphthenylidene)-†,** 4855*h*.
——, **5-chloro-2-(7-chloro-3-oxo-2(3*H*)-acenaphthenylidene)-†,** 4855*h*.
——, **2 - (7 - chloro - 3 - oxo - 2(3*H*)-thianaphthenylidene)-†,** 4855*g*
——, **2 - (7 - chloro - 3 - oxo - 2(3*H*)-thianaphthenylidene) - 3 - methoxy-†,** 4855*i*.
——, **2 - (5,9 - dichloro - 1 - oxonaphtho[2,1 - *b*]thiophen - 2(1*H*) - ylidene)-†,** P 7706*g*.
——, **2a,3,4,5-tetrahydro-,** 4250*e*.
——, **2a,3,4,5-tetrahydro-7-methoxy-,** 4251*a*.
——, **2a,3,4,5 - tetrahydro - 7(and 8)-methoxy-,** 4250*e*.
——, **2a,3,4,5 - tetrahydro - 7 - methoxy-6-methyl-,** 4251*b*.
**5',4',2,3 - Acenaphthenopyridine.** See *Indeno[1,7-gh]quinoline, 4,5-dihydro-.*
**7*H*-Acenaphth[1,2-*b*]indole,**



7*H*—[1,2-*b*]

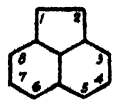
derivs., 628*b*
**7-acetyl-,** 628*c*.
**7-acetyl-9(or 11)-nitro-,** 628*d*.
**7-benzoyl-,** 628*c*.
**7-benzoyl-9(or 11)-nitro-,** 628*d*.
**10-bromo-,** 628*f*.
**8-chloro-11-nitro-,** 628*f*.
**7-cinnamoyl-,** 628*c*.
**7-cinnamoyl-9(or 11)-nitro-,** 628*e*
——, **7-ethyl-,** 628*c*.
**7*H* - Acenaphth[1,2 - *b*]indole - 7 - carboxylic acid,** esters, 628*c*.
——, **6b,11b - dihydro - 6b - hydroxy-11b-nitro-,** derivs., 628*d*.
——, **9(or 11)-nitro-,** esters, 628*d*.
**Acenaphthopyrimidopyrazine,**



[1,2-*b*]—[4,5-*e*]

**Acenaphtho[1,2 - *b*]pyrimido[4,5 - *e*]pyrazin - 11 - ol, 9 - (ethylmercapto)-**, 2212*h*.

**Acenaphthylene,**



dimerization of, 2984*a*.
dimer, structure of, 6487*c*.
indexes of free valences of, 3252*c*.
polymerization with vinylphenoxathiins, P 1223*e*.
polymers of, osmotic pressure of solns. of, 7782*g*.
reaction with diolefins, 2986*c*.

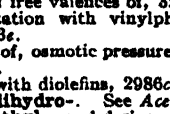
——, **1,2-dihydro-**. See *Acenaphthene*.

——, **1-methyl-**, and derivs., 1389*b*.

——, **1-phenyl-**, and derivs., 1389*c*.

**Acenes**, equilibrium between Me and methylenedihydro, 8377*b*.

**Acephenanthrylene,**



**4-Acephenanthryleneacetic acid, 1,2,3,5-tetrahydro - 3 - methyl - 5 - oxo-**, esters, 6610*f*.

**Acer**. See *Maple*.

**Acetal** (*1,1-diethoxyethane*), as catalyst in $PbEt_4$ manuf., P 8398*c*.
manuf. of, P 2222*b*, P 5034*f*.
octane value of, 3998*c*.
phys. consts. of, 2590*c*.
prepn. of, 5365*f*.
toxicity of, 4401*f*.

**Acetaldehyde.** (See also *Ethanone; Methaldehyde; Paraldehyde; Vinyl alcohol.*)
acetals, 124*g*, P 1433*i*, P 5034*f*, 6159*c*, P 6649*i*.
compds. with KOH as condensing agents, P 6665*a*.
phys. consts. of, 2590*c*.
prepn. of, 5365*d*.
acylhydrazones†, 6972*bdh*, 6973*bei*.
alkoxy derivs., dialkyl acetals, P 675*a*.
aryl butyl acetals, 3783*d*.
azine, 123*f*.
benzylphenylhydrazone, 1654*i*.
bis(3-chloroallyl) acetal and bis(3-chloroallyl) mercaptal, 2928*e*.
bis(2-fluoroethyl) acetal, 6163*h*.
bond energies and dissocn. of, 452*h*.
bromination and chlorination of, 2575*b*.
in carbohydrate metabolism and lignin and lipide formation, 9125*c*.
chlorination of, P 3027*h*.
3-chloropropylene cyclic acetal—see *1,3-Dioxolane, 4-(chloromethyl)-2-methyl-*.
condensation(aldol) of, P 3451*d*, P 5415*h*.
condensation products of, polyvinyl, protective light-transmitting plastic from, P 9537*c*.
condensation products with aminotriazines, modified with nitro compds., P 4894*e*.
condensation products with phenols, molding powder from Manikara wood flour and, P 9528*g*.
condensation with crotonaldehyde, 991*i*.
with PhOH and $(CH_2)_6N_4$, P 2039*c*.
with sulfonic acids and metallo-org. compds., P 690*d*.
cyclohexylcarbonylhydrazone†, 4233*b*.
density, heat capacity and heat of vaporization of, 7804*h*.
derivs., ketones from, 4632*h*.
detection in ether, 5341*d*.
detn. of, 2894*i*.
detn. of, and oxidation with $K_2Cr_2O_7$, 5702*f*.
detn. of, in vinyl acetate, 4184*b*.
dibutyl acetal, 995*g*, P 5034*f*, 7426*b*.
dibutyl acetal, hydrolysis of, 3272*b*.
diethyl acetal—see *Acetal*.
dimethyl acetal, P 5034*i*.
photometric and colorimetric detn. of, 4603*g*.
toxicity of, 4401*g*.
diphenyl acetal and hemiacetal† esters, 3786*a*.
disinfection of air by aerosol contg., 5083*f*.
divinyl acetal polymer, condensation product with (alkoxymethylamino)-*s*-triazines, P 2467*h*.
effect on flame propagation limits of $C_4H_{10}$, H, $CH_4$ and $C_2H_2$ mixts. with air, 3617*g*.
on oxidation reactions catalyzed by pyridine proteins, 705*d*.
on phys. properties of dough and gluten, 8067*a*.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-methyl-*.
extn. from vinyl acetate with water in packed column, 2042*e*.
fires in, extinguishing of, 6417*g*.
fluorometric detn. of, by reaction with 3,5-diaminobenzoic acid, 3003*c*.
formation of, in $Ac_2O_3$ decompn. in glycols, 3776*b*.
from $(CH_2Cl)_2$, 4638*h*.
from EtOH by *Aspergillus oryzae*, 8007*b*.
from EtOH on Cu catalyst, 8252*e*.
from EtOH oxidation by Br, 7800*f*.
from EtOH oxidation in presence of bromate and Br, 7800*h*.
from lignin and lignosulfonic acid, 7001*i*.
by ninhydrin action on alanine, aspartic acid, cysteinesulfinic acid and cysteic acid, pH and, 5430*e*.
in organism after antabuse and EtOH administration, 4379*e*.
in oxidation of $C_2H_6$, 6516*b*.
in oxidation of $C_4$ hydrocarbons, 1309*c*.
during reaction of 2-butanone and EtOH, 993*e*.
in reaction of ethylene oxide with $H_2S$, 2624*h*.
from reaction of 3-nitro-2-pentanol with *p*-chlorobenzenediazonium chloride, 4646*f*.
halo derivs., reaction with alkyl phenyl ethers, P 8400*h*.
heat capacity of, 1638*d*.
hydrazones, 1343*i*.
hydrogenation of, P 2219*a*.
identification of, 3003*b*.
in lubricant deterioration and deposit formation in motored engines, 4454*d*.
manuf. of, 2930*h*, P 3837*h*, P 5034*b*, P 7501*b*.
from $C_2H_2$, P 7037*d*.
catalysts for, 8074*g*.
from natural gas, 3993*e*.
metabolism of, and acetoin formation from, 5841*h*.
metabolism of, diet and, 7100*c*.
microwave absorption by, 6022*c*.
1-naphthylhydrazones, 1346*a*.
oxidation of, P 669*e*, 4633*e*, 8820*e*.
to $Ac_2O$, P 672*a*.
to $Ac_2O$, reducing amount of peroxy compds. formed in, P 3025*f*.
oxime, reaction with Br, 6569*b*.
pentaerythritol diacetal†, as synergist for nicotine, 5894*b*.
pharmacol. action of, 4379*f*.
polymer of, mol. wt. of, 7292*e*.
prepn. of, 9028*a*.
reaction products with *p-sec*-butylphenol, for tackifying GR-S rubber, P 8195*g*.
with mercaptoacetic acid and stearamide, surface-active, P 7242*f*.
with sulfathiazole, 4237*i*.
reaction with acetone and with 2-butanone, 6159*i*.
with BzH, kinetics of, 6540*f*.
with AcOEt to produce 1,3-butadiene, 1713*i*.
with HCHO, P 3447*h*.
with ketene, 5366*h*.
with 1-octene, 4637*d*.
with water, 2495*f*.
recovery from gases, P 7037*d*
recovery from reaction products of hydrogenation of CO, P 7214*b*.
removal from aldol, P 2221*e*.
removal from hydrocarbons, P 3435*i*.
sorption by rubber, 8237*b*.
spectrum of, 1656*c*.

**Acetaldehyde, (1-acetylethoxy)-**, bis(*p*-nitrophenylhydrazone), 1328*g*.

——, **benzylamino-**, dimethyl acetal and its -HCl, 6974*d*.

——, **(benzylmercapto)-**, diethyl acetal, 7903*f*.

——, **(benzylmethylamino)-**, dimethyl acetal and its -HCl, 6974*d*.

——, **[bis(2-methylallyl)amino]-**, dimethyl acetal and its -HCl, 6974*c*.

——, **bromo-**, diethyl acetal, 2575*h*.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-(bromomethyl)-*.

——, **bromophenyl-**, trimethylene cyclic acetal—see *m-Dioxane, 2-α-bromobenzyl-*.

——, **butylamino-**, dimethyl acetal and its -HCl, 6974*b*.

——, **caproylamino-**, 2,4-dinitrophenylhydrazone, 1768*a*.

——, **chloro-**, and derivs., 2575*c*.
diethyl acetal, as catalyst in $PbEt_4$ manuf., P 8398*c*.
diethyl acetal, reaction with glycols and with $NaOCH_2CO_2Na$, 2577*f*.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-(chloromethyl)-*.
insecticide from, P 8604*e*.
trimethylene cyclic acetal—see *m-Dioxane, 2-(chloromethyl)-*.

——, **(*m*-chlorobenzylideneamino)-**, diethyl acetal, 5783*i*.

——, **cyclohexyl-**. See *Cyclohexaneacetaldehyde*.

——, **cyclohexylamino-**, acetals and their hydrochlorides, 6974*c*.

——, **cyclohexylphenyl-**. See *Cyclohexaneacetaldehyde, α-phenyl-*.

——, **diallylamino-**, dimethyl acetal and its oxalate, 6974*b*.

——, **dibenzylamino-**, dimethyl acetal and its -HCl, 6974*d*.

——, **dibromo-**, 2575*i*.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-(dibromomethyl)-*.
trimethylene cyclic acetal—see *m-Dioxane, 2-(dibromomethyl)-*.

——, **dibutylamino-**, acetals and their derivs., 6974*c*.

——, **dichloro-**, and acetals, P 5412*g*.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-(dichloromethyl)-*.
and polymer, 2575*f*.
trimethylene cyclic acetal—see *m-Dioxane, 2-(dichloromethyl)-*.

——, **diethylamino-**, dimethyl acetal, 6974*b*.

——, **(4-diethylamino-1-methylbutylamino)-**, dimethyl acetal and its di-HCl, 6974*c*.

——, **(2,5-dimethoxyphenyl)-**, 6599*g*.

——, **(3,4 - dimethoxyphenyl)-**. See *Homoveratraldehyde*.

——, **diphenyl-**, isomerization of, 1753*c*, 4632*i*.
and oxime, 1041*c*.

——, **dipropylamino-**, dimethyl acetal, 6974*b*.

——, **di-*p*-tolyl-**, isomerization of, 4632*i*.

——, **ethoxy-**, diethyl acetal, P 675*d*, 7903*f*.

——, **[ethylenebis(oxyethyleneoxy)]di-**, bis(diethyl acetal), 2577*g*.
tanning power of, 7735*i*.

——, **(ethylenedioxy)di-**, and bis(diethyl acetal) and bis(2,4-dinitrophenylhydrazone), 2577*f*.
tanning power of, 7735*i*.

——, **ethylmethyl-**. See *Butyraldehyde, α-methyl-*.

——, **4-hexenoylamino-**, 2,4-dinitrophenylhydrazone, 1768*a*.

——, **hydroxy-**. See *Glycolaldehyde*.

——, **(6-hydroxyveratroyl)-**, 7461*d*.

——, **β-ionylidene-***, and 2,4-dinitrophenylhydrazone, 2585*g*.

——, **isobutoxy-**, diisobutyl acetal, P 675*c*.

——, **methoxy-**, dialkyl acetals, P 675*b*.
diethyl acetal, 7903*e*.

——, **(2-methylallylamino)-**, dimethyl acetal and its oxalate, 6974*c*.

——, **methylmercapto-**, diethyl acetal, 7903*f*.

——, **nitro-**, derivs., 1004*b*.

——, **[oxybis(ethyleneoxy)]di-**, bis(diethyl acetal), 2577*g*.
tanning power of, 7735*i*.

——, **phenoxy-**, 4240*b*.
reaction of, $AcCH_2CO_2Et$ and nitriles, P 689*cd*.

——, **phenyl-**, 3003*c*, P 3461*e*.
compd. with $NaHSO_3$, 3786*g*.
dimethyl acetal, 6195*g*.
*Penicillium notatum* culture medium contg., P 7649*b*.
from phenethyl disulfide in Willgerodt reaction, 2188*a*.
reaction with $AcCH_2CO_2Et$ and $NH_3$, 4671*f*.
reaction with thiocarbanilide, 3003*f*.

——, **(3-phenylpropylamino)-**, dimethyl acetal (compd. listed incorrectly as phenethyl deriv. in abstr. and original), 6974*d*.

——, **piperidyl-**. See *Piperidineacetaldehyde*.

——, **propoxy-**, poly(vinyl acetal), P 2813*g*.

——, ***p*-tolyl-** azine (mono-) with naphthalic anhydride, 2982*e*.

——, **tribromo-**. See *Bromal*.

——, **trichloro-.** See *Chloral.*
——, **trimethyl-.** See *Pivalaldehyde.*
——, **triphenyl-,** 1,1,1-triphenyl-2-propanone from, 4632*h*.
**Acetaldol.** See *Aldol.*
**Acetals.** (*Individual acetals are ordinarily entered as derivatives under the names of the corresponding aldehydes or ketones, except those of formaldehyde which are entered as derivatives under* Methane. *See also* Acetal; Vinyl compounds.)
of α-acyl-*m*-formylacetanilides, azomethine dyes from, P 8161*h*.
of alkoxyacetaldehydes, P 675*a*.
amino, *N*-substituted, 6974*b*.
of aromatic aldehydes, 9049*h*.
as catalysts in $PbEt_4$ manuf., P 8398*b*.
chlorinated, P 5035*b*.
chloro derivs. of formaldehyde, P 4685*g*.
compds. with KOH as catalysts in condensation of aldehydes with $CHBr_3$ or $CHCl_3$, P 664*e*, P 4284*h*.
compds. with KOH as condensing agents, P 6664*g*.
cyclic, 2203*i*, 5004*d*.
dialkyl, from $C_2H_2$ and alcs., P 5034*g*.
effect on polymerization of $BuOCH{:}CH_2$, 995*d*.
ethers from, P 1050*a*.
fluoro, 6163*h*.
of formaldehyde and pentaerythritol, P 4290*g*.
of formaldehyde, formation from alkyl chloromethyl ethers, 6568*e*.
formation in alc.-aldehyde systems, 5740*b*.
formation in reaction of HCHO with polygalacturonic acid, 140*g*.
halo, P 6649*i*.
halogenated heterocyclic, 5774*g*.
halophenyl, P 3968*a*.
hemi-, formation of, 2495*fg*.
hemi-, formation of, in distn. of HCHO-alc. mixts., 6470*h*.
of hydroxy aldehydes, preservation of butadiene polymers with, P 5625*g*.
ketene, 3356*f*.
manuf. of, P 1433*h*, P 2222*ab*, P 5034*ef*.
of oxo carboxylic acids, 6167*g*, 6168*f*.
phys. properties of, 2590*a*.
polymers, P 5228*e*.
of polythioglycols, P 6001*e*.
prepn. of unsatd., 124*f*.
reaction with paraformaldehyde, P 1051*h*.
sepn. of 2-butanone from, P 9079*i*.
thioplasts, P 5644*bd*.
**Acetamide,** in acetic anhydride, behavior of, 2110*f*.
*N-tert*-alkyl derivs., P 3445*f*.
antibacterial activity of, 5075*f*.
*N*-aryl derivs., P 3845*f*.
α-aryl derivs., reaction with 1,2-diamines, P 3467*a*.
bromine derivs., fungistatic properties of, 5081*g*.
as catalyst in reaction of hydroxy compds. with $H_2NSO_3H$, P 3024*h*.
in cellulose acetylation, 2769*f*.
chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
condensation with dicyanodiamide, textile assistant by, P 1991*a*.
derivs., 568*b*, 9032*i*.
deacetylation in animal organism, 6714*e*.
deacylation of, contg. $NO_2$ in *o*- or *p*-positions, 2186*bd*.
α,α-dialkyl derivs., Hofmann reaction with, 2166*g*.
effect on isoionic point of blood-serum globulin, 6888*e*.
as freezing-point depressant in $NH_4NO_3$-urea fuel mixt., P 1552*c*.
hydrochlorides, H bonds in, 8220*h*.
in lignin extn. from wood, 7225*g*.
manuf. of, P 3028*c*.
metabolism of, 3073*i*.
nitrogen fixation by *Azotobacter* in presence of, 5522*i*.
reaction with *tert*-BuCl (attempted), 111*f*.
with hydrocinnamaldehyde, 2600*h*.
with oleic acid, 8353*g*.
with PhNCO and with PhNCS, 6162*e*.
spectra of, and its deuterio analog, 8274*g*.
as stabilizer for solns. of polythionates and polythionic acids, P 7651*i*.
system: D-glucose–$H_2O$–, 2854*c*.
system: picric acid–, 6066*e*.
systems: acenaphthene–, benzil–, 2-naphthol Me ether–, *p*-nitrophenetole–, and α-trinitrotoluene–, 3699*d*.
systems: ICl–, and ICl–$PhNO_2$–, 6900*i*.
titration (electrometric) of, in $PhNO_2$, 5346*b*.
transition points of, 7765*i*.
vaporization of, P 3026*g*.
**Acetamide, α-acetamido-*N*,*N*-diphenyl-,** 6587*a*.
——, *N*-acetonyl-α-bromo-α-phenyl-, and reaction with $NH_3$, 7487*g*.
——, α-(acetonylmercapto)-, 2,4-dinitrophenylhydrazone, 608*a*.
——, *N*-acetyl-. See *Diacetamide.*
——, *N*-(5-acetyl-8-amino-2-naphthyl)-, 9058*e*.
——, *N*-(8-acetyl-5-amino-2-naphthyl)-, 9058*d*.
——, *N*-(8-acetyl-8-bromo-2-naphthyl)-, 9058*e*.
——, *N*-(1-acetyl-7-chloro-4(1*H*)-quinolylidene)-(?)†, 8387*e*.
——, *N*-[4(and 5)-acetyl-1-naphthyl]-, 6606*gh*.
——, *N*-[6(and 8)-acetyl-2-naphthyl]-, 6606*d*.
——, *N*-(8-acetyl-2-naphthyl)-, 9058*d*.
——, *N*-(α-acetylphenethyl)-, 4226*i*.
inhibition of chymotrypsin by, 7531*a*.
——, α-(*p*-acetylphenoxy)-*N*-2-hydroxyethyl-, 3364*g*.
——, *N*-allyl-, in printing pastes, P 9473*h*.
——, *N*-allyl-α-bromo-, fungus-inhibiting properties of, 5081*h*.
——, *N*-allyl-α,α-dichloro-, 1720*b*.
——, *N*-allyl-α-(*p*-hydroxyphenyl)-, 3362*d*.
——, α-(allylmercapto)-*N*-2-hydroxyethyl-, in penicillin production, 2271*g*, 3365*e*.
——, *N*-allyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, α-(allyloxy)-*N*-2-hydroxyethyl-, 3364*f*.
——, α-[*p*-(allyloxy)phenyl]-*N*-2-hydroxyethyl-, 3362*b*.
——, *N*-allyl-α-phenyl-, 2269*i*.
in penicillin production, P 3574*d*.
——, α-(allylsulfinyl)-*N*-2-hydroxyethyl-, 2272*a*.
——, α-(allylsulfonyl)-*N*-2-hydroxyethyl-, 2272*b*.
——, α-amino-. See *Glycinamide.*
——, *N*-(*p*-aminobenzyl)-, and dihydrochloride, 176*b*.
——, *N*-(2-aminoethyl)-, P 6652*e*.
——, *N*-(2-aminoethyl)-α-phenyl-, effect on penicillin production, 2269*i*.
and salts, in penicillin production, P 3574*c*.
——, *N*-(7-amino-2-fluorenyl)-, and hydrochloride, 7005*c*.
——, *N*-(3-amino-4-hydroxyphenethyl)-*N*-methyl-, 6597*f*.
——, *N*-[α-(aminomethyl)benzyl]-, and hydrochloride, 6176*e*.
——, *N*-[α-(aminomethyl)benzyl]-*N*-ethyl-, 6176*f*.
——, *N*-[α-(aminomethyl)benzyl]-*N*-isopropyl-, 6176*f*.
——, *N*-[α-(aminomethyl)benzyl]-*N*-methyl-, 6176*e*.
——, *N*-[α-(aminomethyl)-*p*-methoxybenzyl]-*N*-ethyl-, 6176*f*.
——, *N*-[1(or 2)-amino-2(or 1)-naphthyl]-, 9058*c*.
——, *N*-[5(and 8)-amino-2-naphthyl]-, 9058*c*.
——, α-(4-amino-3-nitrophenyl)-*N*-2-hydroxyethyl-, 3362*b*.
——, α-amino-α-phenyl-, 3009*f*, 9032*i*.
——, α-(*p*-aminophenyl)-*N*-2-hydroxyethyl-, 3362*b*.
——, *N*-(*m*-aminophenyl)-*N*-phenyl-, 647*i*.
——, *N*-(3-aminopropyl)-α-phenyl-, 2270*i*.
——, *N-tert*-amyl-, 2165*d*, P 3028*i*.
——, *N*-amyl-α-bromo-, fungus-inhibiting properties of, 5081*h*.
——, *N-sec*-amyl-α-bromo-*, fungus-inhibiting properties of, 5081*h*.
——, *N-tert*-amyl-α-chloro-, 2165*d*.
——, *N*-amyl-α,α-dichloro-, 1720*b*.
——, *N-tert*-amyl-α-(*p*-nitrophenyl)-, 2165*e*.
——, *N-tert*-amyl-α-phenyl-, 2165*e*.
——, α-(*p*-*tert*-amylphenyl)-*N*-2-hydroxyethyl-, 3362*b*.
——, α-anilino-*N*,*N*-diethyl-, reduction (electrolytic) of, P 6926*d*.
——, α-anilino-*N*,*N*-diethylthio-, reduction (electrolytic) of, P 6926*e*.
——, α-(*p*-anilinophenoxy)-*N*-2-hydroxyethyl-, 3364*g*.
——, α-anilino-α-phenyl-, 9032*i*, 9033*a*.
——, *N*-anthraquinonyl-. See *Anthraquinone, acetamido-.*
——, *N*-(*p*-arsenosobenzyl)-, 176*d*.
——, α-(*p*-arsenosobenzylamino)-, and salts, P 4694*h*.
——, α-(auromercapto)-*N*-*p*-sulfamylbenzyl-, 1347*h*.
——, α-(auromercapto)-*N*-sulfanilyl-, 1347*h*.
——, *N*,*N*′-[azobis(*p*-phenylenesulfonyl)]bis-, P 3846*b*.
——, *N*-benzacridyl-. See *Benzacridine, acetamido-.*
——, α-benzanthracenyl-. See *Benzanthraceneacetamide.*
——, *N*-benshydryl-α-chloro-, P 677*f*.
——, α-(benshydrylmercapto)-, 5018*i*.
——, *N*-benshydryl-α-(α-methylphenethylamino)-, P 677*f*.
——, α-(benshydryloxy)-, 4669*h*, 5018*h*.
——, α-(benshydryloxy)thio-, 4669*h*.
——, *N*-benzimidazolyl-. See *Benzimidazole, acetamido-.*
——, α-benzimidazolyl-. See *Benzimidazoleacetamide.*
——, α-(2-benzimidazolylmercapto)-*N*-2-hydroxyethyl-, 3365*e*.
——, *N*-benzodioxanyl-. See *Benzodioxan, acetamido-.*
——, *N*-benzoquinolyl-. See *Benzoquinoline, acetamido-.*
——, *N*-benzothiadiazolyl-. See *Benzothiadiazole, acetamido-.*
——, *N*-benzothiazolyl-. See *Benzothiazole, acetamido-.*
——, α-(*p*-benzoylphenoxy)-*N*-2-hydroxyethyl-, 3364*g*.
——, *N*-benzyl-, P 5800*e*, 6596*a*.
——, α-benzyl-. See *Hydrocinnamamide.*
——, *N*-benzyl-α-diethylamino-, 1022*i*.
——, *N*-benzyl-α-diethylamino-*N*-2-pyridyl-†, salts, 5782*g*.
——, *N*-benzyl-α-dimethylamino-*N*-2-pyridyl-†, hydrochloride, 5782*g*.
——, *N*-benzyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, *N*-benzyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
——, α-(benzyloxy)-*N*-2-hydroxyethyl-, 3364*g*.
——, *N*-(α-benzylphenethyl)-, 5027*b*.
——, *N*-(α-benzylphenethyl)-α-phenyl-, 5027*b*.
——, *N*-benzyl-α-phenyl-, 6596*a*.
——, α-4-biphenylylcarbonyl-, *N*-aryl derivs., anthraquinone azo dyes from, P 7703*i*.
——, α-4-biphenylyl-*N*-(2-diethylaminoethyl)-, 2980*i*.
——, α-4-biphenylyl-*N*-2-hydroxyethyl-, 3362*d*.
——, α-(2-biphenylyloxy)-*N*-2-hydroxyethyl-, 3364*g*.
——, α-[2,6-bis(acetoxymercuri)-4-hydroxyphenyl]-*N*-2-hydroxyethyl-, 3361*i*.
——, *N*,*N*-bis(2-chloroethyl)-, 2927*b*.
——, α,α-bis(*p*-chlorophenyl)-, 1144*e*.
——, α,α-bis(*p*-chlorophenyl)-*N*,*N*-diethyl-, 1144*e*.
——, α,α-bis(*p*-chlorophenyl)-*N*-2-hydroxyethyl-, 1144*e*.
——, α,α-bis(*p*-chlorophenyl)-*N*-methyl-, 1144*e*.
——, *N*,*N*-bis(2-hydroxyethyl)-α,α-diphenyl-, 1144*e*.
——, *N*,*N*-bis(2-hydroxyethyl)-α-phenyl-, 2270*i*.
——, *N*,*N*-bis(2-hydroxy-α-mesityl)-, and isomer, 5995*a*.
——, *N*,*N*′-[1,2-bis(*p*-hydroxyphenyl)ethylene]bis-, diacetate, 614*g*.
——, *N*,*N*′-[1,2-bis(*p*-hydroxyphenyl)ethylene]bis[*N*-methyl-, and diacetate (ester), 614*f*.
——, *N*,*N*′-[1,2-bis(*p*-methoxyphenyl)ethylene]bis[α-chloro-, 614*f*.
——, *N*,*N*′-[1,2-bis(*p*-methoxyphenyl)ethylene]bis[*N*-methyl-, 614*e*.
——, *N*-[2,2-bis(*p*-methoxyphenyl)propyl]-, 2607*c*.
——, *N*,*N*-bis(*m*-nitrophenyl)-, 169*c*.
——, *N*,*N*-bis(4-phenyl-2-thiazolyl)-†, 2992*f*.
——, *N*,*N*-bis(tri[illegible]
prepn. of, attemp
——, *N*-bromo-, a
olefins, 5753*h*.
α-bromo-, fungus-inhibiting properties of, 5081*h*.
isomorphism between $ClCH_2CONH_2$ and, 5754*f*.
——, α-bromo-*N*-butyl-, fungus-inhibiting properties of, 5081*h*.

—, α-bromo-*N*-*sec*-butyl-, fungus-inhibiting properties of, 5081*h*.
—, α-(4-bromo-2-chlorophenyl)-*N*-2-hydroxyethyl-, 3362*b*.
—, α-bromo-*N*-cyclohexyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-decyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*,*N*-dibutyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*,*N*-di-*sec*-butyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*,*N*-diisobutyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*,*N*-diisopropyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*,*N*-dimethyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*,*N*-dipropyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-ethyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-2-ethylbutyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-heptyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-hexyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-isobutyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-isopropyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-methyl-, fungus-inhibiting properties of, 5081*h*.
—, α-(1-bromo-2-naphthoxy)-, 3813*g*.
—, *N*-(7-bromo-1-naphthyl)-, 6607*b*.
—, α-bromo-*N*-2-naphthyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-octyl-, fungus-inhibiting properties of, 5081*h*.
—, α-bromo-*N*-phenacyl-α-phenyl-, and reaction with $NH_3$, 7487*g*.
—, α-(*p*-bromophenoxy)-*N*-2-hydroxyethyl-, 3364*f*.
—, α-[*m*(*o* and *p*)-bromophenyl]-*N*-2-hydroxyethyl-, 3362*b*.
—, α-(*p*-bromophenylmercapto)-*N*-2-hydroxyethyl-, 3365*c*.
—, α-[*o*(and *p*)-bromophenyl]-*N*-2-naphthyl-, 6066*b*.
—, α-bromo-*N*-propyl-, fungus-inhibiting properties of, 5081*h*.
—, α-(4-bromo-*o*-tolyl)-, 1746*i*.
—, *N*,*N*′-(2-bromo-5-*m*-tolylene)-bis-, 6092*c*.
—, *N*,*N*′-(5-bromo-2-*p*-tolylene)-bis-, 6092*c*.
—, *N*,*N*′-(5-bromo-2,4,6-trimethyl-*m*-phenylene)bis-, 1735*c*.
—, *N*-2-butenyl-α-phenyl-, 2269*i* in penicillin production, P 3574*d*.
—, *N*-*tert*-butyl-, 2165*c*, P 3028*i*, P 3445*g*.
—, *N*-butyl-*N*-[2-(4,6-diamino-*s*-triazin-2-yl)ethyl]-, P 5052*c*.
—, *N*-butyl-α,α-dichloro-, 1720*b*.
—, *N*-*sec*-butyl-α,α-dichloro-, 1720*b*.
—, *N*-butyl-*N*-(3,4-dichlorophenylsulfonyl)-, P 2231*h*.
—, *N*-butyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
—, *N*-butyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
—, α-(*p*-butylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
—, α-(*p*-*tert*-butylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
—, *N*-*tert*-butyl-α-phenyl-, 2165*c*.
—, α-(*p*-*tert*-butylphenyl)-*N*-2-hydroxyethyl-, 3362*b*.
—, α-carvacryl-*N*-2-hydroxyethyl-, 3362*d*.
—, *N*-chloro-, reaction with $(PhCH_2)_2S$ and with $Me_2S$, 172*f*.
—, α-chloro-, 3781*i*.
isomorphism between $BrCH_2CONH_2$ and, 5754*f*.
—, *N*,*N*′-(5-chloroacetyl-*m*-phenylene)bis-, 7452*d*.
—, α-(*p*-chlorobenzylmercapto)-*N*-sulfanilyl-, P 3036*c*.
—, α-chloro-*N*,*N*-bis(2-chloroethyl)-, 2927*b*, 7423*b*.
—, α-chloro-*N*-(2-chloroethyl)-, 7423*a*.
—, α-chloro-*N*-(2-chloroethyl)-*N*-methyl-, 7423*a*.
—, α-chloro-*N*-(2-cyanocyclopentylidene)-, 9068*e*.
—, α-chloro-*N*-(3,4-dihydroxyphenacyl)-*N*-methyl-, 2601*h*.
—, α-chloro-*N*,*N*-diphenyl-, compd. with hexamethylenetetramine, 6587*a*.
—, α-chloro-*N*-ethyl-*N*-methyl-, P 689*b*.
—, *N*-(7-chloro-2-fluorenyl)-, 7005*e*.
—, α-chloro-α-fluoro-, 8352*i*.
—, α-chloro-*N*-(hydroxymethyl)-, condensation products of, with stearanilide and allylthiourea, *N*-acetyl-*N*′-stearoyl-*m*-phenylenediamine and $NMe_3$, *p*-octadecylphenol and $NMe_3$, and stearamide and $NMe_3$, surface-active, P 3221*bc*, P 3222*ab*.
sulfonated, condensation product with coconut fatty acid anilide, P 886*b*.
—, α-(4-chloro-2-methoxybenzylmercapto)-*N*-(*p*-nitrophenylsulfonyl)-, P 3036*b*.
—, α-(4-chloro-2-methoxybenzylmercapto)-*N*-sulfanilyl-, P 3036*b*.
—, α-(5-chloro-2-methoxybenzylmercapto)-*N*-sulfanilyl-, P 3036*c*.
—, α-(4-chloro-2-methoxyphenylmercapto)-*N*-sulfanilyl-, P 3036*a*.
—, α-(1-chloro-2-naphthoxy)-, 3813*g*.
—, α-(*p*-chlorophenoxy)-*N*-2-hydroxyethyl-, 3364*f*.
—, α-(*p*-chlorophenoxy)-*N*-sulfanilyl-, P 3036*a*.
—, α-chloro-α-phenyl-, 2942*e*.
—, α-[*m*(*o* and *p*)-chlorophenyl]-*N*-2-hydroxyethyl-, 3362*b*.
—, α-(*p*-chlorophenylmercapto)-*N*-sulfanilyl-, P 3036*a*.
—, *N*,*N*′-(5-chlorosalicylidene)bis-, 6182*c*.
—, α-chloro-*N*-sulfanilyl-, 1347*h*.
—, α-(4-chloro-*o*-toloxy)-, P 2234*c*.
—, *N*-coronenyl-, 5020*d*.
—, α-cyano-, hydrolysis of, 1248*i*.
labeled with $C^{14}$, 3367*b*.
polylalkylene or polylarylene, aldehyde condensation products, P 6003*a*.
reaction with 4-amino-1-ethoxy-3-penten-2-one, P 3470*d*.
reaction with 1-hydroxy-2-methyl-1-hepten-3-one Na deriv., 643*h*.
—, *N*-α-cyanobenzyl-*N*-ethyl-, 6176*d*.
—, *N*-α-cyanobenzyl-*N*-isopropyl-, 6176*d*.
—, *N*-α-cyanobenzyl-*N*-methyl-, 6176*d*.
—, *N*-(2-cyanocyclopentylidene)-, and derivs., 9068*c*.
—, *N*-(2-cyanoethyl)-, P 3841*e*.
—, *N*-(cyanoformylmethyl)-α-phenyl-, and 2,4-dinitrophenylhydrazone, 4667*i*.
—, α-cyano-*N*-2-hydroxyethyl-, in penicillin production, 2273*a*.
—, α-cyano-*N*-2-hydroxyethyl-α-phenyl-, in penicillin production, 2273*i*.
—, *N*-(2-cyanoisopropyl)-, 4263*a*.
—, *N*-(2-cyanoisopropyl)-*N*-methyl-, 4263*d*.
—, *N*-(α-cyano-*p*-methoxybenzyl)-*N*-ethyl-, 6176*e*.
—, *N*-(1-cyano-1-methylpropyl)-, hydrogenation of, 8381*b*.
—, *N*-(1-cyano-1-methylpropyl)-*N*-ethyl-, prepn. and hydrogenation of, 8381*f*.
—, *N*-(1-cyano-1-methylpropyl)-*N*-methyl-, and picrate, 8381*d*.
—, *N*-(1-cyanopropyl)-, hydrogenation of, 8381*e*.
—, *N*-[3(or 5)-cyanopyridyl]-. See *Nicotinonitrile, acetamido-*.
—, α-cyclohexenyl-. See *Cyclohexeneacetamide*.
—, *N*-cyclohexyl-, 4233*b*.
—, α-cyclohexyl-. See *Cyclohexaneacetamide*.
—, *N*-(4-cyclohexylcyclohexyl)-, 1377*f*.
—, *N*-(2-cyclohexylcyclohexylmethyl)-*N*-(2-diethylaminoethyl)-, 1359*d*.
—, *N*-cyclohexyl-*N*-2-hydroxyisobutyl-α,α-diphenyl-, P 2640*a*.
—, *N*-cyclohexyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
—, *N*-cyclohexyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
—, α-(cyclohexyloxy)-*N*,*N*-diethyl-, effect on action of DDT-pyrethrin, 7183*i*.
—, *N*-cyclohexyl-*N*-phenyl-. See *Acetanilide, N-cyclohexyl-*.
—, α-cyclohexyl-α-phenyl-. See *Cyclohexaneacetamide, α-phenyl-*.
—, *N*-cyclohexyl-α-(2,3,4,6-tetrachlorophenoxy)-, as molluscacide, 8086*d*.
—, α-cyclopentyl-. See *Cyclopentaneacetamide*.
—, *N*,*N*-diallyl-, in printing pastes, P 9473*h*.
—, *N*,*N*-diamyl-α-bromo-, fungus-inhibiting properties of, 5081*h*.
—, *N*,*N*-diamyl-α,α-dichloro-, 1720*c*.
—, *N*,*N*-diamyl-α-(6-methoxy-8-quinolylamino)-, P 3046*d*.
—, *N*,*N*-diamyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
—, *N*,*N*-diamyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
—, *N*-dibenzo[*a*,*c*][1,3]cycloheptadien-3(and 5)-yl-, 8378*h*.
—, *N*-dibenzofuryl-. See *Dibenzofuran, acetamido-*.
—, *N*-dibenzophenasyl-. See *Dibenzophenasine, acetamido-*.
—, *N*-dibenzothienyl-. See *Dibenzothiophene, acetamido-*.
—, α,α-dibromo-, *N*-derivs., 6975*g*.
—, α,α-dibromo-*N*-butyl-, 6975*h*.
—, α,α-dibromo-*N*,*N*-diethyl-, 6975*i*.
—, α,α-dibromo-*N*-ethyl-, 6975*h*.
—, α-(3,5-dibromo-4-hydroxyphenyl)-*N*-2-hydroxyethyl-, 3362*b*.
—, α,α-dibromo-*N*-methyl-, 6975*h*.
—, α-(1,6-dibromo-2-naphthoxy)-, 3813*h*.
—, α-(3,4-dibromophenyl)-*N*-2-hydroxyethyl-, 3362*b*.
—, α-dibutylamino-α-phenyl-, hydrochloride, 9032*i*.
—, *N*,*N*-dibutyl-α,α-dichloro-, 1720*b*.
—, *N*,*N*-di-*sec*-butyl-α,α-dichloro-, 1720*b*.
—, *N*,*N*-dibutyl-α,α-diphenyl-, 1144*e*.
—, *N*,*N*-dibutyl-α-(6-methoxy-8-quinolylamino)-, P 3046*d*.
—, *N*,*N*-dibutyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
—, *N*,*N*-dibutyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
—, dichloro-, reaction with $NH_3$, 3781*i*.
—, α,α-dichloro-, derivs., 1719*i*.
—, α,α-dichloro-*N*-(2-chloroethyl)-, 7423*b*.
—, α,α-dichloro-*N*-decyl-, 1720*c*.
—, α,α-dichloro-*N*,*N*-diisobutyl-, 1720*b*.
—, α,α-dichloro-*N*,*N*-diisopropyl-, 1720*b*.
—, α,α-dichloro-*N*,*N*-dimethyl-, 1720*a*.
—, α,α-dichloro-*N*,*N*-dipropyl-, 1720*b*.
—, α,α-dichloro-*N*-2-ethylbutyl-, 1720*c*.
—, α,α-dichloro-*N*-(2-ethylhexyl)-, 1720*c*.
—, α,α-dichloro-*N*-heptyl-, 1720*c*.
—, α,α-dichloro-*N*-hexyl-, 1720*c*.
—, α,α-dichloro-*N*-2-hydroxyethyl-, 7423*b*.
—, α,α-dichloro-*N*-[β-hydroxy-α-(hydroxymethyl)-*p*-nitrophenethyl]-, D-*threo*- (*chloromycetin*), comparison with other antibiotics, 8004*i*.
D-*threo*-, effect on *Salmonella*, 6734*c*.
effect on viruses of psittacosis-lymphogranuloma group, 9249*h*.
review on, 3884*c*, 5551*f*, 8550*d*.
in rickettsial infections, 7588*i*.
structure and synthesis of, 5907*i*.
synergism with sulfonamides and other antibiotics, 4333*c*.
synthetic and fermentation, 3522*f*.
in therapy, 4766*h*.
—, α,α-dichloro-*N*-isobutyl-, 1720*b*.
—, α,α-dichloro-*N*-isopropyl-, 1720*b*.
—, α,α-dichloro-*N*-1-methylbutyl-, 1720*c*.
—, α,α-dichloro-*N*-octyl-, 1720*c*.
—, α-[2,4(and 3,4)-dichlorophenyl]-*N*-2-hydroxyethyl-, 3362*c*.
—, *N*-(3,4-dichlorophenylsulfonyl)-, as insecticide, P 4419*h*.
—, *N*-(3,4-dichlorophenylsulfonyl)-*N*-ethyl-, P 2231*h*.
—, *N*-(3,4-dichlorophenylsulfonyl)-*N*-methyl-, P 2231*g*.
—, α,α-dichloro-*N*-propyl-, 1720*b*.
—, *N*,*N*′-(3,5-dichlorosalicylidene)-bis-, 6182*c*.
—, *N*-(3,5-dichlorosulfanilyl)-, and

compd. with 3,5-dichlorosulfanilamide, 601*g*.
——, α,α-dicyclohexyl-*N*-(2-diethylaminoethyl)-, P 2227*g*.
——, *N*,*N*-dicyclohexyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, *N*-(3,4-diethoxy-β-hydroxy-α-methylphenethyl)-, stereoisomers and their acetates, 1423*c*.
——, *N*-(3,4-diethoxy-β-hydroxy-α-methylphenethyl)-α-(3,4-diethoxyphenyl)-, stereoisomers, 1423*eh*.
——, *N*-(3,4-diethoxy-β-hydroxy-α-methylphenethyl)-α-phenyl-, stereoisomers, 1423*e*.
——, *N*-(3,4-diethoxyphenethyl)-α-(3,4-diethoxyphenyl)-, 7027*h*.
——, *N*,*N*-diethyl-, P 8398*h*.
in 2-butanone drying, 8753*d*.
reduction to Et₃N, 121*g*.
——, α-diethylamino-, reaction with isocyanates, 6162*f*.
——, α-diethylamino-*N*,*N*-diphenyl-, 1022*c*.
——, *N*-[2-(2-diethylaminoethylmercapto)ethyl]-α,α-diphenyl-, and citrate, 3395*e*.
——, *N*-(2-diethylaminoethyl)-*N*-*o*-phenylbenzyl-, 1355*i*.
——, *N*-(2-diethylaminoisopropyl)-*N*-*o*-phenylbenzyl-, 1355*i*.
——, α-diethylamino-*N*-1(and 2)-naphthyl-, and hydrochloride, 1022*e*.
——, α-diethylamino-α-phenyl-, 9032*i*.
——, α-[*p*-(3-diethylaminopropoxy)-phenyl]-*N*-2-hydroxyethyl-, 3362*c*.
——, *N*,*N*-diethyl-α,α-diphenyl-, 1144*d*.
——, *N*,*N*-diethyl-α-(*N*-ethylacetamido)-, P 248*i*.
——, *N*,*N*-diethyl-α-(6-methoxy-8-quinolylamino)-, P 3046*c*.
——, *N*,*N*-diethyl-α-(*N*-methylacetamido)-, P 249*a*.
——, *N*,*N*-diethyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, *N*,*N*-diethyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
——, *N*-(1,6-dihydro-1,3-dimethyl-6-oxo-4-pyridazyl)-†, 3007*b*.
——, *N*-(1,4-dihydro-1,4-dioxo-2-naphthyl)-. See *1,4-Naphthoquinone, 2-acetamido-*.
——, *N*-(9,10-dihydro-7-isopropyl-1-methyl-4-nitro-9,10-dioxo-3-phenanthryl)-, 7470*e*.
——, *N*-(9,10-dihydro-7-isopropyl-1-methyl-2-phenanthryl)-, 4252*e*.
——, *N*-(dihydrothiazolyl)-. See *Thiasoline, acetamido-*.
——, *N*-(dihydroxyisopropyl)-α-phenyl-, 2270*i*.
——, *N*-(3,4-dihydroxyphenacyl)-*N*-methyl-, and acetates, 2601*h*, 2602*h*.
——, α-[*p*-(2,3-dihydroxypropoxy)-phenyl]-*N*-2-hydroxyethyl-, 3362*c*.
——, α-(2,3-dihydroxypropylmercapto)-*N*-2-hydroxyethyl-, 3365*e*.
——, *N*-(2,3-dihydroxypropyl)-α-phenyl-, 2270*b*.
——, *N*,*N*-diisobutyl-α-(6-methoxy-8-quinolylamino)-, P 3046*d*.
——, *N*,*N*-diisopropyl-α-(6-methoxy-8-quinolylamino)-, P 3046*d*.
——, *N*,*N*-diisopropyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, *N*,*N*-diisopropyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
——, α-(2,3-dimethoxyphenyl)-. See *o-Homoveratramide*.
——, α-dimethylamino-, 9032*i*.
——, *N*-[1-(4-dimethylamino-3,4-dihydrobenz[*cd*]indol-5(1*H*)-ylidenemethyl)vinyl]-, 7031*i*.
——, *N*-(4-dimethylamino-1-ethyl-2,2-diphenylamylidene)-, and hydrochloride, 3391*h*.
——, *N*-(4-dimethylamino-1-ethyl-2,2-diphenylisoamylidene)-, 3391*h*.
——, *N*-(2-dimethylaminoethyl)-*N*-*o*-phenylbenzyl-, 1355*h*.
——, *N*-(*m*-dimethylaminophenyl)-*N*-phenyl-, 648*a*.
——, *N*-α,α-dimethylbenzyl-, 2165*h*.
——, *N*-1,1-dimethylbutyl-α-phenyl-, 2165*h*.
——, *N*-3,5-dimethylcyclohexyl-, isomers, 2963*c*.
——, *N*,*N*-dimethyl-α,α-diphenyl-, 1144*d*.
——, *N*,*N*′-(1,1-dimethylethylene)bis-, 9067*g*.
——, *N*,*N*-dimethyl-α-*N*-methylacetamido-, P 248*i*, P 4291*d*.
——, α-(4,5-dimethyl-2-thiazolylmercapto)-*N*-2-hydroxyethyl-, 3365*e*.
——, α,α-diphenyl-, 1144*d*, 1744*c*.
and dehydration of, 611*c*.
detn. of, 1280*g*.
——, *N*-2,2-diphenylethyl-, 5026*d*.
——, *N*-2,2-diphenylethyl-α-phenyl-, 5026*e*.
——, *N*-(2-dipropylaminoethyl)-*N*-*o*-phenylbenzyl-, 1355*i*.
——, *N*-(durylsulfonyl)-α,α-diphenyl-, P 686*b*.
——, α-(2,3-epoxypropylmercapto)-*N*-2-hydroxyethyl-, 3365*e*.
——, *N*-(2-ethoxyethyl)-α-phenyl-, 2269*i*.
——, α-ethoxy-*N*-2-hydroxyethyl-, 3364*f*.
——, α-ethoxy-*N*-phenethyl-, 3408*a*.
——, α-ethoxy-*N*-sulfanilyl-, P 3035*g*.
——, *N*-ethyl-, spectrum of, 8274*g*.
——, α-(*N*-ethylacetamido)-*N*,*N*-dimethyl-, P 248*h*, P 7956*a*.
——, α-ethylamino-*N*,*N*-dimethyl-, P 7955*i*.
——, α-ethylamino-α-phenyl-, 9032*i*.
——, *N*-[1-ethyl-2,2-diphenyl-4-(1-piperidyl)butylidene]-, hydrochloride, 3391*h*.
——, *N*,*N*′-ethylenebis-, P 6652*e*.
——, *N*-(2-ethyl-2-hydroxybutyl)-α-phenyl-, 2269*i*.
——, *N*-ethyl-*N*-2-hydroxyethyl-α-phenyl-, 2270*i*.
——, α-(ethylmercapto)-*N*-sulfanilyl-, P 3035*g*.
——, α-(2-ethyl-3-methoxyphenyl)-, 198*e*.
——, *N*-ethyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, *N*-[1-ethyl-4-(4-morpholinyl)-2,2-diphenylbutylidene]-, hydrochloride, 3391*h*.
——, *N*-[1-ethyl-4-(4-morpholinyl)-2,2-diphenylisoamylidene]-, hydrochloride, 3390*i*.
——, α-(*p*-ethylphenoxy)-*N*-sulfanilyl-, P 3035*i*.
——, α-(*N*-ethyl-α-phenylacetamido)-*N*,*N*-dimethyl-, P 248*i*.
——, *N*-(ethylsulfonyl)-, 120*h*.
——, *N*-(10-ethyl-5,6,7,8-tetrahydro-2-phenanthryl)-, 4664*b*.
——, *N*-fluorenyl-, effect on papain, 3476*g*.
——, *N*-2-fluorenyl-, carcinogenic activity of, 9238*f*.
carcinoma from, 750*h*, 8046*i*.
carcinoma from, effect on thiouracil on, 1857*i*.
distribution in tissue after administration, 3107*e*.
effect of sex hormones and, on Wistar rat, 305*g*.
effect on protein in blood plasma and liver, 9216*g*.
on proteins of blood serum, carcinogenicity and, 4370*d*.
on vitamin C in liver, 3921*f*.
labeled, with $C^{14}$ in 9-position, 3917*d*.
tumor induction by, 306*i*, 6315*f*.
effect of diets contg. yeasts on, 306*g*.
effect of sex hormones on, 2698*d*.
——, *N*-9-fluorenyl-, 7005*d*.
——, α-fluoro-, P 351*c*.
as insecticide, P 6357*i*.
as standard in F detn., 2891*a*.
——, α-[*m*(*o* and *p*)-fluorophenyl]-*N*-2-hydroxyethyl-, 3362*c*.
——, *N*-(formylmethyl)-α-phenyl-, diethyl acetal, 6618*g*.
——, *N*-hexadecyl-, coating compn. from coumarone-indene resin, ethylcellulose and, P 2033*d*.
——, α-(*p*-hexylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
——, *N*-homopiperonyl-, cyclization of, 1412*h*.
——, *N*-homopiperonyl-α-phenyl-, cyclization of, 1412*h*.
——, α-hydroxy-. See *Glycolamide*.
——, *N*-*p*-hydroxybenzyl-, transformation by rabbit to glucuronide, 2702*e*.
——, *N*-2-hydroxybutyl-α-phenyl-, 2270*i*, P 3574*e*, P 4697*g*.
——, *N*-2-hydroxy-*tert*-butyl-α-phenyl-, 2270*i*.
——, *N*-2-hydroxycyclohexyl-, *dl*-, *cis*- and *trans*-, and esters, 3372*h*.
——, α-(4-hydroxy-3,5-diiodophenyl)-*N*-2-hydroxyethyl-, 3362*c*.
——, *N*-2-hydroxyethyl-, P 6652*e*.
derivs., 3362*g*.
α-(difluoromethyl)acrylate, polymerization of, P 6465*g*.
——, α-(*N*-2-hydroxyethylacetamido)-α-phenyl-, 2271*a*.
——, *N*-2-hydroxyethyl-α,α-diphenyl-, 1144*e*.
in penicillin production, 2274*a*.
——, *N*-2-hydroxyethyl-α-[*m*(*o* and *p*)-hydroxyphenyl]-, 3362*c*.
——, *N*-2-hydroxyethyl-α-(4-hydroxy-3-phenylazophenyl)-, 3361*h*, 3362*c*.
——, *N*-2-hydroxyethyl-α-(2-imidazolylmercapto)-, 3365*e*.
——, *N*-2-hydroxyethyl-α-[*m*(and *p*)-iodophenyl]-, 3362*c*.
——, *N*-2-hydroxyethyl-α-(3-*p*-menthyloxy)-, 3364*g*.
——, *N*-2-hydroxyethyl-α-mercapto-, 3365*e*.
——, *N*-2-hydroxyethyl-α-(mesityl)-, 3362*d*.
——, *N*-2-hydroxyethyl-α-[*p*-(*p*-methoxybenzamido)phenyl]-, 3362*b*
——, *N*-2-hydroxyethyl-α-(*p*-methoxyphenoxy)-, 3364*g*.
——, *N*-2-hydroxyethyl-α-methoxy-α-phenyl-, in penicillin production, 2273*f*.
——, *N*-2-hydroxyethyl-α-[*m*(and *o*)-methoxyphenyl]-, 3362*d*.
——, *N*-2-hydroxyethyl-α-(*p*-methoxyphenylmercapto)-, 3365*e*.
——, *N*-2-hydroxyethyl-α-(*N*-methylanilino)-, in penicillin production, 2273*f*.
——, *N*-2-hydroxyethyl-α-(*p*-methylmercaptophenyl)-, 3362*d*.
——, *N*-2-hydroxyethyl-α-1-naphthoxy-, 3364*g*.
——, *N*-2-hydroxyethyl-α-1(and 2)-naphthylmercapto-, 3365*f*.
——, *N*-2-hydroxyethyl-α-(*p*-nitrophenoxy)-, 3364*f*.
——, *N*-2-hydroxyethyl-α-(*p*-nitrophenyl)-, 3362*d*.
——, *N*-2-hydroxyethyl-α-(*p*-nitrophenylmercapto)-, 3365*e*.
——, *N*-2-hydroxyethyl-α-phenethylmercapto-, 3365*f*.
——, *N*-2-hydroxyethyl-α-*p*-phenetyl-, 3362*c*.
——, *N*-2-hydroxyethyl-α-phenoxy-, 3364*f*.
——, *N*-2-hydroxyethyl-α-(*p*-phenoxyphenyl)-, 3362*d*.
——, *N*-2-hydroxyethyl-α-(*p*-phenoxyphenylmercapto)-, 3365*f*.
——, *N*-2-hydroxyethyl-α-(3-phenoxypropylmercapto)-, 3365*f*.
——, *N*-2-hydroxyethyl-α-phenyl-, P 4697*f*.
and esters, effect on penicillin production, 2269*i*.
phenylacetate, P 3574*e*, P 4697*h*.
——, *N*-2-hydroxyethyl-α-(*p*-phenylazophenoxy)-, 3364*g*.
——, *N*-2-hydroxyethyl-α-(*p*-phenylmercaptophenyl)-, 3362*d*.
——, *N*-2-hydroxyethyl-α-(3-phenylpropylmercapto)-, 3365*f*.
——, *N*-2-hydroxyethyl-α-(phenylselenyl)-, in penicillin production, 2273*d*.
——, *N*-2-hydroxyethyl-α-(phenylsulfonyl)-, in penicillin production, 2273*d*.
——, *N*-2-hydroxyethyl-α-(4-phenyl-2-thiazolylmercapto)-, 3365*f*.
——, *N*-2-hydroxyethyl-α-sulfo-†, potassium salt laurate, P 6950*a*.
——, *N*-2-hydroxyethyl-α-thymyloxy-, 3364*g*.
——, *N*-2-hydroxyethyl-α-*p*-toloxy-, 3364*g*.
——, *N*-2-hydroxyethyl-α-*m*(*o* and *p*)-tolyl-, 3362*d*.
——, *N*-2-hydroxyethyl-α-*m*(and *p*)-tolylmercapto-, 3365*e*.
——, *N*-2-hydroxyethyl-α-(3,4,5-tribromophenyl)-, 3362*d*.
——, *N*-2-hydroxyethyl-α-(2,4,6-trichlorophenoxy)-, 3364*f*.
——, *N*-2-hydroxyethyl-α-(α,α,α-trifluoro-*m*-toloxy)-, 3364*g*.
——, *N*-2-[illegible]-(α,α,α-trifluoro-*m*-tolyl)-,

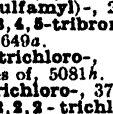
——, *N*-2-hydroxyethyl-α-(α,α,α-trifluoro-*m*-tolylmercapto)-, 3865*e*.
——, *N*-2-hydroxyethyl-α-2,4-xylyl-, 3362*c*.
——, *N*-2-hydroxyethyl-α-2,4-xylyloxy-, 3364*g*.
——, *N*-2-hydroxy-3-fluorenyl-, and acetate, 7020*g*.
——, *N*-7-hydroxy-2-fluorenyl-, carcinogenic action of, 3076*b*.
effect on ascorbic acid in liver, 3921*f*.
——, *N*-(2-hydroxyisobutyl)-α-phenyl-, 2269*i*.
——, *N*-(2-hydroxy-7-isopropyl-1-methyl-9-phenanthryl)-, acetate, 7470*i*.
——, *N*-(hydroxyisopropyl)-α-phenyl-, 2270*i*.
——, *N*-[(2-hydroxy-2′-mercaptoisopropylmercapto)methyl]-(?), P 3571*h*.
——, *N*-[(3-hydroxy-2-mercaptopropylmercapto)methyl]-(?), P 3571*h*.
——, *N*-[3(or 4)-hydroxy-4(or 3)-methoxyphenacyl]-*N*-methyl-, acetate, 2602*i*.
——, *N*-(hydroxymethyl)-, 569*f*.
nitrate (ester), compd. with hexamethylenetetramine, 9075*g*.
——, *N*-[(hydroxymethylnitramino)methyl]-*N*-[(hydroxymethylnitramino)methyl]nitraminomethyl]-, diacetate, 9073*c*.
——, *N*-[1-(hydroxymethyl)propyl]-α-phenyl-, 2270*i*.
——, *N*-[*N*-(hydroxymethyl)sulfanilyl]-, 7077*d*.
——, *N*-(6-hydroxy-1-naphthyl)-, 7026*e*.
——, *N*-(4-hydroxy-3-nitrophenethyl)-*N*-methyl-, 6597*f*.
——, *N*-(*p*-hydroxyphenethyl)-*N*-methyl-, 6597*e*.
——, *N*-(β-hydroxyphenethyl)-α-phenyl-, 2269*i*.
——, *N*-(β-hydroxy-α-phenylphenethyl)-, *dl*-, 6999*i*.
stereoisomers, separation of, 4238*b*.
——, *N*,*N*′-[3-hydroxypropylenebis(thiomethylene)]bis-, P 3571*h*.
——, *N*,*N*′-[3-hydroxypropylenebis(thiomethylene)]bis[*N*-ethyl-, P 3571*h*.
——, *N*,*N*′-[3-hydroxypropylenebis(thiomethylene)]bis[*N*-methyl-, P 3571*h*.
——, *N*-(2-hydroxypropyl)-α-phenyl-, 2270*i*, P 3574*e*, P 4697*g*.
——, α-imidazolyl-. See *Imidazoleacetamide*.
——, *N*-[2-[4(or 5)-imidazolyl]ethyl]-, biol. formation of, 3478*d*.
in urine, 8413*b*.
——, α,α′-iminobis-, and benzoyl deriv., 3782*a*.
——, *N*-[2-(5-indanyl)ethyl]-, 8390*f*.
——, iodo-, effect on muscles, 1485*h*.
effect on psittacosis virus, 305*i*.
effect on pyruvate oxidase system of brain, 7590*c*
——, α-iodo-, antibacterial action of, 5823*i*.
——, α-(*p*-isoamylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
——, *N*-isobornyl-, 2165*h*.
——, *N*-isobornyl-α-phenyl-, 2165*h*.
——, α-isobutoxy-*N*-sulfanilyl-, P 3035*g*.
——, *N*-isobutyl-, P 6652*e*.
——, *N*-isobutyl-α-[3-(3,4-methylenedioxyphenyl)propylmercapto]-, as insecticide, P 1903*b*.
——, *N*-isobutyl-α-(α-methylhomopiperonylmercapto)-, as insecticide, P 1903*c*.
——, α-(*p*-isobutylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
——, α-isopropoxy-*N*-sulfanilyl-, P 3035*g*.
——, *N*-(7-isopropyl-1-methyl-4(and 9)-nitro-3-phenanthryl)-, 7470*de*.
——, *N*-(7-isopropyl-1-methyl-3-phenanthryl)-, 7470*d*.
*N*-isoquinolyl-. See *Isoquinoline, acetamido-*.
——, α-mercapto-, derivs., 599*a*.
derivs., as photographic color couplers, P 54*f*.
reaction with (halomethyl) ketones, 607*i*.
——, α-mercapto-*N*-2-naphthyl-, mixt. with 8 hydroxyquinoline and tannins, concn. by, in spectrographic analysis, 2541*f*.
thallium complex, drying or ignition temp. limits for analytical ppts. of, 63*h*.
*N*,*N*′-(4-mercapto-*m*-phenylene)bis-, acetate, 222*h*.
——, α-mercapto-*N*-*p*-sulfamylbenzyl-, and gold deriv., 1347*h*.
——, α-mercapto-*N*-sulfanilyl-, and gold deriv., 1347*h*.
——, *N*-metanilyl-, azo dye from, P 8689*i*.
——, α-(*p*-methoxybenzylmercapto)-*N*-sulfanilyl-, P 3036*c*.
——, *N*-2-methoxyethyl-α-phenyl-, 2270*i*, P 3574*e*, P 4697*g*.
——, α-methoxy-*N*-(α-methoxyacetylphenethyl)-, and derivs., 4227*a*.
——, *N*-(methoxymethyl)-, 569*f*.
——, *N*-(methoxymethyl)-*N*-methyl-, P 3571*h*.
——, *N*-[6(and 8)-methoxy-1-naphthyl]-, succinoylation of, 7011*i*.
——, *N*,*N*′-(2-methoxy-*p*-phenylene)bis-, P 8145*b*.
——, α-(6-methoxy-8-quinolylamino)-*N*,*N*-dipropyl-, P 3046*d*.
——, *N*-[*N*-(3-methoxysalicylidene)-sulfanilyl]-, 3262*g*.
——, α-methoxy-*N*-sulfanilyl-, P 3035*g*.
——, α-(6-methoxy-*m*-tolyl)-, 1385*b*.
——, *N*-2-methylallyl-α-phenyl-, 2269*i*
in penicillin production, P 3574*d*.
——, *N*-(7-methylamino-2-fluorenyl)-, 7005*d*.
——, α-methylamino-α-phenyl-, 9032*i*.
——, *N*-α-methylbenzyl-, 2165*g*.
——, *N*-methyl-*N*,*N*′-[1,2-bis(*p*-methoxyphenyl)ethylene]bis-, 614*f*.
——, *N*-3-methyl-2-butenyl-α-phenyl-, 2269*i*.
in penicillin production, P 3574*d*.
——, *N*-methyl-α,α-diphenyl-, 1144*d*
——, *N*-1-methyleneallyl-, polymer with *N*-(2-acetamidoethyl)acrylamide, P 9531*e*.
polymer with vinyl acetate, P 3651*a*.
——, α-[3-(3,4-methylenedioxyphenyl)-propylmercapto]-*N*,*N*-dipropyl-, as insecticide, P 1903*b*.
——, α-(α-methylhomopiperonylmercapto)-*N*,*N*-dipropyl-, as insecticide, P 1903*c*.
——, *N*-(α-methylphenethyl)-, 2166*a*.
——, *N*-[α(and β)-methylphenethyl]-, 5026*g*.
——, *N*-[α(and β)-methylphenethyl]-α-phenyl-, 5026*h*.
——, *N*-methyl-α-phenyl-*N*-propylthio-, 3362*e*.
——, *N*-(methylsulfonyl)-, 120*h*.
——, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539*e*.
——, α-[*p*-(methylsulfonyl)phenyl]-, 1739*f*.
——, *N*-[1(and 2)-(4-methyl-2-thiazolyl)isopropyl]-, 4263*b*.
——, *N*-methyl-*N*-(β,3,4-trihydroxyphenethyl)-, 2601*h*.
——, *N*-methyl-*N*,*N*′-(2,4,6-trimethyl-*m*-phenylene)bis-, 1735*b*
——, α-1(and 2)-naphthoxy-*N*-sulfanilyl-, P 3036*a*.
——, *N*-1(and 2)-naphthyl-, acylation (Friedel-Crafts) of, 6606*c*.
——, α-(naphthyl)-. See *Naphthaleneacetamide*.
——, *N*,*N*′-naphthylenebis-. See *Naphthalene, diacetamido-*.
——, *N*-2-naphthyl-α-phenyl-, 6066*b*.
——, α-*p*-nitrobenzoyl-, and phenylhydrazone, 5395*b*.
——, *N*-*p*-nitrobenzyl-, 176*a*.
——, *N*-[5(6 and 7)-nitro-4-indanyl]-, 616*h*.
——, *N*-6-nitro-5-indanyl-, deacylation of, 5755*f*.
——, *N*-2-nitro-1-naphthyl-, deacylation of, 2186*h*.
——, *N*-(2-nitro-7-oxo-7*H*-benz[*de*]-anthracen-3-yl)-, 210*a*.
——, *N*-(*p*-nitrophenylmercapto)-, P 8400*b*.
——, *N*-(*m*-nitrophenyl)-*N*-phenyl-, 647*i*.
——, *N*-(*p*-nitrophenylsulfonyl)-, P 3458*f*, P 7961*e*, P 8400*b*.
——, *N*-7-oxo-7*H*-benz[*de*]anthracen-3-yl-, 210*a*.
——, *N*-7-oxo-7*H*-benz[*de*]anthracen-6-yl-, 1759*f*, 1760*c*.
——, *N*-2-oxo-1,2-benzopyranyl-. See *Coumarin, acetamido-*.
*N*,*N*′-[5-(4-oxo-1,4*H*-benzopyran-2-yl)-*m*-phenylene]bis-, 2621*f*.
——, *N*-[α-(5-oxo-2-phenyl-2-oxazolin-4-ylidene)-*p*-tolylsulfonyl]-, 7449*i*.
——, *N*-(2,3,4,5,6-pentahydroxycyclohexyl)-, 149*d*.
——, *N*-2-pentenyl-α-phenyl-, 2269*i*.
——, α-phenacylmercapto-, 608*a*.
——, *N*-phenanthridyl-. See *Phenanthridine, acetamido-*.
——, *N*-1-phenanthryl-, 4664*c*.
——, α-phenanthryl-. See *Phenanthreneacetamide*.
——, *N*-phenethyl-, 5027*d*.
——, α-(*p*-phenethylphenoxy)-*N*-sulfanilyl-, P 3036*a*.
——, *N*-phenethyl-α-phenyl-, 2271*a*, 5027*e*.
ring closure of, 4672*e*.
——, α-phenoxy-, reduction to PhOCH$_2$CH$_2$NH$_2$, 121*h*.
——, α-phenoxy-*N*-sulfanilyl-, P 3035*i*.
——, *N*-phenyl-. See *Acetanilide*.
——, α-phenyl-, P 1809*h*, P 2233*d*, P 3028*c*, P 3452*c*.
benzenesulfonate, P 688*h*.
*N*-hydroxyalkyl derivs., P 4697*f*.
*Penicillium notatum* culture medium contg., P 7649*b*.
reduction to phenethylamine, 121*h*.
spectrum of, 3715*b*.
*N*,*N*′-*p*-phenylenebis[α-(1-amino-2-naphthoxy)-*N*-methyl-, and disazo dye from, P 859*f*.
*N*,*N*′-*p*-phenylenebis[α-(*p*-aminophenoxy)-*N*-methyl-, and disazo dye from, P 859*e*.
——, *N*,*N*′-*p*-phenylenebis[*N*-benzyl-, 5386*d*.
——, *N*,*N*′-phenylenebis[α-chloro-, effect on chromosomes, 7523*d*.
——, *N*,*N*′-*p*-phenylenebis[*N*-methyl-α-(1-nitro-2-naphthoxy)-, P 860*b*.
——, *N*,*N*′-*p*-phenylenebis[*N*-methyl-α-(*p*-nitrophenoxy)-, P 860*a*.
——, α,α′-(*p*-phenylenedioxy)bis[*N*-2-hydroxyethyl-, 3364*g*.
——, *N*-α-phenylhomopiperonyl-, 5027*d*.
——, α-phenylmercapto-*N*-sulfanilyl-, P 3036*a*.
——, *N*-α-phenylphenethyl-, 5027*a*.
——, *N*-phenyl-*N*,*N*′-*m*-phenylenebis-, 647*i*.
——, α-phenyl-*N*-α-phenylhomopiperonyl-, 5027*d*.
——, α-phenyl-*N*-α-phenylphenethyl-, 5027*a*.
——, *N*,*N*′-(3-phenylpropylidene)bis-, 2600*i*.
——, α-phenyl-*N*-[2-(5,6,7,8-tetrahydro-2-naphthyl)ethyl]-, 8390*k*.
——, α-phenyl-*N*-1,1,3,3-tetramethylbutyl-, 2165*g*.
——, α-phenyl-*N*-*p*-tolylsulfonyl-, P 7963*c*, P 8622*c*.
——, α-piperidyl-. See *Piperidineacetamide*.
——, α-propoxy-*N*-sulfanilyl-, P 3035*g*.
——, α-propylmercapto-*N*-sulfanilyl-, P 3035*h*.
——, *N*-pyridobenzoxazinyl-. See *Pyridobenzoxazine, acetamido-*.
——, *N*-pyridyl-. See *Pyridine, acetamido-*.
——, α-(pyridyl)-. See *Pyridineacetamide*.
——, *N*-pyrimidyl-. See *Pyrimidine, acetamido-*.
——, α-pyrimidyl-. See *Pyrimidineacetamide*.
——, α-pyrryl-. See *Pyrroleacetamide*.
——, *N*-quinolyl-. See *Quinoline, acetamido-*.
——, α-8-quinolyloxy-*N*-sulfanilyl-, P 3036*d*.
——, *N*-quinoxalyl-. See *Quinoxaline, acetamido-*.
——, *N*-(*N*-salicylidenesulfanilyl)-, 3262*g*.
——, *N*-*p*-sulfamylbenzyl-, 8539*e*.
——, *N*-sulfanilyl-, P 1804*h*, P 3458*e*, P 3846*bd*, P 7961*d*, P 8400*c*.
acetyl and bromo derivs., 7642*f*.
in aqueous humor, 4772*a*.
in blood and tears, 4771*f*.
compd. with benzedrine, P 4297*c*.
with ephedrine and derivs., P 9388*g*.
with $AgNO_3$, 3803*k*.
concentration in blood and cerebrospinal fluid in infancy, 2323*g*.
detn. in body fluids and species specific effects of, 2605*e*.
detn. of, 1908*f*, 3422*g*.
crystal structure of, 3262*f*
system of *Escheri-*

effect on pea root growth, 7091*i*.
mixt. with sulfapyridine and sulfathiazole, therapeutic and toxic action of, 5112*i*.
2-naphthalenesulfonate, 174*a*.
sodium deriv., fate in incubating egg, 1473*d*.
sodium deriv., S detn. in, 9370*c*.
soly. in iso-PrOH, 3148*a*.
therapeutic activity of, 3097*f*.
——, *N*-**sulfanilyl-α-thymyloxy-**, P 3035*i*.
——, *N*-**sulfanilyl-α-*m*(*o* and *p*)-toloxy-**, P 3035*i*.
——, *N*-**sulfanilyl-α-*p*-tolylmercapto-**, P 3036*a*.
——, *N*-**sulfanilyl-α-2,5-xylyloxy-**, P 3035*i*.
——, *N*-**(5,6,7,8-tetrahydro-1-naphthyl)-**, 202*c*, 7011*b*, P 7511*b*.
——, *N*-**(5,6,7,8-tetrahydro-3-nitro-2-naphthyl)-**, deacylation of, 5755*f*.
——, *N*-**(1,1,3,3-tetramethylbutyl)-**, 1715*e*, 2165*f*.
——, *N*-**2-thenoyl-**†, 3817*a*.
——, *N*-**thiazolyl-**. See *Thiazole, acetamido-*.
——, **α-thiazolyl-**. See *Thiazoleacetamide*.
——, **thio-**, in analysis for cations of groups II and III, 2115*b*.
as catalyst in isomerization of maleic acid, P 1798*e*.
compd. with diethylgold thiocyanate, 9035*c*.
liver tumors in rats fed, 1858*e*.
reaction with ethyl β-amino-α-cyanoacrylate, P 3473*e*.
reaction with ethyelene oxides, 7420*g*.
toxicity of, 8052*h*.
——, *N*-**(2-thioxo-5-thiazolylidene)-**. See *2-Thiazolidinethione, 5-(acetylimino)-*.
——, *N*-**tolyl-**. See *Acetotoluidide*.
——, *N*-**[2-(*p*-triazol-4-yl)ethyl]-**, and hydrochloride, 6621*a*.
——, **α,α,α-tributyl-**. See *Caproamide, α,α-dibutyl-*.
——, **α,α,α - trichloro - *N*, *N* - bis(*p*-chlorophenyl)-**, as insecticide, 2359*h*.
——, **α,α,α-trichloro-*N*, *N*-diphenyl-**, as insecticide, 2359*h*.
——, **α-[2,4,5(and 2,4,6)-trichlorophenoxy]-**, 2973*f*.
——, *N*-**(2,2′,2″-trihydroxy-*tert*-butyl)-**, and derivs., 6575*d*.
——, *N*-**[5,6,7-trimethoxy-4-(*p*-methoxyphenyl)-1-indanyl]-**, 2198*b*.
——, *N*-***p*,α,α-trimethylbenzyl-**, 2165*h*.
——, *N*, *N*′-**(2,4,6-trimethyl-*m*-phenylene)bis-**, 1735*b*.
——, *N*, *N*′-**(2,4,6-trimethyl-*m*-phenylene)bis[*N*-methyl-**, 1735*a*.
——, *N*-**triphenylmethyl-**, 4646*e*.
——, *N*-**vinyl-**, polymer, P 5635*g*.
——, *N*-**xanthyl-**. See *Xanthene, acetamido-*.
**Acetamido-*N-d*, *N*-ethyl-**, spectrum of, 8274*g*.
**Acetamidine**, derivs., P 6240*b*, P 6660*g*.
reaction with propiolaldehyde acetals, P 1814*a*.
spectrum of, 9037*b*.
——, **α-anilino-**, P 2738*h*.
——, **α-anilino-*N*-phenethyl-**, hydrochloride, P 6240*c*.
——, **α-benzamido-**. See *Benzamide, N-(guanylmethyl)-*.
——, **α-benzoyl-**, 3395*f*.
——, **α-(*N*-benzylanilino)-**, hydrochloride, P 683*g*.
——, *N*, *N*′-**bis(*p*-bromophenyl)-**, and salts, 2594*c*.
——, **α-chloro-**, hydrochloride, P 5414*c*.
——, **α-chloro-*N*-phenethyl-**, hydrochloride, P 7050*c*.
——, *N*-**(*p*-chlorophenyl)-**, and spectrum of, 9037*b*.
——, *N*-**cyclohexyl-*N*′-ethyl-**, and salts, 2594*f*.
——, *N*-**cyclohexyl-*N*′-methyl-**, and salts, 2594*d*.
——, *N*-**cyclohexyl-α-phenyl-**, hydrochloride, P 688*i*.
and hydrochloride, P 3456*h*.
——, *N*, *N*′-**dimethyl-**, benzenesulfonate, 2595*c*.
——, *N*, *N*′-**di-*p*-phenetyl-**. See *Phenacetine*.
——, *N*, *N*′-**diphenyl-**, 2594*c*, 2595*e*, 6994*f*.
Raman spectrum of, 6081*i*.
——, *N*-**ethyl-*N*, *N*′-diphenyl-**, Raman spectrum of, 6082*e*.
——, *N*-**furfuryl-*N*′-methyl-**, and picrate, 2594*e*.
——, **α-*o*-methoxyanilino-**, hydrochloride, P 6240*c*.
——, *N*-**methyl-**, picrate, 2594*d*.
——, *N* - **methyl** - *N*, *N*′ - **diphenyl-**, Raman spectrum of, 6082*b*.
——, *N*′-**methyl-*N*, *N*-diphenyl-**, and picrate, 2594*e*.
——, *N*-**methyl-*N*′-phenyl-**, and picrate, 2594*e*.
——, *N*-**methyl-*N*′-2-pyridyl-**, and picrate, 2594*e*.
——, **α-(*p*-methylsulfonylphenyl)-**, hydrochloride, 1739*h*.
——, **α-(*p*-nitrophenyl)-**, benzenesulfonate, P 2231*c*, P 5038*g*, 7445*b*.
——, **α-(*p*-nitrophenyl)-*N*-phenyl-**, benzenesulfonate, P 2232*c*, 7444*c*.
——, *N*-**phenyl-**, picrate, P 3456*i*.
——, **α-phenyl-**, *Penicillium notatum* culture medium contg., P 7649*b*.
picrate, P 3456*f*.
*p*-toluenesulfonate, P 2231*c*, P 5038*g*, 7445*a*.
——, *N*-**(phenylsulfonyl)-**. See *Benzenesulfonamide, N-acetimido-*.
——, *N*′-**(phenylsulfonyl)-**. See *Benzenesulfonamide, N-(1-aminoethylidene)-*.
——, **α-phenyl-*N*-*p*-tolyl-**, *p*-toluenesulfonate, P 2232*c*, 7444*c*.
——, *N*′-**sulfanilyl-**. See *Sulfanilamide, N¹-(1-aminoethylidene)-*.
——, *N*, *N*, *N*′-**trimethyl-**, salts, 2595*f*
**Acetamido group**, directive effect of, in Friedel-Crafts acylation of *N*-1(and 2)-naphthylacetamides, 6606*c*.
effect on Friedel-Crafts acetylation of diacetamidonaphthalenes, 9058*b*.
**Acetanilide** (*antifebrin*), benzoxazolone formation from, in animal organism, 6711*f*.
derivs., as local anesthetics, 1021*e*.
detection of, 8429*h*.
detn. of, and its metabolic products in biol. fluids and tissues, 263*g*.
dyes from, P 9460*h*.
formation from reaction of acetamide with PhNCS, 6162*h*.
formation from reaction of $PhNH_2$ with $Si(OAc)_4$, 4631*f*.
fungus-inhibiting properties of, 5081*h*.
α-halo derivs., compds. with hexamethylenetetramine, reaction with $SO_2$, 6586*g*.
manuf. of, P 3845*g*.
metabolism of, 313*c*, 6314*c*.
narcotic action of, in relation to action on cholinesterase in blood, 7142*e*.
pharmacol. action of, 314*e*.
prepn. of, 6586*b*.
reaction with *p*-toluenesulfonyl chloride in presence of $AlCl_3$, 6994*e*.
reduction of, 1312*f*.
spectrum of, 3715*b*.
as stabilizer for *N*-vinylpyrroles, P 2037*f*
titration (electrometric) of, in $PhNO_2$, 5346*b*.
**Acetanilide, *ar*-acetamido-**. See *Acetamide, N, N′-phenylenebis-*.
——, **α-acetamido-**, 6586*h*.
——, **α-acetamido-*o*-nitro-**, 6586*i*, 6587*a*.
——, ***p*-(8-acetamido-5-nitro-6-quinolylsulfonyl)-**, 8389*d*.
——, *p*-(**acetonylsulfonyl)-**, 2593*e*.
——, *N*-**acetyl-**. See *Diacetanilide*.
α-**acetyl-**. See *Acetoacetanilide*.
——, ***p*-acetyl-α-bromo-**, fungus-inhibiting properties of, 5081*h*.
——, ***p*-[(5-acetyl-4-methyl-2-thiazolyl)sulfamyl]-**, P 3852*d*.
——, ***p*-(acetylsulfamyl)-**. See *Sulfanilamide, N¹, N⁴-diacetyl-*.
——, ***p* - [(4 - acetyl - 2 - thiazolyl)sulfamyl]-**, oxime, P 3852*e*.
——, ***p*-[(allylguanyl)sulfamyl]-**, P 5802*d*.
——, ***p*-(3-allyl-4-thiazolin-2-ylidenesulfamyl)-**, P 6662*d*.
, ***m*-amino-**, azo stilbene dye from, P 4864*a*.
disazo dye from 5-amino-3-sulfosalicylic acid, $COCl_2$ and, P 8156*i*.
disazo dyes from, P 4862*i*, P 8158*b*.
polyazo dyes from, P 6425*f*, P 7235*a*.
——, ***p*-amino-**, anthraquinone dye from, P 7703*f*.
azo dyes from, P 4473*a*, P 7711*d*.
manuf. of, P 3845*i*.
naphthoquinoneimide dye from, P 8167*b*.
polyazo dye from, P 2440*a*, P 2781*c*, P 6425*h*, P 6426*c*, P 7702*c*.
stilbene triazine dye from, P 5966*a*.
——, **α-amino-**. See *Glycinanilide*.
——, **4-amino-2,5-bis(benzyloxy)-**, P 4165*g*.
——, **4-amino-2,5-bis(benzyloxy)-α-phenyl-**, P 4165*g*.
——, **2 - amino - 4 - chloro - α - diethylamino-**, and dihydrochloride, 2992*h*.
——, *o*(and *p*)-**amino-α,α-dichloro-**, dihydrochlorides, 1024*d*.
——, **4-amino-2,5-dichloro-**, 3729*d*.
——, *m*(*o* and *p*)-**amino-α-diethylamino-**, and hydrochloride, 1024*c*.
——, **4-amino-2,5-dimethoxy-**, azo dye from, P 4473*c*.
——, ***p*-[(aminoguanyl)sulfamyl]-**, P 3846*e*.
——, **3-amino-2-hydroxy-5-nitro-**, azo dyes from, P 8148*c*.
——, **4-amino-2-nitro-**, deacylation of, 5755*b*.
——, ***p*-(8-amino-5-nitro-6-quinolylsulfonyl)-**, 8389*e*.
——, *p*-(*p*-**aminophenyl)-**, azo dyes from, P 2784*d*, P 4473*i*, P 5597*g*, P 9459*a*
——, ***p*-(5-amino-2-pyridylsulfonyl)-**, P 1804*a*.
——, ***p*-[6(or 7)-amino-2-quinoxalylsulfamyl]-**, 3384*d*.
——, ***p*-(6-amino-1,2,3,4-tetrahydro-1,3 - dimethyl - 2,4 - dioxo - 5-pyrimidylsulfamyl)-**, P 2231*d*
——, ***p*-(2-amino-4-thiazolylmethylsulfonyl)-**, 7931*b*.
——, ***m*-anilino-**, reaction with HCO·H, 647*d*.
——, ***p*-[(*p*-arsenosobenzyl)sulfamyl]-**, 176*f*.
——, **5-arsenoso-α-chloro-2-hydroxy-**, 6179*a*.
——, **5-arsenoso-2-hydroxy-**, 5994, 6178*i*.
——, **α-(auromercapto)-**, P 1913*i*.
——, **α-(auromercapto)-*p*-(benzoylsulfamyl)-**, 1347*h*.
——, **α-(auromercapto)-*p*-sulfamyl-**, 1347*g*.
——, **α-(auromercapto)-*p*-2-thiazolylsulfamyl-**, 1347*h*.
——, ***p*-(1-aziridylsulfonyl)-**, 3015*b*
——, ***p*-benzamido-**. See *Benzanilide, 4′-acetamido-*.
——, ***p*-[benzo[*f*]quinoxal-2(and 3)-ylsulfamyl]-**, 174*h*.
——, ***p*-(6-benzothiazolylsulfamyl)-**, 7476*c*.
——, **α-benzoyl-α-(*p*-diethylaminophenylimino) - *m* - 1,3 - dioxolan-2-yl-**, P 8162*d*.
——, **α-benzoyl-*m*-1,3-dioxolan-2-yl-**, P 4299*f*.
azomethine dyes from, P 8162*a*.
——, ***p*-(benzoylsulfamyl)-α-mercapto-**, and gold deriv., 1347*h*.
——, ***p*-2-biphenylyl-α-benzoyl-**, 4656*e*
——, **α - (4 - biphenylylcarbonyl) - *p*-chloro-**, anthraquinone azo dye from, P 7703*i*.
——, **α-(4-biphenylylcarbonyl)-2,5-dichloro-**, anthraquinone azo dyes from, P 7703*i*.
——, **α-(4-biphenylylcarbonyl)-2,5-dimethoxy-**, anthraquinone azo dye from, P 7704*a*.
——, ***p*-2-biphenylyl-α-*o*-methoxybenzoyl-**, 4656*e*.
——, ***p* - [2,5 - bis(diethylcarbamyl)-phenylsulfamyl]-**†, 4648*h*.
——, ***m*-[bis(2-hydroxyethyl)amino]-**, azo dyes from, P 8145*e*.
monoöxalate (acid ester), P 2634*h*.
——, **5-[bis(2-hydroxyethyl)amino]-2-(2 - chloro - 4,6 - dinitrophenylazo)-**, dye from Na formaldehydesulfoxylate and, P 1986*d*.
——, **5-[bis(2-hydroxyethyl)amino]-2-(4-chloro-2-nitrophenylazo)-**, dye from Na formaldehydesulfoxylate and, P 1986*e*.
——, **5-[bis(2-hydroxyethyl)amino]-2-(*o*-nitrophenylazo)-**, dye from Na formaldehydesulfoxylate and, P 1986*c*.
——, **α-bromo-**, compd. with hexamethylenetetramine, reaction with $SO_2$, 6586*h*.
isomorphism between $ClCH_2CONHPh$ and, 5754*f*.
——, **α-bromo-*p*-chloro-**, fungus-inhibiting properties of, 5081*h*.
——, ***p*-(2-bromoethylsulfamyl)-**, 3015*a*.
——, **α-(1-bromo-2-naphthoxy)-**, 3813*h*.
——, **α-bromo-*o*-nitro-**, and compd. with hexamethylenetetramine, 6586*i*.
——, **2-bromo-4-nitro-**, deacylation of, 5755*c*.

——, **2-bromo-6-nitro-**, deacylation of, 5755*e*.
——, **2-bromo-4-nitro-**, deacylation of, 2186*h*.
——, **4(and 5)-bromo-2-nitro-**, deacylation of, 5755*c*.
——, **α-[*o*(and *p*)-bromophenyl]-**, 605*i*.
——, ***p*-(*m*-bromophenylsulfamyl)-**, 4649*b*.
——, ***p*-[6(or 7)-bromo-2-quinoxalylsulfamyl]-**, 3384*d*.
——, **2-bromo-4-sulfamyl-**, 175*e*.
——, ***N*-2-butenyl-**, 5403*h*.
——, ***p*-(butylsulfonyl)-**, 2593*e*.
——, ***o*-butyryl-**, 3012*g*.
——, ***o*-carbamyl-**, derivs., 3424*f*.
——, ***N*-(2-carbamylethyl)-**, 3822*b*.
——, ***p*-(carbamylsulfamyl)-**. See *Urea, (N-acetylsulfanilyl)-*.
——, ***m*-chloro-**, nitration of, 5755*f*.
——, ***N*-chloro-**, reaction with phenols, 6992*h*.
——, **α-chloro-**, 4631*i*.
fungus-inhibiting properties of, 5081*h*.
isomorphism between $BrCH_2CONHPh$ and, 5754*f*.
——, ***m*-chloroacetyl-**, 7452*b*.
——, ***p*-chloroacetyl-**, prepn. of, 1734*h*.
——, **α-chloro-*m*(*o* and *p*)-chloroacetyl-**, 7452*b*.
——, **4-chloro-α-diethylamino-2-nitro-**, 2992*g*.
——, **5-chloro-2,4-dinitro-**, 5755*g*.
——, **α-chloro-*p*-(α,α,α,α′,α′,α′-hexafluoro-3,5-xylylsulfamyl)-**, 4648*i*.
——, **α-chloro-*o*-iodo-**, 1022*b*.
——, **5-chloro-2-isopropoxy-4-nitro-**, P 3034*b*.
——, ***p*-(6-chloro-8-isopropyl-5-methyl-2-quinoxalylsulfamyl)-**, 3384*e*.
——, ***p*-[(4-chlorometanilyl)sulfamyl]-**, azo 5-pyrazolone dyes from, P 8150*a*.
——, ***p*-(4-chloro-6-methyl-2-pyrimidylsulfamyl)-**, P 7964*f*.
——, ***p*-(chloromethylsulfonyl)-**, 2593*b*, 2597*b*.
——, ***p*-(5-chloro-4-methyl-2-thiazolylsulfamyl)-**, P 3979*f*.
——, **α-(1-chloro-2-naphthoxy)-**, 3813*h*.
——, **α-chloro-*m*-nitro-**, 1023*i*.
——, **2-chloro-4-nitro-**, deacylation of, 5755*c*.
——, **2-chloro-6-nitro-**, deacylation of, 5755*e*.
——, **3-chloro-2-nitro-**, deacylation of, 5755*e*.
——, **3-chloro-4-nitro-**, 5755*g*.
deacylation of, 2186*h*.
——, **4(and 5)-chloro-2-nitro-**, deacylation of, 5755*c*.
——, **4-chloro-2-(*p*-nitrophenyl)-**, 7445*f*.
——, **2-(2-chloro-4-nitrophenylmercapto)-5-nitro-**, 600*h*.
——, ***p*-(4-chloro-3-nitrophenylsulfonamido)-**, P 5042*g*.
——, ***o*-(chlorophenylarsino)-**, 3382*i*.
——, ***p*-(*m*-chlorophenylsulfamyl)-**, 4649*b*.
——, ***p*-(4-chloro-2-pyrimidylsulfamyl)-**, P 7964*c*.
——, ***p*-[(6-chloro-5-quinolyl)guanylguanidino]-**, and acetate, 2314*a*.
——, ***p*-[5(or 8)-chloro-2-quinoxalylsulfamyl]-**, 3384*d*.
——, ***p*-[6(or 7)-chloro-2-quinoxalylsulfamyl]-**, 174*h*, 3384*d*.
——, ***p*-(chlorosulfamyl)-**, 7450*g*.
——, **α-chloro-*p*-sulfamyl-**, 1347*h*.
——, **2-chloro-4-sulfamyl-**, 175*g*.
——, **α-chloro-*p*-2-thiazolylsulfamyl-**, 1347*h*.
——, ***p*-(6-chloro-α,α,α-trifluoro-*m*-tolylsulfamyl)-**, 4649*a*.
——, **o-cyano-**, 9068*f*.
——, **α-cyano-**, reaction with *p*-dialkylaminobenzaldehydes, P 6428*a*.
——, ***p*-cyanoamino-**, 5014*b*.
——, ***p*-(*p*-cyanophenylsulfamyl)-**, 4649*b*.
——, ***p*-(cyanosulfamyl)-**, derivs., P 4298*a*.
——, ***p*-[(cyclohexylguanyl)sulfamyl]-**, P 1060*h*.
——, **3-cyclohexyl-4-hydroxy-**, acetate, 1372*b*.
——, **α-(cyclohexyloxy)-*p*-sulfamyl-**, 1028*c*.
——, ***p*-(cyclohexylsulfamyl)-**, P 1060*h*.
——, **3,3′-cyclopropylidenedi-(?)**, 9042*g*.
——, **2,6-diacetyl-**, 1780*a*.
——, ***p*-(2,4-diamino-6-hydroxy-5-pyrimidylsulfamyl)-**, 652*e*.
——, ***m*(and *p*)-(4,6-diamino-*s*-triazin-2-yl)-**, 2384*d*.
——, **α,α-dibromo-**, 6975*i*.
——, **3,5-dibromo-α-mercapto-**, 1347*h*.
——, **α-(1,6-dibromo-2-naphthoxy)-**, 3813*h*.
——, ***p*-(3,5-dibromophenylsulfamyl)-**, 4648*f*.
——, ***p*-(3,5-dicarbamylphenylsulfamyl)-†**, 4648*h*.
——, **α,α-dichloro-**, fungus-inhibiting properties of, 5081*h*.
——, **2,5-dichloro-**, 3729*d*.
——, **2,5-dichloro-4-iodo-**, 3729*c*.
——, **α,4-dichloro-2-nitro-**, 2992*g*.
——, **2,5-dichloro-4-nitro-**, 3729*d*.
——, **3,5-dichloro-2-nitro-**, deacylation of, 5755*e*.
——, **3,5-dichloro-4-nitro-**, deacylation of, 2186*h*.
——, ***p*-(3,4-dichlorophenylsulfamyl)-**, 4649*b*.
——, ***p*-(3,5-dichlorophenylsulfamyl)-**, 4648*h*.
——, ***p*-(3,5-dichlorophenylsulfamyl)-α-phenyl-**, 4648*h*.
——, ***p*-(4,6-dichloro-2-pyrimidylsulfamyl)-**, P 7964*h*.
——, **2,6-dichloro-4-sulfamyl-**, 601*f*.
——, ***p*-[4-(3,4-diethoxyphenyl)-2-thiazolylsulfamyl]-**, 2968*g*.
——, **α-diethylamino-*m*(and *o*)-iodo-**, 1022*b*.
——, **α-diethylamino-*p*-iodo-**, and salts, 1022*b*.
——, **α-diethylamino-*N*-methyl-**, 1022*b*.
——, **α-diethylamino-*m*(*o* and *p*)-nitro-**, and hydrochloride, 1024*b*.
——, **α-diethylamino-3,4,5-trimethoxy-**, hydrochloride, 1023*b*.
——, **α-diethylamino-2,4,5-trimethyl-**, 1022*i*.
——, ***p*-[(*N*,*N*-diethylguanyl)sulfamyl]-**, P 1060*h*, P 4298*c*.
——, ***p*-[(1,6-dihydro-1,3-dimethyl-6-oxo-4-pyridazyl)sulfamyl]-**, 3007*c*.
——, **p - (3,6 - dihydroxycarvacrylsulfonyl)-**, 2593*f*.
——, ***p*-[(α,γ-dihydroxy-β,β-dimethylbutyryl)sulfamyl]-**, diacetate, P 4817*f*.
——, ***p*-(2,3-dihydroxyisobutoxy)-**, P 5421*c*.
effect on nervous system, 312*b*.
——, ***p*-(2,5-dihydroxyphenylsulfonyl)-**, 2593*f*.
——, ***o*(and *p*)-(2,3-dihydroxypropoxy)-**, effect on nervous system, 311*h*.
——, ***p*-(2,3-dihydroxypropoxy)-**, surface tension of aq. soln. of, 5655*e*.
——, ***p*-(4,6-dihydroxy-2-pyrimidylsulfamyl)-**, P 7964*h*.
——, ***p*-(3,5-diiodophenylsulfamyl)-**, 4648*h*.
——, ***p*-(2,4-dimethoxyphenylsulfamyl)-**, 4649*a*.
——, ***p*-(3,5-dimethoxyphenylsulfamyl)-**, 4648*h*.
——, ***p*-[4-(3,4-dimethoxyphenyl)-2-thiazolylsulfamyl]-**, 2968*d*.
——, ***p*-dimethylamino-**, compds. with 1-methylquinolinium *p*-toluenesulfonate and 1-methylpyridinium *p*-toluenesulfonate, light absorption by, 409*a*.
——, **4-dimethylamino-2-nitro-**, deacylation of, 5755*b*.
——, ***p*-(5-dimethylamino-3-pyridylsulfamyl)-**, 1738*e*.
——, ***p*-(α,β-dimethylcrotonylsulfamyl)-**, P 7962*b*.
——, **3,4-(dimethylmethylenedioxy)-**, 1413*g*.
——, **4,5-(dimethylmethylenedioxy)-2-nitro-**, 1413*g*.
——, **o-(2,4-dimethyl-1-naphthyl)-**, 3401*g*.
——, ***p*-[(4,6-dimethyl-2-pyrimidylmethyl)sulfamyl]-**, P 3473*d*.
——, ***p*-(4,6-dimethyl-2-pyrimidylsulfamyl)-**, P 7963*h*, P 7964*g*.
calcium and K derivs., P 7043*cd*.
——, ***p*-(5,6-dimethyl-2-quinoxalylsulfamyl)-**, 174*h*.
——, ***p*-(2,4-dimethyl-5-thiazolylsulfamyl)-**, 6180*i*.
——, ***p*-(4,5-dimethyl-2-thiazolylsulfamyl)-**, P 3459*b*, P 3979*f*.
——, ***p*-(4,5-dimethyl-2-thiazolylsulfonyl)-**, 6181*c*.
——, **2,3(and 2,6)-dinitro-**, deacylation of, 5755*e*.
——, **2,4-dinitro-**, reaction with acetone in the presence of alkali, 6175*b*.
——, **2,4(and 2,5)-dinitro-**, deacylation of, 5755*c*.
——, ***p*-(3,5-dinitrophenylsulfamyl)-**, 4648*h*.
——, **2,6-dinitro-4-styryl-**, 592*g*.
——, ***p*-(2,2-diphenylvinyl)-**, 199*h*.
——, ***o*,*o*′-dithiobis-**, 2180*f*.
——, ***p*,*p*′-dithiobis-**, 3802*h*.
——, **4,4′-dithiobis[3-amino-**, 5776*d*.
——, **5,5′-dithiobis[4-amino-2-chloro-**, 5776*c*.
——, **4,4′-dithiobis[3-nitro-**, 5776*d*.
——, ***ar*-ethoxy-**. See *Acelophenetidide*.
——, ***p*-ethoxy-**. See *Phenacetin*.
——, ***N*-ethyl-3,4-dimethoxy-**, 2177*f*.
——, ***p*,*p*′-ethylenebis[*N*-butyl-**, 3381*a*.
——, ***p*,*p*′ - (ethylenedisulfonyl)bis-**, 6180*a*.
——, ***N*-ethyl-*p*-nitro-**, as coccidiostatic agent, P 7593*a*.
——, ***p*-(4-ethyl-2-pyrimidylsulfamyl)-**, P 7965*b*.
——, ***p*-(4-ethyl-2-thiazolylsulfamyl)-**, P 3979*f*.
——, ***p*-(5-ethyl-2-thiazolylsulfonyl)-**, 6181*e*.
——, ***p*-[2-(2-fluorenyl)vinyl]-**, 7468*f*.
——, **2-fluoro-4-nitro-**, deacylation of, 5755*c*.
——, **2-fluoro-6-nitro-**, deacylation of, 5755*e*.
——, **2-fluoro-4-sulfamyl-**, effect on yeast fermentation and phosphatases, 6253*f*.
pharmacology of, 5863*g*.
——, ***m*-formyl-**, α-acyl derivs., acetals, P 4299*e*.
α acyl derivs., acetals of, azomethine dyes from, P 8161*h*.
——, ***p*-formyl-**, thiosemicarbazone, in tuberculosis therapy, 7576*h*, 8534*d*.
——, **α - formyl - 4 - hydroxy - 2,3,5-trimethyl-**, 180*d*.
——, ***p*-[2-(2-furyl)vinyl]-**, 3428*c*.
——, ***p*-(guanylsulfamyl)-**, P 1060*h*, P 4298*b*, P 7965*d*.
reaction with $CH{:}CCH(OEt)_2$, P 2637*h*.
——, ***p*-(heptylsulfonyl)-**, 2593*e*.
——, ***p*-(α,α,α,α′,α′,α′-hexafluoro-3,5-xylylsulfamyl)-**, 4648*g*.
——, **hexahydro-**. See *Acetamide, N-cyclohexyl-*.
——, **o-hydroxy-**, polyazo dyes from, P 3204*i*, P 4482*g*, P 4807*cde*, P 5196*i*.
——, ***p*-hydroxy-**, detn. in biol. fluids and tissues, 263*g*.
effect on pain threshold, 314*e*.
sulfate (ester), 173*h*.
——, **α-hydroxy-**. See *Glycolanilide*.
——, ***N*-4-hydroxy-2-butenyl-**, acetate, 650*e*.
——, ***p*-(2-hydroxyethylsulfonyl)-**, 2593*f*.
——, **2-hydroxy-5-(1-hydroxy-2-methylaminoethyl)-**, hydrobromide, P 7967*d*.
——, **2-hydroxy-5-(2-hydroxy-5-nitrophenylazo)-**, tetrakisazo dye from, P 4807*d*.
——, **2-hydroxy-5-*N*-methylglycyl-**, P 7967*d*.
——, ***p*-(4-hydroxy-6-methyl-2-pyrimidylsulfamyl)-**, P 7964*e*.
——, ***p*-(4-hydroxy-2-methyl-6-quinolylsulfamyl)-**, P 7973*h*.
——, ***p*-(2-hydroxy-4-methyl-5-thiazolyl sulfamyl)-**, 6180*h*.
——, ***o*-(*p*-hydroxyphenyl)-**, ethyl carbonate, P 2647*d*.
——, ***p*-(4-hydroxy-2-pyrimidylsulfamyl)-**, P 7964*b*.
——, **4-hydroxy-2,3,5,6-tetramethyl-**, 180*g*.
——, ***p*-(3-hydroxy-2-thianaphthenylazo)-**, 6204*h*.
——, ***p*-(4-hydroxy-2-thiazolylsulfamyl)-**, P 686*f*, P 3852*b*.
——, **4-hydroxy-2,3,5-trimethyl-**, 180*d*.
——, ***p*,*p*′-[(iminomethylene)diimino]-bis-**, and dihydrochloride, 5014*b*.
——, ***p*-(5-indazolylsulfamyl)-**, P 7966*a*.
——, ***p*-(*p*-iodophenylsulfamyl)-**, P 685*i*, 4649*b*.
——, **2-iodo-4-sulfamyl-**, 175*i*.
——, ***p*-(isoamylsulfonyl)-**, 2593*e*.
——, ***p*-mercapto-**, dimercaptol with dehydrocholic acid, 7033*i*.
——, **α-mercapto-**, gold deriv., P 1913*i*.
——, ***p*-(2-mercapto-5-benzothiazolylsulfonamido)-**, P 5042*h*.
——, ***p*-(2-mercaptoethylsulfamyl)-**, 3015*b*.
——, **α-mercapto-*p*-sulfamyl-**, and gold deriv., 1347*h*.
——, **α-mercapto-*p*-2-thiazolylsulfamyl-**, and gold deriv., 1347*h*.
——, ***ar*-methoxy-**. See *Acetanisitidide*.

, *p*-(*m*-methoxyphenylsulfamyl)-, 4649*b*.
, *p*-[6(or 7)-methoxy-2-quinoxalylsulfamyl]-, 3384*d*.
, *ar*-methyl-. See *Acetotoluidide*.
, *N*-methyl-, reduction of, 1312*f*.
, *p*-(6-methyl-2-benzothiazolyl)-, spectrum of, 3292*h*.
, *p,p'* - methylenebis[*N* - benzyl-
——, 3,4-methylenedioxy-, 1413*d*.
——, *p*-(methylguanylsulfamyl)-, P 1060*h*, P 4298*c*.
——, *N*-methyl-*p*-nitro-, deacylation of, 5755*c*.
*p*-(5-methyl-4-phenyl-2-thiazolylsulfamyl)-, 2968*b*.
, *p* - (6 - methyl - 2 - pyridazylsulfamyl)-, 3007*h*.
, *p*-(6-methyl-2-pyridylsulfamyl)-, calcium deriv., P 3458*c*.
*p*-(4-methyl-2-pyrimidylsulfamyl)-, P 7964*f*.
*p*-[2(or 3)-methyl-6-quinoxalylsulfamyl]-, 3385*c*.
*p*-(3-methyl-2-quinoxalylsulfamyl)-, 174*i*.
*p*-[5(or 8)-methyl-2-quinoxalylsulfamyl]-, 3384*d*.
——, *p*-[6(or 7)-methyl-2-quinoxalylsulfamyl]-, 3384*d*.
——, *p*-(7-methyl-5-quinoxalylsulfamyl)-, 3385*c*.
——, *p*-[7(and 8)-methyl-6-quinoxalylsulfamyl]-, 3385*c*.
——, *p*-[2-(4-methyl-2-thiazolyl)ethylsulfamyl]-, 6181*b*.
——, *o*-4-morpholinylcarbonyl-, 3424*f*.
——, *m*(*o* and *p*)-nitro-, deacylation of, 2186*d*.
——, *o*(and *p*)-nitro-, and derivs., deacylation of, 5755*a*.
——, *p*-nitro-, as coccidiostatic agent, P 7593*a*.
)-, 2593*f*.
*p*-[(*p*-nitrophenylmercapto)sulfamyl]-, P 8400*e*.
——, *p*-(5-nitro-2-pyridylsulfonyl)-, P 1803*i*.
——, *p*-(5-nitro-6-quinolylmercapto)-, 8389*c*.
——, *p*-(5-nitro-6-quinolylsulfonyl)-, 8389*c*.
——, *p*-[6(or 7)-nitro-2-quinoxalylsulfamyl]-, 3384*d*.
——, *p*-(2-nitro-4-sulfamylanilino)-, P 8143*g*.
——, *p*-(5-nitro-2-thiazolylsulfonyl)-, 6181*f*.
——, *p*-(2-oxo-1,2*H*-benzopyran-3-ylsulfamyl)-, 2179*e*.
——, *p*-(4-oxo-2-imidazolidylidenesulfamyl)-, P 6234*e*.
——, *p*-(2-oxo-6-sulfamyl-1,2*H*-benzopyran-3-ylsulfamyl)-, 2179*h*.
——, *N*-phenyl-. See *Acetamide, N, N-diphenyl-*.
——, *p*-phenylazo-, tetrakisazo dye from, P 4477*i*.
——, *p,p'*-[*p*-phenylenebis(iminosulfonyl)]bis-, antimalarial activity of, 5860*g*.
——, *o*-phthalimidoacetyl-, and nitro deriv., 653*f*.
——, *p*-(phthalimidosulfonyl)-, 2597*f*.
——, *p*-(picrylsulfonyl)-, 2593*e*.
——, *α*-1-piperidyl-. See *1-Piperidi acetanilide*.
——, *o*-1-piperidylcarbonyl-, 3424*f*.
——, *p*-(*β*-1-piperidylpropionyl)-, hydrochloride, 9070*c*.
——, *p*-(propylsulfonyl)-, 2593*d*.
——, *p*-(*as*-pseudocumylsulfamyl)-, 4649*a*.
——, *p*-(2-pyridazylsulfamyl)-, 3007*e*.
——, *p*-(2-pyridylaminomercapto)-, P 8400*c*.
——, *p*-(3-pyridylcarbonylamino)-†, 5025*e*.
——, *p*-(2-pyridylguanylsulfamyl)-, P 1060*h*.
——, *p*-(2-pyridylsulfamyl)-, P 1060*h*.
aluminum, Mg and Na derivs., P 5042*c*.
calcium deriv., P 3458*b*.
——, *p*-(3-pyridylsulfamyl)-, 1738*c*.
——, *p*-(4-pyridylsulfamyl)-, P 364*i*.
——, *p*-[*p*-(2-pyridylsulfamyl)phenylsulfamyl]-, 1738*h*.
——, *p*-[*p*-(3-pyridylsulfamyl)phenylsulfamyl]-, 1738*f*.
——, 4-(2-pyridylsulfonyl)-2-sulfamyl P 796
——, *m*-(2-pyrimidylsulfamyl)-, P 7516*i*.
——, *p*-(2-pyrimidylsulfamyl)-, P 2637*h*, P 3035*a*, P 7964*cdi*.
calcium deriv., P 7043*de*.
——, *p*-[2(and 4)-quinazolylsulfamyl]-, P 7042*h*.
——, *p*-[5(and 6)-quinoxalylsulfamyl]-, 174*i*, 3385*c*.
——, *p*-(senecioylsulfamyl)-, P 7960*i*.
——, *p*-(succinimidosulfonyl)-, 2597*e*.
——, *p*-sulfamyl-, aluminum, Mg and Na derivs., P 5042*c*.
derivs., 7642*f*.
halogenation of, 175*b*.
potassium deriv., reaction with diacid derivs., 2597*e*.
reaction with alk. Cl soins., 7450*g*.
——, *p*-(6-sulfamyl-2-benzothiazolylsulfamyl)-, 6180*e*.
——, *p,p'*-sulfonylbis-, P 7960*f*.
——, *p*-(4,5,6,7-tetrahydro-2-benzothiazolylsulfamyl)-, P 3852*f*.
——, *p*-[4,5,6,7-tetrahydro-5(or 6)-methyl - 2 - benzothiazolylsulfamyl]-, P 3852*g*.
——, 2,3,5,6-tetramethyl-, 1619*e*.
——, 2,3,5,6-tetramethyl-4-sulfamyl-, 1619*e*.
——, *p,p'*-(2-thiazolyliminodisulfonyl)bis-, P 3457*h*, P 3978*f*.
——, *p*-2-thiazolylsulfamyl-, P 3978*f*.
——, thio-, as catalyst in isomerization of maleic acid, P 1798*e*.
——, *p,p'*-thiobis-, 3802*h*.
——, *p*-(*m*-tolylsulfamyl)-, 4649*b*.
——, *p*-(1,2,3,2*H*-triazol-2-yl)-, 2619*i*.
——, *p* - (*p* - 1,2,3,2*H* - triazol - 2 - ylphenylsulfamyl)-, 2620*a*.
——, *p*-(3,4,5-tribromophenylsulfamyl)-, 4649*a*.
——, *α,α,α*-trichloro-, fungus inhibiting properties of, 5081*h*.
——, 2,4,5-trichloro-, 3729*g*.
——, *p,p'* - (2,2,2 - trichloroethylidene)bis-, 1752*h*.
——, *p,p'*-(2,2,2-trichloroethylidene)bis[*α,α,α*-trichloro-, and compd. with benzene, 6605*c*.
——, *p* - (2,2,2 - trichloro - 1 - hydroxyethyl)-, 1367*g*.
——, *α*-[2,4,5(and 2,4,6)-trichlorophenoxy]-, 2973*f*.
——, *p*-(2,4,5-trichlorophenylsulfamyl)-, 4649*b*.
——, *p*-(3,4,5-trichlorophenylsulfamyl)-, 4649*a*.
——, 2,4,6-trimethyl-. See *Acetomesidide*.
——, *p,p'* - (trimethylenedioxy)bis-, 3381*b*.
——, *p*-ureidosulfonyl-. See *Urea*, (*N-acetylsulfanilyl*)-.
——, *N,N'-p*-xylylenebis[*p*-*N*-benzylacetamido-, 5380*e*.
——, *p*-(*p*-2,5-xylyloxyphenylsulfamyl)-, 4649*b*.
——, *p*-(2,5-xylylsulfamyl)-, 4648*h*.


**Acetanisidide,**





*m*-**Acetanisidide**, prepn. of, 2618*h*.
——, 6-amino-, 2618*i*.
——, 4(and 6)-nitro-, 2618*h*.
*o*-**Acetanisidide**, *α*-(4-biphenylylcarbonyl)-5-methyl-, anthraquinone azo dye from, P 7703*i*.
——, 5-chloroacetyl-, 7452*d*.
——, 5-chloro-4-nitro-, P 3034*b*.
——, 5,5'-dithiobis[4-amino-, 5776*b*.
——, 4-nitro-, P 3034*b*.
——, *N*-phenacyl-, 2210*c*.
——, 5-(trifluoromethyl)-(?), 7918*d*.
*p*-**Acetanisidide**, 3-amino-, disazo dye from 5-amino-3-sulfosalicylic acid, $COCl_2$ and, P 8156*i*.
——, 2-[bis(2-hydroxyethyl)amino]-, monooxalate (acid ester), P 2634*h*.
——, 3-(2,3-dihydroxypropylamino)-, disazo dye from, P 859*e*.
——, 3-nitro-, P 3034*b*.
deacylation of, 5755*b*.
——, 2,3,5,6-tetramethyl-, 180*g*.
——, 2-(trifluoromethyl)-, 7918*d*.
——, 2,3,5(and 2,3,6)-trimethyl-, 180*e*.
**Acetarsone** (*N-acetyl-4-hydroxy-m-arsanilic acid, stovarsol*). (For derivs. see also the inverted entries following *m-Arsanilic acid*.)
in amebiasis treatment, 3066*g*.
detection of, 521*i*.
4-hydroxy-*m*-arsanilic acid detn. in, 4810*g*.
sodium salt, effect of irradiated, on staphylococci, 1460*b*.
**Acetates.** (See also *Alkali metal acetates*.)
acetoacetic acid formation from, in liver exts., 1810*i*.
acetone formation from, 6015*b*.
acetyl phosphate production from adenosinetriphosphate and, in *Escherichia coli*, 1829*i*.
amino acid formation from, 8027*f*.
as bases in $Ac_2O$, 2110*g*.
carbon dioxide (radioactive) excretion after administration of isotopic, 3097*i*.
as catalysts in bromination of Et cyclopentanone-2-carboxylate, 3698*e*.
cholesterol synthesis from, by adrenal cortical tissue *in vitro*, 2245*c*.
condensation with oxalacetate by enzymes, citric acid synthesis by, 6680*e*.
consumption by cornea, and effect of compds. thereon, 770*a*.
detn. in cellulose acetobutyrates, 1289*e*
detn. in electroplating baths, 961*h*.
effect on acid metabolism in tobacco, 9177*d*.
on autodisplacement of Pb, 2846*a*.
on gelling and viscosity of soins of gelatin, 4540*f*.
on heart metabolism, 9267*i*.
on isoelec. point of aldolase, 4311*a*.
on respiration of aorta, 7114*f*.
on rubber formation in guayule, 9177*a*
on setting time of Ca tartrate gels, 6889*b*.
exchange on Amberlite IRA-400, 6489*e*
as fat precursor in ruminant milk, 4358*e*
formation in brain-tissue suspensions, 8416*i*.
in lipide synthesis in liver, 5481*a*.
metabolism of isotopic, in liver, 3906*b*
mobility of ion of, 8808*c*.
in pharmacy, 3565*d*.
radioactive, incorporation into liver, 5099*h*, 9089*i*.
reaction with ferric ion, 8935*b*.
reaction with thiosulfates, rate of, 1632*i*
solvolysis in abs. HNO3, 6495*h*.
stabilization of, P 7606*e*.
succinate recovery from urine after administration of isotopic, 5841*f*.
uranyl complexes, 8270*d*.
utilization by heart, 8513*b*, 9210*h*.
utilization by heart and diaphragm in diabetes, 8513*d*.
veronal buffer, effect on pyrophosphatase of erythrocytes, 9019*f*.
**Acetic acid.** (*Acetates of inorganic bases have their own headings, as* Sodium acetate. *The same is true for* Ethyl acetate; *other simple esters* (*amyl, butyl, methyl, vinyl, etc.*) *are indexed here, and the rest as derivatives under the names of the corresponding hydroxy compounds. Acetates of organic bases are entered under the names of the bases.*)
absorption by fuller's earth, 9395*f*.
acetic anhydride detection in glacial, 6947*b*.
acetoacetic acid conversion to, by *Clostridium acetobutylicum* and *C. butyricum*, 6700*d*.
acidimetric properties of, 3269*i*.
adsorption and desorption by charcoal, 3680*i*.
adsorption of, by activated charcoals, 2485*d*.
by carbons (active) from phenol aldehyde resins, 6037*c*.
from liquid hydrocarbon phase of gas condensate wells by silica gel, 1951*i*.
in alc. from sugar beets, 3141*e*.
(1-alkoxyethyl) esters, 6576*e*.
alkyl esters, effect on nitrocellulose, 6061*b*.
alkylmercapto and alkylsulfinyl derivs., as anticorrosion additives for turbine oils, P 8131*a*.
allyl and vinyl esters, inhibition of polymerization by quinones, 5740*g*.
allyl ester, polymerization of, P 8742*d*.
allyl ester, toxicity of, 4401*f*.
allylidene ester—see "diacetate" under *2-Propene-1,1-diol*.
amyl ester—see also *Pentacetate*.
amyl ester, as azeotrope former in concn. of aq. soins. of HCHO, P 2221*d*.
detn. in air, 7377*i*.
dilatational viscosity of, 5249*g*, 8780*a*.
formation from $CrO_3$ oxidation of AmMeCHOH, 2926*a*.
galvanophoresis with, P 4963*f*.

*amyl ester*, heat of wetting of activated charcoal by, 8835*f*.
lubricant contg. silicones and, P 5188*a*.
as solvent in Fe-alloy analysis, 2541*d*.
anhydrides with $PhSO_2H$, behavior in $Ac_2O$, 2110*f*.
with $EtOCO_2H$, 6980*a*.
with orthosilicic acid, 2110*e*.
with penicillin, 1406*b*.
with $H_3PO_4$, and its dibenzyl ester, hydrolysis of, 8351*c*.
with $H_3PO_4$, formation by *Escherichia coli*, 1829*i*.
with silicic acids, 4631*f*.
with $H_2SO_4$ ($Ac_2SO_4$), as electrolyte in liquid $SO_2$, 8936*a*.
with *N*-thiolcarboxyglycine *S*-benzoyl ester, 1398*g*.
aryl derivs., esters, 1385*b*.
aryl esters, 9049*e*.
aryloxy derivs., P 4299*h*.
aryloxy derivs., for weed control, P 6778*c*.
assocn. of, 5246*e*.
azeotropes with tertiary amines in sepn. of 2,4-pentadienenitrile, P 2220*h*.
bactericidal action of, in meat preservation, 7602*c*.
benzyl ester, in com. prepn. of strawberry oil, 6789*g*.
interesterification of, in perfumery, 8179*e*.
surface tension of aq., 8797*f*.
(biarylenedioxy)di-, 5017*i*.
butyl and Me esters, ultrasonic velocity in, 1620*d*.
butyl and Pr esters, thermochors of, 8226*e*.
butyl ester, absorption by polystyrene films, 437*c*.
cellulose nitrate solvation in, 3266*d*.
Fe oxide pigment powder wetting by, 8697*i*.
from reaction of AcOH with 1-(butoxymethyl)quinolinium chloride, 6162*c*.
sorption by $Fe_2O_3$, 1240*e*.
toxicology of, 7140*c*.
*sec*-butyl ester, standard for, 4786*f*.
calcium gluconate detn. in, 3317*c*.
capillary osmosis of, 7765*g*.
[(*o* - carboxybenzylidene)(*o* - chlorophenyl)hydrazide]†, 237*c*.
catalysis (of halogenation) by electrolytes in, 7408*f*.
as catalyst in condensation of coconut fatty acid anilide with *N*-methylol chloroacetamide Na sulfonate, P 886*b*.
as catalyst in hydrolysis of lactams, P 2225*b*.
chlorination of, P 6650*h*.
chloro derivs., reduction of, 5765*a*.
chromatography of, 8911*e*.
cobalt salt, effect on aging and drying time of inks, 7717*c*.
cocatalyst and compd. with $BF_3$, in polymerization of 2-methylpropene, 8829*h*.
compds. (mol.) of, 7409*ac*.
compds. with 6-(aminomethyl)dehydroabietic acid, P 6665*i*.
with 2-aminopyridine 1-oxide, 8386*e*.
with 3-benzoyl-3-bromo-1,5-diphenyl-2,4-pentanedione, 7909*i*.
with biguanide derivs., P 6059*cg*, 9039*g*.
with $BF_3$, as catalyst in acylation of furan and thiophene, 6204*a*.
with $BF_3$, as catalyst in alkylation of 2-methylbutane with propene, 1711*g*.
with 6-bromo-1 *H*-imidazo[*b*]pyridin-2-ol, 1425*h*.
with 5-α-chloroacetamido-2,3-dihydro-1,4-phthalazinedione, 7488*d*.
with Cr sulfate, spectrum of, 8883*c*.
with 8,9-dihydro-2,3-diphenyl-7 *H*-cyclopenta[*b*]pyrazino[*d*]pyridin-5-ol, 9068*i*.
with limonin, optical properties and structure of, 7773*f*.
with [*p*-methoxy-α-(2-oxocyclohexyl)-benzyl]malonic acid, 3418*h*.
with α-methylmercapto-*p*-toluamidine, 1739*e*.
concn. of, P 3026*c*, P 5035*d*.
control of bacteria and molds with, in immersion freezing, 4391*e*.
copper complex, stability of, 4971*a*.
copper corrosion by, 6141*g*.
corrosion by, 5721*c*.
cyanomethyl ester—see "acetate" under *Glycolonitrile*.
cyclohexyl and cyclopentyl esters, phys. constants of, 2955*h*.
decahydronaphthalene peroxide ester rearrangement in, 6188*i*.
derivs., as antispasmodic agents, 568*b*.
derivs., dialkylaminoalkyl esters, 3391*i*.
detection of, 5342*b*.
detn. of, 4807*i*, 4976*e*, 8975*a*.
in culture media, 7545*c*.
in drugs, 7639*b*.
in mixts. of fatty acids, 8976*i*, 8977*a*.
dimethyl acetylenedicarboxylate addn. to HBr in, 8824*g*.
distn. from wood, furnace for, P 7214*f*.
distn. of, vapor-pressure curves for, 4914*h*.
distn. *vs.* extn. from natural products, 4521*i*.
disubstituted derivs., (1-pyrrolidyl)alkyl esters, 1387*i*.
effect on $AlCl_3$, 2930*i*.
on attractiveness of pine logs to pine engraver, 1145*d*.
on diffusion of strong electrolytes, 8773*g*.
on nitration of Me 2-oxo-7-methoxy-4-methyl - 1,2 *H* - benzopyran - 6-carboxylate, 1045*c*.
on proteins of blood serum, 6261*h*.
on stability of supersatd. solns. of $KNO_3$, 8805*h*.
on stainless steel cooking utensils, 2707*a*.
elec. cond. of aq., and its hydrates, 6900*f*.
erythrocyte penetration and hemolysis by, 8502*b*.
ester (di-), with hydroquinone, 1741*h*.
esterification with EtOH in vapor phase over $NaHSO_4$, 7799*i*.
esters, 5367*d*, 7435*a*, P 7951*f*.
ammonolysis in $HOCH_2CH_2OH$, rates of, 6495*f*.
with enols, P 3838*h*, P 3839*a*, P 7505*d*, P 7953*h*.
with enols, isomerization of, P 7954*a*.
with enols, prepn. of, from ketene and carbonyl compds., 5366*g*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
with hydracrylic acid and its Et ester, P 1053*e*.
with hydroxy acids, P 676*g*.
with lactic acid esters, P 676*d*.
lyoparachors of, 2834*b*.
with methylenediphenols, P 4698*efg*.
phys. consts. of, 2590*d*, 2591*f*.
polymerization with methylenemalononitrile, etc., P 4897*c*.
pyrolysis of, P 6643*f*.
solubilization with Na secondary alkyl sulfates, 466*a*.
surface tension of, 8779*g*.
and esters, ionization in $H_2SO_4$, 8808*f*.
parachors and thermochors of, 2923*f*.
spectra of, 1656*c*.
ethylene ester—see "diacetate" under *Ethylene glycol*.
ethyl ester—see *Ethyl acetate*.
ethylidene ester—see "diacetate" under *1,1-Ethanediol*.
*p*-ethylphenyl ester, oxidation of, P 3461*g*.
in fermentation of lactate by *Clostridium lacto-acetophilum*, 2276*g*.
formation of, from AcH, 4633*e*.
in acetyl peroxide decompn., 3775*h*, 3776*b*.
by *Clostridium acidi urici*, 9146*i*.
from 2,4-diketovaleric acid by liver and kidney exts., 705*g*.
from EtOH, 8252*f*.
by EtOH oxidation with Br, 7800*g*.
from glycine, α-C atom in, 5482*h*.
by *Polyporus anceps*, 5094*b*.
in pyrolysis of 2-octanol nitrite, 3779*b*.
in pyruvic acid fermentation, effect of environment on, 9358*g*.
by tartrate fermenting *Clostridium*, 274*a*.
in thermal decompn. of wood, 6809*i*.
by thermophilic cellulose-fermenting bacteria, 720*d*, 721*d*.
from tyrosine, 1746*a*.
in gas liquor from wood-fed gas generators, 5925*h*.
glass attack by, 2385*cf*, 2386*d*.
γ-glycol esters, elec. moments of, 11*d*.
heat of wetting of activated charcoal by, 8835*f*.
hydrazide, and ionization const. of, 5741*b*.
hydrazides, 3389*f*, 4248*a*.
hydrazide with 3-hydrazinophthalimide, 7488*g*.
hydrogen-electrode potential in, 8907*i*.
2-hydroxyethyl ester, P 674*a*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
impurities in glacial, 6364*b*.
ion-exchanger testing with, 9296*f*.
ionization of, 6053*c*.
iron passivation against, 8246*d*.
iron potential in aerated, 6520*b*.
isoamyl ester, mixts. with acetone, dielec. polarization in, 454*b*.
isopropenyl ester—see "acetate" under *1-Propen-2-ol*.
ketene from, P 5413*d*.
labeled with $C^{14}$, from labeled D-glucose, 3969*f*.
lactic and pyruvic acid formation from $CO_2$ and, by *Escherichia coli*, 8443*f*.
L-leucine behavior in, 3360*h*.
loss of Na salt and, during baking and air drying of bread, 9278*b*.
in lubricant deterioration and deposit formation in engines, 4454*d*.
manuf. of, P 669*e*.
from AcH, P 2632*e*.
from carbonaceous material, P 3176*b*.
by fermentation, P 4810*c*, P 6781*f*.
by fluidized-wood distn., 1950*b*.
from natural gas, 3993*e*.
from peat, 9414*a*.
manuf. of, and its Me ester, P 3618*b*, P 6650*g*.
methylene ester, thermal decompn. of, 3697*c*.
methyl ester, ammonolysis of, effect of solvents on, 6495*d*.
analysis of mixts. with acetone or MeOH, 6946*b*.
as azeotrope former for naphthenes, P 3670*d*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
effect on adhesive power of soybean protein, 1604*e*.
formation in acetyl peroxide decompn., 3776*b*.
kinetics of hydrolysis of, 6064*i*.
manuf. of, P 3443*c*, P 5035*f*.
microwave absorption in solns. of, 6019*g*.
system: MeOH-$H_2O$-, 8835*a*.
mixts. with $Me_2CO$, EtOH or MeOH, rheochors of, 2058*a*.
with EtOH, soybean treatment with, 1604*c*.
with $HNO_3$ and $N_2O_5$, spectra of, 8273*g*.
with org. vapors, adsorption by active carbons, 16*g*.
with $HClO_4$, butterfat detn. in ice cream with, 780*e*.
with tannin and $H_2O$, surface tension and viscosity of, 4539*d*.
monohalogenated, effect on neuromuscular prepns., 3506*f*.
monohalogenated esters of, effect on metabolism of yeast, 3488*a*.
in moving-boundary systems, 8808*c*.
2-(1-naphthyl)hydrazide, 1346*d*.
5-nitrofurfurylidenehydrazide, in dental caries inhibition, 6735*g*.
*o*-nitrophenyl ester, spectrum of, 4574*h*.
in oat-smut control, 1137*g*.
osmosis of mixts. with alcs., 7300*g*.
oxalic acid formation from, by *Aspergillus niger*, 6701*f*.
parachor in aq., 8805*a*.
penicillin G inactivation by, effect of NaCl on rate of, 3697*g*.
pentaerythritol ester, optical crystallographic data for, 6105*e*.
in pharmacy, 3565*d*.
phenethyl ester, in Japanese-beetle baits, 5898*f*.
phenyl ester, 2588*i*.
cholinesterase action on, 9122*b*.
Fries rearrangements of, 7924*c*.
spectrum of, 4574*g*.
phenylhydrazide, effect on *Plasmodium knowlesi* infection, 5118*b*.
as insecticide, 5526*a*.
toxicity to corn borer, 7182*h*.
phenylmercuric salt—see "phenyl— acetate" under *Mercury compounds*.
for photographic use, specifications for, phys. constants of, 2956*b*.
piperidide—see *Piperidine, 1-acetyl-*.
poisoning by, liver changes in, and their significance for temporal measurement of liver regeneration and cirrhotic scar formation, 5497*i*.
polarography in anhyd., 2874*a*.
polymer compatibility in, 6862*d*.

as polymerization inhibitor and initiator in isoprene, 5621*f*.
in pyrethrum extracts as irritant, 8602*f*.
pyridine reaction with *p*-quinone in presence of, 5781*a*.
pyruvic acid conversion to, in animal organism, 3078*h*.
reaction kinetics in solns. with $Ac_2O$, 26*e*.
reaction of $C_2H_4$ with HCHO in the presence of, 5367*d*.
reaction with $C_2H_2$, P 3839*b*, P 5035*h*.
with acrolein, P 3027*a*.
with Al alkoxides, 3688*g*.
with α-chloro-α-2-hydroxyethylacetoacetic acid γ-lactone, P 677*h*.
with 2-chloroisopropyl chlorosulfinate, 1249*b*.
with chromic ions in S detn., 7374*h*.
with $H_2SO_4$ and $HN_3$, 9027*b*.
with 2,2,2-trichloro-1-ethoxyethanol, P 5412*d*.
recovery of, in BuOH fermentation, 813*e*
from pyroligneous acid, P 4838*d*.
from waste acid from hexogen manuf., P 8682*i*.
rheochor of aq., mixt. law for, 7283*a*.
salve for mucous membranes contg. Al acetate and, P 8105*c*.
from seed fats of *Balsaminaceae*, 134*i*.
sepn. from acetate rayon, P 3209*a*.
from aq. soln., P 3157*c*.
from fuel gas, P 6397*d*.
from HCl solns., 8948*h*.
from water, 3*a*, 2042*c*.
soil extn. with, phosphates and, 7623*d*.
soly. in anhyd. $HNO_3$, 5265*a*.
sorption by anionites, 1238*c*.
sorption by C, 1238*e*.
spectrum of, 3713*h*, 3724*g*.
steel soln. in, rate of, 540*a*.
strength of, 470*d*.
as substitute for citric acid in Esbach soln., 6789*i*.
in sugar-beet pectins, 2954*i*.
system: camphor–, 6498*h*.
system: EtOH–, mol. wts. in $C_6H_6$, 1252*d*.
system: $HNO_3$–, elec. conductivity of, and mobility of pos. ion $[AcOH_2^+]$ in, 923*c*.
system: $HNO_3$–, refraction and surface tension of, 922*i*.
system: $PhNO_2$–, 6066*h*.
system: $HClO_4$–, elec. cond., d. and viscosity of, 7315*g*.
systems: $C_6H_5$–glycerol–, and $CCl_4$–$H_2O$–, 8833*b*.
systems: caproic acid–$H_2O$–, 2-ethylbutyric acid–$H_2O$–, and 2-ethylhexoic acid–$H_2O$–, 5657*h*.
systems: $Pb(OAc)_2$–$PbBr_2$–$H_2O$–, and $Pb(OAc)_2$–$PbI_2$–$H_2O$–, 2112*a*.
system: $H_2O$–, *n* of, and hydrates of AcOH, 6900*h*.
titration of, pH changes at equivalence point in, 2542*d*.
ultrasonic velocity in, 8786*c*.
ultrasonic-wave absorption and dispersion in, 3681*c*.
ureide—see *Urea, acetyl-*.
utilization by *Drosophila*, 322*h*.
in vinyl-chloride-polymer stabilization to heat, P 9530*fg*.
vinyl ester, AcH detn. in, 4184*b*.
addn. reaction with $CHBrCl_2$, 3345*b*.
adhesive from emulsion of polymerized, P 3240*d*.
adhesives from phenol-aldehyde resin and polymers of, P 901*b*.
adhesives from PhOH-HCHO condensation product and, P 5228*i*.
adhesive tape for laminating from, P 7756*d*.
adhesive tape from melamine, HCHO and polymers of, P 908*d*.
alcoholysis of polymers of, P 6867*g*.
*N*-alkoxypolyamide emulsions with partially hydrolyzed polymerized, P 5232*c*.
chain-transfer coeffs. of, in solvents, 5271*e*.
coalescence of polymers of, 4892*h*.
coating compns. from casein, alginate and, P 1611*d*.
cold-fracture temp. of polymerized, 8199*a*.
compns. with resins and oils, P 4051*a*.
depolarization of light scattered by solns. of polymers of, 7784*d*.
dielec. const. of polymers of, 4530*b*.
dispersions of, P 7267*a*.
in dyeing of polyvinyl resins, P 1217*e*.
effect of polymerization temp. of polymers of, on polyvinyl alc. therefrom, 8240*i*.
effect of surface on polymerization of, 2028*f*.
extn. of MeCHO and $Me_2CO$ from, with water in packed column, 2042*e*.
films from emulsions contg. dichromates and polymers of, P 6001*d*.
films of polymers of, on water, surface pressure and area of, 437*b*
heat of polymerization of, 8255*b*.
hydraulic fluids from solns. of polymers of, P 4791*f*.
isolation and purification of polymers of, 7260*g*.
limestone impregnation with polymers of, 3500*a*
lubrication of granules of polymerized, P 4411*b*.
manuf. of, P 3838*g*, P 3839*b*, P 5035*h*, P 7036*i*.
measurement of mech. properties of polymers in cyclohexanone, 2810*b*
osmotic pressure of solns. of polymers of, 7782*g*.
plastic from stearic acid, tritolyl phosphate and polymers of, P 4895*c*.
plasticity-stress relation in polymers of, 2010*f*.
plasticizer for, P 3656*e*.
plastic materials from leather dechromed waste and, P 4506*a*.
polymerization of, P 9006*b*, 7296*c*.
polymerization of, and diallyl benzenephosphonate, 5378*f*.
polymerization of, azodisulfonic acid salts as catalysts for, P 5642*c*.
polymerization of, catalysis by iodoso diacylate, P 5231*e*.
polymerization of, emulsified in fluorinated hydrocarbon, 2019*h*.
polymerization of, in emulsion, P 4895*h*.
polymerization of, in emulsions, Ag–$NH_3$ ion as promoter for, P 7264*i*.
polymerization of, in presence of azo sensitizers, 3354*h*.
polymerization of, in presence of seeds, 8735*b*.
polymerization of, kinetics of, 438*c*, 2497*a*, 6460*g*.
polymerization of, using thiourea stopper, P 1219*c*.
polymerization rates with acrylonitrile and with methacrylonitrile, 3696*g*.
polymerization with alkyd resins in oil phase, P 5230*c*.
polymerization with 10-hendecenoic acid esters, 8352*h*.
polymerization with Me methacrylate, P 907*c*.
polymerization with polyesters, P 1220*c*.
polymerization with styrene, 8736*i*.
polymerization with unsatd. acid modifier, P 5230*h*.
polymerization with unsatd. polyester emulsions, P 7264*g*.
polymers of, 6462*h*.
polymers of, adhesion of cellulose to, 8133*e*.
polymers of, adhesion to Al and cellulose, 8206*g*.
polymers of, as plasticizers, P 4894*e*.
polymers of, compns. with colloidal $SiO_2$, P 5229*d*.
polymers of, compns. with polyvinyl acetal, P 5632*g*.
polymers of, mixts. with glycerophthalic resins, analysis of, 5226*f*.
polymers of, solns. in acetone, 8802*e*.
polymers with 2-acetylamino-1,3-butadiene and coatings and molded products therefrom, P 3651*a*.
polymers with acrolein acetal, P 5635*i*.
polymers with alkyl acrylate and vinyl benzoate, P 9532*e*.
polymers with allylic *o*-benzoylbenzoates, P 3847*h*.
polymers with butadiene and vinylidene chloride, 2017*e*, P 7259*c*.
polymers with *N*-(2-α-carbamylacetamidoethyl)methacrylamide, P 9531*e*.
polymers with citrates, maleates and phthalates, emulsifying power in nitrocellulose lacquers, 5606*i*.
polymers with dialkenyl arylphosphonates, P 1220*g*.
polymers with dialkyl esters of maleic acid and vinylidene halides, P 2818*c*.
*vinyl ester*, polymers with 1,1-dichloro-2,2-difluoroethylene, 2465*c*.
polymers with *cis*- and *trans*-1,2-dichloroethylene, kinetics of KI reaction with, 4215*a*.
polymers with di-Et fumarate and ethylene, P 9531*h*.
polymers with 1,3-dioxolane, P 9532*d*
polymers with $MeCH{:}CHCO_2Et$ or $CH_2{:}CMeCO_2Bu$, resinous product from rosin and, P 2031*a*.
polymers with $C_2H_4$, P 1610*a*, P 6001*a*.
polymers with $C_2H_4$, antistatic coatings from sapond., P 4520*g*.
polymers with $C_2H_4$, hydrolysis of, P 5230*g*.
polymers with $C_2H_4$, mixt. of V-methoxymethylpolyhexamethylene adipamide with hydrolyzed, P 443*c*.
polymers with fluoromethacrylate esters, P 6465*g*.
polymers with maleic acid and vinyl chloride, alcoholysis of hydrolysis products of, P 2470*e*.
polymers with maleic acid or anhydride as dispersing agent for vinyl halide polymerization, P 6002*b*.
polymers with maleic anhydride, 8202*h*.
polymers with 2-methylpropene, P 4897*c*.
polymers with pentaerythritol esters with monoallyl maleate or phthalate, P 9537*e*.
polymers with polyvinyl alc., aggregation phenomena in solns. of, 8210*c*
polymers with tetraallylpentaerythritol, P 3658*f*
polymers with $C_2F_4$, P 5410*g*.
polymers with *p*-toluenesulfamide, P 1217*i*.
polymers with unsatd. ester of 9,10-dihydroxystearic acid, P 8211*g*
polymers with vinylamines, P 8212*f*
polymers with vinyl chloride, 3241*i*, P 9532*h*.
polymers with vinyl chloride, blends with vinyl chloride-vinylidene chloride polymers, P 2471*c*.
polymers with vinyl chloride, coatings compn. from, P 3242*c*.
polymers with vinyl chloride, combustion retarding coating from, 8075*c*
polymers with vinyl chloride, covering for elec. conductors from, P 9025, P 5631*i*.
polymers with vinyl chloride, dispersion of, P 3233*d*.
polymers with vinyl chloride, elec. properties of, 4356*h*, 2480*f*
polymers with vinyl chloride, fibers from, 2778*b*.
polymers with vinyl chloride, flow of, 6860*i*.
polymers with vinyl chloride, heat stabilized compns. from, P 2038*b*
polymers with vinyl chloride, measurement of bearing strength of, 4892*e*
polymers with vinyl chloride, molding compns. from cracking coal tars and, P 9538*e*.
polymers with vinyl chloride, paper contg., P 9448*f*.
polymers with vinyl chloride, plastic compn. from asphaltic material and, P 8208*f*.
polymers with vinyl chloride, plasticized compns. from, P 4895*a*, 5628*h*, P 7750*i*, P 9528*e*.
polymers with vinyl chloride, plasticizers for, P 3242*h*, 5627*i*, P 7752*e*.
polymers with vinyl chloride, plasticizers in, 5627*c*.
polymers with vinyl chloride, removal of stresses from calendered sheet of, P 901*h*.
polymers with vinyl chloride, rubbery products from butadiene-acrylonitrile elastomer, phenolic resin and, P 2807*c*.
polymers with vinyl halides, uniting films of, to base, P 7265*c*.
polymers with vinylidene chloride and vinylfuran, P 9532*g*.
polymers with vinylphenoxathiin, P 1228*e*.
preventing dye crocking from suede leathers with polymers of, P 9512*c*.
Rayleigh radiation in polymers of, 495*a*.
reaction with halohydrins, P 6649*i*.

*vinyl ester*, reaction with $C_2F_4$, 3370*h*, P 4294*d*.
reactivity of, 9024*c*.
refraction by polymers of, 7786*g*.
relation between mol. wt. and viscosity of polymers of, 5263*b*.
removal of polymers of, from elec. conductors, P 790*b*.
resinous products from starch ethers and polymers of, P 2466*f*.
rubber substitute from rubber and, P 5624*f*.
sound-insulating pad from fibrous glass and polymerized, P 5518*i*.
structure of polymers of, 9523*i*.
thermoplastic cast material from polymers of, P 5633*b*.
treatment of polymerized, with polybasic acids to form aq. solns., P 444*f*.
viscosity in acetone of polymerized, 6885*f*.
vulcanized mixts. of rubbery butadiene-acrylonitrile polymers and polymers of, P 6800*a*.
**Acetic acid, acenaphthenyl-**. See *Acenaphtheneacetic acid*.
—, **acephenanthrylenyl-**. See *Acephenanthryleneacetic acid*.
—, **acetamido-**. See *Aceturic acid*.
—, **aceto-**. See *Acetoacetic acid*.
—, **(2-acetonyl-6-methoxyphenoxy)-** 1771*a*.
—, **acetyl-**. See *Acetoacetic acid*.
—, **acetylbenzoyl-**. See *Acetoacetic acid, α-benzoyl-*.
—, **[2-acetyl-5-(benzyloxy)phenoxy]-**, and derivs., 3412*i*
—, **[2-acetyl-5-(benzyloxy)-*p*-toloxy]-**, and ethyl ester, 3413*b*.
—, **(2 - acetyl - 4,5 - dimethoxyphenoxy)-**, ethyl ester, 7460*e*.
—, **(*m*-acetylphenoxy)-**, and methyl ester, 3364*d*.
—, **(*p*-acetylphenoxy)-**, antimalarial activity of, 5860*g*.
methyl ester, 3364*e*.
—, **(6-acetyl-*m*-toloxy)-**, and ethyl ester, 3413*c*.
—, **allyl-**. See *4-Pentenoic acid*.
—, **[α - (allylcarbamyl) - *p* - toloxy]-**, 3364*d*.
—, **(allylmercapto)-**, 3364*h*.
ethyl ester, 3365*d*.
—, **(allyloxy)-** 3364*d*.
and ethyl ester, 7424*b*.
vinyl ester, and polymer, P 2817*a*.
—, **[*p*-(allyloxy)phenyl]-**, ethyl ester, 3362*a*.
—, **[*p* - (allylsulfamyl)phenylmercapto]-**, 3365*b*.
—, **amino-**. See *Glycine*.
—, **[2-[6-(4-aminobenzamido)-3-sulfo-2-naphthylazo]-4-chlorophenoxy]-**, P 7700*i*.
—, **amino-*sec*-butyl-**. See *Isoleucine*.
—, **(2 - amino - 4 - chlorophenoxy)-**, azo dyes from, P 7700*i*.
disazo dye from, P 5961*g*, P 5962*a*.
—, **(4 - amino - 6 - hydroxy - 2 - pyrimidylmercapto)-**, antimalarial activity of, 5860*g*.
—, **(4 - amino - 5 - methyl - 2 - pyrimidylmercapto)-**, 4229*a*.
—, **(4 - amino - 3 - nitrophenyl)-**, ethyl ester, 3361*d*.
—, **(aminoöxy)-**, P 3887*e*.
—, **(*p*-aminophenyl)-**, effect on penicillin production, 3060*f*, 6273*e*.
—, **(*o*-aminophenylmercapto)-**, potassium salt, 7421*d*.
—, **(6 - amino - 2 - purinylmercapto)-**, sulfate, 580*d*.
—, **(4 - amino - 2 - pyrimidylmercapto)-**, 4228*i*.
—, **(2 - amino - 4 - sulfamylphenoxy)-**, disazo dye from, P 5962*c*.
—, **(3-amino-*p*-toloxy)-**, disazo dye from, P 5961*d*.
—, **(amylmercapto)-**, 3365*a*.
—, **(*p*-*tert*-amylphenyl)-**, ethyl ester, 3361*i*.
—, **anilino-**. See *Glycine, N-phenyl-*.
—, **(*p*-anilinophenoxy)-**, and ethyl ester, 3364*e*.
—, **(4-anilino-2-pyrimidylmercapto)-**, 8395*f*.
—, **(*p*-arsenosophenoxy)-**, in penicillin production, 2273*d*.
—, **(*p*-arsonophenoxy)-**, methyl ester, 3364*e*.
—, **[*p* - (*p* - arsonophenylsulfamyl)-phenylmercapto]-**, 3365*c*.
penicillin production 2271*g*.
—, **(3 - azabicyclo[3.2.0]heptyl)-**. See *3-Azabicyclo[3.2.0]heptaneacetic acid*.
—, **benzamido-**. See *Hippuric acid*.
—, **(benzhydrylmercapto)-**, and derivs., 5018*i*.
—, **(benzhydryloxy)-**, and derivs., 4669*h*, 5018*h*.
—, **benzimidazolyl-**. See *Benzimidazoleacetic acid*.
—, **(2 - benzimidazolylmercapto)-**, ethyl ester, 3365*d*.
—, **benzindenyl-**. See *Benzindeneacetic acid*.
—, **benziso quinolyl-**. See *Benziso quinolineacetic acid*.
—, **benzofuryl-**. See *Benzofuranacetic acid*.
—, **benzopyranyl-**. See *Benzopyranacetic acid*.
—, **benzothiazolinyl-**. See *Benzothiazolineacetic acid*.
—, **benzothiazolyl-**. See *Benzothiazoleacetic acid*.
—, **(2 - benzothiazolyloxy)-**, as plant-growth regulator, P 5154*f*.
—, **benzoyl-**, esters, acetals of, 6168*g*.
ethyl ester *o*-carboxyphenylhydrazone, 5024*i*.
ethyl ester, color reaction with $FeCl_3$, 1007*i*.
cyanoethylation of, 2582*h*.
enol content of, 1010*f*.
hydrogenation of, 572*d*.
reaction with aniline and with *o*-toluidine, 228*h*.
ethyl ester semicarbazone, hydrogenation of, 2604*g*.
—, **(α - benzoylbenzhydrylmercapto)-**, hydrolysis of, 1753*h*.
—, **benzoyldiphenyl-**, 6171*b*.
—, **(*p*-benzoylphenoxy)-**, methyl ester, 3364*f*.
—, **benzyl-**. See *Hydrocinnamic acid*.
—, **(6 - benzyl - 2,5 - dihydro - 5 - oxo-*as* - triazin - 3 - ylmercapto)-**, 3016*a*.
—, **benzylidene-**. See *Cinnamic acid*.
—, **(benzylmercapto)-**, oxidation of, 8816*a*.
—, **benzylmethyl-**. See *Hydrocinnamic acid, α-methyl-*.
—, **[3 - (benzyloxy) - 6 - formyl - 2,5-dimethoxyphenoxy]-**, and derivs., 7180*h*.
—, **[5 - (benzyloxy) - 2 - formylphenoxy]-**, and derivs., 3412*c*.
—, **[5 - (benzyloxy) - 2 - formyl - *p*-toloxy]-**, and ethyl ester, 3412*g*.
—, **[*p*-(benzyloxy)phenyl]-**, 3361*a*.
and methyl ester, 1746*b*.
—, **(benzylsulfonyl)-**, in penicillin production, 2273*f*.
—, **bicyclo[3.1.1]heptyl-**. See *Norpinaneacetic acid*.
—, **(4,4'-biphenylenedioxy)di-**, 5018*a*.
—, **4-biphenylyl-**, derivs., 2980*g*.
and ethyl ester, 1385*c*.
methyl ester, and hydrogenation of, 1375*i*, 1376*a*.
—, **(2-biphenylyloxy)-**, methyl ester, 3364*f*.
—, **bis(*p*-acetamidophenyl)-**, methyl ester, 7004*f*.
—, **bis(*p*-aminophenyl)-**, and methyl ester and its di-HCl, 7004*e*.
—, **bis(*o*-chlorophenyl)-**, as insecticide, 2359*h*.
—, **bis(*p*-chlorophenyl)-** (*p,p'-DDA*), in DDT spray deposits, 5148*d*.
and ethyl ester, as acaricides and insecticides, 3137*h*.
in rat livers from DDT, 7186*a*.
—, **bis(4,4 - dimethyl - 2,6 - dioxocyclohexyl)-**, identified as compd. III (*C. A.* **41**, 100*g*), 2965*a*.
—, **bis(2,4-dinitrophenyl)-**, ethyl ester, reaction with acetone in the presence of alkali, 6175*c*.
—, **bis(4 - hydroxy - 2 - oxo - 1,2*H*-benzopyran - 3 - yl)-**, and derivs., 5399*d*.
ethyl ester, biol. and anticoagulant properties of, 5870*a*.
—, **bis(4 - methoxy - 2 - oxo - 1,2*H*-benzopyran - 3 - yl)-**, esters, 5399*f*.
—, **bis(*p*-nitrophenyl)-**, and methyl ester, 7004*e*.
—, **bis(2-oxo-1,2*H*-benzopyran-3-yl)-**, ethyl ester, detection in blood, 7995*i*.
—, **bromo-**, esters, phys. consts. of, 2591*a*.
ethyl and Me esters, effect on metabolism of yeast, 3488*a*.
ethyl ester, antifouling properties of, 3964*a*.
formation from bromination of Et (trimethylsilyl)acetate, 562*g*.
in oxidation inhibition in tallow, 8177*e*.
reaction with ketocholanic acids, 1431*b*.
reaction with Mg and acid halides, 2973*c*.
Reformatskil reaction with, 613*a*.
2-fluoroethyl ester, 6164*e*.
3-hydroxypropyl ester, 1404*g*.
Raman spectrum of, 6082*g*.
reaction with Na deriv. of allylbenzene, 3351*f*.
sodium salt, effect of temp. on muscle poisoned with, 6730*b*.
soly. in anhyd. $HNO_3$, 5265*a*.
—, **(2-bromoallylmercapto)-**, 3364*h*.
—, **(4 - bromo - 2 - *tert* - butylphenoxy)-**, 6998*g*.
—, **(1-bromo-6-chloro-2-naphthylmercapto)-**, P 7707*f*.
—, **(4 - bromo - 3 - chlorophenyl)-**, methyl ester, 3361*d*.
—, **(1 - bromo - 2 - naphthoxy)-**, 3813*g*.
—, **(*p*-bromophenoxy)-**, methyl ester, 3364*e*.
—, **bromophenyl-**, esters, 2189*d*.
—, **[*m*(*o* and *p*)-bromophenyl]-**, and *p*-nitrobenzyl esters, 605*i*.
—, **(*p*-bromophenylmercapto)-**, methyl ester, 3365*d*.
—, **2-butenylidene-**. See *Sorbic acid*.
—, **(2-butenyloxy)-**, vinyl ester, P 2817*b*.
—, **(2-butoxyethoxy)-**, in mercerizing solns., P 9477*i*.
—, **[2 - (2 - butoxyethoxy)ethoxy]-**, in mercerizing solns., P 9477*i*.
—, **2 - (2 - butoxyethoxy)ethylmercapto]-**, 3365*b*.
—, **butoxyphenyl-**, and bismuth salts, 2488*i*.
—, **butyl-**. See *Caproic acid*.
—, ***tert*-butyl-**. See *Butyric acid, β,β-dimethyl-*.
—, **(*sec*-butylmercapto)-**, 3364*i*.
—, **(*o*-*tert*-butylphenoxy)-**, 6998*g*.
—, **(*p*-*tert*-butylphenyl)-**, ethyl ester, 3361*i*.
—, **butyryl-**. See *Caproic acid, β-oxo-*.
—, **carbamido-**. See *Hydantoic acid*.
—, **carbamyl-**. See *Malonamic acid*.
—, **[(*p* - carbamylphenylarsylene)dithio]di-†**, effect on virus of psittacosis-lymphogranuloma group, 9249*i*.
—, **carbonyl-**. See *Acrylic acid, β-oxo-*.
—, **[*o* - [3 - (carboxymethylmercaptomercuri) - 2 - methoxypropylcarbamyl]phenoxy]-**, disodium salt, P 9084*c*.
—, **[*o* - [3 - (carboxymethylmercaptomercuri) - 2 - methoxypropyl]-phenoxy]-**, disodium salts, P 9084*b*.
—, **(*o* - carboxyphenoxy)-**. See *Benzoic acid, o-(carboxymethoxy)-*.
—, **(*o*-carboxyphenyl)-**. See *Homophthalic acid*.
—, **(*p*-carboxyphenyl)-**. See *Homoterephthalic acid*.
—, **[(*o* - carboxyphenyl)imino]di-†**, in detn. of metals, P 4800*d*.
and methyl ester and metal derivs., spectra of, 7340*h*.
—, **(carboxyphenylmercapto)-**. See *Benzoic acid, (carboxymethylmercapto)-*.
—, **chloro-**, alkyl esters, P 2223*d*.
allyl and 2-methylallyl esters, P 2632*i*.
allyl ester, polymerization with Me methacrylate, 8200*g*.
ammonium and Ca salts, in sugar-beet-nematode control, 3134*e*.
ammonolysis to glycine, kinetics of, 5656*e*.
anhydride, behavior in $Ac_2O$, 2110*f*.
anhydride, reaction with BuMgBr, 565*e*.
arylazo derivs., and formazans from, 4259*c*.
as carboxypeptidase inhibitor, 6266*a*.
cellulose solubilization by reaction with, P 8138*a*.
3-chloroallyl ester, 2928*c*.
2-chloroallyl ester, polymers with butadiene, P 432*i*.
2-chloroethyl ester, 1404*s*.
*p* - chloro - α - (trichloromethyl)benzyl ester, as insecticide, 2359*h*, P 7634*f*.
compd. with Cr sulfate, spectrum of, 8883*c*.
detection and detn. in food, 9274*d*.
detn. in orange juice and water, 7155*d*.

effect on autodisplacement of Pb, 2846*a*.
effect on stainless steel cooking utensils, 2707*a*.
esters, 4220*d*, 4041*a*.
with 4-chlorotetrahydrothiophen-3-ol 1,1-dioxide, P 3466*c*.
phys. consts. of, 2590*i*.
reaction with ketones, P 1801*a*.
2-ethoxyethyl ester, behavior in $H_2SO_4$, 569*e*.
ethyl and Me esters, effect on metabolism of yeast, 3488*a*.
ethyl ester, 4221*d*.
reaction with benzene in the presence of $AlCl_3$, 4038*e*.
reaction with β-ionone, P 1800*i*.
2-fluoroethyl ester, 6164*d*.
*o*-hydroxyphenyl ester, rearrangement of, 3800*c*.
ion of, as catalyst in bromination of Et cyclopentanone-2-carboxylate, 3098*e*.
manuf. of, P 1795*g*, P 6650*h*.
monotropy, polymorphism and system with water, 3274*d*.
reaction with cystine in the presence of Zn, P 3451*c*.
with PhNMe$_2$, 5361*f*.
with 2-heptadecylbenzimidazole Na sulfonate, detergent by, P 886*d*.
with hydroxy compds. in the presence of NaF, P 678*f*
with MeOH, P 3448*d*.
salt with 2-aminobenzothiazole, 5022*b*.
silver salt, ionization in aq. EtOH, 7793*e*.
sorption by anionites, 1238*c*.
spectra of, 1656*c*.
strength of, 4082*i*.
system: camphor-, 6498*h*.
tetraanhydride with orthosilicic acid, 4631*h*.
trichlorophenyl ester, as fungicide, 7178*e*.
2,4,5-trichlorophenyl ester, in control of blackroot of sugar-beet seedlings, 7175*i*.
vinyl ester, 1719*f*.
polymer, 3610*i*.
polymers with dialkyl esters of maleic acid and vinylidene halides, P 2818*c*.
vinyl ester, prepn. of, and its polymers, 7749*b*.
——, **(2-chloroallylmercapto)-**, 3364*h*.
——, **(chloroallyloxy)-**, vinyl ester, P 2817*b*.
——, **(*p*-chlorobenzylmercapto)-**, 3365*a*.
——, **(*p*-chlorobenzylsulfonyl)-**, in penicillin production, 2273*e*.
——, **(4 - chloro - 2 - biphenylyloxy)-**, 3364*e*.
——, **(3 - chloro - 2 - butenylmercapto)-**, 575*g*.
——, **chloro(*o* - carboxyphenylhydrazono)-†**, methyl ester, 4259*i*.
——, **chloro(*o* - chlorophenylhydrazono)-†**, and derivs., 4259*g*.
——, **(2 - chloro - 4,6 - dinitrophenyl)-**, 2184*d*.
——, **(4 - chloro - 2,6 - dinitrophenyl)-**, 7452*h*.
——, **chlorodiphenyl-**, ethyl ester, 3780*e*.
——, **chlorofluoro-**, and derivs., 8352*h*.
——, **[5 - (5 - chloro - 2 - hydroxy - 3-nitrophenylazo) - 6 - hydroxy - 2-naphthoxy]-**, P 7698*a*.
——, **(5 - chloro - 2 - hydroxyphenyl)-phenyl-**, lactone, rate of transformation to Na salt, 2496*e*
——, **(chlorohydroxytolyl)-**, as herbicides, 8598*b*.
——, **(1-chloro-2-naphthoxy)-**, and derivs., P 2234*c*.
and potassium salt, 3813*f*.
——, **(*o*-chlorophenoxy)-**, effect on tomato growth and fruiting, 2725*i*.
effect on wound healing in trees, 9173*g*.
in fruit setting, 1139*d*.
——, **[*o* (and *p*)-chlorophenoxy]-**, phenyl ester, 2973*f*.
——, **(*p*-chlorophenoxy)-**, P 2234*a*.
as acaricide and insecticide, 3138*c*.
effect on sunflower crown gall, 8597*g*.
on tomato fruit set and yield, 1518*a*.
on vitamin C in snap beans, 3962*c*.
in lettuce-seed production, 1803*e*.
——, **chlorophenyl-**, 2942*e*.
ethyl ester, 3780*e*.
——, **[*m*(*o* and *p*)-chlorophenyl]-**, and *p*-nitrobenzyl esters, 605*h*.
——, **(*p*-chlorophenyl)-**, prepn. of, 4654*e*.
——, **(*o* - chlorophenyl)(*o* - hydroxyphenyl)-**, lactone, rate of transformation to Na salt, 2496*d*.
——, **chlorosulfo-**, P 2632*e*.
azo dyes from, P 4019*eh*.
esters with bis(2-hydroxyethyl)amino azo dyes, P 4474*b*.
ester with 2,2'-[*p*-(3,5-dinitrophenylazo)-phenylimino]diethanol, P 9462*f*.
2-*N*-methylanilinoethyl ester, azo dyes from, P 4471*fg*, P 4475*a*.
——, **chlorosulfonyldi-**, dimethyl ester, 7409*g*.
——, **chlorothiodi-**, dimethyl ester, 7409*g*.
——, **chlorothiol-**, esters, 2935*f*.
spectrum and structure of, and its cyclohexyl ester, 7410*d*.
——, **(chloro-*o*-toloxy)-**, mixt. of isomers, and Ca salt, P 7044*i*, P 7045*a*.
——, **(3-chloro-*p*-toloxy)-**, and methyl ester, P 7044*i*.
——, **(4-chloro-*o*-toloxy)-**, in apple-pre-harvest-drop control, 8086*a*.
effect on mitosis in onion, 3068*c*.
on plants, 1137*d*.
on viruses X and Y in tobacco, 728*a*.
and ethyl ester, effect on soil microorganisms and microbial processes, 1514*d*.
and methyl ester, effect on wheat, 1804*g*
for reduction of scald on fruit, P 330*h*.
review on, 806*a*.
sodium salt, in weed control, 9351*d*.
for weed control, P 7634*c*.
in weed control, 7180*h*.
for weed control in oil-seed crops, 9351*d*.
——, **chloro - 2,4 - xylylhydrazono-†**, 4259*i*.
——, ***i*-cholesteryl-***, 3430*b*.
——, **cinchoninyl-**. See *4-Quinolinepropionic acid, β-oxo-*.
——, **cinnamal-**. See *2,4-Pentadienoic acid, 5-phenyl-*.
——, **cinnamoyl-**. See *4-Pentenoic acid, 3-oxo-5-phenyl-*.
——, **cinnamylidene-**. See *2,4-Pentadienoic acid, 5-phenyl-*.
——, **(cinnamylidenedithio)di-**, 5763*i*.
——, **crotylidene-**. See *Sorbic acid*
——, **(cuminylmercapto)-**, and 2 benzyl 2-thiopseudourea salt, 3365*c*.
——, **cyano-**, aralkyl or monoalkyl derivs., alkyl esters P 1436*e*.
derivs., 4222*e*.
esters, alkyl α-cyanoacrylates from, P 6222*cf*.
cyanoethylation of, P 3446*h*.
Hofmann reaction with, 2167*a*.
methine dyes from, P 8691*c*.
esters, and benzylation of, 3356*g*.
ethyl ester, addn. reaction with acrolein, 577*g*.
condensation with ketones, 7901*h*
hydrolysis of, catalysis by $HgSO_4$, 1248*i*.
polymerization with butadiene or its derivs., P 9520*c*.
reaction with cyclohexanone, P 7507*d*
reaction with $ClCH_2CH_2Cl$, P 9475*i*.
reaction with $AcCH_2CO_2Et$ and veratraldehyde, P 689*d*.
reaction with 2-formylethylmalonic acid derivs., in the presence of H, P 7505*f*.
reaction with ketocholanic acids, 1431*b*.
Na deriv., reaction with 3-(dimethylaminomethyl)-1-methylindole and its methiodide, 3405*i*
spectrum of, 4574*g*.
hydrogenation of, P 2225*g*.
phenylhydrazide, 4272*f*.
——, **(2-cyanoallylmercapto)-**, 3364*h*
——, **cyano(3,5 - dimethoxyphenyl)-**, ethyl ester, 8384*a*.
——, **cyanodiphenyl-**, ethyl ester, 4245*e*.
——, **cyanophenyl-**, hydrazides and other derivs., 4222*i*.
——, **cycloheptatrienyl-**. See *Cycloheptatrieneacetic acid*.
——, **cyclohexenyl-**. See *Cyclohexeneacetic acid*.
——, **cyclohexenylcyclopentenyl-**. See *Cyclohexeneacetic acid, α-cyclopentenyl-*.
——, **cyclohexenylphenyl-**. See *Cyclohexeneacetic acid, α-phenyl-*.
——, **cyclohexyl-**. See *Cyclohexaneacetic acid*.
——, **[3 - (4 - cyclohexylbutyl) - 1,4 - dihydro - 1,4 - dioxo - 2 - naphthoxy]-**, ethyl ester, 1374*g*.
——, **cyclohexylidene-**. See $\Delta^{1,\alpha}$-*Cyclohexaneacetic acid*.
——, **cyclohexylphenyl-**. See *Cyclohexaneacetic acid, α-phenyl-*.
——, **cyclooctenyl-**. See *Cycloocteneacetic acid*.
——, **cyclooctyl-**. See *Cyclooctaneacetic acid*.
——, **cyclopentadienylidene-**. See *Cyclopentadiene-Δ$^{1,\alpha}$-acetic acid*.
——, **cyclopentaphenanthryl-**. See *Cyclopentaphenanthreneacetic acid*.
——, **cyclopentapyranyl-**. See *Cyclopentapyranacetic acid*.
——, **cyclopentenyl-**. See *Cyclopenteneacetic acid*.
——, **cyclopentyl-**. See *Cyclopentaneacetic acid*.
——, **cyclopentylidene-**. See $\Delta^{1,\alpha}$-*Cyclopentaneacetic acid*.
——, **cyclopentylphenyl-**. See *Cyclopentaneacetic acid, α-phenyl-*.
——, **(*p*-cyclopentylphenyl)-**, and methyl ester, 1375*d*.
——, **dehydro-**. See *Dehydroacetic acid*.
——, **(desylmercapto)-**, hydrolysis of, 1753*h*.
——, **[(4,4'-diacetamido-2,2'(and 3,3'-biphenylene)dioxy]di-**, P 2442*f*
——, **diacetyl-**. See *Acetoacetic acid, α-acetyl-*.
——, **(4,4' - diamino - 3,3' - biphenylenedioxy)di-**, azo dyes from, P 8144*g*.
polyazo dye from, P 5964*a*.
——, **(3,4-diaminophenyl)-**, derivs., 3363*g*.
——, **(4,6 - diamino - 2 - pyrimidylmercapto)-**, and sulfate, 580*c*.
——, **diantipyryl-**, and derivs., 7477*a*
——, **diazo-**, ethyl ester, reaction with fluorene, 207*d*.
ethyl ester, reaction with indan and related compds., 6203*c*.
——, **dibenzyl-**. See *Isobutyric acid, β,β'-diphenyl-*.
——, **dibromo-**, and 2-phenylhydrazide, 6975*h*.
——, **(1,6 - dibromo - 2 - naphthoxy)-**, 3813*g*.
——, **(5,8 - dibromo - 2 - naphthylmercapto)-**, P 7707*f*.
——, **(3,4 - dibromophenyl)-**, methyl ester, 3361*c*.
——, **(2,3-dibromopropoxy)-**, and ethyl ester, 7424*c*.
——, **(2,3 - dibromopropylmercapto)-**, 3364*i*.
——, **dibutyl-**. See *Caproic acid, α-butyl-*
——, **(2 - dibutylaminoethoxy)phenyl-**, esters, 2189*f*.
——, **dichloro-**, behavior in liquid HCN (anhyd.), 515*i*.
derivs., reaction with olefins, P 7502*g*
esters, 1404*f*, 2957*a*, 4220*d*.
piperazine salt, 235*d*.
reaction with PhNMe$_2$, 5361*f*.
reaction with *p*-toluidine, 1396*d*.
strength of, 4082*i*.
system: camphor-, 6498*h*.
——, **(2,4 - dichlorobenzylsulfonyl)-**, in penicillin production, 2273*e*.
——, **(4,8 - dichloro - 2 - naphthylmercapto)-**, P 7707*e*.
——, **(5,8 - dichloro - 1 - naphthylmercapto)-**, and ring closure of, P 9470*f*
——, **[5,8-dichloro-1(and 2)-naphthylmercapto]-**, P 7707*c*.
——, **(2,4-dichlorophenoxy)-** (2,4-D), and ammonium salt and Et ester, in lettuce-seed production, 1893*e*.
ammonium salt and iso-Pr ester, in hazelbrush control in forests, 3135*a*.
ammonium salt, in control of root-knot and weeds, 5145*c*.
in tree control on southern upland, 6352*h*.
in weed control in vegetable seedbeds, 3134*h*.
analysis of weed-control compns. contg. its salts and esters, 7625*a*.
butyl ester, in weed control in vegetables, 1894*c*.
butyl, octyl and octadecyl esters, movement in bean plant in relation to carbohydrate translocation, 6705*e*
compd. with 2,2',2''-nitrilotriethanol, as herbicide for sugar cane, 805*e*
contratoxification of, with activated C, 2355*h*.
in control of Bermuda and nut grasses, and *Portulacca oleacea*, 5145*a*.
in control of Bermuda grass, nutgrass and waterfern, 3967*abc*.
in *Cyperus rotundus* control, 343*e*.
and derivs., P 7045*d*.
and derivs, effect on flax, 6773*c*.
derivs., in buffalo-grass-seed production, 5525*d*.
in weed control in drug and economic plants, 343*c*.

*derivs.*, in weed control in vegetables, 1893*g*.
effect on alkaloid formation in *Datura stramonium*, 8597*f*.
on barley and oats, 6775*i*.
on bean and nut grass, 9351*i*.
on beans, 1517*de*, 5087*h*.
on carotene, nicotinic acid, pantothenic acid and vitamins $B_1$ and $B_2$ in stems and leaves of kidney-bean plants, 8021*b*.
on castor-bean lipase, 8414*a*.
on chicks, 343*h*.
on citrus-fruit storage, 1517*a*.
on cork spot and hard end of pears, 9348*b*.
on corn roots, 6352*i*.
on cotton, 805*a*, 9350*e*.
on fungi, 3133*c*, 6704*h*.
on germination in cereals and grasses, and on seed development, 1517*g*.
on gladiolus, 9338*d*.
on kidney-bean stem compn., 4735*b*.
on lemons in storage, 1516*h*.
on mitosis in root meristems, 9171*c*.
on neuromuscular app., 2329*e*.
on onion cells and root growth, 9171*g*
on phosphate enzyme systems of plants, 8009*a*.
on potatoes, 7181*a*.
on protein in wheats, 1517*c*.
on respiration of plants, 5456*i*, 6290*f*.
on ripening rate of bananas, 6289*b*
on root growth and its relation to pH, 8454*h*.
on root growth in cress and peas, 8454*e*.
on salt accumulation in wheat roots, 6288*a*.
on size of grapefruit and oranges, 8597*i*.
on soil microörganisms, 1514*d*.
on starch digestion and reducing activity in beans, 2286*d*.
on tomatoes, 3889*a*, 9337*g*.
on transplanted plants, 804*i*.
on unfruitful Valencia orange trees, 9338*i*.
on wheat, 1894*f*.
emulsifiable oils for, P 2733*b*.
esters, in tobacco-suckering elimination, 5145*d*.
ethyl ester, in weed control, 3554*g*.
fig maturation by, 2726*g*.
in forest-shrub control, 4413*i*.
formative action on beets, 2283*c*.
in grapefruit-drop control, 1518*b*.
as growth substance, 8017*f*.
hydrazides, as growth substances, 7551*f*.
and isopropyl ester and triethanolamine salt, in weed control in sugar cane, 805*d*.
isopropyl ester, as herbicide for sugar cane, 805*e*.
and isopropyl ester, effect on *Calimyrna* fig of, 5893*c*.
in Japanese-honeysuckle control, 1895*b*.
manuf. of, P 2234*a*, P 7045*e*, P 7509*i*.
methyl ester, self-condensation of, 4248*e*.
in mistletoe control on *Eucalyptus*, 7181*a*.
in *Orobanche aegyptiaca* control, 3134*h*.
ovule abortion in tradescantia from, 5094*a*.
penetration of, and effect of Geon 31X latex therein, 343*f*.
phenyl ester, 2973*g*.
plant-growth action of, and related compds., evaluation of, 1833*i*.
plant susceptibility to, effect of temp. on, 8085*i*.
prepn. from urea, 2189*c*.
review on, 806*a*.
and salts, plant nutrient contg., P 7187*c*.
and sodium salt, effect on onions in onion roots, 9171*e*.
sodium salt, in apple-crop regulation, 7181*f*.
effect of buffers on growth inhibiting property of, 9174*d*.
effect on corn, 2727*d*.
and sodium salt, in weed control in corn, 1894*h*.
in soils, persistence of, 9314*d*.
South Carolina expt. station reports on, 9328*f*.
toxicity to bees, 344*h*.
toxicology of, 5883*e*.
volatility of, and derivs., 6775*g*.
in weed control, 2727*a*, 6352*h*, 7180*h*, 7625*a*, 8598*c*, 9313*a*, 9329*i*, 9338*g*, 9354*d*.
activation of, 805*h*.
in corn, 1894*i*.
effect of other substances on, 7180*h*.
in gladiolus, 3962*e*, 5145*e*, 5146*a*.
*in weed control*, in grains, 9273*e*, 9351*f*.
in nursery, 9337*h*.
in oil-seed crops, 9351*d*.
in Puerto Rico, 5525*b*.
on reservoir banks, 7624*i*.
in spinach, 1895*b*.
in vegetables, 1894*a*, 2358*i*, 9352*a*.
in Wyoming, 9313*e*.
weed-control compns. from, P 1904*b*.
in weed control in lawns and effect on germination of grass seed, 2727*g*.
——, **dichlorothiol-**, spectrum and structure of, and its cyclohexyl ester, 7410*d*.
———, **dicyclohexyl-**, α-diethylaminoethyl ester, P 7041*b*.
2-diethylaminoethyl ester, and salts, P 679*g* P 2234*h*.
ethyl ester, 573*d*.
——, **diethyl-**. See *Butyric acid, α-ethyl-*.
——, **(2-diethylaminoethoxy)diphenyl-**, ethyl ester, P 3462*c*.
——, **(2-diethylaminoethoxy)phenyl-**, esters, 2189*e*.
——, **(3-diethylaminopropoxy)phenyl-**, hexyl ester, 2189*f*.
———, **[*p* - (3 - diethylaminopropoxy)-phenyl]-**, ethyl ester, and -HCl, 3361*h*.
———, **difluoro-**, ester with pyruvonitrile, polymerization of, P 5636*c*.
methyl ester, volatility and vapor pressure of, 8841*b*.
——, **diheptyl-**. See *Pelargonic acid, α-heptyl-*.
———, **(1,4 - dihydro - 1,4 - dioxo - 2-naphthylmercapto)-**, prepn. and antimitotic action of, 2703*i*.
——, **(1,4 - dihydro - 3 - methyl - 1,4-dioxo - 2 - naphthylmercapto)-**, prepn. and antimitotic action of, 2704*a*.
———, **(2,5 - dihydro - 5 - oxo - 6 - phenyl-*as*-triazin-3-ylmercapto)-**, and ethyl ester, 3016*b*.
——, **dihydroxy-**. See *Glyoxylic acid*
——, **(2,5-dihydroxyphenyl)-**. See *Homogentisic acid*.
——, **(3,4-dihydroxyphenyl)-**. See *Homoprotocatechuic acid*.
———, **[*p* - (2,3 - dihydroxypropoxy)-phenyl]-**, ethyl ester, 3362*a*.
———, **(3,5-diiodo-4-pyridylmercapto)-**, 7484*a*.
——, **diisoamyl-**. See *Isoenanthic acid, α-isoamyl-*.
——, **diisobutyl-**. See *Isocaproic acid, α-isobutyl-*.
———, **(2,3-dimercaptopropoxy)-**, and derivs., 7424*c*.
ethyl ester diacetate, antidotal activity in oxophenarsine poisoning, 9251*a*.
——, **(2,5-dimethoxyphenyl)-**, 7003*b*.
and ethyl ester, 6599*f*.
———, **(3,4-dimethoxyphenyl)-**. See *Homoveratric acid*.
——, **dimethyl-**. See *Isobutyric acid*.
———, **(2 - dimethylaminoethoxy)diphenyl-**, 2-dimethylaminoethyl ester, P 3462*f*.
——, **(2-dimethylaminoethoxy)phenyl-**, esters, 2189*e*.
———, **(3 - dimethylaminopropoxy)-phenyl-**, isopropyl ester, 2189*f*.
——, **(2,4-dimethylamylmercapto)-**, and 2-benzyl-2-thiopseudourea salt, 3365*a*.
———, **(3,3' - dimethyl - 4,4' - biphenylenedioxy)di-**, 5018*b*.
——, **(dimethylphenylsilyl)-**, 5003*g*.
——, **(4,5-dimethyl-2-thiazolylmercapto)-**, 3364*i*.
———, **(dinitrophenyl)-**, and methyl ester, 2189*h*.
———, **(2,4-dinitrophenyl)-**, and methyl ester, reaction with acetone in the presence of alkali, 6175*c*.
———, **diphenyl-**, allyl ester, rearrangement of, 7468*c*.
2-diethylaminoethyl ester—see *Trasentin*.
2-dimethylaminoethyl ester, hydrochloride, spasmolytic activity of, 8546*b*.
esters, 3395*b*, 5769*a*, 7921*e*.
with ammo alcs., hydrochlorides, P 2639*f*.
with 4-(hydroxyalkyl) derivs. of morpholine, P 6673*e*.
ethyl ester, detn. of, 1280*g*.
reactions of, in the presence of $(Me_3CH)_3NMgBr$, 6171*a*.
spectrum of, 4574*g*.
3-pyridylmethyl ester, P 8105*h*.
(1-pyrrolidyl)alkyl esters and their derivs., 1388*c*.
——, **dipropyl-**. See *Valeric acid, α-propyl-*.
——, **dithiodi-**, effect on polymerization of allyl methacrylate, 8199*f*.
esters, phys. constants of, 2956*f*.
esters with cellulose and polyvinyl alc., 3610*g*.
toxicity of, 1867*f*.
——, **diureido-**. See *Allantoic acid*.
——, **(dodecylsulfonyl)-**, and sodium salt, 2573*b*.
——, **ethoxy-**, isopropyl ester, self-condensation of, 4248*d*.
metabolism of, 8484*a*.
piperazine salt, 235*e*.
———, **(ethylenedinitrilo)tetra-**, 9031*h*.
complex compds. and salts of, 2113*c*.
complex studies with, 7364*e*.
in detn. of Co and Fe, 8303*b*.
in detn. of metals, P 4800*d*.
for prevention of rancidity of detergents, P 886*h*.
and salts, P 3449*g*.
salts, as germicidal detergent, P 6438*h*.
and salts, as polymerization activators, 8727*f*.
salts, in inorg. impurity removal from oils, P 3637*i*.
sodium salt, 2536*c*, 8049*b*.
reaction with sulfides and mercaptides, 9090*f*.
as softening addn. to washing powders in laundries, 5976*i*.
as vitamin C stabilizer, 3972*h*.
uranyl salt, P 6375*c*.
——, **(2-ethyl-3-hydroxyphenyl)-**, 198*f*.
——, **(ethylidenedioxy)di-**, diallyl ester, P 1433*i*.
——, **(ethylmercapto)-**, oxidation of, 8816*a*.
——, **(ethylmercaptomethylmercapto)-**, and 2-benzyl-2-thiopseudourea salt, 3364*i*.
——, **(ethylmercurimercapto)-**, in penicillin production, 2273*b*.
——, **(2-ethyl-3-methoxyphenyl)-**, 197*i*.
——, **[*p*-(1-ethylpropyl)phenoxy]- (?)**, and salt with 2-(*p*-chlorobenzyl)-2-thiopseudourea, 3364*d*.
———, **[4(and 5)-ethyl-o-toloxy]-**, 1028*h*.
——, **fluorenyl-**. See *Fluoreneacetic acid*.
——, **fluoro-**, anhydride, 2933*e*.
2-butoxyethyl ester P 3140*h*.
and derivs., 2932*i*.
derivs., effect on brain function and metabolism, 7147*g*.
detn. of, 4976*e*.
dodecyl ester, as insecticide, P 6358*a*.
effect on central nervous system, 8535*e*.
on citric acid cycle, 7984*c*.
on fatty acid and glucose oxidation in kidney homogenates, 4709*f*.
on oxidation of BzOH by *Mycobacterium lacticola*, 6274*g*.
esters, volatility and vapor pressure of, 8841*a*.
and esters with fluoro alcs., 6164*d*.
methyl ester, effect on respiration and potential of nerve, 7147*c*.
phenylhydrazide, toxicity to rats, 348*e*.
poisoning by, citrate formation in, 9265*b*.
sodium salt, acceptance by rats, 3140*d*.
in control of murine typhus and plague, 3555*i*.
effect on plague diagnosis, 4365*h*.
poisoning by, effect of EtOH and metabolites on, 3103*c*.
review on, 9353*b*.
as rodenticide, 2362*f*.
in sweet-potato-weevil control, 7183*c*.
toxicity to man, 8600*f*.
toxicity of, tricarboxylic acid cycle and, 7985*i*.
——, **(3-fluoro-4-hydroxyphenyl)-**, effect on yeast fermentation and phosphatases, 6253*f*.
pharmacology of, 5863*g*.
——, **[*m*(*o* and *p*)-fluorophenyl]-**, ethyl esters, 3361*d*.
——, **fluoroseleno-**, methyl ester, volatility and vapor pressure of, 8841*b*.
——, **formyl-**. See *Malonaldehydic acid*.
——, **furfuryl-**. See *2-Furanpropionic acid*.
——, **furoyl-**. See *Furanpropionic acid, β-oxo-*.
——, **furyl-**. See *Furanacetic acid*.
——, **(geranylmercapto)-**, 3365*c*.
——, **guanido-**. See *Glycocyamine*.
——, **(guanylmercapto)-**, polyvinyl ester, 3610*f*.

——, **10-hendecenyl-**. See *12-Tridecenoic acid*.
——, **(hexadecylmercapto)-**, P 8131*b*.
for corrosion prevention, P 7224*f*.
——, **(hexadecylsulfinyl)-**, P 8131*b*.
——, **[hexahydro - 2,4,6 - trioxo - 5-pyrimidyl)imino]di-**, in metal analysis, P 4800*d*.
——, **(hexylmercapto)-**, 3365*a*
——, **(5-hexyl-*m*-toloxy)-**, 2969*a*.
——, **hydroxy-**. See *Glycolic acid*.
——, **1-hydroxyethoxy-**, γ-lactone, P 6239*a*.
——, **[6 - hydroxy - 5 - (2 - hydroxy-4 - nitrophenylazo) - 2 - naphthoxy]-**, P 7698*a*.
——, **(2-hydroxy-3-methoxyphenyl)-**, γ-lactone, derivs., 625*a*.
——, **(6-hydroxy-2-naphthoxy)-**, azo dyes from, P 7698*c*.
——, **hydroxyphenyl-**. See *Mandelic acid*.
——, **(*o*-hydroxyphenyl)-**, γ-lactone, 625*a*, 7015*h*.
——, **[*o*(and *p*)-hydroxyphenyl]-**, combination with serum albumins, 4708*c*.
——, **(*p*-hydroxyphenyl)-**, effect on penicillin production, 3060*f*, 6273*e*.
ester with ethyl H carbonate, 3361*a*.
formation from tyrosine by marine bacteria, 9146*h*.
——, **imidazolidyl-**. See *Imidazolidineacetic acid*.
——, **4-imidazolidylidene-**. See Δ⁴,α-*Imidazolidineacetic acid*.
——, **imidazolyl-**. See *Imidazoleacetic acid*.
——, **(2-imidazolylmercapto)-**, ethyl ester, 3365*d*.
——, **iminodi-**, in detn. of metals, 4800*d*.
——, **indanyl-**. See *Indanacetic acid*.
——, **1-indanylidene-**. See Δ¹,α-*Indanacetic acid*.
——, **indenyl-**. See *Indeneacetic acid*.
——, **indolyl-**. See *Indoleacetic acid*.
——, **iodo-**, activation of *Nereis* eggs by, 8066*a*.
3-chloroallyl ester, 2928*c*.
effect on adhesion of epithelium to stroma in cornea, 769*b*.
on cornea, 771*e*.
on enzymes in fig latex prepn., 6327*e*.
on fat retention in stomach, 9198*b*
on fertilization in *Pomatoceros triqueter*, 776*i*.
on glycolysis in yeast in presence of Na azide, 1826*d*.
on growth of *Avena* coleoptile and *Pisum* internodes, 5094*d*.
on indoleacetic acid action on growth and respiration of pea seedlings, 2290*e*.
on malignant tumor formation, 303*h*.
on oxidation of BzOH by *Mycobacterium lacticola*, 6274*g*.
on psittacosis virus, 305*i*.
on pyruvate oxidase system of brain, 7590*c*.
on respiration of aorta, 7114*f*.
on respiration of heart, 9210*i*.
on thermal coagulation of blood serum proteins in cancer, 4368*h*.
esters and their salts with hexamethylenetetramine, 4641*a*.
esters, phys. consts. of, 2591*a*.
esters with fluoro alcs., 6164*d*.
ethyl and Me esters, effect on metabolism of yeast, 3488*a*.
muscle poison by, elec.-potential change in, 5121*d*.
as polymerization inhibitor and initiator in isoprene, 5621*e*.
Raman spectrum of, 6082*h*.
and salts, in flower (cut) preservation, P 4792*g*.
sodium salt, effect of pH on respiratory inhibition by, 6251*f*.
toxicity to yeast cells, effect of pH on, 1828*i*.
——, **(2-iodo-4,6-dinitrophenyl)-**, 2184*c*.
——, **β-ionylidene-***, ethyl ester, 2585*h*.
——, **(2-isoamoxyethoxy)-**, in mercerizing solns., P 9477*i*.
——, **(isoamylmercapto)-**, and 2-(*p*-chlorobenzyl)-2-thiopseudourea salt, 3364*i*.
——, **isobenzofuryl-**. See *Isobenzofuranacetic acid*.
——, **isobutyl-**. See *Isocaproic acid*.
——, **isobutyryl-**. See *Isocaproic acid*, β-*oxo-*.
——, **isoindolinyl-**. See *Isoindolineacetic acid*.
——, **isonitro-**, potassium deriv., K salt, 1004*c*.
——, **(2-isopropoxyethoxy)-**, in mercerizing solns., P 9477*i*.
——, **isopropyl-**. See *Isovaleric acid*.
——, **isothiocyano-**, ethyl ester, as food disinfectant, 9273*i*.
——, **(menthyloxy)-**, esters and salts, 1353*g*.
ester with estrone, 3432*b*.
——, **(3-*p*-menthyloxy)-**, methyl ester, 3364*e*.
sodium salt, and esters of optical isomers of, 8100*c*.
——, **mercapto-**, alkyl derivs., manuf. and mixt. with alkylsulfinylacetic acid for rust inhibition for turbine oils, P 8131*a*.
ammonium salt, emulsifier for hair-waving compn. contg., P 8621*e*.
as analytical reagent, 8058*h*.
calcium salt, depilating value and properties of, 6449*f*.
as catalyst in reaction of ketones with phenols, P 5424*c*.
in cold wave solns., 3144*i*.
compd. with fuscin, 4335*fg*.
condensation product with *N*-(hydroxymethyl)stearamide, P 6440*c*.
derivs., 3364*d*, P 9084*b*.
in cold waving of hair, 2374*d*
hair-wave cream contg., P 3571.
diesters with dithiobenzenearsonous acid derivs., 598*i*.
effect on growth of *Avena* coleoptile and *Pisum* internodes, 5094*f*.
on penicillin action, 3060*d*.
on polymerization of allyl and Me methacrylates, 8200*a*.
on protein fibers, 468*f*.
on sea-urchin eggs with fully developed fertilization membrane, 775*e*
esters (mixed) of, and drying oil acids with polyhydric alcs., P 9081*f*.
esters (mixed) with glycerol, P 4290*e*
esters with BAL and related compds., antidotal activity in oxophenarsine poisoning, 9250*i*.
with *p*-carbamyldithiobenzenearsonous acid, effect on virus of psittacosis-lymphogranuloma group, 9249*i*.
with dithio-*p*-ureidobenzenearsonous acid, in amebiasis therapy, 8559*b*
ethyl ester, styrene polymerization in presence of, 1340*f*.
as iron inhibitor in Al detn., 2889*h*.
lignin deriv., 2767*g*.
mercaptals with keto steroids, 7033*h*
mercaptole with dehydroisoandrosterone, 658*h*.
mercaptole with 2,5-hexanedione, 561*g*
protective action against bacteriophage x-ray inactivation, 2275*g*
reaction products of, with coconut oil fatty acid amide and crotonaldehyde or with stearamide and acrolein, cinnamaldehyde, AcH or D glucose, surface-active, P 7242*e*.
reaction with crotonaldehyde and coconut fat acid amide, stearamide or stearic acid hydrazide, washing agents by, P 5978*hi*, P 5979*a*.
reaction with lignin, 5764*b*.
as stabilizer for polysulfone resins, P 9527*e*.
synergistic action of Ag ions and, on bacteria, 2277*g*.
textile auxiliary agent from, P 4500*b*.
thiocarbamate, antithyroid activity of, 9242*a*.
toxicity of, 1807*f*.
in wool reduction, 5955*e*.
wool structure changes from, 2778*i*.
——, **(*p*-mercaptophenylmercapto)-**, 3365*a*.
in penicillin production, 2271*g*.
——, **mesitylmercapto-**, 3365*c*.
——, **(mesityloxy)-**, effect on plant growth, 8017*f*.
——, **methoxy-**, P 3448*d*.
butyl ester, Fe oxide pigment powder wetting by, 8697*i*.
diester with 2-(4-chloro-2-nitroanilino)-2-methyl-1,3-propanediol, P 7694*e*.
metabolism of, 8484*a*.
piperazine salt, 235*e*.
——, **[*p* - (*p* - methoxybenzamido)-phenyl]-**, methyl ester, 3361*g*.
——, **(*o*-methoxyphenoxy)-**, calcium salt, effect on white corpuscles, 6307*g*.
thorium salt, 8-methoxy-3-chromanone from, 1771*a*.
——, **(*p*-methoxyphenoxy)-**, methyl ester, 3364*e*.
——, **methoxyphenyl-**, bismuth salts, 2488*i*.
——, **(*m*-methoxyphenyl)-**, ethyl ester, 7033*d*.
——, **(*p*-methoxyphenyl)-**. See *Homoanisic acid*.
——, **(*p* - methoxyphenylmercapto)-**, methyl ester, 3365*d*.
——, **(6-methoxy-*m*-tolyl)-**, and ethyl ester, 1385*b*.
——, **(2-methylallylmercapto)-**, 3364*i*.
——, **(2-methylallyloxy)-**, vinyl ester, P 2817*b*.
——, **methylamino-**. See *Sarcosine*.
——, **(3-methyl-2-butenylmercapto)-**, and 2-benzyl-2-thiopseudourea salt, 3364*i*.
——, **[3 - (3,4 - methylenedioxyphenyl) - propylmercapto]-**, as insecticide, P 1902*i*.
——, **(1-methylheptylmercapto)-** (?), 3365*b*.
——, **(α - methylhomopiperonylmercapto)-**, as insecticide, P 1903*a*.
——, **(methylimino)di-**, (compd. omitted from abstr.), 2927*d*.
——, **methylmercapto-**, as biol. source of labile Me, 2682*e*.
——, **methyl-*d*-mercapto-**, as biol. source of labile Me, 2682*f*.
——, **(*p*-methylmercaptophenyl)-**, and methyl ester, 3361*e*.
——, **methylneopentyl-**. See *Valeric acid*, α,γ,γ-*trimethyl-*.
——, **(1 - methyl - 4 - oxo - 5,5 - diphenyl - 2 - imidazolin - 2 - yl-mercapto)-**, 3016*c*.
——, **(6-methyl-2-pyridyloxy)-**, ethyl ester, 6630*f*.
——, **(*p*-methylsulfonylbenzoyl)-**, ethyl ester, 1740*b*.
——, **(*p*-methylsulfonylphenyl)-**, and ethyl ester, 1739*g*.
——, **α-methyl-α,α'-thiodi-**, 3364*h*
——, **[2 - (4 - morpholinyl)ethoxy]-phenyl-**, esters, 2189*f*.
——, **naphthoxy-**, effect on unfruitful Valencia orange trees, 9338*i*.
——, **2-naphthoxy-**, effect on respiration of plant tissue, 5456*i*.
effect on stomata, 3493*a*.
effect on tomatoes, 9337*f*.
fruit setting with, 1139*d*.
halo derivs., 3813*f*.
in *Orobanche aegyptiaca* control, 3134*h*
——, **naphthyl-**. See *Naphthaleneacetic acid*.
——, **1-naphthylmercapto-**, methyl ester, 3365*d*.
——, **2-naphthylmercapto-**, and ethyl ester, 3365*c*.
——, **naphthylphenyl-**. See *Naphthaleneacetic acid*, α-*phenyl-*
——, **nitrilotri-**, P 6224*g*.
complexes and salts of, 2888*c*
complexes with rare earths, pH and stability of, 8301*a*.
in detn. of metals, 4800*d*.
disodium salt, reaction with sulfides and mercaptides, 9090*f*.
esters, for improvement of resinous products and rubbers, P 5229*h*.
for prevention of rancidity of detergents, P 886*h*.
sodium salt, as softening addn. to washing powders in laundries, 5976*i*.
——, **nitro-**, copper salt, as potato spray, 4413*h*.
dipotassium deriv., explosion of, 4855*a*.
ethyl ester, and its $NH_3$ compd., 127*e*.
methyl ester, heat of combustion of, 7318*d*.
——, **nitrodithio-**, copper and zinc salts as potato sprays, 4413*h*
copper, $CuNH_4$ and Zn salts as fungicides, 7177*b*.
——, **[*m*(*o* and *p*)-nitrophenyl]-**, ethyl ester, 7454*h*.
——, **(*p*-nitrophenyl)-**, as carboxypeptidase inhibitor, 6266*a*.
effect on penicillin production 3060*f*, 6273*e*.
and methyl ester, 4654*e*.
piperazine salt, 235*f*.
——, **octadecylmercapto-**, P 8131*a*.
——, **(octadecylsulfinyl)-**, P 8131*b*.
——, **octylmercapto-**, 3365*b*.
——, **(*sec*-octylphenoxy)-***, derivs., as insecticides, P 350*bcd*.
——, **oxazolidyl-**. See *Oxazolidineacetic acid*.
——, **oxo-**. See *Glyoxylic acid*.
——, **(4 - oxo - 5,5 - diphenyl - 2 - imidazolin-2-ylmercapto)-**, 3016*b*.

—, α,α'-**oxydi-**. See *Diglycolic acid.*
—, **pentamethyldisiloxanyl-**, 5003*g.*
—, **phenacylmercapto-**, 608*a.*
—, **phenanthryl-**. See *Phenanthreneacetic acid.*
—, **phenethylmercapto-**, and methyl ester, 3365*b.*
—, **phenoxy-**, chlorination of, P 2233*i*, P 7509*i.*
chloro derivs., as weed killers, 2358*i.*
ethyl ester, self-condensation of, 4248*d.*
as growth substance, 8017*f.*
phenyl ester (omitted from abstr.), 2973*g.*
piperazine salt, 235*f.*
—, (**2 - phenoxyethylmercapto**)-, 3365*b.*
—, **phenoxyphenyl-**, 2-(1-pyrrolidyl)-ethyl ester and its -HCl, 1388*e.*
—, (*p*-**phenoxyphenyl**)-, ethyl ester, 3361*g.*
—, (*p*-**phenoxyphenylmercapto**)-, and methyl ester, 3365*c.*
—, (**3-phenoxypropylmercapto**)-, and methyl ester, 3365*c*
—, **phenyl-**, 2-aminoethyl ester, -HCl, effect on penicillin production, 2269*h*
anhydride and Na salt behavior in $Ac_2O$, 2110*f.*
assocn. and elec. polarization in $CCl_4$, 6493*h.*
(9 carbazolylalkyl) esters, 624*b*
as carboxypeptidase inhibitor, 6266*a*
combination with serum albumins, 4708*e.*
derivs., 2183*i*, 7452*g.*
derivs., as penicillin precursors, 3360*i*
α-(2-dialkylaminoalkoxy) derivs., alkyl esters, 2189*d.*
2-diethylaminoethyl ester, 1023*c.*
effect on germination of seeds, 7095*a.*
on mitosis in root meristems, 9171*c*
on penicillin production, 2269*h*, 3060*f*, 6273*e.*
on root elongation in germinating barley, 8015*g.*
electrolysis of, and ammonium salt, P 6926*h.*
esters, 6162*b.*
alcoholysis of, kinetics of, 7418*e.*
with 6 dimethylamino-4,4-diphenyl-3 heptanol-HCl, 3391*c.*
with *N*-2-hydroxyethyl-α-phenylacetamide, P 4697*h.*
with 2-methyl-1-piperidinepropanol and its salts, P 694*i.*
with methyl salicylate, P 4702*a.*
phys. consts. of, 2591*d*
with trimethylenediphenol derivs., P 4700*c.*
ethyl ester, nitration of, 7454*f.*
ethyl ester, reaction with MeN(CH₂CH₂Cl)₂, P 3471*g.*
as growth substance, 8017*f.*
halo derivs., 605*b.*
3-hydroxypropyl ester, 1404*g.*
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*
o-methoxyphenyl ester, P 5802*h.*
methyl ester, ammonolysis rate of, 6405*g*
from penicillin (clinical), 2184*g*
as penicillin G precursor, 272*i.*
*Penicillium notatum* culture medium contg., P 7649*b.*
from phenethyl disulfide by Willgerodt reaction, 2187*i.*
2-(α-phenylacetamido)ethyl ester, P 3574*e.*
phenylhydrazide, toxicity to corn borer, 7182*h.*
potassium H salt, as pH standard, 8812*g.*
potassium H salt, structure of, 2481*f.*
prepn. of, 2570*c*, 4654*e.*
procaine salt, interfacial tension at water-olive oil boundary, 7290*d.*
3-pyridylmethyl ester, P 8105*h.*
*p*-quinone diacetate deriv., as vulcanizing agent, 5623*c.*
reaction with $Ph_2NH$, 4672*i.*
in stabilization of $As_2S_3$ hydrosol, 7779*i.*
surface tension of aq., 8797*f.*
in urine of pregnant mares, 2685*i.*
—, **phenylarsinico-**, in penicillin production, 2273*d.*
—, (*p*-**phenylazophenoxy**)-, methyl ester, 3364*f.*
—, (**phenylazo**)(**phenylhydrazono**)-1, in analysis, 5696*f.*
—, **phenylenedi-**. See *Benzenediacetic acid.*
—, (*m*-**phenylenedioxy**)**di-**, reaction with ethylene glycol, P 5998*a.*
—, (*p*-**phenylenedioxy**)**di-**, dimethyl ester, 3364*e.*
—, (**phenylimino**)**di-**, and methyl ester and metal derivs., spectra of, 7340*h.*
—, **phenylmercapto-**, as growth substance, 8017*f.*
oxidation of, 8816*a.*
—, (*p*-**phenylmercaptophenyl**)-, ethyl ester, 3361*g.*
—, **phenylpicryloxy-**, ethyl ester, 2942*g.*
—, **phenyl**[**2-(1-piperidyl)ethoxy**]-, esters, 2189*f.*
—, (**3-phenylpropylmercapto**)-, and methyl ester, 3365*c.*
—, (**phenylselenyl**)-, in penicillin production, 2273*d.*
—, (**phenylsulfonyl**)-, in penicillin production, 2273*d.*
—, (**4-phenyl-2-thiazolylmercapto**)-, 3365*b.*
—, **phthalazyl-**. See *Phthalazineacetic acid.*
—, **phthalidene-**†, esters, 2974*d.*
—, **phthalimido-**. See *2-Isoindolineacetic acid, 1,3-dioxo-.*
—, **picryloxy-**, ethyl ester, 2942*g.*
—, **piperidyl-**. See *Piperidineacetic acid.*
—, **4-piperidylidene-**. See $\Delta^{4}$-*α-Piperidineacetic acid.*
—, **1-piperidylmercapto-**, 2934*c.*
—, **piperonylidene-**. See *Cinnamic acid, 3,4-methylenedioxy-.*
—, (**1-propylamylmercapto**)-, and 2-(*p*-chlorobenzyl)-2-thiopseudourea salt, 3365*b.*
—, (**1-propylbutylmercapto**)-, and 2-(*p*-chlorobenzyl)-2-thiopseudourea salt, 3365*b.*
—, (**4-propyl-*m*-toloxy**)-, 3385*h.*
—, **pyranyl-**. See *Pyranacetic acid.*
—, **pyridyl-**. See *Pyridineacetic acid.*
—, [**2 - (2 - pyridyl)ethylmercapto**]-, phosphate, 3365*a*
—, **pyrimidyl-**. See *Pyrimidineacetic acid.*
—, **pyrrolidyl-**. See *Pyrrolidineacetic acid.*
—, **quinazolyl-**. See *Quinazolineacetic acid.*
—, **quinolyl-**. See *Quinolineacetic acid.*
—, **quinolylcarbonyl-**. See *Quinolinepropionic acid, β-oxo-.*
—, **selenazolyl-**. See *Selenazoleacetic acid.*
—, **seleno-**, anhydride, behavior in $Ac_2O$, 2110*f.*
—, (*p* - **sulfamylphenylmercapto**)-, 3365*a.*
—, (*p* - **sulfamylphenylmercurimercapto**)-, 7922*g.*
—, **sulfinyldi-**, and esters, 9032*g.*
—, **sulfo-**, Beilstein test with, 7380*b.*
as catalyst in esterification of amino alcs., P 674*e.*
as catalyst in ketene reaction with ketones, P 3838*h.*
dodecyl ester, compd. with 2-aminoethanol, detn. of, P 6950*a.*
dodecyl ester sodium salt, identification by x-ray diffraction patterns 6915*i.*
esters, as stabilizers for icings, P 6759*c.*
esters, for improvement of electroreduction of metals, P 4152*e.*
salts with pyrylium derivs., P 7849*d.*
toxicity of, 4401*h.*
—, (**2,3,4,6-tetrachlorophenoxy**)-, salts in preservation of cellulosic materials, P 1146*d.*
—, **tetradecylmercapto-**, and sodium salt, 3365*d.*
—, (**6,7,8,8a - tetrahydro - 3 - acenaphthenyl**)-, 4250*f.*
—, (**tetrahydro - 3 - thienylsulfonyl**)-, 1,1-dioxide, P 2238*b.*
—, (**tetramethylenedithio**)**di-**, 3365*a.*
—, **thianaphthenyl-**. See *Thianaphtheneacetic acid.*
—, **thiaxanthyl-**. See *Thiaxantheneacetic acid.*
—, **thiazolidyl-**. See *Thiasolidineacetic acid.*
—, **thiazolyl-**. See *Thiasoleacetic acid.*
—, {[(*p*-**2-thiazolylsulfamylanilino**)-**methyl**]**mercapto**}-, P 7044*e.*
—, **thienyl-**. See *Thiopheneacetic acid.*
—, (**3-thienylmercapto**)-, and 2-benzyl-2-thiopseudourea salt, 3364*i.*
—, (**3-thienylmercapto**)- and 2-(*p*-chlorobenzyl)-2-thiopseudourea salt, 3364*i.*
—, **thio-**, toxicity to seed, 3133*b.*
—, **thiocarbamyl-**†, *N*-derivs., Me esters, 8924*g.*
ethyl ester, 5021*g.*
—, **thiocyano-**, isobornyl ester, toxicity to man, 8600*f.*
—, **thiodi-**, **monoesters**, P 6224*d.*
toxicity of, 1867*f.*
—, **thiol-**, **anhydride**, behavior in $Ac_2O$, 2110*f.*
benzyl ester, oxidation with peroxyacetic acid, 6975*g.*
(cyclohexylmethyl) ester, P 5418*f.*
esters, 7420*a*, 7423*h.*
and esters, 7417*d.*
esters, for improvement of synthetic rubbers, P 2805*d.*
esters with tertiary thiols, P 3445*b.*
ethyl ester, 561*a.*
2-fluoroethyl ester, volatility and vapor pressure of, 8841*b.*
phenyl ester, as molluscacide, 8086*d.*
phenyl ester, detn. of, 8978*i.*
as polymerization inhibitor and initiator in isoprene, 5621*e.*
spectrum and structure of, and its cyclohexyl ester, 7410*d.*
spectrum of, 8882*d.*
vinyl ester, polymers with $C_2H_4$, P 6001*a.*
—, **thymyloxy-**, methyl ester, 3364*e.*
—, **o**(**and *p*)-toloxy-**, 7867*i.*
—, *p*-**toloxy-**, as growth substance 8017*f.*
methyl ester, 3364*e.*
—, *p*-**tolyl-**, prepn. of, 4654*f.*
—, *p*-**tolylmercapto-**, and ethyl ester, 3365*a.*
—, (**4,5,6 - triamino - 2 - pyrimidylmercapto**)-, 580*c.*
—, **tribromo-**, Raman spectrum of, 6082*g.*
—, [(**2,2,2 - tribromoethylidene**)**di-***p*-**phenylene**]**di-**, P 2364*f.*
—, (**2,4,6-tribromophenoxy**)-, ethyl ester, toxicity to rats, 348*f.*
—, (**3,4,5-tribromophenyl**)-, methyl ester, 3361*d.*
—, **trichloro-**, allyl ester, P 2633*a.*
ammonium and Na salts, in grass eradication and their effect on strawberries and raspberries, 4413*e.*
ammonium and Na salts, in weed control, 7625*a.*
as catalyst in alkylation of phenols, P 7966*c.*
in ethanolysis of palm oil, 7723*i.*
in partial hydration of myrcene, P 6219*g.*
chlorophenyl esters, 1896*a.*
*p*-chloro-α-(trichloromethyl)benzyl ester, as insecticide, 2359*h.*
*p*-chloro-α-(trichloromethyl)benzyl ester, prepn. and toxicity to insects, 199*c.*
effect on cornea, 771*c.*
on nitrocellulose lacquers, 7718*h.*
on stainless steel cooking utensils, 2707*a.*
esters, 4220*d.*
esters, phys. constants of, 2957*a.*
ethylene oxide hydration in the presence of, P 6652*f.*
ethyl ester, P 7954*d.*
ethyl ester, spectrum of, 1656*d.*
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h.*
ion of, effect on isoelec. and isoionic points of serum albumins, 3690*c.*
11 - oxabicyclo[4.4.1]hendec - 1 - yl ester, 6189*c.*
protein pptd. from blood serum by adsorption of thiocyanates on, 6682*a.*
reaction with PhNMe₂, 5361*f.*
sodium salt, in weed control in gladiolus, 5145*g.*
sorption by anionites, 1238*c.*
strength of, 4082*i.*
—, [(**2,2,2 - trichloroethylidene**)**di-***p*-**phenylene**]**di-**, P 2364*f.*
—, (**2,4,5 - trichlorophenoxy**)-, butyl ester, effect on potatoes, 9339*f.*
butyl ester, movement in bean plant in relation to carbohydrate translocation, 6705*e.*
effect on *Calimyrna* fig of, and its butyl ester, 5893*c.*
effect on citrus-fruit storage, 1517*b.*
on fungi, 6704*h.*
on soil microörganisms, 1514*d.*
fig maturation by, and isopropyl ester, 2726*f.*
isopropyl ester, in hazel-brush control in forests, 3185*a.*
and isopropyl ester, in potato-sprouting prevention, 1893*e.*
in weed control, P 2734*a*, 7625*a.*
—, [**2,4,5**(**and 2,4,6**)-**trichlorophenoxy**]-, esters, 2973*g.*
—, (**2,4,6-trichlorophenoxy**)-, P 2234*a.*

——, (2,4,5-trichlorophenyl)-, P 7046*e*.
——, trichlorothiol-, aryl esters, as GR-S rubber polymerization modifier and vulcanization accelerator, P 4046*e*.
spectrum and structure of, and its cyclohexyl ester, 7410*d*.
xylyl ester, P 6664*d*.
——, triethyl-. See *Butyric acid, α,α-diethyl-*.
——, [1-(triethylsilyl)ethylmercapto]-, 2929*bd*.
*d*-, and salts, 5003*h*.
——, trifluoro-, ester with pyruvonitrile, polymerization of, P 5636*c*.
——, (α,α,α-trifluoro-*m*-toloxy)-, and methyl ester, 3364*d*.
——, (α,α,α-trifluoro-*m*-toluyl)-, ethyl ester, 2211*f*.
——, (α,α,α-trifluoro-*m*-tolyl)-, 3361*f*.
——, (α,α,α-trifluoro-*m*-tolylmercapto)-, and methyl ester, 3365*a*.
——, (α,α,α-trifluoro-*m*-tolylselenyl)-, 2272*g*.
——, trimethyl-. See *Pivalic acid*.
——, (2,4,6-trimethylbenzylmercapto)-, 3365*c*.
——, (trimethylsilyl)-, 5003*g*.
ethyl ester, 562*f*.
——, [*p*-(trimethylsilyl)phenylmercapto]-, 3365*c*.
——, [*p*-(trimethylsilyl)phenylselenyl]-, in penicillin production, 2273*i*.
——, (triphenylmethylmercapto)-, hydrolysis of, and of its Et ester, 1753*h*.
——, ureido-. See *Hydantoic acid*.
——, α,α′-[(*p*-ureidophenylarylene)dithio]di-†, in amebiasis therapy, 8559*b*.
——, vinyl-. See *3-Butenoic acid*.
——, xylyloxy-, butyl ester, as plasticizer, P 6002*e*.
——, 3,4-xylyloxy-, methyl ester, 3364*e*.
——, 3,5-xylyloxy-, as growth substance, 8017*f*.
**Acetic anhydride**, calorimetry and explosions of mixts. of $HClO_4$ and, 1982*i*.
as catalyst in H-halide reaction with tetrahydrofuran, P 1433*d*.
condensation products with resins from disulfides and Cl compds., P 0863*g*.
copper corrosion by, 6141*g*.
in dehydration of amides, P 3836*d*.
detection in AcOH, 6947*b*.
distn. from aq. soln., P 4525*a*.
electrolysis in, 2876*f*.
explosion and ignition of mixt. of $CrO_3$ and, 3199*c*.
hydrolysis of, 472*f*, 5271*c*, 6495*b*.
manuf. of, P 672*a*, P 2223*h*, P 8398*f*.
mixt. with $HNO_3$, spectrum of, 8273*g*.
polymerization of, with higher monocarboxylic acids, ketenes by, P 4494*d*.
prepn. of, 125*a*, 8353*d*.
purification of, P 4288*i*, P 5792*i*.
reaction kinetics in solns. with AcOH, 26*e*.
reaction of $H_2SO_4$ and, with unsatd. ketones, 1391*f*.
reactions analogous to neutralization in, and cond. and ionization of, 2110*e*.
reaction with *tert*-BuCl (attempted), 111*f*.
with Grignard reagents, 565*d*.
with $H_2O_2$, P 3444*f*.
with CaO, 1318*a*.
with $H_2SO_4$ and $HN_3$, 9027*c*.
with 2,4,4-trimethylpentene, P 4686*a*.
**Acetimidic acid**, α-anilino-, ethyl ester, di-HCl, P 2738*h*.
——, α-carboxy-†, diethyl ester, -HCl, 3359*i*.
——, cyano-, derivs., 3359*i*.
——, α-cyano-*N*-phenyl-, methyl ester, 3356*g*.
——, *N*-methyl-, phenyl and *p*-tolyl esters, and their salts, 2594*f*.
**Acetimidyl chloride**, α-chloro-*N*-(*p*-nitrophenylsulfonyl)-, P 6660*i*.
——, *N*-(*p*-nitrophenylsulfonyl)-, P 6660*h*.
**Acetin**, 1,2(and 1,3)-di-, benzoates, P 1796*c*.
effect of tri-, on cornea, 771*b*, 3110*h*.
phenolic resin from, P 3655*e*.
plasticizer value of tri-, in synthetic elastomers, 2010*i*.
softeners of tri-, in reclaimed rubber, 8191*g*.
**Acetoacetamide**, *N*,*N*′-alkylenebis and *N*,*N*′-(iminodialkylene)bis derivs., in electrolytic recording, P 2882*c*.
derivs., P 4289*b*.
——, *N*-(3-acetyl-4-hydroxy-1-naphthyl)-, 5779*d*.
——, *N*-benzothiazolyl-, derivs., 5776*b*.
——, *N*,*N*-bis(2-oleoylaminoethyl)-†, P 4289*c*.
——, *N*-(6-chloro-2-phenyl-6-benzothiazolyl)-, 5776*c*.
——, *N*-(2-cyanocyclopentylidene)-, 9068*e*.
——, *N*-(6-ethoxy-2-benzothiazolyl)-, azo dyes from, P 7695*a*.
——, *N*-(5-methoxy-2-phenyl-6-benzothiazolyl)-, 5776*c*.
——, *N*-1(and 2)-naphthyl-, 1419*f*.
——, *N*-2-naphthyl-, 7485*b*.
——, *N*-octadecenyl-, P 4289*c*.
——, *N*-2-phenyl-5-benzothiazolyl-, 5776*d*.
**Acetoacetanilide**, azo dyes from, P 8156*d*, P 8174*f*, P 9463*b*.
and derivs., reactions with aromatic aldehydes, 5013*g*.
prepn. and reactions of, 228*i*.
——, *p*-(*p*-acetamidobenzyl)-, 645*i*.
——, 4-amino-2-chloro-5-nitro-, azo dyes from, P 9463*b*.
——, 4-amino-3-nitro-, azo dyes from, P 9463*b*.
——, *p*-(*p*-bromobenzyl)-, and 2,4-dinitrophenylhydrazone, 645*h*.
——, *o*-chloro-, disazo dye from mixts. of biphenyldiamines and, P 8174*f*.
——, *p*-(*p*-chlorobenzyl)-, and 2,4-dinitrophenylhydrazone, 645*h*.
——, α-[4(and 5)-chloro-*o*-tolylazo]-4-cyano-2,5-dimethoxy-, P 3461*i*.
——, 4-cyano-, 2,5-dialkoxy derivs., P 3461*i*.
——, 4-cyano-α-(4-cyano-2,5-dimethoxyphenylazo)-2,5-dimethoxy-, P 3461*i*.
——, 4-cyano-2,5-dimethoxy-, and azo derivs., P 3461*i*.
——, 2,5-dichloro-, disazo dyes from, P 8156*g*.
——, α-(*p*-diethylaminophenylimino)-*m*-1,3-dioxolan-2-yl-, P 8162*d*.
——, α,α′-(3,3′-dimethoxy-4,4′-biphenylenebisazo)bis[4-cyano-2,5-dimethoxy-, P 3461*i*.
——, *m*-1,3-dioxolan-2-yl-, P 4299*f*.
——, *p*-hydroxy-, sulfate (ester), 173*h*
——, *p*-(*p*-methoxybenzyl)-, and 2,4-dinitrophenylhydrazone 645*h*.
***o*-Acetoacetanisidide**, disazo dyes from, P 8156*e*.
**Acetoacetic acid** (*acetylacetic acid, diacetic acid*). (See also "*Acetone bodies.*")
alkaryl derivs., 3392*h*.
allyl ester, polymers with acrylamide, P 9531*g*.
in brain tissues, 1099*c*.
conversion to acetic and butyric acids by *Clostridium acetobutylicum* and *C. butyricum*, 6700*d*.
cyclohexyl ester, 5150*e*.
derivs., reaction with salicyloyl chloride acetate, P 693*g*.
detn. in blood, 9128*a*.
detn. of, and its 2,4-dinitrophenyl hydrazone, 5342*h*.
α,γ-diaryl derivs., Et esters, 1385*c*.
α,α-disubstituted, esters, ketones from, 1317*b*.
dodecyl ester, as synergist for nicotine, 5894*a*.
effect on blood sugar 3928*a*.
effect on rubber formation in guayule, 9177*a*.
electrolytic dissocn. const of, 1320*e*.
ester, as catalyst in polymerization of chloroprene, P 1601*d*.
as catalysts in polymerization of butadiene, 1597*b*.
enolization and solvation of, 2945*a*.
reaction with aniline and its derivs., 228*f*.
ethyl ester, acylhydrazones†, 6972*cfi*, 6973*i*.
anthrapyridone dyes from, P 8165*b*.
bromination of, kinetics of, 4642*d*.
color reaction with $FeCl_3$, 1007*h*.
Cu deriv., antifouling properties of, 3964*b*.
cyanoethylation of, 2582*g*.
enol content of, 1010*f*.
enol-keto tautomerism in gas phase, 139*g*, 6979*g*.
formation in Reformatskiĭ reaction with $BrCH_2CO_2Et$, 613*c*.
hydrazone with 3-hydrazinophthalimide, 7488*g*.
hydrogenation of, 572*d*.
hydrogenation velocity of, 573*h*.
manuf. by I. G. Farbenindustrie, 6979*g*.
*ethyl ester*, as polymerization initiator in isoprene, 5621*f*.
polymerization with butadiene or its derivs., P 9520*c*.
prepn. of, 6969*a*.
reactions of, P 6665*b*.
reaction with aldehydes and nitriles, P 689*c*.
reaction with 1,1-dialkyl-4-oxopiperidinium salts, 7432*f*.
reaction with 3,4-dihydro-1-acetonaphthone, 2200*a*.
reaction with 4-ethoxy-3,4-dihydro-3-phenyl-2(1*H*)-quinazolinethione, 1047*a*.
reaction with ethylene oxide, P 678*a*
reaction with $PhCH_2CHO$ and $NH_3$, 4671*f*.
Na deriv., *o*-hydroxyacetophenone ester rearrangements in the presence of, 2621*a*.
spectrum of, 4574*h*.
toxicity of, 4401*g*.
ethyl ester *o*-carboxyphenylhydrazone, 5024*h*.
ethyl ester oxime, toxicity to, and utilization by *Azotobacter*, 2276*d*.
ethyl ester semicarbazone, hydrogenation of, 2604*g*.
formation from acetates in liver exts., 1816*i*.
from phenylalanine in animal organism, 8550*h*.
from triacetic acid and its Et ester and lactone, 2261*c*.
from tyrosine, 1745*h*.
hydroxybutyrate oxidation to, by O in liver, cytochrome C in relation to phosphate esterification in, 6256*e*.
oxidation by *Escherichia coli*, 9145*b*.
oxidation of, 259*c*.
reaction with 2-methylmercaptobenzothiazolium derivs., P 8167*c*
sodium salt, diabetogenic action of, bio-synthesis of vitamin C and, 3501*h*
**Acetoacetic acid**, α-acetamido-, ethyl ester, 4225*d*.
——, α-acetyl-, ethyl ester, and its Cu deriv., P 6655*a*
ethyl ester diphenylhydrazone, 7909*a*
——, γ-acetyl-. See *Triacetic acid*
——, α-acetyl-α-bromo-γ-phenyl-, ethyl ester, 7909*f*.
——, α-acetyl-γ-phenyl-, ethyl ester monosemicarbazone, 7909*f*.
——, α-allyl-. See *4-Pentenoic acid, 2-acetyl-*.
——, α-amyl-. See *Enanthic acid, α-acetyl-*.
——, γ-(4-antipyrylazo)-, ethyl ester 1044*i*.
——, α-benzoyl-, ethyl ester and its Cu deriv., P 6655*d*.
ethyl ester, reaction with $HNO_3$, 2991*h*
——, α-benzyl-. See *Hydrocinnamic acid, α-acetyl-*.
——, α,α-bis(2-cyanoethyl)-, ethyl ester, 2582*g*.
——, α,γ-bis(2,4-dichlorophenoxy)-, methyl ester, 4248*e*.
——, α-bromo-, ethyl ester, kinetics of formation of, 4642*d*.
——, γ-bromo-, ethyl ester, 7909*a*
——, γ-bromo-α-bromoacetyl-, ethyl ester, 7910*a*.
ethyl ester and its Cu deriv., 7908*i*, 7909*a*.
——, γ-butenyl-. See *Octenoic acid, 3-oxo-*.
——, α-butyl-. See *Caproic acid, α-acetyl-*.
——, α-chloro-, ethyl ester, color reaction with $FeCl_3$, 1008*e*.
ethyl ester, fungistatic activity of, 9331*g*.
——, α-(2-chloro-4,6-dinitrophenyl)-, ethyl ester, 2184*d*.
——, α-(4-chloro-2,6-dinitrophenyl)-, ethyl ester, 7452*h*.
——, α-chloro-α-2-hydroxyethyl-, γ-lactone, P 2224*d*, P 6225*e*.
γ-lactone, reaction with AcOH, P 677*h*
——, α-cinnamoyl-. See *4-Pentenoic acid 2-acetyl-3-oxo-5-phenyl-*.
——, α-cyano-, ethyl ester, color reaction with $FeCl_3$, 1009*d*.
——, α,α-dibromo-, ethyl ester, kinetics of formation of, 4642*d*.
——, α,α-dibutyl-†, methyl ester, 1317*d*
——, α,γ-di-*p*-cumyl-, ethyl ester, 1385*c*
——, α,γ-diethoxy-, isopropyl ester, 4248*d*.
——, α,α-diethyl-, ethyl ester 1723*g*.
——, α-(3-diethylaminoethyl)-, ethyl ester, color reaction with $FeCl_3$, 1009*e*.

ethyl ester, DL-tryptophan from, P 6238*e*.
——, α - (**diethylaminomethyl**) - α-**ethyl-**, ethyl ester, and -HCl, 7643*b*.
——, α - (**diethylaminomethyl**) - α-**methyl-**, ethyl ester, 7643*b*.
—, α,γ-**difluoro-**, methyl ester, 2933*b*.
——, α,γ-**dimethoxy-**, ethyl ester, color reaction with $FeCl_3$, 1008*e*.
—, α,α-**dimethyl-**, ethyl ester, spectrum of, 4574*h*.
—, α - (**dimethylaminomethyl**) - α-**ethyl-**, ethyl ester, and -HCl, 7643*b*.
—, α - (**dimethylaminomethyl**) - α-**methyl-**, ethyl ester, and -HCl, 7643*a*.
, α,γ-**di-1(and 2)-naphthyl-**, esters, 1385*c*.
—, α-(**2,4-dinitrophenyl**)-, ethyl ester, reaction with acetone in the presence of alkali, 6175*c*.
—, α,γ-**diphenoxy-**, ethyl ester, 4248*d*.
—, α,γ-**di-o**(and *p*)**-tolyl-**, ethyl ester, 1385*c*.
, γ-**ethoxy-**, ethyl ester, 2625*e*.
—, α-**ethyl-**, ethyl ester, *o*-carboxyphenylhydrazone, 5025*a*.
ethyl ester, hydrogenation of, 572*d*.
—, α-**heptyl-**. See *Pelargonic acid, α-acetyl-*.
—, α-**hexadecyl-**. See *Stearic acid, α-acetyl-*.
—, α-**hexenoyl-**. See *Octenoic acid, 2-acetyl-3-oxo-*.
, α-**hydroxy-**, ethyl ester acetate, color reaction with $FeCl_3$, 1008*e*.
, α-**2-hydroxyethyl-**, ethyl ester acetate, color reaction of $FeCl_3$, 1008*e*.
γ-lactone, P 678*a*.
chlorination of, P 2224*d*, P 6225*e*.
color reaction with $FeCl_3$, 1008*a*.
—, α-**1-hydroxyethylidene-**, ethyl ester acetate, P 6655*b*.
—, α-(**2-iodo-4,6-dinitrophenyl**)-, ethyl ester, 2184*b*.
, γ-**iodo-α-iodoacetyl-**, ethyl ester, 7910*a*.
ethyl ester and its Cu deriv., 7909*d*.
, α-**isohexyl-**. See *Enanthic acid, α-acetyl-ε-methyl-*.
, α-**isopropyl-**. See *Isovaleric acid, α-acetyl-*.
, α-**methyl-**, ethyl ester, derivs., 7642*i*.
ethyl ester, spectrum of, 4574*h*.
, α-(**2-methylmercaptoethyl**)-, ethyl ester, 5742*e*.
, α - (**1 - methyl - 4 - phenyl - 4-piperidylcarbonyl**)-†, ethyl ester, P 2240*g*.
, α-(*p*-**nitrophenylmercapto**)- (?), ethyl ester, 6634*g*.
, α-**oxo-**. See *Butyric acid, α,β-dioxo-*.
—, α-**phenyl-**, ethyl ester, color reaction with $FeCl_3$, 1007*i*.
—, γ-**phenyl-**, ethyl ester, 3392*i*.
ethyl ester, prepn. (attempted), 7909*i*.
—, α-(**piperidylmethyl**)-. See *Piperidinepropionic acid, α-acetyl-*.
——, α-**propyl-**. See *Valeric acid, α-acetyl-*.
—, α,α'-**thiobis-**(?), diethyl ester, 6634*h*.
—, β-**thiothiol-**, anhydrosulfide, 4633*d*.
**Acetoacetonitrile**, α - (**2,5 - dimethoxyphenyl**)- 8384*f*.
**o-Acetoacetotoluidide**, disazo dye from mixts. of biphenyldiamines and, P 8174*f*.
**Acetoacetyl chloride**, and reaction with $H_2S$, 4633*d*.
—, α-**phenylazo-**, 3015*c*.
**Acetobacter**, *capsulatum* and *viscosum*, dextrin conversion into polysaccharide with serological properties of dextran by, 7079*d*.
effect on beer, 2365*i*.
*suboxydans*, coenzyme A as growth stimulant for, 6699*e*.
oxidation of D-inositol and D-inosose by, 153*b*.
oxidation of quercitol by, 4726*g*.
oxidation of volemite by, 7548*e*.
oxidations by, 1828*d*.
**Acetocholeic acid**. See *Desoxycholic acid*.
**Acetofuran**. See *Ketone, furyl methyl*.
**Acetoin**. See *2-Butanone, 3-hydroxy-*.
**Acetol**. See *2-Propanone, 1-hydroxy-*.
**Acetolysis**, of acetobromoglucose, 5748*i*
of acetylated guaran and xylan, 5009*d*.
of cellulose, 3809*a*.
**Acetomesidide** (*2,4,6-trimethylacetanilide*).
——, α-**chloro-**, 1022*a*.
*N* - [**2** - (**chloromercuri**)**ethyl**]-, 7449*d*.
——, α-**diethylamino-**, pharmacology of, 9257*e*.
and salts, 1022*b*.
**Acetomesitylene**. See *Acetophenone, 2,4,6-trimethyl-*.
**Acetonaphthalide**. See *Acetamide, N-naphthyl-*.
**Acetonaphthone**, mixt. with $C_{10}H_7CH(OH)CH_3$, reduction and dehydration of, P 5804*i*.
——, α-**benzoyl-**. See *1,3-Propanedione, 1-(naphthyl)-3-phenyl-*.
**1-Acetonaphthone** (*methyl 1-naphthyl ketone*), 3,5-dinitro-*p*-toluylhydrazone†, 6972*f*.
and picrate, 8371*b*.
Raman spectrum of, 494*b*, 8888*f*.
——, 4(5 and 7)-**amino-**, 6606*dgh*.
——, 3-**bromo-4-hydroxy-**, bactericidal action of, 5446*e*.
——, 7-**chloro-**, 3813*b*.
——, 4,6(and 4,7)-**diacetamido-**, 9058*d*.
——, 4,6(and 4,7)-**diamino-**, 9058*d*.
——, α-**diazo-**, 4653*c*.
——, 3,4-**dihydro-**, reaction with $AcCH_2CO_2Et$, 2200*a*.
——, 2(and 4)-**ethoxy-**, 7001*b*.
——, 2-**hydroxy-**, Bucherer reaction with, 6607*c*.
——, 2(and 4)-**hydroxy-**, bactericidal action of, 5446*e*.
——, 4-**hydroxy-**, 6606*h*.
——, 2(and 4)-**methoxy-**, 7001*b*.
——, 4-**methoxy-**, 6606*h*.
——, 5,6,7,8 - **tetrahydro - 2,3 - dimethyl-**, 208*e*.
——, α,α,α - **trichloro - 5,6,7,8 - tetrahydro-2,3-dimethyl-**, 208*e*.
**2-Acetonaphthone** (*methyl 2-naphthyl ketone*), 9424*f*.
acylhydrazones†, 6972*f*.
prepn. of, 8371*b*.
Raman spectrum of, 494*b*, 8888*f*.
reaction with $BzO_2H$, 2588*i*.
and semicarbazone, 2608*e*.
——, 6-**amino-**, and hydrochloride, 6606*d*.
——, 4-**amino-1-hydroxy-**, 5779*c*.
——, α-**benzoyl-**. See *1,3-Propanedione, 1-(2-naphthyl)-3-phenyl-*.
——, 4-**bromo-1-hydroxy-**, 2600*a*.
bactericidal action of, 5446*e*.
——, α-**chloro-3,4-dihydroxy-**, spectrum of, 7341*f*.
——, 4-**chloro-1-hydroxy-**, 2599*h*.
——, α-**diazo-1-hydroxy-**, acetate, 3415*h*.
——, 4 - (**2,5 - dichlorophenylazo**) - 1-**hydroxy-**, and benzoate, 5779*a*.
——, 1,4-**dihydro-1,4-dioxo-**. See *1,1-Naphthoquinone, 2-acetyl-*.
——, α,1-**dihydroxy-**, and acetates, 3416*a*.
——, 1,4-**dihydroxy-**, 4-acetate, spectrum of, 7341*f*.
——, 1,4(and 1,5)-**dihydroxy-**, spectra of, 7341*f*.
——, 1-**hydroxy-**, bactericidal action of, 5446*e*.
and derivs., 3414*i*, 3415*a*.
halogenation of, 7010*e*.
spectrum of, 7341*f*.
——, 6-**hydroxy-**, 6606*e*.
——, 1-**hydroxy-4-nitro-**, 2600*b*.
benzoate, 5779*a*.
——, 1-**hydroxy-4-phenylazo-**, and benzoate, 5778*h*.
——, 6-**methoxy-**, 6606*e*.
——, α,α,α,4-**tetrachloro-1-hydroxy-**, 2599*i*, 7010*f*.
——, **tetrahydro-**, Raman spectrum of, 8888*g*.
——, 5,6,7,8-**tetrahydro-**, 9424*f*
——, **thiobis**[1-**hydroxy-**, and diacetate, reactions of, 2599*h*.
——, α,α,4-**tribromo-1-hydroxy-**, 2600*a*, 7010*f*.
——, α,1,4-**trihydroxy-**, α,4-diacetate, spectrum of, 7341*f*.
——, 1,3,4-**trihydroxy-**, 3-acetate, spectrum of, 7341*f*.
——, 1,3,4(1,5,8 and α,3,4)-**trihydroxy-**, spectra of, 7341*f*.
**Acetone** (*methyl ketone, 2-propanone*). (See also "*Acetone bodies*"; *Ketonemia; Ketonuria*; for derivatives see under *2-Propanone*.)
absorption from blood by mammary glands, 8040*b*.
acylhydrazones†, 6972*ceh*, 6973*cfi*.
adsorption by C, 6*b*.
adsorption by nitrocellulose, 8244*c*.
in air, max. allowable concn. of, 4401*a*.
3-(allyloxy)propylene cyclic acetal—see *1,3-Dioxolane, 4-*[(*allyloxy*)*methyl*]*-2,-2-dimethyl-*.
(γ - amino - γ - carboxybutyryl)hydrazone†, prepn. and antibacterial action of, 2674*h*.
analysis of mixts. with MeOH or Me acetate by titration with water in presence of furfural, 6946*b*.
antimony fluoride soly. in, 6890*b*.
aromatic amine reaction with diketene in, 1247*d*.
assocn. of, 5248*e*.
in azeotropic and extractive distn. of $C_5$ hydrocarbons, P 2824*b*.
azine with 5,5-dimethyl-2-thiohydantoin, 6171*h*.
azodiisobutyronitrile solns. in, explosions in concn. of, 8682*a*.
bis(ethyl sulfone)—see *Sulfonal*.
in blood and urine at high elevations, 291*d*.
bond energies and dissocn. of, 452*h*.
bromination of, P 2232*g*.
-butanol fermenting liquid, distn. of, 813*d*.
camphor optical activity in, effect of $H_2O$ on, 8813*a*.
cellulose acetate soly. in solvents contg., 1964*c*.
cellulose heat of wetting by, 1638*f*.
cellulose nitrate solvation in, 3266*d*.
chloro derivs., reaction with benzene derivs. in the presence of $AlCl_3$, 6583*i*.
chloroethane reaction with Pb-Na alloy in presence of, P 4287*d*.
combustion of, 7663*h*.
compds. (mol.) of, 7409*a*.
compds. with amine bisulfites, 3355*h*, 3356*b*.
with anisoylheptabenzoylstreptidine, 1329*b*.
with insulin, P 4434*c*.
with PhOH, infrared and Raman spectra of, 107*b*.
condensation of, P 5419*a*.
with Et cyanoacetate, 7901*h*.
on finned tubes, 446*d*.
with sulfonic acids and metallo-org. compds., P 690*d*.
condensation product of, with $PhNH_2$ as stabilizer for indene resins, P 4511*c*.
with $PhNH_2$, calking compn. from, P 4900*a*.
with aralkyl hydrocarbons, P 2036*i*.
with benzaldehyde, 9521*e*.
crit. mixing temp. in identification and detn. of binary org. mixts., 8309*b*.
cyanohydrin—see *Isobutyronitrile, α-hydroxy-*.
cyclohexylcarbonylhydrazone†, 4233*b*.
decahydronaphthalene peroxide ester rearrangement in, 6188*i*.
detection and detn. in denatured alc., 7377*g*.
detn. of, 4183*gh*.
in air, 8974*i*.
in blood, 7073*c*.
(dichlorophenyl)hydrazones, 622*c*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
dielec. properties of adsorbed, 2831*h*.
1,2-diethylethylene cyclic acetal—see *1,3-Dioxolane, 2,2,4,5-tetramethyl-*.
diethyl sulfone—see *Sulfonal*.
diffusibility into tissue water of fish, 4387*f*.
dihydroionone analogs from, 8361*h*.
1,5- and 1,8-dinitronaphthalene solubilities in, 6190*i*.
in disinfection of skin, 3525*c*.
distn. of aq., in sieve-plate columns, 909*f*.
distn. of aq., in wetted-wall column, 1614*i*.
1,2-divinylethylene cyclic acetal—see *1,3-Dioxolane, 2,2-dimethyl-4,5-divinyl-*.
from dokuimo by fermentation, 1146*g*.
effect on acetylcholine sensitivity of muscle, 3478*c*.
on adhesive power of soybean protein, 1604*e*.
on autodisplacement of Pb, 8811*g*.
on 1,3-butadiene prepn. from EtOH, 902*e*.
on coagulation of $As_2S_3$ by $BaCl_2$, 8794*a*.
on elec. cond. of long-chain salts, [illegible]
on ignition pressure of H-O mixts., 406*i*.
on invertase, 1817*f*.
on isotonic point of blood-serum globulin, 6886*e*.
on leucocyte motion, 9263*d*.
on N fixation by *Azotobacter*, 9160*c*.
on renin-hypertensinogen reaction, 1860*k*.
on rubber formation in guayule, 9177*a*.

*effect* on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489*f*.
elec. cond. of, electrode material and, 8780*d*.
-ester mixts., reduction of, 2944*d*.
-ethanol fermentation, effect of conditions of, 4421*i*.
-ethanol fermentation, effect of sugar concn. on, 5529*h*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
exchange between alkyl bromides and LiBr in, 6055*c*.
extn. from vinyl acetate with water in packed column, 2042*e*.
extractive distn. of butanes and butenes with, P 913*i*.
fires in, extinguishing of, 6417*g*.
formation of, from acetates, 6015*b*.
by *Bacillus megatherium*, 6700*d*.
from 3-C compds. by acetone-EtOH bacteria, 8446*h*.
by *Clostridium*, 1145*f*.
from iso-PrOH on Rh, effect of S on, 27*i*.
from iso-PrOH on Ag catalyst, kinetics of, 5272*e*.
in oxidation of diisobutylene, 1310*h*.
in oxidation of $C_4$ hydrocarbons, 1309*c*.
in pyrolysis of Ca acetate, 1318*a*.
from reaction of hydroxyl radical with $Me_2C{:}CH_2$, 6150*g*.
in Schmidt reaction, 9027*eh*.
from tyrosine, 1745*h*.
in glycerol extn. from aq. solns., P 9081*d*.
halochromism in, 7910*h*.
heat of mixing of $C_{16}H_8$ with *m*-dinitrobenzene in, 6070*f*.
heats of mixing of citric, oxalic and picric acids with amines, camphor and cinnamic acid in, 6070*f*.
hydrocarbon azeotropic distn. with, P 7*f*, P 7274*h*.
in hydrocarbon-hexadecane system countercurrent extn., 4841*a*.
hydrochloric acid acidity function and ionization in, and proton affinities of, 4544*hi*.
hydrogenation of, P 2218*i*.
labeled with $C^{14}$, and its 2,4-dinitrophenylhydrazone, 3969*g*.
lyoparachor of, 2834*b*.
magnetic susceptibility of, 6479*g*.
manuf. of, P 668*i*, P 3025*i*, P 4287*g*, P 5791*g*, P 7502*c*, P 8398*e*.
from $C_2H_2$, catalyst for, P 5887*b*.
by fermentation, P 5902*b*, P 6362*c*, P 6781*gi*, P 6782*g*, P 7638*ef*.
from molasses, 5901*e*.
from peat, 9414*a*.
from starch or sugars by utilization of accessory enzymes, P 1148*b*.
from wood waste, P 3618*b*.
from mesityl oxide and phorone, P 5039*c*.
3-(*o*-methylbenzyloxy)propenyl cyclic acetal—see *1,3-Dioxolane, 2,2-dimethyl-4-[(o-methylbenzyloxy)methyl]-*.
microwave absorption by, 2514*h*, 5310*e*, 6019*g*.
mixts. with AcOH, EtOH or MeOH, rheochors of, 2058*a*.
with AmOH and toluene, Zn reaction with $CuCl_2$ in, 6886*b*.
with dichlorofluoromethane, viscosities of, 8777*d*.
with org. vapors, adsorption by active carbons, 16*g*.
with polar liquids, dielec. consts. of, 454*b*.
nitrocellulose soln. or swelling in, and its vapor pressures over solns. of nitro compds., 4927*i*.
nitrocellulose solns. in, expansion on dilu., 6044*h*.
org.-compd. solns. in, viscosity of, 8243*c*.
oxime, 157*a*.
bacteriostatic action of, 3974*g*.
benzenesulfonate, 2594*d*.
as catalyst in long-chain alkylation of alkyl aromatic hydrocarbons with $C_2H_4$, P 6658*a*.
as catalyst in polymerization of olefins, P 4515*a*.
in lignin extn. from wood, 7225*f*.
reaction with Cl, 6569*b*.
toxicity to, and utilization [by *Azotobacter*, 2276*d*.
parachor and thermochor of, 2923*f*.
peroxide*, 114*e*.
peroxide], manuf. of, and explosives from, P 6418*c*.
phenylhydrazone, reaction with NaOH, 1027*c*.
phosphorus soly. in, 2073*g*.
phys. consts. of, 2589*h*.
platinum complex soly. in aq., effect of $C_6H_6$ on, 6889*h*.
polyvinyl acetate solns. in, 8802*e*.
Raman spectrum of, 494*c*.
reaction product with cyanoguanidine, dihydrochloride, P 1069*a*.
reaction with acetaldehyde, 6160*a*.
with 3,6-dimethyl-1,7-octadiyne-3,6-diol, 3359*d*.
with *m*-$C_6H_4(NO_2)_2$ and derivs. in the presence of alkali, 6175*a*.
with *m*-$C_6H_4(NO_2)_2$ in the presence of alkali, 4650*g*.
with fluorene, 3401*e*, 9058*e*, 9059*b*.
with ketene, P 5414*i*.
with malonic acid, 571*i*.
with MeOH, 994*a*.
with *o*-nitrobenzenesulfenyl selenocyanate, 8366*i*.
with phenols, P 5424*b*.
recovery of, from air, adsorption app. for, P 450*d*.
from hydrocarbons, P 3023*a*.
from reaction products of hydrogenation of CO, P 7214*b*.
removal of alk. impurities from, P 7953*e*.
removal of water and, from mixts. with MeCN, P 1050*i*.
resinous product from furaldehyde and, P 3234*d*.
rheochor of aq., mixt. law for, 7283*a*.
salt refraction and vol. in, 4543*c*.
sepn. from aq. solns., P 1906*d*, P 4525*a*
from fermented mash, P 6782*a*.
from MeCN, P 1050*c*.
solubilities of $H_3BO_3$ and succinic acid in, 1241*h*.
solns. in $C_6H_6$, dielec. properties of, 6019*b*.
spectrum of, 1656*c*, 3715*f*.
structure of, 3672*h*.
*p*-sulfamylphenylhydrazone†, 601*c*.
system: dodecylammonium chloride-$H_2O$-, elec. cond. of, 4079*i*.
system: $Et_2O$-, surface tension of, 2491*c*.
system: oleic acid-palmitic acid-, and predicting degree of sepn., 6839*a*.
systems: $PhNH_2$-, and EtOH-, mol. wts. in $C_6H_6$, 1252*c*.
thermal cond. and viscosity of, 4065*c*.
thermal diffusion in aq., 2491*a*.
ultrasonic velocity in, 8226*b*, 8239*c*.
uranyl nitrate fluorescence in combination with, 2512*c*.
vapor-d. distribution over surface of, 7282*i*.
ventricular fibrillation from adrenaline and, 313*b*.
viscosity (dilatational) of, 5249*g*, 8780*a*
viscosity of nitrocellulose or polyvinyl acetate in, 6885*f*.

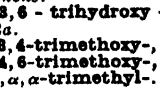
**Acetone, acetonyl-.** See *2,5-Hexanedione*.
**——, acetyl-.** See *2,4-Pentanedione*.
**——, benzoyl-.** See *1,3-Butanedione, 1-phenyl-*.
**——, benzyl-.** See *2-Butanone, 4-phenyl-*.
**——, bicyclofarnesylidene-*,** isomers and derivs., 8369*f*.
**——, bromo-.** See *2-Propanone, 1-bromo-*.
**——, chloro-.** See *2-Propanone, 1-chloro-*.
**——, cinnamoyl-.** See *5-Hexene-2,4-dione, 6-phenyl-*.
**——, cinnamylidene-.** See *3,5-Hexadien-2-one, 6-phenyl-*.
**——, s-diacetyl-.** See *2,4,6-Heptanetrione*.
**——, dianisylidene-.** See *3-Pentadienone, 1,5-bis(p-methoxyphenyl)-*.
**——, dibenzylidene-.** See *3-Pentadienone, 1,5-diphenyl-*.
**——, dicinnamylidene-.** See *1,3,6,8-Nonatetraen-5-one, 1,9-diphenyl-*.
**——, difurfurylidene-.** See *3-Pentadienone, 1,5-difuryl-*.
**——, dihydroxy-.** See *2-Propanone, 1,3-dihydroxy-*.
**——, farnesylidene-*,** and 2,4-dinitrophenylhydrazone, 8369*d*.
**——, furfurylidene-.** See *3-Buten-2-one, 4-furyl-*.
**——, hexahydrofarnesyl-*,** and semicarbazone, 8369*i*.
**——, hexamethyl-.** See *3-Pentanone, 2,2,4,4-tetramethyl-*.
**——, hydracetyl-.** See *2-Pentanone, 4-hydroxy-*.
**——, isonitroso-.** See "aldoxime" under *Pyruvaldehyde*.
**——, isopropylidene-.** See *Mesityl oxide*.
**——, methyl-.** See *2-Butanone*.
**—— methylene-.** See *3-Buten-2-one*.
**——, phenacyl-.** See *1,4-Pentanedione, 1-phenyl-*.
**——, propionyl-.** See *2,4-Hexanedione*.
**——, salicylidene-.** See *3-Buten-2-one, 4-(o-hydroxyphenyl)-*.
**——, thio-.** See *2-Propanethione*.
**Acetone alcohol.** See *2-Propanone, 1-hydroxy-*.
**"Acetone bodies."** (See also *Acetoacetic acid; Acetone; Antiketogenesis; Butyric acid, β-hydroxy-; Ketogenesis, Ketolysis; Ketonemia; Ketonuria Ketosis.*)
in blood in anoxia, 2302*a*.
in blood of normal and diabetic subjects, effect of nicotinamide on, 4383*g*.
in exudates and transudates, 2691*a*.
formation from tyrosine, 1745*h*.
utilization of, 9090*h*.
**Acetone chloroform.** See *Chloretone*.
**Acetone cyanohydrin.** See *Isobutyronitrile, α-hydroxy-*.
***s*-Acetonedicarboxylic acid.** See *Glutaric acid, β-oxo-*.
**Acetonemia.** See *Ketonemia*.
**Acetoneoxalic acid.** See *Valeric acid, α,γ-dioxo-*.
**Acetonesulfonic acid.** See *1-Propanesulfonic acid, 2-oxo-*.
**Acetonic acid.** See *Isobutyric acid, α-hydroxy-*.
**Acetonitrile,** aryl derivs., ethanolysis of, 1385*a*.
azeotrope with $Me_3SiCl$ and with $SiCl_4$, 1716*f*.
decahydronaphthalene peroxide ester to arrangement in, 6188*i*.
dehydration of, and sepn. of acetone from, P 1050*i*.
derivs., 568*b*.
dodecylammonium chloride transference numbers in aq., 4925*g*.
drying by azeotropic distn., P 2630*e*, P 3836*a*.
formation from $C_2H_2$ and $NH_3$, 3778*g*
formation from methylation of HCN, 7412*e*.
hydrolysis of (given by error in C. A. as AcCN), 1248*i*.
hydrolysis of, kinetics of, 3697*a*
in lignin extn. from wood, 7225*f*.
manuf. of, P 666*i*, P 3439*cde*, P 4285*b*, P 7499*c*.
microwave absorption by, 5310*e*, 6019*g*
microwave spectrum of, 7346*c*.
mixts. with cyclohexane, adsorption from, 461*e*.
phys. consts. of, 2592*b*.
reaction with HCHO, 657*e*, 5405*f*
with $HgF_2$, 6793*e*.
with 4-phenyl-3-buten-2-one, P 6665
with tertiary thiols, P 3445*b*
with 2,4,4-trimethylpentene, 1715*e*
reduction of, 5367*c*.
sepn. from $CCl_3CN$ by azeotropic distn., P 4285*d*.
sepn. of acetone from, P 1050*c*.
silver compd. with, in sepn. of olefins from paraffins, P 3436*d*.
soly. in Na xylenesulfonate solns., 1242*d*
as solvent for aromatic hydrocarbons and $H_2SO_4$ in sulfonation, P 394*d*.
spectrum of, 3715*b*.
system: dodecylammonium chloride-$H_2O$-, elec. cond. of, 4079*h*.
ultrasonic velocity in, temp. and, 7283*a*.
**Acetonitrile, [*p* - (9 - acridylamino)-phenyl]-,** P 698*d*.
**——, amino-.** See *Glycinonitrile*.
**——, benzoyl-,** 7021*b*.
**——, bromophenyl-,** prepn. of, 1752*i*
**——, [*m*(*o* and *p*)-bromophenyl]-,** 605*g*
**——, butyryl-.** See *Capronitrile, β-oxo-*
**——, chloro-,** 1406*d*.
**——, chlorofluoro-,** 8353*a*.
**——, [*m*(*o* and *p*)-chlorophenyl]-,** 605*g*
**——, (*p*-chlorophenyl)-,** reaction with HCHO, 5405*f*.
**——, cyclobutyl-.** See *Cyclobutaneacetonitrile*.
**——, cyclohexenyl-.** See *Cyclohexeneacetonitrile*.
**——, cyclohexyl-.** See *Cyclohexaneacetonitrile*.
**——, cyclohexylphenyl-.** See *Cyclohexaneacetonitrile, α-phenyl-*.
**——, cyclopentenylphenyl-.** See *Cyclopenteneacetonitrile, α-phenyl-*.
**——, cyclopentylidene-.** See *Δ¹,α-Cyclopentaneacetonitrile*.
**——, dibutylamino-,** as insecticide, 4415*i*
**——, diphenyl-,** P 6666*b*, 7004*c*, P 7954*d*.
detn. of, 1280*g*.
nitrogen detection in, 5336*f*.

prepn. of, 611*c*, 1752*i*.
reaction with halo amines, 4243*a*.
——, **(2-ethyl-3-methoxyphenyl)-**, 198*e*.
——, **fluoro-**, volatility and vapor pressure of, 8841*b*.
——, **hydroxyphenyl-**. See *Mandelonitrile*.
——, **imidazolyl-**. See *Imidazoleaceto nitrile*.
——, **indolyl-**. See *Indoleacetonitrile*.
——, **isoquinolyl-**. See *Isoquinolineaceto nitrile*.
——, **methoxy-**, hydrogenation of, 5738*i*.
——, **(3-methoxy-4,5-methylenedioxyphenyl)-**, 2212*b*.
——, **(*m*-methoxyphenyl)-**, 4244*i*.
——, **[4-(*m*-methoxyphenyl)-1-methyl-4-piperidylcarbonyl]phenyl-**, P 2241*b*.
——, **(*m*-methoxyphenyl)phenyl-**, 4245*a*.
——, **(methylenediimino)di-**, hydrolysis of, 1248*i*.
——, **(*p*-methylsulfonylphenyl)-**, 1739*g*
——, **naphthyl-**. See *Naphthaleneacetonitrile*.
——, ***m*(*o* and *p*)-nitro-**, dipole moment of, and effect on spectrum of I, 7817*h*.
——, ***p*-nitrobenzoyl-**, and derivs., 5394*h*.
and phenylhydrazone, 7021*c*.
——, **(*o*-nitrophenyl)-**, antifouling properties of, 3964*c*.
——, **phenyl-**, P 3470*c*, P 4285*i*.
bromination of, 1752*i*.
cyanoethylation of, P 3446*g*.
halo derivs., 605*g*.
hydrolysis of (given by error in C. A. as BzCN) 1248*h*.
hydrolysis of, kinetics of, 3697*a*.
*Penicillium notatum* culture medium contg., P 7649*b*.
phys. consts. of, 2592*b*.
reaction with diethanolamine, 2579*b*.
reaction with di-Et maleate, P 6665*c*.
spectrum of, 8885*c*.
——, **phenylenedi-**. See *Benzenediacetonitrile*.
——, **piperidyl-**. See *Piperidineacetonitrile*
——, **piperonyl-**. See *Hydrocinnamonitrile, 3,4-methylenedioxy-*.
——, **pyridyl-**. See *Pyridineacetonitrile*.
——, **quinolyl-**. See *Quinolineacetonitrile*.
——, **triazinyl-** See *Triazineacetonitrile*.
——, **triazolyl-**. See *Triazoleacetonitrile*
——, **tributyl-**. See *Capronitrile, α,α-dibutyl-*.
——, **trichloro-**, sepn. from MeCN by azeotropic distn., P 4285*d*.
——, **trimethyl-**. See *Pivalonitrile*.
——, **triphenyl-**, reduction of (attempted), with $LiAlH_4$, 1312*d*.
——, **ureido-**. See *Urea, (cyanomethyl)-*
——, **vinyl-**. See *3-Butenenitrile*.
**Acetonuria**. See *Ketonuria*.
**Acetophenetidide** (*ar-ethoxyacetanilide*).
**o-Acetophenetidide, 5-chloro-4-nitro-**, P 3034*b*.
***p*-Acetophenetidide, 2-amino-**, 7016*d*.
**Acetophenetidin**. See *Phenacetin*.
**Acetophenone** (*methyl phenyl ketone*), acylhydrazones†, 6972*ce*, 6973*cf*.
alkylation of, by Friedel-Crafts reaction, 8367*c*.
α-arylamino derivs., 2209*h*.
azine, 1654*e*.
azine, spectrum of, 5756*a*.
bactericidal action of, 5446*e*.
bromination of, P 2232*g*.
*p*-carboxyphenylhydrazone†, 5764*g*.
chromatography of, 7452*g*.
cleavage (attempted) of, with *tert*-BuOK, 1349*e*.
compd. with phenol, infrared and Raman spectra of, 107*b*.
crit. mixing temp. in identification and detn. of binary org. mixts., 8309*b*.
cyanoethylation of, 2582*g*.
cyclohexylcarbonylhydrazone†, 4233*b*.
decarboxylation of quinaldic and isoquinaldinic acid in, 7310*c*.
derivs., 5393*a*.
bromination of, P 1806*h*.
Raman spectra of, 3716*e*.
reaction with isatin and 5-bromoisatin, 7924*d*.
reaction with isatin and derivs., 3825*d*.
detn. of, 68*i*.
(dichlorophenyl)hydrazones, 622*c*.
diethyl mercaptal, reaction with Raney Ni, 2597*d*.
2,4-dinitrophenylhydrazone, reaction with acetone in the presence of alkali, 6175*b*.
effect on polarography of metals, 5316*a*.
flow birefringence of, temp. and, 456*g*.
labelled with $C^{14}$ in the CO group, 608*c*.
manuf. of, P 5421*g*, P 5791*h*.
6-nitro-2-benzothiazolylhydrazone, resonance in, 5395*h*.
oxime, rearrangement of, and its derivs., kinetics of, 4650*i*.
oxime, sulfonates, 2594*c*.
phys. consts. of, 2589*i*.
polarographic and potentiometric investigation of, and its derivs., 1349*h*.
prepn. of, 1743*c*, 2178*b*, 2184*e*, 8367*g*.
Raman spectrum of, 494*c*.
reaction with HCHO and $MeNH_2$.HCl, 9050*b*.
with ketene, P 5415*b*.
with $CH_2(CN)_2$, P 3461*a*.
with *o*-nitrobenzenesulfenyl selenocyanate, 8366*i*.
with $BzO_2H$, 2588*i*.
reduction (attempted) in the presence of (—)-$Al(OCH_2CHMeEt)_3$, 6155*f*.
refraction by, 4651*g*.
semicarbazone formation from, kinetics of, 2850*c*.
sepn. from BzOH by flash distn., P 2639*e*
soly. in Na xylenesulfonate solns., 1242*d*
spectra of, and its derivs., 4955*c*.
spectrum of, 4575*c*.
styrenes from, and its derivs, P 6231*a*
**Acetophenone, *ar*-acetyl-**. See *Benzene, diacetyl-*.
——, **α-acetyl-**. See *1,3-Butanedione, 1-phenyl-*
——, **α-allyl-**. See *4-Pentenophenone*.
——, **3-allyl-4-hydroxy-2,6-dimethoxy-**, and acetate, 3414*a*
——, **4-(allyloxy)-2,6-dimethoxy-**, 3413*f*, 3414*a*.
——, ***m*(*o* and *p*)-amino-**, spectrum and mol.-field mechanism in, 2863*i*.
——, ***m*(and *p*)-amino-**, *p*-carboxyphenylhydrazone†, 5764*g*
——, ***o*-amino-**, and derivs., 652*g*
——, ***o*(and *p*)-amino-**, chromatographic sepn. of, 4315*i*.
——, ***p*-amino-**, effect on tubercle bacilli, 7546*a*
mol. refraction of, 604*g*.
——, **α-amino-**, *N*-aryl derivs., indoles from, 2177*i*
derivs., reduction of, 2601*cg*, 2602*h*.
——, **α-amino-α-bromo-**, and derivs., 652*i*
——, **2-amino-α-bromo-5-chloro-**, and compd. with pyridine, 653*c*
——, ***m*(and *p*)-amino-α-chloro-**, 7452*b*
——, **o-amino-α-chloro-**, and derivs., 653*a*.
——, **3-amino-α-chloro-4-methoxy-**, 7452*d*
——, **2-amino-α,5-dibromo-**, and compd. with pyridine, 653*d*.
——, **α-amino-*m*-hydroxy-**, hydrochloride, P 5043*d*.
salts, P 5044*f*
——, **α-amino-*p*-hydroxy-**, derivs., hydrogenation of, P 3460*c*
hydrochloride, 2602*d*.
——, **4-amino-2-hydroxy-**, tuberculostatic effect of, 7545*b*.
——, **α-amino-4-hydroxy-2-methyl-**, acetate-HBr, P 5044*e*.
——, **α-amino-4-hydroxy-3-methyl-**, hydrobromide and its benzoate, P 5044*d*.
——, **5-amino-4-hydroxy-2-methyl-**, 3385*f*
——, **2-amino-3-methyl-**, 1781*f*.
——, **2-amino-4-methyl-**, 1781*d*
——, **2-amino-4-methyl-3,5-dinitro-**, 1781*e*
——, **2-amino-4-methyl-5-nitro-**, 1781*e*.
——, ***p*-(*o*-aminophenyl)-**, 7452*f*
——, **α-amino-α-phenyl-**, derivs., 3360*c*
——, **α-amylamino-3,4-dihydroxy-**, hydrochloride, 3388*d*.
——, **α-anilino-*p*-chloro-α-(*p*-chlorophenyl)-**, and hydrochloride, 3360*d*.
——, **α-anilino-*p*-methyl-α-phenyl-**, 220*b*
——, **α-anilino-α-*p*-tolyl-**, and hydrobromide, 220*c*.
——, **α-azo-*p*-nitro-**, 6178*a*
——, **α-benzal-**. See *Chalcone*
——, **α-benzoyl-**. See *1,3-Propanedione, 1,3-diphenyl-*.
——, **o-benzyl-**, cyclization of, velocity of, 6194*d*.
——, **α-benzyl-**. See *Propiophenone, β-phenyl-*.
——, **α-benzylidene-**. See *Chalcone*.
——, **α-(benzylmethylamino)-3,4-bis(benzyloxy)-**, and derivs., 7456*e*.
——, **4-(benzyloxy)-5-bromo-2-hydroxy-**, 1742*e*.
——, **4-(benzyloxy)-2-hydroxy-**, reaction with BzH derivs., 1742*e*.
——, **5-(benzyloxy)-2-hydroxy-**, 3414*e*.
——, **4-(benzyloxy)-2-hydroxy-5-methyl-**, 3413*b*.
——, **5-(benzyloxy)-2-methoxy-**, 3414*e*.
——, **o-benzyl-α-phenyl-**, cyclization of, velocity of, 6194*d*.
——, ***p*-2-biphenylyl-**, 4655*h*.
——, **2,7-bis(benzyloxy)-**, 7003*g*.
——, **2,3-bis(benzyloxy)-6-hydroxy-**, 3414*d*.
——, **2,3-bis(benzyloxy)-6-methoxy-**, 3414*d*.
——, **α,α-bis(phenylacetyl)-**†, and copper derivs., 7909*h*.
——, ***p*-bromo-**, acylhydrazones†, 6972*es*, 6973*cf*.
azine, spectrum of, 5756*a*.
oxime, benzenesulfonate, 2594*c*.
semicarbazone formation from, kinetics of, 2850*d*.
——, **α-bromo-**, derivs., reaction with *N*-alkylaniline, 219*c*.
manuf. of, P 2232*g*.
reaction with 2-(alkylamino)ethanols, 4239*e*.
with arylamines, 2210*a*.
with dithiopimelamide, 4667*d*.
with $HSCH_2CONH_2$, 607*i*.
reduction of, to $PhCH(OH)CH_2Br$, 2570*f*.
——, **α-bromo-α,α-bis(phenylacetyl)-**†, and compd. with 5 AcOH, 7909*i*.
——, **5-bromo-α-(5-bromo-2-hydroxyphenyl)-2-hydroxy-**, 4247*a*.
——, **5-bromo-α-(5-bromo-2-hydroxyphenyl)-2-hydroxy-α-methoxy-**, isomers, 4246*f*.
——, **α-bromo-*p*-chloro-**, 4653*f*.
as acaricide and insecticide, 3138*c*.
——, **α-bromo-5-chloro-2-nitro-**, 653*b*
——, **α-bromo-*p*-chloro-α-2(and 4)-pyridyl-**, and hydrobromides, 2208*c*.
——, **5-bromo-2,4-dimethoxy-**, reaction with BzH derivs., 1742*e*.
——, ***p*-bromo-α-hydroxy-**, esters, 2998*g*.
γ-cyano-γ-(2,3-dimethoxyphenyl)-caproate, 625*i*.
δ-hydroxy-β-methylcaproate, 6166*c*.
tetrahydropyran-3-carboxylate, P 3470*a*.
——, **α-bromo-*m*-hydroxy-**, acetate, P 5044*f*.
benzoate, reaction with $MeNH_2$, P 3460*f*.
——, **5-bromo-2-hydroxy-**, bactericidal action of, 5446*e*.
——, **α-bromo-4-hydroxy-2-methyl-**, acetate, P 5044*e*.
——, **α-bromo-4-hydroxy-3-methyl-**, benzoate, P 5044*d*.
——, **α-bromo-*p*-(*p*-hydroxyphenyl)-**, benzoate, 1034*g*.
——, **α-(3-bromomesityl)-**, 5773*e*.
——, **α-bromo-*p*-methoxy-α-(*p*-methoxyphenyl)-**, 7927*g*.
——, ***p*-(bromomethyl)-**, 5761*b*.
——, **α-bromo-*p*-methyl-**, 4653*f*.
——, **α-bromo-*p*-methyl-α-phenyl-**, 220*b*.
——, **α-bromo-α-2-pyridyl-**, 2208*c*, P 3045*f*.
——, **α-bromo-α-4-pyridyl-**, hydrobromide, 2208*c*, P 3045*f*.
——, **α-(5-bromo-2-pyrimidyl)-**, 3395*g*.
——, **α-bromo-α-4-quinolyl-**, 2208*d*, P 3045*g*.
——, **α-bromo-α-*p*-tolyl-**, 220*b*.
——, **3-bromo-2,4,6-trimethyl-α-phenyl-**, 5773*d*.
——, **4-butoxy-2,5-dimethyl-**, 7924*g*.
——, **4-butoxy-2,5-dimethyl-α-phenyl-**, 7924*g*.
——, **4-butoxy-2-methyl-**, and semicarbazone, 3825*i*.
——, **4-butoxy-3-methyl-**, and semicarbazone, 3825*e*.
——, **4-butoxy-2-methyl-α-phenyl-**, 3826*a*.
——, **4-butoxy-3-methyl-α-phenyl-**, and semicarbazone, 3825*i*.
——, **o-butyl-**, and derivs., 7416*c*.
——, **α-butylamino-*p*-chloro-α-(*p*-chlorophenyl)-**, hydrochloride, 3360*d*.

——, α-butylamino-3,4-dihydroxy-, hydrochloride, 3388*d*.
——, α-*sec*-butylamino-3,4-dihydroxy-, hydrochloride, 3388*d*.
——, *p*-*tert*-butyl-α-chloro-, 633*h*.
——, α-*tert*-butyl-3,4-dihydroxy-, hydrochloride, 3388*d*.
——, *p*-chloro-, as acaricide and insecticide, 3138*c*.
(dichlorophenyl)hydrazones, 622*d*.
as insecticide, 2359*h*.
oxime, rearrangement of, 4651*a*.
prepn. of, 1743*c*.
semicarbazone formation from, kinetics of, 2850*d*.
——, α-chloro-, 1349*a*.
derivs., 7452*a*.
2,4-dinitrophenylhydrazone, toxicity to rats, 348*h*.
disposal of captured German, 3947*h*.
——, α-*o*-chloroanilino-, 2210*c*.
——, α-*p*-chloroanilino-, 2210*i*.
——, *p*-chloro-α-(*p*-chlorophenyl)-, P 2236*a*.
——, α-chloro-*m*-(chlorophenylarsino)-, 3383*a*.
——, *p*-chloro-α-(*p*-chlorophenyl)-α-diethylamino-, hydrochloride, 3369*d*.
——, *p*-chloro-α-(*p*-chlorophenyl)-α-(*p*-diethylaminoanilino)-, dihydrochloride, 3369*d*.
——, *p*-chloro-α-(*p*-chlorophenyl)-α-(2-hydroxyethylamino)-, hydrochloride, 3369*d*.
——, *p*-chloro-α-(*p*-chlorophenyl)-α-octylamino-, hydrochloride, 3369*d*.
——, *p*-chloro-α-(*p*-chlorophenyl)-α-1-piperidyl-, hydrochloride, 3369*e*.
——, *p*-chloro-α-diazo-, 4653*c*.
——, α-chloro-*m*-dichloroarsino-, 7452*e*.
——, α-chloro-*p*-(*o*-dichloroarsinophenyl)-, 7452*f*.
——, α-chloro-3,4-dihydroxy-, 3800*c*.
——, α-(4-chloro-2,6-dimethyl-5-pyrimidyl)-, 3395*h*.
——, α-chloro-3,5-dinitro-, 7452*c*.
——, *p*-chloro-α-*N*-ethylanilino-, reaction with PhNHEt and with $ZnCl_2$, 218*f*.
——, α-chloro-*p*-hexadecyl-, 633*h*.
——, α-chloro-2-hydroxy-4,5-dimethoxy-, and derivs., 7460*f*.
——, α-chloro-2(and 4)-hydroxy-4(and 2)-methyl-, 7452*d*.
——, 5-(1-chloroisopropyl)-2-methyl-, and semicarbazone, 6595*g*.
——, α-chloro-*p*-methoxy-α-(*p*-methoxyphenyl)-, 7927*f*.
——, α-chloro-*m*-methylamino-, 7452*b*
——, *p*-chloro-α-*N*-methylanilino-, reaction with PhNHMe and with $ZnCl_2$, 218*f*.
——, 5-chloro-2-nitro-, 653*b*.
——, *m*-(chlorophenylarsino)-, 3382*i*.
——, *p*-[β-(*p*-chlorophenyl)styryl]-, and oxime, 199*i*.
——, *p*-chloro-α-1-piperidyl-α-2(and 4)-pyridyl-, and hydrochlorides, 2208*e*.
——, *p*-chloro-α-1-piperidyl-α-2-quinolyl-, 2208*f*.
——, *p*-chloro-α-2-pyridyl-, and hydrochloride, 2208*b*.
——, *p*-chloro-α-4-pyridyl-, 2208*b*.
——, *p*-chloro-α-2-quinolyl-, 2208*b*.
——, *p*-chloro-α,α,α-tris(*p*-chlorophenyl)-, in DDT spray deposits, 5148*d*.
——, α-cinnamoyl-. See *4-Pentene-1,3-dione, 1,5-diphenyl-*.
——, α-cinnamylidene-. See *2,4-Pentadienophenone, 5-phenyl-*.
——, α-cyano-. See *Acetonitrile, benzoyl-*.
——, *m*-(cyanophenylarsino)-, 3383*d*.
——, α-cyclohexylamino-3,4-dihydroxy-, hydrochloride, 3388*e*.
——, α-cyclohexylidene-, and derivs., 7415*h*.
——, α-cyclohexylidene-*p*-ethoxy-, and 2,4-dinitrophenylhydrazone, 7416*f*.
——, α-cyclohexylidene-*o*-methyl-, and 2,4-dinitrophenylhydrazone, 7416*b*.
——, *ar*-cyclohexyl-*ar*-isopropyl-*ar*-methyl-, and 2,4-dinitrophenylhydrazone, 1339*i*.
——, *p*-cyclopentyl-, 1375*c*.
and 2,4-dinitrophenylhydrazone, 5752*b*.
——, α-cyclopentylamino-3,4-dihydroxy-, hydrochloride, 3388*e*.
——, 3,4(and 3,6)-diamino-α-chloro-, 7452*c*.
——, α-diazo-, 5761*h*, 5762*i*.
phenylacetic acid from, 4654*e*.
reaction with heterocyclic nitrogen compd. salts, 1775*h*.
——, α-diazo-*p*-methoxy-, 4653*c*, 5761*h*.
——, α-diazo-4-methoxy-3-nitro-, 216*c*.
——, α-diazo-*p*-methyl-, 4653*c*.
——, α-diazo-*p*-nitro-, (*p*-nitrophenyl)-acetic acid from, 4654*e*.
——, α-diazo-α-phenyl-, 1744*c*.
——, α-diazo-3,4,5-trihydroxy-, triacetate, 2974*f*.
——, α,α-dibromo-, reaction of, contg. $C^{14}$ in the CO group with aq. alkali, 608*c*.
——, α,5-dibromo-2-nitro-, 653*c*.
——, *p*,α-dichloro-, and 2,4-dinitrophenylhydrazone, 6991*h*.
——, 3,4-dichloro-, in European-corn-borer control, 9336*e*.
——, *p*,α-dichloro-α-(*p*-chlorophenyl)-, 3369*a*.
——, α,4-dichloro-3-nitro-, 6991*i*.
——, α,α-dichloro-*p*-(trichloromethyl)-, as insecticide, 2359*h*.
——, *o*-(2,2-dichlorovinyloxy)-, P 7045*h*.
——, 2,4-diethoxy-3,6-dihydroxy-, 5397*h*.
——, 2,4-diethoxy-6-hydroxy-, 5397*g*.
——, 3,4(and 3,5)-diethyl-, 8367*d*.
——, α-(2-diethylaminopropylmercapto)-, and 2,4-dinitrophenylhydrazone, 6574*g*.
——, α-diethylamino-α-2-pyridyl-, and hydrochloride, 2208*e*.
——, *p*-(α,β-diethyl-*p*-hydroxyphenethyl)-, 9056*c*.
——, *p*-(α,β-diethyl-*p*-hydroxyphenethyl)-α-hydroxy-, diacetate, 9056*d*.
——, *p*-(α,β-diethyl-*p*-hydroxystyryl)-, 9056*c*.
——, *p*-(α,β-diethyl-*p*-hydroxystyryl)-α-hydroxy-, diacetate, 9056*d*.
——, *p*-(α,β-diethyl-*p*-methoxyphenethyl)-, 9056*c*.
——, *p*-(α,β-diethyl-*p*-methoxystyryl)-, 9056*c*.
——, *p*-(α,β-diethyl-*p*-methoxystyryl)-α-hydroxy-, derivs., 4655*b*.
——, *p*-(α,β-diethylstyryl)-, 200*a*.
——, *p*-(α,β-diethylstyryl)-α-hydroxy-, 4659*a*.
——, dihydro-. See *Ketone, cyclohexadienyl methyl*.
——, α-(3,4-dihydro-2(1*H*)-isoquinolyl)-, 1421*b*.
——, α-(3,4-dihydro-2(1*H*)-isoquinolyl)-4-hydroxy-3-methoxy-, benzoate (ester), P 7050*h*.
——, α-(3,4-dihydro-1(2*H*)-quinolyl)-(?), 1421*c*.
——, 2,4-dihydroxy-, bactericidal action of, 5446*e*.
chelation of, in naphthalene, 1243*c*.
polarographic and potentiometric investigation of, 1349*i*.
——, 2,4(and 2,5)-dihydroxy-, *p*-carboxyphenylhydrazone†, 5764*h*.
——, 2,5-dihydroxy-, 2187*f*.
prepn. of, 1742*a*.
——, 2,6-dihydroxy-, dianisate, 3414*h*.
formylation of, 4009*i*.
——, α,2-dihydroxy-4,5-dimethoxy-, derivs., 7461*g*.
——, 3,6-dihydroxy-2,4-dimethoxy-, 1773*c*.
——, 2,4-dihydroxy-3,5(and 3,6)-dimethyl-, 2185*a*.
——, 4,6-dihydroxy-2,3-dimethyl-, 2185*a*.
——, 2,4-dihydroxy-3,5-dinitro-, 2621*h*, 9067*c*.
——, 3,4-dihydroxy-α-isobutylamino-, hydrochloride, 3388*d*.
——, 3,4-dihydroxy-α-isopropylamino-, hydrochloride, 3388*d*.
pharmacology of, 317*b*.
——, 2,3-dihydroxy-6-methoxy-, 3414*c*.
dianisate, 3414*g*.
——, 2,6-dihydroxy-4-methoxy-, 1775*h*.
——, 2,6-dihydroxy-4-methoxy-3-methyl-, antibacterial activity of, 5445*f*.
3,5-dihydroxy-4-methyl-, 66*g*.
——, 3,4-dihydroxy-α-methylamino-. See *Adrenalone*.
——, 2,4-dihydroxy-3-nitro-, 2622*c*.
——, *o*-(2,3-dihydroxyphenoxy)-, effect on nervous system, 312*b*.
——, *p*-(2,3-dihydroxyphenoxy)-, and oxime, effect on nervous system, 312*b*.
——, 3,4-dihydroxy-α-propylamino-, hydrochloride, 3388*d*.
——, 2-[4-(2,3-dihydroxypropylamino)-1*H*-benzotriazol-7-ylazo]-5-nitro-, P 3626*a*.
——, *ar*,*ar*-diisopropyl-*ar*-methyl-, and 2,4-dinitrophenylhydrazone, 1339*h*.
——, 2,4-dimethoxy-, polarographic and potentiometric investigation of, 1349*i*.
reaction with BzH derivs., 1742*e*.
——, 2,5-dimethoxy-, 7003*a*.
——, 3,4-dimethoxy-, from lignin, 4851*b*.
——, 3,5-dimethoxy-, 8384*i*.
——, 3,5-dimethoxy-2-methyl-, 2185*c*.
——, 4-(3,4-dimethoxyphenacyloxy)-3-methoxy-, 3610*f*.
——, 4-[4-(3,4-dimethoxyphenacyloxy)-3-methoxyphenacyloxy]-3-methoxy-, 3610*f*.
——, 4-[4-[4-(3,4-dimethoxyphenacyloxy)-3-methoxyphenacyloxy]-3-methoxyphenacyloxy]-3-methoxy-, 3610*f*.
——, α,α-dimethyl-. See *Isobutyrophenone*
——, 2,3(2,5-, 3,4- and 3,5)-dimethyl-, prepn. and phys. consts. of, 7439*def*
——, 2,5-dimethyl-, and derivs., 6990*g*
——, 3,5-dimethyl-, 8367*d*.
——, α-(3,4-dimethylanilino)-, 220*h*
——, 2,5-dimethyl-α-phenyl-, 4247*g*.
——, 2,5-dimethyl-α-phenyl-4-propoxy-, and semicarbazone, 7924*f*.
——, α-[2,4-dimethyl-6-(1-piperidyl)-5-pyrimidyl]-, and hydrochloride, 3395*i*.
——, 2,5-dimethyl-4-propoxy-, and semicarbazone, 7924*f*
——, α-(1,2-dimethylpropylamino)-3,4-dihydroxy-, hydrochloride, 3388*d*
——, α-(4,6-dimethyl-2-pyrimidyl)-, and hydrochloride, 3395*g*.
——, α,α-diphenyl-α-phenylmercapto-, hydrolysis of, 1753*h*
——, *p*-(2,2-diphenylvinyl)-, and oxime, 199*g*.
——, *p*,*p*'-dithiodi-, 7450*f*.
——, α-duryl-, 5773*e*.
——, *p*-ethoxy-, P 7966*i*, P 7967*c*
——, 4-ethoxy-5-isopropyl-2-methyl-, 7924*h*.
——, 4-ethoxy-3-methyl-, and semicarbazone, 3825*e*.
——, 4-ethoxy-3-methyl-α-phenyl-, and semicarbazone, 3825*e*.
——, α-ethoxy-α-phenyl-, as catalyst in photopolymerization of ethylene compds., P 444*a*.
——, *m*-ethyl-, 8367*d*.
——, *o*-ethyl-, and semicarbazone, 1030*n*.
——, *o*(and *p*)-ethyl-, prepn. and phys. consts. of, 7439*gh*.
——, *p*-ethyl-, acylhydrazones†, 6972*e*, 6973*cf*.
——, α-ethylamino-3,4-dihydroxy-, hydrochloride, 3388*d*.
——, α-*p*-ethylanilino-, 220*h*.
——, α-*N*-ethylanilino-*p*-methyl-, prepn. and reaction with $ZnCl_2$, 218*e*.
——, α-*N*-ethylanilino-*p*-methyl-α-phenyl-, 220*b*.
——, α-*N*-ethylanilino-*p*-phenyl-, prepn. and reaction with $ZnCl_2$, 218*e*.
——, α-*N*-ethylanilino-α-*p*-tolyl-, 220*c*.
——, *p*,*p*'-ethylenebis[α-phenyl-, and dihydrazone, 5380*c*.
——, α,α'-(ethylenediimino)bis[3,4-dihydroxy-, 3800*f*.
——, α,α'-(ethylenediimino)di-, and salts, 3800*d*.
——, α,α',α'',α'''-(ethylenedinitrilo)-tetra-, and salts, 3800*e*.
——, α-[ethyl(2-hydroxyethyl)-amino]-, and hydrochloride, 4239*g*.
——, *p*-(ethylmercapto)-, 7475*c*.
——, α-(2-ethyl-3-methoxyphenyl)-*p*-methoxy-, and 2,4-dinitrophenylhydrazone, 1938*a*.
——, α,α'-(*p*-ethylphenylimino)di-, 220*h*.
——, α-[5-ethyl-2(or 3)-phenyl-1-indolyl]-, 221*a*.
(1-ethylpropylamino)-3,4-dihydroxy-, hydrochloride, 3388*e*.
ω-ethyl-3-pyridyl)-, 2208*a*.
-2-fluorenyl-*p*-methoxy-, and oxime, 7468*h*.

——, α - fluoro-, reduction of, with Al isopropoxide, 1349*a*.
volatility and vapor pressure of, 8841*c*.
——, p - fluoro - α - (p - fluorophenyl)-, (omitted from abstr.), P 2236*c*.
——, hexahydro-. See *Ketone, cyclohexyl methyl*.
——, m-hydroxy-, acetate, P 5044*e*.
——, m(and o)-hydroxy-, spectra of, 8890*i*.
——, m(o and p)-hydroxy-, p-carboxyphenylhydrazones†, 5764*g*.
spectrum and mol.-field mechanism in, 2863*i*.
——, o-hydroxy-, adrenaline potentiation by, 5117*a*.
chelation, intermol. energy and mol. assocn. of, 7300*i*.
derivs., 2621*a*.
mol. refraction of, 604*g*.
reaction with esters of carbonic acid, P 693*h*, P 694*a*.
——, o(and p)-hydroxy-, bactericidal action of, 5446*e*.
polarographic and potentiometric investigation of, 1349*i*.
——, p-hydroxy-, acetate, P 3461*f*.
mol. association and Raman spectrum of, in dioxane soln., 6920*a*.
——, α-hydroxy-, as catalyst for condensation of formaldehyde, 6159*h*.
(diphenylmethoxy)acetate, 5018*h*.
——, 2-hydroxy-3,4-dimethoxy-, 183*c*.
benzoate, 7935*c*.
——, 2-hydroxy-4,5-dimethoxy-, and 2,4-dinitrophenylhydrazone, 7460*d*.
——, 2-hydroxy-4,6-dimethoxy-, 7001*a*.
——, 2 - hydroxy - 4,6 - dimethoxy - 3-methyl-, antibacterial activity of, 5445*f*.
——, α - (4 - hydroxy - 2,6 - dimethyl - 5-pyrimidyl)-, and derivs., 3395*h*.
——, α - (2 - hydroxyethylamino)-, *N*-derivs., keto-hemiacetal tautomerism of, 4239*d*.
——, 2-hydroxy-4-methoxy-. See *Pronol*
——, 2-hydroxy-5-methoxy-, esters, prepn. and rearrangements of, 2621*b*.
——, 4-hydroxy-2-methoxy-. See *Isopronol*.
——, 4-hydroxy-3-methoxy-, 5763*d*.
from Ca lignosulfonate oxidation, 6823*g*.
from hydrogenated lignin, 2428*c*.
in iris oil and its spectrum, 7644*i*.
from lignin, 4851*b*, 6824*a*.
reaction with $H_2S$, 9438*b*.
——, 5-hydroxy-2-methoxy-, 3414*f*.
——, 2 - hydroxy - 4 - methoxy - 3,6 - dimethyl-, 2185*a*.
——, 4 - hydroxy - 3 - methoxy - α - 4-morpholinyl-, benzoate (ester) salts, P 7050*i*.
——, 4 - (4 - hydroxy - 3 - methoxyphenacyloxy)-3-methoxy-, 3610*f*.
——, 4 - [4 - (4 - hydroxy - 3 - methoxyphenacyloxy) - 3 - methoxyphenacyloxy]-3-methoxy-, 3610*f*.
——, 4 - [4 - [4 - (4 - hydroxy - 3 - methoxyphenacyloxy) - 3 - methoxyphenacyloxy] - 3 - methoxyphenacyloxy]-3-methoxy-, 3610*f*.
——, 4 - hydroxy - 3 - methoxy - α - 1-piperidyl-, and derivs., P 7050*h*.
——, 4-hydroxy-3-methyl-, 2187*b*.
acetate, P 5044*e*.
nitration of, 3385*f*.
——, 4-hydroxy-3-methyl-, P 5044*c*.
——, m-hydroxy-α-methylamino-, P 3460*e*.
——, 4- hydroxy - 3 - methyl - 5 - nitro-, 3385*f*.
——, α - (4 - hydroxy - 6 - methyl - 2-pyrimidyl)-, 3395*h*.
——, 4-hydroxy-3-nitro-, bactericidal action of, 5446*e*.
——, p-(p-hydroxyphenyl)-, and derivs., 1034*c*.
——, α-hydroxy-p-phenyl-, ζ-chloroenanthate, 109*g*.
3-cyclohexene-1-butyrate, 1378*a*.
esters, 6975*b*.
esters with L-tryptophan derivs., 1398*b*.
α-hydroxyisovalerate, 3788*b*.
isobutyrate, 2580*g*.
——, α-hydroxy-α-phenyl-. See *Benzoin*.
——, p - (p - y-3-phenyl-, 2187*b*.
——, p - (p - ydroxyphenyl) - α - methylamino-, and derivs., 1034*h*.
——, p - hydroxy - α - 1 - piperidyl-, benzoate (ester), P 7050*h*.
——, 2 - hydroxy - 3,4,5 - trimethoxy-, and derivs., 1774*g*.
——, 2 - hydroxy - 3,4,6 - trimethoxy-, reaction with aldehydes, 1772*b*.
——, 6-hydroxy-2,3,4-trimethoxy-, and derivs., 1772*i*.
——, α-(4-hydroxy-2,6-xylyl)-, 5773*f*.
——, 2-isoamoxy-4,5-dimethyl-, and semicarbazone, 7924*f*.
——, 2 - isoamoxy - 4,5 - dimethyl - α-phenyl-, and semicarbazone, 7924*f*.
——, 2-isoamoxy-5-methyl-, 3825*f*.
——, 4-isoamoxy-3-methyl-, 3825*e*
——, 4-isoamoxy-3-methyl-α-phenyl-, 3826*a*.
——, 4-isobutoxy-2-methyl-, 3825*f*.
——, 4-isobutoxy-2-methyl-α-phenyl-, 3826*a*.
——, 5-isopropyl-2-methyl-, reaction with $PCl_5$, 6595*f*.
——, α-mercapto-α,α-diphenyl-, and hydrolysis of its benzoate, 1753*h*.
——, o(and p)-methoxy-, polarographic and potentiometric investigation of, 1349*i*.
——, p-methoxy-, P 6235*h*, 7924*c*, P 7966*h*, P 7967*c*.
attempted condensation with anisole, 2971*a*.
and oxime, 7001*a*.
semicarbazone formation from, kinetics of, 2850*d*.
——, α-methoxy-, acylation of, 4248*c*.
——, α-o-methoxyanilino-, 2210*c*.
——, α-p-methoxyanilino-p-methyl-, 8392*c*.
——, 2 - methoxy - 4,5 - dimethyl-, and semicarbazone, 7924*e*.
——, 4 - methoxy - 2,6 - dimethyl-, and semicarbazone, 7924*g*.
——, 2 - methoxy - 4,5 - dimethyl - α-phenyl-, 7924*e*.
——, 4 - methoxy - 2,6 - dimethyl - α-phenyl-, 5773*c*, 7924*g*.
——, p - methoxy - α - (p - methoxyphenyl)-, and oxime, 7008*c*.
reduction of, 191*g*.
——, p-(methoxymethyl)-, 5761*c*.
——, 2-methoxy-5-methyl-, 3825*f*.
——, 4 - methoxy - 2(and 3) - methyl-, 3825*d*.
——, 4 - methoxy - 2 - methyl - 5-nitro-, 3385*f*.
——, 4 - methoxy - 2(and 3) - methyl-α-phenyl-, and semicarbazones, 3825*e*.
——, 3-methoxy-2-(2-naphthyl)-, and semicarbazone, 205*h*.
——, p-methoxy-α-nitro-, 7453*g*.
——, p-methoxy-α-phenyl-, 183*c*.
oxime, 7008*d*.
——, p-(p-methoxyphenyl)-, 1034*a*.
——, α-(p-methoxyphenyl)-, oxime, 7008*d*.
——, 2-methoxy-4-phenyl-, reduction of formation of, in p-(p-hydroxyphenyl)acetophenone prepn., 1034*a*.
——, 3 - methoxy - 2 - (1,2,3,4 - tetrahydro-2-naphthyl)-, and semicarbazone, 205*i*.
——, m-methyl-, 8367*d*.
——, p-methyl-, 1743*c*, 2601*b*, 7924*c*.
acylhydrazones†, 6972*e*, 6973*cf*.
hydrazones, 218*c*.
oxime, rearrangement of, and of its sulfate, 4651*a*.
reaction with 4-ethoxy-3,4-dihydro-3-phenyl - 2(1*H*) - quinazolinethione, 1047*a*.
semicarbazone, 7917*a*.
semicarbazone formation from, kinetics of, 2850*d*.
——, α - *N* - methylanilino - p - phenyl-, prepn. and reaction with PhNHMe and with $ZnCl_2$, 218*e*.
——, α - *N* - methylanilino - α - p-tolyl-, 220*c*.
——, α - (3 - methyl - 2 - benzothiazolinylidene)-, 4262*g*.
——, p - (1 - methyl - 1*H* - benzotriazol-5-ylazo)-, P 3625*h*.
——, 2-methyl-3,5-dinitro-, 4239*c*.
——, α-methylene-. See *Acrylophenone*.
——, p-methylmercapto-, 3361*e*, 7473*a*.
——, α-methylmercapto-, and 2,4-dinitrophenylhydrazone, 6574*g*.
——, p - methyl - α - *N* - methylanilino-, prepn. and reaction with PhNHMe and with $ZnCl_2$, 218*e*.
——, p - methyl - α - *N* - methylanilino-α-phenyl-, 220*b*.
——, 5 - methyl - 2 - methylmercapto-, 7475*a*.
——, 3-methyl-2-nitro-, 1781*f*.
——, 2 - methyl - 5 - (1 - nitroisopropyl)-, 6595*g*.
——, p-methyl-α-p-phenetidino-, 8392*c*.
——, p-methyl-α-phenyl-, P 2236*c*.
——, α - [5 - methyl - 2(or 3) - phenyl-1-indolyl]-, 220*i*.
——, 2 - methyl - α - phenyl - 4 - propoxy-, 3825*f*.
——, 2 - methyl - 4 - propoxy-, and semicarbazone, 3825*f*.
——, p - methyl - α - (1,2,3,4 - tetrahydro - 2 - phenyl - 3 - thioxo - 1-quinazolyl)-, 1047*b*.
——, p - methyl - m(o and p) - toluidino-, 8392*c*.
——, p-methyl-α-p-tolyl-, formation from di-p-tolylacetaldehyde, 4632*i*.
——, 5 - methyl - 2 - p - tolylmercapto-, 7474*i*.
——, α - 4 - morpholinyl - α - 2 - pyridyl-, 2208*d*, P 3045*f*.
——, α - 4 - morpholinyl - α - 4 - pyridyl-, dihydrochloride, 2208*d*, P 3045*f*.
——, α-naphthoyl-. See *1,3-Propanedione, 1 - (naphthyl) - 3 - phenyl-*.
——, m-nitro-, azine, spectrum of, 5756*a*.
——, p-nitro-, 6-alkyl derivs., 2186*d*.
——, α - (o - nitrophenylmercapto)-, 8367*a*.
——, 2,3,4,5,6-pentachloro-, 2189*a*.
——, α,α' - (pentamethylenediimino)-bis[3,4 - dihydroxy-, and dihydrochloride, 3800*f*.
——, α,α'-(pentamethylenediimino)di-, and salts, 3800*e*.
——, o-phenethyl-α-phenyl-, 5386*b*.
——, p-phenethyl-α-phenyl-, and hydrazone, 5386*b*.
——, α-(p-phenetylimino)-α-phenyl-, 4812*g*.
——, α-phenoxy-, acylation of, 4248*c*.
——, p-phenyl-, 2980*a*.
(dichlorophenyl)hydrazones, 622*c*.
hydrazones, 218*d*.
——, α-phenyl-. See *Desoxybenzoin*.
——, α,α' - (o - phenylenedinitrilo)bis-[o-hydroxy-, 4240*d*.
——, p-phenylmercapto-, 3361*g*.
——, α - phenyl - α - (5 - phenyl - 4-furazanyl)-, 2992*b*.
——, α - (4 - phenyl - 2 - thiazolylmercapto)-, 5393*d*.
——, α-phenyl-α-thiocyano-†, 6619*h*.
——, α - 1 - piperidyl - α - 2 - pyridyl-, P 3045*f*.
and hydrochloride, 2208*d*.
——, α - 1 - piperidyl - α - 4 - pyridyl-, dihydrochloride, 2208*e*, P 3045*f*.
——, α - 1 - piperidyl - α - 2 - quinolyl-, hydrochloride, 2208*d*, P 3045*g*.
——, α - 1 - piperidyl - α - 4 - quinolyl-, hydrochloride, 2208*e*, P 3045*g*.
——, α-piperonylidene-. See *Chalcone, 3,4-methylenedioxy-*.
——, α-2-pyridyl-, and derivs., P 3045*e*.
and oxime, 7022*g*.
——, α-4-pyridyl-, and salts, 2208*b*.
——, α-2(and 5)-pyrimidyl-, and derivs., 3395*f*.
——, α-2-quinolyl-, 7022*e*.
——, α-4-quinolyl-, P 3045*g*.
(omitted from abstr.), 2208*b*.
and oxime, 7022*f*.
——, α-salicylidene-. See *Chalcone, 2-hydroxy-*.
——, p,p'-sulfonyldi-, 7450*f*.
——, p,α,α,α-tetrachloro-, as insecticide, 2359*h*.
toxicity to insects, 199*f*.
——, tetrahydro-. See *Ketone, cyclohexenyl methyl*.
——, α - (2,3,4,6 - tetramethylphenyl)-, 5773*e*.
2,3,4,6(and 2,3,5,6)-tetramethyl-α-phenyl-, 5773*d*.
——, α,α'-thiobis[α-phenyl-, hydrolysis of, 1753*h*.
——, α-thiocyano-†, 6619*h*.
——, p,p'-thiodi-, 7450*f*.
——, α-p-tolyl-, 220*f*.
——, α,α' - (p - tolylimino)di-, 220*i*.
——, α,α,α-triallyl-. See *4-Pentenophenone, 2,2-diallyl-*.
——, p,α,α-trichloro-, 6991*f*.
as insecticide, 2359*h*.
——, α,α,α - trichloro - p - (trichloromethyl)-, as insecticide, 2359*h*.
toxicity to insects, 199*f*.
——, α-(2,4,6-triethylphenyl)-, 5773*e*.
——, 2,4,6-triethyl-α-phenyl-, 5773*d*.
——, m-(trifluoromethyl)-, 3361*f*.
and semicarbazone, 2211*f*.
——, α,α,α-trifluoro-p-phenyl-, and mpd. with MeOH, 3394*c*.
——, 2,3,4-trihydroxy-. See *Gallacetophenone*.

——, **2,4,6-trihydroxy-**. See *Phloroacetophenone.*
——, **2,3,6 - trihydroxy - 4 - methoxy-**, 182*a.*
——, **2,3,4-trimethoxy-**, 183*c.*
——, **2,4,6-trimethoxy-**, 7000*i.*
——, **α,α,α-trimethyl-**. See *Pivalophenone.*
——, **2,4,6-trimethyl-**, 2589*a.*
——, **3,4,5-trimethyl-**, 8367*d.*
——, **α,α′ - (trimethylenediimino)bis-[3,4-dihydroxy-**, 3800*f.*
——, **α,α′ - (trimethylenediimino)di-**, and salts, 3800*d.*
——, **2,3,6-tris(benzyloxy)-**, 3414*d.*
**Acetose.** See *Cellulose acetates.*
**Acetothienone.** See *Ketone, methyl thienyl.*
**Acetotoluidide,**



*para form*

(For derivs. see also *Acetanilide.*)
metabolism of, 6718*i.*
——, **α - [*m*(*o* and *p*) - bromophenyl]-**, 605*i.*
——, ***ar*-hydroxy-**, dyes from, P 9461*b.*
——, ***ar*-methoxy-**. See *Acetanisidide, ar-methyl-.*
——, **α-piperidyl-**. See *Piperidineacetotoluidide.*
***n*-Acetotoluidide**, manuf. of, P 3845*g.*
metabolism of, 2325*c.*
——, **6-acetyl-**, 1781*d.*
——, **6-acetyl-2,4-dinitro-**, 1781*e.*
——, **6-acetyl-4-nitro-**, 1781*e.*
——, **4-amino-6-nitro-**, deacylation of, 5755*e.*
——, **5 - *tert* - butyl - α - diethylamino-2-hydroxy-**, hydrochloride, P 1062*c.*
——, **6-chloro-5-nitro-**, 222*d.*
——, **α-diethylamino-**, and hydrochloride, 1021*i.*
pharmacology of, 9257*d.*
——, **α - diethylamino - 4 - hydroxy-**, P 1062*a.*
——, **4-dimethylamino-6-nitro-**, deacylation of, 5755*e.*
——, **2,6-dinitro-**, deacylation of, 5755*e*
——, **6-hydroxy-**, polyazo dyes from, P 3204*i*, P 4482*g.*
tetrakisazo dye from, P 4867*a.*
——, **4 - hydroxy - α³ - 4 - morpholinyl-**, P 1062*c.*
——, ***N* - methyl - 2 - methylamino-**, and isomer, 4273*g.*
——, ***N* - methyl - 6 - methylamino-**, mixt. with *N*-methyl-2-methylamino-*p*-acetotoluidide, 4273*h.*
——, **2-nitro-**, deacylation of, 5755*e.*
——, **4(and 6)-nitro-**, deacylation of, 2186*h.*
——, **6-nitro-**, deacylation of, 5755*c.*
——, **α³,α³,α³,6-tetrafluoro-**, 7918*c.*
——, **α³,α³,α³-trifluoro-**, 7918*b.*
***o*-Acetotoluidide**, manuf. of, P 3845*g.*
metabolism of, 2325*c.*
——, **6-acetyl-**, 1781*f.*
——, **4-amino-**, tetrakisazo dye from, P 6425*g*, P 6426*e.*
——, **5-amino-3-nitro-**, 592*f.*
——, **α-benzoyl-**, 228*f.*
——, **α-bromo-**, fungus-inhibiting properties of, 5081*h.*
——, **α-butylamino-**, and hydrochloride, 1021*h.*
——, **α-dibutylamino-**, and perchlorate, 1021*h.*
——, ***N*-(3,4-dichlorophenylsulfonyl)-**, P 2364*b.*
——, **α-diethylamino-**, pharmacology of, 9257*d.*
——, **α-diethylamino-*N*-methyl-**, and perchlorate, 1022*b.*
——, **α-dipropylamino-**, and salts, 1021*h.*
——, **α-ethylamino-**, and hydrochloride, 1021*h.*
——, **5-hydroxy-**, azo dye from, P 5194*b.*
——, **α-isopropylamino-**, and salts, 1021*h.*
——, **α-methylamino-**, 1021*h.*
——, **4-nitro-**, deacylation of, 2186*h*, 5755*c.*
——, **5-nitro-**, 2189*g.*
——, **6-nitro-**, deacylation of, 5755*e.*
——, **α-propylamino-**, and salts, 1021*h.*
***p*-Acetotoluidide**, formation from *p*-methylacetophenone oximes, 4651*b.*
metabolism of, 2325*c.*
——, **α-bromo-**, fungus-inhibiting properties of, 5081*h.*
——, **α-(*m*-chlorophenyl)-**, 605*h.*
——, **2,6-dibromo-α-chloro-**, 1023*a.*
——, **2,6-dibromo-α-diethylamino-**, and hydrochloride, 1023*a.*
——, **α-diethylamino-**, pharmacology of, 9257*d.*
and salts, 1021*i.*
——, **α⁴ - (2,6 - dimethyl - 4 - pyridyl)-**, 4672*c.*
——, **2,3(2,5 and 2,6)-dinitro-**, deacylation of, 5755*e.*
——, **3,5-dinitro-**, 592*e.*
——, **5-fluoro-2-nitro-**, 7918*a.*
——, **α - (2 - hydroxyethylcarbamyl)-**, 3362*b.*
——, **α⁴ - (2 - hydroxy - 4 - methyl - 6-quinolyl)-**, 645*i.*
——, **α⁴ - (4 - hydroxy - 2 - methyl - 6-quinolyl)-**, 646*b.*
——, ***N*-methyl-2-methylamino-**, mixt. with *N*-methyl-6-methylamino-*m*-acetotoluidide, 4273*h.*
——, **2-nitro-**, P 3034*b.*
deacylation of, 2186*h*, 5755*b.*
——, ***N,N′-p*-xylylenebis-**, 5386*d*
**Acetovanillone.** See *Acetophenone, 4-hydroxy-3-methoxy-*
**Acetoveratrone.** See *Acetophenone, 3,4-dimethoxy-.*
**Acetoxy group**, effect of, in chlorination of aliphatic compds., 4627*i.*
optical rotation due to, 4680*e.*
**Acetoxylidide, α-piperidyl-**. See *Piperidineacetoxylidide.*
**2,3 - Acetoxylidide** (*2,3 - dimethylacetanilide*).
——, **α-diethylamino-**, and hydrochloride, 1021*i.*
pharmacology of, 9257*d.*
——, **α-dimethylamino-**, and hydrochloride, 1021*i.*
——, **6-hydroxy-**, 5758*i.*
**2,4 - Acetoxylidide** (*2,4 - dimethylacetanilide*).
——, **5-amino-*N*-methyl-**, 1343*f.*
——, **α-diethylamino-**, 1021*i.*
pharmacology of, 9257*d.*
——, ***N*-methyl-**, 1343*f.*
——, ***N*-methyl-5-nitro-**, 1343*f.*
**2,5 - Acetoxylidide** (*2,5 - dimethylacetanilide*).
——, **4-amino-**, azo dye from, P 4473*b*
——, **α-diethylamino-**, and perchlorate, 1022*a.*
pharmacology of, 9257*d.*
**2,6 - Acetoxylidide** (*2,6 - dimethylacetanilide*).
——, **α-allylamino-**, and hydrochloride, 1024*h.*
——, **α-benzylamino-**, and hydrochloride, 1024*i.*
——, **α-butylamino-**, pharmacology of, 9257*e.*
and salts, 1023*g.*
——, **α,α′-(butylimino)bis-**, and hydrochloride, 1023*h*
——, **α-chloro-**, 1022*a.*
——, **α-cyclohexylamino-**, pharmacology of, 9257*e.*
and salts, 1024*h*
——, **α-diallylamino-**, and hydrochloride, 1024*i*
——, **α - [(2,2 - diethoxyethyl)methylamino]-†**, 1025*b.*
——, **α-diethylamino-**, analogs and isomers, pharmacol. properties of, 9257*d.*
and salts, 1022*a.*
——, **α-dimethylamino-**, and hydrochloride, 1022*a.*
——, **α-dipropylamino-**, and nitrate, 1024*i.*
——, **α-ethylamino-**, and hydrochloride, 1024*g.*
——, **α-[(formylmethyl)methylamino]-**, diethyl acetal, 1025*b.*
——, **α - [(2 - hydroxyethyl)methylamino]-**, and picrate, 1025*a.*
——, **α-isobutylamino-**, pharmacology of, 9257*e.*
and salts, 1023*h.*
——, **α-isopropylamino-**, and hydrochloride, 1024*g.*
——, **α-methylamino-**, and salts, 1024*f.*
——, **α-propylamino-**, and salts, 1024*g.*
**3,4 - Acetoxylidide** (*3,4 - dimethylacetanilide.*)
——, **α-diethylamino-**, and hydrochloride, 1022*a.*
pharmacology of, 9257*e.*
——, **6-nitro-**, deacylation of, 5755*e.*
**3,5 - Acetoxylidide, α - chloro-**, 1022*a.*
——, **α-diethylamino-**, and hydrochloride, 1022*a.*
pharmacology of, 9257*e.*
——, **2-nitro-**, deacylation of, 5755*e.*
**Aceturic acid** (*N-acetylglycine*). (For derivs. see under *Glycine.*)
deacetylation of, in animal organism, 6714*g.*
ethyl ester and its picrate, 2989*g.*
2-phenylcyclohexyl and 1,2,3,4-tetrahydro-2-naphthyl esters, as insect repellents, 2363*c.*
reaction with gentisaldehyde, 6598*b.*
**Aceturimidic acid**, ethyl ester, -HCl, p 673*b.*
**Acetyl** (*free radical*), heat of formation of, 6479*c.*
**Acetylacetone.** See *2,4-Pentanedione.*
**Acetylation.** (See also *Heat of acetylation.*)
of agar-agar, hemicellulose and starch, 2432*g.*
agents for, anhydrides of AcOH and silicic acids as, 4631*f.*
of alcs. and detn. of linaloöl in essential oils by acetylation, 7796*b.*
of *p*-aminobenzoic acid in animal ganism, 5835*h.*
of *p*-aminobenzoic acid with acetamide in liver, 3074*a.*
of amylopectin, amylose and starches, 4036*d.*
in animal organism, pantothenic acid and, 9194*d.*
of aromatic amines, P 3845*g.*
of 2(3*H*)-benzoxazolones, 6617*f.*
of cellulose —see *Cellulose acetates.*
of cotton by ketene, 5595*b.*
of α-cyanohydrins, 564*a.*
in diabetes, 9220*f.*
of 3,5-dichlorosulfanilamide, 601*e.*
of α-diketones, P 3451*f.*
of esters of β-oxo acids with ketene in the presence of tertiary amines, P 6651; Friedel-Crafts, of diacetamidonaphthalenes, 9058*b.*
of furan, P 3465*e.*
in furanose sugar condensation with pyrimidine derivs., 144*i*
of lignin from aspen, 5589*g*
of lignin from beech and spruce, 6409*a.*
of *N*-1(and 2)-naphthylacetamides, 6606*c*
of phenolic groups in proteins with ketene, 3864*f*
of phenols, 9049*e.*
of D-psicose, 1327*h.*
of quinone and toluquinone in AcOH and $Ac_2O$, kinetics of, 26*e.*
of quinones, kinetics of, 5379*b.*
of sulfanilamide in animal organism, effect of pantothenic acid and thiamine deficiencies on, 5460*e*
of sulfanilamide, relation to acetoacetate formation, 1817*b.*
of tall oil, P 895*g.*
of tar oils, P 8122*d.*
of thiophene, 1762*f*, P 3465*h.*
**Acetyl bromide**, in acetic anhydride, behavior of, 2110*f.*
manuf. of, P 7954*c.*
reaction with inositol, 6581*b.*
——, **bromo-**, spectrum of, 1656*b.*
**Acetylcellulose.** See *Cellulose acetates.*
**Acetyl chloride**, in acetic anhydride behavior of, 2110*f.*
compds. with $Et_3N$ and with pyridine, 8353*c.*
manuf. of, P 3027*h*, P 7954*c.*
reaction with β-lactone of hydracrylic acid, P 1056*i.*
reaction with phosphorus thio esters, 560*i.*
spectrum of, 1656*c*, 4574*h.*
vibrations of, 8882*e.*
——, **bis(*p*-nitrophenyl)-**, 7004*f.*
——, **chloro-**, azo dye from, P 7697*gh.*
spectrum of, 1656*c.*
——, **(4-chloro-*o*-toloxy)-**, P 2234*c.*
——, **cyclopentyl-**. See *Cyclopentaneacetyl chloride.*
——, **dibromo-**, 6975*h.*
——, **[5,8-dichloro-1(and 2)-naphthylmercapto]-**, P 7707*d.*
——, **ethoxy-**, prepn. of, 3408*a.* 198*a.*
——, **(2-ethyl-3-methoxyphenyl)-**.
——, **fluoro-**, 2933*c*, 6164*d.*
volatility and vapor pressure of, 8841*b.*
——, **phenyl-**, 4574*h.*
prepn. of D-contg., 2271*d.*
reaction with diazo paraffins, 1743*i.*
——, **trichloro-**, P 7954*c*, 9031*c.*
——, **[2,4,5(and 2,4,6)-trichlorophenoxy]-**, prepn. and reactions of, 2973*f.*
——, **trifluoro-**, prepn. of, 3304*c.*
reaction with $NaN_3$, 6793*e.*
**Acetyl chloroantimonate(V)**, $AcSbCl_6$, as electrolyte in liquid $SO_2$, 1803*h.*

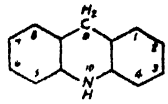
**Acetylcholine.** See *Choline, acetyl-.*
**Acetylcholine-like substances.** See *Vagomimetic substances.*
**Acetylcholinesterase.** See *Cholinesterase.*
**Acetyl compounds,** as acids in $Ac_2O$, 2110*g*.
**Acetyl cyanide.** See *Pyruvonitrile.*
**Acetylene,** absorption of, by water, 1939*f*.
acetaldehyde and chloroethylene from, P 7037*d*.
adsorption by charcoal, 6488*f*.
alkoxy derivs., 2158*b*.
alkyl derivs. of—see "acetylenic" under *Hydrocarbons.*
aromatic-hydrocarbon manuf. from, P 5040*c*.
aromatic, satd. and unsatd. hydrocarbons from, P 7959*f*.
bonds ($\sigma$) in, 2478*f*.
bonds in, force const. of C–H, relation to HCH angle, 4059*i*.
book: Neue Entwicklungen auf dem Gebiete der Chemie des, 7034*g*.
carbon exchange in, 2081*b*.
catalyst poisoning by, in S removal from gas, and $C_2H_2$ removal, 3170*a*.
chlorination (photo-) of, P 2870*f*.
in cigaret smoke, 7645*f*.
combustion of, 7663*h*.
complex with CuCl, and polymerization in $Cu_2Cl_2$ solns., 3308*a*.
condensation of, P 6643*g*.
with $NH_3$, 3778*f*.
with *p-tert*-butylphenol, P 6821*e*.
with 4-piperidones, 2960*c*.
condensation products with alkylphenols, 2807*i*.
condensation products with PhOH, mixt. with polyvinyl ether, P 9526*e*
conversion to acetone or alcs., catalyst for, P 5887*b*.
copper deriv.—see *Copper acetylide.*
derivs.—see also *Acetylene compounds;* and "acetylenic" under *Hydrocarbons.*
derivs., 112*a*, 6571*d*.
derivs., heat capacity of, 1638*c*.
detn. of, 2112*i*, 4183*f*, 4972*i*.
in air, 971*g*, 4972*d*, 6943*g*.
in liquid O, 2804*i*.
detonation, explosion and combustion wave propagation and velocities in mixts. of O and, 5576*e*.
dimerization and reaction with HCN, thermodynamics of, 2830*e*.
dimerization of, P 7951*a*.
as drying gas for citrus products, P 9295*b*
flames of, with air and O, 3253*i*.
with air, O and $N_2O$, temp. of, 4958*b*
extinction of, 8822*h*.
spectrum of, 5312*g*, 7822*h*.
temp. of, 1231*i*.
formation of, from $CaC_2$, rate of, 2082*a*.
in $CH_4$-filled Geiger-Müller counters, 484*b*.
from vinyl radicals, 3694*d*.
formula ($\pi$-electron) for, 41*c*.
generators—see *Acetylene generators*
heat of adsorption by active C, 7317*c*.
heat of dissociation of, 1250*c*.
hydration of, P 3837*i*.
hydrochlorination of, P 7951*ad*.
hydrofluorination of, P 3834*i*.
hydrogenation of, 108*h*.
to $C_2H_4$, P 3833*i*, P 5030*b*.
on NiS catalysts, 7802*i*.
industry, 2871*c*.
interface with Ne, reflection of shock waves at, 3677*f*.
iodination of, 6568*a*.
ion of, electron affinity of $C_2^{--}$, 4093*d*.
lyoparachor of, 2834*d*.
manuf. of, P 916*a*, P 2408*b*.
$Ca(OH)_2$ from, briquetting of, for manuf. of $CaC_2$, 2081*h*.
$Ca(OH)_2$ from, in Hg-vapor control in buildings, 1503*c*.
in elec. arc, 1664*a*, P 4589*a*.
from fuel gas, 4832*e*.
in high-frequency current or field, P 2880*i*.
from hydrocarbon gases, P 5174*i*, P 8663*f*.
from hydrocarbon gases in elec. glow discharge, P 3994*e*.
from hydrocarbons, P 7670*i*.
from $CH_4$, 5571*h*.
from $CH_4$, furnace for, P 7357*e*.
from petroleum-refinery gases, 2760*d*.
plant for, 3947*f*.
from $C_2H_2$, P 8663*d*.
manuf., uses and chemistry of, 7406*i*.
mercury derivs.—see *Mercury acetylides.*
mixts. with air and O, elec. resistance of, 8591*i*.
as natural-gas-leakage tracer, 7211*b*, 8646*a*.
nitro olefins from, P 4284*a*.
oxygen detn. in, 1286*b*, 8963*e*.
parachor and thermochor of, 2923*f*.
polymerization of, to benzene and other hydrocarbons, 5376*abc*.
to cyclic compds., 6194*g*.
by electromagnetic field, 3344*e*.
polymers of, 557*d*.
polymers of, or copolymers with olefins, reaction products with inorg. acids or anhydrides, P 2804*c*.
porous materials for storage of, 7212*c*.
prepn. of, and $C_2^{14}H_2$ from $CO_2$ and $C^{14}O_2$, 1713*g*.
processing of, 3169*d*.
purification of, from elec. arc, 1664*b*.
reaction of, and its derivs. with CO, P 5412*i*.
reaction of, and its derivs. with H halides, P 2629*a*.
reaction products with alkylated benzenes, polymers of, P 4051*c*.
reactions of, carburetor process for, P 7036*e*.
reaction with AcOH, P 3839*b*, P 5035*h*.
with alcs., P 5034*fg*.
with alkyl carbonates, 6167*g*
with $AsCl_3$, P 5412*b*.
with at. H, 472*i*.
with $C_6H_6$, $C_{10}H_8$, xylene, etc., P 5636*f*.
with Br, effect of neutron capture on, 2078*a*.
with carbazole, P 7036*h*.
with carboxylic acids, P 3838*e*, P 4288*h*, P 5036*b*, P 6651*c*.
with esters, 7453*b*
with fatty acids, P 7036*i*.
with HCHO and HCl, P 4685*g*, P 5035*b*
with $HCO_2H$ to form $HCO_2CH{:}CH_2$, 567*f*.
with *N*-halo amines, P 3031*i*.
with HCl, P 664*a*, P 1433*e*, P 3021*ef*, P 3437*h*, P 5790*a*, P 6644*i*, 6969*g*.
with HCN, P 1051*ab*, P 1794*f*, P 3439*a*, P 7037*c*.
with HF, P 660*h*, P 6645*b*.
with OH, rate of, 8820*h*.
with ketones, 569*g*.
with 2-(methoxymethoxy)ethanol, P 1051*g*, P 9080*b*.
with KOH in org. solvent, P 1928*e*.
with S, 4666*i*.
removal from $CH_2{:}CHCl$, P 3835*c*.
removal from coke-oven gas, P 5175*b*, P 5928*g*, P 7670*f*.
removal of $AsH_3$, $H_2S$ and $PH_3$ from, P 2382*a*.
resinous products from alkyl phenols and, P 2466*f*.
reviews on, 1713*i*, 4211*i*.
silver deriv.—see *Silver acetylide.*
sodium derivs.—see *Sodium acetylides.*
spectrum of, 491*a*.
structure of, wave function theory and, 492*b*.
terpenes from, 3777*i*.
thermochemistry of, valency of C and, 3276*d*.
varnish industry and, 873*c*, 6432*e*.
vibrations of, 2512*b*.
welding—see *Welding.*
**Acetylene, benzoyl-.** See *Propiolophenone.*
——, **bis(ethylmercuri)-†,** diene syntheses with, 2614*f*.
——, **bis(methylmercuri)-†,** diene syntheses with, 2614*b*.
——, **bis(propylmercuri)-†,** diene syntheses with, 2614*f*.
——, **butyl-.** See *1-Hexyne.*
——, **cyclohexenyl-.** See *Cyclohexene, ethynyl-.*
——, **deuterio-.** See *Acetylene-d.*
——, **dichloro-,** reaction (addn.) with $NO_2Cl$, 1716*b*.
——, **dideuterio-.** See *Acetylene-$d_2$.*
——, **diiodo-,** spectrum of, 4572*f*.
thermodynamic properties of, 8838*e*.
——, **dimethyl-.** See *2-Butyne.*
——, **diphenyl-,** bond orders and free valences of, 4570*a*.
bromination of, with AcNHBr, 5754*c*.
in chigger control, 8600*b*.
history of tolan nomenclature for, 2923*g*.
and reactions of, 1755*c*.
reduction of, to bibenzyl, 191*g*.
scintillations produced by $\alpha$-rays in crystals of, 8264*b*.
spectrum of, 3715*b*, 4140*e*.
——, **divinyl-.** See *1,5-Hexadien-3-yne.*
——, **ethyl-.** See *1-Butyne.*
——, **ethylphenyl-.** See *1-Butyne, 1-phenyl-.*
——, **isopropenyl-.** See *1-Buten-3-yne, 2-methyl-.*
——, **(methoxyphenyl)-.** See *Anisole, ar-ethynyl-.*
——, **methyl-.** See *Propyne.*
——, **naphthoyl-.** See *Propiolonaphthone.*
——, **phenoxy-.** See *Ether, ethynyl phenyl.*
——, **phenyl-.** See *Benzene, ethynyl-.*
——, **vinyl-.** See *1-Buten-3-yne.*
**Acetylene-*d*,** mass spectroscopy of, 4183*f*.
**Acetylene-$d_2$,** mass spectroscopy of, 4183*f*.
**Acetylene black.** See "black" under *Carbon.*
**Acetylenecarboxylic acid.** See *Propiolic acid.*
**Acetylene compounds.** (See also "derivs." under *Acetylene;* and "acetylenic" under *Hydrocarbons.*) 2957*i*, 2958*h*, 2960*b*, 2999*b*, 7406*i*, 6622*g*, 6623*ch*, 6624*cf*, 6625*a*, 7415*cg*, 7416*g*, 7417*g*.
book: Acetylene Chemistry, 9078*d*.
condensation of, 6167*g*.
condensation with esters, 6168*f*.
derivs., 1332*f*, 1333*bh*, 2160*i*, 2161*dh*, 2162*g*, 2163*dg*, 2576*a*, 6969*h*.
as dienophiles in Diels-Alder reaction, 2155*f*.
as fungicides, 9333*i*.
halo derivs., condensation with $\alpha,\beta$-unsatd. ketones, P 5798*b*.
hydrogenation of, 571*e*, 1368*c*, 3782*d*.
hydrogenation of, Ti hydride in, P 1793*g*.
mercury-Ag complex, P 7670*f*.
mercury-Ag complex, in $C_2H_2$ removal from coke-oven gas, P 5175*a*.
phys. properties of, 2591*h*.
polymerization of, to cyclic trimers, organometallic compds. as catalysts for, 6202*a*.
polymers of, or copolymers with olefins, reaction products with inorg. acids or anhydrides, P 2804*c*.
production of, 5733*e*.
reaction(addn.) with $NO_2Cl$, 1716*b*.
reaction with hydrogen halides, P 2629*a*.
rearrangement of, 6153*c*.
spectra of, 7818*d*.
**Acetylenedicarboxamide,** fungistatic activity of, 9334*h*.
**Acetylenedicarboxylic acid,** dimethyl ester, HBr addn. to, spatial orientation and, 8824*f*.
and esters, fungistatic activity of, 9334*h*.
esters, phys. consts. of, 2592*a*.
succinic acid prepn. from, labeled with $C^{14}$ in carboxyl position, 2861*i*.
**Acetylenediureine.** See *Glycoluril.*
**Acetylene generators,** P 916*b*, P 3250*gh*, P 4526*c*, P 4908*fg*, P 5238*g*.
**Acetylene glycols.** See *Glycols.*
**Acetylene hydrocarbons.** See *Hydrocarbons.*
**Acetylene linkage.** See *Triple bonds.*
**Acetylene tetrachloride.** See *Ethane, 1,1,2,2-tetrachloro-.*
**Acetylesterase,** inhibition by diisopropyl fluophosphate and $Et_4P_2O_7$, 258*f*.
isolation from citrus wastes, P 2340*f*.
**Acetyl fluoride, chloro-,** 2933*c*.
volatility and vapor pressure of, 8841*b*.
——, **fluoro-,** 2933*d*.
**Acetylformic acid.** See *Pyruvic acid.*
**Acetyl group,** as cation in liquid $SO_2$, 8935*h*.
color reactions of, in glycoproteins, 3480*f*.
detn. of, 8974*i*.
effect on fungistatic activity of $C_6H_6$ derivs., 4803*h*.
removal of, from acetamide compds. in animal organism, 6714*e*.
by $NH_3$, properties of cellulose acetates during, 6423*a*.
from 1,2,3,4- and 1,2,3,5-tetraacetylribose, optical rotation and, 147*e*.
**Acetyl hydrogen peroxide.** See *Peroxyacetic acid.*
**Acetyl iodide,** in acetic anhydride, behavior of, 2110*f*.
manuf. of, P 7954*c*.
**Acetyl isothiocyanate, fluoro-,** volatility and vapor pressure of, 8841*b*.
**Acetylization.** See *Acetylation.*
**Acetyl perchlorate,** $AcClO_4$, as electrolyte in liquid $SO_2$, 8936*a*.
**Acetyl peroxide,** as catalyst for polymerization of unsatd. compds., P 905*e*.
as catalyst in addn. reaction of olefins with halogenated paraffins, 8344*g*.
decomps. of, in 2-bromopropane, 8776*b*.

decompn. of, in *vic*-glycols, 3776*a*.
detonation and safe handling of, 405*g*.
explosion hazard with dry, 3199*e*.
induction of reaction of aldehydes with ketones by, 4637*b*.
manuf. of, P 3444*f*.
reaction with allylbenzene, 612*f*.
**Acetyl phosphate***, formation by *Escherichia coli*, 1829*i*.
**Acetylsalicyclic acid** (*aspirin*), *o*-acetoxybenzyl ester, P 7647*e*.
biochem. action of, 756*h*.
butyl ester, spectrum of, 4574*h*.
calcium salt of vitamin C and, P 1914*e*.
cholinesterase action on, 9122*c*.
detn. of, 70*b*.
effect on prothrombin, 8540*a*.
effect on stomach lining and skin, 3106*c*.
hydrolysis (enzymic) of, 7983*f*.
identification of, 6783*f*.
methyl ester, P 4701*f*.
motion-sickness chewing gum contg., P 3982*c*.
pharmaceutical prepn. contg. succinates and, P 6791*e*.
stable salts of, P 4429*i*.
sulfapyridine toxicity in association with, 6731*a*.
system: antipyrine–, 1148*g*.
**Acetyl selenide†**, in acetic anhydride, behavior of, 2110*f*.
**Acetyl sulfate***, $Ac_2SO_4$, as electrolyte in liquid $SO_2$, 8936*a*.
**Acetyl sulfide†**, in acetic anhydride, behavior of, 2110*f*.
**Acetyl thiocyanate**, in acetic anhydride, behavior of, 2110*f*.
**Ac-Globulin**. See *Globulins*.
**Acheson Award**, to MacInnes, Duncan A., 9*d*.
**Achillea**. See *Yarrow*.
**Achlorhydria**. (See also *Hypochlorhydria*.)
effect on peptic ulcer, 8519*a*.
in gastric disease, histological basis of, 2309*g*.
gastric mucosa in, 6302*e*.
intestinal putrefaction in, 2687*c*.
**Achondrite**. See *Meteorites*.
**Achorion**, hexylresorcinol effect on, 1827*a*.
**Achromobacter**, decompn. of phenols and related compds. by, 3058*d*
*fischeri*—see *Bacterium phosphorescens indigenus*.
*liquidum*, butterfat treated with, fatty acids produced by, 8569*f*.
in sugar mills, 887*a*.
**Achromotricia**, pantothenic acid prepn for prevention of, P 4434*f*.
**Achylia**, gastrica, pernicious anemia and, 1845*h*.
**Acid amides**. See *Amides*.
**Acid anhydrides**. See *Anhydrides*.
**Acid-base equilibrium**. (See also *Acidosis; Alkalosis*.)
of blood, effect on chloroleukemia, 4385*b*.
of blood plasma, duration of resistance to anoxia in relation to, 8038*d*.
of blood serum, effect of high blood urea on, 3911*f*.
in brain tissues, 1099*c*.
chronaxic manifestations of imbalance of, antagonistic or synergistic effects of vitamins on, 288*c*.
convulsive seizures and, 308*c*.
in hypophosphatemia glycosuric rickets with retinitis pigmentosa, 6713*d*.
in pregnancy, 7111*f*.
sodium acetate as source of fixed base for maintaining, 6309*h*.
in tuberculosis, 3509*d*.
vitamins and, 1092*f*.
**Acid chlorides**. See *Chlorides*.
**Acid esters**. See *Esters*.
**Acid Green LX**. See *Dyes*.
**Acid halides**. See *Halides*.
**Acidimetry**. See *Acids*.
**Acidity**. (See also *Acids; Buffer systems; Hydrogen-ion concentration; Titration*.)
bactericidal power and mutual polarizability in relation to, 8243*e*.
chem. constitution and, of *p*-carboxyphenylhydrazones of hydroxy aldehydes and ketones, 5764*e*.
detn. of, of apple juice and cider, 3537*b*.
of bone grease, 1581*d*.
of crocus suspensions, 2390*i*.
of fatty acid chloride-peptide condensation products, 8217*g*.
of fatty materials, 8178*e*.
of glyptal resins, 6542*g*.
of milk, 1495*h*, 1878*e*, 7507*b*.
of milk, app. for, 7507*e*.
of soils—see *Soil-* [illegible]
*detn. of*, of sweat, 7537*e*.
detn. of volatile, of flake tragacanth, 4881*f*.
gastric—see *Stomach*.
of group $CH^-$, electromeric effect, and reactivity, 1010*i*.
intestinal—see *Intestines*.
of nonaq. solns., expression of, 7304*e*.
potential (elec.)—see *Potential, electric*.
of soils—see *Soils*.
stereomerism and, 2479*d*.
**Acidity function**, Hammett, of aq. $H_3PO_4$, 8833*f*.
Hammett, of HCl in acetone, dioxane, EtOH and $H_2O$ and their mixts., 4544*gi*.
**Acid number**, detn. of, 4787*c*.
detn. of, of alkyd resins, 6459*g*.
of fats, 423*a*.
of fats and oils, 879*c*.
of fatty materials, 6841*b*.
of lecithin, 5975*b*.
of lubricating oils during oxidation test, 3182*c*.
of stand oils, 419*g*.
**Acidol** (*the petroleum by-product*). See *Naphthenic acids*.
**Acidol** (*the pharmaceutical*). See *Betaine*.
**Acidolysis**. See *Hydrolysis*.
**Acidoproteolytes**. See *Bacteria*.
**Acidosis**. (See also *Acid-base equilibrium*.)
ammonia production by kidney slices in, 8507*c*.
from ammonium chloride, alkali therapy of, 1869*h*.
book: Agonal, 755*g*.
from calcium levulinate, 5502*f*.
convulsive seizures in, 308*c*.
diabetic, Ca, Mg and K in blood serum in, 5855*a*.
effect on organism, 6303*f*.
in elec. shock, 4383*a*.
metabolism in, 317*h*.
from methanol, effect of EtOH on, 3105*e*.
production in premature infants by protein milk, 5100*c*.
**Acid residues**. See *Acyl group*.
**Acid-resistant materials**, 9014*f*.
calking compn., P 4900*a*.
cellulosic fibers (impregnated), asphalt molding compn. from, P 6004*e*.
cement—see *Cement, hydraulic or structural*.
coatings from cement and chlorinated polychlorovinyl resin, P 6389*f*.
drying oil resinous reaction products with cyclopentadiene-styrene copolymers, P 4029*c*.
enamels—see *Enamels*.
etherified PhOH-HCHO resins, P 5630*i*.
furfuryl alc. condensation products, P 7752*a*.
galvanic action of alloys in $H_2SO_4$, 2151*b*.
glass as, 2386*c*.
glass with treated surface as, P 1934*h*.
for hydrofluoric acid—see *Hydrofluoric acid*.
neoprene-furfuryl alc. polymer, phenolic resin-satd. sheet coated with, P 4490*b*.
silicon-iron, 9005*e*.
steel—see *Steel*.
**Acids**. (See also *Acid-resistant materials; Aldonic acids; Amic acids; Amino acids; Anions; Arsonic acids; Bile acids; Carbonyl compounds; Carboxyl group; Fatty acids; Hydrogen ion; Hydroxamic acids; Imidic acids; Per acids; Peroxy acids; Resin acids; Salts; Sulfonic acids; Sulfur acids; Tar acids; Uronic acids;* and the individual acids as *Sulfuric acid*.) For systematic detection or determination of acids (anions), see *Analysis*.
absorbent for gaseous, P 8578*c*.
acetylenic carboxylic, 6571*d*, 7415*c*.
in acrylic acid polymer filament extension and contraction, 8812*f*.
adsorbed, titration of, 6883*b*.
adsorbents for, from vinyl ketone polymers with 2-vinylpyridine, P 5231*a*.
adsorption of, pH and, 6035*c*.
adsorption of org., from liquid hydrocarbon phase of condensate wells, 1951*i*.
aldehyde and ketone manuf. from mixts. of carboxylic, P 5791*g*.
alkyl dibasic aliphatic, as corrosion inhibitors in lubricants, P 4459*c*.
alkyl substituted aromatic-aliphatic carboxylic, P 7967*e*.
α-allyl derivs., 5769*a*.
alpha bitter, of hops—see *Humulone*.
amine (aromatic) acylation with volatile, 6880*b*.
amine basicity and salt formation with weak, 6157*h*.
(aminoalkoxy), aminoalkyl esters, p 3462*d*.
in ammonia (liquid), 7854*a*.
ammonium ion as, 7303*b*.
analysis of mixts. of org., by extn. between immiscible solvents, 8976*i*.
analysis of mixts. of weak, with Sb and quinhydrone electrodes, 5696*ac*.
arsenic trisulfide hydrosol stabilization by aromatic and dibasic aliphatic, 7779*h*
arylaminoaryloxy, for preservation of rubber and other gums, P 5990*h*.
aryl derivs. of aliphatic, 4659*b*.
arylsulfonyl, corrosion inhibitors, p 1308*f*.
azulene partition between mineral, and org. solvents, 5768*f*.
-base catalysis in nonaq. solvents, 8828*d*
-base equil.—see *Acid-base equilibrium*
-base studies in gaseous systems, 3422*c*
beta bitter, of hops—see *Lupulone*.
books: Handling and Transportation of – (in Russian), 2744*h*; Theory of History and Modern Status (in Russian), 8256*h*.
branched aliphatic, and their physiol action, 6251*b*.
brick attack by, prevention of, P 6387*c*
α-bromination of dicarboxylic, 1325*b*.
calcn. of free-energy function, heat content, heat and free energy of formation of carboxylic, 5658*e*.
carboxyl, as complex-salt constituents, 5324*e*, 8242*i*.
carboxyl group detn. in aromatic, 8071*a*
carboxyl group removal from org., catalysis of, 7800*i*.
catalysis of isomerization of aldehydes into ketones by, 4632*f*.
as catalysts in acylation of alkyl phenyl ethers, P 7966*g*.
in acylation of furans, P 3464*i*.
in alcoholysis of esters, 7418*c*.
in alkylation of paraffins with pentenes, P 3189*f*.
in copolymerization of anethole, 8828*g*.
in depolymerization of paraldehyde in gas phase, 7801*e*.
in emulsification of phenol-HCHO reaction mixts., 5223*g*.
in esterification of amino alcs., P 6716
catalysts of carboxylic, in alkylation of phenols, P 7966*c*.
catalysts of clay and org., polymerization of resin oils with, P 5641*h*.
catalysts of oxy compds. of B and org., in polymerization of drying oils, P 9484*d*.
catalytic value of $C_{12}$-$C_{18}$, in oxidation of paraffin oil, 2411*b*.
cellulose as, 9434*i*.
chain length of dicarboxylic, m.ps. and, 3792*h*.
chlorination of aliphatic, P 6650*g*.
in chloroprene polymer latex coagulation, 2009*d*.
chromatographic analysis (qual.) of org., by paper partition of KOH derivs. of their Me esters, 5695*i*.
chromatographic sepn. of org., by anion exchange resins, 8807*a*.
chromatographic sepns. of org., one and two-dimensional partition, 6946*h*.
clay-mineral treatment with, 372*c*
collagen shrinkage rates and, 7247*e*
collagen shrinkage temp. and, 7113*h*
colloidal, 9316*i*.
color reactions of mineral, with Elasmobranchia liver oils, 5210*h*.
complex formation with cations in reversion analysis, 6107*b*.
compds. of carboxylic, with alcs., 7409*b*.
compds. of carboxylic, with $BF_3$, structure of addn., 5657*f*.
condensation of dicarboxylic, with glycols, P 2228*h*.
condensation products of—see also *Resinous products*.
condensation products of dicarboxylic with dialcs. or hydroxyamines, technology of rubbery, 4885*g*.
condensation products of, with inositol in improving whipping properties of gelatin, P 8186*i*.
corrosion by—see *Corrosion*.
corrosion-inhibiting value of org., in lubricating oils, etc., 1953*g*.
in cotton in relation to ash alky. and leaching by rain, 853*f*.
of cotton plant, 8017*h*.
cotton-textile weathering and, 5524*i*.

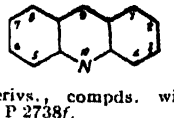
crit. temp. cube additivity for org., 7277*d*.
cyano carboxylic, 2167*e*.
cyano tricarboxylic, P 7505*f*.
cyclization of aliphatic aryl, 4250*h*.
cycloaliphatic carboxylic, P 2234*e*, P 5416*d*.
definitions of, 2826*d*, 8971*c*.
detection of free, 8966*b*.
detection of org., in presence of alc., saccharin, sugar, etc., 5342*a*.
detn. of—see also *Acidity; Indicators; Standard solutions; Titration*.
detn. of free, 8949*e*.
detn. of free, in Sn salt solns., 972*c*.
detn. of gaseous, in petroleum industry, 8962*c*.
detn. of, in colored liquids, 8944*a*.
in musts and wines, 6779*a*.
from oxidation of polyols by periodate, 2006*c*.
in oxidized gasoline, 1952*h*.
in silage, 8575*g*.
in tan liquors, 1205*d*, 8720*h*.
detn. of org., 8974*e*.
detn. of satd., in presence of crotonaldehyde, HCHO and fumaric and maleic acids, 3310*i*.
detn. of volatile, in wines, 6779*fg*.
α-deuterium derivs., 3392*d*.
diazo compds. as, 2491*h*.
dibasic, protonic interactions in, 7789*h*.
dicarboxylic, γ-acyl derivs. of, P 7040*i*.
as aids in grinding cement, P 9410*g*.
aliphatic, P 2225*h*, P 3842*c*, P 4694*b*.
alternation of properties in series of, 2838*e*.
Cr complexes from, and their derivs., with single bound carboxyl, 6102*i*.
from cycloalkenes, 2173*b*.
effect on potential in brain, 7147*h*.
half-esters with *N*-hydroxy-alkyl amides of fatty acids, P 4500*e*, P 7241*g*.
intermediates for, P 2034*d*.
mixts. with esters of P acids for corrosion prevention, P 1180*b*.
$C_4$ dicarboxylic, fermentation by butyric acid-forming organisms, 3489*a*.
dicarboxylic or hydroxy, esters with glycols, increasing heat stability of peroxide-vulcanized, P 7746*b*.
dielec. polarization and mol. assocn. of carboxylic, 6493*h*.
2,4-dioxo, enzymic hydrolysis of, 705*g*.
dissocn. consts. of colorless, detn. with indicators, 6105*h*.
dithizone as monobasic, 5344*d*.
in Douglas-fir-lignin residue extractives, 1182*f*.
effect of complex-active radicals of, on constitution and tanning action of basic Cr salts, 6851*e*.
effect of org., on catalyst in hydrogenation of CO, 2399*h*.
effect on cohesion of collagen, 8719*d*.
on colloid osmotic pressure and protein of blood in renal disease and normal subjects, 4762*h*.
on corrosion protectiveness, discoloration, pigment caking and viscosity of nitrocellulose lacquers, 7718*g*.
on decolorization of oils by acid clays, 8709*b*.
on N fixation by *Azotobacter*, 7173*a*.
in photometric analysis for cations, 8298*e*.
on photometric detn. of alkali metals, 59*i*.
on Pt polarization in HCl, 2100*f*.
on polarization in electrodeposition of Cu, 950*f*.
on salts of β-semicarbazones of isatin and its derivs., 8980*a*.
electrodeposition of Cu and Ag from solns. contg. org., 8901*b*.
esterification of—see *Esterification*.
esters—see *Esters*.
estrogenic, 3814*e*, 9093*a*.
evapn. from filtrate of group I in analysis, 1681*b*.
films of org., arrangement of mols. in, 8794*e*.
formation of carboxylic and hydroxy, by oxidation of paraffin wax, and Ca-soap-grease prepn. from products, 4000*c*.
formation of, in beet sugars in storage, 2454*e*.
by lactic acid bacteria, effect of oxidising salts on, 4340*h*.
by *Lactobacillus acidophilus*, effect of antimetabolites of vitamins on, 716*c*.
formation of, by *Lactobacillus acidophilus*, effect of Na fluoride on, 9217*f*.
in oxidation of paraffins, 7428*g*.
from oxidation of resinenes, 3508*a*.
in oxidation-stabilized watch lubricants, 4455*c*.
during progressive anoxia, 749*a*.
in saliva, effect of nitrofurans on, 5497*a*.
in saliva *in vitro*, 9204*d*.
by sea-urchin eggs, effect of Ca on, 7150*c*.
by smooth and wrinkled streptococcus colonies, 1832*e*.
formation of volatile, by anaerobic bacteria, 9147*h*.
formation of volatile, in *Kloeckeria apiculatus* cultures, 9142*f*.
free energies of carboxylic, 477*h*.
fuller's-earth activation by, 9395*e*.
fuller's earth treatment with NaOH and, P 7609*a*.
in glycerol oxidation by $K_2Cr_2O_7$, 3695*i*.
in guayule leaves, anion-cation balance and, 281*f*.
hair damage by, detection of, 414*f*.
α-halo, P 4288*b*.
halochromic reactions with ketones, 7910*h*.
halo derivs. of aliphatic carboxylic, degumming vegetable oils with, P 885*b*.
halo dicarboxylic, P 6226*d*.
halo phenoxy aliphatic, in preservation of cellulosic materials, P 1146*d*.
heats of ionization of org., 477*h*.
heteropoly, basicity and structure of, 56*h*.
constitution of, 3741*c*, 8938*b*.
insol. salts with amines and metallic cations, 1671*f*.
salts of, 2537*e*, 7365*g*.
in hydrocarbon gases, conversion to ketones and hydrocarbons, P 5573*g*.
hydrocyanic acid from coke oven gas oxidation to, 7666*h*.
hydrogenation of aryl-substituted aliphatic, 2175*e*.
hydrogen bond in carboxylic, 7454*d*.
hydrolysis (alk.) of unsatd. (attempted), 5763*e*.
hydrolysis of carboxylic, with metal oxides or hydroxides, driers by, P 3216*b*.
hydroxy—see also *Lactones*.
hydroxy, and polyesters from, P 3039*d*.
hydroxy, and their derivs., from oxidation of kerosene, 8657*f*.
hydroxy, antimony derivs., P 7500*g*.
carbonyl-contg., in oxidized hydrocarbon oils, 4841*i*.
as catalysts in 1-naphthylamine reaction with dichromate or vanadate, 4977*e*.
esters, P 676*f*, P 1055*a*, P 6224*a*.
ester salts of, for waterproofing textiles, P 418*e*.
esters, cleaning compns. from, P 8714*b*.
esters with amino acids, for use as local anesthetics, P 1913*h*.
of perilla oil, polymerized oil by self-esterification of, 4872*d*.
polyesterification of, 2166*c*, 2941*cd*.
polymeric esters from, P 1223*h*, P 6236*d*.
polymers of, and oxidation-resistant rubbers from, P 2026*i*.
salts, in cellulose-deriv. stabilization, P 849*f*.
sepn. of, P 6653*a*.
as solvents for oxidation products of zinc and alkali metals, P 988*h*.
stripping from paraffin wax oxidation products, P 8669*b*.
surface tension of, 8779*f*.
of wool wax, 9491*e*.
hydroxy aromatic, P 3040*d*.
hydroxy aromatic, combination with serum albumins, 4708*b*.
hydroxy aromatic, condensation products with aldehydes and polyamines, lubricant additive by, P 2766*d*.
α hydroxy, as air disinfectants, 4797*i*.
compds. with titanic acids, P 1796*d*.
detn. in air, 4798*i*.
esters, 188*a*.
esters with sulfonic acids, 2941*g*.
identification of, 521*f*.
manuf. from α-amino acids, P 3841*a*.
oxidation by enzymes from plants, 6267*a*.
salts of, complex formation with basic and nonbasic Cr sulfates, 8184*a*.
β-hydroxy, dithiocarbamates, P 7506*e*.
hydroxyethylation of carboxylic, P 873*g*.
α-hydroxy δ-ethylenic, 5736*b*.
o-hydroxy, morpholinylanilides of, P 8162*d*.
identification of org., in alkyd resins, 6459*d*.
as 2-(1-naphthylmethyl)-2-thiopseudourea salts, 565*f*.
piperazine salts for, 235*c*.
ignition temps. of, 5058*b*.
interfacial friction and, 2060*a*.
intoxication—see *Acidosis*.
ionization and titration consts. of polybasic, 2073*a*.
ionization consts. of monobasic, detn. by kinetic method, 7302*i*.
ionization extn. of org., 8214*c*.
ionization of dibasic, and their monoesters, 7303*a*.
iron tetracarbonyl hydride as, 8809*g*.
isomerization of *cis*-α,β-unsatd., P 1798*d*.
isonitroso, toxicity to, and metabolism by *Azotobacter*, 2276*c*.
α-isonitroso, utilization by oat plants, 1082*c*.
isopoly-, nomenclature of, 8928*e*.
from kerosene oxidation, 3182*a*.
keto—see "oxo" below.
from ketone oxidation, 5015*h*.
ketones from, by Friedel-Crafts reaction, 2930*h*.
in kieselguhr pore enlargement, 8831*a*.
in kynurenic acid deriv. sepn., P 2646*d*, P 4303*e*.
in lead autodisplacement, 2846*e*.
from lignin by Na reaction in liquid $NH_3$, 3610*b*.
in liver, 17-hydroxydehydrocorticosterone effect on dicarboxylic, 8544*c*.
lubricants from org. N bases, org. sulfonates and monocarboxylic, P 9431*h*.
manuf. of long-chain carboxylic, from $C_2H_4$ and lower carboxylic acids, P 670*b*.
manuf. of org., P 669*b*, P 2632*f*, P 5409*i*, P 5421*i*, P 5422*b*, P 5584*c*, P 6650*f*, P 7501*c*, P 7502*a*.
from carbonaceous material, P 3176*a*.
by fermentation, P 6781*f*.
from olefins, CO and water, P 669*g*, P 670*i*.
from synthetic fuels, 8646*g*.
manuf. of sulfide carboxylic, P 7504*d*.
manuf. of unsatd., P 7502*e*.
melamine-resin colloid with, 433*i*.
mercapto carboxylic, and their derivs. as catalysts in reaction of ketones with phenols, P 5424*b*.
mercapto derivs., oxidation of, 8815*h*.
mercapto dicarboxylic, polyesters with dihydric alcs., P 3633*b*.
mercapto, in cold wave solns., 3144*h*.
metabolism of branched-chain aliphatic, 3905*b*.
metabolism of higher dicarboxylic, succinic acid excretion during, 5469*b*.
metabolism of org., in animal organism, 3911*i*, 6717*h*.
metabolism of org., of tobacco leaves, 5455*b*, 9177*c*.
methylation of, 567*a*.
mica (hydrogen) as tribasic, 7302*f*.
in milk (dry) during storage, 780*d*.
milk, electroneutralization of, 7596*i*.
mixed and refuse, $HNO_3$ titration in, 2547*e*.
mixed or nitrating, analysis of, 5346*c*.
conductometric titration of, 58*c*.
nitrate detn. in spent, 1687*a*.
mixing with water, app. for, P 6012*i*.
mixts. of org., with amines, as asphalt antistripping agents, P 3194*a*.
moldable mixts. of org., with furfuryl alc. resins, P 6864*a*.
mol. assocn. of org., 7793*c*.
in must after concn., 6779*b*.
neutralization of—see *Neutralization*.
nitrogen-contg. for prevention of rancidity in detergents, P 886*h*.
olefin and paraffin treatment with carboxylic, to lengthen catalyst life in alkylation, P 3189*b*.
optical isomers of, effect on heart in molluscs with shells with left- and right-handed spirals, 3932*e*.
org. O compd. ionization in, 4215*d*.
osmosis of, in alcs., 7300*e*.
from oxidation (anodic) of coal and its oxidation products, 376*sg*.
oxidation (aut-) of O-active, 5865*i*.
oxidized carboxylic, in paraffin oxidation residues, 1998*b*.
oxidized, detn. and formation in stocks, 5813*e*.

oxo, amino acid synthesis from $NH_3$ and, by bacteria, 5084*b*, 7546*i*.
azeotropes of, 2835*a*.
effect on glycolysis, 6680*i*.
electrolytic reduction of, 3792*a*.
esters, reaction with ketene and its derivs., P 1436*b*.
ketene reaction with esters of, P 2635*f*.
prepn. and reduction of, 1378*d*.
prepn. by oxidative fission of 2-(cycloalkylalkyl) - 1,4 - naphthoquinones, 1-substituted cycloalkanols and 1-substituted cycloalkenes, 3365*g*.
prepn. of dinitrophenylhydrazones and chromatographic detn. on filter paper, 5342*g*.
semicarbazones, hydrogenation of, 2604*d*.
Na amalgam reaction with semicarbazones of, 139*i*.
oxo dicarboxylic, 7904*i*.
oxo fatty, 3785*a*.
α-oxo, glutaminase and asparaginase activated by, 6266*e*.
oxo hydroxy steroid, P 700*i*.
β-oxo-, in polymerization of chloroprene, P 1601*d*.
α-oxo, oxidation of, 6061*f*, 6979*i*.
in peaches, effect of weather on, 9313*b*.
penicillin G inactivation by, effect of NaCl on rate of, 3697*e*.
in perfumes, 3974*d*.
peroxides of, mechanism of oxidation by, 4085*h*.
from petroleum fractions by oxidation, 7218*b*.
phys. consts. of aliphatic, 2956*a*.
pickling—see *Pickling*.
in *Piper longum*, 1085*d*.
of plants, 9174*c*.
plant-tissue growth inhibition by org., 4349*b*.
polarography of org., 48*h*.
polycarboxylic, P 1053*c*.
polymeric inorg., as hide-soaking auxiliaries, P 6451*i*.
polymerization of dicarboxylic, with dialkyl tertiary amino alcs. to rubber-like compd., P 7257*h*.
polymerization of monocarboxylic olefinic, with monovinyl aromatic compds. and drying oil or fatty acid, P 5972*a*.
polymerization of monocarboxylic, with $Ac_2O$, ketenes by, P 4494*d*.
polymerization of polybasic, with polyhydric alc. and polymer of vinyl aromatic compds. with olefinic acids and drying oil or fatty acid, P 6433*b*.
polymers of carboxylic, with carbylamines, P 4515*f*.
contraction and swelling by ionization, 8803*c*.
electroviscous effect in solns. of, 2073*a*.
polymers of dicarboxylic, with polyamides or polyamide-forming salts, resinous compns. from, P 9525*b*.
polymers of α,β-unsatd. carboxylic, with Me methacrylate, surface reactions of, 8202*e*.
polyoxypoly, reaction with ethylene glycol, P 5998*a*.
prepn. of aromatic carboxylic, 8367*i*.
prepn. of polycarboxylic, 7428*c*.
prepn. of unsatd., 3357*c*.
prepn. of unsatd. higher carboxylic, 7414*c*.
protein (plant) denaturation by, 7527*h*.
pseudo, nitroparaffins as, 2849*e*.
pumps for, stuffing box for, P 4526*c*.
purification of carboxylic, by reaction with metal carbonates, P 2222*i*.
purification of org., with active C, P 4907*e*.
purification of weak, P 7508*b*.
reaction of aliphatic or haloalkyl, with polyhydric alcs., surface-active agents by, P 8712*d*.
reaction of carboxylic, with $C_2H_2$, P 3838*e*, P 6651*c*, P 4288*h*, P 5036*c*.
with (alkoxymethyl)pyridinium and (alkoxymethyl) quinolinium compds., 6161*h*.
with aromatic amines, P 8399*f*.
with chloral alcoholate, P 5412*d*.
with *N*, *N*-dialkyl derivs. of aromatic sulfonamides, P 689*a*.
with diketene, P 8398*e*.
with ethylenediamine, 8832*e*.
with $HCONH_2$, P 3452*b*.
with furans in the presence of $P_2O_5$, P 3465*a*.
with their nitriles, 4241*f*.
*reaction of carboxylic*, with phosphinimides, P 4686*i*.
with $SiS_2$, 4630*h*.
reaction of α,β-dicarboxylic olefinic, with acyl halides and castor oil, and polymerization of ester with vinyl compds., P 3656*d*.
reaction of α,β-dicarboxylic α,β-unsatd., with cyclic polymers of hexadienes, P 5637*b*.
reaction of dicarboxylic unsatd., with linseed oil, 8700*c*.
reaction of dicarboxylic, with 4-AcNH-$C_6H_4SO_2Cl$ and with sulfanilamide, 2597*gi*.
with arylbiguanides or their derivs., P 1444*g*.
with di(4-aminocyclohexyl)methane, polyamides from, P 6867*a*.
with 1,6-diamino-6-methylheptane, polyamides from, P 6866*i*.
with glycerol-contg. fermentation stillage, P 5229*e*.
reaction of mono- or polybasic carboxylic, with 3,4-dihydro-2*H*-pyran, P 1443*a*.
reaction of polycarboxylic residue, from sebacic acid manuf. from castor oil, with alkylenediamines, resinous products from, P 5997*f*.
reaction of unsatd., with N oxides, 1318*d*.
reaction products of alkali metal silicates with long-chain, for oil-base drilling fluids, P 3185*g*.
reaction products of inorg., with high-mol. unsatd. compds., P 2804*c*.
reaction products of α,β-unsatd., with aldehydes and guanidine, sulfamide, thiourea or urea, 5995*i*.
reactions (addn.) of ethylene, 5655*i*.
reactions (addn.) of monocarboxylic, with alkyl vinyl ethers, 6576*d*.
reaction with acetylated glycosides, 3795*d*.
with collagen, 1203*f*.
with 1,1 - dialkyl - 2 - propyn - 1 - ols, 3352*b*.
with esters of $ClSO_3H$, 1249*b*.
with methylenediphenols, 7465*d*.
with wool, and Donnan theory thereof, 3202*c*, 6829*c*, 7687*h*.
recovery of gaseous, P 368*h*.
recovery of org., from aq. solns., P 670*i*.
by ion exchange, 3668*c*.
from reaction products of hydrogenation of CO, P 7213*f*.
reduction potentials of unsatd. org., on dropping-Hg electrode, 5328*d*.
removal from fuel gas, P 2408*d*.
from liquids, anion-exchange resins for, P 5517*i*, P 6339*cg*, P 7162*g*, P 7609*d*.
from soln. by charcoal, effect of O on, 2840*d*.
from water—see *Water, purification of*.
removal of org., from plant juices, P 4397*b*, P 4398*a*.
removal of org., from pyroligneous liquors, P 1502*b*.
resistance to, of ceramic ware, 5164*d*.
of enameled ware, testing, 8115*b*.
of enamels, effect of electrolytes on, 9406*h*.
of glass, 2745*i*, 2748*c*, 5913*d*.
of glass, testing, 2385*acefh*, 2386*abc*, 6797*f*.
review on, 4788*ei*.
in rice oil decolorization, 8709*a*.
from seaweeds by fermentation, 1145*i*.
siliceous-material treatment with, P 9300*a*.
silyl derivs. of carboxylic, 5003*f*.
solubilities of aliphatic dicarboxylic, 8803*f*.
soly. of soybean protein in, 4469*g*.
soln. of Cd, Fe and Zn in, effect of Sb salts on rate of, 6140*h*.
soln. of metals in, theory of, 506*e*.
sorption by anionites, 1238*b*.
soybean oil stabilization and prooxidant metal scavenging by polycarboxylic, 882*d*.
spectra of org., 4573*i*.
standard solns. of—see *Standard solutions*.
steel attack by, org. inhibitors and, 2917*d*.
stereochemistry of diterpenoid, 1042*e*.
steroid, 3432*d*, 3433*b*, 4281*g*.
strength and action of, in cleavage of 1,2-hydramines, 2315*b*.
strength of, detn. of, 7793*b*.
β-substituted carboxylic, from β-lactones, P 1056*c*.
-sugar ratio in grapefruit, 8457*g*.
sulfite-liquor fermentation to aliphatic, P 6826*a*.
sulfo aromatic dicarboxylic, esters of, as textile assistants, P 6236*g*.
sulfo carboxylic, as catalysts in ketene reaction with ketones, P 3838*h*.
sulfo carboxylic, esters of, for improvement of electroreduction of metals, P 4152*e*.
in sulfuric acid, behavior of org., 568*i*.
teaching about, 3251*g*.
tetracarboxylic, and their esters, P 846*d*.
theories of, 6051*c*, 7304*a*.
education in, 451*c*.
history of, 1618*h*.
thiol, reaction of Na salts of, with alkene dibromides, 2569*h*.
thiol, reaction products with olefin polymers contg. β-substituted ethylmercapto groups, P 8209*f*.
of thiophene series, 4665*a*.
in tobacco resins, 1910*g*.
in tomatoes, 1877*e*.
tricarboxylic, cycle, malonate inhibition of oxidation in Kreb's, 5064*c*.
tricarboxylic, synthesis by $CO_2$ fixation in parsley root, 5056*i*.
unsatd., P 1795*c*, P 5412*i*, 6975*a*.
β-lactone intermediates for, P 3840*d*.
lubricants from reaction products with alcs., maleic acid or anhydride, olefin oxide or glycols, and aliphatic amines, P 7879*ad*.
polymerizable, P 4288*a*.
α,β-unsatd., P 1055*b*.
unsatd. (conjugate-), 134*i*, 136*d*.
unsatd. dicarboxylic, P 6230*e*.
β-ureido, 6597*g*.
in urine, in cardiac decompensation, 4758*c*.
at high altitudes, 3504*g*.
in pregnancy, 2685*h*.
in rheumatic ailments, 3093*h*.
utilization by *Drosophila*, 322*g*.
wastes, from electroplating plants, disposal of, 8903*h*.
wastes, treatment of, 6337*d*.
in wines, 5532*a*.
in wines of Emilia and Romagna, Italy, 6779*e*.
wool damage by, detection of, 7690*h*.
**Acme Kopper King**, in *Alternaria* blight control on petunias, 2725*f*.
**Acne**, sulfur prepn. for treating, P 2739*b*.
**Acocanthera spectabilis**, alkaloid content, etc., of, in Spain, 1910*b*.
**Aconitases**, α- and β-, 7058*e*.
in neoplasms, 4761*h*.
purification of, 9117*f*.
in spermatozoa and semen, 6718*g*.
**Aconite**, alkaloid detn. in, and its prepns., 5535*g*.
assay of tincture of, 9366*a*.
thromboplastic action of, 5533*h*.
**Aconite alkaloids**. See *Alkaloids*.
**Aconitic acid** (*1,2,3-propenetricarboxylic acid*), calcium salt, P 7506*d*.
calcium salt, manuf. from molasses, 9499*b*.
*cis*-, and salts, effect of pH on stability of, 127*a*.
*cis*-, as $CO_2$ replacement in heterotropic metabolism, 8435*c*.
decarboxylation of, in cane sirups and molasses on storage, 7153*d*.
decarboxylation of, to form itaconic acid, P 678*b*, P 1057*b*.
detn. of, 2126*b*, 4603*h*.
and dibutyl ester, fungistatic activity of, 9334*c*.
effect on citrulline formation by liver homogenate in presence of glutamic acid or glutamine, 1849*a*.
esters, as disinfectants, fungicides and insecticides, P 7634*s*.
recovery in cane-sugar factories, P 5220*b*, 6846*f*.
reduction (electrolytic) of, 955*c*.
tributyl ester, as polyvinyl chloride stabilizer, 8737*h*.
**Aconitic acid, α-hydroxy-**, 6579*f*.
**Aconitic anhydride**, *cis*-, in pharmaceutical identification, 3145*e*.
**Aconitine**, detn. of, 3246*c*.
isolation by electrodialysis, 3975*e*.
**Aconitum**. (See also *Aconite*.)
analysis of, and its exts., 9367*e*.
**Acorns**, solvent-water-mixt. treatment of, recovery of components by, P 6844*d*.
starch of, structure of, 2797*h*.
**Acorone**, occurr.
**Acoroxide***, 3808*a*.
**α calamus** (*sweet flag*), its constituents of essential oil of,

**Acoustics.** See *Sound.*
**Acraldehyde.** See *Acrolein.*
**Acrasin,** in *Dictyostelium discoideum* development, 5124*f.*
**Acrichine.** See *Quinacrine.*
**Acridan** (*9, 10-dihydroacridine*),



formation from reaction of 9-chloroacridine with Raney Ni, 646*d.*
prepn. of, 233*ce.*
—, **10-acetyl-,** 233*f.*
—, **1-amino-4-methyl-,** 647*f.*
—, **3,9-dichloro-9-(*p*-dimethylaminophenyl)-10-methyl-,** in amebiasis therapy, 8559*c.*
—, **2,7-dimethoxy-,** 6633*a.*
—, **dimethyl-,** as antioxidant for GR S rubber, 2460*g.*
—, **9,9-dimethyl-,** effect on heat deterioration of GR-S, 8188*g.*
—, **(dimethylaminoethyl)-,** antihistamine activity of, 7134*h.*
—, **9-oxo-.** See *9(10 H)-Acridone.*
**1-Acridanacrylic acid** (*β-9, 10-dihydro-1 acridylacrylic acid*).
—, **2-hydroxy-9-oxo-,** δ-lactone, 7028*d.*
**Acridanmethanol, 10-acetyl-α-(dibutylaminomethyl)-,** hydrochloride, 234*b.*
—, **10 - acetyl - α - (diethylaminomethyl)-,** and hydrochloride, 233*i.*
—, **10 - acetyl - α - (dihydro - 2(1 *H*)-isoquinolylmethyl)-,** hydrochloride, 234*c.*
—, **10 - acetyl - α - (dimethylaminomethyl)-,** hydrochloride, 234*a.*
—, **10 - acetyl - α - (dipropylaminomethyl)-,** hydrochloride, 234*a.*
—, **10 - acetyl - α - (octahydro - 1(2 *H*)-quinolylmethyl)-,** *trans-,* hydrochloride, 234*c.*
—, **α-(diamylaminomethyl)-,** 234*b.*
—, **α-(diethylaminomethyl)-,** 233*i.*
—, **α-(dimethylaminomethyl)-,** 234*a.*
—, **α-(dipropylaminomethyl)-,** 234*a.*
—, **α - (octahydro - 1(2 *H*) - quinolylmethyl)-,** *trans-,* hydrochloride, 234*d.*
**9 - Acridanmethanol, α - (diethylaminomethyl)-,** antimalarial activity of, 5860*h*
**9-Acridanthione.** See *9(10 H)-Acridinethione.*
**Acrididae.** See *Grasshoppers.*
**Acridine,**



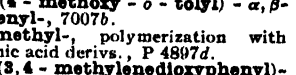
amino derivs., compds. with sulfathazole, P 2738*f.*
as corrosion inhibitor for light metals in acid, 4622*d.*
as corrosion inhibitor for mild steel in acid, 2917*g.*
derivs., 233*d*, P 254*g*, P 1068*b*, P 2242*a*, P 3472*h*, P 4703*eg*, 6632*h*, P 7516*a*, 7937*f.*
adaptation of bacteria to, effect of pH on, 7118*b*, 3058*b.*
antitrypanosomal activity of, inhibition by esters and amides of org. acids, 319*i.*
chicken cholera preventive contg., P 1913*d.*
2,5-dichlorobenzenesulfonic acid salts of, P 697*i.*
effect on mitosis and O consumption in brain of embryo chick, 7135*g.*
H carriers from, 6259*d.*
infrared absorption in relation to carcinogenicity of, 3915*d.*
therapeutic, P 8104*i.*
and their toxicity, 3105*d.*
uptake by *Escherichia coli,* 4325*e.*
and derivs., 647*b*, 7028*g.*
detection of, and its derivs., 7868*i.*
luminescence of, polarization of, 7829*g.*
mol. diagrams of, 4528*d.*
prepn. of, 232*i.*
salts with adenosinetriphosphoric acid, 9040*e.*
surface potential and surface tension of, and effect of concn. and pH thereon, 2845*gh.*
in wood preservation, 4418*a.*
**Acridine, acetyl-.** See *Ketone, acridyl methyl.*
—, **1(2-, 3-, 4- and 9)-amino-,** derivs., color and dyeing properties of, 1189*i.*
—, **3-amino-,** 647*b.*
—, **3(and 9)-amino-,** ionization of, 3416*d.*
luminescence of, polarization of, 7829*h.*
—, **9-amino-,** 2-alkoxy-6-halo derivs., P 2242*d.*
antiplasmodial action of, 7142*i.*
compd. with sulfamethazine, P 8105*a.*
compd. with sulfathiazole, P 2738*f.*
and derivs., from 9-acridyl ethers, P 698*d.*
derivs., reaction with $H_2S$, 649*b.*
effect on bactericidal action of Ceepryn, 9147*f.*
effect on *Pseudomonas aeruginosa,* 8001*c.*
manuf. of, P 7974*d.*
penicillin salt, toxicity of, 9265*a.*
pharmacology of, 2322*d.*
—, **2 - amino - 9 - (*p* - aminophenyl)-,** 3066*c.*
—, **9-amino-1(3 and 4)-chloro-,** antiplasmodial action of, 7142*i.*
—, **9-amino-3-chloro-2,7-dimethoxy-,** and hydrochloride, 6633*c.*
—, **9-amino-6-chloro-2-ethoxy-,** P 2242*e.*
—, **9-amino-3-chloro-2-methoxy-,** and hydrochloride, 6633*g.*
—, **9-amino-6-chloro-2-methoxy-,** P 2242*e.*
derivs., P 1067*f.*
and isethionate, P 698*e.*
—, **9-amino-2-chloro-7-nitro-,** 9-*N*-derivs., 7937*g.*
—, **9-amino-1,6-dichloro-2-methoxy-,** and hydrochloride, 6633*f.*
—, **9-amino-3,6-dichloro-2-methoxy-,** and hydrochloride, 6633*e*
—, **9-amino-2,7-dimethoxy-,** and hydrochloride, 6633*a.*
—, **2-amino-6-dimethylamino-,** 647*e.*
—, **1-amino-4-methyl-,** and salts, 647*f.*
—, **9-amino-4-methyl-,** manuf. of (omitted from abstr.), P 7974*d.*
—, **9-(2-amino-5-pyrimidylamino)-6-chloro-2-methoxy-,** P 4703*g*
—, **9-amino-3-(trifluoromethyl)-,** hydrochloride, effect on brain of embryonic chick, 7135*h.*
—, **9-anilino-,** *p*-(cyanoalkyl) derivs., P 698*c.*
derivs., P 4703*c.*
—, **9-anilino-1-chloro-2,7-dimethoxy-,** and hydrochloride, 6633*d.*
—, **9-anilino-3-chloro-2,7-dimethoxy-,** and hydrochloride, 6633*c*
—, **9-anilino-3-chloro-2-methoxy-,** and hydrochloride, 6633*g.*
—, **9-anilino-3,6-dichloro-2-methoxy-,** and hydrochloride, 6633*e.*
—, **9-anilino-2,7-dimethoxy-,** and hydrochloride, 6633*b.*
—, **9-benzoyl-.** See *Ketone, 9-acridyl phenyl.*
—, **9-benzyl-,** and nitrate, 4671*e.*
—, **9-benzylamino-6-chloro-2-methoxy-,** lactate, P 698*f.*
—, **9-(4-biphenylylamino)-6-chloro-2-methoxy-,** P 4703*d.*
—, **3,6-bis(aminomethyl)-,** hydrochloride, chicken cholera preventive contg., P 1913*d.*
—, **9 - [3,5 - bis(diethylaminomethyl)-2 - hydroxyanilino] - 6 - chloro - 2-methoxy-†,** trihydrochloride, P 1068*e.*
—, **3,6-bis(dimethylamino)-,** compd. with $ZnCl_2$—see *Acridine orange.*
—, **9 - [3 - (*sec* - butylisoamylamino)-butylamino] - 6 - chloro - 2 - methoxy-,** and dihydrochloride, P 256*a.*
—, **9 - [3 - (*sec* - butylisoamylamino)-1-ethylisobutylamino] - 6-chloro-2-methoxy-,** P 1068*a.*
—, **9 - [3 - (*sec* - butylpropylamino)-1 - ethylisobutylamino] - 6-chloro-2-methoxy-,** P 1068*a.*
—, **(1-carboxyethylamino)-.** See *Alanine, N-acridyl-.*
—, **9-chloro-,** detn. of Cl in, 7373*e.*
reactions of, 649*c.*
reaction with Raney Ni, 646*d*, P 3853*h.*
—, **9-*m*(and *p*)-chloroanilino-2,7-dimethoxy-,** and hydrochlorides, 6633*b.*
—, **3-chloro-9-*p*-chloroanilino-2,7-dimethoxy-,** and hydrochloride, 6633*c.*
—, **3 - chloro - 9 - *p* - chloroanilino-2-methoxy-,** and hydrochloride, 6633*g*
—, **6-chloro-9-[*p*-chloro-α-(3-diethylaminopropyl)benzylamino] - 2-methoxy-,** dihydrochloride, 2211*e.*
—, **3-chloro-9-(3-chloro-4-methoxyanilino)-2-methoxy-,** hydrochloride, 6633*g.*
—, **6-chloro-9-(3-chloro-4-phenoxyanilino)-2-methoxy-,** P 4703*e.*
—, **6 - chloro - 9 - [2 - (cyclopentylisobutylamino)propylamino] - 2-methoxy-,** and dihydrochloride, P 256*a.*
—, **6-chloro-9-(2-diamylaminoethylamino)-2-methoxy-,** dihydrochloride, P 4703*i.*
—, **2-chloro-9-(3-diamylaminopropylamino)-7-nitro-,** dihydrochloride, 7938*a.*
—, **6-chloro-9-(2-dibutylaminoethylamino)-2-methoxy-** dihydrochloride, P 4703*i.*
—, **6-chloro-9-(3-dibutylamino-1-methylpropylamino) - 2 - methoxy-,** and dihydrochloride, P 2242*c.*
—, **2-chloro-9-(3-dibutylaminopropylamino)-7-nitro-,** dihydrochloride, 7938*a.*
—, **6-chloro-9-(2-dicyclohexylaminoethylamino)-2-methoxy-,** dihydrochloride, P 4703*h.*
—, **6-chloro-9-(3-dicyclohexylamino-1-methylpropylamino) - 2 - methoxy-,** and dihydrochloride, P 2242*d.*
—, **6 - chloro - 9 - (3 - dicyclopentylamino - 1 - ethylisobutylamino)-2-methoxy-,** P 1068*a.*
—, **2-chloro-9-(5-diethylaminoamylamino)-7-nitro-,** dihydrochloride, 7937*i.*
—, **3-chloro-9-(*p*-diethylaminoanilino)-2-methoxy-,** dihydrochloride, 6633*g.*
—, **1(and 2)-chloro-9-(4-diethylaminobutylamino) - 6 - methoxy-,** dihydrochloride, 7549*h.*
—, **5-chloro-9-(4-diethylaminobutylamino)-3-methoxy-,** dihydrochloride, 7549*h.*
—, **6-chloro-9-(3-diethylaminobutylamino)-2-methoxy-,** and dihydrochloride, P 255*a.*
—, **2-chloro-9-(4-diethylaminobutylamino)-7-nitro-,** dihydrochloride, 7937*h.*
—, **6-chloro-9-(4-diethylaminocyclohexylamino)-2-methoxy-,** in protozoa infection therapy, 1485*b*, 8528*b.*
—, **6-chloro-9-(5-diethylamino-1-ethylisobutylamino) - 2 - methoxy-,** dihydrochloride, P 1068*a.*
—, **1-chloro-9-(4-diethylamino-1-methylbutylamino)-,** and its 7-alkoxy derivs., P 5427*b.*
—, **6-chloro-9-(4-diethylamino-1-methylbutylamino) - 2 - methoxy-.** See *Quinacrine.*
—, **6-chloro-9-[4-diethylamino-1-(1 - naphthyl)butylamino] - 2-methoxy-,** dihydrochloride, 2211*e.*
—, **6-chloro-9-(2-diethylaminopropylamino)-2-methoxy-,** and dihydrochloride, P 256*a.*
—, **2-chloro-9-(3-diethylaminopropylamino)-7-nitro-,** and dihydrochloride, 7937*h.*
—, **6-chloro-9-[α-(3-diethylaminopropyl) - *p* - fluorobenzylamino]-2-methoxy-,** dihydrochloride, 2211*e.*
—, **6-chloro-9-[α-(3-diethylaminopropyl)thenylamino] - 2 - methoxy-,** dihydrochloride, 2211*f.*
—, **6-chloro-9-[α-(3-diethylaminopropyl) - *m* - (trifluoromethyl)-benzylamino]-2-methoxy-,** dihydrochloride, 2211*e.*
—, **6-chloro-9-(2-diisoamylaminoethylamino)-2-methoxy-,** dihydrochloride, P 4703*i.*
—, **6-chloro-9-(3-diisoamylamino-1-methylpropylamino)-2- methoxy-,** and dihydrochloride, P 2242*d.*
—, **6-chloro-9-(3-diisobutylaminoethylamino)-2-methoxy-,** dihydrochloride, P 4703*i*, P 4704*a.*
—, **6-chloro-9-(4-diisopropylaminobutylamino)-2-methoxy-,** dihydrochloride, P 1067*g.*
—, **6-chloro-9-(3-diisopropylamino-1 - methylpropylamino) - 2 - methoxy-, and dihydrochloride, P 2242*c.***

——, 1-chloro-2,7-dimethoxy-9-phenoxy-, 6633*d*.
——, 3-chloro-2,7-dimethoxy-9-phenoxy-, 6633*c*.
——, 1-chloro-2,7-dimethoxy-9-[2-(1-piperidyl)ethylamino]-, dihydrochloride, 6633*d*.
——, 3-chloro-2,7-dimethoxy-9-[2-(1-piperidyl)ethylamino]-, and dihydrochloride, 6633*d*.
——, 6-chloro-9-(3-dimethylamino-1-ethylisobutylamino) - 2 - methoxy-, P 1068*a*.
——, 2-chloro-9-(3-dipropylaminopropylamino)-7-nitro-, dihydrochloride, 7937*i*.
——, 6-chloro-9-ethylamino-2-methoxy-, hydrochloride, P 698*e*.
——, 6-chloro-9-[1-ethyl-3-(methyl-1-methylhexylamino)isobutylamino]-2-methoxy-, P 1068*a*.
——, 6-chloro-9-*p*-hydroxyanilino-2-methoxy-†, dihydrochloride, P 1068*c*.
——, 6-chloro-9-(4-hydroxy-*m*-toluidino)-2-methoxy-. See *o-Cresol, 4 - (6 - chloro - 2 - methoxy - 9 - acridylamino)-*.
——, 3-chloro-2-methoxy-9-*p*-methoxyanilino-, hydrochloride, 6633*g*.
——, 6 - chloro - 2 - methoxy - 9 - [2-(4 - methyl - 2 - imidazolyl)ethylamino]-, 7478*h*.
——, 6-chloro-2-methoxy-9-(4-methyl-2 - imidazolylmethylamino)-, 7478*g*.
——, 6-chloro-2-methoxy-9-[3-methylpropylamino)butylamino]-, and dihydrochloride, P 256*a*.
——, 3-chloro-2-methoxy-9-phenoxy-, 6633*g*.
——, 6-chloro-2-methoxy-9-(2-phenylhydrazino)-, and hydrochloride, P 2242*d*.
——, 1(and 2)-chloro-6-methoxy-9-[4-(1-piperidyl)butylamino]-, dihydrochloride, 7549*h*.
——, 5-chloro-3-methoxy-9-[4-(1-piperidyl)butylamino]-, dihydrochloride, 7549*h*.
——, 3-chloro-2-methoxy-9-[2-(1-piperidyl)ethylamino]-, and dihydrochloride, 6633*g*.
——, 2-chloro-7-nitro-9-[3-(1-piperidyl)propylamino]-, 7938*a*.
——, diamino-, derivs., color and dyeing properties of, 1189*i*.
——, 2,6(and 3,6)-diamino-, 647*e*.
——, 3,6-diamino-, bacterial adaptation to, effect of pH on, 718*b*.
compd. with sulfamethazine, P 8105*a*.
compd. with sulfathiazole, P 2738*f*.
luminescence of, polarization of, 7829*h*.
sulfate—see *Proflavine*.
——, 3,6-diamino-4,5-dimethyl-, in amebiasis therapy, 8559*c*.
——, 6,9-diamino-2-ethoxy-, lactate—see *Rivanol*.
——, 3,6-dianilino-, 647*b*.
——, 3,6-dichloro-9-*p*-chloroanilino-2-methoxy-, and hydrochloride, 6633*e*.
——, 3,6-dichloro-9-(*p*-diethylaminoanilino)-2-methoxy-, dihydrochloride, 6633*e*.
——, 1,9 - dichloro - 2,7 - dimethoxy-, 6633*d*.
——, 3,9 - dichloro - 2,7 - dimethoxy-, 6633*c*.
——, 6,9-dichloro-2-methoxy-, 6633*f*.
reaction with $H_2S$, 649*e*.
——, 3,6 - dichloro - 2 - methoxy - 9 - *p*-methoxyanilino-, and hydrochloride, 6633*e*.
——, 1,6-dichloro-2-methoxy-9-phenoxy-, 6633*f*.
——, 3,6-dichloro-2-methoxy-9-phenoxy-, 6633*e*.
——, 3,6-dichloro-2-methoxy-9-[2-(1-piperidyl)ethylam - o]-, and dihy-
——, 2,9-dichloro-7-nitro-, 7937*g*.
——, 3,6-dichloro-9-phenoxy-, 6633*h*.
——, 9-(*p*-diethylaminoanilino)-2,7-dimethoxy-, and dihydrochloride, 6633*b*.
——, 9-(*p*-diethylaminophenyliminomethyl)-, 6631*f*.
——, 9,10-dihydro-. See *Acridan*.
——, dihydroketo-. See *Acridone*.
——, dihydrooxo-. See *Acridone*.
——, 9-(2,4-dihydroxy-*α*-propylamino-*m*-toluidino)-2,3-dimethoxy-†, dihydrochloride, P 1068*f*.
——, 2,7-dimethoxy-, and picrate, 6633*a*.
——, 2,7-dimethoxy-9-*p*-methoxyanilino-, and hydrochloride, 6633*b*.
——, 2,7-dimethoxy-9-phenoxy-, 6633*a*.
——, 2,7-dimethoxy-9-[2-(1-piperidyl)-ethylamino]-, and dihydrochloride, 6633*b*.
——, 2,7-dimethoxy-9-*p*-toluidino-, and hydrochloride, 6633*b*.
——, 3-dimethylamino-, 647*d*.
——, 9-(*p*-dimethylaminophenylimino-methyl)-, 6631*e*.
——, 9-(*p*-ethylaminophenylimino-methyl)-, 6631*g*.
——, hydroxy-. See *Acridol*.
——, 9-*p*-methoxyanilino-, 649*c*.
——, 6-methoxy-7'-nitro-9,9'-iminobis[3-chloro-, 7938*b*.
——, 9-methyl-, reaction with nitrosobenzene and its derivs., 6631*d*.
——, 9-methylamino-, P 698*e*.
reaction with $H_2S$, 649*d*.
——, 4-nitro-, 648*e*.
——, 9-*m*(and *p*)-nitroanilino-, 649*c*.
——, 9-*p*-nitrobenzyl-, 4672*i*.
——, 9-phenyl-, as corrosion inhibitor for light metals, 4622*d*.
——, 9-(5-pyrimidylamino)-, derivs., P 4703*f*.
——, 3,6,9-trichloro-, 6633*h*.
——, 1,6,9-trichloro-2-methoxy-, 6633*f*.
——, 3,6,9-trichloro-2-methoxy-, 6633*e*.
3 - Acridinecarbonitrile, 9 - [*α* - (2,5 - dimethyl - 1 - pyrrolidyl) - 4 - hydroxy - *m* - toluidino] - 7 - methoxy-, dihydrochloride, P 1068*f*.
——, 9-(*α*-dioctylamino-4-hydroxy-*m*-toluidino)-7-methoxy-, P 7516*e*
9-Acridinecarboxaldehyde, 6631*e*.
9-Acridinecarboxanilide, 6631*h*.
**Acridine dyes.** See *Acridine orange; Acridine Red; Dyes*.
**Acridine Orange,** effect on acid attack of mild steel, 2917*g*.
fluorescence of, concn. quenching of, 7824*e*.
**Acridine Red,** effect on acid attack of mild steel, 2917*g*.
retardation of growth of transplantable carcinoma in mice by, 1856*i*.
9(10 *H*)-Acridinethione, and derivs., 649*b*.
——, 6-chloro-2-methoxy-, 649*d*.
**Acridinium compounds,** 9-amino-10-methyl— bromide, effect on brain of embryonic chick, 7135*h*.
9-amino-10-methyl-3-phenyl— bromide, effect on brain of embryonic chick, 7135*g*.
3,6-diamino-10-methyl— chloride, or its hydrochloride—see *Acriflavine*.
luminescence of, polarization of, 7829*h*.
10 - methyl - 9 - *p* - nitrobenzyl— iodide, 4673*a*.
**4-Acridol,** in analytical chemistry, steric hindrance in, 8942*i*.
——, 5,6,7,8-tetrahydro-, in analytical chemistry, steric hindrance in, 8942*i*.
9 - Acridol, 1 - chloro - 2,7 - dimethoxy-, 6633*d*.
——, 1,2,3,4-tetrahydro-6(?)-methoxy-, 1417*c*.
9(10 *H*)-Acridone, and derivs., from *N*-phenylanthranilic acid and derivs., 3826*d*.
derivs, in malaria treatment, 3107*g*.
luminescence of, polarization of, 7829*h*.
——, 10-acetyl-6-chloro-2-methoxy-(?), 7002*c*.
3-chloro-, 3826*g*.
6-chloro-2-methoxy-, 3826*g*.
3,6-dichloro-, 6633*h*.
3,6-dichloro-2-methoxy-, 6633*e*.
10-methyl-, derivs., 648*i*.
1,2,3,4-tetrahydro-7-methoxy-, antimalarial activity of, 5860*i*.
——, thio-. See *9(10 H)-Acridinethione*.
**Acridonium compounds.** See *Acridinium compounds*.
**Acriflavine** (*euflavine, trypaflavine*), accumulation by nucleoproteins of chromosomes, 7525*d*.
adsorption complex with casein, 5054*h*.
antitrypanosomal activity of, inhibition by esters and amides of org. acids, 319*i*.
*Bacillus dysenteriae* adaptation to, 1830*d*.
bacteriotoxic effect of, 5534*a*.
borate, bactericidal action of, 6363*i*.
chlorine detn. in, and its hydrochloride, 9369*h*.
chromosome injury by, 5089*i*.
cornea tolerance to, 3110*i*.
as corrosion inhibitor for mild steel in acid, 2917*g*.
effect on bacteriophage action on bacteria, 3066*c*.
effect on yeast, 9158*g*.
energy transfer between Rhodamine B and methylene blue and, 6080*a*.
lanthanum action on, 7133*e*.
mitosis inhibition by, effect of nucleic acid on, 3478*i*.
pneumococcus resistance to, and its relation to resistance to propamidine and atebrin and to dehydrogenase activities, 2672*b*.
respiration inhibition by, in *Escherichia coli*, effect of salts on, 4325*e*.
in yeast, effect of spermine, arcaine, agmatine, cadaverine and streptomycin on, 7134*b*.
in yeast, effect of spermine on, 3058*a*.
**Acriquine.** See *Quinacrine*.
**Acrobasis caryae** and(or) **Pecan nut casebearer,** control of, 7630*i*.
**Acrocomia sclerocarpa,** uses for, 1837*b*.
**Acrodynia,** antiacrodynic potency of fats and linoleic esters, effects of autoxidation on, 1104*i*.
fatty acids and B vitamins in relation to, 3497*b*.
**Acrolein** (*acrylaldehyde*), $CH_2{:}CHCHO$ ($\beta$ $\alpha$)
alkyl derivs., reaction with malonates, 6980*c*.
condensation with 1-phenyl-1,3-butadiene, 8363*a*.
detn. of, 1147*h*.
detn. of, in air, 1289*h*.
diacetate—see "diacetate" under *2 Propene-1,1-diol*.
diethyl acetal, polymerization of, with vinyl acetate or Me methacrylate, P 5635*h*.
dimerization of, 3779*e*.
in fat pyrogenous degradation, 422*i*
formation of, from fats, 5971*h*
formation of, in oxidation of $C_4$ hydrocarbons, 1309*c*.
in gases from cooking linseed oil, scrubbing app. for removal of, 4405*g*.
in lubricant deterioration and deposit formation in motored engines, 4454*d*.
manuf. of, P 1795*e*, P 2222*g*.
mutation by, 1115*i*.
oxidation of, and its derivs., P 4288*a*.
oxime, P 7498*i*.
polymer, and its Me acetal, P 8742*b*.
polymers of, with diolefins or acetylenes, reaction products with inorg. acids or anhydrides, P 2804*d*.
prepn. from allyl alc., 1717*h*.
reaction of, and its derivs. with aryl derivs. of MeSH, P 6664*c*.
reaction products with mercaptoacetic acid and stearamide, surface-active, P 7242*e*.
reaction product with *α*-eleostearic acid, derivs. of, P 3039*e*.
reactions (addn.) of, 577*f*.
reaction with AcOH, P 3027*a*.
with acylaminomalonates, 143*a*.
with $NH_3$, P 5427*b*.
with EtOH, P 7497*h*.
with HBr, P 3024*c*.
with HCN and MeSH, P 677*a*.
with phthalimide and with succinimide, 6169*g*.
with piperylene, 1731*b*.
with $C_2F_4$, 3370*h*, P 4294*d*.
with urea, 5996*a*.
with 1-vinylnaphthalene (attempted), 8376*h*.
reduction (electrolytic) of, P 3300*f*.
resinous reaction products with anacardic materials, P 2030*i*.
resinous reaction product with phenol, P 3654*d*.
trimethylene cyclic acetal—see *m-Dioxane, 2-vinyl-*.
**Acrolein, β,β-dichloro-,** 3775*g*.
——, **β-ethoxy-,** diethyl acetal, 3359*f*.
——, **α-ethyl-β-propyl-.** See *2-Hexenal, 2-ethyl-*.
——, **β-hydroxy-,** dimethyl acetal Na deriv., P 6225*g*.
——, **α-methyl-.** See *Methacrylaldehyde*
——, **α-phenyl-.** See *Atropaldehyde*.
——, **β-phenyl-.** See *Cinnamaldehyde*.
——, **β-quinolyl-.** See *Quinolineacrolein*
——, **β-1(2 *H*)-quinolyl-.** See *1(2 H)-Quinolineacrolein*.
**Acromegaly,** glucose tolerance in, 8424*h*.
**Acronychia bauerl,** alkaloids of, 648*g*.
**Acronycidin**
**Acronycine,**

**Acrostalagmus**, mite control on cultures of, 2361*i*.
**Acrylaldehyde**. See *Acrolein*.
**Acrylamide**, *N*-acylaminoalkyl derivs., polymers of, P 9531*b*.
*N*-alkyl derivs., P 672*c*, 3358*d*.
*β*-aroyl-, antibacterial action of, 7192*g*.
derivs., P 433*a*.
derivs., polymers of, for photographic emulsions, P 2882*h*.
polymers with allyl acetoacetate, P 9531*g*.
polymer (water-sol.) of, P 5793*b*.
**Acrylamide**, *N*-(**2-acetamidoethyl**)-, and polymers, P 9531*d*.
——, *N*-(**2-acetamidoethyl**)-*N*-**acetyl**-, polymers with Me glycolate methacrylate, P 9531*e*.
——, *N*-(**2-acetamidoethyl**)-*α*-(**difluoromethyl**)-, P 8399*a*.
——, *N*-*tert*-**amyl**-, 2165*d*.
——, *N*-*tert*-**amyl**-*α*-**methyl**-, 2165*d*.
——, *β*-**4-biphenylyl** - *α*,*β*-**diphenyl**-, 7007*c*.
——, *N*-**butyl**-, P 672*f*, P 5413*a*.
——, *N*-**butyl**-*α*-**methyl**-, P 672*g*.
——, *α* - (**chlorodifluoromethyl**) - *N*-[**2**-(**trifluoroacetamido**)**ethyl**]-, P 8399*a*.
——, *α*-**cyano**-, polymerization with vinyl compds., P 4897*d*.
——, *N*,*N*-**diethyl**-, 3358*g*.
——, *α* - (**difluoromethyl**)-, P 8398*i*.
polymerization of, P 6465*g*.
——, *α* - (**difluoromethyl**) - *N*-**ethyl**-, polymerization of, P 6465*g*.
——, *N*,*N*-**dimethyl**-, P 672*g*.
——, *N*,*α*-**dimethyl**-, 3358*g*.
——, *β*,*β* - **diphenyl** - *N* - *p* - **tolylsulfonyl**-, P 686*b*.
——, *α*,*β* - **diphenyl** - *β* - **2,5** - **xylyl**-, 7006*i*.
——, *N*-**dodecyl**-, P 672*f*.
——, *N*-**2-formamidoethyl**-, polymers with vinyl compds., P 9531*e*.
——, *N*-**heptyl**-, P 672*f*.
——, *N* - **isopropyl** - *α* - **methyl**-, P 433*a*.
——, *N*-**methyl**-, 3358*g*.
——, *N*-**methyl**-*α*-(**trifluoromethyl**)-, P 8399*a*.
——, *N*-**octyl**-, P 672*f*.
——, *N*-(**2-phenylsulfonamidoethyl**)-*N*-(**phenylsulfonyl**)-, polymers with 3-buten-2-one and Me vinyl sulfone, P 9531*e*.
——, *α*-(**trifluoromethyl**)-, P 8398*i*.
——, *N*,*N*,*α*-**trimethyl**-, 3358*g*.
——, *β*-(**2,4,6-trimethylbenzoyl**)-, 7192*h*.
**Acrylanilide**, *β*-aroyl-, antibacterial action of, 7192*h*.
polymers with butadienes, P 2803*h*.
——, *β* - **benzoyl** - *p* - **dimethylamino**-, 7192*h*.
——, *p* - **sulfamyl** - *β* - (**2,4,6** - **trimethylbenzoyl**)-, 7192*h*.
——, *β* - (**2,4,6** - **trimethylbenzoyl**)-, 7192*h*.
**Acrylic acid**, ammonium salt, Acrysol GA polymers of, in wet-strengthening of paper, 403*d*.
*β*-aroyl derivs., 606*i*.
*β*-aroyl derivs., and their esters, antibacterial action of, 7192*g*.
aroyl derivs., in weed control, P 1904*e*.
butyl ester, refraction by polymers of, 7786*g*.
condensation with 1-phenyl-1,3 - butadiene, 8363*a*.
cyclohexyl and Me esters, polymerization with alkyd resins in oil phase, P 5230*c*
decolorization of, and its derivs., P 3442*h*
*β*,*β* diaryl derivs., 7463*i*.
diester with *N*, *N*′-ethylenebislactamide, and polymers, P 3447*b*.
diester with *N*-2-hydroxyethyllactamide, P 3447*c*.
*α*,*β*-dihalo derivs., unsatd. esters of, and polymers, P 3236*c*.
esters, P 4288*d*, P 5035*i*.
with aminotriazine-aldehyde condensation products, P 4050*c*.
in cellulose ester stabilization, P 7685*e*.
coating compns. from casein, alginate and, P 1811*d*.
with cyclohexanol and its alkyl derivs., P 7754*h*.
from esters of *β*-alkoxypropionic acids, P 3442*e*.
from *β*-lactone of hydracrylic acid and alkyl sulfates, P 1055*d*.
with monoethers of glycols, P 3030*f*.
with polyethylene glycols, purification of, P 7508*a*.
esters, with polyhydric alcs., 9078*i*.
polymerization in emulsions, 5227*e*.
polymerization in emulsions, Ag-$NH_3$ ion as promoter for, P 7265*a*.
polymerization of, catalysts for, P 6002*f*.
polymerization of, electronic structures and, 1634*c*.
polymerization of, reactivity ratios in, 5629*g*.
polymerization with 2-methylpropene, P 8741*b*.
polymerization with vinyl acetate and vinyl benzoate, P 9532*e*.
polymerization with vinyl *β*-alkoxybutyrates, P 7753*g*.
and their polymers, P 4686*b*, P 6650*i*.
polymers of, P 5585*e*, 6462*h*.
polymers of, breaking cationic emulsions of, P 5232*c*.
polymers of, coating compn. from polysulfide polymers and, P 6001*h*.
polymers of, crystn. of alkyl side chains in, 2064*h*.
polymers of, curing, P 442*f*.
polymers of, repair of dentures from, P 6468*c*.
polymers of, second-order transition points in, 7747*e*.
polymers of, spherical, P 6000*g*.
polymers of, uniting films of, to base, P 7265*c*.
polymers with 2,5-dimethyl-1,5-hexadiene, P 2035*f*.
polymers with vinyl chloride, stabilization of, P 9530*i*.
purification of, P 4288*e*.
reaction products with unsatd. fat acids, P 2034*d*.
reaction with 2-acyl cycloalkanones, 5417*a*.
reaction with formamides, 575*h*.
esters of, and its derivs., P 1219*c*.
with *N*-allyllactamide and its derivs. and their polymers, P 3447*d*.
with hydroxy amides and their polymers, P 3446*h*.
laminated translucent material from polymers of, P 902*d*.
esters of, and its homologs and derivs., P 5036*a*.
ethyl and Me esters, polymerization with Me methacrylate, P 907*c*.
ethyl ester, P 5413*a*.
amine vulcanization of polymers of, 3648*e*.
coating polymethyl methacrylate with polymers of, P 2468*h*.
coatings from chlorinated rubber or polychloroprene and polymers of, for rubber protection from sun, P 5224*e*.
fungistatic activity of, 9334*c*.
kinetics of bromination of, 7408*g*.
polymerization with dienes, polyolefinic esters or polyolefinic ethers, 5988*h*.
polymerization with vinylaryl isocyanates, P 5422*i*.
polymers of, and copolymers with 2-chloroethyl vinyl ether, manuf. and curing of, 3646*i*.
polymers with butadiene and vinylidene chloride, 2017*e*, P 7260*c*.
polymers with cinnamyl, citronellyl, crotyl, furfuryl, geranyl, 4-methyl-4-pentene-2-yl and rhodinyl acrylate esters, 5988*i*.
polymers with vinylidene chloride, plasticization with esters of 3,6-endomethylene-1,2,3,6-tetrahydrophthalic acid, P 2817*h*.
and ethyl ester, reaction with 1-phenyl-1,3-butadiene, 8363*g*.
furfuryl ester, polymerization with Me ester, P 2034*i*.
*α*-halo derivs., esters, P 3027*b*, P 6650*i*.
in lubricating grease (high-temp.) improvement, P 5940*f*.
manuf. of, P 3026*i*, P 5409*i*, P 6221*h*.
methyl ester, condensation with alkyl amines and hydrolysis of amino propionate esters to surface-active amine salts, P 5978*b*.
polymerization by light, 1266*a*.
polymerization with ethylene chloro compds., P 3232*e*.
polymerization with *α*-(hydroxymethyl)acrylonitrile acetate, P 2630*g*.
polymerization with malonic acid derivs., P 4897*d*.
polymerization with styrene, rate of, 8736*i*.
*methyl ester*, polymerization with vinylfuran and vinylidene chloride, P 9532*g*.
polymers of, resinous compns. from starch ethers and, P 2466*f*.
polymers of, sepn. into mol.-wt. fractions, P 3237*a*.
polymers of, structure of, 9523*i*.
polymers of, ultrasonic velocity in, 8239*f*.
polymers with isocoumarans, P 7262*b*.
polymers with vinyl chloride, 3231*a*.
polymers with vinyl chloride, plasticized compns. from, P 4895*a*.
reaction of, CO and H, P 4685*e*.
reaction with $NO_2Cl$, 1716*c*.
rubber deriv. for bonding rubber to metals, 4887*h*.
nitroalkyl esters, polymers of, P 2815*f*.
polymerization of (*and of acrylic acid derivatives*), P 4896*a*, P 6866*e*.
with alkenyl silanes, P 1223*c*.
catalyst for, 3231*a*.
with diolefins in presence of soaps, P 3228*b*.
with isocyanates and isothiocyanates, P 4516*e*.
with styrene or *α*-methylstyrene and dehydrated castor oil and drying oil fatty acids and then polybasic acid and polyhydric alc., P 6433*c*.
with trifluoroethylene, P 1608*e*.
with vinyl or vinylidene halides, P 8740*h*.
polymerization of, with styrene and drying oil or fatty acid and esterification of polymer with polyhydric alc., P 5972*b*.
polymers of (*including acrylic acid derivatives*)—see also *Plexigum*.
polymers of, P 5793*d*.
decoration or impregnation of clay or plaster of Paris with, P 6389*f*.
definitions and uses of, 875*f*.
dentures from, P 2472*c*, P 5644*f*.
with diolefins or acetylenes, reaction products with inorg. acids or anhydrides, P 2804*d*.
effect of ionization on filaments of, 8812*f*.
fibers from, 2778*b*.
laminated products from, P 4893*g*.
leather impregnation with, 7247*b*.
as lining for chem.-plant app., 1214*f*.
machining of, 7745*g*.
manuf. and processing of, 1214*d*, 7745*g*.
masking paper for, P 6868*d*.
with Me methacrylate, surface reactions of, 8202*e*.
for photographic emulsions, P 2882*h*.
phys. properties in softening interval, 6029*c*.
plasticizers for, 5627*h*.
reversible gels from, 8076*d*.
salts of, activity of Na ions in solns. of, 5265*f*.
water-vapor permeability, 8738*d*.
polymers of, and its methyl ester, with maleic anhydride, 8202*h*.
2,2,3,3-tetrafluorocyclobutyl ester, P 4295*e*.
vinyl ester, stripping from polymerization latexes, P 3229*b*.
**Acrylic acid**, *α*-**acetamido**-, 2166*e*.
methyl ester, polymers with acrylonitrile, Me methacrylate and styrene, P 3238*i*.
spectrum and deamination of, 3857*a*.
——, *β*-(*p*-**acetamidobenzoyl**)-, 607*b*.
and ethyl ester, 7192*h*.
——, *β* - [**2**(**and 5**)-**acetamidosalicyloyl**]-, 7192*h*.
——, *β*-[**3**(**and 5**)-**acetamido**-*o*-**toluyl**]-, 7192*h*.
——, *α*-(*α*-**aminoacetamido**)-, hydrolysis by enzymes, 258*f*.
spectrum and hydrolysis of, 258*a*.
——, *α*-[*α*-(*α*-**aminoacetamido**)**acetamido**]-, 257*h*.
——, *β*-**amino**-*α*-**cyano**-, ethyl ester, reaction with thioacetamide, P 3473*e*.
——, *β*-**anisoyl**-, 607*d*, 7192*h*.
——, *α* - **benzamido** - *β* - **diethylamino**-, esters, 2618*e*.
——, *β*-**benzofuryl**-. See *Benzofuranacrylic acid*.
——, *β*-**benzopyranyl**-. See *Benzopyranacrylic acid*.
——, *β*-**benzoyl**-, 606*i*.
and anhydride, 7192*h*.
esters, 7192*h*.
spectrum of, 6919*b*.
*trans*-, derivs., 7459*e*.

—, β-benzoyl-β-chloro-, 607e.
—, β-(benzylmercapto)-α-caproylamino-, and ethyl ester, 2990e.
—, β,β-bis(p-aminophenyl)-, and derivs., 7464b.
—, β,β-bis(p-bromophenyl)-, 2-diethylaminoethyl ester, citrate, 7464d.
—, β,β-bis(p-chlorophenyl)-, 2272i.
2-diethylaminoethyl ester, citrate, 7464c.
—, β,β-bis(p-fluorophenyl)-, 2-diethylaminoethyl ester, citrate, 7464c
—, β,β-bis(p-methoxyphenyl)-, 2-diethylaminoethyl ester, salts, 7464d
α,β-bis(p-nitrophenyl)-, esters, 5772h.
—, β,β-bis(p-nitrophenyl)- and derivs., 7464a.
—, α-bromo-, esters, P 3027c.
—, β-p-bromobenzoyl-, 607b
—, β-bromo-β-p-chlorobenzoyl-, 607c.
—, β-(4-bromo-3-nitrobenzoyl)-, 607b.
, β-butoxy-, butyl ester, 6168e
, α-caproylamino-β-(ethylmercapto)-, and ethyl ester, 2990c
—, β-carbamyl-. See *Maleamic acid*
, chloro-, methyl ester, polymers with 2-methylpropene, P 4897c.
, α-chloro-, P 4288c.
allyl ester, P 2633a.
2-cyanoethyl ester, polymerization of, P 4514i.
cyclohexyl ester, polymer with 1,3-butadiene, P 2471a.
2,3-dichloropropyl ester, P 2223f.
esters, P 3027c, P 7502d
with glycols, manuf. and polymerization of, P 1609g.
with hydracrylonitrile, P 3027c
methyl ester, fungistatic activity of, 9334g.
methyl ester, reaction with $C_2F_4$, 3370f
polymerization of, and derivs., P 6866e
tetrahydrofurfuryl ester, P 3040g.
tetrahydrofurfuryl ester, and polymers, P 3465i.
—, α-(α-chloroacetamido)-, hydrolysis by enzymes, 258d.
spectrum and hydrolysis of, 257i
, α-[α-(α-chloroacetamido)-acetamido]-, 257h.
, α-[(N-chloroacetylalanyl)-amino]-, DL-, 257g.
—, β-o-chlorobenzoyl-, ethyl ester, 7192h.
—, β-p-chlorobenzoyl-, 607c, 7192h
, β-chloro-β-p-chlorobenzoyl-, 607e.
—, β-(5-chloro-2,4-cresotyl)-, 7192h
, β-(5-chlorosalicyloyl)-, 7192h.
, β-(4-chloro-m-toluyl)-, and esters, 7192h.
, β-[4(and 6)-chloro-m-toluyl]-, 607d
—, β-2,3-cresotyl-, and esters, 7192h
—, β-2,4(and 2,5)-cresotyl-, and acetate, 7192h.
—, β-2,5(and 4,2)-cresotyl-, 607d.
—, β-4,3-cresotyl-, 7192h.
—, β-cumoyl-, 607c.
—, α-cyano-, esters and their polymers, P 6222c.
—, β-cyclohexadienyl-. See *Cyclohexadieneacrylic acid.*
—, β-(cyclohexenyl)-. See *Cyclohexeneacrylic acid.*
—, β-p-cyclohexylbenzoyl-, 607d
, β-cyclopentaphenanthryl-. See *Cyclopentaphenanthreneacrylic acid.*
—, β-(decyloxy)-, decyl ester, 6168e.
—, α,β-dibromo-, ethyl ester, fungistatic activity of, 9334g.
—, β-(3,5-dibromosalicyloyl)-, 7192h
—, β-2,5-di-tert-butylbenzoyl-, and methyl ester, 607c.
—, α,β-dichloro-, esters, polymers with 1,3-butadiene, P 5638e.
—, β-2,4-dichlorobenzoyl-, and ethyl ester, 7192h.
—, β-2,4(and 3,4)-dichlorobenzoyl-, 607c.
—, β-3,4-dichlorobenzoyl-, 7192h.
—, β,β-diethoxy-†, ethyl ester, spectrum of, 4574h.
—, α-(difluoromethyl)-, and esters, P 8398i.
esters, polymerization of, P 6465f
—, β-2,6-dihydroxybenzoyl-, 4265c, 6919c.
—, β-2,4(and 2,5)-dimethoxybenzoyl-, 607d.
—, α,β-dimethyl-. See *Angelic acid; Tiglic acid.*
—, β,β-dimethyl-. See *Senecioic acid.*
—, β-(3,5-dimethylsalicyloyl)-, 7192h.
—, α,β-di-2-naphthyl-, 1756g.
—, β-dioxolanyl-. See *Dioxolaneacrylic acid.*
—, α,β-diphenyl-, *cis-* and *trans-*, 3026i.
nitration of, 5772g.
—, β,β-di-p-tolyl-, 2-diethylaminoethyl ester, salts, 7464d.
—, β-ethoxy-, ethyl ester, 6167h.
—, β-p-ethoxybenzoyl-, 607d.
, α-ethyl-. See *Butyric acid, α-methylene-.*
, β-ethyl-. See *2-Pentenoic acid.*
, β-(2-ethylhexyloxy)-, 2-ethylhexyl ester, 6168e.
—, α-fluoro-, esters, manuf. and polymerization of, P 2223f.
2-fluoroethyl ester, and polymers, P 5413b.
—, β-(p-fluorophenyl)-β-phenyl-, 2-diethylaminoethyl ester, citrate, 7464c.
, β-p-formamidobenzoyl-, 7192h.
—, β-formyl- See *Fumaraldehydic acid; Malealdehydic acid.*
, β-furyl- See *Furanacrylic acid.*
, α-hydroxy-. See *Pyruvic acid.*
, β-hydroxy-, esters, P 3448e
ethyl ester Na deriv., compd. with NaOEt, 5745a.
, β-p-hydroxybenzoyl-, 607d
, β-(4-hydroxy-5-isopropyl-o-toluyl)-, 7192h
, β-hydroxy-α-(1-methoxyhexylideneamino)-, ethyl ester K salt, 2989i
, β-p-iodobenzoyl-, 607c.
, β-5-isopropyl-4,2-cresotyl-, 607e.
, β-isoxyloyl-, 607c.
, β-methoxy-, methyl ester, 6168d
, β-(6-methoxy-m-toluyl)-, methyl ester, 607e.
, α-methyl- See *Methacrylic acid*
, β-methyl-. See *Crotonic acid*
, α-(α-methylaminoacetamido)-, hydrolysis of, 258b
, β-(3,4-methylenedioxyphenyl)-α-phenyl-, 5027c.
, β-naphthyl-. See *Naphthaleneacrylic acid*
, β-(naphthyl)-α(or β)-phenyl- See *Naphthaleneacrylic acid, α(or β)-phenyl-.*
, β-m-nitrobenzoyl-, 607b, 7192h
, β-oxo-, diethyl acetal, Et ester, spectrum of, 4574h.
, β-phenyl-. See *Cinnamic acid.*
, β,β'-phenylenedi-. See *Benzenediacrylic acid*
, β-propionyl-. See *2-Hexenoic acid, 4-oxo-.*
—, β-pyrryl-. See *Pyrroleacrylic acid.*
, β-quinolyl-. See *Quinolineacrylic acid.*
—, β-salicyloyl-, 7192h.
spectrum of, 6919b.
, β-(1,2,3,4-tetrahydro-2-naphthoyl)-, 607c.
—, β-2-thienyl-. See *2-Thiopheneacrylic acid.*
, thiol-, esters of, and derivs., polymers of, as lubricant additives, P 7678h.
, β-p-toluyl-, 607a, 7192h.
, β-triasinyl-. See *Triasineacrylic acid.*
, β-triazolyl-. See *Triazoleacrylic acid.*
, β-(2,4,6-triethylbenzoyl)-, 7192h.
—, α-(trifluoromethyl)-, esters, polymerization of, P 6465g.
, β-2,4,6-trihydroxybenzoyl-, prepn (attempted), 4265c.
—, β-2,4,6-trimethylbenzoyl-, and esters, 7192h.
spectrum of, 6919b.
—, β-vinyl-. See *2,4-Pentadienoic acid.*
—, β-xanthyl-. See *Xantheneacrylic acid.*
—, β-2,4-xyloyl-, 607c.
Acrylic anhydride, manuf. of, P 8398f.
Acryloids. See *Resinous products.*
1-Acrylonaphthone, 3-bromo-β-(5-bromo-2-hydroxyphenyl)-4-hydroxy-, 5380b.
bactericidal action of, 5446e.
—, β-(5-bromo-2-hydroxyphenyl)-2-hydroxy-, 5380b.
bactericidal action of, 5446e.
—, 2(and 4)-ethoxy-β-phenyl-, 7001b.
—, β-2-furyl-4-methoxy-, 3429g.
—, 2(and 4)-methoxy-β-phenyl-, 7001b.
2-Acrylonaphthone, 4-bromo-β-(5-bromo-2-hydroxyphenyl)-1-hydroxy-, 5380a.
bactericidal action of, 5446e.
—, 4-bromo-1-hydroxy-β-(o-hydroxyphenyl)-, 5380a.
bactericidal action of, 5446e.
—, 4-bromo-1-hydroxy-β-phenyl-, bactericidal action of, 5446e.
—, β-(5-bromo-2-hydroxyphenyl)-1-hydroxy-, 5380a.
bactericidal action of, 5446e.
—, 1-hydroxy-β-(o-hydroxyphenyl)-, 5379i.
bactericidal action of, 5446e.
—, 1-hydroxy-β-phenyl-, bactericidal action of, 5446e.
Acrylonitrile, alkyl derivs., halogenation of, P 7498g.
azeotrope with $Me_2SiCl$ and with $SiCl_4$, 1716f.
chlorination of, 2574d.
derivs., polymers with butadiene, P 7753i.
detn. of, 8976c.
dimerization of, 3779c
distn. from latex, P 3226i, P 4889i
effect of, and its mixts. in thermal vulcanization of butadiene-Na rubber, 6858a.
elec. moment and electronic and mol polarizations of, 1594f.
and fiber synthesis, 9456b.
gelatin reaction product, 9512e
hydration to β,β'-oxydipropionitrile, P 673f
manuf. of, P 1051ab, P 1794f, P 2220c, P 3027d, P 3439agi, P 3836i, P 6220b, P 7037b, P 8398a.
polymerization activation by, in reduction oxidation systems for isoprene styrene mixts., 2459i.
as polymerization modifier in Et acrylate blends, 5989a.
polymerization of, 559g, P 7263a.
with α-acetaminoacrylates with peroxy catalysts, P 3238i.
with alkyd resins in oil phase, P 5230i.
in aq. solns., 899h
in aromatic hydrocarbon emulsion P 7257e.
with butadiene, activation by KCN P 7257i
with butadiene with $CoCl_2$ catalyst, P 2025f.
catalysis by iodoso diacylate, P 5231c
catalysis by N-nitrosoacylarylamines, 5629h.
with dichlorostyrene or styrene, temp and, 8203a.
in emulsion, $Ag NH_3$ ion as promoter for, P 7265a.
with fluoromethacrylate esters, P 6465g.
with 2-methylpropene, P 4897c, P 8741b.
pilot plants for, 1613f.
in presence of dithioglycidol, P 3658d
with styrene in emulsions, 8736g.
with 2,2,3,3-tetrafluoro-1-vinylcyclobutene, P 4295d.
with unsatd. compds. with peroxydisulfate catalysts, P 6000g.
with vinyl compds., rate of, 3696g.
with vinylfuran and vinylidene chloride, P 9532g.
polymerization of, and its derivs., P 4896b.
polymerization of Me acrylate and, with malonic acid derivs., P 4897d.
polymers of, 6402h.
with N-(2-acetamidoethyl)acrylamide and styrene, P 9531e.
with 1-acyloxy-1,3-butadiene, P 3658f.
adhesion to cellulose, 8133e.
with allylic o-benzoylbenzoate, P 3847h.
breaking cationic emulsions of, P 5232c.
with butadiene—see also *Nitrile rubbers.*
with butadiene and maleates, P 2470d, P 3239c.
with butadiene and vinylidene chloride, 2017e.
with butadiene, blend with polymers of acrylonitrile and vinylidene chloride, films from, P 2470c.
with chloroprene, cohesive-energy ds. and swelling in solvents, 2072a.
with diolefins, P 2819f.

*polymers of*, with diolefins, lubricating greases and hydraulic fluids from, P 5184*b*.
with esters of maleic acid and vinylidene halides, P 2818*c*.
fibers from, 4131*i*, 7232*hi*.
with HCHO and urea, P 8738*i*.
hydrogenation to polyamine, P 2468*h*.
with mercaptans, P 5232*e*.
with Me methacrylate, contg. colloidal $SiO_2$, P 5634*h*.
with methylvinylpolysiloxane and with allylpolysiloxane - dimethylpolysiloxane polymer, 2018*d*.
osmotic pressure of solns. of, 7782*g*.
plasticization of melamine-HCHO or urea-HCHO resins with, P 4049*i*.
resinography of, 6459*h*.
structure of, 9523*i*.
as synergist for nicotine, 5893*i*.
with 2-vinylfluorene, P 8740*h*.
with vinylidene chloride, cellulose film coated with, P 3664*b*.
with vinylidene chloride, coating compns. from, P 3242*c*.
with vinylidene chloride, prevention of gelation in 2-butanone, P 7755*b*.
with vinylidene chlorofluoride, P 3239*b*.
with vinyl isocoumarans, P 7262*b*.
with vinylphenoxathiin, P 1223*e*.
wet-spinning films, tubing and yarns from, P 5636*a*.
prepn. of, 4629*g*.
prepn. of, thermodynamics of, 2830*d*.
prepn., properties and reactions of, 7411*d*.
purification of, P 1794*e*.
reaction products with ammonocarbonic acids and polyamines, resinous, for anion removal, P 7162*g*.
reaction products with phenolformaldehyde polymers, as detergents, P 1588*h*.
reaction with alkylmalonic acid esters, 8357*h*.
with $NH_3$, P 1052*f*.
with amines and arsines, 8351*e*.
with diamines, P 5414*e*.
with HCHO, 657*f*, 5405*c*, 7031*c*.
with malonic acid derivs. or β-oxo esters, P 4689*g*.
with mesityl oxide, 6578*e*.
with $NO_2Cl$, 1716*b*.
with 1-phenyl-1,3-butadiene, 8364*d*.
with reactive methylene compds., P 3446*g*.
with $C_2F_4$, 3370*f*.
with *s*-trithiane 1,3,5-tris(dioxide), P 5427*e*, P 6674*b*.
recovery from polymerization latexes, P 3229*b*.
rubber deriv. for bonding rubber to metals, 4887*h*.
safety with, 3117*i*.
toxicity of, 7577*g*.
and its toxicology, 5513*f*.
in waterproofing textiles, P 6428*f*.
**Acrylonitrile, β-acenaphthenyl-**. See *Acenaphtheneacrylonitrile*.
——, **β-amino-α-chloro-**, 2574*i*.
and derivs., P 3440*b*.
——, **β - 4 - biphenylyl - β - (*o* - chlorophenyl)-α-phenyl-**, 7007*c*.
——, **β - 4 - biphenylyl - α, β - diphenyl-**, estrogenic action of, 4746*d*.
stereoisomers, 7007*c*.
——, **α,β - bis(*p* - methoxyphenyl)-**, 2607*a*.
——, **α-(bromomethyl)-**, 7498*g*.
——, **β - (*p* - butoxyphenyl) - α,β-diphenyl-**, 7007*a*.
estrogenic action of, 4746*d*.
——, **β-butylamino-α-chloro-**, 2574*i*, P 3440*d*.
——, **α-chloro-**, 2574*e*.
polymers with diolefins, mixts. with phenol-aldehyde resins, P 2806*h*.
purification of, P 1794*e*.
——, **α - chloro - β - *p* - chloroanilino-**, 2574*i*, P 3440*f*.
——, **α-chloro-β-decylamino-**, 2574*i*, P 3440*d*.
——, **α - chloro - β - dibutylamino-**, 2574*i*, P 3440*e*.
——, **α-chloro-β-dodecylamino-**, 2574*i*.
——, **α-(chloromethyl)-**, P 7498*g*.
——, **β-chloro-α-methyl-**, P 3027*e*, P 3837*b*.
——, **α - chloro - β - *N* - methylanilino-**, 2574*i*, P 3440*f*.
——, **α,β dichloro-**, 2574*e*.
amination of, P 3440*b*.
——, **α - (difluoromethyl)-**, P 8398*i*.
polymerization of, P 6465*f*.
——, **α,β - diphenyl - β - *p* - propoxyphenyl-**, 7007*a*.
estrogenic action of, 4746*d*.
——, **α,β - diphenyl - β - (2,4,5 - trimethylphenyl)-**, 7007*a*.
——, **α,β - diphenyl - β - 2,4(and 2,5)-xylyl-**, 7006*i*.
——, **α - (1 - ethoxyhexylideneamino)-β-hydroxy-†**, derivs., 2203*b*.
——, **α - (2 - ethyl - 3 - methoxyphenyl)-β-(*p*-methoxyphenyl)-**, 198*e*.
——, **β-furyl-**. See *Furanacrylonitrile*.
——, **α-hydroxy-**. See *Pyruvonitrile*.
——, **α-(hydroxymethyl)-**, acetate, and its polymers, P 2630*e*.
——, **α - (*p* - hydroxyphenyl) - β - (*p*-methoxyphenyl)-**, 2607*c*.
——, **β-methoxy-α-methyl-**, P 3027*e*.
——, **β - (4 - methoxy - *o* - tolyl) - α,β-diphenyl-**, 7007*b*.
——, **α-methyl-**, polymerization with malonic acid derivs., P 4897*d*.
——, **β - (3,4 - methylenedioxyphenyl)-α-phenyl-**, 596*h*.
β-oxo-, acetals, 3356*f*.
β - (*p* - phenethylphenyl) - α,β-diphenyl-, 7007*a*.
——, **β-phenyl-**. See *Cinnamonitrile*.
——, **trichloro-**, 2574*f*.
**Acrylophenone** (*phenyl vinyl ketone*),



formation of, from reaction of $PhCOCH_2NMeBr$ with PhLi, 6177*g*.
——, **3 - bromo - β - (*p* - chlorophenyl)-2,4,6-trimethyl-α-phenyl-**, 5773*d*.
——, **5 - bromo - β - 2 - furyl - 2 - hydroxy-**, 5380*c*.
bactericidal action of, 5446*d*.
——, **β - (*o* - chlorophenyl) - β-phenyl-**, 6183*b*.
——, **β - (*p* - chlorophenyl) - 2,4,6-triethyl-α-phenyl-**, 5773*d*.
——, ***p* - cyclohexyl - β - 2 - furyl-**, 3429*g*.
——, **α,β-dichloro-**, and polymers, P 9531*g*.
——, ***ar,ar*-dimethoxy-**, polymer of, 5763*e*.
——, **α-ethyl-†**, 1757*g*.
——, ***p*-ethyl-β-2-furyl-**, 3429*f*.
——, **β-2-furyl-**, fungistatic activity of, 9334*b*.
——, **β-2-furyl-*o*-hydroxy-**, 5380*b*.
bactericidal action of, 5446*d*.
——, **β-2-furyl-*p*-isopropyl-**, 3429*f*.
——, **β-2-furyl-α-methyl-**, 3429*g*.
——, **β - 2 - furyl - *p* - 1 - methylbutyl-**, 3429*f*.
——, **β-2-furyl-*m*-nitro-**, 3429*g*.
——, **β-2-furyl-*p*-phenyl-**, 3429*g*.
——, **α-methyl-**, 1757*f*.
——, **β-phenyl-**. See *Chalcone*.
——, **β - (2 - phenyl - 1,2,3,2*H* - triazol-4-yl)-**, 2619*b*.
***p*-Acrylotoluidide, α-caproylamino-β-(ethylmercapto)-**, 2990*g*.
**Acrylyl chloride**, and its polymer, P 5793*b*.
——, **α-(difluoromethyl)-**, P 8398*i*.
**Acrysol**. See "polymers of" under *Acrylic acid*.
**Actedron**. See *Phenethylamine, α-methyl-*.
**ACTH**. See "hormones of anterior lobe of, adrenotropic" under *Pituitary glands*.
**Actidione***, 576*g*.
and derivs., 2998*c*.
as fungicide, 804*f*.
in mildew control on bean plants, 2355*d*.
production, assay and antibiotic activity of, 271*g*.
——, **anhydro-***, 2999*a*.
——, **dehydro-***, 2998*i*.
**dihydro-***, and derivs., 2998*e*.
l esters, 2998*g*.
*N*-methyldihydro-*, 2998*g*.
——, **tetrahydroanhydro-***, 2999*a*.
**Actidione acid diamide, dihydro-***, 2998*h*.
**Actin**, 2071*i*.
antigenic activity of F- and G-, 3917*a*.
compn. and polymerization of, 9095*d*.
creatine-phosphopherase and, 7063*c*.
drug effect on, 704*e*.
electron-microscope investigation of F- and G-, 3052*e*, 3867*a*.
mol. form of, 3477*h*.
in myosin solns., 2650*g*.
striation in solns. of, 9095*b*.
**Actinea richardsoni**, selenium in, 3890*f*.
**Actinia**. See *Sea anemones*.
**Actinide series**, 3701*g*, 8932*i*.
higher oxides of, 7855*a*.
metabolic properties of, 3497*i*.
periodic table and, 8765*fg*.
**Actinism**. See *Light; Photochemistry*.
**Actinium**. (See also *Mesothorium 2*.)
isotopes of masses 222, 223 and 224, from Th bombarded by deuterons, 4126*i*.
in water of Bormio in Valtellina, 4565*d*.
**Actinium, analysis**, detn. by measurement of radioactivity, 7814*a*.
**Actinium bromide**, $ActBr_3$, crystal structure data on, 3709*h*.
**Actinium C**. (See also *Bismuth*.)
from thorium by deuteron bombardment, 4126*i*.
**Actinium C′**, energy-period relation of, 2090*d*.
**Actinium C″**. (See also *Thallium*.)
from thorium by deuteron bombardment, 4126*i*.
**Actinium chlorides**.
**$ActCl_3$**, heat of formation of, 2828*b*.
**$ActCl_3$**, crystal structure data on, 3709*h*.
**Actinium K**. See *Francium*.
**Actinium sulfide**, $Act_2S_3$, crystal structure of, 3709*i*, 6484*e*.
**Actinometer**, manometric, for visible spectrum, 7824*g*.
**Actinomyces**. (See also *Actinomycin;* and "soil" under *Microörganisms*.)
*bovis*, susceptibility to sulfadiazine, penicillin, promin and streptomycin, 5821*g*.
*griseus*—see *Streptomyces griseus*.
hexylresorcinol effect on, 1827*a*.
slag effect on, in potato soils, 7172*a*.
**Actinomycetes**, antifungal exts. of, activation of, 9147*i*.
bacteriolytic system of, 5079*a*.
calcium carbonate deposition on rocks in relation to, 7549*b*.
humus formation by, 7617*e*.
penicillinase production by, 9163*d*.
pigment formation in, 5823*c*.
in soils, effect of fertilizers on, 6350*c*.
**Actinomycetin**, bacteriolytic action of, 5079*a*.
effect on spirochetes, 5445*i*.
**Actinomycin A**, spectrum of, 9386*g*.
**Actinorhodine**, from *Actinomycetes*, 5823*d*.
**Actinouranium**. See "isotope of mass 235" under *Uranium*.
**Action at a distance**. (See also *Mitogenetic radiation*.)
of dyes (vat) and oxide pigments on photochem. degradation of cotton, 412*c*.
of dye (vat) on dyed nylon, rayon or silk, $H_2O_2$ in, 1192*c*.
**Action constants**, of chloral hydrate decompn. by NaOH, 25*i*.
**Activated sludge**. See *Sewage*.
**Activation**. (See also *Catalysis; Heat of activation; Radioactivity;* etc., and the individual elements.)
of adsorbents—see *Adsorbents*.
analysis, 5287*h*.
of atomic nuclei—see *Atomic nuclei*.
of atoms—see *Atoms*.
of bleaching agents—see *Bleaching agents*.
of clays—see *Clays*.
of desorbed gas mols., 4088*a*.
reduction-oxidation, of polymerization of butadiene, etc., 7253*c*.
**Activators**, for catalysts—see *Catalysts*.
**Active deposits**. No entries this year. See *Actinium; Radon; Thorium*.
**Activity**. (See also *Reactivity*.)
of associating solutes, 3268*g*.
of cadmium iodide in $D_2O$, 3693*h*.
in cadmium-Hg-Na liquid system, 8253*d*.
of calcium and K ions in clay suspensions, 1132*i*.
calcn. of, of ions, 2539*c*.
calcn. of, of slag constituents, 4936*d*.
of carbon, graphitization and, 4072*e*.
of carbon in austenite, 7314*h*.
of couples between metals and oxides, 8916*b*.
detn. of thermodynamic, of fused systems from solidification curves, 4551*k*.
diffusion (interstitial) and, 7879*d*.
of α- and β-dotriacontane, 6890*d*.
of 1-hexadecylpyridinium ion, 5265*e*.
of hydrogen fluoride and $H_2O$ in HF solns., 7790*e*.
of ions in systems contg. KCl, $H_2O$ and $CdCl_2$, $HgCl_2$ or $ZnCl_2$, 6892*h*.
of iron oxide in slags, effect of oxides on, 6067*i*.
in metallic (liquid) solns., 4930*h*.
miscibility gaps and thermodynamic, 4552*a*.
optical—see *Optical rotation*.
radio—see *Radioactivity*.

of sodium ions in aq. soln. of salts with multivalent acids, 5265*f*.
in sodium-Na alloy liquids, 8245*d*.
solubilities of electrolytes in multicomponent systems and, 2844*f*.
of sulfur in liquid Fe, effect of C on, 4930*f*.
of sulfur in Ag system, 8834*d*.
theory of, 6048*fg*.
thermodynamic, of oxides and $SiO_2$ in silicate melts, 4931*a*.
use of, 3541*g*.
of water in HCl azeotropic system, 2058*g*.

**Activity coefficients**, of ammonium chloride in aq. $NH_4Cl$, 1253*d*.
of ammonium ion, 7303*d*.
basicity and dielec. const. of medium and, 7304*g*.
of benzene, EtOH and $H_2O$ in their mixts., 2058*f*.
of cadmium iodide in $D_2O$, 3693*i*.
calcn. of, of unstable hydrates, 5267*a*.
of calcium carbonate in alkali carbonate melts, 6053*d*.
of cetylsuccinate monolayers, 4086*f*.
of chlorides of Cs, K and Rb in formamide, 470*h*.
concd. solns. contg. several electrolytes, 6048*h*.
correction factor for, nomograph for, 5656*c*.
of electrolytes, 22*c*.
hydration and, 7301*i*.
of hydrocarbons in vapor-liquid mixts., 8653*i*.
of ideal systems, 8776*c*.
of ions, 4082*h*.
of lead chloride in aq. solns., 4544*e*.
of methanol and $H_2O$ in solns. contg. NaBr, 6902*f*.
of paraffin mixts., 5246*i*.
of potassium bromide in liquid $NH_3$, 6892*c*.
of potassium chloride and NaCl in aq. soln., 6892*g*.
of potassium chloride in solns. of KBr and KI, 7795*fi*.
of silver chloride in HCl, 6051*h*.
in slag studies, 2556*d*, 2909*b*, 2910*c*.
of sodium chloride in NaI solns., 7795*e*.
of sulfur in liquid Fe, effect of Si on, 4991*i*.
theory of, 6048*g*.
of uranyl sulfate, 1636*i*.

**Actomyosin**, antigenic activity of F-, 3917*b*.
complex with adenosine triphosphate, muscle relaxation and, 8500*a*.
contraction of, activation energy of, 9095*c*.
contraction of, free energy relations and, 6247*f*.
electron-microscope investigation of, 3052*f*, 3867*a*.
F-, in myosin solns., 2650*g*.
in heart muscle, 7109*e*.
imbibition curve of, 9094*i*.
interaction with adenosine triphosphate, 8499*c*.
phosphorylation and adenine nucleotide uptake of, 4714*e*.
syneresis of, electron-microscope and x-ray study of, 3867*a*.
in uterus, 742*i*.

**Acylamines**. See *Amides*.

**Acylation**. (See also *Acetylation; Esterification;* etc.)
with acid chlorides, $H_2SO_4$ as catalyst in, 7000*i*.
of adrenaline esters and related compds., 2601*cg*, 2602*a*.
of α-alkoxy and α-aryloxy esters and ketones, 4248*b*.
of alkyl aryl ethers, P 6235*f*, P 7966*i*.
of alkyl phenyl ethers, P 7966*f*.
of amides, 4220*h*.
of amines, 6586*b*, P 6652*c*.
of amino amides, P 4291*d*.
anhydrides of carboxylic and silicic acids as agents for, 4631*f*.
of cellulose—see *Cellulose esters*.
of 4-chloro-*N*-(*p*-methoxyphenyl)anthranilic acid, 7002*b*.
cholinesterase in, 9124*h*.
of cyclic ketones and cycloölefins by Hg salts, 7915*b*.
di-, of $H_2S$ and of $H_2O$, 8353*a*.
with enol esters, P 5795*g*, P 7037*h*.
of fluoranthene, 7473*c*.
fluorescent agents for, derived from umbelliferone, 7936*e*.
of furan and its derivs., P 3464*i*, P 3465*ad*.
of furan and thiophene, 214*b*, 6203*i*.
of indigoid compds., 6614*e*.
intramol., 4250*h*.
of ketones with esters, 4253*g*.
of lepidine, 2-picoline and quinaldine, 7022*d*.
of methyl 2-thienyl ketone with esters, 629*g*.
of naphthalene, Friedel-Crafts reaction in, 8371*b*.
of *N*-1(and 2)-naphthylacetamides, Friedel-Crafts, 6606*c*.
of olefins, P 2634*d*.
of phenols, 7924*d*.
of pyrazolones, 4271*i*.
of 9*H*-pyrid[3,4-*b*]indole, 6627*c*.
of sulfanilamide, P 1804*g*.
of thiophene, P 2643*g*, P 2644*ab*, P 3465*f*, P 3605*c*.

**Acyl chlorides**. See *Chlorides*.

**Acyl groups**, in liquid $SO_2$, 8935*h*.
migration of, in sepn. of diastereoisomeric amino alcs., 6999*d*.
removal from acetamido compds. contg. $NO_2$ in *o*- or *p*-positions, 2186*bd*.
removal from *o*(and *p*)-nitroacetanilides, 5755*ad*.

**Acyl halides**. See *Halides;* and the specific halides.

**Acyl ions**, 568*i*.
of pyrrole series, 623*a*.

**Acyloins**. (See also *Ketols*.)
higher fatty, 3791*g*.
hydrolysis (alk.) of (attempted), 5763*e*.
prepn. of, 2155*h*.

**Acylpyruvase**, in neoplastic and normal tissue, 3094*f*.
the term, 705*i*.

**Acyl sulfates**, 569*d*.

**Adaline**. See *Carbromal*.

**Adamellite**, of U.S.S.R. (Terska-Alatau Ridge), 7386*c*.

**Adamite**, fluorescence spectra and U content of, 2119*f*.
from Mexico (Ojuela Mine), 8985*i*.

**Adanon**. See *3-Heptanone, 6-dimethyl amino-4,4-diphenyl-*.

**Adaptation**, to altitude, 8484*c*.
to altitude, blood sugar response to anoxia during, 2691*g*.
to altitude, respiratory response during and after, 7117*h*.
of bacteria, 1830*d*.
to acridine derivs., 718*b*.
to acridine derivs., effect of pH on, 3058*b*.
to growth in $NH_4$ salt media, 7083*g*.
to new C sources, 2669*f*.
of *Bacterium lactis aerogenes*, 1458*d*
of cotton plant to high salt concns. in soil, 3889*g*.
enzymic, 1447*e*.
enzymic, by bacteria, ribonucleic acid in, 721*i*.
of *Escherichia coli* to histidineless cultures, 2671*i*.
hypertension and, 6728*d*.
hypertension as disease of, 6717*a*.
of mice to restricted calories, 2298*g*.
to motion sickness in dogs, 1869*f*.
in plants, enzymes and, 4731*f*.
of *Staphylococcus aureus* to penicillin, 5078*c*.

**Adapters**, for suction filtration, 8213*c*.

**Addison's disease**. (See also "insufficiency" under *Adrenal glands*.)
carbohydrate metabolism in, 1480*b*.
citric acid in blood serum in, 9226*c*.
fat absorption in diarrhea of, 4759*g*.
in splanchnicectomy and adrenalectomy, 1853*f*.

**Addition compounds**. See *Chemical compounds*.

**Addition reactions**. See *Reactions*.

**Additivity**, of crit. temp. cube for nonlinear mols., 7277*c*.
of magnetic susceptibilities in hydrates, 4528*e*.
of substituent effect on strength of BzOH, 8811*d*.

**Adelphocoris lineolatus** and(or) **Alfalfa plant bug**, control of, DDT-sabadilla mixts. in, 7629*a*.

**Adenine** (*6-aminopurine*), compds. with amino acids, enzymic synthesis of, 8410*g*.
-deficient *Neurospora* strain, effect of guanine, guanosine, guanylic acid and xanthine on growth of, 3063*f*.
and derivs., physiol. and therapeutic properties of, 8552*b*.
detn. of, 2674*f*, 8977*d*.
detn. of, in presence of guanine, 4722*d*.
dinucleotide of flavin and, cleavage of, 9194*a*.
effect on bud formation and growth in tobacco stem segments and callus, 3071*h*.
on cotton, 3492*b*.
on growth of guanine-deficient *Ophiostoma*, 8460*e*.
on inhibition of estrogen-induced growth in genital tract by purine antagonist, 7103*h*.
on nervous effects of acetylcholine, adrenaline, adrenochrome and choline, 6293*c*.
on quinine antagonism of purines and folic acid, 8526*c*.
-flavin dinucleotide, sepn. and identification of, 9116*e*.
-flavin-dinucleotide, synthesis of, 2649*h*
as folic acid substitute in folic acid deficiency, 8463*e*.
as growth factor for peas and its relation to thermal inactivation of growth, 9178*c*.
guanine sparing action of, 9148*h*.
hydrochloride, structure of, 3263*b*.
hypoxanthine formation from, by *Escherichia coli*, 1816*i*.
incorporation into pentose and desoxypentose nucleic acids, 255*e*.
metabolism of, 5838*b*.
nitrogen$^{15}$ in, from nuclei and cytoplasm of normal and regenerating liver, 4718*e*.
nitrogen turnover in, from polynucleotides, 8030*b*.
nucleotides—see *Adenylic acid*.
in ribonucleic acids from pancreas and yeast, 2655*i*.
sepn. by ion exchange, 5440*d*.
spectrum of, 1424*i*, 4714*b*.
sulfate, labeled with $C^{14}$ in 8-position, 6984*b*.
synthesis of, 580*c*.
synthesis of, contg. isotopes of C and N, 3366*i*.

**Adenine, 9-L-arabofuranosido-2-methylthio-***, 144*g*.
——, **2-chloro-9-β-D-glucopyranosido-***, 1726*c*.
——, **2,8-dichloro-9-(β-D-ribofuranosido)-***, and triacetate, 146*i*.
——, **9-D-glucopyranosido-***, and picrate, 146*c*.
——, **9-D-glucopyranosido-2-(methylmercapto)-***, 146*e*.
——, **2-hydroxy-**. See *Isoguanine*.
——, $N^6$**-methyl-**, salts, 4634*i*.
——, **9-(β-D-ribofuranosido)-***, identity with adenosine, 147*a*
——, $N^6$**-sulfanilyl-**. See *Sulfanilamide, N1-6-purinyl-*.

**Adenine-9-glucopyranoside***, 2649*i*

**Adenium somalense**, somalin extn. from, P 823*d*.

**Adenocarcinoma**. See *Carcinoma*.

**Adenoma**, gastric acidity in gastric, 9224*a*
pulmonary, from urethan, 307*bd*, 1103*i*

**Adenosine**, adenosine deaminase action on, 8409*d*.
antimalarial compds. as antagonists of, 7590*f*.
in blood in burns, 9208*b*.
chromatographic sepn. of, from its mixts., 3795*a*.
constitution of, 146*hi*.
deaminase—see *Adenosine deaminase*.
effect on guanosine action on growth of purine-deficient *Neurospora*, 3063*g*.
methylation of, 4634*h*.
from ribosenucleic acid (yeast) hydrolysis 144*e*.
spectrum of, 4707*d*.

**Adenosine, 1, $N^6$-dimethyl-***, 4634*i*.
——, $N^6$**-methyl-***, hydrochloride, 4634
——, **1-methyl-***, 4634*i*, 4635*a*.

**Adenosine deaminase**, 8409*d*.

**Adenosinediphosphate phosphomutase** in animal tissue, 6263*h*.

**Adenosinediphosphoric acid**, in acetomyosin and myosin, 4714*f*.
deamination by adenylic acid deaminase in presence of liver exts., 703*c*.
and derivs., 9040*c*.
effect on heart, effect of acetylcholine and K on, 8056*g*.
prepn. of, 4725*d*.
reaction with myosin, 9093*f*.
and tribenzyl ester, 2650*d*.
in tumors, 1857*c*.

**Adenosinephosphoric acids**, di- see *Adenosinediphosphoric acid*.
mono—see *Adenylic acid*.
tri—see *Adenosinetriphosphoric acid*

**Adenosinetriphosphatase**, of aorta, 3006*i*
in alcoholic fermentation, 7065*i*.

of brain, 6263*c*.
in cancerous and normal tissue, 7574*e*.
differentiation in ascidian and, 5124*a*.
in embryonic development, 5477*d*.
in heart muscle, effect of various substances on, 8058*a*.
histamine effect on, 2250*e*.
of muscles, 2243*h*, 8403*e*.
Ca and Mg in, 9123*g*.
temp. coeffs. of, 7064*d*.
in muscle homogenates in avitaminosis E, 6713*a*.
in muscles of different degrees of hydration, 9200*c*.
myosin activity as, 5123*i*.
myosin activity as, inhibition of, 3053*a*.
potato, purification and properties of, 9123*i*, 9124*b*.
in retina, 8040*c*.
in sarcoma glycolysis, 7575*i*.
in tissue homogenates, glycolysis and, 9090*d*.
in tissue of frogs, 7150*e*.

**Adenosinetriphosphate-arginine transphosphorylase**, isolation and properties of, 8410*i*.

**Adenosinetriphosphoric acid** (*adenylpyrophosphoric acid*) acetyl phosphate production from acetate and, in *Escherichia coli*, 1829*i*.
as coenzyme for fat-acid desaturase, 9090*i*.
deamination and splitting by myosin and protein II, 9093*i*.
deamination by adenylic acid deaminase in presence of liver exts., 703*c*.
deamination by myosin and protein II, 9094*b*.
and derivs., 9040*b*.
effect on bioluminescent reaction, 9101*e*.
on blood vessels, and effect of acetylcholine thereon, 8482*b*.
on cytochrome oxidase and succinic dehydrogenase, 9096*h*.
on electrically induced fibrillation of heart, 2319*b*.
on electrocardiogram, 8527*i*.
on fibrinogen coagulation, 3478*f*.
on heart, effect of acetylcholine and K on, 8056*f*.
on hydration of washed muscle, 9200*c*.
on metabolism in diabetes, 2698*f*.
on monolayers of myosin, 2654*f*.
on muscle proteins, 259*g*.
on urea formation in liver, 6251*a*.
on yeast inhibition by U, 2257*a*
elastic properties of muscle in relation to, 6247*g*.
in erythrocytes in pathol. conditions, 299*h*.
in glutathione synthesis from glycine and glutamic acid in liver, 8503*d*.
interaction with actomyosin, 8499*c*.
in liver glycolysis, 8508*c*.
muscle fiber relaxation and, 8499*i*.
muscular tension and, 6247*g*.
in myosin extractibility, 1447*f*.
nucleotide mixt. contg., P 6372*a*.
phosphorylation of myosin by, 3481*h*.
prepn. of, 2649*h*, 4725*d*.
prepn. of, from muscle, 6252*d*, 6269*d*.
in retina, 8040*d*.
sepn. and identification of, 9116*e*.
spasms in intestines from, effect of antihistamines and other substances on, 3934*e*.
sperm, 4359*c*.
synthesis of, by rat kidney homogenate, 4951*c*.
systemic effects of, 2693*e*.
and tetrabenzyl ester, 2650*d*.
transphosphorylation between fructose and, effect of hexokinase inhibitors on, 8484*b*.
in tumors, 1857*c*.
turnover of, in sea-urchin eggs, 2332*f*.
uptake by actomyosin and myosin, 4714*f*.

**Adenylic acid**, in amino acid deaminases, 706*a*.
dibenzyl ester, 2650*c*.
effect on fibrinogen coagulation, 3478*e*.
on heart, effect of acetylcholine and K on, 8056*g*.
on N assimilation by pea plants, 4730*f*.
on respiration in *Avena* coleoptile, 7555*c*.
on sarcoma development, 4367*e*.
on sulfonamide action on pea roots, 7091*i*.
lysis of *Clostridium perfringens* in, 9158*d*.
phosphorylation of, K and $NH_4$ ions in, 6281*f*.
sepn. and identification of, 9116*e*.
spectrum of yeast, 4707*d*.
synthesis of, 2649*h*.
in tumors, 1857*c*.
vitamin $B_1$ effect on, 2290*g*.

**Adenylic acid deaminase**, deamination of adenosinephosphoric acids by, in presence of liver exts., 703*c*.

**Adenylphosphatase**, in seminal glands, 5843*d*.

**Adenylpyrophosphatase**. See *Adenosinetriphosphatase*.

**Adenylpyrophosphoric acid**. See *Adenosinetriphosphoric acid*.

**Adermine**. See "B6" under *Vitamins*.

**Adhesion or Adhesiveness**. (See also *Heat of adhesion; Wetting*.)
of asphaltic or bituminous compns., cyclic N-base sulfonates for improving, P 6822*c*.
of asphalt to aggregates, P 5168*h*, 7207*c*.
of asphalt to stone, 7659*f*.
of bitumens to mineral aggregates, improvement of, P 1562*h*, P 7661*b*, P 7662*a*.
between brass and rubber or Buna S, 5985*e*.
casein as bonding material for fiberglass fabric to phenolic resins, P 8208*i*.
of elastomers to metals, P 2807*e*.
of electrodeposits—see *Electrodeposits*.
of enamels—see *Enamels*.
of epithelial cells, 299*e*.
of fibers to rubber, 1209*d*.
of films to solids, 2842*c*, 7769*f*.
between fused salts, glasses and metals, 2062*h*.
of glass (molten) to heated metals, 9399*i*.
of inorg. binders, plasticity and thixotropy of clay in relation to, 828*h*.
of iron (nascent) powder, 8322*i*.
of iron particles to glass and films, 4077*i*.
of lubricants to metals, 4454*e*.
of lubricating oils, effect of metallic soaps on, 2416*d*
of magnesium or Mg alloys to rubber, P 2807*f*.
measurement of, of blue sheet-Fe ground coats, 5165*b*.
of elec. insulating materials and plastics, 4787*i*.
of electrodeposits, 4147*e*, 4584*g*.
of microcryst. wax, 3616*c*.
of paint, 869*c*.
between particles in sediments of suspensions, 7777*d*.
of petroleum rust preventives, 384*i*.
between plies of laminated materials, 8687*a*.
of rubber, 2012*b*.
of rubber to cord, 4044*i*, 9514*g*.
of sizes to nylon, 5957*b*.
mechanism of, and rubber-to-metal adhesion, 4884*h*.
of metal to polyisobutylene and polythene, 3651*g*.
of metal to rubber, test for, 4400*c*.
of microgel particles to each other in butadiene polymers, 4506*g*.
of paint—see *Paint*.
of particles, effect of gelatin, molasses, starch and sucrose on, 4503*b*.
between polymer layers, 5996*f*.
of polymers to cellulose and Al, 8206*f*.
prevention of, of plasticized vinyl-resin films, agents for, P 5999*a*.
of rayon cord to rubber, relations among cord dip-pickup, flex life of tires and, 2012*g*.
of silver on mirrors, 2387*h*.
of sprays—see *Sprays*.
tension, bond energy and, 7777*b*.
in evaluation of surface-active agents, 5213*i*.
of pigments, measurement of, 5970*c*.
theory of, and adhesive properties of high polymers, 2020*h*.
of varnish—see *Varnish*.
of vinyl acetal polymers, effect of polar groups on, 2029*d*.

**Adhesive plasters**. See *Plasters (pharmaceutical)*.

**Adhesives**. (See also *Binding materials; Glue; Mucilage; Sizes;* etc.), P 9535*i*.
from acetylene condensation products with alkyl phenols, P 2466*g*.
from acetylene-PhOH resin and polyvinyl ether, P 9526*f*.
from acrolein acetal polymers, P 5636*a*.
from acyl halides, castor oil, olefinic $\alpha,\beta$-dicarboxylic acids and vinyl compds., P 3656*e*.
from 1-acyloxy-1,3-butadienes and acrylonitrile, P 3658*g*.
from agar-agar, P 7164*e*.
from alginates, P 8212*i*.
from alkali, borax and dextrin, pH and viscosity of, 9500*b*.
alk. earth hydroxide compn. with melamine-HCHO resin for, P 8739*b*.
from alk. earth hydroxides and urea-HCHO resins, P 8739*b*.
alkyd-resin (chlorinated), P 2031*b*.
aminoplasts modified with nitro compds., P 4894*f*.
aminotriazine-aldehyde condensation products with linolenic acid monoglyceride for wood, P 442*b*.
from aminotriazine-aldehyde reaction products, polyvinyl acetal resins and phenol-aldehyde condensation products, P 4898*i*.
Araldite as, 7259*f*.
Araldite resins as, for metals, 9521*d*.
attachment to surfaces, felt-base material for, P 3242*e*.
bacteria and mold inhibition in, P 7606*f*.
bentonite-contg., for furniture, P 2458*b*.
bitumens, measurement of fluidity of, P 3590*h*.
from blood fibrin or coagulated blood for leather, P 6854*b*.
books: Principles of High-Polymer Theory and Practice, 900*g*; Traité général de la fabrication des colles, des glutinants et matières d'apprêts, 6463*i*; Wood, 8207*g*.
from borax and dextrin, P 8744*b*.
from butadiene polymers with styrene, P 5641*g*.
from carbon disulfide, HCHO and 1,6-hexanediamine for plywood, P 2466*c*.
from cartilage glue, casein, rosin soap and meat digest, P 9535*g*.
from casein acids, HCHO and urea, P 5642*i*.
from casein and pyrophosphate, P 9535*h*.
from casein and urea, P 8744*a*.
from casein, cement and CaO for uniting stonelike material with wood, P 6004*b*.
from casein, dimethylolurea and PhOH, P 8744*e*.
casein for, P 6868*e*.
casein, for abrasives, P 9408*h*.
casein, for wood, 1603*i*.
from casein, CaO, varnish, etc., P 9535*i*.
from castor cake, its proteins, cresol-HCHO and cresol-casein-HCHO, 2811*gi*.
castor protein for, P 4899*g*.
from chloroformic acid-unsatd. alc.-ester polymers, P 5230*g*.
chloroprene polymer-xanthate low-temp.-curing compns. for, P 1602*a*.
for coating paper, latex as, 4464*a*.
from copal resin, carnauba wax or Brazilian palm wax and mono- or diglycerides, P 7756*b*.
from copolymers, 6462*i*.
from cresol condensation with 2-furaldehyde, P 5643*d*.
cyclized polymer reaction products with P halides for, P 8668*h*.
from dextrins or starch and urea-HCHO resins, P 901*f*.
3,5-diamino-4-*H*-thiatriazine 1-dioxide resins for, P 903*g*.
from 1,1-dichloroethylene polymers with unsatd. ketones, P 9531*i*.
diene interpolymers with vinyl sulfones, P 7266*i*.
1,3-dioxolane polymers with vinyl esters, P 9532*d*.
from disulfide-Cl compd. resins, P 6863*f*
durability (outdoor) of casein, phenolic, prolamine and Tego, for plywood, 3641*d*.
emulsions of, for spinning of glass wool, 4435*h*.
from esters (polymeric linear), P 1224*d*, P 6236*d*.
ethylene polymers, P 6001*b*.
fermentation products, P 6868*b*.
from fish glue and urea-$CH_2O$ condensation product, P 4899*c*.
from flour, P 4899*b*.
flour from flaxseed meal for, P 9536*a*.
in food industry, use of, 5507*h*.
from formaldehyde adhesive and $CaCl_2$, P 2471*i*.
from formaldehyde, rice starch and Na silicate, P 4899*d*.
from formalin and urea for leather and paper, P 6004*c*.
furfuryl alc.-resorcinol resin, P 3655*b*.
gap-filling, from synthetic amide-HCHO resin, P 2039*d*.
from glass-fabric union with phenolic resins, P 8208*i*.
greaseproof, pressure-sensitive, P 8240*b*.

gutta-percha, rubber and Sovprene as, for uniting rubber to leather and textiles, 6854*f*.
from 1,5-hexadiene polymers, P 3236*b*.
for insecticides—see *Insecticides*.
isobutylene polymers and polyvinyl ethers as, 8737*i*.
from isopropenyl acetate and vinyl chloride for lenses, P 3661*d*.
keratin, P 9512*d*.
Lakeside No. 70 transparent, 9409*b*.
for leather, 1204*e*, 8198*h*.
linoleum, 2380*a*.
Melocol, from melamine, urea and HCHO, 3653*f*.
Melocol, urea-HCHO, 1212*i*.
mercaptan polymers with vinyl compds., P 5232*f*.
for metal bonding with wood, 2029*f*.
from methacrylic acid ester polymers, for leather, P 4517*d*.
methyl methacrylate as, for laminated polymethyl methacrylate, P 2468*h*.
for methyl methacrylate polymers, P 2467*a*.
from methylolmelamine ether and polyvinyl acetal, P 2467*i*.
from 2-methylpropene polymers, and sheets therefrom, P 6868*c*.
from methylsiloxane polymers for metal, etc., P 6867*d*.
monohydric and polyhydric phenols and aldehydes, P 9536*b*.
natural and synthetic, 4510*h*.
from Neoprene-AC and phenolic resins for rubbers, 7743*h*.
from Neoprene and coal resin, P 3229*f*.
from nitrile rubber and phenolic resins, 7749*a*.
for nitrile rubber union with steel, 1215*g*.
nitrocellulose, in cementing leather belting laps, 5996*h*.
from nitropolyhydroxy alc. polymers with polyamines, P 8209*e*.
oil-resistant, 7261*d*.
for oily or wet surfaces, P 3663*a*.
from olefins and unsatd. esters of 9,10-dihydroxystearic acid, P 8211*h*.
for optical elements, P 1221*f*, P 2472*a*.
for optical elements from polyester of maleic acid, P 1221*i*.
from *Opuntia ficus indica*, P 3662*h*.
for paperboards, P 2471*i*, P 5633*d*.
paper coated with—see *Paper*.
from pectins and hydroxides or salts, P 9535*h*.
Pemakote, in paper industry, 7228*e*.
from phenol, acetins and glycerol chlorohydrins, P 3655*f*.
from phenol condensation products with HCHO and polyvinyl alc., P 3656*c*.
from phenol-HCHO condensation products, P 1606*b*.
for phenol-HCHO laminates, 3653*c*, 4892*i*.
phenol-HCHO $H_2O$-sol. resin for plywood, P 6863*i*.
phenolic resin, for abrasives, P 9526*d*.
agricultural residue flours as extenders in, for plywood, 8737*i*.
for plywood, P 3236*g*.
from polyesters of dimethylene-D-gluconic acid, P 2817*a*.
polyisobutylene compns. with rosin and rosin oil, P 7610*h*.
polymers of unsatd. 1,1,2,2-tetrafluorocyclobutane derivs. for, P 4295*f*.
polyvinyl ether, P 664*f*.
prolamins for, P 6466*g*.
propene polymers, P 7223*c*.
protein-HCHO dispersions stabilized with alkylene oxides, P 3120*b*.
for radio tubes, 2029*h*.
rennet casein, for plywood and timber joints, 4504*h*.
resinous and rubber, for rayon-rubber bonding for tires, 4044*i*.
resinous, for abrasive, waterproofing of, P 2033*a*.
detn. of hardening time of, 1216*a*.
in manuf. of laminated wood, 5627*b*.
for metal or wood, P 901*b*.
review on, 1216*c*, 8197*h*.
for wood working, 4042*f*.
from resinous products, etc., P 4050*b*.
from resorcinol-HCHO resin and rubber, for rayon tire cords, 4045*a*.
review on, 8716*i*.
from rosin, rubber and trichloroethylene, P 6004*b*.
from rubber and polyvinyl alc., treatment of rayon tire cords with, 5622*a*.
for rubber bonding to cotton and rayon cords, evaluation of, 9515*a*
from rubber (chlorinated), for metals, polyalkylene polyamine-improved, P 2807*d*.
rubber (cyclized) in, 1208*d*.
rubber, fatigue test on cotton or rayon cord bonds with, 7252*d*.
for fiber flocking, 1199*e*.
in industry, 4884*h*.
pressure-sensitive sheets bearing, P 2463*f*.
for rubbers, P 5224*a*.
stabilized aromatic isocyanates for, P 8732*d*.
water-dispersed, 2012*i*.
from rubber (GR-I) and coal resin, P 3229*e*.
from rubber (GR-S), adsorption of curatives and low-mol.-wt. polymers by pigments in, 8188*i*.
from rubber (GR-S), precured, P 3229*b*.
rubber maleate as, for rayon and rubber, 1595*g*.
for rubber-rayon bonding, 9514*d*.
from rubbers (acrylonitrile-diene) mixed with phenolic resins, P 2807*b*.
from rubbers (chloromaleic anhydride-piperylene), P 3227*i*.
from rubbers cured with polyazo esters, P 5626*i*.
from rubbers (methylpentadiene-aralkenyl), P 6458*e*.
from rubbers (synthetic), evaluation for fabric-fabric adhesion, 2800*i*.
for rubber (synthetic) bonding to textiles, oil- and solvent-resistant, from org. polysulfide polymer and hydrophilic adhesive, P 7745*c*.
from rubber (synthetic), for demolition charges, P 9536*a*.
for rubber-textile lamination, from PhOH-rubber reaction product and resorcinol-HCHO polymer, P 432*h*.
salts of ether-carboxylic acids, P 9536*d*.
from seaweeds, P 7164*f*.
shear-impact and shear-tensile properties of, 4892*i*.
sheet, paper for protecting, P 908*f*.
sheet, pressure-sensitive, P 3240*c*, P 8744*c*.
for sheets of regenerated cellulose or viscose, P 1221*c*.
silicate, 6335*c*.
for corrugated paperboard, 5949*e*.
industrial, 2465*g*.
from silkworms, 1604*g*.
from sodium silicate and $Na_3PO_4$, P 2471*h*.
soybean, 900*c*, P 1221*c*, 1603*i*, 1604*bcd*, P 3120*d*.
cystine change in, 1604*f*.
solvent effect on adhesive power of, 1604*d*.
from soybean protein and hemicellulose, P 3663*b*.
from soybean proteins and urea resin, P 6868*e*.
for sprays—see *Sprays*.
standards for, 4399*i*, 4787*f*.
from starch and urea-HCHO resins, 8716*i*.
starch derivs. for, P 1590*e*.
from starch, dicyanodiamide and plasticizer, P 3223*a*.
starch, penetration into paper, 1185*f*.
starch product for, P 6850*d*.
storage life of, 4049*a*.
styrene as, for metal union with polyisobutylene or polythene, 3651*g*.
from sulfite waste liquor, P 3198*h*, 7682*d*.
for surgical tape, P 1610*i*.
synthetic, in food industry, 5507*g*.
synthetic, review on, 5996*f*.
tall-oil deriv. polymers, P 895*g*.
tape—see *Tape*.
temp.-sensitive, from indene resin, P 3662*i*.
from terpene polymers, P 3236*a*.
from tetrafluoroethylene polymers with $C_2F_3H$, P 5637*h*.
from trifluoroethylene polymers, P 1608*f*.
from urea-HCHO resin, etc., P 5643*a*.
from vetch-seed meal, P 908*g*.
from vinyl-acetate polymer emulsion, P 3240*d*.
from vinyl acetate polymers, phenol-HCHO resins, etc., P 5228*i*.
for vinyl-chloride-polymer layers, P 4898*d*.
vinyl ester partially hydrolyzed polymers, P 1610*b*.
from vinyl halide or vinylidene halide polymers for halogen-contg.-polymer union with metal, stone or wood, P 7265*c*.
vinyl-polymer, pressure-sensitive, P 3240*c*.
from viscose-industry wastes, 6408*h*.
water-resistant, for plywood, P 2458*a*.

**Adhesive tape.** See *Tape*.

**Adiabatic exponent,** 3677*f*.

**Adina cordifolia,** poison from wood of, 8016*e*.

**Adinin,** and methyl ether*, toxicity of, 8016*e*.

**Adipaldehyde, α,γ-dibenzamido-β-hydroxy-,** and tetraethyl mercaptal, 1329*i*.

**Adipaldehydic acid,** from cyclohexanone, 2196*f*.

**Adipamic acid, *N*-(*N*-acetylsulfanilyl)-,** 2597*f*.

——, ***N*-2-hydroxyethyl-,** ethyl ester, in penicillin production, 2273*e*.

——, ***N*-sulfanilyl-,** 2597*f*.

——, ***N*-(1,2,3,4-tetrahydro-2,4-dioxo-5-pyrimidyl)-,** P 5796*g*.

**Adipamide.** (See also *Nylon*.)
dehydration of, P 3836*g*.
manuf. of, P 3452*c*.
polyhexamethylene—see *Nylon*.
polyhexamethylene, *N*-(carboxyalkoxymethyl) derivs., as thickening agents for hydraulic systems, P 1504*e*, P 3950*b*.
*N*-(hydroxymethyl), *N*-(methoxymethyl) and *N*-(ethylmercaptomethyl) derivs., 3652*d*.
*N*-(octadecylmercaptomethyl), *N*-(sorbitylthiomethyl) derivs., and disulfide from (mercaptomethy derivs., 3653*a*.
polymeric derivs., P 7263*h*.

——, ***N,N'*-bis(4-amino-2-methy 6-quinolyl)-,** dihydrochloride, 1778*i*

——, ***N,N'*-di-*tert*-butyl-,** P 3028*i*.

——, **α,δ-dihydroxy-,** *N,N'*-hexamethy ene polymer, crystal structure o 8232*g*.

——, **dithio-,** condensation products wit 1,8-dichloro-2,7-octanedione, for rul bery fibers, P 7745*e*.
and reaction product with 1,11-dichlor 2,10-hendecanedione, P 6465*a*.

——, ***N,N,N',N'*-tetrabutyl-,** as pla ticizer, P 7258*e*.

——, ***N,N,N',N'*-tetramethyl-,** as so vent for vinylidene chloride polymer P 4515*i*.

**Adipic acid,** (*1,4-butanedicarboxylic acid; hexanedioic acid*), $HO_2CCH_2CH_2CH_2CH_2CO_2H$.
α β δ δ
β-alkyl derivs. of, toxicities of, 6251*b*
ammonium salt, adiponitrile from, 3836*g*.
bis(3,5,5-trimethylhexyl) ester, vapo pressure of, 3678*a*.
chromatographic sepn. from org. acids 6947*a*.
condensation product with *N,N''*-ethyl enebis[1,6-hexanediamine], P 4052*g*
condensation with 1,6-hexanediamine 142*c*.
from cyclohexanone, 2196*f*, 7912*g*.
diallyl ester, polymerization in fibrou base, P 3238*d*.
didecyl ester, unimol. layer of, 4537*d*.
diethyl ester, hydrogenation of, 572*d*
di(2-ethylhexyl) ester, effect on cellulos butyrate acetate at high temp., 5944*h*
diisoamyl ester, low-temp. grease from I stearate and, P 1178*h*.
diisobutyl ester, as plasticizer, P 8209*b*.
dimethallyl ester, polymers with dimeth allyl maleate and styrene, P 7261*i*.
disodium salt, as lubricant for polyviny acetate granules, P 441*c*.
divinyl ester (omitted from abstr.), I 7957*h*.
effect on succinic acid in urine, 5469*b*.
esterification with decamethylene and ethylene glycols, kinetics of, 4547*c*.
esters, 9026*c*.
as lubricants, P 393*b*.
phys. consts. of, 2590*e*.
in prevention of crystn. of DDT or its analogs, P 6358*e*.
esters (acid) with 9,11-linoleodiricinolein dimer, P 675*e*.
esters (poly-), P 1057*b*.
with 1,4- and 1,3-butanediol, dielec. consts. of, 4530*b*.
with $(CH_2OH)_2$ and with $HO(CH_2)_{10}OH$, 4228*b*, 6578*c*.
as plasticizers, P 4518*d*.
esters (superpoly-) with dimeric fat esters and ethylene glycol or decamethylene

glycol, tensile strengths of elastomeric, 8699*c*.
esters (unsatd.) of, and its derivs., polymers of, P 1217*f*.
ethyl Me ester, 6981*i*.
formation during nitration of cyclohexane, 1019*a*.
formation from α-ketoadipic acid and $NH_3$ by bacteria, 7547*b*.
glycol esters, manuf. and polymerization of, P 1609*f*.
ionization of, and monoesters, 7303*b*.
manuf. of, P 3842*c*, P 4694*d*, P 5416*i*, P 5417*a*, P 9476*a*.
melting point of, from nylon hydrolyzed products, measurement of, 6947*i*.
methyl ester, surface tension of aq., 8797*f*.
optical crystallographic data for, 6105*f*.
polyamides from 1,6-diamino-6-methylheptane and, P 6866*i*.
polymerization with hexamethylene diisocyanide, P 4515*f*.
polymerization with polyhydric alc and interpolymer of styrene, crotonic acid, conjugated linseed oil and its fatty acids, P 6433*d*
polyvinyl esters, 6156*a*
potassium salt, mixts. with K salts of other dibasic acids, 4075*i*.
*p* quinone dioxime derivs., as vulcanizing agent, 5623*c*.
rare earth complexes, 4969*f*
reaction with $C_2H_4$ to form higher acids, P 670*e*.
as softener in artificial leather manuf., 6451*f*.
soly. of, 8803*g*
spectrum of, 3715*b*
in stabilization of $As_2S_3$ hydrosol, 7779*i*.
surface tension of aq., 8797*f*
**Adipic acid**, α-**acetyl-α-methyl-β-oxo-**, dimethyl ester, 7434*a*
——, α-**amino-**, 4223*d*.
chromatography on starch columns, 5818*e*.
degradation by liver, 3082*i*
detection of, 8423*e*.
formation from lysine by liver, 3082*g*.
as lysine precursor for rats and bacteria, 6708*e*
metabolism by *Neurospora crassa*, 2278*e*.
synthesis from ketoadipic acid by cholera vibrios, 5084*d*
——, α-**benzamido-**, 4223*e*
——, α, δ-**bis(1-aminoethyl)-**, and derivs., 5775*i*.
——, β,γ-**bis**(*p*-**methoxyphenyl)-**, *meso*-, 3402*h*.
——, α-**bromo-**, diethyl ester, 1325*a*.
——, β-**carboxy-** See *1,2,4-Butanetricarboxylic acid*.
——, α-[**2-(carboxymethyl)cyclohexyl]-**, triethyl ester, 3829*b*.
——, α-[**2-(carboxymethyl)cyclohexyl]-α-cyano-**, triethyl ester, 3829*b*.
——, α-**chloro-**, diethyl ester, 1325*c*.
——, α-**cyano-**, bis(benzylidenehydrazide) and other derivs., 4222*f*.
——, α, δ-**diacetimido-**, diethyl ester, 5775*i*.
——, α, δ-**diacetyl-**, diethyl ester, 5784*a*.
——, α, δ-**dibromo-**, diethyl ester, reaction with $Na_2S$, 6011*i*.
——, α, δ-**dichloro-**, and diethyl ester, P 7957*f*.
——, α, δ-**dicyano-**, and diethyl ester, P 9475*i*, P 9476*a*.
——, α, β-**dicyano-β,γ-dimethyl-**, diethyl ester, 3796*h*.
——, β-(**1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)-**, and dimethyl ester, 1387*c*.
——, β,γ-**dihydroxy-β,γ-bis**(*p*-**methoxyphenyl)-**, 3402*g*.
——, β,γ-**dihydroxy-β,γ-dimethyl-**, dilactone, P 1056*b*.
——, β,γ-**dihydroxy-β,γ-diphenyl-**, dilactone, P 1056*c*.
——, α, δ-**dimethoxy-**, *meso*-, dimethyl ester, 8357*g*.
——, α-**1,5-dimethylhexyl-**, ethyl ester, 2587*c*.
——, β-**1,5-dimethylhexyl-β-hydroxy-α-methyl-**, γ-lactone Et ester, 1335*d*, 7911*f*.
——, β-**1,5-dimethylhexyl-α-methyl-**, diethyl ester, 1335*d*.
——, β,γ-**diphenyl-**, *dl*- and *meso*-, 3402*f*.
——, **dithiol-**, dibenzyl ester, P 3445*d*.
in vulcanization of isoprene polymers, 8193*f*.
——, α(and β)-**ethyl-**, 6165*b*.
——, β-**hydroxy-β-methyl-**, β-lactone Me ester, P 2635*g*.
——, α-**isobutylidene-β-oxo-**, diethyl ester, 622*a*.
——, α-**isopropyl-**, diethyl ester, 1749*e*.
——, β-**methoxy-**, stereoisomers, and salts with 2-benzyl-2-thiopseudourea, 4228*e*.
——, α-[**3-**(*m*-**methoxyphenyl)propyl]-**, 9043*f*.
——, β-**methyl-**, 2173*f*.
soly. of, 8803*g*.
——, α-**methyl-α-(5-methylmercapto-3-oxoamyl)-β-oxo-**, dimethyl ester, 7433*h*.
——, α-[**2-methyl-1-(1-naphthylmethyl)propyl]-β-oxo-**, diethyl ester, 622*a*.
——, α-**methyl-β-oxo-**, dimethyl ester, 7434*a*.
dimethyl ester, reaction with hexahydro-1-methyl-4-oxothiapyrylium iodide, 7433*h*.
——, **octafluoro-**, and diethyl ester, P 2635*c*.
esters, P 2635*e*.
——, α-**oxo-**, adipic acid formation from $NH_3$ and, by bacteria, 7547*b*.
amino acid synthesis from $NH_3$ and, by bacteria, 5084*d*.
formation from α-aminoadipic acid by liver, 3083*a*.
——, α-**3-oxobutyl-**, diethyl ester, and its semicarbazone, 7434*c*.
——, α-**phthalimido-**, 4223*f*.
——, α, β, γ, δ-**tetrahydroxy-**. See *Mucic acid*.
——, **thio-**, *S*-benzyl *O*-ethyl ester, hydrogenation of, P 3445*d*.
——, α, α, γ(and α, γ, γ)-**trimethyl-**, esters with unsatd. alcs., polymers of, P 1217*g*.
**Adiplon**. See *Sulfapyridine*.
**Adipoguanamine***, and formaldehyde condensation product, P 3662*f*.
**Adipoin**. See *Cyclohexanone, 2-hydroxy-*.
**Adiponitrile**, blood picture of workers handling, 1985*g*.
hydrogenation of, P 1793*g*, 4857*d*, P 5033*d*.
as insecticide, P 8604*f*.
manuf. of, P 3836*g*, P 9476*a*.
reaction products with 1,8-dichloro-2,7-octanedione and $H_2S$ for rubbery fibers, P 7745*f*.
reduction of, 5367*c*.
——, β-**ethoxy-**, P 3031*g*.
——, β-**sulfo-**. See *2-Butanesulfonic acid, 1,4-dicyano-*.
——, α, α, δ, δ-**tetraphenyl-**, 9052*h*.
**Adiposis**. See *Obesity*.
**Adiposis hepatica**. See "fatty" under *Liver*.
**Adipyl azide**, 1564*c*.
**Adipyl chloride**, quaternary compds from amines, aliphatic nitriles, $CH_2O$ and, as softening agents, P 2786*a*.
——, α, δ-**dichloro-**, P 7957*e*.
**Admiralty metal**, condenser tube from, in petroleum stills, 5178*i*.
corrosion of condenser tubes of, by $NH_3$ in petroleum refinery, prevention by $H_2S$, 6401*h*.
corrosion (stress) of, in presence of Hg, 6142*a*.
tubes from, for petroleum industry, 1299*i*.
**Adnephrine**. See *Adrenaline*.
**Adonipan**, in heart-dysfunction treatment, 5861*c*.
**Adonis**, *amurensis*, active compds. from, 2371*b*.
*vernalis*, adulteration with *A. aestivalis*, 2368*f*.
cardiac glycosides from, 1790*i*.
in heart-dysfunction treatment, 5861*c*.
identification of fluidexts. of, 1908*c*.
**Adonitol**, detection of, 5704*b*.
2,3,4,5-tetraacetate, 5716*c*.
utilization by *Drosophila*, **322***h*.
——, **1-chloro-1-desoxy-2,3,4,5-tetra-acetyl-***, 5716*c*.
**Adonitoxigenin**, and derivs., 1791*b*.
**Adonitoxin**, and derivs., 1790*k*.
**Adrenalectomy**, adrenocorticotropic hormone content of pituitary after, 3084*b*.
alloxan diabetes in, 3016*e*.
amino acid and protein metabolism after nephrectomy and, 8493*e*.
amino acids and glycogenesis in liver after, and effect of adrenal replacement thereon, 8544*b*.
amino N of blood plasma after, 7528*h*.
antibody formation after, 8045*e*.
antidiuretic substance in blood after, 3084*e*.
arginase and phosphatases in liver and kidneys after, effect of high-protein and high-carbohydrate diets on, 1847*b*.
arginase in kidney, liver and mammary gland during lactation after, 3912*c*.
blood chemistry, desoxycorticosterone acetate action, etc., in splanchnicectomy and, 1853*e*.
body temp. in, effect of pethidine HCl, atropine sulfate, benadryl and quinidine HCl on, 1868*i*.
cholinesterase in blood serum, brain and muscle after, 7102*g*.
cold protection after, in young, effect of adrenal cortical hormones on, 6721*b*.
combined water and NaCl in, 1848*g*.
effect of ethyl carbamate and methylbis(2-chloroethyl)amine on normal and malignant lymphoid tissue after, 3109*f*.
electroshock-seizure thresholds after, relation between brain and blood plasma electrolytes and, 6304*i*.
estrous-cycle production after, 5476*e*.
glycogen formation in liver and muscle after, effect of desoxycorticosterone, 17-hydroxy-11-dehydrocorticosterone and adrenal cortical ext. on, 9202*a*.
glycogen metabolism during work in diaphragms after, effect of desoxycorticosterone on, 3904*h*.
glycogen phosphorylation by muscle and liver after, 1098*f*.
hair cycles after, 8036*d*.
hypertension in, desoxycorticosterone acetate in relation to, 7146*d*.
mammary glands of castrated and estrogen treated castrated males after, 7565*h*.
mammary structure after castration and, effect of estrogen on, 8486*g*.
ovarian hormone effect on transmission of activity of sympathetic nerves after, 747*d*.
oxygen consumption after, effect of thyroxine and adrenal cortical exts. on, 747*a*.
pantothenic acid requirement after, 8025*a*.
phosphatase in intestine and kidney after, effect of riboflavin on, 3083*c*.
phosphatase in intestines after, effect of steroid sex hormones on, 9201*f*.
phosphomonoesterases and pyrophosphatases in kidney and intestine after, and effect of desoxycorticosterone thereon, 1818*d*.
pituitary cell types after unilateral, 8491*f*.
pregnenolone effect after, 295*e*.
renal function after, 8486*d*.
urinary N in, effect of adrenal cortical exts. on, 1849*f*.
work performance after, effect of glucose on, 8024*i*.
**Adrenal extracts**. (See also *Adrenaline*; and "hormones of" under *Adrenal glands*.)
of cortex, in alcoholism, 9231*d*.
effect of desoxycorticosterone and, on hypertension, 8057*d*.
lymphocyte discharge from spleen by, 8036*a*.
narcotic action of, 3094*h*.
protein catabolic response to, 8493*a*.
effect of cortical, on adrenal action of *Serratia marcescens* polysaccharides in tumor-bearing mice, 5110*a*.
on blood picture and blood-serum proteins, 5471*c*.
on carbohydrate metabolism of muscle, 9202*a*.
on eosinophilia in *Trichina spiralis* infection, 7105*b*.
on glucose uptake and glycogen synthesis by diaphragm with and without insulin, 9255*g*.
on glycogen formation in liver and muscle after adrenalectomy, 9202*a*.
on hypertension from desoxycorticosterone acetate, 7146*d*.
on insulin-induced abnormalities in chick, 8033*h*.
on neoplasms, 5109*i*.
on nucleic acid and phospholipide turnover of liver and thymus, 8493*i*.
on O consumption of adrenalectomized rats, 747*a*.
on urinary N of rats following adrenalectomy, 1849*e*.
on work performance in adrenal insufficiency, 6319*g*.
protective power against toxic agents, 8054*g*.
**Adrenal glands**. (See also *Addison's disease; Pheochromocytoma*.)

adenylpyrophosphatase of, effect of histamine on, 2250*e*.
adrenaline formation by, 8484*f*.
adrenaline in, effect of cold on, 8485*f*.
adrenaline in, in traumatic shock, 4364*e*.
adrenaline in rat, 1098*a*.
adrenaline secretion from—see *Adrenaline*.
in alloxan diabetes, 1854*a*.
amino acids in swine, 7061*h*.
antithyroid drug effect on, 3936*e*.
*l*-arterenol in, 5541*i*.
atrophy of, in relation to dosage of steroid hormones, 7591*f*.
autotransplants with hepatic portal drainage, 8485*h*.
in body temp. regulation, 8507*g*.
books: 5105*d*; Diseases of the, 756*a*; Nebenniere, B-Vitaminkomplex und Zuckerstoffwechsel, 9125*h*.
caffeine-induced glycemia and, 8542*h*.
carotid-sinus discharge and, 5470*c*.
cholesterol and total lipides in, 740*c*.
cholesterol and vitamin C in, after injury, 7138*a*.
cholesterol and vitamin C in, effect of rutin on, 5834*b*.
cholesterol in, after partial hepatectomy and partial nephrectomy after injection of tris(β-chloroethyl)amine, 7580*f*.
cholesterol in, and its relation to adrenal function and structure, 7118*h*.
cholesterol in, of normal and castrated rats, and effect of testosterone propionate thereon, 1098*d*.
compn. of, effect of low barometric pressure on, 8032*i*.
cortex of, in adipose tissue regulation, 2690*f*.
adrenaline in, 3505*f*.
in alloxan diabetes, 8043*h*.
in carcinogenesis, 8042*h*.
cholesterol synthesis from acetate by, 2245*c*.
constituents of, and related substances, 1788*a*.
Cu in, of pregnant animal and fetus, 9208*d*
effect of adrenocorticotropic hormone on, 8487*c*.
effect of blood glucose on secretion of, 7117*g*.
effect of caloric restriction on, 2298*e*.
effect of N mustard on, 5115*h*.
effect of stilbene compds. on, 742*f*.
effect of thiouracil on, 8544*a*.
after gonadectomy, 8491*b*.
hypertrophy after furacin treatment, 2322*c*.
in hypo- and hyperthyroidism, 8043*a*.
of hypophysectomized-castrated male, effect of testosterone on, 8492*e*.
in insulin coma, 8550*f*.
keto steroid detection in, 4314*d*.
metabolic effects of adrenocorticotropic hormone and, 8486*i*.
in N mobilization from tissue in fasting, 8031*g*.
phosphatases in, effect of androgen on, 7060*c*.
phosphorylation and, 1851*a*.
as regulator of cholesterol and phospholipides in blood, 299*d*.
relation with anterior pituitary, effect of inanition on, 8485*g*.
cortical insufficiency from goitrogens fed to dogs, 5808*f*.
corticoids in sweat, 2299*h*.
corticosteroids of, 5489*i*.
effect on arginase and phosphatase of liver and kidney, 2253*i*.
effect on sensitivity of x-irradiation, 8409*c*.
in cyanide anoxia, 3931*c*.
destruction in malignant melanoma, melanosis and, 3095*g*.
diethylstilbestrol effect on, 4355*i*.
diseases of, urinary steroids in, and metabolism of adrenal hormones, 6716*h*.
effect of KCl and NaCl on, 2330*gh*.
effect of *Serratia marcescens* polysaccharide on, of tumor-bearing mice, and effect of adrenal-cortical ext. thereon, 5110*a*.
effect of stilbesterol and pituitary prepn. on, 7582*g*.
effect on brain carbohydrate metabolism, 7566*f*.
on excretion of androgens and ketosteroids, 8033*g*.
on glucose metabolism in diaphragm, 8029*c*.
on lymphopenia from urethan, 7580*e*.
eicosapentenoic acid in lipoids of, 2260*e*.
electrolyte-imbalance effect on, 7102*h*.
enlargement from anterior pituitary prepns., effect of amino acids on, 2685*f*.
estrogen effect on, after ovariectomy during calorie restriction, 7573*g*.
fatigue and, 7102*f*.
flavinadenine dinucleotide in, 9104*b*.
functional exam. of, 1856*b*.
growth efficiency in relation to size of, 9182*f*.
histamine liberation from, effect of antihistaminic compds. on, 6738*g*.
hormones of—see also *Adrenal extracts; Adrenaline; Corticosterone*.
hormones of cortex of, 5838*g*.
arterenol and chem. transmitter of the sympathicus in relation to, 9204*g*.
consumption in tissue, effect of adrenaline on, 2321*f*.
cortin, in *Amanita phalloides* poisoning, 7131*d*.
Cushing's syndrome from, 302*b*.
detn. of, 6695*a*.
effect on antibody formation, 8043*e*.
effect on blood pyrurric acid, 8501*a*.
effect on carbohydrate metabolism as influenced by 2,4-dinitrophenol and pervitin, 6308*d*.
effect on carbohydrate metabolism in scurvy, 1471*b*.
effect on carbohydrates in uterus, 7113*a*
effect on fatigability and muscle metabolism of heart, 1851*f*.
effect on glucose metabolism in diaphragm, 6714*e*.
effect on mammary gland, 9206*a*.
effect on metabolism of glutamic acid in gluconeogenesis, 9212*e*.
effect on sexual characteristics, 2302*c*.
in hypertension, 8480*g*.
insufficiency in Addison's disease, 1480*c*.
intestinal absorption and, 8496*e*.
plasma proteins and, 3909*g*.
in protection against cold in young, normal and adrenalectomized rats, 6721*b*.
in radiation sickness therapy, 1484*c*.
requirement of dogs and cats for, 7566*e*.
splenic lymphocyte discharge induced by, 8036*b*.
synthesis of compds. related to, 4679*d*, 7032*d*.
in urine after corticotropin, 7567*g*.
in urine, effect of convulsive therapy on, 9235*i*.
hormones of, effect on $C_6H_6$ poisoning, 765*a*.
effect on tissue and enzyme systems, 5047*d*.
effect on transmission of activity of sympathetic nerves, 747*d*.
hormone stimulating—see "hormones of anterior lobe of" under *Pituitary gland*.
hypertrophy from KCl, arterial pressure in, 5872*e*.
in inanition, 288*i*.
insufficiency, adrenocorticotropin in testing for, 8517*h*.
circulatory failure in, 5855*f*.
effect of adrenal cortex ext. on work performance after, 6319*g*.
insulin effect on, 2328*a*.
in iodine uptake by thyroid after adrenaline administration, 7566*g*.
lipides in, in cancer, 9230*b*.
liver regeneration and, 7566*d*.
methylthiouracil effect on, 5869*f*.
neoplasms of cortex of, androgen secretion by, 1478*i*.
formation of, effect of steroids on, 7124*e*.
17-keto steroid excretion in, 2307*f*.
β-17-keto steroids in urine in pseudohermaphroditism from, 2696*d*.
metabolism of dehydroisoandrosterone during, 6727*d*.
sex-hormone secretion by, 5855*h*.
neoplasms of, noradrenaline in, 4760*f*.
noradrenaline in medulla of, 7103*e*.
noradrenaline isolation from, 7537*d*.
noradrenaline liberation from, by splanchnic stimulation, 6729*d*.
in nymphomania of cows, 6303*c*.
after ovariectomy, effect of caloric restriction on, 7125*c*.
phosphatides from, polybromide yields and Me arachidonate estn. in Me esters of, 2791*i*.
-pituitary function in normal and psychotic men, 5852*h*.
-pituitary imbalance, hypertension from, 6728*c*.
-pituitary system, 5839*g*.
potassium salt effect on alkali in blood plasma of negroes in relation to, 2687*e*
production of fat and glyconeogenetic factors by, after adrenal enucleation, 8031*d*.
in pyridoxine deficiency, 4362*f*.
receptors of, 298*f*.
as regulatory factor, 4710*g*.
rhodanese in, 4709*b*.
steroid hormone effect on, 8508*g*.
tetraethylammonium bromide effect on, 6734*b*.
vitamin A in, in diseases, 7570*h*.
vitamin C content and size of, effect of vitamin C and gluconic acid on, 9182*i*.
vitamin C content and wt. of, after burns, effect of hepatectomy on, 9224*h*.
vitamin C effect on wt. of, during exposure to cold, 8025*b*.
vitamin C in, in diphtheria toxin intoxication, 1104*b*.
during estrus cycle, 4355*h*.
neutrophilic leucocytes and, 8488*h*.
in *Trypanosoma hippicum* infection, 1478*d*.
X zone of mouse, pituitary gland in relation to, 740*f*.

**Adrenaline** (*adnephrine, adrenine, adrine 3,4 - dihydroxy - α - (methylamino methyl)benzyl alcohol, epinephrine, levorénine, supracapsulin, suprarenaline suprarenine.*)
in adrenal cortex of cat, 3505*f*
in adrenal medullary tumors, 4760*f*.
in adrenals, effect of cold on, 8485*f*.
in adrenals in traumatic shock, 4364*e*.
in adrenals of rat, 1098*a*.
adrenalytics, pharmacology of, 8558*a*.
in adrenergic fibers, synaptic fatigue and 9260*h*.
aerosol contg., effect of polyvinylpyrroli done on pulmonary dilator action of, 4374*d*.
effect on lung circulation, 5104*i*
effect on pulmonary vol., 4374*c* 7128*g*.
alkalosis from, 1092*g*.
amino oxidase action on, alteration of 701*h*.
analgesia and anesthesia from, 6744*b*
antagonism of *N*-(2-haloalkyl)-1-naph thylmethylamine derivs. to, 2319*i*
antagonism of, to 2-(2-biphenylyloxy) 2′ chlorodiethylamine derivs., 6309*a*
to ergotamine, 3520*f*.
to thyroxine in masculinization of capon crest, 6717*b*.
antianaphylactic action of amino acids and, 308*g*, 309*a*.
antispasmodic agents and, 4770*h*.
arrhythmia from cyclopropane and, effect of dibenamine on, 2700*d*.
arrhythmias from, enhancement by tetraethylammonium chloride, 321*i*.
arterenol detn. in, 7191*a*.
arterenol sepn. from, 7194*f*.
ascorbate, spectrographic study of oxidation products of, 2972*c*.
blood-pressure rise and tachycardia from, 4374*b*.
in blood, surgical aspects of, 6300*d*.
blood vessel sensitivity to, $CO_2$ and, 9102*h*.
in body temp. regulation, 8507*g*.
breakdown products of, and methods for their investigation, 3107*a*.
bronchiole response to, in lung distention, 759*c*.
broncho- and vaso-motor action of, in lungs, 4375*e*.
cardioaccelerator action of, effect of veratramine on, 5866*i*.
cholinesterase inhibition by, 257*b*.
compds. related to, 4240*b*.
conjugation and deamination of, 2702*d*.
cornea and, 771*d*.
cornea tolerance to, 3110*i*.
derivs., 3800*b*.
and derivs., 2601*ei*, 2602*i*.
desoxycorticosterone acetate effect on action of, 8496*i*.
detection of, 521*h*, 7069*e*.
detn. of, 2264*s*, 5538*d*, 9131*e*, 9135*h*, 9372*c*.
in blood plasma, 4317*g*.
in nerve and tissue exts., 3484*d*.
in pharmaceuticals, 2369*a*.
detn. of, and its occurrence and metabolism in animal organism, 6689*a*.

dihydroergocornine effect on action of, 5501*e*.
β-(3,4-dihydroxyphenyl)serine as precursor of, 2691*f*.
diuresis by, effect of ergotoxine and yohimbine on, 8542*f*.
effect of dibenamine and ergotamine on, 8553*g*.
effect on acetone bodies and sugar in blood in liver disease and in normal subjects, 4761*b*.
on actin, 704*e*.
on adhesion of epithelium to stroma in cornea, 769*c*.
on adrenotropic receptors, 298*g*.
on agglutinins, 5857*c*.
on alc. and glucose in blood, 2691*c*.
on arginase and phosphatase of liver and kidney, 2253*i*.
on auricle, 4385*e*.
on benzene poisoning, 765*b*.
on blood circulation and carbohydrate metabolism, 6728*f*.
on blood flow, O utilization and glucose retention by tissue as compared with intravenous glucose, 7145*d*.
on blood histamine and leucocytosis, 8545*a*.
on blood pressure, 4762*i*, 5864*g*, 9249*c*.
on blood pressure after F933 administration, effect of work on, 5494*c*.
on blood pressure and respiration after intracisternal injection, 7130*c*.
on blood pressure, blood sugar, intestines and spleen vol. compared with arterenol and epinine, 8542*c*.
on blood pressure, effect of ergotamine and papaverine on, 7576*f*.
on blood pressure, piperidinomethyl benzodioxan effect on dibenamine action on, 5497*g*.
on blood pressure, pulse rate and blood flow through muscles, 8544*h*.
on blood sugar after splanchnicectomy and adrenalectomy, 1853*f*.
on blood sugar, and effect of nicotinamide thereon, 7366*b*.
on blood vessels, 5493*c*.
on body temp. and respiratory metabolism, skin in, 5480*i*.
on Ca and K in glaucoma, 6310*i*.
on carbohydrate metabolism, after administration by different means, 6743*f*.
on cardiac rhythm in dogs anesthetized with cyclopropane, 760*d*.
on coagulation time of blood plasma, 7136*i*.
on convulsant threshold with and without diphenylhydantoin, 4765*g*.
on convulsions from strychnine, 315*h*.
on coronary blood flow, 8539*a*.
on diuresis, 6308*c*.
on egg-white edema, 6309*e*.
on eosinophiles, 2327*f*, 7105*c*.
on fibrinolysis, 8541*a*.
on fibroblastic cells, 1073*b*.
on glucose tolerance after evisceration, 6319*e*.
on glucose utilization, 7986*b*.
on glycogen formation in diaphragm, 5470*b*.
on glycogenolytic function of liver, 8063*a*.
on growth of mammals, 8467*f*.
on heart, 1851*g*, 3525*e*, 6744*h*, 9250*e*.
on heart and blood vessels in hypotension, 7148*a*.
on heart arrested by paludrine, 2704*c*.
on heart depressed by acetylcholine and KCl, 8056*f*.
on heart, effect of ephedrine, isoamyl nitrite, $NaNO_2$ and nitroglycerin on, 758*i*.
on heart, effect of hydrastinine on, 3102*f*.
on hypotension from pentamethonium iodide, 8541*c*.
on intestine, 1486*c*, 7106*i*, 7564*i*.
on intestine, effect of thyroxine on, 2318*ab*, 5115*g*, 5494*e*.
on iodine uptake by thyroid, adrenals in, 7566*g*.
on ion transport through frog skin, 4715*b*.
on lactic acid and sugar in blood after liver passage, 4360*a*.
on male frogs and toads, 8566*a*.
on mimosa leaves, 3475*i*.
on mononuclear leucotyte no., 4746*h*.
on narcosis by chloral hydrate and medinal and on latent reflex time and body temp., 7141*bd*.
*effect* on nerve chronaxia, effect of vitamins on, 6293*b*.
on nervous system of segmented worms, 316*f*.
on O consumption, 4775*f*.
on pancreatic secretion, 9209*e*.
on penicillin activity, 4772*d*.
on phosphates in blood, 1849*h*.
on K and Cl in blood in benzene poisoning, 2316*e*.
on K in blood in $C_6H_6$ poisoning, 4377*d*.
on pulmonary circulation, 9248*a*.
on quinine toxicity in depressed circulatory states and hyperthermia, 4768*i*.
on red-cell vol., 5122*a*.
on respiratory quotient, 8482*h*.
on retinal arterial pressure, 6735*a*.
on smooth muscle of elasmobranch and teleost, 4763*d*.
on spreading action of hyaluronidase, 6742*i*.
on stomach muscle, 4771*b*.
on sweating, 2323*d*.
on unimol. films of lecithin, 7526*e*.
on uterus conditioning agent in, 261*h*.
on work output of heart, 8421*e*.
electrocardiographic changes produced by, 1489*c*.
-ephedrine group, 5542*c*.
equilibrium with effector cells, 3101*f*, 5492*e*.
ergotamine effect on action of, in dogs and cats, 3928*d*.
extn. of, 2373*i*.
ferrous ion antagonism to, 3931*f*.
fluorescent oxidation product of, isolation of, 5816*b*.
formation by adrenal tissue, 8484*f*.
hemin compds. with, in liq. $NH_3$, 702*g*.
histamine-antagonizing and antispasmodic action in intestines, 3934*e*.
-histamine counter-regulation, 758*h*.
-hydrocarbon induced ventricular fibrillation, 313*a*.
hyperglycemia from, as liver function index, 6727*b*.
hyperglycemic action of, 8057*b*.
hypertension from, effect of methiodides of homologs of phenylethylmorpholine and phenylethyldiethylamine on, 4376*e*.
hypertension from, effect of substances which increase capillary resistance on, 4376*b*.
-inactivating mechanism, effect of drugs on, 4379*h*.
interaction with other autonomic drugs on intestines, 3097*i*.
intermediates for prepn. of, P 3460*f*.
intracranial hypertension from, 765*e*.
isomers, toxicity of, 5866*b*.
lymphocytes sensitivity to, 2321*e*.
lymphocytic and biochem. responses to, in schizophrenia and affective disorders, 3924*d*.
mechanism of action of, dopa reaction and, 5469*h*.
metabolism of, 2686*d*, 5866*f*.
methyl polygalacturonate effect on, 4378*c*.
as mitosis inhibitor, 8416*a*.
muscles and, 3111*e*.
muscle sensitivity to, after removal of tendon, 766*c*.
myocardium sensitivity to, effect of cyclic and noncyclic hydrocarbons on, 1111*e*.
oxidation of, bacterial filtrates and, 7086*i*.
oxidation of, catalysis of, 9104*g*.
oxidation products of, effect on blood coagulation and participation of mercapto groups therein, 5435*i*.
effect on muscle, 5840*e*.
physiol. properties of, 3111*d*, 4750*a*.
oxidation (reciprocal) of vitamin C and, 3053*e*.
oxygen effect on, 9098*b*.
paroxysmal ventricular tachycardia from, 321*e*.
penetration into eyes, effect of wetting agents on, 3563*g*.
penicillin prepn. contg., 4809*h*, P 9390*c*.
pharmacol. activity of, and related drugs, 8546*g*.
pharmacology of, 1489*c*.
pharmacology of *dl*- and *l*-, 317*b*.
physiology of, 4747*e*.
potentiation of effects of, by flavonoid compds., 3104*e*, 5116*f*.
prepn., purification and evaluation of, in organ exts., 4312*h*.
pressor action of noradrenaline and, 1869*b*.
pressor activity of, 8540*e*.
pressor response to, effect of halogenated ethylamines on, 2320*c*.
-procaine ampuls, prepn. and preservation of, 6361*i*.
protection by flavonoids, 5542*a*.
pulmonary edema from, 9250*b*.
effect of Antadryl on, 6729*c*.
effect of drugs on, 7582*h*.
effect of histamine on, 4380*e*.
effect of vitamin C on, 1107*h*.
pupillary response to, effect of low temp. on, 5053*b*.
reaction with $SeO_2$, 7539*a*.
reducing powers of, compared with vitamin C, 2655*b*, 7841*a*.
release from chromaffin tissue, effect of drugs on, 7128*e*.
salts derived from boric acid complexes of carbohydrates or of sugar alcs., P 1800*g*.
salts with polyhydro derivs. of cyclopenta[*a*]phenanthrenemalonic acid, P 6674*g*.
secretion of, by bile salts, 6738*i*.
effect of antihistaminic compds. on, 6738*g*.
effect of procaine on, 4380*b*.
lymphopenia and, 7104*g*.
in O deficiency histamine and, 4756*d*.
potassium stimulation of, substances effecting 2319*b*.
in semen, 1098*e*.
sparteine effect on action of, 8542*d*.
sparteine synergism with, 3518*b*.
stability of, detn. of, 8610*f*.
stability of solns. of, 1150*g*.
stabilization by BAL, 3143*i*.
stabilizer for, 2,3-dimercapto-1-propanol as, 3563*b*.
sympathins and, 302*e*.
synthesis from hydroxytyramine and arterenol, 9204*h*.
tachycardia from, effect of dibenzylmethylamine on, 7128*c*.
tannin effect on action of, 2327*a*.
thephorin effect on action of, 4764*a*.
α-thiosulfate and its diacetate, effect on circulation, 7137*d*.
toxicity of, 4372*a*.
effect of drugs on, 310*i*.
to guinea pigs, effect of RP 3277 on, 1108*c*.
trace-element effect on, 742*c*.
uterus sensitivity to, effect of estradiol and progesterone on, 1848*f*.
vasoconstrictor action of, 1107*b*.
effect of acetylcholine antagonists on, and effect of priscol thereon, 2704*g*.
effect of citral and β-ionone on, 1488*h*.
potentiation by amidine deriva., 1868*d*.
vasoconstrictor and vasodilator action of, 8538*f*.
ventricular fibrillation from chloroform and, protective action of various agents against, 4768*c*.

**Adrenaline**, *N*-acetyl-*, 2601*h*.
——, **dehydro-***, in animal tissues, 743*h*.
——, ***N*-isopropyl-***, vascular action of, effect of ergotamine on, 3928*f*, 7576*f*.
**Adrenalinelike substances.** See *Sympathomimetic substances*.
**Adrenaline quinone***, 3111*e*.
**Adrenalone** (*3,4-dihydroxy-α-methylaminoacetophenone*), and derivs., 2601*i*, 2602*i*, 2603*a*.
effect on coagulation time of blood plasma, 7136*i*.
effect on heart, 9250*e*.
pharmacology of, 317*b*, 1489*c*.
presence in oxidation products of adrenaline ascorbate, 2972*d*.
——, ***N*-benzyl-**, and compd. with EtOH, 7456*d*.
**Adrenine.** See *Adrenaline*.
**Adrenochrome.** (See also *Leucoadrenochrome.*), 3404*e*.
alkalosis from, 1092*g*.
chronaximetric antagonism with vitamins, 284*d*.
effect of fibroblastic cells, 1073*a*.
on glycogen formation in diaphragm, 5470*b*.
on glycosuria, 3517*i*.
on intestine pretreated with thyroxine, 5494*f*.
on metabolism, 3914*g*.
on nerve chronaxia, effect of vitamins on, 6293*b*.
on spreading action of hyaluronidase and capillary permeability, 6742*i*.
on tone of thyroxine-treated intestine, 7578*g*.
on visceral muscles, 5864*d*.

fluorescent compd. from, 9135*h*.
formation from adrenaline by O action, 9098*b*.
as hydrogen carrier in oxidation of adrenaline and ascorbic acid, 9104*g*.
and leuco deriv., spectra of, 2972*d*.
monosemicarbazone, destruction by intestinal bacteria, 5822*f*.
effect on blood coagulation and vasomotor response, 5117*h*.
effect on x-ray action, 7129*g*.
and oxime and semicarbazone, effect on muscles, 3111*f*.
semicarbazone, metabolism and toxicity of, in *Bufo regularis*, 5508*d*.
semicarbazone, metabolism of, 5116*e*.
and semicarbazone, metabolism of, 8062*f*.

**Adrenocorticotropin.** See "hormones of anterior lobe of, adrenotropic" under *Pituitary gland*.

**Adrenolytic substances,** action of, 8527*b*.

**Adrenotropic hormones.** See "hormones of anterior lobe of, adrenotropic" under *Pituitary gland*.

**Adrenoxine,** review on, 5906*e*.

**Adrenoxyl.** See "monosemicarbazone" under *Adrenochrome*.

**Adrianol.** See *m-Synephrine*.

**Adrine.** See *Adrenaline*.

**Adsorbed substances.** (See also *Films*.)
acids, titration of, 6883*b*.
in agar-agar gels during syneresis, 8793*e*.
anthraquinone derivs., life of excited state of, 6085*d*.
anthraquinone derivs., luminescence of, 6085*h*.
clay and water, acceleration of Ni oxide catalyst in hydrogenation of oils by, 5610*g*.
in cracking catalysts, mol. thickness of film, and inner capillary vol. of, 3180*h*.
desorption of—see *Desorption*.
dielec. properties of, 2831*g*.
diffusion of cationic in suspengel, 7777*h*.
effect on adsorption capacity for other substances, 4075*g*.
on energy of solid-liquid adhesion, 8234*e*.
on reaction rate between solid oxides, 8930*g*.
exchangeability of cationic, 3687*c*.
flow of, 6883*d*.
gold as, color change of, 2485*g*.
interaction between mobile insol., capillary condensed liquid and fine-structured solids, 1238*g*.
magnetic susceptibility of, 6034*h*.
methylene blue, orientation of, 5665*i*.
in nonaq. systems, 1238*i*.
oxygen on C, formation of $H_2O_2$ and $H_2O$ from, 4075*i*.
passivation and, 28*b*.
phase changes in, 8789*e*.
phosphine as, oxidation of, 6898*a*.
in plant nutrition, 279*a*.
on porous adsorbents, detn. of surface area of, 460*h*.
properties of, 5316*c*, 8797*e*.
redistribution of, by diffusion, 7288*f*.
removal of—see *Desorption*.
salts, effect on elec. cond. of polymer-adsorbate systems, 3689*a*.
in soils, 5891*e*.
spectra of, 7343*h*.
thermodynamic properties of adsorption complexes in heterogeneous catalysis, 1634*i*.
thermodynamics of, 8791*e*.
thioarsenious acids, as in stabilization of $As_2S_3$ sols, 5321*d*.
vol. of, calcn. of, 4075*f*.

**Adsorbents.** (See also *Bleaching agents; Decolorizing agents; Filtering materials; Sorbents;* and specific adsorbents, as *Bauxite*.)
for acid, from vinyl ketone polymers with 2-vinylpyridine, P 5231*a*.
alumina—see *Alumina*.
for aromatic light stabilizer extn. from petroleum distillates, P 393*i*.
carbon—see *Carbon*.
for catalysts from alkylation mixts., P 8666*a*.
as catalysts of oxidation in bleaching of vegetable oils, 5208*a*.
charcoal—see *Charcoal*.
for chromatography of propellant explosives, 8138*i*.
clay—see *Clays*.
cleaning material, P 9298*g*.
cooling beds of, 1253*g*.
cryst., adsorption of vapors by, 461*f*.
films on porous, detn. of surface area of, 460*h*.
for fluorides, P 1159*g*.
fuller's earth as, P 7609*a*, 7651*e*.
gels, P 9299*d*.
heat-treatment of solid inorg., P 7608*h*.
hydrogen-ion concn. of, measurement of, 4076*d*.
interaction with capillary condensed liquid and films, 1238*g*.
ion-exchange, in analysis, 2113*g*.
for petroleum, analyses and x-ray examn. of, 840*i*.
in petrolum refining, polymer recovery from, for ink manuf., P 1995*c*.
in phosphatide color and odor improvement, P 3948*c*.
regeneration of, P 8665*h*.
removal of chlorides and oxychlorides from, P 5887*f*.
silica—see *Silica*.
specific, 6489*c*.
spherical particles of, P 1506*a*, P 8578*d*.
spheroidal gel particles, P 5134*b*.
structural types of, and their effect on adsorptive properties, 6033*i*.
structure of, calcn. from sorption isotherms, 461*i*.
sugar-manufacture— see *Sugar manufacture*.
surface area of, measurement of, 6036*c*.

**Adsorption.** (See also *Absorption; Chemisorption; Desorption; Heat of adsorption. Hypersorption; Occlusion; Sorption*).
of acetic acid and $BuNH_2$ from aq. solns. by activated charcoal, 2485*d*.
of acetic acid by charcoal, 3686*i*.
of acetone, BuOH, 2,3-butylene glycol and ethylene chlorohydrin, 5*i*, 6*ab*.
of acetone by nitrocellulose, 8244*c*.
of acidic org. constituents from liquid hydrocarbon phase of gas condensate wells by silica gel, 1951*i*.
of acids and bases, pH and, 6035*c*.
of acids by filter paper in titrations, 519*f*.
adsorbent basic structural type and, 6033*i*.
adsorbent structure and, 461*i*.
of air by minerals, 3325*f*.
of air by rock beds, 5234*d*.
of albumin and its cleavage products, 2650*h*.
of alcs. on $Ph_2NH$, 464*d*.
of aldehydes and of $H_2SO_3$ by lignin, 5254*h*.
of alkaloids, 6887*f*.
of alumina, 2542*a*.
by aluminosilicates, 6035*e*.
of amines by activated C, 6037*d*.
of amines by negatively charged monolayers, 8796*i*.
of amine vapors by $SiO_2$ gel, 4922*h*.
of amino acids and peptides, 7066*b*.
of amino acids by $BaSO_4$, 3687*a*.
of amino acids from protein hydrolyzates, in their sepn. and detn., 1817*i*.
of ammonia, $CO_2$, $N_2O$ and $SO_2$ by $BaF_2$, 2485*b*.
of ammonia, dye, and water vapor by clays, 2070*b*.
of ammonia, EtCl and $H_2O$ by graphite, 1638*h*.
of amphoteric substances, pH and, 6035*d*.
of α-amylase of malt by starches and their derivs., 9504*f*.
of aniline, chrysophenine and Congo red by starch, 8715*g*.
by anion-exchange resin, 2067*b*.
of antibiotic substances, action and, 1458*h*.
from aq. solns., 8791*i*.
of argon, N and O by hydrated portland cement, 4826*e*.
aromatic hydrocarbon recovery by, by activated charcoal, P 386*d*.
of aromatic hydrocarbons on silica gel, P 679*a*, P 4002*h*.
of arsenious acid by $Al_2O_3$, 8593*a*.
of asphalt at interfaces of fuel oil-sea water emulsions, 2419*h*.
of barium and Cs by W, electron emission and, 6492*g*.
of barium ions by hydrous $Fe_2O_3$, rate of, 6035*i*.
by bauxite contg. Fe, 6497*f*.
of benzene, N, toluene, EtI, $H_2S$, $H_2O$ vapor, $CS_2$ and pentane by solids, 7288*d*.
in bleaching of vegetable oils, 3635*c*.
bleaching of vegetable oils by, oxidation effects in, 5207*i*.
of butane and N by Fischer catalysts, reduction and, 27*b*.
of butane and N by montmorillonite, effect of acid on, 464*c*.
of butyl alcohol by Hg, 8911*h*.
of butyl alc., PhOH and $BuCO_2H$ by powders of $Al_2O_3$, Fe and $Fe_2O_3$, 28*b*.
of calcium, Fe, Mg, K and Na by rubber-latex particles, 7249*d*.
of calcium naphthenate by C black from toluene solns., and its effect on C black dispersion and rate of settling, 5933*d*.
of calcium salts by bone char, 6445*g*.
calcn. of, of vapors by active carbons, 16 .
by carbon blacks, viscosity of rubber and, 7251*d*.
of carbon dioxide by Mn oxides, 1623*gi*
of carbon disulfide from rayon-making waste gases, P 5603*b*.
of carbon monoxide and H by Co, 3686*e*.
of carbon monoxide and O by films of Cr and Cu oxide, 6532*f*.
of carbon monoxide by Co and Fe catalysts in gasoline synthesis, 2413*de*.
catalysis in region of unimol., ionic mechanism in heterogeneous, 7801*e*.
by catalysts, 2498*c*.
in catalytic reactions, 2852*b*.
by cation exchanger, detn. of capacity of, 7729*i*.
of cations, by brown algae, 3068*c*
effect on elec. properties of unimol film of palmitic acid, 6038*f*.
by quartz, 6953*h*.
on rubber latex, equilibria in, 7246*g*.
of centralite and 4-nitrotriphenylamine by silicic acid-Celite mixts., H bond formation with OH groups of SiO skeleton in, 8946*b*.
by charcoal, 3686*g*, 3974*e*.
effect of O on, 2840*e*.
as measure of solvent power for bitumens and pitch, 4841*e*.
in presence of gastrointestinal contents, 4767*c*.
structure and, 7289*d*.
charcoal swelling by, 6882*a*.
of chlorine and O by Hg electrode, 2523*a*
of chloropicrin by soil, 3960*f*.
chromatographic—see *Chromatography*.
of cobalt and Ni by $MnO_2$ and Mn ore, 7774*i*.
coeffs. in dehydrogenation of cyclopar affins, 1731*e*.
of color of molasses and Ponceau 4 R by $CaCO_3$, 8791*h*.
contact angles and, 1239*e*.
of copper and Ni by $Fe(OH)_3$, 2544*b*.
corrosion and, 6139*f*.
corrosion-inhibitor action and, 6559*i*.
in corrosion-inhibitor action in relation to acid attack on steel, 2917*h*.
of corrosion inhibitors, 952*b*.
by Fe and steel, 6559*g*.
by metals, 1953*f*.
of cyclohexane and other org. compds by Ni catalysts, 2499*e*.
of DDT and its analogs by chitin, 2251*g*
of detergents at oil-$H_2O$ interface or HCl by charcoal, 8796*h*.
of deuterium on Ce and La, 4122*d*.
of dextran fractions, 6886*e*.
by dielectrics, elec. field about adsorbate and, 3267*g*.
diffusion with, 3253*h*, 4082*e*.
dissociative, 7802*g*.
distribution of activation energies of activated, 3264*a*.
drying and, 8753*c*.
of Durazol Blue 3R-200 dye by rayon, 2777*b*.
of dye anions by Ag halides, 4536*h*.
of dye ions by $PbSO_4$ and AgBr, effect of excess ions on, 8790*g*.
of dyes (acid and chrome) by wool, 4015*e*.
of dyes, by $Al_2O_3$, ion exchange and, 6035*b*.
from dye bath, 2839*h*.
by leaves, 1464*h*.
by semipermeable membranes, 2486*g*
of dyes (direct) by cellulose, 8234*a*.
effect on strength of metal single crystals, 7768*b*.
elec. potential from, 4586*i*.
electrolytic polarization and, 503*g*.
in electroplating, 7351*i*.
of element 43 on $ReS_7$ and CuS, 2507*d*.
of enzymes by yeast, 8003*d*.
of enzymes of bacteria by whiting, 5448*i*.
of enzymes, proteins, etc., salting-out in, 1624*e*.
of eosin and erythrosin by AgBr, 4536*i*.
equation for, 4075*f*.

of ethyl alc. mixts. with water by $Al_2O_3$, Cu and $ThO_2$ catalysts, 2498*d*.
of Fast Red and methylene blue by burnt pholerite prepns., 6035*h*.
of fats by proteins in blood serum in relation to interfacial tensions, 1823*f*.
of fatty acids by C blacks, effect on C dispersion in rubber, 1599*g*.
of fatty acids by C, effect of ultrasonic waves on, 7774*f*.
of films, 921*g*.
of flavianic acid by α-Zn(OH)$_2$, complex formation in, 3308*e*
in flow systems, elution equations for, 464*i*.
from fluids in beds, 1624*d*.
free-vol model for liquids and, 8777*g*.
frontal, 5325*c*.
of gases, demonstration expt. on, 3686*d*, 8232*h*.
effect of floatability of minerals, 3325*c*.
by fluidized materials, P 8218*h*.
pressure and surface tension in relation to, 3263*d*.
by semiconducting films of Cu oxides, 474*h*.
by solids, 1237*c*, 3263*f*.
of gas mixts., 3263*h*.
Gibbs law of, verification of, 4921*i*.
of gold and Ag from cyanides by charcoal, P 5357*c*.
of gold by activated C in cyanide process, P 6562*c*.
of gold sol by kaolinite and mica, 6489*e*.
of granular material to vascular epithelium, histamine and, 5854*b*.
grinding rate and, 5562*f*
of gutta-percha and rubber from plant material, P 6456*f*.
of helium, 3254*e*
anomalous, 8778*d*.
by C black, 6037*a*.
by jeweler's rouge, 8777*i*.
of hydrocarbon gases by C black and $SiO_2$ gel, 8254*h*.
of hydrocarbon gases by charcoal, 6488*e*.
of hydrocarbons by Fischer-Tropsch catalysts, 3273*h*.
hydrocarbon sepn. by, P 2763*e*, P 6011*f*.
of hydrochloric acid and water vapor by mica, 462*g*
of hydrogen by Fe, 7304*i*.
by Fe catalysts in gasoline synthesis, 2412*i*, 2413*ab*.
by metals, 6553*f*.
by Ni catalysts, effect of sintering on, 2079*f*.
by powd. W, 3263*g*.
hydrolytic, 6882*g*.
hysteresis of contact angles and, 1240*a*.
of impurities from volatile chlorides, P 6374*f*.
indicators—see *Indicators*.
of influenza virus on Ca phosphate, 3925*d*.
at interface of liquids and from solns. of surface-active substances, 8250*g*.
interfacial mol., 921*e*.
interlamellar, 5254*i*.
of invertase by tissues of withering plants, 728*d*
of iodine by cellulose and viscose rayon, 9438*g*
of ions, active centers and, 6028*cd*.
isotherms, extrapolation to high pressures, 6033*g*.
isotherms of hair in water vapor, 4305*d*.
kinetics of, at liquid-liquid interfaces, 8819*e*.
kinetics of, with surface penetration, 6489*a*.
by large mol., nonequil. states from, 8801*f*.
lecture demonstration on, 8762*c*.
lectures on, 7774*ab*.
by liquids, 3264*g*.
of long-chain polar compds. from soln. on metals, 8789*h*.
of lubricant film, effect of mol. structure of oil and properties of metal surface on, 1953*a*.
of mapharsen by red blood cells, 1862*i*.
measurement of, contact potential in, 8790*e*.
of metal colloids on bacteria, 274*g*, 4726*d*.
of metal ions by metals, 5254*f*.
in metallurgy, 2553*g*.
by metals, effect on cutting, 7889*f*.
by metals in detn. of surface area, 8325*d*.
of methane by Fischer catalysts, kinetics of, 6064*b*.
of methane by Ni Fischer catalysts, effect of C and H on, 6064*a*.
of methanol by coal, 8886*a*.
of methanol by $SiO_2$ gel, 824*i*.
of methanol vapor by $SiO_2$ gel, effect of heating on, 1628*e*.
of methyl linoleate and Me linolenate from Me esters of oils by silicic acid, 6830*i*.
of methyl orange and related compds. by $SiO_2$ gel, 6489*d*.
of molybdic or perrhenic acid by norite, 8794*b*.
by montmorillonite, surface adsorption and, 7774*c*.
in multicomponent systems, 6884*f*.
multilayer, equations of Brunauer, Emmett and Teller and of Langmuir for, 2485*b*.
multimol., from binary liquid solns., 4536*h*, 7288*i*.
of naphthalene by butadiene rubber in $C_6H_6$-$C_{10}H_8$ mixts., 8187*e*.
of naphthenes on silica gel, P 679*a*.
neg., calcn. of surface area of clays from, 6799*b*.
neg., measurement of internal surface by, 1240*i*.
by nerve cells in traumatic shock, 8523*i*.
of nitrogen and stearic acid by supported catalysts and their components, 6807*g*.
of nitrogen by attapulgite at low temps., 2840*b*.
of nitrogen by promoted Fe catalyst and $H_2O$ vapor by CuO, 6036*f*.
of nitrogen dioxide-$N_2O_4$ mixt. by rutile and $SiO_2$ gel, 6034*h*.
of nitrogen in calcg. pore size-surface area distribution of cracking catalysts, 3180*g*.
by nonuniform surfaces, 2840*a*.
at oil-air interface and formation of films stabilizing foams, 6814*f*.
of oils by freshly pptd. pigments and poly-acid toners of Rhodamine B, 4490*f*.
of oleic acid by alk. substrates, 8797*c*.
of oleic or stearic acid from petrolatum by steel, 8659*c*.
of org. liquids by bentonite, 6121*f*.
of org. liquids by halloysite and montmorillonite, 463*c*.
of org. substances by plants, plant respiration and, 1084*b*.
of org. substances by $H_2O$, 8797*e*.
of oxygen and anions, depolarization and, 6091*h*.
of oxygen, by Cu, Au and Ag, flotation properties and, 7875*f*.
by estuary muds, 916*c*.
heat of activation of, 5272*h*.
by Mn oxides, 1624*ab*.
by sugar charcoal, 4075*i*.
by sulfide minerals, hydrophobism and, 7875*f*.
of palmitic acid from toluene by FeO, $Fe_2O_3$ and $TiO_2$, 7289*h*.
of paraffin oil activated by oleic acid at interfaces, effect of temp. on, 10*h*.
of penicillin on charcoal, 6789*d*.
of phenol by lignin, P 849*g*.
of phosphates by $Al_2O_3$, 2067*c*.
of phosphates by clay constituents of soils, 9315*c*.
of phosphorus by chernozem, exchangeable cations in, 7621*c*.
phys., and theories of multilayer, 6034*ab*.
by pigments in reinforcement of GR-S rubber, 8188*h*.
of polarized $H_2O$ of aquo ions in inorg. chromatography, 8234*e*.
of polar mols., effect on deformation of Al machined in paraffin oil, 2001*i*.
of polonium by Hg, 7791*a*.
by polymers, 6491*e*.
by porous substances, 1240*d*.
in potassium binding in plant cells, 2282*f*.
of potassium chloride by rare earth hydroxide, 8244*g*.
of potassium ferrocyanide by $Cu_2Fe(CN)_6$, 8966*h*.
of potassium in beech-leaf cells, 1463*g*.
of precipitant and solvent by macromols. in binary mixts., 2066*f*.
in precipitation—see *Precipitation*.
of protein compns. by Fe, passivation by, 8246*c*.
purification in phosphorescent chemistry, 5688*g*.
of radium and Th isotopes by red clay and Mn nodules of deep ocean, 7386*h*.
review on, 1227*g*, 1623*d*.
of rubber mols. by C black in increasing recovery, 7738*i*.
of salts by Al(OH)$_3$, 2070*h*.
of salts by Hg, 4922*h*.
selective, and its use in sepn. of hydrocarbons, 2839*i*.
selective, of gases by activated charcoal, 8789*d*.
of sesquioxides by clay minerals, 7620*i*.
of silicic acid by roots, 9320*e*.
by silicic acid jelly formed in abs. $HNO_3$, 6496*a*.
of silver and sulfate ions by Fe(OH)$_3$, 6886*a*.
in silver recovery, 3306*b*.
of soap by C black, 7289*b*.
of soap by latex, particle-size measurement and, 6041*g*.
of sodium oleate by cotton fabrics, 4496*i*.
by soil humus, 7617*g*.
by soil, minerals and, 7618*i*.
from solns. of partially miscible liquids, 461*d*.
from solns. on layering or crystn., 4536*e*.
of solvent vapors for recovery, P 4791*c*.
statistical mechanics of, 8791*e*.
by steel, 1699*c*.
of surface-active agents, by fibers, 1193*f*.
from gases and liquids, effect of vol. layering on, 462*c*.
at soln. surface, 6882*e*.
in surface-area measurement, 2066*b*.
surface areas and rate of, of pharmaceutical powders, 8610*c*.
theories of, 2065*h*, 6897*b*, 8776*i*.
theories of, Gibbs' relation and, 4921*g*.
theory of selective, 6883*a*.
thermodynamic transition from, to soln., 7804*h*.
of thiocyanate on trichloroacetic acid protein ppts., 6682*a*.
of trypsin, 3864*b*.
of uranium on bone, 8481*c*.
of vapors, from air, 2744*b*.
by charcoal, temp. rise in, 7288*c*.
by cryst. adsorbents, 461*f*.
by porous adsorbents, 461*a*.
of vitamins $B_1$ by acid clay, 7774*d*.
of vitamins on C, effect on balanced diet, 1846*b*.
of water by aluminosilicates, 2067*f*.
by casein, 4537*b*, 7787*c*.
by cellulose acetates during deacetylation by $NH_3$, 6423*a*.
by coal, 1167*i*.
by complex of α-Zn(OH)$_2$ and Na 2,4-dinitro-1-naphthol-7-sulfonate, 5255*b*.
by HCHO-pectic acid reaction products, 141*c*.
by nylon, 4018*b*.
by silk, 4018*a*.
by slate, detn. of, 4785*f*.
of water by rayons and effect on dyeing ease, 9457*i*.
of water vapor, by corn starch, 9504*h*.
by diglycylglycine, diketopiperazine, glycine and leucine, 2066*h*.
by glass, 1623*d*.
by porous glass and $SiO_2$ gel, hysteresis of, 8790*h*.
by $SiO_2$ gel, 6034*d*.
by solid adsorbents, detn. of, 6394*a*.
by wool, effect of light on, 3622*i*, 7691*e*.

**Adsorption apparatus**, for acetone recovery from air, P 450*d*.
column for K and Na sepn. by Amberlite IR-100, 5698*i*.
for gases, 2474*f*.
for moisture from gases, P 5649*a*.

**Adularia**. (See also *Orthoclase*.)
druses in calcitic limestones in Västanfjärd, Finland, 5345*h*.
morphology and optical data of, from Val d'Ala, Italy, 4980*c*.
optics of low-temp. triclinic, 4980*d*.

**Adynamia**. See *Asthenia*.

**Ae**. *See E for words starting with this diphthong, except Latin words such as genus names.*

**Aëdes**. See *Mosquitoes*.

**Aegeria exitiosa**. See *Sanninoidea exitiosa*.

**Aegirite-augite**. See *Augite*.

**Aegle marmelos**, active principles of, 2993*g*.

**Aeration**, app. for, P 4058*b*.
effect on potential of Fe electrodes in NaCl soln., 8906*d*.
of org. wastes (sol.), 7169*i*.
salt-soln. concentration by, P 7760*g*.
of sewage—see *Sewage*.
of soil—see *Soils*.
of water—see *Water, purification of*.

**Aerobacillus**, *acetoethylicus*—see *Bacillus macerans*.
*macerans*—see *Bacillus macerans*.
*polymyxa*—see *Bacillus polymyxa*.

**Aerobacter**, *aerogenes*, absorption of antibacterial substances by, 6274*b*.

*aerogenes*, acetylhistamine formation from histamine by, 3478*e*.
adaptation to arabinose, 2669*f*.
adaptation to 3,6-diaminoacridine, effect of pH on, 7184.
bactericidal action of quaternary $NH_4$ compds. against, 3884*e*.
D(*levo*)-2,3-butanediol formation by, 1320*h*.
carbon dioxide replacement in metabolism of, 8435*c*.
enzyme systems of, effect of bacteriophage on, 1831*d*.
$H_2O_2$ action on, 9159*h*.
inhibition by vanillic acid esters and related compds., 4242*c*.
-*Klebsiella pneumoniae* group, sensitivity to penicillin, streptomycin and sulfadiazine, 4330*g*.
lag period in growth of, effect of glutamate and succinate on, 5080*e*.
in Mg deficiency, 3059*f*.
metabolism of, $CO_2$ replacement in, 5445*c*.
in milk, effect on sol. N, 8067*g*.
proflavine penetration into, 715*c*.
reducing power of, 1458*b*.
after ultraviolet irradiation, 1828*b*.
-*Escherichia* group—see "colon-aerogenes" under *Bacteria*.
α-methylglucoside fermentation by, 5082*f*.
**Aero Cyanate**, in weed control in gladiolus, 3962*f*.
**Aero defoliant**. See *Calcium cyanamide*.
**Aerogels**. See *Colloids*.
**Aerolatin***, 210*b*.
**Aerolite**. See *Meteorites*.
**Aerosol** (*trade name*). (See also "esters" under *Succinic acid, sulfo-*.)
cornea sensitivity to, 3110*h*.
zein solns., in aq., 3690*e*.
**Aerosol IB**, effect on eutectic crystn. of KCl and $K_2Cr_2O_7$, 7315*f*.
effect on soly. of benzene and $H_2O$, 7297*e*.
**Aerosol MA**, effect on soly. of benzene and water, 7297*e*.
**Aerosol OT**, P 6655*f*.
as antidimming material for use on glass, etc., P 790*a*.
in dodecane, elec. transference and x-ray scattering by, 7780*i*.
effect on hydration rate of flours and gluten, 4391*i*.
on mech. properties of ZnO suspensions, 7777*i*.
on soly. of benzene and $H_2O$, 7297*e*.
on Zn suspensions in $C_5H_5$, 7777*e*.
and its impregnating properties, 8710*g*.
manganese dioxide suspension in solns. of, 3688*i*.
mixts. with chemicals in foaming control in lubricating oils, 6815*b*.
mixts. with glycerol or glycerol and triethanolamine oleate, effect on foaming vol. of oils, 6814*h*.
reaction with sulfanilamide, 174*b*.
solubilization with, 466*b*.
surface films of, 7776*i*.
synergism with disinfectants, 3065*c*.
in titrating immiscible $CCl_4$ exts. with NaOH solns., 6537*g*.
titration with cetyltrimethylammonium bromide, with pinacyanol bromide indicator, 5976*f*.
**Aerosol OTN**, labeled with $S^{35}$, measurement of adsorption of, 6882*e*.
**Aerosols** (*the colloids*). See *Colloids*.
**Aerosporin**. See *Polymyxin A*.
**Aeschna cyanea**, amino acids in hemolymph of, 3114*d*.
**Aesculus**, *hippocastanum*—see *Horse chestnuts*.
**$A_1$ factor**. See "$A_1$" under *Vitamins*.
**Affinity**. (See also *Valency*.)
calcn. of, of metals for O, 4991*a*.
electron—see *Electrons*.
in galvanic piles with solid electrolytes, 7351*d*.
history of concept of, 5239*c*.
of hydroxides, metals and oxides, 5250*h*.
**After-effect phenomena**, theory of, 8771*i*.
**Afterglow**. See *Luminescence*.
**Agallia albidula**, control on beans, 3967*d*.
**Agar-agar**. (See also *Culture media*.)
acetylation of, 2432*g*.
adhesives from, P 7164*e*.
calcium phosphate periodic ppts. in, effect of electrolyte mixts. on, 7788*h*.
colloidal, 7782*c*.
congealing of, 6402*b*.
as corrosion inhibitor for light metals, 4622*d*.
as substitute for, 2784.
detection of, 5704*a*.
effect on corrosion of wrought steel, 6141*i*.
on crystn. of KCl eutectic with $K_2Cr_2O_7$, 7315*f*.
on stability of supersatd. solns. of $KNO_3$, 8805*i*.
fibrinolysin release in blood serum by, 7125*g*.
gels of, thermal cond. of, 6889*a*.
-gold-peptone complex, P 8619*i*.
heat of wetting of, 6042*g*
heat of wetting with alc. and $H_2O$, 7781*f*.
manuf. of, P 2344*h*, P 7164*f*, P 8580*g*.
purification of, P 7164*e*.
sol-gel transformation in, 2488*e*.
solidification of, effect of ultrasonic waves on, 8255*f*.
solute diffusion in gels of, 7788*c*.
stabilizer for icings, P 6759*b*.
swelling of, in mixts. of dioxane, EtOH and $H_2O$, 7788*b*.
syneresis of gels of, 8793*e*
water bound by, 4553*e*.
**Agaricus campestris**. See *Mushrooms*
**Agate**, concretions from Templeton, Calif., 2899*a*.
light transmittancy of, 5305*e*.
opal content and detn. in, and dyeing and water content of, 8313*d*.
sand, heating hydrocarbon-oil vapors with, in conversion, P 8665*b*.
**Agathenediacid***, 1751*h*.
**Agene**. See *Nitrogen chloride*.
**Ageratum conyzoides**, potash manuf. from ash of, 2377*h*.
**Agglomerates**, silicic acid detn. in, 1288*d*.
**Agglomeration**, of briquets—see *Briquets; Briquets, fuel; Briquets ore*.
of carbon black, P 2803*d*
of coal—see *Coal*.
of metal-bearing materials, P 1708*g*.
of pigment particles, 8175*i*.
by sintering—see *Sintering*.
of taconite concentrate, 4611*e*.
**Agglutination**. (See also *Hemagglutination*.)
of coal—see *Coal*.
complement effect on, 5108*i*.
of streptococci, specificity of, and role of polysaccharide therein, 5081*g*.
in *Strongylocentrotus droebachiensis*, effect of Ca on, 4389*i*
of typhoid and paratyphoid bacilli, effect of *p*-aminobenzoic acid on, 6310*b*.
**Agglutinins**. (See also *Hemagglutinins*.)
adrenaline effect on, 5857*c*.
antiserums contg. globulin 1 and, 1101*b*, 2305*f*.
formation of, effect of sulfapyridine on, 4773*d*.
fractionation of, 3919*i*
from milk (human), in infant diet, 9189*h*.
pneumococcus, in globulin fractions, 8049*g*
in protein fractions of Shiga dysentery antiserum, 7126*e*.
for sea-urchin eggs and sperm, 5506*i*.
**Agglutinogens**, $A_2$, from *Schistosoma mansoni* and *Trichinella spiralis*, 9222*f*.
**Aggregates**, abrasion of coarse, and mortar-making properties of fine, detn. of, 4398*f*.
adhesion to, of asphalt, increasing, P 3193*g*, P 5168*h*.
adhesion to, of bitumen, improvement of, P 1562*h*, P 7661*b*, P 7662*a*.
angular, stability of bituminous mixts. and, 7660*b*.
from clays and silts, 2391*d*.
for concrete—see *Concrete*.
from expanded vermiculite coated with Vinsol resin, P 3990*b*.
kerosene absorption by, measurement of, 7207*e*.
light-wt., P 9410*i*.
haydite as, 5560*a*.
testing clays for, 2391*d*, 9404*c*.
mineral, in chem. and processing industries, etc., 5132*h*.
mineralogic and petrographic characteristics of, 5167*d*.
of mixed spheres, d. and packing in, 2842*h*.
mixts. with bitumen, detn. of plastic properties of, 5919*g*.
nature and particle size of, effect on asphalt-aggregate mixts., 7207*f*.
for paving—see *Paving*.
perlite and pumice as, 2902*a*.
for roads—see *Roads*.
sampling of mineral, 5167*f*.
from slag for building, P 8144*d*.
slate-dust, P 3090*d*.
soil—see *Soils*.
test for amt. of material finer than No 200 sieve in, 4785*g*.
testing of, 5167*h*.
thermal cond. of, 7316*g*.
**Aggregation**, of egg albumin solns., 3690*c*
in polyvinyl alc.-acetate solns., 8240*e*.
of soils—see *Soils*.
**Aging**, of ammonium chloride smokes, 6039*c*
of catalysts, solid-state reactions in 6897*b*.
of cellulose acetate, 2027*f*.
diffusion and, 2490*i*.
of metals—see *Metals*; and the specific metals.
of precipitates—see *Precipitates*
of sodium sulfate powder, 8228*i*.
of starch (potato) suspensions, 427*a*.
of steel—see *Steel*.
**Aging** (*physiological*). See *Senescence*.
**Agitation**. (See also *Mixing*.)
efficiency of, rate of estn. and, 5647*b*.
reactor design and, 3247*i*.
Reynolds-no. chart for, 4903*c*.
in shaking autoclaves, 913*b*, 8753*f*
soln. by, 4903*c*.
**Agitators**. (See also *Mixing apparatus*; *Stirring apparatus*.)
correlatiuy performance of, 8761*a*
power for geometrically dissimilar, calcn of, 440*f*.
for reactors, 7270*d*.
**Aglais urticae**, toxicity to, of S compds 4415*c*.
**Aglucons**, 243*d*, 1429*i*, 1790*h*, 1791*c* 7034*b*, 9380*e*.
cardiac, 4079*f*.
cardiac, α,β-unsatd. lactones in, 3017*i*.
of *Euonymus europaeus* seeds, 2371*i*
glycosides and, 714*i*.
from primrose roots, 1750*e*.
**Aglycons**. See *Aglucons*.
**Agmatine**, and dipicrate, 238*g*.
effect on respiration inhibition by acri flavine, methylene blue, crystal violet, protamine sulfate and quinine, 7134*b*
**Agnoarachidic acid, α-hydroxy-**, P 3220*b*
**Agnomyristic acid, α-hydroxy-**, P 3220*b*
**Agnopalmitic acid, α-hydroxy-**, P 3220*b*
**Agnostearic acid, α-hydroxy-**, P 3220*b*
**Agnostenone, dihydro-**, and semicarbazone, 7495*i*.
**Agnosterol, dihydro-**, 7495*i*
**Agranulocytosis**. (See also *Mononucleosis*) adenine compds. in treatment of, 8552*c*
in folic acid deficiency lytic action of blood from, 1480*g*.
from thiouracil and thiourea, 9264*a*.
**Agricola**, biography, 3669*h*.
**Agricultural chemistry**, book: Leitfaden der Chemie für Landwirte, 7624*g*
pharmacy and, 8093*c*.
review on, 5892*b*.
**Agriculture**. (See also *Hydroponics*.)
Berzelius, J. J., and, 2347*f*.
books: Biologia agricola, 3807*i*, Farmer Victorious, 7176*a*.
by-products of, treatment by ion exchange, 6441*g*.
chems. for, public-health aspects of, 5142*a*.
geology in, 5707*i*.
growth substances in, 343*d*, 4748*f*.
journals: Gazeta do agricultor, 7624*f*, Revistele Tehnice AGIR, 8256*c*.
large-scale, inorg. biocatalysts and, 4803*d*.
New Jersey expt. station report on, 9313*a*.
process industries, plant location in, 5131*i*.
radioactive substances in research in, 1134*f*.
research in, 3551*f*, 6773*i*, 8760*i*.
review on, 4788*g*, 4789*c*.
sewage effluents for use in, purification of, 7169*a*.
wastes from, analysis in control of saccharification of, 6412*a*.
evaluation for building-board manuf., 1187*b*, 2769*a*, 7681*b*.
as extenders in phenolic-resin adhesives for plywood, 8737*i*.
as fortifying supplements for industrial fermentations, 9359*c*.
liquid fuels from, 2397*d*.
paper pulp from, 4463*f*.
in plastics, 6862*d*.
U.S.S.R. research on, 3194*h*.
wastes (industrial) use in, 7171*i*.
**Agriolimax reticulatus**, control of, 9339*h*.
**Agriotes**, control of, 3486*a*, 8114*h*.
crop damage from, 9340*c*.
**Agrobacterium**, *tumefaciens*, transformation of mucin of, 6296*g*.

**Agrocide.** See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Agropyron.** See *Grasses*.
**Agrostis.** See *Grasses*.
**Agrotis,** control on plants, 8599*a*.
**Agrotis orthogonia** and(or) **Pale western cutworm,** control of, 2726*e*.
**Agroxone.** See *Acetic acid, (4-chloro-o-tolozy)-*.
**Aguacate.** See *Avocados*.
**Aguamiel,** dextran production from, by *Leuconostoc,* 5531*f*.
fermentation of, by *Lactobacillus,* 5531*e*.
**Aguardiente.** See *Brandy*.
**Air.** (See also *Aeration; Atmosphere; Blast; Nitrogen; Nitrogen fixation; Oxygen.*)
acetone detn. in, 8974*i*.
acetylene detn. in, 971*g*, 6943*g*.
acrolein detn. in, 1289*h*.
adiabatic exponent for, 3677*g*.
adsorbed, effect on floatability of minerals, 3325*c*.
adsorption by rock beds, 5234*d*.
adsorption on minerals, 3325*f*.
alpha-ray-bombarded, ultraviolet light from, 4580*h*.
alveolar, analysis of, app. for, 5104*g*.
alveolar, comparisons of tensions of, 6262*a*.
ammonia detn. in, catalytic app. for, 8308*c*.
amyl acetate detn. in, 7377*i*.
analysis of, for $C_2H_2$, $CO_2$ and hydrocarbons in liquefaction-plant control, 4972*c*.
autometer for, P 3249*g*.
for *m*-dinitrobenzene and trinitrotoluene, 4185*f*.
for O compds. of Se and free Se, 8961*h*.
aniline detn. in, 8979*a*.
argon, He and N ratios in, 528*e*.
atomic function and viscosity of, 8774*f*.
bactericide detn. in, 4798*g*.
in beer, 354*f*, 3970*i*.
in beer, reduction of, 9359*h*.
beta-particle in, distribution of no. of ion pairs in clusters along track of, 8262*c*.
books: Analiz Vozdukha Promyshlennykh Predpriyatii, 8074*h*; Opredelenie Vrednykh Veshchestv v Vozdukhe Proizvodstvennykh Pomeshchenii, 9298*b*.
bubbles of—see *Bubbles*.
butadiene (poly-) popcorn-seed growth inhibition by, 1598*d*.
in butter, effect on keeping quality, 326*h*.
carbon dioxide detn. in, 4182*a*, 8308*d*.
carbon dioxide detn. in, app. for, 8216*h*.
carbon monoxide detn. in, 970*i*, 1686*e*, 2892*i*, 4974*i*.
app. for, 8749*d*.
indicator for, 4596*f*.
carbon monoxide detn. in alveolar, in detn. of hemoglobin content of body, 4320*i*.
carbon monoxide detn. in alveolar, sampling for, 4320*h*.
carbon monoxide removal from, 8075*b*.
as catalyst in calcination of gypsum, 8621*i*.
chlorinated hydrocarbon detection and detn. in, 973*i*.
chlorine detn. in, 8959*g*.
compressed, as coolant in patenting of steel wire, 8335*d*.
compressed, in chem. engineering, 5645*c*.
compressors for—see *Compressors*.
in concrete—see *Concrete*.
conditioning of, heat pumps in, 3248*c*.
prevention of corrosion in system for, 8342*b*.
review on, 1881*e*.
at Standard Oil Co. of Indiana Research Lab., 7220*h*.
water treatment for, 3121*f*.
contaminant detn. in, and compn. of Los Angeles air, 7672*g*.
corrosion by humid, 5721*c*.
DDT detn. in, 7869*c*.
deodorization of—see *Deodorization*.
detection in pipe line, app. for, 7757*g*.
detn. in beer and wort, 354*f*.
in beer bottles, 8607*h*.
in mortars, 1938*d*.
detn. of excess, in combustion of fuel gas, 4445*i*.
dioxane detn. in, 8976*f*.
disinfectants for, α-hydroxycarboxylic acids as, 4797*i*.
lactic acid as, 4798*a*.
levulinic acid as, 4798*b*.
triethylene glycol as, 9377*e*.
disinfectant-vapor dispersal in, 4798*d*.
disinfection of, 9367*g*.
*disinfection of,* by aerosols, 9297*d*.
by aldehydes and essences, 5083*e*.
by chemicals, 4797*e*.
by α-hydroxy-2-methylbutyric acid, lactic acid and ultraviolet light, 4798*e*.
by hypochlorites, 4797*f*.
by low temp. vaporization, 4798*c*.
by phenol aerosols, etc., 3953*h*.
displacement by Dry Ice in iodometry, 7368*d*.
distn. (fractional) of, P 3176*d*.
distn. in stream of, 4053*i*.
distn. of, thermodynamics of, 3156*h*.
drying of, app. for, P 5649*a*.
with $CaCl_2$ solns., 2841*f*.
in containers for fixtures and patterns, 6862*g*.
in ship-interior preservation, app. for, 96*d*.
in water-filtration plant in Chicago, 7168*b*.
drying with hot, 1617*c*.
dust detn. in, 4405*b*.
dust removal from—see *Dust*.
dust suppression in, of lacquer and paint plant, 420*d*.
effect on corrosion by brines in Cl plant, 2743*h*.
on decompn. rate of $CaCO_3$, 2078*d*.
on elec. cond. of oxides and spinels at high temps., 4534*a*.
on flavor of apple juice pasteurized in bottles, 7836.
on orange juice clarification, 2708*f*.
on supercooling of water, 1620*h*.
on surface transport of liquid He II, 7765*e*.
on toxin production and growth of *Corynebacterium diphtheriae,* 4726*b*.
on x-ray action on seeds, 3495*c*.
on yield, proteins and vitamins in food yeasts, 1123*a*.
on Zr, 8910*f*.
elec. discharge in, current growth and cathode spot in, 3704*d*.
elec. discharge in, spectrum from, 3290*i*.
embolism, 1479*c*.
enthalpies, entropies and heat capacity of, and its mixts. with combustion products of kerosene, 3671*d*.
enthalpy-entropy diagram for, and its use in study of thermodynamic cycles of turbo-reactors, 4089*e*.
entrainment in gas burners, calcn. of, 2823*h*.
expired or respiratory—see also *Gases*.
fat synthesis from, by paraffin oxidation, 5878*a*.
in ferrous foundries, 8997*i*.
fig latex treatment with, effect on vitamin C, 9288*a*.
filters for—see also *Respirators*.
filters for, P 8757*g*.
dust-collecting compn. for, P 3120*f*.
in pneumatically operated tools, P 6009*h*.
filtration of, 8745*i*.
flow of liquids and, through pipes, 2046*b*.
flow of, measurement of, 5236*b*.
through porous media, 6883*d*, 7288*c*.
through small orifices, 8751*g*.
temp. gradients and eddy diffusivities in turbulent, 6474*f*.
flow of water and, through horizontal pipes, pressure losses in, 7759*d*.
fluorine in, and its detn., 5883*g*.
foams—see *Foam*.
gas (harmful) removal from, chem. methods of, 6760*h*.
gas occlusion from current of, by layer of granular material, 5255*b*.
halogenated hydrocarbon detection in, 974*e*, 4602*c*.
halogenated-hydrocarbon detn. in, 6869*f*.
heaters for, P 6874*c*.
humidification of—see *Humidification*.
humidity of—see *Humidity*.
hydrocarbon detn. in subterranean, app. for, P 8759*a*.
hydrochloric acid detn. in, 8971*d*.
hydrocyanic acid manuf. from $NH_3$, hydrocarbon gases and, P 9396*h*.
hydrogen peroxide vapor diffusion into, 2066*i*.
hydrogen sulfide detn. in, 971*e*.
impurities in, max. allowable concns. of, 4400*i*.
inflammability of mixts. contg.—see *Inflammability*.
ionization of by α-rays, 4558*i*.
ionization (unipolar) of, effect on denervated muscle, 5499*e*.
**Ireland,** O-contg., P 4184*d*.
irradiated with ultraviolet light, ion content of, 4090*h*.
Joshi effect in, 2858*c*.
lead detection in, 4523*c*.
lead detn. in, 1888*a*.
lead detn. in, app. for, 4523*a*.
leather permeability to, 1203*i*.
light scattered by, depolarization of, 7281*i*.
liquid, explosive hazards of, 9450*d*.
manganese detn. in, 2545*b*.
mean alveolar, 8511*e*.
mercury dusts and vapors in, of fur-felt-hat plants, 8688*h*.
metal oxidation by, rate of, 8916*c*.
methanol in, near duplicating machines, 7160*f*.
of mines—see *Mines*.
mist removal from, by beds of fluidized solids, 6475*a*.
mixts. with H and $C_2H_2$, elec. resistance of, 3591*i*.
mixt. with EtOH and $H_2O$ vapors, ionization by β-rays in, 3284*c*.
naphthalene vaporization into, from fixed and fluidized beds, 5647*a*.
nitrogen dioxide detn. in, 1686*g*.
nitrogen dioxide in, warning app. for, 6760*g*.
nitrous oxide detection and formation by ultraviolet light in, 2121*d*.
in olive oil oxidation in light, 8707*i*.
oxygen detn. in, $CrCl_2$ as absorbent in, 4599*h*.
oxygen sepn. from—see *Oxygen*.
passage through textiles, measurement of, 8141*h*.
permeability of paper to oil and, 1186*b*.
pipes, lubricator for, 8214*e*.
pollution of, 3592*i*, 3593*a*, 5927*f*.
and its control, 8588*e*.
control of, 792*f*.
health aspects of, 7614*c*.
wet scrubbing of gases for reduction of, 4405*e*.
pressure-vol. relations of, 8772*d*.
propylene glycol as disinfectant for, 4797*h*.
proton range-energy relations in, 6502*f*.
pumps—see *Pumps*.
purification of, from nuclear-fission operations, 8079*g*.
purification of, in apple storage, 3537*d*.
radioactive-substances in, disposal and monitoring problems in, 6769*b*.
rare-gas manuf. from, P 1618*f*.
reactions in, and its mixts. with A, from adiabatic compression, 6022*f*.
reaction with Al amalgam, 6060*g*.
with $NH_3$ and $CH_4$, 9391*g*.
with $H_2O$ to give $H_2O_2$, 8779*i*.
removal from casein spinning solns., P 4021*d*.
from Cl, P 4822*f*.
from solns., 3277*d*.
sampling of, and Cl detn. in, 7373*b*.
sepn. of, 2821*c*.
separators using—see *Separators*.
smoke in—see *Smoke*.
in soils—see *Soils*.
solvent-vapor recovery from—see *Solvents*.
sound absorption by, exposed to ultraviolet rays, 4913*i*.
spectrum of liquid, 8884*d*.
sulfur dioxide detn. in, 5339*i*.
sulfur org. compd. removal and detn. in, 6112*f*.
thermal conductivity of, sensitivity range of Pirani gages and, 8667*d*.
transfer of heat and mass between water and, in packed tower, 4524*c*.
transfer of heat and mass in film of, flowing through tower packings, 3248*d*.
ultrasonic velocities in, 5652*a*.
vapor adsorption from, 2744*b*.
washing app. for, filter for, P 913*e*.
water vapor detn. in, by thermal cond. and water vapor saturator for air, 1288*c*.
**Airal Magnesium 104,** corrosion by hydrocarbons and oxygenated org. compds., and effect of water thereon, 8128*d*.
**Aircraft** (*entries refer principally to airplanes*). (See also *Aluminum alloys; Aviation; Balloons; Dopes; Engines; Fuels; Gasoline; Lacquers; Magnesium alloys; Metals; Propellers.*)
alloys for, re-soln. treatment of, 5718*d*.
aluminum components of, electroplating on, 7833*e*.
ceramic research and, 9402*e*.
continuous-combustion power plants for, refractories for, 4429*a*.

design and materials for, 1696*e*.
exhaust gases from, water recovery and purification from, P 9310*i*.
finishing, 1304*i*.
fire-retardant coatings for fabric-covered, 8074*g*.
fuel and oil tanks for, coated or lined with polyamide mixts. with rubberlike polymers, P 6457*b*.
gasoline in, app. for detection of water, etc., in, P 8760*b*.
hydraulic packing for, variability of oil-resistant synthetic-rubber, 3645*b*.
ice prevention on, fluid for, P 5136*a*.
lacquers for, nitrocellulosic adhesive, 4492*c*.
laminated products for, P 2472*d*.
in locust control, 3557*d*, 3558*a*.
lubricants for—see *Lubricants*.
materials for, 6959*e*.
plastic foams in manuf. of, 2464*h*.
polishes for Al, 3336*b*.
power plants for, ceramics for, 1163*h*.
protection of metal air frame fixtures and plaster patterns in open storage, 6862*f*.
steel (alloy) in, 89*h*.
turbine blades for, ceramics and ceramals as, 7654*i*.

**Airfields.** See *Airports*.
**Airol**, constitution of, 1354*a*.
**Airplanes.** See *Aircraft*.
**Airports**, Alaskan, 7659*i*.
pavements for, effect of jet heat on, 1547*c*.
**Ajinomoto.** See "sodium salt" under *Glutamic acid*.
**Ajowan oil.** See *Oils*.
**Akermanite**, analyses, lattice parameters and interplanar spacings of synthetic, 4605*h*.
crystal structure of, 5253*c*.
solid solns. of melilite and, and soly. of $Na_2O$ in synthetic gehlenite-akermanite mix crystals, 73*c*.
system: $Ca_2SiO_4$–monticellite–, in slag from ferrovanadium manuf., 1691*c*.
**Akroflex C**, effect on polymerization of allyl methacrylate, 8199*h*.
**A. L. 63**, toxicity to scorpions, 4416*c*.
**Alabama argillacea** and(or) **Cotton leafworm**, control of, R. B. 1018 in, 4805*i*.
**Alabamine.** See *Astatine*.
**Alaninamide** (*α-aminopropionamide*). (For derivs. see under *Propionamide*.) 9032*i*.
——, **benzoyl-***, L-, 1448*i*.
**β-Alaninamide.** (For derivs. see under *Propionamide*.)
L-, hydrochloride and acetate (salt), 1448*h*.
——, **carbobenzoxy-***, 1448*h*.
——, **carbobenzoxyglycyl-***, 1448*h*.
**Alanine** (*α-aminopropionic acid*), $CH_3CH(NH_2)CO_2H$.
(See also *β-Alanine*.)
adsorption by $Al_2O_3$, pH and, 6035*d*.
alkyl (higher) esters, 4641*b*.
aluminum salt, P 8620*a*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308*gh*, 309*b*.
in blood, effect of diet on, 5834*f*.
in blood, effect of glucose on, 1846*c*.
in blood plasma, 8429*c*.
carboxypeptidase inhibition by, 701*g*.
in cauliflower, Mn and Mo in relation to, 7552*e*.
in *Chlorella*, 8456*i*.
chromatography of, 138*a*.
chromatography on starch columns, 5818*e*.
in clupeine and salmine, 5431*i*.
cobalt complexes with, 5432*e*.
-copper complex, absorption spectra of, 6250*c*.
deamination by $NaClO_3$ and NaClO in presence of ketoglutarates, 2891*h*.
degradation with *peri*-naphthindan-2,3,4-trione hydrate and detn., 7378*h*.
dehydrogenation of org. catalysts in DL-, 4248*h*.
detection of DL-, and m.p. and optical crystallographic properties of its nitroindandionate, 69*i*.
detn. of, 3057*d*, 3875*g*, 4342*b*, 9138*a*.
in blood and urine, 265*b*.
in tissue, 6685*c*.
DL-, ethyl ester and its -HCl, 7425*h*.
D-, vitamin $B_6$ in relation to, in microorganisms, 5822*gi*.
effect on biochem. decompn. of cellulose, 3609*d*.
on blood coagulation and its relation to stomach function, 3107*e*.
*effect* on carbohydrate metabolism in scurvy, 1471*b*.
on oxidative activity of cataractous cryst. lens, 8044*g*.
on sporulation of *Bacillus cereus*, 7082*h*.
ethyl ester, reduction of, 573*a*, 1723*b*.
fermentation by *Saccharomyces ellipsoideus*, alc. and β-lactic acid formation during, 7541*g*.
formation of, from acetate and bicarbonate, 8027*g*.
from aspartic acid by liver enzyme, 2252*i*.
by enzymic desulfination of cysteinesulfinic acid, 5430*c*.
from kynurenine and tryptophan by enzymes and role of vitamin $B_6$ therein, 6264*c*.
by liver, effect of thyroid on, 7565*f*.
from pyruvic acid and $NH_3$ by bacteria, 5084*d*, 7547*a*.
from pyruvic acid and histidine by liver ext., 5054*e*.
free, in blood, effect of amino acids on, 1860*i*, 4354*e*.
in green plants, 1463*b*.
heat content and structure of, 6070*c*.
in hemolymph of dragon-fly nymph, 3114*d*.
hydrogen-ion-concn. reduction in synthetic-elastomer latex by, P 2463*d*.
identification of, 2651*b*.
labeled with $C^{13}$ in α-position, 5004*h*.
in liver, effect of diet on, 5095*h*.
in liver exts., 710*f*.
in liver, 17-hydroxydehydrocorticosterone effect on, 8544*c*.
in myoglobin of whale, 7537*b*.
as nitrogen source for streptomycin production by *Streptomyces griseus*, 272*c*.
as nitrogen source for *Ulva lactuca*, 6289*f*.
optical antipodes of, as N sources for bacteria, 3063*i*.
oxidase—see *Alanine oxidase*.
oxidation of, 6570*b*.
by lipoxidase, 6263*h*.
by plant tissues, 2283*g*.
from pigments of yeast, 2258*d*.
in pollen collected by bees, 732*e*.
polymerization of DL- and L-, 3787*c*.
prepn. of, 3786*e*, 4223*b*, 4725*d*, 6695*e*.
prepn. of L- and D-, 5058*b*.
in procollagen of ox, 8411*d*.
protective action against bacteriophage x-ray inactivation, 2275*h*.
in protein (basic) from sperm nuclei of different invertebrates, 4388*a*.
in *Proteus vulgaris* flagella, 3061*f*.
reaction with sugars, 4501*h*.
in royal jelly, 7149*f*.
sepn. from hydrolyzed egg albumin, 8807*c*.
soly. in aq. alc., effect of $C_6H_6$ or $CHCl_3$ on, 6889*h*.
spectra of, and its sodium salt, 4574*b*.
in thyroglobulin, 9121*h*.
in tissue and its detn., 8427*e*.
in tobacco-mosaic virus, 7092*b*.
tryptophan degradation to, in animal organisms, 5095*f*.
x-ray action on, 4133*d*.
in yeast nutrition, 1825*i*, 5081*c*.
**Alanine, *N*-(2-acetamido-4-methoxyphenyl)-**, ethyl ester, 7488*b*.
——, ***N*-acetyl-**, hydrolysis of DL-, by enzymes from liver, kidneys and hepatoma, 258*d*.
resolution of DL-, 5058*b*.
——, ***N*-acetyl-β-(benzylmercapto)-**, formation in rat, 1844*a*.
labeled with $S^{35}$, 7902*h*.
——, ***N*-acetyl-β-[4-(benzyloxy)-3,5-diiodophenyl]-**, as thyroxine antagonist, 7585*c*.
——, ***N*-acetyl-β-(*p*-bromophenylmercapto)-**, detn. in urine, 5845*e*.
——, ***N*-acetyl-α-cyano-β-phenyl-**, ethyl ester, P 6653*e*.
——, **acetyldehydro-***, ammonia formation from, by liver digests, 1071*e*.
spectrum and deamination of, 3857*a*.
——, ***N*-acetyl-β-[3,5-diiodo-4-(*p*-methoxybenzyloxy)phenyl]-**, effect on metabolism in cold, 5868*i*.
——, ***N*-acetyl-β-(*p*-iodophenylmercapto)-**, in urine, after administration of (*p*-iodophenylmercapto)pyruvic acid, 3527*e*.
——, ***N*-acetyl-β-phenyl-**, DL-, P 7956*d*.
——, ***N*-β-acridyl-**, and (+)- and (−)-ethyl esters and their derivs., 3826*b*.
——, ***N*-alanyl-**, DL-, reaction with $Ac_2O$ in the presence of pyridine, 4237*e*.
——, **alanyldehydro-***, ammonia formation from DL-, by liver digests, 1071*e*.
hydrolysis by tumor exts., 6725*d*.
——, **alanyldehydrophenyl-***, DL-, 257*d*.
——, **β-(allylmercapto)-**, DL-, 6577*b*.
——, **β-(allylsulfinyl)-**, compds. related to, 6576*g*.
DL-, 6577*e*.
effect on pyruvic acid and reticulocyte content of blood, 6723*f*.
effect on tumor growth, 7570*c*.
enzymic degradation of, 3482*d*.
in medicine, 7193*g*.
——, **β-(*o*-aminobenzoyl)-**. See *Kynurenine*.
——, ***N*-(3-amino-3-carboxypropyl)-†**, 7933*h*.
——, **β-L-aspartyl-L-***, 6266*f*.
——, ***N*-benzoyl-**, DL-, labeled with $C^{13}$ in α-position, 5005*c*.
methyl ester, 1323*g*.
——, **β-benzoyl-**, 7192*h*.
——, ***N*-benzoyl-β-(benzylmercapto)-β-phenyl-**, methyl ester, 1399*f*.
——, **β-(2-benzoyl-1-carboxyethylmercapto)-**, 7192*h*.
——, ***N*-benzoyl-β-(carboxymethylmercapto)-**, diethyl ester, P 6669*c* and dimethyl ester, P 3468*b*.
——, **β-benzoyl-*N*-(*p*-carboxyphenyl)-†**, 7192*h*.
——, ***N*-benzoyl-β-chloro-**, ethyl ester, P 3469*e*.
——, ***N*-benzoyl-β-(2,5-dimethoxyphenyl)-**, D-, DL- and L-, and salts, 6599*a*.
——, ***N*-benzoyl-β-(*p*-methoxyphenyl)-**, DL- and L-, and derivs., 7457*a*.
——, ***N*-benzoyl-β-phenyl-**, hydrazide, 4669*d*.
inhibition of chymotrypsin by DL-, 7531*a*.
——, ***N*-benzoyl-β-(*p*-sulfamylphenyl)-**, 7450*b*.
——, ***N*-benzyl-β,β-diethoxy-*N*-phenylacetyl-†**, spectrum of, 8892*f*.
——, **β-(benzylmercapto)-**, 7903*g*.
labeled with $S^{35}$, 7902*h*.
——, **β-(benzylmercapto)-*N*-(1-carboxyprolyl)-†**, *N*-benzyl ester and its Et ester, 5016*f*.
——, **β-(benzylmercapto)-β-phenyl-**, 1399*g*.
——, **β-[4-(benzyloxy)-3,5-diiodophenyl]-**, as thyroxine antagonist, 7585*c*.
——, **β-(benzylsulfinyl)-**, L-, 6577*b*.
——, ***N*-(*m*-bromophenyl)-*N*-(3-hydroxypropyl)-**, methyl ester, azo dyes from, P 9462*b*.
——, **β-(butylmercapto)-**, L-, 6577*a*.
——, **β-(butylsulfinyl)-**, L-, 6577*a*.
——, ***N*-caproyl-β,β-bis(ethylmercapto)-†**, 2990*c*.
——, ***N*-caproyl-β,β-diethoxy-†**, and derivs., 2990*a*.
——, ***N*-carboxy-**, methyl benzyl ester, 1323*g*.
——, ***N*-(*N*-carboxy-β-alanyl)-phenyl-**, benzyl and benzyl Et esters, and effect of peptidases thereon, 1448*b*
——, **β-[1-carboxy-2-(2,5-cresotyl)-ethylmercapto]-**, 7192*h*.
——, ***N*-(*N*-carboxyglycyl)phenyl-**, benzyl ester, hydrolysis by carboxypeptidase, 701*f*, 1448*b*.
——, ***N*-(*N*-carboxy-L-leucyl)-β-phenyl-**, D-, benzyl Et ester, 4641*f*
——, ***N*-carboxy-β-(*p*-methoxyphenyl)-**, L-, derivs., 7458*b*.
——, **β-(carboxymethylmercapto)-**, 3451*b*.
——, ***N*-(*p*-carboxyphenyl)-β-2,5-cresotyl-†**, 7192*h*.
——, ***N*-(*p*-carboxyphenyl)-β-salicyloyl-†**, 7192*h*.
——, **β-(1-carboxy-2-salicyloylethyl mercapto)-**, 7192*h*.
——, ***N*-(*N*-carboxytryptophyl)-**, benzyl ester, 4712*d*.
——, **β-chloro-**, 7903*g*.
hydrochloride, 7902*f*.
——, ***N*-chloroacetyl-**, enzymic hydrolysis of, 258*c*, 9113*e*.
——, **chloroacetylalanyldehydro-***, DL-, 257*g*.
——, **chloroacetyldehydro-***, ammonia formation from, by liver digests, 1071*e*.
hydrolysis by enzymes, 258*d*, 9113*e*.
spectrum and hydrolysis of, 257*i*.
——, **chloroacetyldehydrophenyl-***.
enzymic hydrolysis of, [illegible]
——, ***N*-(*N*-chloroacetylglycyl)-**, enzymic hydrolysis of, 9114*e*.

prepn. and enzymic hydrolysis of, 9113*e*.
—, **chloroacetylglycyldehydro-***, 257*h*.
enzymic hydrolysis of, 9113*e*.
—, **chloroacetylglycyldehydrophenyl-†**, 257*i*.
enzymic hydrolysis of, 9113*f*.
—, **N - (N - chloroacetylglycyl)-phenyl-**, enzymic hydrolysis of, 9114*a*.
prepn. and enzymic hydrolysis of, 9113*e*.
—, **N-chloroacetyl-N-methyl-**, 9114*g*.
—, **N-chloroacetylphenyl-**, enzymic hydrolysis of, 258*d*, 9089*d*, 9113*e*.
—, **N - (N - chloroacetylsarcosyl)-**, 9114*e*.
—, **β - [m(o and p) - chlorophenyl]-**, ionization consts. and spectra of, 8810*b*.
—, **β - [p - (p - chlorophenylsulfonyl)-phenyl]-**, 7450*a*.
—, **chloropropionyldehydrophenyl-***, *dl-*, 257*f*.
—, **N - [p - [(2,4 - diamino - 6 - pteridylmethyl)amino]benzoyl]-**, effect on growth of chick embryos, 9186*h*.
—, **β - [2,5 - dibromo - 4 - (3,5 - dibromo - 4 - hydroxyphenoxy)phenyl]-**, thyroxine-like activity of, 1109*d*. 8056*a*.
—, **β - [3,5 - dibromo - 4 - (4 - hydroxy-3,5 - diiodophenoxy)phenyl]-**, thyroxine-like activity of, 1109*d*.
—, **β - [4 - (3,5 - dibromo - 4 - hydroxyphenoxy) - 3,5 - diiodophenyl]-**, thyroxine-like activity of, 1109*d*.
—, **β - (1,2 - dicarboxyethylmercapto)-†**, antimitotic action of, 2704*a*.
—, **β - [3,5 - dichloro - 4 - (4 - hydroxy-3,5 - diiodophenoxy)phenyl]-**, thyroxine-like activity of, 1109*d*
—, **β - [4 - (3,5 - dichloro - 4 - hydroxyphenoxy) - 3,5 - diiodophenyl]-**, thyroxine-like activity of, 1109*d*
—, **β - [3,5 - dichloro - 4 - (p - hydroxyphenoxy)phenyl]-**, thyroxine-like activity of, 1109*e*.
—, **β,β - diethoxy - N - phenylacetyl-†**, and methyl ester, spectra of, 8892*f*.
—, **(dihydroxyphenyl)-**, antianaphylactic action of irradiated, 308*f*.
in dopa reaction, 5469*f*.
effect on heart, 9250*f*.
melanin formation from, by vegetable tissues, 277*i*.
metabolism by kidney exts., 8415*c*.
oxidation by tyrosinase, 9115*a*.
—, **(2,5-dihydroxyphenyl)-**, decarboxylation by kidney and liver, 8061*b*.
—, **(3,4 - dihydroxyphenyl)-**, effect on heart, 9250*e*.
—, **β - (2,5 - dihydroxyphenyl)-**, DL-, DL- and L-, and derivs., 6597*i*
—, **β - (3,4 - dihydroxyphenyl)-**, effect on pigment granule synthesis in melanoblasts, 745*d*.
histidine decarboxylase inhibition by, 9107*a*.
oxidase of—see *Dopa oxidase*.
prepn. of, 4725*e*.
—, **β - [p - (2,3 - dihydroxypropoxy)-phenyl]-**, effect on nervous system, 311*h*.
—, **N - (2,4 - dinitrophenyl)-**, sepn. from 2,4-dinitrophenylvaline, 7379*b*.
—, **N-(dinitrophenyl)phenyl-**, chromatography of, 138*c*.
—, **N,β-diphenyl-**, 6979*e*.
—, **β,β'-disulfinyldi-**, detection of, 2666*b*.
—, **β,β'-dithiodi-**. See *Cystine*.
—, **β-(ethylmercapto)-**, effect on liver lipides, 3103*i*.
L-, 6576*h*.
—, **N-ethyl-β-phenyl-**, 6979*e*.
—, **β-(ethylsulfinyl)-**, L-, 6576*h*.
—, **(p-fluorophenyl)-**, effect on *Pseudomonas aeruginosa*, 8001*c*.
—, **β-2-furyl-**. See *2-Furanalanine*.
—, **N-glycyl-**, enzymic hydrolysis of, 258*c*, 9113*e*.
—, **glycyldehydro-***, ammonia formation from, by liver digests, 1071*e*.
hydrolysis by enzymes, 258*f*, 9113*e*.
hydrolysis by tumor exts., 6725*d*.
spectrum and hydrolysis of, 258*a*.
—, **glycyldehydrophenyl-***, hydrolysis by enzymes, 258*d*, 9113*f*.
hydrolysis by tumor exts., 6725*e*.
—, **N-(N-glycylglycyl)-**, 9114*e*.
—, **glycylglycyldehydro-***, 257*h*.
—, **glycylglycyldehydrophenyl-***, 257*i*.
—, **N - (N - glycylglycyl)phenyl-**, 9114*d*.
—, **N-glycyl-N-methyl-**, 9114*h*.
—, **N-glycylphenyl-**, hydrolysis of DL-, by enzymes from liver, kidneys and hepatoma, 258*c*.
utilization by phenylalanine-less strain of *Escherichia coli*, 9148*d*.
—, **N-glycyl-β-phenyl-**, DL-, and hydrochloride, 8356*i*.
—, **glycylsarcosyldehydro-***, prepn. and enzymic hydrolysis of, 9113*h*.
—, **N-hydrocinnamoyl-**, DL-, 5765*c*.
—, **β-hydroxy-**. See *Serine*.
—, **β - [4 - (4 - hydroxy - 3,5 - diiodophenoxy) - 3,5 - diiodophenyl]-**. See *Thyroxine*.
—, **N-2-hydroxyethyl-**, racemic, 2943*g*.
—, **N - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-**, DL-, and derivs., 644*f*.
DL-, microbiol. activity of, 723*b*.
—, **N - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-β-phenyl-**, DL-, 644*e*.
DL-, microbiol. activity of, 723*b*.
—, **β - (3 - hydroxy - 4 - oxo - 1(4*H*)-pyridyl)-**. See *Leucenine*.
—, **β - [4 - (p - hydroxyphenoxy) - 3,5-diiodophenyl]-**, thyroxine-like activity of, 1109*d*.
—, **β - [p - (p - hydroxyphenoxy)-phenyl]-**. See *Thyronine*.
—, **β - (o - hydroxyphenyl)-**. See *o-Tyrosine*.
—, **β-(p-hydroxyphenyl)-**. See *Tyrosine*.
—, **β - [p - (p - hydroxyphenylsulfonyl)phenyl]-**, 7450*a*.
—, **β - (4 - hydroxy - 3 - sulfophenyl)-**, sodium salt, and its Hg deriv., 1672*i*
—, **β-2-imidazolyl-**. See *2-Imidazolealanine*.
—, **β-5-imidazolyl-**. See *Histidine*.
—, **β-3-indolyl-**. See *Tryptophan*.
—, **β-(isopropylmercapto)-**, L-, 6576*i*
—, **N-isopropyl-β-phenyl-**, 6979*e*
—, **β-(isopropylsulfinyl)-**, L-, 6577*a*.
—, **N-L-leucyl-β-phenyl-**, D-, 4641*f*.
—, **β-mercapto-**. See *Cysteine*.
—, **N - (4 - methoxy - 2 - nitrophenyl)-**, DL-, 7488*a*.
—, **N - (5 - methoxy - 2 - nitrophenyl)-**, DL-, 7488*b*.
—, **β-(p-methoxyphenyl)-**, L-, derivs., 7456*i*.
—, **β-methoxy-N-phenylcarbamyl-**, 7903*f*.
—, **β - (p - methoxyphenyl) - N - p-tolylsulfonyl-**, L-, and derivs., 7458*f*.
—, **α-methyl-**. See *Isobutyric acid, α-amino-*.
—, **N-methylalanyldehydrophenyl-***, DL-, 257*e*.
—, **β,β' - (methylenedithio)di-**. See *Djenkolic acid*.
—, **N - methylglycyldehydro-***, hydrolysis of, 258*b*, 6725*e*.
—, **N-methylglycyldehydrophenyl-***, 257*e*.
—, **β-methylmercapto-**, 7903*g*.
effect on liver lipides, 3104*a*.
—, **β - (p - methylsulfonylphenyl)-**, 1740*c*.
—, **N - (p - nitrophenylcarbamyl)-**, 168*g*.
—, **phenyl-**, in actin, 9095*g*.
antagonist to, 9205*h*.
anti-, activity of 3-thienylalanine, 6613*h*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308*egh*, 309*b*.
antibacterial activity of, 3879*h*.
in barley, oats and wheat, 5450*g*.
in blood, carcass, heart, kidney, liver muscle and skin of eight animals, 7061*e*.
in blood, effect of diet on, 5834*e*.
in blood plasma, 8429*d*.
in blood plasma, effect of fasting and N deprivation on, 4740*h*.
carboxypeptidase inhibition by, 701*g*, 6266*a*.
chromatographic sepn. from other amino acids, 2266*g*.
chromatography on starch columns, 5818*e*.
cobalt complexes with, 5432*e*.
compd. with thymonucleic acid, enzymic synthesis of, 8410*h*.
deamination by $NaClO_2$ and NaClO in presence of ketoglutarates, 2891*h*.
detection of, and m. p. and optical crystallographic properties of its nitroindandionate, 70*e*.
detn. of, 3057*e*, 3875*h*, 5341*g*.
detn. of, in foods and proteins, 4331*i*.
dietary fat and excretion of, 7560*a*.
effect on free alanine and pyruvate in blood, 1860*i*, 4354*e*.
on heart, 9250*d*.
on β-2-thienylalanine action on vaccinia virus, 300*c*.
on urea formation by liver, 6256*i*.
in erythrocytes of chickens, 744*c*.
ethyl ester, hydrogenation of, 573*a*.
ethyl ester, reduction of, 1728*e*.
fluorescent substance from, 708*g*.
in foods (Mexican), 7602*b*.
formation from phenylpyruvic acid and $NH_3$ by bacteria, 5084*e*, 7547*a*.
hydrochloride, 1399*g*.
ionization consts. and spectrum of, 8810*c*.
in lactogenic hormone of pituitary, 5474*e*.
in *Lathyrus sativus* seeds, 1449*f*.
liberation from raw and heated casein after acid and enzyme hydrolysis, 1819*f*.
in liver, diet and, 7562*i*.
in liver exts., 710*e*.
in lupine and soybean seeds and sprouts, 1080*f*.
in lysozyme, 5063*d*.
manuf. of, P 6653*e*.
manuf. of DL-, P 7956*e*.
in meats and foods, 3534*e*.
metabolism of, 8550*g*.
in myoglobin of whale, 7537*b*.
in nutrition of *Aedes aegypti* larva, 3940*i*.
in organs of swine, 7061*i*.
oxidation by liver, effect of protein-poor diet on, 6296*e*.
as penicillin G precursor, 272*i*.
*Penicillium notatum* culture medium contg., P 7649*b*.
peptides of, 9033*h*.
polymerization of DL- and L-, 3787*c*.
prepn. of, 3786*e*, 6695*e*.
in procollagen of ox, 8411*d*.
protective action against bacteriophage x-ray inactivation, 2275*h*.
requirement of *Clostridium sporogenes* for, 7083*e*.
resolution of, 9092*c*.
in royal jelly, 7149*f*.
sepn. from protein hydrolyzate by ion-exchange resins, 8807*b*.
in soybean meals, 3499*e*.
spectrum of, 4714*b*.
β-2-thienylalanine antagonism to, in animal organism, 7561*h*.
in thyroglobulin, 9121*h*.
in tobacco-mosaic virus, 7092*b*.
utilization by phenylalanine-less strain of *Escherichia coli*, 9148*d*.
in yeast nutrition, 1826*a*.
—, **N-phenylacetyl-**, DL-, 5765*c*.
effect on penicillin production, 2269*h*.
—, **N-γ-phenylbutyryl-**, DL-, 5765*c*.
—, **β - phenyl - N - (phthalimidoacetyl)-**, DL-, 8356*i*.
—, **β-phenyl-N-propyl-**, 6979*d*.
—, **phenyl-N-sarcosyl-**, 9114*b*.
—, **β - [p - (phenylsulfonyl)phenyl]-**, 7450*a*.
—, **phthalyl-***, as pantothenic acid precursor for yeast, 9166*d*.
—, **β-pyridyl-**. See *Pyridinealanine*.
—, **β-1(4*H*)-pyridyl-**. See *1(4H)-Pyridinealanine*.
—, **β-quinolyl-**. See *Quinolinealanine*.
—, **N-sarcosyl-**, 9114*a*.
—, **β-p-sulfamylphenyl-**, hydrochloride, 7450*b*.
ionization consts. and spectrum of, 8810*b*.
—, **β-p-sulfanilylphenyl-**, 7450*a*.
—, **β-sulfino-**, alanine formation from L-, 5430*e*.
detection of, 2666*b*.
—, **β-sulfo-**. See *Cysteic acid*.
—, **β-thianaphthenyl-**. See *Thianaphthenealanine*.
—, **β-thiazolidyl-**. See *Thiazolidinealanine*.
—, **β-thienyl-**. See *Thiophenealanine*.
—, **β-thiocyano-**, and copper salt, 1014*f*.
—, **β,β'-thiodi-**, availability for growth of rats, 2295*c*.
detection of, 2666*b*.
formation from deaminated wool by alkali, 4017*d*.
formation in wool, 6423*c*.
sepn. from egg shells, 1480*i*.
—, **N-p-tolylsulfonyl-**, and esters, 2943*g*.
—, **β-triazolyl-**. See *Triazolealanine*.
**β-Alanine (*β-aminopropionic acid*), antibacterial activity of, 3879*g*.

crystal habits of NaCl and, mutual modification of, 7772*d*.
derivs., 576*b*, P 3449*h*.
*N*-derivs., P 5978*b*.
effect on antibacterial action of blood, 3879*d*.
effect on lactone inhibition of *Fusarium* and *Phycomyces*, 7542*e*.
ethyl ester-HCl, 8357*e*.
as growth substance, 8004*c*.
heat content and structure of, 6070*c*.
hydrochloride, 6169*g*.
lactam—see *2-Azetidinone*.
manuf. of, P 2225*g*, P 3841*d*.
manuf. of, by electrolysis, P 5682*a*, P 6926*f*.
pantothenic acid synthesis from, and derivs. by yeast, 9166*c*.
pantothenic acid synthesis from, by *Neurospora*, genes in control of, 715*d*
peptides contg., in study of specificity of peptidases, 1448*a*.
pollen collected by bees, 732*e*.
prepn. of, 2943*f*.
in royal jelly, 7149*f*.
utilization of, effect of propionic acid on, 3497*e*.
x-ray action on, 4133*d*.

**β-Alanine**, *N*-(α-**acetamidocinnamoyl**)-, 7427*a*.
——, *N*-(α-**acetamido**-γ-**hydroxy**-β,β-**dimethylbutyryl**)-, and derivs., 574*i*.
——, *N*-**acetyl**-*N*-(*p*-**chlorophenyl**)-, 8388*d*.
——, *N*-**acetyl**-*N*-**phenyl**-, and ethyl ester, 3822*a*.
——, *N*-β-**alanyl**-, prepn. of, and hydrolysis by peptidases, 1448*e*.
——, *N*-(α-**amino**-γ-**hydroxy**-β,β-**dimethylbutyryl**)-, 4223*g*.
ethyl ester, 575*a*.
——, *N*-[(*p*-**aminophenyl**)**carbamyl**]-, 168*h*.
——, *N*-(*p*-**arsonobenzyl**)-, P 5041*f*.
——, *N*-(α-**benzamidosenecioyl**)-, 7426*i*
——, α-(**benzhydryloxy**)-*N*,*N*-**dimethyl**-, hydrochloride, spasmolytic activity of, 8546*c*.
——, *N*-**benzoyl**-, prepn. and antimetabolite action of, 2680*i*.
——, *N*-**benzyl**-, ethyl ester, 9034*d*.
ethyl ester, and its -HCl, 576*a*.
——, *N*-**benzyl**-*N*-**formyl**-, ethyl ester, 576*a*.
——, *N*-(**2-bromo-4,5-dimethoxyphenethyl**)-*N*-**methyl**-, methyl ester -HCl, 5765*g*.
——, *N*-(**2-bromo-4-methoxyphenethyl**)-*N*-**methyl**-, esters hydrochlorides, 5765*f*.
——, *N*-(*m*-**bromophenyl**)-, methyl ester, azo dyes from, P 9462*c*.
——, *N*-**carbamyl**-, derivs., 6597*g*.
——, *N*-(*N*-**carboxy**-β-**alanyl**)-, benzyl ester, 1448*f*.
——, *N*-(α-**carboxyamino**-γ-**hydroxy**-β,β-**dimethylbutyryl**)-, α-benzyl ester, 4224*c*.
ethyl benzyl ester, 575*a*.
——, *N*-(*N*-**carboxyglycyl**)-, benzyl ester and benzyl Et ester, 1448*f*.
——, *N*-[*N*-(*N*-**carboxyglycyl**)-**glycyl**]-, benzyl ester and benzyl Et ester, 1448*g*.
——, *N*-**chloroacetyl**-, 1448*f*.
——, *N*-[(**2-chloro-4-nitrophenyl**)-**carbamyl**]-, 168*h*.
——, *N*-(*m*-**chlorophenyl**)-, methyl ester, 8387*c*.
methyl ester, azo dyes from, P 9462*c*.
——, *N*-(*p*-**chlorophenyl**)-, and ethyl ester, 8388*c*.
——, *N*-(*m*-**chlorophenyl**)-*N*-**2-hydroxyethyl**-, methyl ester, azo dyes from, P 9462*c*.
——, *N*-(*m*-**chlorophenyl**)-*N*-*p*-**tolylsulfonyl**-, and methyl ester, 8387*c*.
——, *N*-(*p*-**chlorophenyl**)-*N*-*p*-**tolylsulfonyl**-, 8388*d*.
——, *N*-**cyclohexyl**-, ethyl ester and its picrate, 576*a*.
——, *N*-**cyclohexyl**-*N*-**formyl**-, ethyl ester, 576*a*.
——, *N*-**decyl**-, P 5978*b*.
——, *N*-(**2,4-diethoxyphenethyl**)-*N*-**methyl**-, esters hydrochlorides, 5765*g*.
——, *N*,*N*-**diethyl**-, benzyl esters, P 5797*e*.
**1-propylamyl ester**, P 8399*a*.
——, *N*-(α,γ-**dihydroxy**-β,β-**dimethylbutyryl**)-. See *Pantothenic acid*.
——, *N*-(α,γ-**dihydroxy**-β,β-**dimethylvaleryl**)-, sodium salt, 722*g*.
——, *N*-(α,γ-**dihydroxyisovaleryl**)-, P 3152*g*.
——, *N*-(**3,4-dihydroxyphenethyl**)-*N*-**methyl**-, ethyl ester -HCl, 5765*f*.
——, *N*-(**2,3-dihydroxypropyl**)-*N*-**phenyl**-, methyl ester, azo dyes from, P 9462*d*.
——, *N*-(α,γ-**dihydroxyvaleryl**)-, P 3152*g*.
——, *N*-(**3,4-dimethoxyphenethyl**)-, methyl ester -HCl, 5765*g*.
——, *N*-[**2,3**(and **2,4**)-**dimethoxyphenethyl**]-*N*-**methyl**-, ethyl esters oxalates, 5765*f*.
——, *N*-[**2,5**(and **3,4**)-**dimethoxyphenethyl**]-*N*-**methyl**-, esters salts, 5765*f*.
——, α,α-**dimethyl**-. See *Pivalic acid, amino*-.
——, *N*,*N*-**dimethyl**-α,α-**diphenyl**-, ethyl ester, and its -HCl, 4245*f*.
——, α,α-**diphenyl**-, ethyl ester, 4245*e*
——, *N*-**dodecyl**-, P 5978*b*.
——, *N*-(**2-ethoxy-3-methoxyphenethyl**)-*N*-**methyl**-, ethyl ester -HCl, 5765*f*.
——, *N*-(*m*-**ethoxyphenethyl**)-*N*-**methyl**-, ethyl ester -HCl, 5765*e*.
——, *N*-(*m*-**ethylphenyl**)-*N*-**2-hydroxyethyl**-, methyl ester, azo dyes from, P 9462*d*.
——, *N*-(*m*-**ethylphenyl**)-*N*-(**3-hydroxypropyl**)-, methyl ester, azo dyes from, P 9462*d*.
——, *N*-(*m*-**fluorophenyl**)-*N*-**2-hydroxyethyl**-, methyl ester, azo dyes from, P 9462*b*.
——, *N*-**formyl**-, ethyl ester, 576*b*.
——, *N*-**formyl**-*N*-**methyl**-, esters, 575*i*.
——, *N*-**formyl**-*N*-**phenyl**-, ethyl ester, 575*i*.
——, *N*-**formyl**-*N*-**3-pyridyl**-, ethyl ester and its picrolonate, 576*c*.
——, *N*-**glycyl**-, 1448*f*.
——, *N*-(*N*-**glycylglycyl**)-, prepn of, and hydrolysis by tripeptidase, 1448*e*.
——, *N*-**guanyl**-, and picrate, 3793*d*
——, *N*-**guanyl**-β-**phenyl**-, and picrate, 3793*c*.
——, *N*-**homopiperonyl**-*N*-**methyl**-, ethyl ester oxalate, 5765*g*.
——, *N*-(**4-hydroxy-3,5-diiodophenethyl**)-*N*-**methyl**-, and ethyl ester -HCl, 5765*e*
——, *N*-(γ-**hydroxy**-β,β-**dimethyl**-α-**oxobutyryl**)-, 7426*h*.
and compd. with quinine, 4223*g*.
——, *N*-**2-hydroxyethyl**-*N*-**phenyl**-, methyl ester, azo dyes from, P 9462*d*.
——, *N*-**2-hydroxyethyl**-*N*-*m*-**tolyl**-, methyl ester, azo dyes from, P 9462*d*
——, *N*-[**3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl**]-, 644*g*.
——, *N*-[α-**hydroxy**-β-(**hydroxymethyl**)-β-**methylvaleryl**]-, diastereoisomers, cinchonidine salts, 4226*f*.
——, *N*-[*o*(and *p*)-**hydroxyphenethyl**]-*N*-**methyl**-, ethyl esters hydrochlorides, 5765*e*.
——, *N*-(**hydroxypivalyl**)-, 7426*g*.
——, *N*-(**2-hydroxypropyl**)-*N*-**phenyl**-, methyl ester, azo dyes from, P 9462*h*.
——, *N*-**leucyl**-, L-, and its hydrolysis by leucine amino peptidase, 1448*c*.
——, *N*-**mandelyl**-, and acetyl deriv., prepn. and antimetabolite action of, 2680*h*.
——, α-**mercapto**-. See *Isocysteine*.
——, *N*-(*p*-**methoxy**-β-**methylphenethyl**)-*N*-**methyl**-, ethyl ester, -*HCl*, 5765*f*.
——, *N*-[(**2-methoxy-4**(and **5**)-**nitrophenyl**]**carbamyl**]-, 168*h*.
——, *N*-(*o*-**methoxyphenethyl**)-*N*-**methyl**-, ethyl ester -HCl, 5765*e*.
——, *N*-(*p*-**methoxyphenethyl**)-*N*-**methyl**-, methyl ester -HCl, 5765*f*.
——, *N*-(*p*-**methoxyphenyl**)-, methyl ester, 8387*e*.
——, *N*-(*p*-**methoxyphenyl**)-*N*-*p*-**tolylsulfonyl**-, and methyl ester, 8387*e*.
——, *N*-**methyl**-, derivs., 575*i*, 9034*a*.
——, *N*-[**4-methylamino-3-(trifluoromethyl)-1-anthraquinonyl**]-, methyl ester, P 7709*g*.
——, *N*-**methyl**-*N*-**phenethyl**-, ethyl ester -HBr, 5765*e*.
——, *N*-*p*-**nitrobenzoyl**-, 168*h*.
——, *N*-[(*m*(and *o*)-**nitrophenyl**]-**carbamyl**]-, 168*g*.
——, *N*-[(*p*-**nitrophenyl**)**carbamyl**]-, and sodium salt and other derivs., 168*c*.
——, *N*-[(*p*-**nitrophenyl**)**thiocarbamyl**]-, 168*h*.
——, *N*-[(**5-nitro-2-propoxyphenyl**)**carbamyl**]-, 168*h*.
——, *N*-[(**4-nitro-o-tolyl**)**carbamyl**]-, 168*h*.
——, *N*-**phenethyl**-, derivs., 5765*d*.
——, *N*-*p*-**phenetylcarbamyl**-, 168*h*.
——, *N*-**phenyl**-, *N*-alkoxalyl derivs, ring closure of, 8380*b*.
derivs., 576*a*.
derivs., 4-hydroxyquinolines from, 8387*f*
methyl ester, 8386*i*.
and methyl ester, 8380*b*.
methyl ester, azo dyes from, P 9462*c*.
——, β-**phenyl**-. See *Hydrocinnamic acid, β-amino*-.
——, *N*-**phenyl**-*N*-*p*-**tolylsulfonyl**-, and methyl ester, 8386*i*.
——, **phthaloyl**-. See *2-Isoindolinepropionic acid, 1,3-dioxo*-.
——, *N*-**propionyl**-, prepn. and effect on growth, 3497*f*, 4737*c*.
——, *N*-**salicyloyl**-, P 1914*f*.
biochemistry of, 756*h*.
prepn. and antimetabolite action of, 2680*h*
——, *N*-*p*-**tolylsulfonyl**-, 8357*e*.

**β-Alaninenitrile** See *Propionitrile, β-amino*-.

**Alanine oxidase**, in decarboxylating bacteria, 6281*e*.

**Alaninol**. See *1-Propanol, 2-amino*-.

**Alanyl chloride**, β-(*p*-**methoxyphenyl**)-*N*-*p*-**tolylsulfonyl**-, L-, 7458*f*.

**Alaskite**, of Newfoundland (St. Lawrence area), 1292*e*.

**Albamine** See *Acetamide, N-sulfanilyl*-

**Albasil**. See *Sulfanilanilide, 4'-(dimethylsulfamyl)*-

**Albertols**. See *Phenol condensation products*

**Albichthol**, P 3572*c*.

**Albite**. (See also *Plagioclase*.)
of Brazil (Conselherio Pena, Minas Gerais), 2549*c*.
as cementing substance for sands, 6550*d*
dolerites from Nakop Brook in Poręga Mt., 4191*b*.
in druses in granite and rhyolite of Drăgănului Valley, Rumania, 5709*b*.
formation in Mt. Blanc massif, temp. of, 2899*b*.
formation in K metasomatism of Caledonian granitoids of Terska-Alatau Ridge, 7386*c*.
hydrothermal alteration of, at 250°–400°, 8313*f*.
of Italy (Aosta Valley), 2128*a*.
soils, 3127*d*.
stone (artificial) from, P 3167*a*.
system: anorthite–diopside–, 1252*i*

**Albitites**, sodium metasomatism in formation of, and transitions into chlorite and amphibole schists and Fe ores, 6130*b*

**Albitization**, of infra- and supercrustal rocks of Finland, 3323*g*.

**Albucid**. See *Acetamide, N-sulfanilyl*-

**Albucid soluble**. See "sodium deriv." under *Acetamide, N-sulfanilyl*-.

**Albuminoid degeneration**, in tuberculosis, surface tension of blood serum in, 712*g*.

**Albuminoids** (*scleroproteins*). (See also *Collagen; Elastin; Keratins; etc.*)
amino acid content of, 4708*f*, 7062*h*.
of eye lens, 1815*d*.
of horny stems of Gorgonidae, I in, 1871*a*.
in tobacco (fermented Rumanian), 5907*f*

**Albuminous substances**. (See also *Proteins*.)
as concrete admixts., 4828*a*.
plastic material from NaOH, HCHO and, P 8744*d*.

**Albumins**. (See also *Albuminous substances; Plakalbumin*; "proteins of" under *Eggs*; etc.)
adsorption of egg, and its cleavage products, 2650*h*.
adsorption of egg, by $SiO_2$ gel in presence of salts, 1624*f*.
aggregation phenomena in egg, 3690*c*.
analysis (electrophoretic) of egg, 5433*c*, 9110*b*.
analysis for amino acids and proteins, 4315*f*.
antibody to ov-, passive sensitization with nonprecipitable, 7574*g*.
of blood and eggs, surface areas and heats of absorption of, 2245*a*.

**blood, binding of antimalarials by, and effect on their antirespiratory action, 1108*i*.**
as bonding material for fiberglass fabric to phenolic resins, P 8208*i*.
diagnostic value of, 9237*i*.
in hemolytic disease, effect of cold on, 2697*d*.
of normal and diseased patients and their detn., 1453*i*.
in pregnancy, 8480*i*.
in Recklinghausen disease, 8523*g*.
in tuberculosis of children, 2313*b*.
turbidities of ppts. of, in gummy suspensions, 3873*i*.
**blood-plasma, 3054*h*.**
binding of org. ions by, 7062*c*.
isoelec. point of, in relation to ionic strength, 3860*g*.
pptn. by $Na_2SO_4$ and their detn., 4745*d*.
in blood plasma, after castration and testosterone-propionate treatment, 2303*b*.
effect of adrenal cortex hormones on, 3909*h*.
α-globulin content and, 6726*h*.
in multiple lymphoma, 5109*h*.
in pneumococcic infections, 2305*h*
in blood plasma and serum, equil. with bound globulins, 1813*i*.
in blood plasma and serum of sheep, 9204*i*.
in blood serum, 9206*g*.
in hepatitis, 2308*h*.
in insanity, 9232*h*.
in rheumatoid arthritis, 5487*i*.
after vaccination against hoof and mouth disease, 3513*a*.
**blood-serum, action on tuberculostatic compds., 3880*g*.**
adsorption by, and entropy and heat of dilu. of, 6491*e*.
amino acid compn. of, 5812*i*.
amino acid pattern of portal blood after feeding, 8505*e*.
binding of Fe by, 9209*b*.
binding of Me orange by, effect of temp. on, 5433*a*.
cholesterol in cryst., 9233*e*.
colloidal properties of heat-denatured, 7782*d*.
combination with hydroxy-substituted aromatic acids, 4708*b*.
combination with org. anions, 2250*d*, 4707*g*.
complex formation with tobacco-mosaic virus or tomato-bushy-stunt virus on heating, 9106*b*.
complex with bilirubin, 5433*g*, 8485*a*.
Cu bound by, in biuret reaction, 4305*i*.
crystn. in neutral or alk. solns., 3481*c*.
detection of, 5704*b*.
detn. of mol. wt. of, 4538*g*, 6043*g*.
effect of $LiIO_4$ on, 5814*g*.
effect of salts on isoelec. and isoionic points of, 3690*b*.
electrophoretic studies of, 3863*c*.
electrophoretic study of binding of salt ions by, 3860*h*.
guanidinated deriv. of, 8404*c*.
infrared spectra and amide linkage in, 4310*g*.
infrared spectra of, 7062*e*.
interaction with free and esterified oleic acid and lipase in cultivation of tubercle bacillus, 2668*f*.
metabolic studies on intravenously administered, 7591*g*.
nutritive value of intravenously hydrolyzed, 9189*f*.
origin of, 8523*b*.
pptn. with tannic acid, 261*e*.
reaction with alkyl sulfates, 5064*h*.
reaction with $CdSO_4$, 6695*i*.
reaction with thymol, 9093*c*.
in senility, 8513*h*.
structure of, and its interaction with external medium, 6264*f*.
in treatment of premature infants, 3086*a*.
ultracentrifugation of, 7521*a*.
**blood-serum and egg, products of digestion by trypsin and pepsin, 1816*b*.**
**in bone marrow in various conditions, 4359*i*.**
**in cerebrospinal fluid, 2311*e*.**
in cryptogenic epilepsy, 2667*b*.
and their immunochem. estn., 9232*c*.
in inflammatory diseases of nervous system, 9235*b*.
after injection of nicotinic acid, 2296*h*.
cleavage of, by heating in ethylene glycol,
coating with, on Al and Al alloys, P 5001*e*.
color of egg, effect of isopropanol-extd. cottonseed meal on, 1497*c*.
in colostrum of cow, effect of prepartal rations on, 740*i*.
complex of Cu and ov-, phenoloxidase action of, 3856*a*.
compd. of ov-, with glutathione, 3857*d*.
congealing of ov-, 6492*a*.
in cross fertilization, 776*d*.
denaturation of egg, by heat, 1446*c*.
detection of ov-, 4324*h*.
detn. of, 9120*d*.
in blood, 265*f*, 2666*c*.
in blood plasma, 4314*g*.
in blood serum, 4719*cf*, 7534*c*.
in cerebrospinal fluid, 7539*e*.
in gastric contents, 262*g*.
in milk, 3533*d*.
diet contg. salad oil and egg-white, vitamin A activity of, 9185*h*.
dispersion of egg-white, in aq. Na alkyl arylsulfonate and regeneration of fibers from dispersions, P 2785*c*.
edema from egg white, effect of adrenaline and arterenol on, 6309*e*.
effect of administration of, in hepatitis, 2696*f*.
effect of egg, on antiseptic mercurials, 9376*f*.
on biochem. decompn. of cellulose, 3609*d*.
on precipitin production, 9223*d*.
effect of parenteral injections of bovine, on hemoglobin excretion in rats, 1870*d*.
effect on blood coagulation, 5811*i*
on hypoalbuminemia in pneumococcic pneumonia, 2305*h*.
on proteolytic activity, 4705*i*.
egg, in beer preservation, P 7190*d*
in fermented beverages from whey, 5153*i*.
fibers of ov-, $H_2O$ absorption by, phys. structure and, 7787*h*.
flavin of egg—see "$B_2$" under *Vitamins*.
foaming of egg, 9098*e*.
formation in hepatectomized animals, 2252*b*.
-globulin equilibrium in schizophrenia, 2305*e*.
globulin ratio to, of blood in anaphylactic shock, 3510*h*.
in blood serum, detn. of, 264*c*.
of blood serum, effect of delipidation on, 8420*d*.
in blood serum in protein deficiency, 3076*i*.
of potato protein, 5429*g*.
hemin compds. with egg, in liq. $NH_3$, 702*e*
hexone bases and dicarboxylic acids in, 7002*h*.
homologous and cross reactions of chicken and duck-egg, 1103*b*.
hydrogen-ion concn. of egg, 5509*i*.
hydrolysis of ov-, at high pressures, 705*c*.
hydrolyzates of egg, optical specificity of, 6265*b*.
hydrolyzed egg, sepn. by ion-exchange resins, 8807*b*.
hypersensitivity to egg wax of tubercle bacillus and, 7125*i*.
hypochlorite effect on, during disease, 7568*d*.
immunological studies on egg, 5857*b*.
inhibitor of influenza virus hemagglutination in egg, 9149*h*.
interface of egg, with water, concn. of ions at, and its relation to biol. effects, 8411*h*.
isocyanate derivs. of egg, P 3241*f*.
labeled with radioactive I, immunologic reactivity of, 9233*f*.
lact-, agenized, effect on animals and humans, 3532*i*.
amino-acid content of, 7597*b*.
bacteria in differentiation of, from casein, 3533*h*.
chromatography of amino acid mixts. from hydrolysis of, 3746*d*.
effect of heating on, 5876*i*.
effect on hypophysectomized rats and effect of growth hormone thereon, 1093*a*.
hydrolyzates of, effect on regeneration of blood plasma proteins in protein depletion, 8023*b*.
nutritive value of, 8568*a*.
nutritive value of, effect of heat on, 5458*g*, 7097*h*.
purification of, 5136*g*.
suspension of, P 2575*g*.
in milk (cow and human), nutritive value of, 6748*i*.
mol. wts. of ov-, 3264*h*.
monolayers of beef-serum, horse-serum and ov-, mol. structure and viscosity of, 3689*h*.
in myohemoglobinuria, 300*g*.
in normal and hypoproteinemic swine, 2293*h*.
nutritional value of raw egg-white, 3900*d*.
nutritive value of egg and lact-, 1469*c*.
org.-ion binding by bovine, 1241*d*.
osmotic pressure of egg, 6694*c*.
peptic digestion of egg and serum, electrophoretic sepn. of products of, 6250*e*.
plakalbumin formation from ov-, 3857*b*, 4717*d*.
plaster of Paris contg., P 4444*a*.
polarographic reactions of, in buffer solns., 1821*i*.
potato, denaturation of, 7527*d*.
precipitation from blood serum, 4316*f*.
precipitin response to egg, in normal rabbits and in alloxan diabetic rabbits, 1481*a*.
protein products from egg, P 6332*h*.
proto acid, water removal from, 3860*c*.
reaction of egg, with alloxan and dialuric acid, 4306*h*.
recovery of egg, from shells, P 788*b*.
sensitizing dose of ov-, effect of alum adjuvant and site of administration on, 4369*d*.
silver nitrate electrolysis in presence of, 7356*g*.
soly. of egg, effect of polarity of washing reagent on, at various temps., 4860*g*.
soybean, extd. with urea solns., viscosity of, 4861*b*.
surface properties of egg, 2842*b*.
in synovial fluid, 9202*c*.
thermal analysis of, 9137*b*.
trypsin inhibitor from egg, detn. of trypsin in presence of, 6688*h*.
ultraviolet effect on egg, 9109*d*.
in urine after injection of egg and serum, 8547*b*.
virus-hemagglutination inhibitor of egg, interaction with swine influenza virus and its sepn., 7569*f*.
vitamins $B_1$ and $B_2$ in egg, 1875*h*.
water-vapor sorption by egg, 7294*d*.
**Albumin substitutes, Milei W as, 3533*f*.**
**Albuminuria.** (See also *Proteinuria*.)
significance of, 4759*d*.
**Albumoses.** See *Proteoses*.
**Albumosuria.** See *Proteosuria*.
**Alcaligenes, *abortus*—see *Brucella abortus*. *melitensis*—see *Brucella melitensis*.**
sensitivity to penicillin, streptomycin and sulfadiazine, 4336*g*.
**Alcamines.** See *Alcohols*.
**Alcapton.** See *Homogentisic acid*.
**Alchemy.** (See also *Biographies*.)
age of, 1229*h*.
Albertus Magnus and, 8761*d*.
alchemists of Lorraine, 8759*i*.
books: Alchemisten und Rosenkreuzer, 2084*a*; Alchemists, 6072*e*; Bibliotheca Alchemica et Chemica, 6501*b*; Katalog der arabischen alchemistischen Handschriften Deutschlands, 8256*h*.
and the Cabal, 4908*i*.
history of, 2049*f*.
Newton as alchemist, 8759*g*.
**Alclad, 24S-T, measuring paint-film thickness on, 418*h*.**
**Alcoholates.** (See also *Aluminum alcoholates; Sodium ethoxide;* etc.)
alkali metal dialkylamino-, reaction with benzhydryl halides, P 1064*d*.
alkali metal, of 2-alkenols, P 4284*d*.
as catalysts in ester-exchange manuf. of esters of secondary and tertiary alcs., P 7051*e*.
as catalysts in reaction of esters with $NH_3$ or amines, P 4289*a*.
compds. with trialkyl borates, reaction with $B_2H_6$, P 4684*i*.
in isodibenzanthrone manuf., P 6237*g*.
reaction with diborane, P 4684*h*.
reaction with $SiCl_3F_2$, P 6220*a*.
as catalysts in reaction of CO with alcs., 3697*i*.
as catalysts in reaction of vinyl ether with alcs., 6157*d*.
ester carbalkoxylation with mixts. of dialkyl carbonates and, P 2225*h*.
in gelation of rubber, 429*h*.
reaction with anhydrides, 1324*i*.
with α-bromosenecioic acid, 6975*a*.
with halo nitriles, P 3027*e*.
**Alcohol dehydrogenase, 9122*i*.**
destruction by autolysis, 2260*g*.

from liver, 1445*h*.
in liver after thyroidectomy, and effect of lactoflavin and thiamine thereon, 6708*b*.
in plants, 8462*a*.
**Alcoholism**. See *Ethyl alcohol*.
**Alcoholometers**. See *Ethyl alcohol*
**Alcoholometry**. See "detn. of" under *Ethyl alcohol*.
**Alcohols**. (*Entries referring to* Butyl alcohol, Ethyl alcohol *and other simple alcohols will be found under these common names. Complex aliphatic alcohols are indexed under the Geneva names.* (*See* Ethanol; Propanediol; *etc.*) *Aromatic alcohols containing one or two aromatic radicals attached to the CO H group will be found under* Benzyl alcohol *and* Benzhydrol, etc., *rather than under* Methanol. *Alcohols containing three aromatic radicals, however, will be found under* Methanol. *See also* Cycloalkanols; Hydroxy compounds; Sterols.)
acetals—see *Acetals*.
acetylation of, kinetics of, 7796*b*.
acetylenic, P 1928*f*, P 2219*b*, P 5410*h*, P 6219*b*.
chlorohydrins of tertiary, 2182*b*.
hydrogenation of, 3783*b*, 6960*h*.
oxidation of, 7415*c*.
prepn. of, 6571*e*.
reaction with $HgCl_2$, 7412*h*.
acid removal from solns. of, P 5517*i*.
acylating agents (fluorescent) for, 7936*e*.
adsorption by complex of $\alpha$-Zn(OH)$_2$ and Na 2,4-dinitro-1-naphthol-7-sulfonate, 5255*b*.
adsorption by $Ph_2NH$, 464*e*.
aliphatic higher, from sperm whale oil, P 7951*g*.
alkylenediminodi-, 3800*b*.
alkylideneamino, P 7955*c*.
(alkylmercapto), and their esters, P 3447*e*.
amine (aromatic secondary) dispersion in $H_2O$ by higher, P 690*f*.
amino, P 3029*c*, P 4290*c*, 5027*i*, P 5036*c*, P 5412*a*, 9070*f*, 9071*b*, P 9080*g*, P 9081*b*.
from 2-acetylfluorene, 193*h*.
*N*-alkyl derivs., P 2633*e*.
*N*-alkyl derivs., from hydrogenated amino anilide-D-glucose condensation, surface-active, P 4499*c*.
butadiene sepn. from olefins by aq. solns. of cuprous salts contg., P 6218*b*.
condensation products with fatty acids, analysis of sulfated, 8705*g*.
derived from 10,?-diacetyl-9,10-dihydroacridine, 233*d*.
effect of acid strength on cleavage of, 231*b*.
effect on blood vessels after pretreatment with ergotamine, 3928*e*.
effect on respiratory exchange of liver, 4385*h*.
esters, as demulsifiers, P 5937*g*.
esters, for removal of org. compds. from oil wells and pipe lines, P 5938*d*.
esters, for removing of mud sheaths from oil wells, P 5938*c*.
esters, for soap improvement, P 9495*f*.
esters, salts, P 6652*b*.
esters with $\alpha$-alkylidene or $\alpha,\alpha$-dialkyl fatty acids, P 3443*d*.
esters with (aminoalkoxy) acids, P 3462*d*.
esters with aryl cycloalkanecarboxylic acids, P 6655*gh*$_1$, P 6656*ab*.
esters with aryl-substituted aliphatic acids, P 2639*f*.
esters with benzoic acid and its derivs., salts, P 4696*g*.
esters with carbonate of diethylene glycol, P 5180*g*.
esters with 5-carboxy-1,2,4-trimethyl-3-pyrroleacrylic acid, P 4302*i*.
esters with dehydrocholic acid, P 1814*f*.
esters with derivs. of pyrroledicarboxylic acids, P 4302*fgh*.
esters with *p*-dialkylaminobenzoic acids, P 2640*b*.
esters with *p*-(2,5-dialkyl-1-pyrryl)-benzoic acids, P 690*g*.
esters with 2,5-diaryl-1-methyl-3,4-pyrroledicarboxylic acids, P 4700*i*.
esters with fatty acids, amphoteric surface-active, P 3638*g*.
*amino*, esters with fatty acids, hydrohalides, P 674*e*.
esters with *N*-phenylanthranilic acid and its derivs., P 4697*b*.
esters with 3-thiophenecarboxylic acid, 630*f*.
esters with trisubstituted acetic acids, 3391*i*.
ethers, 630*h*.
as foam inhibitors, P 2348*b*.
(hydroxyphenyl) derivs., P 3460*b*.
I in development in chromatographic identification of, 5336*e*
nitrous deamination of, 2600*d*.
oxidation of, 6570*a*.
phenyl derivs., 2601*c*.
polymers from diisocyanates or diurethans and, P 6867*a*.
prepn of, 1723*a*, 7442*g*.
from reduction of amino acid esters, 2582*a*.
related to 6-dimethylamino-4,4-diphenyl-3-heptanone and their esters, 3390*h*.
salts with hydroxy fatty acids, P 1052*i*.
salts with 1-sulfanilyl-2-thiourea, P 686*i*.
sepn. of diastereoisomeric, 4238*b*, 6999*d*.
Na phenobarbital decompn. in solns. of, 9375*d*.
stereochemistry of cyclic, 3372*g*.
S dye solns. in alkyl, P 8169*i*.
amino (acetylenic), esters of, hydrogenation to amine salts, 131*c*, 6977*g*.
amino acid extn. with, P 6654*d*.
(aminoalkylmercapto), esters with $B_7OH$ derivs., P 3461*c*.
amino and diamino, as solutizers for thiols in hydrocarbon oils, P 4844*c*
amino, and sulfamates, as humectants, 3542*e*.
amino ($\alpha,\beta$-di ) tertiary, 7025*b*.
amino or di-, condensation products with dibasic acids, technology of rubbery, 4885*g*.
amino tertiary, P 5417*c*.
dialkylol derivs., rubberlike polymers with dicarboxylic acids, P 7257*h*
salts, as latent catalysts for amino plasts, P 5230*b*.
ammonia elec. cond. in, 5655*h*.
anhydrides of polyhydric, 2939*f*, 2940*a*
aniline alkylation with, P 7041*h*.
antimony(III) fluoride soly in, 6890*b*
aralkyl, from phenolic ethers, 5759*a*
azeotropes of, 2835*a*
bactericidal or fungicidal effect of homologous series of, surface tension and, 5823*h*.
in beer in relation to foam, 6781*a*, 9359*g*
benzene alkylation with, 6583*c*, 7915*i*
blowfly tarsal receptor stimulation by, 2358*f*, 4778*e*
butyl vinyl ether polymerization in presence of, 995*d*
calcium acetate colloids with, 5654*d*.
cellulose prepn from vegetable material with polyhydric, 7227*a*.
chloride argentometric detn. with insol , 8947*f*
chloroformates of unsatd., polymers of, P 5230*f*.
chromatographic sepn. of aliphatic, 67*h*
chromatographic sepn of epimeric, 2894*f*.
coating industry supplies of polyhydric, in Germany, 2787*i*
from coconut oil acid Me esters, manuf. of higher fatty, 5208*d*
compds. of monohydric, with carboxylic acids, 7409*b*
compds. with $BF_3$, structure of, 5657*f*
with carbonyl compds. and with ethers, 7408*i*.
with halloysite and montmorillonite, 463*d*.
condensation of, acyclic hydrocarbons by, 5003*c*.
condensation products of—see also *Resinous products*.
condensation products of long-chain aliphatic monohydric, with citric acid, surface-active, P 6846*c*.
condensation products of polyhydric, and sepn. from inorg. compds., P 8743*a*.
condensation products of, with aminotriazine and HCHO, surface-active, P 4498*i*.
with $C_2H_4O$ for textile industry, 4016*c*, 5953*e*.
with HCHO and melamine, mixts. with polyvinyl-acetal resins, P 3662*c*.
with HCHO, melamine and urea, P 5999*c*.
conversion into conjugated, 991*h*, 992*i*, 993*c*, 994*a*.
corrosion by, 986*e*.
as corrosion inhibitors in lubricants, etc., 1953*g*.
crit. temp. cube additivity for, 7277*d*.
crotonaldehyde in prepn. of higher, 5363*g*.
cyano—see *Nitriles*.
cycloaliphatic, P 5416*d*.
of cyclopentaphenanthrene series—see *Cyclopenta[a]phenanthrene*.
dehydration of, 557*b*, 2156*i*, P 5032*h*.
dehydration of, catalysts for, P 6763*b*
dehydration of furyl polyhydric, 4664*e*, 5391*i*.
dehydrogenase—see *Alcohol dehydrogenase*.
dehydrogenation of secondary, to ketones, P 6050*e*.
dehydrogenation of, thermodynamics of, 8247*b*.
dehydrogenation to aldehydes or ketones, 1635*c*, 2852*c*, P 4287*f*.
density of aq., measurement of, and effect of temp. and pressure on, 8310*i*
derivs. (sol.), 4627*d*.
destruction of, on clothing, leather, etc., P 4022*h*.
detection in textile auxiliaries, 1585*c*
detection of ether alcs. and, 8974*c*
detn. of, 8310*h*
in hydrocarbons, 8943*i*
by mass spectrometer, 8974*e*
in presence of org. substances, 5703*e*
dihydric—see *Glycols*.
3,5-dinitrobenzoates, 5015*g*
dinitro secondary, P 7952*i*
distn. of, column for, P 3249*a*
from mixts. of alkyl sulfates and $H_2SO_4$, P 5790*c*, P 6645*f*
under vacuum, 8709*i*.
in Douglas fir-lignin residue extractives 1182*f*.
drying of, P 1228*d*, P 6362*b*
dust-collecting compns from polyhydric P 3120*g*
effect on acetate rayon of homologous series of, 2777*f*.
effect on elasticity of oleate systems with KCl, 6491*f*
on electrokinetic potentials of sulfates 4924*e*
on electrophoretic deposition of carbonates and oxides giving thermionic electronic emission, 8908*e*
on gelling and viscosity of solns. of gelatin, 4540*f*.
on rearrangement of diazo ketones 4654*c*.
on stability of supersatd. solns. of $KNO_3$, 8805*h*
elec. birefringence of solns. of, 469*e*
elec. properties and mol. rotation in long chain, 5245*h*.
enediol reaction with 2,2-dihydroxy-1*H*-benzonaphthene - 1,3(2*H*) - dione 2667*d*.
enol, from $\beta$-dicarbonyl compds , 1009*h*
by ester hydrogenation, prepn. of higher, 5363*f*.
esterification of—see *Esterification*.
from ester reduction with Na, manuf. of, P 3835*f*, 4215*f*, P 5216*b*
esters (mono-) and monoglycerides of polyhydric, with fatty acids, prepn of, 6842*h*.
esters of polyhydric, P 5794*d*.
with acyloxy compds. and diglycolic acids, P 1955*c*.
with fatty acids, 137*d*.
with fatty acids as ointment-base constituents, hydrophilic properties of, 8610*a*.
with mercapto acids, P 4290*c*
with tall-oil fatty acids, cutting-oil base from rosin soaps and, P 4845*g*.
from esters, prepn. of, 572*b*, P 1586*h*.
etherification of long-chain satd., 5003*d*, 6156*e*.
from ethers (cyclic) by Grignard reaction, prepn. of, 3776*d*, 6155*b*.
ethers, reactions with 1-(1-halopropyl)-3,4-methylenedioxybenzenes, P 2639*i*
from ethers (unsatd.) by hydrolysis, manuf. of unsatd., P 5790*f*.
$\gamma$-ethylenic, prepn. of, 2994*b*, 5734*i*.
extinction coeffs. of homologs of aliphatic,

effect of no. of C atoms and branching structure on, 59*d*.
from fatty acids or oils, P 1202*c*.
fatty, photographic emulsions resistant to scratches contg., P 4592*f*.
in flavoring materials distd. from potatoes, 5879*f*.
flotation of ores with aromatic, P 4624*d*.
flow birefringence and relaxation time of, 7284*g*.
fluorescent activation in chlorophyll by, 6922*b*.
foaming tendency of, polymers of chlorofluorinated org. compds. for reducing, P 846*c*.
formation of, in hydrocondensation of CO with $C_2H_4$, 4829*i*.
in oxidation of paraffins, 9030*d*
by peroxide group tautomerization in fat spoilage, 3217*a*.
in Schmidt reaction, 9027*f*.
formation of secondary, in free radical decompn. of aldehydes, 1715*d*
free energies of, 477*h*.
friction at m. p. and reaction with metals of long-chain, in lubrication tests, 2417*g*.
loss decline in white alkyd enamels from polyhydric, 2446*h*.
alogenated, P 3835*g*.
alogenated, anion-active resins from alkylene polyamines and, P 6339*ae*.
eats of dissocn. of, 6479*d*
ydraulic fluid from polyhydric, P 1504*d*, P 3949*i*.
ydrogen (active) detn. in, 3316*f*.
ydroxyethylation of, P 673*g*.
ydroxyl group detn. in, 66*i*.
lentification and detn. of, crit mixing temps. of paraffin oil and water in, 8709*a*
dentification and detn. of polyhydric, in alkyd resins, 6459*e*
dentification and detn. of, with 3-nitrophthalic anhydride, 5767*b*.
nition temps of, 5658*b*
nterfacial friction and, 2060*a*.
eto—see *Ketols, Ketones*.
rom latex, 4041*i*.
ubricant prepn. from, 8125*g*.
as lubricants, 8799*h*
lubricants from reaction products with unsatd. acids, maleic acid or an hydride, olefin oxides or glycols, and aliphatic amines, P 7679*a*.
lysozyme inhibition by long-chain, 7981*a*
macrocyclic, fatty acid transformation to, 1581*a*.
magnesium or Mg alloy treatment with $H_2SO_4$-acidified polyhydric, to bond with rubber-deriv. cements, P 2807*g*
manuf by oxidation of cyclic hydrocarbons and lubricant additives therefrom by reaction with $P_2S_5$ and metal salts, P 1950*c*.
manuf of, P 660*c*, P 3438*f*, P 3835*d*, P 4284*h*, P 4692*i*, P 5031*i*, P 5032*f*, P 5410*g*, P 5422*b*, P 5584*d*, P 5901*g*, P 6645*g*, P 7035*h*, P 7213*b*, P 8397*h*
manuf of, from $C_2H_2$, catalyst for, P 5887*b*.
manuf of, from synthetic fuels, 8646*f*.
manuf. of higher aliphatic, P 7497*c*.
manuf of higher, by condensation, P 3337*i*.
manuf. of polyhydric, P 7505*a*.
manuf. of secondary, by oxidation of alkyl aromatic hydrocarbons, P 5421*g*.
manuf of tertiary, P 7513*f*.
manuf of $\beta,\gamma$-unsatd., P 7497*k*.
manuf of unsatd., from haloölefins, P 7952*b*
from methane oxidation at high pressure, P 6811*f*.
in milk, after feeding alc. fermented fruit residues, 5876*i*.
mixts with aldehydes, spectra of, 2095*b*
with cyclic amines, ultraviolet absorption by, 4138*i*.
with ethers and water, and their analysis, 8273*g*.
with HCHO, distn of, and state in vapor phase, 6470*h*.
mol assocn. of, 178*f*, 7793*d*, 8765*h*.
with amines, 7442*a*.
vapor pressure and viscosity in relation to, 2059*eg*.
(4-morpholinyl) and (1-piperidyl) derivs. of tertiary, 9071*fg*.
nitration of, P 5411*b*.
nitro, P 665*b*, P 3438*h*, P 5411*d*.
and their nitrates, P 6646*i*.
nitrates, reaction with alcs., P 665*d*.
*nitro*, reaction products with amines as insecticides, P 813*a*.
reaction with diazonium compds., 4646*f*.
nitro aryl, P 3038*b*.
nitro, for insolubilization of polyvinyl alc. and esters, 9533*e*.
nitrogen fixation by *Azotobacter* and, 7173*a*.
nitropolyhydroxy, polymers with polyamines, P 8209*d*.
2-nitro, reaction with bisulfites, P 9079*a*.
as ointment-base constituents, hydrophilic properties of, 8609*i*.
osmosis of acids and sugars in, 7300*e*.
oxidation of, P 3025*g*, P 3842*b*.
by catalase and peroxide compds., 260*i*.
with chromic acid, 2925*i*
with Fenton's reagent, 5269*h*.
oxidation of polyhydric, with ammoniacal Ag soln. and detection, 2548*i*.
oxidation of polyhydric, with periodate, detn. of acids from, 2006*c*
oxidation of tertiary, 1387*g*, 3365*g*
oxidation or reduction of, Cu catalyst for, P 7609*g*.
oxo—see *Ketols; Ketones*.
Oxo process, plasticizers from, 5627*h*.
from paraffins, P 2219*a*.
paraffin-wax soly. in, 8126*d*
petroleum ether soly. in water and, 465*h*
from petroleum, Oxo and Synol processes for prepg long-chain, 8654*c*.
phenol alkylation with, P 687*f*.
phenolic, for connecting cellulose threads and rubber, P 417*d*.
formation in phenol-formaldehyde condensation, 8737*f*.
hardening reactions of, 433*e*
as models for polymerization of phenol resin systems, 433*e*
prepn. of, 7000*c*.
reaction with thiols, 7000*e*.
phenoxy, as antifoaming agents, P 1202*g*.
phosphorylation of, 2650*c*.
phys. consts. of aliphatic, 2956*a*.
plant-tissue-growth inhibition by, 4349*c*.
polyallyl-type, P 6645*h*.
polyhydric, P 3447*k*.
polymeric polyhydric, P 1996*c*
polymerization of polyhydric, with polybasic acids and polymer of vinyl compds. with olefinic acids and drying oils or oil fatty acids, P 6433*b*.
polymers of $\beta,\gamma$-olefinic, P 1705*d*.
polythiodi-, aldehyde condensation products of, P 6001*e*.
in polythionate and polythionic acid soln. stabilization, P 7651*f*
prepn. of, from $CO_2$ reduction under pressure, 7899*c*.
from CO and H by Synol process, 994*e*.
from hydrocarbons, P 7949*h*.
Oxo and Synol processes for, 5571*a*.
prepn. of unsatd., from olefins with org. peroxy acids, 1309*h*.
prepn. of unsatd. higher, 5363*d*.
purification of, by hydrogenation, P 5032*e*.
purification of, removing water-insol. impurities in, P 5790*d*.
pyrolysis of, 7899*d*.
quinoline alkylation with, with simultaneous hydrogenation, P 2241*c*.
Raman spectra of, H bond and, 7345*f*.
reaction (addn.) with 2-butyne-1,4 diol, P 5414*c*.
reaction (addn.) with 1-nitro-1-alkenes, 1716*c*.
reaction of alkyl nitrites with amines in the presence of, P 9087*a*.
reaction of amino, with violuric acid, 7938*c*.
reaction of polyhydric, with aliphatic or haloalkyl acid or aromatic amido acid, surface-active agents by, P 8712*d*.
with borax and boric acid, 6986*c*.
with sulfates, resinous products from, P 4870*b*.
reaction of primary and secondary, with halogenated xanthydrols, 3822*e*
reaction of secondary and tertiary, with $(NH_4)_2Sx$, P 3028*b*.
reaction of tertiary, with $H_2O_2$, 6189*d*.
reaction with $C_2H_2$, P 5034*fg*.
with acrylonitrile, 7411*d*.
with acyl chlorides, 6057*d*.
with aldehydes, P 5034*g*.
with allylpyridinium chloride, 2159*b*.
with $NH_3$, P 5426*i*, P 7953*c*.
*reaction* with aromatic hydrocarbons, 164*a*, 1369*f*, 5759*g*.
with CO to give esters, P 3443*b*.
with carboxylic anhydrides and with diacylimines, 4220*i*.
with $ClCH_2CO_2H$ in the presence of NaF, P 678*f*.
with $SiCl_2F_2$, P 6220*a*.
with 3,4-dihydro-2*H*-pyran, 2203*i*
with dinitro paraffins or nitroalkyl nitrates, P 665*d*.
with 1,4-diphenyl-2-butene-1,4-dione, 622*g*.
with ethyl vinyl ether, 5365*e*.
with formals, CO and H, P 675*a*.
with furan in presence of Br or Cl, P 7970*b*.
with hexafluorocyclobutene, 7418*f*
with hydracrylic acid lactone, P 5035*i*.
with $HOCH_2CH_2CN$, 4639*c*.
with indan and 1,2,3,4-tetrahydronaphthalene, 2197*e*.
with lignin, resinous products from, 5630*b*.
with maleic anhydride copolymers, 8202*bi*.
with PhNCO, kinetics of, 7441*ae*, 7442*ac*.
with propylene oxide, P 391*a*, 1348*i*
with $SiS_2$, 4630*f*.
with sulfamide, 2573*c*.
with $SOCl_2$, 3780*d*.
with $HSiCl_3$, 9028*b*.
with vinyl esters to produce AcH acetals, P 1433*h*.
with vinyl ether, effect of acid-base nature of catalyst on, 2079*d*, 6157*c*.
reaction with CO, kinetics of, and soly. of CO in alcs., 3697*i*.
reactivity of tertiary alkyl, 3776*g*
rearrangement of unsatd., and their derivs., 112*af*, 113*bi*, 114*h*.
recovery from phytosterols from sulfate soap, P 9447*g*.
recovery from reaction products of hydrogenation of CO, P 7213*f*.
removal from spumiferous materials, P 4002*d*.
resinous compns. from, P 9525*b*.
from rice-bran and other oils by reduction, manuf. of higher, P 3835*e*.
in rice-oil wax, 5611*f*.
rice-wax hydrogenation in prepn. of higher, 8709*f*.
salt soly. reduction by, 7297*d*.
sepn. of polyhydric, P 3839*g*.
sesquiterpene, in turpentine of *Pinus lambertiana*, 9383*f*.
soap-micelle penetration by, 21*a*.
solubilities of homologous, in water, 6889*i*.
solubilization of, chem. constitution and, 466*h*.
by soaps, 7780*g*, 9492*a*.
with Na secondary alkyl sulfates, 466*a*.
as solvents, in continuous development of amino acids in paper chromatography, 8299*a*.
for extn. of aromatic hydrocarbons, P 8670*c*.
for org. finishes, 4028*c*.
soybean-oil stabilization and prooxidant metal scavenging by polyhydric, 882*d*.
spectra of, 7340*f*.
spermicidal, P 4818*i*.
sperm-oil, mixts. with Ca salts of sperm-oil fatty acids for lubricant improvement, P 7678*d*.
stereochem. equilibration of, 4215*a*.
steroid, derivs., P 3980*d*.
steroid, esters of polyhydric, P 6247*a*.
sugar, P 7505*c*.
boric acid complexes, amine salts derived from, P 1800*d*.
1-desoxy, 1,1-disubstituted, P 3447*i*.
manuf. by electrolysis, P 2104*e*.
sugar (reducing) removal from solns. of polyhydric, P 4037*a*.
sulfated or sulfonated—see also *Cleaning compositions; Wetting agents;* "esters, etc.," under *Sulfuric acid;* and "assistants for" under *Textiles*.
sulfated or sulfonated, in control of *Hoplo campa flava*, 3964*f*.
as dispersing agents for pigments, 5213*h*.
Fe tanning with aid of, 6852*d*.
saving fats in detergent industry by, 3636*c*.
as wetting agent in food drier, P 1123*h*.
sulfates of tertiary, 1386*d*.

syneresis acceleration in Na oleate gels by, 4080*a*.
synergism in action of primary, on flies, 5525*g*.
systems: aldehydes-, hemiacetal formation in, 5740*b*.
systems with $NH_3$ and cyclic amines, 5657*g*.
systems with cyclic amines, 8833*i*.
terpene, P 3039*g*, 3807*c*, 5768*c*, P 6219*e*.
detn. in essential oils, 5538*i*.
disinfectants and insecticides from Se- or S-treated, P 6778*e*.
in red spider control, 8600*b*.
tertiary aliphatic, P 8397*f*.
from thiol esters by hydrogenation, P 3445*c*.
thiophene alkylation with, 1395*b*.
thixotropic mixts. with Na oleate in emulsification of $C_6H_6$, 4923*d*.
trihalo derivs., P 664*d*, P 4284*h*.
unsatd., P 1063*c*, P 2629*c*.
urease activity and, 5060*h*.
utilization of polyhydric, by *Drosophila*, 322*g*.
vapor pressure at crit. point, 4063*c*.
vinylidene chloride polymer stabilization against heat with polyhydric, P 3233*f*.
waste waters contg., treatment of, 8587*c*
wax, cinnamic ester of, seborrhea production by, 8026*g*.
wool—see *Wool fat*.
*p*-xylylalkyl, 6990*f*.

**Alcoholysis.** (See also *Solvolysis.*) 1715*f*.
of allyl chloride derivs. with EtOH, rates of, 2849*d*.
of arylacetonitriles, 1385*a*.
of coconut oil with NaOH catalyst, 881*g*.
of esters, kinetics of, 7418*c*.
of ethers, alkyl group exchange in, 2972*b*.
of ethyl β-ethoxypropionate, 1322*f*.
of β-lactams, velocity of, 9034*d*.
of maleic acid polymers with vinyl acetate and vinyl chloride, P 2470*e*.
of silicic acid esters, 5737*h*.
soybean oil extn. by alkali-catalyzed, and effect on soybean proteins, 5209*b*.
of sugar derivs., 2954*d*.
of vinyl ester polymers, P 6867*e*.
of wood, constitution of ketols from, 4238*d*.

**Aldazines.** See *Azines*.

**Aldehyde.** See *Acetaldehyde*.

**Aldehyde acetals.** See *Acetals*.

**Aldehydecollidine.** See *2-Picoline, 5-ethyl-*.

**Aldehyde dehydrogenase,** 5056*b*.

**Aldehyde group.** See *Formyl group*.

**Aldehydes.** (See also *Cannissaro reaction; Carbonyl compounds.*)
acetylenic, 3355*a*.
adsorption by lignin, 5254*i*.
in air and smog, 7672*g*.
air disinfection by, 5083*e*.
amino, condensation of aromatic, with aliphatic amines, antioxidants by, P 4460*b*.
hydrogenation of, P 9080*g*.
of pyridine series, 6626*e*.
as rubber vulcanization accelerators and activators, 6857*h*.
amino (tertiary) aromatic, P 2232*h*.
anticryptogams from, P 8604*i*.
(arylmethylmercapto), P 6664*a*.
azeotropes of, 2835*b*.
blowfly tarsal-receptor stimulation by, 4778*d*.
bond in carbonyl group of, 7413*f*.
*tert*-butyl hydroperoxide derivs. of, 6156*e*.
butyl vinyl ether polymerization in presence of, 995*d*.
calcn. of free energy function, heat content, heat and free energy of formation of, 5658*e*.
chloro, as solvents for paraffin-wax removal, 8126*g*.
α-chloro, manuf. from starch, P 428*d*.
α-chloro-α,β-unsatd. aliphatic, oxidation of, P 4288*c*.
chromatography of, 1290*a*, 2067*g*.
chromatography with fluorescent silica gel, 1711*e*.
citrus oils, 3975*i*.
compds. with amine bisulfites, 3355*f*, 3356*a*.
with $CdCl_2$, 7000*h*.
with $NaHSO_3$, 7899*h*.
condensation (aldol) of, P 5415*h*.
condensation of, 6159*i*.
with amides, 6182*b*.
with 3,4-dihydro-1(2*H*)-naphthalenone, 2971*g*.
with HCHO in the presence of $Ca(OH)_2$, P 7505*a*.
*condensation of*, with malonic acid, 1030*e*.
with nitromethane, 2926*g*.
condensation products of—see also *Phenol condensation products; Plastic materials; Resinous products; Urea, thio-; Vinyl compounds;* etc.)
condensation products of aromatic, with 2-methylbenzimidazole for whitening cellulose-deriv. filaments and films, fluorescent, P 9474*e*.
condensation products of, with aliphatic Me ketones, P 2222*h*.
with allyl ether of anacardic materials, P 3241*b*.
with amines, as rubber vulcanization accelerators, effect of high mixing temps. on, 1210*f*.
with cyanoguanidine, P 9534*i*.
with hydroxyalkylguanidines or biguanides, for dye fastness improvement, P 3206*c*.
with hydroxyaromatic compds. and N compds. or polyamines, for lubricant improvement, P 2766*bcfg*.
with polycyanoacetamides, P 6003*a*.
with poly(hydroxyalkyl)amines, P 2633*g*.
with polythio glycols, P 6001*e*.
with sulfanilamide derivs., 4237*f*.
with sulfonic acids and metallo-org. compds., disinfectant, P 690*c*.
conversion of alicyclic, to acids and alcs. by molten alkalies, P 5416*c*.
decompn. of, secondary alcs. from, 1715*d*.
detection of, 1289*a*, 2777*c*.
detection of, in quebracho tannin, 3641*c*.
detn. of, 68*e*, 2894*g*, 4976*g*, 5341*b*, 5702*h*, 5703*b*, 8974*e*.
in essential oils, 3145*f*.
in exhaust gas (Diesel engine) and mine air, 8646*c*.
in orange oil, 1153*b*.
in sewage, 3123*c*.
detn. of α,β-unsatd., 1688*a*, 8976*d*.
di-, 2577*e*, P 6225*f*.
and the Doebner-Miller reaction, 3002*g*, 3003*ac*.
ethylene chlorohydrin extn. by, 5*i*.
in fat degradation by biochem. means, 421*i*.
in fat rancidification, 3217*c*.
fluoro, insecticidal, P 6358*a*.
formation in combustion of fuels and proknock effects of, 2411*b*.
formation of $\Delta^2$- and $\Delta^{2,4}$-unsatd., in autoxidation of cottonseed oil, 5973*b*.
formation of, from 1-acyl-1,2-dihydroquinaldonitriles and acids, 9072*a*.
from alcs., 1635*c*, 2852*c*.
from amino acids and sugars, 4501*i*.
in autoxidation of tall oil, 9442*h*.
in combustion of hydrocarbons, 7825*h*.
in combustion of propene, 5268*g*.
from dehydration of 1,3-butanediol, 5361*a*.
from esters of β,β-diphenylglycidic acid, 1041*a*.
in hides, 5617*c*.
free energies of, 477*h*.
free energy of C:O bond in, 3276*h*.
hydrogenation of, P 1063*c*, P 2219*a*, P 7035*h*.
hydrogenation of, in the presence of S or $H_2S$, P 2629*h*.
hydroxy—see also *Aldols*.
hydroxy, *p*-carboxyphenylhydrazones of, 5764*e*.
isomerization of, 3790*i*.
reaction with hydroxy ketones, 3791*c*.
reaction with tri-Et orthoformate, 2940*i*.
identification and detn. of aliphatic, crit. mixing temps. of glycerol in, 8309*a*.
identification of, as derivs. of 1,3-cyclohexanedione, 1336*c*.
identification of, hydrazides in, 6971*i*, 6972*cfi*, 6978*dg*.
isomerization of, into ketones, 4632*f*.
manuf. of, P 1805*i*, P 2222*f*, P 2632*b*, P 3025*h*, P 3562*b*, P 4287*bf*, P 4685*d*, P 5032*a*, P 5791*g*, P 7213*b*, P 8398*d*.
from methane oxidation at high pressure, P 6811*f*.
from synthetic fuels, 8646*f*.
from vinyl-type halides, P 9078*g*.
manuf. of α-unsatd., P 3026*a*.
mixts. with alcs., spectra of, 2095*b*.
mutation by, 1115*h*.
nitrogen derivs., spectra of, 1654*d*.
nitrogen fixation by *Azotobacter* and, 8591*h*.
octane values and structure of, 3998*a*.
oxidation (auto-) of, and its inhibition 604*d*.
as oxidation intermediates of hydrocarbons, 928*b*.
oxidation of, P 2632*f*, P 5035*d*.
to acid anhydrides, P 672*a*.
by $H_2O_2$ and $Na_2S_2O_8$ in presence of Fe 5269*i*.
in perfumes, 3974*d*.
polyhydroxy, P 2629*d*.
polymers (linear) contg. reactive, P 3235*f*
prepn. of, 2155*i*, 7417*e*.
prepn. of, from hydrocarbons, P 7949*h*
prepn. of α,β-unsatd., 7413*g*.
pyrolysis of, 7895*h*.
reaction (addn.) with olefins, 4637*a*.
reaction of cyclic, with 2,4-thiazolidine dione, 3819*h*.
reaction of unsatd., with carbamates 1389*i*.
reaction of α,β-unsatd., with β-hydro mucononitrile, P 3847*h*.
reaction products with aldehyde-polycy anoacetamido-compd., condensation products, P 6003*d*.
with amides and thiols, surface-active P 7242*d*.
with phenols for tackifying rubbers, 8195*g*.
reactions of aromatic, 9049*g*.
with acetoacetanilide and derivs 5013*g*.
with $AlCl_3$ and $C_6H_6$, 7005*e*.
with $(BzCN)_2$, 2974*g*.
with 1-methyl-4-picolinium iodide 7483*d*.
with morpholine or piperazine and S 5027*f*.
with nitrobenzamides and nitrobenzo nitriles, 1408*g*.
with nitroparaffins, 7453*e*.
with 5-nitro-*o*-toluamide, 3805*f*.
with *o*-toluamides, 3812*d*.
reactions of α,β-unsatd. cyclic, 160*g*, 7434*e*.
reaction with alcs., P 5034*g*.
with alkyl cyanoacetates, P 1436*e*
with amides, 2600*gh*.
with amine-ketone mixts., 4-piperidones by, 1410*a*.
with amines in presence of hypophosphorous acid, 5377*h*.
with amines or $NH_3$ in presence of $H_2$, 2155*g*.
with $NH_3$, P 1433*g*, P 5426*i*, P 5427*a*.
with aromatic amines and with phenols in presence of $HgCl_2$, 184*d*
with $CHBr_3$ or $CHCl_3$, P 664*d*, P 4284*h*.
with $CaC_2$ in presence of alkalies, P 2219*c*.
with di-Et oxalacetate Na deriv., 4221*e*.
with $H_2O_2$, 7434*d*.
with $H_2S$, thiols from, 7014*g*.
with hydroxytrimethoxyacetophenones, 1772*b*, 1773*f*, 1774*g*.
with ketenes, P 3840*c*, P 5037*f*, 5366*g*, P 5414*i*.
with 3-methoxyindole and with skatole, 629*c*.
with 1-methylalkylamines, P 3025*b*.
with mixts. of urea or related compds. and $NH_3$ or amines, 1782*d*.
with nitroalkanes, P 7952*h*.
with nitro aryl paraffins, P 3038*b*.
with $NO_2$, 6902*a*.
with nitro hydrocarbons, P 3438*h*.
with olefins to form glycols, P 673*c*.
with piperidones, 4274*e*, 4275*a*.
with polyanhydrides, P 1057*a*.
with pyridine in presence of Al or Mg, $HgCl_2$ and I, 2204*e*.
with $Na_2SO_3$, 3316*h*.
with sulfamides alone and with amine or $NH_3$, 2573*c*.
with tertiary org. hydroxyperoxides, P 2629*e*.
with thiols and H halides, 7409*d*.
recovery from reaction products of hydrogenation of CO, P 7213*f*.
recovery from tars, adsorption in, 5341*c*.
reduction of, 2155*i*, P 7509*d*.
reduction of, by $NaBH_4$, 2570*d*.
reduction potentials of, on dropping-Hg electrode, 5328*c*.
reductive amination of, P 5412*a*.
removal from higher alcs. by hydrogenation, P 5032*e*.
removal from hydrocarbons, P 3455*h*.
resolution of, 3356*a*.
soil disinfectant from, P 9357*c*

solubilities of homologous, in water, 6889*i*.
as stain-preventing agent for color film bleach, P 7850*h*.
*p*, *p'*-sulfonyldianiline derivs., 5541*f*.
systems: alcs.–, hemiacetal formation in, 5740*b*.
textile finishing with high-mol., 7689*i*.
thio, reaction with S, thioplasts by, 2025*f*.
thiosemicarbazones of cyclic, bactericidal action against tubercle bacillus, 3523*e*.
in tobacco smoke, 8102*h*.
unsatd., P 1800*h*, P 5034*a*, P 5418*b*.
α,β-unsatd., 3345*a*, P 6674*e*.
addn. to cyclic imides, 6169*g*.
as antioxidants for butter, etc., P 9294*d*.
reaction with conjugated diene, P 1058*d*.
of vitamin A series, P 5417*h*.
ler. (See also *Frangula*.)
control of *Alnus incana*, 4414*a*.
copper and Zn in leaves and wood of *Alnus sinuata* and twigs of *Alnus rubra* in biogeochemistry, 3321*c*.
*p* nitrobenzamide *N*-deriv. effect on, 2357*g*.
tannins from *Alnus japonica*, 889*f*.
ler flea beetle. See *Altica ambiens*.
limines. See *Imines*.
line. See "derivs." under *Pyrazine*.
lobionic acids, from almond-tree gum, 1323*h*.
of gum jeol, 1589*d*.
lol (*β-hydroxybutyraldehyde*), acetaldehyde removal from, P 2221*e*
l-amino-2-butanol from, P 9081*c*.
antioxidant value and destruction in watch lubricants, 4455*c*.
derivs , 6577*g*.
hydrogenation of, P 2223*h*.
manuf. of, P 3451*d*, P 5415*h*.
reduction of, and its oxime, 5367*b*.
toxicity of, 4401*f*
lolase, in blood serum and tissue of tumor-bearing animals, 6724*i*
detn in animal tissue, 5075*b*
electrophoretic and equil. analysis of, in phosphate and acetate buffers, 4311*a*.
from peas, 1840*f*.
in tumors, 7576*b*.
lol condensation. See *Condensation, chemical*.
lol-α-naphthylamine*, as antioxidant in rubber, 9516*g*
detection in rubber, 893*ci*
ldols, alk. hydrolysis of, 5763*c*
derivs., 6577*g*.
ldonic acids. (See also *Pentonic acids*.)
compns. with gelatin for Zn plating baths, P 2102*h*.
reaction products with piperonal for improvement of Zn electroplating, P 6096*a*.
reaction with $H_2O_2$, 7434*d*.
ldoximes. See *Oximes*.
le (See also *Brewing*.)
foam of, improvement of, 8608*h*.
microorganisms in, retardation of growth of, P 6783*a*.
lectrion obsoleta, cholesterol and heptacosane in, 1048*i*.
leprolic acid. See *2 Cyclopentene-1-carboxylic acid*.
leudrine. See *Protocatechuyl alcohol, α-(isopropylaminomethyl)-*.
leukia, alimentary, from toxic principles in grain, 1117*d*.
leurites, cold injury of, fertilizers and, 9325*a*.
copper deficiency of, 3552*e*.
fertilizer expts. with, 9324*f*.
with N and K, 9324*h*.
with potash, 1136*e*.
*cordata*, culture in U.S.S.R. and fermentation of fruit, 5204*a*.
fruit compn. and changes therein, 2279*d*.
*moluccana*—see *Candlenut*.
*montana*, pressing seeds of, with Krupp expeller, 4871*g*.
nutrient-element balance for, 1462*g*.
leuritic acid, condensation (poly) of, and its Me ester, 2941*a*.
ethyl ester, reduction of, 5369*f*.
leurocanthus woglumi and(or) Citrus blackfly, control of, 3555*g*.
lexandrite, color of, and production of Alexandrite color in crystals, 6028*f*.
lexin. See *Complement*.
lfa See "esparto" under *Grasses*.
lfalfa (See also *Legumes*.)
amino acids in, soil fertility and, 342*a*.
boron and, 3550*e*.
boron in, 1682*e*.
boron requirements of, and retardation by black walnut trees, 9313*h*.
calcium-Mg ratio in soil and, 3956*g*.
carotene content of, 8574*e*.
DDT dusting of, effect on honey bees, 2729*c*.
DDT in milk from spray residues on, 1501*b*, 8575*a*.
DDT residues on hay and chaff of, 1898*d*.
dehydrated, carotene preservation in, effect of water content and storage temp. on, 1879*g*.
effect of Cu, phosphate and Zn on, 8590*i*.
effect of CaO, P and sub-soil treatment on, 9328*f*.
effect on rabbit on milk diet, 1090*g*.
fall-armyworm control in, 1899*a*.
fat-rich and fat-low supplements with, comparative value of, 8472*i*.
in feeding beef calves, 6712*b*.
feeding expts. with, on vitamins A and C in blood, liver and milk of ewes and their lambs, 8467*d*.
feed rations of corn and, digestibility and metabolizability by lambs, 7158*e*.
feeds from, 3538*i*.
fertilizer and crop-rotation expts. with, 1130*c*.
fertilizer expts. with, with P, 3956*d*.
fertilizer expts. with, with Na, 7173*e*
in Hawaii, 9292*f*.
improving taste of water-sol. constituents of, P 6334*g*.
insect control on, 346*b*
insect control on, DDT mists in, 807*i*.
juice, in pptn. of proteins from milk, 6749*a*.
magnesium and, 3956*e*.
manganese deficiency in, 1513*b*.
meal, carotene detn. in, 6948*e*, 7152*e*, 9276*b*.
carotene retention in, 2339*c*.
carotene retention in, effect of moisture on, 9291*e*.
decompn. of, effect on soil Cu solv , 1514*a*.
effect on exchangeable Mn in soils, 3129*d*.
effect on fat of turkeys of ext. of leaf, 1087*i*.
effect on Na infiltration into soils, 1511*e*.
lipides and triglycerides of, 1999*h*.
prevention of loss of carotene in, 3538*h*.
mineral content of, seasonal variation in, 5449*h*
mixts with grass, effect of clipping on, 1515*c*.
muscle-inhibiting compd. in, and its relation to bloat, 6315*b*.
nitrogen in semiarid irrigated soils and, 6349*d*.
paper-pulp manuf. from *Medicago sativa*, 1183*c*.
phosphate detn. in, 8968*c*
pigment preservation in, P 6760*c*.
production and utilization of, 6330*b*
seed production, effect of insects on, 1521*e*.
seeds of, effect of scarification on longevity of, 1079*d*.
selenium in, 3890*e*.
sepn. of carotene, chlorophyll and xanthophyll from, 5543*f*.
silage from, 3539*b*.
carotene contents of molasses- and salt-treated, 9273*e*.
of Czechoslovakia, 8574*i*.
soil aggregation and, 2722*a*.
soil chem. properties and, 2350*d*.
soil fertility and, 2348*g*.
in soil N and org. matter maintenance, 9319*c*.
soil nutritional groups of bacteria and, 3957*i*.
spittle-bug control on, 1521*f*.
three-cornered-alfalfa-leafhopper control on, 2729*e*.
toxaphene residues on, and their effect on cattle and sheep, 8600*f*.
velvetbean-caterpillar control on, 1521*i*.
Alfalfa plant bug. See *Adelphocoris lineolatus*.
Alfalfa snout beetle. See *Brachyrhinus ligustici*.
Alfin, catalysts in metalation and polymerization, 429*g*.
Algae. (See also *Diatoms; Flagellates; Plankton; Seaweeds; etc.*)
boron effect on development and photosynthesis of, 8016*f*.
calcareous, Sr content and prepn. from, 5350*b*.
carboxyethyldimethylsulfonium chloride in *Polysiphona fastigiata*, 7061*c*.
cation adsorption by brown, 3068*c*.
cellulose in cell walls of *Valonia ventricosa*, electron microscopy of, 1961*d*.
cellulose of marine, 2285*i*.
chem. compn. of marine, 7094*f*, 8021*d*.
Chilean, 4728*i*.
control in cooling towers with Cl, 1128*g*.
control in Shustoke reservoir, 1885*b*.
control of marine, paints in, 5960*h*.
copper leaching rate from antifouling compns. to prevent settlement of, 3631*i*.
ext. of, as stabilizers for chocolate or other sirups, P 332*a*.
exts. of, ointment base from, P 7646*g*.
fluorescence and spectra of, 282*b*.
as food source, 6747*e*.
glycine deamination by green, 3494*b*.
growth conditions of *Scenedesmus quadricauda*, 6705*h*.
iodine in, of the Adriatic, 5450*e*.
lipide-contg. cells in, 2289*h*
lipochromes in gametes of Fucaceae, 2677*f*.
metachromatin in pseudovacuoles of Cyanophyceae, 5831*g*.
nucleus of, reaction with polyphenols, 1837*i*.
oxygen production by developing, 4793*h*.
permeability to salicylates, effect of cation on, 3495*e*.
peroxidase in, 1837*c*.
phosphorus metabolism in, in relation to photosynthesis, 1820*c*.
phosphorus turnover in lake and, 9098*g*.
plasmolysis of, 1835*a*
Spanish brown, use of, 3117*h*.
strontium sulfate manuf. from sea, P 6796*h*.
toxic, 7165*b*.
use of sea, 3542*f*.
in water supplies, control of—see *Water, purification of*.
Algarraba, beans, as feeding stuff for swine, 9292*i*.
Algin. See *Alginic acid*.
Alginic acid, 4857*e*
alkali metal salts, dry, P 9298*f*.
alkali or alk. earth salts, fibers from, 2778*b*.
in *Ascophyllum nodosum*, seasonal variation in, 2285*h*.
in brown algae, 3068*c*.
calcium salt, contraction of fibers by Na-ion exchange, 408*h*, 8237*g*.
and derivs., P 2648*f*.
detn. in seaweed, 2126*c*.
in *Durvillea utilis* polysaccharides, 4728*i*.
esters, P 4291*f*.
esters, complexes with borax, 6986*d*.
fibers from, alkali-resistant diepoxide-treated, P 7237*a*.
glycolates, as emulsifiers, P 1557*f*.
in kelps, 8616*e*.
manuf. and use of, 3542*g*.
in marine algae, 8021*d*.
propylene glycol ester, improving foam of fermented malt beverages with, 8608*g*.
reaction with HCHO, 141*a*.
salts, adhesive contg., P 8212*i*.
cellular material from, P 900*i*.
coating compn. from casein, polymerizable compd. and, P 1611*c*.
cosmetics, dentifrices, etc., contg , 1905*i*.
in dermatological and cosmetic bases, 8093*d*.
effect on frozen strawberry sirup, 3535*d*.
fibers from, P 5968*a*, P 7610*d*.
films or filaments from, P 7755*e*.
impression material from, P 1884*g*.
from seaweeds, P 4792*e*.
stabilizer for icings, P 6759*b*.
in seaweeds, 278*d*.
sodium salt, effect on drilling fluids, 8652*g*.
effect on supercooling of water, 1620*h*.
toxicity of, 1483*f*.
yarns from, 5967*i*.
soil aeration by, 6771*b*.
sol. compn. with alkali metal salt or hydroxide, P 2713*d*.
Algodonite, relations to β- and γ-domeykite, 6116*c*.
Alicyclic compounds. See *Cyclic compounds*.

**Alignment charts.** See *Nomographs.*
**Alimentary canal.** See *Digestive tract*
**Alipal,** 6436*d.*
**Aliphatic acids.** See *Acids.*
**Aliphatic alcohols, aldehydes, etc.** See *Alcohols; Aldehydes,* etc.
**Aliphatic compounds.** See *Organic compounds.*
**Alipols,** from abietic acid by dehydrogenation and decarboxylation, 4028*a.*
**Alite,** decompn. of, 7363*g.*
**Alizarin** (*1,2-dihydroxyanthraquinone*). (See also *Madder.*)
crystn. on $Sb_2S_3$, 1237*c.*
crystn. on sucrose, 8238*g.*
effect on polarography of metals, 5316*a.*
isomorphism with purpurin, 4810*i.*
polarography of, 2521*a.*
**Alizarin dyes.** See *Dyeing; Dyes.*
**Alizarin Red S*,** polarography of, 2521*a.*
**Alizarin Saphirol B*,** polarography of, 2521*a.*
**3-Alizarinsulfonic acid,** sodium salt, polarography of, 2521*a.*
**Alizurol Purple.** See *Dyes.*
**Alkadienes.** See "di-" under *Olefins.*
**Alkali cellulose.** See *Cellulose.*
**Alkali disease.** See "poisoning" under *Selenium.*
**Alkalies.** (See also *Alkalinity; Bases; Hydroxy compounds.*)
acrylic acid polymer filament extension and contraction in presence of, 8812*f.*
activity coeffs. of, hydration and, 7302*b.*
adsorption by C black, 7289*c.*
aluminum and Al alloy soln. in, rates of, 7398*b.*
aluminum hydroxide as, 2070*g.*
book: Handling and Transportation of– (in Russian), 2744*h.*
Brazilian industry of, 6793*c.*
burns in eye, 2341*i.*
calcemia from prolonged consumption of, 5489*e.*
carbon dioxide absorption by, kinetics of, 23*g*, 1631*a.*
carry-over of nonvolatile, in $NH_3$ distn in Kjeldahl detn., bulb for prevention of, 2891*c.*
catalyst activity control by, in hydrogenation of CO, 2397*hi*, 2399*h.*
catalyst contg., for hydrogenation of CO, P 4836*h.*
catalyst from C and, P 5886*h.*
as catalysts in alcoholysis of soybean oil by EtOH and MeOH, 5209*cde.*
as catalysts in condensation of 2-furalde hyde with phenol, 5224*i*, 5225*e*, 5226*e.*
in cements, origin and behavior toward $H_2O$, 8633*f.*
collagen cohesion and, 8719*d.*
detection and sepn. of, 6106*e.*
detection of, 4971*d.*
detergent—see *Cleansing compositions.*
detn. of—see also *Alkalinity.*
detn. of active alkali and causticity in paper-industry white liquor, 8678*b.*
detn. of active and total, in sulfate black liquor, 9442*c.*
detn. of free, in liquid toilet soaps, 5976*g.*
detn. of, in cement, 373*f.*
in glass, 8111*c.*
in presence of chloral, chlorates and chloride, 3745*b.*
in soaps, 3634*f.*
effect of molten, on alicyclic aldehydes, P 5416*c.*
effect on collagen, 3862*b.*
on detection and detn. of digitoxin, 2374*d.*
on optical rotation of Cu tartrate, 8242*i.*
on protein and colloid osmotic pressure of blood in renal disease and normal subjects, 4762*h.*
on reaction of 4-aminoantipyrene with phenols, 1044*e.*
on reaction of 9-*p*-methoxyanilinoacridine with $H_2S$, 649*f.*
on reaction of Raney Ni with halogen compds., 646*f.*
elec. cells producing—see *Cells, electrolytic.*
export control for, 5157*i.*
in flax decompn., 3201*i.*
fuller's-earth activation by, 9395*e.*
glass attack by, 5914*g.*
glass protection against, P 374*a*, 1162*f.*
glycerol photochem. oxidation by $K_2Cr_2O_7$ in presence of, 3695*i.*
hair damage by, detection of, 414*f*
indicators for—see *Indicators*
ionic refraction increments in, 3683*f.*
iron-oxide suspension in, Fe recovery from, P 6526*e.*
light-metal corrosion by, inhibitors for, 4622*d.*
manuf. of—see also "electrolysis" under *Alkali metal chlorides;* etc.
manuf. of, by electrolysis, P 3733*g*, P 4588*g.*
manuf. of, in Louisiana, 6371*h.*
materials resistant to—see *Alkali-resistant materials.*
mixts. with alginic acid, P 2713*d.*
with borax and dextrin, 9500*b.*
with lignin as lacquer, paint and varnish remover, P 6340*f.*
neutralization of—see *Neutralization.*
nickel anodes in, 7353*e.*
nitrile hydrogenation in presence of, P 682*f.*
oleic acid adsorption by, 8797*c.*
parchmentized rayon aftertreating baths from, P 9478*c.*
from petroleum refining, detn. of sulfides, sulfites and thiosulfates in spent, 8123*h.*
in phosphatase stabilization in dairy products, 779*d.*
polymeric acid gel swelling and deswelling by, 8803*c.*
pumps for, stuffing box for, P 4526*c.*
quartz crystn. from soln. of, 6026*h.*
reaction of aldehydes and ketones with $CaC_2$ in presence of, P 2219*c.*
reaction with acid soils, 7616*h.*
with aggregates, test for, 3589*i*, 6388*d.*
with $CO_2$, rates of, 1632*c.*
with (2-chloroethyl) silanes, 562*a.*
with colloidal $Al_2O_3$, acids and silicates, 9316*i.*
with deaminated wool, 4017*c.*
with methylenediphenols, 7465*d*
with α-(trichloromethyl)-2-quinolineethanol, 1411*i.*
regeneration of, after thiol extn. from hydrocarbons, P 1793*i*, P 4844*b*, P 5182*h*, P 7223*gh*, P 8664*d.*
removal from $Al_2O_3$, P 9397*a.*
removal from soln. by charcoal, effect of O on, 2840*d.*
removal of zeolitic, from gels, P 9299*b*
resin soly. in solns. of, 1584*c.*
resistance to, of ceramic ware, 5164*d.*
of glass, 2745*i*, 5913*d.*
of paint, measurement of, 419*c*, 4489*f*
review on, 4788*e*.
sand treatment with, for mortar, 7777*h*
soybean protein soly. in, 4469*g.*
systems with salts of heavy metals and tartaric acid, 5324*f.*
treatment with, pilot plant for, 4522*c.*
wetting agents for use with—see *Wetting agents.*
in wool piece-goods scouring, conservation of, 4862*c.*
wool soly. in, detn. of, 5192*g.*
**Alkali fusion.** See *Fusion.*
**Alkali metal acetates,** activity coeffs. of, hydration and, 7302*b.*
electrolysis in $Ac_2O$, 2876*h.*
**Alkali metal alcoholates.** See *Alcoholates.*
**Alkali metal alloys,** amalgams, decompn. of, P 510*b.*
amalgams, peroxy-compds. from, P 2380*f.*
for cathodes of power tubes, 4962*e.*
**Alkali metal aluminosilicates,** in blast-furnace linings, 5705*g.*
potassium aluminate manuf. from, P 369*c.*
**Alkali metal aluminum fluorides** See *Alkali metal fluoaluminates.*
**Alkali metal amides,** condensations effected by, 629*g*, 4253*g.*
**Alkali metal antimonates,** catalysts of Fe oxide and pyroantimonate, for hydrogenation of CO, P 1950*e*, P 4448*d.*
**Alkali metal antimony tartrates,** as color stabilizers for vinyl halide resins, P 3655*g.*
**Alkali metal borates,** complexes with quinone-resorcinol polymers for tanning, P 6452*f.*
**Alkali metal boron hydrides,** P 4684*ehi.*
**Alkali metal bromides.** (See also *Alkali metal halides; Bromides.*)
in acetic anhydride, behavior of, 2110*g.*
electrolytic cells for, P 6097*b.*
**Alkali metal carbonates,** acid, stability of, 2851*d.*
burning and spectrochem flux properties of, 8945*a.*
calcium carbonate activity coeff. in melts of, 6053*d.*
carbon dioxide absorption by, kinetics of, 23*g.*
catalysts from $Mg(OH)_2$, $Fe_2O_3$ and, in H manuf. from CO and steam, P 840*c.*
as catalysts in the condensation of 2 dialkylaminoethanols with benzhy dryl halides, P 1064*f.*
esters, as catalysts in alcoholysis of poly vinyl esters, P 6867*f.*
**Alkali metal chlorides.** (See also *Alkali metal halides; Chlorides.*)
in acetic anhydride, behavior of, 2110*g.*
adhesion of fused, to Pt and porcelain, effect of iodides on, 2062*i.*
color changes and dissocn. consts. of bromothymol blue and neutral red in solns. of, 3307*i.*
effect on spectrum of water, 7342*d.*
electrolysis of, P 7840*b.*
electrolytic cells for, P 6097*b.*
emissive power of, 4955*b.*
photolysis of aq. solns. of Cl and HClO in presence of, 6515*h.*
**Alkali metal chlorites,** activation of solns of, P 1160*e.*
manuf. of, P 1159*d.*
**Alkali metal chromates,** manuf. of, P 3157*g*, P 3984*a.*
**Alkali metal compounds.** (See also *Alkali metal salts; Potassium compounds* etc., as well as definite alkali metal compounds, as *Sodium chloride.*)
alkenyl, P 1795*b.*
manuf. from alkali metals, P 7202*i.*
of silanols, P 7500*b.*
**Alkali metal cyanides.** (See also *Cyanides.*)
decompn in aq. soln., 8821*b*
reaction of, polyamines and HCHO, P 3449*e.*
**Alkali metal ferrates(VI),** catalyst of Fe oxide and, for hydrogenation of CO, P 1950*f*, P 6338*g.*
**Alkali metal fluoaluminates,** manuf of, P 7201*b.*
**Alkali metal fluorides.** (See also *Alkali metal halides; Fluorides.*)
burning and spectrochem flux properties of, 8945*a.*
catalyst of HF and, in alkylation of hydrocarbons, P 3435*g.*
**Alkali metal formaldehydesulfoxylates,** salts, reaction with 3 aminopyridine derivs., P 3470*i.*
**Alkali metal formates,** as absorbents for $SO_2$, P 7201*f.*
activity coeff. of, hydration and, 7302*b*
**Alkali metal germanides,** 5321*d.*
**Alkali metal halides.** (See also *Halides.*)
adhesion of fused, to Pt and porcelain, effect of $PbCl_2$ on, 2062*i.*
bond energy and ionic character of, 8763*a*
bonds in, 8762*g.*
colored crystals of, deviations from Ohm's law for, 6879*h.*
compds. with Al halides, 959*e.*
crystn. of, effect of org. compds. on, 13*c.*
crystn. on mica, 8230*b.*
dielec. const., elec. moment and ionic character of, 6877*g.*
dielec. consts. of, 3674*f.*
effect on $SrCO_3$ formation from $SrSO_4$ 368*e.*
interionic distances for, 8787*d.*
ionic character of, 8762*i.*
ionic refraction increments in, 3683*f.*
luminescence of colored crystals of, decay of, 4144*a.*
luminescence of x-ray-irradiated, 3719.
phosphors, combination with photographic plates, 4111*d.*
phosphors, luminescence of, 5670*g.*
photoelec. behavior of crystals of, conts colloidal alkali metal, 6907*d*
photoelec. effect in colored, 8846*e*
Raman spectra of, 3716*f*, 4570*e.*
soln. in $H_2O$ over Hg, 4922*i.*
spectra of, 4091*b.*
vapor pressures of, 457*d.*
**Alkali metal haloaluminates,** structures of, 960*c.*
**Alkali metal hydrides,** compds. with trialkyl borates, P 4684*e.*
in titanium halide purification, P 3158*c*
**Alkali metal hydroxides.** See *Alkalies.*
**Alkali metal iodides.** (See also *Alkali metal halides; Iodides.*)
in scintillation counters, 4111*g.*
**Alkali metal nitrates,** color of melts of alkali oxides and, in presence of $MnO_2$, 5687*e.*

compds. with $Pb(NO_3)_2$, 518*g*.
**alkali metal nitrites**, color of melts of alkali oxides and, in presence of $MnO_2$, 5687*d*.
**alkali metal oxalatoferrate(III)**, catalysts of Fe oxide and, for hydrogenation of CO, P 4448*d*.
**alkali metal oxides**, effect on color of alkali metal nitrate melts in presence of $MnO_2$, 5687*c*.
systems: metaphosphates–orthophosphates–, 5323*e*.
**alkali metal perborates**. (*For the use of the term "perborate" see note under* Sodium perborate.)
manuf. of, P 3157*h*.
**alkali metal perchlorates**, isomorphism of, 7286*d*.
magnetochemistry of, 5689*a*.
**alkali metal phosphates**, catalysts of alkaline earth phosphates, $H_3PO_4$ and, in dehydration of tetrahydrofuran, P 5410*d*.
in color stabilization of red fruits, P 9294*g*.
vitreous, retarding reversion of, in soln., P 6793*i*.
**alkali metal polyborates**. See *Alkali metal borates*.
**alkali metal polysulfide**. See *Alkali metal sulfides*.
**alkali metal pyroantimonates**. See *Alkali metal antimonates*.
**alkali metals**. (See also *Sodium;* etc.)
adsorbed on heated W wire, residence time of, 4942*c*.
bombardment of Th-W with ions of, 7323*b*
as catalysts in olefin polymerization, P 5640*g*.
colloidal, photoelec. behavior and spectra of alkali halide crystals contg., 6907*d*.
dry box for handling, 8216*c*.
effect on elec. cond. of Amberlite IR-100, 7785*f*
electrolysis by Hg process, P 3733*g*.
electron secondary emission in, 5660*h*
heats of hydration of ions of, 7318*b*
ions (gaseous neg.) of, in low pressure discharge in alkali halide vapors, 1256*c*.
manuf. by thermal reduction, P 2567*a*.
oxidation products of, solvent for, P 988*h*
photoeffect (selective boundary layer) for, 7325*a*
photoelec. cells—see *Cells, photoelectric*.
photoelec. surface effect in films of, 4102*b*
precipitability with ferrocyanide, 5327*a*
promoter for hydrogenation of CO to hydrocarbons, P 6397*a*.
promoters in hydrogenation of CO to hydrocarbons, P 9420*f*.
reduction of esters, glycerides, etc., P 5216*b*
removal from $SiO_2$ sol, P 2746*e*
solar cell contg., 1661*h*.
**Alkali metals, analysis**, detn., 4599*a*.
detn., errors with Perkin-Elmer flame photometer in, 59*h*
detn. in light alloys, 7360*f*.
in silicates, 6111*h*, 7860*g*.
in silicates and siliceous materials, 5730*g*.
**Alkali metal salts**, carbon detn. in org., 8306*h*.
catalysts for hydrogenation of CO from, P 827*h*.
compns. with alginic acid, P 2713*d*.
as corrosion inhibitors, 1707*a*.
of dicyanamide, for prepg. dyes, pharmaceuticals, etc., P 1532*d*.
of fatty acids, as catalysts in alkyl cyanoacetate reaction with aldehydes or ketones, P 1436*e*.
ionic refraction increments in, 3683*f*.
luminescence of, exposed to x-rays, 7815*i*.
manuf. of, P 5159*i*.
**Alkali metal silicates**. (See also *Silicates*.)
density, dilatation and soly. of, 6380*e*.
reaction products with fatty acids, for oil-base drilling fluid, P 3185*g*.
**Alkali metal silicides**, 5321*d*.
**Alkali metal stannates**, in vinyl-chloride-polymer stabilization, P 4898*c*.
**Alkali metal sulfates**, magnetic susceptibilities of, in borax glass and aq. soln., 2052*i*.
Raman effect in, 1657*h*.
**Alkali metal sulfides**, condensation of polysulfide, with dichloroethane, rubber-like substance by, P 6456*g*.
as corrosion inhibitors for Mg, 4622*e*.
manuf. by electrolysis of alkali metal chlorides, P 4153*i*.
resins from Cl compds. and disulfide, P 6863*f*.
**Alkali metal sulfites**, acid, reaction with 3-aminopyridine derivs. and HCHO, P 3470*g*.
reaction with dichloroethane, P 660*d*.
**Alkali metal thiocyanates**, in photographic-emulsion stabilization, P 52*f*.
**Alkali metal xanthates**. See *Xanthic acids*.
**Alkalimetry**. See *Alkalies*.
**Alkaline earth aluminates**, hydrates of, 1277*e*.
**Alkaline earth arsenites**, formation of, 8295*i*.
**Alkaline earth carbides**, magnesium-base alloy treatment with, P 6563*i*.
**Alkaline earth carbonates**, burning and spectrochem. flux properties of, 8945*a*.
calcination of, app. for, P 7276*a*.
**Alkaline earth chlorides**. (See also *Alkaline earth halides; Chlorides*.)
catalysts from, for polymerization of cyanogen chloride, P 2381*a*.
**Alkaline earth chlorites**, activation of solns. of, P 1160*e*.
**Alkaline earth compounds**. (See also *Calcium compounds;* etc.; as well as definite alkaline earth compounds, as *Barium carbonate*.)
complexes, demonstration by electrophoresis, 4970*f*.
complexes with Na metaphosphates, 4088*g*.
heats of formation of binary, 5275*b*.
reaction products of basic, with emulsified resin, P 4051*a*.
**Alkaline earth fluophosphates**, phosphors, P 7831*g*.
**Alkaline earth fluorides**. (See also *Alkaline earth halides; Fluorides*.)
burning and spectrochem. flux properties of, 8945*a*.
catalyst of HF and, in alkylation of hydrocarbons, P 3435*g*.
**Alkaline earth formates**, as absorbents for $SO_2$, P 7201*f*.
**Alkaline earth halides**, ionic refraction increments in, 3683*f*.
manuf. from alk. earth sulfates and $NH_4$ halides, 9393*c*.
systems with alk. earth metals, 7803*d*.
**Alkaline earth halophosphates**, phosphors of, 6925*c*.
**Alkaline earth hydrides**, in titanium halide purification, P 3158*c*.
**Alkaline earth hydroxides**, catalysts from C and, P 5886*h*.
catalysts from $Fe_2O_3$, $K_2CO_3$ and, in H manuf. from CO and steam, P 840*c*.
color reaction with pyrogallolcarboxylic acid, 5337*e*.
in conversion of acidic and phenolic components of fuel gas to ketones and hydrocarbons, P 5574*a*.
mixts. with urea-HCHO resins, P 8739*a*.
water-resistant compns. from melamine-HCHO resins and, P 8739*b*.
**Alkaline earth indium halides**, 2883*f*.
**Alkaline earth metals**. (See also *Barium;* etc.)
absorption of, carboxylated resins for, P 7162*i*.
as catalysts in polymerization of butadiene, 1597*ac*.
as catalysts in polymerization of olefins, P 5640*g*.
catalysts of Al halide-hydrocarbon complex and, for hydrocarbon conversion, noncorrosive to steel, P 5583*a*.
electron secondary emission in, 5660*h*.
films of, structure of, 2482*d*.
soln. in acids, 506*g*.
systems with alk. earth halides, 7803*d*
**Alkaline earth metals, analysis**, detection, 1679*e*, 5337*e*.
detn. by rennet action, 7790*f*.
detn. in light alloys, 7369*f*.
detn. in water, P 4800*c*.
sepn. from Cu and Mg, 2115*h*.
**Alkaline earth nitrates**, soly. in anhyd. $HNO_3$, 5264*i*.
**Alkaline earth nitrides**, manuf. of, P 5160*d*.
**Alkaline earth nitrites**, prepn. and structure of, 3261*h*.
**Alkaline earth oxides**. See *Alkaline earths*.
**Alkaline earth perchlorates**, magnetochemistry of, 5689*a*.
**Alkaline earth phosphates**, catalysts of alkali metal phosphates, $H_3PO_4$ and, in dehydration of tetrahydrofuran, P 5410*d*.
fluorescence of, activated by Bi, 8894*b*.
**Alkaline earth plumbates**, manuf. of, P 1994*c*.
**Alkaline earths**, alloy resistance to, 541*e*.
ceramic dielectrics from $TiO_2$ and, P 831*a*.
coating with, on electron-tube cathodes, P 4154*f*.
dissocn. or reduction of, free energy of, 8838*c*.
electrodes coated with—see *Cathodes; Electrodes*.
ionic refraction increments in, 3683*f*.
phosphors, infrared-sensitive, 4142*b*.
reaction with Si and NaCl to give Na, P 1160*i*.
**Alkaline earth salts**, carbon detn. in org., 8306*h*.
ionic refraction increments in, 3683*f*.
in well waters of Saratov gas fields, 6371*h*.
**Alkaline earth silicates**, phosphor, P 7352*b*.
**Alkaline earth stannates**, dielecs. from $BaTiO_3$ and, P 6803*d*.
**Alkaline earth sulfates**, fluorescence of, activated by Bi, 8894*b*.
reaction with $NH_4$ halides, 9393*c*.
**Alkaline earth sulfides**, luminescent substances contg. Zn or Cd compds and, P 500*h*.
phosphors, electron traps and infrared stimulation of, 7826*i*.
resins from Cl compds. and disulfide, P 6863*f*.
soil disinfectants from aldehydes and, P 9357*c*.
**Alkaline earth sulfites**, reaction with dichloroethane, P 660*d*.
**Alkaline earth thiocyanates**, effect on mech. properties of polymers, 2810*e*.
**Alkaline earth titanates**, dielec. from, P 5566*b*.
**Alkaline earth zirconates**, dielecs. from $BaTiO_3$ and, P 6803*d*.
**Alkalinity**. (See also *Alkalies; Basicity; Hydrogen-ion concentration*.)
detn. of, of $HCO_3^-$ solns., 2892*a*.
of phenolates, 974*d*.
of sugar-manuf. carbonation juice, mixed indicators in, 6439*i*.
of tan liquor ash, 1205*g*.
of soils—see *Soils*.
**Alkali reserve**. See *Blood*.
**Alkali-resistant materials**, alloys as, 541*e*.
drying oil resinous reaction products with cyclopentadiene-styrene copolymers, P 4029*c*.
etherified PhOH-HCHO resins, P 5630*i*.
floor and wall coverings, from phenol-modified coumarone-indene resin and cellulose ether, P 2448*i*.
furfuryl alc. condensation products, P 7752*a*.
**Alkali salts**. See *Alkali metal salts*.
**Alkaloids**. (See also *Cinchona alkaloids; Ergot alkaloids; Opium alkaloids; Quinine; Strychnos alkaloids*.)
aconite, 210*e*.
anesthetic action of, dialkylamino group in, 4426*f*.
angostura, spasmolytic action of, 3527*i*.
in *Atropa acuminata*, 7194*h*, 9378*d*.
belladonna, amino acid precursors of, 9377*f*.
in belladonna hybrids, 4814*c*.
books: et Plantes alcalolfères, 1531*i*, Plant, 3978*a*.
of calabash curare, 1155*c*.
chromatography of, 9379*g*.
of *Cryptocarya* spp., 1155*b*.
curare, 5407*h*, 5906*g*.
curare, of *Anomospermum grandifolium* and *Chondrodendron tomentosum*, 2626*a*.
from curare (tubo-), P 3153*d*.
of *Cynoglossum viridiflorum*, 2625*b*.
of *Daphnandra*, 3017*c*.
of *Daphnandra aromatica* bark, 6787*g*.
in *Datura* from India, 9380*i*.
in *Datura innoxia* grown on synthetic media, 1529*h*.
in *Datura metel*, effect of pruning and efloration on, 3067*h*.
in *Datura stramonium* and *D. tatula*, 5544*f*.
in *Datura stramonium*, effect of growth substances on, 8597*f*.
in *Datura stramonium* powder smoke, 3149*i*.

in *Datura stramonium* varieties, effect of N fertilizers on, 2724*b*.
of desert plants, 6337*g*.
detection and detn. of, 357*c*.
detection of, 817*c*.
detn. of, 3246*b*, 3563*i*, 4809*i*, 6542*d*, 7192*c*, 8094*g*.
in aconite and its prepns., 5535*g*.
in belladonna, 5536*c*.
in belladonna and *Datura stramonium*, 8095*g*.
in forensic analyses, 2125*g*.
in galenic prepns., 8004*g*.
in kurchi bismuth iodide, 3564*e*.
in lupines, 8096*f*
silica gel in, 6364*b*.
in Solanaceae, 3145*d*.
in solanaceous drugs and prepns., 1908*c*.
of *Dichroa febrifuga*, 1529*i*, 5405*i*.
of *Dipsacus azureus*, 2213*c*.
in *Ephedra* from India, 1910*c*.
of *Erythrina*, 4281*b*, 5544*i*.
of *Erythrina africana*, 3148*h*.
of *Erythrophleum*, 8101*a*.
of *Erythrophleum guineense*, 4676*a*.
etherification of, P 6674*c*.
of *Euonymus europaeus* seeds, 5545*i*
fermentation inhibition in drugs contg., 5901*i*.
fluocolumbates(V) of, 5785*h*.
glycoside, from wild tomato leaves, 5551*a*.
in *Hyoscyamus muticus*, 9381*ab*
identification of, 1529*d*, 5535*h*.
3- and 5-iodosalicylates, 3148*c*
isolation of, 2736*c*, 3075*c*.
kawahone, 7939*d*
kurchi, bismuth iodide, 8094*f*.
of *Leonurus tataricus* and *Panzeria lanata*, 5548*g*.
of *Lindelofia anchusoides*, 3827*g*
luminescence (tribo-) of, 4996
lupine, 7490*c*.
in lupine seeds, removal of, 9169*i*
mixts. with halogenated hydrocarbons for insulating and dielec. purposes, P 2217*f*.
of *Mostuea stimulans* root bark, 9381*e*
of *Nicotiana*, 1154*e*.
in *Nicotiana*, effect of root formation on synthesis of, 4731*i*.
formation of, 3891*c*.
root system in synthesis of, 4731*b*
in *Nicotiana glauca*, 4815*d*.
nicotinelike, as plant insecticides, 1140*i*.
optical isomers of, effect on heart in mollusces with shells with left- and right-handed spirals, 3932*e*.
in *Opuntia*, 1530*i*.
of papaveraceous plants, 238*h*, 6207*h*, 8616*g*.
of Papilionaceae, 649*fi*, 3428*i*, 6450*b*.
pilocarpine, 2625*e*.
in *Pogonopus tubulosus*, 5548*i*, 8617*f*.
precipitation with heteropoly acids, 1672*b*.
of *Rauwolfia serpentina*, pharmacology of, 2699*d*.
review on, 1154*e*.
of Rutaceae (Australian), 648*g*
of *Ryania speciosa*, 812*d*.
sabadilla, 9384*d*.
of *Sedum sarmentosum*, 6625*d*
of *Senecio*, 1427*g*, 3567*c*, 7475*e*, 9076
from *Senecio* and *Sophora*, 3016*h*.
of *Senecio cineraria*, 9075*i*
of *Senecio longilobus*, 6208*h*.
in *Senecio platyphyllus*, *N* oxides of, 280*c*.
from *Senecio* species of New Zealand, 3016*i*.
of *Smirnowia turkestana*, 238*f*
in Spanish medicinal plants, 1910*b*.
of steroid group, 4710*h*.
structure of, 7194*d*.
in tobacco from Australia, 5548*a*.
veratrine, 6584*d*, 7939*e*.
veratrine, sensitization to K by, 4380*g*.
of *Zanthoxylum coco*, 4280*g*.
of *Zanthoxylum parvifolia* and *Z. viridis*, 5546*f*.

**Alkalosis.** (See also *Acid-base equilibrium.*)
ammonia production by kidney slices in, 8507*c*.
in carbon tetrachloride poisoning, 5500*a*.
convulsive seizures in, 308*c*.
metabolism in, 317*h*.
neuromuscular disturbances in, 2290*i*.
tetany of, neuronal changes assocd. with, 5489*e*.

**Alkamines.** See *Alcohols*.

**Alkaneboronic acids.** See *Boronic acids*.

**Alkanes.** See *Paraffins*.

**Alkanesulfonic acids.** See *Sulfonic acids*.

**Alkanet,** Anchusa red from root of *Anchusa tinctoria*, as indicator in neutralization, 4596*g*.

**Alkanolamines.** See *Alcohols*.

**Alkapton, Alkpatone.** See *Homogentisic acid*.

**Alkathene.** See "polymerized" under *Ethylene*.

**Alkene oxides.** See "cyclic" under *Ethers*.

**Alkenes.** See *Olefins*

**Alkenylation,** of aromatic hydrocarbons, P 7507*f*.

**Alkenynes.** See "acetylenic olefinic" under *Hydrocarbons*.

**Alkoxides.** See *Alcoholates*.

**Alkoxy groups,** bonds of, 6627*a*.
replacement of nuclear, Grignard reagents in, 185*c*.

**Alkyd resins.** See *Resinous products*

**Alkylation.** (See also *Aralkylation; Cycloalkylation; Isopropylation; Methylation*)
of acetoacetic esters, 1317*b*
of acetophenone and PhCN by Friedel Crafts reaction, 8367*c*
of aliphatic and aromatic hydrocarbon mixts., P 5040*b*.
of alkaloids to yield ethers, P 6674*c*
with *N*-alkyl 2-chloropropylamine, rearrangement in, 3420*c*.
aluminum chloride catalyst mixing by kinetic energy of pumping reactants in, P 1157*e*.
aluminum chloride-nitro paraffin solns. as catalysts in, 108*f*.
with aluminum chloride sublimed catalyst, P 1174*f*
aluminum halide catalyst removal from products from, P 7223*a*.
aluminum halide hydrocarbon complex catalysts in, alk. earth metals in reducing corrosiveness of, P 5582*i*
of amides, P 3445*e*.
of amines, 7921*c*.
of aniline with alcs., P 7041*h*.
of aniline with butene, 4644*b*
app. for, P 3604*h*
in app. with permeable walls to lower olefin concns., polymerization, etc., P 1559*a*.
of aromatic compds., 164*a*, 1369*g*.
of aromatic compds. and paraffins, catalysts for, P 1931*d*
of aromatic hydrocarbons, 1019*b*, 2966*d*, P 5039*i*.
with Al silicate catalysts, P 3606*a*.
with aromatic sulfonic acid catalysts and regeneration of catalysts, P 4458*c*.
with mixt. of $Al_2O_3$, $SiO_2$ and $ThO_2$ as catalyst, P 680*a*.
with olefins and then alkyl halides, P 4004*i*.
olefin sepn. from cracked hydrocarbon products in, P 4005*b*.
with olefins or alkyl halides, P 5181*i*.
with P acid catalysts, removing corrosive acid vapor from products from, P 9430*g*.
of aromatic hydrocarbons and isoparaffins, P 5409*i*.
of aromatic hydrocarbons or furan with HF catalyst, P 1174*g*.
of benzene, P 3844*i*.
by alcs., 7915*i*.
with $AlCl_3$ catalyst, P 1175*c*
$AlCl_3SO_4H$ as catalyst in, 6582*h*
with $C_2H_4$ and $C_4H_8$, 4638*a*.
with polyolefins, P 9495*i*.
with $C_4H_8$ polymers with $AlCl_3$ and $H_2SO_4$ catalysts, P 394*h*.
of benzene and cyclohexane mixts., P 1958*e*.
of benzene-dichloroethane condensation product with chlorinated paraffins in synthesis of lubricants, 1953*a*.
of 2(3 *H*)-benzoxazolones, 6617*d*.
boron fluoride compds. as catalysts in, 5657*g*, 8074*d*.
of butane and isobutane with butenes with HF catalysts, P 1174*i*.
catalyst absorption from products from, P 2764*b*.
with catalyst complexes of metal halides with ethers, P 8666*b*.
catalyst contact time in, reduction of, P 7223*a*.
and catalyst (fluidized) regeneration in single chamber, P 4457*i*.
catalyst removal from mixts. from, P 8666*a*.
catalysts for, P 7162*f*.
of cellulose—see also *Cellulose ethers*.
of cellulose in quaternary $NH_4$ bases, 5942*h*.
with cobalt catalyst, P 2763*h*.
of cyclic hydrocarbons with toluenesulfonic acid catalyst, P 4458*a*.
of cyclic unsatd. hydrocarbons with N as catalyst, P 1057*f*.
destructive, of paraffins, 1712*g*.
of dialkanolamines to produce *N*-alkyl dialkanolamines, P 2633*f*.
with 3-(dimethylaminomethyl)-1-methyl indole and its methiodide, 3405*b*
with dispersed liquid alkylating agents, P 3189*d*.
economics of, 8654*c*.
of ethyl malonate and of ethyl ethylmalonate, kinetics of, 9034*f*
with fluorine-contg. catalysts, prevention of siliceous deposits in, P 1558*h*.
Friedel-Crafts catalysts modified with $H_3BO_3$ in, P 6217*e*.
hydrofluoric acid and a fluoride as catalyst in, P 3435*g*.
with hydrofluoric acid catalyst, prevention of corrosion in, P 3190*i*
removing HF and org. F compds. from products from, P 2764*c*, P 4002*c*, P 4006*de*, P 6218*d*
$SiF_4$ removal from alkylates from, P 4006*a*.
hydrogenation and, of quinoline, P 2211.
of 2-hydroxy-1,4-naphthoquinone with peroxides, 1373*b*, 1374*d*, 1375, 1378*ab*, 1382*f*.
of indan and 1,2,3,4 tetrahydronaphthalene, 2197*e*.
iron phosphate catalysts for, P 5419*b*
isomerization and, of paraffins with HF-$BF_3$ catalyst, P 5583*h*.
of ketones, with Grignard reagent, 8369
long-chain, of alkyl aromatic hydrocarbons with $C_2H_4$, P 6657*f*
of melamine $CH_2O$ reaction products, P 7240*f*.
of 2-methylbutane with $BF_3$ catalysts, 3773*b*.
with 2-methylbutene, 1554*f*
with propene, $BF_3$ and its compds. as catalysts in, 1711*f*.
of 2-methylpropane, with butene, P 3189*a*.
with butene, $C_4H_8$ elimination in, P 2422*i*
with butenes with HF catalyst, P 1175*h*, P 5583*f*
with cyclopropane with 1,3-dibromopropane as catalyst, P 5583*i*
with $C_2H_4$, P 1049*d*, P 5181*a*
with $C_2H_4$ with HF-$BF_3$ catalysts, P 2422*h*.
2-methylbutane removal from amylenes for, P 9430*e*
with 2-methylpropene polymer, P 8666*g*.
of 2-methylpropane with butenes and isobutenes, and of paraffins, P 1955*r*.
of naphthalene or xylene with chlorinated paraffins in lubricant manuf., 4151
of naphthalenes with octenes, sulfating oils by, P 3194*c*.
of nitriles, 5686.
olefin (di-) hydrogenation to monoolefins in feed stocks for, 1554*h*
of olefin mixt. ($C_3$-$C_5$) with isobutane 1956*e*.
of olefin polymers with paraffins to bricating oils, P 4008*d*.
of organomagnesium compds. by esters, 3819*b*.
of paraffins, 1247*h*, P 4004*h*, P 4458*d* 5174*f*, P 7677*e*.
with $AlCl_3$-branched-chain paraffin catalysts, P 8189*g*.
$AlCl_3$ complex catalyst for, P 7677*e*
with $AlCl_3$-hydrocarbon complex salt with $AlCl_3$ as catalysts, P 390*a*
$AlCl_3$ recovery in, P 4005*s*.
with Br catalyst mixt. with CBr $CCl_4$, $CHBr_3$ or $CHCl_3$, P 5181*h*
control of viscosity of $AlCl_3$-hydrocarbon complex catalyst in, P 4005*c*
with fluophosphoric acid-$BF_3$ reaction products as catalyst, P 5583*b*
with HF catalyst on trays in fractionating column, P 5939*a*.
HF catalyst reaction with effluents and removal in, P 389*s*.
HF catalyst recovery and recycling in, P 1559*b*.
HF catalyst recovery in, P 9146, 3189*h*, P 5182*b*.

of *paraffins*, with HF complex catalyst contg. high-S hydrocarbons, P 389*h*.
mixing reactants in, P 1229*c*, 1230*a*.
with pentenes, P 3189*f*.
pretreatment, with carboxylic acid to lengthen catalyst life in, P 3189*b*.
solvents from, P 1883*e*.
with $H_2SO_4$ -aliphatic sulfate catalysts at low temps. to safety fuel, P 5181*d*.
with $H_2SO_4$ catalyst and maintaining high paraffin ratio, app. for, P 1175*b*.
with $H_2SO_4$ catalyst dild. with $C_2H_4$, $Et_2SO_4$ or dimethyl ether, P 6404*b*.
with $H_2SO_4$ emulsions of olefins, P 9430*f*.
with water as catalyst, P 3604*g*.
of phenol, kinetics of, 2850*e*.
of phenols, P 687*e*, P 6235*b*, P 7966*c*.
of phenols with olefin polymers, P 4458*h*.
of phenol with alkyl halides, drying-oil gels as catalysts in, P 3036*g*.
pilot plant for, 4522*c*.
of pyridine in reaction of nicotinonitrile with PrMgBr, 643*c*.
reductive, amine prepn. by, 2155*g*.
reductive, of $p$-$C_6H_4(NH_2)_2$ with unsatd ketones, P 4005*e*.
review on, 7759*b*.
of silanes, P 8398*a*.
silica gel catalysts for, P 3604*c*.
sulfuric acid from, alk.-soil treatment with, P 5144*c*.
temp. control in, P 2763*g*.
with tetraethyllead, 6971*b*.
of thiophene, P 691*c*, 1395*d*.
with alcs. and olefins, 1395*b*, 5775*a*.
with $BF_3$ catalyst, P 6667*d*.
*p*-toluenesulfonic acid esters of heterocyclic derivs. of alcs. as agents for, P 3466*f*.
of wool for discharge printing, 4015*d*.

**Alkyl borates**. See *Boric acid*

**Alkyl bromides**, exchange between LiBr and, in acetone, 6055*c*.
reaction with $Hg(NO_3)_2$, kinetics of, 557*g*.

**Alkyl carbonates**. See *Carbonic acid*.

**Alkyl chlorides**, hydrolysis of tertiary, 6968*c*.
labeled with $Cl^{36}$, rearrangement of $Cl^{36}$ atoms in, 6969*b*.
manuf. of, P 1793*d*.
reaction with $H_2C{:}CCl_2$, 3372*d*.
solvolysis of secondary, 7307*i*

**Alkyl compounds**. See *Hydrocarbons; Organic compounds;* etc.

**Alkyl cyanides** See *Nitriles*.

**Alkylene oxides**. See "cyclic" under *Ethers*.

**Alkylenes**. See *Olefins*.

**Alkyl formates**. See *Formic acid*.

**Alkyl groups**. (See also *Radicals*.)
alternating polarity in chains of, molar refraction and, 8770*a*.
effect on dissocn. of pentaarylethanes, 2607*e*.
effect on reaction rate of $OsO_4$ with aromatic compds., 8375*b*.
electron repulsion of, in relation to Grimm's principle of hydride displacement, 3776*g*.
exchange of, in reactions of ethers with alcs., 2972*b*.
oxidation of, 5773*g*.
removal of, from 1-alkylpiperidines, 2209*a*
from aromatic hydrocarbons, silica-gel catalysts for, P 3604*c*.
from *p*-cymene in its nitration, 9046*a*.
from hydrocarbons, P 5584*a*.
from nicotinamide alkyl derivs. in animal organisms, 4383*f*.
quinones by, 5779*f*.
side chains of *N*-phenethyl amides, effect on ring closure to isoquinolines, 5025*i*.

**Alkyl halides**. (See also halogen derivs. under *Hydrocarbons* and *Paraffins*.)
addn. compds. with quinine alkaloids, splitting of, 5027*i*.
addn. compds. with thio amides, 5027*g*.
ammation of, P 3440*i*.
aromatic hydrocarbon alkylation with, P 5181*i*.
as azeotrope formers in concn. of solns. of HCHO, P 2221*d*.
benzene alkylation with, 6583*b*.
bicyclic hydrocarbon halogenation with, P 689*f*.
complex compds. of Al halides with, 2930*d*.
dehydrohalogenation of, P 4681*h*.
elimination reactions of, kinetics of, 3340*h*, 3347*be*, 3348*d*, 3350*d*.
hydrogenolysis of, by $LiAlH_4$, 1311*h*.
identification of, 3380*f*.
manuf. of, P 662*g*, P 2217*f*, P 2627*i*, P 2628*a*, P 3024*a*, P 6218*d*, P 7035*c*.
manuf. of, and alkylation of aromatic hydrocarbons with, P 4005*a*.
phenol alkylation with, drying-oil gels as catalysts in, P 3036*g*.
polymeric reaction products with tertiary amines, 1626*c*.
as promoters for $AlCl_3$-isobutane catalysts in alkylation of $C_2$-$C_5$ mixed olefins, P 1956*f*.
purification of, P 2628*c*.
reaction of tertiary, with PhOH, kinetics of, 2850*e*.
reaction of tertiary, with tertiary hydrocarbons, for hydrocarbon sepn., P 7223*e*.
reaction with amino derivs. of nicotine, 7024*b*.
with B halides, P 6220*d*.
with carbonyl compds., 111*a*.
with $H_2S$, P 6646*e*.
with olefins, P 1432*d*
with phosphorus thio esters, 560*g*.
with quinuclidine and $Et_3N$, kinetics of, 3422*f*.
with Na fluoroalcoholates, P 2219*f*.
with NaH (attempted), 6968*i*.
with thiols, P 6646*e*.
reactivity of tertiary, 3776*g*.
sulfochlorination of, 5569*c*.

**Alkyl hydrogen peroxides**. See *Hydroperoxides*.

**Alkyl iodides**, exchange between NaI and, in MeOH, 6055*c*.
hydrolysis of, theory of, 3694*a*.

**Alkyl isothiocyanates**. See *Isothiocyanic acid*.

**Alkylmagnesium halides**. See *Magnesium compounds*

**Alkyl nitrates**. See *Nitric acid*.

**Alkyl nitrites**. See *Nitrous acid*.

**Alkylolamines**. See *Alcohols*.

**Alkyl oxides**. See *Ethers*.

**Alkyl peroxides**. See *Peroxides*.

**Alkyl phosphates**. See *Phosphoric acid*.

**Alkyl polysulfides**. See *Sulfides*.

**Alkyl selenides**. See *Selenides*.

**Alkyl silicates**. See under *Silicic acids*.

**Alkyl sulfates**. See *Sulfuric acid*.

**Alkyl sulfides**. See *Sulfides*.

**Alkyl sulfites**. See *Sulfurous acid*.

**Alkylsulfuric acids**. See *Sulfuric acid*.

**Alkyl tellurides**. See *Tellurides*.

**Alkyl thiocyanates**. See *Thiocyanic acid*

**Alkynes**. See "acetylenic" under *Hydrocarbons*.

**Allamanda**, manganese deficiency in, 2722*g*.

**Allanite**, in Black Forest rock development, 8093*r*.
manganoan-, from Vishnevye Mts., U.S.S.R., 3320*b*.
radium in, from Nellore, 2090*b*.

**Allantoic acid** (*diureidoacetic acid*), in blood of silkworms during maturing, 2331*d*.

**Allantoic fluid**, from bronchitis virus-infected embryos, inhibiting substance in, 8448*c*.
factor inhibiting influenza virus hemagglutination in, 4756*e*.
reaction with influenza virus, 754*h*, 9237*a*.

**Allantoin** (*5-ureidohydantoin*), in aqueous humor, 3503*f*.
in blood plasma and urine of Dalmatian dog, 5473*h*.
detn. of, 1290*h*.
excretion of, by earthworm, 9272*b*.
permeability of hematoencephalic barrier to, in Dalmatian and non-Dalmatian dog, 7117*c*.
renal clearance of, glomerular filtration rate and, 3090*g*.

**Allene** (*propadiene*), derivs., chem. properties and structure of, 5733*c*.
formation in pyrolysis of allyltrimethylammonium hydroxide, 3780*b*.
from 2-methylpropene, 5270*i*.
reaction with $C_2F_4$, 3371*b*.
thermodynamic functions of, 5275*d*.
vibration-rotation mechanics of, 2831*d*.

——, **methyl-**. See *1,2-Butadiene*.

**Allenolic acid**. See *2-Naphthalenepropionic acid, 6-hydroxy-*.

**Allergens**, cornstarch as, from food containers, 1122*g*.
immunizing, prepn. of, 7080*g*.
immunochemistry of, 7575*b*.
review on, 9221*d*.

**Allergy**. (See also *Anaphylaxis; Antigens; Asthma; Dermatitis; Hay fever; Skin*.)
amino acids and, 6730*e*.
antiallergic action of nicotinamide, 1863*i*.
antiallergic action of *N*-(α-pyridyl) *N*-(α-thenyl)-*N*¹, *N*¹,-dimethylethylenediamine hydrochloride, 2321*d*.
antiallergic compd., 2-(*N*-benzylanilinomethyl)2 imidazoline, P 3979*a*.
to *Ascaris* tissue and fluids, 9222*a*.
2 (benzhydryloxy)ethyl derivs. of heterocyclic amines for treatment of, P 2235*d*.
blood in hay fever during acute reactions, 7125*f*.
blood serum in, 9218*i*.
book: Progress in, 5860*b*
cholinesterase and sugar in blood in, 4362*a*.
to drugs, 5492*b*.
effect of alc. and alcoholic beverages on, 9252*g*.
fatty acid in blood plasma in, after administration of soybean oil, 5107*e*.
gastrointestinal, 9231*a*.
to gonadotropins, 3919*h*.
histamine and, 4756*c*
histamine and antihistamine substances in, 7585*g*.
2-imidazoline derivs. for inhibiting, P 692*d*.
from infection, fat acids and, 5857*d*.
inflammations from, pH of tissue relation to, 9237*h*.
iron in blood serum in, 5483*h*
to plasticizers, 748*c*.
prepn. for treatment of, and for detn. of degree of, P 3571*a*
protein index of blood serum in, 9216*g*.
to *Rhus*, diagnostic prepns. for, P 1913*g*.
sulfurated mineral waters and, 6731*h*.
treatment of, 7140*g*.
tuberculin, effect of linoleic acid on, 2296*b*.
tuberculin, wax of tubercle bacillus and, 755*b*.

**Allicin**, formation from alliin by alliinase and its antibacterial properties, 3482*d*.

**Alliin***, compds. related to, 6576*g*.
effect on pyruvic acid and reticulocyte content of blood, 6723*f*.
effect on tumor growth, 7570*c*.
enzymic degradation of, 3482*d*.
in medicine, 7193*g*.

**Alliinase**, properties of, 3482*d*
specificity of action of, 6576*f*.

**Allium**, *cepa*—see *Onions*.
compds. of, 6576*f*.
*porum*—see *Leek*.
*sativum*—see *Garlic*.
sulfur compds in, 6286*e*.
*ursinium*, drugs contg. glycosides of, stabilization of, 5902*h*.

**Allobiotin**, P 3468*a*.

*epi*-**Allobiotin**. See *Epiallobiotin*.

**Allocaine**. See *Procaine*.

**$\Delta^{20,22}$-Allocholadiene, 3(β)-hydroxy-24,24-diphenyl-***, and acetate, P 3475*c*.

**Allocholane, 3(β),17-dihydroxy-24,24-dimethyl-***, and 3(β)-acetate, 6638*b*.
——, **3(β),20-dihydroxy-24,24-dimethyl-***, isomers, and monoacetates, 6638*d*.
——, **3(β)-hydroxy-17,24-oxido-24,24-dimethyl-***, and 3(β)-acetate, 6638*b*.
——, **3-keto-17-hydroxy-24,24-dimethyl-***, and semicarbazone, 6638*b*.
——, **3-keto-20-hydroxy-24,24-dimethyl-***, isomers, and semicarbazones, 6638*e*.
——, **3(β),17,24-trihydroxy-24,24-dimethyl-***, and 3(β)-acetate, 6638*b*.

**Allocholanic acid, 3(β)-acetoxy-17-hydroxy-***, lactone, 6638*a*.
——, **2,4-dibromo-3-keto-***, methyl ester, 7494*e*.
——, **3(β),12(α)-dihydroxy-(?)***, methyl ester diacetate, 1790*h*.
——, **3-keto-***, methyl ester, 7494*e*.
——, **3(β),6(β),12(α)-trihydroxy-***, and derivs., 1790*e*.

**5-Allocholanic acid, 3(β)-hydroxy-7-keto-***, and methyl ester acetate, 246*e*.

**Allocholesterol**, and acetate, 243*f*.

*epi*-**Allocholesterol**. See *Epiallocholesterol*.

**Allochrysoketone**. See *7 H-Benzo[c]fluoren-7-one*.

**Allocinnamic acid**. See *Cinnamic acid*.

**Allocryptopine**, α-, identity with α-fagarine, 4280*i*.
from *Dendromecon rigida*, 8616*g*.

**Allodunnione**, *di*-, 3408*g*.

**Alloetiobilianic acid, 3(β)-acetoxy-***, 2214*f*.

**Alloglaucotoxigenin***, cyclic hemiacetal, 4680*a*.

and derivs., 4679*i*.
**Allolobophora.** See *Earthworms*.
**Alloöcimene,** manuf. of, P 5423*f*.
from pinene, 7003*i*.
from α-pinene and cyclization into pyronene, 5657*a*
prepn. from turpentine, 609*g*.
polymers of, with Et acrylate, 5988*i*.
spectrum of, 1264*g*.
viscosity of, 5249*d*.
**Allopedicinin,** 5396*e*.
**Allophanamide.** See *Biuret*.
**Allophane,** -evansite, of Gardner Mine Ridge, Ind., 3751*e*.
thermal analysis curves for, 8987*h*.
**Allophanic acid** (*carbamylcarbamic acid*), $H_2NCONHCOOH$.
$\gamma\ \beta\ \alpha$
esters, 2945*d*.
with *cis*- and *trans*-cryptol, 161*b*.
with 2,2,3 trimethyl-6-hepten-3-ol, 5735*d*.
2,5,7,8 - tetramethyl - 2 - (4,8,12 - trimethyltridecyl) - 1,2 *H* - benzopyran-6-yl ester, P 1918*d*.
——, γ-(**4-carboxy-2-carboxyamino-5-thiazolyl**)-β-**thio-**†, triethyl ester, 1403*e*.
——, γ-(**carboxymethyl**)-. See *Hydantoic acid, δ carboxy-*.
——, γ-(α-**cyanobenzyl**)-β-**thio-**, ethyl ester, 1402*i*.
——, γ-(**1-cyanoethyl**)-β-**thio-**, ethyl ester, 1402*g*.
——, γ-**1-mercaptoethyl-**, 2945*d*.
1-mercaptoethyl ester, 2945*e*.
——, γ-**1**(and **2**)-**naphthyl-**, esters, 7447*b*.
——, γ-**phenyl-**, esters, 7447*b*.
**Allophanimidic acid,** γ-(*p*-**chlorophenyl**)-**dithio-**, methyl ester, 2950*e*, 5746*e*.
**5-Allopregnane,** 3(β)-**acetoxy-16**(α),**17**(α)-**oxido-20-keto-***, 1787*c*.
——, 3(β),**20**(β)-**diacetoxy-16**(α),**17**(α)-**oxido-***, 1787*h*.
——, **16,17-oxido-***, derivs., 1787*c*.
——, 3(β),**17**(α),**20**(α)-**trihydroxy-***, and diacetate, 1787*c*.
——, 3(β),**17**(α),**20**(β)-**trihydroxy-***, and diacetate, 1787*c*.
**3**(β),**20**(α)-**Allopregnanediol***, and acetates, 6210*f*.
**3**(β),**20**(β)-**Allopregnanediol***, acetates, 6210*f*.
**Allopregnane-3**(α),**6-diol-20-one***, and derivs., 5068*a*.
**Allopregnane - 3**(β),**20**(β) **- diol - 16 - one***, acetates, 6642*b*.
**Allopregnane - 16**(β),**20**(α) **- diol - 3 - one***, diacetate, 6642*e*.
**Allopregnane - 16**(β),**20**(β) **- diol - 3 - one***, 6642*e*.
**3,20-Allopregnanedione***, 6638*e*.
and bis(2,4-dinitrophenylhydrazone), 5067*d*.
spectrum of, 3018*i*.
——, **2-bromo-***, P 2378*b*.
——, **2-chloro-***, P 2378*b*.
**3**(β),**16**(α),**20**(β)-**Allopregnanetriol***, and derivs., 6641*i*.
**3**(β),**16**(β),**20**(α)-**Allopregnanetriol***, and derivs., 6641*i*.
**3**(β),**16**(β),**20**(β)-**Allopregnanetriol***, and derivs., 6641*i*.
**3**(β),**17**(α),**20-Allopregnanetriol**, configurational study of, 6210*g*.
**3,6,20-Allopregnanetrione***, and tris(2,4-dinitrophenylhydrazone), 5068*a*.
**20**(β)-**Allopregnanol***, and acetate, 6642*d*.
——, **3,16-dichloro-***, acetate, 6642*c*.
**Allopregnan-20**(β)**-ol-3,16-dione***, 20(β)-acetate, 6642*a*.
**Allopregnanolone**†, sulfate, K salt, 5068*c*.
**Allopregnan-3-ol-20-one***, P 824*g*.
**Allopregnan-3**(α)**-ol-20-one***, and acetate, 5067*f*.
spectrum of, 3018*i*.
**Allopregnan-3**(β)**-ol-20-one***, and acetate, 5068*d*.
and acetate, spectrum of, 3018*i*.
and derivs., 6638*d*.
*epi*-**Allopregnanolone.** See *Epiallopregnanolone*.
**20-Allopregnanone***, P 3475*d*.
——, **3,21-diacetoxy-***, P 7977*b*.
——, 3(β),**17**(α)-**dihydroxy-***, and monoacetate, 7032*f*.
——, 3(β)-**hydroxy-***, and 3(β)-acetate, P 3475*d*.
**Allopregnan-20-on-3**(β)**-ol***, benzoate, 243*c*.
**5-Allo-$\Delta^{16}$-pregnene,** 3(β)-**acetoxy-20-keto-***, 1787*c*.
**16-Allopregnen-3**(β)**-ol-20-one***, and derivs., 6216*h*.
——, **16,17-epoxy-***, acetate, 6216*i*.
**$\Delta^{2(\text{or }3)}$-Allopregnen-20-one***, and semicarbazone, 5068*c*.
spectrum of, 3018*i*.
**Allopyranoside, methyl-2,3-anhydro-4,6-benzylidene-***, α-D-, reduction of, 1327*f*.
——, **methyl 4,6-benzylidene-2-deoxy-***, α-D-, 1327*g*.
**Allorge, Pierre,** biography, 8*i*.
**Allotelluric acid.** See *Telluric acids*.
**Allothreonine,** and derivs., 9033*b*.
DL-, 3787*a*, 4224*g*, 4225*b*, 6169*d*.
DL-, sepn. of, and DL-threonine, P 4688*g*.
glycine formation from, by tissue, 7986*g*.
——, *N*-**acetyl-**, DL-, and ethyl ester, 4225*f*.
——, *N*-**benzoyl-**, DL-, 6169*f*.
DL-, and methyl ester, 4225*b*.
**Allotropy.** (See also *Heat of transition; Isomerism; Polymorphism; Transition points;* and specific allotropic substances.)
of tin, 6500*d*.
**Alloxan** (*2,4,5,6,*(*1 H,3 H*)-*pyrimidinetetrone*), BAL effect on action of, 758*a*.
BAL effect on poisoning by, 6739*f*.
in blood, 5468*h*.
boric acid effect on biol. activity of, 5851*b*.
derivs., 2953*d*.
detn. in blood and pure solns., 8979*e*.
detn. in blood and tissue, 3808*f*.
diabetes from, 301*d*, 2304*ef*, 5483*c*, 6302*a*, 7122*f*, 8523*h*.
adrenal cortex in, 8043*h*.
amino acid excretion in urine during, 8057*b*.
antibody formation in, 1481*a*.
benzopyrene-induced sarcoma in, 3515*c*.
bile secretion during, 4364*f*.
after clamping renal pedicles, 3513*c*, 5106*e*.
coagulability of blood in, 1478*h*.
complement in, 7569*c*.
effect of cysteine and thiouracils on, 5118*c*.
effect of diet on, 4364*h*.
effect of diethylstilbestrol on, 7138*b*.
effect of high-fat diet in, 9234*c*.
effect of insulin on intestinal glucose absorption in, 317*d*.
effect of methylene blue on, 5498*h*.
effect of nutrition on, 749*i*.
effect of pantothenic acid on, 294*d*.
effect of thiamine on carbohydrate metabolism in, 2696*b*.
effect on cholesterol atherosclerosis, 5859*d*.
effect on fertility and gestation, 5106*c*.
glucose metabolism after hemorrhage in, 753*d*.
D-glucose oxidation in, 2310*a*.
hyaluronidase in testis in, 1479*a*.
incidence, control and regression of, 5111*c*.
insulin secretion and, 4362*d*.
ketosis in, 4762*d*.
kidneys in, 748*h*, 5484*g*.
lipase in blood serum in, 9216*a*.
and its modification by hypophysectomy, 5851*d*.
in old and young, 7578*h*.
pancreas in, 1100*f*.
phosphatase in blood serum in, 5486*h*.
phosphatase in intestine and kidneys in, and effect of insulin thereon, 2318*c*.
pituitary, adrenal and thyroid glands and pancreatic insular tissue in, 1853*i*, 1854*ab*.
sensitivity to insulin in, and effect of methylthiouracil thereon, 4377*fg*.
in sheep, 8049*c*.
in sheep under fasting and nonfasting conditions, 753*a*.
thiamine deficiency in rats in, 293*i*.
vitamin $B_1$ requirements in, 2306*f*.
5,6-dioxime, 8396*a*.
effect of cysteine, glutathione and nicotinic acid on, 9242*bc*.
effect on alk. phosphatase, 8407*d*.
on blood-plasma amino N, 752*h*.
on calves, 6305*d*.
on enzymic transphosphorylation in tissue exts., 9124*d*.
on glucose tolerance, 8544*c*.
on glycogen in liver, heart and muscles, 8537*f*.
on lactic acid in blood, 7564*f*.
on thymus gland, 4380*d*.
on uric acid metabolism, 4378*c*.
effect on blood sugar and uric acid and its relation to cysteine action, 4378*d*.
in flour improvement, P 5130*h*.
hemoglobinuria and mortality from, effect of dietary factors on, 2682*f*.
hypoglycemia from, 1864*c*.
hypoglycemic action of, 1482*c*.
inactivation by α-hydroxybenzylphosphinic acid and its Na salt, 1486*h*.
manuf. of, from barbituric acid, P 2227*i*.
5-oxime—see *Violuric acid*.
pharmacology of, in calves, 8061*f*.
poisoning by, kidneys in, 4380*d*.
reaction with $N^2$-(4-diethylamino-1-methylbutyl) - 4 - methoxy - o - phenylenediamine, 1780*h*.
reaction with mercapto group, 4306*f*.
review on, 8064*d*.
sensitivity to, effect of methylthiouracil on, 4377*e*.
stability and ultraviolet spectrum of, 4306*d*.
susceptibility of guinea pig to, 3915*i*.
system: dialuric acid-, polarography of, 7835*c*.
in tissue after administration, 4378*g*.
toxicity of, lipides in diet and, 8485*b*.
**Alloxan, benzyl-,** monohydrate, 2953*g*.
——, **butyl-,** monohydrate, 2953*g*.
——, **isobutyl-,** monohydrate, 2953*g*.
——, **phenyl-,** monohydrate, 2953*g*.
——, **propyl-,** monohydrate, 2953*g*.
**Alloxanic acid,** polarography of, 7835*d*.
**Alloxantin,** polarography of, 7835*c*.
——, **di-(1-benzyl)-***, monohydrate, 2953*g*.
——, **di-(1-butyl)-***, 2953*f*.
——, **di-(1-isobutyl)-***, dihydrate, 2953*g*.
——, **di-(1-propyl)-***, monohydrate, 2953*g*.
**Alloxazine** (*pyrimido*[*4,5-b*]*quinoxaline 2,4*(*1 H,3 H*)-*dione*). (See also *Isoalloxazine.*)
derivs., formation of, 7938*c*.
——, **8-amino-**, derivs., 3007*h*.
——, **8-amino-7-methyl-**, 7938*c*.
——, **bisimino-***, fluorescence and pH of, 8282*d*.
——, **7,8-dimethoxy-**, 3008*h*.
——, **7,8-dimethyl-**, chromatography of, in riboflavin decompn., 7073*g*.
fluorescence and pH of, 8282*c*.
therapeutic and physiol. effects of, 6366*a*.
vitamin $B_2$ conversion to, by tubercle bacillus, 5079*f*.
——, **8-dimethylamino-**, and sodium deriv., 3008*c*.
——, **7**(or **8**)**-methoxy-**, 1781*c*.
——, **6**(and **9**)**-methyl-**, 3384*g*.
——, **7**(and **8**)**-methyl-**, reaction with $NH_4OH$, 1427*a*.
——, **8-methylamino-**, 3008*c*.
——, **8-(nitrosomethylamino)-**, 3008*c*.
**Alloy 121,** compression of, 4917*a*.
**Alloys.** (See also *Alkali metal alloys, Babbit metal; Bearing metals, Heusler alloy; Rare earth alloys; Solders, Stereotype metal; White metals,* etc., and alloys of individual metals as *Aluminum alloys.*)
acid-resisting—see *Acid resistant materials.*
addn. agents for, P 6145*c*.
aircraft, 6959*f*.
analysis (chromatographic) of, for Cd and Cu, 7859*eg*.
analysis of hard, 1286*i*, 1287*a*.
analysis of heat-resistant, by x-ray fluorescence, 961*d*.
analysis of high-temp., for Al and Ti 61*d*.
for Co and W, 8950*i*.
electrographic qual., 7866*b*.
analysis of molten, rapid spectrographic, 2114*h*.
analysis of, of AMC type, 4181*c*.
by electrochem. methods, P 8980*g*
with general-purpose source unit for excitation of spectra, 7857*i*.
by internal electrolysis, liquid amalgams in, 7863*g*.
of nonferrous and precious metals, 970*f*.
of precious metals for Au, Ir, Pd, Pt and Rh, 5334*b*.
precision in, 519*e*.
by spectrographic means, 5320*f*.
analysis (polarographic) of light, 7369*e*.
analysis (quant.) in sorting of, 1279*e*.
analytical control of light, spectrographic analysis in, 5694*c*.
antimony detn. in Sn-contg. nonferrous, 963*h*.
binary and ternary interstitial, 3765*a*.
books: Molybdenum, Steels, Irons, 554*a*; Electrons, Atoms, Metals and, 948*a*; Die Edelmetalle und ihre, 988*a*; Non-Ferrous, 2566*a*; Karbidy tver-

dykh splavov, 2566*b*; Metales y, 3338*h*; La fonderie des alliages légers, 3338*i*; Systems, 4998*b*; Thermochemie der, 4998*c*; Metals and, 5357*b*; Structure and Properties of, 5724*f*; Mech. Testing of, 6562*a*; Inorg. Quant. Analysis, 7380*f*.
boron detn. in, 519*g*.
cast, alloy for addn. to, P 1709*e*.
casting of—see *Casting process*.
castings—see *Castings*.
as catalysts, 4088*b*.
ceramic-molded-bodies contg., P 5566*a*.
classification of, 2149*h*.
cleaning, 544*h*.
cleaning of, from heavy-metal compds., P 7405*c*.
coating on, or with—see *Coating(s)*.
coinage, of Gt. Brit., 3335*h*.
copper removal from, P 4626*e*.
corrosion resistance of, during food processing, 777*c*.
corrosion resistance of, to tanning solns., 9506*f*.
corrosion underground and its prevention, 6140*i*.
corrosive gas-resistant, for petroleum refineries, 1954*g*.
crystal chemistry of, 14*g*.
crystal formation in binary, 4619*d*.
crystals of binary, vol. changes from dissocn. of, 8232*b*.
deformation of, under longitudinal-impact loads, 1208*f*.
dental—see *Dental fillings; Dental materials*.
by diffusion, during sintering of powd. metals, 982*g*.
diffusion in, theory of, 1622*e*.
diffusion in two-phase, 3761*h*.
elec. resistance of, effect of pressure and temp. on, 5678*i*.
elec. supercond. of, 4532*h*.
electrodeposition on, or with - see *Electrodeposition*.
electrodes of, galvanic cells with, 8907*e*.
electron-atom ratios in phases of, 6880*c*.
for electron tubes, m.ps. of, 49*g*.
electroplating on, or with—see *Electroplating*.
endurance of, detn. of, 1302*f*.
equil. diagrams for, 3759*ab*.
equil. diagrams of binary, calcn. of simplest, 7314*g*.
equil. in ternary, 6961*a*.
erosion corrosion of, 5723*e*.
eutectic, 6136*c*, 7315*e*, 8832*d*.
eutectic contg. binary, 4935*d*.
expansion by heat of binary, with reversed solubilities, 6959*i*.
ferromagnetic superlattice, theory of formation of, 4061*a*.
freezing point of binary eutectic, effect of foreign metals on, 7885*e*.
fusible, manuf. from Sn-bearing residues, 5719*c*.
gas chemisorption by, 7877*b*.
glass-sealing, P 6145*h*.
graphite nodulizing, for Fe, 8336*c*.
hard—see also *Powder metallurgy*; etc.
hard, P 6144*c*.
brazing cemented carbide, P 6968*b*.
for cutting tools, P 2923*a*.
evaluation of, by magnetic properties, 1297*i*.
in industry, 7880*b*.
nonporous, P 8347*i*.
by powder metallurgy, 1297*h*, 5352*c*.
resistant to Pb compds. for facing values, etc., P 2154*c*.
$Ti_2WC_4$ for, P 3576*c*.
for tools, P 7895*a*.
W carbide-free, 2143*i*.
from W carbides, P 4822*d*.
hardening (age-) of, theory of Rückbildung of, 7885*b*.
hardening of, by gas diffusion, P 8347*c*.
hardening (pptn.-) of, effect of applied stresses on, 82*a*.
heat-resistant, 9010*d*.
for castings, 3333*c*.
effect of ceramic coatings on, 541*d*.
by powder metallurgy, 4614*a*.
with high secondary electron emission, 5660*h*
high-temp. strength of heterogeneous, 2564*a*.
hot strength of, 1298*c*.
internal friction of, elastic anisotropy and, 4198*h*.
light, structure prediction from vol.-concn. and concn.-temp. diagrams which det. solidification, 2149*f*.
liquation and segregation of, 9010*e*.
liquation in refining, P 4998*i*.
lubricants for—see *Lubricants*.
magnesium detn. in light, 7370*h*.
magnetic—see *Magnetic substances*.
magnetic and other properties of, 7885*e*.
magnetic permeability of Permalloy-type, 4911*c*.
magnetic properties of, 8768*h*.
manuf. and finishing of light, 6959*f*.
manuf. in elec. furnace, P 6094*f*.
melting of light, elec. furnace for, 2097*c*.
metallographic specimens of easily oxidizable, 3761*g*.
molten, elec. and thermal conds. of, 7880*d*.
molybdenum detn. in, 8958*b*.
molybdenum or W introduction into, compds. for, P 4436*e*.
neutron-producing, in rocket engine, 5664*f*.
nickel detn. in, 5333*g*.
noble-metal, in industry, 532*i*.
order-disorder in, study by neutron diffraction, 4130*i*.
order-disorder transitions in, 5247*f*.
ordered state in, rate of approach to, 3260*e*.
oxidation of, 541*f*.
oxidation of, at high temps., 1698*h*.
oxidation-resistant, 2149*i*.
oxides formed on binary, 985*f*.
oxygen detn. in, 8215*h*.
passivity of, 6139*d*.
pelletting app. for nonferrous, P 2154*f*.
phase designation in, 1704*g*.
polish for—see *Polishing materials*.
polishing of—see *Polishing*.
potential of, glass as electrolyte in measurements of, 6092*a*.
by powder metallurgy, P 555*c*, P 5729*g*.
precious-metal, in jewelry trade, 9014*a*.
precipitation in, theory of, 8335*g*.
for propellers, erosion resistance of, 95*i*.
properties of, detn. of, P 8918*f*.
pyrophoric—see *Pyrophoric substances*.
quenching of, breakdown during, 3759*e*.
quenching pptn.-hardenable, size effect in, 9010*g*.
radiography (micro-) of light, 4203*h*.
radiography (x-ray) of, 2914*c*.
reaction with halogens, O and S, 90*i*.
recovery of, 8998*i*.
refractory, forgeable and weldable, P 5720*f*.
refractory, high-d., P 4999*g*.
review on, 4614*c*.
for rocket motors, 4619*h*.
segregation in, x-ray absorption in study of, 5299*i*.
sepn. by fractional crystn., P 6145*d*.
sepn. of light, from scrap contg. heavy metal, P 6563*f*.
slip in, 9003*a*.
sodium detn. in light, 4974*e*.
soldering of—see *Soldering*.
solid solns. in binary, constitution of, 7770*e*.
solid solns. of, retrograde soly. in, 7315*e*.
soly. curves (retrograde) in, 29*a*.
spectra of electrodes of, during heat-treatment, variations in intensity of, 5694*e*.
spraying of, P 4626*i*.
for steel alloy manuf., P 9020*h*.
for steelmaking, 5718*a*.
strength at high-temps. of, melting diagram and, 90*f*.
strength of, 6136*d*.
structure of, 1622*d*.
structure of, emissivity-temp. curves and, 83*a*.
superlattice, electronic structure of intermediate, 7770*g*.
superlattices of binary, 8788*a*.
superstructure, elec. resistance in longitudinal magnetic field, 7278*d*.
surface tension of, 1300*c*, 3763*a*.
theory of, 6558*c*, 6959*c*.
thermoelec. force of, 2912*h*.
tin detn. in, 2889*g*.
for turbine (gas) rotor disks, 3331*d*.
for turbines (gas), P 556*a*.
for turbines (gas), creep testing of, 2916*d*.
for turbosupercharger buckets, P 3341*b*.
valve hard-facing, P 9021*b*.
x-ray reflection from partially ordered, 938*a*.
x-ray scattering by fused, 6031*c*.
x-rays in research on, 7884*i*.
welding of—see *Weldin*
zinc detn. in, 4974*f*, 7

**Allulose**. See *Psicose*.
**Allyl** (*free radical*), 5732*fg*.
electronic structure of, 2512*a*.
heat of formation of, 6479*c*.
——, **1,1-divinyl-**, electronic structure of, 2512*a*.
——, **1-phenyl-†**, 612*c*.
——, **1-vinyl-**, 5732*fg*.
electronic structure of, 2512*a*.
**Allyl alcohol**. (For derivatives see under *2-Propen-1-ol*.)
acetate, and glycerol from, 5367*d*.
acetate, derivs. and polymers, rosin esterification with, oil-sol. resins by, P 9485*g*.
effect in polymerization of Me methacrylate and on structure and viscosity of polymer, 8189*e*.
reaction of CO, H and, P 4685*e*.
acrylate, and polymers, P 4086*c*.
adipate, maleate or phthalate, polymerization in fibrous base, P 3238*d*.
anticorrosive power of, 548*a*.
*o*-benzoylbenzoate, and polymers, P 3847*f*.
camphor optical activity in, effect of $H_2O$ on, 8813*a*.
carbanilate, in weed control, P 1904*d*.
carbonate (acid), esters with hydroxy derivs. of hydrogenated thiophene 1,1-dioxide, P 691*b*.
carbonate, esters with polyhydric phenols, P 4298*h*.
as catalyst in decompn. of $K_2S_2O_8$, 6055*g*.
chloroformate, polymers of, P 5230*g*.
chloromaleate, polymer with 1,3-butadiene, P 6866*b*.
1 - chloro - 2,2,3,3 - tetrafluorocyclobutanecarboxylate, P 4295*e*.
*l*-citronellate, 4633*g*.
copper(I) chloride soly. in aq., 6889*e*.
derivs., regulators in polymerization of, 8199*c*.
diglycolate, polymers with styrene, etc., P 2035*h*.
diglycol carbonate, glycolate, lactate maleate, maleate and phthalate, polymers with Et acrylate, 5988*i*.
*9,c*-dihydroxystearate, P 8211*g*.
3,5-dinitrobenzoate, 558*e*.
esterification with Diels-Alder adduct of maleic anhydride and poly-unsatd. nonconjugated compd., P 2819*b*.
esters, 7468*a*.
with allyl carbonates of hydroxy aliphatic acids, P 3452*c*.
compatibility with silicone resins in baking enamels, 3213*f*.
copolymers with alkyd resins, P 1219*i*.
Grignard reaction with, 1351*d*.
with α-halo acids, P 2632*h*.
with imidodicarboxylic acid and with monoethyl imidodicarboxylate, 4228*f*.
with γ-lactone of 5-hydroxy-2,3-norcamphanedicarboxylic acid, P 3033*a*.
phys. consts. of, 2591*f*.
of polybasic acids, polymers of, emulsions with vinyl monomers, P 7264*g*.
polymerization of, P 4896*d*, 5378*f*, P 8212*bh*, P 8742*d*.
rearrangements of, 5768*i*.
rubberlike polymers with dienes, P 9519*f*.
and esters, chlorination of, 1321*f*.
fluoroacetate, volatility and vapor pressure of, 8841*a*.
formation of, in pyrolysis of allyltrimethylammonium hydroxide, 3780*a*.
in fumigation of pine nursery, 7179*e*.
and guanidinecarboxylate, P 6229*a*.
10-hendecenoate, 8352*e*.
hydrogenation of, catalysts for, 2536*b*.
isothiocyanate—see "allyl ester" under *Isothiocyanic acid*.
levulinate, 140*e*.
levulinate, and polymerization of, P 9081*g*.
maleate, as activator for 2,4-D, 805*i*.
maleate, drying oil by heating with glycerol esters with linseed oil fatty acids, P 4029*f*.
manuf. by electrolysis, P 3300*f*.
manuf. of, P 1049*i*, P 4284*i*, P 7497*h*, P 7952*c*.
methacrylate, fungistatic activity of, 9334*c*.
nicotinate, 2622*g*.
octafluoroadipate, P 2635*f*.
oxidation to acrolein, 1717*h*.
phthalate—see "allyl ester" under *Phthalic acid*.

phys. constants of, 2956*b*.
poly-, and esters, P 6219*a*.
polymerization of, P 4285*a*.
polymers, P 1795*d*.
with allyl fumarate and styrene, P 905*c*.
and their derivs., P 6645*h*.
with styrene and diallyl fumarate, removal of allyl alc. from, P 3660*h*.
reaction products with nylon and HCHO, thermosetting resins from, P 1610*g*.
reaction with $AlLiH_4$, 604*b*.
with $NH_3$, P 5420*i*.
with $C_2H_4$ (omitted from abstr.), P 4294*d*.
with ethylene oxide derivs., 5741*d*.
with $C_2F_4$, 3370*h*.
starch ether—see *Starch*.
tetrachlorophthalate, polymer with unsatd. alkyd resin, P 3233*b*.
tetrahydro-3-thiophenecarbamate 1,1-dioxide, P 6668*d*.
**Allyl alcohol, 1,3-dimethyl-**. See *3-Penten-2-ol*.
——, **1-ethyl-3-methyl-**. See *4-Hexen-3-ol*.
——, **1-methyl-**. See *3 Buten-2-ol*.
**Allylamine**, manuf. of, pilot plant for, 1613*g*.
polymers of, P 2468*h*.
reaction with naphthalene, P 3456*b*.
**Allylamine, *N*-[2-(2-biphenylyloxy)-ethyl]-*N*-(2-chloroethyl)-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*.
—, ***N*, *N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
—, ***N*-butyl-**. See *Butylamine, N-allyl-*.
—, **2-chloro-*N*, *N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
—, ***N* - 2,2 - dimethoxyethyl - 2-methyl-†**, and oxalate, 0974*c*.
—, **2-methyl-**, 1613*g*.
reaction with aromatic hydrocarbons, P 3456*a*.
——, **1-methylene-**, acyl derivs., polymers with vinyl compds., P 3650*i*.
orbital mol. diagrams and, 6479*e*.
**Allylation**, of 3-methoxypyrocatechol, 7451*g*.
of resorcinol, P 3037*f*.
of sucrose, 9041*g*.
**Allyl bromide**. See *Propene, 3-bromo-*.
**Allyl chloride**. See *Propene, 3-chloro-*.
**Allyl compounds**, resinous products from alkyd resins and, P 1219*h*.
**Allyl cyanide**. See *3-Butenenitrile*.
**Allyl disulfide**, fission and methylation in *Scopulariopsis brevicaulis*, 6286*f*.
in garlic, 7061*d*.
spectrum and structure of, 7410*g*.
**Allylene**. See *Propyne*.
*sym*-**Allylene**. See *Allene*.
**Allyl ether**, formation in hydrolysis of $CH_2{:}CHCH_2Cl$, P 7952*d*.
halogenation of, P 4683*a*.
polymers of, with Et acrylate, 5989*a*.
reaction with Na, 558*e*.
toxicity of, 4401*f*.
**Allyl ethers**. See *Ethers*.
**Allyl group**, effect on analgesic action, 4245*h*.
electron residual affinity of, 6512*c*.
migration of, in 3-C systems, 8373*b*.
rearrangements—see *Rearrangements*.
**Allyl hyponitrite**, as catalyst for polymerization, P 5641*c*.
**Allylidenimine**, orbital mol. diagrams and, 6479*e*.
**Allyl isothiocyanate**. See "allyl ester" under *Isothiocyanic acid*.
**Allyl mercaptan**. See *2-Propene-1-thiol*.
**Allyl mustard oil**. See "allyl ester" under *Isothiocyanic acid*; and "mustard" under *Oils*.
**Allyl phosphate**, $(C_3H_5)_3PO_4$, copolymers with alkyd resins, P 1219*i*.
**Allyl phosphite**, $(C_3H_5)_3PO_3$, as stabilizer for Cl-contg. vinyl resins, P 1606*c*
**Allyl rearrangements**. See *Rearrangements*
**Allyl silicate** ($(C_3H_5)_4SiO_4$), 9028*c*.
polymer with Me methacrylate, for laminated glass manuf., P 3235*f*.
**Allyl sulfide**, 559*b*.
compd. with $AuCl_3$, 5323*c*.
effect on contact oxidation of vitamin C by Cu ions, 1097*b*.
reduction of, 998*i*.
spectrum and structure of, 7410*d*.
**Allyl sulfone**, 559*b*.
**Allyl thiophosphate** $(C_3H_5O)_3PS_2H$, in Mo detection, 7859*b*.
**Almandite**. (See also *Garnets*.)
formation of, in S. Dak., 76*e*.
**Almond oil**. See *Oils*.
**Almonds**, emulsin of—see *Emulsin*.
gum from trees, structure of, 1323*h*.
gums from trees, chromatography of sugars in hydrolyzates of, 1290*c*.
proteins of, 3537*a*.
shells, adhesive extenders from, 8738*a*.
shells, filler for phenolic plastics from, 6862*e*.
vitamin $B_1$ in, 6753*i*.
**Alnus**. See *Alder*.
**Aloasia macrorrhiza**, as fermentation raw materials, 1146*f*.
**Aloe emodin**. See *Chrysazin, 3-(hydroxymethyl)-*.
**Aloes**, biogenic stimulators of surviving tissues of, 726*f*.
compn. of Curaçao, 6786*i*.
fibers in, light effect on, 4345*b*.
identification of exts. of, 361*c*.
mucilage from *Aloe vera*, 888*d*.
pharmacology of, 5542*c*.
**Aloins**, compn. and soly. of Curaçao, 6786*i*.
polarography of, and relation to anthraquinone derivs., 2520*h*.
**Alopecurus**. See "*Alopecurus*" and "foxtail" under *Grasses*.
**Alpaca**, review on, 8685*h*.
**Alpha-particles**. See *Alpha-rays*.
**Alpha-rays**. (See also *Helium; Radioactivity; Rays positive*.)
in actinium and thorium series, 7331*c*.
aluminum bombarded by, $Na^{22}$ and $Na^{24}$ from, 4093*f*.
from aluminum by deuteron action, 4118*a*.
anthracene bombarded by, fluorescence of, 4111*g*.
argon bombarded by, $K^{43}$ from, 4118*d*,
from astatine ($At^{219}$), 1648*b*.
from astatine ($At^{218}$) and from $Rn^{218}$, 4951*g*.
from beryllium by deuteron action, 2088*g*, 8876*b*.
by neutron action, 4947*a*.
by proton action, 5294*b*.
binding energies of, in medium-heavy nuclei, 8863*i*.
binding energy of at. nuclei for, 3702*e*
bismuth bombarded by, At from, 4123*g*.
from bismuth by deuteron action, 7813*e*.
bombardment with, of $A^{40}$ and $B^{10}$, emission of protons in, 6910*a*.
conduction pulses in crystals under, 8263*h*.
detn. of neutron yield in nuclear reactions from, by Szilard-Chalmers effect, 6910*e*.
$\delta$-electrons from, 3702*h*.
of gaseous targets in cyclotron, 4090*i*
mesotrons from, 6076*i*.
in 184-in. cyclotron, 4092*e*.
from boron ($B^{10}$) and $Li^6$, application of reactions yielding, to slow-neutron monitoring, 4095*c*.
from boron by neutron action, 3283*g*.
from boron by proton action, 3284*b*.
bromine bombarded by, Rb isotopes from, 4122*f*.
cadmium bombarded by, $Sn^{111}$ from, 8267*e*.
from carbon by mesotron action, 2861*g*.
from carbon disintegration in stratosphere, 4560*g*.
carboxypeptidase inactivation by, 6678*b*.
cesium bombarded by, La and neutrons from, 486*f*.
chem. reactions produced by, effect of Xe ions on, 6921*g*.
in cloud chamber contaminated with radioactive substances, 7812*d*.
of cosmic radiation, nuclear disintegration by, 8848*i*.
in cosmic rays, 1644*g*, 4104*i*.
counters for—see *Counters*.
counting of, 3706*h*.
with crystal fluorescence counter, 2861*c*.
electron multiplier tube for, 4094*f*.
with scintillation counter, 7812*a*.
with S crystal, 4560*b*.
cross section of B for neutron emission in bombardment with, 8265*d*.
cross sections of Al, Be and Mg for neutron emission in bombardment with, 8265*e*.
crystal (microscopic) formation on crystal surfaces by, 7769*g*.
detection of, app. for, 1646*a*.
by destruction of foams, 8865*c*.
instruments for, for health protection, 7326*e*.
from deuterium by triton bombardment, 4946*g*.
dissociation energy for, nuclear structure and, 4125*h*.
effect on frog tadpole, 1445*a*.
on nerves, 5434*d*.
on sulfhydryl enzymes, 6682*e*.
on superconducting bolometers, 8851*a*.
on water, 3709*c*.
electron capture cross section for, 4099*h*.
elements emitting, energy-period relation of, 2090*c*.
emission of, angular correlation of $\gamma$-rays and, 7810*h*.
electrostatic interaction and low-energy particles in, 4126*d*.
from elements lighter than Bi, 4563*a*.
followed by $\gamma$-rays, angular correlations in, in $B^{10}(n,\alpha)Li^7$ reaction, 5294*a*.
relation between half-life and energy in, 4125*e*.
Szilard-Chalmers reaction in natural, 8264*c*.
emitting radioactive series from bombardment of Th with $\alpha$-rays and deuterons, 4126*g*.
energy of, from heavy elements, mass nos. and, 1647*i*.
energy of, loss in Au foil, 1646*c*.
from fluorine by proton action, 4091*a*, 8860*h*.
from fluorine ($F^{19}$) by proton action, resonance voltage for, 3283*d*.
gases bombarded by, ultraviolet light from, 4580*h*.
germanium bombarded by, As from, 936*f*
gold bombarded by, Tl isotopes from 4564*e*.
from granite (Vosges), 37*f*
from helium ($He^4$) by deuteron action 8865*g*.
holmium bombarded by, Tm isotope from, 5297*a*.
indium bombarded by, excitation functions for nuclear reactions of, 8867*c*
from ionium, 3287*f*.
ionization by, in air and in A, 4558*c*
in liquids at low temps., 1257*h*
ratio to $\beta$ ionization, 5292*h*
iridium bombarded by, Au isotopes from, 4125*a*.
from lithium by neutron action, 4109*i*, 4114*a*
from lithium by proton action, angular distribution of, 8863*g*
luminescent materials contg. source of 6921*a*.
magnesium bombarded by, 1646*h*
from magnesium by deuteron action, 4563*a*, 6506*g*.
mesotron production by bombardment of C with, threshold energy for, 1561*a*
mineral identification by, 7810*h*.
from nitrogen by neutron bombardment, 2088*h*.
nitrous oxide decompn. by, effect of elec fields on, 3295*h*.
oxidations and reductions induced by, 4580*i*.
from oxygen by $\gamma$-ray action, 8850*i*
in phosphorescence quenching, 6920*h*.
phosphors irradiated with, decay of luminescence of, 5667*g*.
photographic plates bombarded with, stars in, 4113*g*.
photographic print-out images produced by, 8923*b*.
photographic range-energy curves for, 35*f*.
photographic tracks of, Herschel effect on, 8922*i*.
photography of, fading of latent image in, 4109*i*, 6028*c*.
of polonium, 4559*g*.
from polonium electrodeposits, 8285*h*.
from polonium, spectra of, 1648*a*
potassium iodide oxidation by, 4952*f*.
from protactinium series disintegration, 37*c*.
from proton bombardment of Al F and Na, 3284*g*.
of Be and Li, energy released in sion of, 8864*c*.
of F and Li, 7329*d*.
proton scattering by, phase shifts 8864*i*.
from radiothorium plus Th X, 4564*i*.
from radiothorium, Th C and Th C', 489*c*.
from radium C and Ra C', 489*b*.
from rocks, measurement by photographic method, 4565*f*.
from samarium, 1647*d*.
scattering of, 1645*g*.

scintillations produced by, in org. crystals, 8264*b*.
selenium bombarded by, $Br^{77}$ and $Br^{80}$ from, 485*i*.
selenium bombarded by, Kr from, 936*i*.
spectroscopy with, 3701*g*.
stopping power (mol.) of hydrocarbon isomers for, 4094*a*.
stopping powers for, 4124*h*.
measurement of, 7327*c*.
of water, 5285*c*.
thorium bombarded by, $U^{233}$ from, 4127*c*.
from thorium C′, 1648*d*.
thorium disintegrated by, products of, 4127*a*.
uranium bombarded by, Pt-group radioisotopes from, 4123*e*.
uranium bombarded by, spallation and fission of, 489*a*.
from uranium photo-fission by γ-rays, 8209*d*.
from uranium, range in photographic emulsion, 8263*d*.
from uranium ($U^{234}$), 8269*e*.
from uranium ($U^{238}$), 5298*a*.
zinc bombarded by, Ge and neutrons from, 936*b*.
zinc sulfide bombarded by, crystal size and brightness of scintillations of, 7349*c*.
crystal size and luminescence of, 5668*i*.
luminescence of, 7826*d*.
Alphenal. See *Barbituric acid, 5-allyl-5-phenyl-*.
Alpinism. See "at high altitudes" under *Atmosphere*.
Alsine See *Stellaria*
Alsophila **australis**, lignins in, 2283*b*.
Alstonia **yunansis**, identification, occurrence, compn. and antimalarial action of, 7194*e*.
Alstonine, 648*f*.
, **tetrahydro-**, 648*f*
Alstyrine, spectrum of, 648*g*
Altaite, in Canada (western), 8983*a*.
density and x-ray data on, 8982*g*.
Alternaria, control of, P 1526*a*, 7178*b*
control on citrus in storage, 1517*b*.
on lemons in storage, 1516*h*.
on petunias grown for seed, 2725*e*
on tomatoes, 1413*b*, P 4418*h*, 9339*i*.
cotton boll attack by, 9350*i*.
*solani*, control of, compn. for, P 5529*b*.
control of, kojic acid heavy metal complexes for, P 4419*e*.
*tenuis*, germination of, effect of cysteine and Hg derivs. on, 9335*h*.
toxin production by, 8002*e*.
on wood, borax effect on, 7623*i*
Alternation, in org. compds. see *Charges (chemical)*.
Altica **ambiens** and(or) **Alder flea beetle**. control of, P 2732*g*.
Altica **bimarginata**. See *Altica ambiens*.
Altica **oleracea**, control of, 9341*f*
Altitudes. See *Atmosphere*.
**Altroketoheptose**. See *Sedoheptulose*
Aludrine See *Protocatechuyl alcohol, α-(isopropylaminomethyl)-*.
Alum See *Alums*.
Alumina (See also *Bayerite; Boehmite, Corundum*)
abrasive from, with $Cr_2O_3$ or $V_2O_5$, P 1936*d*.
activities and elec. insulators from, P 7658*c*.
abrasives from, 1934*bc*.
abrasive wear of metals by, 5721*a*.
activated, 5909*f*.
as adsorbent, 9206*d*.
review on, 2379*i*.
activation of, 3981*i*.
adsorbents of $SiO_2$ and, P 8666*a*.
adsorbents, regeneration by oxidation, P 2422*b*.
adsorption and ion-exchange absorption by, 6075*b*.
adsorption by, 2542*a*.
adsorption of BuOH, PhOH and BuCO$_2$H by, 28*c*.
alkali removal from, P 9397*a*.
as, as enamel opacifier, P 6804*f*.
aluminum manuf. from, by extractive distn. with halides, P 5728*f*.
aluminum manuf. from, with Al halides, P 5728*d*.
analysis of, concn. by org. reagents in, 2541*f*.
brick from, 1543*c*.
bricks from, for regenerators of glass furnaces, 5915*c*.
buffer action of, 8293*i*.
in carbazole manuf. from o-PhC$_6$H$_4$NH$_2$, P 9086*a*.
as catalyst, 8251*e*.
in acrylonitrile manuf. from ethylene oxide and HCN, P 3439*g*.
activation of CO and O desorbed from, 4088*a*.
in acylation of thiophene, P 2643*i*, P 2644*e*.
in alc. decompn., P 4835*d*.
in alkylation of phenols with alcs. or ethers, P 687*f*.
in condensation of diethylenetriamine to piperazine, P 2242*g*.
in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
in dehydration of amyl alcs., P 6217*h*.
in dehydration of EtOH, 2498*c*.
in dehydration of hydracrylonitrile, 4629*i*.
in dehydration of α-methylbenzyl alc., 592*a*.
in dehydrogenation of cyclohexane, 7912*a*.
in hydrogenation of CO, P 1171*a*, 2405*i*, P 5574*b*.
in manuf. of methylamines from NH$_3$ and MeOH, P 3440*g*.
in manuf. of styrenes, P 6231*a*.
in nitrile manuf. from NH$_3$ and cyclic hydrocarbons, P 4285*gi*.
in nitrile manuf. from HCN and olefins, P 3439*h*.
in pyrolysis of resin acid, 9443*a*.
in synthesis-gas manuf. from hydrocarbons, P 7213*b*.
in toluene manuf. from bibenzyl and H, P 3454*b*.
catalyst (alkali-free) of, in Ph$_2$NH manuf from PhNH$_2$, P 682*g*.
catalysts for hydrocarbon treatment—see *Catalysts*.
catalysts from, P 1161*c*.
for hydrogenation of CO to hydrocarbons, P 5928*c*.
for polymerization of $C_2H_4$, P 5640*i*.
catalysts from AlCl$_3$ and, P 3162*c*.
catalysts from AlCl$_3$ and, in isomerization of butane, P 4283*d*.
catalysts from BeO and, P 9299*f*.
catalysts from β-, P 1931*d*.
catalysts from C or SiO$_2$ and, in ethylation of PhNH$_2$, P 1437*e*.
catalysts from Cr and Mo oxides and, P 1930*e*.
catalysts from $Cr_2O_3$, CoO, and, in dehydrogenation of 2-*o*-tolyl-2-butene, 5012*d*.
catalysts from $Cr_2O_3$, Mn or Ni and, 6897*e*.
catalysts from Cr oxides and, in 1,3-butadiene manuf. from EtOH, P 5410*d*
catalysts from Co and, in hydrogenation of benzene, PhMe and xylene, 6172*d*.
catalysts from Co and, in hydrogenolysis of 2,2,3-trimethyl-1-butanol, 1313*a*.
catalysts from CoCO$_3$ and, adsorption and desorption of N and stearic acid by, 6897*i*.
catalysts from Cu and, in hydrogenation of 2-furaldehyde, P 7049*c*.
catalysts from Cu and, in picoline manuf. from allyl alc. and NH$_3$, P 5426*i*.
catalysts from Cu$_3$(PO$_4$)$_2$, H$_3$PO$_4$ and, in dehydration of BuOH, P 7035*b*.
catalysts from halogen, Pt and, P 8578*h*.
catalysts from halogen, Pt and, in reforming of gasoline, P 8664*h*.
catalysts from Fe oxides and, P 370*e*.
catalysts from Fe oxides and, in reduction of esters, 5363*d*.
catalysts from Li$_2$O and, P 6762*i*.
catalysts from MgO, SiO$_2$ and, in butadiene manuf. from EtOH, 7808*d*.
catalysts from Mo oxide and, P 8579*e*.
catalysts from Ni, SiO$_2$ and, in conversion of $C_2H_4$-$C_2H_6$ mixts. to higher boiling products, P 3833*g*.
catalysts from SiO$_2$ and, P 1930*bd*, P 1932*a*, P 4792*a*, P 5887*b*, P 6338*d*.
in acylation of furans, P 3405*d*.
in acylation of thiophene, P 2644*b*.
in alkylation of PhNH$_2$ with butene, 4644*f*.
in alkylation of indan and 1,2,3,4-tetrahydronaphthalene, 2197*f*.
in alkylation of thiophene, P 691*d*, 1395*b*.
in amide manuf. from amines, nitriles and H$_2$O, P 8398*g*.
in ethylation of benzene, 1019*d*.
flow of fluidized, in conduits, 6475*h*.
heat-treatment of particles of, P 6340*a*.
*catalysts from SiO$_2$ and*, in hydrocarbon manuf. from Me$_2$O, P 3435*f*.
in ketene reaction with CO-contg. compds., P 3840*d*.
in methylation of benzene, toluene and xylenes with Me$_2$O, 3377*c*.
pressure drop in vertical tubes of fluidized, 6476*b*.
in toluene manuf. from terpenes, P 1437*b*.
catalysts from SiO$_2$, $V_2O_5$ and, for partial oxidation, P 6338*f*.
catalysts from ThO$_2$ and, for urea prepn., 2946*d*.
catalysts of, and its mixts. with Cr oxide in C$_6$H$_6$ and toluene manuf. from petroleum and its gases, 8661*c*.
ceramic ware contg., 5915*d*.
chemisorption of NO$_2$-N$_2$O$_4$ by, 6035*a*.
for chromatography, 1535*b*.
in chromatography, buffer action of, 8234*d*.
in clays of Condroz Basin, 3163*c*.
cobalt-ammine chromatography on, 8295*b*.
colloidal—see also *Aluminum hydroxide*.
colloidal, P 1884*d*, P 1929*i*, P 3161*c*, P 4820*i*, P 5555*e*.
as adjuvant and stimulant of immunity, 7120*h*.
adsorbent from C and, P 6762*e*.
bead catalyst from, P 1931*a*.
catalyst from, P 3161*d*.
effect of ultrasonic waves on radioactive emanating power of, contg. Ra-Th, 7815*c*.
effect on elastic behavior of Buna S, 4045*d*.
manuf. from Al, P 1159*g*.
molded, P 6338*b*.
pellets of, P 6338*b*.
pore distribution and size in, 1240*f*.
prepn. and properties of, 2080*d*.
refractometry of, 6040*c*.
removal of mists and dusts from air by beds of fluidized, 6475*b*.
sediment vol. and rate of d. increase of coagulates of, 7780*c*.
spherical adsorbent particles from, P 1506*b*.
spheroidal gel particles of, P 5134*c*.
colloid from SiO$_2$ and, P 7608*g*, P 9299*d*.
spherical particles of, P 7608*f*.
stabilization against wetting, P 2746*c*.
compression of, 4917*b*.
conversion to AlCl$_3$, thermodynamics of, 3694*a*.
cryst., 1933*i*.
dehydration of, P 3733*a*.
detn. in Al powder, P 3318*f*.
in cosmetics, 9369*a*.
in portland cement, 4441*i*.
in SiO$_2$ bricks, 829*d*, 8112*c*.
in steels, 2546*g*, 7374*i*.
effect on $C_2H_2$ formation from $CaC_2$, 2082*a*.
on cellulose degradation by light, 8133*i*.
on GR-S rubber, 8189*a*.
on hydration of MgO, 5919*i*.
on quartz transformation into cristobalite, 371*d*.
on SiO$_2$ refractories, 6801*g*.
on NaF yield from CaF$_2$, 1535*g*.
on viscosity of silicate glasses at annealing temps., 7654*f*.
elasticity of, 8228*b*.
elec.-insulation coating contg., P 2344*a*.
elec. resistors from, P 8920*b*.
electrophoretic deposition of, effect of alcs. on, 8908*e*.
ethylene oxide reaction with H$_2$S in the presence of, 2624*g*.
extn. from Ca aluminates with soda soln., 1924*hi*, 1925*a*.
films of, as carriers for electron microscopy, 2524*a*.
electron-bombardment cond. of, 8847*h*
properties of insulating, 5250*h*.
flotation of, 1503*e*.
formation of cryst. hydrated, 1921*ce*
formation of, thermodynamics of, 2907*e*.
fuel-gas purifier contg., P 6397*c*.
fused, P 6925*h*.
catalyst pellets from, P 8578*h*.
manuf. in Canada, 2343*d*.
γ-, from γ-AlOOH, transformation by heat to α form, 5300*d*.
catalyst from Fe oxide and, 8831*h*.
catalysts from Fe and Nd oxides and, relaxation times for, 8832*a*.
catalysts from Ni oxide and, 8831*d*.
crystal structure of, and its mixt. with Eu nitrate, 3319*c*.

γ-, effect of $SiO_2$ on primary particle size and lattice distortion of, 3685*d*.
formation from alunite, 9404*d*.
isoelec. point of, 6040*i*.
lattice distortion, particle size and secondary structure of, and its starting material, 3685*b*.
as metallographic polishing powder, 7884*h*.
glass contg., 2837*e*, 9401*h*.
in hairy-spider-beetle control, 2729*b*.
halogenated hydrocarbon stabilization with, P 4682*e*.
hydrated, manuf. and petroleum decolorization by, P 9427*c*.
hydrate of, pptd. from $NaAlO_2$ solns., 55*e*.
ion exchange in, 4076*c*.
as iron-desulfurizing agent, 3755*h*.
iron detn. in finely dispersed, 5331*h*.
luminescence of, activated by various substances, 3722*d*.
magnesium oxychloride cement contg., P 3166*f*.
manuf. of, 1921*gh*, 1922*abcefgh*, 6371*i*.
from alum, P 7651*i*.
from aluminosilicates, P 1538*b*.
from Al, P 6794*g*.
from alunite, P 7202*b*.
from alunite or clay, P 6794*g*.
from bauxite, P 4435*b*, 9393*h*.
bauxite pretreatment for, P 9308*g*.
from bauxite, use of filter cakes from, P 8623*f*.
by Bayer process, increasing yield in, P 4820*h*.
from clay, P 6375*d*.
from clay, $(NH_4)_2SO_4$ process for, 1534*i*.
from clay by $H_2SO_4$ decompn., 2744*d*
from clays and other silicates of Al, P 8107*g*.
from high-$SiO_2$ bauxites, 3156*d*, 5909*g*.
Fe manuf. from red silt from, 4997*a*.
in Japan, 4989*i*.
from leucite, P 4821*h*.
from Manchurian clay, 1921*cf*.
from materials contg. $Al_2O_3$ and $SiO_2$ and $CaSO_4$, P 825*i*.
from nepheline-syenite, 1925*g*.
from Pennsylvania clays, 4435*a*.
from Shantung bauxite, 9395*h*.
from silicates, 823*i*.
by soda-lime process, 1923*cdgi*, 1924*ac*.
V recovery in, 7876*g*.
manuf. of, and increasing rate of solubilization in limestone sintering of high-$SiO_2$ ore, P 1926*e*.
manuf. of, and its production in Austria, 2744*d*.
manuf. of cement, Fe, etc., and, 2395*c*, P 6143*d*.
melting of, in solar furnace, 6025*h*.
mixts. with cryolite, anodic overvoltage on graphite in molten, 6519*e*.
mixt. with $SiO_2$, effect on decompn. of $K_2SO_4$ and hydrolysis of NaCl, 2077*b*.
mullite from tech., 3580*a*.
in paper, effect on starch-adhesive penetration, 1185*g*.
phosphate adsorption by, and elution from, 2067*c*.
phosphor contg., P 7832*g*.
phosphor contg. $Fe_2O_3$, $Li_2O$ and, 6084*d*.
in potassium fluoride-NaF eutectic melts, 5687*e*.
precipitation and ignition temps. for, as analytical ppt., 8305*c*.
prepn. of, and hydrate, 2533*i*.
purification with Cl, 1922*i*, 1923*ac*.
radioactivity of, effect of desorption of $H_2O$ and Tammann-exchange temp. on, 8822*e*.
reaction with arsenious acid, 8592*i*.
with $BaSO_4$, 6894*g*.
with $CaCO_3$, 8826*e*.
with $Fe_2O_3$ and CaO, 3587*h*.
with $SiO_2$, $Tl_2O$ and $H_2O$, 8932*c*.
with $H_2SO_4$, P 6527*h*.
with $SOCl_2$, 2886*a*.
recovery from Al ores, 4611*d*.
from red mud, as catalyst, 1603*d*.
refractories from fused, 8631*b*.
refractories from fused cast, in glass industry, 5563*e*.
refractories from $SiO_2$ and, 8630*i*.
refractory (cast) from, P 6804*b*.
refractory materials from, 830*d*, 1164*a*, 8584*g*.
refractory materials from, emission factors at high temps. of, 6082*i*.
refractory (porous) from, P 4441*f*.
removal from Li, 1683*c*.
in rhubarb varieties, 9383*g*.
as rubber-reinforcing agent, 1209*b*.
silicon carbide-contg., lapping bronze, Fe and steel with, 3766*h*.
sintering of, 7206*a*.
in soils, effect of fertilizers on, 6350*b*.
solid solns. with $Fe_2O_3$, 8934*e*.
soln. in NaOH, 2077*d*.
suspension in paraffin oil, viscoplastic properties of, 4929*b*.
system: $Al_2(SO_4)_3$-$H_2O$-, pH in, 2493*a*.
system: BaO-MgO-$SiO_2$-, 6380*c*.
system: $Fe_2O_3$-CaO-MgO-$SiO_2$-, 8632*f*.
system: FeO-$SiO_2$-, corrosion of refractory materials by FeO and, 5915*i*.
system: lime-, Ca aluminates in, 4594*f*.
system: CaO-$Fe_2O_3$-MgO-$SiO_2$-, 3980*h*.
system: CaO-$Fe_2O_3$-$Na_2O$-, 930*i*.
system: CaO-$SiO_2$, 1924*ghi*, 1925*a*, 6499*a*, 8937*b*.
system: $K_2O$-$SiO_2$-, 2475*g*.
systems: 2CaO.$SiO_2$-MgO-, and kaliophilite-nephelite-$SiO_2$-, 6798*f*.
system: $SiO_2$-, 8627*a*.
system: $SiO_2$-, elec. cond. of, 4936*i*.
system: $SiO_2$-$Na_2O$-, reaction kinetics in, 8253*c*.
systems: $Fe_2O_3$-CaO-$SiO_2$-$Na_2O$-, and FeO-CaO-$SiO_2$-$Na_2O$-, 1923*i*.
systems: CaO-, and $Na_2O$, 1923*d*.
systems: CaO-$Na_2O$-, and CaO-$SiO_2$-$Na_2O$-, 1923*g*.
system: $H_2O$-, dehydrated properties of $Al_2O_3$ and, 8833*g*.
thermal properties of, 9403*h*.
trypsin adsorption by, 3864*c*.
as turbine material, 7392*f*.
water-vapor absorption by, humidity and, 6881*i*.
wetting of, by metals and Cr-B, 4438*c*.

**Aluminates.** (See also *Alkaline earth aluminates.*)
beryllo-, glass, P 5166*a*.
as catalysts in refining of hydrocarbons, P 3191*b*.
formation of, 6531*f*.
glass from, 5163*g*.
ions in soln., 2112*f*.
mixt. with Na berylates, P 6375*a*.
of Turkey, 1291*g*.

**Aluminic acid.** See *Aluminum hydroxide.*

**Aluminon.** See "ammonium salt" under *Aurintricarboxylic acid.*

**Aluminosilicates.** (*Since the true aluminosilicates, in which aluminum is substituted for silica, and the aluminum silicates are often not distinguished in the literature, no distinction has been attempted under this heading. See also* Alkali metal aluminosilicates.)
adsorption and color reactions of, 6035*e*.
catalysts for oil industry, analyses and x-ray examn. of, 840*i*.
as catalysts in aromatization of cracked distillates, 3998*g*.
in depolymerization of triisobutylene, 6151*a*.
in octene transformation, 6150*g*.
mol.-sieve absorbents from, P 1618*c*.
prepn. and properties of, 2067*d*.
refractories contg., effect of mixts. of CaO and FeO on, 3582*i*.
refractories of, effect of FeO on, 3582*d*, 3583*a*.

**Aluminothermic process.** See *Thermite process.*

**Aluminum.** (See also *Alclad.*)
absorption by humic acid and soil, 7618*d*.
adhesion to molten glass, 9100*b*.
adhesion to polymers, 8206*f*.
adhesive for, 9521*d*.
air baths from shavings of, 8217*b*.
alpha-ray bombardment of, cross section for neutron emission in, 8265*e*.
alpha-ray stopping power of, 4124*i*, 7327*d*.
aluminum sulfate manuf. from, P 3984*b*.
amphoteric-substance adsorption by, pH and, 6035*d*.
anisotropy in annealed polycryst., 6956*e*.
annealing cold-rolled, recovery and recrystn. during, 1697*i*.
anodes, for elec. condensers, P 510*c*.
as antioxidant in paraffin oil, 2411*b*.
atomic wt. of, 8764*h*.
Australian industry of, 6546*h*.
in automobile industry, 88*f*.
in bees, 5874*h*.
beryllium diffusion in, 2559*f*.
beta-ray absorption in, 4118*h*.
beta-ray-bombarded, pair production in, 8262*b*.
bioradiation by, 9093*e*.
in blood, 4322*d*.
bombardment with α-rays and deuterons, $Na^{22}$ and $Na^{24}$ from, 4093*f*.
bond with C, energy of, 5242*d*.
books: 2910*g*; Development of, Industry, 4623*h*; L'alluminio e le sue leghe, 4998*b*; Aluminium Handbook, 5357*b*; Die anodische Oxydation des, in verschiedc zusammengesetzten Oxalsäurelösungen, 5692*g*.
in brain, 6719*h*.
brazing of, 6561*a*.
in calcium gluconate prepn., 8614*g*.
casting of, 9003*e*
as catalyst in dehydration of EtOH, P 1434*h*.
in dehydration of hydracrylonitrile, 4629*i*.
in ethanolysis of palm oil, 7723*i*.
in oxidation of $SO_2$, 5910*g*.
in reaction of alkyl halides with B halides, P 6220*d*.
catalysts, for dehydrofluorination, regeneration of, P 5518*c*.
catalysts, for hydrogenation of CO, activity measurement of, 6389*h*.
catalysts of Cu and, in hydrogenation of 2-furaldehyde, P 7049*b*.
catalysts of Cu, Fe and, in nitration of paraffins, P 4285*c*.
catalysts of $MoO_3$, $P_2O_5$, $V_2O_5$ and, in oxidation of crotonaldehyde, P 5031*f*.
catalysts of Pd and, in hydrogenation of $C_2H_2$ to $C_2H_4$, P 5030*b*.
as cathode in electrolytic reduction of 2-methyl-3-buten-2-ol and 2-methyl-3-butyn-2-ol, 994*g*.
cathodes, decay curves of counting rate of, 4945*h*.
in cathodic protection, 99*f*, 6141*d*, 6560*i*
chromatography on $Al_2O_3$, 8293*i*
classification and properties of, 2915.
cleaners for, measurement of corrosion by, 4399*g*.
cleaning, before plating, 94*i*, 8284*f*
cleaning, for spot welding, P 9022*i*
cleaning, penetrating and corrosion-loosening compn. for, P 6147*h*.
in coal, 8639*e*.
coarsening and recrystn. textures in 7881*a*.
coating (anodic) on, 1270*a*, P 2101*g*, 2872*i*, 2914*f*, P 3300*d*, P 4788*i*, 4620*e*, P 4999*d*, P 5681*f*, 6525*i*, 6924*i*, P 7358*h*.
coating (anodic) on wire of, P 4580*i*
coating of, P 3342*h*, P 6147*i*, P 7401*a*
with Cr salt, P 990*f*.
for drawing and ironing, 3333*h*
by Eloxal process, 2521*i*.
with metals from fluoride solns., 1994*f*
with oxide, O efficiency in, 9517
for painting, 5199*i*.
for painting, etc., P 6564*i*
with proteins for dyeing, P 5001*d*, P 7895*d*
coating of coils and sheets of, with $ZnCrO_4$ pigmented vinylbutyral resin wash primer, 2787*i*.
coating of cooking utensils of, with silicone grease, 3544*e*.
coatings (anodic, oxide, etc.) on, P 3772*b*.
electrolytic sealing of, P 5317*f*.
growth and structure of, 6923*i*
improvement of capacity for absorbing white pigments, P 9021*c*.
measurement of permeability of, 47*a*
structure of, 2481*h*.
treatment with Al salt, P 8350*b*.
for use in mouth, 8284*g*.
coatings for and painting of railway equipment from, 420*e*.
coatings for, fire-resistant synthetic resin-phosphate, 8177*c*.
coatings for, from glycerol α allyl ether phthalate and succinate, 9180*h*.
coatings from, on glass, increasing mech strength of, P 7657*cf*.
on Fe and steel, after 5 years' exposure, 3766*f*.
sprayed, 546*c*, 986*a*.
on steel, 7888*d*.
coating with, on Cu alloys, P 1710*g*.
on ferrous metal, P 6564*f*.
on glass thread, P 3988*b*.
on iron, P 2154*e*.
on steel, 8335*a*.
on steel, for protection against $SO_2$, 2151*d*.
cold (subzero) effect on, 80*f*.
coloring of, 6352*h*, P 7404*b*.
coloring of, by M.B.V. treatment and pigments, 3629*e*.
combustion in O, 4593*h*.
compn. with casein, stabilizer for P 3242*f*.

compression of, 4917*a*.
condensation of basic ions of, 7308*b*.
containers of, for fruit juice, 1877*f*.
ghee storage in, 6327*f*.
for $H_2O_2$, 5553*h*.
for ordnance materials, linings for, 5202*f*.
coördination changes in, effect on transitions among mica, hydromica and montmorillonite, 7872*f*.
copper soly. in, 2561*a*.
corrosion control for couples contg., 2564*e*.
corrosion in metallic systems contg., inhibitors for, P 8349*c*.
corrosion of, 548*i*, 5721*f*, 5724*a*.
by acids, prevention of, 4622*c*.
by butyl oil, 813*f*.
by hydrocarbons and oxygenated org. compds., and effect of water thereon, 8128*c*.
by HCl, products of, 7399*i*.
$H_2O_2$ formation during, and effect of $CO_2$ in retarding corrosion, 6140*a*.
lecture expt. on, 6015*c*.
melting behavior of grain boundaries and, 2557*h*.
photographically active particles from, 2869*i*.
by salt solns., 4996*b*.
by NaOCl and its inhibition, 8341*d*.
in $SO_2$, 101*g*.
thickness and, 3337*c*.
corrosion of foil of, 5723*g*.
corrosion resistance of, 3337*f*.
cosmic-ray-bombarded, neutrons from, 4104*e*.
cracking ingots of, in rolling, 7880*h*.
creep in, mechanism of, 5352*b*.
crystal boundaries in, during melting, 8336*e*.
crystallochem. electronegativity of ion of, 8231*b*.
crystals of, inclusions in, 4918*d*, 7768*f*.
crystals of, latent strengthening in distorted, 4991*d*.
crystals (single) of, recovery from strain, 8325*f*.
recrystn. of, small isolated crystals in, 4072*c*.
surface imperfections in, 1698*c*.
transverse bending of, 9003*e*.
cutting annealed, in paraffin oil, surface-active substances in decreasing specific work of, 2001*h*.
cutting oil for, P 1307*b*.
damping capacity of anodized, 4066*g*.
deformation and stress of, 82*e*.
deformation of, under longitudinal impact loads, 1298*i*.
detonation velocities of mixts. of trinitrotoluene and, 2776*b*.
deuteron bombardment of, 4560*e*.
α-rays and protons from, 4117*i*.
angular distribution of protons from, 8801*h*.
γ rays from, 4113*a*.
protons from, 3284*e*, 8265*h*.
diffusion of He, H and O through tubes of, 6021*e*.
in *Digitalis purpurea* leaves, 6703*i*.
drilling of, effect of liquids on, 7889*g*.
drilling of, energy balance in, 8227*i*.
dyeing of, P 9022*a*.
dyeing (tippy) of wool with chrome dyes and, 5953*c*.
effect on cast Fe, 5716*i*, 6553*i*.
on color reaction of azo dyes with Mg ion, 507*h*.
on Cu electrodes, 8342*f*.
on corrosion cracking of brass, 2149*c*.
on detn. of Cr, Mn and Ni in steel, 4598*f*.
on erosion resistance of propeller alloys, 96*a*.
on graphite form in cast Fe, 7395*a*.
on hardenability of steel, 3330*a*.
on hydrolysis of coconut oil and of palm oil, 8707*a*.
on Fe-Mn alloy for welding electrode, P 3344*c*.
on Li-Mg alloys, P 1307*i*.
on metallic coating by vacuum evapn., P 104*e*.
on *Mycobacterium smegmatis*, 5444*c*.
on nitridation of steel, 6958*b*.
on oxidation of molten Pb, 7881*g*.
on oxidation of Ni, 4019*f*.
on O consumption by frog skin, 3530*a*.
on pine, 7172*b*.
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on protoplasts, 5091*c*.
on pyrometry of liquid steel, 7396*g*.
*effect* on recrystn. of deep-drawing steel, 3760*a*.
on Si elec. properties, 9002*d*.
on stability of cast C-Mo steel, 537*h*.
on steel-sheet welding, 3767*e*.
on vitamin C content of milk, 3533*e*.
elastic and structural properties of, 9001*g*.
elastic consts. of, 2482*h*.
elasticity of, 8804*f*.
for elec. app., effect of V on, 533*h*.
electrode from $Ta_2O_5$, Ta powder and powd., P 6097*f*.
electrodeposition of, on steel, 1209*a*.
electrodeposition on, P 8917*g*.
electron absorption in, 7811*e*.
electron energies in, 4131*a*.
electron interference patterns of, at high potentials, 7324*c*.
electron range in, 8801*f*.
electron scattering by, 8269*h*.
electron secondary emission of, 4101*g*.
electroplating on, P 4588*d*, 8903*g*.
for aircraft components, 7833*e*.
with Cr, 7833*f*.
with Ni, P 6095*e*.
racks for, 8907*g*.
enamels for, 7205*d*, 7656*h*.
energy levels of, oscillator strengths for transitions between, 6511*b*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*.
energy loss in, by deuterons and protons, 1646*c*, 4123*f*.
in enzyme activity, 1820*b*.
etching of, P 6147*f*.
exchange with phenolsulfonate resin, 8792*d*.
expansion of, effect of alloy addns. on, 4204*c*.
extn. with, and soly. in Hg, 7880*f*.
extrusion of, P 989*d*.
films of, 2481*g*.
heat effect on, 2482*b*.
on ionic substrates, 8786*h*.
structure and properties of, 4066*a*.
structure of, 2482*d*, 5653*c*.
finishes for, 9003*b*.
finishing and surface prepn. of, 8325*f*.
finishing, for aircraft, 1304*i*.
pretreatment for, 1705*b*.
reference data sheets for, 95*h*.
flakes of, and finishes therefrom, 874*e*.
foil, flattening of, for bonding, coloring and printing, P 9022*b*.
foil, prepn. for study of α-ray scattering, 1645*h*.
formation from oxide, free energy of, 4546*g*.
formation of ion of, from clay minerals by acids and salts, 372*b*.
fracture strength of, detn. of, 1697*e*.
friction between Sn and, 5273*b*.
galvanizing baths contg., 9014*d*.
gamma-ray absorption by, 1647*a*, 8867*a*.
gamma-ray action on ionization current after passage through, 5282*g*.
gamma-ray-bombarded, $Na^{24}$ from, 8850*c*.
gamma-ray bombardment of, threshold for reaction in, 4115*f*.
gamma-ray cross section of, 3283*f*.
gamma-rays from $Al^{28}$, 935*b*.
gas removal from, with N, 5715*d*.
getters from, 2877*d*.
grain refinement in cast, 2143*e*.
grain size of, heating rate and, 2911*g*.
grain-size relation to mech. properties and effect of addns. on grain growth, 5715*e*.
in grapevine sap, 3889*f*.
in graphite (Acheson), 8276*c*.
hardening of, in cutting in inactive and surface-active media, 2001*e*.
hardness (micro-) of recrystd. sheet of, 6956*i*.
heating hydrocarbon-oil vapors with shot of, in conversion, P 8665*b*.
heat transfer by radiation to surface of, 4939*b*.
hollow ware of, refinishing of, 5676*a*.
hydraulic fluid for use with, P 5519*c*.
hydrogen in, 982*i*.
hydrofluoric acid removal from hydrocarbons by etched, P 4002*d*.
hyperfine structure and quadrupole moment of, 1264*a*.
industry in Japan, 4989*i*.
industry in 1946, 2126*i*.
intraocular tolerance of, 6735*b*.
ions (neg.) of, mass-charge ratio of, 8848*a*.
ions of, in Al-Cu alloys, 6136*b*.
*ions of*, as catalyst in the decompn. of DDT by bases, 3697*e*.
on decompn. of oxalosuccinic acid, 1014*b*.
in iron deoxidation, 7877*g*.
in irrigation water, 3951*d*.
isotope of mass 28, from Mg by α-ray action, 1646*i*.
isotope of mass 30, mass value of, 8869*f*.
lamination detection in sheet, 1698*a*.
in lanthanum sepn. from Pr, 8245*f*.
lead adsorption by, active centers and, 6028*c*.
in leaves of forest vegetation, 725*f*.
liners for gas pipes, 3330*h*.
liquid, reaction with $SiO_2$, 6060*g*.
lithographic plates of, regraining of, P 8346*e*.
in magnetic field, ratio of resonance frequency to proton frequency of, 8262*g*.
magnetic moment and gyromagnetic ratio of, 5303*f*.
magnetic moment of, 4136*i*.
magnetic properties of pure, cold-working and, 80*h*.
mass photoelec. absorption coeff. of, 483*d*.
melting of, elec. furnace for, P 7357*d*.
melting of, gas furnace in, 5571*c*.
mesotron capture by, 1257*c*, 4944*a*, 7325*d*.
mesotron disintegration in, 1257*f*.
mesotron-pair production in, 5285*c*.
mirrors, coating with hard oxide on, 7356*a*.
mirrors, protection with SiO, 2822*e*.
molds from, effect on aging and tensile properties of rubber, 2023*h*.
neutron absorption curves for, 6538*b*.
neutron bombardment of, excitation functions for, 4117*i*.
neutron bombardment of, relative cross sections for nuclear reactions from, 4114*f*.
neutron cross section of, 3282*h*, 4558*h*, 6506*a*, 6909*d*.
neutron interaction with, 4946*i*.
in oil (edible-) industry, 879*f*.
oxidation (anodic) of, ultraviolet radiation from, 8900*h*.
oxidation of, P 6794*g*.
kinetic and structural factors in, 7309*d*.
rate of, 1245*f*.
as packing for reaction tube in acetylene polymerization, 5376*b*.
packing of oxidized Al and, as catalysts in oxidation of paraffin wax, 4000*i*.
paint—see *Paint*.
painting of, pretreatment for, 7237*e*, 7716*c*.
in petroleum, 2139*a*.
phosphate fixation by, 3957*d*.
pigments, effect of particle size of, on paint durability, 1991*i*.
leafing-type, 5970*c*.
metallic Al detn. in, 870*g*.
plastic deformation in, 2557*g*.
plastic flow of anisotropic, 4614*e*.
poisoning by, review on, 6759*h*.
polarization of, in NaCl solns., 503*c*.
polished electrolytically, structure and oxidation of, 2871*e*.
polishes for aircraft, 3336*b*.
polishing (electrolytic) of, 2101*c*.
polishing (electrolytic) of, rotating anode in, 2101*c*.
polygonized condition of, 1698*b*.
in porcelain-insulator mix, P 3587*b*.
potential against Ta in electrolytes, 2101*e*.
potential in buffered NaCl solns., 7835*h*.
potential of electrolytically polished, 8912*d*.
powder and paste, sampling and testing of, 4785*h*.
powder metallurgy of, 2141*b*, P 7403*b*, 7879*c*.
powder or dust—see also *Aluminum bronze*.
powder or dust, 8695*e*.
coating compn. from polychloroprene and, P 3659*d*.
coating with $C_2H_4$ polymers and corrosion-preventing compns. from coated particles, P 6838*d*.
colored, P 8345*g*.
coloring of, P 9483*b*.
drops of suspensions of, fall through pure dispersion medium, 7291*b*.
explosive-incendiary mixt. contg., P 8682*i*.
flake, effect of particle size and shape of, in coatings, 3629*b*

*powder or dust*, flow of suspensions of, 7291*g*.
harmfulness of, 3936*c*.
heat-resisting silicone finishes pigmented with, 875*b*.
leafing of flake, 8176*g*.
lung diseases from, 3118*i*.
manuf. of, P 555*b*.
mixts. with rosin in foam-rubber manuf., gases evolved from, 6854*h*.
mixt. with Cu and Zn dusts for gold bronzing, 4489*h*.
oxide coating on, and coloring of, P 7720*c*.
as pigment, 2444*h*.
porous paint films from, 8696*f*.
retention after respiration, 5434*b*.
in silicosis prevention and treatment, 6335*e*.
in precipitating org. substances from sulfite waste liquor, 7227*e*.
primers based on alkyds contg., durability of, 7239*b*.
protactinium deposition on, 7791*g*.
proton-bombarded, resonance voltage for γ-rays from, 3283*d*.
proton bombardment of, α-rays from, 3284*g*.
proton resonance energy of, 4115*c*.
proton scattering by, 1259*g*, 8260*i*, 8265*g*.
pure, 1300*d*.
pure, sub-boundary and boundary structures in, 2911*h*.
reaction in presence of $HgCl_2$, I and, of aldehydes or ketones with pyridine, 2204*e*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
with Me methacrylate polymers with α,β-unsatd. carboxylic acids, 8202*g*.
with NOCl, 3305*i*.
reactions with $AlCl_3$, $AlF_3$, KCl or NaCl, 4932*a*.
with $PhNH_2$ and PhOH, P 3454*f*.
with EtBr, 924*b*.
with pyrophosphates, 8035*f*.
with $Na_2CO_3$, $Na_2O$, $Na_2O_2$, $Na_2SO_4$ and $Na_2S$, 2109*b*.
recrystn. of, effect of impurities and cold-hardening on properties during, 81*i*.
recrystn. of high-purity, by isothermal annealing, 982*h*.
recrystn. of strained, 7879*g*.
recrystd. *vs.* rolled structures of, 7879*h*.
reduction potential for, half wave of, 5327*c*.
removal from phosphates in analysis, 4182*i*.
removal from Zn and Zn alloys, 6552*a*.
reviews on, 1300*e*, 5711*h*, 6551*a*, 6956*h*.
rolling of, 9003*h*.
scrap, corundum manuf. from, P 6096*c*.
scrap, use of, 1697*g*.
sealing compn. for use with ware of, P 7896*d*.
sepn. from Fe, 3740*f*.
silica-catalyst activation by, 6336*e*.
silicon-carbide-contg., lapping bronze, Fe and steel with, 3766*h*.
silicon diffusion in, 2915*b*.
slip of crystals of, 3329*f*.
slip planes in crystals of, unevenness of, 7768*a*.
slip zones in, fine structure of, 8325*g*.
soap greases—see *Lubricants*.
soda-ash-manufg. construction material, 99*i*.
sodium-ion sorption by, 2066*f*, 8233*h*.
soil acidity and, 7616*h*.
solder for foil and sheet of, P 8350*f*.
soldering of, P 5002*f*.
solders for, P 556*h*, 1707*f*, P 1712*b*, P 5002*e*, P 7896*f*, P 9023*a*.
solidification of slugs of, basalt structure from, 4991*f*.
solid solns. with elements, lattice spacings of, 3684*g*.
soln. in bases, rate of, 7305*d*, 7398*b*.
in liquid $NH_3$, 4960*h*.
in NaOH solns., 8936*b*.
in NaOH solns., effect of gelatin and $KMnO_4$ on, 5264*e*.
in NaOH solns., rate of, 3271*c*.
**sound energy losses in**, from diffusion and **scattering**, 1233*e*.
**sound (ultrasonic) wave scattering and absorption in**, 1233*f*.
**sparking potential in** Xe, 4092*c*.
**spectrum of**, 7858*h*.
spectrum of, effect of Cu or Fe on, 7338*d*.
spectrum of flames of, 499*a*.
standards for, 2913*f*, 4615*d*.
in star γ Pegasi, 2509*f*, 5301*e*.
in star τ Ursae Majoris, 4134*c*.
steel alloys *vs.*, 6135*g*.
steel deoxidation by, 3330*c*, 7307*a*.
in steel, effect on corrosion by $NH_4NO$ solns., 5722*d*.
in steel, effect on grain size and aging, 4616*f*.
stressed, room-temp. behavior of, 4197*d*.
in sulfur removal from synthesis gas, P 7214*d*.
in sun, 39*a*, 939*f*, 3711*ab*.
surface area of, 8325*d*.
surface energy and tension of, 5653*a*.
surface tension of, 1300*d*, 8255*e*.
surface treatment of, 2143*c*.
system: Be–Si–, 92*b*.
system: Cr–Mg–Zn–, 91*e*.
system: Co–Fe–, 3763*g*.
system: Cu–, internal friction in, 3258*e*
system: Cu–Mg–, 4204*e*.
system: Cu–Ni–, 92*g*, 2915*h*.
system: Cu–Si–, 91*a*.
system: Cu–Zn–, 6961*g*.
system: In–, 4058*i*.
system: Fe–Ni–, 8338*h*.
system: Li–Mg–, 2500*e*.
system: Li–Si–, 7886*c*.
system: Mg–, 2147*h*.
system: Hg–, 6066*e*.
system: Ni–, 4074*b*.
systems: Fe–, and Ag–, activities in liquid, 4931*a*.
systems: Mg–Mn–, and Mn–Ag–, 9841.
systems: Mg–Si–, and Mg–Zn–, 4534*i*.
systems: Mg–Si–, Mg–Si–Zn–, and Mg–Zn–, 2915*d*
systems with Cu, Zn and transition elements, 3258*g*
system: Zn–, 82*d*, 6961*e*.
thermoelec. force studies with, 2912*c*
toxicity to plants on acid soils, 2349*i*
trichloroethylene decompn. by, in degreasing operations, 6515*f*.
tubes (collapsible) from, 983*d*.
tubing from, 983*e*.
uniting, to butadiene-acrylonitrile polymers, by chlorinated rubber adhesives, P 2807*e*.
uniting, to felt, adhesive for, P 4899*e*
welding flux for, P 2923*d*.
welding of, 3338*c*.
alloy for, P 4628*b*.
Cu alloy for, P 9020*f*
electrodes for, P 6566*c*.
prepn. for, P 4212*d*.
welding rod from, P 7406*b*.
welds in plates of, 6963*b*
welds (oxy-$C_2H_2$) in, metal thickness and, 3767*f*.
in wine prepn., 7188*i*.
wire, 5720*a*.
wiredrawing, 6559*d*
x-ray absorption in, 2088*b*.
x-ray investigation of thin sections of, 4198*c*.
x-rays from, 1262*c*.
x-ray transmission in, 8874*b*.
zinc diffusion in, 534*b*.

**Aluminum, analysis**, detection, 2120*g*, 4175*e*, 7352*h*, 7860*e*, 8942*i*, 8966*c*, 8972*d*, P 8980*g*.
detection and detn., 61*b*, 7858*h*.
detection in boiler scale, 3310*a*
detection in presence of Be, 2117*b*.
detection of volatilized Al in condensed steam, 3314*a*.
detn., 57*c*, 1681*cd*, 2548*a*, 3309*e*, 4172*d*, 7376*i*, 7862*a*, 8949*c*.
pyrolysis curves for ppts. in, 8305*b*.
thioglycolic acid as Fe inhibitor in, 2889*b*.
titration with fluoride soln. in, 7861*g*.
detn. in alcs., saline solns., etc., solvents in chromatographic, 6537*c*.
in alloys, 61*b*.
in Al bronze, 963*f*.
in Al pigments, 870*g*.
in Al silicate refractories, 9405*i*.
in barite, 8970*h*.
in beer, 7636*h*.
in Be and Be compds., 8949*f*.
in Be salts, 5697*a*.
in biol. material, 7998*a*.
in biol. materials and paper, 6104*h*.
in blood, 4322*b*.
in boiler scales and deposits contg. phosphates, 7866*f*.
in brasses, 8307*d*.
in bronzes and steel, 6938*b*.
in chromite, 7866*i*.
in clays, 8628*e*.
in cokes and quartz sand, 4971*i*.
in electroplating baths, 8904*a*.
in glass, 5558*b*, 8111*d*.
in Fe alloys, 2541*d*.
in Mg alloys, 970*f*.
in Mg alloys contg. Sb and Pb, 7369*i*.
in Ni-electroplating baths, 2893*e*.
in phosphate rock, 1288*b*.
in presence of Fe, 7369*f*.
in $SiO_2$ bricks, 2389*b*, 6801*h*.
in $SiO_2$ refractories, 7656*cd*.
in silicate inclusions in steel, 6110*i*.
in silicates, 6111*g*.
in steel, 9047, 4175*c*, 5328*de*, 5696*i*.
in Ti ores, 7865*a*.
in water, P 4800*c*, 5325*i*.
in water for irrigation, 3951*d*.
in waters (industrial), 4787*d*.
in Zn alloys, 1286*g*, 3310*a*.
detn. of $Al_2O_3$ in powd. Al, P 3318*f*.
detn. of Cd, Pb, Ni and Sn, 3743*d*.
of Ca, 8949*h*.
of Cu, Fe, Si and Zn, 6538*h*.
of gases, 2120*de*.
of Ga, 8953*d*.
of H, 982*i*.
of Fe and Si, 2544*f*.
of Mn, 2540*d*.
of Na, 2540*g*.
polarographic, and detn. in light alloys, 7369*f*.
sepn. (chromatographic) in, 8295*a*.
sepn., detection and detn., 2888*g*.
sepn. from Be, 1919*g*, 7369*i*.
from Be, U, V and Zn in qual. analysis, 7862*c*.
from Mg, 4598*a*.
from metals and detn., 1281*e*.
from Ni, 5333*g*, 7371*c*.
from S detd. as $BaSO_4$, 7374*h*.
from U, 2545*h*
sepn. from Be and detn., 8301*c*
sepn. from Fe and Ti and detn., 7859*g*
sepn from other ions and detn , 5695*i*
spectrographic, with general source unit for spectra, 7857*i*

**Aluminum, metallurgy of**, from allo 3740*g*
alumina dehydration in, P 3733*a*
with aluminum halide from $Al_2O_3$, Al Si and Fe-Al, P 5728*c*.
in Austria, 2141*d*.
book: Fiziko-khimicheskie protsessy pri elektrolize alyuminiya, 2524*c*
electrodes for, coal for, 375*g*.
electrodes from carbon for, 8899*f*
electrodes from coal for, 8915*c*.
electrolytic recovery, P 1273*d*, 2871*e*
anode app for cells for, P 5689*d*
cathode for, P 6926*b*
cells for, 2871*d*.
Cr-plated busbar contacts in, 7837*i*
enriching $Al_2O_3$ content of recirculated cryolite in, P 1273*e*.
feeding $Al_2O_3$ in, P 4153*b*.
fluorides for, P 5680*e*
use of furnace residues in, P 6005*f*
electrolytic recovery and refining, furnaces for, P 4963*bc*.
electrothermal, P 509*c*, 2519*a*.
by extractive distn. with halides, P 5728*f*.
fluorine hazards in, 5883*g*.
furnace dressing from C skull of furnace for, P 4587*g*.
furnaces for, P 4963*a*, 7877*i*.
in India, 3754*d*, 8322*i*.
in Japan, 4989*i*.
red slime from, Fe oxides and Ti oxides in, as pigment source, 5200*h*.
reduction of Al-Fe ores for magnetic sepn., 8995*h*.
refining, P 0964*g*, P 7403*e*.
by liquation, P 4998*i*.
as monohalide, 4932*a*.
for shot manuf., 3326*i*.
refining Al alloys, P 2920*c*.
refining (electrolytic), P 3299*h*.
bath for, 2097*g*.
cell for, P 4588*a*.
from Cu alloys, 6089*d*.
from scrap, 2143*e*, 2147*c*, 7392*g*.
from scrap by Hg extn., 7880*f*.
from silicon-Al alloys by extn. with molten Zn, 9003*b*.
Soderberg system in furnaces for, 45*e*.
sodium-low, P 5357*d*.
waste waters from, treatment of, 9309*b*.

**Aluminum, trimethyl-**, bond energies in, and heats of formation and combustion of, 5242*e*.
compd. with LiMe, 4218*g*.

——, **triphenyl-**, complex with PhLi, 5758*a*.
**Aluminum acetate chlorides**, formation of, from AcOH and AlCl$_3$, 2930*i*.
**Aluminum acetates**, basic, in German pharmacopeia, 5533*d*.
prepn. of, 3565*d*.
salve for mucous membranes contg., P 8105*c*.
**AlOH(OAc)$_2$**, pharmaceutical, 7192*f*.
**Al(OH)$_2$(OAc)**, 3145*g*.
**Aluminum alcoholates**, aluminum soap and Al soap-contg. lubricant from anhyd., P 5185*i*.
condensation products with phenols, P 4804*c*.
in polysiloxane manuf., P 3234*a*.
reactions with fatty acids, 3688*f*.
**Aluminum alkali metal fluorides**. See *Alkali metal fluoaluminates*.
**Aluminum alloys**. (See also *Alclad; Aluminum bronze; Aluminum compounds; Bearing metals; Birmabrite; Duralumin; Heusler alloys; Hidumin-ium RR; Igedur; Isabellin; Kunial; Perunal; Silumin; Steel; Unidal; Y alloy; Zamak;* and "system" under *Aluminum*.)
for aircraft, 1696*e*.
aluminum recovery from, P 2020*d*, 3740*g*, 7302*g*.
amalgam, org. reduction with, 5367*a*
amalgam, reaction with air, 6060*g*.
analysis and classification of, 2120*f*.
analysis of, 970*g*, 4181*e*, 7309*e*.
for Cr and Mn, 2120*g*, 8304*d*
for Cu, Fe and Pb, 5698*b*
for Cu, Mg, Mn and Si, 970*e*
with electron multiplier phototubes, 5700*k*.
with general-purpose source unit for spectra, 7857*i*
for Ni and Zn, 1683*f*, 4974*g*.
barium-Mg-, P 7891*d*.
beryllium Cu Zn-, for casting, P 9021*c*.
beryllium diffusion in, 2559*f*.
beryllium-Mg-, P 5358*e*
beryllium-, Si-, and Sn-, eutectics in, 4935*e*
bismuth-Cu Zn-, for molds for casting resins, P 9020*d*.
books: Analytical Methods for, 2548*f*, Casting, 3338*i*, L'alluminio e le sue leghe, 4998*b*, Phys Metallurgy of, 5721*g*
brasses, 7886*a*.
Brillouin zone effects in, 6557*d*
brittle cracking in, 1702*f*.
brittleness at temps. above the solidus in, 1702*d*.
bulge testing of 2S-O, 3S-O, 52S-O and 24S-O, 6553*d*.
cables from, examn. after 15–25 years' service, 1702*b*.
cadmium-Cu-Mn-Ni-Zn-, 4204*b*.
cadmium-Sn-Zn-, as solder for nonferrous metals, P 9024*a*.
calcium detn. in, 8049*h*.
carbon-Cr-Fe-Mn-Si-Ti-, cold-rolled strip of, 4206*a*.
for casting and forging, 2147*d*.
casting of, Mercast process for, 3333*e*.
cerium, getters from, 2877*d*.
chem.-engineering construction materials, 1*b*, 8715*b*
chromium-, coating steel pipes with, 2916*e*
chromium-Co-Cu Fe-Mn-Ni-Si-Ti, P 7404*e*.
chromium detn. in, 5330*c*.
chromium-Fe-, and Fe-, corrosion resistance of, 2150*a*.
chromium-Fe-Mn-Mo-Si-Sn-Ti-V-, P 6563*g*.
chromium-Fe-Mn-Si-W-, magnetic, P 6966*g*.
chromium-Mg-, soln. rate in NaOH, 8936*c*
chromium Mg-Zn-, 91*e*, P 4626*d*.
chromium-Ni-, prevention of corrosion of electrodes of, in salt baths, P 4153*g*.
chromium-Ni-Ag-, P 8348*h*.
chromium Ni-, with or without Fe, elec. resistors of, P 2878*g*.
chromium-W-, magnetic, P 5358*d*.
clad, electrolytic polishing of, P 8347*e*.
classification and properties of, 2915*c*.
in clock and instrument manuf., 6959*a*.
coating (anodic, electrolytic, oxide, etc.) of, P 2104*a*, P 3300*d*, P 4963*d*, P 8990*d*, P 5681*f*, P 7358*h*, 8899*h*, 8910*f*
coating (anodic) on, for use in mouth, 8284*g*
coating of, 2143*h*, P 3342*h*, P 7404*h*.
for drawing and ironing, 3333*f*.
for painting, etc., P 6564*c*.
with proteins for dyeing, P 5001*d*.
coatings (oxide) on, improvement of capacity for absorbing white pigments, P 9021*e*.
coatings (oxide) on, treatment with Al salt, P 8350*b*.
coatings (priming) for, 870*d*, 4489*i*.
coloring of, P 7404*c*.
coloring of, by M.B.V. treatment and pigments, 3629*e*.
copper-, and Cu-Ni-, erosion resistance of, 96*a*.
copper-, and Cu-Zn-, as bearing metals, 80*h*.
copper-, and Si-, effect of oscillating temp. on homogenization and diffusion in, 2915*a*.
copper-, and Si-, effect of quenching on age hardening of, 9010*i*.
copper-, and Si-, vol. changes from dissocn. of, 8232*c*.
copper-, and Zn-, pptn. in, 8335*h*.
copper-, and Zn-, size effects in quenching of, 9010*g*.
copper detn. in, 62*f*, 4973*b*.
copper detn. in die-casting, 3311*c*.
copper-, for aircraft pistons, P 2567*e*.
blackening of, P 7404*f*.
breakdown during quenching of, 3759*e*.
catalysts from, P 6762*g*.
coating with, P 1710*h*.
crystal structure of, 2147*f*.
effect of alloying elements on grain size of, 8337*e*.
electrolysis and heteropolarity of solid, 6136*b*
heat-treatable, 1704*g*.
manuf. by powder metallurgy, P 5729*g*.
plastic deformation in, 2557*g*.
plastic deformation in, detection of, 8337*h*.
pptn. in, 7886*a*.
pptn. of $CuAl_2$ in, 5718*c*.
reversion in, 8336*f*.
Rückbildung of, 7885*a*
segregation in, 6557*f*
structural evolution of tempered, 2560*i*
thermoelec. force of, 2912*e*
transitions in $\beta$, 7887*c*.
copper-In-Mn-, 4618*i*.
copper-Fe-Mg-Mn-Ni Si-, heat-treatment of, P 6563*h*.
copper-Mg-, 4204*d*.
detection of Cu diffusion in, 9011*e*.
effect of annealing and rolling on, 5355*d*.
effect of Si on, 5718*e*.
effect of Zn on, 5426*b*.
grain coloring and etching of, 2147*a*.
welding of, P 2024*a*.
copper Mg-, and Mg-Zn-, soly of metals in Cu30 and Hy43, 7886*i*.
copper Mg-, and Si-, structural changes during solidification of, 5718*d*.
copper-Mg-, Mg-, and Mg-Si-, anodic coating of, 2014*f*.
copper Mg-Si-, and Mg Zn-, aging of, 5718*a*.
copper-Mg-Si-, for casting, 6557*i*.
copper-Mg-Zn-, P 2567*e*, 7886*a*.
D.I.N.E 1724, 7886*f*.
hardness and tensile properties of pressure-cast, 7888*e*
copper-Ni-, elastic martensitic crystals in, 6880*h*.
copper-Si-, 91*a*.
copper-Si-, analysis for Cu, Fe, Mn, Mg and Si, 8307*c*.
copper-Si-, and Si-Ag-, for bearings, P 6145*g*.
copper-Ag-, hardenability of, 1703*c*.
copper-Ag-Pd-, for jewelry, P 8349*a*.
copper-Zn-, cold-rolled, 1703*f*.
effect of temp. on impact strength of, 7886*e*.
impact testing of, 7886*h*.
corrosion (intercryst.) of Al brasses, 2149*b*.
corrosion of, 5724*a*.
and its prevention, 549*c*.
under tension, 549*a*.
thickness and, 3337*c*.
corrosion of Fe and steel castings by, 1705*d*.
corrosion-resistant high-strength sheets of, P 6146*a*.
corrosion (stress-) cracking, cathodic protection against, 6094*b*.
corrosion (stress-) of, 98*c*.
corrosion (stress-) of, effect of atm. exposures on, 7885*h*.
creep of, 7398*c*.
crystal boundaries in, during melting, 8336*e*.
damping capacity of, in transverse vibrations, 533*a*.
deformation and stress of, 82*e*.
deformation of, under longitudinal impact loads, 1298*i*.
destruction of, detn. of resistance to, 1299*c*.
effect on vitamin C content of milk, 3533*e*, 5125*d*.
electrodeposition on, P 8917*h*.
electroplating on, P 4588*d*.
electroplating on, with Cr, 7833*f*.
enameling of casting of 43 alloy and wrought 61 S alloy, 7205*d*.
finishes for, 9003*b*.
finishing, for aircraft, 1304*i*.
forgings of, 3329*f*, 7885*i*.
gallium-, and Pb-, behavior of stressed, 4197*d*.
gallium-, In-, and Tl-, 90*i*.
gallium-, prepn. of pure, 8953*e*.
gas removal from, 1702*a*.
hardening (age-) of, 4618*i*.
hardening (pptn.-) of, stresses and, 82*i*
hydrogen detn. in wrought, 7373*g*.
hydrogen in, 983*a*.
identification of, 7352*h*.
interface energies in, 9011*a*.
intraocular tolerance of, 6735*b*.
iron-, 7305*a*.
hardening and softening of, 4618*h*.
superstructure formation in, 9001*i*.
iron-, and Si-, Al extractive distn. from, with halides, P 5728*f*.
iron-, and Si-, Al production from, P 5728*d*.
iron removal from, P 9020*c*
iron sepn. from scrap, P 6965*a*
iron-V-, for thermocouples, P 6966*i*.
lithium-, 1300*f*.
magnesium-, 981*h*, 2147*h*, P 3771*a*.
annealing of, 1701*d*.
anodic oxidation in study of solid solns. of, 6960*e*
with or without Cd, Cr, Ti or Zn, P 5000*e*.
coating powd., P 2152*i*.
corrosion resistance of, 2148*c*
effect of rare earth metals on, 3334*d*.
for elec. conductors, P 9020*e*.
for electrolytic polishing, 1298*b*.
formularization of stress-strain curves of, 7885*d*.
grain refinement of, 6558*b*.
heat-treatment of pressure die castings from, P 105*e*.
H soly. in, 5355*i*.
improving stress-corrosion resistance of, by heterogenization, 8340*h*.
in nodular-graphite cast Fe manuf., 7395*f*.
reaction with EtI, 1717*g*.
structure of, 7398*f*.
weldable, for aircraft structural units, P 2154*d*.
magnesium-, and Mn-, containers of, for fruit juices, 1877*f*.
magnesium-, and Mg-Mn-, cold (subzero) effect on, 80*f*.
magnesium detn. in, 966*c*, 2544*i*, 4523*e*.
magnesium-Mn-, recrystn. of, 4204*h*.
magnesium-Mn-Zn-, creep, fatigue and tensile properties of, at high temps., 9013*c*.
magnesium-Si-, and Ag-, x-ray diffraction of, 2914*d*.
magnesium-Si-, corrosion of Duralumin plated with, 2918*a*.
for die casting, 6960*a*.
hardening of, 6960*f*.
for sour crude oils, etc., 96*g*.
magnesium-Sn-, Mn soly. in, 6558*d*.
magnesium-Zn-, P 555*e*.
aging of, P 7894*f*.
as anode for dry cell, 1271*f*.
castings from, production and use of, 543*e*.
corrosion (stress-) of, 6961*f*.
effect of working on, 4206*e*.
grain refinement of, P 106*a*.
stress corrosion resistance of, alloy addns. and, 92*c*.
wrought, 3333*g*.
magnesium-Zn-, and Zn-, as anodes in corrosion prevention, 5065*b*.
magnesium-Zr-, 4619*e*.
manganese detn. in, 5287*i*.

manganese-, effect of dispersed phase on grain growth in, 91*g*.
manganese-, U phase in, 542*d*.
melting of, elec. furnace for, P 7357*d*.
nickel-electrodeposit adhesion to, 4147*d*.
nickel-, electron d. in crystals of, 6030*i*.
metallography of, 4203*i*.
oxidation of, 541*g*
radio-Co diffusion into, 8231*i*.
reduction of org. compds. with, in aq. alkali, 7010*g*.
x-ray spectra of ordered and disordered states of, 7815*h*.
paint-film thickness on, measurement of, 418*h*.
polygonized condition of, 1698*b*.
potential in buffered NaCl solns., 7835*i*.
powd., manuf. of, P 555*b*.
powder metallurgy of, P 7403*b*.
R303 and 75S, 7886*a*.
recovery from scrap, 6552*f*.
refining by liquation, P 4998*i*.
re-soln. treatment of, 5718*d*.
reviews on, 2147*f*, 6956*h*.
for rockets, 4619*g*.
rolling of, 9003*i*.
57 S, corrosion of, 5721*g*.
61S, effect of quenching rate and quench aging on tensile properties of, 8336*b*.
silicon-, casting of, fluidity in, 5351*b*.
extn. with Zn, 9003*b*.
high-temp. tensile properties of cast, 1701*f*.
low in Fe, P 3771*d*.
refining, P 6966*h*.
Na effect on eutectic, 7885*e*.
silicon detn. in, 2474*g*.
slip of crystals of, and transient plastic deformation, 84*b*.
3S, metallography of, 4994*i*.
sodium detn. in, 4974*e*.
solder for, P 556*h*, P 1712*b*, P 7896*f*, P 8350*f*.
soldering of, 553*e*, P 5002*f*.
solid solns. in, lattice spacings of, 8782*a*.
soln. in alkalies, rate of, 7398*b*.
standards for, 4203*cd*, 4615*f*.
standards for wrought, 2913*f*.
surface tension of, with Mg and Zn, 3763*b*.
tearing (hot-) of, 6959*g*.
tempering of, by "reversion" heat-treatment, 2914*d*.
tin-Zn-, as Al solder, P 5002*e*
tubing from, 983*e*.
viscosity of, effect of addns. on, 1701*h*.
welding of, P 2568*f*, 3338*c*, P 7405*d*
alloy for, P 4628*b*.
Cu alloy for, P 9020*f*.
welds in, plates of 3S, 24S, 61S and 75S, 6963*c*.
welds (oxy-$C_2H_2$) in, metal thickness and, 3767*f*.
for wire and their heat-treatment, 5720*a*
zinc-, and Zn distn. therefrom, 7886*d*.
zinc-, anodic behavior in sea water, 6093*g*.
as catalyst in pyrolysis of fatty acids to olefins, P 7034*i*
coating Al alloys with, in corrosion prevention, P 990*g*
kinetics of pptn. in, 542*c*.
manuf. in elec. furnace, P 4964*d*
reaction with Fe, 2148*e*.
single crystals of recrystn. of, small isolated crystals in, 4072*c*.
zinc detn. in, 968*d*.
zinc diffusion in, 534*b*.

**Aluminum ammonium bromide**, in fused state, 1232*i*.

**Aluminum ammonium fluoride**. See *Ammonium fluoaluminates*.

**Aluminum ammonium sulfate**, 4173*a*.

**Aluminum antimonate**, $5Al_2O_3.2Sb_2O_5$ as opacifier for enamels, 2392*g*.

**Aluminum antimony bromide**, in fused state, 1232*i*.

**Aluminum benzoate**, formation from Al dilaurate in $C_6H_6$, 3634*f*.

**Aluminum borohydride*** $(Al(BH_4)_3)$, 8937*h*.
spectrum of, 4573*a*.

**Aluminum bromide**, catalyst from, P 5134*h*.
as catalyst in C—S bond cleavage in $PhCH_2SPh$, 2178*c*.
as catalyst in isomerization of cyclohexane and methylcyclopentane, 587*b*.
as catalyst in polymerization of 2-methylpropene, P 3188*b*.
catalysts of AlOBr and $AlBr_3$-complexes with hydrocarbons in dehydration of glycols, P 3834*c*.
catalysts of molten halides and, in hydrocarbon conversion, P 4843*c*.
catalyst with HBr, kinetics of polymerization of propene on, 2496*h*.
compds. with $NH_4Br$, $SbBr_3$, KCl, NaBr and $ZnBr_2$ in fused state, 1232*i*.
compd. with AlOBr, as delayed-action catalyst for polymerization of butadiene with 2-methylpropene, P 5230*d*.
crystal structure and volatility of, 4068*c*.
decompn. potentials of bromides in fused, 8915*g*.
elec. cond. of solns. of, 8810*fg*.
formation of AlBr, 3740*f*.
heats of reaction with $CHCl_3$ and $C_2H_4Cl_2$ and heats of soln. in $CHBr_3$, 1,2-dibromoethane, MeI, EtBr and EtI, 2851*f*.
spectrum of, in EtBr, 2930*d*.
system: HBr–paraffins–, 1253*e*.

**Aluminum bronze**. (*Both the aluminum-copper alloys called "aluminum bronze" and aluminum bronzing powders are entered here. See also* Aluminum alloys; Copper alloys; Heusler alloys; *and* "powder or dust" *under* Aluminum.)
aluminum detn. in, 963*f*.
powder, paint from ferromagnetic metal flakes and, P 1579*g*.
properties and uses of, 541*h*.
properties of, effect of compn. and heat-treatment on, 9013*i*.
standards of A. S. T. M. for, 4203*c*.

**Aluminum butoxide**, soap and grease from, P 5186*a*.

**Aluminum *sec*-butoxide**, reaction with fatty acids, 3688*g*.

**Aluminum *tert*-butoxide**, reaction with acetylenic alcs., 7415*e*.

**Aluminum calcium silicates**. See *Calcium aluminosilicates*.

**Aluminum carbide**, $Al_4C_3$, as catalyst in aromatic hydrocarbon formation from $C_2H_2$, P 5040*d*.

**Aluminum chloride**. (See also *Friedel-Crafts reaction;* and "Fries" under *Rearrangements.*)
and basic derivs., crystal structure and catalytic action of, in isomerization of cyclohexane and methylcyclopentane, 587*c*.
basic, manuf. of, P 6795*b*
basic, tanning with, 8720*c*.
as catalyst, 8251*e*.
in acetal formation from butyl vinyl ether and phenols, 3783*e*.
in $C_2H_2$ reaction with HCHO and HCl, P 5035*b*.
in alkylation of 2-methylbutane with propene, 1711*g*.
in alkylation of thiophene, 1395*e*.
in condensation of alcs. with aromatic compds., 164*a*, 1369*g*.
in condensation of 2-furaldehyde with phenol, 5221*h*.
in condensation of 1,2,3,3-tetrachloropropene, 5361*h*.
in conversion of *cis*- to *trans*-decahydronaphthalene, 3271*g*.
in ethanolysis of palm oil, 7723*i*.
in ethylene oxide reaction with $H_2S$, 1391*c*.
in (haloalkyl) cycloalkane manuf. from halo olefins and cycloalkanes, P 4693*h*.
in hydrohalogenation of cyclohexenes and hydrogenated naphthalenes, 2173*g*.
in isomerization of cycloalkanes, 157*e*.
in manuf. of $PSCl_3$, 9394*h*.
in polymerization of 2-methylpropene with diolefins and its inactivation, P 5992*c*.
in reaction of alkyl halides with thiols, P 6646*d*.
in Se and $SeCl_4$ reaction with chloroethylenes, 2159*e*.
in $C_2F_4$ reaction with polyhalomethanes, P 3834*f*.
catalyst for isomerization, impregnation of catalyst bed with, P 4449*b*.
catalyst of $Al_2O_3$ and, in isomerization of butane, P 4283*d*.
catalyst of, electrolytic regeneration of, P 3733*e*.
catalyst of HCl and, in the isomerization of pentane, 1712*d*.
catalysts contg., for combustion, P 4835*f*.
catalysts for hydrocarbon treatment—see *Catalysts*.
catalysts from, P 3162*c*, P 5134*h*.
catalysts (supported) from, P 1931*b*.
compd. with $NH_3$ Raman spectrum and structure of, 2095*f*.
with NOCl, 3305*i*.
with salicylates, 5770*f*.
with $SOCl_2$, 2533*c*.
as corrosion product of Al, 7399*i*.
decompn. potential in fused NaCl, 8915*e*
effect on sintering of $Al(OH)_3$, 1934*a*.
electrolysis of, colloidal soln. formation in, 5675*i*.
formation and pyrolysis curves for, as analytical ppt., 8305*b*.
formation of AlCl, 3740*f*.
hexane isomerization by, 2078*b*.
interaction with silicic acid sols, 8237*d*.
mercury electrocapillary curves in presence of, 4545*c*.
mixt. with NaCl, decompn. potentials of chlorides in molten, 8915*d*.
in nitration of aromatic compds., 5013*a*
prepn. from $Al_2O_3$, thermodynamics of, 3694*a*.
properties and structures of, and its compds. with alkali metal halides, 960*b*.
reaction in presence of, of acetanilide with *p* $MeC_6H_4SO_2Cl$, 6994*f*.
of alcs. with aromatic hydrocarbons, 5759*g*.
of aromatic arsines with acyl halides, 6178*a*.
of aromatic hydrocarbons and ethylene oxide, 2182*d*.
of benzene with $CH_2$:CHCl, 591*h*
of biphenyl with chloral, 2979*e*.
of chlorinated acetone with benzene derivs., 6583*i*.
of chlorinated paraffins with P sulfides, P 666*a*.
of halo derivs. of $C_2H_4$ with halo derivs. of $CH_4$, P 661*d*.
of muconyl chloride with benzene, 7452*i*.
of 1-substituted 1-desoxy sugars with aromatic hydrocarbons, P 3418*a*
of triethylphenylsilane with acid chlorides, 2177*i*.
of $\alpha,\beta$-unsatd. ketones with aromatic hydrocarbons, 5761*i*.
reaction with acetic acid, 2930*i*
with aromatic aldehydes and $CaH_2$, 7005*e*.
with $BrF_3$, 3739*e*
with (2-chloroethyl) silanes, 561*i*
with *p*-dibromobenzene, 7918*f*
with NaOH, 4172*c*.
with $Na_2HPO_4$ and $Na_3PO_4$, 3305*a*
reaction with Al to give AlCl, and thermodynamic properties of AlCl, 4932*a*
in rearrangements of tertiary alkyl chlorides, 6969*b*.
in ring closure of acyl chlorides, 4659*i*
toxicology of, 5513*h*.
vaporization of, P 3026*h*.
volatility of, 4068*b*.

**Aluminum chloride sulfate**, $AlCl(SO_4)$, as catalyst in alkylation of benzene, 6582*h*.

**Aluminum cholesteryl sulfate***, 6611*g*

**Aluminum compounds**. (See also *Aluminates; Aluminosilicates; Aluminum alloys; Fluoaluminates; Spinels.*)
alkyls, 1717*g*.
alkyls, bond energies and heats of formation of, 5242*d*.
in aluminum alloys, structures of $Al_7Cr$, $Al_2Mg_3Zn_3$, $Al_7V$, $Al_3Ti$, $Al_3Zr$ and $Al_2Cu$, 7886*i*.
with amino acids, P 8620*a*.
with cobalt, structure of $Co_2Al_5$, 1235*i*
complex (fluo and oxalato), 4172*d*.
complex formation with formates and oxalates, and analysis with ion exchanging resins, 9507*g*.
with copper and Mg, $CuAl_2$, $Mg_3Al_2$, $Al_2CuMg$, $Al_6CuMg_4$, 4204*e*.
with copper, $CuAl_2$, 5718*c*.
with Cu, $CuAl_4$, 6880*e*.
dimethyl— bromide, elec. cond of solns of, and complex with $Me_2O$, 8810*fh*
as fungicides in viniculture, 8596*h*.
in gas-turbine deposits, 5172*e*.
with 3-hydroxy-2-naphthoic acid and pyridine, 2538*h*.
with Fe, $FeAl_3$, in Fe-alloy manuf., 4546*e*.
lead detn. in dye laked, 9452*g*.
with lithium and Mg, $Al_2MgLi$, 2500*f*.
with manganese, $Al_6Mn$, 1701*e*.
methyl— dibromide, elec. cond. of solns of, and complex with $Me_2O$, 8810*fh*
in mildew control on grapes, 8596*i*.

with nickel, diffusion and vacancies in NiAl, 8231*h*.
with nickel, x-ray spectra of ordered and disordered states in NiAl and $Ni_3Al$, 7815*i*.
*N* - nitroso - *N* - phenylhydroxylamine deriv., soly. of, 2488*g*.
org.—see also inverted entries under *Aluminum*.
org., as polymerization activators, 8727*g*.
org., reaction with metal halides, P 7953*d*.
with salicylic acid, 2536*d*.
with silver, compression of $Ag_3Al$, 4917*a*.
with silver, corrosion of $Ag_3Al_2$, 8341*f*.
as termite repellents, 9341*e*.
*m*-toloxy— dichloride, reaction with BzH, 5398*e*.
univalent, 3739*i*.
with uranium, crystal structure of $UAl_2$ and $UAl_3$, 7770*d*.
waterproofing with—see *Waterproofing*.

**Aluminum ethoxide**, as catalyst in alcoholysis, disproportionation and transesterification of silicic acid esters, 5737*i*.

**Aluminum fluoride**, catalysis by, in esterification of fatty acids with glycerol, 4031*a*.
as catalyst in fluorination of C, P 3834*g*.
colloidal, P 1930*a*.
complexes—see *Fluoaluminates*.
effect on sintering of $Al(OH)_3$, 1934*a*.
in fluorination of $\alpha,\alpha,\alpha$ trichlorotoluene, 8364*h*
manuf from Al $NH_4$ fluoride, P 4820*cf*.
from $HBF_4$, P 5912*e*.
from KF, P 5912*f*
minerals, 8984*a*.
properties and structures of, and its compds. with alkali metal halides, 959*e*.
reaction with Al and Pb, and heat of formation of $AlF_3$, 4932*b*.
system: $BaCl_2$–NaF-, 2097*f*.
system: orthoclase-phlogopite–, crystn temps and optical data for, 6544*c*.
system: NaF–$H_2O$, 5695*e*

**Aluminum glycerophosphate**, hydrolysis of, 4550*g*.

**Aluminum halides**, in aluminum production and refining, P 5728*cf*.
catalysts from, P 1931*b*, P 5134*h*.
as catalysts in isomerization of cyclohexane and methylcyclopentane, 587*b*.
in isomerization of hexanes, 5656*f*.
in isomerization of paraffins, maintaining activity of, P 4006*g*.
catalysts of hydrocarbons and, in conversion of hydrocarbons, alk. earth metals in reducing corrosiveness of, P 5582*i*.
catalysts of H halides and, in isomerization of paraffins, removal from products, P 7222*h*.
catalysts of H halides, metal halides and, in isomerization of $C_4$-$C_6$ paraffins, P 3190*e*.
catalysts of S compds. and, in isomerization of paraffins, P 3188*e*.
complex compds. of alkyl halides with, 2930*d*.
compds. with alkali metal halides, 950*e*.
monohalides, equilibria of, 4932*a*.
recovery from complex with hydrocarbons, P 4005*i*.

**Aluminum hydride**, manuf. of, P 5556*d*.

**Aluminum hydroxides**, alkali and zeolitic properties and water soly. of, 2070*g*.
for analysis (chromatographic), 5328*a*.
antacid contg., P 5552*e*, P 6370*i*.
colloidal—see also *Alumina*.
colloidal, 9316*i*.
colloidal, electron microscopy of, 6040*g*.
dehydration of, 8833*h*.
dehydration of, in Al production, 7833*a*.
effects on GR-S rubber, 8189*a*.
fat free ointment base contg., P 7646*g*.
formation and pyrolysis curves for, analytical ppt., 8305*b*.
formation from $AlCl_3$, $Al(ClO_4)$ and $Al_2(SO_4)_3$ with NaOH, 4172*c*.
halogenated hydrocarbon stabilization with, P 4682*e*.
isoelec. points of modifications of, 6040*i*.
manuf. of, 1921*h*, 1922*gh*.
mixt. with kieselguhr, in S removal from water gas, 2401*f*.
parasiticides from, P 352*f*.
peroxide (org.) desensitization with, P 1807*b*.
pharmaceutical, P 364*c*.
phosphated, pellets or tablets of, polytetrafluorethylene-bonded, P 9300*f*.
potassium chromate occlusion by, 7775*a*.
precipitation of, pH for, 2493*d*.
as promoter in manuf. of $C_2H_3Cl$ from $C_2H_2$ and HCl with a $HgCl_2$ catalyst, P 3437*h*.
sintering of, 1933*i*.
in starch fractionation, 6447*a*.
thermal transformation of $\gamma$-AlOOH to $Al_2O_3$, 5300*d*.
thixotropic suspension of, dynamic shear resistance in, 6885*a*.
titration of, 6347*d*.
trypsin adsorption by, 3864*c*.

**Aluminum hydroxychloride**. See "basic" under *Aluminum chloride*.

**Aluminum iodide**, crystal structure and volatility of, 4068*c*.
decompn. potentials of, and of iodides in $AlI_3$, 6519*f*.
electrolysis in liquid $NH_3$, 4960*h*.
mixt. with NaI, decompn. potential of molten, 4582*fg*.

**Aluminum isopropoxide**, in polysiloxane manuf., P 3234*a*.
in reduction of α-fluoroacetophenone, 1349*a*.

**Aluminum lithium hydride**, in analysis of functional groups in org. compds., 1280*f*.
as analytical and reducing agent, 3316*f*.
detn. of, and extent of its reducing action, app. for, 8750*a*.
heat of formation of, 7805*d*.
in hydrogenolysis of alkyl halides, 1311*h*.
isoxime reduction with, 5399*i*.
manuf. of, P 5556*d*.
methyl L-tryptophan reduction with, 7020*a*.
prepn. of, 8936*d*.
reaction with double bonds, 603*i*.
with $D_2O$, 4967*b*.
with quaternary cyclic ammonium salts, 6631*a*.
with steroid epoxides, 1786*f*, 1787*b*, 3830*e*, 5408*e*.
reduction of anthracene and phenanthrene with, 5774*e*.
reduction of chloroacetic acids and derivs. with, 5765*a*.
reduction of esters of amino acid with, 1723*a*, 2582*b*.
reduction of org. compds. with, 1312*c*.
reduction of vitamin A acid and its esters with, 5374*c*.

**Aluminum lithium nitride**, $Li_3AlN_2$, 4170*i*.

**Aluminum lithium sulfate**. (See also *Alums*.) 4173*a*

**Aluminum magnesium sulfate**, 4173*a*.

**Aluminum manganese sulfate**, 4173*a*.

**Aluminum molybdate**, colloidal, 4929*d*.

**Aluminum nitrate**, as catalyst in condensation of 2-furaldehyde with phenol, 5226*b*.
as catalyst in nitric acid oxidation of cellulose, 1978*i*.
in glass-chem.-resistance improvement, 7203*i*.
hydrolysis of, condensation of basic ions in, 7308*b*.
Raman spectrum of, 8887*g*.

**Aluminum nitride**, catalyst of $Al_4C_3$ and, in aromatic hydrocarbon formation from $C_2H_2$, P 5040*d*.
in steels deoxidized with Al, 7397*b*.
in steel specimens, 3330*a*.
as vulcanization accelerator in butadiene-styrene polymer, P 2808*f*.

**Aluminum ores**. (See also *Bauxite*.)
concn. of, 4611*c*.
of India, 3754*d*.
iron-, magnetic sepn. of reduced, 8995*h*.

**Aluminum oxides**. (See also *Alumina*.)
pellets or tablets of, polytetrafluoroethylene-bonded, P 9300*f*.

**AlO**, spectrum of, 499*a*.
spectrum of, from Al and $Al_2O_3$, 8878*c*.

**Aluminum oxychloride**. See "basic" under *Aluminum chloride*.

**Aluminum perchlorate**, $Al(ClO_4)_3$, reaction with NaOH, 4172*c*.

**Aluminum phosphates**, fertilizer expts. 799*b*.
phosphors contg., P 1661*d*, 6084*c*.
water-sol. solid, P 3158*d*.

**$AlPO_4$**, adsorption of diphtheria toxoid on, 6300*b*.
binder from, P 1160*i*.
catalyst from, P 9300*f*.
and cathodoluminescence thereof, 3723*a*.
crystallographic inversions of polymorphs of, and their relation to those of $SiO_2$, 4552*h*.
effect on sintering of $Al(OH)_3$, 1934*a*.
formation and pyrolysis curves for, as analytical ppt., 8305*b*.
ignition temp. for analytical ppts. of, 1681*d*.
pptn. of, 3305*a*.
properties of, 9404*g*.

**Aluminum potassium bromide**, KBr.$AlBr_3$, system: $PhNO_2$–, d., elec. cond. and viscosity of, 6899*b*.

**Aluminum potassium bromide chloride** (KCl.$AlBr_3$), fused, 1232*i*.
system: $PhNO_2$–, elec. cond., d. and viscosity of, 6898*i*.

**Aluminum potassium sulfates**. (See also *Alums*.) 4173*a*.

**$KAl(SO_4)_2$**, aluminum chloride prepn. from, thermodynamics of, 3694*b*.
firedamp ignition by, in explosive mixts., 3200*b*.
magnetic susceptibilities of hydrates in, 4528*f*.

**Aluminum rubidium sulfate**. (See also *Alums*.) 4173*a*.

**Aluminum salts**, astringent action of, 5492*a*.
basic, solns. of, P 3158*b*.
as catalysts in hydrolysis of meta- and pyrophosphates, 4549*e*.
effect on sintering of $Al(OH)_3$, 1933*i*.
in methyl violet poisoning, 5495*f*.
oxide-coating on Al and Al alloy treatment with, P 8350*b*.
phosphate fixation by, 3957*e*.
reaction with Fe complexes with salicylic acid, 2536*e*.
reaction with soap, 3688*g*.

**Aluminum selenates**, hydrates of, and system with $Al_2(SO_4)_3$ and $H_2O$, 5687*a*.

**$Al_2(SeO_4)_3$**, systems: $Na_2SeO_4$–$H_2O$–, $Al_2(SO_4)_3$–$H_2O$–, $Na_2SO_4$–$H_2O$–, and $Na_2SeO_4$–$Na_2SO_4$–$Al_2(SO_4)_3$–, and $Al_2(SeO_4)_3$.$Na_2SO_4$.$22H_2O$, 6067*b*.

**Aluminum selenides**.

**$Al_2Se$**, 3739*i*.

**$Al_2Se_3$**, reaction with $COCl_2$, 1673*c*.

**Aluminum silicates**. (See also *Clays; Fuller's earth; Kaolin;* etc.)
adsorbent, regeneration by oxidation, P 2422*g*.
alumina manuf. from, P 8107*g*.
catalyst from $AlCl_3$ and, P 3162*c*.
as catalysts, 1251*c*.
as catalysts in pyrolysis of 3,4-dihydro-2*H*-pyran, P 1795*f*.
catalysts of hydrous, in alkylation of aromatic hydrocarbons with olefins, P 3606*b*.
ceramic ware from Si or Si alloys and, P 6387*a*.
mineral wool from, P 5566*e*.
pigments, 4490*e*.
refractories of, analysis of, 9405*i*.
sodium carbonate diffusion in, 8253*f*.

**$Al_2Si_4O_7$**, effect on decompn. of $K_2SO_4$ and hydrolysis of NaCl, and its decompn., 2077*b*.

**Aluminum sodium bromide** (NaBr.$AlBr_3$), elec. cond. and viscosity in $PhNO_2$, 6898*g*.
in fused state, 1232*i*.

**Aluminum sodium fluoride**. See *Cryolite; Sodium fluoaluminate*.

**Aluminum sodium selenate**, $AlNa(SeO_4)_2$, 6067*d*.

**Aluminum sodium silicates**. See *Sodium aluminosilicates*.

**Aluminum sodium sulfate**, 4173*a*.

**Aluminum sodium sulfide**, $3Na_2S.2AlS$, 2109*b*.

**Aluminum substitute**, laminated paper, P 4513*i*.

**Aluminum sulfate**. (See also *Alums*.)
base exchange with, in reactivation of $Al_2O_3$-$SiO_2$ cracking catalyst, P 9428*d*.
binders from arsenious or phosphatic compds. and, P 1936*a*.
Buna-S-latex coagulation by, effect on rate of O absorption, 2460*f*.
catalyst contg., in alc. decompn., P 4835*d*.
catalyst of $NH_4Cl$, CuCl and, in dimerization of $C_2H_3$, P 7951*a*.
complex-ion formation in tanning solns. of, 9508*d*.
compd. with nicotine sulfate, 8297*a*.
effect on H absorption by steel in cathodic polarization, 952*f*.
on polarographic diffusion currents of Cd ion, 5655*d*.
on sintering of $Al(OH)_3$, 1934*a*.

effects of formates or oxalates in solns. of, 9507*f*.
interaction with silicic acid sols, 8237*d*.
iron removal from, P 9397*c*.
magnetic susceptibilities of hydrates of, 4528*f*.
manuf. of, 1926*g*.
from Al, P 3984*b*.
from diaspore or shale, P 6527*i*.
from kaolin, P 8107*h*.
in pest control, 9341*c*.
in polysaccharide hydrolysis, P 4037*f*.
as quartz substitute in porcelain, 3582*b*.
reaction with NaOH, 4172*c*.
resinous reaction products with polyhydric alcs., P 4870*b*.
system: $Al_2O_3$–$H_2O$–, pH in, 2493*a*.
system: $Al_2(SeO_4)_3$–$H_2O$–, 5687*b*.
systems: $Na_2SO_4$–$H_2O$–, $Al_2(SeO_4)_3$–$H_2O$–, $Na_2SeO_4$–$H_2O$–, and $Al_2(SeO_4)_3$–$Na_2SeO_4$–$Na_2SO_4$–, 6067*b*.
system: $H_2SO_4$–$H_2O$–, and $Al_2(SO_4)_3$.–$3H_2SO_4$.$12H_2O$, 6067*f*.
in water purification—see *Water, purification of*.
in wood preservation against house borer, 8598*f*.

**Aluminum sulfides**, as catalyst in toluene manuf. from bibenzyl and H, P 3454*b*.

**$Al_2S$**, 3739*i*.

**Aluminum vanadates(V)**.

**$AlVO_4$**, crystal structure of, 6033*b*.

**$Al(VO_3)_3$**, prepn. and soly. of, 8247*f*.

**Aluminum zinc bromide**, in fused state, 1232*i*.

**Alums**. (See also *Aluminum sulfate; Kaolinite*.)
absorption of heat and light by K, 7821*i*.
ammonium, elasticity of, 8787*c*.
Fe detn. in, 5331*h*.
manuf. from acid liquors, P 5161*a*.
photoelasticity of crystals of, 6482*a*.
reaction with coal in HCN synthesis, 6983*a*.
ammonium Fe, magnetic absorption by, 4141*i*.
calcination of, P 7651*i*.
chrome, complex formation from, 8939*d*.
complex from $H_2SO_4$ and, 6102*h*.
complex-ion formation in tanning solns. of, 9508*d*.
detn. of basicity of $Na_2CO_3$-neutralized solns. of, 2007*a*.
effects of formates or oxalates on, 9507*f*.
magnetic relaxation in, 5651*d*.
magnetic resonance absorption in, 916*g*, 2053*g*.
magnetic thermometry and thermal cond. of, 7316*e*.
paramagnetic resonance spectra of, 8879*a*.
resinous reaction products with polyhydric alcs., P 4870*b*.
crystn. of $NH_4$ and K, distribution of impurities in, 5553*e*.
decompn. temps. and vapor pressures of, 8785*h*.
demand and supply of, for pulp and paper manuf., 5948*h*.
di- and hexahydrates of, 7757*c*.
effect on filler retention in paper, 401*b*.
effect on microörganisms in pickles, 8572*i*.
existence of, in aq. solns., 4172*i*.
Faraday effect and magnetoöptic anomaly of $NH_4$ and K, 5251*e*.
formation from alunite, 9404*d*.
interaction of nuclear spins in $KAl(SO_4)_2$.$12H_2O$ and $CsAl(SO_4)_2$.$12H_2O$, 8273*d*.
iron, magnetic ppts. from solns. of, 7763*b*.
iron, manuf. from $FeSO_4$, P 826*c*.
iron potassium, liquefaction by trituration, 7767*d*.
magnetic relaxation time of proton in $H_2O$ of crystn. of mixed chrome and K, 8878*g*.
manuf. of K, from mica, P 5556*h*.
mixt. with calcined gypsum, P 9310*h*.
molding powder from $CaHPO_4$, sawdust or wood flour and, P 6466*b*.
paramagnetic resonance of chrome and K, 7763*d*.
photoelastic properties of K, 5251*i*.
for photographic use, Am. standard specifications for, 6930*b*.
in polysaccharide hydrolysis, P 4037*f*.
rubber (synthetic) latex emulsion coagulation with, P 5685*h*.
water binding in, 8936*f*.
in water purification—see *Water, purification of*.

**Alundum**, as heat-retention material in butadiene manuf., P 6819*f*.
sheaths of, for thermocouples, 912*f*.

**Alunite**, alumina manuf. from, P 7202*b*.
in antimony deposits of Soyatal Dist., Mex., 4982*g*.
decompn. of, 8749*e*.
formation in Cu ores of Calabona, Italy, 6949*b*.
heat effect on, 9404*c*.
of Hungary (Nyrád and Hosszuharasztos), 8991*c*.
potassium sulfate manuf. from, 1920*g*.
thermal analysis curves for, 8987*h*.
of Western Australia, and insolubilization of K by overheating, 2551*e*.

**Alunogen**, in volcanic deposits at Nyamuragira and Tshambene, Belgian Congo, 5349*a*, 8992*e*.
in water of mineral springs at Beppu, Japan, 5703*h*.

**Alurate** (*5-allyl-5-isopropylbarbituric acid*). (For derivs. see under *Barbituric acid*. See also *Alurate sodium*.)
adsorption by activated charcoal in presence of gastrointestinal content, 4767*d*.
and derivs., 9375*a*.
detection in urine, 1077*b*.
effect on temporal summation of epileptogenic stimuli, 3101*b*.
identification of, 8612*c*.
pharmacology of, 9258*a*.
solubility in iso-PrOH, 3147*h*.
unsatn. detn. in, 4976*e*.

**Alurate sodium** (*sodium 5-allyl-5-isopropylbarbituric acid*), solubility in iso-PrOH, 3147*h*.

**Alurgite**, classification of, 7872*e*.

**Alypine**. See "benzoate" under *2-Butanol, 1-dimethylamino - 2 - (dimethylaminomethyl)-*.

**Alysicarpus vaginalis**, carotene and vitamin C in, 3536*b*.

**Amalgamation**, of copper plate in Hg-salt solns., 6520*e*.
effect on autodisplacement of Pb, 2846*h*.
in gold recovery—see *Gold, metallurgy of*.

**Amalgamators**, centrifugal, P 7402*d*.
elec., P 9021*h*.
for gold recovery—see *Gold, metallurgy of*

**Amalgams**, activities in liquid, 4930*i*.
alkali metal, decompn. of, P 510*b*.
Ignitrons contg., 4962*f*.
peroxy-compd. manuf. from, P 2380*f*.
aluminum, org. reduction with, 5367*a*.
reaction with air, 6060*g*.
in reduction of disulfides, 7014*g*.
cadmium, effect of temp. on electrode potential of, 7836*g*.
cadmium, for Jones reductor, 5688*c*.
copper, cathodes of, 6052*b*.
crystn. of, 7880*g*.
dental—see *Dental fillings*.
lead and Tl, x-ray scattering by fused, 6031*c*.
lead, yield point of, 7779*g*.
liquid, in internal electrolysis, 7863*g*.
magnesium, as electrodes in $Et_2O$, 2075*h*.
magnesium, $Mg(OH)_2$ from $H_2O$ and, 8236*d*.
platinum and Ag, electrodes in polarography, 8946*g*.
polonium, diffusion into Hg, 7791*b*.
sodium, cell with NaOH and CuO, 5315*b*.
cell with NaOH and CuO or NaCl and $Cl_2$, 8907*e*.
in electrolysis, P 3733*g*.
thallium, elec. capacitance in $Na_2SO_4$ solns., 5316*d*.
of tin and Zn, vapor pressure of, 3677*i*.
tin, thermal cond. of elec. superconductors of, 5250*c*.
uranium deuteride and $UH_3$, 7853*i*.
zinc, as reductors in Fe detn., 5698*d*.
zinc, eutectics in, 4935*f*.

**Amanita**, *phalloides*, poisoning by, and its treatment with cortin, 7131*d*.
toxin from, fatty liver from, 9256*h*.

**Amaranth** (*the dye*), biol. action of, 1488*f*.
liquid crystals, and osmotic and vapor pressures of solns. of, 6493*d*.

**Amaranth** (*the plant*), calcium in *Amaranthus blitum*, utilization by rats, 288*c*.
food color from, P 6371*f*.
germination of *Amaranthus retroflexus*, effect of phenylboric acid on, 5831*h*.
growth of seedlings of *Amaranthus retroflexus*, effect of boric and phenyl boric acids on, 6704*a*.
potash manuf. from ash of *Amaranthus spinosus*, 2377*h*.
vitamin C in, fertilizer effect on, 3958*h*.

**Amarine**, identification of, 8365*h*.

**Amatol**. See *Explosives*.

**Amazonite**. See *Amazonstone*.

**Amazonstone**, green color, spectra and mineral analyses of, 6118*e*.
rubidium and Sr in, 6132*c*.

**Ambamide**. See *p-Toluenesulfonamide, α-amino-*.

**Ambary**. See *Hibiscus cannabinus*.

**Amber**, acid nos., ester nos., formation and varnishes of, 1198*h*.
detection and fluorescence of, 4492*d*.

**Ambergris**, 8100*g*.
review on, 7566*i*.
triterpene alc. of, 3148*d*.

**Amberlite**, cation-contg., effect on barley and lettuce, 7622*i*.
IR-1, cation exchangeability on, 3687*i*.
IR 4, in sepn. of acidic amino acids and org. acids, 8807*a*.
IR 100, coagulation of blood decalcified with, 7103*i*.
in detn. of total cations in water, 2715*h*.
elec. cond. and equil. with salt solns., 7785*ef*.
ion exchange on, 464*i*.
in lanthanum sepn. from mesothorium 2, 8792*h*.
in sepn. of guanine and xanthine, 1326*b*.
in sepn. of Na and K, 5698*i*
IR-100H, in vanadium pentoxide sol prepn., 8840*a*.
IR-100 and IR-4, regeneration of mixt. of, P 3119*f*.
IRA 400 and IRC-50, 6489*fg*.
IRA 400 and IRC-50, amino acid sepn. by, 4423*g*.
IRA 400 and IRC-50, as ion exchangers in sugar industry, 2475*d*.
IRA 400, as catalyst in hydration of nicotinonitrile, 1411*c*.
IR4B, hydrolysis regeneration of, 2067*a*
W-1, in wet-strengthening of paper, 4035*f*
W-1, thickening latexes with, 6111*a*

**Ambeside**. See *Sulfanilamide*.

**Amblygonite**, of France (Montebras), 1292*c*
lithium detn. in, 1683*ac*.
from Uganda (Mbale mine), 8985*a*

**Ambraoil**, as name for ambrein, 3148*d*

**Ambratriene**, synthesis of, and trihydrochloride, 3808*c*.

**Ambrein**, 1748*e*.
identity with ambreol or ambraoil, 3148*d*

**Ambreol**, as name for ambrein, 3148*d*

**Ambrettolic acid** (*16-hydroxy-7 hexadecenoic acid*), lactone, and isomers, P 2376*a*

**Ambrettolide***, and isomers, P 2376*a*

**Ambroid**, dielec.-loss angle and elec. resistance of, effect of humidity on, 2054*c*.

**Ambystoma** (*Amblystoma*). (See also *Salamanders*.)
eggs, effect of stilbestrol on mitotic divisions of, 2705*h*.
metamorphosis from thyroxine, effect of sex hormones on, 324*a*, 9213*b*
*punctatum*, effect of sulfonamides on embryos of, 4388*h*.
salt uptake in, effect of corticotropic hormone on, 4715*c*.

**Ameba**. (See also *Endamoeba*.)
mercury effect on, 1492*g*.

**Amebiasis**, chemotherapy of, 3066*c*, 8559*a*
conessine in treatment of, 8101*a*

**Amebicides**, amines (di-), P 3455*a*
amines related to emitine, 3378*c*, 3380*f*
ethyl 4-(6-methoxyquinolylamino)-2,6-dimethylnicotinate-HCl, 3827*d*

**Amelanchier**, control of, 4414*a*.

**Amenorrhea**, ovarian function in, test for, 7539*a*.

**American Chemical Society**, reports for 1949, 2826*h*.

**American Chemical Society Award in Pure Chemistry**, to Arnold, Richard T., 8219*c*.

**American Institute of Chemists Honor Scroll**, to Keyes, Donald B., 1397*e*

**American Manufacturers' Association Research Award**, to Waksman, Selman A., 7275*g*.

**American Physical Society**, founding of, 4909*a*.

**Americium**, electronic configuration of, 8890*a*.
isotope of mass 241, localization in dental tissue, 9100*h*.
metabolism of, 744*f*.
properties of, 2083*g*.
spectrum of, 5304*c*.

**Americium, analysis**, detn. in animal tissues, 744*i*.

**Americium bromide**, crystal structure data on, 3709*h*.
spectrum of, 8889*i*.
**Americium chloride**, crystal structure data on, 3709*h*.
spectrum of, 8889*i*.
**Americium iodide**, crystal structure data on, 3709*i*.
**Americium sulfide**, crystal structure data on, 3709*i*.
structure of, 6484*e*.
**Ameripol**. See *Nitrile rubbers*.
**Amesite**, from India (Devarnarsipur, Mysore), 4600*f*.
**Amethocaine**. See *Pontocaine*.
**Amethopterin, A-Methopterin**. See *Glutamic acid, N-[p-[(2,4-diamino-6-pteridylmethyl)methylamino] benzoyl]-*.
**Amethyst**, goethite inclusions in violet, from Cracow, and Fe compds. in its coloring, 8313*a*.
**Amic acids**, *N*-alkyl derivs., polymers of, P 3239*i*.
*N*-quinonyl derivs., compds. with urea derivs., as printing assistants, P 416*g*.
**Amidases**. (See also *Asparaginase; Glutaminase*.)
specificity of, 1448*c*.
trypsin activity as, kinetics of, 7068*a*
**Amide group**. (See also *Amino group*.)
in bond (intramol.) formation in aromatic compds., 4627*e*.
**Amides**. (See also *Alkali metal amides; Anilides; Sulfenamides; Sulfinamides; Sulfonamides*.) 128*c*, 4220*h*.
acidimetric properties of, 3269*i*.
acrylic ester addn. products with unsatd. fatty acids as intermediates for, P 2034*d*.
(acylamino), P 6653*fghi*, P 6654*ab*.
aliphatic, manuf. of, P 4686*fi*, P 6224*h*, 8353*e*.
as cleaning compns., 883*b*.
in metal finishing, 4032*e*.
sulfonated textile-aid, P 5217*c*.
alkylated, for rendering anionic coatings adherent to anionic bases, P 5643*h*.
*N*-*tert* alkyl derivs., P 3028*g*, P 3445*e*.
of amino acids, effect on glycolysis in brain, 7520*d*.
amino, acylation of aliphatic, P 4291*d*
α-amino-, condensation with 1,2-dicarbonyl compds., 3009*e*.
amino derivs., reaction with diketene, P 1289*b*.
analgesic and antispasmodic action of, 1243*a*
*N*-aryl, P 8399*e*, 6586*b*.
of 1-arylcycloalkanecarboxylic acids, P 7958*g*.
azeotropes of, 2835*a*.
basically substituted, effect on sensitivity and blood pressure, 3101*h*.
*N*-benzyl derivs., 2177*b*, 6595*h*.
of betaine hydrochlorides, 6977*c*.
of carboxylic acids, from $H_2NCOCl$ and hydrocarbons, 6183*c*.
carboxylic sulfonic (mixed), prepn. of, 120*c*.
as catalysts in reaction of cyclohexanone with $NCCH_2CO_2Et$, P 7507*c*.
as catalysts in reaction of hydroxy compds. with $H_2NSO_3H$, P 3024*h*.
chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
*N*-chloro, reaction with amines, 6570*d*.
condensation of, with aldehydes, 2600*gh*, 6182*b*.
condensation products from HCHO and, adhesives from, P 2039*d*.
condensation products of fat-acid, with crotonaldehyde and mercaptoacetic acid for washing, P 5978*h*.
condensation products with aldehydes, coating compn. from plasticizer and, P 2814*c*.
with aldehydes, coating from, P 2814*a*.
with $C_3H_4O$ for textile industry, 4016*c*, 5953*e*.
with HCHO, emulsions from, P 6000*e*.
with paraformaldehyde and $NH_4$ salts or salts of primary amines, P 1434*d*.
copper complexes of, absorption spectra of, 6249*i*.
*N*-(cyanoguanyl), reaction with $H_2S$, P 4292*d*.
cyclic—see *Lactams*.
dehydration of, P 3836*d*.
dehydration of, in the presence of sulfites, P 3470*c*.
*N*-derivs., as plasticizers for prolamins, P 2033*g*.
detergents and wetting agents from, P 8712*g*.
detn. in collagen and effect of depilation of hides on, 7734*h*.
detn. of—see also *Nitrogen, analysis*.
detn. of, P 4604*g*.
detn. of, in collagen and hide layers, 7734*i*.
detn. of fat-acid and sulfated fat-acid, in fat acid-alkanolamine detergents, 8705*h*.
and *N*-deuterio analogs, spectra of, 8274*f*.
of dicarboxylic acids, *N*-derivs., P 5038*a*.
of dicarboxylic acids, for foaming inhibition, P 5890*g*.
diester, as plasticizers for vinyl chloride resins, P 7750*i*.
di-, of alkylene dicarboxylic acids, P 3842*d*.
manuf. of, P 1797*e*.
prepn. of, 4241*f*.
effect on reduction of AgBr by photographic developers, 6927*c*.
fate in animal organisms, 3911*i*, 6717*h*.
feed value of, 4737*i*.
formation of, in green plants, 1462*i*.
from nitriles, kinetics of, 3697*a*.
from reaction of anhydrides of carboxylic and silicic acids and amines, 4630*i*.
*N*-(guanylalkyl), hydrohalides, P 672*g*.
as gum inhibitors for motor fuel, P 3193*f*.
*N*-halo, reactions with thio ethers, 172*d*.
heavy-metal, 2887*d*, 6101*d*, 8938*d*.
of hydrogenated fish-oil acids, condensation products with PhNMe₂ and $(ClCH_2)_2O$, P 1588*e*.
hydrolysis of, 3781*dh*.
hydroxy, acetates, P 3448*f*.
acrylates of, and their polymers, P 3446*h*.
nitration products of, P 1796*h*.
*N*-(hydroxyalkyl), aminoalkyl esters from, P 6652*b*.
and their fatty acid esters as plasticizers in butadiene elastomers, P 7258*h*.
of fatty acids, semi-esters with dicarboxylic acids, P 7241*g*.
of fatty acids, semi-esters with unsatd. dicarboxylic acids, and their surface-active Na salts, P 4500*e*.
hydroxyalkyl, of polymerized fatty acids, condensation products with alkylene oxides, P 9472*ac*.
*N*-2-hydroxyethyl derivs., 5786*f*.
*N*-hydroxyethyl derivs., formates for softening textiles, P 4878*gh*.
hydroxyethyl derivs., of higher fatty acids, P 2004*d*.
*N*-(hydroxymethyl), condensation products of, P 7728*be*.
condensation with thiols, textile assistants by, P 6440*b*.
and their ethers, 569*e*.
reaction products of, P 9496*eg*.
reaction products of, as textile assistants, P 8713*c*.
reaction products with tertiary bases for waterproofing textiles, P 1202*f*.
as textile assistants, P 8712*ef*.
imino dialiphatic, P 4291*f*, P 5036*c*.
with larvicidal action, 1144*d*.
leuco vat dye mixts. contg., P 9473*e*.
manuf. of, P 248*cg*, P 688*i*, P 2240*a*, P 3027*i*, P 3028*b*, P 3452*b*, P 4289*a*, P 4686*h*, P 6652*c*.
manuf. of, from acyclically unsatd. compds., P 2233*b*.
metallic, 4170*g*, 5322*d*, 5690*h*.
for concn. of nonsulfide ores, P 5725*d*.
reaction with cinnamic acid derivs., 7002*e*.
review on, 3739*h*.
*N*, *N'*-methylenebis-, 657*f*.
mixts. (fused) of vitamin $B_2$ and, P 9088*a*.
mono-, of polycarboxylic acids—see *Amic acids*.
nitrogen fixation by *Azotobacter* in presence of, 5522*i*.
nitrogen heterocyclic derivs., P 6239*a*.
olefin carboxylic acid, in preventing thinning of diazonium salt printing pastes thickened with carbohydrates, P 3207*a*.
oxidation of, 6570*a*.
oxonolysis of ethylene, 128*b*.
*N*-phenethyl, ring closure of, to form isoquinolines, 5025*i*.
photographic subbing compn. contg., P 3788*i*.
poly—see also *Nylon*.
poly-, P 6866*i*.
*N*-[(alkenyloxy)methyl], insolubilization of, P 1221*b*.
*N*-(alkoxymethyl), *N*-(alkylmercaptomethyl) and *N*-(hydroxymethyl) derivs., 3651*i*.
*N*-(alkoxymethyl), coatings from, P 6466*c*.
*N*-(alkoxymethyl) derivs., reactions of, 3652*i*.
amino acids in, fibrillar and globular forms in relation to, 3050*c*.
analysis of, 6947*h*.
basic, for films, P 4052*i*.
*N*-(carboxymethoxymethyl), as thickening agents for hydraulic system, P 1504*e*, P 3950*a*.
cellulose derivs. of *N*-(alkoxymethyl) and *N*-(alkylmercaptomethyl) derivs. of, P 3659*c*.
condensation products with polyesters, P 4517*g*.
constitution and properties of, 9455*d*.
contg. hydroxyl group from 2-furaldehyde, P 6866*h*.
depolymerization of, 4542*b*.
detn. of mol. size of, 5262*i*.
dyeing of fabrics composed of, P 7712*c*.
effect of excess adipic acid on formatio of, 142*c*.
-ester compn., P 9537*f*.
increasing zero-strength temp. of, 7713*h*.
kinetics of formation of, 4547*e*.
mixts. with rubberlike polymers, coating metals with, P 6457*c*.
plasticizers for, P 2033*i*.
polyalkylene, anion-exchange or acid-removing resin from, P 7609*d*.
polydispersity of, 577*a*.
resinous compns. from, P 9525*b*.
review on, 5996*e*.
softeners for, for artificial leather manuf., 6451*f*.
*N*-substituted, alc.-sol., P 7266*b*.
S-contg., P 4520*c*.
water-vapor sorption by isobutylated, 8237*b*.
-wax-pinene resin coating compn., P 5632*d*.
from polyalkylenepolyamines and fatty acids, as foam inhibitors, P 6346*d*.
poly- and polyester-, P 900*i*.
α-poly- and α-polyester, prepn. of elastomeric, 8699*c*.
polyester, P 7266*e*.
compns. with diisocyantes, increasing soly. in org. liquids, P 7753*a*.
mixt. of polyvinyl acetal with diisocyanate-modified, P 3661*a*.
reaction products of unsatd., with diisocyanates, vulcanization with S, P 4046*g*.
as polymerization inhibitors for 9-vinylcarbazole or 1-vinylpyrrole, P 2037*f*.
polymers of, P 3240*f*.
polymethylene, resinous products, P 7751*e*.
prepn. of, by Beckmann rearrangement of oximes, 5740*e*.
Dakin-West reaction in, 4226*h*.
from nitriles and olefins, 2165*c*.
for printing pastes contg. diazonium salts to inhibit thinning, P 9473*h*.
reaction products of, or amidelike compds., with aldehydes and thiols, surface-active, P 7242*d*.
reactions of *N*-benzyl derivs. of aromatic thio, 4652*d*.
reaction with acrylonitrile, 7411*d*.
with amines and sulfonyl chlorides, 2595*d*.
with HCHO and then $NH_4$ salt or salt of primary amine, textile assistants by, P 5218*a*.
with isocyanates, 6162*e*.
with nitriles, P 3841*d*.
reduction to amines, 121*g*.
solubilization with Na secondary alkyl sulfates, 466*a*.
spectra, 7840*f*.
as stabilizers for polythionic acids and salts, P 7651*h*.
structure, assignment to supposed 2,3 dihydro-2-benzimidazolols, 4273*e*.
*N*-substituted, P 8398*f*.
sulfated, as dispersing agents for pigments, 8213*h*.
sulfides of, as softeners for rubber, P 6858*hi*.
sulfonated derivs., P 9498*g*.
sulfonated, detergent use and structure of, 5213*d*.

*N*-sulfonyl derivs., with disinfectant properties, P 8622*a*.
surface-active, P 5978*s*.
of *o*-terphenyl-4-amine, 4656*b*.
textile-finishing fatty-acid, yellowing during drying, rancidification and use of, 1193*c*, 2779*g*.
thio, as catalysts in isomerization of *cis*-α,β-unsatd. acids, P 1798*e*.
*N*, *N*-disubstituted derivs., 5027*e*.
reaction with diazo ketones, 2992*e*.
reaction with ethylene oxides, 7420*e*.
of α,β-unsatd. acids, P 5413*e*, P 7954*e*.
unsatd., β-lactones for use in manuf. of, P 3840*d*.
for vat dye leuco sulfuric ester manuf., P 3205*i*.
vinylidene chloride-polymer solns. in, P 4515*g*.
water-permeable layers of polycarbox-, for binding Ag salts, P 8925*f*.

**Amidines.** *(Individual amidines are entered under the names formed from the names of the corresponding carboxylic acids, e.g.*, Acetamidine, Benzamidine. *If derivatives of a simple amidine cannot be readily entered under the name of the parent amidine, they are entered under the name of the primary amine.)* P 5038*d*.
(acylamino), hydrohalides, P 672*g*.
*N*-2-biphenylyl derivs., 7445*e*.
*N*-2-biphenylyl, ring closure of, P 5050*i*.
chemotherapeutic, 9048*c*.
condensation with α-carbethoxy-γ-butyrolactones, 6172*i*.
derivs., effect on circulation, 1868*c*.
di-, action on *Corynebacterium diphtheriae*, 4325*i*.
as antibacterial compds., 3064*f*.
cytostatic action of, 8064*d*.
detn. of aromatic, in pharmaceuticals, 1151*e*.
pharmacology, mode of action and therapeutic potentialities of, 3147*c*.
effect on glycolysis in muscle exts., 7581*e*
on influenza virus in embryonated egg, 8536*b*.
on oxidases of *Escherichia coli* and animal tissue, 9154*c*.
hydrolysis of, by enzymes, 3790*f*.
hydroxyalkyl, esters of, P 5048*c*.
manuf. of, P 688*eg*, P 1062*h*, P 1064*g*, P 2230*e*, P 3456*e*, P 5801*b*, P 6222*g*.
(methylsulfonyl) derivs. of, 1739*b*.
*N*-phenylsulfonyl derivs., P 6660*g*.
prepn. of, 2593*g*, 7444*a*.
Raman spectra of, 6081*h*.
therapeutic, P 821*e*.

**Amidogen.** (See also *Amino group.*)
in comets, 490*i*, 2509*a*.
reaction with toluene, 7797*i*.

**Amidone.** See *3-Heptanone, 6-dimethylamino-4,4-diphenyl-*).

**Amidophosphoric acid** ($H_2NPO_3H_2$), 2110*d*.
derivs., 600*b*, 6178*d*.
*s*-triazine deriv., P 7974*i*.
——, **benzyl-**, dibenzhydryl ester, 600*b*.
diphenyl ester, 6178*f*.
——, [*o*(and *p*)-**carboxyphenyl**)-†, esters (neutral), 6178*f*.
——, **cyclohexyl-**, dibenzhydryl ester, 600*b*.
——, (*p*-**nitrophenyl**)-, diphenyl ester, 6178*f*.
——, **phenyl-**, esters, 6178*f*.
——, [*p*-(**2-pyridylsulfamyl**)**phenyl**]-, diphenyl ester, 6178*f*.
——, (**sulfonyldi-***p*-**phenylene**)**bis-**, esters and amides, P 5156*g*.
tetraphenyl ester, 6178*g*.

**Amidophosphorous acids**, esters, reaction products with $P_2S_5$, for lubricant improvement, P 9432*d*.

**Amidophosphoryl chloride** ($H_2NPOCl_2$).
——, (**sulfonyldi-***p*-**phenylene**)**bis-**, P 5156*g*.

**Amidopyrine.** See *Pyramidone*.

**Amidosulfuric acid.** See *Sulfamic acid*.

**Amidosulfurous acid**, derivs., for ore treatment, P 5725*h*.

**Amigen**, effect on stomach lining, 3106*c*.

**Amination**, of aryl halides, P 3454*gh*.
of 7*H*-benz[*de*]anthracen-7-one, 1759*a*.
of benzene, $C_{10}H_8$ and their derivs., 5731*e*.
of *p*-bromobenzenephosphonic acid, 1737*f*.
of 4-bromo-*o*-xylene, 1734*d*.
of butyl alc. isomers, 1004*i*.
of carbonyl compds., P 2633*d*.
of chloroacetic acid to glycine, kinetics of, 5656*e*.
of 6-chloropicolinic acid, P 3471*f*.
of 2- and 4-chloroquinazolines, P 4704*a*, P 7042*g*.
of 2-chloroquinoline, 1419*e*.
of dibromocyclohexanetetrol, 6581*e*.
of α,β-dichloroacrylonitrile, P 3440*b*.
of halo hydrocarbons, P 3440*g*.
of ketones in presence of H and Raney Ni, 1349*f*.
of maleic anhydride polymers with Me methacrylate, 8202*e*.
of 2-methyl-1,4-naphthoquinone to produce 3-arylamino derivs., 204*i*.
of olefins, $NH_3$ recovery from, P 5160*h*.
of 3-picoline, P 7050*i*.
of 9*H*-pyrid[3,4-*b*]indole, 3416*f*
of quinoline nucleus, 4276*f*.
reduction and, of 1-alkyl-3-piperidones, 6206*i*.
with reduction of aldehydes or ketones, P 5412*a*.
by reduction, review on, 7759*b*.
re- or trans—see "transfer of" under *Amino group*.

**Amine oxidases.** (See also *Diamine oxidase.*)
action on adrenaline, alteration of, 701*g*
inhibition by benzedrine derivs., 9118*c*.
inhibition by phenylalkylamines, 1817*g*
of placenta, identification and assay of, 4745*g*.
review on, 9122*i*.

**Amines.** *(Individual amines are named in the usual way as* Benzylamine, Diethylamine, Ethylamine, Triethylamine, *etc., and as derivatives of these Aliphatic amines are numbered commencing next to the amino group (prines and seconds being used where necessary with secondary and tertiary amines) Mixed amines are treated as derivatives of the largest simple amine present. See also* Amino compounds.)
acetylation of aromatic, P 3845*g*.
acetylenic, 2999*b*.
acylating agents (fluorescent) for, 7936*e*.
acylation of, P 6652*c*.
acylation of aromatic, with volatile acids, 6586*b*.
adrenotropic receptors and, 298*f*.
adsorption by activated C, 6037*d*.
by negatively charged monolayers, 8796*i*.
by $SiO_2$ gel, 4922*h*.
aldehyde, as vulcanization accelerators, 7744*b*.
alkyl and arylsulfonyl derivs., as analgesics, 1366*b*.
alkyl aryl, P 681*h*, P 5800*e*, P 6231*f*
from alcs. and aniline, P 7041*h*.
from alkylanilines, P 7041*h*.
alkyl, as solutizers for thiols in hydrocarbon oils, P 4844*c*.
alkylation of, 7921*c*.
alkylenedi-, polyamides from α-hydroxypimelic acid lactone and, P 6866*h*
reaction with 4,4′-biphenyldicarboxylic acid and its derivs., P 6240*g*.
resinous products from residue of sebacic acid manuf. from castor oil and, P 5997*d*.
*N*, *N*′, *N*′-tetrasubstituted derivs., P 2229*d*.
analysis of higher aliphatic, 5341*f*.
anthraquinone dyes from, P 1575*h*.
antibacterial action of, phys. properties and, 7081*b*.
antihistaminic, 1909*f*.
antioxidant value of aromatic, in gasoline, 2414*c*, 5932*b*.
aryl, P 1561*f*.
(arylalkoxy) derivs. of, 4657*c*
aryl-, for Neoprene compounds, P 2026*h*
azeotropes of, 2834*i*, 2835*a*, 5247*c*.
azo derivs., 596*i*.
basicity of, 3776*h*.
basicity of, and their salt formation with weak acids, 6157*h*.
basicity of aryl, and reaction with Bz-$CH_2Br$, 2210*b*.
bentonites, as flatting and gelling agents, 8704*e*.
bentonites, prepn. of, 6121*f*.
(benzhydryloxy), P 3462*fi*, P 3463*c*, P 5803*g*.
benzhydryloxy derivs. of heterocycles, P 2234*i*.
biguanides from, for textile printing, P 7712*i*.
(ω-4-biphenylylalkyl), P 5423*g*.
book: Chemistry of Fatty, 1049*c*.
carboxymethylation of, 9031*h*.
as catalysts, in decarboxylation of malonic acid derivs., 7904*d*.
in decompn. of nitramide, 8828*d*.
in ethylidene and vinyl-ester manuf., P 3838*e*.
*as catalysts*, in gelation of phenolic resin P 2033*c*.
in phenol condensation with aldehyd P 5997*i*.
for polymerization of esters, P 5230*e*
in polymerization of ethylenic monomers with polyhydric alc. esters α-olefinic dicarboxylic acids, 906*f*.
catalysts of tertiary, in ester-exchan manuf of esters of secondary ar tertiary alcs., P 7951*f*.
cellulose-degradation inhibition by secon dary aromatic, 5943*d*.
chloro—see also *Nitrogen mustards*.
chloro-, 7421*i*.
liberation of, from their hydrochloride 6976*g*.
from paraffin wax, as fungicides an bactericides, P 349*h*.
as solvents for paraffin-wax removal 8126*g*.
tertiary, neurological syndrome in duced by, 1861*c*.
as chloroprene-polymerization inhibitors 1598*f*.
chromatography of, 6113*a*.
chromatography of aromatic, with fluorescent silica gel, 1711*e*.
chromatography of, I in development in 5336*e*.
chromatography of primary aromatic 2263*b*.
complexes with montmorillonite, prepn and decompn. of, 2841*d*
compns. contg., and silicic acid esters, 6647*d*.
compds. with alkyl alkylene phosphates as antifoaming agents, P 1561*h*
with Cu and Ni complexes of formazy compds., 6589*g*
with Cu, color in turquoise from 8986*f*.
with glyceryl abietate-maleic anhydride resin, emulsions with wax P 9495*b*.
with heteropoly acids and metallic cations, 1671*f*, 1672*b*.
with NaHSO₃, 7899*h*.
with $SO_2$ and $SO_3$, dielec. properties and ultraviolet absorption spectra of, 5241*a*.
condensation of (alkoxyphenyl), with HCHO, 6593*i*.
condensation of aromatic, with aliphatic nitriles, lubricant antioxidants and pour-point depressants by, P 2421*b*
condensation of, formaldehyde and phenols, 3425*e*.
condensation of primary alkyl, with Me acrylate and hydrolysis of amino propionate esters to surface active salts P 5978*b*.
condensation of tri-, piperazines from, P 2242*g*.
condensation products of—see also *Resinous products*.
condensation products of aromatic, and their bacteriostatic action against tuberculosis, 4812*f*.
condensation products of di-, with $CS_2$ and HCHO, P 2466*e*
condensation products of di-, with $C_2H_4O$ or propylene oxide, 5995*h*.
condensation products of heterocyclic or poly-, with aldehydes and hydroxy aromatic compds for lubricant improvement, P 2766*dfg*.
condensation products of salts of aromatic di- or mono-, with aldehydes and urea thiourea or phenols, for mordanting P 3206*e*.
condensation products with AcH and phenols, P 2814*h*.
with aldehydes and phenols, P 7755*e*
with aldehydes as rubber vulcanization accelerators, effect of high mixing temps. on, 1210*f*.
with aldehydes, for sugar juice purification, P 4882*f*.
h aldehydes, in stabilization of polythionates and polythionic acids, P 7651*g*.
with dicyandiamide and HCHO for aftertreatment of dyed textiles, P 2786*i*.
with HCHO and phenols, P 2814*f*
with HCHO, as gelatin hardeners and tanning agents, 7246*e*.
condensation with amino aromatic aldehydes, antioxidants by, P 4460*a*.
corrosion-inhibitor adsorption of, 6139*h*
as corrosion inhibitors for magnetic cores, P 9022*i*.

as corrosion inhibitors in lubricants, etc., 1953*g*.
crit. temp. cube additivity for, 7277*d*.
cyanoethylation of, 8351*e*.
cyclic—see also "heterocyclic" under *Nitrogen compounds*.
cyclic, 6998*h*.
in $CS_2$ removal from hydrocarbons, P 7041*e*.
mixts. with alcs., ultraviolet absorption by, 4138*i*.
systems with alcs., 5657*g*, 8833*i*.
cyclized pentaerythritol tertiary, 138*i*.
(cyclohexylalkyl), P 1802*c*.
cyclohexyl and phenylalkyl, prepn. of, 1025*g*.
dehydrogenation of, 132*i*.
derivs. (sol.), 4627*c*.
detection in textile auxiliaries, 1585*c*.
detection of aryl, 4315*h*.
detection of volatile, 817*c*.
detn. in $C_6H_6$ and hydrocarbons, 973*a*.
detn. in hydrocarbon oils, 2891*a*.
di-, P 682*h*, 2211*b*.
diacetylenic di-, P 5794*b*.
diazomethylation of acid chlorides in presence of tertiary, 5761*g*.
diazonium, spectra of, 8880*b*.
diazotized aromatic, detn. of, and amperometric titration of couplers with, 5694*h*.
dihydroxyphenylalkyl, pharmacol. activity of, 8546*g*.
di-, *N*-(4-methyl-2-quinolyl) derivs., 8389*e*.
1,2-di-, prepn. of aliphatic, 8381*b*.
disinfectant tertiary, P 8622*e*.
dispersions (aq.) of aromatic secondary, P 690*e*.
ditertiary di-, manuf. from aniline, P 1437*f*.
dithiofuroates, for rubber-vulcanization acceleration, P 434*a*.
effect of aromatic, on lubricant deterioration and deposit formation in motored engines, 1454*c*.
effect on blood vessels of frog prepns., 5493*b*
on catalytic hydrogenation, 7802*h*.
on fluorescence of chlorophyll, 6922*b*.
on rearrangement of diazo ketones, 4654*b*.
on respiratory exchange of liver, 1385*h*.
on *Schistosoma mansoni* cercariae, 9255*a*.
on shrinkage temp. of collagen, 7113*h*.
on soly. of petr. ether in water, 465*h*.
from emetine, 3378*c*.
ethers of, P 6671*c*.
ethers of, as antihistamine substances, 1265*h*
ethers and synthetic resins contg. tertiary, identification of, 8685*b*.
fluoro derivs., insecticidal, P 6358*a*.
as foam inhibitors, P 4407*d*.
formation of primary, in cleavage of *N*-substituted benzhydrylamines, 192*i*.
formation of primary, in reaction of Schiff bases with 1-alkyl-2-picolinium iodides, 2209*d*
formylation of, with $HCO_2Et$, 1336*a*.
as gum inhibitors for motor fuel, P 3193*f*.
*N*-halo, P 7517*d*.
halo derivs., as foam inhibitors, P 2348*b*.
as insecticides, P 4807*e*.
reaction with $Ph_2CHCN$, 4243*a*.
halo derivs. of dialkyl, P 4083*i*.
2-haloethyl, 2927*a*, 7442*g*.
*N*-halo, reaction with $C_2H_3$, P 3031*i*.
heats of dissocn. of, 6479*d*.
heats of mixing with citric, oxalic and picric acids in acetone and $H_2O$, 6070*f*.
heterocyclic, P 5808*f*.
heterocyclic N derivs., histamine activity of, 3520*g*.
hydrochlorides, crit. micelle concns. of, 2843*g*.
elec. conductivities and solns. of their homologs, 1243*g*.
light scattering by, 20*h*.
hydrogen (active) detn. in, 3316*f*, 8964*f*.
hydroxy—see *Alcohols* and *Phenols*.
hydroxyethylation of, P 673*g*.
identification of, 4630*a*, 7446*d*, 7447*h*, 7448*a*.
identification of primary aryl-, 5344*a*.
identification of tertiary, 8145*e*.
ionization of tertiary, 7303*h*.
lubricants contg., P 6821*a*.
lubricants from monocarboxylic acids, org. sulfonate and, P 9431*h*.
lubricants from reaction products with alcs., unsatd. acids, maleic acid or anhydride, and olefin oxides or glycols, P 7679*a*, P 8668*c*.
manuf. of, P 666*i*, P 2630*g*, P 4286*f*, P 5412*a*, P 7953*b*.
by hydrogenation of nitriles P 682*e*.
from olefins and $NH_3$-type compds., P 5791*b*.
manuf. of aralkyldi-, P 3455*i*.
manuf. of aromatic, P 3454*egh*.
manuf. of aromatic, from phenols and $NH_3$ or amines, P 5799*e*.
manuf. of primary, P 3440*g*, P 5033*c*, P 6652*g*.
manuf. of secondary di-, P 3455*a*.
manuf. of tertiary, P 3038*i*.
1-methylalkyl, reaction with aldehydes, P 3025*b*.
(methylsulfonyl) derivs. of, 1739*b*.
miscibility with asphaltic bitumens, 6817*b*.
mixts. of aliphatic, with org. acids, as asphalt antistripping agents, P 3194*a*.
mol. assocn. of, viscosity and, 2059*e*.
mol. assocn. of, with alcs., 7442*a*.
nitration of, P 4286*g*.
*N*-nitro, 9072*h*, 9073*eh*, 9074*d*, 9075*a*, P 9079*gh*.
nitration of, 2203*d*.
nitrogen heterocyclic, 9065*g*.
2-nitro, P 5424*g*.
nitroalkyl sulfites as intermediates for, P 6223*a*.
nitro, as insecticides, P 813*a*.
nitro, review on, 4218*d*.
*N*-nitroso, 595*h*, 1736*h*.
*N*-nitrosoacylaryl, as catalysts in polymerization, 5629*h*.
C-nitroso aromatic, P 7507*h*.
*N*-nitrosodialkyl, phys. constants of, 2957*d*.
nitroso, formation, identification and detn. in diethyldiphenylurea-stabilized explosives, 3617*e*.
of olefin sulfides, for lubricant improvement, P 5585*a*.
oxidation of, 6570*a*.
oxidation of aromatic, by adsorbents, 6035*g*.
β-oxo acid ester acetylation with ketene in the presence of tertiary, P 6655*a*.
penicillin salts of tertiary, P 3982*a*.
phenacyl derivs. of heterocylic secondary, P 7050*g*.
phenoxy, 3386*a*.
phenylalkyl, aminoxidase inhibition by, 1817*g*.
phenylalkyl secondary, P 6231*e*.
phosphates, in emulsifier for drugs, 6363*a*.
photographic color developers, control of contrast with aromatic di-, P 4591*g*.
picrates, dispersion of optic axes of, 6105*f*.
in plants, occurrence, formation and destruction of, 3070*a*.
polyalkylene poly-, anion-active resins from hydroxy aliphatic polyhalides and, P 6339*ae*.
anion-exchange resins from epichlorohydrin and, P 5518*a*.
anion-exchange resins from polyepoxy compds. and, P 5518*b*.
anion-exchange resins from 1,3,5-triazine derivs. and, P 5517*h*.
improving chlorinated rubber adhesives for metals with, P 2807*d*.
poly-, anion-exchange resins from acrylonitrile and, P 7162*g*.
hydrohalide salts of, as fireproofing agents, P 4024*c*.
manuf. of, P 2633*d*.
polymers with nitropolyhydroxy alcs., P 8209*e*.
as promoters for polymerization of unsatd. alkyd resins with vinyl compds., P 3239*e*.
reaction products with $CO_2$, P 5639*i*.
salts of acidic resins, compns. from, P 3215*d*.
polycyclic, 2985*f*.
polyethylenepoly-, P 6244*g*.
polyhydroxyalkylaryl secondary, P 5043*i*.
polyvinylbutyral stabilization with, P 2468*a*.
prepn. of, 7438*c*.
by hydrogenation of nitriles, 4629*f*.
from ketones, 1349*f*.
by reduction of amides, 121*g*.
by reductive alkylation, 2155*g*.
by Schmidt reaction, 9027*bg*.
prepn. of primary aryl, 2176*i*.
prepn. of secondary, 6587*b*.
prepn. of tertiary, by Leuckart reaction, 7920*f*.
pressor, enzymic formation of, 8061*a*.
properties of primary, secondary, and tertiary, 2956*g*.
quaternary compds. from acid chlorides, nitriles, $CH_2O$ and, as softening agents, P 2786*a*.
reaction (exchange) of, 2183*g*.
reaction of aralkyl, with $CO_2$, 1351*f*.
reaction of aralkyl, with $COCl_2$, P 1439*h*.
reaction of aromatic, with aldehydes in the presence of $HgCl_2$, 184*d*.
with alkyl vinyl ketones in presence o $FeCl_3$ and $ZnCl_2$, P 1443*e*.
with biacetyl, 4234*e*.
with carboxylic acids, P 8399*f*.
with o-chlorobenzoic acid derivs., 6175*i*.
with dichloronitrobenzenes, 6175*d*.
with dicyanamide, P 1799*f*
with diketene, rate of, 1247*c*.
with 1-(2,4-dinitrophenyl)pyridinium chlorides, 4671*a*.
with ethylene glycol, 7026*i*.
with 4-methoxy-2-butanone and its di-Me acetal in presence of $FeCl_3$ and $ZnCl_2$, P 1443*h*.
with β-oxo esters, 228*d*, 1416*b*
with $(CN)_2NNa$ in prepn. of biguanides, 2947*a*.
reaction of aryl secondary, with $COCl_2$, P 1438*h*.
reaction of diaryl, with $HCO_2H$, 647*b*.
reaction of 1,2-di-, with α-aryl derivs. of $AcNH_2$, P 3467*a*.
reaction of di-, with $CO_2$, P 692*a*.
with guanidine derivs., P 6670*d*.
with α-halopropionaldehyde derivs., P 6245*i*.
with pyrimidine derivs., P 6243*c*.
with α,β-unsatd. nitriles, P 5414*e*.
reaction of poly-, cyanides and HCHO, P 3449*e*.
reaction of poly-, with $CO_2$ and heating with fatty acids, amidoamine soaps by, P 5614*c*.
reaction of primary and secondary, 4211*h*.
reaction of primary and secondary, HCHO and 7-isoquinolinol, P 9086*e*.
reaction of primary, with alkyl nitrites in the presence of alcs., P 9087*a*.
with α-chloro-2-(2-chloroethyl)-5-nitrotoluene to form isoquinolines, 646*c*.
with $Et_3SiNHEt$, 5739*d*.
with 2-nitramino-$\Delta^2$-1,3-diazacycloalkenes, 4273*a*.
with tri-Et orthoformate, 5757*g*.
reaction of secondary and tertiary, with pyrocatechol and belladonna oxidase, 3863*g*.
reaction of secondary, with cyanoguanidines, P 2229*g*.
with 2,3-dibromo-2,3-dihydro- and 2-bromothianaphthene1,1-dioxides, 8379*c*
with Grignard reagents, P 5801*c*.
reaction of tertiary 2-chloroethyl, kinetics and mechanism of, 6158*d*.
reaction of tertiary, with acid chloride, fatty acid nitrile and paraformaldehyde, water repellents by, P 3628*f*
with benzhydryl 2-haloethyl ethers, P 2641*b*.
with I and Ag salts, 5689*h*.
reaction of vinyl derivs. of primary aromatic with $COCl_2$, P 5422*f*.
reaction products of aliphatic or heterocyclic tertiary, with halomethyl compds., for textile treatment, P 4488*i*.
reaction products of alkyl halides with tertiary, as polyelectrolytes, 1626*c*.
reaction products of aromatic with CO, P 5639*g*.
reaction products with poly(hydroxymethyl)melamines, P 9537*g*.
reaction products with trimeric phosphonitrile chloride and with diphenyltetrachlorotriphosphonitrile, 5364*g*.
reaction with 2'-acetamido-4-biphenylsulfonyl chloride and with 2'-nitro-4-biphenylsulfonyl chloride, P 4297*g*.
with acrylonitrile, 7411*d*.
with acyl chlorides and with quaternary N compds., 4240*g*.
with aldehydeketone mixts., 4-piperidones by, 1409*i*.
with aldehydes and sulfamides, 2573*c*.
with aldehydes and urea or related compds., 1782*d*.
with aldehydes or ketones and hypophosphorous acid, 5377*h*.

*reaction* with 2-alkyl-1-aryl-3 cyanoguanidines or with 1-alkyl (or dialkyl)-3-aryl-2-thioureas, 2948*a*.
with 1-alkyl-3-(*p*-chlorophenylguanyl)-2-thioureas and with 1-alkyl-3-cyano - 2 - methyl - 2 - thiopseudoureas, 2949*d*.
with 1 - alkyl - 3 - chloropiperidines, 7019*g*.
with alkyl orthoformates and quaternary heterocyclic compds., P 2642*f*.
with amides and sulfonyl chlorides, 2595*d*.
with 2-amino-4-chloropyrimidines, P 4704*c*.
with aryl isocyanates, mechanism of, 7441*a*.
with *p*-benzenedisulfonyl chloride, 4237*d*.
with MeBr, 2338*c*.
with CO and Hg salts, 2111*b*.
with cellulose, 6061*a*.
with *N*-chloro amines or with *N*-chloro amides, 6570*c*.
with 1-(*p*-chlorophenyl)-3-cyanoguanidine, P 6659*d*.
with 2- and 4-chloroquinoline, 4276*f*.
with derivs. of 1-nitro-3-nitrosoguanidine, 9035*d*.
with dicyanamide salts, P 2636*a*.
with diketene, P 4289*b*.
with 9,10-epoxy-1-octadecanol and with *θ*,*υ*-epoxystearic acid, P 2224*g*.
with esters, 2926*e*, P 4289*a*.
with $C_2H_4$ and $Hg(OAc)_2$, 7449*c*.
with H and aldehydes or ketones, P 5412*a*.
with hydroxy nitro anthraquinones, P 9468*a*.
with 3-hydroxyphthalimidine, 623*h*.
with ketoxime sulfonates, 2593*g*.
with maleic anhydride copolymers, 8202*i*.
with maleic anhydride polymers with Me methacrylate, 8202*b*.
with nitriles, P 3456*e*, P 8398*g*.
with $HNO_3$, 596*d*.
with propylene oxide, kinetics of, 926*d*.
with pyridinium and quinolinium compds., 645*c*.
with 2,4-pyrimidinedithiols, 8394*g*.
with 4(3 *H*)-quinazolone, 3424*dh*.
with quinoline derivs., 8386*f*.
with $SiS_2$ and with anhydrides of carboxylic and silicic acids, 4630*i*.
with Na vanadate, catalysis by oxalate ion, 4549*a*.
with S and ketones and thiols, 2187*h*.
with S and unsatd. compds., P 2233*c*.
with thiophosphoric anil anilide dimer and with thiophosphoramides, 3353*b*.
with tris(halomethyl)phthalocyanines, P 8172*h*.
with urea derivs., P 6660*d*.
with violuric acid, 7938*c*.
removal from fluids, cation-exchange resins for, P 5238*f*.
resinous products from, for bonding fiberglass fabric to phenolic resins, P 8208*i*.
resinous products from lignin and, 5630*b*.
restricted rotation in aromatic, 1342*h*, 1734*i*, 1735*d*, 7918*i*.
rocket propellants from nitric acid and alkyl-substituted mononuclear aromatic, P 6811*c*.
rosin, and its acetate, 9378*i*.
salts, from boric acid complexes of carbohydrates or sugar alcs., P 1800*d*.
as emulsifiers in polymerization of butadiene with Me isopropenyl ketone, 5987*i*.
of fatty acids, mixts. with brines, P 5519*c*.
as fungicides and bactericides, P 6357*g*.
polymer emulsions with, breaking with nitrites, P 5232*d*.
with reaction products of P sulfides with chlorinated paraffins, P 666*e*.
reaction with 9-acridyl ethers, P 698*e*.
as vulcanization activators for alum-coagulated butadiene-styrene rubbers, P 8194*f*.
salts of primary, with diesters of $SP(OH)_3$, P 665*f*.
reaction products with amides and paraformaldehyde, P 1434*e*.
reaction with amide-HCHO reaction products, textile assistants by, P 5218*b*.
salts of tertiary, solns. of CuCl, HCl and, in extn. of $C_2H_2$ from hydrocarbon mixts., P 1432*h*.
selenium (glassy) metallization in, 459*e*.
allyl derivs., 1005*g*.
soap-micelle penetration by, 21*a*.
soaps, in rubber dispersion, P 2463*b*.
sodium phenobarbital decompn. in solns. of, 9375*d*.
soly. in water, heteroatom polarizability and, 3671*i*.
solubilization with Na secondary alkyl sulfates, 466*a*.
stabilization of alkaryl, P 6231*c*.
stabilization of aromatic, P 251*e*, P 5799*f*, P 7047*d*.
stabilizers for alc. motor fuel, P 4446*f*.
stereochemistry of, and their derivs., 3422*cf*.
stereochemistry of, in replacement reactions, 2967*a*.
sterically hindered, as catalysts in HCN reaction with alkylene oxides, P 1435*a*.
strength of, 470*f*.
styrene-polymerization inhibition by aromatic, 8736*e*.
substitution of aromatic primary amino group by H in aliphatic-aromatic di-, 9046*h*.
sugar derivs. of secondary, 7906*b*.
sulfites (acid), compds. with aldehydes and with ketones, 3355*f*, 3356*a*.
sulfolanyl, P 3851*a*.
sulfonation of aromatic, 3803*e*.
sulfones of, 6179*i*.
sulfur derivs. of, 3395*a*, 6184*a*.
sulfur dioxide and $SO_3$ compds. with *N*-oxides of trialkyl, 2574*f*.
sympathomimetic—see *Sympathomimetic substances*.
systems with allyl and Ph isothiocyanates, 6170*i*.
systems with $HCO_2H$, 6066*b*.
*o*-terphenyl, 4656*b*.
tertiary, 2165*i*.
theophylline soly. in solns. of, 8611*a*.
thermochor of, 8226*e*.
thiocyanates, 578*f*.
thiomercury derivs. of, P 6648*c*.
trialkyl, as discoloration inhibitors in fuels contg. aromatic amine antiknock agents, P 4003*d*.
trichloroethylidene, as insecticides, P 5154*a*.
*N*-trihaloalkylidene derivs., P 7499*c*.
tuberculostatic, 6282*c*, 7545*a*.
tumors in industry of, 8073*h*.
tumors of bladder from aromatic, 9297*h*.
vasopressor, salts of sulfanilamides and, P 9389*g*.
vulcanization acceleration with trialkyl, P 5626*g*.
vulcanization of Et polyacrylate with aliphatic, 3648*e*.
in vulcanization of halogenated vinyl resins, P 901*i*.
wood swelling in, H bonding and, 8763*c*.

**Amino acid anhydrides.** *α*—see "derivs." under *2,5-Piperasinedione*.

**Amino acid deaminase**, adenylic acid and biotin in, 706*a*.

**Amino acid decarboxylases**, from bacteria, 3065*d*.
in hypertensin, 302*e*.
mechanism of action of, 9106*i*.

**D-Amino acid dehydrogenases**, in kidneys of rats with Guérin epithelioma, 1477*h*.

**L-Amino acid dehydrogenases**, in kidneys of rat with Guérin epithelioma, and effect of vitamin $B_2$ thereon, 1477*i*.

**Amino acid oxidases.** (See also *Ophioamino acid oxidase*.)
of *Clostridium sporogenes* and *Clostridium saccharobutyricum*, action in presence of O, 8430*g*.
of decarboxylating bacteria, 6281*d*.
effect of arsenate and phosphate on, 7530*i*.
review on, 9122*i*.

**D-Amino acid oxidases**, action on (*o*-hydroxyphenyl)alanine, 9103*e*.
in livers of rats on protein-free diet, 2297*h*.

**L-Amino acid oxidases**, action on (*o*-hydroxyphenyl)alanine, 9103*e*.

**Amino acids.** (See also "amino" under *Sulfonic acids*.) 137*g*, 1323*c*.
absorption by kidneys, liver and muscle, 5845*b*.
absorption rom blood by mammary glands, 8040*b*.
acetylated dehydro-, 3857*a*.
in actin, 9095*g*.
*N*-acyl derivs., esters, P 3030*a*.
adsorption of, 7066*b*.
adsorption of, by $BaSO_4$, 3687*a*.
in *Aedes aegypti* larval nutrition, 3940*g*
Agenized, effect on animals and human 3532*i*.
alkali metal salts, detergent, P 4877*i*.
amides of—see *Amides*.
analysis of, and analogous compds 8947*g*.
analysis of, and their decompn. produc for amino group and total N, 7867*i*.
analysis of mixts. of, 2650*i*, 2663*f*, 3871
analysis of peptide mixts. with, effect salt on, 266*c*.
in animal proteins, 7525*f*.
antagonism and synergism between growth of *Tetrahymena*, 9164*e*.
antagonism of, in pathology, 8516*i*.
antagonists, effect on respiration *Escherichia coli*, 6274*i*.
antiallergic action of, 6730*e*.
antianaphylactic action of irradiated 308*dg*.
antibacterial activity of, 3879*g*.
antibiotic effect of D-, 9145*g*.
assimilation by bacteria, 4329*d*.
by *Escherschia coli* mutants, 9148
by yeast, 1825*i*, 9157*g*, 9160*f*.
bacterial-growth-response induced 7086*g*.
bacterial lysis by, 715*fg*.
in bacteriophage, 3877*g*.
of barley, oats and wheat, 5450*f*.
of Bence-Jones protein, 7066*d*.
beta-, 3793*a*.
in blood, anterior pituitary lobe and 4355*e*.
in trinitrotoluene poisoning 8060*d*
in tuberculosis, 1482*a*
in various feeding studies, 5834*d*
in blood, carcass, heart, kidney, liver muscle and skin, 7061*d*
in blood coagulation, 3933*h*
in blood plasma, effect of fasting and deprivation on, 4740*g*.
in blood plasma, effect of growth and adrenocorticotropic hormones on, 3084*f*.
in blood serum (*Brucella*-immune and normal), 9228*d*.
books. Outline of the, and Proteins, 1075*a*, Gli, in biologia e in terapia, 3054*c*, Chemische en enzymatische bepalingen van aminozuren, 4735
in brain, 1099*c*.
*N*-carbamyl—see "ureido derivs." under *Acids*.
in carcinogenesis (epidermal), 8018*h*
in cauliflower, Mn and Mo in relation to, 7552*c*.
cerebrospinal-fluid aromatic, in normal and pathological conditions and their detn., 5110*h*.
in champagne, 7636*g*.
as chelation agents, 2536*b*, 8049*b*
in chicken meat, 1497*e*
chick requirements for, and amt in corn and feed, 8469*h*.
in Chinese tallow nut proteins, 784*h*
in *Chlorella*, 8456*i*.
of cholera vibrios, 9147*g*
chromatography of, 137*i*, 2266*g*, 2267 2659*e*, 3057*c*, 3746*c*, 5336*e*, 5411*b*, 5758*d*, 5818*c*, 7377*e*, 7906*a*, 8299*ab*, 8777*f*, 8806*h*, 8807*a*.
chromatography of dicarboxyli from plants, 3746*e*.
chromatography of dinitrophenyl of, 138*a*, 7379*a*.
chromatography of *N*-methy deriv 3788*g*.
*Clostridium sporogenes* requirements for, 7083*e*.
in clupeine and salmine, 5431*h*.
coal-tar dyes and, 7136*a*.
in collagen, 3861*i*.
collagen and hide basic and dicarboxylic and their detn., and effect of depilation, 7734*d*.
collagen and hide layerwise distribution of basic and dicarboxylic, and their detn., 7734*h*.
of colostrum and milk, 7598*a*.
compds. with adenine and nucleic enzymic synthesis of, 8410*g*
compds. with Co and O, 7856*e*.
concn. by diaphragm, 9120*a*.
condensation products of, with methy melamine for bleaching and filli leather, P 5618*f*.
conjugated, of blood plasma, 6741*b*.
and conjugates in blood after absorption of proteins, 8505*cd*.
copper complexes of, absorption spectra of, 6250*e*.
in corn, nutritional value and, 917*

of *Corynebacterium diphtheriae*, 8001*e*.
in *Corynebacterium* (phytopathogenic) growth, 8081*d*.
cyanogen-compd. formation from, in chloramine-T poisoning, 5114*h*.
cytochem. reactions for, action of nucleases on, 255*h*.
deamination and alc. fermentation of, 7541*f*.
deamination of, catalase activation by products of, 4309*b*.
deficiency, incorporation of amino acids into animal-tissue proteins in, 734*h*.
degradation of α-, to aldehydes with *peri*-naphthindan-2,3,4-trione hydrate and detn., 7378*h*.
dehydrogenation of, effect of isatins on, 215*b*.
*N*-derivs., 6979*d*.
derivs., polycondensation of, 575*b*.
detection of, 9138*g*.
in blood plasma, 8429*c*.
in fatty acid chloride-peptide condensation products, 3217*i*.
in saliva, 1076*b*.
in tissue exts. and hydrolyzed proteins, 4314*a*.
detn. of—see also *Nitrogen, analysis*.
detn. of, 3875*g*, 4326*i*, 5341*g*, 5440*f*, 7069*d*, 9137*i*.
app. for, 4055*h*.
in blood and urine, 265*a*.
in blood serum, 3871*f*.
by retention analysis, 2660*c*.
in tissue, 6685*b*, 8427*d*.
in diet, interaction with tissue proteins, 9187*c*.
dihydropyrazine and piperazine derivs., 3790*a*.
dipeptide synthesis from, by pancreatic juice, 7988*i*.
in diphtheria toxin and toxoid, 4760*h*.
dipolar ion form of, effect of change to cation and anion form on spectrum of, 4574*b*
in *Drosophila* tissue and chromosomes, 7152*a*.
effect on adrenal enlargement, nephrosclerosis and hypertension from anterior-pituitary prepns., 2085*f*.
on antibiotic action, 3879*b*.
on antibiotic action of Furacin, 8000*i*
on body wt. during growth, 6295*i*.
on *Datura*-embryo growth, 2280*b*.
on electrocapillary action of drugs, 7196*h*.
on endocrine and physiol. systems, 4737*h*
on flavor of Cheddar cheese, 9284*d*.
on free alanine and pyruvate in blood, 1860*i*, 4354*e*.
on growth, 1843*e*.
on growth and nicotinic acid storage, 3075*d*.
in hypoglycemia, 6313*e*.
on kidney phosphatase, 5053*d*.
on lactic acid bacteria, 4331*g*.
on nutritive value of wheat, 9186*b*.
on oxidative activity of cataractous cryst. lens, 8044*g*.
on oxytocin inactivation by kidney hypertensinase exts., 2260*g*.
on phosphatase activity of milk, 9279*i*
on plants, 7553*c*.
on pptn. of sulfides, mercaptides and xanthogenates, 9090*f*.
on thiourea action on fungi, 9152*c*.
on tobacco seedlings, 7551*e*.
on vasopressin inactivation by kidney hypertensinase, 2260*h*.
on virus, 3915*f*.
in elastomer-latex hydrogen-ion-concn. reduction, P 2463*c*.
entropies, heat contents, heats of diln. and structure of aq., 6070*b*.
in erythrocytes of chickens, 744*b*.
esterification of acylated α-, 1323*f*.
esters of, P 5422*d*.
with cellulose, P 3616*h*.
effect on glycolysis in brain, 7520*d*.
hydrogenation of, 572*g*, 573*h*.
with hydroxy acids, for use as local anesthetics, P 1913*h*.
prepn and condensation of higher alkyl, 4640*i*.
prepn. from hydrochlorides, 7425*h*.
reduction of, 1723*a*, 2582*a*.
ethylamine 2-derivs. (attempted) from α-, 6978*d*.
excretion of, 1852*h*.
in feces and urine, effect of fat in diet on, 7559*i*.
in fermentation, prevention of decrease during, 4807*g*.
of fibrosarcoma and its normal homologous tissue, 5856*e*.
in fishery products, 3115*d*.
fluorescent substances from, 708*g*.
food consumption after administration of, 6710*e*.
in foods, 1493*d*, 2297*a*, 3534*e*, 7602*b*.
formation of dicarboxylic, in blood, from $CO_2$, 8499*e*.
formation of, from acetate and bicarbonate, 8027*g*.
from $NH_3$ and keto acids by bacteria, 5084*b*, 7546*i*.
from autoclaved soybean meal by enzyme, effect of soybean trypsin inhibitor on, 7981*b*.
from casein by bacterial degradation, 3533*h*.
from esters of β-isonitroso acids, 1723*g*.
in green plants, 1462*i*.
from raw and heated casein by acid and enzyme hydrolysis, 1819*b*.
in rumen, 8474*i*.
from soybeans, effect of heating on, 5058*f*.
in *Torula utilis* on nitrate nutrition, 8003*c*.
gladiolic acid inactivation by, 3058*i*.
glycine detection in mixt. of, 4978*b*.
glycogenesis in relation to, as influenced by adrenalectomy and adrenal replacement, 8544*a*.
in glycoprotein characterization, 7062*h*.
growth efficiency of, alone and in combination with casein, 1468*f*.
growth-limiting, of legume seeds, 9186*f*.
in hemolymph of dragon-fly nymph, 3114*c*.
*Hemophilus parainfluensae* requirements for, 9156*b*.
histidine decarboxylase inhibition by, 9107*a*.
human requirements for, 7561*c*.
hydroxy derivs., P 2224*f*.
β-hydroxy-α-, detection of, 2124*c*.
hyperthyroidism treatment with, 2705*a*.
identification of, and m.ps. and optical crystallographic data for their nitroindandionates, 69*g*.
inactivation by autoclaving, 6676*e*.
indispensable, review on, 287*e*.
inhibition of phosphatases of bone, intestine, and osteogenic sarcoma by, effect of Mg and Co on, 6743*d*.
in insect metamorphosis, 9270*h*.
iodine-contg., in gorgonins, 7983*d*.
in Japanese beetle during metamorphosis, 774*b*.
in keratin medulla and cortex, 2689*h*.
in kidney-bean stems, effect of 2,4-D on, 4735*c*.
in lactogenic hormone of pituitary, 5474*d*.
in lactoglobulin and serum albumin, 5812*i*
of *Lathyrus sativus* seeds, 1449*e*.
in legumes, soil fertility and, 341*i*.
linkage in protein mols., 3789*b*.
in liver, diet and, 5095*h*, 7562*g*.
in lupine and soybean seeds and sprouts, 1080*e*.
lysis by, effect of bacterial no. and amts. of peptones on, 715*e*.
of lysozyme, 5063*c*.
in malignancy, 2307*b*.
manuf. of, P 2225*c*, P 3841*c*, P 6654*c*, P 6683*c*.
and derivs., P 6653*c*.
from HCN from coke-oven gas, 7666*h*.
from lactams, P 2225*a*.
manuf. of, and their intermediates, P 7956*b*.
manuf. of β-, P 3449*i*, P 3841*d*.
melanoids from glucose and, 5255*e*.
β-mercapto-, 1401*h*.
reaction with acyl α-aminosuccinaldehydic acids, 7932*b*.
reaction with 2-benzyl-4-(methoxymethylene) - 5(4*H*) - oxazolone, 1768*h*.
mercapto groups in, detn. of, 4315*e*.
metabolism of, 6712*f*, 9205*d*.
after adrenalectomy and nephrectomy, 8493*e*.
by bacteria, effect of pantothenic acid on, 1826*i*.
by bacteria, effect of penicillin on, and its reversal by yeast ext., 9166*b*.
insulin in, 6712*d*.
in mutant strains of microörganisms, 7079*a*.
after nephrectomy, effect of pituitary growth hormone on, 8491*h*.
pyridoxine and, 5099*c*.
*metabolism of*, in tissue cells, 3862*e*.
in *Torulopsis utilis*, 5436*d*.
vitamin $B_2$ and, 3500*g*.
metabolism of aromatic, 9143*i*.
metabolism of aromatic, in premature infants, effect of pteroylglutamic acid on, 5096*c*.
in milk albumins, 7597*b*.
in milk, effect of heating on, 5876*h*.
in milk, effect of $H_2O_2$ treatment on, 3115*c*.
mixts. with glucose, dialysis of, 2486*i*.
of nephrosis-excreted proteins, 4370*f*.
nitrogen-balance index and sp. dynamic action in rats receiving mixts. of, 1468*b*.
nitrogen detn. contg. refractory N, 7540*d*.
nitrogen fixation by *Azotobacter* in presence of, 5522*i*.
as nitrogen source during growth, 7558*f*.
as nitrogen source for dogs, 5833*a*.
in nutrition, 290*f*, 5097*b*.
nutritive value of proteins and, 8465*c*.
in organs of swine, 7061*g*.
oxidation of, 6570*b*.
by lipoxidase, 6263*g*.
by plants, 728*h*, 2283*e*.
oxidation (secondary) by catechol oxidase of belladonna, 3863*d*.
as parenteral protein food, 1845*c*.
peptide-bound, utilization by lactic acid bacteria, 5079*f*.
*N*-phenylacetyl, and their esters, P 4697*i*, P 4698*d*.
phosphatase in blood serum in relation to essential, 6254*d*.
plant wilting by, 4643*e*.
in pollen collected by bees, 732*b*.
in pollen of sweet corn, 9177*i*.
polycarboxylic aliphatic, P 3449*e*.
polymerization of, 3787*c*.
polymers from diisocyanates or diurethans and, P 6867*a*.
polymers of, review on, 5996*e*.
pptn. of, with dibenzofuransulfonic acid, 5021*c*.
prepn. of, 1322*h*.
by Hofmann reaction with cyanoacetic esters, 2166*i*.
from hydantoins, 7903*e*.
ketones in azlactone, 7427*a*.
from malonamic acids and esters, 2166*f*.
prepn. of α-,γ-di-, 5005*d*.
pressor-amine formation from, by enzymes, 8061*a*.
in procollagen of ox, 8411*d*.
protein deposition in liver after administration of D-glucose mixt. with, 766*g*.
in protein digests and urine, 9099*a*.
pyridoxyl, 644*d*.
pyridoxyl and related, microbiological activity of, 723*a*.
in rat nutrition, 1091*d*.
reaction with dextrose, effect on growth of lactic acid bacteria, 8445*e*.
with *o*-diacetylbenzene, 1030*i*.
with HCHO, 1204*f*.
with mixed anhydrides of benzoic and phosphoric acids, 2188*f*.
with $HNO_2$, P 3841*a*.
with $HNO_2$ and effect of I thereon, 6268*i*, 6269*a*.
with oleoyl chloride, 5368*g*.
with sugars, 4501*g*.
with violuric acid, 7938*c*.
reaction with $NaClO_2$, deamination by NaClO and detn. of, and N detn. in, 2891*g*.
and related compds., 6577*g*.
removal from sugar-beet juices by ion exchange, 6442*g*.
reviews on, 702*i*, 4304*h*, 4710*b*, 9123*b*.
in royal jelly, 7149*e*.
of salmine, 7524*a*.
salts, in tyrothricin manuf., P 9390*d*.
salts of acid carbonates of, and of *N*-carboxy derivs., P 5415*b*.
and salts, theophylline soln. contg., P 9388*f*.
in scleroproteins, 4708*f*.
sepn. and detn. from protein hydrolyzates, 1817*i*.
sepn. of, P 2268*e*, P 3029*i*, 3531*h*, P 3868*b*, 4423*h*, 8806*h*, 8807*a*.
sepn. of isomers of, P 3029*h*.
of silk, 6420*i*.
in skin during growth, 3514*e*.
in skin proteins, 743*i*.
soly. of metal sulfides and mercaptides in solns. of, 4710*a*.
soln. of therapeutic, P 4430*f*.

in soybean meals from different strains, 3499*c*.
in soybean milk and curd, 8475*h*.
in soybeans, 3539*g*.
of soy globulin, effect of browning on, 3482*i*.
specific dynamic action of, and effect of vitamins and hormones thereon, 4353*d*.
spectra of, 7340*e*.
of sperm nucleus basic protein, 4387*i*.
in stabilization of solns. of polythionates and polythionic acids, P 7651*f*.
N-substituted, chromatographic identification of, 6209*b*.
in sugar-manuf. Steffens filtrate, 6446*b*.
sulfur-contg., detection of, 264*g*, 2665*i*
effect on growth inhibition by ethionine, 8477*d*.
in egg shells, 1450*i*.
hepatoprotective therapy with, 5861*d*.
liver injury and, 3080*f*.
requirement of infants for, 5834*a*.
requirement of *Tetrahymena geleii* for, 9272*d*.
requirement of turkey poults for, 5462*d*.
review on, 2582*d*.
in rumen bacteria of sheep, 5813*e*.
synthesis of, 4222*e*, 5742*e*, 6695*d*.
in tetanus toxin, 8520*g*.
in therapy of dogs, 7097*h*.
in thyroglobulin, 9121*g*.
in tobacco-mosaic virus, 7092*a*.
tolerance to, and metabolism of mixts. of, 5492*i*.
tolerance to, in children, 6724*e*.
treatment with, by intravenous injection or duodenal tube, 1087*a*.
tyrosinase action on homocatechol and pyrocatechol in presence of, 9105*f*.
unsatd., 574*a*.
in urine, 4364*c*
in alloxan diabetes, 8057*b*.
in controlled protein intake, 6714*a*.
in deficient diets, 8470*e*
after feeding protein hydrolyzates or amino acids, 7558*b*.
in hypophosphatemia glycosuric rickets with retinitis pigmentosa, 6713*d*.
in liver disease, 4364*c*.
protein content of diet and, 4351*c*.
in U poisoning, 7581*g*.
in Wilson's disease, 2308*c*.
vitamin K$_1$ effect on, 8027*d*.
whole-wheat proteins as source of, for chicks, 286*h*.
zein imbalance in, and effect of nicotinic acid thereon, 734*d*.

**Amino alcohols**. See *Alcohols*.

**Amino aldehydes** See *Aldehydes*.

**Aminoazobenzene**. See *Aniline, phenylazo-*.

**Aminobil**, hepatoprotective therapy with, 5861*d*.

**Amino compounds**. (See also *Amines; Nitrogen, analysis.*)
anesthetic, 9374*h*.
as catalysts for conversion of hydrosulfides to S compds., P 8664*e*.
condensation products of—see *Resinous products*.
copper, as fungicides and insecticides, P 2424*h*.
detn. of, 5819*b*.
detn. of, in pharmaceuticals, 4810*f*.
oxidation of, 6570*a*.
in pharmaceuticals as impurities, 1907*h*.
as plasticizers, 1212*h*.
rancid-odor inhibition in stored mixed alkylaryl sulfonates by aromatic, P 6845*a*.
textile finishing with complex, 7689*i*.

**Aminoform**. See *Hexamethyleneteramine*.

**Amino group**. (See also *Amide group; Amidogen; Amination.*)
in α-amylase, 260*d*.
antibiotic activity of streptomycin in relation to, 1829*c*.
base-strengthening effect of resonant, in heterocyclic bases, 6893*c*.
bond (intramol.) formation by, 4627*e*.
bond with C, free energy of, 3276*i*.
calcn. of free-energy function, heat content, heat and free energy of formation of, 5658*e*.
cross-linking over ε-, of lysine of glycoldialdehydes with collagen, 7736*a*.
detn. of, in amino acids, proteins and their decompn. products, 7867*f*.
in higher amines, 5341*f*.
by Van Slyke method, app. for, 6869*b*.
effect on color formation by org. reagents, 4174*f*.
*effect* on fungistatic activity of $C_6H_5$ derivs., 4803*h*.
on miscibility of liquids, 6817*b*.
hydrolysis of, in pyrimidine derivs., 8395*f*.
introduction into cellulose or viscose rayon, P 3208*a*.
isomorphous replaceability with Cl in $CaCl_2$ group, 7803*h*.
in peas (dried), effect of autoclaving on, 2338*e*.
phosphatase activity and, 1445*i*, 3478*b*.
reaction with $CS_2$, 2247*f*.
reaction with oleoyl chloride, 5368*h*.
removal of—see *Deamination*.
spectrum of, in flames, 5312*g*.
substitution of aromatic primary, by H in aliphatic-aromatic diamines, 9046*h*.
transfer of, in alanine formation by liver enzyme, 2252*i*.
from aspartic acid to glutamic acid in plants, 9172*e*.
in vitamin $B_6$ group, 2297*c*.

**Amino ketones**. See *Ketones*.

**Aminomethylation**, of thiophene and its derivs., 2201*e*, 1763*d*.

**Aminomethylene group**, test for compds. contg., 7013*g*.

**Aminomethyl group**, parachor of, 2057*f*.

**Amino oxidases**. See *Amine oxidases*.

**Aminopeptidases**, differentiation between D- and L-, 3856*b*
in organs, and its detn., 3856*a*
in skin of rats, 2654*d*.

**Aminophylline**. See "-ethylenediamine" under *Theophylline*.

**Aminoplasts**. See *Resinous products;* and "condensation products of" under *Urea;* etc.

**Aminopolypeptidases**. See *Aminopeptidases*.

**Aminopterin**. See *Glutamic acid, N-[p-[(2,4-diamino-6-pteridylmethyl)-amino]benzoyl]-*.

**Aminopyrine**. See *Pyramidone*.

**Aminosulfonic acid**. See *Sulfamic acid*.

**Ammano-hemin***, 702*e*.

**Ammelide** (*6-amino-2,4-s-triazinediol or 5,6-dihydro-6-imino-2,4(1H,3H-s-triazinedione*), melamine from, P 698*h*.

**Ammeline** (*4,6-diamino-2-s-triazinol or 3,4,5,6-tetrahydro-4,6-diimino-2(1H)-s-triazone*), condensation products with aldehydes, P 2436*f*.
condensation products with HCHO and $NH_3$, amines or urea for aftertreatment of dyed textiles, P 2786*i*.
condensation products with HCHO in stiffening caps for shoes, P 3242*a*
manuf. of, P 5809*i*.
melamine from, P 698*h*.
thiazolylmercaptomethyl derivs., P 2024*g*.

**Ammeline, thio-***, P 7851*c*.
ethers, P 1444*d*.

**———, trimethylol-***, aluminum deriv., P 2436*f*.

**Ammi**, oil of—see *Oils*.

**Ammidin**, 1910*e*.

**Ammines** or **Ammoniates**. (*Compounds containing coordinated ammonia are entered here, and, when significant elements are specified, under such headings as* Cobalt compounds *and* Platinum compounds. *Certain other types of ammonia compounds such as those held to contain ammonia of crystallization are also entered here. Coordinated compounds in which organic bases play similar rolls to ammonia are indexed under the headings for the specific bases, such as* Ethylenediamine, *instead of here.*)
of aluminum bromide, elec. cond. of solns. of, 8811*a*.
of aluminum chloride, Raman spectrum and structure of, 2095*f*.
of beryllium and Co polyhalides, 8298*a*.
in bitumen-adhesivity improvement for mineral aggregates, P 7662*a*.
cadmium, 5692*c*.
calcium, 7851*f*.
calcium chloride, reaction with 2-hydroxy-1-acetonaphthone, 6607*c*.
chromium and Co, explosive properties of, 5187*e*.
chromium, formation of $Cr(NH_3)_3(NO_3)_3$ from $Cr(NH_3)_3$, 6101*e*.
cobalt, chromatography of, 8295*b*.
detn. of $NH_3$ in hexammine and pentammine, 5701*g*.
in exchange and Szilard effects, 7364*c*.
exchange of di- and trivalent Co ions in, 6508*f*.
*cobalt*, with mol. O, 7856*e*.
polarography of, 2520*b*.
reduction by $H_2$ and H, 2854*h*.
in sulfate detn., 3316*b*.
thermochemistry of, 2855*b*, 7805*h*, 7806*e*.
unstable, 7364*b*.
cobalt $NH_4[CoC_2O_4(NO_2)_2(NH_3)_2]$, 2538*f*
copper, analysis for $NH_3$, Cu, etc., 2117*h*.
$[Cu(NH_3)_4](NO_3)_2$, 8222*e*.
formation of, 8295*i*.
for grape spraying, P 5152*d*.
complexes with glycosides and with related compds., 3368*d*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with α,β-unsatd carboxylic acids, 8202*g*.
reaction with naphthenic or oleic acid, P 5978*c*.
stability of solns. of, 1533*i*.
copper and Ni complexes of formazyl compds., 6589*g*.
drying or ignition temp. limits for $[Co(NH_3)_6]TiCl_6$, 63*h*.
of dysprosium, Er, Gd, Sm and Y, prepn. and thermal decompn of, 8301*a*.
formation of $[Co(NH_3)_6][InCl_6]$ and its use in detn of In, 8952*k*
of gallium Li nitride and LiMgN, 4170*d*
of hydrochloric acid and coordination with H ion, 8807*g*
with iodine, sensitiveness to impact and crit. hot-spot temps of $NI_3NH$, 4856*a*.
iridium sulfito, 1676*a*.
iron complexes with nioximes, 6932*c*
of magnesium cyanide, P 1537*f*.
manganese, polarography of, 4595*a*
manuf. of, P 1928*h*, P 3158*a*.
metal, formation in aq soln., 7857*d*
in metallurgy of precious metals, P 8311*f*
nickel, clathrate compds with org. compds, 5753*f*.
film formation on solns. of, 7776*e*
prepn. and decompn of $Ni(NH_3)_2$-$2NH_3$, 2536*a*.
palladium or Pt, spectra of isomers of, 4953*i*.
platinum, 1678*i*, 2537*i*
acidic properties of, 1673*e*.
crystal structure of $[Pt(NH_3)_3Cl]Cl_3 \cdot H_2O$, 7287*b*.
heat capacity of stereoisomers of $Pt(NH_3)_2Cl_2$, 29*i*.
magnetic susceptibility of, 7277*h*
reaction with $Na_2SO_3$, 1674*b*
soly. in aq. acetone, effect of $C_6H_6$ or, 6889*i*.
spectra of, 5664*h*
structure of $[Pt(NH_3)_4Cl_2]Cl_2$, 4535*i*
sulfito, 1675*c*.
rhodium, solubilities of $(NH_4)_2Na[Rh(NO_2)_6]$ and $[Rh(NH_3)_4(NO_2)_2]$, 6047*f*.
silver, as promoter for vinyl polymerization in emulsions, P 7261*h*.
stability of, 4969*c*.
stereochemistry of metal, 4170*i*
titanium thiocyanato, $K_3Ti(SCN)_6 \cdot 6NH_3$, 8938*f*.
of water, $2NH_3 \cdot H_2O$, 8221*a*

**Ammino compounds**. See *Ammines*.

**Ammi visnaga**, active principles of, 5512*i*
coronary vasodilator action of principles of, 5542*i*.

**Ammoidin**, 1910*e*.

**Ammonia**. (See also *Ammines; Ammonia, manufacture of; Ammonification; Ammonium hydroxide; Ammonium nitrate; Ammonium sulfate; Ammonolysis; Nitrogen, analysis.*)
absorption by $H_2SO_4$, 2841*f*.
by water, rate of, 3270*e*.
by zeolites, 4537*b*.
adsorption by $BaF_2$, 2485*b*.
by charcoal and graphite, 6036*h*
by charcoal, effect of O on, 2840*h*
by clays, 2070*b*.
by graphite, 1638*i*.
alkylation (reductive) of, 2155*g*.
amino acid synthesis from keto acids and, by bacteria, 5084*b*, 7546*i*.
in apples, protein metabolism and, 2677*e*
aromatic spirits of—see *Aromatic spirits of ammonia*.
assimilation of, by *Azotobacter*, effect of pH and inhibitors on, 8008*d*
for protein synthesis in animal organism, 9187*a*.

*assimilation of*, by yeast, 6278*d*.
in atm., 5308*c*.
base strength of, 7303*c*.
in blood plasma and erythrocytes after operations, 3095*a*.
in boiler-corrosion prevention, 4623*d*.
bond with Pt, magnetic susceptibility of, 7278*b*.
in brain, 2302*e*.
brass corrosion by, 2149*b*.
brass corrosion by, prevention by $H_2S$, 6401*h*.
brass in, delayed fracture of, 4048*i*.
as catalyst in calcination of limestone and magnesite, 8621*i*.
as catalyst in condensation of HCHO with PhOH, 8737*cef*.
of cerebrospinal fluid, 9235*g*.
coatings from esters or ethers of polysaccharides and, P 6003*g*.
compds. with $ClMe_2B$ and with $Me_3B$, 5690*a*.
compd. with 1,3,5-cyclohexanetriol, 6486*g*.
condensation products of, with dicyandiamide and HCHO for aftertreatment of dyed textiles, P 2786*i*.
condensation to hydrazine, elec.-discharge app. for, P 6096*g*.
condensation with $C_2H_2$, 3778*f*.
decompn. (catalytic) of, and reaction with Fe, 2744*e*.
decompn. of, on Cu and Pt, 8827*f*.
in elec. discharge, rate of, 6524*i*.
on Fe, kinetics of, 7312*h*.
detn. of, 3715*d*, 8308*a*
absorbed in $H_3BO_3$ in Kjeldahl detn. of N, 1280*i*.
in air, catalytic app. for, 8303*c*.
in $NH_4^+$ salts, 3315*e*.
in biol. fluids, 4310*c*.
in electroplating baths, 961*g*.
in hexammine and pentammine Co salts, 5701*g*.
in hydrocarbon oils, 2891*b*.
in Kjeldahl digestion of proteins, 4180*c*.
in plant nutrient solns., 7866*d*.
in sulfonated shale oils, 1171*h*.
in urine contg. protein, 4319*g*.
in water, ampul-kept Nessler reagent in, 6034*g*.
detn. of concn. of liquor contg., 7639*a*.
detn. of free, in cuprammonium solns., 2117*h*
deuterium partition between $H_2O$ and, 6978*b*
distn. app. for, P 5649*b*.
effect on activation of C from rice husks, 1834*g*
on adsorption of Cu and Ni by $Fe(OH)_3$, 2544*b*.
on blood, 1852*c*.
on decompn. rate of $CaCO_3$, 2078*d*.
on elec. cond. of Li, Na and Ag ions, 7301*g*, 8811*b*.
on HCHO reaction with PhOH, 5223*i*.
on formation of N fractions in *Torula utilis*, 7080*i*.
on hydantoic acid formation in surviving tissues, 7411*i*.
in photometric detn. of Ni, 8298*f*
in polarographic analysis of brass, 4181*h*.
on rubber latex pH and gelling by $Na_2SiF_6$, 5983*c*.
on spores of *Rhizopus nigricans*, 7999*d*
effusion at crit. velocities, mol. wt. and, 2056*a*
elec. cond. in alcs., 5655*h*.
in epidermis, 8495*g*.
excretion by tortoises and turtles, 9270*i*.
feed value of, 4737*i*.
as fertilizer, 342*b*, 797*a*, 2723*i*.
effect of anions on, 7174*b*.
for oats, 1890*h*.
for sugar cane, 9501*g*.
flame propagation and inflammability limits of mixts. of $N_2O$ and, 3618*g*.
forces between mols. of, and 2nd virial coeff. for $NH_3$, 5278*h*.
formation in products from detonation and equil. with gases from detonation of trinitrotoluene, 4014*i*.
formation of, by *Clostridium saccharobutyricum*, 3489*h*.
from cystine peptides and dehydropeptides in rat-liver digests, 1071*c*.
from $Fe_3N$ and H, 4169*d*.
by kidney slices of acidotic, alkalotic and normal rats, 8507*c*.
from NaCN, 8821*c*.
glutamic acid synthesis from α-ketoglutaric acid and, in tissue, 3911*c*.
heat content and thermodynamic properties of, 1231*g*.
heat of adsorption by active charcoal, 4939*d*.
histamine release by, 8495*f*.
hydrocyanic acid manuf. from, P 9396*h*.
hydrogen from, at high temp., P 3032*e*.
hydrogen-N bond in, dissocn. energy of first, 7797*i*.
labilization of trans-group in complex by, 2854*g*.
liniment, assay of, 358*e*.
liquid, acids and bases, in, 7854*a*.
acrylonitrile, methacrylonitrile and methyl methacrylate polymerization by Na in, 559*g*.
Al soln. in, 4960*h*.
$NH_4OH$ manuf. from, 5553*d*.
as antifreeze agent in polymerization of butadiene with styrene, 8728*c*.
α-chlorostilbene dehydrochlorination of, 1755*d*.
$B_2H_6$ solns. in, 8241*h*.
elec. cond. and ionization of salts in, 6802*b*.
elec. cond. of halide ions in, 7301*f*
elec. cond. of $KO_3$ in, 4170*a*.
elec. cond. of Na in, 4065*i*, 8780*i*.
electrolysis of solns. of *m*-dinitrobenzene in, 8008*h*.
electrolytic reduction in, 2521*g*.
heat of soln. in HCl, 8836*i*.
hemochromogens and related compds. in, 702*d*.
lignin reaction with Na in, 3609*i*, 5589*h*.
metals from salt reduction in, as catalysts, 2536*a*.
metal solns. in, 2500*c*.
modified with solvents in sepg. constituents of hydrocarbon oils, P 3191*i*, P 3192*cde*.
nitrile hydrogenation in, P 6652*h*.
polarography in, 1270*i*.
$KNH_2$ reaction with benzhydrylamine and its derivs. in, 2981*b*.
$KNH_2$ reaction with $K_2Ti(SCN)_6$ in, 8938*e*.
reaction with *N*-(acylmethyl) derivs. of $PhCHBrCONH_2$, 7487*g*
reaction with chloro(2-chloroethyl)diethylsilane, 561*i*.
reaction with $CrO_3$ compds. with heterocyclic N bases, 2534*d*.
reaction with cyanohydrins, 3409*e*.
reducing action of Na in, on org. Sn compds., 4632*d*.
retardation of heat-induced strength loss in cotton yarns by, 1570*c*
Na oxidation in, 6533*h*.
Na solns. in, effect of temp. on resistance of, 4066*g*.
solubilities of glycine, leucine and tyrosine in, 4081*i*.
styrene polymerization in, 5754*d*
viscosity of, 6024*c*, 8813*e*.
lubricant unctuosity and pressure of, 7675*e*.
microwave absorption by, 495*f*, 5308*b*, 6022*c*.
microwave spectrum of, 8274*i*
broadening of, 3716*g*, 7339*e*, 8884*b*
Zeeman effect in, 1658*f*.
mixt. with $AlBr_3$, elec. cond. of, 8811*a*
with A, reactions in, 6022*f*.
with MeOH and $H_2O$, knock-limited performance of, 840*e*.
in muscle at subsidence of rigor mortis, 7124*i*.
nitrification of—see *Nitrification*.
nitriles from, and olefins, P 7498*d*.
as nitrogen source for *Polytoma*, 1835*e*.
oxidation of—see also *Nitric acid; Nitrogen oxides*.
oxidation of, P 5160*i*, 9393*i*.
catalysts in, 8074*c*.
in fluidized beds, heat removal in, P 6478*c*.
by hypochlorite, seaweed soln. in, P 7652*b*.
to nitrites by mycobacteria, 8437*a*.
review on, 1536*c*.
in perspiration, 8481*h*.
in petroleum-product solidification, 6398*i*.
physiol. action of, 7577*a*.
in placenta, 3086*g*.
in plants, accumulation and disappearance of, 1463*a*.
in plant tissue, source of, 5455*f*.
in producer gas and its detn., 4833*c*.
reaction of, $AcCH_2CO_2Et$ and $PhCH_2CHO$, 4671*f*.
reaction products with diphenyltetrachlorotriphosphonitrile and its derivs., 5365*a*.
reaction with acrylonitrile, P 1052*f*.
with air and $CH_4$, 9391*g*.
with alcs., P 7953*c*.
with alcs. or aldehydes, P 5426*i*.
with aldehydes, P 1433*g*, P 5427*a*.
with aldehydes and sulfamides, 2573*c*.
with aldehydes and urea or related compds., 1782*d*.
with $NH_4SCN$ and $NH_4NO_3$, P 5416*c*.
with aromatic hydrocarbons to give nitriles, P 3439*be*.
with 3-bromophthalide and derivs., 3806*b*.
with CO, P 1926*b*.
with CO, $CO_2$, COS, and $CS_2$, 2946*d*.
with $ClCH{:}CHHgCl$, 560*c*.
with cyclic hydrocarbons to give nitriles, P 4285*gi*
with cycloalkanes to give nitriles, P 3439*c*.
with dialkyldichlorosilanes, 1315*h*.
with dichloroacetamide, 3781*i*.
with 9,10-epoxy-1-octadecanol and with 9,10-epoxystearic acid, P 2224*g*.
with esters, P 4289*a*.
with fatty acids, P 666*f*, 4629*f*.
with formaldehyde, 1310*d*.
with 1,5-hexadien-3-one and its derivs., 2958*h*.
with HCl, periodic ppts. from, 7788*g*.
with H and aldehydes or ketones, P 5412*a*.
with $H_2Se$, equil. in, 6053*a*.
with HOCl or HOCN, kinetics of, 6896*e*.
with ketoxime sulfonates, 2593*g*.
with MeOH, P 3440*g*.
with Me oleate and with oleoyl chloride, 8353*f*.
with nitriles, P 3456*e*.
with *o*-nitrobenzenesulfenyl selenocyanate alone and in the presence of MeOH, 8366*h*.
with olefins to give nitriles, P 3439*c*.
with paraffins to give nitriles, P 3439*d*.
with phenols, P 5799*e*.
with polyfluoroethylenes, P 1444*f*.
with propylene oxide, kinetics of, 926*e*.
with 2,4-pyrimidinedithiols, 8394*g*.
with NaClO, 9395*a*.
with sugar acetates, 5747*g*.
with S and unsatd. compds., P 2233*c*.
recovery of, from hydrocarbon mixt., P 5160*h*.
from nickeliferous ore tailings, P 2919*h*.
from petroleum waste waters, 2718*b*.
in soda ash production, P 6375*d*.
removal from fluids, cation-exchange resins for, P 5238*f*.
review on anhydrous, 367*f*.
separation (chromatographic) from methylamines, 121*i*.
as sintering atm., effect on soft Fe, 2142*e*.
soil, loss from $(NH_4)_2SO_4$, 1512*b*.
solns. contg. $CuCl_2$ or $Cu(NO_3)_2$ and, elec. cond. of, 19*b*.
spectrum of, 491*a*.
state of, in aq. solns., 6891*h*.
in sulfur removal from coke or coal, 9414*c*.
synthesis of, catalysts for—see *Ammonia, manufacture of*.
system: $CO_2$–$H_2S$–$H_2O$–, 6048*d*.
system: Na–NaI–, 8253*b*.
systems with alcs., 5657*g*.
in tobacco leaves, effect of position on stalk and topping on, 1080*f*.
toxicology of, 5513*h*.
in urine, 7070*i*.
in cardiac decompensation, 4758*c*.
on high mountains, 3504*f*.
in parturition, 7119*i*.
in pregnancy, 1848*c*.
of newborn infants, 2294*b*.
vapor d. over boiling $NH_3$ liquor, 2480*g*.
in water (circulating), and its removal, 6343*d*.
in water purification—see *Water, purification of*.

**Ammonia, manufacture of.** (See also *Ammoniacal liquor; Ammonium chloride; Ammonium nitrate; Ammonium sulfate; Coking; Nitrogen fixation.*)
carbon monoxide removal in, 1534*e*.
cost, of, and end-use pattern, 7199*h*.
from distn. products, P 380*g*, 1945*i*, 3174*a*, P 4450*c*.
costs of, 3995*b*.
recovery and utilization of, 5923*i*.
of shale, 8646*g*.

*from distn. products*, spray scrubbers in, 8119*h*.
yield from U. S. coal carbonization, 8640*a*.
from hydrogenation of coal, 5171*c*.
hydrogen manuf for, P 4836*g*.
from molasses pyrolysis, 9422*f*.
review on, 1536*c*
synthesis, adsorption of vapors by catalysts for, 7288*e*.
gas for, 7651*a*.
over Mg-Ni mixt., P 1536*i*.
recovery of waste catalyst from, P 7204*c*.
reformed natural gas for, 3594*f*.
in United States, 6372*i*.

**Ammoniacal liquor.** (See also *Ammonia, manufacture of; Gas liquor.*)
phenol recovery from, P 381*a*, 1948*g*.
sepn. from tar, sump for, 5926*i*.

**Ammonia-soda process.** See *Sodium carbonates*.

**Ammoniates.** See *Ammines*.

**Ammoniation.** See *Ammonia*.

**Ammonification**, of calcium cyanamide, 797*b*.
in green-manure decompn., tannins and, 9323*e*.

**Ammonites** (*explosives*). See *Explosives*.

**Ammonium**, absorption by humic acid and soil, 7618*c*.
adsorption (exchange) of, by soils, thermodynamics of, 7021*b*.
in aqueous solns., 6892*a*.
cation-exchanger dynamic activity toward, 3268*f*.
detection of, 4978*b*.
detn. of, 4599*a*.
detn. of, in Ni-plating baths, 4148*f*.
deuterium distribution between $H_2O$ and, 6078*b*.
effect on kidney phosphatase, 5053*d*.
on *Mycobacterium smegmatis*, 5444*c*.
on K requirement of lactic acid bacteria, 1828*g*.
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on suspensions of clays, 4538*e*
exchange with phenolsulfonate resin, 8792*b*.
glass-electrode reaction with, 3728*b*.
ionization as acid, 7303*b*.
ion of, 8807*h*.
in irrigation water, and its detn., 3951*d*.
magnetic susceptibility of, 5651*f*.
in phosphate transfer from phospho pyruvic acid to adenylic system, 6281*f*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with $\alpha,\beta$-unsatd. carboxylic acids, 8202*f*.
soil adsorbed, 5891*f*.

**Ammonium acetate**, compd. with bis(2-chlorovinyl)lead diacetate, 1717*a*.
effect on autodisplacement of Pb, 8812*b*.
as freezing-point depressant in $NH_4NO_3$-urea fuel mixt., P 1552*b*.
mixt. with $HNO_3$, spectrum of, 8273*g*.
reaction with rare earth nitrates, 4969*e*.
reaction with stearamide and paraformaldehyde, softening agent by, P 5218*c*.
soil-Fe soly. in, 1133*c*.
soln. of AcOCu and, used in extn. of 1,3-butadiene, purification of, P 4682*c*.

**Ammonium alcoholates**, ammonia cond. in alcs. and, 5655*i*.

**Ammonium alum.** See *Alums*.

**Ammonium aluminum bromide**, in fused state, 1232*i*.

**Ammonium aluminum fluoride.** See *Ammonium fluoaluminates*.

**Ammonium aluminum sulfate**, 4173*a*.

**Ammonium amidosulfonate.** See *Ammonium sulfamate*.

**Ammonium arsenate**, $NH_4H_2AsO_4$, piezoelec. crystals of, P 369*b*.

**Ammonium bromide.** (See also *Ammonium halides.*)
elasticity of, 8787*c*.
Faraday effect and magnetooptic anomaly of, 5251*e*.
fire-retardant compns. from, P 1126*h*.
folic acid prepn. contg., 355*h*.
in mistura nervina, 816*g*.
nuclear magnetism in studies of mol. structure and rotations in, 1653*e*.
Raman spectrum of, 4956*g*.
reaction with $SrSO_4$, 9303*d*.
spectrum and rotational structure of, 2866*a*.
systems: KBr–, and KCl–, 4074*a*.

**Ammonium bromoargentate(I)**, $(NH_4)_2[AgBr_3]$, 4971*b*.

**Ammonium cadmium chloride**, crystal structure of, 1623*a*.

**Ammonium calcium nitrate**, 1637*i*.

**Ammonium carbonates.**
$NH_4HCO_3$, stability of, 4812*d*.
system: $Na_2SO_4$–$H_2O$–, 1917*hi*, 1918*f*.
$(NH_4)_2CO_3$, in citric acid fermentation, P 7638*c*.
effect on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489*d*.
reaction with ethylenediamine or ethylene glycol or ethylene oxide, P 691*i*.
reaction with $PbCl_2$, 1917*g*.

**Ammonium chloride.** (See also *Ammonium halides.*)
absorption by barley seedlings, 7555*a*.
acidosis from, alkali therapy of, 1869*h*.
in agar-agar gels during syneresis, 8793*f*.
analysis of, for $NH_3$ and $H_3PO_4$, 3315*f*.
calcium sulfate soly. in solns. of, 6889*f*.
catalyst contg., in hydrogenation of coal, 5171*b*.
as catalyst in ethanolysis of palm oil, 7723*i*.
catalyst of $Al_2(SO_4)_3$, CuCl and, in dimerization of $C_2H_2$, P 7951*a*.
catalysts of CuCl, HCl and, in monovinylacetylene prepn., 1598*e*.
catalysts of $Cu_2Cl_2$ and, and of $Cu_2Cl_2$, HCl and, in vinylacetylene manuf., 3225*cd*.
as complex compd., 8220*i*.
complex with Ca petroleum sulfonate and corrosion-preventing lubricant contg. it, P 5584*e*.
compds. with alcs., 8807*g*.
condensation with dicyandiamide-HCHO condensation product and HCHO, P 4880*c*.
copper(I) chloride soly. in solns. of, 3307*d*.
crystn. of, effect of anions on, 2483*c*.
detonation of mixts. of nitroglycerin and, 1567*f*.
effect on glazes, 3986*i*.
on hydrogenation of crotonic acid or Na cinnamate over Pd, 4551*d*.
on Fe excretion in urine, 8556*i*.
on polarography of sucrose, 9499*e*.
on renal excretion of chloroquine, quinacrine and santoquine, 7587*f*.
on salicylate in blood plasma, 6311*c*.
on Na in urine, 4373*c*.
on $NaNO_3$ crystals, 6028*a*.
on stomach lining and skin, 3106*c*.
on sugar beets, 6350*i*.
elasticity of, 8787*c*.
in explosive proofing against firedamp, 3200*b*.
Faraday effect and magnetooptic anomaly of, 5251*e*.
folic acid prepn. contg., 355*h*.
formation by volcanoes at Nyamuragira and Tshambene, Belgian Congo, 5349*a*, 8992*e*.
incompatibility with phenolphthalein, 817*b*.
magnesia soly. in, effect of calcination on, 1924*f*.
manuf. of, P 2381*e*, P 8623*h*.
mixt. with $NH_4NO_3$ and $LiNO_3$, polarography in fused, 5314*i*.
mixt. with $CuCl_2$ solns., refractive index of, 6049*f*.
neutron scattering by, at transformation temp., 5286*h*.
2,2′,2″-nitrilotriethanol-HCl as substitute for, 8615*h*.
nuclear magnetism in studies of mol. structure and rotations in, 1653*e*.
in oat nutrition, 7174*b*.
parachors of, 8241*h*.
periodic ppts. of, from $NH_3$ and HCl, 7788*g*.
Raman spectrum of, 4955*g*.
reaction with $Al_2O_3$, 3694*b*.
with $BaSO_4$ or $SrSO_4$, 9303*d*.
with $BrF_3$, 3739*f*.
with $CCl_4$, 557*f*.
with HCHO and thiophenes, 1763*e*, 2201*f*.
with MgO, 1918*i*, 1919*abcde*.
in silver mirrors, 2387*g*.
smokes of, aging of, 6039*c*.
soly. in multicomponent systems, calcn. of, 2844*h*.
spectrum and rotational structure of, 2866*a*.
sublimed crystals from combustion gases from coal beds of Mongolian S.S.R., 6116*i*.
system: $NH_4I$–$H_2O$–, 1253*b*.
system: $FeCl_3$–$H_2O$–, 6902*d*.
thermal cond. of aq., 5655*i*.
vapors of, structure of, 7769*h*.

**Ammonium-$d_4$ chloride**, spectrum and rotational structure of, 2866*a*.

**Ammonium chloroindate**, $(NH_4)_2InCl_5$, structure of, 1236*b*.

**Ammonium chloropalladate(IV)**, $(NH_4)_2PdCl_6$, in photographic sensitization, P 53*c*.

**Ammonium chloroplatinate (II)** ($(NH_4)_2PtCl_4$), magnetic susceptibility of, 7277*g*.
in photographic sensitization, P 53*c*.

**Ammonium chloroplatinate(IV)** ($(NH_4)_2PtCl_6$), heat action on, on thermobalance, 7367*h*.
magnetic susceptibility of, 7277*i*.

**Ammonium chromate.** (See also *Ammonium dichromate.*)
$(NH_4)_2CrO_4$, magnetic susceptibility of, 5651*g*.

**Ammonium chromium sulfate** (See also *Alums.*) 4172*i*

**Ammonium citrate**, as N source for *Ulva lactuca*, 6289*f*.
in oat nutrition, 7174*b*.
in copper detn., 7863*c*.

**Ammonium cobalt sulfate**, $CoSO_4 \cdot (NH_4)_2SO_4$, mixts. with $K_2Cr_2O_7$, color standards for methyl yellow and methyl orange from, 1280*d*.

**Ammonium compounds.** (See also *Ammonium compounds, substituted; Ammonium salts.*)
dust contg., in gas mains, 8119*i*.
effect on glass melting, 3577*f*
formation and removal from gas pipe, 3597*c*.
interactions with proteins, 5070*i*.
magnetic susceptibility of, 5651*f*.

**Ammonium compounds, substituted** (*This heading is restricted to combined substituted ammonium compounds. Salts that may be considered as the products of addition of an acid to a primary, secondary or tertiary amine are entered under the names of the respective amines.*)
acylamidomethyl derivs., in paste form, P 1202*f*.
alkenylethyldimethyl— bromides, toxicity of, 7591*i*.
alkylbenzyldimethyl— chlorides see also *Zephiran*.
alkylbenzyldimethyl— chlorides, activity toward yeast, 4783*i*.
bactericidal action and toxicity of, 4780*b*.
inactivator for, 7085*f*.
toxicity of, 7591*i*
alkyl(3,4 - dichlorobenzyl)dimethyl - chlorides—see *Tetrosan*, this year
alkyltrimethyl— bromides, bactericidal action and toxicity of, 4780*b*
allyldiethyl(2 - hydroxyethyl) — bromide, dicyclohexylacetate, P 679*g*, P 2254*b*
allyl(3 - hydroxy - 3,3 - diphenylpropyl) dimethyl— bromide, propionate, P 5417*f*.
allyltrimethyl— hydroxide, pyrolysis of, 3779*h*.
from amines, nitriles, acid chlorides and $CH_2O$ as softening agents, P 2788*a*
(aminobenzyl)— derivs., stability of, 5755*h*.
amyltriethyl— ions, effect on nerves, 8502*g*.
amyltrimethyl— iodide, effect on synaptic response to preganglionic stimulation, 9260*f*.
analgesic, anesthetic, antihistaminic and antispasmodic, 7921*d*.
anthraquinone-type dyes contg., P 8164*a*
(antipyrylmethyl)trimethyl iodide, 7477*d*.
bacteriostatic action of, 275*a*.
bacteriostatic action of, chemical specificity for antagonistic arrest of, 9377*a*
(2-benzhydrylaminoethyl)trimethyl- methyl sulfate, spasmolytic activity of, 8546*b*.
of benzhydryl ether derivs., P 5045*h*
(2 - benzhydryloxyethyl)butyldiethyl- bromide, P 2640*i*, P 2641*c*.
[2 - (benzhydryloxy)ethyl]butyldimethyl— *p*-toluenesulfonate, P 3463*b*
(2 - benzhydryloxyethyl)($\alpha$ - carboxy benzyl)dimethyl— bromide Et ester, P 5046*a*.
(2 benzhydryloxyethyl)(1 - carboxy- ethyl)dimethyl— bromide Et ester 5046*a*.

(2 - benzhydryloxyethyl)(carboxymethyl)dimethyl— halides, esters, P 5045*i*.
[2 - (benzhydryloxy)ethyl] derivs., P 3462*i*.
[2 - (benzhydryloxy)ethyl]dimethylpropyl— *p*-toluenesulfonate, P 3463*b*.
(2 - benzhydryloxyethyl)ethyldimethyl— halides, P 2640*h*.
[2 - (benzhydryloxy)ethyl]ethyldimethyl— salts, P 3463*b*.
(2 - benzhydryloxyethyl)triethyl— bromide, P 2640*i*, P 2641*c*.
(2 - benzhydryloxyethyl)trimethyl— halides, P 2640*h*, P 2641*c*, 7921*e*.
[2 - (benzhydryloxy)ethyl]trimethyl— salts, P 3463*a*.
(2 - *N* - benzylanilinoethyl)trimethyl— halides, 7921*e*.
(*o* - benzylbenzyl)trimethyl— iodide, 6177*e*.
benzyl(3 - caprylylaminopropyl)dimethyl - - chloride, P 2631*b*.
benzyl(2 - carboxyethyl)dimethyl— chloride, 6977*b*.
benzyl(carboxymethyl)dimethyl— chloride, esters, 6977*a*.
benzyl(carboxymethyl)dimethyl— salts, esters, 6977*f*.
benzyl(1 - carboxypropyl)dimethyl— bromide, Et ester, 6977*b*.
benzyldecyldimethyl— chloride, bactericidal action and fish toxicity of, 4780*b*
benzyldiethyl(2 - hydroxyethyl)— bromide, dicyclohexylacetate, P 679*g*, P 2234*i*.
benzyldiethylmethyl — iodide, prepn. and pharmacology of, 4376*c*.
benzyldimethyl(3 - myristoylaminopropyl) - - chloride, P 4431*a*.
benzyldimethyloctadecyl - - chloride, bactericidal action and fish toxicity of, 4780*b*.
benzyldimethyloctadecyl— chloride, disinfectant action of, 4811*e*.
benzyldimethyl(3 - palmitoylaminopropyl) - - chloride, P 2631*b*.
benzyldimethylphenyl— chloride, reaction with $Bu_2O$, 6622*e*.
benzyldimethyl(phenylcarbamylmethyl)— salts, 6977*f*.
benzyldimethyl(3 - stearoylaminopropyl)— chloride, P 2630*i*.
benzyldimethyltetradecyl— chloride, bactericidal action and fish toxicity of, 4780*b*
benzyldimethyl[2 - [2 - (*p* - 1,1,3,3 - tetramethylbutylphenoxy)ethoxy]ethyl] — chloride - see *Phemerol*.
benzyldimethyl[2 - [2 - (1,1,3,3 - tetramethylbutyltoloxy)ethoxy]ethyl] — chloride, effect of pH and temp. on bactericidal activity of, 3884*i*.
benzyldimethyl(*o* - tolylcarbamylmethyl) — salts, 6977*f*.
benzyldodecyldimethyl — chloride, bactericidal action and fish toxicity of, 4780*b*.
detn. in food, 7151*e*.
osmotic activity and conductivity of, 20*d*.
benzylethyl[2 - (2 methoxybenzhydryloxy)ethyl]methyl— chloride, P 2641*bd*.
benzylhexadecyldimethyl— chloride, 20*f*.
bactericidal action and fish toxicity of, 4780*b*.
diffusion and osmotic coefficients, elec. cond., membrane analysis and micelle charge of, 6887*b*.
benzyl(3 indolylmethyl)dimethyl — bromide, 3407*g*
benzyl(3 - lauroylaminopropyl)dimethyl— chloride, P 2631*b*, P 4431*b*.
[2 - [benzyl(2 - pyridyl)amino]ethyl]trimethyl— iodide, 7921*e*.
benzyltriethyl— iodide, curarelike action of, 8059*b*.
benzyltrimethyl— ethoxide, acetylene reaction with alkyl carbonates in the presence of, 6168*a*.
benzyltrimethyl— hydroxide, as catalyst in thiol reaction with unsatd. compds., 1321*b*.
benzyltrimethyl— laurate, elec. conductivity and osmotic coeffs. of, 20*d*.
benzyltrimethyl— methoxide, reaction of methyl benzoate with $C_2H_2$ or with $PhC{:}CH$ in the presence of, 7458*c*.
benzyltris(2 - hydroxyethyl)— hydroxide, P 8208*c*.
[4,4' - biphenylenebis(oxyethylene)]bis[diethylmethyl— iodide], 6365*e*.
[2,2'(and 4,4')-biphenylenebis(oxyethylene)]bis[triethyl— iodide], 6365*e*.
[2 - (2 - biphenylyloxy)ethyl]diethylmethyl— iodide, 6365*e*.
bis(2 - carboxyethyl)dimethyl— iodide, dimethyl ester, 3408*d*.
bis(2 - chloroethyl)dimethyl— chloride, 2927*f*.
bis(2 - chloroethyl)dimethyl— chloride, in cancer therapy, 5505*d*.
bis(3,4 - dichlorophenylcarbamylmethyl)dimethyl— chloride, as insecticide, P 4420*a*.
bis(2 - fluoroethyl)dimethyl— iodide, 2927*g*.
bis(2 - hydroxyethyl)dimethyl— chloride, 6978*a*.
bis(2 - hydroxyethyl)dimethyl— ions, effect on nerves, 8502*d*.
[1,2 - bis(*p* - methoxyphenyl)ethylene]bis[anisylidenemethyl— iodide], 614*e*.
bis[trimethyl— salts], pharmacology of, 6737*b*.
[2 - (bromobenzyloxy)ethyl]dodecyldimethyl— chloride, P 3034*c*.
[2 - bromo - 2 - (bromomethyl)cyclobutyl]trimethyl— salts, 586*h*.
[2 - [(2 - butoxy - 4 - quinolylcarbonyl)amino]ethyl]diethylmethyl— iodide, 7921*e*.
butyl(2 - hydroxyethyl)dimethyl— chloride, 6978*a*.
butyltriethyl— ions, effect on nerves, 8502*g*.
(2 - carboxyethyl)(3,4 - dimethoxyphenethyl)dimethyl— iodide Et ester, 5765*g*.
(4 - carboxy - 4 - ethyl - 1,2,3,4 - tetrahydro - 5,6 - dihydroxy - 2 - naphthyl)trimethyl— iodide, γ-lactone 6-acetate, 626*e*.
(1-carboxyheptadecyl)trimethyl— hydroxide, betaine—see "trimethyl betaine" under *Stearic acid, α-amino-*.
(4 - carboxy - 2 - hydroxybutyl)dodecyldimethyl — chloride, 6978*b*.
(4 - carboxy - 2 - hydroxybutyl)trimethyl— chloride lactone, 6978*a*.
(4 - carboxy - 2 - hydroxybutyl)trimethyl— chloride, lactone, pharmacology of, 7132*f*.
(5 - carboxy - 3 - hydroxy - 4 - methoxy - 2 - methyl - 2,4 - pentadienyl)trimethyl— bromide, γ-lactone, 1722*f*.
[3 - carboxy - 1 - (hydroxymethyl)propyl]trimethyl— iodide lactone, 6978*a*
[3 - carboxy - 1 - (hydroxymethyl)propyl]trimethyl— iodide, lactone, pharmacology of, 7132*f*.
(α - carboxy - *p* - hydroxyphenethyl)trimethyl — chloride, 6596*i*.
(carboxymethyl)[2 - (4,4' - dimethylbenzhydryloxy)ethyl]dipropyl— iodide octyl ester, P 5046*a*.
(carboxymethyl)ethyl[2 - (2 - methoxybenzhydryloxy)ethyl]methyl— chloride Me ester, P 5046*b*.
(carboxymethyl)trimethyl— chloride—see *Betaine;* for esters and other derivs. see below.
(carboxymethyl)trimethyl— chloride, esters, 6977*a*.
ethyl ester, effect on heart, 8058*g*.
hydrazide, effect on neuromuscular transmission, 2330*f*.
5 - nitrofurfurylidenehydrazide, fungistatic action of, 2669*e*.
(carboxymethyl)trimethyl— hydroxide, and inner salt— see *Betaine;* for esters and other derivs. see under this heading.
(carboxymethyl)trimethyl— hydroxide, tetramethylammonium salt, P 8208*c*
(carboxymethyl)trimethyl— salts and esters, 6977*d*.
[2 (*p* - carboxyphenoxy)ethyl]triethyl— iodide, ester with triethyl(2 - hydroxyethyl)ammonium iodide, curarelike action of, 1486*i*.
[2 - (*p* - carboxyphenoxy)ethyl]triethyl— iodide, Et ester and ethiodide of its 2 diethylaminoethyl ester, 6592*a*.
cellulose alkylation in, 5942*h*.
[2 - (2 - *p* - chloroanilino - 6 - methyl - 4 - pyrimidylamino)ethyl]diethylmethyl— iodide, 9038*d*.
[2 - (chlorobenzyloxy)ethyl]dodecyldimethyl— chloride, P 3034*c*.
[4 - (2 - chloro - 4' - dimethylamino - 5 - hydroxybenzhydrylidene) - 2,5 - cyclohexadien - 1 - ylidene]dimethyl— hydrogen sulfate, 5387*e*.
[2 - (2 - chloroethoxy)ethyl]dodecyldimethyl— chloride, bactericidal action of, 3885*b*.
(2 - chloroethyl)(3 - chloropropyl)dimethyl— iodide, 7422*b*.
(2 - chloroethyl)trimethyl— chloride, 1005*f*.
(2 - chloroethyl)trimethyl— chloride, in cancer therapy, 5505*d*.
(2 - chloroethyl)trimethyl— phenoxide, as catalyst, P 8208*c*.
[2 - [2 - [4 chloro - 5 - hydroxy - 2 - (1,1,3,3 - tetramethylbutyl)phenoxy]ethoxy]ethyl](2 - hydroxyethyl)dimethyl— chloride, 7923*i*.
[2 - (5 - chloro - 7 - iodo - 8 - quinolyloxy)ethyl]decyldimethyl— bromide, P 9392*c*.
(*p* - chlorophenylcarbamylmethyl)dodecyldimethyl— chloride, P 3034*e*.
cleaning compositions contg., effect on milk quality, and their detection in milk, 8575*h*.
as cleaning, emulsifying, softening or wetting agents, P 7728*h*.
in corrosion-retarding compns., P 3772*f*.
from *Courbonia virgata*, 5544*e*.
curarelike properties of, 1486*h*, 2703*c*, 8058*i*, 6590*d*.
(3 - cyano - 3,3 - diphenylisobutyl)trimethyl— iodide, 7466*d*.
(4 - cyano - 4 - ethyl - 1,2,3,4 - tetrahydro - 5,6 - dimethoxy - 2 - naphthyl)trimethyl— iodide, 626*e*.
(3 - cyano - 1 - methyl - 3,3 - diphenylpropyl)trimethyl— iodide, 7466*d*.
(1 - cyclobuten - 1 - ylmethyl)trimethyl— salts, 586*g*.
(cyclobutylmethyl)trimethyl— salts, 586*i*.
[2 - (cyclohexylmethoxy)ethyl]triethyl— iodide, 6365*e*.
cyclooctadienyltrimethyl— iodide, 591*f*.
cyclooctyltrimethyl— iodide, 591*f*.
[3 - (2 - cyclopenten - 1 - yl) - 3 - phenylpropyl]trimethyl— iodide, 8359*f*.
decamethylenebis[triethyl— bromide], 2703*d*.
decamethylenebis[trimethyl— bromide], 2703*d*.
decamethylenebis[trimethyl— iodide], in anesthesia, 6739*g*.
in caesarian section, 7586*c*.
in convulsion control, 6739*i*.
pharmacology of, 3525*d*.
decyltrimethyl— bromide, bactericidal action and fish toxicity of, 4780*b*.
light scattering by, 3688*b*.
turbidity in $H_2O$, 7293*c*.
detection and disinfectant action of, and water sterilization with, 7166*d*.
detn. of anionic and cationic, in solns., P 6948*h*.
(1,2 - dibromocyclobutylmethyl)trimethyl— salts, 586*h*.
dibutyl(4' - dibutylamino - 4 - biphenylyl)methyl— iodide, 3380*g*.
dibutyl(2,2 - diethoxyethyl)methyl— iodide, 6974*d*.
(2,5 - dichlorophenylcarbamylmethyl)dodecyldimethyl— chloride, P 3034*f*.
[2 - (5,6 - dichloro - 8 - quinolyloxy)ethyl]dodecyldiethyl— bromide, P 9392*c*.
[2 - (5,7 - dichloro - 8 - quinolyloxy)ethyl]dodecyldiethyl— bromide, P 5910*e*.
didodecyl(2 - hydroxyethyl)methyl— chloride, 6978*a*.
[*p* - (diethylaminomethyl)phenethyl]triethyl— iodide, ethiodide, curarelike action of, 8059*c*.
diethyl[2 - (ethylmercurimercapto)ethyl]methyl— methyl sulfate, P 668*b*, P 6049*d*.
diethyl[2 - (2' - hydroxy - 2 - biphenylyloxy)ethyl]methyl— iodide, 6365*e*.
diethyl(2 - hydroxyethyl)methyl— bromide, dicyclohexylacetate, P 679*g*, P 2234*i*.
diethyl(2 - hydroxyethyl)methyl— chloride, effect on growth, liver fat and kidney degeneration, 1470*g*.
diethyl(2 - hydroxyethyl)methyl— chloride 1-phenylcyclopentanecarboxylate, P 5796*k*.
diethyl(2 - hydroxyethyl)methyl— iodide esters, 7921*e*.
diethylmethyl(oleoylaminoethyl)— sulfate, as standard in saponin detn., 5905*c*.
diethylmethyl(oleoylaminoethyl)— sulfate, effect on oxidase systems, 3857*e*, 6253*i*.
diethylmethylphenethyl— iodide, prepn. and pharmacology of, 4376*c*.
diethylmethyl(2 - phenoxyethyl)— iodide, 6365*d*.

diethylmethyl(3 - phenylpropyl)— iodide, prepn. and pharmacology of, 4376*c*.
diethylmethyl[2 - (propylmercurimercapto)ethyl]— methyl sulfate, P 6649*e*.
diethylmethyl[2 - (1,2,3,6 - tetrahydro-1,3 - dimethyl - 2,6 - dioxo - 7 - purinyl)ethyl]— iodide, 8537*b*.
diethyloctadecyl *p*-tolyl— ethyl sulfate, P 5899*c*.
(2,3 - dihydroxypropyl)dimethyl - *o*-tolyl— chloride, prepn. and pharmacology of, 4773*i*.
(2,3 - dihydroxypropyl)dodecyldimethyl— chloride, 6978*b*.
(2,3 - dihydroxypropyl)dodecyldimethyl— chloride, diacetate, pharmacology of, 7132*f*.
(1,2 - dihydroxypropyl)trimethyl— chloride, dicaproate, P 5980*b*.
(2,2 - dimethoxyethyl)diethylmethyl— iodide, 6974*b*.
(2,2 - dimethoxyethyl)methyldipropyl— iodide, 6974*b*.
(3 - dimethylaminoallylidene)dimethyl— iodide, 1653*f*, 3359*g*.
(7 - dimethylamino - 4 - hydroxy - 2,4,6-heptatrienylidene)dimethyl— iodide, acetate, 1653*f*, 3359*g*.
{[3 - (dimethylaminomethyl) - 3 - oxetanyl]methyl}trimethyl— iodide, 134*a*.
(5 - dimethylamino - 2,4 - pentadienylidene)dimethyl— perchlorate, 1653*f*.
[2 - (4,4' - dimethylbenzhydryloxy)ethyl]-isopropyldipropyl— bromide, P 2641*ad*.
dimethyl - 1 - naphthylmethyl(3 - stearoylaminopropyl) — chloride, P 2631*c*.
dimethyl[*m*(and *p*)-nitrobenzoyl]phenyl— chloride, 4240*i*
dimethyloctadecylphenyl— methyl sulfate, and reaction product with cresolsulfonic acid, urea and HClO condensation product, as textile aid, P 7728*g*.
dimethyloctyl(2 - phenoxyethyl)— bromide, P 1158*c*.
(2,2 - dimethyl - 3 - oxo - 3 - phenylpropyl)trimethyl— iodide, prepn. and reactions of, 4239*a*.
(4,6 - dimethyl - *m* - phenylenediethylene)-bis[triethyl— iodide], 6591*e*.
disinfectant, 2370*g*, P 4431*d*, 5533*d*, P 8620*c*, P 8622*e*, 9365*a*.
disinfectant action of, 724*c*, 5540*b*, 7192*g*, 9375*e*.
carryover in standard swab rinse test of, 8006*g*.
effect of Cu, Mg and Fe on, 8588*e*
effect of pH and temp. on, 3884*g*.
effect of org. matter on, 3884*i*.
for food utensils, evaluation of, 323*d*.
rate of, 3884*e*.
testing of, 358*i*, 4425*ad*, 7639*b*.
disinfectant, emulsifier and wetting agent, P 4430*h*.
disinfectants contg. Ca salts and, P 9390*a*.
2,2' - dithiobis[trimethyl— hydroxide], inner salt†, lipotropic activity of, 3103*i*.
dodecamethylenebis[trimethyl— bromide], 2703*d*.
dodecyldiethyl[*m*(*o* and *p*) - methoxyphenyl]— ethyl sulfate, P 8620*d*.
dodecyldimethyl - *p* - phenetyl— methyl sulfate, P 2228*i*.
dodecyldimethyl(2 - phenoxyethyl)— bromide, P 9392*d*.
dodecyldimethyl(2 - phenoxyethyl)— bromide, antagonism to bacteriostatic action of, 9377*a*.
dodecyldimethyl(2 - phenoxyethyl)— halides, P 1158*c*.
dodecyldimethyl(phenylcarbamylmethyl)— halides, P 3034*ef*.
dodecyldimethyl(2 - toloxyethyl)— chloride, P 7960*d*.
dodecylethylmethyl - *p* - phenetyl— ethyl sulfate, P 2229*a*.
dodecyl(2 - hydroxyethyl)dimethyl— chloride, 6978*a*.
dodecyl(2 - hydroxyethyl)dimethyl— chloride, acetate, pharmacology of, 7132*e*.
dodecyl(2 - hydroxyethyl)dimethyl— chloride, benzoate, P 3034*c*.
[2 - (dodecylmercurimercapto)ethyl]trimethyl— methyl sulfate, P 667*i*, P 6649*b*.
dodecyl[*m*(*o* and *p*)-methoxyphenyl]dimethyl— methyl sulfate, P 8620*d*.
dodecyltriethyl— nitrate, P 667*b*.
dodecyltrimethyl— bromide, 7293*c*.
bactericidal action and fish toxicity of, 4780*b*.
*dodecyltrimethyl— bromide*, light scattering by, 3688*b*.
dodecyltrimethyl— chloride, elec. cond. of, 5677*h*, 6041*b*.
dodecyltris(2 - hydroxyethyl) — chloride, elec. cond. of, 6041*b*.
effect on microbe cells, 6700*f*.
on nerves, 8502*c*.
on neuromuscular transmission, 2330*f*.
elec. cond. of, 7301*g*.
(2 - ethoxyethyl)trimethyl— bromide, effect on heart, 8058*g*.
[2 - (ethoxymethoxy)ethyl]trimethyl— formate, P 2739*g*.
ethyldimethyl - 9 - octadecenyl— bromide, bactericidal action of, 3884*h*.
ethyldimethyl - 9 - octadecenyl— bromide, inactivator for, 7085*g*.
ethylenebis[triethyl— bromide], 2703*d*.
ethylenebis[trimethyl— bromide], 2703*d*.
(ethylenedi - *p* - phenylene)bis[diamylmethyl— iodide], 3380*i*.
ethyl(2 - hydroxyethyl)dimethyl— iodide, isophthalate, 2191*c*.
ethyl(2 - hydroxyethyl)dimethyl— sulfate, dibutylcarbamate, ganglionic blocking action of, 6309*c*.
[ethylidenebis[(stearoylimino)methylene]]-bis[trimethyl— chloride], P 1798*i*.
[2 - (ethylmercurimercapto)ethyl]trimethyl— derivs., P 667*i*.
[2 - (ethylmercurimercapto)ethyl]trimethyl— *p*-toluenesulfonate, P 6649*b*.
[*p* - (ethylmercurimercapto)phenyl]trimethyl— methyl sulfate, P 668*d*, P 6649*h*.
ethyltrimethyl— ions, effect on nerves, 8502*d*.
as foam inhibitors, P 4407*d*.
(1 - formyl - 2 - hydroxybutyl)trimethyl— hydroxide—see *Muscarine*.
(*p*-formylphenyl)trimethyl— iodide, 5761*f*
as fungicides for cotton fabric, 8085*f*.
hendecamethylenebis[trimethyl— bromide], 2703*d*
heptamethylenebis[triethyl— bromide], 2703*d*.
heptamethylenebis[trimethyl— bromide], 2703*d*.
heptamethylenebis[trimethyl— salts], pharmacology of, 6737*e*.
hexadecyldimethyl(2 - phenoxyethyl)— bromide, P 1158*c*.
hexadecyldimethyl(phenylcarbamylmethyl)— chloride, P 3034*f*.
hexadecyl(2 - hydroxyethyl)dimethyl— chloride, 6978*a*.
hexadecyl(2 - hydroxyethyl)dimethyl - chloride, benzoate, P 3034*d*.
hexadecyl(*p* - methoxyphenyl)dimethyl— methyl sulfate, P 8620*d*.
hexadecyltrimethyl— bromide, 7293*e*.
bactericidal action and fish toxicity of, 4780*b*.
as deëmulsifying agent for penicillin extn., P 2742*c*.
detn. in air, 4799*a*.
detn. of, P 6948*i*.
diffusion and osmotic coefficients, elec. cond., membrane analysis and micelle charge of, 6887*b*.
in disinfection of skin, 3525*c*.
effect of pH and temp. on bactericidal activity of, 3884*i*.
efficacy in ointment base, 8609*d*.
as emulsifying agent in polymerization of methacrylates impregnated in wool, 8142*e*.
light scattering by, 3688*b*.
lotion contg., 3143*h*.
pharmacological action of, 4774*d*.
as preoperative skin antiseptic, 6365*f*.
for salt manuf. from brine, P 6796*d*.
titration with Aerosol OT, Na cetyl sulfate or Na dodecyl sulfate, with pinacyanol bromide indicator, 5976*f*.
hexadecyltrimethyl— chloride, 20*f*.
hexadecyltrimethyl— chloride, elec. cond. of, 6041*b*.
hexadecyltrimethyl— ethylidenedi - 2-naphthalenesulfonate, P 5047*c*.
hexadecyltrimethyl— ion, elec. conductivity of, 2491*d*.
[2 - (1,3,3a,8,9,9a - hexahydro - 3,5 - dimethoxyphenanthro[4,5 - *bcd*]fur - 9b(2 *H*) - yl)ethyl]trimethyl— iodide, 4280*f*.
[2 - (1,3,3a,8,9,9a - hexahydro - 3 - hydroxy - 5 - methoxyphenanthro[4,5-*bcd*]fur - 9b(2 *H*) - yl)ethyl]trimethyl— iodide, 4280*c*.
hexyl(2 - hydroxyethyl)dimethyl— chloride, 6978*a*.
Hofmann degradation of, 2624*c*.
homopiperonyl(*m* - methoxybenzyl)dimethyl— iodide, 602*h*.
hydrogenation of cyclic, with $LiAlH_4$, 6631*a*.
[3 - hydroxy - 2,2 - bis(hydroxymethyl)-propyl]trimethyl— halides, 134*d*.
(3 - hydroxybutyl)trimethyl— iodide, 2935*c*.
[2 - (hydroxydimethoxy - 1 - phenanthryl)-ethyl]trimethyl— iodide, 6208*g*.
(2 - hydroxy - 2,2' - diphenylethyl)trimethyl— bromide, 6177*g*.
(hydroxyethylidynetrismethylene)tris[trimethyl— bromide], 134*b*.
(2 - hydroxyethyl)methyldioctyl— chloride, benzoate, P 3034*d*.
(2 - hydroxyethyl)trimethyl— hydroxide—see *Choline*.
(2 - hydroxyethyl)trimethyl— iodide *α*,*α* - diphenylbutyrate, 3392*b*
esters, 2191*c*.
esters, curarelike properties of, 1486*i*.
ester with sinapic acid, and derivs., 8452*e*.
hydroxy(*m* - hydroxyphenyl)dimethyl - chloride *m*-dimethylcarbamate, P 7906*e*.
(2 hydroxyisopropyl)trimethyl— hydroxide, as catalyst for phenol resin manuf., P 8208*a*
(3 - hydroxy - 2 - methylbutyl)trimethyl iodide *p*-aminobenzoate, 7921*e*.
{hydroxy[*p* (*p* - nitrophenylsulfonyl-phenylazo]phenyl}trimethyl— chloride, P 4818*b*.
[(2 - hydroxy - 5 - phenenyl)trimethylene]-tris[(2 hydroxyisopropyl)dimethyl hydroxide], P 8208*e*.
(2 - hydroxy - 5 - phenylbenzyl)trimethyl— bromide, dimethylcarbamate, cholinesterase inhibition by, 9103*b*
dimethylcarbamate, effect on acetylcholine sensitivity of carotid body 7134*c*.
dimethylcarbamate, effect on cardio inhibitory center, 7133*a*
dimethylcarbamate, effect on curare action, 7132*h*.
dimethylcarbamate, effect on esterases, 4305*e*
dimethylcarbamate, effect on respiratory reflexes from carotid body 7134*d*.
dimethylcarbamate, effect on salivary secretion, 7134*e*.
dimethylcarbamate, effect on vagus excitability and on sensitivity of heart to acetylcholine, 7134*e*.
*N*,*p*-dimethylcarbanilate, P 1439*e*
(*m* - hydroxyphenyl)trimethyl - bromide, carbanilates, P 1439*b*.
*p* - chloro - *N* - methylcarbanilate cholinesterase inhibition by, 9103*b*
esters, effect on muscle potential 9261*a*.
(*o* - hydroxyphenyl)trimethyl— bromide dimethylcarbamate, P 7040*a*
(*m* - hydroxyphenyl)trimethyl - methyl sulfate, dimethylcarbamate—see *Physostigmine*
(*o* - hydroxyphenyl)trimethyl— methyl sulfate dimethylcarbamate, P 7960*a*
(*m* - hydroxyphenyl)trimethyl - salts, dimethylcarbamate, P 687*b*.
(2 - hydroxypropyl)trimethyl— chloride, acetate, bronchospasm from aerosol contg., protective action of diphenylhydramine and ammophylline in, 1861*f*.
acetate, effect on adrenaline therapy 3115*b*.
acetate, effect on convulsant response to drugs, 9260*i*.
acetate, effect on heart, 8058*g*
intestinal spasms from, effect of antihistamines and other substances on, 3934*e*.
(2 - hydroxypropyl)trimethyl — hydroxide, acetate, effect on heart arrested by paludrine, 2704*b*.
(2 - hydroxypropyl)trimethyl— hydroxide, carbamate, effect on stomach, intestine and urinary bladder, 8540*a*
(*α* - hydroxy - *p* - tolyl)trimethyl — iodide, 5761*e*.
(2 - hydroxytrimethylene)bis[trimethyl— chloride], 6978*b*.
(4 - imino - 2 - methyl - 3,3 - diphenylamyl)trimethyl— iodide, 7467*a*.
(4 - imino - 2 - methyl - 3,3 - diphenylhexyl)trimethyl— iodide, 7467*a*.

(3 - indolylmethyl)dimethylphenethyl— bromide, 3407g.
for inhibition of spontaneous ignition of tetraalkyl lead adsorbed on sludges, P 7676i.
(α - iodo - p - tolyl)trimethyl— iodide, 5761e.
ion exchange with phenolsulfonate resins, 8792e.
laundry-field uses of quaternary, 7725g.
lauroyldimethylphenyl— chloride, 4241c.
in lemon postharvest-decay control, 3134a.
lubricants from monocarboxylic acids, org. sulfonates and, P 9431k.
manuf. of, P 3034b.
(2 - mercaptoethyl)trimethyl— methyl sulfate, P 6049c.
mercurimercapto derivs., P 667k.
[2 - (p - methoxybenzhydryloxy)ethyl]trimethyl— iodide, 7921e.
[2 - (N - p - methoxybenzylanilino)ethyl]trimethyl— iodide, 7921e.
(m - methoxybenzyl)(5 - methoxyhomopiperonyl)dimethyl— iodide, 602g.
[2 - [p - methoxybenzyl(2 - pyridyl)amino]ethyl]trimethyl— iodide, 7921e.
[(2 - methoxy - 1 - naphthyl)methyl]trimethyl— iodide, 4250a.
(p - methoxyphenethyl)trimethyl— chloride, reaction with HCHO, 6594b.
(m-methoxyphenethyl)trimethyl— iodide, 7432k.
(4 - methoxy m - phenylene)bis[triethyl— iodide], 6591g.
methyldioctyl(phenylcarbamylmethyl)— chloride, P 3034f.
(methylenedi - p - phenylene)bis[diamylmethyl— iodide], 3380k.
(methylenediphenylene) bis [trimethyl— iodide], pharmacology of, 6737e.
in nerve physiology, 4753b.
nitrates, P 667a.
nonamethylenebis[triethyl — bromide], 2703d.
nonamethylenebis[trimethyl— bromide], 2703d.
octamethylenebis[triethyl— bromide], 2703d.
octamethylenebis[trimethyl— bromide], 2703d.
pentamethylenebis[(2 - benzhydryloxyethyl)dimethyl— iodide], 3929d.
pentamethylenebis[dimethylphenyl— bromide], 2703d.
[pentamethylenebis(oxy - o - phenylene)]bis[trimethyl— iodide], pharmacology of, 8559a.
pentamethylenebis[triethyl— bromide], 2703d
pentamethylenebis[trimethyl— bromide], 2703d.
pentamethylenebis[trimethyl— iodide], effect on blood pressure, 8540k.
effect on circulation, 8541b.
pharmacology of, 3525d.
pentamethylenebis[trimethyl— salts], pharmacology of, 6737c.
[as(and s) - phenenyltrimethylene]tris[triethyl— bromide], curarelike action of, 8059c.
[as(and s) - phenenyltris(oxyethylene)]tris[triethyl— iodide], 6365e.
[s - phenenyltris(oxyethylene)]tris[triethyl— iodide], curarelike action of, 5501g, 8099g.
effect on action of NU 683, 7132b.
effect on muscles and nerves, 5504e.
histamine-liberating action of, 8558i.
paralysis of batrachian spermatozoa by, 5873k.
phenoxides, P 5800i, 6365b.
(phenoxyethyl) derivs., P 1158c.
[m(o and p) - phenylenebis(oxyethylene)]bis[diethylmethyl— iodide], 6365d.
[m(and o) - phenylenebis(oxyethylene)]bis[ethyldimethyl— iodide], 6365d.
[m(o and p) - phenylenebis(oxyethylene)]bis[triethyl— iodide], 6365d.
[p - phenylenebis(oxyethylene)]bis[triethyl— iodide], curarelike action of, 1486i.
m - phenylenebis(oxyethylene)]bis[triethyl— iodide], effect on muscles and nerves, 5504e.
[o - phenylenebis(oxyethylene)]bis[trimethyl— iodide], 6365d.
p - phenylenediethylene)bis[triethyl— iodide], 6591c.
m(and p) - phenylenediethylene]bis[triethyl— iodide], curarelike action of, 8059c.
(p - phenylenediethylene)bis[triethyl— iodide], curarelike action of, 1486i.
(p - phenylenediethylene)bis[trimethyl— iodide], 6591c.
(p - phenylenediethylene)bis[tripropyl— iodide], 6591c.
of phthalocyanine dyes, P 8172g.
reaction with ethers, 6622c.
reaction with synthetic tanning agents contg. sulfonic acid groups, P 1802i.
review on, 6365a.
sulfonamide derivs., antibacterial action of, 8444a.
surface-active cationic, 883d.
surface-active polymeric, P 1587d.
tetraalkyl— hydroxides, in dehydrochlorination of $(CH_2Cl)_2$, P 3835b.
tetraalkyl— pentachlorophenoxides, as preservatives and mildewproofing agents, 2446f.
tetrabutyl— ions, effect on nerves, 8502e.
tetrabutyl— picrate, dielec. absorption by, 7279b.
tetraethyl— bromide, effect on adrenal medulla, 6734b.
effect on blood picture, 9257b.
effect on fast and slow muscles, 5872k.
effect on kidneys, 7586b.
effect on parasympathetic neuroeffector system, 3929e.
in renal cortical ischemia, 1111i.
tetraethyl— chloride, blocking action on axon reflexes in skin, 3525g.
effect on adrenaline-induced cardiac arrhythmias, 321i.
effect on blood flow, 5114f.
effect on cardio-inhibitory center, 7133c.
effect on lungs, 7131a.
effect on response to depressor substance in urine, 4754e.
effect on venous and arterial pressure in congestive heart failure, 3103k.
tetraethyl— derivs., cardiovascular effects of, 9266b.
tetraethyl— hydroxide, effect on detection and detn. of digitoxin, 2374e.
tetraethyl— hydroxide, pharmacol. actions of, 6731b.
tetraethyl— iodide formation of, 3422g.
tetraethyl— ions and chloride, effect on nerves, 8502e.
tetraethyl— ions, in cardiovascular reflex studies, 6744e.
effect on chemoreceptor and stretch receptor mechanisms, 321e.
effect on depressor action of acetylcholine and KCl on heart, 8056f.
effect on ephedrine action, 8552a.
effect on intestinal response to angiotonin, etc., 1110f.
effect on isoelec. and isoionic points of serum albumins, 3690c.
effect on vasomotor properties of acetylcholine, 7134a.
tetraethyl— phosphate, pharmacology of, 5499f.
tetraethyl— picrate, sepn. of, 2521e.
tetrakis(2-hydroxyethyl)— chloride, dicaproate, P 5980b.
tetrakis(2 - hydroxyethyl)— chloride, esters, P 9446f.
tetrakis(2 - hydroxyethyl)— hydroxide, as catalyst in thiol reaction with unsatd. compds., 1321b.
tetrakis(2 - hydroxyethyl) — hydroxide, as vulcanization accelerator, P 5626g.
tetramethyl— acetate and benzenesulfonate behavior in $Ac_2O$, 2110f.
tetramethyl— bromide and chloride, electrolysis in $Ac_2O$, 2876h.
tetramethyl— bromide, in acetic anhydride, behavior of, 2110f.
tetramethyl— bromide, mixts. with Br, bromination with, 6970h.
tetramethyl— camphorsulfonate, prepn. of, 7642b.
tetramethyl— chloride, diffusion rate of, effect of glass diaphragms in, 8773g.
tetramethyl— chloride, in acetic anhydride, behavior of, 2110f.
tetramethyl— formate, as Me donor, 7526i.
tetramethyl— hydroxide, from *Courbonia virgata*, 5544e.
effect in polarographic analysis of brass, 4181i.
effect on detection and detn. of digitoxin, 2374e.
pharmacology of, 6731b.
tetramethyl— iodide, as toxic principle of *Courbonia virgata*, 4346k.
tetramethyl— iodide, in acetic anhydride, behavior of, 2110f.
tetramethyl— ion, effect on isoelec. and isoionic points of serum albumins, 3690c.
tetramethyl— ions, effect on nerves, 8502d.
tetramethyl— nitrate, reaction with $UO_2(NO_3)_2$ in abs. $HNO_3$, 6496b.
tetramethyl— nitrate, soly. in anhyd. $HNO_3$, 5264i.
tetramethyl— sulfite and pyrosulfite, O exchange between liquid $SO_2$ and, 5689k.
tetramethylenebis[triethyl— bromide], 2703d.
tetramethylenebis[trimethyl— bromide], 2703d.
tetrapropyl— ions, effect on nerves, 8502e.
thio acid salts of, identification of, 8307g.
thiomercury, P 6648g.
trialkyl(2-hydroxyalkyl)— salts esters, 2190d.
trialkyl(2-toloxyethyl)— halides, P 7960b.
tridecamethylenebis[triethyl— bromide], 2703d.
tridecamethylenebis[trimethyl— bromide], 2703d.
triethyl(2-hydroxyethyl)— bromide, dicyclohexylacetate, P 679g, P 2234i.
triethyl(2-hydroxyethyl)— bromide, diphenylacetate, 7921e.
triethyl(2-hydroxyethyl)— bromide 1-p-tolylcyclopentanecarboxylate, P 7958e.
triethyl(2-hydroxyethyl)— chloride, effect on heart, 8058g.
triethyl(2-hydroxyethyl)— hydroxide, effect on lipide phosphorylation, 6291d.
triethyl(2-hydroxyethyl)— hydroxide, lipotropic activity of, 3104a.
triethyl(2-hydroxyethyl)— iodide, acetate, effect on heart, 8058g.
esters, 2191c.
esters, curarelike action of, 1486i.
triethyl(2-hydroxyethyl)— ions, effect on nerves, 8502g.
triethyl[(2 - hydroxyethylcarbamyl)methyl]— chloride, myristate, detn. of, P 6949a.
triethylisopropyl— iodide, formation of, 3422g.
triethyl(p-isopropylphenethyl)— iodide, curarelike action of, 8059b.
triethylmethyl— iodide, formation of, 3422g.
triethylphenethyl— iodide, curarelike action of, 8059b.
triethyl(2-phenoxyethyl)— iodide, 6365d.
triethyl(2-phenoxyethyl)— iodide, effect on muscles and nerves, 5504e.
triethyl(3 - phenoxypropyl)— iodide, 6365d.
triethylphenyl— ions, effect on nerves, 8502g.
triethyl(3-phenylpropyl)— iodide, curarelike action of, 8059b.
triethylpropyl— ions, effect on nerves, 8502g.
triethyl(2,6-xylylcarbamylmethyl)— salts, 1023f.
trimethylenebis[dimethylphenyl— bromide], 2703d.
trimethylenebis[triethyl— bromide], 2703d.
trimethylenebis[trimethyl— bromide], 2703d.
trimethylenebis[trimethyl— salts], pharmacology of, 6737c.
trimethyl(α-methylbenzyl)— iodide, reactions of d-, 2967a.
trimethyl(2-methylcyclobutyl)— salts, 586i.
trimethyl(2 - methyl - 1,3 - dioxolan - 4-ylmethyl)— iodide, effect on auricles arrested by paludrine, 2704b.
trimethyl(2 - methyl - 1,3 - dioxolan - 4-ylmethyl)— iodide, toxicity to rats, 348h.
trimethyl(1 - methyl - 3,3 - diphenylpropyl)— iodide, 192f, 7466i.
trimethyl(2-methylenecyclobutyl)— salts, 586g.
trimethyl(1 - methyl - 3 - indolylmethyl)— iodide, reactions of, 3405b.
trimethyl(1 - methyl - 4 - oxo - 2,2 - diphenylhexyl)— iodide, 7466e.
trimethyl(1 - methyl - 4 - oxo - 3,3 - diphenylhexyl)— iodide, 7921e.
trimethyl[(5 - nitrofurfurylideneamino)carbamylmethyl]— chloride, in dental caries inhibition, 6735k.
trimethyloctadecyl— bromide, bactericidal action and fish toxicity of, 4780b.
trimethyloctadecyl— deriv elec. cond. of, 3269b.

trimethyloctadecyl— 3,5-di-nitro-*o*-cresoxide, P 5801*b*.
trimethyloctadecyl- nitrate, elec. cond. of, 1244*a*.
trimethyloctadecyl— salts, elec. conductivity in aq. MeOH, 2491*d*.
trimethyloctadecyl— salts, ionization of, 7303*f*.
trimethyl(2-oleoylaminoethyl)— methyl sulfate, P 2008*g*.
trimethylphenacyl— hydroxide, pyrolysis of, 6993*a*.
trimethyl(2-phenoxyethyl)— iodide, 6365*d*.
trimethylphenyl— ions, effect on isoelec. and isoionic points of serum albumins, 3690*c*.
trimethylphenyl— methyl sulfate, sulfonation of, 6058*a*.
trimethylphenyl— nitrate, nitration in $H_2SO_4$, rate of, 7310*e*.
trimethyl[2-(phenylmercurimercapto)-ethyl]— methyl sulfate, P 668*c*, P 6649*g*
trimethyl(3-phenylpropyl-3-*d*)— bromide, 601*c*.
trimethyl[2-(α-phenyl-2-thenyloxy)ethyl]— iodide, 631*c*.
trimethyl[2-(propylmercurimercapto)-ethyl]— methyl sulfate, P 668*b*, P 6649*e*.
trimethyl 2-pyridyl— iodide, spectrum of, 4137*h*.
trimethyl(*p*-stearoylaminophenyl)— methyl sulfate, P 2008*g*.
trimethyl(*p*-stearoylaminophenyl)— methyl sulfate, pharmaceutical carrier for, P 2375*d*.
trimethyltetradecyl— bromide, 7293*c*. bactericidal action and fish toxicity of, 4780*b*. light scattering by, 3688*b*
trimethyltetradecyl— chloride, diffusion and osmotic coefficients, elec. cond., membrane analysis, and micelle charge of, 6887*b*.
trimethyltetradecyl— chloride, osmotic activity and conductivity of, 20*d*
trimethyl[2-(1,3,3a,9a-tetrahydro-3-hydroxy-5-methoxyphenanthro[4,5-*bcd*]fur-9b(2*H*)-yl)ethyl]— iodide, 4280*e*
trimethyl-2-thenyl— iodide, 1764*a*.
trimethyl-*p*-tolyl— methyl sulfate, sulfonation of, 6058*a*.
trimethyl(1-*p*-tolyldodecyl)— chloride, P 4431*f*.
tris(2,3-dihydroxypropyl)dodecyl— chloride, elec. cond. of, 6041*b*.
tris(2,3-dihydroxypropyl)hexadecyl— chloride, 6041*b*.
tris(2-hydroxyethyl)methyl— iodide as Me donor, 7526*b*.
tris(2-hydroxyethyl)(phenylmercuri)— lactate, as fungicide for tomatoes, 4413*c*.
for waterproofing, P 7727*i*.
*p*-xylylenebis[diethylmethyl— iodide], 6590*i*.
*p*-xylylenebis[ethyldimethyl— iodide], 6590*i*.
*m*(and *p*)-xylylenebis[triethyl— bromide], curarelike action of, 8059*c*.
*p*-xylylenebis[triethyl— chloride], curare like action of, 8059*b*.
*p*-xylylenebis[triethyl— iodide, 6591*a*
*p*-xylylenebis[trimethyl— iodide], 6590*i*

**Ammonium copper arsenate**, $5CuO \cdot 2As_2O_5 \cdot (NH_4)_2O$, 2885*d*.

**Ammonium copper sulfate**, plastic materials from silicates and, P 6805*e*

**Ammonium cyanate**, formation during prepn. of urea, 2946*d*.
formation from urea, 143*g*.
melamine from, P 698*h*.

**Ammonium cyanide**, formation of, during prepn. of urea, 2946*d*.

**Ammonium dichromate**, magnetic susceptibility of, 5651*g*.
manuf. of, P 6704*g*.
properties of, 8785*a*.

**Ammonium dinitrosulfite***, $(NH_4)_2SO_3N_2$, crystal structure of, 5241*i*, 8781*h*.

**Ammonium disulfamate**. See *Ammonium imidodisulfate*.

**Ammonium dithiocarbamate**, 605*c*.
and its detection, 8307*g*.
manuf. of, or its derivs., and use as coalescing agent in polysulfide sealing compns., P 4508*g*.

**Ammonium fluoaluminates**, decompn of, P 4820*e*.

**$AlNH_4F_4$**, P 4435*c*.
manuf. and decompn. of, P 4820*efg*.

**Ammonium fluoride**. (See also *Ammonium halides*.)
catalyst of, and HF in alkylation of hydrocarbons, P 3435*g*.
reaction with $BrF_3$, 3739*f*.

**Ammonium fluozirconate**, $(NH_4)_3ZrF_7$, reaction products with rubbers, articles from gelled, P 6456*i*.

**Ammonium formate**, as freezing-point depressant in $NH_4NO_3$-urea fuel mixt., P 1552*b*.

**Ammonium group**. See *Ammonium*.

**Ammonium halides**, crystal intergrowths on micas, 3317*h*.
magnetic susceptibilities of, 5651*f*.
reaction with alk. earth sulfates, 9393*c*.

**Ammonium hydroxide**. (See also *Ammonia*.)
aluminum soln. in, rate of, 7305*e*
carbon dioxide absorption by, kinetics of, 23*g*.
as catalyst in condensation of 2-furaldehyde with phenol, 5224*i*, 5225*abe*, 5226*c*.
as catalyst of PhOH reaction with HCHO, 5223*i*.
as complex compd., 8220*i*
complex formation with $Cd(NO_3)_2$, 5691*f*.
constitution of, 6891*h*
copper hydroxide soly. in, 2489*a*.
as corrosion inhibitor, for petroleum refining app., 96*i*.
in date ripening, 4345*d*
effect of, on detection and detn. of digitoxin, 2374*e*.
on polarography of sucrose, 9499*e*.
on reaction of 4-aminoantipyrene with phenols, 1044*e*.
on reduction potential and wave height in polarographic detn. of Cd, 7376*h*.
on salts of β-semicarbazones of isatin and its derivs., 8980*a*
magnetic susceptibility of, 5651*g*
manuf. from liquid $NH_3$, 5553*d*, 8621*h*.
mixt. with $H_2O_2$ in Cu oxide rectifier treatment, P 4590*b*.
oxidation by $O_2$, 8825*d*
reaction with $CO_2$, rate of, 1632*e*
with HCHO and urea, P 5416*b*
with HCl, catalysis by water, 1634*h*.
with 7(and 8)-methylalloxazines, 1427*a*.
silica-gel-powder sedimentation vol. in, 7777*f*.
strength of, 470*e*
viscosity of, 8813*e*.

**Ammonium hypophosphite**, as freezing point depressant in $NH_4NO_3$-urea fuel mixt., P 1552*b*

**Ammonium imidodisulfate**, fertilizer manuf. from, 9326*d*.

**Ammonium iodate**, nuclear magnetism in studies of mol. structure and rotations in, 1653*e*.

**Ammonium iodide**. (See also *Ammonium halides*.)
crystal oriented and unoriented intergrowths on micas, 3317*i*.
Raman spectrum of, 4955*g*
reaction with $BaSO_4$ and $SrSO_4$, 9393*d*
system: $NH_4Cl$-$H_2O$-, 1253*c*.

**Ammonium iron alum**. See *Alums*.

**Ammonium iron citrate**. See *Iron preparations*.

**Ammonium iron sulfates**. (See also *Alums*.) 4172*i*.

**$Fe(NH_4)_2(SO_4)_2$**, absorption of heat and light by solns. of, 7821*i*.
as initiator in polymerization of methacrylates in wool, 8142*d*.
magnetic ppts. from solns. of, 7763*b*.
mixt. with $FeCl_3$, liquefaction by trituration, 7767*c*.
oxidation of Fe++ in, by x- and γ-rays, 2508*b*.

**$Fe(NH_4)(SO_4)_2$**, and its tanning value, 7245*e*.

**Ammonium isothiocyanate**, anticorrosive action of, 548*a*.

**Ammonium lead nitrates**, 518*h*.

**Ammonium magnesium chloride**, $(NH_4)_2MgCl_4$, 6104*b*.

**Ammonium magnesium phosphate** $(MgNH_4PO_4)$, decompn. by heat, effect of $NH_4NO_3$ and $SO_4$ ion on, 8229*a*.
manuf. of, P 2381*b*.
thermal stability and stabilization of, 7796*d*.

**Ammonium manganese sulfate**, $Mn(NH_4)_2(SO_4)_2$, purification of solns. of, P 8918*i*.

**Ammonium metaphosphate**, $NH_4PO_3$, in hide pickling, 6449*c*.

**Ammonium molybdates**, analysis of, for chlorides and sulfates, 5338*f*.
catalyst contg., in hydrogenation of coal, 5171*b*.
manuf. from ferromolybdenum, 4819*c*.
platinum-cathode polarization in acid solns. of, 6091*a*.

**$(NH_4)_2Mo_2O_7$**, 960*d*.
catalysts of, in reforming of hydrocarbons, P 9430*c*.
magnetic susceptibility of, 5651*g*.
reduction of, P 2745*a*.

**Ammonium molybdochromate(III)**, $3.5(NH_4)_2O \cdot Cr_2O_3 \cdot 12MoO_3$, magnetic properties, mol. constitution and valency of, 4167*b*.

**Ammonium molybdocobaltate(II)**, $1.5(NH_4)_2O \cdot CoO \cdot 6MoO_3$, magnetic properties, mol. constitution and valency of, 4167*c*.

**Ammonium molybdocobaltate(III)**, $2(NH_4)_2O \cdot Co_2O_3 \cdot 10MoO_3$, magnetic properties, mol. constitution and valency of, 4167*b*.

**Ammonium molybdocuprate(II)**, $2(NH_4)_2O \cdot CuO \cdot 6MoO_3$, magnetic properties, mol. constitution and valency of, 4167*b*.

**Ammonium molybdoferrate(III)**, $3(NH_4)_2O \cdot Fe_2O_3 \cdot 12MoO_3$, magnetic properties, mol. constitution and valency of, 4167*b*.

**Ammonium molybdomanganate(II)**, $1.5(NH_4)_2O \cdot MnO \cdot 6MoO_3$, magnetic properties, mol. constitution and valency of, 4167*c*.

**Ammonium molybdomanganate(IV)** $3(NH_4)_2O \cdot MnO_2 \cdot 9MoO_3$, 8207*d*.

**Ammonium molybdonickelate(II)**, $3(NH_4)_2O \cdot NiO \cdot 6MoO_3$, magnetic properties, mol. constitution and valency of, 4167*b*.

**Ammonium molybdonickelate(IV)** $(3(NH_4)_2O \cdot NiO_2 \cdot 9MoO_3)$, 8298*a*
magnetic properties, mol. constitution and valency of, 4167*a*

**Ammonium nickel sulfate**, $Ni(NH_4)_2(SO_4)_2$, light transmitt. incy. of, 5405*e*

**Ammonium nitrate** (See also *Explosives, Fertilizers*.)
for Amatol (pourable) manuf., 6417*b*
caking of, in storage, 2741*i*.
caking of, prevention of, 8107*d*.
as catalyst for condensation of 2-furaldehyde with phenol, 5226*b*
cell with Pb and $Pb(NO_3)_2$, potential of, 518*i*.
in composting, 8595*d*
corrosion resistance to, of structural steel under stress, 3766*i*
crit. hot-spot temp. of, 4856*b*
decompn. by heat, 405*c*.
detonation of, 6416*i*.
detonation velocities of mixts. of trinitrotoluene and, 2775*e*.
effect on reduction potential and wave height in polarographic detn. of Bi, 7376*g*.
on thermal decompn. of $MgNH_4PO_4$, 8229*a*.
on $UO_2(NO_3)_2$ partition between $Et_2O$ and $HNO_3$, 3267*c*.
electrolysis of, current thermal variations in, 5676*b*.
eutectic with $NH_4Cl$ and $LiNO_3$, polarography in fused, 5314*i*.
fertilizer expts. with, with oats, 1890*h*
fertilizer pellets from marl and, drying of, in rotary drier, 6351*a*.
fire and explosion hazards of, 6827*a*
formation from $NH_4OH$ and $O_3$, 8825*f*
fuels from urea, f. p. depressant and, P 1552*b*.
fusion with guanidine nitrate, P 2227*b*
gas-generating compns. from, P 852*d*
in leaf removal from shrubs and trees before storage, 1893*a*.
magnetic susceptibility of, 5651*f*.
manuf. of, 1536*c*, P 1537*a*, 2377*e*, 2741*g*, P 8623*i*.
mixts. with $HNO_3$ and $H_2O$, spectra of, 8273*g*.
as nitrogen source for *Polytoma*, 1835*e*
poisoning by, 9449*d*.
reaction product with cyanoguanidine condensation with *N*-(hydroxymethyl)oleamide or -stearamide, P 5978*f*.
reaction product with $HNO_3$, 3306*a*
reaction with $NH_4SCN$ and $NH_3$, P 5416*c*
reaction with gypsum, P 3575*e*.

smoke of, removal from air by beds of fluidized solids, 6475*c*.
spectrum of, 2866*b*.
steel cracking in solns. of, 5722*a*.
system: $Ca(NO_3)_2$–$H_2O$–, 1037*h*.
system: $Pb(NO_3)_2$–$H_2O$–, 518*g*, 519*b*.
in tree control on southern upland, 6352*i*.

**Ammonium nitridotrisulfate**, fertilizer manuf. from, 9326*d*.

**Ammonium nitropalladate(II)**, $(NH_4)_2Pd(NO_2)_4$, in photographic-fog inhibition, P 6100*a*.

**Ammonium oxalates**, in oat nutrition, 7174*b*.

**$(NH_4)_2C_2O_4$**, reaction with I, kinetics of, 7309*f*.

**Ammonium perchlorate**, magnetic susceptibility of, 5689*b*.

**Ammonium peroxydisulfates**, as oxidizing agent for heavy alkylated hydrocarbon oils, P 5584*c*.

**$(NH_4)_2S_2O_8$**, detn. of, 2121*a*.
effect on ferric ion reaction with thiocyanates and on stability and intensity of colored complexes, 8310*g*.
in flour, effect on dogs, 2707*g*.
manganese sulfate oxidation by, 926*a*.
soly. in anhyd. $HNO_3$, 5265*a*.
soln. of Cu and Ag in solns. of, kinetics of, 1245*c*.

**Ammonium persulfate**. See *Ammonium peroxydisulfate*.

**Ammonium phosphate**, analysis of $NH_4H_2PO_4$ and $(NH_4)_2HPO_4$ for $NH_3$ and $H_3PO_4$, 3315*f*.
decompn. by heat, 7307*g*.
effect on flor sherry process, 3559*e*.
for fireproofing wood, P 6764*c*.
fire retardant compns. from, P 1126*h*

**$NH_4H_2PO_4$**, compressibility of, 2063*c*.
crystals of, as ultrasonic generators, 1233*g*.
cutting crystals of, cooling tools in, P 2343*g*.
elec. cond. of, control of, P 368*i*.
fire-retardant coatings from, 4493*a*.
from isomerization of $H_2PO_3(NH_2)$, $H_2O$, 2110*e*.
light valve from crystal of, P 5682*g*.
manuf. of, 7174*b*.
Raman spectrum of, 495*b*, 4956*d*.
system: $TlH_2PO_4$–$H_2O$, 3741*c*.

**$NH_4)_2HPO_4$**, effect on invertase, 1817*f*.
fertilizer from, 3958*i*.
reduction by H, 6535*b*.
in wine prepn., 5532*c*.

**$(NH_4)_3PO_4$**, crystals (single) of, P 6013*a*

**Ammonium phosphomolybdate** ($(NH_4)_3PMo_{12}O_{40}$), molybdic acid adsorption by, in $H_3PO_4$ detn., 8971*d*.
thermal stability limits of analytical ppts. of, 8971*g*.
on thermobalance, heat action on, 7367*i*.

**Ammonium picrate**. See *Picric acid*.

**Ammonium plutonium fluoride**, soly. of, 7319*g*

**Ammonium potassium tartrate**, *d*- and *l*-, crystal forms and isomorphism with K tartrate, 7287*f*.

**Ammonium radical**. See *Ammonium*.

**Ammonium salts**. (See also *Ammonium compounds*; *Ammonium compounds, substituted*.)
alkaline detn. in presence of, 1077*d*.
carbonation of solns. of, 3155*ad*.
of carboxylic acids, nitrile manuf. from, P 3836*d*.
dielec. absorption by, in solvents of low dielec. const., 7279*a*.
effect on adsorption of Cu and Ni by $Fe(OH)_3$, 2544*b*.
on antigen-antibody reaction in response of smooth muscle, 9221*e*
on nicotine formation in *Nicotiana*, 1463*h*.
on reduction by *Bacterium lactis aerogenes*, 1458*b*.
formation from amides, kinetics of, 3697*a*.
gluholic acid inactivation by, 3058*i*.
heart muscle contracture from, 5867*h*
as nitrogen source for *Bacillus subtilis*, 722*d*.
nuclear magnetism in studies of mol. structure and rotations in, 1653*d*.
pulmonary edema from, 4382*i*, 8050*c*.
of reaction products of P sulfides with chlorinated paraffins, P 666*e*.
reaction products with amides and paraformaldehyde, P 1434*e*.
reaction with 9-acridyl ethers, P 698*e*.
with amide-HCHO reaction products, textile assistants by, P 5218*b*.
with Ca cyanamide in presence of urea, P 5796*d*.
reaction with sugars, 3079*h*.
in resinification repression in glues plasticized with reducing sugars, P 6453*a*
utilization by coliform bacteria, adaptation to, 7083*g*
utilization during growth, 6712*i*.

**Ammonium selenide**, $NH_4HSe$, dissocn. of, 6053*a*.

**Ammonium sodium nitrorhodate(III)**, soly. of, 6047*f*.

**Ammonium sodium phosphate**, $NaNH_4HPO_4$, decompn. by heat, 6534*i*.

**Ammonium sodium pyrophosphate**, $Na_2HNH_4P_2O_7$, formation of, 6535*b*.

**Ammonium sodium sulfate**, $NaNH_4SO_4$, in system $NH_4HCO_3$–$Na_2SO_4$–$H_2O$, 1917*i*.

**Ammonium sodium tartrate**, compression of single crystals of, 2063*c*.
*d*- and *l*-, crystal forms of, 7287*f*.

**Ammonium sodium triphosphates**, prepn. of, and x-ray diffraction by, 6103*e*.

**Ammonium sulfamate**, in control of Bermuda and nut grasses and *Portulaca oleacea*, 5145*a*.
as 2,4-D activator, 805*h*.
fire-retardant compns. from, P 1126*h*.
in forest-shrub control, 4413*i*.
as freezing-point depressant in $NH_4NO_3$–urea fuel mixt., P 1552*b*.
in hazel-brush control in forests, 3135*a*.
in poison-ivy control, 9313*c*.
in quack-grass control, 1893*h*.
system: Na sulfamate–, 3699*d*.
in tree control on southern upland, 6352*h*.
tree treatment with, for pulp manuf., 2767*e*.
in weed control, 7625*a*.
in lawns, 2727*h*.
in vegetables, 9352*a*.

**Ammonium sulfate**. (See also *Fertilizers*.)
adsorption of enzymes, proteins, etc., in presence of, 1624*f*.
ammonia detn. in, 3315*f*.
crystn. of, 3668*c*, P 4435*d*.
in diphtheria serum, replacement by NaCl, P 3154*a*.
drying app. for, P 8760*f*.
effect on pecan leaves, 2287*f*.
on polyvinyl acetal and formal fibers, 5227*h*.
on soils, 2352*b*, 8593*f*.
on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489*e*.
on spinning viscose, 5588*b*.
on sugar beets, 6350*i*.
on water infiltration into soils, 704*c*
in fireproofing wood, P 6764*c*.
fire-retardant compns. from, P 1126*h*
force consts. and spectrum of $SO_4$ ion in, 5305*a*.
formation by oxidation of $(NH_4)_2SO_3$, 5157*i*, 5158*gh*.
magnetic susceptibility of, 5651*g*.
manuf. of—see also "from distn. products" under *Ammonia, manufacture of*.
manuf. of, P 3575*e*.
from $NH_3$, $CO_2$ and sulfates, P 2380*b*.
from coke oven gas, 7666*g*.
nitrification in soil, 797*e*.
nitrogen recovery from, effect of straw mulch on, 3552*c*.
as nitrogen source for yeast, 8847*a*.
Raman spectra of $NH_4HSO_4$ and $(NH_4)_3H(SO_4)_2$, 7344*d*.
Raman spectrum of, 1657*h*.
refining $NH_4HSO_4$, P 6528*d*.
review on, 1135*h*.
in soils, $NH_3$ loss from, 1512*b*.
steel corrosion by, 6141*d*.
in system $NH_4HCO_3$–$Na_2SO_4$–$H_2O$, 1917*i*
system: gelatin–$H_2O$–, 3691*a*.
translocation in tomatoes, 1465*c*.
utilization of isotopically labeled, by tomatoes, 1841*a*.
yield from U.S. coal carbonization, 8639*i*.
in weed control in lawns, 2727*h*.
in wireworm control in soils, 348*b*

**Ammonium sulfides**, corrosion inhibition value of $NH_4HS$ and $(NH_4)_2S$ against $CO_2$ in petroleum wells and processing, P 7221*h*.
detn. of $NH_4SH$ and $(NH_4)_2S$, 7375*d*.
reaction of $(NH_4)_2S_x$ with alcs and thiols, P 3028*b*.
reaction of $(NH_4)_2S_x$ with ketones, P 3028*a*.

**$NH_4HS$**, as corrosion inhibitor for $H_2SO_3$, P 5730*f*.

**$(NH_4)_2S$**, prepn. of, 2531*i*.

**Ammonium sulfite** ($(NH_4)_2SO_3$), magnetic susceptibility of, 5651*g*.
oxidation of solns. of, 5157*i*, 5158*gh*
oxygen exchange between liquid $SO_2$ and, 5689*h*.

**Ammonium sulfoichthyolate**. See *Ichthammol*.

**Ammonium tartrate**, effect on autodisplacement of Pb, 8812*b*.
as N source for *Ulva lactuca*, 6289*f*.

**Ammonium tellurate**, $(NH_4)_2H_4TeO_6$, 518*d*.

**Ammonium thallium phosphates**, 3741*b*.

**Ammonium thiocarbonate**, $(NH_4)_2CS_3$, 605*c*.

**Ammonium thiocyanate**, complex formation with $Cd(NO_3)_2$, 5691*g*.
condensation products with HCHO and phenols, P 9527*g*.
cyanide detection in, 5539*b*.
as 2,4-D activator, 805*h*.
effect on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489*d*.
as freezing-point depressant in $NH_4NO_3$–urea fuel mixt., P 1552*b*.
in grass eradication and its effect on raspberries and strawberries, 4413*e*.
in hafnium sepn. from Zr, 2883*c*.
as mildewproofing agent in lacquers and varnishes, 2446*f*.
nuclear magnetism in studies of mol. structure and rotations in, 1653*e*.
photographic emulsions contg., P 52*f*, P 4592*bc*.
in potato-late-blight control, 9336*g*.
reaction of, $NH_4NO_3$ and $NH_3$, P 5416*c*.

**Ammonium thiosulfate**, as freezing-point depressant in $NH_4NO_3$-urea fuel mixt., P 1552*b*.
magnetic susceptibility of, 5651*g*.
mixt. with $Na_2S_2O_3$, as fixing soln. for photographic emulsions, P 7850*d*.

**Ammonium titanates**, manuf. from Fe sand, P 7838*c*.

**Ammonium tungstate**, $5(NH_4)_2O.12WO_3$, precipitation in aq. alc., 8038*a*.

**Ammonium uranates**, manuf. of, P 4820*i*.

**$(NH_4)_2U_2O_7$**, absorption through skin, 8529*b*.
poisoning and eye damage by, applied to eye, 8529*g*.
toxicological effects of inhaled, 9240*g*.

**Ammonium vanadates(V)**.

**$NH_4VO_3$**, as catalyst in oxidation of paraffins, 7428*h*.
magnetic susceptibility of, 5651*g*.
manuf. of, P 6794*i*.

**$(NH_4)_3VO_4$**, entropy, heat capacity and heat content of, 3276*a*.

**Ammonium zinc phosphate**, $NH_4ZnPO_4$, thermal stability limits for analytical ppts. of, 8971*h*.

**Ammonium zirconyl carbonate**, in waterproofing of textiles, P 3628*d*.

**Ammonocarbonous acid**. See *Hydrocyanic acid*.

**Ammonolysis**. (See also *Ammonia*.)
amination by—see *Amination*.
with amines, 3353*a*.
of *N*-aryl amidine salts, 7444*a*.
of chlorosilanes in waterproofing of leather, 8185*i*.
of esters, effect of solvents on, 6495*c*.
of ketones (aliphatic) in presence of H under pressure, 2178*i*.
review on, 7759*b*.

**Ammononitric acid**. See *Hydrazoic acid*.

**Ammophila**. See *Grasses*.

**Ammunition**, primers for—see *Primers (explosives)*

**Amniotic fluid**, alkali reserve and pH of, 7985*a*.
eutocin in, 9198*g*.

**Amobarbital**. See *Amytal*.

**Amoeba**. See *Ameba*.

**Amorphophallus oncophyllus**, polysaccharide from, 9381*c*.

**Amorphous state**, viscosity and, 2835*h*.

**Amorphous substances**, cryst.-substance detn. in, 5252*b*.
elastic after effects of, 8772*a*.

**Ampelodesma tenax**. See "esparto" under *Grasses*.

**Ampelopsis quinquefolia**. See *Virginia creeper*.

**Ampelopsis veitchi**, cuticular transpiration in, and its relation to membrane swelling capacity, 730*e*.

**Amphetamine**. See *Phenethylamine, α methyl-*.

——, **p-methoxy-**. See *Phenethylamine, p-methoxy-α-methyl-*.

——, **3,4-methylenedioxy-**. See *Homopiperonylamine, α-methyl-*.

**Amphibians** (*batrachians*), benzopyrene effect on, 9243*a*.

effect of methylene blue, NaSCN and NaI on embryo of, 6322*a*.
poisons or venoms from—see *Venoms*.
regeneration in, effect of benzopyrene on, 5123*a*.
skin of, permeability of, 9270*g*.
**Amphiboles**. (See also *Cummingtonite; Hornblende; Tremolite*.)
-biotite-chlorite schists of Co fahlband mineralization of Modum dist., Norway, 8316*f*.
of chromite vein in Itaú, Brazil, 2132*i*.
in iron quartzite country rocks, 6129*i*.
in marble from Tiree Is., Hebrides, 4606*b*.
of Montana (Karst), 4984*f*.
of sand of rivers of West Ethiopia, 2129*e*.
schist inclusions in serpentinite at Harper's, N. Z., 4610*d*.
**Amphibolites**, of Annam, 2135*c*.
of Belgian Congo (Kibara Mts.), 2135*d*.
of Celebes (eastern), 8320*a*.
formation of, of Bluff, New Zealand, 8314*f*.
gabbro inclusion in argillaceous formation near Zebedassi, Italy, 5709*f*.
green, of Deltanova, Italy, 3323*e*.
metamorphism of, of Aulanko area, Finland, 3323*g*.
of New Hampshire (Percy Quadrangle), 6129*b*.
of Ontario (Lakemount property, Algoma dist.), 8315*h*.
of Sicily (Peloritani Mts.), 978*e*.
of Sweden (Ingelshy), 7382*f*.
**Amphimallon majalis**, control of, 9329*a*.
**Amphiphiles**, constitution and solubilizing properties of, 466*g*.
effect on flotability of fibers, 6421*e*.
solubilization with, 466*b*.
**Amphiprotic substances**. See *Amphoteric substances*.
**Amphoteric substances** (*ampholytes, ampholytoids*). (See also *Hydroxides; Oxides*.)
adsorption of, pH and, 6035*d*.
on bacterial surfaces, 2673*d*.
definition of ampholytes and dismutation equil. for, 58*e*.
effect of pH of solns. of, on dielec. potential and surface tension, 3267*f*.
in hydrogen cyanide (liquid), 517*c*.
$[Pt(NH_3)_4(NH_2Cl)]Cl_2$ as, 1673*h*.
reactions of, in abs. $HNO_3$, 6495*g*
**Ampoules**. See *Ampuls*.
**Amprene**. See *GR-S rubber*.
**Ampuls**, control problems in protection of drugs in, 4809*g*.
glass of, disintegration and soln. of, 6379*h*.
**Amsonia**, copper, Fe and Mn in leaves of, 2799*e*.
**Amydricaine**. See "benzoate" under *2-Butanol, 1-dimethylamino-2-(dimethylaminomethyl)-*.
**Amygdalus**, *communis*—see *Almonds*.
*persica*—see *Peaches*.
**Amyl acetate**. See *Pentacetate;* and "amyl ester" under *Acetic acid*.
**Amyl alcohol**. (*Both 1-pentanol and so-called "commercial amyl alcohol," containing isoamyl alcohol and active amyl alcohol, are entered here. See also* Isoamyl alcohol.)
active (primary)—see *1-Butanol, 2-methyl-*.
adsorption by C and graphite, 7288*i*.
adsorption by C black, 462*f*.
bitumen soly. in, 4841*e*.
2-cinchonine salting out from aq., 922*h*.
effect on adhesion of epithelium to stroma in cornea, 769*a*.
on bubble rise in $H_2O$, 4082*c*.
on ionic exchange in red blood cells in relation to narcotic action, 7143*h*.
on N fixation by *Azotobacter*, 9160*b*.
on sp. work of cutting annealed Al in paraffin oil, 2001*i*.
electrodeposition in presence of, elec. oscillations from, 2874*g*.
esterification of, 1319*e*.
heat of wetting of activated charcoal by, 8835*f*.
hydrogen (active) detn. in, 3316*f*.
mercury-electrode polarization capacity in, 6522*i*.
mixt. with acetone and toluene, Zn reaction with $CuCl_2$ in, 6886*b*.
with $C_6H_6$, elec. birefringence of, 469*g*.
with benzyl alc., colored suspensions of inulin in, 8801*b*.
in peppermint oil, 4427*f*.
phys. constants of, 2956*b*.
reaction with butyryl chloride, rate of, reaction with olive oil, 1715*f*.
soly. in Na xylenesulfonate solns., 1242*d*.
thixotropic mixts. with Na oleate in $C_6H_6$ emulsification, 4923*d*.
viscosity of, pressure and, 4067*d*.
**Amyl alcohol-*d***, reaction with $AlLiH_4$ reaction product of cinnamyl alc., 604*b*.
*iso*-**Amyl alcohol**. See *Isoamyl alcohol*.
*sec*-**Amyl alcohol**. See *2-Pentanol*.
*tert*-**Amyl alcohol**, acetate, manuf. of, P 7951*g*.
alkylation with, of 1,2,3,4-tetrahydronaphthalene, 1369*h*.
and its formate, P 3026*h*.
mixt. with acetone, dielec. polarization in, 454*c*.
Raman effect and H bond formation in, 7345*h*.
as solvent in continuous development of amino acids in paper chromatography, 8299*a*.
system: glycerol–$H_2O$–, P 9081*d*.
**Amylamine**, in flotation of viscose rayon and wool from fiber mixts., 6421*b*.
reaction with tetrachlorophthalic anhydride and $PhNH_2$, flame-resistant waxes by, P 2004*b*.
———, *N*-**[2-(2-biphenylyloxy)ethyl]-*N*-(2-chloroethyl)-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*.
———, **4-bromo-*N*-*tert*-butyl-**, hydrobromide, P 4684*d*.
———, **4-bromo-*N*-ethyl-**, hydrobromide, P 4684*d*.
———, **4-bromo-*N*-isobutyl-**, hydrobromide, P 4684*d*.
———, **4-bromo-*N*-isopropyl-**, and hydrobromide, P 4684*d*.
———, **4-bromo-*N*-propyl-**, hydrobromide, P 4684*d*.
———, **5-butoxy-*N*-butyl-**, 9026*e*.
———, ***N*-butyl-5-chloro-**, hydrochloride, 3421*d*.
———, ***N*-sec-butyl-5-chloro-**, hydrochloride, 3421*c*.
———, ***N*-butyl-5-ethoxy-**, 9026*d*.
———, **5-chloro-**, derivs., 3421*c*.
———, **5-chloro-*N*-(1,2-dimethylpropyl)-**, hydrochloride, 3421*d*.
———, **5-chloro-*N*-(2,2-dimethylpropyl)-**, hydrochloride, 3421*c*.
———, **5-chloro-*N*-(1-ethylpropyl)-**, hydrochloride, 3421*c*.
———, **5-chloro-*N*-isoamyl-**, hydrochloride, 3421*d*.
———, **5-chloro-*N*-1-methylbutyl-**, hydrochloride, 3421*c*.
———, ***N*,*N*-diethyl-4-imino-**, 1321
———, ***N*,*N*-diethyl-4-(4-methylbenzhydryloxy)-**, P 3463*e*.
———, ***N*,*N*-dimethyl-**, effect on nerves, 9259*g*.
———, **1,1(1,2-, 1,3- and 1,4)-dimethyl-**, pharmacology of, 1110*b*.
———, **1,3-dimethyl-**, effect on heart, 9250*f*.
———, **1,4-dimethyl-**, vasoconstrictor prepn. contg. salts of, P 4429*d*.
———, **4-ethoxy-*N*,*N*-diethyl-**, P 9087*b*.
———, **1-ethyl-**, pharmacology of, 1110*a*.
———, ***N*-furfurylidene-**, 3406*i*.
———, **1-methyl-**, pharmacology of, 1110*a*
———, **1-methyl-5-phenyl-**, amine oxidase inhibition by, 9118*d*.
effect on heart, 9250*g*.
———, **5,5,5-trichloro-*N*,*N*-diethyl-**, hydrochloride, pharmacology of, 1861*e*.
*iso*-**Amylamine**. See *Isoamylamine*
*tert*-**Amylamine**, prepn. of, 9027*e*.
for reclaiming elastomers, P 8196*g*
**Amylases**, 6247*d*, 7979*c*.
in abdominal fluid and blood serum in pancreatic lesion, 8517*g*.
action in grape vine, coördination with invertase action, 8453*h*.
action on limit dextrin A, 723*f*.
action on **mash**, 9359*b*.
adsorption of bacterial, by whiting, 5449*a*.
α-, active groups of, 260*b*.
detn. of, effect of malt extn. on, 8092*f*.
*inositol as constituent of*, 3477*h*.
from malt, 1820*a*.
in malt, effect of NaCl in extn. on, 8092*e*.
starches and their derivs. as adsorbents for malt, 9504*f*.
α- and β-, action on glycogen, 4307*e*
action on starch, 9103*g*.
in brewing, 2365*g*
from *Aspergillus*, P 1526*i*.
in *Bacillus macerans*, 4711*d*.
from *Bacillus macerans*, reversible action of, 584*a*.
bacterial, 1450*b*, 2278*e*.
from barley and malt, 353*f*.
β-, action on potato amylose, 2283*h*.
action on potato starch in $H_2O$ under pressure in acid and neutral soln., 9505*a*.
amylopectin degradation by, 2006*b*.
detn. in barley, 8092*c*.
hydrolyzability of glycogens by, 2252*c*.
vitamin C effect on, 2655*c*.
in birch and maple saps, 8455*a*.
in blood and cerebrospinal fluid in polio myelitis, 2313*h*.
in blood and cerebrospinal fluid of children, 2302*b*.
in blood and urine, 5840*b*.
in blood in diseases, 2312*e*.
in blood serum, effect of alc. on, 7592*d*
in cereals, 9102*c*.
in clover, winter hardiness and, 1084*h*
in crop juice of *Helix pomatia*, 4778*b*.
detn. of, 2657*a*, 6829*d*.
in blood, 2658*i*.
in blood and urine, 6694*e*.
in pancreas prepn., 2665*g*.
in pharmaceuticals, 7639*f*.
in *Drosophila*, 3225*i*.
effect of salts and papain on, 6261*e*.
of *Endomycopsis fibuligera*, 3857*c*.
in fermentation of malt-converted corn mashes, 8090*i*
formation by *Bacillus subtilis* group relation to protease production, 4336*e*
formation in bacteria, effect of N on, 722*d*.
in gastric juice and saliva of aphids, 3225*i*.
glycogenolysis by, effect of cyanides on, 5864*i*.
in grape vine, 3069*b*.
in hemolymph of *Oedemagena tarandi*, 1116*b*.
hydrogen-ion concn. effect on fungal and malt, 8414*e*.
inactivation by light in presence of riboflavin, 6264*h*.
malt, action on low-mol. hydrolysis products of starch, 5219*a*.
in malt-contg. liquids, 4809*i*
in malt diastase, 8406*a*
from mold as saccharifying agent, 2363*h*
mol. wt. of malt, 2365*e*.
pancreatic, action of, 5814*e*
pancreatic, action on potato and corn starches, 2655*e*.
in pancreatic juice stimulation by secretin, 9231*f*.
in plants (silage), increasing, 3538*e*
prepn. of, by *Aspergillus* incubation on bran, 1571*h*.
protease detn. in fungal, 9277*i*.
proteolytic-enzyme removal from prepns. of, 5060*e*.
purification and crystn. of pancreatic, 1070*h*.
in saliva after castration, 5839*a*
in saliva of carious and noncarious individuals, 1850*e*.
in saliva of males and females, 4747*a*.
salivary, 4356*g*.
secretion by pancreas, effect of secretin and pancreozymin on, 1476*e*.
starch constitution and action of, 1589*d*
starch hydrolysis by, from different sources, 5061*d*.
– submaxillary glands, and effect of androgenic hormones thereon, 8403*d*
in sugar beets, effect of salts on, 5455*g*
supplements for, in bread making, 7596*e*
in wheat, effect of extn. on distribution of, 6748*g*.
in yeasts, 4726*e*.
**Amyl borate**, $AmBO_3$, catalysts of $(CO_2H)_2$ and, in polymerization of tung oil, P 9484*e*.
**Amyl bromide**. See *Pentane, 1-bromo-*
*iso*-**Amyl bromide**. See *Butane, 1-bromo-methyl-*.
*tert*-**Amyl bromide**. See *Butane, 2-bromo-2-methyl-*.
**Amylocaine**. See "*p*-aminobenzoate" under *Ethanol, 2-amylamino-*.
**Amyl chloride**. See *Pentane, 1-chloro-*.
*iso*-**Amyl chloride**. See *Butane, 1-chloro-3-methyl-*.
*tert*-**Amyl chloride**. See *Butane, 2-chloro-2-methyl-*.
**Amyl disulfide**, phys. constants of, 2956*f*
*iso*-**Amyl disulfide**. See *Isoamyl disulfide*

**Amylene.** See *Pentene.*
*β-iso-***Amylene.** See *2-Butene, 2-methyl-.*
**Amylene hydrate.** See *tert-Amyl alcohol.*
**Amyl ether,** compression and freezing under pressure, 4067*f*.
phys. consts. of, 2590*a*.
*iso-***Amyl ether.** See *Isoamyl ether.*
**Amyl fluophosphate,** $(AmO)_2PFO$, 8351*a*.
*iso-***Amyl fluophosphate.** See *Isoamyl fluophosphate.*
**Amyl group,** detection in organosilicon polymers, 3318*a*.
*tert-***Amyl group,** effect on olefin elimination reactions, 3349*i*.
*iso-***Amyl iodide.** See *Butane, 1-iodo-3-methyl-.*
*iso-***Amyl isocyanide.** See *Isoamyl isocyanide.*
**Amyl mercaptan.** See *1-Pentanethiol.*
*tert-***Amyl mercaptan.** See *2-Butanethiol, 2-methyl-.*
**Amyl nitrate,** effect on combustion velocity and octane no., 6814*a*.
in ignition retarding of Diesel fuels, 6805*d*.
*iso-***Amyl nitrate.** See *Isoamyl nitrate.*
**Amyl nitrite,** effect on aortic pressure, 4775*i*.
effect on circulation in rabbits affected by fat embolism, 1479*d*.
effect on convulsions from elec. shock, 2327*h*.
in ignition retarding of Diesel fuels, 6805*d*.
*iso-***Amyl nitrite.** See *Isoamyl nitrite.*
**Amyl number,** the term, 6814*a*.
**Amyloamylose,** hydrolysis and structure of, 9505*b*.
**Amylobacter,** detn. in soils, 9323*b*.
**Amylocaine.** See *Stovaine.*
**Amylodextrins,** α-amylase (malt) adsorption by, 9504*g*.
**Amyloheptaonic acid*,** potassium salt, 2581*g*.
**Amyloheptaose*,** and phenylhydrazone, 2584*c*.
**Amyloidosis,** hereditary renal disease and, 4462*f*.
as paraproteinosis, 1479*b*.
secondary, 8047*g*.
**Amylolysis.** See *Starch*
**Amylomaltase,** reaction catalyzed by, reversibility of, 7985*g*.
**Amylopectins,** in acorn starch and detn. of methylated amylose in presence of methylated amylopectin, 2798*c*.
α-amylase (malt) adsorption by, 9504*h*.
from amylose by enzyme action, 6248*e*.
amylose detn. in presence of, 5615*fi*.
degradation by β-amylase, 2006*b*.
detn. and sepn. from starch, 2455*f*.
end group detn. of, 888*g*.
end groups in potato, 8716*b*.
equil. state of mols. of, 8815*a*.
extn. from starch, 6446*h*.
hydrolysis of, 723*g*.
mol. assocn. in corn, 2584*a*.
mol. wts. of, from starches of plant origins, 1331*i*.
in potato starch, 2284*f*, 2455*a*.
effect of phosphate fertilizer on, 9323*i*.
variety and, 2005*h*.
in starches, 4036*fg*.
synthesis of, 6251*h*.
tricarbanilates and tris(1-naphthalenecarbamates) from corn and white potato, 154*b*.
**Amylopsin.** See "pancreatic" under *Amylases.*
**Amyloses** (See also *Amylopectins; Erythroamylose*) 4857*e*.
in acorn starch and detn. of methylated amylose in presence of methylated amylopectin, 2798*ac*.
α-amylase (malt) adsorption by, 9504*h*.
in corn starch, 727*c*.
detn. and sepn. from starch, 2455*f*.
detn. in presence of amylopectin, 5615*fi*
end group detn. of, 888*g*, 8715*h*.
extn. from starch, 6446*g*.
dine deriv. of β-, relation to thyroid function, 3521*i*.
mol. assocn. in corn, 2584*a*.
mol. wts. of, from starches of plant origins, 1331*i*.
osmotic pressure of corn and tapioca, 4502*h*.
phosphorylase and isophosphorylase action on, 6247*e*.
potato, 2006*a*.
of potatoes, action of β-amylase on, 2283*h*.
of potato starch, 2005*h*, 2284*e*, 2454*i*.
prepn. of, 5219*b*.
retrogradation of, effect of acid hydrolysis on, 2455*d*
sepn. from starch by $Al(OH)_3$, 6447*a*.
in starches, 4036*fg*.
starch-soln. turbidity from, 2006*f*.
streaming birefringence of solns. of, 3221*f*.
from *Torula histolytica*, 3063*a*.
tricarbanilates and tris(1-naphthalenecarbamates) from corn and white potato, 154*b*.
in waxy corn starch, 6447*d*.
**Amylose isomerase,** properties and sepn. from muscles, 6264*a*.
**Amylosis.** See *Albuminoid degeneration.*
**Amylosucrase,** polysaccharide synthesis from sucrose by, 6678*h*.
**Amyl phosphate,** salt compns. stabilized by acid, and effect on oils, P 3216*b*, P 7240*d*.
**Amyl pyrophosphate,** $Am_4P_2O_7$, P 9357*a*.
**Amyl silicate** ($Am_4SiO_4$), 5737*i*, 9028*b*.
**Amylsine.** See "*p*-aminobenzoate" under *Ethanol, 2-amylamino-.*
**Amyl sulfide.** (See also *Amyl disulfide.*)
phys. constants of, 2956*e*.
*iso-***Amyl sulfide.** See *Isoamyl sulfide.*
*iso-***Amyl tetrasulfide.** See *Isoamyl tetrasulfide.*
**Amyl thiophosphate** $(AmO)_2PS_2H$, in Mo detection, 7859*a*.
*iso-***Amyl thiophosphate.** See *Isoamyl thiophosphate.*
*iso-***Amyl titanate.** See *Isoamyl titanate.*
**Amylxanthic acid.** See *Xanthic acid, amyl-.*
**β-Amyradienol,** and acetate, 5385*c*.
**Amyrane, 3-acetoxy-12-keto-*,** α, degradation of, 6602*i*.
**Amyrenol.** See *Amyrin.*
**Amyrin, Amyrenol,** α- and β-, 6602*h*.
α-, and β-amyrin acetate in *Arlocarpus communis* latex, 4042*i*.
β-, acetate, in *Arlocarpus elasticus* latex, 4041*i*.
β-, and derivs., 5385*c*.
β-, identity with α-viscol, 1751*c*.
**Amytal** (*5-ethyl-5-isoamylbarbituric acid*). (See also *Amytal sodium.* For other derivs. see under *Barbituric acid.*)
detection in urine, 1077*b*.
effect on circulation and respiration, measurement of, 3110*e*.
effect on muscles, 8535*c*.
and elixir and tablets, monograph for, 8103*b*.
identification of, 8612*c*.
monograph for, 4800*f*.
toxicity of, 7591*e*.
**Amytal sodium** (*sodium, 5 ethyl-5-isoamyl barbiturate*), and capsules, monograph for, 8103*b*.
monograph for, 4809*f*.
solubility in iso-PrOH, 3147*i*.
**AN 148.** See *3-Heptanone, 6-dimethylamino-4,4 diphenyl-.*
**Anabaena cylindrica,** growth and heterocyst production in, in relation to C and N metabolism, 7091*e*.
**Anabasine** (*2-(3-pyridyl)piperidine*), distribution between org. solvents and water, 6789*a*.
effect on spin cord of frog, 316*d*.
in *Nicotiana glauca*, 4815*d*.
purification and properties of, and systems with $C_6H_6$ and $H_2O$, 2481*e*.
in tobacco grafts, 1082*i*.
in tobacco of South Africa, 2372*h*.
**Anabolism.** See *Metabolism, animal; Metabolism, plant.*
**Anacardic acid,** from cashew-nutshell liquid, 1348*e*.
chlorinated, in termite control, 6356*f*.
hydrogenation with Raney Ni catalyst, P 4498*a*.
oxidation by laccase, 6298*g*.
——, **tetrahydro-*,** 1348*f*.
**Anacardic materials.** See "-nutshell liquid and its distillates and polymers" under *Cashew.*
**Anacardium occidentale.** See *Cashew.*
**Anacardol*,** hydrogenation with Raney Ni catalyst, P 4497*i*.
oxidation by laccase, 6298*g*.
——, **tetrahydro-*,** from hydrogenation of cashew-nutshell liquid, P 4498*c*.
**Anacyclus pyrethrum,** pellitorine from dry roots of, 2933*h*.
**Anaerobes.** See *Bacteria.*
**Anagyrine,** 3429*a*.
from *Baptisia perfoliata*, 650*ab*.
identity of, rhombinine and monolupine and their derivs., 649*g*.
**Analcime** (*analcite*). (See also *Aposonalcite.*)
chem. comptn. and standards for, 2128*h*.
mol.-sieve absorbents from, P 1618*c*.
pseudomorphs after nepheline in camptonites from Toyun, U.S.S.R., 6128*h*.
**Analeptics.** (See also *Respiration, animal; Tonics.*)
amides, 1797*e*, P 248*fh*.
biphenyl derivs., 1359*g*.
chem. constitution and action of, 1778*g*.
effect in barbiturate narcosis, 9262*a*.
5-methyl-2,4-furandicarboxamide, P 2643*a*
metrazole, picrotoxin and samandarine as, 3519*i*.
sodium succinate as, in barbiturate anesthesia, 7582*f*.
**Analgesia.** (See also *Anesthesia.*)
from adrenaline, 6744*b*.
measurement of, 9248*c*.
**Analgesics.** (See also *Sedatives.*) 4243*a*.
alcs. and esters related to 6-dimethylamino-4,4-diphenyl-3-heptanone, 3390*h*.
amidone and related compds., 7466*a*.
aminoalkyl benzhydryl sulfones, 1366*a*.
amino ketones, 9053*i*.
*N*-benzhydryl-α-(α-methylphenethylamino)acetamide, P 677*g*.
2(3*H*)-benzoxazolone derivs., 6616*a*.
biphenyl derivs., 1359*g*.
chem. constitution and action of, 8552*d*.
chloral hydrate, dial and $MgSO_4$ and their combinations as, 7141*c*.
1-(1-cyclohexen-1-yl)-2-oxocyclohexanepropionic acid, P 6230*g*.
2-diethylaminoethyl α-*m*-toloxycyclopentaneacetate, P 7958*c*.
4-dimethylamino-3,4-dimethyl-1-phenyl-5-pyrazolone, P 3467*d*.
6-dimethylamino-4,4-diphenyl-3-heptanone and related compds., 3390*g*.
6-dimethylamino-4,4-diphenyl-3-heptanone as, 8537*h*, 8614*f*.
1,4-di-2-pyrazinylpiperazine, P 4705*c*.
esters and ketones from amino nitriles, 9052*c*.
1-ethyl-3-(*p*-methoxyphenyl)-*N*-methylisobutylamine, P 6231*g*.
evaluation and physiology of, 8611*f*.
evaluation of, 1487*b*.
*p*-hydroxyacetanilide as, 314*f*
*N*-γ-hydroxybutyryltaurine and Ba salt, P 4818*d*.
identification of, 1907*h*, 8429*h*.
10,4a(4*H*)-iminoethanophenanthrene derivs., P 7518*a*.
ketimines and acylketimines related to amidone, 3391*i*.
methadon and morphine as, 5863*c*.
methadon, thiobarbituric acid anesthesia and, 1483*d*.
1-methyl-4-(3-hydroxyphenyl)-4-piperidyl ethyl ketone as, 9248*c*.
morphinans, 6635*i*.
5-nitro-2-propoxyaniline as, 8099*b*.
opium derivs., pharmacology of, 1869*d*.
phenoxyphenyl propylamines, P 365*a*.
piperidine and pyrrolidine derivs., P 695*g*.
piperidine derivs., 4674*d*.
6-piperidino-4,4-diphenyl-5-methyl-3-hexanone as, 5860*d*.
α-piperidyl- and α-quinolylacetophenones, 2208*f*.
3-pyrazolone derivs. as, 7934*i*.
quaternary derivs. of tertiary amines as, 7921*d*.
4-quinazolinol derivs., 4675*i*.
2,4(1*H*,3*H*)-quinolinedione derivs., P 3472*gh*.
reviews on, 1909*e*, 8099*c*, 9250*h*.
Rotifera in testing, 358*f*.
*N*-salicyloyl-β-alanine, P 1914*f*.
saligenin acetate acetylsalicylate, P 7647*f*.
synthetic, 3565*e*.
tolerance to, 6733*f*.
vitamin $B_1$ in combination with $MgSO_4$ or NaI as, 1157*b*.
**Analysis.** (*Under this heading are entered only analytical subjects of a more or less general nature. See also* Argentometry; Ashing; Calculations; Calibration; Coriometry; Colorimetry; Dimensional analysis; Hydrogen sulfide group; Indicators; Iodometry Legal chemistry; Magnetic analysis Nephelometry; Ores; Polarography; Precipitation; Reductors; Sampling; Standard solutions; Thermal analysis; Titration; Toxicology; Vanadometry Voltammetry; also [illegible] of

*analytical indexes or values, as methods for their determination, see such headings as* Iodine number *and* Saponification number.) 4602*b*, 8308*a*.
abbreviations in, 4595*f*.
accuracy and precision in, 2887*e*.
accuracy of, effect of errors in weighing and titration on, 4173*h*.
acid evapn. from filtrate of Group I in, 1681*b*.
acids and bases and exchange of particles in, 8971*c*.
address on, 5691*h*.
adsorption—see *Chromatography*.
in air-liquefaction plant control, 4972*c*.
of alloys—see *Alloys*.
aluminum Li hydride in quant., of org. compds., 1280*f*.
amino acids and analogous compds. in, 8947*h*.
ammonium acid phosphate and $Na_2HPO_4$ in quant., of heavy metal ions, 4602*e*.
anion systematic sepn. into 5 groups, 4975*g*.
app. for detecting dilu. or mixing, P 8760*a*.
app. for, in automatic control systems, 8213*b*.
arsenic aromatic compds. in quant., and electron cloud displacement theory thereof, 57*b*.
benzidine derivs. in, 2115*e*.
5,6-benzoquinaldic acid in, of metals, 6935*c*.
biol., 3561*f*.
biol., math. evaluation of, 7069*i*.
bismuth basic permanganate in gravimetric, 519*i*.
blowpipe, history of, 3251*e*.
books: Aquametry—with Karl Fischer Reagent, 522*g*; Qual. and Volumetric, 522*g*, Instrumental Methods of, 522*h*; Techniques of Histo- and Cytochemistry, 714*c*, Manuel théorique et pratique de, chim. qual. et volumétrique, 976*a*; Analytische Scheikunde, 1291*a*; Ausfuhrung quant., 1291*a*; Chem. Nachweise, 1291*a*; Praktikum der qual. anorg.-chem., 1292*a*, Chimica analitica applicata all'industria tessile e tintoria, 1573*i*; chimique quant. à l'aide de liqueurs titrées, 1690*g*; Semimicro Qual.—Non-$H_2S$ System, 2126*g*; Lyuminestsentnyĭ analiz, 2517*b*; Kurs analiticheskoĭ khimii, 2548*e*; Obecné úvaky a manipulace k technologickým, 2548*f*, Osnovyne nachala fiziko-khimicheskogo, 2548*f*; Metallurgical, 2548*g*; Vraagstukken over chem., 2548*g*; Fiziko-khimicheskié metody, 2548*h*, Fundamentals of Qual. Chem., 2548*h*; Mikrochemické, 2548*h*; Electroanalytische Schnellmethoden, 2548*i*; Métodos de, quimico industrial. V., 2548*i*, Sintezy Org. Reaktivov dlya Neorganicheskogo, 2627*g*; Kurze Anleitung zur qual. chem., 2896*h*; Oprobovanie i probirnyĭ, 2896*h*; Chemistry of Specific, Selective, and Sensitive, 3318*c*; Einführung in die qual. chem., 3318*c*; Mikrochemie—Vol. I—Mikroanalysea kvalitativní, 3318*d*; Scheme of Qual. Org., 3318*d*; Commission internationale des réactions de réactifs analytiques nouveaux, 3748*e*; Quant. Micro-, 3748*e*; Simplified Course in Elementary Qual., 4186*e*; Treadwell's manuel de chimie analytique. Vol. I. Analyse qual. Vol. II. Analyse quant., 4186*e*; Medizinisch-chem. Untersuchungsmethoden, 4312*g*; Rationelle Metallanalyse, 4604*f*; der Metalle, 4604*g*; Quant. Org., via Functional Groups, 4604*g*, Qualitativa org., 4978*h*; Principles of Biol. Assay, 5075*e*; Kolichestvennyĭ, 5346*d*; Inorg. Quant., 5346*e*; Kachestvennyĭ Khimicheskiĭ, 5346*e*, Sepu. and Identification of Org. Compds., 5346*e*; Tableaux des réactifs pour l'analyse minérale, 5346*f*, Manual of Clinical Lab. Methods, 5443*c*, Clinical Chemistry in Practical Medicine, 5443*d*; Praktikum der klinischen, chem., mikroskopischen und bakteriologischen Untersuchungsmethoden, 5443*d*, 5820*c*; Précis de Biochemie clinique, 5820*b*, Méthodes modernes d'analyse quant. minérale, 6543*a*; Rat in Lab. Investigation, 6696*i*, Microchemistry, 6948*g*; Lab. Hand-Book of Org. Qual., and Sepns., 7380*f*; Notes on Inorg. Quant., 7380*f*; Qual., 7380*f*; 8312*f*; Handbuch der analytischen Chemie, 7870*f*, 8980*f*. Qual. anorg., 7870*f*; Chimica quant., 7870*g*; New Methods of Elementary Micro-—(in Russian), 8312*e*; Analytical Methods for Textile Lab., 8689*e*, Analytical Chemistry and Chem., 8980*f*; Introduction to Semimicro Qual., 8980*f*; Klinisch-chem. Untersuchungsmethoden, 9140*g*; Qual. und Quant., von Faserstoff-Mischungen, 9458*e*.
bromine complexes in qual., of metals, 1529*d*.
capillary—see *Chromatography*.
catalytic, 7860*b*.
chemists in industry, 5691*i*.
chromatographic—see *Chromatography*.
in coatings industry, 3212*g*.
color reactions accompanied by pptn in, 7860*b*.
columbium and Ta salts useful in, 4597*h*.
combustion—see also *Carbon, analysis; Hydrogen, analysis;* and "org." below.
combustion, burners for elemental, 6474*e*.
combustion train for, of Hg contg. org. compds., 8955*d*.
combustion tubes for—see *Combustion tubes*.
in cosmetology, 3146*a*.
cupferron in, 6103*g*.
designating significant places in specified limiting values, standards for, 4786*g*, 4787*f*.
diaminobenzidine in qual., 4599*e*.
dibenzofuransulfonic acid in, 5021*c*, 6203*i*.
dismutation in, and Brönsted theory of, 58*e*.
distn. app. for, 6472*e*.
distn., f.p., etc., in, of hydrocarbons, 4972*e*.
distn. in, 8299*b*.
distn. in, of liquid hydrocarbons, 3178*i*.
distn. (mol.) in quant., 8299*d*.
dithizone in, 5344*d*.
dyes in inorg. qual., 6106*d*.
elec. methods of, in industry, 5693*c*.
elec. oscillators in conductometric chem., 8943*i*.
electro-, 2113*f*.
electrochronometric quant., of cations, 959*h*.
electrochronometric registering app. for qual. and quant., 960*g*.
electrodialysis in cation detn., 8424*i*.
electrolytic, 4173*g*.
with controlled potential, 8946*d*
at controlled potential, app. for, 2043*e*, 2473*c*.
internal electrolysis in quant., 8946*d*.
with Hg-cathode cell, 7354*c*.
qual., for metals, P 5980*g*
servo instrument for, 5647*d*.
electrolytic and gravimetric, 3309*e*.
electrolytic potential in qual., 7352*h*.
by electron-microscope goniometry, 3260*d*.
electron microscopy of metallo-org. ppts. in detg. procedures for inorg., 1279*d*.
electrophoresis in, 1619*c*.
of electroplating solns., 961*g*, 8904*a*.
engineer-analyst role, 5692*h*.
errors in, statistics in calcn. of, 2115*f*
errors in volumetric, partial differentials in estn of, 8299*b*.
of essential oils, etc., 3146*a*.
exptl design in research and control, 4173*f*.
filtration in quant., acceleration of, 8746*b*.
fluorescence, 2113*g*.
biol. applications of, 2264*i*.
for cations, 5702*b*.
photofilter-condenser for, 8746*f*.
fluorescence and phosphorescence, of optical glasses, 6797*g*.
fluorides in, 7867*a*.
formazylcarboxylic acid in, 5096*f*.
gas—see *Flue gases; Gas, fuel (manufactured); Gases;* and specific gases.
heavy-metal detn. in colored solns., 8301*b*.
for heavy metals in altered lavas with dithizone, 8990*a*.
hexamethylenetetramine, α-picoline and pyridine in qual., of cations, 962*b*.
hydrofluoric acid-$HClO_4$ mixt. as solvent in inorg., and volatilization of elements therein, 6106*e*.
hydrogen ion in, 4096*f*.
hydroxamic acid salts in qual., 2116*b*.
importance of chem., 6103*g*.
instrumentation in industrial, 5645*c*.
with intermetallic solns., 8245*g*.
ion-exchanging organolites in, 57*i*, 8946*c*
isoquinoline in inorg., for bivalent cations, 8947*i*.
of isotopes, 7319*d*.
journal: Scandinavian J. of Clinical and Lab. Investigation, 6690*h*.
luminescence, 6933*h*.
of bitumen-impregnated rocks, 5573*i*
of minerals, 6933*f*.
Magneson in, 2118*e*.
magnetooptic rotation in, of hydrocarbon mixts., 8839*a*.
masking reactions by fluorides and demasking by boric acid in, 4598*d*.
mass spectra and infrared spectra in, of gaseous hydrocarbons, 5930*g*, 6105*a*
mass-spectrometric, 4972*e*.
of gaseous hydrocarbons, 4971*h*.
of isotope ratio in org. compd., 5327*d*.
mercuric chloride effect on biol., 7034*a*
mercury oxide reaction with KI or KCN in, 7860*c*.
metallurgical, analysis and prepn. of standards for, 5694*i*.
in metallurgy (nonferrous), 2888*i*.
of metals, 8998*i*.
methylene blue in qual., for cations and reducing anions, 962*h*.
methyl violet in quant., 4175*c*
micro—see also *Microchemistry*
micro-, 5065*g*.
app. for, 445*g*.
bomb methods in, 2541*i*.
burner for combustion, 7272*i*.
combustion in empty tube in org. quant., 972*i*.
in cosmetics industry, 4424*h*.
crit. mixing temp. in liquid qual. and quant., 8308*h*.
effects of N oxides formed in org., 8943*b*.
elec. cond. in, 58*f*, 1687*b*.
electron microscopy and, 4972*e*
inorg. qual., 4971*c*, 7860*c*.
of noble metals, thiobarbituric acid derivs. in qual., 8300*gh*.
novelties in, 521*a*.
org. qual., 67*d*.
org. quant., 6936*fg*.
in plant control, 8944*e*.
of plant tissue, 3071*a*.
qual., for cations in six groups, 1971*c*
8-quinolinol in gravimetric and volumetric, 6105*i*.
NaI-quinoline soln. in qual., 7370*c*
microbiol., 711*a*, 1076*e*, 7997*f*
microbiol., using lactic acid bacteria, 7997*h*.
microchem. identification of crystals, transformation of gnomograms in, 6030*a*, 6487*a*.
microscopic identification of cryst. org. compds., 6105*d*.
microscopic identification of low melting compds. by crystn., 6498*d*.
microscopic identification of org. compds. by fusion on slides, 4975*i*
microscopic thin-section, point counts for, 8747*e*.
microsublimation in toxicological, 3866*c*
molybdic and tungstic heteropoly acids in, 1671*f*.
of multicomponent systems, 8833*f*
neutron pile in quant., for minor constituents, 6537*h*.
of nonmetallic building materials, 4397*i*
org.—see also *Carbon, analysis, Hydrogen, analysis;* and "combustion" above.
org., Butyl rubber tubing in trains for, 1596*c*.
elementary, 4180*f*, 7371*c*
of high-boiling org. compds., lamp for combustion, 1687*d*.
in petroleum-hydrocarbon identification, 2410*d*.
qual., 521*e*.
for org. compd. class detection, 1289*a*
org. compd., homolog and isomer identification and differentiation by spot-test, 6944*d*.
org. compd. identification, 521*f*, 2548*b*, 8974*b*.
org.-matter destruction in, by acids, 6420*f*.
org.-matter oxidation in, 4976*c*, 4972*d*.
org. reagents in inorg., 1679*g*, 5327*e*.
org. reagents in inorg., for cations, and specific gr. groups in analysis 8947*g*.

org. reagents in inorg., specific or functional-analytical groupings in, 7368*f*.
in paint and varnish industry, 8175*e*.
in paint industry, 3209*f*.
in petroleum industry, 3179*c*.
of pharmaceutical prepns.—see *Pharmaceuticals*.
phase, of polymorphous substances by surface tension, 7765*i*.
phenothiazine in qual., 8299*h*.
phosphate removal in qual., 3745*c*, 6942*f*.
photoelec. app. for, of fluid mixt. by transmitted light, P 449*g*.
photometer (flame) for, for cations, 8217*e*.
photometric absorption, 7858*h*.
photometric, for cations, 8297*h*.
evaluation of accuracy in, 7367*c*.
quant. flame, 3314*c*.
with narrow heterochromic band, 1279*i*.
phys.-chem. principles in research on, 3669*h*.
physicochem. analysis of systems important in, 960*i*, 2539*b*, 5326*f*, 5695*e*, 8943*d*.
physicochem., detn. of mol. wt. as method of, 1252*b*.
piezodilatometry in, 7070*a*.
pinacyanol iodide in, 5092*c*.
potassium dichromate in volumetric, history of, 5327*i*.
potassium ferricyanide in volumetric, in strongly alk. solns., 8955*b*.
potentiometric detection of noble metals, 2120*g*.
potentiometric, for cations, 6537*c*.
potentiometric quant., of noble metals, 2542*e*.
precipitability in qual., of complex org. compds., 4183*f*.
precision and nature of errors in, 519*d*
publications on, 3070*g*.
purity detn. in complex mixts., soly. in, 8311*d*.
qual., for cations, 3313*f*, 8965*g*.
for cations in toxicology, 7804*c*
for cations without $H_2S$, 7860*d*.
of Group I cations, 8973*a*.
group sepns. in inorg., without $(NH_4)_2S$ or $H_2S$, 6537*a*.
group sepns. in inorg., with sulfides and sulfide ions, 5325*c*.
Group II and III sepn. in, indicator changing at pH 0.5 in controlling, 7368*h*.
for metals, etc., for self-inflicting skin lesions, 4183*e*.
for metals volatile in steam, 3314*a*.
quantized, 7762*c*.
sepn. of Group III cations in, 7862*c*.
quant., for anions, 8971*g*.
for As subgroup cations, 7377*a*.
for cations of Cu and Fe subgroups, 7376*e*.
education in, 1618*i*, 1619*ab*.
liquid unknowns in, 6015*b*.
8-quinolinol in quant., of metals, 6113*g*.
8-quinolinol (molten) in qual., 8299*i*.
by radioactivation, 5287*h*.
radioactive and stable isotopes as tracers in, 5092*i*.
radioactive indicators in, 2541*h*, 7858*i*
radioactive tracer techniques in, of complex mixts., 4553*h*.
radiochem. activity, 5287*e*.
radiographic micro-, 8945*g*.
radiotracer and spectrographic, sensitivity of, 2113*i*.
Raman effect in, 7858*e*, 8297*g*.
of aromatic compds., 3316*i*.
of fluorinated hydrocarbon mixts., 1956*i*.
of hydrocarbon mixts., 2083*i*.
of hydrocarbon oils, 4456*b*.
for rare element detection or sepn. from other elements, 7860*f*.
for rarer elements, 2545*g*.
rationalization of, 5692*i*.
rational methods of gravimetric, 3742*i*.
reactions of value in, 8943*a*.
reagents for—see *Reagents*.
refractive indexes of ppts. obtained with org. reagents in, metal identification by, 6540*g*.
research on, in industry, 519*d*,
in research result evaluation, 5691*i*.
Resolin B in qual., for multivalent metals, 1585*a*.
retention, 2660*c*.
reviews on, 2113*d*, 2539*b*.
sampling effects in, 7365*g*.
sedimentation—see *Sedimentation*.
semicarbazones of isatin and its derivs. in, 8979*g*.
semimicro-, for teaching general chemistry, 5239*g*.
semimicro-fractionating column for, 4053*e*.
semimicro-, of Group I cations, 972*e*.
semimicro quant., 8943*i*.
elementary org., methods of Heslinga and ter Meulen for, 6105*d*.
org., 5702*c*.
sepn. and identification of elements distd. by acids, 2119*f*.
sepn. and identification of U fission products, 4127*f*.
silica removal in, app. for, 912*d*.
sodium *p*-nitrophenolate in, 6935*c*.
solid reagents in, of minerals and ores in the field, 6935*a*.
spectrochem., 6103*h*, 7857*f*.
in absorptiometer, and reversion or change in optical d. of complex salts of cations, 6107*a*.
absorption, 6933*fh*, 7858*hi*.
accuracy in, 2539*e*, 8276*f*.
a.-c. arc between C electrodes in quant., 4971*h*.
a.-c. discharge through $C_2H_2$-air flame in quant., 4595*h*.
in analytical control in light alloys industry, 5694*h*.
arc or spark for, 1273*a*.
arcs and spark discharge in excitation, 5326*d*.
calcg. boards in quant., 1679*d*.
calcn. and methods in, 2539*e*.
calibration curves in, effect of background on, 2539*i*.
C-electrode purification for, 3732*b*.
C electrode support as reference element in, 6537*e*.
of colored metals, 3314*b*.
common-matrix system of emission, 8945*a*.
concn. by org. reagents in, 2541*e*.
corrections for gamma changes in 2-line-pair method of quant., 961*f*.
dextrin glue in preventing loss in, 6104*g*.
direct and graphic, with same app., 3741*i*.
with direct-reading spectrometer, 8944*g*.
with electron multiplier photocells, 3245*h*, 5693*g*.
in electroplating, 8901*g*.
emission, 1279*h*.
emission, in Germany, 8297*g*.
emulsion calibration scale for, 6006*g*.
of fats and related substances, 878*g*
filter-paper pellets in, sensitivity and reproducibility in, 2114*h*.
with general-purpose spark-source unit, 7857*s*.
in geochemistry and mineralogy, 5345*g*.
of high-purity materials and volatile elements, 2539*c*.
of hydrocarbons, 7346*e*.
infrared, 4972*e*, 8297*e*, 8944*h*.
infrared absorption, 960*hi*, 1279*g*, 5666*d*, 6105*a*, 6471*f*.
infrared absorption, for impurities in aliphatic and cyclic hydrocarbons, 3715*h*.
infrared absorption, in control of pilot plant, 5131*i*.
infrared, automatic computation in quant., 7857*k*.
infrared chopped-radiation analyzer for, 1616*b*.
infrared, in motor-fuel industry, 2759*a*.
infrared, of aromatization product of heptane, 3715*d*.
infrared, of hydrocarbons, 3743*a*.
infrared, of hydrocarbons for $CH_3$, $CH_2$ and aromatic CH groups, 5702*d*.
infrared, of hydrocarbons for oxygenated and olefinic compds., 1687*f*.
infrared, of hydrocarbons, mech. calculators in, 382*e*.
infrared, of lubricants, etc., 1173*e*.
infrared, of minerals, powders and compds. having water of crystn., 7859*c*.
infrared, of org. solns., 5694*d*.
with infrared rays with C–H bands resolved by LiF prism, 8973*k*.
interchanging equipment in, 5695*b*.
interrupted spark in quant., 5325*h*.
of ketones, 3715*f*.
light sources, dispersion and reading lines in emission, 961*c*.
*spectrochem.*, light sources for, 6083*be*.
of localized heterogeneity in metals, spark discharge and, 2540*h*.
low-tension spark in quant., 8297*e*.
of lubricating oils, 4840*f*.
material economy by, 6103*g*.
in medicine, 3563*h*.
for metal contaminants in fluid cracking catalysts, 8655*i*.
for metallurgical, mining and refining industries, 2120*e*.
of metals in America, 5694*i*.
of microscopic inclusions, precipitates and sediments, 6933*h*.
with microwave spectra, 6103*h*.
of minerals for cations by Bunsen spectroscope, 3309*i*.
Mo-mold samples in increasing accuracy of metal, 1279*h*.
nomographs in photographic evaluation of minor constituents in, 961*d*.
of nonmetallic materials in chem. industry, 5693*e*
photo amplifiers in, 8297*g*.
photographic errors in, 8276*h*.
photographic-plate calibration for quant., 5695*a*.
photographic-plate calibration in, accuracy of, 5693*i*.
photosensitive papers for ultraviolet, 2114*e*.
for polycyclic hydrocarbons in oils, 3182*f*.
precise, by double-ray method with arcs, 2887*g*.
quant., 58*i*, 2114*e*, 6940*g*, 8967*c*.
quant., by arcing in 2-min. and then 10-min. C arc, 7365*i*.
rapid method for, 2114*f*.
rotating-step sector and intermittent light sources in, 2887*g*
saline mixts. in quant., 8945*c*.
scattering of intensity ratios of spectral lines measured photographically in, 8276*i*.
semiquant., and limits of identification in, 7858*g*.
of $SiO_2$ refractories, 7656*bd*.
of slags, 2120*h*.
for smallest possible area of metals, etc., 7857*f*.
of solns. with porous cup electrode, 8945*b*.
spark excitation of powd. oxides in quant., 2540*e*.
spark generators for, 448*e*, 1616*c*.
sparking through paper impregnated with sample moving between electrodes in, 6104*g*.
standardization of, 2539*h*.
statistical fluctuations in quant., 5693*i*.
of surfaces for impurities, 5694*c*.
synchronous switches for spark generators for, 5695*d*.
for traces after concn., 2546*e*.
in U.S.S.R., 8944*e*.
for volatile impurities in metals, calibration with 3 alloys in, 2540*g*.
spectrochem. and spectrophotometric, of rubies and sapphires, 8981*h*.
spectrophotometric, calibration and evaluation of spectrograms in, 2539*g*.
infrared, 8297*h*.
infrared, compensated extinction *vs.* classical quant., 7367*b*.
infrared, of colorless liquids, 59*d*.
infrared quant., with compensated extinction, 7366*h*.
line source in emission, 8944*e*.
spectroscope for, 8746*g*.
standardization and codification in, 5693*a*.
standardization in, in Holland, 5692*i*.
statistical aspects of, and quality control charts in, 8944*a*.
statistical multiple factor expts. in, 4173*c*.
statistical quality control in college analytical labs., 7275*i*.
statistical tests in, 4173*c*.
statistics in, 4173*h*, 4595*f*, 8944*c*.
steric hindrance in, 8941*i*.
substitute chemicals in physiol., 5074*d*.
sulfates and sulfites in quant., 2115*fhi*.
sulfides pptd. in, oxidizability of, 5700*i*.
symposium on [illegible] for developing new methods of
tannins in qual., 8943*f*
tanning in quant., of metals, 1681*c*, 8943*e*
teaching [illegible] and evaluation of [illegible]
tannins [illegible]

**teaching of quant.**, Debye-Huckel theory and its application in, 6014*i*.
**teaching of quant.**, value of error problems in, 4909*g*.
**thallium salts in**, or org. compds., 522*a*.
**thermobalance and automatic gravimetry in inorg.**, 5693*a*.
**thermogravimetry or precipitate drying or ignition temps. in gravimetric**, 63*g*, 7367*e*, 8304*f*, 8943*a*
**thioacetamide in qual.**, for cations of Groups II and III, 2115*e*.
**of three-component systems contg. two mutually immiscible components**, 8832*h*.
**time study of**, 959*g*.
**trace element detn. in minerals and rocks**, 6106*g*.
**in U. S. S. R.**, 8941*i*.
**at University of Liège**, 3711*a*
**vanillin-$H_2SO_4$ in identification of org compds.**, 6105*g*.
**weighing in**, precision of, 6537*g*
**weighing in quant.**, 8299*e*.
**in wood industry**, 5585*h*.
**x-ray absorption in**, 5299*i*
**x-ray absorption in**, with multiplier phototube, 5693*c*.
**x-ray diffraction in quant.**, of powder mixts., 2063*e*.
**x-ray diffraction photometer in**, of two powders, 2507*i*
**x-ray-diffraction spectrometer in quant.**, of minerals, 8981*i*.
**x-ray-diffraction spectrometer using Geiger counter in quant.**, of powders, accuracy and reproducibility in, 58*i*.
**x-ray fluorescence in quant.**, 959*h*, 961*d*
**with x-rays**, 4595*f*.
**zinc sulfide in qual. and quant.**, of cations of Groups I and II, 60*g*
**zinc sulfide in qual.**, without $H_2S$, 2887*i*.
**zirconium salts in qual.**, 2546*a*.
**Anaphoresis**. See *Electrophoresis*.
**Anaphylactic shock**. See *Anaphylaxis*
**Anaphylaxis**. (See also *Allergy; Asthma, Sensitization;* etc.)
**acetylcholine liberation during**, 1478*a*
**adrenocorticotropic hormone effect on**, 2306*d*.
**antigen for, effect of alum adjuvant and site of administration on sensitizing dose of**, 4369*d*.
**blood-vessel and heart lesions from, effect of salicylates and benadryl on**, 3523*b*.
**cholinesterase in blood serum in**, 4761*b*.
**chronaxia in**, 2696*g*.
**colloidoclasia in**, 3510*g*.
**drug action on lungs in**, 7130*i*.
**enzyme theory of, in treatment of diseases**, 1855*a*.
**in fish**, 306*a*.
**folic acid effect on**, 6306*c*.
**granulopexy of vascular epithelium in**, 5854*c*.
**heparin effect on**, 8543*g*.
**histaminase in blood in**, 1100*e*
**histamine action in, vitamins antagonizing**, 3901*h*.
**histamine antagonists in treatment of**, 3937*h*, 7130*a*.
**histamine in blood and tissue in**, 4759*d*
**histamine liberated from intestine during, effect of antistine on**, 3512*e*.
**hyaluronidase inhibitor in blood serum of normal and herpetic rabbits in**, 3094*i*
**iridocyclitis from**, 5109*a*.
**passive**, 7574*g*.
**passive, latent period in, in relation to dose of antibody**, 8523*f*.
**4-methyl-2-thiouracil effect on**, 6730*i*.
**methylthiouracil effect on, thyroidectomy and**, 4376*g*.
**2-(*N*-phenyl-*N*-benzylaminomethyl)-imidazoline in protection from**, P 7576*c*.
**-producing property of eosinophiles, transportation of**, 4757*a*
**proteins in blood in**, 8042*e*.
***N*-(α-pyridyl)-*N*-(α-thenyl)-*N*$^1$,*N*$^1$-dimethylethylenediamine HCl in inhibition of**, 2324*d*
**radiation effect on**, 3084*d*.
**review on**, 3513*b*.
**RP 3277 effect on**, 1104*h*.
**tracheal chains in, and their response to antihistamic and bronchodilator drugs**, 1862*b*.
**vitamin $B_2$ effect on**, 4352*h*.
**vitamin C effect on**, 2305*c*.
**yohimbine in protection against**, 300*a*.
**Anaplasmosis, in cattle**, 6775*d*.
**Anarsia lineatella** and(or) **Peach twig borer, control of**, 5149*b*.
**Anatase, adsorption of N-O mixt. by**, 3263*h*.
**of Brazil (Capao de Lana)**, 5703*i*.
**as catalyst**, 8828*b*.
**catalysts of $CoCO_3$ and, adsorption and desorption of N and stearic acid by**, 6897*i*.
**as cementing substance for sands**, 6550*d*.
**in fireclays**, 4605*d*.
**of Italy (Aosta Valley)**, 2128*a*.
**oriented inclusions and structural relationships with pseudobrookite**, 3747*h*.
**between perovskite and ilmenite in Karelia, intermediate formation of**, 7380*i*
**in sedimentary kaolin of Ga.**, 6117*g*.
**sedimentation in centrifuge, particle size distribution and**, 6870*i*.
**soils**, 3127*d*.
**Anatoxins**. See *Toxoids*
**Anauxite**, in clays, 3580*f*.
**Anayodin** See *Quinolinesulfonic acid, hydroxyiodo*.
**Anchusa red**. See *Dyes*.
**Anchusa tinctoria**. See *Alkanet*
**Andalusite**, mica removal from, P 7206*c*.
**origin of**, in quartz-sillimanite veins in Nigeria, 6117*i*
**-quartz vein in Mandwe region, Belgian Congo**, 6549*e*.
**Andesine**, dolerite of Squilver Hill, Shropshire, 4606*a*
**zoned, and origin of zoning**, 4191*a*.
**Andesites**, augitic, from Oristano, Sardinia, 7874*b*.
**of Balkans between Botevgrad Pass and Zlatitza Pass**, 4191*b*.
**of Carpathian orogeny and Presov Mts.**, 75*f*.
**of Colombia (Natagaima)**, 525*h*
**from D'Entrecasteaux Is.**, 2135*i*
**dikes of Sb deposits of Soyatal Dist., Mex.**, 4982*c*.
**of Egypt (Barramiya Mining dist.)**, 1692*d*
**garnet-bearing, in Cahiman region, Carpathians**, 8993*f*.
**hornblende and pyroxene, from Haruna, Japan**, 6127*h*.
**hornblende, ground mass pyroxene of**, 6119*e*.
**from Japan**, 6127*h*.
**from Mt. Bogana, Solomon Is.**, 4191*a*
**of New Mexico (northeastern)**, 6128*b*.
**of Peru (Arequipa region)**, 75*e*
**from Sakurajima volcano**, 6548*d*.
**of Scotland (Old Red sandstone suite)**, 3323*e*.
**of Spain (Tarragona)**, 6548*g*.
**Andradite, compression of**, 4917*h*
**Androgenic hormones or principles**. (See also *Adrenal extracts; Androsterone, dehydro-; Cyclopenta[a]phenanthrene; Testicular extracts; Testosterone;* and "sex" under *Hormones*.)
**amylase activity of submaxillary glands conditioned by**, 8403*d*.
**3-*cis*,17-*trans*-androstanediol as**, 3087*g*.
**assay in urine exts.**, 8426*d*.
**assay of, with chick combs**, 7094*a*.
**in British Pharmacopeia (1948)**, 4428*g*.
**carcinoma of genitals and mammary glands treated with**, 1481*d*.
**carcinoma of uterine cervix in mice treated with**, 2310*i*.
**p,p′-(1,2-diethylethylene)diphenol hydrogenated derivs as**, 6187*h*.
**effect on growth of os penis of hypophysectomized-gonadectomized rats**, 740*g*.
**on pituitary gland and testicles in avitaminosis A**, 3896*d*.
**on sexual characteristics**, 2302*e*
**on succinic dehydrogenase and cytochrome oxidase in prostate and seminal vesicle**, 8488*e*.
**embryonic sex differentiation and**, 5478*e*.
**estrus in rabbit and**, 1098*f*.
**hepatic inactivation of**, 2299*h*.
**-keto steroid ratio of urine**, 8489*d*.
**in mammary cancer treatment**, 8521*f*
**of manure of cows, effect of temp. and drying on activation of**, 9125*c*.
**metabolism of**, 5840*a*, 8033*f*.
**monocrotaline toxicity and**, 8556*a*.
**oral effectiveness of**, 1097*d*.
**progesterone as**, 739*f*.
**review on**, 7566*f*.
**secretion by tumors of adrenal cortex**, 1478*i*, 5855*i*.
**steroids with action as**, 8512*b*.
**urinary excretion of, by Cebus monkey**, 7534*g*.
***urinary excretion of***, by Cebus monkey following administration of testosterone propionate, 1849*c*.
**by normal and impotent males**, polyarthritics and prostatics, 2687*h*
**Andrographis paniculata**, andrographolide from, 3565*g*.
**Andrographolide**, from *Andrographis paniculata*, 3565*g*
**Andromeda polifolia**, effect of nutrient supply on assumption of xeromorphic forms of, in high moorlands, 5089*a*
**Andropogon**. See *Grasses; Sorghum*.
**$\Delta^{5,16}$-Androstadiene, 3-hydroxy-17-cyano-***, nitrogen detn. in, 5336*f*
**$\Delta^{3,5}$-Androstadiene-3,17(α)-diol***, dipropionate, spectrum of, 3018*i*.
**1,4-Androstadiene-3,17-dione**, 4271*i*
**$\Delta^{1,4}$-Androstadien-17-ol-3-one***, cyclohexanecarboxylate 2,4-dinitrophenylhydrazone, 4282*d*.
**$\Delta^{4,6}$-Androstadien-17-one***, and derivs., 5067*b*.
spectrum of, 3018*i*.
**Androstane**, monoester derivs., P 1915*h*
spiro derivs of, 659*d*
——, **3(β)-acetoxy-17-(1-oxoisohexyl)-***, 6638*d*.
——, **6,17-diketo-***, derivs., 246*g*
——, **3(β), 16(α), 17(α)-trihydroxy-**, 3435*b*
**√-Androstane**. See *Pseudoandrostane*.
**Androstanediol, methyl-***, effect on lactation, 8032*e*.
——, **17-methyl-***, effect on protein metabolism, 7099*h*
*epi* **Androstanediol** See *Epiandrosterone diol*
**3,17-Androstanediol**, 3-*cis*, 17-*trans*, an bisexual activity of, 3087*g*
3-*cis*, 17-*trans*-, 17-benzoate, P 1916*b*
effect on arginase and phosphatases of organs, 3089*b*
3-*trans*, 17-*trans*, esters, P 1916*b*
——, **17-methyl-***, effect on arginase and phosphatases of organs, 3089*b*
**3(α),17(α)-Androstanediol***, and 3-acetate and diacetate, spectrum of, 3018*i*
and 3-acetate, effect on adrenal cortical tumor formation, 7124*g*
3-acetate, effect on metabolism, 7099*h*
effect on body wt., temporal muscle and organs, 3088*h*
as metabolic product of androsterone, 295*h*
——, **17-methyl-***, effect on adrenal cortical tumor formation, 7124*g*
effect on body wt., temporal muscle and organs, 3088*h*
**3(β),17(α)-Androstanediol***, diformate, 7941*e*
——, **17-methyl-***, effect on adrenal cortical tumor formation, 7124*g*
**3(β),17(β)-Androstanediol***, spectrum of, 3018*i*.
**Androstane-3(α),11(β)-diol-17-one***, 5067*h*
spectrum of, 3018*i*.
**3,17-Androstanedione**, 243*i*
and bis(2,4-dinitrophenylhydrazone), 5067*e*.
effect on metabolism, 7099*h*
as metabolic product of androsterone, 295*h*.
spectrum of, 3018*i*.
——, **2,2(and 2,4)-dibromo-***, 1271*a*
**6,17-Androstanedione, 3(β)-chloro-***, 246*h*.
**3,11,17-Androstanetrione**, spectrum of, 3019*g*.
**3(β)-Androstanol, 17-keto-***, and formate, 243*e*.
**17-Androstanol**, spectrum of, 3018*i*
**17(α)-Androstanol***, reaction (color) with Br in AcOH, 7941*e*.
**Androstan-3(α)-ol-11,17-dione***, and acetate, spectrum of, 3019*g*.
**Androstan-3(β)-ol-17-one, 16-(hydroxymethylene)-***, and *p*-nitroanil, 244*h*.
**Androstan-17-ol-3-one***, antitumorigenic action of, 8532*g*.
cyclohexanecarboxylate 2,4-dinitrophenylhydrazone, 4282*c*.
effect on arginase and phosphatases of organs, 3089*b*.
——, **17-ethyl-***, P 7058*a*.
——, **17-methyl-***, P 7058*a*.
effect on arginase and phosphatases of organs, 3089*b*.
**Androstan-17(α)-ol-3-one***, and acetate, spectrum of, 3018*i*.
effect on adrenal cortical tumor formation, 7124*g*.

effect on body wt., temporal muscle and organs, 3088*h*.
and propionate, effect on protein metabolism, 7099*g*.
——, **17-methyl-***, effect on adrenal cortical tumor formation, 7124*g*.
effect on body wt., temporal muscle and organs, 3088*h*.
**Androstan-17(β)-ol-3-one***, and acetate, spectra of, 3018*i*.
regeneration of, from its semicarbazone by AcCOOH, 1048*e*.
**3-Androstanone**, spectrum of, 3018*i*.
**17-Androstanone**, spectrum of, 3018*i*.
——, **3-chloro-***, spectrum of, 3018*i*.
——, **5-chloro-***, P 7056*c*.
**Androstene**, monoester derivs., P 1915*h*.
**Δ⁴ - Androstene, 3,11,17 - triketo-***, P 4432*e*.
**Δ⁴ - Androstene, 3(β) - acetoxy - 17 - (1-oxoisohexyl)-***, 6638*c*.
——, **3(β),17(α) - dihydroxy - 16 - keto-***, and derivs., 3434*j*.
——, **3(β),17 - dihydroxy - 16 - methyl-*** esters, 1429*f*.
——, **3(β) - methoxy - 16,17 - dihydroxy-***, isomers, 3434*i*.
——, **3(β) - methoxy - 16(α),17(α) - dihydroxy-***, acetonide*, 3435*a*.
——, **3(β) - methoxy - 17(α) - hydroxy-16-keto-***, 3434*i*.
——, **3(β),16(α),17(α)-trihydroxy-***, derivs., 3434*i*.
**Δ⁴-Androstene***, reaction (color) with Br in AcOH, 7941*g*.
**Androstene**. See *Pseudoandrostene*.
**Δ⁵ - Androstene - 3 - carboxylic acid, 17-acetoxy-***, 6216*h*.
**Androstenediol**, effect on corpora lutea, mammary gland, etc., 743*b*
effect on lactation, 8032*d*.
——, **ethynyl-***, effect on lactation, 8032*e*.
——, **methyl-***, effect on lactation, 8032*e*.
**Androstene-3,17-diol, methyl-***, color and fluorescence tests for, 3870*j*.
**Androstene - 3(β),17(α) - diol***, effect on adrenal cortical tumor formation, 7124*h*
**Δ⁵ - Androstene - 3(α + β) - 17(α) - diol**, ethynyl and Me derivs., pharmacology of, 2315*c*
**Androstene-3,17-diol***, spectrum of, 3018*i*.
*trans,trans*-, color and fluorescence tests for, 3870*e*.
*trans*,17-*trans*-, esters, P 1915*i*.
——**17-ethynyl-***, diacetate, P 7978*h*.
ketodial dihydroxy ketone from, P 6246*g*.
**Δ⁵ - Androstene - 3(β),17(α) - diol***, 3-acetate, 17-acetate, diacetate and dipropionate, spectrum of, 3018*i*
reaction product with $SbCl_3$, spectrum of, 5307*g*.
urine, 6727*f*.
——, **17(β) - methyl-***, 3(β)-benzoate, 243*b*
**Androstene - 3(β),17(α and β) - diol***, dibenzoates, 243*c*.
**Androstenedione**, P 9389*d*.
effect on corpora lutea, mammary gland, etc., 743*b*.
effect on lactation, 8032*e*
**Androstene-3,17-dione**, effect on adrenal cortical tumor formation, 7124*h*.
**Androstene-3,17-dione, 2-bromo-***, 4271*b*
**Androstene-3,17-dione***, P 700*e*, 4271*c*.
effect on protein metabolism, 7099*h*.
regeneration of, from its dioxime by AcCOOH, 1048*e*.
spectrum of, 3018*i*.
in urine, 5067*f*.
——, **2-bromo-***, 4271*c*.
**Androstene-3(β),16,17-triol***, triacetate, spectrum of, 3018*i*.
**Androstene-3,11,17-trione***, spectrum of, 3019*g*.
**Androsten-17-ol***, propionate, P 7978*d*.
**Δ⁵-Androsten-17-ol**, acetate, 6216*g*.
——, **3-carbomethoxy-***, 6216*g*.
——, **3-chloro-***, and acetate, 6216*e*.
**Androsten - 17 - ol - 3 - carboxylic acid***, and esters, 6216*d*.
**Androsten - 6 - ol - 17 - one**, 1048*h*.
**Androsten - 17 - ol - 3 - one, 2-bromo-***, cyclohexanecarboxylate 2,4-dinitrophenylhydrazone, 4282*d*.
**Androsten-3-ol-17-one**, spectrum of, 3018*i*.
**Androsten-17-ol-3-one**. See *Testosterone*.
**Androsten - 3(β) - ol - 17 - one***, derivs., 243*b*.
**Androsten - 3(β) - ol - 17 - one, 16-(hydroxymethylene)-***, and *p*-nitroanil, 245*b*.
**Δ⁵ - Androsten - 3(α) - ol - 17 - one***, 5067*g*.
and acetate, spectrum of, 3018*i*.
**Δ^11(12) - Androsten - 3(α) - ol - 17 - one***, 3-acetate, 5067*c*.
**Androsten-17-one**, metabolic formation of, 8034*h*.
**Δ² - Androsten - 17 - one(?)***, and derivs., 5067*b*.
**Δ³ - Androsten - 17 - one(?)***, and derivs., 5067*b*.
**Δ⁴-Androsten-3-one***, spectrum of, 3018*i*.
**Δ⁴-Androsten-17-one***, P 4432*h*.
**Δ⁵-Androsten-17-one, 3-chloro-***, 1048*g*, 6216*d*.
from urine, 5067*c*.
——, **3(β)-chloro-***, 246*g*, 1048*h*.
——, **3(β)-chloro-6-nitro-***, 246*h*.
**Δ^16-Androsten-3-one**, reaction (color) with Br in AcOH, 7941*g*.
**Androsterone**. (See also *Androgenic hormones; Isoandrosterone*.)
and acetate and benzoate, spectra of, 3018*i*.
acetate, effect on protein anabolism, 7099*h*.
detn. or assay of, 7534*g*, 9132*h*.
effect on artificial premature climacteric produced by ovariectomy in rats, 2301*e*.
effect on corpora lutea, mammary gland, etc., 743*b*.
and esters, 5067*d*.
β-D-glucoside, P 5428*b*
isoandrosterone conversion to, 8034*h*.
metabolism of, 295*g*, 8036*i*.
mixts. with dehydroandrosterone, effect on biol. response of, 8035*b*.
propionate, assay of, 7994*a*.
propionate, effect on adrenal gland, 8508*h*.
reaction product with $SbCl_3$, spectrum of, 5307*g*.
semicarbazone, 8906*c*.
standards for, 3561*h*.
in urine after dehydroisoandrosterone administration during adrenocortical tumor, 6727*ef*.
**Androsterone, 3-chlorodehydro-***, in urine, 6727*e*.
——, **dehydro-***. (See also *Androgenic hormones*.)
acetate, regeneration of, from its semicarbazone by AcCOOH, 1048*c*.
detn. of, 2265*c*.
mixts. with androsterone, effect on biol response, 8035*b*.
and semicarbazone, 8900*f*.
*trans*-, acetate, regeneration of, from its semicarbazone by treatment with $HNO_2$, 2957*i*.
——, **dihydro-***, benzoate, effect on chick embryonic reproductive system and comb, 5478*f*.
**Androsterone-16-sulfonic acid***, methyl ester, 2214*g*.
**Anemia**. (See also *Leukemia*.)
achylia gastrica and pernicious, 1845*h*.
acidosis effect in, 6303*g*.
adenylpyrophosphoric acid in erythrocytes in, 299*h*.
antianemic action of fecal ext. from subject with pernicious, 7586*f*.
antianemic factors or principles—see also *Extrinsic factor*.
antianemic factors or principles, assay of, 1911*f*, 3488*e*, 3869*a*, 5537*b*, 9131*e*
compds. related to, 1073*a*.
in digestive tract, detection of, 3085*h*
effect on *Lactobacillus leichmannii*, 3062*e*.
antianemic liver prepns.—see *Liver; Liver extracts*.
from anti-blood immune serum, cellular reactions in, *Haemobartonella*-infected rats with, 9221*h*.
arginase in blood in pernicious, 7529*c*.
biliviolin-type spectra in feces in pernicious, 3094*b*.
book: Nutritional, 3080*i*.
cell-proliferation-accelerating and -inhibiting substances in blood and urine in pernicious, 4365*a*.
cell proliferation in bone marrow by blood serum from, 307*h*.
from choline deficiency, 1092*c*, 1477*f*.
cholinesterase in blood in various kinds of, 4366*g*.
cholinesterase in erythrocytes in, 7090*e*.
cocarboxylase in red and white blood corpuscles in, 1842*b*, 5102*g*.
dietary effects on, plus hypoproteinemia, 3500*c*.
erythropoiesis and megaloblasts in, effect of liver exts. and nicotinamide on, 1853*g*.
from estradiol benzoate and modification thereof, 1854*c*.
eye pupil in, 4374*i*.
ferritin and, 6291*b*.
folic acid and vitamin $B_{12}$ in, 5850*b*.
folic acid deficiency and pernicious, 288*b*.
folic acid derivs. in treatment of macrocytic, 5100*b*.
folic acid in treatment of, from $C_6H_6$ poisoning, 8060*b*.
folic acid, liver ext. and vitamin $B_{12}$ in treatment of, 8028*i*.
folic acid, thymine and vitamin $B_{12}$ in treatment of pernicious and nutritional macrocytic, 1095*g*.
glutathione in red blood cells in pernicious, 2313*h*.
heme synthesis and red blood cell dynamics in sickle-cell and pernicious, 6723*g*.
hemoglobinuria in hemolytic, 302*h*.
hemolytic, from fats and choline, lipotropic action and, 2315*c*.
hydrogen peroxide-producing enzymes in relation to, 2297*g*.
from indole in niacin deficiency, 8470*h*.
infectious, 2695*g*.
cholesterolemia of horses in, 2305*f*.
pathogenesis of, 8475*b*.
iron effect on hemorrhagic, 287*h*.
iron metabolism and nonhemoglobin Fe in blood plasma in hypochromic and pernicious, 3076*e*.
of lead poisoning, 8550*a*.
liver ext. deficiencies in relation to, 8471*a*.
of malignant malnutrition, protein deficiency in etiology of, 4352*e*.
from malnutrition, 7561*e*.
in meat-eating and vegetarian Indian soldiers, 4353*a*.
metabolism of folic acid and related substances in, 1094*d*.
from naphthalene poisoning, 9258*e*.
nicotinic acid-deficiency, in swine, 4738*b*.
pancreatic function in, secretin test for, 9233*d*.
porphyrin in pernicious, 7570*g*, 9232*i*.
protein fractions of bone marrow in, 4359*h*.
protein index of blood serum in, 9216*g*.
2(1 *H*)-pyridone derivs. for treatment of, P 3046*a*.
relapses in pernicious, 3919*h*.
renin in urine in pernicious, and its diagnostic value in liver-treated patients, 8521*b*.
reticulocytes in, effect of folic acid and liver exts. on, 734*c*.
sickle-cell, diagnosis of, 2665*c*.
spinach ext. in treatment of, 3931*h*.
from sulfasuxidine with purified diet, 6293*e*.
thymidine effect on pernicious, 9250*a*.
thymine effect in, 6736*d*.
from trioxymethylene, 1865*h*.
vitamin $B_6$ in treatment of, 3079*i*.
vitamin $B_{12}$ in treating pernicious, phosphate liberation from, 5432*a*.
vitamin $B_{12}$ in treatment of pernicious and macrocytic, 5101*d*, 9227*d*.
vitamin $B_{12}$ in alleviation of, 9196*a*.
vitamin prepns. active against, P 364*e*.
from x-irradiation, effect of folic acid on macrocytic, 2681*c*.
**Anemone**. (See also *Sea anemones*.)
identification of tinctures of, 4426*b*.
oil of—see *Oils*.
*pulsatilla* and *triloba*, pharmacology of, 9380*d*.
*pulsatilla*, identity of *Clematis flammula* saponoside with saponoside of, 6366*e*.
**Anemonin** (*1,2-dihydroxy-1,2-cyclobutanediacrylic acid dilactone*), in anemone oil, 6366*b*.
pharmacology and therapeutic use of drugs contg., 9380*d*.
**Anemoninic acid** (*4,7-dioxo-2-decenedioic acid*), detection in tinctures, 4426*a*.
**Anesthenyl**. See *Methylal*.
**Anesthesia**. (See also *Analgesia; Narcosis*.) 1111*d*.
adrenaline, 6744*b*.
with alkaloids, dialkylamino group in local, 4426*e*.
barbiturate, analeptic effect of Na succinate in, 7582*f*.
barbiturate, synchronization of elec. activity of cerebrum by, 9261*d*.

with chloroform and ether, effect on thrombin inactivation, 8548*c*.
cholinesterase in blood in, 299*e*.
cyclopropane, adrenaline effect on cardiac rhythm in, 760*d*.
arterial pressure in induction of idioventricular rhythms under, 1111*e*.
dihydroergotamine and dihydroergocornine in prevention of cardiac irregularities during, 4381*h*, 4763*g*.
with cyclopropane or ether, lymph production in, 1809*g*.
decamethonium iodide in, 6739*g*.
effect of benzedrine and 3,4-dimethoxybenzedrine on, 758*c*.
with ether and evipal Na, effect on P fractions of blood, 4386*c*.
with ether and pentobarbital, effect on cervical lymph flow and protein content, 2329*c*.
ether, effect on vitamin A in liver, 9181*f*.
ether for— see *Ethyl ether*.
eunarcon and evipal Na soporific, 318*c*
of eye, butacaine in, 3522*i*.
gastric secretion and, 5871*i*.
glucose assimilation during, 5850*c*.
magnesium, effect on metabolic effect of 2,4-dinitrophenol and thyroxine, 5863*a*.
with methadon and thiobarbiturate, 1483*d*
morphine-ether, effect on enzymic activity of pancreas of dogs killed by bleeding, 4746*c*.
morphine-scopolamine, effect on metabolism and its central and peripheral stimulation, 6732*e*.
morphine-scopolamine, thyroxine antagonism to, 6732*g*.
nembutal, effect on monosynaptic pathway through spinal cord, 9259*g*.
with nitrogen oxide, effect on protoplasm, 3932*i*.
pentobarbital, antagonism of pyruvic acid polymers to, 9265*h*.
with pentothal and subtosan, 4812*i*.
pentothal, effect on carbohydrate and protein metabolism, 7139*a*.
levels of consciousness in, 9262*b*.
physiologic basis for, 9262*d*.
procaine, effect of sulfonamides on, 3520*b*
with procaine-HCl in 2 and 4% solns., 6735*e*.
procaine intracranial, 771*g*.
spinal, effect of pitressin on, 315*g*.
with steroid hormones, 309*h*.
swelling after, in dental practice, metal ions as cause of, 2702*a*.
theories of, 6786*f*, 8103*a*.

**Anesthesine**. See *Benzocaine*.

**Anesthetics**. (See also *Hypnotics; Narcotics;* and the various anesthetics, as *Amylal, Avertin, Benzocaine, Cocaine, Cyclopropane, Evipal, Larocaine, Metycaine, Dibucaine, Pontocaine, Procaine, Tutocaine* and *Vinyl ether*.) 8102*i*.
acetanilide derivs. as local, 1021*e*, 1022*d*, 1023*d*, 1024*f*.
alkamine esters of 5,6,7,8-tetrahydro 1-naphthoic acids, 203*d*
alkylaminoalkyl *p*-alkoxybenzoates, P 4430*c*.
alkylidenedi - 2 - naphthalenesulfonic acid salts, P 5047*d*.
amide local, 3101*i*.
aminoalkyl benzoates, salts, P 4696*h*
aminoalkyl esters of carboxylic acids, P 2639*f*.
aminoalkyl esters of *p*-dialkylaminobenzoic acids, P 2640*b*.
aminoalkyloxyisoquinoline derivs. as local, 4267*b*.
amino alkyl tetrazoles, P 7971*g*
*p*-aminobenzoates of *sec*-alkyl amino alcs., P 3038*f*.
amino compd. local, 9374*h*.
benzoic ester local, identification of, 7190*g*.
biphenyl derivs., 1359*g*.
bis(dialkylaminoalkyl) 2,5-diaryl-1-methyl-3,4-pyrroledicarboxylates, P 4701*a*.
in British Pharmacopeia (1948), 4428*g*.
chlorinated, detection and detn. in air and organs, 973*i*.
chlorophenyl camphorates, P 1902*a*.
cocainelike local, 7642*h*.
curare and related compds , 9363*c*.
*N*-(dialkylaminoalkyl) imides, 617*a*.
[(dialkylaminoalkylmercapto)alkyl] esters of benzoic acid, P 3461*c*.
dialkylaminoalkyl thiophenecarboxylates, 630*h*.
*p* - (2,5 - dialkyl - 1 - pyrryl)benzoic acid esters, P 690*h*.
2-diethylaminoethyl esters, 7464*a*.
effect of local, on ester-hydrolyzing enzymes, 762*e*.
on intestine, 7589*i*.
on respiration of brain, 8056*g*.
effect on functional structure of reflexes, 763*h*.
on gastric passage and intestinal absorption of glucose solns., 4767*g*.
on sphincter of Oddi, 5867*f*.
esters of (4-morpholinyl) alcs., P 9086*i*
esters of 5,6,7,8-tetrahydrothiol-1-naphthoic acid derivs., 6193*b*.
esters (poly-) of trialkyl(2-hydroxyethyl)-ammonium compds. as surgical, 2191*i*.
heart failure from local, 1862*e*.
hyaluronidase with local, in dentistry, 7139*h*.
identification of local, 1151*f*.
irritating effects of local, 4379*i*.
liver in relation to action of, 7590*i*.
local, 1110*i*, P 1913*g*, 3524*d*, 6184*a*, 9257*d*.
local, theory of action of, 6786*f*.
measurement of gaseous, viscosity-effusion meter for, 5121*i*.
3 - (2 - methyl - 1 - piperidyl)propyl esters, P 694*gi*.
phenothiazine derivs. as, 7938*f*
phenylthiourethans as local, 2703*a*
3 - (1 - piperidyl)propylene esters of 2-furancarbamic and thionocarbanilic acids as, 6204*e*.
potency of, measurement of, 8095*a*.
quaternary derivs. of tertiary amines as, 7921*d*.
α-quinolylaminoacetamide derivs., P 3046*d*.
radioactive phosphorus uptake by erythrocytes and, 3103*g*.
Rotifera in testing, 358*g*.
spinal, tissue distribution of, 8058*b*.
steroid hormones as, action on respiration of brain and, 7579*e*
2-thiobarbituric acid derivs., P 4692*h*, 4768*e*.
time-concn. curve of local, 4772*f*.
urea derivs., P 2229*a*

**Anethaine**. See *Pontocaine*.

**Anethole** (*p-propenylanisole*), dimerides of, 2180*b*.
effect on polarography of metals, 5316*a*.
polymerization of, catalyzed by acids, 8828*g*.
reaction with maleic anhydride, 1757*b*, 2969*i*, 2970*c*.

**Anetholesulfonic acid**, polymer— see *Liquoid*.

**Aneurin(e)**. See "$B_1$" under *Vitamins*

**Angelic acid**, configuration of, 2166*l*.

**α(β,γ or Δ²)-Angelica lactone**. See "γ-lactone" under *3-Pentenoic acid, 4-hydroxy-*.

**β(α,β or Δ¹)-Angelica lactone**. See "γ-lactone" under *2-Pentenoic acid, 4-hydroxy-*.

**Angeli sulfone**. See *Promin*.

**Angina**, agranulocytic—see *Agranulocytosis*.
pectoris, effect of vasodilators on, 2702*b*.

**Angiotonase**. See *Hypertensinase*.

**Angiotonin**. See *Hypertensin*.

**Angle of contact**. See *Contact angles*.

**Anglesite**, in cotunnite deposits near Essen-Borbeck, Germany, 975*d*.
of Italy, 2128*a*, 3319*a*.

**Angostura**, alkaloids of, spasmolytic effect of, 3527*i*.
identification of fluidexts. of, 3145*h*.

**Angoumois grain moth**. See *Sitotroga cerealella*.

**Anhaline**. See *Hordenine*.

**Anhydrase**. See *Carbonic anhydrase*.

**Anhydrides** (*acid anhydrides*). (See also *Oxides*.)
calcn. of free energy function, heat content, heat and free energy of formation of, 5658*e*.
catalysts of oxy compds. of B and org., in polymerization of drying oils, P 9484*d*.
condensation products of dibasic acid, with amines as polyelectrolytes, 1626*d*.
condensation products of, of polybasic acids—see *Resinous products*.
esterification of dibasic, with primary alcs., 1324*h*, 1354*d*, 2074*g*.
formation in pyrolysis of salts of carboxylic acids, 1318*a*.
of hydroxy acids contg. carbonyl group, in oxidized hydrocarbon oils, 4841*i*.
ketones from, by Friedel-Crafts reaction, 2030*h*.
manuf. of aliphatic, P 672*a*, P 3839*c*.
manuf. of carboxylic, P 8398*e*.
in paraffin oxidation residues, 1993*b*
poly-, reaction with aliphatic aldehydes P 1057*a*.
prepn. of org., 8353*a*.
reaction of org., with alcs., 4220*i*.
with enol esters, P 7038*c*.
with furan and with thiophene, 2146
with Grignard reagents, 565*d*.
with olefins to give ketones, P 3441*i*, 3442*a*, P 4685*i*.
with sulfanilamide, 2597*i*.
reaction products of inorg., with high mol. unsatd. compds., P 2804*c*.
reduction of, P 7497*c*.
with silicic acids, 1742*i*.
of silicic and carboxylic acids, prepn. of P 3441*f*, 4630*i*.
thio, prepn. and insecticidal action of 143*i*.

**Anhydrite**, ammonium sulfate manuf from, P 2380*i*.
binding properties of, effect of TEA cement on, 9409*d*.
clayey, in rock salt deposits of Verkhnek amsk, 3752*i*.
drilling-mud contamination by, contro of, 6397*f*.
drilling mud for, 3599*g*.
of Italy (Tuscany), 2128*a*.
of Poland (Nowy Ladek) and its uses, 5348*d*.
reaction with K salt solns. in salt clay, polyhalite formation by, 8095*d*
removal from boilers, 4605*c*.
sulfur dioxide manuf. from, 2377*i*
sulfuric acid manuf. from, 2377*d*.
of Trinity River Tributary area in Okl and Tex., 4607*i*.

**Anhydrite cement**. See *Cement, hydraulic*

**Anhydrohydroxyprogesterone**. See *Testosterone, ethynyl-*.

**Anhydrone**. See *Magnesium perchlorate*

**Anhydrosugars**. See *Sugars*

**Anhydrovitamin A***, biol. activity of, 626

**Anilides**, of hydroxy acids, 1351*h*
nitro, P 3033*h*.
optically active, 1353*f*.

**Aniline**, 7298*f*
adsorption by activated C, 6047*e*
adsorption by C and graphite, 7288*i*
adsorption by starch, 8715*g*.
alkylation with alcs , P 7011*h*.
alkylation with butene, 4641*f*
alkyl derivs., alkylated aromatic amin from, P 7041*h*.
alkyl derivs., geometry and spectra o 6918*h*.
analysis of mixts. of *N*-methyl- and *N*,*N*-dimethylaniline and, 8944*f*
anthraquinone dyes from, P 1575*h*
antimony(III) fluoride soly. in, 6890*b*
as antioxidant in paraffin oil, 2411*b*
azo dyes from, P 3204*i*, P 4472*b*, P 448 P 4479*eghi*, P 4480*g*, P 4866*i*, P 73 P 7695*i*, P 7696*d*
azo pyrazolone dyes from, P 8149*i*
azo stilbene dyes from, P 4473*d*, 4863*egi*.
azo triazine dye from, P 4472*a*
complex formation with Cd(NO₃)₂, 569
compds. with 4-anilino-1 (2',4-dinitrophenyl)pyridinium chloride, 6627
with 10-camphorsulfonic acid, magnetic susceptibility of, 8768*f*
with 3-chlorophthalic acid and 3-nitrophthalic acid, 6600*f*.
with 9,10-diphenylanthracenesulfonic acids, 3815*f*.
with Et (1-hydroxyalkyl)oxalacetate γ-lactones, 4221*g*.
with (α-hydroxybenzyl)phosphinic acid, 5378*d*.
with $Ni(CN)_2.NH_3$, 5753*f*
with sulfonic acids, 2594*c*
with $Me_3B$, 5690*d*.
condensation products of, with acetone, stabilizers for indene resins, 4511*e*.
with acetone, calking compn. from, 4900*a*.
with aldehydes, plasticizers for, 4894*d*.
with CO, P 5639*h*.
with HCHO and PhOH, prefor from, P 2033*f*.
with HCHO, fireproofing co from, P 3655*d*.
with HCHO, water-proofing 2033*a*.
with ketones and unsatd. hydrocbons, P 6241*i*.
as corrosion inhibitor for mild steel acids, 2917*f*.

rit. mixing temps. in identifying and detg. aliphatic hydrocarbons and naphthenes, 8309*a*.
derivs., as catalysts in sulfuration of fatty or mineral oils, P 1178*b*.
and derivs., surface activity of, 3087*f*.
detection in pyridine, 1689*c*.
detn. of, 1280*g*.
in air, 8979*a*.
in biol. fluids and tissues, 263*g*.
*N*, *N*-dialkyl derivs., effect on reaction of PhNCO with alcs., 7441*e*.
*N*-dialkylmethylene derivs., mol. diagrams of, 5013*f*.
*N*-(dimethylaminoalkyl) derivs., P 822*cd*.
1,5- and 1,8-dinitronaphthalene sepn. by, 6190*h*.
diphenylamine from, P 682*f*.
dipole moment of, in benzene and in *p*-dioxane, 7438*d*.
dyes from, P 1574*c*.
disazo stilbene dye from, P 4863*be*.
ditertiary diamines derived from, P 1437*f*.
effect on bladder, 6315*e*.
on crystn. of alkali metal halides, 13*d*.
on H overpotential on Fe, corrosion and, 952*a*.
on I metabolism in thyroid gland, 3932*a*.
on isoionic point of blood-serum globulin, 6888*e*.
on solv. of $Cu(OH)_2$ in $NH_4OH$, 2489*f*.
emul with Ga, heptane, $H_2O$, perfluorokerosene, white P and Hg, 7285*d*.
ethyl derivs., P 1437*e*.
fate in animal organism, 6314*d*.
formation of, in polarography of $PhNO_2$, 4586*a*
in reaction of $Me_2C{:}NNHPh$ and $Ph_2C.NNHPh$ with NaOH, 1026*i*, 1027*c*.
in reaction of $PhN_2Cl$ with $NaBH_4$, 2570*h*.
hydrolysis of, 1336*a*.
inhibitor (motor) stabilization by, P 1446*f*.
kinetics of ionization of anilinium ion, 6904*b*.
kinetics of wetting of activated charcoal by, 883*d*.
mechanism of mixing with citric, oxalic and picric acids, 6070*g*.
mixed body formation by, effect of methylene blue on, 8527*e*.
mixed hydrocarbon-hexadecane system countercurrent extn., 4840*i*.
monohydrochloride, condensation with HCHO and urea, mordants by, P 3206*e*.
monohydrogen (active) detn. in, 3316*g*.
monosulfonation of, 7446*f*, 7447*i*, 7448*b*
monosulfonation of, and distinguishing from *o*-toluidine, 6944*i*.
monosulfonimone compds. and phthalazines derived from, 237*g*.
naphthalene-labeled with $C^{14}$, silk synthesis by silkworm from, 7149*b*.
parachor of, 2834*a*.
phenylacetic acid deriv. decarboxylation in, 7904*e*.
phosphonic acid, P 1793*g*, P 3454*h*, P 5799*f*.
photochemoglobin formation by, effect of hypoxia on, 5496*c*.
polymerizability with asphaltic bitumens, 6817*b*.
polymers with EtOH, d., magnetic susceptibility, *n* and viscosity of, 8833*i*.
polysulfonaphthoquinoneimide dyes from, P 8167*a*.
polysulfonated derivs., in hair dyes, 9386*i*.
purification of nitrobenzene detn. in, 4977*a*.
purification of nitrobenzene from, 1734*c*.
reaction with paraldehyde stabilizer in fuel blends, P 8130*b*.
reaction with phosphorescence quenching in Rhodulin Orange by, 7828*c*.
reaction with poisoning by, prothrombin time in, 3525*a*
reaction with poisoning of newborn by, from milk of mother, 8060*e*.
reaction with polarization of, in $C_6H_6$, 7763*e*.
reaction with as polymerization stopping agent, 8727*i*.
reaction products with 2-chlorovinyl ketones, 7937*e*.
reaction products with maleic anhydride polymers with Me methacrylate, 202*c*.
reaction products with trimeric phosphonitrile chloride and with diphenyltetrachlorotriphosphonitrile, 5564*g*.
reactions of, and its derivs., with acetophenone derivs., 220*b*.
reaction with acrylonitrile, 8351*f*.
reaction with Al and PhOH, P 3454*f*.
with amylamine and tetrachlorophthalic anhydride, flame-resistant waxes by, P 2004*c*.
with anhydrides of carboxylic and silicic acids and with $SiS_2$, 4631*h*, 4632*a*.
with $CS_2$ and S, 2021*d*.
with 3,3-dialkoxyphthalides and with dialkyl phthalates, 8368*f*.
with dichloronitrobenzenes, 6175*d*.
with diketene, rate of, 1247*d*.
with 4,4′-disulfamylcarbanilide, P 6660*e*.
with halo juglone derivs., 201*e*.
with 3-hydroxy-2-naphthoic acid, 1418*i*.
with mustard gas, 6336*i*.
with *p*-$O_2NC_6H_4CHO$ and with trioxymethylene in presence of $HgCl_2$, 184*d*.
with 1-*m*- and *p*-nitrobenzoylpyridinium chloride, 4241*b*.
with β-oxo esters, 228*e*.
with $PhBzPO_4H$, 6996*f*.
with phenylphospham polymers, 6634*i*.
with $P_2O_5$, 3353*f*.
with pyridinium compds., 4071*c*.
with 4(3 *H*)-quinazolones, 3424*h*.
with Na vanadate, catalysis by oxalic acid, 4549*a*.
with thiophosphoramides, 3353*e*
rearrangement of diazo ketones in presence of, 4654*a*.
relaxation period of, 6021*b*.
as rocket fuel, 9449*i*
rocket propellant from $HNO_3$ and, 833*c*
as rubber vulcanization accelerator, 3648*a*.
soly. in Na xylenesulfonate solns., 1242*e*
spectrum of, 3715*c*, 9037*b*.
spectrum of, adsorbed on vitreous $SiO_2$ gel, 7343*i*
statistical review on, 1342*h*
stilbenedisulfonic acid triazine dyes from, P 5965*f*
system: $AsCl_3$–, 6899*h*
system: formic acid–, 6066*c*.
system: glycerol–$H_2O$–, P 9081*d*.
systems: $Me_2CO$–, EtOH–, MeOH–, and $PhNO_2$–, mol. wts. in $C_6H_6$, 1252*b*
tetrakisazo stilbene dye from, P 4863*d*.
tobacco mosaic virus infectivity and, 7550*h*.
tumors in industry of, 8073*g*.
waste waters contg., treatment of, 8587*c*.

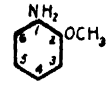
**Aniline, *p*-(acetoxymercuri)-**, 600*c*.
——, ***N*-acetyl-**. See *Acetanilide*.
——, ***N*, *N*′-acetylenebis[*p*-bromo-**, spectrum of, 5756*a*.
——, ***N*, *N*′-acetylenebis[*m*-nitro-**, spectrum of, 5756*a*.
——, **amino-**. See *Phenylenediamine*.
——, ***p*-(5-aminoamyl)-**, and dibenzoyl deriv., 9047*c*.
——, **amino-*N*, *N*-dimethyl-**. See *Phenylenediamine, N, N-dimethyl-*.
——, ***ar*-(2-aminoethyl)-**. See *Phenethylamine, ar-amino-*.
——, ***N*-(2-aminoethyl)-**. See *Ethylenediamine, N-phenyl-*.
——, ***o*-(aminomethyl)-**. See *Toluene-α,2-diamine*.
——, ***N*-(3-aminopropyl)-**. See *1,3-Propanediamine, N-phenyl-*.
——, ***N*-amyl-*p*,*p*′-sulfonyldi-**, P 2637*g*.
——, ***p*,*p*′ - anisylidenebis[*N*, *N* - dimethyl-**, for lubricant improvement, P 9432*g*.
——, ***N*-anisylidene-*p*-(*p*-nitrophenylsulfonyl)-**, 2592*h*.
——, ***N*-anisylidene-*p*-phenylazo-**, colloidal, rotating magnetic field in study of, 7291*f*.
dipole moments and elec. birefringence of, 3675*d*.
——, ***N*-anisylidene-*p*,*p*′-sulfonyldi-**, 2592*h*.
——, ***p*,*p*′-azodi-**, anthrapyridazone dye from, P 8166*a*.
——, **azoxybis[*N*, *N*-dimethyl-**, 7472*b*.
——, ***ar*-benshydryl-**. See *Toluidine, α,α-diphenyl-*.
——, ***N*-benshydryl-**. See *Benshydrylamine, N-phenyl-*.
——, ***ar*-benzyl-**. See *Toluidine, α-phenyl-*.
——, ***N*-benzyl-**. See *Benzylamine, N-phenyl-*.
——, ***N*-benzylidene-**, 6994*b*.
as insecticide, 7625*i*.
reaction (addn.) with metallic chlorides (attempted), 4227*i*.
reduction of, 1312*f*.
resonance energy of, 931*b*.
——, ***p*,*p*′ - benzylidenebis[*N*, *N* - dimethyl-**, P 9519*f*.
reaction with $HgCl_2$, 184*i*.
——, ***N*-benzylidene-*m*(*o* and *p*)-chloro-**, as insecticides, 7626*a*.
——, ***p*,*p*′-benzylidenedi-**, *N*-derivs., in chloroprene copolymerization, P 9519*e*.
*N*, *N*, *N*′, *N*′-tetraalkyl derivs., as polymerization promoters, P 5230*f*.
——, ***N*-benzylidene-2,6-dichloro-**, as insecticides, 7626*a*.
——, ***N*-benzylidene-*m*(and *p*)-nitro-**, as insecticides, 7626*a*.
——, ***N*-benzylidene-*p*-(*p*-nitrophenylsulfonyl)-**, 2592*g*.
——, ***N*-benzylidene-*p*,*p*′-sulfonyldi-**, 2592*h*.
——, ***N*, *N*-bis(2-bromoethyl)-**, 7443*a*.
——, ***N*, *N* - bis(2 - bromoethyl) - *p*-chloro-**, 7443*b*.
——, ***N*, *N*-bis(2-chloroethyl)-**, hydrochloride, adrenergic blocking effect of, 4381*c*.
——, ***N*, *N*-bis(2-chloroethyl)-2,4-dinitro-**, 7443*c*.
——, ***m*(*o* and *p*)-bromo-**, identification of, 7446*f*, 7447*i*, 7448*c*.
——, ***p*-bromo-**, benzenesulfonate, 2595*a*.
bromine removal from, 8908*g*.
compd. with 1-benzylquinolinium chloride, 645*d*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*c*.
spectrum of, 9037*b*.
——, ***o*-bromo-*N*, *N*-dimethyl-**, geometry and spectrum of, 6918*h*.
——, ***p*-bromo-*N*, *N*-dimethyl-**, spectrum of, 4140*e*.
——, **2-bromo-4,6-dinitro-**, azo dye from, P 1574*d*, P 8155*a*.
——, ***N*-(2-bromoethyl)-**, hydrobromide, pharmacology of, 1861*e*.
——, **2-bromo-4-nitro-**, azo dyes from, P 8154*i*.
——, ***N*-2-butenyl-**, 5403*h*.
——, ***N*-2-butenylidene-**, as accelerator of vulcanization of ebonite, 430*g*, 8729*g*.
——, ***N*-butyl-**, 4644*h*, 5403*i*.
phys. constants of, 2956*g*.
——, ***p*-butyl-**, 4644*h*.
——, ***N*-*tert*-butyl-**, ionization of, 7304*a*.
——, ***N*-butylidene-**, as accelerator of vulcanization of ebonite, 430*g*, 8729*g*.
——, ***ar*, *ar*′ - (butylidenedithio)di-†**, 6179*f*.
——, ***p*-(butylsulfonyl)-**, 2593*e*.
——, **chloro-**, effect on polymerization of styrene, 8735*a*.
——, ***m*(*o* and *p*)-chloro-**, identification of, 7446*f*, 7447*i*, 7448*c*.
reaction with dichloronitrobenzenes, 6175*d*.
——, ***m*(and *p*)-chloro-**, chloronitrobenzenes from, 1734*d*.
——, **o-chloro-**, azo dye from, P 1987*c*.
reaction with diketene, rate of, 1247*d*.
——, ***o*(and *p*)-chloro-**, reaction products with maleic anhydride polymers with Me methacrylate, 8202*c*.
——, ***p*-chloro-**, azo dyes from, P 8152*a*, P 9464*d*.
3-carbazolesulfonate, 6205*b*.
compd. with 1-benzylquinolinium chloride, 645*d*.
reaction with dialkyl-3-cyanoguanidine, 2949*d*.
with β-oxo esters, 228*g*.
with $(PhNH)_2PS$, 3353*e*.
spectrum of, 3715*c*, 9037*b*.
——, ***N*-o(and *p*)-chlorobenzylidene-**, as insecticides, 7626*a*.
——, ***p*-chloro-*N*, *N*-bis(2-chloroethyl)-**, and picrate, 7443*b*.
——, ***p*-chloro-*N*, *N*-bis(2-iodoethyl)-**, 7443*b*.
——, ***m*-chloro-*N*-*m*(*o* and *p*)-chlorobenzylidene-**, as insecticides, 7626*a*.
——, ***o*-chloro-*N*-*m*(*o* and *p*)-chlorobenzylidene-**, as insecticides, 7626*a*.
——, ***p*-chloro-*N*-*m*(*o* and *p*)-chlorobenzylidene-**, as insecticides, 7626*a*.
——, ***p*-chloro-*N*-2,6-dichlorobenzylidene-**, as insecticide, 7626*a*.
——, **5-chloro-2-(2,2-dichlorovinyloxy)-**, P 7045*h*.
——, ***o*-chloro-*N*, *N*-dimethyl-**, geometry and spectrum of, 6918*h*.
——, ***o*(and *p*)-chloro-*N*, *N*-dimethyl-**, 6571*e*.

——, *p*-**chloro**-*N*, *N*-**dimethyl**-, trum of, 4140*e*.
——, **2-chloro-4, 6-dinitro-**, azo dyes from, P 862*e*, P 8154*h*.
——, **5-chloro-2, 4-dinitro-**, 5755*g*.
——, *N*-(**2-chloroethyl**)-*N*-**ethyl**-, hydrochloride, adrenergic blocking effect of, 4381*c*.
and picrate, 7443*a*.
——, *p*-[**3**-(**2-chloroethylsulfonyl**)**propoxy**]-, hydrochloride, 8388*h*.
——, *p*-**chloro**-*N*-**methyl**-, spectrum of, 9037*b*.
——, *p*-(**chloromethylsulfonyl**)-, 2593*b*, 2597*a*.
——, **2-chloro-3-nitro-**, 2211*i*.
——, **2-chloro-4-nitro-**, azo dyes from, P 862*e*, P 4474*c*, P 8154*f*.
——, **3-chloro-4-nitro-**, 5755*g*.
——, *m*(and *o*)-**chloro**-*N*-*m*-**nitrobenzylidene-**, as insecticides, 7626*a*
——, *m*(*o* and *p*)-**chloro**-*N*-*o*-**nitrobenzylidene-**, as insecticides, 7626*a*.
——, *p*-(**4-chloro-2-nitrophenylazo**)-, anthrapyridazone dye from, P 8166*a*
——, **2-(2-chloro-4-nitrophenylmercapto)-5-nitro-**, 600*e*
——, **5-chloro-2-phenoxy-**, disazo dye from, P 5598*h*.
——, *N*-(**10-chloro-10-phenyl-9**(**10** *H*)-**anthrylidene**)-, 9066*e*.
——, **2-chloro-4, 4′-sulfonyldi-**, in tuberculosis therapy, 3518*d*
——, *N*-**cinnamylidene**-*p*-(*p*-**nitrophenylsulfonyl**)-, 2592*i*.
——, *N*-**cyano-**. See *Carbanilonitrile*
——, *m*, *m*′-(**cyanoarsylene**)**di-**, 3383*d*.
——, *o*-(**cyanophenylarsino**)-, 3383*d*
——, *N*-**cyclohexyl-**. See *Cyclohexylamine, N-phenyl-*.
——, *p*, *p*′-**cyclopropylidenedi-**, and derivs., 9042*f*.
——, *N*-**desyl-**. See *Acetophenone, α-anilino-α-phenyl-*.
——, *N*, *N*-**diacetyl-**. See *Diacetanilide*.
——, **2, 6-diacetyl-**, 1780*a*.
——, **2, 5-dichloro-**, 3729*d*.
azo dyes from, P 3624*i*, P 7711*c*, P 7712*e*.
——, **2, 4-dichloro**-*N*, *N*-**dimethyl-**, 6571*a*.
——, *N*-(**5, 8-dichloro-1-naphthylmethylene**)-, 3813*d*.
——, **2, 5-dichloro-4-nitro-**, 3729*e*.
——, **2, 6-dichloro-4-nitro-**, 6194*a*.
azo dyes from, P 4474*c*, P 4866*dfg*, P 5599*a*, P 7696*f*, P 8154*g*, P 9459*d*.
——, **3, 5-dichloro-4, 4′-sulfonyldi-**, in tuberculosis therapy, 3518*d*
——, *p*, *p*′-(**dichlorovinylidene**)**di-**, 1367*f*.
**2, 5-diethoxy-**, azo stilbene dyes from, P 8151*f*.
trisazo dye from, P 4477*f*.
——, *N*, *N*-**diethyl-**, as antioxidant for paraldehyde in motor fuel, P 8130*c*
effect on acid attack of mild steel, 2917*g*.
identification and distinguishing from dimethylaniline, 6945*f*.
manuf. of, P 1437*f*.
——, *N*-(**2-diethylaminoethyl**)-. See *Ethylenediamine, N, N-diethyl-N′-phenyl-*.
——, (**2-diethylaminoethylmercapto**)-, 6179*c*.
——, *p*-(**2-diethylaminoethylmercapto**)-, and dihydrochloride, 6180*c*.
——, (**2-diethylaminoethylsulfonyl**)-, 6179*c*.
——, *p*-(**2-diethylaminoethylsulfonyl**)-, 6180*c*.
——, (**3-diethylaminopropylmercapto**)-, 6179*c*.
——, *p*-(**3-diethylaminopropylmercapto**)-, and dihydrochloride, 6180*d*.
——, (**3-diethylaminopropylsulfonyl**)-, 6179*c*.
——, *p*-(**3-diethylaminopropylsulfonyl**)-, 6180*d*.
——, *p*-(*α*, *β*-**diethyl-***p*-**methoxyphenethyl**)-, 9056*a*.
——, *N*, *N*-**diethyl-***p*-**nitroso-**, reaction with 9-methylacridine, 6631*f*.
——, *N*, *N*-**diethyl-***p*-**phenylazo-**, carcinogenicity of, 3801*f*, 5109*e*.
——, *N*, *N*-**diethyl-***p*-**sulfanilylazo-**, P 7846*g*.
——, *N*, *N*′-**diguanyl-2, 2′-dimethyl-4, 4′, 4″-methylidynetri-**, carbonate, 5014*d*.
——, *N*, *N*′-**diguanyl-2-methyl-4, 4′, 4″-methylidynetri-**, carbonate, 5014*d*.
and carbonate, P 5046*f*.
——, **3, 5-diiodo-4-**(*p*-**methoxyphenoxy**)-, 7585*c*.
——, **2, 5-dimethoxy-**, azo dyes from, P 3204*f*, P 4474*i*, P 4477*gh*, P 4478*chi*, P 4485*f*, P 5194*c*, P 7606*a*, P 8158*b*.
azo stilbene dye from, P 5198*de*, P 7701*h*, P 8151*d*.
naphthoquinone imine dyes from, P 8167*b*.
——, **3, 4-dimethoxy-**, and derivs., 2177*dh*.
——, *N*-**2, 4-dimethoxybenzylidene-***p*-**nitro-**, 7022*b*.
——, *p*-(**2, 5-dimethoxyphenylsulfonyl**)-, bacteriostatic action of, 9376*f*.
——, *ar*, *ar*-**dimethyl-**. See *Xylidine*.
——, *N*, *N*-**dimethyl-**, 8366*d*.
adsorption by activated C, 6037*e*.
analysis of mixts. with aniline and *N*-methylaniline, 8044*f*.
azo dyes from, P 5965*c*, P 8145*e*.
as catalyst in ethylidene and vinyl ester manuf., P 3838*f*.
compds. with 1 methylquinolinium *p*-toluenesulfonate and 1-methylpyridinium *p* toluenesulfonate, absorption of light by, 409*a*.
condensation product with $(ClCH_2)_2O$ and amides of hydrogenated fish oil acids, P 1588*e*.
condensation with benzyl benzoate and HCHO, lubricant antioxidants by, P 2424*e*.
decarboxylation of malonic acid derivs. in, 7904*e*
and derivs., geometry and spectra of, 6918*h*.
dipole moment of, in benzene and *p*-dioxane, 7438*d*
hydrochloride, dissocn. const. of, 5241*b*
hydrochloride, solns. of CuCl, HCl and, in extn. of $C_6H_6$ from hydrocarbon mixts., P 1432*h*
identification of, and distinguishing from diethylaniline, 6945*f*.
lyoparachor of, 2834*a*.
nitration in $HNO_3$, effect of $HNO_2$ on, 2121*f*.
nitration of, 2982*a*
reaction with acyl chlorides and, with dimethyl(*p*-nitrobenzoyl)phenyl ammonium chloride, 4240*h*
with BzH in the presence of $HgCl_2$, 184*d*.
with chloramines, 6570*i*
with chloro derivs. of AcOH, 5361*f*.
with indigoid compds., 6611*e*
with mustard gas, 6336*i*.
with *o*-nitrobenzenesulfenyl selenocyanate, 8367*a*.
with 5-nitro-6-styryluracil and $POCl_3$, 651*a*.
with Na vanadate, catalysis by oxalic acid, 4549*a*.
sulfonation of, 3803*e*.
toxic action of, 4384*d*.
——, *N*, *N*′-(**dimethylacetylene**)**bis**[*p*-**bromo-**, spectrum of, 5756*a*.
——, *N*, *N*′-**dimethylacetylene**)**bis**[*m*-**nitro-**, spectrum of, 5756*a*.
——, *N*, *N*′-(**dimethylacetylene**)**di-**, spectrum of, 5756*a*.
——, *N*-(*p*-**dimethylaminobenzylidene**)-**4, 4′-sulfonyldi-**†, in tuberculosis therapy, 3518*d*.
——, *N*-(**2-dimethylaminoethyl**)-. See *Ethylenediamine, N, N-dimethyl-N′-phenyl-*.
——, (**2-dimethylaminoethylmercapto**)-, 6179*c*.
——, *p*-(**2-dimethylaminoethylmercapto**)-, and dihydrochloride, 6180*a*.
——, (**2-dimethylaminoethylsulfonyl**)-, 6179*c*.
——, *p*-(**2-dimethylaminoethylsulfonyl**)-, 6180*b*.
——, *p*-(*α*, *α*-**dimethylbenzyl**)-, reaction with acetone, P 6242*a*.
——, **4, 5-(dimethylmethylenedioxy)-2-nitro-**, 1413*h*.
——, *o*-(**2, 4-dimethyl-1-naphthyl**)-, 8401*j*.
——, *N*, *N*-**dimethyl-***o*(and *p*)-**nitro-**, prepn. of, 8378*a*.
——, *N*, *N*-**dimethyl-***p*-(*o*-**nitrophenylmercapto**)-, 8367*a*.
——, *N*, *N*-**dimethyl-***p*-(**2-nitropropenyl**)-, 6993*b*.
——, *N*, *N*-**dimethyl-***p*-**nitroso-**, effect on polymerization of allyl and methacrylate compds., 8199*f*.
processing agent for butadiene copolymers, P 4046*c*.
reaction with 9-methylacridine, 6631*e*.
——, *N*, *N*-**dimethyl-***p*-(**2-nitrovinyl**)-, 6993*b*.
——, *N*, *N*-**dimethyl-***p*-**phenylazo-** (See also *Butter yellow*.)
adsorption by aluminosilicates, 6035*f*
carcinogenic action of, during restricted diet, 5109*e*.
carcinogenic action of, effect of thiouracil on, 1858*a*.
carcinogenic azo dyes in livers of rats fed diets contg., 2310*d*.
carcinogenicity of, and its derivs., 3801*e*
demethylation of, 5756*f*.
destruction by liver, effect of diet on, 8524*b*.
effect on cockroach, 8089*e*.
on proteins of blood serum, carcinogenicity and, 4370*d*.
on vitamin C in liver, 3921*f*.
intracellular compn. of liver and liver tumor from rats fed, 4761*f*.
liver compn. after feeding, 7123*e*
liver tumors from, water movement in 3096*b*
metabolism of, by liver homogenates, 2306*g*.
poisoning by, glycogen in liver after 6316*d*.
polarography of, 7835*h*.
protein-bound aminoazo dyes formed from, and its monomethyl derivs., 8048*a*.
solubilization in detergent solns., effect of electrolytes on, 4876*e*
standard solns. (artificial) with color of 1280*d*.
tumor formation by, hepatic riboflavin and, 1858*c*.
tumor formation by, nucleic acids in liver during, 5490*b*.
——, *N*, *N*-**dimethyl-***p*-**thiocyano-**, in chigger control, 8590*h*.
——, *N*, *N*-**dimethyl-***p*-(*m*-*p*-**tolylazo**)-, carcinogenesis from, effect on serum proteins, P 4370*d*
effect on cockroach, 8089*e*
on hepatic riboflavin and tumor formation, 1858*d*
on liver proteins, 2311*b*
liver homogenates after feeding, 3011
——, *N*, *N*-**dimethyl-***p*-[*m*-*o*-and *p*-tolyl**azo**]-, protein bound aminoazo dyes formed *in vivo* from, 8048*e*
——, *N*, *N*-**dimethyl-***p*-[*m*(and *p*)-tolyl**azo**]-, liver changes from, 7123
——, *N*, *N*-**dimethyl-***p*-(**trimethylsilyl**)-, prepn. and reaction with HCl, 8366*e*.
——, *N*, *N*-**dimethyl-***p*-(**triphenylsilyl**)-, reaction with HCl, 8366*d*
——, *N*, *N*-**dimethyl-***p*-**vinyl-**, 5629*e*
——, **2, 4-dinitro-**, azo dyes from, 8154*g*
crystal structure, m. ps. and systematic other dinitrobenzene derivs., 3277*i*
reaction with acetone in the presence of alkali, 6175*b*.
——, **3, 5-dinitro-**, azo dyes from, 4471*f*, P 8089*e*/*g*, P 9462*e*
——, *p*-(**3, 5-dinitrophenylazo**)-, P 9462
——, *p*-(**2, 4-dinitrophenylazo**)-*N*, *N*-**diethyl-**, dye from Na formaldehyde sulfoxylate and, P 1986*e*.
——, **2, 2′-dithiobis**[**4-nitro-**, 7476*c*
——, *o*, *o*′-**dithiodi-**, 2180*e*, 7476*ah*
effect on guinea pig, 7136*g*.
on lupine, 7136*d*.
on metamorphosis of tadpoles, 7136*f*
——, *N*-**dodecyl-***p*, *p*′-**sulfonyldi-**†, 2637*g*.
——, *ar*-**ethoxy-**. See *Phenetidine*.
——, **4-ethoxy-***N*-**ethyl-3-methoxy-**, 2177*d*.
——, **4-ethoxy-3-methoxy-**, 2177*d*
——, **ethyl-**, stabilization of, P 2511
——, *N*-**ethyl-**, 1312*f*.
as antioxidant and odor inhibitor in alkyl benzenesulfonates, P 6845*c*.
azeotrope with *m*-toluidine, 2834*e*.
manuf. of, P 1437*f*.
naphthoquinone imine dyes from, P 8167*b*
phys. constants of, 2956*g*.
reaction with acetophenone derivs., 2194, 220*a*.
rocket propellant from $HNO_3$-$H_2SO_4$ mixt. and, 833*c*.
——, *o*(and *p*)-**ethyl-**, prepn. and phys. consts. of, 7439*g*.
——, *N*-**ethyl-3, 4-dimethoxy-**, 2177*d*
from guaiacol, 2177*h*.
——, *p*, *p*′-**ethylenedi-** See *α, α′-Bi-p-toluidine*.
——, *p*, *p*′-(**ethylenedioxy**)**bis**[*N*, *N*-di-**amyl-**, salts, 3381*c*.
——, *p*, *p*′-(**ethylenedioxy**)**bis**[*N*, *N*-di-**butyl-**, salts, 3381*c*.

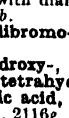
-, **N-ethylidene-**, activating power of ZnO with, 8192*d*.
-, **p-(ethylmercurimercapto)-N, N-dimethyl-**, P 6684, P 6648*f*, P 6649*g*.
, **N-ethyl-N-methyl-**, 1312*f*.
, **N-ethyl-N-methyl-p-phenylazo-**, 3801*f*.
-, **N-ethyl-p-nitro-N-nitroso-**, formation, detection and detn. in aged diethyldiphenylurea-stabilized explosives, 3617*e*.
, **N-ethyl-N-nitroso-**, chromatographic sepn. of, and its nitro derivs. from propellant explosives, 3617*d*.
etection in explosives, 8138*i*.
-, **N-ethyl-p-nitroso-**, reaction with 9-methylacridine, 6631*g*.
-, **o-fluoro-N, N-dimethyl-**, geometry and spectrum of, 6918*h*.
, **p, p'-furfurylidenebis**[*N, N*-**dimethyl-**, for lubricant improvement, P 9432*h*.
, **N-2-furfurylidene(p-nitrophenylsulfonyl)-**, 2592*i*.
, **N-2-furfurylidene-p, p'-sulfonyldi-**, 2592*i*.
, **p-[2-(2-furyl)vinyl]-**, 3428*c*.
, **p-(heptylsulfonyl)-**, 2593*e*.
-, **hexahydro-**. See *Cyclohexylamine*.
, **o-hydroxy-**. See *Phenol, amino-*.
-, **N-hydroxy-**. See *Hydroxylamine, N-phenyl-*.
, **N-2-hydroxyethyl-**. See *Ethanol, 2-anilino-*.
, **p-(hydroxymercuri)-**, thiosulfate (acid) Na salt, 600*c*.
, **m(o and p)-iodo-**, identification of, 7446*g*, 7447*i*, 7448*c*.
, **p-iodo-**, compd. with 1-benzylquinolinium chloride, 6445*d*.
pectrum of, 9037*b*.
, **p-(isoamylsulfonyl)-**, 2593*e*.
, **p-isopropenyl-N, N-dimethyl-**, 5629*e*.
, **o-isopropyl-** See *Cumidine*.
, **5-isopropyl-2-methyl-**. See *Carvacrylamine*.
, **mercapto-**. See *Benzenethiol, amino-*.
-, **p, p'-mercuridi-**, 600*d*.
, **o-methoxy-** See *Anisidine*.
, **N-o-methoxybenzylidene-p-(p-nitrophenylsulfonyl)-**, 2592*h*.
, **N-o-methoxybenzylidene-p, p'-sulfonyldi-**, 2592*h*.
, **N-(10-methoxy-10-phenyl-9(10*H*)-anthrylidene)-**, 9060*e*.
-, **p-(p-methoxyphenylazo)-**, anthrapyridazone dye from, P 8166*a*.
, **2-methoxy-4, 4'-sulfonyldi-**†, in tuberculosis therapy, 3518*d*.
, **o-methyl-**. See *Toluidine*.
-, **N-methyl-**, adsorption by activated C, 6037*e*.
analysis of mixts. with aniline and *N, N*-dimethylaniline, 8944*f*.
anthraquinone dye from, P 1575*i*.
as catalyst for polymerization of ethylene monomers with polyhydric alc. esters of α-olefinic dicarboxylic acids, P 9067
derivs., detn. of, 1688.
dipole moment of, in benzene and *p*-dioxane, 7438*d*
effect on flame propagation limits of $C_2H_2$, H, $CH_4$ and $C_3H_8$ mixts. with air, 3617*g*
formylation of, 1336*b*.
Koparachor of, 2834*a*.
manuf. of, P 3454*g*.
phys. constants of, 2956*g*.
reaction with acetophenone derivs., 218*e*, 220*a*.
reaction with *p*-nitrobenzoyl chloride, 4241*a*.
as rubber vulcanization accelerator, 3648*a*.
stilbene triazine dye from, P 5965*h*.
toxicity of, 4401*c*.
—, **N-α-methylbenzylidene-**, reaction (addn.) with metallic chlorides (attempted), 4227*i*.
—, **N-methyl-2, 4-dinitro-**, detection in tetryl and spectrum of, 1189*c*.
—, **p, p'-methylenebis**[*N*-**butyl-**, and dihydrochloride, 3381*h*.
—, **methylenebis**[*N, N*-**diamyl-**, as antioxidant for lubricants, P 1176*i*.
—, **p, p'-methylenebis**[*N, N*-**diamyl-**, and derivs., 3380*h*.
—, **p, p'-methylenebis**[*N, N*-**dibutyl-**, P 9520*e*.
and salts, 3380*h*.
—, **methylenebis**[*N, N*-**diethyl-**, as antioxidant for lubricants, P 1176*i*, P 1177*b*
—, **p, p'-methylenebis**[*N, N*-**diethyl-**, P 9520*e*.
—, **methylenebis**[*N, N*-**dimethyl-**, as antioxidant for lubricants, P 1176*i*.
—, **ar, ar'-methylenebis**[*N, N*-**dimethyl-**, 5361*g*.
—, **p, p'-methylenebis**[*N, N*-**dimethyl-**, 191*h*, P 9519*f*, P 9520*e*.
as polymerization promoter, P 5230*f*.
—, **p, p'-methylenebis**[*N, N*-**dipropyl-**, P 9520*e*.
—, **p, p'-methylenebis**[*N*-**heptyl-**†, and dihydrochloride, 3381*h*.
—, **methylenebis**[*N*-**isoamyl-**, as antioxidant for lubricants, P 1176*i*, P 1177*c*.
—, **methylenebis**[*N*-**methyl-**, as antioxidant for lubricants, P 1176*i*.
—, *N, N'*-**methylenedi-**. See *Methanediamine, N, N'-diphenyl-*.
—, *o, p'*-**methylenedi-**, P 4699*a*.
—, *p, p'*-**methylenedi-**, *N*-derivs., in chloroprene copolymerization, P 9519*e*.
effect on rubber, 2799*e*.
reaction product (polymeric) with 1, 1'-decamethylenebis[3-cyanoguanidine] and its HCl, P 2230*a*.
*N, N, N', N'*-tetraalkyl derivs., polymerization of chloroprene in presence of, P 9520*d*.
tuberculocidal activity and toxicity of, 8615*a*.
—, **p, p'-(methylenedioxy)bis**[*N, N*-**diamyl-**, salts, 3381*c*
—, **p, p'-(methylenedioxy)bis**[*N, N*-**dibutyl-**, salts, 3381*c*
—, **4, 5-methylenedioxy-2-nitro-**, 1413*d*.
—, **p, p', p''-methylidynetri-**, *N*-derivs., in chloroprene copolymerization, P 9519*e*.
**p, p', p''-methylidynetris**[*N, N*-**dimethyl-**, as stabilizer for neoprene, P 9519*f*.
—, **4, 4'-[4-methylimino-3, 5-dinitro-2, 5-cyclohexadienylenemethylene]bis**[*N*-**methyl-***N*, **2, 6-trinitro-**, 2982*c*.
—, *o*-**methylmercapto-**, spectrum of, 7820*c*.
—, **2-methyl-4, 4', 4''-methylidynetris**[*N*-**guanyl-**, and carbonate, 5014*d*, P 5046*f*.
—, *N*-**methyl-p-nitro-**, 167*i*.
as coccidiostatic agent, P 7593*a*
—, *N*-**methyl-N, 2, 3, 4, 6-pentanitro-**, detection of, 1189*c*.
—, *N*-**methyl-p-phenylazo-**, 5756*g*.
carcinogenicity of, 3801*e*, 5109*e*.
formation from 4-dimethylaminoazobenzene by liver homogenates, 2306*g*.
inhibition of linoleic acid oxidation by, 1859*d*.
in liver of rats fed various diets contg. *p*-dimethylaminoazobenzene, 2310*e*.
—, **2-(methylsulfonyl)-4-nitro-**, azo dyes from, P 8626, P 9459*d*.
—, *N*-**methyl-N, 2, 4, 6-tetranitro-**. See *Tetryl*.
—, *N*-**methyl-p-[m(o and p)-tolylazo]-**, carcinogenicity of, 3801*f*.
—, *N*-**naphthyl-**. See *Naphthylamine, N-phenyl*.
—, *o*-**1-naphthyl-**, 3401*g*.
—, **nitro-**, reaction with mustard gas, 6336*i*.
—, *m*-**nitro-**, 6-alkenyloxy or 6-alkoxy derivs., P 5709*g*
2- and 4-alkoxy derivs., sweet-tasting, 2592*h*.
azo dye from, P 7710*i*
diasolysis from *o*-nitroaniline, 4077*h*.
effect on thiamine destruction by Chastek paralysis enzyme, 5056*f*.
methemoglobin formation from hemoglobin by, 5864*b*.
—, *m*(and *o*)-**nitro-**, spectra of, 8890*i*.
—, *m(o and p)*-**nitro-**, formation from nitrobenzaldehyde oxime, 5760*h*.
identification and differentiation of, 6945*e*.
identification of, 7446*f*, 7447*i*, 7448*c*.
—, *m*(and *p*)-**nitro-**, alkoxy derivs., 166*f*.
disazo dyes from, P 1574*d*.
hydrogenation on colloidal Rh, rate of, 27*f*.
salts with 10-camphorsulfonic acid, magnetic susceptibilities of, 8768*f*.
spectra of, 2868*g*, 3715*c*.
—, *o*-**nitro-**, chromatography of, temp. and, 2067*i*.
crystal structure of, 9305.
diasolysis from *m*-nitroaniline, 4077*h*.
—, *o*(and *p*)-**nitro-**, derivs., mesomerism in, 2186*c*.
dinitrobenzenes from, 1734*b*.
—, *p*-**nitro-**, azo dyes from, 2437*g*, P 4019*eh*, P 4475*b*, P 7235*d*, P 7697*h*, P 8149*f*, P 8152*a*, P 8152*c*, P 8154*d*, P 8159*e*, P 8690*d*, P 9463*c*.
as coccidiostatic agent, P 7593*a*.
compd. with 1-benzylquinolinium chloride, 6445*d*.
detn. in D&C Black No. 1, 7231*i*, 9454*d*.
fluosilicate, 6992*b*.
formation of, from 4'-nitro-2-*m*-nitrobenzoylbenzanilide, 1042*d*.
mol. refraction of, 604*h*.
polarography of, effect of EtOH on, 8908*b*.
reaction with diketene, rate of, 1247*d*.
structure of, 3262*d*.
—, *N*-*m*(and *o*)-**nitrobenzylidene-**, as insecticides, 7626*a*.
—, **p, p'-nitrobenzylidenedi-**, *N, N, N', N'*-tetraalkyl derivs., as polymerization promoters, P 5230*f*.
—, **p, p'-(p-nitrobenzylidene)di-**, reaction with $HgCl_2$, 185*b*.
—, **N-m-nitrobenzylidene-p-(p-nitrophenylsulfonyl)-**, 2592*i*.
—, **N-m-nitrobenzylidene-p, p'-sulfonyldi-**, 2592*i*.
—, **m-nitro-N-m-nitrobenzylidene-**, as insecticide, 7626*a*.
—, *m*(and *o*)-**nitro-N-o-nitrobenzylidene-**, as insecticides, 7626*a*.
—, *p*-**nitro-N-nitroso-**, 7444*a*.
sodium derivs., kinetics of formation and transformations of, 169*i*.
—, **p-(p-nitrophenylazo)-**, color reaction with metal ions, 597*d*.
—, **p-(p-nitrophenylmercapto)-**, 3802*g*.
—, **p-(p-nitrophenylsulfonyl)-**, and derivs., P 4817*h*.
Schiff bases of, 2592*g*.
—, **p-(p-nitrophenylsulfonyl)-N-(6-nitropiperonylidene)-**, 2592*i*.
—, **p-(p-nitrophenylsulfonyl)-N-piperonylidene-**, 2592*i*.
—, **N-(6-nitropiperonylidene)-p, p'-sulfonyldi-**, 2592*i*.
—, **3-nitro-4-propoxy-**, 2592*c*, 8437*i*. hydrochloride, P 5799*h*.
—, **4-nitro-2-propoxy-**, 166*h*.
—, **5-nitro-2-propoxy-**, P 5799*h*, 8099*b*. derivs., 7450*h*. and hydrochloride, 8437*i*.
—, *p*-**nitroso-N, N-dipropyl-**, 594*e*.
—, *m*(and *p*)-**nitro-N-9-xanthylidene-**, 7022*a*.
—, **N-octadecyl-p, p'-sulfonyldi-**†, P 2637*g*.
—, **p, p'-oxybis**[*N, N*-**diamyl-**, dipic rate, 3381*b*.
—, **p, p'-oxybis**[*N, N*-**dibutyl-**, salts, 3381*b*.
—, **p, p', p'', p'''-(oxydimethylidyne)-tetrakis**[*N N*-**dimethyl-**, reduction of, 191*h*.
—, **2, 3, 4, 5, 6-pentachloro-**, crystn. on inorg. carrier lattices, 4918*b*.
systems: hexachlorobenzene-, pentachlorophenol-, and pentachlorotoluene-, 7803*h*.
—, *N*-**phenethyl-**. See *Phenethylamine, N-phenyl-*.
—, **phenoxy-**, derivs., azo dyes from, P 5194*g*.
—, *p*-**phenoxy-**, as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
—, *N*-**phenyl-**. See *Diphenylamine*.
—, *o*-**phenyl-**. See *2-Biphenylamine*.
—, *p*-**phenyl-**. See *Xenylamine*.
—, **N-(10-phenyl-9-anthryl)-**, 9060*f*.
—, *o*-**phenylarsino-**, 8352*d*.
—, **phenylazo-**, disazo dye from, P 8690*b*.
—, *p*-**phenylazo-**, 5756*g*.
adsorption by $Al_2O_3$, 6035*c*.
anthrapyridazone dyes from, P 8165*i*.
azamethine dye from, P 8168*d*.
azo dye from, P 4477*b*, P 8690*b*, P 8160*c*.
*d*-, *dl*- and *l*-10-camphorsulfonates, 610*c*.
carcinogenic action of, during restricted diet, 5168*e*.
effect on
—
cause by liver homogenates, 2306*g*.
liver compn. after feeding, 7228*c*.
inhibition of linoleic acid oxidation by, 1859*d*.
as insecticide, 2727*c*.

tetrakisazo stilbene dye from, P 4863*d*.
—, *N* - (**5 - phenylimino - 1,3 - pentadienyl**)-, hydrochloride, 3801*e*.
—, *N* - (**3 - phenyliminopropenyl**)-, hydrochloride, P 6225*g*.
—, *p*-(**picrylsulfonyl**)-, 2593*e*.
—, *N* - **piperonylidene - *p,p'* - sulfonyldi-**, 2592*i*.
—, *p*-**propoxy-**, azoproteins and antigens from, 4370*i*.
—, *N*-**propyl-**, ionization of, 7304*a*
phys. constants of, 2956*g*.
—, *p*-(**propylsulfonyl**)-, 2593*e*.
—, *N* - **propyl - *p,p'* - sulfonyldi-**, P 2037*f*.
—, *N*-**salicylidene-**. See *o-Cresol, α-phenylimino-*.
—, *ar*-**styryl-**. See *Stilbenamine*.
—, **sulfinyldi-**, therapeutic activity of, 3097*h*.
—, *p,p'*-**sulfinyldi-**, disazo dye from, P 4476*f*.
—, *p,p'*-(**sulfonylazo**)**di-**, dye derivs., P 7846*e*.
—, **2,2'-sulfonylbis[5-chloro-**, disazo dye from, P 4476*e*
—, **4,4'-sulfonylbis[2-chloro-**, in tuberculosis therapy, 3518*d*.
*p,p'* - **sulfonylbis**[*N* - *o*(and *p*)-**chlorobenzylidene-**, 5541*f*.
*p,p'* - **sulfonylbis**[*N* - **cinnamylidene-**, 2592*i*.
*p,p'* - **sulfonylbis**[*N* - **2,4**(and **3,4**)-**dichlorobenzylidene-**, 5541*g*.
*p,p'* - **sulfonylbis**[*N* - (**2 - hydroxy - 1 - naphthylmethylene**)-**amino**]-†, 5541*g*
—, **sulfonyldi-**, derivs., in tuberculosis therapy, 3518*c*.
therapeutic activity of, 3097*h*.
—, *m,m'*(and *p,p'*)-**sulfonyldi-**, disazo dyes from, P 4476*f*.
—, *N,N'*-**sulfonyldi-**. See *Sulfanilide*
—, *p,p'*-**sulfonyldi-**, chemotherapeutic effectiveness of, and its derivs., 6310*i*.
compds. related to, 7449*g*.
derivs., P 5041*i*, 5541*c f*.
and *N,N'*-digalactoside, detn of, 1908*f*
di-D-glucose $NaHSO_3$ compd.—see *Promin*
effect on aging of sulfonates, P 6845*c*.
effect on organisms from mastitis, 3880*h*.
manuf. of, P 7960*e*.
metabolic fate of, and its isolation from urine, 5817*a*.
permeability of hematoencephalic barrier to, 5119*d*.
Schiff bases of, 2592*g*.
—, **tetrahydro-**. See *Cyclohexenylamine*
—, *N*-**tetrahydrofurfuryl-**. See *Furfurylamine, tetrahydro-N-phenyl-*
—, *p,p'* - **2 - thenylidenebis**[*N*, *N*-**dimethyl-**, for lubricant improvement, P 9432*h*.
*p,p'* - **thiobis**[*N* - **anisylidene-**, 4427*e*
—, *p,p'* - **thiobis**[*N* - **benzylidene-**, 4426*i*.
—, *p,p'* - **thiobis**[*N* - **cinnamylidene-**, 4427*a*.
—, *p,p'* - **thiobis**[*N* - (*p* - **diethylaminobenzylidene**)-†, 4427*a*.
—, *p,p'* - **thiobis**[*N* - (*p* - **dimethylaminobenzylidene**)-†, 4427*a*.
—, *p,p'* - **thiobis**[*N* - **furfurylidene-**, 4427*a*.
—, *p,p'* - **thiobis**[*m* - **nitrobenzylidene-**, 4427*a*.
—, *p,p'* - **thiobis**[*N* - **piperonylidene-**, 4427*a*.
—, **thiocyano-**, in seed treatment, 1516*f*.
—, *ar,ar'*-**thiodi-**, 6179*f*.
—, *p,p'*-**thiodi-**, 3802*i*.
and dihydrochloride, 5014*g*.
as fungicide, 6351*f*.
prepn. of, 1741*a*.
—, *p*-(*p*-**tolylsulfonyl**)-, 6994*f*.
—, **2,4,6-tribromo-**, 175*d*.
—, **2,4,5-trichloro-**, 3729*f*.
—, **2,4,6-trichloro-** *N*, *N*-**dimethyl-**, 6571*a*.
—, **4,4'** - (**2,2,2 - trichloroethylidene**)-**bis[2,6-diiodo-**, 6605*c*.
—, *m,p'*(and *p,p'*)-(**2,2,2-trichloroethylidene**)**di-**, P 6237*d*, P 7510*e*.
—, *p,p'* - (**2,2,2 - trichloroethylidene**)**di-**, 1367*e*, 1752*h*, 6605*c*.
—, *ar*-(**triethylsilyl**)-, 1737*c*.
—, **trimethyl-**, sepn. of quinoline from its mixts. with N bases contg., P 2241*d*.
—, **2,4,5-trimethyl-**. See *Pseudocumidine*.
—, **2,4,6-trimethyl-**. See *Mesidine*.
—, **3,4,5-trimethyl-**, P 5799*f*.
—, *p,p'* - (**trimethylenedioxy**)**bis**[*N*,-*N*-**diamyl-**, salts, 3381*d*.
—, *p,p'* - (**trimethylenedioxy**)**bis**[*N*,-*N*-**dibutyl-**, salts, 3381*c*.
—, *p,p'*-(**trimethylenedioxy**)**di-**, dihydrochloride, 3381*b*.
—, *o* - (**2,3,4 - trimethyl - 1 - naphthyl**)-, 9059*h*.
—, **2,4,6-trinitro-**. See *Picramide*.
—, *ar*-**vinyl-**, polarity and polymerization of, 1633*h*.
—, *p*-**vinyl-**, derivs., 3426*h*.
—, *p,p'*-**vinylenedi-**. See *4,4'-Stilbenediamine*.
*ar*-**Anilinearsonic acid**. See *Arsanilic acid; m-Arsanilic acid*.
**Aniline Orange**. See *Dyes*.
**Aniline point**, detn. of, of benzine, 2415*c*.
detn. of, of petroleum products, 2410*d*, 4399*d*.
soly. and, of lubricating oils, 3602*f*.
soly. and, of polystyrene in hydrocarbon mixts., 2465*f*.
*ar*-**Anilinesulfonic acid**. See *Benzenesulfonic acid, amino-; Metanilic acid; Sulfanilic acid*
**Anils**. (*Derivatives will usually be found under the amine or imine. Thus benzaldehyde anil is indexed under* Aniline, *N*-benzylidene-, *benzophenone anil under* Aniline, *N*-benzhydrylidene-. *See also* Schiff bases.)
of biacetyl, 4234*e*
compds. (addn.) with metallic chlorides, 4227*h*.
reaction of nitro, with diazomethane and with $Ph_2C:N_2$, 7022*a*.
spectra of di-, 5755*i*.
**Animal extracts**. See *Adrenal extracts; Liver extracts; Organ extracts; Thyroid extracts*; etc
**Animal light**. See "bioluminescence" under *Light*.
**Animal liquids**. See *Body fluids*
**Animal matter**, drying of, P 4058*c*.
**Animal organism** (See also *Growth, Life, Longevity; Metabolism, animal, Nutrition, animal, Tissue, animal*; etc.)
acetanilide fate in, 313*c*.
adaptation of - see *Adaptation*
aging of—see *Senescence; Senility*.
*p*-aminobenzoic acid acetylation in, 5835*i*
anaerobiosis and microaerophilic exchange in invertebrate, 8066*f*.
antioxidants in, 1249*c*.
biochem. changes in, during evolution, 8414*h*.
biosphere elements in evolution of, 5060*a*
carbon and N isotopes in studies on, 4710*i*.
carbon monoxide conversion to $CO_2$ in, 8030*g*.
collagen-type protein fibers in, from different phylogenetic groups, 8563*i*.
compn. of, effect of protein and vitamin $B_{12}$ in diet on, 287*f*.
creatinine fate in, 2294*h*.
DDT effect on, 5146*c*.
defense mechanism of, lipase in blood plasma and, 6722*f*.
density of, in relation to fat and water content, 4746*g*.
diethyl-2-iodoethylamine-HCl distribution in, 8059*e*.
3,4-dimethyl-5-sulfanilamidoisoxazole distribution in, 321*h*.
2,5 - diphenyl - 3 - (*p* - iodophenyl) - 2*H*-tetrazolium chloride distribution in, 8060*h*.
fate of decahydronaphthaleneacetic acids and naphthaleneacetic acids in, 6730*c*.
fate of toxic benzene derivs. in, 6313*i*, 6314*d*.
glycine conversion to serine in, 4747*i*.
gold distribution in, arthritis and, 763*d*.
homolanthionine conversion to cystine in, 6712*d*.
hyaluronidase-hyaluronic acid system in physiology and pathology of, 5846*e*.
after hypophysectomy, effect of adrenocorticotropic and growth hormones on compn. of, 8489*d*.
16-ketoestrone conversion to estriol in, 2301*d*.
metallic-dust effect on, 4988*b*.
methadon distribution in, 5865*i*.
morphological inversion of, mol. basis of, 3861*f*.
nicotine fate in, 5866*c*.
pentose utilization by, 3904*f*.
procaine fate in, 1821*c*.
pyrocatechol fate in, 2325*b*.
sodium sulfate distribution in, after injection, 6307*f*.
sterol fate in, 5848*d*.
sterol formation in, 1843*b*.
succinic acid storage in, 4766*d*.
thallium distribution in, after poisoning 6308*g*.
tryptophan degradation in, 5095*f*, 9202*e*
ultraviolet emission by P in, 6265*f*.
vitamin A-substance synthesis in, 1092*h*.
water conservation in desert rodents 5476*b*.
water detn. in, 6693*d*, 7995*d*.
x-ray effect on, 8405*a*.
**Animal products industry**. See *Packing industry*.
**Animals**, repellents for—see *Repellents*
**Anions**. (*For systematic detection or determination of anions, see* Analysis. *See also* Ions, electrolytic.) 4082*i*.
absorption through plant roots, temp. coeff. of, and its dependence on soil concn., 7089*fh*.
ammonium chloride crystn. in presence of, 2483*c*.
-cation balance in guayule leaves, 281*e*
cation relation to, in plants, 5449*i*.
chromatography (paper) of inorg., 6883*h*
classification of, 4975*g*.
combination of org., with serum albumins, 2250*d*, 4707*g*.
complexly bound, in Al sulfate and chrom alum tanning solns. treated with formates or oxalates, and their detn 9507*g*.
in concn. cells, 8287*a*.
in crystals, lattice energy relation to crystallochem. electronegativities of 8788*c*.
deformation of complex, Raman spectrum study of, 2513*f*.
displacement from albumin by urea and urethan, 1241*f*.
effect on anodic and cathodic behavior of Cu, 8914*c*.
exchange in water purification—see *Water purification of*.
exchange of, in deacidification of plant juices, P 4397*b*.
in erythrocytes, temp. coeff. of, 9196*i*.
in $C_{11}H_{24}O$ purification and stabilization, P 5034*b*.
in manuf. of HCHO free of HCOOH 4632*e*.
by resins, acid detn. in tan liquors by, 1205*f*
in soils, detn. of, 3127*i*
-exchanging compns., acid sorption by, 1238*b*.
from acrylonitrile adducts, P 7102*g*
from alkylene polyamines and hydroxy aliphatic polyhalides, P 6339*a*
from alkylene(poly-) polyamines and 1,3,5-triazine derivs., P 5517*g*
from aromatic amine reaction products with CO, P 5039*g*.
detn. of exchange capacity of, 5885*i*, 9296*f*.
hydrolysis in regeneration of resinous, 2067*a*.
reactions of polyamine-type, with acids, 335*a*.
resinous, P 5517*i*, P 5518*b*, P 6338*i*, 6489*e*, P 7609*d*.
sepn. of acidic amino acids and org. acids by, 8807*a*.
in sugar manuf., P 890*b*.
heavy-metal-ion distribution in silicates contg., of different size, 8782*e*
in lead autodisplacement, 2845*i*
lecture demonstration on carbanions, 8762*d*.
in plant nutrition by $NH_3$, 7174*b*.
polyanionic compds., 3306*c*.
removal from liquids with exchange resins, P 6339*de*.
soil balance of, leaching of ions and, 1509*d*
in soils, formation and destruction of, 4408*f*.
in water (irrigation), and their detn., 3951*e*.
**Anisaldehyde** (*p-methoxybenzaldehyde*),
azine, 1654*d*.
azine, dipole moments and elec. birefringence of, 3675*d*.
azine (mono-) with naphthalic anhydride, 2982*g*.

azine, rotating magnetic field in study of colloidal, 7291*d*.
azine, spectrum of, 5756*a*.
complex with $CdCl_2$, 7000*h*.
condensation of, sulfonic acids and metallo-org. compds., P 690*d*.
cyclohexylcarbonylhydrazone†, 4233*c*.
elec. moments of, H bonds and, 6020*h*.
6-nitro-2-benzothiazolylhydrazone, resonance in, 5395*h*.
reduction to anisyl alc., 2570*f*.
thiosemicarbazone, in tuberculosis therapy, 7576*i*.
trimethylene cyclic acetal—see *m-Dioxane, 2-(p-methoxyphenyl)-*.
—, **2-acetyl-2-hydroxy-**, 3414*c*.
—, **2-*tert*-butyl-**, P 1063*f*, P 8400*g*.
—, **2-*tert*-butyl-5-nitro-**, P 1063*h*.
—, **3-(4-formylphenoxy)-†**, 3017*f*.
—, **2-hydroxy-**, from *Tylophora indica*, 3567*g*.
—, **3-hydroxy-**. See *Isovanillin*.
***o*-Anisaldehyde**. See *Benzaldehyde, o-methoxy-*.
**Anisamide, 3-allyl-*N*-(*p*-nitrophenylsulfonyl)-**, P 4695*d*.
—, **3-allyl-*N*-sulfanilyl-**, P 4695*d*.
—, ***N*-benzylthio-**, 6596*c*.
pyrolysis of, 4652*e*.
—, ***N*-(2-diethylaminoethyl)-**, hydrochloride, prepn. and pharmacology of, 3101*h*.
—, ***N*-2-hydroxyethyl-α-(2-hydroxyethylcarbamyl)-(?)**, 3304*g*.
—, **3-methyl-*N*-(*p*-nitrophenylsulfonyl)-**, P 2637*i*.
—, **3-methyl-*N*-sulfanilyl-**, P 2637*i*.
—, ***p*-sulfanilyl-**, P 821*b*.
—, ***N*-2-thiazolyl-**, P 6239*d*.
—, ***N*-*p*-tolylsulfonyl-**, P 7963*b*.
**Anisamidine**, *p*-toluenesulfonate, 7445*a*.
and *p*-toluenesulfonate, P 2231*b*, P 5038*f*.
—, ***N*-benzyl-**, hydrochloride, P 3456*i*.
—, ***N*-2-biphenylyl-**, and picrate, 7445*g*.
—, ***N*-cyclohexyl-**, hydrochloride, P 3456*h*.
—, ***N*,*N*-dibutyl-**, hydrochloride, P 5801*d*.
—, ***N*-(4′-nitro-2-biphenylyl)-**, and picrates, 7445*h*.
—, ***N*-*p*-tolyl-**, P 2232*b*.
*p*-toluenesulfonate, 7444*f*.
**Anisanilide, 3′[2-(6-*p*-methoxybenzamido-2-benzimidazolyl)vinyl]-**, and sulfonation of, P 8174*c*.
—, **2′-(*p*-methoxyphenyl)-**, P 2647*b*.
Anise oil. See *Oils*.
**Anisic acid** (*p-methoxybenzoic acid*), from 1,1′-dimethoxybenzophenone, 1349*d*.
esters, 3414*g*.
with 2,3-butanediols, 3782*c*.
with 4-hydroxy-3-methoxy-α-1-piperidylacetophenone-HCl, P 7050*h*.
with Khellinone, 7481*d*.
and esters, behavior in $H_2SO_4$, 5696*b*.
free energy of ionization of, 8811*f*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 5656*h*.
ionization of, and its esters, in $H_2SO_4$, 8808*f*.
from 1-(*p*-methoxyphenyl)-1,3-butanedione, 2174*f*.
prepn. of, 8368*e*.
*p*-quinone dioxime deriv., as vulcanizing agent, 5623*c*.
spectrum and mol.-field mechanism in, 2863*i*.
spectrum of, 3715*c*.
vinyl ester, P 5045*c*.
**Anisic acid, 2-amino-**, 1416*h*.
—, **2-anisoyl-**, and methyl ester, 6608*d*.
—, **3-bromo-**, 2116*h*.
—, **α-carboxy-**, dimethyl ester, 3364*e*.
—, **2-(carboxymethoxy)-**, diethyl ester, 1771*i*.
—, **3-(3-carboxy-4-methoxyphenylsulfonyl)-**, 6995*d*.
—, **2-[α-(carboxymethylene)-*p*-methoxybenzyl]-(?)**, 6608*h*.
—, **3-(5-carboxy-3-methyl-2-pentenyl)-2-hydroxy-6-(hydroxymethyl)-5-methyl-(?)**, γ-lactone, 6184*g*.
—, **3-(3-carboxy-*o*-tolylsulfonyl)-(?)**, 6995*b*.
—, **2-(5-chloro-*o*-toloxy)-**, 226*a*.
—, **3,5-dichloro-6-(3,5-dichloro-6-hydroxy-4-methoxy-*o*-toloxy)-2-methyl-**, methyl ester, 608*g*.
—, **2,6-dihydroxy-**. See *γ-Resorcylic acid, 4-methoxy-*.
—, **3,5-diiodo-**, 7585*c*.
—, **2-hydroxy-**, 6608*f*.
formation of, from 2,2′-dihydroxyanisil, 1035*i*.
sodium salt, compd. with vitamin $B_{12}$, P 5051*e*.
—, **α-(2-hydroxyethylcarbamyl)-**, 3364*g*.
—, **2-hydroxy-6-methyl-**. See *Everninic acid*.
—, **3-(1-hydroxy-2-naphthoylamino)-**, dye from, light absorption by, 7232*b*.
—, **5-methoxy-**. See *Veratric acid*.
—, **2-methyl-5-nitro-**, 3385*f*.
—, **3,3′-sulfonyldi-**, 6994*g*.
***o*-Anisic acid**. See *Benzoic acid, o-methoxy-*.
**Anisidine** (*ar-methoxyaniline*),




*ortho* form
***m*-Anisidine** (*3-methoxyaniline*) azo dyes 5963*d*, 8144*ab*, P 8158*b*
azo stilbene dyes from, P 5198*d*, P 7235*h*, P 8151*f*.
metabolism of, 6314*h*.
—, ***N*,*N*-diethyl-**, picrate, 1348*h*.
—, ***N*-methyl-**, azo stilbene dyes from, P 8151*g*.
—, **6-methyl-**, azo stilbene dyes from, P 8151*f*.
—, **4-methyl-6-nitro-**, 7918*b*.
—, **5-methyl-4-phenylazo-**, trisazo dyes from, P 8160*b*.
***o*-Anisidine** (*2-methoxyaniline*), azo dyes from, P 7695*i*.
as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
disazo dye from 5-amino-3-sulfosalicylic acid, $COCl_2$ and, P 8156*i*.
identification of, 7446*g*, 7448*ad*.
metabolism of, 6314*h*.
naphthoquinoneimide dyes from, P 8167*b*.
reaction with diketene, rate of, 1247*d*.
reaction with HCHO, 6594*b*.
soly. in Na xylenesulfonate solns., 1242*e*.
—, ***N*-benzyl-**, as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
—, ***N*,*N*-bis(2-chloroethyl)-**, picrate, 7443*b*.
—, **4-chloro-**, as polymerization stopping agent, 8727*i*.
—, **5-chloro-**, azo dyes from, P 8152*a*i.
—, **3,5-dinitro-**, azo dye from, P 4471*g*.
—, **5-methyl-**, azo dyes from, P 3204*d*, P 4477*fg*, P 4478*a*, P 4479*abg*, P 4480*ch*, P 4487*h*, P 5195*c*, P 5597*d*, P 5600*d*, P 5961*ei*, P 5963*b*, P 5966*a*, P 6426*ce*, P 7695*i*, P 7696*c*, P 7702*fg*, P 8158*b*, P 9459*f*, P 9464*b*
azo stilbene dye from, P 4863*eg*.
1,3-benzodioxan-6-ylazo dyes from, P 8149*c*.
disazo dye from 5-amino-3-sulfosalicylic acid, $COCl_2$ and, P 8156*i*.
—, ***N*-methyl-4-nitro-**, 167*g*.
—, **5-methyl-4-phenylazo-**, trisazo dye from, P 4477*c*.
—, **4-nitro-**, azo dyes from, P 8162*i*.
—, **4(and 5)-nitro-**, 166*h*.
azo dyes from, P 8152*a*.
—, **4-phenylazo-**, trisazo dyes from, P 4476*g*, P 4477*ah*, P 5962*i*, P 8160*a*
—, **4-sulfanilyl-**, in tuberculosis therapy, 3518*d*.
—, **5,5′-sulfonyldi-**, 6994*i*.
disazo dye from, P 4476*f*.
—, **5-(trifluoromethyl)-(?)**, 7918*d*.
***p*-Anisidine** (*4-methoxyaniline*), as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
compd. with 1-benzylquinolinium chloride, 645*d*.
derivs., reaction with HCHO, 180*a*.
identification of, 7446*g*, 7448*ad*.
metabolism of, 6314*h*.
*p*-nitroanisole from, 1734*d*.
polyazo dyes from, P 3204*i*, P 4482*g*.
reaction with biacetyl, 4234*h*.
reaction with diketene, rate of, 1247*d*.
spectrum of, 3715*c*.
***p*-Anisidine, *N*,*N′*-acetylenedi-**, spectrum of, 5756*a*.
—, ***N*-benzyl-**, as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
—, ***N*,*N*-bis(2-bromoethyl)-**, 7443*b*.
—, ***N*,*N*-bis(2-iodoethyl)-**, 7443*b*.
—, ***N*,*N*-dibenzyl-**, as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
—, ***N*,*N*-diethyl-**, picrate, 1348*b*.
—, **3,5-dinitro-**, azo dye from, P 4471*g*, P 9462*g*.
—, **2-nitro-**, P 3034*b*.
—, ***N*,2,3,5,6-pentamethyl-**, 181*e*.
—, **2,3,5,6-tetramethyl-**, 180*g*.
—, **2,3,5(and 2,3,6)-trimethyl-**, 180*e*.
**Anisil** (*p,p′-dimethoxybenzil*), from anisoin, 1368*b*.
from α-bromo-*p*-methoxy-α-(*p*-methoxyphenyl)acetophenone, 7027*g*.
condensation with diaminopyrimidine derivs., 3010*b*.
—, **5,5′-dibromo-2,2′-dihydroxy-**, 1036*a*.
—, **2,2′-dihydroxy-**, 1035*i*.
—, **2,2′,5,5′-tetrahydroxy-**, 1036*f*.
**Anisohydroxamic acid**, in cobalt, Cu and Ni analysis, 2116*g*.
**Anisoin** (*4,4′-dimethoxybenzoin*), condensation with diaminopyrimidine derivs., 3010*d*.
oxidation of, to anisil, 1368*b*.
**Anisole** (*methoxybenzene*),




acetylation of, P 6235*g*.
acylation of, P 7966*h*, P 7967*b*.
deuterium exchange with, 5012*c*.
effect on syneresis of Na oleate gels, 4080*a*
Fries rearrangement of PhOAc in, 7924*c*.
nitramide decompn. in, 8828*d*.
phys. consts. of, 2590*b*.
pyrolysis of, at low temp., 5758*i*
from reaction of (*p*-methoxyphenyl)silane derivs. with HCl, 8366*d*.
reaction with 1-benzylpyridinium chloride, 6622*e*.
with chloral, 6187*a*, P 9085*d*.
with cyclohexene and with epichlorohydrin, 6173*i*.
with ethyl 1-methyl-2-oxo-3-cyclohexene-1-carboxylate, 3373*c*.
with β-(*p*-methoxyphenyl)glutaconic anhydride, 4640*a*.
with sulfonating agent and $(ClCH_2)_2$-stearamide reaction product, detergents and wetting agents by, P 1588*e*.
with α,β-unsatd. ketones in presence of $AlCl_3$, 5761*i*.
soly. in Na xylenesulfonate solns., 1242*e*.
solubilization of, with Na secondary alkyl sulfates, 4651*i*.
spectrum of, 2512*g*, 5665*i*.
systems with $CCl_4$, $SiCl_4$, $GeCl_4$ and $SnCl_4$, 2535*b*.
**Anisole, *ar*-acetamido-**. See *Acetanisidide*.
—, ***ar*-acetyl-**. See *Acetophenone, ar-methoxy-*.
—, ***p*-allyl-**. See *Estragole*.
—, ***ar*-amino-**. See *Anisidine*.
—, ***p,p′*-azoxydi-**, colloid of, light polarization by, in rotating magnetic field, 7291*d*.
elec. birefringence and moments of, 3675*d*.
light (polarized) scattering by liquid crystals of, 3257*i*.
—, ***p*-benzyl-**, 6622*e*.
—, **p-[α-(4-biphenylyl)-β-bromostyryl]-†**, estrogenic action of, 4746*d*.
—, **p-(α-4-biphenylylstyryl)-†**, estrogenic action of, 4746*e*.
—, **2,4-bis(chloromethyl)-**, 6591*e*.
—, **o(and *p*)-bromo-**, spectra of, 4573*h*.
—, ***p*-bromo-**, reaction with diethylamine Li deriv., 1348*b*.
—, **3-bromo-4-nitroso-**, spectrum of, 5378*h*.
—, **p-[p-(β-bromo-α-phenylstyryl)-phenyl]-†**, estrogenic action of, 4746*e*.
—, **p-(1-brom yl)-**, Grignard coupling of, 3812.
—, **2-*tert*-butyl-4,6-dinitro-**, P 8400*g*.
—, **2-*tert*-butyl-4-methyl-**, P 1063*e*, P 8400*g*.
—, **4-*tert*-butyl-2-methyl-**, 3805*a*.
—, ***p*-chloro-**, as acaricide and insecticide, 3138*c*.
reaction (Wurtz-Fittig) with $SiCl_4$ attempted, 7463*i*.
—, **p-(chloromethyl)-**, 1741*c*, 2607*a*.
—, **5-chloro-2-methyl-**, 1347*i*, 1348*a*.
—, **3-chloro-6-methyl-2,4-dinitro-**, 1348*a*.

——, **4-chloro-2-nitro-**, 2599*e*.
——, **2-chloro-4-nitroso-**, spectrum of, 5378*h*.
——, **3-(1-chloropropyl)-2-ethyl-**, 197*g*.
——, *p*-**1-cyclohexen-1-yl-**, 1358*f*.
oxidation of, 3366*d*.
——, *p*-**cyclohexyl-**, 2971*a*.
dehydrogenation of, app. for measuring gas evolution during, 8749*i*.
——, **cyclohexyl-2**(and **3**)-**methyl-**, 2971*a*.
——, *p*-**cyclopentyl-**, 2971*a*.
——, **2,4-di-*tert*-butyl-5-methyl-**, P 1063*i*.
——, **dichloro-**, effect on indoleacetic acid action on growth of *Avena* coleoptile, 5831*d*.
effect on respiration in *Avena* coleoptile, 7555*e*.
——, **2,4-dichloro-**, effect on flowering in *Xanthium*, 6705*cd*.
——, **4,4′,4″,4‴-(dichloroacetylene)-tetrakis[2,6-dichloro-†**, 7006*b*.
——, **2,4-dichloro-5-methyl-**, 6633*c*.
——, **3,5-diethyl-**, 1029*b*.
——, *p,p′*-**(1,2-diethylethylene)di-**. See *Bibenzyl, α,α′-diethyl-4,4′-dimethoxy-*.
——, *p,p′*-**(1,2-diethyl-3-ethylidenetrimethylene)di-**. See *2-Heptene, 4-ethyl-3,5-bis(p-methoxyphenyl)-*.
——, *p,p′*-**(1,2-diethyltrimethylene)di-**. See *Hexane, 3-(p methoxybenzyl)-4-(p-methoxyphenyl)-*.
——, *p,p′*-**(1,3-diethyltrimethylene)di-**. See *Heptane, 3,5-bis(p-methoxyphenyl)-*.
——, *p,p′*-**(1,2-diethylvinylene)di-**. See *Stilbene, α,α′-diethyl-4,4′-dimethoxy-*.
——, *p* - (**3,4 - dihydro - 1 - naphthyl**)-, 2971*b*.
——, **2′,4-dimethyl-2,4′-sulfonyldi-**, 6995*c*.
——, *p,p′*-**(dimethylvinylene)di-**. See *Stilbene, 4,4′ - dimethoxy - α,α′ - dimethyl-*.
——, **2,4-dinitro-**, 2599*e*.
reaction with acetone in the presence of alkali, 6175*b*.
——, **dithiobis[methyl-**, P 5992*g*.
——, *ar,ar′*-**ethylenedi-**. See *Bibenzyl, ar,ar′-dimethoxy-*.
——, *p,p′* - (**1 - ethyl - 3 - ethylidenetrimethylene**)**di-**. See *2-Heptene, 3,5-bis(p-methoxyphenyl)-*.
——, **4**(and **5**)-**ethyl-2-methyl-**, 1028*h*.
——, *o*-(**1-ethylpropenyl**)-, reaction with S, 5392*i*.
——, **3-ethyl-2-(1,2,3,4-tetrahydro-2-naphthyl)-**, 205*i*.
——, *p,p′*-(**1-ethyltrimethylene**)**di-**. See *Pentane, 1,3-bis(p-methoxyphenyl)-*.
——, *p,p′*-(**2-ethyltrimethylene**)**di-**. See *Butane, 2-(p-methoxybenzyl)-1-(p-methoxyphenyl)-*.
——, *p*-**ethynyl-**, reaction with AcSH, 7417*i*.
——, *p*-[**2-(2-fluorenyl)ethyl**]-†, 7468*h*.
——, *p*-[**2-(2-fluorenyl)vinyl**]-†, 7468*e*.
——, **hexahydro-**. See *Ether, cyclohexyl methyl*.
——, *p*-**isopropenyl-**, 5629*e*.
——, **2-isopropyl-5-methyl-**, reaction with β-(*p*-methoxyphenyl)glutaconic anhydride, 4640*c*.
——, *o*(and *p*)-**isothiocyano-†**, as food disinfectant, 9273*i*.
——, *m*(and *p*)-**methoxy-**. See *Benzene, dimethoxy-*.
——, *o*-**methoxy-**. See *Veratrole*.
——, *m*-**methyl-**, reduction (electrolytic) of, in liquid $NH_3$, 2521*g*.
——, *m*(and *o*)-**methyl-**, systems with $CCl_4$, $SiCl_4$, $GeCl_4$ and $SnCl_4$, 2535*b*.
——, *m*(*o* and *p*)-**methyl-**, effect of oscillating magnetic field on, 6087*e*.
——, *o*-**methyl-**, reaction with β-(*p*-methoxyphenyl)glutaconic anhydride, 4640*c*.
——, **4-(4-methylcyclohexenyl)-**, 3373*d*.
——, **2-methyl-4,6-dinitro-**, 3805*a*.
in chigger control, 8600*a*.
——, **5-methyl-2,4-dinitro-**, in European corn-borer control, 9336*e*.
——, **methylenedi-**. See *Methane, bis(methoxyphenyl)-*.
——, **2-methyl-4-vinyl-**, polymerization with butadiene, 1597*f*.
——, **4-methyl-2-vinyl-**, polymerization with butadiene, 1597*f*.
——, *p*-(*α*-**1-naphthylstyryl**)-, 7007*d*.
estrogenic action of, 4748*e*.
——, *m*-**nitro-**, spectrum of, 8890*i*.
——, *m*(*o* and *p*)-**nitro-**, elec. moments of, H bonds and, 6020*h*.
——, *m*(and *p*)-**nitro-**, hydrogenation on colloidal Rh, rate of, 27*f*.
——, *o*-**nitro-**, antifouling properties of, 3964*b*.
system: $SnCl_4$–, 6890*i*.
——, *o*(and *p*)-**nitro-**, P 687*gi*.
——, *p*-**nitro-**, 5773*c*.
phenylethérase action on, 702*g*.
prepn. of, 1734*d*.
spectrum of, 2868*f*.
——, **2-nitro-4,4′-sulfonyldi-**, 6994*h*.
——, **2(?)-nitro-4-(trifluoromethyl)-**, 7918*d*.
——, **4 - nitro - 3 - (trifluoromethyl)-**, 7918*c*.
——, *p*-(**2-nitrovinyl**)-, 7454*a*.
fungistatic activity of, 9334*d*.
——, *p,p′*-**octadecamethylenedi-**. See *Octadecane, 1,18-bis(p-methoxyphenyl)-*.
——, **2,3,4,5,6-pentachloro-**, as synergist for nicotine, 5893*h*.
——, *p*-**phenyl-**, 1034*a*, 3394*e*.
——, *α*-**phenyl-**. See *Ether, benzyl phenyl*.
——, *p*-**phenylazo-**, spectrum of, 6919*g*.
——, *p*-**propenyl-**. See *Anethole*.
——, *m*-**propyl-**, 3385*h*.
——, *p*-**propyl-**, 3812*g*.
——, *ar*-**styryl-**. See *Stilbene, ar-methoxy-*.
——, **2,2′ - sulfonylbis[4,6 - dinitro-**, 6994*i*.
——, **4,4′ - sulfonylbis[2,6 - dinitro-**, 6994*h*.
——, **2,2′-sulfonylbis[6-methyl-**, 6995*c*.
——, **2,2′**(and **4,4′**)-**sulfonylbis[4**(and **2**)-**methyl-**, 6994*g*.
——, **2,2′-sulfonylbis[4**(and **?**)-**nitro-**, 6994*i*.
——, **4,4′-sulfonylbis[2-nitro-**, 6994*h*.
——, *p* - (**tetrahydro - 1 - naphthyl**)-, 2971*a*.
——, **thio-**. See *Sulfide, methyl phenyl*.
——, **2,2′-thiobis[6-methyl-**, 6995*c*.
——, **4-*p*-tolyl-**, 3373*d*.
——, **2,4,6-tribromo-**, 5773*c*.
——, **2,3,4-trichloro-6-methyl-**, 1348*a*.
——, *p*-(**trichlorosilyl**)-†, 3354*i*.
——, *p,p′*-(**1,2,3-triethyltrimethylene**)**di-**. See *Heptane, 4-ethyl-3,5-bis(p methoxyphenyl)-*.
——, **2,3,4-trimethyl-** 2975*c*.
——, *p,p′*-**trimethylenedi-**. See *Propane, 1,3-bis(p-methoxyphenyl)-*.
——, *p*-(**trimethylsilyl**)-†, reaction with HCl, 8366*e*.
——, **2,4,6-trinitro-**, sulfur dye from, P 5958*f*.
——, (*p*-**triphenylsilyl**)-†, reaction with HCl, 8366*d*.
——, *ar*-**vinyl-**, polarity and polymerization of, 1633*h*.
——, *m*(*o* and *p*)-**vinyl-**, polymers of, with butadiene, 1597*f*.
——, *p*-**vinyl-**, 5629*e*.
——, *ar,ar′*-**vinylenedi-**. See *Stilbene, ar,ar′-dimethoxy-*.

**Anisonitrile**, formation from *N*-benzylthio anisamide, 4652*f*.

——, **3,3′-sulfonyldi-**, 6995*b*.

**Anisotropic liquids**. See *Liquid crystals*.

**Anisotropy**, in annealed polycryst. metals, 6956*e*.
app. for production of sheets, etc., from molten substances having, P 8760*b*.
of barium nitrate crystals, 4916*h*.
of colloids, depolarization of light scattering and, 7783*h*.
of colloids, directional effect of ions on, 4539*e*.
between crossed Nicols, measurement of magnitude of, 4918*a*.
of crystals, 7770*b*, 7871*h*.
of cubanite and valleriite in reflected polarized light, 6116*f*.
dielec., of $BaTiO_3$, 453*f*.
dielec., of liquid crystals, 3676*a*.
in diffusion rates and reactivity, 2065*h*.
double refraction from—see *Refraction*.
elastic, of alloys and metals, internal friction and, 4198*h*.
of gallium, 8781*a*.
of gels, 7785*c*.
of gels from directed coagulation of anisotropic colloids, 922*d*.
of macromols. effect of solvents on, 7784*d*.
magnetic—see *Magnetic anisotropy*.
of perrhenate crystals, 5688*f*.
of plastic flow, 4614*d*.
of polyisobutylene ribbons, 7295*b*.
of quartz crystals, 976*g*.
relaxation of enforced, in liquids, 7766*f*.
of rubber (ebonite) filled with $MgCO_3$, 430*b*.
of rubber, elec. resistance and, 1208*a*, 8722*i*.
of rubber filler particles in permanent set of rubber, 5990*b*.
of swelling of horn keratin, 2073*c*.
of ultrasonic-wave absorption in quartz single crystals, 4535*c*.

**Anisoyl chloride**, prepn. of, 4652*h*.
reaction with diazo paraffins, 1743*g*.
spectrum of, 3715*d*.

**Anisoyl peroxide**, 3394*e*.

**Anisyl alcohol** (*p-methoxybenzyl alcohol*), *p*-$MeOC_6H_4CH_2OH$.
α
butyrate, 9375*e*.
phys. properties of, 5150*e*.
prepn. of, 2570*f*, 2607*a*.
propionate, phys. properties, soly. and application to flavors and perfumery, 2372*g*.
——, **α-(aminomethyl)-**, hydrochloride, 6176*h*.
——, **α-(3-diethylaminopropyl)-**, P 5043*a*.
——, **2,6-dimethyl-**, 7451*b*
——, **α-ethyl-5-isopropyl-2-methyl-**, 604*e*.
——, **α-ethynyl-**, 3402*c*.
——, **α-nitromethyl-**, and sodium deriv., 7453*f*.
——, **α-pyridyl-**. See *Pyridinemethanol, α-(p-methoxyphenyl)-*.
——, **α-vinyl-**, 2181*h*.

**Anisylamine**. See *Anisidine*.

**Ankerite**, of England, 4188*d*, 5704*i*.
from Italy (Val d'Ala), 4980*c*.
from Norway (Bleka Mines), 6543*f*.

**Annabergite**, of Akol, Minusinsk region, U. S. S. R., 5707*g*

**Annealing**, of aluminum-Mg alloys, 1701*d*
of aluminum, recovery and recrystn. during, 1697*i*.
of aluminum, recrystn. by isothermal, 982*h*.
atms. for, 45*c*, 3327*g*.
bright, inert-gas producer for, P 2153*d*.
bright, review on, 3757*c*.
brittleness of chrome steel, effect of P and Mn on, 3330*d*
of cobalt, effect on Young's modulus 3328*e*.
colors of metals, 5711*f*.
of copper, antioxidant for, P 6966*a*
of Duralumin, effect on U phase, 1701*e*
effect on aluminum-Cu Mg alloy strip, 5335*c*
on creep strength of steel, 1302*a*.
on grain growth in metals, 533*i*
on Hiduminium RR 59, 5351*f*
furnaces for—see *Furnaces; Furnaces, electric*.
of glass—see *Glass*.
of iron (Armco) with H, effect on pickle brittleness of, 1701*c*.
of iron-Ni alloy foil, effect on crystal structure, 8858*h*.
of metals for machinability, 8999*a*.
ovens for—see *Ovens*.
of stainless steel, 4199*i*.
of stainless steel, O and, 7393*c*.
of steel, cyclic, 983*i*.
effect on bending, 8331*a*.
effect on mech. properties, 6135*a*.
to reduce adverse effects of fabricating on magnetic properties, 3329*h*.
of steel strip, app. for, P 9018*g*.
of steel (tool), 536*d*.
twins in brass, 7887*g*.
twins in brass and Cu, 7887*f*.

**Annelids**. (See also *Earthworms, Nereis*; etc.)
in sewage-disposal plants, and their control, 2718*f*.

**Annellation principle**, the term, 1359*h*, 1362*d*, 1363*g*, 1365*d*.

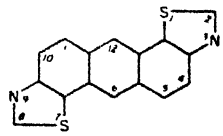
**Annona**, *cherimola*—see *Cherimoya*.
oil of—see *Oils*.
*reticulata*, carotene and vitamin C in, 3536*a*.

**Annonaceae**, curariform drug from, P 5155*g*.

**Anobium punctatum**, control of, 4418*b*, 8598*eg*.

**Anodes**. (See also *Electrodes*.)
aluminum and Mg, in cathodic protection, 4620*f*.
aluminum as, lecture expt. on, 6015*c*.
aluminum, in cathodic protection, 6093*c*.
for aluminum-manuf., P 5682*d*.
for aluminum manuf., manuf. from coal, 8915*b*.
of aluminum-Zn alloys and of Zn in sea water, 6093*g*.
carbon and graphite, in electrolytic prepn. of F, 2871*h*.

of carbon arc, cooling and heating flame of, 4145*d*.
of carbon arc, streaming velocity of flame of, 8914*i*.
for cathodic protection, P 3734*b*, 6560*h*.
in cathodic protection, 506*a*, 6093*c*.
for chromium electroplating baths, P 3734*a*.
collodion-coated, internal electrolysis with, 8285*e*.
copper, contg. S, anodic behavior of Pd in, 2519*c*.
copper, in HCl, periodic reactions at, 7792*f*.
corrosion of, 9014*h*
current efficiencies at, 5677*e*.
for dry cells, Mg and alloys as, 1271*f*.
of electrolytic condensers—see *Electric condensers*.
graphite, in electrolysis of KF HF melts, 2107*e*.
incrustation removal from Pb, for Cr plating, P 2102*g*.
magnesium, in cathodic protection, 6093*ad*, 6962*i*.
magnesium, in protection of watertanks, 1306*a*, 6141*g*.
metals as, 8287*f*, 8913*i*.
molybdenum, 3758*e*.
nickel, P 2101*f*, P 6527*b*, P 7838*g*.
nickel as, in alk solns., 7353*e*.
of nickel sheet, etc., P 6097*b*.
overvoltage on—see *Overvoltage*.
oxygen formation on Ni, in alk solns., 6523*d*
palladium behavior as, in electrolysis of Cu anodes contg. S, 2519*c*
polarization of—see *Polarization, electrolytic*
in polishing (electrolytic) cell, elec. resistance and surface of, 2522*e*
potential of, in electrolysis of alk. NaOCl, 6519*b*.
potential of, of textured metal, 6523*b*.
reactions at Fe, effect of pH, O and $K_2CrO_4$ on, 1620*h*
rotating, in electropolishing of Al and Cd, 2101*c*.
soln. of textured metal, 5677*b*
storage battery, Pb-Ca alloys as, 7836*g*.
for water electrolysis, 1701*h*.
zinc, in cathodic protection, 6093*c*
**Anodic oxidation**. See "electrolytic" under *Oxidation*.
**Anodization**. See *Coating(s)*.
**Anodonta**. See *Mussels*.
**Anol** (*propenylphenol*).
**-Anol, 4,3-dinitro-**, acetate, 1765*f*
**-Anol, 6-ethoxy-**, P 3037*d*.
**-Anol, 2,6-dimethoxy-**, and benzoate, 1030*c*.
**Anomala orientalis** and(or) **Oriental beetle**, control in soil, 1522*f*.
control in turf, 9345*i*.
**Anomala vitis**, control of, 7184*b*
**Anomospermum grandifolium**, alkaloids from, 2626*b*.
**Anona**. See *Annona*.
**Anopheles**. See *Mosquitoes*.
**Anorthite**. (See also *Feldspars; Plagioclase*.)
in alumina system with CaO and $SiO_2$, 8037*i*
stone (artificial) from, P 3167*a*.
system, albite-diopside-, 1252*i*
**Anorthosites**, gabbros of mid Atlantic ridge, 6548*c*.
metamorphosed gabbros of, in serpentinite at Harper's, N. Z., 4610*d*.
norms of average analyses of, 2552*b*
of Tanganyika, 5347*f*.
xenolithic, of Kola Peninsula, 3749*d*
**Anoxemia**. (See also *Atmosphere*.)
eye pupil in, 4374*i*.
pre-excitation during, 6717*e*.
sympathicolytic substances and, 3520*f*.
vasomotor reactions to, and effect of procaine thereon, 4767*i*.
**Anoxia**. See "deficiency" under *Oxygen*.
**Ansonia**. See *Amsonia*.
**Ant**. See *Ants*.
**Antabuse**. See *Disulfide, bis(diethylthiocarbamyl)*.
**Antacids** (*See also the specific antacids, as* Aluminum hydroxide.) P 6370*i*.
amino acid Al salts, P 8620*b*.
carboxymethylcellulose-alkali salt, P 8104*f*.
effect on salicylic acid metabolism and toxicity, 8554*d*.
function, formulation and evaluation, 9386*g*.
with retarded action, 2733*h*.
**Antadril***, effect in adrenaline pulmonary edema, 6729*c*.
in otolaryngology, 7585*h*.
in protection against histamine shock, 6722*d*.
**Antagonism**. (*For the antagonism of nutrients in plants see the various plants and the various fertilizer elements as* Calcium; *for antagonistic action on microorganisms see the various antagonistic compounds as* Sulfanilamide.)
of acetylcholine and atropine, 5115*a*.
of acetylcholine and vitamin $B_1$ on heart, 1093*t*.
of adrenaline and histamine with 2-(2-biphenylyloxy)-2′-chlorodiethylamine derivs., 6309*a*
of adrenaline and thyroxine in masculinization of capon crest, 6717*b*.
adrenaline-ergotamine, 3520*f*.
adrenaline-ferrous ion, 3931*f*
amino acid, in pathology, 8516*t*.
between amino acids in growth of *Tetrahymena*, 9164*e*.
of *p*-aminosalicylic acid and *p*-aminobenzoic acid, 5824*g*.
of antimalarials to purines and pteroylglutamic acid, 8526*a*.
of antibacterial substances, 4339*e*.
of anticonvulsants and metrazole, 5494*d*.
bacterial, 9140*c*.
of barium and K on small intestine, 2326*t*
of basic compds. and basic bactericidal substances, 3058*a*
of caffeine and digitalis glucosides with heart, 8051*g*
calcium-K, on electrocardiogram, 6742*g*.
of chemotherapeutic agents and different ions, 7134*b*.
of choline and heparin, 7583*g*.
chronaximetric, of vitamins, 284*b*, 288*c*.
of curare and prostigmine, 4373*d*.
of curare by Congo red and related compds., 3102*g*.
drug, measure of, 311*c*.
of fat acids and other surface-active agents on gram-positive bacteria, 5822*c*.
between folic acid and sulfathiazole, 2324*g*.
of folliculin and progesterone, 5116*b*.
of growth regulators, 6289*a*.
of *N*-(2-haloalkyl)-1-naphthylmethylamine derivs. to histamine and adrenaline, 2319*t*.
in hemopoiesis, 5462*f*
of γ-hexachlorocyclohexane and *meso*-inositol, 5462*e*.
to histamine—see *Histamine*.
between lanthanum ions and trypaflavine, 7133*e*.
magnesium-K, in dogs, 9267*g*.
of metals to antibacterial action of atebrin and other drugs, 1826*a*.
of methylthiouracil to thyroxine action on blood serum lipase, 3527*f*
between narcotics and sympathomimetic amines in action on central nervous system, 7141*f*.
of pancreas and thyroid, 9200*b*.
of *Penicillium notatum* and *Bacillus subtilis*, 7085*c*.
of pentobarbital and pyruvic acid polymers, 9265*h*.
between pressor and depressor agents in heart, 8056*e*
of protamine sulfate and cellulose sulfate on alexin, 1100*i*.
purine and pyrimidine, in *Neurospora*, 1826*g*.
of rutin to capillary effects of $NaHSO_3$ and procaine, 1861*g*.
of sodium thiosulfate to cyanide, 8412*e*
between structurally similar compds., application to study of infectious disease, 4339*h*.
between thyroxine and morphine plus scopolamine, 6732*g*.
of thyroxine and vitamin $B_1$ on creatinuria, 2679*h*.
vitamin B, 5102*h*.
of vitamin C and structurally related compds., 3894*b*.
**Antagonists**, to microorganism growth—see antagonists such as *Benzoic acid, p-amino* and *Sulfanilamide*
**Antennas**, enclosing, laminated structures for, P 9535*e*.
**Antergan**. See *Ethylenediamine, N-benzyl-N′, N′-dimethyl-N-phenyl-*.
**Anterior-pituitary-like substances**. See *Gondadotropic hormones*.
**Anthanthrone**. See *Dibenzo[cd,jk]pyrene-6,12-dione*.
**Anthelmintics**. (See also *Parasiticides*.) 1032*f*, 1033*a*.
for *Ascaridia galli* in chickens, 9330*b*.
from *Calycopteris floribunda*, 3565*h*, 3566*a*.
carbon tetrachloride as, for flukeworms, 4414*c*.
10-carboxyacylphenothiazines, P 3853*i*.
DDT as, for horses, 5503*e*.
effect on *Fasciola hepatica*, 5503*h*.
gentian violet as, 8099*g*.
kamala and its constituents as, 8101*e*.
lactones of crotonic acid derivs., 4639*i*.
penetration into *Ascaris lumbricoides*, kinetics of, 9270*b*.
phenothiazine, P 821*e*, 3572*b*.
phenothiazine as, 1106*c*.
from pumpkin seeds, P 7198*d*.
pyrimido-2′-cyanine dyes, for roundworms, P 8167*d*.
resorcinol diethylcarbamate and its alkyl derivs., P 252*b*.
review on, 1891*a*.
for roundworms in pigs, NaF as, 7186*i*.
sodium fluoride as, for chickens, 344*i*.
*Tanacetum vulgare* as, 8102*f*.
tetrachloroethylene in oily soln. as, 2699*f*.
**Antheraea pernyi**. See *Silkworms*.
**Antheraxanthin**, *cis-*, 4233*d*.
**Anthericum nepalense**, sapogenin from, 4729*d*.
**Anthiomaline***, filaricidal action of, 2702*i*.
**Anthisan**. See "maleate" under *Pyridine, 2-[(2-dimethylaminoethyl)(p-methoxybenzyl)amino]-*.
**Anthocephalus indicus**, lignin sepn. from, 733*a*
**Anthocyanidins**, chromatography of, 9359*c*.
**Anthocyanins**. (See also *Leucoanthocyanins*.)
in cacao beans, 8011*a*.
color changes of, and use as indicators, 7860*h*.
effect on vitamin C detn., 7534*a*.
in flowers from Australia, 3068*e*.
formation in plants, nutrition and, 7550*e*.
formation in Virginia creeper, effect of N and K on, 2281*a*.
hydrogen ion concn. of juice of plant organs yielding and its relation to color of flowers, 8150*a*.
in *Hyoscyamus muticus*, hyoscyamine localization and, 9381*a*
in peppermint, flavones and, 3149*b*.
plant development and, 279*d*.
in strawberries, 731*i*, 9329*e*.
strawberry, color change with glucose of, 5087*e*.
therapeutic and physiol. effects of, 6366*a*.
**Anthonomus**, *grandis*— see *Boll weevil*.
*rubi*, control of, 807*g*.
**Anthophylite**, stability of Mg, 3275*a*.
**Anthrabisthiazole**,

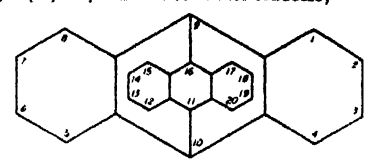


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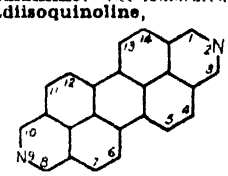
**Anthra[2,1,6,5]bisthiazole-6,12-dione**, 2,8-diaryl derivs., P 7049*e*.
—— —, **bis(chloromethyl)-2,8-diphenyl-**, dye from tetramethylthiourea and, P 8163*g*.
——, **2,8-diphenyl-**, P 3626*f*, P 7049*f*.
**Anthracene**,
aerosol coagulation by, 5255*h*.
cake, carbazole recovery from, P 4451*b*.
carbazole detn. in, 3747*b*.
compression and freezing under pressure, 4067*f*.
crit. temp. and viscosity of, 4064*i*.
crystal structure of, diffuse electron diffraction pattern of, 4556*d*.
derivs., 1758*f*, 2190*b*.
from alkyl benzenes, 7916*k*.
infrared absorption in relation to carcinogenicity of, 3915*d*.
tautomerism of, 9059*h*.
velocity of formation of, from *o*-benzylphenones, 6194*c*.
and derivs., mol. structure and spectra of, 1360*d*.
and derivs., spectra of, 42*a*.
detn. of, 8080*c*.
dispersion of crystals of, 8781*d*.

electron cloud distribution and reactivity of, 6905*h*.
electron d. and polarity of, 2093*a*.
electron residual affinity of, 6512*c*.
fluorescence of, 498*a*, 4111*g*.
fluorescence of, quenching of, 3295*f*.
formation of, from $C_2H_2$, 5376*d*.
by dehydrogenation of resinenes, 3598*b*.
in reaction of benzaldehydes with $AlCl_3$ and $C_2H_6$, 7005*f*.
from reaction of benzaldehyde with Zn, 4238*i*.
from reduction of 9-anthraldehyde, 191*h*.
(2-furyl) derivs., 2198*h*, 4252*f*.
hydrogenated derivs., 2183*b*, 4001*h*.
hydrogenation (partial) of, P 7510*h*.
hydrogenation (selective) of, 6841*i*.
lithium derivs., 208*g*.
luminescent decay const. of, 1258*d*.
maleic anhydride adduct—see *9,10-Ethanoanthracene - 11,12 - dicarboxylic anhydride, 9,10-dehydro-*.
metabolic products of, 8506*a*.
mixts. with $C_{10}H_8$, as scintillation counter, 5292*d*.
mixts. with $C_{10}H_8$ luminescence of, 2516*e*.
mol. diagrams of, and derivs., 4528*c*.
mol. structure and arrangement in, 891*h*, 9513*g*.
oxidation of, 1711*d*.
phosphors, in scintillation counters, 4111*e*, 7811*i*.
photoconductivity of, 6503*b*.
as photocurrent carrier, sign of, 8896*b*.
photooxide, derivs., 620*f*.
polymerization of, 619*f*, 6194*b*.
purification of, P 2641*h*.
Raman spectrum of, 8888*h*.
reaction with maleic anhydride, 2199*d*.
reduction of, 5774*e*.
reduction potential of, 3270*b*.
scintillations from, counting at a distance, 3281*i*.
sepn. of constituents of crude, 209*c*.
soly. in compressed gases, 41*i*.
spectrum (absorption) of, theory of, 4575*f*.
spectrum and excited electronic levels in, 3713*a*.
spectrum of, 7818*e*.
system: sulfur–, 5273*c*.
vapor pressure of, 6481*f*.
viscosity of solns. of, 1629*i*.
wetting coal with, to increase bulk d., 3168*i*.

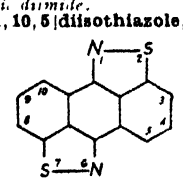
**Anthracene, benzoyl-.** See *Ketone, anthryl phenyl.*
——, **1,4 - bis(benzyloxy) - 9,10 - diphenyl-**, photooxide, dissociability of, 5313*b*.
——, **9,10-bis(chloromethyl)-1,2,3,4,-5,6,7,8-octahydro-**, 7013*e*.
——, **9,10-bis(phenylethynyl)-**, 3401*d*.
—, **9-bromo-**, 208*g*, 7473*a*.
——, **9-(*p*-bromophenyl)-**, 4663*c*.
——, **9-(chloromethyl)-1,2,3,4,5,6,7,8-octahydro-**, 7013*e*.
, **(9-(*p*-chlorophenyl)-**, 6194*f*.
——, **1,4,4a,5,8,8a,9,9a,10,10a-decahydro-9,10-dimethyl-**, 1018*d*.
——, **diamino-**. See *Anthracenediamine.*
——, **9,10-dibromo-**, reaction with BuLi, 208*g*.
reaction with maleic anhydride, 1758*f*.
——, **9,10-dichloro-**, reaction with maleic anhydride, 1758*f*.
——, **9,10-diethoxy-9,10-dihydro-9,10-bis(phenylethynyl)-**, 3401*d*.
——, **1,4 - diethoxy - 9,10 - diphenyl-**, photooxide, dissociability of, 5313*b*.
——, **9,10-diethyl-**, fluorescence of, 498*b*.
——, **dihydro-**, from hydrogenated lignin, 2428*c*.
——, **9,10-dihydro-**, 619*g*, 6194*b*, P 7510*i*.
——, **9,10-dihydro-9,10-diketo-**. See *Anthraquinone.*
——, **9,10-dihydro-9,10-dimethoxy-9,10-bis(phenylethynyl)-**, 3401*d*.
——, **9,10-dihydro-9,10-dimethyl-**, 591*i*.
——, **9,10-dihydro-9,10-dioxo-**. See *Anthraquinone.*
——, **9,10-dihydro-9,10-diphenyl-**, spectrum of, 2983*g*.
——, **9,10-dihydro-9-keto-**. See *Anthrone.*
——, **9,10-dihydro-9-oxo-**. See *Anthrone.*
——, **9,10-dihydro-9-phenyl-**, spectrum of, 2983*g*.
——, **9,10-dihydro-9-(β-1-piperidylisobutyryl)-†**, and hydrochloride, P 365*h*.
—, **dihydroxy-**. See *Anthradiol.*
——, **9,10-dimethyl-**, fluorescence of, 498*b*
——, **9-(3-dimethylaminopropionyl)-9,10-dihydro-†**, hydrochloride, P 365*h*.
, **9,10-dinitro-**, reaction with maleic anhydride, 1758*i*.
——, **9,10-diphenyl-**, photooxide, 620*h*. and photooxide, spectra of, 2983*f*. sulfonation of, 3815*e*.
——, **9,10-divinyl-**, olefinic-bond conjugation with aromatic nucleus, 165*h*.
——, **9-(*p*-fluorophenyl)-**, 6194*f*.
——, **1,2,3,4,5,6-hexahydro-**, 2183*d*.
——, **1,2,3,4,5,6-hexahydro-8-methyl-**, 2183*e*.
——, **hydroxy-**. See *Anthrol.*
——, **9-α-methoxybenzyl-**, 9060*c*.
——, **9-α-methoxybenzyl-10-phenyl-**, 9060*a*.
——, **9-methoxy-10-phenyl-**, and photo oxide, 620*f*.
——, **1-methyl-**, 2183*e*.
——, **9-methyl-**, spectrum of, 8377*c*.
——, **9-nitro-**, reaction with maleic anhydride, 1758*h*.
—, **1,2,3,4,5,6,7,8-octahydro-9,10-dimethyl-**, 7013*e*
—, **1,2,3,4,5,6,7,8 - octahydro - methyl-**, 7013*e*.
——, **9-phenyl-**, and photooxide, spectra of, 2983*f*
——, **tetracosafluorotetradecahydro-**, P 4301*b*.
—, **tetrahydro-**, prepn. of, 5774*e*.
—, **9-*p*-tolyl-**, 6194*f*.
—, **9-vinyl-**, olefinic-bond conjugation with aromatic nucleus, 165*h*
**Anthracenealdehyde.** See *Anthraldehyde*
**Anthracenecarboxaldehyde.** See *Anthral dehyde.*
**Anthracenecarboxylic acid.** See *Anthroic acid.*
**9-Anthracenecrotonic acid** (*γ-9-anthryl-crotonic acid*).
—, **10-(2-furyl)-γ-hydroxy-**, and derivs., 4252*f*.
**9,10-Anthracenediamine**, derivs., optical properties and structure of, 7823*d*
—, ***N,N'*-bis[*m*(*o* and *p*)-(chlorophenyl)]-**, spectra of, 7823*e*.
—, ***N,N'*-bis(*o*-methoxyphenyl)-**, spectrum of, 7823*e*.
, ***N,N'*-di-1(and 2)-naphthyl-**, spectra of 7823*e*.
—, ***N,N'*-di-*m*(*o* and *p*)-tolyl-**, spectra of, 7823*c*.
**Anthracenediazonium compounds**, 9,10-dihydro - 9,10 - dioxo - 1— chloride, compd with $HgCl_2$, 2198*d*.
**9,10-Anthracenedicarbonitrile**, 3401*d*
**Anthracenedicarboxylic acid, 9,10-dihydro-9,10-dioxo-.** See *Anthraquinonedicarboxylic acid.*
**9,10-Anthracenedicarboxylic acid**, 209*b*.
**Anthracenediol.** See *Anthradiol.*
**1,2-Anthracenedione**, as catalyst, 4248*g*
**1,4-Anthracenedione, 2-hydroxy-3-(2-naphthyl)-(?)**, 1385*g*.
**9,10-Anthracenedione.** See *Anthraquinone.*
**2,6-Anthracenedisulfonamide, 9,10-diphenyl-(?)**, 3815*f*.
**2,7-Anthracenedisulfonamide, 9,10-diphenyl-(?)**, 3815*g*.
**Anthracenedisulfonic acid, 9,10-dihydro-9,10-dioxo.** See *Anthraquinonedisulfonic acid.*
**2,6-Anthracenedisulfonic acid, 9,10-diphenyl-(?)**, and derivs., 3815*f*.
**2,7-Anthracenedisulfonic acid, 9,10-diphenyl-(?)**, and derivs., 3815*f*.
**2,6-Anthracenedisulfonyl chloride, 9,10-diphenyl-(?)**, 3815*f*.
**2,7-Anthracenedisulfonyl chloride, 9,10-diphenyl-(?)**, 3815*g*.
**Anthracene dyes.** See *Dyes.*
**9-Anthraceneethanol** (*2-(9-anthryl)ethanol*), prepn. of, 208*i*.
——, **10-bromo-**, 209*c*.
**9-Anthracenemethanol**, from 9-anthraldehyde reduction in the presence of Raney Ni, 191*h*.
——, **α,10-diphenyl-**, 9059*i*.
——, **α-phenyl-**, 9060*b*.
**Anthracene oil**, in coking of coal, 4830*c*.
crystn. of, P 4846*e*.
improving pour point and viscosity index of, P 4846*d*.
**9-Anthracenepropionic acid** (*γ-9-anthryl-propionic acid*).
——, **1,2,3,4,5,6,7,8-octahydro-**, 7013*f*.
**2 - Anthracenesulfonamide, 9,10 - diphenyl-**, 3815*f*.
**Anthracenesulfonic acid, 9,10-dihydro-9,10-dioxo-.** See *Anthraquinonesulfonic acid.*
**2-Anthracenesulfonic acid, 9,10-diphenyl-**, and derivs., 3815*f*.
——, **ethylidenedi-**, and silver salt, P 5047*d*.
**9-Anthracenesulfonic acid, 9,10-dihydro-10-oxo-**, 619*d*.
**2-Anthracenesulfonyl chloride, 9,10-diphenyl-**, 3815*f*.
**Anthracenetriol.** See *Anthratriol.*
**9,10[9',10']-Anthracenoanthracene,**



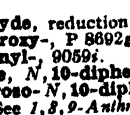
*9,10[9',10']-*
, **9,10,11,16-tetrahydro-**, 619*b*, 6194*b*.
**Anthracenol.** See *Anthrol.*
**1(2*H*)-Anthracenone, 3,4,5,6,7,8-hexahydro-**, 2183*d*.
**9(10*H*)-Anthracenone.** See *Anthrone*
**Anthracite.** See *Coal.*
**Anthracnose.** (See also *Colletotrichum*) control of, 7177*h*
on curcurbits, 9327*g*.
on dwarf beans, 7180*c*.
on Lima beans, 9329*h*.
on raspberries, 9329*c*.
on tomatoes, 2356*e*, 3960*c*, 4113*b*, 9328*d*.
**Anthradiamine.** See *Anthracenediamine*
**Anthradiisoquinoline,**



*[2,1,9-def 6,5,10-def]*
**Anthra[2,1,9 - *def*, 6,5,10 - *d',e',f'*]diisoquinoline - 1,3,8,10(2*H*,9*H*) - tetrone.** See *3,4,9,10-Perylenetetracarboxylic diimide.*
**Anthra[9,1,10,5]diisothiazole,**

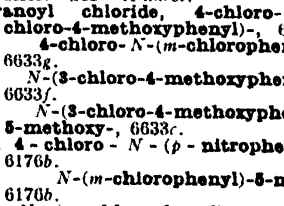


*[9,1,10,5]*
**Anthra[9,1,10,5]diisothiazole - 3,8 - dicarbonyl chloride**, P 5601*f*.
**Anthra[9,1,10,5]diisothiazole - 3,8 - dicarboxylic acid**, P 5601*d*.
**9,10-Anthradiol**, from anthraquinone 1312*e*.
—, **9,10-di-2-furyl-9,10-dihydro-**, reactions of, in the presence of HCl, 4252*f*.
——, **9,10-dihydro-9,10-bis(phenylethynyl)-**, 3401*d*.
——, **9 - (2 - furyl) - 9,10 - dihydro - 10-phenyl-**, reaction with HCl, 2198*i*
**Anthradithiazole.** See *Anthrabisthiazole.*
**Anthraflavic acid** (*2,6-dihydroxyanthraquinone*), diglucoside and its octaacetate, 5019*i*.
**Anthrahydroquinone.** See *9,10 Anthradiol.*
**9-Anthraldehyde**, reduction of, 191*h*.
——, **10-hydroxy-**, P 8692*g*.
——, **10-phenyl-**, 9059*i*.
**9-Anthramine, *N*,10-diphenyl-**, 9060*g*.
——, ***N*-nitroso-*N*,10-diphenyl-**, 9060*g*.
**Anthralin.** See *1,8,9-Anthratriol.*
**Anthranil** (*benzopseudoxazole*),



formation of, from reaction of $o\text{-}O_2NC_6H_4CH{:}NNH_2$ and KOH, 1027*e*.

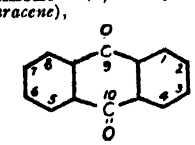
**Anthranilaldehyde** (*o-aminobensaldehyde*), azine, 123*f*.
azine, formation from *o*-$O_2NC_6H_4CH$:-$NNH_2$ and KOH, 1027*e*.
prepn. of, 1742*a*.
——, *N*-(*o*-**nitrophenyl**)-, 648*d*.
——, *N*-**phenyl**-, 648*d*.
**Anthranilamide**. See *Benzamide, o-amino-*.
**Anthranilic acid** (*o-aminobenzoic acid*), as analytical reagent, 8947*h*.
azo dyes from, P 1987*ad*, P 2441*b*, P 2780*i*, P 3204*f*, P 4474*d*, P 4478*bd*, P 4479*fh*, P 4485*i*, P 4865*g*, P 5196*e*, P 5600*e*, P 5961*eh*, P 5963*hi*, P 5964*b*, P 6832*h*, P 7703*a*, P 8147*f*, P 8148*b*, P 8156*f*, P 9464*e*, P 9466*ah*.
azo stilbene dyes from, P 4472*efghi*, P 4473*d*.
azo triazine dye from, P 4472*a*.
*d*-, *dl*- and *l*-10 camphorsulfonates, 610*c*.
chromatographic sepn. of, 4315*i*.
in chromatography paper prepn., 5702*c*.
copper deriv., 8222*e*.
crystal structure of, 8232*g*.
and derivs., effect on phosphatase activity of kidneys, 9245*f*.
detn. in urine, 5819*c*.
dyes from, P 9461*a*.
effect on bladder and effect of diet on its excretion, 6315*d*.
effect on shrinkage temp. of collagen, 7113*i*.
ethyl ester, identification of, 7446*g*, 7448*ac*.
fluorescence and pH of, 8282*d*.
*N*-glucose deriv., and its derivs., 3805*h*.
identification of, and distinguishing from *m* aminobenzoic acid, 6944*i*.
metabolism in *Neurospora*, 7511*h*.
methyl ester, 5150*c*.
in *Boronia ledifolia* oil, 3148*f*
detn. in essential oils, 3146*b*.
in neroli oil, 1815*d*.
nicotinic acid synthesis from, by *Phycomyces blakesleeanus*, effect of vitamin $K_{1(20)}$, 9186*c*.
in scintillation counters, 1111*d*.
solv. in $C_6H_6$ mixt. with alc., effect of toluene and water on, 6889*i*.
spectrum and mol.-field mechanism in, 2863*i*.
spectrum of, 8890*i*
stilbene dyes from, P 1575*b*
structure of, 9301*b*
tryptophan degradation to, in animal organisms, 5095*i*
**Anthranilic acid, 5-acetamido-**, stilbene dyes from, P 1575*a*.
, *N*-**acetyl-**, 5402*i*.
antimalarial activity of, 5860*g*.
, *N*-**acetyl-4-chloro-** *N*-(*p*-**methoxyphenyl**)-, 7002*c*.
, *N*-**acetyl-** *N*-**methyl-**, methyl ester, spectrum of, 4574*h*.
, *N*-**acetyl-4-nitro-**, 2189*h*.
, *N*-**acetyl-5-nitro-**, azo stilbene dyes from, P 4864*g*.
, **amino-**. See *Benzoic acid, diamino*
, **4-amino-** *N*-**phenyl-**†, hydrazide, 618*e*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - [(**3** - **carboxy** - **4-hydroxyphenyl**)**sulfamyl**] - †, P 7710*b*
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - [(**carboxymethyl**)-**sulfamyl**]-, P 7710*c*
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - [(*o* - **carboxyphenyl**)-**methylsulfamyl**]-, P 7710*c*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - (*o* - **carboxyphenylsulfamyl**)-, P 7710*a*.
and esters, P 7709*h*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - (**cyclohexylsulfamyl**)-, P 7710*c*.
monoethyl ester, P 7709*i*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - (**diethylsulfamyl**)-, P 7710*c*.
monoethyl ester, P 7709*i*.
, *N*-(**2-amino-3-sulfo-1-anthraquinonyl**) - **5** - [(*o* - **methoxyphenyl**)**sulfamyl**]-, monomethyl ester, P 7709*i*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - [**methyl**(**2** - **sulfoethyl**)**sulfamyl**]-, P 7710*c*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - (**1** - **piperidylsulfonyl**)-, P 7710*c*.
, *N*-(**4-amino-3-sulfo-1-anthraquinonyl**) - **5** - *p* - **tolylsulfamyl**-, P 7710*c*.
isopropyl ester, P 7709*i*.
——, *N*-**benzoyl-6-chloro-**, 4255*f*.
——, *N*-**benzoyl-5-chloro-** *N*-(*p*-**methoxyphenyl**)-, 3826*h*.
——, *N*-**benzoyl-4-chloro-** *N*-**phenyl-**, 3826*g*.
——, *N*-**benzoyl-** *N*-**phenyl-**, 3826*f*
——, *N*-**benzyl-**, 1345*i*.
——, *N*-**4-biphenylyl-**, 2-diethylaminoethyl ester, -HCl, P 4697*c*.
——, *N*, *N*-**bis**(**carboxymethyl**)-, in metal analysis, P 4800*d*.
and methyl ester and metal derivs., spectra of, 7340*h*.
——, **4-bromo-**, polyazo dye from, P 5963*g*.
, **5-bromo-**, azo stilbene dye from, P 4865*d*.
disazo dye from, P 5598*f*.
——, *N*-(**carboxyethyl**)-, effect on plant growth, 8017*f*.
, **5-(3-carboxy-4-hydroxyphenylazo)-**†, azo dyes from, P 4471*i*, P 7696*f*, P 8145*f*.
, **5-[(3-carboxy-4-hydroxyphenyl)-sulfamyl]-**†, dye from, P 7710*b*.
——, *N*-(**carboxymethyl**)- *N*-**nitroso-**, 3417*i*.
——, **5-[(carboxymethyl)sulfamyl]-**, dye from, P 7710*b*.
——, *N*-(**4-carboxy-3-pyridyl**)-**5-methoxy-**†, 3827*c*.
——, *N*-(**3-carboxysulfanilyl**)-, azo dye from, P 7697*f*.
dye from, P 7710*a*.
——, *N*-(**3-carboxysulfanilyl**)- *N*-**methyl-**, dye from, P 7710*b*.
, **4-chloro-**, azo dyes from, P 5964*g*, P 8114*c*.
polyazo triazine dye from, P 5963*e*.
stilbene dyes from, P 1575*a*.
, **5-chloro-**, azo dyes from, P 3204*d*, P 4478*i*, P 5600*d*, P 5964*e*, P 8144*f*, P 8691*b*.
, **4-chloro-** *N*-(**3-chloro-4-methoxyphenyl**)-, esters, 6633*d*.
——, **4-chloro-** *N*-(*m*-**chlorophenyl**)-, methyl ester, 6633*g*.
——, **6-chloro-** *N*-(*m*-**chlorophenyl**)-**5-nitro-**, 6176*a*.
, **6-chloro-5-methoxy-***N*-(*p*-**methoxyphenyl**)-, 6633*c*.
, **6-chloro-5-methoxy-** *N*-(*p*-**nitrophenyl**)-, 6176*a*.
——, *N*-(**3-chloro-4-methoxyphenyl**)-, esters, 6633*f*.
, **4-chloro-** *N*-(*p*-**methoxyphenyl**)-, *N*-acylation of, 7002*b*.
2-diethylaminoethyl ester, -HCl, P 4697*c*.
, **4-chloro-5-methoxy-** *N*-**phenyl-**, 6633*f*.
——, *N*-(**3-chloro-4-methoxyphenyl**)-**5-methoxy-**, ethyl ester, 6633*c*.
, **4-chloro-** *N*-(*p*-**nitrophenyl**)-, esters, 6176*b*.
, **4 - chloro - 5 - nitro -** *N* **- phenyl-**, 6176*a*
, *N*-(*m*-**chlorophenyl**)-**5-nitro-**, esters, 6176*b*.
——, *N* - (*p* - **chlorophenyl**) - **5 - nitro-**, 7937*g*.
, *N*-(**1-cyanoethyl**)-, 1344*f*.
——, **5-(cyclohexylsulfamyl)-**, dye from, P 7710*b*.
——, **3,5-dichloro-**, polyazo dye from, P 5963*f*.
——, **5-(diethylsulfamyl)-**, dye from, P 7710*b*.
——, *N*, *N*-**dimethyl-**, methyl ester, spectrum of, 4574*h*.
——, *N*-**ethyl-**, 1344*g*.
——, **3-hydroxy-**, nicotinic acid formation from, by enzymes, 6266*f*.
utilization by rat, as substitute for nicotinamide, 292*a*.
——, *N*-(**4-hydroxymetanilyl**)-, azo dyes from, P 1988*b*, P 8148*c*.
——, *N*-(**1-hydroxy-2-naphthoyl**)-, dye from, light absorption by, 7232*b*.
——, *N*-(**2-hydroxy-3,4-xyloyl**)-, dye from, light absorption by, 7232*b*.
——, *N*-(*m*-**iodophenylcarbamyl**)-, ethyl ester, 7448*a*.
——, **4-methoxy-**. See *Anisic acid, 2-amino-*.
, *N*-**methyl-**, methyl ester, spectrum of, 4574*h*.
reaction with $HCONH_2$, 3425*b*.
——, **5 - [methyl(2 - sulfoethyl)sulfamyl]-**, dye from, P 7710*b*.
, *N*-[γ-**1**(and **2**)-**naphthylallophanyl**]-, ethyl ester, 7447*ab*.
——, **3-nitro-**, triazole dye from, P 8691*d*
——, **4-nitro-**, 2189*h*,
azo dyes from, P 5964*f*, P 8144*i*.
——, **5-nitro-**, azo dyes from, P 2781*a*, P 3204*e*, P 4478*acfg*, P 5597*c*, P 5964*abcdefg*, P 8144*g*, P 9464*d*.
azo stilbene dyes from, P 4864*g*.
——, *N*-**5-nitro-1-naphthyl-**, 1419*c*.
——, **5-nitro-** *N*-(*p*-**nitrophenyl**)-, esters, 6176*b*.
——, **4-nitro-** *N*-**phenyl-**, derivs., 648*c*.
——, **5-(*p*-nitrophenylazo)-**, color reaction with Mg, 597*d*.
——, **3-nitro-5-sulfo-**, triazole dye from, P 2784*h*.
——, **5-[4-(4-nitro-2-sulfostyryl)-3-sulfophenylazo]-**, P 9466*a*.
——, *N*-(**3-nitro-***p*-**tolylcarbamyl**)-, ethyl ester, 7448*c*.
——, *N*-**2-oxo-1,2** *H*-**benzopyran-6-yl-**, 7028*d*.
——, *N*-(*p*-**phenoxyphenyl**)-, 2-diethylaminoethyl esters, -HCl, P 4697*d*.
——, *N*-**phenyl-**, derivs, 648*c*, 6175*i*.
and derivs., 9(10 *H*)-acridones from, 3826*d*.
derivs., ring closure of, 6632*i*.
esters of, and its derivs. with amino alcs., P 4697*b*.
indicator solns. of, prepn. of, 7861*a*.
——, *N*-(γ-**phenylallophanyl**)-, ethyl ester, 7446*g*.
——, *N*-**phenylcarbamyl-**, 170*i*.
——, *N*-**phosphono-**, ethyl di-Ph ester, 6178*f*.
——, **5-(1-piperidylsulfanyl)-**, dye from, P 7710*b*.
——, **5-(*p*-sulfamylphenylazo)-**, in protozoa infection therapy, 1485*g*, 8528*b*.
——, *N*-**sulfanilyl-**, sodium salt, S detn. in, 9370*c*.
——, **4**(and **5**)-**sulfo-**, azo dyes from, P 8144*h*.
——, **5-sulfo-**, P 3039*b*, P 8692*a*.
azo stilbene dye from, P 4865*f*.
polyazo dye from, P 5964*f*.
——, *N*-(γ-*p*-**tolylallophanyl**)-, ethyl ester, 7446*h*.
——, **5-*p*-tolylsulfamyl-**, dye from, P 7710*b*.
——, **5,5′-ureylenedi-**, disazo pyrazolone dye from, P 4864*b*.
**2-Anthranilide, 3-hydroxy-4′-(4-morpholinyl)-**, P 8162*h*.
**Anthranilonitrile, 3-chloro-5-nitro-**, azo dye from, P 8155*c*.
, **3,5-dinitro-**, azo dyes from, P 4474*c*, P 9459*c*.
——, **5-nitro-**, azo dyes from, P 4474*c*, P 7697*g*, P 8155*a*, P 9458*f*.
**Anthranol**. See *9-Anthrol*.
**Anthranoyl chloride, 4-chloro-** *N*-(**3-chloro-4-methoxyphenyl**)-, 6633*d*.
——, **4-chloro-** *N*-(*m*-**chlorophenyl**)-, 6633*g*.
——, *N*-(**3-chloro-4-methoxyphenyl**)-, 6633*f*.
——, *N*-(**3-chloro-4-methoxyphenyl**)-**5-methoxy-**, 6633*c*.
——, **4 - chloro -** *N* **- (*p* - nitrophenyl)-**, 6176*b*.
——, *N*-(*m*-**chlorophenyl**)-**5-nitro-**, 6176*b*.
——, *N* - (*p* - **chlorophenyl**) - **5 - nitro-**, 7937*g*.
——, **5 - methoxy -** *N* **- (*p* - methoxyphenyl)-**, 6633*a*.
——, **5-nitro-** *N*-(*p*-**nitrophenyl**)-, 6176*b*.
**Anthra[1,2-*b*]phenanthrene**,



spectrum of, 1365*d*.
**Anthraphenone**. See *Ketone, anthryl phenyl*.
**Anthrapurpurin**, (*1,2,7-trihydroxyanthraquinone*), diglucoside and its octaacetate, 5020*a*.
**1′,9′-Anthrapyridas-3-one**. See 7 *H*-*Naphtho*[*1,2,3-de*]*phthalazine-3,7*(2 *H*)-*dione*.
**Anthraquinol**. See *9,10-Anthradiol*.
**Anthraquinoline**. See *Benzoquinoline*.

**Anthraquinonazine, dihydro-.** See *Indanthrene.*

**Anthraquinone** (*9, 10-dihydro-9, 10-dioxoanthracene*),

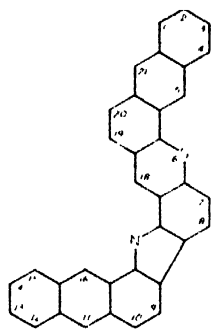


(See also *Leucoanthraquinone.*)
acidic derivs., 6193*f*.
aerosols of, 7290*a*.
alkyl deriv., $H_2O_2$ manuf. from, P 1929*e*.
as catalyst in oxidation of paraffin oil, 2411*b*.
cleavage of, with *tert*-BuOK, 1349*e*.
as corrosion inhibitor against Cu attack by S, 4207*bf*.
crystn. on sucrose, 8238*g*.
derivs., 618*c*, 1760*i*, 3399*d*, P 9467*f*, P 9468*a*.
in frangula bark, 362*c*, 4736*d*.
identification in drugs, 4810*g*, 9366*c*.
as molluscacides for *Australorbis glabratus*, 9352*c*.
relaxation periods of, 6021*a*.
in *Rumex obtusifolius* var. *agrestis*, 5830*d*.
6nd derivs., 617*d*.
life of excited state of, 6085*d*.
luminescence of adsorbates of, 6085*h*.
polarography of, 2520*i*.
quenching of fluorescence of, 7828*cd*, 7829*i*.
derivs., and heterocylic analogs, spectra of, 7341*g*.
detn. of, 6948*c*.
dihydroxy derivs , glycosides of, 5019*gi*.
dyes—see *Dyes*.
effect on conjuctiva, 756*c*.
in elec.-condenser stabilization, 7837*e*.
formation from anthraquinonedisulfonic acid, 3401*c*.
formation from 9,10-dihydroanthracene, 619*h*, 6194*b*.
and glycosides, 2984*g*.
glycosides, stabilization of drugs contg., 5902*h*.
hydroxymethyl derivs., oxidized and reduced forms in pharmacological action of, 4765*a*.
mercury derivs., 2198*c*.
mercury derivs., sulfonation of, 3814*i*.
monoxime, polarography of, 2520*i*.
nitration (simultaneous) of aromatic compds. and, 7918*h*
polarography of substances related to, 2520*h*.
reduction of, 1312*e*, 7472*i*.
spectra (infrared) of, and its derivs., chem. constitution and, 2094*a*.
structure of, 930*c*, 2484*i*.
system: $Et_2O$–, 4937*d*.

**Anthraquinone, 1(or 5) - acetamido-5(or 1)-amino-2-*tert*-butyl-**, 1761*e*.
**——, 1-acetamido-2-butyl-**, 1761*h*
**——, 1-acetamido-2,4-dichloro-**, 3400*b*.
**——, 2 - acetamido - 1,3,4 - trichloro-**, 3399*h*.
**——, 2-acetyl-1-hydroxy-**, 7019*f*.
**——, 4 - (allylamino) - 1 - amino - 2-(trifluoromethyl)-**, P 7709*f*.
**——, 1-amino-**, anthrimidecarbazole dyes from, P 7704*g*, P 7705*a*.
chlorination of, 3400*a*.
derivs., azo dyes from, P 7703*h*.
dyes from, P 863*f*, P 1576*a*, P 7706*f*, P 9468*gi*, P 9469*b*.
fluoranthene dyes from, P 5966*c*.
indanthrene vat dye from, P 6427*c*.
pentaanthraquinonetetracarbazole from, P 1576*i*.
purification of, P 9467*i*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*c*.
vat dyes from, P 4484*eg*.
**——, 1(and 2)-amino-**, anthrimides from, P 1576*e*.
excited state of, life of, in adsorbed state, 6085*e*.
fluorescence of, quenching of, 7828*i*, 7829*i*.
luminescence of, adsorbed on silica gel covered with $Cu^{++}$ ions, 6085*h*.
**——, 2-amino-**, chlorination of, 3399*h*.
**——, 1 - amino - 4 - (*p* - aminoanilino)-2 - (2 - hydroxyethylmercapto)-**, P 4483*f*.
**——, 1 - amino - 4 - anilino - 2 - bromo-**, P 4483*d*.
**——, 1 - amino - 4 - anilino - 2 - chloro-**, 3400*c*.
**——, 1 - amino - 4 - anilino - 2 - (dihydroxypropylmercapto)-**, P 4483*e*.
**——, 1 - amino - 4 - anilino - 2 - mercapto-**, dyes from, P 4483*d*.
**——, 1 - amino - 3(4 and 5) - benzamido-**, vat dyes from, P 4484*cdefg*.
**——, 1-amino-4-benzamido-**, anthrimidecarbazole dyes from, P 7705*a*.
dyes from, P 5966*f*, P 7706*c*.
**——, 1-amino-4(and 5)-benzamido-**, dyes from, P 7708*h*, P 9469*ac*.
**——, 1-amino-4(5 and 8)-benzamido-**, dyes from, P 863*f*.
**——, 1-amino-5-benzamido-**, dyes from, P 5601*cf*, P 7712*a*, P 9468*g*.
fluoranthene dyes from, P 5966*de*.
thianthrene dyes from, P 5966*i*.
vat dyes from, P 865*i*, P 867*c*, P 6426*i*, P 6427*b*.
**——, 1 - amino - 8 - benzamido-**, vat dye from, P 866*g*, P 867*h*.
**——, 6-amino-1-benzamido-**, dye from, P 8691*ef*.
**——, 5 - amino - 1,4 - bis(*p* - methylbenzamido)-**, dyes from, P 1576*c*.
**——, 1 - amino - 4 - bromo - 2 - butyl-**, 1761*h*.
**——, 1 - amino - 4 - bromo - 2 - *tert*-butyl-**, 1761*c*.
**——, 1 - amino - 2 - bromo - 4 - chloro-**, 3400*d*
**——, 2 - amino - 3 - bromo - 1 - chloro-**, 3399*g*.
**——, 1 - amino - 4 - bromo - 2 - (trifluoromethyl)-**, dyes from, P 7709*e*.
**——, 1-amino-2-butyl-**, 1761*h*
**——, 1-amino-2-*tert*-butyl-**, 1761*b*.
**——, 1 - amino - 2 - butyl - 4 - *p* - toluidino-**, 1761*h*.
**——, 1 - amino - 2 - *tert* - butyl - 4 - *p*-toluidino-**, 1761*c*.
**——, 1-amino-4-chloro-**, 3400*d*
**——, 1 - amino - 6(and 7) - chloro-**, azo dyes from, P 7704*a*.
**——, 2-amino-1-chloro-**, 3399*g*.
**——, 1 - amino - 2 - chloro - 4 - *p*-toluidino-**, 3400*c*.
**——, 5 - amino - 1,4 - dibenzamido-**, dyes from, P 1575*g*, P 1576*b*.
**——, 1-amino-2,4-dichloro-**, 3399*i*, 3400*a*.
**——, 1 - amino - 4 - [*p* - (diethylsulfamyl)benzamido]-**, P 864*c*.
**——, 1 - amino - 4 - [*p* - (dimethylsulfamyl)benzamido]-**, P 864*d*.
**——, 1 - amino - 5 - [*p* - (dimethylsulfamyl)benzamido]-**, P 864*b*.
**——, 1 - amino - 4 - ethylamino - 2-(trifluoromethyl)-**, P 7709*g*.
**——, 1-amino-4-hydroxy-**, for dyeing polyvinyl resins, P 1217*e*.
**——, 1 - amino - 4 - [2 - (2 - hydroxyethoxy)ethylamino] - 2 - (trifluoromethyl)-**, P 7709*g*.
**——, 1 - amino - 4 - (2 - hydroxyethylamino) - 2 - (trifluoromethyl)-**, P 7709*f*
**——, 2-amino-1-mercapto-**, fluoranthene dyes from, P 5966*d*.
ring closure and vat dye prepn. from, P 6427*c*.
**——, 1-amino-4-methoxy-**, fluoranthene dyes from, P 5966*d*.
thianthrene dyes from, P 5966*i*.
vat dye from thianthrenedicarboxylic acid and, P 4484*d*.
**——, 1-amino-5-methoxy-**, dyes from, P 9469*c*.
**——, 1 - amino - 4 - (2 - methoxyethylamino) - 2 - (trifluoromethyl)-**, P 7709*g*.
**——, 1 - amino - 4 - methylamino - 2-(trifluoromethyl)-**, P 7709*f*
**——, 1 - amino - 2 - methyl - 4 - (*p*-phenylazoanilino)-**, dye from sulfo deriv. of, P 3626*i*.
**——, 1 - amino - 4 - [*m* - (methylsulfonyl)benzamido]-**, P 8171*c*.
dye from, P 7708*d*
**——, 1 - amino - 4(and 5) - [*m* - (methylsulfonyl)benzamido]-**, dyes from, P 8171*g*.
**——, 5-amino-1-(7-oxo-7 *H*-benz[*de*]-anthracen-7-ylamino)-**, dyes from, P 8170*fi*.
**——, 1 - amino - 4(and 5) - [*p* - (phenylsulfonyl)benzamido]-**, dyes from, P 8171*f*.
**——, 1 - amino - 5[*p* - (phenylsulfonyl)-benzamido]-**, dye from, P 7708*a*.
**——, 1 - amino - ?,?,? - tribromo - 2-*tert*-butyl-**, 1761*c*.
**——, 2 - amino - 1,3,4 - trichloro-**, 3399*h*.
**——, 4 - anilino - 2 - (2 - hydroxyethylmercapto) - 1 - methylamino-**, P 4483*e*.
**——, 1(or 4) - (1 - anthraquinonylamino) - 5 - benzamido - 4(or 1)-(5 - benzamido - 1 - anthraquinonylamino)-**, P 9468*h*.
**——, 1-benzamido-**, dihalo derivs., anthrimidecarbazole dyes from, P 7705*a*
**——, 1 - benzamido - 2 - bromo - 4-chloro-**, 3400*d*.
**——, 4(and 5) - benzamido - 1 - (12-bromo - 6 - chrysenylamino)-**, dye from, P 7711*h*.
**——, 1-benzamido-4-chloro-**, 3400*d*
**——, 1 - benzamido - 5 - chloro-**, anthrimides from, P 1576*e*.
**——, 1-benzamido-6-chloro-**, dyes from, P 866*d*, P 867*e*, P 7709*a*.
**——, 1 - benzamido - 4 - [*p* - (*p* - chlorophenylsulfonyl)benzamido]-**, 8621*i*, P 5966*f*.
**——, 1 - benzamido - 6 - chloro - 4 - [*p*-(phenylsulfonyl)benzamido]-**, P 863*b*.
**——, 1-benzamido-2,4-dichloro-**, 3400*b*
**——, 5 - benzamido - 1,4 - dichloro-**, anthrimidecarbazole dyes from, P 7704*g*.
dyes from, P 9468*g*
**——, 1 - benzamido - 4(and 5) - [*p* - (diethylsulfamyl)benzamido]-**, P 863*i*.
**——, 4 - benzamido - 4′ - [*p* - (diethylsulfamyl)benzamido] - 1,1′ - iminodi-**, P 864*e*
**——, 1 - benzamido - 4(and 5) - [*m*(and *p*) - (dimethylsulfamyl)benzamido]-**, P 863*h*.
**——, 4 - benzamido - 4′ - [*p* - (dimethylsulfamyl)benzamido] - 1,1′ - iminodi-**, P 864*g*.
**——, 4 - benzamido - 5′ - [*p* - (dimethylsulfamyl)benzamido] - 1,1′ - iminodi-**, P 865*a*
**——, 5′ - benzamido - 4 - [*p* - (dimethylsulfamyl)benzamido] - 1,1′ - iminodi-**, P 864*g*
**——, 1 - benzamido - 4(and 5) - [*p* - (ethylsulfamyl)benzamido]-**, P 863*i*
**——, 5 - benzamido - 1,1′ - iminodi-**, P 1576*e*
**——, 1 - benzamido - 4 - [*p* - (*p* - methoxyphenylsulfonyl)benzamido]-**, P 862*h*, P 5966*g*.
**——, 1-benzamido-4(and 5)-[*p*-methylphenylsulfamyl)benzamido]-**, P 863*i*.
**——, 4 - benzamido - 4′ - [*p* - (methylphenylsulfamyl)benzamido] - 1,1′-iminodi-**, P 864*f*
**——, 1 - benzamido - 4(and 5) - [*p*-(methylsulfamyl)benzamido]-**, P 863*i*.
**——, 4 - benzamido - 4′ - [*m* - (methylsulfonyl)benzamido] - 1,1′ - iminodi-**, dyes from, P 8171*d*
**——, 4 - benzamido - 5′ - [*m* - (methylsulfonyl)benzamido] - 1,1′ - iminodi-**, dyes from, P 8171*e*.
**——, 5′ - benzamido - 4 - [*m* - (methylsulfonyl)benzamido] - 1,1′ - iminodi-**, dyes from, P 7707*h*, P 8171*d*
**——, 1 - benzamido - 4(and 5) - [*p*-(phenylsulfamyl)benzamido]-**, P 864*i*.
**——, 1 - benzamido - 4 - [*m*(and *p*)-(phenylsulfonyl)benzamido]-**, P 862*i*.
**——, 1 - benzamido - 4 - [*p* - (phenylsulfonyl)benzamido]-**, P 7706*e*.
**——, 4 - benzamido - 4′ - [*p* - (phenylsulfonyl)benzamido] - 1,1′-iminodi-**, dyes from, P 7708*b*, P 8171*e*.
**——, 4 - benzamido - 5′ - [*p* - (phenylsulfonyl)benzamido] - 1,1′ - iminodi-**, dyes from, P 8171*e*.
**——, 5′ - benzamido - 4 - [*p* - (phenylsulfonyl)benzamido] - 1,1′ - iminodi-**, P 5602*a*.
dyes from, P 7708*b*, P 8171*e*.
**——, 1 - benzamido - 4 - *p* - sulfamylbenzamido-**, P 863*i*.
**——, 1,5 - bis(1 - anthraquinonylamino)-**, derivs., dyes from, P 8171*e*.
**——, 1,5(and 2,6)-bis(1-anthraquinonylamino)-**, P 1576*f*.
**——, 1,4-bis(1-anthraquinonylamino)-5-benzamido-**, anthrimidecarbazole dyes from, P 7704*h*.

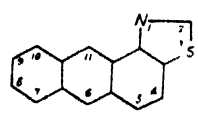
-, 1,5 - bis(1 - anthraquinonylamino)-2-butyl-, 1761i.
, 1,5 - bis(1 - anthraquinonylamino)-2-tert-butyl-, 1761e.
, 1,4 - bis(1 - anthraquinonylamino) - 5 - p - chlorobenzamido-, anthrimidecarbazole dye from, P 7704f.
, 1,4 - bis(1 - anthraquinonylamino) - 5 - (3 - pyridylcarbonylamino)-†, anthrimidecarbazole dye from, P 7704i.
, 1,4 - bis(4 - chlorobenzhydrylamino)-, disulfo deriv., P 9468f.
, bis(chloromethyl) - 1,4 - bis(dimethylanilino)-, dye from thiourea derivs. and, P 8163g.
, bis(chloromethyl) - 1,4 - di - p-toluidino-, dye from thiourea derivs and, P 8163g.
, 1,4 - bis[p - (p - chlorophenylsulfonyl)benzamido]-, P 863a
, 1,4 - bis[p - (dimethylsulfamyl)-benzamido]-, P 864b
, 2,6 - bis[5 - [p - (dimethylsulfamyl)benzamido] - 1 - anthraquinonylamino]-, P 865a
, 4,5' - bis[p - (dimethylsulfamyl)-benzamido] - 1,1' - iminodi-, P 865a.
, 1,5 - bis(methylamino) - 4,8 - bis-(p - phenylazoanilino)-, sulfonated dyes from, P 8164d.
, 1,4 - bis[p - (methylphenylsulfamyl)benzamido]-, P 864.
, 1,5 - bis[4 - [m - (methylsulfonyl)-benzamido] - 1 - anthraquinonylamino]-, dyes from, P 7708l, P 8171e.
, 4,5' - bis[m - (methylsulfonyl)-benzamido] - 1,1' - iminodi-, dyes from, P 8171d
, 1,4-bis(2-naphthylamino)-, dyes from, P 7704a.
, 1,4 - bis(α - phenylphenethylamino)-, disulfonic acid deriv., di Na salt, P 8163i, P 9468i
, 1,4 - bis[p - (phenylsulfonyl)-benzamido]-, P 863a, P 5966g.
, 1,5 - bis[4 - [p - (phenylsulfonyl)-benzamido] - 1 - anthraquinonylamino]-, dyes from, P 8171f
, 2,6- and 2,7) - bis[5 - [p - (phenylsulfonyl)benzamido] - 1 - anthraquinonylamino]-, P 8171g.
, 2,7 - bis[5 - p - (phenylsulfonyl)-benzamido] - 1 - anthraquinonylamino]-, dye from, P 7708e
, 4,5' - bis[p - (phenylsulfonyl)-benzamido] - 1,1' - iminodi-, dyes from, P 8171e.
, 1,4 - bis(1,2,3,4 - tetrahydro - 2-naphthylamino)-, sulfonated halo derivs., P 860f.
, 1-bromo-2-butyl-, 1762a
, 1 - bromo - 4 - (2,3 - dihydroxypropylamino)-, P 3205f.
, 1-bromo-4-ethylamino-, P 3205d.
, 1 - bromo - 4 - (2 - hydroxyethylamino)-, P 3205f.
, 1-bromo-4-isopropylamino-, P 3205f
, 1 - bromo - 4 - (2 - methoxyethylamino)-, P 3205f.
, 1 - bromo - 4 - methylamino-, (m. 193-5°, omitted from abstr.), P 3205h
, 4 - bromo - 1 - methylamino - 2-(trifluoromethyl)-, P 7709g
, 2-butyl-, and derivs., 1761g
, 2-tert-butyl-, 8130h.
and derivs , 1761a
, 2 - butyl - 1,5 - bis(hydroxynaphthylazo)-, 1761i.
, 2 - tert - butyl - 1,5 - bis(hydroxynaphthylazo)-, 1761e.
, 2-butyl-1-chloro-, 1762a.
, 2 - butyl - 1,5(and 1,8) - dinitro-, 1761g
, 2 - tert - butyl - 1,5(and 1,8) - dinitro-, 1761ad.
, 2 - butyl - 1 - (hydroxynaphthylazo)-, 1761h.
, 2 - tert - butyl - 1 - (hydroxynaphthylazo)-, 1761b.
, 2-butyl-1,1'-iminodi-, 1761h.
, 2 - tert - butyl - 1,1' - iminodi-, 1761b.
, 2-butyl-1-nitro-, 1761g.
, 2-tert-butyl-1-nitro-, 1761a.
, carboxy-. See *Anthraquinonecarboxylic acid.*
, 4 - (2 - carboxyethylamino) - 1-methylamino - 2 - (trifluoromethyl)-†, methyl ester, P 7709g.
, chloro-, 619d.
, 1-chloro-, 2198e.
, 1(and 2)-chloro-, 3815c.
anthrimides from, P 1576f.
, 2-chloro-, derivs., P 9467cd.
as termite repellent, 6356f.
, 1 - p - chlorobenzamido - 4 - [p-(phenylsulfonyl)benzamido]-, P 863b.
, 6 - chloro - 1,4 - bis(2 - hydroxyethylamino)-, bis(hydrogen sulfate), P 4483i, P 9467d.
, 6 - chloro - 1,4 - bis(2 - hydroxyisopropylamino)-, P 7236a.
, 1 - chloro - 4 - [p - (diethylsulfamyl)benzamido]-, P 864d.
, 1-(chloromercuri)-, 2198e.
, 2-(chloromercuri)-, 3815e.
, 1 - chloro - 5 - [m - (methylsulfonyl)benzamido]-, P 8171h.
, 1 - chloro - 5 - [p - (phenylsulfonyl)benzamido]-, dye from, P 7708a.
dye from aminoviolanthrone and, P 8171f.
, 1-(6-chrysenylamino)-, dye from, P 7711e.
, 1,5(and 1,8)-diacetamido-2-butyl-, 1761i.
, 1,2-diamino-, fluoranthene dyes from, P 5966d.
, 1,4-diamino-, derivs., P 862h.
dyes from, P 5966g. P 8163i, P 9468f.
dyes from phthalic anhydride and, P 4483h.
effect on depolymerization of polymethyl methacrylate, 5630a.
, 1,4(and 1,5)-diamino-, dyes from, P 863f.
luminescence of, adsorbed on silica gel covered with Cu ions, 6085i.
, 1,5-diamino-, azo 5 pyrazolone dyes from, P 8149f.
dyes from, P 7705g.
, 1,5(and 1,8)-diamino-, fluorescence of, quenching of, 7828c, 7830a.
, 1,5(and 2,6)-diamino-, anthrimides from, P 1576f.
, 1,8-diamino-, excited state of, life of, in adsorbed state, 6085f.
, 1,4 - diamino - 5 - anilino - 8 - (2-hydroxyethylamino)-, hydrogen succinate, P 1986g.
, 1,4 - diamino - 2,3 - bis(4 - biphenylyloxy)-, P 8690h.
, 1,4 - diamino - 2,3 - bis(p - phenoxyphenoxy)-, P 8690i.
, 1,5 - diamino - 2 - bromo - 6 - tert-butyl - 4,8 - di - p - toluidino-, 1761f.
, 1,5(and 1,8)-diamino-2-butyl-, 1761i.
, 1,5(and 1,8) - diamino - 2 - tert-butyl-, 1761d.
, 1,4-diamino-6-chloro-, dye from, and leuco deriv., P 6832e.
, 1,4 - diamino(chloromethyl) - 2,3-bis(p - tolylmercapto)-, dye from tetramethylthiourea and, P 8163g.
, 1,4 - diamino(chloromethyl) - 2-phenoxy-, dye from tetramethylthiourea and, P 8163g.
, 1,4 - diamino - 2,3 - dichloro-, dye from, P 8690g.
, 1,4 - diamino - 5 - (2,3 - dihydroxypropylamino) - 8 - hydroxy-, hydrogen phthalate, P 1986g.
, 1,4 - diamino - 5 - (2,3 - dihydroxypropylamino) - 8 - methylamino-, hydrogen phthalate, P 1986g.
, 1,8 - diamino - 4 - hydroxy - 5-methyl-, dye from maleic anhydride and, P 4483h.
, 1,4-diamino-5-nitro-, *N*-aryl derivs., P 1808f.
, 1,5 - diamino - 2,4,8 - tribromo-6-tert-butyl-, 1761f.
, 1,4 - diamino - 2 - (trifluoromethyl)-, P 7709f.
, 1,4 - dianilinobis(chloromethyl)-, dyes from, P 8163g, P 8164a.
, 2-diazoacetyl-, 6178a.
, 1,5 - dibenzamido - 4,8 - bis(p-phenylazoanilino)-, sulfonated dyes from, P 8164c.
, ?,?-dibromo-2-butyl-, 1762a.
, 1,5-dichloro-, dyes from, P 7705t, P 7708d.
, 1,5(and 2,6)-dichloro-, anthrimides from, P 1576f.
, 2,6(and 2,7)-dichloro-, dyes from, P 8171g.
, 2,4 - dichloro - 1 - (2 - hydroxy - 1-naphthylazo)-, 3400b.
, 4 - [p - (diethylsulfamyl)benzamido] - 4' - [p - (dimethylsulfamyl)benzamido] - 1,1' - iminodi-, P 864d.
, 1,2-dihydroxy-. See *Alizarin.*
, 1,4-dihydroxy-. See *Quinizarin.*
, 1,5-dihydroxy-. See *Anthrarufin.*
, 1,8-dihydroxy-. See *Chrysazin.*
, 2,6-dihydroxy-. See *Anthraflavic acid.*
, 2,7-dihydroxy-. See *Isoanthraflavic acid.*
, 1,7 - dihydroxy - 2,6 - dimethyl-, 2106.
, dihydroxydinitro-, dyes from, P 6424f.
, 1,8 - dihydroxy - 3 - methyl-. See *Chrysophanic acid.*
, 3,5-dihydroxy-1-methyl-, 2984h.
, 1 - (2,3 - dihydroxypropylamino)-, P 3205f.
, 1,4-dimethyl-, reduction of, 7472h.
, 1 - (p - dimethylaminophenylazo)-, in tellurium analysis, 5334d.
, 1 - [β - (2 - ethoxyethoxy) - p-phenetidino] - 4 - (2 - methoxyethylamino)-, P 3205e.
, 1-ethylamino-, P 3205f.
, 1 - ethylamino - 4 - [β - [2 - (2 - hydroxyethoxy)ethoxy] - p - phenetidino]-, P 3205e.
, 2-fluoro-, P 2218f.
, 2 - fluoro - 1,4,4a,9a - tetrahydro-, P 2218f.
, 1-hydroxy-, 3401c, P 3848e.
spectrum of, 7341h.
, 1(and 2)-hydroxy-, fluorescence of, quenching of, 7828d, 7829i.
, 2-hydroxy-, excited state of, life of, in adsorbed state, 6085e.
, 1 - [β - [2 - (2 - hydroxyethoxy)-ethoxy] - p - phenetidino] - 4 - (2-methoxyethylamino)-, P 3205e.
, 1-[β-[2-(2-hydroxyethoxy)ethoxy]-p-phenetidino]-4-methylamino, P 3205e.
, 1-(2-hydroxyethylamino)-, P 3205f.
, 1-(2-hydroxyethylamino)-4-(2-methoxyethylamino) - 2 - (trifluoromethyl)-, P 7709g.
, 4 - (2 - hydroxyethylamino) - 1-methylamino - 2 - (trifluoromethyl)-, P 7709f.
, 1-(2-hydroxyethylamino)-2-(trifluoromethyl)-, P 7709g.
, 1-(hydroxymercuri)-, and hydrogen sulfate, 2198e.
, hydroxymethyl-, derivs., in rhubarb varieties, 9383i.
detn. in *Rheum palmatum*, 6784e.
, 1,1'-iminobis[4-[p-(diethylsulfamyl)benzamido]-, P 864e.
, 1,1'-iminobis[4-[m-(methylsulfonyl)benzamido]-, dyes from, P 8171d.
, 1,1' - iminobis[5 - [p-(phenylsulfonyl)benzamido]-, P 7708a.
dyes from, P 8171f.
, 1,1'-iminodi-, derivs., dyes from, P 8171d.
derivs , ring closure of, P 9469h.
, 1,1'(and 1,2')-iminodi-, P 1576f.
, 1-iodo-2-methyl-, reaction with Cu, 7472h.
, 1-isopropylamino-, P 3205f.
, 1,1'(and 2,2')-mercuridi-, 2198g.
, 1-(2-methoxyethylamino)-, P 3205f.
, 2-methyl-, excited state of, life of, in adsorbed state, 6085f.
fluorescence of, quenching of, 7828d, 7829i.
as termite repellent, 6356e.
, 1-methylamino-, (m. 167°, omitted from abstr.), P 3205b.
, 1 - methylamino - 2 - (trifluoromethyl)-, P 7709g.
, 1-(*N*-2-naphthylacetamido)-4-(2-naphthylamino)-, dyes from, P 7704d.
, 1,1'-(2,6-naphthylenediimino)-bis[4-benzamido]-, dye from, P 4483g.
, 2-(nitrophenyl)-, 7918g.
, 1-(7-oxo-7*H*-benz[*de*]anthracenylamino)-, P 7236b.
, 2-phenyl-, nitration of, 7918g.
, 5-[p-(phenylsulfonyl)benzamido]-1,1'-iminodi-, dyes from, P 7708c, P 8171e.
, 1-sulfinylamino-, P 9467i.
, 1,4,5,8-tetraamino-, acylation of, P 4020g.
dye from maleic anhydride and, P 4483h.

——, **1,4,5,8-tetrachloro-**, anthrimides from, P 1576*g*.
dye from, P 1576*i*.
——, **1,2,5,8-tetrahydroxy-**. See *Quinalisarin*.
——, **1,4,5,8-tetrahydroxy-**, dyes from, P 8163*c*, P 9468*e*.
——, **1,2,3,5-tetrahydroxy-6-methyl-**, 2106.
——, **1,2,3,7-tetrahydroxy-6-methyl-**, and derivs., 2106.
——, **1,4,5,8-tetrakis[1(and 2)-anthraquinonylamino]-**, P 1576*f*.
——, **1,2,3,7-tetramethoxy-6-methyl-**, 2106*d*.
——, **1,4,5-triamino-8-anilino-**, dye from succinic anhydride and, P 4483*i*.
——, **1,2,8-triamino-5-(2,3-dihydroxypropylamino)-**, hydrogen phthalate, P 1986*g*.
——, **1,4,5-triamino-8-(2,3-dihydroxypropylamino)-**, hydrogen maleate, P 1986*g*.
——, **1,4,5-triamino-8-(2-hydroxyethylamino)-**, hydrogen phthalate, P198*f*
——, **4,4',5(and 4,4',8)-triamino-1,1'-iminodi-**, and sulfo derivs., P 3027*b*.
**1,2,4-trihydroxy-**. See *Purpurin*
**1,2,6-trihydroxy-**. See *Flavopurpurin*.
——, **1,2,7-trihydroxy-**. See *Anthrapurpurin*.
——, **1,4,5-trihydroxy-**, dyes from, P 8163*c*, P 9468*e*.
——, **1,3,8-trihydroxy-6-methyl-**. See *Emodin*.
**Anthraquinone-2,1-benzacridone**. See *Naphth[2,3-c]acridine-5,8,14(13H)-trione*.
**1-Anthraquinonecarbonitrile, 5-amino-2-(5-amino-1-anthraquinonylamino)-**, ring closure of, P 9469*h*
——, **2-(5-benzamido-1-anthraquinonylamino)-**, P 866*f*, P 868*a*.
——, **2-bromo-**, vat dyes from, P 866*e*, P 868*a*.
——, **5-nitro-2-(5-nitro-1-anthraquinonylamino)-**, P 9469*h*.
**2-Anthraquinonecarbonyl chloride, 1-amino-**, dyes from, P 1576*b*.
——, **1-nitro-**, dyes from, P 1576*b*.
**2-Anthraquinonecarboxamide, *N*-[5,8-bis(*p*-methylbenzamido)-1-anthraquinonyl]-1-nitro-**, P 1576*c*.
——, ***N*-[5,8-bis(*p*-methylsulfonylbenzamido)-1-anthraquinonyl]-1-nitro-**, P 1576*c*.
——, ***N*-(11-chloro-5,8,13,14-tetrahydro-5,8,14-trioxonaphth[2,3-*c*]acrid-7-yl)-1-nitro-**, P 1986*i*.
——, ***N*-(5,8-dibenzamido-1-anthraquinonyl)-1-nitro-**, P 1576*b*.
**1-Anthraquinonecarboxanilide**, nitration of, 7918*g*.
——, **4'-nitro-**, 7918*h*.
**1-Anthraquinonecarboxylic acid, 4-bromo-**, 1760*c*.
——, **5-chloro-**, 2984*e*.
**2-Anthraquinonecarboxylic acid**, esters with bisnorcholanic acid derivs., P 5428*fg*.
——, **1-amino-**, methyl ester, dyes from, P 866*d*, P 867*e*, P 7709*a*.
——, **4-(*p*-aminoanilino)-**, dye from, P 8170*d*.
——, **1-(5-benzamido-1-anthraquinonylamino)-**, and benzyl ester, P 866*a*, P 867*c*.
——, **1-(5-benzamido-2-anthraquinonylamino)-**, and methyl ester, P 866*d*, P 867*e*.
——, **1-(8-benzamido-1-anthraquinonylamino)-**, and benzyl ester, P 866*h*, P 867*h*.
——, **1-chloro-**, benzyl ester, dyes from, P 865*i*, P 867*c*, P 7708*h*.
——, **4-[*p*-(*p*-chlorobenzamido)anilino]-**, dye from, P 8170*e*.
——, **4,5-dihydroxy-**, and derivs., 3062*f*.
in medicine, 7193*g*.
from sennosides A and B, 6308*i*.
——, **1(and 8)-nitro-**, hydrazide (omitted from abstr.), P 4484*a*.
**2,3-Anthraquinonedicarbonitrile, 1-amino-4-hydroxy-**, amino derivs., P 8164*i*.
——, **1-butylamino-4-hydroxy-**, P 8163*a*, P 8165*a*.
**2,6-Anthraquinonedicarboxylic acid, 1,5-diamino-**, dye from, P 5601*c*.
**1,5-Anthraquinonedisulfonic acid**, 3815*a*.
disodium salt, polarography of, 2521*a*.
hydrolysis of, 3401*c*.
**1,6-Anthraquinonedisulfonic acid**, hydrolysis of, 3400*i*.
**1,7-Anthraquinonedisulfonic acid**, hydrolysis of, 3401*a*.
**1,8-Anthraquinonedisulfonic acid**, 3815*a*.
hydrolysis of, 3401*a*.
**2,6-Anthraquinonedisulfonic acid**, disodium salt, polarography of, 2521*a*.
hydrolysis of, 3400*h*.
——, **1-amino-4-*m*-carboxyanilino-†**, and monomethyl ester, P 5198*a*.
——, **1-amino-4-*m*-chloroanilino-**, P 5197*i*.
——, **1-amino-4-cyclohexylamino-**, P 4483*a*, P 8164*g*.
——, **1-amino-4-(*m*-*N*-methylacetamidoanilino)-**, P 5197*i*.
——, **1-amino-4-(1-methylcyclohexylamino)-**, P 8164*h*.
——, **1-amino-4-[1,2,3,4-tetrahydro-1-(and 2)-naphthylamino]-**, P 8164*h*.
——, **1-amino-4-*m*-toluidino-**, P 7703*h*.
——, **1,4-diamino-**, *N*-derivs., dyes, P 4482*h*.
**2,7-Anthraquinonedisulfonic acid**, disodium salt, polarography of, 2521*a*.
hydrolysis of, 3400*h*.
——, **4-(*p*-acetamidoanilino)-1-amino-**, P 7703*f*.
——, **4-(3-acetamido-4-carbomethoxyanilino)-1-amino-†**, P 5197*c*.
——, **4-(3-acetamido-4-chloroanilino)-1-amino-**, P 5197*f*.
——, **4-(3-acetamido-2,4-dimethylanilino)-1-amino-**, P 5197*g*
——, **4-(3-acetamido-*p*-toluidino)-1-amino-**, P 5197*f*.
——, **1-amino-4-bromo-**, dye from, P 7703*f*.
——, **1-amino-4-*m*-carboxyanilino-†**, P 5197*h*.
——, **1-amino-4-*m*-chloroanilino-**, P 5197*h*.
——, **1,4-diamino-**, *N* derivs., dyes, P 4482*h*.
**Anthraquinone dyes** See *Dyes*.
**Anthraquinonesulfonic acid**, (*o*-carboxyanilino)-. See *Anthranilic acid, N-sulfoanthraquinonyl-*.
——**3,4-dihydroxy-**. See *Alizarinsulfonic acid*.
**1-Anthraquinonesulfonic acid**, 617*h*, 3401*b*.
and potassium salt, 3815*a*.
sodium salt, polarography of, 2521*a*
——, **5-hydroxy-**, 3401*c*.
——, **8-hydroxy-**, 3401*b*.
——, **5(and 8)-nitro-**, sodium salts, polarography of, 2521*a*.
**2-Anthraquinonesulfonic acid**, 617*h*, 3400*h*.
and disalt with benzidine, 3815*b*.
sodium salt, polarography of, 2521*a*.
——, **1-amino-**, 4-(*o*-alkylarylamino) derivs., anthrapyridone dyes from, P 8165*b*.
halo derivs., dyes from, P 9467*f*.
sodium salt, polarography of, 2521*a*.
——, **3-amino-**, polarography of, 2521*a*.
——, **5(or 8)-amino-**, 6,8(or 5,7)-dihalo derivs., dyes from hydroaromatic amines and, P 8164*g*.
——, **1-amino-4-anilino-**, alkyl halo derivs., P 5197*a*.
derivs., P 3205*a*.
sodium salt, 6193*h*.
——, **1-amino-4-bromo-**, 6193*f*
anthrapyridone dye from, P 8165*b*.
dyes from, P 7709*i*, P 7710*a*.
reaction with 4,4'-diamino-2,2'-stilbenedisulfonic acid, P 9467*g*.
sodium salt, polarography of, 2521*a*
——, **1-amino-4-(bromo-2,6-dimethylanilino)-**, P 4867*f*.
——, **1-amino-4-(3-bromo-4-methoxy-2,6-dimethylanilino)-**, P 4867*f*.
——, **1-amino-4-(3-bromo-2,4,6-trimethylanilino)-**, P 5197*b*.
——, **1-amino-4-*o*(and *p*)-chloroanilino-**, sodium salts, 6193*i*.
——, **1-amino-4-(3-chloro-2,4,6-trimethylanilino)-**, P 4867*g*.
——, **5-amino-6,8-dibromo-**, dye from, P 7703*g*.
——, **1-amino-4-[2,5(and 3,5)-dichloroanilino]-**, sodium salt, 6193*i*.
——, **1-amino-4-(2,4-dimethylanilino)-**, sodium salt, 6193*h*.
——, **1-amino-4-(3-*N*-methylacetamido-*p*-toluidino)-**, P 4483*g*.
——, **1-amino-4-*o*-toluidino-**, sodium salt, P 8165*c*.
——, **1-amino-4-*o*(and *p*)-toluidino-**, sodium salts, 6193*h*.
——, **1-amino-4-(3,4,5-trichloroanilino)-**, sodium salt, 6194*a*.
——, **1-amino-4-(2,4,5-trimethylanilino)-**, sodium salt, 6193*h*.
——, **diamino-**, derivs., P 3205*f*.
——, **3,4-diamino-**, as analytical reagent, 8947*h*.
——, **4,8-diamino-1,5-dihydroxy-**, sodium salt, polarography of, 2521*a*
——, **3,4-dihydroxy-**. See *3-Alizarinsulfonic acid*.
——, **5-hydroxy-**, 3400*i*.
——, **6-hydroxy-**, 3400*h*.
**2-Anthraquinonesulfonyl chloride**, 3815*b*.
**Anthrarufin** (*1,5-dihydroxyanthraquinone*), 3401*c*.
fluorescence of, quenching of, 7828*c*, 7829*i*.
polarography of, 2521*a*.
spectrum of, 7341*h*.
——, **4-anilino-8-nitro-**, P 9468*c*.
——, **4,8-bis(2-sulfo-*p*-toluino)-**, disodium salt—see *Toluidine Blue*.
——, **4,8-dinitro-**, reaction with amines, P 9468*b*.
——, **4-nitro-8-sulfanilamido-†**, P 9468*c*.
——, **4-nitro-8-*p*-toluidino-**, P 9468*c*.
**Anthrasol**. See *Indigosols*.
**1,4,9,10-Anthratetrol**, dyes from, P 9468*c*
——, **6-chloro-**, dyes from, P 9467*cd*
——, **6,7-dichloro-**, dyes from, P 9467*i*
**Anthrathiapyranonaphthocarbazol-**,

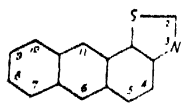


*[2',1',5,6]—[3,2 a]—[2,3 c]*

**Anthra[2',1',5,6]thiapyrano[3,2 a]naphtho[2,3-c]carbazole-5,11,16,18,21(17H)-pentone**, derivs., P 9468*i*.
**Anthrathiazole**,

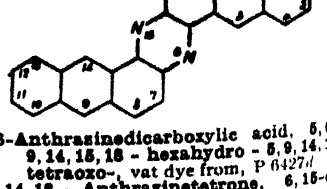


*[1,2]*



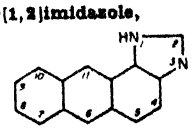
*[2,1]*

**Anthra[1,2]thiazole**, fluoranthene dyes, P 5966*e*.
**Anthra[2,1]thiazole-6,11-dione**, 7*H*-benzanthracen-7-one vat dye, P 6427*d*
**1,8,9-Anthratriol**, and ointment monograph for, 8103*b*.
**Anthrax**. (See also *Bacillus anthracis*.)
industrial, combating, 7999*c*.
symptomatic, effect of nutrition and exercise on, 3072*e*.
**Anthraxon hispidus**, pigment from, 8150*h*
**Anthraxylon**, formation of, 8319*f*.
**Anthrazine**,



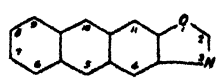
**7,16-Anthrazinedicarboxylic acid, 5,6,-9,14,15,18-hexahydro-5,9,14,18-tetraoxo-**, vat dye from, P 6427*d*
**5,9,14,18-Anthrazinetetrone, 6,15-dihydro-**. See *Indanthrene*.
**Anthrenus**. (For the species of *Anthrenus*, e.g., *scrophulariae*, *verbasci*, *pimpinellae*, called carpet beetles, see *Carpet beetles*.)

1*H*-**Anthr[1,2]imidazole,**



*1H—[1,2]*

fluoranthene dyes, P 5966*d*.
**Anthrimides.** See under *Anthraquinone*.
**Anthroaldehyde.** See *Anthraldehyde*.
**Anthroic acid, 9,10-dihydro-9,10-dioxo-.** See *Anthraquinonecarboxylic acid*.
1-**Anthroic acid,** electron d. and polarity of, 2093*b*.
2-**Anthroic acid,** electron d. and polarity of, 2093*b*.
9-**Anthroic acid,** electron d. and polarity of, 2093*h*.
prepn. of, 208*h*.
—, **10-bromo-,** 209*a*.
—, **9,10-dihydro-,** 2-diethylaminoethyl ester, identification of, 9366*d*.
2-(2-diethylaminoethylmercapto)ethyl ester, -HCl, 3395*e*.
**Anthrol,** derivs., in frangula bark, 362*c*.
excited state of, life of, in adsorbed state, 6085*e*.
1-**Anthrol,** crystn. on NaCl, 1237*c*.
crystn. on sucrose, 8238*g*.
electron. d. and polarity of, 2093*b*.
reaction with esters of aldehyde or peroxide fatty acids, drying oils by, P 9484*i*.
—, **1,2,3,4,5,6,7,8-octahydro-,** 2183*d*.
—, **1,2,3,4,5,6,7,8-octahydro-1-methyl-,** 2183*d*.
2-**Anthrol,** crystn. on NaCl, 1237*c*.
electron d. and polarity of, 2093*b*.
reaction with esters of aldehyde or peroxide fatty acids, drying oils by, P 9484*i*.
—, **9,10-diphenyl-,** 3815*g*.
9-**Anthrol** (*9-hydroxyanthracene*). (See also *Anthrone*.)
aminoalkyl ethers of, P 6671*d*.
electron d. and polarity of, 2093*b*.
fluorescence of, quenching of, 7829*i*.
in rhubarb, 8102*e*.
—, **10-benzylidene-9,10-dihydro-,** 9060*b*.
—, **9,10-dihydro-9-phenyl-10-phenylimino-,** and hydrochloride, 9060*d*.
—, **9-(2-furyl)-9,10-dihydro-10-phenyl-,** reaction with HCl, 2199*a*.
—, **10-methyl-,** polarography of, 2520*i*.
—, **10-phenyl-,** and derivs., 620*d*.
—, **10-(phenyliminomethyl)-,** P 8692*g*.
—, **10-vinyl-,** acetate, polarography of, 2520*i*.
**Anthrone** (*9,10-dihydro-9-oxoanthracene*). (See also *9-Anthrol*.)
excited state of, life of, in adsorbed state, 6085*e*.
fluorescence of, quenching of, 7829*i*.
mercuration of, 618*c*.
mercury derivs., 619*b*.
reduction of, 7472*i*.
in sucrose detn., 5613*f*.
—, **benzhydryl-,** reduction of, 7473*b*.
—, **10,10-bis(*p*-hydroxyphenyl)-,** laxative activity of, 2319*f*.
—, **10-chloro-10-phenyl-,** bis(9,10-dihydro-10-oxo-9-phenyl-9-anthryl) peroxide from, 620*b*.
oxidation of, 620*e*.
—, **10,10-dichloro-,** 618*e*.
—, **10,10'-dioxybis[10-phenyl-†,** 620*a*.
—, **10-ethoxy-10-phenyl-,** 9060*e*.
—, **10-hydroperoxy-10-phenyl-†,** 620*a*.
—, **10-hydroxy-,** formation from anthraquinone in insulators, 7837*e*.
—, **10-(hydroxymercuri)-,** sulfate (acid), 618*i*, 619*c*.
—, **10-hydroxy-10-phenyl-,** 620*g*, 9060*e*.
—, **10,10'-mercuridi-,** 618*d*.
—, **10-methoxy-10-phenyl-,** 9060*f*.
—, **10-(methyldioxy)-10-phenyl-†,** 620*g*
—, **10-methylene-,** reaction with acylacetylenes, P 868*c*.
reaction with ethynyl ketones, 3402*d*.
—, **10-(2-methyl-4(1*H*)-quinolylidene)-,** 229*b*.
—, **10-phenyl-,** autoxidation of, 620*a*.
**Anthropods,** carriers of poultry parasites, control of, 9314*c*.
**2-Anthro-o-toluidide, 3-hydroxy-,** identification of, 5344*c*.
**Anthroxazole,**



*[2,3]*

**Anthr[2,3]oxazole-5,10-dione, 2-(4-bromoanthryl)-,** dye from, P 7706*a*.
**9-Anthryl, 9,10-dihydro-9-phenyl-10-phenylimino-,** 9060*f*.
**Anthrylenediamine.** See *Anthracenediamine*.
**Anthryl groups,** conjugating power of, 8224*a*.
**Antianaphylaxis.** (See also *Anaphylaxis*.) 3513*b*.
**Antianemic factor, potency** or **principle.** See *Anemia*.
**Antiauxins,** effect on cress root, 5893*a*.
**Antibacterial action.** See *Bactericidal action* or *Bacteriostatic action*.
**Antibiotic substances.** (See also *Actidione; Aspergillic acid; Aureomycin; Bactericidal action* or *Bacteriostatic action; Colicins; Disinfectants; Gramicidin; Penicillin; Polymyxin; Streptomycin;* etc.) P 2742*f*, 3788*a*, P 4727*h*, P 5820*e*, 8413*d*.
action mechanism of, 4340*b*.
action of, studied with electron microscope, 4339*g*.
address, 9385*d*.
from *Agaricus nebularis* active against mycobacteria, 7547*c*.
amino acid effect on, 3879*b*.
D-amino acids as, 9145*g*, 9146*c*.
with antituberculous action, 3509*d*, 7548*b*.
antituberculosis, from spore bearing bacillus, 9162*h*.
from *Aspergillus candidus*, 9241*b*.
from *Aspergillus fumigatus*, effect on tumor cells and its identity with gliotoxin, 7076*f*.
from *Aspergillus ustus*, 3489*f*.
assay or detn. of, 4339*h*, 8435*e*.
from bacilli (aerobic spore-forming), 5826*d*.
from *Bacillus aerosporus* or *Bacillus polymyxa*, P 6702*a*.
from *Bacillus brevis*, 9162*e*.
from *Bacillus circulans* group, naming of, 8006*c*.
from *Bacillus circulans*-like organism, 5081*f*.
from *Bacillus mesentericus*, 4326*a*, 5077*i*.
from *Bacillus polymyxa*, multiplicity of, 8445*c*.
bacterial resistance to, 1459*b*.
from Basidiomycetes, 2274*i*, 9149*d*.
from DL-benzylpenicillenic acid, 221*f*.
biocerin, 3883*g*.
blood factors aiding activity of, 3879*f*.
books: 9166*h*; Penicillin and Other, 5086*e*, 6791*a*.
from *Cassia reticulata*, 3062*f*.
chetomin as, 7544*b*.
clitocybine as, 7080*f*.
colloidal, 1458*g*.
comparison of, 8004*h*.
in *Cymathaere triplicata*, 8616*f*.
definitions in nomenclature of, 3882*d*, 9385*g*.
effect on *Escherichia coli*, 5444*h*.
on germination of seeds, 7094*i*.
on β-hemolytic streptococci, 716*d*.
on lactic fermentation of cucumbers, 4726*b*.
on metabolism of *Clostridium sporogenes*, 4339*i*.
on microörganisms, 3523*a*.
on spirochetes, 5445*i*.
electrodialysis of, 7195*i*.
from Enterobacteriaceae, 1456*a*.
formates, P 1158*f*.
from fungi, 275*f*, 8004*d*.
from heart wood of *Thuja plicata*, 5016*a*.
from *Humulus lupulus*, 5444*i*.
inhibition of, 5826*a*.
inhibition of, by substances from microorganism, 8434*h*.
from *Inoloma fraganum*, 5443*i*.
from *Lactobacillus*, 5826*d*.
lactones and their analogs, 1110*c*, 7138*g*.
in *Lecanora esculenta*, 5451*d*, 7091*h*.
in lichens, 5077*a*.
life and, 4339*c*.
from lysinogenic coliform bacillus of Lisbonne and Carrere, 3488*b*.
from *Micrococcus*, 4326*d*, 4327*d*, 5077*g*.
from *Microcystis aeruginosa* and *Scenedesmus* exts., 9159*g*.
microörganisms producing, in feces and sewage, 4326*c*.
migration of, 7988*a*.
in mildew control on beans, 2355*d*.
from molds, 8003*g*.
from *Oidiodendron fuscum*, 4335*e*.
in organisms during evolution, 8414*i*.
from *Penicillium gladioli*, 3058*f*.
from plants, 3885*b*.
potentiation by BAL, 6739*f*.
production by *Fusarium*, 5821*i*.
by *Shigella*, 1455*i*.
by soil microörganisms, 6698*i*.
propyloxyaminonitrobenzenes and dinitrophenols, 8437*h*, 8438*a*.
recovery of, 3154*d*.
reviews on, 1828*cd*, 3063*i*, 3066*d*, 3881*d*, 4339*d*, 5551*d*, 5868*a*, 8006*i*, 8102*i*, 9153*b*.
in sawdust decompn., 9158*i*.
from *Shigella paradysenteriae*, 8443*d*.
from soil bacteria, 270*h*.
from streptococci (β-hemolytic), 9150*i*.
from *Streptomyces*, 1328*ch*, 1329*fi*, 6579*i*, 6580*b*, 7087*b*.
from *Streptomyces griseus*, 271*h*, 5079*a*.
streptomycin-like, P 3490*f*.
streptomycin-like, from *Actinomyces griseus*, 2742*e*.
synergism with sulfonamides and with each other, 4333*c*.
synthesis of, 5387*h*.
synthesis of, intermediates for, P 5425*f*.
testing of, procedures and instruments in, 8428*h*.
toxicologic evaluation of, 4339*i*.
in wine making, 6780*e*.
xanthomycins A and B as, 1829*f*.
from yeasts, 2277*h*.
**Antibodies.** (See also *Agglutinins; Allergy. Antienzymes; Antihormones; Antitoxins; Complement fixation; Hemolysins; Lysins; Precipitins.*) P 1483*b*.
to albumin, detn. of, 9233*g*.
to albumin, passive sensitization with nonprecipitable, 7574*g*.
allergic, 9219*a*.
anaphylaxis (passive) latent period in relation to dose of, 8523*f*.
-antigen reactions, 3516*f*.
in gels, 9227*h*.
in gels, site of ppt. in, 5485*h*.
in gels, time factor in, 5485*i*.
in oil, 4369*a*.
sepn. from response of smooth muscle, 9221*e*.
spectrophotometric analysis of, 9221*c*.
antihormonal, demonstration in antigonadotropic blood serum, 304*c*.
antiserum to D-glyceraldehyde phosphate dehydrogenase, 1482*e*.
assay of, 754*e*.
in blood, effect of adrenocorticotropic hormone on, 8491*a*.
to blood group A, fucose pptn. by, 2314*d*.
in blood serum after ingestion of colostrum, 7103*a*.
complement-fixing, antiserums contg. euglobulin 11a and, 1101*b*, 2305*f*.
-complement system for *Brucella*, effect of sulfadiazine on, 9236*f*.
denaturation of, 2304*h*.
distribution in antiserums, 8515*e*.
effect of adrenocorticotropic hormone and x-rays on, 3087*f*.
effect on lethal and tumor-necrotizing actions of polysaccharides from *Serratia marcescens*, 2310*h*.
formation of, 3925*d*.
in alloxan diabetes, 1481*a*.
in diabetes, blood sugar and hypoproteinemia in relation to, 4759*h*.
effect of adrenalectomy and adrenal cortical hormone on, 8043*e*.
effect of prontosil on, 1115*d*.
on low-protein diet, 4352*c*.
in lymph nodes, lymphocyte changes during, 8524*e*.
by plasma cells, 6262*b*.
by plasma cells, nucleic acids and, 8525*a*.
toxemia as stimulative factor in, 9223*d*.
vitamin P and, 1481*e*.
to gonadotropic hormone, detn. of, 5478*i*.
heteroligating, and their relation to antibody formation, 4758*e*.
to histoplasmin, demonstration of, 800*e*.
to hyaluronidase in antiperfringens serum, 7087*a*.
inactivation by light in presence of riboflavin, 6265*a*.

**interaction with hapten**, 3925*e*.
isolation from immune agglutinates, 8515*d*.
from milk and colostrum and their role in immunity, 300*h*.
natural and immune, in high and low tumor strains, 7573*d*.
to phosphorylated protein, 2255*a*.
pneumococcus, crystn. of, 9227*a*.
precipitated by tuberculosis polysaccharide in blood serum in leprosy and tuberculosis, 8515*h*.
Rh agglutinating, effect of Na **azide** on bacterial destruction of, 269*i*.
against **sanocrysin** and **sulfonamides**, 3525*h*.
sepn. into subfractions of plasma, 3925*f*.
to *Staphylococcus aureus* PF substances, 3887*a*.
in syphilitics, 8525*c*.
third-order, evidence for, 3919*i*.
vaccine titer and specific resistance in relation to titer of, 5105*h*.
**Antibrucellina***, action in brucellar meningitis, 6708*a*.
**Anticarsia gemmatilis** and(or) **Velvetbean caterpillar**, control of, 1521*i*
**Anticatalysis**. See "neg." under *Catalysis*
**Anticathodes**. See *Anodes*.
**Antichlor**. See *Sodium thiosulfate*.
**Anticholinesterase**. (See also *Cholinesterase*.)
DDT as, 2359*d*, 3964*h*.
effect on nerves, 4753*b*.
**Anticoagulants**. See *Blood*.
**Anticomplement**. See "anticomplementary action" under *Complement*.
**Anticonvulsants**. (See also *Antispasmodics*.)
acylureas, 2169*c*.
5 - (alkoxyalkyl) - 5 - cyclohexylhydantoins, P 3452*f*.
1-allyl-5-phenylhydantoin, P 4818*b*.
antagonism to metrazole, 5194*d*
bluret derivs. and related compds., 5369*i*.
chem. constitution and pharmacology of, 2325*g*.
comparative efficacies of, 9262*a*.
creatinine as, 317*f*.
curariform, P 5155*g*.
10-(2-diethylaminoethyl)phenothiazine as, 7129*a*.
1,4 di - 2 - pyrimidylpiperazine - 2HCl, P 4705*c*.
5,5 - di - 2 - thienylhydantoin as, P 5806*b*.
effect on audiogenic spasms, 2699*h*.
on carbonic anhydrase, 5865*f*.
on electroencephalogram in epilepsy, 9262*c*.
on temporal summation of epileptogenic stimuli, 3101*b*.
heterocyclic pentagonal compds. as, 2323*i*, 5500*c*, 7585*i*.
in labile diabetes therapy, 1102*f*.
mechanisms of action and assay methods for, 4763*f*.
5 - (1 - methoxypropyl)hydantoins as, 6985*b*.
paraldehyde as, 5119*g*.
5 - phenyl - 5 - thienylhydantoin, dilantin and mesantoin as, 760*g*.
1,3-propanediol derivs. as, 8546*g*.
reviews on, 2270*g*, 9267*a*.
sparteine mono- and di(phenylethylbarbiturate) as, 764*h*.
testing, 4316*d*.
4-thiazolidone derivs., 634*f*.
5-(2-thienyl)hydantoin derivs., 3426*g*.
**Anticryptogams**. (See also *Disinfectants; Fungicides; Sprays; Weed control*.)
bituminous-substance mixt. with S as, 3959*e*.
from boric acid, DDT, paraformaldehyde, etc., P 5529*g*.
cereal treatment with, 8595*g*.
copper-$NH_4$ salt complex, P 5152*e*.
from lime and pyritic slag, P 8604*i*.
lime solns. with $KMnO_4$, P 3558*e*.
from mercury chloride, salicylaldehyde, etc., P 8604*h*.
pentachlorophenol compns., P 5152*c*.
phenyl thionothiocarbonate salts, P 8604*g*.
**Antidetonants**. See *Detonation*.
**Antidimming agents**. See *Antifogging agents*.
**Antidiuretics**. See *Diuresis; Pituitary extracts;* and "hormones of posterior lobe of" under *Pituitary gland*.
**Antidotes**, for poisons—see *Poisoning*.
**Antienzymes**. (See also *Antithrombin; Enzymes;* and "-inhibiting substances" under *Cholinesterase;* etc.) 1069*g*.
LC, effect on rubber-latex degradation by Desamulon-N and stability to cold, 5983*g*.
**Antifebrin**. See *Acetanilide*.
**Antiferromagnetism**. See *Magnetism*.
**Antifibrinolysin**. (See also *Fibrinolysin*.) 8409*f*.
**Antifoams**. See *Foaming*.
**Antifogging agents**, cloth contg. dioctyl ester of sulfosuccinate as, P 790*a*.
cloth contg. polyglycerol ester as, P 1883*h*.
sheets of regenerated cellulose or viscose, adhesive mixt. for, P 1221*d*.
**Antifreeze substances**, from alcs. and corrosion inhibitors therefor, 8076*h*.
in butadiene polymerization with styrene, formamide, $HCO_2H$ or liquid $NH_3$ as, 8728*a*.
in butadiene polymerization with styrene, glycerol as, 8729*d*.
effect on formation of $H_2S.6H_2O$, 1672*g*.
evaluation of, and requirements for, 7871*i*.
glycol poisoning by glysantin, 1863*h*.
from petroleum, 3117*i*.
poisoning by methanol in, 3096*g*.
**Antigens**. (See also *Allergens; Allergy; Haptens; Toxins; Vaccines;* etc.)
actin and myosin as, 3917*a*
-antibody reaction, 3516*f*.
in gels, 9227*h*.
in gels, site of ppt. in, 5485*g*
in gels, time factor in, 5485*i*.
in oil, 4369*a*.
sepn. from response of smooth muscle, 9221*e*.
spectrophotometric analysis of, 9221*e*.
assocn. of simple, 3266*a*.
of azotobacter, 5448*i*.
*Bacillus anthracis*, production of immunizing, 9221*g*.
of bacteria with or without capsules or mucoid envelopes, 1830*h*
blood plasma as, modification and diminution of, 3511*b*.
blood protein fractions as, 6267*i*
of *Brucella*, 9236*hi*.
*Brucella* protein, for diagnostic use, prepn. of, 8518*d*.
cancer and, 4369*g*.
cardiolipin, for syphilis diagnosis, specificity of, 3920*f*.
chem. compds. as, 4757*i*.
*Clostridium welchii* κ and λ, 4367*e*
for complement fixation test (Kolmer), 302*f*.
for complement fixation with neurotropic viruses, 4759*i*.
complement-fixing, in lymphogranuloma venereum, 752*e*.
complement-fixing, of foot-and mouth disease, isolation of, 1102*i*.
cytochrome c as, 3512*f*.
in erythrocyte stromata, physiochem properties of, 2309*i*.
fecal, in viral hepatitis, complement fixation with, 9223*b*.
fibrinolysin release in blood serum by specific, 7125*g*.
in flagella of *Proteus vulgaris* and *Bacillus subtilis*, 8431*c*.
glucide-lipide, of *Brucella*, action of, 3916*h*.
glucide-lipide, of *Escherichia coli* in treatment of coli infections, 5483*c*.
glutathione effect on production of, 296*h*.
gonococcal, thermostability and biochem. nature of, 5083*c*.
of helminths, 5110*d*.
histamine, synthesis, properties and effect of, 9254*e*.
hypersensitivity to protein wax of tubercle bacillus and, 7125*i*.
immunizing, prepn. of, 7080*g*.
insulin as, 6315*a*.
isolation from microorganisms, 8515*d*.
kidney, glomerular origin of, 8524*g*.
lipide, hemoglobin pptn. with, in normal and malarial blood specimens, 1855*c*.
lipide, universal serological reaction with, 5109*c*
for malaria diagnosis, P 5112*d*.
mononucleosis heterogenetic, isolation from erythrocytes, 3092*e*.
polysaccharides of *Vibrio cholerae* as, 8518*f*.
polyuronic acids as, 4338*h*.
protein from cottonseed as, carbohydrate and, 7575*c*.
proteins as, mol. structure and, 7988*f*.
protein synthesis in lymphocytes following injection of, 1072*a*.
of psittacosis virus, 4363*a*.
reduced proteins as, 301*a*.
review on, 7126*f*.
from ring and pseudo-ring compds., in immunology of, 4370*i*.
sensitizing dose of, effect of alum adjuvant and site of administration on, 4369*d*
of *Shigella dysenteriae*, 7082*e*, 9228*f*.
of *Shigella sonnei*, 3490*c*.
spermatozoa as, 6299*i*.
of *Sporotrichum schenckii* and *Torula histolytica*, 2674*a*.
syphilis, in luetic serum, 8525*d*.
thermolabile protein, of stroma of sheep erythrocytes in serological reactions, 2309*g*.
*Trichinella spiralis*, effect of peptic and tryptic digestion on, 4361*i*.
tubercle bacillus, 3509*b*, 8050*b*.
urinary protein, 8515*f*.
viruses and, 9165*f*.
**Antigonadotropic substances**. See *Anti hormones*.
**Antihemolysins**, for sheep, in human urine, 8412*h*.
**Antihemorrhagic compounds** See *Hemorrhage*.
**Antihormones**. (See also *Hormones, Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland*) 1069*g*, 7125*b*.
antithyroid—see also "antithyroid prepn. under *Thyroid gland*
antithyroid, of rutabaga, 6617*h*.
demonstration in antigonadotropic blood serum, 304*c*.
formation and mode of action of, 7566*i*
**Antihyaluronidase**. (See also *Hyaluronidase*.)
in blood serum, 4310*i*
**Anti-insulin**. See *Insulin; Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland*.
**Antiketogenesis**, in diabetes by fatty acid, 1479*i*
by glycerol, 8559*d*
by vitamin $B_1$, 5102*h*
**Antiknock compounds**. See *Detonation; Fuels*
**Antimalarials** See "antimalarial compd. under *Malaria*
**Antimisting agents**. See *Antifogging agents*.
**Antimonal**, toxicity of, and effect on tissue culture growth and protozoans, 775
**Antimonates**, ions in soln., 2112*f*
ions of, pH and, 1669*i*
as opacifiers in enamels for cast Fe, 3392
**Antimonides**, magnetic properties of, 6018*i*
review on, 3739*h*.
**Antimonite**. See *Stibnite*.
**Antimonites**. (See also *Alkali metal antimonites*.)
ions in soln., 2112*f*
**Antimonous acid**, complexes with polysaccharides, 6986*e*.
**Antimony**, as anode and cathode, 8288*b*
atomic wt. of, 5239*h*.
bond and dissocn. energies of, 5240*e*
bonds with Br, Cl or I, elec. moments of, 5241*a*
bond with Cl, molar sound-velocity increment of, 6025*b*.
bond with H, energy of, 8764*c*.
in brass recovery from scrap, P 6966
calcium fluophosphate phosphor activated by Mn and, P 7831*h*.
calcium halophosphate activated by 4577*d*.
as cathode in electrolytic reduction of methyl - 3 - buten - 2 - ol and methyl-3-butyn-2-ol, 994*g*.
cathodes of Cs and, electron multiplier tubes with, 482*d*.
electron secondary emission from 3704*g*.
energy-level structure of, 3705*c*
optical and photoelec. properties of 32*h*.
cathodic polarization and H overvoltage on, 8285*ab*.
-cesium photocathode on Ag, surface of 6074*b*.
chlorite activation by, P 1160*f*.
in coal, 1941*d*.
coating with, by vacuum evapn., P 1041
coating with, on Fe or steel, P 7805*f*.
in cobalt removal from Zn-recovery electrolytes, P 6527*i*.
colloidal, concn. of, P 7164*b*.
compression of, 4917*a*.
in concn. cells, 8287*d*.
as corrosion inhibitor in HF-catalyzed alkylation, P 3190*a*.

corrosion rate of, detn. of, 7401*c*.
as decarboxylation catalyst, 7801*c*.
displacement from solns. by Fe, 8913*g*.
distribution and fate in animal organism when used as tartar emetic and fouadin, 6740*a*.
effect on bilirubinemia in leishmaniasis of children, 2313*f*.
on cathodes for electrolysis of NaCl, 505*d*.
on Cu detn. in Pb-Cu alloys, 1282*g*.
on Cu electrodes, 8342*f*.
on grain size of Al-Cu alloys, 8337*f*.
on oxidation of molten Pb, 7881*g*.
on Si elec. properties, 9002*d*.
on Ag diffusion into Cu, 7393*h*.
on solders, 8343*c*.
electrodeposition from $Ac_2O$ solns, 2876*g*.
electrodes—see *Electrodes*.
electroplating with, pitting prevention in, P 4152*bd*.
in enzyme activity, 1820*b*.
evapn and outgassing rates of, effect of atm on, 4066*h*.
exchange between $SbCl_3$ and, 6891*a*.
films of Cs and, electron diffraction by, and microscopy of, 2481*i*.
films of Cs and, optical and photoelec. properties of, 4092*a*.
films of, growth and structure of, 5352*f*.
in foods, 323*d*.
freezing point of, 5274*e*.
fraction between metals and, 5273*a*.
gamma-ray bombardment of, threshold for reaction in, 4115*h*.
from radium by $\alpha$ ray action, 8867*i*.
industry in 1946, 2126*i*.
isotope of mass 124, "cross-over transitions" for $\gamma$ rays in, 4119*b*.
isotope of mass 125, 4121*a*.
data on forbidden $\beta$-decay of, 8860*b*.
decay of, 8267*i*.
decay of, to $Te^{125}$, 486*c*.
nuclear spectra of, 6913*b*.
from Th by $\alpha$-ray action, 4127*b*.
isotope of mass 127, two $Te^{127}$ isotopes from, 3708*d*.
isotope of mass 132, valence of $Te^{132}$ from, 7332*f*.
isotopes, isomerism, shell structure and spin of, 4129*f*.
isotopes of, natural abundance of, 1650*a*.
magnetic field effect on elec and thermal resistance and thermal e.m.f. of single crystals of, 5243*f*.
metals of Kern Co., Calif., 4607*e*.
of Sweden, Hg in, 6544*i*.
of western Canada, 8982*i*.
neutron cross section of, 6506*b*, 6909*d*, 8700*k*.
occurrence and uses of, 3321*i*.
phosphors contg., phosphorescence decay of, 8280*b*.
photocells—see *Cells, photoelectric*.
photocurrent carrier, sign of, 8896*b*.
photoelec effect in, 8257*h*.
doping by, effect of BAL in, 3523*h*, 6539*f*.
potential against Ta in electrolytes, 2101*e*.
potential of antimonous-antimonic half cell in HCl, 8286*c*.
quadrupole moment of, 8262*a*, 8879*c*.
reduction of quinquevalent, with Ni, 61*f*.
removal from Pb, P 8344*i*.
removal from Zn and Zn alloys, 6552*a*.
ring compn. from $Sb_2S_3$, S and, P 7890*c*.
in eruptions caused by, 5492*b*.
vapor in Hg, 7880*f*.
spectrum of, 7858*h*.
surface treatment effect on, 7301*h*.
system Ba-, heat of formation of, 5275*b*.
system Cu Sn-, 985*c*.
system Mn, 7885*f*.
systems Cd-Ag-, and Ag Zn-, 2915*g*, 6961*a*.
system S-Sn-, 6902*b*.
systems with metals, activities in liquid, 4930*j*.
Tafel-Chalmers reaction on, 4121*e*.
therapeutic use of, 320*a*.
toxicology of, 5883*e*.
from uranium fission, $\beta$-emitting isotopes of 8868*i*.
vapors from, 4091*a*.
**Antimony, analysis.** (See also *Hydrogen telluride group*.)
by chromatographic, 4595*g*.
by detection, 6044, 2119*f*, 4174*h*, 6937*g*, 7860*e*, 8948*f*.
by detection and detn., 7858*h*.
by detection in Cu, 2540*f*.
in foods, 9273*h*.
*detection* in presence of As, 6538*e*.
detn., 57*c*, 61*e*, 1280*h*, 6106*f*, 6937*i*, 7377*c*.
detn., coulometric titration with electrolytic bromine and amperometric end-point in, 8301*d*.
detn. in babbitts and solders, 3314*i*.
in bronze and red brass, 6539*a*.
in Cu and Sn alloys and bronze, 2543*a*.
in Mg alloys, 7369*g*.
in Hg, 5328*g*.
in minerals and ores, solid reagents for, 6935*b*.
in nonferrous metals and Sn-contg. alloys, 963*h*.
in ores, 2139*d*, 4602*b*.
in presence of other metals, 4972*f*.
in Sn alloys, 7864*g*.
detn. of $Sb^{+}$ in presence of $As^{+}$, 8301*f*.
sepn. and detection, 3743*g*.
sepn. from metallic ions and detection, 61*e*.
sepn. from Na, 8956*e*.
sepn. from Sn, 7371*h*.
**Antimony, metallurgy of,** blast-furnace process, review on, 78*d*.
from brass, bronze and other scrap, 5712*g*.
calcg. charges for pptn. smelting, 3326*e*.
at Herzog Julius Refinery, 1695*c*.
refining (electrolytic) of bullion, 3725*i*.
**Antimony acetate,** $Sb(OAc)_3$, in acetic anhydride, behavior of, 2110*g*.
**Antimony acids.** See *Antimonous acid; Stibonic acids*.
**Antimony alkali metal tartrates,** as color stabilizers for vinyl halide resins, P 3655*g*.
**Antimony alloys.** (See also *Antimony compounds; Babbitt metal; Bearing metals; Britannia metal; Thermit; Type metal;* and "system" under *Antimony*.)
cadmium-Zn-, as solder for Zn or Zn alloys, P 3343*b*.
calcium-Pb-, as storage-battery anodes, 7836*h*.
copper-, 7394*a*.
copper-Pb-Sn-, Cu detn. in, prepn. of standard, 1282*g*.
Cu removal from, P 3341*d*.
sepn by fractional crystn., P 6145*e*.
lead-, Cu removal from, P 4626*e*.
lead-, corrosion in chem. industry, 7400*d*.
lead-Sn-, bearing compn. from fiber, resin and powd., P 3233*i*.
as catalyst in pyrolysis of fatty acids to olefins, P 7035*a*.
electrodeposition of, P 6094*i*, P 6526*i*.
magnesium-, in nodular-graphite cast Fe manuf., 7395*j*.
manganese-, elec. resistance in magnetic field, 7278*g*.
manganese-, magnetic interactions and magnetic susceptibility of ternary, 4911*g*.
silver-, discontinuities in at. distances in crystals of, electronic interactions and, 6030*h*.
silver-, elec. resistivity and reflecting power in near ultraviolet, 4919*a*.
terbium-, and Tl-, eutectics in, 4935*e*.
**Antimony aluminum bromide,** in fused state, 1232*i*.
**Antimony bromides** ($SbBr_3$), in acetic anhydride, behavior of, 2110*f*.
electrolysis in $Ac_2O$, 2876*g*.
systems: $PhNO_2$, and *m*-nitrophenol-, 6899*i*.
**Antimony chlorides,** catalyst of, and CuCl in acrylonitrile manuf. from $C_2H_2$ and HCN, P 3439*a*.
as catalysts in reaction of olefins with $H_2S$, P 665*a*.
as promoters in $HgCl_2$ catalyzed manuf. of lewisite, P 5412*c*.
**SbOCl,** mixt. with $Sb_2O_3$, pharmaceutical use of, 9363*e*.
**$SbCl_3$,** in acetic anhydride, behavior of, 2110*f*.
as catalyst for chlorination of $C_2F_4$, 6071*a*.
as catalyst in partial hydration of myrcene, P 6219*g*.
catalysts of $AlCl_3$ and molten, in isomerization of butane, regeneration of, P 4843*d*.
decompn. potential of, in molten $AlCl_3$–NaCl, 8915*e*.
electrolysis in $Ac_2O$, 2876*g*.
exchange between Sb and, 6891*a*.
manuf. of, P 3984*c*.
reaction products with steroids, spectra of, 5307*f*.
reaction with diazonium compds., 4647*c*.
in vitamin A estn. in margarine, 7154*b*.
**$SbCl_5$,** as catalyst in chlorination of bis(perfluoroalkyl)benzenes, 6174*i*.
as catalyst in fluorination of Et chlorothiophosphate, 1313*i*.
compd. with $Ph_3C{:}NCl$, 7464*f*.
fluorination of hexachloropropene in the presence of, P 8397*e*.
halochromic reactions with ketones, 7911*b*.
Raman spectra and mol. structure of, 2513*i*.
reaction with hydroxy carboxylic acids, P 7500*k*.
solvolysis in abs. $HNO_3$, 6496*a*.
thermodynamic properties and ultrasonic velocity in, 6024*i*.
**Antimony compounds.** (See also *Fouadin;* and "*S*-antimony deriv." under *Succinic acid, mercapto-*.)
with barium, heat of formation of $Ba_3Sb_2$, 5275*c*.
bis(diphenyl—) oxide and phenyl—oxide†, 3696*d*
bis(diphenyl—) sulfide, as antioxidant, P 8732*c*.
chicken cholera preventive contg., P 1913*d*.
as corrosion inhibitors, 1706*i*.
disproportionation of aromatic stiboso, 3696*d*.
effect on rate of soln. of Cd, Fe and Zn in acids, 6140*i*.
filaricidal action of, 2702*i*.
in fluorescent-lamp improvement, 2877*f*.
of gallic acid, 4972*f*.
of hydroxy carboxylic acids, P 7500*g*.
in kala-azar treatment, 5540*d*.
*Leishmania*-inactivating, 3147*b*.
with nitrilotriacetic acid, 2888*c*.
org., 4647*b*.
org., as motor fuel additives, P 9431*e*.
pharmaceutical, 320*a*, 1909*h*, 8099*i*.
plastic materials from asbestos, HCHO and, P 8208*h*.
with 5-quinolinesulfonic acid derivs, in protozoa infection therapy, 1485*e*, 8528*b*.
reaction with Cu in presence of alkali and alkali cyanides, 8951*i*.
review on, 2105*g*.
in schistomiasis mansoni control in mice, 9266*f*.
structure of, 451*h*.
as termite repellents, 9341*e*.
with tin and Tl, compressions of, 4917*a*.
*s*-triazine, P 5427*e*.
**Antimony fluorides,** as catalysts in fluorination of C, P 3834*g*.
**$SbF_3$,** catalysis by, in esterification of fatty acids with glycerol, 4030*g*.
in fluorination of $\alpha,\alpha,\alpha$-trichlorotoluene, 8364*h*.
soly. in org. compds., 6890*a*.
structure of, 451*i*.
**Antimony glance.** See *Stibnite*.
**Antimony halides,** as corrosion inhibitors in HF-catalyzed alkylation, P 3190*a*.
internal pressures, molal vols. and solubilities of, 6890*b*.
**Antimony hydrides.** (See also *Stibine*.)
solid, 6929*i*.
**Antimony hydroxides.** See *Antimonous acid*.
**Antimony iodide** ($SbI_3$), in acetic anhydride, behavior of, 2110*f*.
decompn. potential in fused $AlI_3$ or $NaAlI_4$, 6519*g*.
electrolysis in $Ac_2O$, 2876*h*.
mixt. with NaI, decompn. potential of molten, 4582*fg*.
spectrum of, 8891*c*.
structure of, 4074*f*.
systems: $C_{10}H_8$–, and *m*-nitrotoluene–, 6899*i*.
**Antimony lithium tartrate,** effect on cardiovascular system and spleen, 2316*g*.
**Antimonyl potassium tartrate.** See *Tartar emetic*.
**Antimony ores.** (See also *Stibnite; Tetrahedrite*.)
of Alaska, 2130*e*, 8314*i*.
beneficiation of, of Chitral, India, 1659*b*.
of California (Antimony Peak), 6951*d*.
of Colombia (Riosucio), 526*b*.
of Germany (Thuringia), 3750*f*.
gold-, of Blue Spec Mine, W. Australia, 6122*i*.
of Italy (Mt. Peloritani), 3322*a*.
of Mexico (Soyatal Dist.), 4982*b*.
mining and milling of, at Consolidated Murchison Goldfield, Transvaal, 2139*c*.
native Sb of La Selva, Italy, 4979*a*.

silver-, from Cobalt, Ontario, 8982*c*.
silver-, of Akol, U.S.S.R., 5707*g*.
of Turkey, 1291*g*.
of Utah (Coyote Creek), 6123*c*.
**Antimony oxalate**, antifouling properties of, 3964*a*.
**Antimony oxides**, films on glass for increasing reflection, 3161*h*.
in fireproofing paper, P 9448*d*.
manuf. of, P 7202*c*.
structures of, 451*i*.
**SbO**, dissocn. of, 5240*f*.
**$Sb_2O_3$**, formation from PhSbO, kinetics of, 3696*d*.
pharmaceutical use of mixts. of $KSbO_3$, $Sb_2S_3$ or SbOCl with, 9363*e*.
**Antimony oxychloride**. See *Antimony chlorides*.
**Antimony preparations**. (See also *Ethylstibamine;* and "stibamine" under *Urea*.)
effect on tissue culture, 277*b*.
**Antimony salts**. See *Antimony compounds*.
**Antimony selenides**, in photoconductive cells, 2858*g*.
**$Sb_2Se_3$**, as photocurrent carrier, 483*b*, 2858*g*.
**Antimony sulfides**. (See also *Stibnite*.)
colloidal, P 826*h*.
in fireproofing paper, P 9448*d*.
in photoconductive cells, 2858*g*.
**$Sb_2S_3$**, in acetic anhydride, behavior of, 2110*g*.
alizarin crystn. on, 1237*c*.
chicken cholera preventive contg., 1913*e*.
coating with, on lenses, 1621*e*.
colloidal, sediment vol. and rate of d increase of coagulates of, 7780*b*.
electron-bombardment cond. of films of, 8847*h*.
mixt. with $Sb_2O_4$, pharmaceutical use of, 9363*e*.
in Neoprene vulcanization, 3648*h*.
oriented overgrowths of org. substances on, 4918*c*.
prepn., color and surface energy of, 3685*h*.
reduction (electrochem.) of, thermodynamics of, 4931*e*.
sealing compn. from Sb, S and, P 7896*c*.
system: $Ag_2S$–, 3274*f*.
**$Sb_2S_5$**, films on glass, reflection increase by, 3161*i*.
**Antimony telluride**, in photoconductive cells, 2858*g*.
**Antimony white**. See *Antimony oxides*.
**Antimycin**, as fungicide, 7180*g*.
**Antinarcotics**, biphenyl derivs., 1359*g*.
**Antinvasin**, magnesium as activator of, 4708*e*.
**Antioxidants** (*antioxygens*), for adrenaline, **BAL as**, 3143*i*, 3563*b*.
for alc. motor fuel, P 4446*f*.
for aldehydes, 604*d*.
for amines, P 7647*d*.
amino aldehyde-amine condensation products, P 4460*a*.
(aminomethyl) phenols, P 4696*a*.
for antifreeze, 8076*i*.
for apple juice, vitamin C as, 2708*b*.
for asphalts, fuels, etc., salts of alkyl phenol sulfides, P 4458*f*.
biol., 9180*h*.
biol. action of, 9241*h*.
biphenyl derivs., 8614*d*.
for butter, 327*a*, 2337*e*, 9282*c*.
carcinogenic agents as, 1859*c*.
for cinnamaldehyde, lecithin as, P 788*a*.
for coatings for fresh-frozen meats, P 3540*g*.
condensation products of ketones with $C(CH_2NH_2)_4$ as, P 4687*e*.
for copper annealing, P 6966*a*.
copper deactivators for oxidation of hydrocarbon materials, 6063*d*.
for cotton textiles to prevent weathering, 5524*g*.
in dairy products, nordihydroguaiaretic acid as, 1873*b*.
detection and detn. of, in oil press cakes, 424*e*.
diisoeugenol, P 1586*d*.
4,4′ - (2,3 - dimethyltetramethylene)dipyrocatechol, P 5158*b*.
effect on dried carrots, 7157*b*.
on fluorescence of dyes, 947*d*.
on HBr addn. to dimethyl acetylenedicarboxylate, 8824*g*.
on induction period, etc., in fats, oils and vitamin A, 1583*g*.
on microbiol. activity of pyridoxylamino acids, 723*d*.
on vitamin A destruction in shark-liver oil, 9385*c*.
for ethyl linoleate, phenolic compds. as, 5271*f*.
for fats, P 3948*e*, P 6333*f*.
fumaric and maleic acids as, and effect of temp. on, 3633*f*.
hydroxyanisole as, 9286*a*.
in fats, action of, 4493*h*.
for fats and oils, 3633*f*, P 9294*d*.
*Larrea divaricata* leaf and stem powder contg. nordihydroguaiaretic acid as, P 2793*f*.
Mg glycerophosphate as, P 4876*g*.
measuring effect of, 2791*e*.
norconidendrin as, 6842*a*.
nordihydroguaiaretic acid-$H_3PO_4$ synergistic mixt., P 3637*g*.
for fats and oils (elaidinated), Se as, 2789*h*.
for fats or oils in foods, etc , P 1880*f*.
for fats used in baking, 5127*f*.
for fatty materials, from vegetable oils, P 3637*fg*.
for fish, 1498*b*.
for foods, 5880*c*, P 5881*h*.
for fuels, aldehyde-hydroxy aromatic compd.-N compd. condensation products, P 2766*b*.
for fuels for motors or paper coatings, from bacterial action, P 3193*d*.
for gasoline, P 3840*a*.
*o*-alkyl-*p*-alkoxyphenols, P 3187*e*.
amines, aminophenols, phenols and wood-tar distillate as, 2414*c*.
amines, phenols and aminophenols as, 5932*b*.
*p*-aminophenols, P 3604*f*
effect on gum formation, 8656*c*.
effect on sludge and varnish deposition in engines, 5579*i*.
halogen-contg. org. P compds , P 2765*c*.
maleic anhydride as, 2414*g*.
gasoline (cracked) stability and concn. of, 5579*f*.
for gasolines (leaded aviation) and $Et_4Pb$, 5579*a*.
for glycerides, 5-pentadecylresorcinol as, P 884*d*.
for gums, etc , arylaminoaryloxy aromatic acids, etc., P 5990*h*.
for gutta-percha, *Euonymus* resins as, 4886*i*.
for hydrocarbon oils, P- or S-contg reaction products with terpenes and esters of wax-substituted hydroxyaromatic compds., P 1561*i*.
for hydrocarbon oils, polyalkylbenzyl phenols, P 4457*f*.
for hydrocarbons, 2,6-di-*tert*-butylphenol as, P 3459*f*.
for hydrocarbons, metal salts as promoters for, P 386*f*.
hydroxyarylalkyl amine condensation products, P 1176*a*.
hydroxyaryl amines as, P 1062*a*.
for indene resins, P 4511*f*.
for indene resins, acetone condensation products with $PhNH_2$ for, P 4511*e*
introduction under anaerobic conditions, still for, 3636*i*.
for leather, Ca oxalate as, P 6153*a*.
for lubricants—see *Lubricants*
for meat scrapple, cereals as, P 1880*h*.
6 - (mercaptomethyl)dehydroabietic acid derivs. as, P 6665*g*.
for oils, aniline condensation products as, P 6241*i*.
for oils, etc., polyhydroxy aromatic compds. and P sulfide-olefin polymer reaction products, P 4008*b*.
for paraffin oil, 2411*b*.
for paraldehyde motor fuels, P 8130*c*.
in pectinate films for foods, 6747*g*.
phenol as, 474*h*.
phenol (poly-) compds. contg. 5-C chain for, P 2339*h*.
from *p*-phenylenediamine by alkylation with unsatd. ketones, P 4005*e*.
phospholipide carriers for, P 6333*e*.
for photographic developers, P 2106*d*.
for prevention of rancidity in animal feeds, P 3542*d*.
procaine as, in action on fluorescence, 5540*i*.
1,2,3-propanediamine derivs. for use in manuf. of, P 2230*e*.
reaction of $\alpha$-chlorotoluene with NaHS in the presence of, P 3460*d*.
review on, 1249*b*.
from rice bran, P 1586*b*, P 2340*a*.
for rubber—see *Rubber; Rubber, substitute and synthetic*.
for soap, biguanide and substituted biguanide salts of mercaptobenzothiazole, P 5215*i*.
for soupfin-shark-liver oil, 3567*i*, 9379*i*.
for soybean oil, citric acid, sorbitol and phosphatides as, 7723*e*.
for soybean oil, polycarboxylic acids and polyhydric alcs. as, 882*d*.
for stabilization of oleaginous materials, P 3540*e*.
for sulfonates (alkylaryl), P 6845*d*.
amino aromatic compds. as, P 6845*c*.
heterocyclic org., P 6840*a*.
sulfones (monochlorocyclic), P 5185*g*.
for tallow, 8177*e*.
tetrahydro - 3 - thiophenecarbamic acid 1,1-dioxide derivs., P 6608*c*.
for thiols, P 1794*a*.
for transformer oil, 3855*b*.
for turbine oils, etc., halogenated alkyl phenols, P 6406*e*.
for vitamin A, 7195*h*.
for vitamin A, increasing efficiency of, P 7198*c*.
vitamin C as, in food preservation, 9275*e*.
for vitamin C in milk, *Lactobacillus acidophilus* as, 1118*e*.
from whey, and their effect in milk and butter, 9279*a*.
**Antioxygens**. See *Antioxidants*.
**Antiperthite**, formation in K metasomatism of Caledonian granitoids of Terskii Alatau Ridge, 7386*c*.
**Antiphlogistics**. See *Antipyretics*.
**Antiplasmin**, in blood, 2684*c*.
**Antiproteases**. (See also *Proteases*.)
detn. in blood serum, 5816*g*
**Antiprothrombase**. See *Antiprothrombin*.
**Antiprothrombin**, dicumarol effect 3934*i*.
**Antipyraldehyde**, and derivs., 7476*i*
**Antipyramide** (*4-antipyrinecarboxamide*) 7477*g*.
——, *N*, *N*-**diethyl-**, 7477*g*
**Antipyretics**, 5 - amino - 1 - ethyl - 2 - phenyl-3-pyrazolone as, P 7050*a*.
3 - amino - 4 - isopropyl - 2 - methyl - 1 - phenyl-5-pyrazolone, P 6239*i*.
3 - amino - 2 - methyl - 1 - phenyl - 5 - pyrazolone, P 6239*h*.
*p*-aminophenol, dihydropyrazolone and salicylic acid derivs as, 8553*h*
catalase in relation to activity of, 2325*i*.
3-pyrazolone derivs. as, 7934*i*, P 7050*d*
**Antipyric acid** (*4 - antipyrinecarboxylic acid, 2,3 - dimethyl - 5 - oxo - 1 - phenyl-3-pyrazoline-4-carboxylic acid*) and derivs., 7476*i*.
——, **thio-**, 7477*h*.
**Antipyrine** (*1,5 - dimethyl - 2 - phenyl - 3 - pyrazolone, phenazone*),




as antioxidant in alkyl benzenesulfonates, P 6846*b*
antiseptics contg., bacteriotoxic effect of, 5534*a*.
aspirin system, phase diagram of, 1118*i*.
camphorsulfonate, 7642*c*.
complexes with rare earths, 4969*a*.
compds. with hydroquinone, infrared and Raman spectra of, 107*a*
compd. with salicylic acid *Salipyrine*.
derivs., 7476*i*, P 7513*b*.
detection of, 521*h*, 9635, 5535*i*, 6785*e*
detn. in biol. materials, 6693*c*
dielec. potential and surface tension of, at different H-ion concns , 7196*d*
effect on glycolysis, respiration, and cholinesterase activity in brain, 7[illegible]
folic acid prepn. contg., 3555*h*.
identification of, 1907*i*
identification of, and distinguishing pyramidone, 6945*i*.
mitoclastic action of, 6286*b*
mitodepressive action of, 5830*f*
narcotic action of, in relation to acetocholinesterase in blood, 7142*e*.
reaction with quinoline, 8386*g*.
in water measurement in body, 6693*d*
**Antipyrine, 4-amino-**, azo dyes from 8150*g*.
reaction with phenols, 1044*e*.
——, **4-(2-amino-3,6-disulfo-1-naphthylazo)-†**, P 8150*h*.
——, **4-(2-benzoylvinyl)-**, 7477*b*
——, **4-benzylideneamino-**, antimalarial activity of, 5860*h*.
——, **4-carbamyl-**. See *Antipyramide*
——, **4 - (cyclohexylaminomethyl)-** 7477*b*.
——, **4 - (cyclohexyliminomethyl)-** 7477*b*.

**4 - (3,5 - dibromo - 2 - hydroxybenzamido)-†**, P 7518*c*.
**4 - (3,5 - dibromosalicyloylamino)-†**, P 6938*b*.
**4-[3,4-dihydroxy-5-(2-hydroxy-5-sulfophenylazo)phenylazo]-†**, P 8150*i*.
**4-dimethylamino-**. See *Pyramidone*.
**4-(ethylaminomethyl)-**, 7477*c*.
**4-(ethyliminomethyl)-**, 7477*c*.
**4-(1-ethylureidomethyl)-†**, 7477*c*.
**4-(2-hydroxy-3,6-disulfo-1-naphthylazo)-†**, P 8150*h*.
**4-(hydroxymethyl)-**, 3601*i*.
**4-(5-hydroxy-3-methyl-1-*p*-sulfophenyl-4-pyrazolylazo)-†**, P 8150*i*.
**4-(2-hydroxy-1-naphthylazo)-**, 1044*h*.
**4-(2-hydroxy-6-sulfo-1-naphthylazo)-†**, P 8150*h*.
**4-methyl-**. See *3-Pyrazolone, 1, 1, 5 trimethyl-2-phenyl*.
**4 - (methylaminomethyl)-**, and salts, 7477*c*.
**4,4',4''-methylidynetri-**, 7477*e*.
**4-(methyliminomethyl)-**, 7477*c*.
**4 - (2 - methyl - 4 - oxo - 2,5 - cyclohexadien - 1 - ylideneamino)-**, hydrolysis of, in the presence of $HNO_3$, 1044*g*.
**4 - (3 - methyl - 5 - oxo - 1-phenyl-2-pyrazolinylazo)-**, 1044*h*.
**4 - (1 - methylureidomethyl) - †**, 7477*c*.
**4-(phenyliminomethyl)-**, 7477*b*
**4-salicyloylamino-†**, P 6239*c*.
**4 - (2,2,2 - trichloro - 1 - hydroxyethyl)-**, 7477*a*.
**ntipyrinecarboxamide**. See *Antipyramide*
**ntipyrinecarboxylic acid**. See *Antipyrid*
**ntipyrineglycolonitrile**, 7477*d*
**ntipyroyl chloride**, 7477*g*.
**ntirachitic activity, substances, etc.** See *Rickets*
**ntirrhinum** See *Snapdragons*
**ntisacer** See "sodium deriv" under *Hydantoin, 5,5-diphenyl-*
**ntiscorbutics** See *Scurvy*
**ntisepsis** (See also *Bactericidal action, Disinfection.*) 5510*c*
**Antiseptics** See *Disinfectants*
**Antiserums**. See *Blood serum, Vaccines*.
**Antiskinning agents**. See *Paint*.
**Antispasmodics** (See also *Anticonvulsant.*) 1484*c*, 1869*c*, 4243*a*, 5019*a*.
adrenaline inhibition by, 4770*h*.
alkyl (dialkylaminoalkoxy)phenylacetates, 2180*g*
amino alcs., 9070*f*, 9071*b*.
aminoalkyl esters of carboxylic acids, P 2639*j*
aralkyl ethers, P 6671*c*.
aza ketones, 9069*h*.
cestura alkaloids as, 3527*i*.
chistamines and other substances as, 3934*d*
cine and related compds. as, 7581*b*.
cosan as, 4426*e*.
opaine, trasentin and trasentin-II as, 4381*a*.
ozhydryl alkamine ethers and related compds. as, 8545*i*.
ozhydryl amino ethers, P 5803*h*.
- benzhydryl - α - (α - methylphenethylamino)acetamide, P 677*g*.
enzhydryloxy) amines, P 3463*e*.
- (benzhydryloxy)ethyl] quaternary ammonium compds., P 3463*a*.
phenyl derivs., 1359*g*.
onchial, *N* - isopropylnoradrenaline as, 4240*f*.
rbamates of (hydroxyphenyl)trimethylammonium bromides, P 1439*g*.
rarform, P 5155*g*.
- (1 - cyclohexen - 1 - yl) - 2 - oxocyclohexanepropionic acid for manuf. of, P 6230*g*.
,4-dibenzylpiperazine as, 310*g*.
,7 - diethoxy - 3 - methylisoquinolines, 1424*a*.
) - (2 diethylaminoethoxy) - 4,6 - dimethylquinoline, P 7974*c*.
- diethylaminoethyl α - *m* - toloxycyclopentaneacetate, P 7958*c*.
ihydropapaverine as, 2700*e*.
*N,N* - dimethyl - 3 - cyclopentylidene-3-phenylpropylamine, 8359*f*.
effect on intestine, effect of lysolecithin on, 311*e*.
esters of (dialkylaminoalkylmercapto) alcs., 3395*a*
esters of (4-morpholinyl) alcs., P 9086*i*.
heterocyclic N compds., P 1810*e*.
2-imidazoline derivs., 6620*c*.
morpholinyl and piperidyl alcs., 9071*fg*.
2 - (4 - morpholinyl)ethyl nicotinate, P 5809*e*.
nicotinamide derivs., P 8620*f*.
nicotinamino - 1,2 - diphenylethane as, 9254*d*.
nitriles as, 7138*d*.
papaverine and dihydropapaverine carboxyl derivs. as, 6732*i*.
phenothiazine derivs. as, 7938*f*.
β - 1 - piperidylethyl α - (3 - thenyl)-phenylglycolate-HCl as, 3521*e*.
from *Potentilla anserina*, 9383*f*.
(1 - pyrrolidyl)alkyl esters of disubstituted acetic acids, 1387*i*.
quaternary ammonium compds. as, 7921*d*, 8099*g*.
α - quinolylaminoacetamide derivs., P 3046*d*.
saligenin halogen derivs. as, 9248*i*
surface activity in relation to action of, 4777*a*.
trialkylacetic acids as, 568*b*.
from urine, P 3571*d*.
**Antistiffness factor**, 9190*c*
assay of, of muscles, 3894*f*.
for muscles, 291*i*.
steroid, in sugar cane, 9381*g*.
of Wulzen and Van Wagtendonk, 2680*g*.
**Antistine**. See *2-Imidazoline, 2-(N-benzylanilinomethyl)-*.
**Antithrombase**. See *Antithrombin*.
**Antithrombin**. (See also *Thrombin.*) 3528*c*.
in blood, 7121*h*.
in blood plasma, effect on prothrombin time, 5477*h*.
coumarin derivs. as, 8539*i*.
dicoumarol effect on, 3934*i*.
**Antithyroid substances** or **Antithyrotropic substances**. See *Antihormones;* and "antithyroid prepns." under *Thyroid gland*
**Antitoxins**, avidity of, detn. of, 9228*i*
to *Clostridium novyi* toxin, effect on toxin action in heart-lung prepns., 6740*f*
in *Clostridium septicum* infections, 9164*e*.
*Clostridium welchii*, in tissues after immunization, 4326*b*.
diphtheria, floccules with toxoid, effect of heat on, 7119*h*.
diphtheria, fractionation of, 7071*e*.
from milk (human), in infant diet, 9189*b*.
pseudoglobulins and, 1101*c*, 2305*f*.
from seeds and grains, P 3571*c*.
staphylococcus, effect of pH and other factors on rate of inactivation in urea solns., 2304*i*.
tetanus, effects of, 3104*b*.
tetanus, sepn. of, 8523*d*.
**Antitryptase**, in blood plasma in tourniquet shock, 5857*h*.
**Antivenins**, fractionation of cobra and daboia, 9266*d*.
**Antivitamins**, 1069*g*, 6612*c*.
dichloroflavin as, 1457*g*.
effect on vitamin assays, 5816*e*.
of fish-liver oils, 5834*h*.
pharmacology of, 8558*a*.
review on, 7561*f*.
**$B_1$**, pyrithiamine as, 5822*c*.
**E**, methyl linoleate and sunflower oil as, 7561*h*.
**K**, 4379*i*.
in microbiology, 5444*e*.
reviews on, 1846*b*, 5462*gh*.
**Antixanthopterins**, effect on cell proliferation, 262*hc*.
**Antophysin**. See "hormones of anterior lobe of, gonadotropic" under *Pituitary gland*.
**Antrycide***, detn. in blood, 8611*i*.
drug resistance of trypanosomes after, 7592*d*.
salts, 5905*g*.
**Antrypol**. See *Bayer 205*.
**Ants**. (*Entries referring to specific kinds of ants are put under the scientific names, excepting the genera Atta and Formica if these are known; if these are not known, the entries are put here.*)
control of, halogenated-unsatd. compds. for, P 5899*b*.
testing insecticide residues for, 811*f*.
in turf, 9346*g*.
control of red harvester, chlordan in, 9330*d*.
effect on soil fertility, 9323*a*.
vital resistance of, 5895*a*.
white—see *Termites*.
**ANTU**. See *Urea, 1-(1-naphthyl)-2-thio-*.
**Anura**. See *Salientia*.
**Anuraphis helichrysi**, effect on growth layers of plum twigs, 5088*c*.
**Anuraphis roseus** and(or) **Rosy apple aphid**, control of, 5897*i*.
**Anuria**, hypochloremic, 7127*h*.
**Aonidiella citrina** and(or) **Yellow scale**, control of, 4805*a*.
**Aorta**. See *Arteries*.
**Apache wasp**. See *Wasps*.
**Apatite**. (See also *Collophane; Hydroxyapatite.*)
of Brazil or Araxá, 8084*f*.
compression of, 4917*b*.
in dental enamels and dentine, detn. of size and shape of, 1098*i*.
fertilizer (neutral) from, P 3554*b*.
flotation of, P 4624*b*.
flotation of, from Ti minerals, P 5727*d*.
of Greenland (Holsteinborg dist.), 8313*d*.
iron ores, formation and geochemistry of, 8317*abf*.
in iron ores (oxidic and sedimentary), 2138*f*.
minor elements and rare earth metals in, 2137*h*.
in olivines from S. Africa, 6119*c*.
prepn. and x-ray diffraction studies of synthetic, 7381*e*.
prepn. of chlorapatite and, by solid-phase reactions, 6949*c*.
removal from boilers, 4605*c*.
synthesis of, 6716*e*.
from Uganda (Mbale mine), 8985*c*.
in Utah (Iron Co.), 7873*a*.
of Virginia (Bush-Hutchins), 6952*c*.
of Yugoslavia (Dalmatia), 2134*d*.
**Apera spica-venti**. See *Grasses*.
**Aperients**. See *Purgatives*.
**Aphelenchus olesticus**, control of, 9354*b*.
**Aphelinus mytilaspidis**, in oystershell-scale control on apples, effect of fungicides on, 7630*e*.
**Aphids**. (*Entries referring to specific kinds of aphids are put under the common and scientific names.*)
on apples, effect of sprays on, 2362*e*.
control of, P 350*b*.
on apples, P 5529*b*.
2,2 - bis(*p* - methylthiophenyl) - 1,1,1-trichloroethane for, P 7187*f*.
on cabbage, 348*a*.
on cantaloupes, 2725*g*.
on celery, 346*c*.
chloralimine compns. for, P 5154*c*.
on chrysanthemums with $Na_2SeO_4$, 1142*a*.
on citrus, 1518*c*.
compns. for, P 4420*gi*.
on corn, 2729*e*.
*tert* diacylamines for, P 4422*d*.
esters of ether-dicarboxylic acids for, P 5152*g*.
in greenhouses, 1141*b*, 2357*f*.
nicotine synergists for, 5893*g*.
with parathion, 8088*i*.
on potatoes, 1899*e*.
on tobacco, 5897*c*.
on winter grazing crops, 9321*a*.
digestive physiology of, 322*i*.
protein metabolism of, 5874*a*.
symbiotic microorganisms of, and fixation of atmospheric N, 8562*d*.
**Aphis brassicae**, control of, P 2732*f*.
**Aphis fabae** and(or) **Bean aphid**, control of, DDT mixts. with methylated naphthalene for, P 1902*g*.
control of, α-methylbenzylidenemalononitrile for, P 3461*b*.
(3,4 - methylenedioxyphenyl)propylene compds. for, P 1903*c*.
nicotine synergists for, 5894*b*.
piperonyl chrysanthemumate for, P 2732*h*.
toxicity to, of α-aminonitriles and S compds., 4415*ai*.
**Aphis gossypii, Cotton aphid** and(or) **Melon aphid**, control of, 1143*a* 2729*h*.
control of, on celery, 346*bl*.
diluents in, 1142*i*.
R. B. 1018 in, 4805*i*.
on squash, with chlordan emulsions, 1899*h*.
**Aphis pomi** and(or) **Apple aphid**, toxicity to, of α-aminonitriles, 4415*a*.
**Aphis rumicis**. See *Aphis fabae*.
**Aphis spiraecola** and(or) **Spirea aphid**, control of, P 2732*f*.
**Aphodius howitti** and(or) **Pasture cockchafer**, control in pasture soil, 1898*i*.
**Aphosphorosis**. See "deficiency" under *Phosphorus*.
**Aphthitalite** (*glaserite*), formation from alunite, 2581*f*.

polyhalite assocn. with, at Inder, U.S.S.R., 8995*d*.
**Aphthous fever**. See *Foot-and-mouth disease*.
**Apiezon oil A**, vapor pressure of, 3677*i*.
**Apigeninidin chloride**, and triglucoside with 6 (carboxydihydroxyphenyl)glucose and its triacetate, 7935*i*.
**Apiole**, in parsley-seed oil, 8573*e*.
**Apionol** (*1,2,3,4-benzenetetrol*), flavonic derivs. of, 1774*c*.
**Apis mellifera** (*A. mellifica*). See "honey-" under *Bees*.
**Apium**, *dissectum*, compn. of, 2280*a*.
*graveolens*—see *Celery*.
oil of—see *Oils*.
**Aplanobacter michiganense**. See *Corynebacterium michiganense*.
**Aplites** (*haplite*), dikes and veins of Nigeria, and their emplacement, 75*a*.
dikes of Grant Co., Ore., 524*h*.
dikes of W deposits in Chile, 4982*h*.
formation at Västervik from feldspar sandstones, 7386*f*.
in iron ores in Llano region, Tex., 8990*h*.
syenitic, in hornfels at Suyama-Mura, Japan, genesis of, 6549*c*.
**Aplopappus**, *hartwegi* and *heterophyllus*—see *Rayless goldenrod*.
selenium in, 3890*f*.
**Aplotaxis**, oils of—see *Oils*.
**Apneustic center**. See *Respiratory center*.
**Apoanalcite**, compn. and formula for, and relation to hydronephelite and ranite, 8313*i*.
**Apocrenic acid**, 7617*c*.
**Apocupreine**, (**2-hydroxyethyl**)-, P 673*i*.
**Apocynaceae**, rubber yielding, of Madagascar, 5221*d*.
**Apocynin***, in iris oil and its spectrum, 7644*i*.
**Apocynum**, *cannabinum*—see *Indian hemp*.
copper, Fe and Mn in, 2799*e*.
**Apo-β-erythroidine**, 6729*f*.
**Apoferritin**, identity with hepatic vasodepressor substance, 1855*h*.
**Apoglycogens**, reaction with I, 9109*b*.
**Apomorphine**, P 7198*a*.
deterioration and stabilization of, 1150*a*.
effect on circulation, 5863*h*.
sensitization of heart and muscle to acetylcholine by, 3102*c*.
**Apophyllite**, from serpentine region of Logane, Serbia, 8986*i*.
**Apopinane**. See *Norpinane, 6,6-dimethyl-*.
**Apoquinamine**, 7490*b*.
**Aposantonic acid**, lactone and its acetate, 2193*a*.
**Apothecaries**. See *Pharmacists*.
**Apothesine** (*3-diethylaminopropyl cinnamate*), hydrochloride, effect on cholinesterase, 762*f*.
**Apparatus**. (*With the exception of the few general subjects entered below, all apparatus have been indexed under names which indicate their use or nature, as* Colorimeters; Distillation apparatus; Extraction apparatus, Instruments; Photometers and Spectrometers. *See also* "blowing" *under* Glass.)
acid-resistant, 9014*g*.
from alloy steels, 8745*e*.
for analytical studies—see *Analysis*.
books: Chem. Engineering Catalog, 913*e*; Apparatura dlya kolichestvennogo elementarnogo mikroanaliza, 2476*c*; Nagrevatel'nye pribory v laboratornoĭ praktike, 2476*c*; Obshchaya tekhnika laboratornykh rabot, 2712*e*; Las operaciones y los aparatos químicos, 3668*h*, Osmovnye Protsessy i Apparaty Khimicheskoĭ Tekhnologii, 5236*g*; Il macchinario dell'industria chimica, 7161*g*.
of Bureau of Physicochemical Standards, 3277*h*.
calibration of—see *Calibration*.
for chem. engineering, 4788*di*.
chlorine-resistant, P 6387*b*.
corrosion testing of steel for, under stress, 3766*i*.
Czechoslovakian, 4053*b*.
for effecting reactions—see *Reactions*.
enameling cast steel for, 9407*b*.
fluorine-handling, 5554*h*.
furfuryl alc. resinous products for, P 7752*a*.
glass, behavior in service, 1541*f*.
glass, manuf. of, 371*g*.
linings for—see *Linings*.
metallurgical and mining lab., 6552*e*.
micro, 1613*h*, 4053*c*, 4904*b*, 8745*f*.
micro, support for,
models of, with more than one similar to original, 1227*b*.
pilot-plant design and construction, 1613*c*.
pilot-unit equipment, standard designs for, 5645*d*.
plastic materials in manuf. of, 5233*b*.
pressure, materials for, 8646*c*.
for reduction (electrolytic) of pyridinecarboxylic acids, 4266*f*.
rubber, elasticity restoration to, 1593*f*.
silencer for, 8214*h*.
silicone-lubricant removal from glass, 1226*d*.
of stainless steel, manuf. of, 6135*e*.
vacuum, 7271*f*.
visual, in chem. engineering lab., 7757*d*.
wall supports for lab., 2475*e*.
wall thickness of, measurement of, 4901*f*.
**Appendicitis**, 5 nitro-2-furaldehyde semicarbazone effect in, 5869*i*.
**Appendix**, phosphatases of lymphatic nodules in rabbit, effect of dehydrating agents on, 702*h*.
**Appetite**, amino acid effect on, 6296*b*, 6710*f*.
in diabetes, 5485*d*.
effect of vitamins $B_2$ and $B_6$ on, 8022*a*.
for salt solns. and water by normal and hypertensive rats, 5837*i*.
on thiamine-deficient diet, 294*a*.
uropepsin output and, 297*h*.
for vitamin $B_1$, 5458*e*.
**Apple black spot**. See *Apple scab*.
**Apple capsid**, control of, 807*c*.
**Apple juice** (See also *Cider*.)
acidity of, detn. of, 3537*b*.
concentrate, as milk modifier, P 786*h*
containers of Al and Al alloys for, 1877*g*
decompn. detection in, 7155*e*, 9286*g*
drying of, pentosan and inositolphosphoric acid in, P 1503*a*.
manuf. of, in U.S., 8069*d*.
*d*-2-methyl-1 butanol from, 3776*f*.
oxidases in, effect on vitamin C in orange juice, 1121*c*.
pasteurization in bottles, 782*i*.
production and properties of, 5510*d*.
survey on, of 1947, 2708*d*.
treatment by ion exchange, 6441*g*
vitamin C addn. in manuf. of, 2708*c*.
vitamin C in, 1454*i*, 3944*i*.
vitamin C in, as antioxidant, 2708*b*.
**Apple maggot**. See *Rhagoletis pomonella*.
**Apple mealy bug**, control of, 1524*e*.
**Apples**, air purification in storage of, 3537*d*.
aphid control on, P 5529*b*.
arsenical injury to, prevention of, P 5151*f*.
ascorbic acid oxidase in, 4350*g*.
blanching of, jellies from steam condensate from, 9287*i*.
boron deficiency in, 4411*a*, 8591*e*.
bromine and Cl in, 3537*g*, 8572*d*.
bud-moth control on, 5897*d*.
buffalo-treehopper control on, 1144*b*.
calcium chlorosis and metabolism in, 730*g*.
calcium-salt effect on firming of canned or frozen, 782*g*.
canning of, alc. from fermentation of wastes of, 9358*i*.
clover-mite control on, 7630*d*.
codling-moth control on—see *Codling moth*.
crop regulation of, hormone sprays for, 7181*f*.
crude fiber of Jonathan, and its alteration during digestion, 6753*c*.
DDT-spray residue on, removal of, 5895*i*.
decompn. detection in, 9286*g*.
defecation of ciders and musts of, for detn. of sugars, 3116*f*.
detn. of malic and succinic acids in, 267*b*.
discoloration of frozen, vitamin C in prevention of, 3535*e*.
discoloration of, vitamin C oxidation and, 6252*a*.
drop of, control with (4-chloro-*o*-toloxy)-acetic acid, 8086*a*.
drop of, in June, 1516*c*.
effect of Fermate and Zerlate on, 1838*c*.
endosperm development and fruit drop in hormone content in relation to, 1081*b*.
essence, P 9294*g*.
ethylene production by, during ripening, 6688*g*.
European-red-mite control on, 8600*b*.
fertilizer expts. with, with N, 8083*b*.
fungal growth in, N content and, 9178*b*.
fungicides for, 7176*h*, 9313*b*, 9327*c*.
fungicides for, 1-(4-isopropylbenzyl)piperazine as, P 3558*g*.
fungus control on, nicotinium salts compns. for, P 5152*c*.
gases in, 4350*c*.
growth symptoms of varieties of, 278*f*
hexachlorocyclohexane effect on, 5148*b*
*Hippophae rhamnoides* berries as substitute for, in prepn. of Fe malate, 3143*g*
lead arsenate use in orchards, hazard from, 8086*b*.
leaves of McIntosh, cell-wall constituent in relation to penetration of spray solns. into, 283*g*.
magnesium deficiency and fertilization of, 9326*g*.
magnesium deficiency of, control of, 1892*e*
manganese deficiency of, 8596*b*.
melanin-forming oxidases in, 278*a*.
mercury in, 7151*i*.
microclements in, 9289*b*.
mineral deficiencies in, 2722*g*.
musts of, Mn in, 352*i*.
nitrogen in leaves of, color and, 9173*f* 9319*e*.
nitrogen metabolism in, during climacteric rise in respiration rate, 2677*e*
nutrition of, effect on compn. of leaves, 9321*f*.
nutrient reserves in trees, growth and, 9321*d*
oystershell-scale control on, 7630*d*
pest control on, 804*b*, 807*b*, 1524*e*, 2362
phenolase in, 4350*e*.
photosynthesis in leaves of, time course of, 4733*e*.
pomace, gelation ability of, 5516*e*
potato leafhopper control on nurse stock of, with DDT, 1522*a*
red-banded leaf roller control on, 2720 7628*b*, 9347*d*.
red-banded-leaf-roller increase on, after DDT, 809*i*.
red-mite infestation of, in codling moth control with DDT, 3065*d*
respirable substrate loss in, effect of O on, 782*g*
ripening of, effect of Me 1-naphthalene acetate on, 8013*i*.
soils, acidification of, 2721*h*
triethanolamine salt of dinitro-*o*-butylphenol effect on, 5898*a*
two-spotted spider mite control on, 1523
vitamin $B_1$ in Italian, 6753*i*
vitamin C in, 1454*i*, 2338*c*, 5511*h*
vitamin C in, effect of storage on, 1490
vitamins in, 5878*e*.
waxing of, effect on wt. loss and keeping quality, 9287*g*.
West Virginia expt. station reports on, 9313*gh*
wines from, in Pacific Northwest, 8600
withering of trees of, in meadow orchard and its relation to N supply, 8457*i*
zinc deficiency in, and its treatment, 3494*h*.
zinc in leaves of, 9321*b*.
**Apple scab, Fusicladium dendriticum** and(or) **Venturia inaequalis**, control of, 804*b*, 2362*f*, 4413*d*, 6775*f*, 7176*c*, 7176*h*, 9327*d*, 9329*c*, 9347*b*
control of, antimycin in, 7180*g*.
with colloidal Cu, 804*b*
effect on oystershell-scale populations, 7630*e*.
kojic acid heavy-metal complexes for, P 4419*c*.
mercurated Pb arsenate in, 2350*g*
nicotinium-salt compns. for, P 5152*b*
S in, 5143*e*.
**Apricots**, beverage from, P 3144*e*
bromine and Cl in, 3537*g*, 8572*d*
canned, vitamins in, effect of storage temp. on, 1493*h*.
carotenoids and vitamin A in, 5830*h*.
cutworm control on, 1522*b*.
discoloration of, effect of furfural and sugars on, 1120*g*.
exts., effect of supervoltage cathode rays on, 5878*e*.
frozen, vitamin C in prevention of discoloration of, 3535*e*.
fungus control on, 7177*g*.
juice of, $SO_2$ removal from, 6320*c*.
oxidase of, 4735*f*.
pits, adhesive extenders from, 8738*a*.
scar callus in, stimulation with α-naphthylacetamide, 7090*d*.
*Sclerotinia laxa* control on, 7179*g*.
seeds of, poisoning by, 3522*g*.
vitamin $B_1$ in, 6753*i*.
**Aprobarbital**. See *Alurate*.
**Apyrase**. See *Adenosinetriphosphatase*.
**Aqua ammonia**. See *Ammonium hydroxide*.

**Aquadag.** See "colloidal" under *Graphite*.
**Aquaglobejection,** the term, 1128*g*.
**Aquametry,** book, 522*g*.
**Aqua regia,** corrosion of Cu-Au and Au-alloys in solns. of, 7879*e*.
gold soln. in, active centers and, 6028*c*.
platinum soln. in, rate of, 3692*a*.
reaction with org. phosphates, 3131*b*.
**Aquaticine,** and picrate, 8011*b*.
**Aquazid,** 4427*c*.
**Aqueous humor.** See *Eyes*.
**Arabamine.** See *Arabinamine*
**Araban,** from cotton husks, hydrolysis of, 7225*c*.
and diacetate, 2954*a*.
in wood, 395*i*.
—, **dimethyl-*,** 2954*b*.
**Arabic acid,** properties of solns. of, effect of concn. on, 8809*d*.
properties of solns. of, effect of temp. on, 8809*e*.
**Arabinamine,** *N*-**(2-nitro-*p*-tolyl)-*,** and tetraacetate, P 2637*d*.
—, *N*-**(6-nitro-3,4-xylyl)-*,** and tetraacetate, P 2637*c*.
—, *N*-***p*-tolyl-*,** tetraacetate, P 2637*d*.
—, *N*-**3,4-xylyl-*,** tetraacetate, P 2637*d*.
**Arabinose,** adaptation of *Bacterium lactis aerogenes* to D, 2669*f*.
in bean rust, 1463*g*.
as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278*f*.
as degradation product of pigment from *Anthracnon hispidus*, 8451*a*.
detection and detn. of, in glucose mixts., 7870*a*.
detection in quebracho tannin, 3641*c*.
in and reducing powers of D- and L, 7861*c*.
in, of, 7378*d*, 7870*d*
, reaction with $C^{14}H_2NO_2$, 9040*i*.
fect on erythrocytes of turtle, 3039*c*.
rmentation by *Escherichia coli*, fermentation of uronic acid and other pentoses in relation to, 4333*i*.
kraft pulp and pinewood, 9433*g*
, and its benzoylhydrazone, 1323*i*.
diethyl mercaptal tetraacetate, 3368*a*
formation from mesquite gum, 582*g*
growth inhibition of *Eberthella typhosa* by, and its release by mutation, 8005*i*.
manuf. from cotton husks, 7225*d*.
om polysaccharide from *Mycobacterium tuberculosis*, 584*i*.
action (color) with orcinol and $H_2SO_4$, 3795*i*
tilization of, and renal filtration, 2299*c*.
tilization of D-, by cornea, and effect of compds. thereon, 770*d*.
wood saccharification liquor, 2425*i*.
**binose, acetoazido-*,** α L-, 7430*g*
, **diacetamido-*,** L-, 5747*h*.
, **3,5-dimethyl-,** D-, 586*a*.
, **3-methyl-,** 7430*d*.
, phenylhydrazone, 2954*c*.
, **2,3,4-triacetyl-5-benzoyl-,** L, and diethyl mercaptal, 145*f*.
, **2,3,5-trimethyl-,** L-, 583*e*.
**binoseanilide, 3,5-dimethyl-*,** D-, 585*a*.
**binoside, 8-hydroxy-1-anthraquinonyl,** triacetate, 5019*h*.
—, **luteolin*,** as degradation product of pigment from *Anthracnon hispidus*, 8451*a*.
—, **methyl 3,5-bis(triphenylmethyl)-,** D-, 7430*c*.
—, **methyl 2,3-dimethyl-,** L-, 2954*b*.
—, **methyl 3,5-dimethyl-,** D, 584*f*, 585*i*.
—, **methyl 2-methyl-,** 2954*b*.
—, **methyl 2-methyl-3,5-bis(triphenylmethyl)-,** D, 7430*d*.
—, **methyl 2,3,5-trimethyl-,** D-, 585*h*.
L, 583*e*, 2954*b*.
**abitol,** L-, compd. with acetone, 7409*a*.
—, **3,5-benzylidene-1-desoxy-1-nitro-*,** D-, 5747*e*.
—, **1-desoxy-1-nitro-*,** D-, and tetraacetate, 5747*f*.
**aboascorbic acid,** D-, and sodium salt, as antioxidant for fish, 1498*c*.
D-, detection and detn. of, 1690*c*.
D-, effect on Co polycythemia, 8478*f*.
D-, effect on *Lactobacillus casei* growth, 4334*i*.
D-, reaction with nicotinic acid and with nicotinamide, 4230*b*.
**bofuranose,** D-, derivs., 7430*b*.
**bofuranoside, methyl,** D-, and derivs., 7430*c*.
—, **methyl triphenylmethyl-,** D-, diacetate, 7430*d*.
**Arabonamide, 2,3-dimethyl-,** L-, 2954*b*
—, **3,5-dimethyl-,** 583*f*.
D-, 586*a*.
D- and L-, 585*a*.
—, **2-methyl-,** L-, 2954*c*.
—, **2,3,5-trimethyl-,** D-, 585*bi*.
L-, 583*e*, 2954*b*.
**Arabonanilide, 2,3-dimethyl-,** L-, 2954*b*.
**Arabonic acid,** manuf. from pentoses, P 3072*c*.
—, **3,5-dimethyl-,** D-, lactone, 585*a*, 586*a*.
γ-lactone, 583*e*.
—, **2,3,5-trimethyl-,** L-, lactone, 2954*b*.
**Araceae,** curariform drug from, P 5155*g*.
**Arachic alcohol** See *1-Eicosanol*.
**Arachidamide, α,λ-dihydroxy-,** 4220*b*.
**Arachidic acid** (*arachic acid, eicosanoic acid*), of *Abrus precatorius* seed oil, 4496*a*.
in avocado pear pulp oils, 9490*a*
in bacury-seed fat, 7720*i*.
detection in olive oil, 7722*i*.
of *Dodonaea viscosa* seed oil, 2451*a*.
from Douglas fir lignin residue, 1182*g*
in fat of humans, 8494*e*.
in ghee, 1579*i*.
of millet (Italian) oil, 4496*g*.
of okra-seed oil, 880*h*.
of palm oil from *Elaeis guineensis* fruit, 5208*d*.
prepn. of, 3366*h*.
of sheep body fat, 1997*b*.
sodium salt, crystal structure of hemihydrate, 5254*a*
from sunflower-seed oil from North China, 882*h*.
in *Vateria indica* seed fat, 4873*h*.
**Arachidic acid, κ(or λ)-chloro-λ(or κ)-hydroxy-,** 4220*b*.
—, **α,λ-epoxy-,** 4220*b*
—, **ε-oxo-,** and methyl ester, 3366*g*.
**Arachidonic acid** (See also "F" under *Vitamins*.)
biotin-like activity of, on microörganisms, 2651*h*.
in fat of humans, 8494*e*.
isomerization (alkali) of, tetraenoic and trienoic conjugation during, 5074*d*.
methyl ester, detn. in Me ester mixts., 2701*g*.
methyl ester, isolation of, 2260*e*.
from soybeans, 3539*f*.
**Arachin** (*globulin*), spectrum of, 7341*a*
**Arachis,** *hypogaea*—see *Peanuts*.
**Arachis oil.** See *Peanut oil*.
**Arachnicides.** See *Insecticides*.
**Arachnoid body.** See *Hemato-encephalic barrier*.
**Aragonite,** cathodoluminescence of, 947*b*, 2516*c*.
in mineral springs at Beppu, Japan, 5703*h*.
of muds of thermal springs of Budapest, 8994*f*.
pearl similarity to, 6543*g*.
transformation into calcite, kinetics of, 24*d*, 6494*f*.
**Arakawa's reaction.** See *Milk*.
**Araldite,** 9481*g*.
as adhesive for metals, 9521*d*.
coating metals with, 2020*f*.
use of, 7250*f*.
**Aralkylation,** of nitro paraffins, 8364*i*.
of sulfonamides, P 4878*a*.
**Aranthol.** See *2-Heptanol, 2-methyl-6-methylamino-*.
**Arasan, Arasan SF.** See *Disulfide, bis(dimethylthiocarbamyl)*.
**Arathane*,** as fungicide, 7177*a*.
**Araucaria,** *bidwillii*, lignins in, 2283*b*.
**Arbacia.** See *Sea urchins;* and "sea-urchin" under *Eggs*.
**Arbutin,** in bearberry leaves and pear trees, and their use as drugs, 5903*b*.
detection and detn. of, 9371*g*.
detn. in drugs, 2735*a*.
inositol formation from, in tea leaves, 3070*e*.
—, **methyl-*,** detection and detn. of, 9371*g*.
**Arc, electric.** See *Electric arc*.
**Arcaine** (*tetramethylenediguanidine*), P 3844*b*.
effect on respiration inhibition by acriflavine, methylene blue, crystal violet, protamine sulfate and quinine, 7134*b*.
**Archaeology,** of bronzes (Chinese), 8335*f*.
chemistry in, 6478*d*.
Klaproth as pioneer in chem. investigation of antiquities, 4909*a*.
metal object cleaning, 3335*i*.
**Archips fumiferana** and(or) **Spruce budworm,** control of, 2726*e*.
**Archips rosaceana** and(or) **Oblique-banded leaf roller,** control of, DDT mixts. with methyl naphthalenes for, P 1902*f*.
**Arctium.** See *Burdock*.
**Arctose,** 8451*c*.
**Arctostaphylos uva-ursi.** See *Bearberry*.
**Ardennite,** of Italy (Aosta Valley), 2128*a*.
**Ardil.** See *Rayon*.
**Areca,** nuts, effect of chewing, on dental and oral tissues and its relation to buccal carcinoma, 8520*d*.
**Arecaidine,** methyl ester—see *Arecoline*.
**Arecoline** (*methyl 1,2,5,6-tetrahydro-1-methylnicotinate*), detn. of, 6542*e*.
hydrobromide, incompatibility with $Na_2CO_3$, 817*c*.
as insecticide, 2728*e*.
reduction of, 2582*b*.
vitamin $B_1$ effect on, 2290*f*.
**Areometers.** See *Hydrometers*.
**Areskap.** See "sodium salt" under *Biphenylsulfonic acid, butylhydroxy-*.
**Areskap 100*,** x-ray studies on, 3688*c*.
**Aresket 300*,** x-ray studies on, 3688*c*.
**Areskiene 400*,** x-ray study of, 3688*c*.
**Aretan,** in sugar-beet nematode control, 3134*d*.
**Argemone oil.** See *Oils*.
**Argentine ant.** See *Iridomyrmex humilis*.
**Argentite,** of Idaho (Boise Basin), 4981*f*.
of Idaho (Custer Co.), 4607*g*.
in mineral springs at Beppu, Japan, 5703*h*.
synthesis of, in K or Na polysulfide solns., 8313*a*.
**Argentometry,** adsorption indicator in, Congo red as, 61*a*.
adsorption indicators in, resorcinol aconitein, resorcinol citraconein, resorcinol itaconein, resorcinol malein and resorcinol tricarballylein as, 7369*c*.
adsorption indicators in, resorcinolsuccinein and its bromo derivs. as, 7369*c*.
potentiometric, of fatty acids, 4495*d*.
**Argillites,** of U.S.S.R. (Ufa, Tataria), 6954*c*.
**Argils.** See *Clays*.
**Arginase,** in blood, 7529*b*.
in carcinoma 63, 2306*i*.
detn. in liver and mammary homogenates, and effect of pH, substrate concn. and activation thereon, 4321*h*.
detn. in tissue homogenates, 2263*f*.
of kidney and liver, effect of adrenal cortical steroids, thyroxine and adrenaline on, 2253*i*.
effect of testosterone propionate on, 7099*h*.
of normal and adrenalectomized rat, effect of high-protein and high-carbohydrate diets on, 1847*a*.
in kidney, liver and mammary gland during lactation after adrenalectomy, 3912*c*.
liver, crystn. of, 4711*f*.
in livers of rats on protein-free diet, 2207*h*.
in organs, effect of castration and steroids on, 3089*a*.
effect of estrogen alone and with testosterone on, 3089*i*.
effect of testosterone propionate and growth hormone on, 3089*g*.
purification of, 4719*d*.
review on, 259*c*.
in skin with carcinoma, 5489*a*.
**Argininamide, benzoyl-*,** protection of glycolysis in brain homogenates by, 7520*f*.
—, *N*-**benzoyl-L-*,** hydrolysis by trypsin, 6266*g*.
**Arginine** (*α-amino-δ-guanidinovaleric acid, N*$^5$*-guanylornithine*). (See also *Hexone bases*.)
*Achromobacter fischeri* requirements for, 2276*g*.
in actin, 9095*g*.
in albumins and globulins, 7062*h*.
aluminum salt, P 8020*a*.
antagonist to, 9205*h*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308*egh*, 309*b*.
antibacterial activity of, 3879*h*.
antibiotic effect of D-, 9140*c*.
in barley, oats and wheat, 5450*g*.
in blood, carcass, heart, kidney, liver, muscle and skin of eight animals, 7061*e*.
in blood, effect of diet on, 5834*e*.
in blood plasma, 8429*d*.
in blood serum of various animals, 6720*d*.

in brewing, 5901*f*.
as carbon dioxide replacement in heterotropic metabolism, 8435*c*.
in carious and sound teeth, 8500*c*.
in cauliflower, Mn and Mo in relation to, 7552*e*.
in cell nuclei, 2652*h*.
chromatography of, 138*a*.
chromatography on starch columns, 5818*e*.
*Clostridium sporogenes* requirement for, 7083*e*.
in clupeine and salmine, 5431*i*.
cobalt complexes with, 5432*e*.
in cockroach nutrition, 8565*a*.
in collagen and hide protein, and its detn. in collagen, 7734*f*.
creatine formation from isomers of, 2254*c*.
D-, detection of, and m.p. and optical crystallographic properties of its nitroindandionate, 70*a*.
decarboxylation by *Escherichia coli*, effect of pH on, 8446*g*.
detn. in collagen and hide layers and uniformity through hides, 7735*a*.
detn. of, 3057*d*, 3875*h*.
in blood and urine, 3054*i*.
in presence of urea and $NH_4$ salts, 1077*c*.
in proteins and foods, 2265*d*.
dietary excess of, 1470*d*.
DL-, and flavianate, 6169*c*.
DL-, synthesis of, 6169*c*.
effect on body wt. during growth, 6296*a*.
on carcinoma 63, 2306*i*.
on free alanine and pyruvate in blood, 1860*i*, 4354*e*.
on glycine concn. by diaphragm, 9120*d*.
on glycolysis in muscle exts., 7581*f*.
on growth of *Avena* coleoptile and *Pisum* internodes, 5094*f*.
on indoleacetic acid action on growth of *Avena* coleoptile, 5831*b*.
on N balance during casein diet, 4739*a*.
on respiration in *Avena* coleoptile, 7555*c*.
in erythrocytes of chickens, 744*c*.
in fibrosarcoma and its normal homologous tissue, 5856*f*.
in foods (Mexican), 7602*c*.
formation from acetate and bicarbonate, 8027*g*.
in gelatin from blue-whale skin, 1206*h*.
guanido group of, reactivity of, 256*f*.
inactivation by autoclaving, 6676*g*.
in influenza A and B viruses, 4370*h*.
in lactogenic hormone of pituitary, 5474*e*.
L-, citrulline conversion to, and urea formation from, by transimination, 6250*h*.
liberation from raw and heated casein after acid and enzyme hydrolysis, 1819*e*.
in liver, diet and, 7562*i*.
in liver exts., 710*f*.
in *Lolium perenne*, 1835*h*.
L-, salt with biotin, P 3469*h*.
in lupine and soybean seeds and sprouts, 1080*e*.
in lysozyme, 5063*d*.
in meats and foods, 3534*e*.
metabolism by *Neurospora*, 2278*a*.
in milk albumin, 7597*c*.
in myoglobin of whale, 7537*b*.
as nitrogen source for streptomycin production by *Streptomyces griseus*, 272*c*.
as nitrogen source for yeast, 8847*a*.
in nutrition of *Aedes aegypti* larva, 3940*i*.
in organs of swine, 7061*h*.
oxidation by plant tissues, 2283*g*.
in pollen collected by bees, 732*e*.
precursors of belladonna alkaloids,
in procollagen of ox, 8411*d*.
in protein (basic) from sperm nuclei of different invertebrates, 4388*a*.
in proteins of blood plasma, 3862*e*.
in proteins of epidermis and dermis, 744*a*.
in *Proteus vulgaris* flagella, 3061*f*.
reaction with $CS_2$, 2247*h*.
reaction with oleoyl chloride, 5368*h*.
requirement of tissue cells for, 3862*g*.
in reticulin, 6263*c*.
in royal jelly, 7149*f*.
in rumen contents, 8041*d*.
sepn. from amino acids, P 3030*a*.
in soybean meals, 3499*e*.
synthesis of, 4309*a*.
synthesis of, in intestines, 2684*h*.
in thyroglobulin, 9121*h*.
in tobacco-mosaic virus, 4732*d*, 7092*b*.
urinary excretion of, in cystinuria, 4364*d*.
urinary excretion of, individual variations in, 8507*d*.
x-ray action on, 4133*d*.
in yeast nutrition, 1825*i*.
**Arginine decarboxylase**, from *Escherichia coli*, 3065*e*.
**Arginine dihydrolase**, 7527*a*.
in *Pseudomonas ovalis*, 3061*g*.
**Argochrome**. See *Silver methylene blue*.
**Argols**, preventing crystn. in grape products, P 9294*i*.
**Argon**. (See also *Helium group gases*.)
abundance of, earth's age and, 3709*a*.
adsorption by hydrated portland cement, 4826*e*.
alpha-ray bombardment of, emission of protons in, 6909*i*.
$K^{43}$ from, 4118*d*.
ultraviolet light from, 4580*h*.
in atm., 2827*c*.
atoms, scattering in A gas, 4107*e*.
compressed, as solvent for spectrum studies, 41*i*.
compressibility of, temp. and, 3677*h*.
Compton profile data on, 3703*f*.
condenser discharge through, light from, 1664*e*.
crystals of, interat. distances in, 3671*f*.
deuteron-bombarded, $\beta$-rays from, 4948*a*.
dielec. strength of, and its mixts. with N, 3299*c*.
effect on decompn. rate of $CaCO_3$, 2078*d*.
on elec. resistance of Ni films, 8771*f*.
on elec. resistance of Pt foil, 6481*h*.
on flame propagation limits in H and $CH_4$ mixts., 3618*d*.
effusion of, 4531*a*.
elec. discharge in, current growth and cathode spot in, 3704*d*.
at high pressure, 5279*a*, 7357*a*.
initiation of, 4962*e*.
elec. glow discharge in, effect of magnetic field on, 4060*d*.
in elec. lamps—see *Lamps, electric*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*.
equation of state for, 8773*d*.
flow in zeolites, 6489*a*.
gamma-ray-bombarded, $Cl^{38}$ from, 8869*h*.
heat of sorption by chabazite, 7288*h*.
interfaces with butane and MeCl, reflection of shock waves at, 3677*f*.
intermol. potentials in, 4527*d*.
ionization by $\alpha$-rays, 4558*i*.
ionization by $\gamma$-rays, 2861*d*.
isotope of mass 37, *L*-electron capture in, 6076*a*.
isotope of mass 37, probability of capture of $L_1$ and *K* electrons in, 8266*e*.
isotope of mass 38, production of, from $Cl^{38}$ by $\beta$-decay, recoil energy in, 7810*d*.
isotope of mass 39, $\alpha$-particle-binding energy of, 3703*a*.
isotope of mass 40, from $K^{40}$, 485*d*, 5712*a*.
isotope of mass 40, mass difference between $Ca^{40}$ and, 6507*bd*.
isotope of mass 41, data on forbidden $\beta$-decay of, 8860*a*.
isotope of mass 41, energy levels of, 4095*b*.
isotopic ratio of, in potassium minerals, 485*e*.
liquid, ionization by $\alpha$-rays in, 1257*i*.
properties of, 5256*e*, 8775*h*.
radial distribution function in, 8840*g*.
luminescence (green) in, 4133*e*.
metallurgical uses of, 980*g*.
mixing with $CO_2$, H, N or O, temp. effects in, 8773*c*.
mixts. with $NH_3$, inversion spectrum of, 3716*h*.
with $C_5$-$C_7$ normal hydrocarbons, starting potential of discharge in Geiger-Müller tube contg., 1646*b*.
with gases, reactions in, from adiabatic compression, 6022*f*.
with gases, thermal diffusion of, 8224*e*.
with N, afterglow phenomena in, 6084*a*.
neutron cross section of, 4096*b*.
-nitrogen ratio in air and subterranean gases, 528*e*.
nitrogen removal from, 5678*d*.
parachor and thermochor of, 2923*f*.
in planetary nebulae, 8877*e*.
potassium-atom-ray scattering by, 2478*d*.
pressure-vol. relations of, 8772*d*.
proton bombardment of, $\gamma$-rays from, 2506*e*.
proton bombardment of, threshold for neutron production in, 4116*i*.
pumps (diffusion) for, speeds of, 2043*b*.
relationship of atm., to $K^{40}$, 6910*d*.
rock A-K ratio and content of, in relation to geol. age, 4986*e*.
scattering by gaseous and liquid, of x-rays, 1650*f*.
spectrum of, 4090*g*, 4092*b*, 6079*g*.
spectrum (x-ray) of, 7816*g*.
in star $\gamma$ Pegasi, 2509*f*, 5301*e*.
in stratosphere, 8761*f*.
in sun's corona, 1263*a*.
system: N-O-, 2500*d*.
thermal conductivity and viscosity of, 2832*h*.
Trouton's const. for, 3255*c*.
in water of Bormio in Valtellina, 4565*d*.
x-ray absorption in, 4132*e*.
**Argon, analysis**, detn. of O, 1286*b*.
**Argyrite**. See *Argentite*.
**Argyrol**, adaptation of *Bacillus dysenteriae* to, 1830*d*.
incompatibility with 1-hexadecylpyridinium chloride, 6364*a*.
prepn. of, 7642*e*.
**Argyrosis**, silver excretion in, and effect of BAL thereon, 7586*i*.
**Argyrotaenia citrana** and(or) **Orange tortrix**, control on berries, 5148*i*.
control on raspberries, 1521*i*, 3137*e*.
**Argyrotaenia velutinana** and(or) **Red banded leaf roller**, on apple tree after DDT, 809*i*.
control of, 2729*f*, 5527*c*.
control on apples, 2729*h*, 7028*b*, 9347*d*.
**Aricine**, structure of, 7194*d*.
**Arion**, *hortensis*, control of, 9339*i*.
*rufus*, albino, contg. rutin, 9271*g*.
**Aristida**. See "*Aristida*" and "Arrow" under *Grasses*.
**Arkotine**. See *Ethane, 1, 1, 1-trichloro-2,2-bis-(p-chlorophenyl)*.
**Arlitan**, 2,3,5-tribenzoate 6 *p*-toluenesulfonate and 6 *p*-tolunesulfonate, 1539*i*.
**Armadillidium**. See *Pill bugs*.
**Armoracia**, *rusticana* (*lapathifolia*). See *Horseradish*.
**Armor plate**, laminated, P 1709*g*.
nonmagnetic, P 554*i*
nonmetallic, from cotton and glass fiber and ethyl cellulose, P 4402*g*.
**Armyworm**. See *Cirphis unipuncta*.
**Arndt-Eistert synthesis**, 1-diazo hydrocarbons (higher) in, 4652*g*
**Arnica**, identification of exts. of, 3611*i*.
*montana*, caffeic acid in, 2283*h*.
review on, 5900*f*.
**Arnidenediol**, and derivs., 1750*f*
**Arnidiol**. See *Arnidenediol*.
**Arnidione**, 1750*g*.
**Arnold, Richard T**, biography, 8219
**Aroclors**, 1242, mixt. with isobutyl methacrylate polymer as mounting medium for fibers, 1570*i*.
1248, as heat-exchange medium in indirect heater, 6869*h*.
**Aroids**, *Pythium* root rot control on, 3133*i*.
**Aroma**. See *Odors*.
**Aromatic compounds**. See *Hydroaromatic compounds; Organic compounds*.
**Aromaticity**, of amides (cyclic), 579*f*
of borazole derivs., 7818*b*.
**Aromatic spirit of ammonia**, 4809*i*
**Aromatization**. (See also *Dehydrogenation; Hydrocarbons; Ring closure*.
of acetylene, P 5040*c*.
book: Kataliticheskaya Aromatizatsiya Parafinovykh Uglevodorodov, 839
catalysis of, 8251*d*.
catalysts for, P 370*e*, P 2384*c*.
of crotonaldehyde condensation product, 5376*h*.
of cyclic ketones, 9043*h*.
of cyclohexane, 7911*i*.
of cyclohexane derivs., 158*g*.
of di- and trialkylcyclohexenones to phenols, 2968*h*.
of 2,3-dihydro-4(1*H*)-quinolones, 839
of 1,4-ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride derivs., 20
of gasoline from Puertollano shale, 5577*g*.
of gasoline hydrocarbons, P 3039*h*
of gasolines (paraffinic) with $Cr_2O_3$ St catalyst, 3997*d*.
of heptane-methylcyclopentane mixt. $Al_2O_3$-$Cr_2O_3$ as catalyst in, P 3453*h*
of heptane on Cr catalysts, 6062*c*.
of hexane, P 7034*h*.
of hydrocarbon oils, P 1955*f*.
of hydrocarbon oils, aluminosilicates catalysts in, 3998*g*.
of hydrocarbons, $Al_2O_3$-$MoO_3$-$TiO_2$ ca alysts for, P 1561*e*.
catalysts for, P 1930*h*, P 7161*i*

*of hydrocarbons*, with heavy metal oxide catalyst on Zn spinel base, P 6818*g*.
under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7664*a*.
$ZnAl_2O_4$ catalyst for, P 7222*f*.
of methane and natural gas, P 5928*i*.
of naphthas and aliphatic hydrocarbons, $ZnAl_2O_4$-based catalysts for, P 3188*g*.
of naphthas and paraffins in vapor phase with fluidized oxide catalysts, P 1958*h*.
of naphthenes or paraffins with $Cr_2O_3$- or $MoO_3$-$ZnAl_2O_4$ catalyst, P 3605*e*.
of naphthenic oils, P 7676*e*.
of petroleum fractions, P 7046*g*.
of 2-phenyl-3-cyclohexene-1-carbonitrile, 8364*e*.
of phenylhydrazones of cyclohexanone derivs., 1391*a*.
of pure and mixed hydrocarbons, 5577*h*.
of rubber distn. oil during cracking with active clay-$V_2O_5$ catalysts, 5620*b*.
**Aroma value**, of vegetables (dried), as quality standard, 3945*e*.
**Aromoline**, 6787*g*.
**Arrata, Tomás**, biography, 915*g*.
**Arrhenal**. See "disodium salt" under *Methanearsonic acid*.
**Arrhenatherum**. See *Grasses*.
**Arrhenius constant**, of radical-dissocn. reaction of hydrocarbons in *o*-dichlorobenzene, 6496*c*.
**Arrow grass** (*Aristida*). See "*Aristida*" and "arrow" under *Grasses*.
**Arrow poisons**. See *Poisons*.
**Arsacetin** (*N-acetylarsanilic acid*), effect on cochlear potentials, 5865*e*.
ionization const. and insol. salts of, 57*b*.
**Arsanilic acid** (*p-aminobenzenearsonic acid*). (See also *m-Arsanilic acid*.)
detn. in tryparsamide, 1907*h*.
ionization const. and insol. salts of, 57*b*.
monosodium salt—see *Atoxyl*.
reaction with ethylidenebis(2-naphthalenesulfonic acid), P 690*e*.
, *N*-**acetyl-**. See *Arsacetin*.
, *N* - (**4 - amino - 6 - chloro - *s* - triazin-2-yl**)-, P 4206*g*.
, *N*-**carbamyl-**. See *Carbarsone*.
-, *N*-(**carbamylmethyl**)-, monosodium salt—see *Tryparsamide*.
**Arsanilic acid** (*m-aminobenzenearsonic acid*).
, *N*-**acetyl-4-hydroxy-**. See *Acetarsone*.
-, *N* - **acetyl - 4 - hydroxy - 5 - (6-methoxy - 8 - quinolylazo)-**, 8099*f*.
-, *N* - (*N* - **acetylsulfanilyl**) - **4-hydroxy-**, 6593*e*.
-, **4-hydroxy-**, derivs., 6593*d*.
detn. in acetarsone, 4810*f*.
hydrochloride, effect on muscle, 1485*h*.
-, **6 - (2 - hydroxy - 3,6 - disulfo - 1-naphthylazo)-**, in colorimetry, 4174*i*.
, **4-hydroxy-***N*-**sulfanilyl-**, 6593*e*.
**Arsanthrene**,
-, **5,10 - dicyano - 5,10 - dihydro-**, and compd. with benzene, 3383*e*.
**Arsenamide***, effect on virus of psittacosis-lymphogranuloma group, 9249*i*.
**Arsenates**. (See also *Alkaline earth arsenates*.)
amino acid oxidase inactivation by, 7530*i*.
in color stabilization of vinyl halide resins, P 9528*c*.
condensed, 6103*b*.
effect on phosphatase of potato, 5811*i*.
inhibition of enzyme formation and N assimilation by, 2275*c*.
soil fixation of, 795*e*.
**Arsenic**. (See also *Insecticides; Sprays*.)
amorphous, photoelec. detn. of Fermi level at surfaces of, 4942*g*.
as anode and cathode, 8288*c*.
in blood plasma and erythrocytes, 4765*i*.
bond and dissocn. energies of, 5240*c*.
bonds with Br, Cl, I or F, elec. moments of, 5241*a*.
with Cl, molar sound-velocity increment of, 6025*b*.
with F, energy of, 8764*c*.
in carcinogenesis, 3917*i*.
catalysts of arylsulfonic acids and, for hydrocarbon treatment, P 2636*f*.
chlorite activation by, P 1160*f*.
in coal, 1941*d*.
in concn. cells, 8287*d*.
as corrosion inhibitor in HF-catalyzed alkylation, P 3190*e*.
crystal structure of condensed, 8787*h*.
deuteron-bombarded, Mn from, 8260*h*.
displacement by Ni, 8903*a*.
effect on cathodes for electrolysis of NaCl, 505*d*.
on cotton cultivation, 1835*b*.
on electrolysis of $CuSO_4$ solns., 951*c*.
on protein fraction of bone marrow, [illegible]
on recrystn. of black Se, 4198*a*.
on Si elec. properties, 9002*d*.
electrode as metal-metal oxide-O electrode, [illegible]
electrodeposition from $Ac_2O$ solns., 2876*g*.
electrode potentials of, 7356*e*.
electrode, properties of $As_2O_3$ and, 8905*b*.
electrodes from arsine, 8904*i*.
in exts. from meat and plants, 5127*h*.
flesh-fly-larva permeability to, 806*d*.
in foods, 323*d*.
in foods, toxic effects and allowable limits of, 2705*i*.
in fruits and vegetables, 9289*b*.
gamma-ray-bombarded $As^{75}$, 936*f*.
in grasshopper control, 3130*b*.
hazards (industrial) of, 3947*i*.
industry in 1946, 2126*i*.
industry of Australia, 6546*g*.
as insecticide, 6353*a*.
in iron ores, formation conditions and, 2138*a*.
isotope of mass 76, $\beta$- and $\gamma$-rays from, 6910*h*.
$\beta$-rays from, 4120*a*.
biol. studies with, 3930*i*.
prepn. in pile, 1650*d*.
isotope of mass 77, from Th by $\alpha$-ray action, 4127*a*.
isotope of mass 83, valence of $Se^{83}$ from, 7332*f*.
in leukemia treatment, 5498*d*.
minerals of Kern Co., Calif., 4007*e*.
native—see *Arsenic ores*.
neutron capture cross section of, 6506*a*.
neutron cross section of, 6909*d*.
neutron scattering cross section and resonance levels of, 5286*c*.
oxidation (electrolytic) of trivalent, in acid, 3728*c*.
photoelec. effect in, 8257*h*.
in plant and animal tissue, and effect on organism, 5871*a*.
poisoning by—see also *Arsine;* etc.
poisoning by, BAL in treatment of, 1104*e*, 3523*h*, 3974*e*, 6739*b*, 8408*a*.
2,3 - bis(benzamidomethylmercapto)-1-propanol for use in therapy of, P 6223*c*.
from drinking water, 1887*b*.
poisoning (chronic) by, 8533*i*.
polarography of, 3297*f*, 3298*g*.
radioactive, from Ge by $\alpha$-ray action and from Se by deuteron action, 936*d*.
removal from gases, P 2382*a*.
from germanite-ore residue, 7854*c*.
from Fe ores, 8323*f*.
from waste waters, P 6345*f*.
from Zn and Zn alloys, 6552*a*.
resistance of *Trypanosoma hippicum* to, carbohydrate metabolism and, 6701*d*.
in soils of Hawaii, toxicity of, 9314*d*.
spectrum of, 7858*h*.
in speiss formation, 1696*c*.
*Spirochaeta pallida* strain resistant to, 3513*f*.
system: Pb-Zn-, 6067*a*.
thermochor of, 8226*e*.
toxicity to plants (reference should be vol. 1, No. 3), 6350*d*.
x-rays emitted by excited vapor of, 8875*e*.
in zinc, 4193*g*.
**Arsenic, analysis**. (See also *Hydrogen sulfide group*.)
chromatographic, 4595*g*.
detection, 60*i*, 2119*f*, 6935*f*.
detection and detn., 7858*h*.
detection and detn. in pharmaceuticals, in org. compds. and in toxicological expt., 8301*h*.
detection in Cu, 2540*f*.
in filtrate of group I, acid evapn. in, 1681*b*.
in foods, 9273*h*.
in presence of Cl, nitrites, etc., 6538*b*.
detn., 61*i*, 959*h*, 964*a*, 2541*i*, 4176*a*, 5338*g*, 6106*f*, 6935*gi*, 7377*a*, 8302*bc*.
iodometric titration in alk. solns. in, 6538*e*.
molybdenum blue color d. drops in, 1681*a*.
detn. in arsenopyrite, 6934*c*.
detn. in biol. material, 7098*a*.
in Cu and Cu alloys, 1681*f*.
in flour, 1118*d*.
in foods, 2706*h*.
in Fe and steel by distn., 7865*f*.
in medicine, 4425*e*.
in pharmaceuticals, 3145*c*, 3972*i*.
in presence of Sb, Bi, Pb and Sn, 1281*h*.
in presence of Fe, 8303*c*.
in soils, 1890*b*.
in water, 1127*h*.
sepn. from W, 8957*g*.
**Arsenic acetate**, $As(OAc)_3$, in acetic anhydride, behavior of, 2110*e*.
**Arsenic acids**, arylation of, 2592*e*.
complexes with tannins, 6986*e*.
effect on heart and intestines, effect of methemoglobin on, 316*i*.
as mitosis inhibitor, 8416*a*.
$H_3AsO_4$, in biacetyl reaction with primary aromatic amines, 4234*e*.
as catalyst of chlorate-bromide reaction, 1248*f*.
free energy of ionization of, 2075*b*.
reaction with $PhNHNH_4$, 4647*f*.
soly. in anhyd. $HNO_3$, 5265*a*.
**Arsenic alloys**, antimony-Cu-Pb-Sn-, as bearing metals, 80*h*.
copper-, of Aegean region, 2825*h*.
lead-, eutectics in, 4935*f*.
manganese-, ferromagnetic, 1702*g*.
silver-, crystal structure of, grown on Ag, 4071*d*.
**Arsenic bromide** ($AsBr_3$), electrolysis in $Ac_2O$, 2876*h*.
system: azobenzene-, 6899*i*.
**Arsenic chlorides**, catalyst of, and CuCl in acrylonitrile manuf. from $C_2H_2$ and HCN, P 3439*a*.
$AsCl_3$, analysis of mixt. with Lewisite and chloroarsines, 6111*e*.
arsine (tertiary) detn. in mixts. of primary, secondary and tertiary arsines and, 4975*d*.
compds. with $CCl_4$, $SiCl_4$, $GeCl_4$ and $SnCl_4$, 2534*i*.
electrolysis in $Ac_2O$, 2876*g*.
equil. with $PhAsCl_2$, $Ph_2AsCl$ and $Ph_3As$, 23*a*.
reaction with $C_2H_2$, P 5412*b*.
reaction with diazonium compds., 4647*c*.
systems: $PhNH_2$-, stilbene-, and 3,4-xylidine-, 6899*h*.
thermodynamic properties and ultrasonic velocity in, 6024*i*.
toxicity of, 5119*i*.
triphenyl arsine detn. in mixt. with $C_6H_5AsCl_2$, $(C_6H_5)_2AsCl$ and, 6114*d*.
**Arsenic compounds**. (See also *Arsenic preparations; Chemical warfare agents; Insecticides; Spirocheticides; Sprays; Tryparsamide*.)
3-amino-4-carbamyl— oxide†, fate in dog, 7995*d*.
3 - amino - 4 - (2 - hydroxyethoxy)phenyl— oxide†, amebiasis therapy with, 8559*c*.
3 - amino - 4 - hydroxyphenyl—oxide— see *Phenol, 2-amino-4-arsenoso-*.
of *o*-aminophenol, 598*i*.
ammines, P 3158*a*.
antisyphilitic org., 3147*b*.
aromatic, dissocn. consts. and analytical uses of, 57*b*.
in beet-insect control, 9346*h*.
of benzylamine derivs., 175*i*.
bis(diphenyl—) oxide, 2592*d*.
bis(diphenyl—) sulfide, as antioxidant, P 8732*c*.
carbamylphenyl— oxide—see *Benzamide, ar-arsenoso-*.
*p*-(carboxymethoxy)phenyl— oxide†, in penicillin production, 2273*d*.
*p*-(carboxypropyl)phenyl— oxide†, in amebiasis therapy, 8559*c*.
catalysts of arylsulfonic acids and, for hydrocarbon treatment, P 2636*g*.
2-chlorovinyl— oxide†, 501*f*.
in control of tail louse and ticks on livestock, 8598*h*.
as corrosion inhibitors, 1706*i*.
detoxicants for, P 3571*g*.
(2,?‘ - dihydro - 2 - oxo - 5 - pyridyl)— oxide †, P 8105*c*.
disposal of captured German, 3947*h*.
effect on glass melting, 3577*f*.
on heart and intestines, protective role of methemoglobin on, 316*h*.
on muscles, 4374*c*.
of 2-(2-ethoxyethoxy)ethanol, as motor fuel additive, P 9431*e*.
as insecticides, 6353*a*.
intoxication by, as leucosis cause 3519*a*.

with mercury salicylate, stability of, 7637*h*.
molds and, 2670*g*.
org., P 4296*h*, 4647*b*, 7449*e*, 7452*e*, 8351*e*.
penetration of org., into cerebrospinal fluid, 318*d*.
phenyl— oxide—see *Benzene, arsenoso-*
reaction with Cu in presence of alkali and alkali cyanides, 8951*i*.
review on, 2105*g*
skin eruptions caused by, 5492*b*.
structure of, 451*h*
therapeutic org., P 4817*a*.
with tin and Zn, 6067*a*.
*s*-triazinyl derivs., P 5051*e*.
*p* ureidophenyl- - oxide†, in amebiasis therapy, 8559*b*
in weed control- - see *Weed control*.
in wood preservation against insects, 5895*a*.

**Arsenic halides**, as corrosion inhibitors in HF-catalyzed alkylation, P 3190*a*.

**Arsenic hydrides**, solid $As_2H_2$ and $AsH_3$, 6929*i*.

**$AsH_3$** —see *Arsine*.

**$As_2H_4$** —see *Biarsine*.

**Arsenic iodide** ($AsI_3$), structure of, 4071*i*
systems. $C_{10}H_8$, and phenanthrene, 6899*i*.

**Arsenic ores**, book, 3338*i*.
gold extn from, 1695*g*.
gold-, of eastern Alps, 8314*i*
manganese, in Lazio region Italy, 8990*i*.
native As from Huttenberg deposit, Austria, 6115
native As of Akol, U.S.S.R., 5707*g*
of Turkey, 1291*g*.

**Arsenic oxides**, in fireproofing paper, P 9448*d*.

**AsO**, dissocn. of, 5240*f*.

**$As_2O_3$**, acceptance by rats, 3140*d*
arsenic detn. in pills contg, 4425*e*.
as catalyst in black rocket gunpowder, 9449*f*.
condensation and vaporization of, 5250*b*
in control of Bermuda grass and nut grass, 3967*b*
detn. of, 5328*b*.
effect on conjunctiva, 756.
effect on diffusion of strong electrolytes, 8773*g*.
electrode with As, 8904*h*
electron bombardment cond of films of, 8847*h*.
as glass-melting accelerator, 5911*e*.
mol. wt. of, 8764*i*.
properties of, behavior of As electrode and, 8905*b*
reaction with $H_2S$ in aq solns., 5319*i*.
structure of, 451*i*.
system: BaO $H_2O$, 8295*i*.
toxicity of, 5119*i*.

**$As_2O_5$**, catalyst of arylsulfonic acid and, for hydrocarbon treatment, P 2636*g*.
mixt. with $CuSO_4$ and $Na_2Cr_2O_7$, for preservation of green bamboo, 3553*i*.

**Arsenic preparations**, effect on restoration of blood protein and colloidosmotic pressure after plasmaphoresis, 6262*h*

**Arsenic salts**. See *Arsenic compounds*.

**Arsenic sprays**. See *Insecticides; Paris green; Sprays*.

**Arsenic sulfides**, colloidal, P 826*h*.
in fireproofing paper, P 9448*d*.

**$As_2S_3$**, in acetic anhydride, behavior of, 2110*g*.
coagulates of, sediment vol. and rate of d. increase of, 7780*a*.
colloidal, P 7164*d*.
coagulation by $BaCl_2$, effect of nonelectrolytes on, 8794*a*.
ion exchange in, 5258*f*.
stabilization by dibasic fatty and aromatic acids, 7779*h*.
stabilizing acids in, 5319*i*.
electron-bombardment cond. of films of, 8847*h*.

**Arsenides**, magnetic properties of, 6018*d*.
review on, 3739*h*.

**Arsenious acids**, effect on heart and in testines, effect of methemoglobin on, 316*i*.
free energy of ionization of, 2075*c*.
reaction with $Al_2O_3$, 8502*i*.
structure of, $HAsO_2$ *vs.* $H_3AsO_3$, 8934*g*.

**Arsenite dehydrogenase**, from bacteria, 8006*f*.

**Arsenites**, antioxidant value of aromatic, in synthetic rubbers, P 4891*c*.
, binders from trivalent metallic salts and, P 1936*a*.
in color stabilization of vinyl halide resins, P 9528*c*.
effect on glycine concn. by diaphragm, 9120*c*.
on growth of *Avena* coleoptile and *Pisum* internodes, 5094*d*.
on indoleacetic acid action on growth and respiration of pea seedlings, 2290*e*.
on pyruvic dehydrogenase, 3935*b*.
grape-leaf injury from, 3135*a*.
as insecticides for flesh-fly larvae, 806*h*.
oxidation by bacteria, 8006*e*.
reaction with S compds. in viscose, 9439*i*.

**Arsenobenzene**,
(See also *Arsphenamine*.)
derivs., 6593*e*
, **3 - amino - 4 - hydroxy - 4' - (phenylsulfamyl)-†**, P 4817*a*.
, **3 - amino - 4 - hydroxy - 4' - sulfanilamido-†**, P 4817*a*.
, **3 - amino - 4 - hydroxy - 4' - (2-thiazolylsulfamyl)-†**, P 4817*a*.
, **4,4' - bis(phenylsulfamyl)-†**, P 4817*a*.
, **4,4' - bis(2 - thiazolylsulfamyl)-†**, P 4817*a*.
, **3,3' - diamino - 4,4' - dihydroxy-**, dihydrochloride—see *Arsphenamine*
—, ***ar,ar'*-dihydroxy-**. See *Arsenophenol*
—, ***ar,ar'*-disulfanilamido-**. See *Sulfanilanilide, ar',ar'''-arsenobis-*
*p* - **Arsenophenol** (*p,p'* - *dihydroxyarsenobenzene*),

*p-form*

—, **3,3'-bis(sulfomethylamino)-**, di sodium salt—see *Sulfarsphenamine*
—, **3,3'-diamino-**, and formaldehyde sulfoxylate, P 6231*i*.

**Arsenopyrite**, arsenic detn. in, 6934*c*.
flotation of, gas adsorption and, 3325*c*.
flotation of, thiocyanates in, 979*e*.
of Idaho, 4608*c*, 4981*d*.
of Italy (Mt. Peloritani), 3319*a*.
roasting concentrates of, 6132*h*.
of U.S.S.R. (Akol, Minusinsk region), 5707*g*.

**Arsenoso compounds**. (*The specific compounds are indexed as arsenoso derivatives under the parent compound. E.g. PhAsO is indexed at* Benzene, arsenoso-.) 4237*a*, P 4694*g*.
antitrypanosomal activity of, inhibition by esters and amides of org. acids, 319*h*.
sepn. and detn. of, 4975*d*.

**Arsenoxides**. See *Arsenoso compounds; Phenol, 2-amino-4-arsenoso-*.

**Arsine**, in air, max. allowable concn of, 4401*b*.
arsenic electrodes from, 8905*a*.
aryl dialkyl derivs., as catalysts in ethylidene and vinyl ester manuf., P 3838*e*.
derivs., 3382*e*.
as catalysts for trimerization of $C_2H_2$ and its derivs., 6202*a*.
complexes with Os halides, 6535*i*.
cyanoethylation of, 8351*e*.
reaction with acyl halides in the presence of $AlCl_3$, 6178*a*.
sepn. and detn. of, in mixts. of $AsCl_3$ and primary, secondary and tertiary arsines, 4975*d*.
detn. of, 1286*g*.
effect on blood, 748*f*, 3104*i*.
poisoning, BAL in treatment of, 3105*c*.
poisoning, from tartar-removal operations, 7637*e*.
production in lungs in $Mg_3As_2$ poisoning, 3105*b*.
removal from gases, P 2381*i*.
spectrum of, 3293*d*, 4139*g*.

**Arsine, (*o*-acetamidophenyl)chlorophenyl-†**, 3382*i*.
—, **(*m* - acetylphenyl)chlorophenyl-†**, 3382*i*.
—, **(*m* - acetylphenyl)cyanophenyl-†**, 3383*d*.
—, **(*o* - aminophenyl)(2 - cyanoethyl)-phenyl-†**, 8352*d*.
—, **(*o* - aminophenyl)cyanophenyl-†**, 3383*d*.
—, **(*o* - aminophenyl)phenyl-†**, 8352*d*.
—, **(2 - benzoylethyl)diphenyl-†**, and derivs., 8352*b*.
—, **bis(*m* - aminophenyl)cyano-†**, 3383*d*.
—, **bis(2 - benzoylethyl)phenyl-†**, 8352*a*.
—, **bis(*o* - chlorophenyl)cyano-**, 3383*f*
—, **bis(*p*-chlorophenyl)cyano-**, 3383*d*
—, **bis(2 - cyanoethyl)methyl-†**, derivs., 8351*e*.
—, **(2-carboxyethyl)diphenyl-†**, 8352*c*
—, **(carboxyphenyl)-**. See *Benzoic acid, arsino-*.
—, **(*m*-carboxyphenyl)chlorophenyl-†**, and methyl ester, 3382*i*.
—, **(*p*-carboxyphenyl)chlorophenyl-†**, and methyl ester, 3382*i*.
—, **(*m*-carboxyphenyl)cyanophenyl-†**, methyl ester, 3383*d*.
—, **(*p* - carboxyphenyl)cyanophenyl-†** methyl ester, 3383*d*.
—, **(2 - carboxypropyl)diphenyl-†**, 8352*c*.
—, **chlorobis(*o*-chlorophenyl)-**, 3383*a*
—, **chlorobis(2-chlorovinyl)-**, detn of 6111*e*.
—, **chlorobis(2 - cyanoethyl)-†**, 8351*e*
—, **chloro(*m* - chloroacetylphenyl)-phenyl-†**, 3383*a*.
—, **chloro(*o* - chlorophenyl)phenyl-**, 3382*i*.
—, **chlorodiethyl-**, 6971*d*.
—, **chlorodi-2-naphthyl-**, 3383*a*.
—, **chlorodiphenyl-**, equil. with $AsCl_3$, $PhAsCl_2$ and $Ph_3As$, 23*a*.
as mitosis poison, 7576*d*
reaction with acyl chlorides, 6178*b*
triphenylarsine detn in mixt with $AsCl_3$, $C_6H_5AsCl_2$ and, 6114*d*.
, **chlorodi-2-thienyl-†**, 3383*a*, 6102*i*
, **[2-(chloroformyl)ethyl]diphenyl-†**, 8352*a*.
, **chloro(*o* - nitrophenyl) - *o* - tolyl-**, 3382*i*.
, **chloro(*p* - nitrophenyl) - *o* - tolyl-**, 3382*i*.
, **chlorophenyl)cyanophenyl-**, 3383*b*.
, **(*p* - chlorophenyl)cyanophenyl-**, 3383*b*.
, **(*m* - chlorophenyl)cyano - *o* - tolyl-**, 3383*i*
, **(*m* - chlorophenyl)cyano - *p* - tolyl-**, 3383*i*.
, **(*o* - chlorophenyl)cyano - *m* - tolyl-**, 3383*i*
, **(*o* - chlorophenyl)cyano - *o* - tolyl-**, 3383*i*
, **(*p* - chlorophenyl)cyano - *o* - tolyl-**, 3383*i*.
—, **(*p* - chlorophenyl)cyano - *p* - tolyl-**, 3383*c*.
—, **chlorophenyl-2-thienyl-†**, 3383*b*
—, **cyanodi-2-naphthyl-**, 3383*d*
—, **cyanodi-2-thienyl-†**, 3383*d*
—, **cyanodi-*m*-tolyl-**, 3383*i*
—, **cyanodi-*o*-tolyl-**, 3383*i*
—, **cyanodi-*p*-tolyl-**, 3383*i*.
—, **cyano(*m* - formylphenyl)phenyl-†** 3383*d*.
—, **cyano-2-naphthylphenyl-**, 3383*f*
—, **cyano-1-naphthyl-*p*-tolyl-**, 3383*f*
—, **cyano-2-naphthyl-*p*-tolyl-**, 3383*f*
—, **cyano(*m* - nitrophenyl) - *o* - tolyl-**, 3383*d*.
—, **cyano(*o* - nitrophenyl) - *o* - tolyl-**, 3383*d*.
—, **cyano(*p* - nitrophenyl) - *o* - tolyl-**, 3383*d*.
—, **cyanophenyl-2-thienyl-†**, 3383*i*
—, **cyanophenyl-*m*-tolyl-**, 3383*i*
—, **cyanophenyl-*o*-tolyl-**, 3383*i*
—, **cyanophenyl-*p*-tolyl-**, 3383*i*
—, **cyanophenyl-2,4-xylyl-**, 3383*i*.
—, **cyano-*m*-tolyl-*o*-tolyl-**, 3383*i*
—, **cyano-*m*-tolyl-*p*-tolyl-**, 3383*i*.
—, **cyano-*o*-tolyl-*p*-tolyl-**, 3383*i*.
—, **cyano-*o*-tolyl-2,4-xylyl-**, 3383*i*.
—, **cyano-*p*-tolyl-2,4-xylyl-**, 3383*i*
—, **dichloro(2-chloroallyl)-**, 2929*f*
—, **dichloro(2 - chlorovinyl)-**. See *Lewisite*.
—, **dichloroethyl-**, 6971*b*.
—, **dichloro-2-naphthyl-**, and compd with $C_{10}H_7N_2Cl$, 4647*i*, 4648*a*.
—, **dichlorophenyl-**, 1046*e*.
equil. with $AsCl_3$, $Ph_2AsCl$ and $Ph_3As$, 23*a*.
reaction with acyl chlorides, 6178*b*.
triphenylarsine detn. in mixt. with $AsCl_3$, $(C_6H_5)_2AsCl$ and, 6114*d*.
—, **dichloro-2-thienyl-†**, 6102*f*.
—, **dihydroxyphenyl-**. See *Benzene arsonous acid*.

—, **diphenyl-2-pyridyl-†**, and derivs., 1045*h*.
—, **methyl-**, reaction with acrylonitrile, 8351*e*.
—, **phenyldi-2-pyridyl-†**, and derivs., 1045*h*.
—, ***p*-phenylenebis[dichloro-**, 3383*e*.
—, **triphenyl-**, 2592*d*, 4647*h*, P 5041*g*, 8786*f*.
complex with nickel carbonyl, as catalyst for trimerization of $C_2H_2$ and its derivs., 6202*e*.
detn. of, in mixt. with $AsCl_3$, $C_6H_5AsCl_2$ and $(C_6H_5)_2AsCl$, 6114*d*.
equil. with $AsCl_3$, $PhAsCl_2$ and $Ph_2AsCl$, 23*a*.
—, **tri-2-pyridyl-**, and salts, 1046*h*.
—, **tris(2-chlorovinyl)-**, compd. with $PdCl_2$, toxicity to rats, 348*h*.
detn. of, 6111*e*.
—, **tris(*p*-ureidophenyl)-**, 5014*h*.
—, **tri-2-thienyl-**, 3383*a*, 6102*f*.
**sine-*d*$_1$**, spectrum of, 3293*d*, 4139*g*.
**sine oxide, (2-carboxyethyl)diphenyl-†**, 8352*c*.
—, **(4 - carboxy - 2 - phenyl - 3 - quinolylmethyl)diphenyl-†**, and derivs., 8352*b*.
—, **(2 - carboxypropyl)diphenyl-†**, 8352*c*.
—, **diphenyl-2-pyridyl-†**, monopicrate, 1046*c*.
—, **tri-2-pyridyl-**, monopicrate, 1046*i*.
**sine sulfide, (2-carboxyethyl)diphenyl-†**, 8352*c*.
**sinic acid, (*o*-acetamidophenyl)phenyl-**, 3382*i*.
—, **(*m*-acetylphenyl)phenyl-**, 3382*h*.
, **bis(2-cyanoethyl)-**, and nitrate, 8351*f*.
, **[(1 - carboxyisobutylcarbamyl)methyl]phenyl-†**, 2272*f*.
, **(carboxymethyl)phenyl-†**, in penicillin production, 2273*d*.
, **(*m* - carboxyphenyl)phenyl-†**, 3382*h*.
, **(*p*-carboxyphenyl)phenyl-†**, 3382*h*.
, **(*o*-chlorophenyl)phenyl-**, 3382*g*.
, **(*m*-chlorophenyl)-*o*-tolyl-**, 3382*h*.
, **(*m*-chlorophenyl)-*p*-tolyl-**, 3382*h*.
, **(*o*-chlorophenyl)-*o*-tolyl-**, 3382*h*.
, **(*p*-chlorophenyl)-*o*-tolyl-**, 3382*h*.
, **(*p*-chlorophenyl)-*p*-tolyl-**, 3382*h*.
, **dimethyl-**. See *Cacodylic acid*.
, **diphenyl-**, 4647*g*.
and salt with 2-benzyl-2-thiopseudourea, 8352*c*.
, **di-2-thienyl-**, and sodium salt and anhydride, 6102*g*
, **di-*m*-tolyl-**, 3382*g*.
, **di-*o*-tolyl-**, 3382*g*.
, **(*m*-formylphenyl)phenyl-**, and 2,4-dinitrophenylhydrazone, 3382*h*.
, **(*o*-iodophenyl)phenyl-**, and salt with 2 benzyl-2-thiopseudourea, 8352*d*.
, **2-naphthylphenyl-**, 3382*h*.
, **1-naphthyl-*p*-tolyl-**, 3382*h*.
, **2-naphthyl-*p*-tolyl-**, 3382*h*.
, **(*m*-nitrophenyl)-*o*-tolyl-**, 3382*i*
, **(*o*-nitrophenyl)-*o*-tolyl-**, 3382*h*.
, **(*p*-nitrophenyl)-*o*-tolyl-**, 3382*i*.
, **(*p*-nitrophenyl)-*p*-tolyl-**, 3382*h*
, **phenyl-*m*-tolyl-**, 3382*g*.
, **phenyl-*o*-tolyl-**, 3382*g*.
, **phenyl-2,4-xylyl-**, 3382*g*.
, ***m*-tolyl-*o*-tolyl-**, 3382*g*.
, ***m*-tolyl-*p*-tolyl-**, 3382*g*.
, ***o*-tolyl-2,4-xylyl-**, 3382*g*.
, ***p*-tolyl-2,4-xylyl-**, 3382*g*.
**Arsinous acid, diphenyl-**, nitrate, toxicity to rats, 348*f*.
**Arsonic acid, phenyl-**. See *Benzenearsonic acid*.
**Arsonic acids** ($RAsO(OH)_2$). *Individual compounds will be found under such names as* Benzenearsonic acid, Methanearsonic acid.)
aromatic, dissocn. consts. and analytical uses of, 57*b*.
effect on growth of chickens, 5460*c*.
sulfanilamide derivs., 6593*d*.
**Arsonium compounds, (2-benzoylethyl)methyldiphenyl— picrate, 8352*b*.
bis(2 - benzoylethyl)methylphenyl— iodide, 8352*b*.
bis(2-cyanoethyl)dimethyl— salts, 8351*e*.
as catalysts for phenol resin manuf., P 8208*b*.
(2-hydroxyethyl)trimethyl— hydroxide, P 8208*c*.
tetraphenyl— perrhenate, formation and extn. from molybdenites and equil. consts., solubilities and partition coeffs. of, 8304*g*.
**Arsphenamine** (*3,3' - diamino - 4,4' - dihydroxyarsenobenzene dihydrochloride, salvarsan*). (See also *Arsenobenzene; Neoarsphenamine; Sulfarsphenamine.*)
dermatitis from, cholinesterase and sugar in blood in, 4362*b*.
poisoning by, effect of Na dithionite and $Na_2CO_3$ on, 3108*d*.
standards for, 3561*h*.
**Arsphenoxide**. See *Phenol, 2-amino-4-arsenoso-*.
**Art(s)**, defect detection on surface of antiques, fluorescence in, 7368*b*.
history of pictorial, and art materials, 3209*f*.
**Artane***, pharmacology of, 7581*a*.
**Artemia salina**, eggs of, zoöpherin in, 2331*d*.
**Artemisia**. (See also *Santonica; Wormseed.*)
*filifolia*, proteins in, 1501*f*
Indian, 1154*g*.
oils of—see *Oils*.
**Arterenol** (*α - (aminomethyl) - 3,4 - dihydroxybenzyl alcohol*). (For derivatives see *Protocatechuyl alcohol.*)
adrenaline synthesis from, 9204*g*.
in adrenal medulla, 5541*i*, 7103*e*.
in adrenal medullary tumors, 4760*f*.
antispasmodic action on intestines, 3934*e*.
broncho- and vaso-motor action of, on lungs, 4375*e*.
derivs., 3388*c*.
detn. in adrenaline, 7191*a*.
detn. in nerve and tissue exts., 3484*d*.
effect on anaphylactic and normal lungs, 7131*a*.
on blood pressure, 5864*g*, 7590*f*, 9249*c*.
on blood pressure, blood sugar, intestines and spleen vol. compared with adrenaline and epinine, 8542*c*.
on blood pressure, pulse rate and blood flow through muscles, 8544*h*.
on coronary blood flow, 8539*a*.
on diuresis, 6308*c*.
on egg-white edema, 6309*e*.
on heart, 3525*e*.
ergotamine and dibenamine effect on constrictor action of, 8538*f*.
in hydroxytyramine conversion to adrenaline by adrenal tissue, 8484*g*.
hyperglycemic action of, 8057*b*.
identity of sympathomimetic ergone in adrenergic nerves with, 2688*d*.
isolation from adrenal gland, 7537*d*.
isomers, pharmacology of, 3929*d*.
isomers, toxicity of, 5866*b*.
liberation by splenic nerves after stimulation, 2688*i*
liberation from adrenal medulla by splanchnic stimulation, 6729*d*.
as mediator of sympathetic nerve stimulation and hormone of adrenal medulla, 5470*e*.
as nerve active factor, 7140*g*.
as nerve impulse transmitter at cutaneous vasoconstrictor nerve endings, 8504*b*.
pharmacology of, 317*b*.
prepn., purification and evaluation of, in organ exts., 4312*h*.
pressor action of, and identity with liver sympathin, 1868*b*.
as pressor drug, 8540*b*.
pulmonary edema from, 9250*b*.
in semen, 7104*e*.
sepn. from adrenaline, 7194*e*.
spasmolytic agents and, 4770*i*.
ventricular fibrillation from hydrocarbons and, 313*b*.
**Arteries**. (See also *Blood vessels.*)
aging and calcification of coronary, 8513*g*.
book: Coronary Artery Disease, 8525*g*.
cholesterol in, effect of desoxycorticosterone acetate on, 7119*a*.
in diabetic gangrene, 8047*d*.
enzymic activity of, 3906*f*.
metabolism of, 7114*e*.
vitamin E effect on, and effect of cholesterol and bile salt thereon, 7097*g*.
**Arteriosclerosis**. (See also *Atherosclerosis; Sclerosis.*)
cholesterol in coronary, 749*h*.
in pyridoxine deficiency, 6297*a*.
**Arthritis**, aureomycin in treatment of, 9220*c*.
BAL effect on, 7583*a*.
calcium salts in bone tissue in, in relation to clinical picture, 8419*a*.
cholesterol in blood serum in gouty, 4761*f*.
chondroitin sulfate content and distribution in cartilage in infective and aseptic osteo-, 6727*i*,
citrin and vitamin C in treatment of, 1087*b*.
creatine excretion in urine in, 6302*b*.
electrophoretic changes in blood serum in rheumatoid, 5487*h*.
glutathione in blood in, 3093*g*, 3509*i*.
gold compds. in treatment of, metabolism, toxicity and manner of action of, 2328*f*.
gold distribution in animal body in, 763*d*.
polysaccharides in blood serum in, 9230*d*.
radioelements in study of rheumatoid, 1258*i*.
sex hormones in urine in poly-, 2687*g*.
**Arthropods**, control of, with DDT, E605 and hexachlorocyclohexane, 6770*g*.
cuticle of, 6746*h*, 8561*g*.
phenolic substance in, 3940*b*.
**Arthus phenomenon**, 10 - (2 - dimethylaminoisopropyl) phenothiazine effect on, 7139*g*.
methylthiouracil effect on, 9216*c*.
**Artichokes**, bromine and Cl in, 3537*g*, 8572*d*.
Jerusalem—see *Jerusalem artichoke*.
juice of, clarification of protein-contg. solns. by, 6749*a*.
juice of, treatment by ion exchange, 6441*g*.
orthodiphenolase and phenol from, 1083*h*.
sugar detn. in, 9288*i*.
vitamin $B_1$ in, 6753*h*.
**Artificial materials**. (See also *Plastic materials; Resinous products; Substitutes;* etc.)
books: Kunststofftechnisches Wörterbuch, 900*g*; Les matières premières de synthèse, 3654*c*; Het Kunststoffengebied, chemie, grondstoffen en toepassingen, 5639*g*, Kunststofftafel—Der Aufbau der Kunststoffe und deren wichtigste Anwendungen, 7750*f*; Ins Innere von, 8738*f*.
in dairy-equipment construction, 5877*c*.
dielec. properties of, 920*e*.
hardness (indentation) of, 7742*c*.
heat capacity of, measurement of, 4047*f*.
nomenclature of, 1214*c*.
in papermaking, 4459*i*.
porous—see *Porous materials*.
review on, 1211*h*.
waste waters from, aldehyde detn. in, 3123*d*.
**Artinite**, from Kraubath, Styria, 2897*h*.
**Artists' materials**. See *Color(s); Paint; Pigments;* etc.
**Artocarpus communis**. See *Breadfruit*.
**Artocarpus elasticus**, components of latex from, 4041*i*.
**Artocarpus integra** (*A. heterophyllus, A. integrifolia*) and(or) *Jack tree*, pectins of fruit of, 7156*a*.
**Arum**, *maculatum*, starch of, 4036*c*.
vitamin C in different species of, 8459*b*.
**Arundinaria tecta**, carbohydrate reserves of, 4734*i*.
**Arundo**. See "reed" under *Grasses*.
**Arylamines**. See *Amines*.
**Arylation**, of acids (ethylenic), 566*a*.
of arsenic acid, 2592*e*.
of ethyl 2-cyclopentene-1-acetate, 3796*d*.
of 1,4-naphthoquinones, 1380*b*.
of phenanthridines, 648*i*.
**Aryl groups**, effect on aldehyde isomerization into ketones, 4632*h*.
in side chains of *N*-phenethyl amides, effect on ring closure to isoquinolines, 5025*i*.
**Aryl halides**. (See also *Benzene derivatives; Hydrocarbons.*)
amination of, P 3454*gh*.
as azeotrope formers in concn. of aq. solns. of HCHO, P 2221*d*.
**Arylmagnesium halides**. See *Magnesium compounds*.
**Aryl phosphates**. See *Phosphoric acid*.
**Aryl sulfates**. See *Sulfuric acid*.
**Asafetida**, from India, 2736*b*.
**Asano***, in protozoa infection therapy, 1485*b*, 8528*b*.
**Asaronaldehyde** (*2,4,5-trimethoxybenzaldehyde*), prepn. and reaction with Et-$CHBrCO_2Me$, 2608*i*.
**Asaronic acid** (*2,4,5-trimethoxybenzoic acid*).
—, **3 - acetyl - 6 - (1 - carboxyisopropoxy)-**, and methyl esters, 2994*g*.
**Asbestos**. (See also *Anthophyllite; Chrysotile; Soapstone; Steatite; Talc.*)
acetylene storage in porous mass of, 7212*d*.
of Alaska, 2130*e*, 4190*c*, 8314*i*, 8318*g*.
aluminum paint contg., P 8706*a*.
bonded fabrics from thermoplastic fibers and, 4470*h*.
as bonding agent for refractories, P 1936*b*.

book: Its Prepn. and Application, 1125*i*.
of California, 2901*fg*.
catalyst of Co and, in hydrogenation of benzene, PhMe and xylene, 6172*d*.
-cement, medical problems in industry of, 4826*h*.
cloth, elec. insulator from, P 9536*h*.
coating with, by spraying, 7608*a*.
coating with colloidal oxides, for improvement of dielec. and tensile strength, 8075*g*.
diaphragms for electrolytic cells from, P 8290*d*.
drops on fibers of, contact angles of, 17*f*
friction materials contg.—see *Friction materials*.
impregnation with $SnO_2$, 3544*c*.
industry in 1946, 2126*i*.
in Japan, 1125*e*.
journal: Asbest technischer Bedarf, 2802*f*.
laminated plastic with base of, 434*g*.
of Maine (northwestern), 8318*i*.
mining and milling of, 2343*d*.
mixts. with wool and wool char as flame-resistant fabrics, 1193*a*.
molded articles from waste sulfite liquor and, P 4517*f*.
molded product from, P 7164*a*.
of Montana, 4984*d*.
of Newfoundland (Southern White Bay), 1602*c*.
as paper filler, 400*i*.
paper, treatment with HF, P 6340*e*.
phenolic compn. from AcH, $(CH_2)_6N_4$ and, P 2039*c*.
phenolic resin contg., for orthopedic appliances, 2029*g*.
plastic materials from HCHO, salts and, P 8208*h*.
plastic waterproof insulating compn. from, P 3235*a*.
pyrolysis of, in Gooch crucible above 283°, 8310*a*.
of Quebec, 525*d*.
sealer for sheets of, neutralized wool grease as, 4494*h*.
in silica-gel manuf., 6335*h*.
testing and treatment of, 1125*d*.
thermal-insulating cement contg., standards for, 4785*f*.
of Turkey, 1291*g*.
in Union of South Africa, 8115*g*.
of the world, 5708*e*.
yarns, standards and tests for, 4787*eh*.

**Asbestos substitutes**, from glass fibers, P 3987*d*.

**Ascabiol**. See "benzyl ester" under *Benzoic acid*.

**Ascariasis**, bactericidal action of sulfonamides in, 8536*a*.

**Ascaridia galli**, control in chickens, 9330*b*.
phosphorus uptake from host fluids and tissues by, 9269*i*.
respiratory metabolism of, 5874*i*.

**Ascaridole**, assay of, 7190*i*
in chenopodium oil, 4242*c*.
detn. of, 8421*gh*.
as polymerization inhibitor and initiator in isoprene, 5621*f*.

**Ascarids**, allergic and toxic manifestations produced by tissues and fluids of *A. lumbricoides*, 9222*a*.
antigens of *A. lumbricoides*, 5110*e*.
control in dogs, 1-piperazinecarboxamides in, P 6245*a*.
hemotoxin of *A. lumbricoides*, 5873*g*.
penetration of anthelmintics and related compds. into *A. lumbricoides*, kinetics of, 9270*b*.
phosphatases in *A. lumbricoides*, 7149*a*.
phosphorus uptake by *A. lumbricoides*, from host fluids and tissues, 9269*h*.
toxicity of celomic fluid of *A. suum*, 2319*a*.

**Ascia rapae**. See *Pieris rapae*.

**Ascidia**, compn. of, of Black Sea, 6746*b*.

**Ascidians**, blood sugar-lowering substance from, 8558*h*.

**Ascites**, in cirrhosis, effect of Na restriction on, 9225*a*.

**Ascitic fluid**, potassium in blood and urine and, 2312*g*.

**Asclepias**. See *Milkweeds*.

**Ascomycetes**, enzyme from, polymetaphosphate breakdown by, 8404*a*.

**Ascophyllum nodosum**, seasonal variation in compn. of, 2285*h*.

**Ascorbic acid**, L—see "C" under *Vitamins*.
——, **dehydro-**. See *Dehydroascorbic acid*.
——, **2-methyl-***, L-, antiscorbutic effect of, 9179*h*.

**Ascorbic acid oxidase**. See *Oxidases*.

**Ascorbigen**. See "bound" under "C" under *Vitamins*.

**Ascorbinase**. See "ascorbic acid" under *Oxidases*.

**Ascosterol**, 7493*c*.

**AsCu**, as preservative for green bamboo poles, 3553*i*.

**Asebogenin, Asebogenol** (*phloretin 4'-methyl ether*), identity with phloretin 4-Me ether, and triacetate, 8603*h*.

**Asellus aquaticus**, in Amsterdam water, control of, 1885*e*.
phosphatases in nucleic polyploids of testicular tunicate cells of, 3528*i*
spermatogenesis in, metabolism of ribonucleic acids in, 5123*h*.
spermatogenesis in, ribonucleic acid supply and phosphatase distribution during, 3532*b*.

**Ash**. (See also *Manna*.)
growth-inhibiting substance in terminal buds of, 8460*c*.
identification, occurrence, compn. and antimalarial action of *Fraxinus chinensis* and *F. malacophylla*, 7194*e*.
tannins from *Fraxinus mandshurica*, 889*i*.

**Ash(es)**. (See also *Cinders*.)
accumulation in plants in relation to transpiration and mineral absorption, 5454*b*.
as adsorbent for $SO_2$ from flue gas, P 7201*g*.
of *Aleurites moluccana* oil cake, 2445*e*.
analysis of plant, for Cu and Zn in biogeochemistry, 3321*h*.
in *Ascophyllum nodosum*, seasonal variation in, 2285*h*.
in aspen wood, effect of location in trunk on, 3607*f*.
of asphalt, 9422*c*.
bagasse, phosphate manuf. from, 3156*c*.
bone—see *Bone ash*.
in bones, relation to age and function of regional variations of, 5844*h*.
boron detn. in plant, 1682*c*.
as cement hydraulic additive, 1936*h*.
cements from, 1938*b*, P 6804*i*
in chick tibiae, seasonal differences in, 2866
coal, adsorption by, of anthracite, 4075*h*.
behavior in combustion and gasification, 5169*i*.
cathodoluminescence of rare earths in, 6087*f*.
combustion properties and, 5170*e*, 6392*a*.
from Czechoslovakian coal, 2138*i*.
in detn. of combustion losses, 4830*e*.
Ge in Indian, 8118*c*.
ingredients for forming, removal of, 8118*c*.
minor elements in, 1941*d*.
coke, in blast-furnace operation, 3598*e*.
of collagen, effect of grinding on, 8184*f*.
color of plant, due to Mn, 2279*g*.
cotton fiber acid content relation to alky of, 853*f*.
detn. in bone grease, 1581*d*.
in C black, 3993*h*.
in coal, 1941*e*, 3169*b*, 5922*i*.
in coal-tar fuels, 1551*c*.
in coke fines, 2755*f*.
in flake tragacanth, 4881*e*.
in hides (bated), 7735*f*.
in moist materials, 2547*g*.
in oil meals, 6842*a*.
in paper, detection and control of errors in, 6412*e*.
in solid fuels, 3989*h*.
in soybean flour, 5975*c*.
in tallow, 1581*c*.
in white sugars, 9502*ce*.
detn. in cellulose and analysis of, 1185*b*.
diatomaceous, of S. Africa, 1692*g*.
fertilizers from fecal slurry and, P 5144*d*.
in flax, fiber quality and, 9456*i*.
flour, effect of *Tribolium confusum* on, 2335*i*.
in flowers, color and, 8450*e*.
fluorine detn. in vegetable, 1684*g*.
fly, erosion by, 5923*b*.
removal in stoker-fired boilers, 3991*a*.
in removal of deposits from turbine passages, 2717*f*.
smoke abatement and, 3592*hi*, 3593*a*, 3990*i*.
tile manuf. from, 4444*i*.
uses of, 2911*c*.
formation in gas turbines, 5172*f*.
fusibility measurement of, of fuels, 1941*g*.
fusibility of, clinkering in water-gas generators and, 6394*e*.
of gelatin from blue whale skin, effect of no. of extns. on, 1206*g*.
glassy and rhyolitic, of Eastern Alps, 527*c*
in grasses and herbs of hay plots, 4347*i*.
in invertebrates of Black Sea, 6746*c*.
of jack-pine seedlings, soil fertility and, 796*i*.
in leathers (Argentinian), 2456*i*.
of moorland plants, 281*d*.
of peat of Aisne, France, 2902*d*.
of peat of Nova Scotia, 5348*g*.
petroleum, elementary compn. of, 2139*a*, 8654*g*.
plant and wood, as potash source, 2377*g*
potash recovery from blast-furnace, 2377*g*.
precipitation from furnace gases, P 5573*f*
in range forage, 1501*g*.
refractory materials from, 5562*f*.
removal from coal, 1940*g*.
from hemp bast fibers, effect on degradation of cellulose, 4858*f*.
from sugar-cane wax, 7730*f*.
in rhubarb varieties, 9383*g*.
in rice oil, 5611*g*.
in rosin sizes, effect of heat and oxidation on, 6432*g*.
in seaweeds, 278*c*.
in shrimp (frozen), 6775*a*.
in sorghum during growth, and its relation to chinch bug injury, 4346*d*.
in sugar beets, distribution of, 9503*c*.
in sugar, quality and, 4500*f*.
from sunflower-seed hulls, 8709*g*.
in tobacco (fermented), 5907*f*, 9382*e*.
in tobacco leaf, effect of position on plant on, 819*b*.
vanadium contg., from gasoline coke, P 4846*h*.
volcanic, cellular material from, P 6339*g*
of Iwo Jima, 75*g*.
of Kern Co., Calif., 4607*e*.
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
in wheat flour, degree of extn. and, 7596*a*
from wood of Northern Rhodesia and its use as fertilizer, 337*f*.
wool, flame-resistance and brittle quality of, 1192*i*.
zinc detn. in plant, 2890*i*.

**Ashing**, of blood and other biol materials for analysis, 8419*d*.
of fats, oils and related substances, 878*i*.
of sugar beets, 4500*i*.
wet, 6420*g*.

**Asiatic acid**, 8053*h*.

**Asiaticoside**, chem. constitution of, 8053*g*
——, **hydroxy-**, antitubercular properties of, 6319*c*.

**Asiatic rice borer**. See *Chilo simplex*

**Askanite**, adsorption of vapors of $C_6H_6$ and $CCl_4$ by, 461*d*.

**Asparaginase**, α-keto acid-activated, 6266*c*
in *Mycobacterium tuberculosis* metabolism 9164*h*.

**Asparagine** (*α-aminosuccinamic acid*), $HOOCCH(NH_2)CH_2CONH_2$
α Nα β N
antibacterial activity of, 3879*h*.
in blood, effect of diet on, 5834*f*.
in blood plasma, 8429*c*.
in cacao bean covering, 8011*a*.
as carbon dioxide replacement in heterotropic metabolism, 8435*c*.
in cauliflower, Mn and Mo in relation to, 7552*e*.
chromatography on starch columns, 5818*f*.
cobalt complexes with, 5432*e*.
-copper complex, electrolysis of, 6250*d*
dielec. potential and surface tension of solns. of, pH and, 3267*g*.
effect on flor sherry process, 3559*e*.
on glycine concn. by diaphragm, 9120*d*.
on growth of lactic acid bacteria, 4331*h*.
on *Lactobacillus casei* growth, 4334*g*
on oxidative activity of cataractous cryst. lens, 8044*g*.
on polarography of sucrose, 9499*e*.
on tobacco seedlings, 7551*g*.
ethyl ester, reduction of, 1723*e*.
in green plants, 1463*a*.
in lupine and soybean seeds and sprouts, 1080*e*.
as nitrogen source for *Polytoma*, 1835*e*.
as nitrogen source for *Ulva lactuca*, 6280*i*
as nitrogen source for yeast, 8447*a*.
in pollen collected by bees, 732*e*.
reaction with $CS_2$, 2247*h*.
in sugar beet, 7553*h*.
synthesis in plants, 7092*b*.

i tobacco after storage, 6789*c*.
i yeast growth, 5081*b*.
**aragine, $N^{\alpha}$-acetyl-*N*-benzyl-**, 1353*a*.
–, ***N*-benzyl-**, 1352*h*.
–, ***N*-benzyl-$N^{\alpha}$-phenylcarbamyl-**, 1353*b*.
–, **$N^{\beta}$-(1-carboxyethyl)-**, L-, 6266*f*.
–, **$N^{\alpha}$-[*N*-(1-carboxy-1-hydroxyethyl)glycyl]-**, 4643*d*.
–, **$N^{\alpha}$-[*N*-(α,α-diacetamidopropionyl)glycyl]-**, 4643*g*.
–, ***N*,$N^{\alpha}$-dibenzyl-**, and ethyl ester HCl, 1352*i*.
–, **$N^{\alpha}$-glycyl-**, methyl ester reaction with Et α-bromolactate acetate, 4643*c*.
–, ***N*-hydroxy-**, prepn. and antibacterial action of, 2674*h*.
–, **$N^{\alpha}$-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-**, L-, 644*g*.
, microbiol. activity of, 723*b*.
–, **$N^{\alpha}$-(*N*-lactylglycyl)-**, acetate, 4643*g*.
**aragine oxidase**, in decarboxylating bacteria, 6281*e*.
**araginic acid**. See *Aspartic acid*.
**aragus**, *acutifolius*, sapogenin in, 4729*c*.
mino acids in, 3534*f*.
romine and Cl in, 3537*g*, 8572*d*.
ooling and disinfecting of, prior to non-refrigerated storage, 9288*g*.
3,β-dimercaptoisobutyric acid from, 2580*c*.
tozen, cytological and microchem characteristics of, 5878*i*.
dentification of tinctures of, 4426*b*.
hotosynthesis by, 2281*h*.
itamin $B_1$ in, and effect of cooking thereon, 6753*h*.
eed control in, 1893*i*, 1894*d*.
**artamic acid**. See *Asparagine*.
**artamide** (*α-aminosuccinamide*).
, ***N*,*N*′,$N^{\alpha}$-tribenzyl-**, DL-, 1352*g*
**artic acid** (*aminosuccinic acid*).
HOOCCH$_2$CH(NH$_2$)COOH
β α
cetaldehyde formation by ninhydrin action on, pH and, 5430*f*.
*hromobacter fischeri* requirements for, 2276*g*.
n actin, 9095*h*.
adsorption by $Al_2O_3$, pH and, 6035*d*.
adsorption by $BaSO_4$, 3687*b*.
alanine formation from, by enzyme of liver, 2252*i*.
antagonist to, 9205*h*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308/*gh*, 309*b*.
antibacterial activity of, 3879*g*.
as antioxidant in alkyl benzenesulfonates, P 6845*d*.
in blood, carcass, heart, kidney, liver, muscle and skin of eight animals, 7061*e*.
in blood plasma, 8429*c*.
in cacao bean covering, 8011*a*.
carbon dioxide production from, by *Escherichia coli* after incubation in phosphate, and effect of biotin thereon, 1833*f*.
as carbon dioxide replacement in heterotropic metabolism, 8435*c*.
in safflower, Mn and Mo in relation to, 7552*e*.
in cell nuclei, 2652*h*.
chromatography of, 138*a*.
chromatography on starch columns, 5818*e*.
cobalt complexes with, 5432*e*.
in collagen and hide protein, and its detn in collagen, 7734*e*
deamination by $NaClO_2$ and NaClO and detn., 2891*g*.
deamination of, biotin and adenylic acid in, 706*a*.
decarboxylation of, by aspartic acid decarboxylase, 5061*e*.
by *Pseudomycobacterium*, effect of pH on, 8446*g*.
by *Rhizobium trifolii*, 4336*f*.
degradation with *peri*-naphthindan-2,3-4-trione hydrate and detn., 7378*h*.
in dentine of normal and carious teeth, 5486*b*, 8500*c*.
*N* derivs., dialkyl esters, surface-active, P 6224*f*.
detn in collagen and hide layers and uniformity through hides, 7734*i*.
detn. of, 3057*e*, 3875*g*, 9138*a*.
in blood and urine, 265*b*.
in tissue, 6685*c*.
DL-, prepn. of, 1353*b*.
effect on alanine (free) and pyruvate in blood, 1860*i*, 4354*e*.
on antibacterial action of blood, 3879*d*.
on fermentation by biotin-deficient yeast, 2245*c*.
on glycine concn. by diaphragm, 9120*d*.
on growth of lactic acid bacteria, 4331*h*.
on malignancy, 2307*d*.
formation of, from acetate and bicarbonate, 8027*g*.
from $NH_3$ and malic and pyruvic acids by bacteria, 7547*a*.
from $(NH_4)_2SO_4$ in tomatoes, 1841*b*.
by *Clostridium saccharobutyricum*, 3489*h*.
from glycine, α-C atom in, 5482*h*.
in green plants, 1463*a*.
growth and, 1843*e*.
hydrazide, prepn. and antibacterial action of, 2674*h*.
identification of, 2651*b*.
inactivation by autoclaving, 6676*f*.
in lactogenic hormone of pituitary, 5474*e*
L-, detection of, and m.p. and optical crystallographic properties of its nitroindandionate, 69*i*.
liberation from raw and heated casein after acid and enzyme hydrolysis, 1819*h*.
in liver, effect of diet on, 5095*h*.
in liver exts., 710*f*.
in lupine and soybean seeds and sprouts, 1080*e*.
from lycomarasmine hydrolysis, 4643*b*.
in lysozyme, 5063*d*.
in myoglobin of whale, 7537*b*.
nitrogen fixation by *Azotobacter* in presence of, 5523*a*.
in organs of swine, 7061*h*.
oxidation by enzymes, 3051*g*.
oxidation by plant tissues, 2283*f*.
in pollen collected by bees, 732*e*.
polycondensation product of, and of its β benzyl ester, 4642*f*.
in procollagen of ox, 8411*d*.
in *Proteus vulgaris* flagella, 3061*f*.
rare earth complexes, 4969*g*.
in royal jelly, 7149*f*.
salt with choline, 5742*f*, 7426*b*.
sepn. from amino acids by anion-exchange resins, 8807*a*.
sepn. from hydrolyzed egg albumin, 8807*c*.
in sericin hydrolyzate, 4715*f*.
in tissue and its detn., 8427*d*.
in tobacco mosaic virus, 7092*b*
transamination to glutamic acid in plants, 9172*e*.
formation in citrulline, glutamate and α-ketoglutaric acid systems with, 6250*h*.
utilization by *Escherichia coli* for growth, 7084*h*.
in yeast nutrition, 1825*i*.
from yeast pigments, 2258*d*.
**Aspartic acid, *N*-[*N*-(*N*-acetyl-α-hydroxyalanyl)glycyl]-**, 4643*h*.
–, **4-aminopteroyl-***, effect on sarcoma, 763*f*.
–, ***N*-benzoyl-*N*-(carboxymethyl)-**, DL-, triethyl ester, 1352*f*.
–, ***N*-benzyl-**, DL-, and derivs., 1352*c*
–, **β-butyl-**, 1323*b*.
–, ***N*-carboxy-**, L-, derivs., 4642*g*.
–, ***N*-(carboxymethyl)-**, DL-, triethyl ester, 1352*f*.
–, ***N*-[*N*-(α,α-diacetamidopropionyl)glycyl]-**, 4643*i*.
–, ***N*-[*p*-[(2,4-diamino-6-pteridylmethyl)amino]benzoyl]-**, 9109*g*.
effect on chicks, 7097*d*.
on estrogen-induced tissue growth, 8491*d*.
on growth of chick embryos, 9186*h*.
on sarcoma, 763*f*.
in leukemia therapy, 9249*e*.
–, ***N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-**, DL-, and diethyl ester hydrochloride, 644*g*.
DL-, microbiol. activity of, 723*b*.
——, **β-octyl-**, 1323*b*.
——, **α-propyl-**, 1323*b*.
——, ***N*-pteroyl-**, effect on growth of chick embryos, 9186*i*.
hematologic changes from, 8550*f*.
–, ***N*-(*N*-pyruvylglycyl)-**, 4643*h*.
**Aspartic acid decarboxylase**, 1073*f*, 6281*e*.
aspartic acid decompn. by, 5061*e*.
formation by *Pseudomycobacterium*, effect of pH on, 8446*g*.
of *Rhizobium trifolii*, 8439*i*.
**Aspartic acid dehydrogenase**, in plastids, 8454*b*.
D-**Aspartic acid oxidase**, 7059*h*.
**Aspartic-alanine transaminase**, 2252*i*.
**Aspartic anhydride**, ***N*-carboxy-**, benzyl ester, 4642*h*.
**Aspartimide**. See *Succinimide, α-amino-*.
**Aspasan**, as inhalant and in tablet form, 1426*d*.
**Aspen**, control of *Populus tremuloides* and *P. grandidentata*, 4414*a*.
copper and Zn in bark and leaves of *Populus tremuloides* in geochemistry, 3321*c*.
diploid and triploid, from normal and x-rayed pollen, 5831*d*.
lignin from—see *Lignin*.
lime in ash of *Populus tremula*, 3549*g*.
paper pulp from—see *Paper pulp*.
wood—see *Wood*
**Aspergillic acid**, analogs of, 2997*dg*, 8382*g*.
iron binding by, 9211*d*.
spectrum of, 9386*g*.
structure of, 3014*a*.
–, **desoxy-***, structure of, 3014*a*.
**Aspergillin**, spirocheticide action of, 5416*a*.
**Aspergillus**, amylase prepn. from, P 1526*i*.
antiseptic action on, 714*h*.
biochem. activity and taxonomy in, 9163*d*.
*candidus* and *niger*, toxin production by, 8002*c*.
*candidus*, antibiotic from, 9241*b*.
cellulose-decompg. groups of (ref. should be vol. 19), 9456*g*.
*chevalieri* and *niger*, control of, P 1525*e*, P 1526*a*.
control of, P 4420*g*.
chloralimine compns. for, P 5154*c*.
compns. for, P 4420*i*.
esters of ether-dicarboxylic acids for, P 5152*h*
cultivation of, P 3490*g*.
cultivation of, max. yields from, 9357*h*.
*echinulatus*, pigments from, 7913*a*.
effect of org. compds. administered as vapors on, 6276*i*.
enzyme exts. from, in fruit-juice clarification, 8069*h*.
*flavus* and *niger*, O requirements of, 4332*i*.
*flavus*, penicillin produced by, 1767*f*.
*fumigatus*, antibiotic from, effect on tumor cells and its identity with gliotoxin, 7076*f*.
*glaucus* and *niger*, methylation of As compds by, 2670*h*.
*glaucus*, butterfat treated with, fatty acids produced by, 8569*f*.
graphitic acid decompn. by, 6283*f*.
hexylresorcinol effect on, 1827*a*.
*niger* and *oryzae*, incubation on bran, amylase prepn. by, 1571*h*.
*niger* and *versicolor*, control on paper and paperboard, 8678*f*.
detn. of resistance of paper and paperboard to, 9444*d*.
*niger*, $C_8H_8$-deriv. effect on, 4803*h*.
citric acid production by, 3141*c*, 8433*e*, 9165*h*
control of, P 3558*g*, P 3968*dh*, P 4419*g*.
control on cloth, paper, wood, etc., P 1902*e*.
control on cork gaskets, 4804*g*.
control on textiles, P 6357*f*.
in detn. of Cu, Mg and Mo in plants and soils, 8083*e*.
effect of Mn on, 1827*f*.
effect of thiourea on, 3880*b*, 7077*d*.
effect of thiourea on, in relation to N source, 3880*c*.
enzyme from, polymetaphosphate breakdown by, 8403*h*.
fat and protein production by, requirements for, 4335*i*.
inhibition by imidodicarboxylic acid esters, 4228*g*.
inhibition by vanillic acid esters and related compds., 4242*c*.
inulase production by, 5449*a*.
lipide formation by, 269*e*.
2,2′-methylenebis(4-chlorophenol) effect on action of glucose on, 1515*f*.
N balance of, 7547*i*.
in nutrient detn. in soil, 8083*e*.
oxalic acid formation from acetic acid by, 6701*f*.
phosphorus metabolism by, 1455*g*, 4330*e*.
polymetaphosphate from, 3064*i*.
production of reducing substances for 2,6-dichloroindophenol by, in presence of *p*-aminobenzoic acid, 1457*c*.
tryptophan synthesis by, compared with synthesis by plantlets, 4350*c*.

*ochraceus*, pectin metabolism by, 276*h*.
*oryzae*, in alc. fermentation of corn, 5901*c*.
enzyme prepn. from, hydrolysis of conjugated sulfates of estrogens by, 7983*g*.
formation of kojic acid from EtOH by, and action on carbohydrate derivs., 8007*a*.
in soils, 1513*a*.
sulfate metabolism by, 2671*a*.
*ustus*, antibiotic from, 3489*f*.
**Asperula**. See *Woodruff*.
**Asphalt**. (See also *Bitumens; Gilsonite; Mastics*.)
adhesiveness of, to aggregates, 7207*c*.
to aggregates, metals, etc., increasing, P 3193*g*.
to calcareous aggregate, increasing, P 5168*h*.
cyclic N-base sulfonates for improving, P 6822*c*.
to stone, 7659*f*.
aggregates for, P 3990*a*.
antioxidants and surface-active substance for, P 4458*i*.
from bitumens and bituminous sandstones, 8660*f*.
bitumens, colloidal chem. structure of, 6817*d*.
bitumens, extraneous materials in, and their particle sizes, 5178*e*.
carbon (active) from, 5572*b*.
from coal hydrogenation, 5171*h*.
coatings and emulsions from, 2446*c*.
coatings from, preventing sweating of layers of, of different penetration index, P 5186*d*.
coating with blown, of steel pipe, 5720*h*.
by coking petroleum tarry cracking residues on coke, P 389*d*.
colored and white, 7220*b*.
containers for, coatings for, P 907*g*.
control and inspection of mixes in making hot sheet-asphalt, 6401*c*.
cotton deterioration by air-blown, contg. catalysts, prevention by Pb naphthenate, P 9476*f*.
covering or filling material from, P 5633*d*.
detn. in petroleum and its products, and ash analysis of, 9421*h*.
detn. of, in oils for paving, 7207*c*.
in petroleum of Poland, 3995*e*.
in slow-curing road oils, 7659*h*.
distn. (low-temp.) of, plant for, 375*b*.
effect on caking property of coal, 1941*a*.
electron microscopy of, 32*d*.
emulsification of, P 5186*c*.
emulsions of, flow of, and effect of centrifuging on, 2420*d*.
for ground fixation, P 4828*d*.
org. polyphosphate-contg., P 4845*a*.
expansion joints from, P 1940*b*.
felt impregnated with, coating steel sheets with, P 6148*c*.
fuel oil-sea water emulsion stabilization by, and adsorption at interfaces, 2419*g*.
improving plasticity, etc., of, with polyethylene, P 7224*h*.
industry in 1946, 2126*i*.
liner from, P 7163*b*.
from lubricant oxidation, plastic jet-propulsion fuels from $KClO_4$ and, P 8669*c*.
melting of, furnace for, P 4460*d*.
mixing app. for, P 3588*b*.
mixts. with aggregate, effect of nature and particle size of aggregate on, 7207*f*.
mixt. with rosin as rubber-sole plasticizer, 6854*d*.
molding compns. from acid-resistant cellulosic fibers and, P 6004*e*.
as paint constituent, 870*e*.
as paraffin dewaxing aid in paraffin distillate-propane solns., and effect on filter rate and yield of dewaxed oil and on wax crystal structure, 4455*i*.
paving—see *Paving*.
in petroleum, 5175*d*.
in petroleum wells, flow lines and pipes, prevention and removal of, P 5938*d*.
plastic from polyvinyl chloride and, P 8208*f*.
plasticity-stress relation in, 2010*f*.
precipitation of hard, from oils, ligroin in, 4839*i*.
removal of, from lubricating oils, 3182*ee*.
from lubricating-oil stocks with $C_3H_8$, 5580*d*.
from lubricating oils, U.S. plant capacity for, 8658*f*.
with $C_3H_8$, 3996*h*.
roads—see *Roads*.
roofing (fire-resistant) of, P 1940*c*.
-rubber coatings for roads, 7250*c*.
standards and tests for, 4399*a*, 4785*gi*.
sulfur in powd., from Abruzzi rocks and effect of heating thereon, 6817*d*.
surface tension rule or surface tension-solvent power of liquids for, 6816*i*.
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
of Turkey, 1291*g*.
viscosity of, paving stability and, 6401*d*.
weathering of, accelerated tests for, 7675*h*.
**Asphaltenes**, 1954*c*.
detection and detn. in rocks by fluorescence, 5574*h*.
lubricant improvement by, 7219*b*.
sepn. and characterization of, in petroleum, 4044*g*.
**Asphaltites**, as paint constituents, 870*e*.
**Asphodel**, sirup from tubers of, P 8182*e*.
sugar manuf. from, P 5616*g*.
**Asphyxia, Asphyxiation**. (See also "poisoning" under *Carbon monoxide*.)
effect on monosynaptic pathway through spinal cord, 9259*g*.
effect on normal and convulsive potentials, 9260*d*.
eye pupil in, 4374*i*.
quinine toxicity in, antagonists for, 4768*i*.
sympathin E in splenic blood during, 3519*d*.
**Aspidiotus perniciosus**. See *San José scale*.
**Aspidosperma**, *nitidum*, antimalarial activity of exts. of, 5860*g*.
*quebracho*—see *Quebracho*.
**Aspidospermine**, 5407*i*.
and *N*-oxide, 1427*b*.
—, **desacetyl-***, 5407*i*
*N*-oxide, 1427*e*.
**Aspirators**, for carbon monoxide-indicating tubes, 5646*i*.
**Aspirin**. See *Acetylsalicylic acid*.
**Assaying**. See *Analysis; Toxicity*.
**Assimilation**. See *Metabolism, animal; Metabolism, plant; Plants*.
**Association**. See *Ions, electrolytic; Molecular association*.
**Astacin**, effect of sulfa compds. on fading of, in fish, 1498*e*.
therapeutic and physiol. effects of, 6366*a*.
**Astatine**, accumulation by thyroid, 5471*f*.
alpha-emission and *Z* no. for natural isotopes of, 4125*h*.
alpha-rays from isotopes $At^{215}$ and $At^{216}$, 7331*c*.
alpha-rays from, with mass of 218, 1648*b*.
from bismuth by $\alpha$-ray action, 4123*g*.
chem. properties of, 2862*b*.
of mass 218, decay to $Rn^{218}$, 4951*g*
pronunciation of, 4909*f*
in therapeutics, 3524*e*.
from thorium bombarded by deuterons, 4126*i*.
**Asters**, *Liriomyza flaveola* control on, 1522*g*.
selenium in, 3890*f*.
**Asthenia**, lactates in blood during exercise in neurocirculatory, 5855*d*.
**Asthma**, acidosis effect in, 6303*g*.
antihistamines in treatment of bronchial, 3938*e*.
aspasan in prophylaxis of bronchial, 4426*e*.
histamine in blood and, 5869*g*.
isuprel in treatment of, 2326*g*.
nicotinamide in therapy of bronchial, 1864*a*.
orthoxine in bronchial, 9259*b*.
**Astilbe japonica**, bergenin in, 8451*a*.
**Aston, Francis Wm.**, obituary, 915*g*
**Astragalus**, selenium in, 3890*e*.
**Astrakanite**. See *Bloedite*.
**Astringents**, aluminum salts as, 5492*a*.
chestnut natural and sweetened tanning exts. as, 9506*i*.
effects of, and action on fabrics, 8618*h*.
in sorghum during growth, and its relation to chinch bug injury, 4346*e*.
**Astronautics**. See *Jet propulsion; Rockets*.
**Astronomy**, advances in, 6071*g*.
curve of growth in, 39*g*.
**Astrophysics**. See *Stars*.
**Asymmetric synthesis**. See *Synthesis*.
**Asymmetry**, of crystals, 7770*a*.
mol., based on deuterium, 3392*d*.
**Atacamite**, structure of, 7772*b*, 8930*c*.
**Ataxite** (*the meteorite*). See *Meteorites*.
**Atebrin, Atabrine**. See *Quinacrine*.
**Atherosclerosis**, blood corpuscle specific gravity in, 4362*g*.
cholesterol, effect of alloxan diabetes on 5859*e*.
choline effect on aortic, 1478*g*.
experimental, 7118*i*.
**Athlete's foot**. (See also *Trichophyton*.)
8-quinolinol in treatment of, 4425*c*.
**Atisine**, and derivs., 210*c*.
**Atlacide**. See *Sodium chlorate*.
**Atlas A**. See *Sodium arsenite*.
**Atmolysis**. See *Diffusion*.
**Atmosphere**. (See also *Air; Ionosphere; Oxygen*.)
adaptation to, at various altitudes, 8484*d*
ammonia in, 5308*c*.
argon in, 2827*c*.
argon in, relationship to $K^{40}$, 6010*d*
carbon and O isotopes in, 3289*i*.
carbon dioxide in, climate and, 7621*h*
carbon dioxide in, spectrum of, 4139*e* 4952*h*.
carbon dioxide-rich, electrolytes of blood and tissue during breathing of, 8511*f*
carbon monoxide in, 7276*d*.
cosmic rays in—see *Cosmic rays*.
crystallogenic disequil. in, 6481*i*.
disposal in, of radioactive waste, 5661*g*
elements in, 2137*e*.
for or of furnaces—see *Gases*.
at high altitudes or at low pressure, acid electrolyte and water excretion in urine in, 3504*g*.
adaptation to, respiratory respons during and after, 7117*h*
adrenal and blood compn. in, 8032*i*
alc. and glucose in blood in, 2694*f*
$NH_3$ excretion in urine in, 3504*f*
app. for producing, and effect on digestibility, 5099*d*
artificial respiration in, 5122*d*
blood-sugar concn in, 3503*f*
blood-sugar response to anoxia during acclimatization to, 2691*g*
carbonic anhydrase in blood in, 547*e*
cholinesterase in blood in, 3504*d*
effect of $CO_2$ on tolerance to, 5431*g*
effect of prolonged exposure to O rich, 8541*h*.
effect of vitamins $B_1$, $B_6$, C, P and K on resistance to, 1096*h*
effect on chick hatching, 9313*e*
effect on kidney functions, 7111*d*
elec. conductivity of blood and blood plasma in, 3504*f*
elec. conductivity of blood and plasma in, and its relation to erythrocyte no. and vol., 3504*b*
electron showers in, 4093*i*
fat metabolism in, 2911*c*.
fibrinogen in blood plasma in, 5604*b*
glucose tolerance in, 3504*a*
mesotron mass measurements in, app. for, 4092*i*.
mesotrons of low energy in, 1092*i*
O in hatching of chicken and turkey eggs in, 8482*a*
proteins in blood in, 3504*c*.
prothrombin in blood in, 3504*b*
renal function in, 1475*f*
sampling of, 8215*c*.
temp. of, 2477*f*.
humidity of—see *Humidity*.
ice-crystal formation in, 6089*b*.
influenza in relation to, 9233*g*
ionization equil. in, 2505*a*, 4128*e*
methane in, 4139*f*.
millimeter-wave absorption by, 4576*a*
of mines—see *Mines*.
nitrogen fixation from—see *Nitrogen fixation*.
nitrogen ions in, spectrum of, 2510*b*
nitrous oxide in, 493*f*.
oxygen in, spectrum of, 939*g*
ozone in, 8220*e*.
at Delhi, 3670*h*.
effect of cyclones on, 5302*h*
over Organ Mts., New Mexico, 5239*d*.
of planets—see *Planets*.
smoke in—see *Smoke*.
sodium chloride in dust of, of Venus 5239*c*.
sodium in, 8877*e*.
of soils—see *Soils*.
stellar—see *Stars*.
of sun—see *Sun*.
thermodynamic state of, 7281*a*
upper, collisions of 2nd kind in, 4092*h*.
exploration during lunar eclipses, 1651*e*, 4133*h*.
ionization chamber bursts in, 4095*f*
Na in, 5302*d*.
state of gases in, 8882*d*.
stratosphere compn. at 70 km 8761*f*.

**Atomic age**, books: 8898*b*; Early Tales of, 500*a*; Atomzeitalter, 6517*c*.
police force of, 8201*b*.
**Atomic bombs**, books: Gravitation and, 947*g*; Dai miti alla bomba atomica, 4582*c*; La bombe atomique, l'énergie atomique, 5314*d*; à la médecine, 9125*h*.
radiation from—see under *Radiation*.
**Atomic energy**. See *Energy*.
**Atomic Energy Commission**, teacher co operation with, 1619*b*.
**Atomic function**, of gases, 8774*f*
**Atomic heat**. See *Heat capacity*.
**Atomic nuclei**. (See also *Alpha-rays, Deuterons; Neutrons; Particles; Pro tons*; etc.)
alpha particle-binding energy of, 3702*i*, 8863*i*.
alpha ray-bombarded Al, Be and Mg, cross sections for neutron emission from, 8265*e*.
alpha-ray-bombarded A, 4118*d*.
alpha-ray-bombarded A and B, proton emission from, 6909*i*.
alpha-ray-bombarded B, cross section for neutron emission from, 8265*d*.
alpha ray-bombarded Br, Rb isotopes from, 4122*e*.
alpha ray-bombarded Cd, $Sn^{119}$ from, 8267*c*.
alpha ray bombarded, detn. of yield of neutrons from, by Szilard-Chalmers effect, 6910*e*.
alpha ray bombarded Ge and deuteron bombarded Se, 936*d*.
alpha ray bombarded Au, 4564*c*.
alpha ray-bombarded In, 8867*i*.
alpha ray-bombarded Mg, 1646*h*
alpha ray bombarded, mesotrons from, 6076*h*
alpha ray bombarded Sc, Kr from, 936*i*
alpha ray bombarded Th, 4127*i*
alpha ray-bombarded Th, fission products from, 4127*a*.
alpha ray-bombarded U, 188*i*
alpha ray bombarded U, Pt group radio isotopes from, 4123*c*.
alpha ray bombarded Zn, deuteron bombarded Ga and neutron-bombarded Ge, 936*b*
beta decay of, 5288*d*.
beta ray simultaneous emission from, 3280*c*.
beta ray bombarded Al, 8262*b*
binding energy of—see "binding" under *Energy*.
bombardment of Al, with α-rays and deuterons, 1093*i*
bombardment of Bi, with α rays and deuterons, 4123*c*.
bombardment of Br and Se, by α rays, deuterons and protons, 485*i*.
bombardment of Er, Ho and Ta, Tm isotopes from, 5297*a*.
bombardment of Gd, with deuterons, neutrons and protons, 4949*h*.
bombardment of Au, Ir and Pt, with α rays, deuterons and neutrons, 4125*a*.
bombardment of Lu, with deuterons and protons, 4124*a*
bombardment of Mo, with deuterons and protons, 1647*i*, 2089*c*.
bombardment of Th, with deuterons and He ions, Pa series from, 37*b*.
bombardment of Ti, with deuterons and protons, 6507*f*.
bombardment with particles, 4099*g*.
books: Early Tales of the Atomic Age, 500*d*, Elektron- og atomfysik, 947*f*, La frantumazione dell'atome, 947*h*, Nuclear Physics, 948*a*; First Princi ples of At. Physics, 9488; Tables de constantes et données numériques. I–2. Constantes [illegible]
[illegible] y r [illegible], 1661*c*; Energiegewinnung aus Atomkernen., 1661*c*; Atomspaltung, 2097*a*; Introduction to Atomic Physics., 2097*b*; Nuclear Forces, 2097*b*; Kernphysics, 2517*c*; Tavole di fisica nucleare, 2870*e*; Vorlesungen über Kernphysik, 3296*d*, Lehrbuch der technischen Kernphysik, 3296*e*, Physique nucléaire, 4146*b*; Warum Atomzertrümmerung? 4146*c*, Die statistische Theorie des Atoms und ihre Anwendungen, 4958*h*; Foundations of Nuclear Physics, 4958*i*; Kernphysik und Medizin, 5314*f*; Der Schulüssel zum Aufbau der Materie, 5059*a*; Die Kettenreaktion des Urans, 6922*f*, introduction à la physique nucléaire., 7830*h*; Die Physik der, 7830*i*; Isotopic Tracers and Nuclear Radiations, 8898*c*.
charge, relation to at. no. and heat of combustion, 8844*h*.
chemistry of, lab. exercises in, 4909*h*, 8261*a*.
chemistry of, use of double photographic emulsion in, 8263*f*.
collision-cross-section measurements for, calcn. of interaction potentials from, 1640*e*.
collisions of, variational methods problems of, 1639*i*.
collisions with positrons, 7326*a*.
constitution of, 3701*d*.
constitution of, periodic arrangement of the elements based on, 3701*i*.
cosmic-ray bombarded, 488*a*, 4091*dh*, 7812*b*, 6504*b*
cosmic ray-bombarded, neutrons from, 4104*e*.
decay of, and its measurement, 1258*i*
deuteron-bombarded Al, α-rays and protons from, 4117*i*.
deuteron-bombarded Al and O, angular distribution of protons from, 8861*h*
deuteron-bombarded Al and Si, protons from, 8265*h*.
deuteron-bombarded Al, Mg and Si, 3284*e*.
deuteron-bombarded, angular distribu tion of neutrons from, 8866*d*
γ-rays from, 4113*a*.
Mn from, 8266*h*.
transmutations of, 1640*i*
deuteron-bombarded A, 4948*a*.
deuteron-bombarded A and Ca, 6507*b*
deuteron bombarded Be, 4093*fg*, 4561*i*.
deuteron-bombarded $Be^9$ and $Li^6$, 2088*g*.
deuteron-bombarded Be, γ rays from, 4117*i*, 8876*ab*.
deuteron-bombarded Bi, 7813*e*
deuteron-bombarded Bi and Pb, 8855*c*.
deuteron bombarded $B^{11}$, 1260*b*
deuteron-bombarded C, 4093*h*, 4947*i*, 5294*cd*, 8869*i*
deuteron bombarded C and Cu, neutrons from, 8866*h*
deuteron-bombarded D, 4093*g*, 4112*i*, 8264*c*.
energy of $He^3$ from, 935*h*.
neutron H mass difference from, 7328*i*.
neutrons from, 4113.
deuteron-bombarded $He^4$, protons from, 8865*g*
deuteron-bombarded Li, 8869*e*
deuteron-bombarded Li, neutrons from, 4114*h*.
deuteron-bombarded Mg, 4562*h*, 6506*g*.
deuteron-bombarded Mg, protons from, 4117*g*.
deuteron-bombarded N, 3707*d*, 6910*e*, 8866*e*.
deuteron bombarded P, 4118*d*.
deuteron bombarded Na, 8853*g*.
deuteron-bombarded S, 4095*b*
deuteron-bombarded S, protons from, 4118*h*.
deuteron bombardment of, app for, 7326*i*.
dipole vibrations in, 1645*h*.
disintegration of—see also *Radioactivity; Radioelements*.
disintegration of, 2083*h*, 4096*i*, 4554*g*.
by α-particle of cosmic rays, 8848*i*
app for—for this year see *Betatrons; Cyclotrons; Electric generators*; etc
effect of elec. field on, 2861*e*.
as energy source, 5277*c*, 6914*h*.
photomicrography of tracks from, 7328*a*
technique for observation of, 934*g*
waste products from, and their dis posal, 8079*e*
disintegration of Be, electro and photo, 8265*a*.
disintegration of heavy, 6914*e*.
disintegration of U, $Sb^{127}$ and $Te^{127}$ from, 3708*c*.
chem. sepn. of products of, 4127*f*
complementary series and conjugate fragments in, 1647*g*.
discovery of, 8269*c*.
energy loss by products of, 6012*i*
Kr from, 8267*c*.
neutrons from, 937*g*.
disintegration products of, Cb, Y and Zr in, 7813*a*.
effect on nervous system, 5434*d*.
metabolic properties of, 3497*i*.
distances between—see "distances between atoms in" under *Molecules*.
elec. charge transfer to, by neg. μ mesotron, 7325*g*.
electromagnetic interaction between neg. μ-mesons and, 7320*b*.
electron-bombarded, mesotrons from, 5293*c*.
electron bombardment of, 4120*i*.
electron scattering cross sections for, 4098*e*.
energy from—see *Energy*.
energy levels of—see "levels of" under *Energy*.
engineering, education for, 6908*c*, 7319*c*.
exchange currents in, 5278*d*.
forces, meson mass and range of, 8844*g*.
meson theory of, 4554*i*, 4941*b*, 7320*g*.
range of, 4091*h*, 4097*g*.
Schwinger's theory of, 4940*h*.
vector and pseudovector theories of, 4940*h*.
gamma-ray-bombarded, 936*e*, 4116*a*.
gamma-ray-bombarded Be, 4090*i*, 4093*g*, 4117*e*.
gamma-ray bombarded Be and D, energy of neutrons from, 6506*c*.
gamma ray-bombarded Be neutrons from, 7811*f*.
gamma-ray-bombarded C, 484*h*.
gamma ray-bombarded D, 4561*f*, 8855*g*
angular distribution of neutrons from, 8264*f*, 8861*g*.
angular distribution of protons in disintegration of, 4561*c*, 6909*g*.
disintegration of, 8862*b*.
neutron-proton scattering and dis integration of, 8862*a*.
neutrons and protons from, 935*i*.
gamma-ray-bombarded, thresholds for nuclear reactions of, 4115*d*.
gamma-ray-bombarded Sn, In from, 8267*h*.
gamma-ray bombarded U, ternary fission of, 8269*d*.
gamma-ray bombardment of, neutron yield of, 1260*e*.
gamma ray bombardment of, threshold for neutron emission in, 8864*d*.
history of at. developments and theories of, 4553*f*.
induction in, structure of catalysts and, 8831*i*.
interaction of heavy, with neutrons, 1255*f*.
interaction of, with mesotrons, 4090*g*.
with mesotrons, cloud-chamber evi dence of, 4104*b*
with neutrons, 7809*e*.
isomeric, of short life, 937*b*.
isomeric, sepn of, 7814*h*.
isomerism of, 3280*h*, 5659*d*
of $Hf^{181}$ and $Ta^{181}$, 4950*a*.
of In, 4121*f*.
isomerism, shell structure and spi of, 4129*d*.
isomers of Br, sepn. of, 7332*d*.
isotopic no. and, 4107*g*.
liquid, energy d. and, 3702*g*.
magnetic moment of—see *Magnetic moment*.
magnetic resonance absorption in, mol. structure and, 1653*d*.
mesotron-bombarded, 2861*f*, 4095*g*.
mesotron-bombarded, electrons from, 6504*g*.
mesotron capture by, 6909*f*
mesotron capture by, life of π-mesotron and, 7320*g*.
metastable states of, measurement of half-lives of, 6914*d*.
metastable states of, measurement of lifetimes of short-lived, 4559*g*.
migration of radioactive, in photographic emulsion, 4092*c*.
models of, 31*d*, 5663*b*, 6072*g*.
neutron-bombarded Al and Be, 4946*i*.
neutron-bombarded As, 4120*a*.
neutron bombarded Ba, 4120*f*.
neutron-bombarded Be, 7812*e*.
neutron-bombarded, bi- and tripartition of heavy, 6077*c*.
cross sections for absorption by, 7813*e*.
deuterons from, 8862*c*.
excitation functions of nuclear reactions of, 4117*h*.
nuclear reactions of, 4554*g*, 4559*f*.
in quant. analysis for minor constituents, 6537*h*.
relative cross sections for, 4114*e*.
neutron-bombarded B, 3283*gh*.
neutron-bombarded B and Li, 4095*c*.
neutron-bombarded Br, 4123*c*, 5295*f*.
neutron-bombarded C, 4947*e*, 8265*f*.

neutron-bombarded Cd, γ-rays from, 6910*i*.
neutron-bombarded Ce, 3707*i*.
neutron-bombarded Cl and Zn, 8266*b*.
neutron-bombarded D, 3283*a*.
neutron-bombarded Er, 4096*d*.
neutron-bombarded Eu, 5296*h*.
neutron-bombarded $He^3$ and $N^{14}$, 5293*g*
neutron bombarded $He^3$ and N, ionization produced in, 8865*f*.
neutron-bombarded H, γ-rays from, 1259*h*.
neutron-bombarded Li, 4113*i*.
neutron-bombarded Ni, 4119*i*.
neutron-bombarded N, 2088*h*.
neutron-bombarded Os and Re, 487*d*.
neutron-bombarded Pt, radiations from, 37*a*.
neutron-bombarded rare earth, 6911*b*.
neutron-bombarded Sc, 3285*b*.
neutron-bombarded Ta, 4090*i*.
neutron-bombarded Te, 8268*a*.
neutron-bombarded Th and U, thresholds for fission of, 4127*e*.
neutron-bombarded U, 3286*i*, 6076*c*, 8896*f*.
coincidences between neutrons from, 2089*h*.
distribution in mass and charge of fission products of, 8868*f*.
penetration of various materials by fission products of, 8270*i*.
range of fission fragments from, 4128*a*.
neutron-bombarded Yb, 4948*e*.
neutron-bombarded Zn, 2089*b*.
neutron capture by, 5287*c*.
neutron fission cross sections for, 4127*d*.
neutron resonance levels in, estn. of spacing of, 4123*b*.
neutron scattering by, 5285*e*.
in petroleum-industry techniques, 1171*i*
photographic-development method for emulsions used in research on, 483*h*, 4560*h*.
photographic emulsions for research on, effect of pH in treatment of, 7841*a*.
photographic emulsions in research on, 3281*e*
photographic emulsions in research on, regression of latent image in, 4092*c*
physics of, 38*g*.
app. and exptl. methods in, 3701*e*
applications of, 3701*f*.
low temps. and, 4108*g*.
photographic plates for study of, 35*c*, 4966*h*.
quantities and energy units in, 8812*h*.
standardization of photographic plaque used in, 7326*a*
study with electrostatic generator, 8850*c*.
polarization of, 4100*c*.
polarized, absorption and scattering of polarized neutrons by, 4100*d*.
proton-bombarded Al, F and Li, 3283*d*.
proton-bombarded Al, F and Na, α rays from, 3284*g*.
proton-bombarded A and Ne, thresholds for reactions of, 4116*i*.
proton-bombarded A, γ-rays from, 2506*c*.
proton-bombarded Be, 4093*c*, 5294*b*
proton-bombarded Be and Li, energy released from, 8864*b*.
proton-bombarded B, 3284*b*.
proton-bombarded $B^{10}$ and $N^{14}$, 3284*d*.
proton-bombarded Cd, sepn. of In from, 4949*c*.
proton-bombarded C, 1646*g*, 4114*i*, 6910*c*.
proton-bombarded Cu, mesotrons from, 4112*b*.
proton-bombarded D, 3282*i*.
proton-bombarded F, 4091*a*.
γ-rays from, 1260*a*.
Ne and γ-rays from, 36*b*.
proton-bombarded F and α-rays from, 7329*d*.
proton-bombarded, γ-rays from, 1115*b*, 8860*g*.
proton-bombarded Li, 4093*h*, 4947*c*, 8865*h*.
angular distribution of α-rays from, 8863*g*.
neutrons from, 4114*d*.
proton-bombarded Mo, 2507*c*.
proton-bombarded O, 7329*c*.
proton-bombarded $T^2$, 5293*e*.
proton-bombarded T, neutron H mass difference from, 8264*h*.
proton scattering by light, 4095*c*
radioactivity and constituents of, 1644*c*.
reaction of C, in the sun, 4093*c*.
reactions (chain) of, criticality studies of reactor contg. $D_2O$ and U for, 4091*c*.
reactions (chain) of, detn. of neutron absorption cross sections with oscillating absorber in pile for, 488*e*.
illustrations of, 2501*h*.
nuclear reactor at Brookhaven for, 3280*i*.
operation of Harwell piles for, 4096*i*.
pile for, 2855*i*.
pile for, kinetic equations for, 6908*d*.
pile for, measurement of abs. dosage from, 6077*e*.
theory of oscillating absorber in pile for, 488*c*.
reactions of, 5278*c*.
angular distribution of products of, 933*e*.
chem. reactions taking place during, 7332*h*.
excitation functions of, 4560*e*.
mechanism of fading of latent image in study of, 4109*h*.
mechanism of high-energy, in ultra radiation, 4560*f*.
method of effacing the latent image in study of, 4109*g*.
sticking probability of fast neutrons in, 8261*h*.
reactions of, and British pile for chain reactions, 8261*c*.
recoil of, in β-decay, neutrino and, 4559*i*.
research on, with betatron, 8850*b*
pulse analyzer for, 6076*e*.
techniques in, 3701*f*.
review on, and their constituents, 1639*e*.
scattering of fast particles by, 2501*h*.
scattering of relativistic electrons by, 1642*c*.
shell models of, 4094*c*, 8859*g*.
shells (closed) in, 8859*g*
shell structure of, 7321*d*.
spin of, β-decay and, 4098*g*.
of $B^{10}$ and $B^{11}$, 491*f*, 8869*f*
of $Cs^{137}$, 8879*g*
of $Cl^{36}$, 8870*bd*.
of Ge and Si, 8871*a*.
interaction of, in crvst. lattice, 827*3c*.
of $I^{129}$, 8879*d*
of $Fe^{57}$, 8879*h*.
of mass no. 10, 491*i*,
of $Na^{22}$, 491*h*.
of $S^{35}$, 8869*g*.
spin orbit coupling in, meson exchange and, 7336*b*.
spins and shells in, 6905*c*.
splinters of, from cosmic-ray bombardment on Jungfraujoch, 7811*b*.
stability of, 1258*g*.
stability of, effect on formation of elements by neutron capture, 5277*h*.
structure of, dissocn. energy for α rays and, 4125*h*.
"magic nos." in, 6501*d*
$(\gamma, n)$ nuclear cross sections and, 7326*d*.
nuclear quadrupole moment and, 8261*i*
periodicity of, 31*d*.
systematics of, 5288*b*.
theory of, 3709*c*.
thermonuclear reactions in expanding universe, 479*h*.
transmutations of, with α-rays in 184 in. cyclotron, 4092*c*.
with deuterons in 184 in. cyclotron, 4092*c*.
high-voltage equipment in lab. for, 4561*a*.
phys. chem. effects in, 1639*f*.
triton-bombarded D, 4946*g*.
x-ray-bombarded Cd, 5295*h*.
x-ray-bombarded, isomeric transitions in, 36*c*.

**Atomic number**, complex formation and, 8939*i*.
effective nuclear charge, heat of combustion and, 8844*h*.
electronic configuration detn. from, 2478*d*.
electron scattering cross section as function of, 8269*h*.
functions of, detn. of, 7815*e*.
history of, 7762*a*.
mean momentum and, 3703*e*.

**Atomic power.** See *Power*.

**Atomic refraction.** See *Refraction*.

**Atomic structure.** See *Atomic nuclei; Atoms*.

**Atomic theory.** See *Atoms*.

**Atomic volumes**, in periodic system, 3671*c*.

**Atomic weights.** (See also *Mass defects; Mass number; Periodic systems*, and the individual elements, as *Gold*.)
k's periodic
calcn. of, 31*f*.
detn. by chem. means, 2051*b*.
detn. by mass spectroscope, 2051*b*.
of elements between Ag and I, discrepancies between physically and chemical detd., 5239*h*.
report of committee on, 2478*c*, 5239*g*

**Atomistics**, book: L'atomistica, 3726*d*.

**Atomization**, of bearing metals, P 3341*d*.
of fuels (liquid) for combustion, 4443*g*

**Atomizers**, for antibiotics, 8538*e*.
for industrial aerosols, 9207*d*.

**Atoms.** (See also *Elements*.)
annihilation hypothesis, 3701*e*.
beam of, measurement of d. and velocity in, 8765*e*.
beams of, chem. studies by, 2478*d*.
binding of, in org. chemistry, 7895*h*
books: 948*b*; Beyond the, 947*g*, Electrons, Metals and Alloys, 948*a*, Protons and Rays, 2517*c*; Historie de 4090*e*; in Action, 4146*b*; Die statistische Theorie des, und ihre Anwendungen, 4958*h*; Einführung in die Atomphysik, 5314*d*; El universo y el átomo, 5314*e*; The World and the 6517*d*; Les atomes, 6922*h*, De Bouder, 7318*i*; Atomic Medicine, 8417*f*
building-up of, 7809*a*.
collisions of 2nd kind of, in upper atm 4092*h*.
covalent and packing radii of, relation between, 9*h*.
displacement from diatomic mol., 8810*e*
distances between—see also "distances between atoms in" under *Molecules*
distances between, in crystd. gase 3671*e*.
distribution function of, in liquid argon 8810*g*.
distribution of, in liquid Hg, 3288*h*
electron excitation cross sections for, 3290*d*.
in electron microscopy, 481*eg*.
electron-, ratios in alloy phases, 6880
energy from—see *Energy*.
energy levels of—see "levels of" under *Energy*.
excited, in dissocn. of CO, 2830*i*
forces—see also *Forces;* and forces under *Atomic nuclei* and *Molecules*
forces between, in liquids and solids 7767*g*.
free valance of, 6877*a*.
Greek theories of, 8761*d*
history of, 4057*g*, 8759*h*.
hydrogen-like, interaction with radiation field, quantum electrodynamics and, 5659*i*.
interaction in solids, fine structure factor in, 4916*a*.
interaction with particles, 4559*b*
linear at. chain and metallic state, 1622
in liquids, secondary maximum on radial distribution curves of, 154*f*.
magnetic moment of—see *Magnetic moment*.
model of, composite non-Keplerean or in deriving, 4089*i*.
model of, wave-mech. derivation of statistical, 5277*e*
in mols., mutual influence of, 8220*g*
nuclei of—see *Atomic nuclei*
photography in study of, 8922*c*.
polarity of, 4059*d*.
radii of bonded, 3252*b*.
radii of, of C, 2478*e*.
radii of, temp. stability of intermetal compds. and, 1300*h*.
reactions of, in soln., 2086*f*, 3307*e*, 3775*c*, 4636*f*, 4637*a*, 9023*i*
recombination of, 8819*h*.
in flames, heat transfer by, 7805*e*
on solids, 1635*d*.
size of, in metallic crystals, 8783*f*.
spectra of—see *Spectra*, and the individual elements.
structure of, calcn. of, 4559*i*.
education in, 451*c*.
thermochemistry and, 2827*f*, 2828*c*.
Thomas-Fermi theory of, 8814*c*.

**Atonin.** See *Pituitrin*.

**Atophan.** See *Cinchophen*.

**Atophanyl**, effect on metabolism, 5115*f*

**Atoxyl** (*monosodium arsanilate*), arsenic detn in, 4425*e*.

**Atranorin**, in lichens, 5077*c*.

**Atriplex**, selenium in, 3890*f*.

**Atropa.** See *Belladonna*.

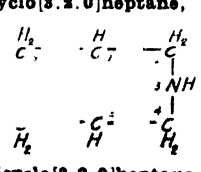
**Atropaldehyde** (*α-phenylacrylaldehyde*), ——, β-anilino-, dimethyl acetal, P 6225*d*

**Atrophy.** (*For the atrophy of specific organs or tissues see such headings as Liver and Muscles.*)
proteins in blood of children with, 8050*h*

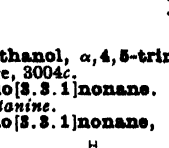
**tropine.** (See also *Belladonna.*)
absorption and distribution of, 4767*e*.
acetylcholine antagonism to, 5115*a*.
acetylcholine antagonism to, in action on sphincter muscle of iris, 4381*b*.
acetylcholine vasomotor properties and, 7133*i*.
amino acic. esters having properties of, P 3444*b*.
antianaphylactic action of amino acids and, 308*h*, 309*a*.
basic esters having therapeutic properties of, P 7958*c*.
derivs., with curarelike action, 3929*b*.
detection in foods, 9273*h*.
detection of, 713*c*.
detn of, 3246*b*, 6542*e*, 8094*h*.
in forensic analyses, 2125*g*.
in solanaceous drugs and prepns., 1908*d*.
diffusion through cornea, effect of pH on, 704*b*.
effect on adrenaline action, 4770*i*.
on blood vessels, 2704*g*.
on brain function and metabolism, 7147*g*.
on circulatory changes and pulmonary lesions after increased intracranial pressure, 8063*i*.
on constrictor action of nerves, 8538*f*.
on convulsant action of strychnine, 314*f*.
on denervated and normal effectors, 5872*c*.
on diuresis, 310*cd*, 7128*i*.
on fast and slow muscles, 5872*h*.
on food ingestion and water drinking, 6744*d*.
on heart, 1489*e*.
on heart auricle, 4385*e*.
on heart frequency during O breathing, 9201*a*.
on heart response to elec. stimulation, 7118*d*.
on histamine and pepsin fixation by gastric mucus in ulcers, 4385*g*.
on histamine in blood, 9248*f*.
on intestinal contractions from cardiac glycosides, 5872*f*.
on intestinal spasms, 3934*f*.
on luteinizing hormone release from pituitary by estrogen and on its action, 8490*gi*.
on osmotic pressure of aq. humor, 4775*a*.
on ovulation in rabbit, 7579*c*.
on pancreatic secretion, 9209*e*.
on penicillin activity, 4772*d*.
on pulmonary circulation, 9248*b*.
on smooth muscle of elasmobranch and teleost, 4763*d*
on stomach muscle, 4771*b*.
on sweating, 2323*d*.
on sweat secretion in cats, 5496*d*.
on thyroxine-treated intestine reaction to choline, 7578*h*.
on water ingestion and excretion, 4754*a*.
enzymic hydrolysis of, 702*c*.
fluorescence of, 5341*a*.
interaction with other autonomic drugs on intestines, 3097*i*.
methonitrate—see *Eumydrine.*
nitrate, permeability of skin to, 2699*f*.
parasympathetic activity of, compared with trasentin and trasentin-H, 4381*a*.
in peptone shock treatment, 4382*g*.
propylamyl ester of *N*, *N*-diethyl-β-alanine with action of, P 8399*a*.
and related compds., review on, 2324*f*.
sulfate, alc. detn. in infusion of, 9370*i*.
anticholinergic activity of, 8557*b*.
detn of, 4810*f*.
effect on alkaloid formation in *Datura stramonium*, 8597*f*.
effect on body temp. before and after adrenalectomy, 1868*i*.
folic acid prepn. contg., 355*h*.
identification of, 5535*h*.
tablets contg. Al salts of amino acids and, P 8620*b*.
**topisomerism** See *Isomerism.*
**toxicine.** See *Scopolamine.*
**tragenus,** *pucus*—see *Carpet beetles.*
**trapulgite,** nitrogen adsorption by, 2840*b*.
**tar of rose.** See "rose" under *Oils.*
**tractants.** See *Baits.*
**traction.** See *Affinity; Energy; Forces; Interfacial tension; Molecules;* etc.
**trobepine** See *Anisaldehyde.*
**trocuba japonica,** chlorophyll in, 3890*g*.
**trogelite,** from Uganda (Mbale mine), 8985*c*.
**trogger effect,** in photography of electrons, 52*d*.

**Augite.** (See also *Pyroxenes.*)
aegirite, formation from sideritic rocks by Na metasomatosis, 6130*b*.
aegirite, in nepheline syenite of Bou Agrao, Morocco, 6127*d*.
andesite from Oristano, Sardinia, 7874*b*.
and augite-hornblende trachyandesites of Iwo Jima, 75*h*.
ferroan, subcalcic, from Mt. Arthur, East Griqualand, 5346*i*.
in sands of Ticino River, Italy, 2130*f*.
titanium-contg., of sands of rivers of West Ethiopia, 2129*f*.
**Augitites,** of Italy (Mt. Berici), 2135*h*.
**Auralgan,** bacteriotoxic effect of, 5534*a*.
**Auramine** (*apyonin, yellow pyoctanin*), disazo dye from, P 7697*a*.
and derivs., P 9465*f*.
lakes with tannins for inks, P 4494*d*.
nitration of, 2982*a*.
in peach-X-disease control, 9347*g*.
waxing of powd., P 1884*b*.
**Auranetin,** constitution of, 3822*i*.
**Aurantia.** See *Diphenylamine, 2,2',4,4',6,6'-hexanitro-.*
**Aurantiaceae.** See *Rutaceae.*
**Aurantium.** See *Oranges.*
**Aureogenus magnivena.** See "clover big vein" under *Virus.*
**Aureomycin,** 3881*b*.
antibiotic action of, 274*e*.
in arthritis treatment, 9220*c*.
assay of, 9371*g*.
in *Brucella* infection in chick embryo, 7589*b*.
comparison with other antibiotics, 8004*i*.
detn. in blood, 6271*b*.
detn. in body fluids, 4719*g*.
effect on *Bacterium tularense* infections, 8551*d*.
effect on *Nocradia asteroides*, 9230*i*.
in pneumonia treatment, 9259*d*.
production and use of, 6368*i*.
reviews on, 3884*c*, 5551*g*, 8550*d*, 9385*dh*.
synergism with sulfonamides and other antibiotics, 4333*c*.
in therapy, 4766*h*.
**Aurin** (*4-(p,p'-dihydroxybenzhydrylidene)-2,5-cyclohexadien-1-one*). (For derivs. see under *2,5-cyclohexadien-1-one.*)
and derivs., 5772*b*.
and methoxy derivs., indicator properties of, 5771*e*.
and methoxy derivs., spectra and structure of, 9451*c*.
**Aurintricarboxylic acid*,** ammonium salt, reaction with Al and analytical use of, 2117*b*.
**Auroglaucin*,** 4-(1,3,5-heptatrienyl)-2,5-dihydroxy-3-methylseneciophenone as structure of, 7913*a*.
**Aurora.** (See also *Corona.*)
atomic theory in research on, 4133*e*.
excitation mechanism of red, 3289*f*.
helium and H in, 3289*h*.
nitrogen and O in, spectra of, 4567*e*.
spectrum of, 1651*c*.
spectrum of, nature of exciting solar particles and, 6916*e*.
**Aurous chloride, etc.** See *Gold chlorides;* etc.
**Austempering,** salt bath for, 7892*c*.
**Austenite.** (See also *Iron; Steel.*)
in bent steel, 8331*a*.
carbon diffusion in, 86*c*.
carbon diffusion in unalloyed, 3334*c*.
carbon in, activity, etc., of, 7314*h*.
decompn. of, app. for measurement of, 537*i*.
effect of ingot variations on kinetics of, 538*b*.
steel hardness and, 3761*e*.
detn. in C steels, 8331*e*.
diffusion of B and C in, 6938*a*.
formation in eutectic steel during induction heating, 85*e*.
grain size of, detn. in steel, 4992*h*.
growth of, 2553*g*.
identification of, by color metallography, 80*a*.
in iron-Mn and Fe-Mn-Ni alloys, 8338*f*.
lattice spacing of, retained in Fe-C alloys, 4205*g*.
properties of metastable, of Cr-Mo cast steel, 8333*d*.
retained, 984*b*.
stability of, effect of B, V and Ti on, 532*c*.
transformation of, acceleration of isothermal, 4992*f*.
in alloy steels, 4992*i*.
in Cr steel, 7883*b*.
to ferrite, free energy of, 9008*d*.
isothermal, 85*e*.
*transformation of,* to martensite, atomic displacements in, 918*g*.
to martensite during quenching, 3759*c*.
to martensite, effect of low temps. on, 87*b*.
to martensite, kinetics of, 86*e*, 9008*b*.
to martensite, stabilization of, 87*e*.
rate of growth of ferrite in isothermal, 86*a*.
in steel, detn. of, 8328*a*.
**Australorbis glabratus.** See *Snails.*
**Autacoids.** See *Hormones.*
**Autocatalysis.** See *Catalysis.*
**Autoclaves,** agitation in shaking, 913*b*, 8753*f*.
glass micro-, 6470*e*.
horizontal, P 2477*b*.
for liquids, P 7273*f*.
rotating, P 6014*d*.
for rubber vulcanization and polymerization, 2458*d*.
small, 8217*f*.
stirring app. for, P 5236*g*.
temp. indicators for, 4056*e*.
**Autographa brassicae.** See *Trichoplusia ni.*
**Autolysis,** in liver—see *Liver.*
by microörganism, 8431*c*.
streptomycin in organs in relation to, 9144*i*.
of tissues, metabolic activity during, 2260*f*.
**Autometer,** for air analysis, P 3249*g*.
**Automobile polish.** See *Polishing materials.*
**Automobiles,** aluminum *vs.* steel in, 88*f*.
electroplating on parts of—see *Electroplating;* and the specific metals electroplated.
engines for—see *Engines.*
octane no. and French industry of, 8654*h*.
painting, with synthetic finishes, 8695*e*.
plastics for—see *Plastic materials.*
powder metallurgy in industry for, 3756*a*.
radiators for—see *Radiators.*
refinishing, with synthetic enamel coatings, 875*c*.
steel (alloy) in industry of, 89*i*.
steel for—see *Steel.*
windows of—see *Windshields.*
**Autosensitization.** See *Anaphylaxis.*
**Autoxidation.** See *Oxidation.*
**Autunite,** fluorescence spectra and U content of, 2119*f*.
in granite pegmatite dikes near Mt. Legnoncino, Italy, 4610*a*.
of Italy (Lurisia), 2129*c*.
as uranium source, 8270*b*.
**Auxins.** (See also *Growth substances; 3-Indoleacetic acid; Naphthaleneacetic acid; Rhizocalin; Roots.*)
activation by respiration, 5089*d*.
in *Avena* coleoptile, chem. nature and formation of, 3071*b*.
effect on cress root, 5893*a*.
on flower initiation, 5456*b*.
on morphogenesis of potato sprouts, 8456*b*.
on photoperiodic induction in *Xanthium*, 6705*b*.
on plant growth, light effect on, 4349*e*.
formation of, in pineapple, 7096*d*.
in plant tissues, 2288*f*.
during shoot growth of *Ginkgo biloba*, 5093*c*.
growth inhibition by nicotinic acid and, 4732*f*.
in leaves and roots of corn in chlorosis, 8012*c*.
pine-bark peelability and, 2007*c*.
potato rest-period and, 8460*a*.
review on, 4350*a*.
in soils, effect of org. fertilizers on, 3958*e*.
in sugar-cane stems after hot water treatment, 725*h*.
test for, 7553*a*.
in tillering control in grasses, 7555*f*.
of tomato stem tips, 4733*c*.
**Auxochromes,** effect of 2 and 3, on colors of pyridine analogs of di- and triphenylmethane dyes and leucobases, 410*c*.
**Auxones.** See *Auxins; Bios; Biotin; Growth substances; 3-Indoleacetic acid; Vitamins.*
**Avena.** See *Grasses; Oats.*
**Avenex.** See *Oat flour.*
**Averaging.** See *Mathematics.*
**Avertin** (*2,2,2-tribromoethanol*), analeptic action of metrazole, picrotoxin and samandarine on, 3519*i*.
hepatectomy effect on action of, 7590*i*.
**Aviation.** (See also *Aircraft.*)
journal: Revista de sanidad de aeronáutica, 2262*a*.

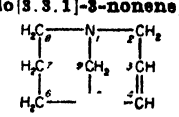
nutrition in, 1096*h*.
respiration studies for—see *Respiration, animal*.
**Avidity**, of antitoxins—see *Antitoxins*.
**Avigel 100**, in metal protection, 8734*g*.
**Avitaminosis** or **Hypovitaminosis**. (See also *Diet; Hypervitaminosis*.)
embryonic development in, 5467*b*.
from feedstuffs (natural), 9192*f*.
glossitis from, 6295*c*.
in hyperthyroidism, 9217*g*.
malaria in, 1087*g*.
metabolism of cardiac muscles in, 292*i*.
neurology and, 1842*h*.
neuromuscular excitability disturbances in, 1092*e*.
skin disturbances in, 291*h*.
thyroxine effect in, 7561*c*.
**A**. (See also *Xerophthalmia*.)
bedbug development on rabbits in, 4739*h*.
effect on thyroid function studied with radioactive I, 7560*h*.
neurologic manifestations of, in young ducks, 9195*g*.
oil of crabs in treatment of, 1087*c*.
pediculosis in, 9188*h*.
in pigeons, 2681*b*.
pituitary gland and testicles in, and effect of androgens thereon, 3896*d*.
skin diseases and, 3897*a*.
sodium chloride in tears in, 9214*d*.
symptoms of, 3079*d*.
temp. effect on symptoms of, 5098*h*.
after thymectomy, 1093*h*.
**B** or **B complex**, 1094*f*.
in calves fed synthetic milk ration, 1096*e*.
ear in, 8022*g*.
from furacin, 2322*c*.
intestinal absorption and, 8496*f*.
tryptophan metabolism in, 1470*a*.
**$B_1$**. (See also *Beriberi; Neuritis*.)
acetylation of *p*-aminobenzoic acid in, 5835*i*.
acetylation of sulfanilamide in, 5460*e*.
in alcoholism and its relation to polyneuritis, 8549*g*.
amino acid excretion during, 8470*e*.
congenital, 290*f*.
detn. of, 1841*i*.
growth and food and water consumption during, effect of exercise and fat content of diet on, 9184*b*.
lactic and pyruvic acids in blood after glucose administration and exercise in, 5832*g*.
metabolism of cardiac muscle in, 292*i*.
milk fat in, 9215*d*.
neuropathology of, 9192*a*.
nicotinic acid effect in, 9179*e*.
in normal rats and rats made diabetic with alloxan, 293*i*.
pediculosis in, 9188*h*.
protein conversion to glucose and serum phosphatase in phlorhizin diabetes during, 5484*b*.
thyroxine effect in, 7561*c*.
tryptophan metabolism in, 1470*a*.
urinary excretion of nicotinic acid and *N*$^1$-methylnicotinamide in, 293*f*.
**$B_2$**. (See also *Pellagra*.)
acetylation of *p*-aminobenzoic acid in, 5835*i*.
amino acid excretion during, 8470*e*.
bone structure and, 7101*a*.
in dairy calves fed photolyzed milk, 735*e*.
lymphosarcoma regression in, 5834*i*.
pediculosis in, 9188*h*.
pituitary gland in, 1848*c*.
protein conversion to glucose and serum phosphatase in phlorhizin diabetes during, 5484*b*.
thyroxine effect in, 7561*c*.
tryptophan metabolism in, 1470*a*.
urinary excretion of nicotinic acid and *N*$^1$-methylnicotinamide in, 293*f*.
**$B_6$**. (See also *Acrodynia; Pellagra*.)
amino acid excretion during, 8470*e*.
arteriosclerotic lesions in, 6297*a*.
corneal changes in, 5457*f*.
in hamster, 7558*a*.
iron absorption in, 6291*e*.
iron uptake in, and effect of inflammation thereon, 2695*g*.
lymphoid tissue in, 4362*e*.
nicotinic acid synthesis from tryptophan in liver slice in, 9088*h*.
pediculosis in, 9188*i*.
protein conversion to glucose and serum phosphatase in phlorhizin diabetes during, 5484*b*.
thyroxine effect in, 7561*c*.
tryptophan metabolism in, 1470*a*.
urinary excretion of nicotinic acid and *N*$^1$-methylnicotinamide in, 293*f*.
vitamin $B_6$ in blood in, 3074*g*.
xanthurenic acid excretion in urine in, 8464*d*.
**C**. (See also *Scurvy*.)
bleeding tendency in, 8539*i*.
hydroxyphenyl compds. in large intestine after consumption of tyrosine in, 3898*h*.
reticuloendothelial system in, 8469*c*.
from thyroxine, 9217*h*.
**D**. (See also *Rickets*.)
blackening of feathers of chicks in, 284*i*
feather pigmentation of chicks in, breed difference in, 8465*i*.
poliomyelitis virus action in, 9188*g*.
after thymectomy, 1093*h*.
thyroxine effect in, 7561*c*.
**E**, adenosinetriphosphatase and phosphatase activity of muscle homogenates during, 6713*a*.
of cod-liver oil-fed rabbits, 3079*a*.
diet producing, 3898*f*.
effect of dietary cystine, nordihydroguaiaretic acid and vitamin C on, 3902*f*
fluorescence of organs accumulating vitamin A in, 2296*i*.
growth, health, milk production and reproduction in cattle in, 8472*d*.
in herbivorous animals, 737*d*.
miscarriage in, 1851*e*.
muscular dystrophy of, creatine in liver in, 5836*c*.
reproduction capacity in, effect of fats on, 9190*e*.
thyroxine effect in, 7561*c*.
uterus in, estrogen response and pigmentation of, 4738*h*.
**K**, coagulation anomaly in dicoumarol poisoning and, 2681*d*.
dicoumarol action and effect of vitamin A excess in, 290*c*.
retinal hemorrhages in, in newborn, 1466*h*.
**Avocado oil**. See *Oils*.
**Avocados**, carotene and vitamin C in, 3536*a*.
fats of, detn. of, 9285*g*.
as feeding stuff for swine, 9292*i*.
oxygen supply in nutrient soln. and, 6702*b*.
*Phytophthora* root rot of, effect of O supply on, 7555*h*.
ripening of, $C_2H_4$ formation during, 283*f*.
stoma in, photosynthesis and, 283*i*.
**Avogadro's number**, 4058*i*.
calcu. from depolarization of light scattered by gases, 7282*a*.
detn. by x-rays, 8765*a*.
**Axerophthene**, biol. activity of, 6297*b*.
synthesis of, 4233*i*.
——, **desmethyl-***, 1729*i*.
biol. activity of, 6297*b*.
——, **15-ethyl-***, biol. activity of, 6297*b*.
**12-methyl-***, biol. activity of, 6297*b*.
**Axerophthol**. See "A" under *Vitamins*.
**Axles**, standards of A.S.T.M. for steel, 4202*e*.
**Axolotls**. See *Amblystoma*
**Axonopus**. See *Grasses*.
**Ayapanin**. See *Herniarin*.
**Aylax glechomae**, gall of, initiation and development on *Nepeta hederacea*, 5094*g*.
**11-Aza-6,7-acechrysene**, **1,2,3,4-tetrahydro-***, and picrate, 1779*b*.
**9-Azaalloxazine**. See *Pyrido[2,3-b]pyrimido[5,4-e]pyrazine-2,4(1H,3H)-dione*.
**1-Azaanthracene**. See *Benzo[g]quinoline*.
**7-Azabenz[*a*]anthracene**. See *Benz[a]acridine*.
**12-Azabenz[*a*]anthracene**. See *Benz[c]acridine*.
**Azabenzene**. See *Pyridine*.
**4-Azabenzimidazole**. See *1H-Imidazo[b]pyridine*.
**6-Azabenzo[*c*]phenanthrene**. See *Benzo[a]phenanthridine*.
**3-Azabicyclo[3.2.0]heptane**,



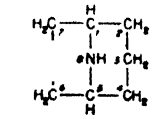
**Azabicyclo[3.2.0]heptane-3-acetic acid**, *α*-**isopropyl-2,4-dioxo-**, D-, DL- and L-, 5743*e*.
**1-Azabicyclo[3.3.1]-3,6-nonadiene**, **3-acetyl-4,5-dimethyl-**, and salts, 3003*h*.
——, **3-ethyl-4,5-dimethyl-**, 3004*d*.
**1-Azabicyclo[3.3.1]-3,6-nonadiene-3-methanol**, *α*,**4,5-trimethyl-**, and picrate, 3004*c*.
**1-Azabicyclo[3.3.1]nonane**. See *1-Isogranatanine*.
**2-Azabicyclo[3.3.1]nonane**,



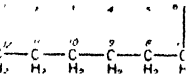
**2-Azabicyclo[3.3.1]nonan-3-one**, prepn. of, attempted, 1730*c*
**1-Azabicyclo[3.3.1]-3-nonene**,



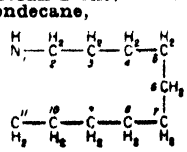
——, **7-acetyl-4-bromo-5,6-dimethyl-**, 3004*i*.
——, **7-acetyl-5,6-dimethyl-**, and derivs., 3004*f*.
——, **7-ethyl-5,6-dimethyl-**, and picrate, 3004*h*.
**1-Azabicyclo[3.3.1]-6-nonene-3-methanol**, *α*,**4,5-trimethyl-**, and picrate, 3004*g*
**1-Azabicyclo[2.2.2]octane**. See *Quinuclidine*.
**1-Azabicyclo[3.3.0]octane**. See *3H-Pyrrolo[1,2-a]pyrrole, hexahydro-*.
**8-Azabicyclo[3.2.1]octane**,



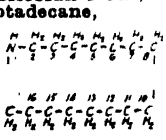
——, **8-methyl-**. See *Tropane*
**8-Azabicyclo[3.2.1]octan-3-ol, 8-methyl-**. See *Tropine*
**1-Azacenaphthylene**. See *Benz[cd]indole*
**5-Azachrysene** See *Benzo[c]phenanthridine*.
**4-Azachrysofluorene** See *11H-Indeno[2,1-f]quinoline*
**Azacyclobutane**. See *Azetidine*
**Azacyclodecapentaene** See *Azecine*
**Azacyclododecane**,



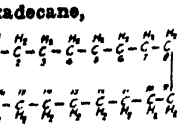
5400*d*.
**Azacyclododecan-2-one**, 5400*d*.
**Azacycloeicosane**, 5400*f*.
**Azacycloeicosan-2-one**, 5400*f*.
**Azacyclohendecane**,



and picrate, 5400*d*.
**2-Azacyclohendecanone**, 5400*d*.
**Azacycloheneicosane**, 5400*f*.
**Azacycloheneicosan-2-one**, 5400*f*
**Azacycloheptadecane**,

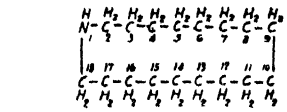


5400*e*.
**2-Azacycloheptadecanone**, 5400*e*.
**Azacycloheptane**. See *Hexamethyleneimine*.
**1-Aza-2,4,6-cycloheptatriene**. See *Azepine*.
**Azacyclohexadecane**,

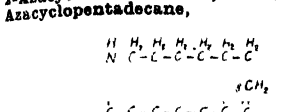


5400*e*.
**2-Azacyclohexadecanone**, 5400*e*.
**Azacyclohexane**. See *Piperidine*.

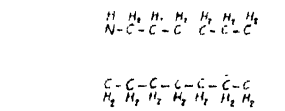
**Azacyclononadecane**, 5400*f*.
**Azacyclononadecan-2-one**, 5400*f*.
**1-Aza-2,4,6,8-cyclononatetraene**. See *1H-Azonine*.
**Azacyclooctadecane**,



5400*e*.
**2-Azacyclooctadecanone**, 5400*e*.
**Azacyclopentadecane**,



5400*e*.
**2-Azacyclopentadecanone**, 5400*e*.
**1-Aza-1,3-cyclopentadiene**. See *2H-Pyrrolenine*.
**1-Aza-2,4-cyclopentadiene**. See *Pyrrole*.
**Azacyclopentane**. See *Pyrrolidine*.
**Azacyclopropane**. See *Aziridine; Ethylenimine*.
**Azacyclotetradecane**,



5400*e*
**2-Azacyclotetradecanone**, 5400*d*
zacyclotridecane, and picrate, 5400*d*
zacyclotridecan-2-one, 5400*d*.
-Azadibenz[*a,c*]**anthracene**. See *Dibenz[a,c]acridine*
-Aza-7*H*-**dibenzo**[*c,g*]**fluorene**. See *7H-Dibenzo[c,g]carbazole*.
3-Aza-13*H*-**dibenzo**[*a,s*]**fluorene**. See *13H-Dibenzo[a,s]carbazole*.
-Azafluorene See *Carbazole*.
zalea, petal blight of, and its control, 802*g*
petal blight of, control of, 1891*i*.
zamalonic acid. See *Imidodicarboxylic acid*.
zamethine, **2-bis(3,5-diphenylpyrrole)-***, P 7848*c*.
, **2-bis(5-*p*-hydroxyphenylpyrrole)-***, dihydrochloride, P 7848*b*.
, **2-bis(5-*p*-methoxyphenylpyrrole)-***, dihydrochloride, P 7848*b*
, **2-bis(5-4′-methylphenylpyrrole)-***, dihydrochloride, P 7848*b*.
**2-bis(5-1′-naphthylpyrrole)-***, dihydrochloride, P 7848*b*
**2-bis(5-phenylpyrrole)-***, salts, P 7848*a*
, **2-bis(5-2′-thienylpyrrole)-***, dihydrochloride, P 7848*b*.
5-Azanaphthacene. See *Benz[b]acridine*.
1-Azanaphthalene. See *Quinoline*.
2-Azanaphthalene. See *Isoquinoline*
1-Azanthracene. See *Benzo[g]quinoline*
10-Azanthracene. See *Acridine*.
3-Azapentane-1,5-diamine. See *Diethylenetriamine*.
1-Azaphenanthrene. See *Benzo[f]quinoline*
4-Azaphenanthrene. See *Benzo[h]quinoline*
Azaphenoxazine. See *Pyridobenzoxazine*.
5-Azaquinoxaline. See *Pyrido[2,3]pyrazine*
Azathiolium,

*2,1-*
**2,1-Azathiolium compounds**, 3-carboxy-tetrahydro-1-methyl— hydroxide, inner salt, P 5807*b*.
**2,1-Azathionium**,

hexahydro-1-methyl— iodide, P 5807*e*.
**7-Azatridecane-1,13-diamine†**, polymers with dibasic acids, P 4052*g*.

**Azecine**,

**——, decahydro-**, and picrate, 5400*d*.
**2,10(1*H*,3*H*)-Azecinedione, 1-allylhexahydro-†**, 7922*b*.
**2(1*H*)-Azecinone, octahydro-**, 5400*c*.
**Azelaamic acid**, *N*-(*N*-acetylsulfanilyl)-, 2597*f*.
**Azelaamide**, *N,N′*-**bis(4-amino-2-methyl-6-quinolyl)-**, dihydrochloride, 1778*c*
——, *N,N′*-**diallyl-**(?), 7922*b*.
——, *N,N′*-**dihexadecyl-**, as antifoaming agent, P 5890*i*.
——, **dithio-**, and reaction products with 1,8-dichloro-2,7-octanedione and 1,11-dichloro-2,10-hendecanedione, P 6465*ab*.
——, *N,N,N′,N′*-**tetrabutyl-**, as plasticizer, P 7258*f*.
**Azelaanilide**, *p,p′*-**disulfamyl-**, 2597*g*.
**Azelaic acid** (*1,7-heptanedicarboxylic acid, lepargylic acid, nonanedioic acid*), acyl derivs., esters, P 6225*i*.
bis(2-ethylhexyl) ester, lubricants, P 5184*a*.
diamyl or dibenzyl esters, as plasticizers in Butyl rubber for low temps., P 5624*h*.
dimethallyl ester, polymers with dimethallyl maleate and styrene, P 7261*i*.
effect on succinic acid in urine, 5469*b*.
esters, as lubricants, P 393*b*.
esters (mixed) with pentaerythritol and its condensation products, P 4511*h*.
ethyl ester, formation from ethyl oleate oxidation, 3612*a*.
formation from oxidation of methyl oleate, 3357*h*.
formation in hydrogenation of Me linolenate, 8707*b*.
ionization of, and monoesters, 7303*b*.
polyesters, as plasticizers, P 4513*d*.
prepn. of, P 884*c*.
and thorium salt, trypsin adsorption by, 3864*e*.
in urine of pregnant mares, 2685*i*.
**Azelaic acid, γ-acetyl-**, esters, P 6226*b*.
——, **γ-butyryl-**, dibutyl ester, P 6226*c*.
——, **α,η-diacetyl-δ-oxo-**, diethyl ester, 7433*b*.
——, **γ-oxo-**, 7905*b*.
——, **δ-oxo-**, reduction of, 3792*b*.
——, **δ-oxo-α,η-dipropionyl-**, diethyl ester, 7433*c*.
**Azelaimide**, *N*-[**3-(acetoxymercuri)-2-methoxypropyl**]-, 7922*b*.
——, *N*-**allyl-**, 7922*b*.
**Azeotropes** (For azeotropic mixtures see such headings as *Acetic acid, Alcohols, Isoamyl ether* and *Isopropyl alcohol*) 2834*e*.
aromatic ring effect on binary, 2834*g*.
in *N*-aryl amide prepn., 6586*c*.
book: Tables azeotropiques, 8256*e*.
in dehydration of alcs and ketones, P 1228*e*.
in dehydration of org. compds, P 3835*i*.
distn. of, column for, 1225*b*.
columns for dehydration by, 8217*i*.
dehydration by, P 7275*c*.
still head for, 4521*c*.
in 3 stage process, P 3187*a*.
in esterification of water-insoluble alcs., 1319*e*.
of esters with ethers, 2835*b*.
of ethers, 2835*b*.
of fumarates, glycols and maleates, 5247*b*.
homofunctional, 2834*h*.
homofunctional, of hydrocarbons, 4063*d*.
in hydrocarbon sepn., P 7*e*, P 3435*e*, P 7274*h*.
of ketones, 2834*i*.
of new kind and of nitriles, 2834*f*.
of nitrates, 2835*c*.
orthobaric binary, 2835*d*.
table of, and nonazeotropes, 6481*c*.
**Azepine**,

——, **hexahydro-**. See *Hexamethylenimine*.
**5*H*-Asepotetrazole**,

——, **6,7,8,9-tetrahydro-**. See *Metrazole*.
——, **6,7,8,9-tetrahydromethyl-**, P 2239*h*.
**Azete**,

**tetrahydro-**. See *Azetidine*.
**Azetidine**,

——, **1-*p*-tolylsulfonyl-**, polymerization of, P 9531*a*.
**1-Azetidineacetic acid, α-isopropyl-3-oxo-3-(α-phenylacetamido)-**, and derivs., spectra of, 8892*g*.
**3-Azetidinemethanol, 3-(aminomethyl)-**, and derivs., 214*a*.
——, **1-*p*-nitrobenzoyl-3-(*p*-nitrobenzamidomethyl)-†**, *p*-nitrobenzoate (ester), 214*b*.
**2-Azetidinone**, 8357*c*.
1-alkyl derivs., 9033*i*.
——, **1-benzhydryl-4-phenyl-**, 9034*d*.
——, **1-benzyl-**, 9034*c*.
——, **1-benzyl-4-phenyl-**, 9034*c*.
——, **1-methyl-**, 9034*c*.
**Azide group**. See *Azido group*.
**Azides**, 7446*d*.
detn. of, 1288*e*, 4603*e*.
effect on cytochrome oxidase, 7981*d*.
on metabolism of phosphate esters by *Escherichia coli*, 8003*b*.
on respiration of aorta, 7114*f*.
phosphorylation inhibition by, in kidney homogenates, 7979*a*.
reactions with Br, Br + $S_2O_3$ ion, Br + $S_4O_6$ ion, I + $S_2O_3$ ion and I + $S_4O_6$ ion, 7799*eg*.
reaction with ferric ion, 8935*b*.
sugar, 7430*d*.
**Azido group**, 7430*g*.
diazonium group replacement by, 8365*i*.
**Azidothiocarbonic acid**. See *Formic acid, dithiotriazo-*.
**Azimethylene**. See *Methane, diazo-*.
**1-Azindan**. See *Indoline*.
**2-Azindan**. See *Isoindoline*.
**1-Azindene**. See *Indole*.
**Azine**. See *Pyridine*.
**Azines**. (*Individual acyclic azines are entered in light-face type as derivatives of the corresponding aldehydes and ketones.*)
as catalysts for polymerization of olefins, P 8066*k*.
as catalysts in long-chain alkylation of alkyl aromatic hydrocarbons with $C_2H_4$, P 6657*g*.
as catalysts in reaction of $C_2H_4$ with carboxylic acids, P 670*f*.
reaction of ket-, with HCN, P 6652*e*.
spectra of, 1654*d*, 5755*i*.
**Aziridine**,

See *Ethylenimine*.
——, **1-(*N*-acetylsulfanilyl)-†**, 3015*b*.
——, **1-benzoyl-**, 3014*c*.
——, **2-benzoyl-**. See *Ketone, 2-aziridyl phenyl*.
——, **2-methyl-**, 1-alkyl derivs., rearrangement of, 3420*c*.
——, **1-(α-phenylazoacetoacetyl)-†**, 3015*c*.
**1-Aziridineëthanol**, toxicity of, 4401*g*.
**Aziridinium compounds**, 1,1-bis(2-chloroethyl)— chloride, 6158*e*.
1-(2-chloroethyl)-1-methyl— chloride, pharmacology and toxicity of, 3521*f*.
1-(2-chloroethyl)-1-methyl— ion, poisoning by, 3112*a*.
1,1-diethyl— chloride, 6158*d*.
1-(2-hydroxyethyl)-1-methyl— chloride, pharmacology and toxicity of, 3521*f*.
**Azlactones**, 6598*e*, 7456*i*.
formation of, from α-amino β-hydroxy acids, 2124*d*.
from 2-thiophenecarboxaldehydes, 7930*a*.
**Azobenzene** (*benzeneazobenzene*),

adsorption by $Al_2O_3$, 6035*c*.
analysis of, for C and H, 6108*b*.
*cis-*, 595*d*.
derivs., 1737*f*.
color reactions with metal ions, 596*i*.
relations between structure, chem. reactivity and therapeutic activity of, 4379*a*.
and derivs., 3800*h*.

effect on aging of alkylarylsulfonates, P
on proteins of blood serum, carcinogenicity and, 4370*d*.
on styrene polymerization rate, 8735*b*.
on vitamin C in liver, 3921*f*.
electric moment of, 3009*d*.
energy resonance of, 931*b*.
ethyl alc. distn. from, 8762*c*.
in Europe-corn-borer control, 9336*e*.
insecticidal value of, and related compds., 2727*b*.
as insecticide for *Vanessa*, 807*a*.
manuf. of, P 1793*h*.
melting point of, particle size and, 2061*h*.
from nitrolignin oxidation by nitrobenzene, 1973*i*.
polarography of, 7835*h*.
as polymerization inhibitor and initiator in isoprene, 5621*f*.
Raman spectrum of, 8885*d*.
in red-spider control on greenhouse plants, 9313*c*,
reduction of (attempted), with $LiAlH_4$, 1312*d*.
spectrum of, 1654*h*.
as stabilizer for paper capacitors, 7837*f*
as synergist for hexachlorocyclohexane, 7175*h*.
systems: $AsBr_3$–, $SiCl_4$–, and $SnCl_4$–, 6899*i*.
thermal analysis of mixt. of bibenzyl and, 3317*b*.
*trans*-, solubilization in detergent solns., effect of electrolytes on, 4876*c*.
ultrasonic velocity in solns. in $C_6H_6$, 8793*a*.

**Azobenzene, amino-**. See *Aniline, phenylazo-*.
——, **4,4'-bis(*p*-nitrophenylmercapto)-**, 3802*i*.
——, **bis(triethylsilyl)-†**, 1737*d*.
——, **2,4-diamino-**. See *Chrysoidine*.
——, **4,4'-dibromo-**, 1312*e*, 3801*c*.
——, **4,4'-dichloro-**, 3802*i*.
as acaricide and insecticide, 3137*i*.
——, *ar,ar'*-**dimethyl-** See *Azotoluene*.
——, **3,5-dinitro-**, derivs., P 9462*e*.
——, **4,4'-dinitro-**, 3387*i*, 3803*a*.
——, **2,2',4,4',6,6'-hexamethyl-**. See *Mesitylene, 2,2'-azodi-*.
——, **hydroxy-**. See *Phenol, phenylazo-*.
——, **4-nitro-**, 5756*g*.
——, **4-phenylazo-**, 1654*h*.

*ar,ar'*-**Azobenzenedicarboxylic acid**. See *Benzoic acid, azodi-*.
**Azochloramide**. See *Formamidine, α,α'-azobis[chloro-*.
**Azocine,**

CH.N.CH:CH.CH:CH.CH:CH.
8 1 2 3 4 5 6 7

——, **octahydro-**. See *Heptamethyleneimine*.
**Azo compounds**. (*With the exception of a few well-known compounds such as* Azobenzene *and their derivatives, symmetrical azo compounds come under the bis- or di- rule; e.g.*, Phenetole, *p,p'*-azodi-. *Unsymmetrical azo compounds are indexed as derivatives of the larger group or of the group containing the chief function;* e.g., Phenol, *p*-phenylazo-.) (*See also* Diazo compounds; Diimide; Dyes.) 596*i*.
of acetoacetanilide, P 3461*i*.
with cancerigenic action, polarography of, 7835*g*.
carcinogenesis with, 5109*d*.
as catalysts for polymerization of $C_2H_4$ derivs., P 6002*g*.
decompn. of aliphatic, kinetics of, 3354*g*
effect on tubercle bacilli, 7546*c*.
formation of, effect of substituents on, 4646*i*.
heats of formation of, 931*a*.
heterocyclic, P 6662*f*.
macromol., P 7508*b*.
photographic colored couplers, P 4591*f*.
reaction with methylene free radicals, 5732*i*.

**Azo coupling**. See *Coupling reactions*.
**Azodicarboxylic acid**. See *Formic acid, azodi-*.
**Azodisulfonates**, as polymerization catalysts, P 5642*a*.
**Azo dyes**. See *Dyes*.
**Azoformic acid**. See *Formic acid, azodi-*.
**Azogrenadin S**. See *Dyes*.
**Azo group**, cyclization effect on, 4570*e*.
**Azoic acid**. See *Benzoic acid, p-phenylazo-*.
**Azoimide**. See *Hydrazoic acid*.
**Azoisopropane**. See *Propane, 2,2'-azodi-*.
**Azole**. See *Pyrrole*.

**Azomesitylene**. See *Mesitylene, 2,2'-azodi-*.
**Azomethine**. See *Methylenimine*.
**Azomethine compounds**. (See also *Schiff bases*.)
as catalysts in long-chain alkylation of alkyl aromatic hydrocarbons with $C_2H_4$, P 6657*g*.
heats of combustion of, 931*a*.
in imidazo[1,2-*a*]pyridin-2(3 *H*)-one, 642*i*.
reaction with PhLi or PhMgBr, 7484*d*.

**2,2'-Azonaphthalene, 1,1'-dichloro-**, and dihydrochloride, 6570*e*.
**1H-Azonine,**

NH.CH:CH.CH:CH.CH:CH.CH:CH
1 2 3 4 5 6 7 8 9

——, **octahydro-**, and picrate, 5400*c*.
1*H*-**Azonin-2(3 *H*)-one, hexahydro-**, 5400*c*.
——, **hexahydromethyl-**, hydrolysis of, P 2225*c*.

**Azophenol**. See *Phenol, azodi-*.
**Azoproteins**. See *Proteins*.
**Azosulfathiazole***, binding by albumin, 5433*a*.
**Azotemia**. (See also *Uremia*.)
after frontal-lobe lesions, 3925*b*.
in hypersalemia, 4776*b*.
from sucrose injections, 8548*i*.

**Azotization**. See *Diazotization; Tetrazotization*.
**Azotobacter**. (See also "nitrogen-fixing" under *Bacteria;* and "soil" under *Microorganisms*.)
*agile*, mutation of, 720*f*.
tricarboxylic acid cycle in, 4726*f*.
ammonia and nitrate assimilation by, effect of pH and inhibitors on, 8008*d*.
carbon nutrition of, 5821*b*.
*chroöcoccum*, $Ca_3(PO_4)_2$ solubilization in soils by, 5521*i*.
effect on *Clostridium pasteurianum*, 5825*h*.
phylogeny of, 276*b*.
cultures in water hyacinth, 3131*a*.
effect on N balance in plant growth, 7173*b*.
effect on yield of cultivated plants in relation to exudations by roots, 9149*f*.
in lichens, 7085*b*.
nitrogen fixation by, 8445*h*, 8591*f*.
effect of ascorbic acid on, 8082*i*.
effect of light and molasses on, 4801*c*.
effect of surface-active compds. and dehydrating agents on, 9160*a*.
hemin enzyme in, 7172*i*.
in presence of amides and amino acids, 5522*i*.
serological properties of, 5448*h*.
soil inoculation with, 3130*f*.
toxicity of oximes and oximino acids to, and their utilization, 2276*c*.
*vinelandii*, hydroxylamine as N source for, 4336*c*.
oxalacetic carboxylase from, 9116*h*.

**Azotol dyes**. See *Dyes*.
**Azotoluene, amino-**. See *Toluidine, tolylazo-*.
——, **chloro-**, 3801*b*.
——, **4,4'-dichloro-**, 3801*c*.

*m,o'*-**Azotoluene**, split products of, effect on bladder and their excretion, 6315*c*.
**Azotometers**. See *Nitrometers*.
*p*-**Azoxyanisole**. See *Anisole, p,p'-azoxydi-*.
**Azoxybenzene**, as antioxidant in alkyl benzenesulfonates, P 6846*a*.
and derivs., 3800*h*.
electric moment of, 3009*d*.
as insecticide, 2727*c*.
from nitrolignin oxidation by nitrobenzene, 1973*i*.
reduction of, 1312*e*.
——, **4,4'-bis[2-(2-furyl)vinyl]-**, 3428*c*.
——, **4,4'-dichloro-**, 3802*i*.
——, **4,4'-dichlorotrinitro-**, 3802*i*, 3803*a*.
——, **2,2',5,5'-tetrachloro-**, 2599*f*.

**Azoxy compounds**. (*The individual compounds are indexed in the same way as the* Azo compounds.)
rearrangement of, 3800*f*.

*p,p'*-**Azoxytoluene**, *α'*-**difurfurylidene-†**, 3428*c*.
**Azulene** (*cyclopentacycloheptene*). (For derivs. under *Cyclopentacycloheptene*.)
compds. related to, 207*a*.
and compds. related to, 6203*d*.
crystal structure of, and its homologs, 3262*h*.
and derivs., 6201*c*.
*and derivs.*, distribution between miner acids and org. solvents, 5768*f*.
spectra of, 4139*b*.
derivs., review on, 3796*c*.
derivs., with anti-inflammatory action 8064*e*.
elec. moment of, 5246*c*.
electronic structure of, 2831*e*.
manuf. of, P 6644*a*.
quantum-mech. study of, 7340*a*
spectrum of, 7818*h*.
in tobacco smoke, 8102*i*.

**Azulene** (*the terpene*), in camomile fluidext antiphlogistic action of, 1490*b*.
detn. of, and extn. from camomile 1527*g*.
in *Ledum palustre* oil, and picrate, 1155*a*
**Azurite**, in copper ores of Pinal Co., Ariz 2131*c*.
of France (Bonneterre, Avevron), 2549*f*
of Italy, 2128*a*, 3318*i*.
of New Mex. (Taos Co.), 1692*a*

**Babassu oil**. See *Oils*.
**Babbitt metal**. (See also *White metals*)
analysis of, 3314*i*.
bearings from homogenized, P 5729*f*
coating from, by spraying, 986*a*
lead detn. in, 5332*a*.

**Babcock test**. See *Milk, analysis*
**Bach, Denis**, biography, 6013*i*
**Bacillarites**. See *Kaolinite*
**Bacillomycin**, review on, 3884*c*.
**Bacillus**. (See also *Bacteria; Bacterium*)
*acetoethylicus*—see *"macerans"* below
*acidophilus*—see *Lactobacillus acidophilus*
*aerogenes capsulatus*—see *Clostridium fringens*.
*aertrycke*—see *Salmonella typhimurium*
*amyloliquifaciens*, 1450*c*
*anthracis*, immunizing antigens from 9221*f*.
stabilization of spore suspensions of by antiseptics, 6281*h*.
sulfonamide effect on growth and staining reactions of, 1459*h*.
antibiotic action against *Mycobacterium tuberculosis* and *M. avium* produced by 9162*hi*.
*asterosporus*—see *"polymyxa"* below
*aterrimus*—see *"subtilis"* below
Bang's—see *Brucella abortus*.
*bifidus*—see *Lactobacillus bifidus*
of Bordet, Bordet-Gengou—see *Hemophilus pertussis*.
*botulinus*—see *Clostridium botulinum*
*brevis*, antibiotic substance from, 9162*e*
*bulgaricus*—see *Lactobacillus bulgaricus*
*cadaveris*, amino acid oxidases of, 6281*d*
lysine decarboxylase from, 3065*c*
catalase in, effect of sulfonamides thereon, 724*a*.
*cereus*, antibiotic substance produced by, 3883*g*.
biochem. factors influencing sporulation of, 7082*g*.
effect of streptomycin on, 719*c*
toxin from, effect on respiration and hemolysis of dogfish erythrocytes and respiration of marine eggs, 9144*f*.
*cereus, megatherium* and *subtilis*, $H_2O_2$ action on, 9159*h*.
*cereus, megatherium, mesentericus* and *subtilis*, in sugar mills, 886*i*
*circulans*, antibiotic from organism resembling, 5081*f*.
antibiotics from, naming of, 8006*c*
*coagulans*, vitamin requirements of, 8006*a*
*coli*—see *Escherichia coli*.
*coli anaerogens*—see *Eberthella belfastiensis*
*delbrückii*—see *Lactobacillus delbrueckii*
*diphtheriae*—see *Corynebacterium diphtheriae*.
*dysenteriae*—see *Shigella dysenteriae*. *Shigella paradysenteriae;* and "bacteria causing" under *Dysentery*.
Eberth's—see *Salmonella typhosa*.
effect on egg yolk, 3060*b*.
Flexner's—see *Shigella paradysenteriae*
*fluorescens liquefaciens*—see *Pseudomonas fluorescens*.
Friedländer's—see *Klebsiella pneumoniae*.
gas—see *Clostridium perfringens*.
*granulobacter pectinovorum*—see *Clostridium acetobutylicum*.
*histolyticus*—see *Clostridium histolyticum*.
Johne's—see *Mycobacterium paratuberculosis*.
Koch's—see *Mycobacterium tuberculosis*.
*lactis aerogenes*—see *Aerobacter aerogenes*.
*lactis niger*—see *"subtilis"* below
*larvae*, effect of pollen on sporulation, of 5081*a*

*laterosporus, mesentericus, pabuli* and *subtilis*, from soybeans, 724*h*.
Loeffler's—see *Corynebacterium diphtheriae*.
lysinogenic coliform, of Lisbonne and Carrere, antibiotic substance from, 3488*b*.
*macerans*, amylase of, 4711*d*.
reversible action of amylase from, 584*a*.
starch-splitting and ring-closing action of enzymes from, 9111*g*.
*megatherium*, effect of O on nitrate utilization by, 4325*c*.
germination of endospore of, and structure of the spore coat, 3883*b*.
lysozyme action on, 6280*a*.
oxidation of β-hydroxybutyric acid by, 6700*c*.
*melitensis*—see *Brucella melitensis*.
*mesentericus* and *subtilis*, for retting of ruime, 1985*a*.
*mesentericus*, antibiotic from, 4326*a*, 5077*i*.
antibiotic from, effect on diphtheria carriers and streptococcus, 270*i*.
control in bread, 5508*h*.
in retting of Korean hemp, 1985*a*
in soils, effect of fertilizers on, 6350*d*.
wool-rayon and -Tolan blend damage by, 413*d*.
*mesentericus niger*—see "*subtilis*" below.
Morgan's—see *Proteus morganii*.
*mucosus capsulatus*—see *Klebsiella pneumoniae*.
*mycoides*, $Ca_3(PO_4)_2$ solubilization in soils by, 5521*i*.
dextral and sinistral forms of, 7549*e*
inhibition by vanillic acid esters and related compds., 4242*e*.
morphological inversion of, mol. basis of, 3861*f*.
*niger*—see "*subtilis*" below
*paratuberculosis*—see *Clostridium septicum*.
*paratyphi alcaligenes*—see *Salmonella schottmulleri*
*paratyphosus A*—see *Salmonella paratyphi*.
*paratyphosus B*—see *Salmonella schottmulleri*.
*perfringens*—see *Clostridium perfringens*.
*pestis*—see *Pasteurella pestis*.
plague—see *Pasteurella pestis*.
polymyxa, antibiotics from, P 6702*a*, 8145*c*.
fermentation of wheat by, 7635*b*.
polysaccharides synthesized by, 9153*i*.
prodigiosus—see *Serratia marcescens*
proteinases from, action on colicins, 1156*a*.
*proteus*—see *Proteus vulgaris*
*pumilus verrucosus*, chlorophyll conversion to phylloerythrin by, 5832*e*.
pyocyaneus—see *Pseudomonas aeruginosa*.
Shiga's—see *Shigella*; and "bacteria causing" under *Dysentery*
in soils, effect of fertilizers on, 6350*c*.
*sporogenes*—see *Clostridium sporogenes*.
sporulation of, mineral deficiencies as limiting factor in, 7082*d*.
*subtilis*, acetoin formation from pyruvic acid and EtOH by, 5824*b*.
amylase formation in, effect of N on, 722*d*.
amylolytic and proteolytic enzyme production by, relation between, 4336*d*.
antagonism to *Penicillium notatum*, 7085*c*.
antidotic properties of filtrates of, 3884*b*.
antifungal substances from, 9141*e*.
bactericidal action of quaternary $NH_4$ compds. against spores of, 3884*f*.
bactericidal and bacteriolytic action of filtrates of, on *B. anthracis*, 3881*a*.
bacteriostatic action of iodonium compds. on, 268*hi*.
effect of *p*-aminosalicylic acid on, 8001*i*.
effect of hydrostatic pressure on thermal disinfection of spores of, 5082*a*.
effect of indoleacetic acid and 1-naphthaleneacetic acid on germination of spores of, 1460*i*.
effect on N in soil, 796*d*.
*Escherichia coli* lysis by norvaline and, effect of oxidation-reduction potential of medium on, 715*h*.
*Escherichia coli* lysis by norvaline and exts. of, incubation temp. and, 715*f*.
flagella of, 3481*a*.
*subtilis*, hemolytic activity of food products infected with, 7601*g*.
lysis by, effect of no. of bacteria and amounts of peptones on, 715*e*.
in meat, effect of $NaNO_2$ on, 9284*h*.
penicillinase of, effect of penicillin inactivated by, on bacterial multiplication, 5822*f*.
polysaccharides of, soil aggregation and, 2348*i*.
in retting of ramie, 1984*i*.
source of C as determinant in amylase formation by, 2278*e*.
urethan effect on spore disinfection of, and effect of hydrostatic pressure thereon, 5082*b*.
*tetani*—see *Clostridium tetani*.
*tuberculosis*—see *Mycobacterium tuberculosis*.
*typhimurium*—see *Salmonella typhimurium*.
*vulgatus*—see "*subtilis*" above.
*welchii*—see *Clostridium perfringens*.
**Bacitracin**, P 2742*a*.
blood levels and renal clearance of, 7587*b*.
electrodialysis of, 7196*a*.
reviews on, 3884*c*, 8550*d*.
spectrum of, 9386*g*.
stability of, 8618*a*.
synergism with sulfonamides and other antibiotics, 4333*c*.
**Backhousia**, oils of—see *Oils*.
**Backlash**, the term, 2389*f*.
**Bacon**. See *Meat*.
**Bacteria** (*As far as possible, specific bacteria are entered according to the classification given in Bergey's "Manual of Determinative Bacteriology," sixth edition. See the numerous cross references under* Bacillus *and* Bacterium. *See also* Microorganisms.)
acid formation by, in mouth, dental caries and, 8520*e*.
acid (volatile) formation by anaerobic, 9147*h*.
adaptation to acridine derivs., effect of pH on, 718*b*, 3058*b*.
adaptation to new C sources, 2669*f*.
agglutination of—see *Agglutination*.
amino acid assimilation by, 4329*d*.
amino acid decarboxylases from, 3065*d*
amino acid metabolism by, effect of pantothenic acid on, 1826*i*.
amino acid oxidases of decarboxylating, 6281*d*.
amino acid synthesis from $NH_3$ and keto acids by, 5084*b*, 7546*i*
*p* aminosalicylic acid action on, which cause ocular infections, 8001*i*.
ammonification by—see *Ammonification*.
amylase formation by, 2278*e*.
amylase formation by, effect of N on, 722*d*.
amylase-producing, 1450*b*.
of animal tissue, metaphosphoric acid in constitution of, 6277*c*.
antagonism between fat acids and other surface-active agents on gram-positive, 5822*d*.
antagonism in, 9146*c*.
antagonism to, soly. and, 5443*e*.
antibiotics from spore-forming, 5826*d*.
antioxidants from action of, for lubricating oils, motor fuels or paper coatings, P 3193*d*.
antisepsis—see *Antisepsis*.
arsenite oxidation by, 8006*e*.
bactericidal spectrum of, 8444*c*.
biotin effect on, surface activity and, 4307*b*.
books: Henrici's Biology of, 725*c*; and Mycotic Infections of Man, 1483*b*, Bacterial Metabolism, 4727*g*; Die Darmflora in der Physiologie, Pathologie und Therapie des Menschen, 5086*e*; De Overwinning op de Bacteriën, 5449*g*; Praktikum der klinischen chemischen, mikroskopischen und bakteriologischen Untersuchungsmethoden, 5820*c*; Bactéries et virus, 6283*g*; Leitfaden der bakteriologischen Trinkwasseruntersuchen, 8588*h*.
bursting of cell of, P 3144*a*.
in butter, and effect of washing thereon, 8568*i*.
butterfat treated with, fatty acids produced by, 8569*d*.
in butter, keeping qualities and, 5127*e*.
calciferous, $CaCO_3$ deposition on rocks in relation to, 7549*b*.
capsules and mucoid envelopes of, 1830*g*.
in carbonate rock formation, 8944*b*.
casein degradation by, 8533*h*.
catalase in, and effect of sulfonamides thereon, 724*a*.
cellular activities and, 9144*e*.
cellulose-decompg., culture and physiology of, 720*b*.
feeding-stuff treatment with, 8574*h*.
isolation of thermophilic, 721*c*.
from porcupine intestines, 4336*e*.
symbiotic, 6699*a*, 8574*h*.
cellulose from, osmometer membrane from, 7782*eg*.
in cheeses made with *Streptococcus faecalis* starter, 8570*f*.
chemistry of, 1764*i*.
chromatin corpuscles of, 3488*g*.
chromoplasts, carotene and vitamin A in relation to, 731*d*.
cobalt as vital constituent of, 9163*h*.
coconut-fiber damage by, 5595*h*.
in cod fillets, effect of $NaNO_2$ on, 6751*gi*.
coli-aerogenes group—see "coliform" below.
colicin-producing, in feces, 9163*b*.
coliform, cytologic structure of, 4331*a*.
effect of streptomycin on nuclei of, 4330*i*.
inhibition of, and rough variants of intestinal pathogenes, 4329*a*.
in milk, effect on sol. N, 8067*g*.
N utilization and growth of, 7083*g*.
colloidal electrolytes and, 9143*e*.
colloid (metal) adsorption by, 274*g*, 4726*d*.
cond. of, 3883*h*.
control of, in cation exchange compns., 9308*i*.
in immersion freezing, 4391*d*.
in paper and paper-board industry, 3113*i*.
in wine, 3560*e*.
corrosion by, 98*e*.
pH and, 547*b*, 5356*g*.
of steel, 1706*e*.
cozymase decompn. and synthesis by, 2670*e*.
culture media for—see *Culture media*.
cytology of, 4339*b*, 9164*c*.
decarboxylase formation by, effect of pH of medium on, 8446*f*.
decompn. of phenols and related compds. by, 3058*d*.
dehydrogenase variants, detection of, 711*h*.
detn. in soil and petroleum-oxidation capacity of bacteria in oil prospecting, P 3185*c*.
detn. of, in dehydrated fruits and vegetables, 6747*c*.
in milk—see *Milk, analysis*.
turbidity in, 7086*c*.
in water—see *Water, analysis*.
diamine oxidase formation by, 6706*c*.
differentiation of living and dead, fluorescent microscope in, 7083*b*.
of digestive tract, effect of penicillin treatment on, 9245*c*.
diphtheroid, sucrose-splitting, 7083*a*.
disinfection—see *Disinfectants; Disinfection*.
drying and preservation of cultures of, 4328*c*.
dysentery—see *Dysentery; Shigella dysenteriae; Shigella paradysenteriae*.
effect of folic acid and sulfadiazine on, 4337*e*.
effect of folic acid-displacing agents on, 257*c*.
effect of urea and its derivs. on, 5075*e*.
effect on fine structure of silk, 9457*h*.
on N in soil, 795*h*.
on silage prepn., 1879*c*.
electron microscopy of heated, 8439*b*.
enzymes of acid-fast, 4324*i*.
enzymes of, adsorption by whiting, 5448*i*.
bacteriophage effect on, 1831*c*.
chem. factors and genetic in synthesis of, 9158*g*.
enzymic grouping of, 2277*i*.
exts. of, prepn. of, 3059*f*.
fermentation—see *Fermentation*.
filtrates of, effect on oxidation of adrenaline, 7086*i*.
in fish (spoiling), effect of flesh acidity on, 5128*e*.
fixation of $Hg(CN)_2$ and $HgCl_2$ by, 7076*e*.
folic acid requirement of, conditioned by sulfonamides, 8442*f*.
in food (canned) spoilage in Norway, 9275*e*.
formation of *p*-cresol and phenol by, 6280*e*.
in fruits and vegetables, effect of antiseptic cooling on, 9288*g*.
in gas industry, 8645*g*.
glutathione in, effect of penicillin on, 9245*i*.

glycerol metabolism by, 5076*a*.
gramicidin S effect on, 1831*h*, 5448*a*.
gram-negative, effect of streptomycin combined with penicillin and(or) sulfadiazine on, 4336*f*.
gram staining of, nucleic acids and, 8446*b*.
gram staining of, penicillin action and, 8440*f*.
growth factors for, *p*-aminobenzoic acid as, 5075*g*.
histamine and other imidazole compds. as, 8436*g*.
in liver exts., 5082*g*.
growth inhibition of anaerobic, by org compds., 6275*f*.
growth responses of, and their measurement, factors affecting, 1078*f*.
growth substance for *Mycobacterium johnei* and phthiocol precursor from acid-fast, 6273*f*.
gypsum formation by action of, on stones, 4727*b*.
halogenated-hydrocarbon effect on, 3885*d*.
heavy-metal-salt effect on, 5824*e*.
on hides (raw and preserved) and their salt tolerance, 7731*c*.
histidine isomers as source of C and N for, 7080*g*.
hydrocarbon oxidation by, enzyme mechanism of, 6281*h*.
hydrocarbon-oxidizing, in lakes, 8437*b*.
identification of plant pathogenic, bacteriophage-lysis technique in, 3068*d*
incubation temp. and lysis of, by amino acids and bacterial exts, 715*f*.
infections—see *Infections*.
inflammatory reaction to, effect of phenergan on, 9248*g*.
inhibiting substances—see also *Bactericidal action; Citrinin; Penicillic acid, Penicillin; Tyrothricin;* etc.
inhibition by humulone and lupulone, 9361*f*.
intestinal, bilirubin reduction by, 6721*h*, 8497*f*, 9110*h*.
destruction of adrenochrome semicarbazone by, 5822*f*.
effect of lactic acid on pathogenic, 6277*f*.
of hens, effect of carbohydrates and biotin-deficient ration on, 736*d*
independence of mutations involving antibiotic receptors among, 4330*h*.
intestinal activity and, 1832*a*.
mesobilirubin, stercobilin and orange pigment in bile infected by, 3082*c*.
nicotinamide synthesis by, 9191*e*.
nicotinamide synthesis by, effect of α-amino-*p*-toluenesulfonamide on, 2314*i*.
nicotinamide synthesis by, effect of methyltryptophans on, 9154*e*.
in nicotinic acid synthesis from tryptophan, 5472*b*.
urea splitting in diagnosis of pathogenic, 8000*e*.
invasiveness of, mode of action of substances enhancing, 9222*e*.
iron—see also *Leptothrix*.
iron, 5080*d*.
iron, detection in industrial waters, 4399*h*.
kinetics of growth of, application to biochem. problems, 5080*d*.
lactic acid, D-alanine and vitamin $B_6$ in relation to growth of, 5822*i*.
cystine synthesis by, 4334*a*.
effect of amino acid-dextrose reaction on, 8445*e*.
effect of amino acids on growth of, 4331*g*.
effect of ions on K requirement of, 1828*f*.
effect of oxidizing salts on growth, acid production and proteolytic properties of, 4340*h*.
effect of D-tryptophan on utilization of L isomer by, 6697*c*.
growth-promoting effect of desoxyribosides and vitamin $B_{12}$ on, 4335*b*.
inhibition by pantothenic acid analogs, 722*e*.
microbiol. assays using, 7997*i*.
thymidine as growth factor for, 4334*d*.
thymine desoxyriboside as growth factor for, 270*b*.
utilization of peptide-bound amino acids by, 5079*f*.
leather manuf. and, 8181*g*.
legume, N liberation from nitrate by, 1514*f*
lipides of acid-fast, 1856*a*.
luminescence of, in study of action of pressure, temp. and drugs on enzymes, 4717*a*.
luminous, factors influencing recovery of biochem. mutants in, 7082*a*.
luminous, growth requirements of, at various temps., 2276*f*.
lysine in maintenance of, 3886*c*.
lysine precursor for, α-aminoadipic acid as, 6708*c*.
lysis of, by *Actinomycetes*, 5079*a*.
by amino acids and *Bacillus subtilis* exts., effect of nos. on, 715*e*.
by amino acids and bacterial exts., oxidation-reduction potential of medium in relation to, 715*g*.
by penicillin, 4339*f*.
lysozyme and, 3881*d*.
with lytic action against *Mycobacterium tuberculosis*, 5085*a*.
kinetics of growth of, 2276*b*.
marine, fermentation of tyrosine by, 9146*g*.
in meat, sanitary quality and, 6751*e*.
mercuric chloride fixation on, 715*h*.
mercury effect on, 1492*f*.
mercury fixation in, effect of NaCl on, 5076*c*.
metabolic deficiencies assocd. with acquisition of resistance to bacteriophage in, 9165*g*.
metabolic processes in heterotropic, relation between nutrient and energy-supplying, 7548*i*.
metabolism of, 1458*i*.
*p*-aminosalicylic acid in, 5826*b*.
$CO_2$ in, 9164*b*.
C isotope expts. in, 5449*d*.
effect of Furacin on, 8000*i*.
nutrient and energy relations of, 7548*g*.
plant substances inhibiting, 9165*a*.
streptomycin effect on, 7196, 5447*i*
metabolism of acid-fast, 5082*h*
methylene blue effect on, in B.O.D. test, 335*i*.
in milk, fishy and moldy flavors and ropiness from, 5509*c*.
in milk (raw), effect on O content, 3941*g*
in milk (sheep), 9280*d*
in mouth, and effect of oral antiseptics thereon, 6698*h*.
multiplication and respiration of, 5078*e*, 9165*c*.
mutants of, concn. by penicillin, 2673*i*.
isolation by penicillin, 2673*h*.
isolation of biochemically deficient, 9140*h*.
myco—see *Mycobacterium*.
nitrate reduction to nitrites by anaerobic, 8447*c*.
nitrification by—see *Nitrification*.
nitrite, symbiosis with mycobacteria, 8437*a*.
nitrogen fixation by—see *Nitrogen fixation*.
on nitrogen-fixing bark beetles, 3532*a*.
nitrogen sources for, optical antipodes of alanine, isoleucine, leucine and valine as, 3063*i*.
nucleic acids in, 721*g*.
nucleic acids in structure and life of, 3880*f*.
nucleic acid specificity in, 9158*e*.
nucleotide metabolism of, 9164*b*.
nutrition of phytopathogenic, 5081*d*.
oligodynamic action on—see *Oligodynamic action*.
oxidation-reduction phenomena in, in relation to reproduction and variation, 717*b*.
oxidizing, in analysis of gases, P 6114*g*.
oxygen concn. and O consumption in cultures of, detn. of, 6279*e*.
pasteurization for—see *Pasteurization*.
pathogenic, strategy of, 5826*a*.
penicillinase production by, susceptibility to penicillin and, 4339*e*.
penicillin inactivators in, 4340*d*.
penicillin-resistant pathogenic, sensitization of, 6278*g*.
penicillin sensitivity of, 4339*g*.
penicillin uptake by, 5446*i*, 5820*g*.
peptide-requiring, 7079*g*.
petroleum, 2409*h*.
petroleum-attacking, detn. in soils, P 3185*d*.
in petroleum formation, 2903*d*.
in petroleum release from sands, 6397*i*.
phenol-oxidizing thermophilic, 276*d*.
photosynthetic, metabolism of, 8440*c*.
pickle fermentation and, 9329*e*.
in pickle freshening, 5130*c*.
in plant pathology, 6704*f*.
plasma (citrated) coagulation by gram-negative, 1830*i*.
polysaccharide detection in, 4721*i*.
polysaccharides of, soil aggregates and 2348*h*.
proflavine penetration into, 715*b*.
proteases of, 9123*a*.
proteases of, and their inhibitors, 6260,
proteolytic, biochem. properties o 5448*e*.
in hides during leather manuf., 5617,
from soybeans, 724*h*.
pteroic acid formation from folic acid b 2275*d*.
purple, P metabolism in, in relation photosynthesis, 1829*c*.
pyrogen formation by, 762*d*.
quaternary $NH_4$ compd. effect on, 6700
reaction systems, adjustments in, 1458
reduction loci in, detection of, 8440*g*.
resistance to antibiotics, 1459*b*.
respiration of N deficient, 7083*f*.
respiratory acceleration in root-nodule, and $CO_2$ in relation to, 1461*c*.
respiratory coeffs. of aerobic, 4332*d*.
in retting of flax straw and in liquor pu fication, 1985*c*.
ribonucleic acid detection in, 4719*i*, 4720
in river waters of Tenn. Valley, effect development on, 8579*i*.
rumen, of cattle and sheep, 270*e*.
starch digestion and synthesis b 2693*h*.
S-contg amino acids in, 5813*e*.
saliva effect on, $H_2O_2$ and, 5079*i*.
selective culturing of, 8433*d*.
sensitivity to thiourea and thiouraci 4337*c*.
sewage treatment and, 2718*d*.
in shrimp (frozen), 6775*a*.
slime—see *Myxobacteria*.
sodium chloride effect on, 3490*b*
soil, antibacterial substances from, 270
butyric acid metabolism in, 1835*a*
effect of crop plants on, 3957*i*
nitrification by, 4800*i*
K solubilization by, 8081*c*.
spores of, resistance to heat and disi fectants, 719*i*
staining of—see *Staining*
stains for—see *Stains*
stenothermophilic, temp. activation respiratory enzymes of, 2671*e*
sterilization for—see *Sterilization*
storing solns. of, 1531*d*.
streptomycin effect on, 4330*i*, 5824
in sugar beets, 1203*d*.
in sugar mills, 885*i*, 9502*h*
sulfate reducing, 1455*e*.
in corrosion, 2564*h*, 4621*g*.
cultivation and isolation of, 4328*g*
detn. in industrial waters and H formed deposits, 4787*e*.
in marine sediments, 5070*e*.
sulfate reduction by facultative aerobi 5448*c*.
sulfide detn and formation in, 6279*d*
sulfonamide effect on growth and staini reactions of pathogenic, 1459*g*
sulfonamide sensitivity of, detn of 6281*a*.
sulfur, from oil wells, 276*f*.
sulfur (purple)—see also *Chromatium*
sulfur (purple), phosphate exchanges in in relation to photosynthesis, 7078*i*
sulfur-reducing in saline soils of Baraba 4410*e*.
surface-active substances and, 7546*f*
surfaces of, electrokinetic studies 2673*d*.
symbiotic, on meadow foxtail, 6701*a*
in terpterin detn, 4340*f*.
thiosulfate-oxidizing, 5821*d*.
toxin extn. from, 6275*b*.
toxins—see *Toxins*.
tryptophan detn. in, 6692*d*.
ultraviolet action on gram-positive gram-negative, 3877*e*.
ultraviolet-light effect on, 9165*i*
urinary infections from gram-negative, 3,4-dimethyl-5-sulfanilamidoisoxazole in treatment of, 5867*d*.
virus formation by, rendered nonviable by mustard gas, 2671*c*.
vitamin product resistant to, P 8576*g*
vitamins as growth materials for, 1827*b*
volutin in granules of, 7083*c*.
in water—see also *Water, pollution of*.
in water (deionized), 8584*h*.
in water, effect of age and storage temp. on, 9309*a*.
in water, effect of treatment, filtration storage and icing on, 2716*h*.
in water, removal of—see *Water, purification of*.
in waters stored in glass containers, velopment of, 4328*f*.

wool-rayon and -Tiolan blend damage by, 4138*d*.
**terial toxins.** See *Toxins*.
**tericidal action** or **Bacteriostatic action.** (See also *Antibodies; Antisepsis; Disinfectants; Disinfection; Oligodynamic action; Pasteurisation; Phenol coefficients; Sterilisation.*)
of acetamide and thiourea, 5075*f*.
of acetic acid in meat preservation, 7602*c*.
of *N*-9-acridylalanine Et ester and its derivs., 3826*b*.
of aerosols, 9387*a*.
of aerosols contg. heavy metals, 4326*f*.
of aerosols of phenol and its derivs. and glycerol and glycol in air, 3953*h*.
in air, mechanism of, 4798*f*.
of alkylidenedi-2 naphthalenesulfonic acid salts, P 5047*d*.
of allicin, 3482*f*.
of amines, phys. properties and, 7081*b*.
of amino acids, 3879*g*.
of *p*-aminobenzoic acid, 6276*c*.
of *p*-aminobenzoic acid and penicillin on *Mycobacterium tuberculosis*, 4331*d*.
of 5 - amino - 2,6 - dimethyl - 3(2 *H*)-pyridazone, 3007*f*.
of 6-aminonicotinic acid, 3884*d*.
of *p*-aminosalicylic acid derivs. and similar substances against tubercle bacillus, 6318*g*.
of ammonia-Cl treatment, residual chloramine, and free residual Cl, 9305*d*.
of ammonium compds. (quaternary), 275*a*, 4780*b*
effect of pH and temp. on, 3884*g*.
effect of org. matter on, 3884*i*.
rate of, 3884*e*.
in water, effect of Ca, Mg and Fe on, 8588*e*.
of ammonium compds (quaternary) and of hypochlorites, 724*d*.
of ammonium compds. (quaternary) and phenols, 9375*f*.
of ammonium phenoxides (quaternary), P 5801*a*.
of ammonium soaps (quaternary), specificity of antagonistic arrest of, 9377*a*.
of ammonium sulfonamides (quaternary), 8444*a*.
of ammonium sulfoichthyolate, 3488*d*.
on anaerobes, 6275*f*.
of antibiotics—see Antibiotic substances; and such headings as *Aureomycin*, *Polymyxin* and *Streptomycin*.
of antihistamines, 9147*c*.
of antiseptics emulsified by prepn. contg. hexadecyl alc., etc., 6363*b*
of β-aroylacrylic acids, 607*g*.
of β-aroylacrylic acids, esters, amides and imides, 7192*h*.
of 2-aryl-3-hydroxy-1,4-naphthoquinones, 1389*c*.
of azo dyes from sulfa compds., 9048*c*.
of basal derivs. on *Staphylococcus aureus*, 10376*f*
of benzoic acids, 1493*f*.
of *N* benzyl-*N'*, *N'*-dimethyl-*N*-phenylethylenediamine, 9152*h*.
of blood, effect of *p*-aminobenzoic acid on, 9239*d*.
of blood, effect of vitamin K and dicumarol on, 5114*d*.
blood effect on, 6278*b*.
of blood serum and urine on Koch's bacillus, effect of vitamin $D_2$ on, 5097*g*.
book: De la, a la fisiopatologia por los senderos de la química, 8064*h*.
of butyl gallate, 2253*g*.
of caffeic acid, 4327*g*.
of caffeic acid, pyrogallol, etc., 4327*h*.
of caporit, chloramide, chlorimide and HCHO on anthrax spores, 7999*g*.
of carbostyril oxide and 2-pyridol oxide, 2907*d*.
of castor-oil and peanut-oil distillates, 8436*d*.
of chalcone, flavone, flavanone, flavonol and morin, 3488*f*.
of chalcones, 5446*c*.
chem. constitution and, 6976*h*, 6977*c*.
of acridine derivs., 7028*g*, 7549*h*.
of amines on tubercle bacillus, 6282*d*.
of [illegible] acid and its d
of Chinese drugs, 7643*i*.
of chlorine dioxide in water, 5522*c*, 7613*g*.
of chlorine in sewage, 8586*a*.
of cinchona alkaloids, 4767*c*.
of cinnamaldehyde, 8430*f*.
of citronellic acid, hinokitiol, fatty acids and rhodinic acid, 5906*b*.
of cod-liver oil and its distillate, 4726*i*.
of copper on *Vibrio cholerae*, etc., 9154*h*.
of *Coptis* roots, 716*h*.
cosmetics and pharmaceuticals having base with, P 3978*d*.
of cyanine, 8444*d*.
of cyclic 2,1-azathionium compds., P 5807*f*.
of cyclic hydroxamic acids, 2998*c*.
detn. of, 8444*c*
of diamidines, 3064*f*.
of diamidines on *Corynebacterium diphtheriae*, 4325*i*.
of 2-(3,5-dibromo-2-hydroxybenzamido)-4-methylthiazole, P 6239*f*.
of 2',7'-dihexylfluorescein, 3806*f*
of 5,7 - dihydroxy - 4 - oxo - 2 - chromancarboxylic acid and 5-hydroxy-4-oxo-2-chromancarboxylic acid, 4265*e*.
of 2,3-dimercapto-1-propanol, 4377*c*.
of dinitrophenols, 6282*h*.
of dinitrophenols and propyloxyaminonitrobenzenes, 8437*i*, 8438*a*.
of dithiocarbamates and their bismuth derivs., 1111*g*.
of dyes, effect of supersonic waves on, 1460*i*.
of ethylene glycol and monoalkyl ethers on *Escherichia coli*, 1827*c*, 7079*e*, 9387*d*.
of curax, 3109*g*.
of Furacin on tubercle bacillus, 5445*a*.
of furan, thiophene and pyrrole derivs., 720*a*.
of fuscin, 4335*f*.
of gentisyl alc. and homogentisic acid, 1456*b*.
of glucose oxidases, enzymic action and, 3857*i*.
of glutamic acid-like compds., 2674*g*.
of halogens, 5540*a*, 9159*f*.
of hexachlorophene, 319*c*.
of hydrogen peroxide, 9159*h*.
of hydroxyacridines and hydroxyquinolines, 8942*i*.
of *N*-hydroxyalkyl gentisamide derivs., P 5045*d*.
of *p*-hydroxybenzoic acid esters, 7193*d*.
of α-hydroxycarboxylic acids, 4798*a*.
of 1-hydroxy-2(1 *H*)-pyridone, 2997*g*.
of 8-hydroxyquinoline, 9163*gi*.
of imidazo[*b*]pyridines and pyrido[2,3-*d*]-γ-triazoles, 7023*a*.
of iodine in alkali, 360*g*.
of iodoacetamide, 5823*i*.
of iodonium compds., 268*eh*.
of lotions (acidic), and effect of methylcellulose thereon, 3143*h*.
of mercuriated sulfamide, 1456*c*.
of mercury compds., 4811*b*.
of mercury, mechanism of, 5076*c*, 7076*d*.
of metalloörg. compds., P 7953*d*.
of *p*-(methylsulfonyl)benzamidine and *p*-(methylsulfonyl)benzylamine homologs, 1739*c*.
of myristyl-γ-picolinium chloride, 315*e*.
of 1 *H*-naphtho[2,3]pyrazole-4,9-dione derivs., 7019*d*.
of nisin, 8004*f*.
of 5-nitro-2-furaldehyde semicarbazone, 7015*d*, 9147*d*.
of nitrogen heterocycles, mutual polarizability and $pK_a$ in relation to, 8243*f*.
of nitrophenols, effect of pH on, 271*f*.
of oils of bergamot, lemon and orange, 4811*f*.
of oxazolones, penicillamines, 4-thiazolidinecarboxylic acids, etc., 2737*d*.
of oximes, 3974*g*.
of oxygen-liberating substances on oral microörganisms, 9159*e*.
of penicillin—see *Penicillin*.
of peptone factors, 3882*h*.
of phenol derivs., effect of aerosol OT on, 3065*c*.
of phenolic invert soaps, 7923*e*.
of phenyl mercuric benzoate, 267*e*.
of phenylmercury compds., 7022*g*.
of plant exts. from Lazio, 7091*f*.
of plant substances, 2679*c*.
of polychlorophenols, P 6782*f*.
prediction of, 7136*b*.
of pterins structurally related to pteroylglutamic acid, 8555*f*.
of pyridines, 2996*f*.
of quindoline and quinindoline derivs., 230*bg*.
of quinones, 2668*h*, 8413*d*.
of reductones, 9144*i*.
of sauerkraut juice, 6277*f*.
of Schiff bases of 4,4'-diaminodiphenyl sulfide, 4426*i*.
of seedling exts. of cultivated plants, 7077*g*.
of soap, 7126*f*.
of sodium azide for Rh agglutinating antibody-destroying bacteria, 269*i*.
of sodium benzoate in fruit juices, 7155*h*.
of sodium fluoride on hides, 7731*e*.
of sodium salicylate, 9146*a*.
staphylococcus sensitivity to, of various substances, 4327*d*.
of streptomycin assocd. with various substances, 6275*c*.
of substances with structures similar to those of essential metabolites, 5078*i*.
of 4 sulfamylthiocarbanilide, P 7042*g*.
of 2-sulfanilyliminohydantoin, P 6234*f*.
of sulfathiazole derivs., P 3852*dg*.
of sulfonamides—see *Sulfanilamide; Sulfonamides*; etc.
of *N*, *N''* - (sulfonyldi - *p* - phenylene)bis-[*N'*, *N'* - dimethyldiamidophosphoric acid], P 7036*i*.
of sulfur compds. and unsatd. ketones, 8434*g*.
of sulfur contg. steroid derivs., 7034*a*.
of sulphetrone, 3100*b*.
of surface-active agents, potentiating effects of various compds., 9147*e*.
surface tension and, 5823*h*.
of Tambukan mud, 1078*d*.
temp. effect on, 6280*b*.
of 2,2',3,3'-tetrahydroxybiphenyl derivs., 8614*f*.
of 2,2'-thiodipyridine derivs., P 5050*d*.
of thiosemicarbazones, sulfathiazole and thiocarbazides against tubercle bacillus, 3523*d*.
of thiourea and thiouracil, 4337*c*.
on tubercle bacillus, 3882*e*.
of urinary substance on tubercle bacillus, 3475*g*.
of usnic acid and related compds. on *Mycobacterium tuberculosis*, 5445*d*.
of valine derivs., 5743*g*.
in water, 4799*a*.
of wetting agents on oral lactobacilli, 6276*f*.
**Bactericides.** See *Disinfectants*.
**Bacterins.** See *Vaccines*
**Bacteriology**, books: Practical, 725*c*; Biology of Bacteria, 1461*d*; Lab. Manual on Fundamental principles of, 1461*e*; Oxidation-Reduction Potentials in, and Biochemistry, 2262*b*, in der Lederindustrie, 2457*b*; und Immunitätsforschung, 2675*a*, para enfermeras, 3066*h*; Travaux pratiques de, 4342*f*, Fundamentals of, 7087*h*, Textbook of, 7087*i*; Jordan's Textbook of, 7550*c*; Bakteriologisches Taschenbuch, 7550*d*; Einführung in die Bakteriologie, 8008*f*, Elementary Expts. in Dairy, 8448*f*; Practical Dairy, 9293*i*.
**Bacteriolysins**, of *Klebsiella pneumoniae* phage lysate, 720*i*.
**Bacteriolysis.** See *Bacteria*.
**Bacteriophages**, amino acids in, 3877*g*.
concn. by foaming, 4337*b*.
-culture lysates, enzymic activity of, 720*h*.
diffusion rates of, 7084*i*.
effect of acriflavine and phosphine GRN on, 3066*c*.
effect on enzyme systems of bacteria, 1831*c*.
on lactic fermentation of cucumbers, 4726*b*.
on *Leuconostoc mesenteroides* destruction of sucrose solns., 6363*e*.
on microörganisms, 3523*a*.
on *Salmonella* species, variants obtained by, 9165*f*.
*Escherichia coli* T, P in, 722*a*.
*Escherichia coli* $T_1$, transformation of, 7082*i*.
*Escherichia coli* $T_2$, desoxypyridoxine inhibition of, and its reversal, 6607*f*.
*Escherichia coli* $T_3$, protective action of substances against x-ray inactivation of, 2275*g*.
*Escherichia coli* $T_5$, Ca requirement of, 8443*f*.
*Escherichia coli* $T_6$, purification and properties of, 7081*d*.
*Escherichia coli* $T_7$, purification, pH stability and sedimentation properties of, 9159*b*.
formation by staphylococci, effect of NaCl on, 3064*b*.
formation of, effect of enzyme inhibitors on, 6277*e*.
growth requirements of, 5080*h*.
inactivation by light in presence of riboflavin, 6265*a*.
metabolic deficiencies associated with acquisition of resistance to, 9165*g*.

nature of, 1831*e*, 5825*f*, 9165*e*.
proflavine effect on growth of, 2277*b*.
resistance to, by *Escherichia coli* mutants, proline synthesis and, 5821*e*.
review on, 5823*i*.
$S_8$, $H_2O_2$ production in relation to effect of ionizing radiations on, 3058*c*.
stability in salt solns., 6690*f*.
staphylococcus sensitivity to, 4327*d*.
streptococcus, distribution in cheese, 7154*d*.
typhoid, size of, 4726*d*.

**Bacteriostasis**. See *Bactericidal action* or *Bacteriostatic action*.

**Bacteriotoxins**. See *Toxins*.

**Bacterium**, *abortus*—see *Brucella abortus*.
*aertrycke*—see *Salmonella typhimurium*.
*aeruginosum*—see *Pseudomonas aeruginosa*.
*angulatum*—see *Pseudomonas angulata*.
*cadaveris*, decarboxylation of lysine by, effect of pH on, 8446*g*.
*coli*—see *Escherichia coli*.
*enteritidis breslau*—see *Salmonella typhimurium*.
*flexneri*—see *Shigella paradysenteriae*.
*fluorescens*—see *Pseudomonas fluorescens*.
*formicum*, nutrient and energy-supplying metabolic processes in, relation between, 7548*i*.
*güntheri*—see *Streptococcus lactis*.
*lactis aerogenes*—see *Aerobacter aerogenes*.
*lepisepticum*—see *Pasteurella multocida*.
*melitense*—see *Brucella melitensis*.
*morgani*—see *Proteus morganii*.
*paradysenteriae*—see *Shigella paradysenteriae*.
*paratyphi Typus A*—see *Salmonella paratyphi*.
*paratyphi Typus B*—see *Salmonella schottmülleri*.
*phosphorescens indigenus*, growth requirements of, 2276*g*.
induction of biochem. mutants in, 7082*a*.
*prodigiosum*—see *Serratia marcescens*.
*proteus vulgaris*—see *Proteus vulgaris*.
*pruni*—see *Xanthomonas pruni*.
*pullorum*—see *Salmonella pullorum*.
*pyocyaneum*—see *Pseudomonas aeruginosa*.
*shigae*—see *Shigella dysenteriae*.
*tularense*—*Pasteurella tularensis*.
*tumefaciens*—see *Agrobacterium tumefaciens*.
*typhi murium*—see *Salmonella typhimurium*.

**Bacteroides**, studies in, 9154*i*.

**Bacury**, fat from seeds of—see *Fats*.

**Badional**. See *Urea, 1-sulfanilyl-2-thio-*.

**Baekeland, Leo Hendrik**, biographies, 1617*h*, 2049*e*.

**Baekeland Award**, to Rochow, Eugene G., 4907*i*.

**Baerin**, the name, 8561*c*.

**Bagacillo**, manuf. of fine, and use in rotary filtration, 9503*g*.

**Bagasse**, analysis of, for fiber and sucrose, 9502*a*.
building-board manuf. from, 1187*d*.
2-furaldehyde from, 628*h*.
hydrogenation decompn. of, 8675*d*.
lignin from, structure detn. by hydrogenation of, 2427*h*.
manuf. of chemicals and plastics from, 9501*f*.
nitric acid pulping of, 1973*d*.
paper-pulp manuf. from, 1183*d*, 1970*a*.
phosphate manuf. from ash of, 3156*c*.
rayon manuf. from, 2768*h*.
saccharification of, analysis in control of, 6412*a*.
as starch substitute for rats, 1847*f*.
sucrose detn. in, 8715*e*.
utilization for board, chemicals, paper and plastics, 4852*e*.

**Bagrada hilaris**, control of, 346*g*.

**Bags**, drop test for, 4788*c*.
for explosive charges, P 7714*h*.
hairy-spider-beetle control in flour, 2729*b*.
impregnation, with DDT, 347*d*.
insect-proofing cotton, 7186*c*.
jute, for sugar storage, 2797*b*.
rubber-acetylene C black, for tire vulcanization, P 5626*b*.
weevil control in corn and wheat, 1900*c*.

**Baicalein** (*5,6,7-trihydroxyflavone*), synthesis of, 1773*h*.

**Baikov, A. A.**, biography, 7275*d*.

**Bailey, Edward Monroe**, obituary, 5649*f*.

**Bainite**, transformation in alloy steels, 4092*i*.

**Baits**. (See also *Insecticides; Poisons; Rodenticides; Sprays*.)
alfalfa-snout-beetle control with $Na_2SiF_6$, 8599*e*.
for fish, P 4786*c*.
for grasshoppers, 3136*b*, 7185*fh*.
for *Heteronychus sanctae-helenae*, 7185*a*.
for Japanese beetle, phenethyl acetate in, 5898*f*.
for Queensland fruit fly, 7184*d*.
rat, acceptance of, 3140*d*.
for slugs, 9339*h*.
for sweet-potato weevil, 7183*b*.
for sugar-beet pests, P 3140*i*.
thallium detn. in, 8086*h*.
for wireworm control on potatoes, 808*c*.

**Bajra, Bajri**. See "pearl" under *Millet*.

**Bakelite**, adhesive for, P 2471*h*.
BV 16526, creep of laminates contg., 2811*f*.
from crude PhOH, 8073*d*.
dielec.-loss angle and elec. resistance of, effect of humidity on, 2054*c*.

**Baker-Venkataraman transformation**, mechanism of, 4526*e*.

**Bakery products**. (See also *Bread; Dough; Leavening agents; Shortening*.)
analytical and organoleptic findings on, 6747*d*.
baking powder effect on rancidity of, 9278*e*.
biscuits, effect of ingredients on quality and vitamin $B_1$ retention of, 2336*f*.
effect of shortening stability on Army, 778*c*.
stability of vitamin $B_1$ in Army, 9276*a*.
chloride detn. in, 4392*d*.
cookies and crackers, soft wheat flour for, 8566*e*.
dehydroacetic acid as disinfectant for, P 6758*b*.
dough (packaged preleavened) for, 9294*a*.
fat detn. in, 7596*h*.
icings, stabilizing agents for, P 6759*b*.
iron sulfate-contg. enrichment compn. for, P 5881*c*.
pastry, mustard- and rape-seed oils in prepn. of, 2001*d*, 5128*a*.
vitamins $B_1$ and $B_2$ in cake mix, effect of radar energy on, 1493*b*.

**Baking**. (See also *Flour; Leavening agents; Yeasts*.)
acetic and propionic acid loss during, 9278*b*.
aid for, from lecithin and malt, P 6757*e*.
of bread—see *Bread*.
coatings for pans for, P 4396*f*.
dough for—see *Dough*.
dried-egg products for, P 7605*b*.
effect on vitamins, 2336*e*.
fats used in, stabilizers for, 5127*f*.
lactic acid-contg. aid for, P 4396*g*.
milk (powd.) compn. with wheat germ for use in, P 329*i*.
mixes for, polarizing microscope in quality control of, 3531*h*.
quality of cereals, flour, grain, starch or wheat—see *Flour; Rye flour; Wheat*.
rheological methods in, 8750*d*.
with rye flour, 4392*c*.
rye-flour sour for, P 8072*a*.
of sugar-egg powder mixt., particle size and, 5510*a*.
technology of, 5507*g*.
vanilla flavor (synthetic) for, P 332*b*.

**Baking powder**, in bakery products, effect on rancidity, 9278*e*.
carbon dioxide detn. in, 9278*d*.
carbon dioxide detn. in, app. for, 3531*i*, 7153*g*.
effect on quality and vitamin $B_1$ retention in baking powder biscuits, 2336*g*.
triglycollamic acid-contg., P 6757*f*.

**Baktol**, 4427*c*.

**BAL**. See *1-Propanol, 2,3-dimercapto-*.

**Balaenoptera**. See *Whales*.

**Balances**. (See also *Weighing*.)
for density measurement on gaseous hydrocarbons, 8653*a*.
for detn. of water in butter, 7601*a*.
fluorocarbon-vapor, 1225*g*.
gristing, 3623*a*.
increasing sensitivity and shortening oscillation period of, 3245*f*.
for liquids, P 3249*h*.
magnetic—see *Magnetic balance*.
micro-, for adsorption detn., 3960*f*.
control of swing of, 8745*f*.
film torsion, 7271*c*.
Mohr-Westphal, calibration and requirements for alc. detn., 8310*h*.
Mohr-Westphal, riders and sinkers for, 445*i*.
for occlusion measurement, 7775*a*.
osmotic, 8671*a*.
for rubber, 429*c*.
Scederer-Kohlbusch micro-, with radio active electronic detector, 2044*h*.
silica-spring, for sorption detn., 7288*g*.
sub-micro-, 3245*g*.
and system for reproducing movements of pointer, 5235*f*.
thermo—see *Thermobalance*.
torsion, for low-d. gas flows, 6005*d*.
weighing support for, 3665*e*.

**Balandin, Aleksei Aleksandrovich**, biography, 7761*a*.

**Balaninus nucorum**, control of, 6777*d*.

**Balanites**, *aegyptica*, compn. and utilization of, 8572*c*.
oil of—see *Oils*.

**Balata**. (See also *Chewing gum*.)
distn. of, and cracking of distillate gases isoprene by, P 1211*g*.
pyrolysis products of, 2810*g*.

**Ball bearings**. See *Bearings*.

**Ballistics**, radiographs (flash) and x-ray bursts in study of internal, 5593*g*.

**Balloons**. (See also *Aircraft*.)
from acrylonitrile-methyl butadiene rubbers, for compressed gas, P 5224*c*.
flow in, at low temps., 3642*h*.

**Balls**, sponge rubber, P 6859*b*.

**Balsaminaceae**, acetic and parinaric acid in seed oils of, 134*i*.
oils of—see *Oils*.

**Balsams**, Peruvian, levigation by castor oil or polyethylene glycol monostearate, 5534*g*.
prepn. of syrupus balsami tolutani, 1527*h*.

**Baly, Edward Charles Cyril**, obituary, 1229*e*.

**Bamboo**, cooking liquid from *Bambusa veitchii* in ink removal from paper, P 5952*a*.
elec. insulators from, P 6928*a*
insect control on, 3967*de*.
lignin sepn. from *Phyllostachys reticulata*, 733*b*.
mol. wt. distribution in cellulose from, 7680*g*.
pulp and paper from, 2428*g*.
rayon manuf. from, 2768*g*.
as reducing agent for salts, P 6794*f*.
termite control in, 3553*i*.
weed control in, 5525*c*.

**Bambusa**. See *Bamboo*.

**Banaba**. See *Lagerstroemia speciosa*.

**Banana root borer**. See *Cosmopolites sordidus*.

**Bananas**, book: Economic Crops. Vol. I, 9293*i*.
carotene and vitamin C in, 3536*a*
carotenoids and vitamin A in, 5830*h*.
as feeding stuff for swine, 9292*i*.
fermentation of, 5153*g*.
melanin-forming oxidases in, 277*h*.
pulp, free from starch, P 7160*b*.
respiration study on, during storage and transport, 3535*g*.
ripening of, effect of $C_2H_4$, 2,4-D and gas from bananas on, 6289*b*.
stalks of, fiberboard from, P 9450*b*.
starch, adsorption of malt α-amylase by, 9504*g*.

**Bandages**. See *Surgical dressings*

**Bands or Ribbons**, from cellulose derivs. and *N*-alkoxymethylpolyamide, P 3659*d*.
from fused org. materials spun under pressure, P 9474*b*.
of nickel, P 5318*d*.
nylon—see *Nylon*.
from viscose, colored, P 9475*b*.

**Banyan tree**. See *Ficus bengalensis*

**Baptiloline**, and salts, 650*ab*.

**Baptisia**, *minor*, alkaloids of, 650*b*.
*perfoliata*, alkaloids of, 649*i*.

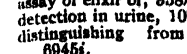
**Barathra brassicae**, pyrethrin toxicity to larvae of, 5898*c*.

**Barberry**, analysis of, 6784*e*.
berberine sulfate from root of, 7194*i*.
effect on bile secretion in liver, 5115*d*.
growth inhibitors in seeds of Japanese, 3492*i*.
pharmacol. and chem. investigation of, 9246*a*.
repandine in, 3017*i*.

**Barbier-Wieland degradation**. See *Degradation*.

**Barbital** (*5,5-diethylbarbituric acid*, veronal). (For derivs. see under *Barbituric acid*. See also *Barbital sodium*) -acetate buffer, effect on pyrophosphatase of erythrocytes, 9109*f*.
adsorption by activated charcoal in presence of gastrointestinal contents, 4767*d*.

analeptic action of metrazole, picrotoxin and samandarine on, 3519*i*.
assay of elixir of, 358*h*.
detection in urine, 1077*b*, 3869*d*.
distinguishing from barbituric acid, 6945*i*.
effect on blood sugar and insulin action, 8055*i*.
effect on functional structure of reflexes, 763*h*.
identification of, 8612*c*.
soly. in iso-PrOH, 3147*i*.
toxicity of, 7591*e*.
**rbital sodium**, effect on uptake of radioactive P by erythrocytes, 3103*h*.
soly. in iso-PrOH, 3147*i*.
waking action of sympathomimetic amines in respect to, 7141*g*.
**rbitone**. See *Barbital*.
**rbiturates**. See "derivs." under *Barbituric acid*.
**rbituric acid** (*malonylurea*),




azo dyes from, P 7697*g*, P 8157*e*, P 9464*h*.
derivs. of, P 1799*h*.
anesthesia by, analeptic effect of succinate in, 7582*f*.
carrier for, P 2375*d*.
castration effect on, 1489*h*.
coma from, awakening action of α-methylphenethylamine in, 7138*c*.
detection in biol. material, 8421*i*.
detection in urine, 1076*i*.
detn. of, 3563*i*, 7630*h*, 8094*g*.
detn. of, in blood plasma, blood or tissues, 264*a*.
detn. of, in drugs, 8612*b*.
detn. of, in tissue, 9134*h*.
detoxication of, 4766*b*.
effect on central synaptic transmission, 3111*f*.
effect on elec. activity of brain, 9261*b*.
effect on gastric passage and intestinal absorption of glucose solns., 4767*g*.
effect on motion sickness, 9239*b*
effect on respiration and circulation, comparison of, 3110*d*
identification and m.-p. detns. of, 67*e*.
identification of, 8612*c*.
intoxication by, respiratory and elec. signs in, 9261*h*.
metabolism of, 8546*f*.
narcosis by, synchronization of electrical activity of cerebrum by, 9261*c*.
pharmacology and chem. constitution of, 9257*i*.
potentiation of sedative action of, by antihistamines, 312*i*.
sodium ethyl 3,3-dimethylallylbarbiturate as antidote against other, 5862*d*.
toxicity and mol. structure of, 7591*d*.
diabetogenic action of, 2314*g*.
effect on biochem. decompn. of cellulose, 3609*d*.
enolization of, 579*a*.
identification of, and differentiation from its ethyl, diethyl, diphenyl and ethylphenyl derivs., 6945*h*.
2-imine derivs., 6173*e*.
from murexide reduction, 7305*b*.
oxidation of, to alloxan, P 2227*c*.
reaction with 4-aminoantipyrine, effect of alkalies on, 1044*e*.
reaction with 4-chloroquinaldine (attempted), 229*c*.
spectrum of, 5307*c*.
**Barbituric acid, 1-[3-(acetoxymercuri)-2-butoxypropyl] - 5,5 - diethyl-**, 2169*i*.
—, **1 - [3 - (acetoxymercuri) - 2-ethoxypropyl]-5,5-diethyl-**, 2169*i*.
—, **1 - [3 - (acetoxymercuri) - 2-isobutoxypropyl] - 5,5 - diethyl-**, 2169*i*.
—, **1 - [3 - (acetoxymercuri) - 2 - isopropoxypropyl] - 5,5 - diethyl-**, 2169*i*.
—, **1 - [3 - (acetoxymercuri) - 2-methoxypropyl] - 5,5 - diethyl-**, 2169*i*.
—, **1 - [3 - (acetoxymercuri) - 2 - propoxypropyl] - 5,5 - diethyl-**, 2169*i*.
—, **5 - allyl - 1,3 - bis[*m*(*o* and *p*)-bromobenzyl]-5-isopropyl-**, 9375*c*.
—, **5 - allyl - 1,3 - bis[*m*(*o* and *p*) - chlorobenzyl]-5-isopropyl-**, 9375*c*.
—, **5 - allyl - 5 - (2 - chloro - 2 - butenyl)-**, 1725*i*, 1726*a*.
—, **5 - allyl - 5 - (cycloheptenyl)-**, P 5039*a*.
—, **5 - allyl - 5 - (2 - cyclopenten-1-yl)-**. See *Cyclopal*.
—, **5 - allyl - 1,3 - dibenzyl - 5 - isopropyl-**, 9375*c*.
—, **1-allyl-5,5-diethyl-**, and mercurated derivs., 2169*g*.
—, **1 - allyl - 5 - (*p* - dimethylaminobenzylidene)-2-thio-**, 8300*g*.
—, **5 - allyl - 5 - (1 - ethylpropyl) - 2-thio-**, P 4692*g*.
—, **5-allyl-5-isobutyl-**. See *Sandoptal*.
—, **5-allyl-5-isopropyl-**. See *Alurate; Alurate sodium*.
—, **5 - allyl - 5 - isopropyl - 1,3 - bis(*p*-nitrobenzyl)-**, 9375*c*.
—, **5 - allyl - 5 - isopropyl - 1 - methyl-**, detoxication of, 4766*c*.
sodium salt, narcotic, P 7646*i*.
—, **5 - allyl - 5 - (1 - methylbutyl)-**, crystallography and identification of, 8612*e*.
detection in urine, 1077*b*.
identification of, 8612*d*.
sodium deriv.—see *Seconal sodium*.
—, **5 - allyl - 5 - (1 - methylbutyl) - 2-thio-**, P 4692*d*.
sodium deriv., anesthetic and hypnotic action of, 1483*c*.
anesthetic properties of, 4768*e*.
cardiovascular toxicity of, 4768*f*.
—, **5 - allyl - 5 - (1 - methylisobutyl)-2-thio-**, P 4692*h*.
—, **5 - allyl - 5 - phenyl - (*alphenal, prophenal*)**, anticonvulsant action of, 4769*b*.
crystallography and identification of, 8612*e*.
—, **5-amino-**. See *Uramil*.
—, **5 - *sec* - amyl - 5 - (2 - bromoallyl)-**, sodium deriv.—see *Sigmodal sodium*.
—, **1-benzyl-**, 2953*f*.
—, **1-benzyl-5-benzylidene-**, 2953*f*.
—, **5-benzylidene-1-butyl-**, 2953*f*.
—, **5-benzylidene-1-isobutyl-**, 2953*f*.
—, **5-benzylidene-1-phenyl-**, 2953*f*.
—, **5-benzylidene-1-propyl-**, 2953*e*.
—, **1,3 - bis[*m*(*o* and *p*) - bromobenzyl]-5 - (1 - cyclohexen - 1 - yl) - 5-ethyl-**, 9375*c*.
—, **1,3 - bis[*m* (*o* and *p*) - chlorobenzyl] - 5 - (1 - cyclohexen - 1 - yl)-5-ethyl-**, 9375*c*.
—, **5,5 - bis(3 - chloro - 2 - butenyl)-**, 1726*a*.
—, **1,3 - bis(2,7 - dibromo - 9 - xanthyl)-5,5-diethyl-**, 3822*h*.
—, **1,3 - bis(2,7 - dibromo - 9 - xanthyl) - 5 - ethyl - 5 - phenyl-**, 3822*h*, 3822*h*.
—, **5 - (2 - bromoallyl) - 5 - *sec* - butyl-**. See *Pernoston*.
—, **5 - (2 - bromoallyl) - 5 - isopropyl-**. See *Nostal*.
—, **5 - (2 - bromoallyl) - 5 - isopropyl-1-methyl-**, sodium deriv.—see *Eunarcon*.
—, **5 - (2 - bromoallyl) - 5 - (1 - methylbutyl)-**, sodium deriv.—see *Sigmodal sodium*.
—, **5-(2-butenyl)-5-phenyl-**, anticonvulsant action of, 4769*b*.
—, **1-butyl-**, dihydrate-, 2953*c*.
—, **5-butyl-5-ethyl-**. See *Neonal*.
—, **5-butyl-5-phenyl-**, anticonvulsant action of, 4769*b*.
—, **5-(2-chloro-2-butenyl)-**, derivs., 1725*h*.
—, **5 - (3 - chloro - 2 - butenyl) - 5-ethyl-**, 1725*i*.
—, **5 - (3 - chloro - 2 - butenyl) - 5-isoamyl-**, 1725*i*.
—, **5-(cycloheptenyl)-**, derivs., P 5038*h*.
—, **5 - (cycloheptenyl) - 1,5 - dimethyl-**, P 5039*a*.
—, **5 - (cycloheptenyl) - 1,5 - dimethyl-2-thio-**, P 5039*b*.
—, **5 - (cycloheptenyl) - 5 - ethyl-**, P 5038*i*.
—, **5 - (cycloheptenyl) - 5 - ethyl - 2-thio-**, P 5039*b*.
—, **5 - (cycloheptenyl) - 5 - methyl-**, P 5038*i*.
—, **5 - (1 - cyclohexen - 1 - yl) - 1,5-dimethyl-**. See *Evipal*; for sodium deriv. see *Evipal sodium*.
—, **5 - (1 - cyclohexen - 1 - yl) - 1,5 - dimethyl - 2 - (*p* - nitrobenzyl)-**, 9375*b*.
—, **5 - (1 - cyclohexen - 1 - yl) - 5-ethyl-**. See *Phanodorm*.
—, **5 - (1 - cyclohexen - 1 - yl) - 5-ethyl - 1,3 - bis(*p* - nitrobenzyl)-**, 9375*c*.
—, **cyclohexenylmethyliminomethyl-***, P 3463*g*.
—, **(1 - cyclopropyl - 1 - methylpropyl)-**, in motion sickness prevention in dogs, 9239*c*.
—, **5,5-diallyl-**. See *Dial*.
—, **5,5-diethyl-**. See *Barbital*; for sodium deriv. see *Barbital sodium*.
—, **5 - [4 - (1,3 - diethyl - 2(3*H*) - benzimidazolylidene) - 2 - butenylidene]-1,3-diethyl-**, resonance and polarity of, 4910*h*.
—, **1,3 - diethyl - 5 - [4 - (1 - ethyl - 3,3-dimethyl - 2 - indolinylidene) - 2-butenylidene] - 2 - thio-**, resonance and polarity of, 4910*h*.
—, **5,5-diethyl-2-thio-**, antithyroid activity of, 9242*a*.
effect on thyrotropic hormone potency, 3909*b*.
—, **5 - (*p* - dimethylaminobenzylidene) - 1 - phenyl - 2 - thio-**, 8300*g*.
—, **5 - (*p* - dimethylaminobenzylidene)-2-thio-**, 8300*g*.
—, **diphenyl-**, distinguishing from barbituric acid, 6945*i*.
—, **5-ethyl-**, distinguishing from barbituric acid, 6945*h*.
—, **5-ethyl-5-hexyl-**, crystallography and identification of, 8612*e*.
detection in urine, 1077*b*.
identification of, 8612*d*.
sodium deriv.—see *Ortal sodium*.
—, **5-ethyl-5-isoamyl-**. See *Amytal*; for sodium deriv. see *Amytal sodium*.
—, **5-ethyl-5-isoamyl-2-thio-**, sodium deriv., anesthetic properties of, 4768*e*.
—, **5-ethyl-5-isopropyl-**. See *Ipral*.
—, **5 - ethyl - 5 - (1 - methyl - 1 - butenyl-)**. See *Delvinal*.
—, **5 - ethyl - 5 - (3 - methyl - 2-butenyl)-**, sodium deriv., pharmacology of, 5862*b*.
—, **5 - ethyl - 5 - (1 - methylbutyl)-**. See *Pentobarbital*; for sodium deriv. see *Pentobarbital sodium*.
—, **5 - ethyl - 5 - (1 - methylbutyl) - 2-thio-**, sodium deriv.—see *Pentothal sodium*.
—, **5 - ethyl - 1 - methyl - 5 - phenyl-**. See *Prominal*.
—, **5-ethyl-5-phenyl-**. See *Phenobarbital*; for sodium deriv. see *Phenobarbital sodium*.
—, **5-hydroxy-**. See *Dialuric acid*.
—, **2-imino-**. See *4,6(1H,5H)-Pyrimidinedione, 2,3-dihydro-2-imino-*.
—, **5,5'-iminodi-**, oxidation-reduction equil. with murexide, 7304*i*.
—, **1-isobutyl-**, 2953*f*.
—, **5-isobutyl-5-phenyl-**, anticonvulsant action of, 4769*b*.
—, **5-isonitroso-**. See *Violuric acid*.
—, **5 - isopropyl - 5 - (2 - methyl - 2-pentenyl)-2-thio-**, sodium deriv., anesthetic properties of, 4768*f*.
—, **5 - (2 - methylallyl) - 5 - phenyl-**, anticonvulsant action of, 4769*b*.
—, **5-nitro-**. See *Dilituric acid*.
—, **1-phenyl-**, 2953*f*.
—, **5-phenyl-**, 5-alkenyl derivs., central depressant action of, 4769*b*.
—, **5-phenyl-5-propyl-**, anticonvulsant action of, 4769*b*.
—, **1-propyl-**, 2953*e*.
—, **5 - (6 - p - ribitylamino - 3,4 - dimethylphenylimino)-***, fluorescence and pH of, 8282*c*.
—, **2-thio-**, anesthesia by, methadon and, 1483*d*.
derivs., P 4692*f*.
detection and detn. of, 4186*b*.
effect on polymerization of allyl and Me methacrylates, 8199*f*.
effect on thyrotropic hormone potency, 3909*b*.
reaction with ethylene oxides, 7420*h*.
—, **2,4,6-trithio-**, in detn. of Cu and Ag, 8300*h*.
**Barbiturism**. See *Barbital*.
**Bardol**, effect on heat deterioration of GR-S, 8188*g*.
**Barite**. (See also *Barium sulfate*.)
of Alaska, 2130*e*.
in amygdaloidal melaphyres near Smolenice and Neštich, 74*f*.
analysis of, 8970*f*.
of Australia, 6546*g*.
barium carbonate manuf. from, 307*f*.
blanc fixe manuf. from, 367*h*.
of Brazil (Camamú Bay), 4984*a*.

of the Carolinas and their flotability, 2134*a*.
as cementing substance for sands, 6550*e*.
compression of, 4917*b*.
crystal form of, near Belgrade, 4979*i*.
druses in calcitic limestones in Västanfjärd, Finland, 5345*h*.
effect on durability of ZnO outdoor primers on wood, 1199*c*.
effect on viscosity of rubber, 7251*c*.
of England (northern Pennines), 4188*d*.
flotation of, 1228*b*, P 3768*f*, 4611*a*.
of France, 1292*f*.
of Georgia (Cartersville), 8990*c*.
of Germany (Thuringia), 3750*f*.
of Idaho (Boise Basin), 4981*d*.
as indicator for Cu and polymetallic ores, 2130*i*.
industry in 1946, 2127*a*.
of Italy, 3319*a*, 5708*f*.
manganese oxide-contg. in Mn deposits of Talamantes Dist., Mex., 4983*e*.
as pigment extender, 8704*a*.
Raman spectrum of, 4956*d*.
of Texas (San Antonio Canyon), 6950*h*.
of Trinity River tributary area in Okla. and Tex., 4607*i*.
in Utah (Iron Co.), 7873*a*.
of Yugoslavia (Trepča mines), 4979*h*.

**Barium.** (*Other entries relating to barium and its compounds can be found under the heading* Alkaline earth metals *and under such headings as* Alkaline earth sulfates.)
absorption by clays and soils, 7618*f*.
by humic acid and soil, 7618*c*.
by $SiO_2$ gel, concn. and pH in relation to, 2498*f*.
adsorption by hydrous $Fe_2O_3$, rate of, 6035*i*.
adsorption by W, electron emission and, 6492*g*.
ammonia solns. of, 2500*c*.
antagonism to antibacterial action of atebrin and other drugs, 1826*a*.
antagonism to K on small intestine, 2326*i*.
Australian industry of, 6546*g*.
in blood coagulation, 4378*b*.
catalysts contg., in hydrogenation of furan and its derivs., P 4301*i*.
in cathodes (oxide) and its evapn., 5679*h*.
cation-exchanger dynamic activity toward, 3268*f*.
cements contg., P 8638*d*.
in coal, 1941*d*, 8639*e*.
coating with, of vacuum tubes, P 8284*c*.
crystallochem. electronegativity of ion of, 8231*a*.
in *Digitalis purpurea* leaves, 6703*i*.
effect of vapor of, on mercury-vapor discharge, 3279*e*.
effect on blood-vessel tone, 5116*a*.
on elec. cond. of Amberlite IR-100, 7785*f*.
on intestine paralyzed by phlorizin, 5872*e*.
on Mg-Zr alloys, P 4211*c*.
on metallic coating by vacuum evapn., P 104*c*.
on *Mycobacterium smegmatis*, 5444*c*.
on O consumption by frog skin, 3530*a*.
on polymyxin action, 9153*b*.
on proteinase action on cornea, 8514*e*.
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on stomach muscle, 4771*b*.
evapn. rate from oxide cathodes, 8286*d*.
exchangeability on amberlite IR-1, 3687*c*.
exchange of, in $AgMnO_4$-decompn. product, 4968*h*.
formation from Ba oxide, 8838*d*.
free, in oxide-coated cathodes, 7323*g*.
gamma-ray-bombarded, 936*g*.
getters from, 2877*d*.
glass-electrode reaction with ion of, 3728*b*.
heat capacity of, 3671*d*.
hydration of ion of, 8244*c*.
hydration of ion of, activity and, 7302*b*.
from iodine isotopes, 2861*e*.
isotope of mass 133, decay of isomeric, 4096*c*.
isotope of mass 137, half-life of metastable, 3707*i*.
isotope of mass 139, decay of, 1260*h*.
isotope of mass 139, neutron-capture cross section of, 8853*h*.
isotope of mass 140, diffusion coeffs. of, 7814*d*.
metabolism of, 6318*e*.
from Th by $\alpha$-ray action, 4127*b*.
from uranium by $\alpha$-ray action, 489*a*.
isotopes of masses 135 and 137, magnetic moments and gyromagnetic ratios of, 5303*f*.
isotopes of masses 139 and 140, $\beta$-rays from, 3707*g*.
isotopes of masses 139 and 140, decay of, 8868*f*.
manuf. of, P 7894*c*.
metabolism of, in hornets, 5124*b*.
in minerals, 8268*c*.
neutron-bombarded, $Cs^{131}$ and $Xe^{131}$ from, 4120*f*.
neutron capture cross section of, 6506*b*.
in petroleum, 2139*a*.
in piezoelec.-crystal-cond. control, P 368*i*.
in plant and animal tissue, 7987*f*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with $\alpha,\beta$-unsatd. carboxylic acids, 8202*g*.
reversal of actions of, 5863*i*.
review on, 3947*g*.
in sediments and sea water, 5350*e*.
sepn. from Ra, 2090*d*.
sparking potential in Xe, 4092*c*.
spasms in intestines from, effect of antihistamines and other substances on, 3934*e*.
spectrum of, 7338*b*, 7858*h*
excitation temp. and intensity of lines of, 8277*c*.
isotope displacement of, 6510*i*.
from oxide cathode, 7324*h*.
*Staphylococcus aureus* inhibition by, 2278*d*.
system: Mg–, 4594*h*.
systems: Sb–, Bi–, Pb–, and Sn–, heats of formation of, 5275*b*.
systems: $BaBr_2$–, and $BaCl_2$–, 7803*d*
thermionic consts. of, 4101*b*
toxicity of, 3936*i*.
toxicity to mycomycetes, 8418*f*.

**Barium, analysis.** (See also *Alkaline earth metals, analysis.*)
detection, 7369*b*, 7860*c*, 8966*c*, 8979*h*
detection and detn., 1680*fg*, 7858*h*
detection in blue halite, 6116*i*.
detection in foods, 9273*h*.
detn., 57*i*, 6106*f*, 6941*f*
detn. in aq. solns., 7371*g*
in biol. materials and paper, 6104*h*
in glass, 5558*b*.
in lubricating oils, 4810*g*.
in pigments, 8697*b*.
in presence of Ca, Mg and Sr, 6106*g*.
detn., thermobalance in, 7367*f*.
sepn. from Ca and detn., 2115*h*, 2116*a*
sepn. from Ca and Sr, detection and detn., 2888*f*.
sepn. from Pb, 7370*e*.
sepn. from U fission products, 4127*h*.

**Barium acetate,** in acetic anhydride, behavior of, 2110*c*.
as catalyst in ketene reaction with aldehydes, P 5037*g*.
contg. $C^{14}$, 1324*h*.
titration with $K_2SO_4$, 6472*c*.

**Barium alloys,** manuf. of, P 7894*c*.

**Barium aluminates.** (See also *Alkaline earth aluminates.*)
decompn. by heat, 1277*h*.
manuf. of, P 6795*c*.

**$BaAl_2O_4$,** formation of, kinetics of, 6894*g*.

**Barium antimonate,** $BaO.Sb_2O_5$, as opacifier for enamels, 2392*g*.

**Barium arsenites,** formation of, 8296*a*.

**Barium borates,** 4438*h*.

**Barium bromide.** (See also *Alkaline earth halides.*)
activity and osmotic coeffs. of, 22*d*.
compd. with Ba 2-ketolactobionate, 1330*i*.
magnetic susceptibilities of hydrates of, 4528*f*.
system: Ba–, 7803*d*.

**Barium butyl phosphate,** 599*i*.

**Barium *tert*-butyl sulfate,** 5737*f*.

**Barium carbide.** (See also *Alkaline earth carbides.*)
prepn. of, and $BaC_2$[14], 1713*h*.

**Barium carbonate.** (See also *Alkaline earth carbonates; Witherite.*)
acceptance by rats, 3140*d*.
as arc stabilizer in inert-gas welding, P 6967*b*.
as catalyst in ketone manuf. from fatty acids, P 7037*f*.
cathode coating with, P 8290*f*.
density (apparent) of powd., 3265*e*.
effect on drilling muds, 8652*g*.
electrophoretic deposition of, effect of alcs. on, 8908*e*.
manuf. from barite, 367*f*.
poisoning by, 3105*g*.
as promoter in hydrogenation of CO, 8117*b*.

**Barium cesium copper thiocyanate,** $Cs_2BaCu_2(CNS)_7$, 5324*g*.

**Barium cesium silver thiocyanate,** $Cs_2BaAg_2(CNS)_7$, 5324*h*.

**Barium chlorate,** magnetic susceptibilities of hydrates of, 4528*f*.

**Barium chloride.** (See also *Alkaline earth chlorides; Alkaline earth halides.*)
activity and osmotic coeffs. of, 22*d*.
activity coeffs. of, 6049*c*.
in agar-agar gels during syneresis, 8793*f*
arsenic trisulfide-sol coagulation by, effect of nonelectrolytes on, 8794*a*.
biol. action of, acetylcholine and, 5505*h*.
as catalyst in $C_2H_2$ reaction with HCl, 6969*h*.
concn. cells contg., 8287*d*.
cornea tolerance to, 3111*a*.
crystal structure of, 6032*a*.
dehydration of dihydrate of, with $COCl_2$ or $SOCl_2$, 2533*c*.
dehydration of hexahydrate of, 1278*g*
diffusion of solns. contg., effect of glass diaphragms on rate of, 8773*g*.
effect on clay minerals, 372*c*.
on cornea, 771*c*
denervated and normal uterus, 8064*b*.
on elec. cond. of aq. dodecylammonium chloride, 8810*d*.
on film potential of palmitic acid, 6038*f*.
on heart, 758*f*.
on light scattering by solns. of dodecylamine-HCl, 7293*d*.
on polarographic diffusion current of Cd ion, 5655*d*.
freezing-point depression of, in ice-urea eutectic, 169*f*.
humidity over satd. soln. of, 8812*i*
interaction with silicic acid sols, 8237*d*
intestinal response to, effect of tetraethylammonium ion on, 1110*g*.
ion exchange with $As_2S_3$ hydrosol, 5205*a*
lakes with quebracho, K antimonyl tartrate, Na resinate and basic dyes for inks, P 4494*c*.
magnetic susceptibilities of hydrates of, 4528*f*.
manuf. of, P 7200*i*.
methane effect on, 5734*f*.
muscle contraction by, 3861*c*.
pellets or tablets of, polytetrafluoroethylene bonded, P 9300*f*.
reaction with $BrF_3$, 3739*f*.
reaction with $Na_2CO_3$ in soln., 6060*g*
sepn. from EtOH, by heating liquid-vapor interface, 7298*a*.
soly. in aq. alc., effect of $C_6H_6$ or $CHCl_3$ on, 6889*h*.
structure of, 460*c*.
system: $AlF_3$–$NaF$–, d. of, 2097*f*
system: Ba–, 7803*d*
systems: $CdCl_2$–, and $PbCl_2$–, ds. and molar vols. of, 6498*f*.

**Barium chromate,** detn. in paints and pigments, 1195*e*.
explosive delay compns. from Mn or Zr and, P 408*f*
ignition temp. of analytical ppt. of, 2543*c*.
mixt. with Mg, effect of heat and air on, 2108*g*.
pigments—see *Pigments*

**Barium compounds.** (See also *Alkaline earth compounds;* and such headings as *Alkaline earth chlorides* and *Alkaline earth sulfates.*)
of ethyl 1,3-dioxo-2-indancarboxylate, 3398*b*.
with (ethylenedinitrilo)tetraacetic acid, 2113*c*.
as fungicides for cotton fabric, 8085*f*.
with isatin 3-semicarbazone, 8979*i*.
lakes with azo dyes, P 2789*e*.
lattice energies of, 8230*g*.
lead detn. in dye laked, 9452*g*.
with magnesium, 4594*h*.
manuf. in elec. furnace, 6519*a*, 7351*d*.
with metals, heats of formation of $BaBi_3$, $Ba_3Sb_2$, $Ba_3Pb$, $BaPb_3$, $BaSn_3$ and $BaSn_5$, 5275*c*.
with phenyliminodiacetic acid and *N, N*-bis(carboxymethyl)anthranilic acid, spectra of, 7341*a*.
with phthalocyanine sulfonamides for lakes, P 8692*i*.
review on, 3947*g*.
as termite repellents, 9341*f*.

**Barium cyanide,** formation from $Ba_3N_2$, 8930*f*.

rium **dithionate**, structure of dihydrate of, 8232*e*.
rium **ethyl phosphate**, 600*a*.
rium **fluobromite**, $Ba(BrF_4)_2$, 3739*f*.
rium **fluoride**. (See also *Alkaline earth fluorides; Alkaline earth halides.*)
adsorption of $NH_3$, $CO_2$, $N_2O$ and $SO_2$ by, 2485*b*.
chlorine-resistant app. from, P 6387*b*.
rium **fluosilicate**, $BaSiF_6$, in sweet-clover-weevil control, 8599*c*.
rium **halides**. (See also *Alkaline earth halides; Barium chloride;* etc.)
formation from $BaSO_4$ and $NH_4$ halides, 9393*d*.
rium **hydroxide**. (See also *Alkaline earth hydroxides.*)
aluminum soln. in, rate of, 7305*e*.
as catalyst in condensation of 2-furaldehyde with PhOH, 5224*i*
catalyst of, and $Al_2O_3$ in dehydrogenation of olefins, P 3023*d*.
as decarboxylation catalyst, 7801*c*.
diacetone alc. decompn. in solns. of, and dissocn. of BaOH$^+$, 6055*a*.
silica-gel-powder sedimentation vol. in, 7777*f*.
rium **iodide**. (See also *Alkaline earth halides.*)
activity and osmotic coeffs. of, 22*d*.
rium **lead magnesium silicate**, phosphor of, P 4959*b*.
rium **molybdates**, luminescence of $BaMoO_4$ and $BaMnO_4$, 3722*f*.
rium **molybdomanganate(IV)** ($3BaO \cdot MnO_2 \cdot 9MoO_3$), 8297*d*.
magnetic properties, mol. constitution and valency of, 4167*b*.
arium **molybonickelate(IV)** ($3BaO \cdot NiO_2 \cdot 9MoO_3$), 8298*a*.
magnetic properties, mol. constitution and valency of, 4167*a*.
arium **nitrate**. (See also *Alkaline earth nitrates.*)
activity and osmotic coeffs. of, 22*d*.
activity coeffs of, 6049*d*
as catalyst for condensation of 2-furaldehyde with PhOH, 5226*b*.
as catalyst in $HNO_3$ oxidation of cellulose, 1978*i*.
elasticity of, 8787*c*.
incendiary compns. from Al, Thermite and, P 1190*g*.
manuf. of, 7199*e*.
photoelastic effect in, 4916*g*.
Raman spectrum of, 3294*d*, 8887*l*.
Barium **nitrides**.
$Ba_3N_2$, reaction with C, 8930*l*
$BaN_6$, use in microwave tube, P 4966*b*.
Barium **nitrite**. (See also *Alkaline earth nitrites.*)
structure of, 3261*h*
Barium **nitropalladate(II)**, in photographic fog inhibition, P 6100*a*.
Barium **number**, detn. of, and detection of mercerization by, 2139*a*
Barium **ores**, of Italy (Candoglia), 2134*a*.
Barium **oxide** (BaO). (See also *Alkaline earths.*)
bismuth oxide and, as catalyst in condensation of aldehydes and ketones, P 2632*d*.
catalyst of $Cr_2O_3$, CuO and, in alkylation of *p* phenylenediamine with ketones, P 4005*e*.
cathode coatings of SrO and, cond. of, 8856*g*.
energy levels in, 934*a*.
photoelec. effect in, 5678*f*.
cathodes of SrO and, decay of thermionic emission of, 4095*d*.
cathodes of SrO and, as semiconductors, 7353*h*
coatings of, resistance for pulsed emission, 2857*e*.
as desiccant in hydrogenation of CO, P 1171*d*
detn. of, 1277*h*.
effect on viscosity of silicate glasses at annealing temps., 7654*f*.
electron emission from, bombarded by K ions, 1256*g*.
photoelec. effect in, 8846*c*.
reduction of, by impurities in Ni core of oxide-coated cathode, 7323*h*.
sodium oxide replacement by, in molten soln., 5687*g*.
system: $Al_2O_3$–MgO–$SiO_2$–, 6380*c*.
system: $As_2O_3$–$H_2O$–, 8295*i*.
system: $B_2O_3$–, 4438*g*.
system: $SiO_2$–, 2909*h*.
system: $SiO_2$–$Na_2O$–, 3275*d*.
systems: CaO–$TiO_2$–, MgO–$TiO_2$–, and SrO–$TiO_2$–, 5164*i*.
systems with $B_2O_3$ or $SiO_2$, 5322*h*.
system: $TiO_2$–, dielec. properties of, 5561*d*.
work function and energy levels in, 933*h*.
Barium **perchlorate**. (See also *Alkaline earth perchlorates.*)
magnetic susceptibility of, 5689*b*.
Barium **phosphates**. (See also *Alkaline earth phosphates; Barium polyphosphate; Barium pyrophosphate.*)
$Ba(H_2PO_4)_2$, prepn. of, 5688*i*.
$Ba_3(PO_4)_2$, structure of, 3261*c*.
thermal stability limits of analytical ppts. of, 8971*h*.
vinyl chloride-vinylidene chloride polymer stabilization with, P 8741*g*.
Barium **phosphomolybdate**, $Ba_3(PO_4 \cdot 12MoO_3)_2$, 2537*f*.
Barium **phosphotungstate**, $Ba_3(PO_4 \cdot 12WO_3)_2$, 2537*f*.
Barium **platinate titanates**, crystal structure and dielec. properties of, 1236*d*.
Barium **potassium chromate**, $BaK_2(CrO_4)_2$, with pigment properties, 5603*i*.
Barium **pyrophosphate**, $Ba_2P_2O_7$, thermal stability limits for analytical ppts. of, 8971*h*.
Barium **salts**. (See also *Alkaline earth salts.*)
heart-muscle contracture from, 5867*h*.
of reaction products of P sulfides with chlorinated paraffins, P 6606.
Barium **silicates**. (See also *Alkaline earth silicates.*)
and cathodoluminescence thereof, 3723*a*.
$Ba_2SiO_4$, elec. properties of interface of, on oxide-coated cathode, 8856*g*.
$Ba_2Si_3O_{11}$, phosphors contg., response to far-ultraviolet light, 3717*b*
Barium **sodium thiophosphate**, $NaBa_4PO_3S$, 4170*e*.
Barium **stannates**, and cathodoluminescence thereof, 3723*a*
$BaSnO_3$, dielecs. from $BaTiO_3$ and, P 6803*e*.
mixts with $BaTiO_3$, elec. properties of, 5245*a*.
Barium **sulfate**. (See also *Alkaline earth sulfates; Barite.*)
amino acid adsorption by, 3087*a*.
as catalyst in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
compn. contg., for use in fluoroscopy and rontgenography, P 3153*g*.
detn. in barite, 8970*f*.
detn. in cosmetics, 9369*a*.
detonation velocities of mixts of trinitrotoluene and, 2776*b*.
for drilling fluids, P 6402*g*
effect on durability of ZnO outdoor primers on wood, 1199*c*.
electrokinetic and reversible electrode potentials of, 4924*h*.
electrokinetic potential of, 4924*ad*, 4925*ab*, 6091*b*, 8800*e*.
hydrolytic adsorption in, 6882*h*.
lead-activated, as scintillation counter, 5292*e*.
Liesegang rings in presence of, 1628*h*.
manuf. from barite, 367*i*.
mixt. with $PbCl_2$, fluorescent material from, P 500*h*.
as paper filler, 400*i*.
phosphors contg., response to far-ultraviolet light, 3717*b*
photoeffect (internal) in, effect of dyes on, 7349*f*.
as pigment extender, 8704*a*.
precipitation of, in presence of Na citrate, 4426*c*.
precipitation of, rate of, 6941*f*.
reaction with $Al_2O_3$, kinetics of, 6894*g*.
reaction with $NH_4$ halides, 9393*d*.
in rocks of Nova Scotia, 5348*d*.
spectrum of, 3293*b*.
surface area of, 18*h*.
surface area of powder of, measurement of, 8610*c*.
turbidity of ppts. of, formed in gummy solns., 3873*i*.
vapor adsorption by, 461*g*.
Barium **sulfide**. (See also *Alkaline earth sulfides.*)
phosphors contg., temp.-stability of luminescence of, 3724*b*.
Barium **thioindate**, $3Ba(InS_2)_2 \cdot Ba(OH)_2 \cdot 16H_2O$, 2883*h*
Barium **thiophosphates**, 4170*cf*.
Barium **thiosulfate**, monohydrate, 1680*f*
Barium **titanates**. (See also *Alkaline earth titanates.*)
as dielectrics, 2388*d*.
$BaTiO_3$, app. for detn. of crystal orientation of, 8749*c*.
atomic positions and optical properties of, 6032*h*.
dielec. const. and transition point of, 8832*h*.
dielec. const. at high temps., 4061*e*.
dielec. const. at ultra-high frequencies, 2877*h*.
dielec. properties of, 453*h*, 7205*b*.
dielec. properties of single-domain crystals of, 453*f*.
dielecs. contg. $MnO_2$ and, P 5566*c*.
dielecs. from, P 5919*a*.
dielecs. from stannates, zirconates and, P 6803*d*.
electrostriction of ceramics from, 2054*h*, 4067*a*.
ferro-elec. Barkhausen effect in, 4068*d*.
ferro-elec. effect in, 2055*d*, 8783*h*
mixts. with $BaSnO_3$ or $CaSnO_3$, elec. properties of, 5244*i*.
mixts. with $SrTiO_3$, dielec. properties of, 2054*e*.
optical properties of, 6032*i*.
orientation of domains in polycryst., 4066*i*, 6485*c*.
prepn. and properties of crystals of, 3261*f*.
properties and structure of, 7286*c*, 9402*j*.
*n* of, 8766*c*.
review on, 515*d*.
single crystals of, 4061*d*, 4066*d*, 4917*h*
structure of, 3261*h*.
transitions in, at low temps., 8786*d*
$BaTi_4O_9$, 5561*f*.
Barium **tungstates**, luminescence of $BaWO_4$ and $Ba_2WO_5$, and of their U-activated states, 3722*f*
Barium **vanadate(V)**, $Ba(VO_3)_2$, prepn. and soly. of, 8247*f*.
Barium **zinc silicate**, phosphors contg., 6084*c*.
Barium **zirconate** $BaZrO_3$, and cathodoluminescence thereof, 3723*a*.
Bark (*For studies on the bark of specific trees, see the specific tree.*)
constituents from, 4848*d*.
copper and Zn in, in geochemistry, 3321*c*.
in de-inking of paper, 4847*d*.
fiber sepn. from comminuted, P 1187*i*.
lignin detn. in, 5539*f*.
tannin content and extn. from, 9507*f*.
tannin from, 4847*e*.
tannin leaching from, P 7274*b*.
Silvacon products from, 2767*c*.
**Barkevikites**, in camptonite groundmass o Tyan-Shan, U.S.S.R., 6128*h*.
**Barkhausen effect**, ferro-elec., in $BaTiO_3$, 4068*d*.
**Barley**. (See also *Cereals; Grains; Malt; Malting.*)
alc. manuf. from polishings of, 6359*e*.
amino acids in, 3534*f*, 5450*g*.
β-amylase detn. in, 8092*c*.
amylases in, 353*f*, 9102*c*.
antitoxic exts. from, P 3571*c*.
bran, yeast production from, 778*f*.
brewing, treatment of, P 1148*e*.
bromine and Cl in, 3537*f*, 8572*d*.
buffer-index values of sap of, soil pH tolerance and, 2288*f*.
calcium in soil and, 7622*h*.
carbon dioxide formation in stored, 4345*e*.
choline forms in, during growth, 8457*c*.
2,4-D effect on, 6775*i*.
digestible nutrients of, for fowls, 6292*h*
disinfection of seed, 7179*b*, 7180*b*.
ergothioneine in ergot from, 9379*b*.
feeds from, compn. of, 3538*i*.
fertilizer expts. with, with N, 7174*f*.
with phosphates, 798*f*, 799*c*.
with P and K, 1511*b*.
with Na, 7173*e*.
with superphosphate, 1891*c*.
flour, admixt. with wheat flour, effect on bread, 4891*h*, 7596*d*.
flour, detn. in wheat flour and rye flour, 9277*c*.
flowering of, effect of auxin on, 5456*c*.
germination of, effect of coumarin and thiourea on, 1834*a*.
germination of, effect of trimethylamine on, 738*f*.
globulins from, pptn. with tannic acid, 261*e*.
globulins in seeds of, 8456*e*.
growth inhibitors in seeds of, 3493*a*.
hormone treatment of seed, effect on yield, 1839*d*.
ion intake by seedlings of, effect of salt solns. on, 7554*i*.
isopropyl carbanilate persistence in soil under, 3961*c*.

kritesin from spikes of, 5750*b*.
lichenase extn. from, 8407*f*.
as manganese source in poultry feeding stuffs, 6331*c*.
2-methyl-4-chlorophenoxyacetic acid effect on, 1137*f*.
mineral content of, in relation to K deficiency, 9175*d*.
mineral substances and water in, in relation to absorptive capacity of roots, 5452*d*.
mutation of seeds of, by N mustard and neutrons, 3048*c*.
nicotinic acid distribution in grains of, 5875*e*.
nitrogen fractions in, 7595*e*.
oil of—see *Oils*.
pantothenic acid in, 3143*a*.
peroxide from leaves of, 4730*d*.
porridge-type foods contg., vitamin $B_2$ in, 4393*d*.
potassium in sprouts of, 2282*f*.
protein metabolism of, during germination, 7554*b*.
proteins of, 6253*g*.
biol. value of, 6330*h*.
hydrotropic action of urea on, 7595*e*.
protochlorophyll from seedlings of, isolation and spectrum of, 1465*a*.
respiration during germination, effect of surface microflora on, 802*f*.
respiratory system in, 728*g*.
root elongation in germinating, effect of growth substances on, 8015*f*.
roots of, carbohydrate loss and $CO_2$ production during fermentation of, 4808*h*.
effect of exchange capacity of clay minerals and acidoid content of plant on uptake of Na and Ca by, 8010*a*.
pyruvate and respiration of, 7095*c*.
selenium in, 3890*e*.
soaking seed, in nutrient solns., 4801*i*.
soils under, pH and P of, 339*h*.
sprouting damage of brewing, 5091*a*.
straw, compn. of, 7226*e*.
straw, xylon from, 2954*g*.
take-all disease of, soil and, 9323*d*.
tillering in, auxin and, 7555*g*.
vitamin $B_1$ in Punjab, and effect of cooking thereon, 8565*f*.
vitamins $B_1$ and $B_2$ in, 3402*f*, 6747*g*, 7153*i*.

**Barnacles**, control of, paints in, 5969*h*.
**Barnes, R. Bowling**, biography of, 4930*h*.
**Barn grass**. See *Grasses*.
**Barns**, fire-resistant, 9313*d*.
**Baro-photometer**, 3277*c*, 7279*h*.
**Barostats**. See "regulators for" under *Pressure*.
**Barracuda**, repellents for, P 2734*b*, P 5154*d*.
**Barrandite**, in iron ores (sedimentary), 2138*f*.
**Barrels**, tumbling—see *Tumbling apparatus*.
wine casks, treatment of, P 6362*g*
**Barrowcliff, Marmaduke**, obituary, 915*g*.
**Barsprout**, for potato treatment, 7181*f*.
**Barthite**, morphology of, 5348*a*.
**Bartonella muris**. See *Haemobartonella muris*.
**Baryta**. See *Barium oxide*.
**Barytes**. See *Barite*.
**Barytine**. See *Barite*.
**Barytocalcite**, of England (northern Pennines), 4188*e*.
**Barytrons**. See *Mesotrons*.
**Basalts**, of Annam, 2135*c*.
Atlantic (mid-) ridge olivine basalts and, 6548*c*.
of California, 2904*h*.
crystn. from magma and crystal size in dikes, 6127*f*.
from D'Entrecasteaux Is., 2135*i*.
dikes of Sb deposits of Soyatal Dist., Mex., 4982*c*.
-effusive rock relations in Janowa Dolina, Poland, 1293*a*.
formation of alkalic and olivine-free, in N. Mex., 6128*d*.
from Greenland (West), 4984*g*.
Hawaiian and plateau, 2552*b*.
Icelandic subglacial, columnar structure from convective flow in, 6548*b*.
iron oxide equil. with O in molten, 526*g*.
of Italy (Mt. Berlci), 2135*h*
melilite, olivines from S. African, 6119*c*.
microflora of, 9160*e*.
nepheline, aq. inclusion in, from Nagahama, Japan, 5349*e*.
of New Mexico (northeastern), 6128*b*.
olivine and olivine-free, crystn. rates of, 2904*a*.
olivine, from Finkenberg, 7873*i*.
*olivine*, quartz origin in, of Kutjevo, 4191*c*.
spheroidal weathering of porphyritic, 6549*g*.
of Oregon (Grant Co.), 524*h*.
porphyritic teschenite, of Saltocoats, Ayrshire, 3751*i*.
quartz, of Hagi, Japan, origin of, 6128*a*.
of Scotland (Old Red sandstone suite), 3323*e*.
of Siberian Plateau, 3750*b*.
of South Africa, 6128*e*.
structure from solidification of Al slugs, 4991*f*.
vitrified xenoliths in pillow, of British Columbia, 2903*h*.
of volcanic region of Cape Ferrato, Sardinia, 978*c*.
**Basanites**, leucite, at Nyamuragira and Tshambene, Belgian Congo, 5349*b*.
leucite, from Nyamuragira sublimates, 8992*e*.
**Basedow's disease**. See "exophthalmic" under *Goiter*.
**Base-exchanging compounds** or **Cation-exchanging compounds**. (See also *Glauconite; Zeolites;* and "exchanging substances" under *Ions, electrolytic*.)
alkali aluminosilicate, P 337*c*.
aluminosilicates as, 2067*e*.
aluminum hydroxide as, 2070*g*.
Amberlite IRC-50 as, 6489*g*.
carbonate manuf. from $CO_2$ and org., P 6374*d*.
clays, minerals in, 3580*g*.
dynamic activity toward cations, 3268*d*.
filaments, films, etc., from, P 3242*i*.
filter paper as, 2429*f*.
filter using, P 6009*f*.
humic acids and synthetic melanoids as, 5255*f*.
in lactose production from milk or whey, P 8072*c*.
from oxidized colophony, lignite, oils, wood charcoal, etc., 8076*c*.
phenolsulfonate resin, cation exchange with, 8792*adef*.
in prevention of crystn. of argols in grape products, P 9295*a*.
resinous, P 2814*i*, P 5238*d*, P 5517*c*, P 5517*d*, 7785*d*.
in amino acid sepn., P 3029*i*.
as catalysts in hydrolysis of esters, 6064*i*.
detn. of max.-exchange capacity of, 5885*e*.
regeneration of, 6872*e*.
sepn. of amino acids, org. acids and bases, and protein hydrolyzate with, 8806*h*, 8807*b*.
sterilization of, 3952*i*.
in taste improvement of water-sol. constituents of forage crops, P 6334*h*.
for water purification, P 3954*e*.
silver recovery with, 3306*b*.
sodium-H exchange on carbonaceous, in chlorides, 2848*b*.
from sulfonates and aldehydes, P 2344*e*.
from sulfophthalein and HCHO, P 1216*i*.
in water purification—see *Water, purification of*.
whey treatment in, P 4785*b*.
**Basella rubra**, calcium in, utilization by rats, 288*c*.
**Base number**, detn. of, 4787*c*.
**Bases**. (See also *Alkalies; Alkaloids; Amines; Cations; Nitrogen compounds; Pyridine bases; Schiff bases*.)
acid- catalysis in nonaq. solvents, [illegible]
-acid equil.—see *Acid-base equilibrium*.
adsorption of, pH and, 6035*c*.
in ammonia (liquid), 7854*a*.
ammonia strength as, 7303*c*.
books: Handling and Transportation of—(in Russian), 2744*h*; Teoriya Kislot i Osnomanii; Istoriya i Sovremennoe Sostoyanie, 8256*h*.
catalysts from Ni and, in nitrile hydrogenation, P 682*f*.
as catalysts in bromination of Et cyclopentanone-2-carboxylate, 3698*c*.
in cyanoethylation of reactive methylene compds., P 3446*h*.
in emulsification of phenol-HCHO reaction mixts., 5223*g*.
of coal-tar heavy oil, 5402*c*.
colloidal, 9316*i*.
complexes of org., with influenza virus, 3051*b*.
DDT decompn. by, 3697*d*.
definitions of, 2826*d*, 8971*c*.
detn. in blood serum, 7539*g*.
detn. in blood serum and cerebrospinal fluid, 1070*e*.
diazo compds. as, 2491*h*.
effect on PhBr reduction to biphenyl 4242*g*.
exchange—see also *Cations; Ions, electrolytic*.
exchangeable, and base-exchange reactions of vermiculite, 8987*h*.
-exchange capacity of bentonite and montmorillonite, effect of grinding on, 3957
of clay minerals, effect on uptake of Ca and Na by barley and pea roots, 8010*a*.
of manure, 3132*a*.
of montmorillonite after electrodialysis, 2549*f*.
exchange of, P 6378*g*.
by Amberlite IR-100 in sepn. of Na and K, 5698*i*.
in burned skin, 1477*b*.
by clay minerals, 8232*i*.
by clays, 9316*a*.
by clays, colloid content and, 2070*b*
by mordenite, 6488*h*.
in petroleum-cracking-catalyst reactivation, P 9428*c*.
by quartz and $SiO_2$ gel, 5885*f*.
exchange in water purification—see *Water purification of*.
exchange or exchange capacity in soils—see *Soils; Soils, analysis*.
indicators for—see *Indicators*.
neutralization of—see also *Neutralization*.
paraldehyde stabilization by org., in fuel blends, P 8130*b*.
reaction with collagen, 1206*f*.
recovery and utilization of org., from coal carbonization, 5923*i*.
recovery by ion exchange, 3668*c*.
removal from water—see *Water, purification of*.
sepn. from urine concentrates, 7070*h*
sepn. of org., with cation-exchange resins, 8806*h*
in shellfish poison (paralytic), 3053*i*
in soils—see *Soils; Soils, analysis*
-strengthening effect of resonant amino group in heterocyclic bases, 6893*i*
strength of cacodylic acid, 7790*d*.
strength of heterocyclic, 3416*d*.
strength of org., effect of substituents on, 470*e*.
synthesis and stereochemistry of reduced cyclic, 1414*f*.
systems: acids in gas phase, 3422*c*
teaching about, 3251*g*.
theories of, 6051*c*, 7304*a*.
theory of, education in, 451*c*.
tobacco—see *Tobacco*.
**Basic degree**, the expression, 5687*f*
**Basicity**. (See also *Alkalinity*.)
of amines, 3776*h*
of amines and their salt formation with weak acids, 6157*h*
of arylamines, reaction with BrClHBr and, 2210*b*.
calcn. of, of chrome tanned hides, 6449*h*.
of *N*-chloro dialkylamines and monochloramine, 8821*i*.
const., of sulfathiazole, spectrophotometric detn. of, 2093*i*.
detn. of, of chrome alum solns., 2007*a*
of chrome-tanning materials, 6449*h*, 6851*d*.
of marmentitic slags, 2120*h*.
of slag, 2911*b*.
of heteropoly acids, 56*h*.
of medium, activity coeff. and, 7304*g*
of mononitronaphthylamines, 6192*e*
of surfaces of rare earth hydroxides, 8244*g*
**Basicop**. See "basic" under *Copper salts*.
**Basidiomycetes**, antiobiotic substances from, 2274*i*, 9149*d*.
**Basil**. (See also *Ocimum*.)
vitamin C in, 5511*b*.
**Basil oil**. See *Oils*.
**Bassia**, *latifolia*—see *Mahua;* and "mowrha" under *Fats*.
*parkii*, fat from nuts of—see "shea" under *Fats*.
**Basswood**. See *Linden*.
**Bast fiber**. See *Fibers*.
**Basthioryl***, thyreostatic action of, 2315*i*, N.Z.
**Bastite**, of Wairere, King Co., 1692*h*.
**Batatas**. See *Ipomoea*.
**Bates**. See *Hides*.
**Bathochromic effects**, in azines and dianils, 5756*a*.

in *N, N'*-dibenzylidene-ethylenediamines, 3388*g*.
in formazyl compds., 4262*c*.
**Ætholiths**, of Germany (Thuringia), 3750*h*.
granodiorite, of Arequipa quadrangle, Peru, 73*i*.
granodioritic intrusive, of Caucasus, effect of microclinization on, 8993*b*.
**Æth preparations**, alginates in foam, 1906*g*.
**Æths**. (See also *Water baths*.)
air, from Al shavings, 8217*b*.
descaling, heating of, 8999*b*.
salt, analysis for carbonates, fluorides, pH and sulfates, 2546*i*.
for austempering, etc., P 7892*d*.
carburization of case-hardening steels in, 8327*h*.
cleaning ferrous materials in, P 5680*d*.
for cleaning metals, regeneration of, P 3769*bc*.
elec., P 2881*a*.
electrodes for, P 3734*c*.
furnaces for, P 1665*a*, P 4058*b*.
in heat-treatment of metals, 4990*h*.
for heat-treatment of stainless steels, P 6965*i*.
prevention of corrosion of electrodes for, P 4153*f*.
Pyrobar heaters for, 4613*e*.
radiant-heated furnace for, P 7274*g*.
replenishment of electrodes in, P 4154*a*.
in sepn. of heavy metal from light metal or light-metal alloy scrap, P 6563*f*.
for steel, neutralization of, P 6145*a*.
tiltable, P 7357*h*.
sand, elec. heater for, 5236*a*.
**Æating**. See *Hides*.
**Æatrachia**. See *Amphibians*.
Æats control of, 7631*i*.
**Æatteries**. See *Cells, voltaic; Storage batteries; Thermoelectricity*.
Æatyl **alcohol** (*3-(octadecyloxy)-1,2-propanediol*), effect on nervous system, 311*h*.
erythropoietic effect of, 6737*f*.
Æauxite, activated, in lubricating-oil regeneration, P 8668*e*.
activated, in sugar manuf., 6848*g*.
adsorbents, regeneration by oxidation, P 2122*b*
adsorption and H-exchange catalysis by Fe-contg., 6497*f*.
alumina extn. from—see *Alumina*.
analysis of, for Cr and Mn, 8304*d*.
Australian industry of, 6546*h*.
catalyst from $AlCl_3$ and, P 3162*c*.
as catalyst in acetal manuf., P 2222*c*.
in alkylation of phenols with alcs. or ethers, P 687*f*.
in $C_6H_6$ and toluene manuf. from petroleum and its gases, 8661*c*.
in dehydrogenation of cyclohexane, 7911*i*, 7912*a*.
in methylation of $C_{10}H_8$ with $Me_2O$, 2197*a*.
in 2-methylpropene reaction with nitrosyl halides, P 7950*f*.
in reduction of oils to higher alcs., P 3835*e*.
in thermal dissocn. of Ca, K and Na sulfates, 6895*h*.
catalysts from, for H reaction with S, P 7291*h*.
catalysts of dehydrated, in defluorination of $C_4H_{10}$, P 1175*a*.
cement from, 9409*h*.
deposits of, 6124*f*
exploration for, 3320*i*.
extn. with soda soln., 1923*i*.
of Far East, 6052*f*.
fluorine compd. removal from hydrocarbon conversion products with, $SiF_4$ formation by, P 1558*i*.
formation of, 2133*eh*.
of France (L'Auvergne), 8984*e*.
gallium detn. in Indian, 3743*h*.
of Georgia (Irwinton), 6952*f*.
history of, 7876*f*.
of Hungary (Zagorje Plateau), 7873*d*.
from hydrocarbon-oil refining, regeneration of, P 5180*i*.
of India (Shevaroy Hills), 2133*d*.
industry in 1946, 2127*a*.
iron and slag cement from Hungarian, 9000*d*.
iron recovery from Hungarian, 8997*d*.
on kaolin deposit from Paranam, Dutch Guiana, 5349*h*.
pigment from red slime from, 5200*h*.
pisolitic, magnetic sepn. of, 8995*h*.
reduction in stages, 1295*a*.
Shantung, 9395*g*.
sodium hydroxide pretreatment of, P 9398*f*.
sulfur dioxide manuf. from, P 826*a*.
in sulfur removal in open-hearth furnace, 8999*h*.
world resources of, 9296*h*.
**Bavarian Academy of Sciences**, chem. lab. of, 8759*h*.
**Bavenite**, from Baveno, Italy, and Mesa Grande, Calif., 2129*g*.
**Bayberry**, fat of *Myrica cordifolia* fruit coat, 3217*d*.
**Bayer 205** (*Fourneau 309, Germanin, Moranyl, Naganol*), detn. in blood and serum, 2662*c*.
effect on enzymes, 6257*b*.
**Bayerite**, isoelec. point of, 6041*a*.
precipitation from $NaAlO_2$ solns., 55*f*.
**Bay oil**. See *Oils*.
**Bazillol**, 4427*c*.
**BBH**. See "*β*-" under *Cyclohexane, 1,2,3,4-5,6-hexachloro-*.
**BDH 312**. See *1,2-Propanediol, 3-o-toloxy-*.
**Beaded-chain effect**, 5385*i*, 5386*i*.
**Beads**, glass, P 4440*cd*, P 5166*d*.
of noble metals for calibration of ocular micrometers, 4521*d*.
**Beakers**, micro-, for Beckman pH meter, 445*h*.
**Bean aphid**. See *Aphis fabae*.
**Beans**, algarroba—see *Algarroba*.
amino acids in cooked and uncooked Mexican, 7602*c*.
amino acids in green, 3534*f*.
anthracnose control on dwarf, 7180*e*.
arsenic toxicity to, 6350*e*.
bacterial-blight control on wax, 9273*e*.
broad or horse, effect of yperite and lewisite on, 8013*g*.
flour from, as ameliorant of wheat flour, 4393*a*.
localization of phosphorylase and starch formation in, 2288*i*.
methionine in, 5876*e*.
cacao—see *Cacao*.
canned green, vitamins in, effect of storage temp. on, 1493*h*.
canning of snap, effect on vitamins $B_1$ and C, 1122*d*.
carbohydrate isomerization in, rust and, 1463*f*.
carob—see *Carob beans*.
carotene and vitamin C in snap, 3536*a*.
castor—see *Castor beans*.
compn. of Fla. grown, and effect of soils thereon, 9289*c*.
compn. of snap, effect of irrigation on, 1514*i*
compn. of, soil effect on, 2722*h*.
copper effect on bush, on peat soils, 7623*b*.
crude fiber of, and its alteration during digestion, 6753*c*.
cuticular transpiration in, and its relation to membrane swelling capacity, 730*e*.
DDT effect on, 1520*i*.
DDT toxicity to broad, French and runner, 5148*a*.
DDT translocation in, 1521*b*.
2,4-D effect on, 5087*h*.
2,4-D effect on leaves of, 1517*de*.
effect of 2,4-D and derivs. on, 6775*h*.
fertilizer expts. with, with superphosphate, 1891*c*.
fungicides for, 7179*c*
grass control in, 1893*c*.
growth-cycle metabolism of, in relation to flowering, 9175*h*
growth inhibitors in seeds of, 3493*a*
growth-limiting essential amino acids of, 9186*f*.
growth-substance effect on, 1139*d*, 9351*i*.
growth-substance effect on yield of snap, 5144*h*.
halo-blight control on, 8595*h*.
Hawaiian mung and *Phaseolus lathyroides* and *Phaseolus aconitifolius*, 9292*f*.
hemagglutinins from, 8001*e*.
heteroauxin effect on laminar nodes of *Phaseolus coccineus*, 5828*e*.
insect control on, 3967*c*, 9320*d*.
F compds. for, P 6358*a*.
phenylsemioxamazide compns. for, P 5530*c*.
jack—see *Canavalia*.
kidney, dehydrogenases in leaf plastids of, 8454*b*.
effect of 2,4-D on, 4735*b*, 8021*c*, 8085*i*.
growth-promoting value of red, 3897*g*.
herbicide toxicity to, 4413*g*.
microelements in, 9289*b*.
proteolytic and saccharogenic activity of, during germination, 8451*i*
*kidney*, seed protection in soil treated with 2,4-D for weed control in red, 2355*i*.
lima—see *Lima beans*.
magnesium detn. in, 3744*c*.
methionine utilization by, 8013*d*.
mildew control on, 2355*d*.
mold growth on Scotch, effect of water on, 9275*g*.
mosaic virus of, electron microscopy of crystals of, 3671*g*.
movement of phenoxy compds. in, in relation to conditions favoring carbohydrate translocation, 6705*e*.
mung, diseases and mineral analysis of, 6289*i*.
in feeding beef calves, 6712*b*.
feeding to hens and steers, 9330*c*.
proteins of, compn. of, 5125*g*.
α-naphtholmethyl acetate effect on, 729*g*.
nicotinic acid and vitamins $B_1$ and $B_2$ in African, 8070*c*.
nitrobenzamide *N*-deriv. effect on, 2357*g*, 7182*b*.
pest control on, 7178*i*.
phthalimide-*N*-deriv. toxicity to, 7182*e*.
pinto, as protein source for rats, 1089*b*.
protein from com., 9169*c*.
proteins of green snap, nutritive value of, 9313*d*.
red spider control on bush, (3,4-methylenedioxyphenyl)propylene compds. for, P 1903*d*.
red spider control on French, 807*b*.
respirational and translocational loss of dry matter and carbohydrates from leaves of, effect of temp. on, 3071*e*.
respiration during germination of bush, effect of surface microflora on, 802*f*.
root-knot control on, 809*d*, 7186*g*.
rust of, enzymic activity during, 1463*c*.
*Sclerotinia sclerotiorum* control on, 2355*g*.
seed-corn-maggot control on, 5896*h*.
seed treatment with colchicine, 6287*a*.
oil-acidity effect on runner, 2349*i*.
starch, adsorption of malt α-amylase by, 9504*g*.
starch digestion and reducing activity in, effect of 2,4-D on, 2286*e*.
stomatal frequency and distribution in, photosynthesis in relation to, 284*a*.
tryptophan synthesis by seedlings of, 4350*d*.
two-spotted spider mite reproduction on, effect of soil fertility on rate of, 6349*i*.
vitamin $B_1$ in, 6753*g*
vitamin C in green, 9273*f*.
effect of blanching on, 1493*b*, 1499*f*, 4735*i*.
effect of (*p*-chlorophenoxy)acetic acid on, 3962*c*.
weed control in mung and snap, 1894*d*.
**Bearberry** (*Arctostaphylos uva-ursi*), arbutin in leaves of, and its use as drug, 5903*b*.
identification of fluidexts. of, 3145*h*.
**Bear fat**. See *Fats*.
**Bearing metals**. (See also *Babbitt metal*.)
aluminum-Si, contg. Cu or Ag, P 6145*g*.
antimony-Pb-Sn alloys, P 6065*a*.
atomized, and their manuf., P 3341*d*.
bismuth detn. in, 1672*c*.
cadmium-Ni alloy, testing lubricant corrosiveness toward, 8126*b*.
lead, In detn. in, 965*g*.
lead-Ag alloys, 6961*e*.
porous, P 104*a*.
review on, 80*g*.
steel-backed Cu-Pb-Ag alloy, P 1308*d*.
steel for balls, effect of Cu on, 532*c*.
testing, 4842*c*.
wear resistance of, app. for testing, P 9020*c*.
**Bearings**. (See also *Bushings*.)
bronze, from powder, 1703*h*, 6959*c*.
from cast Fe, 5716*d*.
chromium-plated, 8902*h*.
chromium plating on ball, rack for, P 2524*h*.
compn. from fiber, powd. metal and resin for, P 3233*i*.
copper-Pb lined, 2561*g*.
corrosion of, by lubricant additives, 4454*c*.
by lubricants, detn. of, 7221*a*, P 7839*g*.
in turbines, etc., 548*g*.
electrically conducting, P 7895*g*.
electroplated, P 2525*a*.
graphite, for mech. stirrers, 2821*b*.
from homogenized babbitt, P 5729*i*.
indium-plated Cu-clad steel, P 4211*e*.
lead plating on, 3726*i*, 4147*g*.
load-carrying capacity of, 3999*e*.

lubricants for—see *Lubricants*.
lubrication of—see *Lubrication*.
polishing of, app. for, P 3342*b*.
rubber, under water lubrication, 6454*e*.
self-lubricating, P 104*a*.
silvering steel, P 7892*h*
silver-plated parts for roller, of gas turbines, 6559*d*.
spotting paste for, P 102*e*.
strength of plastic, test for, 4787*i*, 4891*i*.
testing, app. for, 4842*b*.
textile laminated with resinoid for, P 4518*f*.
wear of antifriction, effect of inorg fillers in greases on, 7675*f*.

**Bears**, fats from black, and identification of fatty acids therefrom, 879*g*.
Japanese and polar, bile of, 6297*i*.

**Bebeerine**, *l*-, prepn. of, 2626*b*.

**Beckamine resins**. See "condensation products of, with HCHO" under *Urea*.

**Beckmann rearrangement**. See *Rearrangements*.

**Becquerelite**, 8983*f*.

**Bedbugs**, control (chemotherapeutic) of, 4414*g*.
control of, halogen-P compds in, 9353*f*.
insecticide testing for, 7627*a*
smokes of DDT or hexachlorocyclohexane in, 9342*b*
*p*,*p*′ - (2,2,2 - trichloroethylidene)dibenzenethiol dicarbamate in, 4657*i*.
development on vitamin A deficient rabbits, and effect of Ca thereon, 4739*h*
2-hydroxyethyl thiocyanate effect on, 2945*g*.

**Bedding**, second-hand kapok detection in, 5193*f*.

**Beech**. (See also *Cellulose; Lignin, Paper pulp; Wood*.)
bark disease and scale of, control of, 5895*b*.
leaf cells of, adsorption of K in, 1463*g*
lignin sepn. from, 733*a*.
nuts, chromatography of amino acid mixts. from hydrolysis of, 3746*d*
nuts, toxicity of, 6312*c*.
sawdust, pH of, and its mixts. with soil, 3130*e*.
undergrowth effect on soil in pine woods, 3553*a*.

**Beechnut oil**. See *Oils*.

**Beech scale**. See *Cryptococcus fagi*.

**Beef**. See *Meat*.

**Beer**. (See also *Brewing; Krass; Liquors; Worts*.)
*Acetobacter* infection of, 2365*i*.
air, $CO_2$ and reductones in, 3970*i*
air detn. in bottled, 8607*h*.
air in, and its detn., 354*f*.
air in, reduction of, 9359*h*.
aluminum detn. in, 7636*h*.
American, before, during and after World War II, 354*f*
from bananas, 5153*i*
chill haze in, properties and compn. of, 9360*b*.
clarification of, 4423*d*.
coli bacterial infections in, 4423*a*.
colloidal stability of, 3971*b*.
contamination by Cu, Fe and Sn, 1147*c*.
dextrin detn. in, 3970*g*.
*Escherichia coli* detn. in, 1147*b*.
fermentation of, 4423*c*.
filters for, P 7229*a*.
foam formation in, 9359*f*.
foam of, improvement of, 8608*g*.
foam-stabilizing and destroying substances in, 6781*a*.
inhibition of bacteria and mold in, P 7606*f*.
iron detn. in, 8607*g*.
manuf. of milone and, 5154*g*.
microörganisms in, retardation of growth of, P 6783*a*.
monochloroacetic acid detection and detn. in, 9274*f*.
oxygen detn. in, 354*f*.
pantothenic acid in, 3143*a*.
pasteurization of, 3143*b*.
preservation of, P 7190*d*.
quaternary $NH_4$ compd. detn. in, 7151*f*.
rH-poise of, effect of malt on, 7637*a*
silica and tannin in, 1905*f*, 3142*e*.
stabilization of, P 5532*f*.
stabilization of, against radiation deterioration, P 1526*g*.
sterile racking of, 4423*b*.
vitamin C in preservation of, 9275*b*.
vitamins in, 354*e*.
whey-contg., 1874*d*.
yeast—see *Yeasts*.

**Beer's law**. See *Laws*.

**Beer substitutes**. See *Beverages*.

**Bees**, aluminum and Tl in, 5874*h*.
DDT effect on honey, 2361*a*, 2729*b*.
effect of DDT and hexachlorocyclohexane on, 5148*i*.
foul brood of, diagnosis of, 1821*h*.
foul brood of, sulfathiazole in treatment of, 9313*e*.
insecticide effect on, 345*a*.
insecticide toxicity to honey, route of administration and, 9340*i*
poisoning of honey, by chemicals used for plant protection, 343*i*
pollen collected by, amino acids in, 732*b*.
toxicity of agricultural chemicals to honey, detn. of, 9349*g*.
venom—see *Venoms*.
vitamin C oxidizing enzyme of honey, 3113*e*.

**Beeswax**, explosion time lag reduction by, 4856*a*.
metabolism by microorganism, 8002*g*.
precision-casting compn. from, P 9300*h*.
review on, 8709*h*.
sapon. no. of, detn. of, 5211*i*.
sulfonated, leather and textile processing agents from sulfonated hydrocarbons and, P 1989*i*.

**Beet armyworm**. See *Laphygma exigua*.

**Beetle** (*plastic*). See *Urea*.

**Beetles**. (*Entries referring to specific kinds of beetles have been put under the common and scientific names*.)
control of dermestid, in wool, 8090*a*.
control on leaves, tetrahydrothiazoles for, P 9356*f*.
nitidulid, control on dates, 4417*d*
respiration of, effect of DDT and analogs on, 9342*g*

**Beets** (See also *Sugar beets*)
alc. from, 9358*h*
amino acids in, 3534*f*.
book: Traité de la Distillerie de Betteraves, 3561*e*.
boron in nutrition of, 7174*e*.
in bread making, 4392*i*.
bromine and Cl in, 3537*g*, 8572*d*.
carotene and vitamin C in beet greens and, 3536*a*.
2,4-dichlorophenoxyacetic acid effect on, 2283*c*.
feeds from, 3538*i*.
fertilizer expts. with, 7173*f*.
with N and P, 9313*f*.
with P and K, 1511*b*.
grass control in, 1893*c*.
hexachlorocyclohexane toxicity to, 5148*a*
insect control on, 9346*h*.
leaf meals from, nutritive value of, 4343*e*
manganese absorption by, effect of S and thiosulfates on, 1802*c*.
manganese chloride absorption by, effect of prepn. on, 3068*b*.
manganese deficiency in, 2353*e*.
microelements in, 9289*b*.
*m*-nitrobenzamide-*N* deriv. toxicity to, 7182*b*.
nutrition of, chloride and Na ions in, 1133*b*.
pectins from forage, effect on cranberry and red currant jams, 3536*i*
pectins of, in protection against Se poisoning, 9273*e*
pigments from, detection in wine, 8091*g*.
silver—see *Chard*.
soils under, pH and P of, 339*h*.
spraying of, with nutrient elements, 7093*a*.
tops, improving silage qualities of, 3538*d*.
vitamin $B_1$ in Italian, 6753*h*.
vitamin C in, 5511*b*
weed control in, 1894*b*, 2359*a*
wireworm control in soil under, 348*a*.

**Beet sugar**. See *Sucrose*.

**Beet-sugar manufacture**. See *Sugar manufacture*

**Begonia**, stomatal frequency and distribution in, photosynthesis in relation to, 284*a*.

**Behenamide**, *r*-**ethyl-**, 3781*a*.
———, **α-methyl-**, 3781*d*.
hydrolysis of, 3781*i*.

**Behenanilide, tribromo-*r*-ethyl-**, 3781*a*.

**Behenic acid** (*docosanoic acid*), of *Abrus precatorius* seed oil, 4496*b*.
of *Dodonaea viscosa* seed oil, 2451*a*.
from Douglas fir lignin residue, 1182*g*.
ethyl ester, effect on fat absorption, 1843*a*.
of millet (Italian) oil, 4496*h*.
prepn. of, 3366*h*.
, **μ, ν-dihydroxy-**, oxidation 676*i*.
stereoisomers, 1319*d*.
———, **μ,ν-dioxo-**, P 676*i*.
———, **τ-ethyl-**, and ethyl ester, 3780*h*.
———, **τ-ethyl-ι-oxo-**, and ethyl est 3780*i*.
———, **ν-hydroxy-**, oxidation of, P 676*i*.
———, **μ-hydroxy-ν-methoxy-**, isomi 6161*e*.
———, **ν-methoxy-μ-oxo-**, 6161*e*.
———, **α-methyl-**, 3781*d*.
———, **ι-oxo-**, 3366*g*.
———, **ν-oxo-**, P 676*i*.
———, **μ(and ν)-phenyl-**, 566*d*.
———, **α,μ,π,ν-tetramethyl-**, pathoge effect of, 4375*h*.
———, **α,λ,ξ(β,ε,θ-, β,λ,ξ-, β,μ,ο- , μ,π,υ)-trimethyl-**, pathogenic eff of, 4375*g*.

**Behenyl alcohol**. See *1-Docosanol*

**Beidellite**, in bluish Yablonsk clays of I Basin, 6130*gi*.
calcium and K in suspensions of, 113
fluorescence of Colo., and relation compressive strength, viscosity, shear, 8988*a*.
identification of, 2130*a*
montmorillonite-, isomorphous seri 6348*a*.
of Sweden (Murgreteberg), 7382*c*

**Beilby layer**, 4199*a*.

**Beilstein test**, with sulfonic acids, 7380*h*

**Belamcanda**, gaseous losses of N from lea of, 282*h*.

**Belladonna**, alkaloid detn. in, 5536*h*
alkaloids in hybrid, 4814*i*
alkaloids in leaves of *Atropa acuminata* 9378*d*.
alkaloids of, amino acid precursors 9377*f*.
alkaloids of, detn. of, 8095*g*.
assay of, 8612*e*.
catechol oxidase from, oxidation of am acids by, 3863*d*.
identification of exts. of, 361*c*.
Indian, 7194*g*, 8616*b*.
pyrocatechol oxidase from, behavior secondary and tertiary amines in pr ence of pyrocatechol and, 3863*e*
thromboplastic action of, 5534*h*

**Bellicositermes**. See *Termites*.

**Bellier number**, detn. of, of fats and oi 8178*g*.

**Bells**, bronze, internal friction and, 12

**Belts**, cementing laps of leather, 5996*i*
cotton cord for reinforcing power tra mission, P 418*d*.
Fortisan rayon in manuf. of, 6408*e*.
rayon in conveyor and transmissi 7692*i*
from silicone rubbers, 9516*f*.
for sound recording, P 6468*a*.
from vinyl chloride polymer plastics proving elasticity of, P 4507*d*
from vinyl chloride polymers with vin dene chloride, P 5638*b*

**Bemidon**. See "ethyl ester" under *Isoecolic acid, l-(m-hydroxyphenyl)-methyl-*.

**Benadryl**. See *Ethylamine, 2-(benzhydroxy)-N, N-dimethyl-*.

**Bence-Jones protein**. See *Proteins*

**Bending apparatus**, for glass tubes, 5565*b*.
for quartz tubing, P 5918*a*.

**Bend strength**, measurement of, of ceram ware, 9402*g*.

**Bengal gram**. See *Chick pea*.

**Bengal Red, Bengal Rose**. See *Eosin Bengal*.

**Beninoasa**, oil of—see *Oils*.

**Benniseed**. See *Sesame*.

**Benoclor 3C**, effect on actio of 2,4 805*h*.

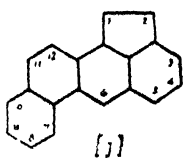
**Bensulfen**. See *Benzoyl disulfide*.

**Bent grass**. See *Grasses*.

**Bentonite**. (See also *Clays*.)
acid-treatment and drying of, P 9300*a*.
adsorbent from C and, P 6762*e*.
adsorption by, color reactions in, 6035*e*
-amine complex prepn., affinities with org. liquids and adsorption by, 6121*e*
amine compds., as flatting and gelling agents, 8704*d*.
of Australia, 1292*h*, 6546*h*.
calcium and K in suspensions of, 1133*a*
as catalyst in acetal manuf., P 2222
in aromatization of cracked distillates 3998*g*.
in conversion of $Ph_2CHMe$ to styre 1251*c*.
in dehydration and isomerizatio 6153*c*.

*as catalyst* in selective polymerization of acetylenes, P 662*f*.
catalyst pellets from kaolin and, P 8578*h*.
catalysts for cracking of hydrocarbon oils, activation by two $H_2SO_4$ treatments, P 8662*i*.
cation absorption by, 7618*f*.
cation diffusion in suspengel of, 7777*h*.
of China (Chekiang), 1292*h*.
chromatography of cations on, 3549*h*.
clays contg., in porcelain manuf., 3581*b*.
coatings for containers for bituminous substances from, P 907*g*.
cream base contg., 2367*g*.
dehydration, hydration and imbibition of, 8233*ad*.
drilling muds from, treatment and testing of, 3599*i*.
effect on soil aggregation, 2722*a*.
emulsions with fats and oils for leather dressing, P 1206*h*.
fermentation in presence of, P 8094*b*.
film from, as dielec., 331*g*.
flow of suspension of, 7291*g*.
fluorescence of Wyo. swelling, and relation to compressive strength, viscosity and shear, 8988*a*.
grinding effect on reactions of, 3957*f*.
hydrochloric acid effect on, and methylation of, 7607*f*.
insulating materials from fiber, saponin and, P 8580*b*
lightweight material from cement and, P 1939*c*
like compds. in Fuller's earth, 7651*e*.
as lysozyme inhibitor, 8405*i*.
magnesium, in fluid-flow study, 6871*b*.
methylation of, 6347*h*.
molding sands from Czechoslovakia, 4090*e*.
Ordovician, of Bornholm Is., 8320*de*.
as paper filler, 400*i*.
paste from $CaCl_2$ and, P 6868*f*.
phys. properties of, improvement of, 3581*a*
potassium fixation by, 1132*a*
sedimentation of, effect of pH on, 4538*d*.
settling vol. and swelling of, 4537*h*.
sodium carboxymethylcellulose effect on gel strength and viscosity of, 8052*g*.
sodium, detection of, 1287*i*.
sodium, in sugar-juice clarification, 9500*i*.
of Spanish Morocco, 6126*g*, 6547*e*.
in sugar-juice clarification, 1587*h*, 2797*a*, 5613*i*
surface area of, calcn. of, 6799*e*.
as suspending agent for calamine lotion, $SiO_2$ as substitute for, 8609*d*.
suspensions of, structure formation in aq., 5257*h*.
of Sweden (Kinnekulle), 4985*g*.
swelling reduction by carboxymethylcellulose salt-alkali or alk. earth halide solns., P 5582*e*.
Texas white firing, 2390*g*
thixotropic suspensions of, 6885*b*.
water-absorbing power of, control of, 3580*i*
wine clarification with, 353*d*.
volcanic origin of, from Podole and Wolyń, 6954*e*.

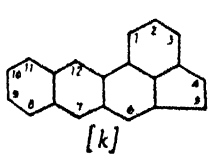
**Benz[*j*]aceanthrylene,**



[*j*]

—, **1,2-dihydro-**. See *Cholanthrene*.

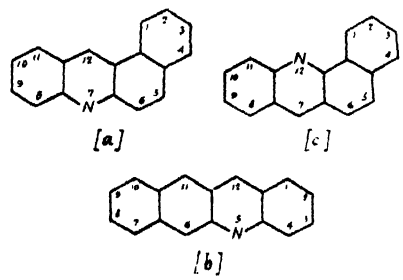
**Benz[*k*]acephenanthrylene,**



[*k*]

—, **4,5-dihydro-**, reaction with $OsO_4$, 8375*a*.
—, **4,5-dihydro-6-methoxy-**, 8375*d*.
**Benz[*k*]acephenanthrylene - 5a,6(6*H*)-diol, 4,5-dihydro-**, and 6-acetate, 8375.

**Benzacridine,**



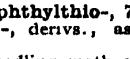
[*a*] [*c*] [*b*]

derivs., 1417*e*.
derivs., carcinogenic activity of, 5731*g*.
**Benz[*a*]acridine, 9-amino-**, 647*g*.
—, **12-amino-**, and hydrochloride, 1419*b*.
—, **12-isopropyl-**, in cancer production, 6742*h*.
—, **12-(2-thienyl)-**, and picrate, 4665*e*.
**Benz[*b*]acridine**, and derivs., 1420*g*.
—, **12-acetamido-**, 1419*a*
—, **2-amino-**, and hydrochloride, 1420*g*.
—, **12-amino-**, and polymer and its -HCl, 1418*i*.
—, **12-amino-1,2,3,4-tetrahydro-**, and hydrochloride and polymer, 1418*g*
—, **12-chloro-**, 1418*i*.
—, **12-chloro-1,2,3,4-tetrahydro-** 1418*g*.
**Benz[*c*]acridine, 7-amino-**, and hydrochloride, 1418*h*.
—, **9-amino-**, and hydrochlorides, 1420*f*.
—, **10-amino-**, 647*f*.
—, **7-amino-4-nitro-**, 1419*c*.
—, **7-chloro-4-nitro-**, 1419*c*.
—, **4,7-diamino-**, and hydrochlorides, 1419*e*
—, **7,10-dimethyl-**, in cancer production, 6742*h*
—, **7-methyl-**, in cancer production, 6742*h*
**Benz[*b*]acridin-12-ol, 1,2,3,4-tetrahydro-**, 1418*g*
**Benz[*b*]acridin-12(5*H*)-one, 2-nitro-**, and compd. with $C_6H_5N$, 1420*f*.
**Benz[*c*]acridin-7(12*H*)-one, 9-nitro-**, 1420*e*.
**Benzalazine** See "azine" under *Benzaldehyde*.
**Benzal chloride** See *Toluene, α,α-dichloro-*.
**Benzaldehyde**, acylhydrazones†, 6972*bei*, 6973*bfh*.
air disinfection by aerosol contg., 5083*f*
2-(allyloxy)trimethylene cyclic acetal—see *m-Dioxane, 5-(allyloxy)-2-phenyl-*.
(γ-amino-γ-carboxybutyryl)hydrazone†, prepn. and antibacterial action of, 2674*h*.
azine, 1651*d*.
as catalyst in long-chain alkylation of alkyl benzenes, P 6657*g*.
resonance energy of, 931*b*.
azine and phenylhydrazone as catalysts in the reaction of acids with $C_2H_4$, 670*f*.
bactericidal action of, 5446*d*.
(δ-bromo-α-cyanovaleryl)hydrazone†, 4223*a*.
Cannizzaro reaction with, catalysts in, 4051*d*.
(carboxyphenyl)hydrazone—see *Benzoic acid, (benzylidenehydrazino)-*.
2-chloro-1-(chloromethyl)trimethylene cyclic acetal—see *m-Dioxane, 5-chloro-4-(chloromethyl)-2-phenyl-*.
complex with $CdCl_2$, 7000*h*.
compds. with amine bisulfites, 3355*h*, 3356*c*.
condensation of, sulfonic acids and metallo-org. compds., P 690*d*.
condensation products with acetone, 9531*e*.
condensation products with aminotriazines, modified with nitro compds., P 4894*e*.
condensations with nitro-*m*-toluamides and 6-nitro-*m*-tolunitrile, 3805*c*.
α-cyanobutyrylhydrazone†, 4223*a*.
(α-cyanoenanthyl)hydrazone†, 4223*a*.
cyanohydrin—see *Mandelonitrile*.
(2-cyano-2-indanylcarbonyl)hydrazone†, 4223*a*.
(α-cyano-γ-phenoxybutyryl)hydrazone†, 4223*a*.
(cyanophenylacetyl)hydrazone†, 4223*a*.
(α-cyanopropionyl)hydrazone†, 4223*a*.
cyclohexylcarbonylhydrazone†, 4233*b*.
and *p*-derivs., prepn. of, 5761*a*.
and derivs., reaction with $AlCl_3$ and $C_6H_6$ or PhMe, 7005*g*.
derivs., spectra of, 1654*i*, 3388*g*.
and derivs., thio semicarbazones, bactericidal action against tubercle bacillus, 3523*e*.
detn. of, 5703*b*.
detn. of, in benzyl alc., 8978*b*.
dibenzyl mercaptal, 7409*g*.
dihydrazone† of α-cyanoadipic acid dihydrazide, 4223*a*.
dihydrazone† of α-cyanopimelic acid dihydrazide, 4223*a*.
1,2-dimethylethylene cyclic acetal—see *1,3-Dioxolane, 4,5-dimethyl-2-phenyl-*.
effect on polymerization of allyl and methacrylate compds., 8199*f*.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-phenyl-*.
formation of, in acetyl peroxide decompn. in hydrobenzoin, 3776*b*.
during condensation of AcH with crotonaldehyde, 992*d*.
from nitration of toluene, 4216*f*.
in pyrolysis of anisole, 5759*c*.
from reaction of PhNCS with benzoin oxime and its derivs., 1038*h*.
hydrazones and other derivs., 123*i*.
hydrazones, and their derivs., 6591*h*.
hydrazone with *N*-carboxyglutamic acid *N*-benzyl ester γ-hydrazide†, 6978*i*.
hydrogenation of, catalysis by Pd, 8832*b*.
hydrogenation of, rates of, 27*g*.
in liquors, 7635*e*.
manuf. of, P 3847*a*.
manuf. of, from coal, 9413*c*.
mercaptals, reaction with Raney Ni, 2597*c*.
in narcissus oil, 2372*e*.
nitration of, 7918*i*
6-nitro-2-benzothiazolylhydrazone, resonance in, 5395*h*.
oxidation (attempted) of, 1368*b*.
oxime and methyloximes, bacteriostatic action of, 3974*g*.
oxime, from $C_6H_5$ and $MeCH(OH)CH_2NO_2$, 6994*a*.
dehydrogenation of, 5760*f*.
effect on autodisplacement of Pb, 2846*c*.
Raman spectra of α- and β-, 7345*c*.
phenylhydrazone, 2667*h*.
and phenylhydrazone, 6182*h*.
phenylhydrazones, nitrobenzoyl derivs of, 1344*i*.
phosphorescence of, 8282*c*.
polarography of, 5316*f*.
prepn. of, 8350*h*.
reaction product with sulfathiazole, 4238*a*.
reaction with AcH, kinetics of, 6540*f*.
with acetoacetanilide and derivs., 5013*g*.
with $BF_3.Et_2O$, 3805*b*.
with Br derivs. of sulfanilamide, 175*d*.
with ketene, 5366*h*.
with metals, 4238*h*.
with 1-methyl-3-piperidone, 4274*g*.
with peroxides, 612*h*.
with phenol in the presence of $HgCl_2$, 184*d*.
with piperidones, 4274*g*, 4275*e*.
with 2,4-thiazolidinedione and with pseudothiohydantoin, 3820*b*.
with *m*-$MeC_6H_4OAlCl_2$, 5398*e*.
with uracil derivs., 650*h*.
in Rosaceae and Spiraea, presence of HCN and, 3493*h*.
semicarbazone, spectrum of, 4574*e*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectrum of, 2808*e*.
system: dioxane-$H_2O$-, 8833*b*.
tetrafluoroethylene stabilization by, P 6218*h*.
**Benzaldehyde, *p*-acetyl-**, polycondensation product of, 5761*c*.
—, **3-acetyl-2,4,6-trihydroxy-**, and polymer, 4009*i*.
—, **amino-**, and acetal derivs., reaction with naphthoyl chlorides, P 8169*g*.
derivs., as antioxidants, P 4460*b*.
—, ***o*-amino-**. See *Anthranilaldehyde*.
—, ***p*-amino-**, dialkyl derivs., reaction with cyanoacetanilide, P 6428*a*.
—, **3-amino-4-hydroxy-**, 1974*a*.

——, *o*-**benzoyl-**, bis(phenylhydrazone), 5778*f*.
——, **5-(benzyloxy)-2-nitro-**, 216*a*.
——, **4,5 - bis(methoxymethoxy) - 2-nitro-**, 627*i*.
——, *m*-**bromo-**, bactericidal action of, 5446*d*.
——, *p*-**bromo-**, azine, spectrum of, 5756*a*.
and semicarbazone, 5761*b*.
——, *α*-**bromo-**, ethylene cyclic acetal— see *1,3-Dioxolane, 2-α-bromobenzyl-*.
——, **3-bromo-4-hydroxy-**, 1973*i*.
bactericidal action of, 5446*d*.
——, **5-bromo-2-methoxy-**, reaction with acetophenone derivs., 1742*e*.
——, **5-bromo-2-(methoxymethoxy)-**, 4246*d*.
——, *p*-*sec*-**butyl-**, *dl*- and *l*-, and derivs., 3356*d*.
——, **3-*tert*-butyl-4-ethoxy-**, P 1063*f*, P 8400*h*.
——, **3-*tert*-butyl-4-ethoxy-5-nitro-**, P 1063*h*.
——, *o*-**chloro-**, reaction with $AlCl_3$ and $C_6H_6$, 7005*e*.
reaction with ethanolamine, 4235*b*.
——, *p*-**chloro-**, as acaricide and insecticide, 3138*c*.
as insecticide, 2359*h*.
reaction with 2,4,6-trimethylcrotonophenone, 3300*d*.
——, *α*-**chloro-**. See *Benzoyl chloride*.
——, **2-chloro-5-hydroxy-**, benzoate, 5387*d*.
——, **3-chloro-4-hydroxy-**, 1974*a*.
——, *p*-**cyano-**, and phenylhydrazone, 5761*d*.
——, *m*-**(cyanophenylarsino)-**, 3383*d*.
——, **3,5-dibromo-4-hydroxy-**, bactericidal action of, 5446*d*.
——, **2,4-di-*tert*-butyl-5-methoxy-**, P 1064*a*.
——, **2,4-dichloro-**, (2,4-dichlorophenoxyacetyl)hydrazone†, as growth substance, 7554*g*.
——, **2,4(and 3,4)-dichloro-**, reaction with $AlCl_3$ and $C_6H_6$, 7005*f*.
——, **3,4-diethoxy-**, 7027*g*.
——, *p*-**diethylamino-**, P 2232*i*.
——, **2,4-dihydroxy-**. See *β-Resorcylaldehyde*.
——, **2,5-dihydroxy-**. See *Gentisaldehyde*.
——, **2,6-dihydroxy-**. See *γ-Resorcylaldehyde*.
——, **3,4-dihydroxy-**. See *Protocatechualdehyde*.
——, *p*-**(2,5-dihydroxyphenylsulfonyl)-**, 7449*h*.
——, *o*(and *p*)-**(2,3-dihydroxypropoxy)-**, effect on nervous system, 311*h*.
——, **3,5 - diiodo - 4 - (*p* - methoxyphenoxy)-**, 592*i*.
——, **2,4-diisopropyl-**, and 2,4-dinitrophenylhydrazone, 6182*h*.
——, **2,3-dimethoxy-**. See *o-Veratraldehyde*.
——, **2,5-dimethoxy-**, 6598*h*.
——, **3,4-dimethoxy-**. See *Veratraldehyde*.
——, **3,5-dimethyl-**. See *Mesitylenaldehyde*.
——, **dimethylamino-**, bis(aminophenyl) and bis(nitrophenyl) mercaptals, 6179*f*.
——, *p*-**dimethylamino-**, *p*-carboxyphenylhydrazone†, 5764*g*.
condensation with nitro paraffins, 6993*b*.
(2,4 - dichlorophenoxyacetyl)hydrazone†, as growth substance, 7554*g*.
identification of, 893*i*.
manuf. of, P 2232*i*.
methine dyes from, P 8691*c*.
mol. refraction of, 604*g*.
polarography of, 5316*f*.
pyrrole condensation products of, 8886*e*.
reaction product with *N*¹-(2,6-dimethyl-4-pyrimidyl)sulfanilamide, -HCl, 4238*a*.
reaction with 4-methylpyrimidine derivs., 1780*e*.
reaction with uracil derivs., 651*i*.
reduction of, 1312*f*, 2570*f*.
spectrum of, 1412*e*.
——, *o*-**ethoxy-**, 1030*e*, 5150*e*.
——, **3-ethoxy-4-hydroxy-**. See *Bourbonal*.
——, **4-ethoxy-3-methoxy-**, oxidation of, 6786*e*.
——, **4-ethoxy-3,4'-oxydi-**, 3017*h*.
——, **2-ethyl-4,6-dimethoxy-**, 2185*a*.
——, *p,p'*-**[ethylenebis(ethylimino)]di-** P 2233*b*.
——, *p,p'*-**[ethylenebis(methylimino)]-di-**, P 2233*b*.
——, **2-ethyl-3-hydroxy-**, and 2,4-dinitrophenylhydrazone, 197*d*.
——, **2-ethyl-3-methoxy-**, and 2,4-dinitrophenylhydrazone, 196*i*.
——, *p*-**(ethylsulfonyl)-**, thiosemicarbazone, in tuberculosis therapy, 7576*i*.
——, *p*-**glucuronosido-***, formation in rabbit from *p*-hydroxybenzaldehyde, 2702*e*.
——, **hexahydro-**. See *Cyclohexanecarboxaldehyde*.
——, **hydroxy-**, azine diacetate, colloidal, 7291*f*.
bis(aminophenyl) and bis(nitrophenyl) mercaptals, 6179*f*.
——, *m*-**hydroxy-**, reduction of, to *m*-$HOC_6H_4CH_2OH$, 2570*g*.
spectrum of, 8890*i*.
——, *m*(and *p*)-**hydroxy-**, bactericidal action of, 5446*d*.
*p*-carboxyphenylhydrazone†, 5764*g*.
chelation of, in $C_{10}H_8$, 1243*c*.
elec. moment of, H bonds and, 6020*g*.
hydrogenation on Pd, 8832*b*.
——, *o*-**hydroxy-**. See *Salicylaldehyde*.
——, *p*-**hydroxy-**, 1974*a*.
acetate, polymer, 397*e*.
acylhydrazones†, 6972*bf*, 6974*a*.
azine diacetate, dipole moments and elec. birefringence of, 3675*e*.
benzoate, 9055*d*.
cyclohexylcarbonylhydrazone†, 4233*b*.
in lignins (plant and fecal), 2285*a*.
metabolism of, 2702*e*.
mol. assocn. of, in dioxane and MeOH, 8814*d*.
nitration of, 1974*d*.
——, **4-hydroxy-3,5-diiodo-**, formation from diiodotyrosine, 2256*b*.
——, **4-hydroxy-3,5-dimethoxy-**. See *Syringaldehyde*.
——, **hydroxymethoxy-**, bis(aminophenyl) and bis(nitrophenyl) mercaptals, 6179*f*.
——, **2-hydroxy-3-methoxy-**. See *o-Vanillin*.
——, **3-hydroxy-4-methoxy-**. See *Isovanillin*.
——, **4-hydroxy-3-methoxy-**. See *Vanillin*.
——, **4-hydroxy-5-(methoxymethoxy)-2-nitro-**, 627*i*.
——, **4-hydroxy-3-nitro-**, 1973*i*.
——, *p*-**isopropyl-**. See *Cumaldehyde*.
——, *m*(and *o*)-**methoxy-**, azine, 1654*d*.
elec. moments of, H bonds and, 6020*h*
——, *o*-**methoxy-**, polarography of, 3728*g*.
reaction with acetophenone derivs., 1742*e*.
——, *p*-**methoxy-**. See *Anisaldehyde*.
——, **4-methoxy-3,4'-oxydi-**, 3017*f*.
——, **3,4-methylenedioxy-**. See *Piperonal*.
——, *p,p'*-**(methylimino)di-**, P 2233*b*.
——, *p*-**4-morpholinyl-**, P 2233*a*.
——, *p,p',p''*-**nitrilotri-**, P 2233*b*.
——, *m*-**nitro-**, azine, spectrum of, 5756*a*.
reaction with PhMgBr, 565*e*.
reduction of, to *m*-$O_2NC_6H_4CH_2OH$, 2570*g*.
——, *m*(*o* and *p*)-**nitro-**, azine, 1654*e*.
reaction with $AlCl_3$ and $C_6H_6$, 7005*f*.
——, *m*(and *p*)-**nitro-**, hydrogenation on colloidal Rh, rate of, 27*f*.
——, *o*-**nitro-**, condensation product with 4,4'-di(biguanidino)biphenyl, P 4880*a*.
hydrazone, reaction with $N_2H_4.H_2O$, 123*e*.
hydrazone, reaction with KOH, 1027*d*.
reaction with piperidine, 1408*h*.
reduction of, 1742*a*.
——, *o*(and *p*)-**nitro-**, 6-nitro-2-benzothiazolylhydrazones, resonance in, 5395*h*.
——, *p*-**nitro-**, benzylhydrazone, 7480*a*.
oxime, dehydrogenation of (attempted), 5760*h*.
reaction with aniline in the presence of $HgCl_2$, 184*d*.
reaction with uracil derivs., 651*g*.
and semicarbazone, 5761*f*.
semicarbazone, spectrum of, 4574*e*.
——, *p*-**(*p*-nitrophenylsulfonyl)-**, 7449*h*.
——, *α*-**phenylazo-**, phenylhydrazone. See *Toluene, α-phenylazo-α-phenylhydrazono-*.
——, **2,4,5-trimethoxy-**. See *Asaronaldehyde*.
——, **3,4,5-trimethoxy-**, 190*f*, 1743*e*, 2198*a*.
——, **2,4,4'-trimethoxy-6,6'-divinyl-2,3'-oxydi-**, 3017*g*.
——, **2,4,6-trimethyl-**. See *β-Isodurylaldehyde*.
——, *p*-**vinyl-**, and phenylhydrazone, 7456*g*.
**Benzaldehyde green**. See *Malachite green*.
**Benzaldoxime**. See "oxime" under *Benzaldehyde*.
**Benzalimine, *N*-phenyl-**. See *Aniline, N-benzylidene-*.
**Benzalkonium chloride**. See "alkylbenzyldimethyl— chlorides" under *Ammonium compounds, substituted*.
**Benzamide**, *N*-*tert*-alkyl derivs., P 3445*f*
chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
dehydration of, P 3836*g*.
derivs., P 693*a*, 7455*a*.
and derivs., reaction with aromatic aldehydes, 1408*h*.
effect on antitrypanosomal activity of arsenoso compds. and acridines, 319*i*.
formation of, from reaction of camphor oxime with BzNCS, 4232*d*.
formation of, in dehydrogenation of PhCH:NOH, 5760*h*.
as fungicide, 6351*f*.
manuf. of, P 3028*c*, P 3452*b*.
(*p*-nitrophenyl)hydrazone, as indicator, 3747*d*.
reaction with benzophenone oxime benzenesulfonate, 2594*h*.
with 5-chloro- and 3,5-dichlorosalicyl aldehydes, 6182*c*.
with HCHO, 5405*f*.
with hydrocinnamaldehyde, 2600*i*
with isocyanates and with PhNCS, 6162*e*.
spectrum of, 3715*b*.
thermal analysis of mixt. of phenacetin and, 3317*b*.
**Benzamide**, *ar*-**acetamido-**. See *Acetanilide, ar-carbamyl-*.
——, *N*-**acetonyl-**, and derivs., 7478*h*
——, *N*-**acetyl-**, 4221*b*.
——, *N*-**(5-acetyl-4-hydroxy-1-naphthyl)-**, benzoate, 5779*c*.
——, *N*-(*N*-**acetylsulfanilyl)-**. See *Acetanilide, p-(benzoylsulfamyl)-*.
——, *N*-**allyl-**, in penicillin production 2273*c*.
——, *N*-**allyl-*p*-chloro-**, in penicillin production, 2273*c*.
——, *m*-**(allylmercapto)-***N*-**(2-diethylaminoethyl)-**, hydrochloride, prepn and pharmacology of, 3101*i*.
——, *o*-**amino-**, biochemistry of, 756*h*
formation from isatin, 1765*i*.
——, *p*-**amino-**, effect on antitrypanosomal activity of arsenoso compds and acridines, 319*i*.
——, **2-amino-4-arsenoso-**, fate in dog, 7995*d*.
——, *o*-**amino-*N*-butyl-**, reaction with $HCONH_2$, 3425*b*.
——, **2-amino-4(and 6)-chloro-**, 1766*a*
——, **4-amino-2-chloro-**, and derivs., 7455*b*.
——, **3-amino-4-hydroxy-**, azo dyes from, P 8146*c*.
——, **3-amino-4-hydroxy-*N*-1-naphthyl-**, azo dyes from, P 8146*c*
——, *p*-**(2-amino-4-hydroxy-6-pteridylmethylamino)-**, derivs., P 1812*d*
——, **4-amino-2-iodo-**, 7455*c*.
——, *N*-**[α-(aminomethyl)benzyl]-**, hydrochloride, 6176*e*.
——, *N*-**[α-(aminomethyl)benzyl]-*N*-benzyl-**, hydrochloride, 6176*f*.
——, *N*-**[α-(aminomethyl)benzyl]-*N*-cuminyl-**, hydrochloride, 6176*f*
——, *N*-**[α-(aminomethyl)benzyl]-*N*-methyl-**, 6176*e*.
——, *m*(*o* and *p*)-**amino-***N*-**1-naphthyl-**, 1346*f*.
——, **2-amino-5-nitro-**, 1765*i*.
——, *N*-**amyl-**, as synergist for pyrethrum, P 351*e*.
——, *N*-*tert*-**amyl-**, 2165*e*
——, *N*-**amyl-*m*-nitro-**, 1145*b*.
——, *N*-**amyl-*p*-nitro-**, insecticide, 1896*b*, 2357*h*.
——, *N*-**anthraquinonyl-**. See *Anthraquinone, benzamido-*.
——, *p*-**arsenoso-**, effect on virus of psittacosis-lymphogranuloma group, 9249*i*.
——, *N*-**benshydryl-**, reaction with KNH₂ in liquid $NH_3$, 2981*d*.
——, *N*-**benzoyl-**. See *Dibenzamide*.
——, *N*-**(2-benzoyloxyacetyl-4-hydroxy-1-naphthyl)-**, 5779*c*.
——, *N*-**benzyl-**, 6596*a*.
——, *p*-**benzylamino-***N*-**1-naphthyl-**, 1346*h*.
——, *N*-**[1-(benzylcarbamyl)-2-(benzylmercapto)vinyl]-**, 2990*i*.
——, *N*-**benzyl-*o*-chloro-**, 6596*a*.

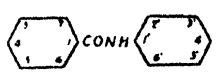
——, *N*-benzyl-*o*-chlorothio-, 6596*c*.
pyrolysis of, 4652*e*.
——, *N* - benzyl - *N* - *α* - cyanobenzyl-, 6176*e*.
——, *N*-(1-benzylcyclohexyl)-, 9047*e*.
——, *N*-(1-benzylcyclopentyl)-, 9047*e*.
——, *N*, *N*′-benzylidenedi-, derivs., 3805*g*.
——, *N*-[2-(benzylmercapto)ethyl]-, 3015*a*.
——, *p* - (benzylmethylamino) - *N* - 1-naphthyl-, 1346*h*.
——, *N*-benzyl-*p*-nitrothio-, 6596*c*.
decompn. of, 4652*f*.
——, *N*-(*α*-benzylphenacyl)-, and oxime, 4227*b*.
——, *N*-(*α*-benzylphenethyl)-, 5027*b*.
——, *N*-benzylthio-, 6596*c*.
pyrolysis of, 4652*e*.
——, *N*, *N*′-biphenylenebis-. See *ar*′,*ar*‴-*Bibenzanilide*.
——, *N*-biphenylyl-. See *Benzanilide*, *ar*′-*phenyl*-.
——, *N*, *N*-bis(*m*-aminophenyl)-, 169*c*.
——, *N*, *N*-bis(2-chloroethyl)-, 7423*c*.
——, *N*, *N*-bis(2-hydroxy-*α*-mesityl)-, 5995*a*.
——, *N*, *N*-bis[*m*-(2-hydroxynaphthylazo)phenyl]-, 169*d*.
——, *N*, *N*-bis(*m*-nitrophenyl)-, 169*c*.
——, *N*-bromo-, reaction with cholesterol esters, P 5428*d*.
——, *p*-bromo-*N*, *N*-bis(2-hydroxy-*α*-mesityl)-, 5995*a*.
——, *N*-bromo-2, 5-dinitro-, reaction with cholesterol esters, P 5428*e*.
——, *N*-(7-bromo-1-naphthyl)-, 6607*b*.
——, *N*-bromo-*m*(and *p*)-nitro-, reaction with cholesterol esters, P 5428*e*.
——, *N* - [2 - (3 - bromopropyl)cyclohexyl]-(?), *trans*-, 1414*i*
——, *m*-butoxy-*N*-(2-diethylaminoethyl)-, hydrochloride, prepn. and pharmacology of, 3101*h*.
——, *N*-butyl-, P 4686*i*.
as synergist for pyrethrum, P 351*e*
——, *N*-*tert*-butyl-, 2165*c*, P 3445*g*.
——, *p*-butyl-, 7004*i*.
——, *m* - butylamino - *N* - (2 - diethylaminoethyl)-, hydrochloride, prepn and pharmacology of, 3101*i*.
——, *m*-(butylmercapto)-*N*-(2-diethylaminoethyl)-, hydrochloride, prepn. and pharmacology of, 3101*h*.
——, *p*-butyl-*N*-methyl-, 7004*i*.
——, *N*-butyl-*m*-nitro-, 1145*b*, 7181*i*.
——, *N*-butyl-*p*-nitro-, in codling moth control, 5897*g*.
as insecticide, 2357*h*.
——, *N*-*sec*-butyl-*m*-nitro-, 1145*a*, 7181*i*.
——, *N*-*sec*-butyl-*p*-nitro-, as insecticide, 2357*h*.
——, *N*-(2-carbamylethyl)-, t-, 1448*i*.
——, *N* - (1 - carbamyl - 4 - guanidinobutyl)-, hydrolysis by trypsin, 6266*g*.
protection of glycolysis in brain homogenates by, 7520*f*.
——, *N*-chloro-, reaction with (PhCH$_2$)$_2$S, 172*i*
——, *p*-chloro-, anthraquinone dye from, P 7705*i*.
——, *N*-chloroacetyl-, 4221*a*.
——, *p*-chloro-*N*-(*o*-chlorophenethyl)-, 7486*a*.
——, *N*-(2-chlorocyclohexyl)- *dl*-*cis*-, 3373*b*.
——, *N*-2-chloroethyl-, 3014*f*.
——, *p*-chloro-*N*-ethyl-, 4652*h*.
——, *p*-chloro-*N*-2-hydroxyethyl-, in penicillin production, 2273*c*.
——, *o*-(3-chloro-4-methoxyanilino)-, 6633*f*.
——, *N*, *N*′-[2-(chloromethyl)-2-(hydroxymethyl)trimethylene]bis[*p* - nitro-, *p*-nitrobenzoate (ester), 214*b*.
——, *o*-chloro-*N*-(1-naphthylsulfonyl)-, P 8622*c*.
——, 2-chloro-4-nitro-, and derivs., 7455*a*.
——, *N*-(5-chlorosalicylidene)-, 6182*d*.
——, *N*, *N*′-(5-chlorosalicylidene)bis-, 6182*d*.
——, *p*-chloro-*N*-*p*-tolylsulfonyl-, P 7963*b*, P 8622*b*.
——, *N*-cuminyl-*N*-*α*-cyanobenzyl-, 6176*e*.
——, *N*-cyano-, 4232*d*.
——, *N*-*α*-cyanobenzyl-, 6176*d*.
——, *N*-*α*-cyanobenzyl-*N*-ethyl-, 6176*d*.
——, *N* - *α* - cyanobenzyl - *N* - methyl-, 6176*d*.
——, *N*-(2-cyanoethyl)-*p*-nitro-, 1696*b*.
——, *N*-(2-cyanoisopropyl)-*N*-methyl-, 4263*c*.
——, *N*-(2-cyclohexylethyl)-, 1026*f*.
——, *N*-(2-cyclohexylisopropyl)-, 1026*f*.
——, *m*-(cyclohexylmercapto)-*N*-(2-diethylaminoethyl)-, hydrochloride, prepn. and pharmacology of, 3101*i*.
——, *N*-cyclohexyl-*m*-nitro-, 1145*a*.
——, *p*-cyclopentyl-, 5752*b*.
*N*-[5-(4, 6-diamino-*s*-triazin-2-yl)amyl]-, P 5052*c*.
——, *N*, *N*-dibutyl-, as synergist for pyrethrum, P 351*e*.
——, 3, 4-dichloro-, as insecticide, 1896*b*.
——, 3, 4-dichloro-*N*-methyl-, as insecticide, 1896*c*.
——, *N*-(3, 4-dichlorophenylsulfonyl)-*N*-methyl-, P 2364*d*.
——, *N*, *N*′-(3, 5-dichlorosalicylidene)-bis-, 6182*e*.
——, 2, 5-dichloro-*N*-*p*-tolylsulfonyl-, P 7960*g*, P 8622*b*.
——, *N*, *N*-dicyclohexyl-*m*-nitro-, 1145*a*.
——, *N*-(3, 4-diethoxy-*β*-hydroxy-*α*-methylphenethyl)-, stereoisomers, 1423*d*.
——, *N*-(3, 4-diethoxy-*β*-hydroxy-*α*-methylphenethyl) - 3, 4 - diethoxy-, stereoisomers, 1423*d*.
——, *N*-(3, 4-diethoxy-*α*-methylphenacyl)-, 1424*a*.
——, *N*, *N*-diethyl-, reduction of, with LiAlH$_4$, 1312*j*.
——, *N*-(2-diethylaminoethyl)-, 1022*d*.
——, *N*-(2-diethylaminoethyl)-*m*-(2, 3-dihydroxypropylmercapto)-, hydrochloride, prepn. and pharmacology of, 3101*i*.
——, *N* - (2 - diethylaminoethyl) - *m*-(hexylmercapto)-, hydrochloride, prepn. and pharmacology of, 3101*i*.
——, *N*-(2-diethylaminoethyl)-*m*-(isopropylmercapto)-, hydrochloride, prepn and pharmacology of, 3101*i*.
——, *N*-[2-(2-diethylaminoethylmercapto)ethyl]-, citrate, 6184*c*
——, *N*-[2-(2-diethylaminoethylmercapto)ethyl]-*N*-ethyl-, hydrochloride, 6184*c*.
——, *N*-(2-diethylaminoethyl)-*o*(and *m*)-methoxy-, hydrochloride, prepn. and pharmacology of, 3101*h*.
——, *N*-(2-diethylaminoethyl)-*m*-(5-methylaminoamylmercapto)-, hydrochloride, prepn. and pharmacology of, 3101*i*.
——, *N*-(2-diethylaminoethyl)-*m*-(1-methylheptylmercapto)-, hydrochloride, prepn. and pharmacology of, 3101*i*.
——, *p*-diethylamino-*N*-1-naphthyl-, 1346*h*.
——, *N*, *N*-diethyl-*p*-nitro-, in codling moth control, 5897*g*.
as insecticide, 2357*h*.
——, dihydroxy-, derivs., as coupling agents for diazo prints, P 5320*e*.
——, *p* - (2, 3 - dihydroxyallylideneamino)-, and derivs., P 6236*a*.
——, *N*-(2, 2′-dihydroxyisopropyl)-, in penicillin production, 2273*c*.
——, *N*-(3, 4-dihydroxyphenacyl)-*N*-methyl-, 2601*h*.
——, *o*-(2, 3-dihydroxypropoxy)-, effect on nervous system, 312*a*.
——, *N*, *N*-diisobutyl-, as synergist for pyrethrum, P 351*e*.
——, *N*, *N*-diisobutyl-*p*-nitro-, as insecticide, 2357*h*.
——, *N*, *N*-diisopropyl-*m*-nitro-, 1145*a*. 7181*i*.
——, *N*, *N*-diisopropyl-*p*-nitro-, as insecticide, 1896*c*, 2357*h*.
——, 2, 4-diisopropyl-, 6182*i*.
——, *N*, *N*-diisopropyl-*p*-nitro-, in codling moth control, 5897*g*.
——, *N*-(3, 4-dimethoxyphenethyl)-, and hydrochloride, 1026*c*.
——, *N*, *N*-dimethyl-, P 689*a*.
——, *p*-dimethylamino-*N*-1-naphthyl-, 1346*h*.
——, *N*-2, 6-dimethylcyclohexyl-, isomers of, 2963*c*.
——, *N*, *N*-dimethyl-*m*-nitro-, 1145*b*, 7181*i*.
——, *N*, *N*-dimethyl-*p*-nitro-, in codling moth control, 5897*g*.
as insecticide, 2357*h*.
——, *N*-(*α*, *α*-dimethylphenethyl)-, 9047*d*.
——, *N*-(*α*, *β*-dimethylphenethyl)-*p*-nitro-, 7486*b*.
——, *N*-(4, 6-dimethyl-2-pyrimidylmethyl)-, P 3473*c*.
——, *N*-2, 2-diphenylethyl-, 5026*e*.
——, *N*-[*α*-(*N*, *N*′-diphenylguanylmethyl)benzyl]-, and hydrochloride, 3821*i*.
——, *N*-[2-(2-ethoxypropyl)cyclohexyl]-*cis*- and *trans*-, 1414*h*.
——, *m*-ethyl-, 8387*e*.
spectrum of, 8274*g*.
——, *o*-ethyl-, 4218*c*.
——, *m*(and *p*)-ethylamino-*N*-1-naphthyl-, 1346*bg*.
——, *p*-(ethylmethylamino)-*N*-1-naphthyl-, 1346*h*.
——, *N*-(*α*-ethyl-*α*-methylphenethyl)-, 9047*d*.
——, *N*-ethyl-*p*-nitro-, in codling moth control, 5897*g*.
——, *N*-(*α*-ethylphenethyl)-, 9047*d*.
——, *N*-(ethylsulfonyl)-, 120*g*.
——, *N*, *N*′ - [1 - formyl - 3 - (formylmethyl) - 2 - hydroxytrimethylene]-bis-†, and tetraethyl mercaptal, 1329*i*.
——, *N*-5-guanylamyl-, hydrochloride, P 673*b*.
*N*-2-guanylethyl-, hydrochloride, P 673*a*.
——, *N*-(guanylmethyl)-, hydrochloride, P 672*i*.
reaction with 2, 4-pentanedione, P 3473*c*.
——, *m*-hydroxy-, fate in animal organisms, 3911*i*.
spectrum of, 8890*i*.
——, *p*-hydroxy-, carbanilate, 593*f*.
effect on antitrypanosomal activity of arsenoso compds. and acridines, 319*i*.
——, *N*-2-hydroxyamyl-, 2926*i*.
——, *N*-2-hydroxycyclohexyl-, *dl*-, *cis*- and *trans*-, and derivs., 3372*h*.
——, *N*-2-hydroxyethyl-, and benzoate, 3014*e*.
——, *N*-2-hydroxyethylthio-, 3014*g*.
——, *N*-(hydroxymethyl)-, P 6223*b*.
——, *N*-(hydroxymethyl)-*p*-nitro-, reaction product with paraformaldehyde and MeNH$_2$ acetate, P 1434*g*.
——, *N*-[3-(hydroxymethyl)-1-*p*-nitrobenzoyl - 3 - azetidyl]methyl] - *p*-nitro-, *p*-nitrobenzoate (ester), 214*b*.
——, *N*-(*β*-hydroxy-*α*-methylphenethyl)-, *dl*-, and derivs., 6999*e*.
stereoisomers, separation of, 4238*b*.
——, *N*-(*β*-hydroxy-*α*-methylphenethyl)-*N*-methyl-, *dl*-, 6999*h*.
stereoisomers, separation of, 4238*b*.
——, *N*-[*N*-(hydroxymethyl)sulfanilyl]-, 7077*c*.
——, *N*, *N*′-[3-hydroxypropylenebis(thiomethylene)]bis-, P 3571*h*, P 6223*a*.
——, *p*-hydroxythio-, carbanilate, 593*f*.
——, 2-iodo-4-nitro-, 7455*b*.
——, *N*-isobornyl-, 2165*h*.
——, *N*-isobutyl-*m*-nitro-, 1145*b*, 7181*i*.
——, *N*-isopropyl-, in sweet-potato-weevil control, 7183*c*.
——, *p*-(isopropylmercapto)-*N*-(*p*-nitrophenylsulfonyl)-, P 7043*h*.
——, *o*(and *p*)-(isopropylmercapto)-*N*-sulfanilyl-, P 7043*gi*.
——, *N*-isopropyl-*m*-nitro-, 1145*b*, 7181*i*.
——, *N*-isopropyl-*p*-nitro-, in codling moth control, 5897*g*.
as insecticide, 2357*h*.
——, *N*-isopropylthio-, 3014*i*.
——, *N*-2-mercaptoethyl-, 3015*a*.
——, *N* - [(2 - methoxy - 1 - naphthyl)-methyl]-, 4249*i*.
——, *p*-methylamino-*N*-1-naphthyl-, 1346*g*.
——, *N*-*α*-methylcinnamyl-, labeled with C$^{14}$ in *α*-position, 5005*b*.
——, *N*-2-methylcyclohexyl-, *cis*- and *trans*-, 2961*a*.
——, *N*, *N*′-methylenebis-, 1316*f*, 9075*e*.
——, 3, 4-methylenedioxy-. See *Piperonylamide*.
——, *N*-[2-(4-methyl-2-imidazolyl)-ethyl]-, 7478*g*.
——, *N*-(4-methyl-2-imidazolylmethyl)-, 7478*f*.
——, *p*-methylmercapto-*N*-(*p*-nitrophenylsulfonyl)-, P 6233*h*.
——, *p*-methylmercapto-*N*-sulfanilyl-, P 6233*k*.
——, *p*-methylmercapto-*N*-*p*-tolylsulfonyl-, P 7963*a*.
——, *N*-methyl-*N*-[2-(4-methyl-2-thiazolyl)isopropyl]-, 4263*c*.
——, *N*-methyl-*m*-nitro-, 1145*b*, 7181*i*.
——, *N*-methyl-*p*-nitro-, in codling moth control, 5897*g*.
——, *N*-(*α*-methylphenacyl)-, and oxime, 4227*b*.
——, *N*-(*α*-methylphenethyl)-, and hydrochloride, 1026*c*.

—, *N*-[α(and β)-**methylphenethyl**]-, 5026*g*.
—, *N*-**methyl**-*N*-**propyl**-, P 689*b*.
—, *N*-**methyl**-*p*-**propyl**-, 7004*i*.
—, *N*-(**methylsulfonyl**)-, 120*g*.
—, *p*-(**methylsulfonyl**)**thio**-, 1740*e*.
—, *N*-**methyl**-*N*-(**2-thiocarbamylisopropyl**)-, 4263*c*.
—, *N*-**naphthacridyl**-. See *Naphthacridine, benzamido*-.
—, *N*-**1-naphthyl**-*m*(*o* and *p*)-**nitro**-, 1346*e*.
—, *N*-**1-naphthyl**-*o*-**propylamino**-, 1346*g*.
—, *N*-**2-naphthylthio**-, 7011*f*.
—, *m*-**nitro**-, derivs., as insecticides, 7181*h*.
derivs., in codling moth control, 1145*i*.
reaction with aromatic aldehydes, 1408*h*.
—, *m*(*o* and *p*)-**nitro**-, fate in animal organism, 6717*i*.
—, *o*-**nitro**-, P 3452*b*.
—, *p*-**nitro**-, *N*-derivs., as insecticides, 2357*f*.
effect on viruses of psittacosis-lymphogranuloma group, 9249*h*.
reaction with isocyanates, 6162*e*.
—, *p*-**nitro**-*N*,*N*-**dipropyl**-, in codling moth control, 5897*g*.
as insecticide, 2357*h*.
—, *m*(and *p*)-**nitro**-*N*-(*p*-**nitrophenethyl**)-, 7486*a*.
—, *m*-**nitro**-*N*-[*m*(and *p*)-**nitro**-α-**1-piperidylbenzyl**]-, 3805*h*.
—, *m*-**nitro**-*N*-α-**1-piperidylbenzyl**-, 3805*h*.
—, *N*-[*m*(and *p*)-**nitro**-α-**1-piperidylbenzyl**]-, 3805*h*.
—, *m*-**nitro**-*N*-**propyl**-, 1145*b*, 7181*i*.
—, *p*-**nitro**-*N*-**propyl**-, in codling moth control, 5897*g*.
—, **3-nitro-4-(tetrahydro-3,5-dioxo-4-phenyl-1,2,4,2*H*-thiadiazin-6-ylazo)**-, 1,1-dioxide, P 4868*f*.
—, *N*-(**2-oxoamyl**)-, 2926*i*.
—, *N*-(**7-oxo-7*H*-benz**[*de*]**anthracen-6-yl**)-, 1760*c*.
—, *N*-**phenacyl**-*N*-(**2-phenacylaminoethyl**)-, 3800*d*.
—, *N*-**1-phenanthryl**-, 4664*c*.
—, *N*-**phenethyl**-, 1026*d*, 5027*d*.
—, *N*-**phenyl**-. See *Benzanilide*.
—, *N*,*N*′-*p*-**phenylenebis**[**4-amino**-*N*-**methyl**-, and disazo dye from, P 858*i*.
—, *N*,*N*′-*p*-**phenylenebis**[*N*-**methyl**-*p*-**nitro**-, P 859*i*.
—, *N*-α-**phenylhomopiperonyl**-, 5027*d*.
—, *N*-α-**phenylphenethyl**-, 5027*a*.
—, *N*-(**3-phenylpropyl**)-, 1026*e*.
—, *N*,*N*′-(**3-phenylpropylidene**)**bis**-, 2600*i*.
—, *N*-α-**1-piperidylbenzyl**-, 3805*h*.
derivs., 1408*f*, 3805*e*.
—, *N*-[**2-(1-piperidyl)ethyl**]-, 1004*b*.
—, *N*-{**2-[2-(1-piperidyl)ethylmercapto]ethyl**}-, hydrochloride, 6184*c*.
—, *N*-(α-**1-piperidylpiperonyl**)-, 3805*h*.
—, *N*-(**1-piperidylthiocarbonyl**)-†, 4646*e*.
—, *N*-**propionyl**-, 4221*c*.
—, *p*-**propyl**-, 7004*i*, 9056*b*.
—, *N*-α-**propylphenethyl**-, 9047*e*.
—, *N*-**pyridyl**-. See *Pyridine, benzamido*-.
—, *N*-[**3-(3-pyridylcarbonyl)propyl**]-, spectrum of, 5306*h*.
—, *N*-[**2-(2-pyridylsulfamyl)ethyl**]-, P 3450*d*.
—, *N*-**pyrimidyl**-. See *Pyrimidine, benzamido*-.
—, *N*-**pyrrolidyl**-. See *Pyrrolidine, benzamido*-.
—, *N*-(**2-pyruvylaminoethyl**)-, acetate, polymer, P 9531*f*.
—, *N*-**quinolyl**-. See *Quinoline, benzamido*-.
—, *p*-(**2-quinoxalylmethyleneamino**)-, 3425*d*.
—, *N*-**sulfanilyl**-, compd. with ephedrine, P 9388*h*.
effect on dehydrogenase system of *Escherichia coli*, 9154*h*.
in fowl cholera treatment, 7589*f*.
therapeutic activity of, 3097*g*.
—, *N*-**1,1,3,3-tetramethylbutyl**-, 2165*g*.
—, *N*-**2-thenyl**-, 1763*h*.
—, *N*-**thiadiazolyl**-. See *Thiadiazole, benzamido*-.
—, *N*-**thiazolyl**-. See *Thiazole, benzamido*-.
—, *N*-**thienyl**-. See *Thiophene, benzamido*-.
—, **thio**-, reaction with ethylene oxides, 7420*g*.
—, *N*,*N*′-(**2,2,2-trichloroethylidene**)**bis**-, 2967*d*, 6605*a*.
—, *p*,*p*′-(**2,2,2-trichloroethylidene**)**bis**-, 1367*f*, 6605*b*.
—, *N*,*N*′-(**2,2,2-trichloroethylidene**)**bis**[*p*-**chloro**-, 2967*e*.
—, *N*-**tricyclo**[**4.2.2.0**$^{2,5}$]**dec-7-yl**-, 6197*i*.
—, **3,4,5-trimethoxy**-*N*,*N*-**dimethyl**-, reduction to 3,4,5-(MeO)$_3$C$_6$H$_2$CONMe$_2$, 121*h*.
—, *ar*-**ureido**-. See *Urea, (carbamylphenyl)*-.
—, *N*-**vinyl**-, polymer, P 5635*g*.
—, *o*-**vinyl**-, 4218*d*.
**Benzamide**-*N*-*d*, *N*-**ethyl**-, spectrum of, 8274*g*.
**Benzamidine**,

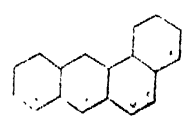


and benzenesulfonate, 7445*c*.
derivs., 1739*b*, 5756*i*, P 6660*i*, 9048*d*
picrate, P 3456*f*.
salts, P 2230*f*, P 5038*d*.
—, **3-amino-4,4′-oxydi**-, dihydrochloride, 9049*e*.
—, *N*′-**amyl**-*N*-**methyl**-, 2595*f*.
—, *N*-**benzyl**-, hydrochloride, P 3456*i*.
—, *N*-**benzyl**-*N*-**phenyl**-, and picrate, 2593*i*.
—, *N*-**2-biphenylyl**-, P 5051*c*.
and salts, 7445*g*.
—, *N*-**2-biphenylyl**-*p*-(**methylsulfonyl**)-, P 5051*d*.
and picrate, 7445*g*.
—, *N*-**2-biphenylyl**-*p*-**nitro**-, and salts, P 5051*c*, 7445*g*.
—, **3-bromo-4,4′-oxydi**-, dihydrochloride, 9049*e*.
—, **3-bromo-4,4′-(pentamethylenedioxy)di**-, dihydrochloride, P 688*f*, 9049*c*.
—, *N*-(*p*-**bromophenyl**)-, and salts, 7444*d*.
—, **3-bromo-4,4′-(trimethylenedioxy)di**-, dihydrochloride, 9049*c*
—, *N*-**butyl**-*N*-**phenyl**-, and hydrochloride, P 5801*c*.
—, *o*-**chloro**-, salts, 7445*b*.
—, *p*-**chloro**-*N*-**4′-nitro-2-biphenylyl**-, P 5051*d*.
and picrate, 7445*g*.
—, **3-chloro-4,4′-oxydi**-, dihydrochloride, 9049*e*.
—, *N*-[*o*(and *p*)-**chlorophenyl**]-, and salts, 7444*d*.
—, *o*-**chloro**-*N*-**phenyl**-, and salts, 7444*e*.
—, *N*-[*o*(and *p*)-**chlorophenyl**]-*N*′-**phenyl**-, and salts, 2594*b*.
—, *N*-**cyclohexyl**-, and salts, 7444*h*.
—, **2,6-dibromo-4,4′-(trimethylenedioxy)di**-, antibacterial action of, 3064*h*.
—, *N*,*N*-**dibutyl**-, and hydrochloride, P 5801*c*.
—, *N*,*N*-**dibutyl-2,5-dimethoxy**-, hydrochloride, P 5801*d*.
—, *N*,*N*-**dibutyl**-*p*-**dimethylamino**-, hydrochloride, P 5801*d*.
—, **2,4-dichloro**-, benzenesulfonate, P 2231*b*, P 5038*f*.
salts, 7445*b*.
—, **2,4-dichloro**-*N*-**phenyl**-, hydrochloride, P 3456*i*.
and salts, 7444*e*.
—, *N*,*N*-**diethyl**-*p*-(**methylsulfonyl**)-, picrate, P 3456*h*.
—, *N*,*N*-**diethyl**-*N*′-**phenyl**-, and salts, 2594*a*.
—, **2,6-diiodo-4,4′-(trimethylenedioxy)di**-, antibacterial action of, 3064*h*.
—, **3,5-diiodo-4,4′-(trimethylenedioxy)di**-, dihydrochloride, 9049*c*.
—, *N*,*N*-**dimethyl**-*p*-(**methylsulfonyl**)-, salts, P 688*i*.
—, *N*,*N*-**dimethyl**-*N*′-**phenyl**-, Raman spectrum of, 6082*a*.
—, **3,5-dinitro**-, benzenesulfonate, P 688*i*.
—, *N*-(**4,4′-dinitro-2-biphenylyl**)-, P 5051*c*.
and picrate, 7445*h*.
—, *N*,*N*-**diphenyl**-, picrate, 7444*h*.
—, *N*,*N*′-**diphenyl**-, and benzenesulfonate, 2594*b*, 2595*e*.
Raman spectrum of, 6082*a*.
and salts, 7445*c*.
—, *N*,*N*′-**di-2-pyridyl**-, 1409*d*.
—, *p*-[**2-(6-ethoxy-2-quinolyl)vinyl**]-, hydrochloride, 5757*b*.
—, *p*,*p*′-(**ethylenedioxy**)**bis**[*N*-**phenyl**-, dibenzenesulfonate, 7444*g*.
—, *p*,*p*′-(**ethylenedioxy**)**di**-, bis(benzenesulfonate), P 2230*h*, P 5038*f*.
—, *p*-(**ethylsulfonyl**)-*N*-**phenyl**-, and hydrochloride, 7444*e*.
—, *p*,*p*′-(**heptamethylenedioxy**)**di**-, effect on influenza virus, 8536*c*.
—, **4,4′-(hexamethylenedioxy)bis**[**3-chloro**-, dihydrochloride, P 688*g*, 9049*d*.
—, **4,4′-(hexamethylenedioxy)bis**[**2-iodo**-, effect on *Corynebacterium diphtheriae*, 4325*i*.
—, **4,4′-(hexamethylenedioxy)bis**[**3-iodo**-, dihydrochloride, 9049*d*.
—, *p*,*p*′-(**hexamethylenedioxy**)**di**-, bacteriostatic action on *Corynebacterium diphtheriae*, 4325*i*.
effect on influenza virus, 8536*c*.
—, **hydroxy**-, in analysis of metals, 2541*b*.
—, **3-hydroxy-4,4′-oxydi**-, dihydrochloride, 9049*e*.
—, **iodo-4,4′-(hexamethylenedioxy)di**-, antibacterial action of, 3064*h*.
—, **3-iodo-4,4′-(hexamethylenedioxy)di**-, dihydrochloride, 9049*d*
—, **3-iodo-4,4′-oxydi**-, dihydrochloride, 9049*e*.
—, **3-iodo-4,4′-(pentamethylenedioxy)di**-, dihydrochloride, 9049*d*
**2-iodo-4,4′-(trimethylenedioxy)**-, antibacterial action of, 3064*g*
**3-iodo-4,4′-(trimethylenedioxy)di**-, dihydrochloride, P 688*f*.
salts, 9049*c*
—, *N*-(*p*-**methoxyphenyl**)-, P 2230, and salts, 7444*d*.
—, *N*-**methyl**-*N*, *N*′-**diphenyl**-, and picrate, 2594*b*.
—, *N*-**methyl**-*N*-**phenyl**-, P 3456*i*
—, *N*-**methyl**-*N*′-**phenyl**-, P 2230, 2595*f*.
—, *N*′-**methyl**-*N*-**phenyl**-, Raman spectrum of, 6082*a*
—, *p*-(**methylsulfonyl**)-, and homologs 1739*c*.
salts, P 688*h*.
and *p*-toluenesulfonate, P 2231*b*, P 5038*e*
—, *p*-(**methylsulfonyl**)-*N*-(**4′-nitro-2-biphenylyl**)-, and picrate, 7446*a*
—, *p*-(**methylsulfonyl**)-*N*-**phenyl**-, and hydrochloride, 7444*e*.
—, *p*-(**methylsulfonyl**)-*N*-**2-pyridyl**-, P 3456*b*, P 3457*a*.
—, *o*-**nitro**-, picrate, P 3456*g*
—, *p*-**nitro**-, effect on viruses of psittacosis-lymphogranuloma group, 9249*h*
and picrate, P 3456*g*.
salts, P 688*h*.
—, *p*-**nitro**-*N*-(**4′-nitro-2-biphenylyl**)-, P 5051*c*
and picrate, 7445*g*
—, **3-nitro-4,4′-oxydi**-, dihydrochloride, 9049*e*.
—, *N*-(*o*-**nitrophenyl**)-, picrate, P 3456*i*.
—, *N*-(*p*-**nitrophenyl**)-, P 2230*g*
—, **3-nitro-4,4′-(trimethylenedioxy)di**-, dihydrochloride, 9049*c*.
—, *p*,*p*′-(**octamethylenedioxy**)**di**-, effect on influenza virus, 8536*c*.
—, **4,4′-oxybis**[**3-iodo**-, dihydrochloride, 9049*e*.
—, *p*,*p*′-**oxydi**-, P 1062*h*.
effect on influenza virus, 8536*b*.
—, **4,4′-(pentamethylenedioxy)bis**[**3-amino**-, dihydrochloride, 9049*d*
—, **4,4′-(pentamethylenedioxy)bis**[**3-bromo**-, dihydrochloride, 9049
—, **4,4′-(pentamethylenedioxy)bis**[**3-chloro**-, dihydrochloride, 9049.
—, **4,4′-(pentamethylenedioxy)bis**[**3-iodo**-, dihydrochloride, 9049*d*.
—, **4,4′-(pentamethylenedioxy)bis**[**3-methoxy**-, dihydrochloride, 9049*d*.
—, **4,4′-(pentamethylenedioxy)bis**[**3-nitro**-, dihydrochloride, 9049*d*
—, *p*,*p*′-(**pentamethylenedioxy**)**di**-, cytostatic action in myeloma, 9263*g*.
effect on influenza virus, 8536*c*.
effect on *Trypanosoma equinum* infections, 310*f*.
pharmacology, mode of action and therapeutic potentialities of, 3147*c*.
salt with 6,6′-methylenebis[3-hydroxy-2-naphthoic acid], in prophylaxis against *Trypanosoma gambiense*, 5502*h*.
—, *p*-[**2-(6-phenanthridyl)vinyl**]-, hydrochloride, 5757*b*.

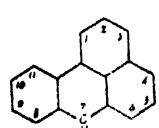
——, *N*-**phenyl-**, P 3456*i*.
and picrate, 2594*a*.
——, *N*-**phenyl-***N*′-**2-pyridyl-**, and picrate, 2594*a*.
——, *N*-**phenyl-***N*′-*p*-**tolyl-**, and salts, 2594*b*.
——, *N*-**2-pyridyl-**, P 3457*a*.
——, *p*-[**2-**[**2**(and **4**)-**pyridyl**]**vinyl**]-, hydrochlorides, 5757*a*.
——, *p*-[**2-**[**2**(and **4**)-**quinolyl**]**vinyl**]-, hydrochlorides, 5757*a*.
——, *ar*-**sulfamyl-**. See *Benzenesulfonamide, ar-guanyl-*.
——, *N*-*p*-**sulfamylphenyl-**. See *Sulfanilamide, N-benzimido-*.
——, **4,4′ - (trimethylenedioxy)bis[2-bromo-**, effect on *Corynebacterium diphtheriae*, 4325*i*.
**4,4′-(trimethylenedioxy)bis[3-bromo-**, salts, P 688*g*, 9049*c*.
**4,4′-(trimethylenedioxy)bis[3-fluoro-**, sulfate, 9049*b*.
**4,4′-(trimethylenedioxy)bis[3-iodo-**, dihydrochloride, 9049*c*.
*p,p*′-**(trimethylenedioxy)bis[***N*-**phenyl-**, benzenesulfonate, P 3457*a*.
and bis(benzenesulfonate), 7444*f*.
——, *p,p*′-**(trimethylenedioxy)di-**, bacteriostatic action on *Corynebacterium diphtheriae*, 4325*i*.
bis(benzenesulfonate), P 2231*a*, P 5038*g*.
deriv. in pharmaceuticals, 1151*e*.
dihydrochloride, P 688*i*.
pharmacology, mode of action and therapeutic potentialities of, 3147*c*.
resistance of pneumococci to, and its relation to dehydrogenase activities and to resistance to atebrin and acriflavine, 2672*b*.
——, *N*, *N*′-**triphenyl-**, and picrate, 2591*b*.
——, *p,p*′-**vinylenedi-**. See *1,4′-Stilbene dicarboxamidine*.
**Benzamine**. See *β Eucaine*
**1′2′,16,17 - Benzandrostan - 3(β),4′-diol***, and diacetate, 2456*a*.
**Benzanilide,**



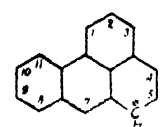
formation from reaction of PhNH with $Sn(OBz)_4$, 4631*h*.
formation from reaction of benzamide with PhNCS, 6162*h*.
prepn. from benzophenone hydrazone, 6769*g*.
saponification of, P 3026*g*.
——, **4′-acetamido-**, 4665*d*.
——, **3′-acetyl-4′-hydroxy-**, 5779*d*.
——, **4′-(*N*-acetylsulfanilylazo)-2′,5′-diethoxy-**, P 7846*f*.
——, **4-amino-2,5-bis(benzyloxy)-**, P 1165*g*.
——, **3-amino-2′-chloro-4-hydroxy-**, azo dyes from, P 8146*e*.
——, **3-amino-4-hydroxy-**, azo dyes from, P 5597*g*, P 8146*d*.
——, **4-amino-4′-(6-methyl-2-benzothiazolyl)-**, disulfo deriv., polyazo dyes from, P 4479*c*.
——, **3′-amino-4-nitro-**, azo dyes from, P 9166*e*.
——, **4′-(*p*-aminophenyl)-**, stilbene dyes from, P 1575*d*.
——, ***N* - amyl - 4′ - (2 - biphenylyl)-4-nitro-**, 4657*a*.
——, **2′-anilino-**, 3810*a*.
——, **2-anilino-4-nitro-**, 648*f*.
——, **5′-arsenoso-2′-hydroxy-**, 6179*a*.
——, **3′-benzoylacetyl-4′-hydroxy-**, and benzoate, 5797*e*.
——, **2**(**3** and **4**)-**benzylamino-**, 1345*f*.
——, **2**(**3** and **4**)-**benzylideneamino-**, 1345*e*.
——, **4′-[α-(4-biphenylylcarbonyl)acetamido]-**, P 7704*a*.
——, **2′-bromo-4′-sulfamyl-**, 175*f*.
——, *N*-**2-butenyl-**, 5403*h*.
——, *N*-**butyl-**, 5403*i*.
——, **4′,4‴-carbonylbis-**, 1367*g*.
——, **4**(and **4′**)-**chloro-**, 7464*g*.
——, **4′ - chloro - 2′ - mercapto - 3,5-dinitro-**, 7478*d*.
——, **2′**(and **3′**)-**chloro-3-nitro-**, 1145*a*.
——, **4′-[1-(4-cyano-2,5-dimethoxyphenylcarbamyl)acetonylazo] - 2′,5′-diethoxy-**, P 3461*i*.
——, **4′,4‴ - cyclopropylidenedi - (?)-**, 9042*g*.
——, **diamino-**, polyazo dyes from, P 3201*i*, P 4182*g*.
——, **3,3′-diamino-**, trisazo dyes from, P 4481*e*.
——, **3,4′-diamino-**, trisazo dye from, P 4481*d*.
——, **4,4′-diamino-**, azo dyes from, P 4481*c*, P 4867*b*, P 5196*i*, P 8690*a*, P 9466*e*.
——, **3′-(4,6-diamino-*s*-triazin-2-yl)-**, 238*e*.
——, **3-dibenzylamino-**, (omitted from abstr.), 1345*h*.
——, ***N*-(5,7-dichloro-8-quinolyl)-†**, 1777*i*.
——, **4′-(2,3-dihydroxypropoxy)-**, surface tension of aq. soln. of, 5655*e*.
——, **2′,2‴-dithiobis-**, effect on GR-S and natural rubber latex, 7252*f*.
——, **2′,2‴-dithiobis[5′-acetamido-**, 5776*d*.
——, **4′-(α,α,α,α′,α′,α′-hexafluoro-3,5-xylylsulfamyl)-**, 4648*i*.
——, **1′,2′,3′,4′,5′,6′-hexahydro-**. See *Benzamide, N-cyclohexyl-*.
——, *ar*′-**methoxy-**. See *Benzanissidide*.
——, *ar*′-**methyl-**. See *Benzotoluidide*.
——, **4′-(*N*-methylacetamido)-**, 1777*f*.
——, *N*-**methyl-4-nitro-**, 4241*a*.
——, **3-nitro-**, 1145*a*.
——, **3**(and **4**)-**nitro-**, 4241*b*.
——, **3′-[2-(*p*-nitrobenzamido)ethyl]-**, 7486*a*.
——, **2-*m*-nitrobenzoyl-**, from Beckmann rearrangement of 1-benzoyl-2-*m*-nitrobenzoylbenzene oxime, 1042*d*.
——, **4′-nitro-2-*m*-nitrobenzoyl-**, 1042*d*.
——, *N*-**phenyl-**. See *Benzamide, N, N-diphenyl-*.
——, ***N*-(*N*-phenylbenzimido)-**, and benzenesulfonate, 2594*i*.
——, **4′,4‴-[*p*-phenylenebis[(methylimino)carbonyl]]bis[4-amino-**, P 860*e*.
——, *N*-**8-quinolyl-†**, 1777*h*.
——, **thio-**, as catalyst in isomerization of maleic acid, P 1798*e*.
——, **2-*p*-tolylsulfonamido-**, 7006*h*.
——, **4′-(1,2,3,2*H*-triazol-2-yl)-**, 2619*i*.
***m*-Benzanisidide**, **6′,6‴-dithiobis[4′-acetamido-**, 5776*e*.
***o*-Benzanisidide**, 1651*e*.
***p*-Benzanisidide**, 1651*g*.
**Benz**[*a*]**anthracen-2-amine**, 2985*h*.
**Benzanthracene,**



[*a*]



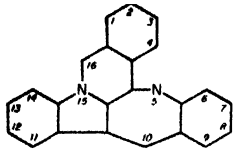
7—[*de*]



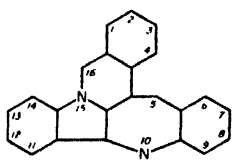
6—[*de*]

derivs., carcinogenic activity of, 5731*g*.
derivs., mol. structure and spectra of, 1361*b*.
**Benz**[*a*]**anthracene**, electron cloud distribution and reactivity of, 6905*i*.
fluorescence of, 498*a*.
metabolism of, 3091*h*.
photochemistry of, and formation of dimer, 2985*d*.
reaction with maleic anhydride, 2199*g*.
reaction with $OsO_4$, 8374*i*.
in scintillation counters, 4111*e*.
spectrum and structure of, 4560*g*.
spectrum of, 7818*f*.
**Benz**[*a*]**anthracene, acetamido-**. See *Acetamide, N-benz[a]anthracenyl-*.
——, **2-chloro-**, and picrate, 2986*a*.
——, **7-[(2-chloroethylmercapto)methyl]-**, 621*c*.
——, **7-(chloromethyl)-**, 621*a*.
——, **7,12-dichloro-**, 7013*b*.
——, **7,12-diethyl-**, reaction with $OsO_4$, 8375*a*.
——, **2,10(7,12** and **8,9)-dimethyl-**, reaction with $OsO_4$, 8376*a*.
——, **7,12-dimethyl-**, fluorescence in skin, 6315*i*.
fluorescence of, 498*b*.
solubilization of, by colloids, 4368*e*.
tumor production by, 3095*c*.
——, **4**(and **8**)-**methyl-**, photodimers, 7012*c*.
——, **7-methyl-**, derivs., 620*i*.
——, **7**(and **9**)-**methyl-**, reaction with $OsO_4$, 8375*a*.
——, **7,7,12,12 - tetrachloro - 7,12 - dihydro-**, 7013*b*.
——, **7,8,9,12-tetramethyl-**, reaction with $OsO_4$, 8375*a*.
——, **7,7,12-tribromo-7,12-dihydro-**, 7013*b*.
**Benz**[*b*]**anthracene**. See *Naphthacene*.
**Benz**[*a*]**anthracene-7-acetamide**, *N*, *N*-**bis(2-chloroethyl)-**, 621*d*.
——, *N*, *N*-**bis(2-hydroxyethyl)-**, 621*c*.
**Benz**[*a*]**anthracene-3-carbonitrile**, 2986*b*.
——, **7,12-dihydro-7,12-dioxo-**, 2986*b*.
**Benz**[*a*]**anthracene-7-carbonitrile**, reaction with $OsO_4$, 8375*b*.
——, **12-methyl-**, reaction with $OsO_4$, 8375*b*.
**Benz**[*a*]**anthracene - 3 - carboxylic acid**, 2986*b*.
——, **7,12-dihydro-7,12-dioxo-**, 2986*b*.
**7*H* - Benz**[*de*]**anthracene - 3,9 - dicarboxylic acid, 7-oxo-**, vat dyes from, P 6426*i*, P 6427*c*.
**7*H* - Benz**[*de*]**anthracene - 4,9 - dicarboxylic acid, 7-oxo-**, vat dyes from, P 6427*ac*.
**Benz**[*a*]**anthracene-7,12-diol, 9**(and **10**)-**methyl-**, diacetates, 8376*a*.
**Benz**[*a*]**anthracene-5,6-dione**, antimitotic action of, 1861*a*.
**Benz**[*a*]**anthracene-7,12-dione**, 7013*b*.
metabolism of, 3091*h*.
and mixt. with naphthacenequinone, 209*h*.
nitration of, 7918*h*.
——, **2-amino-**, 2985*g*.
——, **2**(and **3**)-**chloro-**, 2985*i*.
——, **hydroxy-**, metabolic formation of, 3091*i*.
——, **2-hydroxy-**, 2985*h*.
——, **9**(and **10**)-**methyl-**, 8375*e*.
——, **2**(and **4**)-**nitro-**, 7918*h*.
**Benz**[*a*]**anthracene-7-methylamine**, *N*,*N*-**bis(2-chloroethyl)-**, 621*b*.
**Benz**[*a*]**anthracen-4-ol**, metabolic formation of, 3092*a*.
**6*H*-Benz**[*de*]**anthracen-6-one, 1,2,4,5-tetrahydro-3-methyl-**, and semicarbazone, 6610*d*.
**7H-Benz**[*de*]**anthracen-7-one**, 3-acyl derivs., P 8686, 3402*c*.
chlorinated, dyes from, P 7706*f*.
condensation of, 1760*b*.
derivs., 3396*a*
detn. of, 6948*c*
nitration of, 7918*h*.
reactions of, 1759*a*.
——, **3-acetyl-**, P 868*d*, 3402*d*.
——, **4-amino-**, 1760*i*.
——, **4**(and **6**)-**amino-**, 1759*c*.
——, **6-amino-**, 1760*c*.
——, **3-(5-amino-1-anthraquinonylamino)-†**, dyes from, P 8170*fi*.
——, **3-amino-2-nitro-**, 210*a*.
——, **6-anilino-**, 2984*f*.
——, **3-anisoyl-**, P 868*d*, 3402*e*.
——, **(1-anthraquinonylamino)-†**, P 7236*b*.
——, **3-benzoyl-**, P 868*c*, 3402*d*.
——, **3,9-bis(6,11-dihydro-6,11-dioxoanthra[2,1]thiazol-2-yl)-**, P 6427*d*.
——, **3-bromo-**, dyes from, P 7708*h*.
——, **6-bromo-**, 1760*c*.
——, **6-chloro-**, 1760*c*.
——, **6**(and **8**)-**chloro-**, 2984*c*.
——, **6-*p*-chloroanilino-**, 2984*f*.
——, **3-*o*-chlorobenzoyl-**, P 868*d*, 3402*e*.
——, **4-fluoro-**, 1760*i*.
——, **3-(5,8,11,16,17,18-hexahydro-5,8,11,16,18 - pentaoxodinaphth-[2,3-, 2′,3′-*h*]acrid - 4(and 6)-ylamino)-†**, P 7708*i*.
——, **2-hydroxy-**, 210*b*.
——, **4-hydroxy-**, 1760*i*.
——, **6-hydroxy-**, 1759*c*, 1760*b*.
——, **4,6′-iminobis-**, 1759*i*.
——, **6,6′-iminobis-**, 1759*c*.
——, **4-iodo-**, 1759*k*.
——, **6-iodo-**, 1760*c*.
——, **2-methoxy-**, 209*i*.
——, **3-*m*-methoxybenzoyl-**, P 868*d*, 3402*e*.
——, **4-methyl-**, 1760*i*.
——, **10-methyl-**, 3396*e*.
——, **4-methylamino-**, 1759*k*.
——, **6-methylamino-**, 2984*f*.
——, **6-*N*-methylanilino-**, 1760*d*.
——, **3-(1-naphthoyl)-**, P 868*d*, 3402*e*.
——, **6 - [1(and 2) - naphthylamino]-**, 2984*f*.

—, **6-*p*-nitroanilino-**, 2984*f*.
—, **6-*p*-toluidino-**, 2984*f*.
**1,2-Benzanthraquinone.** See *Benz[a]anthracene-7,12-dione.*
**Benzanthrene.** See *Benzanthracene.*
**2,3-Benzanthrene.** See *Naphthacene.*
**Benzanthrone.** See *7H-Benz[de]anthracen-7-one.*
**Benzaurin** (*4-(p-hydroxybenzhydrylidene-2,5-cyclohexadien-1-one* or *bis(p-hydroxyphenyl)phenylmethanol*), 8683*h*.
derivs., 8683*d*.
and methoxy derivs., indicator properties of, 5771*e*.
spectra and structure of, and its methoxy derivs., 9451*c*.
**Benzazepodibenzopyrrocoline,**

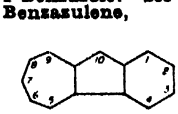


*[1]—[2,3,4-hi]—[b,f]*

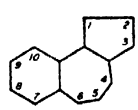


*[1]—[4,3,2-hi]—[b,f]*

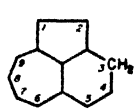
**[1]Benzazepo[2,3,4-*hi*]dibenzo[*bf*]pyrrocoline-10,16-dione,** as structure of Indigo Yellow 3G, 7930*f*.
**[1]Benzazepo[4,3,2-*hi*]dibenzo[*bf*]pyrrocoline-5,16-dione,** as structure of Hochst U Yellow, 7930*f*.
**Benzazide.** See *Benzoyl azide.*
**1-Benzazine.** See *Quinoline.*
**2-Benzazine.** See *Isoquinoline.*
**1-Benzazole.** See *Indole.*
**Benzazulene,**



*[a]*



*[e]*



*3H—[cd]*

**Benz[*a*]azulene,** and derivs., 207*a*, 6203*e*.
——, **methyl-**, 207*h*.
**Benz[*e*]azulene,** and derivs., 9042*h*.
——, **1,2,3,3a,4,10b-hexahydro-**, 9043*c*.
**Benz[*a*]azulene-7-carboxylic acid,** and derivs., 207*e*.
ethyl ester, 6203*e*.
**3*H*-Benz[*cd*]azulene-8-carboxylic acid, 4,5-dihydro-,** ethyl ester, 6203*f*.
**Benz[*e*]azulen-6-ol, 1,2,3,3a,4,5,6,10b-octahydro-**, 9043*c*.
**Benz[*e*]azulen-6(1*H*)-one, 2,3,3a,4,5,-10b-hexahydro-,** and derivs., 9043*c*.
**Benzedrine.** See *Phenethylamine, α-methyl-.*
**Benzenamine.** See *Aniline.*
**Benzene.** (See also *Benzene derivatives; Benzene ring.*)
absorption by carbonaceous solids, 5653*f*.
absorption by polystyrene films, 437*c*.
absorption oils for—see *Absorption oils.*
acid assocn. in, 7793*c*.
adsorption of, 462*f*.
by activated C, 8790*c*.
by charcoal as measure of solvent power for bitumen and pitch, 4841*f*.
by solids, 7288*d*.
in air, max. allowable concns. of, 4401*a*.
alkylation of, 108*g*, P 3844*i*, P 5040*a*.
with alcs., 7915*i*.
$AlCl_3SO_4H$ as catalyst in, 6582*h*.
with $C_2H_4$ and condensation of alkylate with dichloroethane to lubricant, P 1176*c*.
*alkylation of*, with $C_2H_4$ and with $C_3H_6$, 4638*a*.
with olefins, P 680*d*.
with olefins and Et chloride, P 4005*a*.
with polyolefins, P 9495*i*.
with $C_2H_4$, 1732*e*.
with $C_3H_6$ polymers and sulfonation of alkylates, P 394*f*.
amine detn. in, 973*a*.
ammonia partition between water and, 6892*b*.
anabasine distribution between water and, 6789*a*.
analysis of crude, 2755*h*, 6472*f*.
aniline polarization in, 7763*e*.
antimony(III) fluoride soly. in, 6890*b*.
aromatic-amine reaction with diketene in, 1247*d*.
assocn. and sound velocity in, 2835*e*.
assocn., compressibility, mol. size and sound velocity in, 7284*b*.
assocn. of BzOH and $C_{10}H_8$ in, 3277*d*.
azeotrope with water in prepn. of *N*-aryl amide prepn., 6586*c*.
bending vibrations of, 3714*h*.
bond lengths in, naphthalenoid character and, 3814*b*.
bond orders in, 6512*d*.
bonds in, 6877*b*.
book: Le benzolisme, 5133*g*.
Buna-S solns. in, viscosity of concd., 1210*a*.
carbon deposition from, on vitreous $SiO_2$, 2833*b*.
carbon dioxide partition between aq. NaCl and, 7297*g*.
chlorination of, P 1436*g*, P 1437*c*, P 4295*gh*, P 5040*h*, P 5798*a*, P 5799*a*, P 7041*f*.
app. for, P 6658*c*.
in sunlight to hexachlorocyclohexane, 8601*e*.
chloro derivs., in wheat-smut control, 5523*e*.
chloro derivs., in wood preservation against rot, P 6357*c*.
compds. with 5,10-dicyano-5,10-dihydroarsanthrene, 3383*e*.
with $Ni(CN)_2.NH_3$, 5753*f*.
with streptidine derivs., 1320*a*.
with *p,p'*-(2,2,2-trichloroethylidene)-bis[*α,α,α* - trichloroacetanilide], 6605*c*.
compressibility and ultrasonic velocity in, 4532*b*.
compression and freezing under pressure, 4067*c*.
condensation with chlorinated paraffin wax and hydrogenation of condensate, lubricating oils from, 2416*gi*
condensation with dichloroethane and alkylation of product with chlorinated paraffins, 1953*a*.
conjugate soln. in Na oleate solns., 5260*b*
conversion into other compds. at low temps., 2495*c*.
decahydronaphthalene peroxide ester rearrangement in, 6188*i*.
in dehydrogenation process for $C_2$-$C_5$ hydrocarbons, P 5030*e*
in density detn. of carbonized coal, 9412*e*.
density of, temp. and, 7283*f*, 8225*i*.
dermatosis (Schamberg) from, 2701*b*.
detn. of, in coal carbonization, 1947*d*.
in EtOH, 2123*d*.
in ethylbenzene, 8973*g*.
in $Et_2O$, 2123*e*.
in gases contg. butadiene and higher olefins, 5343*d*.
in gases with infrared analyzer, 6869*i*.
in presence of homologs, 7868*f*.
and deuteriated derivs., vibrations of, 5305*i*.
dielec. absorption and const. of, 4912*h*.
dielec. absorption by org. compds. in, 6019*a*.
dielec. const. and loss of, 8770*a*.
dielec. loss, microwave absorption and relaxation time of org. compds. in, 6018*h*.
distn. app. for, P 5649*b*.
distn. (azeotropic) from mixts. with cyclohexane and isoheptanes, P 1958*b*.
distn. (azeotropic) from mixts. with cyclohexane, 2,4-dimethylpentane or methylcyclopentane, P 1958*c*.
distn. from $CCl_4$, effect of ultrasonic waves on, 6870*f*.
divinyl polymers with maleic anhydride and styrene, for absorption of alk. earth metals, P 7162*i*.
dotriacontane soly. in, 6890*c*.
drops condensed between quartz lenses, size of, 6882*e*.
effect on ignition pressure of H-O mixts 406*i*.
on isomerization of methylcyclopentane, 3371*g*.
on isomerization of pentane, 1712*d*.
on mast cells of skin, 3109*e*.
on polymerization of isoprene and isoprene-styrene solns. with *tert*-Bu peroxide and $Bz_2O_2$ catalyst, 8190*i*.
on sedimentation rate of serum albumin, 6264*g*.
on Shwartzman reaction, 1487*e*.
on soly. of compds. in aq. alc., 6889*h*.
on S excretion after feeding methionine, 2322*e*.
elec. moment of $PhNH_2$ and its Me derivs in, 7438*d*.
electron-cloud distribution and reactivity of, 6905*h*.
electron d. and polarity of, 2093*a*.
electron (π-) formula for, 40*h*.
electron residual affinity of, 6512*c*.
emulsification of, 7297*d*.
emulsification with alkali metal oleate solns., 7776*a*.
emulsions of, 4923*d*.
acrylonitrile polymerization in aq., P 7257*e*.
effect of wetting of container on type of, 7776*c*.
with Na oleate soln., 6884*b*.
with Na oleate soln., homogenization of, 7775*h*.
entropy and heat capacity of, 7280*h*.
entropy and heat content of, effect of pressure on, 5576*b*.
ethylation and propylation of, with $AlCl_3$ catalyst, P 1175*c*.
ethylation of, 1019*d*.
with $C_2H_4$, iron phosphate catalyst for and in, P 5419*c*.
in presence of $AlCl_3$, 2966*e*.
evapn. rate, heat received by surface and temp. of surface of, and mixt. with $CS_2$, 4532*f*.
explosion prevention in O-balanced mixt of H and, 7231*a*.
extn. from cyclohexane with liquid-$NH_3$ solns., P 3192*e*
films (unimol.) of lauric or myristic acid and, on water, 4537*g*.
fire extinguishing in, 6417*g*.
fire extinguishing in, in naval stores plant, foam in, 5189*d*.
fire-extinguishing system for plants using, in pine-stump processing, 8681*h*
flame velocity of, 8248*i*.
flow birefringence of, temp. and, 456*f*.
flow of air and, through pipes, 2046*b*
force consts. and interaction consts. in, 6512*g*.
fore-runnings, utilization of, 1550*a*.
formation from cyclohexane and reactions under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7661*b*
formation of, from PhBr reduction, 4242*f*.
in Ca benzoate pyrolysis, 1318*c*.
from cyclohexane by enzymic action, 4343*b*.
from cyclohexane, kinetics of, 1731*g*
from cyclohexane on platinized C, 1249*f*.
from cyclohexene, 8255*a*.
in dehydration of cyclohexanol, 5010*e*.
in Friedel-Crafts reaction of $Et_3SiPh$ with acid chlorides, 2177*i*.
from methylcyclopentane, 6567*d*.
from PhOH, Mo oxides as catalyst in, 2081*c*.
in polystyrene pyrolysis, 2810*g*.
in pyrolysis of anisole and phenetole, 5759*c*.
in reaction of $PhN_2Cl$ with $NaBH_4$, 2570*h*.
from reaction of $Ph_2C{:}NNHPh$ with NaOH, 1026*i*.
in NaOBz distn., 7800*i*.
from silane derivs. with HCl, 8366*e*.
from terpenes on active C, 5657*c*.
fractionation of crude, 3597*b*.
fuel antiknock value of, constitution and 3997*h*.
fuel antiknock values of blends contg., 7674*b*.
fuel blends contg., detonation of, 5932*a*.
as fuel for motors, proknock effect of HCHO and $NO_2$ on, 5579*e*.
galvanophoresis with, P 4963*f*.
gel of, P 9299*b*.
hazards (industrial) of, 3947*i*.
heat capacity of, 2758*g*, 2866*f*.

heat-capacity ratio of vapor of, 6068*i*.
heat of vaporization and magnetic susceptibility of, 2479*g*.
heat of wetting of activated charcoal by, 8835*f*.
heat of wetting of cellulose by, 1638*f*.
herbicidal action of, 1895*d*.
hexane aromatization in presence of, P 7034*h*.
homologs of—see *Benzene derivatives; Hydrocarbons*.
hydrogenation of, P 3032*e*, P 3453*g*, 3775*d*, P 5798*g*, 6172*c*, 6567*a*, P 7950*a*.
  blocking of catalysts in, 7802*b*.
  on Ni catalysts, 8831*g*.
  in petroleum fraction to cyclohexane, P 5938*g*.
  on platinized C, 1249*g*.
hydrogen sulfide partition between $H_2O$ and, 7297*h*.
identification and detn. of, and its halogen derivs. and homologs, crit. mixing temps. of ethylene glycol and succinonitrile in, 8309*a*.
identification of, and distinguishing from toluene, 6945*f*.
inflammability limits for mixts. of MeBr and, 3619*b*.
-insolutile materials in used lubricating oils, detn. of, 4787*c*.
interat. distances, energy of conjugation of bonds and energy levels of, 8886*a*.
interfaces with water, films at, 2068*h*.
interfaces with water, octanol-Na dodecyl sulfate films at, 2068*i*.
interfacial tension against Na dodecyl sulfonate solns., effect of impurities on, 3267*e*.
ionization of, by electron impact, 6503*c*.
labeled with $C^{13}$ or $C^{14}$, 9045*e*.
lyoparachor of, 2834*a*
magnetic susceptibility of, 6016*g*, 6479*g*.
manuf. of, P 6644*a*.
  from acetylene, P 5040*d*.
  from coal, 9413*b*.
  by cracking hydrocarbon-oil vapors in steam, P 8129*g*.
  from hydrocarbon mixts. contg. isomeric heptanes, P 1957*h*.
  from $CH_4$ or natural gas, P 5929*a*.
  from petroleum and its gases, 8061*a*.
  from tar oils, P 1952*a*.
melting point of, pressure and, 8830*f*.
menisci of, 4064*c*.
metabolism of, 6312*h*, 6313*c*.
methylation of, P 679*i*, P 1058*i*
methyl halide trimol. displacement reactions in, 1247*h*.
mixt. and compd. with I, spectra of, 7824*h*.
mixts. of, with acetone, dielec. consts of, 454*b*.
  with alc., elec. birefringence of, 469*g*
  with $CS_2$, colored suspensions of inulin in, 8801*b*.
  with $CCl_4$ and with cyclohexane, adsorption by charcoal, 401*d*.
  with $CCl_4$, distn. in packed columns, 4053*g*.
  with PhCl, P 5900*e*.
  with cholesterol and lecithin, interfacial tension with aq. gelatin, 8800*b*.
  with cyclohexane, dehydrogenation rates of, 2499*b*.
  with $C_2H_4Cl_2$ and toluene, distn. of, 913*a*.
  with $C_2H_4Cl_2$ or thiophene in testing fractionating columns, 2474*c*.
  with diisobutylene, oxidation of, P 7950*b*.
  with dioxane, Raman spectrum of, 8890*g*.
  with EtOH and $C_{10}H_8$, soly., swelling and $C_{10}H_8$ adsorption by butadiene rubber in, 8187*e*.
  with PhEt, dehydrogenation of, 473*a*.
  with hydrocarbons, alkylated benzenes and pure cyclohexane by isomerization and alkylation, P 1958*d*.
  with org. vapors, adsorption by active carbons, 16*g*.
  with paraffins, viscosities of, 8777*h*.
  with toluene and xylene, fractionation of, 3597*b*.
  with toluene and xylene, nomograph for bubble and dew points of, 2050*f*.
  with toluene, distn. in plate columns, 2043*i*.
  with toluene, light scattered by, 496*d*.
*mixts. of*, with unsatd. hydrocarbons, selective hydrogenation of, 7673*h*.
mol. diagrams of, 4528*c*.
mol. wt. of 2 assocd. components in, 1252*b*.
in naphtha of shale oil, 4453*g*.
nitration of, 7918*i*.
nitrogen soly. in, 8830*h*.
nomenclature of, history of, 2923*g*.
olefin removal from, P 2421*f*.
oscillating-magnetic-field effect on, 6087*e*.
osmosis of, effect of alternating elec. field on, 8235*a*.
oxidation of, P 7510*c*.
  on catalysts, kinetics of, 927*g*.
  to phenol, P 1805*e*.
  to phenol by elec. discharge, 7922*g*.
  to phenol, elec.-discharge app. for, P 6096*g*.
oxynitration of, 179*f*, P 1806*a*.
ozonization of, rate of, 4086*c*.
parachor and thermochor of, (compd. omitted from abstr.), 2923*f*.
pentane isomerization with HF-$BF_3$ catalyst in presence of, P 4006*h*.
phenyl ether dielec. polarization and viscosity in, 8223*h*.
poisoning by, 4789*e*, 5120*c*.
  effect of adrenal hormones on, 765*a*.
  effect on heart, 3947*h*.
  folic acid in treatment of anemia from, 8060*b*.
  Fe in blood serum in, 6730*h*.
  leukemia from, 332*gh*.
  lytic action of blood from, 1480*g*.
  K and Cl in blood in, and effect of adrenaline thereon, 2316*e*.
  K in blood in, and effect of adrenaline thereon, 4377*c*.
  review on, 6759*h*.
  among shoe workers, 8525*h*.
as polymerization modifier in butadiene-acrylonitrile or -styrene rubber manuf., P 4890*n*.
polystyrene solns. in, dilu. of, 6045*a*.
prepn. of, 6201*i*.
prepn. of, from $C_2H_2$, 5376*abc*.
properties of, 7298*f*.
propylation of, and propene sepn. from hydrocarbon mixts. therefor, P 4005*d*.
propylation of, with anhyd. HF catalysts, P 1174*h*.
purification of, P 1802*f*, P 5798*i*.
  contg. $CS_2$, P 7041*e*.
  by crystn. and distn., 8225*d*.
purity of, detn. of, 8748*f*, 8977*i*.
Raman spectrum of single crystals of, 3716*b*.
Rayleigh scattering in, depolarization factor for, 5308*i*.
reaction (Friedel-Crafts) with Et halo carboxylates, 4638*c*.
reaction with $C_2H_2$ in presence of HF and Hg fluoride, P 5636*f*.
  with aromatic aldehydes and $AlCl_3$, 7005*e*.
  with at. H, 3725*e*.
  with benzyl alc. in presence of $AlCl_3$, 5759*g*
  with butyl alc. and with isoamyl alc., 164*a*.
  with $CH_2$:CHCl in the presence of $AlCl_3$, 591*h*.
  with cyclopropyl mesityl ketone, 3390*c*.
  with 1,1-dichloroethylene in presence of $AlCl_3$, 2193*c*.
  with ethylene oxide in presence of $AlCl_3$, 2182*d*.
  with HCN, P 1064*c*.
  with mandelonitrile in presence of $BF_3$, P 6666*b*.
  with 2-methylallylamine, P 3456*a*.
  with $Me_2O$, 3377*b*.
  with muconyl chloride in the presence of $AlCl_3$, 7452*i*.
  with rubber, 6061*b*.
  with $Na_2[Fe(CN)_5NO]$ activated by light, 2495*d*.
  with 1,1,3,3-tetrachloro-2-propanone in presence of $AlCl_3$, 6584*c*.
  with $\alpha,\beta$-unsatd. ketones in presence of $AlCl_3$, 5761*i*.
  with unsatd. ketones in presence of $H_2SO_4$, 6183*a*.
recovery and refining of, $H_2S$ removal and S and thiol formation in, 5932*e*.
recovery from coal gas, absorption app. for, P 6812*a*.
  from fuel gas, 1945*i*, 2755*i*, 4833*f*, 6808*h*.
  from hydrocarbons, P 3844*g*.
  from petroleum-naphtha cut, P 4460*g*.
  from wash oil, P 2767*a*.
*recovery* from wash oil, steam stripping and distg. unit for, P 6403*b*.
reduction of, 3270*c*.
refining, working up waste $H_2SO_4$ from, 2762*f*.
resonance energies of, 10*e*, 4954*i*.
rubber entropy of dilu. in, 6888*b*.
sepn. from its mixts. with other aromatics, P 1437*a*.
solubilities of metallic soaps in, 1998*b*.
soly. in Na xylenesulfonate solns., 1242*e*.
solute sorption from, by MgO, 17*b*.
as solvent, for asphaltic bitumen, 6817*b*.
  in cottonseed oil extn., 423*h*.
  in Friedel-Crafts reaction, 209*h*.
sorption by activated charcoal, measurement of, 4536*d*.
  by active C, 838*e*.
  by porous substances, 1240*e*.
  by rubber, 17*a*, 8237*b*.
  by $SiO_2$ gels, 7774*b*.
sources (future) of, 4637*i*.
specific vol. of, 6481*e*.
spectrum and electronic states of, 1653*f*.
spectrum and mol. diagrams of, 2512*d*.
spectrum of, 42*d*, 5306*a*, 7342*h*.
  adsorbed on vitreous $SiO_2$ gel, 7343*h*.
  comparison of lines of, with known spectra in chem. analysis, 7346*g*.
structure of, 2479*d*.
  representation of, 2853*f*.
  spectra and, 1360*i*.
styrene transfer consts. in, 5271*b*, 5731*h*.
substitution in, orientation and *o-p* ratios in, 8841*c*.
sucrose-soln. interfacial tension against, 2845*b*.
sucrose-soln. work of adhesion in, 2845*d*.
sulfonation of, 2178*e*, P 3457*b*.
  in $PhNO_2$, kinetics of, 1633*f*.
  by $H_2SO_4$, rate of, 8815*c*.
sulfur soln. in, rate of, 1630*i*.
surface tension of, 4964*e*.
system: anabasine–water–, 2481*f*.
system: 1,2-dichloroethane–, 4938*a*.
system: EtOH–$H_2O$–, 2058*e*.
system: perfluoromethylcyclohexane–, 3267*a*.
system: 2-propyn-1-ol–, 930*h*.
systems: AcOH–glycerol–, and pyridine–$H_2O$–, 8833*b*.
systems: $CCl_4$–, and $C_2H_4Cl_2$–, 2474*b*.
systems: Chlorex–, and $Et_2O$–, 4937*h*.
systems: EtOH–, MeOH–, and PrOH–, 6023*a*.
systems: H–, and N–, at high pressure, 469*a*.
systems with other liquids, 2854*c*.
thermal cond. and viscosity of, 4065*c*.
thermal cond. of, 7284*d*.
thermal cond. of vapors of, pressure and, 4553*b*.
thermochemistry of, 8654*i*.
thermodynamic properties of, 476*e*.
thiophene detn. in, 4399*g*.
thiophene removal from, P 4296*c*.
toxicology of, 5513*i*.
transition points of, 7766*b*.
tritium derivs., substitution in, 4644*d*.
ultrasonic velocity in, 8239*e*.
ultrasonic velocity in solns. of, contg. azobenzene, naphthalene and $CCl_4$, 8793*a*.
ultrasonic velocity in, temp. and, 7283*i*.
as ultraviolet-light filter, 944*i*.
vapor-d. distribution over surface of, 7282*i*.
vapor pressure of, temp. and, 8775*a*.
ventricular fibrillation from adrenaline and, 313*b*.
Verdet const. ratio to refractive dispersion for, 4911*b*.
viscosity (dilatational) of, 5249*g*, 8780*a*.
zinc suspensions in, detn. of adhesion forces between particles of, 7777*e*.

**Benzene, (acetoxymercuri)-**. See "phenyl— acetate" under *Mercury compounds*.
**——, acetyl-**. See *Acetophenone*.
**——, allyl-**, bromination of, 9034*e*.
  reactions of, 612*f*.
  reactivity of, 9024*d*.
  sodium deriv., reaction with halo fatty acids, 3351*f*.
**——, (allyl-1-*d*)-**, 604*d*.
**——, 2-allyl-1,4-dimethoxy-**, oxidation of, 6599*f*.
**——, 1-allyl-3,5-dimethoxy-2,4-methylenedioxy-**. See "parsley" under *Apiole*.
**——, 1-allyl-2-ethoxy-3,4-dimethoxy-**, 7451*i*.
**——, 5-allyl-1-methoxy-2,3-methylenedioxy-**. See *Myristicin*.

——, **4-allyl-1,2-methylenedioxy-**. See *Safrole*.
——, **1-(allyloxy)-2,3-dimethoxy-**, 7451*i*.
——, **1-(allyloxy)-2-ethoxy-**, and re arrangement of, P 3037*d*.
——, **amino-**. See *Aniline*.
——, **amyl-**, P 1057*h*.
bromination of, velocity of, 6583*f*.
phys. consts. of, 2589*f*.
prepn. and spectrum of, 2174*h*.
prepn. of, 6990*i*.
——, ***tert*-amyl-**, 6583*d*.
bromination of, velocity of, 6583*f*.
——, **anilino-**. See *Diphenylamine*.
——, **arsenodi-**. See *Arsenobenzene*.
——, **arseneso-**, action on *Spirochaeta gallinarum*, 8535*a*.
cornea sensitivity to, 3111*a*.
——, **1-azido-4-chloro-**, 8366*a*.
——, **1-azido-2(3 and 4)-nitro-**, 8366*a*.
——, **azodi-**. See *Azobenzene*.
——, **azoxybis-**. See *Azoxybenzene*.
——, **benzoyl-**. See *Benzophenone*.
——, **1-benzoyl-2-*m*-nitrobenzoyl-**, and oxime, 1042*c*.
——, **benzyl-**. See *Methane, diphenyl-*.
——, **1-(benzyloxy)-2-(2,3-epoxypropoxy)-**, P 4432*a*.
——, **5-(benzyloxy)-1,2,3-trimethoxy-**, 1773*d*.
——, **biphenylyl-**. See *Terphenyl*.
——, ***p*-bis(allyloxy)-**, oxidation with $BzO_2H$, 2181*c*.
——, ***m* - bis[3(and 4) - biphenylyl]-†**, 6186*b*.
——, ***m*-bis(4-biphenylyl)-†**, 611*c*.
——, **1,3-bis(bromoacetyl)-2-nitro-**, 1780*a*.
——, ***m*(and *p*)-bis(2,3-epoxypropoxy)-**, P 5421*h*.
stereoisomers, 2181*a*.
——, ***p*-bis(2,3-epoxypropoxy)-**, reactions with HCl and with $H_2O$, 2181*c*.
——, **[1,1-bis(ethylmercapto)ethyl]-†**, reaction with Raney Ni, 2597*d*.
——, **1,2-bis(ethylmercuri)-3,4,5,6-tetraphenyl-†**, 2614*f*.
——, **bis(1-methylcyclopentyl)-**, 2171*i*.
——, ***p*-bis(1-methylenepropyl)-**, polymerization with butadiene, P 7746*d*.
——, **1,2-bis(methylmercuri)-3,4,5,6-tetraphenyl-†**, 2614*f*.
——, **bis(phenylazo)-**. See *Azobenzene, phenylazo-*.
——, **bromo-**, bromine removal from, 8908*f*.
complex with $NiBr_2$ and $Ph_3P$, as catalyst for trimerization of $C_2H_2$ and its derivs., 6202*e*.
from *p*-dibromobenzene, 7918*f*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*
dielec. properties and structure of, 4912*b*.
effect on crystn. of alkali metal halides, 13*d*.
on S excretion after feeding methionine, 2322*f*.
on syneresis of Na oleate gels, 4080*b*.
lyoparachor of, 2834*b*.
microwave absorption by, 2514*h*, 5310*e*.
parachor and thermochor of, 2923*f*.
phys. consts. of, 2591*d*.
properties of, 7298*f*.
reduction of, 4242*f*.
Shwartzmann-phenomenon inhibition by, 2320*h*.
solns. in $C_6H_6$, dielec. properties of, 6019*b*.
spectrum of, 4573*g*.
ultrasonic velocity in, 1232*g*, 7283*h*.
——, **1-bromo-2(and 4)-chloro-**, 1895*i*.
——, **1-bromo-4-chloro-**, isomorphism between *p*-$C_6H_4Cl_2$ and, 5754*f*.
system; $C_2H_4$-, 4937*e*.
——, **1-bromo-2,4-dinitro-**, as molluscacide, 8086*d*.
——, **(1-bromoethyl)-**, P 3024*b*, 4241*e*, 6195*h*.
——, **1-bromo-2(and 4)-ethyl-**, as scavengers for leaded gasoline, P 8067*f*.
——, **1-bromo-4-iodo-**, isomorphism between *p*-$ClC_6H_4I$ and, 5754*f*.
——, **1-bromo-3-nitro-**, isomorphism between *m*-$IC_6H_4NO_2$ and, 5754*g*.
——, **1-bromo-3(and 4)-nitro-**, hydrogenation on colloidal Rh, rate of, 27*f*.
——, **1-bromo-4-nitro-**, as coccidiostatic agent, P 7593*a*.
reduction of, 1812*e*.
soly. in Na xylenesulfonate solns., 1242*e*.
——, **(3-bromopropenyl)-**, coupling reaction of, 612*c*.
——, **(3-bromopropyl-1-*d*)-**, 604*c*.
——, **4-(3-bromopropyl)-1,2-methylenedioxy-**, P 7047*f*.
——, **1-bromo-4-(1,2,2,2-tetrachloroethyl)-**, P 8399*g*.
——, **(2-bromo-4,4,4-trichlorobutyl)-**, 9024*d*.
——, **(1 - bromo - 3,3,3 - trichloroisobutyl)-**, 9024*c*.
——, **(1 - bromo - 3,3,3 - trichloropropenyl)-**, P 5789*g*.
——, **1-(1-bromo-3,3,3-trichloropropyl)-2,4-dichloro-**, 9024*d*.
——, **butadienyl-**. See *Butadiene, 1-phenyl-*.
——, **(1-butenyl)-**. See *1-Butene, 1-phenyl-*.
——, **(2-butenyl)-**. See *2-Butene, 1-phenyl-*.
——, **4-[1-[2-(2-butoxyethoxy)ethoxy]propyl] - 1,2 - methylenedioxy-**, P 2639*d*.
——, **4-[1-(2-butoxyethoxy)propyl]-1,2-methylenedioxy-**, P 2639*d*.
——, **butyl-**, 6583*c*.
bromination of, velocity of, 6583*f*.
manuf. of, P 3844*i*, P 7507*g*.
phys. consts. of, 2589*f*.
prepn. and phys. consts. of, 7439*i*.
prepn. of, 6990*i*.
resonance energies of, 10*e*.
spectrum of, 7819*d*, 8890*b*.
——, ***sec*-butyl-**, 6583*a*.
bromination of, velocity of, 6583*f*.
formation from 2-cyclohexylbutene, 5376*g*.
prepn. and phys. consts. of, 7439*i*.
reaction with $PCl_3$ and O, 8366*c*.
spectrum of, 7819*d*, 8890*b*.
——, ***tert*-butyl-**, 6583*c*.
bromination of, velocity of, 6583*f*.
chain-transfer coeffs. for styrene in, 5731*h*.
chlorination of, 3377*i*.
effect on isomerization of pentane, 1712*e*.
formation from *tert*-Bu β-isodurylate and PhMgBr, 9051*e*.
metalation of, 3346*b*.
prepn. and phys. consts. of, 7439*i*.
spectrum of, 4573*g*, 7819*d*, 8890*b*
——, **1-butyl-2,4-dimethoxy-**, 1033*c*.
——, **1-*tert*-butyl-2,4-dinitro-**, reaction with acetone in the presence of alkali, 6175*a*.
——, **1-*tert*-butyl-3,5-dinitro-**, alkoxy derivs., P 8400*f*.
——, **(1-butylhexadecyl)-**. See *Eicosane, 5-phenyl-*.
——, **(1-butynyl)-**. See *1-Butyne, 1-phenyl-*.
——, **cetyl-**. See *Hexadecane, 1-phenyl-*.
——, **chloro-**, adsorption by charcoal as measure of solvent power for bitumen and pitch, 4841*f*.
antimony(III) fluoride soly. in, 6890*b*.
in azeotropic distn. of ethanolamines, P 674*c*.
in 2-butanone drying, 8753*e*.
from *o*-chlorobenzaldehyde, 7005*e*.
compression and freezing under pressure, 4067*f*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
dielec. properties and structure of, 4912*b*.
effect of oscillating magnetic field on, 6087*e*.
effect on isomerization of pentane, 1712*e*.
effect on syneresis of Na oleate gels, 4080*a*.
elec. heating in, at low frequencies, 3731*b*.
elec. moment and structure of, 3252*h*.
elec. moment of vapor of, 6020*f*.
formation of, from reaction of (*p*-chlorophenyl)trimethylsilane with HCl, 8366*f*.
hydrolysis on $SiO_2$-gel catalysts, porosity and, 7313*e*.
interfaces with water, films at, 2068*h*.
lyoparachor of, 2834*a*.
manuf. of, P 1437*c*, P 5799*a*.
microwave absorption in solns. of, 6019*g*
mixt. with $C_2H_6$, P 5900*e*.
nitration of, 7918*i*.
parachor and thermochor of, 2923*f*.
phys. consts. of, 2591*d*.
properties of, 7298*f*.
reaction with benzyl radicals, 7797*h*.
with chlorinated acetone in the presence of $AlCl_3$, 6583*i*.
with Cu-Si and Fe-Si alloys in prepn. of chlorophenylsilanes, 1027*h*.
with $MeNH_2$, P 3454*g*.
Schwartzman-phenomenon inhibition by, 2320*i*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectrum of, 4573*g*.
system: MeOH–$H_2O$-, 8833*b*.
system: perfluoromethylcyclohexane-3267*a*.
ultrasonic velocity in, 1232*g*, 7283*h*.
as ultraviolet-light filter, 944*i*.
——, **1 - (*p* - chlorobenzyloxy) - 4 - methoxy-**, as acaricide and insecticide 3138*b*.
——, **1 - chloro - 2,4 - bis(2 - ethoxyethoxy)-5-nitro-**, P 5421*g*.
——, **1 - chloro - 3,5 - bis(pentafluoroethyl)-**, 6174*h*.
——, **2 - chloro - 1,4 - bis(pentafluoroethyl)-**, 6174*h*.
——, **(chloro-*tert*-butyl)-**, 3377*i*.
——, **chloro(1-chloroethyl)-**, P 680*h*
——, **1 - chloro - 4 - (1 - chloroethyl)-** 6992*a*.
——, **1 - chloro - 4 - (chloroethynyl)-** 6991*h*.
——, **1 - chloro - 4 - (1,2 - dichloroethyl)-**, 6991*i*.
——, **1-chloro-4-(1,2-dichloroethyl)-2-nitro-**, 6991*i*.
——, **chlorodinitro-**, detn. of, in presence of mononitro deriv., 70*d*.
——, **1-chloro-2,4-dinitro-**, 221*i*.
compds. with pyridine bases, 4671*a*
crystal structure, m. ps. and systems with other dinitrobenzene derivs., 3277*e*
as polymerization stopping agent, 8727*i*
reaction product with benzidine and 1-chloro-2,4-dinitrobenzene, P 3968*e*
reaction product with 1,1′-(4,4′-biphenylene)dibiguanide, P 3968*d*.
reaction product with 1,1′-(methylenedi-*p*-phenylene)bisbiguanide, P 7642*e*
reaction with acetone in the presence of alkali, 6175*c*.
reaction (Wurtz-Fittig) with $SiCl_4$ attempted, 7463*i*.
——, **1-chloro-2,4(and 3,5)-dinitro-**, *m*-phenylenediamine from, P 4694*f*.
——, **2-chloro-1,3-dinitro-**, 221*i*.
*m* phenylenediamine from, P 4694*f*.
——, **chloroethyl-**, toxicity of, 1867*f*.
——, **(1-chloroethyl)-**, 2966*h*.
chlorination of, P 680*f*.
derivs., P 681*b*.
prepn. of, 612*h*.
——, **[1(and 2)-chloroethyl]-**, dehydrochlorination of, kinetics of, 7407*f*
——, **1 - chloro - 2(3 and 4) - ethyl-**, oxidation of, 8368*b*.
——, **1-chloro-4-ethyl-**, chlorinated derivs., 6991*c*.
——, **(2-chloroethyl)-**, phosphorescence of, 8282*c*.
toxicity of, 1867*f*.
——, **1 - (2 - chloroethyl) - 4 - nitro-**, chloromethylation of, 646*c*.
——, **2 - (2 - chloroethyl) - 1,3,5 - trinitro-**, 1733*h*.
——, **1-chloro-2-fluoro-**, elec. moment and structure of, 3252*h*.
——, **1-chloro-4-iodo-**, isomorphism between halobenzenes and, 5754*f*
system: $C_2H_4$-, 4937*e*.
——, **1 - chloro - 2 - iodo - 4,6 - dinitro-**, 2184*a*.
——, **1 - chloro - 4 - iodoso-**, diacetate P 5231*d*.
——, **1-chloro-4-isothiocyano-†**, as food disinfectant, 9273*i*.
——, **(chloromercapto)-**. See *Benzenesulfenyl chloride*.
——, **(chloromercuri)-**. See "phenylchloride" under *Mercury compounds*
——, **1 - [2 - (chloromethyl)butyl]-2,4,5-trimethoxy-**, 2609*e*.
——, **chloronitro-**, polarography of, 5678*b*.
——, **1-chloro-2-nitro-**, as corrosion inhibitor in turbine lubricants, 8411*i*
formation from *o*-$ClC_6H_4HgOAc$, 6585*a*.
——, **1-chloro-2(and 3)-nitro-**, spectra of, 8890*i*.
——, **1-chloro-2(3 and 4)-nitro-**, dipole moment of, and effect on spectrum of 1, 7817*i*.
methemoglobin formation from hemoglobin by, 5864*b*.
——, **1-chloro-2(and 4)-nitro-**, reaction with alcs., P 687*gi*.
soly. in Na xylenesulfonate solns., 1242*e*.
——, **1-chloro-3-nitro-**, formation from *m*-$ClC_6H_4HgOAc$, 6586*a*.
isomorphism between *m*-$IC_6H_4NO_2$ and, 5754*g*.
reaction (Wurtz-Fittig) with $SiCl_4$ attempted, 7463*i*.

—, **1-chloro-3(and 4)-nitro-**, 1734*d*.
hydrogenation on colloidal Rh, rate of, 27*f*.
—, **1-chloro-4-nitro-**, 5013*d*.
as coccidiostatic agent, P 7593*a*.
formation from (*p*-ClC$_6$H$_4$)$_2$Hg, 6585*f*.
ormation from *p*-O$_2$NC$_6$H$_4$N$_2$Cl, 4649*e*.
nitration in H$_2$SO$_4$, rate of, 7310*e*.
spectrum of, 2868*g*.
—, **1 - chloro - 2 - nitro - 4 - (pentachloroethyl)-**, 6991*f*.
—, **1 - chloro - 3(and 4) - nitroso-**, oxidative nitration of, 5013*c*.
—, **1-chloro-4-nitroso-**, 6585*e*.
—, **1 - chloro - 2 - nitro - 4 - (1,1,2,2-tetrachloroethyl)-**, 6991*h*.
—, **1-chloro-2-nitro-4-(1,2,2,2-tetrachloroethyl)-**, and isomer, 6991*d*.
—, **1 - chloro - 2 - nitro - 4 - (1,2,2-trichloroethyl)-**, 6991*g*.
—, **chloro(pentachloroethyl)-**, 5146*h*.
—, **1 - chloro - 4 - (pentachloroethyl)-**, 6991*f*.
—, **(3-chloropropenyl)-**, coupling reaction of, 612*c*.
—, **(3-chloropropyl)-**, phosphorescence of, 8282*c*.
—, **1 - chloro - 4 - (1,1,2,2 - tetrachloroethyl)-**, 6991*h*.
—, **1 - chloro - 4 - (1,2,2,2 - tetrachloroethyl)-**, 6991*d*, P 8399*g*.
—, **1 - chloro - 4 - (1,1,2 - trichloroethyl)-**, 6992*a*.
—, **1 - chloro - 4 - (1,2,2 - trichloroethyl)-**, 6991*g*.
—, **2 - chloro - 1,3,5 - trinitro-** See *Picryl chloride*.
—, **cyano-**. See *Benzonitrile*.
—, **cyclohexenyl-**. See *Cyclohexene, phenyl-*.
—, **cyclohexyl-**. See *Cyclohexane, phenyl-*.
—, **cyclopentyl-**, 3398*d*.
sulfonation of, 2957*f*.
—, **diacetamido-**. See *Acetamide, N,N'-phenylenebis-*.
—, ***m*-diacetyl-**, derivs., 1780*a*.
—, ***o*-diacetyl-**, and disemicarbazone, 1030*f*.
—, **diamino-**. See *Phenylenediamine*
—, ***p*-di-*tert*-amyl-**, 6583*d*.
—, ***m*(and *p*)-diazido-**, 8366*a*.
—, **dibenzamido-**. See *Benzamide, N,N'-phenylenebis-*.
—, **dibenzoyl-**, formation of, by CrO$_3$ oxidation of 1-hydroxy-1,3-diphenyl-2-indanone, 1041*d*.
—, ***p*-dibenzoyl-**, 5385*i*.
—, ***p*-dibenzyl-**, 5386*a*.
—, ***p*-dibromo-**, crit. temp and viscosity of, 4064*i*.
ystal structure of, 8875*b*.
frared Christiansen filter effect in, 1657*f*.
morphism between *p*-C$_6$H$_4$Cl$_2$ and, 5754*f*
aman spectrum of, 2866*g*.
action with AlCl$_3$, 7918*f*.
ectrum of, 4140*e*.
ystem: C$_2$H$_6$—, 4937*e*.
—, **(1,2-dibromoethyl)-**, 5753*i*, 6195*h*.
r control of earworm and fall armyworm in corn, 3136*d*.
eduction of (attempted), with LiAlH$_4$, 1314*d*.
—, ***p*-di-*sec*-butyl-**, 6583*a*.
—, **dichloro-**, manuf. of, P 1437*c*.
a sewage slime and H$_2$S retardation, 8079*e*.
oxicity of, 1867*f*, 6883*e*.
—, ***m*(and *o*)-dichloro-**, 7005*f*.
—, ***m*(*o* and *p*)-dichloro-**, dipole moment of, and effect on spectrum of I, 7817*i*.
—, ***o*-dichloro-**, anabasine distribution between water and, 6789*a*.
anthraquinone dyes from, P 7705*h*, P 7706*d*.
as azeotrope former in concn. of aq. solns. of HCHO, P 2221*d*.
disinfectant and insecticidal emulsion from, P 6778*e*.
elec. moment of vapor of, 6020*g*.
hydrocarbon radical-dissocn. reaction in, 6496*c*.
in hydrogen sulfide-production prevention in sewage, 8585*e*.
as solvent in Friedel-Crafts reaction, 209*h*.
spectrum of, 4573*g*.
—, ***o*(and *p*)-dichloro-**, in bark-beetle control in elm logs, 4417*c*.
soly. in Na xylenesulfonate solns., 1242*e*.
—, ***p*-dichloro-**, antifouling properties of, 3964*b*.
as binding agent for sand cores, 4624*g*.
in control of black carpet beetle and moths, 9348*i*.
as corrosion inhibitor in turbine lubricants, 841*i*.
crit. temp. and viscosity of, 4064*i*.
cyclic silicone from, P 8211*c*.
detn. and spectra of, 8601*i*.
ethylation of, P 2630*h*.
Gatterman reaction with, 3729*d*.
in insect boxes, 4806*i*.
as insecticide, 1142*b*, 2359*h*.
insecticide from, P 5899*g*.
isomorphism between halobenzenes and, 5754*f*.
in louse control, 1518*e*.
in peach-borer control, 8088*f*, 9313*b*.
in preservation of flowers and foliage, P 3950*g*.
Raman spectrum of, 2866*g*.
spectrum of, 4140*e*.
in sugar-beet-nematode control, 3134*d*
system: C$_2$H$_6$—, 4937*e*.
in tobacco-blue-mold control, 4412*h*.
toxicological study of, 8552*e*.
viscosity of solns. of, 1029*h*.
in white-spring-tail control in mulch under fruit trees, 7184*i*.
—, **1,4 - dichloro - 2,5 - bis(pentafluoroethyl)-**, 6174*h*.
—, **dichloro(1-chloroethyl)-**, P 680*h*.
—, **1,4-dichloro-2-[1(and 2)-chloroethyl]-**, P 688*b*, P 2636*i*.
—, **2,5-dichloro-1,3-dinitro-**, 7452*h*.
—, **[1,1(and 1,2)-dichloroethyl]-**, P 681*a*.
—, **1,4-dichloro-2-ethyl-**, P 2636*h*.
chlorination of, P 688*b*.
—, **1,4 - dichloro - 2 - iodo - 5 - nitro-**, 3729*g*.
—, **1,2(and 1,4)-dichloro-3-nitro-**, reaction with aniline and with chloroanilines, 6175*d*.
—, **1,3 - dichloro - 2(and 4) - nitro-**, reaction with aniline and with chloroanilines, 6175*d*.
—, **1,4-dichloro-2-nitro-**, 3729*d*, 4150*h*.
—, **1,2 - dichloro - 4 - (1,2,2,2 - tetrachloroethyl)-**, P 7959*i*.
as pesticide, P 7188*c*.
—, **1,4 - dichloro - 2 - (1,2,2,2 - tetrachloroethyl)-**, P 8399*g*.
—, **dicyclohexyldimethoxy-**, 1376*i*.
—, **didecyl-**, 8368*b*.
—, **1,2 - diethoxy - 4 - (2 - nitro - 1-nitrosopropyl)-**, 1423*b*.
—, **1,2-diethoxy-4-propenyl-**, 1423*b*.
—, **(1,1-diethoxypropyl)-†**, 7921*c*.
—, **diethyl-**, detn. in ethylbenzene, 1688*c*, 8973*g*.
formation from reaction of benzene with ClCH$_2$CO$_2$Et in the presence of AlCl$_3$, 4638*f*.
herbicidal action of, 1895*e*.
unsatn. of dehydrogenated, detn. of, 70*g*.
—, ***m*-diethyl-**, dehydrogenation of, 165*e*.
—, ***m*(*o* and *p*)-diethyl-**, freezing points, purification, and purity of, 2924*g*.
prepn. and phys. consts. of, 7439*gh*.
spectra of, 7819*d*.
—, ***m*-difluoro-**, elec. moment of vapor of, 6020*g*.
—, **dihydro-**. See *Cyclohexadiene*.
—, **1,4 - dihydro - 1,4 - diimino-**. See *Quinonediimine*.
—, **dihydrodioxo-**. See *Quinone*.
—, ***m*-dihydroxy-**. See *Resorcinol*.
—, ***o*-dihydroxy-**. See *Pyrocatechol*.
—, ***p*-dihydroxy-**. See *Hydroquinone*.
—, ***m*-diiodo-**, Raman spectrum of, 2866*g*.
—, ***p*-diiodo-**, infrared Christiansen filter effect in, 1657*f*.
—, ***o*-diisopropenyl-**, polymerization with butadiene, P 7746*d*.
—, ***m*(and *p*)-dimethoxy-**, spectrum of, 2512*h*, 5665*i*.
—, ***o*-dimethoxy-**. See *Veratrole*.
—, ***p*-dimethoxy-**, 182*c*.
spectrum of, 4140*e*.
toxicity of, 7577*b*.
—, **(2,2-dimethoxyethyl)-†**, 6195*g*.
—, **1,3-dimethoxy-5-(1-pentadecen-1-yl)-**, 1348*h*.
—, **2,4 - dimethoxy - 1 - propyl-**, 1033*c*.
—, **1,3 - dimethoxy - 5 - (1,2,4 - trimethyl-1-hexenyl)-**, 8384*e*.
—, **1,3 - dimethoxy - 5 - (1,2,4 - trimethylhexyl)-**, 8384*e*.
—, **dimethyl-**. See *Xylene*.
—, **1,2 - dimethyl - 4 - amino - 5 - (D-1'-ribitylamino)-***, effect on riboflavin production by tubercle bacilli, 5085*a*.
—, **1 - (1,2 - dimethyl - 1 - hexenyl)-3,5-dimethoxy-**, 8384*f*.
—, **1 - (1,2 - dimethylhexyl) - 3,5-dimethoxy-**, 8384*f*.
—, **1 - (1,2 - dimethyl - 1 - octenyl)-3,5-dimethoxy-**, 8384*f*.
—, **1 - (1,2 - dimethyloctyl) - 3,5-dimethoxy-**, 8384*f*.
—, **(1,2-dimethylpropenyl)-**, hydrogenation of, 6583*h*.
—, **[1,2(and 2,2)-dimethylpropyl]-**, and bromination velocities of, 6583*f*.
—, **1,2 - dimethyl - 4 - ribitylamino-***, D-, P 678*f*, P 5044*b*.
—, **1,2-dimethyl-4-sorbitylamino-***, D-, P 5044*b*.
—, **dinitro-**, detn. of, in presence of nitrobenzene, 70*d*.
nitrobenzene detn. in, 4977*a*.
poisoning by, 8681*d*, 9449*d*.
polarography of, 5678*b*.
—, ***m*-dinitro-**, antifouling properties of, 3964*b*.
crystal structure, m. ps. and systems with other dinitrobenzene derivs., 3277*e*.
derivs., partial reduction of, P 5799*h*.
and derivs., reaction with acetone in the presence of alkali, 6175*a*.
detn. of, 4185*d*.
detn. of, in mixts. with trinitrobenzene and tetranitromethane, 8978*c*.
electrolysis of solns. of, in liquid NH$_3$, 8908*h*.
formation from *m*-O$_2$NC$_6$H$_4$HgOAc, 6585*f*.
heat of mixing with C$_{10}$H$_8$ in acetone, 6070*c*.
as polymerization stopping agent, 8727*i*.
reaction with acetone in the presence of alkali, 4650*g*.
in rubber-aging prevention, purity and, 8193*d*.
in rubber vulcanization, 2023*a*.
as rubber vulcanizing agent and antiager, effect of inorg. ingredients and stabilizers on, 3226*de*.
spectrum of, 8890*i*.
structure of, 930*c*.
—, ***m*(*o* and *p*)-dinitro-**, elec. moment of, and effect on spectrum of I, 7817*h*.
reduction at dropping-Hg cathode, 2520*d*.
spectrum of, 2868*f*.
—, ***m*(and *p*)-dinitro-**, effect on (*p*-hydroxyphenyl)pyruvic acid-consuming enzymes, liver injury and, 4360*f*.
—, ***o*(and *p*)-dinitro-**, formation of, in oxynitration of benzene, 179*h*.
prepn. of, 1734*a*.
—, ***p*-dinitro-**, hydrogenation on colloidal Rh, rate of, 27*f*.
infrared Christiansen filter effect in, 1657*f*.
from nitrosobenzene, 5013*c*.
—, ***m*(and *p*)-dinitroso-**, vulcanization of butadiene elastomers with, P 8196*d*.
as vulcanizing agents, 5623*f*.
—, **dioctyl-**, 8368*b*.
—, ***p*-diphenethyl-**, and octachloro deriv., 5386*b*.
—, **diphenyl-**. See *Terphenyl*.
—, **divinyl-**, detn. of, 70*g*.
distn. in the presence of a polymerization inhibitor, P 6658*a*.
polymerization of, P 5419*f*.
polymerization with drying oils and monoalkenyl aromatic hydrocarbons, P 5608*a*.
polymers of, with Et acrylate, 5988*i*.
with linseed oil, styrene and α-methylstyrene, P 5639*b*.
with methacrylic acid, contraction and swelling of, by ionization, 8803*c*.
with styrene, flow of, 6461*d*.
reaction with 3-buten-2-one, 6157*g*.
—, ***m*-divinyl-**, polymers with styrene, degradation by heat, 8206*e*.
—, ***m*(*o* and *p*)-divinyl-**, olefinic-bond conjugation with aromatic nucleus, 165*h*.
polymers of, with 1,3-butadienes, cross-linked nonshrinking, P 7746*c*.
Raman-spectral analytical examn. of, 3317*a*.
—, ***p*-divinyl-**, 7456*g*.
—, **dodecyl-**. See *Dodecane, 1-phenyl-*.
—, **eicosyl-**. See *Eicosane, 1-phenyl-*.
—, **(1,2-epoxyethyl)-**, compd. with styrene-maleic anhydride polymer, 8202*i*.
reaction with S compds., 7420*f*.
reaction with thiols in the presence of bases, 6574*a*.
reduction of, 1312*f*.

——, 1 - (2,3 - epoxypropoxy) - 2 - methoxy-, P 5794g.
——, ethoxy-. See *Phenetole*.
——, 2 - ethoxy - 1,2 - dimethoxy - 4-propenyl-, 7451i, 7452a.
——, 4 - [1 - [2 - (2 - ethoxyethoxy)-ethoxy]propyl] - 1,2 - methylenedioxy-, P 2639d.
——, ethyl-, 1019e.
alkylation (long-chain) of, with $C_2H_4$, P 6658a.
analysis of, for $C_6H_6$ and diethylbenzene, 8973g.
analysis of mixts. with *m*-, *o*- and *p*-xylenes, 1688c.
bromination of, velocity of, 6583f.
carbon-C bond energy in, and pyrolysis of, 8250e.
chain-transfer coeffs. for styrene in, 5731h.
chlorination of, P 2636h.
dehydrogenation of, 165e, 473a, P 5031c, 5275f, P 5788e.
detn. in recycle styrene, 7216e.
distn. from styrene, P 5040f.
effect of oscillating magnetic field on, 6087e.
formation of, from $C_6H_{12}$, 5376d.
from $C_6H_6$ and $CH_2$:CHCl, 591i.
from 3-cyclohexen-1-yl methyl ketone, 5377d.
in methylation of aromatic hydrocarbons of $Me_2O$, 3377c.
in pyrolysis of polystyrene, 2810g.
from reaction of $C_6H_6$ with ethyl halo carboxylates in the presence of $AlCl_3$, 4638f.
intermol. condensation of, P 1440d.
lyoparachor of, 2834a.
manuf. of, P 1793g, P 5182a, P 5419c.
by ethylation, P 1175d.
from tar oils, P 1952a.
metalation of, 3346b.
mixts. with cyclohexane, dehydrogenation rates of, 2499b.
mixts. with cyclohexane, Raman spectrum of, 2867i.
in naphtha of shale oil, 4453g.
oxidation of, 2184e, P 5421g, 7915i.
phosphorescence of, 8282c.
phys. consts. of, 2589f.
prepn. of, 4638d.
purity test and diethylbenzene calcn. in, 1688b.
resonance energies of, 10e.
sepn. from hydrocarbons, P 681e.
styrene transfer consts. in, 5271b.
system: Chlorex-, 1252a.
system: 1,2-dichloroethane-, 4938a.
systems (binary) with 3 xylenes, 5273a.
thermochemistry of, 8654i.
Verdet const. ratio to refractive dispersion for, 4911b.
——, 1-ethylamyl-. See *Heptane, 3-phenyl-*.
——, 1-ethyl-2,4-dimethoxy-, 1033b.
——, 1-ethyl-2,4-dinitro-, reaction with acetone in the presence of alkali, 6175a.
——, ethyldivinyl-, distn. in the presence of polymerization inhibitors, P 6658c.
——, 1,2-ethylenedioxy-. See *1,4-Benzodioxan*.
——, 1-ethyl-2(and 4)-nitro-, prepn. and phys. consts. of, 7439g.
——, (1-ethyloctadecyl)-. See *Eicosane, 3-phenyl-*.
——, ethynyl-, 1019h.
azeotrope with $Me_2NCH_2CH_2OH$, P 5040d.
bond orders and free valences of, 4570a.
Diels-Alder adduct with hexachlorocyclopentadiene, P 4693e.
elec. moment of, 7279g.
hydrogenation of, P 1793g.
reaction with CO, P 5413a.
with $Et_2CO_3$ and with $Me_2CO_3$, 6168f.
with BzOMe, 7453b.
with AcSH, 7417h.
sepn. from styrene, P 5799b.
——, ethynylenedi-. See *Acetylene, diphenyl-*.
——, fluoro-, 6992c.
elec. moment and structure of, 3252h.
elec. moment of vapor of, 6020f.
lyoparachor of, 2834d.
parachor and thermochor of, 2923f.
phys. consts. of, 2591a.
ultrasonic velocity in, 1232g, 7283h.
——, 2-fluoroethyl-, 6164c.
——, 1-fluoro-3(and 4)-nitro-, 6992c.
——, formazyl-. See *Toluene, α-phenylazo-α-phenylhydrazono-*.
——, glucosyl-, β-D-, tetraacetate, 1326i.
——, 4 - (hendecenyl) - 1,2 - methylenedioxy-, in *Piper longum* fruit, 1085g.
——, heptyl-. See *Heptane, 1-phenyl-*.
——, hexachloro-, crystn. on inorg. carrier lattices, 4918b.
crystn. on sucrose, 8238g.
crystn. on ZnS, 3262c.
fluorination of, P 3845d.
formation of, from chlorinolysis and pyrolysis of perchlorinated unsatd. hydrocarbons, 4231h.
manuf. of, P 8132e.
sepn. from its mixts. with $C_6HCl_5$, P 1437d.
systems: pentachloroaniline-, pentachlorophenol-, and pentachlorotoluene-, 7803h.
vapor pressure of, 6481f.
in wheat-smut control, 5523e.
——, hexadecyl-. See *Hexadecane, 1-phenyl-*.
——, hexaethyl-, compression and freezing under pressure, 4067f.
crystn. on NaCl, 3262d.
manuf. of, by ethylation, P 1175d.
spectrum of, 4140e.
——, hexafluoro-, soly. and solvent action of, 3266i.
——, hexahydro-. See *Cyclohexane*.
——, hexahydroxy-. See *Benzenehexol*.
——, hexamethoxy-, 588a.
——, hexamethyl-, P 680a.
ozonization of, rate of, 4086d.
vol. change of, 3678h.
——, hexyl-. See *Hexane, 1-phenyl-*.
——, 1-hexyl-2,4-dimethoxy-, 1033d.
——, (1-hexyltetradecyl)-. See *Eicosane, 7-phenyl-*.
——, hydrazodi-. See *Hydrazobenzene*.
——, iodo-, iodine removal from, 8908g.
lyoparachor of, 2834b.
parachor and thermochor of, 2923f.
photolysis and photooxidation of, 5313e.
phys. consts. of, 2591d.
Schwartzman phenomenon inhibition by, 2320i.
spectrum of, 4573g.
ultrasonic velocity in, 1232g, 7283h.
——, 1-iodo-3-nitro-, isomorphism between halonitrobenzenes and, 5754g.
——, 1-iodo-4-nitro-, hydrogenation on colloidal Rh, rate of, 27f.
——, iodoso-, antibacterial action against aerobic and anaerobic as strains, 6275h.
diacetate, dibenzoate, and dipropionate, P 5231d.
——, isobutyl-, bromination of, velocity of, 6583f.
spectrum of, 42d, 7819d.
——, isopropenyl-. See *Styrene, α-methyl-*
——, isopropyl-. See *Cumene*.
——, 1-isopropyl-4-methyl-. See *p-Cymene*.
——, isothiocyano-. See "phenyl ester" under *Isothiocyanic acid*.
——, mercuridi-. See *Mercury, diphenyl-*.
——, methoxy-. See *Anisole*.
——, methyl-. See *Toluene*.
——, (2-methylallyl)-, 9051c.
and *p*-alkyl derivs., P 2228e.
——, (1-methylcyclopentyl)-, 2171h.
——, 1,2 - methylenedioxy - 4 - propenyl-. See *Isosafrole*.
——, 1 - (2 - methyl - 2 - nitrobutyl) - 4-nitro-, 8365a.
——, (1-methylnonadecyl)-. See *Eicosane, 2-phenyl-*.
——, 1-methyl-4-sorbitylamino-*, D-, P 5044c.
——, naphthyl-. See *Naphthalene, phenyl-*.
——, nitro-, aluminum bromide elec. cond. in, 8810fi.
antimony(III) fluoride soly. in, 6890b.
as azeotrope former in concn. of aq. solns. of HCHO, P 2221d.
decompn. (photo-) of, 2096g.
decompn. temp. of, 9045g.
derivs., nutritional factors affecting toxicity of, 8052i.
derivs., polarography of, 5678a.
detn. in aq. solns., aniline, benzidine and mixts. with dinitrobenzene, 4976i.
detn. in hydrocarbon oils, 4837i.
dielec. absorption and const. of, 4912i.
dielec. absorption by solns. of, 6019e.
dielec. loss, microwave absorption and relaxation time in, 6018h.
effect of, on aspergilli, 6277b.
on autodisplacement of Pb, 2846c.
on H overpotential on Fe, corrosion and, 952b.
*effect of*, in polymerization of Me methacrylate and on viscosity of polymer, 8190c
elec. cond. of, electrode material and 8780d.
elec. moments and mol. polarizations of solns. of, 5245c.
in ethylene chlorohydrin recovery from aq solns., P 2633c.
formation of, from nitration of toluene 4216f.
formation of, in oxynitration of benzene 179h.
1-hexadecylpyridinium chloride distribution between water and, 5265d.
in ignition retarding of Diesel fuels, 6805d
indicators in, 8813i.
interfaces with water, films at, 2068h.
long-chain electrolyte partition between $H_2O$ and, 7303f.
lubricating-oil soly. in, aniline point and, 3602g.
microwave absorption and dispersion by, 6019d.
microwave absorption by, 2514h, 6019g
nitration of, 7310e, 7918i.
from nitrosobenzene, 5013c.
org.-compd. solns. in, viscosity of, 8243c.
osmosis of, effect of alternating elec field on, 8235a.
in oxidation of nitrolignin from nitric acid-pulp manuf., 1973h.
poisoning by, 8525i.
poisoning of newborn by, from milk of mother, 8060e.
polarography of, 4585be.
prepn. from aniline, 1734c.
properties of, 7298f.
reduction of, 913c, P 1793g, 6007d
by colloidal Rh, rate of, 27f
by electrolysis, 5678a.
with H, in detn. of agitation in shaking autoclaves, 8753f.
with $LiAlH_4$, 1312e.
Rush no. of, 8766b.
soly. in Na xylenesulfonate solns., 1242
solubilization of, with Na secondary alkyl sulfates, 465i.
solns in $C_6H_{12}$, dielec. properties of, 6019b.
as solvent in Friedel-Crafts reaction, 2008
spectrum of, 2868e.
*p*-substituted, as coccidiostatic agent, P 7593a.
sulfonation by $H_2SO_4$ in, kinetics of, 1633d.
system: $AcNH_2$-ICl-, 6900i.
system: $KAl_2Br_7$-, d., elec. cond. and viscosity of, 6899b.
system: $KAl_2Br_6Cl$-, d., elec. cond and viscosity of, 6898i.
system: $NaAl_2Br_7$-, elec. cond. and viscosity of, 6898g.
systems: AcOH-, butyric acid-, isovaleric acid-, and propionic acid-, 6066h.
systems: $SbBr_3$-, and $BiBr_3$-, 6899i
systems: $PhNH_2$-, EtOH-, and MeOH mol. wts. in $C_6H_6$, 1252b.
thermostat with boiling, 7272f.
toxicology of, 5515a.
viscosity of leaflike mols. in, 1629g
zinc-soap soly. in, 4539a.
——, nitro-*tert*-butyl-, 6993d.
——, 1 - nitro - 4 - (2 - nitroamyl)-8365a.
——, 1-nitro-4-(2-nitrobutyl)-, 8364i.
——, 1-nitro-4-(2-nitroisobutyl)-, 5761 8364i.
——, 1-nitro-4-(2-nitropropyl)-, 8364i
——, nitronitroso-, as polymerization inhibitor and initiator in isoprene 5621e.
——, 1-nitro-3-nitroso-, 6585f
oxidative nitration of, 5013d.
spectrum of, polarization of nitroso absorption band of, 1655i.
——, (2-nitro-1-nitrosopropyl)-, 6999d.
——, nitroso-, effect on photochem. after-effect in decompn. of $H_2O_2$ by $K_3Fe(CN)_6$, 6088a.
formation in polarography of $PhNO_2$ 4585f.
oxidative nitration of, 5013c.
reaction with 1,3-butadiene, 650c.
reaction with 9-methylacridine, 6631g
——, nonyl-. See *Nonane, 1-phenyl-*.
——, octyl-. See *Octane, 1-phenyl-*.
——, (1-octyldodecyl)-. See *Eicosane, 9-phenyl-*.
——, pentachloro-, 3346d.
derivs., 3377f.
sepn. from its mixts. with $C_6Cl_6$, P 1437d.

wheat-smut control, 5523e.
**pentachloro(2 - chloroethyl)-**, 3377g.
**pentachloroethyl-**, chlorination of, 3377f.
**(1-pentadecenyl)-**. See *1-Pentadecene, 1-phenyl-*.
**pentadecyl-**. See *Pentadecane, 1-phenyl-*.
**pentadienyl-**. See *Pentadiene, 1-phenyl-*.
**pentakis(diethylaminomethyl)-**, pentakis(ethobromide), curarelike action of, 8059c.
**pentamethyl-**, spectrum of, 4140e.
**pentynyl-**. See *Pentyne, 1(or 5)-phenyl-*.
**phenoxy-**. See *Phenyl ether*.
**propenyl-**, *cis-* and *trans-*, thermodynamic properties of, 5275d.
condensation with aniline and acetone, P 6242a.
heat capacity of, 1638d.
manuf. of, P 2228cd.
reactivity of, 9024c.
spectrum of, 493c.
**propyl-**, P 1057h, P 6217g, P 7509g.
bromination of, velocity of, 6583f.
dehydrogenation to propenylbenzene, 5275f.
phosphorescence of, 8282e.
phys. consts. of, 2589f.
prepn. of, 6990i.
reaction with $PCl_3$ and $O_2$, 8366e.
resonance energies of, 10e.
system 1,2-dichloroethane-, 4938a.
vapor pressure of, 5187g.
Verdet const. ratio to refractive dispersion for, 4911b.
**(1-propylheptadecyl)-**. See *Eicosane, 4-phenyl-*.
**propynyl-**. See *Propyne, phenyl-*.
**selenocyano-**. See "phenyl ester" under *Selenocyanic acid*.
**stiboso-**, disproportionation of, 3696d.
**1,2,4,5 - tetrachloro - 3,6 - bis(pentafluoroethyl)-**, 6174h.
**(1,2,2,2 - tetrachloroethyl)-**, P 8399g.
**tetradecyl-**. See *Tetradecane, 1-phenyl-*.
**2,2,3,3 - tetrafluorocyclobutyl)-**, 3370e, 3371e, P 4293i.
dichloro derivs., P 4294g.
and nitro deriv. and its isomer, P 4294e.
**(2,2,3,3 - tetrafluoro - 1 - vinylcyclobutyl)-**, P 4295e.
**tetrahydro-**. See *Cyclohexene*.
**1,2,3,4-tetramethyl-**. See *Prehnitene*.
**1,2,3,5-tetramethyl-**. See *Isodurene*.
**1,2,4,5-tetramethyl-**. See *Durene*.
**1,2,3,4 - tetraphenyl - 5,6 - bis(phenylmercuri)-†**, 2614f.
**triamino-**. See *Benzenetriamine*.
**1,3,5-tribenzoyl-**, 7453e.
**tribromo-**, from *p*-dibromobenzene, 7918f.
**1,3,5-tri-*sec*-butyl-**, 6583a.
**trichloro-**, effect on wheat germination and seedlings, 5896e.
electrolysis in alc., 7837e.
**1,2,3(1,2,4 and 1,3,5)-trichloro-**, as scavengers in leaded gasolines, P 8667g.
thermodynamic properties, and vapor pressure of, 8225b
**1,2,4-trichloro-** spectrum of, 2512e, 4373h.
**1,3,5-trichloro-**, soly. in Na xylenesulfonate solns., 1242f.
spectrum of, 2804b.
system: $C_2H_4$-, 4937e.
**trichloro(1-chloroethyl)-**, P 680h.
**trichlorodinitro-**, in oat-smut control, 1137g.
**[1,1,2(and 1,2,2)-trichloroethyl]-**, P 681a
**1,2,4-trichloro-5-iodo-**, 3729f.
**1,2,3-trichloro-5-nitro-**, 6194a.
**1,2,4 - trchloro(1,2,2,2 - tetrachloroethy)-**, P 8399h.
**tri(diethylaminoethoxy)-***, triethylhodide, curarelike action of, 3501g.
**triethyl-**, herbicidal action of, 1895e.
**1,2,4-triethyl-**, formation from reaction of benzene with $ClCH_2CO_2Et$ in the presence of $AlCl_3$, 4638f.
**1,3,5-triethyl-**, dehydrogenation of, 165d.
**trihydroxy-**. See *Benzenetriol; Phloroglucinol; Pyrogallol*.
**1,2,3-trimethoxy-**, prepn. of, 1772i.
**1,3,5-trimethoxy-**, spectrum of, 2598e.
**trimethyl-**, formation from $C_2H_2$, 5376d.
formation from terpenes on active C, 5657c.
reaction with $NH_3$, P 3439b.
**1,2,3-trimethyl-**. See *Hemimellitene*.
**1,2,4-trimethyl-**. See *Pseudocumene*.
**1,3,5-trimethyl-**. See *Mesitylene*.
**(1,1,3-trimethylbutyl)-**, 3345a.
**tri-2-naphthyl-**, viscosities of solns. of, 1629i.
**trinitro-**, compds. with acenaphthene and $C_{16}H_8$ derivs., 1388i.
compd. with azulene, 6201f.
as polymerization inhibitor and initiator in isoprene, 5621e.
**1,3,5-trinitro-**, compds. with alkylnaphthalenes, 2608g, 6188b.
compds. with benz[*e*]azulene, 9043d.
with cyclic hydrocarbons, 6601i.
with fluoranthene derivs., 3401f.
with 3-methylcholanthrene, 2626a.
with 3-methyl-1-phenylfluoranthene, 9059b.
with naphthalene derivs., 2612h, 2613g.
with sapotalene, 6604b.
with 5,6,7,8-tetrahydro-1-naphthol, 7010h.
with TlOH, 3352g.
detn. in mixts. with *m*-dinitrobenzene and tetranitromethane, 8978c.
polymorphs, m.ps. and systems with picric acid or picryl chloride, 3277g.
reduction of, P 3456c.
reduction of, at dropping-Hg cathode, 2520d.
soly. in Na xylenesulfonate solns., 1242f
spectrum of, 2868g.
viscosity of solns. of, 1629h.
**1,3,5-triphenyl-**, conjugation energy of, 8223i.
viscosities of solns. of, 1629i.
**1,3,5-tris(biphenylyl)-**, viscosities of solns. of, 1629i.
**1,3,5-tris(*p*-chlorophenyl)-**, crystal structure of, 451a.
**vinyl-**. See *Styrene*.
**Benzenearsonic acid**, growth-promoting action on chickens, 5460d
halogenated, and salts, for coccidiosis control, P 9388i.
ionization const. and insol. salts of, 57b.
prepn. of, 4647g.
reaction with phenylhydrazine, 2592d.
toxicity to rats, 348f.
***p*-acetamido-**. See *Arsacetin*.
***m*-amino-**. See *m-Arsanilic acid*.
***p*-amino-**. See *Arsanilic acid*.
***p*-carbamido-**. See *Carbarsone*.
***p*-(β-carboxypropionyl)-†**, P 4296h.
***m*-chloroacetyl-**, 7452e.
**2 - (1,8 - dihydroxy - 3,6 - disulfo-2-naphthylazo)-5-nitro-**, in analysis, 8954e.
***p*-hydroxy-**, growth-promoting action on chickens, 5460d.
ionization const. and insol. salt of, 57b.
**4-hydroxy-3,5-dinitro-**, and salts, 2436i.
**o - (2 - hydroxy - 3,6 - disulfo - 1-naphthylazo)-**, in analysis, 8954d.
in colorimetry, 4174i.
**2 - (2 - hydroxy - 3,6 - disulfo - 1-naphthylazo) - 5 - nitro-**, in analysis, 4174i, 8954d.
***p* - [(2 - hydroxyethylcarbamyl)-methoxy]-**, 2-aminoethanol salt, 3364g.
**2 - (2 - hydroxy - 1 - naphthylazo)-** in analysis, 8954d.
**4-hydroxy-3-nitro-**, growth-promoting action on chickens, 5460c.
and salts, for poultry infections, P 368a.
***p*-(*p*-hydroxyphenylazo)-**, binding by antibody, 3925e.
**3,3' - methylenebis[4 - hydroxy-**, tuberculocidal activity and toxicity of, 8615b.
***m*-nitro-**, growth-promoting action on chickens, 5460d.
***p*-nitro-**, ionization const. and insol. salts of, 57b.
**phenyl-**. See *Biphenylarsonic acid*.
***p* - (1,4,5,6 - tetrahydro - 6 - oxo-3-pyridazyl)-'** and salt, P 4296i.
***p* - (1,2,3,2*H* - triazol - 2 - yl)-**, 2620a.
***p*-ureido-**. See *Carbarsone*.
**Benzenearsonous acid, 3-amino-4-hydroxy-**, 9876g.
and derivs., 598g.
**3-amino-4-hydroxydithio-**, and derivs., 598i.
3-hydroxypropylene ester (cyclic), pharmacology of, 3931b.
**3 - amino - 4 - (2 - hydroxyethoxy)-dithio-**, derivs., 599b.
**3-amino-4-hydroxythio-**, and hydrochloride, 598i.
***p*-carbamyldithio-**, diester with mercaptoacetic acid, effect on virus of psittacosis-lymphogranuloma group, 9249i.
**dithio-*p*-ureido-**, bis(carboxymethyl ester) and bis(o-carboxyphenyl ester), in amebiasis therapy, 8559b.
***p*-guanyl-**, 7449e.
***p*-hydroxy-**, P 1804d.
**4 - (2 - hydroxyethoxy) - 3 - (sulfomethylamino)-†**, derivs., 599b.
**4 - (2 - hydroxyethoxy) - 3 - (sulfomethylamino)dithio-†**, derivs., 599b.
**4 - hydroxy - 3 - (sulfinomethylamino)dithio-**, derivs., 599a.
**4 - hydroxy - 3 - (sulfomethylamino)dithio-†**, derivs., 599a.
**Benzeneazobutane**, 1654h.
**Benzeneazoethane, α-phenylhydrazono-**. See *Ethane, 1-phenylazo-1-phenylhydrazono-*.
**Benzeneboronic acid**, effect on germination of *Apetalae*, 5831h.
effect on seedlings of apetalous plants, 6703i.
ester with polyvinyl alc., P 2631d.
vinyl ester, aq. dispersions of polymer of, 4542f.
**Benzenecarbinol**. See *Benzyl alcohol*.
**Benzenecarboxaldehyde**. See *Benzaldehyde*.
**Benzenecarboxylic acid**. See *Benzoic acid*.
**Benzene derivatives**. (*See also Aromatization; Benzene ring; Hydrocarbons.*)
alkenyl and alkyl, prepn. of, by Grignard reaction, 3774a.
(1 alkoxy-2-nitroalkyl), P 2232h.
alkyl, 1648, 1800, P 1175c, P 1958d, P 6583a, 6990i, 7916a.
alkylation (long-chain) of, with $C_2H_4$, P 6657f.
bromination velocity of, 6583e.
d. and refraction of, 6023f.
effect on isomerization of pentane, 1712e.
heat capacity of, 1638c.
manuf. and condensation with halogenated satd. hydrocarbons, lubricating oils by, P 1176c.
oxidation and pyrolysis of, 7916g.
oxidation of, P 5421g, P 7046h.
peroxides of, P 3459d.
phenol condensation products from dihaloalkanes and, P 3654g.
phys. properties of homologous, 2589f.
polymerized reaction products with $C_2H_2$, P 4051d.
polymers from 1,3-dioxolane and, P 3658h.
prepn. and spectra of, 2174h.
reaction with ethylene oxide in presence of $AlCl_3$, 2182g.
sepn. from mixts. with paraffins and naphthenes, P 3844f.
sulfonated, P 2004f.
systems with 1,2-dichloroethane, 4938a.
viscosity-temp. properties of mono-, 3602a.
azo coupling reactions with, 4647a.
bending vibrations of, 3714h.
bis(perfluoroalkyl), chlorination of, 6174c.
chlorination of, P 7041f.
(1-chloroethyl) methyl, P 681b.
chloro, insecticidal, P 7632i.
chloro, manuf. of, P 1437c.
crystn. on sucrose, 8238g.
in detergent manuf., 3636c.
*m*-diaryl, 6101h, 6185g.
effect on octane nos. of gasoline, 7674c.
fluoro, dialkyl, P 6040i
polymerization of, 2157e.
spectra of, 592c.
fungistatic activity of, chem. constitution and, 4803h.
halo, P 2235g.
azeotropes of, 2835a.
formation from diazonium halides, 4649d.

*halo*, halogen cathodic removal from, 8908*f*.
reaction with potassium phenoxides, P 2231*i*.
identification and detn. of, crit. mixing temps. of ethylene glycol in, 8309*a*.
miscibility with asphaltic bitumens, 6817*c*.
mol. diagrams of, 4528*c*.
mol. diagrams of mesomerism and reactivity of, 5731*f*.
as Newtonian liquids, 842*e*.
nitration of, 3799*g*, 5754*ghi*.
olefin removal from, P 2421*f*.
oxidation (liquid-phase) of, 8367*i*.
oxynitration of, P 1806*a*.
polymethyl, formation by the reaction of $Me_2O$ on benzene, toluene and xylenes, 3377*b*.
haloalkylation of, P 5583*f*.
systems: Chlorex-, 1251*i*.
systems: 1,2-dichloroethane, 4938*b*
in wood oil, 8648*d*.
prepn. of, 6201*i*.
purification of, P 5798*i*.
reaction products with $P_2S_5$ and olefins as lubricant additives, P 1177*g*.
reaction with chlorinated acetone in presence of $AlCl_3$, 6583*i*.
reaction with halogenated EtOH, P 4300*a*.
relaxation periods of, 6021*a*.
spectra of, 2863*i*, 2864*b*, 8890*h*
effect of ionization on, 7340*d*
structure and, 1349*h*.
substitution reactions with, 2589*d*.
sulfonation of, P 6232*cefg*.
toxicity of, nutritional factors affecting, 8052*i*.
toxicity to goldfish, inhibition of autoxidative reactions and, 9271*a*.
vapor pressure data on, 3255*b*.
vinyl, isobutylene polymerization with, P 2034*h*.
viscosity of solns. of, 1629*g*.

**Benzenediacetic acid, hexahydro-**. See *Cyclohexanediacetic acid*.

***m*-Benzenediacetic acid**, unsatd. esters and their polymers, P 3661*d*.

***o*-Benzenediacetic acid**, unsatd. esters and their polymers, P 3661*d*.

***p*-Benzenediacetic acid**, chloro derivs., P 1064*d*.
unsatd. esters and their polymers, P 3661*d*.

—— —, **2,5-dimethoxy-**, diethyl ester, 3388*a*.

***o*-Benzenediacetic anhydride** (*1,5 dihydro-3-benzoxepin-2,4-dione*).

——, **α,α,α′,α′-tetramethyl-**, 5736*g*

***m*-Benzenediacetonitrile, 4,6-dimethyl-**, 6591*d*.

——, **4-methoxy-**, 6591*f*

***p*-Benzenediacetonitrile**, hydrogenation of, 6591*b*.

——, **2,5-dimethoxy-**, 3388*a*.

***o*-Benzenediacrylic acid, 3,6-dihydroxy-β,β′-diphenyl-**, di-δ lactone, 7017*f*.

***p*-Benzenediacrylic acid**, 7456*f*.

——, **2,5 - dihydroxy - β,β′ - diphenyl-**, di-δ-lactone, 7017*d*.

**Benzenediamine**. See *Phenylenediamine*

**Benzenediazobenzenesulfonate, 4′-acetamido-4-hydroxy-**, seed disinfectant, P 9355*c*.

——, **4′-chloro-4-hydroxy-**, seed disinfectant, P 9355*c*.

——, **2′(and 4′)-chloro-4-hydroxy-3′,5′-dinitro-**, seed disinfectant, P 9355*d*.

——, **2′ - chloro - 4 - hydroxy - 5′-nitro-**, seed disinfectant, P 9355*c*.

——, **4′-chloro-4-hydroxy-3-nitro-**, seed disinfectant, P 9355*c*.

——, **3,4′(and 3′,4′) - dichloro - 4 - hydroxy-**, seed disinfectant, P 9355*c*.

——, **2′,4′,6′ - trichloro - 4 - hydroxy-3′-nitro-**, seed disinfectant, P 9355*d*.

**Benzenediazoborofluoride, 4 - hydroxy-**, seed disinfectant, P 9355*c*.

**Benzenediazocyanide**, configuration of, 7455*d*.

**Benzenediazoferricyanide, 4-hydroxy-**, seed disinfectant, P 9355*c*.

**Benzenediazohydroxide**, *p*-chloro-, 2491*i*.

——, **4-chloro-2-nitro-**, 2492*h*.

——, ***p*-methoxy-**, 2491*i*.

——, **2-methoxy-4-nitro-**, 2491*i*.

——, ***o*(and *p*)-nitro-**, 2491*i*.

——, ***p*-nitro-**, 595*g*, 7443*h*.

——, ***p*-sulfo-**, 2491*i*.

**Benzenediazo - 2 - naphthol - 1 - sulfonate, 2-chloro-**, derivs., 236*f*.

**Benzenediazonium compounds**, *o*-acetyl— derivs., 652*g*.
*p*-benzamido— salts, 1191*b*.
— chloride, compd. with $AsCl_3$, 4648*b*.
identification of, 893*h*.
reaction with aromatic sulfides, 2599*g*.
reaction with $Ph_2SbCl$ and with $Ph_3Sb$, 1737*i*.
reaction with methacrylic acid, 1744*f*.
reaction with $NaBH_4$, 2570*h*.
— fluosilicate, 6992*c*.
— nitrate, 6585*f*.
*p*-chloro— chloride, reaction with nitro alcs., 4646*f*.
*p*-chloro— chloride, structure and transformations of, 1736*e*.
*m*(and *o*)-chloro— nitrates, 6585*g*.
5 dichloroarsino-2-hydroxy— inner salts, 599*c*.
2,4-dinitro— salts, coupling activity of, 4647*a*.
*p*-hydroxy— derivs., seed disinfectants, P 9355*a*.
*p*-hydroxy— fluoborate, sulfate, 173*d*.
*p*-hydroxy— fluosilicate, 6992*c*.
2 - hydroxy - 6 - methyl - 4 - sulfo— hydroxide, inner salt, irradiation of, 4235*f*.
2-hydroxy-4-sulfo— hydroxide, inner salt, irradiation of, 4235*f*.
*o*(and *p*)-methoxy— chloride, reaction with methacrylic acid, 1745*e*.
2-methoxy-5-nitro— chlorozincate, dustproofing of, P 9474*a*.
*p* [(*p* methoxyphenyl)sulfamino] - hydroxide, inner salt, P 3201*b*
*p*-(methylsulfamino) - hydroxide inner salt, P 3203*h*
*p*-nitro— chloride, decompn. of, 4649*e*.
identification of, 893*i*
kinetics of formation and transformations of, 169*i*.
structure and transformations of, 1736*e*.
*p*-nitro— derivs., 595*g*, 7443*h*.
*p*-nitro - fluosilicate, 6992*c*.
*p* nitro - hydroxide, Na deriv., reactions of, 169*i*.
*m*(*o* and *p*)-nitro — salts, coupling activity of, 4647*a*.
*p*-phenoxy— chloromercurate, 4236*f*
*p*-(phenylsulfamino) — hydroxide, inner salt, P 3204*a*.
*p*-sulfamyl— fluoborate, 602*a*.
*p*-(*p*-tolylsulfamino)— hydroxide, inner salt, P 3204*b*.

**Benzenediazoöxide, *p*-methoxy-**, 2495*c*.

**Benzene-2-diazo-1-oxide, 4,6-dichloro-5-hydroxy-**, seed disinfectant, P 9355.

**Benzenediazo phenyl sulfone**, derivs., P 7846*e*.

**Benzenediazosulfonic acid, 2**(and 3)**-chloro-4-hydroxy-**, sodium salt, seed disinfectant, P 9355*c*.

— —, ***p*-dimethylamino-**, sodium salt, effect on enzyme reactions in carbohydrate metabolism, 4381*f*.
sodium salt, toxicity and pharmacology of, 4381*d*.
, ***p*-hydroxy-**, salts, seed disinfectants, P 9355*b*.

**Benzenedicarbinol** See *Xylene-α,α′ diol*

***m*-Benzenedicarboxylic acid**. See *Isophthalic acid*.

***o*-Benzenedicarboxylic acid**. See *Phthalic acid*.

***p*-Benzenedicarboxylic acid**. See *Terephthalic acid*.

***p*-Benzenediethanol, 2,5-dimethoxy-**, 3388*b*.

***p*-Benzenediethylamine**. See *Ethylamine, 2,2′-p-phenylenebis-*.

**Benzenedimercaptan**. See *Benzenedithiol*.

**Benzenedimethanol**. See *Xylene-α,α′-diol*.

**Benzenedimethylamine**. See *Xylene-α,α′-diamine*.

**Benzenediol**. See *Hydroquinone; Pyrocatechol; Resorcinol*.

***p*-Benzenedisulfamic acid**, *N*-(*p*-methoxyphenyl)-, disodium salt, P 3204*b*.

——, ***N*-methyl-**, disodium salt, P 3203*h*.

——, ***N*-phenyl-**, disodium salt, P 3204*a*.

——, ***N*-*p*-tolyl-**, disodium salt, P 3204*b*.

***m*-Benzenedisulfonamide**, *N, N, N′, N′-tetramethyl - 5 - sulfanilamido-*, 4648*h*.

***p*-Benzenedisulfonamide**, 1739*b*.
*N, N′*-4,4′-biphenylene, *N, N′-p*-phenylene, *N, N′*-(sulfonyldi-*p*-phenylene) and *N, N′*-(thiodi-*p*-phenylene) derivs., 4237*d*.

——, *N, N′*-**bis(1,3-dimethylbutyl)-**, 4237*d*.

——, *N, N′*-**bis(1-methylbutyl)-**, 4237*d*.

——, *N, N′*-**diethyl-**, 4237*d*.

——, *N, N′*-**dimethyl-**, 4237*d*.

——, *N, N′*-**di-1(and 2)-naphthyl** 4237*e*.

——, *N, N′*-**di-2-pyridyl-**, 4237*e*.

***m*-Benzenedisulfonanilide**, formaldehyde resin from, 5995*f*.

***p* - Benzenedisulfonanilide, 3′,3″ - dibromo-**, 4237*e*.

——, **2′,2″(and 4′,4″)-dichloro-**, 4237*d*

——, **4′,4″-disulfamyl-**, 4237*e*.

***p*-Benzenedisulfonanisidide**, 4237*d*.

**Benzenedisulfonic acid, dihydroxy-**, sodium salt, effect on porphyrinuria from Pb poisoning, 4376*e*.
sodium salt, effect on urinary elimination of Pb in Pb poisoning, 1860*b*.

— —, **formyl-**, and condensation product with stearic acid hydrazide, P 7730*a*

***m*-Benzenedisulfonic acid, 4-[2-(2-benzimidazolyl)vinyl]-**, disodium salt, 8174*a*.

— —, **4-formyl-**, disodium salt, reaction product with 2-methylbenzimidazole, P 5807*i*.

***p*-Benzenedisulfonic acid**, 1739*b*.
bis(2-phenylhydrazide), 4237*e*.
esters, 2967*h*.

——, **amino-**, azo dyes from, P 9463*b*.

——, **(5-amino-2*H*-benzotriazol-2-yl)-stilbene dyes from, P 1575*f*.

— —, **[α-[3-nitro-4-(α-phenylcarbamylacetonylazo)phenylcarbamyl]acetonylazo]-**, P 9463*b*.

***p*-Benzenedisulfonophenetidide**, 4237*d*

***p*-Benzenedisulfono-*o*-toluidide**, 4237*d*

***p*-Benzenedisulfono-*p*-toluidide**, 4237*d*

***p*-Benzenedisulfono-2,5-xylidide**, and isomers from *m*- and *o*-xylidine, 4237*d*

***p*-Benzenedisulfonyl chloride**, 1739*b*
reaction with amines, 4237*d*.

***p*-Benzenedithiol, 2,5-diamino-**, P 1438*c*

**Benzenehexacarboxylic acid**. See *Mellitic acid*.

**Benzene hexachloride**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.

**Benzenehexol**, and hydrogenation of, 4885*g*

**Benzene hydrocarbons**. See *Hydrocarbons*.

**Benzenemethanol**. See *Benzyl alcohol*.

**Benzenepentacarboxylic acid**, P 3176*b* and pentamethyl ester, 6610*g*

**Benzenephosphondiamide**, $PhPO(NH_2)_2$

——, ***p*-amino-**, 1737*h*.

— —, ***p*-bromo-**, 1737*g*.

**Benzenephosphonic acid** ($PhPO(OH)_2$) and derivs., 599*d*.
diallyl ester, and polymers, 5378*e*.
esters, as plasticizers, P 7752*d*.
polymerization with Me methacrylate, P 1220*f*.
polymerization with vinyl acetate, P 1220*g*.
ionization of, and derivs., 6051*a*
thallous salts, 3352*g*.

— —, ***p*-acetamido-**, 1737*f*.

— , ***m*-amino-**, 599*d*.

— —, ***p*-amino-**, and derivs., 1737*e*.

——, ***p*-benzamido-**, 1737*f*.

——, ***m*-bromo-**, 599*e*.

— , ***p*-bromo-**, amination of, 1737*f*
ionization const. of, 6051*b*.

— —, ***p*-butyrylamino-**, 1737*f*

— —, ***p*-caproylamino-**, 1757*f*

— —, **chloro-**, esters, polymerization with vinyl acetate, P 1220*g*.

——, ***m*-chloro-**, 599*e*.

— —, ***p*-chloro-**, diethyl ester, cholinesterase-inhibiting activity and toxicity of, 1109*h*.

— —, **3-chloro-4-methoxy-**, ionization const. of, 6051*c*.

— —, ***p*-(diaminophenylazo)-**, 1737*f*

— —, ***p*-(dihydroxyphenylazo)-**, 1757*f*

— —, ***p*-dimethylamino-**, ionization const. of, 6051*b*.

——, ***m*-iodo-**, 599*e*.

— —, ***p*-iodo-**, 599*d*.

— —, ***p*-methoxy-**, ionization const. of, 6051*b*.

——, ***m*-nitro-**, 599*d*.

— —, ***p*-pyrrylazo-**, 1737*f*.

— —, ***p*-ureido-**, ammonium salt, 1737*g*

**Benzenephosphonous acid** ($PhP(OH)_2$) as antioxidant for thiols, P 1794*b*

——, ***p*-bromo-**, ionization const. of, 6051*b*.

——, **3-chloro-4-methoxy-**, ionization const. of, 6051*c*.

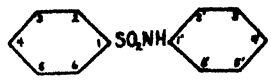
— —, ***p*-dimethylamino-**, ionization const. of, 6051*b*.

——, ***p*-methoxy-**, ionization const. of, 6051*b*.

**Benzene ring**. (See also *Benzene derivatives*.)

bond (intramol.) formation and resonance with, 4627*e*.
conjugation of an olefinic bond with, 1756*i*, 2181*e*.
effect of directing groups on reactivity in, 7454*f*.
effect on binary azeotropes, 2834*g*.
on spectra of S compds., 4215*h*, 4216*b*.
on toxicity of biuret derivs. and related compds., 5369*i*.
hydrogenation of, 2175*e*, 2964*b*, 5752*e*.
in hydroxybenzoic acids, polarity of hydrogens in, 8809*c*.
lyoparachor of, 2834*d*.
mol. structure and spectra of, 1362*a*
oxidation and pyrolysis of, 7916*g*.
spectra of compds. contg. chromophoric groups and, 8855*i*.
substitution in, 2966*d*, 3386*a*, 4644*d*.
**Benzeneseleninic acid** ($PhSeO_2H$), ionization of, 6050*i*.
*m*(and *p*)-**bromo-**, ionization of, 6050*i*.
*m*(and *p*)-**chloro-**, ionization of, 6050*i*.
*m*(and *p*)-**fluoro-**, ionization of, 6050*i*.
*m*(and *p*)-**methoxy-**, ionization of, 6050*i*.
*m*-**nitro-**, ionization of, 6050*i*.
**Benzene series.** See *Benzene derivatives; Hydrocarbons.*
**Benzenestibonic acid**, $PhSbO(OH)_2$.
*p*-**amino-**, diethylamine salt—see *Ethylstibamine.*
sodium salt—see *Stibamine.*
*p*-**carbamido-**, monoammonium salt—see "stibamine" under *Urea.*
*p*-(**4,6-diamino-***s*-**triazin-2-yl-amino**)-, and derivs., P 4705*e*.
*p*-(**2-pyridylsulfamyl**)-, 6026
*p*-(**2-pyrimidylsulfamyl**)-, 6026.
*p*-**sulfamyl-**, 6026
*p*-(**sulfamylphenylazo**)-, 8099*i*.
*p*-**sulfanilamido-**, 8099*i*.
*p*-**2-thiazolylsulfamyl-**, 6026.
*p*-**ureido-**, monoammonium salt see "stibamine" under *Urea.*
**Benzenesulfenamide**, *N*-**guanyl-***p*-**nitro-**, P 1438*b*.
*N*-(**5-methyl-1,3,4-thiadiazol-2-yl**)-*p*-**nitro-**, P 8400*d*.
*N*-(**4-methyl-2-thiazolyl**)-*p*-**nitro-**, P 1438*a*.
*m*-*o* and *p*-**nitro-**, *N*-derivs., for delayed vulcanization of rubber, P 3230*i*.
*o*-**nitro-**, 8366*i*.
*p*-**nitro-**, P 8400*c*.
*p*-**nitro-***N*-**2-pyridyl-**, P 8400*i*.
*m*-**nitro-***N*-**2-pyrimidyl-**, P 7516*i*.
*p*-**nitro-***N*-**2-pyrimidyl-**, P 1438*a*.
*p*-**nitro-***N*-**thiadiazolyl-**, P 8400*d*.
*p*-**nitro-***N*-**2-thiazolyl-**, P 1437*i*, P 8400*d*
**Benzenesulfenyl bromide**, *o*-**nitro-**, and derivs., reaction with KSeCN, 8366*g*
**Benzenesulfenyl chloride**, *p*-**nitro-**, P 8400*b*.
**Benzenesulfenyl selenocyanate**, **4-chloro-2-nitro-**, 8367*b*.
*o*-**nitro-**, prepn. and reactions of, 8366*g*.
**Benzenesulfinic acid**, and derivs., as polymerization catalysts for vinyl compds., P 6002*f*.
dielec. const., elec. moment and vibrational spectra of, 5245*f*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 5654*h*.
mol. assocn of, 7454*d*.
*p*-**chloro-**, dielec. const., elec. moment and vibrational spectra of, 5245*f*.
*o*-**ethoxy-**, dielec. const., elec. moment and vibrational spectrum of, 5245*f*
*m*-**nitro**, dielec. const., elec. moment and vibrational spectra of, 5245*f*.
**Benzenesulfonamide**, derivs., P 6662*f*.
derivs., 6026, 1738*c*.
derivs., insecticides from, P 4419*h*
effect on calcification of integument of *Coleps hirtus*, 3941*a*.
formation of, from $PhSO_2Cl$ and KCN, 2942*b*.
reaction with benzophenone oxime benzenesulfonate, 2594*h*.
reaction with 5-chloro- and 3,5-dichlorosalicylaldehydes, 6182*c*.
soly. in Na xylenesulfonate solns., 1242*e*.
solns. of, isosmotic with blood, 5903*f*.
spectrum of, 7411*b*.
**Benzenesulfonamide**, *p*-**acetamido-**. See *Acetanilide, p-sulfamyl-.*
—, **2-[6-acetamido-1-(2,3-dihydroxypropyl) - 1***H* **- benzotriazol - 5-ylazo]-***N*-**ethyl-3,5-dinitro-**, P 3625*h*.
—, *N*-**acetimido-***p*-**nitro-**, P 6660*g*
—, *N*-**acetyl-**. See *Acetamide, N (phenylsulfonyl)-.*
—, *p*-**acetyl-**, 7450*f*.
—, *N*-(**3-allyl-4-thiazolin-2-ylidene**)-*p*-**nitro-**, P 6662*e*.
—, *m*-**amino-**. See *Metanilamide.*
—, *o*-**amino-**, spectrum of, 8890*i*.
therapeutic activity of, 3096*i*.
—, *p*-**amino-**. See *Sulfanilamide.*
—, **2-amino-5-(5-amino-2-pyridylsulfonyl)-**, P 7961*g*.
—, *N* - (**4 - amino - 5 - bromo - 2-pyrimidyl**)-*m*-**nitro-**, P 7516*h*
—, **2-amino-3,5-dinitro-**, azo dyes from, P 862*e*.
—, *p*-(**1-aminoethyl**)-, 7450*e*.
—, *p*-(**2-aminoethyl**)-, 7450*e*.
—, *N*-(**1-aminoethylidene**)-*p*-**nitro-**, P 6234*a*.
—, **2-amino-***N*-**2-methoxyethyl-3,5-dinitro-**, azo dyes from, P 2781*h*.
—, *p*-(**7-amino-5-methylindazolylazo**)-, P 6662*g*.
—, *p*-**amino-***N*-(**4-methyl-2-thiazolyl**)-. See *Sulfamethylthiazole.*
—, **2-amino-5-nitro-**, P 858*a*.
—, *p*-(**aminophenyl**)-. See *4 Biphenylsulfonamide, ar'-amino-.*
—, *p*-**amino-***N*-**2-pyridyl-** See *Sulfapyridine.*
**2-amino-5-(2-pyridylsulfonyl)-**, P 7042*b*, P 7961*f*
—, *N* - (**4 - amino - 2 - pyrimidyl**)-*m*-**nitro-**, P 7516*h*.
—, *p*-**amino-***N*-**2-thiazolyl-**. See *Sulfathiazole.*
—, *p*-(**amylhydroxyphenylazo**)-, 9048*a*
—, **4,4'-arsenobis**[*N*-2-thiazolyl-, P 1817*a*.
—, *p,p'*-**azobis-**, P 3846*b*, 7450*h*
—, *N*-**benzimido-p-nitro-**, P 6660*i*
—, *N*-**benzoyl-**. See *Benzamide, N-(phenylsulfonyl)-.*
—, *N*-[**1,2-bis(dimethylamino)ethylidene**]-*p*-**nitro-**, P 6661*a*
—, *N*, *N'*-[**1,2-bis**(*p*-**methoxyphenyl**)-**ethylene**]**bis-**, 6114
—, *p*-**bromo-**, as synergists for nicotine insecticide, 5893*g*
—, *p*-(**bromohydroxyphenylazo**)-, 9047*h*
—, *p*-(**bromohydroxyphenylazo**)-*N*-**2-pyrimidyl-**, 9048*b*
—, *p*-(**bromohydroxyphenylazo**)-*N*-**2-thiazolyl-**, 9048*a*
—, *p*-**bromo-***N*-**isobutyl-**, as synergist for nicotine, 5894*a*.
—, *N*-(**5-bromo-4-methyl-2-pyrimidyl**)-*m*-**nitro-**, P 7516*h*.
—, *N* - (**5 - bromo - 2 - pyrimidyl**) - *m*-**nitro-**, P 7516*h*.
—, *N*-**butyl-**, soly. in Na xylenesulfonate solns., 1242*e*
—, *p*-(**butyldihydroxyphenylazo**)-*N*-**2-pyrimidyl-**, 9048*b*.
—, *p*-(**butyldihydroxyphenylazo**)-*N*-**2-thiazolyl-**, 9048*b*.
—, *p* - (**butylhydroxyphenylazo**)-, 9048*a*
—, *N*-**butyl-***m*(and *p*)-**nitro-**, 4630*d*
—, *N*-*sec*-**butyl-***m*(and *p*)-**nitro-**, 4630*d*.
—, *N*-*tert*-**butyl-***m*(and *p*)-**nitro-**, 4630*d*.
—, *N*-**chloro-**, sodium deriv.—see *Chloramine-B.*
—, *p*-**chloro-**, derivs., P 5801*i*, P 6661*g*
—, *p*-**chloro-***N*, *N*-**dimethyl-**, P 5802*b*, P 6234*a*, P 6661*h*
—, *N*-(**1-chloroethylidene**)-*p*-**nitro-**, P 6233*i*.
—, *p* - (**chlorohydroxyphenylazo**)-, 9047*h*.
—, *p*-(**chlorohydroxyphenylazo**)-*N*-**2-pyridyl-**, 9048*b*.
—, *p*-(**chlorohydroxyphenylazo**)-*N*-**2-thiazolyl-**, 9048*a*.
—, *p*-**chloro-***N*-**isopropylguanyl-**, 2946*g*.
—, *p*-**chloro-***N*-[(**isopropylguanyl**)-**guanyl**]-, 2946*h*.
—, *p*-(**chloromercuri**)-, 7922*f*.
—, *p*-**chloro-***N*-**methyl-**, P 5802*a*.
—, **4-chloro-3-nitro-**, P 5042*d*, P 6662*a*.
—, *N* - (**2 - chloro - 5 - pyrimidyl**)-*m*-**nitro-**, P 7516*h*.
—, *N* - (**5 - chloro - 2 - pyrimidyl**) - *m*-**nitro-**, P 7516*h*.
—, *N*, *N'*-(**5-chlorosalicylidene**)**bis-**, 6182*d*.
—, *p*-**chloro-***N*-(**1,4,5,6-tetrahydro-2-pyrimidyl**)-, P 6670*f*.
—, *p*-**cyano-**, hydrogenation of, P 7508*c*.
—, **2,4-diamino-**, azo dye from, P 6832*g*.
—, *p*-(**2,4-diaminophenylazo**)-. See *Prontosil.*
—, *N*-[(**2,4-diamino-***s*-**triazin-2-yl**)-**methyl**]-, P 5052*c*.
—, *p*-(**dibromohydroxyphenetylazo**)-, 9047*i*.
—, *N*, *N*-**dibutyl-***m*(and *p*)-**nitro-**, 4630*e*.
—, *N*, *N*-**di-***sec*-**butyl-***m*(and *p*)-**nitro-**, 4630*e*.
—, **2-(2,4-dibutyl-5-oxo-3-thioxo-1,2,4,2***H* **- thiadiazin - 6 - ylazo)-***N*-**ethyl-5-nitro-**, 1,1-dioxide, P 4868*g*.
—, **3,4-dichloro-**, *N*-acyl derivs., as insecticides, P 2364*bcd*.
and *N*-alkyl derivs. and their acyl derivs., P 2231*e*.
—, **3,4-dichloro-***N*-**methyl-**, reaction product with mixed fatty acid chlorides from palm-kernel oil, P 2231*f*.
—, *N*-(**3,5-dichlorosalicylidene**)-, 6182*c*
—, *m*-[**4-(8-diethylamino-5,10-dihydro - 10 - phenyl - 2 - phenazinylazo) - 3 - methyl - 5 - oxo - 2-pyrazolin-1-yl**]-, effect on influenza virus infection, 7589*c*.
—, *p*-[**8-(4-diethylamino-1-methylbutylamino) - 6 - methoxy - 5-quinolylazo**] - *N* - **2 - pyrimidyl-**, effect on nervous system, 9267*b*.
—, *N*, *N*-**diethyl-***p*-(**2-methyl-3-indolylazo**)-, P 6662*h*.
—, *N*, *N*-**diethyl-***p*-[**2-(2-methyl-3-indolyl)hydrazino**]-, P 6662*h*.
—, *N*, *N*-**diethyl-***m*(and *p*)-**nitro-**, 4630*c*.
—, *p*-(**5,7-dihydro-5,7-dioxo-6***H***-pyrrolo[3,4-***b***]pyrid-6-yl**)-, 2598*a*.
—, *p*-(**1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl**)-, and acetate, 1380*c*.
—, *p*-(**1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthylazo**)-, 1380*h*.
—, *p*-(**1,4-dihydro-3-hydroxy-1,4-dioxo - 2 - naphthyl**) - *N* - **guanyl-**, and acetate (ester), 1380*g*.
—, *p*-(**1,4-dihydro-3-hydroxy-1,4-dioxo - 2 - naphthyl**) - *N* - **2 - pyridyl-**, and acetate, 1380*f*.
—, *p*-(**1,4-dihydro-3-hydroxy-1,4-dioxo - 2 - naphthyl**) - *N* - **2 - pyrimidyl-**, 1380*g*.
—, *p*-(**1,4-dihydro-3-hydroxy-1,4-dioxo - 2 - naphthyl**) - *N* - **2 - thiazolyl-**, and acetate, 1380*g*.
—, **2-[1-(2,3-dihydroxypropyl)-1***H***-benzotriazol - 5 - ylazo]** - *N* - **ethyl-3,5-dinitro-**, P 3625*h*.
—, **2 - [1 - (2,3 - dihydroxypropyl) - 4-methyl - 1***H* **- benzotriazol - 5 - ylazo]** - *N* - **ethyl - 3,5 - dinitro-**, P 3625*h*
—, **2 - [1 - (2,3 - dihydroxypropyl)-1,2,3,4 - tetrahydro - 3,4 - dihydroxy - 2,2,4,7 - tetramethyl - 6 - quinolylazo]-3,5-dinitro-**, P 862*f*.
—, *p*-(*α*,**4-dihydroxy-***m*-**tolylazo**)-, 3110*a*.
—, *N*, *N*-**diisobutyl-***m*(and *p*)-**nitro-**, 4630*e*.
—, *N*, *N*-**diisopropyl-***m*(and *p*)-**nitro-**, 4630*d*.
—, *N*, *N'*-(**2,5-dimethoxy-***p*-**phenylenediethylene**)**bis-**, 3388*a*.
—, *N*, *N*-**dimethyl-**, 2595*f*.
—, *N*, *N*-**dimethyl-***m*(and *p*)-**nitro-**, 4630*c*.
—, *N*-(**2,6-dimethyl-4-pyrimidyl**)-*p*-**nitro-**, P 4297*e*, P 7965*g*.
—, *N*-(**4,6-dimethyl-2-pyrimidyl**)-*m*-**nitro-**, P 7516*h*.
—, *N*-(**4,6-dimethyl-2-pyrimidyl**)-*p*-**nitro-**, P 4297*f*.
—, *p*-(**3,5-dioxo-1,2,4-triazolid-1-yl**)-, 601*d*.
—, *p,p'*-**dithiobis-**, 1739*a*.
—, **2-[2-(2-ethoxyethyl)tetrahydro-5-oxo - 3 - thioxo - 1,2,4,2***H* **- thiadiazin - 6 - ylazo]** - *N* - **methyl - 5-nitro-**, 1,1-dioxide, P 4868*g*.
—, *N*-(**2-ethoxy-5-oxo-2-pyrazolin-1-yl**)-, P 6930*e*.

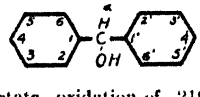
——, *N*-(**4-ethoxy-2-pyrimidyl**)-*m*-**nitro-**, P 7516*h*.
——, *N*-(*N*-**ethylacetimido**)-*p*-**nitro-**, P 6660*h*.
——, *p*-(**ethyldihydroxyphenylazo**)-, 9048*a*.
——, *p*-(**ethyldihydroxyphenylazo**)-*N*-**2-pyridyl-**, 9048*b*.
——, *p*-(**ethyldihydroxyphenylazo**)-*N*-**2-pyrimidyl-**, 9048*b*.
——, *p*-(**ethyldihydroxyphenylazo**)-*N*-**2-thiazolyl-**, 9048*b*.
——, *N*-**ethyl-3,5-dinitro-2-[2,3,6,7-tetrahydro-6-hydroxy-3,10-dimethyl-5***H*-**pyrido[1,2,3-*de*]-1,4-benzoxazin-9-ylazo]-**, P 2782*a*.
——, *p,p'*-(**ethylenedioxy**)**bis**[*N*-**butyl-**, antimalarial activity of, 5860*h*.
——, *N*-**ethyl-4-(2-ethyltetrahydro-5-oxo-3-thioxo-1,2,4,2***H*-**thiadiazin-6-ylazo)-3-nitro-**, 1,1-dioxide, P 4868*g*.
——, *p*-(**ethylhydroxyphenylazo**)-, 9048*a*.
——, *N*-**ethyl-***m*(and *p*)-**nitro-**, 4630*c*.
——, *N*-(*N*-**ethylpropionimidyl**)-*p*-**nitro-**, P 6660*i*.
——, *N*-**ethyl-***N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis-**, 1735*e*.
——, *N*-**guanyl-**, derivs., P 5802*c*.
——, *N*-**guanyl-***o*(and *p*)-**nitro-**, 600*i*.
——, *N*-**guanyl-***p*-**nitro-**, P 1438*b*.
——, *p*-(**5-hendecyl-3,6-dihydroxy-2-*p*-quinonylazo**)-, 9047*h*.
——, *p*-(**5-hendecyl-3,6-dihydroxy-2-*p*-quinonylazo**)-*N*-**2-pyridyl-**, 9047*h*.
——, *p*-(**5-hendecyl-3,6-dihydroxy-2-*p*-quinonylazo**) - *N*-**2-pyrimidyl-**, 9047*h*.
——, *p*-(**5-hendecyl-3,6-dihydroxy-2-*p*-quinonylazo**) - *N*-**2-thiazolyl-**, 9047*h*.
——, *p*-(**heptylhydroxyphenylazo**)-, 9048*a*.
——, *p*-(**3a,4,5,6,7,7a-hexahydro-3a,7-dimethyl-1,3-dioxo-4,7-epoxypseudoisoindol-2(3***H***)-yl**)-, 2598*c*.
——, *p*-(**hexyldihydroxyphenylazo**)-*N*-**2-pyrimidyl-**, 9048*b*.
——, *p*-(**hexyldihydroxyphenylazo**)-*N*-**2-thiazolyl-**, 9048*b*.
——, *p*-(**hexylhydroxyphenylazo**)-, 9048*a*.
——, *p*-**hydrazino-**, derivs., 601*a*. and derivs., 601*b*.
——, *p*-**hydrazino-***N*,*N*-**dimethyl-**, and hydrochloride, 601*e*.
——, *p*-**hydrazino-***N*-**2-pyridyl-**, and derivs., 601*a*.
——, *p*-**hydroxy-**. See *1-Phenol-4-sulfonamide*.
——, *N*-**2-hydroxyethyl-5-nitro-2-(2,3,6,7-tetrahydro-6-hydroxy-3,5-dimethyl-5***H*-**pyrido[1,2,3-*de*]-1,4-benzoxazin-9-ylazo)-**, P 2781*i*.
——, *p*-(**hydroxyiodophenylazo**)-, 9047*i*.
——, *p*-(**hydroxyiodophenylazo**)-*N*-**2-pyridyl-**, 9048*b*.
——, *p*-(**hydroxypropylphenylazo**)-, 9047*i*, 9048*a*.
——, *N*-**2-imidazolin-2-yl-**, P 6670*f*.
——, *N*-**isobutyl-***m*(and *p*)-**nitro-**, 4630*d*.
——, *N*-**isopropyl-**, sensitivity to, 748*d*.
——, *N*-(*N*-**isopropylacetimido**)-*p*-**nitro-**, P 6660*h*.
——, *N*-**isopropyl-***m*(and *p*)-**nitro-**, 4630*d*.
——, *p*-**mercapto-**, bacteriostatic activity of, 9246*e*. and benzoate, 1739*b*.
——, *N*-**2-methoxyethyl-3,5-dinitro-2-(2,3,6,7-tetrahydro-6-hydroxy-3,5-dimethyl-5***H*-**pyrido[1,2,3-*de*]-1,4-benzoxazin-9-ylazo)-**, P 2781*i*.
——, *N*-(*N*-**methylacetimido**)-, 2594*g*.
——, *N*-(*N*-**methylacetimido**)-*p*-**nitro-**, P 6660*h*.
——, *p*-(**2-methyl-7-indolyl**)-, P 6662*f*.
——, *p*-(**2-methylindolylazo**)-, P 6662*f*.
——, *p*-(**2-methylindolylazo**)-*N*-**2-thiazolyl-**, P 6662*i*.
——, *N*-**methyl-***N*-(*N*-**methylacetimido**)-, and picrate, 2594*h*.
——, *N*-**methyl-***m*(and *p*)-**nitro-**, 4630*c*.
——, *m*-(**3-methyl-5-oxo-2-pyrazolin-1-yl**)-, azo dyes from, P 4804*b*, P 5958*g*, P 7697*d*, P 7699*h*, P 8148*g*, P 9466*g*.
——, *p*-(**3-methyl-5-oxo-2-pyrazolin-1-yl**)-, azo dyes from, P 8150*f*.
——, *N*-(*N*-**methylpropionimidyl**)-*p*-**nitro-**, P 6660*i*.
——, *N*-(**4-methyl-2-pyrimidyl**)-*m*-**nitro-**, P 7516*h*.
——, *N*-(**4-methyl-2-thiazolyl**)-*p*-**nitro-**, P 1438*b*.
——, *N*-**methyl-***N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis-**, 7919*e*.
——, *N*-**methyl-***N*-**vinyl-**, polymerization with vinyl acetate, P 8212*a*.
——, *N*-**1(and 2)-naphthyl-**, formaldehyde resin from, 5995*f*.
——, *m*(and *p*)-**nitro-**, derivs., 4630*a*.
——, *p*-**nitro-**, P 8400*c*.
effect on viruses of psittacosis-lymphogranuloma group, 9249*h*.
——, *m*(and *p*)-**nitro-***N*,*N*-**dipropyl-**, 4630*d*.
——, *m*-**nitro-***N*-(**4-phenyl-2-pyrimidyl**)-, P 7516*h*.
——, *p*-**nitro-***N*-**propionimidyl-**, P 6660*i*.
——, *m*(and *p*)-**nitro-***N*-**propyl-**, 4630*d*.
——, *m*-**nitro-***N*-**3-pyridazyl-**, P 7516*h*.
——, *p*-**nitro-***N*-**2-pyridyl-**, P 8400*c*.
——, *m*-**nitro-***N*-**2-pyrimidyl-**, P 7516*g*.
——, *m*-**nitro-***N*-**2(4 and 5)-pyrimidyl-**, P 7516*gh*.
——, *p*-**nitro-***N*-**2-pyrimidyl-**, P 1438*a*.
——, *m*-**nitro-***N*-**2-quinoxalyl-**, P 7516*i*.
——, **3-nitro-4-(tetrahydro-2-methyl-5-oxo-3-thioxo-1,2,4,2***H*-**thiadiazin-6-ylazo)-**, 1,1-dioxide, P 4868*g*.
——, *p*-**nitro-***N*-**2-thiazolyl-**, P 1437*i*.
——, *ar*-**phenyl-**. See *Biphenylsulfonamide*.
——, *p*-**phenylazo-**, derivs., 3385*d*.
——, *p*-**phenylazo-***N*-**2-thiazolyl-**, P 3457*g*.
——, *N*,*N'*-*p*-**phenylenebis**[*m*-[**4-(2,3-dihydroxypropylamino)-8-hydroxy-1-naphthylazo**]-*N*-**methyl-**, P 8588*i*.
——, *N*,*N'*-*p*-**phenylenebis**[*N*-**methyl-*m*-nitro-**, P 860*a*
——, *N*,*N'*-*p*-**phenylenebis**[*N*-**methyl-*p*-nitro-**, P 860*b*.
——, *N*,*N'*-*p*-**phenylenebis**[*p*-**nitro-**, antimalarial activity of, 5860*h*.
——, *p*-**phenylguanyl-**, and benzenesulfonate, 7444*e*.
——, *N*-(**phenylsulfonyl**)-. See *Dibenzenesulfonamide*.
——, *N*-[**1-(phenylsulfonyl)-4(1***H*)-**quinolylidene**]-, 8387*b*.
——, *N*-[**3-(phenylsulfonyl)-4-thiazolin-2-ylidene**]-, derivs., P 3458*i*.
——, *p*-**phthalimido-**, P 1061*b*.
——, *p*-**phthalimido-***N*-**2-pyridyl-**, P 1061*b*.
——, *p*-**phthalimido-***N*-**2-thiazolyl-**, P 1061*b*.
——, *N*-**2-pyridyl-***p*-**semicarbazido-**†, 601*b*.
——, *p*-**semicarbazido-**†, 601*d*.
——, *p*-**stibono-**. See *Benzenestibonic acid, p-sulfamyl ar-sulfanilamido-*. See *Sulfanilamide, ar'-sulfamyl-*.
——, **3,3'-sulfonylbis**[**6-amino-**, P 7961*g*.
——, *N*-**2-thiazolyl-**, derivs., P 3458*h*.
——, *p*-**thiocyano-**†, 1739*a*.
——, *p*-(**1,2,3,2***H*-**triazol-2-yl**)-, 2620*b*.
——, *p*-(**tribromodihydroxyphenylazo**)-, 9047*i*.
——, *p*-(**tribromohydroxymethoxyphenylazo**)-, 9047*i*.
——, *p*-(**tribromohydroxyphenylazo**)-, 9047*i*.
——, *p*-(**1,3,4-trihydroxy-2-naphthyl**)-, triacetate, 1380*d*.
——, *N*,*N'*-(**2,4,6-trimethyl-5-nitro-*m*-phenylene**)**bis-**, 1736*b*.
——, *N*,*N'*-(**2,4,6-trimethyl-5-nitro-*m*-phenylene**)**bis**[*N*-**dodecyl-**, 1736*c*.
——, *N*,*N'*-(**2,4,6-trimethyl-5-nitro-*m*-phenylene**)**bis**[*N*-**ethyl-**, 1736*b*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis-**, and derivs., stereoisomers of, 1735*d*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*N*-**benzyl-**, stereoisomers, 1735*g*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*p*-**bromo-**, 7919*g*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*p*-**bromo-***N*-**methyl-**, stereoisomers, 7920*a*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*N*-**butyl-**, stereoisomers, 1735*g*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*N*-**dodecyl-**, stereoisomers, 1735*g*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*N*-**ethyl-**, stereoisomers, 1735*f*.
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*N*-**methyl-**, stereoisomers, 7919*e*.
**Benzenesulfonanilide,**
——, *N*,*N'*-(**2,4,6-trimethyl-*m*-phenylene**)**bis**[*N*-**methyl-*p*-nitro-**, stereoisomers, 7920*d*.




derivs., antimalarial action of, 4648*b*.
formaldehyde resin from, 5995*f*.
formation of, in reaction of aniline with benzophenone oxime benzenesulfonate, 2594*i*.
——, **4-acetamido-**. See *Acetanilide, p-(phenylsulfamyl)-*.
——, **3-amino-**. See *Metanilanilide*.
——, **4-amino-**. See *Sulfanilanilide*.
——, **4-amino-4'-(dimethylsulfamyl)-**. See *Sulfanilanilide, 4'-(dimethylsulfamyl)-*.
——, **4-(3-amino-4-hydroxyphenylarseno)-**, P 4817*a*.
——, **4-amino-4'-sulfamyl-**. See *Sulfanilanilide, 4'-sulfamyl-*.
——, **4,4'-arsenobis-**, P 4817*a*.
——, **4'-bromo-**, 2595*b*.
——, **4-bromo-3',5'-dichloro-**, 4649*a*.
——, **4-bromo-3',5'-dimethoxy-**, 4649*a*.
——, **4-chloro-2'-hydroxy-3-nitro-**, P 5042*h*.
——, **3',5'-dibromo-4-nitro-**, 4648*i*.
——, **3',5'-dichloro-4-(2,4-diaminophenylazo)-**, 4648*i*.
——, **3,4-dichloro-4'-nitro-**, in sugar-cane-borer control, 3136*h*.
——, **3',5'-dichloro-4-nitro-**, 4648*i*.
——, **4,4'-dichloro-3-nitro-**, P 5042*g*.
——, **3',4'-dimethoxy-**, 2177*e*.
——, *N*-**ethyl-3,4-dimethoxy-**, 2177*f*.
——, **4'-nitro-4-phenylazo-**, 7937*a*.
——, *N*-**octadecyl-**, sulfo deriv., P 4487*a*.
——, **4-phenylazo-**, 7937*a*.
——, **4-phthalimido-**, P 1061*b*.
——, **3'**(and **4'**)**-sulfamyl-**, formaldehyde resins from, 5995*f*.
——, **3,3',4,4'-tetrachloro-**, as insecticide, P 4419*h*.
——, **4-(1,2,3,2-triazol-2-yl)-**, 2620*b*.
**Benzenesulfonic acid,** 2178*e*.
alkyl derivs., alkali metal salts, P 9195*i*
alkali metal salts, as emulsifiers in GR S rubber manuf. by reduction oxidation process with ferropyro phosphate activators, 8725*d*.
alkali metal salts, impregnating compn for metal-wool cleaning pads from, P 9497*c*.
effect on rate of wetting of wool, 3624*a*.
prepn. and fat-splitting powers of, 7719*i*.
Na salts, rancid odor inhibition in mixed stored, P 6845*bc*, P 6846*a*
Na salts, spreading rate of solns of, on glass and paint, 1625*f*.
amidine salts, P 688*h*, P 2230*f*, P 5038*d*, 7444*b*.
anhydride with AcOH, behavior in $Ac_2O$, 2110*f*.
catalyst of As or As compd. and, for hydrocarbon treatment, P 2636*g*.
derivs., 2593*i*, 2595*f*.
esters with α-hydroxy acids their derivs., 2941*h*.
with hydroxymaleic and tartaric acids, 7379*f*.
with oxime of phenyl 2-pyridyl ketone and salt of 2-benzamidopyridine, 1409*b*.
as plasticizers for polysulfone resins, P 7751*d*.
with $Me_4NOH$, behavior in $Ac_2O$, 2110*f*.
hydrazides, 3410*c*, 8381*h*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 5638*h*.
isopropyl derivs., as surface-active compds., P 7730*c*.
manganese salt, oat-seed soaking in, 4801*i*.
nitration of, 7918*i*.
phenylhydrazide, in European-corn-borer control, 1896*e*.

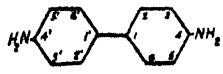
*henylhydraside*, as insecticide, 5520*a*.
toxicity to corn borer, 7182*h*.
-quinone dioxime deriv., as vulcanizing agent, 5623*d*.
alts, 7445*e*.
with 2-amino-1,4,5,6-tetrahydropyrimidine, P 6670*e*.
with biguanides, P 7040*d*.
with N heterocyclics, P 5049*f*.
phenol from, P 2638*g*.
nd salts, in acetic anhydride, behavior of, 2110*f*.
alts with biguanide and its derivs., P 4292*h*.
ilver salt, solvolysis in liquid HCN, 516*h*.
odium salt, purification of concd. oil solns. of, P 9434*d*.
odium salt, tannin soln. from *Acacia richii* and quebracho by, 1590*g*.
hallous salt, 3352*g*.
**enesulfonic acid**, *p*-**acetamido-**. See *Sulfanilic acid, N-acetyl-*.
, **2-acetamido-5-amino-**, azo dyes from, P 4481*a*, P 7701*h*, P 7702*a*, P 9463*cfh*.
, **5-(2-acetamido-4-aminophenylazo)-2-chloro-**, azo stilbene dyes from, P 4863*fh*.
, *m*-(**5-acetamido-2-aminophenylsulfonyl**)-, azo dye from, P 2440*g*.
, *m*-**amino-**. See *Metanilic acid*.
—, *o*-**amino-**, binding by proteins, 1241*e*.
esters, 4249*e*.
, *p*-**amino-**. See *Sulfanilic acid*.
, **5-amino-2-(*p*-aminoanilino)-**, trisazo dye from, P 4481*d*.
, **2-amino-5-[*m*(and *p*)-aminobenzamido]-**, azo dyes from, P 9466*e*.
, **5-amino-2-anilino-**, azo dye from, P 4864*d*.
*p*-(**5-amino-2*H*-benzotriazol-2-yl**)-, stilbene dyes from, P 1575*e*.
, **2-amino-5-chloro-**, esters, 4249*e*.
*m*-(**5-amino-2-chloro-4-hydroxybenzoyl**)-, azo dye from, P 8691*a*
, **2-amino-4,5-dichloro-**, *N*-acyl derivs., P 857*c*.
*m*-(**3-amino-4-hydroxybenzoyl**)-, azo dye from, P 8690*i*.
*m*-(**3-amino-4-hydroxyphenylazo**)-, tetrakisazo dye from, P 4867*d*.
*p*-(**3-amino-4-hydroxyphenylazo**)-tetrakisazo dye from, P 4867*e*.
**3-(3-amino-4-hydroxyphenylazo)-4-methoxy-**, tetrakisazo dye from, P 4867*e*.
, **5-amino-2,3′-iminodi-**, azo dye from, P 4864*d*.
*m*-(**4-amino-2-methoxyphenylazo**)-, stilbene dyes from, P 1574*i*.
*p*-(**4-amino-5-methoxy-*o*-tolylazo**)-, azo dye from, P 7694*g*.
stilbene triazine dye from, P 5965*h*.
, **2-amino-5-(6-methyl-2-benzothiazolyl)-**, stilbene dyes from, P 1575*e*.
, **?-amino-?-(6-methyl-2-benzothiazolyl) - ? - (3 - methyl - 5 - oxo-2 - pyrazolin - 1 - yl) - (?)**, azo dyes from, P 9466*g*.
, (**3-amino-*N*-methyl-*p*-tolylsulfonamido**)-, disazo dyes from, P 7701*f*.
, (**6-amino-*N*-methyl-*m*-tolylsulfonamido**)-, disazo dye from, P 7701*f*.
, **aminonitro-**, as photographic contrast depressants, P 958*g*.
, **2-amino-5-nitro-**, P 857*h*.
azo dyes from, P 862*e*, P 8159*f*. P 9464*e*.
, **2-amino-5-*p*-nitrobenzamido-**, azo dyes from, P 9466*e*.
, **5-amino-5′-nitro-2,2′-ethylenebis-**, azo dyes from, P 8151*g*.
—, [*α*(or *β*)-**aminophenethyl**]-, sodium salt, and anthraquinone dye from, P 8163*b*, P 9468*f*.
—, **5-amino-2-*p*-phenetidino-**, nitro dye from, P 7236*f*.
—, *p*-(*p*-**aminophenylazo**)-, azo stilbene dye from, P 5198*d*.
polyazo dye from, P 5196*a*.
stilbene triazine dye from, P 5965*gh*.
—, *m*-(*o*-**aminophenylsulfonyl**)-, azo dye from, P 2440*d*.
—, **5-(*o*-aminophenylsulfonyl)-2-chloro-**, azo dye from, P 2440*g*.
**2-(4-amino-*o*-tolylazo)-5-nitro-**, azo dyes from, P 862*e*.
, *p*-**anilino-**. See *Sulfanilic acid, N-phenyl-*.
, *p*-[**4-(antipyrylazo)-5-hydroxy-3-methyl-1-pyrazolyl**]-, P 8150*i*.
—, *p*-**benzamido-**. See *Sulfanilic acid, N-benzoyl-*.
—, **5,5′-(*p*-biphenylenebisazo)bis-[2,4-dihydroxy-**, salts, 2596*a*.
—, **bis(methylcyclohexyl)-**, sodium salt, P 3640*a*.
—, *p*-**bromo-**, as insecticide, 2359*h*.
—, *tert*-**butyldecyl-**, sodium salt, P 3640*a*.
—, *p*-**carbamylazo-**, potassium salt, 171*d*.
—, *p*-**chloro-**, *p*-chlorophenyl ester, as acaricide and insecticide, 3137*i*.
—, **5-chloro-2-[4-chloro-2-(3-(3,4-dichlorophenyl)ureido]phenoxy**]-, sodium salt, for mothproofing, 7186*d*, 8089*d*.
—, **4-chloro-3-[5-hydroxy-3-methyl-4 - (2 - nitro - 4 - [*β* - oxo - *α*-(*p* - sulfophenylazo)butyrylamino]-phenylazo) - 1 - pyrazolyl]-**, P 9463*b*.
—, [(4(and 6)**chlorometanilyl**]**methylamino**]-, disazo dyes from, P 7701*f*.
—, **2-chloro-3-[3-methyl-4**(or **5**)**-oxo-2-pyrazolin-1-yl]-**, textile assistant from, P 4498*h*.
—, **3-chloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, polyazo dye from, P 4479*e*.
—, **4-chloro-3-(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 4867*h*, P 9463*b*.
—, **5-chloro-2-(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dye from, P 4867*i*.
—, **5-chloro-2-nitro-**, esters, 4249*e*.
—, **cyclohexyl-**, salts, 2957*g*.
—, **cyclopentyl-**, salts, 2957*g*.
—, **decyl-**, sodium salt, effect on lysozyme, 8405*i*.
sodium salt, identification by x-ray diffraction patterns, 6915*h*.
—, *p*-**decyl-**, sodium salt, as wetting agent in phenothiazine prepn., P 3572*b*
—, *p*-(**diallylamino**)-, as textile printing aid, P 8171*b*
—, **diamino-**, dyes from, P 9460*i*.
—, **2,4-diamino-**, stilbene triazine dye from, P 5965*i*.
—, **2,5-diamino-**, in hair dyes, 9386*h*
—, **2,2′-diazoaminobis[5-(6-methyl-2-benzothiazolyl)-**, disodium salt—see *Titan Yellow*.
—, *p*-(**dibutylaminophenylazo**)-, silica gel prepd. in presence of, 6489*c*.
—, **4,5 - dichloro - 2 - [3 - chloro - 4-(*p* - chlorophenoxy)benzamido]-**, P 857*d*.
—, **4,5 - dichloro - 2 - [*p* - (*o* - chlorophenoxy)benzamido]-**, sodium salt, as mothproofing agent, P 814*c*.
—, **4,5-dichloro-2-[*p*-(*p*-chlorophenoxy)phenylsulfonamido]-**, P 857*d*.
—, **4,5-dichloro-2-(3-dibenzofurylcarbonylamino)-**, P 857*e*.
—, **4,5-dichloro-2-[*p*-(2,4-dichlorophenoxy)benzamido]-**, sodium salt, P 685*a*.
—, **3,3′-[(2,5-dichloro-3,6-dioxo-1,4-cyclohexadien - 1,4 - ylene)diimino]bis[6 - (1,2 - dimethyl - 6-benzimidazolylamino)-**, disodium salt, P 7236*c*.
—, **2,5-dichloro-4-(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 861*a*, P 4867*hi*, P 5600*b*, P 8689*i*.
—, **4,5-dichloro-2-*p*-phenoxybenzamido-**, P 857*d*.
—, **4,5-dichloro-2-(*p*-phenoxyphenylsulfonamido)-**, P 857*d*.
—, *p*-**diethylamino-**, as textile printing aid, P 8171*b*.
—, *p*-(**diethylaminophenylazo**)-, silica gel prepd. in presence of, 6489*c*.
—, **diheptyl-**, sodium salt, P 3640*a*.
—, **dihydroxy-**, resinous product from *m*-phenylenediamine and, decolorization of starch hydrolyzates with, 5980*d*.
—, *p*-**(3,4-dihydroxy-1-naphthylazo)-**, in aluminum analysis, 4175*f*.
—, **2,4-dihydroxy-5-(*p*-nitrophenylazo)-**, salts, 2595*i*.
—, *p*-**(3,4-dihydroxyphenylazo)-**, in aluminum analysis, 4175*f*.
in colorimetry, 4174*h*.
—, **2-(3,4-dihydroxyphenylazo)-5-nitro-**, in colorimetry, 4174*h*.
—, **2-(*m*-dimethylaminoanilino)-5-nitro-**, 648*b*.
—, *p* - (**dimethylaminophenylazo**)-, polarography of, 7835*h*.
sodium salt—see *Methyl orange*.
—, **3,5-dinitro-2-(2,3,6,7-tetrahydro-6 - hydroxy - 5 - methyl - 5*H*-pyrido[1,2,3 - *de*] - 1,4 - benzoxazin-9-ylazo)-**, P 2782*b*.
—, **dinonyl-**, sodium salt, P 3640*a*.
—, **dioctyl-**, sodium salt, P 3640*a*.
—, *p*-(**dipropylaminophenylazo**)-, silica gel prepd. in presence of, 6489*c*.
—, **dodecyl-**, in foaming control in lubricating oils, 6815*c*.
free-flowing mixt. with $Na_4P_2O_7$, P 9495*c*.
in leaf removal from shrubs and trees before storage, 1893*a*.
in scouring of woolens, 5956*e*.
sodium salt, identification by x-ray diffraction patterns, 6915*h*
sodium salt, zein solns. in, 3690*e*.
yeast-inhibiting power of, 4783*i*.
—, *p*-**dodecyl-**, sodium salt, as wetting agent in phenothiazine prepn., P 3572*b*.
—, *p*-(**ethylmercurimercapto**)-, sodium salt—see *Sulfomerthiolate*.
—, **4-(2-ethyltetrahydro-3,5-dioxo-1,2,4,2*H* - thiadiazin - 6 - ylazo)-3-nitro-**, 1,1-dioxide, sodium salt, P 4868*f*.
—, *m*-**formyl-**, sodium salt, Cannizzaro reaction with, catalysts in, 4651*d*.
sodium salt, dismutation kinetics of, 4547*a*.
—, *o*-**formyl-**, reaction product with stearamide and $NaHSO_3$, P 8712*h*.
—, *p*-(**guanylguanidino**)-, 7365*cf*.
copper deriv., 8222*c*.
—, **4-(heptadecylmethylamino)-3-(1 - hydroxy - 2 - naphthoylamino)-**, dye from, light absorption by, 7232*b*.
—, **heptyl-**, sodium salt, P 3640*a*.
—, *p*-**hydrazino-**, azamethine dye from, P 8166*e*
tetrahydrazide with phthalocyaninetetrasulfonic acid, P 4487*d*.
—, **hydroxy-**. See *Phenolsulfonic acid*.
—, *p*-(**hydroxymercuri**)-, hydrogen sulfate, 171*f*.
—, *m*-(**4-hydroxymetanilyl**)-, azo dyes from, P 1987*g*, P 8148*c*.
—, *p*-(**2-hydroxy-1-naphthylazo**)-, sodium salt, compd. with streptomycin, P 3154*h*.
sodium salt, diffusion in agar-agar gels, 7788*d*.
effect on benzidine-peroxidase color, 7521*e*.
prepn. of, electrolytically, 4961*e*.
viscosity of medium and polarography of, 4930*a*.
—, *p*-(**8-hydroxy-1-naphthylazo**)-, as indicator, 4175*a*.
—, **6-(2-hydroxy-1-naphthylazo)-2,3′-azodi-**, disodium salt, monograph for, 8103*c*.
—, *m* - (**7 - hydroxy - 1 - naphthylcarbamyl**)-, azo dye from, P 5598*a*.
—, *p*-(*p*-**hydroxyphenylazo**)-, prepn. of, 4725*e*.
—, (**metanilylmethylamino**)-, disazo dyes from, P 7701*d*.
—, **methylcyclohexyl-**, sodium salt, P 3640*a*.
—, *m*-[**3-methyl-4**(or **5**)**-oxo-2-pyrazolin-1-yl**]-, textile assistant from, P 4498*g*.
—, *m*(and *p*)-(**3-methyl-5-oxo-2-pyrazolin-1-yl**)-, disazo dyes from, P 8157*d*.
—, *p*-(**3-methyl-5-oxo-2-pyrazolin-1-yl**)-, azo dyes from, P 2781*b*, P 7698*gh*, P 8146*a*, P 8150*i*, P 9466*g*.
disazo dyes from 3,3′-dimethoxybenzidine and, P 8158*i*.
dyes from, P 9461*a*.
reaction product with 6-(chloromethyl)-1,2,3,4-tetrahydronaphthalene, as wetting agent, P 2452*g*.
reaction with *p*-nitrobenzenediazonium compds., 595*g*.
stilbene dyes from, P 1575*e*, P 5959*d*.
—, **3-(3-methyl-5-oxo-2-pyrazolin-1-yl)-4-*p*-tolylsulfonyl-**, azo dye from, P 4475*c*.
—, (*N*-**methylsulfanilamido**)-, disazo dye from, P 7701*f*.
—, **nitro-**, sodium salt, solvolysis in abs. $HNO_3$, 6495*h*.
soly. in anhyd. $HNO_3$, 5265*a*.
—, *m*-**nitro-**, sodium salt, identification by x-ray diffraction patterns, 6915*h*.
—, *o*-**nitro-**, esters, 4249*e*.
—, *p*-**nitro-**, 2-pyridyl ester, 3417*b*.

——, **5-nitro-2-(*p*-nitrophenethyl)-**, azo dye from, P 7694*g*.
——, **5 - nitro - 2 - (tetrahydro - 2,4-dimethyl - 5 - oxo - 3 - thioxo - 1,2,4,2*H* - thiadiazin - 6 - ylazo)-**, 1,1-dioxide, P 4868*g*.
——, **5-nitro-2-(1-tetrahydrofurfuryl-1*H* - naphtho[1,2]triazol - 5 - ylazo)-**, P 3626*a*.
——, **5-nitro-2-(2,3,6,7-tetrahydro-6-hydroxy - 5*H* - pyrido[1,2,3 - *de*]-1,4 - benzoxazin - 9 - ylazo)-**, P 2782*a*.
——, **5-nitro-2-(tetrahydro-5-oxo-4-phenyl - 3 - thioxo - 1,2,4,2*H*-thiadiazin-6-ylazo)-**, 1,1-dioxide, Na salt, P 4868*f*.
——, **nonyl-**, sodium salt, P 3640*a*.
——, **octyl-**, sodium salt, P 3640*a*.
——, **phenyl-**. See *Biphenylsulfonic acid*.
——, ***p*-phenylazo-**, esters, 7937*a*.
trihydrate, prepn. of, 4725*d*.
——, **3,3'-[*p*-phenylenebis[(methylimino)carbonyl]]bis[6 - amino-**, P 860*d*.
——, **2,2'-[*p*-phenylenebis[(methylimino)carbonyl]]bis[5-nitro-**, P 860*c*.
——, ***m*-(phenylsulfonyl)-**, for improvement of electrodeposition of Ni, P 6095*b*.
——, ***m*-(2-styryl-5-benzimidazolylcarbamyl)-**, sodium salt, P 8174*b*.
——, ***m*,*m'*-sulfonyldi-**, for improvement of electrodeposition of Ni, P 6095*b*.
——, ***p*-2-sulfo-1-pyrryl-**†, barium salt, 7016*c*.
——, **trisopropyl-**, isomers, and sodium salts, as colloidal electrolytes, 6041*f*
——, **2,4,6-trimethyl-**. See *Mesitylene sulfonic acid*.
**Benzenesulfonic anhydride**, in acetic anhydride, behavior of, 2110*h*.
formation from benzophenone oxime benzenesulfonate, 2594*i*.
**Benzenesulfonotoluidide**, formaldehyde resin from, 3995*f*.
***m*-Benzenesulfonotoluidide**, **6'-nitro-**, (omitted from abstr.), 1426*f*.
***o*-Benzenesulfonotoluidide**, **α-hydroxy-α,α-diphenyl-**, 7006*g*.
***p*-Benzenesulfonotoluidide**, formation of, from reaction of benzophenone oxime benzenesulfonate with *p*-toluidine, 2594*i*.
——, **4-chloro-2'-hydroxy-3-nitro-**, P 5042*h*.
——, **2'-nitro-**, 1426*f*.
**3,5-Benzenesulfonoxylidide**, **4-(2,4-diaminophenylazo)-**, 4648*i*
——, **α,α,α,α',α',α'-hexafluoro-4-nitro-**, 4648*i*.
——, **4-nitro-**, 4648*i*.
**Benzenesulfonyl chloride**, gelatin reaction product, 9512*e*.
hydrolysis of, kinetics of, 926*h*.
——, ***p*-amino-**. See *Sulfanilyl chloride*.
——, ***p*-(*p*-chlorophenoxy)-**, P 857*d*.
——, ***m*(and *p*)-nitro-**, reaction with amines, 4630*a*.
——, ***p*-nitro-**, P 6232*a*.
——, ***p*-phenoxy-**, P 857*d*.
——, ***ar*-phenyl-**. See *Biphenylsulfonyl chloride*.
——, ***p*-(1,2,3,2*H*-triazol-2-yl)-**, 2620*b*
**Benzenesulfonyl sulfide**, crystal structure of, 6881*c*.
**1,2,3,4-Benzenetetracarboxylic acid**. See *Mellophanic acid*.
**1,2,4,5-Benzenetetracarboxylic acid**. See *Pyromellitic acid*.
**1,2,3,4-Benzenetetrol**. See *Apionol*.
**1,2,3,5-Benzenetetrol**, flavonic derivs. of, 1772*bi*.
**Benzenethiol**, from benzyl phenyl sulfide, 2178*c*.
as corrosion inhibitor against $CO_2$ in petroleum wells and processing, P 7221*h*.
detn. of, 8978*i*.
distn. from alkyl phenol mixt., P 4525*a*.
effect on polymerization of allyl and methacrylate compds., 8199*i*.
emulsions of, and its derivs., manuf and improving millability of butadiene styrene polymers with, P 7258*d*.
formation of, from pyrolysis of $Ph_2S_2$, 6179*g*.
and lithium deriv., 6574*f*.
oxidation of, in rubber, 5622*b*.
phthalocyanine dyes from, P 7710*e*.
phys. constants of, 2956*d*.
as polymerization inhibitor and initiator in isoprene, 5621*e*.
reaction with hydracrylic acid lactone, 3393*a*.
spectrum and structure of, 7410*d*.
as stabilizer for polysulfone resins, P 9527*e*.
thallous deriv., 3352*h*.
zinc deriv., for rubber improvement, P 5224*c*.
**Benzenethiol, amino-**, 6179*f*.
——, ***o*-amino-**, as antidote for bis(2-chloroethyl) sulfide injury to eyes, 767*a*.
reaction with ethylene oxides, 7421*b*.
zinc deriv., P 1438*c*.
——, ***p*-amino-**, 8388*h*.
sodium deriv., 6574*d*.
——, **2-amino-5-ethoxy-**, zinc deriv., P 1438*f*.
——, **3-butyl-5-ethyl-**, P 1063*c*.
——, **2,4-diamino-**, dihydrochloride, 222*h*.
——, **3,5-diethyl-**, P 1063*b*.
——, ***p*-dimethylamino-**, 6575*a*.
——, **2,4-dinitro-**, sodium deriv., reaction with nitro compds., 3387*h*.
——, **3-ethyl-5-methyl-**, P 1063*b*.
——, **methyl-**. See *ar-Toluenethiol*.
——, **nitro-**, reduction of, 6179*f*.
——, ***o*(and *p*)-nitro-**, sodium derivs., reactions of, 3387*d*.
——, **phenyl-**. See *Biphenylthiol*.
——, **(2,2,2-trichloroethylidene)bis-[nitro-**, dicarbamate, isomers, 4657*h*
——, ***p*,*p'*-(2,2,2-trichloroethylidene)-di-**, dicarbamate, 4657*g*.
**1,2,3-Benzenetriamine**, and derivs., 3384*e*
**1,2,4-Benzenetriamine**, **N¹-phenyl-**, reaction products with maleic anhydride polymers with Me methacrylate, 8202*i*.
——, **N²-phenyl-**, and sulfo deriv., in hair dyes, 9386*h*.
**1,3,5-Benzenetriamine**, and derivs., P 3456*b*
——, **2-methyl-**. See *Toluene 2,4,6-triamine*
**1,2,3-Benzenetricarboxylic acid**. See *Hemimellitic acid*
**1,2,4-Benzenetricarboxylic acid**. See *Trimellitic acid*.
**1,3,5-Benzenetricarboxylic acid**. See *Trimesic acid*.
**1,3,5-Benzenetrimethanol**. See *α¹,α¹,α³ Mesitylenetriol*.
**1,2,3-Benzenetriol**. See *Pyrogallol*.
**1,2,4-Benzenetriol**, in urine after benzene administration, 6313*c*.
——, **?-cyclohexyl-**, triacetate, isomers, 1372*d*
**1,3,5-Benzenetriol** See *Phloroglucinol*
***p*-Benzenone**. See *2,5 Cyclohexadien-1-one*.
——, **4-(*p*-hydroxyphenylimino)-**. See *Indophenol*
**Benzenoneindophenol** See *Indophenol*.
**Benzenylamidine** See *Benzamidine*.
**Benzenyl chloride** See *Toluene, α,α,α-trichloro-*.
**Benzenyl fluoride**. See *Toluene, α,α,α-trifluoro-*.
**Benzerythrene**. See *p Quaterphenyl*.
**Benzestrol**, dipalmitate, P 4700*c*.
**Benzhydrol** (*diphenylmethanol*),

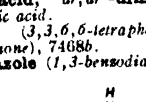


and acetate, oxidation of, 2194*c*.
from benzophenone, 1349*a*.
derivs., P 6666*f*.
and derivs., 4217*b*.
esters, 600*b*.
formation of, in cleavage of *N*-substituted benzhydrylamines, 193*a*.
oxidation of (attempted), 1368*b*.
oxidation of, to $Ph_2CO$, 191*e*.
system: ethylenediamine–, 2082*c*.
toxicity to roaches, 7628*g*.
**Benzhydrol, α-allyl-**†, and reactions with HCl and $H_2SO_4$, 3776*i*.
——, **α-(aminomethyl)-**, deamination of, 2600*d*.
——, **α-(3-aminopropyl)-**, *N*, *N*-dialkyl derivs., P 5423*h*.
——, **α-benzyl-**. See *Ethanol, 1,1,2-triphenyl-*.
——, **α-[2-(benzylmethylamino)ethyl]-**, and hydrochloride, P 5417*g*.
——, **4,4'-bis(methylmercapto)-**, 7407*h*
——, **4-chloro-**, 6155*g*.
——, **α-(chloromethyl)-**, 2600*e*.
——, **4,4'-diamino-**, *N*-derivs., in chloroprene copolymerization, P 9519*e*.
*N*, *N*, *N'*, *N'*-tetraalkyl derivs., as polymerization promoters, P 5280*f*.
——, **4,4'-dibromo-**, toxicity to roaches, 7628*g*.
**α-(3-dibutylaminopropyl)-**, hydrochloride, P 5424*a*.
——, **4,4'-dichloro-**, as acaricide and insecticide, 3137*h*.
toxicity to roaches, 7628*g*.
——, **4,4'-dichloro-α-methyl-**, as acide, 1523*b*.
as acaricide and insecticide, 3137*i*.
in mite control, 1899*f*.
——, **α-(3-diethylaminopropyl)-**, hydrochloride, P 5423*i*.
**4,4'-difluoro-**, 9332*f*.
toxicity to roaches, 7628*g*.
——, **2,3'-dimethoxy-**, P 4699*c*.
——, **4,4'-dimethoxy-**, toxicity to roaches, 7628*g*.
——, **4,4'-dimethyl-**, toxicity to roaches, 7628*g*.
——, **2-(2-dimethylaminoethoxy)-**, hydrochloride, 2969*h*.
——, **α - (2 - dimethylaminoethyl)-**, 6177*g*.
and derivs., P 5417*f*.
——, **α - (2 - dimethylaminoethyl) - 2-methyl-**, and propionate, P 5417*g*
——, **dodecahydro-**. See *Methanol dicyclohexyl-*.
——, **α,α'-ethynylenebis-**. See *2 Butyne-1,4-diol, tetraphenyl-*.
——, **2(3 and 4)-methyl-**, 3810*i*, 3811*a*
——, **4-methyl-**, 3810*i*.
——, **α-(2-methylaminoethyl)-**, and hydrochloride, P 5417*g*.
——, **4-methylmercapto-**, 7407*h*
——, **3-nitro-**, and 3,5-dinitrobenzoate, 565*e*.
——, **α-piperidyl-**. See *Piperidinemethanol, α,α-diphenyl-*.
——, **α-[3-(1-piperidyl)propyl]-**, hydrochloride, P 6241*e*.
——, **α-pyridyl-**. See *Pyridinemethanol, α,α diphenyl-*.
**Benzhydryl** (*free radical*), electronic structure of, 2512*a*.
formation of, kinetics of, 5387*f*
——, **α-benzoyl-**, anionic nature of, 1753*h*.
——, ***m*,*m'*(and *p*,*p'*)-dimethyl-**, formation of, kinetics of, 5387*f*.
——, ***m*(*o* and *p*)-methyl-**, formation of, kinetics of, 5387*f*.
**Benzhydryl amidophosphate**, $C_{13}H_{12}(H_2N)PO_3$, 600*b*.
**Benzhydrylamine**, *N* derivs., cleavage of, 192*h*.
metalation and carbonation of, 2981*c*
——, **N-benzhydrylidene-**, reaction with $KNH_2$ in liquid $NH_3$, 2981*c*
——, **N-benzylidene-**, reaction with $KNH_2$ in liquid $NH_3$, 2981*a*
——, **N-butyl-**, and hydrochloride, 1341*a*
——, **4-chloro-**, sulfonic acid deriv., Ca salt, anthraquinone dyes from, P 8163*c*, P 9468*f*.
——, **N-(2-chloroethyl)- N-ethyl-**, hydrochloride, effect on adrenaline-induced pulmonary edema, 7582*i*
hydrochloride, effect on adrenaline toxicity, 311*a*.
hydrochloride, effect on ventricular fibrillation and on heart, 7131*f*.
——, **N, N-diethyl-**, and picrate, 4217*c*
——, **N-(α,α-diphenyl-γ-butenyl)-**, 192*i*
——, **N-isopropyl-**, reaction with KNH in liquid $NH_3$, 2981*d*.
——, **4-(methylsulfonyl)-**, 7450*c*.
——, **N-phenyl-**, hydrochloride, pyrolysis of, 193*a*.
reaction with $KNH_2$ in liquid $NH_3$, 2981*d*.
——, **4-(phenylsulfonyl)-**, 7450*c*.
——, **N-propyl-**, and hydrochloride, 1341*a*.
——, **N, N,α-trimethyl-**, and picrate, 6177*d*.
**Benzhydryl benzyl phosphate**, $C_{13}H_{11}(C_7H_7)_2PO_4$, 600*c*.
**Benzhydryl ether**, 600*b*.
**Benzhydrylidene** (*free radical*), formation in cleavage of *N*-substituted benzhydrylamines, 192*i*.
**Benzhydrylidenimine**, **N-chloro-** and compd. with $SbCl_5$, 7464*f*.
——, **N,4-dichloro-**, isomers, 7464*h*
**Benzhydryl mercaptan** See *Methanethiol, diphenyl-*.
**Benzhydryl phosphite**, $(C_{13}H_{11})_2HPO_3$, 600*b*.

**Benzidine** (*4,4'-diaminobiphenyl*),

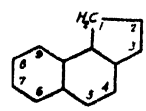


(See also *Ammines*.)
adsorption by activated C, 6037*e*.
as antioxidant and odor inhibitor in alkyl benzene sulfonates, P 6845*c*.
azamethine dye from, P 8166*e*.
azo dyes from, 4901*g*, P 5600*a*, P 7711*d*, P 9464*f*, P 9466*e*.
azo 5-pyrazolone dyes from, P 8149*f*.
color reactions with adsorbents, 6035*f*.
color reaction with peroxidase, effect of dyes on, 7521*c*.
derivs., azo dyes from, P 2441*a*.
derivs., in analysis, 2115*c*.
deuterium exchange with, 5011*g*.
*N, N'* - diacyl - *ar,ar'* - bis(carboxyalkoxy) derivs., P 2442*f*.
di-2-anthraquinonesulfonate, 3815*b*.
4,4'-dinitrobiphenyl from, 1734*d*
effect on wettability of pigments, 8698*f*
from hydrazobenzene, 3810*a*.
identification of, and distinguishing from *o*-tolidine, 6945*d*.
iodate and sulfate, thermal stability of analytical ppts. of, 8971*hi*.
naphthoquinoneimide dye from, P 8167*b*.
nitrobenzene detn. in, 4977*a*.
reaction product with cyanoguanidine and its subsequent reaction product with 1-chloro-2,4-dinitrobenzene, P 3968*e*
reaction with Na vanadate, catalysis by oxalic acid, 4549*a*.
relaxation period of, 6021*b*
rubber stiffening by, 7738*e*
salts with sulfonic acids, 9044*e*
solv. in Na xylenesulfonate solns., 1242*e*
system formic acid–, 6066*c*.
tetrakisazo dye from, P 4478*d*.
trisazo dye from, P 5195*e*
tumors in industry of, 8073*g*
tumors of bladder from, 9297*i*.
**Benzidine, N-acetyl-**. See *Acetanilide, p-(p-aminophenyl)-*.
**, N, N'-bis(2-diethylaminoethyl)-**, and salts, 3381*g*.
**, N, N'-bis(3-diethylaminopropyl)-**, and tricrate, 3381*h*.
**, N, N'-dibenzylidene-**, colloidal, rotating magnetic field in study of, 7291*f*.
dipole moments and elec. birefringence of, 3675*bl*
**, 3,3'-dibromo-**, 2979*d*
**, N, N'-dibutyl-**, and dihydrochloride, 3380*h*.
**, dichloro-**, azo dye from, P 7698*e*
**, 3,3'-dichloro-**, azo pigments from, for rubber and resinous products, P 7746*e*.
**, 2,2'-dichloro-5,5'-diethoxy-**, 4150*g*
**, dimethoxy-**, disazo pigment from, P 8178*b*.
**, 3,3'-dimethoxy-**, azamethine dye from, P 8166*d*.
azo dyes from, P 2441*a*, P 5196*e*, P 5598*di*, P 5962*h*, P 5963*i*, P 5964*abdefg*, P 6832*h*, P 7702*h*, P 8158*d*, P 8159*b*, P 8162*i*, P 9466*e*.
azo pigment from, for rubber and resinous products, P 7746*e*.
dyes from, P 9460*h*.
tetrakisazo dyes from, Cu-contg., P 8144*e*.
tungsten detn., 8310*b*.
vanadium detn., 8310*d*.
**, diphenyl-**, reaction with Na vanadate, catalysis by oxalic acid, 4549*a*.
**, N, N'-diphenyl-**, in analysis, 0935*c*.
**, N, N, N', N'-tetraamyl-**, and salts, 3380*h*
**, N, N, N', N'-tetrabutyl-**, and derivs., 3380*f*.
**, 2,2',5,5'-tetrachloro-**, prepn. by electrolytic reduction, 3729*c*.
**, N, N, N', N'-tetrakis(2-bromoethyl)-**, 7443*e*.
**, N, N, N', N'-tetrakis(2-chloroethyl)-**, 7443*e*.
**, N, N, N', N'-tetrakis(2-chloroethyl)-3,3'-dimethoxy-**, 7443*e*.
**idine rearrangement**. See *Rearrangements*.
**n** (*bibenzoyl*), from benzoin, 1368*a*.
m benzoin oxidation in the presence of Raney Ni, 191*e*.
chigger control, 1518*f*, 8600*a*, 9349*b*.
avage of, with *tert*-BuOK, 1340*e*.
nplex with $H_3BO_3$, 6893*i*.
npression of single crystals of, 2063*c*.
condensation with diaminopyrimidine derivs., 3010*b*.
and derivs., 1035*d*.
derivs., reduction of mixed hindered, 5773*c*.
dioxime—see *Glyoxime, diphenyl-*.
formation of, in acetyl peroxide decompn. in hydrobenzoin, 3776*b*.
hydrazones, reaction with NaOH, 123*a*.
in mite control in uniforms, 3554*i*.
reaction (photochem.) with Et orthoformate, 6515*e*.
reaction with urea, 1045*a*.
reduction of, to hydrobenzoin, 2570*f*
spectrum of, 3715*b*, 4575*c*.
system: $AcNH_2$–, 3099*d*.
**Benzil, 3,4,3',4'-bis(methylenedioxy)-**. See *Piperil*.
**, 3-bromo-2,4,6-trimethyl-**, 5773*i*.
**, 5,5'-dibromo-2,2'-bis(2-diethylaminoethoxy)-**, and dihydrochloride, 4246*i*.
**, 5,5'-dibromo-2,2'-bis(methoxymethoxy)-**, 4246*g*.
**, 3,3'-dibromo-4,4',5,5'-tetrahydroxy-**, 5387*i*.
**, 5,5' - dibromo - 2,2',3,3' - tetrahydroxy-**, 5387*i*.
**, 5,5'-dibromo-2,2',4,4'-tetramethoxy-**, 1036*a*.
**, 4,4'-dichloro-**, 199*b*.
as insecticide, 2359*h*.
and monoöxime, 3369*a*.
**, 2,2' - diethyl - 3,3' - dimethoxy-**, 197*a*.
**, 2,2'-dihydroxy-3,3'-dimethoxy-**. See *Salicil*.
**, 3,3'-dihydroxy-4,4-dimethoxy-**, 1036*d*.
**, 4,4'-dihydroxy-2,2'-dimethoxy-**, 1036*c*.
**, 2,2'(and 3,3')-dimethoxy-**, 3010*b*.
**, 4,4'-dimethoxy-**. See *Anisil*.
**, 2,2',3,3',4,4'-hexahydroxy-**. See *Pyrogallil*.
**, 2,2',4,4',5,5'-hexahydroxy-**, 1036*f*.
**, 4-methoxy-2,6-dimethyl-**, 5773*c*.
**, 2,2',4,4',6-pentanitro-**, and compd. with thiophthene, 1733*e*
**, 3,3',5,5'-tetrabromo-4,4'-dihydroxy-**, 1036*e*
**, 2,2',4,4'-tetraethoxy-**, 1036*a*.
**, 2,2',3,3'-tetrahydroxy-**, 5387*i*.
**, 2,2',4,4'-tetrahydroxy-**. See *β-Resorcil*.
**, 2,2',5,5'-tetrahydroxy-**. See *Gentisil*.
**, 2,2',3,3'-tetramethoxy-** See *o-Veratril*.
**, 2,2',4,4'-tetramethoxy-**, 1036*d*
**, 3,3',4,4'-tetramethoxy-**. See *Veratril*.
**, 2,3,4,6(and 2,3,5,6)-tetramethyl-**, 5773*f*.
**, 2,4,6-triethyl-**, 5773*e*.
**Benzilic acid** (*diphenylglycolic acid*), from benzil, 1349*e*.
3 - (2 - diethylaminoethylmercapto)propyl ester, citrate (salt), 3395*c*.
ethyl ester, hydrogenation of, 573*d*.
lactide†, 7468*b*.
methyl ester, hydrogenation of, P 2636*d*.
2 (4-morpholinyl)ethyl ester, -HCl, P 9086*h*.
reaction with urea, 1045*b*.
reduction of, to $Ph_2CH_2$, 191*g*.
**Benzilic acid, *ar,ar'*-dimethyl-**. See *Tolilic acid*.
**Benzilide** (*3,3,6,6-tetraphenyl-2,5-p dioxanedione*), 7468*b*.
**Benzimidazole** (*1,3-benzodiazole*),

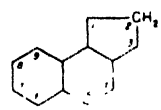


derivs., P 5426*bcde*, P 5807*i*.
derivs., bleaching cellulosic textiles with soap contg. fluorescent, P 5604*e*.
dyes, 4015*b*.
as fungicide, 6351*f*.
identification of, 8365*h*.
ionization of, 3416*e*.
paludrine analogs, 1404*h*.
in photographic emulsions and developers, 7362*c*.
spectrum of, 1655*e*.
**, acetamido-2-(*p*-acetamidostyryl)-**, P 5604*e*.
**, 2-amino-**, spectrum of, 1655*e*.
**, 2-amino-5(or 6)-chloro-**, spectrum of, 1655*e*.
**, 6-amino-1,2-dimethyl-**, dioxazine dye from, P 7236*e*.
**, 2-(2-aminoethyl)-**, histamine activity of, 3520*i*.
**, 2-[(benzyl(2-chloroethyl)amino]methyl]-**, in cancer therapy, 5505*e*.
**, 1-benzyl-2-heptadecyl-**, disulfonated, P 2008*g*.
**, 2-(2-bromoethyl)-**, 7018*h*.
**, 5(or 6)-chloro-2-(chloromethyl)-**, spectrum of, 1655*e*.
**, 5(or 6) - chloro - 2 - [4 - (3 - dibutylaminopropylamino) - 6 - methyl - 2 - pyrimidylamino]-**, P 3854*c*.
**, 5(or 6) - chloro - 2 - [4 - [3 - (2-diethylaminoethoxy)propylamino]-6 - methyl - 2 - pyrimidylamino]-**, P 3854*c*.
**, 5(or 6) - chloro - 2 - [4 - (2 - diethylaminoethylamino) - 6 - methyl - 2 - pyrimidylamino]-**, P 3854*b*.
**, 5(or 6)-chloro-2-(diethylaminomethyl)-**, and dihydrochloride, 2992*h*.
**, 5(or 6) - chloro - 2 - [4 - (3 - diethylaminopropylamino) - 6-methyl - 2 - pyrimidylamino]-**, 1 3854*b*.
**, 5(or 6) - chloro - 2 - [4 - (3 - dimethylaminopropylamino) - 6-methyl - 2 - pyrimidylamino]-**, P 3854*b*.
**, 2-(1-chloroethyl)-**, 7018*f*.
**, 2-(2-chloroethyl)-**, 7018*g*.
**, 2-(2-chloroisopropyl)-**, 7018*i*.
**, 5(or 6) - chloro - 2 - [4 - [3 - (isopropylmethylamino)propylamino]-6 - methyl - 2 - pyrimidylamino]-**, P 3854*c*.
**, 5(or 6) - chloro - 2 - [4 - methyl - 6-[2 - (1 - piperidyl)ethylamino] - 2-pyrimidylamino]-**, P 3854*c*.
**, 5(or 6)-chloro-2-(1-piperidylmethyl)-**, and hydrochloride, 2992*i*.
spectrum of, 1655*e*.
**, 5(or 6)-chloro-2-propenyl-**, 2993*b*.
**, 2 - [4 - (3 - dibutylaminopropylamino) - 6 - methyl - 2 - pyrimidylamino] - 5(or 6) - methoxy-**, P 3854*c*.
**, 2 - [4 - (2 - diethylaminoethylamino) - 6 - methyl - 2 - pyrimidylamino]-5(or 6)-methyl-**, P 3854*c*.
**, 2-(diethylaminomethyl)-**, spectrum of, 1655*e*.
**, 2 - [4 - (3 - diethylaminopropylamino) - 6 - methyl - 2 - pyrimidylamino]-5(or 6)-methoxy-**, P 3854*c*.
**, 2-[4-(1,3-diethyltetrahydro-2,4,6-trioxo - 5(4*H*) - pyrimidylidene)-2 - butenylidene] - 1,3 diethyl-2,3-dihydro-†**, 4910*h*.
**, 2 - (diisopropylaminomethyl)-**, spectrum of, 1655*e*.
**, 1-(2-dimethylaminoethyl)-**, and derivs., 7021*g*
**, 1-(2-dimethylaminoethyl)-2-isopropyl-**, and dipicrate, 7021*i*.
**1 - (2 - dimethylaminoethyl) - 2-methyl-**, and dihydrochloride, 7021*i*.
**, 1 - (2 - dimethylaminoethyl) - 2-phenyl-**, and dihydrochloride, 7021*i*.
**, 2-(dimethylaminomethyl)-**, spectrum of, 1655*e*.
**, 1,2-dimethyl-6-nitro-**, P 7236*e*.
**, 2-(dipropylaminomethyl)-** spectrum of, 1655*e*.
**, 2-(2-ethoxyethyl)-**, 7018*g*.
**, 2,2'-ethylenebis[6-amino-**, disazo dyes from, P 8145*i*.
**, 2,2'-ethylenebis[amino-1-methyl-**disazo dyes from, P 8146*a*.
**, 2,2'-ethylenebis[1-benzyl-**, as bleaching agent, P 4487*i*.
**, 2,2'-ethylenebis[1-methyl-**, as bleaching agent, P 4488*a*.
**, 2-(ethylmercapto)-**, in photographic emulsions and developers, 7362*c*.
**, 2-(D-gluco-D-gulohexahydroxyhexyl)-***, salts with tartaric acid, P 3031*d*.
**, guanidino-**. See *Guanidine, benzimidazolyl-*.
**, 2-hendecyl-**, sulfonated 1-alkyl derivs., soap contg., P 6794*b*.
sulfonic acid of, condensation products of, P 441*ef*.
**, 2-heptadecyl-**, sulfonic acid of, condensation product with diethylcarbamyl chloride, P 441*g*.
**, mercapto-**. See *Benzimidazolethiol*.
**, 6-*p*-methoxybenzamido-2-(3-*p*-methoxybenzamidostyryl)-†**, and sulfonation of, P 8174*c*.

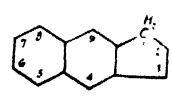
———, **2-methyl-**, condensation products with aldehydes, fluorescent, for whitening cellulose-deriv. filaments and films, P 9474*e*.
identification of, 8365*h*.
as polymerization inhibitor and initiator in isoprene, 5621*f*.
reaction product with 2,4-$(NaO_3S)_2C_6H_3$-CHO, P 5807*i*.
———, **6-nitro-**, nitrate, in photographic latensification, 957*g*.
———, **2,2′-*p*-phenylenebis-**, as bleaching agent, P 6430*b*.
sulfonation product of, and Na salt, P 5426*c*.
-, **2,2′-*p*-phenylenebis[6-amino-**, azo dye from, P 5194*f*.
disazo dyes from, P 8146*a*.
-, **2,2′-(*p*-phenylenedivinylene)bis-**, and sulfonation of, P 8174*c*.
-, **2-(2-pyrimidylamino)-**, and derivs., P 3854*a*.
———, **2-styryl-**, P 5604*e*.
———, **2-styryl-5-*m*-sulfobenzamido-†**, sodium salt, P 8174*b*.
———, **sulfanilamido-†**, *Pseudomonas aeruginosa* inhibition by, 8001*c*.
-, **2-(2-thienyl)-**, 4665*d*.
-, **2-vinyl-**, polymer, 7018*i*.
———, **2,2′-vinylenebis-**, P 4303*b*, P 5217*a*, P 6241*a*.
and sulfonation of, P 8174*c*.
sulfonation product of, P 5426*d*.
———, **2,2′-vinylenebis[6-amino-**, disazo dyes from, P 8146*a*.
———, **2,2′-vinylenebis[amino-1-methyl-**, disazo dyes from, P 8146*a*.
-, **2,2′-vinylenebis[1-benzyl-**, and sulfonation of, P 8174*c*.
———, **2,2′-vinylenebis[*ar*-[(α-dimethylaminoacetamido)methyl]-**, bis-(methyl chloride) deriv., P 8174*c*.
———, **2,2′-vinylenebis[*ar*-isopropyl-**, and sulfonation of, P 8174*c*.
———, **2,2′-vinylenebis[1-isopropyl-**, P 6241*c*.
———, **2,2′-vinylenebis[*ar*-(α-sulfoacetamidomethyl-**, disodium salt, P 8174*a*.
**Benzimidazoleacetamide** (*α benzimidazolylacetamide*).
**2-Benzimidazoleacetamide**, *N*-**2-hydroxyethyl-**, 3364*c*.
**5-Benzimidazoleacetamide**, *N*-**2-hydroxyethyl-**, 3364*c*.
———, **2-hydroxy-*N*-2-hydroxyethyl-**, 3364*c*.
**5-Benzimidazoleacetic acid**, derivs., 3363*g*.
———, **2-hydroxy-**, ethyl ester, 3363*g*.
**5-Benzimidazolebutyric acid** (*γ-5-benzimidazolylbutyric acid*).
———, **octahydro-2-oxo-**, biol. action of, 2244*g*.
**1-Benzimidazolecarboxamide**, *N*-**1-naphthyl-**, 8365*h*.
**1-Benzimidazolecarboxanilide**, 8365*h*
———, **2-methyl-**, 8365*h*.
**Benzimidazoledisulfonic acid, 1-benzyl-2-heptadecyl-**, sodium salt, pharmaceutical carrier for, P 2375*d*.
**2-Benzimidazoleethanol** (*2-(2-benzimidazolyl)ethanol*), 7018*h*.
———, **β-methyl-**, 7018*i*.
**2-Benzimidazolemethanol**, **α-methyl-**, acetate (ester), 7018*g*.
**2-Benzimidazolepropionic acid** (*β 2-benzimidazolylpropionic acid*).
———, **1,5,7-trimethyl-**, 1313*g*.
**Benzimidazolesulfonic acid, 2,2′-(chloro-*p*-phenylene)bis-**, disodium salt, P 8174*b*.
———, **2,2′-ethylenebis-**, disodium salt, P 8174*a*.
———, **2-hendecyl-**, textile assistant from chloroformate of glycerolacetone and, P 1990*i*.
———, **2-heptadecyl-**, sodium salt, reaction product with Me chloroformate, P 896*d*.
———, **2,2′-*p*-phenylenebis-**, disodium salt, P 8174*b*.
———, **2,2′-*p*-phenylenebis[6-methoxy-**, disodium salt, P 8174*b*.
———, **2,2′-vinylenebis-**, disodium salt, P 8174*c*.
**2-Benzimidazolethiol**, antithyroid activity of, 9242*a*.
detection of, 6455*g*.
in photographic emulsions and developers, 7362*bc*.
zinc deriv., as neg. catalyst in rubber deterioration, 7249*a*, 9516*f*.
zinc deriv., in rubber, 7740*c*.
———, **6-nitro-**, 2022*a*.
———, **1-phenyl-**, in photographic emulsions and developers, 7362*b*.
**Benzimidazolium compounds**, 2-(2-anilinovinyl) - 1,3 - dimethyl— iodide, 3001*b*.
2-ethyl-1,3-dimethyl— iodide, 4273*f*.
1,2,3,5-tetramethyl— iodide, hydrolysis of, 4273*g*.
**2-Benzimidazolol, 2,3-dihydro-**, derivs., amide structure assignment to supposed, 4273*e*.
**5-Benzimidazolol**, azo derivs., P 9460*a*.
———, **6-(2-hydroxy-5-nitrophenylazo)-2-methyl-**, P 9460*e*.
**2(3*H*)-Benzimidazolone**, and derivs., P 620*a*.
**Benzimidic acid**, (PhC(:NH)OH).
———, *N*-**(2-bromo-*p*-tolyl)-**, *o*-nitrophenyl and 8-quinolyl esters, 1777*gh*.
———, *N*-**(6-bromo-2,4-xylyl)-**, 8-quinolyl ester, 1777*h*.
———, *N*-**(*o*-chlorophenyl)-**, 8-quinolyl ester, 1777*h*.
———, *p*-**hydroxy-**, ethyl ester carbanilate -HCl, 593*f*.
———, *p*-**hydroxythio-**, ethyl ester carbanilate HCl, 593*f*.
———, *N*-**isopropylthio-**, benzyl ester and picrate, 3014*i*.
———, *N*-**phenyl**, 8-quinolyl and 5,7 dichloro-8-quinolyl esters, 1777*g*.
———, *N*-*o*-**tolyl-**, 8-quinolyl ester, 1777*h*
**Benzimido chloride**. See *Benzimidyl chloride*.
**Benzimidyl chloride**, *N*-(*p*-**nitrophenylsulfonyl)-**, P 6660*i*.
———, *N* - **2 - pyridyl-**, hydrochloride, 1409*c*.
**Benziminazole**. See *Benzimidazole*
**Benz[*e*]indan**. See *1 H-Benz[e]indene, 2,3 dihydro-*.
**Benz[*f*]indan**, **5,6,7,8-tetrahydro-** See *1 H-Benz[f]indene, 2,3,5,6,7,8 hexahydro-*.
**Benzindene**,



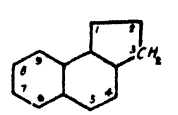
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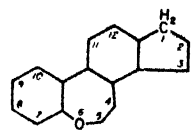


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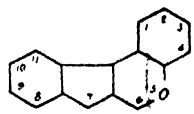
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**1 *H*-Benz[*f*]indene**, 4-acetyl-2,3,5,6,7,8-hexahydro-†, 2081*f*.
**2 *H*-Benz[*e*]indene-1-acetic acid, 3,3a,4,-5-tetrahydro-2-oxo-**, 3430*a*
**1 *H* - Benz[*e*]indene - 1,2(3 *H*) - dione, 3-methyl-**, anil oxide*, 7472*d*.
**1 *H*-Benz[*e*]inden-1-ol, dodecahydro-3,9a-dimethyl-(?)**, 1334*b*.
**1 *H*-Benz[*e*]inden-3-ol, dodecahydro-1,3a-dimethyl-(?)**, 1334*b*.
**1 *H*-Benz[*e*]inden-1-one, 2,3,3a,4,6,7,8,-9,9a,9b - decahydro - 3,9a - dimethyl-(?)**, and derivs., 1334*a*.
———, **2,3-dihydro-**, 1757*g*.
———, **2,3-dihydro-3-methyl-**, 7472*c*.
———, **dodecahydro-3,9a-dimethyl-(?)**, and semicarbazone, 1334*b*.
**1 *H*-Benz[*e*]inden-4(2 *H*)-one, 3,3a,6,7,-8,9,9a,9b(or 3,3a,5,6,7,8,9,9b)-octahydro-3a-methyl-**, 3829*f*.
**1 *H*-Benz[*e*]inden-4(3a *H*)-one, 5,5a,6,7,-8,9,9a,9b - octahydro - 3a - methyl(?)**, 3829*d*.
**1 *H*-Benz[*e*]inden-5(4 *H*)-one, 2,3,3a,9b-tetrahydro - 6,9(and 7,9)-dimethyl-**, 3796*e*.
———, **2,3,3a,9b-tetrahydro-7,8-dimethyl-**, and semicarbazone, 3796*e*.
**2 *H*-Benz[*e*]inden-4(5 *H*)-one, 2,3a,5a,-6,7,8,9,9a - octahydro - 3a - methyl-(?)**, 3829*d*.
**3 *H*-Benz[*e*]inden-3-one, 1,2,3a,4,6,7,-8,9,9a,9b - decahydro - 1,3a - dimethyl-(?)**, and derivs., 1334*a*.
———, **dodecahydro-1,3a-dimethyl-(?)**, and semicarbazone, 1334*b*.
**Benzindenoöxepin**,



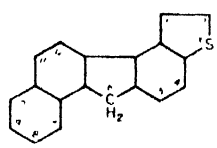
*1H—[b]—[5,4-d]*

**1 *H* - Benz[*b*]indeno[5,4 - *d*]oxepin - 8(2 *H*)-one, 1-(1,5-dimethylhexyl)-3,3a,3b,4,5,9,10,10a,10b,11,12,12a-dodecahydro - 8 - hydroxy - 10a,12a-dimethyl-†**, acetate, 1789*d*.
**Benzindenopyran**,



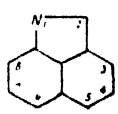
*[b]—[1,2-d]*

**Benz[*b*]indeno[1,2 - *d*]pyran - 3,4,6a,9,-10(6 *H*)-pentol, 7,11b-dihydro-**. See *Hematoxylin*.
**Benz[*b*]indeno[1,2 - *d*]pyran - 3,6a,9,10-(6 *H*)-tetrol, 7,11b-dihydro-**. See *Brasilin*.
**6 *H* - Benz[4,5]indeno[1,2 - *c*]thianaphthene**,

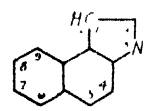


*6H—[4,5]—[1,2-c]*

2082*a*
**Benzindole**,

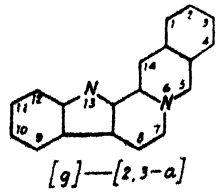


*[cd]*



*1—[e]*

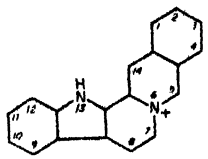
**Benz[*cd*]indole, 5 - (2 - acetamidoallylidene) - 4 - dimethylamino - 1,3,4,5-tetrahydro-†**, 7031*i*.
———, **5 - allylidene - 1,3,4,5 - tetrahydro-4-methylamino-**, 7031*i*.
———, **1,3,4,5-tetrahydro-**, and picrate, 4256*a*.
———, **1,3,4,5 - tetrahydro - 5 - isopropoxy-**, 4256*a*.
**Benz[*cd*]indol - 5 - ol, 1,3,4,5 - tetrahydro-**, and *p*-nitrobenzoate, 4256*a*.
**Benz[*cd*]indol - 5(1 *H*) - one, 3,4 - dihydro-**, and derivs., 4255*d*
**1 *H* - Benz[*e*]indol - 1 - one, 6,9 - dichloro-2,3 - dihydro - 2 - (1 - oxonaphtho-[2,1 - *b*]thiophen - 2(1 *H*) - ylidene)-**, P 8173*g*
**Benz[*g*]indolo[2,3-*a*]quinolizine**,



*[g]—[2,3-a]*

**1,2,3,4,4a,5,7,8,12,12b,14,14a-dodecahydro-**, and salts, 7491*g*.
———, **5,7,8,12,12b,14-hexahydro-**, and hydrochloride, 7492*a*.
———, **1,2,3,4-tetrahydro-** as suggested structure for sempervirine, 3016*c*.

**enzindoloquinolizinium,**



13H—[g]—[2,3-a]

**3H - Benz[g]indolo[2,3 - a]quinolizinium compounds,** 1,2,3,4-tetrahydro-13-methyl— salts, 3016g.

**Benz[g]indolo[2,3 - a]quinolizin - 5(1H)-one, 2,13-dihydro-,** 7490h.

—, **2,13-dihydro-1-methyl-,** 7491a.

**Benz[g]indolo[2,3 - a]quinolizin - 5(7H)-one, 8,13-dihydro-,** 7490h.

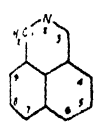
—, **8,13 - dihydro - 1 - methyl-,** 234d, 1422fi, 5786a, 7490fi.

identity with so-called ketoyohrine, 234e.

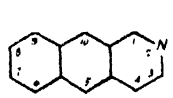
**Benz[g]indolo[2,3 - a]quinolizin - 5(13H)-one, 1-methyl-,** 1422g.

**Benzine** (*petroleum distillate*). See *Naphtha.*

**Benzisoquinoline,**



i—[de]



[q]

**Benz[g]isoquinoline, 1-benzyl-,** and picrate, 8390i.

**1-benzyl-3,4,6,7,8,9-hexahydro-,** and picrate, 8390i.

**1H - Benz[de]isoquinoline - 2(3H) - acetic acid, 6-amino-1,3-dioxodisulfo-,** P 7710g.

**1H - Benz[de]isoquinoline - 1,3(2H)-dione.** See *Naphthalimide.*

**1H - peri - Benzisoquinoline - 1,3(2H)-dione.** See *Naphthalimide.*

**1H - Benz[de]isoquinolinedisulfonic acid, 6 - amino - 2 - benzyl - 2,3 - dihydro-1,3-dioxo-,** P 7710h.

—, **6 - amino - 2 - butyl - 2,3 - dihydro-1,3-dioxo-,** P 7710h.

—, **6 - amino - 2 - cyclohexyl - 2,3 - dihydro-1,3-dioxo-,** P 7710h.

—, **6 - amino - 2,3 - dihydro - 1,3-dioxo-2-p-tolyl-,** P 7710g.

—, **6 - amino - 2,3 - dihydro - 2 - (2-hydroxyethyl) - 1,3 - dioxo-,** P 7710h

—, **6 - amino - 2,3 - dihydro - 2 - (2-naphthyl)-1,3-dioxo-,** P 7710h.

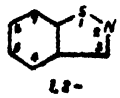
**Benzisosulfonazole, 2,3-dihydro-3-oxo-.** See *Saccharin.*

**1(3H)-Benzisosulfonazolone.** See *Saccharin.*

**Benzisotetrazole.** See *Pyridotetrazole.*

**Benzisothiadiazole.** See *2,1,3-Benzothiadiazole.*

**2,1-Benzisothiazole,**



2,1-

**2,1 - Benzisothiazole - 3(2H) - acetic acid, 3-oxo-, 1,1-dioxide** hexyl ester, P 4422c.

**2,1 - Benzisothiazol - 3(2H) - one,** dioxide —see *Saccharin.*

—, **2-allyl-, 1,1-dioxide,** P 4422c.

—, **2-benzyl-, 1,1-dioxide,** P 4422c.

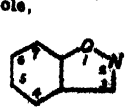
—, **5-(2-biphenylyl)-, 1,1-dioxide,** 4655g.

—, **2-dodecyl-, 1,1-dioxide,** P 4422c.

—, **2-ethyl-, 1,1-dioxide,** P 4422c.

—, **2 - (5,5,5 - trichloro - 2 - pentenyl)-, 1,1-dioxide,** P 4422c

**2,1-Benzisoxazole,**



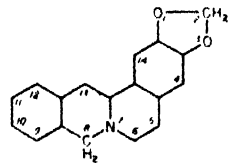
**1,2 - sole - 3 - carboxylic acid, 6-nitro-,** 4-aminosalicylic acids from, and its derivs., P 6236c.

**methyl ester,** 2189i.

**1',2',16,17 - Benzo - $\Delta^{5,6}$ - androstene-3(β),4'-diol*, and diacetate,** 245b.

**1',2',16,17 - Benzo - $\Delta^{4,5}$ - androsten - 4'-ol-3-one*,** 245c.

**8H - Benzo[g][1,2]benzodioxolo[5,6 - a]-uinolizine,**



8H—[g][1,3]—[5,6-a]

—, **5,6 - dihydro - 9,10 - dimethoxy-**6631c

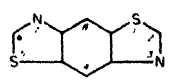
**Benzo[1,2,4,5]bisimidazole,**



[1,2,4,5]

—, **1,7 - dihydro - 2,6 - bis(o - sulfostyryl)-,** disodium salt, P 8174b.

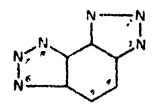
**Benzo[1,2,4,5]bisthiazole,**



[1,2,4,5]

**Benzo[1,2,4,5]bisthiazole - 2,6 - dithiol-** hydrolysis of, P 1438f.

**Benzo[1,2,3,4]bistriazole,**



[1,2,3,4]

stilbene dyes, P 1575c.

**Benzocaine** (*anesthesine, ethyl p-aminobenzoate*). (For derivs. see under *Benzoic acid.*)

anesthetic potency of, measurement of, 8095b.

as antioxidant and odor inhibitor in alkyl benzenesulfonates, P 6845c.

antiseptics contg., bacteriotoxic effect of, 5534a.

camphorsulfonate, 7642c.

compds. with ethylidenedi-2-naphthalene sulfonic acid and derivs., P 5047c.

compd. with 1-phenol-4-sulfonic acid, 3565d.

dielec. potential and surface tension of, at different H-ion concns., 7196c.

effect on mitosis in root meristems, 9171c.

on onion cells and root growth, 9171g.

on onions and onion roots, 9171e.

identification of, 1151g, 7190h, 7446g, 7448ac.

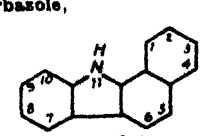
pharmacol. action of, 3524e.

reaction with mustard gas, 6336i.

salts from boric acid complexes of carbohydrates or of sugar alcs., P 1800g.

soln. of, 1914d.

**Benzocarbazole,**



11—[a]

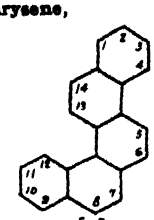
**11H - Benzo[a]carbazole - 3 - carbox - p-anisidide, 2-hydroxy-2'-methyl-,** identification of, 5344c.

**11H - Benzo[a]carbazolecarboxylic acid, hydroxy-,** P 3040e.

**1',2',2,5-Benzocholestan-4'-ol*,** 244h.

**1',2',2,3 - Benzocholestan - 4' - ol - 3',5'-dicarboxylic acid*, and derivs.,** 244s.

**Benzo[c]chrysene,**



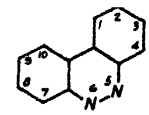
[c]

reaction with $OsO_4$, 8375b.

**5,6 - Benzocinchoninic acid.** See *Benzo[f]quinoline - 1 - carboxylic acid.*

**7,8 - Benzocinchoninic acid.** See *Benzo[h]quinoline - 4 - carboxylic acid.*

**Benzo[c]cinnoline,**



[c]

electronic structure of, 2095b.

and oxide, electric moments of, 3009d.

—, **2-amino-,** base-strengthening effect of amino group in, 6893c.

—, **1,2,3,4-tetrahydro-,** 7938g.

—, **1,2,3,4 - tetrahydro - 2,4 - dimethyl-,** 7938g.

**3,4-Benzocinnoline.** See *Benzo[c]cinnoline.*

**3,4-Benzocoumarin.** See "lactone" under *2-Biphenylcarboxylic acid, 2'-hydroxy-.*

**7,8-Benzocoumarin.** See "lactone" under *2-Naphthaleneacrylic acid, 1-hydroxy-.*

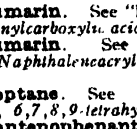
**Benzocycloheptane.** See *5H-Cycloheptabenzene, 6,7,8,9-tetrahydro-.*

**Benzocyclopentenophenanthrene, perhydro-*,** derivs., 244b.

***o-meso*-Benzodianthrene.** See *Dibenzo[a,o]perylene.*

**9,16 - o - meso - Benzodianthrenedione.** See *Helianthrone.*

**Benzodiasepine,**



1,5-

**1,5,1H - Benzodiasepin - 2(3H) - one, 4,5-dihydro-,** 7018f.

**1,3-Benzodiazine.** See *Quinazoline.*

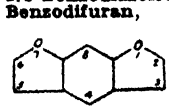
**1,4-Benzodiazine.** See *Quinoxaline.*

**2,3-Benzodiazine.** See *Phthalazine.*

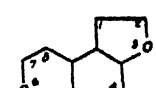
**1,2,3H-Benzodiazole.** See *Indazole.*

**1,3-Benzodiazole.** See *Benzimidazole.*

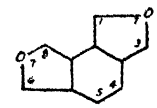
**Benzodifuran,**



[1,2-b,5,4-b']



[1,2-b,4,3-b']



[1,2-b,4,5-b']

[1,2-c,3,4-c']

**Benzo[1,2 - b,4,3 - b']difuran, 1,2,7,8-tetraphenyl-,** 7016g.

**Benzo[1,2 - b,4,5 - b']difuran, 2,3,6,7-tetraphenyl-,** 2202d, 7016g.

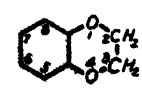
**Benzo[1,2 - b,5,4 - b']difuran, 2,3,5,6-tetraphenyl-(?),** 2202d.

**Benzo[1,2-c, 3,4-c']difuran-1,3,6,8-tetrone.** See *Mellophanic dianhydride.*

**Benzodioxan,**

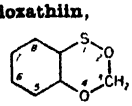


1,3-

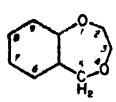


1,4-

——, **amino-**. See *Benzodioxanamine*.
——, **morpholinylmethyl-**. See *Morpholine, (benzodioxanylmethyl)-*.
**1,3 - Benzodioxan, 6 - [p - [bis(2 - hydroxyethyl)amino]phenylazo]-†**, P 8149*c*.
——, **6 - (3 - carboxy - 4,4 - dimethyl-2,6 - dioxocyclohexylazo)-†**, ethyl ester, P 8149*c*.
——, **6 - (3 - carboxy - 4 - hydroxyphenylazo)-†**, P 8149*c*.
——, **6 - [4 - (5 - chloro - 2 - methoxyphenylazo) - 3 - hydroxy - 2 - naphthoylamino]-†**, P 8152*i*.
——, **6,8 - dichloro - 2,4 - bis(trichloromethyl)-**, 1754*f*.
——, **6 - [3 - hydroxy - 4 - (2 - methoxy-5 - nitrophenylazo) - 2 - naphthoylamino]-†**, P 8152*a*, P 8153*a*.
——, **6 - (3 - hydroxy - 2 - naphthoylamino)-†**, and azo dyes from, P 8151*i*, P 8152*b*.
——, **6 - [3 - hydroxy - 4 - (p - nitrophenylazo) - 2 - naphthoylamino]-†**, P 8152*ac*.
——, **6 - [3 - hydroxy - 4 - (5 - nitro - o-tolylazo) - 2 - naphthoylamino]-†**, P 8152*a*, P 8153*a*.
——, **6 - (p - hydroxyphenylazo)-†**, P 8149*c*.
——, **6 - nitro - 2,4 - bis(trichloromethyl)-**, 6605*a*.
as insecticide, 1896*c*.
**1,4-Benzodioxan**, derivs., P 4304*b*.
derivs., vascular tone and, 5864*g*.
——, **6-acetamido-7-nitro-**, 1413*f*.
——, **2 - (chloromethyl) - 5 - methyl-**, P 4304*c*.
——, **6 - [4 - (5 - chloro - o - tolylazo) - 3 - hydroxy - 2 - naphthoylamino]-†**, P 8153*a*.
——, **2-(diethylaminomethyl)-**, effect on 2,4-dinitrophenol poisoning, 3105*g*.
effect on vascular tone, 5864*g*.
——, **6 - (3 - hydroxy - 2 - naphthoylamino)-†**, and azo dyes from, P 8151*i*, P 8152*b*.
——, **2-(1-piperidylmethyl)-**, adrenaline action on blood pressure after, effect of work on, 5494*c*.
effect on dibenamine action on adrenaline vasopressor blockade, 5497*g*.
effect on heart response to elec. stimulation, 7118*d*.
sulfate, effect on vasoconstriction from O lack, 1110*a*.
——, **5-propionyl-†**, and oxime, 186*d*.
**3-Benzodioxan-6-amine**, azo dyes from, P 5194*a*, P 8149*b*.
**4-Benzodioxan-6-amine**, azo dyes from, P 5194*b*, P 7697*c*.
——, **7-nitro-**, 1413*f*.
**4 - Benzodioxan - 5 - carbonitrile**, prepn. and reaction with EtMgBr, 186*d*.
**4 - Benzodioxan - 5 - carbonyl chloride**, 186*c*.
**4 - Benzodioxan - 5 - carboxamide**, 186*c*.
**4 - Benzodioxan - 5 - carboxylic acid**, 186*c*.
**4 - Benzodioxan - 2 - methanol, 5-methyl-**, P 4304*c*.
**4 - Benzodioxanemethylenimine, α-ethyl-**, 186*d*.
**3 - Benzodioxan - 4 - one, 2,8 - dimethyl-†**, antimalarial activity of, 5860*i*.
——, **2-phenyl-†**, antimalarial activity of, 5860*h*.
**4,1-Benzodioxathiin,**



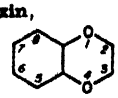
——, **7 - bromo - 3 - (trichloromethyl)-**, 1,1-dioxide, 1755*a*.
——, **5,7 - dichloro - 3 - (trichloromethyl)-**, 1,1-dioxide, 1755*a*.
**Benzodioxepin,**



*1,4,5H-*

**1,4,5***H* **- Benzodioxepin - 5 - one, 2,3-dihydro-†**, 2608*g*.

**1,4-Benzodioxin,**

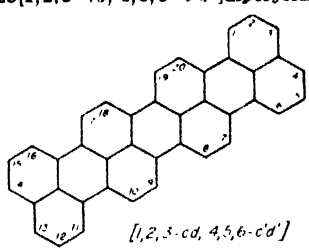


*1,4-*

——, **2,3-dihydro-**. See *1,4-Benzodioxan*.
**1,3-Benzodioxole,**

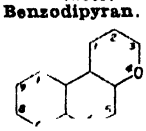
*1,3-*

*(Compounds which are derivatives of this ring system are entered as methylenedioxy compounds under* Benzene *and its many derivatives.)*
**1,3 - Benzodioxol - 2 - one, 5,5′ - tetramethylenebis-**. See "cyclic carbonate" under *Pyrocatechol, 4,4′-tetramethylenedi-*.
**Benzo[1,2,3 - *cd*, 4,5,6 - *c′d′*]diperylene,**

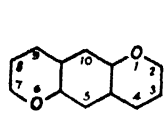


*[1,2,3-cd, 4,5,6-c′d′]*

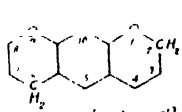
1360*c*.
**Benzodipyran.**



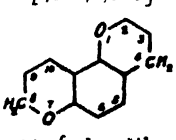
*[1,2-b, 4,3-b′]*



*[1,2-b, 4,5-b′]*



*2,6 — [1,2-b, 5,4-b′]*



*4,8 — [1,2-b, 3,4-b′]*

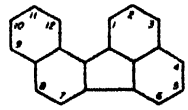
**Benzo[1,2 - *b*, 4,3 - *b′*]dipyran - 3,8-dione, 1,10-diphenyl-†**, 7017*f*.
**Benzo[1,2 - *b*, 4,5 - *b′*]dipyran - 2,7-dione, 4,9-diphenyl-†**, 7017*d*.
**2***H*,**6***H* **- Benzo[1,2 - *b*, 5,4 - *b′*]dipyran-2,6 - dione, 7 - decyl - 4,8 - dimethyl-†**, 6621*i*.
——, **4,8 - dimethyl - 7 - tetradecyl-†**, 6621*i*.
——, **7 - hexadecyl - 4,8 - dimethyl-†**, 6621*h*.
**4***H*,**8***H* **- Benzo[1,2 - *b*, 3,4 - *b′*]dipyran-4 - one, 2 - (3,4 - dihydroxyphenyl)-5 - hydroxy - 8,8 - dimethyl - 6-(3-methyl-2-butenyl)-**. See *Pomiferin*.
**Benzodipyridine** See *Pyridoquinoline*.
**Benzodithiole,**

*1,3-*

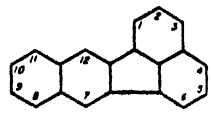
**1,3 - Benzodithiole, hexahydro - 2 - (3,4-methylenedioxyphenyl)-**, 7419*c*.
——, **hexahydro-2-phenyl-**, 7419*c*.
**Benzo[1,2-*b*, 4,5-*b′*]dithiophene,**



——, **2-methyl-(?)**, 4665*h*.
**1′,2′,16,17 - Benzo - Δ1,3,5 - estratriene-3′,4′-diol*, and diacetate**, 245*f*.
**5,6-Benzoflavanone, 2′-hydroxy-**, 5380*c*.
**5,6 - Benzoflavone** (*3 - phenyl - 1 - naphtho-[2,1-b]pyrone*).
——, **2,3-dihydro-**. See *5,6-Benzoflavone*.
**7,8 - Benzoflavone** (*2 - phenyl - 4 - naphth[1,2-b]pyrone*), in termite contro 6356*e*.
——, **6-acetamido-**, 5778*i*.
——, **6-amino-**, 5778*i*.
——, **6-benzamido-**, 5779*d*.
——, **6 - (2,5 - dichlorophenylazo)-**, 5779*a*.
——, **6-phenylazo-**, 5778*i*.
**Benzofluoranthene,**

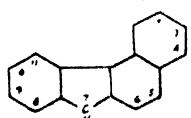


*[j]*

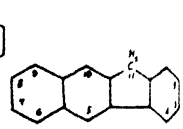


*[k]*

**Benzo[*c*]fluoranthene**. See *Benz[e]acephenanthrylene*.
**Benzo[*j*]fluoranthene(?)**, 7929*c* and derivs., 5389*f*.
**Benzo[*k*]fluoranthene(?)**, and derivs., 5389*f*.
**Benzo[*j*]fluoranthen-1-ol(?)**, and derivs., 7929*d*.
**Benzofluorene,**

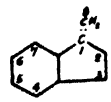


7 — [c]

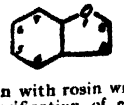


11 — [b]

**Benzo[*jk*]fluorene**. See *Fluoranthene*.
**7***H*-**Benzo[*c*]fluorene**, 4249*h*.
**11***H*-**Benzo[*b*]fluorene**, 4249*h*.
**7***H* **- Benzo[*c*]fluorene - 6 - carboxylic acid, 2,9-dimethoxy-7-oxo-**, and methyl ester, 606*f*.
——, **4,11-dimethoxy-7-oxo-**, methyl ester, 3396*f*.
**7***H*-**Benzo[*c*]fluoren-7-one**, derivs., 33
——, **8,10-dimethyl-**, 3396*b*
——, **8(9 and 10)-methyl-**, 3396*d*.
——, **9-nitro-**, 3396*g*.
**Benzofulvene** (*1-methyleneindene*),



electronic structure of, 10*e*.
——, **2 - butyl - 6 - methoxy - 2-methoxyphenyl)-**, 1758*c*.
——, **2 - ethyl - 6 - methoxy - 2-methoxyphenyl)-**, 1758*c*.
——, **6 - methoxy - 2 - (p - methoxyphenyl)-3-methyl-**, 1758*c*.
**Benzofuran** (*coumarone*),

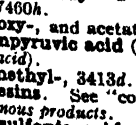


condensation with rosin with $BF_3$ catalys and esterification of condensate wit glycerol, varnish resin by, P 9486*g*.
derivs., 3412*b*.
effect on blood coagulation, 8057*g*.
prepn. of, 4252*i*.
spectrum of, in characterizing solvents 420*a*.
——, **acetyl-**. See *Ketone, benzofuryl methyl*.
——, **benzoyl-**. See *Ketone, benzofuryl phenyl*.
**6-(benzyloxy)-**, 3412*d*.
**6 - (benzyloxy) - 3,5 -** 3413*b*.

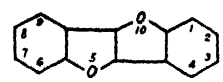
**droxyphenyl) - 3 - methoxy-**4247*a*.
——, **2,3-dihydro-**, derivs., 1764*d*.

**2,3 - dihydro - 2 - methyl - 5 - (3-pyridylcarbonylamino)-†,** 5025*d*.
**dihydro6xo-.** See *Benzofuranone*.
**5,6-dimethoxy-3-methyl-,** 7460*e*.

**- Benzofuranacetic acid, 3,6 - dimethyl-,** 3418*d*.
**nzofuranacrylic acid** (*β-benzofurylacrylic acid*).
**α - (hydroxymethyleneamino)-,** lactone—see *5(4 H)-Oxazolone, 4-(benzofurylmethylene)-*.
**- Benzofuranacrylic acid, 5 - hydroxy-β,2,3-triphenyl-,** δ-lactone, 7017*e*.
**Benzofuranacrylic acid, 2,3 - dihydro-6-hydroxy-,** δ-lactone, 1406*c*.
δ lactone and other derivs., 3412*b*.
**2,3 - dihydro - 6 - hydroxy - 2 - (1-hydroxyisopropyl)-,** δ-lactone—see *Nodakenetin*.
**2,3 - dihydro - 6 - hydroxy - 2-isopropyl-3-oxo-,** lactone—see *Oreoselone*.
**2,3 - dihydro - 6 - hydroxy - 3-methyl-,** δ-lactone and other derivs., 3413*a*.
**6-hydroxy-2-isopropyl-,** δ-lactone, identity with anhydromarmesin, 2993*h*.
**6-hydroxy-4-methoxy-,** lactone—see *Bergaptene*.
**6-hydroxy-7-methoxy-,** δ-lactone, 1910*e*.
**6 - hydroxy - 7 - (3 - methyl - 2-butenyloxy)-,** lactone—see *Imperatorin*.
**- Benzofuranacrylic acid, 5 - hydroxy-β,2,3-triphenyl-,** δ lactone, 7017*b*.
**Benzofurancarboxaldehyde** See *Coumaraldehyde*.
**- Benzofurancarboxaldehyde, 2,3-dihydro-6-hydroxy-,** 1406*f*.
and 2,4-dinitrophenylhydrazone, 3412*e*.
**2,3 - dihydro - 6 - hydroxy - 3-methyl-,** and 2,4-dinitrophenylhydrazone and its acetate, 3412*i*, 3413*a*.
**Benzofurancarboxylic acid.** See *Coumaric acid*.
**- Benzofurancarboxylic acid, 6 - hydroxy - 4 - methoxy - 2,3,5 - trimethyl-,** methyl ester, antibacterial activity of, 5445*f*.
**3-Benzofurandicarboxylic acid,** 632*f*
**6 - Benzofurandiol, 2,3 - dihydro - 5-(α,3,4 - trihydroxybenzyl)-.** See *Catechol*.
**- Benzofuranol, 5 - bromo - 2 - (5-bromo-2-hydroxyphenyl)-,** 4247*a*.
**- Benzofuranol, 2,3 - dihydro - 2,4,6,7-tetramethyl - 2 - (3,7,11 - trimethyldodecyl)-,** and acetate, 1764*f*.
**2,3 - dihydro - 2,4,6,7 - tetramethyl - 2 - (5,9,13 - trimethyltetradecyl)-,** 1764*g*.
**2,3 - dihydro - 2,4,6,7 - tetramethyl - 2 - (4,8,12 - trimethyltridecyl)-,** 1764*f*.
**- Benzofuranol, 5 - acetyl - 4,7 - dimethoxy-.** See *Khellinone*.
**5-acetyl-4-methoxy-.** See *Visnaginone*.
**2,3-dihydro-,** and acetate, 1406*e*.
and *p* nitrobenzoate, 3412*e*.
**2,3-dihydro-3,5-dimethyl-,** and *p*-nitrobenzoate, 3413*c*.
**2,3-dihydro-3-methyl-,** 3412*i*.
**2,3-dihydro-5-methyl-,** and *p* nitrobenzoate, 3412*h*.
**2,3 *H*)-Benzofuranone†,** 7015*h*.
derivs., 625*a*.
**3(2 *H*) - Benzofuranone, 2 - acetyl - 5,6-dimethoxy-,** and benzoate of its enol, 7460*g*.
**2 - benzylidene - 4,5,7 - trihydroxy-6-methoxy-,** 4264*b*, 5397*a*.
**5,6-dimethoxy-,** 7460*h*.
**5,6 - dimethoxy - 2 - piperonylidene-,** 7460*h*.
**6-hydroxy-,** and acetate, 1406*d*.
**- Benzofuranpyruvic acid** (*2 - benzofurylpyruvic acid*).
**3,6-dimethyl-,** 3413*d*.
**Benzofuran resins.** See "coumarone" under *Resinous products*.
**-Benzofuransulfonic acid, salts,** 7015*h*.
**urazan** (*2,1,3-benzoxadiasole*),

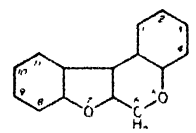


**——, 5-chloro-,** *N*-oxide, effect on aging of alkylarylsulfonates, P 6846*b*.
**Benzofurfuran.** See *Benzofuran*.
**Benzofuro[3,2-*b*]benzofuran,**



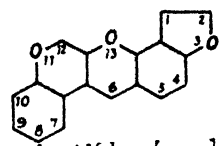
*[3,2-b]*

**——, 4b,9b - dihydro - 2,4b,7,9b - tetramethyl-, α-** and **β-,** 8370*f*.
**——, 4b,9b - dihydro - 3,4b,8,9b - tetramethyl-, β-,** 8370*f*.
**Benzofurobenzopyran,**



*6H—[2,3-c][1]*

**6 *H* - Benzofuro[2,3 - *c*][1]benzopyran - 6-one†,** derivs., 1771*f*.
**Benzofurobenzopyranopyran,**



*[4,5-b][1]—[4,3-e]*

**Benzofuro[4,5 - *b*][1]benzopyrano[4,3-*e*]pyran - 6(6a *H*) - one, 12,12a-dihydro-8,9-dimethoxy-.** See *Eliptone*
**Benzofuroxan, 5-chloro-*,** effect on aging of alkylarylsulfonates, P 6846*b*.
**4,5-Benzohydrindene.** See *1 H-Benz[e]indene, 2,3-dihydro-*.
**Benzohydrol.** See *Benzhydrol*.
**Benzohydroxamic acid,** 2188*f*, 6996*f*
cadmium, Co, Cu, Hg, Ni and Zn salts, and their analytical uses, 2116*b*.
**Benzohydrylamine.** See *Benzhydrylamine*.
**Benzoic acid.** (*Simple esters (benzyl, ethyl, methyl, etc.) are entered here, and the others as derivatives under the names of the corresponding hydroxy compounds.*)
adsorption by Fe and Zn, 28*f*.
agitation with NaOH soln., 8751*b*.
*p*-alkoxy derivs., alkylaminoalkyl esters, anesthetics, P 4430*c*.
alkoxy derivs., vinyl esters, P 5045*b*.
*p*-alkyl derivs., 7004*g*.
*p,p'* - (alkylenediimino)di- derivs. and their cyclic analogs, condensation with glycols, P 2228*h*.
*p,p'*-alkylenedioxy derivs., glycol esters, polymers, P 4897*h*.
allyl ester, reaction with mesityl-MgI, 1351*e*.
aluminum salt—see *Aluminum benzoate*.
α - amino - *p* - toluenesulfonamide salt, P 686*c*.
anhydride with $EtOCO_2H$, 6980*a*.
with $PhH_2PO_4$ and their salts, 6996*c*.
with phosphoric acid, 2188*c*.
with silicic acid, reactions of, 1743*a*.
*o* aroyl derivs., in weed control, P 1904*e*.
assocn. in $C_6H_6$, 3277*d*, 7793*c*.
assocn. of, 7454*d*.
benzyl ester, in cellulose-ester stabilization, P 1979*e*.
in chigger control, 9349*b*.
condensation with *N*-dimethylaniline and HCHO, lubricant antioxidants by, P 2424*e*.
*tert*-butyl ester, hydrolysis of, 1349*e*.
calcium salt—see *Calcium benzoate*.
as carboxypeptidase inhibitor, 6266*a*.
chlorinated derivs., steric hindrance of resonance in, 2188*i*.
*o*-chlorophenylhydrazide, *m*- and *p*-nitrophenylhydrazides and phenylhydrazide, as insecticides, 5526*a*.
combination with serum albumins, 4708*c*.
compns. with furfuryl alc. resins, P 6864*a*.
control of molds and bacteria with, in immersion freezing, 4391*d*.
copper salts—see *Copper benzoates*.
corrosion inhibitors from $Na_2CrO_4$ and, P 8349*c*.
crystal growth of, on NaCl, 4240*g*.
cyclohexyl ester, 5150*e*.
derivs., P 3461*c*.
esters with polyhydric alcs. or mixed esters with carboxylic acids, P 422*d*.
identification and m.-p. detns. of, 67*e*.
isomorphic substitution of halogens and pseudohalogen groups in, 187*g*.
piperazine detn. in mixt. with, 6785*b*.
in tuberculosis chemotherapy, 8553*e*.
and derivs., effect on food-spoilage organisms, 1493*f*.
and derivs., Et esters, hydrolysis of, 2174*f*.
detection of, 2548*b*.
detn. of, 70*b*, 1280*g*.
in flour, 9277*g*.
in presence of crotonaldehyde, HCHO and fumaric and maleic acids, 3316*i*.
detoxification in liver disease, 2322*h*, 6300*g*.
1 - dimethylamino - 2 - methyl - 2 - butyl ester, hydrochloride—see *Stovaine*.
effect on blood penicillin levels and on renal function, 6318*b*.
on buckwheat and mustard, 7616*g*.
on d., moisture absorption and swelling properties of nylon, 5191*e*.
on *Leuconostoc mesenteroides* destruction of sucrose solns., 6363*e*.
on respiration of plant tissue, 5457*a*.
electron d. and polarity of, 2093*b*.
esters, 5367*e*, 7435*f*, 9055*d*.
with aminotriazine-aldehyde condensation products, P 4050*c*.
ammonolysis rates of, 6495*f*.
with androstanediol and androstenediol, P 1916*b*.
behavior in $H_2SO_4$, 569*b*.
in chigger control, 8599*ghi*.
as corrosion inhibitors for steel, 6962*i*.
with diacetins, P 1796*c*.
identification of local anesthetic, 7190*g*.
inhibition of antitrypanosomal activity of arsenoso compds. and acridines by, 319*i*.
manuf. of, P 7967*i*.
phys. consts. of, 2591*d*.
reaction with isobutylmagnesium halides, 2604*a*.
and esters, in narcissus oil, 2372*e*.
and esters, ionization in $H_2SO_4$, 8808*g*.
esters of, and its derivs. with amino alcs., salts, P 4696*g*.
ethyl and Me esters, and dielec. loss, microwave absorption and relaxation times in, 6018*h*.
ethyl and Me esters, microwave absorption in solns. of, 6019*g*.
and ethyl and Me esters, soly. in Na xylenesulfonate solns., 1242*e*.
ethyl ester, effect on plants, 2677*b*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
kinetics of alcoholysis of, 7418*e*.
mixt. with acetone, dielec. polarization in, 454*b*.
prepn. of, 127*g*.
2-ethylidene-1-*p*-tolylhydrazide, 1344*a*.
fluorescence of, structure and, 7829*c*.
folic acid prepn. contg., 355*i*.
formation of, in cleavage of benzophenone and its derivs., 1349*b*.
from nitration of toluene, 4216*f*.
from phthalic acid, 7801*d*.
from reaction of benzaldehyde with metals, 4238*i*.
from reaction of $PhCH{:}NNHC(Me_2)$-COOH with NaOH, 1027*b*.
from reaction of β-dimethylamino-pivalophenone methiodide with NaOH, 4239*b*.
halo derivs., vinyl esters, P 5044*i*.
heat of ionization of, 477*i*.
hippuric acid formation from, in liver damage, 3093*a*.
hydrazide, and reaction product with cyanoguanidine, P 3843*d*.
hydrazide, oxime, in analysis of metals, 2541*b*.
hydrogenation on Pt, kinetics of, 5657*d*.
*p*-(ω-hydroxyalkyl) derivs., polyesters of, 5380*g*.
hydroxy derivs., condensation products of, for drilling-fluid degelling and viscosity reduction, P 8662*c*.
identification of, as its 2-(1-naphthyl-

methyl) - 2 - thiopseudourea salt, 565*h*.
isopropenyl ester, P 7038*e*.
labelled with $C^{14}$ in the $CO_2H$ group, 608*c*.
labeled with $C^{13}$ or $C^{14}$ in 1-position, 9045*e*.
lead salt, as vulcanization retarder for Butyl rubber, P 8195*h*.
manuf. of, P 5422*a*.
from coal, 9413*c*.
from phthalic acid or anhydride, catalyst for, P 5887*b*.
methyl derivs., hydrogenation of, 2964*b*.
methyl ester, 1323*h*.
ammonolysis rate of, 6495*g*.
in 100% $H_2SO_4$, 4215*e*.
properties of soln. in $C_6H_6$, 1619*f*.
reaction with $C_2H_2$ and with PhC:CH, 7453*b*.
spectrum of, 4574*h*.
γ - (2 - methyl - 1 - piperidyl)propyl ester, hydrochloride—see *Metycaine*.
nitration of, 7918*i*.
in oat-smut control, 1137*g*.
oxidation by mycobacteria, effect of streptomycin on, 714*d*.
by mycobacteria, kinetics of, 1828*a*.
by *Mycobacterium lacticola*, effect of fluoro- and iodoacetates and 2,4-dinitrophenol on, 6274*g*.
in peach-X-disease control, 9347*g*.
peroxide—see *Benzoyl peroxide*.
phenacyl ester, 1349*a*.
and phenyl ester, formation from Cu(OBz)$_2$ pyrolysis, 125*b*.
phenyl ester, tetrawax-substituted, P 1562*a*.
phenylhydrazide, as insecticide for sweet potato weevil, 7183*c*.
phenylhydrazide, toxicity to corn borer, 7182*h*.
phosphorescence of, 8282*c*.
phosphorescence of, temp. quenching of, 498*d*.
piperidide—see *Piperidine, 1-benzoyl*.
potassium acid salt, as pH standard, 8812*g*.
potassium salt, *o* hydroxyacetophenone ester rearrangements in presence of, 2621*a*.
prepn. of, 2579*c*, 8368*d*
prepn. of, from EtBz, 5015*i*
procaine salt, interfacial tension at water olive oil boundary, 7290*d*.
2-pyridyl ester, Fries rearrangement of, 3417*b*.
*p*-quinonedioxime and thymoquinonedioxime derivs., in vulcanization of Butyl rubber, 5623*e*.
reaction with diazo hydrocarbons, 4654*a*.
Rush no. of, 8766*b*.
salting-out of, 922*h*.
salts, adsorption analysis of, 5703*c*.
salts with amidines, 1739*f*.
sepn. from acetophenone by flash distn., P 2639*e*.
sodium salt—see *Sodium benzoate*.
soln. rate in water and aq. glycerol, 1630*i*.
spectrum of, 2868*e*, 3715*c*.
in stabilization of $As_2S_3$ hydrosol, 7779*i*
strength of, additive effect of substituents on, 8811*d*.
surface tension of aq., 8797*f*.
system: ethylenediamine–, 8832*e*.
system: hippuric acid–, phase diagram of, 1148*g*.
tetraanhydride with orthosilicic acid, 4631*g*.
2-thenyl ester, in mite control in clothing, 3554*i*.
thermal analysis of melting of, 6903*d*.
titration (potentiometric) of, with glass electrodes, 59*e*.
*p*-tolyl ester, in chigger control, 1518*f*
*p*-tolyl ester, in mite control in clothing, 3554*i*.
ureide—see *Urea, benzoyl*.
in urine of pregnant mares, 2685*i*.
vinyl ester, copolymers of, 6462*h*.
polymerization of, P 906*b*.
polymers with alkyl acrylate and vinyl acetate, P 9532*e*.
polymers with dialkyl esters of maleic acid and vinylidene halides, P 2818*c*.
polymer with $C_2H_4$, P 7264*e*.
viscosity of solns. of, 8243*cd*.

**Benzoic acid, *o*-acetamido-.** See *Anthranilic acid, N-acetyl-*.

——, **2 - acetamido - 4 - (4 - amino-3,6-disulfo - 1 - anthraquinonylamino)-**, methyl ester, P 5197*c*.
——, **o-(acetonylmercapto)-**, 2200*g*.
——, ***p*-(acetoxymercuri)-**, ethyl ester, 7922*f*.
——, ***o*-acetyl-**, (*o*-chlorophenyl)hydrazone, 237*f*.
ethyl ester, 2974*e*.
——, ***o*-(4 - acetyl - 1 - hydroxy - 8-sulfo - 2 - naphthylazo)-**, P 8147*g*.
——, **3 - allyl - 4 - (2,3 - dihydroxypropoxy)-**, butyl ester, P 2233*g*.
——, ***m*-[{(allylimino)mercaptomethyl]amino}-**, sodium salt, *S*-Cu deriv., 1351*b*.
——, ***m*-(allylsulfamyl)-**, in printing pastes, P 9473*h*.
——, **amino-**. (*For indexing of esters, see note under* Benzoic acid.)
derivs., 1031*c*.
——, ***m*-amino-**, azo dye from, P 4485*f*
effect on bladder and effect of diet on its excretion, 6315*d*.
ethyl ester, identification of, 7446*g*.
identification of, and distinguishing from *o*-aminobenzoic acid, 6944*i*.
spectrum of, 8890*i*.
trimethyl betaine, P 3463*f*.
——, ***m*(and *p*)-amino-**, *d- dl-* and *l*-10-camphorsulfonates, 610*c*.
chromatographic sepn. of, 4315*i*
*N*-glucose derivs., 3805*h*.
spectrum and mol.-field mechanism in, 2863*i*.
——, **o-amino-**. See *Anthranilic acid*.
——, ***p*-amino-**, acetylation of, by acetamide in liver, 3071*a*
acetylation of, in animal organism, 5835*h*
acetylation of, in diabetes, 9220*g*.
ammoalkyl esters, salts, P 4696*h*
antagonism (chronaximetric) with vitamins, 284*e*.
antagonism to *p*-aminosalicylic acid, 5824*g*
antagonist to, 9205*g*.
antibiotic activity of, 8003*i*.
azo 5-pyrazolone dyes from, P 8149*f*.
bacteriostatic power of, and its potentiation of penicillin and streptomycin, 6276*c*.
biol. action of, 5826*b*.
butyl ester—see *Butesin*
color reaction with pinewood ext., 4461*h*
conjugation with glycine, effect of methylbis(β-chloroethyl)amine on, 7139*c*.
crystal growth of, on NaCl, 4240*g*.
in cucurbit and tomato fruits during growth, and relation to size of, 8461*f*
in cucurbit and tomato leaves during development, 5456*g*.
derivs., 1812*e*, 7454*i*
and derivs., effect on phosphatase activity of kidneys, 9245*f*.
*N*-derivs., esters, 6183*e*.
detn. of, 7540*g*.
detn. of, in blood and urine, 262*i*
*N*, *N*-dialkyl derivs., aminoalkyl esters of, P 2640*b*.
3-dibutylaminopropyl ester, sulfate—see *Butacaine sulfate*.
3 - diethylamino - 2,2 - dimethylpropyl ester—see *Larocaine*.
2-diethylaminoethyl ester—see *Procaine*.
differentiation from *p* aminosalicylic and salicylic acids, 8977*i*.
3 - dimethylamino - 1,2 - dimethylpropyl ester, hydrochloride—see *Tutocaine*.
effect on acetylthyroxine formation from acetyldiodotyrosine, 6208*e*.
on acid base balance, 1092*g*.
on action of antimalarial drugs in mosquitoes, 9254*b*.
on agglutination of *Eberthella typhosa* and of paratyphoid bacillus, 6310*b*
on antibacterial action of mercuriated sulfamide, 1456*e*.
on bacteriostatic action of sulfonamides, 5443*e*.
on biochem. decompn. of cellulose, 3609*e*.
on biol. value of casein and on economy of food utilization, 1468*d*
on body and endocrine-gland wts. and toxic manifestations, 7578*i*.
on complement and hemolytic power of serum, 6294*d*.
on dermatophytes, 1826*e*.
on dextran synthesis by *Leuconostoc*, 8438*h*.
on fermentation, 3559*b*.
on folic acid antagonists, 3066*a*.
on healing of wounds, 6309*i*.
in hypoglycemia, 6313*f*.
on leucocyte production in leukemia, 1853*h*.
on malignant tumors, 9252*e*.
on metabolism and excretion of salicylates, 2328*h*.
*effect* on microörganisms, 9239*d*.
on mitosis, 7143*f*.
on oxidation of hemoglobin, 8527*c*.
on *Paracentrotus lividus*, 9269*b*.
on pathogenic fungi, 9147*b*.
on pathogenicity of *Streptococcus aronson*, 3877*f*.
on peach-X-disease control with *p* aminobenzenesulfonamide, 9347*h*
on penicillin activity, 3879*d*.
on peroxidase and Schardinger's enzyme of milk, 5429*d*.
on pseudocholinesterase in blood serum, 1484*h*.
on psittacosis virus, 305*i*.
on salicylate in blood plasma, 6311*f*
on Na salicylate action on, and content in, tissue, 9242*h*.
on streptomycin action on *Mycobacterium avium*, 6275*d*.
on sulfadiazine action on psittacosis virus, 7077*a*.
on sulfonamide action on pea roots, 7091*i*.
on tubercle bacilli, 7545*g*.
esters, 7921*e*.
with *sec*-alkyl amino alcs., P 3038.
inhibition of antitrypanosomal activity of arsenoso compds. and acridines by, 3191
local anesthetics with cocaine-like action, 7643*c*.
with α-tocopherol, P 1810*d*.
esters of mono and dialkyl, as sunscreen compds. and their spectra, 7189*h*
ethyl ester—see *Benzocaine*
fungistatic properties of, 8443*g*
*N*-glucoside, assimilation by yeast, 8002*a*.
as growth substance for bacteria, 1827
for pathogenic microörganisms, 5073*g*
for *Vorticella nebulifera*, 5874*g*
for yeast, 3488*i*.
hydrogen ion concn. of, analytical solns. of, and strength max. in distd. water, 4977
2 - isobutylaminoethyl ester-HCl—see *Monocaine*.
in manuf. of acetone and BuOH by fermentation, P 7638*f*.
2 naphthalenesulfonate, 174*b*
production of substances reducing 2,6-dichloroindophenol by *Aspergillus niger* in presence of, 1457*e*
in purine metabolism, 9163*e*
reaction products with maleic anhydride polymers with Me methacrylate, 8202*e*.
reaction product with 4-chloro-3-buten-1-one, 7937*e*.
reaction with PhBzPO$_2$H, 6996*f*
reaction with thionyl chloride, 1744*d*
relation with vitamins and tryptophan in lactobacilli, 7542*g*.
reviews on, 1095*f*, 9190*d*
and sodium salt, characterization of, 1244*i*.
sodium salt, effect on mitosis in root meristems, 9171*c*.
effect on onion cells and root growth, 9171*g*.
effect on onions and onion roots, 9171*e*.
spectrum of, 3715*c*.
sulfonamides as antagonists of, 5078*b*
synergism with vitamin C, 7100*a*, 9181*i*
in tuberculosis therapy, 7576*g*
tuberculosis treatment with vitamin K and, 8060*a*.
tuberculostatic activity of penicillin with, 4331*d*.
in urine after administration to normal subjects and in liver disease, 6298*i*

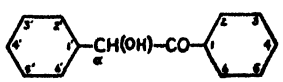
——, **2 - amino - 5 - (*p* - aminobenzamido)-**, azo dyes from, P 9466*e*
——, **4-amino-2-anilino-**, hydrazide, 648*e*.
——, ***m* - [*m*(and *p*)-aminobenzamido]-**, 1032*d*.
——, ***p*-(*m*-aminobenzamido)-**, 1032*d*
——, ***p*-(*p*-aminobenzamido)-**, and esters, 1031*g*.
——, **2 - amino - 5 - benzamido-**, azo dye from, P 5194*e*, P 7701*c*.
azo stilbene dye from, P 4865*f*.
——, ***p* - [*p* - (*p* - aminobenzamido)-benzamido]-**, and esters, 1031*i*.
——, ***p* - [*p* - [*p* - (*p* - aminobenzamido)-benzamido]benzamido]-**, ethyl ester, 1031*i*.
——, ***m* - (5 - amino - 2*H* - benzotriazol-2-yl)-**, stilbene dyes from, P 1575*g*.
——, **4-amino-3-chloro-**, *Escherichia coli*

inhibition by, effect of pantothenic acid on, 3497*f*.
**4 - amino - 3,5 - dibromo-**, 2-diethylaminoethyl ester, -HCl, radioactive, distribution in tissues, 8058*c*.
**2 - amino - 5 - (2,4 - dichlorobenzamido)-**, disazo dye from, P 5598*e*.
**? - amino - 3 - (2,3 - dihydroxypropoxy)-**, butyl ester, P 2233*g*.
**3(and 4) - amino - 4(and 3)-(2,3 - dihydroxypropoxy)-**, butyl esters and their hydrochlorides, P 2233*g*.
***m* - (4 - amino - 3,6 - disulfo - 1-anthraquinonylamino)-**, P 5197*h*.
***m* - (4 - amino - 3,7 - disulfo-1-anthraquinonylamino)-**, and monomethyl ester, P 5198*a*.
**5 - amino - 2 - formamido-**, azo stilbene dyes from, P 4865*b*.
**3 - amino - 4 - hydroxy-**, azo dyes from, P 8148*c*.
azo stilbene dyes from, P 8151*f*.
**3(or 4) - amino - 4(or 3)-hydroxy-**, methyl ester—see *Orthoform*.
**6 - amino - 6' - hydroxy - 3,3'-azodi-**, azo dyes from, P 4471*i*, P 7696*f*, P 8145*f*.
***o* - (3 - amino - 4 - hydroxybenzoyl)-**, azo dyes from, P 8148*d*.
**4 - amino - 2 - (hydroxymercuri)-**, cyclic anhydride, P 7968*c*.
***p* - [(2 - amino - 4 - hydroxy-7-methyl - 6 - pteridylmethyl)amino]-**, hematologic changes from, 8556*f*.
**3 - amino - 5 - (1 - hydroxy - 2-naphthoylamino)-**, dye from, light absorption by, 7232*b*.
***p* - [(1 - (2 - amino - 4 - hydroxy-6 - pteridyl)ethyl]methylamino]-**, 3421*b*.
***p* - [N - (2 - amino - 4 - hydroxy-6-pteridyl)formamido]-**, P 8448*g*
as growth substance for bacteria, 8441*h*.
***p* - [(2 - amino - 4 - hydroxy-6-pteridylmethyl)amino]-**. See *Pteroic acid*.
***p*-[(2-amino-4-hydroxy-6-pteridylmethyl)methylamino]-**, effect on embryonated eggs, 7097*c*.
effect on growth of chick embryos, 9186*i*.
**3 - amino - 2 - (2 - hydroxy-*m*-toluyl)-**, 2984*g*
**4-amino-2-iodo-**, effect on tubercle bacilli, 7545*g*
***p* - (2 - aminoisobutylamino)-**, and derivs., 6183*f*.
**4 - amino - 3 - mercapto-**, and ethyl ester, as antidote for bis(2-chloroethyl) sulfide injury to eyes, 7678*h*
***m* - (4 - amino - 3 - methoxyphenylazo)-**, azo stilbene dye from, P 4864*a*
polyazo dye from, P 7235*a*.
**4 - (4 - amino - 3 - methyl - 1-naphthylazo)-2 - (chloromercuri)-**, effect on tubercle bacilli, 7545*i*.
**5 - amino - 2 - (3 - methyl - 5-oxo - 2 - pyrazolin - 4 - ylazo)-**, P 4864*h*.
azo stilbene dyes from, P 4865*d*/*g*.
polyazo dyes from, P 5195*i*.
**5 - amino - 2 - (3 - methyl - 5-oxo - 1 - *p* - sulfophenyl - 2-pyrazolin-4-ylazo)-**, P 5194*e*.
azo stilbene dye from, P 4865*f*.
**5-amino-2-nitro-**, polyazo dye from, P 4479*e*
**amoxy-**, *p*-quinone dioxime deriv., as vulcanizing agent, 5623*c*.
***p*-amyl-**, 2603*b*.
**2-anisoyl-4-hydroxy-**, and methyl ester, 6608*g*.
**3-anisoyl-5-hydroxy-**, 6608*g*.
***o*(and *p*)-9-anthryl-**, and methyl esters, 4662*h*.
***o*,*o'* - (1,5 - anthrylenedicarbonyl)di-**, 1364*i*.
**azoxydi-**, diethyl ester, dipole moments and elec. birefringence of, 3675*d*.
***o*-benzoyl-**, allylic esters, and polymers of, P 3847*e*.
ethyl ester, in stabilization of vinyl polymers, P 8741*f*.
ethyl ester, reduction of, 191*g*.
identification of, as its 2-(1-naphthylmethyl) - 2 thiopseudourea salt, 565*h*.
nicotine salts, P 8605*c*.
piperazine salt, 235*d*.
reduction of, 4241*h*.
**2 - benzoyl - 4(or 5) - *tert*-butyl-**, 8139*h*.
***p* - (2 - benzoyl - 1 - carboxyethylamino)-**, 7192*h*.
***o* - (2 - benzoylethyl)-(?)**, 2174*h*.
***o*-benzyl-**. See *o-Toluic acid, α-phenyl-*.
***m*-benzylamino-**, 1345*i*.
***p*-benzylamino-**, and ethyl ester, 1345*i*.
***p*-(benzyloxy)-**, 7585*c*.
**4 - (benzyloxy) - 3,5 - diiodo-**, as thyroxine antagonist, 7585*c*.
**5 - (benzyloxy) - 2 - nitro-**, 216*a*.
***p* - (benzylsulfonamido)-**, absorption and elimination of, 759*a*.
detn. of, 5074*i*.
effect on appearance of phenol red in kidneys, 3502*i*.
on blood penicillin levels and on renal function, 6318*b*.
on penicillin in blood, 5500*i*.
on phenolphthalein excretion, 5120*h*
***p* - 2 - biphenylyl-**. See *4-o-Terphenylcarboxylic acid*.
**2,5 - bis(benzyloxy)-**, and esters, 7003*g*.
***p* - [bis(2 - chloroethyl)amino]-**, 7443*c*.
**3,5 - bis(chlorosulfonyl)-**, esters with *o*,*o'*-dihydroxyazo dyes, P 8153*h*.
**bromo-**, formation from bis(*p*-bromobenzoyl) peroxide in maleic *N*-methylimide reaction with rubber, 6453*h*.
***m*-bromo-**, *p*-quinone dioxime deriv., as vulcanizing agent, 5623*d*.
***m*(*o* and *p*)-bromo-**, free energy of ionization of, 8811*e*.
piperazine salts, 235*d*.
***m*(and *p*)-bromo-**, esters with 2,3-butanediols, 3782*c*.
***p*-bromo-**, anhydride, 3782*d*.
anthraquinone dyes from, P 7705*g*.
bromine removal from, 8908*g*.
as catalyst in ethanolysis of palm oil, 7723*i*.
from 4,4'-dibromobenzophenone, 1349*d*.
methyl ester, isomorphism between *p*-$ClC_6H_4CO_2Me$ and, 5754*g*.
spectrum of, 3715*c*.
***p* - α - bromoacetamido-**, fungus-inhibiting properties of, 5081*h*.
***p*-[*N*-(2-bromoallyl)acetamido]-**, P 6673*d*.
***p*-(2-bromoallylamino)-**, P 6673*d*.
**4 - bromo - 3,5 - dimethoxy-**, and methyl ester, 1038*a*.
***p*-(2-bromoethyl)-**, P 1224*c*, P 6236*d*.
**2 - bromo - 5 - hydroxy-**, 5023*e*.
***o* - (bromomethylmercapto)-**, 2200*h*.
***p*-butoxy-**, 2-(2-diethylaminoethylmercapto)ethyl ester, and -HCl, P 3461*e*.
esters, local anesthetics, P 4430*d*.
3 - (2 - methyl - 1 - piperidyl)propyl ester, and its salts, P 694*g*, P 7509*c*.
***m*(*o* and *p*)-*tert*-butyl-**, 4234*b*.
***p*-butylamino-**, 2-dimethylaminoethyl ester-HCl—see *Pontocaine*.
***o*-carbamyl-**. See *Phthalamic acid*.
***o* - (2 - carbamyl - 1 - hydroxyvinyl)-**, lactone, derivs., P 7850*a*.
***o* - (carbamylmethyl)-**. See *Homophthal-1-amic acid*.
**carboxyamino-**. See *Carbanilic acid, carboxy-*
***o* - [2 - (carboxychloromethylene)hydrazino]-**, methyl ester, 4259*i*.
***p* - [1 - carboxy - 2 - (2,5 - cresotyl)ethylamino]-**, 7192*h*.
***o* - (2 - carboxyethyl)-**. See *Hydrocinnamic acid, o-carboxy-*.
***o* - (1 - carboxyethylmercapto)-**, 3816*h*.
***o* - [(1 - carboxyisobutylcarbamyl)methylmercapto]-†**, 3365*f*.
**4 - (carboxymethoxy) - 3,5-dimethoxy-**, and dimethyl ester, 1029*h*.
***o* - (carboxymethyl)-**. See *Homophthalic acid*.
***o* - (carboxymethylmercapto)-**, 2201*a*.
***p* - (2 - carboxy - 1 - methylvinylamino)-**, ethyl methyl ester, 646*a*.
***o* - [(α - (*o* - carboxyphenylazo)-benzylidene]hydrazino]-**, and copper and Ni complexes, 6589*g*.
***o* - [(*o* - carboxyphenylazo)cyanomethylene]hydrazino]-**, and copper and Ni complexes, 6589*i*.
**o - (2 - carboxypropyl)-**, 5753*e*.
**2 - (3 - carboxypropyl) - 3,4,5-trimethoxy-**, 3404*b*.
**6 - (3 - carboxypropyl) - 2,3,4-trimethoxy-**, and dimethyl ester, 3403*f*.
***p* - (1 - carboxy - 2 - salicyloylethylamino)-**, 7192*h*.
***m*(and *o*)-chloro-**, spectra of, 8890*i*.
***m*(*o* and *p*)-chloro-**, 8368*c*.
free energy of ionization of, 8811*e*.
vinyl esters, P 5045*a*.
***m*(and *p*)-chloro-**, spectra of, 3715*c*.
***o*-chloro-**, anhydride, 8353*d*.
compds. with amines, as bactericides and fungicides, P 6357*h*.
derivs., reaction with aryl amines, 6175*i*.
phenol coeff. of, 1493*f*.
phenylhydrazide, toxicity to corn borer, 7182*h*.
***o*(and *p*) - chloro-**, chloroethyl esters, 5764*i*.
piperazine salts, 235*d*.
*p*-quinone dioxime deriv., as vulcanizing agent, 5623*c*.
***p*-chloro-**, anthraquinone dyes from, P 7705*g*.
from 1 - (*p* - chlorophenyl) - 1,3-butanedione, 2174*f*.
and *p*-chlorophenyl ester, as acaricides and insecticides, 3138*a*.
*p* - chloro - α - (trichloromethyl)benzyl ester, as insecticide, 2359*h*.
2 - ethoxyethyl ester, behavior in $H_2SO_4$, 569*d*.
in European-corn-borer control, 9336*e*.
as fungicide, 6351*f*.
methyl ester, isomorphism between *p*-$BrC_6H_4CO_2Me$ and, 5754*g*.
in penicillin production, 2273*c*.
**4(and 5) - chloro - 2 - (5-chloro-*o*-toloxy)-**, 225*h*.
***o* - (2 - chloro - 5,11 - dihydro - 11-quindolinyl)-**, 7930*i*.
***o* - (chloroformyl)-**, methyl ester, 7003*c*.
***o* - (chloroformylazo)-**, *o*-carboxyphenylhydrazone di-Me ester, 4259*i*.
***o* - [2 - (chloroformyl) - 1-hydroxyvinyl]-**, lactone, P 7850*b*.
**2 - chloro - 5 - (1 - hydroxy-2-naphthoylamino)-**, dye from, light absorption by, 7232*b*.
***p*-(chloromercuri)-**, effect on growth of *Avena* coleoptile and *Pisum* internodes, 5094*d*.
effect on metabolism of *Litomosoides carinii*, 2334*f*.
effect on psittacosis virus, 305*i*.
ethyl ester, 7922*e*.
**2 - chloro - 5 - (3 - methyl - 5-oxo - 2 - pyrazolin - 1 - yl)-**, disazo dyes from, P 8157*e*.
***o* - [6 - chloro - 1(or 2) - naphthoyl]-**, 2985*i*.
***o* - [7 - chloro - 1(or 2) - naphthoyl]-**, 2985*i*.
**2-chloro-4-nitro-**, 2190*a*.
***o* - (4 - chloro - 3 - nitrobenzoyl)-**, nitro dye from, P 7236*f*.
***o* - [2 - [chloro(*p* - nitrophenylazo)methylene]hydrazino]-**, methyl ester, 4260*a*.
***m*(and *p*) - (chlorophenylarsino)-**, and methyl esters, 3382*i*.
***p* - (*p* - chlorophenylsulfonyl)-**, P 862*i*.
***o* - [α - (1 - chloropropylidene)-benzyl]-**, and derivs., 2611*e*.
***o* - (5 - chlorosalicyloyl)-**, as stabilizer for polyvinylidene chlorides, P 2037*h*.
***m* - (chlorosulfonyl)-**, esters with *o*,*o'*-dihydroxy azo dyes, P 8153*g*.
reaction product with stearohydroxamic acid, for waterproofing textiles, P 7237*b*.
**o-(5-chloro-*o*-toloxy)-**, 225*c*.
***p* - [*p* - chloro - α - (trichloromethyl)benzyl]-**, P 6360*b*.
***o* - (5 - chloro - 2,4 - xyloxy)-**, 225*h*.
***p*-cinnamoyl-**, in drying oil manuf., P 422*e*.
***m*(and *p*)-(1-cyanoethylamino)-**, 1344*f*.
**o-(cyanomethyl)-**. See *Homophthalonitrile*.
***o* - (cyanomethylmercapto)-**, 2201*b*.
***m*(and *p*) - (cyanophenylarsino)-**, methyl esters, 3383*d*.
***p* - (cyclohexyloxy)-**, 3 - (2-methyl-1-piperidyl)propyl ester, -HCl, 8100*a*.
***p*-cyclopentyl-**, 1375*c*, 5752*b*.

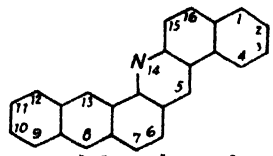
——, **3,5-diamino-**, reaction with aldehydes contg. an $\alpha$-$CH_2$ group, 3003*b*.
use of, in detn. of AcH, 3003*d*.
——, **3,5-diamino-2-[*p*-(3,5-dichlorophenylsulfamyl)phenylazo]-**, 4648*i*.
——, ***m*-(4,6-diamino-*s*-triazin-2-ylamino)-**, deriv., P 4880*e*.
——, **3,5-diamino-2-[*p*-(3,5-xylylsulfamyl)phenylazo]-**, 4648*i*.
——, ***m*-dibenzylamino-**, (omitted from abstr.), 1345*h*.
——, **2,6-dibromo-3,5-dimethoxy-**, and methyl ester, 1038*c*.
——, **2,4(2,6 and 3,4)-dichloro-**, spectra of, 2188*i*.
——, **2,4(and 3,4)-dichloro-**, chloroethyl esters, 5764*i*.
——, **2,5-dichloro-**, effect on tomato growth and fruiting, 2725*i*.
——, **3,4-dichloro-**, 2-ethoxyethyl ester, behavior in $H_2SO_4$, 569*e*.
ethyl ester, reaction with AcOH, 8367*h*.
as fungicide, 6351*f*.
——, **2,4-dichloro-5-methoxy-**, 6633*c*.
——, ***p*-(dichlorosulfamyl)-**, as germicide, 1573*b*.
——, **2,4-diethoxy-**, 1036*e*.
——, ***p*-diethylamino-**, esters with amino alcs., hydrochlorides, P 2640*c*.
*p*-sulfophenyl ester—see *Subcutine*.
——, **3-diethylamino-4-(2,3-dihydroxypropoxy)-**, butyl ester, P 2233*g*.
——, ***p*-(2-diethylaminoethoxy)-**, and derivs., 6592*a*.
——, ***p*-(α,β-diethyl-*p*-hydroxyphenethyl)-**, isomers, and derivs., 9055*i*.
——, ***p*-(α,β-diethyl-β-hydroxyphenethyl)-**, 4659*a*.
——, ***p*-(α,β-diethyl-*p*-methoxyphenethyl)-**, 9055*i*.
——, ***m*(and *o*)-(diethylsulfamyl)-**, anthraquinone vat dyes from, P 863*g*.
——, **dihydro-**. See *Cyclohexadienecarboxylic acid*.
——, ***o,o'*(9,10-dihydro-9,10-dioxo-1,5-anthrylenedicarbonyl)di-**, 1364*i*.
——, ***p*-[3-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)propyl]-**, 1387*e*.
——, ***o*-(5,11-dihydro-2-methyl-11-quindolinyl)-**, 7930*i*.
——, ***o*-(3,8-dihydro-8-oxoindeno[1,2]imidazol-2-ylcarbonyl)-**, and methyl ester, 7012*h*.
——, ***o*-(3,4-dihydro-3-oxo-2-quinoxalyl)-**, and monosalt with *o*-phenylenediamine, 7008*h*.
——, **2,3-dihydroxy-**. See *o-Pyrocatechuic acid*.
**2,4-dihydroxy-**. See *β-Resorcylic acid*.
——, **2,5-dihydroxy-**. See *Gentisic acid*.
——, **2,6-dihydroxy-**. See *γ-Resorcylic acid*.
——, **3,4-dihydroxy-**. See *Protocatechuic acid*.
——, **3,5-dihydroxy-**. See *α-Resorcylic acid*.
——, ***o*(and *p*)-(2,3-dihydroxyisobutoxy)-**, butyl esters, P 5421*c*.
——, ***m*(*o* and *p*)-(2,3-dihydroxypropoxy)-**, esters, P 2233*f*.
——, ***p*-(2,3-dihydroxypropoxy)-**, P 5794*g*.
and esters, effect on nervous system, 312*a*.
esters, surface tensions of aq. solns. of, 5655*e*.
——, **3(and 4)-(2,3-dihydroxypropoxy)-4(and 3)-nitro-**, butyl esters, P 2233*g*.
——, **3,5-diiodo-4-(*p*-nitrophenethyloxy)-**, 7585*c*.
——, **2,4-diisopropyl-**, 6182*h*.
——, **2,3-dimethoxy-**. See *o-Veratric acid*.
——, **2,4-dimethoxy-**, 7925*f*.
——, **2,5-dimethoxy-**, 6599*g*.
——, **3,4-dimethoxy-**. See *Veratric acid*.
——, ***o*-(2,2-dimethoxyethylmercapto)-†**, 2200*i*.
——, **4,6'-dimethoxy-3,3'-sulfonyldi-†**, 6995*d*.
——, **dimethyl-**. See *Xylic acid*.
——, **2,2-dimethyl-**. See *Hemellitic acid*.
——, **2,5-dimethyl-**. See *Isoxylic acid*.
——, **3,5-dimethyl-**. See *Mesitylenic acid*.
——, ***o*-(1,1-dimethylacetonyl)-**, 5762*d*.
**hylamino-**, P 3463*f*.
——, ***p*-dimethylamino-**, 1349*d*.
esters with amino alcs., hydrochlorides, P 2640*c*.
——, **3-dimethylamino-5-(1-hydroxy-2-naphthoylamino)-**, dye from, light absorption by, 7232*b*.
——, ***p*-(2-dimethylaminoisobutylamino)-**, and esters, 6183*i*.
——, ***p*-(2,5-dimethyl-1-pyrryl)-**, esters, P 690*h*.
——, ***m*(and *p*)-(dimethylsulfamyl)-**, anthraquinone vat dyes from, P 863*g*.
——, **dinitro-**. (*For indexing of esters, see note under* Benzoic acid.)
——, **2,4-dinitro-**, effect on autodisplacement of Pb, 2846*c*.
formation from nitration of 2,4,6-trinitrostilbene, 1733*e*.
and methyl ester, reaction with acetone in the presence of alkali, 6175*c*.
phenol coeff. of, 1493*f*.
——, **3,5-dinitro-**, alkynyl esters, 6571*f*.
allyl ester, 558*e*.
3-cyclohexen-1-yl ester, 7435*g*.
esters, 5015*g*.
with cycloalkanediols, 2173*d*.
with 1-nitro-3-penten-2-ol, 2926*i*.
and esters, reaction with acetone in the presence of alkali, 6175*c*.
reaction with diazo hydrocarbons, 4653*a*.
sodium salt, solvolysis in abs. $HNO_3$, 6495*h*.
soly. in anhyd $HNO_3$ 5265*a*.
——, ***p*-(2,3-dioxobutyl)-**, 2-phenylhydrazone, 1769*f*.
——, ***o*-[2-(*m*-1,3-dioxol-2-ylphenylcarbamyl)-1-hydroxyvinyl]-**, lactone, P 7850*b*.
——, **diphenyl-**. See *Terphenylcarboxylic acid*.
——, **3,3'-dithiobis[4-amino-**, dimethyl ester, 7476*g*.
——, **4,4'-dithiobis[3-nitro-**, diethyl ester, 3803*a*.
——, ***o*-[2-(*p*-dodecylphenylcarbamyl)-1-hydroxyvinyl]-**, lactone, P 7850*d*.
——, **2,5-endomethylene-1,4,5,6-tetrahydro-**. See *Bicyclo[2.2.1]-5-heptene-2-carboxylic acid*.
——, ***p*-(2,3-epoxypropoxy)-**, methyl ester, P 5794*g*.
——, ***p*-ethoxy-**, esters, local anesthetics, P 4430*d*.
piperazine salt, 235*e*.
——, **4-ethoxy-3,5-dinitro-**, 6991*e*.
——, **2-ethoxy-4-hydroxy-**, 1036*e*.
——, **4-ethoxy-3-nitro-**, 6991*e*.
——, ***m*-ethyl-**, 8367*e*.
——, ***p*-ethyl-**, 2603*b*.
*p* nitrophenylhydrazide, 7004*i*.
——, ***p*-ethylamino-**, 1344*h*.
——, **3-ethylamino-5-nitroso-**, 1344*h*.
——, **2-ethyl-4,6-dimethoxy-**, 2185*b*.
——, **5-ethyl-2,4-dimethoxy-**, 1033*c*.
——, **2,3-ethylenedioxy-**. See *1,4-Benzodioxan-7-carboxylic acid*.
——, ***p,p'*-(ethylenedioxy)di-**, polyesters with glycols, 5380*g*.
——, ***p,p'*-(ethylenedithio)di-**, dimethyl and polyethylene esters, P 7236*i*.
——, **2-ethyl-3-hydroxy-**, acetate, 197*c*.
——, ***o*-(ethylmercurimercapto)-**, sodium salt—see *Merthiolate*.
——, **2-ethyl-3-methoxy-**, derivs., 196*e*.
——, ***p*-(α-ethyl-*p*-methoxyphenacyl)-**, 9055*g*.
and ethyl ester, 4655*b*.
——, ***o*-(4-ethyl-3-methyl-5-oxo-2-pyrazolin-1-yl)-**, and lactone† of enol form, 5024*i*.
——, ***p*-(α-ethylphenacyl)-**, 4659*a*.
——, ***p*-(ethylsulfamyl)-**, anthraquinone vat dyes from, P 863*i*.
——, ***o*-[3(and 8)-fluoranthenylcarbonyl]-**, and methyl esters, 7473*h*.
——, ***p*-fluoro-**, ethyl ester, 6992*c*.
——, ***m*-formyl-**. See *Isophthalaldehydic acid*.
——, ***o*-formyl-**. See *Phthalaldehydic acid*.
——, ***p*-formyl-**. See *Terephthalaldehydic acid*.
——, **6-formyl-2,3-dimethoxy-**. See *Opianic acid*.
——, ***o*-(formylmethylmercapto)-**, and dimethyl acetals and other derivs., 2200*i*.
——, ***o*-[2-(*m*-formylphenylcarbamyl)-1-hydroxyvinyl]-**, lactone, P 7850*c*.
——, ***p*-β-2-furylacrylyl-**, in drying oil manuf., P 422*g*.
——, **2-β-glucosidoxy-5-methoxy-**, derivs., 3393*h*.
——, ***p*-heptyl-**, 2603*b*.
——, **hexahydro-**. See *Cyclohexanecarboxylic acid*.
——, ***p*-hexyl-**, 2603*b*.
——, ***o*-hydrazino-**, hydrazones with β-oxo esters, 5024*h*.
——, ***p*-hydrazino-**, hydrazones with hydroxy aldehydes and ketones, 5764*e*.
——, **2-hydrazino-5-sulfo-**, hydrazones, formazyl dyes from, P 5198*h*.
——, **hydroxy-**, esters, reaction with iso-PrMgBr, 2604*a*.
gum-formation inhibition in fuels by, and its esters and salts, P 8667*d*.
——, ***m*-hydroxy-**, combination with serum albumins, 4708*c*.
fate in animal organisms, 3911*i*.
phenol coeff. of, 1493*f*.
spectrum of, 8890*i*.
——, ***m*(and *p*)-hydroxy-**, free energy of ionization of, 8811*f*.
hydrogen polarity in $C_6H_5$ ring in, 8809*e*.
methyl esters, chelation in $C_{10}H_8$, 1243*c*.
oxidases for, formation by *Mycobacterium lacticola* of, 6274*g*.
reaction with 4-aminoantipyrine, effect of alkalies on, 1044*d*.
Rush nos. of, 8766*b*.
spectrum and mol.-field mechanism in, 2863*i*.
surface tension of aq., 8797*f*.
in urine of pregnant mares, 2685*i*.
——, ***o*-hydroxy-**. See *Salicylic acid*.
——, ***p*-hydroxy-**, and acetate and salt with 2-benzyl-2-thiopseudourea, 7936*a*.
α-amino-*p*-toluenesulfonamide salt, P 686*c*.
binding by proteins, 1241*e*.
buffered tanning solns. of, half wave reduction potential of, 4038*h*.
butyl ester carbamate, 593*e*.
butyl ester carbanilate, 593*f*.
butyl ester *p*-chlorocarbanilate, 593*g*.
butyl ester chloroformate, 593*c*.
butyl ester 4-chloro-2-methoxycarbanilate, 593*g*.
butyl ester *N*-(3-diethylaminopropyl)-carbanilate, 593*g*.
butyl ester dimethylcarbamate, 593*e*.
butyl ester, ester with 4-Bu ester of *p*-carboxycarbanilic acid, 593*h*.
butyl ester *N*-ethylcarbanilate, 593*g*.
butyl ester *o*-methoxycarbanilate, 593*c*.
butyl ester *p*-methoxycarbanilate, 593*g*.
butyl ester 6-methoxy-8-quinolinecarbamate, 593*h*.
butyl ester 5-methyl-5-*m*-dioxanecarbamate, 593*h*.
butyl ester 4-morpholinecarboxylate, 593*h*.
butyl ester 1-naphthalenecarbamate, 593*g*.
butyl ester *p*-nitrocarbanilate, 593*h*.
butyl ester 1-piperidinecarboxylate, 593*h*.
2-diethylaminoethyl ester, and -HCl, 6592*b*.
esters, bacteriostatic action of, 7193*d*.
cosmetic contg., P 7646*h*.
inhibition of antitrypanosomal activity of arsenoso compds. and acridines by, 319*i*.
ethyl ester, effect on germination of seed, 2357*e*.
fluorescence of, structure and, 7829*c*.
formation of, and derivs., in conjugation and deamination of *p*-hydroxybenzylamine, 2702*d*.
fungistatic activity of, effect of acetylation on, 4803*h*.
isobutyl ester carbanilate, 593*f*.
laurate, stearate, and other esters, waterproofing textiles, P 418*e*.
in lignins (plant and fecal), 2285*b*.
methyl ester carbanilate, 593*f*.
methyl ester, diabetic sirups contg., 3144*i*.
methyl ester, effect on molds, 714*h*.
methyl ester isobutylcarbamate, 593*e*.
nitration of, 1974*d*.
oxidation by mycobacteria, effect of streptomycin on, 714*e*.
potassium salt, compd. with *p*-hydroxybenzoic acid, structure of, 2484*g*.
propyl ester, as food disinfectant, 9279*g*.
protocatechnic acid from, 3386*i*.
——, ***o*-(α-hydroxybenzylmercapto)-lactone, antimalarial activity of, 5860*i*.

—, *o* - (*α* - **hydroxybenzyloxy**)-, lactone, antimalarial activity of, 5860*h*.
—, **4 - hydroxy - 3,5 - diiodo-**, derivs., as thyroxine antagonist, 7585*c*.
—, **4 - (4 - hydroxy - 3,5 - diiodophenoxy)-3,5-diiodo-**, antagonists of, 7585*d*.
thyroxine-like activity of, 2327*b*.
—, **4 - hydroxy - 3,5 - dimethoxy-**. See *Syringic acid*.
—, **2 - (3 - hydroxy - 4,4 - dimethyl-6-oxo - 1 - cyclohexen - 1 - yl) - 5-methoxy-**, δ-lactone, 5023*g*.
—, *p* - (**2 - hydroxy - 1,3 - dioxo - 2-indanylamino**)-, 7012*i*.
—, *o* - (**2 - hydroxy - 3,6 - disulfo-1-naphthylazo**)-, in analysis, 8954*d*.
—, *p*-**hydroxydithio-**, ethyl ester carbanilate, 593*f*.
ethyl ester *p*-methoxycarbanilate, 593*g*.
—, *o* - **2 - hydroxyethoxy-**, lactone, 2603*g*.
—, *p* - **2 - hydroxyethoxy-**, P 6236*d*.
polyesters from, P 1223*h*.
—, *p*-**1(and 2)-hydroxyethyl-**, 2188*h*.
—, *p*-**2-hydroxyethyl-**, P 6236*d*.
polyesters from, P 1223*h*.
—, *o* - (**1 - hydroxyethylmercapto**)-, lactone, antimalarial activity of, 5860*h*.
—, **5 - hydroxy - 2 - (2 - hydroxy - 4,4-dimethyl - 6 - oxo - 1 - cyclohexen-1-yl)-**, δ-lactone, 5023*g*.
—, **3 - hydroxy - 2 - (2 - hydroxy-*p*-toluyl)-**, 2984*g*.
—, **3-hydroxy-4-iodo-**, 191*c*.
—, **5-hydroxy-2-iodo-**, methyl ester, 191*i*.
—, **4-hydroxy-2-methoxy-**, 1036*d*.
—, **4 - hydroxy - 3 - methoxy-**. See *Vanillic acid*.
—, **2 - [6 - hydroxy - 1 - (2 - methoxyethyl) - 1*H* - naphtho[1,2]triazol-5-ylazo]-3,5-dinitro-**, P 3626*a*.
—, **hydroxymethyl-**. See *Cresotic acid*.
—, *m* - (**1 - hydroxy - 2 - naphthoylamino**)-, dye from, light absorption by, 7232*b*.
—, **3 - (1 - hydroxy - 2 - naphthoylamino) - 5 - nitro-**, dye from, light absorption by, 7232*b*.
—, *o*-(**4-hydroxy-1-naphthylazo**)-, P 4164*e*.
—, **5-hydroxy-2-nitro-**, *p*-toluenesulfonate, 216*a*.
—, **5 - hydroxy - 2 - (*p* - nitrophenylazo)-**, color reaction with Mg, 597*c*.
—, *o* - (**6 - hydroxy - 3 - oxo - 3*H*-isoxanth-9-yl**)-. See *Fluorescein*; for sodium deriv., Na salt, see *Uranin*.
—, *o*-(*o*-**hydroxyphenyl**)-, lactone—see "lactone" under *2-Biphenylcarboxylic acid, 2'-hydroxy-*.
—, *p*-(**3-hydroxypropoxy**)-, P 6236*d*.
polyesters from, P 1223*h*.
—, *o* - (**2 - hydroxyvinyl**)-, lactone—see *Isocoumarin*.
—, *m*-**iodo-**, and methyl ester, hydrazide and its hydrazones with aldehydes and ketones, 6973*d*.
—, *p*-**iodo-**, anhydride, 8353*d*.
—, **2-iodo-5-methoxy-**, methyl ester, 191*c*.
—, **4-iodo-3-nitro-**, ester with vitamin D₂, crystal structure, 2839*b*.
—, *p* - [**3 - (*m* - iodophenyl)ureido**]-, ethyl ester, 7448*a*.
—, *o*-**iodoso-**, effect on muscles, 1485*h*.
effect on psittacosis virus, 306*a*.
—, *p*-**isopropyl-**. See *Cumic acid*.
—, *m* - [**3 - (isopropylguanyl)guanidino**]-, hydrochloride, 2947*g*.
—, *m*-**mercapto-**, P 8171*h*.
—, *o*-**mercapto-**, P 3039*c*.
effect on chymotrypain, chymotrypsinogen and trypsin, 2254*f*.
—, *p*-**mercapto-**, ester with dithio-*p*-ureidobenzenearsonous acid, in amebiasis therapy, 8559*c*.
—, *m*-**methoxy-**, P 4699*d*.
methyl ester, 6608*f*.
in urine of pregnant mares, 2685*i*.
—, *m*(and *o*)-**methoxy-**, free energy of ionization of, 8811*f*.
salts with piperazine, 235*e*.
spectrum and mol.-field mechanism in, 2863*i*.
vinyl esters, P 5045*e*.
—, *p*-**methoxy-**. See *Anisic acid*.
—, **3 - methoxy - 2-[1(and 2)-naphthyl]-**, 205*d*.
—, **methyl-**. See *Toluic acid*.
—, **3,4-methylenedioxy-**. See *Piperonylic acid*.
——, *o* - (**3 - methyl - 5 - oxo - 2-pyrazolin-1-yl**)-, and hydrochloride and lactone† of enol form, 5024*h*.
——, *m*(and *p*) - (**methylphenylsulfamyl**)-, anthraquinone vat dyes from, P 863*g*.
——, *p* - (**methylsulfamyl**)-, anthraquinone vat dyes from, P 863*i*.
——, *p*-(**methylsulfonyl**)-, methyl ester, 1740*c*.
——, *o*(and *p*) - [**2 - (4 - morpholinyl)-1-nitrosopropylazo**]-, P 8154*c*.
——, *o* - **1**(and **2**) - **naphthoyl-**, effect of solvents on prepn. of, 209*g*.
——, *p* - [**3 - [1(and 2) - naphthylcarbamyl]ureido**]-, ethyl ester, 7447*ab*.
——, **2-(1-naphthyl)-5-nitro-**, 3396*g*.
——, **nitro-**. (*For indexing of esters, see note under* Benzoic acid.)
analysis of, for C and H, 6108*b*.
——, *m*-**nitro-**, phenylhydrazide, 1145*a*.
phenylhydrazide, as insecticide, 7181*i*.
viscosity of solns. of, 8243*cd*.
——, *m*(and *o*)-**nitro-**, phenol coeffs. of, 1493*f*.
——, *m*(*o* and *p*)-**nitro-**, ethyl esters, spectra of, 4574*h*.
fate in animal organism, 6717*h*.
free energy of ionization of, 8811*f*.
and 1-phenylhydrazides, 1345*a*.
polarography of, 5678*b*.
——, *m*(and *p*)-**nitro-**, anhydrides, 4240*i*.
esters with 2,3-butanediols, 3782*b*.
hydrogenation on colloidal Rh, rate of, 27*f*.
spectra of, 3715*c*.
——, *o*(and *p*)-**nitro-**, 8368*e*.
——, *p*-**nitro-**, 7021*d*.
aminoalkyl esters, salts, P 4697*a*.
2 - (2 - diethylaminoethylmercapto)ethyl ester, P 3461*c*.
esters, 1028*h*.
esters in chigger control, 8600*a*.
2 - ethylidene - 1 - *p* - tolylhydrazide, 1344*b*.
1 - (1 - naphthyl)hydrazides, 1346*a*.
from 1 - (*p* - nitrophenyl) - 1,3-butanedione, 2174*f*
2-phenylhydrazide and esters, as insecticides, 1896*c*.
salts with imidazole derivs., 7478*g*.
sodium salt, effect on viruses of psittacosis-lymphogranuloma group, 9249*h*.
——, *m*[*m*(and *p*) - **nitrobenzamido**]-, 1032*c*.
——, *p*-(*m*-**nitrobenzamido**)-, 1032*c*.
——, *p*-(*p*-**nitrobenzamido**)-, and esters, 1031*g*.
——, *p* - [*p* - (*p* - **nitrobenzamido**)-**benzamido**]-, and esters, 1031*h*.
——, *p* - [*p* - [*p* - (*p* - **nitrobenzamido**)-**benzamido**]**benzamido**]-, ethyl ester, 1031*i*.
——, *o* - (*m* - **nitrobenzoyl**)-, formation of, from 4'-nitro-2-*m*-nitrobenzoylbenzanilide, 1042*d*.
——, *o* - [*m*(*o* and *p*) - **nitrobenzylmercapto**]-, 3816*g*.
——, *p* - (**2 - nitroisobutylamino**)-, esters, 6183*f*.
——, **4-nitro-2-sulfo-**, and derivs., 1762*h*.
——, *m* - [**7 - [4 - (4 - nitro - 2 - sulfostyryl) - 3 - sulfophenyl]benzo-[1,2,3,4]bistriazole - 2(7*H*)-yl**]-, dyes from, P 1574*e*.
——, **3 - nitro - 4 - (tetrahydro - 3,5-dioxo - 1,2,4,2*H* - thiadiazin - 6-ylazo)-**, 1,1-dioxide, Na salt, P 4868*e*.
——, *p*-**nitrothiol-**, acetonyl ester, 653*h*.
——, *p* - [**3 - (3 - nitro - *p* - tolyl)ureido**]-, ethyl ester, 7448*c*.
——, *p*-**octyl-**, 2603*b*.
——, *p* - (**3 - oxo - 1 - butenylamino**)-, 7937*e*.
——, *o*-*α*-**oxobutyryl-**, methyl ester *α*-oxime, P 7510*d*.
——, *o* - [**2 - (5 - oxo - 2 - phenyl - 2-oxazolin - 4 - ylidene)ethylmercapto**]-, 2201*c*.
——, *o* - (**5 - oxo - 3 - phenyl - 2-pyrazolin-1-yl**)-, and lactone† of enol from, 5024*i*.
——, *p,p'* - [(**2 - oxotrimethylene**)**bis-(formylimino**)]**di-**, reaction with 2,5,6-triamino-4-pyrimidol, 5404*b*.
——, *p,p'*-**oxydi-**, dimethyl and polyethylene esters, P 7236*i*.
——, **pentachloro-**, spectrum of, 2188*i*.
——, **2,3,4,5,6-pentamethyl-**, hydrogenation of, 2964*b*.
——, **phenacyl-**. See *Toluic acid, α-benzoyl-*.
——, *o*-**phenoxy-**, 1349*e*.
——, **phenyl-**. See *Biphenylcarboxylic acid*.
——, *m*(and *p*)-**phenylarsinico-**, 3382*h*.
——, **phenylazo-**, ester with vitamin A₂, 2659*f*.
from nitrolignin and $PhNO_2$, 1973*i*.
——, *p*-**phenylazo-**, esters with natural estrogens, 5787*e*.
ester with 2,8 - dimethyl - 2-(4,8,12-trimethyltridecyl) - 6 - chromanol(?), 2620*g*.
——, *o* - (**2 - phenylcarbamyl - 1 - hydroxyvinyl**)-, lactone, P 7850*c*.
——, *m*(and *p*) - (**3 - phenylcarbamylureido**)-, ethyl esters, 7446*g*.
——, *p,p'* - (*p* - **phenylenedioxy**)**di-**, diethyl and polyethylene esters, P 7236*i*.
——, *o* - (*α* - **phenylhydrazonobenzylazo**)-, and copper and Ni complexes, 6589*b*.
——, *o*- (**1-phenylhydrazonooctylazo**)-, 5314*a*.
——, *p*-*α*-**phenylphenacylidene-**, 4812*h*.
——, *m*(and *p*) - (**phenylsulfamyl**)-, anthraquinone vat dyes from, P 863*g*.
——, *p* - (**phenylsulfonamido**)-, formaldehyde resin from, 5995*g*.
——, *m*(and *p*) - (**phenylsulfonyl**)-, P 862*i*.
——, *p* - (**phenylsulfonyl**)-, anthraquinone dye from, P 7706*d*.
——, *o* - (*α* - **phenyl - *o* - toluyl**)-, and cyclodehydration of, 4662*i*.
——, *m*(and *p*) - (**3 - phenylureido**)-, 170*i*.
——, *p* - **phosphonoamino-**, ethyl bis(*o*-methoxyphenyl) ester, 6178*g*.
——, *o* - (**1 - piperidyl - 4 - pyridylacetyl**)-, ethyl ester, di-HCl, P 3045*g*.
——, *o*-**propionyl-**, 4661*c*.
——, *p*-**propyl-**, 2603*b*, 9056*b*.
*p*-nitrophenylhydrazide, 7004*i*.
——, *o*-**pyridyl-**, isomers, methyl esters, and picrates, 3394*i*.
——, *p* - (**3 - pyridylcarbonylamino**)-, 5025*e*, 6622*f*.
——, *p*-**1-pyrryl-**, derivs., P 690*g*.
——, *p* - (**2 - quinoxalylmethyleneamino**)-, and ethyl ester, 3425*c*.
——, *p* - **stearoylamino-**, hydrazide, D-glucose deriv., P 9498*a*.
hydrazide, surface-active agent from glucose and, P 3639*a*.
——, **styryl-**. See *Stilbenecarboxylic acid*.
——, *m*(and *p*)-**sulfamyl-**, anthraquinone vat dyes from, P 863*g*.
——, *p*-**sulfamyl-**, 2188*h*.
esters, formaldehyde resins from, 5995*g*.
——, *o*-**sulfanilamido-**. See *Anthranilic acid, N-sulfanilyl-*.
——, **5,5' - sulfonylbis[2 - methoxy-**, 6994*g*.
——, **4,4' - sulfonylbis[3 - nitro-**, 3803*b*.
——, **2,3,4,5 - tetrachloro - 6 - propionyl-**, 2974*c*.
——, **tetrahydro-**. See *Cyclohexenecarboxylic acid*.
——, *p* - (**1,2,3,6 - tetrahydro - 1,3-dimethyl - 2,6 - dioxo - 9 - purinylmercuri**)-, ethyl ester, 7922*f*.
——, *o*-(**tetrahydronaphthoyl**)-, 7010*h*.
——, **2,3,4,6**(and **2,3,5,6**) **- tetramethyl-**, hydrogenation of, 2964*b*.
——, **2,3,5,6 - tetramethyl-**, and methyl ester, 1619*e*.
——, *p,p'*-**thiodi-**, dimethyl and polyethylene esters, P 7236*i*.
——, **thiol-**, acetonyl ester, 563*h*.
and anhydrosulfide, 8353*d*.
benzyl ester, hydrogenation of, P 3445*d*.
cyclohexyl ester, spectrum and structure of, 7410*d*.
esters with chloropropanol, 7420*c*.
hydrolysis of, 1753*h*.
oxidation of, with peroxyacetic acid, 6975*f*.
reaction with Raney Ni, 2597*d*.
*p*-sulfamylphenyl ester, 1739*b*.
——, *m*(and *p*) - (**3 - *p* - tolylcarbamylureido**)-, ethyl esters, 7446*h*.
——, **2,4,6 - tribromo - 3,5 - dimethoxy-**, and methyl ester, 1038*e*.
——, *p* - [*N* - (**2,2,2 - tribromopropyl**)-**acetamido**]-, P 6678*d*.
——, *p,p'* - (**2,2,2 - trichloroethylidene**)-**bis-**, 6000*b*.
—, **trihydroxy-**, color reaction with alk. earth hydroxides, 5337*e*.
—, **2,4,6-trihydroxy-**, effect on capillary resistance and blood 4876*c*.

—, **3,4,5-trihydroxy-**. See *Gallic acid*.
—, **triiodo-**, effect on flowering in *Xanthium*, 6705*cd*.
—, **2,3,5-triiodo-**, effect on indoleacetic acid action on growth, 2678*f*.
effect on plants, 4733*a*.
effect on respiration of plant tissue, 5456*i*.
—, **2,4,5-trimethoxy-**. See *Asaronic acid*.
—, **3,4,5-trimethoxy-**, 1743*d*, 2198*c*, 5763*d*, 8452*h*.
anhydride and 3,4,5-trimethoxybenzyl ester, 190*f*.
2-diethylaminoethyl ester hydrochloride, 1025*b*.
4-ester with the 4-gallate of gallic acid, tetraacetate, lowering of vapor pressure by, 5387*a*.
methyl ester, 1341*i*.
methyl ester, nitration of, 1974*d*.
—, **3,4,5 - trimethoxy - 2 - (*p*-methoxyphenylazo)-**, 190*d*.
—, **3,4,5 - trimethoxythiol-**, isopropyl ester, 190*g*.
—, **2,3,4**(and **2,3,6**) **- trimethyl-**, hydrogenation of, 2964*b*.
—, **2,4,5-trimethyl-**. See *Durylic acid*.
—, **2,4,6 - trimethyl-**. See *β-Isodurylic acid*.
—, *p* - [β - (**2,4,6 - trimethylbenzoyl**)**acrylylamino**]-, and esters, 7192*h*.
—, *m*(and *p*)-(**trimethylsilyl**)-, 8223*c*.
—, **trinitro-**, as catalyst in alkylation of phenols, P 7966*c*.
—, **2,4,6-trinitro-**, formation from nitration of 2,4,6 - trinitrostilbene, 1733*e*.
phenol coeff. of, 1493*f*.
reduction (partial) of, 592*h*.
thallous salt, 3352*f*.
—, *o* - **2 - triphenylenylcarbonyl-**, 1363*d*.
—, *m*(and *p*)-**ureido-**, as metabolic product, 6719*b*.
—, *p,p'* - [(*p* - **ureidophenylarsylene**)**dithio**]**di-**†, in amebiasis therapy, 8559*c*.
—, *p,p'* - (*p* - **xylylenedioxy**)**di-**, diethyl and polyethylene esters, P 7236*i*.
**Benzoic anhydride**, in acetic anhydride, behavior of, 2110*f*.
formation of, from $Bz_2O_2$, 4085*i*.
from $Cu(OBz)_2$ pyrolysis, 125*a*.
in pyrolysis of Ca benzoate, 1318*e*.
manuf. of, P 8398*f*.
prepn. of, 8353*c*.
reaction with BuMgBr, 565*e*.
***o*-Benzoic sulfinide**. See *Saccharin*.
**Benzoin**,

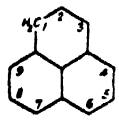



condensation with diaminopyrimidine derivs., 3010*d*.
condensation with hydroquinone, 7016*f*.
derivs., prepn. of, 2155*h*.
detn. of, 1280*g*.
ethers, as catalysts in photopolymerization of ethylene compds., P 444*a*.
formation of, in acetyl peroxide decompn. in hydrobenzoin, 3776*b*.
isoquinaldate and quinaldate, 9072*d*.
monophosphate dibenzyl ester†, 600*c*.
oxidation of, to benzil, 1368*a*.
in oxidation-reduction reactions in the presence of Raney Ni, 191*e*.
oxime, as catalyst in polymerization of olefins, P 4515*b*.
Cu complex, rotproofing effectiveness in duck, 5958*b*.
Cu deriv., 8222*c*.
reaction with PhNCO and PhNCS, 1038*f*.
as photopolymerization catalyst, P 9525*h*.
reaction with hydroquinone or with resorcinol, 2202*c*.
reduction of, 4241*h*.
**Benzoin, 3,4,3',4' - bis(methylenedioxy)-**. See *Piperonyloin*.
—, **4**(and **4'**)**-chloro-**, and quinaldates, 9072*d*.
—, **desoxy-**. See *Desoxybenzoin*.
—, **5,5'-dibromo-2,2'-bis(methoxymethoxy)-**, 4246*d*.
—, **5,5'-dibromo-2,2'-dihydroxy-**, and diacetate, 4246*e*.
—, **4,4'-dichloro-**, and derivs., 3368*i*.
—, **2,2' - diethyl - 3,3' - dimethoxy-**, 197*a*.
—, **2,2'**(and **3,3'**) **- dimethoxy-**, condensation with diaminopyrimidine derivs., 3010*d*.
—, **4,4'-dimethoxy-**. See *Anisoin*.
—, **4-dimethylamino-**, oxime, Beckmann rearrangement and reaction with PhNCS, 1038*i*.
—, **4 - dimethylamino - 3',4'-methylenedioxy-**, oxime, 1039*a*.
—, **4-methoxy-**, oxime, reaction with PhNCS, 1039*b*.
—, **2,2',3 3' - tetramethoxy-**. See *o-Veratroin*.
—, **3,3',4,4' - tetramethoxy-**. See *Veratroin*.
**Benzol(e)**. See *Benzene*.
**6,7-Benzolumazine**. See *Alloxazine*.
**Benzomorpholine**. See *1,4,2 H-Benzoxazine, 3,4-dihydro-*.
**Benzo[*b*]naphthacene**. See *Pentacene*.
**Benzonaphthacridine**,

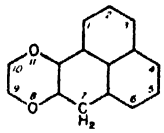


[*a*]—[2,3-*h*]

**Benzo[*a*]naphth[2,3-*h*]acridine - 5,8,13-(14 *H*)-trione**, absorption by cotton, 2776*f*.
**1 *H*-Benzonaphthene**,

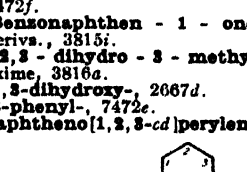


**1*H* - Benzonaphthene - 2 - carbonyl chloride, 1-oxo-**, 3816*b*
**1 *H* - Benzonaphthene - 2 - carboxylic acid, 1-oxo-**, 3815*i*.
**1 *H* - Benzonaphthene - 1,3(2 *H*) - dione, 2,2-dihydroxy-**, 2667*d*, 7378*h*
**1 *H* - Benzonaphthene - 1,2,3 - trione**, hydrate†, 2667*d*, 7378*h*.
**Benzonaphthenodioxin**,



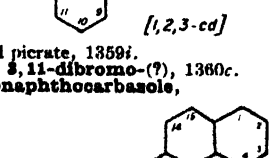
7*H*—[1,2]-*p*-

**7 *H* - Benzonaphtheno[1,2] - *p* - dioxin-7-one, 9,10 - dihydro - 9,10-diphenyl-**, 2985*a*.
**1 *H* - Benzonaphthen - 1 - ol, 2,3 - dihydro-3-phenyl-**, and benzoate, 7472*f*.
**1 *H* - Benzonaphthen - 1 - one**, and derivs., 3815*i*.
—, **2,3 - dihydro - 3 - methyl-**, and oxime, 3816*a*.
—, **2,3-dihydroxy-**, 2667*d*.
—, **3-phenyl-**, 7472*e*.
**Benzonaphtheno[1,2,3-*cd*]perylene**,



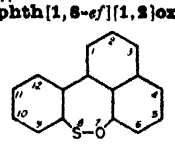
[1,2,3-*cd*]

and picrate, 1359*i*.
—, **3,11-dibromo-**(?), 1360*c*.
**Benzonaphthocarbazole**,



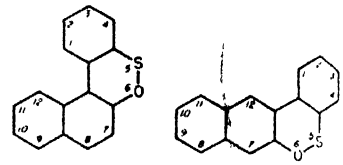
13—[*g*]—[2,3-*a*]

**13 *H* - Benzo[*g*]naphtho[2,3-*a*]carbazole 7,12 - dione, 6 - benzamido**(chloromethyl)-, dye from tetramethylthiurea and, P 8168*h*.
—, **6 - (*N* - 2 - naphthylacetamido)-** sulfonated dyes from, P 7704*d*.
—, **6 - (*N* - 2 - naphthylbenzamido)-** sulfonated dyes from, P 7704*d*.
**Benzonaphthone**. See *Ketone, naphthyl phenyl*.
**Benzo[*c*]naphth[1,8-*ef*][1,2]oxathiepin**,



[*c*]—[1,8-*ef*][1,2]

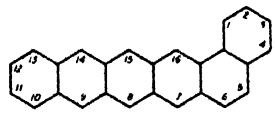
8,8 dioxide, 4249*g*.
**Benzonaphthoxathiin**,



[*c*]—[1,2-*e*]-*o*- [*c*]—[2,3-*e*]-*o*-

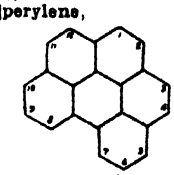
**Benzo[*c*]naphth[1,2-*e*]-*o*-oxathiin**, dioxide, 4249*g*.
**Benzo[*c*]naphth[2,1-*e*]-*o*-oxathiin**. *5-Oxa-6-thiachrysene*.
**Benzo[*c*]naphth[2,3-*e*] - - oxathiin**, 5,5-dioxide, 4249*g*.
**3,4 - Benzo - 1,7 - naphthyridine** See *Pyrido[3,4-c]isoquinoline*.
**Benzonitrile**, alkylation of, by Friedel Crafts reaction, 8367*c*.
alkylsulfonyl derivs., P 3846*a*
formation of, from PhCSNHCH Ph, 4652*e*.
in dehydrogenation of PhCH NOH, 5760*h*.
from reaction of benzoin oxime with PhNCS, 1038*h*.
hydrogenation of, in presence of HCO Et, 1336*c*.
hydrogenation of, rates of, 27*h*.
hydrogenolysis of, 7916*g*.
hydrolysis of, catalysis by $HgSO_4$, 1248*i*
hydrolysis of, kinetics of, 3697*a*.
manuf. of, P 1064*c*, P 3439*b,c*, P 3470, P 3836*g*.
phys. consts. of, 2592*b*.
reaction with chloral, 6605*a*
with diethanolamine, 2579*c*
with HCHO, 657*f*, 5405*e*.
reduction of, 1312*e*.
spectrum of, 2868*c*.
in wood preservation, 4418*b*.
**Benzonitrile, *m*-amino-**, spectrum of, 8890*i*.
—, ***o*-amino-**. See *Anthranilonitrile*
—, ***p*-amino-**, spectrum of, 3715*c*.
—, **3-amino-4,4'-oxydi-**, 9049*a*.
—, ***p*-2-anthryl-**, 4663*d*.
—, ***p*-(5-bromoamoxy)-**, 9048*f*.
—, **2 - bromo - 6 - ethyl-5-methoxy-**(?), 185*g*.
—, **4-bromo-2-ethyl-3-methoxy-**(?), 185*g*.
—, ***p*-(6-bromohexyloxy)-**, 9048*f*.
—, **2-bromo-5-methoxy-**, 191*b*.
—, **3 - bromo - 4,4' - oxydi-**, 9049*a*.
—, **3 - bromo - 4,4' - (pentamethylenedioxy)di-**, 9048*h*.
—, ***p*-(3-bromopropoxy)-**, 9048*f*.
—, **3 - bromo - 4,4' - (trimethylenedioxy)di-**, 9048*g*.
—, ***o*-chloro-**, formation from benzyl - *o* - chlorothiobenzamide, 4652*e*.
—, **2 - [2 - chloro - 4 - [(2 - hydroxyethyl)phenethylamino]phenylazo]-5-nitro-**, sulfate (acid ester), azo dye from, P 8155*b*.
—, **3 - chloro - 2 - [*p* - [(2 - hydroxyethyl)phenethylamino]phenylazo]-5-nitro-**, P 8155*c*.
—, ***p* - [2 - (4 - chloro - 6 - methoxy-4-quinolyl)vinyl]-**, 5757*b*.
—, **2-chloro-4-nitro-**, 2190*a*.
—, **3-chloro-4,4'-oxydi-**, 9049*a*.
—, **2 - [*p* - [2 - (*p* - chlorophenoxy)ethyl](2 - hydroxyethyl)amino]phenylazo]-5-nitro-**, P 8155*c*.

–, *p*,*p*'-(**chlorovinylene**)**di-**, P 2236*c*.
–, *o*-**cyclohexyl-**, 1359*f*.
*p*'- (**1,2 - dichloroethylene**)**di-**,
**2 - (2,4 - diethyltetrahydro-2,5-dioxo - 1,2,4,2***H* **- thiadiazin-6-ylazo) - 5 - nitro-**, 1,1 - dioxide, P 4868*g*.
**3,5 - diiodo - 4,4' - (trimethylenedioxy)di-**, 9048*g*.
**2,3-dimethoxy-**. See *o-Veratronitrile*.
**2,5(and 2,6) - dimethoxy-**, reaction with EtMgBr, 185*c*.
**2,4-dimethyl-**. See *2,4-Xylonitrile*.
*p*-**dimethylamino-**, formation of, in Beckmann rearrangement of 4-dimethylaminobenzoin oxime, 1039*a*.
**3,3'-dithiobis[4-amino-**, 7476*g*.
*p* - [**2 - (6 - ethoxy - 2 - quinolyl)-vinyl**]-, 5757*b*.
*m*-**ethyl-**, 8367*e*.
*o*-**ethyl-**, 4218*a*.
*o*(and *p*)-**ethyl-**, prepn. and phys. consts. of, 7439*gh*.
**2-ethyl-3-methoxy-**, 185*e*.
*p* - (*α* - **ethyl** - *p* - **methoxyphenacyl**)-, 9055*g*.
**3-fluoro-4-hydroxy-**, 9048*f*.
**4,4' - (hexamethylenedioxy)bis[3-chloro-**, 9048*h*.
**4,4' - (hexamethylenedioxy)bis[3-iodo-**, 9048*h*.
*m*-**hydroxy-**, spectrum of, 8890*i*.
*p*-**hydroxy-**, carbanilate, 593*f*.
**4-hydroxy-3-iodo-**, 9048*e*.
**4-hydroxy-3-nitro-**, 9048*f*.
**3-hydroxy-4,4'-oxydi-**, 9049*b*.
**3 - iodo - 4,4' - (hexamethylenedioxy)di-**, 9048*h*.
**2-iodo-5-methoxy-**, 191*b*.
**3-iodo-4,4'-oxydi-**, 9049*a*.
**3 - iodo - 4,4' - (pentamethylenedioxy)di-**, 9048*h*.
**3 - iodo - 4,4' - (trimethylenedioxy)di-**, 9048*g*.
*p*-**isopropenyl-**, 5629*e*.
**2 - isopropyl - 3 - methoxy-**, 185*e*.
*o*-**methoxy-**, reaction with Et MgBr, 185*d*.
*p*-**methoxy-**. See *Anisonitrile*.
**3 - methoxy - 2 - [1(and 2) - naphthyl]-**, 205*c*.
**3-methoxy-4,4'-oxydi-**, 9049*b*.
**3 - methoxy - 2 - (1,2,3,4 - tetrahydro-2-naphthyl)-**, 205*h*.
**2,3-methylenedioxy-**, reaction with EtMgBr, 186*b*.
*m*-**nitro-**, 7486*c*.
*m*(*o* and *p*)-**nitro-**, hydrolysis of, catalysis by $HgSO_4$, 1248*h*.
*p*-**nitro-**, hydrogenation on colloidal Rh, rate of, 27*f*.
**3-nitro-4,4'-oxydi-**, 9048*i*.
**3 - nitro - 4 - [tetrahydro - 2,4-bis(2 - methoxyethyl) - 5 - oxo - 3-thioxo - 1,2,4,2***H* **- thiadiazin - 6-ylazo)-**, 1,1-dioxide, P 4868*h*.
**3 - nitro - 4,4' - (trimethylenedioxy)di-**, 9048*g*.
**4,4'-oxybis[3-amino-**, 9049*b*.
**4,4'-oxybis[3-iodo-**, 9049*a*.
**4,4'-oxybis[3-nitro-**, 9049*b*.
**4,4' - (pentamethylenedioxy)bis-[3-bromo-**, 9048*g*.
**4,4' - (pentamethylenedioxy)bis-[3-chloro-**, 9048*g*.
**4,4' - (pentamethylenedioxy)bis-[3-iodo-**, 9048*h*.
**4,4' - (pentamethylenedioxy)bis-[3-methoxy-**, 9048*h*.
**3,3' - (pentamethylenedioxy)-bis[3-nitro-**, 9048*h*.
*p* - [**2 - (6 - phenanthridyl)vinyl**]-, 5757*b*.
**phenyl-**. See *Biphenylcarbonitrile*.
*p* - (*α* - **phenyl - o - toluyl**)-, 4663*b*.
*p* - [**2 - [2 - (and 4) - pyridyl]vinyl**]-, 5757*a*.
*p* - [**2 - [2(and 4) - quinolyl]vinyl**]-, 5757*a*.
**styryl-**. See *Stilbenecarbonitrile*.
**sulfamyl-**. See *Benzenesulfonamide, cyc*.
?,?-**sulfonylbis[?-methoxy-**, 6995*b*.
**5,5' - sulfonylbis[2 - methoxy-**, 9955*a*.
*p*,*p*' - (**1,1,2 - trichloroethylene**)**di-**, P 2236*d*.
**4,4' - (trimethylenedioxy)bis[3-bromo-**, 9048*g*.
**4,4' - (trimethylenedioxy)bis[3-fluoro-**, 9048*g*.
–, **4,4' - (trimethylenedioxy)bis[3-iodo-**, 9048*g*.
–, *p*,*p*' - (**trimethylenedioxy**)**di-**, 9048*f*.
——, *p*-**vinyl-**, 5629*e*.
**Benzoparadiazine**. See *Quinoxaline*.
**Benzo[*a*]pentacene**,



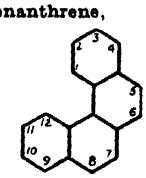
*[a]*

1362*c*.
**Benzo[*a*]pentacene - 7,9,14,16 - tetrone**, 1362*h*.
**Benzo[*ghi*]perylene**,



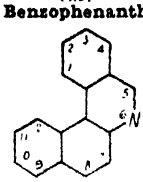
*[ghi]*

structure of, 2839*h*.
**1,12-Benzoperylene**. See *Benzo[ghi]perylene*.
**Benzo[*c*]phenanthrene**,

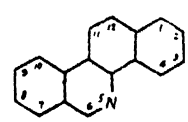


*[c]*

electron cloud distribution and reactivity of, 6905*i*.
spectrum and structure of, 4569*g*
—, **6-methyl-**, reaction with $OsO_4$, 8375*b*.
**Benzo[*l*]phenanthrene**. See *Triphenylene*.
**3,4-Benzophenanthrene**. See *Benzo[c]phenanthrene*.
**9,10-Benzophenanthrene** See *Triphenylene*.
**Benzophenanthridine**,

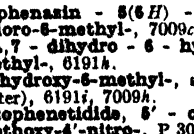


*[a]*



*[c]*

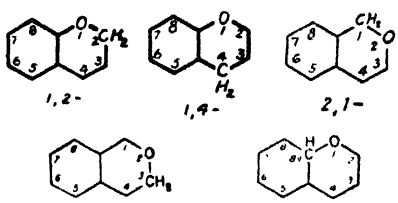
**Benzo[*a*]phenanthridine, 5 - amino-1,2,3,4-tetrahydro-**, 1779*e*.
——, **1,2,3,4-tetrahydro-**, and picrate, 1779*a*.
**Benzo[*c*]phenanthridine, 7,8,9,10-tetrahydro-**, and picrate, 1779*a*.
**Benzo[*a*]phenazine**,



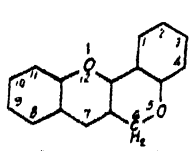
*[a]*

**Benzo[*a*]phenazin - 5(6***H***) - one, 6 - chloro-6-methyl-**, 7009*c*.
——, **6a,7 - dihydro - 6 - hydroxy - 6-methyl-**, 6191*h*.
——, **6-hydroxy-6-methyl-**, and acetate, (ester), 6191*i*, 7009*h*.
*o* - **Benzophenetidide, 5' - chloro** - *β*-**methoxy-4'-nitro-**, P 3034*b*.
**Benzophenone** (*diphenyl ketone*),
acylhydrazones†, 6972*fi*, 6978*c*.
anise, as catalyst in reaction of $C_2H_4$ with carboxylic acids, P 670*g*.
cleavage of, with *tert*-BuOK, 1349*b*.
compd. with phenol, infrared and Raman spectra of, 107*b*.
crystn. and nuclei in melt of, 3278*a*.
derivs., 7407*f*.
as insecticides, 7628*f*.
reaction with Grignard reagents, 8369*i*.
in tuberculosis chemotherapy, 8553*f*.
4,4'-dialkyl derivs., 7004*g*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
effect of vapors of, on aspergilli, 6277*b*.
formation of, from $Ph_2CHN{:}CHPh$ and $KNH_2$ in liquid $NH_3$, 2981*d*.
in nitration of $Ph_2CH_2$, 4217*b*.
in oxidation of $Ph_2CH_2$, 2194*b*.
in pyrolysis of Ca benzoate, 1318*b*.
from NaOBz distn., 7801*a*.
hydrazone, diazotization of, 5789*f*.
as insecticide, 5894*g*.
*O*-methyloxime, and salts, 7465*a*.
microwave absorption by, 2514*h*, 6019*g*.
in mosquito control, 1144*c*, 8602*g*.
in oxidation-reduction reactions in the presence of Raney Ni, 191*e*.
oxime, Beckmann rearrangement of, in presence of $O^{18}$, 5011*h*.
oxime, sulfonates, prepn. and reactions of, 2593*i*.
peroxide dimer, formation of, 5622*c*.
phenylhydrazone, as polymerization stopping agent, 8727*i*.
phenylhydrazone, reaction with NaOH, 1026*i*.
prepn. of, 565*e*, 1743*b*, 2178*b*.
in racemization of 2-methyl-1-butanol, 4215*c*.
reaction (photochem.) with Et orthoformate, 6515*d*.
reaction with 9,10-dihydroanthracene, 619*g*, 6194*b*.
reaction with Grignard reagents, 1718*h*.
reduction of, P 7509*g*.
solns. in $C_6H_6$ and paraffin oil, dielec. properties of, 6019*b*.
spectrum of, 3715*g*.
system: $C_2H_4$–, 4937*e*.
system: picric acid–, 6060*e*.
**Benzophenone, 4-amino-**, reaction products with maleic anhydride polymers with Me methacrylate, 8202*c*.
——, **2-benzhydryl-**, cyclization of, velocity of, 6194*d*.
——, **benzoyl-**. See *Benzene, dibenzoyl-*.
——, **2-benzyl-**, cyclization of, velocity of, 6194*d*.
— –, **2-benzyl-4'-bromo-**, 4663*c*.
cyclization of, velocity of, 6194*d*.
——, **2-benzyl-4'-chloro-**, 4663*b*.
cyclization of, velocity of, 6194*d*.
——, **4' - benzyl - 3',5' - dimethoxy-2,3,5,6-tetramethyl-**, 186*h*.
——, **2-benzyl-4'-fluoro-**, cyclization of, velocity of, 6194*d*.
——, **4' - benzyl - 2' - (*o* - methoxyphenyl) - 2,3,5,6 - tetramethyl-**, 187*a*.
——, **4' - benzyl - 3' - methoxy - 2,3,5,6-tetramethyl-**, 186*g*.
——, **2'**(and **4'**) **- benzyl - 3' - methoxy-2,4,6-trimethyl-**, 186*f*.
——, **1-benzyl-4'-methyl-**, cyclization of, velocity of, 6194*d*.
——, **4,4'-bis(allyloxy)-**, 7469*d*.
——, **4,4'-bis(benzyloxy)-**, 7469*d*.
——, **4,4' - bis(*p* - chlorophenyl)-**, (omitted from abstr.), 7927*e*.
——, **4,4' - bis(dimethylamino)-**, antifouling properties of, 3964*a*.
cleavage of, with *tert*-BuOK, 1349*d*.
as stabilizer for neoprene, P 9519*f*.
–, **4,4'-bis(ethylmercapto)-**, 7469*e*.
–, **4,4'-bis(methylmercapto)-**, 7467*g*.
–, **4,4' - bis(methylmercapto)thio-**, 7467*i*.
–, **4,4' - bis(methylnitramino)-3,3',5,5'-tetranitro-**, 2982*b*.
–, **4,4'-bis(propylmercapto)-**, 7469*e*.
–, **4-bromo-**, cleavage of, with *tert*-BuOK, 1349*d*.
–, **4-*tert*-butyl-**, 206*a*.
–, **4' - *tert* - butyl - 2,2',3,5,6,6'-hexamethyl-**, 8370*a*.
–, **4' - *tert* - butyl - 2,2',3,5,6 - pentamethyl-**, and dihydro deriv., 8370*a*.
–, **4 - *sec* - butyl - 2,3,5,6 - tetramethyl-**, 8370*a*.
–, **2**(and **4**)**-chloro-**, as insecticide, 5894*g*.
–, **4-chloro-**, reduction of, in the presence of (—)-Al(OCH₃CHMeEt)₃, 6155*g*.
–, **4-chloro-4'-iodo-**, 1765*b*.

——, **2-chloro-4'-phenyl-**, 7007*d*.
——, **4' - cyclohexyl - 2,3,5,6 - tetramethyl-**, 8369*i*.
——, **4,4'-diamino-**, 1367*g*.
*N, N, N', N'*-derivs., in chloroprene copolymerization, P 9519*e*.
*N, N, N', N'*-tetraalkyl derivs., as polymerization promoters, P 5230*f*.
——, **4,4'-dibromo-**, 9333*d*.
cleavage of, with *tert*-BuOK, 1349*d*.
——, **4,4'-dibutyl-**, and oxime, 7004*h*.
——, **2,4'(and 4,4')-dichloro-**, as insecticides, 2359*h*.
——, **4,4'-dichloro-**, 4245*i*, 7471*f*, 9333*d*.
as acaricide and insecticide, 3137*h*.
chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
in DDT spray deposits, 5148*d*.
as insecticide, 5894*g*.
reaction (photochem.) with Et orthoformate, 6515*e*.
——, **4,4'-diethyl-**, and *p*-nitrophenylhydrazone, 7004*h*.
——, **2 - (2 - diethylaminoethylamino)-2',6-dihydroxy-5-methyl-**, and picrate, 225*g*.
——, **2,4'-difluoro-**, 6186*h*.
——, **2,2'-dihydroxy-**, P 6666*d*.
——, **2,3'(and 3,4')-dihydroxy-**, P 4699*ce*.
——, **2,4(and 2,5)-dihydroxy-**, in mold inhibition in foods, 8065*h*.
——, **2,5-dihydroxy-**, and esters, 2187*g*.
——, **4,4'-dihydroxy-**, bis(allyl carbonate), P 4298*i*.
——, **2,4-dihydroxy-3,6-dimethyl-**, in mold inhibition in foods, 8065*h*.
——, **2,4-dihydroxy-6-methyl-**, in mold inhibition in foods, 8065*i*.
——, **2,4-dimethoxy-**, 183*c*.
——, **3,4'-dimethoxy-**, P 4699*e*.
——, **4,4'-dimethoxy-**, cleavage of, with *tert*-BuOK, 1349*d*.
reaction (photochem.) with Et orthoformate, 6515*d*.
——, **2',6' - dimethoxy - 2,3,5,6 - tetramethyl-**, 8370*a*.
——, **3',4' - dimethoxy - 2,3,5,6 - tetramethyl-**, prepn. and reaction with $PhCH_2MgCl$, 186*g*.
——, **2',5' - dimethoxy - 2,3,5,6 - tetramethyl-**, prepn. and reaction with $PhCH_2MgCl$, 186*h*.
——, **2',3'(and 3',4')-dimethoxy-2,4,6-trimethyl-**, prepn. and reaction with Grignard reagents, 186*f*.
——, **2',6'-dimethoxy-2,4,6-trimethyl-**, 8370*a*.
——, **2,4(and 2,5)-dimethyl-**, 7006*i*.
——, **4,4'-dimethyl-**, and derivs., 7004*h*.
reaction (photochem.) with Et orthoformate, 6515*d*.
——, **2 - [2 - (dimethylamino)ethoxy]-**, and hydrochloride, 2969*h*.
——, **4 - (2,5 - dimethyl - 1 - pyrryl)-**, 7007*f*.
——, **3,4'-dinitro-**, 4658*c*.
——, **4,4'-dinitro-**, 1367*g*.
——, **4,4'-diphenyl-**, 2980*a*.
——, **4,4'-dipropyl-**, and derivs., 7004*h*.
——, **4-ethoxy-**, P 6235*h*.
——, **2 - ethyl - 3,4' - dimethoxy-**, and hydrazone, 197*h*.
——, **2,2',3,4',5,6,6' - heptamethyl-**, reaction with *sec*-BuMgCl (attempted), 8370*c*.
——, **1,2,3,4,5,6 - hexahydro-**. See *Ketone, cyclohexyl phenyl*.
——, **2,2',3,5,6,6'-hexamethyl-**, 8370*a*.
——, **2(3 and 4)-hydroxy-**, elec. moments of, H bonds and, 6020*g*.
——, **4-hydroxy-**, in mold inhibition in foods, 8065*i*.
——, **2 - hydroxy - 3,4 - dimethoxy-**, and benzoate, 183*c*.
——, **2-hydroxy-4-methoxy-**, 183*c*.
——, **2(3 and 4)-methoxy-**, elec. moments of, H bonds and, 6020*h*.
——, **4-methoxy-**, P 7966*i*, P 7967*c*.
——, **2' - (*o* - methoxyphenyl) - 2,3,5,6-tetramethyl-**, prepn. and reaction with $PhCH_2MgCl$, 187*a*.
——, **2' - methoxy - 2,3,5,6 - tetramethyl-**, 187*a*.
——, **3' - methoxy - 2,3,5,6 - tetramethyl-**, prepn. and reaction with $PhCH_2MgCl$, 186*g*.
——, **4' - methoxy - 2,3,5,6 - tetramethyl-**, reaction with $PhCH_2MgCl$, 186*i*.
——, **3'-methoxy-2,4,6-trimethyl-**, reaction with $PhCH_2MgCl$, 186*g*.
——, **4' - methoxy - 2,4,6 - trimethyl-**, prepn. and reaction with $PhCH_2MgCl$, 186*h*.
——, **3' - methoxy - 2,4,6 - trimethyl-4'-phenyl-**, and monobromo deriv., 186*f*.
——, **2(and 4)-methyl-**, 1743*b*.
——, **2-α-methylbenzyl-**, cyclization of, velocity of, 6194*d*.
——, **4,4''-methylenedi-**, 5386*a*.
——, **4-(methylmercapto)-**, and derivs., 7467*f*.
——, **5 - methyl - 2 - methylmercapto-**, 7474*i*.
——, **4-phenethyl-**, 7007*a*.
——, **2,3,5,6-tetramethyl-**, 8369*i*.
——, **2,3,4-trimethoxy-**, 183*c*.
——, **3',4',5' - trimethoxy - 2,3,5,6-tetramethyl-**, prepn. and reaction with $PhCH_2MgCl$, 186*h*.
——, **2,4,5-trimethyl-**, 7006*i*, 7007*a*.
oxidation of, 1362*e*.
——, **2,4,6-trimethyl-**, 1351*e*.
**Benzophenonecarboxylic acid**. See *Benzoic acid, benzoyl-*.
**Benzopinacol** (*α,α' - bibenzhydrol, tetraphenyl-1,2-ethanediol*), 6515*e*.
formation from $Ph_2CO$, 619*f*, 6194*b*.
——, *s* - **4,4' - bis(methylmercapto)-**, 7467*h*.
——, **4,4',4'',4'''-tetrachloro-**, 6515*e*.
——, **4,4',4'',4''' - tetrakis(methylmercapto)-**, 7467*h*.
——, **4,4',4'',4'''-tetramethoxy-**, 6515*e*.
——, **4,4',4'',4'''-tetramethyl-**, 6515*e*.
**β-Benzopinacolone**. (For derivs. see under *Acetophenone*.)
**Benzopurpurin**, coagulation of gel, 922*d*.
**Benzopurpurin 4B**, diffusion in agar-agar gels, 7788*e*.
**Benzopyran**,

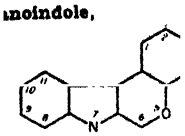



**2 *H* - Benzopyran, 3,4 - dihydro-**. See *Chroman*.
——, **2-oxo-** See *Coumarin*.
**4 *H*-Benzopyran, 2,3-dihydro-**. See *Chroman*.
——, **2,3 - dihydro - 2 - phenyl-**. See *Flavan*.
——, **4-oxo-**. See *Chromone*.
**8a *H*-Benzopyran**, derivs., 3418*e*
**1 *H*-Benzopyran, 3,4-dihydro-**. See *Isochroman*.
——, **1-oxo-**. See *Isocoumarin*.
**2 *H* - Benzopyran - 4 - acetamide, 7-hydroxy - *N* - 2 - hydroxyethyl - 2-oxo-†**, 3364*c*.
**2 *H* - Benzopyran - 4 - acetanilide, 6-ethyl - 7 - hydroxy - 2 - oxo-**, 6206*e*.
**2 *H* - Benzopyran - 3 - acetic acid, 4-hydroxy-2-oxo-**, and salts, 7935*f*.
——, **7 - methoxy - 4 - methyl - 2 - oxo-**, 7936*i*.
——, **4-methoxy-2-oxo-**, methyl ester, 7935*g*.
**2 *H* - Benzopyran - 4 - acetic acid, 6-acetyl-7-hydroxy-2-oxo-**, 6206*f*.
——, **6 - bromo - 7 - hydroxy - 2 - oxo-**, and esters, 6206*e*.
——, **6 - carboxy - 7,8 - dihydroxy - 2-oxo-**, 6-methyl ester, 6206*f*.
——, **6 - carboxy - 7 - hydroxy - 2 - oxo-**, esters, 6206*f*.
——, **6 - chloro - 7 - hydroxy - 2 - oxo-**, and esters, 6206*e*.
——, **6 - ethyl - 7,8 - dihydroxy - 2 - oxo-**, and esters, 6206*f*.
——, **6 - ethyl - 7 - hydroxy - 2 - oxo-**, and esters, 6206*e*.
——, **7-hydroxy-2-oxo-**, 1408*c*.
——, **7 - hydroxy - 2 - oxo - 6 - propyl-**, and esters, 6206*e*.
**4 *H* - Benzopyran - 6 - acrylic acid** (*β-1,4 H-benzopyran-6-ylacrylic acid*).
——, **3 - decyl - 7 - hydroxy - β,2 - dimethyl-4-oxo-**, δ-lactone, 6621*i*.
——, **3 - hexadecyl - 7 - hydroxy - β,2-dimethyl-4-oxo-**, δ-lactone, 6621*h*.
——, **7 - hydroxy - β,2 - dimethyl - 4-oxo-3-tetradecyl-**, δ-lactone, 6621*i*.
**2 *H* - Benzopyran - 4 - carbonitrile, 3-hydroxy-2-oxo-**, P 698*g*.
**1,2 *H* - Benzopyran - 3 - carbonyl chloride, 4 - (chloromethyl) - 7 - methoxy-2-oxo-**, 7936*h*.
——, **7-methoxy-2-oxo-**, 7936*f*.
**1,2 *H* - Benzopyran - 3 - carboxanilide, 7-methoxy - 4 - methyl - 2 - oxo-**, 7936*i*.
**1,2 *H* - Benzopyrancarboxylic acid, 3,4-dihydro-**. See *Chromancarboxylic acid*.
**1,2 *H* - Benzopyran - 3 - carboxylic acid, 6 - (*N*⁴ - acetylsulfanilamido) - 2-oxo-**, 2180*a*.
——, **6-amino-2-oxo-**, and ethyl ester, 2180*a*.
——, **4 - (chloromethyl) - 7 - methoxy-2-oxo-**, ethyl ester, 7936*h*.
——, **4 - hydroxy - 6,7 - dimethoxy - 2-oxo-**, ethyl ester, 7461*b*.
——, **7 - hydroxy - 6 - methoxy - 2 - oxo-**, 1770*e*.
——, **7 - hydroxy - 4 - methyl - 2 - oxo-**, and derivs., 7936*g*.
——, **5-hydroxy-6-nitro-2-oxo-**, ethyl ester, 7925*b*.
——, **7-hydroxy-8-nitro-2-oxo-**, ethyl ester, 7925*c*.
——, **4-hydroxy-2-oxo-**, methyl ester fungistatic activity of, 9334*d*.
——, **7-methoxy-4-methyl-2-oxo-**, and esters, 7936*h*.
——, **7-methoxy-2-oxo-**, and esters 7936*f*.
——, **6-nitro-2-oxo-**, 2180*a*.
——, **2-oxo-**, ethyl ester, prepn. of, 1770*f*
——, **2-oxo-6-sulfanilamido-**, 2180*b*
——, **4,6,7-trimethoxy-2-oxo-**, ethyl ester, 7461*b*.
**1,2 *H* - Benzopyran - 4 - carboxylic acid 3-hydroxy-2-oxo-**, ethyl ester, 693*g*.
**1,2 *H* - Benzopyran - 6 - carboxylic acid 7-hydroxydimethyl-2-oxo-**, 2993*i*.
——, **7 - hydroxy - 4 - methyl - 3,8 - dinitro-2-oxo-**, and esters, 2622*a*
methyl ester, 1045*d*.
——, **7 - hydroxy - 4 - methyl - 8 - nitro 2-oxo-**, and derivs., 2621*i*.
——, **7-hydroxy-4-methyl-2-oxo-**, methyl ester, 6206*g*.
——, **7-hydroxy-2-oxo-**, 2993*i*.
——, **7 - methoxy - 4 - methyl - 3,8 dinitro-2-oxo-**, and methyl ester 1045*d*.
——, **7 - methoxy - 4 - methyl - 8 - nitro 2-oxo-**, methyl ester, 2622*a*.
——, **7 - methoxy - 4 - methyl - 2 - oxo-**, 7936*i*.
methyl ester, nitration of, 1045*e*
**1,4 *H* - Benzopyran - 2 - carboxylic acid, 5-hydroxy-4-oxo-**, and ethyl ester, 4265*d*.
ethyl ester, spectrum of, 6919*b*
——, **4-oxo-**, ethyl ester, spectrum of, 6919*b*.
**1,4 *H* - Benzopyran - 3 - carboxylic acid, 6,7 - dimethoxy - 2 - (3,4 - methylenedioxystyryl)-4-oxo-**, 7461*i*
——, **6,7 - dimethoxy - 2 - methyl - 4-oxo-**, 7461*h*.
**2,1 *H* - Benzopyrancarboxylic acid, 3,4-dihydro-**. See *Isochromancarboxylic acid*.
**2,1 *H* - Benzopyran - 3 - carboxylic acid, 1-oxo-**, prepn. and decarboxylation of, 1045*e*.
**2,1 *H* - Benzopyran - 4 - carboxylic acid, 1-oxo-**, prepn. and decarboxylation of, 1045*e*.
**2,3 *H* - Benzopyran - 7 - carboxylic acid, 4,6 - dihydro - 8 - hydroxy - 3,4,5-trimethyl-6-oxo-**, identity with citrinin, and Me ester, 6206*c*.
**2,1 *H* - Benzopyran - 3,4 - dicarboxylic acid, 1 - oxo-**, dimethyl ester, 1045*f*.
**2,1 *H* - Benzopyran - 1,3(4 *H*) - dione**. See *1,3-Isochromandione*.
**Benzopyranobenzopyrylium**,



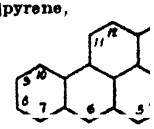

**6 - [1]Benzopyrano[4,3 - *b*][1]benzopyrylium compounds, 3,11-dimethoxy-6-methyl— salts**, 1771*d*.

**indole,**



*[i]—[3,4-b]*

[1]**Benzopyrano[3,4 - *b*]indol - 6(7*H*) one, 7-acetyl-3-hydroxy-†,** acetat 1772*b*.
——, **3-hydroxy-†,** 1772*b*.
1,2*H* - **Benzopyran - 3 - ol, 7 - methoxy ,** acetate, 1770*i*.
2*H* - **Benzopyran - 4 - ol, 2 - imin 6,7-dimethoxy-,** 7461*a*.
1,9*H* - **Benzopyran - 6 - ol, 2,5,7,8 - te ramethyl - 2 - (4,8,12 - trimet yltridecyl)-,** allophanate, P 1918*d*.
1,4*H* - **Benzopyran - 8 - ol, 4a,5,6,7,8,8a hexahydro - 2,5,5,8a - tetr methyl-,** 4813*g*.
1,2*H* - **Benzopyran - 3 - sulfonami 2 - oxo - *N* - (2 - oxo - 1,2*H* - ben opyran-6-yl)-,** 2179*f*.
1,2*H* - **Benzopyran - 6 - sulfonamide, 3 acetamido-2-oxo-,** 2179*g*.
——, **3-amino-2-oxo-,** 2179*g*.
——, **2-oxo-3-sulfanilamido-,** 2179*h*.
1,2*H* - **Benzopyran - 6 - sulfonyl chlori le, 3-acetamido-2-oxo-,** 2179*f*.
1,4*H* - **Benzopyran - 4,5,8 - trione, 2- (3,4 - dihydroxyphenyl) - 3,7 - di hydroxy-,** methylation of, 182*d*
——, **3,7-dimethoxy-2-phenyl-,** 6306*f*.
——, **2 - (3,4 - dimethoxyphenyl) - 3,7 dimethoxy-,** methylation of, 182*d*
——, **7-methoxy-2-phenyl-,** 637*d*
——, **3,6,7 - trimethoxy - 2 - (*p* - me h oxyphenyl)-,** 181*h*
**opyrazole.** See *Indo*
**o[*a*]pyrene,**

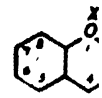


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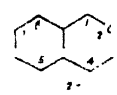
carcinogenic potency and elimination of, effect of nonlipide solus. on, 3071.
carcinogenic potency and rate of elimination of, effect of lipide solvents on, 307*d*
detection in animal organism, 5072*d*
effect on amphibia, 9243*a*.
on *Drosophila melanogaster*, 8525
on Ehrlich's adenocarcinoma, 4 33*i*
on guinea-pig embryo, 3516*e*.
on papain action, 5054*d*.
on protein flocculation, 5054*c*.
on regeneration in amphibia 61 t.
on serum complement, 5105*f*.
fate at place of injection and its rsistence in malignant tissue, 7574*a*
fluorescence of, 498*b*.
fluorescence of, in skin, 6
hyperplastic changes from kie uhr assocd. with, 5111*g*.
irradiated, spectrum of, 8715*g*.
linoleic acid-oxidation inhibition by, 5
metabolism of, in skin, 320*f*.
metabolites of, detn. of, 1824*a*.
myosarcoma in abdominal cavity of rat after painting skin with, 1100*i*.
neoplasms from—see *Cancer; Neoplasms, Sarcoma.*
papain inactivation by, 3476*g*.
reaction (attempted) with maleic anhydride, 2199*g*.
reaction with $OsO_4$, 8375*a*.
sarcoma from, during stilbene treatment, 6722*g*.
sarcoma from, in alloxan-diabetic rat, 3515*c*.
tumor production by, accelerator substances for, 750*c*.
**nzonyridine.** See *Quinoline.*
**neopyridoquinoline**



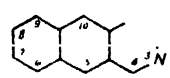
**Benzo[*f*]pyrido[4,3 - *b*]quinolin - 12(7*H*) one, 9,11-dimethyl-,** 3827*a*.
**Benzopyrone, dihydro-,** polymer, 397*e*.
**1,2-Benzopyrone.** See *Coumarin.*
**1,4 - Benzopyrone, 2,3 - dihydro - 2 phenyl-.** See *Flavanone.*
——, **2-phenyl-.** See *Flavo*
**2,1-Benzopyrone.** See *Isoc*



**ylium,**

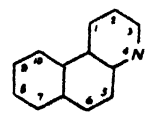


**nzopyrylium compounds,** 2-(2,4 dihydroxystyryl)— chloride, P 6100*d*, P 7849*c*.
2 - (4 - hydroxy - 3 - methoxystyryl acetate, P 6100*b*, P 7849*d*.
2 (*p* hydroxystyryl)— derivs., P 6100*d*, P 7849*c*.
2-(*p* methoxystyryl) — chloride, P 6100*c*, P 7849*c*.
2 - (3,4 - methylenedioxystyryl) — chloride, P 6100*e*, P 7849*c*.
2-phenyl— see *Flavylium compounds*
**2 - Benzopyrylium compounds,** 4 (*m*-nitrophenyl)— derivs., 5778*c*
4-phenyl - derivs , 5778*a*.
**5,6-Benzoquinaldic acid*,** in analysis,
**[quinazoline,**

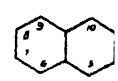


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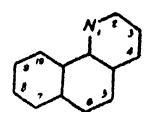
——, **2 - *p* - chloroanilino - 4 - (2 diethylaminoethylamino)-,** dihydrochloride trihydrate, 2952*a*.
——, **2 - chloro - 4 - (2 - diethylaminoethylamino)-,** hydrate, 2951*r*.
——, **2,4-dichloro-,** 2951*g*
**2,4-Benzo[*g*]quinazolinediol,** 2951*g*
**Benzoquinoi.** See *Quinol.*
**Benzoquinoline,**



*[f]*



*[g]*



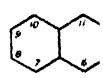
*[h]*

derivs., 1417*e*.
**Benzo[*f*]quinoline,** in analysis, 897 *b*.
as corrosion inhibitor for light metals, 4622*d*.
effect on acid attack of mild steel, 2917*g*.
in tungsten analysis, 7372*a*.
——, **1-amino-,** 1417*g*.
——, **1-amino-3-methyl-,** 1417*h*.
——, **3-amino-1-methyl-,** 1419*g*.
——, **1-chloro-3-methyl-,** 1417*g*.
——, **1(and 3)-chloro-3(and 1)-m** 7485*c*.
——, **3-chloro-1-methyl-,** 1419*f*.
——, **1-methyl-(?),** P 1444*a*.
——, **1(and 3)-methyl-,** 7485*a*.
——, **3-(5-methyl-2-thienyl)-,** 4
——, **3-methyl-1-*p*-toloxy-,** 1417
**Benzo[*g*]quinoline,** and derivs., 14
——, **4-acetamido-2-styryl-,** 141
——, **2-amino-,** 1420*c*.
——, **4-amino-,** 1420*a*.
——, **4 - amino - 10 - chloro - 2 - m ethyl-,** 1418*e*.
——, **4-amino-2-methyl-,** 1418*a*.
——, **3,4-diamino-,** and dihydrochloride, 1418*c*.
——, **4-methoxy-2-methyl-,** 1420*b*.
——, **4-methoxy-2-styryl-,** 1420*b*.
——, **4-methyl-(?),** P 1444*a*.
——, **3-nitro-,** 1420*c*.
——, **6,7,8,9-tetrahydro-,** dehydrogenation of, 1420*g*.
**Benzo[*h*]quinoline,** derivs., in protozoa infection therapy, 1485*a*, 8528*b*.
effect on acid attack of mild steel, 2917*g*.
——, **4-amino-,** 1417*g*.
——, **2-amino-4-methyl-,** 1419*g*.
——, **4-amino-2-methyl-,** 1418*a*.
——, **6(and 7)-amino-2-methyl-,** 1421*a*.
——, **4 - chloro - 2 - *p* - chloroanilino-,** P 7974*b*.
——, **2-chloro-4-methyl-,** 1419*g*.
——, **2,4-dichloro-,** 1419*h*, P 7974*b*.
——, **2-methyl-6(and 7)-nitro-,** 1421*a*.
——, **6-nitro-2-styryl-,** 1421*a*.
**5,6-Benzoquinoline.** See *Benzo[f]quinoline.*
**7,8-Benzoquinoline.** See *Benzo[h]quinoline.*
**Benzo[*f*]quinoline - 1 - carboxylic acid** (*5,6-benzocinchoninic acid*).
——, **3 - (*p* - dimethylaminophenyl)-,** halochromism of, 8391*g*.
——, **3-(5-methyl-2-thienyl)-,** 4666*g*.
**Benzo[*f*]quinoline - 3 - carboxylic acid,** in analysis, 6935*c*.
**Benzo[*g*]quinoline - 2 - carboxylic acid, 4-amino-,** 1420*a*.
——, **4-methoxy-,** 1420*b*.
**Benzo[*h*]quinoline - 4 - carboxylic acid** (*7,8-benzocinchoninic acid*).
——, **2-[3(and 5)-methyl-2-thienyl]-,** 4666*g*.
**Benzo[*h*]quinoline-2,4-diol,** 1419*h*.
**Benzo[*f*]quinolin - 1 - ol, 3 - methyl-,** 7485*c*.
**Benzo[*f*]quinolin - 3 - ol, 1 - methyl-,** 1419*f*, 7485*c*.
**Benzo[*g*]quinolin-4-ol,** 1420*b*.
——, **3 - (3 - carboxy - 2 - naphthylcarbamyl)-2-methyl-†, and sodium** salt, 1417*i*.
——, **10-chloro-2-methyl-,** 1418*e*.
——, **2-methyl-,** 1418*a*.
——, **3-nitro-,** 1418*b*.
**Benzo[*h*]quinolin-2-ol, 4-methyl-,** 1419*g*.
**Benzo[*h*]quinolin - 4 - ol, 2 - (5 - methyl-2-thienyl)-,** 4666*g*.
**Benzoquinolizine**



*[e]*

——, **1,2,3,5,6,7-hexahy** —
*Julolidine.*
**Benzoquinolizinium**



*[o]*

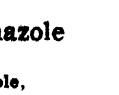
**Benzo[*b*]quinolizinium compo 7,8,9,10-tetrahydro— salts,** 80
**Benzo[*ij*]quinolizinium compo dodecahydro - 4 - methyl—** 5784*f*.
**Benzoquinone.** See *Quinone.*



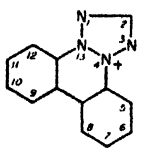
*[i]*

——, **2(and 3)-(*N*-acetylsu amido)-†,** 174*h*.
——, **2(and 3)-amino-,** 174*e*.
——, **2(and 3)-sulfanilamido-†,**
**4,5-Benzoselena-3′-cyanine iodi dimethyl-*,** P 7848*h*.
**4,5-Benzoselena-4′-cyanine iodi dimethyl-*,** P 7848*i*.

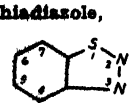
**Benzoselenazole,**



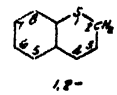
——, **2,3-dihydro-** See *Benzoselenazoline*.
**Benzoselenazoline**, dye derivs., P 7845*i*.
——, **2-[3-(2-benzothiazolyl)allylidene]-3-ethyl-**†, 8291*i*
——, **2-[2-(2,3-dihydro-5,7-dioxo-3-phenyl-5*H*-thiazolo[3,2-*a*]pyrimidin-6(7*H*)-ylidene)-butylidene]-3-ethyl-6-methoxy-**†, P 8925*c*.
——, **3-ethyl-6-methoxy-2-[2-(2,3,4,6-tetrahydro-6,8-dioxopyrimido(2,1-*b*]-*m*-thiazin-7(8*H*)-ylidene)ethylidene]-**†, P 8925*c*.
$\Delta^{2,7}$-**Benzoselenazolinecrotonic acid, α-2-benzothiazolyl-**, ethyl ester, 8292*b*
——, **α-cyano-3-methyl-β-methylmercapto-**, ethyl ester, P 7849*g*.
**Benzoselenazolium compounds**, 2-[4-(*N*-acetylanilino)-1,3-butadienyl]-3-ethyl— iodide, 2929*c*.
2-(4-anilino-1,3-butadienyl)-3-ethyl— salts, 6929*b*.
2-[5-(2-benzothiazolyl)-3-(3-ethyl-2-benzothiazolinylidene)-1,4-pentadienyl]-3-ethyl— iodide, ethiodide†, 2530*g*.
2,2′-[3-(3-ethyl-2-benzothiazolinylidene)-1,4-pentadienylene]bis[3-ethyl— iodide], 2528*i*.
3-ethyl-2-[[3-(3-ethyl-2-benzoselenazolinylidenemethyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]-methyl]— iodide, P 55*d*.
3-ethyl-2-[9-(3-ethyl-2-benzoselenazolinylidene)-1,3,5,7-nonatetraenyl]— iodide, 8291*e*.
3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-5-(2-quinolyl)-1,4-pentadienyl]— iodide, ethiodide†, 2531*a*.
3-ethyl-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4163*g*.
3-ethyl-2-[3-(3-ethyl-4-methyl-4-thiazolin-2-ylidene)propenyl]— iodide, 2531*e*.
3-ethyl-2-[4-hydroxy-3-phenyl-5-(*p*-sulfophenylazo)-4-thiazolin-2-ylidenemethyl]-5-methoxy— bromide, P 7846*a*.
3-ethyl-5-methoxy-2-(2-methylmercapto-1-butenyl)— iodide, P 515*a*.
3-ethyl-5-methyl-2-(2-methylmercapto-1-butenyl)— iodide, P 515*a*.
2,2′-[3-(3-ethyl-4-methyl-4-thiazolin-2-ylidene)-1,4-pentadienylene]bis[3-ethyl— iodide], 2529*d*.
3-methyl-2-[3-(3-methyl-2(3*H*)-benzothiazolylidene)-1-cyclohexen-1-yl]— bromide, P 4158*h*.
2,2′,2″-[nitrilotris(*p*-phenyleneevinylene)]tris[3-ethyl— iodide], P 4160*b*.
**Benzosuberan**. See *5H-Cycloheptabenzene, 6,7,8,9-tetrahydro-*
**1-Benzosuberanone**. See *5H-Cycloheptabenzen-5-one, 6,7,8,9-tetrahydro-*.
***o*-Benzosulfimide**. See *Saccharin*.
**Benzotetrazolocinnolinium,**



*[c]—[2,3-a]—4-*
**Benzo[*c*]tetrazolo[2,3-*a*]cinnol-4-inium compounds**, 2-phenyl— chloride, 5314*a*,
**Benzotetronic acid**. See *Coumarin, 4-hydroxy-*.
**1,2,3-Benzothiadiazole,**



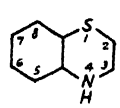
*1,2,3-*
**nitration of**, 221*h*.
——, **5-acetamido-6-methoxy-**, 5776*h*.
——, **5-bromo-**, 222*i*.
——, **5-chloro-**, 222*h*.
——, **5-(2-hydroxynaphthylazo)-**†, 222*i*.
——, **5-iodo-**, 222*i*.
——, **5-methyl-**, 221*h*.
——, **5-methyl-7-nitro-**, 221*h*.
——, **4(and 7)-nitro-**, 221*h*.
**1,2,3-Benzothiadiazol-5-ol**, 222*i*.
**Benzothiamorpholine**. See *1,4,2H-Benzothiazine, 3,4-dihydro-*.
**3′,4′-Benzothiaoxacarbocyanine iodide, 2,2′,4,5-tetramethyl-7,9-dimethylene-***, P 4158*e*.
**Benzothiapyran,**



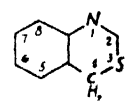
*4,2-* *4,1-*
**1,2*H*-Benzothiapyran, 3,4-dihydro-**, See *Thiachroman*.
**1,4*H*-Benzothiapyran, 2,3-dihydro-**. See *Thiachroman*.
**4,5-Benzothiathiazolocarbocyanine iodide, 3′,3′-ethylenebis(3-ethyl-4′-phenyl-***, P 3737*c*.
**Benzothiazine,**



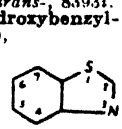
*1,4,2-*



*1,4-*



*3,1,4-*
**1,4,2*H*-Benzothiazine, 3,4-dihydro-**, 7421*b*.
——, **3,4-dihydro-2-phenyl-**, 7421*c*.
**1,4,4*H*-Benzothiazine, 2,3-dihydro-** See *1,4-Benzothiazine, 3,4-dihydro-*.
**3,1,4*H*-Benzothiazine**, and derivs, 4277*i*.
——, **2-amino-**, 4278*c*.
——, **2-chloro-**, 4278*d*.
——, **1,2-dihydro-1-phenyl-2-phenylimino-**, 4278*d*
**3,1,4*H*-Benzothiazine-3-carbonitrile**, 4278*b*.
**3,1,4*H*-Benzothiazine-3-carboxamide**, 4278*b*.
——, **thio-**, 4278*b*.
**3,1,4*H*-Benzothiazine-3-carboxylic acid**, and derivs., 4278*a*.
**3,1,4*H*-Benzothiazin-2-ol**, 4278*d*.
**1,4,2*H*-Benzothiazin-3(4*H*)-one**, 7421*d*.
——, **2-benzylidene-6,7-dimethoxy-**(?), *cis-* and *trans-*, 8393*i*.
——, **2-α-hydroxybenzyl-**, 7421*e*
**Benzothiazole,**

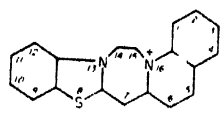


1766*f*.
ammeline and melamine derivs. of, P 2024*g*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
2-carboxyalkoxy derivs., as plant-growth regulators, P 5154*d*.
derivs., 5395*c*.
and derivs., 7475*g*, 7476*a*.
derivs., in protozoa infection therapy, 1485*a*, 8528*b*.
dye derivs., P 4158*i*.
dye derivs. and dye bases, P 4160*f*.
and methyl derivs., electronic structure and chem. reactivity of, 2511*g*.
prepn. of, 2021*df*.
pseudocyanine dye deriv., P 8926*g*.
refraction of, temp. and, 7284*g*.
spectra (Raman and infrared) of, 3716*d*.
**Benzothiazole, 5-acetamido-**, 5777*a*.
——, **6-acetamido-**, 5776*i*.
——, **6-acetamido-5-chloro-**, 5776*i*, 5777*a*.
——, **6-acetamido-5-methoxy-**, 5776*h*.
——, **2-acetamido-6-methylmercapto-**, 2617*h*.
——, **2-acetamido-6-(methylsulfonyl)-**, 2617*h*.
——, **2-(*p*-acetamidophenyl)-6-methyl-**†, spectrum of, 3292*h*.
——, **α-acetylacetamido-**. See *Acetoacetamide, N-benzothiazolyl-*.
——, (***N*-acetylsulfanilamido)-**. See *Acetanilide, p-(benzothiazolylsulfamyl)-*.
——, **2-[2-(3-allyl-4-hydroxy-2-thioxo-4-thiazolin-5-yl)-1-(2-benzoxazolyl)vinyl]-**†, P 4159*b*, P 8928*b*
——, **2,2′-[4-(3-allyl-4-hydroxy-2-thioxo-4-thiazolin-5-yl)-1,3-butadienylidene]bis-**†, P 4159*b*, P 8928*b*.
——, **2,2′-2-(3-allyl-4-hydroxy-2-thioxo-4-thiazolin-5-yl)vinylidene]bis-**†, P 4158*i*, P 8928*b*.
——, **2-(allylmercapto)-**, as insecticide, 4415*a*.
——, **2-amino-**, azamethine dye from, p 8166*g*.
chloroacetate, 5022*b*.
derivs., 2617*g*.
spectrum of, 1766*h*.
——, **6-amino-**, 5776*i*, 7476*b*.
bromo derivs., 7476*i*.
——, **2-[*p*-(*p*-aminobenzamido)phenyl]-6-methyl-**†, disulfo deriv., polyazo dyes from, P 4479*c*.
——, **2-amino-6-bromo-**, spectrum of, 1766*h*.
——, **6-amino-7-bromo-**, 7476*i*.
——, **2-amino-4-bromo-6-methyl-**, spectrum of, 1766*i*.
——, **2-amino-6-chloro-**, spectrum of, 1766*h*.
——, **6-amino-5-chloro-2-phenyl-**, 5776*c*.
——, **2-amino-4,6-dimethyl-**, spectrum of, 1766*i*.
——, **2-amino-6-fluoro-**, spectrum of, 1766*h*
——, **2-amino-6-iodo-**, spectrum of, 1766*i*.
——, **6-amino-5-methoxy-2-phenyl-**, 5776*c*
——, **2-amino-6-methylmercapto-**, 2617*h*.
——, **2-amino-6-(methylsulfonyl)-**, 2617*h*.
——, **2-(*p*-aminophenyl)-**, dye from, P 5600*h*.
——, **5-amino-2-phenyl-**, 5776*d*.
——, **2-(*p*-aminophenyl)-6-methyl-**, azamethine dyes from, P 8166*d*
azo 5-pyrazolone dyes from, P 8149*f*
and derivs., spectra of, 3292*g*.
dye from, P 5600*g*.
stilbene triazine dyes from, P 5965*f*
——, **2-(4-amino-3-sulfophenyl)-6-methyl-**†, stilbene dyes from, P 1575*c*.
——, **2-(amino-*m*-tolyl)dimethyl-**, dye from, P 7705*e*.
——, **2-(aminoxylyl)-4,6,7-trimethyl-**, dye from, P 5600*h*.
——, **2-anilino-**, prepn. of, 2021*dc*
——, **2,2′-(azodi-*p*-phenylene)bis-**, bis(methylmercaptomethyl) deriv., P 8146*i*.
——, **2,2′-(azodi-*p*-phenylene)bis[6-ethoxy-**, bis(methylmercaptomethyl) deriv., P 8146*i*.
——, **2,2′-(azodi-*p*-phenylene)bis[6-methyl-**, derivs., and sulfonium dyes from, P 8146*h*.
——, **2-[1-(2-benzoxazolyl)-4-(5-hydroxy-3-methyl-1-phenyl-4-pyrazolyl)-1,3-butadienyl]-**†, P 8928*a*.
——, **2-[1-(2-benzoxazolyl)-4-(1,2,3,4-tetrahydro-6-hydroxy-4-oxo-2-thioxo-5-pyrimidyl)-1,3-butadienylidene]bis-**†, P 8928*c*.
——, **benzoyl-**. See *Ketone, benzothiazolyl phenyl*.
——, **2-benzylamino-6-methylmercapto-**, 2618*c*.
——, **2-benzylamino-6-(methylsulfinyl)-**, 2618*b*.
——, **2-benzylamino-6-(methylsulfonyl)-**, 2618*a*.
——, **2-(*p*-benzylideneaminophenyl)-6-methyl-**, spectrum of, 3292*h*.
——, **6-bromo-**, 7476*d*.
——, **4-bromo-6-chloro-2-methylamino-**, spectrum of, 1766*i*.
——, **4-bromo-2-isobutylamino-6-methyl-**, spectrum of, 1766*i*.
——, **2-butyl-**, spectra (Raman and infrared) of, 3716*d*.
——, **carbamido-**. See *Urea, benzothiazolyl-*.
——, **2-chloro-**, P 6670*c*.
——, **6-chloro-**, and picrate, 7476*d*.
——, **2-chloro-6-ethoxy-**, P 6670*c*.
——, **2-chloro-6-methoxy-**, P 6670*c*.

—, **2 - chloro - 6 - methylmercapto-**, 2618*a*.
—, **2 - chloro - 6 - (methylsulfinyl)-**, 2618*a*.
—, **2 - chloro - 6 - (methylsulfonyl)-**, 2617*i*.
—, **2-chloro-4(and 5)-nitro-**, P 6670*c*.
—, **5-chloro-6-nitro-2-phenyl-**, 5776*c*.
—, **2-chloro-5-phenyl-**, P 6670*c*.
—, **2-(di-2-benzoxazolylmethyl)-†**, P 5807*h*.
—, **2-(4-diethylaminobutylamino)-**, dihydrochloride, 2618*a*.
—, **2-(4-diethylaminobutylamino)-6-methylmercapto-**, dihydrochloride, 2618*c*.
—, **2-(4-diethylaminobutylamino)-6-(methylsulfinyl)-**, dihydrochloride, 2618*b*.
—, **2-(3-diethylaminopropylamino)-**, dihydrochloride, 2618*a*.
—, **2-(3-diethylaminopropylamino)-6-methylmercapto-**, dihydrochloride, 2618*c*.
—, **2-(3-diethylaminopropylamino)-6-(methylsulfinyl)-**, dihydrochloride, 2618*b*.
—, **2,3-dihydro-**. See *Benzothiazoline*.
—, **6-(*p*-dimethylaminobenzylideneamino)-**, 7476*c*.
—, **2-[*p*-(*p*-dimethylaminobenzylideneamino)phenyl] - 6 - methyl-**, spectrum of, 3292*k*.
—, **2-(2-dimethylaminoethoxy)-**, hydrochloride, 5783*a*.
—, **2-dimethylamino-4-methyl-**, spectrum of, 1766*i*.
—, **2 - (*p* - dimethylaminostyryl)-**, 8292*c*.
—, **2-(2,4-dinitrophenylmercapto)-**, as nonscorching accelerator in fine C black reinforced rubbers, 1210*g*.
as rubber vulcanization accelerator, 7744*b*.
—, **2-(2,4-dinitrophenylmercapto)-6-nitro-**, 2022*ab*.
—, **2,2'-[4-(2-diphenylamino-4-hydroxy - 5 - thiazolyl) - 1,3 - butadienylidene]bis-†**, P 4159*b*, P 8927*b*
—, **2-di-4-quinolylmethyl-†**, P 5807*i*.
—, **2,2'-dithiobis-**, 2015*f*.
as catalyst in isomerization of maleic acid, P 1798*f*.
and derivs., P 5426*a*.
detection of, and transformations during vulcanization, 6856*i*
effect on Hycar OR 15, 3649*c*.
on Neoprenes, 3225*g*
on tensile strength *vs.* time of cure curves of rubbers, 6857*h*.
on yield of cyclic and polysulfides in dihydromyrcene reaction with S, 4886*d*.
mixt. with *N*-cyclohexyl-2 benzothiazolesulfenamide, low compression set in nitrile rubbers by, 7255*f*
reaction products with diarylguanidines as rubber-vulcanization accelerators and activators, P 8191*e*.
in rubber-bonding mixt., 4887*h*.
spectrum and structure of, 7410*i*.
as vulcanization accelerator, 7744*b*
—, **2,2'-dithiobis[6-nitro-**, 2022*ab*.
—, **2-(2-ethoxyethylmercapto)-**, as insecticide, 4415*a*.
—, **6-ethoxy-2-mercapto-**, hydrolysis of, P 1438*f*.
—, **2-ethyl-**, refraction of, temp. and, 7284*g*.
spectra (Raman and infrared) of, 3716*d*.
—, **2-ethylamino-6-methyl-**, spectrum of, 1766*i*.
—, **2-[3-(3-ethyl-2-benzoselenazolinylidene)propenyl]-**, 8291*i*.
—, **2,2'-[4-(3-ethyl-4-hydroxy-2-thioxo - 4 - oxazolin - 5 - yl) - 1,3-butadienylidene]bis-†**, P 8927*b*.
—, **2,2'-[6-(3-ethyl-4-hydroxy-2-thioxo - 4 - thiazolin - 5 - yl) - 1,3,5-hexatrienylidene]bis-†**, P 4159*c*, P 8928*a*.
—, **2-(ethylmercapto)-**, as insecticide, 4415*a*.
—, **2-hydrazino-**, 7476*h*.
—, **6-hydrazino-**, 7476*e*.
—, **2-hydrazino-6-nitro-**, resonance in, and its derivs., 5395*h*.
—, **2-hydroxamino-6-nitro-**, resonance in, 5395*h*.
—, **2-(2-hydroxyethylmercapto)-**. See *Ethanol, 2-(2-benzothiazolylmercapto)-*.
—, **2 - (3 - hydroxy - 2 - naphthoylamino)-**. See *2-Naphthamide, N-2-benzothiazolyl-3-hydroxy-*.
—, **2-(*p*-hydroxyphenyl)-6-methyl-†**, and acetate, spectra of, 3292*k*.
—, **2-isobutyl-**, spectra (Raman and infrared) of, 3716*d*.
—, **2-isobutylamino-4-methyl-**, spectrum of, 1766*i*.
—, **2-(isobutylmercapto)-**, as insecticide, 4415*a*.
—, **2-isopropyl-**, spectra (Raman and infrared) of, 3716*d*.
—, **2-(isopropylmercapto)-**, as insecticide, 4415*a*.
—, **mercapto-**, optical crystallographic data for, 6105*f*.
—, **2-mercapto-**. (See also *2(3H)-Benzothiazolethione*.)
in analysis of Pt group metals, 60*c*.
as analytical reagent, 4974*d*.
antithyroid activity of, 9242*b*.
biguanide and substituted biguanide salts of, as antioxidants in soaps, P 5215*i*.
compd. with 2-aminoethanol, for addn to drilling muds, P 6402*e*.
as corrosion inhibitor, 7401*c*.
crystal structure of, 6033*f*.
derivs , 1767*d*
detection in rubber, 892*i*.
detection of, and transformations during vulcanization, 6856*i*.
effect on aging properties and discoloration of rubber, 7740*d*.
on ebonite, 430*g*
on Hycar OR 15, 3649*c*.
on polymerization of allyl and methacrylate compds , 8199*f*.
on tensile strength *vs.* time of cure curves of rubbers, 6857*h*.
on yield of cyclic and polysulfides in dihydromyrcene reaction with S, 4886*c*.
2-furaldehyde corrosiveness and polymerization inhibition by, P 9430*i*
hydrolysis of, and derivs., P 1438*c*.
oxidation of, and derivs., P 5426*a*
oxidation of, in NaOH solns., 2021*f*
palladium, Pt and Rh derivs , 60*c*
as polymerization stopping agent, 8727*i*.
prepn. of, 2021*de*.
reaction of, and its derivs. with $SO_2Cl_2$, P 6670*c*.
reaction products with HCHO and $NH_3$, P 6239*d*.
as rubber antioxidant and vulcanizat on accelerator, 9516*g*.
in rubber-bonding mixt , 1887*h*
in rubber tread-type mix formulation, 1889*a*.
and sodium deriv., as catalysts in isomerization of maleic acid, P 1798*f*.
soly. in Na xylenesulfonate solns , 1242*f*.
spectrum and structure of, and its derivs., 7410*i*
as stabilizer for aerosols, 9330*e*.
as stabilizer for polysulfone resins, P 9527*e*.
thallium deriv., drying or ignition temp. limits for analytical ppts. of, 63*h*.
as vulcanization accelerator, 2022*egh*, 7744*b*, 8192*bdf*, 8193*b*, 8729*g*.
—, **2-mercapto-5(and 6)-methyl-**, hydrolysis of, P 1438*c*.
—, **2-mercapto-6-nitro-**, 2022*ab*.
in cabbage-caterpillar control, 3137*a*.
—, **2-mercapto-4-phenyl-**, hydrolysis of, P 1438*c*.
—, **2-methyl-**, bond lengths in, naphthalenoid character and, 3814*b*.
electronic structure and chem. reactivity of, 2511*i*.
refraction of, temp and, 7284*g*.
spectra (Raman and infrared) of, 3716*d*.
tautomerism of, 2853*c*.
—, **2,2'-(methylenedithio)bis-**, P 3737*i*.
—, **2,2',2''-methylidynetris-**, P 5807*g*
—, **2-methylmercapto-**, as insecticide, 4415*a*.
—, **6-methylmercapto-2-(1-piperidyl)-**, 2618*c*.
—, **6-(methylsulfinyl)-2-(1-piperidyl)-**, 2618*b*.
—, **6-(methylsulfonyl)-2-(1-piperidyl)-**, 2618*a*.
—, **4(and 6)-nitro-**, 5776*h*.
—, **6-nitro-**, 2022*a*, 7476*b*.
derivs., resonance in, 5395*c*.
—, **6-nitro-2-*p*-phenetidino-**, resonance in, 5395*h*.
—, **2-phenyl-**, 7476*a*.
—, **2,2'-*p*-phenylenebis-**, 5776*d*.
—, **2,2'-*m*-phenylenebis[5-α-acetylacetamido-**, 5776*g*.
—, **2,2'-*o*-phenylenebis[6-α-acetylacetamido-**, 5776*g*.
—, **2,2'-*p*-phenylenebis[5(and 6)-α-acetylacetamido-5-chloro-**, 5776*f*.
—, **2,2'-*m*(and *p*)-phenylenebis[6-α-acetylacetamido - 5 - methoxy-**, 5776*e*.
—, **2,2'-*m*-phenylenebis[5-amino-**, 5776*g*.
—, **2,2'-*o*-phenylenebis[6-amino-**, 5776*g*.
—, **2,2'-*p*-phenylenebis[5(and 6)-amino-**, 5776*e*.
—, **2,2'-*m*(*o* and *p*)-phenylenebis[6-amino-5-chloro-**, 5776*e*.
—, **2,2'-*m*(and *p*)-phenylenebis[6-amino-5-methoxy-**, 5776*e*.
—, **2,2' - *o* - phenylenebis[6 - nitro-**, 5776*g*.
—, **2,2' - *p* - phenylenebis[6 - nitro-**, 5776*e*.
—, **2-propyl-**, spectra (Raman and infrared) of, 3716*d*.
—, **2-propylmercapto-**, as insecticide, 4415*a*.
—, **2,2'-[2(and 4)-quinolylmethylene]-bis-†**, P 5807*h*.
—, **2-styryl-**, 3429*a*.
—, **sulfanilamido-**. See *Sulfanilamide, N¹-benzothiazolyl-*.
—, **sulfonylbis-**, derivs., in tuberculosis therapy, 3518*d*
—, **2,2'-[4-(1,2,3,4-tetrahydro-6-hydroxy - 2,4 - dioxo - 5 - pyrimidyl)-1,3-butadienylidene]bis-†**, P 8928*c*.
—, **2,2'-tetrathiobis-**, spectrum and structure of, 7410*i*.
—, **2,2'-(thiazolin-2-ylmethylene)-bis-**, P 5807*h*.
—, **2,2'-thiobis-**, 2022*c*.
as vulcanization accelerator, amounts of ZnO in activation of, 8192*d*.
—, **thiocyano-†**, antifouling properties of, 3964*b*.
—, **ureido-**. See *Urea, benzothiazolyl-*.
**2 - Benzothiazoleacetanilide, α - (*p* - dimethylaminobenzylidene)-**, 8292*d*.
**2-Benzothiazoleacetic acid, α-(*p*-dimethylaminobenzylidene)-**, ethyl ester, 8292*d*.
—, **α-[2-(3-ethyl-2-benzoselenazolinylidene)vinyl]-†**, ethyl ester, 8292*b*.
**6-Benzothiazolecarbonitrile**, 7476*d*.
**6-Benzothiazolecarboxanilide**, 7476*e*.
**2-Benzothiazolecarboxylic acid**, 7475*h*.
**6-Benzothiazolecarboxylic acid**, and methyl ester, 7476*e*.
**2-Benzothiazoleéthanol** (*2-(2-benzothiazolyl)ethanol*), *p* toluenesulfonate (ester), P 3466*g*.
**2-Benzothiazolemethanol**, *p*-toluenesulfonate (ester), P 3466*g*.
—, **α-(*p*-chlorophenyl)-α-methyl-**, 7475*i*.
—, **α-(*p*-dimethylaminophenyl)-**, 7476*a*.
—, **α-methyl-α-phenyl-**, 7475*i*.
—, **α-methyl-α-*p*-tolyl-**, 7475*i*.
—, **α-phenyl-**, 7476*a*.
—, **α-propyl-**, 7476*a*.
**2-Benzothiazolesulfenamide**, ***N*-cyclohexyl-**, mixt. with benzothiazolyl disulfide, effect on compression set of nitrile rubbers, 7255*f*.
as rubber vulcanization accelerator, 7744*a*.
spectrum and structure of, 7410*i*.
—, ***N*-(tetrahydro-3-thienyl)-**, dioxide, P 8196*a*.
**2-Benzothiazolesulfinic acid**, sodium salt, 2021*g*.
**5-Benzothiazolesulfonamide, 2-mercapto-**, *N*-aryl derivs., P 5042*g*.
**6-Benzothiazolesulfonamide, 2-(*N*⁴-acetylsulfanilamido)-†**, 6180*e*.
—, **2-amino-**, 6180*e*.
—, **2-amino-*N*-2-pyridyl-**, 6180*d*.
**5-Benzothiazolesulfonanilide, 4'-acetamido-2-mercapto-†**, P 5042*h*.
—, **4'-amino-2-mercapto-**, P 5042*i*.
—, **4'-chloro-2-mercapto-**, P 5042*h*.
—, **2' - hydroxy - 2 - mercapto-**, P 5042*h*.
**5-Benzothiazolesulfono-*p*-toluidide, 2'-hydroxy-2-mercapto-**, P 5042*h*.
**Benzothiazolethiol**. See *Benzothiazole, mercapto-*.
**2(3 *H*)-Benzothiazolethione, 3-(chloromethyl)-**, 1767*e*.
—, **3-(hydroxymethyl)-**, 1767*d*.
—, **methyl-**, antifouling properties of, 3964*b*.

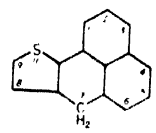
———, **3-methyl-**, as insecticide, 4415*a*.
———, **3,3′-methylenebis-**, P 3737*i*.
———, **3-(1-piperidylmethyl)-**, 1767*e*.
**Benzothiazoline** (*2,3-dihydrobenzothiazole*), derivs., 4262*f*.
dye derivs., P 7844*i*.
identification of, 8365*f*.
———, **2-acetonylidene-3-ethyl-†**, P 8167*c*.
———, **2-acetonylidene-3-methyl-†**, P 8167*c*.
———, **2-[3-(3-benzothiazolyl)allylidene]-3-ethyl-**, 8291*h*.
———, **2-(2-benzothiazolylmethylene)-3-(2-bromoethyl)-**, P 7845*c*.
———, **2-(2-benzothiazolylmethylene)-3-(3-bromopropyl)-**, P 7845*e*.
———, **2-(2-benzothiazolylmethylene)-3-methyl-**, 8292*b*.
———, **3-(2-bromoethyl)-2-(2-quinolylmethylene)-†**, P 7845*d*.
———, **6-bromo-2-imino-3-methyl-**, spectrum of, 1766*i*.
———, **2-[2-(2,3-dihydro-5,7-dioxo-5*H*-thiazolo[3,2-*a*]pyrimidin-6(7*H*)-ylidene)ethylidene]-3-ethyl-6-methyl-†**, P 8925*b*.
———, **2-[2-(2,3-dihydro-5,7-dioxo-5*H*-thiazolo[3,2-*a*]pyrimidin-6(7*H*)-ylidene)ethylidene]-3-methyl-†**, P 8925*c*.
———, **6-ethoxy-2-imino-3-methyl-**, spectrum of, 1766*i*.
———, **3,3′-ethylenebis[2-acetonylidene-**, P 8167*d*.
———, **3,3′-ethylenebis[2-[3-(5-chloro-2-benzothiazolyl)-2-ethylallylidene]-**, diethiodide, P 3737*g*.
———, **3-ethyl-2-[2-(5a,6,7,8,9,9a-hexahydro-2,4-dioxo-2*H*-pyrimido-[2,1-*b*]benzothiazol-3(4*H*)-ylidene)ethylidene]-†**, P 8925*d*.
———, **2-ethylidene-**, derivs., P 4157*a*.
———, **2-imino-3-methyl-**, spectrum of, 1766*i*.
———, **2-methylene-**, electronic structure and chem. reactivity of, 2511*i*
tautomerism of, 2853*e*.
———, **3,3′-methylenebis[2-(2-quinolylmethylene)-**, diethiodide, P 3736*f*
———, **3,3′-trimethylenebis[2-[3-(2-benzoxazolyl)allylidene]-**, diethiodide, P 3737*e*.
———, **3,3′-trimethylenebis[2-[3-(4-quinolyl)allylidene]-**, bis(butyl iodide), P 3737*f*.
———, **3,3′-trimethylenebis[2-(2-quinolylmethylene)-**, diethiodide, P 3737*a*.
**Δ²,α-Benzothiazolineacetic acid, α-2-benzothiazolyl-3-ethyl-**, ethyl ester and phenylhydrazide, 8292*e*.
**3-Benzothiazolineacetic acid**, derivs., 5022*b*.
———, **2-(acetoacetylimino)-**, and derivs., 5022*e*.
———, **2-imino-**, and derivs., 5022*e*.
———, **2-nitrosoimino-**, ethyl ester, 5022*d*.
———, **2-oxo-**, ethyl ester, 5022*d*.
**Δ²,α-Benzothiazolineacetonitrile, 3-ethyl-**, P 7843*b*.
———, **3-ethyl-6-nitro-**, P 7843*d*.
———, **3-methyl-**, P 7843*a*.
**3-Benzothiazolinecarboxanilide**, 8365*f*.
**Δ²,γ-Benzothiazolinecrotonic acid** (*γ-2-benzothiazolinylidenecrotonic acid*).
———, **α-2-benzothiazolyl-3-ethyl-**, ethyl ester, 8291*i*.
———, **β-(benzylmercapto)-α-cyano-3-methyl-**, ethyl ester, P 7849*i*.
———, **α-cyano-β-(ethylmercapto)-3-(2-hydroxyethyl)-**, ethyl ester, P 7849*i*.
———, **α-cyano-3-ethyl-β-methylmercapto-**, ethyl ester, P 7849*h*.
———, **α-cyano-3-methyl-β-methylmercapto-**, ethyl ester, P 7849*f*.
**3-Benzothiazolineëthanol, 2-(2-benzothiazolylmethylene)-**, and hydrobromide, P 7845*c*.
———, **2-(2-quinolylmethylene)-**, and hydrobromide, P 7845*d*.
**3-Benzothiazolinepropanol, 2-(2-benzothiazolylmethylene)-**, and hydrobromide, P 7845*e*.
**6-Benzothiazolinesulfonamide, 2-nitrosoimino-**, 6180*f*.
**6-Benzothiazolinesulfonic acid, 2-imino-**, 6180*f*.
**2-Benzothiazolinethione**. See *2(3H)-Benzothiazolethione*.
**Benzothiazolium compounds**, 2-[4-(*N*-acetylanilino)-1,3-butadienyl]-3-ethyl— iodide, 6928*i*.
2-[2-(*N*-acetylanilino)vinyl]-3-methyl— iodide, 3001*c*.
2-amino-3-(carboxymethyl)— chloride Et ester, 5022*c*.
2-(4-anilino-1,3-butadienyl)-3-ethyl— salts, 6928*i*.
2-[5-(2-benzoselenazolyl)-3-(3-ethyl-2-benzothiazolinylidene)-1,4-pentadienyl]-3-ethyl— iodide, ethiodide, 2530*g*.
3-benzyl-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4163*h*.
2,2′-[1,4-bis[2-(3-methyl-2-benzothiazolinylidene)-1-methylmercaptoethylidene]tetramethylene]bis[3-methyl— perchlorate], P 5684*g*
5-chloro-2-[[3-(5-chloro-3-ethyl-2-benzothiazolinylidenemethyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-3-ethyl— iodide, P 55*c*.
5-chloro-2-[[3-(5-chloro-3-ethyl-2-benzothiazolinylidenemethyl)-5-methyl-2-cyclohexen-1-ylidene]methyl]-3-ethyl— iodide, P 56*a*.
5-chloro-2-[2-(5-chloro-3-methyl-2-benzothiazolin-2-ylidenemethyl)-1-butenyl]-3-methyl— chloride, in detn. of isoelec. point in gelatin, 6884*e*.
2-[3-(5-chloro-3-methyl-2-benzothiazolinylidene)-1-cyanopropenyl]-3-methyl— iodide, P 7843*a*
2-[3-cyano-5-(3-ethyl-2-benzothiazolinylidene)-1,3-pentadienyl]-3-ethyl— iodide, P 7842*h*, P 7844*d*.
2-[1-cyano-3-(3-ethyl-2-benzothiazolinylidene)propenyl]-3-ethyl— iodide, P 7843*b*
2-[1-cyano-7-(1-ethyl-4(1*H*)-quinolylidene)-1,3,5-heptatrienyl]-3-ethyl— iodide, P 7843*c*
2-[3-cyano-5-(3-methyl-2-benzothiazolinylidene)-1,3-pentadienyl]-3-methyl— salts, P 7842*g*, P 7844*c*
2-[1-cyano-3-(1,3,3-trimethyl-2-indolinylidene)propenyl]-3-ethyl— iodide, P 7843*c*.
2-[3,7-dichloro-9-(3-ethyl-2-benzothiazolinylidene)-1,3,5,7-nonatetraenyl]-3-ethyl— iodide, 8291*e*
2-[3-(5,6-dimethoxy-3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]-3-methyl— bromide, P 4158*g*.
2-[4-(*p*-dimethylaminophenyl)-2-(*p*-dimethylaminostyryl)-1,3-butadienyl]-3-ethyl— iodide, 633*i*
2-[4-(*p*-dimethylaminophenyl)-2-methyl-1,3-butadienyl]-3-ethyl— iodide, 633*i*
2-[[5,5-dimethyl-3-(3-methyl-2-benzothiazolinylidenemethyl)-2-cyclohexen-1-ylidene]methyl]-3-methyl— iodide, P 55*b*
2-[5-(6-ethoxy-2-benzothiazolylazo)-4-hydroxy-3-phenyl-4-thiazolin-2-ylidenemethyl]-3-ethyl— bromide, P 7846*b*.
3-(2-ethoxyethyl)-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)-ethylidene]-4-oxo-2-thiazolidylidene]-methyl]— iodide, P 4163*f*.
2,2′-[3-(3-ethyl-2-benzoselenazolinylidene)-1,4-pentadienylene]bis[3-ethyl— iodide], 2529*a*.
2-[3-(3-ethyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]-3-methyl— iodide, P 4158*c*
2-[3-[2-(3-ethyl-2-benzothiazolinylidene)ethylidene]-1-cyclohexen-1-yl]-3-methyl— iodide, P 4158*d*.
2,2′-[ethylenebis[(ethylimino)-*p*-phenylenevinylene]]bis[3-ethyl— iodide], P 4160*b*.
3,3′-ethylenebis[2-methyl— *p*-toluenesulfonate], P 3737*h*.
2,2′-[ethylenebis[(methylimino)-*p*-phenylenevinylene]]bis[3-ethyl— iodide], P 4160*b*.
3-ethyl-2-[3-(3-ethyl-2-benzoselenazolinylidene)-4-phenylimino-2-butenyl]— iodide, 2529*h*
3-ethyl-2-[[3-(3-ethyl-2-benzothiazolinylidenemethyl)-2-cyclohexen-1-ylidene]methyl]— bromide, P 56*b*.
3-ethyl-2-[[3-(3-ethyl-2-benzothiazolinylidenemethyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]— iodide, P 55*c*.
3-ethyl-2-[[3-(3-ethyl-2-benzothiazolinylidenemethyl)-5-methyl-2-cyclohexen-1-ylidene]methyl]— iodide, P 55*d*.
3-ethyl-2-[[3-(3-ethyl-2-benzothiazolinylidenemethyl)-5-phenyl-2-cyclohexen-1-ylidene]methyl]— iodide, P 56*a*.
3-ethyl-2-[9-(3-ethyl-2-benzothiazolinylidene)-1,3,5,7-nonatetraenyl]— iodide, 2617*b*, 8291*e*.
3-ethyl-2-[[4-(3-ethyl-2-benzothiazolinylidene)-5-oxo-1,3-diphenyl-2-imidazolidylidene]methyl]— iodide, P 4161*h*.
3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-4-phenylimino-1-butenyl]— iodide, 2529*g*.
3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)propenyl]— iodide, 8291*i*.
3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)propenyl]-4(5 and 6) hydroxy— iodides and their acetates, 9454*a*.
3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-5-[2(and 4)-quinolyl]-1,4-pentadienyl]— iodide, ethiodide, 2530*f*.
3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-5-(2-thiazolin-2-yl)-1,4-pentadienyl]-iodide, ethiodide, 2530*h*.
3-ethyl-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]-3-(2-hydroxyethyl)— iodide, P 4163*b*
3-ethyl-2-[[3-ethyl-5-[4-(3-ethyl-2-benzoxazolinylidene)-2-butenylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4162*d*
3-ethyl-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]amino]— iodide, P 4162*e*.
3-ethyl-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4161*f*
3-ethyl-2-[[3-ethyl-5-[3-ethyl-(3-ethyl-2-benzothiazolinylidene)-4-oxo-2-thiazolidylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4164*a*.
3-ethyl-2-[[3-ethyl-5-[3-ethyl-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4163*b*
3-ethyl-2-[[3-ethyl-5-[3-ethyl-[3-ethyl-5-(3-ethyl-2-benzothiazolinylidene)-4-oxo-2-thiazolidylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4163*d*.
3-ethyl-2-[[3-ethyl-5-[2-(1-ethylnaphtho[1,2]thiazol-2(1*H*)-ylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4162*c*
3-ethyl-2-[[3-ethyl-5-[2-(1-ethyl-2(1*H*)-quinolylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4162*b*
3-ethyl-2-[[3-ethyl-5-(1-ethyl-2(1*H*)-quinolylidene)-4-oxo-2-thiazolidylidene]methyl]-iodide, P 4161*k*
3-ethyl-2-[3-(3-ethyl-4-hydroxy-2-benzothiazolinylidene)propenyl]-4-hydroxy— iodide, and its diacetate, 9453*i*.
3-ethyl-2-[3-(3-ethyl-5-hydroxy-2-benzothiazolinylidene)propenyl]-5-hydroxy— iodide, and its diacetate, 9453*h*.
3-ethyl-2-[3-(3-ethyl-6-hydroxy-2-benzothiazolinylidene)propenyl]-6-hydroxy— iodide, and its diacetate, 9453*k*.
3-ethyl-2-[3-(3-ethyl-7-hydroxy-2-benzothiazolinylidene)propenyl]-7-hydroxy— iodide, 9453*g*.
3-ethyl-2-[3-(3-ethyl-4-hydroxy-2-benzothiazolinylidene)propenyl]-6-nitro— iodide, acetate, 9454*c*.
3-ethyl-2-[[3-ethyl-5-methyl-2-benzothiazolinylidenemethyl)-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-5-methyl— iodide, P 55*d*.
3-ethyl-2-[[3-(3-ethyl-5-methyl-2-benzothiazolinylidenemethyl)-

phenyl - 2 - cyclohexen - 1 - ylidene - methyl]-5-methyl— iodide, P 56a.
3 - ethyl - 2 - [3 - (3 - ethyl - 4 - methyl - 4 - thiazolin-2-ylidene)propenyl]— iodide, 2531c.
3 - ethyl - 2 - [5 - (3 - ethyl - 2 - thiazolidylidene)-1,3-pentadienyl]— iodide, 6929f.
3 - ethyl - 2 - [3 - (3 - ethyl - 2 - thiazolidylidene) - 4 - phenylimino - 1-butenyl]— iodide, 2530d.
3 - ethyl - 2 - [3 - (3 - ethyl - 2 - thiazolidylidene)propenyl]— iodide, 2531d.
3 - ethyl - 2 - [3 - (3 - ethyl - 2 - thiazolidylidene) - 5 - (4 - quinolyl) - 1,4 - pentadienyl]— iodide, ethiodide†, 2530i.
3 - ethyl - 2 - [3 - (3 - ethyl - 2 - thiazolidylidene) - 5 - (2 - thiazolin - 2 - yl) - 1,4-pentadienyl]— perchlorate, ethoperchlorate, 2530h.
3 - ethyl - 2 - [4 - hydroxy - 5 - (o - methoxyphenylazo) - 3 - phenyl - 4 - thiazolin-2-ylidenemethyl]— bromide, P 7846a.
3-ethyl-6-hydroxy-2-methyl— iodide, 9453e.
3-ethyl-2-(2-p-methoxyanilinovinyl)— p-toluenesulfonate, P 2642i.
3-ethyl-2-methyl— iodide, reaction with N - phenyl - 7 - phenylimino - 1,3,5-heptatrienylamine-HBr, 2617a.
3 - ethyl - 2 - (2 - methylmercapto - 1-butenyl)— iodide, P 515b.
3 - ethyl - 2 - (2 - methylmercaptopropenyl) — iodide, P 515b.
3-ethyl-2-(β-methylmercaptostyryl)— iodide, P 515b.
3 - ethyl - 6 - methyl - 2 - (2 - methylmercapto-1-butenyl)— iodide, P 515a.
2,2' -[3 - (3 - ethyl - 4 - methyl - 4 - thiazolin - 2 - ylidene) - 1,4 - pentadienylene]bis[3-ethyl— iodide], 2529d.
3 - ethyl - 2 - [2 - (2 - naphthylamino)vinyl]— p-toluenesulfonate, P 2642g.
2 - [3 - [2 - (1 - ethyl - 2(1H) - quinolylidene)ethylidene] - 1 - cyclohexen - 1 - yl]-3 methyl— iodide, P 4158g.
2,2'-[3-[1-ethyl-2(1H)(and 4(1H))-quinolylidene] - 1,4 - pentadienylene] bis[3 ethyl— iodide], 2528d.
2,2' - [3 - (3 - ethyl - 2 - thiazolidinylidene) - 1,4 - pentadienylenebis[3 ethyl— iodide], 2529e.
3,3' - hexamethylenebis[2 - (p dimethyl aminostyryl)— bromide], P 4160b.
2,2' - [methylenebis[(methylimino) p phenylenevinylene]]bis[3 ethyl— iodide], P 4160b.
2,2' - [(methylimino)bis(p phenylene vinylene)]bis[3-ethyl— iodide], P 4160b.
2 methylmercapto — derivs., reaction with AcCH2CO2H, P 8167c.
3 methyl 2 - [3 - (3 - methyl - 2 benzothiazolinylidene) - 1 - cyclohexen - 1-yl]— bromide, P 4158b.
3 - methyl - 2 - [3 - (3 - methyl 2 - benzothiazolinylidene) 1 - cyclopenten - 1 yl]— bromide, P 4158f.
3 - methyl - 2 [(3 - methyl - 2 - benzothiazolinylidene)methyl]— iodide, 8292c.
3 methyl - 2 - [3 - (3 - methyl - 5 - methyl mercapto - Δ4 - 1,3,4 - thiadiazolin - 2-ylidene)-1-cyclopenten 1-yl]— bromide, P 4158f.
3 - methyl - 2 - [3 (1 - methyl - 2(1H) quinolylidene)-1-cyclohexen-1-yl]— iodide, P 4158c.
3 - methyl - 2 - [3 - [2 - (1,3,3 - trimethyl-2 - indolinylidene)ethylidene] - 1 - cyclohexen-1-yl]— iodide, P 4158d.
2,2',2'' [nitrilotris(p - phenylenevinylene)]tris[3-ethyl— iodide], P 4160b.
3,3' - trimethylenebis[— bromide], polymer from, P 3737i.
3,3' - trimethylenebis[2 - methyl— bromide], P 3737h.
2,2' - [trimethylenebis[oxy[(3 - ethyl - 2 benzothiazolinylidene methyl) vinylene]]]bis[3-ethyl— bromide], P 5684d.
2-Benzothiazolol, 2021g.
——, tuberculostatic action of, 2329c.
——, 2-methyl-, and derivs., 9453e.
5-Benzothiazolol, 2-methyl-, and derivs., 9453e.
6-Benzothiazolol, and picrate, 7476e.
——, 2-methyl-, and derivs., 9453d.
7-Benzothiazolol, 2-methyl-, and derivs., 9453d.
2(3H)-Benzothiazolone, derivs., in protozoa infection therapy, 1485a, 8528b.
——, 3-methyl-, 4262g.
Benzothiazoloquinodiazepinium,



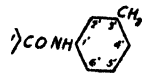
[3,2-d]--[2,1-g][1,4]--16-

Benzothiazolo[3,2-d]quino[2,1-g][1,4]-diazep - 16 - ium compounds, 14,15-dihydro— iodide, P 7845e.
2-Benzothiazolyl disulfide. See Benzothiazole, 2,2'-dithiobis-.
2-Benzothiazolyl sulfide. See Benzothiazole, 2,2'-thiobis-.
Benzothienone. See Ketone, phenyl thienyl.
Benzothiofuran. See Thianaphthene.
Benzothiophanthrene,

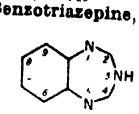


7-4--[4]

7H-Benzo[jk]thiophanthren-7-one, 9476g.
Benzothiophene. See Thianaphthene.
Benzotoluidide,

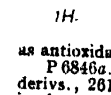


——, 1',2',3',4',5',6'-hexahydro-. See Benzamide, N-methylcyclohexyl-.
——, ar'-hydroxy-, dyes from, P 9461b.
——, 4-nitro-, 1032e.
m-Benzotoluidide, 4-amino-, 1344c.
——, 4-(1-cyanoethylamino)-, 1344d.
——, 4-ethylamino-, 1344e.
——, 4-nitro-, 1344c.
o-Benzotoluidide, 1654g.
——, 4-amino-, 1344c
——, 4-(1-cyanoethylamino)-, 1344d.
——, 4-dimethylamino-, and picrate 1777f.
——, 4-ethylamino-, 1344e.
——, 4-nitro-, 1344b.
——, N-8-quinolyl-†, 1777h.
p-Benzotoluidide, 1654g.
——, 4-amino-, 1344c
——, 3-amino-4-hydroxy-, azo dyes from, P 8146e.
——, 2'-bromo-N-(o-nitrophenyl)-, 1777g.
——, 4-(1-cyanoethylamino)- 1344d
——, 4-ethylamino-, 1344b.
——, 4-nitro-, 1344b
1,3,5,3H-Benzotriazepine,

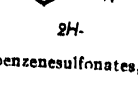


1,3,5,3H-

——, 2,4-diamino-, salts, 1405i
Benzotriazole,

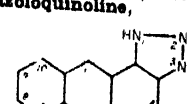


1H-



2H-

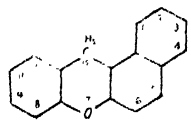
as antioxidant in alkyl benzenesulfonates, P 6846a.
derivs., 2618f, 7016c.
in photographic emulsions and developers, 7362c.
structure and spectra of, 4570e.
——, 1(or 2)-acetyl-5(or 6)-ethoxy-6(or 5)-nitro-, 7016f.
——, 1(or 2)-acetyl-5(or 6)-methoxy-, phenyl-, structure and spectra of, 4570e.
1H-Benzotriazole (azimidobenzene, benziso-triazole), derivs., in protozoa infection therapy, 1485a, 8528b.
identification of, 8365g.
——, 6(and 7)-acetamido-5-(2-chloro-4,6 - dinitrophenylazo) - 1 - (2,3-dihydroxypropyl)-†, P 3625h.
——, 6-acetamido-1-(2,3-dihydroxypropyl) - 5 - [2 - (ethylsulfamyl)-4,6-dinitrophenylazo]-†, P 3625h.
——, 1-acetyl-5-ethoxy-, 7016d.
——, 1-acetyl-5(and 6)-methoxy-, 2618g.
——, 7-(2-acetyl-4-nitrophenylazo)-6-(2,3-dihydroxypropylamino)-†, P 3626a.
——, 5-(p-acetylphenylazo)-1-methyl-†, P 3625h.
——, 1-(2,3-dihydroxypropyl)-5-(2,4-dinitrophenylazo) - 7 - methoxy-4-methyl-†, P 3625i.
——, 1 - (2,3 - dihydroxypropyl) - 5 - [2-(ethylsulfamyl) - 4,6 - dinitrophenylazo]-†, P 3625h.
——, 1 - (2,3 - dihydroxypropyl) - 5 - [2-(ethylsulfamyl) - 4,6 - dinitrophenylazo]-4-methyl-†, P 3625h.
——, 1-(2,3-dihydroxypropyl)-6-lactylamino-†, P 3626c.
——, 1-(2,3-dihydroxypropyl)-5-(p-nitrophenylazo)-†, P 3625i.
——, 1-(5,6-dimethoxy-2-quinolyl)-†, 230d.
——, 1-(2-dimethylaminoethyl)-, and monohydrochloride, 7022a.
——, 5-(2-fluoro-4-nitrophenylazo)-4-methoxy - 6 - methyl - 1 - (3 - oxobutyl)-†, P 3625i.
——, 5-methoxy-, 2618g.
——, 1-(6-methoxy-4-methyl-2-quinolyl)-†, 230c.
——, 1-(4-methyl-2-quinolyl)-†, 230c.
——, 1-(2-quinolyl)-†, 230c.
2H-Benzotriazole (pseudoazimidobenzene). stilbene dyes, P 1574h.
——, 2(?)-acetyl-5-ethoxy-, 7016e.
——, 2-acetyl-5-methoxy-, 2618g.
——, 2-(3-carboxy-4-hydroxyphenyl)-. See Salicylic acid, 5-(2H-benzotriazol-2-yl)-.
1H-Benzotriazole-1-carboxamide, N-1-naphthyl-, 8365g.
1H-Benzotriazole-1-carboxanilide, 8365g.
2H-Benzotriazole-4-carboxylic acid, 2-(2-hydroxy-1-naphthyl)-6-sulfo-, P 2784c.
1H-Benzotriazole-1-ethanesulfonic acid, 7 - chloro - 4 - ethyl - 5 - (p-phenylazo)-, P 3626a.
1H-Benzotriazole-1-ethanol, (2-(1H-benzotriazol-1-yl)ethanol).
——, 4-bis(2-hydroxyethyl)amino-7-[2 - (methylsulfonyl) - 4 - nitrophenylazo]-, P 3626a.
——, 5-(2-chloro-4-nitrophenylazo)-α,6-dimethyl-, P 3625i.
——, 4-lactylamino-5-[2-(methylsulfonyl)-4,6-dinitrophenylazo]-†, hydrogen sulfate NH4 salt, P 3625i.
——, 6-methyl-5-[p-(methylsulfonyl)-phenylazo]-, P 3625i.
1H-Benzotriazole-7-sulfonic acid, 4,5-dihydroxy-, potassium salt, corneal sensitivity to, 3110i.
Benzotriazolium compounds, 1-carboxy-3-hexadecyl-1H— chloride Et ester, P 7971b.
1-(carboxymethyl)-3-hexadecyl-1H— bromide Et ester, P 7971b.
1 - (diethylcarbamylmethyl) - 3 - hexadecyl-1H— bromide, P 7971b.
Benzotriazoloquinoline,



1H—[g]—[c]

1H(?) - Benzo[s]triazolo[c]quinoline, 1418d.
Benzotrichloride. See Toluene, α,α,α-trichloro-.
Benzotrifluoride. See Toluene, α,α,α-trifluoro-.

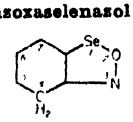
**Benzoxanthene,**



12 — [a]

**12*H*-Benzo[*a*]xanthene-11-carboxylic acid, 12-oxo-**, vat dyes from, P 4481*h*.

**2,1,3,4*H*-Benzoxaselenazole,**



2,1,3,4*H*-

——, **5,6-dihydro-5,5-dimethyl-7-nitroso-**, 7479*a*.

——, **5,6-dihydro-5,5-dimethyl-7-nitroso-4-phenyl-**, 7479*c*.

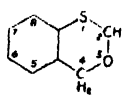
——, **5,6-dihydro-5-methyl-7-nitroso-**, 7479*a*.

——, **5,6-dihydro-7-nitroso-**, 7478*i*.

——, **5,6-dihydro-7-nitroso-4,5-diphenyl-**, 7479*b*.

——, **5,6-dihydro-7-nitroso-5-phenyl-**, 7479*b*.

**3,1-Benzoxathian,**

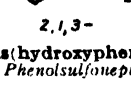


3,1-

**3,1-Benzoxathian-4-one, 2-methyl-**. See "lactone" under *Benzoic acid, o-(1-hydroxyethylmercapto)-*.

——, **2-phenyl-**. See "lactone" under *Benzoic acid, o (α-hydroxybenzylmercapto)-*.

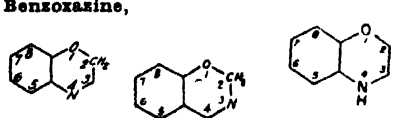
**2,1,3*H*-Benzoxathiole,**



2,1,3-

——, **3,3-bis(hydroxyphenyl)-**, 1-dioxide—see *Phenolsulfonephthalein*.

**Benzoxazine,**



4,2- 3,1- 1,4-

**1,3,2*H*-Benzoxazine, 6-acetamido-3-benzyl-3,4-dihydro-**, 3425*h*.

——, **6-acetamido-3,4-dihydro-3-methyl-**, 3425*h*.

——, **3-benzyl-3,4-dihydro-6-methyl-**, 3425*h*.

——, **6-bromo-3-cyclohexyl-3,4-dihydro-**, 3425*h*.

——, **6-*tert*-butyl-3-cyclohexyl-3,4-dihydro-**, 3425*e*.

——, **3-cyclohexyl-3,4-dihydro-6,8-dimethyl-**, 3425*g*.

——, **3-cyclohexyl-3,4-dihydro-6-phenyl-**, 3425*h*.

——, **3,4-dihydro-**, derivs., 3425*e*.

——, **2-(2-hydroxy-6-nitrophenyl)-5-nitro-†**, and acetate, 1765*h*.

**1,4,2*H*-Benzoxazine, 8-chloro-3,4-dihydro-3-(trifluoromethyl)-**, P 2782*e*.

——, **3,4-dihydro-3,5-dimethyl-**, 8365*f*.

——, **3,4-dihydro-6-methoxy-3-(trifluoromethyl)-**, P 2782*e*.

——, **3,4-dihydro-3-methyl-**, P 2782*b*. identification of, 8365*f*.

——, **3,4-dihydro-3-methyl-6-(trifluoromethyl)-**, P 2782*c*.

——, **3,4-dihydro-3(and 6)-(trifluoromethyl)-**, P 2782*d*.

——, **3-ethyl-3,4-dihydro-**, P 2782*c*.

**1,4,4*H*-Benzoxazine-4-carboxamide, 2,3-dihydro-3,5-dimethyl-*N*-1-naphthyl-**, 8365*f*.

——, **3,3-dihydro-3-methyl-*N*-1-naphthyl-**, 8365*f*.

**Benzoxazole,**



as antioxidant in alkyl benzenesulfonates, P 6846*a*.

antiviral therapy with, 4765*i*.

dye derivs., P 4159*a*.

dye derivs. and dye bases, P 4160*e*.

——, **2-[2-(3-allyl-4-hydroxy-2-thioxo-4-thiazolin-5-yl)-1-(2-benzothiazolyl)vinyl]-†**, P 4159*b*, P 8928*b*.

——, **2,2′-[2-(3-allyl-4-hydroxy-2-thioxo-4-thiazolin-5-yl)vinylidene]bis-†**, P 4159*a*, P 8927*c*.

——, **2-[1-(2-benzothiazolyl)-4-(5-hydroxy-3-methyl-1-phenyl-4-pyrazolyl)-1,3-butadienyl]-†**, P 8928*a*.

——, **2,2′-(2-benzothiazolylmethylene)bis-**, P 5807*h*.

——, **2-[1-(2-benzothiazolyl)-4-(1,2,3,4-tetrahydro-6-hydroxy-4-oxo-2-thioxo-5-pyrimidyl)-1,3-butadienylidene]bis-†**, P 8928*c*.

——, **2-(*p*-chlorophenyl)-**, 9065*f*.

——, **2,3-dihydro-**. See *Benzoxazoline*.

——, **2-(*p*-dimethylaminostyryl)-**, 3428*a*.

——, **2,2′-[4-(1-ethyl-5-hydroxy-3-phenyl-2-thioxo-4-imidazolin-4-yl)-1,3-butadienylidene]-bis-†**, P 8927*c*.

——, **2-methyl-**, hydrochloride, 3428*a*.

——, **2-methylmercapto-**, as insecticide, 4415*c*.

——, **2-[*m*(and *p*)-nitrophenyl]-**, 9065*f*.

——, **2-styryl-**, and picrate, 3428*a*.

——, **2-vinyl-**, 7018*e*.

**2-Benzoxazolemethanol**, *p*-toluenesulfonate (ester), P 3466*g*.

**2-Benzoxazolethiol**, as antioxidant in alkyl benzenesulfonates, P 6846*a*.
as catalyst in isomerization of maleic acid, P 1798*f*
in rhodium analysis, 4974*d*.

**Benzoxazoline**, dye derivs., P 7846*a*

——, **5-chloro-2-[2-(3-ethyl-4-oxo-2-thioxo-5-thiazolidylidene)-1-phenoxyethylidene]-3-methyl-†**, P 4157*e*.

——, **2-[1-(*p*-chlorophenoxy)-2-(3-ethyl-4-oxo-2-thioxo-5-thiazolidylidene)ethylidene]-3-methyl-†**, P 4157*e*

——, **2-[2-(2,3-dihydro-2-methyl-5,7-dioxo-5*H*-thiazolo[3,2-*a*]pyrimidin-6(7*H*)-ylidene)ethylidene]-3-ethyl-†**, P 8925*d*

**Δ²,γ-Benzoxazolinecrotonic acid, α-cyano-3-methyl-β-methylmercapto-**, ethyl ester, P 7849*g*.

**Benzoxazolinium compounds**, 2-[5-(*p*-chlorophenylazo)-4-hydroxy-3-phenyl-4-thiazolin-2-ylidenemethyl]3-ethyl-5,6-dimethyl— iodide, P 7846*b*.

**2-Benzoxazolinone**. See *2(3H)-Benzoxazolone*.

**Benzoxazolium compounds**, 2-[4-(*N*-acetylanilino)-1,3-butadienyl]-3-ethyl— iodide, 6929*d*.

2-[2-(*N*-acetylanilino)vinyl]-3-methyl— iodide, 3001*c*.

2-(4-anilino-1,3-butadienyl)-3-ethyl — iodide, 6929*d*.

2-(2-anilinovinyl)-3-ethyl — salts, P 2642*g*.

2-(2-anilinovinyl)-3-ethyl— *p*-toluenesulfonate, P 4164*c*.

2-(2-anilinovinyl)-3-methyl— iodide, P 2642*g*.

2,2′-[3-(3-ethyl-2-benzoselenazolinylidene)-1,4-pentadienylene]bis[3-ethyl— iodide], 2529*a*.

2-[3-(3-ethyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]-3-methyl— iodide, P 4158*b*.

2,2′-[3-(3-ethyl-2-benzothiazolinylidene)-1,4-pentadienylene]bis[3-ethyl— iodide], 2528*g*.

3-ethyl-2-[3-(3-ethyl-2-benzothiazolinylidene)-2-methylmercaptopropenyl]— iodide, P 4160*a*.

3-ethyl-2-[[3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4162*a*.

3-ethyl-2-[[3-ethyl-5-[2-(1-ethyl-2(1*H*)-quinolylidene)ethylidene]-4-oxo-2-thiazolidylidene]methyl]— iodide, P 4163*h*.

3-ethyl-2-[5-(3-ethyl-2-thiazolidylidene)-1,3-pentadienyl]— iodide, 6930*a*.

3-ethyl-2-(2-*p*-methoxyanilinovinyl)- *p*-toluenesulfonate, P 2642*i*.

3-methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclohexen-1-yl]— iodide, P 4158*a*.

3-methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]— iodide, P 4157*h*.

3-methyl-2-[3-(3-methyl-2-benzoxazolinylidene)-1-cyclopenten-1-yl]— iodide, P 4158*a*.

3-methyl-2-[3-(3-methyl-2-benzothiazolinylidene)-1-cyclopenten-1-yl]— iodide, P 4158*a*.

3-methyl-2-[3-(3-methyl-2(3*H*)-naphth[2,1]oxazolylidene)-1-cyclopenten-1-yl]— iodide, P 4157*i*.

3-methyl-2-[2-(2-pyridylammo)vinyl]— *p*-toluenesulfonate, P 2642*h*.

3-methyl-2-[2-(2-thiazolylamino)vinyl]— *p*-toluenesulfonate, P 2642*h*.

3-methyl-2-(2-*p*-toluidinovinyl)— *p*-toluenesulfonate, P 2642*g*.

3,5,6-trimethyl-2-[3-(3-methyl-2-benzothiazolylidene)-1-cyclopenten-1-yl]— iodide, P 4158*e*.

3,5,6-trimethyl-2-[3-(1*H*-methylnaphtho[1,2]-thiazol-2(1*H*)-ylidene)-1-cyclopenten-1-yl]— iodide, P 4158*e*

**Benzoxazolone**, effect on *Pseudomonas aeruginosa*, 8001*c*.
formation in animal organism from acetanilide, 6714*f*.

**2(3*H*)-Benzoxazolone**, and derivs., 6615*a*

**3-acetyl-**, 6615*f*.

**3-acetyl-5-methoxy-**, 6615*i*.

**3-allyl-**, 6615*f*.

**3(and 5)-amyl-**, 6615*eg*

**5-amyl-3-isobutyl-**, 6615*h*

**3-amyl-5-methoxy-**, 6615*i*.

**3-amyl-5-methyl-**, 6615*f*

**5-amyl-3-methyl-**, 6615*g*.

**3-amyl-5-propyl-**, 6615*g*.

**5-amyl-3-propyl-**, 6615*h*

**3-butyl-**, 6615*e*.

**3-butyl-5,6-dimethyl-**, 6615*h*

**3-butyl-5-methyl-**, 6615*f*.

**3-butyl-5-propyl-**, 6615*g*.

**6-chloro-**, 6615*i*.

**6-chloro-3-isoamyl-**, 6615*i*

**6-chloro-3-isopropyl-**, 6615*i*.

**6-chloro-3-methyl-**, 6615*i*

**3,5-diamyl-**, 6615*h*.

**3-(2-diethylaminoethyl)-**, hydrochloride, 6615*f*.

**5,6-dimethyl-**, 6615*h*.

**3-ethyl-5,6-dimethyl-**, 6615*h*

**3-isoamyl-**, 6615*e*.

**3-isoamyl-5,6-dimethyl-**, 6615*h*

**3-isoamyl-5-methyl-**, 6615*f*.

**3-isoamyl-5-propyl-**, 6615*g*

**3-isobutyl-**, 6615*e*.

**3-isobutyl-5-methoxy-**, 6615*i*.

**3-isobutyl-5-methyl-**, 6615*f*.

**3-isobutyl-5-propyl-**, 6615*g*.

**5-methoxy-**, 6615*h*.

**3(and 5)-methyl-**, 6615*ef*.

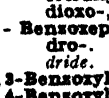
**3-(1-methylbutyl)-**, 6615*f*.

**3-(1-methylbutyl)-5-propyl-**, 6615*g*.

**5-methyl-3-(1-methylbutyl)-**, 6615*g*.

——, **5-propyl-**, 6615*g*.

**Benzoxepin,**



3.

**2-Benzoxepin-3-carboxylic acid, 1,3,4,5-tetrahydro-5,5-dimethyl-1,3-dioxo-**, 2589*c*.

**3-Benzoxepin-2,4-dione, 1,5-dihydro-**. See *o-Benzenediacetic anhydride*.

**2,3-Benzoxylidide**, 4665*c*.

**3,4-Benzoxylidide**, 4665*b*.

**Benzoylation**, of 2-aminopyridine, 4274*b*
of aniline with Si(OBz)₄, 4631*h*.
of hydrocarbons (aromatic), 7478*e*.
of *N*-phenylanthranilic acid and derivs., 3826*e*.

**Benzoyl azide, *p*-(α,β-diethyl-β-methoxyphenethyl)-**, 9056*a*.

——, ***m*-iodo-**, and amine identification with, 7447*g*.

**Benzoyl chlorides**, anthraquinonebenzacridone dye from, P 8170*c*.

compds. with pyridine and with $Et_3N$, reaction with $H_2O$ and with $H_2S$, 8353c.
compd. with insulin, P 4434c.
condensation products with resins from disulfides and Cl compds., P 6803g.
condensation with stearoyl chloride, lubricant pour-point depressant by, P 5586c.
manuf. from coal, 9413b.
reaction with Br derivs. of sulfanilamide, 175d.
reduction of, to $PhCH_2OH$, 2570g.
spectrum of, 2868e, 3715d, 4574i.
**nzoyl chloride, 2,5-bis(benzyloxy)-**, 7003h.
—, **o-bromo-**, 1-(*bz*-1-benzanthronylamino)anthraquinone dyes from, P 8170f.
—, **p-bromo-**, anthraquinonebenzacridone dye from, P 8170c.
anthraquinone dye from, P 7705i.
—, **p-butyl-**, 7004i.
—, **p-(butylsulfonyl)-**, 3′,4′-phthaloylacridone dye from, P 7706c.
—, **o-chloro-**, 1-(*bz*-1-benzanthronylamino)anthraquinone dyes from, P 8170fi.
—, **p-chloro-**, anthraquinoneacridone dye from, P 8170d.
anthraquinonebenzacridone dye from, P 8170c.
anthraquinone dye from, P 7705h.
prepn. of, 4652h.
spectrum of, 3715d.
—, **3-chloro-4-(*p*-chlorophenoxy)-**, P 857d.
—, **2,4-dichloro-**, 1-(*bz*-1-benzanthronylamino)anthraquinone dyes from, P 8170f.
—, **p-ethyl-**, 7004i.
—, **2-ethyl-3-hydroxy-**, acetate, 197d
—, ***m*-methoxy-**, P 4699d.
—, **methyl-**. See *Toluyl chloride*.
—, ***m*-(methylsulfonyl)-**, P 8171g.
—, ***m*(and *p*)-nitro-**, reaction with amines, 4240h.
spectra of, 3715d
—, ***o*-nitro-**, 1345b.
—, ***p*-nitro-**, antigenicity of, hydrolysis rate and reaction with amino groups in relation to, 4757g.
prepn. of, 4652h
reaction with diazo paraffins, 1743g.
—, ***p*-phenoxy-**, P 857d.
—, ***p*-propyl-**, 7004i
—, ***p*-sulfinylamino-**, and its autocondensation, 1744c.
**lenzoyl chloroaluminate**, $BzAlCl_4$, as electrolyte in liquid $SO_2$, 8935i.
**lenzoyl chloroantimonate(V)**, $BzSbCl_6$, as electrolyte in $SO_2$, 8935h.
**lenzoyl cyanide**. See *Glyoxylonitrile, phenyl-*.
**lenzoyl disulfide**, as catalyst in photopolymerization of ethylene compds., P 2818h.
in grasshopper control, 4806e.
prepn. of, 1741b, 8353d.
**Benzoyleneurea**. See *2,4(1H,3H)-Quinazolinedione*.
**Benzoyleneurea-5-carboxylic acid**. See *5-Quinazolinecarboxylic acid, 1,2,3,4-tetrahydro-2,4-dioxo-*.
**Benzoyl group**, as cation in liquid $SO_2$, 8935h.
**Benzoyl isothiocyanate**, reaction with oximes and other compds., 4232c.
**Benzoyl peroxide**. (For derivs. see under *Peroxide.*)
as bleaching agent for flour, 1495d.
bleaching compn. for flour and cereals, P 2710c.
as catalyst in Cannizzaro reaction, 4651d.
in oxidation of Et linoleate, 5271g.
in polymerization, 8735b.
in polymerization of allyl and vinyl silicone rubbers, 2018c.
in polymerization of butadiene, 1597b.
in polymerization of drying oil with styrene and α-methylstyrene, P 5608bc.
in polymerization of isoprene and isoprene-styrene solns., 8190i.
in polymerization of isoprene with styrene, 2018h.
in polymerization of Me methacrylate, 8189d.
in polymerization of styrene, 2811b, 3698b, 8736d.
in polymerization of styrene with drying oils, 3212h.
in polymerization of unsatd. compds., P 905c.
*as catalyst* in reaction of ethylene with carboxylic acids, P 670d.
in rubber reaction with maleic acid or anhydride, 1595ag, 1596b.
as catalyst in polymerization of styrene, and kinetics of its decompn., 7311h.
as curing agent in ethylene glycol-dicarboxylic polyester rubbers, P 432f.
desensitization of, P 1806i, P 1807a.
detn. in oxidized gasoline, 1952g.
effect on bromination of 2- and 3-methylthiophene with *N*-bromosuccinimide, 6612h.
on heat deterioration of GR-S rubber, 8188f.
on oxidation of Na butadiene polymer, 925b.
explosion of, 405f.
in flour, effect on dogs, 2707h.
as imitator of polybutadiene popcorn formation, 1598b.
mixt. with styrene, effect in thermal vulcanization of butadiene-Na rubber, 6858a.
oxidizing action of, 4085i.
as oxidizing agent for heavy alkylated hydrocarbon oils, P 5584c.
as plasticizer in Butyl rubber, P 4046e.
as polymerization inhibitor and initiator in isoprene, 5621f.
purification of, 1570a.
reaction of Cl and O with $CCl_3{:}CCl_3$ in presence of, P 7954d.
reaction of, $SO_2Cl_2$ and 1-octene, 559e.
reactions of, 3394g.
reaction with BzH, 612i.
**Benzoyl sulfide†**, 8353d.
**Benzyl** (*free radical*), electronic structure of, 2512a.
formation in decompn. of benzyl *p*-toluenesulfonate, and its reactivity, 7797h.
formation in reaction of $NH_2$ and toluene, 7797i.
heat of formation of, 6479c.
**Benzyl, α-vinyl-**, 612c.
**Benzyl alcohol**, acetate—see "benzyl ester" under *Acetic acid*.
adsorption by $PhNH_2$, 4641f.
as antioxidant for paraldehyde in motor fuel, P 8130c.
assocn. of, 178h.
assocn. of, and elec. conduction by, 8772c.
azelate, as plasticizer in Butyl rubber, P 5624h.
benzaldehyde detn. in, 8078b
benzoate—see "benzyl ester" under *Benzoic acid*.
in bitter-almond oil, 6789gh
camphor optical activity in, effect of $H_2O$ on, 8813a.
in chloride argentometric detn., 8947f.
*l*-citronellate, 4633g.
crit. mixing temps. in identifying and detg. aliphatic hydrocarbons, 8309a.
derivs., 9070g
and derivs. from nitration of toluene, 4216f
diazo ketone rearrangement in, 4653h.
effect as solvent on insect repellents, 2363d.
effect on syneresis of Na oleate gels, 4080a.
esterification of, 1319f.
formation of, in alk. hydrolysis of $PhCH{:}CHCHO$, 5763c.
formation of, in reduction of BzNEt₃ with $LiAlH_4$, 1312f.
from hydrogenation of benzyl thiolbenzoate, P 3445d.
hydrogenation on Pt, kinetics of, 5657d.
hydrogen (active) detn. in, 3316f.
manuf. of, P 1805i.
manuf. of, from coal, 9413c.
methacrylate, fungistatic activity of, 9334c.
mixts. with AmOH, colored suspensions of inulin in, 8801b.
in narcissus oil, 2372e.
oxidation of, by Br in the presence of $BrO_3^-$, 8350h.
phosphorescence of, 8282c.
phys. consts. of, 2956b.
potassium deriv.—see *Potassium, benzyloxide*.
prepn. of, 2570g.
propionate, phys. properties, soly. and application to flavors and perfumery, 2372g.
reaction with $C_6H_6$ in presence of $AlCl_3$, 5759g.
reaction with Et phenylacetate, kinetics of, 7418f.
reaction with *d*-limonene, 8369b.
spectrum in $CCl_4$, 4573h.
starch ether, resinous products from resins and, P 2466f.
surface tension of aq., 8797f.
system: glycerol-$H_2O$-, P 9081d.
**Benzyl alcohol, α-allyl-α-methyl-†**, and reactions with HCl and $H_2SO_4$, 3776i.
—, **α-(allyloxymethyl)-**, 5741g.
—, **α-allyl-2,3,4,5,6-pentachloro-†**, 2189a.
—, ***p*-amino-**, prepn. from *p*-nitrotoluene, 3730h.
—, **α-(α-aminobenzyl)-**, *dl*-, acetate (ester) -HCl, 7000b.
—, ***m*-amino-α-ethyl-**, 6606b.
—, **α-(1-aminoethyl)-**. See *Norephedrine*.
—, **3-amino-4-hydroxy-α-(methylaminomethyl)-**, dihydrobromide, P 7967e.
*l*(+)-, salts, P 7046c.
—, **α-(aminomethyl)-**, 1312e.
—, **α-(aminomethyl)-3,4-dihydroxy-**. See *Arterenol*.
—, **α-(aminomethyl)-*m*-hydroxy-**, P 5043c.
—, **α-[(aminomethyl)-*p*-hydroxy)-**, effect on pulmonary vol., 7128h.
hydrochloride, 2602c.
pharmacology of, 7128d.
—, **α-[(*o*-aminophenylmercapto)-methyl]-**, and hydrochloride, 7421c.
—, **α-[(*p*-aminophenylmercapto)-methyl]-**, 6574c.
—, ***p*-amino-α-(trichloromethyl)-**, 1367g.
—, **α-amyl-2,5-dimethyl-**, 6990h.
—, **p-{p-[p-{p-[p-{p-[p-(p-benzylbenzyl)benzyl]benzyl}benzyl}benzyl]-benzyl}benzyl]-(?)**, and nitro deriv., 5759i, 5760c.
—, **α-(benzylmercapto)-**, acetate, 7410a.
—, **4-(benzyloxy)-α-ethyl-2,5-dimethoxy-**, 1030e.
—, **α-(benzylsulfonyl)-**, acetate, 7410a.
—, ***p*-2-biphenylyl-**. See *o-Terphenyl-4-methanol*.
—, **p,α-bis(trichloromethyl)-**, as insecticide, 2359h.
—, ***p*-bromo-**, 2188g.
—, **α-(bromomethyl)-**, 2570f.
—, **α-3-buten-1-ynyl-†**, 2576d.
—, **α-3-buten-1-ynyl-α-methyl-†**, and polymer, 118d.
—, **α-butyl-**, benzoate, P 7968a.
—, **α-(butylaminomethyl)-*p*-hydroxy-**, pharmacology of, 7128d.
—, **α-(*sec*-butylaminomethyl)-*p*-hydroxy-**, *d*- and *l*-, P 3460c.
—, **α-(*tert*-butylaminomethyl)-*p*-hydroxy-**, and hydrochloride, P 3460d.
pharmacology of, 7128d.
—, **α-butyl-3,5-dihydroxy-**, 8385d.
—, **α-butyl-3,5-dimethoxy-**, 8384f.
—, **α-butyl-2,5-dimethyl-**, 6990g.
—, ***m*-*tert*-butyl-α-methyl-**, 1741i.
—, **α-butyl-α-methyl-**, 118e.
—, ***p*-chloro-**, 166d.
as acaricide and insecticide, 3138c.
(carboxymethyl)carbamate, in penicillin production, 2273f.
—, ***p*-chloro-α-(chloromethyl)-**, and acetate, 6991i.
—, ***p*-chloro-α-(dichloromethyl)-**, and acetate, 6991f.
—, ***m*-chloro-α-methyl-**, dehydration of, 1733c.
prepn. of, 1741i.
—, ***p*-chloro-α-methyl-**, and esters, 6992a.
—, ***p*-chloro-α-nitromethyl-**, P 5046c.
—, ***p*-chloro-α-(trichloromethyl)-**, P 350i, 6991c.
as acaricide and insecticide, 3138c.
and acetate, as insecticide, 2360f.
chloroacetate, as insecticide, P 7684f.
*d*, *dl*-, and *l*-, and esters, as insecticides, 2359h.
and esters, 199c.
propionate, P 6358h.
—, **2(and 4)-chloro-α-(trichloromethyl)-**, and acetate, 1895i.
—, **α-cyclohexyl-**. See *Cyclohexanemethanol, α-phenyl-*.
—, **α-cyclopentyl-, esters, P 5797f.**
—, **—— —**. See *5-Nonanol, 5-phenyl-*.
—, **2,5-dichloro-α-(diacylaminomethyl)-, hydrochlor[illegible] activity of, 8869f.**
—, **3,4-dichloro-α-[illegible]**

methyl)-, antimalarial activity of, 5860*f*.
——, **2,5-dichloro-α-methyl-**, P 688*a*, P 2637*a*.
——, **3,4 - dichloro - α - (trichloromethyl)-**, 1895*i*, P 7959*i*.
——, **3,4-diethoxy-α-1-nitroethyl-**, acetate, 1423*b*.
——, **α - (2 - diethylaminoethoxymethyl)-**, acetate (ester), 6574*f*.
——, **α - (2 - diethylaminoethyl) - α-ethyl-**, hydrochloride, 9071*d*.
——, **α - (2 - diethylaminoethyl) - α-isoamyl-†**, hydrochloride, 9071*d*.
——, **α - (2 - diethylaminoethylmercaptomethyl)-**, 6574*c*.
——, **α - [3 - (2 - diethylaminoethylmercapto)propoxymethyl]-**, 6574*i*.
——, **α - (3 - diethylaminopropylmercaptomethyl)-**, 6574*c*.
——, **α,2-diethyl-3-methoxy-**, and isomer, 197*g*.
——, **α - (difluoromethyl) - α - methyl-**, P 8209*d*.
——, **2,5-dihydroxy-**. See *Gentisyl alcohol*.
——, **3,4-dihydroxy-**. See *Protocatechuyl alcohol*.
——, **3,4 - dihydroxy - α - (methylaminomethyl)-**. See *Adrenaline*.
——, **2,3-dimethoxy-**. See *o-Veratryl alcohol*.
——, **3,4-dimethoxy-**. See *Veratryl alcohol*.
——, **3,5-dimethoxy-**, 8383*i*
——, **m,α-dimethyl-**, prepn. of, 1741*i*.
——, **p,α-dimethyl-**, choleretic action of, 5493*f*.
ester with camphoric acid, diethanolamine salt, effect on albumin turnover, 7587*h*.
as foam producer in ore flotation, P 4624*e*.
——, **α,α-dimethyl-**, 1718*f*.
as foam producer in ore flotation, P 4624*d*.
isocyanate, 6993*i*.
——, **p-dimethylamino-**, 1312*f*, 2570*f*, 5761*e*.
——, **α - (2 - dimethylaminoethyl)-**, hydrochloride, 9071*d*.
——, **α - (2 - dimethylaminoethyl) - α-ethyl-**, and hydrochloride, 9071*d*.
——, **α - (dimethylaminomethyl)-**, hydrochloride, 2602*b*.
——, **3,4 - dimethyl - α - nitromethyl-**, and dehydration of, P 5803*f*.
——, **2,5-dimethyl-α-propyl-**, 6990*g*.
——, **3,4-dimethyl-α-propyl-**, esters, P 5797*e*.
——, **α - (ethoxyethynyl) - α - methyl-†**, 2571*a*, 7413*h*.
——, **α - (2 - ethoxyvinyl) - α - methyl-†**, 2571*b*, 7413*i*.
——, **α-ethyl-**, as foam producer in ore flotation, P 4624*d*.
——, **α - (ethylaminomethyl) - p - hydroxy-**, pharmacology of, 7128*d*.
——, **α-ethyl-p,α-dimethyl-**, 1368*c*.
——, **α-ethyl-2,5-dimethyl-**, 6990*g*.
——, **α,α′ - [ethylenebis(iminomethylene)]di-**, 3800*d*.
——, **α,α′,α″,α‴-[ethylenebis(nitrilodimethylene)]tetra-**, and dihydrochloride, 3800*e*.
——, **α - ethyl - 4 - hydroxy - 3,5 - dimethoxy-**, 1030*d*.
——, **α - [(ethyl(2 - hydroxyethyl)amino]methyl]-**, and picrate, 4240*a*.
——, **α-ethyl-m-methoxy-**, and carbanilate, 3385*h*.
——, **α-ethyl-α-methyl-**, as foam producer in ore flotation, P 4624*e*.
——, **α-ethynyl-**, rearrangement of, 1348*i*.
——, **p - fluoro - α - (trichloromethyl)-**, P 350*h*.
as insecticide, 2359*h*.
——, **α - heptyl - 2,5 - dimethyl-†**, 6990*h*.
——, **hexahydro-**. See *Cyclohexanemethanol*.
——, **α - hexyl - 2,5 - dimethyl-†**, 6990*h*.
——, **m-hydroxy-**, 2570*g*.
——, **o-hydroxy-**. See *Saligenin*.
——, **p-hydroxy-**, derivs., photographic color couplers, P 7842*d*.
——, **hydroxy - α,α - diisopropyl-**, 2604*a*.
——, **4 - hydroxy - 3,5 - dimethoxy-**, P 9447*b*.
——, **p - hydroxy - α - (isopropylaminomethyl)-**, effect on heart, 9250*d*.
pharmacology of, 7128*d*.
and salts, P 8460*c*.
——, **4-hydroxy-3-methoxy-**. See *Vanillyl alcohol*.
——, **4-hydroxy-3-methyl-**, disazo dye from, P 8690*c*.
——, **m - hydroxy - α - (methylaminomethyl)-**. See *m-Synephrine*.
——, **p - hydroxy - α - (methylaminomethyl)-**. See *Synephrine*.
——, **α-isobutyl-**, 2004*c*.
——, **α-isobutyl-3,4-dimethyl-**, and ester with *N*, *N*-diethyl-β-alanine, P 5797*e*.
——, **p-isopropyl-**. See *Cuminyl alcohol*.
——, **o-methoxy-**, 5150*c*.
——, **p-methoxy-**. See *Anisyl alcohol*.
——, **m-methyl-(?)**, nitrate, 6584*d*.
——, **m(o and p)-methyl-**, H 3-nitrophthalates, 5767*d*.
——, **p-methyl-**, assocn. of, 178*g*.
——, **α-methyl-**, 1312*f*, P 3024*b*, P 5421*g*.
choleretic action of, 5493*f*.
dehydration of, 592*a*.
derivs., dehydration of, 1733*c*.
and dinitrobenzoate, 6195*i*.
formation in oxidation of PhEt, 2184*f*.
l(—)-, acetate, from *d*(+)-Me₂(PhCHMe)NI, 2967*b*.
(—)-, racemization of, 4215*b*.
reaction with Et phenylacetate, kinetics of, 7418*f*.
——, **α - (1 - methylaminoethyl)-**. See *Ephedrine; Pseudoephedrine*.
——, **α-(methylaminomethyl)-**, effect on carbohydrate metabolism, 5493*h*.
effect on pulmonary vol., 7128*h*.
——, **α-methylene-**, acetate, P 3838*i*, P 5796*a*, P 7038*b*, P 7953*i*.
——, **3,4-methylenedioxy-**. See *Piperonyl alcohol*.
——, **α - (methylmercaptomethyl)-**, 6574*a*.
——, **5 - methyl - 2 - methylmercapto-**, and carbamilate, 7474*h*.
——, **p - methyl - α - nitromethyl-**, and dehydration of, P 5803*e*.
——, **α - methyl - α - piperidyl-**. See *Piperidinemethanol, α - methyl - α-phenyl-*.
——, **p - methyl - α - (trichloromethyl)-**, P 351*a*.
——, **α - methyl - m - (trifluoromethyl)-**, prepn. of, 1741*i*.
——, **α - methyl - α - (trifluoromethyl)-**, P 8209*d*.
——, **m-nitro-**, 2570*g*, 9047*a*.
——, **m(o and p)-nitro-**, 6182*a*.
——, **p-nitro-**, acetate, 166*e*.
*o* - (*o* - cyanophenyl)cinnamate and *o*-(*o*-cyanophenyl)hydrocinnamate, 8378*a*
esters with (halophenyl) acetic acids, 605*h*.
ester with a thiophthenecarboxylic acid, 4667*a*.
fluoroacetate, 2933*e*.
——, **α-1-nitroethyl-**, acetate, 6999*e*.
——, **α-nitromethyl-**, and sodium deriv., 7453*f*.
——, **α,α′ - [pentamethylenebis(iminomethylene)]di-**, and dihydrochloride, 3800*e*.
——, **ar-phenyl-**. See *Biphenylmethanol*.
——, **α-phenyl-**. See *Benzhydrol*.
——, **α-4-phenylbutyl-†**, 5015*f*.
——, **α-propenyl-**. See *2-Buten-1-ol, 1-phenyl-*.
——, **α-pyridyl-**. See *Pyridinemethanol, α-phenyl-*.
——, **α-(trichloromethyl)-**, P 350*i*.
*p*-nitrobenzoate, as insecticide, P 7634*g*.
propionate, P 6358*h*.
——, **p-(trifluoromethyl)-**, 5761*e*.
——, **3,4,5-trimethoxy-**, 3,4,5-trimethoxybenzoate, 190*g*.
——, **p,α,α-trimethyl-**. See *8-p-Cymenol*.
——, **α,α′ - [trimethylenebis(iminomethylene)]di-**, dihydrochloride, 3800*d*.
**Benzylamine**, and acetate, P 2630*h*.
and *N*-acyl derivs., P 5800*d*.
adsorption by α bromopalmitic acid monolayers, 8797*a*.
benzenesulfonate, 2593*i*.
and benzylcarbamate, 6157*i*.
bisulfite, compds. with aldehydes or ketones, 3356*b*.
compd. with *p*-acetamidophenylglucuronide, 6314*g*.
with 4-carboxy-5,5-dimethyl-α-(α-phenylacetamido) - 2 - thiazolidinecarboxylic acid mono- Et ester, spectrum of, 8892*g*.
compd. with 3-(diphenylarsinomethyl)chophen oxide, 8352*b*.
with *trans* - 2 - phenylcyclohexanecboxylic acid, 8364*a*.
derivs., 1739*b*, 2176*h*, P 3044*h*.
effect on heart, 9250*g*.
formation from *ar*-aminobenzylamin 9047*c*.
heat of ionization of benzylammoni ion, 6904*b*.
identification of, 7448*a*.
prepn. of, from benzonitrile, 131 1336*c*.
pyrolysis of, in toluene, 7797*i*.
reaction with chloramines, 6570*h*.
with mustard gas, 6336*i*.
with thiophosphoramides, 3353*d*.
with PO(NHPh)₃, 3354*a*.
salts with carboxylic acids, 3351*g*.
with fatty acids, 3351*f*.
with O heterocyclic carboxylic acc 5736*d*.
steam treatment with, in corrosion p vention, 9307*c*.
system: $CH_2{:}CHCH_2NCS$–, 6177 6900*a*.
system: formic acid–, 6066*c*.
thiocyanate, 578*g*.
**Benzylamine**, *o*-**amino-**. See *Toluen α,2-diamine*.
——, *p*-**amino-**. See *Toluene-α,4-amine*.
——, **α-(aminomethyl)-**. See *Ethyle diamine, 1-phenyl-*.
——, *N*-**amyl-** *N*-**cyclohexyl-**, oil comp contg , as insecticide, etc , P 2734
——, *p*-**arsenoso-**, P 4694*h*.
——, *N*-**[2-(benzhydryloxy)ethyl]-**, a hydrobromide, 5783*h*.
——, **α-benzyl-** *N*, *N*-**dimethyl-**, and derivs , 6177*e*.
——, *N*, *N*-**bis(2-chloroethyl)-**, in canc therapy, 5505*c*.
hydrochloride, adrenergic blocking effe of, 4381*c*.
——, *N*, *N*-**bis(2-chloroethyl)-***p*-**nitro** hydrochloride, adrenergic blockin effect of, 4381*c*.
——, *p*-**bromo-α-methyl-**, 7921.
——, *p*-**bromo-** *N*, *N*, **α-trimethyl-**, a salts, 7919*i*.
——, *N*-**butyl-**, compds. with phen derivs., P 4298*f*.
——, *N*-**butyl-α-ethyl-**, 7921*d*.
and hydrochloride, 1341*a*.
——, **α-butyl-** *N*-**ethyl-**, and hydrochl ride, 1341*a*.
——, *N*-**chloro-**, 6570*h*.
——, *o*(and *p*)-**chloro-** *N*-**(2-chloroethyl)** hydrochlorides, adrenergic blockin effects of, 4381*c*.
——, *N*-**cyclohexyl-**, 2-(chloromethyl thiophene stabilization with, P 3011
——, *o*-**cyclohexyl-**, and hydrochlorid 1359*f*.
——, *o*-**cyclohexyl-** *N*, *N*-**diethyl-**, 1359
——, *N*, *N*-**dibutyl-**, compds. with phen derivs., P 4298*f*.
——, *N*, *N*-**dibutyl-***o*-**phenyl-**, an hydrochloride, 1355*h*.
——, *N*, *N*-**diethyl-**, compds. with phen derivs., P 4298*f*.
phys. constants of, 2956*h*.
——, *N*, **α-diethyl-**, 1340*i*, 7921*d*.
——, *N*, *N*-**diethyl-***m*-**methyl-**, 6584*h*.
——, *N*, *N*-**diethyl-***o*-**phenyl-**, 1355*g*.
——, *N*, *N*-**dilsopropyl-***o*-**phenyl-**, an hydrochloride, 1355*h*.
——, **3,4-dimethoxy-**. See *Veratrylamine*
——, *N*-**2,2-dimethoxyethyl-†**, an hydrochloride, 6974*d*.
——, *N*-**2,2-dimethoxyethyl-** *N*-**methyl-†**, and hydrochloride, 6974*d*.
——, *p*-**(2,5-dimethoxyphenylsulfonyl)-** bacteriostatic action of, 9376*f*.
——, *N*, *N*-**dimethyl-***o*-**phenyl-**, 1355*g*.
——, *N*, *N*-**dimethyl-***o*-**(1,2,2-triphenylethyl)-(?)**, and hydrochloride, 6177*d*.
——, *N* - **(2,3 - epoxypropyl)** - *N* - **isopropyl-**, 1776*d*.
——, **4-ethoxy-** *N*-**ethyl-3-methoxy-**, 2177*a*.
——, **4-ethoxy-3-methoxy-** and hydro chloride, 2177*a*.
——, *o*-**ethyl-**, and picrate 4218*b*.
——, **α-ethyl-**, 7921*d*.
——, **α-ethyl-** *N*, *N*-**dimethyl-**, 7921*d*
——, **α-ethyl-** *N*, *N*-**ethylenebis[***N*-**amyl-**, and *p*, *p*′-**ethylenebis[***N*-**butyl-**, and dihydrochloride, 3382*e*.
——, *p*, *p*′-**ethylenebis[***N*-**butyl-**, and dihydrochloride, 3382*e*.
——, *p*, *p*′-**ethylenebis[***N*-**cyclohexyl-**, and dihydrochloride, 3382*e*.

p,p'-ethylenebis[N-heptyl-†, and dihydrochloride, 3382e.
p,p'-ethylenebis[N-propyl-, and dihydrochloride, 3382d.
α-ethyl-N-isobutyl-, 7921d.
α-ethyl-N-methyl-, 7921d.
N-ethyl-α-propyl-, and hydro chloride, 1341a.
α-ethyl-N-propyl-, and hydro chloride, 1341a.
hexahydro-. See *Cyclohexanemethylamine*.
N-isopropyl-, 1770d.
α-isopropyl-N-methyl-, and hydro chloride, 1340i.
N-isopropyl-o-phenyl-, and hydro chloride, 1355g.
N-isopropyl-o-phenyl-N-propyl-, 1355g.
m-methoxy-N, N-dimethyl-, hydrochloride, 602g.
p-methoxy-N, N-dimethyl-, reaction with HCHO, 6594i
p-methoxy-N-methyl-, reaction with HCHO and reaction of the resulting compds. with MeI, 6594b.
N-(methoxyphenyl)-. See *Anisidine, N-benzyl-*.
N-methyl-, and benzylmethylcarbamate, 6158a.
hydroxy and methoxy derivs., reaction with heterocyclic chlorides, 2212d
N-and α)-methyl-, reactions with $CO_2$, 1351g.
o-methyl-, 1312d.
α-methyl-, d and l, salts with d and l N-benzoyl β (2,5-dimethoxyphenyl)alanines, 6599b
dl- and l, bisulfites, compds. with aldehydes or ketones, 3356b
l, salt with l-benzylsuccinic acid, 1747d.
l, salt with l-(2 thenyl)succinic acid, 6611e
ormylation of, 1336a
p,p'-methylenebis[N-amyl-, and dihydrochloride, 3382d.
p,p'-methylenebis[N-butyl-, and dihydrochloride, 3382d
p,p'-methylenebis[N-cyclohexyl-, and dihydrochloride, 3382d.
3,4-methylenedioxy-. See *Piperonylamine*
N, N'-(methylenedi-p-phenylene)bis-, 5386e.
p-(methylmercaptomethyl)-, hydrochloride, 1739e.
N-methyl-o-phenyl-, hydrochloride, 1356b
α-methyl-p-(phenylsulfonyl)-, and hydrochloride, 7450e.
N-methyl-α-propyl-, and hydrochloride, 1340i.
p-(methylsulfonyl)-, 8539d.
and homologs, 1739b
p-(methylsulfonylmethyl)-, hydrochloride, 1739f.
N-phenetyl-. See *Phenetidine, N-benzyl-*.
N-phenyl-, 1312f.
deln. of active H in, 3316j.
o-phenyl-, and hydrochloride, 1356a.
o-phenyl-N, N-dipropyl-, and hydrochloride, 1355g.
N, N, N,α-triethyl-, 7921d.
N, N,α-trimethyl-, d(+)-, 2967b.
and picrate, 6177d, 7919i.
**nzylation**, of chrysin, 6381.
of β oxoacrylomtrile acetals and of derivs. of cyanoacetic acid esters, 3356f.
of phenol HCHO resins, P 4717i.
**nzyl benzhydryl phosphate**, $(C_7H_7)_2C_{13}H_{11}PO_4$, 600c.
**nzyl bromide**. See *Toluene, α-bromo-*.
**nzyl cellosolve**. See *Ethanol, 2-(benzyloxy)-*.
**nzylcellulose**. See "benzyl ether" under *Cellulose*.
**nzyl chloride**. See *Toluene, α-chloro-*.
**nzyl chlorophosphate** ($(PhCH_2)_2PO_2Cl$), 599h.
phosphorylation with, 2650a.
**nzyl cyanide**. See *Acetonitrile, phenyl-*.
**nzyl desyl phosphate**, $(C_7H_7)_2(C_{14}H_{11}O)PO_4$, 600c.
**nzyl disulfide**, 1399g, 2187i.
ectane lubricating soins. of, effect on friction and surface damage at high sliding velocities, 1953d.
and compd. with $AgNO_3$, 1325h.
as corrosion inhibitor against $CO_2$ in petroleum wells and processing, P 7221h.
spectrum and structure of, 7410g.
**Benzyl ether**, 6622d.
insectifuge from, P 5153d.
mixt. with $CCl_4$ as solvent for rubber, 3223i.
phys. properties of, 5150e.
prepn. of, 2573c.
as softener in reclaimed rubber, 8191g.
**Benzyl group**, effect on analgesic action, 4245h.
removal of, 2650d.
removal of, from polybenzyl phosphates and pyrophosphates, 2650d.
resonance energy of, 5306e.
**Benzyl hyponitrite**, as catalyst for polymerization, P 5641c.
**Benzylidene chloride**. See *Toluene, α,α-dichloro-*.
**Benzylidenimine**, 2(or 4)-bromo-α,6-diethyl-5-methoxy-, and hydrochloride, 185f.
α-tert-butyl-2,3-dimethoxy-, and hydrochloride, 185f
α-ethyl-2,5(and 2,6)-dimethoxy-, and hydrochlorides, 185d
α-ethyl-o-methoxy-, and hydrochloride, 185d.
α-ethyl-2,3-methylenedioxy-, and hydrochloride, 186b.
N-phenyl- See *Anilsne, N-benzylidene*
**Benzylidyne chloride**. See *Toluene, α,α,α-trichloro-*.
**Benzylidyne fluoride**. See *Toluene, α,α,α-trifluoro-*.
**Benzyl ketone**. See *2-Propanone, 1,3-diphenyl-*.
**Benzyl mercaptan**. See *α-Toluenethiol*.
**Benzyl nitrate**, formation of, from nitration of toluene, 4216f.
**Benzyl nitrile**. See *Acetonitrile, phenyl*
**Benzyl phosphate**, $(PhCH_2)_2HPO_4$, 600b
**Benzyl phosphite**, $(PhCH_2)_2HPO_3$, 599g.
**Benzyl selenide**, as lubricant additive P 6820g.
**Benzyl silicate**, $(PhCH_2)_4SiO_4$, 9028e.
**Benzyl sulfide**, compd. with AuCl, 1313d
reaction with N haloamides, 172d.
spectrum and structure of, 7410d
**Benzyl sulfone**, spectrum and structure of, 7411b.
**Benzyl sulfoxide**, 7410a.
formation of, in reaction of N-haloamides with thio ethers, 172f.
**Benzyl thiophosphate**, $(C_7H_7O)_2PS_2H$, in Mo detection, 7859b.
**Berberine**, in barberry and its pharmacol. action, 9246b.
detection of, 5535d
sulfate, isolation from barberry root, 7194i.
, **dihydroanhydro-***, 6631c.
**Berberis**. See *Barberry*.
**Bergamot oil**. See *Oils*.
**Bergaptene**, 1910e.
**Bergenin**, in Saxifragaceae, 8451a.
**Berger rhythm**. See "potentials of" under *Brain*.
**Bergh, van den**. See *van den Bergh*.
**Berginization**. See *Hydrogenation*.
**Bergius, Friedrich**, biography, 8219e.
**Beriberi**. (See also "B" and "$B_1$" under *Avitaminosis* and *Vitamins*.) 1090e.
**Berlin blue**. See *Prussian blue*.
**Berlin green**. See *Prussian green*.
**Berlinite**, and its piezoelec. uses, 2129d.
transitions of, 1552h.
**Bermuda grass**. See *Grasses*.
**Berries**, compn. and vitamin C in Czechoslovak, 3536f.
Mikrobin in preservation of, 5130a.
mite control on bushes, 1897f.
orange-tortrix control on, 5148e.
seed detn. in, 8572a.
vitamin retention during processing and storage of, 9329a.
**Berseem**, seeds of, analysis of, 5455i.
**Berthierite**, in Canada (western), 8982i.
of Italy, 2128a, 4979b.
**Berthollet**, biography, 1617g, 2049d.
**Berthollides**. See *Alloys; Solutions, solid*.
**Beryl**. (See also *Emeralds*; etc.)
beryllium manuf. from, 1919ghi, 1920ab.
beryllium oxide manuf. from, P 3576c.
compn. of, 1919g.
compression of, 4917b.
elasticity of, 8787c.
in granite pegmatite dikes near Mt. Legnoncino, Italy, 4610a.
of Italy (Tuscany), 2128b.
-mica deposits of Middlesex Co., Conn., and their flotation, 4609b.
in pegmatites of Black Mt., Maine, 4190d.
*in pegmatites* of Custer Co., S. Dak., sampling, analyses and flotation of, 3322g.
of Red Hill, Maine, 8319a.
polishing of, effect on hardness and surface structure, 4071i.
in tantalum-bearing deposits of Pilbara goldfield, W. Australia, 6124e, 6546i.
**Beryllia**. See *Beryllium oxides*.
**Beryllium**, alpha-ray bombardment of, cross section for neutron emission in, 8265e.
atomic wt. of, 2051c.
Australian industry of, 6546g.
casting of, 8996i.
cation-exchanger dynamic ctivity toward, 3268f.
in coal, 1941d, 8639e.
compression of, 4917a.
copper deoxidation with, 6555c.
cross sections for, for nuclear photoeffect, neutron scattering and $n,2n$ process, 6073e.
crystallochem. electronegativity of ion of, 8231a.
as deoxidizer in Cr-Mo alloys, 8336i.
deuteron bombarded, angular distribution of neutrons from, 8866d.
Doppler broadening of γ-ray lines from, 4117c.
γ-rays and neutrons from, 4093g, 4561i.
γ-rays from, 4093g, 8876ab.
$Li^7$ from, 2088g.
diffusion in light alloys and metals, 2559e.
diffusion in steel, 1699g.
discontinuities in at. distances in crystals of, electronic interactions and, 6030k.
disintegration energy of $Be^8$, 4947b.
disintegration of, electro- and photo-, 8265a.
effect on brass, 2915i.
on color reaction of azo dyes with Mg ion, 597h.
on grain growth in Cr steel, 1297b.
on grain size of Al-Cu alloys, 8337f.
on oxidation of Ni, 4619f.
on oxidation resistance of Cr-Ni-Ta alloys, 3332h.
on phosphatase (alk.), 9115dg.
on steel contg. Cr, Al and Si, P 3770h
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883f.
in extn. of Mn from Fe, C, etc., P 5727f.
films of, 2481g.
effect of heat on, 2482b.
structure of, 2482d.
gamma-ray bombarded, angular distribution of neutrons from, 8855bc.
$Be^8$ and neutrons from, and theory of this reaction, 4117e.
energy of neutrons from, 6506c.
$Li^8$ and protons from, 4093g.
neutrons from, 7811f.
photo-neutrons from, 4090i.
threshold for reaction in, 4115f.
gamma-ray cross section of, 3283f.
granulomatosis and pneumonitis from, 3118i.
gyromagnetic ratio and magnetic moment of, 4137a, 5303f.
gyromagnetic ratio of, 8865b.
hazards of, 3947i, 5883f, 8577de.
heat of vaporization and vapor pressure of, 2061f.
in interstellar space, 7334e.
isotope of mass 7, decay of, 8866c.
degree of ionization and period of disintegration of, 4555b.
effect of at. electrons on decay const. of, 3283d.
effect of ionization on decay of, 4117d, 8866b.
K-electron capture by, 8872d.
from $Li^7$ by proton action, threshold voltage for, 3283d.
mass value for, 8850d.
metabolism of, 4309f.
isotope of mass 8, from $Li^7$ capture of proton, γ-rays from, 484d.
isotope of mass 10, Al absorption of β-rays from, 4096c.
β-decay of, 4116cd, 8870k.
spin of, 491i.
from lithium by proton action, 4114d.
in magnetic field, ratio of resonance frequency to proton frequency of, 8262g
magnetic moment of, 6918b.
mass defects of, 8271i.
mesotron-bombarded, electrons from 6504g.
minerals, He in, 7875b.

*minerals*, of India, 525*c*.
from Londonderry, Australia, 4185*i*.
neutron bombardment of, emission of neutrons in, 7812*e*.
neutron cross section of, 3282*h*, 4947*c*, 6909*d*.
neutron interaction with, 4946*i*.
neutrons produced from—see *Neutrons*.
nucleus, virtual excited state of, 1646*f*.
occurrence and uses of, 3324*f*.
orientation in rolled and recrystd., 2557*i*.
in plant and animal tissue, 7987*f*.
pneumonitis from, 787*e*, 3518*f*, 7606*h*.
poisoning by, 7161*d*, 8073*f*, 9265*e*.
diagnosis of, 4366*e*.
review on, 6759*h*.
powd., manuf. by electrolysis, 5313*g*.
protoactinium deposition on, 7791*g*.
proton bombardment of, energy released in, 8864*b*.
proton bombardment of, γ-rays from, 8860*h*.
proton interactions with, 5294*b*.
-proton reactions and scattering, 4093*c*.
proton scattering by, 4093*c*, 8260*i*.
-radium source, no. of fast neutrons from, 8868*c*.
in sediments from Tyrrhenian Sea, 4610*f*.
in selagitic magma differentiation, 2137*h*.
soly. in Zn silicate, 6084*h*.
spectrum of, 7858*h*.
system: Al–Si–, 92*b*.
system: Fe–, 3763*h*.
x-rays from, 1202*c*.
x-ray transmission in, 8874*b*.

**Beryllium, analysis**, detection, 8966*c*.
detection and detn., 3310*b*, 7858*h*.
detection in presence of Al, 2117*c*.
detn., 57*c*, 1081*d*, 3246*c*, 6106*f*.
detn. in $Al_2O_3$, 2541*f*.
in Be-Cu alloys, 8965*f*.
in biol. materials, etc., 1681*h*, 7862*b*.
in clays, silicates, etc., 615.
in Fe ores and assocd. rocks, 5710*b*.
in Mg, Mg alloys, etc., 5327*g*.
in ores, 1281*i*.
in phenakite, 6934*c*.
in sediments from Tyrrhenian Sea, 4610*g*.
in silicate rocks, 8302*d*.
detn. of impurities, 8949*f*.
polarographic, and detn. in light alloys, 7369*f*.
sepn., 1919*g*.
sepn. from Al and detn., 7369*i*, 8301*c*.
from Al, U, V and Zn in qual. analysis, 7802*c*.
from Fe, 6538*g*.

**Beryllium, diphenyl-**, complex with PhLi, 5758*a*.

**Beryllium, metallurgy of**, from beryl, 1919*ghi*, 1920*ab*.
review on, 4967*e*.

**Beryllium acetate**, $Be_4O(CH_3CO_2)_6$, polymorphism of, 6033*c*.

**Beryllium alloys**. (See also *Bronze; Turbelloy No. 4*.)
aluminum-Cu-Ag-, hardenability of, 1703*c*.
aluminum-Cu-Zn-, for casting, P 9021*c*.
aluminum-Mg-, P 3771*a*, P 5358*e*.
aluminum-, Si-, and Ag-, eutectics in, 4935*e*.
analysis of, for Cu, Fe and Pb, 5698*b*.
analysis (polarographic) of, 7369*f*.
boron-Cr-Co-Ni-W-, P 5358*c*.
carbon-Fe-, 543*d*.
cerium-Mg-Zr-, P 3341*i*.
copper-, analysis of, 8965*e*.
A.S.T.M. standards for, 4203*bc*, 4615*e*.
blackening of, P 7404*f*.
cladding of, with precious metals, P 6966*b*.
damping capacity of, 533*a*.
heat-treatment of, 3334*a*.
pickling and electroplating on, 3727*h*.
rate of pptn. hardening of, 7399*b*.
re-formation in, 6136*f*.
iron-Ni-, P 4626*f*.
iron-Ni-, for pen, P 2922*b*.
magnesium-, 2916*b*.
magnesium-, weldable, P 2154*cd*.
magnesium-Zr-, 4619*e*.
metallography of, 9011*h*.
tungsten-, prepn. of, 4967*e*.
zinc-, P 5000*b*.

**Beryllium aluminate**, $BeAl_2O_4$, prepn. of, 5690*f*.

**Beryllium borohydride***, $Be(BH_4)_2$, spectra of, 4573*a*.

**Beryllium carbonate**, $Be(HCO_3)_2$, formation and stability of, 4171*a*.

**Beryllium chloride** ($BeCl_2$), attempted dehydration of tetrahydrate with $COCl_2$ or $SOCl_2$, 2533*c*.
compds. with org. N compds., 4172*f*.
reduction by hydrogen, 4967*e*.

**Beryllium chloroiodate(III)**, $Be(ICl_4)_2$, ammoniates of, 8298*b*.

**Beryllium compounds**, analysis of, for impurities, 8949*f*.
complex acid, $H_n[Be(OH)_nSO_4]$, 4967*i*.
effect on formation of Zn silicate phosphors, 7827*i*.
lattice energies of, 8230*g*.
org., 4172*f*.
review on, 4967*e*.

**Beryllium fluorides**, properties of solns. of, 6049*h*.

**Beryllium germanate**, $Be_2GeO_4$, phosphor of $Zn_2GeO_4$ and, activated by Mn, luminescence of, 7827*f*.

**Beryllium hydroxide** ($Be(OH)_2$), drying of, 2046*g*, 5300*b*.
trypsin adsorption by, 3864*c*.

**Beryllium iodide**, $BeI_2$, mixt. with molten NaI, decompn. potential of, 4582*g*.

**Beryllium lithium sodium fluoride**, $Na_2LiBe_2F_7$, crystal structure of, 5253*c*.

**Beryllium nitrate**, base exchange with, in reactivating $Al_2O_3$-$SiO_2$ cracking catalyst, P 9428*c*.
fluoride soly. in, 6049*h*.
Raman spectrum of, 8887*g*.

**Beryllium ores**, of Alaska (northwestern), 8314*i*.

**Beryllium oxides**, films on glass for increasing reflection, 3161*h*.

**BeO**, bend creep and bend strength of sintered, 9402*h*.
catalyst from $Al_2O_3$ and, P 9299*f*.
catalysts of $Al_2O_3$ and, in dehydrogenation of hydrocarbons, P 6404*c*.
energy levels and work function of, 933*h*.
films of, in secondary-emission cells, 2482*d*.
formation from $Be(OH)_2$, 5300*c*.
fused, P 5680*a*.
luminescent material contg., P 2098*a*.
magnetic susceptibility of, 3252*e*.
manuf. of, P 3158*e*.
from beryl, 1919*i*, 1920*a*, P 3576*c*.
from silicates, 823*i*.
mixt. with $ZrO_2$, thermal expansion of, 8254*a*.
pneumonitis from, 7606*h*.
in potassium fluoride-NaF eutectic melts alone and with other oxides, 5687*eg*.
prepn. of, 2533*i*.
radioactivity of, effect of Tammann exchange temp. and desorption of $H_2O$ on, 8822*c*.
reaction with $SiO_2$, 6084*h*, 8114*c*.
recrystn. of bodies contg., 2390*b*.
refractory materials from, 830*d*, 1164*a*, 3584*f*.
sintering of, 7206*a*.
spectrum of, from Be and BeO, 8878*b*.
thermal properties of, 9403*i*.
trypsin adsorption by, 3864*c*.
volatilization in presence of water, 5321*h*.

**Beryllium salts**, aluminum detn. in, 5697*a*.

**Beryllium silicate**. (See also *Phenakite*.)
in ceramics, 2388*c*.
luminescent prepns. contg., 7347*f*.

**Beryllium sulfates**, and basic sulfates, 4967*h*.

**BeSO₄**, in anodic oxidation of Al, etc., P 4588*c*.
decompn. of tetrahydrate by heat, 2490*h*.
effect on ferric-ion reaction with thiocyanates and on stability and intensity of colored complexes, 8310*g*.
electrolysis of, colloidal soln. formation in, 5676*i*.
Raman spectrum of, 1657*h*.
spectrum of, 3293*c*.

**Beryllium zinc silicates**, and cathodoluminescence thereof, 3723*a*.
constitution of, and its effect on their luminous properties, 6084*g*.
dielec. losses and luminescence of, 947*b*.
fluorescent products contg., P 2870*f*.

**Berzelius, Jöns Jacob**, biographies, 1617*gi*, 2347*f*, 8607*i*.
(books), 4940*e*, 6904*e*, 7808*a*.

**Besnier-Boeck's disease**. See "Boeck's" under *Sarcoid*.

**Bessna**. See *"Eleusine coracana"* under *Millet*.

**Beta**. See *Beets; Chard; Sugar beets*.

**Betacoccus arabinosaceus**. See *Leuconostoc mesenteroides*.

**Betafite, analysis of**, 8949*b*.

**Betaine**. (*Owing to the use of betaine in biological literature to designate betaine and betaine hydrochloride, taine and its "hydrochloride" are ent here.*) (*For esters and other derivs. under* Ammonium compounds, s stituted.)
antibacterial activity of, 3879*h*.
choline and, in chick growth, 1470*b*.
effect on biochem. decompn. of cellul 3609*d*.
on crystal habit of NaCl, 7772*d*.
on glycine concn. by diaphra 9120*d*.
on heart of *Venus mercenaria*, 8058
on liver lipides, 3104*a*.
on malignancy, 2307*e*.
on *Treponema pallidum*, 9144*h*.
in gelatin, effect on photographic pro ties, 51*f*.
in liver of poison mussels, 3053*d*.
in methionine formation from homoc teine, 2261*g*.
as methyl donor, 7526*h*.
in nutrition of German cockroach, 39
removal from sugar-beet juices b exchange, 6442*g*.
as supplement in simplified ration chickens, 8465*c*.

**Betaines**, amides and esters of hydrochlor of, 6977*c*.
in clarification of cellulose regenera baths by flotation, P 4014*c*
esters of hydrochlorides of, 6976*i*.

**Betalin complex elixir**, folic acid addn 355*i*.

**Betanin** (*betanin chloride, 4′-amino trihydroxyflavylium chloride*), effect vitamin C detn., 7534*b*.

**Beta-rays**. (See also *Electrons; Cath rays; Radioactivity*.)
from antimony ($Sb^{128}$), 4121*a*.
from antimony ($Sb^{125}$) and $I^{131}$, 6913*i*
from antimony ($Sb^{125}$), $Pr^{143}$ and Rb 8267*i*.
from argon ($A^{41}$), 4918*a*.
from arsenic ($As^{76}$), 4120*a*, 6910*h*
from astatine ($At^{218}$) and RaA, 4953
from barium ($Ba^{133}$), 1269*h*
from beryllium ($Be^{10}$), 8870*h*.
from beryllium ($Be^{10}$), absorption in A 4096*c*.
from boron ($B^{12}$) and $Li^8$, 2506*c*.
from cadmium ($Cd^{115}$) and $Hf^{181}$, 1125
from calcium ($Ca^{45}$), $Cs^{137}$ and $Au^{19}$ 8268*d*.
from carbon ($C^{14}$), 4091*h*, 4096*d*.
from carbon ($C^{14}$) and $S^{35}$, 36*g*
from cerium ($Ce^{141}$) and $Pr^{144}$, 3705 6913*i*.
from cesium ($Cs^{135}$), 5296*h*
from cesium ($Cs^{137}$), 4940*f*.
from cesium ($Cs^{137}$) and $Y^{91}$, 8266
from chlorine ($Cl^{36}$), 8870*cd*.
from chlorine ($Cl^{38}$), 8869*h*.
from cobalt ($Co^{60}$), 2506*g*.
from columbium ($Cb^{95}$), 4120*h*.
from columbium ($Cb^{95}$), 6507*h*.
from columbium ($Cb^{97}$), $I^{132}$, and $Mo^{99}$ 8271*a*.
from columbium ($Cb^{98}$), $Os^{191}$, $Os^{193}$ and $Re^{188}$, 487*c*.
from copper ($Cu^{64}$), 4119*h*, 4563*f*.
from copper ($Cu^{64}$), ratio to positron 7330*a*.

counters for—see *Counters*.
counting of, 2861*g*.
with crystal fluorescence counter 2861*c*.
with internal counters, 6508*b*.
in radioactive material detn. in mi erals and rocks, d. correction in 6112*d*.
by scintillations, 4111*i*.
with S crystal, 4560*b*.
counting of collimated and uncollimated effect of absorber position on, 3282*a*.
from decay product of nuclei of type $_zM^{2z-1}$, 4563*b*.
detection by scintillations, 4095*i*.
detection in photographic emulsions 8921*f*.
double emission of, 8845*i*.
effect of screening and relativistic effect on spectra of, 3280*f*.
effect on sulfhydryl enzymes, 6682*e*.
effect on water, 3709*c*.
from elements of first group in periodic table, 8268*c*.
emission of, 5288*d*.
angular correlation between emissio of γ-rays and, 933*f*, 4093*i*.
by $Be^{10}$, and theory of β-decay, 4 abundance and, 4

*emission of*, emission of γ-rays during, 3280*c*, 4094*e*, 8860*h*.
energy diagrams for, 2088*c*.
from $He^6$, electron-neutrino angular correlation in, 4112*c*.
by isobars, α-binding energy and, 3703*a*.
neutrino and recoil of nuclei in, 4559*i*.
probability of, nuclear spin and, 4098*g*.
regularities in disintegration energy in consecutive, 6076*i*.
Sargent diagram and, 4125*f*.
in sequence from $Sn^{124}$, 4122*g*.
theory of recoil in, 3280*e*.
time variation of, 6502*i*.
from $U^{236}$ fission products, 8868*f*.
valence of products of, 7332*e*.
energy of, detn. of max., with Van de Graaff type accelerator, 8850*c*.
instrument for detg., 6505*c*.
measurement of, 35*a*.
from erbium and ytterbium, 4948*g*.
from europium and W, 486*g*, 4559*h*.
exposure to, max. for, and protection therefrom, 4129*a*.
forbidden, from various nuclei, 8879*h*.
from gadolinium and Tb, 4949*i*.
from gallium ($Ga^{72}$), $Au^{198}$, $Rb^{86}$ and $Sc^{46}$, 1647*a*.
gamma energy emitted for each, by radioelements, 4091*c*.
from germanium ($Ge^{77}$), 5295*e*.
from gold ($Au^{198}$), 1258*e*, 4124*h*, 4950*c*.
from gold ($Au^{196}$ and $Au^{198}$), 6911*h*.
from gold ($Au^{199}$) and $Pt^{193}$, 37*a*.
from hafnium ($Hf^{181}$), 4124*d*.
heavy- see *Mesotrons*.
from helium ($He^6$) and $H^3$, max. energy of, 5293*d*.
from holmium ($Ho^{166}$), 5297*c*.
from indium ($In^{114}$), 6911*a*.
from indium ($In^{116}$), 8873*f*.
from indium ($In^{118}$ and $In^{119}$), 8267*h*.
from iodine, 8872*g*.
from iodine ($I^{129}$), 8879*e*.
from iodine ($I^{131}$), 2089*f*, 5296*b*.
ionization by, in mixt. of air and EtOH-$H_2O$ vapor, 3284*c*.
ionization by, ratio to α-ionization, 5292*h*.
from krypton isotopes, 8267*d*.
from lutetium ($Lu^{177}$), 7330*c*.
from mercury ($_{19}Hg^{202}$), 4125*e*, 7330*f*.
from mesons, 933*g*.
from mesothorium 1 and Ms-$Th_2$, 7331*d*.
naphthalene bombarded by, from $H^3$, 1259*i*.
from nickel ($Ni^{60}$), 7812*g*, 8867*e*.
from nitrogen ($N^{17}$), 4562*e*.
from oxygen ($O^{15}$), 8883*g*.
from phosphorus ($P^{32}$), 8874*a*.
from phosphorus ($P^{32}$) and $Sc^{46}$, 4563*d*.
from potassium ($K^{40}$), 485*cf*, 1260*d*, 4563*ef*, 5294*g*.
from potassium ($K^{42}$), 8860*b*.
from praseodymium ($Pr^{142}$), 4122*b*.
from protactinium-series disintegration, 37*c*.
in radiotherapy, applicator for, 8863*d*.
from radium E, 5298*c*.
from rare earth metals activated by neutrons, 6911*c*.
from rhenium ($Re^{186}$) and $Tm^{170}$, 8269*a*.
from rubidium ($Rb^{87}$), 4120*f*.
from ruthenium, 3287*a*.
from scandium ($Sc^{47}$), 6507*g*.
scattering of, by N, 4115*i*.
scattering of, from $S^{35}$ in glass, 8867*c*.
self-weakening of, 3707*f*.
from silver ($Ag^{110}$), 4949*f*, 5295*i*.
from silver ($Ag^{111}$ and $Ag^{112}$), 5295*h*.
from sodium ($Na^{24}$), 4581*f*.
spectra of, 1259*d*, 8879*i*.
spectrographs for—see *Spectrographs*.
spectrometers for—see *Spectrometers*.
spectrophotometer for, with homogeneous magnetic field, 3706*c*.
spectroscopy of, 4096*g*.
from strawboard contaminated with radioactive substances, 8263*b*.
from strontium ($Sr^{89}$), 8860*f*.
from strontium ($Sr^{90}$) and $Y^{90}$, 7330*a*, 8860*d*.
from sulfur ($S^{35}$), absorption in Al, 4118*h*.
from sulfur ($S^{35}$), max. energy of, 6077*b*.
from thick sources, 8870*f*.
from thorium active deposit, coincidence of, 4109*d*.
from thorium C″, 3708*b*.
from thorium series, 4950*g*.
from tin isotopes, 8860*c*.
track of, in air and Ne, distribution of no. of ion pairs in clusters along, 8262*c*.
from tritium, 4112*e*, 4131*c*, 6076*a*, 7329*f*, 8268*b*, 8861*e*.
from uranium X, 8262*a*.
from uranium Y, 3286*i*.
from yttrium ($Y^{91}$), 4563*i*, 8870*e*.
**Betatron**, 2083*g*, 8850*b*.
beam of, electrostatic deflection of, 5863*e*.
biased, design of 30-m.e.v., 4092*h*.
building and installation for, at U. of Saskatchewan, 8850*h*.
of Clarendon lab., Oxford, 2505*g*.
electron-gun emission and x-ray output of, 8850*h*.
external beam of electrons from, production of, 4094*f*.
inhomogeneities in magnetic field of, 4945*e*.
light-wt., without Fe yoke, 6908*g*.
of Naval Research Lab., 2505*g*.
porcelain-vacuum tube for, 4439*a*.
reviews on, 3701*g*, 4525*h*, 4945*c*.
theory of, 4940*g*.
**Betel nuts**. See "nuts" under *Areca*.
**Bethanizing**. See *Zinc*.
**Betol**, crystn. and nuclei in melt of, 3278*a*.
**Betula**. See *Birch*.
**Betulin**. See *Betulinol*.
**Betulinic acid**, in bark of plane tree, 730*b*.
——, **bromo-**, and esters, 730*c*.
**Betulinol**, palmitate, in bird glue, 5205*d*.
rosin esterification with, P 9485*f*.
**Betulonic acid, dihydro-***, and derivs., 730*c*.
**Beverages**. (See also *Ale; Beer; Cider; Coffee substitutes; Fruit juices; Kirschwasser; Liqueurs; Liquors; Malt; Milk preparations; Rum; Sirups; Spirits; Whisky; Wine*.)
alc., effect on allergic reactions, 9252*g*.
apricot, P 3144*c*.
bacteria and mold inhibition in bottled, P 7606*f*.
beerlike, base for, P 7190*e*.
book: Méthodes actuelles d'expertises employées au lab. municipal de Paris et documents sur les matières relatives à l'alimentation T. III Boissons et dérivés immédiats, 1148*a*.
carbonated, carbamino salt compds. for, P 5415*e*.
effect of quaternary compds. on yeasts in, 4783*i*.
monochloroacetic acid detection and detn. in, 9274*f*.
production of, P 5131*d*.
water purification for, 8583*e*.
citric acid detection in soft drinks, 5342*g*.
clarifying and purifying, P 6334*a*.
coli bacterial infections in, 4423*a*.
contamination by glass, 6379*h*.
decalcification of teeth by acid, effect of sugar content and pH on, 9220*i*.
distillery fermentation, 9357*f*.
drying sugar-bearing juice for, P 1503*a*.
flavoring materials (trace) effect in alc. and nonalc., 2339*b*.
fruit juices for European, 8069*f*.
heavy-metal-cation removal from, P 5238*e*.
improvement of fermented, P 5902*c*.
malt, improvement of foam of fermented, 8608*f*.
metal removal from, ion-exchange resins for, P 2344*f*.
methanol detection in alc., 9372*h*.
methanol detn. in alc., 1903*g*.
microörganisms in alc., retardation of growth of, P 6783*a*.
quaternary $NH_4$ compd. detn. in, 7151*f*.
stabilization of fermented, P 5532*f*.
stabilizers for suspensions in, *Iridophycus flaccidum* ext. as, P 331*e*.
sucrose detection in, 8607*a*.
sulfur dioxide removal from alc., 6329*c*.
tea-like, from mosses, leaves, etc., P 7606*b*.
whey, 1874*d*.
from whey, albumins in fermented, 5153*i*.
**BHC**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Bi-**. *See also words beginning with* Di-.
**4,4′-Biacetanilide, 2,2′,5,5′-tetrachloro-**, 3729*e*.
**4,4′-Biacetoaceto-*o*-toluidide**, azo dyes from, P 7695*a*.
**4,4′-Bi-*o*-acetophenetidide, 5,5′-dichloro-**, 4151*a*.
**α,α′-Biacetophenone**. See *1,4-Butanedione, 1,4-diphenyl-*.
**3,3′-Biacetophenone, 4,4′-dihydroxy-**, 5018*c*.
**Biacetyl**. See *2,3-Butanedione*; for dioxime see *Glyoxime, dimethyl-*.
**9,9′-Biacridine**, 2338*b*, 6468*d*.
and derivs., P 3853*h*.
**Bially**l. See *1,5-Hexadiene*.
**Biamicina**, in wine making, 6780*e*.
**[3,3′-Bi-5-androstene]-17,17′-diol***, 6216*g*.
**ar,ar′-Bianiline**. See *Biphenyldiamine* for *p,p′*-bianiline, see *Benzidine*.
**N,N′-Bianiline**. See *Hydrazobenzene*.
**Bianisal**. See *Stilbene, 4,4′-dimethoxy-*.
**4,4′-Bi-*o*-anisidine**. See *Benzidine, 3,3′-dimethoxy-*.
**Bianisylidene**. See *Stilbene, 4,4′-dimethoxy-*.
**[9,9′-Bianthracene]-10,10′(9*H*,9′*H*)-dione**. See *10,10′-Bianthrone*.
**[Bianthracene]-9,9′,10,10′-tetrone**. See *Bianthraquinone*.
**1,1′-Bianthraquinone, 2,2′-dimethyl-**, 7472*i*.
**[1,1′-Bianthraquinone]-4,4′-dicarboxylic acid**, and pyridine salt, 1760*e*.
**Bianthraquinonyl**. See *Bianthraquinone*.
**10,10′-Bi-9-anthrol**, 618*c*.
——, **9,9′,10,10′-tetrahydro-**, 7472*h*.
**$\Delta^{10,10'}$-Bianthrone**, 618*c*.
**10,10′-Bianthrone**, 618*d*.
reduction of, 7472*g*.
——, **1,1′,4,4′-tetramethyl-**, reduction of, 7472*h*.
**1,1′-Bianthryl**, 7472*g*.
**2,2′-Bianthryl**, 7472*g*.
**9,9′-Bianthryl**, 7472*g*.
**Biarsine**, 1277*a*.
**Biarsyl**. See *Biarsine*.
**Biaryl compounds**. See *Organic compounds*.
**Bibenzal**. See *Stilbene*.
**2′,2‴-Bibenzanilide**, 3810*a*.
**4′,4‴-Bibenzanilide, 2′,2‴,5′,5‴-tetrachloro-**, 3729*e*.
**[4,4′-Bi-7*H*-benz[*de*]anthracene]-7,7′-dione**, 1760*h*.
**[6,6′-Bi-7*H*-benz[*de*]anthracene]-7,7′-dione**, 1760*d*.
reaction with KOH, 2984*c*.
**ar,ar′-Bibenzenesulfonic acid**. See *Biphenyldisulfonic acid*.
**α,α′-Bibenzhydrol**. See *Benzopinacol*.
**Bibenzhydryl**. See *Ethane, 1,1,2,2-tetraphenyl-*.
**[2,2′-Bibenzimidazole]-ar,ar′-disulfonic acid**, disodium salt, P 8174*a*.
**m,m′-Bibenzoic acid**. See *3,3′-Biphenyldicarboxylic acid*.
**o,o′-Bibenzoic acid**. See *Diphenic acid*.
**p,p′-Bibenzoic acid**. See *4,4′-Biphenyldicarboxylic acid*.
**4′,4‴-Bi-*o*-benzophenetidide, 5′,5‴-dichloro-**, 4151*a*
**[2,2′-Bibenzo[*g*]quinoline]-4,4′-dicarboxylic acid**, and salts, 5025*g*.
**[2,2′-Bi-3,1,4*H*-benzothiazine]**, 4278*b*.
**2,2′-Bibenzothiazole, 5,5′-bis(α-acetylacetamido)-**, 5777*a*.
——, **6,6′-bis(α-acetylacetamido)-**, 5776*i*.
——, **6,6′-bis(α-acetylacetamido)-5,5′-dichloro-**, 5777*a*.
——, **6,6′-bis(α-acetylacetamido)-5,5′-dimethoxy-**, 5776*h*.
——, **5,5′-diacetamido-**, 5777*a*.
——, **6,6′-diacetamido-**, 5776*i*.
——, **6,6′-diacetamido-5,5′-dichloro-**, 5777*a*.
——, **6,6′-diacetamido-5,5′-dimethoxy-**, 5776*h*.
——, **4,4′-diamino-(?)**, 5776*i*.
——, **5,5′-diamino-**, 5777*a*.
——, **6,6′-diamino-**, 5776*i*.
——, **6,6′-diamino-5,5′-dichloro-**, 5777*a*.
——, **6,6′-diamino-5,5′-dimethoxy-**, 5776*h*.
**6,6′-Bibenzothiazole, 2,2′-di-2-anthraquinonyl-**, P 3626*f*.
**Bibenzoyl**. See *Benzil*.
**Bibenzyl**,

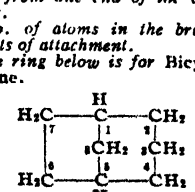
$$PhCH_2CH_2Ph.$$

and alkyl or alkenyl derivs., as plasticizers for rubber, P 896*f*.
carbon-C bonds in, resonance energy of benzyl radical and, 5306*f*.
compression and freezing under pressure, 4067*f*.
derivs., 9055*i*.
derivs., prepn. and estrogenic activity of, 196*c*.

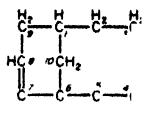
electronic structure and hyperconjugation of, 41*e*.
formation from benzoin reduction in presence of Raney Ni, 191*f*.
from $PhCH_2Cl$, 646*h*, 2194*d*.
from bis(phenylacetyl) peroxide, 3394*f*.
from reaction of BzH with metals, 4238*i*.
from reaction of $PhCH(SEt)_2$ with Raney Ni, 2597*c*.
from reaction of $(PhC:NNH_2)_2$ with NaOH, 123*e*.
from reaction of $PhCH_2F$ with Li, 166*e*.
from reaction of $PhCH_2MgBr$ with *trans*-1,4-dibromo-2-butene, 2579*b*.
from reaction of $PhCH_2MgCl$ with $HSiCl_3$, 2160*h*.
from reaction of $(PhCH_2)_2Hg$ with phenols, 1740*i*.
from reaction of $(PhCH_2)_2Hg$ with $Me_3NHCl$, 560*a*.
from toluene and $N_2H_4$ or $PhCH_2NH_2$, 7798*a*.
in Friedel-Crafts reaction with succinic anhydride, 7004*b*.
as insecticide, 5894*g*.
manuf. by electrolysis, P 6927*a*.
nitration of, 7918*h*.
prepn. of, 4241*h*.
scintillations produced by α-rays in crystals of, 8264*b*.
spectrum of, 4140*e*.
structure of, accuracy of electron-maps in x-ray analysis of, 6509*c*.
thermal analysis of mixt. of azobenzene and, 3317*b*.
from toluene, P 1440*d*.
toluene from, P 3454*a*.

**Bibenzyl**, *ar*-**acetyl-**. See *Acetophenone, ar-phenethyl-*.
——, **4,4'-bis(bromomethyl)-**, 3382*b*.
——, **α,α'-bis(1,2-dibromoethyl)-**, 612*c*.
——, **4,4'-bis(2-diethylaminoethoxy)-α,α'-diethyl-†**, pharmacology of, 8060*a*.
——, **α,α'-dibromo-**, *cis-* and *trans-*, 5754*a*.
——, **α,α'-dibromo-α-chloro-4,4'-difluoro-**, P 2236*b*.
——, **4,4'-dibromo-α,α'-dichloro-**, P 2236*c*.
——, **α,α'-dibromo-4,4'-dimethoxy-**, 7927*h*.
——, **α,α'-dibromo-α,4,4'-trichloro-**, P 2236*b*.
——, **4,4'-dibromo-α,α,α'-trichloro-**, P 2236*c*.
——, **α,α'-dichloro-**, dehydrochlorination of, 1755*d*.
——, **4,4'-dichloro-**, as insecticide, 5894*g*.
——, **α,α'-dichloro-4,4'-dimethoxy-**, 7927*h*.
——, **4,4'-dichloro-α,α'-epoxy-**, 3369*b*.
——, **α,α'-diethyl-**, structure of, 612*a*.
——, **α,α'-diethyl-4,4'-dihydroxy-**. See *Phenol, p,p'-(1,2-diethylethylene)di-*.
——, **α,α'-diethyl-4,4'-dimethoxy-**, 3812*f*.
in tissue of birds after administration, and effect on testicles, comb and epidermis, 8032*a*.
——, **α,2-diethyl-3,4'-dimethoxy-**, 198*d*.
——, **2,2'-diethyl-3,3'-dimethoxy-**, 197*c*.
——, **α,α'-diethylidene-**. See *2,4-Hexadiene, 3,4-diphenyl-*.
——, **α,α'-diethylidene-*ar,ar'*-dimethoxy-**. See *2,4-Hexadiene, 3,4-bis(methoxyphenyl)-*.
——, **4,4'-dimethoxy-**, 191*g*.
——, **4,4'-dimethoxy-α,α'-dimethyl-**, isomers, 6605*h*.
——, **4,4'-dimethoxy-2,2'-dimethyl-α,α'-dimethylene-†**, 8371*b*.
——, **4,4'-dimethoxy-α,α'-dimethylene-†**, 8371*a*.
——, **α,α'-dimethyl-**, P 1440*d*.
spectrum of, 4140*e*.
——, **2,2'-dinitro-**, 7918*h*.
——, **4,4'-diphenethyl-**, and nonachloro deriv., 5386*c*.
——, **4,4'-diphenyl-**, detection of, 8975*g*.
——, **α,α'-divinyl-**. See *1,5-Hexadiene, 3,4-diphenyl-*.
——, **α,α'-epoxy-4,4'-dimethoxy-**, 7927*g*.
——, **2-ethyl-3,4'-dimethoxy-**, 198*b*.
——, **α,α,α',α',4,4'-hexachloro-**, as acaricide and insecticide, 3138*a*.
——, **α-methyl-**, chromatography of, transport factor on $SiO_2$ gel for, 7868*e*.
——, **α,α,α',α',3,3',4,4'-octachloro-**, insecticidal action of, 9331*i*.
toxicity of, 345*i*.
——, **pentachloro-**, 5386*g*.
——, **α,α,α',4,4'-pentachloro-**, P 2235*i*.
——, **2,3,4,5,6-pentachloro-**, 3377*g*.
——, **α-phenyl-**. See *Ethane, 1,1,2-triphenyl-*.
——, **2,4,α,α'(and 2,6,α,α')-tetrabromo-3,5-dimethoxy-**, 1038*c*.
——, **α,α,α',α'-tetrachloro-**, 1755*e*.
——, **α,α',4,4'-tetrachloro-**, P 2235*h*.
as acaricide and insecticide, 3138*a*.
toxicity of, 345*i*.
——, **3,3',4,4'-tetrachloro-**, as insecticide, 5894*g*.
——, **α,α',2,2'-tetraethyl-3,3'-dimethoxy-**, isomers, 197*g*.
——, **α,α,α',α'-tetramethyl-**, 188*f*, P 1440*c*.
——, **2,2',5,5'-tetramethyl-**, 2182*g*.
——, **2,2',4,4'-tetranitro-**, 7918*h*.
——, **α,4,4'-tribromo-α,α'-dichloro-**, P 2236*b*.
——, **α,α',4-tribromo-3,5-dimethoxy-**, 1038*b*.
——, **α,α,α'-trichloro-4,4'-difluoro-**, P 2236*b*.
——, **α,α,α'-trichloro-4,4'-dinitro-**, P 2236*c*.
——, **α,α,α'-trichloro-4-methyl-**, P 2236*c*.

**α,α'-Bi[benzyl alcohol]**. See *Hydrobenzoin*.
**Bibenzyl-α-amine**. See *Ethylamine, 1,2-diphenyl-*.
**4,4'-Bi[benzylamine]**, *N,N'*-**dibutyl-**, and dihydrochloride, 3382*c*.
——, *N,N'*-**dicyclohexyl-**, and dihydrochloride, 3382*c*.
——, *N,N,N',N'*-**tetrabutyl-**, dihydrobromide, 3381*e*.
**Bibenzyl-*ar,ar'*-diamine**. See *α,α' Bitoluidine*.
**Bibenzyl-*ar,ar'*-diol** See *Phenol, ar,ar'-ethylenedi-*.
**Bibenzyl-2,2'-disulfonic acid, 4,4'-dinitro-**, P 7694*h*.
**Bibenzylidene**. See *Stilbene*.
**Bibutyryl**. See *4,5-Octanedione*.
**Bicarbamic acid**, diethyl ester, prepn. of, 1725*g*.
esters, P 4293*b*.
**Δ^N,N'^-Bicarbamic acid**. See *Formic acid, azodi-*.
**Bicarbonates**. See *Carbonates*.
**Bicetyl**. See *Dotriacontane*.
**Bicholesteryl***, 2214*i*, 2215*a*.
**Bicinnamyl**. See *1,5-Hexadiene, 1,6-diphenyl-*.
**Biconiferyl**. See *Olivil*.
**4,4'-Bi-*o*-cresol**, derivs., 5017*i*.
——, **α,α'-bis(diethylamino)-6,6'-dipropyl-**, dihydrochloride, m. 223–4°, P 4696*a*.
——, **6,6'-diallyl-α,α'-bis[bis(2-hydroxyethyl)amino]-†**, P 4696*a*.
——, **6,6'-diallyl-α,α'-bis(dibutylamino)-**, dihydrochloride, P 4696*a*.
——, **6,6'-diallyl-α,α'-bis(diethylamino)-**, dihydrochloride, P 4695*i*, P 4696*a*.
——, **6,6'-diallyl-α,α'-bis(dimethylamino)-**, dihydrochloride, P 4695*i*.
——, **6,6'-diallyl-α,α'-bis(dipropylamino)-**, dihydrochloride, P 4696*a*.
——, **6,6'-diallyl-α,α'-bis(2-hydroxyethylamino)-†**, P 4696*a*.
——, **6,6'-di-*tert*-butyl-**, as stabilizer for cracked gasolines, P 9428*b*.
**Bicyclic compounds**. See *Cyclic compounds*.
**Bicyclic rings**. *(Systematic names and numbering are illustrated by the following example of* "Bicyclo[*x.y.z*]octane."
*x = no. of atoms the long way around the ring from one end of the bridge to the other.*
*y = no. of atoms the other way round the ring from one end of the bridge to the other.*
*z = no. of atoms in the bridge between points of attachment.*
*Thus the ring below is for* Bicyclo[3.2.1]-octane.

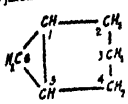


*Systems containing hetero atoms are named by using the prefixes aza, oxa, thia, etc., in connection with the bicyclo names, e.g.,* 3-Azabicyclo[3.2.2]-heptane, 3,6-Dioxabicyclo[3.1.0]hexane.)
**Bicyclobutyl, 2,2,2',2',3,3,3',3'-octafluoro-**, 3371*a*.
**Bicyclo[4.4.0]decane**. See *Naphthalene, decahydro-*.
**Bicyclo[5.5.0]decane**. See *Heptalene, decahydro-*.
**Bicyclo[5.3.0]decapentaene**. See *Azulene, Cyclopentacycloheptene*.
**Bicyclo[4.3.1]-7-decene**,

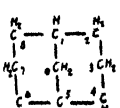


**Bicyclo[4.3.1]-7-decene-1-carboxyl acid, 7-methyl-10-oxo-**, and ethyl ester and its derivs., 7908*c*.
**Bicyclo[4.3.1]-7-decen-10-one**, methyl-, and semicarbazone, 7908*c*.
**Bicyclo[2.2.2]-1,4-diazaoctane**. See *1,4-Diazabicyclo[2.2.2]octane*.
**Bicyclo[16.3.1]-1(22),18,20-docosatrien-22-ol, 20-nitro-**, 161*d*.
**Bicyclo[6.3.1]-1(12),8,10-dodecatrien-12-ol, 10-nitro-**, 161*h*.
**Bicycloekasantalic acid***, 5382*h*.
and derivs., 5383*dg*.
**Bicycloekasantalol***, 5383*d*.
**Bicyclo[5.3.1]-1(11),7,9-hendecatrien-11-ol, 9-nitro-**, 161*h*.
**Bicyclo[5.3.1]-7-hendecene-1-carboxylic acid, 8-methyl-11-oxo-** and methyl ester, 7908*f*.
**Bicyclo[5.3.1]-7-hendecen-11-one, 8-methyl-**, 7908*f*.
**Bicyclo[2.2.1]heptane**. See *Norcamphane*
**Bicyclo[3.1.1]heptane**. See *Nopinane*
**Bicyclo[2.2.1]-2-heptene, 1,2,3,4,7,7-hexachloro-5-(1,2-dichloropropyl)-**, P 5797*c*.
——, **1,7,7-trimethyl-**. See *Bornylene*.
**Bicyclo[3.1.1]-2-heptene, 2-(chloromethyl)-6,6-dimethyl-**, formation of, from pinene selenide, 2975*e*.
——, **2,2'-selenodimethylenebis[6,6-dimethyl-**, 2975*e*.
——, **2,6,6-trimethyl-**. See *Pinene*
**Bicyclo[3.2.0]-2-heptene, 6,6,7,7-tetrafluoro-**, 3371*c*.
**Bicyclo[2.2.1]-5-heptene-2-carbonyl chloride, 2-methyl-**, 3373*i*.
**Bicyclo[2.2.1]-5-heptene-2-carboxamide, 2-methyl-**, 3373*i*.
**Bicyclo[2.2.1]-5-heptene-2-carboxylic acid, 3-dodecylcarbamyl-**, P 5205*f*.
**2-methyl-**, and methyl ester, 3373*i*.
**3-octadecylcarbamyl-**, P 5205*f*.
**Bicyclo[2.2.1]-5-heptene-2,3-dicarboximide**, 4232*b*.
*N*-**allyl-**, P 4421*f*.
*N*-**amyl-**, P 4421*f*.
*N*-**benzyl-**, P 4421*f*.
*N*-**butyl-**, P 4421*d*.
*N*-**butyl-2(and 7)-methyl-** 4421*g*.
*N*-**β-cyanoamyl-**, P 4421*g*.
*N*-**(2-cyanoethyl)-**, P 4421*f*.
*N*-**cyclohexyl-**, P 4421*f*.
*N*-**dodecyl-**, P 4421*f*.
*N*-**ethyl-**, P 4221*f*.
*N*-**heptyl-**, P 4421*f*.
*N*-**2-hydroxyethyl-**, P 4421*f*.
*N*-**isobutyl-**, P 4421*f*.
*N*-**isopropyl-**, P 4421*f*.
*N*-**methyl-**, P 4221*f*.
*N*-**octyl-**, P 4421*f*.
*N*-*o*-**phenetyl-**, P 4421*f*.
*N*-**phenyl-**, P 4421*f*.
*N*-**propyl-**, P 4421*f*.
*N*-**xylyl-**, P 4421*f*.
——, **2,3-dicarboxylic acid**, P 2234*f*, 4232*c*.
**diallyl ester**, P 2819*d*.
**diethyl and di-Me esters**, 5150*e*.
**dimethyl ester, as insectifuge**, 1900*i*.
**as insect repellent and toxicant** 7181*c*.
**as insect repellent in cosmetics** 9335*g*.
**esters, as plasticizers**, P 2817*h*, P 7633*e*.
**polyesters, as plasticizers for melamine and urea resins**, P 4513*c*.
**polymeric ester with 2-ethyl-1,3-hexanediol, as plasticizers**, P 2814*b*.
——, **1,4,5,6-tetrachloro-7,7-dimethoxy-†**, 4230*f*.

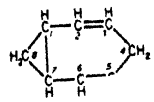
—, 1,4,5,6-tetrachloro-7-oxo-, dimethyl acetal, 4230f.
Bicyclo[2.2.1]-5-heptene-2,3-dicarboxylic anhydride, reaction with linseed oil, 8700c.
—, 1,4,5,6-tetrachloro-7,7-dimethoxy-†, 4230f.
—, 1,4,5,6-tetrachloro-7-oxo-, dimethyl acetal, 4230f.
Bicyclo[3.1.1]-2-heptene-2-ethanol, 6,6-dimethyl-, isomerization of, P 1807f.
Bicyclo[2.2.1]-5-heptene-2-sulfonic acid, methyl ester, 7411i.
Bicyclo[10.3.1]-12-hexadecene-1-carboxylic acid, 13-methyl-16-oxo-, and methyl ester, 7908g.
Bicyclo[10.3.1]-12-hexadecen-16-one, 13-methyl-, 7908h.
,1'-Bi-1,5-cyclohexadienyl]-3,3'-dione, disemicarbazone, hydrate, 3306f.
,1'-Bi-2,5-cyclohexadienylidene]-4,4'-dione. See *Diphenoquinone*.
Bicyclo[3.1.0]hexane,



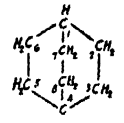
—, 1-isopropyl-4-methyl-. See *Sabinane*.
—, 1-isopropyl-4-methylene-. See *Sabinene*.
Bicyclohexane] carboxylic acid. See [*Bicyclohexyl*] *carboxylic acid*.
[1'-Bicyclohexan]one. See *Cyclohexanone, cyclohexylidene-*.
Bicyclohexyl, compressibility and ultrasonic velocity in, 4532b
herbicidal action of, 1895e
mixt. with tridecane for testing distn columns, 4521f
phys. constants of, 2955i.
prepn. and spectrum of, 2175b
—, 1,1'-dinitro-, P 4683e
—, 4-(4,4-diphenyl-3-butenyl)-†, 1375h.
—, 4-(naphthyl)-, 1377c.
—, 4-(p-phenylstyryl)-†, 1376d.
Bicyclohexyl]-1-amine, and HCl, 5011a.
Bicyclohexyl]-2-amine, as synergist for nicotine, 5893h.
Bicyclohexyl]-4-amine, acetate, 1377j.
Bicyclohexyl]-4-carbonitrile, 1377d.
Bicyclohexyl]-1-carbonyl chloride, 5011a
*trans*-, 1376c.
Bicyclohexyl]-1-carboxamide, 5011a.
Bicyclohexyl]-4-carboxamide, *trans*-, 1376c.
Bicyclohexyl]-1-carboxylic acid, 5010g
Bicyclohexyl]-4-carboxylic acid, *trans*-, 1376c.
Bicyclohexyl]-1,1'-diol, oxidation of, 3366f.
-,3,3',5,5'-tetramethyl-, 2963a.
Bicyclohexyl]-4,4'-dione, and dioxime, 1335i.
Bicyclohexyl] - 2 - methylamine. See *Cyclohexanemethylamine, 2-cyclohexyl-*.
Bicyclohexyl] - 3,3,3',3',5,5,5',5' - octapropionamide, *N,N',N'',N'''*,-*N'''',N''''',N''''''*,*N''''''*- - octakis(octadecyl)-4,4'-dioxo-, P 2228b.
Bicyclohexyl] - 3,3,3',3',5,5,5',5' - octapropionic acid, 4,4'-dioxo-, 1335i.
and ethyl ester, P 2228b.
Bicyclohexyl] - 3,3,3',3',5,5,5',5' - octapropionitrile, 4,4'-dioxo-, 1335i, P 2228a.
Bicyclohexyl]ol. See *Cyclohexanol, cyclohexyl-*.
Bicyclohexyl]one. See *Cyclohexanone, cyclohexyl-*.
Bicyclo[3.3.1]nonane,



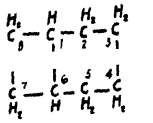
Bicyclo[4.3.0]nonane. See *Indan, hexahydro-*.
Bicyclo[3.3.1]nonane-1-carboxylic acid, 4-methyl-9-oxo-, 7907i.
Bicyclo[3.3.1] - 3 - nonene - 1 - carboxylic acid, 4-methyl-9-oxo-, and ethyl ester and its phenylsemicarbazone, 7907g.
Bicyclo[4.2.0]-2,4-octadiene, 7,8-dibromo-, and dimer, 6196f.
—, 7,8-dichloro-, and derivs., 6196b.
Bicyclo[5.1.0]-2,5-octadiene,



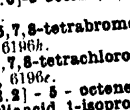
—, 7,8-dimethoxy-, 6197b.
Bicyclo[4.2.0]-2,4-octadiene-7,8-diol, diacetate and its dimer, 6196h.
Bicyclo[2.2.2]octane,



5752e.
—, 2-bromo-, rearrangement of, with AgBr, 5752c.
—, 2 - bromo - 3 - (trichloromethyl)-, 4636i, 4637a.
Bicyclo[3.2.1]octane, 5752d.
—, 2-bromo-, 5752c.
Bicyclo[3.3.0]octane. See *Pentalene, octahydro-*.
—, octadehydro-. See *Pentalene*.
Bicyclo[4.2.0]octane,



6196e.
—, 7,8-dibromo-, 6196g.
—, 2,3(or 3,4)-dibromo-7,8-dichloro-, 6196d.
—, 2,3) - dibromo - 4,5,7,8 - tetrachloro-(?), 6196f.
—, 3,4 - dibromo - 2,5,7,8 - tetrachloro(?)-, 6196d.
—, 7,8-dichloro-, 6196d.
—, 2,3,4,5,7,8-hexabromo-, and isomer, 6196g.
—, 2,3,4,5,7,8-hexachloro-, and isomer (or mixt. of isomers), 6196f.
Bicyclo[4.2.0]octane-7,8-diol, and diacetate, 6196h.
Bicyclo[2.2.2]octane - 2,3,5,6 - tetracarboxylic dianhydride, 6200f.
Bicyclo[3.2.1]octan-2-ol, and esters, 5752d.
Bicyclo[4.2.0]octan - 2(?) - ol, 7,8 - dichloro-, 6197f.
Bicyclo[4.2.0]octan - 3(?) - ol, 7,8 - dichloro-, 6197f.
Bicyclo[3.3.0]octatetraene. See *Pentalene*.
Bicyclo[4.2.0]-2,4,7-octatriene, 6195f.
Bicyclo[4.2.0]-2-octene, 7,8-dichloro-(?), 6196c.
—, 4,5,7,8-tetrabromo-(?), and isomer, 6196h.
—, 4,5,7,8-tetrachloro-(?), and isomers, 6196e.
—, 7,7,8,8-tetrafluoro-, 3371c.
Bicyclo[4.2.0]-3-octene, 7,8-dichloro-(?), 6196c.
—, 2,5,7,8-tetrabromo-(?), and isomer, 6196h.
—, 2,5,7,8-tetrachloro-(?), and isomers, 6196e.
Bicyclo[2.2.2] - 5 - octene - 2,3 - dicarboxylic acid, 1-isopropyl-4-methyl-, diallyl ester, P 2819d.
Bicyclo[2.2.2] - 5 - octene - 2,3 - dicarboxylic anhydride, 1-isopropyl-4-methyl-, 6601a.
Bicyclo[4.2.0] - 2 - octen - 4 - ol, 7,8 - dichloro-5-methoxy-(?), 6197g.
Bicyclo[4.2.0] - 2 - octen - 5 - ol, 7,8-dichloro-4-methoxy-(?), 6197g
Bicyclooctyl, 6195b.
Bicyclo[3.1.0]pentane,



Bicyclo[2.1.0]pentane - 1,2,4 - tricarboxylic acid, 5,5-dimethyl-3-oxo-, derivs., 5380h.
Bicyclopentyl, compressibility and ultrasonic velocity in, 4532b.
Bicyclo[3.3.1] - 1(14),10,12 - tetradecatrien-14-ol, 12-nitro-, 161d.
4,4'-Bi-1,3-dioxolane, 2,2'-diphenyl-, 4219d.
Bidwell's intercept relation, of liquid metals, thermal conductivity and, 2062e.
Biermer's disease. See *Anemia*.
1,1'-Bi[ethylene oxide]. See *Butane, 1,2,-3,4-diepoxy-*.
[4,4'' - Bifavan] - 2,2'',3,3',3'',3''',4,4',-4'',4''',5,5'',7,7''-tetradecol, 3491c.
$\Delta^{9,9'}$-Bifluorene, crystal structure of, 3263c.
9,9'-Bifluorene, derivs., 3811c.
[9,9' - Bifluorene] - 1,1' - dicarbonitrile, 3811f.
[9,9' - Bifluorene] - 2,2' - dicarbonitrile, 3811g.
[9,9' - Bifluorene] - 1,1' - dicarbonyl chloride, 3811f.
[9,9'-Bifluorene]-2,2'-dicarbonyl chloride, 3811g.
[9,9' - Bifluorene] - 1,1' - dicarboxamide, 3811f.
[9,9' - Bifluorene] - 2,2' - dicarboxamide, 3811g.
[9,9' - Bifluorene] - 2,2' - dicarboxamidine, dihydrochloride, 3811i.
[9,9' - Bifluorene] - 2,2' - dicarboximidic acid, diethyl ester di-HCl, 3811h.
[9,9' - Bifluorene] - 1,1' - dicarboxylic acid, and diethyl ester, 3811e.
[9,9'-Bifluorene]-2,2'-dicarboxylic acid, and diethyl ester, 3811g.
Biformyl. See *Glyoxal*.
3,3'-Bifuran, octahydro-5,5'-dimethyl-, 3818g.
4',4'''-Bi-2-furanilide, 4665d.
Biguanide,



acyl derivs., 2442c, P 5199c.
acyl derivs., for use as textile assistants, P 4878i.
1-alkyl-5-aryl derivs., P 2220f, 7905c.
aryl derivs., reaction with dicarboxylic acids or their derivs., P 1444g.
1-aryl 5-heterocyclic derivs., 5777c, 7905g.
complex compds. with bivalent metals, 8941b.
with metals, 7365cf.
with trivalent metals, 8941d.
condensation products of, or its derivs. with HCHO for improving nylon dye affinity, P 2442i.
copper complexes, bonds and stereochemistry of, 8222b.
copper deriv., spectrum of, 6250b.
derivs., P 683h, P 684k, P 699f, P 1059e, 2946e, P 4292g, P 4691a, 5746b, P 6658h, P 6659d, 9035i, 9038e, P 9082e.
as antimalarial compds., 2946i, 2947i, 2949c, 5868b, P 6227h.
condensation products with dicyandiamide and HCHO, for dye fastness improvement on textiles, P 2786i.
in malaria treatment, 3107g.
for ore treatment, P 5726g.
as stabilizing agents for aromatic amines, P 5799g.
for textile printing, P 7713a.
and derivs., sulfonic acid salts, P 7040d.
1,5-diaryl derivs., P 1799f.
hydroxyalkyl, condensation products with aldehydes, for dye-fastness improvement, P 3206c.
mercaptobenzothiazole salts of, and its derivs. as antioxidants in soap, P 5215i.
nitrate, mixt. with guanidine nitrate, reaction product with *N*-(hydroxymethyl)stearamide, P 7728d.
nitrate, mixt. with guanidine nitrate, reaction with *N*-(hydroxymethyl)-oleamide, textile assistant by, P 7728c.
pyrrole stabilization with, and its derivs., P 4701b.
reaction with acyl chlorides or with esters, P 1814c.
with ethylene sulfide, P 1799b.
with α,β-unsatd. esters, P 3854f.
spectrum of, 9037b.
Biguanide, 1-(p-acetamidophenyl)-5-(8-chloro-8-quinolyl)-†, and acetate, 231a.
—, 1-allyl-5-(p-chlorophenyl)-, P 6659f.
—, 1-[2-[2-(2-aminoethylamino)-ethylamino]ethyl] - 5 - lauroyl-†, and reaction product with AcOH, P 4879d.

——, 1-[2-[2-(2-aminoethylamino)-ethylamino]ethyl] - 5 - stearoyl-†, and reaction product with citric acid, P 4879*d*.
——, 1-(*p*-aminophenyl)-5-(8-chloro-5-quinolyl)-, and acetate, 231*a*.
——, 1-(α-amino-*p*-tolyl)-, dihydrochloride, 5014*e*.
——, 1-amyl-5-(*p*-chlorophenyl)-, P 6659*f*.
——, 1-benzyl-, *p*-toluenesulfonate (mono-), P 4292*h*.
——, 5-benzyl-1-(*p*-chlorophenyl)-2-ethyl-, hydrochloride, 2948*e*, P 6659*a*.
——, 1-benzyl-5-propyl-, nitrate, 2946*f*.
——, (4,4'-biphenylene)bis-, condensation product with crotonaldehyde, P 4879*f*.
condensation product with *o*-nitrobenzaldehyde, P 4880*a*.
condensation product with *p*-nitrophenyl isocyanate, P 4880*b*.
reaction product with 1-chloro-2,4-dinitrobenzene, P 3968*d*.
reaction product with 1-chloro-2,4,6-trinitrobenzene, P 3968*e*.
——, 1 - (4 - biphenylyl) - 5 - isopropyl-, hydrochloride, 2947*g*.
——, 1,5-bis(*p*-chlorophenyl)-2-ethyl-, hydrochloride, P 684*h*.
and hydrochloride, 2948*f*, P 6659*b*.
——, 1,2-bis(*p*-chlorophenyl)-4-ethyl-5-isopropyl-, P 684*e*, 9039*h*.
——, 1,2-bis(*p*-chlorophenyl)-5-isopropyl-, acetate, P 684*c*, 9039*h*.
——, 1,5 - bis(*p* - chlorophenyl) - 2-methyl-, hydrochloride, P 684*h*.
and hydrochloride, 2948*f*, P 6659*b*.
——, 1,1 - bis(2 - hydroxyethyl) - 5-lauroyl-†, and methylated deriv., P 4878*i*.
——, 1,5-bis(*p*-sulfophenyl)-, P 1799*g*, P 2230*a*.
——, 1-[3(and 4)-bromo-4(and 3)-chlorophenyl]-5-ethyl-, hydrochlorides, P 6228*f*.
——, 1-(4-bromo-3-chlorophenyl)-5-ethyl-, hydrochloride, P 1060*a*.
——, 1-(3-bromo-4-chlorophenyl)-5-isopropyl-, P 6228*g*.
hydrochloride, P 684*b*, P 1060*c*.
——, 1-(4-bromo-3-chlorophenyl)-5-isopropyl-, hydrochloride, P 684*b*, P 1060*b*, P 4601*c*.
——, 5-[3(and 4)-bromo-4(and 3)-chlorophenyl] - 1 - isopropyl - 1 - methyl-, hydrochlorides, P 6228*f*.
——, 5-(4-bromo-3-chlorophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 1060*d*.
——, 5-[3(and 4)-bromo-4(and 3)-chlorophenyl]-1-methyl-1-propyl-, hydrochlorides, P 6228*f*.
——, 5-(4-bromo-3-chlorophenyl)-1-methyl-1-propyl-, hydrochloride, P 1060*c*.
——, 1-(3-bromo-4-chlorophenyl)-5-propyl-, hydrochloride, P 6228*g*.
——, 1-(4-bromo-3-chlorophenyl)-5-propyl-, hydrochloride, P 1060*b*.
hydrochloride (omitted from abstr.), P 6227*h*.
——, 1-(4-bromo-3,5-dichlorophenyl)-5-isopropyl-, hydrochloride, P 684*b*, P 1060*c*, P 6228*h*.
——, 1 - (3 - bromo - 4 - iodophenyl)-5-ethyl-, hydrochloride, P 6228*h*.
——, 1-(3-bromo-4-iodophenyl)-5-isopropyl-, hydrochloride, P 684*b*, P 1060*c*, P 6228*h*.
——, 1-(4-bromo-3-iodophenyl)-5-isopropyl-, hydrochloride, P 684*c*, P 1060*c*.
——, 5-(3-bromo-4-iodophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 6228*h*.
——, 5 - (3 - bromo - 4 - iodophenyl)-1-methyl-1-propyl-, hydrochloride, P 6228*h*.
——, 1-(3-bromo-4-iodophenyl)-5-propyl-, hydrochloride, P 6228*h*.
——, 1-(8-bromo-2-naphthyl)-5-isopropyl-, 2947*h*.
——, 1 - (*p* - bromophenyl) - 5 - butyl-, hydrochloride, P 684*g*, P 4692*c*, 9036*i*.
hydrochloride (compd. omitted from abstr.), 2951*a*.
——, 1-(*p*-bromophenyl)-5-*sec*-butyl-, hydrochloride, P 684*g*, P 1060*c*, 9036*i*.
——, 1-(*p*-bromophenyl)-5-*tert*-butyl-, hydrochloride, 9036*i*.
——, 5-(*p*-bromophenyl)-1-butyl-1-methyl-, P 4692*b*, 9037*a*.
——, 1-(*p*-bromophenyl)-5-(8-chloro-5-quinolyl)-, and acetate, 231*a*.
——, 1-(*p*-bromophenyl)-5-cyclohexyl-, and hydrochloride, P 4692*a*, 9036*i*.
——, 5-(*p*-bromophenyl)-1,1-diethyl-, P 4691*e*, P 6228*e*.
and hydrochloride, 9036*i*.
——, 5-(*p*-bromophenyl)-1,1-dimethyl-, P 4692*b*, 9036*i*.
——, 1-[*m*(and *p*)-bromophenyl]-5-ethyl-, hydrochlorides, P 6228*c*.
——, 1-(*p*-bromophenyl)-5-ethyl-, hydrochloride, P 684*g*, P 1060*a*, P 4691*e*, 9036*i*.
——, 1-(*p*-bromophenyl)-2-ethyl-5-isopropyl-, P 684*d*.
hydrochloride, P 1060*e*, 2949*b*
——, 1-(*p*-bromophenyl)-5-isobutyl-, hydrochloride, P 4692*b*, 9036*i*.
——, 1-(*m*-bromophenyl)-5-isopropyl-, hydrochloride, P 4691*d*.
——, 1-[*m*(and *p*)-bromophenyl]-5-isopropyl-, hydrochlorides, P 684*c*, P 1060*b*, P 6228*a*.
——, 1-(*p*-bromophenyl)-5-isopropyl-, P 4692*b*, 9036*i*.
hydrochloride, 2947*g*, 2951*a*, 7005*e*.
spectrum of, 9037*b*.
——, 1-(*p*-bromophenyl)-5-isopropyl-2-methyl-, hydrochloride, P 684*c*, P 1060*e*, 2948*e*, P 6659*b*.
——, 5-(*p*-bromophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 1060*d*, P 4691*e*, P 6228*b*, 9037*a*.
——, 1-(*p*-bromophenyl)-5-methyl-, hydrochloride, P 4692*a*, 9036*i*.
——, 5-(*p*-bromophenyl)-1-methyl-1-phenyl-, P 4692*b*, 9037*a*.
——, 5-(*p*-bromophenyl)-1-methyl-1-propyl-, hydrochloride, P 6228*d*.
and hydrochloride, 9037*a*.
——, 1-[*m*(and *p*)-bromophenyl]-5-propyl-, hydrochlorides, P 1060*b*, P 6228*c*.
——, 1-(*p*-bromophenyl)-5-propyl-, hydrochloride, P 684*g*, P 4691*e*, 9036*i*.
——, 1 - (*p* - bromophenyl) - 5 - (2-thiazolyl)-, hydrochloride, 5777*c*.
——, 1-(*p*-butoxyphenyl)-5-lauroyl-†, P 5216*h*.
——, 1-butyl-5-(*p*-chlorophenyl)-, acetate, P 684*f*, P 6659*g*.
hydrochloride, P 684*f*.
——, 1-*tert*-butyl-5-(*p*-chlorophenyl)-, hydrochloride, P 6659*g*.
——, 2 - butyl - 1 - (*p* - chlorophenyl)-5-ethyl-, hydrochloride, P 684*f*, 2949*a*.
——, 5 - butyl - 1 - (*p* - chlorophenyl)-2-ethyl-, hydrochloride, P 684*g*, 2949*b*, P 6659*a*.
——, 2-butyl-1-(*p*-chlorophenyl)-5-isopropyl-, hydrochloride, P 684*c*, 2949*a*.
——, 1-butyl-5-(*p*-chlorophenyl)-2-methyl-, hydrochloride, P 684*f*, 2950*a*.
——, 5-butyl-1-(*p*-chlorophenyl)-2-methyl-, hydrochloride, P 684*g*, 2949*b*, P 6659*a*.
——, 1-butyl-5-(*p*-chlorophenyl)-2-propyl-, hydrochloride, P 684*f*, 2950*a*.
——, 1-butyl-5-(2,4-dichlorophenyl)-, hydrochloride, 7905*f*.
——, 1-butyl-5-(*p*-ethoxyphenyl)-2-isopropyl-, hydrochloride, 2950*a*.
——, 1-butyl-5-(*p*-iodophenyl)-, hydrochloride, P 1060*c*.
——, 1-butyl-5-octyl-, and sulfate, P 2229*h*.
——, 1-butyl-5-phenyl-, and salts, P 2229*f*.
——, 1-*p*-chlorobenzyl-5-isopropyl-, nitrate, 2946*g*.
——, 5 - (*p* - chloroethyl) - 1,1,4 - trimethyl-, acetate, P 6659*c*.
——, 1 - (3 - chloro - 4 - iodophenyl) - 5-ethyl-, hydrochloride, P 1060*b*, P 6228*g*.
——, 1 - (4 - chloro - 3 - iodophenyl) - 5-ethyl-, hydrochloride, P 1060*b*.
——, 1-(3-chloro-4-iodophenyl)-5-isopropyl-, hydrochloride, P 684*b*, P 1060*c*, P 4691*c*, P 6228*f*.
——, 1-(4-chloro-3-iodophenyl)-5-isopropyl-, hydrochloride, P 684*c*, P 1060*c*.
——, 5-(3-chloro-4-iodophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 1060*d*, P 6228*f*.
——, 5 - (3 - chloro - 4 - iodophenyl)-1-methyl-1-propyl-, hydrochloride, P 6222*g*.
——, 1-(3-chloro-4-iodophenyl)-5-propyl-, hydrochloride, P 1060*b*, P 1-(4-chloro-3-methoxyphenyl)-5-isopropyl-, hydrochloride, P 6228*i*.
——, 1-(*p*-chlorophenyl)-, and hydrochloride, 3793*h*.
spectrum of, 9037*b*.
——, 1-(*p*-chlorophenyl)-5-(8-chloro-5-quinolyl)-, and acetate, 231*a*.
——, 1-(*p*-chlorophenyl)-5-cyclohexyl-, P 4691*d*, P 6659*h*, 9036*f*.
——, 5-(*p*-chlorophenyl)-1-cyclohexyl-2-isopropyl-, hydrochloride, 2950*a*.
——, 1-(*p*-chlorophenyl)-2,5-diethyl-, hydrochloride, P 684*f*, P 1060*e*, 2948*e*, P 6659*a*.
——, 2-(*p*-chlorophenyl)-1,1-diethyl-, 9039*i*.
——, 5-(*m*-chlorophenyl)-1,1-diethyl-, hydrochloride, P 6228*b*.
and hydriodide, 2947*h*.
salts, P 684*h*.
——, 5-(*p*-chlorophenyl)-1,1-diethyl-, P 4691*h*, P 6228*d*, P 6659*e*, 9036*c*.
——, 1-(*p*-chlorophenyl)-5-(2-diethylaminoethyl)-, P 6659*h*.
——, 5-(*p*-chlorophenyl)-1-(2-diethylaminoethyl)-1-ethyl-, P 6659*f*.
——, 1-(*p*-chlorophenyl)-5-(4-diethylamino-1-methylbutyl)-, and carbonate, P 6659*g*.
——, 1-(*p*-chlorophenyl)-5-(3-diethylaminopropyl)-, P 6659*h*.
——, 1-(*p*-chlorophenyl)-2,4-diethyl-5-isopropyl-, hydrochloride, P 684*d*, 9039*f*.
——, 1-(*p*-chlorophenyl)-5,5-diethyl-1-methyl-, hydrochloride, P 6659*g*.
——, 5-(*p*-chlorophenyl)-1,1-diethyl-3-methyl-, acetate, 2949*b*.
——, 5-(*p*-chlorophenyl)-1,1-diethyl-4-methyl-, acetate, P 684*g*, P 6659*c*.
——, 1 - (*p* - chlorophenyl) - 2,5 - diisopropyl-, hydrochloride, P 684*f*, 2949*a*.
——, 5-(*p*-chlorophenyl)-1,2-diisopropyl-, hydrochloride, P 684*c*.
and hydrochloride, 2949*i*.
——, 1-(*p*-chlorophenyl)-2,5-dimethyl-, hydrochloride, P 684*f*, P 1060*e*.
and hydrochloride, 2948*e*, P 6659*a*.
——, 5-(*p*-chlorophenyl)-1,1-dimethyl-, P 684*g*, P 4691*b*, P 6659*f*, 9036*b*, 9038*g*.
(compd. omitted from abstr.), 2951*a*.
and hydrochloride, P 1060*f*.
——, 5-(*p*-chlorophenyl)-1,2-dimethyl-, hydrochloride, P 684*g*.
and hydrochloride, 2949*i*.
——, 5-(*p*-chlorophenyl)-1,4-dimethyl-1-phenyl-, acetate, 2949*c*, P 6659*c*.
——, (chloro-*p*-phenylene)bis-, dihydrochloride, in trypanosomiasis therapy, 8545*g*.
——, 1,1'-(chloro-*p*-phenylene)bis-, and hydrochloride, 5014*f*.
——, 1 - (*m* - chlorophenyl) - 5 - ethyl-, hydrochloride, P 6228*b*.
——, 1 - (*p* - chlorophenyl) - 5 - ethyl-, P 6659*f*, 9039*b*.
acetate, P 684*e*.
salts, P 1060*a*.
and salts, P 6228*c*.
——, 5-(*p*-chlorophenyl)-4-ethyl-1,1-dimethyl-, acetate, P 684*g*, 2949*b*, P 6659*c*.
——, 1-(*p*-chlorophenyl)-5-ethyl-2-isobutyl-, hydrochloride, P 684*f*, 2949*a*.
——, 1-(*p*-chlorophenyl)-2-ethyl-5-isopropyl-, 9039*e*.
hydrochloride, P 684*a*, P 1060*e*, P 6659*a*.
and hydrochloride, 2948*d*.
——, 1-(*p*-chlorophenyl)-5-ethyl-2-isopropyl-, hydrochloride, P 684*f*, 2949*a*.
——, 5-(*p*-chlorophenyl)-2-ethyl-1-isopropyl-, hydrochloride, 2950*a*.
——, 1-(*p*-chlorophenyl)-2-ethyl-5-isoyl-4-methyl-, hydrochloride, and hydrochloride, 9039*f*.
——, 5-(*p*-chlorophenyl)-4-ethyl-1-isopropyl-1-methyl-, acetate, P 684*e*, 2949*c*, P 6659*c*.
——, 1-(*p*-chlorophenyl)-2(and 5)-ethyl-5(and 2)-methyl-, hydrochloride, P 684*f*, P 1060*e*, 2948*e*, P 6659*a*.
——, 5 - (*p* - chlorophenyl) - 1 - ethyl - 2-methyl-, hydrochloride, 2950*a*.
——, 1-(*p*-chlorophenyl)-2-ethyl-5-pro-

pyl-, hydrochloride, P 684*f*, P 1060*e*, 2948*e*, P 6659*a*.
—, 1-(*p*-chlorophenyl)-5-ethyl-2-propyl-, hydrochloride, P 684*f*, 2949*a*.
—, 1-(*p*-chlorophenyl)-5-isobutyl-, hydrochloride, P 6659*g*.
—, 1-(*m*-chlorophenyl)-5-isopropyl-, antimalarial activity of, 5868*c*.
hydrochloride, P 1060*b*, P 4691*c*.
hydrochloride (omitted from abstr.), P 6227*h*.
—, 1-[*m*(and *o*)-chlorophenyl]-5-isopropyl-, hydrochlorides, 2947*g*, 7905*d*.
—, 1-(*p*-chlorophenyl)-2-isopropyl-, 9039*i*.
and salts, 3793*h*.
—, 1-(*p*-chlorophenyl)-5-isopropyl-, or its acetate—see *Paludrine*.
—, 1-(*p*-chlorophenyl)-5-isopropyl-2,4-dimethyl-, hydrochloride, P 684*d*.
and hydrochloride, 9039*d*.
—, 2-(*p*-chlorophenyl)-5-isopropyl-1,1-dimethyl-, dihydrochloride, 9039*i*.
—, 5-(*p*-chlorophenyl)-1-isopropyl-1,4-dimethyl-, acetate, P 684*e*, 2948*d*, P 6659*c*.
—, 1-(*m*-chlorophenyl)-5-isopropyl-2-methyl-, hydrochloride, P 6228*i*.
—, 1-(*p*-chlorophenyl)-5-isopropyl-1(and 2)-methyl-, spectra of, 9037*b*.
—, 1-(*p*-chlorophenyl)-5-isopropyl-2-methyl-, dihydrochloride, P 684*c*.
dihydrochloride monohydrate, 2949*a*.
and picrate, 2948*d*, 9038*i*.
salts, P 1060*d*.
—, 5-[*m*(and *o*)-chlorophenyl]-1-isopropyl-1-methyl-, hydrochloride, 2947*h*.
—, 5-(*p*-chlorophenyl)-1-isopropyl-1-methyl-, P 4691*b*, P 6659*f*, 9036*d*.
acetate, P 6228*b*.
and acetate (compds. omitted from abstr.), 2951*a*.
hydrochloride, P 1060*d*.
resistance of *Plasmodium gallinaceum* to, 5869*e*
and salts, P 684*c*.
—, 5-(*p*-chlorophenyl)-1-isopropyl-2-methyl-, hydrochloride, 2950*a*.
spectrum of, 9037*b*.
—, 5-(*p*-chlorophenyl)-2-isopropyl-1-methyl-, hydrochloride, P 684*a*.
—, 1-(*p*-chlorophenyl)-5-isopropyl-2-phenyl-, acetate, P 684*c*.
—, 2-(*p*-chlorophenyl)-5-isopropyl-1-phenyl-, acetate, 9039*g*.
—, 5-(*p*-chlorophenyl)-1-isopropyl-2-propyl-, hydrochloride, 2950*a*.
—, 1-(*p*-chlorophenyl)-5-isopropyl-2-*p*-tolyl-, acetate, P 684*c*, 9039*h*.
—, 5-(*p*-chlorophenyl)-1-(2-methoxyethyl)-1-methyl-, P 6659*f*.
—, 1-(*p*-chlorophenyl)-5-methyl-, P 6659*g*, 9036*d*.
(omitted from abstr.), 2951*a*.
hydrochloride, P 684*g*.
and hydrochloride, P 4691*i*.
—, 5-(*p*-chlorophenyl)-1-methyl-1-phenyl-, P 4691*c*, 9036*f*.
—, 1-(*p*-chlorophenyl)-2-methyl-5-propyl-, hydrochloride, P 684*f*, P 1060*e*, 2948*e*, P 6659*a*.
—, 5-(*p*-chlorophenyl)-1-methyl-1-propyl-, P 6228*d*, P 6659*g*.
hydrochloride, P 1060*c*.
—, 5-(*p*-chlorophenyl)-2-methyl-1-propyl-, hydrochloride, P 684*f*, 2950*a*.
—, 1-(*p*-chlorophenyl)-2-methyl-5-*p*-tolyl-, acetate, P 684*g*.
—, 1-(*p*-chlorophenyl)-5-phenyl-, P 4691*f*, 9036*g*.
—, 1-(*m*-chlorophenyl)-5-propyl-, hydrochloride, P 1060*b*.
—, 1-(*p*-chlorophenyl)-2-propyl-, 9039*i*.
—, 1-(*p*-chlorophenyl)-5-propyl-, P 1060*b*, P 6659*g*.
acetate, P 684*f*.
and acetate, P 6228*c*.
—, 2-(*p*-chlorophenyl)-1,1,5,5-tetramethyl-, hydrochloride, 9039*i*.
—, 1-(*p*-chlorophenyl)-5-(2-thiazolyl)-, hydrochloride, 5777*c*.
—, 1-(*p*-chlorophenyl)-5-*p*-tolyl-, P 4691*d*, 9036*g*.
—, 5-(*p*-chlorophenyl)-1,1,4-triethyl-, acetate, 2949*b*, P 6659*c*.
—, 5-(*p*-chlorophenyl)-1,1,4-trimethyl-, acetate, P 684*g*, 2949*b*.
—, 1-(6-chloro-8-quinolyl)-, and acetate, 231*a*.
—, 1-(6-chloro-8-quinolyl)-5-(*p*-iodophenyl)-, and acetate, 231*a*.
—, 1-(6-chloro-8-quinolyl)-5-isopropyl-, hydrochloride, 2947*i*.
—, 1-(6-chloro-5-quinolyl)-5-(*p*-methoxyphenyl)-, and acetate, 231*a*.
—, 1-(6-chloro-8-quinolyl)-5-(*p*-nitrophenyl)-, and acetate, 231*a*.
—, 1-(6-chloro-8-quinolyl)-5-phenyl-, and acetate, 231*a*.
—, 1-(6-chloro-8-quinolyl)-5-*p*-tolyl-, and acetate, 231*a*.
—, 1-(3-chloro-*m*-tolyl)-5-isopropyl-, hydrochloride, P 4691*d*.
—, 1-(3-chloro-*p*-tolyl)-5-isopropyl-, hydrochloride, P 684*b*, P 1060*c*, P 4691*c*.
—, 1-(4-chloro-*m*-tolyl)-5-isopropyl-, P 6228*i*.
hydrochloride, P 684*b*, P 1060*c*.
—, 1-cuminyl-, dihydrochloride, 2946*f*.
—, 1-cuminyl-5-isopropyl-, 2946*g*.
—, 1-[*m*(and *p*)-cyanophenyl]-5-isopropyl-, hydrochloride, 2947*g*.
—, 1-(*p*-cyanophenyl)-5-isopropyl-, hydrochloride, 7905*e*.
—, 5-(*p*-cyanophenyl)-1-isopropyl-1-methyl-, hydrochloride, 2947*h*.
—, 1-cyclohexyl-, *p*-toluenesulfonate (mono-), P 4292*h*.
—, 1-cyclohexyl-5-(*p*-methoxyphenyl)-, hydrochloride, P 4691*d*, 9036*f*.
—, 1-cyclohexyl-5-*p*-tolyl-, P 4691*e*.
and hydrochloride, 9036*f*.
—, 1-(3,4-dibromophenyl)-5-ethyl-, hydrochloride, P 6228*h*.
—, 1-(3,4-dibromophenyl)-5-isopropyl-, hydrochloride, P 684*c*, P 1060*c*, P 6228*g*.
—, 5-(3,4-dibromophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 6228*h*.
—, 5-(3,4-dibromophenyl)-1-methyl-1-propyl-, hydrochloride, P 6228*h*.
—, 1-(3,4-dibromophenyl)-5-propyl-, hydrochloride, P 6228*g*.
—, 1,1-dibutyl-5-(*p*-chlorophenyl)-, sulfate, P 6659*f*.
—, 1,1-dibutyl-5-phenyl-, and sulfate, P 2229*i*.
—, 5-(3,4-dichlorophenyl)-1,1-diethyl-, hydrochloride, P 6228*c*.
—, 5-(2,4-dichlorophenyl)-1,1-dimethyl-, hydrochloride, 7905*f*.
—, 1-(3,4-dichlorophenyl)-5-ethyl-, hydrochloride, P 6228*e*.
—, 1-(2,4-dichlorophenyl)-5-(1-ethylpropyl)-, hydrochloride, 7905*f*.
—, 1-(2,4-dichlorophenyl)-5-isoamyl-, hydrochloride, 7905*f*.
—, 1-(2,4-dichlorophenyl)-5-isohexyl-, hydrochloride, 7905*f*.
—, 1-(2,4-dichlorophenyl)-5-isopropyl-, antimalarial activity of, 5868*c*.
—, 1-[2,4(and 3,4)-dichlorophenyl]-5-isopropyl-, hydrochlorides, 7905*e*.
—, 1-[3,4(and 3,5)-dichlorophenyl]-5-isopropyl-, hydrochlorides, P 684*b*, P 1060*b*, P 4691*c*, P 6228*b*.
—, 1-(3,4-dichlorophenyl)-5-isopropyl-2-methyl-, hydrochloride, P 6228*i*.
—, 5-(3,4-dichlorophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 6228*e*.
—, 1-(2,4-dichlorophenyl)-5-methyl-, hydrochloride, 7905*e*.
—, 1-(2,4-dichlorophenyl)-5-(1-methylbutyl)-, hydrochloride, 7905*f*.
—, 1-(2,4-dichlorophenyl)-5-(methylpropyl)-*, antimalarial activity of, 5868*c*.
—, 5-(3,4-dichlorophenyl)-1-methyl-1-propyl-, hydrochloride (omitted from abstr.), P 6227*h*.
—, 1-(2,4-dichlorophenyl)-5-octyl-, hydrochloride, 7905*f*.
—, 1-(2,4-dichlorophenyl)-5-propyl-, hydrochloride, P 6228*e*.
—, diethyl-, copper deriv., 8222*c*.
—, 1,1-diethyl-, copper derivs., 8941*b*.
*p*-toluenesulfonate (mono-), P 4292*h*.
—, 1,1-diethyl-5-(*p*-methoxyphenyl)-, P 6659*h*.
1,1-diethyl-5-(*p*-nitrophenyl)-, P
—, 1,1-diethyl-5-phenyl-, hydrochloride, P 6228*b*.
—, 1,1-diethyl-5-salicylidene-, copper complex, 8941*d*.
—, 1,1-diethyl-5-*p*-tolyl-, P 4691*d*, 9036*e*.
1-(2,4-diiodophenyl)-5-isopropyl-, hydrochloride, P 684*c*, P 1060*c*.
—, 2,2-dimethyl-, P 6659*i*.
*p*-toluenesulfonate (mono-), P 4292*h*.
—, 1,1-dimethyl-5,5-diphenyl-, and hydrochloride, P 4691*i*, 9036*h*.
—, 1,5-dimethyl-1,5-diphenyl-, P 4692*b*, 9036*h*.
hydrochloride, P 2230*a*.
—, 1,1-dimethyl-5-(*p*-nitrophenyl)-, P 6659*h*.
—, 1,1-dimethyl-5-phenyl-, hydrochloride, P 684*h*, 2949*a*.
—, 1,5-dimethyl-1-phenyl-, P 4691*i*, P 4692*a*, 9036*g*.
—, 1,5-di-2-naphthyl-, P 2230*a*.
—, 1,1-diphenyl-, *p*-toluenesulfonate (mono-), P 4292*h*.
—, 1,5-diphenyl-, and hydrochloride, P 2229*g*.
—, 1-dodecyl-5-ethyl-, and sulfate, P 2229*i*.
—, 1-dodecyl-5-phenyl-, hydrochloride, P 2229*i*.
—, 1-(*p*-ethoxyphenyl)-5-isopropyl-, hydrochloride, 2947*g*.
—, 1-(*o*-ethoxyphenyl)-5-stearoyl-†, P 5216*g*.
—, ethylenebis-, copper complex, 8222*d*.
—, 1-ethyl-5-(*p*-iodophenyl)-, hydrochloride, P 1060*b*, P 6228*d*.
—, 2-ethyl-1-(*p*-iodophenyl)-5-isopropyl-, hydrochloride, P 684*d*, P 1060*f*, 2948*e*, P 6659*b*.
—, 1-ethyl-5-*p*-tolyl-, hydrochloride, 2947*h*.
—, 1-(*p*-fluorophenyl)-5-isopropyl-, antimalarial activity of, 5868*c*.
hydrochloride, P 684*b*, 2947*f*, 7905*e*.
and monoacetate, 5757*e*.
—, 1-(2-hydroxyethyl)-, P 868*g*.
—, 1-(2-hydroxyethyl)-5-stearoyl-†, P 5216*d*.
and methylated deriv., P 4879*c*.
—, 1-[*m*(and *p*)-iodophenyl]-5-isopropyl-, hydrochlorides, P 684*b*, P 1060*b*.
—, 1-(*p*-iodophenyl)-5-isopropyl-, hydrochloride, P 684*d*, 2947*f*, 2950*i*, P 4691*c*, P 6228*b*, 7905*e*.
spectrum of, 9037*b*.
—, 1-(*p*-iodophenyl)-5-isopropyl-2-methyl-, hydrochloride, P 684*d*, P 1060*e*, 2948*e*, P 6659*b*.
—, 5-(*p*-iodophenyl)-1-isopropyl-1-methyl-, hydrochloride, P 1060*d*, 2947*h*, P 4691*d*, P 6228*b*.
—, 5-(*p*-iodophenyl)-1-methyl-1-propyl-, hydrochloride, P 6228*e*.
—, 1-(*p*-iodophenyl)-5-propyl-, hydrochloride, P 1060*b*, P 6228*d*.
—, 1-(*p*-iodophenyl)-5-(2-thiazolyl)-, hydrochloride, 5777*c*.
—, 1-(*p*-isopropoxyphenyl)-5-lauroyl-†, P 5216*g*.
—, 1-isopropyl-, *p*-toluenesulfonate (mono-), P 4292*h*.
—, 5-isopropyl-1,1-diphenyl-, P 4691*e*, P 4692*a*.
and hydrochloride, 9036*f*.
—, 1-isopropyl-5-lauroyl-1-xylyl-, P 5216*c*.
—, 1-(*p*-isopropylphenyl)-5-(*m*-methoxyphenyl)-, hydrochloride, P 6228*c*.
—, 1-isopropyl-5-(*p*-methoxyphenyl)-, hydrochloride, P 684*d*.
hydrochloride (compd. omitted from abstr.), 2951*a*.
salts, 9038*f*.
—, 1-isopropyl-5-(6-methoxy-8-quinolyl)-, hydrochloride monohydrate, 2947*i*.
—, 1-isopropyl-5-(6-methoxy-8-quinolyl)-2-propyl-, hydrochloride, 2950*a*.
—, 1-isopropyl-5-(*p*-methylmercaptophenyl)-, hydrochloride, 2947*g*.
—, 1-isopropyl-1-methyl-5-(*p*-nitrophenyl)-, hydrochloride, 2947*h*.
—, 1-isopropyl-1-methyl-5-phenyl-, hydrochloride, P 6228*b*.
—, 5-isopropyl-1-methyl-1-phenyl-, and hydrochloride, P 4692*a*, 9036*h*.
—, 1-isopropyl-1-methyl-5-(2,4,5-trichlorophenyl)-, hydrochloride, P 6228*f*.
—, 1-isopropyl-5-(2-naphthyl)-, hydrochloride, 7905*e*.
—, 1-isopropyl-5-(*p*-nitrophenyl)-, hydrochloride, 2947*g*.
—, 1-isopropyl-1-*p*-phenetyl-, hydrochloride, P 1060*d*.
—, 1-isopropyl-5-phenyl-, hydrochloride, P 1059*i*, 2947*g*.

hydrochloride (omitted from abstr.), P 6227*h*.
spectrum of, 9037*b*.
——, **1-isopropyl-5-(6-quinolyl)-**, hydrochloride, 2947*h*.
——, **1-isopropyl-5-*m*-tolyl-**, hydrochloride, P 6228*c*.
——, **1-isopropyl-5-*m*(*o* and *p*)-tolyl-**, hydrochlorides, 2947*g*.
——, **1-isopropyl-5-*p*-tolyl-**, acetate, P 684*d*.
——, **1-isopropyl-5-(2,4,5-trichlorophenyl)-**, hydrochloride, P 684*b*, P 1060*b*, P 4091*c*.
——, **1-isopropyl-5-(*p*-2,5-xylyloxyphenyl)-**, hydrochloride, 2947*h*.
——, **1-lauroyl-5-(*p*-methoxyphenyl)-†**, P 5216*e*.
and methylated and sulfonated deriv., P 4878*i*.
——, **5-lauroyl-1-methyl-1-phenyl-†**, sulfo deriv., P 5199*d*.
——, **1-lauroyl-5-phenyl-†**, and derivs., P 2442*c*.
——, **(2-mercaptoethyl)-**, P 1799*b*.
——, **5-(*p*-methoxyphenyl)-1,1-dimethyl-**, P 4691*d*, P 6659*h*.
and hydrochloride, 9036*e*.
——, **1-(*p*-methoxyphenyl)-5-(2-thiazolyl)-**, hydrochloride, 5777*d*.
——, **1-(6-methoxy-8-quinolyl)-**, and hydrochloride, 2946*h*.
——, **1-methyl-**, P 868*g*.
benzenesulfonate, P 4292*i*, P 7040*f*.
——, **1,1'-(methylenedi-*p*-phenylene)bis-**, reaction product with 1-chloro-2,4-dinitrobenzene, P 7632*c*.
——, **1,1'-(methylenedi-*p*-phenylene)bis[5-octyl-**, P 2230*a*.
——, **1,1'-(methylenedi-*p*-phenylene)bis[5-phenyl-**, and dihydrochloride, P 2230*a*.
——, **1-methyl-1-phenyl-**, monobenzenesulfonate, P 4292*i*.
——, **1-methyl-1-phenyl-5-stearoyl-†**, and methylated and sulfonated derivs., P 4879*b*.
reaction product with glycidol, sulfuric acid ester of, P 7727*d*.
sulfo deriv., P 5199*e*.
——, **1-[*p*-(*p*-nitrophenylsulfonyl)phenyl]-**, 2593*f*.
——, **1-(*p*-nitrophenyl)-5-(2-thiazolyl)-**, hydrochloride, 5777*d*.
——, **phenyl-**, as antioxidant and odor inhibitor in alkyl benzenesulfonates, P 6845*c*.
copper complex, 8222*c*.
disazo dye from, P 7697*a*.
effect on HCl loss from DDT spray deposits, 5148*f*.
reaction with *N*-(hydroxymethyl)oleamide, P 5978*f*.
——, **1-phenyl-**, monosulfonates, P 4292*i*.
——, ***m*-phenylenebis-**, copper complex, 8222*c*.
——, **1,1'-*m*-phenylenebis-**, chromium and Co complexes of, 8941*d*.
——, **1,1'-*p*-phenylenebis-**, and tetrahydrochloride, 5014*f*.
——, **1,1'-*p*-phenylenebis[5-phenyl-**, P 2229*h*.
——, **1-phenyl-5-stearoyl-†**, P 5216*e*.
and methylated and sulfonated derivs., P 4879*b*.
surface-active substances from, P 4499*c*.
——, **1-phenyl-5-(2-thiazolyl)-**, hydrochloride, 5777*c*, 7905*g*.
——, **1-propyl-5-(2,4,5-trichlorophenyl)-**, hydrochloride, P 6228*f*.
——, **stearoyltriaminotriethylene-***, reaction product from urethan, $CH_2O$ and, as surface-active compd., P 2786*g*.
——, **1-stearoyl-5-xylyl-†**, P 4499*f*.
——, **1-stearoyl-5-(2,4-xylyl)-†**, and sulfonated product, P 4879*c*.
——, ***p*-sulfamylphenyl-**. See *Sulfanilamide, N⁴-(guanylguanyl)-*.
——, **sulfanilyl-**. See *Sulfanilamide, N¹-(guanylguanyl)-*.
——, **1,1'-(sulfonyldi-*p*-phenylene)bis-**, dihydrochloride, 2946*h*.
——, ***p*-sulfophenyl-**. See *Sulfanilic acid, N-(guanylguanyl)-*.
——, **1-(2-thiazolyl)-5-*p*-tolyl-**, hydrochloride, 5777*c*.
——, **1-(2-thiazolyl)-5-(2,3-xylyl)-**, hydrochloride, 5777*d*.
——, **tolyl-**, amine (alkaryl) stabilization with, P 6231*d*.
——, **1-*o*-tolyl-**, pyrrole stabilization with, P 4701*b*.
——, **1,1,5-trimethyl-5-phenyl-**, P 4691*i*, 9036*h*.
——, **triphenyl-**, P 868*g*.
——, **(xylyl)-**, amine (alkaryl) stabilization with, P 6231*d*.
**1,1'-Biguanidine**, effect on glycolysis in muscle exts., 7581*f*.
**Biilmann, Einar Christian Saxtorph**, obituary, 5239*a*.
**$\Delta^{2,2'}$-Biimidazolidine**, identification of, 6856*i*
**[$\Delta^{2,2'}$-Biindan]-1,1',3,3'-tetrone**, 7012*d*.
**[2,2'-Biindan]-1,1',3,3'-tetrone**, 7012*e*, 7013*a*.
**$\Delta^{1,1'}$-Biindene**, 6609*a*
**[$\Delta^{2,2'(3H,3'H)}$-Biindole]-3,3'-dione**. See *Indigotin*.
**[$\Delta^{2,2'(2H,2'H)}$-Biindole]-2,2'-dione**. See *Isoindigotin*.
**[$\Delta^{2,2'}$-Biindoline]-3,3'-dione**. See *Indigotin*.
**[$\Delta^{2,2'}$-Biindoline]-2,2'-dione**. See *Isoindigotin*.
**Biisobutenyl**. See *2,4-Hexadiene, 2,5-dimethyl-*.
**Biisobutyl**. See *Hexane, 2,5-dimethyl-*.
**Biisobutyryl**. See *3,4-Hexanedione, 2,5-dimethyl-*.
**Biisocrotyl**. See *2,4-Hexadiene, 2,5-dimethyl-*.
**[$\Delta^{1,1'}$-Biisoindoline]-3,3'-dione**, 7930*b*
**[1,2'-Biisoindolin]-3-one**, 6231*i*.
**Biisopropenyl**. See *1,3-Butadiene, 2,3-dimethyl-*.
**Biisopropyl**. See *Butane, 2,3-dimethyl-*.
**Bilberries**. See *Whortleberries*.
**Bile**. (See also *Cholagogs*.)
of bears (polar and Japanese), 6297*i*.
bile-acid excretion in, in choledochostomy drainage and effect of administration of desiccated bile, 7572*b*.
bilirubin and bromosulfalein in, 1476*a*.
bilirubin conversion in, 3082*b*.
bilirubin extractable with $CHCl_3$ from, physiopathological and clinical significance of, 5853*g*.
bromosulfalein and pigments in, effect of choleretic agents on, 1869*i*.
catalase activity of, 6257*c*.
choleretic effect on compn. of, of dog with permanent biliary fistula, 2318*f*.
cholesterol soln. in, 9210*d*
copper (radioactive) in, 3098*f*
effect on diuresis in rats, 1107*a*.
electrophoresis of bovine gall bladder, 2264*c*.
estrogens in, in pregnancy, 8490*e*.
etiocholanediol-3(α),17(β), pregnanediol-3(α),20(β) and pregnanol-3(α)-one-20 in, in pregnancy, 1824*f*.
in feces, 3918*e*.
flow in hepatitis, 8522*g*.
flow of, effect of secretin, pneumogastric nerve stimulation, etc. on, 304*g*.
hepatic clearance of, 296*e*.
insufficiency, lipide absorption and, 2296*f*.
jaundice-serum phosphatase in, 297*f*.
phosphatase in, in biliary fistula dogs, 4714*c*.
powd. ox, 5907*b*.
pseudomucin from, effect on van den Bergh reaction, 6684*c*.
repellent for grain and seeds from, P 3967*i*.
secretion of, during alloxan diabetes, 4364*f*.
effect of bromotrihydroxyabietic acid on, P 1441*e*.
mechanism of action of plant drugs active on, 5115*d*.
physiology and pharmacology of, 5493*g*.
prothrombin time in aniline poisoning in relation to, 3525*a*.
steatorrhea and, 7105*d*.
steroid-hormone absorption and, 8035*i*.
tocopherol in, in relation to plasma content, 7122*a*.
**Bile acids**. (See also *Cholic acid; Dehydrocholic acid; Desoxycholic acid; Glycocholic acid; Taurocholic acid*.) 1335*b*.
with aromatic ring A, 7494*d*.
biliary excretion of, in choledochostomy drainage, 7572*b*.
configuration of, 1429*c*.
degradation of side chain of, 3430*f*, 6639*e*.
7-dehydrocholesterol as source of, 5848*d*.
effect on *Escherichia coli*, 7077*h*.
formation of, 5848*c*.
11-keto, 4679*d*.
optical rotation of, 4680*e*.
pancreatic lipase and, 6267*d*.
and related compds., 1790*c*.
steroids from, 3433*f*.
**Bile ducts**, book: Diseases of, 4762*g*.
diseases of, heparin in blood in, 3513*h*.
in hypothyroidism, 9233*c*.
sphincter of Oddi, effect of anesthetics on, 5867*fg*.
**Bile pigments**. (See also *Bilirubin; Blood pigments*.) 4257*a*.
in bile and its formation, 3082*c*.
in bile, effect of choleretic agents on, 1869*i*.
in catalase, 5058*g*.
from erythrocytes, 5818*g*.
in liver in infectious hepatitis, 3922*e*.
review on, 704*d*.
**Bile salts**, blood-serum cholinesterase, sympathic-parasympathic equil. and, 2258*g*.
effect of cholesterol and, on aorta as affected by vitamin E, 7097*g*.
effect of secretin and pneumogastric-nerve stimulation on, 304*h*.
effect on adrenaline liberation from adrenal glands, 6738*i*.
on coliform bacilli and rough variants of intestinal pathogens, 4329*a*.
on fibrinogen and its clotting, 9096*b*.
on gram-positive protein complexes, 269*d*.
on intestinal motility, 1865*e*.
on mineral metabolism, 2688*a*.
in emulsification of fats in intestines, 9197*i*.
**Bilharziasis**. See *Schistosomiasis*.
**Biliaric acid, 6-amino-***, detn. of amino N in, 4323*i*.
**---, desoxy-***, amino acid from, detn. of amino N in, 4323*h*.
**Biliary tract**. (See also *Bile duct;* and "biliary" under *Calculi*.)
diseases of, biliary excretion of bile acids after, 7572*b*.
diseases of, effect of liver antitoxic principle on 1860*c*.
fistula and obstruction of, phosphatase in bile and blood serum in, 4714*c*.
Meperidine effect on, 8552*h*.
obstruction of, phosphatase in blood serum after, 4750*h*.
obstruction of, phosphatase in blood serum after nephrectomy and, 4751*a*.
physiol. and pathol. changes in, 304*f*.
xanthomatous cirrhosis of, 3095*f*.
**Bilifuscin**, as blood-pigment decompn. product, 5844*f*.
**Bilin**, in feces of healthy children from countries with indigenous malaria, 3516*c*.
**Bilineurine**. See *Choline*.
**Bilinogen**, in feces and urine of children, 2691*d*.
**Bilipurpurine**, isolation from erythrocytes, 5818*i*.
**Bilirubin**. (See also *Diazo reaction; Fresco bilirubin*.)
in blood, in alcoholism, 2330*d*.
of children, 2691*d*.
combined state of, 8519*d*.
effect of Pb on, 4770*g*.
in leishmaniasis, 2312*d*.
in relation to age and sex, 7567*i*.
in various diseases, 7126*h*.
in blood serum, effect of Na nicotinate on, 9255*i*.
during icterus, 3918*g*.
urine content and, 3913*c*.
in various disorders, 8516*d*.
chloroform-extractable, from bile, physiopathologic and clinical significance of, 5853*g*.
complex with albumin, 8485*a*.
conversion in bile and intestines, 3082*b*.
derivs., 9110*f*.
detn. in blood, 4722*c*, 6683*i*.
in blood, nomograph for, 9135*e*.
in blood serum, 6683*g*.
in urine, 7116, 1452*i*, 7992*g*.
effect of secretin and pneumogastric-nerve stimulation on, 304*h*.
effect on erythrocyte resistance, 9217*i*.
excretion in bile, 1476*a*.
excretion of, effect of choleretic agents on, 1870*a*.
interaction with proteins of blood serum, 5433*f*.
reduction in intestines, 6721*a*, 8497*f*.
stabilization by serum proteins, 4710*i*.
in urine during jaundice, relation to serum content, 3923*a*.
**Bilirubinemia**, after cerebral accidents, 4362*e*.
induced, as liver-function test compared with hydroxyxanthonin excretion, 8537*d*.

during jaundice, 3922*h*.
in leishmaniasis of children and effect of Sb thereon, 2313*f*.
in newborn, 8045*a*.
**Biliselectan.** See *Propionic acid, β-(4-hydroxy-3,5-diiodophenyl)-α-phenyl-*.
**Biliverdine** (*uteroverdine*), in bile and its formation, 3082*b*.
formation from legcholeglobin, 4729*h*.
isolation from erythrocytes, 5818*i*.
**Biliviolina**, derivs., in feces, 3094*b*.
**Billietite**, 8983*f*.
**Bimalonic acid.** See *1,1,2,2-Ethanetetracarboxylic acid*.
**Δα,α'-Bimalonic acid.** See *Ethylenetetracarboxylic acid*.
**ω,ω'-Bimethionine***, P 7956*e*.
**[2,2'-Binaphthalene]-8,8'-dicarboxaldehyde, 1,1',6,6',7,7'-hexahydroxy-5,5'-diisopropyl-3,3'-dimethyl-.** See *Gossypol*.
**[1,1'-Binaphthalene]-3,3'-dicarboxylic acid, 2,2'-dihydroxy-**, salt with 2,2'-diamino-5,5'-diphenyl-4,4'-bithiazole, 2202*g*.
**[1,1'-Binaphthalene]-3,4-dicarboxylic acid**, spectrum of, 8885*g*.
**[2,2'-Binaphthalene]-1,1'-dicarboxylic acid, eicosahydro-6-hydroxy-2,2',4a',5,5,7',8',8a-octamethyl-**, and derivs., 6602*i*.
——, **eicosahydro-2,2',4a',5,5,7',8',8a-octamethyl-6-oxo-**, dimethyl ester, 6603*d*.
**[2,2'-Binaphthalene]-1,1'-dicarboxylic anhydride, eicosahydro-6-hydroxy-2,2',4a',5,5,7',8',8a-octamethyl-**, acetate, 6603*a*.
**[1',2-Binaphthalene]-1,4-dione, 3-hydroxy-†**, P 1380*g*.
**[2,2'-Binaphthalene]-1,4-dione, 3-bromo-1',2',3',4',4a',5',6',7',8',8a'-decahydro-†**, *trans-*, 1376*h*.
——, **1',2',3',4',4a',5',6',7',8',8a'-decahydro-†**, *trans*, 1376*h*.
——, **1',2',3',4',4a',5',6',7',8',8a'-decahydro-3-hydroxy-†**, *cis-* and *trans-*, 1376*e*.
**[2,2'-Binaphthalene]-1,1',4a(2H)-tricarboxylic acid, octadecahydro-1,4-dihydroxy-2,2',5',5',7,7,8a'-heptamethyl-**, γ-lactone, Me esters, 213*h*.
——, **octadecahydro-1-hydroxy-2,2',5',5',7,7,8a'-heptamethyl-4-oxo-**, γ-lactone, di-Me ester, 214*a*.
——, **octadecahydro-1-hydroxy-2,2',5',5',7,7,8a'-heptamethyl-6'-oxo-**, γ-lactone, di-Me ester, 1748*g*.
**Binaphthoic acid** See *[Binaphthalene]-dicarboxylic acid*.
**3,3'-Bi-1-naphthol**, prepn of, 1756*a*.
**1,1'-Binaphthyl**, cyclodehydrogenation of, 3402*h*.
**1,2'-Binaphthyl, methyl-**, isomers and dipicrate, 8375*f*.
**2,2'-Binaphthyl**, 4648*a*.
——, **3,3',4,4'-tetrahydro-**, 205*f*.
**[1,1'-Bi-2-naphthylamine]**, 5774*a*.
**[2,2'-Bi-1-naphthylamine]**, 5774*d*.
**[3,3'-Bi-1-naphthylamine]**, and derivs., 1756*a*.
——, *N,N'*-**bis(*p*-tolylsulfonyl)-**, 1756*b*.
——, *N,N'*-**diacetyl-**, 1756*b*.
——, *N,N'*-**dibenzoyl-**, 1756*b*.
**[4,4'-Bi-1-naphthylamine]**. See *Naphthidine*.
**3,3,1',8'-Binaphthylene.** See *Benzo[k]fluoranthene*.
**Binary mixtures.** See *Mixtures*.
**Binary systems.** See *Systems*.
**Binding energy.** See *Bonds; Energy*
**Binding materials.** (See also *Adhesives; Cement, hydraulic; Lime; Plaster*.)
for abrasives—see *Abrasives*.
aluminum phosphate, P 1160*i*.
aminoplasts modified with nitro compds., P 4894*f*.
asbestos as, for refractories, P 1936*e*.
briquet—see *Briquets, fuel*.
castor protein for, P 4899*g*.
from cellulose esters or gums or resins, etc., P 9538*c*.
from cellulose ether-tall oil compn., P 2436*a*.
ceramic—see *Ceramic materials*.
for coatings and laminated fabrics, polymeric linear esters, P 1224*e*, P 6236*d*.
for cork, zein compns., P 2030*f*.
from diene polymers with drying oils, P 7754*b*.
in dyeing of glass fibers, 2775*i*.
effect on ceramic bodies contg. corundum, 4437*i*.
eliminating sensation of cold in bldg. materials, P 1167*c*, P 2396*f*.
emulsions, P 6000*e*.
for fiberglass fabrics to phenolic resins, P 8208*i*.
for friction materials from sulfurized drying-oil fatty acids, P 3949*a*.
for lacquers—see *Lacquers*.
for linoleum fillers, by oxidation of linseed-oil mixts. with kerosene oxidation products, P 6434*e*.
mercaptan polymers with vinyl compds , [illegible]
for mica, P 1612*c*.
for mica insulation from maleic anhydride, pentaerythritol and phthalic anhydride, P 3232*a*.
for molding sand, from starch resins, P 1217*f*.
for molds—see *Molds(I)*.
for paint—see *Paint*.
for paper, regenerated cellulose, metal foil, etc., P 2037*b*.
for paving—see *Paving*.
for peat-moss fiber in building-board manuf., GR-S as, 2801*f*.
for pencil leads, P 9536*f*.
from phenol-HCHO and polyvinyl resins, P 6863*e*.
polyamide-ester compn., P 9537*f*.
polymers of glyceryl ester of *l*-pimaric acid-maleic anhydride adduct, P 2470*a*.
for roads—see *Roads*.
for safety glass—see "laminated or safety" under *Glass*.
for sand, P 9300*h*.
silicates as, 6801*c*.
for soil consolidation—see *Soils*.
starch derivs. for, P 1590*e*.
from trivalent metallic salt and arsenious or phosphatic compd., P 1935*f*.
vitreous, for metal union to vitrified ceramic, P 3587*b*.
**Bindschedler's green**, fungistatic action of, 8435*f*.
**Bindweed**, control in grain, 9351*f*.
control in sugar cane, 805*f*.
control of, 2,4-D in, 9313*a*.
**Bineopentyl.** See *Hexane, 2,2,5,5-tetramethyl-*.
**Bingham Medal**, to Mooney, Melvin, 6013*g*.
**Biocatalysts.** See *Catalysts; Enzymes; Hormones*.
**Biocerin**, antibiotic activity of, 3883*g*.
**Biochemical oxygen demand.** (*Only studies of general interest are entered here. See* Sewage.)
**Biochemistry.** (See also *Analysis; Biology; Geochemistry; Photochemistry*.)
books: Biokhimicheshaya evoliutsiya, 1451*a*; Annual Review of, 1820*e*; Introduction to Phys., 2262*b*, Oxidation-Reduction Potentials in Bacteriology and, 2262*b*, Inleiding tot de Physiologische Chemie, 2262*c*; Übungen fur Mediziner, 2262*c*; Introduction to Comparative, 2656*b*; Introduction to Physiol. and Pathol. Chemistry, 2656*b*; Introduction to Org. Chemistry and, 3435*d*; Biochem. Evolution, 3483*d*; Universe in the Making: A Biochem. Approach, 3483*e*; Applied to Malting and Brewing, 3561*d*; Gortner's Outlines of, 4312*e*; Studies in, 4312*f*, Biochem. prepns., 4725*d*; Aids to, 5065*e*; Chemie des Lebens, 5065*f*; Clinical, 5112*a*; Fundamentals of, 6072*e*, Techniques de, 6273*b*, Anleitung zum Physiologischchemischen Praktikum, 7990*i*; Lab. Expts in, 7991*b*.
of carbohydrates, 5008*d*
evolutionary, 8414*hi*.
foodstuff-keeping quality and, 323*c*.
individuality in, 9217*a*.
isotopes as indicators in—see *Isotopes*.
of microorganisms, 6184*f*.
radiation labs. for, 2505*f*.
radioactive elements in—see *Isotopes; Radiotherapy*.
reviews on, 1072*i*, 3855*a*, 6255*e*.
spectrophotometric microdetns. in, 7997*c*.
of steroid spiro compds., 659*f*.
**Biochinol**, effect on penicillin, 3932*g*.
**Biogeochemistry.** See *Geochemistry*.
**Biographies.** (See also *History; Obituaries*.)
**Agricola, 3669*h*.**
**Allorge, Pierre, 8*i*.**
**Arnold, Richard T., 8219*b*.**
**Arrata, Tomás, 915*g*.**
**Bach, Denis, 6013*i*.**
**Backeland, Leo H., 1617*h*, 2049*e*.**
**Baĭkov, A. A., 7275*d*.**
**Balandin, Aleksei Aleksandrovich, 7761*a*.**
**Barnes, R. Bowling, 4939*h*.**
**Bergius, Friedrich, 8219*e*.**
**Berthollet, 1617*g*, 2049*d*.**
**Berzelius, Jöns Jacob, 1617*gi*, 2347*f*, 8607*i*, 4940*e*, 6904*e*, 7808*a*.**
**Bjerrum, Niels, 6873*i*; (book), 6072*b*.**
**Black, Joseph, 915*f*.**
**books: Crucibles, 913*d*; Alchemisten und Rosenkreuzer, 2084*a*; Mensch, Scheikunde, Samenleving, 2084*c*; Max Planck in His Academy Addresses, 2856*g*; Torchbearers of Chemistry, 3702*a*; Descubrimientos químicos, 4090*c*; Alchemists, 6072*e*; Mémento du chimiste, 7808*a*.**
**Booth, James Curtis, 3251*f*.**
**Braun, Ferdinand, 1229*e*.**
**Briner, E., 2825*c*.**
**of British chemists of 100 yrs. ago, 2827*b*.**
**Britske, E. V., 3251*b*.**
**Brode, Wallace R., 4939*h*.**
**Bunsen, Robert Wilhelm, 7761*a*.**
**Butenandt, Adolf, 2477*c*.**
**Butlerov, A. M., 2477*c*, 7761*b*.**
**Campo Cerdán, Angel del, 6874*i*.**
**chem. portraits on medals and plaques, 3251*e*.**
**chemists and history of steel, 8327*g*.**
**Clapeyron, Benoît Paul Émile, 915*e*.**
**Clarke, Hans Thacher, 2825*c*.**
**Clément, 8759*h*.**
**Coghill, Robert D., 9385*d*.**
**Crass, Maurice F., Jr., 5649*e*.**
**Dana, Edward Salisbury, 915*f*.**
**Davidenkov, Nikolaĭ Nikolaevich, 6013*f*.**
**Davy, Humphry (book), 4940*e*.**
**Debye, Peter J. W., 4057*f*, 5237*i*.**
**Del Rio, Andrés Manuel, 915*e*.**
**Democritus, 8761*d*.**
**Dem'yanov, N. Ya., 7761*c*.**
**Denigès, George, 5649*d*.**
**Désormes, 8759*h*.**
**Digby, Kenelm, 8759*i*.**
**Diogenes of Apollonia, 8761*d*.**
**Döbereiner, Johann Wolfgang, 915*e*, 4057*g*.**
**Douglas, George, 6477*g*.**
**Drebbel, Cornelis, 5649*i*.**
**Fechner, G. T., 7761*f*.**
**Feigl, Fritz, 6477*d*.**
**Felbeck, George Theodore, 6013*g*.**
**Ferneliius, W. Conard, 4527*a*.**
**Fischer, Franz, 7275*e*.**
**Fischer, Hans, 2825*c*.**
**Fischer, Hermann O. L., 4525*f*, 6477*d*.**
**Fisher, Harry Linn, 5237*i*.**
**Fleming, John Ambrose, 915*f*.**
**Frankland, Percy Faraday, 7275*h*.**
**Frederick, Donald S., 2825*d*.**
**Fresenius, Remigius, 3251*d*.**
**Friedel, Charles, 2049*d*.**
**Germer, Lester H., 4939*h*.**
**Gibbs, Josiah Willard, 4057*f*.**
**Goldschmidt, V. M., 2063*d*, 6875*a*.**
**Groggins, Philip H., 7275*e*.**
**Hahn, Otto, 4907*h*.**
**Haller, Albin, 915*e*.**
**Harkins, William Draper, 4057*g*.**
**Hell, Carl Magnus von, 915*f*.**
**Hildebrand, Joel Henry, 4525*f*.**
**Hill, Henry Barker, 915*e*.**
**Hillebrand, W. F., 6014*f*.**
**Houdry, Eugene J., 7*i*.**
**Houssay, Bernardo A., 5237*i*.**
**Huggins, Maurice L., 4939*h*.**
**Jeuner, Edward, 915*e*.**
**Jones, Grinnell, 6875*a*.**
**Jones, William, 915*e*.**
**Kahlenberg, Louis, 8761*a*.**
**Keyes, Donald B., 4525*g*.**
**Kharasch, Morris S., 2825*d*.**
**Kjeldahl, Johan Gustav Christoffer Thorsager, 915*f*, 7761*fg*.**
**Klaproth, Martin Heinrich, 4909*a*.**
**Klein, Christian Felix, 915*e*.**
**Kolthoff, Isaac Maurits, 3669*i*.**
**Komppa, Gustaf, 5238*i*.**
**Lamb, Arthur Becket, 8219*c*.**
**Langevin, Paul, 8219*e*.**
**Laplace, Pierre Simon, 915*e*.**
**Lardy, Henry A., 8219*d*.**
**Le Bel, Joseph Achille (book), 4554*d*.**
**Liesegang, Raphael Eduard, 4907*h*.**
**Little, Ernest, 6477*e*.**
**Lomonosov, M. V., 3251*f*; (book), 5276*f*.**
**Lunin, Nikolaĭ Ivanovich, 8760*i*.**
**McAuliffe, Anthony C., 8219*d*.**
**MacInnes, Duncan A., 9*d*.**
**MacNeven, William James, 8759*g*.**

Magnus Albertus, 8761*d*.
Mallet, John William, 1617*h*.
Mangin, Louis, 8*i*.
Marchlewski, Leon Pawel, 2825*e*.
Mark, Herman F., 8*i*, 4527*a*.
Markovnikov, V. V., 7761*d*, 8220*g*.
Marton, L., 4939*h*.
Meerwein, Hans, 6014*g*.
Meldola, Raphael, 915*e*.
Melikishvili, P. G., 7761*g*.
Mendeleev, D. I., 5913*c*, 6876*d*, (book), 478*g*.
Miner, Carl S., 3113*g*, 4525*g*.
Mitscherlich, Eilhard, 6013*g*.
Mittasch, Alwin, 9*a*.
Mooney, Melvin, 6013*g*.
Morey, George W., 9*b*, 6013*h*.
Morgan, Agnes, 3669*i*.
Mościcki, Ignacy, 2825*e*.
Munroe, Charles Edward, 915*e*.
Murray, Robert Lindley, 5238*i*.
Newlands, J. A. R., 7762*a*.
Newton, 8759*g*.
Nobel, Alfred, 2049*e*.
Olivier, S. C. J., 6013*h*.
Olney, Louis Atwell, 2825*f*.
Osler, William, 915*e*.
Ostwald, Wilhelm, 8759*h*.
Patterson, Austin M., 4525*h*.
Pauling, Linus Carl, 915*c*.
Pavlov, Ivan Petrovich, 915*f*.
Perrin, Jean, 8219*f*.
Pietsch, Erich, 4907*i*.
Pisarzhevskiĭ, L. V., 7761*i*.
Pitzer, Kenneth S., 2825*f*.
Planovskiĭ, N. I., 3251*b*.
Poraĭ-Koshits, A. E., 7761*c*.
Prandtl, Wilhelm, 6875*b*.
Priestley, Joseph, 6014*g*.
Puiggari, Miguel, 1229*g*.
Quayle, Osborne Robinson, 4907.
Rafferty, James A., 9*c*, 2341*d*
Raman, C. V., 3251*a*.
Read, John, 3251*c*.
Rebinder, P. A., 6875*b*.
Reich, Ferdinand, 915*e*.
Reverdin, Frederic, 915*e*.
Robson, Stanley, 6875*b*.
Rochow, Eugene G., 4908*h*.
Rodionov, Vladimir Mikhaĭlovich, 1617*h*, 3251*a*, 6477*e*, 7761*c*.
Röntgen, Wilhelm Conrad, 915*c*.
Rouelle, 2049*e*.
Rutherford, Daniel, 915*f*.
Sage, Bruce H., 7275*e*.
Saussure, Horace Benedict de, 915*e*.
Schlesinger, Herman I., 2825*g*.
Schoch, Eugene P., 449*i*.
Schönbein, Christian Friedrich, 915*f*.
Schreinemakers, Franciscus Antonius Hubertus, 2477*d*.
Sertürner, Friedrich Wilhelm Adam, 7275*f*.
Shechukarev, A. N., 8819*e*.
Simonsen, John Lionel, 8760*g*.
Skaupy, Franz, 3251*c*.
Smith, Edgar Reynolds, 2825*g*.
Smyth, Charles P., 4527*a*.
Snell, Foster Dee, 6875*c*.
Spedding, Frank H., 915*f*.
Steacie, Edgar William Richard, 5649*d*.
Stearns, Frederick, 9*a*.
Storch, Henry Herman, 915*d*.
Tamele, Miroslav W., 4527*a*.
Tananaev, Nikolaĭ Aleksandrovich, 449*h*, 8760*i*.
Taylor, Hugh S., 4527*a*.
Thomson, Thomas, 7761*g*.
Tillotson, Edwin Ward, 2825*g*.
Tiselius, Arne, 9*b*.
Turrentine, John William, 915*d*.
Uytenbogaart, Johannes W. H., 7275*f*.
Vallensis, Robertus, 5649*h*.
Vinci, Leonardo da, 5649*h*.
Vries, O. de, 8760*h*.
Wagner, Georg, 915*f*.
Waksman, Selman A., 6477*e*, 7275*f*.
Waring, W. George, 1229*g*.
Warren, B. E., 4527*a*.
Weizmann, Chaim, 2825*h*.
Wendel, François de, 5230*a*.
Willstätter, Richard (book), 7808*h*.

**Biological chemistry.** See *Biochemistry*.

**Biological materials.** (See also *Analysis;* and such headings as *Aluminum, analysis; Copper, analysis; Magnesium, analysis; Sodium, analysis.*)
- **adsorption of,** colloidal $Al_2O_3$ for, P 4820*i*.
- **compds. related to,** 2943*f*.
- **concn. of, dehydrator for,** P 7273*g*.
- **x-ray diffraction by,** 4566*h*.

**Biology.** (See also *Biochemistry; Microbiology*)
- **books:** 8867*i*, 9125*i*; American High School, 709*i*; Science of, Today, 1074*i*; Animale et végétale, 1075*a*; Essentials of, 1075*a*; Outline Text in, 1075*a*; Mathematische Werkzeug des, 1254*i*; Allgemeine, 1451*b*; Sel en, 1451*b*; Exploring, 1451*c*; Readings in Biol. Science, 1820*d*; Brief, 1820*e*; Introduction à la, quantitative, 2262*c*; Animal, 2262*d*; Einführung in allgemeine, fur Tierzüchter, 2656*c*; Amino-acidi in, e in terapia, 3054*c*; et Physico-chimie, 3054*c*; Agricola, 3867*i*; Its Human Applications, 4718*g*; in Daily Life, 5065*f*; Russian Science Readings, 5276*h*; Rayonnement infrarouge. T.I. Applications biologiques, 5314*e*; Physikalische Chemie in Medizin und, 5815*d*; Recherche de l'unité en, 5815*e*; Biologische Weltbild, 6683*a*; It's Relation to Mankind, 6683*b*; Introductory, 6683*c*; Aids to, 7069*a*; Lab. Manual for Brief Course in, 7076*a*; Unitary Principle in Physics and, 7808*h*; Grundzuge der Geschichte der biologischen Theorien, 7991*a*; Vitalized General, 7991*a*; World of Life. A General, 7991*b*, Grundlinien fur Biologieunterricht an Volksschulen, 8417*g*.
- Bruck's law of periodicity for, series of at. wts. and, 5240*a*.
- crystallogenic disequil. in, 6481*i*.
- in food sterilization, 1492*i*.
- heavy water and, 5054*h*.
- high-frequency sound in, 5901*h*.
- journal: Documentation du biologiste praticien, 6682*i*
- luminescent microscopy in, 7987*i*.
- polarographic method in, 3870*i*.
- quantum, 9099*h*.
- quantum physics and, 6255*f*
- radioactive elements in—see *Isotopes; Radiotherapy*
- standards for, 1451*h*.
- systems in, accumulation and active transport in, 261*a*.
- tracers in—see "as indicators" under *Isotopes*.
- ultrasonic waves in, 7989*d*.

**Bioluminescence.** See *Light*.

**Biophysics,** book: Math., 709*i*.
- nature of, and responsibilities of department of biophysics, 7061*b*.

**Bioquin 1.** See "copper deriv." under *8-Quinolinol*

**Bios.** (See also *Biotin; Growth substances.*)
- 1—see *Inositol*.
- in leaves and roots of corn in chlorosis, 8012*b*.
- yeast requirements for, 9361*d*.

**Bioses.** See *Disaccharides*.

**Biosphere,** elements of, in evolution of organisms, 5059*i*.

**Biostatic substances,** the term, 9385*g*

**Biotin** (*cis-hexahydro-2-oxo-1H-thieno[3,4]-imidazole-4-valeric acid;* for *trans*-isomers see *Allobiotin; Epiallobiotin* See also *Bios;* "H" under *Vitamins*)
- absorption by eggs, 1088*g*
- in amino acid deaminases, 706*a*.
- analogs, intermediates for, P 5426*g*.
- analogs, mode of action of, 2244*g*.
- antagonism (chronaximetric) with vitamins, 284*e*.
- antagonists for, oxybiotin derivs. as, 9149*b*.
- antagonist to, 9205*g*.
- *Bacillus coagulans* requirements for, 8006*b*.
- balance studies on oxybiotin and, 3073*e*.
- in bran exts., 1147*b*.
- calf requirements for, 1096*f*.
- -carbohydrate in metabolism of *Leuconostoc*, 7542*i*.
- coenzyme form of, 3047*f*.
- compds. having biotin and antibiotin activity, intermediates for synthesis of, P 7504*d*.
- compds. with action of, in blood plasma, 2651*g*.
- in corn, starch content and, 277*h*.
- in *Corynebacterium* (phytopathogenic) growth, 5081*d*.
- in cucurbits and tomatoes during development, 5456*g*, 8461*f*.
- deficiency, cardiac-muscle metabolism in, 293*b*.
  - effect on intestinal microflora of hens, 736*d*.
  - oral manifestations during, 5833*d*.
  - production of, 6292*e*.
  - thyroxine effect in, 7561*c*.
- detn. of, 5818*a*.
- **detn. of, oleic acid interference in, 6693*f*.**
- **effect of,** 1833*e*, 6699*c*.
- **effect on acid-base balance,** 1092*g*.
  - on catalase activity of *Endomyces magnusii*, 7081*c*.
  - on congenital deformities in chick, 8466*d*.
  - on flor sherry process, 3559*e*.
  - on lactation, 2292*g*.
  - on life span of fruit fly, 2333*g*.
  - on nervous effects of acetylcholine, adrenaline, adrenochrome and choline, 6293*c*.
- fat-sol. material from blood plasma with action of, 2300*i*.
- formation of, in intestinal tract of horse, 8467*c*.
  - in intestine, effect of oats, oat products and fat on, 5461*a*.
  - by *Phycomyces blakesleeanus* and utilization by *Nematospora phaseoli*, 1827*i*.
- in fowl nutrition, 8463*f*.
- as growth substance for bacteria, 1827*c*.
- *Histoplasma capsulatum* requirement for, 9152*b*.
- intermediates for, P 7046*d*, P 7970*d*.
- labeled with $C^{14}$ in the ureylene group and its stability during $CO_2$ fixation, 9066*a*.
- *Leuconostoc* requirement for, for dextran synthesis, 8438*h*.
- lipotropic need for, of rats, 2295*g*.
- manuf. of, P 3467*f*.
  - intermediates for, P 1809*e*, P 3040*h*, P 5425*e*, P 6667*g*, P 6668*s*, P 6669*a*.
  - and related compds., P 6670*g*.
- and methyl ester, P 1810*c*.
- in milk and urine during lactation, 289*h*
- in mosquito-larva nutrition, 2334*b*.
- -pantothenic acid interrelationship, enteritis and, 1466*g*.
- prepn. of, compds. useful in, P 1060*e*.
- in rat nutrition, 1091*d*.
- rat requirements for, effect of coprophagy on, 5833*h*.
- release of free and bound forms of, from proteins, 6254*h*.
- resolution of, and derivs., P 3469*gh*.
- review on, 9190*d*.
- in saliva, 1091*i*.
- surface activity of, 4307*a*, 6774*i*.
- swine requirements for, 1089*b*.
- tetrahydrothieno[3,4-*d*]pyrimidine 2,4 (1*H*,3*H*)-diones with activity of, P 7052*c*.
- in tissues of pregnant rats fed rations satisfactory and unsatisfactory for reproduction, 1089*f*.
- trout requirments for, 9271*c*.
- in tumor glycolysis, fermentation and dehydrogenation, interrelationships with $CO_2$ and heavy metals, 2694*f*.
- in yeasts, 8005*b*.

**Biotin, desthio-.** See *4-Imidazolidine caproic acid, 5-methyl-2-oxo-*.

**Biotite,** -amphibole-chlorite schists of Co fahlband mineralization of Modum dist., Norway, 8316*f*.
- and biotite-teschenite of Saltocoats, Ayrshire, 3751*i*.
- coating with, on clay minerals, 7620*h*.
- decompn. and resynthesis of, 6120*c*.
- in druses in granite and rhyolite of Drăganului Valley, Rumania, 5709*b*
- formation of, in S. Dak., 76*de*.
- formation of, in Västervik quartzite from hornblende, 7386*f*.
- in granite, radioactivity in study of, 4128*f*.
- of Japan (Gosaisho-Takanuki dist.), 6127*i*.
- optical properties of, compn. and, 6119*i*.
- optical properties of, in convergent light, 4979*c*.
- petrography of, of eastern Himalaya, India, 1692*i*.
- porphyritic granites in Terska-Alatau Ridge of Tyan-Shan, 7386*a*.
- of sand of rivers of West Ethiopia, 2129*e*.
- soils, 3127*d*.
- vermiculite relation to, 8987*i*.

**Biotite diorite.** See *Diorites*.

**Biotite granite.** See *Granites*.

**Biot's law.** See *Laws*.

**[2,2' - Bi - 1 - oxaspiro[2.5]octane],** *dl*-, 4253*d*.

**5,5'-Bi-1,3-oxathiolane, 2,2,2',2'-tetramethyl-,** isomers, 7425*a*.

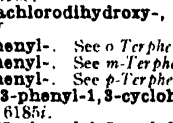
**$\Delta^{3,3'}$-Bioxindole.** See *Isoindigotin*.

**Biphenacyl.** See *1,4-Butanedione, 1,4-diphenyl-*.

**Biphenethylamine, β,β'-dimethyl-, polyamides from,** P 7263*h*.

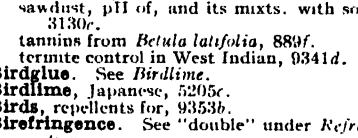
**——, β,β,β',β'-tetramethyl-,** P 3456*a*, P 4296*g*.

polyamides from, P 7263*h*.
polyamide with sebacic acid, P 4519*c*.
**ar,ar'-Biphenetidine.** See *Benzidine, ar,ar'-diethoxy-*.
**m,m'-Biphenol, 6,6'-diamino-**, azo dyes from, P 4476*abc*, P 4866*bc*, P 5598*cf*, P 6424*h*, P 7699*i*, P 7700*abcdef*, 7701*a*, P 8155*i*, P 8157*a*, P 9462*hi*, P 9464*bg*.
**o,o'-Biphenol**, 5403*c*.
**p,p'-Biphenol**, derivs., 5017*h*.
derivs., as stabilizers for cracked gasolines, P 9428*a*.
as polymerization stopping agent, 8727*i*.
**——, 3,3'-bis(hydroxymercuri)-**, 3,3'-diacetate, 5018*d*.
**——, 3,3'-di-*tert*-butyl-6,6'-diethyl-**, as stabilizer for cracked gasoline, P 9428*b*.
**——, 3,3'-diethyl-**, 5018*d*.
**——, octachloro-**, bis(allyl carbonate), P 4299*a*.
oxidation of, P 813*c*.
**——, 2,2',6,6'-tetra-*tert*-amyl-**, as stabilizer for cracked gasoline, P 9428*b*.
**Biphenyl,**
and alkyl or alkenyl derivs., as plasticizers for rubbers, P 896*f*.
4-(aminoalkyl) derivs., P 5423*g*.
chloro derivs.—see also *Arochlors*
chloro derivs., fire-retarding compns. from aminoplast resin powders and, P 3210*b*.
hot-melt coating from resinous, P 1222*h*.
as plasticizer for polyvinyl chlorides, 436*b*.
sealing compn. from graphite and, P 5520*a*.
compression and freezing under pressure, 4067*f*.
conjugation energy of, 8223*i*.
derivs., 1033*e*, 3381*e*, P 4297*f*.
prepn. and spectra of, 2175*a*.
related to morphine molecule, 1355*i*
sulfonation and condensation with diaryl sulfones, tanning agents by, P 6452*f*.
detection in hydrocarbon oils, 6399*b*
detn. in orange peel, 5345*c*.
4,4'-dihalo derivs., toxicities of, 345*d*.
as disinfectant for potato sets, 343*b*.
flow birefringence of, temp. and, 456*h*.
formation from $C_6H_{12}$, 5376*d*.
from phenylcyclohexane, 5376*g*.
from reaction of PhCl with Fe-Si alloy, 1027*i*.
from reaction of S compds. with Raney Ni, 2597*d*.
from NaOBz distn., 7801*a*.
in fungicidal-wax coating, P 5900*f*.
halo derivs., for use as parasiticide, P 3978*g*.
hydrogenation (partial) of, P 7510*h*.
hydroxy derivs., reaction with esters of aldehyde- or peroxide-fatty acids, drying oils by, P 9484*i*.
luminescence of, 2516*e*.
manuf. from acetylene, P 5040*d*.
for mold prevention in rubber hydrochloride film, P 3227*e*.
mol. structure and spectra of, 1361*a*.
mol. structure of, 4569*c*.
nitration of, P 8174*d*.
nomenclature for, history of xenene, 2923*g*.
prepn. of, 4242*f*.
reaction with chloral, 2079*e*.
with ethylene oxide in presence of $AlCl_3$, 2182*h*.
with HCN, P 1064*c*.
with 2-methylallylamine, P 3456*a*.
reduction potential of, 3270*b*.
rosin plasticized with, P 4513*e*.
in scintillation counters, 4111*f*, 4112*h*.
spectrum of, 4140*e*, 4569*d*, 4663*f*.
structure and spectrum of, 942*e*.
structure of, 2606*i*, 4655*b*.
substitution in, 4661*c*.
sulfonic acids of, or its derivs., tanning agents by HCHO condensation of diaryl sulfone with phenolic hydroxy compd. and, P 4504*i*.
system: $C_6H_6$–, 4937*e*.
therapeutic derivs., P 5150*f*.
toxicity of, 1867*f*.
use and manuf. in Sweden, 2979*b*.
viscosity of solns. of, 1029*h*.
**Biphenyl, acetamido-.** See *Acetanilide, ar-phenyl-*.
**——, acetyl-.** See *Acetophenone, ar-phenyl-*.
**——, 2(or 3)-amino-.** See *2(or 3)-Biphenylamine*.
**——, 4-amino-.** See *Xenylamine*.
**——, amyl-**, herbicidal action of, 1895*d*.
**——, benzamido-.** See *Benzanilide, ar'-phenyl-*.
**——, *ar,ar'*-bis(amino-*tert*-butyl)-.** See *Biphenethylamine, β,β,β',β'-tetramethyl-*.
**——, 4,4'-bis(3-methyl-2-thenoyl)-**, 4666*f*.
**——, 3-bromo-**, 6185*g*.
**——, 4-bromo-**, reduction of, 4242*i*.
**——, 4-[β-bromo-α-(*p*-methoxyphenyl)-styryl]-†**, 7007*e*.
**——, 2-(bromomethyl)-**, 1356*c*.
**——, chloro-**, 5387*c*.
**——, 2-(chloromethyl)-**, 1356*c*.
**——, chlorovinyl-**, polymers with styrene, α-methylstyrene or α,*p*-dimethylstyrene, P 7753*i*.
**——, 4,4'-diacetyl-.** See *4,4'-Biacetophenone*.
**——, 4,4'-diamino-.** See *Benzidine*.
**——, 3,3'-dibromo-**, 2979*c*.
**——, 4,4'-dichloro-**, 2980*c*.
as acaricide and insecticide, 3137*i*.
relaxation period of, 6021*c*.
**——, *ar,ar'*-dihydroxy-.** See *Biphenol*.
**——, *ar,ar'*-dimethyl-.** See *Bitolyl*
**——, dinitro-**, manuf. and reduction of mixts. of isomers of, P 8174*c*.
**——, 4,4'-dinitro-**, prepn. of, 1734*d*.
**——, 3,3'-diphenyl-**, 6185*i*.
**——, 3,5-diphenyl-.** See *Benzene, 1,3,5-triphenyl*
**——, 4,4'-diphenyl-** See *p-Quaterphenyl*
**——, 4,4'-divinyl-**, P 5803*c*.
olefinic-bond conjugation with aromatic nucleus, 165*h*.
polymers with 1,3-butadienes, cross-linked nonshrinking, P 7746*d*.
polymers with styrene, P 4516*i*.
**——, dodecahydro-.** See *Bicyclohexyl*
**——, fluorovinyl-**, polymers with styrene, α methylstyrene or α,*p*-dimethylstyrene, P 7753*i*
**——, 4-(α-2-furylstyryl)-†**, 7007*e*.
**——, 1,2,3,4,5,6-hexahydro-.** See *Cyclohexane, phenyl-*.
**——, hydroxy-** See *Phenol, phenyl-*.
**——, methoxy-** See *Anisole, ar-phenyl-*.
**——, 4-[α-(*p*-methoxyphenyl)styryl]-†**, 7007*e*
**——, 2-nitro-**, sensitivity to, 748*l*.
**——, 2(3 and 4)-nitro-**, 3394*e*.
**——, 2(and 4)-nitro-**, toxicity of, 1867*f*.
**——, 4-nitro-**, dielec. absorption by solns. of, 6019*e*.
**——, octachlorodihydroxy-**, toxicity of, 1867*f*
**——, 2-phenyl-.** See *o-Terphenyl*.
**——, 3-phenyl-.** See *m-Terphenyl*.
**——, 4-phenyl-.** See *p-Terphenyl*.
**——, 3-(3-phenyl-1,3-cyclohexadien-1-yl)-**, 6185*i*.
**——, 3-(5-phenyl-1,5-cyclohexadien-1-yl)-**, 6186*a*.
**——, 4-(3-phenylcyclohexyl)-**, 6111*b*.
**——, 2,2',5,5'-tetrachloro-4,4'-divinyl-**, polymer with styrene, P 6001*i*.
**——, *as*-tetrahydro-.** See *Cyclohexene, phenyl-*.
**——, vinyl-**, polymers with styrene, α-methylstyrene or α,*p*-dimethylstyrene, P 7753*i*.
**——, 2-vinyl-**, 2182*i*.
**——, 3(and 4)-vinyl-**, polymers of, with butadiene, 1597*f*.
**——, 4-vinyl-**, olefinic-bond conjugation with aromatic nucleus, 165*h*.
polymerization of, P 1609*h*.
**Biphenylacetamide.** See *Acetamide, α biphenylyl-*.
**Biphenylacetic acid.** See *Acetic acid, biphenylyl-*.
**2-Biphenylacrylic acid.** See *Cinnamic acid, o-phenyl-*.
**Biphenylamine,**

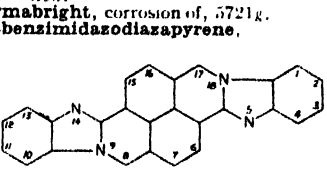


2-
**2-Biphenylamine**, P 861*g*.
azo dyes from, P 9458*gi*.
carbazole from, P 9085*i*, P 9086*b*.
derivs., 7445*e*.
ring closure of, P 1808*h*.
toxicity of, 1867*f*.
**——, *N*-acetyl-.** See *Acetanilide, o-phenyl-*.
**——, *N*-benzoyl-.** See *Benzanilide, 2'-phenyl-*.
**——, 5-chloro-4'-nitro-**, and benzenesulfonate, 7445*e*.
**——, *N,N*-dimethyl-**, P 861*h*, P 4484*i*.
**——, 4,4'-dinitro-**, benzenesulfonate, 7445*e*.
**——, 4'-methoxy-**, P 2647*b*.
**——, 5,5'-[(4-methylimino-3-phenyl-2,4-cyclohexadienylidene)methylene]bis[*N,N*-dimethyl-, and salts**, P 4485*a*.
**——, 4'-nitro-**, benzenesulfonate, 7445*e*.
**4-Biphenylamine.** See *Xenylamine*.
**2-Biphenylarsonic acid, 4'-acetyl-**, 7452*f*.
**——, 4'-chloroacetyl-**, 7452*f*.
**2-Biphenylcarbonitrile**, 1356*a*, 8364*e*.
**——, 2'-(2-cyanoethyl)-**, 8378*d*.
**——, 2'-propionyl-**, and semicarbazone, 8377*g*.
**2-Biphenylcarbonyl chloride, 2'-cyano-**, 8377*f*.
**4-Biphenylcarbonyl chloride**, 2980*c*.
anthraquinonebenzacridone dye from, P 8170*c*.
**2-Biphenylcarboxaldehyde, 2'-cyano-**, and derivs., 8377*i*.
**3-Biphenylcarboxaldehyde, 6-diethylamino-**, and phenylhydrazones, P 2233*a*.
**2-Biphenylcarboxamide**, 8364*e*.
**Biphenylcarboxylic acid, phenyl-.** See *Terphenylcarboxylic acid*.
**2-Biphenylcarboxylic acid**, 2182*i*, 8363*e*, 8364*f*.
methyl ester, 3394*e*.
radioactive, contg., $-C^{14}OOH$ group, 3917*f*.
**——, 2'-carbamyl-.** See *Diphenamic acid*.
**——, 2'-(2-carboxyethyl)-**, and dimethyl ester, 8378*b*.
**——, 2'-(2-carboxyvinyl)-**, 8378*a*.
**——, 2'-cyano-**, 8377*f*.
**——, 2',4'-dihydroxy-4-methoxy-**, δ-lactone, 5023*h*.
**——, 2',4'-dihydroxy-4-methoxy-6-methyl-**, 5023*g*.
**——, 2'-hydroxy-4,4'-dimethoxy-**, δ-lactone, 5023*h*.
**——, 2'-hydroxy-4,4'-dimethoxy-6-methyl-**, 5023*g*.
**——, 2'-hydroxy-4,4',6'-trimethoxy-**, δ lactone, 5023*g*
**——, 2'(and 4')-nitro-**, 3394*e*.
**——, 4(and 5)-nitro-**, methyl esters, 3394*g*.
**——, 2'-propionyl-**, 8378*b*.
**——, 2',4,4',6'-tetrahydroxy-**, δ-lactone and its triacetate, 5023*f*.
**——, 4,4',5,6-tetramethoxy-**, and derivs., 190*d*.
**——, 2',4,4'-trihydroxy-**, δ-lactone and diacetate, 5023*d*.
**——, 2',4',6'-trihydroxy-4-methoxy-**, δ-lactone, 5023*g*.
**——, 2',4,4'-trimethoxy-**, 5023*h*.
**3-Biphenylcarboxylic acid**, 8363*e*, 9045*e*.
**——, 2'-bromo-**, 2979*e*.
**——, 2-hydroxy-.** See *Salicylic acid, 3-phenyl-*.
**——, 3'-nitro-**, 3394*i*.
**4-Biphenylcarboxylic acid**, 2980*c*, 3395*a*, 5768*i*.
esters with morphenol derivs., 4280*d*.
and ethyl ester, hydrogenation of, 1376*c*.
**——, 3'-nitro-**, 3394*i*.
**——, 2'-phenyl-** See *4-o-Terphenylcarboxylic acid*.
**2,6-Biphenyldiacetic acid**, and diethyl ester, 2614*a*.
**Biphenyldiamine**, manuf. of mixts. of isomers of, P 8174*c*.
**2,2'-Biphenyldiamine**, from hydrazobenzene, 3809*i*.
mixts. with 2,4' biphenyldiamine, disazo dyes from, P 8174*e*.
**2,4'-Biphenyldiamine**, mixts. with 2,2'-biphenyldiamine, disazo dyes from, P 8174*e*.
**4,4'-Biphenyldiamine.** See *Benzidine*.
**2,2'-Biphenyldicarboxylic acid.** See *Diphenic acid*.
**3,3'-Biphenyldicarboxylic acid**, 2979*e*.
**——, 5,5',6,6'-tetrahydroxy-**, and esters, 8614*e*.
**4,4'-Biphenyldicarboxylic acid**, and derivs., reaction with alkylenediamines, P 6240*g*.
and dimethyl ester, 9332*e*.
**4,4'-Biphenyldimethanol, α,α'-dimethyl-**, dehydration of, P 5803*d*.

**2,5-Biphenyldiol.** See *Hydroquinone, phenyl-.*
***ar,ar'*-Biphenyldiol.** See *Biphenol.*
**2,2'-Biphenyldiol.** See *o,o'-Biphenol.*
**2,2'-Biphenyldisulfonic acid, 4,4'-bis(3-methyl - 5 - oxo - 2 - pyrazolin - 4-yl)-,** azo dyes from, P 1987*c*.
**3,3'-Biphenyldisulfonic acid, 5-butyl-2-hydroxy-,** disodium salt, x-ray study of, 3688*c*.
——, **4,4'-diamino-,** in electrolytic recording, P 2882*a*.
**4,4'-Biphenyldithiol,** for improvement of millability of butadiene-styrene polymers, P 7258*d*.
**Biphenylene.** See *Cyclobutadibenzene.*
**Biphenylene oxide.** See *Dibenzofuran.*
**Biphenylene sulfide.** See *Dibenzothiophene.*
**Biphenylethanol** (*2 (biphenylyl)ethanol*).
**2-Biphenylethanol,** and esters, 2182*i*.
**4-Biphenylethanol,** and carbanilate, 5768*i*, and esters, 2182*i*.
**2-Biphenylmethanol,** 1356*b*.
——, **4' - hydroxy - α - (methylaminomethyl)-,** and derivs., 1033*e*.
**Biphenylmethylamine.** See *Benzylamine, ar-phenyl-.*
**Biphenylol.** See *Phenol, phenyl-.*
**Biphenylpropionic acid.** See *Hydrocinnamic acid, ar-phenyl-.*
**Biphenylpropionohydroxamic acid** See *Hydrocinnamohydroxamic acid, ar-phenyl-.*
**2-Biphenylseleninic acid,** ionization of, 6050*i*.
**4-Biphenylsulfonamide, 4'-amino-,** P 685*h*, P 4297*c*.
**Biphenylsulfonic acid,** acyl and alkyl derivs., as fat-splitting agents, 7719*i*.
——, **amino-,** P 2238*h*.
——, **butyl-,** sodium salt, identification by x-ray diffraction patterns, 6915*h*.
sodium salt, osmotic activity and conductivity of, 20*d*.
——, **butylhydroxy-,** sodium salt, identification by x-ray diffraction patterns, 6915*h*.
sodium salt, osmotic pressure and conductivity of, 20*d*.
——, **(3-methyl-5-oxo-2-pyrazolin-1-yl)-,** and dyes from, P 2238*f*.
**2-Biphenylsulfonic acid, 4-amino-,** azo dye from, P 5597*b*.
——, **5**(and 5')**-chloro-2'-hydroxy-,** sultones, 4249*f*.
——, **5-chloro-2'-hydroxy-5'-methyl-,** sultone, 4249*f*.
——, **5,5'-dichloro-2'-hydroxy-,** sultone, 4249*f*.
——, **5'-(1,1-dimethylpropyl)-2'-hydroxy-,** sultone, 4249*f*.
——, **2'-hydroxy-,** and sultone and other derivs., 4249*a*.
——, **2'-hydroxy-5'-methyl-,** sultone, 4249*f*.
——, **4-(5-hydroxy-3-methyl-1-*p*-sulfophenyl - 1 - pyrazolylazo) - 4' - (*p*-hydroxyphenylazo)-,** *p*-toluenesulfonate (ester), dyes from, P 9465*a*.
**3-Biphenylsulfonic acid, 4'-acetamido-4-amino-,** P 857*i*.
——, **5-butyl-,** sodium salt, x-ray study on, 3688*c*.
——, **5-butyl-2'-hydroxy-,** sodium salt, x-ray studies on, 3688*c*.
——, **4,4'-diamino-,** P 857*i*.
——, **6-hydroxy-,** condensation products with HCHO and sulfonyldiphenols, P 8722*c*.
condensation product with *p,p'*-sulfonyldiphenol, P 6452*g*.
——, **4,4'-ureylenebis[4-amino-,** P 857*i*.
**4-Biphenylsulfonic acid,** 1033*f*.
condensation product with HCHO and 4,4'-sulfonyldiphenol, for tanning, P 8722*a*.
——, **4'-hydroxy-,** condensation product with HCHO and *p,p'*-sulfonyldiphenol, for tanning, P 8722*c*.
**4-Biphenylsulfonyl chloride, 2'-acetamido-,** reaction with amines, P 4297*g*.
——, **2'-nitro-,** reaction with amines, P 4297*h*.
**3,3',4,4'-Biphenyltetramine,** in selenium and V analysis, 4599*c*.
**2,2',3,3'-Biphenyltetrol, 5,5'-diamyl-,** and tetrakis(*p*-nitrobenzoate), 8614*e*.
——, **5,5'-dimethyl-,** and tetraacetate, 8614*e*.
——, **5,5'-dipropyl-,** and tetraacetate, 8614*e*.
**3-Biphenylthiol, 2-amino-,** zinc deriv., P 1438*e*.
**2,?,5-Biphenyltriol,** triacetate, 1372*g*.
**Biphenylylamine.** See *Biphenylamine.*
**2-Biphenylyl amidophosphate,** $(C_{12}H_9O)$-$P(NH_2)_2$, as catalyst for acid-curing resinous products, P 5631*f*.
**Biphenylyl mercaptan.** See *Biphenylthiol.*
**2-Biphenylyl phenyl phosphate,** $(PhC_6H_4)Ph_2PO_4$, as plasticizer, P 8209*b*.
**Bi(phosphine sulfide), tetramethyl-(?),** 5739*f*.
**[$\Delta^{1,1'(2H,2'H)}$-Biphthalazine], 2,2'-bis(o - chlorophenyl) - 4,4' - dimethoxy-,** 237*a*.
**Bipropenyl.** See *2,4-Hexadiene.*
**Bipropionyl.** See *3,4 Hexanedione.*
**$\Delta^{2,2'}$-Bipseudoindoxyl.** See *Indigotin.*
**4,4'-Bipyrazole,** derivs., in color photography, P 5319*g*.
**4,4'-Bi-2-pyrazoline, 5,5'-dibenzoyl-,** 7453*a*
**[4,4' - Bi - 2 - pyrazoline] - 1,1' - dicarboxamide, 3,3'-diheptadecyl-5,5'-dioxodithio-,** P 5319*g*.
——, **3,3'-dimethyl-5,5'-dioxo-,** P 5319*g*.
——, **3,3'-dimethyl-5,5'-dioxodithio-,** P 5319*g*.
**[4,4'-Bi-2-pyrazoline]-5,5'-dione,** and derivs., as couplers in color photography, P 958*c*.
**2,2'-Bipyridine,** in analysis of metals, 2541*c*.
complexes of osmium and ruthenium, 1972*a*.
dispersion of optic axes of, 6105*f*.
ferrous complex, formation and decompn. of, 6056*bf*.
ferrous complex, instability const. of, 8814*h*.
ferrous sulfate complex, in identification of tannins, 8183*b*.
indium complexes, 6932*f*
platinum complexes, 8942*a*
**Bipyridinium compounds,** 1' (2,5 dihydroxyphenyl) 1,4'-- dichloride, 5683*c*
1,1'-dimethyl 2,2' - diiodide and dipicrate, 1046*c*
**Bipyridyl.** See *Bipyridine.*
**Bipyromucyl.** See *Furil*
**2,2'-Biquinoline,** and picrate, 7025*a*.
**2,6'-Biquinoline,** 3000*f*.
——, **2'-(*p*-aminophenyl)-,** 3000*i*.
——, **1'-(*p*-nitrophenyl)-,** 3000*i*.
——, **2'-[*p*-[3-(6-quinolyl)allylidene-amino]phenyl]-,** 3001*a*.
——, **6-(2-quinolyl)-2'-(6-quinolyl)-†,** 3001*a*.
**2,6'-Biquinoline-4-carboxylic acid,** 3000*f*
**[1,4'(4*H*)-Biquinolin]-4-one(?),** and picrate, 5783*g*.
**Biradicaloids** See *Radicaloids.*
**Birch,** bark of, 9440*e*.
-bark tars in reducing solvent requirements of nitrocellulose lacquers, P 6434*b*.
pollen of, catalase action of, 3892*a*.
pollen of, nucleoproteins in, 3891*h*.
root sap of, compn. of, 729*i*.
sap of, 2678*d*.
sap of, enzymic action of, 8455*a*
sawdust, pH of, and its mixts. with soil, 3130*e*.
tannins from *Betula latifolia,* 889*f*.
termite control in West Indian, 9341*d*.
**Birdglue.** See *Birdlime.*
**Birdlime,** Japanese, 5205*c*.
**Birds,** repellents for, 9353*b*.
**Birefringence.** See "double" under *Refraction.*
**Birmabright,** corrosion of, 5721*g*.
**Bisbenzimidazodiazapyrene,**

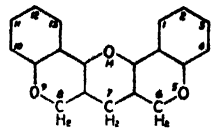


*[2,1-a, 2',1'-h][2,7]*



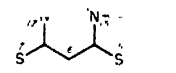
*[2,1-a,1',2'-i][2,7]*

**Bisbenzimidazo[2,1-*a*, 1',2'-*i*][2,7]diazapyrene-6,9-dione,** and derivs., P 9469*i*.
**Bisbenzimidazo[2,1-*a*, 2',1'-*h*][2,7]diazapyrene-8,17-dione,** and derivs., P 9469*i*.
**Bisbenzopyranopyran,**



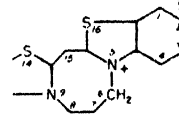
*6,7,8—[1]—[4,5-b,3',4'-e]*

**6*H*,7*H*,8*H* - Bis[1]benzopyrano[4,3 - *b*, 3',4'-*e*]pyran-7-carboxylic acid, 6,8-dioxo-,** derivs., 5390*e*.
**Bisbenzothiazolodiazepinium,**



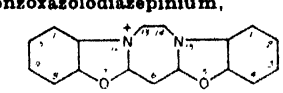
*[3,2-d, 2',3'-g][1,4]—12-*

**Bisbenzothiazolo[3,2-*d*, 2',3'-*g*][1,4]diazep-12-inium compounds,** 13,14-dihydro—iodide, P 7845*b*.
**Bisbenzothiazolodiazocinium,**



*6*H*—[3,2-a, 2',3'-d][1,5]—5-*

**6*H*-Bisbenzothiazolo[3,2-*a*, 2',3'-*d*][1,5]diazoc-5-inium compounds,** 7,8-dihydro - bromide, P 7845*i*.
**Bisbenzoxazolodiazepinium,**



*[3,2-d, 2',3'-g][1,4]—12-*

**Bisbenzoxazolo[3,2-*d*, 2',3'-*g*][1,4]diazep-12-inium compounds,** 13,14-dihydro- iodide, P 7845*c*.
**Bischofia javanica,** tartaric acid from leaves of, P 3843*b*.
**Biselectan.** See *Propionic acid, β (4 hydroxy 3,5-diiodophenyl)-α-phenyl-*
**Bishomoöxybiotin*,** as antagonists of biotin and oxybiotin, 9149*b*.
**Bis J Acid Urea,** antagonism of curare by, 3102*h*.
**Bismark brown,** effect on benzidine-peroxidase color, 7521*e*.
**Bismarsen*,** in amebiasis therapy, 8559*e*
**Bismuth.** (See also *Actinium C; Radium C, Radium E; Thorium C.*)
adsorption of ions of, by metals, 5254*g*.
alpha-ray-stopping power of, 4124*i*.
atomic wt. of, 8764*h*.
Australian industry of, 6546*f*.
black, infrared absorption and transmission by, 944*c*.
bombarded with α-rays and deuterons, nuclear reactions of, 4123*g*.
bond and dissocn. energies of, 5240*e*.
in brain, 6719*h*.
catalyst in purification of fuel gas, 3172*i*
as cathode in electrolytic reduction of 2 methyl-3-buten-2-ol and 2-methyl-3-butyn-2-ol, 994*g*.
cathodic polarization and H overvoltage on, 8285*ab*.
coatings with, by vacuum evapn., P 104*d*.
color reaction of ions of, with azo dyes, 597*f*.
in concn. cells, 8287*d*.
copper embrittlement by, 6555*d*.
as corrosion inhibitor in HF-catalyzed alkylation, P 3190*a*.
from decay of radioactive series produced by bombardment of Th with α-rays, 4126*g*.
deuteron-bombarded, 7813*e*.
diffusion const., diffusion current and half wave of reduction of, 5327*b*.
diffusion into Cd-Pb-Sn alloy to form quaternary eutectic, 6136*d*.
disintegration of, by deuterons, 8855*e*.

effect on cathodes for electrolysis of NaCl, 505*d*.
on oxidation of molten Pb, 7881*g*.
on working behavior of Cu, 83*e*.
electrodeposition of, by internal electrolysis, 8285*f*.
electrodes of, 8288*b*.
in pH detn., 8900*ac*.
potentials of, 7350*e*, 7836*h*.
in $Na_2SO_4$ soln., effect of org. compds. on capacity of, 5316*c*.
embrittlement in deoxidized coppers and Cu alloys, elimination by Li, 5718*f*.
etching of, nital-soln. decompn. in, 5593*f*, 7229*e*.
exchange between Bi ion and, 6890*f*.
films of, polonium distribution on, 4093*h*.
as fluorescence activator, 8803*i*.
friction between metals and, 5273*a*.
gamma-ray bombardment of, threshold for reaction in, 4115*h*.
gamma-rays of, energy of, 6075*a*.
heat capacity of, at liquid-H temps., 6069*c*.
hydrogen overvoltage on, in MeOH solns., 4585*c*.
industry in 1946, 2126*i*.
ion and complex ion, $BiO_4^{4+}$, 1669*i*.
magnetic susceptibility at low temps., 8747*h*.
magnetoresistance of, 10*g*, 4066*f*.
native—see *Bismuth ores*.
neutron cross section of, 4558*h*, 6506*h*, 6909*d*.
neutron fission cross section for, 4127*d*.
nuclear inclusion bodies induced by ingestion of, acid-fastness of, 7539*g*.
occurrence and uses of, 3324*f*.
phosphorescent pigments contg., P 7832*d*.
phosphor of CaS and, decay of luminescence of, 5667*f*.
phosphors contg., 8280*g*.
stimulating action of exciting light in, 5668*e*.
temp stability of luminescence of, 3723*e*.
photoelec. effect in, 8257*h*.
poisoning by, BAl in treatment of, 3523*h*.
polarography of, effect of org. compds. on, 5316*a*.
polarography of, in fused salts, 5314*i*.
potential against Ta in electrolytes, 2101*e*.
removal from Cu, 6551*d*.
from Pb, 7388*f*, 8326*g*.
from Po-plated metal, P 8346*d*.
salivary elimination of, 4372*e*.
soly. in Hg, 7880*f*.
spectrum of, 7858*h*.
system: Ba-, heat of formation of, 5275*b*.
system: Cu-Zn, and Ag-Zn-, Parkes process and, 3764*f*.
systems with metals, activities in liquid, 4930*i*.
system: Tl-, electron arrangements in, 15*a*.

**Bismuth, analysis.** (See also *Hydrogen sulfide group.*)
chromatographic, 4595*g*.
detection, 60*i*, 1279*e*, 4174*h*, 5340*d*, 7860*e*, 8948*f*, 8966*c*, 8979*h*.
detection and detn., 7858*h*.
detection, drop tests for, 8949*g*.
detection in Cu, 2540*f*.
in foods, 9273*h*.
in tissue, 4372*e*.
detection of volatilized Bi in condensed steam, 3314*a*.
detn., 57*c*, 964*b*, 1672*a*, 2043*f*, 4597*f*, 4602*h*, 5329*a*, 6106*f*, 6107*b*, 7376*f*.
detn., $CaCl_2$ as auxiliary electrolyte in polarographic, 5327*a*.
detn. in biol. material, 2659*b*
in Cd or Pb and their ores, 2546*c*.
in injectable oil suspensions, 8612*g*.
in Pb, 2117*d*, 3743*h*, 5328*i*.
in ores, 4602*b*.
detn. of Bi aerosols, 64*f*.
sepn. from Cu, 7859*f*.
sepn. from Pb, 8302*f*.
sepn. from Pb and detn., 1282*a*

**Bismuth acetate,** in acetic anhydride, behavior of, 2110*g*.

**Bismuth alloys.** (See also *Wood's metal*; and "system" under *Bismuth.*)
aluminum-Cu-Zn-, mold for resinous products from, P 9020*d*.
cadmium-, analysis of, 2043*f*.
cadmium-, Au-, Ag-, and Sn-, eutectics in, 4935*e*.
calcium-Pb-, as storage-battery anode, 7830*h*.
gold-, elec. supercond. of, 4532*h*.
lead-, and Sn-, surface tension of, 4203*e*.
lead-Sn-, as catalyst in pyrolysis of fatty acids to olefins, P 7034*i*.
lead-Sn-, for mold cores for plastics, P 9529*a*.
magnesium-, electrolysis and heteropolarity of solid, 6136*a*.
magnesium-, in nodular graphite cast Fe manuf., 7395*f*.
magnesium Zr-, 4619*e*.
tellurium-, Hall effect in, 7763*e*.
tin-, segregation in, 6557*h*.

**Bismuth arsenate** ($BiAsO_4$), structure of, 918*f*.
thermal stability limits of analytical ppts. of, 8971*h*.

**Bismuth bromide** ($BiBr_3$), beta modification and system: $PhNO_2$-, 6899*i*.
electrolysis in $Ac_2O$, 2876*h*.

**Bismuth carbonate,** $Bi_2O_2CO_3$, surface area of powd., measurement of, 8610*d*.

**Bismuth chloride,** as catalyst in tetrahydrofuran cleavage, P 4284*d*.
catalyst of, and CuCl in acrylonitrile manuf. from $C_2H_2$ and HCN, P 3439*a*
decompn. potential in molten AlCl$_3$-NaCl, 8915*e*.
electrolysis in $Ac_2O$, 2876*i*.
exchange between Bi and, 6890*g*.
hydrolysis of $BiCl_3$ to BiOCl, 7836*i*.

**Bismuth compounds.** (See also *Bismuth preparations; Bismuth salts.*)
with barium, heat of formation of $Ba_3Bi_2$, 5275*c*.
with camphoric acid, 5539*i*.
complexes with heteropoly acids and amines, 1672*a*.
of dithiocarbamic acid derivs., chemotherapy with, 1111*f*
with (ethylenedinitrilo)tetraacetic acid, 2113*c*.
*N*-nitroso-*N* phenylhydroxylamine deriv., soly. of, 2488*g*.
reaction with Cu in presence of alkali, alkali cyanides and tartaric acid, 8951*i*.
review on, 2105*g*.
structure of, 451*h*
tannin complex, 8948*f*.
thiocyanate complexes, 8939*f*
with tribromophenol, detn. of, 9374*d*.

**Bismuth fluoride** ($BiF_3$), alpha-, crystal structure of, 8232*f*.
catalysis by, in esterification of fatty acids with glycerol, 4031*a*.
in fluorination of $\alpha,\alpha,\alpha$-trichlorotoluene, 8364*h*
thermal stability of analytical ppts. of, 8971*h*.

**Bismuth halides,** as corrosion inhibitors in HF-catalyzed alkylation, P 3190*b*.

**Bismuth hydride,** solid, 6929*i*.

**Bismuthides,** review on, 3739*h*.

**Bismuthine, chlorodi-1-naphthyl-,** 560*b*.
——, **tri-1-naphthyl-,** reaction with $Me_2NHCl$, 560*b*
——, **triphenyl-,** properties of, 8786*f*.
reaction with $Me_2NHCl$, 560*b*.

**Bismuthinite,** -chalcopyrite-native Bi intergrowths at Akchatau, U.S.S.R., 2901*c*.

**Bismuth iodide,** complex with emetine, decompn. of emetine in, 1530*e*.
complex with emetine, in amebiasis treatment, 3066*g*.
compd. with kurchi, assay of, 3564*e*.
decompn. potential in fused $AlI_3$ or NaAlI$_4$, 6519*g*.
decompn. potential of molten, 4582*fg*
prepn. of kurchi and, 8094*f*.
structure of, 4071*f*.

**Bismuth nitrates,** basic, methemoglobinemia from, 5121*b*.
incompatibility with tragacanth, 355*d*.

**BiONO$_3$,** powder, increasing surface area of, 9363*f*.
prepn. of, 5553*d*.
surface area of powd., measurement of, 8610*d*.

**Bi(NO$_3$)$_3$,** exchange between Bi metal and, 6890*f*.

**Bismuth ores,** of Alaska (northwestern), 8314*i*.
concn. capacity of, testing of, 1294*d*.
gold-, of Boise Basin, Idaho, 4981*d*.
native Bi, in western Canada, 8982*i*.
native Bi, of Akchatau, U.S.S.R., 2901*b*.

**Bismuth oxides,** films on glass for increasing reflection, 3161*h*.
in fireproofing paper, P 9448*d*.

**BiO,** dissocn. of, 5240*f*.

**$Bi_2O_3$,** catalysts contgn., in condensation of aldehydes and ketones, P 2632*d*.
in condensation of ketones, P 2222*h*.
in dehydrogenation of secondary alcs., P 6650*e*.

**Bismuth oxychloride.** See *Bismuth chlorides.*

**Bismuth oxyiodogallate.** See *Airol.*

**Bismuth oxysalicylate.** See *Bismuth salicylate.*

**Bismuth perchlorate,** (BiO)$ClO_4$, complex formation and spectra of solns. of, 1669*i*.

**Bismuth permanganate,** $Bi_2O_3H_2MnO_4$, in analysis, 519*i*.

**Bismuth preparations,** effect on penicillin, 3932*g*.

**Bismuth salicylate,** basic, in *Sclerotinia sclerotiorum* control on beans, 2355*g*.
effect on penicillin, 3932*g*.

**Bismuth salts,** adsorption and electrolytic polarization in solns. of, 503*h*.
oil soly. of org., 2488*i*.
plastic materials from asbestos, HCHO and, P 8208*h*.

**Bismuth selenides,** in photoconductive cells, 2858*g*.

**$Bi_2Se_3$,** as photocurrent carrier, 483*a*.
as photocurrent carrier, sign of, 8896*b*.

**Bismuth sodium tartrate,** pharmaceutical soln. of, 8610*g*.

**Bismuth subnitrate.** See "basic" under *Bismuth nitrate.*

**Bismuth sulfate,** $Bi_2(SO_4)_3$, exchange between Bi and, 6890*g*.

**Bismuth sulfides,** in fireproofing paper, P 9448*d*.
in photoconductive cells, 2858*g*.

**$Bi_2S_3$,** in acetic anhydride, behavior of, 2110*g*.
oxidizability of pptd., 5700*i*.
photocond. of, 483*a*, 6503*e*, 8896*a*.
reduction (electrochem.) of, thermodynamics of, 4931*e*.
system: $Bi_2Te_3$-$Bi_2Te_2S$-$Bi_2TeS_2$-, in wehrlite, 8982*i*.

**Bismuth sulfide telluride,** $Bi_2TeS_2$, system: $Bi_2S_3$-$Bi_2Te_3$-$Bi_2TeS_2$-, in wehrlite, 8982*g*.

**Bismuth tellurides,** in photoconductive cells, 2858*g*.

**$Bi_2Te_3$,** system: $Bi_2S_3$-$Bi_2Te_3S$-$Bi_2TeS_2$-, in wehrlite, 8982*i*.

**Bismuthyl compounds.** (*These basic compounds are entered under the common salt names. See* Bismuth nitrate; Bismuth salicylate; etc.)

**Bisnor-5,20-choladiene, 22-phenyl-3-methoxy-*,** 3018*g*.

**Bisnorcholane, 3(β),22-dihydroxy-5,6-dibromo-*,** diacetate, 3432*g*.

**Bisnorcholanic acid,** derivs., configuration of, 1429*c*.
——, **3(α),12-dihydroxy-*,** derivs., P 5428*g*.
——, **3(α),12(α)-dihydroxy-*,** methyl ester, diacetate, 9077*b*.
——, **3(α),9(α)-epoxy-11-keto-*,** methyl ester, spectrum of, 3019*g*.
——, **3(α)-hydroxy-11-keto-*,** methyl ester, spectrum of, 3019*g*.
——, **3-keto-12-hydroxy-*,** methyl ester, 12-(2-anthraquinonecarboxylate), P 5428*f*.

**Bisnor-5-cholenaldehyde*,** derivs., 658*h*.
——, **3-acetoxy-*,** 658*h*.
——, **3-(benzyloxy)-*,** and semicarbazone, 658*i*.
——, **3-methoxy-*,** and 2,4-dinitrophenylhydrazone, 658*i*.

**Bisnor-5-cholene, 3(β),22-dihydroxy-*,** and esters, 3432*f*.
——, **22-phenyl-3-(benzyloxy)-22-hydroxy-*,** 658*i*.
——, **22-phenyl-3,22-dihydroxy-*,** 3-*p*-toluenesulfonate, 3018*f*.
——, **22-phenyl-3-methoxy-22-acetoxy-*,** 3018*g*.
——, **22-phenyl-3-methoxy-22-chloro-*,** 3018*g*.
——, **22-phenyl-3-methoxy-22-hydroxy-*,** 658*i*.
dehydration of, 3018*f*.

**Bisnor-5-cholenic acid, 3(β)-hydroxythiol-*,** esters, desulfurization of, 3432*e*.

**Δ[11,12]-Bisnorcholenic acid, 3(α)-hydroxy-*,** methyl ester acetate, P 5428*h*.
——, **3-keto-*,** methyl ester, P 5428*g*.

**Δ[20,22]-Bisnorcholen-3(α)-ol-11-one, 22,22'-diphenyl-*,** spectrum of, 3019*g*.

**Δ[20,22]-Bisnorcholen-11-one, 3(α),9(α)-**

**epoxy-22,22'-diphenyl-***, spectrum of, 3019*g*.
**Δ5,6-26,27-Bisnorcholesten-24-one,3-acetoxy-25-bromoacetoxy-***, P 7976*h*.
**Bisnorguaiaretic acid, dihydro-**. See *Pyrocatechol, 4,4'-(2,3-dimethyltetramethylene)di-*.
**Bisnoroxybiotin***, as antagonists of biotin and oxybiotin, 9149*b*.
**Bistiodin**, 5540*e*.
**4,4'-Bistyrene**. See *Biphenyl, 4,4'-divinyl-*.
**Bistyryl**. (For derivs. see under *1,3-Butadiene*.)
polarity and polymerization of, 1634*a*.
reduction potential of, 3270*b*.
resonance energy of, 931*b*.
**Bisulfite-binding substances**. See *Acetone bodies*.
**Bisulfite phenomenon**, the name, 1861*i*.
**Bisulfites**. See *Sulfites*.
**Bi-2-thenoyl**, 1763*b*, 9062*i*.
**2,3' - Bithianaphthene, 3 - methoxy-**, 7474*f*.
**[Δ2,2'(3H,3'H) - Bithianaphthene] - 3,3'-dione**. See *Thioindigo*.
**[2,2' - Bithianaphthene] - 3,3'(2H,2'H)-dione, 2,2'-dimethyl-**, 3816*i*.
**4,4'-Bithiazole**, derivs., 2202*e*.
——, **2,2'-diamino-**, and hydrobromide, 2202*h*.
——, **2,2'-diamino-5,5'-dimethyl-**, and salts, 2202*f*.
——, **2,2'-diamino-5,5'-diphenyl-**, and salts, 2202*g*.
——, **5,5'-dimethyl-**, 2202*g*.
——, **5,5' - dimethyl - 2,2' - diphenyl-**, 2202*f*..
——, **2,2',5,5'-tetraphenyl-**, 2202*h*.
**5,5'-Bithiazole**, derivs., 2202*e*.
——, **2,2' - diamino - 4,4' - dimethyl-**, 2202*i*.
——, **2,2'-diamino-4,4'-diphenyl-**, and salts, 2202*i*.
**[2,2' - Bithiazole] - 5,5' - diethanol,4,4'-dimethyl-**. See *Vitachrome*.
**[Δ2,5'-Bithiazolidine]-2',4,4'-trione, 3,3'-diethyl - 5 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 2'-thio-**, P 4162*h*.
——, **3,3'-diethyl-5-(3-ethyl-3-benzoxazolinylidene)-2'-thio-**, P 4162*f*.
——, **3,3'-diethyl-5-(1-ethylnaphth-[1,2]oxazol - 2(1H) - ylidene) - 2'-thio-**, P 4162*g*.
——, **3,3'-diethyl-5-(1-ethyl-2(1H)-quinolylidene)-2'-thio-**, P 4162*g*
——, **3-ethyl-5-[2-(3-ethyl-2-benzoxazolinylidene)ethylidene] - 3'-phenyl-2'-thio-**, P 4164*a*.
**Bithienyl**. See *Bithiophene*.
**2,2'-Bithiophene, hexachloro-**, 624*h*.
**4',4''' - Bi[2 - thiophenecarboxanilide]**, 4665*d*.
**α,α'-Bi-p-toluidine**, polyamides from, P 2819*a*.
——, *N,N'*-**diamyl-**, and dihydrochloride, 3380*i*, 3381*a*.
——, *N,N'*-**dibutyl-**, and dihydrochloride, 3381*b*.
——, **α,α'-diethyl-**, P 3464*c*.
——, *N,N,N',N'*-**tetraamyl-**, and derivs., 3380*i*.
——, *N,N,N',N'*-**tetrabutyl-**, and salts, 3380*i*.
**Δα,α'-Bi-p-toluidine**. See *4,4'-Stilbenediamine*.
**Bitolyl, fluoro-**, 7918*a*.
***m,m'*-Bitolyl** (*3,3'-dimethylbiphenyl*).
***p,p'*-Bitolyl** (*4,4'-dimethylbiphenyl*).
——, **α,α'-dibromo-**, 3382*b*.
——, **α,α'-dichloro-**, 9332*e*.
toxicity of, 345*e*.
——, **α,α,α,α',α',α'-hexachloro-**, 9332*e*.
toxicity of, 345*e*.
***m,m'*-Bitolyl-5,5',6,6'-tetrol†**, and tetraacetate, 8614*e*.
**Bitter substances**, diasolysis from gentian roots, 4077*g*.
removal from walnut juice contg. vitamin C, P 3572*i*.
removal from walnut leaf juice, P 3151*g*.
**Bitumens**. (See also *Asphalt; Asphaltites; Pitch; Rubrax; Tar*.)
**adhesion to aggregates, metals, etc., increasing**, P 3193*g*.
**adhesion to mineral aggregates, improvement of**, P 1562*h*, P 7661*b*, P 7662*a*.
**asphaltic, of Turkey**, 1291*g*.
**asphalts from native Utah**, 8060*f*.
**of Austrian lignite**, 3992*f*.
**characterization of**, 4044*i*.
**classification of**, 6401*ef*.
**classifications and definitions of, for roads**, 3165*i*.
coatings from, on wood, chem. resistance of, 3632*e*.
colloidal structure of asphaltic, 6817*d*.
containers for, coatings for, P 907*g*.
emulsifiability of, improvement of, P 4846*f*.
extn. from peat, 5570*e*.
extn. from Polish lignite, 1944*c*.
extraneous materials in asphaltic, and their particle sizes, 5178*e*.
felt-base material satd. with, for adhesive attachment to surfaces, P 3242*e*.
fluidity of, measurement of, P 3590*h*.
formation in hydrogenation of coal, 1943*h*.
furfuryl alc. resin for, P 3232*g*.
improving plasticity, etc., of, with polyethylene, P 7224*h*.
industry in 1946, 2127*a*.
from Italy (Pescara Valley), 5178*d*.
mixts. with tar paint, for roofing papers, 419*e*.
origin at depth of, in limestone-asphalt breccias of Italy, 977*i*.
oxidation of, avoiding coking, foaming and ignition in, P 9434*a*.
as paint constituent, 870*e*.
paving contg. —see *Paving*.
recovery from sandstones, hot-water process in, 381*g*.
roads contg. —see *Roads*.
in rocks, detg. nature and amt. by luminescence, 5573*i*.
-rubber mixts. as binders in road carpets, 5984*g*.
from schists, from Chitin region, U.S.S.R., 2899*i*.
seal-coat for paving, 5920*h*.
sepn. from $CH_4$-petroleum mixts. under pressure, 2760*b*.
solidity values of, 9425*e*.
soly. in $C_6H_6$ and xylene, dispersion forces and, 4841*e*.
structure in, reaction to partial solvents as criterion of, 7660*a*.
sulfur detn. in, from petroleum, 5575*h*.
surface tension rule or surface tension-solvent power of liquids for asphaltic, 6816*i*.
vanadium-contg., of Argentina, 8126*i*.
and their working, 3603*b*.
**Bituminous materials**. (See also *Mastics (asphalt compositions)*.)
adhesivity of, cyclic N-base sulfonates for improving, P 6822*e*.
aerosols of, coagulation of, 5255*i*.
analysis of, by luminescence and chromatography, 7675*i*.
book: Plasticity as Factor in Design of Dense Bituminous Road Carpets, 1548*b*.
for building, P 6390*d*.
calking compn., P 4900*a*.
chem. structure and solvation of, 4841*d*.
coatings and road-building emulsions from, 2446*a*.
coatings from, for concrete and steel, 6835*g*.
coatings from, porosity tests for, 5202*h*.
cold-mix, concrete, 7660*e*.
compns. and paints from, 6833*g*.
containers for, coatings for, P 907*f*.
covering or filling material from, P 5633*d*.
emulsifying agent for, hemicellulose soln in NaOH as, P 4846*b*.
emulsions of, and rosin oil soap emulsifiers for, P 4846*c*.
emulsions of, nonreemulsifiable films from, P 5186*g*.
expansion joints of —see *Expansion joints*.
filler from, P 5632*f*.
fuels —see *Fuels*.
limestones, thiophene and its homologs by pyrogenation of, 8126*i*.
thiophene homologs from pyrogenation of, 8127*a*.
thiophene homologs from pyrolysis of, 4841*f*.
melting of, furnace for, P 4460*d*.
from mineral aggregates, P 3990*c*.
mixing with slurries of ground fillers, app. for, P 2754*a*.
mixt. with S as anticryptogams, 3959*f*.
paper, paperboards or paper felt, P 6390*a*.
paving of —see *Paving*.
penetration of, measurement of, 4399*f*.
in petroleum wells, flow lines and pipes, prevention and removal of, P 5938*d*.
plastic properties of, detn. of, 5919*g*.
roads of —see *Roads*.
roofing of —see *Roofing*.
rubber-contg., 4443*b*.
**sand, fluidization in distn. of petroleum from**, 9421*d*.
**sand, oil recovery by hot water from**, 9421*e*.
**sandstones from Athabaska and Calif., asphalts from**, 8660*g*.
**shale—see "oil-" under *Shales*.**
**stability of, angular aggregates and**, 7660*b*.
**standards for**, 4399*a*, 4786*d*.
**structure of**, 2754*d*.
**testing, app. for**, P 5186*f*.
**water-vapor permeability of**, 8738*d*.
**weathering of, accelerated tests for**, 7675*h*.
**Biuret**,

$$\underset{1}{H_2N}.\underset{2}{CO}.\underset{3}{NH}.\underset{4}{CO}.\underset{5}{NH_2}$$

complexes with proteins, spectrophotometry of, 6249*f*.
condensation products with HCHO, emulsions from, P 6000*e*.
copper deriv., spectrum of, 6250*b*.
derivs., 7446*d*.
derivs. and related compds., 5369*g*.
diuretic action of, 6308*f*.
formation of, from $NH_4OH$ reaction with 5,6 - dihydro - 6 - methyl - 1,3,5,2*H* thiadiazine-2,4(3*H*)-dione, 2945*b*.
melamine from, P 6988*h*.
optical crystallographic data for, 6105*e*
phthalocyanines from, Cu [contg., P 8169*b*.
reaction products with 2-alkenyl-1-amino alkyl-2-imidazolines, P 9427*a*.
**Biuret, 1-*tert*-amyl-**, 2165*d*.
——, **1-(4-biphenylyl)-5-[1(and 2)-naphthyl]-**, 7446*i*, 7447*a*.
——, **1-(4-biphenylyl)-5-phenyl-**, 7446*i*.
——, **1-(4-biphenylyl)-5-*p*-tolyl-**, 7446*i*.
——, **1,5-bis(hydroxymethyl)-2,4-dithio-**, P 3032*b*.
——, **1-[*m*(*o* and *p*)-bromophenyl]-5-[1(and 2)-naphthyl]-**, 7446*i*, 7447*a*.
——, **1-[*m*(*o* and *p*)-bromophenyl]-5-phenyl-**, 7446*f*.
——, **1-[*m*(*o* and *p*)-bromophenyl]-5-*p*-tolyl-**, 7446*h*
——, **1-(*p*-chlorophenyl)-2,4-dithio-**, 5746*g*.
and hydrochloride, 2950*d*.
——, **1-[*m*(*o* and *p*)-chlorophenyl]-5-[1(and 2)-naphthyl]-**, 7446*i*, 7447*a*
——, **1-[*m*(*o* and *p*)-chlorophenyl]-5-phenyl-**, 7446*f*.
——, **1-[*m*(*o* and *p*)-chlorophenyl]-5-*p*-tolyl-**, 7446*h*.
——, **1-(5-chlorosalicylidene)-**, 6182*f*
——, **1-cyclohexyl-5-[1(and 2)-naphthyl]-**, 7447*ab*.
——, **1-cyclohexyl-5-phenyl-**, 7446*g*
——, **1-cyclohexyl-5-*p*-tolyl-**, 7446*h*
——, **1-(3,5-dichlorosalicylidene)-**, 6182*e*.
——, **1,5-di-1-naphthyl-**, 7446*i*.
——, **1,5-di-2-naphthyl-**, 7447*a*.
——, **1,5-diphenyl-**, 7446*f*.
——, **2,4-dithio-**, effect on cuttings, flowers and seeds, 2678*i*.
effect on rice seedlings, 5092*e*.
reaction with $AcCH_2Cl$, P 5425*i*.
——, **1,5-di-*p*-tolyl-**, 7446*g*.
——, **1-[*o*(and *p*)-hydroxyphenyl]-5-[1-(and 2)-naphthyl]-**, 7446*i*, 7447*a*.
——, **1-[*o*(and *p*)-hydroxyphenyl]-5-phenyl-**, 7446*g*.
——, **1-[*o*(and *p*)-hydroxyphenyl]-5-*p*-tolyl-**, 7446*h*.
——, **1-[*m*(*o* and *p*)-iodophenyl]-5-[1(and 2)-naphthyl]-**, 7446*i*, 7447*a*
——, **1-[*m*(*o* and *p*)-iodophenyl]-5-phenyl-**, 7446*g*.
——, **1-[*m*(*o* and *p*)-iodophenyl]-5-*p*-tolyl-**, 7446*h*.
——, **1-[*o*(and *p*)-methoxyphenyl]-5-[1-(and 2)-naphthyl]-**, 7446*i*, 7447*b*
——, **1-[*o*(and *p*)-methoxyphenyl]-5-phenyl-**, 7446*g*.
——, **1-[*o*(and *p*)-methoxyphenyl]-5-*p*-tolyl-**, 7446*h*.
——, **5-[1(and 2)-naphthyl]-1,1-diphenyl-**, 7447*ab*.
——, **1-(1-naphthyl)-5-(2-naphthyl)-**, 7446*i*.
——, **1-[1(and 2)-naphthyl]-5-[*m*(*o* and *p*)-nitrophenyl]-**, 7446*d*, 7447*a*.
——, **1-[1(and 2)-naphthyl]-5-*o*(and *p*)-phenetyl-**, 7446*i*, 7447*b*.
——, **1-[1(and 2)-naphthyl]-5-phenyl-**, 7446*f*.
——, **1-[1(and 2)-naphthyl]-5-*m*(and *o*)-tolyl-**, 7446*i*, 7447*a*.
——, **1-[1(and 2)-naphthyl]-5-*p*-tolyl-**, 7446*g*.

——, **1-[1(and 2)-naphthyl]-8-xylyl-**, 7446*i*, 7447*a*.
——, **1-[*m*(*o* and *p*)-nitrophenyl]-5-phenyl-**, 7446*f*.
——, **1-[*m*(*o* and *p*)-nitrophenyl]-5-*p*-tolyl-**, 7446*h*.
——, **1-oxamyl-**, copper derivs., spectra of, 6250*a*.
——, **1-*o*(and *p*)-phenetyl-5-phenyl-**, 7446*g*.
——, **1-*o*(and *p*)-phenetyl-5-*p*-tolyl-**, 7446*h*.
——, **1-phenyl-5-*m*(*o* and *p*)-tolyl-**, 7446*f*.
——, **1-phenyl-5-xylyl-**, 7446*f*.
——, **1-(1,1,3,3-tetramethylbutyl)-**, 2165*f*.
——, **2-thio-**, acyl derivs., P 4292*f*.
——, **1-*m*(and *o*)-tolyl-5-*p*-tolyl-**, 7446*g*.
——, **1-*p*-tolyl-5-xylyl-**, 7446*g*.
——, **1,1,5-triphenyl-**, 5369*g*.
**Biuret reaction**, with blood serum, 7524*h*.
copper bound by protein in, 4305*i*.
in protein detn., 2547*h*.
**Bivinyl**. See *1,3-Butadiene*.
**Bixin**, cis configuration of labile, 603*e*.
**4,4′-Bi-2,6-xylenol**, as stabilizer for cracked gasolines, P 9428*a*.
——, **$\alpha^2,\alpha^{2\prime}$-bis(diethylamino)-**, dihydrochloride, P 4696*a*.
**Bjerrum, Niels**, biographies, 6873*i*; (book), 6072*b*.
**Black, Joseph**, biography, 915*f*.
**Blackberries**, carotene and vitamin C in, 3536*a*.
compn. and vitamin C of Czechoslovakian, 3536*f*.
leaves of, tea substitutes from, P 1880*f*
wines from, in Pacific Northwest, 8606*f*.
**Black blow fly**. See *Phormia regina*.
**Blackboards, Chalkboards, Markingboards** and **Writingboards**, plastic-coated, P 1612*b*.
from waste slate, 1939*b*.
**Black buttons**, control on citrus fruit in storage, 1517*h*.
control on lemons in storage, 1516*h*.
**Black carpet beetles**. See *Carpet beetles*.
**Black cherry aphid**. See *Myzus cerasi*.
**Black citrus aphid**. See *Toxoptera aurantii*.
**Blackening**. See *Coloring*.
**Black flies**. (See also *Eusimulium Simulium*.)
control of, effect on fish, 9552*a*.
**Black Jack**, food poisoning from raw or cooked, 327*g*.
**Black leaf 40**. See "sulfate" under *Nicotine*.
**Black plate**. See *Steel*.
**Black powder**. See *Explosives*.
**Black sands**, of Canary Is., 8818*f*.
monazite contents and mineral compns. of fraction of, in Korea, 7871*d*.
**Black spot**, of apples—see *Apple scab*.
**Bladan**. See "RtaP$_4$O$_{11}$" under *Ethyl tetraphosphate*.
**Bladder**. (See also *Urinary tract*.)
calculi—see *Calculi*.
effect of 2-acetaminofluorene, aniline and 2,3-azotoluene split products on, 6315*f*.
tumors of, from aromatic amines, 9297*h*
tumors of, from chemicals, 8073*g*
urecholine effect on, 8540*a*.
**Bladder wrack**. See *Fucus vesiculosus*.
**Blaeberries**. See *Whortleberries*.
**Blanc fixe**. See *Barium sulfate*.
**Blanching**, of apples, jellies from steam condensate from, 9287*i*.
of carrots (dried), effect on sulfite loss during storage, 7150*f*.
of corn, effect on quality, 1495*e*
of green beans, effect on vitamin C, 1499*e*
indicator for, triphenyltetrazolium chloride as, 8407*a*.
of peas, effect on vitamin retention, 3537*i*.
of peas, vitamin C preservation during, 5120*f*.
with radar energy, 1493*a*.
radiofrequency in, of corn and peaches, 783*h*.
of vegetables, effect on vitamins B$_1$ and C, 1122*d*.
of vegetable tissues, P 6759*a*.
**Blankets**. See *Printing*.
**Blast**. (See also *Stoves*.)
app. for, 7287*i*.
cupola, **enrichment with O**, 4989*d*.
effect on N content of converter steel, 980*e*.
**oxygen-enriched**, dild. with CO$_2$, for converters, P 6143*i*.
in **glass furnaces**, 4436*f*.
***oxygen-enriched***, in Fe metallurgy, P 7891*g*, 8323*h*.
in steel manuf., P 7892*a*, P 7893*f*.
use in cupola, 5713*c*.
in Zn manuf., P 4210*b*, P 6965*f*.
water addn. to, of metallurgical furnaces, P 7891*d*.
**Blast furnaces**. See *Furnaces, blast*.
**Blasting, caps**—see *Detonators*.
explosives for—see *Explosives*.
fuses for—see *Fuses*.
**Blastocladia pringsheimii**, metabolism and nutrition of, 4349*f*.
**Blastokolin**, chem. nature of, 8459*b*.
dicoumarol and derivs. as, 9107*h*.
review on, 3888*f*.
**Blastomyces dermatitidis**, effect of fatty acids on O uptake of, 3883*i*.
**Blastomycin**, collodion agglutination technique with, 4365*e*.
**Blastomycosis**, precipitin reactions in, 752*c*.
**Blast stoves**. See *Stoves*.
**Blatella germanica**. See *Cockroaches*.
**Blatta orientalis**. See *Cockroaches*.
**Blaud's pills**, iron in, and its loss, 1150*f*
**Bleaching**. (See also *Decolorization; Fading*.) P 418*e*.
of apricots, prunes and raisins by supervoltage cathode rays, 5878*f*.
book: Introduction to Textile, 3624*h*.
of cellulose or cellulosic material, P 3198*b*
with chlorite, pH control in, P 4022*a*.
degradation reduction in, P 9447*f*
history of, 5591*a*.
with hypochlorite liquor contg. Br, P 3208*d*.
of cellulose pulp with ozone, P 5593*c*.
cellulosic fiber damage in, 5191*b*.
of cellulosic textiles, steam treatment in, P 5200*c*.
of cellulosic textiles with fluorescent benzimidazole-contg. soap, P 5004*d*.
with chlorites, P 1160*e*.
of collagenous wastes, P 1592*i*.
continuous, of textiles, 6830*i*.
of cork, 5585*f*
of cotton, 1571*i*, 4018*e*.
with Ca hypochlorite Na chlorite mixt., 8687*g*.
with Chloramine-T acid solns. in presence of wetting agents, 3622*b*
of cotton (blue), 6831*a*.
cotton-jersey continuous, in dye becks, 7693*c*.
of cottonseed and soybean oil, continuous vacuum, 8709*b*.
of fats and greases, P 3219*d*
of fats and oils, P 5612*i*, P 6844*a*
of fats, Na chlorite in, 8705*g*.
of flax fibers, 5595*i*.
of flax, lignin content and, 1470*i*.
of flour with ClO$_2$ (Dyox), 6325*f*.
with fluorescent bleaching agents, 2780*d*e, 4471*a*
of fur pelts, 7689*g*.
of gums and resins, P 1580*e*.
with hydrogen peroxide, in painting plants, fire prevention in, 870.
of Japan wax, 5211*f*.
of keratin meal, P 8186*d*.
in laundries, 855*b*.
of leather, P 5618*e*.
of linen, 3621*h*, 7232*g*, 8687*d*.
of methylene blue in soln., by irradiation, 6075*f*.
of mustard- and rape-seed oils, 2000*c*, 2001*b*.
of oils, by adsorption, 3635*c*.
with bleaching earth, P 2794*f*.
continuous vacuum process for, 9489*a*
effect on dienes and trienes, 4874*i*.
oxidation effects in adsorption, 5207*i*.
of paper, catalysts in, P 9448*a*
of paper pulp, 1182*c*, 3614*ab*, 4463*hi*, 4851*g*, P 4854*deg*, 5590*h*
from chaff-contg. materials, 398*e*
with ClO$_2$ and NaOCl, 847*g*
effect on foaming properties, 8679*g*
evaluation of, 8678*i*.
fiber size and, 847*e*.
with hypochlorite, 6410*f*.
instrumentation in, 1184*f*.
lignin content and, 1184*h*.
pentosans in relation to, 1977*d*.
plant for, 7682*h*.
from poplar groundwood for bookpaper use, P 6826*f*.
from reeds in north China, 398*h*.
by Na or Zn dithionite, P 406*b*.
sulfidity effect on, 398*b*.
viscose formation and, 3611*b*.
from wattle wood, 847*a*.
***of paper pulp***, with Zn dithionite, 400*f*, 6410*g*.
of paper pulps and textiles with alkali or alk. earth chlorites, P 8176*a*.
review on, 6830*i*.
short process for chlorine, 7233*i*.
with sodium chlorite, corrosion resistance of steels in, 854*h*.
of sugar-cane wax, 7730*f*.
of sulfuric acid satd. esters, satd. sulfonic acids or their salts with peroxides or peracid salts, P 7242*b*.
of wool (reduced) by salts of Ce, Th, Sn or Zn, 5955*g*.
**Bleaching agents**. (See also *Bleaching powder; Clays; Decolorizing agents*.)
amino stilbene deriv. condensation products with HCHO as optical, P 7242*h*.
benzimidazole derivs., optical or fluorescent, P 4487*i*, P 4488*a*, P 5217*b*, P 5808*a*, P 6241*bc*.
benzoyl peroxide, for flour and cereals, P 2710*c*.
for carotene, in bacon adipose tissue and hemoglobin solns., 3633*g*.
for cellulosic materials, *o*-alkoxybenzoyl derivs. of 4,4′-diaminostilbene-2,2′-disulfonic acid optical, P 5977*g*.
Chitin montmorillonites as, for kerosene-machine oil mixts., 2899*i*.
chlorine detn. in, 401*f*.
detergent mixts. with imidazole compds., fluorescence-generating optical, P 6429*h*.
earths—see also *Kieselguhr*; etc.
earths, acid-treatment and drying of, P 9300*a*.
fermentation in presence of, P 8094*b*.
methylation of, 7607*e*.
polymerization of dienes by, 109*a*.
for flour, $Bz_2O_2$ and ClO$_2$ for, 1495*d*.
for flour, KBrO$_3$-starch mixts. as, and their explosibility, 7230*e*.
fluorescent dyes and optical, 4015*b*.
fluorescent or optical, 2780*d*, 4471*a*.
halogen (active) compds., P 7517*d*.
laundry, 855*a*, 9493*d*.
for leather, aminocarboxylic acid-methylol melamine condensation products, P 5618*g*.
sulfonated copolymers, P 1592*h*.
sulfonated styrene-maleic anhydride polymers, P 7738*c*
for lubricants, weathered loam, fuller's earth and montmorillonite as, 8320*g*.
montmorillonite clays as, 977*c*.
for oils (vegetable), activated clays, earths and siliceous materials as, 3635*c*.
peroxide, activation by hemoglobin, 854*g*.
sodium chlorite as, 1572*e*, 2780*e*.
sodium hypochlorite, stability of, 9395*c*.
toilet bowl cleaning, 9493*c*.
**Bleaching powder**. (See also *Calcium hypochlorite*.)
in air disinfection, 4797*g*.
bactericidal action against anthrax spores, 7999*h*.
penetrating power and stability of solns. of, effect of surface-active agents on, 7233*i*.
**Blebs**, resorption time of, effect of insulin on, 1106*i*.
**Bleeding**. (See also *Hemorrhage; Hemostatics*.)
blood regeneration after, hematologic and electrophoretic study on, 7112*g*.
cholinesterase in blood after, 299*e*.
enzymic activity of pancreas of dogs killed by, 4746*c*.
**Bleeding number**, measurement and theory of, of petrolatum and similar products, 842*d*.
**Bleininger Memorial Award**, to Tillotson, Edwin Ward, 2825*g*.
**Blende**. See *Sphalerite*.
**Blending**. See *Mixing; Mixing apparatus*.
**Blepharisma**, photooxidation in pigmented, 4779*c*.
**Blissus leucopterus** and(or) **Chinch bug**, control in lawns, 5896*i*.
sorghum injury by, compn. and, 4316*a*.
**Bloat**, clover-juice factor causing paralysis of smooth muscle in relation to, 6306*e*.
muscle-inhibiting compd. in lucerne in relation to, 6315*b*.
pathogenesis of, in sheep, 2694*a*.
**Bloch wave**, in metal, calcn. of energy of, 8784*g*.
**Blocking layer**. See *Cells, photoelectric Rectifiers*.
**Blocks**. See *Building materials; Paving*.
**Bloedite**, sodium sulfate manuf. from, 1920*e*.
**Blood**. (See also *Acidosis; Alkalosis; Anemia; Anoxemia; Azotemia; Bili-*

*rubinemia; Calcemia; Chloremia; Cholesterolemia; Erythrocruorins; Globulinemia; Glycemia; Hematuria; Hemoglobin; Hemolysins; Hemolysis; Hemorrhage; Hemostatics; Hyperemia; Hypocalcemia; Hypochloremia; Hypoglycemia; Hypoproteinemia; Immunity; Ischemia; Leukemia; Lipemia; Methemoglobinemia; Oxalemia; Polycythemia; Septicemia; Sulfhemoglobinemia; Toxemia; Uremia.)*
in absorption of medicinal and toxic substances in relation to lymphatic route, 3936*a*.
absorption of substances from, by mammary glands for milk production, 8040*a*.
acetone bodies in, in diabetic and normal subjects, effect of nicotinamide on, 4383*g*.
effect of glycerol on, 8559*e*.
in liver disease and in normal subjects, effect of adrenaline on, 4761*b*.
vitamin $B_1$ and, 5102*i*.
acetone bodies, phosphatides and fats in, in anoxia, 2302*a*.
acetylcholine in, 1851*e*.
in gastro-duodenal ulcers, 3514*d*.
in labor and child bed in relation to cholinesterase content of serum, 9201*d*.
acid-base equil. of, effect on chloroleukemia, 4385*b*.
acids in, during progressive anoxia, 749*a*.
adenosine deaminase in, 8409*e*.
adenosine equiv. in, of burns, 9208*b*.
in adrenalectomy and splanchnicectomy, 1853*f*.
adrenaline and sugar in, surgical aspects of, 6300*d*.
in air-blast injuries, 8521*e*.
alanine (free) and pyruvate in, effect of amino acids on, 1860*i*, 4354*e*.
alanine in, effect of glucose on, 1846*c*.
albumin—see *Albumins*.
alc. absorption by, 8536*i*.
alc. in, after adrenaline injection and under low barometric pressure, 2691*c*.
alc. in, after street accidents, 8547*d*.
in alcoholism, 2330*cd*.
alk. reserve of, gastric secretion and, 1099*e*.
nonprotein N and sedimentation rate of, in brain concussion, 9229*g*.
in uterine fibromyoma, 4365*i*.
allantoic acid and uric acid in, of silkworms during maturing, 2331*d*.
alloxan in, 5468*h*, 8523*i*.
altitude effect on, 8032*i*, 8484*d*.
altitude effect on acetone and hydroxybutyric acid in, 291*d*.
aluminum in, 4322*c*.
amino acids in, 7061*d*.
after absorption of protein, 8505*dg*.
anterior pituitary lobe and, 4355*e*.
of dragon-fly nymph, 3114*c*.
of swine, 7061*h*.
in trinitrotoluene poisoning, 8060*d*.
in tuberculosis, 1482*a*.
in various feeding studies, 5834*d*.
aminodicarboxylic acid formation in, 8499*e*.
*p*-aminosalicylic acid in, after administration, 9258*h*.
ammonia (gaseous) effect on, 1852*c*.
amylase in, 5840*b*.
of children, 2302*a*.
in diseases, 2312*e*.
in poliomyelitis, 2313*h*.
antibiotic activity and, 3879*f*, 8532*a*.
antidiuretic substance in, of normal and adrenalectomized rats, 3084*e*.
antiserum against, cellular reactions in *Haemobartonella*-infected rats with anemia from, 9221*h*.
antithrombin and heparin in, 7121*h*.
antithrombokinase in, 3863*i*.
arginase in, 7529*b*.
arsine effect on, 3104*i*.
bacitracin in, after administration, 7587*b*.
bactericidal action of, effect of *p*-aminobenzoic acid on, 9239*e*.
bactericidal action of, effect of vitamin K and dicumarol on, 5114*d*.
in benzene poisoning, effect of adrenal hormones on, 765*a*.
bilinogen in, of children, 2691*d*.
bilirubin in, combined state of, 8519*d*.
effect of Pb on, 4770*g*.
in leishmaniasis, 2312*d*.
in relation to age and sex, 7567*i*.
in various diseases, 7126*h*.
books: Quimica normal y patológica de, 1099*g*; Story of, 1477*a*; Vitaminas y, 1847*h*; Il, nella sifilide, 3925*i*; Minot's Symposium of Hematology, 4361*h*; Clotting and Allied Problems, 4718*i*; Vitamine $B_1$ en, 8041*g*; La sideremia e il ricambio del derro in condizioni normali e patologiche, 8041*h*; Les cahiers d'hématologie, 9215*i*.
bromine in, 6684*h*.
bromine in, after elec. shock, 9235*f*.
calcium and Mg in, after rectal administration of Ca and Mg salts, 6733*a*.
calcium and Mg in, during diphtheria intoxication, 1100*d*.
calcium and P in, in parturition and milk fever, 7119*i*.
calcium and K in, effect of vitamin $D_2$ on, 6294*d*, 9181*c*.
during fasting, 8471*c*.
in glaucoma, effect of irritants on, 6310*i*.
during hysteria, 7124*h*.
after sulfonamide administration, 5121*d*.
calcium and proteins in, in Recklinghausen disease, 8523*g*.
calcium in, after Ca chloride injection in sound and meningitic children, 3937*b*.
effect on action of F in predentine and dentine formation, 6716*a*.
elevating prepn. from vitamin $D_2$ for, P 4433*c*.
in epidermal carcinogenesis, 1859*f*.
of mammals, 8510*g*.
after oral and intravenous administration of Ca, 737*i*.
in spasmophilic and normal infants, 5487*a*.
in tetanus, 2311*g*.
in visceral leishmaniasis of children, 2313*e*.
calcium, P and phosphatase in, in rickets with or without tetany, 1854*e*.
calcium-P balance in, ratio in diet and, 6708*g*.
calcium sulfamethazine in, 318*a*.
carbonate metabolism in, 7995*g*.
carbon (active) manuf. from, P 4838*b*.
carbon dioxide absorption in, of *Triton cristatus*, 5123*c*.
carbon dioxide and O in, effect of histamine on, and effect of pretreatment thereon, 9243*h*.
carbon dioxide and O in, in rickets, 5486*e*.
carbonic anhydrase in, 3508*f*.
in dystrophy, 750*a*, 5486*f*.
effect of aminopyrine, ascorbic acid and Na salicylate on, 4773*f*.
effect of high-altitude on, 5475*c*.
effect of sulfamides on, 772*d*.
effect of sympathommetic substances on, 7142*e*.
of normal subjects and pulmonary tuberculosis patients, 1481*f*.
in pneumonia, 4760*e*.
carbon monoxide content and vol. of, of Chinese, 8480*a*.
carotene and vitamin A in, 9285*e*.
catalase in, effect of O on, 4713*d*.
cell-proliferation-accelerating and -inhibiting substances in normal and cancer, 4364*i*.
-cerebrospinal fluid barrier—see *Hematoencephalic barrier*.
chlorine and N in, after renal resection, 3086*f*.
chlorine and K in, in benzene poisoning, and effect of adrenaline thereon, 2316*e*.
chlorine and urea in, on chlorine-free diet, 1471*i*.
chlorine in, blood sugar and, 1114*b*.
chlorine in, in eczema and erythrodermia, 4364*d*.
cholesterol and fat in, in NaOH poisoning, 8549*a*.
cholesterol and glutathione in, in thyroid insufficiency, relation to basal metabolism, 3096*f*.
cholesterol and I in, effect of sulfonamides and methylthiouracil on, 3527*g*.
cholesterol and ketones in, in hypertonic diseases, 7126*c*.
cholesterol in, daily variations in, 9198*e*.
desoxycorticosterone acetate effect on, 7119*a*.
effect of fats and oils on, 8506*f*.
effect of liver antitoxic principle on, 1860*e*.
of horses inoculated with virus of infectious anemia, 2305*f*.
nutrition and, 7115*c*.
sex differences in, 8037*a*.
in thromboangiitis obliterans 289*e*
*cholesterol in*, after treatment with stilbene compds., 1113*f*.
vitamin $B_2$ effect on, 1113*h*.
cholesterol, proteins and nonprotein N in, in Aleutian islanders, 6711*c*.
cholinesterase in, arterial pressure and, 4760*i*.
in disease, 5857*e*.
of healthy children, 738*d*.
in hematologic disease, 4366*g*.
on high mountains, 3504*d*.
of homothermic and poikilothermic animals, temp. and, 3528*h*.
in liver disease, 7126*a*.
properties of, 6679*d*.
in psychiatric cases, 4761*b*.
during recovery from diisopropyl fluophosphate poisoning, 6743*i*.
and its significance, 9108*c*.
after trauma, 299*e*.
circulation of—see *Circulation*.
citric acid in, in rickets, 5464*f*.
coagulated, or fibrin powder, adhesive for leather from $NH_4OH$ and, P 6854*b*.
-coagulating agents from brain, P 1158*b*
coagulation—see also *Thromboplastic substances;* and "K" under *Vitamins*.
-coagulation-accelerating substances, thrombin and agents affecting its action as, 8537*i*.
-coagulation accelerator, P 5909*a*.
coagulation factor (fifth), 2255*c*.
coagulation-inhibiting and -accelerating substances in, 2299*e*, 5543*a*, 7123*a*.
-coagulation-inhibiting substances, 1851*b*, P 3978*g*, 5399*c*, 6365*f*.
derivs. of coumarins, 3414*i*.
detection of, 5443*a*.
dicumarol as, at various prothrombin levels, 761*d*.
dicumarol as, effect of vitamin P compds. on, 3831*d*.
effect of toluidine blue on, 5865*b*.
effect on hyaluronidase and staphylo coagulase, 3855*g*.
effect on thrombus formation, 3095*a*
ethyl bis(4-hydroxycoumarinyl)acetate as, 5870*b*.
4-hydroxycoumarin derivs., P 4702*ab*
lysozyme inhibition by polysulfonate, 3855*f*.
pancreas protein, 708*d*.
Na penicillin as, 4378*f*.
2-sulfoethylcellulose polysulfate Na salt, P 2774*h*.
coagulation in systems of purified components of, 6269*c*.
coagulation or coagulability of, abnormalities of, 9135*f*.
adrenoxyl effect on, 5117*h*.
in alloxan diabetes, 1478*h*.
amino acids in, 3933*h*.
aminophyllin effect on time of, 7613
Ba, Mg and Sr in, 4378*ab*.
blood platelets as foci in, 8512*c*.
Ca and thromboplastin in relation to, 8514*g*.
Ca in, 2664*f*, 4747*b*.
$H_2CO_3$ in, 5842*b*.
in cold in hemolytic disease, 2697*d*
decalcified with Amberlite resin, 7103*i*
digitalis effect on, 8057*f*, 9255*d*.
effect of fertilizin from sea-urchin eggs on, and effect of basic protein and cephalin thereon, 4390*f*.
effect of heparin and sea-urchin fertilizin on, 4391*a*.
effect of N mustard and x-irradiation on, 4764*g*.
effect of protease and trypsin inhibitor on, 5847*c*.
effect of quinones and oxidation products of adrenaline on, and participation of mercapto groups therein, 5435*i*.
effect of urethan and heat on inhibiting action of vitamin systems on, 6679*e*.
histamine effect on, and its relation to stomach function, 3106*i*.
lipides in, 9198*e*.
in liver and bile-duct diseases, heparin and, 3513*h*.
methionine effect on, 4357*e*.
2-methyl-1,4-naphthoquinone effect on, 9247*g*.
oxalic and malonic acids in decreasing time of, in oral surgery, 7140*a*.
penicillin effect on, 4378*h*, 7582*e*, 9244*c*.
plasma-protein effect on, 5811*h*.
after protamine injection, 5494*g*
protein equil. reactions in, 3867*e*
respiration and, 9206*a*

*coagulation or coagulability of*, in scurvy, 3900*b*.
Na pentobarbital effect on, 7144*d*.
surface effect on, 9372*e*.
theophylline effect on, 319*a*.
by thrombokinase, 5819*i*.
time of, in silicone tubes, and effect of dicumarol treatment thereon, 7112*ef*.
cobalt in, of sheep fed Co-contg. feeds, 8071*b*.
cocarboxylase and vitamin $B_1$ in, 1480*d*.
cocarboxylase and vitamin $B_1$ in, in tuberculosis, 8466*b*.
codehydrogenases I and II in, in typhoid fever, 5110*f*.
collections of Swiss Red Cross, 6361*h*.
colloid-osmotic pressure and protein content of, in renal disease and normal subjects, effect of acids or alkalies on, 4762*h*.
colloid-osmotic pressure and protein content of, restoration of, 4310*d*, 6262*h*.
colloid-osmotic pressure of, in forearm exposed to cold, 8039*e*
complement in—see *Complement*.
copper and I in, during sexual stages in *Torpedo marmorata*, 8560*gh*.
copper in, in Grave's disease, 7571*c*.
creatine and creatinine in, in myohemoglobinuria, 300*g*.
of cyclotron workers, 6505*a*.
DDT in, after feeding, 8062*e*.
diastase in, 3505*a*.
effect of pancreatic activity on, 3504*i*.
in typhus, 3515*i*.
diseases or disorders of, electrophoretic analysis of blood serum proteins in, 4758*a*.
Fe in plasma in, 3076*e*
treatment of, 5498*d*.
distribution in large and minute blood vessels in shock, measured by radioactive isotopes, 5854*i*.
drying app. for, P 6014*b*.
effect of cancer and normal, on tyrosinase, 4762*a*.
effect of soybean and butter oils on, of dairy calves, 8473*e*
effect of thouracil and 6-methylthouracil on, 8542*a*.
effect of thouracil and thiourea on, 9263*h*
effect on bacteria presumably killed by antiseptics, 6278*b*.
elec. cond of, in mountain climate, 3504*ef*.
after elec. shock, 4383*a*, 5108*f*.
electrolytes in, during breathing of air rich in $CO_2$, 8541*i*
embryonic, chem. and serological analyses of, 5467*b*.
emetine in, 1862*e*
emotions and, 5846*e*.
in encephalomyelitis (equine), 7122*e*
enzymes (hydrolytic) in, from *Oedemagena tarandi*, 1116*a*.
enzyme studies on 6268*c*.
ergothioneine prepn. from, 9378*e*.
estrogen effect on, in chickens and turkeys, 7561*a*.
ether in, during ether elimination, 2318*a*
Evans-blue disappearance from, plasma protein level and, 3871*d*.
Evans blue in, effect of vitamin D on, 737*c*.
exchange between aqueous humor and, effect of histamine on, 1113*i*.
eye barrier, effect of antihistamines on permeability of capillaries of, 1107*i*
eye barrier, effect of histamine and antihistamines on permeability of capillaries of, 3526*a*.
fat-emulsion injection and, 1487*i*.
fat in, after ligation of thoracic duct, 3081*c*.
fibrinogenic and fibrinolytic factors of, of people who met sudden death, 9210*b*.
fibrinogen in, deficiency in pregnancy, 5110*c*.
effect of cold on, 6715*b*.
effect of parathyroids on, 5471*c*.
in myocardial infarction, 4772*g*.
fibrinolysin from, activation and purification of, 2663*c*.
fibrinolytic activity in, effect of exercise and adrenaline on, 8541*b*.
filtration funnel for, P 267*d*.
fish, fluorescence of, 1120*c*.
flow in circulation—see *Circulation*.
fluidity after death, fibrinolysin and, 4367*b*.
fluorine in, 5885*a*.
folic acid and teropterin in, after teropterin administration, 4340*f*
folic acid-antagonists and, 8556*f*.
folic acid conjugases and free and combined folic acid in, 6714*hi*.
folic acid effect on, during balanced or protein-poor rations, 4352*d*.
formation of—see *Hemopoiesis*.
formic acid in, in MeOH poisoning, 3869*h*.
fumaric acid in, 9127*i*.
gaseous transfer between colon and, effect on percentage gas compn. of intestinal flatus, 2986.
gases in, cerebral constituents in relation to, 5848*f*.
globulin—see *Globulins*.
glucolysis or glycolysis in—see *Glycolysis*.
glutamic acid and glutamine in, after administration, 7666.
glutathione in, in arthritis, peritonitis, tuberculosis and in normal subjects, 3509*g*.
in hyper- and hypothyroidism, 5119*f*, 8059*g*.
in insulin shock therapy, 2330*b*.
in penicillin treatment, 9245*h*
in rheumatic ailments, 3093*h*.
in syphilis, 7569*a*.
glycogen and lactic acid in, in scarlet fever, 2697*g*.
goitrogen retention in, 5502*c*.
-group A substance from gastric mucin as virulence enhancement factor, 8523*e*.
group A substance, isolation from gastric mucin, 4316*e*.
group B substance of, in stomach of cattle, 7118*b*.
groups, immunochem. studies on, 2314*c*.
group substances of, hexosamine components of, 3479*f*.
from intestinal mucosa and gastric mucin, 4315*b*.
in urine, 8412*h*.
guanidine in, in epilepsy, 9238*b*.
in hay fever during acute shock, 7125*f*
Heinz bodies and methemoglobin formation in, by methylene blue and aniline, 8527*e*.
Heinz bodies and methemoglobin formation in, by xylidine, effect of *p*-aminobenzoic acid on, 8527*d*
hemoglobin crystn. from, 6695*i*.
hemoglobin passage from, into eggs of *Daphnia*, 1872*f*.
heparin in, in liver and bile-duct diseases, 3513*h*.
histaminase in, in anaphylactic shock, 1100*e*.
histaminase in, in pregnancy, source of, 2688*f*
histamine effect on, in hemophilia, 5869*b*
histamine in, 4759*d*
in asthma, 5869*g*.
effect of atropine on, 9248*f*.
effect of digitoxin on, 313*i*.
effect of local freezing on, 8484*i*.
effect of sympathol on, 758*h*.
effect of synephrine and adrenaline on, 8545*a*.
in hemorrhage, 3510*a*.
in leukemia and erythremia, 6725*b*
in pulmonary emphysema of horses, 748*i*.
histidine in, after administration to normal and pregnant subjects, 8525*c*
hormone factor A in, pigmentation of rats and, 3074*f*.
hydrogen-ion concn. of, genetic resistance to mouse typhoid and, 9222*b*.
hydrogen-ion concn. of, in marine teleostomes, effect of decrease in salinity on, 5507*c*.
*p*-hydroxy-*m*-aminophenylarsene oxide action and factor in, 8535*c*.
hypertensin in, of animals with renal hypertension, 754*a*.
hypertensinogen in, in hemorrhage hypotension, 6305*f*.
in insulin treatment (Sakel), 3937*c*.
iodine in, in hyperthyroidism, 1477*c*.
post-operative Basedow reaction in relation to, 5852*b*.
thyroid function and, 6300*h*.
in thyrotoxicosis, effect of thiosulfate on, 6312*e*.
iodophthalein in, after administration to icteric and normal subjects, 8521*d*.
iron in, 287*h*.
CO effect on readily dissociable, 318*f*, 5864*c*.
effect of drugs on easily-split, 8051*e*.
after gastric resection for ulcers, 748*d*.
histamine effect on, 6730*g*.
in infections and after resection of stomach, 3893*fg*.
*iron in*, in normal and pathological conditions, 2312*d*.
in pregnancy, 3086*c*.
in progressive paralysis, 2311*i*.
in typhoid fever, 9224*f*.
vitamin $B_2$ effect on, 4738*d*.
isotopes in study of, 9208*i*.
of Japanese-beetle larvae after hemorrhage, 8562*i*.
journal: Acta Haematologica, 5105*c*.
ketones in—see *Ketonemia*; and "acetone bodies" above.
lactic acid exchange between brain and, and effect of O lack thereon, 7111*g*.
lactic acid in, effect of alloxan on, 7564*f*.
effect of liver blood on, and effect of liver passage on adrenaline and insulin actions on, 4360*a*.
during exercise in neurocirculatory asthenia, anxiety neurosis or effort syndrome, 5855*d*.
during work and at rest, 8504*d*.
after work, effect of succinic acid on, 4751*c*.
lactic and pyruvic acids in, after glucose administration and exercise in diabetes, 5111*b*.
lactic and pyruvic acids in, after glucose administration and exercise in thiamine deficiency, 5832*g*.
in lead poisoning, 8549*i*.
lipases in, effect of desoxycorticosterone acetate on, 7136*c*.
effect of thyroxine and desoxycorticosterone acetate on, 7136*c*.
in smallpox, 1099*i*
in tuberculosis and its prognostic value, 9218*h*.
after work, 9224*g*
lipases in fluids and, of inflammatory processes, 2697*i*.
lipide (physiol.) dispersion in, estrogenic compds in, 3083*f*
lipides and P in, in CO poisoning, 5114*a*.
lipides in, 3872*a*.
effect of radiation on mobile visible, 4311*i*.
after nephrectomy, 295*a*
in normal and pathological conditions, 2296*bcd*.
liver, effect on blood sugar and blood lactic acid, 4360*a*.
loading solute in, urinary flow, excretion of solutes and osmosis in relation to, 1858*i*.
Louisiana Expt. Sta. report on, 6775*ab*.
lytic action of, in diseased subjects, 1480*f*
magnesium in, during kala-azar, 3923*d*
magnesium in, temp. and, 9269*f*.
mammary-tumor agent in, 4367*g*.
in metabolic disorders of cows, 4736*h*.
methemoglobin of, 5840*c*.
methemoglobin reduction in, effect of lactic acid on, 309*i*.
nicotine effect on, 757*d*.
nicotine in, smoking and, 3521*h*.
nicotinic acid in, during corn diet, and effect of tryptophan and $N^1$-methylnicotinamide thereon, 3075*g*.
nitrogen and polypeptides in, after renal resection, 3086*d*.
nitrogen fixation in, of infected whale, 9156*e*.
nitrogen in, after central-nervous-system stimulation, 1851*i*.
in nitrotoluene poisoning, 5120*g*.
of nylon workers, 1985*g*.
osmotic pressure of, effect of salyrgan on, 9257*g*.
in osteopetrosis (hereditary), 1482*g*.
oxalacetate decarboxylation by, 3903*e*.
oxalic acid in, 8520*i*.
$\alpha$-oxoglutaric acid in, in dementia praecox, and effect of nicotinic acid and nicotinamide thereon, 2311*h*.
oxyaromatic substances in, in epilepsy, 305*d*
oxygen absorption by, effect of cholesterol on, 9244*i*.
oxygenation of, app. for, 3870*d*, 7070*g*.
oxygen consumption by, 747*f*, 7984*h*.
oxygen consumption by sheep maternal and fetal, 7108*f*.
oxygen in, of brain in relation to arterial $CO_2$ tension, 3088*c*.
capillary permeability in relation to, 7573*b*.
of diseased heart, 7571*i*.
in hemorrhagic erythropoiesis, 307*i*.
particles passing through glomerular membranes in kidney from, size of, 6886*g*.
passage of substances from, to central nervous system and eye, 1847*h*.

penicillin in, effect of benzoic acid and caronamide on, 6318*b*.
effect of caronamide on, 5500*i*.
after procaine-penicillin administration, 8555*b*.
phenols in, uremia and, 749*g*.
phosphatase and phosphates in, during birth, 1474*a*.
phosphatase in, 3804*a*.
in prostatic-cancer diagnosis, 2661*b*.
in rickets, 4737*g*.
phosphate exchange between eye and, 1473*g*.
phosphates in, effect of insulin, adrenaline and glucose on, 1849*g*.
phosphatide and nonphosphatide fat acids in, after exercise, fever and pancreatectomy, 9217*c*.
phosphatides in, effect of vitamins, phosphates and fish oils on, 5403*e*.
in relation to exogenous dietary factors, 5463*h*.
validity of calcns. for, 4355*c*.
phosphorus in, anesthesia effect on fractions of, 4386*c*.
in Freon poisoning, 2711*e*.
growth performance and, in range beef cattle, 6711*d*.
in whooping cough, and effect of vitamin $D_2$ thereon, 1481*i*.
in phosphorus poisoning treated with lipocaic, 5120*f*.
pituitrin-destroying enzyme in, of pregnant women, 1488*d*.
plasmapheresis of—see *Plasmapheresis*
plasminogen, plasmin and antiplasmin in, 2684*c*.
polypeptides in, in cardiopathic patients, 8049*b*.
polypeptides in, in malaria, 2312*c*.
porphyrin in, in disease and after administration of hematoporphyrin and protoporphyrin, 3512*b*.
post-transfusion survival of whole, during depot storage and after transportation by land and air, effect of temp. on, 6691*e*.
potassium in ascitic fluid and, 2312*g*.
potassium in, in benzene poisoning, and effect of adrenaline thereon, 4377*c*.
potassium thiocyanate in, after administration, 2328*d*.
preservation and post-transfusion survival of stored, 6691*c*.
preservation of edible, 5128*c*.
preservation or storage of, 6690*fh*.
erythrocyte changes in, 6690*a*.
P in erythrocytes and plasma during, 1099*a*.
preservation or storage of erythrocytes as whole, posttransfusion survival of, 6691*d*.
pressor substances in—see *Blood pressure*
procaine esterase in, in hepatic disease, 5108*d*.
procaine hydrolysis by, 2318*e*.
product contg. oxidized heme, P 4792*c*.
progesterone transport in, 8488*i*.
prontosil germicidal action and, 1115*b*.
protein in, and sedimentation velocity of, in tuberculosis of children, 2313*a*.
protein pptn. from, 9132*e*.
protein removal from, 7531*d*
proteins and *n* of, in aged, 8483*e*.
proteins, in anaphylactic shock, 8042*e*.
antigenicity of, 6267*i*.
binding of antimalarials by, and their effect on antirespiratory action, 1108*i*.
effect on thiourea action on fungi, 9152*c*.
in epilepsy, 305*d*.
foam from hydrolyzates of, 6*d*
of healthy and sick children, 8050*h*.
on high mountains, 3504*c*.
Fe binding by, 9209*b*.
of normal and diseased patients, 1453*i*
after parathyroid ablation, 295*b*.
in plasmocytoma, 5856*h*.
stability of, in mixing and transfusion, 8499*g*.
in thoracic-duct fistula, 8522*e*.
vitamin $B_2$ effect on, 4738*e*.
prothrombin in—see *Prothrombin*.
pterins related to pteroylglutamic acid and, 8555*e*.
pyruvic acid and reticulocyte content of, in cancerous and normal rats, 6723*e*.
pyruvic acid and thiamine in, of middle aged and old individuals, 8023*f*.
pyruvic acid in, 8500*h*.
pyruvic acid in, in hepatitis, hypertonia and diabetes, 3093*d*.
radioactive bromodimethylethylallenolic acid and radioactive thyroxine in, after administration and their ratio to organ contents, 9214*g*.
radioactive sulfur in, after administration, 4376*a*.
refractive index of, in cancer, 3510*i*.
regeneration of—see *Erythropoiesis; Hemopoiesis*.
relaxin in, of sow, 2299*d*.
review on, and its derivs., 2301*f*.
Rh$^w$ factor, 7571*e*.
Rh factor, antiserum to, 7575*d*.
Rh hapten substance from, 753*h*.
salicylate in, after administration, effect of Na benzoate on, 9242*d*.
after administration, effect of sulfonamides on, 9242*i*.
after Na salicylate treatment of rheumatic endocarditis, 1105*g*.
sedimentation of, comparison with other clinical protein reactions, 7569*h*.
sodium$^{24}$ in, after administration, 9209*a*.
sodium in normal and nephritic, 2263*f*.
sodium nicotinate effect on, 8468*b*.
in soils, effect on auxin content, 3958*f*
solns. isoösmotic with, 5903*f*
sterilization of, 4341*d*.
substance P in, 1071*f*.
succinic acid in, of *Gastrophilus intestinalis* larva, 1872*e*
sugar—see *Blood sugar*.
sulfadiazine and its methylated derivs. in, after administration, 5114*c*.
sulfamerazine and sulfamethazine in, after administration, 7589*h*.
sulfonamide action in fresh and inactivated, 3879*e*
sulfonamides in, 4771*e*.
in infancy, 2323*g*.
during lumbar drainage, 1103*e*.
in prophylactic tests against *Plasmodium gallinaceum*, 9253*f*.
suture from, P 2375*e*
sympathin E in splenic, during hemorrhage and asphyxia, 3519*d*
temp. effect on, of cattle, 9209*g*.
thrombotropin in, effect of dicumarol on, 3106*e*.
tocopherols in sheep, and effect of cod liver oil thereon, 758*f*
tooth compn. and, 2681*e*
transfer of ingested colostrum protein to, 7102*i*.
transfusion of, effect and fate of, 8511*d*
effect on canine hemophilia, 8524*b*
effect on polycythemia production, 5848*i*.
in hemorrhagic shock, 5857*f*.
silicone-treated needles in, 2666*e*.
solid colloid from blood serum for use in, P 7198*b*.
transfusion of heterogeneous, behavior of blood elements after, 3927*g*.
transfusion of incompatible, histamine liberation by tissue during shock from, 3510*e*
uranium ion in, 9119*c*
urea clearance—see *Urea*.
urea in, acid-base balance of blood serum and, 3911*f*.
effect of pyridoxine on, 5498*e*.
in nephrosis in children, 6724*b*.
uric acid in, effect of alloxan and cysteine on, 4378*d*.
effect of temporal application of short waves on, 701*b*.
effect of thymus ext. on, 2323*e*.
effect of uricase on, 7530*d*.
effect of vitamin $B_2$ and insulin on, 1472*d*.
after vaccination against hoof-and-mouth disease, 3512*i*
vasopressor substances —see *Blood vessels*.
viscosity of, 2059*a*.
vitamin A in, leucocyte count and, 3073*c*.
vitamin A in lymph and, 3899*d*.
vitamin A in, of newborn, 4749*c*.
during vitamin A treatment, 3499*b*.
vitamin $B_1$ and its fractions in, in healthy and sick children, 4749*e*.
vitamin $B_1$ in, of mothers and newborn, 8501*c*.
vitamin $B_6$ in, in vitamin $B_6$ deficiency, 3074*g*.
vitamin C in, 5847*a*.
compared with plasma content as criteria of nutritional status, 5460*a*.
effect of Pb on, 1113*b*.
effect of rutin on, 5834*b*.
of hens, 8479*c*.
in infectious diseases, 287*i*.
vitamin E in, age variations in, 4749*g*.
vitamins A and C in, of Amsterdam students, 1850*b*.
vitamins A and C in, of ewes and their lambs, effect of low-carotene ration on, 8467*c*.
vitamins in, in peritonitis, 1096*b*.
vol. of, 710*h*.
as detd. by $Fe^{59}$ and $P^{32}$ labeled red cells, 8037*h*.
detn. of, 3869*i*, 4320*e*, 5819*h*.
in fever in hypertensive persons, 301*h*.
zinc in, 2301*h*.

**Blood, analysis**, ashing for, 8419*d*.
books: Rapid Microchem. Methods for Blood and Cerebrospinal Fluid Examinations, 4312*f*; Grondslage voor de bepaling der bloedsedimentatie bij paard en rund, 9140*g*.
demonstration of isoagglutins, 1859*e*.
detection, 9133*c*.
detection in feces, 9139*b*.
detection of amino acids, 8429*c*.
of anticoagulants, 5443*b*.
of bromates, 4324*d*.
of dicumarol and ethyl 3,3′ dicumarinylacetate, 7995*i*.
of histamine, 2641*b*.
of methemoglobin and sulfhemoglobin, 304*e*.
of phosphatase, 4320*a*.
of proteins, 4324*h*
of strychnine, 1153*g*.
detn. of acetoacetic acid, 9128
of acetone and alc., 7073*c*.
of adrenaline, 4317*g*, 6300*h*, 5816*b*
of albumin, 4719*c*, 7534*c*.
of albumin and globulin, 4719*f*.
of albumin, globulin and hemoglobin 2666*c*.
of albumin globulin ratio, 264*c*.
of alc., 2326*f*.
of alloxan, 3868*f*, 8979*e*.
of Al, 4322*b*.
of amino acids, 265*a*, 3871*f*, 9137*i*
of *p* aminobenzoic acid, 263*a*.
of *p* aminobenzoic acid and procaine 7540*g*.
of *p*-aminohippuric acid, 6271*i*.
of *o* aminophenols, 7995*c*.
of *p* aminosalicylic acid, 710*f*, 5070*c*, 5140*h*, 7073*k*, 9258*i*.
of α amino-*p* toluenesulfonamide, 263*e*, 9132*a*.
of amylase, 2658*i*, 6694*c*
of antiprotease, 5816*g*, 6259*g*
of antistine, 8422*d*.
of antitryptic activity of plasma, 5441*d*.
of arginine, 3054*i*.
of aureomycin, 4719*h*, 6271*b*
of barbiturates, 264*a*
of base, 1076*e*.
of base and Na, 7539*h*
of Bayer 205, 2662*c*.
of bilirubin, 4722*c*, 6683*g*.
of Br, 6684*g*.
of bromosulfalein, 7539*i*
of butelline esterase and procaine esterase, 8049*e*.
of caffeine, 6693*g*.
of Ca, 5439*i*.
of Ca, NaCl and sugar, 3484*h*
of $CO_2$ tension, 9131*h*.
of carbonic anhydrase, 5865*f*.
of CO, 7535*f*.
of CO and O, 5070*g*.
of carboxyhemoglobin, 4320*h*
of carotenoids and vitamin A, interferring substances and, 8423*c*.
of catalase, 3868*i*.
of chloride ratio between corpuscles and plasma, collection of blood for, 8427*a*.
of chlorides, 5819*d*.
of cholesterol, 7531*f*, 9139*a*.
of cholinesterase, 6272*bd*, 8426*h*, 9018*b*
of citric acid, 4724*d*.
of Cu, 9127*e*.
of corpuscles, 703*a*.
of creatine and creatinine, 8429*a*.
of creatinine, 6683*e*, 6691*h*.
of creatinine and glucose, 7072*c*.
of cysteine, 4315*f*.
of dicumarol, 5438*a*.
of digitoxin, 2658*e*.
of *N* - (2 - dimethylaminoethyl) - *N* benzylaniline, 6684*a*.
of diodrast, 2661*g*.
of dye T-1824, 713*g*.
of ergothioneine, 9140*d*.
of esterified fatty acids, 8429*g*.
of fibrinogen, 7075*c*, 9127*c*.
of fucose in blood-group substances, 4724*a*.

**detn. of gases in blood from heart and arteries in heart disease, 9136*e*.**
**of globulins, 6692*g*.**
**of glutamic acid and glutamine, 766*e*.**
**of glutathione, 7531*k*.**
**of glycine, 3873*f*.**
**of gonadotropin, 7993*i*.**
**of hemoglobin, 1076*g*, 5441*a*, 6691*a*, 7908*d*.**
**of hemoglobin and methemoglobin, 6269*a*.**
**of hemoglobin and protein, 5442*h*.**
**of hemoglobin in avian blood, 9138*d*.**
**of hemoglobin, standardization of, 6262*b*.**
**of heparin, 8428*a*, 9136*d*.**
**of histaminase in pregnancy, 6689*e*.**
**of histamine, 2658*b*.**
**of pH, 7536*b*.**
**of pH, electrode for, 4316*b*.**
**of icterus index, nomograph for, 9135*e*.**
**of inulin, 6686*a***
**of insulin antagonist in serum, 5487*g*.**
**of I, 8419*b*.**
**of Fe, 7535*b*, 9133*e*.**
**of lactate, 8425*b*.**
**of lipides, 3871*i*, 5073*g*.**
**of Mg in plasma or serum, 4323*b*.**
**of mannitol, 6271*e*.**
**of mannitol and sorbitol, 3870*c*.**
**of methionine (free and protein), 263*d*.**
**of 6-methyl-2-thiouracil, 2659*d*.**
**of nicotine, 4724*b*.**
**of N, 711*f*.**
**of N (rest), 5069*d*.**
**of nonprotein N, 9129*b*.**
**of occult blood in feces, 7993*e*.**
**of O, 1821*b*, 3093*e*.**
**of O, effect of carboxyhemoglobin on, 714*b*.**
**of O satn., 7535*d*.**
**of O satn., app. for, 4324*c*.**
**of oxyhemoglobin, 7532*h*, 7539*h***
**of penicillin, 1075*f*, 6687*g***
**of peptides, 2659*a*.**
**of phenol, 8430*a*.**
**of phosphatases, 266*i*, 2208*a*, 2661*a*, 3876*b*, 4314*h*, 7992*a*.**
**of phosphatides in serum, 4320*f*.**
**of P, 2665*h*, 5818*i*, 6687*b*.**
**of plasmin and trypsin inhibitor, 3487*e***
**of K, 9134*c*.**
**of K and Na, 5441*g*, 9137*c*.**
**of porphyrins, 7533*f*.**
**of procaine, 6273*a*.**
**of procaine esterase, 7997*a*.**
**of protein-bound estrogen, 7534*f*.**
**of proteins, 265*f*, 1075*c*, 3054*h*, 3055*e*, 3485*e*, 3874*b*, 4313*g*, 4314*g*, 4745*d*, 5070*c*, 5871*i*, 9127*b*, 9133*c***
**of proteins and their fractions in plasma and serum, 9131*b*.**
**of proteins in blood of normal and diseased patients, 1453*i*.**
**of proteolytic activity, 6686*i*.**
**of prothrombin, 3485*h*, 3487*abcd*, 3871*ai*, 3876*ef*, 5441*i*, 9130*g*, 9139*a***
**of prothrombin, effect of factor V on, 6683*h*.**
**of quinine degradation product, 4321*a*.**
**of salicylate, 1105*h*, 3054*i*, 7073*b*, 9131*a*.**
**of Na, 2263*f*, 5438*c*, 6692*a*.**
**of sorbose and sucrose, 3870*c*.**
**of streptomycin, 269*h*, 710*b*.**
**of sugar, 1820*i*, 3872*c*, 4315*d*, 4317*a*, 5819*e*, 7072*a*, 7075*i*, 8420*a*.**
**of sugar and urea, 4317*b*.**
**of sugar at high altitudes, 3483*g*.**
**of sulfonamides, 3056*c*.**
**of 3,4,5-trimethoxyphenethylamine, 9128*h*.**
**of tryptophan, 9128*f*.**
**of urea, 3484*d*, 4316*h*, 4321*c*, 6270*b*, 9130*a*.**
**of urea, app. for, 1821*a*.**
**of urea, protein removal for, 7531*d*.**
**of urethan, 5437*h*, 9258*d*.**
**of uric acid, 7074*a*.**
**of vitamin $B_1$, 265*c*, 6684*e*.**
**of vitamin C (bound), 5072*f*.**
**of vitamin K, 290*d*.**
**of Zn, 2267*g*.**
**diphenylamine reaction of serum, 5488*b*.**
**by induced radioactivity, 9140*c*.**
**spectograph for, 7071*i*.**
**spectrographic, 7071*g*.**

**Blood corpuscles.** (See also *Blood corpuscles, red; Leucocytes.*)
4-aminopteroylglutamic acid effect on, 8057*e*.
autoradiographs of $C^{14}$ in, 2262*h*.
chloride in blood plasma and, 5470*f*, 5484*h*, 8427*a*.
2-chloroethyl vesicants and, 7135*c*.
compn. of, 2683*f*.
copper in plasma and, 1452*f*.
copper (radioactive) affinity for, 1445*e*.
effect of adrenal-cortical ext. on, 5471*c*.
in folic acid deficiency, 1470*f*, 2297*g*.
formation of, effect of urethan on, 9263*e*.
radiation damage to, 9089*a*.
radioactive, measurement for blood vol. detn., 4320*e*.
reticuloendotheliotropic colloids and, 4766*a*.
sedimentation rate of, detn. of, 4721*a*.
specific gravity of, in atherosclerosis, 4362*g*.
tetraethylammonium bromide effect on, 9257*b*.

**Blood corpuscles, red.** (See also *Erythroblastosis; Megaloblasts; Polycythemia; Reticulocytes.*)
adenylpyrophosphoric acid in, in pathol. conditions, 299*h*.
agglutination of—see *Hemagglutination*
agglutinins for—see *Hemagglutinins*
aluminum-salt action on, 5492*a*.
amino acid content and distribution in chicken, 744*b*.
ammonia in, after operations, 3095*a*.
anion exchange of, temp. coeff. of, 9196*i*.
antigens in stroma of, physiochem. properties of, 2309*i*.
antigens (thermolabile) of stroma of, in serological reactions, 2309*g*.
arsenic distribution between blood plasma and, 4765*i*.
autoradiographs of, 2263*a*.
bile pigments from, 5818*g*.
of blood after storage, 6690*a*.
catalase from, 2255*h*, 2256*a*.
in children, 2691*d*.
cholinesterases in, age and, 7990*d*.
effect of cardiotonic glycosides on, 4380*f*.
specificity of, 5062*e*.
circulating, in shock, measured by radioactive isotopes, 5854*i*.
cocarboxylase in, in health and disease, 1841*i*
of rat and man, 736*f*
vitamin $B_1$ supply and disease in relation to, 5102*e*.
compd. from, which antagonized inhibiting effect of apple pectin on influenza virus hemagglutination, 2314*e*.
control, 8501*f*
cvanase in, 2246*f*
desoxyribonucleic acid in nuclei of bird, 9210*i*.
dietary Co effect on, 8534*g*.
dynamics of, in normal subjects and in polycythemia vera, sickle cell anemia and pernicious anemia, 6723*g*.
effect of age and sex on, 3894*d*.
effect of sugars and electrolytes on turtle, 3939*a*
elec. charge of, 5484*i*.
elec. cond. of blood and plasma on high mountains in relation to no. and vol. of, 3504*e*.
in folic acid deficiency and sulfasuxidine treatment, 1092*b*.
formation of—see *Erythropoiesis*.
glutathione in, in pernicious anemia, 2313*h*.
Heinz-body formation in, by chem. agents, 3930*a*.
by methylene blue, 757*i*, 8527*d*.
by xylidine, effect of *p*-aminobenzoic acid on, 8527*d*.
hematocrit value, 5442*h*.
in Chinese, 8480*a*.
in fowl and pigeon, 8480*b*.
in pregnancy, 9209*e*.
hemoglobin concn. and sedimentation rate of, in pregnancy, 8480*i*.
hemoglobin inactivation and reactivation and methemoglobin formation in, 5467*e*.
hemolytic resistance, methemoglobin content and age in relation to, 8497*h*.
*Hemophilus pertussis* hemagglutinin inhibition by exts. of, 4362*i*.
heterogenetic mononucleosis antigen from, 3062*e*.
in infancy and childhood, 3086*h*.
influenza-virus elution from, effect of sodium periodate on, 3096*c*.
lysed, renal shut-down from, 8042*b*.
lysins for—see *Hemolysins*.
lysis of—see *Hemolysis*.
magnesium in, temp. and, 9269*f*.
malaria-infected, metabolism of, 5107*a*.
mapharsen binding by, 1862*i*.
mercury exposure and, 9265*d*.
metabolism of, 3903*e*.
methemoglobin reduction and metabolism in, 6732*b*.
methemoglobin reduction in, 3048*f*.
nicotinamide and nicotinic acid utilization by, 746*f*.
nucleic acids in, of birds and humans, 3502*g*.
in osmotic hemolysis, 8497*g*.
osmotic resistance of, 7110*a*.
osmotic resistance of, effect of histamine on, 5121*e*.
oxygen consumption by, hemoglobin concn. and, 9271*e*.
Pasteur effect and, 7567*c*.
Pasteur effect in relation to phosphorylation in, 7063*e*.
pathology of, 748*f*.
peptidase in, 4717*c*.
periodate-treated, properties of, 4758*g*.
permeability of, to cations after treatment with resorcinol, butyl alc., etc., 2064*e*.
effect of *d*- and *l*-isoamidone on, 7583*c*.
glycolysis and, 4764*b*.
to ions, effect of narcotics on, 7143*g*.
to lower satd. monocarboxylic acids, 8502*a*.
to Na and K, 8483*b*.
phosphatase in, 3864*a*.
phosphatase of, in O deficiency, 1849*b*.
phosphorus distribution between blood plasma and, in infantile tetany, 4363*h*.
phosphorus in, and effect of storage thereon, 1099*a*.
phosphorus (radioactive) uptake by, effect of anesthetics on, 3103*g*.
phosphorus renewal in lipides and proteins in, 1099*d*.
physiology of, 4710*d*.
post-transfusion loss of, 7110*a*.
post-transfusion, survival measurement of, 7540*a*.
potassium loss from, 4715*f*.
preservation of, 6690*k*.
preserved, post-transfusion survival of, 6691*d*.
protoporphyrin in, 1474*i*.
protoporphyrin in, in protein-deficient and Fe-deficient swine, 2292*c*.
pyrophosphatase of, inhibition by veronal-acetate buffer, 9109*e*.
receptors in, destruction by receptor-destroying enzyme in prevention of influenza, 3511*e*.
regeneration of—see *Erythropoiesis*.
resistance of, bilirubin effect on, 9217*i*.
resistance of, Pb effect on, 4770*g*.
respiration of dogfish, effect of bacterial toxins on, 9144*e*.
rhodanese in, 4709*b*.
salt effect on, 5811*g*.
sedimentation rate of, in brain concussion, 9229*g*.
effect of dicumarol on, 9258*f*.
in inflammation, 8517*f*.
in insanity, 9232*h*.
Pb in relation to hyaluronidase action on, 6206*h*.
in leukemia, effect of urethan on, 5854*e*.
sideremia and, 9209*c*.
in tuberculosis of children, 2313*a*.
sexual differences in, of newly hatched chicks, 295*a*.
stippling in Pb poisoning, and effect of splenectomy thereon, 4384*g*.
stroma, prepn. contg. penicillin, hemoglobin, electrolyte and, P 8106*f*.
substrate utilization in, 8509*e*.
survival time, in body, 8480*e*.
tannic acid action on membrane of, 3520*e*.
tonicity-vol. relations for, subjected to action of heat, 3087*c*.
tonicity-vol. relations for systems contg., and chlorides of univalent cations, 3087*b*.
after transfusion of heterogeneous blood, 3927*h*.
virus receptors of, 3096*c*.
during vitamin A treatment, 3499*b*.
vitamin $B_2$ in diet and, 265*f*.
vol. of, effect of adrenaline on, 5122*a*.
hyaluronidase effect on, 7529*d*.
measurement of, 3056*hi*.
x-irradiation of, toxins formed in, 8404*h*.
zinc in, 2301*h*.

**Blood corpuscles, white.** See *Leucocytes; Lymphocytes.*

**Blood pigments.** (See also *Bile pigments; Hemoglobin; Oxyhemoglobin; Pentdyopent.*) 3914*e*.
decompn. products of, bilifuscin and mesobilifuscin as, 5844*f*.
in leucocytes of amphibian, 4386*i*.
pathochemistry of, 8519*d*.
review on, 8497*e*.
toxicology of, 8534*e*.
**Blood plasma.** (See also *Blood, analysis; Blood sugar.*)
Ac-globulin in, effect of aminophylline on 5117*f*.
Ac-globulins in stored, stability of, 706*f*.
adrenaline in, under various conditions, 4747*e*.
alkali in, after K salt ingestion by negroes, and effect of desoxycorticosterone thereon, 2687*e*.
alkali reserve of, effect of parathyroid, thyroid, thymus, pituitary and corpora lutea exts. on, 8485*b*.
allantoin and uric acid in, of Dalmatian dog, 5473*h*.
amino acids (conjugated) of, 6741*b*.
amino acids in deproteinized, 8429*c*.
amino acids in, effect of fasting and N deprivation on, 4740*g*
amino acids in, effect of growth and adrenocorticotropic hormones on, 3084*f*.
amino N in, effect of alloxan, pancreatectomy and adrenalectomy on, 752*h*.
after evisceration, relation of temp. and insulin dosage to, 8055*e*.
retention after trauma, 4366*a*.
ammonia in, after operations, 3095*a*.
antifibrinolysin concn. from, 8409*g*
antigenic power of, modification and diminution of, 3511*b*.
antithrombin in, effect on prothrombin time, 5477*h*.
antitryptase and leucylglycinase in, in tourniquet shock, 5857*gh*.
antitryptic activity of, detn. of, 5441*d*.
app. for obtaining dry prepn. of one constituent of, P 2268*d*.
arsenic distribution between erythrocytes and, 4765*i*.
biotin active substance of, 2300*i*, 2651*g*.
calcium and Mg in, of various mammals, 8510*h*.
calcium and P in, of salt-fed cattle, 1501*h*.
calcium, carotene, P and vitamin A in, of heifers, effect of vitamin A on, 2293*h*.
carotene and vitamin A in, of lactating cows, effect of soybeans and soybean meal on, 8479*d*.
cations in, convulsions in normal and desoxycorticosterone-treated animals in relation to, 7146*a*.
of cattle, effect of breed, age and season on, 6711*f*.
cephalin, lecithin and sphingomyelin in, and their metabolic interrelations, 9214*e*.
chloride content and vol. of, in liver disease, 5855*e*.
chloride in corpuscles and, 5470*f*, 5484*h*.
chlorides in aq. humor and, of rabbits, dogs and human beings, 2665*a*.
chlorides, K and Na in, in extracellular electrolyte depletion and its relation to electroshock seizure threshold, 5949*b*.
cholesterol esterase and lecithinase in, 8408*e*.
cholesterol ester formation in, 1849*b*.
cholesterol in, after partial hepatectomy and partial nephrectomy after injection of tris(β-chloroethyl)amine, 7580*f*.
cholinesterase in, 1818*i*.
citric acid in, of tumor-bearing and normal rats, 4761*h*.
coagulation of citrated, by gram-negative organisms, 1830*i*.
coagulation of, effect of dicumarol on, 2686*d*.
effect of sympathicomimetic substances on, 7136*h*.
by heat in cancer, pregnancy, etc., 3515*a*.
silicone surfaces and, 3485*i*.
by staphylocoagulase, 7120*g*.
thrombin formation in, 9200*e*.
**coagulation of mixts. of, from vitamin K-deficient and dicumarol-poisoned chicks, 2681*d*.**
coagulation of oxalated, by toluidine blue, 7109*d*.
colloid osmotic pressure of, in nutritional hypoproteinemia, 3899*g*.
copper and Fe in, in protein-deficient and Fe-deficient swine, 2292*e*.
copper in blood cells and, 1452*f*.
copper in, of pregnant animal and fetus,
creatine, creatinine and guanidoacetic acid in, effect of testosterone and methyltestosterone on, 2301*f*.
creatine in, after methyltestosterone administration, 4373*b*.
cryoglobulin in, in multiple myeloma, 9101*h*.
dried, and plasma fractions, 3054*g*.
effect of normal and immune duck, on chick infectious of *Plasmodium lophurae* induced with parasites in duck erythrocytes, 9216*d*.
effect on 6-acetylmorphine, benzoylcholine and atropine, 702*c*.
effect on methemoglobin formation after hemolysis, 8484*h*.
elec. cond. of, in mountain climate, 3504*ef*.
electrolytes in, electroshock-seizure thresholds after adrenalectomy and, 6304*i*.
electrolytes in, in hypertension from renal compression, 3087*e*.
erythropoietins in, of fetuses, 8504*d*.
esterases of, 6258*b*.
fatty acids in, of allergic and normal subjects after administration of soybean oil, 5107*e*.
fibrinogen in, at high altitudes, 3504*b*.
fibrinolytic enzyme of, 2260*i*.
formol-gel reaction in, 4759*b*.
fractionation of, 8408*b*.
fractionation products of, 7110*i*.
glutamic acid and glutamine in, in malignancy and infectious diseases, 6719*d*.
histamine content and histaminolytic activity of, in pregnancy, 7109*b*.
histamine distribution between lymph and, and its relation to histaminolytic activity of lymph, 7108*h*.
histamine in, correlation with blood pressure after x-ray irradiation, 4308*h*.
histidine, tryptophan and valine in, 4361*d*.
of invertebrates, 4388*e*.
iodide in, as thyroid-function regulator, 8036*g*.
iodine compds. in, 3908*b*.
ion concn. in, renal function and, 7127*i*.
iron in, in blood diseases, 3076*e*.
leucocyte lysis by tuberculoprotein in relation to factor in, 5851*a*, 8044*c*.
lipase in, defense mechanism of organism and, 6722*f*.
lipide-protein complexes in, 9090*g*.
lipides in, and its fractions, effect of partial hepatectomy, thermal injury and β-chloroethyl vesicants on, 4753*d*.
lipides in, in cancer, 9230*b*.
after ingestion of elaidin, 8494*c*.
in primary and secondary hypercholesteremia, 3092*i*.
in lymphoma of fowls, 5109*h*.
magnesium in, in limb ischemia, 9208*a*.
magnesium in, in thyroid disorders, 6299*a*.
mercuhydrin disappearance from, 5861*h*.
metabolites in, in pigment synthesis, 7455*b*.
methylene blue reduction by, 2648*h*.
Millon's reaction in, after tyrosine injection during liver damage, 7129*d*.
nitrogen (nonprotein) in, and its correlation with efficacy of fluid replacement after thermal injury, 7110*d*.
oil from hydrolyzed, in nutrition of mosquito larvae, 2334*c*.
osmolarity of, urinary concn. at zero load in relation to, 6721*h*.
in osmotic diuresis, 298*a*.
oxalated, and its ability to coagulate, 3054*a*.
oxytocinase in, effect of cysteine and glutathione on, 2330*i*.
pentoses in, effect of trauma on, 9229*b*.
phosphatase in, 3864*a*.
in cancer of bones, 1855*f*.
after partial hepatectomy, 3091*f*.
phosphate exchange in, 2661*i*.
phosphates in, hyperventilation and, 1476*d*.
phosphatide turnover in, and choline action therein, 1852*a*.
phosphorus distribution between red blood cells and, in infantile tetany, 4363*h*.
phosphorus in, and effect of storage thereon, 1099*a*.
phosphorus in, effect of growth hormone on, 8489*b*.
potassium in, during preservation, 3047*a*.
potassium in, effect of vivodialysis on, 7117*d*.
progesterone bound in, inactivity of, 5472*c*.
progesterone in, of cocks and nonovulating hens, 5847*f*.
prostigmine in, cholinesterase inhibition in dogs and in myasthenia in relation to, 6733*f*.
proteases of, 9123*a*.
proteases of, differentiation from trypsin, 3915*f*.
protein content and vol. of, in Chinese, 8480*a*.
protein osmotic pressure and d. of, relation between, 7983*i*.
proteins, adrenal cortex hormones and, 3909*g*.
arginine in, 3862*e*.
biophys. studies on, 1855*h*, 5065*a*.
of castrated and testosterone propionate-treated rats, 2303*a*.
in chickens with Rous sarcoma, 752*a*.
conveyance of hormonal I and, 3908*a*
after denaturation by HCHO, viscometric, electrophoretic and immunological study of, 1815*c*.
effect of casein or lactalbumin hydrolyzates on regeneration of, in protein depletion, 8023*b*.
effect of dietary protein on production of, 3500*ce*.
effect of *N*-fluorenylacetamide on, 9216*g*.
effect of hyaluronidase on, 7529*d*.
effect of oral administration of protein on, 1469*c*.
effect on blood coagulation, 5811*h*
electrophoresis in pathophysiology of, 5856*i*.
electrophoresis of, in pneumococcic infections, 2305*g*.
electrophoretic analysis of lamb and sheep, 9204*h*.
equil. factor of, 4303*i*
Evans-blue disappearance from blood stream in relation to, 3871*c*
in fowl and pigeon, 8480*b*
histamine combination with, 7521*b*
in hypothyroidism, 8518*c*.
in hypothyroidism, effect of testosterone propionate on, 5475*a*
interactions with drugs, 5866*g*.
isoelec. points of, in relation to ionic strength, 3860*f*.
liver disturbance and, 9228*h*.
of newborn and premature infants, 3085*i*.
prepn. and properties of, 7466*h*, 5433*c*, 8404*c*.
reaction with thymol, 9093*b*
shift to extravascular space after thermal trauma, 3501*b*
surface areas and heats of absorption of, 2248*b*.
after surgical operations and hemoglobin utilization for their maintenance, 9223*f*.
of swine, 9197*g*
thyroxine attachment to, 2300*a*
in ulcer, 5107*d*
of West Africans, 8039*b*.
proteins in serum and, equil. between, 1813*h*.
proteolytic activity of, in hemophilia, 5106*d*.
proteolytic enzyme in, 708*i*.
proteose from, 2303*i*.
prothrombin in—see *Prothrombin*.
pseudocholinesterase in, thyroid activity and, 7521*i*.
reducing power of, in malignant neoplastic disease, 299*d*.
salicylic acid in, factors affecting, 765*h*, 6311*c*.
sepn. of antibodies, isoagglutinins, prothrombin, plasminogen and β1-lipoprotein into subfractions of, 3925*f*.
sepn. of cholinesterase, mucoprotein and metal-combining protein into subfractions of, 5433*d*.
staphylocoagulation in, of various species, 8001*g*.
sterilization of, 4341*d*.
thromboplastin cofactor in, effect of methylxanthines on prothrombin time and, 9255*e*.
tocopherol in, in pathologic conditions, 7121*i*.
transfusion of, in hemorrhagic shock, 5857*f*.
transfusion of, in nephrogenic hypoproteinemia, 9225*h*.

uranium dioxide or proteinate formation in, 8270*f*.
uric acid in, and its ultrafiltrates, 7111*b*.
vasoactive substances of, 5472*h*.
virus-hemagglutination inhibitor in, 3090*c*.
vitamin A esters in, after intake of vitamin A alc., 289*e*.
vitamin A in human, 9314*c*.
vitamin A in, in relation to clinical and lab. findings, 5458*c*.
vitamin A in, of pigs, carotene and vitamin A of rations in relation to, 9193*b*.
vitamin $B_6$ conjugase in, 7557*d*.
vitamin $B_{12}$ in, effect of estrogens on, 8491*e*.
vitamin C in, compared with blood content as criteria of nutritional status, 5460*a*.
effect of desiccated thyroid and antithyroid agents on, 2317*c*.
nutrition and, 6775*a*.
vitamins A and C in, of ewes and of their lambs, 3496*h*.
vol. of, in circulatory failure of adrenal insufficiency, 5855*g*.
detn. of, 298*f*, 5819*h*.
detn. of changes in, 266*h*.
detn. of purity of Evans Blue in relation to, 8428*d*.
in fever in hypertensive persons, 301*i*.
in shock, measured by radioactive isotopes, 5854*i*.
zinc in, 2301*h*.

**Blood plasma substitutes**, dextran as, 3914*a*, 5502*a*, 8552*f*.

**Blood platelets** (*thrombocytes*). (See also *Thrombopenia*.)
adhesiveness of, in thromboembolism and hemorrhagic disorders, 9227*i*, 9228*b*.
antiserum to, anaphylactoid shock from, 3916*a*.
as blood-coagulation foci, 8512*c*
cobalt effect on, 765*d*
concn. of, heparin and, 1487*e*.
effect of pituitary adrenocorticotropin on, 1474*h*.
effect on Ac-globulin stability in stored plasma, 706*h*.
formation of, 3528*c*.
formation of, effect of digestive juices on, 3085*h*.
in hemorrhagic disease, 5850*h*
prothrombin accelerator and thromboplastin in, 746*c*.
in purpura from estrogens, 1854*e*.
thrombin formation during coagulation of plasma in relation to, 9200*e*.
trypsin effect on, 9242*g*.

**Blood poisoning**. See *Septicemia*

**Blood pressure**. (See also *Blood vessels (circulation.)*
adenosine triphosphate effect on, 2693*e*
in adrenalectomy and splanchnicectomy, 1853*f*.
in adrenal hypertrophy from KCl, 5872*e*
adrenaline effect on, 4374*b*, 6728*f*.
effect of 10 (2-dimethylaminopropyl) phenothiazine on, 320*b*.
after 2-(1-piperidylmethyl)-1,4-benzodioxan administration, effect of work on, 5494*c*.
2-(1-piperidylmethyl)-1,4-benzodioxan effect on dibenamine action on, 5497*g*.
statistical analysis and dosage-response curve in, 5492*f*.
amidine-deriv. effect on, 1868*d*.
ammonia effect on, 1852*d*.
aortic, effect of exercise, drugs and aortic insufficiency on, 4775*h*.
book: and its Disorder, 3926*a*.
cholinesterase in blood in relation to, 1074*a*, 4760*i*.
desoxycorticosterone acetate effect on, 8038*i*.
desoxycorticosterone acetate effect on, of dogs on high NaCl intake, 745*i*.
desoxycorticosterone effect on, urinary output of antidiuretic factor and, 3090*i*.
dihydroergocornine effect on, kidney function and, 3524*f*.
dimethyltubocurarine effect on, 7132*a*.
effect of adrenaline, aludrine and noradrenaline on, 8544*h*.
effect of adrenaline and aludrine on, 4762*i*.
effect of adrenaline and isopropyladrenaline on, effect of ergotamine on, 7576*f*.
effect of adrenaline, arterenol and epinine on, 8542*c*.
effect of adrenaline, dihydroxynorephedrine and noradrenaline on, 5804*h*.
effect of adrenaline, nicotine and adrenergic nervous reflexes on, effect of halogenated ethylamines on, 2320*c*.
effect of adrenolytic drugs on, after administration of sympathomimetic amines, 4769*i*.
effect of basically substituted amides on, 3101*h*.
effect of carbohydrate, protein and salt on, in renal hypertension, 6297*c*.
effect of coramine and metrazole on, 7137*ef*.
effect of intracisternal injection of drugs on, 7130*c*.
effect of methylated nucleosides and purines on, 4635*b*.
effect of 2-methyl 1,4-naphthoquinone and 2-methyl-1,4-naphthohydroquinone and its esters on, with and without vasoconstricting and vasodilating drugs, 9246*h*.
effect of natural and dihydrogenated ergot alkaloids on, 4770*a*.
effect of phenols on, 757*f*.
effect of protocatechualdehyde, protocatechuic acid and vanillin on, 757*h*.
effect of pteroylglutamic acid-displacing agents on, 257*c*.
effect of quinine and quinidine on, in neurogenic hypertension, 2329*h*.
effect of *Serratia marcescens* tumor-necrotizing polysaccharide on, 1866*c*.
effect of tetramethyl- and tetraethylammonium hydroxide on, 6731*c*.
effect of xylocaine homologs and isomers on, 9257*f*.
effect on osmotic pressure of aq. humor, 4750*b*.
in fever in hypertensive patients, 301*h*.
high, from adrenaline, effect of substances which increase capillary resistance on, 4376*b*.
from adrenaline or nicotine, effect of methiodides of homologs of phenylethylmorpholine and phenylethyldiethylamine on, 4376*e*.
from anterior-pituitary prepps., effect of amino acids on, 2685*f*.
antidiuretic hormone in urine in, 8044*b*.
from desoxycorticosterone acetate, effects of adrenalectomy and adrenal cortical ext. on, 7146*d*.
from desoxycorticosterone acetate, kidney in, 5849*e*.
dibenamine effect on, 314*h*.
as disease of adaptation, 6717*a*.
effect of adrenal cortical ext. and desoxycorticosterone on, 8057*d*
effect of rice diet on, 8476*e*
fats in blood serum in, 8522*a*.
hexamethylenetetramine - HCl - vitamine B prepn. for treatment of, P 5157*b*.
of hormonal origin, 6728*c*.
hypertensin in blood of animals with renal, 754*a*.
kidney tubular function in, 9218*e*.
after nephrectomy, 5473*a*.
in nephrosis in children, 6724*b*.
octyl alc. effect on oscillometric values in, 8061*e*.
pentamethonium iodide effect in, 8540*h*.
from pituitary ext., dietary-protein effect on, 8043*e*.
pyruvic acid in blood in, 3093*d*.
and its relation to renal pressor system, 6717*a*.
from renal compression, blood plasma electrolytes in, 3087*e*.
renal, dopa decarboxylase, renin and, 302*b*.
salt-active corticoids in, 8480*g*.
self selection of salt solns. and water in, 5837*h*.
tetraethylammonium compd., cardiovascular effects in, 9266*b*.
thiocyanates and vitamins A and K in treatment of, 8052*b*.
treatment of essential, 6314*h*.
vascular reactivity in, 6320*d*.
histamine effect on, before and after pre treatment with histamine, 9243*e*.
histamine effect on, effect of lergitin on 9258*b*.
-increasing and -lowering agents, antagonism between, in heart, 8056*e*.
-increasing substances—see also *Hypertensin; Pituitary extracts; Pituitrin; Vasopressin*.
-increasing substances, aliphatic amines as, 131*f*.
amino alcs., P 3029*c*.
arterenol and adrenaline as, 1868*b*, 8540*b*.
*N*-benzhydryl-α-(α-methylphenethylamino)acetamide, P 677*f*.
(cyclohexylalkyl)amines, P 1802*d*.
from hemoglobin, 5547*h*.
sulfanilamide salts with amines, P 9389*g*.
of urine, 5840*b*.
in induction of idioventricular rhythms under cyclopropane anesthesia, 1111*e*.
in insanity, 9232*h*.
isopropyl fluophosphate effect on, 4775*c*.
liver-ext. effect on, 5537*b*.
low, cardiovascular effects of certain drugs in, 7147*i*.
-lowering substances, 2-alkyl-1,4-naphthoquinones, P 9085*ef*.
$V^4$-(2-amino-4-hydroxy-6-pteridylmethyl)sulfanilamide, P 8106*b*.
α-(aminomethyl)-*m*-hydroxybenzyl alc., P 5043*d*.
2-aminothiazoles as, 4263*g*.
arterenol derivs., 3388*f*.
(hydroxyphenyl) amino alcs., P 3460*b*.
from *Leonurus tataricus* and *Panzeria lanata*, 5548*g*.
from liver, 2251*h*.
from liver, identity with ferritin, 1855*g*.
long-acting, 6593*h*.
release from plasma globulin by snake venoms and trypsin, 5814*b*.
substance P in blood as, 1071*g*.
in urine, 4754*c*.
vitamin A acetate as, 2293*b*.
low, from hemorrhage, hypertensinogen in blood in, 6305*f*.
morphine effect on, following hemorrhagic hypotension, 7146*f*.
nicotinic acid effect on, 3076*bd*.
nitrite action on, cardio-aortal reflexogenous zone in, 7142*f*.
noradrenaline effect on, 7590*e*.
phenylethylamine *N*-derivs. and, 7585*e*.
regulation of, 2685*a*.
renal venous, effect on renal function, 7115*f*.
retinal, in acetylcholine shock, 6723*a*.
effect of amphetamine, adrenaline and ephedrine on, 6735*a*.
effect of priscol on, 3522*g*
sodium chloride effect on, 2303*f*.
substances affecting, in blood vessels, 4750*c*.
synephrine effect on, after pretreatment with ephedrine, veritol and pervitin, 7137*b*.
tetraethylammonium chloride effect on venous and arterial, in congestive heart failure, 3103*h*.
in thermal injury, 7109*i*.
1,2,6,4*H*-thiadiazine-3,5-diol 1,1-dioxide for control of, P 6674*b*
ustilagin effect on, 9239*g*.
after x-ray irradiation, histamine in blood plasma in relation to, 4308*h*.

**Blood serum**. (See also *Agglutinins; Antibodies; Antitoxins; Blood, analysis; Blood sugar; Complement, Diazo reaction; Flocculation reaction, Hemagglutinins; Hemolysins; Hemolysis; Precipitin reactions; Precipitins, Serological reactions; Serology; Wassermann reaction; Weltmann reaction.*)
acid-base balance of, effect of high blood urea on, 3911*f*.
aging of, ppt. formed during, 8508*d*.
albumin—see *Albumins*.
aldolase in, of tumor-bearing animals, 6724*i*.
in allergy, 9218*i*.
α-amino-*p*-toluenesulfonamide in, after oral and subcutaneous administration, 263*e*.
amylase in, effect of alc. on, 7592*d*.
amylase in, in pancreatic lesion, 8517*h*.
anaphylactic shock from, yohimbine protection against, 300*a*.
anti-blood, cellular reactions in *Haemobartonella* infected rats with anemia produced by, 9221*h*.
antibodies to histoplasmin in, demonstration of, 300*e*.
anticomplementary effect of, Wassermann reaction in atypical pneumonia, liver infections or malaria in relation to, 1856*d*.
anti-conalbumin, and ovalbumin pptn. by, 5857*b*.

antidiphtheria, effect on oxidation of ascorbic acid, 8434*d*.
antidysentery (Shiga), agglutinins in protein fractions of, 7126*e*.
antifibrinolysin concn. from, 8409*g*.
antigonadotropic, 7125*b*.
antigonadotropic, demonstration of antihormonal antibodies in, 304*c*.
antigonococcus factor, and cross absorption experiments therewith, 5083*b*.
antihistamine action of, histamine in, 5495*b*.
antihyaluronidase in, 4310*i*.
anti-influenza, agglutination reactions in detn. of antibody titer of, 7119*g*.
anti-influenza, neutral mixt. with influenza virus, reactivation by virus inactivated by heat, 4757*c*.
antikidney, nephrotoxin of, reaction with kidney, 8524*g*.
anti-Newcastle disease, complement-fixation test applied to, 4760*a*.
antiperfringens, antihyaluronidase in, 7087*a*.
antiphotodynamic action of, effect of vitamins on, 9185*d*.
antiplacenta, kidney damage from, in pregnancy and effect of desoxycorticosterone acetate thereon, 3517*c*.
antiplatelet, anaphylactoid shock from, 3910*a*.
antipoliomyelitis, production of, 4756*b*.
antiprotease of, 6259*g*.
antiproteolytic activity of, 1478*f*.
antiproteolytic reaction of, strain variations in, 7123*g*.
antireticular-cytotoxic, effect in schizophrenia, 8518*e*.
anti Rh, adjuvants in production of, 7575*d*.
anti-Rh, Na azide as preservative for, 270*a*.
antiserums, antibody distribution in, 8515*e*.
to D-glyceraldehyde phosphate dehydrogenase, 1482*e*.
of high potency, P 7576*c*.
radioactive tracers in, 3923*g*.
against receptor-destroying enzyme of *Vibrio cholerae*, 6279*g*.
therapeutic action of, 9237*h*.
antitetanus, tetanus treatment with pentothal Na and, 6729*a*.
arginine in, of various animals, 6720*d*
bactericidal activity of, on Koch's bacillus, effect of vitamin $D_2$ on, 5097*g*
bases in, physiol. variations and normal values of, 7108*c*.
bilirubin in, effect of Na nicotinate on, 9255*i*.
during icterus, 3918*g*.
urine content and, 3913*c*.
book: Repertorium Pharmazeutischer Spezialpräparate, Sera und Impfstoffe, 3570*i*.
butelline esterase and procaine esterase in, 8049*e*.
calcification of cell cultures in presence of, 8409*b*.
calcium and Mg in, of various mammals, 8510*g*, 8511*b*.
calcium and K in, after nicotinamide injection, 1472*b*.
calcium and proteins of, effect on thrombin-fibrinogen reaction, 5472*f*.
calcium in, 8038*b*.
in mammary cancer and osseous metastases, and effect of estrogens and androgens thereon, 8521*g*.
in parathyroid intoxication, 5120*i*.
pptd. by various concns. of $NH_4$ oxalate, significance and clinical application of, 6271*d*.
calcium, Mg and P in, of normal cows and in metabolic disorders, 4737*a*.
calcium, Mg and K in, effect of K administration on, 3496*h*.
calcium, Mg and K in, in diabetic acidosis, 5855*a*.
calcium-K ratio in, diagnostic significance of, 9224*a*.
cell-proliferation accelerating and inhibiting substances in, during pregnancy, 5841*b*.
centrifugation reaction of, compared with other clinical protein reactions, 7569*h*
chloride and Na in, 9199*i*.
cholesterol in, of chickens, 5841*f*.
in hepatitis, 8522*g*.
posterior pituitary lobe and, 4752*g*.
after thyroidectomy, effect of α-naphthylthiourea on, 3931*b*.
in xanthomatous biliary cirrhosis, 3095*f*.
cholesterol partition in, effect of incubation on, 9220*e*.
cholesterol-protein cenapses of, rupture of, 3420*e*.
cholesterol-protein complexes in, 9233*f*.
cholesterol soln. in, 9210*c*.
choline in, seasonal variations in, 5472*d*.
cholinesterase and tributyrinase in, in $CCl_4$ poisoning, 5116*a*.
cholinesterase collapse after bleeding and traumatic shock, 8042*i*.
cholinesterase in, in anaphylactic shock, 4761*b*.
arterial pressure and, 1074*a*.
blood sugar and, 2311*c*.
after chilling, 299*f*.
effect of folic acid on, 3497*a*.
effect of pituitrin on, 1488*c*.
effect of vitamin K, nicotinic acid and bile salts on, 2258*g*.
in hyper- and hypothyroidism and after treatment with thiouracil and derivs., 9245*a*.
in hyperthyroidism, 6722*i*.
insulin hypoglucemia and, 3520*d*.
in kala-azar, 3923*b*.
in labor and childbed in relation to acetylcholine content, and effect of histamine, pituitrin and folliculin thereon, 9201*d*.
in liver damage, 7570*e*.
in normal and adrenalectomized rats, 7102*f*.
in normal and paralytic limbs, 2311*g*.
in pathological conditions, 3092*h*.
in relation to aging and method of preservation, 5435*g*.
in skin diseases, 4362*a*.
in toxemic pregnancy, 3922*g*.
cholinesterase of, structure of, 6678*a*.
chromatography of normal and *Brucella* immune, 9228*i*.
citric acid in, after galactose- and glucose-tolerance tests, 9226*e*.
citric acid in, in Addison's disease, 9226*i*.
clearance of several substances from, simultaneously, 3090*g*.
colloidal state of, effect of vitamin K on, 2294*e*.
colloidal state of, in puerperium and gynecological disturbances, 1102*d*
collod (solid) from, P 7198*a*.
compn. of, during nutritional reconditioning of children, 3498*b*.
congealing of, 6492*a*.
Congo red disappearance from, and action of Periston thereon, 6311*h*.
copper and Fe in, 8520*f*
copper and Fe in, of children, 5475*g*.
copper in, 4309*h*
copper in, in kala azar, 3923*f*.
creatinine in, 7110*g*
in cross fertilization, 776*d*.
despeciated bovine, 5435*e*.
diphenylamine reaction of, 5488*b*.
dry constituent of, app. for obtaining, P 2268*d*.
dry, water sol., as blood substitute, P 1534*d*
eczema treatment with autogenous, protein content and, 3092*d*.
effect on methemoglobin formation after hemolysis, 8484*h*
on proliferation rate of neoplastic cells and bone marrow cells, 262*bc*.
on tuberculostatic compds., 3880*g*.
electrolytes in, removal or replacement of, P 3153*h*.
electrophoresis and ultracentrifugation of lipide-free, 3052*i*.
enzymes in, in perforated peptic ulcer, 8522*b*.
esterase in, in liver disease, 9238*d*.
esterified fatty acids in, 9197*e*.
ether no. of, 3855*f*.
euglobulin and γ-globulin contents of, Ca formol gel reaction and, 4321*a*.
factor inhibiting hemagglutination by influenza virus, and effect of receptor destroying enzyme and influenza virus prepn. on, 7120*i*
fat acids in, in infections, 5857*d*.
in nervous diseases, 5110*f*.
during Vichy cure, 5500*a*.
fat in, in hypertony, 8522*a*.
fibrinolysin of, release by specific antigen, peptone and polysaccharides, 7125*g*.
formol-gel reaction in, 4759*b*.
freezing point of, in normal and undernourished subjects, 3094*a*.
gelatinization of, with fibrinogen, 4760*g*.
globulin—see *Globulins*.
gonadotropin in, inactivation by influenza virus and receptor-destroying enzyme of *Vibrio cholerae*, 1102*b*.
gonadotropin of, enzymic inactivation of, 5060*d*.
hemolytic power of, effect of vitamins on, 6294*c*.
in hemophilia, 4357*a*.
hepatitis, factor agglutinating chicken red cells in old, 8524*c*.
heterologous, effect on fertilized ova, 3086*i*.
hyaluronidase inhibitor in, 4745*i*, 6680*i*, 9151*h*.
of cancer, 3094*g*.
in infectious diseases, 9222*h*.
Mg and, 4711*a*.
mammary cancer and, 2696*i*.
of normal and herpetic rabbit, effect of anaphylaxis on, 3094*i*.
in rheumatic disease, 9234*b*.
hydrochloric acid-collargol reaction of, as specific liver reaction, 8044*h*.
inhibition of influenza hemagglutination by, 1854*g*.
insulin antagonist in, measurement of, 5487*g*.
interfacial tensions of, in relation to flocculation and compn. of lipoprotein complexes, 1823*c*.
iodine in, in psychiatric patients in relation to psychologic tension, 5852*g*
iodine (protein-bound) in, age and, 8511*f*
iodine (protein bound) in, in hyperthyroidism diagnosis, 5854*a*.
iron in, after administration, 6737*i*, 6738*b*.
in allergy process, 5483*h*.
in $CaH_2$ poisoning, 6730*h*
after hypophysectomy, 8032*g*.
in kala-azar, 3923*f*.
during pregnancy, parturition and puerperium, 3913*g*.
in trachea stenoses, 3506*f*.
lability of, in trinitrotoluene poisoning, 6311*d*.
of leprosy and tuberculosis, antibodies pptd. by polysaccharide of tubercle bacillus in, 8515*h*
lipase in, in alloxan diabetes, 9210*a*.
antagonistic action of methylthiouracil to thyroxine action on, 3527*i*
in peritonitis, 8522*h*.
lipide-protein complexes—see also *Lipides*
lipide-protein complexes or lipoproteins, delipidation of, 8420*f*.
in luetic infections, 3920*h*.
ultracentrifugal studies on, 7520*i*.
lipides, 3872*b*.
detn. of I index of, 7539*c*.
effect on psittacosis virus, 717*a*
inhibiting serologic reactions, 4369*e*
in liver disease, 2307*g*.
lysozyme in, in disease, 9217*g*.
magnesium in, temp. and, 9260*f*
mineral constituents of, effect of bile salts on, 2688*b*.
mucoproteins of, hyaluronidase inhibitor and, 9238*c*.
nitrogen and vitamins in, in typhoid fever, 2294*c*.
normal and neoplastic, effect on cell proliferation in bone marrow, 307*a*.
novocaine hydrolysis by, as liver function test in pregnancy, 3922*f*.
oxidation-reduction potential in, 5483*d*
penicillin G in, after administration, 3935*g*.
penicillin in, after administration, 7589*a*
penicillin in, of cattle after administration, 8555*a*.
peptidase in, 4717*b*.
phosphatase in—see *Phosphatases*.
phosphorus in, of children, 4356*e*.
effect of $CaCl_2$ on, 5466*i*.
in osteoporosis, effect of steroid hormones on, 5488*a*.
plasmin and trypsin inhibitor in, 3516*i*
polarimetric changes in, after fractures 5854*b*.
polarographic reactions of, in illness 8042*f*.
polarographic study of, in neoplastic disease, 3514*h*.
polysaccharide and protein content of, in carcinoma sarcoidosis and tuberculosis, 2695*e*.
polysaccharides in, 2685*d*.
in carcinoma and tuberculosis, 1100*a*
in malignancy and other pathological conditions, 9230*c*.
porphyrin in, 6717*f*.
potassium in, effect of diphtheria toxin on, 5484*g*.
potassium in, in diabetic coma, 4369*h*

precipitins in, in histoplasmosis and blastomycosis, 752*c*.
in pregnancy, effect of hypertensin on oxytocin inactivation by, 3482*h*.
effect of hyperthyroidism and hypothyroidism on response to, 8492*b*.
effect on uterus cultures, 3083*d*.
protein fractions of, in inflammations, 8517*e*.
protein fractions of, Wassermann reagin in, 9219*d*.
protein index in, 9216*f*.
proteins, 265*f*, 746*h*, 2071*i*, 6297*f*, 9206*g*.
acetic acid effect on, 6261*h*.
adsorption of thiocyanate on trichloroacetic acid ppts. of, 6682*a*.
antibody distribution among, 3920*a*.
bilirubin stabilization by, 4710*i*.
biuret colorimetry of, 7524*h*.
in blood dyscrasias, 4758*a*.
in cancer, 8047*h*.
during carcinogenesis due to azo dyes, 4370*c*.
in catatonia, 3925*a*.
effect of adrenaline, elec. shock and insulin shock on, in mental disorders, 3924*d*.
effect of ultrasonic waves on, 5433*h*.
electrophoresis of, 2293*g*, 5487*h*, 6691*f*, 8034*e*, 9204*h*.
fixation of Ca and Na fluoresceinates by, 8049*f*.
of fowls, effect of adrenal-cortical ext. on, 5471*d*.
fractionation of, 1855*h*, 3486*a*, 4316*f*, 6602*f*.
gelation of, 3857*f*.
in glomerulonephritis, effect of protein consumption on, 2697*b*.
in gout, 4761*e*.
in hepatitis, 2308*h*, 2696*g*.
hypochlorite effect on, in healthy subjects and in edema, 8408*d*.
in *Leishmania donovani* infection, 4757*b*.
in liver diseases, 3096*a*.
in liver insufficiency, 7125*a*
macromol. chemistry of, 3480*g*
in mothers and young during pregnancy and lactation, 4744*e*.
of normal, tumor bearing and immunized chickens, 1477*d*.
origin of, 8523*a*.
pptn. with Congo blue and Congo violet, 9236*c*.
in pregnancy, 9209*e*
prepn. and properties of, 3925*f*, 5433*f*, 8401*c*.
in protein deficiency, 3076*i*, 7570*e*
in senility, 8513*h*
sulfadiazine binding by, 4308*b*
in sulfonamide distribution in body, 5112*f*.
surface areas and heats of absorption of, 2248*b*.
synthobulin effect on, 7587*h*.
thermal coagulation of, in cancer and effect of iodoacetate thereon 4308*h*.
in typhus fever, 2304*c*, 5857*c*.
proteins in plasma and, equil. between, 1813*h*.
proteolytic enzyme inhibitors of, in health and disease, 6676*c*
prothrombin-conversion accelerator in, 7103*d*.
pseudocholinesterase and tributyrinase in, effect of diisopropyl fluophosphate on, 5116*c*.
pseudocholinesterase in, effect of sulfonamides and *p*-aminobenzoic acid on, 1484*h*.
reducing power of, in malignant neoplastic disease, 299*d*.
reduction by, in malignant disease, 303*c*.
respiration of *Salmonella* in presence of normal and agglutinating, 271*d*.
sepn. from blood, silicone treated test tubes in, 6689*i*.
sickness, 3513*b*.
heterogenetic hapten reacting with hemagglutinins in, 3092*g*.
nicotinamide in therapy of, 1864*a*.
silica in, at various ages, 8514*b*.
sodium in, after cerebral concussion, 5111*g*.
sodium in, significance of, 8481*i*.
streptomycin in, after administration, 7589*e*.
surface tension of, 712*b*.
thrombin inactivation by, effect of heparin and histamine on, 296*g*.
thrombin inactivation by, effect of toluidine blue or thrombokinase on, 3081*b*.
thymol test of Maclagan, 7072*i*.
thyrotropic hormone in, in thyrotoxicosis, malignant exophthalmos and myxedema, 7119*f*.
uranium (quadrivalent) in, 8270*f*.
urea in, after thyroidectomy, 7569*e*.
urea in, protein consumption and, 6710*h*.
after vaccination against hoof-and-mouth disease, 3512*i*.
vasoconstrictor from, 742*h*, 2259*c*.
vasoconstrictor from, enzymic inactivation of, 1075*i*.
vitamin $B_2$ in diet and, 265*f*.
vitamin E in, of mother and fetus, 1851*d*.
x-irradiated, pharmacol. reactions of, 5861*i*.

**Blood substitutes**, dehydrated water-sol. serum, P 1534*d*.
Periston as, 8530*f*.

**Blood sugar**. (See also *Diabetes; D-Glucose; Glycemia; Hypoglycemia;* and "carbohydrate" under *Metabolism, animal*.)
acetoacetate effect on, 3928*a*.
in Addison's disease, 1480*b*.
adrenaline effect on, 6728*f*.
effect of desoxycorticosterone acetate on, 8496*i*.
in liver disease and in normal subjects, 4761*b*.
after adrenaline injection and under low barometric pressure, 2691*c*.
in air-blast injuries, 8521*e*.
in alcoholism, 2330*c*.
in alloxan diabetes, effect of methylene blue on, 5498*h*.
alloxan effect on, 1482*c*.
altitude and, 3503*i*, 8033*a*, 8484*d*.
analysis for—see *Blood, analysis*.
in anoxia, 2302*i*.
in anoxia during acclimatization to high altitudes, 2691*g*
antibody response in diabetes in relation to, 4759*h*.
arterio-venous differences in, 8038*f*.
arterio-venous differences in, effect of insulin and glucose on, 9204*d*
carbonate metabolism between lactate, liver glycogen and, 7995*g*
cerebrospinal glucose and, 7102*d*.
chloremia and, 1111*c*.
cholinesterase in blood serum in relation to, 2311*c*.
copper sulfate effect on, 3523*i*.
of cows, 4737*a*.
after death, 9210*f*.
in diabetic coma, 9224*d*.
diastase content of blood and, 3505*a*
1,4′ - dihydroxydiethylstilbene sulfate effect on, 4378*a*.
effect of adrenaline and insulin on, after splanchnicectomy and adrenalectomy, 1853*f*.
effect of adrenaline, arterenol and epinine on, 8542*c*
effect of alloxan and cysteine on, 4378*d*
effect of liver blood on, and effect of liver passage on adrenaline and insulin action on, 4360*a*.
effect of lymph returning from head after stasis on, 5846*b*.
effect of vitamin $B_1$ and insulin on, 1472*d*
effect on adrenal-cortex secretion, 7117*a*.
on gluconeogenesis by kidney, 6305*a*.
on insulin secretion, 7145*c*.
electroconvulsive treatment and, 3924*g*.
of embryo and mother during normal birth and prolonged parturition, 8030*i*.
ephedrine effect on, in chick embryos, 5868*i*.
in epileptics, 305*c*.
in hay fever during acute shock, 7125*f*
histamine effect on, of sensitized and normal mice, 8518*g*.
hypnotic effect on, 8055*h*.
in kidney diseases, 8517*c*.
-lowering substances—see also *Insulin*
-lowering substances, 8558*h*.
-lowering substances contg. insulin and polyvinylpyrrolidone, P 6791*g*.
in mental disorders, effect of adrenaline, elec. shock, and insulin shock on, 3924*d*.
nicotinamide effect on, 736*b*.
nicotinamide effect on, in diabetic and normal subjects, 4383*g*.
nicotinic acid effect on, during hepatitis, 7126*b*.
nicotinic acid effect on, of diabetic and normal rabbits, 8470*c*.
in osteopetrosis (hereditary), 1482*h*.
pancreatic factor affecting, origin and distribution of, 744*d*.
after pancreatoduodenectomy, 1476*h*.
in paradiabetes, 1856*a*.
in parturition and milk fever, 7119*i*.
regulation of, 2693*c*.
autonomic innervation of heart in, 9199*g*.
central nervous system in, 7115*b*.
in crustaceans, 8560*c*.
environment and, 9201*a*.
after gastric operations, 5108*e*.
glycogen in liver in relation to, 3085*b*.
in hypoproteinemia, 7563*f*.
kidneys in, 1097*hi*, 5470*d*.
saccharin effect on, 315*b*.
in scarlet fever, 2697*g*.
after sense stimulations, 5847*h*.
in skin diseases, 4362*a*.
in suppurative processes, 2312*b*.
after surgery, 6300*f*.
tryptophan effect on, 320*i*, 8063*f*.
in tuberculous meningitis and in normal children in relation to cerebrospinal fluid sugar, 8041*h*.
in typhus fever, effect of glucose and nicotinamide on, 1472*b*.
in typhus fever of children, 2313*d*.
on vitamin $B_1$ deficient diet, 294*a*.
vitamin $B_2$ effect on, 1113*h*.
vitamin K effect on, 8479*g*.

**Blood vessels**. (See also *Arteries; Blood pressure; Capillary vessels; Circulation; Veins*.)
acetylcholine-antagonist effect on, 2704*g*.
acetylcholine effect on, effect of parpanit, atropine and tetraethylammonium on, 7134*a*.
adenosine triphosphate effect on, 2693*c*.
adenosine triphosphate effect on, and effect of acetylcholine thereon, 8482*b*.
adrenaline effect on, potentiation by amidine derivs., 1868*d*.
adrenaline sensitivity of, $CO_2$ and, 9201*g*.
adrenoxyl effect on, 5117*h*.
amine effect on, 5493*c*.
amino-alc. effect on, after pretreatment with ergotamine, 3028*e*.
*Ammi visnaga* action on, 5542*ei*.
anaphylactic hypersensitive lesions of, effect of salicylates and benadryl on, 3523*b*.
antimony-compd. effect on, 2316*g*.
antisclerotic prepn. contg. vitamin $B_1$ and $MgSO_4$ or NaI, 1157*b*.
benzodioxan and, 5864*g*.
bis(2-chloroethyl) sulfide effect on, 5403*i*, 8054*a*.
blood distribution in large and small, in shock, measured by radioactive isotopes, 5854*i*.
book: Peripheral Vascular Diseases, 4371*g*.
brain, contrast media for cerebral angiography in relation to injury to, 8418*g*.
in carbon monoxide poisoning, 5494*h*.
cation effect on tone of, 5115*i*.
cerebral and meningeal, pathological physiology of, 9235*a*.
clots in—see *Embolus*.
cold effect on, 5053*b*.
-constricting and -dilating substances, effect on epileptic convulsions from elec. shock, 2327*g*.
-constricting and -dilating substances, effect on pulmonary circulation, 9247*i*.
-constricting impulses, chem. transmission of, 8538*f*.
-constricting substances—see also *Serotonin*.
-constricting substances, amine salts, P 4429*d*.
α - (1 - aminopropyl)protocatechuyl alc., P 4696*e*.
biphenyl derivs., 1359*g*.
of blood and blood serum, 742*i*.
from blood serum, 2259*c*.
from blood serum, enzymic inactivation of, 1075*i*.
1 - (1 - cyclohexen - 1 - yl) - 2 - oxocyclohexanepropionic acid for manuf. of, P 6230*g*.
disinfectant, P 9388*g*.
hypertensin and, 302*e*.
2 - methyl - 2 - imidazoline derivs., P 2238*f*.
$N^1$ - (5 - methyl - 1,3,4 - thiadiazol-2 - yl)sulfanilamide derivs., P 6661*a*.
penicillin prepn. contg., P 9390*c*.
constriction of, by adrenaline, 1107*b*.
by fuchsin and methyl violet, 1488*f*.
in lungs from $CO_2$, 5113*a*.
in O deficiency, effect of adrenergic blocking agents on, 1109*i*.
*Crataegus*-ext. effect on, 8558*c*.

damage to, in dysentery and its prevention, 6302*d*.
-depressing factors in cirrhosis, 4363*i*.
depressor and pressor substances in, 4750*c*.
-dilating substances, *N*-isopropylnorephedrine as, 7582*c*.
from *Panzeria lanata* and *Leonurus tataricus*, 5548*g*.
3-pyridylmethyl acetate, P 8105*g*.
dilation of, by ephedrine, isoamyl nitrite, $NaNO_2$ and nitroglycerin, 758*i*.
disease of heart and, vitamin E in treatment of, 6296*d*.
diseases of peripheral, radioactive isotopes in study of, 6723*b*.
disturbances of, nucleotide prepn. for use in treatment of, P 6372*b*.
drug effect on, in hypotension, 7147*i*.
effect of adrenaline and noradrenaline on, of lungs, 4375*e*.
effect of aranthol, ephedrine and octin on, 8546*c*.
effect of citral and β-ionone on, 1488*h*.
effect of 2 methyl-1,4-naphthoquinone, 2-methyl - 1,4 - naphthohydroquinone and its esters on, 9246*g*
effect of tetramethyl- and tetraethylammonium hydroxide on, 6731*c*.
-exciting agents from kidneys, 2686*f*
granular-material adsorption by epithelium of, histamine and, 5854*b*.
granulopexy of endothelium of, histamine and, 3916*g*.
-heart reflexes, tetraethylammonium as aid in study of, 6744*e*.
hemostasis in peripheral, 754*i*.
hepatorenal vasotropic factors in cirrhosis, 4363*i*.
in lead poisoning, 9297*f*.
meperidine effect on, 8552*i*.
nicotine effect on, 757*d*, 760*h*.
nicotinic acid effect on, 3076*bd*.
nicotinic acid effect on, sex and, 3496*i*.
phenergan effect on, 7584*d*.
procaine effect on, and on their reaction to anoxemia, 4767*i*.
reactivity of, in normal and hypertensive dogs, 6320*d*.
refractoriness of, produced by benadryl and BAL, 6320*a*.
substances acting on, in blood plasma, 5472*h*.
cancer therapy with, 8059*i*.
pharmacology and chemistry of, 5862*f*.
physiol. action of, 5863*e*.
sympathetic vasomotor innervation of the skin, 8503*i*.
tetraethylammonium compd. effect on, 9266*b*.
thiobarbiturate toxicity to, 4768*f*.
of uterus, effect of ecbolics on, 9264*b*.
Valsalva expt., 6738*c*.

**Blowers**, for decarburization of steel, P 7404*a*.
for rotary-drum vacuum filters, 8213*e*

**Blowflies**. (See also *Calliphora erythrocephala; Lucilia*.)
control with DDT sprays dispersed from aircraft, 3139*d*
tarsal receptors of, stimulation by aldehydes and ketones, 4778*d*.
tarsal-receptor stimulation in, by glycols and their polymers, 2358*c*.

**Blowpipes**, micro-, 5233*f*.

**Blubber**, oils of - see *Oils*.

**Blueberries**. (See also *Vaccinium; Whortleberries*.)
*Lecanium* control on, 1524*h*.
magnesium deficiency of, 9313*c*.
mummy-berry control on, 5143*g*.
soil management under, 1134*c*.

**Blueberry maggot**. See *Rhagoletis pomonella*.

**Blue grass**. See "blue" and "Kentucky blue" under *Grasses*.

**Blue powder**. See *Zinc*.

**Blueprints**. (See also *Diazotype process*.)
guanidine sulfate for use in manuf. of, P 4292*g*.
marking compn. for, P 6099*f*.

**Bluing**, laundry, 411*a*, 9493*d*.
ultramarine-contg soap, P 5614*e*

**Bochvar, A. M.**, obituary, 7761*d*

**Boconize**, for mothproofing, 6356*c*.

**Body, animal**. See *Animal organism*.

**Body, human**. See *Animal organism*

**Body fluids**. (See also *Ascitic fluid; Blood; Urine;* etc.; such headings as *Potassium, analysis;* and "detn." under specific substances such as *Urea*.)
available, in Chinese, 8480*a*.
in circulatory failure of adrenal insufficiency, 5855*g*.
corrosion of metal plates by, 1303*f*.
deuterium oxide and thiocyanate spaces in protein depletion, 7099*b*.
dihydrostreptomycin distribution in, 3519*a*.
in dysentery toxemia, 6302*c*.
exchange of, effect of NaCl intake on, 2303*c*.
extracellular and intracellular, in muscle during starvation and dehydration, 9190*i*.
extracellular and intracellular, in tissue during water diuresis in normal and hypoproteinemic animals, 3919*c*.
extracellular, in nutritional hypoproteinemia, 3890*g*.
filtration and absorption in forearm, effect of local cooling on, 8039*c*.
fluorescein distribution in, after injection, 5858*d*.
formaldehyde and MeOH in, 5468*g*.
hyaluronidase in, of normal and diseased subjects, 1478*d*.
inorg compn. of, of fresh water and terrestrial invertebrates, 4388*d*.
inulin space as measure of extracellular, 7117*a*.
movements of, in liver disease, 5855*e*.
phosphorus uptake from, by nematode parasites, 9269*h*.
potassium and Na transfer between cells and, 8482*i*.
potassium homeostasis in extracellular, during removal by vivodialysis, 6268*a*.
during protein depletion, and effect of choline thereon, 8478*b*.
of serous cavities, chloride and Na in, 9199*i*.
tonicity and vol. of, in salt-depletion shock, 6726*i*
uric acid like chromogen in, 7111*i*
vol. of, detn. of changes in, 266*h*.
vol. of extracellular, 730*h*.
vol. of extracellular, detn. of, 7572*i*.

**Body heat**. See *Body temperature*.

**Body temperature**. (See also *Fever; Heat*.)
adrenaline effect on, skin in, 5480*i*.
cold effect on, of infant rats, 4754*e*
effect of actedron and thyroxine on, 7133*f*.
effect of autolyzed yeast, nucleic acid and related substances on, 5867*b*.
effect of 2,3 dimercapto-1 propanol and its glucoside on, 1377*a*
effect of pethidine HCl, atropine sulfate, benadryl and quinidine-HCl on, before and after adrenalectomy, 1868*i*.
effect of sprinkling on, of cow., 6775*b*
ergotoxine effect on, age and, 2692*h*
ergotoxine effect on, O consumption and, 5871*d*.
hypoxia and O consumption in relation to, 5480*e*
in insanity, 9232*h*.
low, O poisoning and, 5871*e*.
nicotine effect on, 757*d*
regulation of, in hibernating hamsters, 8563*a*.
hormonal factors in, 8507*i*.
by hormones in cold environment, effect of methylthiouracil on, 9244*b*.
in poikilothermic animals, 2333*a*.
vitamin C and, 736*c*.
sympathomimetic amines and, 7141*h*.
threshold for thermal polypnea, effect of 2,4 dinitrophenol on, 2321*a*.

**Body weight**. (See also *Growth*.)
amino acid effect on, during growth, 6295*i*.
*p*-aminobenzoic acid effect on, 7578*i*.
of chicks receiving pteroylglutamic acid, liver wt. in relation to, 2297*e*.
effect of estrogen alone and with testosterone on, 3089*i*.
effect of gluconic acid and vitamin C on, 9182*e*.
effect of hypophyseal growth hormone on, dietary protein effect on, 7561*a*.
effect of intramine, α-naphthylisothiocyanate and rhodanine on, 7136*g*.
effect of testosterone propionate and growth hormone on, 3089*d*.
growth hormone effect on, 8487*b*.
after hypophysectomy, diet and, 8468*h*.
steroid effect on, 3088*g*, 8512*b*.
testosterone propionate effect on, of castrated rats during recovery from fasting, 3090*d*.

**Boehmite**, formation of, 975*h*.
isoelec. point of, 6041*a*
from nepheline pegmatites of Vishnevye Mts., Mid Ural, 2807*c*.
precipitation from $NaAlO_2$ solns., 55*f*.

**Boiler plate**, standards of A.S.T.M. for, 4202*bd*.
tensile-test specifications for, 88*g*.

**Boilers**, cleaning of, 9307*a*.
cleaning of, boiler-water conditioning and, 6766*b*.
coating with asbestos, 7608*a*.
combustion gases from, heat-exchange app. for preheating air with, P 6874*f*.
corrosion in high-pressure, 3546*c*.
corrosion of, 2150*g*, 6138*i*.
effect of Cu and Fe oxide deposits on, 4905*g*.
by inhibited HCl, 1305*h*
prevention of, 3546*b*, 4623*d*.
station design and material compn in, 335*f*.
by $H_2O$ contg. NaCl, 6141*i*.
corrosion of heating surfaces of, 1305*g*, 4622*f*.
defect detection in, 8215*h*.
deposits (fireside) in oil-fired, 8646*e*.
deposits on external heating surfaces and corrosion of, 6808*bs*.
deposits on external heating surfaces of, and coatings for its prevention, 6392*c*, 8584*d*.
drains for, to speed up chem. cleaning, 2345*i*.
firing of—see *Firing*.
foaming in—see *Foaming*.
fuels for —see *Fuels*.
furnace —see *Furnaces*.
glazes for brickwork in, 5561*f*.
lab., 5236*a*.
operation of, with wood waste from pulp and paper industry, 3612*i*.
priming in—see *Foaming*
refractories for, standards for, 1797, 4785*f*.
slag from, uses of, 2911*c*.
for sugar factories, automatic app for, 6845*f*.
waste heat, in gas works, 837*i*.
water treatment for—see *Water, purification of*.

**Boiler scale** (See also *Scale*.)
analysis of, and related compds., spectroscope in, 3309*i*.
analysis of phosphate contg., for Al, Ca, Fe and Mg, 7866*e*.
compn. of, 4401*h*.
mineral compn. and synthesis in, 1605*h*
prevention of —see also *Water, purification of*.
prevention of, 6138*h*.
prevention of, app. for, P 509*g*, P 5140*i*
in waste-heat boiler, 837*c*.

**Boiler tubes**, corrosion by $CO_2$ in condensate in petroleum refineries, 6401*a*
standards of A.S.T.M. for Fe and steel 4202*bc*.

**Boiler water**. See *Water, analysis, Water potable and industrial; Water, purification of*.

**Boiling points**. (See also *Trouton's constant*.)
calcn. of, 8776*e*.
calcn. of, of hydrocarbon mixts., 2758
calcn. of, of liquids, 8775*g*.
chem. constitution and, 9023*b*.
chem constitution and, of alkyl naphthalenes and 1,2,3,4-tetrahydronaphthalenes, 1370*e*.
elevations of sugar solns., relation concn., pressure and per cent purity 5979*c*.
equil. vaporization consts. and, of hydrocarbon oils, 8658*c*.
heat of vaporization and, 3276*b*.
homology and, of esters of hydracryl acid, 4639*h*.
lowering of, by lewisite isomers, 917*a*.
measurement of elevation of, in mol. wt. detns., stabilization in, 1087*c*.
measurement of, of pseudocumidine + FD&C Red No. 1, 7231*b*.
measurement of, of wines, 7188*i*.
nomograph for, of $C_6H_6$-toluene-xylene mixts., 2050*f*.

**Boils**. See *Furunculosis*.

**Boivin, André**, obituary, 6875*c*.

**Boldine**, effect on tropokinesis in ameba meristems, 4346*i*.
mitoclasic action of, 6704*d*.

**Boldyrev, Anatolii Kapitonovich**, obituary, 5649*g*.

**Boletus, *luteus* and *variegatus***, effect of branching of pine rootlets, 3891*a*.

**Boll weevil and(or) Anthonomus grandis**
control of, 2729*h*, 3137*b*, 6775*b*, 7183*d*, 9329*g*, 9330*d*.
diluents in control of, 1142*h*.

**Bollworm**. See *Heliothis armigera*.

**Bolometers**, effect of α-ray bombardment on superconducting, 8851*a*.
effect of current on superconducting, in transition region, 2044*c*.
infrared sensitivity of superconducting, 493*g*.
**Bolts**, standards of A.S.T.M. for steel, 4202*f*.
**Bolus alba**. See *Kaolin*.
**Bombill**, compn. and nutritive value of, 782*c*.
**Bombs**. (See also *Atomic bombs*.)
aerosol, dispersal of triethylene glycol vapor with, 4405*i*.
with dye filler fluorescing when moist, 8139*a*.
incendiary, Napalm for, 8180*a*.
incendiary, powder for extinguishing fires from, P 5594*c*.
**Bombyx mori**. See *Silkworms*.
**Bonderization**, of aluminum, 7237*e*.
**Bonds**. (See also *Chelation; Double bonds; Molecular association; Triple bonds, Valency*.)
addn. to multiple, spatial orientation and, 8824*f*.
in alkali metal and H halides, 8762*i*.
alkali-sensitive, in irradiated cellulose, 6407*i*.
angle—see *Valency*.
in arsenical Ni ores, valency of Ni and nature of, 4167*g*.
bipyramidal pentacovalent, orbitals, 4526*h*.
branching and cross-linking of, in polybutadiene, 8725*c*.
breaking of, by recoil energy of atom in nuclear reactions, 7332*h*.
calcn. of unsatd., in lubricating oils, 2417*e*.
between carbon and other elements, free-radical formation by breaking of, 1230*h*.
carbon$^{-2}$ C$^{12}$ and C$^{12}$-C$^{14}$, rupture of, in decarboxylation of labeled malonic acids, 7333*b*.
carbon C, in benzyl, resonance energy of benzyl radical, 5306*f*
energies of, 453*a*, 5387*e*, 6496*c*.
in ethylbenzene, energy of, 8250*e*.
geometric approach to theory of, 8844*a*.
in glycols, fission of, 7418*h*.
isotope effect on rupture of, 2862*d*, 5299*b*.
rupture of, steric effects and, 6968*f*.
scission of, 7434*c*.
carbon Cl and C-H, in $CH_3Cl$, character of, 8275*f*
carbon-Cu, stability of, 8910*i*.
carbon F, 7851*h*.
carbon F, force const. and spectrum of, 2865*h*.
carbon halogen, velocity of hydrolysis of, 128*i*.
carbon, heat of dissocn. of, 6479*c*.
carbon H, C-N, N-H and N-N in dimethylhydrazines, 1314*c*.
carbon H, dipole moment of, in $C_6H_6$ derivs., 3714*h*.
exchange of H for D in, 5011*d*.
force consts. of, 6895*a*.
force consts. of, relation to HCH angle for CH radical, $C_2H_6$, $C_2H_4$ and $C_2H_2$, 4059*b*.
in hydrocarbons, reaction rates with Cl, 5270*b*.
in $CH_2$ radical, 5241*h*.
oxidation of, in $C_4$ hydrocarbons, 1309*d*.
polarity of, 3252*b*.
carbon-I and C-Mg, strength in reaction MeMgI + $I_2$, 991*g*.
carbon-Hg, in org. compds of Hg, 5004*b*.
carbon monoxide dissocn. and, 2830*i*.
carbon-N, 2679*d*.
in pyridinium compds., 4671*d*.
racemization and, of *N*,2,4-trimethylsuccinanilic acid 6-derivs., 1345*h*.
carbon-O, 6627*a*.
energy of, 6524*g*.
stability of, in photooxides, 5313*a*.
carbon, properties of, 5241*g*.
carbon-Si, 562*g*.
carbon-S, cleavage of, 2178*c*.
in carbonyl group of aldehydes and ketones, 7413*f*.
catalytic transformation of, 7899*b*.
cellulose-lignin, supersonic vibrations in breaking of, P 404*i*.
classification of types of, kinetics of isotopic exchange and, 6894*d*.
in compds. with marcasite and pyrite structures, 2052*c*.
covalent, theory of, 1621*i*.
cross-linkage formation, in animal fibers by 3,4-isopropylidene-1,2,5,6-dianhydromannitol, 8141*i*.
in Buna-S vulcanization, 2009*c*.
in gutta-percha in vulcanization, crystn. reduction by, 7739*c*, 8728*h*.
between macromols. in rubber recovery, 7738*i*.
in nitrile group-contg. rubbers, 2461*f*.
in polybutadiene popcorn formation, 1598*b*.
in polysulfide rubbers, cold flow and changes in relaxation rate by, 2013*b*.
in producing weather-resistant films, 7717*i*.
in rubbers on aging, creep and stress relaxation in relation to, 2013*d*.
in vinyl polymers, 7406*h*.
in viscose rayon finishing with resins, 853*a*.
during vulcanization by S, tensile properties and, 7250*f*.
in wool, 9457*e*.
cross-linked, formation and scission of, in heat-aged GR-S rubber in presence of chemicals, 8188*f*.
cross-linking degree, in rubber vulcanized by azodicarboxylates, tensile strength and elastic properties in relation to, 8730*b*.
crystal structure and, 8231*f*
in cyclic compds., molar sound velocity and molar refraction increments for, 4532*c*.
dissocn. energies in $MX_n$-type mols., 5242*h*.
dissocn. energies of methyl-Cd and $CH_3$-I, 4939*e*.
energy and ionic character of H and alkali metal halide, 8763*a*.
energy, length and order in graphite crystals and crystallites, 2484*bd*.
energy or strength of, adhesion tension and, 7777*b*.
of Al with Al, Al with Ni and Ni with Ni, 6031*b*.
of anions in Co ammines, 2856*b*
of Sb, As, Bi, N and P, 5240*g*.
calcn. of, 8764*b*.
of C, 4527*e*.
of carbonyl compds., 452*h*
of hydrocarbons, 452*f*, 6016*b*, 2052*g*.
of mols. of form $AB_3$, 6895*f*.
of oxygen with Si, 7794*g*.
of phosphates, effect on nucleic acid stability in tumor homogenates, 5856*d*.
in phys. chemistry, definitions of, 10*c*.
in quinonoid compds., 4954*h*.
energy or strength of covalent, of metals, 5242*b*
entropy of, regularities in, 475*i*.
force consts. of $CH_4$ and $CHD_3$ and distortion of bond-forming orbitals and effect on mol. vibrations, 5242*eg*.
force consts. of, of benzene and its deuterium derivs., 5306*a*.
calcn. of, and values for $H_2O$-$D_2O$ and $C_2H_6$-$C_2D_6$, 6478*i*.
of C with Cl, 2478*i*.
of C:O, in MeCOCl and MeCOSH, 8882*e*
in $Me_3SiCl$, 42*h*.
of diat. mols., 2510*b*.
of $CdMe_2$, 8882*h*.
with partial ionic character, effect of solvation on, 6876*i*.
of $P_4O_8$, $P_4O_{10}$ and $P_4O_6S_4$, 6015*h*.
soln. of secular equation of second degree giving, 7820*f*.
in sulfate ion, elec. field and, 5301*i*.
in $C_2Cl_6$, 7342*g*.
in $GeHCl_3$, 5321*f*.
in unsatd. hydrocarbons, 6512*f*.
variation in, 4527*h*.
vibration of long chain of $CH_2$ groups and, 7822*d*.
forces—see *Forces*.
formation of unstable, catalytic activity and, 8251*f*.
free energies in org. compds., 3276*f*.
heat of dissocn. of, 1250*c*.
-hybridization changes from nuclear displacements and interaction terms, 8221*c*.
hybridization of bonding orbitals in octahedral $XY_3$ mols., 5651*b*.
hydrogen, 3071*g*, 8220*h*.
in acetone mixts. with nitro-cellulose, 4928*g*.
*hydrogen*, in adsorption by bauxite, 6497*g*
in aminopyrimidines, 6487*f*.
between $PhNH_2$ or PhNHMe and *p*-dioxane, 7438*e*.
in carboxylic and sulfinic acids, 7454*d*.
in cellulose chains in amorphous regions of rayon, 3202*g*.
in contraction and permanent set of wool, 5955*h*.
in crystals, 8783*c*.
in *o*-derivs. of PhOH, 7300*h*.
dielec. consts. of substances with, 4529*i*.
effect on spectrum of carboxyl group, 3713*h*.
effect on stability of flavanones, 5396*b*.
in Et *p*-cymenecarboxylates, 1351*e*.
formation at peptide links in tanning, modified lignosulfonates in, 7732*h*.
formation between dihydric phenols and collagen, 7736*b*.
formation of, by benzene derivs. adsorbed on vitreous $SiO_2$ gel, 7344*a*.
formation of, effect on spectra of hydroxyl group-contg. quinones, 2094*c*.
formation with OH groups in silicic acid-Celite mixts. in adsorption of centralite and 4-nitrotriphenylamine, 8946*b*.
in 4-glycosidamino derivs. of pyrimidines, 3422*i*.
in hardening of polycondensation resins, 4509*e*.
intermol. reactions and, 1243*a*.
in keratin, 2810*e*.
in methylenediphenols, P 4698*h*.
in methyl salicylate, 2868*f*.
mol. assocn. and, 107*a*.
mol. assocn. and viscosity in relation to, 2059*f*.
mol. interactions in solns. and, 2490*g*.
mol. refraction and, 604*g*.
in *o*-nitrophenol and salicylic acid, 8766*a*.
in org. compds., elec. moments and, 6020*g*.
org.-liquid penetration and solvation of rayon in relation to, 2777*f*.
overpotential and, 48*a*.
of 2,4-pentanedione and its derivs., 7343*c*.
in peonol, 1350*d*.
in $KHF_2$, 8763*d*.
properties of solns. and, 7298*i*.
in quinhydrone, 452*a*.
Raman spectra of higher alcs. and, 7345*f*.
in salicylaldehyde and derivs., 943*d*.
in salicylic acid, 8899*c*.
spectra of mols. assocd. with, 7340*d*.
in 4-substituted cyclohexanols, 6174*b*.
swelling of wood in org. liquids and, 8763*c*
thermodynamics of, 8765*h*.
in $H_2O$, strength of, 4527*c*.
hydrogen (bifurcated) in α-$HIO_3$, 6479*b*.
hydrogen-N, in $NH_3$, dissocn. energy of, 7797*i*.
hydrogen S, in sulfinic acids, 5245*g*.
interat. distances for—see *Crystal structure; Ions, electrolytic; Molecules*.
intercorpuscular, quantum mechanics and, 3072*b*.
intramol., in aromatic mols., 4627*d*.
in ionic crystals, 8762*g*.
in iron silicides and related crystals, 918*i*.
length of—see "distance between atoms in" under *Molecules*.
in manganese dioxide, 4059*f*.
in metalloids, 2051*i*.
moments of, calcn. by quantum mechanics, 5240*h*.
nature of chem., in aromatic compds., review on, 6174*e*.
in N compds., 5013*f*.
nitrogen-O, without mesomerism, 6016*b*.
nitrogen-Si, in silazanes, refraction of, 1316*d*.
nitrogen-S, elec. moment of, 5241*a*.
nomograph for percentage of ionic character of, 5240*b*
order and other criteria of double-bond character, 5240*d*.
order or index, of azulene, 2831*f*, 7340*b*.
for conjugated hydrocarbons contg. a triple bond, 4570*a*.
electron residual affinity and, 6512*c*.
in 4-methylthiazole, 5777*b*.
of N-$C_6H_5$ bond in dimethylaniline derivs., 6919*a*.

*order or index*, in nonbenzenoid hydrocarbons, 5650*i*.
of *p*-quinodimethane, 5759*d*.
in unsatd. mols., 6512*c*.
orders and polarity of, detn. of, 2479*e*.
in oriented overgrowths of org. substances on inorg. carrier lattices, 4918*a*.
overlay integrals and, 7762*f*.
peptide, formation of, 5403*i*.
phenyl-carbon-phenyl angle in 1,1-diphenylcyclopropane, 155*b*.
in phosphorus mol., 7276*f*.
polarizabilities of, and bond refractions in alkanes, 5242*i*.
in polymers, 9455*d*.
properties, 1230*f*.
quantum mechanics of, 8763*i*.
quantum theory and, 5659*c*.
in α-quartz, 6881*b*.
in rare earth hydrides, 2883*a*.
resonating-valence-, theory of metals, 8764*a*.
review on, 3672*g*.
rotation around single, theory of potential barriers hindering, 5240*b*.
in salts, periodic system and, 2829*g*.
sound-velocity increments of, in polymethylsiloxanes, 3256*g*.
sound-velocity (molar) increments of, 6025*b*.
spectra and, of aromatic hydrocarbons, 1359*i*.
splitting of, in cellulose mol., 5587*e*.
splitting velocity of weak, in cellulose, 5587*f*.
sulfur, strength of, 2599*g*.
type and stereochemistry of four-coordinated Cu complexes, 8222*a*.
valence , methods of, use in problems of mol. structure, 6876*g*.
variation of multiple, stereomerism and, 2479*d*.

**Bone ash**, affinity for U, 9240*e*.
calcium utilization from, 8463*b*.
of chick tibiae, seasonal differences in, 2866*b*.
regional variations of steer, age and, 5844*h*.

**Bone black**. See *Charcoal*.

**Bonefish**, food poisoning from raw or cooked, 327*g*.

**Bone marrow**, adrenocorticotropin effect on, 8037*d*.
book: Atlas of, Pathology, 4371*f*.
calcium and P metabolism in, 3856*i*.
carbon disulfide effect on, 7577*f*.
cell proliferation in, effect of blood serum (normal and neoplastic) on, 307*h*.
cells of, effect of 2-chloroethyl vesicants on, 7135*d*.
compn. of, 9197*e*.
copper in, of pregnant animal and fetus, 9208*d*.
copper (radioactive) affinity for, 1445*e*.
curettage, effect of choline chloride on fat emboli produced by, 4768*g*.
effect of 5-alkyl derivs. of 2-thio-6-methyluracil on, 2326*c*.
effect of liver exts. and nicotinamide on, 1853*f*.
effect of thiouracil and thiourea on, 9203*h*.
erythroblastic hyperplasia in, effect of N mustard on, 8556*g*.
erythropoietic effect of exts. of yellow, and its relation to batyl alc., 6737*f*.
fat of—see *Fats*.
fatty acids ($C_{20}$) in horse gelatinous, 6839*d*.
growth of tissue culture of, effect of glutathione on, 296*i*.
hemin synthesis in homogenates of, 5054*a*.
lead effect on cultures of, 1860*h*.
localization of radioisotopes of Y, Zr and Cb in, 5113*e*.
mast cells in, 3528*c*.
metabolism of, effect of pH on, 4752*a*.
oxygen satn. in, in hemorrhagic erythropoiesis, 307*i*.
penicillin effect on activity of, 8548*a*.
proliferation rate of, effect of pteridines and blood serum on, 262*c*.
protein fractions of, effect of As, Fe and x-rays on, 6262*fg*.
proteins in, in various conditions, 4359*h*.
respiration of, 9122*i*.
stippling in erythrocytes and normoblasts of, in Pb poisoning, and effect of splenectomy thereon, 4384*h*.
sulfur (radioactive) concn. in, after administration, 4376*a*.
x-ray effect on compn. of, 9090*c*.

**Bone meal**, calcium utilization in, 3893*b*, 8463*b*.
coarse stock flotation from, and fertilizer manuf. therefrom, P 1124*i*.
feeds from, compn. of, 3538*i*.
mold growth on, effect of water on, 9275*g*.

**Bones**. (See also *Calcification; Cartilage; Myeloma; Osteitis; Rickets; Skeleton;* and the headings beginning with *Osteo-*.)
adrenocorticotropin effect on, 8037*d*.
americium in, 7414*h*.
analytical methods in plant for processing, 6751*e*
ash in—see *Bone ash*.
books: Parathyroid Glands and Metabolic, Disease, 1104*c*; Neoplasms of, and Related Conditions, 4371*f*; Tumors of, 4371*f*.
calcium deposition in, of chick embryos, effect of estradiol benzoate on, 7579*f*.
calcium fixation in, nervous system and, 8485*f*.
calcium in, biol. availability of, 5462*c*.
calcium, Ra and Sr uptake by, 4755*g*.
calcium salt detn. in, 8418*i*.
callus formation on, effect of cancerigenic hydrocarbons on, 9239*f*.
cancer of, Ca and phosphatase in blood serum in, and effect of estrogens and androgens thereon, 8521*g*.
effect of androgens on, 1481*d*.
phosphatase of blood plasma in, 1855*f*.
from plutonium, 2322*h*.
carbon$^{14}$ deposition in, 4373*f*.
carbon disulfide effect on, 7577*f*.
carbon uptake by, 8508*e*.
charcoal from—see *Charcoal*.
citrate and lactate in, during growth, 5841*a*.
collagen in, and its detn., 1825*e*.
decalcification of, 3872*d*.
density of, detn. of, 8419*b*.
dietary P in relation to calcification of, 7562*g*
effect of calciferol and vitamin A on, 7098*a*.
effect of folliculin and histamine on calcification of, in ducks, 5471*ab*
effect of plutonium and radium on, 7135*e*
effect of selenium and thiouracil on jaw, 6735*c*
epiphyses, effect of insulin on, 2328*a*
ext. of, effect on testicles, 8041*b*.
fat from horse, 6839*c*.
fat of— see *Fats*
fish, recovering values from, on fishing ships, P 6437*d*.
flotation of coarse, from bone meal and fertilizer prepn therefrom, P 1124*i*.
fluorosis, 5854*d*, 5884*f*, 8531*b*
formation of, bone ext. in, 7584*c*.
fracture of, hypoproteinemia after, 3511*h*.
nicotinic acid in healing of, 1472*a*.
polarimetric changes in blood serum after, 5854*b*.
vitamins in healing of, 1471*i*.
gallium$^{72}$ deposition in, 7580*i*.
gelatin extn. from finely divided, P 3224*f*.
gelatin manuf. from, 6854*a*.
glue from—see *Glue*
grease from, specifications and analytical methods of Brit. Standards Inst for, 1581*c*.
homogeneous and sphaeritic calcification of, 5844*f*.
in lactoflavin deficiency, 7101*a*.
metabolism of Ca and P in, 3856*i*.
metal plates for, resistance to corrosion by body fluids, 1303*f*.
metaphysis of, during rickets development, 4757*d*.
mineral substance of, constitution of, 6716*e*.
nitrogen in, relation to age and function of regional variations of, 5844*h*.
oxygen consumption by, 747*e*.
phenanthrene effect on regeneration of, 5111*i*.
phosphatase of—see *Phosphatases*.
phosphorus detection in, 713*e*.
plutonium in, 1484*a*.
protein content of diet in relation to, 5097*h*.
radiation dosages in, by Ca$^{45}$, autoradiographs in detn. of, 4951*i*.
in rickets and scurvy, calcification of, 6295*b*.
salts of, compn. of, 5060*c*.
sodium carbonate incorporation in, 7567*e*.
uranium deposition in, 1114*d*, 8481*c*.
uranium in, 3285*h*.

**Bonisol**. See "basic" under *Copper chlorides*.

**Bonito oil**. See *Oils*.

**Booklouse**. See *Liposcelis divinatorius*.

**Books**. (*Specific books announced in* Chemical Abstracts *are entered under the subjects covered, as* Organic chemistry, *as well as in the Author Index. See also* Literature.)
bindings for, resinous product for, P 9525*e*.

**Boöphilus annulatus and(or) Cattle tick**, control of, 8598*i*.

**Booth, James Curtis**, biography, 3251*f*.

**Boots**. See *Shoes*.

**Boranes**. See *Boron hydrides*.

**Borascu**, in weed control, 7624*i*.

**Borates**. (See also *Alkali metal borates, Boric acid; Perborates*.)
adhesion of fused, to Pt and porcelain, 2062*i*.
book: Physicochem. Study of Native [in Russian], 7876*d*.
detection in foods, 9273*h*.
effect on adrenaline and insulin, 742*d*.
effect on storage life of butter, 327*b*.
glass, P 5166*bc*.
isohydric point of, and polyborates in aq soln., 3693*g*
manuf. from $Fe_2B_2$, P 6562*b*.
photographic emulsions contg., 2527*b*.
reaction with polysaccharides, 4315*b*.
review on, 6049*g*.
in stabilization of polythionates and polythionic acids, P 7651*g*.
systems, $Cr^{III}/Cr^{VI}$ indicator in, 5322*h*
in weed control, 7624*i*.

**Borax**. (See also *Kernite; Sodium borates, Tincalconite*.)
adhesive from dextrin and, P 8744*b*.
alkali metal sulfates in vitreous, magnetic susceptibilities of, 2052*i*
analysis and sampling of, 4787*d*.
in black-rot control on sweet potatoes, 7180*f*.
in brines of Calif.-saline lakes, 3571*g*.
burning and spectrochem. flux properties of, 8945*a*.
of California (Kern Co.), 4607*e*.
in celery-cracked-stem control, 1891*g*.
as corrosion inhibitor for pasteurizers, 6062*g*.
in dairy product preservation for phosphatase test, 3942*c*.
detn in fertilizers, 7175*e*.
effect on B content of oranges, 3115*i*
on chestnut tanning liquors, and color and turgidity of leather, 8183*d*
on conservation of latent image in photography of particle trajectories, 7328*e*
on glass disintegration and solns., 6379*i*.
on mold growth on wood, 7623*i*.
on penicillin action, 4330*e*.
on soap formation of permanent suds in hard water, 6435*i*.
in electrode (welding) coatings, 7101*f*
fire-retardant coatings from, and its mixt with boric acid, 4493*a*.
fire retardant compns. from, P 1126*h*
as fungicide for cantaloupe decay, 8133*i*
glasses, transference nos. in, 5656*a*.
gold magnetic susceptibility in vitreous, 2053*b*.
hydrates of, 8933*c*.
insecticide from, P 5899*g*.
magnetic susceptibility of hydrate of, 4528*f*.
manuf of, P 1927*i*.
mixts. with alkali and dextrin, properties of, 9500*b*.
mixt. with $HgCl_2$, carbohydrate oxidation with, 1720*g*.
oxygen-atom recombination on, 1635*e*
photographic plates contg., effect of pH on development of, 7328*d*.
in poison-ivy control, 9313*c*.
quartz crystn. from solns. of, 6026*h*.
reaction with polysaccharides, 6986*c*.
resin soly. in solns. of, 1584*c*.
standards for, 4399*g*.
in sulfur trioxide stabilization against polymerization, P 2745*h*.
system: $Na_2CO_3$–$H_2O$–, 7804*c*.
in termite control in bamboo, 3553*i*.

**Borax substitutes**, for graphite crucible, P 6803*f*.

**Borazene, *B* - dimethyl - *N* - phenyl-***, 5690*e*.

**Borazole***, 3301*h*.
derivs., spectra of, 7818*b*.
——, **hexamethyl-***, and compd. with HCl, 3301*h*.
——, ***B* - trihydroxy - *N* - trimethyl-***, 5690*c*.

——, *B*(and *N*)-trimethyl-*, 5600*a*.
——, *N*-trimethyl-*, 7856*g*.
**Borazyne, *B*-methyl-*N*-phenyl-***, 5690*e*.
**Bordeaux.** See *Dyes*.
**Bordeaux mixture.** (See also *Fungicides; Sprays.*)
in *Alternaria* blight control on petunias, 2725*f*.
in anthracnose control on dwarf beans, 7180*f*.
in apple-scab control, 7630*f*.
in bluestain control on pine, 8597*c*.
in *Cercospora beticola* control, 3134*b*.
in citrus-canker control, 5143*f*.
constitution of, 1138*h*.
in control of potato and tomato late blight, 2725*e*.
in cranberry fruit rot control, 804*e*.
in downy-mildew control on Lima beans, 3959*h*.
effect on DDT toxicity, 2728*e*.
as fungicide, 7177*c*, 8697*b*.
in grape-mildew control, 3950*e*, 8596*i*.
in grease-spot control on passion vine, 7180*a*.
in halo-blight control on beans, 8595*i*.
in mummy-berry control on cultivated blueberries, 5143*g*.
in pecan-scab control, 1139*a*.
in potato-fungus control, 801*g*, 9328*c*.
as potato spray, 4413*h*.
in powdery-mildew control on oranges, 2357*a*.
in powdery-mildew control on oriental magnolias, 7179*g*.
in *Sclerotinia laxa* control on apricots, 7179*g*.
in snail control on citrus, 4414*e*.
in tomato-disease control, 4413*b*.
in tomato fungus control, 9328*d*.
toxicity to bees, 344*c*.
**Bordeaux Red**, effect on benzidine-peroxidase color, 7521*e*.
**Bordet-Gengou reaction.** See *Complement fixation*.
**Bordet-Wassermann reaction.** See *Wassermann reaction*.
**Borers**, marine, 4414*e*.
**Boric acid.** (See also *Metaboric acid, Tetraboric acid; Tungstoboric acid.*)
alkylaryl esters, as antioxidants for lubricants, P 3606*j*.
ammonia absorbed in, in Kjeldahl detn. of N, detn. of, 1280*i*.
anticryptogam, fungicide, insecticide and parasiticide from, P 5530*a*.
catalyst activation by, in hydrogenation of CO, 2399*h*, 2400*a*.
catalyst from Cu, Fe, Mn and, in hydrogenation of CO, alkali and temp. effect on, 2397*h*.
as catalyst in ethanolysis of palm oil, 7723*i*.
as catalyst in reactions of ketene, 5366*k*, P 5795*e*.
catalyst of $AlCl_3$ and, in branched-chain hydrocarbon manuf., P 6217*e*.
catalyst of phosphoric acids and, for dehydration of hydroxylated oils, P 2790*a*.
catalysts of, and its derivs in $\beta$ lactone manuf. from carbonyl compds. and ketenes, P 5414*i*.
catalysts of kieselguhr, $H_3PO_4$ and, in polymerization of olefins, P 3190*c*.
catalysts of oxalic acid and, in polymerization of tung oil, P 0484*e*.
complexes of, absorption spectra of, 2093*d*.
with benzil, 6893*i*.
with carbohydrates and sugar alcs., amine salts derived from, P 1800*d*.
with mannitol, 6894*b*.
with quinone-resorcinol polymers for tanning, P 6452*f*.
compd. with polyvinyl alc. and Br or I, 4542*d*.
demasking reactions by, 4598*e*.
detection of, 4603*a*.
detection of, org. reagents for, 5696*c*.
detn. of, 2893*b*
in electroplating baths, 961*g*.
in tan liquors, 1205*e*.
as disinfectant for potato sets, 343*b*.
effect on alloxan activity, 5851*b*.
on *Candida*, 7087*g*.
on catalyst in hydrogenation of CO, 2397*i*, 2398*d*.
on *Clostridium saccharobutyricum* inhibition by malonate, 716*c*.
on nitrocellulose lacquers, 7718*k*.
on N fixation by *Azotobacter*, 7173*a*, 8591*k*.
on pear set sprays, 9347*i*.
*effect* on reduction of $Na_2WO_4$, 925*h*.
on seedlings of apetalous plants, 6703*i*.
on sol. matter in leather, 6451*d*.
on swarming of *Proteus vulgaris*, 4329*b*.
emulsion thickening with, or derivs., P 4898*h*.
fire-retardant coatings from mixt. of borax and, and from Zn borate, 4493*a*.
fire-retardant compns. from, P 1126*h*.
free energy of ionization of, 2075*c*.
as fungicide and its effect on trichophytin formation, 5084*a*.
glass attack by, 2385*f*.
glass, fabrication of strips of, 1659*c*.
globulin ppts. from blood serum with, effect of gum on d. of, 3874*a*.
heat of formation of, 7805*e*.
in house-borer control, 8598*g*.
hydrated derivs. of, 6049*f*.
identification of, for use in operating room, 3563*c*.
incompatibilities with $NaHCO_3$ and $NaHSO_3$, 817*c*.
insulating compn. from newsprint and, P 5518*g*.
isohydric point of aq., 3693*h*.
manuf. from Mg-contg. borate ore, P 5555*b*.
manuf. from tourmaline, P 7200*f*.
mixts. with alcs., osmosis of, 7300*g*.
mixts. with HF, $HBF_4$ formation in, 2494*b*.
phenylmercury deriv., antibacterial action of, 1456*e*.
in phosphate coating of metals, P 9022*d*
for photographic use, Am. standard specifications for, 6930*b*.
poisoning by, 5869*c*.
procaine salt, monograph for, 8103*c*.
reaction with esters of hydroxy acids, P 6651*i*.
reaction with polysaccharides, 6986*c*.
soil electrodialysis in, 3957*h*.
soly. of, 1241*h*.
in sulfur trioxide polymerization prevention, P 2745*h*.
in termite control in bamboo, 3553*i*.
trialkyl esters, compds with alkali metal alcoholates, reaction with $B_2H_6$, P 4684*i*.
trialkyl esters, compds with alkali metal hydrides, P 4684*e*
Vaughn-Levine medium contg., in examn. of frozen concd. orange juice, 8571*h*.
in wood preservation, 5149*c*.
**Boric acid, ethyl-.** See *Ethaneboronic acid*.
——, **phenyl-.** See *Benzeneboronic acid*.
**Borides**, alloys contg.—see "hard" under *Alloys*.
bonds in, 2052*a*.
review on, 3329*b*.
**Borine**, compd. with $Me_2N$, 7856*g*.
derivs., B detn. in, 5329*e*.
——, **aminodimethyl-**, and dimer, 5690*b*.
——, **anilinodimethyl-**, 5690*e*.
——, **chlorodimethyl-**, P 6220*d*.
compd. with $NH_3$, 5690*c*.
compd. with $MeNH_2$, 3302*g*.
——, **chloro(methylimino)-**, 3301*i*.
——, **chloromethyl(methylamino)-**, 3301*i*.
——, **dichloro(2 - chlorovinyl)-**, reaction with polyvinyl alc., P 2631*c*.
——, **dichloromethyl-**, P 6220*d*.
compd. with $MeNH_2$, 3302*f*.
——, **dimethylamino-**, 7856*g*.
——, **dimethyl(methylamino)-**, 3302*g*.
——, **methyl(phenylimino)-**, 5690*e*.
——, **triethyl-**, P 6220*d*.
——, **trimethyl-**, P 6220*d*.
compd. with $NH_3$, 5690*a*.
with aniline, 5690*d*.
with LiMe, 4218*g*.
with $MeNH_2$, 3301*h*.
and compd. with quinuclidine, 3422*c*.
heat of combustion of, 5242*c*.
——, **triphenyl-**, complex with PhLi, 5758*a*.
and derivs., 7448*e*.
**Borneol** (*2-camphanol, 2-hydroxycamphane*). (See also *Isoborneol.*)
acetate, in conifer oils, 6367*b*.
and acetate, in goldenrod oil, 2372*c*.
and acetate, in oil of *Callistris articulata*, 4814*e*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
dielec. polarization and elec. moments of enantiomers of, 2054*g*.
effect on polarography of metals, 5316*a*.
*l*-, rotatory dispersion of, 610*f*.
manuf. by electrolysis, P 0528*c*.
nicotinate, 2622*a*.
reactions (catalytic) of, 6185*a*.
$\alpha$-toluenesulfonate, as curing agent for urea-HCHO resins, P 5232*b*.
**Borneol, 2-allyl-**, 1748*b*.
——, **2(and 4)-propyl-**, 1747*i*.
——, **2-(2-pyridyl)-**, *dl*-, and hydrochloride, 2205*e*.
**Bornite**, of Alaska (Prince of Wales Is.), 74*c*.
detection in Cu ores, 5697*h*.
formation of, of San-Donato, Middle Urals, 5707*i*.
of Italy (Mt. Peloritani), 3319*a*.
of New Mex. (Taos Co.), 1692*a*.
of U.S.S.R. (Akol, Minusinsk region), 5707*g*.
**Bornylamine**, *N*, *N*-**dimethyl-**, *d*-, and salts, 3392*e*.
**Bornylene** (*1,7,7-trimethyl-2-norcamphene*), 4-derivs., from isoborneols, 1354*f*.
*dl*-, formation of, from camphene, 2975*d*.
——, **4-propyl-**, 1354*e*.
**Borocaine**, monographs for, 4809*f*, 8103*c*.
**Borohydrides.** See *Boron compounds*.
**Boron**, absorption by, of neutron resonance activation, 4091*a*.
alfalfa requirements for, 9313*h*.
alpha-ray bombardment of, cross section for neutron emission in, 8265*d*.
alpha-ray bombardment of, emission of protons in, 6909*i*.
anthocyanin formation in *Spirodela oligorrhiza* and, 7550*g*.
from beryllium by deuteron action, 8876*ab*.
bonds with Cl and F, 8231*g*.
bond with C, energy of, 5242*d*.
catalyst activation by, in hydrogenation of CO, 2400*a*.
in coal, 1941*d*, 8639*e*.
-coated ion chambers, prepn. of, 4560*g*.
covalent and packing radii of, relation between, 9*i*.
in crop nutrition and soils of Vt., 3956*a*.
crystallochem. electronegativity of ion of, 8231*b*.
deficiency of, in apples, 2722*g*, 4411*a*, 8591*e*.
in kudzu, 3552*i*.
in peas, 800*i*.
in plants, soil condition and, 7618*i*.
deficiency symptoms and requirements of tobacco plants, 5454*d*.
deficiency symptoms in muscadine grapes, 9173*h*.
deuteron-bombarded, 1260*b*.
deuteron bombardment of, angular distribution of neutrons from, 8866*d*.
effect of manganese and, on growth and Ca uptake by lupine, 731*a*.
effect on Al-Mg alloy castings, P 3771*b*.
on Alyce clover, crimson clover and soybeans, effect of liming on, 8593*c*.
on amino acids in legumes, 342*a*.
on crystn. of steel, 531*h*.
on fruit formation on watermelon, 6286*c*.
on *Fusarium*, 9161*e*.
on grain size of Al-Cu alloys, 8337*f*.
on hardenability of high-purity alloy and com. steel, 3333*a*.
on hardenablility of steel, 2146*c*, 3330*a*.
on Fe, P 1709*d*, 6957*b*.
on nitrates and P in soils, 8081*f*.
on photosynthesis and development of marine algae, 8016*e*.
on plant respiration, 8459*c*.
on Si elec. properties, 9002*d*.
on stainless steel, P 1307*g*, 8332*c*.
on sugar cane, 6705*g*.
on Thermit welding, P 3772*g*.
on vegetables, 1134*e*.
elec. contact potential and photoelec. emission of, 1256*i*.
electrons of *L* shell of, scattering of x-rays by, 4131*a*.
energy levels of, doublet-intervals of, 7336*d*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*.
in enzyme activity, 1820*b*.
equil. with metals, 4917*e*.
extractive distn. from Fe boride with $BCl_3$, P 5728*f*.
filaments (Mo and W) coated with, 6133*i*.
geochemistry of, 7875*c*.
in graphite (Acheson), 8276*c*.
heat of combustion of, 8835*g*.
in honey, 3538*b*.

isotope of mass 9, mass value for, 8850*d*.
isotope of mass 10, γ-ray lines from excited, 4117*c*.
nuclear spin of, spin-orbit coupling in $Li^7$ and, 3283*g*.
spin of, 491*i*.
isotope of mass 12, β-rays from, 2506*c*,.
isotopes of masses 12 and 13, from C by action of γ-rays and neutrons, 4561*c*.
isotopic ratio in natural, of $B^{11}$ to $B^{10}$, 1261*b*.
in leaves of forest vegetation, 725*f*
in magnetic field, ratio of resonance frequency to proton frequency in, 8262*g*.
magetic moment and gyromagnetic ratio of, 5303*f*.
magnetic moment of, 3290*a*, 8878*i*.
manuf. of, P 5162*d*.
mass defects of, 8271*i*.
metabolism of, 9190*b*.
minerals, at Silver Harbour, Lake Superior, 4606*c*.
minerals, He in, 7875*b*.
in mung beans in disease, 6290*a*.
neutron absorption by, 8854*i*.
neutron bombardment of, γ-rays from, 3283*h*.
neutron cross section of, 6909*d*.
neutron monitoring with photographic emulsions contg., 4095*c*.
in nickel plating, P 2103*e*.
from nitrogen by neutron action, 2088*h*.
nuclear spins and quadrupole moments of $B^{10}$ and $B^{11}$, 491*f*, 8869*g*.
in nutrition of beets and turnips 7174*d*.
in nutrition of plants, 278*f*, 5891*d*, 9325*i*.
in orange peel, effect of borax soln. on, 3115*i*.
in orange (Valencia) leaves, effect of rootstock on, 3491*g*.
oxy and pyro ions of, bond lengths in, 4910*f*.
phosphor activated by fluorescein, duration of metastable state of, 7828*b*.
plant plasma resistance to, 729*c*.
plum requirements for, 9322*c*.
prepn. of pure, 4593*g*.
proton-bombarded, α-rays from, 3284*b*.
proton scattering by, 1259*g*.
in root environment, 1461*e*
in sediments and sea water, 5350*e*.
in sediments from Tyrrhenian Sea, 4610*f*.
sintered articles from, P 3734*f*.
in soil (peat) improvement, 7621*h*.
in soils of India, 9311*h*, 9312*b*.
in soils of West Virginia and their B requirements, 3550*c*.
solid solns. in Fe, 1300*h*.
spectrum of, 7858*h*.
steel contg., effect of N on hardenability and notch toughness of, 8332*d*.
in steel deoxidation, 7397*a*.
in steel hardening, 6958*a*.
in sugar-beet nutrition, 800*a*.
system: Mo–, powder diagrams of δ-phase of, 1261*h*.
system: Zr–, 6898*e*.
thermodynamic equil. in, freezing in of 3708*i*.
in tomato nutrition, 9322*a*.
in tomato nutrition, Ca and, 9313*b*.
in tung-tree nutrition, 1462*g*.
in water for irrigation, 3951*d*.
in waters (mineral spring), of Caucasia, 5519*h*.
in waters (mineral spring), of Japan, 7875*cd*, 7876*a*.
in waters of salt beds of Artemovsk Dist., Don Basin, 7382*a*.
wave functions of, 7336*a*.

**Boron, analysis**, detection and detn., 7858*h*.
detn., 2114*h*, 4596*i*, 6106*f*.
detn. in alloys and metals, 519*g*
in biol. material, 7998*a*.
in borate ores, 964*d*.
in borine compds., 5329*e*.
in Fe ores and assocd. rocks, 5710*b*.
in minerals and ores, solid reagents for, 6935*b*.
in org. substances, 3310*d*.
in plants and soils, 3310*e*.
in plant tissue, 1682*c*.
in presence of other acids, 5696*de*.
in sediments from Tyrrhenian Sea, 4610*g*.
in silicate inclusions in steel, 6110*i*.
in steel, 964*d*, 2546*a*, 8302*f*.
in water, 3951*d*, 7875*c*, 9302*i*.
detn. of available B in soils, 4412*d*.

**Boron acetate**, $B(OAc)_3$, as catalyst in β-lactone manuf. from carbonyl compds and ketenes, P 5415*a*

**Boron acids**. No entries this year. See *Boric acid; Metaboric acid*.

**Boron alkali metal hydrides**, P 4684*ehi*.

**Boron alloys**, beryllium-Cr-Co-Ni-W-, P 5358*c*.
chromium-, $Al_2O_3$ wetting by, 4438*c*.
iron-, B extractive distn. from, with $BCl_3$, P 5728*f*.
silicon-, elec. properties of, 4068*f*.

**Boron aluminate**, as abrasive bond, 6801*i*.

**Boron arsenate**, $BAsO_4$, gels in concd. $H_2SO_4$ and oleum, 3981*f*.

**Boron bromide** ($BBr_3$), and compd. with BOBr, as catalysts in dehydration of glycols, P 3834*d*.
heat capacity of, 1638*d*.
vibration frequencies of, 4571*d*.

**Boron carbides**. (See also "hard" under *Alloys*.)
uniting of, to Cr, Co, Fe or Ni, 9402*b*.

**$B_4C$**, electrons from mesotron-bombarded, 6504*g*.
graphite molds for plates of, P 7658*d*.
properties at high temps. of, and mixt. with SiC, 8627*d*.

**$B_6C$**, heat capacity and content of, 6500*a*.
iron alloy contg., P 8347*g*.
melting point of, 4614*a*.

**Boron chlorides**, in extractive distn. of B, P 5728*f*.

**$BCl_3$**, heat capacity of, 1638*d*.
prepn. of, 4967*f*.
in $SO_3$ stabilization against polymerization, P 2745*g*.
systems: $B_2H_6$–, $B_2H_6$–HCl–, and HCl–, 5247*b*.
vibration frequencies of, 4571*d*.

**Boron compounds**. (See also *Calcium borogluconate; Fluoboric acid*.)
alkyls, bond energies and heats of formation of, 5242*d*.
borine carbonyl, elec. moment and vibrational states of $B^{10}H_3CO$, 7821*f*.
quadrupole couplings of, 8869*g*.
spectra of $B^{10}H_3CO$ and $B^{11}H_3CO$, 491*g*.
spectrum of, 4573*c*.
borohydride, $BNaH_4$, P 2249*b*, 4684*ehi*.
borohydride, $NaBH_4$, acid chloride, aldehyde and ketone reduction by, 2570*d*.
borohydrides of Al, Hf, Th, Ti and Zr, 8937*f*.
from boron trifluoride by addn., 5657*f*.
catalysts of org. acids or anhydrides and oxy-, and polymerization of drying oils, P 9484*d*.
effect on glass melting, 3577*f*.
gluconic acid salts, for injection, 1907*c*.
heat of formation of $LiBH_4$ and $NaBH_4$, 7805*d*.
with hydrogen and $N(B_3N_3H_6)$—see *Triborinetriamine*.
identity of $Na_2(B_2H_6)$ and $NaBH_4$, 8937*i*.
with lithium, $BLiH_4$, P 4684*h*.
metalloorg. complexes, 7448*e*.
org., P 6220*c*.
org., absorption spectra of, 2093*e*.
in photographic elements, P 53*i*.
prepn. of $B_2H_5X$, 3302*h*.
reaction with esters of hydroxy acids, P 6651*g*.
review on, 2105*h*.
spectra of $Al(BH_4)_3$, $Be(BH_4)_2$, $LiBH_4$, and $NaBH_4$, 4573*a*.
as termite repellents, 9341*e*.

**Boron fluoride** ($BF_3$). (See also *Fluoboric acid*.)
addn. compds. of, 5657*e*.
aniline reaction with di-Me acetal of 4-methoxy-2-butanone in presence of, P 1444*e*.
azeotrope with $B_2H_6$, 5247*b*.
book: B and its Derivs., 5692*g*.
as catalyst, 8251*e*.
in acylation of olefins, P 2634*d*.
in addn. of alcs. to $(CH_2{:}CH)_2O$, 2079*d*.
in condensation of cyclohexene and epichlorohydrin with phenols, 6173*g*.
in condensation of phenols with terpenes, P 6237*b*.
in ketone manuf. from olefins and anhydrides or ketenes, P 4686*a*.
in polymerization of 2-methylpropene, 6061*c*, P 8130*e*, 8830*b*.
in polymerization of 2-methylpropene and compd. $BF_3.CH_3COOH$, 8829*g*.
in polymerization of oiticica oil and varnish cooking with ester gum, P 9484*b*.
in polymerization of vinyl isopropyl ether, P 3228*h*
*as catalyst*, in reaction of alkyl halides with $H_2S$, P 6648*f*.
in reaction of alkyl halides with thiols, P 6646*d*.
in reaction of ketenes with carbonyl compds., P 1056*a*.
in reaction of ketenes with esters of oxo acids, P 2635*f*.
in reaction of olefins with $H_2S$, P 664*h*, P 5790*i*.
in reaction of vinyl ether with alcs., 6157*d*.
in succinic acid ester manuf. from β alkoxypropionic acid esters and CO, P 3451*i*.
catalyst of $H_3PO_4$ and, in alkenylation of aromatic hydrocarbons, P 7507*f*.
catalysts contg., in alkylation of thiophene, 1395*e*.
catalysts for $C_2H_2$ reaction with alkylated benzenes, P 4051*d*.
catalysts of, and its complexes in alkylation of 2-methylbutane with $C_2H_4$, 3773*b*.
catalysts of complexes of, acids and a Hg compd. in acetal manuf. from vinyl esters and alcs., P 1433*h*.
in acylation of furan and thiophene, 6204*a*.
in removal of org. F compds. from hydrocarbons, P 6643*c*.
catalysts of drying oils bodied with, in alkylation of phenol with alkyl halides, P 3036*h*.
catalysts of $Et_2O$ and, in acetal formation from butyl vinyl ether and phenols, 3783*e*.
in acylation of furan and thiophene, 214*b*.
for polymerization of 2-vinylfluorene, P 8740*g*
in reactions of ketene, 5366*h*.
catalysts of HF and, in alkylation and isomerization of paraffins, P 5583*g*
in alkylation of isobutane with $C_2H_4$, P 2422*i*.
for hydrocarbon treatment, P 8441
in isomerization of hexane, P 4007*a*
in isomerization of paraffins, P 4006*h*
recovery of, P 3949*b*.
catalysts of Hg compds. and, in $C_2H_2$ reaction with HOAc, P 3839*b*
catalysts of Hg salts and, in halo acetal manuf. from vinyl esters and haloalkanes, P 6649*i*
catalytic activity of and its compds. in alkylation and polymerization, 1711*f*, 8074*d*.
compds. with $HPO_3$ or $H_3PO_4$ as catalyst for polymerization of propylene, 1214*h*
compd. with $Et_2O$, reaction with $B_2H_6$, 3805*b*.
compd. with $H_3PO_4$, as catalyst in alkylation of $C_6H_6$, 4638*b*, 7915*i*.
compd. with $H_3PO_4$, as catalyst in alkylation of benzene with propene, 1732*e*
dihydrate, reaction of chloro olefins with CO in the presence of, P 671*h*
formation from $B_2O_3$ and NaF, 5687*h*.
D-glucose pentaacetate reaction with phenols in presence of, 7922*i*.
heat capacity of, 1638*d*.
in ionization chambers, and prepn. of pure $BF_3$, 2505*g*.
in nitration of aromatic compds., 5013*a*
as promoter with HF catalyst in hydration of olefins, P 3438*f*.
reaction of mandelonitrile with $C_6H_6$ in the presence of, P 6666*b*.
reaction products with fluophosphoric acids as catalysts in alkylation of paraffins, P 5583*c*.
recovery of, P 1159*f*.
spectrum of, 7817*b*.
in sulfur trioxide stabilization against polymerization, P 2745*h*.
symmetry coördinates of, calcn. of, 8846*i*.
toxicology of, 5513*i*.
vibration frequencies of, 4571*d*.

**Boron halides**, reaction with alkyl halides, P 6220*d*.
reduction to B hydrides, 3302*g*.

**Boron hydride-$d_3$**, mass spectrum of, isotopic wt. doublet in, 7333*e*.

**Boron hydrides**. (*For derivs. see under* Borine; Diborane.)
constitution and reaction mechanism of, 4059*g*.
manuf. of, P 6795*e*.
as oxidizers with much energy liberation, 7229*g*.
prepn. by reduction of B halides, 3302*g*
review on, and related compds., 1535*d*

structure of, 959*e*.
**BH**, spectrum of, 7817*b*.
**$B_2H_6$**, azeotropes with $BF_3$ and HCl, and systems: $BCl_3$–, $BCl_3$–HCl–, HBr–, and $C_2H_4$–, 5247*a*.
heat of formation of, 8835*i*.
prepn. of, 4560*h*.
reaction with alkali metal alcoholates, P 4684*h*.
with alkoxyborohydrides, P 4684*e*.
with compds. of trialkyl borates with alkali metal alcoholates, P 4684*i*.
solns. in $NH_3$, 8241*h*.
spectrum of, 4573*a*, 8880*c*.
vapor d. and 2nd virial coeff. of, 4913*h*.
**Boronia oil.** See *Oils*.
**Boronic acids** ($RB(OH)_2$). (*Individual compounds will be found under names derived from the names of the hydrocarbons of which they are derivatives, e.g.*, Benzeneboronic acid *and* Ethyleneboronic acid.)
esters with polyvinyl alc., P 2631*c*.
**Boron iodides**, preparation of $BI_3$ and reduction of $BI_3$ to $B_2I_4$, $B_2I_2$ and $(BI)_x$, 8931*f*.
**Boron ores**, 5708*e*.
boron detn. in, 964*d*.
**Boron oxides.**
**BO**, spectrum of, 7817*b*.
**$B_2O_3$**, electron emission from, bombarded by K ions, 1256*f*.
free energy and heat of formation of, 9006*h*.
in glass manuf., 2747*d*, 5914*e*.
heat of formation of, 8835*g*.
in potassium fluoride-NaF eutectic melts alone and with other oxides, 5687*eg*.
in quartz-coating manuf., P 5919*a*.
reaction with $SOCl_2$, 2886*a*
in sulfur trioxide stabilization against polymerization, P 2745*g*.
system: BaO–, 4438*g*.
systems with alkali metal oxide with or without $SiO_2$, 5322*h*.
transformation range of vitreous, 2383*h*
**Boron phosphate** ($BPO_4$), catalyst for dehydration of hydroxylated oils, P 2790*b*.
gels in concd. $H_2SO_4$ and oleum, 3981*f*
in phosphate coating on metals, P 9022*d*
**Borotungstic acids.** See *Tungstoboric acid*.
**Boroxole, trimethyl-***, 3302*f*, 5690*e*.
**Borrelia**, *anserina*, inhibition and vaccine formation with *p*-hydroxy-*m* amino phenylarsene oxide, 8535*c*.
*gallinarum*—see "*anserina*" above
**Boscia**, oils of—see *Oils*.
**Bose-Einstein condensation**, for charged particles in magnetic field, 8257*a*
for films, 8225*e*.
**Bostrychia scorpioides**, sodium manno glycerate in, 8014*g*
**Botany** (See also *Plants*.)
books: College, 3496*i*, 5457*e*, Introductory, 5095*e*, Allgemeine Botanik, 7096*h*, Grundlagen der Botanik, 7556*i*, General, 8463*a*.
journal: Botanica Oeconomica, 8021*e*
reviews on, 1082*a*, 7092*a*
**Botryodiplodia theobromae**, control on *Hevea*, 5891*i*.
**Botrytis**, *allii*, control of, 9334*a*
*cinerea*, action on cabbage, 1839*i*.
control of, P 3558*f*.
exts. in fruit-juice clarification, 8069*i*
control on gladiolus, 3961*ch*.
control on gladiolus and tulips, 9337*i*
**Bottle caps.** (See also *Closure devices*.)
coated paper for, P 8744*h*.
liners for, P 2040*b*, P 4518*i*, P 6004*e*, P 6466*i*.
**Bottles.** (See also *Vacuum containers*.)
apple-juice pasteurization in glass, 782*i*.
detergents for, from Be compds., P 6375*a*.
detergents for, nonabrading and noncorrosive alk., P 4034*e*.
durability of, effect of rinsing on, 3578*i*
manuf. of, app. for handling materials for, 6377*i*.
stoppers for—see *Stoppers*.
washing and microbial kill with alkali detergents in, sulfonate wetting agents in improving, 3636*g*.
washing of, caustic differential in soaker compartment in, 2451*h*.
washing of, phenoxyalkanols for inhibiting foaming in, P 1202*h*.
**Botulism, toxin—see Toxins; and "toxins" under *Clostridium botulinum*.**
**Boudouard reaction.** See "reaction with $CO_2$" under *Carbon*; or the reverse.
**Bougainvillea**, manganese deficiency in, 2722*g*.
**Bouillon.** (See also *Meat extracts; Soups*.)
vitamin $B_1$ in, stability of, 9276*a*.
**Boulangerite**, in Canada (western), 8983*a*.
falkmanite and yenerite identity with, 8983*c*.
of metamorphic Pb ore, 8315*g*.
synthesis of, 8930*i*.
**Boundary state.** See *Films; Interfaces; Phases; Surface*.
**Bourbonal** (*3-ethoxy-4-hydroxybenzaldehyde*), toxicity of, 1867*f*.
**Bourbon tubes**, metals for, 6959*b*.
**Bournonite**, of Italy (Mt. Peloritani), 3319*a*.
of metamorphic Pb ore, 8315*g*.
**Boutaric, Augustin**, obituary, 6477*f*.
**Boutron-Boudet solution**, prepn. of, 7724*f*.
**Bouveault-Blanc reaction**, with dry liquids, P 3835*g*.
with ethyl aleuritate, 5369*f*.
**Bovicola equi** and(or) **Horse biting louse**, control of, 1520*c*.
**Bowenite**, of India (Hole-Narsipur), 2136*b*.
**Bowleyite**, from Londonderry, Australia, 4185*i*.
**Bowlingite**, chem. constitution of, 2899*e*
**Boxes.** See *Containers*.
**Boyle's law.** See *Laws*.
**Brachiaria**, *mutica*—see "Para" under *Grasses*.
**Brachiose**, the term, 5749*a*.
**Brachypodium.** See *Grasses*.
**Brachyrhinus ligustici** and(or) **Alfalfa snout beetle**, control of, 8599*d*.
**Brackebuschite** x-ray study of, 8986*b*.
**Bracken** (*Pteridium aquilinum*) copper and Zn in leaves of, in geochemistry, 3321*d*.
factor modifying thiamine action in, 7074*c*.
roots of, and their utilization for food and fodder, 5880*g*.
storage of reserve materials in rhizome of female, 7551*h*.
**Bradykinin**, release from plasma globulins by snake venoms and trypsin, 5814*b*
**Bradykininogen**, of plasma pseudoglobulin fraction, 5814*b*
**Bragg, William Lawrence**, Roebling Medal award to, 8759*i*.
**Braids**, from cellulose deriv., plasticized with bis(methoxyethyl) phthalate, etc., hats from, P 2785*h*.
**Brain.** (See also *Encephalitis; Mental disorders; Nerve centers; Nervous system*.)
acetate formation in suspensions of, 8416*i*.
acetoin formation from AcH in, 5841*i*.
acetylcholine in, elec. convulsion patterns and, 5122*f*
acetylcholine in, forms of, 7106*c*.
acetylcholinelike substance synthesis by, 9092*e*.
acetylcholine synthesis by, at low O tension, effect of succinic acid on, 756*c*.
acetylcholine synthesis in, 7130*h*
acid base equilibrium in, 1099*c*.
adenosinetriphosphatase activity and glycolysis of homogenates of, 9090*e*.
adenylpyrophosphatase of, 6263*c*
amino acids in beef, 3534*f*
amino acids in swine, 7061*h*.
ammonia and glutamine in, 2302*e*.
analysis of, 6751*b*.
angiography of, contrast media for, in relation to injury of blood vessels, 8418*g*
antithromboplastin from, activity curve of crude and purified, 2299*i*.
antithyrotoxic factor in, 3913*a*.
area postrema, histochemistry of, 8180*h*
blood barrier—see *Hematoencephalic barrier*.
blood-coagulating agents from, P 1158*b*.
blood flow and metabolism in, effect of amphetamine sulfate on, 8552*g*.
after frontal lobotomy, 3937*d*
in idiopathic epilepsy, 9231*h*.
in intracranial injury, 9232*a*.
blood vessels of, pathological physiology of, 9235*a*.
book: The Metabolic, Diseases and their Treatment in Military and Civilian Practice, 5491*e*.
buffering capacity of, after insulin and metrazole shock and concussion, 9212*bd*.
carbohydrate metabolism of, pituitary and, 7566*e*.
carbon dioxide effect on, 9261*e*.
cations in, convulsions in normal and desoxycorticosterone-treated animals in relation to, 7146*a*.
cells of frog tadpole, effect of $\alpha$-rays on, 1445*b*.
cephalin from, fractionation of, 4318*a*.
cerebral "thinness disease," NaCl retention in, 4362*c*.
cholinesterase activity, glycolysis and respiration in, effect of antipyrine on, 7147*b*.
cholinesterase activity, glycolysis and respiration in, effect of Mg on, 7588*d*.
cholinesterase fractions in, 2972*d*, 2692*f*.
cholinesterase in, effect of cardiotonic glycosides on, 4380*f*.
effect of thyroxine and thiouracil or derivs. on, 9245*b*.
of elephant, 5064*e*.
inhibition by methadon, 1109*e*.
in normal and adrenalectomized rats, 7102*f*.
of normal and febrile rabbits, 2692*d*.
during recovery from diisopropyl fluorophosphate poisoning, 6743*i*.
of selachian and teleost fish, 6325*a*.
circulation in, antihistaminics and, 3520*e*.
circulation in, in chronic headache, effect of drugs on, 9232*g*.
cocarboxylase in, vitamin $B_1$ supply and disease in relation to, 5102*e*.
concussion of, carbohydrate metabolism and blood changes in, 9229*fg*.
in convulsions from N chloride, 3106*d*.
cytochrome c in, 6720*c*.
dehydrogenases of, inhibition by anticholinesterases, 7066*e*.
diencephalic-hypophyseal system in ovarian regulation, 3913*c*.
diencephalon in regulating ocular tension, 755*d*.
diencephalon pituitary system in water and carbohydrate balance, 4359*f*.
diphosphoinositide from, 4318*f*.
effect on adenosinetriphosphatase activity 3053*e*.
elec. activity and respiration of, effect of anticholinesterases, drugs and intermediates on, 7147*f*.
elec. activity of, effects of barbiturates and ether on, 9261*c*.
elec activity of, synchronization by barbiturate narcosis, 9261*c*.
elec pattern and, from isopropyl fluophosphate, biochem. analysis of, 9262*f*.
electroencephalogram in barbiturate intoxication, 9261*i*.
in curarized mammals, 9260*c*.
in epilepsy, effect of anticonvulsants on, 9262*c*.
electroencephalographic detn. of levels of consciousness and pentothal anesthesia, 9262*b*.
electrolyte, N and water content of, following cerebral concussion, 5111*f*.
electrolyte pattern of, effect of extracellular electrolyte depletion on, 5849*b*.
electrolytes in blood plasma and, electroshock-seizure thresholds after adrenalectomy in relation to, 6304*i*.
emetine in, 1862*e*.
encephalogram of epileptics, effect of hypoglucemia on, 9221*e*.
ether in, during ether elimination, 2318*a*.
flavinadenine dinucleotide in, 9194*b*.
formic acid in, in MeOH poisoning, 3869*h*
fumaric acid in, 9127*i*.
gases of blood in relation to constituents of, 5848*f*.
glutamic acid and glutamine in, 6719*d*.
glutamic acid in, 9206*i*.
glutaminase I in, 5057*i*.
glycolysis and respiration in, in epilepsy, 9230*h*.
glycolysis and respiration in, in norma and febrile rabbits, 7146*i*.
glycolysis inhibitor in, and its neutralization by amides and esters of amino acids, 7520*d*.
glycolysis of, 8481*b*.
hexokinase of, phosphorylation of hexoses by, 7980*g*.
hind-, in agene induced canine epilepsy, 1869*e*.
hypothalamic centers controlling gonadotropic function of hypophysis, 5479*c*.
hypothalamus, cell reactions in, after overloading antidiuretic function, 5479*f*.
thermal reactions to ergotoxine in relation to, 2692*i*.
urine secretion and, 3502*d*.
water metabolism and, 3502*d*

injury to, acetylcholine and cholinesterase in cerebrospinal fluid in, 8519*f*.
bilirubinemia after, 4362*e*.
cholinesterase in cerebrospinal fluid in, 8520*c*.
isotopes in study of, 9208*i*
in labile diabetes, 1102*f*.
lactate, phosphate and pyruvate in, in normal and convulsive states, 9202*e*.
lactate, phosphate and pyruvate in, treated with $CO_2$ and elec. shock, 9202*g*.
lactic acid exchange between blood and, and effect of O lack thereon, 7111*g*.
lesions of, cholesterol and mineral metabolism in, 1101*h*.
lesions of frontal lobe of, gastro-intestinal hemorrhages, hyperglycemia, azotemia, hyperchloremia and hypernatremia following, 3925*b*.
lipides in, in choline deficiency, 1842*f*.
lipides in, of infants and adults, 9207*f*.
lipides of sheath of, staining of, 713*a*.
lipoid exts. from, effect on dark adaptation, 3933*i*.
in mental disorders, 5486*h*.
metabolism of, during autolysis, 2260*f*.
cerebrospinal fluid in, 8503*h*.
in emotional excitement and in sleep, 745*h*.
from various animals, 9208*e*.
mitosis and O consumption in, of embryo chick, effect of acridine compds. on, 7135*g*.
neoplasms of, localization with radio dyes, 1856*f*.
$P^{32}$ uptake by, 7140*h*, 9232*e*.
uricemia in, 704*c*.
neural connections between pituitary and hypothalamus, discharge of adrenocorticotropic hormone in relation to, 8511*i*.
neuraminic acid in, in amaurotic idiocy and Niemann-Pick disease, 4369*e*.
nicotinic acid in, during corn diet, and effect of tryptophan and $N^1$-methylnicotinamide thereon, 3075*g*.
nitrogen metabolism in, in pathol. processes, 7122*b*.
nitrogen, P and S compds. and water of, of newborn and adult mouse, 5476*i*.
nucleic acids in, of chick embryo, 3502*f*.
oxidation in, depression of, 7540*i*.
oxidation of glucose and its metabolites in, effect of snake venoms on, 2260*a*.
oxidation of pyruvate and succinate by, effect of amidone on, and its reversal by yeast ext., 8053*f*.
oxygen consumption by, 747*f*.
effect of Δ and γ benzene hexachloride on, 5113*g*.
effect of Nu-1196 and Nu-1779 on, 2700*h*.
effect of phenobarbital on, 7139*c*.
effect of thyroxine on, 3503*a*.
oxygen in, arteriovenous difference in, in relation to arterial $CO_2$ tension, 3088*c*.
oxygen quotient of rabbit cerebral cortex, effect of diisopropyl fluophosphate on, 1146*b*.
pathology of, after hypoglycemia in Sakel's insulin treatment, 3937*e*.
phosphatase in, in senility, 9211*g*.
phosphatases of, inhibition of, 7060*d*.
phospholipides of, in disseminated sclerosis, 3924*i*, 9232*i*.
phosphorus compds. in normal and polioencephalitic, 749*d*.
phosphorus metabolism of, effect of pituitary on, 8505*b*.
phosphorylation in, effect of pentobarbital on, 9264*c*.
potassium in, in free and bound state, 3087*i*.
potassium leakage from, in O deficiency, 6719*e*.
potential in, in normal and convulsive states, effect of anoxia, asphyxia and $CO_2$ on, 9260*e*.
protease activity of washed, 4706*i*.
pyruvate metabolism by, diphosphopyridine nucleotides in, 4747*h*.
pyruvate oxidase system of, toxicity of vesicants and other compds. to, 7590*c*.
radiography of subarachnoid space of, iodized oils for, 5534*b*.
respiration of, effect of castration and testosterone on, 5468*c*.
effect of diethylstilbestrol and steroids on, 7579*e*.
effect of pH on, 3084*e*.
effect of local anesthetics on, 8056*g*.
effect of $NaN_3$ on, and relation of temp. thereto, 8501*g*.
*respiration of*, inhibition by ethanol at varied temps., 1863*b*.
in running fits of dogs, 8047*f*.
sensitivity to isopropyl fluophosphate, 5122*g*.
sphingomyelin hydrolysis by, 4751*d*.
succinate oxidation in slices and homogenates of, effect of 2,4-dinitrophenol on, 3927*e*.
sulfhydryl compds. and vitamin C in, effect of Pb on, 1113*b*.
sulfur (radioactive) concn. in, after administration, 4376*a*.
temporal and spatial distribution of changes in, during spontaneous seizures, 9238*g*.
thromboplastic activity of, action of dicumarol on, 3519*f*.
trace elements in, 6719*g*.
vitamin $B_1$ distribution in, 9197*c*.
**Brakes**. (See also *Friction materials; Hydraulic systems*.)
corrosion preventive for, P 7896*b*.
flushing fluid for hydraulic, P 6341*a*.
gaskets for vacuum, acrylonitrile-butadiene compns. for, P 7260*d*.
linings for, P 3241*c*, P 6341*c*.
from Cu shot, P 3949*b*.
from furfural-ketone resins, P 3655*c*.
residues from heating drying oils under reduced pressure for, P 3215*f*.
**Bran** (*wheat bran unless otherwise stated*). (See also *Chaff*.)
*Aspergillus niger* and *A. oryzae* incubation on, amylase prepn. by, 1571*h*.
corn, for animal feed, P 2710*f*.
compn. of, 2333*i*.
phytic acid in, 3116*e*.
detn. of cellulose, hemicellulose and lignin in, 3532*f*.
diamine oxidase in, 3070*b*.
2-furaldehyde and pentoses from, 2171*c*.
growth factors in enzyme-free moldy exts. of, 1146*i*.
inorg. constituents of, in streptomycin production, 6369*a*.
maltase in mold, 6361*d*.
mold growth on effect of water on, 9275*g*.
moldy, in fermentation of corn, 5901*b*.
peanut, vitamin A activity of, 5098*h*.
phosphatase from, action on phosphoric esters, 4308*e*.
phosphorus in, 5508*g*.
rice and wheat, as Mn source in poultry feeding stuffs, 6331*c*.
rice, antioxidants from, P 1586*b*, P 2340*a*.
carbohydrates in, 1117*e*.
effect of cleaning rice on compn. of, 5126*g*.
glucoside from, 1117*g*.
utilization of, from French Indo-China 1117*hi*.
sorghum, carotene mixt. with, 3972*f*.
treatment with $ClO_2$, P 8071*g*.
vitamins $B_1$ and $B_2$ in 5508*f*.
yeast production from barley, rice and rye, 778*f*.
**Brandy**. (See also *Kirschwasser*.)
aguardiente, from mamoeira fruit, 8090*g*.
analyses of cognac, 5154*h*.
from bananas, 5153*i*.
copper removal from cognac, 5901*c*.
thermal vol. coeff. for cognac, 1904*h*.
Turkish, 353*f*.
vacuum-distd., 3141*h*.
**Bran oil**. See *Oils*.
**Brasil-**. See *Brasil-*.
**Brass**. (See also *Copper alloys; Zinc alloys*.)
activities in liquid, 4930*i*.
adhesion of Buna S or rubber to, and cleaning of, 5985*e*.
adhesion of lacquers and varnishes to, 8702*c*.
adhesive for, 9521*d*.
alpha, anodic soln. of textured, 5677*c*.
cathodic protection of stress-corrosion cracking of, 6094*b*.
cold working grains of, 6961*g*.
damping capacity of, grain size and, 533*b*.
plastic deformation in 70-30, 2557*g*.
slip in single crystals of, 9003*a*.
alpha-beta equil. in, effect of Fe, Mn and Ni on 3258*g*.
aluminum, 7886*a*.
in ammonia, delayed fracture of, 4048*i*.
analysis of, for Sb, Fe, Pb and Zn, 6539*a*.
for Cu and Pb, 5698*a*.
with general-purpose source unit for spectra, 7857*i*.
Pfeilsticker's intermittent arc in spectral, 8307*d*.
anisotropy in annealed polycryst., 6950*e*.
annealing of, in protective gas, 3757*d*.
annealing twins in, 7887*fg*.
beryllium-Ni, 2915*i*.
beta, crystal structure of, 14*h*.
beta, elastic consts. of, 1621*h*.
brazing of, effect of temp. on, 7890*a*.
calcium detn. in, 2117*e*.
cartridge, intergranular weakness in, 2563*i*.
casting and recrystn. of, 5355*h*.
casting of, P 7892*d*.
casting of, Mercast process for, 3333*e*.
as catalyst for H-atom recombination, 8251*d*.
as catalyst in dehydrogenation of 2,3-butanediol, P 3841*h*.
cathodes, chloropicrin reduction at, 8915*h*.
cathodes, decay curves of counting rate of, 4945*h*.
cleaning antique, 3335*i*.
cleaning, before electroplating, 95*h*, 8284*g*.
coating from, by spraying, 986*a*.
coatings from chromated proteins on, P 7895*d*.
coatings of, stripping from scrap, 3297*b*
coloring of, 4148*i*, 5352*h*.
condenser-tube plates of Naval and rolled, 5719*f*.
containers of, ghee storage in, 6327*f*
copper detn. in, 4178*a*, 4973*b*.
corrosion by fungicides in humid tropical climate, 873*f*.
corrosion in metallic systems contg., inhibitors for, P 8349*c*.
corrosion (intercryst.) of, 2149*b*.
corrosion of, 5722*h*.
by 2-furaldehyde, prevention with mercaptobenzothiazole, P 9480*i*.
by Nitrolite, 5721*i*
in $SO_2$, 101*g*.
Zn loss in, 1704*d*, 7399*d*.
in corrosion prevention in petroleum fineries, 8128*b*.
corrosion underground, 6141*c*.
destruction of, detn. of resistance to 1299*c*.
diffusion between Cu and, 1622*h*.
elasticity of, temp. and, 5715*c*.
electrodeposition of, 3727*e*, 4147*i*.
electrodeposits of other metals and, P 4152*a*.
electroplating on, racks for, 8907*g*.
electroplating with, from cyanide baths 1268*i*.
with reversing current, P 956*c*
rubber bonding to metals by, 8191*f*
etching reagent for, 3761*f*.
friction (internal) of, 5252*a*.
friction of, effect of org. substances on 2060*b*.
gamma, magnetic susceptibility of, temp and, 8767*b*.
gas removal from, 1703*g*.
grain growth in, 534*a*.
grain size of deep-drawing, effect on tensile strength, elongation and endurance limit, 94*a*.
heat transfer by radiation to surface of, 4939*b*.
hollow ware of, refinishing of, 5676*a*.
iron, corrosion of, control of, 2564*e*.
iron detn. in, 2889*e*.
lead, in manuf. of clocks and instruments, 6059*a*.
manganese, P 8348*c*.
melting of, furnaces for, 2141*d*, P 4151*c*
molds from, effect on aging and tensile properties of rubber, 2023*h*.
nickel detn. in special, 968*f*.
paint-film thickness on, measurement of, 418*h*.
pipe fittings of, effect of water chlorination on, 3545*h*.
plastic deformation in, detection of, 8337*h*.
polarographic analysis of, effect of additives in quant., 4181*h*.
polishing (electrolytic) of, 6523*b*, 7351*a*
polishing (electrolytic) of pressings of, 7835*a*.
polishing of, soln. for, P 4626*h*.
powd., electroplating on parts from, 6924*h*.
powder metallurgy of, 7879*c*.
recovery and recrystn. in, 9013*h*.
recovery from scrap, 6090*c*, P 6966
recrystn. of strained, 7879*g*.
silicon carbide-contg., lapping bronze, P and steel with, 3786*h*.
solder for, P 9023*a*, P 9024*a*.
soln. (electrolytic) of, 1270*e*.
standards for, 4615*c*.
tin recovery from, 5712*h*.

tubes from, for petroleum industry, 1299*i*.
uniting of, with phenolic plastics, adhesives for, 4893*a*.
wastes of industry of, treatment of, 7885*g*.
zinc recovery from, 9011*g*.
zinc removal from, 4198*c*.
**Brassica.** (See also *Broccoli; Brussels sprouts; Cabbage; Cauliflower; Charlock; Collards; Crucifers; Kale; Mustard; Rape; Rutabagas; Turnips.*)
clubroot of—see *Clubroot*.
oils in, 8013*f*.
oils of—see *Oils*.
seed crops, control of insect pests on, 9336*b*.
**Brassicaceae.** See *Crucifers*.
**Brassidic acid** (*trans-13-docosenoic acid*), oxidation of, with $OsO_4$, 1319*d*.
synthesis of, 6161*d*.
**Brassylamidine**, effect of glycolysis in muscle exts., 7581*f*.
**Brassylic acid** (*tridecanedioic acid*).
——, **α-acetamido-**, (omitted from abstr.), 1323*b*.
——, **α-acetyl-**, diethyl ester, 163*g*.
——, **α-amino-**, 1323*b*.
——, **γ-oxo-**, 7905*b*.
**Braun, Ferdinand**, biography, 1229*e*.
**Braunite**, dimorphism of, 3750*e*.
**Braun tubes.** See *Cathode-ray tubes*.
**Bravaisite**, classification of, 7872*e*.
**Bravoite**, in nickel deposits of Novoaidyrlia, Urals, 6123*g*.
**Brayera**, identification of fluidexts. of, 1908*c*.
**Brazilianite**, crystallographical and optical examn. of, 7871*b*.
**Brazilin**, ***O*-trimethyl-***, spectrum of, 2868*a*.
**Brazil nut oil.** See *Oils*.
**Brazilone**, ***O*-trimethyl-***, spectrum of, and monoximes, 2868*a*.
**Brazing.** See *Soldering*.
**Bread.** (See also *Bakery products; Baking.*)
amylase supplements for manuf. of, 7596*e*
ash content of, in estg. % extn. of flour, 777*h*
baking qualities of, using $ClO_2$, 6325*e*.
baking quality and nutritional value of, degree of extn. of wheat in relation to, 6748*f*.
barley flour in, of Morocco, 4391*h*.
canned, effect of fermentation, baking and storage on vitamins in, 2336*d*.
canned, vitamin $B_1$ in, stability of, 9276*b*.
chloride detn. in, 4392*d*.
control of *Balersum mesentericus* in, 5508*h*.
crude fiber of, and its alteration during digestion, 6753*c*.
crumb softness of, effect of polyoxyethylene stearate on, 3113*g*.
detn. of butterfat and milk solids in, 9278*a*.
dough for—see *Dough*.
drying of, kinetics of, 7272*c*.
fermentation in, effect of baker's yeast in, 4725*i*.
flour for—see *Flour*.
from flour mixt., taste, nutritional value, etc., of, 9183*a*.
grinding effect on, 6325*d*.
iron sulfate-contg. enrichment compn. for, P 5881*c*.
leavening agents for—see *Leavening agents*.
lipases and lipoxidase in, effect of baking on, and effect of their reaction products on consumer acceptability, 2336*b*
lipides in blood after administration of olive oil and, in normal and pathological conditions, 2296*cd*.
loaf vol. of, effect of metals and metallic salts on, 4781*e*.
loaf vol. of, protein content of flour and, 324*h*.
manuf. and digestibility of, 7153*f*.
manuf. of, P 4784*g*.
manuf. of, analysis of materials for, 4392*e*.
milk (dried skim) in manuf. of, 1871*i*.
mold inhibition in, propionates in, 7151*g*.
pans for, coatings for, P 4396*f*.
phosphorus in, and destruction of phytic acid, 4392*f*.
proteins of, effect of dried skim milk and soybean flour on biol. value of, 8566*f*.
vitamin $B_1$ in, in Adelaide, Australia, 6748*d*.
detn. of, 6748*b*.
effect of minerals on loss during baking, 6748*e*.
wrappers for, inks for printing on, 4870*i*.
**Breadfruit**, latex from *Artocarpus communis*, 4042*h*.
**Breaking**, of solids, particle-size distribution in, 1621*g*.
**Breaking apparatus**, for crusts of carbide and ferroalloy charges in elec. smelting furnaces, P 7357*g*.
**Bream**, food poisoning from raw or cooked, 327*g*.
**Breathing.** See *Respiration, animal*.
**Breathing apparatus.** See *Respirators*.
**Breccias**, kaolinized volcanic, of Czernka Valley, Poland, 8320*a*.
of Oregon (Grant Co.), 524*h*.
quartz (milky-), cemented by mineralized sulfides and translucent quartz in Au veins of Beresov, 2900*c*.
of U.S.S.R. (Ufa, Tataria), 6954*c*.
volcanic, of Dagköy, Turkey, 4610*a*.
**Bredigite**, in spiegeleisen slags and Scawt Hill contact zone, Ireland, 5705*h*.
**Bredt's rule**, validity limit of, for bicyclic compds. with polymembered rings, 7907*b*.
**Breeding**, beef, sheep and swine, 6711*c*.
of lab. animals, 1845*d*.
**Breithauptite** system: NiAs-, 8834*e*.
**Bremen green.** See *Pigments*.
**Bremsstrahlung.** See *Radiation*.
**Brenthia**, control on beans, 3967*d*.
**Brevicoryne brassicae** and(or) **Cabbage aphid**, control of, 5147*h*, 5526*d*.
control of, on cauliflower, 4416*h*.
**Brevipalpus inornatus** and(or) **Privet mite**, control of, 9314*b*.
**Brewing.** (See also *Barley; Hops; Malt; Mashes; Worts; Yeasts.*)
arginine in, 5901*f*.
books: 3561*d*; Brautechnischen Untersuchungsmethoden von Pawlowski und Doemens, 2734*e*; Biochemistry Applied to, 3561*d*; Cours de Brasserie, 4424*b*.
colorimeter for, P 6012*b*.
control in, sp. gr. gradient tube in, 8607*e*.
enzyme problems in, 2365*f*.
fermentation tanks (open *vs.* closed) in, 354*d*.
infection free, 4423*b*.
microorganisms in, biol. control and, 353*i*.
oxidizing enzymes in materials for, 1905*b*.
pantothenic acid in, 3143*a*.
protein balance in American, 9360*f*.
reductones in, 7637*a*.
spent grains, soly. of N constituents of, 4809*e*.
technology of, 5507*g*.
vitamins in materials for, 354*c*.
waste waters from, stream pollution control activities and, 8079*i*.
water for use in, and its analysis, 3971*c*.
yeast (pure) in, 354*g*.
yields in, calcn. of, 9361*b*.
**Bricks.** (See also *Building materials; Stone, artificial.*)
acid attack on, inhibition of, P 6387*c*.
acid-resisting, effect of acids and alkalies on, 5104*c*.
alumina-, for regenerators of glass furnaces, 5915*c*.
basic, for metallurgical industry, 8629*e*.
basic, in open-hearth furnace, 829*b*.
blast-furnace, detn. of disintegration of, 7655*e*.
Carborundum, in furnace regenerator, P 7357*d*.
from cement and shale, P 4828*d*.
from cement, powd. glass, and Solvay-CaO sludge, P 6805*a*.
chrome and MgO, P 4442*b*.
chrome-magnesite, for open-hearth furnaces, 6801*b*.
from clay or shale, 4437*d*.
coatings for, from hydrocarbon resins, P 903*c*.
Dinas, from Anzhero-Sudzhen quartzites, 6800*d*.
for arches of elec. furnaces, 6382*e*.
for arch of open-hearth furnace, 6382*d*.
in coke ovens, coating for hot repairs of, 5916*i*.
cooling and heating of, in glass-melting furnaces, 9390*f*.
deposits in kilns for firing, 9400*i*.
with Mn binder for coke ovens, 5916*e*.
in open-hearth furnace roofs, 6800*i*.
from quartz of Uzbek S.S.R., metacristobalite- and tridymite-contg., 5345*i*.
sintering of, 5563*i*.
surface characteristics of arch, 8112*d*.
*Dinas*, vein quartz for, 6800*b*.
wear in arch of open-hearth furnace, 6382*g*.
dolomite, furnace for firing of, P 3164*g*.
dolomite, in metallurgy, 3581*d*.
drying of, $SO_2$ in, 1931*i*.
dust, hydrocarbon-gas conversion of cracking on hot, P 8663*f*.
elasticity of, measurement of, 829*g*.
fire or refractory—see also *Refractory materials*.
fire or refractory, abrasion resistance of, 830*a*.
basic, for Maerz type open-hearth furnace, 8324*f*.
bonding with asbestos, P 1936*b*.
of coke ovens, calcn. of gas permeability of, 8114*h*.
diaspore for, 7655*i*.
disintegration by CO, 1933*ac*.
effect of C and graphite on, 8112*b*.
effect of mixts. of FeO and CaO on, 3582*i*.
effect of reheating on, 2748*e*, 3582*cdg*.
glazes for, 5564*f*, 6386*a*.
light-wt., 5563*i*, 8632*d*.
Pt coatings on, in manuf. of glass fibers, P 4440*g*.
radiation properties of, and their effect on heat transfer, 9404*i*.
slagged high-$Al_2O_3$, 7655*d*.
spalling of, 6799*d*
standards for, 4397*i*.
zircon, 5563*f*.
fly ash and boiler slag in making, 2911*c*.
for furnace walls, P 3588*c*.
for glass-melting furnaces, 1163*e*.
kilns—see *Kilns*.
ladle, from kaolin, 6381*e*.
light-wt., 8629*ce*.
light-wt. refractory, thermal properties from lime and waste slate, 1939*a*.
magnesite, catalyst pellets from, P 8578*h*.
fused MgO for, 8628*g*.
mech. strength of unfired, 5560*d*.
patents on, 8629*b*.
thermal-shock-resistant, 8628*i*.
manuf. of, P 374*e*.
fluorosis of farm animals from, 3508*h*.
health in, 3581*c*.
in tunnel kiln with excess air, 372*g*.
materials at Guadix in Granada for, 6381*d*.
mortar for, 5568*a*.
multigrog ladle, 5560*f*.
paving from—see *Paving*.
Radex, in smelting furnaces, 3755*f*.
retort, reducing permeability of, 3583*f*.
sand-lime, 2752*g*, 3590*e*.
shrinkage of, 8630*d*.
silica, $Al_2O_3$ detn. in, 2389*b*.
$Al_2O_3$ effect on, 6801*g*.
$Al_2O_3$ in, 8112*d*.
analysis of, 829*d*, 7656*d*.
d. of, 4823*f*.
detn. of elongation of, 8114*f*.
impregnation by fused FeS, 3257*d*.
with MgO binder, 4437*e*.
manuf. and use in open-hearth roofs, 829*c*.
silicosis prevention in handling, 6921*i*.
testing for open-hearth furnace roofs, 2389*a*.
standards for, 4785*i*, 4786*g*.
superrefractory, 1543*c*.
Ukrainian clay, 9404*f*.
waterproofer testing on, 3590*c*.
**Bridal.** See *Ethylenediamine, N-benzyl-N′, N′-dimethyl-N-phenyl-*.
**Bridge compounds.** See *Cyclic compounds*.
**Bridges**, paint systems for steel, 6835*b*.
**Brightness**, meter for, 7757*g*.
of paper, 3614*h*.
of paper pulp, lignin content and, 1184*g*.
of paper pulp, measurement of, detection and control of errors in, 6412*g*.
**Bright's disease.** See *Nephritis*.
**Brilliant Blue.** See *Dyes*.
**Brilliant Carmoisine**, as indicator, 6113*h*.
**Brilliant Cresyl Blue**, effect on cell division, oxidations and, 773*e*.
effect on influenza-virus infection, 7589*c*.
germicidal action of, effect of supersonic waves on, 1461*a*.
retardation of growth of transplantable carcinoma in mice by, 1856*i*.
**Brilliant Green**, in disinfection of skin, 3525*d*.
lakes with quebracho tan, $BaCl_2$ and Na resinate for inks, P 4494*c*.
**Brilliant Safranine**, germicidal action of, effect of ultrasonic waves on, 1461*b*.
**Brilliant Violet.** See *Dyes*.
**Briner, E.** biography, 2825*c*.

**Brines.** (See also *Meat; Pickles; Potassium chloride; Sodium chloride; Waters, natural.*)
app. carrying, in Cl plants, corrosion of, 2743*h*.
bromine manuf. from, P 2381*h*.
bromine removal from, by air, 1535*h*.
calcium chloride, salt sepn. from, 2743*d*.
of Calif.-saline lakes, 3574*g*.
for canning vegetables, high-vitamin contg., P 5882*f*.
from cation-exchange softeners, treatment of, 8578*e*.
concentrator for, P 6477*b*.
corrosion by, in soda-ash manuf., 99*h*.
effect on color of stamps applied on skin of animals or meat, 8068*i*.
level-control app. for, contg. solid salt, 4903*i*.
magnesia manuf. from, P 2745*d*.
magnesium bisulfite manuf. from, P 6796*a*.
magnesium hydroxide manuf. from, P 6795*i*.
mixts. with fatty acid-amine salts, P 5519*c*.
of North Dakota, 4434*i*.
oil-field, amides of glyoxalidines for breaking emulsions of, P 9427*a*.
I in, of Krościenko, Poland, 3995*c*.
I manuf. from, 8622*i*.
of Saratov Dist., U.S.S.R., 4192*b*, 6371*h*.
stabilization and subsurface disposal of waste, 2757*f*.
water pollution by, in Kan., 9301*g*.
for olives (green), discoloration of, 5511*c*.
sauerkraut, carbohydrates in, 1499*d*.
sulfide-contg., treatment of, 8587*b*.
wells, 3982*i*.
of West Virginia, 6373*d*.
**Brinjal.** See *Eggplant.*
**Briqueting,** metal chips and borings, 530*gh*.
**Briquets.** (See also *Powder metallurgy; Tablets.*)
for grog firing in shaft kilns, 8113*d*.
of molybdenum oxide, P 7404*g*.
of ultramarine raw mix, P 9483*a*.
**Briquets, fuel,** binder for, cement and pulp-waste liquor as, P 4835*b*.
from charcoal and anthracite, for producer-gas manuf., P 4835*c*.
from coal, P 9419*c*.
carbonization of, 1948*e*.
coking of, 3598*d*.
in western Pennsylvanian beds, 6547*f*.
from coal, coke or lignite, P 1170*e*.
industry, 2127*c*.
for lighting fires, P 8122*b*.
from peat, 8118*e*, 9400*g*.
from pulp waste liquor and finely divided fuel, P 1170*e*.
from semicoked-peat fines, P 5174*g*.
semicoke, from brown-coal distn., 8118*d*.
stability of semicoke in making, 5172*i*.
from waste paper, P 7686*h*.
**Briquets, ore,** manuf. from Fe ore, 2517*h*.
manuf. from taconite concentrate, 4611*f*.
**Brissopsis lyrifera,** amino acids in basic protein fraction from sperm nuclei of, 4388*a*.
**Bristle grass.** See *Grasses.*
**Bristles,** from acrolein acetal polymers, P 5636*a*.
from acrylonitrile polymers, P 5636*a*.
-manufg. industry, combating anthrax in, 7999*i*.
**Britannia metal,** hollow ware of, refinishing of, 5676*a*.
**British antilewisite,** See *1-Propanol, 2,3-dimercapto-.*
**Britske, E. V.,** biography, 3251*b*.
**Brittle materials,** stress concn. for, 2837*h*.
**Brittleness,** dielec. loss and, of vinyl compds., 435*i*.
of interstitial phases, 918*d*.
of iron single crystals from acids, 7395*f*.
measurement of low-temp., of elastomers, 1208*i*, 8723*d*.
measurement of, of quartz colored and colorless parts, 976*g*.
of steel—see *Steel.*
**Brittle substances,** crushing of, energy and surface in, 8751*e*.
**Broad-horned flour beetle.** See *Gnathocerus cornutus.*
**Broccoli,** cabbage-maggot control on, 3136*i*.
carotene and vitamin C in, 3536*a*.
carotene, dry wt. and vitamin C of, effect of environment and fertilizers on, 6754*a*.
fertilizer expts. with, 1134*e*.
leaf meals from, nutritive value of, 4343*e*
nicotinic acid synthesis by, tryptophan in, 9177*f*.
vitamin $B_1$ in and effect of cooking thereon, 6753*h*.
vitamin C in, 5511*b*.
vitamin C in, effect of blanching with radar energy on, 1493*b*.
weed control in, 1894*b*.
**Brochantite,** from Mt. Ramazzo, Italy, and Sardinia, 2129*c*.
**Brode, Wallace R.,** biography of, 4939*g*.
**Bromal,** hydrate, pharmacology of chloral and, 1862*a*.
**Bromates,** alc. oxidation by Br in the presence of, 7800*g*, 8350*g*.
detection of, in blood and urine, 4324*d*.
detection of, in presence of other oxidizing agents, 5700*d*.
effect on acid production, growth and proteolytic properties of lactic acid bacteria, 4340*i*.
elec. conductivity of, 1630*d*.
oxidation of, on thermobalance, 7367*g*.
sepn. from nitrites, 6883*b*.
**Brome grass.** See *Grasses.*
**Bromethol.** See *Avertin.*
**Bromides** (See also *Alkali metal bromides; Alkyl bromides; Bromine, analysis; Bromine compounds; Halides.*)
in blood after elec. shock, 9235*f*.
bonding strengths of, in Co ammines, 2856*b*.
complexes with $Hg^{++}$ ion, 4545*g*.
crystallochem. electronegativity of, 8231*b*.
detn. of, 65*c*.
effect on gelling and viscosity of solns. of gelatin, 4540*f*
on isoelec and isoionic points of serum albumins, 3690*c*.
on polypnea, 2323*a*.
on protoplasts, 5091*c*
elec. cond. in various solvents, 7301*f*
exchange on Amberlite IRA-400, 6489*f*.
heat of transport of, 8835*d*.
hemolytic activity of, 5839*c*.
hydration of, activity and, 7302*a*.
hydration of ions of, 8244*b*.
lattice energies of, 8230*g*.
in mistura nervina, 816*f*.
polyelectrolyte membranes permeable to ions of, 4892*f*.
reaction with chlorates, kinetics of, 1248*e*
reaction with hypochlorites, kinetics of, 7799*b*.
sorption of ions of, by glass, 8233*h*.
**Bromination.** (See also *Halogenation,* and "reaction" under *Bromine.*)
of acetaldehyde and its homologs, 2575*b*
of acetylenic glycols, 3782*i*.
of alkyl benzenes, velocity of, 6583*e*.
of allyl sulfones, 558*h*.
of 4 aminosalicylic acid, its Na salt and *m*-aminophenol, 7379*e*.
of 2-aminothiazole and 2-aminoselenazole, P 3042*b*.
of aromatic acids, 2603*g*.
of arylcyanopyruvic esters, 1746*f*
of ε-benzamidocaproic acid, 6078*b*.
with bromine-$Me_4NBr$ mixts., 6970*h*.
with N-bromosuccinimide, 1013*g*, 3792*a*, 9034*e*.
of 2-carbethoxycyclopentanone, catalysis by metal ions, 3273*e*.
of castor oil, 7722*f*.
catalysis of, by electrolytes in AcOH, 7408*f*.
of chalcone derivs., 1742*e*.
of coprostanone, 7495*b*.
of cyclobutene, 587*a*
of 1,5-cyclooctadiene, 591*d*.
of 4,4-dibromocoprostanone, 4681*a*.
of dicarboxylic acids in α-position, 1325*b*.
of 3,5-diethoxypyridine, 3824*a*.
of *dl*- and *meso*-4,4′-(1,2-diethylethylene)-dicyclohexanone, 6187*d*.
of dimethoxystilbenes, 1037*i*, 7008*a*.
of 4,5-dimethylfluorescein, 1984*e*.
of 2,5-dimethyl-3-thiophenecarboxylic acid, 4666*g*.
of diphenylacetylene, 1755*f*.
of enols, 6980*e*.
of β-ethoxypropionaldehyde diethyl acetal, 3359*f*.
of ethyl acetoacetate, kinetics of, 4642*d*.
of ethyl cyclopentanone-2-carboxylate, kinetics of, 3698*c*
of ethylene and derivs., 5731*e*.
of ethyl tetrolate, 4220*c*.
of ethyl (trimethylsilyl)acetate, 562*g*.
of fluorene, 4658*f*.
of fluorene and 2-methylnaphthalene, 7004*g*.
of 3-furoic acids and derivs., 5020*g*
of herniarin derivs., 5024*c*.
of 3-hydroxy-2-naphthoic acid, 7010*e*.
of ketones (phenyl) contg. ether groups, P 1806*h*.
of 3-keto unsatd. steroids, 7494*h*.
in liquid $SO_2$ soln., P 2232*f*.
of methylenecyclobutane, 586*d*.
of methylenediphenols, P 4698*g*.
of 5-methyl-1,4-hexadien-3-one, 2163*g*.
of methyl 4-methyl-2-phenyl-5 pyrimidyl ketone, 1424*b*.
of 2-methylthiophenes, 5781*e*.
of 2- and 3-methylthiophene with N bromosuccinimide, effect of $Bz_2O_2$ on, 6612*h*.
of naphthalene, 2851*g*.
of 1,5-naphthalenediol and of its Me ethers, 615*b*.
of olefins with *N*-bromoacetamide, 5753*h*.
of olefins with *N*-bromosuccinimide, 9024*e*.
of phenanthrene, 1762*b*.
of phenylacetonitrile, 1752*i*.
photochem., of camphene and pinene with *N*-bromosuccinimide, 5768*a*.
photochem., of methylsiloxane films on glass, 2096*f*.
of polyallyl methacrylate, 8200*d*.
of quinoline, app. for, P 3726*f*.
of 8-quinolinol, 6113*g*.
of resinenes, 3597*i*.
of selenocyanates, 2159*i*.
of steroids, P 3474*i*.
of styrene polymers, P 1608*d*.
of sulfadiazine and sulfathiazole, 3804*b*
temp. effect on, of aromatic compds., 7471*d*.
of terpenes, 6600*h*.
of unsatd. compds., 109*i*, P 2628*i*
of unsatd. ketones and quinones, 1633*a*
of o-xylene, 1733*c*.
**Bromine.** (See also *Halogens.*)
absorption by $Na_2CO_3$ soln., 2378*d*.
accumulation by thyroid, 5471*f*.
adsorption of ions of, on $Al_2O_3$ chromatographic columns, 8271*d*.
alc. oxidation by, in the presence of $BrO_3^-$, 7800*g*, 8350*g*
alpha ray bombarded, Rb isotopes from 4122*e*.
antibacterial efficiency in dil. solns., 9159*g*.
atom, phys. consts. of, 2590*h*
reactivity in chalcone derivs., 1742*e*
reactivity of, in brominated pyridines, 641*eh*, 642*c*
substitution by I, rate of, 4628*e*.
in blood, 6684*h*.
bonds with Sb, As or C, elec. moment of, 5241*a*.
with Br, energy of, 8763*b*
with N, energy of, 8764*c*.
with P, molar sound-velocity increment of, 6025*b*.
catalysts of $CBr_4$, $CCl_4$, $CHBr_3$ or $CHCl_3$ and, in alkylation of paraffins, P 5181*g*.
compds. with polyvinyl borate or starch 4542*f*.
counters filled with, P 8284*b*.
covalent and packing radii of, relation between, 9*i*.
dehydrogenation by, of cyclohexane derivs., 158*e*.
as depolarizer of galvanic elements, P 6098*d*.
deuteron bombarded, Mn from, 8266*h*
as disinfectant for water supplies, 7165*b*
disintegration of, 2861*e*.
dissocn. of, 1630*e*, 7797*e*.
effect on adrenaline and insulin, 742*c*.
on cholinesterase in blood serum, blood sugar in relation to, 2311*c*.
on mitosis in onion root-tips, 3008*i*, 8449*e*.
elec. cond. of vapor of, in silent discharge, hysteresis in, 3730*i*.
explosion of mixts. with H, 4084*eg*.
flames, spectrum of, 5312*h*.
gamma-ray bombardment of, thresholds for reactions in, 4115*g*.
glucose oxidation by, kinetics of, 6895*i*
hydrolysis of, 7799*d*.
impenetrability radius of, 8794*e*.
ions (neg.) of, mass-charge ratio of, 8848*a*.
isotope of mass 80, efficiency of internal conversion of 4.5 hr. isomer to 18 min. isomer of, 4563*g*.
recoil energy of isomeric, 5295*f*.
sepn. of isomers of, 7332*d*.
isotope of mass 82, "cross-over transitions" for γ-rays in, 4119*b*.
as indicator in metabolism of triphenyl bromoethylene, 7106*h*.

*isotope of mass 82*, in therapeutics, 3524*c*.
isotope of mass 83, valence of, from $Se^{83}$ by β-decay, 7332*f*.
isotope of mass 84, data on forbidden β-decay of, 8860*a*.
isotopes of, in hormone and receptor studies, 9214*g*.
as indicator of spinal anesthetic distribution in tissue, 8058*b*.
in plant nutrition studies, 1079*f*.
sepn. of isomeric, 4123*c*, 7814*h*.
isotopes of masses 75, 77 and 80, from Se, 485*h*.
isotopes of masses 79 and 81, natural abundance of, 1649*h*.
isotopes of masses 79 and 81, neutron capture cross section of, 6506*a*.
isotopes of masses 82 and 83, from Th by α-ray action, 4127*a*.
isotopic wt., packing fraction and binding energy of, 4129*h*.
Joshi effect in, 2085*cg*.
Joshi effect in, and its mixts. with H and Cl, 7322*h*.
labilization of trans-group in complex by, 2854*g*.
lyoparachor of, 2834*d*.
in magnetic field, ratio of resonance frequency to proton frequency of, 8262*g*.
magnetic moments and gyromagnetic ratios of, 5303*f*.
manuf. and desorption of, 1535*g*.
manuf. of, in Argentina, 4819*i*.
from K salts, 1920*h*.
from sea water, 4819*d*, 8622*g*.
from sea water, etc., P 2381*g*, 5515*e*.
migration of, in bromocoumarins, 5024*c*.
migration of, in 1,3-diketones and β-oxo esters, 7908*i*.
mixts. with tetramethylammonium bromide, bromination with, 6970*h*.
neutron cross section of, 6909*d*.
neutron resonance levels in, estn. of spacing of, 4123*b*
phenylhydrazone cleavage by, mechanism of, 4247*h*
in pineapple juice, 783*i*
radius of bonded atoms of, 3252*c*.
reaction (cleavage) with tetraacetylglucose derivs., 1326*g*
reaction (color) with 17(α) hydroxy steroids in AcOH, 7941*c*.
reaction kinetics of, after neutron capture, 2078*a*.
reaction product with Et ether, 1313*b*
reactions see also *Bromination*
reactions with acetylenic glycols, 130*a*.
with aromatic sulfides, 2599*g*
with arylcyanopyruvic esters, 1746*f*.
with azide ion and thiosulfate or tetrathionate ion, 7799*g*
with bromotrichloromethane, 4548*d*
with EtOH, kinetics of, 7800*c*.
with H, kinetics of, 5266*c*, 8816*h*
with oxalic acid, catalysis by manganic ion, 2497*h*.
with oximes, 6569*b*
with Ag (+) α-phenylpropionate, 4241*d*.
with wood waste, P 3618*b*.
reaction with bromotrichloromethane, kinetics of, and prepn. of radioactive Br, 4548*g*.
removal from brominated compds. by enzymes, 1815*i*.
removal from bromo derivs. of $C_6H_6$, 8908*f*.
in sediments and sea water, 5350*e*
solns. of, spectra of, 6511*d*.
sorption by charcoal, 6038*b*.
substitution in inorg. compds., 2495*h*.
system $Cl-Cl_2-Br-Br_2-BrCl$, 5265*g*
thermal cond. and viscosity of, 4065*c*.
thermochor of, 8226*e*.
in vegetables, 3537*e*, 8572*d*.
in water (South African underground), 6763*i*.

**Bromine, analysis.** (See also *Bromides*.)
chromatographic sepn. from Cl, I and CNS on paper and detection, 8972*h*.
detn., 959*h*, 6539*g*, 8300*f*, 8947*e*.
ampuls of KI in, 9371*e*.
steeloscope in, 4179*g*.
detn. in antifermentatives and insecticides, 4179*e*.
in biol. material, 1454*a*, 5815*g*, 8419*d*.
in blood, 6684*g*.
in drugs, 7640*b*.
in halogenated fluoresceins, 8959*f*.
in org. compds., 6107*h*, 8959*g*.
in petroleum products, burner for, 6474*d*.
in presence of Cl and I, 6943*b*, 7369*e*, 8972*f*.
*detn.* in NaCl, 1286*i*.
detn. of combined Br, 3870*a*.

**Bromine chloride** (BrCl), bond moment of, 5240*i*.
dissocn. of, 1630*e*.
system: $Br-Br_2-Cl-Cl_2$, 5265*g*.

**Bromine compounds.** (See also *Bromides*.)
manuf. from bromo derivs. of methane and unsatd. compds., P 6644*h*.

**Bromine fluoride** ($BrF_3$), reactions with $CCl_4$, $CBr_4$, $CI_4$ and $C_2I_4$, 3774*i*.
reaction with halides, 3739*e*.

**Bromine iodide.** See *Iodine bromide*.

**Bromine ion.** See *Bromides; Bromine*.

**Bromine number.** (See also *Polybromide number*.)
detn. of, of benzine, 2415*b*.
detn. of, of unsatd. carbonyl compds, 6540*e*.

**Bromine oxide**, BrO, in flames of MeBr and Br, 5312*g*.

**Bromoacetate ion.** See *Acetic acid, bromo-*.

**Bromoaluminates**, structures of, 960*c*.

**Bromoargentates(I)**, 4971*a*

**Bromocadmates**, formation of, 8939*h*

**Bromocobaltates(II)**, in ethyl alc solns., 4970*i*.
spectra of, 520*a*, 7817*f*, 7818*b*, 8273*i*.

**Bromocobaltic(II) acid**, spectrum of ion of, 5305*a*.

**Bromocresol purple**, as adsorption indicator in thiocyanate titration, 8300*c*.

**Bromocuprates(I)**, properties of, 3308*a*.

**Bromocuprates(II)**, stability of, 4971*a*.

**Bromocyanogen.** See *Cyanogen bromide*.

**Bromoferrates(III)**, of nicotinamides, P 3471*b*.

**Bromoform** (*tribromomethane*), azeotrope with $(CHCl_3)_2$, 2834*f*.
catalysts of Br and, in alkylation of paraffins, P 5181*h*.
heat capacity of, 30*c*.
heat of soln. of $AlBr_3$ in, 2851*f*.
reaction with aldehydes, P 664*d*, P 4284*h*
soly. in Na xylenesulfonate solns., 1242*e*.
spectrum of, 12*d*.
ultrasonic velocity in, 1232*h*.
ultrasonic velocity in, temp. and, 7283*i*.

**Bromoiridates(III)**, system: bromoiridates(IV)-, 6535*g*.

**Bromoiridates(IV)**, system: bromoiridates(III)-, 6535*g*.

**Bromomercurates(II)**, formation of, 8939*h*

**Bromomethyl group**, parachor of, 2057*f*

**Bromophenol blue**, as adsorption indicator, 8300*c*.
cornea tolerance to, 3110*i*.
dissocn. consts. and tautomeric equil. of, in indirect colorimetry, 58*h*

**Bromopicrin**, spectrum of, 6016*d*.

**Bromosulfalein**, in bile, effect of choleretic agents on, 1869*i*.
in bile, excretion of, 1476*a*.
clearance of, as liver function test, 2657*i*
clearance of, detn. of, 5819*h*.
detn. in blood serum, 7539*i*.
detn. in blood serum, source of error in, 7539*i*.
hepatic and peripheral removal rates of, 3111*h*

**Bromotellurous acid**, $H_2TeBr_6$, 4167*h*.

**Bromothallates**, 8940*a*.

**Bromothen** See *Pyridine, 2-[(5 bromo-2 thenyl)2-dimethylaminoethyl)amino]-*.

**Bromothymol blue**, as adsorption indicator in thiocyanate titration, 8300*c*.
color changes and dissocn. consts. of, in alkali chloride solns., 3307*i*

**Bromural** ((*α-bromoisovaleryl*)*urea*), detection of, 8429*h*.
narcotic action of, in relation to action on cholinesterase in blood, 7142*e*.
solubility in iso-PrOH, 3147*i*.

**Bromus.** See "brome" under *Grasses*.

**Bronchi** and **Bronchioles**, -dilating effect of *N*-isopropylnorephedrine, 7582*c*.
-dilating substances, arterenol derivs., 3388*f*.
(hydroxyphenyl) amino alcs., P 3460*b*.
response of sensitized tracheal chain to, 1862*b*.
effect of adrenaline and noradrenaline on, 4375*e*.
response to adrenaline and histamine in lung distention, 759*c*.
spasm for mecholyl aerosol, protective action of diphenylhydramine and aminophylline on, 1861*f*.
spasmolytic prepn. for, 4226*e*.

**Bronchitis**, infectious, virus of, interfering phenomenon assocd. with, 8448*b*.

**Bronchodilators.** See *Bronchi*.

**Bronze.** (See also *Aluminum bronze; Copper alloys; Tin alloys*.)
adhesive for, 9521*d*.
aluminum detn. in, 6938*b*.
analysis of, for Sb, Fe, Pb and Zn, 6539*a*.
Bi counterelectrode in spectrographic, 8944*f*.
for P and Sn, 3314*c*.
ancient high-Sn, $SnO_2$ patina on, 2825*i*.
annealing of, in protective gas, 3757*d*.
antimony detn. in (*C. A.* has steel by mistake), 2543*b*.
bearings from, by powder metallurgy, 1703*h*, 6959*c*.
bells of, internal friction and, 3258*g*.
brazing of, effect of temp. on, 7890*a*.
casting of, 5355*h*, P 7892*d*.
casting of, Mercast process for, 3333*e*.
for casting, review on, 1703*h*.
Chinese (early), 8335*f*.
cleaning antique, 3335*i*.
cleaning of, for electroplating, 8284*g*.
coatings from, sprayed, 546*c*, 986*a*.
coatings of, stripping from scrap, 3297*b*.
containers of, glue storage in, 6327*f*.
copper detn. in, 4178*a*, 4973*b*.
corrosion-erosion test for, 1705*i*.
corrosion of pumps of, prevention of, 98*b*.
in corrosion prevention in petroleum refineries, 8128*h*.
corrosion resistance of condenser tubes of, 7399*a*.
electrodeposits of other metals and, P 4152*a*
electroplating with, 1268*i*, 8901*d*.
gases in Sn, melting and, 3763*a*.
gas evolution from, 532*h*.
gas removal from, 1703*g*.
iron detn. in, 2889*e*.
lapping hard, with SiC in $Al_2O_3$, Al, brass, bronze, brakeshoe materials and cast Fe, 3766*h*.
lead detn. in, 4178*d*.
lead-plating bearings of, 4147*g*.
lead, working condition in smelting and pouring of, 6559*b*.
metallurgy and thermodynamics of, 7877*a*.
octafluorocyclobutane decompn. in presence of, P 8220*a*.
porosity of, elimination of, P 5729*e*.
powder metallurgy of, 7879*c*.
soln. (electrolytic) of, 1270*e*.
standards for, 4202*i*, 4203*abc*, 4615*c*.
tin recovery from, 5712*h*.
tungsten (*the salt*) —see *Sodium tungstates*.
zinc detn. in, 3336*c*.
zinc removal from, 4198*c*.

**Bronzing.** (See also *Coating(s); Paint*.)
gold, Al-Cu-Zn dust for, 4489*h*.
gold powders for, 2444*h*.
nitrocellulose lacquers for, inhibiting caking of pigments and thickening of, 7719*a*.
powders or colors for —see also *Aluminum bronze* and "powd." under *Metals*.

**Bronzite.** (See also *Enstatite*.)
of Greenland (Sukkertoppen), 4191*f*.
from South Africa, 5346*i*.

**Bronzitites**, norms of average analyses of, 2552*b*.

**Brookite**, of Arkansas (Hot Springs Co.), 8318*e*.
colors and Fe ions in, 71*g*.
colors, crystal structure and Fe-contg. growth pyramids in, 72*f*.

**Broom.** (See also *Cytisus, Genista*.)
mixed yarns from, 4469*e*.

**Broomcorn.** See *Sorghum*.

**Broom grass.** See *Grasses*.

**Broussonetia.** (See also *Mulberries*.)
*papyrifera*, latex of, acetate from, 4041*i*.

**Brownian movement**, of clays, colloid content and, 2070*b*
micro-, of cellulose chains in rayon, 3202*f*

**Brownmillerite**, reduction by $CO_2$, 4967*g*.

**Browntop.** See *Grasses*.

**Brucea sumatrana**, glycoside from, 9377*g*.

**Brucella**, *abortus*, effect of gonadal hormones on infection with, 740*c*.
*abortus*, from mastitis, effect of antibacterial agents on, 3880*i*.
antibody-complement system, effect of sulfadiazine on, 9236*f*.
antigens of, 9236*hi*.
antiserum to, chromatography of, 9228*c*.
in chick embryo, therapy of infection by, 1113*e*, 7589*a*.
glucide-lipide antigen of, action of, 3916*h*.
*melitensis*, antibrucellina in treatment of meningitis from, 6708*a*.
oligodynamic Ag solns. and, 8446*a*.
*paramelitensis*, agglutinability and antigenic power of, 9152*i*.

protein antigen from, for diagnostic use, prepn. of, 8515*d*.
sensitivity to penicillin, streptomycin and sulfadiazine, 4336*g*.
**Brucellosis**, fat acids in blood serum in, 5857*d*.
oxidation-reduction potential of blood serum in, 5483*f*.
polymyxin in treatment of, 8554*i*.
**Bruchus pisorum** and(or) **Pea weevil**, control of, 1521*h*.
**Brucine**, 2396.
compd. with 3-acetyl-1,2-dihydroquinaldic acid, 1412*a*.
with (+)-α,γ-dihydroxy-β,β-dimethylbutyric acid, P 7038*i*.
with 1-ethyl-1,3-dimethylbutyl phthalate, 1312*g*.
with glucuronic acid, 2943*c*.
with glucuronidolyxose and tagaturonic acid, 5008*h*.
with 2-iodo-4,6-dimethylsuccinanilic acid, 1343*d*.
with γ-lactone of α,γ-dihydroxy-β,β-dimethylbutyric acid, P 1056*g*.
with malonic acid-$d_2$ derivs., 3392*e*.
with 1- and 2-naphthalenesulfinic acids, 9056*h*.
with D- and L-*N*-*p* nitrobenzoylthreonine, 8355*h*.
with (−)-phenethylsuccinic acid, 5380*e*.
with L-*N*-phenylacetylvaline, P 4698*a*.
with $H_2SO_4$ and $HNO_3$ esters of glycerol, 5368*b*.
with (2 thenyl)succinic acid, 6611*e*.
with valine derivs., 2270*h*.
detection and detn. as iodide with Bi and Sb, 357*d*.
detection in foods, 9273*h*.
detn. of, 3246*b*, 4810*f*.
dielec. potential and surface tension of, at different H ion concns., 7196*e*.
fluocolumbate(V), 5786*a*.
fluorescence of, 5311*a*.
iodosalicylate, 3148*d*.
isolation by electrodialysis, 3975*d*.
precipitation with heteropoly acids, 1672*b*.
quinoid derivs. of, respiratory and metabolic effects of, 3523*f*.
reaction with 1,2,3,4,5,6-hexachlorocyclohexane, 5752*h*.
soly. in Na salicylate solns. and its purification, 9363*h*
**Brucite**, as catalyst in isomerization of olefins, P 1561*b*.
as catalysts in thiol removal from hydrocarbon-oil cracked vapors, P 1174*e*.
decompn. and reaction with serpentine, 3274*h*.
dehydration by heat, kinetics of, 8816*e*.
in magnesia-$MgSO_4$ cements, 8633*g*.
-marble, of Ireland, 526*e*.
of Quebec, 525*d*.
synthesis of, 8804*g*.
**Bruni, Giuseppe**, obituary, 3669*f*.
**Brush** (*plants*), control of—see *Weed control*.
**Brushes**. (See also *Electric brushes*.)
bristles for—see *Bristles*.
**Brussels sprouts**, insecticide (systemic) for, 6776*d*.
**Bryobia praetiosa** and(or) **Clover mite**, control on apples, 3965*d*, 7630*d*.
**Bryonia dioica**, respiration of berry from, during ripening, 8014*i*.
**Bryophyllum**. (See also *Kalanchoe*.)
carbon dioxde fixation by leaves of, 8009*i*.
**BSM- 11**, for mildewproofing leather, 6853*c*.
**BSM-11B**, in slime control in paper manuf., 3616*a*.
**B substance**. See *Growth substance*.
**BSX**, from hexamethylenetetramine, 8137*e*.
**BTC***, buctericidal action of, 3884*h*, 3885*b*.
**Bubblers**, gas, 4903*a*.
**Bubbles**, behavior of single, on oil surface and coalescence of pairs below surface of liquids, 6814*e*.
blowing of, for Bragg's dynamic crystal model, 6029*i*.
cavitation—see *Cavitation*.
in explosive sensitization to explosion initiation by impact, 8139*c*.
**film-strength** measurement by, P 6764*d*.
formation of $CO_2$, 3682*g*.
**formation of**, in compounding wood powder-rubber mixts., prevention with MgO, 8187*d*.
**in flotation**, 3325*f*.
**gum-alkyl aryl sulfonate** compn. for, P 5216*h*.
in glass—see *Glass*.
as nuclei of evapn., 6047*i*.
polarographic wave height with dipping solid electrode and rate of formation of, 8947*a*.
potential from air, in solns. of $CuSO_4$ or $AgNO_3$, 4587*a*.
rise in aq. alcs. and in $H_2O$, rate of, 4082*a*.
rising in liquid, change of state of gas in, 6480*i*.
size of, foaming properties and, 456*c*.
stability in $H_2O$, 4066*e*.
surface tension measurement from max. pressure of formation of, 7766*e*.
**Bubonic plague**. See *Plague*.
**Bucherer reaction**, with 8-chloro-7-isoquinolinol, 5784*c*.
with 2-hydroxy-1-acetonaphthone, 6607*c*.
**Buchloë dactyloides**. See "buffalo" under *Grasses*.
**Buckets**, turbine—see *Turbines*.
**Buckthorn**, sea—see *Hippophae*.
**Buckwheat**, *Azotobacter* effect on yield of, in relation to exudations by roots, 9149*g*.
flour, amino acids in, 3531*f*.
fluorine toxicity to, 3129*e*, 9319*i*.
respiration of germinating, effect of surface microflora on, 802*f*.
rutin detn. in, 9373*g*.
rutin prepn. from, 1156*c*, P 8620*i*, 9381*c*.
as rutin source, 4428*g*.
toxicity to, of BzOH and heated podzol, 7616*g*.
**Buds**, chem development of peach, 8157*h*
formation in tobacco stem segments and callus, chem. control of, 3071*h*.
of *Fraxinus*, growth-inhibiting substances in, 8160*b*.
removal of flower, from *Datura metel*, effect on growth and alkaloid content, 3067*i*.
on sugar-cane stems, effect of hot water treatment on, 7254.
**Budworm**, control in sweetcorn, 7183*i*.
**Buellia canescens**, constituents of, 6084
**Buerger's disease**. See *Thromboangiitis obliterans*.
**Bufalin**, constitution of, 2626*i*
**Buffalo grass**. See *Grasses*.
**Buffalo treehopper**. See *Ceresa bubalus*.
**Buffer action** or **capacity**, of active $Al_2O_3$, 8234*d*, 8293*i*.
of brain tissue after insulin and metrazole shock and concussion, 9212*hd*
of cleaning compns. for dairy use, 3941*e*.
of dental plaques, 1101*g*.
of hydrogen-activating enzyme systems during insect metamorphosis, 2333*d*
soil pH and, 2288*e*.
of sugars, 9490*f*.
in urinary acidity production, 706*i*.
of water, and its importance for fisheries, 9303*f*.
of whale meat, 9285*c*.
**Buffer index**, of milk (pure and watered), and its detn., 3114*i*.
**Buffer substances**, for collyria, 355*e*.
*N*-dimethylleucylglycine as, 2247*i*.
effect on binding of org. ions by proteins, 3860*e*.
for oxidation-reduction of murexide-di barbiturylamine, 7305*b*
**Buffer systems**, albumin effect on decompn. potential of, 1821*i*.
bicarbonate, in biol. perfusion systems, 3868*d*.
detn. in tan liquors, 1205*g*.
distribution between org. solvents and aqueous, of alkylhydroxynaphthoquinones, 1385*i*.
effect on dye absorption and binding by fibrins, 411*g*.
on growth-inhibiting property of Na(2,4 - dichlorophenoxy)acetate, 9174*d*.
on vol. during hydrolysis of proteins, 6263*e*.
for enzyme inhibition in tallow, 8177*f*.
ethyl alc.-contg., and polarography of *p*-nitroaniline in, 8908*c*.
glass attack by, 2386*b*.
glycylglycine-NaOH and piperazine dihydrochloride-NaOH solns. as nontoxic, 8419*e*.
from hydrochloric acid and $Na_4P_2O_7$, 6895*h*.
isoelec. point of aldolase in relation to, 4311*a*.
perfect, 4083*c*.
pharmaceutical, 5533*d*.
in phosphatase test for cheese, 9284*b*.
**Buffing**. See *Polishing*.
**Buffing materials**. See *Polishing materials*.
**Bufo**. See *Toads*.
**Bugula neritina**, adenochromelike pigment of, 322*c*.
**Builders**. See *Cleaning compositions; Soaps*.
**Building materials**. (See also *Bricks; Expansion joints; Fiberboard; Glass; Insulation, thermal; Insulators, thermal; Paper; Paperboard; Roofing; Shingles; Stone; Stone, artificial; Stucco; Tile;* and "insulating materials," etc , under *Sound*.)
**aggregates for**, from clays and silts, 2391*d*.
**aggregates for**, from slag, P 6144*d*.
for aircraft, P 2472*d*.
for apparatus—see *Apparatus*.
board, P 1168*b*.
from cedar bark, 6409*e*.
for insulating, measurement of impact and load strength of, 403*c*.
from peat moss, GR-S as binding agent in, 2801*f*.
from petroleum-cracking coil tars and polyvinyl resins, P 9538*e*.
from wheat straw, 7681*b*.
books: Engineering Materials, 789*b*, Le caoutchouc materiau de construction, 1600*f*, Dechema Werkstoff-Tabelle Ausgabe, 5236*e*.
from cement, P 374*e*.
from cement, powd. glass, and Solvay CaO sludge, P 6805*a*.
chem. engineering, 1*b*, 8745*b*.
concrete blocks, curing of, 9109*g*.
corrosion of Fe and steel, 3337*g*.
from cotton, phenolic resin and veneer, P 2472*f*.
crystal structure and, 2752*g*.
DDT toxicity on, 9311*b*.
electrically insulating $H_2O$-repellent, P 6390*d*.
eliminating sensation of cold in, binder for, P 1167*c*, P 2396*f*.
fibrous, P 6389*f*.
fireproofness of, measurement of, 8678
fire-resistant, 3989*c*
flexmer, 7208*d*.
hardboard shrinkage and swelling, 8679.
for industry and lab , metallic, 2041*b*
for industry and lab , nonmetallic, 2041
insecticide films on, 9330*f*.
insulating, P 4144*c*.
iron oxide pigments for, 5201*c*, 8697*d*
journal: Revistele Fehnice AGIR, 8256.
laminated board, P 6868*f*, P 7208*f*.
lavas and pyroclasts from Monte Maggiore, Italy, as, 2135*e*
light-wt., P 374*h*, 1693*i*
mastics, rheology of, 3166*b*
measurement of layer sepn. and workability of, P 3590*i*
panels from cork stock or laminates coated with melamine-HCHO resins, P 9527*d*
plastics as, 431*h*.
plates from gypsum and filings, P 6390
plates from resinous products, P 1512*a*
of Quebec, 525*d*
refractory, for power plants for aircraft, 4438*i*.
from resinous products and fillers, P 6166*i*
review on, 1881*c*.
sand-lime brick, etc., 2752*g*.
sealer for alk., neutralized wool grease as, 4404*h*.
sidings, asphalt-asbestos-oil coatings for, P 7240*f*.
from slag, 9000*a*.
from slag cement, P 9411*b*.
soil-cement mixts., P 5568*g*.
South African, 8115*f*.
sponge silicate blocks, mold for, P 5168*a*.
standards for, 4397*h*, 4785*e*.
tripoli for hollow blocks, 6383*c*.
wallboard, P 374*f*.
Al soaps for, P 2452*f*.
filled with waste slate, 1939*b*.
wall coverings, tall oil-cellulose ether compn. as binder for, P 2436*a*.
water-repellent coating or impregnant for cementitious, P 3606*h*.
**Buildings**, for batch processes, 4901*c*.
book: Taschenbuch des chem. Bautenschutzes, 1994*b*.
**Bulbocapnine**, effect on motion sicknesses, 9239*d*.
**Bulbs** (*plant*). (See also *Narcissus; Tubers; Tulips*.)
diseases of, 9337*i*.
**Bulrushes**, as textile fiber plant and tow from, 3621*d*.
**Bulrush millet**. See *Millet*.
**Bultuk**. See "pearl" under *Millet*.
**Buna**. See *Rubber, substitute and synthe*

**Buna N.** See *Nitrile rubbers.*
**Buna S.** See *GR-S rubber.*
**Bunsen, Robert Wilhelm,** biography, 7761*a*.
**Bunt.** See *Smut.*
**Buoyant articles,** plastic foams for, 2464*h*.
**Burdock,** arctose from, 8451*c*.
caffeic acid in, 2283*h*.
membrane substances in roots of *Arctium lappa*, 6287*d*.
oils of—see *Oils.*
review on, 8017*a*.
**Bureau of Physicochemical Standards,** methods and app. used in, 3277*h*.
**Burets,** easy-reading, 3245*b*.
for gases, 6005*c*.
for hydrocarbon-gas washing, 8653*a*.
micro-, 1*d*, 4004*b*.
capillary, 4053*c*.
horizontal, 911*a*.
**Burlap,** mildew proofing of, for forest nurseries, 6351*g*.
**Burners.** (See also *Blowpipes; Lamps; Pyrite burners; Sulfur burners.*)
aerated gas, ignition velocity of flames in relation to size of, 3173*c*.
air entrainment in gas, calcn. of, 2823*h*.
for aluminum combustion in O, 4593*h*.
blow-off of, 7764*e*.
Bunsen and Meker, for natural gas, 7211*a*.
Bunsen, that do not strike back, 2047*c*.
combustion rate at, 2056*e*.
control (automatic) of gas, 6474*b*.
controlling primary air in, orifices for, 2753*g*.
for copper-smelting reverberatory furnaces, placing of, 2142*c*.
for elemental analysis by lamp combustion, 6474*ce*.
for flat flames, 8645*h*.
gas, identification of materials causing stoppages in pilots for, 6394*a*.
gas, shape of, flame properties and, 3989*f*.
for glass forming, 3578*c*.
head for tilting furnaces, 7877*i*.
Lundegardh-$C_2H_2$, for soil analysis, 1130*h*.
for measurement of burning velocities and inflammability limits, 2404*a*.
for microcombustion in ultimate analysis, 7272*i*.
for supersonic ram jets, 9411*c*.
**Burning.** See *Calcination; Combustion Firing.*
**Burning glasses** See *Lenses.*
**Burnishing.** See *Polishing.*
**Burns,** adenosine equiv. of blood in, 9208*b*.
base exchange after, 1477*b*.
cholinesterase and sugar in blood in, 4362*b*.
cholinesterase in blood after, 299*g*, 5857*f*.
cholinesterase in blood serum after 299*g*
effect on absorption of colloids and fluid from joints, 8504*i*.
emulsion for treating, P 6370*h*.
eye alkali, 2341*i*.
eye chemical, 2711*e*.
fluid replacement therapy in, nonprotein N distribution in blood plasma in relation to, 7110*e*.
liver structure in fatal, 4760*c*.
metabolic alterations after, 7110*c*.
phosphorus, 2437*b*.
protein metabolism after, 7119*i*.
protein shift from blood plasma to extravascular space after, 3501*c*.
protein-sparing effect of carbohydrates in, 8022*d*.
resistance to, after hepatectomy, 9224*h*.
shock from, effect of methionine and saline on survival rate in, 315*d*.
effect of tripelennamine on, 7135*f*.
liver and, 6728*a*.
tannic acid in treatment of, liver injury by, 8535*a*.
**Bushings.** (See also *Bearings.*)
glass insulating, P 8633*c*.
**Bush sickness,** cobalt, Cu and Fe in liver in relation to, 8463*c*.
**Bushy stunt.** See *Tomatoes.*
**Butacaine,** salts derived from boric acid complexes of carbohydrates or of sugar alcs., P 1800*g*.
**Butacaine sulfate** (*3-dibutylaminopropyl p-aminobenzoate sulfate*), anesthetic action of, 1111*a*.
anesthetic action of, on eye, 3522*i*.
anesthetic action of, measurement of, 8095*b*.
effect on cholinesterase, 762*f*.
identification of, 7190*g*.
sensitization of ventricle of *Helix pomatia* and muscle of leech to acetylcholine by, 1107*fg*.
**1,2-Butadiene,** fuel antiknock ratings of, 382*i*.
heats of combustion and formation of, 5274*f*.
polymerization of, and structure of polymers, 4505*f*.
thermodynamic functions of, 5275*d*.
——, **4-chloro-,** 7898*i*.
——, **3-methyl-,** thermodynamic functions of, 5275*e*.
**1,3-Butadiene** (*divinyl*). (See also "di-" under *Olefins.*)
acetylene removal from, P 662*f*.
1-acyloxy deriv., polymers with acrylonitrile, P 3658*f*.
aldehyde removal from, P 3435*i*.
2-alkyl derivs., 1311*d*.
benzene detn. in gases contg., 5343*d*.
bond orders in, 6512*d*, 6877*b*, 8224*a*.
combustion rates in He-O and N-O mixts., 5268*c*.
condensation with rosin with $BF_3$ catalyst and esterification of condensate, P 9486*a*.
derivs., polymerization of, alone or with unsatd. compds., Co, Fe or Ni salts as catalysts in, P 2025*h*.
derivs., polymers with maleic esters and vinyl aryl compds., P 3230*d*.
detn. of, in gases, 7757*i*.
in hydrocarbon gases, 5930*h*, 8962*d*.
in polymerization-grade butadiene, 4787*b*.
in presence of 2-methylpropene in hydrocarbon gases, 6309*a*.
in recycle styrene, 7216*e*.
development of, specifications for, 557*e*.
Diels-Alder adducts with hexachlorocyclopentadiene, P 4093*e*.
dimerization of, 591*a*, 1017*h*.
dimerization to vinylcyclohexene, P 5232*a*.
distn. of, P 6643*f*.
distn. of, from cracked hydrocarbons, P 4524*i*.
effect on gum formation in fuel gas, 5925*a*
electron ($\pi$-) formula for, 40*g*.
electron residual affinity of, 6512*c*.
electron resonance energy of, 4954*i*.
energy states of, and its isomer, 2863*i*.
formation of, from butene on $Cr_2O_3$, 1635*c*.
in oxidation of $C_4$ hydrocarbons, 1309*c*.
in pyrolysis of alkyl benzenes, 7916*h*.
during reaction of 2-butanone and EtOH, 993*g*.
in reaction of *trans*-1,4-dibromo-2-butene with $PhCH_2MgBr$, 2579*b*
fuel antiknock ratings of, 382*i*.
in gasoline from Puertollano shale, 5578*f*.
halogenation of, P 2218*c*.
halogen derivs., polymers of, fabric coatings from halogenated polyethylene and, P 4508*e*.
heat capacity of, 1638*d*.
heats of combustion, formation and isomerization of, 5274*f*.
3-hexene from, 6152*f*.
hydrogenation of, 3775*e*.
hydrogenation of, in alkylation feedstock with NiS catalysts, 1554*i*.
interat. distances, energy of conjugation of bonds and energy levels of, 8886*a*.
manuf. of, P 662*i*, P 2627*h*, P 3023*c*, P 8663*d*.
aging of $MgO$-$SiO_2$ catalysts for, 6897*e*.
from butane, P 5031*c*.
from butane or butene and S, P 1066*e*.
from butenes, removal of catalyst poisons from steam in, P 7950*g*.
from 1,3-butylene glycol, 2015*fh*, 2016*a*.
catalysts for, P 5135*d*.
by dehydration of 1,3-butylene glycol, 4045*d*.
by dehydrogenation of butene, 3644*b*.
by dehydrogenation of butenes, maintaining K content of oxide catalyst in, P 2764*h*.
by dehydrogenation with Cu-Mg catalysts, P 9430*d*.
from EtOH, 4213*g*, P 5410*d*, 5733*i*, 7898*c*.
from EtOH, $Et_2O$ recovery in, P 7950*d*.
from EtOH, reaction mechanism of, 8349*g*.
from 2-furaldehyde, P 5048*b*.
*manuf. of,* instrumentation of distn. unit for, 6873*b*.
from 2-pentene, 5733*f*.
from petroleum, 3346*c*.
from reaction of AcH with AcOEt, 1713*i*.
temp. control in, P 6819*e*.
from tetrahydrofuran, P 5410*c*.
neutron cross section of proton in, 4096*b*.
orbital mol. diagrams and, 6479*e*.
polymerization (attempted) of, 5754*e*.
polymerization of, 1596*i*, 1597*ac*, P 2805*e*, 3345*i*, 3346*a*.
activated by KCN or sol. cyanides, P 2757*i*.
activation by reduction-oxidation systems at low temps., 7253*a*.
1,4-addn. in, 7253*h*.
alone and with isoprene, temp. effect on, 8725*f*.
alone and with Na in presence of CO, 2019*i*.
with 2-chloroallyl esters, P 432*h*.
with 2,3-dimethyl-1,3-butadiene, 8190*a*
effects and history of regulators on, 7253*c*.
electronic structure and, 1634*b*.
with Et acrylate, 5988*i*.
with 2 furaldehyde, inhibition of, P 7960*i*
inhibition by Me or Ph salicylate, P 8195*d*.
with malonic acid derivs., P 4897*d*.
with Me isopropenyl ketone, 5987*h*.
with 2-methylpropene, P 5230*d*.
with 2-methylpropene and chlorostyrenes at very low temps., P 9519*c*.
with 2-methylpropene at low temps. with fluorinated hydrocarbon dispersing agents, 2019*d*.
peroxides of cyclic ethers as catalysts in, P 1812*h*.
with phenoxathiin vinyl derivs., P 1223*e*.
popcorn formation in, 1598*a*.
in presence of K or Na salts of *l*-pimaric acid-maleic anhydride addn. products, P 4508*ac*.
in presence of Na and PhMe, 1714*b*.
with rubbers, lubricant additives by, P 390*f*.
Ag-$NH_3$ ion as promoter for, P 7265*a*.
Na catalyst for, P 1932*c*.
structure of polymers and succinic acid as disintegration product of, 4505*f*.
with styrene, 1340*b*, 5987*f*, 8723*f*, 9515*b*.
with styrene, antifreeze agents in, 8728*a*, 8729*c*.
with styrene, catalysis of, 2810*i*.
with styrene, drying oils and plasticizers for synthetic elastomers by, P 7258*f*.
with styrene in C black-contg. emulsions, P 8732*b*.
with styrene, rate and induction period of, and Alfrey equation for, 6856*f*.
with styrene, Na salts of Me, Et and Pr esters of *l*-pimaric acid-maleic anhydride addn. product as emulsifiers in, 7252*h*.
with styrene, stopping agent in, 8727*i*.
with styrene, termination with quinonoid compds. and sulfides, P 5991*f*.
with styrene, 2-thiazolethiol derivs. as modifiers for, 633*f*.
with styrene to narrow range of mol. wts. and homogeneous chain compn., 8728*i*.
with styrene, $Cl_3C(CH_2)_8SH$ as modifier in ferricyanide-activated, P 8195*f*.
with styrene with 2,4,4-trimethylpentylthiolactate modifier, P 2805*d*.
with 2,2,3,3-tetrafluoro-1-vinylcyclobutene, P 4295*d*.
with tetrahydrofurfuryl methacrylate, P 9519*d*.
with 1,1,3,3-tetramethyl-4-vinylisocoumaran, P 7250*a*.
with thiophene or alkyl derivs., P 5231*b*.
at −20° to −150°, P 3228*a*.
with vinyl compds., P 5991*f*.
with vinyl sulfones, P 7266*h*.
polymerization of, and its mixts. with styrene, P 4896*c*.
polymerization of, and its mixts. with styrene, monomer pressures during, 5222*g*.

polymerization of, at low temps. and properties of polymers, 4505*h*.
polymerization of, or copolymerization with acrylonitrile or styrene, creatine and creatinine as catalysts in, P 6859*c*.
polymerization of, or its derivs. with divinylarylene compds., P 7746*c*.
with satd. aliphatic compds. with peroxide catalysts, P 9520*b*.
with styrene at low temps., P 9521*b*.
with styrene in presence of drying oil, P 9520*h*.
with vinyl compds., P 5991*de*.
with vinyl compds., mercapto ether modifiers for, P 4507*g*.
with vinylidene compds. with quinone modifiers, P 2806*a*.
polymerization temp. effect on 1,2-, *cis*-1,4- and *trans*-1,4-addns. and structures of polymers, 8725*e*.
polymerization with diisobutylene at low temps. and reaction of polymer with P sulfide, lubricant additive by, P 2765*i*.
polymers (mixed) with styrene, P 2815*h*.
polymers of—see also *GR-S rubber; Nitrile rubbers; Rubber, substitute and synthetic*.
polymers of, and copolymer with styrene, infrared study of, 7822*f*.
polymers of, and its derivs., with acrylonitrile and derivs., P 7753*i*.
polymers of, with acrylonitrile and maleic esters, P 2470*d*, P 3239*c*.
with acrylonitrile, chemical- and weather-resistant vulcanized mixts. with vinyl acetate polymers, P 6860*a*.
with acrylonitrile, films from acrylonitrile-vinylidene chloride polymers and, P 2470*c*.
with acrylonitrile, lubricating greases and hydraulic fluids from, P 5184*b*.
with acrylonitrile, tetrabutyladipamide and its homologs as plasticizers in, P 7258*e*.
adhesion to cellulose, 8133*e*.
with alkyl esters of $\alpha,\beta$-dichloroacrylic acid, P 5638*e*.
alone and with styrene, crystal structure of low temp., and crystn effects of cooling and stretching, 8191*a*.
alone and with styrene or chlorostyrenes, 8189*b*.
breaking cationic emulsions of, P 5232*c*.
with butenes as petrolatum substitute, P 8743*f*.
with 1-butene, ultrasonic velocity in, 8239*f*.
with chloroprene, P 4051*f*.
compns. with cyclic diolefin polymers, P 8742*i*.
in corrosion prevention against chemicals, 6455*f*.
with cyclohexyl $\alpha$-chloroacrylate, P 2471*a*.
with diallyl chloromaleate, P 6866*b*.
with 1,1-dichloro-2,2-difluoroethylene, 2465*d*.
with 1,1-dichloroethylene and styrene, and films therefrom, P 8732*e*.
dynamic double refraction in solns. of, 6040*e*.
effect of heat and Na sand on, 4214*b*.
elasticity of, temp. and, 2027*g*.
emulsions from alkyd resins and oxidized, for textile-fiber treatment, P 6859*e*.
emulsions of melamine- or urea-HCHO resins and, for wool improvement, P 5602*f*.
with esters of cyano unsatd. acids, P 6651*e*.
with ethylene, cracking of, P 1049*h*.
with fluoromethacrylate esters, P 6465*g*.
with furfural, formed in extractive distn. in sepg. butene and butadiene, 1597*f*.
kinetics of thermal oxidation of, 924*e*.
with mercaptans, P 5232*e*.
with methyl isopropenyl ketone, 5988*ab*.
with 2-methylpropene, etc., P 8211*i*.
with 2-methylpropene, polyalkylated phenol-stabilized, P 5992*b*.
mol. wt.-viscosity relations and crystal structures of, effect of polymerization temp. on, 8727*a*.
with pentene or propene prepd. at very low temps., P 8195*b*.
polymers of, with propiolic acid esters, P 4514*i*.
pyrolysis of, and mass spectrometry and mol. wt. detn. of fractions therefrom, 7742*e*.
pyrolysis products of, 2810*g*.
reaction products with inorg. acids or anhydrides, P 2804*c*.
with styrene and with vinylidene chloride, mixt. of, P 2035*i*.
with styrene as pigment binder in paper, 1186*b*.
with styrene derivs., 1597*d*.
with styrene, dispersion incorporation into beaten fibers, P 6860*b*.
with styrene, intrinsic viscosities of, in vistex solvents, and calcn. of mol. wt., 9516*b*.
with styrene, low-mol.-wt., P 5641*g*.
with styrene, mixts. with polymers of unsatd. hydrocarbons, P 5228*i*.
with styrene, plasticizer for, P 4518*f*.
with $C_2F_4$, P 5410*g*.
with vinyl compds., stabilizing against aging and discoloration, P 8195*c*.
with vinylidene chloride and olefins, 2017*d*.
with 2-vinylthiazoles, P 2805*h*.
x-ray diffraction patterns of stretched low-temp., 8727*d*.
prepn. of, 993*i*, 4213*i*.
from 1,3-butanedione, 5359*i*, 5360*fghi*, 5361*a*.
from EtOH, 3644*a*
by EtOH decompn. with MgO catalysts, 2016*i*.
from EtOH, piperylene formation during, 991*h*.
by pyrolysis of Buna N and S, 2010*b*
purity of, app. for detn. of, 1616*i*.
reaction with $NH_3$, P 3439*d*.
with $BrCCl_3$, P 5789*f*
with CO and H, P 4287*c*.
with 1-chloroalkyl ethers, 9025*d*.
with $C_2ClF_3$ and with $C_2F_4$, P 4294*a*.
with 1,2-dichloroethyl ethyl ether, 2158*i*.
with $\alpha$ halo ethers, 6568*b*.
with HCN, P 4286*c*.
with $H_2S$, P 601*g*.
with methacrylic acid and its Me ester, 3373*g*.
with PhNO, 650*c*.
with olefins, P 5418*f*
with 2,4-pentadienenitrile, 4217*i*, 4218*a*.
with $C_2F_4$, 3370*d*.
and reaction with $C_2H_4$, P 6656*c*.
reactivity of, 9024*c*.
recovery of, P 7496*f*.
from alk. cuprous salt soln., P 4682*b*.
from gases P 7275*a*.
from hydrocarbons, 663*a*, P 2217*c*, P 3023*e*.
with liquid $NH_3$ solns., P 3192*b*.
from olefins, P 6218*b*.
polymeric residue detn. in furfural used in, 4184*c*.
purification of cuprous ammonium soln. used in, P 4682*c*.
from unsatd. hydrocarbons, P 1793*b*.
stability of, in kaolin-$Fe_2O_3$-KOH and kaolin-$H_3PO_4$ mixed catalysts, 4045*d*.
styrene detn. in mixt. with, 8884*i*.
sulfide*, 7420*e*.
system: styrene-, 2058*d*.
tetramer of, 1018*c*.
thermodynamic functions of, 5275*d*
transportation and handling of, 557*e*.
4-vinylcyclohexene detn. and removal from, app. for, 8975*d*.
4-vinylcyclohexene detn. in, 8975*e*.
**1,3-Butadiene, 2-amyl-**, 1311*f*.
——, **1,4 - bis(*p* - methoxyphenyl)-**, spectrum of, 5756*a*.
——, **2,3 - bis(*p* - methoxyphenyl)-**, 8371*a*.
——, **2,3 - bis(4 - methoxy - *o*-tolyl)-**, 8371*b*.
——, **2-chloro-**. See *Chloroprene*.
——, **1-chloro-2-methyl-**, P 2218*d*.
——, **2 - chloro - 3 - methyl-**, 3352*b*, 5362*f*.
——, **1-cyano-**. See *2,4-Pentadienenitrile*.
——, **2,3-dichloro-**, dimerization of, 5916*b*.
manuf. of, Na silicate as reactor coating in, P 7035*g*.
polymers of, stabilization of, P 440*g*.
——, **1,2-dichloro-3-methyl-**, 5362*h*.
——, **2,3-dimethyl-**. (See also *Rubber, substitute and synthetic*.) P 1056*b*, 3777*h*.
rmation by pyr
2010*b*, 2810*h*.
in gasoline (Puertollano), 5578*f*.
from pinacol, P 3834*c*.
polymerization (mixed) with styrene, P 2816*f*.
polymerization of, with 1,3-butadiene, and 1,2- and 1,4-addn. of monomers in, and properies of polymers, 8190*a*.
polymerization of, with isobutene at low temps. with fluorinated hydrocarbon dispersing agents, 2019*g*.
polymers of, with anilides of acrylic acid or methacrylic acid, rubberlike, P 2803*g*.
depolymerization of, P 5231*f*.
with Et acrylate, 5988*i*.
reaction products with inorg. acids or anhydrides, P 2804*c*.
reaction with methacrylic acid and its Me ester, 3373*h*.
reaction with *p*-quinone, 1756*g*.
sepn. from methylpentadienes, P 3436*g*.
——, **1,4-diphenyl-**. See *Bistyryl*.
——, **2,3-diphenyl-**, reduction by reaction with picric acid, 7006*b*.
——, **2-ethyl-**, 1311*e*.
——, **2-fluoro-**. See *Fluoroprene*.
——, **2-fluoro-3-methyl-**, P 2218*g*.
——, **hexachloro-**, P 2218*b*, 5361*i*.
in chlorinolysis and pyrolysis reactions, 4232*a*.
——, **hexafluoro-**, polymerization of, 3345*f*.
——, **2-isopropyl-**, 1311*f*.
——, **2-methoxy-**. See *Ether, methyl 1-methyleneallyl*.
——, **2-methyl-**. See *Isoprene*.
——, **2-methyl-3-phenyl-**, reaction with S, 5392*e*.
——, **1-phenyl-**, reaction with acrolein and with acrylic acid, 8363*a*.
reaction with acrylic acid, Et acrylate and with methyl vinyl ketone, 8363*g*.
reaction with acrylonitrile and with methyl vinyl ketone, 8364*d*.
——, **1,1,4,4 - tetraphenyl-**, polarity and polymerization of, 1634*b*
**1,3-Butadiene-1-carboxylic acid**. See *2,4 Pentadienoic acid*.
**1,3-Butadiene-1,4-dicarboxylic acid**. See *Muconic acid*.
**Butadiene sulfone**. See "1,1-dioxide" under *Thiophene, dihydro-*.
**1,3 - Butadiene - 1,1,4,4 - tetracarbonitrile**, polymerization with vinyl compds., P 4897*e*.
**1,3-Butadien-1-ol**, acetate, P 5795*i*, P 7037*i*, P 7953*i*.
acetate, polymerization with malonic acid derivs., P 4897*e*.
——, **2-ethyl-**, acetate, P 5795*h*, P 7037*i*, P 7953*i*.
**1,3-Butadien-2-ol**, formate, 2957*i*.
formate, dimerization of, 2576*i*.
——, **3-methyl-**, acetate, P 5796*d*, P 7038*i*.
**1,3-Butadienylamine**, orbital mol diagrams and, 6479*e*.
——, ***N* - methylene-**, orbital mol diagrams and, 6479*e*
——, **1-vinyl-**, orbital mol diagrams and, 6479*e*
**1,3-Butadienyl group**, conjugating power of, 8223*i*.
**Butamin**. See *Tutocaine*.
**Butanal**. See *Butyraldehyde*.
**Butanamide**. See *Butyramide*.
**Butane**, adsorption by C black and $SiO_2$ gel, 8254*h*.
adsorption by charcoal, 6488*f*.
by Fischer catalysts, reduction and, 27*c*.
by glass spheres, 1639*a*.
by montmorillonite, effect of acid on, 464*c*.
alkylation with butenes with HF catalysts, defluorination with bauxite and dehydrogenation with Cr oxide catalysts, P 1174*i*.
analysis of mixt. of 2-methylpropane, butenes, propane and, by infrared and mass spectra, 6105*c*.
burning velocity and inflammability of, 2404*c*.
butene extn. from, with liquid $NH_3$ solns., P 3192*c*.
calorimeter for, 5647*i*.
carbon deposition from, on vitreous $SiO_2$, 2833*b*.
carbon exchange in, 2081*b*.
chlorination and chlorinolysis of, 5362*a*.
chlorination (photochem.) of, P 6644*h*.
combustion of, characteristics of, 3989*f*.
combustion (slow) of, effect of diluents and other substances on, 3724*i*.

combustion (slow) of, spectra during, 3724*h*.
condensation on finned tubes, 446*d*.
cracking of, 1250*h*.
decompn. by heat, effect of O on, 7309*f*.
decompn. by heat, rate of, 5269*d*.
dehydrogenation and isomerization of, in one step, P 1955*i*.
dehydrogenation of, P 5030*i*, P 5031*c*.
with Cu-Mg catalyst, P 9430*d*.
temp. control in, P 6819*e*.
detn. in hydrocarbon gases, 5930*h*.
of $C_4$ hydrocarbon mixts., 8962*d*.
in paraffins, 8652*i*.
detn. in hydrocarbon gases and vapor pressure app. for analysis of, 8653*a*.
dihalo, manuf. of, from tetrahydrofuran, P 1433*d*, P 4284*a*, P 5047*h*
distn. of high-boiling contaminants from, for isomerization, P 2423*b*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
entropy and enthalpy of, and its mixt. with $CH_4$, effects of pressure on, 5576*b*.
entropy-enthalpy plots for, 5576*i*.
flame propagation limits of, 3618*e*.
flame propagation limits of, effect of combustion promoters and inhibitors on, 3617*h*.
flames (flat) of, 8646*a*.
forces between mols. and virial coeffs. of, 3677*e*.
formation of, in depolymerization of trusobutylene, 6151*g*.
in hydropolymerization of ethylene, 108*c*.
in isomerizations of $C_8H_{14}$ and $C_8H_{12}$, P 3833*c*.
from methylcyclopentane, 6567*c*
in pyrolysis of methyl rubber, 2810*h*
in reaction of EtI with Mg, 1717*i*.
fuel antiknock characteristics of, 382*i*
in fuel (motor) manuf., vapor pressure and, 375*c*
heat capacity of, reduced pressure and temp. in relation to, 2758*g*
hydrocarbon (heavy) contamination of, detn. of, 6813*i*
hydrogen exchange reactions of, in $H_2SO_4$, 7897*c*.
interfaces with A, reflection of shock wave at, 3077*f*.
isomerization of, P 660*e*, P 4283*d*.
with $AlCl_3$ catalysts in 2 step process, P 1561*b*.
with $AlCl_3$ EtSH catalysts, P 3188*e*
with $AlCl_3$ HCl catalyst and $AlCl_3$ contg. charcoal bed, P 841*f*
with $AlCl_3$-HCl catalyst, dehydration of hydrocarbon from, P 4007*e*
with $AlCl_3$ $FeCl_3$ catalyst, P 8667*i*
corrosion protection of app. for, P 103*a*.
with HCl and then $NaHSO_4$ activated $AlCl_3$ catalysts, P 4006*e*.
with HF-$BF_3$ catalyst in presence of $C_6H_6$, P 4006*i*.
with H halide-promoted Al halide, catalyst removal from products from, P 7222*i*.
impregnation of catalyst bed with $AlCl_3$ for, P 4449*b*.
with liquid halide complex catalysts, P 3190*d*.
regeneration of molten $SbCl_5$ $AlCl_3$ catalyst from, P 4843*d*.
temp. control in, P 4007*d*.
lyoparachor of, 2834*a*.
manuf. by cracking hydrocarbons and reaction with butene and S in prepg. butadiene and thiophene, P 8663*d*
manuf. in petroleum refineries and permissible vols. in gasolines, 382*g*.
manuf. of, 1550*h*.
by cracking of petroleum with fluid MgO-$SiO_2$ catalysts, 8656*d*
from propene or propane-propene fraction, P 3187*g*.
mixts. with butenes, extractive distn. of, with acetone solvent, P 913*i*.
with butenes, polymerization and hydrogenation of, P 5174*c*.
with $C_3H_6$ and $C_3H_8$, by hydrogenation of CO, 2398*cfhi*, 2390*abcde*.
with $C_3H_6$ or $C_3H_8$, Mollier diagrams for, 7216*a*.
with isobutane, distn. of, 2414*b*.
with isobutane, nitration of, P 2220*a*.
with org. vapors, adsorption by active carbons, 16*g*.
mobility of ions of, 4559*a*.
neutron cross section of proton in, 4096*b*.
oxidation of, 1309*c*, P 1805*i*, 3269*fg*, 7798*g*.
Raman spectrum and rotational isomerism of, 2866*i*.
Raman spectrum of, 2866*k*
reaction with $NH_3$, P 3439*d*.
with HCl, P 660*h*.
with S, P 1066*e*.
recovery from $C_4$ hydrocarbon mixt., P 1558*a*.
from gasoline in cycling plant, 2412*f*.
from petroleum gases, 2412*e*.
resonance energies of, 10*e*
revaporization from sand, 1553*i*.
spectrum of, 7342*ab*, 5312*e*.
system: AlBr₃-HBr-, 1253*f*.
system: $CO_2$-, 3274*c*.
system: $C_2H_4$-, 4937*b*.
system: 2-furaldehyde-$H_2O$-, 475*g*.
system: $CH_4$-, 4531*c*.
thermodynamic properties of, 476*d*.
vibration frequencies for, 5309*b*.

**Butane, 1,1 - bis(allyloxy)-†**, polymer, P 5228*e*.

——, **1,4 - bis(2,4 - dihydroxyphenyl)-2,3 - dimethyl-**. See *Pyrocatechol, 4,4' - (2,3 - dimethyltetramethylene)di-*.

——, **2,2-bis(ethylsulfonyl)-**. See *Trional*.

——, **1,1 - bis(nitrophenylmercapto)-†**, reduction of, 6179*f*.

——, **1,3 - bis(triphenylmethoxy)-**, 6976*a*.

——, **1-bromo-**, as azeotrope former for naphthenes, P 3670*d*.
complexes with Ni halides and $Ph_3P$, as catalysts for trimerization of $C_2H_2$ and its derivs., 6202*e*.
compds with 4-vinylpyridine-styrene copolymers, elec. cond. and viscosity in $MeNO_2$-dioxane mixts., 7785*g*, 7786*d*.
decompn. of, kinetics of, 3347*e*.
exchange between LiBr and, in acetone, 6055*c*.
heat capacity of, 30*h*.
lyoparachor of, 2834*a*.
polyelectrolytes from 4-vinylpyridine polymers and, membranes of, 4892*f*.
reaction with NaI, rate of, 4628*g*
soly. in Na xylenesulfonate solns., 1242*e*
ultrasonic velocity in, 1232*i*, 7283*h*.
viscosity of, pressure and, 4067*d*

——, **1(and 2)-bromo-**, dielec. properties and structure of, 4912*b*.
phys. consts. of, 2590*i*.

——, **2-bromo-**, decompn. of, kinetics of, 3347*h*.
methylcyclopentane isomerization promoted by, effect of benzene on, 3371*g*.

——, **1 - bromo - 2,2 - bis(bromomethyl)-**, 3369*g*.

——, **1 - bromo - 2,2 - bis(bromomethyl)-3-methyl-**, 3369*h*.

——, **1-bromo-4-chloro-**, prepn of, 6571*d*.

——, **2(and 3) - bromo - 1 - chloro - 3-methyl-**, 5363*b*.

——, **3 - bromo - 1 - chloro - 3 - methyl-**, 5363*b*

——, **3-bromo-1,1-dichloro-**, 3345*c*.

——, **3 - bromo - 1,1 - dichloro - 3-methyl-**, 3345*c*.

——, **2 - bromo - 1,1 - diethoxy-†**, 2575*h*.

——, **2 - bromo - 1,1 - diethoxy - 3-methyl-†**, 2575*h*.

——, **1-bromo-2-ethyl-**. See *Pentane, 3-(bromomethyl)-*.

——, **1-bromo-3-methyl-**, heat capacity of, 30*i*.
lyoparachor of, 2834*a*.
mixts. of, dielec. relaxation of, 6020*b*.
phys. consts. of, 2590*i*.

——, **2-bromo-2-methyl-**, decompn. of, kinetics of, 3346*h*, 3348*d*.

——, **2-bromo-2-nitro-**, 6569*b*.

——, **3 - bromo - 1,1,1,3,4 - pentachloro-**, 9024*d*.

——, **3 - bromo - 1,1,1,4 - tetrachloro-3-methyl-**, 9024*c*.

——, **3 - bromo - 1,1,1 - trichloro - 2,3-dimethyl-**, 9024*c*.

——, **1-chloro-**, amination of, P 3440*g*.
emulsions with nitrile polymers, P 7263*a*.
hydrolysis velocity of, 129*c*.
lyoparachor of, 2834*a*.
manuf. and chlorination of, P 5047*i*.
reaction with pinacolone, 111*e*.
reduction of (attempted), with $LiAlH_4$, 1312*d*.
sulfochlorination of, 6569*c*.
ultrasonic velocity in, 1232*g*, 7283*h*.

——, **1(and 2)-chloro-**, phys. consts. of, 2590*i*.

——, **2-chloro-**, solvolysis of, rate of, 7308*a*.

——, **1 - chloro - 3,3 - dimethyl-**, P 7035*d*.

——, **2 - chloro - 2,3 - dimethyl-**, hydrolysis of, 6968*g*.
phenol alkylation with, kinetics of, 2850*f*.

——, **1-chloro-2-ethyl-**. See *Pentane, 3-(chloromethyl)-*.

——, **1-chloro-4-fluoro-**, 3774*h*.

——, **chloromethyl-**, mixt. of isomers, from reaction of $AlCl_3$ with iso-AmOH, 164*e*.

——, **1-chloro-3-methyl-**, heat capacity of, 30*i*.
phys. consts. of, 2590*i*.
sulfochlorination of, 6569*h*.

——, **2-chloro-2-methyl-**, hydrolysis of, 6968*g*.
labeled isomers with $Cl^{34}$ in 1(2-, 3 and 4)-positions, 6969*b*.
lyoparachor of, 2834*a*.
phenol alkylation with, kinetics of, 2850*f*.

——, **2-chloro-3-methyl-**, solvolysis of, rate of, 7308*a*.

——, **2-chloro-2-nitro-**, 6569*b*.

——, **2 - chloro - 2,3,3 - trimethyl-**, 6968*g*.

——, **1-cyano-**. See *Valeronitrile*.

——, **1-cyclohexyl-**. See *Cyclohexane, butyl-*.

——, **decafluoro-**, P 3834*h*
soly. and solvent action of, 3266*i*.

——, **1-diazo-**, 4653*a*.
reaction with acyl chlorides, 1744*b*.

——, **1,4-dibenzoyl-**. See *1,6-Hexanedione, 1,6-diphenyl-*.

——, **1,1(1,2-, 1,3-, 1,4-, 2,2- and 2,3)-dibromo-**, as scavengers in leaded gasolines, P 8667*g*.

——, **2,3-dibromo-**, reaction with $EtOCS_2Na$ and $Na_2S_2O_3$, 2569*i*.

——, **1,2 - dibromo - 3 - chloro - 3-methyl-**, 5362*i*.

——, **2,3 - dibromo - 1 - chloro - 3-methyl-**, 5362*i*.

——, **1,3 - dibromo - 1,1 - dichloro-**, 3345*d*.

——, **1,3 - dibromo - 1,1 - dichloro - 3-methyl-**, 3345*e*.

——, **2,2 - dibromo - 1,1 - diethoxy-†**, 2575*i*.

——, **dibromodiphenyl-**, 192*g*.

——, **1,2 - dibromo - 3,4 - epoxy-**, 7424*e*.

——, **2,3 - dibromo - 2 - methyl-**, reaction with $Na_2S_2O_3$, 2569*i*.

——, **1,1(1,2-, 1,3-, 1,4-, 2,2- and 2,3)-dichloro-**, as scavengers in leaded gasolines, P 8667*g*.

——, **1,2-dichloro-**, chlorination of, 6567*i*.

——, **1,2(1,3 and 1,4)-dichloro-**, 6569*d*.

——, **1,2(and 2,3)-dichloro-**, dehydrochlorination of, P 663*d*.

——, **1,4-dichloro-**, P 4284*c*.
dielec. properties and structure of, 4912*b*.
hydrolysis velocity of, 129*c*

——, **1,2,3,4-diepoxy-**, condensation products from phloroglucinol and, P 1996*e*.
*dl-*, 2578*f*.

——, **1,4-difluoro-**, 3774*g*.

——, **2,2-difluoro-**, 2157*b*.
dehydrofluorination of, P 3437*f*.

——, **2,2-dimethyl-**, chlorination (photochem.) of, P 6644*h*.
cyclopentane extn. from, with liquid $NH_3$ solns., P 3192*e*.
distn. from naphtha, control of, P 3191*f*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
formation of, in isomerization of $C_8H_{18}$ and $C_8H_{16}$, P 3833*d*.
reaction with polychloro ethylenes, 9025*a*.
spectra (infrared and Raman) of, 7822*a*.

—— **2,2(and 2,3) - dimethyl-**, compds. with desoxycholic acid, 3429*d*.
equil. with isomers, 5656*f*.
formation in isomerization of hexane, P 3833*b*.
in gasoline (Thermofor cracked), 4453*c*.
manuf. from hexane, P 4007*a*.
oxidation of, rate of, 5269*f*.
as solvent in cottonseed-oil extn., 423*h*.

——, **2,3-dimethyl-**, 2955*d*.
formation of, in isomerization of $C_8H_{14}$, P 3833*d*.
formation of, in reaction of $AlCl_3$ with iso-AmOH, 164*e*.
heat capacity of, 2758*g*.
lyoparachor of, 2834*a*.
manuf. of, P 1049*d*.
manuf. of, by alkylation of isobutane with $C_2H_4$, P 2422*h*, P 5181*a*.

Raman spectrum of, 2867*c*.
reaction with polychloro ethylenes, 9025*a*.
——, 1 - (3,5-dimethylcyclohexyl)-1,3-dimethoxy-, P 1058*g*.
——, 2,3 - dimethyl - 2,3 - dinitro-, 4217*f*.
——, 2,3 - dimethyl - 2,3 - diphenyl-. See *Bibenzyl, α,α,α',α' tetramethyl-*.
——, 1,2-dinitro-, P 6647*c*.
——, 1,1-diphenyl-, and dinitro deriv., 192*g*.
——, 2,3-diphenyl-. See *Bibenzyl, α,α'-dimethyl-*.
——, 2,3-dipiperonyl-, P 7047*g*.
——, dixylenol-*, effect on light action on GR-M vulcanizates, 7254*h*.
——, 2,3 - epoxy - 2,3 - dimethyl-, polymers, P 2038*f*.
——, 1-fluoro-3,3-dimethyl-, P 2628*g*.
——, 1,1,1,2,2,3,3 - heptachloro-4,4-bis(chlorophenyl)-, 9332*i*.
——, 1,1,2,3,4,4 - hexachloro-(?), isomers, 6200*b*.
——, 1,1,1,4,4,4-hexafluoro-, 2925*h*.
——, 1-iodo-, lyoparachor of, 2834*b*.
photolysis and photooxidation of, 5313*e*.
ultrasonic velocity in, 1232*g*, 7283*h*.
——, 1(and 2)-iodo-, decompn. by γ-rays, deuterons and neutrons, 8871*i*.
phys. consts of, 2591*a*.
——, 1-iodo-3-methyl-, heat capacity of, 30*i*.
phys. consts. of, 2591*a*.
——, 2-iodo-3-methyl-, decompn. of, kinetics of, 3350*d*.
——, 2 - (*p* - methoxybenzyl) - 1 - (*p*-methoxyphenyl)-, P 4699*i*.
——, 2-methyl-, alkylation of, with $C_3H_6$ in presence of $BF_3$ catalysts, 3773*b*
alkylation of, with 2-methylbutene with $H_2SO_4$ catalysts, 1554*f*
alkylation of, with propene, $BF_3$ and its compds. as catalysts in, 1711*f*.
alkylation with, of 1-pentene polymers with $AlCl_3$-HCl catalysts, P 4008*d*.
compds. with desoxycholic acid, 3429*c*.
detn. in hydrocarbon gases, 5930*h*
in paraffins, 8652*i*.
in petroleum-refinery $C_4$ fractions, 8123*e*.
distn. from naphtha, control of, P 3191*f*.
distn. from pentane mixts., 2414*b*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
flame propagation limits for, 3618*e*.
formation of, in hexane isomerization, P 3833*b*.
in isomerizations of $C_6H_{14}$ and $C_5H_{12}$, P 3833*c*.
from pentane isomerization, 1712*e-h*.
in reaction of $AlCl_3$ with iso-AmOH, 164*e*.
heat capacity of, 2758*g*.
lyoparachor of, 2834*a*.
manuf. of, P 6217*f*.
manuf. of, by isomerization of pentane with HF-$BF_3$ catalyst in presence of $C_6H_6$, P 4006*h*.
mass spectrum of, 3288*g*.
Raman effect and thermal properties of, 2083*a*.
Raman spectrum of, 2867*c*.
recovery from gasoline in cycling plant, 2412*f*.
removal from amylenes for alkylation of 2-methylpropane, P 9130*e*.
system: pentane–, 5273*a*.
viscosity of, pressure and, 4067*d*.
——, 2 - methyl - 3 - phenyl-. See *Benzene, (1,2-dimethylpropyl)-*.
——, 1-(naphthyl)-. See *Naphthalene, butyl-*.
——, 1(and 2)-nitro-, sodium derivs., reaction with α-chloro-*p*-nitrotoluene, 8365*a*.
——, 2-nitro-, P 2220*b*.
reduction of, 1312*e*.
——, nonafluoro-3-(trifluoromethyl)-, mass spectrum of, 3288*g*.
surface tension and refractive index of, 8225*g*.
——, 1-(1-piperidyl)-. See *Piperidine, 1-butyl-*.
——, tetrabromo-, 6152*h*.
——, 1,2,3,4 - tetrabromo-, stereoisomers, 2578*g*.
——, 1,2,3,4 - tetrachloro - 2 - methyl-, 5362*e*.
——, 2,2,3,3 - tetrachloro - 1,1,4,4-tetrakis(*p* - chlorophenyl)-, as insecticide, 7184*d*.
——, 2,2,3,3-tetramethyl-, 111*e*.
compds. with desoxycholic acid, 3429*e*.
Raman spectrum of, 4094*b*.
——, 1,1,4,4-tetraphenyl-, 6177*f*.
and alkali metal derivs., 7448*h*.
——, tribromo-, 3796*b*.
——, 1,2,3-trichloro-, hydrolysis in the presence of $K_2CO_3$, 6567*h*.
——, 2,2,3 - trichloro - 1,1 - bis(chlorophenyl)-, 9332*b*.
toxicity of, 345*g*.
——, 2,2,3 - trichloro - 1,1 - bis(*p*-chlorophenyl)-, as insecticide, P 7188*a*.
——, 1,1,1 - trichloro - 2,2 - dimethyl-, 3372*d*.
——, 1,2,3-trichloro-3-methyl-, 5362*d*.
——, 1,3,3-trimethoxy-†, 2577*d*.
——, 2,2,3-trimethyl-, azeotropic distn. from mixts. with $C_6H_6$ and cyclohexane, P 1958*b*.
chlorination (photochem.) of, P 6644*h*.
compds. with desoxycholic acid, 3429*d*.
detn. and manuf. of, infrared absorption in, 5132*f*.
effect of, on cryoscopic behavior of 1,1-dimethylcyclohexane, 2964*g*.
freezing points, purification, and purity of, 2924*g*.
intermol. condensation of, P 1440*d*.
manuf. from 2-methylpropane and cyclopropane, P 5583*d*.
manuf. from 2-methylpropane and propene with water as catalyst, P 3604*h*.
prepn. of, 1313*a*.
synthesis of, 2569*b*.
ultrasonic velocity in, 8239*e*.
**Butane-1-*d***, exchange reactions of, 7897*g*.
**Butane-2-*d***, exchange reactions of, 7897*g*.
***iso*-Butane**. See *Propane, 2-methyl-*.
**1,2-Butanediamine**, prepn. of, 8381*f*.
——, $N^2$,2-dimethyl-, and dipicrate, 8381*e*.
——, 2-methyl-, and dipicrate, 8381*d*.
**1,3-Butanediamine**, P 2633*e*, P 5412*a*.
$N^1$, $N^1$-disubstituted derivs., P 2242*c*.
——, $N^3$ - *sec* - butyl - $N^3$ - isoamyl-, P 255*a*.
——, $N^1$, $N^1$-dibutyl-, P 2242*c*.
——, $N$, $N'$-diethyl-, P 2633*e*, P 5412*b*
——, $N^1$, $N^1$-diethyl-, 1349*g*.
——, $N^3$, $N^3$-diethyl-, P 254*i*.
——, $N$, $N'$-dinitro-, 9065*h*.
——, $N^3$-methyl-$N^3$-propyl-, P 255*a*.
**1,4-Butanediamine**. See *Putrescine*.
——, *N*-(3-aminopropyl)-. See *Spermidine*.
——, *N*, *N'* - bis(3 - aminopropyl)-. See *Spermine*.
**1,4-Butanedicarboxamide**. See *Adipamide*.
**1,1-Butanedicarboxylic acid**. See *Malonic acid, propyl-*.
**1,2-Butanedicarboxylic acid**. See *Succinic acid, ethyl-*.
**1,4-Butanedicarboxylic acid**. See *Adipic acid*
**2,3-Butanedicarboxylic acid**. See *Succinic acid, α,β-dimethyl-*.
**Butanedioic acid**. See *Succinic acid*.
**Butanediol**, adulterated, as glycerol substitute, 5540*f*.
esters, plasticizers, P 4895*c*.
formal, in cementing polyvinyl chloride layers, P 4898*d*.
viscosities of, 4915*g*.
——, chloro-, 6567*i*.
**1,1-Butanediol**, 2,3,4-tribromo-, and diastereoisomer, diacetates, 4219*d*.
**1,2-Butanediol**, 3,4-dibromo-, diacetate, 7424*f*.
——, 3,4-dichloro-, and diacetate, 6976*d*.
——, 3,4-dimercapto-, and derivs., 7424*f*.
and tetraacetate, antidotal activity in oxophenarsine poisoning, 9250*i*.
——, 3,3-dimethyl-, 573*e*.
**1,3-Butanediol**, cyclic sulfate, mono-(hydrogen sulfate) Ba salt, and bis-(hydrogen sulfate) Ba salt, 2934*d*.
cyclic sulfite, and polymer, P 4853*c*.
dehydration of, 5359*i*, 5360*fghi*, 5361*a*.
butadiene manuf. by, 2015*fghi*, 2016*a*.
stability of butadiene in kaolin mixed catalysts in, 4045*d*.
derivs., 6975*i*.
diacetate, P 7503*i*.
effect on ammonolysis of MeOAc, 6495*d*.
manuf. of, P 673*d*, P 2223*h*.
oxidation with ammoniacal Ag soln. and detection of, 2548*d*.
polyesters with 1,4-butanediol and succinic acid and with adipic acid, dielec. consts. of, 4530*b*.
prepn. of, 572*d*, 5367*b*.
toxicity of, 8558*b*.
**1,3-Butanediol, 2-amino-**, and oxalate, 573*a*.
——, 1-cyclohexyl-, P 1058*g*.
——, 2,4-dichloro-, and derivs., 6976*d*.
——, 2,3-dimethyl-, 1-acetate, P 7952*a*.
——, 1-(3,5-dimethylcyclohexyl)-, and diacetate, P 1058*e*.
——, 2-ethyl-, 572*d*.
——, 3-methyl-, 1-propionate, P 7952*b*.
reaction with HCl, 111*i*.
reaction with $H_2SO_4$, 111*g*.
——, 2 - (3,4 - methylenedioxyphenyl)-(?), and methylene ether*, P 4420*d*.
——, 1 - (2 - methyl - 2 - norcamphanyl)-, P 1058*f*.
——, 1 - (1,3,5 - trimethylcyclohexyl)-, P 1058*e*.
**1,4-Butanediol**, acetate (mono-), P 4085*e*.
2-alkoxy derivs., P 5414*c*.
dehydration to tetrahydrofuran, catalysts for, 2533*i*.
diacetate, 2578*d*.
and diacetate, magnetic susceptibilities of, 4911*e*.
dicarbamate, P 4690*h*
diisocyanate, 1564*c*.
diisocyanate, as resin tanning agent, 1206*b*
elec. moments of, and its diacetate, 11*d*
polyesters with 1,3-butanediol and succinic acid and with adipic acid, dielec. consts. of, 4530*b*.
prepn. of, 572*c*.
toxicity of, 818*d*.
**1,4 - Butanediol, 2 - amino-**, and oxalate (neutral), 1723*e*.
——, 2,3-dibromo-, *dl*-, 2578*f*.
——, 2,3-dichloro-, diacetate, P 1685*a*, P 5035*d*.
and diacetate, 6976*d*.
——, 2-ethoxy-, P 5414*d*
——, 2-methyl-1-phenyl-, and dibenzilate isomers, 4255*c*
**2,3-Butanediol**, adsorption by C, 66
cyclic sulfite, P 4853*c*.
dehydrogenation of, P 3841*h*
*d*-, *l*- and *meso*-, affinities of, for cuprammonium, 3368*e*
*dl*-, *l*- and *meso*-, esters, 3782*b*
ester (poly-) with phthalic acid, 4078*i*
and its formation in fermentation, 7187
formation of stereoisomers of, in glucose fermentation by *Aerobacter aerogenes*, 1320*h*.
maleate, polymerization with vinyl compds., P 1220*c*.
manuf. and properties of, 3561*a*, 4807*i*, 7635*b*.
oxidation of, P 1797*c*.
oxidation of, by cerate in $HNO_3$, kinetics of, 7798*h*.
oxidation of, with ammoniacal Ag soln. and detection of, 2548*d*.
phthalate, polymer, 4047*c*.
prepn. from grain, 9358*i*.
as synergist for nicotine, 5893*i*.
toxicity of, 818*d*.
**2,3 - Butanediol, 1,4 - dichloro-**, *dl*- and *meso*- and their diacetates, 6976*e*.
——, 1,4-dimercapto-, antidotal activity in oxophenarsine poisoning, 9251*a*
isomers and derivs., 7421*i*, 7425*a*.
——, 2,3-dimethyl-. See *Pinacol*
——, 1-phenoxy-, effect on nervous system, 3126*b*.
——, 1-*p*-toloxy-, effect on nervous system, 3126*b*.
**1,3 - Butanedione, 1 - (1 - aziridyl)-2-phenylazo-**, 3015*c*.
——, 1 - (9 - chloro - 1 - fluorenyl)-2-methyl-, 3402*b*.
——, 1-(*p*-chlorophenyl)-, 2174*e*.
——, 1 - (2,3 - dihydro - 6 - hydroxy-4-methoxy-7-benzofuryl)-, 3413*i*
——, 1,4-diphenyl-, and derivs., 7909*g*
——, 1 - (6 - hydroxy - 4,7 - dimethoxy-5-benzofuryl)-, 7481*a*
——, 1 - (2 - hydroxy - 4,5 - dimethoxyphenyl)-, 7461*e*.
——, 1 - (6 - hydroxy - 4 - methoxy-5-benzofuryl), 3413*e*.
——, 1 - (6 - hydroxy - 4 - methoxy - 7-benzofuryl)-, 3413*g*.
——, 2 - methoxy - 1 - phenyl-, 4248*d*
——, 1-phenyl-, cyanoethylation of, 2582*h*.
and *p*-derivs., alkaline cleavage of, 2174*f*
manuf. of, P 7954*a*.
in oat-smut control, 1137*g*.
uranyl deriv., 8264*d*.
zinc deriv., thermal-exchange expts. with radioactive Zn, 4967*d*.
——, 1-(3-pyridyl)-, reduction of, 643*e*.

zinc deriv., thermal-exchange expts. with radioactive Zn, 4967*d*.
——, **1-(2-thienyl)-**, 629*h*.
cyanoethylation of, 2582*i*.
——, **4,4,4 - trifluoro - 1 - (2-thienyl)-**, in sepn. of Hf and Zr, 8959*d*.
——, **1 - (2,2,6 - trimethylcyclohexyl)-**, and monophenylsemicarbazone, 4813*f*.
**1,4 - Butanedione, 1,4 - bis(2 - bromo-4-hydroxyphenyl)-**, 5388*a*.
——, **1,4 - bis(*p* - hydroxyphenyl)-**, 5388*a*.
——, **1,4-bis(*p*-methoxyphenyl)-**, 5388*a*.
——, **2,3 - bis(4 - morpholinylmethyl)-**, and dihydrochloride, 3406*h*.
——, **1,4-diphenyl-**, nitration product of, 5394*e*.
reaction with $HNO_3$, 2991*a*.
——, **1-(2-furyl)-**, and copper deriv., 4253*g*.
——, **2 - methyl - 3 - (4 - morpholinylmethyl)-1,4-diphenyl-**, 3406*g*.
——, **1,2,3,4 - tetraphenyl-**, 5020*f*.
——, **1,2,4-triphenyl-**, reaction with nitric acid, 2991*i*.
**2,3 - Butanedione**, and bis(phenylhydrazone), 5369*a*.
bis(phenylhydrazones), 1328*g*.
catalysts of lauroyl peroxide and, in polymerization of ethylidene dimethacrylate-methyl methacrylate mixts., P 876*i*.
in Cheddar cheese, effect of manufg. and curing on, 8068*f*.
in Cheddar cheese, flavor and, 8068*d*.
condensation with phenols, 8370*d*.
derivs., x-ray diffraction data for, 3795*b*.
detn. in butter, 7601*b*.
dioxime—see *Glyoxime, dimethyl-*.
effect on polymerization of allyl methacrylate, 8199*f*.
effect on reagents for detn. of vitamin C, 5879*b*.
formation of, in acetyl peroxide decompn. in glycols, 3776*b*.
hydrazones and semicarbazones, reaction with NaOH and with $N_2H_4.H_2O$, 122*h*.
manuf. of, P 1797*c*, P 3841*h*, P 6654*i*.
2-oxime, toxicity to, and utilization by *Azotobacter*, 2276*d*.
reaction with ketene, P 1436*d*.
reaction with primary aromatic amines, 4234*e*.
spectrum of, 4575*c*.
**2,3 - Butanedione, 1 - (2,2,6 - trimethylcyclohexyl)-**, and bis(phenylsemicarbazone) and 2-oxime, 4813*d*.
**Butanefrine, Butanephrine**. See "hydrochloride" under *Protocatechuyl alcohol, α-(1-aminopropyl)-*.
**2 - Butanephosphonyl chloride, 1-chloro-†**, P 7500*a*.
**Butanesulfonamide, chloro-**, 6569*d*.
**Butanesulfonanilide, chloro-**, 6569*d*.
**Butanesulfonic acid**, potassium salt, hydrolyzing power for oils, 8707*g*.
——, **chloro-**, isomers, 6569*f*.
——, **4 - (1*H* - furo[3,4]imidazolyl)-**. See *1H - Furo[3,4]imidazolebutanesulfonic acid*.
**1 - Butanesulfonic acid**, from oxidation of BzSBu, 6975*f*.
——, **4-hydroxy-**(?), and sultone, 6569*f*.
——, **4 - hydroxy - 2,4 - diphenyl-**, sultone, 172*a*.
——, **2-nitro-**, potassium salt, P 9079*bd*.
**2 - Butanesulfonic acid, 1,4-dicyano-**, salts, P 3840*b*.
——, **4-hydroxy-**(?), and sultone, 6569*f*.
**Butanesulfonyl chloride, chloro-**, isomers, 6569*d*.
**1-Butanesulfonyl chloride, 2 - bromo-2-nitro-**, P 5411*i*.
——, **2-chloro-2-nitro-**, P 5411*i*.
——, **2-nitro-**, P 5411*i*.
**1,1,2,2 - Butanetetracarboxylic acid**, tetraethyl ester, 4228*a*.
**1,1,2,4 - Butanetetracarboxylic acid, 2,2 - dimethyl-**, tetraethyl ester, 4228*a*.
**1,1,4,4 - Butanetetracarboxylic acid**, and tetraethyl ester, P 9476*a*.
**1,1,4,4 - Butanetetramine**, *N, N'*, *N''*, *N'''* **- tetrabenzoyl - 2,2,3,3-tetrachloro-**, 2967*d*.
**1,1,3,4 - Butanetetrol, 2 - chloro-**, 1,1,4-triacetate, 4219*d*.
**1,2,3,4-Butanetetrol**. See *Erythritol*.
——, **1 - (1 - allyl - 2 - mercapto - 4-imidazolyl)-**, 2989*c*.
——, **1 - (2 - amino - 4 - hydroxy - 6-pteridyl)-**, D-*arabo-*, as antagonist of folic acid, 3065*i*.
——, **1 - (2 - amino - 4 - hydroxy-6-(and 7)-pteridyl)-**, 7489*be*.
D-*arabo-*, and tetraacetates, 7028*i*.
——, **1 - (2 - mercapto - 4 - imidazolyl)-**, and derivs., 2988*i*.
——, **1 - (2 - mercapto - 1 - phenyl-4-imidazolyl)-**, 2989*c*.
——, **1 - (2 - mercapto - 1 - *p* - tolyl-4-imidazolyl)-**, 2989*c*.
**1-(2-quinoxalyl)-**, 5404*i*.
**Butanethiol**, as polymerization regulator in butadiene and chloroprene polymerizations, 7253*d*.
**1-Butanethiol**, benzoate, oxidation with peroxyacetic acid, 6975*f*.
as corrosion inhibitor against CO. P 5730*f*, P 7221*h*.
detn. in gasoline, 6944*b*.
oxidation of, in Na cresylate solns. P 6235*b*.
phys. constants of, 2956*d*
reaction with ethylene oxides, 7420*i*.
in rubber vulcanization, P 4510*a*
thallous deriv., 3352*h*.
——, **3-methyl-**, in petroleum of Ishimbaevsk, 2759*h*.
phys. constants of, 2956*d*.
reaction with ethylene oxides, 7420*i*.
**2-Butanethiol**, in petroleum of Ishimbaevsk, 2759*g*.
——, **2-methyl-**, 6455*b*.
**1,2,4-Butanetricarboxylic acid**, P 2635*b*, P 3031*h*.
——, **2,3-dimethyl-**, triethyl ester, 3796*h*.
——, **3,3-dimethyl-**, 1335*g*.
——, **1-phenyl-**, and trimethyl ester, 3398*f*.
**1,2,3-Butanetriol**, 573*e*.
*Aspergillus oryzae* action on, 8007*d*
bacterial metabolism of, 5076*b*
——, **4 - (2 - amino - 4 - hydroxy-7-pteridyl)-**, 5404*c*.
**1,2,4-Butanetriol**, prepn. of, 572*c*
**1,2,3 - Butanetrione, 1 - phenyl-**, for flour improvement, P 5130*h*
**Butanoic acid**. See *Butyric acid*.
**Butanol**, compds. with $NH_4Cl$, 8807*h*.
——, **dichloro-**, 6567*i*.
——, **methoxy-**, acetate, Fe oxide pigment powder wetting by, 8697*i*
——, **methyl-**, isomers, dehydration of, P 6217*h*.
**1-Butanol**. See *Butyl alcohol*.
——, **2-amino-**, as curing catalyst for aminoplasts, P 5633*c*.
esters, P 4696*h*.
naphthoquinoneimide dye from, P 8167*b*.
reaction with quinizarin derivs., P 9467*e*
——, **3-amino-**, compd. with 1-sulfanilyl-2 thiourea, P 687*a*.
——, **4-amino-**, 2579*f*
——, **2-amino-3-methyl-**, L-, and salts, 6979*a*.
——, **2 - benzyl - 2,4 - diphenyl-**, and carbanilate, 1351*a*.
——, **2-benzyl-2-nitro-**, P 3038*c*.
——, **3-(benzyloxy)-**(?), 6976*a*.
——, **3-bromo-**, acetate, P 4690*a*.
——, **2 - bromo - 3 - methyl-**, ethers, 3358*i*.
——, **2 - [*o*(and *p*) - bromophenylazo]-2-nitro-**, 4046*h*.
——, **3-chloro-**, 2934*h*.
——, **4-chloro-**, effect on seeds, 4733*i*.
——, **2 - [*o*(and *p*) - chlorophenylazo]-2-nitro-**, 4646*gh*.
——, **2 - cyclohexylamino-**, *p* - dialkyl aminobenzoates, hydrochlorides, P 2640*d*.
diphenylacetate-HCl, P 2639*i*.
hydrochloride, 3419*d*.
——, **3,4-dibromo-2-methoxy-**, 6157*g*.
——, **2 - (2,5 - dichlorophenylazo)-2-nitro-**, 4646*h*.
——, **3,4-dimercapto-**, 3783*g*.
——, **2,3-dimethyl-**, 6155*b*.
——, **2-ethyl-**, acetoacetate, reaction with aniline and with *o*-toluidine, 228*g*.
esters, 6168*c*, 7455*g*.
ester with 2-ethylhexyl 4-sulfophthalate, Na salt, pharmaceutical carrier for, P 2375*d*.
and α-ethylbutyrate, 2165*b*.
3-methoxysalicylate, 4242*b*.
phosphate, viscosities of, 4915*g*.
——, **2-ethyl-3-methyl-**, P 662*h*.
——, **2 - [(1 - ethylpropyl)amino]-**, diphenylacetate-HCl, P 2639*i*.
——, **3,3'-iminodi-**, compd. with 1-sulfanilyl-2-thiourea, P 687*a*.
——, **3-iodo-**, esters, P 4690*bf*.
——, **2 - (1 - isobutylisoamylamino)-**, *p*-aminobenzoate (ester), -HCl, P 3038*g*.
——, **2-isopropylamino-**, hydrochloride, 3419*d*.
——, **1 - (*p* - methoxyphenyl)-**. See *Anisyl alcohol, α-propyl-*.
——, **2-methyl-**. (See also *Amyl alcohol*.) and aluminum deriv. and α-methylbutyrate, 6155*e*.
*d*-, 3,5-dinitrobenzoate, 3776*f*.
(−), racemization of, 4215*b*.
——, **3-methyl-**. See *Isoamyl alcohol*.
——, **3-methyl-1-phenyl-**. See *Benzyl alcohol, α-isobutyl-*.
——, **3-methyl-3-*p*-tolyl-**, 5762*f*.
——, **4-(4-morpholinyl)-**. See *4-Morpholinebutanol*.
—— **4 - (naphthindenopyridazinyl)-** See *Naphthindenopyridazinebutanol*.
——, **4-(naphthyl)-**. See *Naphthalenebutanol*.
——, **2-nitro-**, acrylate, and polymerization of, P 2815*g*.
reaction with diazonium compds., 4040*g*.
——, **2 - nitro - 2 - (5 - nitro - *m*-tolylazo)-**, 4646*h*.
——, **2-nitro-2-*p*-tolylazo-**, 4646*h*.
——, **1-phenyl-**. See *Benzyl alcohol, α-propyl-*.
——, **2 - (1 - phenyl - 1*H* - tetrazol - 5 - ylmethylamino)-**, P 7972*c*.
pharmacology of, 1864*i*.
——, **4 - (piperidyl)-**. See *Piperidinebutanol*.
——, **4-(1-piperidyl)-**. See *1-Piperidinebutanol*.
——, **4-thiocyano-†**, 2945*f*.
acetate and propionate, P 5153*a*.
——, **2 - (2,4,5 - trimethoxybenzyl)-**, 2608*i*.
——, **2,2,3-trimethyl-**, hydrogenolysis of, 1312*i*.
**2-Butanol**. See *sec-Butyl alcohol*.
——, **4-amino-**, P 5412*a*, P 9081*c*.
hydrogen sulfate, cyclic salt, 2934*i*.
and picrate, 2935*b*.
prepn. of, 5367*b*.
——, **4-benzylamino-**, and carbanilate, 2935*b*.
hydrogen sulfate, cyclic salt, 2934*i*.
——, **4-(benzyloxy)-**(?), 6976*a*.
——, **3,3 - bis(4 - hydroxy - *m* - tolyl)-**, 8370*h*.
——, **3,3 - bis[4 - methoxy - *m*(and *o*)-tolyl]-**, 8370*i*.
——, **1 - bromo - 3 - methyl-**, ethers, 3358*i*.
——, **1-chloro-**, 6976*c*.
——, **3,4 - dibromo - 1 - ethoxy-**, 6157*f*.
——, **3,4-dibromo-1-methoxy-**, 6157*e*.
——, **2,3-dimethyl-**, *p*-nitroperoxybenzoate, 6189*f*.
——, **4-dimethylamino-**, and derivs., 2935*c*.
——, **1 - dimethylamino - 2 - (dimethylaminomethyl)-**, benzoate, anesthetic potency of, measurement of, 8095*b*.
benzoate, -HCl, effect on cholinesterase, 762*e*.
benzoate, identification of, 1151*g*, 7190*g*.
——, **4 - dimethylamino - 1,2-diphenyl-**, P 5417*g*.
——, **3 - (2 - dimethylaminoethoxy)-2,3-diphenyl-**, and hydrochloride, 2205*i*.
——, **1 - dimethylamino - 2 - methyl-**, benzoate, -HCl—see *Stovaine*.
——, **4 - dimethylamino - 3 - methyl-**, *p*-aminobenzoate, -HCl—see *Tutocaine*.
——, **2,4 - diphenyl - 3,4 - di - 1-piperidyl-**, 7025*d*.
——, **4 - ethoxy - 2 - methyl-**, 2570*i*.
——, **4-(ethylanilino)-**, hydrogen sulfate, cyclic ester, 2935*a*.
——, **2-methyl-**. See *tert-Amyl alcohol*.
——, **3-methyl-**, and 1-naphthalenecarbamate, 565*c*.
——, **3 - methyl - 4 - phenyl-**, and acetate, 5762*a*.
——, **2-methyl-4-(2,5-xylyl)-**, 2182*h*.
——, **4-(1-naphthylamino)-**, detection in rubber, 893*ci*.
——, **4 - (1 - naphthylimino)-**, as antioxidant in rubber, 9516*g*.
——, **1(and 3)-nitro-**, P 6647*c*.
——, **1-phenyl-**. See *Phenethyl alcohol, α-ethyl-*.
——, **2-phenyl-**. See *Benzyl alcohol, α-ethyl-α-methyl-*.
——, **4-phenyl-**, 4652*a*.
——, **1,1,1 - trichloro - 3 - methyl-**, P 664*f*, P 4284*h*.
**Butanone**, derivs., with pharmaceutical use, P 1914*h*.

**1-Butanone, 4-amino-1-(3-pyridyl)-,** and derivs., 4345*g*.
——, **1 - (5 - bromo - 2 - thienyl)-,** 4666*b*.
——, **1 - (2 - chloro - 1 - cyclohexen-1-yl)-,** P 6230*c*.
——, **1 - cyclohexyl - 2 - methoxy-,** and semicarbazone, 6974*i*.
——, **4 - diethylamino-1-(2-furyl)-,** and oxime, 2211*g*.
——, **4 - diethylamino - 1 - (8-quinolyl)-,** 2623*i*.
——, **4 - diethylamino - 1 - (2-thienyl)-,** and oxime, 2211*c*.
——, **1 - (3,6 - dihydro - 2,2 - dimethyl-2*H*-pyran - 4 - yl) - 3 - methoxy-,** 2162*c*.
——, **1 - (2,5 - dimethyl - 3 - furyl)-,** and 2,4 - dinitrophenylhydrazone, 6204*d*.
——, **1-(2-furyl)-,** 214*c*, 6204*a*, 8367*h*.
——, **1 - (4 - hydroxy - 3 - cyclohexen-1-yl)-3-methyl-,** formate, 2958*c*.
——, **1 - [4 - (*m* - hydroxyphenyl) - 1-methyl - 4 - piperidyl]-,** and acetate (ester)-HCl, P 2241*a*.
——, **4-hydroxy-1-(8-quinolyl)-,** 2623*i*.
——, **1 - (4 - methoxycyclohexyl) - 3-methyl-,** and semicarbazone, 2958*e*.
——, **3-methoxy-1-[4(and 5)-methyl-1-cyclohexen-1-yl]-,** 117*af*.
——, **3 - methoxy - 1 - (tetrahydro-2,2-dimethylpyran-4-yl)-,** 2162*d*.
——, **3 - methoxy - 1 - (tetrahydro-2-methyl-2-furyl)-,** 2163*c*
——, **1 - [3(and 4) - methylcyclohexyl]-,** and semicarbazones, 117*bg*.
——, **1-(naphthyl)-.** See *Butyronaphthone*.
——, **1-phenyl-.** See *Butyrophenone*.
——, **1 - (4 - propyl - 3 - pyridyl)-,** and picrate, 643*e*.
——, **1-(3-pyridyl)-,** 8367*g*.
and derivs., 643*c*.
——, **1 - (tetrahydro - 2,2 - dimethylpyran-4-yl)-,** 2162*e*.
——, **1-(2-thienyl)-,** 214*d*, 6204*a*
oxidation of, 5016*a*.
**2-Butanone,** acylhydrazones†, 6972*ceh*, 6973*cfi*.
in air, max. allowable concn. of, 4401*a*.
antiknock compd from, after exposure to ultraviolet light in presence of Pb, P 1558*d*.
antimony fluoride soly. in, 6890*b*.
azine with 5,5-dimethyl-2 thiohydantoin, 6171*i*.
chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
compd. with HCHO, 7409*a*.
compd. with phenol, infrared and Raman spectra of, 107*b*
condensation of, in presence of H, P 2222*h*.
condensation product, reaction with $H_2S$, P 1063*b*.
decompn. by heat, kinetics of, 2848*i*
detn. of, 4183*h*.
4-dialkylamino derivs., P 2242*c*.
as diluent for acrylate and methacrylate resins in impregnation of leather, 7247*c*.
drying of, P 2048*i*, 8753*c*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
flow of aq., through granular solids, mass transfer in, 8752*a*.
formation of, from $CrO_3$ oxidation of *sec*-BuEtCHOH, 2926*a*.
formation of, in reaction of $Et_3CCO_2H$, $H_2SO_4$ and $HN_3$, 9027*h*.
Grignard reaction with, 5004*f*.
lyoparachor of, 2834*b*.
manuf. of, P 3026*a*.
mixt. with Et butyrate, reduction of, 2944*f*.
and *p*-nitrophenylhydrazone, 122*h*.
oxidation of, P 6654*i*.
oxidation on catalyst, 928*b*.
oxime, benzenesulfonate, 2594*e*.
reaction with halogens, 6569*b*.
rearrangement of, 5740*d*.
toxicity to, and utilization by *Azotobacter*, 2276*d*.
peroxide†, detn. of, 1952*g*.
phys. consts. of, 2589*h*.
purification of, P 9079*i*.
reaction with acetaldehyde, 6159*i*.
with EtOH, 993*d*.
with HCHO, P 1051*e*.
with $H_2S$, 4633*c*.
with ketene, P 5415*a*.
recovery from reaction products of hydrogenation of CO, P 7214*b*.
reduction of, to 2-butanol, 2570*f*.
sepn. from EtOH, 2*h*.
solubilization of, with Na secondary alkyl sulfates, 466*a*.
spectrum of, 1656*c*, 3715*g*.
system: glycerol-$H_2O$-, P 9081*d*.
toxicology of, 5514*i*.
ultrasonic velocity in, temp. and, 7283*i*.
**2 - Butanone, 1 - amino - 3 - methyl-,** hydrochloride, 635*a*.
——, **1 - [*o* - (benzyloxy)phenoxy]-4-(4-morpholinyl)-,** P 1915*a*.
——, **1 - [*o* - (benzyloxy)phenoxy]-4(1-piperidyl)-,** P 1914*i*.
——, **4-(benzylmercapto)-,** 1321*d*.
——, **4 - [bis(2 - chloroethyl)amino]-,** in cancer therapy, 5505*c*.
——, **3,3-bis(*p*-hydroxyphenyl)-,** 8370*e*.
——, **3,3 - bis(4 - hydroxy - *m* - tolyl)-,** and diacetate, 8370*e*.
——, **3,3 - bis(*p* - methoxyphenyl)-,** 8370*e*.
——, **3,3 - bis[4 - methoxy-*m*(and *o*)-tolyl]-,** 8370*i*
——, **4-*tert*-butoxy-,** and semicarbazone, 1339*a*.
——, **1-chloro-,** 2937*i*.
——, **1(and 3)-chloro-,** and semicarbazones, 3791*c*.
——, **3-chloro-,** reaction with NaCN, 2936*g*.
——, **1 - chloro - 4 - (4 - hydroxy - 3-methoxyphenyl)-,** ethyl carbonate, 7001*e*
——, **1-chloro-3-methyl-,** 2938*f*.
——, **3-chloro-3-methyl-,** 2936*g*.
——, **1 - chloro - 4 - (*p* - methylsulfonylphenyl)-,** 1740*a*.
——, **4 - (1 - cyclohexen - 1 - yl) - 4-hydroxy-,** P 1058*g*.
——, **4-cyclohexyl-,** 8360*h*
and derivs., 7437*i*
——, **4 - (decahydro - 2,5,5,8a - tetramethyl-1-naphthyl)-,** and derivs., 8369*g*.
——, **3-diazo-,** 4653*g*.
——, **1 - diazo - 4 - (*p* - methylsulfonylphenyl)-,** 1739*i*.
——, **4-dibutylamino-,** and oxime, P 2242*b*.
——, **4-diethylamino-,** 4219*i*.
——, **4 - (3,4 - dihydroxyphenyl)-,** 7001*e*.
——, **3 - (3,5 - dimethoxyphenyl)-,** and semicarbazone, 8384*g*.
——, **4 - (3,4 - dimethoxyphenyl)-,** 2185*f*.
——, **3,3-dimethyl-.** See *Pinacolone*.
——, **4 - dimethylamino - 3 - methyl-,** 4219*i*.
——, **4 - (3,5 - dimethylcyclohexyl)-4-hydroxy-,** 8362*b*.
——, **1,4-diphenyl-,** and semicarbazone, 3393*a*
——, **3,3-diphenyl-,** detn. of, 1280*g*
——, **3,4 - epoxy - 4 - (2,6,6-trimethyl-2-cyclohexen-1-yl)-,** and phenyl semicarbazone, 4813*i*.
——, **1-ethoxy-,** dinitrophenylhydrazone, 6157*f*.
——, **4-ethoxy-,** and 2,4-dinitrophenylhydrazone, 1338*i*.
——, **4-(ethylmercapto)-,** and 2,4-dinitrophenylhydrazone, 7434*b*.
——, **4 - (9 - fluorenyl) - 4 - phenyl-,** and derivs., 9058*h*.
——, **4 - [5 - (2 - fluoro - 4 - nitrophenylazo) - 4 - methoxy - 6 - methyl-1*H*-benzotriazol-1-yl]-,** P 3625*i*.
——, **1-hydroxy-,** and phenylosazone†, 6624*f*.
——, **1(and 3)-hydroxy-,** and derivs., 3791*d*.
——, **3-hydroxy-(*acetoin*),** condensation in alc. fermentation, 4807*g*.
consumption by cornea, and effect of compds. thereon, 770*a*.
derivs., x-ray diffraction data for, 3795*b*.
effect on reagents for detn. of vitamin C, 5879*b*.
formation of, from AcH in tissue, 5841*h*.
in acetyl peroxide decompn. in glycols, 3776*b*.
from ethanol and pyruvic acid by *Bacillus subtilis*, 5824*b*.
from sugars, 7730*i*.
oxime, Cu complex, rotproofing effectiveness in duck, 5958*b*.
prepn. from grain, 9359*b*.
in soybean sprouts, 7554*f*.
——, **4-hydroxy-,** and dehydration of, 1338*i*.
——, **1 - hydroxy - 4 - (4 - hydroxy-3-methoxyphenyl)-,** 7001*f*.
——, **1-hydroxy-4-methoxy-,** and 2,4 dinitrophenylhydrazone, 2577*h*.
and semicarbazone, 6624*d*.
——, **4 - (4 - hydroxy - 3 - methoxy-5-nitrophenyl)-,** 7001*f*.
——, **4 - (3 - hydroxy - 4 - methoxyphenyl)-,** 7001*g*.
——, **4 - (4 - hydroxy - 3 - methoxyphenyl)-.** See *Zingerone*.
——, **3 - hydroxy - 3 - methyl-,** dehydration of, 3352*c*.
and semicarbazone, 2944*g*.
——, **4-hydroxy-3-methyl-,** manuf. of, P 1051*e*.
——, **1 - (*o* - hydroxyphenoxy) - 4 - (4-morpholinyl)-,** P 1915*a*.
——, **1 - (*o* - hydroxyphenoxy) - 4 - (1-piperidyl)-,** P 1915*a*.
——, **3-hydroxy-1-phenyl-,** *p*-nitrobenzoate, 1744*a*.
——, **4 - [*o*(and *p*) - hydroxyphenyl]-7001*g*.
——, **4-(*p*-hydroxyphenyl)-,** 1743*f*.
——, **3(and 4) - hydroxy - 4 - (2,6,6-trimethyl - 2 - cyclohexen-1-yl)-,** and derivs., 4813*i*.
——, **4-isopropoxy-,** 1339*a*.
——, **1-methoxy-,** and dinitrophenylhydrazone, 6157*e*.
——, **4-methoxy-,** 1338*i*.
dimethyl acetal, 2577*d*.
and dimethyl acetal, reactions with arylamines, P 1443*h*
——, **1 - (*o* - methoxyphenoxy) - 4 - (4-morpholinyl)-,** and hydrochloride, P 1915*d*.
——, **4 - (*o* - methoxyphenyl)-,** 7001*i*
——, **4 - (*p* - methoxyphenyl)-,** 1743*f*
7001*g*.
——, **4 - (*p* - methoxyphenyl) - 3-methyl-,** and semicarbazone, 5762*f*.
——, **4 - methoxy - 1 - (tetrahydro - 2,2-dimethylpyran-4-yl)-,** 2161*i*.
——, **4 - methoxy - 1 - (tetrahydro - 2,2-dimethylpyran - 4 - ylidene)-,** 2161*h*.
——, **3-methyl-,** 565*c*.
Grignard reaction with, 5004*f*.
oxime, rearrangement of, 5740*d*.
purification of, P 6650*c*.
spectrum of, 3715*g*.
——, **1 - (3 - methyl - 2 - benzothiazolinylidene)-,** 4262*f*.
——, **4 - (2 - methylcyclohexyl)-,** and derivs., 8360*f*
——, **4 - (3,4 - methylenedioxyphenyl)-,** 2186*b*.
——, **4-methylmercapto-,** and 2,4-dinitrophenylhydrazone, 7434*b*.
——, **3-methyl-4-phenyl-,** and semicarbazone, 5762*a*.
——, **3 - methyl - 3 - (phenylsulfonyl)-,** prepn. and spectrum of, 4215*i*
——, **3 - methyl - 1 - (2 - quinolyl)-** and oxime, 7022*f*.
——, **3 - methyl - 4 - *p* - tolyl-,** and semicarbazone, 5762*d*.
——, **4 - (4 - morpholinyl) - 1 - phenoxy-,** P 1914*h*.
——, **1(and 4)-phenyl-,** phys. consts of, 2589*i*.
——, **3-phenyl-,** 6195*h*.
——, **4-phenyl-,** 4652*a*, 5762*a*.
——, **4-*p*-pseudocumyl-,** and semicarbazone, 2589*b*.
——, **1-(2-quinolyl)-,** and picrate, 7022*e*
——, **1 - (tetrahydro - 2,2 - dimethylpyran-4-yl)-,** and semicarbazone, 2162*a*.
——, **4 - (2,2,3,6 - tetramethylcyclohexyl)-,** and derivs., 3375*g*, 3376*g*
isomers, and derivs., 3374*a*.
——, **4 - (2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-,** and derivs., 4637*e*.
——, **4 - (2,2,6 - trimethylcyclohexyl)-,** 4637*f*.
——, **4 - (1,3,3 - trimethyl - 7 - oxabicyclo[4.1.0]-2-heptyl)-,** and phenyl semicarbazone, 4813*f*.
——, **4 - (2,3,6 - trimethylphenyl)-,** 3798*e*.
——, **4 - triphenylmethoxy-,** 1336*i*.
**Butaprene.** See *Nitrile rubbers*.
**1,2,3 - Butatriene, tetrakis(*p* - chlorophenyl)-,** 4246*a*.
**Butein** (*2',3,4,4' - tetrahydroxychalcone*), adrenaline potentiation by, 3104*f*, 5116*h*.
bactericidal action of, 5446*d*.
**Butelline.** See *Butacaine sulfate*.
**Butelline esterase,** in blood serum and it detn., 8049*e*.
***iso*-Butenal.** See *Methacrylaldehyde*.
**2-Butenal.** See *Crotonaldehyde*.

**3 - Butenal, 2 - methyl - 4 - (2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-(?), 2173a.**
——, **2 - methyl - 4 - (2,6,6 - trimethyl-2-cyclohexen-1-yl)-(?), 2173a.**
**2-Butenamide.** See *Crotonamide.*
**3-Butenamide,** *N* - **allyl - 4 - phenyl-,** in penicillin production, 2273*f.*
**Butenandt, Adolf,** biography, 2477*c.*
**Butene,** alkylation with, of $PhNH_2$, 4644*f.*
alkylation with, 2-methylpropane emulsion with HF or $H_2SO_4$ catalyst recycling in, P 3189*a.*
alkylation with, of 2-methylpropane, propane removal in, P 2422*i.*
butadiene sepn. from its mixt. with isobutylene and, P 6218*b.*
chlorination (photochem.) of, P 6644*h.*
chloro derivs., P 663*f.*
dehydrogenation of, P 662*i*, 1635*e*, 3044*b.*
catalysts for, P 5135*d*, P 6763*b.*
removal of catalyst poisons from steam in, P 7950*g.*
dimers with 2-methylpropene, reaction with CO and H, P 5032*c.*
diolefins from, P 7950*b.*
flame temp. of, 1231*i.*
formation from hexadecane, 3343*e.*
formation in reaction of 2,3-dibromobutane with Na salts of thiol acids, 2569*i.*
hydration of, P 6645*h.*
isomerization of, to 2-methylpropene, P 2216*d.*
isomers, alkylation of $C_4H_{10}$ and isobutane with, with HF catalysts, P 1174*i.*
alkylation of 2-methylpropane with, P 4004*i.*
alkylation of 2-methylpropane with, control of $AlCl_3$-hydrocarbon complex viscosity in, P 4005*h*
alkylation of 2-methylpropane with, safety fuel by, P 5181*f.*
$C_4H_8$ detn. in gases contg., 5343*d.*
dehydrogenation of, P 3023*d.*
dehydrogenation of, temp control in, P 6819*e.*
dehydrogenation of, while maintaining K content of oxide catalyst, P 2764*h.*
detn in hydrocarbon gases, 5930*h.*
extn. from butane with liquid $NH_3$ solns., P 3192*c.*
extn of butadiene from, with liquid $NH_3$ solns , P 3192*b.*
extractive distn. with acetone solvent, P 913*i*
formation from depolymerization of triisobutylene, 6151*c.*
manuf. and dehydrogenation of, with Cu-Mg catalyst, P 9430*d*
manuf. by cracking hydrocarbon-oil vapors in steam, P 8129*f*
manuf. by cracking of hydrocarbons and dehydrogenation to diolefins, P 8663*d.*
manuf by cracking petroleum with fluid MgO-$SiO_2$ catalysts, 8656*d.*
mixts. with butadiene, rubber copolymers with methacrylonitrile, P 2463*e.*
mixt. with $C_2H_4$, polymerization with Cu pyrophosphate catalyst to gasoline, 4839*d.*
polymerization of, P 1218*f.*
polymerization with catalysts of HF and P acids, anhydrides or esters, P 5939*e.*
polymers with butadiene as petrolatum substitute, P 8743*f.*
recovery from $C_4$ hydrocarbon mixts., P 1558*a.*
sepn. and recovery of, from alk. cuprous salt soln., P 4682*b.*
manuf. from hydrocarbon oils and conversion to isooctane, P 3605*b.*
manuf. from ketones, P 7496*g.*
manuf. of, and isobutane alkylation with, in antiknock fuel manuf., P 1955*i.*
mixts. with $C_3$, $C_5$ and $C_6$ olefins, alkylation with isobutane with $AlCl_3$-hydrocarbon complex catalysts, P 1956*h.*
mixt. with butane, polymerization and hydrogenation of, P 5174*c.*
polymerization of, P 906*a.*
with $H_3PO_4$-diatomite-$H_3BO_3$ catalyst to oils, P 3190*f.*
with $TiO_2$-$SiO_2$ catalyst to liquid hydrocarbons, P 2764*e.*
polymers of, condensation with naphthalene with $AlCl_3$ catalyst and then reaction with butene, oils by, P 3190*b.*
corrosion inhibitor from, P 7896*c.*
*polymers of,* depolymerization of, 1311*a.*
with 2 - methylpropene, depolymerization of, 1713*d.*
mixt. with polystyrene, water-vapor permeability of, 8738*d.*
prepn. of, 108*c.*
resinous products from $SO_2$ and, P 1217*c.*
sepn. from hydrocarbon mixt., P 379*i.*
**Butene, 2-cyclohexyl-,** dehydrogenation of, 5376*g.*
——, **diphenyl-,** 192*g.*
——, **fluoro-,** P 3437*f.*
——, **2-methyl-,** alkylation with, of 2-methylbutane with $H_2SO_4$ catalysts, 1554*f.*
manuf. of, by isomerization with $Al_2O_3$-HF catalyst, P 5939*d.*
polymerization with vinyl aromatic compds., viscous oils by, P 8130*d.*
polymers of, lyogels of, 4540*e.*
——, **phenyl-,** P 7507*g.*
*iso*-**Butene.** See *Propene, 2-methyl-.*
**1-Butene,** adsorption by C black and $SiO_2$ gel, 8254*h.*
alkylation with, and its isomers, of 2-methylpropane with HF catalyst, P 5583*g.*
analysis of mixt. of $C_4H_8$, butanes, 2-butene, 2-methylpropene and, by infrared and mass spectra, 6105*c.*
carbon exchange in, 2081*b.*
dehydrogenation of, 4213*i.*
dehydrogenation of, app for, P 3436*e.*
detn. in gases of petroleum industry, 8962*d.*
detn. in hydrocarbon gases, 5930*h.*
deuterium exchange, isomerization and hydrogenation of, kinetics of, 24*f.*
extractive distn. of, 8747*a.*
formation of, in acetyl peroxide decompn. in 3-bromopropene, 3775*h.*
formation of, in oxidation of $C_4$ hydrocarbons, 1309*c.*
fuel antiknock ratings of, 382*i.*
heat capacity and heat content of, 7215*h*
and hydration of, 9028*a.*
hydrogenation of, 3775*e.*
isomerization of, with $Al_2O_3$-HF catalyst, P 5939*c.*
bentonite and gumbrin as catalysts in, 6153*a.*
in vapor phase with HF catalyst, P 1175*g.*
labelled with $C^{14}$ in the 4 position, 9023*g.*
manuf. and isomerization of, in gasoline manuf , P 2763*h.*
manuf. of, P 660*h.*
manuf. of, by polymerization of propene or propane-propene fraction, P 3187*h.*
mixt. with 2-butene and 2-methylpropene, polymerization with $H_2SO_4$ and hydrogenation of polymer, safety fuel ingredient by, P 7222*c.*
oxidation of, P 2222*g.*
polymerization of, and its mixt. with 2-butene, with 2-methylpropene with $H_3BO_3F_2$ catalyst, and compns. of hydrogenated polymers, 8657*b.*
polymerization of, with imino compd. or nitrohydrocarbon catalyst, P 8666*h.*
polymers of, and copolymers with butadiene, ultrasonic velocity in, 8239*e.*
Raman and infrared spectra of, 2867*f.*
reaction with S, P 1066*e.*
sepn. from 1,3-butadiene, 1597*g.*
**1-Butene, 3-bromo-4-chloro-,** P 2218*d.*
——, **2 - bromo - 3 - chloro - 3 - methyl-,** 5363*a.*
——, **3-chloro-,** ethanolysis and hydrolysis of, rates of, 2849*d*
reaction with $NaCH(CO_2Et)_2$, 3351*d*
——, **1 - chloro - 3,4 - dimethoxy - 2-methyl-,** 5362*h.*
——, **1-chloro-3,3-dimethyl-,** 9024*h.*
——, **3-chloro-3-methyl-,** 111*h*, 113*i*, 5362*c.*
——, **4-chloro-2-methyl-,** 111*h.*
——, **4 - (4 - cyclohexylcyclohexyl)-1,1-diphenyl-,** *cis-* and *trans-,* 1375*h.*
——, **3,4-dibromo-,** 6152*f.*
——, **1,4-dibromo-1-phenyl-,** 1021*b.*
——, **1,3-dichloro-,** ethanolysis and hydrolysis of, rates of, 2849*d.*
——, **2,3**(and **3,4**)**-dichloro-,** P 663*g.*
——, **3,4-dichloro-,** P 2218*d*, 6152*g.*
oxidation of, 6976*f.*
——, **1,1 - dichloro - 3,3 - dimethyl-,** 3372*e.*
——, **1,1**(and **1,2**) **- dichloro - 3,3-dimethyl-,** 9025*a.*
**1,1-dichloro-3-methyl-,** 3372*e*,
**1,2 - dichloro - 3 - methyl-,** 9025*a.*
——, **2,3-dichloro-3-methyl-,** 5362*f.*
——, **3,4 - dichloro - 2 - methyl-,** 5362*e*
——, **3,4 - dichloro - 3 - methyl-,** P 2218*d.*
——, **3,3-difluoro-,** 1599*a*, P 2218*f.*
——, **3,3-dimethoxy-†,** 2577*e.*
——, **2,3**(and **3,3**) **- dimethyl-,** in gasoline (Thermofor cracked), 4453*c.*
——, **3,3-dimethyl-,** spectra (infrared and Raman) of, 7822*a.*
——, **1,3-diphenyl-,** *cis-,* 612*g*
——, **3,4-epoxy-,** compd. with styrene-maleic anhydride polymer, 8202*i.*
reaction with cellulose, P 1979*d.*
reaction with S compds., 7420*e.*
reaction with thiols in the presence bases, 6574*d.*
——, **2-ethyl-,** 3369*i.*
freezing point, purification, and purity of, 2924*g.*
in gasoline (Thermofor cracked), 4453*d.*
reactivity of, 9024*c.*
——, **2-isopropyl-3-methyl-,** formation from 2,2,4 - trimethyl - 3 - pentanol, 557*c.*
——, **4-isothiocyano-†,** in crucifer seeds, 3888*b.*
——, **2-methyl-,** 3370*b.*
detection of, in terpene deriv. decompn. products, 8975*c.*
formation from *tert*-AmMe$_2$SI, kinetics of, 3349*g.*
formation of, kinetics of, 3346*h.*
mixt. with methylcyclobutane in Gustavson's hydrocarbon, 991*f.*
polymerization with propene with $H_3BO_3$-$F_2$ catalyst and compn. of hydrogenated polymers, 8657*b.*
recovery of, from other $C_4$ olefins, P 4283*f.*
——, **3**(and **3**)**-methyl-,** 3355*b.*
detn. in petroleum-refinery $C_5$ fractions, 8123*e.*
from isoamyl alc., P 3834*a.*
isomerization of, kinetics of, 3343*g.*
——, **3-methyl-,** and derivs., 3358*i.*
formation from Me$_2$CHCHMeSMeI and from Me$_2$CHCHMeI, kinetics of, 3350*e.*
manuf of, P 6217*h.*
——, **2-nitro-1-phenyl-,** fungistatic activity of, 9334*d*
——, **1,2,3,4 - tetrabromo - 1-phenyl-,** 1020*e*
——, **1,1,3,3-tetraphenyl-,** 2569*d.*
——, **1,2,3 - tribromo - 1 - phenyl-,** 1020*h.*
——, **1,2,4-tribromo-1-phenyl-,** 1021*a.*
——, **4,4,4-trichloro-,** 3775*g.*
reactivity of, 9024*d.*
——, **1,3,4 - trichloro - 4 - cyclopentyl-†,** 9024*i.*
——, **1,1,2 - trichloro - 3,3 - dimethyl-,** 9025*c*
——, **1,1,2 - trichloro - 3 - methyl-,** 9025*c.*
——, **1,3,4 - trichloro - 2 - methyl-,** 5362*h*
——, **2,3,3-trimethyl-,** manuf. of, P 1432*e.*
**2-Butene,** alkylation with, and its isomers, of 2-methylpropane with HF catalyst, P 5583*g.*
analysis of mixt. of butanes, $C_4H_8$, 1-butene, 2-methylpropene and, by infrared and mass spectra, 6105*c.*
*cis-trans-,* effect on myocardium sensitivity to adrenaline, 1111*e.*
deuterium exchange, isomerization and hydrogenation of, kinetics of, 24*f.*
detn. in gases of petroleum industry, 8962*d.*
detn. in hydrocarbon gases, 5930*h.*
extractive distn. of, 8747*a.*
formation during reaction of 2-butanone and EtOH, 993*d.*
fuel antiknock ratings of, 382*i.*
heat capacity and heat content of, 7215*h.*
heat capacity of, 2758*g.*
and hydration of, 9028*a.*
hydrogenation of, 3775*e.*
manuf. and isomerization of, with $Al_2O_3$-HF catalyst, P 5939*c.*
manuf. by isomerization and alkylation with isobutane with HF catalyst, P 1175*g.*
manuf. of, and alkylation of isobutane with, to gasoline, P 2763*h.*
manuf. of, by polymerization of propene or propane-propene fraction, P 3187*h.*
mixt. with 1-butene and 2-methylpropene, polymerization with $H_2SO_4$ and hydrogenation of polymer, safety-fuel ingredients by, P 7222*c.*

oxidation of, P 2222*g*.
polymerization of, and its mixt. with 1-butene with 2-methylpropene, and compn. of hydrogenated polymers, 8657*b*.
polymerization of, with imino compd. or nitrohydrocarbon catalyst, P 8666*h*.
prepn. of, 6153*b*.
reaction of, with CO and H, P 4685*e*.
with S, P 1066*e*.
with $C_2F_4$, 3370*e*, P 4294*d*.
sepn. from 1,3-butadiene, 1597*g*.
sepn. of, and $C_4$ acetylenes by azeotropic distn., P 4682*a*.
*trans*-, forces between mols. and virial coeffs. of, 3077*e*.
**-Butene, 2,3-bis(phenylazo)-**, 1654*h*
——, **1-bromo-4-chloro-**, P 2218*e*.
——, **2 - bromo - 1 - chloro - 3-methyl-**, 5363*a*.
——, **4-bromo-1,1-dimethoxy-†**, 4219*a*
——, **1-chloro-**, ethanolysis and hydrolysis of, rates of, 2849*d*.
reaction with PhMgBr, 9051*b*.
reactivity of, 4214*d*.
——, **4-chloro-**, reaction with NaCH$(CO_2Et)_2$, 3351*d*.
——, **2 - chloro - 1,1,1,4,4,4 - hexafluoro-**, 2925*h*.
——, **1-chloro-3-methyl-**, 111*h*, 113*i*, 5362*d*.
and its reactivity, 5734*f*.
——, **1,4-dibromo-**, 6152*f*.
*cis*- and *trans*-, 2578*g*.
——, **1,3 - dibromo - 4 - chloro - 2-methyl-**, 5363*b*.
——, **2,3-dibromo-1,4-dichloro-**, 2578*d*.
——, **1,2(and 1,4) - dichloro-**, P 663*g*.
——, **1,3-dichloro-**, 2020*e*.
isomers, 4214*eh*.
——, **1,4-dichloro-**, P 2218*d*., 6152*g*.
*trans*-, oxidation of, 6976*e*.
——, **1,2-dichloro-3-methyl-**, 5362*f*.
——, **1,4 - dichloro - 2 - methyl-**, P 2218*d*.
——, **1,4 - dichloro - 2 - nitromethyl-**, P 6646*h*.
——, **2,3 - dichloro - 1,1,4,4 - tetrakis(*p*-chlorophenyl)-**, 4245*i*.
——, **1,4-dimethoxy-**, P 3968*h*.
——, **2,3-dimethyl-**, 9023*g*.
reaction with CO and H, P 4685*e*.
with MeCl, P 1432*d*.
with HCN, P 3439*i*.
——, **1,1-di-1-naphthyl-**, as insecticide, P 7188*a*.
——, **1,4-diphenoxy-**, P 4419*f*.
——, **2,3-diphenyl-**. See *Stilbene, α,α'-dimethyl-*.
——, **1,1,1,4,4,4-hexafluoro-**, 2925*i*.
——, **1-isothiocyano-†**, in crucifer seeds, 3888*b*.
——, **2-methyl**, P 3026*h*, 3355*b*, P 4283*i*.
detection of, in terpene deriv. decompn products, 8975*c*
detn. in petroleum refinery $C_5$ fractions, 8123*f*.
formation from *tert*-AmMe$_2$SI, kinetics of, 3349*g*.
formation from Me$_2$CHCHMeSMe$_2$I and from Me$_2$CHCHMeI, kinetics of, 3350*e*.
formation of, kinetics of, 3346*h*.
in gasoline (Thermofor cracked), 4453*c*.
from isoamyl alc., P 3833*f*, P 3834*a*
isomerization of, kinetics of, 3343*g*.
oxidation of, P 5033*a*.
polymerization with propene with $H_3BO_3$-$F_3$ catalyst and compn. of hydrogenated polymers, 8657*b*.
pyrolysis of, 5733*f*.
reaction with nitriles, 2165*d*.
reactivity of, 9024*c*.
——, **2-methyl-2-phenyl-**, reaction with S, 5392*d*.
——, **3-methyl-1-(2,5-xylyl)-**, 2182*h*.
——, **2-nitro-**, reaction with $NaHSO_3$, P 5411*g*.
——, **1-phenyl-**, 9051*b*.
——, **1,2,3,4-tetrabromo-**, 2578*d*.
——, **2-*o*-tolyl-**, dehydrogenation of, 5012*d*.
——, **1,2,4 - trichloro - 3 - (chloromercuri)-†**, 7413*b*.
——, **1,2,4-trichloro-3-methyl-**, 5362*g*.
**1 - Butene - 1,3 - diamine**, *N, N, N', N'*-**tetraethyl-**, catalytic splitting of, 4248*i*.
——, ***N, N, N', N'* - tetramethyl-**, catalytic splitting of, 4248*h*.
**1 - Butene - 1,4 - dicarboxylic acid.** See *α-Hydromuconic acid.*
**1 - Butene - 2,3 - dicarboxylic acid, 1,4-diphenyl-.** See *Succinic acid, α-benzyl-β-benzylidene-.*
**2-Butene-1,4-dicarboxylic acid.** See *β-Hydromuconic acid.*
**3 - Butene - 1,1 - dicarboxylic acid.** See *Malonic acid, allyl-.*
**Butenedioic acid.** See *Fumaric acid; Maleic acid.*
**1 - Butene - 1,2 - diol, 4 - (*p* - nitrophenylimino)-**, 4227*e*.
——, **4-phenylimino-**, and hydrochloride, 4227*e*.
**1 - Butene - 1,4 - diol, 1 - [10 - (2 - furyl) - 9 - anthryl] - 4,4 - diphenyl-**, 4252*g*.
**2-Butene-1,1-diol, 4-bromo-**, diacetate, 4218*i*.
**2-Butene-1,4-diol**, 2-alkoxy derivs., P 5414*c*.
*cis*- and *trans*-, and derivs., 2577*i*.
*cis*- and *trans*-, and diacetates, magnetic susceptibilities of, 4911*e*.
*cis*-, and *trans*-, elec. moments of, and their diacetates, 11*d*.
*cis*-, prepn. of, 6162*i*.
diacetate, 7425*b*.
——, **2-bromo-3-chloro-**, 7413*a*.
——, **2 - chloro - 3 - (chloromercuri)-**, and derivs., 7412*i*.
——, **2-chloro-3-iodo-**, 7413*a*.
——, **2,3-dibromo-**, 2578*c*.
magnetic susceptibility of, 4911*f*.
——, **2,3-diiodo-**, 2578*c*, 7413*c*.
——, **2-ethoxy-**, P 5414*d*.
**3-Butene-1,2-diol.** See *Erythrol.*
**2 - Butene - 1,4 - dione, 2,3 - dibenzoyl-1,4-diphenyl-**, photochemistry of, 4580*a*
——, **1,4-diphenyl-**, reaction with alcs., 622*g*.
——, **2 - methyl - 3 - (4 - morpholinylmethyl) - 1,4 - diphenyl-**, and picrate, 3406*g*.
**2-Butenenitrile.** See *Crotononitrile.*
**3-Butenenitrile**, phys. consts. of, 2592*b*.
reaction of, CO and H, P 4685*e*.
reaction with $C_2F_4$, 3370*h*, P 4294*d*.
reactivity of, 9024*d*.
——, **2 - (hydroxymethyl)-**, P 5796*b*
——, **2-methylene-**, and derivs., P 9080*e*.
and dimer, 2574*a*.
manuf. and polymerization of, P 9522*b*.
**1 - Butene - 1,1,2,4 - tetracarboxylic acid, 3,3 - dimethyl-**, tetraethyl ester, 1335*g*
**2-Butene-1-thiol**, P 601*h*.
**2-Butene-1,1,4-triol**, triacetate, 4219*b*.
——, **2-bromo-**, triacetate, 4219*e*.
**Butenine.** See *Butenyne.*
**Butenoic acid, 3,4 - bis(*p* - methoxyphenyl)-**, ethyl ester, 2272*i*.
——, **4-formyl-**, See *Glutaconaldehydic acid.*
——, **3 - hydroxy - 2,4 - diphenoxy-**, ethyl ester Na deriv., 4248*d*.
**2-Butenoic acid.** See *Crotonic acid.*
——, **2-methyl-.** See *Angelic acid; Tiglic acid.*
——, **3-methyl-.** See *Senecioic acid.*
**3-Butenoic acid**, aryl derivs., reaction with HI and red P, 2606*f*.
copper(I) chloride complexes with, 8940*h*.
and esters, phys. consts. of, 2591*e*.
ethyl ester, reactivity of, 9024*c*.
——, **2,2 - bis(2 - cyanoethyl) - 3-methyl-**, 6579*a*.
——, **3-cyano-**, esters, and polymers, P 6651*e*.
——, **2-ethoxy-3-methyl-**, 6975*d*.
——, **3-hydroxy-**, ethyl ester acetate, mixt. with Et β-hydroxycrotonate acetate, P 1436*c*.
β-lactone, diketene and, 1320*g*.
——, **4-hydroxy-4-phenyl-**, γ-lactone, 7459*b*.
——, **2-methoxy-3-methyl-**, and *p*-phenylphenacyl ester, 6975*c*.
——, **3-methyl-**, ethyl ester, P 1055*h*.
ethyl ester (compd. omitted from abstr.), P 1056*ac*.
**Butenol**, acetate, P 5796*a*.
**1-Buten-1-ol, 3-methyl-**, 111*g*.
**1-Buten-2-ol**, acetate, mixt. with 2-buten-2-ol acetate, P 5796*a*, P 7953*i*.
**2-Buten-1-ol**, 5741*h*.
acrylate, and polymers, P 4686*d*.
acrylate, polymers with Et acrylate, 5988*i*.
from 1,3-butanediol cyclic sulfate, 2934*i*.
diphenylacetate, 5769*d*.
10-hendecenoate, 8352*f*.
β-isodurylate, reaction with PhMgBr, 9051*b*.
repn of, 2570*e*.
-, **4-anilino-**, 650*d*.
-, **3-chloro-**, isomers, and 3,5-dinitrobenzoates, 4214*f*.
——, **4-chloro-**, 6976*c*.
——, **4-diethylamino-**, benzoate (ester) -HCl, 6977*h*.
——, **2,3-dimethyl-**, 3777*h*.
——, **4-dimethylamino-**, acetate(ester) -HCl, 6977*h*.
——, **3-methyl-**, and acetate, 114*c*.
——, **4-methyl-**, and acetate, 111*g*.
——, **1-phenyl-**, rearrangement of, 2183*f*.
**2-Buten-2-ol**, acetate, mixt. with 1-buten-2-ol acetate, P 5796*a*, P 7953*i*.
**3 - Buten - 1 - ol**, from 3 - bromotetrahydrofuran, 3818*ei*.
from 1,3-butanediol cyclic sulfate, 2934*i*.
formation from 1,4-butanediol, 2534*a*
manuf. of, P 4287*i*.
——, **2-(allyloxy)-**, 5741*g*.
——, **2-chloro-**, and 1-naphthalenecarbamate, 6976*b*.
——, **1,1-diphenyl-**, and reactions with HCl and $H_2SO_4$, 3776*i*.
——, **2-ethoxy-**, 2079*d*.
and acetate, 6157*h*.
——, **4-ethoxy-**, and acetate, 3816*e*.
——, **2-methoxy-**, 2079*d*, 5741*g*.
and acetate, 6157*f*.
——, **1 - (3, 4 - methylenedioxyphenyl)-**, acetate, as synergist for pyrethrin, 3555*d*.
——, **1 - (2,3,4,5,6 - pentachlorophenyl)-**, 2189*a*.
**3-Buten-2-ol**, P 1793*g*, P 4287*i*, 5741*h*
acrylate, P 4686*e*, P 6651*b*.
diphenylacetate, 5769*c*
10-hendecenoate, 8352*f*
isothiocyanate, in crucifer seeds, 3888*b*
——, **1-amino-**, *l*-, and salts, 6618*a*.
——, **1 - (*p* - aminophenylmercapto)-**, 6574*d*.
——, **1-chloro-**, and 1-naphthalenecarbamate, 6976*c*.
——, **3 - chloro - 4 - (chloromercuri)-2-methyl-**, 7412*i*.
——, **1 - (2 - diethylaminoethylmercapto)-**, 6574*d*.
——, **1 - (3 - diethylaminoethylmercapto)-**, 6574*d*.
——, **2,3-dimethyl-**, and derivs., prepn and reaction with $H_2SO_4$, 3777*d*
——, **1-ethoxy-**, 2079*d*.
and acetate, 6157*e*.
——, **4-ethoxy-2-phenyl-**, 2571*b*, 7413*c*
-, **3-ethyl-†**, and acetate, 1311*e*.
——, **1-methoxy-**, 2079*d*, 5741*h*.
and acetate, 6157*e*.
——, **2-methyl-**, 111*g*, 6970*b*.
and acetate, 114*b*.
butadiene-styrene polymers modified with P 7258*d*.
electrolytic reduction of, effect of cathode on, 994*f*.
——, **3-methyl-**, acetate, P 7953*i*.
**$\Delta^{\alpha,\beta}$ - Butenolide, 8 - (3 - hydroxy - $\Delta^5$ - norcholen-23-yl)-**, and 3 acetate, P 7977*b*.
**2 - Buten - 1 - one, 1 - (2 - chloro - 1 - cyclohexen-1-yl)-**, P 6230*c*.
——, **1 - (4 - chloro - 3 - cyclohexen-1-yl)-3-methyl-**, 2958*e*.
——, **1,3-diphenyl-**. See *Dypnone*
——, **1 - (4 - hydroxy - 3 - cyclohexen-1-yl)-3-methyl-**, formate and its semicarbazone, 2958*a*.
——, **1 - (4 - methoxy - 3 - cyclohexen-1-yl)-3-methyl-**, 2958*d*.
——, **1-phenyl-**. See *Crotonophenone*
——, **1-(2-thienyl)-**, P 2644*c*.
——, **4,4,4 - trifluoro - 3 - hydroxy-1-(2 - thienyl)-**, zirconium complex, 8929*b*.
**3-Buten-1-one, 1,3-bis(*p*-methoxyphenyl)-**, and phenylhydrazone, 4640*b*
——, **1 - (3,6 - dihydro - 2,2 - dimethyl-2*H*-pyran-4-yl)-**, 2162*c*.
——, **3 - (*p* - methoxyphenyl) - 1 - (4-methoxy-*m*-tolyl)-**, and phenylhydrazone, 4640*c*.
——, **1 - [4(and 5) - methyl - 1 - cyclohexen-1-yl]-**, 117*af*.
**3-Buten-2-one**, dimethyl acetal, 2577*e*
manuf. of, P 2222*g*, P 4287*h*.
polymerization with malonic acid derivs., P 4897*e*.
polymers of, adhesion to Al and cellulose, 8206*g*.
adhesion to cellulose, 8133*d*.
with *N* - (2 - phenylsulfonamidoethyl) - *N* - (phenylsulfonyl)acrylamide and Me vinyl sulfone, P 9531*e*.

*polymers of*, with 2-vinylpyridine, P 5231*b*.
prepn. of, 1338*i*.
prepn. of anhyd., 4219*h*.
reaction with divinylbenzene, 6157*g*.
with 1-phenyl-1,3-butadiene, 8303*g*, 8364*d*.
with $C_2F_4$, 3370*i*, P 4294*d*.
recovery from polymerization latexes, P 3229*b*.
and semicarbazone, formation of, by oxidation of $MeCH(OH)CH_2CH_2O\text{-}SO_3H$, 2934*g*.
**3-Butene-2-one, 4-(3-bromo-2-hydroxyphenyl)-**, 607*g*.
——, **4 - (3 - bromo - 2,6,6 - trimethyl-1-cyclohexen-1-yl)-**, 2589*b*.
—, **4-chloro-**, reaction products with aniline and derivs., 7937*e*.
—, **4 - chloro - 3 - (chloromercuri)-4-phenyl-**, 7413*d*.
-, **4-chloro-4-phenyl-**, and derivs., 7413*e*.
-, **4 - (1 - cyclohexen - 1 - yl)-**, and derivs., 8360*a*.
-, **4-(3-cyclohexen-1-yl)**, and hydrogenation of, P 679*d*.
-, **4 - (3,5 - dibromo - 4 - hydroxyphenyl)-**, 607*g*.
-, **4 - (4,5 - dimethoxy - 2 - nitrophenyl)-**, 628*a*.
, **4 - (*p* - dimethylaminophenyl)-**, and derivs., 633*a*.
spectrum of, 7820*a*
, **4 - [2,3(and 3,5) - dimethylcyclohexyl)-**, and 2,4 - dinitrophenylhydrazones, 8362*c*.
, **4 - (2 - furyl)-**, and azine and phenylhydrazone, fungistatic activity of, 9334*b*.
reaction product with 1,6-hexanediamine, P 1605*c*.
, **1-hydroxy-**, and 2,4-dinitrophenylhydrazone, 6624*c*.
, **3-hydroxy-**, acetate, P 1436*d*, P 3451*f*.
, **4 - (4 - hydroxy - 3,5 - dimethoxyphenyl)-**, 1743*d*.
, **4 - (4 - hydroxy - 3 - methoxy - 5-nitrophenyl)-**, 7001*f*.
, **4 - (4 - hydroxy - 3 - methoxyphenyl)-**, 2185*e*.
hydrolysis of, 5763*d*.
, **4 - (*o* - hydroxyphenyl)-**, 7001*h*
, **3-isopropyl-†**, P 6458*c*.
, **3-methyl-**, P 1056*b*.
and derivs., 564*g*.
polymerization of, with butadiene, effects of emulsifiers, modifiers, pH and temp. on, 5987*i*.
polymerization of, with 2 methylpropene at 60° with $BF_3$ catalyst, P 6458*b*.
polymers with allylic *o*-benzoylbenzoates, P 3847*h*.
with butadiene, 5988*ab*.
with diolefins or acetylenes, reaction products with inorg. acids or anhydrides, P 2801*d*.
with fluoromethacrylate esters, P 6465*g*.
with 2-vinylpyridine, P 5231*b*.
prepn. of anhyd., 4219*h*.
and semicarbazone, 3352*d*, 3777*e*.
, **4 - (6 - methyl - 1,3 - cyclohexadien-1-yl)-**, and derivs., 8360*e*.
, **4 - (3 - methyl - 1 - cyclohexen-1-yl)-**, and derivs., 8360*d*.
**3 - methyl - 4 - [2,6,6 - trimethyl-1(and 2) - cyclohexen - 1 - yl]-**, spectra of, 8893*c*.
, **3 - (4 - morpholinyl) - 4 - phenyl-**, spectrum of, 7819*i*.
, **4 - (4 - morpholinyl) - 4-phenyl-**, prepn. of, and its spectrum, 7819*g*
, **4-[1(and 2)-naphthyl]-**, spectra of, 8885*f*.
, **4 - (5 - nitro - 2 - furyl)-**, semicarbazone, in dental caries inhibition, 6735*g*.
, **4 - (1,4,4a,5,6,7,8,8a - octahydro-2,5,5,8a - tetramethyl - 1-naphthyl)-**, isomers and derivs., 8360*f*.
-, **4-phenyl-**, acylhydrazones†, 6972*ce*, 6973*ci*.
compd. with phenol, infrared and Raman spectra of, 1076*b*.
fungistatic activity of, 9334*b*.
hydrogenation of, 4652*a*.
isomerization (cis-trans) of, 182*i*.
labeled with $C^{13}$ in CO group, and its oxime, 5005*a*.
oxalate, bacteriostatic effect of, 8434*h*.
oxime and phenylcarbamyloxime, 1039*c*.
reaction with diethyl malonate and with MeCN, P 6665*b*.
reaction with $PhCH_2COCO_2H$, 157*b*.
spectrum of, 7819*i*.
——, **4-phenyl-1-(2-quinolyl)-**, picrate, 7022*i*.
— —, **1 - (tetrahydro - 2,2 - dimethylpyran-4-ylidene)-**, 2161*i*, 2162*a*.
——, **4 - [2,2,3,6(and 4,5,5,6) - tetramethyl - 3 - cyclohexen - 1 - yl]-**, 3375*i*.
and derivs., 3376*c*.
——, **4-*p*-toluidino-**, 7937*e*.
— —, **4 - (3,4,5 - trimethoxyphenyl)-**, 1743*e*.
— —, **2,3,6-trimethyl-**, 3798*eg*.
— —, **4 - (2,6,6 - trimethyl - 1,3 - cyclohexadien-1-yl)-**, 3798*e*.
——, **4 - (2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-**. See *β-Ionone*.
—, **4 - (2,6,6 - trimethyl - 2 - cyclohexen-1-yl)-**. See *α-Ionone*.
— —, **4 - (2,2,3 - trimethylcyclohexyl)-**, and 2,4 - dinitrophenylhydrazone, 8362*d*.
— — —, **4 - (2,2,6 - trimethylcyclohexyl)-**, *cis-*, and derivs., 4637*e*.
— —, **4 - (1,3,3 - trimethyl - 7 - oxabicyclo[4.1.0] - 2 - heptyl)-**, and phenylsemicarbazone, 4813*f*.
**2 - Butenylamine, *N* - phenyl-†**, 5403*h*
**3 - Butenylamine, 1 - methyl-**, 5401*i*
**2 - Butenylidenimine, *N* - phenyl-**. See *Aniline, N-2-butenylidene-*.
**2-Butenyl phosphite**, $(C_4H_7)_3PO_3$, as stabilizer for Cl-contg. vinyl resins, P 1606*c*.
**2 - Butenyl potassium sulfate**, from 1,3 butanediol cyclic sulfate, 2934*i*.
**1-Butenyl sulfone**, polymers, in cellulose stabilization, P 4853*f*.
**1-Buten-3-yne**, calcn in chloroprene and refractive index of, 2020*f*.
complex with CuCl, 3308*b*.
formation in chloroethylene manuf. from $C_2H_2$, P 7037*e*.
manuf. of, P 2216*f*, P 3023*f*, 5222*f*, P 6644*a*.
$NH_4Cl\text{-}Cu_2Cl_2$ and $NH_4Cl\text{-}Cu_2Cl_2\text{-}HCl$ catalysts in, 3225*b*.
CuCl-$NH_4Cl$-HCl catalyst in, 1598*d*
as polymerization inhibitor in vinyl chloride, P 906*f*
polymers of, with diolefins or acetylenes, reaction products with inorg acids or anhydrides, P 2804*c*.
Raman and infrared spectra of, 2867*f*
reaction with HCl, 7899*a*
with 4 piperidones, 6622*h*.
with $C_2F_4$, 3371*d*.
review on, 2570*c*.
thermodynamic properties and vibrational frequencies of, 2830*d*.
**1 - Buten - 3 - yne, 4 - chloro - 2 - ethyl-**, P 4284*f*.
— —, **4-chloro-2-methyl-**, P 6645*b*.
——, **2-methyl-**, 3352*c*, 3777*d*.
reaction with $Et_2CO_3$, 6168*i*.
——, **2 - methyl - 4 - phenyl-**, and dimer, 2182*c*.
— —, **4-phenyl-**, 1020*c*.
**2-Buten-3-yne**, manuf. of, P 7950*i*.
**Butesin**, identification of, 7190*h*.
reaction with mustard gas, 6336*i*.
**Butestrol**. See *Phenol, p,p'-(1,2-dimethylethylene)di-*.
**Butethanol**. See *Pontocaine*.
**Butine**. See *Butyne*.
**Butlerov, A. M.**, biographies, 2477*c*, 7761*b*.
**Butrin**, adrenaline potentiation by, 5117*a*.
**Butter**. (*For studies of general interest relating to analytical indexes, as methods for their determination, see such headings as* Iodine number and Saponification number. *See also* Dairy products, Ghee.)
air content and sp. gr. of, 781*c*.
analytical and organoleptic findings on, 6747*d*.
antioxidants for, 2337*d*, 9282*d*, P 9294*d*
bacteria and mold inhibition in, P 7606*f*.
biacetyl detn in, 7601*b*.
blood pyruvic acid after ingestion of, 8500*i*.
canning of, 9282*d*.
compn. of Austrian, 3534*b*.
consistency of faulty, 9282*c*.
DDT in, from alfalfa hay, 1501*b*.
detection of adulterants in, castor-bean lipase in, 8570*a*.
effect of cream treatment on hardness and consistency of, 1874*e*.
effect of dietary fat on yield and compn. of, 1874*f*.
effect of metals on cold-storage, 6750*a*.
ewe (cashcaval), of Romania, 3533*i*.
fat of, vitamin A in, effect of carotene content of sweet potatoes on, 3946*h*.
fatty acids in, 6749*h*.
from action of microörganisms, 8569*d*.
analysis of, from buffalo, cow, goat and sheep milks, 1997*d*.
detn. of, 9282*h*.
flavor and keeping quality of, effect of Cu, Fe and Mn salts on, 6750*c*.
flavor of, causes and prevention of oily, 9282*e*.
flavor of, microbic origin of, 2708*a*.
from ghee, odor of, 3943*h*.
glyceride detn. in N. Z., 1874*h*.
hemolysins in, 1119*g*.
hydrogen-ion concn. effect on preservation of, 2709*g*.
improving storage life of, 327*a*.
keeping qualities of *α*- and sour-cream, 5127*e*.
keeping quality and quality of, 5877*e*.
keeping quality of, effect of "free" air on, 326*h*.
keeping quality of, effect of light on, 326*f*.
keeping quality of unwashed, 8568*h*.
lactose manuf. from whey following production of, 8569*a*.
linoleic acid detn. in, 7721*i*.
loss of, during prepn. of potato pancakes, 6754*f*.
manuf. of, P 5131*a*, 7600*i*.
by cooling cream of high concn., P 3117*b*.
by Fritz process, cream viscosity and, 781*c*.
in U.S.S.R., 9283*a*.
microörganism growth in, 3-acetyl-6-methylpyran - 2,4 - dione and its salts in control of, P 6758*d*.
from milk preserved with HCHO and bisulfites, 8568*c*.
mold and souring prevention in, with yeast, 9282*g*.
mold control on, with yeast, 9282*f*.
nutritive value of, compared with vegetable fats during low temps., 4738*g*.
oxidation defects in, effect of whey prepns. on, 9279*a*.
oxidation-inhibiting gases for processing, P 4396*i*.
peroxide no. of, detn. of, 2450*c*.
plasma compn. and protein content of, 9281*i*.
proteins in, effect on stability, 9282*b*.
proteins in Sudetan, 781*d*.
quality of Japanese, 1875*b*.
sampling of, 8569*h*.
stability of fats and fat-sol. vitamins in, effect of nordihydroguaiaretic acid, stabilization of, P 7160*a*.
storage of Indian, 1119*f*.
synthetic flavoring materials for, 4394*d*.
vitamin A in Wyo., 6327*e*.
vitamins in, effect on growth, 8474*b*.
volatile-acid development in, 6749*fg*.
water detn. in, 6749*e*.
water detn. in, balance for, 7601*a*.
zebu, manuf. and compn. of, 781*e*.
**Buttercups**. See *Ranunculus*.
**Butterfat**. See *Milk, analysis; Cream;* and "fat" under *Cheese, Dairy products, Ice cream* and *Milk*.
**Butterflies**. (See also *Lepidoptera*.)
pterins in wings of, 3529*h*.
**Buttermilk**, alkalinity of dry, 3943*c*.
butter storage in, 1119*g*.
nutritive value of, 8568*a*.
phosphatase activity of, effect of fat solvents on, 326*d*.
vitamin $B_2$ in, 4393*d*.
**Butterwort**, clarification of protein-contg. solns. by juices of, 6749*a*.
**Butter yellow**. (See also *Aniline, N, N-dimethyl-p-phenylazo-*.)
lymphosarcoma of spleen from, 4762*b*.
**Buttons**, plastics from keratin meal for, P 8180*h*.
*tert*-**Butyl** (*free radical*), electronic structure of, 2512*a*.
heat of formation of, 6479*c*.
**Butyl alcohol** (*1-butanol*). (For derivs. see under *1-Butanol*.)
-acetone fermenting liquid, distn. of, 813*d*.
adsorption by $Al_2O_3$, Fe and $Fe_2O_3$, 28*c*.
by C, 6*b*, 462*f*.
by C and graphite, 7288*i*.
by $Ph_2NH$, 464*c*.
in air, max. allowable concn. of, 4401*a*.
amination of, 1005*a*.

from chlorobutenols, 6976*c*.
2-cinchonine salting out from aq., 922*h*.
*l*-citronellate, 4633*g*.
compds. with carboxylic acids, 7409*c*.
with HCHO, 7409*a*.
with $H_2TeO_3$, 8934*i*.
condensation products with melamine, HCHO and stearic acid, P 2448*c*.
crit. mixing temps. in identifying and detg. inorg liquids, 8309*b*.
dehydration and isomerization of, 7899*b*.
dehydration of, and isomerization of the product, P 3833*h*, P 7035*a*.
dehydration of, bentonite and gumbrin as catalysts in, 6153*b*.
detn. of, and oxidation with $K_2Cr_2O_7$, 5702*f*.
from dokuimo by fermentation, 1146*g*.
effect on adhesion of epithelium to stroma in cornea, 769*a*.
on bubble rise in $H_2O$, 4082*b*.
on coagulation of $As_2S_3$ by $BaCl_2$, 8794*a*.
on elec. cond. of aq. hexadecylpyridonium iodate, 3269*a*.
on growth of plant tissue, 4349*d*.
on hydrolysis curves of Na oleate, 8179*g*.
on N fixation by *Azotobacter*, 9160*b*.
on permeability of erythrocytes to cations, 2661*e*.
in polarographic analysis of brass, 4181*h*.
on polymerization of $BuOCH.CH_2$, 995*e*.
on sp. work of cutting annealed Al in paraffin oil, 2001*i*.
on tangential movements of Hg drops, 8911*e*.
electrodeposition in presence of, elec oscillations from, 2874*g*
esterification of, 1319*e*.
esterification with phthalic acid, kinetics of, 1747*a*.
esters, spectra of, 1656*c*.
formation in fermentation, carbohydrates and, 813*g*.
heat of wetting of activated charcoal by, 8835*f*.
hexadecanol sorption from, by MgO, 17*b*
hydrocrylate, and its acetate, 4639*f*.
-isopropyl alc. fermentation, 1145*c*.
manuf. of, P 2219*a*, P 3835*d*.
from crotonaldehyde, P 7035*h*.
by fermentation, P 5902*b*, P 6362*c*, P 6781*g*, P 7638*cf*.
from molasses fermentation, 5901*e*, P 6782*g*.
from starch or sugars by utilization of accessory enzymes, P 1148*b*.
from sulfite liquor fermentation, 8091*b*
from tetrahydrofuran, P 5047*i*.
mixts. with acids and sugars, osmosis of, 7300*g*.
with $C_6H_6$, elec. birefringence of, 469*g*.
with castor oil, as hydraulic liquid for brakes, 4790*gh*.
olefin manuf. from, P 6217*g*.
optical activity of camphor and derivs. in, effect of $H_2O$ on, 8813*ac*.
org.-acid solns. in, viscosity of, 8243*cd*.
in peppermint oil, 4427*f*.
permeability of cellophane membrane to, 4361*a*.
phenol condensation products from Al and, P 4894*d*.
phthalate—see *Phthalic acid*.
phys. constants of, 2956*b*.
pigment powder wetting by, and its glycolate and phthalate, 8697*i*.
prepn. of, 2570*e*, 2570*g*.
prepn. of, from hydrogenation of EtOH, 5363*c*.
pyrolysis of, 7899*d*.
Raman effect and H bond formation in, 7345*g*.
reaction with $C_6H_6$ and toluene, 164*a*
with butyryl chloride, rate of, 6057*e*.
with CO, rate of, 3697*i*.
with olive oil, 1715*f*.
with trichloro(1,2-dichlorovinyl)silane, 2571*i*.
reduction of whale oil with Na and, P 5216*b*.
Rush no. of phenols for, 8766*b*.
sepn. from aq. solns., P 1906*d*.
sepn. from fermented mush, P 6782*a*.
soly. in Na xylenesulfonate solns., 1242*e*.
soln. time of Na in, 5741*h*.
system: $Bu_2O$–$H_2O$–, and its analysis, 5278*g*.
system: $CCl_3CHO$–, mol. wt. in $C_6H_6$, 1252*f*.
system: glycerol–$H_2O$–, P 9081*d*.
system: toluene–water–, analysis of, 3895*h*.
testing disinfectant action of, subculture media in, 274*d*.
thixotropic mixts. with Na oleate in $C_6H_6$ emulsification, 4923*d*.
toxicological action of, 7140*c*.
trans esterification with EtOAc, kinetics of, 8827*e*.
ultrasonic velocity in, 8786*c*.

*iso*-**Butyl alcohol**. See *Isobutyl alcohol*.

*sec*-**Butyl alcohol** (*2-butanol*). (For derivs. see under *2-Butanol*.)
acetate, manuf. of, P 7951*f*.
acetate, spectrum of, 1656*c*.
amination of, 1005*b*.
*l*-citronellate, 4633*g*.
dehydrogenation and racemization by Cu and Zn chromite, 1249*c*.
derivs., with pharmaceutical use, P 1915*a*.
drying of, by azeotropic distn., P 3836*a*.
esters with P acids, 8350*i*.
formation of, from $CrO_3$ oxidation of *sec* BuEtCHOH, 2926*a*.
manuf. of, P 1793*g*, P 6645*h*.
mixts. with acids and sugars, osmosis of, 7300*g*.
mixts. with cyclic amines, ultraviolet absorption by, 4138*i*.
oxidation of, P 3026*a*.
prepn. of, 2570*f*, 9028*a*.
pyrolysis of, 7899*d*.
reaction kinetics with CO and soly. of CO in, 3697*i*.
removal of water-insol. impurities from, P 5790*e*.
sulfation of optically active, 5737*f*.

*tert*-**Butyl alcohol** (*2-methyl-2 propanol*). (For derivs. see under *2 Propanol*.)
amination of, 1005*d*.
assocn. of, and elec. conduction by, 8772*c*.
in cellulose carboxyalkyl ether manuf., P 7685*h*
as cocatalyst with $BF_3$ in polymerization of 2-methylpropene, 8829*g*.
effect on ammonolysis of MeOAc, 6495*d*
on elec cond. of aq. dodecylammonium chloride, hexadecylpyridonium iodate and octadecylpyridonium iodate, 3268*i*.
on H overpotential on Fe, corrosion and, 952*a*.
on long-chain electrolytes in aq soln., 7303*f*
on polymerization of 2 methylpropene, 6061*c*.
esters, 578*h*.
and esters, ionization in $H_2SO_4$, 8808*e*
formation from $CrO_3$ oxidation of *tert* BuPrCHOH, 2926*a*.
hexadecanol sorption from, by MgO, 17*b*
manuf. of, P 8397*h*.
mixts. with acids and sugars, osmosis of, 7300*g*.
mixts. with cyclic amines, ultraviolet absorption by, 4139*a*.
nicotinate, 2622*h*.
propionate, decompn. by heat, kinetics of, 1633*d*.
pyrolysis of, 7899*d*
reaction kinetics with CO and soly. of CO in, 3697*i*.
reaction with PhNCO, kinetics of, 7141*bf*
recovery in 2-methylpropene recovery from $C_4$ hydrocarbon mixts., P 1558*b*
in sulfuric acid (100%), 4215*d*.

**Butylamine**, adsorption from aq. soln. by activated charcoals, 2485*d*
coatings from esters or ethers of polysaccharides and, P 6003*g*.
compd. with butyldithiocarbamic acid, P 4508*f*.
condensation with amino aromatic aldehydes, antioxidants by, P 4460*b*
as corrosion inhibitor for light metals, 4622*d*.
formation in reaction of $Et_3CCO_2H$, $H_2SO_4$ and $HN_3$, 9027*h*.
hydrogen (active) detn. in, 3316*g*.
identification of, 4630*d*.
manuf. of, P 2633*e*, P 3440*g*, P 5412*a*
reaction with 4(3*H*)-quinazolones, 3424*i*.
thiocyanate, 578*g*

**Butylamine, 2-(benzhydryloxy)-*N*, *N*-dimethyl-**, P 3463*e*.
—, *N*-**benzylidene-**, and Grignard reactions with, 1340*i*.
—, *N*-**[2-(2-biphenylyloxy)ethyl]-*N*-(2-chloroethyl)-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*
hydrochloride, effect on pressor response to adrenaline, etc., 2320*c*.
hydrochloride, effect on ventricular fibrillation and on heart, 7131*g*.
—, *N*, *N*-**bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
—, *N*-**(3-butoxy-1-ethylpropyl)-**, 9026*e*.
—, **3-chloro-*N*, *N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
—, *N*-**(2-chloroethyl)-1-methyl-**, hydrochloride, 3421*d*.
—, *N*, *N*-**dichloro-**, P 7517*f*.
—, *N*, *N*-**diethyl-**, salts, 131*e*.
—, *N*-**2,2-dimethoxyethyl-†**, and hydrochloride, 6974*b*.
—, **1,3-dimethyl-*N*-(2,2,2-trichloroethylidene)-**, P 7499*e*.
—, *N*-**[1-(2-ethoxyethyl)allyl]-**, 9026*i*
—, *N*-**ethyl-**, P 2633*e*.
—, **2-ethyl-**, and picrate, 121*g*.
—, *N*-**furylidene-**, 3406*i*.
—, **4-imino-*N*, *N*,1-trimethyl-3,3,4-triphenyl-**, hydrochloride, 7406*f*.
—, *N*-**isobutyl-**, P 253*h*.
—, *N*-**isobutylidene-**, heats of combustion and formation of, 931*a*.
—, *N*-**isobutyl-1-methyl-**, P 253*h*.
—, *N*-**isopropyl-**, P 253*h*.
—, **1-isopropyl-**, hydrochloride, 2166*h*
—, **1-methyl-**, formation in reaction of $Et_3CCO_2H$, $H_2SO_4$ and $HN_3$, 9027*h*
—, **4-methylmercapto-**, and derivs., 1725*d*.
—, **1-methyl-4-phenyl-**, effect on heart, 9250*g*.
—, **4-(methylsulfinyl)-**, *d*-, *dl*- and *l*- and derivs., 1725*d*.
—, **4-(*p*-methylsulfonylphenyl)-**, hydrochloride, 1740*b*.
—, **4-phenyl-**, hydrogenation of, 5738*i*
—, **1-propyl-**, pharmacology of, 1110*a*
—, **1,1,3,3-tetramethyl-**, and hydrochloride, 2165*f*, 2166*a*.
—, *N*-**2-thenylidene-**, 3407*a*.

*iso*-**Butylamine**. See *Isobutylamine*

*sec*-**Butylamine** (For *C*-derivs. see *Propylamine*, etc.) 1312*e*.
*dl*-, bisulfite, compds. with aldehydes or ketones, 3356*b*
formation in reaction of $Et_3CCO_2H$, $H_2SO_4$ and $HN_3$, 9027*h*.
formation in reaction of $\alpha,\alpha$-dimethylbutyric acid, $H_2SO_4$ and $HN_3$, 9027*e*
identification of, 4630*d*.
—, *N*-**[2-(2-biphenylyloxy)ethyl]-*N*-(2-chloroethyl)-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*
—, *N*, *N*-**bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
—, *N*-**(3-bromopropyl)-**, hydrobromide, 7026*c*.
—, *N*-**isobutyl-†**, P 253*h*.

*tert*-**Butylamine**, 1015*i*.
formation in reaction of $Et_3CCO_2H$, $H_2SO_4$ and $HN_3$, 9027*h*.
hydrochloride, 2166*a*.
identification of, 4630*d*.
ionization of, 7303*i*.
manuf. of, P 5791*c*.
prepn. of, 9027*e*.
—, **2-(benzhydryloxy)-*N*, *N*-dimethyl-**, hydrochloride, spasmolytic activity of, 8546*b*.
—, *N*, *N*-**bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
—, **2,2'-dichloro-*N*, *N*-dimethyl-**, and picrate, 7422*e*.
—, **2,2,2''-trichloro-**, 2936*a*
—, **2,2',2''-trichloro-*N*-(*m*-nitrobenzylidene)-**, 2936*a*.

**Butylation**, of methylated melamine-$CH_2O$ reaction products, P 7240*f*
of phenol, P 5042*i*.

*tert*-**Butylation**, of amides, P 3445*f*

**Butyl barium phosphate**, 599*i*.

*tert*-**Butyl barium sulfate**, 5737*f*

**Butyl borate**, $Bu_3BO_3$, as catalyst in $\delta$ lactone manuf. from carbonyl compds and ketenes, P 5414*i*.

**Butyl bromide**. See *Butane, 1-bromo-*

*iso*-**Butyl bromide**. See *Propane, 1-bromo-2-methyl-*.

*sec*-**Butyl bromide**. See *Butane, 2-bromo-*

*tert*-**Butyl bromide**. See *Propane, 2-bromo-2-methyl-*.

**Butyl Carbitol**. See *Ethanol, 2-(2-butoxyethoxy)-*.

**Butyl Carbitol acetate**. See "acetate" under *Ethanol, 2-(2-butoxyethoxy)-*.

**Butyl Cellosolve**. See *Ethanol, 2-butoxy-*.

**Butyl chloride**. See *Butane, 1-chloro-*

*iso*-**Butyl chloride**. See *Propane, 1-chloro-2-methyl-*.

*sec*-**Butyl chloride.** See *Butane, 2-chloro-*.
*tert*-**Butyl chloride.** See *Propane, 2-chloro-2-methyl-*.
*sec*-**Butyl chlorophosphate,** (*sec*-BuO)$_2$PClO, 8350*i*.
**Butyl chlorosulfonate,** 6567*g*.
Raman spectrum of, 7345*b*.
**Butyl decyl phosphate,** $(C_4H_9)(C_{10}H_{21})HPO_4$, as antioxidant for thiols, P 1794*b*.
**Butyl disulfide,** as corrosion inhibitor against $CO_2$ in petroleum wells and processing, P 7221*k*.
phys. constants of, 2956*f*.
reaction with $C_2H_4$, P 1794*c*.
*tert*-**Butyl disulfide,** 1000*b*.
spectrum and structure of, 7410*g*.
**Butyl dodecyl phosphate,** $(C_4H_9)(C_{12}H_{25})HPO_4$, as corrosion inhibitor with dicarboxylic acids, P 1180*c*.
*iso*-**Butylene.** See *Propene, 2-methyl-*.
α-**Butylene.** See *1-Butene*.
β-**Butylene.** See *2-Butene*.
γ-**Butylene.** See *Propene, 2-methyl-*.
*iso*-**Butylene chlorohydrin.** See *2-Propanol, 1-chloro-2-methyl-*.
1,3-**Butylene glycol.** See *1,3-Butanediol*.
1,4-**Butylene glycol.** See *1,4-Butanediol*.
2,3-**Butylene glycol.** See *2,3-Butanediol*.
*iso*-**Butylene oxide.** See *Propane, 1,2-epoxy-2-methyl-*.
**Butyl ether,** antimony(III) fluoride soly. in, 6880*b*.
lyoparachor of, 2834*b*.
mixts. of, dielec. relaxation of, 6020*b*.
phys. consts. of, 2590*a*.
reaction with quaternary N salts, 6622*d*.
system BuOH-$H_2O$-, and its analysis, 5273*g*.
**Butyl ethyl silicate,** $Bu_3EtSiO_4$, 9028*e*.
**Butyl fluophosphate,** $(BuO)_2PFO$, 8351*a*
*n*-**Butyl fluophosphate** ($(sec\text{-}Bu)_2PFO_2$), 8350*i*
volatility and vapor pressure of, 8841*a*
**Butylglycerol, nitro-.** See *1,3-Propanediol, 2-(hydroxymethyl)-2-nitro-*.
**Butyl group,** detection in organosilicon polymers, 3318*a*.
*n*-**Butyl group,** cleavage of, from *tert*-butylcresols, 3804*h*.
effect on olefin elimination reactions, 3349*i*.
frequency of, in 2,2-dimethylbutane, 2,2-dimethyl-3 butene and 2,2-dimethyl 3-butyne, 7822*b*
*n*-**Butyl hydroperoxide,** 6189*f*.
as catalyst, in polymerization of isoprene, 8193*f*
in polymerization of isoprene or isoprene-styrene solns., 8190*i*.
for polymerization of 2-vinylfluorene, P 8740*g*.
as corrosion inhibitor in S-contg. hydrocarbon oils, P 5582*f*.
derivs., 6156*e*.
manuf. of, P 669*c*, P 2219*d*.
in photographic latensification, 957*h*.
**Butyl hypochlorite,** detn. in air, 4798*i*
*tert*-**Butyl hypochlorite,** reactions with soybean oils and Me esters with soybean fatty acids, 5204*e*.
**Butyl hyponitrite,** as catalyst for polymerization, P 5641*c*.
**Butylidenimine, *N*-phenyl-.** See *Aniline, N-butylidene-*.
**Butyl iodide** See *Butane, 1-iodo-*.
*iso*-**Butyl iodide.** See *Propane, 1-iodo-2-methyl-*.
*sec*-**Butyl iodide.** See *Butane, 2-iodo-*.
*tert*-**Butyl iodide.** See *Propane, 2-iodo-2-methyl*.
**Butyl ketone.** See *5-Nonanone*.
*iso*-**Butyl ketone.** See *Isovalerone*.
**Butyl mercaptan.** See *1-Butanethiol*.
*sec*-**Butyl mercaptan.** See *2-Propanethiol, 2-methyl-*.
**Butyl nitrate,** as azeotrope former in concn. of aq. solns. of HCHO, P 2221*d*.
catalysts of, and $Et_3PO_4$ in ketene manuf. from AcOH, P 5413*e*.
*iso*-**Butyl nitrate.** See *Isobutyl nitrate*.
**Butyl nitrite,** azeotropes of, 2834*i*.
in deamination of α-amino alcs., 2600*e*.
*iso*-**Butyl nitrite.** See *Isobutyl nitrite*.
**Butylocaine.** See *Pontocaine*.
**Butyl 9-octadecenyl phosphate,** $(C_4H_9)(C_{18}H_{35})HPO_4$, as corrosion inhibitor with dicarboxylic acids, P 1180*c*.
**Butyl octyl phosphite,** $(C_4H_9)(C_8H_{17})HPO_3$, as antioxidant for thiols, P 1794*b*.
**Butyl orange*,** silica gel prepn. in presence of 6489*e*.
*tert*-**Butyl peroxide,** aldehyde decompn. sensitized by, 1715*d*.
as catalyst in polymerization of isoprene or isoprene-styrene solns., 8190*i*.
as catalyst in reaction of polychloroethylenes with satd. hydrocarbons, 9024*f*.
manuf. of, P 669*c*.
reaction with BzH, 612*h*.
reaction with HBr, 3345*e*
**Butyl phenyl triphosphate,** $Bu_4PhP_3O_{10}$, P 9356*h*.
**Butyl phosphates,** salt compns. stabilized by acid, and effect on oils, P 3216*b*, P 7240*d*.
$Bu_3PO_4$, as antioxidant in alkyl benzenesulfonates, P 6845*d*.
effect on oiliness of lubricants, 1555*h*, P 9478*b*.
phosphorus detn. in, 6037*a*.
toxicity to vegetables, 1893*c*.
**Butyl phosphites.**
$Bu_3HPO_3$, toxicity of, 4401*f*.
$Bu_3PO_3$, as antioxidant in alkyl benzenesulfonates, P 6846*a*
*sec*-**Butyl phosphite,** $(sec\text{-}Bu)_2PO_3H$, 8350*i*.
**Butyl pyrophosphate,** $Bu_4P_2O_7$, prepn. and hydrolysis of, 1315*b*.
**Butyl rubber** (*GR-I*). (See also *Oppanol B*.)
adhesives from Neoprene-AC and phenolic resins for, 7743*i*.
agglomeration of particles of, coating preventing, P 9520*a*.
aging in air, temp. and, 9517*i*.
anomalous strain-stress relations in, 4510*e*.
carbon black dispersion in, effect of stearic acid adsorption on, 1599*h*.
catalyst injection nozzle for app. for making, P 9522*b*.
catalysts for manuf. of, P 5134*i*
coatings from, $NH_3$- and moisture-resistant, 5606*d*.
effect on brittle point, etc., of Lactoprenes, 4885*e*.
elec. insulators from, attack by soil microorganisms, 9517*f*.
Gough-Joule coeffs. at const. stress and strain, and modulus of, 6858*e*
improving cured, for pressure working, P 3228*d*.
laminates with polyvinyl alc., water permeability of, 6862*d*.
permeability of, analytical app. tubing and, 1596*c*.
pigment (reinforcing) behavior in, 1593*b*.
as plasticizer for polyethylene blends, 9522*i*.
plasticizers for, $Bz_2O_2$ as, P 4046*d*.
at low temps., diamyl or dibenzyl azelate as, P 5624*h*.
naphthyl or xylyl mercaptans as, P 4891*b*.
polymerization reactor design for, P 6859*d*.
reclaiming mixts. of rubber and, with resin oil-abietic acid mixt., P 6458*i*.
reclaiming with tertiary mercaptans or their salts, P 6459*a*.
sound propagation velocity and attenuation in, and dynamic viscoelastic consts. of, 6855*h*.
splicing of, P 5624*g*.
sponge, closed-cell, 1,3-bis(biphenylyl)triazene-blown gas-expanded, P 897*e*.
stable dispersions of, P 9519*i*.
tear-resistance tests on, 7256*d*.
tensile properties from -20° to 120°, 9513*g*.
tie ply with Neoprene, cementing to metals or other rubbers, P 6457*a*.
ultrasonic velocity in, 8239*e*.
ultrasonic-wave propagation velocity and attenuation, and elastic consts. of, 6856*c*.
vulcanization of, acceleration of, P 2464*c*.
vulcanization with *p*-quinone dioxime and its derivs., 5623*a*.
vulcanization with *p*-quinone dioxime, scorchiness lowering by aromatic acid salts in, P 8195*g*.
**Butyl silicate,** $Bu_4SiO_4$, polymerization of, P 6464*h*.
*tert*-**Butyl sodium sulfate,** 5737*f*.
**Butyl sulfate,** $Bu_2SO_4$, 6567*g*.
**Butyl sulfide,** phys. constants of, 2956*e*.
spectrum and structure of, 7410*d*.
*iso*-**Butyl sulfide.** See *Isobutyl sulfide*.
*sec*-**Butyl sulfide,** phys. constants of, 2956*e*.
*tert*-**Butyl sulfide,** 1000*b*.
prepn. and spectrum of, 4215*h*.
**Butyl sulfite** ($Bu_2SO_3$), 6567*g*.
in cellulose treatment, P 4853*g*.
rearrangement of (attempted), 1313*g*.
**Butyl sulfone,** as antioxidant in alkyl benzenesulfonates, P 6846*a*
**Butyl tetrasulfide,** 1002*c*.
**Butyl thiophosphate,** $(BuO)_2PS_2H$, in Mo detection, 7859*a*.
*sec*-**Butyl thiophosphate,** (*sec*-BuO)$_2$PS$_2$H, in Mo detection, 7859*a*.
**Butyl titanates,** 9026*i*.
oils and phenolic resins modified by, 2787*b*.
$Bu_4TiO_4$, manuf. of, and paints from, 2787*b*.
reaction products with linseed-oil glycerides, films from, 7239*c*.
**Butyl tolyl sulfite,** in cellulose treatment, P 4853*g*.
**Butyl triphosphate,** in foaming control in lubricating oils, 6815*c*.
**Butylxanthic acid.** See *Xanthic acid, butyl-*.
**Butyn.** See *Butacaine sulfate*.
**2-Butynamide.** See *Tetrolamide*.
**1-Butyne,** freezing point, purification and purity of, 2924*g*.
fuel antiknock ratings of, 382*i*.
Raman and infrared spectra of, 2867*f*.
——, **4-bromo-3-chloro-1-phenyl-,** 1020*f*.
——, **3-bromo-1-phenyl-,** 1020*h*.
——, **4-bromo-1-phenyl-,** 1021*a*.
——, **3-chloro-3-methyl-,** 2272*d*.
——, **1-(1-cyclohexen-1-yl)-3,4-epoxy-3-methyl-†,** 1337*a*.
——, **3,3-dimethyl-,** spectra (infrared and Raman) of, 7822*a*.
——, **3-methyl-,** 3355*b*.
**2-Butyne,** detn. in petroleum-refinery $C_4$ fractions, 8123*f*.
fuel antiknock ratings of, 382*i*.
rotation in, potential barriers hindering, 5240*d*.
——, **1,4-dibromo-,** 2578*d*.
——, **1,4-dichloro-,** 2578*d*.
magnetic susceptibility of, 4911*f*.
reaction with $HgCl_2$, 7413*b*.
——, **1,4-diiodo-,** 2578*e*.
——, **1,4-di-2-naphthoxy-,** 7413*c*.
——, **hexafluoro-,** prepn. of, and its hydrogenation, 2925*g*.
**Butynedioic acid.** See *Acetylenedicarboxylic acid*.
**2-Butyne-1,4-diol,** and derivs., 2578*a*.
4,5-dihydro-3(2 *H*)-furanone from, P 5424*i*.
elec. moments of, and its diacetate and dibenzoate, 11*d*.
hydration of, 2577*h*, 5003*c*.
magnetic susceptibilities of, and its diacetate and dibenzoate, 4911*e*.
reaction (addn.) with alcs., P 5414*c*.
reactions of, 6624*c*.
reaction with $HgCl_2$, 7412*i*.
**2-Butyne-1,4-diol, tetraphenyl-,** oxidation of, 3405*a*.
**3-Butyne-1,2-diol, 1,2-diphenyl-†,** 1754*c*.
**2-Butynoic acid.** See *Tetrolic acid*.
**3-Butynoic acid,** and 2-benzyl-2-thiopseudourea salt, 7415*d*.
**2-Butyn-1-ol, 4-ethylamino-,** acetate (ester), and its oxalate, 131*e*.
**3-Butyn-1-ol,** oxidation of, 7415*d*.
——, **4-phenyl-,** 1021*a*.
**3-Butyn-2-ol,** hydrogenation of, P 1793*g*.
——, **1-chloro-4-(1-cyclohexen-1-yl)-2-methyl-,** 1337*a*.
——, **4-chloro-2-methyl-,** dehydration of, P 6645*b*.
——, **4-(1-cyclohexen-1-yl)-,** 8300*g*.
——, **4-ethoxy-2-methyl-,** 2570*i*.
——, **4-ethoxy-2-phenyl-,** 2571*a*, 7413*h*.
——, **2-methyl-,** 565*a*, 1302*e*.
and dehydration of, 3777*d*.
and derivs., 3352*b*.
electrolytic reduction of, effect of cathodes on, 994*f*.
reaction with $HgCl_2$, 7412*i*.
reaction with pseudocumohydroquinone, P 693*e*.
——, **2-methyl-4-phenyl-,** action of halogenating agents on, 2182*b*.
——, **4-phenyl-,** 1020*g*.
**3-Butyn-2-one, 4-(1-cyclohexen-1-yl)-,** and derivs., 1336*h*, 7437*g*.
——, **4-phenyl-,** reaction with $HgCl_2$, 7413*d*.
**Butyn sulfate.** See *Butacaine sulfate*.
**Butyraldehyde,** acylhydrazones†, 6972*beh*, 6973*bei*.
bis(aminophenyl) and bis(nitrophenyl) mercaptals, 6179*f*.
combustion of, 3725*a*.
condensation (aldol) of, P 5415*i*.
condensations with 4-heptanone and 3-hexanone, 1317*e*.
decompn. of, 4-heptanol formation in, 1715*d*.

diallyl acetal, polymer, P 5228*e*.
divinyl acetal polymer, condensation product with (alkoxymethylamino)-*s*-triazines, P 2467*h*.
plasticizers for, P 2468*c*.
stabilization of, P 2467*i*.
effect of vapors of, on aspergilli, 6277*a*
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*
formation from $CrO_3$ oxidation of *tert*-BuPrCHOH, 2926*a*.
formation in pyrolysis of allyltrimethylammonium hydroxide, 3780*a*.
hydrogenation of, P 2219*a*.
identification of, 3003*b*.
manuf. of, P 4685*e*.
2-methyl-2-nitrotrimethylene cyclic acetal—see *m-Dioxane, 5-methyl-5-nitro-2-propyl-*.
oxidation on catalyst, 928*b*.
oxime, as catalyst in polymerization of olefins, P 4515*c*.
pentanerythritol diacetal†, as synergist for nicotine, 5893*h*.
polyvinyl acetal, detn. of, 4184*e*.
reaction product with sulfathiazole, 4238*a*
reaction with iso-BuMgBr, 1718*g*.
with ketene, P 5415*a*.
with 2-nitropropane, P 3438*i*.
with olefins, 4637*c*.
reduction of, to BuOH, 2570*e*.
solubilization of, with Na secondary alkyl sulfates, 466*a*.
spectra of mixts contg., 2095*c*.
*p*-tolylhydrazone, 4646*i*.

**Butyraldehyde, β-(benzylmercapto)-**, P 6664*c*.
——, **α-bromo-**, diethyl acetal, 2575*h*.
——, **γ-cyano-**, P 4685*e*.
α,α-dialkyl derivs. decarbonylation of, P 3440*a*.
——, **α,α-dibromo-**, and diethyl acetal, 2575*i*.
——, **α,β-dihydroxy-**, reaction with 1,3-dihydroxy-2-propanone, 5370*e*.
——, **α,γ-dihydroxy-**, 2,4-dinitrophenyl osazone†, 3816*e*.
——, **α-ethoxy-**, 2,4-dinitrophenylhydrazone, 2158*f*.
——, **β-(ethylmercapto)-**, 1321*e*.
——, **β-hydroxy-**. See *Aldol*.
——, **γ-hydroxy-**, from 2,3-dihydrofuran, 3816*d*.
——, **β-hydroxy-α,α-dimethyl-**, 722*e*
——, **γ-(*o*-hydroxyphenyl)-**, and 2,4-dinitrophenylhydrazone, 2196*e*.
——, **α-methyl-**, P 4685*e*.
2,4-dinitrophenylhydrazone, 3788*d*.
(+)-, condensation of, in the presence of (−)-Al(OCH$_3$CHMeEt)$_3$, 6155*g*.
——, **α-oxo-**, bis(phenylhydrazone), 6621*f*.
and derivs., 3791*e*.
oxime, 3006*c*.
——, **β-phthalimido-**. See *2-Isoindolinepropionaldehyde, β-methyl-1,3-dioxo-*.
——, **β-succinimido-**. See *1-Pyrrolidinepropionaldehyde, β-methyl-2,5-dioxo-*.
——, **α,α,β,β-tetramethyl-**, semicarbazone, 1309*i*.
——, **trichloro-**, 2575*g*.
——, **α,α,β-trichloro-**, 2575*c*.
*iso*-**Butyraldehyde**. See *Isobutyraldehyde*
**Butyraldol**. See *Caproaldehyde, α-ethyl-β-hydroxy-*.
**Butyramide**, manuf. of, P 3028*c*.
reaction with isocyanates, 6162*f*.
——, **β-acetamidothio-**, 4263*b*.
——, **N-(*N*-acetylsulfanilyl)-γ,γ-dihydroxy-β,β-dimethyl-†**, diacetate, P 4817*f*.
——, **α-(*N*-allylacetamido)-*N*, *N*-dimethyl-**, P 250*g*.
——, **α-(allylamino)-*N*, *N*-diethyl-**, P 250*h*.
——, **α-(allylbutyrylamino)-*N*, *N*-dimethyl-**, P 250*g*.
——, **α - [allyl(α - ethoxypropionyl)-amino]-*N*, *N*-dimethyl-**, P 250*g*.
——, **α-(allylisobutyrylamino)-*N*, *N*-dimethyl-**, P 250*g*.
——, **α-[allyl(α-isopropoxypropionyl)-amino]-*N*, *N*-dimethyl-**, P 250*h*.
——, **α-(allylpropionylamino)-*N*, *N*-dimethyl-**, P 250*g*.
——, ***N*-(2-aminoethyl)-γ-phenyl-**, hydrochloride, 2271*a*.
***N*-*tert*-amyl-**, 2165*d*.
**β-benzamido-**, 236*e*.
***N*-benzyl-**, 6596*a*.
**N-[2-(benzylsulfamyl)ethyl]-α,γ-dihydroxy-β,β-dimethyl-**, P 3450*h*.
***N*-benzylthio-**, 6596*c*.
***N*, *N*-bis(2-hydroxyethyl)-**, dibutyrate, P 7751*b*.
**α-bromo-β-methoxy-**, 4224*h*.
**α-bromo-β-methoxy-*N*, *N*-dimethyl-**, 4224*h*.
**N-[2-(5-bromo-2-pyridylsulfamyl)ethyl] - α,γ - dihydroxy - β,β-dimethyl-**, *d*-, P 3450*g*
***N*-[2-(5-bromo-2-p idylsulfamyl)ethyl] - α,γ - di droxy - β,β-dimethyl-**, *d*-, P 345
**α-butoxy-*N*-sulf l-**, P 3035*f*.
**α-(*N*-butylace lo)-*N*, *N*-dimethyl-**, P 250*h*.
**α-(*N*-*sec*-butylacetamido)-*N*, *N*-dimethyl-**, P 248*f*, P 250*i*, P 6654*b*.
**α-butylamino-*N*, *N*-diethyl-**, P 250*h*.
**α-butylamino-*N*, *N*-dimethyl-**, P 7955*h*.
**α-*sec*-butylamino-*N*, *N*-dimethyl-**, P 250*i*.
**α - [butyl(α - ethoxypropionyl)-amino]-*N*, *N*-dimethyl-**, P 250*h*.
**α - [butyl(α - methoxybutyryl)-amino]-*N*, *N*-dimethyl-**, P 250*h*.
**α-(butylpropionylamino)-*N*, *N*-dimethyl-**, P 250*h*, P 6654*c*.
**α - (*sec* - butylpropionylamino)-*N*, *N*-dimethyl-**, P 248*f*, P 250*i*.
**α-butyrylamino-*N*, *N*-diethyl-**, P 251*c*.
**α-(butyrylethylamino)-*N*, *N*-dimethyl-**, P 249*i*.
**α-(butyrylethylamino)-*N*-ethyl-*N*-methyl-**, P 250*b*.
**α-(butyrylisopropylamino)-*N*, *N*-dimethyl-**, P 250*f*.
***N*-(α-butyrylphenethyl)-**, and derivs., 4227*a*.
**α-(butyrylpropylamino)-*N*, *N*-dimethyl-**, P 250*f*.
**N-[2-(*p*-chlorophenylsulfamyl)-ethyl] - α,γ - dihydroxy - β,β - dimethyl-**, P 3450*h*.
**N-[2-(5-chloro-2-pyridylsulfamyl)ethyl] - α,γ - dihydroxy - β,β-dimethyl-**, *d*-, P 3450*g*.
**N-[2-(5-chloro-2-pyrimidylsulfamyl)ethyl] - α,γ - dihydroxy - β,β-dimethyl-**, P 3450*g*.
***N*, *N'*-(5-chlorosalicylidene)bis-**, 6182*d*.
**α-chloro-*N*-(1,2,3,4-tetrahydro-2,4-dioxo-5-pyrimidyl)-**, P 5796*g*
**α-crotonylamino-** See *Crotonamide, N-(1-carbamylpropyl)-*.
**α-crotonylethylamino) - *N*, *N*-dimethyl-†**, P 4431*h*.
**α-(crotonylpropylamino)-*N*, *N*-dimethyl-†**, P 5793*e*.
**γ-cyclohexyl-**. See *Cyclohexanebutyramide*.
**α-cyclohexyl-γ-diethylamino-α-phenyl-†**, detn. of, 1280*g*.
***N*-cyclohexyl-*N*-2-hydroxyisobutyl-α-phenyl-**, P 2640*a*.
***N*, *N* - diallyl - α - *N* - ethylacetamido-**, P 6653*h*.
**α,γ-diamino-**, *dl*-, 3009*f*.
**N-[2-(2,5-dibromophenylsulfamyl)ethyl] - α,γ - dihydroxy - β,β-dimethyl-**, *d*- and *dl*-, P 3450*f*
***N*-(3,4-dichlorophenylsulfonyl)-**, P 2231*f*.
***N*-(3,4-dichlorophenylsulfonyl)-*N*-ethyl-**, P 2364*d*.
***N*, *N'*-(3,5-dichlorosalicylidene)-bis-**, 6182*e*.
**α,α-diethyl-**, 9027*h*.
***N*-(1-diethylcarbamylethyl)-α-ethoxy-*N*-ethyl-**, P 249*d*.
***N*-(1-diethylcarbamylethyl)-*N*-ethyl-β,β-dimethyl-**, P 249*c*.
***N*-(1-diethylcarbamylethyl)-*N*,-β,β-trimethyl-**, P 249*b*.
***N*, *N*-diethyl-α-(*N*-ethylacetamido)-**, P 250*b*.
***N*, *N*-diethyl-α-ethylamino-**, P 250*b*.
***N*, *N*-diethyl-α-isopropylamino-**, P 250*g*.
***N*, *N*-diethyl-α-methylamino-**, P 249*h*.
***N*-(3,4-dihydroxybutyl)-α,γ-dihydroxy-β,β-dimethyl-, D(+)-**, P 7956*gh*.
*d*, oxidation of, P 5415*f*.
**α,γ-dihydroxy-β,β-dimethyl-**, *N*-alkyl derivs., P 2224*c*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2-(2-naphthylsulfamyl)ethyl]-**, P 3450*g*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2 - (*p* - nitrophenylsulfamyl)-ethyl]-**, P 3450*h*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2 - (phenylsulfamyl)ethyl]-**, P 3450*h*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2-(2-pyridylsulfamyl)ethyl]-**, α and *dl*-, and diacetate, P 3450*e*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2 - (2 - pyrimidylsulfamyl)-ethyl]-**, *d*-, P 3450*f*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2-(2-quinolylsulfamyl)ethyl]-**, *d*, P 3450*g*.
**α,γ-dihydroxy-β,β-dimethyl-N-2 sulfamylethyl-**, antimalarial action of, effect of Ca pantothenate on, 9254*g*.
derivs., P 3450*c*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2 - (*p* - sulfamylphenylsulfamyl)-ethyl]-**, P 3450*h*.
**α,γ-dihydroxy-β,β-dimethyl-N-sulfanilyl-**, diacetate and other derivs., P 4817*f*.
**α,γ-dihydroxy-β,β-dimethyl-N-[2 - (*p* - tolylsulfamyl)ethyl]-**, P 3450*h*.
**α,γ-dihydroxy-*N*-(3-hydroxy-1-methylpropyl)-β,β-dimethyl-**, cosmetics contg., P 7646*h*.
*d*-, P 6654*e*.
**α,γ-dihydroxy-*N*-(3-hydroxypropyl)-β,β-dimethyl-**, P 5794*i*
detn. of, 9132*i*, 9373*c*.
growth activity of, 3074*f*.
hair prepns. contg., P 6793*b*.
in nutrition of chicks, 8466*d*.
stability and physiol. utilization of, compared with pantothenic acid, 4742*h*
stability of, compared with pantothenic acid, 8476*i*.
**α,γ-dihydroxy-*N*-[2-(*p*-methoxyphenylsulfamyl)ethyl] - β,β - dimethyl-**, P 3450*h*.
**γ-dimethylamino-α,α-diphenyl-**hydrochloride, 4245*g*.
**α-[(β,β-dimethylbutyryl)ethylamino]-*N*, *N*-dimethyl-**, P 249*a*
***N*-(1-dimethylcarbamylethyl)-*N*,α-diethyl-**, P 249*b*.
***N*-(1-dimethylcarbamylethyl)-*N*-ethyl-β,β-dimethyl-**, P 249*b*
***N*-(1-dimethylcarbamylethyl)-*N*-propyl-**, P 249*e*
***N*-(1-dimethylcarbamylethyl)-*N*,β,β-trimethyl-**, P 249*a*
***N*, *N*-dimethyl-α-[methyl(α-propylmercaptoisobutyryl)amino]-** P 249*h*.
**β,β-dimethyl-*N*-(*p*-nitrophenyl sulfonyl)-**, P 7960*h*.
**α,α-dimethyl-γ-phenyl-**, P 5800*e*
***N*, *N*-dimethyl-α-(propionylpropylamino)-**, P 248*e*, P 250*f*, P 4686*e*, P 5793*f*.
***N*, *N*-dimethyl-α-*N*-propylacetamido-**, P 248*e*, P 250*f*, P 4686*e*, P 5793*g*.
***N*, *N*-dimethyl-α-propylamino-** P 250*f*, P 4686*f*.
**β,β-dimethyl-*N*-sulfamyl-**, P 7960*h*.
**β,β-diphenyl-**, reaction with PhNCO, 6162*f*.
**α-[(α-ethoxybutyryl)ethylamino]-*N*, *N*-dimethyl-**, P 250*a*.
**γ-ethoxy-*N*-2-hydroxyethyl-**, in penicillin production, 2273*c*.
**α - [(α - ethoxypropionyl)ethylamino]-*N*, *N*-diethyl-**, P 250*c*
**α - [(α - ethoxypropionyl)ethylamino]-*N*, *N*-dimethyl-**, P 250*a*
**α - [(α - ethoxypropionyl)ethylamino]-*N*-ethyl-*N*-methyl-**, P 250*b*.
**α-[(α-ethoxypropionyl)isopropylamino]-*N*, *N*-dimethyl-**, P 250*f*
**α-ethoxy-*N*-sulfanilyl-**, P 3035*f*
**α-(*N*-ethylacetamido)-*N*, *N*-dimethyl-**, P 249*i*.
**α-ethylamino-*N*, *N*-dimethyl-**, P 249*i*.
**β-ethylamino-*N*, *N*-dimethyl-**, P 251*c*.
**α-ethylamino-*N*, *N*, α-trimethyl-**, P 251*b*.
**α - ethyl - *N*, *N* - bis(2 - hydroxyethyl)-, bis(α-ethylbutyrate)**, P 7751*b*.
***N*-ethyl-β,β-dimethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-**, P 250*d*.
**γ,γ'-[ethylenebis(phenylene)]bis-[γ-oxo-]**, 7004*c*.

——, **α-[ethyl(α-ethylbutyryl)amino]-*N*, *N*-dimethyl-**, P 249*i*.
——, **α-[ethyl[α-(ethylmercapto)propionyl]amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, **α-ethylidene-**. See *Crotonamide, α-ethyl-*.
——, **α-(ethylisobutyrylamino)-*N*, *N*-dimethyl-**, P 249*i*.
——, **α-(ethylisobutyrylamino)-*N*, *N*, α-trimethyl-**, P 251*c*.
——, **α-[ethyl(α-isopropoxypropionyl)amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, **α-[ethyl(α-methoxybutyryl)amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, **α-ethyl-γ-(*p*-methoxyphenyl)-**, 1744*b*.
——, **α-[ethyl(α-methylmercaptobutyryl)amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, **α-[ethyl(α-methylmercaptopropionyl)amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, ***N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-**, P 250*d*.
——, ***N*-[2-(ethylphenylsulfamyl)-ethyl]-α,γ-dihydroxy-β,β-dimethyl-**, *d*-, P 3450*g*.
——, **α-(ethylpropionylamino)-*N*, *N*-dimethyl-**, P 248*e*, P 249*i*, P 6653*i*.
——, **α-[ethyl(α-propoxyisobutyryl)amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, **α-[ethyl(α-propoxypropionyl)amino]-*N*, *N*-dimethyl-**, P 250*a*.
——, ***N*-2-formylethyl-α,γ-dihydroxy-β,β-dimethyl-**, *d*-, P 5415*f*.
——, ***N*-2-hydroxyethyl-γ-phenoxy-**, in penicillin production, 2273*g*.
——, ***N*-2-hydroxyethyl-γ-phenyl-**, 2269*g*.
——, **β-hydroxy-*N*-2-hydroxyethyl-**, in penicillin production, 2273*h*.
——, **α-isobutoxy-*N*-sulfanilyl-**, P 3035*f*.
——, **α-(isobutyrylpropylamino)-*N*, *N*-dimethyl-**, P 250*f*.
——, **α-(*N*-isopropylacetamido)-*N*, *N*-dimethyl-**, P 250*f*.
——, **α-[isopropyl(α-methoxybutyryl)amino]-*N*, *N*-dimethyl-**, P 250*f*.
——, **α-(isopropylpropionylamino)-*N*, *N*-dimethyl-**, P 250*f*.
——, **γ-(*p*-methoxyphenyl)-α-methyl-**, 1744*a*.
——, **α-methyl-**, (omitted from abstr.), 2184*g*.
——, **β-*N*-methylacetamidothio-**, 1263*d*.
——, ***N*-[*p*-(methylsulfonyl)benzyl]-**, 3539*e*.
——, **α-(*p*-methylsulfonylphenyl)-**, 1739*i*.
——, ***N*, *N*′-(3-phenylpropylidene)bis-**, 2601*a*.
——, **γ-piperidyl-**. See *Piperidinebutyramide*.
——, **α-propoxy-*N*-sulfanilyl-**, P 3035*f*.
——, ***N*-*p*-sulfamylbenzyl-**, 8539*e*.
——, ***N*-sulfanilyl-**, therapeutic activity of, 3097*f*.
——, ***N*-sulfanilyl-α-3,4-xylylmercapto-**, P 3036*a*.
——, **γ,γ,γ-trifluoro-β-hydroxy-*N*-2-hydroxyethyl-**, in penicillin production, 2273*b*.
α-**Butyramide**. See *Isobutyramide*.
**Butyramidine, *N*-cyclohexyl-α-ethyl-**, hydrochloride, P 3456*h*.
——, **γ-(6-methoxy-8-quinolylamino)-**, hydrochloride, P 7051*f*.
——, **γ-(*p*-methylsulfonylphenyl)-**, salts, 1740*a*.
——, **γ-phthalimido-**. See *Phthalimide, N-(3-guanylpropyl)-*.
**Butyranilide, 5-(*p*-acetamidophenylazo)-α-(*p*-amylphenoxy)-2-hydroxy-**, P 4164*g*.
——, **4-amino-2,5-bis(benzyloxy)-**, P 1165*g*.
——, **β-bromo-4-chloro-2-nitro-**, 2992*i*.
——, **α-bromo-β-methoxy-**, isomers, 1224*h*.
——, **p-chloro-β-p-chloroanilino-**, 8388*a*.
——, **p-(3,5-dichlorophenylsulfamyl)-α-ethyl-**, 4048*h*.
——, **α,γ-dihydroxy-β,β-dimethyl-p-sulfamyl-**, diacetate, prepn. and antimetabolite action of, 2680*i*.
——, **p-(2,3-dihydroxypropoxy)-**, surface tension of aq. soln. of, 5656*e*.
——, **p-(α,α,α,α′,α′,α′-hexafluoro-2,5-xylylsulfamyl)-**, 4648*h*.
——, **α-methyl-**, 1354*a*, 4654*g*.
**iso-Butyranilide**. See *Isobutyranilide*.
**Butyrase**. See *Butyrinase*.
**Butyric acid**. (See also *Fatty acids*.)
acetoacetic acid conversion to, by *Clostridium acetobutylicum* and *C. butyricum*, 6700*d*.
adsorption by active C, 462*e*.
β-alkoxy derivs., vinyl esters, polymerization with vinyl compds., P 7753*f*.
(1-alkoxyethyl) esters, 6576*e*.
aromatic and terpene esters, for use in flavors and perfumes, 9375*e*.
γ-aryl derivs., reaction with HI and red P, 2606*f*.
bacteria—see *Bacteria*.
1-butoxyethyl ester, 7426*a*.
capillary osmosis of, 7765*g*.
caproic and valeric acid synthesis from, by *Clostridium kluyveri*, 7077*i*.
(9-carbazolylalkyl) esters, 624*b*.
2-(9-carbazolylethyl) ester, P 6669*e*, *g*.
carbon from, incorporation into liver glycogen, 5099*h*.
as carboxypeptidase inhibitor, 6266*a*.
p-chloro-α-(trichloromethyl)benzyl ester, as insecticide, 2359*h*.
consumption by cornea, and effect of compds. thereon, 770*a*.
derivs., 4-hydroxyquinolines from, 8387*f*.
detn. of, 4807*i*.
in cellulose acetobutyrates, 1289*e*.
in mixts. of fatty acids, 8976*h*.
in mixts. with acetic, formic and(or) propionic acids, 8977*a*.
2,3-dimercaptopropyl ester, 3783*g*.
effect on adhesion of epithelium to stroma in cornea, 769*a*.
on diffusion of strong electrolytes, 8773*g*.
on growth rate of electrolytic single crystal of Ag, 4584*c*.
on interfacial friction, 2060*b*
on ketones in blood of ruminants, 9188*c*.
on nitrocellulose lacquers, 7718*h*.
on O uptake by larva cells of *Gastrophilus intestinalis*, 1872*c*.
on stainless steel cooking utensils, 2707*a*.
erythrocyte penetration and hemolysis by, 8502*b*.
esters, 6162*a*.
with allyl lactate, P 5036*i*.
with androstanediol and androstenediol, P 1916*a*.
with *N*, *N*-bis(2-hydroxyethyl)butyramide, P 7751*b*.
with dianhydrosorbitol, P 4301*k*.
with p,p′-(1,2-diethylideneethylene)-diphenol, P 3464*b*.
with p,p′-(diethylideneethylene)diphenol monopropionate, P 823*f*.
with α,α′-diethyl-4,4′-stilbenediol, P 2641*e*.
with erythrol, P 7419*f*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
as flavoring components, 8573*i*.
with lactic acid, P 676*h*
with lactic acid esters, P 676*e*.
with linalool, P 6219*g*.
lyoparachors of, 2834*b*.
with methyl salicylate, P 4701*h*.
phys. consts. of, 2590*d*, 2591*f*.
spectra of, 1656*c*.
with vitamin A and with 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,7-nonatrienе-1,6-diol, 5372*c*.
with vitamin C, P 3154*c*
ethyl and methyl esters, thermochors of, 8226*e*.
ethyl ester, hydrolysis of, kinetics of, 6064*i*
mixt. with acetone, reduction of, 2944*d*.
prepn. of, 127*g*.
solubilization with Na secondary alkyl sulfates, 466*a*.
thorium nitrate partition between water and, 6890*e*.
fermentation—see *Fermentation*.
formation of, in cream and butter during decompn., 6749*f*, *g*.
from dokuimo by fermentation, 1146*g*.
from pellitorine on oxidation, 2933*i*.
from pyruvate by *Clostridium saccharobutyricum*, effect of Na arsenite on, 4331*e*.
by tartrate fermenting *Clostridium*, 274*a*.
by thermophilic cellulose-fermenting bacteria, 721*d*.
2-furoylmethyl ester semicarbazone, 1392*c*.
heat of ionization of, 477*i*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
ionization of, in aq. iso-PrOH, 1244*c*.
isopropenyl ester, P 7038*e*.
lead salt, for waterproofing films from inorg. silicate or hydrous oxide, P 3243*a*.
manuf. of, P 670*a*, P 2632*g*.
metabolism of, in a soil microörganism, 1833*a*.
methyl ester, hydrolysis by esterase, 9125*a*.
and methyl ester parachors and thermochors of, 2923*f*.
methyl ester, reaction with *tert*-BuCl, 111*e*.
mixt. with EtOH, soybean treatment with, 1604*c*.
9-octadecenyl ester, reaction product with $H_3PO_4$, P 4877*g*.
2-(α-phenylacetamido)ethyl ester, 2269*i*.
phenylhydrazide, as insecticide, 5526*a*.
phenylhydrazide, toxicity to corn borer, 7182*h*.
phys. constants of, 2956*b*.
piperonyl ester, as synergist for pyrethrin, 3555*d*.
3-pyridylmethyl ester, P 8105*h*.
recovery in BuOH fermentation, 813*e*.
salts, as catalysts in ketene reaction with aldehydes, P 5037*g*.
in silage, 1879*f*.
sodium salt, effect on N fixation by *Azotobacter*, 9160*b*.
sodium salt, solubilization with, 466*c*.
sorption by anionites, 1238*c*.
steel soln. in, rate of, 540*a*.
system: $PhNO_2$-, 6066*h*.
1,3,5-trimethyl-2,6-diphenyl-4-piperidyl ester and -HCl, 1410*e*.
ultrasonic velocity in, 8786*c*.
utilization by *Drosophila*, 322*h*.
vinyl ester, polymers with dialkyl esters of maleic acid and vinylidene halides, P 2818*c*
**Butyric acid, γ-acenaphthenyl-**. See *Acenaphthenebutyric acid*.
——, **α-acetamido-α-(benzylmercapto)-**, DL-, labeled with $S^{35}$, 7903*b*.
——, **α-acetamido-α-cyano-**, ethyl ester, P 6653*f*.
——, **α-acetamido-α-cyano-γ-methylmercapto-**, ethyl ester, P 6653*d*.
——, **α-acetamido-α-ethyl-**, 1723*h*.
——, **α-acetamido-γ-hydroxy-β,β-dimethyl-**, γ-lactone, 574*i*.
——, **α-acetyl-**. See *Acetoacetic acid, α-ethyl-*.
——, **β-(*N*-acetyl-*p*-chloroanilino)-**, 8388*b*.
——, **acetyldehydroamino-***, spectrum of, 3857*a*.
——, **α-acetyl-γ-hydroxy-**. See *Acetoacetic acid, α-2-hydroxyethyl-*.
——, **γ-acetyl-β-phenyl-**. See *Hydrocinnamic acid, β-acetonyl-*.
——, **amino-**, mixt. with glucose, maple-sirup substitute from, 5880*b*.
——, **α-amino-**, P 6653*f*.
in blood plasma, 8429*c*.
chromatography on starch columns, 5818*e*.
DL-, 4223*b*.
lactam—see *2-Pyrrolidone*.
oxidase for, in decarboxylating bacteria, 6281*e*.
in pollen collected by bees, 732*a*.
——, **α(β and γ)-amino-**, heat contents and structures of, 6070*c*.
——, **α-amino-γ-(2-amino-2-carboxyethylmercapto)-**. See *Allocystathionine*.
——, **α-amino-α-(amylsulfinyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(amylsulfonyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(benzylmercapto)-**, D- and DL-, labeled with $S^{35}$, 7903*b*.
——, **α-amino-α-(butylsulfinyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(butylsulfonyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-γ-(1-carboxyethylamino)-**, 7933*h*.
——, **γ-(2-amino-4-dichloroarsinophenyl)-**, hydrochloride, 4237*c*.
——, **α-amino-α-ethyl-**, 1723*h*.
(omitted from abstr.), 1323*a*.
——, **α-amino-γ-(ethylmercapto)-**, effect on growth rate liver fat and kidney degeneration, 1470*g*.
growth inhibition by and its alleviation by S-contg. amino acids and choline, 8477*d*.

——, **α-amino-α-(ethylsulfinyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(ethylsulfonyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(hexylsulfinyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(hexylsulfonyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-β-hydroxy-**. See *Threonine*.
——, **α - amino - γ - hydroxy - β,β - dimethyl-**, 138*d*.
*dl*-, and γ-lactone-HCl, 4224*a*.
γ-lactone -HCl, 574*h*.
pantoic acid precursor, 715*a*.
——, **α-amino-β-mercapto-**, reaction with 2-benzyl-4-(methoxymethylene)-5(4*H*)-oxazolone, 1768*h*.
——, **α-amino-γ-mercapto-**. See *Homocysteine*.
——, **α-amino-α-methyl-**. See *Isovaline*.
——, **α-amino-γ-methylmercapto-**. See *Methionine*.
——, **α-amino-α-(methylsulfinyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-γ-(methylsulfinyl)-**, detection of, 2666*b*.
prepn. and antibacterial action of, 2674*h*
——, **α-amino-α-(methylsulfonyl)-**, antimetabolite activity of, 3499*h*
——, **α-amino-γ-(methylsulfonyl)-**, 6577*g*.
detection of, 2666*b*.
prepn. and antibacterial action of, 2674*h*
utilization for methylation of homocystine in animal organism, 3895*b*.
——, **α-amino-γ-phenoxy-**, DL-, 4223*b*.
——, **α-amino-α-(propylsulfinyl)-**, antimetabolite activity of, 3499*h*.
——, **α-amino-α-(propylsulfonyl)-**, antimetabolite activity of, 3499*h*.
——, **γ-(5-amyl-2-methoxyphenyl)-γ-hydroxy-**, lactone, 1032*h*.
——, **β-anilino-**, methyl ester, azo dyes from, P 9462*c*.
——, **α-(*p*-arsenosophenyl)-**, 4237*c*.
in amebiasis therapy, 8559*c*.
——, **γ-(4-arsono-2-aminophenyl)-**, 4237*b*.
——, **γ - (4 - arsono - 2 - nitrophenyl)-**, 4237*b*.
——, **α-(*p*-arsonophenyl)-**, 4237*h*.
——, **β-benzamido-**, and methyl ester, 7427*g*.
——, **α-benzamido-β-chloro-**, ethyl ester, 9033*g*.
——, **α - benzamido - γ,γ - diethoxy-†**, 7932*d*.
——, **α-benzhydrylidene-**, and chloro derivs. and Et ester, 1393*h*.
——, **γ-benzimidazolyl-**. See *Benzimidazolebutyric acid*.
——, **β-benzoyl-**, and semicarbazone, 6625*a*.
——, **γ-benzoyl-**, 3366*f*.
in penicillin production, 2273*h*.
——, **α-benzoyl-γ-cyano-α-(2-cyanoethyl)-**, ethyl ester, 2582*h*.
——, **α - benzoyl - α - (diethylaminomethyl)-**, ethyl ester, -HCl, 7643*f*.
——, **α - benzoyl - α - (dimethylaminomethyl)-**, ethyl ester, -HCl, 7643*f*.
——, **γ-benzoyl-α-ethyl-α-(2-hydroxy-3-methoxyphenyl)-**, γ-lactone, and its 2,4 dinitrophenylhydrazone, 625*h*.
——, **α-benzoyl-β-methyl-**, ethyl ester, enol content of, 1009*i*.
——, **γ-benzoyl-β-phenyl-**. See *Hydrocinnamic acid, β-phenacyl-*.
——, **α-benzyl-**. See *Hydrocinnamic acid, α-ethyl-*.
——, **γ-(benzylmethylamino)-α-cyano-α-phenyl-**, ethyl ester, P 695*i*.
——, **α-benzyl-γ-phenyl-**. See *Hydrocinnamic acid, α-phenethyl-*.
——, **γ-4-biphenylyl-**, and methyl ester, hydrogenation of, 1375*f*.
——, **β,γ-bis(*p*-methoxyphenyl)-**, 2273*a*.
——, **γ-bromo-**, ethyl ester, α-ethyladipic acid from, 6165*b*.
——, **α-bromo-β-hydroxy-**, 6169*e*.
——, **α-bromo-β-methoxy-**, isomers and derivs., 4224*f*.
——, **α-(1-bromo-2-naphthoxy)-**, 3813*i*.
——, **α-butoxy-**, and bismuth salts, 2488*i*.
——, **γ-(5-butyl-2,4-dimethoxyphenyl)-γ-hydroxy-**, lactone, 1033*d*.
——, **γ-(5-butyl-2-methoxyphenyl)-γ-hydroxy-**, lactone, 1032*h*.
——, **α-butyryl-**. See *Caproic acid, α-ethyl-β-oxo-*.
——, **γ-carbamyl-**. See *Glutaramic acid*.
——, **α-carboxyamino-γ-hydroxy-β,β-dimethyl-**, *dl*-, γ-lactone benzyl ester, 4224*b*.
γ-lactone benzyl ester, 574*i*.
——, **γ-[(carboxymethyl)ethylamino]-**, diethyl ester, 6206*i*.
——, **γ - [(carboxymethyl)methylamino]-**, derivs., 4274*f*.
——, **β-chloro-**, Raman spectrum of, 6082*i*.
——, **γ-chloro-**, ethyl ester, reaction with benzene in the presence of $AlCl_3$, 4638*g*.
——, **β-*p*-chloroanilino-**, 8388*a*.
——, **α-chloro-α-(α-chlorobenzhydryl)-**, and ethyl ester, 1394*b*.
——, **γ - chloro - β - (chloromethyl) - β-methyl-**, 2157*i*.
——, **α-chloro-α-(α-ethoxybenzhydryl)-**, ethyl ester, 1394*g*.
——, **β-chloro-γ-fluoro-**, methyl ester, volatility and vapor pressure of, 8841*a*.
——, **α-chloro-α-(α-hydroxybenzhydryl)-**, ethyl ester-, 1394*c*.
——, **α-chloro-α-(α-methoxybenzhydryl)-**, and ethyl ester, 1394*c*.
——, **α-(1-chloro-2-naphthoxy)-**, 3813*i*.
——, **α-(*p*-chlorophenyl)-**, 2169*d*, 4654*c*.
——, **β,β′-(*m*-chlorophenylimino)di-**, dimethyl ester, azo dyes from, P 9462*b*.
——, **γ-(4-chloro-*m*-tolyl)-**, 1378*h*.
——, **β-[*p*-chloro-*N*-(*p*-tolylsulfonyl)-anilino]-**, 8388*b*.
——, **α-cyano-**, hydrazides and other derivs., 4222*g*.
——, **β-cyano-**, and ethyl ester, 2167*i*.
——, **γ-cyano-α-(2-cyanoethyl)-α-isopropenyl-†**, 6579*a*
——, **β-cyano-α,α-dimethyl-**, and ethyl ester, 2168*a*.
——, **β-cyano-β-hydroxy-**, methyl ester acetate, P 6651*d*.
——, **α-cyano-γ-phenoxy-**, hydrazides and other derivs., 4222*f*
——, **α-cyano-γ-phenoxy-α-2-phenoxyethyl-**, ethyl ester, 4222*f*.
——, **α-(*p*-cyanophenyl)-**, 9055*f*.
——, **β-cyano-γ-phenyl-**, and ethyl ester, 2167*i*.
——, **α-cyclohexyl-** See *Cyclohexaneacetic acid, α-ethyl-*.
——, **γ-cyclohexyl-**. See *Cyclohexane butyric acid*.
——, **γ-cyclopentyl-**. See *Cyclopentane butyric acid*.
——, **α,γ-diamino-**, from polymyxin A, 9386*d*.
and salts, 5005*d*.
spectrum of D(+)-, 9386*f*.
——, **α,β-dibromo-**, 6169*e*.
Raman spectrum of, 6082*h*.
——, **α-(1,6-dibromo-2-naphthoxy)-**, 3813*i*.
——, **(dichlorophenoxy)-**, effect on respiration of plant tissue, 5456*i*.
——, **α-(2,4-dichlorophenoxy)-**, P 7045*d* (omitted from abstr.), P 2234*a*.
in penicillin production, 2273*f*.
——, **α,γ-dicyano-**, ethyl ester, P 3446*h*.
——, **α,γ-dicyano-α-(2-cyanoethyl)-**, ethyl ester, P 3446*h*.
——, **α,γ-dicyano-α-phenyl-**, ethyl ester, P 695*d*
——, **γ-(2,5-diethoxyphenyl)-**, 1379*a*.
——, **γ,γ-diethoxy-α-(α-phenylacetamido)-†**, 7932*g*.
——, **α,α-diethyl-**, reaction of, $H_2SO_4$ and $HN_3$, 9027*g*.
——, **γ-diethylamino-α,α-diphenyl-**, and derivs., 9053*ce*.
——, **α-(diethylaminomethyl)-α-ethyl-β-hydroxy-**, ethyl ester and its esters, and their hydrochlorides, 7643*d*.
——, **α-(diethylaminomethyl)-β-hydroxy-α-methyl-**, ethyl ester and its esters, and their hydrochlorides, 7643*c*.
——, **γ-diethylamino-α-oxo-**, ethyl ester phenylhydrazone, and its HCl, P 6238*e*.
——, **α,γ-dihydroxy-β,β-dimethyl-**, α-amino - γ hydroxy - β,β - dimethylbutyric acid as precursor for, 715*a*.
brucine salt and resolution of γ-lactone, P 7038*i*.
compd. with Fe, and Na salt, P 8619*f*.
*d*- and *l*-, salts with *d*- and *l*-ephedrine and γ-lactones from, P 3448*gi*.
*d*-, γ-lactone, racemization of, P 4291*c*.
iron deriv., and Na salt, P 4816*h*.
γ-lactone, effect on heart, 7138*g*.
pantothenic acid synthesis by *Neurospora* from β-alanine and, 715*d*.
resolution of racemic, P 1056*f*.
*l*-, γ-lactone, P 5037*h*.
sodium salt, antimetabolite action of, 2680*i*.
——, **α - (α,γ - dihydroxy - β,β - dimethylbutyrylamino)-**, DL-, sodium salt, effect on lactic acid bacteria, 722*h*.
——, **β - (α,γ - dihydroxy - β,β - dimethylbutyrylamino)-**, and salts, P 8108*c*.
sodium salt, P 2634*b*.
——, **γ - (α,γ - dihydroxy - β,β - dimethylbutyrylamino)-**, sodium salt P 7957*b*.
——, **α - (α,γ - dihydroxy - β,β - dimethylbutyrylamino) - α - ethyl-**, DL-, sodium salt, effect on lactic acid bacteria, 722*h*.
——, **β - [*N* - (2,3 - dihydroxypropyl)-anilino]-**, methyl ester, P 9462*e*
——, **β,γ-dimethoxy-**, methyl ester, P 1055*e*.
methyl ester, isomeric methyl γ-methoxy crotonates from, P 3442*g*.
——, **β - (3,5 - dimethoxyphenyl) - β-hydroxy-α-methyl-**, ethyl ester, 8384*i*.
——, **γ - (2,4 - dimethoxy - 5 - propylphenyl)-γ-hydroxy-**, lactone, 1033.
——, **α,α-dimethyl-**, reaction of, $H_2SO_4$ and $HN_3$, 9027*e*.
——, **β,β-dimethyl-**, vinyl ester, polymer with $C_2H_4$, P 7264*e*.
——, **γ - dimethylamino - α,α - diphenyl-**, and derivs., 9053*d*
——, **γ - dimethylamino - α - ethyl - α-(2 - hydroxy - 3 - methoxyphenyl)-**, γ-lactone, and derivs., 625*g*
——, **α - (dimethylaminomethyl) - α-ethyl-β-hydroxy-**, ethyl ester and its esters, and their hydrochlorides, 7643*d*.
——, **α - (dimethylaminomethyl) - α-hydroxy-α-methyl-**, ethyl ester, and its esters and their hydrochlorides, 7643*c*.
——, **α,β-dioxo-**, ethyl ester, α- and di oximes, 127*d*.
ethyl ester, and its α-hydrazones, reactions with Br, 4247*i*
ethyl ester and its α-oxime, hydrogenation of, 573*a*.
ethyl ester α-oxime, in Fe analysis, 2115*d*.
——, **α,α-diphenyl-**, and derivs., 3302*g*.
——, **γ,γ′-dithiobis[α-amino-**. See *Homocystine*.
——, **α,β-epoxy-β-phenyl-**. See *Hydrocinnamic acid, α,β epoxy-β-methyl-*
——, **α-ethyl-**, 2 chloroallyl ester, polymers with butadiene, P 4321
diester with α-ethyl-*N*,*N*-bis(2-hydroxyethyl)butyramide, P 7751*b*.
diester with triethylene glycol, adhesive comps., P 3663*b*.
2 ethylbutyl ester, hydrogenation of, 2165*b*
ethyl ester, condensation of (attempted), 6171*a*.
metabolism of, 3905*c*.
system: AcOH-$H_2O$-, 5657*h*.
vinyl ester, polymer with $C_2H_4$, P 7264*e*
——, **α-ethylamino-**, 6979*e*.
ethyl ester, P 251*c*, P 7956*a*.
——, **γ - (5 - ethyl - 2,4 - dimethoxyphenyl)-γ-hydroxy-**, lactone, 1033
——, **γ,γ′ - [ethylenebis(phenylene)]bis[γ-oxo-**, and dimethyl ester, 7004.
——, **γ,γ′-(ethylenedithio)bis[α-amino-**, P 7956*e*.
——, **β - (*m* - ethyl - *N* - 2 - hydroxyethylanilino)-**, methyl ester, azo dyes from, P 9462*b*.
——, **α - (ethylisovalerylamino)-**, ethyl ester, P 251*c*.
——, **γ - (5 - ethyl - 2 - methoxyphenyl)-γ-hydroxy-**, lactone, 1032*g*
——, **fluoro-**, effect on fatty acid and glucose oxidation in kidney homogenates, 4709*f*.
——, **γ-fluoro-**, esters, volatility and vapor pressure of, 8841*a*.
——, **γ-fluoro-β-hydroxy-**, methyl ester, volatility and vapor pressure of, 8841*b*.
——, **γ-(*p*-fluorophenyl)-**, 1378*g*.
——, **γ-fluorothiol-**, methyl ester, volatility and vapor pressure of, 8841*b*.
——, **α - formamido - β - methoxy-**, DL-, 4224*g*.
——, **γ-formyl-**. See *Glutaraldehydic acid*
——, **γ - (1*H* - furo[3,4]imidazol - 4-yl)-**. See *1H - Furo[3,4]imidazole - 4 butyric acid*.

——, γ-furyl-. See *Furanbutyric acid*.
——, β-guanidino-, and picrate, 3793*d*.
——, γ - (5 - heptyl - 2 - methoxyphenyl)-γ-hydroxy-, lactone, 1032*i*.
——, γ - (5 - hexyl - 2,4 - dimethoxyphenyl)-γ-hydroxy-, lactone, 1033*d*.
——, γ - (5 - hexyl - 2 - methoxyphenyl)-γ-hydroxy-, lactone, 1032*h*.
——, hydroxy-, in blood at high elevations, 291*d*.
mixed glycerides, P 9494*b*.
——, α-hydroxy-, ethyl ester, hydrogenation of, 573*f*.
——, β-hydroxy-. (See also "*Acetone bodies*.")
absorption from blood by mammary glands, 8040*b*.
in brain tissues, 1099*c*.
effect on heart metabolism, 9267*i*.
fermentation by butyric acid-forming organisms, 3489*a*.
β lactone, P 1055*h*, P 5414*i*, P 5795*a*.
β lactone (compd. omitted from abstr.), P 1056*ac*.
oxidation of, to acetoacetate by O in liver, cytochrome c in relation to phosphate esterification in, 6256*e*.
by kidney and liver, 2248*h*.
by microbiol. process, 6700*c*.
by plants, 728*h*
utilization by heart 9210*h*.
——, γ-hydroxy-, by fermentation of glutamic ale. by *Saccharomyces ellipsoideus*, 7541*g*.
lactone—see *Butyrolactone*
, γ - (hydroxydimethoxybenzoyl)-, 3404*a*
, α - hydroxy - β,β - dimethyl-, ethyl ester, hydrogenation of, 573*e*.
, γ - hydroxy - β,β - dimethyl - α-oxo-, derivs., 4223*g*
γ lactone, and derivs., 7426*e*.
, β-hydroxy-α,α-diphenyl-, β lactone (compd omitted from abstr.), P 1056*h*.
, γ-hydroxy-α,α-diphenyl-, γ lactone, 4244*a*, 9051*f*.
, γ - hydroxy - α,α(and β,β) - diphenyl-, and γ lactones, 3396*h*.
, β - (N - 2 - hydroxyethylanilino)-, methyl ester, azo dyes from, P 9462*c*.
, γ - hydroxy - γ - (p - methoxyphenyl) - β - (p - nitrophenyl) - α-oxo-, γ lactone, 5766*i*.
, γ - hydroxy - γ - (2 - methoxy - 5-propylphenyl)-, lactone, 1032*g*.
, α-hydroxy-α-methyl-, as air disinfectant, 4797*i*.
in disinfection of airborne bacteria, 4798*e*.
, β-hydroxy-α-methyl-, ethyl ester, derivs., 7642*h*.
, γ - hydroxy - β - (p - nitrophenyl)-α-oxo-γ-phenyl-, γ lactone, 5766*h*.
, γ-hydroxy-α-oxo-, γ lactone—see *α Ketomic acid*
, γ-hydroxy-γ-phenyl-, derivs., 1032*i*, 1033*f*
, γ-(p-hydroxyphenyl)-, 2196*e*.
and acetate, 1377*i*
, β - [N - (3 - hydroxypropyl)-anilino]-, methyl ester, azo dyes from, P 9462*b*.
, γ-imino-γ-methoxy-, methyl ester, HCl, 3359*i*.
, γ-indanyl-. See *Indanbutyric acid*.
, γ-indolyl-. See *Indolebutyric acid*.
, γ-(p-iodophenyl)-, 1379*a*.
, α-isoamoxy-, and bismuth salts, 2488*i*.
, β-keto-. See *Acetoacetic acid*.
, γ-mesityl-, 1378*e*.
in penicillin production, 2273*i*.
, β-methoxy-, 2162*d*.
vinyl ester, polymerization with $CH_2$:CHCl, P 7753*g*.
, γ-(m-methoxyphenyl)-, P 7509*g*.
, γ-(p-methoxyphenyl-, 4241*h*.
, β-(α-methoxyphenylimino)-, ethyl ester, compds. with metallic chlorides, 4227*i*.
, γ - (p - methoxyphenyl) - γ - oxo-. See *Propionic acid, β-anisoyl-*.
, α-methyl-, d-, from penicillin (chemical), 2184*g*.
and 2-methylbutyl ester, 6155*h*.
(+), and esters and salts, 1353*f*.
, β-methyl-. See *Isovaleric acid*.
, γ-methylamino-, hydrochloride, 4274*e*.
, α-methylene-, alkyl esters, Ag-$NH_3$ complex ion as catalyst for polymerization of, P 7265*a*.
and isobutyl ester, decolorization of, P 3442*i*.
polymerization with hexamethylene diisocyanate, P 4516*e*.
——, γ-methylmercapto-α-oxo-, detn. of, and 2,4-dinitrophenylhydrazone, 5342*h*.
——, γ-morpholinyl-. See *Morpholinebutyric acid*.
——, α-2-naphthoxy-, halo derivs., 3813*f*.
——, γ-naphthyl-. See *Naphthalenebutyric acid*.
——, γ-naphthyl-γ-oxo-. See *Propionic acid, β-(naphthoyl)-*.
——, α-(p-nitrophenyl)-, 4654*g*.
——, γ-(p-nitrophenyl)-, 1379*b*.
——, β - [3 - (p - nitrophenyl) - 2-thioureido]-, 168*h*.
——, β(and γ) - [3 - (p - nitrophenyl)-ureido]-, 168*g*.
——, α-oxo-, detn. of, and its 2,4-dinitrophenylhydrazone, 5342*h*
O-ethyloxime, P 5422*e*.
oxime and its ethyl ester, 2276*d*.
——, β-oxo-. See *Acetoacetic acid*.
——, α-oxo-γ-phenyl-, 5017*a*.
semicarbazone Na salt, hydrogenation of, 2604*e*.
——, γ-oxo-γ-phenyl-. See *Propionic acid, β-benzoyl-*.
——, γ-oxo-γ-tolyl-. See *Propionic acid, β toluyl-*.
——, β,β'-oxybis[α,α-diphenyl-, P 5037*f*.
——, β,β'-oxydi-, P 5037*f*
——, pantoyl-α-amino-*, DL-, sodium salt, effect on lactic acid bacteria, 722*h*.
——, pantoyl-α-amino-α-ethyl-*, DL-, sodium salt, effect on lactic acid bacteria, 722*h*
——, α-phenacyl-(?), 1040*a*.
——, γ-p-phenoxybenzoyl-, reduction of, P 7509*g*.
——, γ-(p-phenoxyphenyl)-, P 7509*f*
——, phenyl-*, sodium salt, effect on albumin denaturation by urea, 4707*i*.
——, α-phenyl-, esters with amino alcs., HCl, P 2639*f*.
——, β-phenyl- See *Hydrocinnamic acid, β-methyl-*.
——, γ-phenyl-, 4638*g*.
as growth substance, 8017*f*.
procaine salt, interfacial tension at water-olive oil boundary, 7290*d*.
from 2-thianaphtheneacetic acid, 1396*d*.
——, α-(α-phenylacetamido)-, 2271*a*, P 3574*b*, P 4698*c*
——, β-(α-phenylacetamido)-, and methyl ester, 7428*b*.
——, γ-phenylcarbamyl-. See *Glutaranilic acid*.
——, β-phenylimino-, ethyl ester, compds. with metallic chlorides, 4227*h*.
——, γ-phenylmercapto-, 2272*g*.
——, γ-(α-phenyl-p-tolyl)-, 1378*g*.
——, γ-piperidyl-. See *Piperidinebutyric acid*
——, γ-pyrenyl-. See *Pyrenebutyric acid*.
——, γ-pyridyl-. See *Pyridinebutyric acid*.
——, γ-pyrimidyl-. See *Pyrimidinebutyric acid*
——, γ-quinolyl-. See *Quinolinebutyric acid*.
——, α,β,β,γ-tetrachloro-, and ethyl ester, 6161*g*.
——, γ - (1,2,3,4 - tetrahydro - 2 - naphthoyl)-, and methyl ester, 1378*f*.
——, γ - (5,6,7,8 - tetrahydro - 2-naphthoyl)-, and semicarbazone, 4659*g*
——, α,α,β,β-tetramethyl-, 1310*h*.
——, γ-thienyl-. See *Thiophenebutyric acid*.
——, γ-2(3*H*)-thienylidene-. See *$\Delta^{2(3H)}$-γ-Thiophenebutyric acid*.
——, γ,γ'-thiobis[α-amino-. See *Homolanthionine*.
——, γ-p-tolyl-, 4241*h*.
——, o(and p)-tolylimino-, ethyl ester, compds. with metallic chlorides, 4227*i*.
——, γ,γ'-[(2,2,2 - trichloroethylidene)-di-p-phenylene]di-, P 2364*f*.
——, γ,γ,γ-trifluoro-, 558*b*.
——, γ - (3,3,4 - trimethoxybenzoyl)-, 3404*a*.
——, γ - (3,4,5 - trimethoxybenzoyl)-, and esters, 3403*h*.
——, α,α,β-trimethyl-, and butyl ester, 1312*i*.
——, γ-(ureylenecyclohexyl)-. See *Benzimidazolebutyric acid, octahydro-2-oxo-*.
**Butyric-α-d acid**, 3392*e*.
**iso-Butyric acid**. See *Isobutyric acid*.
**Butyric anhydride**, hydrolysis of, rate of, 5271*c*.
manuf. of, P 3839*d*, P 8398*f*.
reaction with BuMgBr, 565*e*.
**Butyrimidic acid**, γ,γ,γ-trichloro-, methy ester, -HCl, 3359*i*.
**Butyrimidyl bromide**, P 3024*c*.
**Butyrin**, hydrolysis of tri-, by esterase, 9125*a*.
viscosity of films of tri-, 2486*c*.
**Butyrinase**, in blood serum, effect of diisopropyl fluophosphate on, 5116*c*.
in blood serum in $CCl_4$ poisoning, 5116*a*.
of cerebrospinal fluid, specificity of, 7065*a*.
**iso-Butyrohydroxamic acid**. See *Isobutyrohydroxamic acid*.
**Butyroin** See *4-Octanone, 5-hydroxy-*.
**iso-Butyroin**. See *3-Hexanone, 4-hydroxy-2,5-dimethyl-*.
**Butyrolactone** (*γ-lactone of γ-hydroxybutyric acid*). (For derivatives see "lactone" under the corresponding hydroxy acid.)
and derivs., P 4687*f*.
effect on heart, 7138*h*.
formation of, from reaction of 2-iminotetrahydrofuran-HCl with NaOH, 2579*f*.
manuf. of, P 2224*f*, P 3029*e*.
prepn. of, 2570*g*.
α-substituted derivs., condensation with amidines and guanidine, 6172*i*.
toxic action on heart, 1110*d*.
**Butyronaphthone**, 7928*c*.
**1-Butyronaphthone**, γ-diethylamino-, and oxime, 2211*b*.
**2-Butyronaphthone**, 9424*f*.
2 butylnaphthalene from, 6188*b*.
——, 5,6,7,8-tetrahydro-, 9424*f*.
**Butyrone** (*4-heptanone*). (For derivs. see under *4-Heptanone*.)
compd. with phenol, infrared and Raman spectra of, 107*b*.
condensations with butyraldehyde and 2-ethyl-2-hexenal, 1317*e*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
manuf. of, P 5791*h*.
peroxide†, detn. of, 1952*g*.
phys. consts. of, 2589*h*.
prepn. of, 6170*i*.
spectrum of, 3715*g*.
**iso-Butyrone**. See *3-Pentanone, 2,4-dimethyl-*.
**Butyronitrile**, derivs., P 3446*g*.
γ,γ-dialkyl derivs., P 3440*a*.
drying of, by azeotropic distn. with $CH_2Cl_2$, P 2630*e*.
hydrolysis of, kinetics of, 3697*a*.
manuf. of, P 3439*d*.
phys. consts. of, 2592*b*.
reaction with HBr, P 3024*c*.
——, β-(allylamino)-, P 2226*h*.
——, β,β'-(allylimino)di-, P 2226*h*.
——, α-amino-α-methyl-, 8381*b*.
——, α-amino-γ-methylmercapto-, P 677*a*.
——, α-anilino-α-methyl-, as insecticide, 4415*i*.
——, α,α'-azobis[α-methyl-, decompn. kinetics of, 3354*g*.
——, γ - (benzylmethylamino) - α,α-diphenyl-, and hydrochloride, 9052*i*.
——, γ-bromo-α,α-diphenyl-, 4243*b*, 9052*i*.
——, γ - bromo - α - phenyl - α - p - tolyl-, 9053*b*.
——, β - (sec - butylisoamylamino)-, P 254*i*.
——, γ-chloro-, with $C^{14}$ in nitrile group, 1007*d*.
——, γ-chloro-α,α-diphenyl-, 9052*h*.
——, α - (chloromethyl) - α - hydroxy-, 2938*c*.
——, α-(p-chlorophenyl)-, 2169*d*.
——, α - cyclohexyl - γ - diethylamino-α-phenyl-†, detn. of, 1280*g*.
——, γ - dibenzylamino - α,α - diphenyl-, and hydrochloride, 9052*g*.
——, γ - dibutylamino - α,α - diphenyl-, 9052*g*.
——, β-diethylamino-, P 254*i*.
——, γ-diethylamino-, and Grignard reaction with, 2211*a*.
——, γ - diethylamino - α,α - diphenyl-, 9052*g*.
hydrochloride, antispasmodic action of, 7138*e*.
——, α,γ - dihydroxy - α,β - dimethyl-, diacetate, P 9080*d*.

——, α,β-dihydroxy-α-methyl-, diacetate, and derivs., P 9080*c*.
——, γ-(diisopropylamino)-, P 1067*f*.
——, α-(2,3-dimethoxyphenyl)-, 625*c*.
——, γ - dimethylamino - α,α - diphenyl-, and hydrochloride, 9052*f*.
hydrochloride, antispasmodic action of, 7138*e*.
and salts, 7467*c*.
——, α,α-diphenyl-, 3392*a*.
——, γ - dipropylamino - α,α - diphenyl-, and hydrochloride, 9052*i*.
——, α,β-epoxy-α,β-dimethyl-, 2937*e*.
——, α,β-epoxy-α-ethyl-, *cis*- and *trans*-, 2937*d*.
——, α,β-epoxy-α-methyl-, 2937*b*.
——, α,α′ - ethylenediiminobis[α-methyl-, as insecticide, 4415*g*.
——, γ-fluoro-, volatility and vapor pressure of, 8841*b*.
——, γ-hydroxy-, and derivs., 2579*d*.
——, α - hydroxy - γ - methylmercapto-, P 677*a*.
——, α-methoxy-, 6974*f*.
——, α-methylene-, polymers with diolefins, mixts. with phenol-aldehyde resins, P 2806*h*.
——, α-methyl-α-methylamino-, 8381*d*
reaction with $CS_2$, 1766*b*.
——, β-(methylpropylamino)-, P 254*i*
——, γ - (*p* - methylsulfonylphenyl)-, 1740*a*.
——, γ-morpholinyl-. See *Morpholinebutyronitrile*.
——, γ-oxo-γ-phenyl-. See *Propionitrile, β-benzoyl-*.
——, γ-phenyl-, hydrogenation of, 5738*i*.
——, γ-phenylmercapto-, 2272*g*
——, γ-piperidyl-. See *Piperidinebutyronitrile*.
——, γ-pyrrolidyl-. See *Pyrrolidinebutyronitrile*.
——, α,α,β-trimethyl-, P 3439*i*.
*iso*-**Butyronitrile**. See *Isobutyronitrile*.
**Butyrophenone**, 3012*f*.
and oxime, 6178*c*.
phys. consts. of, 2589*i*.
in prevention of crystn. of DDT or its analogs, P 6358*e*.
Raman spectrum of, 3716*e*
refraction by, 4651*g*
and semicarbazone, 2178*b*.
spectrum of, 4955*d*.
**Butyrophenone**, *o*-amino-, 3012*g*
——, α - amino - 3,4 - dihydroxy-, and hydrochloride, P 4696*e*.
——, α - benzhydrylamino - 3,4 - bis(benzyloxy)-, hydrochloride, P 4696*d*.
——, *p*-2-biphenylyl-, 4656*b*.
——, 3,4-bis(benzyloxy)-, P 4696*c*.
——, 3,4-bis(benzyloxy)-α-bromo-, P 4696*c*.
——, α-bromo-*p*-methoxy-, 603*g*.
——, γ-bromo-2,4,6-trimethyl-, 3390*b*.
——, 4-butoxy-2,5-dimethyl-, 7924*g*.
——, 4-butoxy-2-methyl-, 3826*a*.
——, 4-butoxy-3-methyl-, and semicarbazone, 3825*e*.
——, *p*-chloro-α-diazo-, 4653*h*.
——, *p* - chloro - γ - diethylamino-, and oxime, 2211*b*.
——, α-diazo-*p*-methoxy-, 4653*h*
——, α-diazo-*p*-nitro-, 4653*h*, 6178*a*
——, γ - diethylamino - *p* - fluoro-, and oxime, 2211*b*.
——, γ - diethylamino - *p* - phenoxy-, and oxime, 2211*c*.
——, γ - diethylamino - *m* - (trifluoromethyl)-, and oxime, 2211*c*
——, 3,4-dihydroxy-, P 4696*b*
——, *o*-(2,3-dihydroxyphenoxy)-, effect on nervous system, 312*b*.
——, *p*-(2,3-dihydroxyphenoxy)-, and oxime, effect on nervous system, 312*b*.
——, 2,5-dimethyl-, and derivs., 6990*g*.
——, γ - dimethylamino - α,α - diphenyl-, hydrochloride, 4244*e*
and hydrochloride, 9053*f*.
——, α - (dimethylaminomethyl)-, hydrochloride, 1757*g*.
——, α,α - dimethyl - γ - phenyl-, P 5800*h*.
——, 2,5-dimethyl-4-propoxy-, 7924*g*.
——, α,α - diphenyl - γ - (1 - piperidyl)-, hydrobromide, 7467*e*.
——, 4-ethoxy-3-methyl-, and semicarbazone, 3825*e*.
——, α - (2 - ethyl - 3 - methoxyphenyl)-*p*-methoxy-, and 2,4-dinitrophenylhydrazone, 198*c*.
——, hexahydro-. See *1-Butanone, 1-cyclohexyl-*.
——, α - 4 - hydroxycyclohexyl - *p*-methoxy-, benzoate, 2195*f*.
——, 2-hydroxy-4,5-dimethoxy-, 7461*d*.
——, α-hydroxy-*p*-methoxy-, and acetate, 603*h*.
——, α-(hydroxymethyl)-, 1757*f*.
——, 2-isoamoxy-4,5-dimethyl-, 7924*f*.
——, 2-isoamoxy-5-methyl-, 3826*a*.
——, 4-isoamoxy-3-methyl-, and semicarbazone, 3825*i*, 3826*a*.
——, *p*-methoxy-, attempted condensation with anisole, 2971*a*.
——, α-methoxy-, and semicarbazone, 6974*i*.
——, 2-methoxy-4,5-dimethyl-, 7921*f*.
——, 4-methoxy-2-methyl-, 3826*a*.
——, 4-methoxy-3-methyl-, and semicarbazone, 3825*d*.
——, *p*-methyl-, and semicarbazone, 2601*b*.
——, α-methylene-, 1757*g*.
——, 2-methyl-4-propoxy-, 3826*a*
——, γ - 4 - morpholinyl - α,α - diphenyl-, hydrochloride, 4244*e*.
——, *m*(and *o*)-nitro-, 3012*g*.
——, β-phenyl-γ-2-quinolyl-, and oxime, 7022*h*.
——, β-phenyl-γ-4-quinolyl-, 7022*h*.
——, tetrahydro-. See *1-Butanone, 1-(cyclohexenyl)-*.
——, γ-2-thienyl-, and semicarbazone (omitted from abstr.), 2982*a*.
——, 2,4,6 - trimethyl - 3,5 - dinitro - β-(nitrophenyl)-, 3390*c*.
——, 2,4,6 - trimethyl - 3,5 - dinitro - γ-(nitrophenyl)-, 3390*c*.
——, 2,4,6-trimethyl-β-phenyl-, 3390*b*.
——, 2,4,6-trimethyl-γ-phenyl-, 3390*c*
*iso*-**Butyrophenone**. See *Isobutyrophenone*.
**Butyrospermol***, and derivs., 7462*i*.
——, dihydro-*, and derivs , 7463*c*.
**Butyrospermone***, 7463*b*
——, dihydro-*, 7463*c*.
**Butyrospermum parkii**, fat from nuts of—see "shea" under *Fats*.
**Butyryl chloride**, reaction with alcs. and $H_2O$, rates of, 6057*e*.
reduction of, to BuOH, 2570*g*.
——, γ-cyclohexenyl-. See *Cyclohexenebutyryl chloride*.
——, α-oxo-, *O* ethyloxime, P 5422*e*
*iso*-**Butyryl chloride**. See *Isobutyryl chloride*
**Bythoscopus cedaranus**, control of, 3461*i*.
**Bytownite**, -wollastonite intergrowths in lime-silicate-granulite bands in granitization of Nanga Parbat massif, India, 4985*e*
**Byturus bakeri** and(or) **Western raspberry fruitworm**, control of, 9341*g*.
**Byturus tomentosus**, control of, 807*g*.

**5-C A.-7**, in weed control in bamboo, 5525*c*.
**6-C A.-4**, in weed control in bamboo, 5525*c*.
**Cabbage**, amino acids in, 3534*g*
antistiffness factor in, 2680*h*.
*Botrytis cinerea* action on, 1840*a*.
calcium in, utilization by rats, 288*c*.
carotene and vitamin C in, 3536*a*.
caterpillar control on, 6775*d*.
Chinese, as dietary supplement, 3892*g*.
photosynthesis by, 2281*h*.
virus-infected, protein and nucleoprotein from, 280*h*.
clubroot of, control of, 801*h*.
compn. of Fla. grown, and effect of soils thereon, 9289*c*.
compn. of, soil effect on, 2722*h*.
control of diamond-back moth and imported cabbage worm on, 2358*d*.
control of turnip aphid and foliage-feeding larvae on Chinese, 7628*a*.
DDT toxicity to, 5148*a*.
dried, sulfite loss from, 7156*e*.
fertilizer expts. with, 1134*e*.
fungus control on, 7178*a*.
germination of seeds of, effect of drugs on, 2357*e*.
heteroauxin effect on yield of, 1839*b*.
injury by insecticides in cabbage-maggot control, 3136*i*.
insect control on, 348*a*.
insecticides for, 5147*g*.
leaf meals from, nutritive value of, 4343*e*.
leaves, ultraviolet absorption by cuticular and waxy layers of, 1834*f*.
metabolism in, during vernalization, 5453*c*.
microelements in, 9289*b*.
nicotinic acid synthesis by, tryptophan in, 9177*f*.
*m*-nitrobenzamide-*N*-deriv. toxicity to, 7182*b*.
plastids of, cytochrome oxidase in, 8454*c*
plastids of, dehydrogenases in, 8454*c*.
pyrethrin and rotenone on, 9328*h*.
sauerkraut—see *Sauerkraut*.
*Sclerotinia* control on, 7179*h*.
storage life of, compn. and, 8070*d*.
vitamin C in, and its detn., 3487*h*.
vitamins of, effect of large-scale methods of prepn. on, 9288*b*.
weed control in, 1894*b*, 2359*a*.
**Cabbage aphid**. See *Brevicoryne brassicae*
**Cabbage butterfly**, control on cauliflower, 4416*g*.
**Cabbage clubroot**. See *Clubroot*.
**Cabbage fly**, control of, 348*a*.
**Cabbage looper**. See *Trichoplusia ni*.
**Cabbage maggot**. See *Hylemya brassicae*
**Cabbage moths**, control on cauliflower, 4416*g*.
**Cabbage worm**, control of, bis(2-hydroxy 3 nitro-5-chlorophenyl) sulfide for, P 1901*f*.
**Cables**. (See also *Insulation, electric; Insulators, electric.*) P 5518*e*.
from aluminum alloys, 1702*b*.
copolymer compn. for, P 5135*g*.
corrosion and protection of underground power, 6093*h*.
corrosion of Pb-sheathed, 5723*i*.
cathodic protection against, 1305*a*
by cinders, 4621*e*.
corrosion of sheathing of, 309*c*
dielecs for, P 4894*i*.
impregnants for, P 1223*g*.
impregnants for, for 2-vinylfluorene polymers, P 8740*h*.
insulating couplings for underground, 6090*d*.
insulators for, 434*h*, 1604*i*.
cellophane for, P 3120*a*.
from chlorinated polyethylene, P 9534*f*
continuous vulcanization of, 3649*c*
for high-frequency, P 1126*b*.
from Me silicone elastomers contg. vinyl groups, P 5625*c*.
from polyvinyl chloride, P 5231*a*.
thermoplastic, P 3657*d*.
jointing polyethylene-insulated, with polyolefinic rubber-bondable coatings, P 4045*i*.
lacquers for, P 876*g*
rubber-insulated, flame and mech. tests on, 3225*f*
rubber-insulated, standards for, 4787*c*, 4788*b*.
sheaths for, fluxing cement for, P 7610*e*
tape for, P 3231*g*.
vinyl-resin covering of, with strips or tapes of, P 5631*i*.
water-vapor permeability of sheath materials for, detn. of, 8738*a*
**Cacao**. (See also *Chocolate; Cocoa*.)
beans, coffee substitutes from wastes from, P 332*i*, P 3118*b*.
beans, compn. of mucilaginous pulp of, 8010*i*.
confectionery raw material and theobromine from, P 6759*c*.
constituents of, effect on detn. of sugar in chocolates, 5880*c*.
nibs, grinder and pulverizer for, P 1398*f*
soils, Cu-retaining powers of, 3955*i*
**Cacao butter** or **Cacao fat**, isomerization of, with $HNO_2$ catalyst in an org. solvent, P 2341*a*.
melting points and polymorphism of, 4495*c*.
as suppository bases, 3563*f*
**Cacao-butter substitutes**, from coconut oil (hydrogenated-) distn residue, 5610*i*.
**Cachaza**. See "filter cake" under *Sugar manufacture*.
**Cachexia**, bronze—see *Hemochromatosis*
**Cacodylic acid** (*dimethylarsinic acid*), acid and basic strength in $H_2O$, 7790*d*
bombardment of, in pile, $As^{76}$ prepn by, 1650*d*.
sodium salt, effect on heart and intestines, effect of methemoglobin on, 3161
ions formed in neutron bombardment of, 7333*c*.
as methyl donor, 4766*c*, 7526*i*
multinucleated unsegmented triton eggs produced by, 5873*f*.
**Cacoecia**. See *Archips*.
**Cacotheline**, reduction of, with $Na_2S$, Se as catalyst in, 8961*e*.
**Cactaceae**. See *Cactus*.
**Cactus**. (See also *Opuntia*.)
alkaloids from, 6837*g*.
use of, 6837*g*.
**Cadalene** (*4-isopropyl-1,6-dimethylnaphtha*

*lene*). (For derivs. see under *Naphthalene*.)
derivs., 2805*h*, 7928*a*.
pyrolysis of, 5590*f*.
**Cadaverine** (*pentamethylenediamine*, *1,5-pentanediamine*), deamination by legumes, 6706*d*.
*N*, *N'*-diphenacyl derivs. and their reduction products, 3800*d*.
effect on cornea, 7716.
effect on respiration inhibition by acriflavine, methylene blue, crystal violet, protamine sulfate and quinine, 7134*b*.
manuf. from 2-furaldehyde, P 4511*g*.
—, *N*, *N'*-**dioctyl-**, dihydrobromide, 3380*d*.
—, *N* - **isopropyl** - *N'* - (**6** - **methoxy-1-naphthyl**)-, and dihydrochloride, 7026*e*.
**Cadavers.** (See also *Legal chemistry; Toxicology.*)
analysis of, for CO, hydrocarbons, etc., 3316*e*.
thallium detn. in poisoned mouse, 3312*f*.
**Cadinene**, synthesis of, 3807*d*
**Cadmium**, alpha-ray-bombarded, $Sn^{119}$ from, 8267*e*.
atomic wt. and isotopes of, 5239*g*
atomic wt. of, 5239*h*.
bond with C, energy of, 5242*d*.
bond with $CH_3$ group, dissocn. energy of, 4939*e*.
book: Electro-plating and Anodising, 956*d*.
casting of, fluidity in, 5351*a*.
as catalyst in bromination of 2-carbethoxycyclopentanone, 3273*f*.
as catalyst in H-atom recombination, 8251*d*.
as cathode in electrolytic reduction of 2 methyl-3-buten-2-ol and 2-methyl-3 butyn-2-ol, 994*g*.
as cathode in reduction of nitroguanidine or nitrourea, 4150*d*.
cathodic polarization and H overvoltage on, 8285*ab*
cation exchanger dynamic activity toward, 3268*f*.
cleaning, penetrating and corrosion loosening compn. for, P 6147*h*
coated Pt electrodes in polarography, 8946*h*.
coated water pipes and fittings, health hazards from, 986*a*.
coating of, P 1710*i*
pretreatment for phosphate, P 2922*e*
with phosphates, P 556*e*
coatings of, on Fe and steel, after 5 years' exposure, 3766*f*
coatings of, sprayed, 5146*c*
coating with, on Al, 4995*e*
coating with, by vacuum evapn., P 104*d*.
colloids in toluene, coagulation in contact with immiscible phases, 4926*g*
coloring of, 5352*h*.
color reaction of ions of, with azo dyes, 597*f*
in concn. cells, 8286*i*.
corrosion of, 5722*g*
corrosion of, by lubricants, testing of, P 7839*h*.
crystallochem electronegativity of ion of, 8231*a*
depolarization (cathodic) of, 1663*e*.
diffusion const., diffusion current and half wave of reduction of, 5327*b*
drilling of, effect of liquids on, 7889*g*
effect on *Mycobacterium smegmatis*, 5444*c*
on oxidation of molten Pb, 7881*g*
on *Proteus vulgaris* and *P. X19*, 1455*r*.
on solders, 8343*c*.
on wheat resistance to *Oidium*, 1463*d*.
elastic and structural properties of, 9001*g*.
electrodeposition of, by internal electrolysis, 8285*f*.
electrodeposits (disperse) of, 5675*e*.
electrodes, effect of temp. on potential of, 7836*g*.
electrodes, hydrogenation and reduction on, 5677*i*.
electron absorption in, 7811*e*.
electroplates of, effect on bread doughs, 4781*f*.
**electroplating with, 4148*d*.**
**analysis and control of cyanide solns. for, 7352*e*.**
**analysis of cyanide solns. for, 4972*h*.**
**carbonate removal from cyanide solns. for, 6520*b*.**
**pitting prevention in, P 4152*bd*.**
**with reversing current, P 956*e*.**
**treatment of wastes from, 3125*g*.**
**films of, growth and structure of, 5352*f*.**
fluorescent sulfides contg., P 948*i*.
in foods, 323*d*.
friction between metals and, 5273*a*.
gamma-ray-bombarded, 936*h*.
hardening (thermal) of crystals of, 2142*h*, 3258*a*.
hazards (industrial) of, 3047*i*.
heat transfer by radiation to surface of, 4939*b*.
hydration of ion of, 8244*c*.
industry in 1946, 2126*i*.
isotope of mass 110, from decay of $Ag^{110}$, 5295*i*.
isotope of mass 113, threshold for neutron emission in γ-ray bombardment of, 8864*d*.
isotope of mass 114, metastable, from decay of $In^{114}$, 6911*a*.
isotope of mass 115, β- and γ-rays from, 4121*i*
isotopes of mass 115, of half-lives of 2.3 days and 43 days, from Th by α-ray action, 4127*b*.
isotopes of, migration in molten $CdCl_2$, 2862*f*.
isotopes of, natural abundance of, 1649*i*
luminescent materials contg., decay after cathode-ray excitation, 5670*c*.
luminescent substances activated by, 5671*a*.
magnetic susceptibility of, temp. and, 8767*b*.
marketing, 2554*f*.
mercury lamps contg., spectral energy distribution for, 2095*g*.
mercury-vapor trap from, 8215*a*.
mixt. with Se, valve photoeffect in, 4102*f*.
mixt. with Sn and Pb as bath in destructive distn., P 3175*i*.
neutron absorption by, 8851*i*
neutron binding energy of, and energy of γ-rays emitted on neutron capture by, 8861*c*
neutron bombarded, γ-rays from, 5282*b*, 6075*i*, 6910*i*
neutron cross section of, 6909*d*
neutron interaction with, 4946*g*
nuclear isomerism of, 3280*b*.
occurrence and uses of, 3324*i*
ores of—see *Ores*.
oxidation (anodic) of, ultraviolet radiation from, 8900*h*.
phosphors contg., P 7832*b*
photocond. of, 3705*g*.
photoelec. effect (external) in, 482*e*
pigments—see *Pigments*.
poisoning by, 2,3-bis(benzamidomethylmercapto) - 1 - propanol for use in therapy of, P 6223*c*.
effect of BAL on, 6739*f*.
review on, 6759*h*.
polarization and surface area of, 6893*i*.
polarography of, 3728*f*
in AcOH, 2874*b*.
effect of org. compds. on, 5316*a*.
viscosity of medium and, 4930*a*.
polishing (electrolytic) of, rotating anode in, 2101*c*.
powder metallurgy with Au and Ag powders, 7879*b*.
protoactinium deposition on, 7791*g*.
proton bombarded, carrier-free sepn. of radioactive In from, 4949*c*.
radioisotopes of, 2089*e*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with α,β-unsatd. carboxylic acids, 8202*g*.
reaction with $HNO_3$, 6102*a*, 6532*h*.
reaction with pyrophosphates, 8935*f*
removal from Pb, P 3340*e*.
removal from Zn-recovery electrolytes, P 7839*e*.
solid solns. with elements, lattice spacings of, 3685*b*.
soly. in Hg, 7880*f*.
soln. in acids, 506*g*.
soln. in acids, effect of Sb salts on rate of, 6140*i*.
spectrum of, 4136*d*, 6918*c*, 7858*h*.
steel coated with, brazing, soldering and welding of, 6561*d*.
storage battery electrodes from, 954*f*.
storage battery from Ni and, 8910*b*.
surface area of, 8325*d*.
surface energy and tension of, 5653*a*.
surface tension of, 8255*e*.
system: Sb–Ag–, 2915*h*, 6961*a*.
system: Hg–Na–, activities in, 8253*d*.
system: Ag–, hardness of, 6136*e*.
systems: Hg–, and Zn–, 4074*b*.
systems with metals, activities in liquid, 4930*i*.
system: Zn–, Zn activity in, 4552*a*
from uranium by α-ray action, 489*a*.
uranium in, 3285*i*.
vapor pressure over Ag alloys, 6558*i*.
x-ray-bombarded, isomeric transitions in, 36*d*.
x-ray-bombarded, Ag isotopes from, 5295*h*.
zinc sepn. from, with Cu, 8245*f*.
**Cadmium, analysis.** (See also *Hydrogen sulfide group.*)
chromatographic, 4595*g*.
detection, 60*h*, 2116*e*, 5344*e*, 7369*b*, 7375*i*, 7860*e*, 8966*c*, 8979*h*, P 8980*g*.
detection and detn., 7858*h*.
detection in foods, 9273*h*.
in presence of Cu, 924*b*.
in Zn soln., 1282*c*.
detn., 57*c*, 954*a*, 959*h*, 961*h*, 1672*a*, 2043*f*, 4597*f*, 6106*af*, 7352*h*, 7376*h*, 8947*ab*.
alone and in presence of Cu or Zn, 8952*b*
$CaCl_2$ as auxiliary electrolyte in polarographic, 5327*a*.
purification of $CCl_4$ used as solvent for dithizone in, 7862*f*.
detn. in Al, 3743*d*.
in biol. materials and foods, 4597*d*
in Cd cyanide plating solns., 4972*h*.
in Cd-Pb alloys, 8945*f*.
in Cu, 3314*b*.
in electroplating baths, 961*g*, 8904*a*.
in minerals, 5330*h*.
in minerals and rocks, 6106*g*.
in minerals contg. Zn, 5697*b*.
in ores, 1281*i*.
in presence of Cu and Zn, 7859*f*.
in Sn, 8949*h*.
in water, P 4800*c*.
in Zn concentrate and Zn electrolyte, 964*h*.
in Zn-metallurgy products, 5353*f*.
detn. of Bi and Tl, 2546*e*.
detn. of Cd aerosols, 64*f*.
detn. of Zn, 7372*c*.
detn. of Zn in cathodic Cd, 5699*f*.
sepn. from Cu and detection, 6112*h*.
sepn. from Cu and detn., 1282*e*.
sepn. from Group II cations and detection, 4597*h*.
sepn. from Zn, 4176*b*.
**Cadmium, dimethyl-**, bond-dissocn. energy in, 4939*e*.
bond energies in, and heats of formation and combustion of, 5242*c*.
labeled, contg. $C^{14}$, 4680*i*.
spectrum of, 8882*h*.
**Cadmium, metallurgy of**, from cadmium-Cu ppt., 4145*g*.
condensers for vapors in, P 2920*c*.
at Donora Zinc Works, 9003*i*.
from fume dust of Zn smelter, P 6964*h*.
in lead smelting, 2554*f*.
refining by volatilization, P 554*i*.
**Cadmium acetate**, solvolysis in abs. $HNO_3$, 6495*i*.
**Cadmium alloys.** (See also *Bearing metals; Cadmium compounds; Solders; Wood's metal;* and "system" under *Cadmium.*)
aluminum-Mg-, P 5000*g*.
aluminum-Mn-, 4204*c*.
aluminum-Sn-Zn-, as solder for nonferrous metals, P 9024*a*.
amalgams, effect of temp. on potential of electrode of, 7836*g*.
amalgams, for Jones reductor, 5688*c*.
bearings, testing of corrosion by lubricants, 7839*h*.
bismuth-, analysis of, 2043*f*.
bismuth-, Pb-, Sn-, and Zn-, eutectics in, 4935*e*.
calcium-Pb-, as storage-battery anode, 7836*h*.
copper-In-Ag-Zn-, for brazing, P 2156*b*.
copper-Ag-Zn-, for brazing, P 2156*c*.
copper-Sn-, and Sn-, as catalysts in of fatty acids to olefins, P
lead-, spectrochem. analysis of, 8945*e*.
lead-Sn-, Bi diffusion in, to form quaternary eutectic, 6136*d*.
lithium-Mg-Zn-, P 1308*a*.
magnesium-Ag-, corrosion-resistant, P 2921*f*.
magnesium-Zr-, 4619*e*, 8339*a*.
nickel-, testing corrosiveness of lubricants toward, 8126*b*.
silver-, vapor pressure of Cd over, 6559*e*.
tin-, Cd detn. in, 8949*h*.
tin-, spectrographic analysis of surfaces of, for impurities, 5694*c*.

titanium-Zn-, P 106*a*.
zinc-, coatings from, on Fe and steel, 3766*f*.
electrodeposition and structure of, 7887*a*.
electrodeposition of, 4148*a*.
as solder for low temps., 6016*f*.
as Zn or Zn-alloy solder, P 3343*b*.
zinc detn. in, 64*c*.
**Cadmium ammonium chloride**, crystal structure of, 1623*a*.
**Cadmium antimonide**, CdSb, crystal structure of, 3260*g*.
**Cadmium borate** ($Cd_2B_2O_5$), cathodoluminescence of, and luminescence of its Mn-activated state, 3723*a*.
phosphors contg., response to far-ultraviolet light, 3717*b*.
**Cadmium bromide**, activity and osmotic coeffs. of, 22*d*.
lattice energy of, 2829*f*.
magnetic susceptibilities of hydrates of, 4528*f*.
spectrum of CdBr, 2863*h*, 3712*i*.
system: $CdCl_2$–, d. and molar vol. of, 6498*f*.
system: $CdCl_2$–, viscosity of, 4936*g*.
system: KBr–$H_2O$–, 8930*h*.
**Cadmium calcium silicate**, phosphor, P 6089*a*.
**Cadmium carbonates**.
**$Cd(HCO_3)_2$**, formation and stability of, 4171*a*.
**$CdCO_3$**, systems: $CaCO_3$–, and $MnCO_3$–, 4073*h*.
**Cadmium chloride**, activity and osmotic coeffs. of, 22*d*.
cadmium-isotope migrations in molten, 2862*f*.
as catalyst in $C_2H_2$ reaction with HCHO and HCl, P 5035*b*.
as catalyst in manuf. of chloro formals, P 4685*g*.
compds. with anils, 4227*h*.
with L-α-glycerylphosphorylcholine, 6167*a*.
with org. compds., 7000*g*.
with sulfenamides, as accelerators for rubber curing, P 8732*a*.
decompn. potential in molten $AlCl_3$-NaCl, 8915*e*.
effect on acetylcholine action, 3903*b*.
effect on bread doughs, 4781*g*.
electrolysis of fused, 950*d*, 8909*h*.
lattice energy of, 2829*f*.
magnetic susceptibilities of hydrates of, 4528*f*.
methane effect on, 5734*f*.
mixt. (molten) of KCl, NaCl and, condensation of $C_2H_2$ with $NH_4$ in presence of, 3778*g*.
polarographic diffusion current for, 5655*b*.
polarography of, with dipping Pt needle electrode, wave height temp coeff. in, 8947*a*.
as promoter in $HgCl_2$ catalyzed manuf. of Lewisite, P 5412*c*.
solid soln. with AgCl, disorder and elec. cond. in, 7772*e*.
spectrum of CdCl, 2863*h*, 3712*i*.
system: $CdBr_2$–, viscosity of, 4936*g*.
system: KCl–$H_2O$–, activity and elec. cond. of, 6892*h*.
systems: $BaCl_2$–, $CdBr_2$–, $PbCl_2$–, KCl–, and NaCl–, ds. and molar vols. of, 6498*f*.
system: AgCl–, solid soln. in, 8789*c*.
**Cadmium chromite**, $CdCr_2O_4$, catalysts of zinc chromite and (or), in prepn. of acrylonitrile, P 1051*b*.
**Cadmium compounds**, alkyls, bond energies and heats of formation of, 5242*d*.
ammines, P 3158*a*.
complex, 6892*h*, 8939*g*.
with alkali metal chlorides, 4595*c*.
with heteropoly acids and amines, 1672*a*.
polarography of, 5691*d*.
stability of, 4969*d*.
thermodynamic properties of, 3277*b*.
with copper, compression of $Cu_3Cd_8$, 4917*a*.
detoxicants for, P 3571*g*.
with 3,5-diodo-4-oxo-1(4*H*)-pyridineacetic acid, 5780*f*.
with (ethylenedinitrilo)tetraacetic acid, 2113*d*.
as fungicides for cotton fabric, 8085*f*.
with 3-hydroxy-2-naphthoic acid and pyridine, 2588*g*.
with kojic acid, as fungicides, P 4419*c*.
lattice energies of, 8230*g*.
luminescent substances contg. alk. earth metal sulfides and, P 500*h*.
of nicotine salts, P 8605*b*.
org., P 7953*d*.
org., antiseptic and fungicidal, P 363*i*.
with β,β′,β″-triaminotriethylamine, stability of, 8812*e*.
**Cadmium copper chloride**, $3Cu(OH)_2$·$CdCl_2$, 8929*g*.
**Cadmium cyanide**, lattice energy of, 2829*f*.
**Cadmium ferricyanide**, compn. of, 2113*b*, 7365*a*.
**$Cd_3[Fe(CN)_6]_2$**, detection of, 8966*e*.
soly. of, thermodynamic data on $CdCl_2$ complexes from, 3277*a*.
**Cadmium ferrocyanide**, compn. of, 1677*g*i.
detection of, 8966*e*.
**Cadmium fluorides**.
**CdF**, spectrum of, 6918*c*.
**$CdF_2$**, in fluorination of α,α,α-trichlorotoluene, 8364*h*.
heat of formation and lattice energy of, 2829*i*.
phosphor contg., for cathode-ray tubes, P 7831*f*.
**Cadmium formate**, $Cd(HCO_2)_2$, heat of formation and lattice energy of, 2830*a*.
**Cadmium gallate**, $CdGa_2O_4$, structure of, 4171*e*.
**Cadmium halides**, anticryptogams from, P 8604*i*.
**Cadmium hydroxides**, mixt. with kieselguhr, in S removal from water gas, 2401*f*.
**$Cd(OH)_2$**, lattice energy of, 2829*f*.
in system $CdSO_4$-CdO–$H_2O$, 2493*a*.
**$[Cd(OH)_2]_pCd_q$**, elec. cond. of, 6050*g*.
**Cadmium iodide**. (See also *Iodocadamates*.)
activity and osmotic coeffs. of, 22*d*.
activity in $D_2O$, 3693*h*.
binding energy of, 6895*f*.
as catalyst in polymerization of PhOC:CH, 6997*c*.
decompn. potential in fused $NaAlI_4$, 6519*g*.
decompn. potential of molten, 4582*e*.
effect on supercooling of water, 1620*h*.
lattice energy of, 2829*f*.
mixt. with molten NaI, decompn. potential of, 4582*g*.
phosphors contg., 3723*c*, 6086*c*.
photoeffect (internal) in, effect of dyes on, 7349*e*.
reaction with $BrF_3$, 3739*e*.
spectrum of CdI, 2863*h*, 3712*i*.
system: KI–$H_2O$–, 8939*h*.
**Cadmium magnesium chlorides**, 6104*d*.
**Cadmium molybdate**, $CdMoO_4$, luminescence of, 3722*f*.
**Cadmium nickel chloride**, $CdCl_2.2NiCl_2$, crystal structure of, 2064*g*.
**Cadmium nitrate**, activity and osmotic coeffs. of, 22*d*.
amphoteric character in abs. $HNO_3$, 6490*b*.
as catalyst in condensation of 2-furaldehyde with phenol, 5226*b*.
as catalyst in oxidation and hydrolysis of cellulose by nitric acid, 1979*a*.
heats of formation and soln. and lattice energy of, 2830*a*.
polarography of, 5691*e*.
Raman spectrum of, 8887*h*.
**Cadmium ores**, analysis of, for Bi and Tl, 2546*e*.
**Cadmium oxalates**, antifouling properties of, 3964*a*.
**$CdC_2O_4$**, decompn. by heat, 4934*a*.
**Cadmium oxide**, as catalyst in dehydrogenation of piperazine, P 1813*d*.
catalyst of zinc oxide and, in prepn. of acrylonitrile, P 1051*b*.
dust, retention after respiration, 5434*a*.
effect on phosphate glass, 5163*i*.
Hall effect and thermoelec. power of, 4555*d*.
photoeffect (internal) in, effect of dyes on, 7349*e*.
system: $CdSO_4$–$H_2O$–, pH in, 2493*a*.
voltaic cells contg., 7351*e*.
**Cadmium phosphate** ($Cd_3(PO_4)_2$), and cathodoluminescence thereof, 3723*a*.
phosphors, P 7831*i*.
**Cadmium phosphomolybdate**, $Cd_3(PO_4$·$12MoO_3)_2$, 7366*a*.
**Cadmium phosphotungstate**, $Cd_3(PO_4$·$12WO_3)_2$, 7366*b*.
**Cadmium potassium ferricyanide**, $KCd_{10}(Fe(CN)_6)_7$, 2113*b*, 7365*b*.
**Cadmium potassium ferrocyanide**, $K_2CdFe(CN)_6$, 1677*h*.
**Cadmium pyrophosphate** ($Cd_2P_2O_7$), and cathodoluminescence thereof, 3723*a*.
phosphor, activated by Mn, P 6518*a*.
**Cadmium salts**, adsorption and electrolytic polarization in solns. of, 503*h*.
**Cadmium selenides**, in photoconductive cells, 2858*g*.
**CdSe**, optical and elec. properties of, 3294*g*
photoelec. effect in, 35*a*, 482*e*, 4102*g*, 8896*a*.
**Cadmium silicates**, and cathodoluminescence thereof, 3723*a*.
**Cadmium stannate**, $CdSnO_3$, and cathodoluminescence thereof, 3723*a*.
**Cadmium sulfate**, compd. with nicotine sulfate, 8297*a*.
magnetic susceptibilities of hydrates of, 4528*f*.
mixt. with $ZnSO_4$, electrolysis of, 2874*e*.
polarography of, 2873*b*.
polarography of, with solid electrodes, 8946*g*.
reaction with albumin from blood serum, 6695*i*.
reaction with NaOH, 6050*g*.
system: CdO–$H_2O$–, pH in, 2493*a*
transference numbers of, 4930*e*.
**Cadmium sulfate reaction**, comparison with other clinical protein reactions, 7569*g*.
**Cadmium sulfide**. (See also *Pigments*.)
as counting substance, 4110*g*.
elec. and optical properties of, 3294*e*, 6031*d*.
fluorescent screen contg., P 7832*d*
fluoroscopic screens of ZnS and, luminescence of, 8281*h*.
luminophor contg., prevention of darkening of, P 6090*a*
neutron counting with, 4110*h*
oxidizability of pptd., 5700*i*
phosphors contg., electron traps in, 7348*a*.
prepn. of, 8893*g*
quenching of, 7347*c*.
response to far-ultraviolet light, 3717*b*
temp.-stability of luminescence of, 3723*g*
phosphors of ZnS and, 5670*h*
activated by Cu, luminescent screen contg., P 1267*b*, P 1268*c*
activated by Cu, quenching of phosphorescence of, 6920*h*
activated by Cu, temp. effect on cathodoluminescence of, 8280*i*
dependence of luminescence of, on wave length of exciting light, 4578*b*.
effect of fluxes on cathodo luminescence of Ag-activated, 7826*i*
excitation intensity and efficiency of poisoned, 8280*i*.
luminescence of, 8894*g*.
in photoconductive cells, 2858*g*.
as photocurrent carrier, 483*b*, 8896*a*
photoelec. effect in, 35*a*.
reduction (electrochem.) of, thermodynamics of, 4931*e*.
in scintillation counters, 4112*h*
soly. product of, 5344*f*
x-ray detections with crystal counter of, 8875*g*.
**Cadmium tellurides**, in photoconductive cells, 2858*g*.
**CdTe**, elec. and optical properties of, 3294*g*
photoelec. effect in, 35*a*.
**Cadmium thallide**, CdTl, as photocurrent carrier, 8896*a*.
**Cadmium thiocyanate**, $Cd(CNS)_2$, heats of formation and soln., and lattice energy of, 2829*i*.
**Cadmium thiocyanatomercurate II** ($Cd[Hg(CNS)_4]$), crystal structure of, 5325*a*, 6482*g*.
mol. wt. of, 8764*i*.
system: $Co[Hg(CNS)_4]$–, and $Zn[Hg(CNS)_4]$–, 7803*i*.
**Cadmium tungstate** ($CdWO_4$), crystals (single) of, absence of photoconductivity in, 5312*b*.
luminescence of, and of its U-activated state, 3722*f*.
phosphors contg., response to far ultraviolet light, 3717*a*.
**Cadmium vanadate (V)**, $Cd(VO_3)_2$, prepn. and soly. of, 8247*f*.
**Cadmium yellow**. See *Cadmium sulfide, Pigments*.
**Cados**, for making road crossings, 7220*b*
**Caeruloplasmin**, the term, 4309*h*.
**Caesium**. See *Cesium*.
**Cafesterol**. See *Cafestol*.
**Cafestol**, as impurity in caffeine, 9377*h*.
**Caffaro powder**, in smut control, 8595*h*
**Caffeic acid** (*3,4-dihydroxycinnamic acid*), antibacterial action of, 4327*ghi*.

pigment precursors in tomato juice, 8459c.
in plants and their exts., 2283g.
—, methylene-*, bactericidal action of, 4327h.
affeidine, thio analogs, 3794c.
—, 6-thio-*, and salts, 3794d.
affeine (1,3,7-trimethylxanthine). (See also Coffee; Tea.)
anticholinesterase activity of, 4380c, 9103b.
antihistamine action of, 1112i.
as antioxidant in alkyl benzenesulfonates, P 6846b.
cafestol as impurity in, 9377h.
complex with hemin, 702f.
cytological effect of, 3889i.
detection of, 5904g, 6785e.
detn. and urinary excretion of, 6693g.
detn. of, 5904e.
in coffee and crude caffeine, 1878c
in dry coffee exts., 1498g.
in ground coffee, 1689f.
in medicinal mixts., 5536d.
differentiation from theobromine, 2666i.
effect of, on brain function and metabolism, 7147h.
on circulatory system in typhus, 8535h.
on digitalized heart, 8051g.
on heart inhibition by K, 1108d.
on intracranial hypertension, 765e.
on normal and denervated muscles, 8064b.
on perception of motion, 8062c.
on polypnea, 2323a.
on prothrombin time, 9255e.
on protoplasmic colloids, 3932i.
in sports, 8543a.
on tropokinesis in onion meristems, 4346i.
electrocapillary properties of, pH and, 6887f.
electrodialysis of, 3975e
glycemia from, 8542h
identification of, 5535h.
ionization of, 8615g.
as methyl donor, 2316c, 7526i
N-methyl group detection in, 1689b
multinucleated unsegmented triton eggs produced by, 5873f.
muscle contracture by, 1861c.
mutations in fungi from, 3881e.
prepn. contg. 2-naphthaleneacetic acid and, for use against fatigue, P 5909c.
prepn. from tea dust, 5535b.
preps. contg. indole fatty acids and, P 5909d.
preps. contg. pyrrole fatty acids and, P 5909e
recovery from green coffee, P 6371b.
removal from coffee, P 5882i, P 6331d
in respiration stimulation, 5122d
salts derived from boric acid complexes of carbohydrates or of sugar alcs., P 1800g.
soly. of, effect of salts of org. bases on, 8803f.
in Na salicylate solns., 8803e.
in solns. of Na salts of org. acids, 8803d.
stratification and deformation of Arbacia punctulata eggs centrifuged in, 3939d.
in tea-seed hulls, 1878e.
thio analogs, 3794c.
toxicity of, 7591e.
triboluminescence of, 409c.
trypepsin output in cats treated with, 297g.
Caffeine, 8 - (benzyloxymethyl)-†, 3794f.
—, 8-(bromomethyl)-†, 3794f
—, 8-(chloromethyl)-†, 3794f.
—, 2,6-dithio-, 3794d.
—, 8-(ethoxymethyl)-†, 3794f.
—, 8-(hydroxymethyl)-†, and acetate (ester), 3794e.
—, 8-methyl-. See Xanthine, 1,3,7,8-tetramethyl-.
—, 8 - (phenyliminomethyl)-†, 3794h.
—, 6-thio-, 3794c.
8-Caffeinecarboxaldehyde*, and derivs., 3794e.
8-Caffeinecarboxylic acid*, 3794g.
Cajanus indicus (Cajan cajan, Cajanus cajan, pigeon pea), growth-limiting essential amino acids of, 9186g.
in Hawaii, 9292f.
Cake. See Bakery products.
Caking. See Agglomeration.
Calabash curare. See Curare.
Calamagrostis. See "reed" under Grasses.
Calameone, 3807i.
Calameone, 3808a.
Calamine. (See also Hemimorphite; Smithsonite.)
lotion, silica as suspending agent for, 8600c.
phenolated lotion of, 358i.
Calamone, and semicarbazone, 3808a.
Calandra. See Sitophilus.
Calaverite, density and x-ray data on, 8982g.
Calcarinus, oils of—see Oils.
Calcemia. (See also Hypocalcemia.)
in Besnier-Boeck's disease, 3091e.
intestinal-juice secretion during, 8050e
from milk and alkali intake, 5489e.
Calcerolaria, poisoning (self-) of cut, 8458g.
Calcides, the term, 8927e.
Calciferol. See "D" and "D2" under Vitamins.
Calcification. (See also "D" and "D2," etc., under Vitamins.)
of bones—see Bones.
of cell cultures in presence of embryo juice and mammalian serums, 8409a.
of coronary artery, 8513g.
of dentine during low-Ca rickets, effect of F on, 6295d.
of dentine of tooth crown, 4357d.
of hypertrophic epiphyseal cartilage in vitro, following inactivation of enzymes, 1446a.
of integuments of Coleps hirtus, 3941a.
joint stiffness and, 6292f.
of lungs, sensitivity to coccidioidin, histoplasmin and tuberculin in relation to, 3513g.
of teeth, 2681e, 6394e, 6715g.
of teeth after nephrectomy, effect of calciferol and parathyroid ext. on, 9203he, 9204b.
Calcimeters, 5235a.
Calcimine, glue in, 4489e.
Calcination, of alk. earth carbonates, etc., app. for, P 7276a.
of alumina (hydrated), 1921f.
in alumina manuf., 1921g, 1922ab.
of alums, P 7651i.
of calcium carbonate, app. for, 9409e.
of carbonate rock, P 8110f.
of carbon black to remove chemisorbed O and volatile substances for GR-S rubber reinforcement, 8724f.
of cement—see "burning of" under Cement, hydraulic or structural.
of dolomite, P 7838f, 9395g.
flash drying in, 8752d.
furnaces for—see Furnaces
of gypsum and magnesite, catalytic effects through gas phases in, 8621i.
with indirect-fired rotary kilns, 8217g
kilns for—see Kilns.
of lime and lime soda sludge, 8587e.
of lime sludge, P 6378d.
of limestone—see Limestone.
of magnesia, 3156d.
of magnesite, Fe oxides in, 6955c
of phosphate rock for F removal, 7174n
of phosphates (super-) to remove S, P 788c.
of silica, etc., app. for, 912d
temps. for U ppts., 2889i.
zinc oxide activation by, 2402a.
Calcinosis, blood chemistry in, 5485c
Calcite (calcspar, Iceland spar). (See also Aragonite; Calcium carbonate; Marble.)
α-ray effect on, 7769h.
in antimony deposits of Soyatal Dist., Mex., 4982g.
asterism of etched crystal surfaces of, 8311i.
from Brazil (Lageado, São Paulo), 2549a.
calcination of, vol. changes in, 9409e.
cathodoluminescence of, 947b, 2516c.
as cementing substance for sands, 6550d.
of China (Kumush, Sinkiang), 3323h.
concrete from, 4827b.
in copper deposit (Ward) in Alaska, 6949g.
crusts on pebbles, periodic rhythmic formation by ground water, 4610e.
crystal lattice of, oscillation of, 4955f.
crystal structure of, 6482g.
crystal twinning of, 72h.
druses in calcitic limestones in Västunfjärd, Finland, 5345h.
elec. cond. of split face of, 6026c.
electron-microscope goniometry of, 3260d.
fluorescence and phosphorescence of, 6117i.
formation of, from aragonite and vaterite, kinetics of, 6494f.
from aragonite, kinetics of, 24d.
by earthworms, 341e.
of Greenland (Holsteinborg dist.), 8313c.
of Idaho (Boise Basin), 4981d.
in limestone of Northampton Sand, England, 5347g.
massive, in fluorite deposits of Ky., 2551de
in mercury deposits in the Urals, 2130h.
in mercury ores of Huahuaxtla district, Mex., 4981h.
minerals in vein of, of Akol, U.S.S.R., 5707g.
in mineral springs at Beppu, Japan, 5703h.
of Montana (Libby Quadrangle), 8315d.
of muds of thermal springs of Budapest, 8994f.
from nepheline pegmatites of Vishnevye Mts., Mid Ural, 2897d.
neutron cross section of, 4558h.
nickel-contg., of Uluntui Valley, U.S.S.R., 3319g.
of Norway (Rana Mines), 6546c.
of Ontario (Silver Harbour, Lake Superior), 4606c.
optical, of Mexico, 2901g.
of Peru (Huitor region), 6545c.
polishing of, effect on hardness and surface structure, 4071i.
in pyroxenite Ti ores of Buorijärvi, Karelia, 7381a.
Raman spectrum of, 4956d.
removal from boilers, 4605c.
in sands of Ticino River, Italy, 2130f.
sepn. from EtOH, by heating liquid-vapor interface, 7298b.
soils, 3127d
soly. of, 2073d.
surface layers of, 3259h.
in tilleyite deposits of Carlingford, Ireland, 5347b.
tritolyl phosphate contact angles with, 8234f.
tungsten-contg. fluorescent, in Darwin, Calif., 6124c.
from Ugauda (Mbale mine), 8985c.
of U.S.S.R. (Krasnoyarsk Dist.), 2897f
in Utah (Iron Co.), 7873a.
Calcium. (Other entries relating to calcium and its compounds can be found under the heading Alkaline earth metals and under such headings as Alkaline earth sulfates.)
absorption of, by barley and pea roots, effect of exchange capacity of clay minerals and acidoid content of plant on, 8010a.
absorption of, by clays and soils, 7618e.
by humic acid and soil, 7618c.
by intestines, 7556h.
by intestines, effect of citric acid on, in relation to its antirachitic action, 5464c.
by lupine, effect of B and Mn on, 731a.
by rectal mucosa, 5470h.
in actin, and effect on actin polymerization, 9095h.
activity of, in clay suspensions, 1132i.
adsorption by rubber-latex particles, 7249d.
adsorption in plant nutrition, 279b.
aerosol contg., effect on pulmonary vol., 7128g.
Amberlite contg., effect on barley and lettuce, 7622i.
ammonia solns. of, 2500c.
antagonism to antibacterial action of atebrin and other drugs, 1826a.
antagonism to K on electrocardiogram, 6742g.
apyrase system of muscle and, 9123g.
balance in inanition, 8471e.
balance in inanition, and effect of Ca administration on Ca and Mg balance, 8498b.
balance of premature infants on diet of evaporated milk, 5100i.
in barley, effect of K on, 9175d.
binding in liver, effect of age on, 6715a.
binding of ions of, at protein-water interfaces, 8411i.
in birch root sap, 730a.
in bismuth removal from Pb, 8326g.
in blood—see also Calcemia; Hypocalcemia.
in blood and blood serum of various mammals, 8510g.
in blood and cerebrospinal fluid after Ca chloride injection in sound and meningitic children, 3937b.
in spasmophilic and normal infants, 5487a.
in tetanus, 2311g.
in blood and tissue during breathing air rich in $CO_2$, 8542a.
in blood and urine in Recklinghausen disease, 8523g.

in blood coagulation, 2664*f*, 4747*b*.
in blood, during diphtheria intoxication, 1100*d*.
effect on action of F in predentine and dentine formation, 6716*a*.
during fasting, 8471*c*.
in fever in hypertensive persons, 3011*i*.
in glaucoma, effect of irritants on, 6310*i*.
in hereditary osteopetrosis, 1482*h*.
during hysteria, 7124*h*.
after oral and intravenous administration of Ca, 737*i*.
in parturition and milk fever, 7119*i*.
after rectal administration of Ca and Mg salts, 6733*a*.
in rickets with or without tetany, 1854*g*.
after sulfonamide administration, 5121*d*.
in visceral leishmaniasis of children, 2313*e*.
during vitamin A treatment in tuberculosis, 3499*c*.
vitamin $D_2$ effect on, 6294*d*, 9181*c*.
vitamin $D_2$ prepn. for increasing, P 4433*c*.
in blood plasma and brain, convulsive threshold in normal and desoxycorticosterone-treated animals in relation to, 7146*a*.
in blood plasma of fresh water and terrestrial invertebrates, 4388*e*.
in blood plasma of heifers, effect of vitamin A on, 2293*h*.
in blood serum, 8038*b*.
in diabetic acidosis, 5855*a*.
effect of K administration on, 3496*h*
effect of Na cholate and taurocholate on, 2688*b*.
in mammary cancer and osseous metastases, and effect of estrogens and androgens thereon, 8521*g*.
after nicotinamide injection, 1472*b*
of normal cows and in metabolic disorders, 4737*a*.
in parathyroid intoxication, 5120*i*
pptd. by various concns. of $NH_4$ oxalate, significance and clinical application of, 6271*d*.
in bone, biol. availability of, 5462*i*.
in brain after cerebral concussion, 5111*g*
in brome grass, effect of K on, 7088*a*.
catalyst from copper, chromite and, in hydrogenation of coal, 2404*d*.
as catalyst in bromination of 2-carbethoxycyclopentanone, 3273*f*.
in carbonyl compd. manuf. from olefins, CO and H, P 4287*c*.
in polymerization of butadiene, 1597*b*.
in polymerization of $C_2H_4$, P 6001*b*.
cation exchanger dynamic activity toward, 3268*f*.
chlorosis and metabolism in apple and cherry, 730*g*.
in coal, 8639*e*.
coli phage T5 requirement for, 8443*e*
color reaction of ions of, with azo dyes, 597*f*.
in cotton, N source effect on, 8017*i*.
crystallochem. electronegativity of ion of, 8231*a*.
deficiency of, blackening of feathers of chicks in, 285*a*.
effect of F on calcification of dentine in rickets from, 6295*d*.
effect on *Pinus taeda*, 5095*b*.
effect on susceptibility to poliomyelitis virus, 9188*g*.
in kudzu, 3552*hi*.
in lipophilic dystrophy, 8474*h*.
in oil palms in relation to chlorosis and bronzing, 7088*h*.
in potatoes, diagnosis of, 2675*f*.
symptoms in muscadine grapes, 9173*h*.
deposition in bones of chick embryos, effect of estradiol benzoate on, 7579*f*.
in diet, effect on digestibility of fatty acids, triglycerides and natural and hydrogenated fats, 5460*g*.
diet low in, Ca hypophosphite and other Ca compds. as supplements in, 5835*b*.
diet rich in protein and, effect on life cycle, 5461*e*.
diffusion in suspengel of bentonite, 7777*h*.
distn. of, from $CaH_2$ manuf., P 2380*h*.
effect on absorption of K and Na by roots, 804*h*.
on acid formation and respiration of sea-urchin eggs, 7150*c*.
on action current of heart, 6742*e*.
on action potential of sympathetic ganglion, 9208*gh*.
effect on adsorption of color of molasses and Ponceau 4 R by $CaCO_3$, 8791*i*.
on agglutination in *Strongylocentrotus droebachiensis*, 4389*i*.
on Al in plants on acid soils, 2350*a*.
on amino acids in legumes, 342*a*.
on bactericidal properties of quaternary $NH_4$ compds., 8588*f*.
on bedbug development on rabbits, 4739*h*.
on blood-vessel tone, 5116*a*
on $CO_2$ removal from aconitic acid, P 1057*c*.
on chlorophyll and yellow pigments in soybean leaves, 9174*h*.
on cold resistance of infusoria, 8564*h*.
on Cu electrodes, 8342*f*.
on creep strength of Pb, 4197*e*.
on decompn. of oxalosuccinic acid, 1014*b*.
on digitalis lethal dose, 5872*i*.
on elec. cond. of Amberlite IR-100, 7785*f*.
on eugenol-induced desquamation of mucus epithelium in gastric pouches, 8048*f*.
on formation and transformations of org. matter in lake sediments 7612*c*.
on fruit formation in *Kaktorovskya aschersoniana*, 8459*f*.
on glycosuria in pregnancy, 4753*c*.
on *N*-glycylleucine dipeptidase, 2249*i*
on heart, 297*c*.
on isoelec. and isoionic points of serum albumins, 3690*c*.
on Pb recrystn., 4199*a*.
on lespedeza tolerance to Mn, 3067*i*
on mammary gland, 3101*a*
on membrane forming capacity of echinoderm eggs, 8560*a*.
on metabolism of *Pseudomonas aeruginosa*, 1827*e*.
on metallic coating by vacuum evapn. P 104*c*.
on metamorphosis of Bugula species 8563*e*.
on minute vol. of heart, 3108*b*
on muscle inhibition in crayfish, 2333*d*.
on *Mycobacterium smegmatis*, 5114*c*
on neuromuscular action of 2,4 dichlorophenoxyacetate, 2329*f*
on nutritive value of feeds for rabbits, 1091*f*.
on org.-matter decompn. in soil, 8082*g*.
on oxidation of Cr-Ni alloys and Ni, 1619*f*.
on oxidation of fumarate in liver, 3894*e*.
on oxidation of molten Pb, 7881*g*
on oxidation resistance of Cr Ni Fe alloys, 3332*h*.
on O consumption by frog skin, 3530*a*
on $H_3PO_4$ esterification, 2695*c*.
on K in barley, 2282*h*.
on procaine action, 1869*a*.
on proteinase action on cornea, 8511*e*
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on protoplasts, 5091*c*.
on radicle development of cotton seedlings, 283..
on relation of riboflavin and ascorbic acid to carbohydrate and N fractions of oat plants, 4734*d*.
on temp. of endothermic peak of rhodochrosite, 8984*d*.
on thermal stimulation and activity of nerve fibers, 9206*e*.
on thrombin-fibrinogen reaction, 5472*f*.
on viscosity of Al, 1701*i*.
in *Elodea canadensis* and *Fontinalis antipyretica*, plasmolysis form in relation to, 5089*e*.
energy levels, ionization potentials, magnetic splitting factors and spectrum of, 8883*f*.
energy levels of, 8871*c*.
exchange in normal tissues and in epidermal carcinogenesis, 1859*e*.
exchange of ions of, in glass, 2746*i*.
exchange with uranyl ion on bone, 8481*df*.
excretion of, diet and, 3902*h*.
by hens, 2291*b*.
in feces and urine, in osteoporosis, effect of steroid hormones on, 5487*i*.
in fertilizers—see *Fertilizers*.
films of, structure of, 2482*e*.
fixation by tissues and its function in nerve activity, 1475*b*.
fixation in bone, nervous system and, 8485*f*.
in food material as it moves along alimentary tract of hen, 2291*d*.
in forage of Southern Great Plains area, 1501*d*.
in forest leaves, 725*f*.
in forest soils, tree spp. and, 6769*g*.
in fruits (Italian), 5878*d*.
gamma-ray bombardment of, threshold for reaction in, 4115*g*.
getters from, 2877*d*.
in glomerulonephritis treatment, 1488*a*, 8534*b*.
in grapevine sap, 3889*f*.
in graphite (Acheson), 8276*c*.
in grasses and herbs of hay plots, 4347*i*
in guayule leaves, anion-cation balance and, 281*f*.
heat of transport of ion of, 8835*d*.
hemorrhage treatment with glycineas corbic acid and, 3933*f*.
hydration of ion of, 7302*b*, 8244*c*.
hypothrombinemia and thromboplastin in relation to, 8514*f*.
interaction with P and vitamin D, 8470*i*
in interstellar space, 1263*i*, 4952*h*.
in interstellar space and stars of classes O and *B*, 7335*b*.
in iodinated proteins and thyroid, 702*i*
in irrigation water, 3951*d*.
isotope of mass 40, mass difference between $A^{40}$ and, 6507*f*.
isotope of mass 41, energy levels of, 8869*i*
isotope of mass 42, from $K^{42}$ by $\beta$-decay, 8860*b*.
isotope of mass 45, $\beta$-rays from, 8268*d*
detn. of radiation dosages from, in bone, 4951*i*.
metabolism in calcified tissue, 3856*i*
secretion in egg, 6715*e*.
isotopes of, natural abundance of, 10
in lemons and oranges, effect of K 8018*e*.
in lipides, 5431*f*.
in magnesium manuf., P 4625*d*
-magnesium ratio of oil field water 839*f*.
manuf. of, by electrolysis, 8899*b*
manuf. of, from CaO, P 3769*d*
metabolism of, 6683*f*.
citric acid and, 9205*a*.
compared with Ra and Sr, 4754*f*
by cows during lactation, effect of thyroxine on, 2295*d*.
by cows, effect of Cu, Fe and Mn on 9313*a*.
by cows in relation to milk fever and grass tetany, 1843*d*.
effect of digitalis, strophanthin and vitamin D on, 8536*h*
effect of thiourea on, 4764*d*
during growth, effect of fat on, 7758
oxalate content of diet and, 3892*e*
in pregnancy, 8464*h*
in sheep, 9273*e*.
vitamins in, 8476*a*.
metabolism of, and therapy with, 5815
migration from muscle and skin, effect of spleen on, 8038*b*.
neutron cross section of, 4947*d*, 6909*d*
in nutrition during growth, 7556*d*.
oat yield and, 1836*d*.
in orange flowers and fruit, 8020*d*.
in orange juice, effect of fertilizers on 9319*h*.
in orange (Valencia) leaves, effect of root stock on, 3491*g*.
in oyster muscle, 3939*g*.
in peach-flower buds during development, and effect of weather thereon, 8457*h*
in peach leaves in relation to bacterial leaf spot, vigor and yield, 9173*e*.
peanut fruit absorption of radioactive 5087*c*.
peanut fruit filling and, 3067*b*.
in peanut growth, 2290*a*.
in pecan leaves, effect of fertilizer on, 2287*e*.
penetration into nerve fibers, 4744*a*
in perspiration, 4739*e*.
in petroleum, 2139*a*.
phosphate soly. and, in soils, 1511*h*
-phosphorus balance in hypotrophic children under various food rations, 7351.
-phosphorus ratio in blood and diet, tooth compn. and, 2681*f*, 6294*f*.
-phosphorus ratio in diet, blood balance and, 6706*g*.
in placenta of rodents, 5466*h*.
in plants, cation-exchange properties of soil and, 3128*d*.
from potassium by $\beta$-ray decay, 485*d*.
potassium deficiency in citrus and, 1132*i*.
-potassium ratio in blood serum, diagnostic significance of, 9224*a*.

purification of, 7851*d*.
in pus, 3512*d*.
quartz activation by, 6953*hi*.
reabsorption by kidneys, effect of parathyroid on, 2092*c*.
reaction products with maleic anhydride polymers with Me methacrylate,
reaction products with Me methacrylate polymers with α,β-unsatd. carboxylic acids, 8202*g*.
in red clover and timothy at various stages of growth, 727*e*.
removal of, from acetates and fluoroacetates, 4976*e*.
from blood with Amberlite resin, coagulation after, 7103*i*.
from bone, 3872*d*.
from cellulose, P 6415*e*.
from molasses, 5615*e*.
from phosphates in analysis, 4182*i*.
from teeth by acid beverages, effect of sugar content and pH on, 9220*h*
from teeth by citrate and lactate, effect of fluoride on, 6310*e*.
from tissue, test for end-point of, 8424*a*.
from water—see Water, *purification of*.
removing action of phytic acid in flour, 777*e*.
retention of, effect of complex-forming amorphous Na phosphates on, 1467*h*.
by hen, effect of dietary level of Ca on, 2291*e*.
in rickets, effect of citric acid and vitamin D on, 1094*h*
in rice in K deficiency, 9176*h*
root environment, 1461*e*
requirement for, 8458*g*.
rye and wheat, effect of ppng and weather on, 5450*e*.
in saliva, 4356*g*
sediments and sea water, 5350*e*
seasonal differences in, of newly hatched chicks, 295*a*.
silicic acid crystn. in presence of, 8934*h*
in soil, crop response to Mg and, 9320*d*
effect of ratio to Mg on alfalfa, 3956*g*
effect on absorption of nutrients by trees, 8455*h*.
growth of barley and lettuce in relation to, 7622*h*.
of Hawaii, effect of ratio to Mg on K availability, 9314*a*.
movement of, 1509*e*.
solubilization by fermenting org. matter, 7172*d*.
soil-exchangeable, effect of $(NH_4)_2SO_4$ on, 8503*f*.
soil granulation and, 794*h*.
in soybean milk and curd, 8476*a*.
soybean milk fortification with, and its availability for growth, 8469*i*.
spectrum of, 5300*i*, 7338*b*, 7858*h*.
in star ζ Aurigae, 1263*h*.
in star CY Aquarii, 5663*a*.
in star HD 45910, 2509*c*.
in star HD 187399, 8882*b*.
in star L726-8, 6510*d*.
in star Nova Cygni 1948, 39*d*.
in star Nova Serpentis 1948, 490*c*.
in star γ Pegasi, 938*f*.
in stars, 5301*cg*.
in stars α Canis Minoris and α Persei, 5301*f*.
in stars in clouds of Ophiuchus and Scorpius, 939*b*, 4134*h*.
in stars of class A, 8882*a*.
in sun, 39*a*, 939*f*, 5300*h*.
in sun's corona, 1263*a*.
supply of Berlin population, 1844*d*.
system: $CaCl_2$–, 7803*d*.
system: Mg–, 4594*h*.
systems: Si–, and Sn–, heats of formation of, 5275*b*.
in Thermit welding, P 3772*g*.
thorium-compd. reduction with, P 7838*e*
in tissues of animals and plants, 7987*f*.
in tobacco leaf, effect of position on plant on, 8196, 1080*f*.
in tomato nutrition, B and, 9313*b*.
toxicity to myxomycetes, 8448*f*.
transference nos. of ions of, moving through collodion membranes, 7290*f*.
in tung-tree nutrition, 1462*g*.
turkey requirements for, 285*f*.
in urine, 5846*f*.
in Besnier-Boeck's disease, 3091*f*.
in cardiac decompensation, 4758*c*.
corticotropin effect on, 7567*g*.
utilization of, 2886, 310*e*.
from bonemeal and bonemeash, 8463*b*.
*utilization of*, effect of butter fat and hydrogenated vegetable fat on, 8476*d*.
from milk (cow and soybean), 8470*b*.
from steamed bone meal, 3893*b*.
utilization of, from milk of buffalo and cow and effect of souring on its availability, 4354*b*.
of volcanic sublimates at Nyamuragira and Tshambene, Belgian Congo, 5348*i*, 8902*f*.
in wheat, fertilizers and, 8084*d*.
x-rays from, 4090*i*.
in yew in relation to its growth, 1836*f*.

**Calcium, analysis.** (See also *Alkaline earth metals, analysis; Lime.*)
detection, 2889*d*, 7369*a*, 7860*e*, 8066*ac*, 8979*h*.
detection and detn., 7858*h*.
detection in blue halite, 6116*i*.
detection in textile auxiliaries, 1585*a*
detn., 57*c*, 3310*h*, 3743*a*, 4972*h*, 5329*h*, 5330*a*, 6106*f*, 6940*hi*, 7861*k*, 7862*g*, 8302*h*, 8950*a*.
detn., a.-c. discharge through $C_2H_2$–air flame in, 4595*i*.
electrodialysis in, 8425*a*
standard soap soln. for, 2541*f*
thermobalance in, 7367*f*.
detn. in Al, Al alloys and other alloys, 8949*h*.
in barite, 8970*h*.
in Be and Be compds., 8949*f*
in biol. fluids, 7070*d*.
in biol. materials and paper, 6104*h*.
in blood, 5439*i*.
in blood and urine, 3484*h*
in blood plasma and urine, 7071*i*.
in boiler scales and deposits contg phosphates, 7866*f*
in brass, 2117*e*.
in cheese, 9283*h*.
in clays, 8628*e*.
in cokes and quartz sand, 4971*i*
in cracking catalysts, 8655*a*
in feeding stuffs, 9291*b*
in glass, 5558*b*, 8111*d*.
in Au mill thickened feed pulp, 3311*a*
in Fe alloys, 2541*d*.
in Fe ore, 4176*e*.
in leaves, 9172*i*.
in lubricating oils, 4840*g*.
in MgO, 1287*c*.
in martensitic slags, 2120*i*.
in pigments, 8697*b*.
in plants, 2677*h*, 3314*c*.
in presence of Ba and Sr, 7860*d*
in presence of Mg, 6938*d*.
in rubber latex, 5619*e*.
in silicates, 6111*h*.
in $SiO_2$ refractories, 7656*c*.
in sinter cake, 6106*g*.
in soils, 1130*h*, 9318*e*.
in sugar beets, 4500*i*.
in urine, 5815*f*, 6683*f*
in vitamin prepns., 9368*b*.
in water, 1679*g*, 3951*d*, P 4800*c*.
detn. of $CaCO_3$ in soils, calcimeter for, 5235*a*.
of $Ca^{45}$ in tissue by autoradiography, 4952*c*.
of exchangeable Ca in soils, 3127*i*, 7020*i*.
of soil requirement for Ca, 3956*i*, 7171*f*.
sepn. from Ba and Sr, detection and detn., 2888*f*.
sepn. from Ba, Pb and Sr, and detn., 2115*h*, 2116*a*.
sepn. from Pb, 7370*e*.
sepn. from Mg, 7371*a*.
sepn. from Mg and detn., 5329*f*.

**Calcium acetate**, in acetic anhydride, behavior of, 2110*f*.
acetone formation from, 6015*b*.
colloidal, 5654*d*.
as fiber or crystal structure builder in Ca soap greases, 4455*f*.
pyrolysis of, 1318*a*.
quaternary ammonium bactericides contg., P 9390*a*.

**Calcium alloys.** (See also "system under *Calcium*.")
lead-, as storage-battery anodes, 7836*g*.
lead-Sn-, for storage battery electrodes, P 1665*b*.
magnesium-Zr-, 4619*e*.

**Calcium aluminate ferrate(III).** (See also *Brownmillerite.*)
$4CaO.Al_2O_3.Fe_2O_3$, formation in portland cement, temp. of, 3587*g*.

**Calcium aluminates.** (See also *Alkaline earth aluminates.*)
in alumina system with CaO, 1923*e*, 4594*f*.
decompn. by heat, 1277*e*, 1278*b*.
formation of, kinetics of, 8826*d*.
of high Al content, and existence of $CaO.2Al_2O_3$, 1278*e*.
manuf. from bauxite and gypsum, P 1159*h*.
soln. of, P 1537*b*.
in system $Al_2O_3$–CaO–$SiO_2$, 6499*b*, 8937*b*.
in system $Al_2O_3$–CaO–$SiO_2$, and extn. of $Al_2O_3$ from, 1924*hi*, 1925*a*.

**$Ca(AlO_2)_2$**, and cathodoluminescence thereof, 3723*a*.

**$Ca_3Al_2O_{14}$**, in alumina manuf., 1923*g*, 1924*b*.

**$Ca_{12}Al_{14}O_{33}$**, in alumina manuf., 1924*b*.

**Calcium aluminosilicates.** (See also *Grossularite.*)
formation of, in system $Al_2O_3$–CaO–$SiO_2$–, 1924*h*.
in system $Al_2O_3$–CaO–$SiO_2$, 6499*b*.

**Calcium aluminum silicates.** See *Calcium aluminosilicates.*

**Calcium ammonium nitrates**, 1637*i*.

**Calcium antimonate**, $CaO.Sb_2O_5$, as opacifier for enamels, 2392*g*.

**Calcium arsenates.** (See also *Alkaline earth arsenates; Insecticides; Sprays.*)
in cabbage-caterpillar control, 3137*a*.
in caterpillar control on tomatoes, 3556*g*.
in Colorado-potato-beetle control, 5897*e*.
in control of boll weevil and cotton aphid, 2720*i*.
in control of boll weevil and sweet potato weevil, 6775*b*.
in cotton-insect control, 1142*h*, 1143*ac*
in grape-berry-moth control, 9340*d*.
as insecticide, 3966*b*.
manuf. of, P 4821*b*
plant injury by, prevention of, P 5151*d*.
in plum-curculio control, 6777*c*.
properties of, 5324*a*.
in sweet-clover-weevil control, 8599*c*.
in sweet-potato-weevil control, 1142*d*.
toxicity to bees, 344*a*.
toxicity to larvae of Colorado potato beetle, 9340*b*.
in white-fringed-beetle control, 9347*c*.

**$Ca_3(AsO_4)_2$**, in hazel-nut-weevil control, 6777*d*.

**Calcium arsenites**, in breech-strike control, 7184*h*.

**$CaHAsO_3$**, in *Sclerotinia laxa* control on apricots, 7179*h*.

**Calcium aspirin.** See *Acetylsalicylic acid.*

**Calcium benzoate**, pyrolysis of, 1318*a*.

**Calcium borates**, and cathodoluminescence thereof, 3723*a*.

**Calcium borogluconate***, for injection, 1907*c*.

**Calcium borophosphate**, and cathodoluminescence thereof, 3723*a*.

**Calcium bromide.** (See also *Alkaline earth halides.*)
activity and osmotic coeffs. of, 22*c*.
decompn. potential in fused KBr and NaBr, 6089*f*.
effect on cement setting, 8635*a*.
folic acid prepn. contg., 355*i*.

**Calcium cadmium silicate**, phosphor, P 6089*a*.

**Calcium carbide.** (See also *Alkaline earth carbides.*)
acetylene generation from—see *Acetylene; Acetylene generators.*
in alc. dehydration, P 5032*h*.
alc. (higher) manuf. from low-mol. wt. alcs. and, P 3835*d*.
alloy-addn. briquets from, P 6145*e*.
as chem.-industry raw material, 2871*c*.
compn. and properties of, velocity of $C_2H_2$ formation and, 2082*a*.
as drying agent for citrus products, P 9295*b*.
heat of formation of, 2081*f*.
heat of reaction with $H_2O$, 4940*a*.
magnesia reduction with, 5685*hi*.
in magnesium manuf., P 5728*i*.
manuf. of, 2517*g*, P 7838*a*.
elec. furnace for, P 3299*e*.
electrodes for, 8899*f*.
furnace for, 8898*i*.
from waste CaO from $C_2H_2$ generators, 2081*i*.
melting point of, and system with CaO, 2081*f*, 2082*b*.
reaction with aldehydes and ketones in presence of alkalies, P 2219*b*.
reaction with MgO, 1925*cef*.
in sugar-beet-nematode control, 3134*s*.
sulfur removal from ferrous metal with, P 6143*c*, P 7404*b*.

**Calcium carbonate.** (See also *Alkaline earth carbonates; Aragonite; Calcite;*

*Chalk; Dolomites; Limestone; Multsfex; Whiting.)*
activity coeffs. in alkali carbonate melts, dissocn. and heat of fusion of, 6053*c*.
adsorption of color of molasses and Ponceau 4 R by, 8791*h*.
aluminous-shale calcination with $Na_2CO_3$ and, 1924*b*.
anion deformation in, 2513*f*.
as catalyst in decarboxylation, 7801*c*.
as catalyst in ketone manuf. from fatty acids, P 7037*f*.
catalyst of Pd and, in reduction of bromobenzene and 4-bromobiphenyl, 4242*f*.
colored paste of, for water detection, P 3748*f*.
corrosion by $Ca(HCO_3)_2$, 6962*f*.
crystd. from $H_2O$, ratio of $O^{18}$ to $O^{16}$ in, 2507*a*.
in DDT stabilization, P 7634*a*.
decompn. by heat, app. for, 9409*e*.
in petrogenesis, 2552*a*.
rate of, 7306*i*, 7307*f*.
rate of, and effect of foreign gases thereon, 2078*c*.
density (apparent) of powd., 3265*a*.
deposition of $CaCO_3$ on steel in $Ca(HCO_3)_2$ solns., 7889*e*.
deposition on rocks, microbiol. factors in, 7549*b*.
detn. in soils, calcimeter for, 5235*a*.
effect of $Ca(HCO_3)_2$ on phosphate fixation in sugar-cane soils, 8591*i*.
effect on flour, wheat germ and sugar mixt., 777*g*.
on phosphorus mineralization in soil, 1510*d*.
on soils, 2722*d*.
fire-fighting value of, 1570*a*.
formation from $CaSO_4$ and $Na_2CO_3$ in aq. soln., kinetics and catalysis of, 7311*f*
in gypsum solonchak in Georgian S.S.S.R., 7386*g*.
hydrogen-ion concn. of solns. of $Ca(HCO_3)_2$, of various concns. free from $CO_2$, 9306*f*.
hydroquinone crystn. on, 1237*c*.
in liver glycogen, blood glucose and lactate formation, 7995*g*.
manuf. from $Ca(OH)_2$, absorption app. for, 1616*a*.
mixt. with liquid O, electrolysis to give Ca saccharate, P 7840*h*.
mixt. with $MgCO_3$, Mg detn. in, 5329*g*.
neutron cross section of, 4558*h*.
as paper filler, 401*a*.
phosphate fixation on, 8592*b*.
pigments, effects of particle size of, on phys. properties of paints, 6836*b*.
percussion treatment of, P 422*g*.
reducing adhesive requirement and oil absorption of, P 1994*c*.
polythene compns. contg., P 4897*g*.
precipitation in sucrose solns., 3221*e*.
reaction of $Ca(HCO_3)_2$, with $Ca(OH)_2$, catalysis and kinetics of, 4086*i*.
reaction with $Al_2O_3$, kinetics of, 8826*e*.
with chlorinated fatty acids, 2164*f*.
with $CuSO_4$, 1138*gh*.
with $MgCl_2$ soln., 6060*g*.
as rubber-filler, 1209*b*, 1593*d*, 3226*d*, 7251*c*, 8187*i*.
for rubber filling, activation with 1-dodecylpyridinium bromide, 1599*d*.
in sediments of Black Sea, 5709*i*.
sepn. from EtOH, by heating liquid-vapor interface, 7298*a*.
sepn. from $MgCO_3$, P 3984*g*.
soil treatment with—see *Lime*.
solid soln. with $SrCO_3$, study by "emanation" method, 8271*f*.
system: liparite–, 1920*i*.
systems: $CdCO_3$–, and $MnCO_3$–, 4073*h*.
in tuffs of Casale, 2552*f*.
water (soft) requirements of, for coating formation on pipes, 6765*i*.

**Calcium caseinate.** See *Casein*.

**Calcium chlorates.**
**$Ca(ClO_3)_2$,** manuf. of, low in $CaCl_2$, P 3984*c*.
**$Ca(ClO_3)_2$, $Ca(OH)_2$,** manuf. of, P 5555*g*.

**Calcium chloride.** (See also *Alkaline earth chlorides; Alkaline earth halides.*)
activity and osmotic coeffs. of, 22*c*.
activity coeffs. of, hydration and, 7301*i*.
adhesive from HCHO-adhesive mixt. and, P 2471*i*.
in agar-agar gels during syneresis, 8793*f*.
ammino complex, reaction with 2-hydroxy-1-acetonaphthone, 6607*c*.
basic, manuf. of $CaCl_2.Ca(OH)_2$, P
brines in Carboniferous and Devonian sediments of Saratov, U.S.S.R., 4192*cd*.
brines, salt sepn. from, 2743*d*.
cement from ash, CaO and $MgSO_4$, P 6804*k*.
cement setting and, 8635*a*.
charcoal predigestion with, 6396*d*.
in coagulation of oxalated blood plasma, 3054*a*.
coating soap-powder particles with, to inhibit dust formation, P 6438*a*.
cornea tolerance to, 3111*a*.
corrosion by, 5721*b*, 6962*e*.
of aluminum, 4996*b*.
in petroleum-treating app., prevention of, P 9431*a*.
as decarboxylation catalyst, 7801*c*.
dehydration of hexahydrate of, 1278*g*.
detergent films on solns. of, 7777*a*.
diffusion in aq. solns., 8806*b*.
diffusion in polyvinylbutyral resin contg. $SiO_2$, 6490*a*.
drying agent (liquid) from, P 1126*d*.
drying of gas by solns. of, 2841*d*.
effect on absorption of sugar from intestines, 5466*i*.
on actin, 704*e*.
on adhesion of epithelium to stroma in cornea, 769*a*.
on Ca-alginate fibers, 8237*i*.
on Ca in blood and cerebrospinal fluid in sound and meningitic children, 3937*b*.
on cholesterol soln. in bile and blood serum, 9210*d*
on concrete, 3589*e*.
on eggs of *Limnaea stagnalis*, 5508*a*.
on elastic properties of rennet curd, 4394*b*.
on electrokinetic potential of gypsum, 4924*e*.
on erythrocytes of turtle, 3939*b*.
on formation of $H_2S.6H_2O$, 1672*g*.
on H overvoltage on Hg, 6494*b*.
on kola prepns., 5903*e*.
on Hg catalysts in sulfonation of an thraquinone, 617*h*.
on renal excretion, 8557*e*.
on staphylococcus antitoxin inactivation in urea solns., 2304*i*.
on supercooling of water, 1620*h*.
on swelling of collagen in liming of hides, 6449*b*.
on unimol. films of lecithin, 7526*e*
on vitamin $B_1$ action on intestine, 9186*b*.
on $H_2O$ action on frog taste fibers, 9274*a*.
evapn. of solns of, P 3158*f*
as firming agent for frozen strawberries, 3535*d*.
firmness retention in canned and frozen apples in relation to, 782*h*.
folic acid prepn. contg., 355*i*.
freezing-point depressions by, 5903*c*.
humidity-control standards from, 8812*i*
hydrolysis by steam, Berthelot-Thomsen principle of max work and, 2847*c*.
in lake waters of Central Kazakhstan, 7164*i*.
methane effect on, 5734*f*.
microwave absorption by solns. of, 2480*b*
mixt. with $NaClO_3$, tree treatment with, in tree debarking, 2767*e*.
muscle contraction by, 3861*c*.
muscle (heart) contraction by, and its mixt. with KCl, 5867*i*.
paste from bentonite and, P 6868*f*.
in peach-X-disease control, 9347*h*.
as polarographic auxiliary electrolyte, 5327*a*.
polarographic detn. of Cu and Fe subgroup cations in relation to, 7376*h*.
quaternary ammonium bactericides contg., P 9390*a*.
reaction with mica, 7200*d*.
removal from KCl and NaCl, 7860*g*.
solubilities of, 8805*e*.
solubilities of KCl and NaCl in solns. of, 2844*i*, 6889*d*.
in sugar-beet-juice treatment, 6443*h*.
in sulfur removal from coal during coking, 2754*i*.
system: Ca–, 7803*d*.
system: $Fe_2O_3$–NaCl–$H_2O$–, 7316*b*.
system: $MgCl_2$–KCl–$H_2O$–, 2854*d*.
systems: $MgCl_2$–KCl–$H_2O$–, and $MgCl_2$–KCl–NaCl–$H_2O$–, 6067*e*.
thermal cond. of aq., 5655*i*.
voltaic cells contg., 7351*e*.

**Calcium chromate,** dissocn. of, 9405*b*.
system: $Na_2CrO_4$–, 6898*f*.

**Calcium chromite,** $CaCr_2O_4$, 9405*b*.

**Calcium citrate,** calcium liberation from, in blood plasma by gram-negative bacteria, 1830*i*.
effect on firmness retention in canned and frozen apples, 782*h*.
ionization of, 7790*g*.

**Calcium compounds.** (See also *Alkaline earth compounds;* and such headings as *Alkaline earth sulfates.*)
in bread making, 1873*a*.
with ethyl 1,3-dioxo-2-indancarboxylate, 3308*a*.
with (ethylenedinitrilo)tetraacetic acid, 2113*c*.
in gas-turbine deposits, 5172*e*.
hexammine, 7851*f*.
intermetallic, 7771*d*.
lattice energies of, 8230*g*.
with lecithin and phytic acid, P 5156*d*.
with magnesium, $Mg_2Ca$, 4594*h*.
medicinal prepn. contg., P 8019*e*.
with 2-mercapto-5,5-dimethyl-4(5*H*)-imidazolethione, 6171*e*.
with phenol sulfides, disulfides and their polymers, P 4400*c*.
with phenyliminodiacetic acid and *N,N*-bis(carboxymethyl)anthranilic acid, spectra of, 7341*a*.
with phthalocyanine sulfonamides for lakes, P 8692*i*.
removal from fermentable materials, P 3972*a*.
with salipyrine, 5540*i*.
with tin, heats of formation of $Ca_2Sn$ and $CaSn_3$, 5275*c*.

**Calcium cyanamide.** (*For indexing purposes the name "calcium cyanamide" is used not only for the compound $CaCN_2$ but also for the various commercial products, as "Cyanamid," "Lime-nitrogen" and "Nitrolim," the chief constituent of which is $CaCN_2$.*)
in control of root-knot and weeds, 5145*a*.
crystals of, P 4821*e*.
derivs. of, 1278*h*
detn. of, and $Ca_3N_2$ detn. in $CaCN_2$, 1287*b*.
effect on germination of wheat and on *Tilletia tritici*, 1137*gi*.
equil. with $Ca(CN)_2$, 8930*d*
in *Hoplocampa brevis* control, 6355*d*
in leaf removal from shrubs and tree before storage, 1893*a*.
reaction with $NH_4$ salts in presence of urea, P 5706*d*.
in soil, transformations of, 797*b*
in sugar-beet-nematode control, 3134*e*
toxicity to bees, 344*h*.
in weed control, 9337*h*.
in gladiolus, 5145*f*.
in lawns, 2727*h*
in vegetables, 3134*g*.
in wireworm control in soils, 348*b*

**Calcium cyanide,** equil. with CaNCN, 8930*d*.
in fire-ant control, 1897*f*.
in grain-pest control, 9336*a*.
in sugar-beet-nematode control, 3134*e*

**Calcium dithionate,** $CaS_2O_6$, crystal structure of, 2483*i*.

**Calcium ethyl sulfate,** pharmacology of 4426*g*.

**Calcium ferrate(III),** $CaFe_2O_4$, formation in $Al_2O_3$ manuf., 1924*abc*.

**Calcium fluophosphate,** phosphor, P 7831*h*.

**Calcium fluoride.** (See also *Alkaline earth fluorides; Alkaline earth halides; Fluorite.*)
as catalyst in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
in esterification of fatty acids with glycerol, 4031*a*.
in pyrolysis of 1,1-difluoroethane, 6645*a*.
in reduction of MgO by ferrosilicon 4932*f*.
chlorine-resistant app. from, P 6387*b*.
effect on $Al_2O_3$ reaction with $BaSO_4$ 6894*i*.
on $Al_2O_3$ reaction with $CaCO_3$, 8826*e*
on caries, 6299*g*.
on migration of P and other elements in soils, 7624*a*.
films of, dielec. strength of, 3731*d*.
films on glass, crystal structure of, 4071*b*
in fluorination of $\alpha,\alpha,\alpha$-trichlorotoluene 8364*h*.
fluorine detn. in fresh and calcined 8960*c*.
in fluorite-contg. Pb-Zn deposits of Sa Antonio Canyon, Tex., 6950*i*.
glasses of, electron microscopy of, 4436*g*
interaction of nuclear spins in, 8273*d*.

photoelastic properties of, 5251*i*.
Raman spectrum of, 3294*d*.
refractive index of, 3259*h*.
scintillation decay in, 5292*e*.
soly. in $Be(NO_3)_2$, 6049*i*.
system: FeO–CaO–MgO–, 8630*a*.
uranium incorporation in fluorescent, 2869*f*.

**alcium gluconate**, as calcium supplement in Ca-low diets, 5835*b*.
carboxyl group in, 4641*g*.
cationic impurities in pharmaceutical, 8614*g*.
detn. of, 5339*i*, 5703*c*, 6541*e*.
detn. of, in AcOH in presence of $(NH_4)_2MnO_4$, 3317*b*.
effect on growth of plant tissue, 4349*c*.
effect on renal excretion, 8557*f*.
manuf. by electrolysis, 8904*e*.
metabolism of, 310*f*.
oxidation by *Acetobacter suboxydans*, 1828*e*.
prepn. of, 3147*f*.
sterilization of solns. of, 2367*b*.

**Calcium glycerophosphate**, dentifrice contg., P 7650*a*.
detn of, 5703*c*.

**Calcium halophosphates**, phosphors of, 4577*d*, 8280*b*.

**Calcium hydrides**. (See also *Alkaline earth hydrides*.)

**CaH**, in stars of late type, 6916*c*.

**$CaH_2$**, calcium for manuf. of, P 2380*h*.
manuf. of, 2342*f*.
voltaic cells contg., 7351*e*.

**Calcium hydroxide** (See also *Alkaline earth hydroxides*; and "hydrated" and "hydration of" under *Lime*.)
aluminum soln. in, rate of, 7305*e*.
calcination in indirectly-fired rotary kilns, 8217*g*.
carbonation of, acceleration with soda, P 1821*g*.
as catalyst in condensation of 2-furaldehyde with phenol, 5524*i*.
in decarboxylation, 7801*c*.
in dehydration of hydracrylonitrile, P 3837*a*
condensation of aldehydes with HCHO in the presence of, P 7505*a*.
cornea tolerance to, 3111*a*
as corrosion inhibitor for petroleum-refining app., 96*i*.
diacetone alc. decompn. in solns. of, and dissocn. of $Ca(OH)^+$, 6055*a*
drug contg., detn. of concn of, 7639*b*.
fire retardant coatings for wood from, 4493*a*
in formaldehyde condensation to sugars, 149*a*.
gel-type, P 6375*f*.
mixt. with Celite for chromatography, 2068*a*.
mixt. with liquid O, electrolysis to give Ca saccharate, P 7840*h*.
reaction of amino acids with $CO_2$ in presence of, P 5415*d*.
reaction of, and $Na_2CO_3$ with vegetable materials, P 669*a*.
reaction of, and NaOH with vegetable materials, P 608*h*.
reaction with $Ca(HCO_3)_2$, catalysis and kinetics of, 4086*i*.
reaction with soils, 3128*i*.
sedimentation vol. of quartz, sand, and $SiO_2$ gel in, 7777*f*.
in slag hardening, 8635*h*.
solid soln. with $3CaO.As_2O_5$, 5324*c*.
in waste-acid treatment, 6337*e*.

**Calcium hypochlorite**. (See also *Bleaching powder*.)
in bleaching cork, 5585*i*
effect on respiration of germinating seeds, 802*f*
in ketone oxidation to acids, 5015*i*.
manuf. of, P 1927*a*, P 5555*h*, 9394*a*.
mixt. with Na chlorite in bleaching of cotton, 8687*g*.
penetrating power and stability of solns. of, effect of surface-active agents on, 7233*i*.
in slime control in papermaking, 4012*h*.
stable prepns. of, P 1158*a*.

**Calcium hypophosphite**, as calcium supplement in Ca-low diets, 5835*b*.
detn. of, 9368*g*.

**Calcium hyposulfite**. See *Calcium thiosulfate*.

**Calcium iodide**. (See also *Alkaline earth halides*.)
activity and osmotic coeffs. of, 22*c*.
effect on cement setting, 8635*a*.
effect on supercooling of water, 1630*h*.

**Calcium ipral**. See *Ipral calcium*.

**Calcium lactate**, in cellulose-deriv. stabilization, P 849*f*.
detn. of, 5703*c*.
effect on firmness retention in canned and frozen apples, 782*h*.
manuf. from molasses, 2366*d*, 6445*f*.

**Calcium lithium silicate**, $Li_2CaSiO_4$, and cathodoluminescence thereof, 3723*a*.

**Calcium magnesium carbonate**, manuf. of, P 2745*c*.

**Calcium magnesium chloride**, crystn. from $CaCl_2$ brines, 2743*e*.

**Calcium magnesium phosphate**, manuf. in elec. furnace, 45*d*.

**Calcium magnesium silicate**. (See also *Diopside*.)
and cathodoluminescence thereof, 3723*a*.

**Calcium metaphosphates**, 6534*e*.
in feeds or fertilizers, 797*h*.
trimetaphosphate, as fertilizer, 7624*d*.

**Calcium molybdates**, manuf. of, P 5160*b*.

**$CaMoO_4$**, luminescence of, and of its mixt. with $CaWO_4$, 3722*f*

**Calcium nickel phosphates**, catalysts from, P 2382*e*i.

**Calcium nitrate**. (See also *Alkaline earth nitrates*.)
absorption by barley seedlings, 7555*a*.
activity and osmotic coeffs. of, 22*d*.
as catalyst for condensation of 2-furaldehyde with phenol, 5226*b*.
as catalyst in nitric acid oxidation of cellulose, 1978*i*.
concd. solns. of, P 5556*a*.
crystn. from phosphate soln., P 8759*f*.
effect on onions and onion roots, 9171*e*.
manuf. of, P 4821*f*.
from Ca phosphate and $HNO_3$, P 5161*b*, P 8623*i*.
from dolomite, etc., P 4436*c*.
in Poland, 9325*d*.
Raman spectrum of, 8887*g*.
system: $NH_4NO_3$–$H_2O$–, 1637*h*.
system: $Ca_3(PO_4)_2$–$HNO_3$–$H_3PO_4$–$H_2O$, 4553*a*.

**Calcium nitride** ($Ca_3N_2$), detn. in presence of $CaCN_2$, 1287*c*.
reaction with C, 8930*d*.

**Calcium oxalate**, in bryophyte cells, 280*f*.
formation in leather preservation, P 6452*i*.
heat action on dihydrate of, on thermobalance, 7367*f*.
prepn. of, 4972*h*
reduction (electrolytic) of, 2874*h*.
soly. and vapor pressure of hydrate and soln. of, 5267*b*.
turbidity of ppts. of, formed in gummy solns., 3873*i*.
in vegetables, phys. study of, 8414*d*.

**Calcium oxide**. See *Alkaline earths; Lime*.

**Calcium perchlorate**. (See also *Alkaline earth perchlorates*.)
magnetic susceptibility of, 5689*b*.

**Calcium periodate**, $Ca_5(IO_6)_2$, formation and behavior on thermobalance, 7367*f*

**Calcium phosphates**. (See also *Alkaline earth phosphates; Calcium metaphosphates; Calcium pyrophosphates; Fertilizers; Phosphates*.)
acid, manuf. from phosphates and $HNO_3$, P 8623*i*
in bread making, 1873*a*.
as catalysts in polymerization of $C_2H_4$ with monohaloalkanes, P 5640*f*.
effect on firmness retention in canned and frozen apples, 782*h*.
in feeds and fertilizers, 797*h*.
influenza-virus adsorption by, 3925*d*
periodic ppts in agar gels, effect of electrolyte mixts on, 7788*h*.
phosphors, phosphorescence of, 6085*b*.
polyphosphates in feeds or fertilizers, 797*h*.
superphosphate analysis for free acid and sol. phosphate, 7867*b*.
system: $Ca(NO_3)_2$–$HNO_3$–$H_3PO_4$–$H_2O$–$Ca_3(PO_4)_2$, and manuf. of $Ca(H_2PO_4)_2$ and $CaHPO_4$, 4553*a*.

**$Ca(H_2PO_4)_2$**, manuf. of anhyd., P 3984*f*.
manuf. of, in Poland, 9325*d*.
and reaction with glycerol, 7902*e*.
in reduction of discoloration of potatoes on cooking, 7603*i*.

**$CaHPO_4$**, as calcium supplement in Ca-low diet, 5835*b*.
as fertilizer, 798*e*.
mobility in soils, 5141*h*.
molding powder from alum, sawdust or wood flour and, P 6466*b*.

**$Ca_3(PO_4)_2$**, in bones and their formation, 6716*e*.
as catalyst in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
and cathodoluminescence thereof, 3723*a*.
existence of $\alpha$-, 9201*f*.
manuf. from phosphate rock, P 7652*i*.
phosphors contg., P 1662*a*.
energy transfer in, 3721*g*.
response to far-ultraviolet light, 3717*b*.
sensitive to both corpuscular and undulatory energy, P 7831*d*.
solubilization in soils by microorganisms, 5521*i*.
structure of, 4073*g*.
turbidity of ppts. of, formed in gummy solns., 3873*i*.

**Calcium phosphomolybdate**, $Ca_3(PO_4.12MoO_3)_2$, 2537*f*.

**Calcium phosphotungstate**, $Ca_3(PO_4.12WO_3)_2$, 2537*g*.

**Calcium plumbates**, white, P 1994*c*.

**Calcium preparations**, cell-protecting action of, 5493*a*.

**Calcium pyrophosphate**, in bones, 6716*f*.
and cathodoluminescence thereof, 3723*a*.
in fertilizers or feeds, 797*h*.
fluorescence of, activated by Bi, 8894*b*.
luminescent materials contg., decay after cathode-ray excitation, 5670*c*.

**Calcium salts**. (See also *Alkaline earth salts; Calcium*.)
absorption by normal and tubercular subjects, and effect of Mg phosphate thereon, 3512*c*.
adsorption by bone char, 6445*g*.
antagonism to bacteriostatic action of NaF on hides, 7731*e*.
catalysts of Mn salts and, in oxidation of petroleum products, P 3186*i*.
detn. in bone tissue, 8418*i*.
effect on Ca and Mg in blood after rectal administration, 6733*a*.
on cream vol., 326*e*.
on renal excretion, 8557*e*.
formation in antifouling varnish surface in the sea (*C. A.* has Cu by mistake), 3631*i*.
of fruit acids, P 1880*h*.
in giant cells in cicatrizing enteritis, 300*d*.
heart-muscle contracture from, 5867*h*.
pharmacology of, 4426*g*.
in pharmacy, 8099*a*.
pyrolysis of, of carboxylic acids, 1317*i*, 1318*a*.
removal from bituminous sandstones, 381*f*.
in soils of India, 9311*d*.
in sugar-beet juices, 6443*i*.

**Calcium selenates**, in greenhouse-pest control, 1141*d*.
as insecticides, 2357*f*.

**Calcium selenide**, phosphors contg., temp.-stability of luminescence of, 3724*b*.

**Calcium silicates**. (See also *Alite; Alkaline earth silicates; Wollastonite*.)
adsorbent, regeneration by oxidation, P 2422*g*.
and cathodoluminescence thereof, 3723*a*.
effects on GR-S rubber, 8189*a*.
in lime system with $SiO_2$, 1923*f*.
phosphors, P 6517*h*.
optical properties of, 8278*c*.
phosphorescence decay of, 8280*b*.
pigment for rubbers, P 5991*a*.
rubber pigmentation and reinforcement by, 1593*d*.
sulfides in slags of, agricultural value and, 6773*h*.

**$Ca_2SiO_4$**, crystal structure of $\beta$-, 5253*a*.
phosphor, activated with Pb, P 7352*b*.
phosphors contg., energy transfer in, 3721*g*.
as rubber-reinforcing agent, 1209*b*.

**$Ca_3SiO_5$**, $\alpha'$-, in spiegeleisen slags, 5705*h*.
in alumina manuf., 1923*h*, 1924*b*.
in ceramics, 2388*c*.
compn. with NaF, 1535*f*.
polymorphic inversions of, 7314*b*.
prepn. and structure of, 4073*f*.
solid solns. with merwinite and system with akermanite and monticellite in slag from ferrovanadium manuf., 1691*e*.
in system $Al_2O_3$–CaO–$SiO_2$, 6499*b*.
system: $Al_2O_3$–MgO–, 6798*f*.

**$Ca_3Si_2O_7$**, in alumina manuf., 1924*c*.

**Calcium silicide**, heats of formation of Ca-Si, CaSi and $CaSi_2$, 5275*c*.

**Calcium sodium silicates**.

**$Na_2CaSiO_4$**, thermal properties of, 9404*i*.

**$Na_2Ca_2Si_3O_9$**, and cathodoluminescence thereof, 3723*a*.

**Calcium sodium thiophosphate**, $NaCaPO_3S$, 4170*e*.
**Calcium stannates**, and cathodoluminescence thereof, 3723*a*.
**$CaSnO_3$**, mixt. with $BaTiO_3$, elec. properties of, 5245*a*.
**Calcium strontium chloride**, $CaCl_2.2SrCl_2$, crystn. from $CaCl_2$ brines, 2743*d*.
**Calcium sucrates**. See "calcium deriv." under *Sucrose*.
**Calcium sulfate**. (See also *Alkaline earth sulfates; Anhydrite; Gypsum; Plaster of Paris*.)
anion deformation in, Raman effect in study of, 2513*f*.
binding properties of, effect of TETs cement on, 9409*c*.
calcination with phosphate rock, 823*i*.
catalyst of, and C in addn. of HBr to fluoro olefins, 7407*b*.
cement resistance to, improvement of, 7657*i*.
concrete resistance to, effect of Vinsol on, 1546*a*.
corrosion by, 6962*e*.
as desiccant in hydrogenation of CO, P 1171*d*.
dissocn. of, 2493*i*, 6895*g*
effect on cement setting, 8635*a*.
effect on soly. of CaO in eutectic of $K_2SO_4$ and $Na_2SO_4$, 5323*e*.
evapn. of solns. of, scale formation in, 4521*d*.
formation from $CaSO_3$, 7307*f*.
hemihydrate, in deserts of Middle Asia, 2897*i*.
Liesegang rings in presence of, 1628*h*.
magnetic susceptibilities of hydrates of, 4528*f*.
mixt. with clay and $H_2SO_4$ as electrolyte for Pb battery, P 4590*e*.
mixt. with Fe, x-ray spectrum of, 8326*c*.
as paper filler, 400*i*.
peroxide (org.) desensitization with, P 1807*b*.
reaction with $Na_2CO_3$ in soln., 6060*g*, 7311*f*.
in sodium chloride brine, prevention of, 3982*i*.
soly. in aq. systems, 8805*b*.
in salt solns., 6889*e*.
in Na xylenesulfonate solns., 1242*e*.
**Calcium sulfides**. (See also *Alkaline earth sulfides*.)
adhesive from soybean protein contg. CaS and $Ca(SH)_2$, 1604*f*.
phosphor of Pb and, effect of infrared rays on luminescence of, 4576*g*.
**$Ca(HS)_2$**, depilating value and properties of, 6449*f*.
**CaS**, formation from $CaSO_3$, 7307*f*.
phosphors contg., P 7832*c*.
manuf. of, 1195*h*.
stimulating action of exciting light in, 5668*e*.
temp.-stability of luminescence of, 3723*e*.
phosphors of SrS and, improvement with Pb, P 2517*f*.
phosphors of SrS and, luminescence of, 4142*c*.
phosphor with Bi, decay of luminescence of, 5667*f*.
phosphor with Pb, infrared extinction in, 5669*d*.
sulfur manuf. from, P 4822*g*.
use of phosphorescent, by bacchantes, 2477*e*.
**Calcium sulfites**. (See also *Alkaline earth sulfites; Sulfite liquor*.)
soly. in aq. systems, 8805*b*.
**$CaSO_3$**, for coating paper, P 1568*b*.
decompn. to CaS and $CaSO_4$, 7307*f*.
hydrates of, 3302*h*.
**Calcium tartrate**, gels of, effect of salts on setting time of, 6889*a*.
in processed cheese, 3534*c*, 3944*c*.
**Calcium thiocyanatopalladate(II)**, $CaPd(CNS)_4$, in photographic-fog inhibition, P 6100*a*.
**Calcium thiophosphate**, $Ca_3(PO_3S)_2$, 4170*f*.
**Calcium thiosulfate**, pharmacol. action of, 3934*c*.
**Calcium titanates**. (See also *Alkaline earth titanates*.)
as dielectrics, 2388*d*.
**$CaTiO_3$**, dielec. const. of, 3674*d*.
dielec. const. of, at ultra-high frequencies, 2877*h*.
dielec. properties of, 7205*b*.
**Calcium tungstates**, luminescence of **$CaWO_4$** and $Ca_2WO_5$, and of their U-activated states, 3722*f*.
**$CaWO_4$**, crystal structure of, 4074*f*.
luminescent prepns. contg., 7347*e*.
phosphors contg., response to far-ultraviolet light, 3716*i*.
photoconductivity in, 5312*b*.
in scintillation counters, 4112*h*.
**Calcium uranate**, $CaUO_4$, crystal structure of, 3709*i*, 3710*b*.
**Calcium uranium fluoride**, $CaUF_6$, magnetic susceptibility of, 8768*d*.
**Calcium vanadate(III)**, $CaV_2O_4$, 4171*i*.
**Calcium vanadate (V)**, $Ca(VO_3)_2$, prepn. and soly. of, 8247*f*.
**Calcium zirconate**, $CaZrO_3$, and cathodoluminescence thereof, 3723*a*.
**Calcogens**, the term, 8927*e*.
**Calcosol Red BN**. See *Dyes*.
**Calcouranite**. See *Autunite*.
**Calcspar**. See *Calcite*.
**Calculations**. (See also *Integrals; Nomographs; Punched cards; Stoichiometry*.)
in analysis (spectrochem.), 2539*e*.
boards for, 1679*d*.
computing recorder for infrared transmission for, 7857*h*.
book: Graficheskie Raschety v Tekhnologii Soleĭ, 5555*a*.
elec.-analog-computer application to fluid-flow and heat-transfer problems, 8217*i*.
of errors in analysis, 2115*f*.
for grinding efficiency, 4193*b*.
machines for, finishing of, 1578*i*.
**Calculi**. (See also *Bezoars; Concretions*.)
biliary—see also *Cholelithiasis*.
biliary, bilirubin in blood serum in, 8516*d*.
citric acid in, 9270*g*.
scleroderma with calcareous, blood chemistry in, 5485*c*.
urinary, formation in osteoarticular tuberculosis, 2698*a*.
formed in childhood, 6722*e*.
in hyperparathyroidism, 9231*a*
solvents for, 1528*e*.
**Calculus**. See *Mathematics*.
**Caledon Dark Blue G**, photosensitization of oxidation and polymerization by, 4580*c*.
**Caledon Dark Brown 2G**, photosensitization of oxidation and polymerization by, 4580*d*.
**Caledon Golden Yellow GK**, photosensitization of oxidation and polymerization by, 4580*c*.
**Caledon Gold Orange 3G**, photosensitization of oxidation and polymerization by, 4580*d*.
**Caledon Jade Green**, absorption by cotton, 2776*f*.
synthesis of, 210*b*.
**Caledon Jade Green 2G**, photosensitization of oxidation and polymerization by, 4580*c*.
**Caledon Jade Green XN**, photosensitization of oxidation and polymerization by, 4580*c*.
**Caledon Orange 2RT**, photosensitization of oxidation and polymerization by, 4580*c*.
**Caledon Red BN**, absorption by cotton, 2776*f*.
photosensitization of oxidation and polymerization by, 4580*c*.
**Caledon Yellow 5G**, photosensitization of oxidation and polymerization by, 4580*c*.
**Calendering**, app. for, of rubber, 7251*i*.
app. for, of rubber, pencils for temp. measurement and control in, 6853*h*.
**Calglucon**. See *Calcium gluconate*.
**Calgon**. See *Sodium metaphosphates*.
**Calibration**. (See also *Meters; Weights;* etc.)
verifying devices for, standards of A.S.-T.M. for, 4202*g*.
**Caliche** (*calcium carbonate deposits*). (*Entries for Chile caliche or saltpeter are put under* Sodium nitrate.)
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
**California Spray RE338**, as fungicide, 7177*i*.
**Calines**, identity with adenine, 9178*e*.
**Calking compositions**, P 1548*d*, P 4900*a*.
from alkyd resin, etc., P 3242*d*.
rheology of gun, 3166*b*.
from Thiokol latex, PrOH, iso-PrOH, $Bu_2NCSSNH_2Bu_2$ and asbestos, P 4508*i*.
**Calla**, ethiopine from, 1156*g*.
**Calliergin**, effect on carbohydrate metabolism, 310*e*.
**Callitris**, *erythrocephala*, amino acids during metamorphosis, 9270*h*.
*erythrocephala*, control of, P 7188*d*.
DDT effect on larvae of, reversibility of, 4416*c*.
toxicity to, of α-aminonitriles and S compds., 4414*f*, 4415*d*.
tyrosinase and glucose dehydrogenase activity in larva of, Weismann's ring in relation to control of, 6321*f*.
*vomitoria*, effect of piperonyl butoxide, piperonyl cyclonene and pyrethrum applied to selected parts of, 8602*i*.
**Callitris**, *calcarata*, tannins from bark of, 5219*f*.
oil of—see *Oils*.
**Callitroga americana** and(or) **Screw-worm**, control of, phenylsemioxamazide compns. for, P 5530*b*.
**Callosobruchus chinensis**, control of, 1142*e*.
control of, inert materials in, 1139*g*
toxicity to, of *p*-dichlorobenzene and $C_{10}H_8$, 1142*b*.
**Calocasia**. See *Taro*.
**Calogerasite**. See *Simpsonite*.
**Calogreen**. See "HgCl" under *Mercury chlorides*.
**Calombo**. See *Calumba*.
**Calomel**. See *Mercury chlorides*; for the term see 9*d*.
**Calorific value**. (See also *Heat of combustion*.)
calcn. of, of fuel gas from coal properties, 7661*e*.
of coal—see *Coal*.
compn. and, of solid fuels, 2753*h*
control of, of fuel gas, 9414*e*.
detn. of optimum, of fuel gas, 8120*b*
of gas (fuel)—see *Gas, fuel*; *manufactured Gas, natural*.
jet propulsion and, 4828*h*.
measurement of—see also *Calorimeters, Calorimetry*.
measurement of, of coal, 8117*h*
of coal tar fuels, 1551*c*.
of fuel gas, 3171*f*, 3596*g*, 3953*i*, 4445*f*, 6808*a*
of solid fuel, 3989*h*.
standards for, 4786*i*
**Calorimeters**, 5274*g*.
differential recording, 6903*a*.
for energy detn. for accelerated particles, 3706*e*.
gas (continuous), 6391*e*.
for gaseous fuels, 5647*i*.
for halogen-compd. heat of reaction in vapor phase, 6070*i*.
for heat capacity, 4523*g*
for heat of hydration of cements, etc., 2395*g*
for heats of adsorption of gases and liquids, 6871*d*
for hydrogen detn. in solid fuels, 5921*i*
recording, water feed for, 8217*c*
for rubber sp. heats, 3642*f*
semimicro low-temp., 5276*a*.
**Calorimetry**, combustion, mixing in, 2082*i*
gas (continuous), 6394*e*
of imperfect complexes, 7317*de*.
review on, 1038*b*.
transient effects in, circuits for minimizing, 3248*a*.
**Calorization**, of steel pipes, 2916*f*
**Calotermes**. See *Termites*.
**Caltha palustris**, pharmacology of, 9380*d*
**Calumba**, identification of fluidexts. of 3145*h*.
**Calves**. See *Cattle*.
**Calycanthine**, structure of, 7194*d*
**Calycopteretin** (*3,4',5,6,7,8 - hexahydroxyflavone*), anthelmintic action of, 3566*c*.
hexamethyl ether—see *Flavone, 3,4',5,6,7,8-hexamethoxy-*.
synthesis of, 639*f*.
**Calycopterin** (*4',5 - dihydroxy - 3,6,7,8-tetramethoxyflavone*), anthelmintic activity of, 3566*b*.
isolation from *Calycopteris floribunda*, 3565*h*.
**Calycopteris floribunda**, anthelmintics from, 3565*h*, 3566*a*.
**Camasulene**. See *Chamasulene*.
**Camel hair**, review on, 8685*h*.
**Camelina sativa**, seeds and extd. residues of, volative S compds. in, 8814*a*.
**Camelina, seed**, water detn. in, 8708*c*.
**Camelina oil**. See *Oils*.
**Camellia japonica**, active C and charcoal from, 5572*b*.
**Cameras, black finishes for**, 420*g*.
**electron-diffraction**, for low temp.,

for light scattering by solns., 6888*d*.
mirror high-speed, with 2 independent lens assemblies, 3198*i*.
multiple Guinier, 911*i*.
Polaroid Land, use for ultraphotomicrographs, 4904*i*.
x-ray, 4059*d*, 4074*a*, 4566*e*.
for alloys and metals, 7885*a*.
for crystal-structure detn., 5299*i*.
for high temps., 4095*f*, 7333*f*.
low-angle, 7333*g*.

**Cameron, Alexander Thomas**, obituary, 4908*h*.

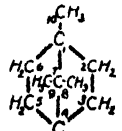
**Camomile**, antiphlogistic action of, 1490*a*.
compn. and therapeutic action of extractum chamomillae fluidum, 1527*f*.

**Camomile oil**. See *Oils*.

**Camoquin**. See *o-Cresol, 4-(7-chloro-4 quinolylamino)-α-diethylamino-*.

**Campanula**, biochem. data on alpine, 8014*g*.

**Camphane** (*1,7,7-trimethylnorcamphane*),



(See also *Norcamphane*.)
, **2,2-diethoxy-**†, 8813*d*.
, **2,3-dioxo-**. See *Camphorquinone*.
, **2-hydroxy-**. See *Borneol; Isoborneol*.
, **2-oxo-**. See *Camphor*.
, **2-propylidene-**, 4-propylisoborneol from, 1748*a*.

**3-Camphanecarboxylic acid, 2-oxo-**. See *Camphocarboxylic acid*.

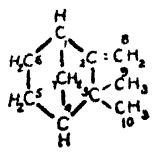
**2,3-Camphanedione**. See *Camphorquinone*.

**Camphanesulfonic acid, 2-oxo-**. See *Camphorsulfonic acid*.

**2-Camphanol**. See *Borneol; Isoborneol*.

**2-Camphanone**. See *Camphor*.

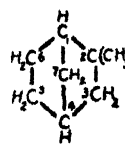
**Camphene** (*3,3-dimethyl-2-methylenenorcamphane*).



0601*a*.
chlorinated—see *Toxaphene*.
in conifer oils, 6367*b*.
formation of, in reaction of *c* pinocampheol *p*-toluenesulfonate with NaOEt, 1896*b*.
isomerization of, 2975*d*.
manuf. from pinene, P 2234†, 6799*a*.
monobromides from reaction with *N*-bromosuccinimide, 5768*a*.
reaction with $CH_2ClOMe$ in presence of AcOH, 5017*h*.
with phenols, 1354*h*.
with $C_2F_4$, 3370*e*.
—, **8-bromo-**, 5768*b*.
—, **dihydro-**. See *Isocamphane*.
—, **1-propyl-**, 4-propylisoborneol from, 1748*a*.

**8-Camphenecarboxylic acid**†, 5768*b*.

**Camphenilane** (*2,2-dimethylnorcamphane*),



—, **5-oxo-**. See *8-Fenchocamphorone*.

**6-Camphenone, α-**, hydrogenation of, 2804*i*.

**Camphocarboxylic acid** (*2-oxo-3-camphanecarboxylic acid*), *d-* and *l-*, rotatory dispersion of, 610*f*.
*dl-*, m.p. curve and dissocn. of, 6055*e*.
esters, 2607*d*.
—, **(2-cyanoethyl)-**, ethyl ester, 1012*i*.

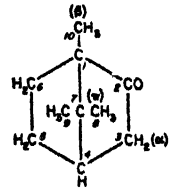
**Camphogen**. See *p-Cymene*.

**Camphol**. See *Borneol*.

**3-Campholenamide** (*2,2,3-trimethyl-3-cyclopentene-1-acetamide*), 3806*h*.

**3-Campholenonitrile**, 3806*g*, 4232*d*.

**Camphor** (*2-camphanone*),



acylhydrazones†, 6972*fi*, 6973*cf*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
chromatography of, and its oxime, 7452*g*.
compd. with stilbestrole, P 6066*d*.
condensation with anisole 2971*a*.
*d-*, from *Acorus calamus*, 3807*i*.
*d-*, oxime, as catalyst in reaction of $C_2H_4$ with carboxylic acids, P 670*g*.
dielec. polarization and elec. moments of enantiomers of, 2054*g*.
effect on aspergilli, 6277*a*.
on nitrocellulose, 6061*b*.
on polarography of metals, 5316*a*.
on tropokinesis in onion meristems, 4346*i*.
eutectic with naphthalene, effect of stearic acid on, 8832*d*.
heat of mixing with citric, oxalic and picric acids in acetone and $H_2O$, 6070*f*.
manuf. from turpentine, 3193*i*.
mitoclasic action of, 6704*b*.
mixt. with Centralite and castor oil, as plasticizer for celluloid, P 6416*d*.
mixt. with *p*-chlorophenol, 4809*f*, 8103*b*.
in *Ocimum canum*, 6290*b*.
in *Ocimum kilimadjarum*, 8017*d*.
from *Ocimum kilimandscharicum*, 3068*b*.
optical activity of, and derivs. in anhyd. and hydrous solvents, 8813*ac*.
optical rotation of, 610*f*.
in *Origanum virens* oil, 9363*e*.
oxime and di-Et acetal, 8813*d*.
oxime, as catalyst in polymerization of olefins, P 4515*b*.
reaction with isothiocyanates, 4232*c*.
and its thionocarbanilate (ester), 3806*g*.
6-oxoincole and, 7926*e*.
pharmacological effects of methylsantenone compared with, 3926*b*.
phenol prepn., P 2375*b*.
shock from, in tuberculosis, effect of ascorbic acid on, 7101*d*.
solns. in $CCl_4$, properties of, 4543*d*.
spirits of, camphor detn. in, 3145*g*, 7639*a*.
systems: AcOH–, $CClH_2CO_2H$–, and $CHCl_2COOH$–, and compd. with $CHCl_2COOH$, 6498*h*.
ultrasonic velocity in solns. in $CCl_4$, 8793*a*.
wetting effectiveness improvement of Na di *tert*-butylnaphthalenesulfonate by, P 3648*h*.

**Camphor, benzylidene-**, crystallography of, 6033*d*.
—, **3-chloro-8-hydroxy-**, P 2640*e*.
—, **[ethylenebis(nitrilomethylidyne)]-di-**, copper deriv., 8222*e*.
—, **3-(2-fluorenylimino)-**, 4812*g*.
—, **formyl-***, copper deriv., 8222*d*.
—, **3-(hydroxymethylene)-**, optical rotation of, 610*h*.
—, **3-isonitroso-**. See "3-oxime" under *Camphorquinone*.
—, **3-(methoxymethylene)-**, 2607*d*.
—, **3-oxo-**. See *Camphorquinone*.
—, **3-*p*-phenetylimino-**, 4812*g*.

**Camphoramic acid**, *N*¹-**[3-(carboxymethylmercaptomercuri) - 2 - methoxypropyl]-**, disodium salt, pharmacology of, 5867*a*.

**α-Camphoramic acid** (*3-carbamyl-1,2,2-trimethylcyclopentanecarboxylic acid*).
—, *N* - **[3 - (carboxymethylmercaptomercuri) - 2 - methoxypropyl]-**, disodium salt, P 9084*c*.
—, *N* - **[3 - (mercaptomercuri) - 2-methoxypropyl]-**, mercury acid sulfate, disodium salt, P 9084*d*.
—, *N*-**[2-methoxy-3-(phenylmercaptomercuri)propyl]-**, sodium salt, P 9084*d*.
—, *N*-**[2-methoxy-3-(1,4,5,6-tetrahydro - 4,6 - dioxo - 2 - pyrimidylmercaptomercuri)propyl]-**, sodium salt, P 9084*d*.

**3-Camphorcarboxylic acid**. See *Camphocarboxylic acid*.

**Camphoric acid** (*1,2,2-trimethyl-1,3-cyclopentanedicarboxylic acid*), *d-*, vaporization of, P 3026*g*.
*p,α*-dimethylbenzyl ester diethanolamine salt—see *Synthobilin*.
esters, P 4295*f*.
esters of *d-* and *dl-*, as fungicides, P 1901*i*.
ethyl ester, Bi salt, 5540*a*.
gallium salt, min. temps. for formation of, 8952*e*.
isomers, and derivs., 5380*g*.
—, **3-bromo-**, 5382*b*.
—, **3-hydroxy-**, isomers, and derivs., 5381*g*.
—, **3-oxo-**, isomers, and derivs., 5381*a*.
—, **3-propyl-**, 1354*g*.

**Camphoric anhydride**, 5382*d*.
—, **3-bromo-**, 5382*b*.
—, **3-hydroxy-**, acetate, isomers, 5381*h*.

**Camphorol**. See *Camphor, hydroxy-*.

**Camphorquinone** (*2,3-camphanedione*), and 3-oxime, optical rotation of, 610*h*.

**Camphorsulfonic acid**, detection of, 1151*c*.
*d-*, salts with diaminobithiazoles, 2202*f*.
salts, chemistry and pharmacology of, 764*f*.
and salts, of medicinal value, 7642*a*.
—, **bromo-**, chloroquine resolution with, 4276*b*.

**3-Camphorsulfonic acid**, and sodium salt, 1106*a*.

**8-Camphorsulfonic acid**, *dl-*, cadmium, Co, Mn and Ni salts, 1355*e*.
and sodium salt, 1106*b*.
—, **3-bromo-**, *d-*, salt with *l*-1-amino-3-buten-2-ol, 6618*b*.
ester with *p,p'*-(1,2-dimethylethylene)diphenol, 6605*h*.

**10-Camphorsulfonic acid**, ammonium and other salts, magnetic susceptibility of, 8768*d*.
*d-* *dl-* and *l-*, salts, 609*i*, 610*c*.
esters and their derivs., 6998*i*.
salt with sparteine, 3016*c*.
and sodium salt, 1106*a*.

**Campo Cerdán, Angel del**, biography, 6874*i*.

**Camptonites**, of U.S.S.R. (Tyan-Shan), 6128*f*.

**Canaigre**, tannin from, 6337*h*.

**Canal rays**. See *Rays, positive*.

**Canarinic acid***, detection of, 971*a*.

**Canary grass**. See *Grasses*.

**Canavalia** (*jackbeans*), *ensiformis*, in Hawaii, 9292*e*.
*gladiata*, hemagglutinins in, 5547*g*.

**Canavanine**, effect on indoleacetic acid action on growth of *Avena* coleoptile, 5831*d*.
effect on respiration in *Avena* coleoptile, 7555*e*.

**Cancer**. (See also *Carcinogenic substances; Carcinoma; Neoplasms; Sarcoma*.) 3925*c*.
acidification of tissue bordering growths of, 4362*h*.
adenosinetriphosphatase activity of ext. and water-insol. residue of, 7574*e*.
adrenal cortex and, 8042*g*.
antigens and, 4309*g*.
benzacridine compds. and, 6742*h*.
benzopyrene persistence in, 7574*b*.
blood and urine in, cell-proliferation accelerating and inhibiting substances in, 4364*i*.
blood in, effect on tyrosinase, 4762*a*.
P release during glycolysis of, 2310*c*.
pyruvic acid and reticulocyte content of, 6723*e*.
refractive index of, 3510*i*.
blood plasma in, coagulation of, 3515*a*.
blood plasma in, glutamic acid and glutamine in, 6719*d*.
blood serum in, effect on embryonic cells, 5841*c*.
hyaluronidase inhibition by, 3094*g*.
phosphatase activity of, effect of Zn on, 5106*b*.
polarographic reaction of, 8042*f*.
bone-marrow cells in, effect of pteridines and blood serum on proliferation rate of, 262*d*.
in bones, phosphatase in blood plasma in, 1855*f*.
books: Radiations, Virus, Environment, 4762*g*; Malignant Disease and its Treatment by Radium, 5112*a*; Diagnosis, Treatments, Prognosis, 8051*a*.
catalase in liver in, 2309*c*.
cell nuclei in, nucleoprotein components from, dehydrogenation of, 4304*i*.
cells in cultures of, effect of N mustards and penicillium exts. on, 9243*d*.

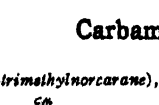
cells in, special condition of interphase nucleus in, 5856*a*.
chemotherapeutic substances for, 7576*h*.
chemotherapy of, 6743*d*.
chymotrypsin therapy in, 6734*c*.
contact and inductive influences in relation to, coördination of, 5850*d*.
desoxyribonucleoproteins of, 6304*d*.
diagnosis and therapy of, 749*b*.
diagnosis (differential) of, of biliary tract and pancreas, 9231*e*.
diagnosis of, antiproteolytic activity of blood serum in, 1478*f*.
by Beard test, correlation with clinical results, and effect of chymotrypsin thereon, 7124*ce*.
diphenylamine reaction of blood serum in, 5488*d*.
Freund-Kaminer reaction in, 7570*a*.
1,2-diarylethylamines for treatment of, 7008*e*.
effect of tumor-necrotizing polysaccharide from *Serratia marcescens* tagged with I on, 6736*i*.
environmental and occupational, 7575*g*.
estrogen effect on incidence of, after ovariectomy during calorie restriction, 7573*f*.
fever therapy of, 763*c*.
fluorene derivs. for research on, 1367*i*, 7004*i*.
formation and therapy of, 9225*h*.
formation of, 750*f*.
arsenic and, 3917*i*.
luminescence-porphyrin photosensitization theory of, 2694*i*.
tissue proteins and, 2314*a*, 4370*c*.
β-glucuronidase in tissues in, gastric, mammary, etc., 303*f*.
homogenates from precancerous livers, coagulation of, 304*b*.
homogenates of, adenosinetriphosphatase activity and glycolysis of, 9090*e*.
-inhibiting substances, 1856*c*, 7120*c*.
in pollen, 3094*e*.
therapy with glycolytic-enzyme, 5856*g*.
iodine in, 8518*i*.
journal: 8525*f*.
lens and, 748*b*.
lipides in adrenals, blood plasma and carcass in, 9230*b*.
of liver, butelline and procaine esteroses in serum in, 8049*f*.
of liver, Gros' test, Takata-Ara test and thymol turbidity test in, 9226*b*.
mammary, 3511*i*.
age factor in estrogen-induced, 2305*i*.
androgens and estrogens in treatment of, 8521*f*.
from diethylstilbestrol, effect of dietary fat and carbohydrate on, 8028*a*.
effect of testosterone on, 8047*f*.
electron-microscope studies of, 3514*g*.
etiology and hormonal factor of, 8042*g*.
genesis of, 5489*d*.
hyaluronidase inhibition by blood serum in relation to, 2697*a*.
mustard gas effect on, 8548*f*.
nitrogen-mustard analogs in treatment of, 5505*b*.
Pasteur effect in relation to phosphorylation in, 7063*e*.
pharmaceutical industry and research on, 8093*d*.
polysaccharides in blood serum in, 9230*c*.
prostate, phosphatase in blood in diagnosis of, 2661*b*.
protein nutrition in, 9191*h*.
proteins in blood serum in, 8047*h*.
proteins in blood serum in, coagulation of, effect of iodoacetate on, 4368*h*.
purine metabolism in *Tetrahymena* in relation to, 9251*e*.
of reproductive tract in females, β-glucuronidase activity in, 8048*i*.
saponin effect on, 1857*g*.
of skin, amino acids in, 8048*h*.
formation of, elastic and collagenic tissue during, 9229*h*.
lipase activity during formation of, 6725*e*.
phosphatases in, 5486*c*.
sulfanilamide and its derivs. in relation to, 9252*c*.
uterine, thiamine satn. in, 5490*a*.
vascular-active substances and treatment of, 8059*i*.
vitamin C in, 3921*c*.
yperite in treatment of, 3974*e*.
zinc detn. in, 2545*i*.

**Cancerigenic substances.** See *Carcinogenic substances*.
**Cancrinite**, from nepheline region of Mŏyŏdŏ, Korea, 7871*g*.
sulfatian, from Blue Mt., Ont., 8986*i*.
**Candelilla wax**, sapon. no. of, detn. of, 5211*i*.
thermoplastic material from, P 5232*g*.
**Candida**, *arborea*, effect of aeration and agitation on yield, proteins and vitamins in, 1123*a*.
boric acid effect on, 7087*g*.
control of, P 1525*e*, P 3968*h*, P 4419*g*.
*flareri* and *guilliermondia*, vitamin $B_2$ production by, 9141*f*.
*fructigena*, exts. from, in fruit-juice clarification, 8069*i*.
hexylresorcinol effect on, 1827*a*.
on nitrogen-fixing bark beetles, 3532*a*.
**Candidulin**, 9241*b*.
**Candlenut**, compn. of, and its oil cake, 2445*d*.
**Candlenut oil.** See *Oils*.
**Candles**, chlorate, for O generation, P 5886*c*.
colored-flame, P 8580*d*.
**Candoluminescence.** See *Luminescence*.
**Candy.** See *Confectionery*.
**Cane sugar.** See *Sucrose*.
**Cane-sugar manufacture.** See *Sugar manufacture*.
**Canna**, starch, adsorption of malt α-amylase by, 9504*g*.
**Cannabinol, tetrahydro-**, homologs of, 8383*f*.
**Cannabis.** See *Hemp*.
**Cannabiscetin.** See *Myricetin*.
**Canned goods.** (See also *Cans*.)
anaerobes as spoiling agents in, 9275*e*.
bacon, 4394*h*.
carotenoids and vitamin C in peaches, 3535*h*.
color preservation in peas, P 7606*a*.
corrosion and swelling in fish, 1198*d*.
discoloration of fish-ball, 8069*a*.
dog food, nutritive value of, 8071*a*.
enzyme systems in, effect of processing time and temp. on, 9275*g*.
fat in Norwegian herring, 8069*c*.
firming of sliced apples, Ca salts in, 782*g*.
firming of sweet-potato, citric acid in, 9289*h*
flavor of apple juice packed in enamel metal and Sn cans, 2708*e*.
gases in, sampling device for, P 2339*f*.
head-space gases of, app. for analysis of, 4779*e*.
Lima beans, quality and nutritive value of, 3537*h*.
milk—see *Milk*.
nitrogen detn. in meat, effect of catalysts on, 7154*i*.
nutrient retention during production of, 7151*c*.
nutrient retention in, effect of high-temp. storage on, 1493*h*.
pigment stability in peaches, ripeness and, 8572*b*.
preserving natural flavor and appearance of crustacean, P 786*i*.
protein biol. value of beef, 5510*b*.
sirup on peaches, 9328*g*.
taste of fish, improvement by reducing agents, P 3540*g*.
tomato-paste, of Norway, 8070*g*.
vitamin C in chili peppers, 1121*h*
vitamin C in fruit, 1454*i*
vitamin C in fruits and vegetables, 3944*i*.
vitamin C in orange juice, 3944*i*.
vitamin C in vegetable, preservation of, 1500*h*.
vitamin C treatment of pears, 8070*f*.
vitamin retention in peas, effect of blanching time on, 3537*i*.
vitamins and nutrient value of orange-juice, 8571*i*.
vitamins $B_1$ and C in vegetables, 1122*d*.
vitamins in bread, effect of fermentation, baking and storage on, 2330*d*.
vitamins in, effect of storage on, 1491*h*.
vitamins in fruit and fruit juices, effect of storage on, 1877*g*.
**Canning**, of butter, 9282*d*.
chromium plating and stainless steel in, 2706*i*.
cleaning peas for, by flotation, 9289*d*.
manufg. control in industry of, 2709*a*.
in Norway, research report on, 8069*d*.
oils used in Norwegian industry of, 8069*c*.
poisoning by $CO_2$ in, 1871*h*.
research at Florida Citrus Expt. Sta., 1121*c*.
vitamin C use in, 9313*e*.
wastes from, activated-sludge process for treatment of, 7614*b*.
alc. from, 9358*h*.
in food prepn., P 330*e*.
purification in biol. filters, 4779*i*.
stream pollution control activities and 8079*i*.
treatment of, 4406*c*, 4779*g*.
utilization of water, P 5882*e*.
wastes from citrus, feeding stuffs from, 5512*b*.
waste waters from citrus, treatment of, 5882*a*.
**Cannizzaro reaction**, with alicyclic aldehydes, P 5416*c*.
with aromatic aldehydes, 9049*h*.
catalysts in, 4651*d*.
with *p*-cymenecarboxaldehydes, 5015*d*
kinetics and thermodynamics of, 2848*e*.
kinetics of, 4547*a*.
**Cannon balls**, iron, 9005*i*.
**Cans.** (See also *Canned goods; Containers*)
for conserves, detn. of Sn in coatings on, 9275*c*.
corrosion protection of, 3213*d*.
decoration of, 871*i*.
lacquers for, for conserves, testing Durofal and Durophen, 6432*e*.
lacquer testing for food, 4489*f*.
linings for food, from coumarone-indene resins, 1198*b*.
milk—see *Milk*.
sealing compns. for—see *Sealing compositions*.
tin plate for—see *Tin plate*.
tin-free, for vegetable and fruit preserves, 7602*i*.
tinning steel strip for manuf. of food, P 2568*c*.
**Cantaloupes.** See *Melons*.
**Cantharidin** (*hexahydro-3a,7a-dimethyl-1,3-epoxyisobenzofuran-1,3-dione*), 3910*a*
*Mylabris* as source of, 3566*c*, 5517*i*
**Canvas** or **Duck**, compound or laminated, furfuryl alc. resin for bonding, P 3232*g*.
laminated with phenolic resin varnish, mech. properties of, 1578*d*.
lamination of, with polymerized diallyl phthalate, P 5626*d*
by polymerizing tung oil with amyl borate ($(CO_2H)_2$ catalyst, P 9048*e*
with rubbers, Neoprene-phenolic resins for, 7743*i*
rot resistance of, treated with chelate Cu compds., 5957*i*.
rotting and weathering resistance of, treated with Cu complex of nitroso phenylhydroxylamine, 5957*h*
**Caoutchouc.** See *Rubber*.
**Capacitance, capacity.** See *Electric capacitance*.
**Cape gooseberry.** See *Physalis*
**Capillaries.** See *Capillary tubes, Capillary vessels; Pores*
**Capillarity.** (See also *Electrocapillarity; Imbibition; Surface tension*)
of charcoal, surface area and, 6036*g*
clay drying and, 2748*c*.
in drops, 1239*b*.
measurement of, of petroleum reservoir rocks, 6811*i*.
in petroleum deposits, 7671*d*.
theories of, 5255*i*, 8777*b*
**Capillary-active substances.** See *Surface-active substances*.
**Capillary activity.** See *Surface activity*
**Capillary analysis.** See *Chromatography*
**Capillary condensation** See *Condensation, physical*
**Capillary flow.** See *Flow*
**Capillary tubes** or **Capillary interspaces**, of cracking catalyst, pore size distribution and, 3180*h*.
disperse system sliding through, 7778*a*
electrode sealing in, 3065*f*.
electrokinetic properties and surface conductance of, 7290*h*.
gas mixt. flow and diffusion through, sepn. in, 4062*d*.
osmosis in, 7765*f*.
pressures in, measurement of, 3666*h*.
sorption in, 5256*a*, 6882*c*.
theory of, 8777*b*.
wall conduction of, 3265*h*.
**Capillary vessels**, bed, effect of antihistaminic drugs on, 4381*i*.
book: Study on Vitamin P. Pt. 1 Capillary Permeability and Fragility, 5465*h*.
chloride exchange across, 8512*i*.
-dilating compds., 3-pyridylmethyl esters, P 8105*h*.

-dilating substance from tissue exts., 5842*d*.
effect of $NaHSO_3$ and procaine on, antagonism of rutin to, 1861*g*.
fragility or resistance of, rutin in treatment of, 8617*g*.
substances altering, effect on adrenaline hypertension, 4376*b*.
in thrombocytopenic purpura, effect of vitamin P-like substances on, 7560*g*.
iron exchange through, 298*d*.
permeability of, anoxia and venous O in relation to, 7573*a*.
cholesterol and, 745*g*.
effect of adrenochrome on, 6742*i*
effect of gastric mucin and bacterial polysaccharides on, in relation to their action on bacterial invasiveness, 9222*e*.
effects of detergents, leucotaxine and sperm lysin on, 3112*e*.
to fluid and T-1824, effect of hyaluronidase on, 6721*e*.
of hemato-ocular barrier, effect of antihistamines on, 1107*i*.
of hemato-ocular barrier, effect of histamine and antihistamines on, 3526*a*.
in pregnancy, 9209*e*.
to protein, effect of cold on, 8039*d*.
to Na, 5470*e*.
studies with tracer substance on, 4754*i*.
permeability of visceral, T-1824 in measurement of, 737*d*.
vitamin K effect on, 9181*g*.
vitamin P effect on, 7100*h*.
**Capitophorus ribis** and/or **Currant aphid**, control of, 5897*i*.
**Capnoidis tenebrionis**, control of, 3555*f*.
Caporit See *Bleaching powder*.
**Capraldehyde**, acylhydrazones †, 6972*e*, 6973*b*.
**Capramide**, manuf. of, P 3028*c*
—, *N-tert*-**amyl-**, 2165*e*.
—, *N* - **benzyl** - *N* - [**2** - (**4,6** - **diamino** - *s* - **triazin** - **2** - **yl**)**ethyl**]-, P 5052*c*.
—, *N-tert*-**butyl-**, 2165*c*.
—, *N*-**2-hydroxyethyl-**, in penicillin production, 2273*h*.
—, *N* - [*p* - (**methylsulfonyl**)**benzyl**]-, 8539*e*.
—, *N*-*p*-**sulfamylbenzyl-**, 8539*e*
—, *N* - **1,1,3,3** - **tetramethylbutyl-**, 2165*g*.
**Capramidine**, *N*-**2-biphenylyl-**, and picrate, 7446*a*.
**Capri blue**, effect on reduction of methemoglobin in red blood cells, 6732*d*.
**Capric acid** (*decanoic acid*), bactericidal and bacteriostatic action of, 5906*b*.
boundary-friction-coeff. lowering in polysiloxane lubricants by, P 5939*h*.
compd with piperazine, 235*d*.
detection of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*
detection of, in textile auxiliaries, 1585*c*.
detn. of, and soly. product of Ag salt, 4495*d*.
from $\alpha,\epsilon$-dichlorolauric acid, 2164*e*.
effect on ketones in blood of ruminants, 9188*e*
esters, 2164*i*.
with hydracrylates, P 1053*f*.
with monocaprylate of 2,3-dihydroxy-1-propanesulfonic acid, P 4878*e*.
phys. consts. of, 2590*d*.
ethyl ester, formation from ethyl oleate oxidation, 3612*a*.
ethyl ester, interfacial tension between $H_2O$ and paraffin-oil solns. of, 8250*h*.
in ghee, 1579*i*.
glycerides—see *Caprin*
lubricant-pour-point depression by, and its Et and Me esters, 2416*c*.
in muskrat scent glands, 1580*i*.
paraffin wax derivs., P 7907*g*.
potassium salt, solubilities of alcs. in, 6041*d*.
recovery from hydrogenated acids from soybeans, P 2704*d*.
surface tension and potential of aq., 8797*f*, *h*.
zinc salt, soly. in org. solvents, 4539*a*.
**Capric acid**, ω-(*p*-**bromophenyl**)-, 1379*a*.
—, ω-(*p*-**chlorophenyl**)-, 1378*i*.
—, ω-**cyclohexyl-**. See *Cyclohexanecapric acid*.
—, **α,β-dihydroxy-γ-oxo-**, and semicarbazone, 3785*e*.
—, **γ,γ-dimethyl-**, and its 2-benzyl-2-thiopseudourea salt, 2932*e*.
—, **γ,γ-dimethyl-δ-oxo-**, 2932*e*.
—, **δ,δ-dimethyl-γ-oxo-**, ethyl ester (omitted from abstr.), 7911*f*.
and ethyl ester, 1335*d*.
—, **α,γ-dioxo-**, enzymic hydrolysis of, 705*i*.
—, **α-ethyl-**, 3774*e*.
sodium salt, solubilization of org. liquids with, 4666*h*.
—, **ε-ethyl-β-isobutyl-**, 1374*c*.
—, **ε-ethyl-β-methyl-**, 1374*b*.
—, ω-**fluorenyl-**. See *Fluorenecapric acid*.
—, **α-hydroxy-**, (incorrectly given in abstr. as α-hydroxycaprylic acid), 3785*b*.
ethyl ester, 188*d*.
—, **α-hydroxy-γ-oxo-**, 3785*b*.
—, **α-methyl-**, and methyl ester and triglyceride, 6165*e*.
—, ω-**naphthyl-**. See *Naphthalenecapric acid*.
—, **γ-oxo-**, 3785*e*.
—, ω-**oxo-ω-phenyl-**. See *Pelargonic acid, θ-benzoyl-*.
—, ω-(*p*-**phenoxyphenyl**)-, 1378*g*.
—, **β-propyl-**, and triglyceride, 6165*e*.
—, ω-**thienyl-**. See *Thiophenecapric acid*.
**Caprin**, crystal structure and thermal analysis of tri-, 134*h*.
**2-Caprinaphthone**, 9421*f*.
—, **5,6,7,8-tetrahydro-**, 9421*f*.
**Capriphenone** (*nonyl phenyl ketone*).
—, **α-methyl-**, and 2,4-dinitrophenylhydrazone, 2931*i*.
**Caproaldehyde**, acylhydrazones †, 6972*he*.
and derivs., 7417*g*.
2,4-dinitrophenylhydrazone, 1447*c*.
formation in autoxidation of cottonseed oil, 5973*c*.
—, **α-ethyl-**, P 3142*d*.
compd. with 1-butylpiperidine bisulfite, 3355*h*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
reaction with $CHCl_3$, P 664*e*, P 4284*h*.
—, **α-ethyl-β-hydroxy-**, 1317*f*.
—, **β,δ,δ-trimethyl-**, oxidation of, P 7501*g*.
*iso*-**Caproaldehyde**. See *Isocaproaldehyde*.
**Caproamide**, ε-**amino-**, polymerization of, P 5967*g*.
polymethylene polysulfonamides of, 4857*b*.
—, *N*-**benzyl-**, 6596*a*.
—, *N* - [**1** - (**benzylcarbamyl**) - **2**-(**benzylmercapto**)**vinyl**]-, 2990*h*.
—, *N* - [**1** - (**benzylcarbamyl**) - **2**-(**ethylmercapto**)**vinyl**]-, 2990*g*.
—, *N*-**benzylthio-**, 6596*c*.
—, **α** - **butyl** - **α** - (**diethylaminomethyl**)-, 568*f*.
—, **α-butyl-α-phenyl-**, 568*f*.
—, **ε** - (*p* - **chlorophenyl**) - *N* - **2-hydroxyethyl-**, in penicillin production, 2273*i*.
—, **α,α-dibutyl-**, 568*e*.
—, *N* - (**1** - **dimethylcarbamylpropyl**) - *N* - **ethyl-**, P 249*i*.
—, *N*,*N* - **dimethyl** - **α** - (*N* - **propylacetamido**)-, P 251*b*.
—, **α,β-epoxy-α-ethyl-**, pharmacology of, 7139*d*
—, **α** - [(**α** - **ethoxypropionyl**)**methylamino**]-*N*,*N*-**dimethyl-**, P 251*a*.
—, **α** - (*N* - **ethylacetamido**) - *N*,*N*-**dimethyl-**, P 251*a*.
—, **α** - **ethylamino** - *N*,*N* - **dimethyl-**, P 251*a*
—, **α** - **ethyl** - *N*,*N* - **bis**(**2** - **hydroxyethyl**)-, bis(α-ethylcaproate), P 7751*b*.
—, **α** - **ethyl** - *N*,*N* - **bis**(**2** - **hydroxypropyl**)-, bis(α-ethylcaproate), P 7751*c*.
—, *N* - [**2** - (**ethylmercapto**) - **1** - *p*-**tolylcarbamylvinyl**]-†, 2990*g*.
—, **α-ethyl-***N*-**1-naphthyl-**, *dl*-, 1719*e*.
—, **α** - (**ethylpropionylamino**) - *N*,*N*-**dimethyl-**, P 251*b*.
—, *N*-(**formylmethyl**)-, 2,4-dinitrophenylhydrazone, x-ray study of, 4920*f*.
—, *N* - [*p* - (**methylsulfonyl**)**benzyl**]-, 8539*e*.
—, ε-(*p*-**phenoxyphenyl**)-, 1378*g*
—, **α-phenoxy-***N*-**sulfanilyl-**, P 3036*b*
—, **β-propyl-**, 6165*c*.
—, *N*-*p*-**sulfamylbenzyl-**, 8539*e*.
*iso* **Caproamide**. See *Isocaproamide*.
**Caproamidine**, ε-**benzamido-**. See *Benzamide, N-5-guanylamyl-*.
—, **α,α-dibutyl-**, and hydrochloride, 568*c*.
**Caproanilide**, **α-butyl-**, 1317*c*.
—, **α-*sec*-butyl-**, 1317*c*.
—, **α-isobutyl-**, 1317*c*.
*iso*-**Caproanilide**. See *Isocaproanilide*.
**Caproic acid** (*hexanoic acid*), ε-acyl derivs., 2174*e*.
adsorption by C and graphite, 7288*i*.
aluminum salt, 3688*e*.
benzylamine salt, 3351*f*.
chromatography of, 8911*e*.
detn. of, and soly. product of Ag salt, 4495*e*.
effect on ketones in blood of ruminants, 9188*c*.
erythrocyte penetration and hemolysis by, 8502*b*.
ester (di-) with glycerol, P 5036*e*.
ester (di-) with 1,4-hendecanediol, P 6652*b*.
esters, 2164*i*, 6162*a*.
with 2-amyl-2-oxazoline-4,4-dimethanol, as plasticizer, P 5992*a*.
with 4-chlorotetrahydrothiophen-3-ol 1,1-dioxide, P 3466*d*.
with α,α′-diethyl-4,4′-stilbenediol, P 2641*e*.
with α,α′-diethyl-4,4′-stilbenediol propionate, P 3979*e*.
with 1 - (1,2 - dihydroxypropyl)pyridinium chloride, P 5980*a*.
with (1,2-dihydroxypropyl)trimethylammonium chloride, P 5980*b*.
with 2-hydroxymenthone, 7915*h*.
with lactic acid, P 6224*c*.
with methyl salicylate, P 4701*i*.
with monocaprylate of 2,3-dihydroxy-1-propanesulfonic acid, P 4878*f*.
with tetrahydrothiophene-3-ol 1,1-dioxide, P 1441*f*.
with tetrakis(2 - hydroxyethyl)ammonium chloride, P 5980*b*.
with vitamin C, P 3154*c*.
ethyl ester, formation from ethyl oleate oxidation, 3612*a*.
ethyl ester, hydrolysis of, kinetics of, 6064*i*.
formation by *Clostridium kluyverii*, 7077*h*.
formation in hydrogenation of Me linolenate, 8707*c*.
heat of ionization of, 477*i*.
5 - hydroxy - 4 - oxo - 4*H* - pyran - 2-ylmethyl ester, 8385*g*.
identification of, as its 2-(1-naphthylmethyl) - 2 - thiopseudourea salt, 565*g*.
interfacial tension between $H_2O$ and heptane solns. of, 8250*h*.
methyl ester, phys. consts. of, 2590*d*.
methyl ester, spectrum of, 1656*d*.
from 2,4-nonanedione, 2174*g*.
from δ-oxocaproic acid, 3792*c*.
phys. consts. of, 2956*b*.
potassium salt, x-ray diagrams of mixts. contg., 4075*c*.
*p*-quinone dioxime deriv., as vulcanizing agent, 5623*c*.
strength of, 470*d*.
3-sulfopropylene ester, P 5217*a*.
surface tension of aq., 8797*f*.
system: AcOH–$H_2O$–, 5657*h*.
2,4,5-trichlorophenyl ester, P 3460*a*.
ultrasonic velocity in, 8786*c*.
**Caproic acid**, **α-acetyl-**, esters, 1317*c*.
ethyl ester, color reaction with $FeCl_3$, 1007*i*.
ethyl ester, enol content of, 1009*i*.
—, **α-acetyl-α-butyl-**, ethyl ester oxime, 1723*g*.
methyl ester, 1317*d*.
—, **α-acetyl-α-*sec*-butyl-**, *tert*-butyl ester, 1317*d*.
—, **α-acetyl-α-(2-cyanoethyl)-**, ethyl ester, 1011*i*.
—, **α** - **acetyl** - **α** - (**diethylaminomethyl**)-**δ-methyl-**, ethyl ester, 7643*b*.
—, **α** - **acetyl** - **α** - (**dimethylaminomethyl**)-**δ-methyl-**, ethyl ester, 7643*b*.
—, **α-acetyl-γ-ethyl-β-oxo-**, ethyl ester, 1010*f*.
—, **α-acetyl-δ-hydroxy-**, ethyl ester, 1009*g*.
—, **α-acetyl-α-isobutyl-**, *tert*-butyl ester, 1317*d*.
—, **α** - **acetyl** - **α** - **isopropyl** - **δ** - **oxo-**, ethyl ester, 1011*i*.
—, **α-acetyl-β-oxo-**, ethyl ester, color reaction with $FeCl_3$, 1009*d*.
—, **α-acetyl-δ-oxo-**, ethyl ester, 7433*d*.
—, **α** - **acetyl** - **δ** - **oxo** - **α** - **3** - **oxobutyl-**, ethyl ester, 1011*e*.
—, **γ-acetyl-γ-phenyl-**, 2932*b*.
—, **α** - **allyl** - **α** - **cyano** - **β** - **methyl-**, ethyl ester, P 4692*e*.
—, **α-amino-**. See *Norleucine*.

——, ε-amino-, entropy, heat content, heat of diln. and structure of aq., 6070c.
lactam—see *Hexamethylenimine, 2-oxo-*.
manuf. of, P 2225b.
polyamides from, dyeing of, P 7712c.
polymerization and polycondensation of, 8736a.
——, ε-(*p*-aminophenyl)-, Schmidt reaction with, 9047c.
——, ε-(*o*-aminophenyl)-ε-oxo-†, 3012g.
——, ε-amino-β,β,δ(and β,δ,δ)-trimethyl-, P 3450i.
——, ε-*p*-anisoyl-, 2174g.
——, ε-(*p*-arsenosophenyl)-, 4237c
——, ε-(*p*-arsonophenyl)-, 4237c
——, ε-benzamido-, bromination of, 6978b
——, ε-benzamido-α-bromo-, 6978c
——, ε-benzamido-α-bromo-β,δ-dimethyl-, 5740f.
——, ε-benzamido-β,δ-dimethyl-, 5740f.
——, α-benzoyl-, ethyl ester, 1010i.
——, ε-benzoyl-, 2174g.
——, ε-benzoyl-β-oxo-, in penicillin production, 2273i.
——, α,α-bis(2-cyanoethyl)-β-oxo-, ethyl ester, 2582g.
——, ε,ε-bis(2,4-dihydroxy-1-naphthyl)-α,β,γ,δ-tetrahydroxy-(?), 142a.
——, ε-bromo-, ethyl ester, α-ethylsuberic acid from, 6165b.
——, ε-bromo-β-(hydroxymethyl)-δ-oxo-, γ-lactone, 2625g.
——, ε-(*p*-bromophenyl)-, 1378i.
——, α-butoxy-, and bismuth salts, 2488i.
——, α-butyl-, esters, P 6241f.
2-(1-piperidyl)ethyl ester, P 7972f.
——, α-*sec*-butyl-, and ethyl ester, 1317e
——, α-butyl-γ-ethyl-β-oxo-, ethyl ester, prepn. and enol content of, 1010a.
——, α-butyl-α-hydroxy-, 5368g.
——, α-carbamido-. See *Hydantoic acid, α-butyl-*.
——, α-(2-carboxyethylmercapto)-ε-ethoxy-, and dipropyl ester, P 7504g.
——, ε-chloro-β,β-dimethyl-δ-oxo-, ethyl ester, 7905a.
——, ε-(chloroformyl)-α-methyl-, ethyl ester, 1381c.
——, ε-chloro-β-(hydroxymethyl)-α,γ-dioxo-, γ-lactone, 1406i.
——, β-chloro-β-(hydroxymethyl)-ε-methoxy-α,γ-dioxo-, γ-lactone, 1407c.
——, ε-(*p*-chlorophenyl)-, 1378i.
methyl ester, 2272h.
——, γ-cyano-γ-(2,3-dimethoxyphenyl)-, and derivs., 625h.
——, γ-cyano-γ-(2,3-dimethoxyphenyl)-ε-ethoxy-, and derivs., 6636c.
——, γ-cyano-γ-(2,3-dimethoxyphenyl)-α-(hydroxymethylene)-, methyl ester, 626c.
——, ε-cyano-ε-hydroxy-, ethyl ester, 3410a.
——, α-cyano-β-methyl-, ethyl ester, P 4692d.
——, ε-cyclohexenyl-. See *Cyclohexeneacaproic acid*.
——, ε-cyclohexyl-. See *Cyclohexaneacaproic acid*.
——, α-cyclopentenyl-. See *Cyclopenteneacetic acid, α-butyl-*.
——, α-cyclopentyl-. See *Cyclopentaneacetic acid, α-butyl-*.
——, ε-cyclopentyl-. See *Cyclopentaneacaproic acid*.
——, α,ε-diamino-. See *Lysine*.
——, γ,ε-diamino-γ-(2-aminoethyl)-, P 4519h.
——, α,α-dibutyl-, 568h.
——, α,α-diethyl-, esters with amino alcs., P 3443i, P 3444a.
——, α-(diethylaminomethyl)-α-(1-hydroxyethyl)-δ-methyl-, ethyl ester and Et ester benzoate-HCl, 7643e.
——, ε-(dihydroimidazolyl)-. See *Imidazolinecaproic acid*.
——, ε-(2,4-dihydroxy-1-naphthyl)-α,β,γ,δ-tetrahydroxy-ε-(2-hydroxy-4-oxo-1(4*H*)-naphthylidene)-(?), 141i.
——, α-(1,2-dihydroxypropylidene)-ε-hydroxy-β-oxo-, γ-lactone—see *Caralic acid*.
——, β,γ-dimethyl-, 1373i.
——, β,δ-dimethyl-, derivs., 5740f.
——, γ,γ-dimethyl-, and its 2-benzyl-2-thiopseudourea salt, 2932e.
——, α-(dimethylaminomethyl)-α-(1-hydroxyethyl)-δ-methyl-, ethyl ester and Et ester benzoate-HCl, 7643e.
——, α,γ-dioxo-, enzymic hydrolysis of, 705h.
enzyme specific for, 6267a.
——, β,δ-dioxo-. See *Triacetic acid*.
——, ε-ethoxy-α,γ-dioxo-, ethyl ester, 1406g.
——, ε-ethoxy-β-(hydroxymethyl)-α,γ-dioxo-, γ-lactone, 1406i.
——, ε-ethoxy-β-(hydroxymethyl)-δ-oxo-, γ-lactone, 2625g.
——, α-ethyl-, P 1795f, P 3442d.
alkenyl esters, P 7038d.
anhydride, 8353d.
2-chloroallyl ester, polymers with butadiene, P 432i.
cobalt, Pb and Mn salts, effect on drying time and color changes of finishes, 6431i.
*d*- and *l*-, silver salts, reaction with Br, mechanism of, 1719e.
diesters with α-ethyl-*N*,*N*-bis(2-hydroxyethyl)caproamide and with α-ethyl-*N*,*N*-bis(2-hydroxypropyl)caproamide, P 7751b.
diester with 3,3′-thiodi-1-propanol, P 3606e.
ester with 4-chlorotetrahydrothiophen-3-ol 1,1-dioxide, P 3466c.
metabolism of, 3905c
salts, as driers, 4492b
system: AcOH–$H_2O$–, 5657h.
system: cresol-, 4063f.
——, γ-ethyl-, 1373i.
——, α-ethyl-α-(hydroxymethyl)-, ethyl ester, 572f.
——, α-ethylidene-, esters with amino alcs., P 3443g.
——, α-ethyl-α-methyl-, esters with amino alcs., P 3443g.
——, α-ethyl-β-oxo-, ethyl ester, 6170i
ethyl ester, prepn. and enol content of, 1009i.
——, γ-ethyl-γ-phenyl-, and 2-benzyl 2-thiopseudourea salt, 2932b.
——, ε-(1*H*-furo[3,4]imidazolyl)-See *1H-Furo[3,4]imidazolecaproic acid*.
——, β-hydroxy-, β-lactone, P 5415a.
β-lactone (compd omitted from abstr.), P 1055i, P 1056e.
——, δ-hydroxy-, lactone, effect on heart, 1110d, 7138h.
——ε-hydroxy-, ethyl ester, 2176a.
ethyl ester and hydrazide of, P 3445d.
hydrazide and ε-lactone, 8358h.
ε-lactone, 7434d.
——, β-(α-hydroxybenzyl)-ε-methoxy-α,γ-dioxo-, γ-lactone, 1406i
——, β-1-hydroxyethyl-ε-methoxy-α,γ-dioxo-, γ-lactone, 1406i.
——, δ-hydroxy-β-methyl-, δ-lactone and ester with *p*-bromo-ω-hydroxyacetophenone, 6166a.
——, β-(hydroxymethyl)-α,γ-dioxo-, γ-lactone, 1406h.
——, β-(hydroxymethyl)-ε-methoxy-α,γ-dioxo-, γ-lactone, 1406i.
——, β-hydroxy-β-methyl-δ-oxo-, β-lactone, P 1055h, P 1056bc.
——, ε-imidazolidyl-. See *Imidazolidinecaproic acid*.
——, ε-imidazolinyl-. See *Imidazolinecaproic acid*.
——, α-isobutyl-, and ethyl ester, 1317e
——, α-isobutyl-α-methyl-, esters with amino alcs., P 3443i.
——, α-isobutyryl-γ-methyl-δ-oxo-, ethyl ester, 1012c.
——, γ-keto-. See *Homolevulinic acid*.
——, ε-methoxy-α,γ-dioxo-, methyl ester, 1406h.
——, ε-(*p*-methoxyphenyl)-ε-oxo-See *Valeric acid, δ-anisoyl-*.
——, β-methyl-, *d*(+)-, 6161c.
——, δ-methyl-. See *Isoenanthic acid*.
——, α-methyl-β-oxo-, ethyl ester, 4254g
——, β-methyl-δ-oxo-, *d*(—)-, 6161c.
——, γ-methyl-δ-oxo-, 2173f.
——, α-methyl-α-propyl-, esters with amino alcs., P 3443g.
——, ε-naphthyl-. See *Naphthalenecaproic acid*.
——, γ-nitro-, methyl ester, 1319g.
——, ε-[3-(*p*-nitrophenyl)ureido]-, 168g.
——, α-oxo-, oxime, derivs., P 5422e.
——, β-oxo-, ethyl ester, cyanoethylation of, 2582g.
ethyl ester, reaction with thiourea, P 674h.
methyl ester, 140b.
——, γ-oxo-. See *Homolevulinic acid*.
——, δ-oxo-, 2173f.
reduction of, 3792b.
——, β-oxo-ε-phenyl-, ethyl ester, 3392i
——, δ-oxo-β-phenyl-. See *Hydrocinnamic acid, β-acetonyl-*.
——, ε-oxo-ε-phenyl-. See *Valeric acid, δ-benzoyl-*.
——, β,β′-oxydi-, P 5037e.
——, ε-(*p*-phenoxyphenyl)-, 1378g.
——, α-phthalimido-. See *2-Isoindolineacelic acid, α-butyl-2,3-dioxo-*.
——, α-pivalyl-, ethyl ester, prepn and enol content of, 1010a.
——, β-propionyl-. See *Homolevulinic acid, β-propyl-*.
——, β-propyl-, and alkyl and glyceryl esters, 6165c.
——, ε-thienyl-. See *Thiophenecaproic acid*.
——, ε-2(3*H*)-thienylidene-. See $\Delta^{2(3H)}$-ε-*Thiophenecaproic acid*.
——, γ-*p*-tolyl-, 2605i.
——, β,δ,δ-trimethyl-, P 7501g.
——, α-ureido-. See *Hydantoic acid, α-butyl-*.
**Caproic-α-*d* acid**, 3302e.
***iso*-Caproic acid**. See *Isocaproic acid*.
**Caproimidic acid**, ethyl ester, 2203a.
——, *N*-(1-cyano-2-hydroxyvinyl)-, ethyl ester, derivs., 2203b.
——, *N*-(cyanomethyl)-, ethyl ester, 2203a.
**Caprokol**. See *Resorcinol, hexyl-*.
**ε-Caprolactam**. See *Hexamethylenimine, 2-oxo-*.
***iso*-Capronaphthone** See *Isocapronaphthone*.
**2-Capronaphthone**, 9424f
and derivs., 6188f
——, 5,6,7,8-tetrahydro-, 9424f
**Capronitrile**, and derivs., 568b
formation of, in pyrolysis of 2-octanol nitrite, 3779b.
phys consts. of, 2592b
γ-acetyl-γ-phenyl-, 2932b.
ε-amino-, P 1793h, 1857d
ε-bromo-, 3792e.
α-butyl-, 568b.
α-butyl-α-(diethylaminomethyl)-, 568d
α-butyl-α-phenyl-, 568d.
ε-chloro-, 3792e.
α,α-dibutyl-, 568c
α-(diethylaminomethyl)-, 568d.
δ,δ-dimethyl-, 132h.
γ-ethyl-, P 3440b.
ε-morpholinyl-. See *Morpholinecapronitrile*.
——, β-oxo-, and *p*-nitrophenylhydrazone, 2938e.
***iso*-Capronitrile**. See *Isocapronitrile*
**Caprophenone** (*amyl phenyl ketone*), nitrophenylhydrazones, 6091a
——, 2,4-dihydroxy-3,5-dimethyl-, 2184i.
——, 3,5-dimethoxy-α-methyl-, 8384f.
——, 2,5-dimethyl-, 6090g.
——, α-methyl-, and 2,4-dinitrophenylhydrazone, 2931h.
**Caproyl alcohol**. See *Hexyl alcohol*.
**Caproyl chloride**, β,γ-dimethyl-, 1373i.
——, α-ethyl-, 8353c.
——, γ-ethyl-, (omitted from abstr.), 1373i.
——, α-oxo-, *O*-ethyloxime, P 5422e.
**Caprylaldehyde**, acylhydrazones†, 6972b, 6973b.
condensation of, sulfonic acids and metallo-org. compds., P 690d.
identification of, 3003c.
——, ζ-hydroxy-β,ζ-dimethyl-, mutation of *Drosophila melanogaster* eggs or larvae from, 1115i.
——, α-oxo-, monoxime, as stabilizer for Cl-contg. resins, P 8739f.
**Caprylamide**, from flavoglaucin, 7914d.
manuf. of, P 3028c.
——, *N*-*tert*-amyl-, 2165e.
——, α-1-cyclohexen-1-yl-†, 3798c.
——, *N*-(hydroxymethyl)-, reaction product with triethanolamine, P 7728f.
——, *N*-[*p*-(methylsulfonyl)benzyl]-, 8539e.
——, *N*-*p*-sulfamylbenzyl-, 8539c.
*N*-1,1,3,3-tetramethylbutyl-, 2165g.
**Caprylamidine**, *N*-2-biphenylyl-, 5051d.
and *p*-toluenesulfonate, 7445i.

——, *N*-**cyclohexyl-**, hydrochloride, P 688*i*.
**Caprylanilide, α-hydroxy-α-methyl-**, (+)- and (−)-, and (−)-(menthyloxy)acetate, 1353*g*.
**Capryl chloride, ε-ethyl-β-isobutyl-**, 1374*i*.
——, **ε-ethyl-β-methyl-**, 1374*b*.
**Caprylene**. See *Octene*.
**Caprylic acid** (*octanoic acid*), **aluminum salt**, 3688*e*.
in blood ketone increase in ruminants, 9188*c*.
and compd. with 2-(1-naphthylmethyl)-2-thiopseudourea, 565*h*.
compd. with piperazine, 235*d*.
detn. of, and soly. product of Ag salt, 4495*d*.
from γ,ε-dioxocaprylic acid, 3792*c*.
effect on drilling of Al, 8227*i*.
effect on drilling of metals, 7889*h*.
erythrocyte penetration and hemolysis by, 8502*a*.
esters, 2164*i*, P 9528*a*.
with α,α′-diethyl-4,4′-stilbenediol, P 2641*e*.
with 1-(1,2-dihydroxypropyl)-pyridinium chloride, P 5050*a*.
with erythrol, 7419*g*.
with hydrolapachol, 1373*c*.
with 2,2′-iminodiethanol, -HCl, P 674*g*.
with monocaprate of 2,3-dihydroxy-1-propanesulfonic acid, P 4878*e*.
with monocaproate of 2,3-dihydroxy-1-propanesulfonic acid, P 4878*f*.
with triethylene glycol, as plasticizer, P 8209*b*.
with trimethylenediphenol derivs., P 4700*c*.
ethyl ester, formation from ethyl oleate oxidation, 3612*a*.
heart (perfused) metabolism and, 9267*i*
interfacial tension between $H_2O$ and heptane or paraffin-oil solns. of, 8250*h*.
methyl ester, phys. consts. of, 2590*d*.
octyl ester, hydrogenation of, 2165*a*.
oxidation by liver fractions, 1852*e*.
oxidation by liver mitochondria, 7520*h*.
oxidation of mixt. of, and paraffins, 9029*i*
phys. consts. of, 2956*b*.
potassium salt, solubilities of alcs. in, 6041*d*.
reaction with Al alkoxides, 3688*g*.
with $C_2H_4$ to form higher acids, P 670*e*.
with serum albumins, 4708*c*.
sodium salt, effect on egg albumin denaturation by heat, 1446*c*.
effect on serum albumin denaturation by urea, 4707*i*.
mixt. with Na propionate, effect on trychophytin production and growth of *Trichophyton gypseum*, 5084*a*.
3-sulfopropylene ester, P 4878*d*.
surface tension and potential of aq., 8797*fh*.
utilization by heart, 9210*h*.
zinc salt, fungicide contg., P 7647*c*.
**Caprylic acid, amino-**, effect on antibacterial power of blood, 3879*d*.
——, **α-amino-**, antibacterial activity of, 3879*g*.
——, **η-amino-**, lactam—see *1-Azonin-2(3H)-one, hexahydro-*.
——, **α-amino-α-methyl-**, (omitted from abstr.), 1323*a*.
——, **η-aminomethyl-**, P 2225*a*
——, **γ-benzoyl-γ-methyl-**, 2931*i*.
and 2-benzyl-2-thiopseudourea salt, 2931*i*.
——, **α-butoxy-**, and bismuth salts, 2488*i*.
——, **α-butyl-(?)**, 3774*e*.
——, **η-cyano-**, P 7502*i*.
——, **α-cyano-α-1-cyclohexen-1-yl-†**, methyl ester, 3798*a*.
——, **α-1-cyclohexen-1-yl-†**, and 2-diethylaminoethyl ester, 3798*b*.
——, **η-diazo-α-methyl-ζ-oxo-**, ethyl ester, 1381*e*.
——, **α-(1,2-dihydroxypropylidene)-ε-hydroxy-β-oxo-**, γ-lactone—see *Terrestric acid*.
——, **γ,ε-dioxo-**, reduction of, 3792*b*.
——, **γ-ethyl-δ-methyl-**, 1374*b*.
——, **ε-hydroxy-β,ζ-dimethyl-**, ethyl ester, 2176*a*.
——, **α-hydroxy-α-methyl-**, (+)-, 1353*i*.
——, **γ-hydroxy-γ-methyl-**, lactone, 784*e*.
——, **δ-hydroxy-ζ-methyl-**, δ-lactone, 3786*e*.
——, **ε-methyl-δ-oxo-**, 6160*e*.
——, **ζ-methyl-γ-oxo-**, 3785*d*.
methyl ester, prepn. of, 1725*b*.
——, **η-naphthyl-**. See *Naphthalenecaprylic acid*.
——, **γ-oxo-**, 6572*c*.
——, **ζ-oxo-**, 2174*g*.
——, **γ-phenyl-**, oxidation by kidneys, 2248*f*.
——, **δ-propyl-**, and methyl ester and triglyceride, 6165*d*.
——, **η-thienyl-**. See *Thiophenecaprylic acid*.
*iso*-**Caprylic acid**. See *Enanthic acid, ε-methyl-*.
**Caprylin**, tri-, effect on carcinogenic agents, 1857*i*.
**2-Caprylonaphthone**, 9424*f*.
——, **5,6,7,8-tetrahydro-**, 9424*f*
**Caprylonitrile**, quaternary compds. from amines, acid chlorides, $Cl_2O$ and, as softening agents, P 2786*b*.
——, **α-amino-**, and hydrochloride, 3409*e*.
——, **α-amylamino-**, as insecticide, 4415*f*.
——, **α-anilino-**, as insecticide, 4415*f*.
——, **δ-benzoyl-δ-methyl-**, 2931*h*.
——, **α-1-cyclohexen-1-yl-†**, 3798*a*.
——, **α-cyclohexylamino-**, as insecticide (incorrectly given as pelargononitrile in abstr.), 4415*f*.
——, **α-(cyclohexylethylamino)-**, as insecticide (incorrectly given as pelargononitrile in abstr.), 4415*i*.
——, **α-diamylamino-**, as insecticide, 4415*f*
——, **α-dibutylamino-**, as insecticide, 4415*f*.
——, **α-diethylamino-**, as insecticide, 4415*i*.
——, **α-dimethylamino-**, as insecticide, 4115*e*.
——, **γ-ethyl-**, P 3440*b*.
——, **α-N-ethylanilino-**, as insecticide, 4415*g*.
——, **α,α′-[ethylenebis(methylimino)]-di-**, as insecticide, 4415*g*
**α,α′-(ethylenediimino)di-**, as insecticide, 4415*i*.
——, **α,α′-(hexamethylenediimino)di-**, as insecticide, 4415*h*.
——, **α-hydroxy-**, acetate, P 3027*g*.
——, **α-(2-hydroxyethylamino)-**, as insecticide, 4415*f*
——, **α-N-methylanilino-**, as insecticide, 4415*f*.
——, **α-4-morpholinyl-†**, as insecticide (incorrectly given as pelargononitrile in abstr.), 4415*f*.
——, **α,α′-(*p*-phenylenediimino)di-**, as insecticide, 4415*h*.
——, **α-1-piperidyl-†**, as insecticide (incorrectly given as pelargononitrile in abstr.), 4415*f*
**Caprylophenone** (*heptyl phenyl ketone*), nitrophenylhydrazones, 6091*a*.
——, **3,5-dimethoxy-α-methyl-**, 8384*f*.
——, **2,5-dimethyl-**, 6990*g*.
**Capsaicin**, evaluation of prepns. contg., and the pure drug, 5536*g*.
**Capsanthin**, therapeutic and physiol. effects of, 6366*a*.
**Capsella bursa-pastoris**. See *Shepherd's purse*.
**Capsicum**. (See also *Paprika; Peppers*.)
*annuum* and *minimum*, vitamin $B_1$ in, 6753*h*.
*annuum*, compns. of paricarp and seed of, 6329*d*.
**Capsules**, bacterial—see *Bacteria*.
disintegration of coated, testing of, 5532*h*.
gluten compn. for, P 3241*h*.
surface-active substances for manuf. of, P 9406*f*.
vinyl formal polymers for, P 4894*b*.
vinyl phthalate polymer, Na salt, P 2739*d*.
**Caramel**, absorption by fuller's earth, 9395*f*.
colloidal constitution of solns. of, 7781*b*.
detn. in vinegar and wine, 7187*i*.
formation of, in plant material during drying, and effect on vitamin C detn., 5879*a*.
from honey in diet in diabetes, 3515*e*.
occlusion by growing sugar crystals, 2005*ac*.
**Caramelization** of carbohydrates in paper-pulp manuf., effect on pulp color, 1185*a*.
**Caramels**. See *Confectionery*.
**Carandá palm**. See *Palms*.
**Carane** (*4,7,7-trimethylnorcarane*),



dehydrogenation of, 5656*i*.
**Carassius auratus**. See *Goldfish*.
**Carathéodory principle or theorem**, 2501*a*.
second law of thermodynamics and, 8838*d*.
**Carausius morosa**, insecticide effect on, chem. constitution and, 7625*i*.
**Caraway** (*Carum carvi*), carvone and oils in, 9380*g*.
fruit formation and accumulation of oils in, 8100*g*.
seeds, carvone detn. in, 3145*d*.
**Caraway oil**. See *Oils*.
**Carbachol**. See "chloride carbamate" under *Choline*.
**Carbalkoxy groups**, effect on spectra of S compds., 4215*h*.
**Carbalkoxylation**, of esters with mixts. of dialkyl carbonates and alcoholates, P 2225*g*.
**Carbamaldehyde**. See *Formamide*.
**Carbamates**, in apple-scab control, 9327*d*.
**Carbamic acid**, alkyl derivs., esters with hydrolyzed ethylene-vinyl ester interpolymers, P 1219*f*.
alkylenedi-, esters, polymerization of, P 7263*b*.
alkyl esters, reaction with $N_2H_4$, P 9088*c*.
allyl ester, polymers of, P 9531*f*.
amyl ester, as antioxidant in alkyl benzenesulfonates, P 6846*a*.
aryl esters, *N*, *N* derivs., P 1438*f*.
aryl, polysaccharide esters, 153*i*.
book: Klinik und Pharmakologie des Urethans und anderer cytostatischer Stoffe, 9268*i*.
*tert*-butyl ester, 578*i*.
choline ester, effect on auricles arrested by paludrine, 2704*b*.
derivs.—see also *Urethans*.
derivs, 593*b*, 4633*h*.
antimalarials, 593*b*.
effect on chloroleukemia, 4385*b*.
esters with hydroxy derivs. of quaternary ammonium salts, P 6875*b*.
in leukemia therapy, 3107*b*, 3917*g*, 6737*a*.
polymeric, P 5602*i*.
polymeric, treatment with $CH_2O$, P 902*h*.
polymers and condensation compds. of, P 6865*h*.
vinyl esters, polymers, P 4898*d*.
2,2′-dithiobisaryl, as softeners for rubber, P 6858*h*.
esters, 2945*d*.
with Bu *p*-hydroxybenzoate, 593*e*.
with *cis*-cryptol, 161*b*.
denaturation of methemoglobin by, 5813*h*.
effect on resting potential nerve, 3933*a*.
with glycerol 1,2-cyclic carbonate, P 6653*a*.
with (2-hydroxypropyl)trimethylammonium hydroxide, effect on stomach, intestine and urinary bladder, 8540*a*.
nerve-fiber block by, 2329*f*.
with polyhydric compds., P 4690*g*.
polymers of, P 3658*h*.
reaction with unsatd. aldehydes, 1389*i*.
with trihydroxy triglycerides, P 5968*c*.
ethyl and Me esters, condensation products with HCHO and dicyanodiamide or stearoyltriaminotriethylenebiguanide, P 2780*g*.
ethyl ester, action mechanism of, 9263*d*.
activation of *Nereis* eggs by, 8066*a*.
analeptic action of metrazole, picrotoxin and samandarine on, 3519*i*.
azeotropes of, 2834*eg*, 2835*b*, 5247*c*.
binding by proteins, 1241*e*.
in blood-disease treatment, 5498*d*.
carcinogenic action of, 305*a*.
carcinoma-growth inhibition by, 5488*d*.
cytostatic effect on leucocytes, 9263*g*.
detection of, 521*g*.
detn. in blood, 5437*h*.
diabetogenic action of, 2314*g*.
distribution of radioactivity in tissues after injection of carbonyl-labeled, 3917*g*.

*ethyl ester*, effect on adenosinetriphosphatase in heart muscle, 8058*b*.
effect on basal metabolism and erythrocyte sedimentation rate in leukemia, 5854*e*.
effect on blood coagulation with some vitamin systems, 6679*e*.
effect on central nervous system, 5498*b*.
effect on easily-split Fe of blood, 8051*f*.
effect on eosinopenia in trichinosis, 7105*c*.
effect on fibroblast division, 3526*b*.
effect on gastric secretion, 5872*a*.
effect on glycogen synthesis from glucose in liver, 7134*b*.
effect on heart and intestines, effect of methemoglobin on, 316*h*.
effect on heart frequency and electrocardiogram, 5493*e*.
effect on ionic permeability of red blood cells in relation to narcotic action, 7143*h*.
effect on leukemia, 5498*d*, 8548*b*.
effect on lipide and nucleic acid in thymoma, 5853*f*.
effect on mitotic cell division, 4380*i*.
effect on normal and malignant lymphoid tissue, and effect of adrenalectomy thereon, 3109*f*.
effect on psittacosis virus, 305*i*.
effect on respiration of embryonic cells, 771*f*.
effect on reticulocytes in blood of cancerous and normal rats, 6723*f*.
effect on spore disinfection and effect of hydrostatic pressure thereon, 5082*b*.
effect on sprouting of potato tubers, 7092*e*.
effect on tissue, 7139*e*.
effect on yeast fermentation and respiration, 5444*b*.
lymphopenia from, in normal and adrenalectomized rats, 7580*e*.
mechanism of action and therapeutic use of, 5906*c*.
multinucleated unsegmented triton eggs produced by, 5873*f*
narcotic action of, in relation to action on cholinesterase in blood, 7142*e*.
necrotizing action of $CHCl_3$ and, 7135*a*.
neoplasms of lungs from, and its *N*-alkyl derivs., 5108*a*.
pulmonary adenomata from, 307*bc*, 1103*i*.
pulmonary tumors and, 2695*e*.
review on, 8064*d*.
system with picric acid, 6066*e*.
volatility of, 3975*a*.
ethyl ester, catabolism in normal and neoplastic mice and its measurement, 9251*a*.
ethyl ester, in tissue and its detn., and effect on enzymes, 9258*c*.
hydrazide—see *Semicarbazide*.
hydroxyalkyl derivs., esters, for molding dentures, P 9538*f*.
manganese salt, as fungicide, 7177*b*.
**Carbamic acid acetyldithio-**, 3-chloroallyl ester, 2928*f*.
——, **allyl-**, ethyl ester, in printing pastes, P 9473*h*.
methyl ester, 2945*h*.
——, **amino-** See *Carbazic acid*.
——, **(2-aminoethyl)-**, inner salt, 6158*a*.
——, **[α-(aminomethyl)benzyl]ethyl-**, ethyl ester-HCl, 6176*f*.
——, **[α-(aminomethyl)-*p*-methoxybenzyl]ethyl-**, ethyl ester-HCl, 6176*f*.
**(β-aminopelargononyl)-**, 236*c*.
**(benz[*a*]anthracen-7-ylmethyl)-**, 2-(2-chloroethylmercapto)ethyl ester, 621*e*.
——, **benzhydryl-**, 2981*c*.
——, **benzyl-**, benzylamine salt, 1351*g*, 6157*i*.
——, **[α-(benzylaminomethyl)benzyl]ethyl-**, ethyl ester-HCl, 6176*g*.
——, **[(benzylcarbamyl)methyl]dithio-**, benzyl ester, 1398*g*.
——, **[(benzylcarbamyl)methyl]thiol-**, benzyl ester, 1398*g*.
——, **benzylmethyl-**, *N*-methylbenzylamine salt, 6158*a*.
——, **bis(2-chloroethyl)-**, ethyl ester, 7422*i*.
ethyl ester, in leukemia therapy, 3107*d*.
methyl ester, 2927*b*.
——, **bis(2-hydroxyethyl)-**, salt with 2,2′-iminodiethanol, 6158*a*.
——, **bis(2-hydroxyethyl)dithio-**, effect on eye injury by mustard gas, etc., 767*a*.
sodium salt, chemotherapy of, 1111*g*.
——, **(2-bromoethyl)nitroso-**, methyl ester, 2945*i*.
——, **2-butenylidenedi-**, esters, 1390*a*.
——, **(butoxymethyl)-**, ester with λ-hydroxyoleic acid triglyceride, P 5969*a*.
——, **butyl-**, ethyl ester, 4653*a*.
——, **butyldithio-**, compd. with $BuNH_2$, P 4508*f*.
——, ***sec*-butylethyldithio-**, sodium salt, chemotherapy of, 1111*g*
——, **butylnitroso-**, ethyl ester, 4653*a*.
——, **carbamyl-**. See *Allophanic acid*.
——, **(2-carbamylethyl)-**, benzyl ester, 1448*h*.
ethyl ester, derivs., β-ureido acids from, 6597*g*.
——, **[(2-carbamylethyl)carbamylmethyl]-**, benzyl ester, 1448*h*.
——, **(carbamylguanyl)-**, octadecyl ester, P 5552*f*
——, **{[1-carbamyl-2-(3-indolyl)ethyl]carbamylmethyl}-**, benzyl ester, 4712*c*.
——, **[α-(carbamylmethyl)benzyl]-**, ethyl ester, 236*e*, 6597*h*, 3822*c*.
——, **{2-[(carbamylmethyl)carbamyl]ethyl}-**, benzyl ester, 1448*h*.
——, **[1-(carbamylmethyl)heptyl]-**, ethyl ester, 6597*g*.
——, **[2-carbamyl-1-(2-naphthyl)ethyl]-**, ethyl ester, 6597*i*.
——, **carboxy-**. See *Imidodicarboxylic acid*.
——, **[2-carboxyamino-2-(carboxyaminomethyl)trimethylene]di-**, tetraethyl ester, 2936*e*.
——, **chloro-**, ethyl ester, reaction with $C_2H_2$, P 3032*a*.
——, **(α-chloroacetyl-*p*-methoxyphenethyl)-**, benzyl ester, 7158*e*.
——, **(2-chloroethyl)-**, 3-chloroallyl ester, 2928*d*.
esters, 4634*b*.
——, **[2-(2-chloroethylmercapto)ethyl]-**, methyl ester, 2945*h*.
——, **[2-(2-chloroethylmercapto)ethyl]nitroso-**, methyl ester, 2945*i*.
——, **(2-chloroethyl)nitro-**, methyl ester, 2946*a*.
——, **(2-chloroethyl)nitroso-**, esters, 4634*b*.
ethyl ester, 2945*i*.
——, **[1-(chloroformyl)-2-(3-indolyl)ethyl]-**, benzyl ester, 4712*c*.
——, **[α-(chloroformyl)-*p*-methoxyphenethyl]-**, L-, benzyl ester, 7458*c*.
——, **(chloromethyl)-**, derivs., as textile-treatment agents, P 4488*i*.
——, **(2-chloropropyl)-**, methyl ester, 7422*i*.
——, **[2(and 3)-chloropropyl]-**, methyl esters, 2945*h*.
——, **(2-chloropropyl)nitroso-**, methyl ester, 2945*i*.
——, **chlorovinyl-**, ethyl ester, P 3032*a*.
——, **cinnamylidenedi-**, esters, 1390*a*.
——, **α-cyanobenzyl-**, ethyl ester, 4223*b*.
——, **α-cyanobenzylethyl-**, ethyl ester, 6176*d*.
——, **(α-cyano-*p*-methoxybenzyl)ethyl-**, ethyl ester, 6176*e*.
——, **cyclohexyl-**. See *Cyclohexanecarbamic acid*
——, **diamyldithio-**, copper, Pb, Se and Zn salts, prepn. and value as vulcanization accelerators in GR-S rubber, 5987*a*.
——, **dibenzyldithio-**, sodium salt, chemotherapy of, 1111*g*.
——, **dibutyl-**, ester with ethyl(2-hydroxyethyl)dimethylammonium sulfate, ganglionic blocking action of, 6309*c*.
ethyl ester, in leukemia therapy, 3107*d*.
——, **dibutyldithio-**, compd. with $Bu_2NH$, P 4508*h*.
copper, Pb, Se and Zn salts, prepn. and value as vulcanization accelerators in GR-S rubber, 5987*a*.
——, **(2,3-dichloropropyl)-**, methyl ester, 2945*i*.
——, **(2,3-dichloropropyl)nitroso-**, methyl ester, 2945*i*.
——, **diethyl-**, esters with resorcinol and its derivs., P 251*i*.
——, **diethyldithio-**, anhydride—see *Sulfide, bis(diethylthiocarbamyl)*.
bismuth and Na salts, chemotherapy of, 1111*g*.
copper, Pb, Se and Zn salts, prepn. and value as vulcanization accelerators in GR-S rubber, 5987*a*.
derivs., as antidote for bis(2-chloroethyl) sulfide injury to eyes, 767*a*.
derivs., spectra and structures of, 7410*i*.
effect on cornea, 771*b*.
ester with hydracrylic acid, P 7506*g*.
indium salt, temp. limits for weighing of, 8952*h*.
selenium salt, 7855*i*.
sodium salt, adrenaline potentiation by, 3104*f*, 5116*h*.
complex formation with Cu in *Melanoplus differentialis* embryos, 8562*a*.
effect on respiration of active and blocked embryonic cells, 2331*f*.
oxidation of, P 4690*i*.
as polymerization stopping agent, 8727*i*.
zinc salt, effect on yield of cyclic and polysulfides in dihydromyrcene reaction with S, 4886*d*.
——, **(3,4-dihydroxyphenacyl)methyl-**, benzyl ester, and its diacetate and dibenzoate, 2601*h*.
——, **(2,3-dimercaptopropyl)-**, ethyl ester, 3783*h*.
——, **(3,4-dimethoxyphenethyl)-**, 3,4-dimethoxyphenethylamine salt, 1351*f*
——, **dimethyl-**, 2-(dimethylaminomethyl)-3-pyridyl ester, dihydrochloride, effect on muscle potential, 9261*b*
*m*-dimethylaminophenyl ester and its derivs., P 3843*g*.
esters, P 6671*h*.
with butyl *p*-hydroxybenzoate, 593*e*
with *m*-dimethylaminophenol derivs., P 7966*d*.
effect on muscle potential, 9261*b*
with 3-hydroxy-1-methylpyridinium bromide and 3-pyridol, P 5050*l*
with (2-hydroxy 5-phenylbenzyl)trimethylammonium bromide, effect on esterases, 4305*c*.
with (*o*-hydroxyphenyl)trimethylammonium bromide, P 7040*a*.
with (*o*-hydroxyphenyl)trimethylammonium methyl sulfate, P 7966*a*
3-pyridyl ester, and its derivs., P 4702*f*
——, **dimethyldithio-**, antibacterial and antifungal activity of, 3883*e*
anhydride—see *Sulfide, bis(dimethylthiocarbamyl)*.
bismuth and Na salts, chemotherapy of, 1111*g*.
copper, Pb, Se and Zn salts, prepn. and value as vulcanization accelerators in GR-S rubber, 5987*a*.
iron and Mn salts, in apple-scab control 9327*d*.
iron and Zn salts, in control of *Alternaria* blight of petunias, 2725*f*.
effect of sprays contg., on apples, 1838*c*
as fungicides, 7176*h*.
in *Sclerotinia* control on cabbage, 7179*i*.
in tomato disease control, 2456*a*, 4413*b*.
in tulip-*Botrytis* fire control, 9338*a*
iron salt, in anthracnose control on Lima beans, 9329*h*.
in apple-scab control, 804*c*, 7630*f*
in carnation-disease control, 9338*f*.
as citrus seed disinfectant, 1516*g*
in control of blackroot of sugar beet seedlings, 7175*i*.
in cranberry-fruit-rot control, 804*e*
in downy-mildew control on Lima beans, 3959*i*.
as fungicide and insecticide for dates, 4417*e*.
in gladiolus corm treatment, 9338*c*.
in gladiolus-storage-rot control, 3961*g*
in grape-root-rot control in soln. culture, 9351*b*.
in mummy-berry control on cultivated blueberries, 5143*g*.
in pear-sooty-blotch-disease control, 9348*c*.
in pine-root-disease control, 7179*f*.
in *Pythium*-root-rot control on aroids and Easter lilies, 3133*e*.
in termite control, 6356*e*.
lead salt, effect on ebonite, 430*g*, 8729*g*
methyl ester, antifouling properties of, 3964*c*.
methyl ester, spectrum and structure of, 7410*i*.
sodium salt, in copper analysis, 4175*a*.
zinc salt, antifouling paints, etc., contg., P 4872*h*.
in control of fruit rot of cranberries, 804*e*.

*zinc salt*, as date-insect control, 4417*e*.
formation in tetramethylthiuram disulfide acceleration of dihydromyrcene reaction with S, 4886*e*.
in melanose control on grapefruit, 3553*g*.
in pecan-scab control, 1139*a*.
in potato-fungus control, 9328*c*.
in powdery-mildew control on oriental magnolias, 7179*g*.
in rubber-bonding mixt., 4887*h*.
in *Sclerotinia sclerotiorum* control on beans, 2355*g*.
in tomato-fungus control, 9328*d*.
in tomato-late-blight control, 4412*i*.
——, **[4-(2,5-dioxo-4-oxazolidyl)butyl]-, benzyl ester**, 575*b*.
benzyl ester, polymerization of, 6488*c*.
——, **diphenyl-**, ethyl ester, chromatographic sepn. and identification of, 8138*i*.
phenyl ester, 7912*d*.
3-pyridyl ester, and its derivs., P 4702*g*.
——, **dipropyl-**, ethyl ester, in leukemia therapy, 3107*d*.
——, **dipropyldithio-**, copper, Pb, Se and Zn salts, prepn. and value as vulcanization accelerators in GR-S rubber, 5987*a*.
——, **dithio-**, amine salts of, or its derivs., prepn. and use as coalescing agents in polysulfide sealing compns., P 4508*g*.
ammonium salt—see *Ammonium dithiocarbamate*.
as antidote for bis(2-chloroethyl) sulfide injury to eyes, 767*a*.
cadmium, Pb and Ni salts, and their detection, 8307*h*.
carboxymethyl ester, antithyroid activity of, 9242*a*.
derivs., P 7506*e*.
antifouling paints, etc., contg., P 4872*h*.
chem. structure in relation to antibacterial and antifungal activity of, 3883*e*.
chemotherapy with, 1111*f*.
effect of high mixing temps. on stability of rubber vulcanization accelerators of, 1210*f*.
as fungicides, P 4418*g*, 9335*c*.
oxidation of, P 2227*a*.
salts of, P 5224*e*
in tomato-late-blight control, 4413*a*.
dialkyl derivs., salts, prepn. and value as vulcanization accelerators in GR-S rubber, 5987*a*.
zinc salt, compd. with cyclohexylamine, as fungicide, 7177*i*.
zinc salt, for lubricant improvement, P 1177*i*.
zinc salt, in cucurbit control, 9327*g*.
——, **[2-ethoxy-1-(*p*-sulfamylphenylcarbamyl)vinyl]dithio-**(?), benzyl ester, 1399*b*.
——, **ethyl-**, 2-chloroethyl ester, 4634*a*.
ethyl ester, 2956*g*, 4652*i*.
——, **ethylenebis-**, diethyl ester, contg. $C^{14}$, 1324*g*.
——, **ethylenebis[dithio-**, copper, Mg and Mn salts, in brown-rot control, 3553*h*.
disodium and Zn salts, in control of black-root of sugar-beet seedlings, 7175*i*.
in control of bulb diseases of gladioli and tulips, 9338*a*.
in potato-fungus control, 9327*i*.
in *Sclerotinia* control on cabbage, 7179*i*.
in tomato blight control, 4413*b*.
disodium salt, in *Alternaria* blight control on petunias, 2725*f*.
in azalea-petal-blight control, 802*g*, 1891*i*.
as citrus-seed disinfectant, 1516*g*.
in cranberry-fruit-rot control, 804*e*.
in downy-mildew control on Lima beans, 3959*i*.
in fungicidal sprays, P 4419*a*.
in grape-disease control, 3133*i*.
in peach-silver-mite control, 1523*e*.
in peach-X-disease control, 9347*h*.
in pear-psylla control, 9348*f*.
in pine root-disease control, 7179*e*.
in snapdragon rust control, 9327*i*.
iron salt, in brown-rot control on lemons, 3553*h*.
magnesium, Mn, di-Na and Zn salts, as fungicides, 7176*h*.
manganese and Zn salts, in melanose control on grapefruit, 3553*g*.
salts, fungicidal action of, 9335*c*.
zinc salt, in *Alternaria*-blight control on petunias, 2725*f*.
*zinc salt*, in apple-scab control, 9327*e*.
in azalea-petal-blight control, 802*h*.
for control of root disease and weeds in pure nursery, 7179*f*.
as cucurbit fungicide, 9327*g*.
effect on DDT as insecticide for aphids on celery, 346*d*.
in gladiolus-corm treatment, 9327*h*.
in gladiolus-storage-rot control, 3961*h*.
in *Sclerotinia sclerotiorum* control on beans, 2355*g*
in snapdragon-rust control, 9327*i*.
in tomato-fungus control, 9328*d*.
——, **ethylenedi-**, diallyl and bis(2-methylallyl) esters, polymerization of, P 7263*c*.
——, **ethyl[α-[(2-ethylbutylamino)methyl]benzyl]-**, ethyl ester-HCl, 6176*g*.
——, **ethylisoamyldithio-**, sodium salt, chemotherapy of, 1111*g*.
——, **ethyl[α - [(*p* - methoxybenzylamino)methyl]benzyl]-**, ethyl ester-HCl, 6176*g*.
——, **ethylnitroso-**, 2-chloroethyl ester, 4634*a*.
ethyl ester, 4652*i*.
——, **ethylthiono-**, ethyl ester, in leukemia therapy, 3107*d*.
——, **fluoranthenyl-**. See *Fluoranthenecarbamic acid*.
——, **fluorenyl-**. See *Fluorenecarbamic acid*.
——, **furyl-**. See *Furancarbamic acid*.
——, **glycolyl-**, lactone—see *2,4-Oxazolidinedione*.
——, **guanyl-**, esters, P 6229*a*.
——, **heptadecyl-**, derivs., waterproofing agents from, P 7714*f*.
——, **hexamethylenedi-**, diallyl and bis(2-methylallyl) esters, polymerization of, P 7263*c*.
——, **5-hydroxyamylthiol-**, *p*-tolyl ester, polymerization of, P 3659*a*.
——, **2-hydroxyethyl-**, ethyl ester, in leukemia therapy, 3107*d*.
lactone—see *2-Oxazolidone*.
salt with 2-aminoethanol, 6157*i*.
——, **(2-hydroxyethyl)thiono-**, lactone—see *2-Oxazolidinethione*.
——, **(hydroxymethyl)-**, esters and ethers with triglycerides, P 5968*e*
——, **(β-hydroxy-α-methylphenethyl)-**, stereoisomers, benzyl esters, separation of, 4238*i*.
——, **imidazolyl-**. See *Imidasolecarbamic acid*.
——, **indanyl-** See *Indancarbamic acid*.
——, **indanylidene-**. See $\Delta^{1,N}$-*Indancarbamic acid*.
——, **indenyl-**. See *Indenecarbamic acid*.
——, **isobutyl-**, ester with Me *p*-hydroxybenzoate, 593*e*.
——, **isopropyl-**, ethyl ester, 4652*i*.
——, **isopropylnitroso-**, ethyl ester, 4652*i*, 4653*a*.
——, **(*p*-isopropylphenethyl)-**, *p*-isopropylphenethylamine salt, 1351*g*.
——, **[*p*-methoxy-α-(*p*-methoxyphenyl)-phenethyl]-**, ethyl ester, 7008*d*.
——, **(methoxymethyl)-**, ester with λ-hydroxystearic acid triglyceride, P 5968*i*.
——, **(*o*-methoxyphenethyl)-**, *o*-methoxyphenethylamine salt, 1351*f*.
——, **(*p*-methoxyphenethyl)-**, *p*-methoxyphenethylamine salt, 1351*f*.
——, **(*p*-methoxy-α-phenylcarbamylphenethyl)-**, benzyl ester, 7458*d*.
——, **(*p*-methoxy-α-phenylphenethyl)-**, ethyl ester, 7008*d*.
——, **[α-(*p*-methoxyphenyl)phenethyl]-**, ethyl ester, 7008*d*.
——, **methyl-**, *m*-(1-dimethylaminoethyl)-phenyl ester—see *Miotine*.
esters, 4633*i*.
ethyl ester, in leukemia therapy, 3107*d*.
neoplasms of lungs from, 5108*b*.
phys. constants of, 2956*g*.
*p*-(o-hydroxybenzamido)phenyl ester, 2603*f*.
——, **methyldithio-**, salts, in oat smut control, 1137*g*.
——, **methylnitroso-**, esters, 4633*i*.
——, **naphthyl-**. See *Naphthalenecarbamic acid*.
——, **nitrosopropyl-**, ethyl ester, 4652*i*.
——, **octadecyl-**, ethyl ester, reaction product with crotonaldehyde and $NaHSO_3$, as detergents, P 8712*h*.
——, **octamethylenedi-**, diethyl ester and cellulose ester, 1563*f*.
——, **pentamethylenedithio-**. See *1-Piperidinecarbodithioic acid*.
——, **phenanthridyl-**. See *Phenanthridinecarbamic acid*.
——, **phenethyl-**, phenethylamine salt, 1351*f*.
——, **phenyl-**. See *Carbanilic acid*.
——, **α-phenylphenethyl-**, ethyl ester, 7008*d*.
——, **(α-piperonylpiperonyl)-**, ethyl ester, 7008*d*.
——, **propyl-**, ethyl ester, 4652*i*.
ethyl ester, in leukemia therapy, 3107*d*.
——, **pyrazolinyl-**. See *Pyrazolinecarbamic acid*.
——, **pyridindolyl-**. See *Pyridindolecarbamic acid*.
——, **pyridyl-**. See *Pyridinecarbamic acid*.
——, **quinolyl-**. See *Quinolinecarbamic acid*.
——, **sulfanilyl-**, esters, P 7044*e*.
methyl ester, P 821*a*.
——, **tetramethylenedi-**, cellulose esters, 1564*e*.
——, **2-thenyl-**, 2201*i*.
——, **4-thiazolin-2-ylidene-**. See *4-Thiazoline-$\Delta^{2,N}$-carbamic acid*.
——, **thiazolyl-**. See *Thiazolecarbamic acid*.
——, **thienyl-**. See *Thiophenecarbamic acid*
——, **thio-**, effect on color in electrolytic recording, P 2882*d*.
——, **(thiodiethylene)bis[dithio-**, zinc salt and compd. with 2,2′-thiobis-[ethylamine], P 5224*f*.
——, **(thiodiethylene)bis[nitroso-**, dimethyl ester, 2946*a*.
——, **(thiodiethylene)di-**, dimethyl ester, 2945*i*.
——, **thiol-**, esters, 4657*g*.
——, **thiono-**, ethyl ester, reaction with ethylene oxides, 7420*g*.
——, **tolyl-**. See *Carbanilic acid, methyl-*.
——, **2,2′,2″-trichloro-*tert*-butyl-**, esters, 2945*h*.
——, **ureylenebis[2,2 - bis(carboxyaminomethyl)ethylene]di-**, hexaethyl ester, 2936*e*.
——, **vinyl-**, ethyl ester, polymerization with 2,5,5-tricyano-2,4-pentadienamide, etc., P 4897*c*.
**Carbamic anhydride, tetraethyltrithio-**. See *Sulfide, bis(diethylthiocarbamyl)*.
——, **tetramethyltrithio-**. See *Sulfide, bis(dimethylthiocarbamyl)*.
**Carbamide**. See *Urea*.
**Carbamimidic acid**. See *Pseudourea*.
**Carbamite**. See *Centralite*.
**Carbamonitrile**. See *Cyanamide*.
**Carbamyl chloride**, aryl derivs., P 1438*h*.
derivs., reaction with aralkyl amines, P 1439*hi*.
derivs., reaction with piperazines, P 6245*afg*.
manuf. of, P 2635*h*.
reaction with hydrocarbons, 6183*c*.
——, **(2-chloroethyl)methyl-**, 7423*a*.
——, **dibutylthio-**, P 5038*c*.
——, **diethyl-**, condensation product with sulfonated 2-heptadecylbenzimidazole, P 441*g*.
——, **diethylthio-**, P 5038*c*.
——, **diisopropyl-**, P 6245*c*.
——, **dimethylthio-**, P 5038*c*.
——, **phenyl-**. See *Carbanilyl chloride*.
——, **thio-**, derivs., P 5038*b*.
**Carbamyl fluoride, diethyl-**, 3741*g*.
——, **phenyl-**. See *Carbanilyl fluoride*.
**Carbamyl group**, parachor of, 2057*g*.
**Carbanilaldehyde**. See *Formanilide*.
——, **2,6-dimethyl-**. See *2,6-Formoxylidide*.
**Carbanilic acid** (*phenylcarbamic acid*). (*The esters of this acid with complex alcohols and phenols will usually be found under the names of the hydroxy compounds.*)
*m*-4-biphenylylphenyl ester, 611*a*.
*tert*-butyl ester, 578*i*.
3-chloroallyl ester, 2928*c*.
*p*-chlorophenyl ester, 1352*b*.
compd. with decahydroquinaldine, 2960*a*.
derivs., 593*f*.
esters, 1028*h*, 7441*bf*.
with benzoin oxime and related compds., 1038*f*.
with 4-benzylamino-2-butanol, 2935*b*.
in weed control, P 1904*d*.
ethyl ester, consts. of benzene soln. of, 1619*f*.
effect on ionic permeability of red blood cells in relation to narcotic action, 7143*h*.

*ethyl ester*, effect on tropokinesis in onion meristems, 4346*i*.
as insecticide, 4415*b*.
in leukemia therapy, 3107*d*.
reaction product from stearoyltriaminotriethylenebiguanide, $CH_2O$ and, as surface-active agent, P 2786*g*.
isopropyl ester, effect on grasses, 9328*f*.
effect on mitosis in rye and onion, 7089*b*.
effect on respiration of plant tissue, 5456*i*.
effect on soil microörganisms and microbial processes, 1514*d*.
effect on sprouting of potato tubers, 7002*d*.
as herbicide, 1893*b*, 3554*g*.
in soils, persistence of, 3961*a*.
in weed control, 7625*a*, 9352*a*, 9354*d*.
4-*p*-menthyl ester, 3374*g*.
*m*-methoxyphenyl ester, 593*f*.
2-methylenecyclohexyl ester, 589*a*.
$\alpha,\alpha,\alpha$-trifluoro-*m*-tolyl ester, 593*f*.
vinyl ester, polymers, P 4898*e*.
**Carbanilic acid**, ***p*-(acetylsulfamyl)-**, benzyl ester, P 1805*b*.
———, ***p*-amino-**, furfuryl ester, 6176*b*
———, **4-amino-2,5-bis(benzyloxy)-**, esters, P 4165*g*.
———, **3-amino-2(and 4)-hydroxy-5-sulfo-**, ethyl ester, azo dyes from, P 5961*ab*.
———, ***N*-benzyl-**, ethyl ester, chromatographic sepn. and identification of, 8138*i*.
———, ***p*-carboxy-**, 4-butyl ester, ester with Bu *p*-hydroxybenzoate, 593*h*.
4-butyl 1-phenyl ester, 593*g*.
———, ***p*-chloro-**, ester with Bu *p*-hydroxybenzoate, 593*g*.
———, **2-chloro-*N*,3(and *N*,4)-dimethyl-**, esters with (*m*-hydroxyphenyl)trimethylammonium bromide, P 1439*f*.
———, **4-chloro-2-methoxy-**, ester with Bu *p*-hydroxybenzoate, 593*g*.
——— ***m*(*o* and *p*)-chloro-*N*-methyl-**, *m*-dimethylaminophenyl esters, P 1439*c*.
***p*-chloro-*N*-methyl-**, ester with (*m*-hydroxyphenyl)trimethylammonium bromide, cholinesterase inhibition by, 9103*b*.
ester with (*m*-hydroxyphenyl)trimethylammonium bromide, effect on muscle potential, 9261*b*.
———, **2-chloro-4-nitro-**, methyl ester, 169*a*.
———, ***p*-chlorothiono-**, ethyl ester, 5746*d*.
———, **2,4-dibromo-*N*-methyl-**, ester with (*m*-hydroxyphenyl)trimethylammonium bromide, P 1439*e*.
———, ***N*-(3-diethylaminopropyl)-**, ester with Bu *p*-hydroxybenzoate, 593*g*.
———, ***p*-(α,β-diethyl-*p*-methoxyphenethyl)-**, methyl ester, 9056*a*.
———, ***m*,*N*(*N*,*o* and *N*,*p*)-dimethyl-**, *m*-dimethylaminophenyl esters, P 1439*a*.
———, ***N*,*p*-dimethyl-**, ester with (*m*-hydroxyphenyl)trimethylammonium bromide, effect on muscle potential, 9261*a*.
———, ***p*-(α,β-dimethylcrotonylsulfamyl)-**, ethyl ester, P 7961*a*.
———, **4,5-dimethyl-2-ribitylamino-**, D-, ethyl ester, P 5044*b*.
———, **dithio-**, butyl ester, as insecticide, 4415*b*.
cadmium salt, in oat smut control, 1137*g*.
zinc salt, antifouling properties of, 3964*b*.
———, ***N*-ethyl-**, ester with Bu *p*-hydroxybenzoate, 593*g*.
ethyl ester, chromatographic sepn. and identification of, 8138*i*.
———, **ethyldithio-**, bismuth and Na salts, chemotherapy of, 1111*g*.
zinc salt, identification of, 6856*h*.
———, **hexahydro-**. See *Cyclohexanecarbamic acid*.
———, ***o*-hydroxy-**, lactone—see *2(3H)-Benzoxazolone*.
———, ***p*-hydroxythiol-**, *p*-tolyl ester, polymerization of, P 3659*b*.
———, ***o*(and *p*)-methoxy-**, esters with Bu *p*-hydroxybenzoate, 593*g*.
———, ***p*-methoxy-**, ester with Et *p*-hydroxydithiobenzoate, 593*g*.
phenyl ester, 593*g*.
*p*-sulfamylphenyl ester, 593*h*.
———, **2-methoxy-4(and 5)-nitro-**, methyl esters, 169*a*.
———, ***o*-methyl-**, ethyl ester, chromatographic sepn. and identification of, 8138*i*.
———, ***p*-methyl-**, *tert*-butyl ester, 578*i*.
———, **2-methyl-4-nitro-**, methyl ester, 169*a*.
———, **4-methyl-3-nitro-**, esters, 7448*d*.
———, ***p*-nitro-**, esters, 5736*h*.
ester with Bu *p*-hydroxybenzoate, 593*h*.
furfuryl ester, 6176*c*.
———, **5-nitro-2-propoxy-**, methyl ester, 169*a*.
———, ***N*-phenyl-**. See *Carbamic acid, diphenyl-*.
———, ***p*-(2-pyridylsulfamyl)-**, benzyl ester, P 1805*a*.
———, ***p*-sulfamyl-**, benzyl ester, P 1805*a*.
———, **2,3,5,6-tetramethyl-**, ethyl ester, 1619*e*.
———, **2,3,5,6-tetramethyl-4-sulfamyl-**, ethyl ester, 1619*e*.
———, **thiol-**, ethyl and Me esters, as insecticides, 4415*b*.
———, **thiono-**, esters, prepn. and anesthetic action of, 2703*b*.
ester with camphor oxime, 3806*g*.
ethyl ester, in leukemia therapy, 3107*d*.
methyl and Pr esters, as insecticides, 4415*b*.
3-(1-piperidyl)propylene ester, 6204*f*.
———, ***N*,2,3(and *N*,3,4)-trimethyl-**, *m*-dimethylaminophenyl esters, P 1439*d*.
———, ***p*-3,4-xyloylsulfamyl-**, ethyl ester, P 7962*e*.
**Carbanilide** (*1,3-diphenylurea*), anticorrosive power of, 548*a*.
and derivs., 170*h*.
detection in explosives, 8138*i*.
disazo dye derivs., P 8156*h*.
effect on aging of alkylarylsulfonates, P 6845*c*.
formation of, from PhNCO and NaOPh, 1352*a*.
formation of, from reaction of PhNCO with benzoin oxime and its derivs., 1038*f*.
———, **4,4′-bis[*p*-(2-amino-8-hydroxy-3,6-disulfo-1-naphthylazo)-phenylcarbamyl]-**, P 8690*d*.
———, **4,4′-bis[4-(3-carboxy-4-hydroxyphenylazo)-3-sulfophenylazo]-2,2′-dimethoxy-5,5′-dimethyl-**, P 5963*b*.
———, **4,4′-bis[4-[1-(3-carboxy-4-hydroxyphenyl)-5-hydroxy-3-methyl-4-pyrazolylazo]-3-sulfophenylcarbamyl]-**, P 857*h*.
———, **4,4′-bis(3-carboxy-4-hydroxy-5-sulfophenylazo)-†**, derivs., P 8156*h*.
———, **3,3′-bis[4-(3-carboxy-4-hydroxy-5-sulfophenylazo)-6-methoxy-*m*-tolylcarbamyl]-**, P 9459*g*.
———, **4,4′-bis[4-(3-carboxy-4-hydroxy-5-sulfophenylazo)-6-methoxy-*m*-tolylcarbamyl]-**, P 4487*g*.
———, **3,3′-bis[4-(3-carboxy-4-hydroxy-5-sulfophenylazo)-*m*-tolylcarbamyl]-**, P 9459*g*.
———, **4,4′-bis[4-(3-carboxy-2-hydroxy-5-sulfophenylazo)-*m*-tolylcarbamyl]-**, P 9459*g*.
———, **4,4′-bis(3-ethyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 9461*h*.
———, **4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from P 9461*g*
———, **4,4′-bis[*p*-(3-methyl-5-oxo-2-pyrazolin-1-yl)phenyl]thio-**, azo dyes from, P 9461*i*.
**4,4′-bis(5-oxo-3-phenyl-2-pyrazolin-1-yl)-**, azo dyes from, P 9461*h*.
———, **4,4′-bis(5-oxo-3-phenyl-2-pyrazolin-1-yl)thio-**, azo dyes from, P 9461*i*.
———, **4,4′-bis(2-pyridylsulfamyl)-**, P 3458*h*.
———, **4,4′-bis[4-(4,6,8-trisulfo-1-naphthylcarbamyl)-*o*-tolyl]carbamyl]-**, effect on hyaluronidase and staphylocoagulase, 3855*h*.
hexasodium salt, effect on lysozyme action, 3855*g*.
———, **4,4′-bis(3,6,8-trisulfo-1-naphthylsulfamyl)-†**, hexasodium salt, effect on hyaluronidase and staphylocoagulase, 3855*h*.
———, **2(3 and 4)-bromo-3′-iodo-**, 7447*i*.
———, **2′(3′ and 4′)-bromo-4-methyl-3-nitro-**, 7448*c*.
———, **2(3 and 4)-chloro-**, 170*i*.
———, **2(3 and 4)-chloro-3′-iodo-**, 7447*i*.
———, **3-chloro-3′-iodo-4-methyl-**, 7448*a*.
———, **2′(3′ and 4′)-chloro-4-methyl-3-nitro-**, 7448*c*.
———, **4-chloro-4′-methylthio-**, 9039*f*.
———, **3,3′(and 4,4′)-diamino-**, azo dyes from, P 9466*e*.
———, **4,4′-diamino-**, 2,2′,5,5′-tetraalkoxy derivs., polyazo dyes from, P 6426*f*.
trisazo dye from, P 4481*e*.
———, **4,4′-diamino-3,3′-dimethoxy-**, azo dyes from, P 9466*e*.
———, **4,4′-diamino-5,5′-dimethoxy-2,2′-dimethyl-**, azo dyes from, P 9466*e*.
———, **4,4′-diamino-2,2′,5,5′-tetramethoxy-**, azo dyes from, P 6426*h*, P 9466*eh*
———, **3,3′-dibromo-4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 9461*h*.
———, **4,4′-dichloro-**, as acaricide and insecticide, 3138*a*.
———, **2,2′(and 3,3′)-dichloro-4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 9461*h*.
———, **3,3′-dichloro-4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)thio-**, azo dyes from, P 9461*i*.
———, **4,4′-dichlorothio-**, as acaricide and insecticide, 3138*a*.
———, **4,4′-diethoxy-*N*,*N*′-diethyl-3,3′-dimethoxy-**, 2177*g*.
———, **4,4′-diethoxy-3,3′-dimethoxy-**, 2177*g*.
———, **4,4′-diethoxy-*N*-ethyl-3,3′-dimethoxy-**, 2177*g*.
———, **diethyl-**, effect on aging of vulcanized rubber, 3226*e*.
———, ***N*,*N*′-diethyl-**. See *Centralite*.
———, ***N*,*N*′-diethyl-3,3′,4,4′-tetramethoxy-**, 2177*f*.
———, **diethylthio-**, effect on aging of vulcanized rubber, 3226*d*.
———, **4,4′-diguanidino-**, carbonate, 5014*d*.
carbonate, in trypanosomiasis therapy, 8545*g*.
———, **4,4′-diguanidinothio-**, in trypanosomiasis therapy, 8545*i*.
———, **4,4′-dihydroxythio-**, effect on aging of alkyl arylsulfonates, P 6845
———, **2,3′(3,3′ and 3,4′)-diiodo-**, 7447*i*
———, **3,3′-dimethoxy-4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 9461*h*.
———, **4,4′-dimethoxythio-**, reaction with aryl ketones, 3002*e*
———, ***N*,*N*′-dimethyl-**, detection in explosives, 8138*i*.
———, **2,4-dimethyl-**, 170*i*.
———, **3,3′-dimethyl-4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)-**, azo dyes from, P 9461*h*.
———, **2,2′-dimethyl-4,4′-bis(3-methyl-5-oxo-2-pyrazolin-1-yl)thio-**, azo dyes from, P 9461*i*.
———, **3,3′-dimethyl-4,4′-bis[4-(3-methyl-5-oxo-2-pyrazolin-1-yl)-*o*-tolyl]-**, azo dyes from, P 9461*i*.
———, **2′,4(3′,4 and 4,4′)-dimethyl-3-nitro-**, 7448*b*.
———, **4,4′-dimethylthio-**, effect on aging of alkylarylsulfonates, P 6845*c*
———, **2,2′(3,3′ and 4,4′)-dinitro-**, 170*i*
———, **4,4′-disulfamyl-**, reaction with PhNHR, P 6660*e*.
———, **2-ethoxy-3′-iodo-**, 7448*a*.
———, **2′(and 4′)-ethoxy-4-methyl-3-nitro-**, 7448*c*.
———, ***N*-ethyl-3,3′,4,4′-tetramethoxy-**, 2177*f*.
———, **2,2′,4,4′,6,6′-hexabromo-**, 3378*c*.
———, **2,3′,4,4′,6,6′-hexachloro-**, 3378*c*.
toxicity to rats, 348*g*.
———, **2(and 4)-hydroxy-3′-iodo-**, 7448*a*
———, **2′(and 4′)-hydroxy-4-methyl-3-nitro-**, 7448*c*.
———, **3-iodo-**, 7447*i*.
———, **3′-iodo-*ar*,*ar*-dimethyl-**, 7447*i*.
———, **3′-iodo-2(3 and 4)-methoxy-**, 7448*a*.
———, **3′-iodo-2(3 and 4)-methyl-**, 7447*i*
———, **2′(3′ and 4′)-iodo-4-methyl-3-nitro-**, 7448*c*.
———, **3-iodo-4′-phenyl-**, 7448*a*.
———, **2′(and 4′)-methoxy-4-methyl-3-nitro-**, 7448*c*.
———, **2(and 3)-methyl-**, 170*i*.
———, **4-methyl-2′,3(3,3′ and 3,4′)-dinitro-**, 7448*c*.
———, **4-methyl-3-nitro-**, 7448*b*.
———, **4-methyl-3-nitro-4′-phenyl-**, 7448*b*.
———, **2-methyl-5-vinyl-**, P 5422*g*.
———, **2(3 and 4)-nitro-**, 170*h*.
**4-sulfamylthio-**, P 7042*f*.
–, **2,2′,5,5′-tetrachloro-**, 3378*c*.
–, **3,3′,4,4′-tetramethoxy-**, 2177*f*.
–, **thio-**, anticorrosive power of, 548*a*
s catalyst for polymerization of vinyl ester, P 1219*d*.

as catalyst in isomerization of maleic acid, P 1798g.
effect on aging of alkylarylsulfonates, P 6845c.
effect on pigment granule synthesis in melanoblasts, 745c.
formation from reaction of camphor oxime with PhNCS, 4232d.
from reaction of PhNCS with benzoin oxime and its derivs., 1038f.
from reaction of PhNCS with chloral, 4657h.
manuf. and use as vulcanization accelerator, 5987e.
manuf. from HCN from coke oven gas (given incorrectly in C. A. as diphenylurea), 7666g.
reaction with $CS_2$ and S, 2021c.
reaction with phenylacetaldehyde, 3003f.
reduction of, 1779h.
——, ar,ar,4-trimethyl-3-nitro-, 7448c.
——, ar-vinyl-, P 5422g.
**Carbanilonitrile**, formation from reaction of benzoin oxime with PhNCS, 1038h.
formation from reaction of menthone oxime with PhNCS, 4232e.
hydrolysis of, catalysis by $HgSO_4$, 1248f.
**Carbanilyl chloride**, m(o and p)-chloro-N-methyl-, P 1439c.
——, 2,4-dibromo-N-methyl-, P 1439c.
——, m, N(N,o and N,p)-dimethyl-, P 1439a.
——, 4-ethoxy-N-ethyl-3-methoxy-, 2177g.
——, N-ethyl-3,4-dimethoxy-, 2177f.
——, N-ethylthio-, P 5038c.
——, N,2,3(and N,3,4)-trimethyl-, P 1439d.
**Carbanilyl fluoride**, 3741g.
——, N-methyl-, 3741g.
**Carbanions**, lecture demonstration on, 8762d.
**Carbarsone** (*p-ureidobenzenearsonic acid*), in amebiasis treatment, 3066g.
in *Endamoeba histolytica* infection control, 9265g.
**Carbarsone oxide***, in amebiasis therapy, 8559b.
**Carbazaldehyde**, 2-[chloro(o-chlorophenyl)hydrazono]acetyl-2-(o-chlorophenyl)-1, 4260d.
——, 2-(o-chlorophenyl)-1, 4260c.
——, 2-phenyl-1, as insecticide, 5526a.
**Carbazamide**. See *Semicarbazide*.
**Carbazic acid** (*aminocarbamic acid, hydrazinecarboxylic acid*),

$$\overset{2}{N}H_2\overset{1}{N}HCO_2H.$$

esters, P 4293c.
hydrazide—see *Carbohydrazide*.
——, 2-carboxy-. See *Bicarbamic acid*.
——, 2,4-dimethylcyclohexylidene-, 3-p-menthyl ester, 2998f.
**Carbazide**. See *Carbohydrazide*.
**Carbazine**. See *Acridan*.
**Carbazole** (*dibenzopyrrole, diphenylenimine*), and alkyl derivs., 1391a.
antifouling properties of, 3964b
as antioxidant in alkyl benzenesulfonates, P 6846b.
from 3-carbazolesulfonic acid hydrolysis, 6205c.
compds. related to, 229d.
derivs., P 6669f.
derivs., antihistamine activity of, 4257e.
detection in explosives, 8138i.
detn. of, 3746g.
detn. of, in anthracene, 3747b.
9-(2-hydroxyalkyl) derivs., 623i.
manuf. of, P 1808g.
from 2-biphenylamine, P 9085i, P 9086b.
by hydrogenation of coal, 5171c.
mol. structure of, 942g.
purification of, P 3465i, P 4450f.
reaction with $C_2H_2$, P 7036h.
recovery from crude anthracene and purification, 209d.
sulfonation of, 6205f.
synthesis by Fischer method, mechanism of, 4257a.
**Carbazole, 2-amino-**, sulfonation of, 6205g.
——, 9-(anilinomethyl)-, 3819e.
——, 9-benzyl-, 3819d.
——, 6,8-dichloro-1,2,3,4-tetrahydro-, 622f.
——, 2,4-dimethyl-, 1319b.
——, 9-ethyl-, and picrate, 3819d.
——, 1,2,3,4,4a,9a-hexahydro-9-[2-(1-pyrrolidyl)ethyl]-, and hydrochloride, 4257g
2-isopropyl-4-methyl-, 1391c.
isopropyl-9-vinyl-, polymer, P 2035c.
1-methyl-, 4257a.
2(3 and 9)-methyl-, 1391b.
9,9'-methylenedi-, 3819e.
9,9'-(phenyliminodimethylene)-di-, 3819e.
9-propenyl-, and polymer, 624c.
9-propyl-, and picrate, 3819d.
propyl-9-vinyl-, polymer, P 2035c.
9-[2-(1-pyrrolidyl)ethyl]-, 4257g.
1,2,3,4-tetrahydro-, and derivs., dehydrogenation of, 1391b.
——, 1,2,3,4-tetrahydro-2-isopropyl-4-methyl-, 1391b.
——, 1,2,3,4-tetrahydro-9-methyl-, 1391b.
——, 1,2,3,4-tetrahydro-9-[2-(1-pyrrolidyl)ethyl]-, hydrochloride, 4257g.
——, tetrahydro-9-vinyl-, polymer, P 2035c.
——, vinyl-, P 7036h.
polymerization with Me methacrylate or styrene, 7260i.
polymers of, 4891g
compns. with nitrilotriacetic acid esters, P 5229i.
dielectrics from, 4891f.
molding with hydrogenated terphenyl derivs., P 9534h.
stabilization of, as insulating material, P 907f
——, 9-vinyl-, 624c.
in chigger control, 8600b.
and picrate, P 6669f.
polymerization inhibitors for, P 2037f.
polymers of, film and sheet from, P 2035c.
**3-Carbazolecarboxanilide, 2-hydroxy-4'-(4-morpholinyl)-3'-nitro-**, P 8162h.
**3-Carbazolecarboxylic acid, 2-hydroxy-**, P 3040e.
——, 1,2,3,4-tetrahydro-2,4-dimethyl-, 1391b.
**3,6-Carbazoledicrotonic acid**, γ,γ'-dioxo-, 7192h
**3,6-Carbazoledisulfonic acid, 1-hydroxy-**, 6206a
**9-Carbazoleethanol** (*2-(9-carbazolyl)ethanol*), and derivs., 624a.
and esters, P 6669df.
——, α-methyl-, 624a.
**9-Carbazolemethanol**, acetate and benzoate (esters), and their reaction with Grignard reagents, 3819b.
**Carbazolenine**. See *Isocarbazole*.
**3-Carbazolesulfonic acid**, detn. of, 973d.
and salts, 6205b.
**1,3,6,7-Carbazoletetrasulfonic acid**, detn. of, in presence of isomeric sulfonic acids and $H_2SO_4$, 973b.
**1,3,6-Carbazoletrisulfonic acid**, and salts, 6205f.
——, 7-amino-, and tripotassium salt, 6205h.
——, 2-hydrazino-, 6205i.
**Carbazoline**. See *9H-Pyrid[3,4-b]indole*.
**1-Carbazolol**, formation from 1-hydroxy-3,6-carbazoledisulfonic acid, 6206a.
**Carbazone, di-2-naphthylthio-***, purification and spectrum of, 9057b.
——, diphenyl-. See "phenylhydrazide" under *Formic acid, phenylazo-*.
——, diphenylthio-. See *Dithizone*.
**Carbazoplasts**, the term, 1214e.
**Carbenium compounds**. See *Carbonium compounds*.
**Carbides**. (See also *Alkaline earth carbides; Calcium carbide*.)
alloys (hard) contg —see "hard" under *Alloys*.
analysis of cemented, 1280i, 1287a.
bonds in, 2052a.
book: Carbides and Alloys (in Russian), 2566b.
brazing cemented, P 6968b.
brazing, to metals, 6561c.
cemented, 2144f, 2911c.
as ceramic materials, 9402e.
crusts of, app. for breaking, in elec. furnaces, P 7357g.
decompn. in carburized Co Fischer-Tropsch catalyst, 6064c.
detection in Cr-Mn steels, 1685h.
detn. in cast Fe, 4974h.
in Fischer-Tropsch catalyst, 4829b.
in steels, 965f, 4181bd, 4993b, 6110c, 6111a.
effect on heat resistance of steel, 85h.
in Fischer-Tropsch synthesis, 2081a, 3167d.
formation in steel, and effect of alloying elements thereon, 4201e.
formation of, kinetics of, 6063g.
hard, as turbine material, 7392f.
hardness (Knoop) data for, in tool steel, 984c.
identification in alloys, 79h.
lattice energies of, and electron affinity of $C_2^{--}$, 4093d.
metal, 3739h.
in powder metallurgy, 2142e.
properties and structure of, 918c.
segregation in high-speed steel, 4994e.
sepn. (electrolytic) from steels, 5718b, 7883i.
sepn. from inclusions in steel, 6111c.
spheroidization of, effect of C-Mo steel, 2146d.
in steel (alloy), 2914a, 6958b, 7397f.
steels contg. multiple, temp. stability of, 7396i.
in steels, interplanar spacings of, 7396h.
systems of refractory, 3163d.
in vanadium-alloyed high-speed tool steels, 6135g.
in wear-resistance improvement, 8999b.
**Carbimide**. See *Isocyanic acid*.
**Carbinamine** See *Methylamine*.
**Carbinol** See *Methanol;* and such headings as *Benzhydrol; Benzyl alcohol; 2-Propanol*.
——, acetyl-. See *2-Propanone, 1-hydroxy-*.
——, acetylmethyl-. See *2-Butanone, 3-hydroxy-*.
——, anthryl-. See *Anthracenemethanol*.
——, benzoyl-. See *Acetophenone, α-hydroxy-*.
——, benzyl-. See *Phenethyl alcohol*.
——, biphenylyl-. See *Biphenylmethanol*.
——, cyclobutyl-. See *Cyclobutanemethanol*.
——, cyclohexyl-. See *Cyclohexanemethanol*.
——, cyclohexylphenyl-. See *Cyclohexanemethanol, α-phenyl-*.
——, cyclopentenyl-. See *Cyclopentenemethanol*.
——, cyclopentyl-. See *Cyclopentanemethanol*
——, dimethylphenyl-. See *Benzyl alcohol, α,α-dimethyl-*.
——, dimethyl-p-tolyl-. See *8-p-Cymenol*.
——, diphenyl-. See *Benzhydrol*.
——, ethynyl-. See *2-Propyn-1-ol*.
——, furyl-. See *Furfuryl alcohol*.
——, imidazolyl-. See *Imidazolemethanol*.
——, methylphenyl-. See *Benzyl alcohol, α-methyl-*.
——, naphthyl-. See *Naphthalenemethanol*.
——, phenanthryl-. See *Phenanthrenemethanol*.
——, phenyl-. See *Benzyl alcohol*.
——, phenylenedi-. See *α,α'-Xylenediol*.
——, piperidyl-. See *Piperidinemethanol*.
——, pyranyl-. See *Pyranmethanol*.
——, pyridyl-. See *Pyridinemethanol*.
——, pyrimidyl-. See *Pyrimidinemethanol*
——, pyrrolidyl-. See *Pyrrolidinemethanol*.
——, quinolyl-. See *Quinolinemethanol*.
——, thienyl-. See *Thiophenemethanol*.
——, triethyl-. See *3-Pentanol, 3-ethyl-*.
——, trimethyl-. See *tert-Butyl alcohol*.
——, tris (p-aminophenyl)-. See *Pararosaniline*.
**Carbinols**. See *Alcohols; Methanol*.
**Carbitol**. See *Ethanol, 2-(2-ethoxyethoxy)-*.
**Carbocholine**. See "chloride carbamate" under *Choline*.
**2,2'-Carbocyanine chloride, 1,1'-dimethyl-***, effect on glycolysis in muscle exts., 7581g.
**Carbocyanine dyes**. See *Dyes*.
**Carbocyclic compounds**. See *Cyclic compounds*.
**Carbodiimide**,

$$HN{:}C{:}NH.$$

alkyl derivs., 1015c.
triphenylmethyl derivs., 4644i.
——, allyltriphenylmethyl-, 4645f.
——, benzyltriphenylmethyl-, 4645i.
——, bis(triphenylmethyl)-, 4645b.
——, 2-bromoallyl-tert-butyl-, 1016g.
——, 2-bromoallylcyclohexyl-, 1016f.
——, 2-bromoallyl(3-dimethylaminopropyl)-, and methiodide, 1016g.
——, 2-bromoallylisopropyl-, 1016e.
——, 2-bromoallylpropyl-, 1016d.
——, tert-butylcyclohexyl-, 1015i.

——, *tert*-butyl(3-dimethylaminopropyl)-, and methiodide, 10166.
——, *tert*-butylisopropyl-, 1015h.
——, *tert*-butylmethyl-, 1015g.
——, *tert*-butylpropyl-, 1015h.
——, di-*tert*-butyl-, 1016a.
——, methylpropyl-, 1015f.
——, phenyltriphenylmethyl-, 4645h.
——, triphenylmethyl-, 4645a.
**Carbohydrases.** (See also *Amylases; Dextrinase; Diastases; Glycogenase; Inulase; Invertase; Lactases; Maltase; Pectinase; Raffinase;* etc.)
bacteria contg., 2277i.
in crop juice of *Helix pomatia*, 4778b.
in kidney beans during germination, 8451i.
of wheat during ripening and synthesis of starch, 7553h.
**Carbohydrates.** (See also *Fermentation; Fructosan; Glucides; Glycoproteins; Saccharification; Sugars, analysis; Sugars;* etc.)
antigenic properties of protein from cottonseed in relation to, 7575c.
appetite for, in diabetes, 5485e.
of *Arundinaria tecta*, 4734i.
balance, pituitary-diencephalon system in, 4359f.
in beans during rust, 1463f.
biochem. studies on, 3483h, 3506b, 5008d, 5071c, 5103ef, 7062g, 8412h.
-biotin relation in metabolism of *Leuconostoc*, 7542i.
books: Collected Papers of C. S. Hudson, 932c; Untersuchungen über, Vol II, 1432b; Introduction to, Biochemistry, 2262b, Introduction to Chemistry of, 2627g.
boric acid complexes, amine salts derived from, P 1800d.
butanol fermentation and, 813g.
cell division and extension in relation to, 6285i.
in cereals, effect of vernalization on, 4343a.
in *Chlorella*, effect of starvation, N deficiency and light intensity on, 2285e.
in *Chlorella pyrenoidosa*, 2289f
from *Cladophora rupestris*, 3495h.
of copra, 881c.
in corn flakes, effect of steam on, 5875i
in corn, nicotinic acid content and, 277f.
in dental caries, 9180h.
derivs., P 678e.
derivs., effect of *Aspergillus oryzae* on, 8007a.
detection of, 66f.
detn. of, 2125g.
in diet, effect on amino acids of liver, 5095h.
effect on arterial pressure in renal hypertension, 6297c.
effect on diethylstilbestrol-induced mammary cancer, 8028a.
effect on liver damage from $CCl_4$, 3077c.
effect on work capacity during subsequent fasting, 1091h.
diet free of, vitamin $B_6$ and, 1095c.
diet low in protein and rich in, cirrhosis of liver and, 7097d.
diet of protein and, in nutritional disturbances, 9188i.
diet rich in, effect on amino acids in blood, 5834ef.
effect on arginase and phosphatase in liver and kidneys of normal and adrenalectomized rat, 1847a.
effect on glycosuria production after partial pancreatectomy, 3498h.
lipotropic need for inositol in, 2295g.
pancreatic islet hyperplasia from, 6709a.
effect on caries in teeth, 1843i.
on growth and N structure of *Saccharomyces cerevisiae*, 9150d.
on intestinal microflora of hens, 736d.
on N fixation in soil, 4801c.
on soil aggregation, 2349a.
on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489e.
esters and ethers of, P 2456e.
extn. from hemolytic streptococci, 9155b.
fat syuthesis from, effect of vitamin B complex on, 1468e.
formation by *Chlorella vulgaris*, 6361g.
in gelatin from blue-whale skin, 1206h.
in grain, changes in storage, 324c.
in grass, 4347g.
in guayule, effect of K deficiency and excess on, 281i.
in hay, and their detn., 6755g.
humus formation from, 7617e.
of *Hypholoma capnoides*, 5827g.
intake by pregnant women during wartime rationing, 1845e.
in invertase, 1817d.
in invertebrates of Black Sea, 6746c.
isomers of, inhibition of *Eberthella typhosa* and its release by mutation, 8005i.
in Jerusalem artichoke tubers and seeds, 1080i.
in kidney-bean stems, effect of 2,4-D on, 4735d.
in leaves of *Robinia pseudoacacia* during day, 9172i.
of *Lolium perenne*, 6284h.
loss during fermentation by barley roots, $CO_2$ production and, 4808h.
loss from leaves by respiration and translocation, effect of temp on, 3071e.
manuf. by hydrolysis of cotton plant husks, 7225b.
manuf. from wood waste, P 3618b.
metabolism—see *Metabolism, animal; Metabolism, plant.*
microörganisms in cecal contents of rats fed various, 2276i.
mol. assocn in, 2583f.
in oat plants, as influenced by mineral deficiencies, relation of vitamins $B_1$ and C to, 4734c.
in organisms during evolution, 8414i.
of ovomucoid, enzymic study of, 3481d.
oxidation with $HIO_4$, 1330e.
oxidation with mixt. of borax and $HgCl_2$, 1729g.
in paper pulp, bleaching effect on, 3614a.
in penicillin production, 3060e.
of perilla oil, 4032b
photosynthesis of—see *Photosynthesis.*
in *Pileus mexicanus* fruit during ripening, 5451c.
in plants attacked by viruses, 279h.
effect of P on, 7622d.
flowering and, 9175i
in plants (desert), seasonal dynamics of, 6703b.
in potato tubers, distribution of, 7092h
printing pastes thickened with, preventing thinning by diazonium salts with olefin amides, P 3207a
protein-sparing effect of, in normal and burned rats, 8022c.
of pseudomucin, sugars in, 3479i.
reaction (color) with orcinol and $H_2SO_4$, 3795g.
reviews on, 147b, 9040f.
in rice bran and germ, 1117e.
in sauerkraut brines, 1499d.
of Scrophulariaceae, 8451e.
of sea-urchin egg jelly coat, 4389h.
of sea-urchin egg jelly coat, genus specificity of, 4389e.
in soils, 337g.
in soybeans, effect of radiation from different carbon-arc sources on, 8017d.
specific dynamic action of, and effect of vitamins and hormones thereon, 4353d.
spectra (infrared) of, 4461f.
in sweet potatoes, 2454f
*Tenebrio molitor* requirements for, 4387h.
in tobacco, effect of soil humidity on, 9383a.
in tobacco (fermented Rumanian), 5907f, 9382e.
in tobacco leaves, effect of position on stalk and topping on, 1080f.
in tomato plant, effect of temp. on translocation of, 8020g.
in tomato-root nutrition, 7091b.
translocation in bean plants, movement of phenoxy compds. in relation to, 6705e.
in uterus, effect of corticosuprarenal hormone on, 7113a.
utilization by animal tissues, effect of vitamin $B_1$ on, 2294f.
by chick embryo, 5465c.
by *Lactobacillus bulgaricus*, 2669h.
after pancreatectomy, effect of 11-desoxycorticosterone acetate on, 8495c.
by tissue, effect of vitamin $B_1$ on, 9184a.
in young and old, 3072g.
of wheat endosperm, effect of vernalization on, 5831f.
in wood, effect of lignin-destroying fungi on, 8131f.
**Carbohydrazide** (*s-diaminourea*), $(H_2N.NH.CO.NH.NH_2)$.
1 2 3 4 5
*(1,5-Dialkylidene derivs. are entered as carbohydrazones under the corresponding aldehydes and ketones.)*
——, diphenyl-, effect on glucose metabolism of heart and muscle, 8550c.
——, 1,5-diphenyl-, copper chelate complex, rotproofing effectiveness in duck, 5958b.
**Carboids,** lubricant improvement by, 7219b.
**Carbolic acid.** See *Phenol.*
**Carboline.** See *Pyridindole.*
**β-Carboline.** See *9 H-Pyrid[3,4-b]indole.*
**4-Carboline.** See *9 H-Pyrid[3,4-b]indole.*
**5-Carboline.** See *5 H-Pyrid[3,2-b]indole.*
**Carboloy,** compression of, 4917a.
**Carbomethoxy group,** effect on stability of arylazochloroacetic acids, 4259c.
**Carbon.** (See also *Charcoal; Coal; Diamonds; Graphite; Lampblack; Soot.*)
abrasive contg. cryst., P 3164i.
as absorbent for $SO_2$ from flue gas, P 7201g.
activated with $CO_2$, $K_2CO_3$, KCNS and $ZnCl_2$, adsorption by, 8790a.
active—see also *Water, purification of.*
active, 5571i, 5572bcdefgh.
acid-treated phosphate-impregnated, P 4452d.
adsorbent, deposited on porous space, P 6762e.
adsorbent, reaction with O, 4546h.
adsorption of acetone, BuOH, 2,3-butylene glycol and ethylene chlorohydrin by, 6b.
adsorption of molybdic or perrhenic acid by Norite, 8794b.
amine adsorption by, 6037d.
from *Balanites aegyptica*, 8572d.
catalyst alone and with metal chlorides in chlorination of bis(perfluoroalkyl)benzenes, 6174f.
as catalyst carrier in hydrogenation of CO, 2398i, 2399c
catalyst for Hg vapor reaction with $O_2$, 6054c.
as catalyst in amination of isomeric butyl ales, 1005a.
as catalyst in dehalogenizing and desulfurizing hydrocarbon oils, P 390c.
as catalyst in dehydrochlorination of dichloroethane, 4628h
as catalyst in 2-methylpropene reaction with nitrosyl halides, P 7950
as catalyst in pyrolysis of 1,1-difluoroethane, P 6645a.
as catalyst in S removal from gasoline 8125e.
catalyst of Co or Ni carbonyl and, in reaction of olefins, CO and $H_2$ P 670i.
catalyst of $CuCl_2$ and, in chlorination of pyrazine, P 5809f.
catalyst of $HgCl_2$ on, in $C_2H_3Cl$ manuf., P 3024f.
catalyst of $HgCl_2$, $ThCl_4$ and, in HCl reaction with $C_2H_2$, P 1433e
catalyst of platinized, blocking by decompn. products of hydrocarbons, 7802a
catalyst of platinized, hydrogenation of $C_3H_6$ on, 1249g.
catalysts contg. $AlCl_3$ from, P 3162
catalysts of Co and, for polymerization of $C_2H_4$ and $C_3H_6$, P 2763h
catalysts of Cu pyrophosphate and, in polymerization of olefins, P 1559
catalysts of Ni, or Ni and Se and, in isomerization of oils, 2792a.
catalysts of Pd or Pt on, in ring closure of *o*-allylphenol and of *o*-ethylphenol, 4252i.
catalytic properties of platinized, effect of heat treatment on structure and, 1249e.
from coconut shells, in air purification in apple storage, 3537d.
in contratoxification of plant-growth regulators, 2355h.
dimerization of diolefins in the presence of, 590i.
disporportionation and dehydrogenation of hydrocarbons on, 5656h.
effect on invert-sugar detn. in molasses, 8715a.
in $C_3H_4$ sepn. from fuel gas, P 7670e.
fluidization in manuf. of, 9414h.
gold adsorption by, in cyanide process, P 6562c.
from grape seeds and nut shells, 9295i
heats of adsorption of $C_2H_2$ and $H_2S$ by, 7317c.
heats of adsorption of gases and vapors by, 6903g.
iodized salt contg., P 1926e.
as lysozyme inhibitor, 8405i.
manuf. from dried blood, P 4838b.
manuf. from fluidised-wood distn., 1950c.

*active*, manuf. from molasses, sugar-house waste water, etc., P 369*i*.
manuf. from rice husk, effect of gas atm. on, 4834*f*.
manuf. of, P 5574*e*.
methane sorption by, under high pressure, 1237*h*.
occlusion of $Et_2O$ vapor from air current by layer of, 5255*c*.
in odor control at Key West sewage plant, 1887*f*.
from phenol-aldehyde resins, structure and sorption properties of, 838*b*, 6037*c*.
in purification of fuel gas, 3173*b*.
purification of liquids with, P 4907*e*.
in reduction of absorption of odors by stored peanuts, 3534*i*.
regeneration of, P 1552*h*.
sorption of $H_2O$ vapor by, and porosity of, 4075*g*.
structure and time of attainment of adsorption equil. by, 7289*d*.
for sugar refining, etc., P 890*c*.
vapor adsorption by, 16*f*.
x-ray study of, 6396*e*.
adhesion to cooking utensils, prevention of, P 5634*e*.
adsorbent, effect on vitamin efficacy of balanced diet, 1846*a*.
adsorption by, 462*e*.
of acids and bases, pH and, 6035*c*.
from streams of soln., 1238*e*.
alloys and elements with, crystal structure of, 7885*a*.
alpha-ray-bombarded, mesotrons from, 6076*i*.
amino acids as source of, for yeast, 9157*i*.
anodes of—see *Anodes*.
as antioxidant in paraffin oil, 2411*b*.
assimilation of, in potato plant, effect of Mn on, 7091*a*.
in production of dry matter of plants, 1081*c*.
by yeasts, phosphate uptake and, 270*h*.
in austenite, activity, etc., of, 7314*h*.
*Azotobacter* nutrition with, 5821*b*.
bacterial adaptation to sources of, 2669*f*.
balance of *Chlorella*, 2289*b*.
boradiation of, 9093*e*.
black, from $C_2H_2$, P 9422*a*.
activity measurement and electron micrography of, 6454*d*.
adsorption (multimol.) by, 7289*a*.
adsorption of AmOH and MeOH by, 462*f*.
adsorption of gaseous hydrocarbons by, 8254*h*
adsorption of $NO_2$-$N_2O_4$ by graphitized, 6035*a*.
agglomeration with latex for use in rubber, P 2803*d*.
air removal from, and compacting of, P 5929*e*.
analysis of, 6454*g*.
analysis of, for grit, ash and moisture, 3993*h*.
catalysts of, porosity of, 2080*c*.
channel *vs.* reinforcing furnace, and their effects in rubber compds., 6855*a*.
coagulation by ultrasonic waves, 8577*h*.
coating compn. from polychloroprene and, P 3659*gh*.
cold flow and changes in rate of relaxation in polysulfide rubbers by, 2013*c*.
combustion of, detn. of time for, 8648*f*.
configuration in rubber, 8722*i*.
counteracting accelerating tendency in rubbers of, 2800*i*.
crystal structure of, 1949*g*, 4072*g*.
detergency or dispersivity in lubricating oils, 5933*d*.
detn. in chocolate, 7158*a*.
detn. in rubber, 4887*e*, 8187*d*, 9515*h*.
by dichloromethane pyrolysis, P 2408*i*.
dispersing machine for, 5648*f*.
dispersion in ink vehicles, P 1200*d*.
dispersion in rubber, effect of adsorption of fatty acids on, 1599*f*.
dispersions in castor oil, linseed oil and mineral oil varnish, dielec. consts. at rest and under shear *vs.* vol. % concn. of, 8175*h*.
effect on adhesion of Buna-S and rubber to brass, 5985*f*.
effect on concrete, 9409*f*.
effect on dynamic characteristics of Neoprene GN and rubber, 7254*i*.
effect on elec. resistivity, etc., of butadiene rubber, 8188*c*.
*black*, effect on frictional coeffs. of rubbers, 2012*e*.
effect on GR-S rubber, 8189*a*.
effect on phys. and processing characteristics of GR-S and rubber, 2461*a*, 8726*ei*.
effect on plasticity of stored rubber, 7737*i*.
effect on polysulfide rubber from polythiodiglycol, 4043*b*.
effect on ratio to plasticizer on power consumption in rubber mixing, 5984*i*.
effect on soils, 9317*i*.
effect on surface tension of C black pastes and reinforcement of rubber, 2800*g*.
effect on viscosity of rubber, 7251*b*.
elec. heating panel contg., P 2526*g*.
electron microscopy of, 6040*g*, 7216*c*.
gel complex in cold-rubber reinforcement, 9515*d*.
by grinding carbonaceous material, 1169*h*.
GR-S rubber swelling and reinforcement by, 2014*a*.
He adsorption by, 6037*a*.
from hydrocarbons, P 5930*a*.
industry in 1946, 2127*a*.
infrared absorption and transmission by, 944*c*.
inorg. particles coated with, for filling rubber, etc., P 7745*c*.
limits for mixing with plasticizers for rubber compounding, 2458*g*.
low-compression set in nitrile rubber by furnace, 7255*g*.
in low-temp. GR-S rubber improvement, 3644*c*, 8724*c*.
lubricants from, P 5183*hi*, P 8184*b*.
manuf., crystallite sizes and reinforcing properties of reinforcing furnace, 7251*i*.
manuf. of, P 1172*cd*, P 3178*a*, P 5574*f*, 8647*i*, P 8652*b*.
manuf. of Seval, 2407*b*, 3598*h*.
from $CH_4$, P 6812*g*.
mixing with rubbers 894*c*, 9515*g*.
mixt. with alkylthiazolyl disulfides for rubber compounding, P 5990*i*.
org. acid manuf. from, P 3176*a*.
pelleting of, P 2409*b*.
polymerized hydrocarbon-coated, for ink, 1196*e*.
reaction with MeMgI, 2068*f*.
reinforcing effect in rubber, 3225*a*.
reinforcing effects in rubbers vulcanized by olefin sulfides, 8191*hi*, 8192*ab*.
reinforcing furnace, and their effects on processing shrinkage and scorching of rubbers, 4887*a*.
review on, 8648*c*.
rheology of suspensions of, 419*g*
in rubber compounding, pH and structure in, 892*d*.
in rubber, effect of aromatic hydrocarbon plasticizers on, 1208*d*.
in rubber industry, 6454*g*.
rubber mixts. with fine, nonscorching accelerator for, 1210*g*.
rubber mol. adsorption by, in increasing recovery on storage, 7738*i*.
rubber properties and particle size of, 1599*i*.
rubber-reinforcing properties of high-abrasion furnace, and their measurement, 8722*i*.
scorching of rubbers by reinforcing furnace, prevention of, 7251*g*.
soap adsorption by, 7289*b*.
structure of, 9418*f*.
bombardment with charged particles, threshold energy for mesotron production by, 4561*c*.
bonds—see *Bonds; Double bonds; Triple bonds*.
books: Isotopic, 947*f*; Hochstromkohlebogen, 5672*f*.
from boron ($B^{12}$) by $\beta$-decay, 1260*c*.
as building material for industry and labs, 2041*c*.
as catalyst in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
catalyst of $Al_2O_3$ and, in ethylation of $PhNH_2$, P 1437*e*.
catalyst of $Al_4C_3$ and, in aromatic hydrocarbon formation from $C_2H_2$, P 5040*d*.
catalyst of $CaSO_4$ and, in addn. of HBr to fluoro olefins, 7407*b*.
catalyst of Pd and, in reduction of aromatic ketones, 4241*g*.
catalysts from, P 5886*h*.
chains of—see *Chains (chemical)*.
in chem. engineering, 8745*b*.
chlorite activation by, P 1160*f*.
in chromium-Fe and Cr-Fe-Si alloys, 2553*h*.
in coal tar, 1949*b*.
coating with, on vitreous $SiO_2$, 2833*a*.
colloidal, effect of particle size and shape of, in coatings (vol. reference of jour. should be 33), 3629*b*.
combustion of, and its inhibition, 9417*a*.
combustion of, inhibition of, 3592*e*.
combustion of spherical particle of, effect of secondary reactions on, 5268*a*.
combustion of tubes of, 2495*a*, 6896*a*.
in comet Bester (1947 *k*), 938*e*.
in comet 1947 *n*, 2509*a*.
in comet 1948 *g*, 3711*e*.
in comet 1948 *l*, 5662*g*.
in comets, 490*i*.
complexes with montmorillonite, 2841*d*.
cosmic-ray absorption in, at high altitudes, 4095*g*.
covalent and packing radii of, relation between, 9*i*.
crystallochem. electronegativity of ion of, 8231*b*.
decolorization by, in sugar manufacture—see *Sugar manufacture*.
decolorizing, in sugar detn. in plant material, 6542*a*.
as deoxidizer in Cr-Mo alloys, 8336*i*.
deposition on catalyst in $CH_4$ synthesis, 3169*g*.
deposition on catalysts in cracking of hydrocarbons, effect on extractability of surface Na, 2414*h*.
deposits, in air compressors, C-O complex on, in initiation of explosions and formation of CO, 5952*c*.
deuteron bombardment of, 4560*e*.
energy levels of $N^{14}$ from, 8869*i*.
$\gamma$-ray resonance in, 4093*h*.
$\gamma$-rays and neutrons from, 5294*d*.
neutrons from, 8866*h*.
proton resonances in, 4947*f*.
threshold for nuclear reaction in, 5294*c*.
dextran-fraction adsorption by, mol. wt. and, 6886*g*.
diffusion and soly. in Fe, 9004*c*.
diffusion of, in austenite, 80*c*, 3334*c*, 6958*b*.
in Fe, strain aging and, 7881*d*.
into steel during carburizing, calcn. of curves for, 2144*d*.
disintegration of, by mesotrons, 2861*f*.
disintegration of, in stratosphere, 4560*f*.
displacements of, in austenite-martensite transformation, 918*h*.
effect on activity of S in liquid Fe, 4930*f*.
on adsorption of $CH_4$ by Ni Fischer catalysts, 6064*a*.
on antiaging effect of *m*-dinitrobenzene and nitro compds. in rubber, 3226*de*.
on brittleness of steel, 1301*e*.
on Cu-Ni steel welds, 552*g*.
on corrosion resistance of steel, 1306*a*
on fireclay, 8112*a*.
on graphitization of Fe, 8997*g*.
in gray-Fe castings, 2555*f*.
on high-speed steel, 8334*g*.
on interfacial tension in FeS system with silicate, 7795*a*.
on Fe, 2912*a*.
on Fe single crystals, 2558*h*.
on lubricants, 7219*c*.
on Mg-alloy grain refinement, P 105*h*.
on magnetic properties of Co-Fe-V alloys, 8338*b*.
on nitridation of steel, 6958*b*.
on steel weldability, 3767*c*.
on steel yield strength and aging, 4200*ce*.
elec. arcs with, 2523*g*.
elec. brushes of—see *Electric brushes*.
elec. charge on, in org. mols., 6582*f*.
elec. resistance of, temp. and, 2501*d*.
for electrodes, ash removal from coal for, 1940*h*.
for electrodes, from coal, 5927*d*.
electrodes of—see *Electrodes*.
electron affinity of, 5303*g*.
electron stopping power of, 34*d*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*.
equil. with metals, 4917*e*.
equiv. in gray cast Fe, 9004*i*.
exchange of, in hydrocarbons, 2081*b*.
fatty acid adsorption by, effect of ultrasonic waves on, 7774*f*.
fluorination of, P 3834*g*.
formation of, on catalyst in $CO_2$ reaction

with $CH_4$ and prevention thereof, 1944*g*, 4445*g*.
during combustion, inhibition by $SO_2$, 4145*a*.
in gas engines, prevention and relation to preignition and detonation, 2411*e*.
on MgO-$SiO_2$ catalysts in cracking by fluid-catalyst process, 8656*d*.
free radical ($C_2$) in cyanogen combustion, 7663*e*.
free radical ($C_3$) in low-pressure flames, 5312*g*.
gamma-ray absorption by, 1647*a*, 8867*a*.
gamma-ray action on ionization current after passage through, 5282*g*.
gamma-ray bombardment of, cross section for, 484*h*.
gamma-ray bombardment of, threshold for reaction in, 4115*f*.
gamma-ray scattering by, 8266*a*.
gasification of fluidized, by $CO_2$, 6807*h*
geochemistry of, and $C^{12}/C^{13}$ ratio in earth, meteorites, limestones and shales, 2906*a*.
graphitization of—see *Graphitization*.
heat of dissocn. of, 8877*f*.
heat of reaction with $SiO_2$, 4582*i*, 7794*e*.
heat of sublimation of, 452*gi*.
histidine isomers as source of, for bacteria, 7080*g*.
hydrogen overvoltage on, in MeOH solns., 4585*c*.
-hydrogen ratios of coal and petroleum, 2409*d*.
impregnation of, for primary-cell electrode, P 6530*e*.
industrial, 1551*e*.
inorg. constituents of, 3597*d*.
ions (neg.) of, mass-charge ratio of, 8848*a*.
isotope of mass 10, from $B^{10}$ by proton action, radioactivity of, 3284*c*.
isotope of mass 10, skin of, 4911*i*.
isotope of mass 11, from γ-ray action on $C^{12}$ and $O^{16}$, 8850*b*.
isotope of mass 11, mass value for, 8850*d*.
isotope of mass 13, in acetate and butyrate incorporation into liver glycogen, 5099*h*.
in aminodicarboxylic acid formation in blood, 8499*e*.
in $CO_2$ fixation in α-oxoglutaric acid, 2249*c*.
dehydroisoandrosterone acetate contg., in 16-position, 2213*i*.
in exchange between a formamido group and formamide, 6984*a*.
in D-glucose oxidation by yeast, 1460*c*.
in H-exchange reactions of $Me_2(C^{13}H_3)CH$, 7897*eg*.
magnetic moment and gyromagnetic ratio of, 5303*f*.
magnetic moment of, 4114*f*.
in oxalic acid and its decompn. products, 8859*e*.
in α-position of alanine, 5004*h*.
proton emission in production of, from $B^{10}$ by α-ray action, 6910*a*.
rupture of C-C bonds in propane labeled with, in 1-position, 5299*c*.
thermodynamic equil. in, freezing-in of, 3708*i*.
tryptophan labeled in $CO_2H$ group from hydantoin contg., 211*f*.
in tryptophan metabolism studies, 8026*c*.
isotope of mass 14, in acetate and $CO_2$ incorporation into liver proteins, 9090*a*.
in acetate and pyruvate utilization by heart, 8513*a*.
in acetate and pyruvate utilization in diabetic rat heart and diaphragm, 8513*c*.
in acetic acid synthesis and uric acid decompn. by *Clostridium acid urici*, 9146*i*.
in acetic and aspartic acid formation from glycine, 5482*h*.
acetylene contg., 1713*h*.
in aldoketene dimer structure detn., 4220*g*.
in amino acid formation from acetate and bicarbonate, 8027*g*.
in amino acid incorporation in animal tissue proteins in amino acid deficiencies, 734*i*.
in anthranilic acid metabolism in *Neurospora*, 7541*h*.
assimilation in *Scenedesmus*, 8009*f*.
autoradiographs of, in blood cells, 2262*h*.
*isotope of mass 14*, in benadryl metabolism studies, 7584*i*.
in benzidine rearrangement study, 7927*c*.
β-rays from, 36*g*, 3707*g*, 4091*h*, 4096*d*.
biotin contg., in the ureylene group, 9066*a*.
bromomethane, dimethylcadmium and progesterone contg., 4680*f*.
1-butene contg., in 4-position, 9023*g*.
in caproic and valeric acid synthesis by *Clostridium kluyveri*, 7077*i*.
$CCl_4$ and $CH_4$ contg., 2090*h*.
in cholesterol synthesis from acetate by adrenal cortical tissue *in vitro*, 2245*d*.
in citric acid synthesis studies, 7990*e*.
cyanamide and urea contg., 7814*g*.
in cyanamide, urea and related compds., 5007*b*.
deposition in bone, 4373*f*.
6-dimethylamino-4,4-diphenyl-3-heptanone, EtBr and EtOH contg., 9031*f*.
distribution in blood sugar, glycogen and lactate, 7995*g*.
in drugs synthesized by plants, 1910*b*.
effect of cathode rays on niacin labeled with, 8863*b*.
effect on chromosomes, 4733*a*.
effect on leaves of medicinal plants, 6786*h*.
electroscope for, 7757*d*.
elimination after administration as carbonates from tissue and tissue components, 3905*e*.
$C_2H_4$ and EtI contg., 37*h*.
fate in animal after injection of labeled $Na_2CO_3$, 7507*d*.
in Fischer-Tropsch synthesis, 2080*i*.
fixation by *Bryophyllum* leaves, 8009*i*.
D-glucose and D-mannose contg., 3795*c*.
in glucose metabolism in diaphragm, 6714*e*, 8020*e*.
in D-glucose oxidation by normal and alloxan-diabetic rats, 2310*a*.
in glutathione synthesis from glycine in liver, 8503*c*.
in glycine incorporation into protein and lipide fractions of homogenates, 7538*c*.
in glycine metabolism studies, 9120*g*.
half-life of, 6508*b*, 8266*d*.
in hemoglobin synthesis from glycine, 2243*f*, 8480*d*.
incorporation into desoxyribonucleic acid in animal organism, effect of x-rays on, 7529*g*.
as indicator of lactic acid and $CO_2$ function in fermentation of lactate by *Clostridium lacto-acetophilum*, 2276*h*.
ionization by β-rays from, 4093*d*.
in lipide synthesis studies, 5481*b*, 7114*g*.
in lipogenesis from glucose, 8509*g*.
from malic and succinic acids, 1324*g*.
in methadone distribution studies, 5865*i*.
in $CH_4$ formation study, 7187*h*.
in 17-methyltestosterone and progesterone, 5029*a*.
microsynthesis of EtMgI labeled with, 4130*g*.
in nicotinic acid and nicotinamide metabolism studies, 2295*e*.
org. compds. contg., 1007*b*, 9040*i*, 9051*f*.
in pentobarbital metabolism studies, 6306*h*.
in phenylalanine metabolism studies, 8550*g*.
in phenylglyoxal rearrangement study, 608*b*.
in photosynthesis studies, 5456*a*.
in protein synthesis studies, 5436*f*.
pyruvic acid carbonyl group, 2582*i*.
in rearrangements of tertiary alkyl chlorides, 6969*b*.
in serine formation from choline, 7504*i*.
in silk synthesis in silk worms, 7149*b*.
succinic acid contg., in carboxyl position, 2861*i*.
in succinic acid metabolism by heart in biotin deficiency, 293*b*.
in sugar formation during photosynthesis, 7088*i*.
tridecanoic acid contg., 7333*b*.
in trilaurin oxidation studies *in vivo*, 2298*a*.
*isotope of mass 14*, DL-tryptophan and related compds. contg., 8379*h*.
in tryptophan metabolism studies, 7114*h*.
tyrosine contg., ketone body formation from, 1745*h*.
uptake by bones and other tissue, 8508*e*.
uptake from carboxyl-labeled glycine into protein of *Torula utilis*, 8439*a*.
in urea metabolism study, 2302*h*.
in urethan metabolism studies, 9251*c*, 9258*c*.
uric acid labeled with, biosynthesis of, 3501*f*.
in wood of different ages and origin in nature, 3288*a*.
in yeast metabolism study, 9141*a*.
isotopes (heavy and radioactive) of, in microbiology, 4725*h*.
isotopes of, adenine contg., 3366*i*.
in animal organism studies, 4710*c*.
in bacterial metabolism study, 5449*d*
biochem. applications of, 7069*d*.
in earth's atm., 3289*i*.
in glycogen after feeding labeled compds. in study of intermediary metabolism, 5482*g*.
isotopes of masses 11 and 12, from deuteron action on $B^{10}$ and $B^{11}$, 8866*d*.
isotopes of masses 13 and 14, benzene, benzoic acid and toluene contg., 9045*e*.
isotopes of masses 13 and 14, as indicators of chem. reactions, 7338*a*.
isotopic mass effect on rate of rupture of bonds of, 2862*d*.
in lampblack manuf., loss of, 6396*b*.
lining conduits with, P 3669*e*.
linings of, for blast furnaces, 7878*d*.
loss from soil org. matter, 1891*d*.
lyoparachor of, 2834*c*.
manuf. of, P 1172*c*, P 3177*e*.
mass defects of, 8271*i*.
mass photoelec. absorption coeff of, 483*c*.
melting of, 4909*i*.
mesotron-bombarded, electrons from, 6504*g*.
metabolism of, in *Anabaena cylindrica* in relation to growth and heterocyst production, 7091*e*.
metabolism of, in *Chilomonas paramecium* kinetics and energetics of, 3881*h*.
in metals, reactions with gases in vacuum, 29*f*, 6053*f*.
metamorphosis of, in coal formation, 6395*d*.
in nature, and use of its reactivity, 2477*h*
neutron-bombarded, deuterons, protons and tritons from, 4947*e*, 8265*f*.
neutron cross section of, 3282*h*, 4111, 5286*b*, 6909*d*.
neutron range in, 6075*g*.
nickel contg., P 7358*e*.
-nitrogen assimilation ratio in *Chlorella* effect of starvation, N deficiency and light intensity on, 2285*f*.
from nitrogen by neutron action, 2088*h*
-nitrogen ratio in soils of Spain, 8590*g*
in oil removal from solids or $H_2O$, P 3949*e*.
in open-hearth process, addn. as gas, 7289*c*.
oxidation of, in acid open-hearth process, rate of, 8327*e*.
crystal structure and purity in relation to, 26*c*.
kinetics of, 1632*g*.
life of chain carriers in, 7308*e*.
oxy ions of, bond lengths in, 4910*f*.
in photosynthesis, 6287*e*.
pigments—see *Pigments*.
in pollens and spores of vascular plants, 8010*f*.
potential against $MnO_2$ electrode, 2101*i*.
precipitation of, from solid soln. in α Fe, 3758*a*.
properties of, 2051*d*.
proton-bombarded, N from, 4114*i*, 6910*c*.
proton bombardment of, γ-rays from, 8860*h*.
proton bombardment of, reactions in, 1646*g*.
proton scattering by, 1259*g*.
radius of atoms of, 2478*e*, 3252*c*.
reactions with Ba, Ca and Mg nitrides, 8930*d*.
with $CO_2$, 3649*i*, 7309*b*.
with O and steam, 2076*g*.
with protons and γ-rays in sun, rate of, 4093*c*.
with steam, mechanism of, 3694*e*.
with S and water to form $H_2S$, 2847*b*.

from gases from heating rubber, retort for, P 5992*f*.
refractory materials from, 3584*f*.
removal from steel—see *Steel*.
removal of, cleaning compns. for, P 3640*c*.
from contact material, P 2764*b*.
from engines, turbines, etc., compn. for, P 6439*b*.
from fuel gas, P 6397*d*.
from Fe powder, P 2566*g*.
in sediments and sea water, 5350*e*.
silica reduction with, rate of, 5687*h*.
in soils of India, 9311*d*.
of prairie, effect of fertilizers on, 1129*i*.
of Spain, 5891*a*.
solid solns. in Fe, 1300*h*.
source of, as determinant in amylase formation by *Bacillus subtilis*, 2278*e*.
spectra of, 940*b*, 7338*g*, 8877*g*, 8883*h*.
in flames, 5312*g*.
Swan bands in, 2510*ef*.
in star AR Pavonis, 7335*e*.
in star Nova Cygni 1948, 39*d*.
in star Nova Persei 1901, 8877*d*.
in star Nova Serpentis 1948, 39*e*, 490*c*.
in star γ Pegasi, 938*f*, 2509*f*, 5301*e*.
in star R Coronae Borealis, 6916*b*.
steel cementation with, 7883*b*.
in steel (Cr) refining, relation to Cr, 947*i*, 2560*f*.
in steel deoxidation, 7397*a*.
in steel, detn. of state of, 4993*a*.
structure of, 4072*ef*.
in sun, 39*a*, 939*f*, 3711*a*.
suspension of, flow of, 7291*g*.
system: $CO_2$–CO–H–$CH_4$–water–, at high temp. and pressure, 3170*i*.
system: Fe–Ni–, 3765*bd*.
system: Fe–Si–S–, 5353*d*.
systems: Fe–, and Fe–Si–, activities in liquid, 4931*a*.
systems: O–, and O–Zn , 4931*h*
systems with Fe and other elements, 2914*a*, 6958*l*.
system: W–, 1297*h*.
system: uranium–, 5273*f*.
thermionic work function of, 5278*i*
thermochor of, 8226*e*.
trivalent—see also "free" under *Radicals*.
trivalent, history of, 6014*g*.
in *Urobacillus* nutrition, 8445*g*.
valences, directional properties of, 8805*e*.
valency of, thermochemistry of $C_2H_2$ and allylene in relation to, 3276*d*.
water adsorbed by, diffusion of, 7288*j*
wave functions for, 492*b*, 7336*a*.
x-ray absorption by, 5299*g*.
yeast requirements for, 9361*d*.

**Carbon, analysis**. (See also "org." under *Analysis*.)
detn., absorption app. for micro, 2*i*.
app. for, 4054*f*.
by combustion, 4180*f*.
effects of N oxides formed during combustion in, 8943*b*.
elec. furnace for semimicro, 1267*i*.
with microcombustion tube, 6108*a*.
detn. in alloys and metals, 510*e*.
in benzylisothiourea-HCl and nicotinic acid, 8962*f*.
in carbonates, cyanides and alkali or alk. earth org. salts and mixts., 8306*h*.
in Cr-Fe alloys and steel, 1283*h*.
in clays, 8628*e*.
in Fischer-Tropsch catalyst, 4829*b*.
in foundry sand, 5714*a*.
in Fe alloys, steel, furnace dust and slags, 1285*d*.
in Fe and steel, 6540*c*.
in irons, 6936*e*, 8962*e*.
in medicines, 7639*a*.
in nylon and related polymers, 6948*a*
in org. compds., 969*a*, 6105*d*, 6936*eg*, 7374*e*.
in org. compds., lamp for, 1687*e*.
in org. compds. with $C^{13}$, 5327*d*.
in petroleum hydrocarbons, burner for, 6474*e*.
in solid fuels, 3989*h*.
in steel, 501*c*, 539*i*, 3314*i*.
in steel, electronic app. for, 7390*b*.
detn. of $C^{14}$, 934*i*, 1454*e*, 2090*f*, 6688*c*.
of C condition in steel, 4993*b*.
of $C^{14}$ in $CO_2$, counter for, 3281*h*.
of $C^{14}$ in fat acids, 4719*h*.
of $C^{14}$ in gases, 4093*d*.
of $C^{14}$ in org. compds., 1684*e*.
of combined C in Fe, 4974*g*.
of radioactive and total C in biol. and org. materials, 1285*f*.
of Ag in active C, 6539*b*.

**Carbonaceous materials**, carbonization of —see *Carbonisation*.
coking of—see *Coking*.
destructive distn. of—see *Destructive distillation*.
distn. app. for—see *Distillation apparatus*.
fine structure of, detn. from densities, 5653*e*.
hydrogenation of—see *Hydrogenation*.
org. acid manuf. from, P 3170*a*.
from petroleum-refinery sludge acids, P 3608*a*.
powd., measurement of specific surface of, 7208*g*.
recovery from catalysts in hydrocarbon conversion, P 388*c*.
removal from catalysts—see *Catalysts*.

**Carbon alloys**. (See also "system" under *Carbon*.
aluminum-Cr-Fe-Mn-Si-Ti-, cold-rolled strip of, 4206*a*.
antimony-Cu-Pb-Sn-, as bearing metal, 80*h*.
beryllium-Fe-, 543*d*.
iron-, age-hardening of, 4205*h*.
effect of B on hardenability of, 3333*a*.
lattice spacing of retained austenite in, 4205*g*.
viscometry of, 531*d*.
iron-Mn-Ni-Si-, heat-treatment of, P 1709*f*.

**Carbonates**. (See also *Alkali metal carbonates; Alakline earth carbonates; Carbonic acid*.)
acid, amino acid formation from, 8027*f*.
acid, in blood at various altitudes, 8484*e*.
in brain tissues, 1099*c*.
carbonic anhydrase as tool in studying reactions involving, 3862*i*.
detn. of alky. of, 2892*a*.
exchange in erythrocytes, temp. coeff. of, 9197*a*.
of Group II formation, and stability of, 4171*a*
leaf damage in grain crops from, 3070*g*.
in pancreatic juice stimulated by secretin, 9231*f*.
sodium hexametaphosphate stabilization of, in water of oil fields, 3953*g*.
in urine during hypoxia, 6727*a*.
calcination of rock, P 8110*f*.
carbon detn. in, 8306*h*.
carbon dioxide detn. in solns. of, 7866*c*.
carbon dioxide (radioactive) excretion after administration of isotopic acid, 3097*i*.
decompn. to oxides and $CO_2$, entropy of, 1242*a*.
detn. in clays, 8628*e*.
in electroplating baths, 961*g*, 8903*i*.
in fused salt baths, 2546*i*.
in industrial waters, 4787*d*.
in natural waters, 4403*f*.
in photographic materials, 7360*h*.
in water, indicator for, 5519*i*.
in xanthates, 5343*h*.
effect on adsorption of color of molasses and Ponceau 4 R by $CaCO_3$, 8791*i*.
on catalase, 256*c*.
on crystn. of $NH_4Cl$, 2483*c*.
on fermentation inhibition by U, 2257*a*.
on Fe reaction with chlorides and perchlorates, 9005*a*.
on photolysis of peroxydisulfate, 4144*i*.
on setting time of Ca tartrate gels, 6889*b*.
electrophoretic deposition of, with thermoelectronic emission, effect of alcs. on, 8908*e*.
electroscope for, contg. $C^{14}$, 7757*e*.
excretion by hens, 2291*b*.
ferriferous, of Pennine orefield and northeast coalfield, England, 5704*i*.
in food material as it moves along alimentary tract of hen, 2291*d*.
formation of, by bacteria in sea water, etc., 8994*b*.
in guayule leaves, anion-cation balance and, 281*f*.
hardness of water due to, stabilization in heat exchangers, etc., P 6346*f*.
in irrigation water, and their detn., 3951*d*.
light-metal corrosion by, prevention of, 4622*e*.
light polarization by, 2869*b*.
lyoparachor of O in, 2834*e*.
manuf. from $CO_2$ and organolites, P 6374*d*.
metabolism of, 3905*e*.
mobility of ion of, 6050*h*.
in purification of carboxylic and sulfonic acids, P 2222*i*.
reaction with chlorinated fatty acids, 2164*f*.
reaction with K salt solns. in salt clay, polyhalite formation by, 8995*d*.
removal from cyanide-plating solns., 6520*g*.
removal from metal-cleaning salt bath, P 3769*c*.
removal from water—see *Water, purification of*.
retention by hen, effect of dietary level of Ca on, 2291*e*.
in *Scenedesmus quadricauda* growth, 6706*b*.
in soils (Spanish), 5891*b*.
sorption of ions of, by glass, 8233*h*.
thermal analysis curves of, 8987*h*.
titration of normal to acid, with HCl, Malachite green-tropolein 000 indicator in, 4175*b*.
uranyl complexes, 8270*d*.
vibration frequencies of, 4571*d*.
in water in heterogeneous terrain, 8581*b*.

**Carbonation**. See *Carbon dioxide; Sugar manufacture*.

**Carbon bisulfide**. See *Carbon disulfide*.

**Carbon black**. See *Lampblack;* and "black" under *Carbon*.

**Carbon bromide**, free radical (CBr), 5312*g*.
free radical (CBr) in MeBr and Br flames, 5312*g*.

**Carbon chains**. See *Chains (chemical)*.

**Carbon chloride**. (See also *Carbon tetrachloride; Ethylene, tetrachloro-;* etc.)
free radical (CCl), identification in cyanogen combustion with Cl, 7663*e*.

**Carbon chlorosulfides**. See *Thiophosgene*.

**Carbon compounds**, with hydrogen (CH)—see *Methylidyne (free radical), Methylidyne group*.
with hydrogen ($CH_2$)—see *Methylene (free radical.)*
with nitrogen (CN)—see *Cyanogen (free radical)*.
with oxygen on C deposits as initiator of explosions and formation of CO in compressed-air systems, 5952*c*.
quaternary, 5685*b*, 4265*f*.
review on, 2105*h*.

**Carbon density**, detn. of, of unsatd. hydrocarbons, 8971*a*.

**Carbon dioxide**. (See also *Carbonic acid; Photosynthesis; Respiration, animal; Respiration, plant*.)
absorbents for, P 8578*c*.
absorption app. for, 4054*f*.
absorption of, by aq. glycerol and $H_2O$ in wetted-wall columns, 6053*i*.
in blood of *Triton cristatus*, curve for, 5123*c*.
by hydroxide solns., rate of, 1631*a*.
kinetics of, 23*gh*.
nomograph for NaOH solns. for, 3157*a*.
in acetylene flame, 7822*i*.
acetylene from, and $C_2{}^{14}H_2$ from $C_2{}^{14}O_2$, 1713*g*.
-activated C, 8790*d*.
activation of C from rice husks with, 4834*g*.
adsorption of, by $BaF_2$, 3485*b*.
by charcoal, 3686*h*.
effect on floatability of minerals, 3325*c*.
by Mn oxides, 1623*hi*.
in *Aerobacter aerogenes* growth, 5080*e*.
in agene-induced canine epilepsy, 1869*e*.
alc. recovery from, from fermentation, P 2366*f*.
alkali neutralization by, in gastric mucosa, ulcers and, 2309*a*.
ammonia-soda process under high pressure of, 1917*ghi*, 1918*fhi*.
anhydrase—see *Carbonic anhydrase*.
in apple tissue, 4350*c*.
asphyxiation by, in canning industry, 1871*i*.
assimilation by oats in Mn deficiency, 8016*c*.
assimilation by plants grown under dry conditions, 5088*h*.
assimilation (heterotropic) of, 3886*b*.
in atm., climate and, 7621*h*.
atomic function and viscosity of, 8774*f*.
in beer, 3970*i*.
binding energy of, 6895*f*.
binding in limestones, 4537*b*.
blood aminodicarboxylic acid formation from, 8499*g*.

in blood of arteries, cerebral arteriovenous difference in O and, 3088*c*.
cerebral constituents in relation to, 5848*g*.
after histamine treatment, and effect of pretreatment thereon, 9243*h*.
in rickets, 5486*e*.
at various altitudes, 8484*e*.
bottling champagne under, app. for, 1905*a*.
calcium hydrogen carbonate solns. free from, pH of, 9306*f*.
capacity of saliva, 4356*h*.
central inhibitory effects of, 4770*b*.
charging liver with, P 2339*g*.
in citric acid synthesis by liver, 7990*e*.
from combustion of fuel gas, relations among air required for combustion, calorific value of fuel and, 4446*a*.
control in refrigerated storage, effect on keeping qualities of food, 4779*g*.
corrosion by, of boiler tubes in petroleum refineries, 6401*h*.
of petroleum-well equipment, prevention of, P 3185*h*.
in petroleum wells and processing, prevention with S compds., P 7221*h*.
decompn. into CO and O, furnace design for, 2475*h*.
detn. of, 2759*f*, 3745*e*, 6943*h*.
in absorbent liquors or carbonate solns , 7866*c*.
in air, 4182*a*, 4972*d*, 6687*a*, 8308*d*.
in air, app. for, 8216*h*.
app. for, 5104*h*, 7153*g*.
in baking powders, 9278*d*.
in baking powders, app. for, 3531*i*
in blood, 9131*h*.
in coal gas, 8971*a*.
in dolomites, 4601*e*
in flue gases, P 914*h*.
in gases, 6109*h*, 6869*i*.
in gases, app. for, 910*h*.
in gases, infrared analyzer for, 5666*f*
in industrial waters, 4787*d*.
in Fe ores, 520*g*.
in mixts. with O and N, mass spectrometer for continuous, 7270*f*.
in spring water, 5889*e*.
diffusion and soln. in polystyrene at high pressures, 2811*d*.
diffusion into leaves during photosynthesis, stomatal frequency and distribution in relation to, 283*i*.
in diluting explosive coal-dust atm., 7663*c*.
in dough-fermentation cabinet, 6325*h*.
in doughs, maltose-producing capacity of flours in relation to, 325*f*.
*Drosophila* sensitivity to, 4778*i*.
drying of, P 8109*g*.
effect on adrenaline sensitivity of peripheral vessels, 9201*g*.
on brain, 9261*e*.
on cement and concrete, 2395*h*.
on chemoreception in intestines, 7564*d*.
on contact angles between metals or sulfides and water, 2485*i*.
on convulsions from N chloride, 3106*c*.
on corrosion of Al and Zn, 6140*a*.
on decompn. of $CaCO_3$, 2078*e*.
on electrolytes of blood and tissue, 8541*i*.
on *Escherichia coli*, 715*i*.
on extinction point of $C_2H_2$ flames, 8823*a*.
on eye pupil, 4374*i*.
on flame propagation limits in H and $CH_4$ mixts., 3618*d*.
on flavor of apple juice pasteurized in bottles and on vitamin C content, 783*b*.
on fumarate formation in *Rhizopus nigricans*, 9146*e*.
on grinding of refractory materials, 5562*d*.
on growth of higher plants during heterotropic feeding, 7093*c*.
on inflammability limits of dichlorodimethylsilane, 7229*i*
on inflammability limits of HCN, 8248*g*.
on intestinal motility, 8041*f*.
on lactate, phosphate and pyruvate in brain, 9202*g*.
on lungs, 3910*d*, 7135*i*.
on Mn availability in Mn-deficient soil, 3957*b*.
on muscle metabolism during rest and work, 4743*e*.
on Ni corrosion by steam condensate, 4996*f*.
*effect* on normal and convulsive potentials, 9260*d*.
on photolysis of dimethylmercury, 7825*d*.
on protoplasmic colloids, 3932*i*.
on respiration, typhoid-paratyphoid vaccine and, 8063*d*.
on tissue respiration, 3910*c*.
on tolerance to high altitudes, 5431*g*.
on toxin production and growth of *Corynebacterium diphtheriae*, 4726*b*.
effusion at crit. velocities, mol. wt. and, 2056*b*.
equation of state of, 8774*b*.
equation of state of, detn. of, 6021*c*.
ethylene-polymer film permeability to, 9522*g*.
exchange of water vapor and, over plants, measurement of, 729*a*.
fire extinguishing with—see *Fires*.
fixation of, in animal tissue, 3912*e*.
in citrulline synthesis, 1816*c*.
by leaves of *Bryophyllum*, 8009*i*.
in α-oxoglutaric acid by enzymes, 2249*c*.
in parsley root, synthesis of tricarboxylic acid by, 5056*i*.
by *Rhizopus nigricans* in fumaric acid formation, 272*g*.
in *Scenedesmus*, 8009*f*.
stability of biotin during, 9066*a*.
flash lamps contg., P 4966
flow through porous $SiO_2$, 6883*d*
foam formation on colloidal Ag and gelatin solns with, 8794*g*
in food drying, P 1123*h*.
formation and removal from metals in vacuum, 29*f*, 6053*f*,
formation of, from aspartic acid in *Escherichia coli* after incubation in phosphate, and effect of biotin thereon, 1833*f*
by barley roots during fermentation, carbohydrate loss and, 4808*h*
from $CaCO_3$, 6053*c*.
from carbonates, entropy of, 1242*a*
in $C^{14}$ detn. in org. compds., app. for, 1684*e*
from CO in animal, 8030*g*.
in combustion of propene, 5268*f*
in cottonseed in storage, relations of molds and moisture to, 4875*c*.
in decompn. of acetyl peroxide, 3775*h*, 3776*b*.
in fuel bed combustion and its inhibition, 3592*d*.
from graphite, O and steam, 2076*h*
by ladino and white clover encased in ice, in relation to survival, 7088*g*
by microorganism or tissue, app. for detn. of, 1075*h*.
from oxalic acid, isotope effect in, 8859*e*.
in oxidation of $C_2H_6$, 6516*b*.
by *Polyporus anceps*, 5094*b*.
in pyrolysis of 2-octanol nitrite, 3779*c*.
during reaction of 2-butanone and EtOH, 993*d*.
from reaction of hydroxyl radical with hydrocarbons, 6149*i*.
in respiration, app. for measurement of, 2265*i*.
by soil microörganisms, effect of plant-growth regulators on, 1514*d*.
in stored barley, 4345*e*.
in sugar manuf , 9502*h*.
by tartrate-fermenting *Clostridium*, 274*a*.
thermodynamics of, 2907*e*.
by thermophilic cellulose-fermenting bacteria, 720*c*.
from tyrosine, 1746*a*.
by ultraviolet-light photolysis of cotton cellulose, 1563*c*.
by yeast after x-irradiation, in relation to colony production, 7081*h*.
*Fusarium eumartii* and *F. oxysporum* tolerance to, 1455*b*.
gas counters filled with, efficiency of, 8263*e*.
generator for, 8755*i*.
generator for, for Dumas N microdetn., 6869*c*.
heat capacity ratio of, 7280*f*.
heat of adsorption by active C, 6903*g*.
heat transfer by film of, detn. of, 2476*a*.
from hydrocarbon synthesis, $CH_4$ manuf. from, P 4446*g*.
hydrogenation of, catalyst for, 8076*g*.
hydrogen-ion concn. of, in gas-condensate wells (reference should be no. 5), 7216*i*.
hypoxanthine formation from, in liver homogenates, 3869*c*.
incorporation in liver glycogen, 3905*h*.
insecticides propelled with, toxicity of residues from, 6353*g*.
in intestinal flatus, effect of gaseous transfer between colon and blood stream on, 298*c*.
in iron and steel manuf., P 9019*e*.
in iron-siderophilin complex formation, 9211*c*.
in lactate fermentation by Clostridium lacto-acetophilum, 2276*g*.
lactic and pyruvic acid formation by *Escherichia coli* from alc. or AcOH and, 8443*f*.
liberation by leaves in light, 8010*g*.
light scattered by, depolarization of, 7281*i*.
liquid, heat exchange in boiling, 5*c*.
liquid, manuf. of, 7650*h*.
liquid treatment with, app. for, P 4058*b*.
lubricant unctuosity and pressure of, 7675*e*.
lyoparachor of, 2834*d*.
malate conversion to lactate and, by *Lactobacillus arabinosus*, 1830*a*.
in measurement of domestic ventilation, 9309*i*.
in metabolism (heterotropic), replacement of, 8435*bc*.
in metabolism of bacteria, 9164*b*.
metabolism of, in tissue and total organism, 5481*i*
in milk (dry whole) in storage, 780*d*
mixing of, in open-hearth furnace models, 7878*g*.
mixing with gases, temp. effects in 8773*c*.
mixts. with ethylene oxide as fumigant for grains, 9336*a*.
with gases, thermal diffusion of 8224*e*.
with $CH_4$, hydrates of, 4832*f*.
with O, in blowing metal in converters, P 6143*i*.
naphthalene vaporization into, from fixed and fluidized beds, 5647*a*.
neutron diffraction by, 5285*d*
org. vapors yielding, on pyrolysis, detection of, 4602*d*.
in oxygen evolution from triturated spinach leaves, 732*h*
-oxygen quotient in *Chlorella*, effect of starvation, N deficiency and light intensity on, 2285*e*.
oxyhemoglobin dissocn. curves and 5811*h*
partition between liquid hydrocarbon and NaCl soln , 7297*f*.
photosynthesis in isotopic, distribution of labeled C in plant sugars after, 7088*i*
photosynthesis in leaves at low concns. of 6284*e*
photosynthesis limitation by, 2281*h*
pigment damage by, 4870*h*
polymers from $C_2H_4$ and, P 4515*d*
potential function of, calcn. of interaction terms in, 8765*c*.
pressure of, in solns., detn. of, 333*g*
pressure-vol. relations of, 8772*d*.
production from wells in Washington, 6547*d*.
pulmonary vasoconstriction from, 5113*a*
pumps (diffusion) for, speeds of, 2043*e*
radiation from, in furnaces, measurement of, 378*c*.
radioactive, counter for $C^{14}$ detn. in, 3281*h*
detn of $C^{14}$ as, 2090*f*.
excretion after administration of isotopic carbonates, acetates and succinates, 3097*i*.
incorporation into liver proteins, 9089*i*.
prepn. from $BaCO_3$, 4951*h*.
utilization of ordinary and, in photosynthesis, 4730*d*.
in rancidity control in fish, 1498*b*.
reactions at high pressure of, process and app. for effecting, P 6811*e*.
reactions involving, carbonic anhydrase as tool in studying, 3862*i*.
reaction with alkali hydroxide and $NH_3$ solns., rates of, 1632*c*.
with amines, P 5614*d*, P 5639*i*, 6157*i*
with amino acids in the presence of hydroxides, P 5415*d*.
with $NH_3$ in the presence of $Al_2O_3$ and $ThO_2$, 2946*d*.
with ammonium salt solns., 3155*adh*, 3574*h*.
with aralkyl amines, 1351*f*.

*reaction* with Ca ferrite, 4967*f*.
with C, 3694*i*, 7309*b*.
with diamines, P 692*a*.
with fluidized C, fuel gas manuf. by, 6807*h*.
with $H_2$ in MeOH manuf., P 7036*d*.
with CaO water, acceleration with soda, P 4821*g*.
with metalized benzhydrylamine, 2981*a*.
with $CH_4$, 1944*fgh*, 4445*g*.
with organolites in carbonate manuf., P 6374*d*.
with $K_2CO_3$ and $H_2O$, equil. in, 8806*e*.
with Na, P 3164*i*.
with Tl, 9006*i*.
recovery from flue gases, P 8121*d*, P 8758*e*.
recovery from natural gas and manuf. of Dry Ice therefrom, 1169*a*, 1882*d*, 2343*b*, 2711*g*, 5516*c*.
reduction by chloroplast hydrogenase, product of, 5452*f*.
reduction of, 7899*c*.
in regeneration of solid bed catalysts, P 5134*i*.
released from supersatd. soln., 3082*g*.
release from liquids by solids, 2068*c*.
removal of, from aconitic acid, P 1057*c*.
from Cl, P 4822*g*.
from gases, P 4450*ad*, P 7669*ce*.
from $H_2S$, P 9396*i*.
from steel ingots and castings, P 104*i*.
respiratory, source of O of, 9212*f*.
rubber, Butyl rubber and silicone tubing diffusion consts and permeability to, 1596*d*.
in saliva, factors influencing, 6715*i*
in *Scendesmus quadricauda* growth, 6706*a*
scrubber for, 6873*a*
sodium aluminate soln treatment with, 1922*gh*.
from soils, 4408*f*.
in soils of forest, 5141*f*.
solid, in air displacement from solns in iodometry, 7368*d*.
contg. oil, $H_2O$, etc., P 3985*a*.
from flue gas, 9296*g*
in fruit juice industry, 8069*g*.
in N detn. by Dumas-Pregl method, 6540*a*.
refrigerating app. using, P 9158.
use in lime softening of water, 3122*h*
spectra in atm., 4139*e*, 4952*h*
spectra of, 491*a*, 3289*i*, 8880*h*
steel oxidation by, in furnaces, 4992*b*.
as stripping gas for catalysts used in dehydrogenation of hydrocarbons, P 9078*e*.
in sugar-juice clarification—see *Sugar manufacture*.
system: $NH_3$–$H_2S$–$H_2O$–, 6048*d*.
system, $NH_4HCO_3$–$Na_2SO_4$–$H_2O$, 1917*h*.
system: butane– 3274*c*.
system, C–CO–H–$CH_4$–water, at high temp. and pressure, 3170*i*.
system of urine during hypoxia, 6727*a*
systems: piperidine–$CS_2$–, morpholine–$CS_2$–, piperidine–COS–, morpholine–COS–, 836*g*.
thermodynamic functions of, effect of Fermi resonance on, 4066*b*
thermoosmosis through membranes, 4062*f*.
transport of, carbonic anhydrase in, 6677*i*.
in tumor glycolysis, fermentation and dehydrogenation, interrelationship with biotin and heavy metals, 2694*i*.
ultrasonic absorption by, 5652*c*.
uptake by leaves, 1079*i*.
utilization in synthesis by *Escherichia coli*, 8431*f*.
vapor d. over boiling $NH_3$ liquor, 2480*g*.
virial coeffs. of, 3677*d*.
in Warburg app., app. for control of, 8750*c*.
in waters (natural), calcd. and experimentally detd., 3121*d*.
in waters of mineral springs of Japan, $B_2O_3$ contents and, 7876*a*.
in waters of natural-gas-condensate wells, corrosion and, 3599*f*.

**Carbon disulfide**, absorption and elimination of, 7576*i*.
as activator for sulfide catalysts in hydrogenation of nitro compds., P 682*a*.
adsorption of, from rayon-making waste gases, P 5603*b*.
by soil, 3960*h*.
by solids, 7288*d*.
in air, max. allowable concn. of, 4401*a*.
anthelmintic action of, 3566*c*.
assocn., compressibility, mol. size and sound velocity in, 7284*b*.
corrosion inhibition by, due to $CO_2$ in petroleum wells and processing, P 3185*i*, P 5730*f*, P 7221*h*.
in density detn. of carbonized coal, 9412*e*.
detection of, 4602*d*.
detn. and removal of, in coal carbonization, 9414*b*.
dotriacontane soly. in, 6890*c*.
effect on polymerization of allyl and meth acrylate compds., 8199*f*.
on rice weevil, 8603*d*.
on soybean protein solns. in NaOH, 4859*f*.
evapn. rate, heat received by surface and temp. of surface of, and its mixt. with $C_6H_6$, 4532*f*.
fires in, extinguishing, 6417*g*.
formation of, thermodynamics of, 8838*a*.
in fuel gas, removal therefrom and systems: piperidine–$CO_2$–, morpholine–$CO_2$–, 836*g*.
gas counters filled with, efficiency of, 8263*e*.
heat of combustion of, 4089*e*
hydrogen sulfide detn. in tech., 6944*c*.
hydrolysis of, 7429*e*.
ignition by elec. sparks, 407*c*.
ignition of mixt. of O and, by shock waves, 5951*d*.
impenetrability radius of, 8794*e*.
as insect fumigant, 5898*e*.
insecticide from, P 8604*e*.
lyoparachor of, 2834*d*.
manuf. of, P 5555*f*, P 8623*i*.
from hydrocarbons and S, P 7201*i*.
from HCN from coke oven gas, 7666*g*
in thiophene manuf., P 1066*i*.
meniscuses of, 4061*c*.
mixts. with $NH_3$, inversion spectrum of, 3716*h*.
with $C_6H_6$, colored suspensions of inulin in, 8801*b*.
with org. vapors, adsorption by active carbons, 16*g*.
with NaOH, soybean protein solns. in, 4470*c*
mol. assocn. and sound velocity in, 2835*e*.
nitrogen soly. in, 8803*h*.
parachor and thermochor of, 2923*f*.
poisoning by, 4789*e*.
neurological aspects of, 3936*c*.
review on, 6759*b*.
theory and pathology of, 7577*d*.
potential function of, calcn. of interaction terms in, 8765*c*.
purification of, for spectroscopic use, 7817*g*
reaction with amino groups, 2247*f*.
with α amino nitriles, 3109*e*.
with $NH_3$, 2946*d*.
with C, effect of activation on, 5572*d*
with glycine, 1398*e*.
with α methylamino nitriles, 1766*b*.
with S and aniline or thiocarbanilide, 2021*cd*.
with water, 2847*b*.
with water, catalyst for, P 5887*b*.
recovery from coke-oven gas, 5924*a*.
from viscose baths, P 849*d*.
from viscose-industry wastes, 6408*h*.
removal of, from gases, 4833*g*, P 7669*e*
from hydrocarbons, P 6797*b*, P 7041*d*.
in viscose industry, 8134*i*, 8685*f*.
resin from HCHO, 1,6-hexanediamine and, P 2466*c*.
in retarding alkali-cellulose aging, P 6825*f*.
review on, 2826*d*.
as silver-plating brightener, 4146*h*.
in soil disinfection for *Agrotis* and wireworms, 8599*b*.
in soil-Mn mobilization, 8081*c*.
as solvent in Friedel-Crafts reaction, 209*h*.
spectrum of, 42*d*.
steel resistance to, 1304*b*.
thermal cond. and viscosity of, 4065*c*.
vapor-d. distribution over surface of, 7282*i*.
vapor pressure of, temp. and, 8775*a*.
viscosity (dilatational) of, 5249*g*, 8780*a*

**Carbon fluorides.** (See also *Carbon tetrafluoride*.)
**CF**, 7851*g*.
crystal structure of, 2108*a*.
**(CF)*x***, formation of, catalysis by HF, 2107*d*.
**(C$_2$F)*x***, 2107*f*.

**Carbon halides.** (See also *Hydrocarbons; Methane*.)
polyhalides, bond lengths in, 6876*h*.

**Carbonic acid.** (See also *Carbon dioxide*.)
2-acetyl-1-naphthyl ethyl ester, 3414*i*, 3415*a*.
alkenyl esters, esters with dihydric phenols, polymerization of, P 2234*e*.
esters with halo *p,p'*-dialkylidenediphenols, polymerization of, P 2234*d*.
esters with hydroxy derivs. of hydrogenated thiophene 1,1-dioxide, P 690*i*.
alkyl carbalkoxyalkyl esters, as plasticizers, P 2435*d*.
alkyl esters, carbalkoxylation with mixts. of alcoholates and, P 2225*h*.
in dustproofing diazo compds., P 9474*a*.
phys. constants of, 2957*d*.
reaction with acetylene, 6167*g*.
reaction with acetylene compds., 6168*f*
therapeutic materials contg., P 9388*c*.
allyl ester, diesters with 4,4'-isopropylidenediphenols, P 3847*d*.
diester with diethylene glycol, polymer with allyl carbamate, P 9531*f*.
esters with allyl esters of hydroxy aliphatic acids, P 3452*c*.
ester with diethylene glycol, polymers with Et acrylate, 5988*i*.
polyesters with polyhydric phenols, P 4298*h*.
anhydrase of—see *Carbonic anhydrase*.
benzyl ester, ester with *dl*-nor-ψ-ephedrine, 4238*c*.
bis(*p*-chlorophenyl) ester, as acaricide and insecticide, 3137*i*.
bis(2-fluoroethyl) ester, 6164*c*.
bis(2-fluoroethyl) ester, volatility and vapor pressure of, 8841*b*.
bis(2,4,5-trichlorophenyl) ester, cottonseed treatment with, 3133*i*.
in blood coagulation, 5842*b*.
*tert*-butyl (di-) ester, 578*h*.
compd. with 3,5-dimethylcyclohexylamine isomers, 2963*c*.
compd. with 2-methylcyclohexylamine, 2961*b*.
concrete deterioration from, 8636*i*.
corrosion by, prevention of, P 5730*e*.
1,2-cyclic ester with glycerol, haloformates and carbamate, P 6652*k*.
dibenzyl ester, P 4293*c*.
2-diethylaminoethyl ester, ester with testosterone, assay of, 7993*k*.
diethyl ester, chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
lyoparachor of, 2834*d*.
reaction with *tert*-BuCl, 111*f*.
spectrum of, 1656*c*.
dihydrazide—see *Carbohydrazide*.
diphenyl and di *m*-tolyl esters, in chigger control, 8599*h*.
diphenyl ester, in chigger control, 1518*f*, 9349*b*.
detn. of, 71*a*.
for impregnation of clothing in mite control, 3554*i*.
ester (cyclic) with 2,2-diphenyl-1,3-propanediol, 9042*g*.
esters, P 1057*d*, 3361*a*, 7455*h*.
alkali metal salts, as catalysts for alcoholysis of polyvinyl esters, P 6867*f*.
with diethylene glycol and amino alcs., P 5180*g*.
with 3(α)5, - dihydroxycholestane, 1785*a*.
with 3(β),5 - dihydroxycoprostane, 1787*b*.
as plasticizers for vinyl resins, P 5998*b*.
polymeric, for molding dentures, P 9538*f*.
reaction with alkyl o-hydroxyphenyl ketones, P 693*h*, P 694*a*.
esters, and polymers, P 1608*gi*.
esters (mono-) with pyrocatechol derivs., P 4299*a*.
esters with 4'-hydroxysalicylanilide 2-acetate and with salicylo-*p*-phenetidide, 2603*d*.
ethylene cyclic ester, hydroxyethylation with, P 673*g*.
ethyl ester, anhydrides with acetic and with benzoic acids, 6980*a*.
anhydride with isothiocyanic acid†, 1402*d*.
diester with α,α'-diethyl-4,4'-stilbenediol, P 2641*f*.

*ethyl ester*, diester with ethylene divanillate, 4242*b*.
esters with 2-(4-chloro-2-nitroanilino)-2-methyl-1,3-propanediol and its monopropionate, P 7694*d*.
esters with 8-phenanthridinols and related compds., P 2647*c*.
ester with 6-dimethylamino-4,4-diphenyl-3-heptanol-HCl, 3391*c*.
ester with hesperidin, adrenaline potentiation by, 5117*a*.
ester with hydroferulic acid, 7001*e*
ester with 2-*p*-hydroxybenzamido 2 thiazole, P 6239*c*.
free energy of ionization of, 2075*b*.
glass attack by, 2385*f*.
ionization and resonance of, 7789*i*.
methyl ester Na salt, P 0867*f*.
methyl ester, spectrum of, 1656*c*.
monohydrazide—see *Carbasic acid*.
oxydiethylene ester, esters with derivs. of 2-imidazoline-1-ethanol, di-HCl, P 5180*e*.
photochem. transformation of, by chlorophyll, interpretation according to the electronic theory, 1839*h*.
reactions involving, carbonic anhydrase as tool in studying, 3862*i*.
salts (acid) with amino acids, salts, P 5415*c*.
salts with guanidine derivs., P 5046*f*.
salt with 1-(*p*-chlorophenyl)-5-(4-diethylamino-1-methylbutyl)biguanide, P 6659*g*.
**Carbonic acid, azidodithio-.** See *Formic acid, dithiotriazo-*.
**, chloro-.** See *Formic acid, chloro-*.
**, dithio-**, esters with α-mercapto acids, as corrosion inhibitors, P 7955*f*.
methyl ester K salt, toxicity to seed, 3133*b*.
——, **thio-**, *O*-ethyl ester, anhydrosulfide with *N*-dithiocarboxyglycine and ester with 4-(ethoxymethylene)-2-mercapto 5(4 *H*)-thiazolone, 1399*c*.
*O* ethyl ester, ester with 4-benzylidene-2-mercapto-5(4 *H*)-thiazolone, 1400*e*.
——, **thiolthiono-**. *O*-ethyl ester—see *Xanthic acid, ethyl-*.
——, **trithio-**, esters (cyclic) of, 7419*b*.
esters, detn. in xanthates, 5343*g*.
esters with α-mercapto acids, as corrosion inhibitors, P 7955*g*.
**Carbonic anhydrase**, in blood, 3508*f*
in blood, in dystrophy, 750*a*, 5486*f*.
effect of aminopyrine, ascorbic acid and Na salicylate on, 4773*f*.
effect of high-altitude conditions on, 5475*c*.
effect of sulfonamides on, 772*d*
effect of sympathomimetic substances on, 7142*c*.
in pneumonia, 4760*e*.
in pulmonary tuberculosis and normal patients, 1481*f*.
detn. of, 2266*d*, 5432*c*
effect of convulsants and anticonvulsants on, 5865*f*.
effect of sea water on, 7524*b*.
in eye tissue in ontogenesis, 1358*i*
in hydrochloric acid production in stomach, 2689*d*, 4753*h*.
inhibition by sulfanilamide in kidney tubules, effect on salt and water excretion in congestive heart failure, 3526*d*.
in neoplastic and normal tissue, 8045*i*.
in nervous system of developing fetus, 4747*d*.
in premature children, 4749*h*.
review on, 6677*i*.
sulfonamide effect on, 3862*g*.
as tool in studying reactions involving $H_2CO_3$, $CO_2$ or bicarbonate ion, 3862*i*.
zinc and, 3903*b*.
**Carbonic anhydride.** See *Carbon dioxide*.
**Carbonimidic acid.** See *Imidocarbonic acid*.
**Carbonitriles.** See *Nitriles*.
**Carbonium compounds**, formation in $H_2SO_4$, 569*c*.
formation of carbonium ion in aromatization and rearrangement of sulfonic acids, 9044*i*.
in depolymerization and isomerization, 1713*g*.
in elimination reactions, 3346*g*.
in isomerization of pentane in the presence of additives, 1712*f*.
in Schmidt reaction, 9027*gi*.
steric effects and, 6968*f*.
ions of, 8762*d*.
reaction with ethylene derivs., 1733*b*.
ions of, in styrene polymerization, 2966*i*.
**Carbonization.** (*This heading is restricted to pyrogenic decomposition of coal, etc. For impregnation of metals with carbon see* Steel; *etc. See also* Charcoal; Coking; Destructive distillation; Gas, fuel (manufactured); Lignite; Tar; Tar oils; *etc., and* "distn. of" *under* Coal.)
app. for, refractory materials in, 3582*e*, 3583*c*.
of briquets from coal waste, 1948*e*.
of coal, 5923*d*, 8641*fhi*, 8642*b*.
$(NH_4)_2SO_4$ yield from, 8639*i*.
in Bavaria, 8366*b*.
controlled oxidation in, 3168*i*.
recovery and utilization of N and S from, 5923*h*.
swelling pressure in, 4443*i*.
of coal and oil shale in small samples, app for, 4829*i*.
detg. length of period for, 1551*e*
effect on yields of $NH_3$ and HCN in producer gas, 4833*d*.
furnaces for, P 4837*de*, 4838*a*.
in Great Britain, 1549*g*.
high-temp., heat of coking in, 4834*a*
hydrocarbon decompn. in, prevention of, P 9421*b*.
low-pressure, 1948*a*.
low-pressure, app. for, 1948*c*.
low-temp., of coal, 3993*g*.
plant for, 375*b*.
of subbituminous coal, 5170*b*.
of molded products from coal, P 3176*i*
of peat, 5924*a*, 5926*i*.
plant for, 1944*e*.
properties of coal—see *Coal*.
review on, 7665*cd*.
of rice husks, effect of gas atms. on, 4834*f*.
of shales (bituminous), from Carpathians, 3995*h*.
of shales (oil), retorts for, 3996*e*.
of solid fuels, testing of, 4828*f*.
of stump wood, 6407*e*.
sulfur removal in, 9414*b*.
test for, 1947*a*.
of wood, P 4838*a*, 6392*e*
of wood, AcOH source in, 6809*i*.
active C and charcoal by, 5571*i*.
app. for by-product recovery from, P 1952*a*.
kiln for, 837*f*.
stainless steel in, 8120*c*.
thermal study of, 6809*g*
of wood and other org. compds., P 6398*d*.
**Carbon monoxide.** (See also *Carbonyls.*)
in acetylene flame, 7822*i*.
activation by desorption from catalysts and reaction with O, 4088*a*
adsorption by Co, 3686*e*.
by Co and Fe catalysts in gasoline synthesis, 2413*de*.
by Cu oxides in films, effect on elec. resistance, 474*h*.
by Ni, 2079*h*.
in air, 7276*d*.
of ferrous foundries, 8998*b*.
max. allowable concns. of, 4400*i*.
in air and smog, 7672*g*.
blast-furnace-brick disintegration by, detn. of, 7655*e*.
blast-furnace-brick or firebrick disintegration by, 1933*ac*, 4437*b*.
in blood of Chinese, 8480*a*.
bonds in, 8764*a*.
books: The Technology of Fisher-Tropsch Process, 2756*b*; Neue Entwicklungen auf dem Gebiete der Chemie des Acetylens und, 7034*g*.
from butane combustion, 3725*a*.
carbon dioxide formation from, in animal, 8030*g*.
chemistry of, recent developments in, 4211*i*.
in cigaret smoke, 7645*e*.
combustion of, inhibition of, 3592*e*.
in comet Bester (1947 *k*), 938*e*.
in comets, 490*i*, 6918*d*.
compds. with nonmetal, 3682*h*.
condensation with $C_2H_4$, 4829*f*.
detection of, aspirating app. for tubes for, 5646*i*.
detn. of, 2759*f*, 3563*h*, 6943*i*.
in air, 970*i*, 1686*e*, 2892*h*, 4974*i*.
in air, app. for, 4596*f*, 8749*d*.
in alveolar air in detn. of hemoglobin content of body, 4320*i*.
in alveolar air, sampling for, 4320*h*.
in blood, 5070*g*, 7585*f*.
in cadavers, 8316*e*.
in coal gas, 8971*a*.
*detn. of*, in fuel gas, 6394*a*.
in gases, P 7870*h*.
in gases of petroleum industry, 8962*c*.
in gases with infrared analyzer, 6869*i*.
in fe, 4199*f*.
in mine gases, 6008*g*.
dissocn. energy of, 452*i*.
dissocn. in reduction of metallic oxides, kinetics of, 4933*b*.
effect on decompn. rate of $CaCO_3$, 2078*d*.
on elec. cond. of oxides and spinels at high temps., 4534*a*.
on metals, 6139*g*.
on polymerization of butadiene with Na, 2019*i*.
on respiration by potatoes, 2280*h*
explosions of, dissocn. and unreleased energy in, 849*i*.
explosions of, effect of water vapor on flame temps. in, 851*d*.
flames, formation of electronically excited O in, 4571*i*.
heat transfer from, 7805*c*.
infrared emission bands of O from 4571*g*.
velocity of, 8248*i*.
flame temp. of, 1231*i*.
formation and removal from metals in vacuum, 29*f*, 6053*f*.
formation of, from $CO_2$, furnace design for, 2475*h*.
in combustion of propane, 5268*f*.
in compressed-air systems, C O complex on C deposits in, 5952*c*
from diethyl esters of phenoxyoxalacetic and phenylmercaptoöxalacetic acids, 632*e*.
from graphite, O and steam, 2076*h*
from MeOH on ZnO catalyst, 7314*a*
during nitration of cyclohexane, 1019*a*.
from oxalic acid, isotope effect in, 8859*e*.
in oxidation of $C_2H_4$, 6516*b*.
from reaction of aldehydes with olefins, 4637*b*.
during reaction of 2-butanone and EtOH, 993*d*.
from reaction of C with $CO_2$, 3695*b*
from reaction of C with steam, 3691*e*
in Schmidt reaction, 9027*fg*.
in solid-fuel combustion, prevention of, P 5928*d*.
thermodynamics of, 2907*e*
heat of dissocn. of, 2830*c*, 8251*f*.
heat of formation from C and $SiO_2$, 7794*e*.
hydrogenation of, P 839*c*, P 1170*i*, P 1171*bc*, P 1172*a*, 1550*c*, P 1551*h*, 2397*ehi*, 2398*bdeghi*, 2399*aceghi*, 2400*acegh*, 2401*bcefgh*, 3167*cdfh*, P 3174*g*, P 3175*bdf*, 3591*de*, P 4446*g*, P 4447*acf*, P 4448*fi*, 4638*a*, P 4834*i*, 5570*i*, P 5573*bd*, P 5574*b*, 6390*i*, P 6810*k*, P 6811*ab*, P 7213*acd*, P 8120*gi*, P 8121*a* 9415*h*, P 9420*f*.
benzine by, 2406*eg*.
catalysts for, P 827*b*, P 4448*de*, P 4836*g*, P 5928*b*, 6003*g*, 7313*c*, 8076*g*, P 9419*i*.
chemical manuf. by, 5921*c*, 8646*i*, 9416*d*.
Co catalysts in, 3273*g*.
compn. of gasoline by, 7211*h*.
conversion of hydrocarbons from, P 4447*h*.
detn. of Co and Th in catalysts for, 60*a*.
effect of preheating Ni catalysts on, 8831*c*.
effect of $H_2O$ on catalyst in, 6497*a*.
effect on German economy, 7212*b*.
gas manuf. from oil shales for, P 1170*f*.
gasoline by, P 3994*bc*, 7664*c*.
heat control in, P 4908*e*.
heat transfer in app. for, 2343*a*.
heat transmission through fluidized bed of catalyst for, 8753*h*.
hydrocarbon oils by, P 4835*g*.
$Fe_3C$ in, 1636*a*.
Fe catalyst for, P 6397*a*.
Fe catalysts in, 8117*a*.
Fe oxide-alkali metal ferrate catalyst for, P 1950*g*.
Fe oxide-alkali metal pyroantimonate catalyst for, P 1950*f*.
kieselguhr as support for catalysts for, 8830*h*.
mechanism of, 2080*i*, 4828*i*.
$CH_4$ by, 2402*a*, 2405*k*, 3169*e*, 4832*b*, 7666*h*.

*hydrogenation of*, methanol by app. for, P 8218*e*.
Ni catalysts for, changes during prepn., 2853*b*.
Ni - thoria - kieselguhr catalyst for, 5921*g*.
in prepn. of alcs., 994*e*.
recovery of oxygenated products from, P 8650*h*.
regeneration of catalyst for, P 3994*e*, P 9420*bdh*.
sepn. of reaction products from, P 7213*e*.
in silent discharge, 1272*c*.
S removal from synthesis gas for, P 7214*c*.
temp. control in, P 8650*h*.
wax removal from catalysts for, P 3994*gi*.
x-ray diffraction by catalyst for, 2853*d*.
hydrogen manuf. from steam and, P 840*b*.
in hydropolymerization of ethylene, 108*a*.
ignition of mixts. of O and, by elec. sparks, 406*g*.
ignition of mixts. of O and, by shock waves, 5951*e*.
inflammability limits for mixts. of MeBr and, 3619*b*.
iron cementation with, near Curie point, 6018*f*.
iron-ore reduction with, P 2879*e*.
manuf. from $CH_4$ and CuO in fluidized bed, 7199*i*.
manuf. of, P 2407*i*.
metabolism of, in animal tissue, 4753*h*.
mixing with $C_2H_6$ or N, temp. effects in, 8773*c*.
mixts. with H, manuf. by $CO_2$ reaction with $CH_4$, 1944*i*.
with H, manuf. from coke-oven gas, 3595*b*.
with H, manuf. from $CH_4$, 7200*b*.
with H, $CH_4$ and N, sepn. in reflux condenser, 6022*g*.
with N, O detn. in, 1286*b*.
with O and H or $PH_3$, conjugated oxidation in, 4548*a*.
molecular consts. and spectra of, 7312*e*
oxidation of, by atomic O, 8823*e*.
on NiO catalysts, 2498*i*.
by O contg. Co or Ni sulfides and by O in presence of CoS(OH), 2076*i*
oxide reduction by compressed, P 6562*h*.
oxygen and respiratory acceleration in root nodule bacteria in relation to, 1461*b*.
phosphorus vapor oxidation in presence of, 7649*f*.
poisoning by, 6759*h*, 8527*c*, 8533*c*.
blood vessels in, 5194*h*.
effect on easily-split Fe of blood, 318*f*, 5864*c*, 8051*e*.
Fe alc. tolerance in, 1866*f*
lipides and P in blood in, 5114*a*.
neuro-vegetative system in, 5108*g*.
pulmonary edema after, 3105*d*
poisoning by trichloroethylene and, 3931*f*.
polymers of, formation in carbonyl formation, 56*g*.
polymers with olefins, P 2816*g*, P 3236*g*.
pumps (diffusion) for, speeds of, 2043*b*.
reaction products with aromatic amines, P 5639*g*.
reactions of, 2884*h*.
with $C_2H_2$ and its derivs., P 5112*i*.
with alcs. or ethers to give esters, P 3443*b*.
with β-alkoxypropionic acid esters, P 3451*i*.
with $NH_3$, P 1926*b*.
with $NH_3$ (alone and in presence of Cl) and $N_2H_4$, 2946*d*.
with CsOH, 2109*i*.
with chloro derivs. of $C_2H_6$ and $CH_4$, 9031*c*.
with chloro olefins in the presence of $BF_3$ $2H_2O$, P 671*h*.
with $CuCl_2$, P 3160*b*.
with films of Cu and Cu oxide, 6531*i*.
with HCHO and H, P 673*d*.
with formals, H and alcs., P 675*a*.
with halogenated hydrocarbons, P 6650*f*.
with Hg salts in amine media, 2111*b*.
with MeOH, P 5035*f*.
with olefinic compds. and phenols to give esters, P 6234*i*.
with olefins and H, P 4085*d*, P 5031*i*.
with olefins and $H_2O$, P 669*g*, P 670*i*.
with polyhalo ethanes, P 1434*d*.
with Na, P 3164*i*.
with S and $H_2O$ in presence of Co and Ni sulfides, 2532*i*.
*reactions of*, with Ti, 9006*i*.
with $H_2O$, catalysts for, 5133*d*.
with water vapor, kinetics of, 7308*h*.
reaction with alcohols, kinetics of, and soly. of CO in alcs., 3697*i*.
recovery from fuel gas, 8119*d*, 8644*g*.
reduction of, 7899*c*.
removal of, from air, and gas-mask canister therefor, 8075*b*.
in $NH_3$ manuf., 1534*e*.
from α,α-dialkyl derivs. of γ-cyano butyraldehyde, P 3440*a*.
from gases, P 1537*i*.
from H, 7051*a*.
resistance to, of construction material, 3330*e*.
resuscitation after exposure to, 756*i*.
spectra of, 2092*a*, 2510*h*.
spectrum of, Cameron bands in, 2091*h*.
in steel deoxidation, 7397*a*.
structure of, 3672*e*, 3712*i*.
in sun's spectrum, 4568*g*.
system: C–$CO_2$–H–$CH_4$–water–, at high temp. and pressure, 3170*i*.
virial coeffs. of, 3677*d*.
**Carbon monoxide hemoglobin**. See *Carbonylhemoglobin*.
**Carbon nitrides**. See *Cyanogen; Cyanogen (free radical)*.
**Carbon oxychloride**. See *Phosgene*.
**Carbon oxyfluoride**. See *Carbonyl fluoride*.
**Carbon oxyselenide**. See *Carbonyl selenide*.
**Carbon oxysulfide**. See *Carbonyl sulfide*.
**Carbon rings**. See *Ring*.
**Carbons**. See *Anodes; Electrodes*.
**Carbon selenide**, CSe, spectrum, etc., of, 2510*h*.
**Carbon sulfide** (CS). (See also *Carbon disulfide; Carbonyl sulfide*.)
in combustion of cyanogen, 4145*a*.
spectrum, etc. of, 2510*h*.
**Carbon telluride**, CTe, spectrum, etc. of, 2510*h*.
**Carbon tetrabromide**, atomic radii in, 9*i*.
catalysts of Br and, in alkylation of paraffins, P 5181*h*.
elec. discharge in, 3723*c*.
force field of, 2051*h*.
heat capacity of, 30*d*.
reaction with $BrF_3$ and $IF_5$, 3774*i*.
vibration frequencies of, 4571*c*, 5307*h*
**Carbon tetrachloride**, absorption by polystyrene films, 437*c*.
addn. to 2,5-dihydrothiophene 1,1 dioxide, 2986*h*.
adsorption by active C, 5572*b*.
by charcoal and graphite, 6036*h*.
by charcoal as measure of solvent power for bitumen and pitch, 4841*f*.
by mica, 463*h*.
in air, max. allowable concn. of, 4401*a*.
anabasine distribution between water and, 6789*b*.
analysis of mixts. of cyclohexane and, Raman spectra in, 7858*f*.
assocn., compressibility, mol. size and sound velocity in, 7284*b*.
camphor solns in, properties of, 4543*d*.
catalysts of Br and, in alkylation of paraffins, P 5181*h*.
chain-transfer coeffs. for styrene in, 5731*h*.
compd. with 1,2-dichloro-1,1,2,2-tetraphenylethane, 7005*i*.
consumption, export statistics, production and uses of, 5158*i*.
decahydronaphthalene peroxide ester rearrangement in, 6188*i*.
detection and detn. in air and organs, 974*a*.
detn. in air, autometer for, P 3249*h*.
dielec. absorption and const. of, 4912*h*.
dielec. strength of, 454*h*.
distn. from $C_4H_8$, effect of ultrasonic waves on, 6870*f*.
dotriacontane soly. in, 6890*c*.
effect in polymerization of isoprene and isoprene-styrene solns. with *tert*-Bu peroxide and $Bz_2O_2$ catalyst, 8190*i*.
effect on fluorescence of anthracene solns., 3295*f*.
on polymerization of styrene with drying oils, 3645*e*.
on syneresis of Na oleate gels, 4080*b*.
emulsions with nitrile polymers, P 7263*a*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
fire extinguishing with, in liquids, 6417*g*.
fluorination of, P 660*b*.
fluorination of, sepn. of products of, P 662*a*.
force field of, 2051*h*.
formation of, from chlorination of bis(dichloromethyl) sulfide, 4629*b*.
*formation of*, in chlorination of butane, 5362*a*.
from chlorination of $CH_3CHF_2$, P 3024*a*.
from chlorinolysis and pyrolysis of perchlorinated olefins, 4231*h*.
gas removal from, 8622*g*.
in gelation inhibition of acrylonitrile-vinylidene chloride polymer solns. in 2-butanone, P 7755*b*.
health hazards of, 787*h*.
heat and temp. of transition and fusion of, 5276*c*.
heat capacity of, 30*d*.
heat of wetting of activated charcoal by, 8835*f*.
hydrate, 2570*b*.
impenetrability radius of, 8794*e*.
inflammability limits of mixts. of $CH_4$ and, 3619*c*.
in inhibition of oxidation of CO, 3592*f*.
as inhibitor of C combustion, 9417*b*.
labeled with $C^{14}$, prepn. of, 2090*h*.
liver damage from, 2701*g*.
effect of diet on, 2699*b*, 3077*b*.
effect of thyroidectomy and thiouracil on, 5118*b*.
lyoparachor of, 2834*a*.
magnetic susceptibility of, 6016*h*.
mixts. with $C_6H_6$, distn. in packed columns, 4053*g*.
with $C_6H_6$ or cyclohexane, adsorption by charcoal, 461*d*.
with benzyl ether as solvent for rubber, 3223*i*.
with $C_2H_4Cl_2$, from dewaxing lubricants, HCl removal from, P 5940*i*.
with $N_2O_5$ spectrum of, 8273*g*.
with org. vapors, adsorption by active carbons, 16*g*.
with toluene, distn. in sieve-plate columns, 909*f*.
mol. assocn. and sound velocity in, 2835*e*.
as nitrating medium for cellulose, 1967*hi*, 1968*c*.
osmosis of, effect of alternating elec. field on, 8235*a*.
parachor and thermochor of, 2923*f*.
phosphorus soly. in, 2073*g*.
poisoning by, 3106*a*, 3523*g*, 4789*e*, 7605*i*.
cholinesterase and tributyrinase in blood serum in, 5116*a*.
dietary proteins and, 3497*d*, 4737*c*.
hypochloremia and alkalosis in, 5500*a*.
nitrogenous compds. and vitamin E in protection against, 2292*f*.
polarography of, 8916*h*.
polymethylmethacrylate delayed fracture in, 4048*i*.
potassium iodide solns. contg., ultrasonic production of I in, 1060*h*.
in potato-germination speeding, P 349*g*.
prepn. of, 2150*g*, 5361*f*.
properties of, 7298*f*.
purification of, for use as solvent for dithiazone in Cd detn., 7862*f*.
reaction (photochem.) with $Ph_2Hg$, 8895*b*.
reaction with $NH_4Cl$, 557*f*.
with $BrF_3$ and $IF_5$, 3774*i*.
with butylmagnesium chloride, 2925*g*.
with CO and $SO_2$, 9031*d*.
with chlorotrifluoroethylene, P 661*f*.
with $C_2H_4$, free radicals in, 109*e*.
with KI, effect of ultrasonic waves on, 8779*i*.
removal from chlorinated paraffin wax soln., P 5586*f*
resistance to, effect of dietary factors on, 3072*d*.
sclerosis from, 4377*i*.
as soil fumigant, 7186*e*.
soly. in Na xylenesulfonate solns., 1242*e*.
sorption by activated charcoal, measurement of, 4536*d*.
by charcoals, 4922*be*.
by $Fe_3O_4$, 1240*e*.
of solutes from, by MgO, 17*a*.
spectrum of, 42*d*, 4573*i*, 7342*a*.
styrene polymerization in, 3273*d*.
styrene polymerization in, chain transfer in, 1340*c*.
system: AcOH–$H_2O$–, 8833*b*.
system: $AsCl_3$–, 2534*i*.
system: $C_6H_6$–, 2474*b*.
system: $I_2$–$H_2O$–, mass transfer in, 5647*b*.
system: MeOH–, 6023*a*.
system: MeOH–, H bonds and mol. assocn. in, 8765*i*.
system: perfluoromethylcyclohexane, 3267*a*.
systems: aromatic ethers–, 2585*b*.

systems: cyclohexane-, dioxane-, and pyridine-, 1637c.
systems with other liquids, 2854d.
system: tetrahydrofuran-, 2535a.
system: $VCl_4$-, d., f.-p. diagram, magnetic susceptibility and spectra of, 4528i.
thermal cond. and viscosity of, 4065c.
thermodynamic properties and ultrasonic velocity in, 6024i.
thermoösmosis through sintered-glass disk, 2069d.
toxicity of, nutritional factors affecting, 733h.
toxicology of, 5514c.
ultrasonic velocity in, 1232h.
ultrasonic velocity in solns. of camphor, diphenylamine, naphthalene and o-$NO_2C_6H_4OH$, 8793a.
ultrasonic velocity in, temp. and, 7283i.
vapor-d. distribution over surface of, 7282i.
as vermifuge for *Dicrocoelium lanceolatum*, 4414c.
vibration frequencies of, 5307h.
vibration frequencies of, calcd. from valency-force fields, 4571e.
vinyl acetate chain-transfer coeff. in, 5271e.
viscosity (dilatational) of, 5249g, 8780a.
**Carbon tetrafluoride**, attempted reaction with butylmagnesium chloride, 2925g.
from boron fluoride and $CI_4$, 3775b.
force field of, 2051h.
heat of formation of, 8255h.
magnetic susceptibility of, 6016i.
manuf. of, P 3437a, P 3834h.
**Carbon tetraiodide**, atomic radii in, 9i
reaction with $BrF_3$ and $IF_5$, 3774i.
**Carbonyl chloride**. See *Phosgene*.
**Carbonyl chloride fluoride**, COClF, prepn. and reactions of, 3741f.
**Carbonyl compounds**. (*Organic carbonyl compounds (containing the carbonyl group connected only to hydrogen or carbon atoms).*) (*See also* Acids, Aldehydes; Ketones, *etc. For inorganic carbonyl compounds see* Carbonyls.)
amination of, P 2633d.
α-amino, reaction with imidic acid esters, 2989d.
bond energies and dissocn. of, 452h.
bromine nos. of unsatd., detn. of, 6510e.
chromatography of, in apricot concentrates, 1120i.
condensation of, sulfonic acids and metallo-org. compds., P 690c.
condensation with ketenes, P 5795ae
cyclization mechanism of, 6194b.
detn. in oxidized gasoline, 1952g.
detn. of α,β-unsatd., 8976c.
β-di-, 1007g, 1009h, 1010i.
1,2-di-, condensation with α-amino amides, 3009e.
formation by hydrogenation of lignin, 2428c.
Grignard reaction with, 1718c.
hydroxy, 1743g.
isomerization of, 1753c.
manuf. of, P 5409i
from CO, H and olefins, P 4287b
by dehydrogenation of ales, P 4287f.
mol. compds. of, 7408i.
prepn. of, 183a.
reaction products with 4-ethoxy-3,4-dihydro-3-phenyl-2(1*H*)-quinazolinethione, 1047a.
reactions of, review on acid-catalyzed prototropic, 4212h
reaction with $C_2H_2$ in KOH solns., P 1928f.
with alkyl halides, 111a.
with ketene, P 1055gi, P 1056ac, P 5414i.
with $NaN_3$, 1765i
reduction of, P 7509d.
in thyroid cells, 3907h
unsatd., P 2222f.
**Carbonyl cyanide**, properties of, 3682i.
**Carbonyl fluoride** ($F_2CO$), heat of formation and heat of reaction with KOH, 6500f.
prepn. and reactions of, 3741f.
spectra (infrared and Raman) of, 7821a
**Carbonyl group**, bond in, of aldehydes and ketones, 7413f.
calcn. of free-energy function, heat content, heat and free energy of formation of, 5658e.
in carbon black, 2068g.
characterization of, in steroids, 3018h, 3019g.
detection of, 2777c.
*detection of*, color test for, 239i.
in rubber reclaim, 1600c.
in tissue, 8421c.
detn. of, 1280g.
detn. of, in fatty materials and their oxidation products and Me oleate hydroperoxide, 6841b.
effect on miscibility of liquids, 6817c.
effect on spectra of S compds., 4215h.
labeled with $C^{14}$, in pyruvic acid, 2582i.
in lignin, 8674e.
optical rotation due to, 4680e.
phys. consts. of, 2589h.
reactivity of, in isatin series, 215b
in thiolignin, 7225i.
vibration frequency of, 1656b.
viscosity and, of oxidized hydrocarbon oils, 4842a.
**Carbonylhemoglobin**, detn of, 4320g.
diffusion of, 3f.
effect on O detn. in blood, 7141h.
spectra of, of fetal and adult cows, 1850d
**Carbonylmyoglobin**, spectrum and extinction coeffs. of, 7058h.
**Carbonyl number**, detn. of, of lubricants and transformer oils, 3602f.
**Carbonyloxy group**, phys. consts. of, 2590e.
**Carbonyls**, complexes with tertiary arsines, phosphines and stibines, as catalysts for trimerization of $C_2H_2$ and its derivs., 6202a.
formation of, 56f.
metal, P 9398b.
in metal-coating on metals, P 7893b
of nonmetals, 1673b.
organometal, 2111e, 4596b
polymers of, 2535f.
review on, 3741f.
**Carbonyl selenide** (COSe), microwave spectrum of, 4141c.
potential function of, calcn. of interaction terms in, 8765c.
prepn. and properties of, 1673c
soly. of $CO(CN)_2$ in, 3683a.
Stark effect in, 4095e.
**Carbonyl sulfide**, detection of, 3806h
detn. and removal of, in coal carbonization, 9414b.
formation from reaction of camphor oxime with $Bz_2NCS$ and with PhNCS, 4232d.
formation in viscose, 9440c.
in fuel gas, removal therefrom and systems: piperidine $CO_2$-, morpholine $CO_2$-, 836g.
microwave absorption by, 8888h
microwave spectrum of, 1658a, 3293i
potential function of, calcn. of interaction terms in, 8765c.
reaction with $NH_3$, 2946d
removal from gases, P 7669e
spectrum of, 4141b.
spectrum of $OCS^{34}$, 8869h.
**Carboplasts**, the term, 1214e.
**Carborundum**. (See also *Silicon carbide*.)
alpha-conduction pulses in, 8263h.
bricks in furnace regenerator, P 7357d.
prepn. of, 2871c.
spectrum (x-ray) of, 4131f.
**Carbostyril** (*2-quinolinol or 2(1H) quinolone*), derivs., formation from quinoline derivs. by liver enzymes, 6267g.
dielec. potential and surface tension of solns. of, pH and, 3267g.
effect of vapors of, on aspergilli, 6277b
electrolytic hydrogenation of, 7355c
formation from 2-chloroquinoline, 9069g.
1-oxide, 2997b.
——, **6-(*p*-acetamidobenzyl)-4-methyl-†**, 645i.
——, **4-amino-**, 9068f.
——, **6-(*p*-aminobenzyl)-4-methyl-**, 645i.
——, **4-amino-5,6,7,8-tetrahydro-**, 9068g.
——, **6-*p*-bromobenzyl-4-methyl-**, 645i.
——, **6-*p*-chlorobenzyl-4-methyl-**, 645i.
——, **4,8-dimethyl-**, 228h.
——, **1-ethoxy-**, 2997c.
——, **hydroxy-**. See *Quinolinediol*
——, **6-*p*-methoxybenzyl-4-methyl-**, 645i.
——, **4-methyl-**, 228h.
——, **7-methyl-**, 5403d.
——, **8-methyl-**, formation by 8-methylquinoline oxidation in liver, 6267c.
——, **8-methyl-4-phenyl-**, 228h.
——, **4-phenyl-**, 228h.
**Carbothioplasts**, the term, 1214e.
**Carbowax compounds**. See "polyethylene" under *Glycols*.
**Carboxamides**. See *Amides*.
**Carboxazylic acids**. See *Amides*.
**Carboxyhemoglobin**. See *Carbonylhemoglobin*.
**Carboxylases**. (See also *Cocarboxylases; Codecarboxylase;* and the individual enzymes.)
β-, model of, 6267g.
β-, of plants, 5827i.
formation in bacteria, effect of pH of medium on, 8446f.
of plants, 5057c.
in soybean sprouts, 7554e.
**Carboxylation**, of aminophenols, 7925d.
of lepidine, 2-picoline and quinaldine, 7022d.
mechanism of, and analogous reactions, 1351h.
of phenols, P 3040d.
**Carboxyl group**, assocn. and, 7793e
cation-exchange resin contg., P 5517d
detn. of free, in oxidized rubber, 7741e
detn. of, in aromatic acids, 8974a.
in glucosidic compds, 4641g.
in humic prepns., 66c.
in tan liquors, 1205e.
detn. of polyuronide, app. for, 3614i
effect of, in chlorination of aliphatic compds., 4627i.
on fungistatic activity of $C_6H_6$ derivs., 4803h.
on gelation of cellulose nitrate, 8131e
on nitrosation of symdiaryl ureas, 170f.
on transformations of lactones of α-hydroxy diphenylacetic acids, 2496e.
free energy of bonds in, 3276h
hydrogen bonding and spectrum of, 3715
lyoparachors of O in, 2834d.
removal of, 7024h.
from aconitic acid, in cane sirups and molasses, 7153d
from aconitic acid, methyl galacturonide and pectinous substances 2126c.
from aconitic acid to form itaconic acid, P 678b.
from 3 alkoxycinchoninic acid derivs. 227h
from 3-alkyl-2 (2-thienyl)cinchoninic acids, 228a
from amino acids, 6570b
from amino acids by bacteria, effect of pH on, 8446g
from 4 aminosalicylic acid and its HCl, 2973b.
from 4-aminosalicylic acid and Na salt, 1154c.
from aspartic acid by *Rhizobium trifolii*, 4346f.
from benzo[g]quinoline 2 carboxylic acids, 1420a.
from 5 bromo-4-methyl 2,3 furandicarboxylic acid, 5020k
catalysis of, 7800h.
from cyanosuccinic acid monoesters, 2167f.
from 1,3 dialkyl-9 oxo 9*H* indeno[2,1-c]pyridine-4 carboxylic acids, P 5809a.
from dibromomalonic acid, 6975k
from β-(3,4 dihydroxyphenyl)serine by animal tissue and *Streptococcus faecalis*, 2691e.
from formylcinnamic acids, 7456e
from 2 furanacrylic acid, 2615e
from β-halo fatty acids, 7901f.
from (*o*-hydroxyphenyl)alanine in animal organism, 9103d.
from 3-isoxazolecarboxylic acids, 7020i.
from labeled malonic acids, isotope effect in, 7333a.
from malic acid in plants, triphosphopyridine nucleotide specific enzyme catalyzing, 9168e.
from malonic acid derivs., 7904d
from malonic esters, P 7956e
from 1,2-naphthalenedicarboxylic anhydride derivs., 206i.
from niacin by cathode-ray irradiation, 8863c.
from optically active amine salts of malonic acid-$d_2$ derivs., 3392e.
from oxalacetate by blood, 3903e.
from oxalacetate by Cu and Fe, 5839d.
from oxalacetic acid, effect of cations on, 5057f.
from oxalosuccinic acid, 1013h, 6579h.
from 1-oxo-2,1*H*-benzopyran-3(and 4)-carboxylic acids, 1045e.
from pimelic acid derivs., 8578e.

*removal of*, from polycyclic azulenecarboxylic acid esters, 207*d*.
from quinaldinic and isoquinaldinic acids, kinetics of, 7310*b*.
from reaction products of ketene with carbonyl compds., 5366*g*.
from resin acid by pyrolysis, 9442*i*.
from 2 - sulfanilamido - 5 - thiazolecarboxylic acids, P 2644*ghi*.
from triacetic acid, 1724*i*.
from $CCl_3CO_2H$, 5361*g*.
in viscose sheet, effect on equil. absorption of Chrysophenine G, 4015*h*.
**Carboxylic acids.** See *Acids; Fatty acids*.
**Carboxypeptidases** (See also *γ-Glutamic acid carboxypeptidase*.)
action on peptide derivs. of tryptophan, 4712*c*.
detn. of, 713*e*.
effect of x-rays and α-rays on, 6678*b*
esterase activity of, 4712*b*.
inhibitors of, structural requirements for, 6265*i*.
kinetics and inhibition of, 701*d*.
optical specificity of, 7068*e*.
pancreatic, 3859*h*.
chem. nature and mode of action of, 7068*d*.
sedimentation behavior and mol. wt. of, 9117*e*.
specificity of, 1448*b*.
**Carboxyplasts**, the term, 1214*e*
**Carboxypolypeptidase.** See *Carboxypeptidases*.
**Carbromal** (*adaline, α-bromo-α-ethylbutyrylurea*), detection of, 8429*h*
solubility in iso-PrOH, 3147*i*
**Carburetion.** (See also *Gas, fuel (manufactured)*.)
of acetylene, non-explosive mixt. by, P 7636*e*.
in internal-combustion engines with liquefied petroleum gas, 3991*e*
**Carburization.** See *Iron; Metals; Steel*
**Carbursintering.** See *Powder metallurgy*
**Carbylamines.** See *Isocyanides*.
**Carbyl sulfate** (For derivs. see under *1,3,2,4-Dioxadithiane*.)
**Carcinogenesis** See *Cancer; Carcinogenic substances, Carcinoma*
**Carcinogenic substances** (See also *Benz[a]anthracene; Benzopyrene; Cholanthrene, methyl-, Carcinogenic substances; Dibenz[ah]anthracene*.)
2-acetylaminofluorene analogs as, 9238*e*.
action of, 302*e*, 8049*d*
action of, and viruses in relation thereto, 1479*f*.
analogs of, 7013*b*.
antioxidant effect of, 1859*c*.
azo compds. as, 5109*d*
azo derivs., polarography of, 7835*g*
benzanthracenes and benzacridines as, 5731*g*.
3,4-benzopyrene as, effect of lipide solvents on, 307*d*.
3,4-benzopyrene as, effect of nonlipide solns. on, 307*f*
chem. constitution in relation to activity of, 8375*b*
cholesterol assocn. with, in blood, 3083*g*.
cholesterol pyrolysis products and, 7573*i*.
from coal tar, 306*h*.
complex with cell element, 3920*i*
complex with tissue, 9220*c*.
*p* - dimethylaminoazobenzene derivs., 3801*e*.
effect of interrupted treatment by, on tumor formation, 749*e*.
effect of solvents on effectiveness of, 1857*h*.
effect on bone callus formation, 9239*f*.
on guinea pigs and their offspring, 7121*h*.
on papain, 5054*d*.
on plants, 7553*c*.
on proteolytic enzymes, 3476*f*.
on vitamin C in liver, 3921*e*.
electronic structure of, 9234*e*.
estrogenic hormones as—see *Estrogenic hormones*.
2-fluorenamine as, 300*b*, 5770*b*.
fluorene derivs., 3811*a*, 7004*i*.
fluorescence and penetration studies on, dissolved in ethylene glycols and acetone, 8525*e*.
formation and localization of, 7988*a*.
hydrocarbons, cancer production in rhesus monkeys with, 304*a*.
7-hydroxy-2-acetamidofluorene as, 307*b*.
inductive phase in contact, 5850*d*.
infrared absorption in relation to activity of, 3915*c*.
kinetoclastic substances and, 8517*a*.
in livers of rats fed various diets contg. *p*-dimethylaminoazobenzene, 2310*d*.
metabolism of, 750*g*.
α-naphthylacetic acid as, 8047*c*.
photodynamic effect of, measurement of, 7149*i*.
polyethylene glycols as carriers for, 5108*g*.
protein binding of 4-dimethylaminoazobenzene and Me derivs., 8048*b*.
reviews on, 1856*c*, 3514*h*, 7120*b*.
in skin with precancerous keratoses of actinic origin, 3921*d*.
solubilization by assocn. colloids, 4363*d*.
sunlight action on, 7012*b*.
survey of, 749*h*.
tumors of alimentary tract from feeding, in mineral oil, 8046*c*.
tyrosine as, 1480*h*, 7571*d*.
urethan as, 305*a*.
**Carcinoma.** (See also *Cancer; Neoplasms; Sarcoma*.)
from 2-acetaminofluorene, effect of thouracil on, 1857*i*.
from 2-acetylaminofluorene, 750*h*, 8046*h*.
arginine and arginase in relation to adeno, 2306*i*.
3,4 - benzopyrene effect on Ehrlich's adeno-, 4363*d*.
blood plasma and tocopherol in, 7122*a*.
bronchogenic, from N mustard, 7135*b*.
Brown-Pearce rabbit, inhibition by tumor lipides, 8516*c*.
buccal, betel chewing in relation to, 8520*d*.
compn. of, deriving from papillomas, 3921*h*.
dibenzanthracene inhibitory effect on Walker, in rats on high- and low-protein diets, 306*f*.
effects of anoxia and hyperglycemia on, 1857*c*.
of endometrium, nucleic acids in, 5490*e*.
exts., oncolysis in tumors from, 2698*f*.
gastric, nocturnal gastric secretion in, 303*a*.
of genitals and mammary gland, androgenic hormones or principles in treatment of, 1481*d*.
glycolytic enzymes in fractions of homogenates of Flexner-Jobling rat, 2652*c*.
of intestines, stomach and lungs, energy mechanisms in, 303*i*.
of kidney in frogs, phosphatases of, 6746*g*.
lipide content of animal organism in, 5488*i*.
lipides of, 5488*f*.
mammary, effect of NaF, dinitrophenol and low temp. on, 2695*h*.
metastasizing prostate, phosphatase in blood serum in diagnosis of, 301*c*.
parathyroid, assocd. with parathyroid intoxication, 5120*i*.
phosphate ester isolation from Flexner Jobling, 1857*c*.
polysaccharides and proteins in blood serum in, 2695*f*.
polysaccharides in blood serum in, 1100*a*
prostatic, cytostatic action of estradiol and diethylstilbestrol in, 9263*h*.
respiration of adeno-, effect of spleen ext. on, 3095*h*.
retardation of growth of transplantable, in mice fed basic metachromatic dyes, 1856*i*.
review on, 4309*b*.
of skin, arginase activity and N content in, 5489*a*.
Ca-ion exchange in, 1859*e*.
lipides in, 752*g*.
urethan effect on, 5488*d*.
of uterine cervix in estrogen- and androgen-treated hybrid mice, 2310*i*.
of uterus or ovaries, lytic action of blood from, 1480*g*.
**Carcinoma yellow***, in zinc analysis, 2545*i*.
**Carcinosarcoma.** See *Sarcoma*.
**Carcinus.** See *Crabs*.
**Cardanol**, coatings and sealing compds. from polysulfide latexes and, P 4508*g*.
ethers of hydrogenated, for sludging inhibition in hydrocarbon oils, P 8129*d*.
hydrogenation with Raney Ni catalyst, P 4497*i*.
oxidation of, by laccase, 6298*g*.
**Cardboard.** See *Paperboard*.
**Cardiazole.** See *Metrazole*.
**Cardinon.** See *Heart extracts*.
**Cardiolipin**, P 1914*a*.
prepn. of, 1321*h*.
sepn. of 3483*f*.
**Cardiotoxin**, from cobra venom, 3049*c*.
**Cardol**, chlorinated, in termite control, 6356*f*.
and derivs., 1348*e*.
——, **tetrahydro-.** See *Hydrocardol*.
**Carene**, in conifer oils, 6367*b*.
disproportionation of, to *p*-cymene, 5012*f*.
isomers, *p*-cymene from, 5767*i*.
**Δ³ - Carene** (*4,7,7-trimethyl - 3 - norcarene*), *d*-, detn. in mixts. with *d*-α-pinene and *l*-nopinene in turpentines and optical rotation of, 5971*b*.
*d*-, viscosity of, 5249*c*.
reactions on activated C, 5656*i*.
**Carex**, feeding stuffs from, in Europe, 7604*f*.
**Carica papaya.** See *Papaya*.
**Carminatives**, action of, 5114*g*.
**Carminic acid**, as oxidimetric indicator, 8949*a*.
polarography of, 2521*a*.
**Carnallite**, argon of mass 40 in, 5712*a*.
crystn. from $CaCl_2$ brines, 2743*d*.
glass batch contg., P 9407*d*.
in hydrocarbon-fuel manuf. from fat acids, P 4835*b*.
prepn. for production of Mg, 2553*d*.
**Carnations**, cutting propagation and disease control, 9338*e*.
fertilizer expts. with, with N and K, 4804*c*, 9337*h*.
fungus control on, 7178*d*.
pest control on, with $Na_2SeO_4$, 1141*i*.
red-spider control on, 807*b*, 811*f*.
**Carnauba tree.** See *Palms*.
**Carnauba wax**, adhesive from, P 7756*c*.
electron microscopy of dispersions of, contg. borax and soap, 2002*b*.
emulsions of, waxing rubber goods with, P 2803*b*.
sapon. no. of, detn. of, 5211*i*.
**Carnegieite**, thermal properties of, 9404*i*
**Carnitine**, as methyl donor, 7526*h*.
**Carnosinase**, in kidneys, 7068*b*.
**Carnosine**, in muscles in tonic and atonic states, 5478*a*.
**Carnotite**, crystal structure of, 8983*i*.
plutonium in, 1618*i*.
radium in, of Colo., 2000*b*
as uranium source, 8270*b*.
**Caroa** and(or) **Neoglaziovia variegata**, fiber, 5192*a*.
**Carob beans** (*ceratonia siliqua, locust beans, St.-John's bread*), compn. of, 5128*f*.
juice of, 4814*e*.
meal, processing for textile finish and size manuf., 5596*e*.
mold growth on, effect of water on, 9275*g*.
polyphenols in, 8452*d*.
**Carob gum**, 8717*a*.
constitution of, 581*ac*.
gel compn. from mixt. with Irish-moss ext. and edible salt, P 5132*b*.
mannose from, 2171*d*.
mixt. with Carrageen and K salt, 5510*g*.
mol. wt. of, 1626*g*.
properties of, 21*f*.
**Carobinase**, effect on *Endamoeba histolytica*, 8550*f*.
**Carolic acid**, effect on heart, 1110*d*, 7138*h*.
**Caronamide***, absorption and elimination of, 759*a*.
detn. of, 5074*i*.
effect on appearance of phenol red in kidneys, 3502*i*.
on blood penicillin levels and on renal function, 6318*b*.
on penicillin in blood, 5500*i*.
on phenolphthalein excretion, 5120*h*.
**Caro's acid.** See *Peroxymonosulfuric acid*.
**Carotene, Carotin.** (See also *Lipochromes; Neo-β-carotene*; "A" under *Provitamins*.)
absorption from digestive fat, 9211*h*
in alfalfa, 3539*a*, 8574*e*.
effect of moisture on, 9291*e*.
extn. of, 5543*f*.
prevention of loss of, 2339*c*, P 6760*d*.
all-*trans*-γ-, provitamin A activity of, 9180*f*.
α- and β-, effect on glucide metabolism of yeast, 4330*f*.
vitamin A activity of, 7560*e*.
vitamin A storage after feeding, 8024*g*
α-, β- and γ-, and derivs., review on, 3798*d*.
α-, β- and γ-, spectra of, 1264*g*.
α-, pyrolysis of, 2172*g*.
bacteria in concn. of, P 6792*d*.
β-, absorption and solvent of, 9196*e*.
color of, steric hindrance and, 493*e*.
in gametes of Fucaceae, 2677*f*.
in intestine, vitamin A formation from, 3899*e*.
lipide oxidation in presence of, 2172*i*.
lipide oxidation in presence of chlorophyll and, 2173*a*.
in loquat, 8456*g*.

β-, in palm fruits, 3116*d*.
retinene formation from, 2294*h*.
sepn. from other pigments in egg yolk and chick carcass, 2291*h*.
standards for, 3561*g*.
β- and K-, in oranges, 2708*i*.
-bleaching substances in bacon adipose tissue and hemoglobin solns., 3633*g*
in blood, effect of dietary soybean and butter oils on, 8473*d*.
in blood plasma and milk of cows, effect of soybeans and soybean meal on, 8479*d*.
in blood plasma of cattle, effect of breed, age and season on, 6711*f*.
in blood plasma of heifers, effect of vitamin A on, 2293*h*.
in blood serum during nutritional reconditioning of children, 3498*b*
bodies, chromoplasts and vitamin A in relation to, 731*d*.
brine contg., for canning vegetables, P 5882*f*.
in broccoli, carrots and collards, effect of geographical location and fertilizers on, 6754*a*.
in butter (Wyo.), 6327*e*
in by-products of meat packing industry, 9285*d*.
in cabbage, effect of large scale methods of prepn. on, 9288*c*.
in canned goods, effect of storage on, 1491*i*, 1493*h*
from carrots and vegetables, P 3118*a*
in carrots (dried), effect of antioxidants on, 7157*b*.
in *Celtis integrifolia* and *Trema guineensis* seed oils, 1201*e*.
al id ass, 8574*d*, 9291*g*.
in cod-liver oil, conserva ele hydrogenation, 6841*i*.
in colostrum, 8472*f*.
in colostrum, effect of cold storage on, 9193*d*.
concentrates of, prepn. and storage of, 3971*h*.
detn. of, 6692*h*, 6948*d*.
in alfalfa meal, 7152*d*
in carrot meal, 7156*g*
in dried grass, 2895*e*
in feeding stuffs, 6756*h*, 9276*b*
in plants, 711*c*.
in plants, preservation of samples for 9291*d*.
in silage, 3946*e*.
in sweet potatoes, 1395*d*.
diasolysis from carrots, 4077*g*
in diatoms, 2281*e*.
effect of cathode rays and x-rays on, 9276*e*.
effect on fat of turkeys, 1087*i*
effect on growth of chicks and storage in tissue, 4353*i*.
extn. from fats and oils after sapon., P 3220*e*.
from green leaves, 9378*a*
from plants, P 3152*d*, P 5158*b*.
in feeding beef calves, 6712*b*.
in feeding stuffs, 1123*d*.
effect of water content and storage temp. on, 1879*g*.
effect on vitamins A and C of blood, milk and liver of ewes and their lambs, 8467*c*.
for pigs, vitamin A content of blood plasma and liver in relation to, 9193*c*.
for poultry, prevention of loss of, 3538*h*.
in *Festuca kingii* and in alfalfa silage, 9273*de*.
in food, 3535*i*, 4780*g*
in grasses and milk, 9328*g*
in grasses of Southern Great Plains area, 1501*h*
in hay, losses on curing and storing, 4783*i*.
in *Holothuria*, 2334*b*.
isomers of, crystal form of, 6881*g*.
isomers of, isolation and spectrophotometric characterization of, 7152*e*.
kelp as source of, 8616*f*.
in kidney bean plants, effect of 2,4-dichlorophenoxyacetic acid on, 8021*c*.
in leaf meals, 4343*f*.
in leaves, 1837*a*.
in meats and vegetables, effect of electronic cooking on, 4779*f*.
metabolism of, in herbivores, 3899*b*
in milk fat, effect of storage on, 7805
in milk of uniovular calf twins, genetic influence on, 1098*h*.
from *Navicula* cultures, 3878*g*.
in nutrition of cattle, 6712*a*.
in oil of Crustaceae, 1087*d*.
in oil-palm oil, 2792*d*.
in olive pit oil, P 7647*i*.
oxidation (coupled) of, 7987*c*.
in oxidation of unsatd. esters, 9076*f*.
in peanut oil, free fatty acid content and, 8178*i*.
in peas, effect of maturity, fertilizers and variety on, 9289*f*.
in peppers, effect of ripening on, 2338*f*.
peroxides, formation in autoxidation of peanut oil, 5973*a*.
in photolyzed milk, 735*d*.
prepn. and solns. thereof, P 8106*b*.
prepn. from leaf-meal exts., 8101*e*.
prepn. from water hyacinth, 9364*b*.
preservation of, in carrots and red clover during drying, wet preservation and storage, 4395*i*.
in red clover and timothy at various stages of growth, 727*h*.
reproductive capacity in mammals in relation to, 9183*e*.
retention in cannery wastes and food prepn., P 330*g*.
review on, 9190*c*.
in snap beans, irrigation and, 1515*a*.
in spinach, effect of large scale methods of prepn. on, 9288*f*.
in sweet potatoes, 9329*h*.
in sweet potatoes (preserved), 1121*i*
in sweet potatoes (Puerto Rico), effect on vitamin A and butter fat, 3946*h*
in tomatoes (dried), effect of storage on, 1122*b*.
in tomato juice (canned), effect of storage on, 1877*h*.
utilization by rat, effect of α-tocopherol on, 736*h*.
from vegetable leaf waste as vitamin A source for chickens, 8466*f*.
vitamin A formation from, in animal organism, 4745*h*.
effect of 2-thiouracil on, 733*c*.
in sheep, effect of thiourea on, 5096*e*.
site of, 2682*b*.
in wheat (hard winter), 6331*d*.

**Carotene, dihydro-*, β**, spectrum of, 3798*d*.

**ζ-Carotene**, structure of, 1311*e*

**Carotenoids** (*carotinoids*). (See also *Antheraxanthin; Astacin. Lipochromes. Retinene; Xanthophylls; Zeaxanthin*, and "A" under *Provitamins*.)
in carrots (dried), stability of, 7156*i*.
chlorophyll conversion to, in tomatoes, 2286*d*.
detection in yeast, 5446*g*
detn. in blood plasma, interferring substances and, 8423*c*.
effect on glucide metabolism of yeast, 4330*e*
effect on growth of chicks and storage in tissue, 1353*f*.
extn. from fats and oils after sapon., P 3220*e*
of fruits of India, 5830*g*
generative functions of plants and, 8011*i*
in *Holothuria*, 2334*a*.
in leaves, 1836*i*.
of *Lilium candidum* anthers, 4233*d*.
of loquat, 8456*f*
metabolism in plant leaves during development, 5453*i*.
metabolism in typhoid fever, 2294*i*.
in milk of uniovular calf twins, genetic influence on, 1098*h*.
of oranges, 2708*h*
oxidation by enzymes, 8406*b*
from palm oil, in concd. form, P 2794*i*.
in papaya, 9314*c*.
in peaches, effect of canning and freezing on, 3535*h*.
in photosynthesis of diatoms, 2281*c*.
reviews on, 3798*c*, 7561*f*.
sporogenesis and, 4730*i*.
storage by chicks, 2291*f*.
synthesis of, 2587*d*.
therapeutic and physiol. effects of, 6366*a*.
in *Thoracophelsa mucronata*, 5123*d*.
vitamin A activity of, 7500*e*.

**Carotenols**, effect on fertilizing capacity of fowl sperm, 1088*c*.

**Carotid**. See *Arteries*.

**Carotid sinus**, acetylcholine and cholinesterinase in, and in *carotis communis*, 5842*a*.
acetylcholine sensitivity to, effect of NU 683 on, 7134*c*.
discharge from, adrenal gland and, 5470*c*.
effect of sparteine mono- and diphenylethylbarbiturates on, 2316*d*.
reflexes, intracisternal injection of drugs and, 7130*b*.
respiratory reflexes from, effect of NU 683 on, 7134*d*.

**Carotin**. See *Carotene*.

**Carotinoids**. See *Carotenoids*.

**Carotol**, constitution of, 3808*a*.

**Carpet beetles**, control of, P 350*b*.
control of *Anthrenus verbasci*, 5894*e*.
control of *Anthrenus verbasci* in insect boxes, 7631*c*.
control of *Attagenus piceus*, P 6358*d*.
control of black, 9348*i*.
control of, DDT and Mitin FF in, 8080*e*
control with MeBr, 1900*g*.
rearings of *Attagenus piceus* in lab., mite control in, 1899*g*.
toxicity to *Anthrenus verbasci* of *p*-di chlorobenzene and $C_{10}H_8$, 1142*b*.

**Carpet grass**. See *Grasses*.

**Carpets**. (See also *Rugs*.)
energy-absorption ability or resilience of, measurement of, 5957*g*.

**Carpinus betulus**, cuticular transpiration in, and its relation to membrane swelling capacity, 730*e*.

**Carpocapsa pomonella**. See *Codling moth*

**Carrageen** (*Chondrus crispus, Irish moss*), diabetic sirups contg., 3145*a*.
extn. of, and mixt. with chocolate flavor sirups, P 3542*a*.
extn. of, and mixt. with locust-bean gum and K salt, 5510*g*.
gel compn. from mixt. with locust bean gum and edible salt, P 5132*b*
manuf. and properties of, 9206*g*
mixt. with lecithin, preservative coatin for foods from, P 5881*a*
stabilizer from residue of, P 5132*a*.

**Carrageenin**, from algae, 4728*i*.

**Carrel-Dakin solutions**, alky. of, 8150

**Carriers**, for insecticides—see *Insecticides*

**Carroting**. See *Furs*.

**Carrots**, acids in, chromatographic sepn and identification of, 6947*a*.
amino acids in, 3534*g*.
bacterial metabolism-inhibiting substances in, 9165*b*.
bromine and Cl in, 3537*g*, 8572*d*
canned, vitamins in, effect of storage temp. on, 1493*h*
carotene and vitamin C in, 3536*i*
carotene diasolysis from, 4077*g*
carotene, dry wt. and vitamin C of effect of environment and fertilizers on, 6754*a*.
carotene from, P 3118*a*.
carotene in, preservation of, 4395*i*
carotenoids in, during development 5454*a*
DDT effect on, 1520*i*
dried, carotenoid stability in, 7156*i*
effect of antioxidants on, 7157*b*
sulfite loss from, 7156*e*
glycerol utilization by, 2281*c*
growth substance effect on yield of, 1839*b*.
leaf meals from, nutritive value of, 1343*e*
meal, detn. of carotene in, 7156*i*
melanin-forming oxidases in, 2771
membrane substances in roots of, 6287*i*
nitrogen in cultures of, 3495*d*.
pectins from, effect on cranberry and red currant jams, 3536*i*.
peroxidase in chloroplasts of, 1083*d*
pest control on, 7178*i*.
petroleum-hydrocarbon effect on, 1895*d*
plastids of, cytochrome oxidase in, 8454
potassium ion effect on growth of, 2781*b*
respiration of, effect of succinate on, 8455*c*
soil pH for, 6349*h*
sucrose inversion and synthesis by, 6286*i*
sugar detn. in, 6752*i*.
sugars in, effect of phosphate fertilization on, 7624*c*.
toxicity to, of DDT and hexachlorocyclohexane, 5148*a*.
vitamin A availability from, 5459*b*.
vitamin B1 in Italian, 6753*h*.
vitamin C in, 5511*b*.
vitamin C in, effect of blanching with radar energy on, 1493*b*.
weed control in, 1894*e*, 1895*c*, 2359*a*
wireworm control in soil under, 348*a*
yellows of, control of, 9329*b*.

**Carthamus**. See *Safflower*.

**Cartilage**, calcification of hypertropic epiphyseal, *in vitro*, following inactivation of enzymes, 1446*a*.
chondroitin sulfate combination in, 3910*g*.
chondroitin sulfate content and distribution in, in osteoarthritis, 6727*i*.
degeneration of, chloride content of car-

tilage, muscle and skeletal tissue in relation to, 9237*i*, 9238*a*.
glycogen in, in rickets and its relation to healing, 8038*a*.
metachromasia of, enzyme diastase destroying, 8406*a*.
oxygen consumption by, 747*e*.
physiology of hyaline, 7118*c*.
**Cartón.** See *Fiberboard; Paperboard.*
**Cartons.** See *Containers.*
**Cartridges** (*explosive*), case cup of, standards of A.S.T.M. for brass, 4203*b*.
cases for, from steel, P 3770*e*.
cases for, intergranular weakness in brass, 2563*i*.
Parkerized clips for, rust-preventive slushing compds. for, P 1563*a*.
shotgun-shell casings, protein adhesive for, 900*c*.
**Cartridges** (*respirator*). See *Respirators.*
**Carum, *carvi*(*carui*)**—see *Caraway.*
**Carvacrol** (*2-p-cymenol*), bactericidal action of, 6363*g*.
detn. in thyme oil, 8614*a*.
effect on polarography of metals, 5316*a*.
identification of, 7447*e*.
propionate, 613*h*.
**Carvacrol, chloro-**, antifouling properties of, 3964*b*.
—, **5-chloro-**. See *Carvasept.*
—, **5,5′ - (1,2 - diethylethylene)di-**, and esters, 614*c*.
—, **5,5′ - (diethylidene-ethylene)di-**, and esters, 614*b*.
—, **5-nitroso-**, spectrum and isomerism of, 5378*h*.
**Carvacrolphthalein**, laxative activity of, 2319*f*.
**Carvacrylamine** (*2 - aminocymene, 2-cymidine*), reaction products with maleic anhydride polymers with Me methacrylate, 8202*c*.
**Carvacryl bromide.** See *p-Cymene, 2-bromo-.*
**Carvasept**, 4427*c*.
**Carvene** See "*d-*" under *Limonene*
**Carvomenthene** (*1-p-menthene*), acylating oxidation of, with $Hg(OAc)_2$, 7915*c*.
8-alkoxy derivs., 8368*i*.
bromination of, 6601*a*
reaction with PhOH, P 6237*a*.
—, **bromo-**, 6601*a*.
—, **9-bromo-**, 2605*g*.
**4-Carvomenthenol**, 3374*f*.
**3-Carvomenthenone.** See *Piperitone*
**Carvomenthone** (*2-p-menthanone*), acylating oxidation of, with $Hg(OAc)_2$, 7915*g*.
—, **3-hydroxy-**, and acetate, 7915*g*.
**Carvone** (*6,8(9)-p-menthadien-2-one*), in caraway, 9380*g*.
detn. in caraway seeds, 3145*d*.
in *Mentha cardiaca* oil, 8017*c*.
reaction with $SeO_2$, 6612*c*.
in rose oil, 5550*b*.
—, **tetrahydro-**. See *Carvomenthone.*
**Carvotanacetol**, and acetate, 6601*b*, 7915*c*.
**Carvotanacetone** (*6 - p - menthen - 2 - one*), 6601*b*.
*dl-*, and semicarbazone, 7915*d*.
—, **6-hydroxy-**, 7915*d*.
**Caryokinesis** (*karyokinesis*). See *Cells, animal; Cells, plant.*
**Caryophyllene**, in turpentine, 2978*c*.
**Caryophyllenic alcohol***, and formate, 2978*e*
**Cascara**, assay of fluidext. of, 5536*i*.
manuf. of dry exts. of, 1149*a*.
**Cascara sagrada**, 355*i*, 4810*h*, 8100*h*.
**Casehardening.** See *Metals; Steel.*
**Casein, Caseinogen.** (See also *Curd.*)
acylated, in latex prepn., P 9521*a*.
adhesives from—see *Adhesives.*
Ag-nized, effect on animals and humans, 3532*i*.
aluminum compn. with, stabilizer for, P 3242*f*.
ammonium deriv., heptane emulsions in, crit. dispersity of, 7776*e*.
baking properties of, effect of heat-treatment on, 6328*f*.
basophily of, 5054*g*.
biuret complex, spectrum of, 6249*i*.
bonding and water adsorption by, and effect of HCHO on, 7787*c*.
in breadmaking, 1872*i*.
calcium compd. in, detn. of size of, 7537*c*.
cathepsin action on, 9089*c*.
N-chlorinated, P 7517*g*.
chlorine bound to, 9238*a*.
in cirrhosis treatment, 7148*d*.
coagulation by rennet, detn. of alk earth ion by, 7790*g*.
coating compn. from alginate, polymerizable compd. and, P 1611*c*.
coating (fire-retardant) from, 4493*a*.
coating from, prevention of darkening of luminophors in sun by, P 6090*a*.
coating with, on Al and Al alloys, P 5001*e*.
in colostrum of cow, effect of prepartal rations on, 740*i*.
condensation products with HCHO, compns. with nitrilotriacetic acid esters, P 5229*i*.
conversion into paracasein, 5812*g*.
copper complex with, phenoloxidase action of, 3856*a*.
decompn. of, 260*d*.
detection of, 4324*h*, 5704*b*.
detn. in milk, 3533*d*, 7598*h*.
devitaminized, P 8072*d*.
diet contg., effect of feeding excess glycine, arginine and methionine during, 4739*b*.
diet contg. salad oil and, vitamin A activity of, 9185*h*.
in diet, effect on hemoglobin and plasma protein production, 3500*e*.
diet low in, effect of gelatin on tryptophan transformation to niacin on, 3500*a*.
drying of, and water absorption by, 6882*b*.
effect on biochem. decompn. of cellulose, 3009*d*
on growth efficiency of amino acids, 1468*f*.
on hypophysectomized rats and effect of growth hormone thereon, 1093*a*
on lactation and reproduction of rats fed purified rations, 1091*c*
in polarographic analysis of brass, 4181*h*.
on retention of hepatic riboflavin and on development of liver tumors from azo dyes, 4741*c*.
egg substitutes from, P 5512*e*
growth-promoting value of, 3897*g*
human, 9122*g*.
human and cow, 3900*h*.
hydrolysis of, by acid and enzyme, amino acid liberation from, 1819*b*.
by acid, food fortification products from, 7599*a*.
by pancreatic exts., 9089*d*.
hydrolyzate of, biol. action of, 3524*b*
dicoumarol inhibiting action of, 3094*d*
effect of glucose on deamination by *Bacterium fluorescens liquefaciens* and *Proteus vulgaris*, 5418*c*.
effect on nutritional value of corn, 9179*e*.
effect on regeneration of plasma proteins in protein depletion, 8023*b*.
glycine detection in, 4978*b*.
growth-promoting action on *Lactobacillus leichmanni*, effect of vitamin C on, in relation to reduction of oxidation products of vitamin $B_{12}$, 9158*c*.
methionine from, 5743*b*.
optical specificity of, 6265*b*.
*Penicillium notatum* culture medium contg., P 7649*b*.
utilization of peptides of, 6741*b*.
iodinated, action, fate and distribution of radioactive, 9255*b*.
in diet and growth of parasitized chicks, 1088*f*.
effect on cattle, 8474*d*
effect on thyroid development in chick, 8482*a*.
prepn. of radioactive, 4305*g*.
thyroxine content and biol. activity of, 9185*f*.
iron passivation with phosphated, 8246*d*.
isocyanate deriv., P 3241*f*.
kersey impregnation with solns. of, wear resistance and, 6830*h*.
lactalbumin differentiation from, 3533*h*.
leather finishes contg., 7733*h*, 9510*g*.
manuf. from milk (buffalo or cow), 1496*i*.
manuf. of, 7599*b*.
in milk, 7598*b*.
mixts. with CaO and Na silicate or with NaOH, rheological properties during thickening of, 2844*a*.
mixt. with carotene, 3971*i*.
nutritive value of, 1469*c*, 3900*d*, 8568*a*.
amino acid content of and, 1818*a*.
for cotton-rat, 288*h*.
from cow and human, 6748*i*.
effect of alc. extn. on, 289*b*.
effect of autoclaving with dextrose on, 8478*a*.
effect of vitamin B complex on, 1468*d*.
for rabbits, 1843*c*.
oxidized, utilization for methylation of homocystine in animal organism, 3895*b*.
pancreatic-juice action on, and products therefrom, 9089*e*.
for paper and pulp manuf., demand and supply of, 5948*h*.
phenylacetylated pancreatic digest of, effect on penicillin production, 2269*h*,
in pill prepn. with oleophilic liquids, 1149*i*.
plaster of Paris contg., P 4444*a*.
plastic emulsion contg., P 6000*e*.
plastics from, 439*i*.
plastics from Me stearate, polystyrene and, P 3235*b*.
prepn. of, 4725*c*, 9282*a*.
preservation of, esters of unsatd. tricarboxylic acid for, P 7634*d*.
in protection against $CCl_4$ poisoning, 2292*g*.
proto acid and Na salt, colloidal properties of, 3053*h*.
proto acid, water removal from, 3860*d*.
purification of, P 4791*c*, P 5136*d*.
rayon-cord treatment with, effect on cord-rubber adhesion and flex life of tires, 2012*g*.
serology of, from milk of ass and cow, 6302*f*.
in sheep milk, acidity and, 9280*c*.
sizes from, for rayon, P 856*e*.
sol., from defatted milk for food fortification, 7598*f*.
soybean—see *Legumin.*
spinning solns. of, P 4021*c*.
spinning solns. of, air removal from viscous, P 4021*d*.
sulfur balance indexes of, and effect of methionine thereon, 8483*f*.
textiles, yarns, etc.—see *Lanital; Rayon.*
in thickening latexes, 6411*a*.
threonine from, 3787*b*.
tryptophan availability from, for chicks, 2293*a*.
utilization of, supplemented with methionine, effect of thiamine and riboflavin intake on, 5833*f*.
vegetable—see *Legumin.*
vitamin C excretion after feeding vitamin $B_{12}$, carcinogen and, 6315*e*.
water-vapor absorption by, 467*d*, 4537*b*.
**Caseinase.** See *Cathepsin.*
**Cashew**, -nutshell liquid, 9050*a*.
-nutshell liquid and its distillates and polymers, allyl ethers of, P 3240*i*.
allyl ethers of, reaction products with aldehydes, P 3241*b*.
condensation products with hydrocarbon polychlorides, P 904*d*.
resins from acrolein and, P 2030*i*.
-nutshell liquid, cardol component of, 1348*e*.
chem. resistance of coatings on wood from, 3632*e*.
ethyl ether, reaction product with cresols, condensation product with $(CH_2)_6N_4$, P 4513*b*.
hydrogenation of, and its derivs. with Raney Ni catalyst, P 4497*i*.
oxidation of, and oxyalkylated derivs. of, P 1557*e*.
polymers of, in friction elements, P 2715*b*.
sepn. from kernel oil, P 9404*g*.
solvent fractionation of, P 5215*i*.
**Cashew oil.** See *Oils.*
**Cashmere**, wool—see *Wool.*
**Casimiroa edulis**, carotene and vitamin C in, 3536*a*.
**Cassaine**, from *Erythrophleum*, 8101*b*.
**Cassava** (*manioc*). (See also *Manihot; Tapioca.*)
fermentation of roots of, 5530*i*.
meal, as feed for swine, 9292*i*.
starch, adsorption of malt α-amylase by, 9504*g*.
**Cassia.** (See also *Senna.*)
*reticulata*, antibiotic substance from, 3062*f*.
*tora*, carotene and vitamin C in, 3536*b*.
**Cassic acid.** See *2-Anthraquinonecarboxylic acid, 4,5-dihydroxy-.*
**Cassida vittata**, control on beets, 9346*h*.
**Cassiterite.** (See also *Tin ores.*)
of Alaska (Potato Mt., Seward Peninsula), 4608*e*.
of Belgian Congo, 2135*d*, 6546*a*.
concentrates from Sn-bearing pegmatites of Katanga, loellingite in, 6543*e*.
concn. of, 979*c*.
crystal form of artificial, 6031*g*.
elements in, of Far Eastern U.S.S.R., 6123*h*.

in greisenized pegmatites, decay of $Sn^{115}$ to $In^{115}$ by electron capture in, geol. age and, 1691*h*.
origin of, in quartz-sillimanite veins in Nigeria, 6117*i*.
scheelite flotation from, 2139*i*.
in tantalum-bearing deposits of Pilbara goldfield, W. Australia, 6124*e*.
tin detn. in, 4174*b*, 6934*c*.
**Castela**, *nicholsoni*, cryst. fraction of, in amebiasis treatment, 8559*c*.
**Castilla** (*Castilloa*), rubber from, Cu, Fe and Mn in, 2799*d*.
**Castilleja**, selenium in, 3890*f*.
**Casting process.** (See also *Molding*.)
for accurate castings, 8998*i*.
for alloys, P 9021*a*.
for alumina gel, P 6338*b*.
for aluminum, 9003*eh*.
for aluminum-Mg alloys, P 3771*b*.
app. for, for metals, P 7892*d*.
for beryllium, 8996*i*.
for beryllium, pneumonitis from, 7606*i*.
book: La fonderie des alliages legers, 3338*i*.
for bronze, 5355*h*.
for bronze, gas effects in, 532*h*.
centrifugal, review on, 8324*f*.
for ceramic ware, P 3588*f*, 6383*e*.
for ceramic ware, app. for continuous, P 9408*b*.
chill, industrial hygiene and, 981*f*.
for clays, 4437*a*.
cupola operation, 2554*h*.
cupolas for—see *Cupola*.
cupola-stack emission control, 4194*b*.
dies for—see *Dies*.
for ferro-metallurgical slags, effect of solidification interval on, 9000*b*.
fluidity in, 5351*a*.
fuel-gas use in, 6808*a*.
for glass, centrifugal app. for, P 6386*f*.
induction-furnace use in, 1268*f*.
for ingots, P 7892*b*.
for iron (austenitic), P 5728*g*
for iron, effect on compn., 9004*g*.
elec. furnace in, 4145*d*.
grinding balls from, P 3342*d*.
industrial hygiene in, 8997*i*.
O enrichment of cupola blast in, 4989*d*.
O removal in, 7877*d*.
slagging-gas producer for, 4611*h*.
for iron (gray) in jobbing foundry, 1296*h*.
for iron (gray), structure diagrams and, 2555*e*.
journal: Prace Badawcze Głównego Instytutu Metalurgii i Odlewnictwa, 4997*h*.
for lead bronze, improvement of working conditions in, 6559*b*.
for light-metal ingot, furnace selection for, 981*d*.
for magnesium, P 3340*e*, 9006*c*.
for magnesium alloy contg. Ce and Zr, P 3341*h*.
for magnesium alloys, 543*e*, 3334*h*, 5355*h*.
for magnets, 5715*f*.
Mercast, with frozen Hg patterns, 3333*c*.
for methyl methacrylate polymers, P 8741*d*.
molds for—see *Molds(I)*.
for nickel silver, 79*g*.
for nonferrous scraps, P 4209*d*.
with oxygen-enriched blast, 5713*c*.
for palladium and Pd alloys, P 8289*f*.
for piping inhibition, P 554*e*.
for piston rings of gray Fe, 7394*f*.
for plaster and resins, with hot-melt molds, 9521*e*.
precision, 8999*b*.
pressure app. for, for metals, P 7892*c*.
quality control in, 4990*i*.
refractories (fireclay) in, cordierite-type minerals from, 5705*f*.
refractory materials in, 5915*h*.
sand for—see *Sand*.
silica in dust of sandblasting department for, 4789*f*.
for steel, 7389*d*.
acid-elec. slags in, 8897*g*.
effect of teeming time on surface defects, 2908*e*.
electrolytic Mn in, 5714*b*.
H and N contents during, 1301*i*.
surface defects and, 2908*f*.
Thermit in, 2555*d*.
for steel ingots, 1295*i*.
for steel ingots, effect of mold thickness and cooling on, 1296*c*.
time of charge in cupola in, 4989*g*.
for Vitallium, control in, 4181*g*.
for zinc alloy D.I.N.E. 1724*f*, 7886*f*.
for zirconium, 8899*a*.
**Castings.** (See also *Casting process; Molds (I).*)
acicular fracture in Hadfield-steel, prevention of, 4201*b*.
of aluminum alloys, brittle-temp. range of, 1702*df*.
aluminum and Mg alloys for, A.S.T.M. standards for, 4203*d*.
aluminum-Mg-Si alloys for die, 6960*a*.
from aluminum-Si alloys, high-temp. tensile properties of, 1701*f*.
book: Al Casting Alloys, 3338*i*.
bronze, A.S.T.M. standards for, 4203*c*.
carburization of steel for, 2910*f*.
cleaning, for hot-dip Pb coating, P 2154*h*.
from copper-Ni alloys, 5718*h*.
corrosion of Fe and steel, by Al and Si alloys, 1705*d*.
crystn. of steel, 6135*c*.
freezing of horizontal steel, 7882*h*.
gas (occluded) removal from, P 104*g*.
gas occlusions in Fe, 3329*a*.
heat-resistant, alloys for, 3333*c*.
heat-treatment of steel, 6550*e*.
impregnating material for, P 2469*h*.
on insulator caps, 6139*b*.
from iron (gray), 4199*e*.
effect of Cu on, 1296*e*.
Te in promoting chills on, 6554*f*.
from iron (white), tough, P 2153*a*.
lead removal from Fe, P 5358*b*.
from light metal, of high elec. cond., P 5358*b*.
from magnesium alloy heat-treatment of pressure-die, P 105*e*.
from magnesium alloys, production and use of, 543*e*.
magnesium-alloy treatment with carbides for, P 6563*i*.
manganese-Ni-Ag alloy for, P 5000*h*.
molybdenum effect on Fe, 84*e*.
from nickel alloys, corrosion resistance of, 3335*e*.
from nickel silver, porosity in, 79*g*
plastic compn. for precision, P 9300*g*.
pore-free, from permanent molds, 7394*f*.
pore vol. in light-metal, 2149*g*.
of silicon steel, 1302*c*.
solidification time of, detn. of, P 4624*e*.
solidifying ingots, insulating cover for, P 3769*f*.
soundness of, gas content and, 4199*h*.
standards for, 4614*i*, 4615*c*.
from alloy steel, 1303*e*.
from chromium-Mo-steel, 2913*e*.
from malleable-Fe and steel, 4202*fg*.
from Mn-steel, 1303*ab*.
steel for, 9007*i*.
from titanium alloys, 3766*a*.
from zinc alloys, electroplating on, 7834*e*.
electroplating on die, 3727*a*.
hardness and tensile properties of, 7888*c*.
zinc and Zn-alloy die, cleaning before electroplating, P 3299*g*.
zinc-die, cleaning for plating, 8284*g*.
zinc die, hot-dip tinning of, 5673*g*.
from zirconium-contg. Fe, 8326*a*.
**Cast iron.** See *Iron*.
**Castle's factor or principle.** See *Extrinsic factor; Intrinsic factor; Liver;* and "antianemic factor" under *Anemia*.
**Castor.** See *Castoreum*.
**Castor beans**, lipase of—see *Lipases*.
localization of phosphorylase and starch formation in, 2288*i*.
proteins of, 3537*a*.
**Castor cake**, adhesives from, and its proteins, 2811*g*.
detoxication of, for livestock feeding, 9330*d*.
protein manuf. from, P 4899*e*.
**Castoreum**, ionone derivs. in, 8499*a*.
review on, 7566*i*.
synthesis of pigment of, 5023*d*.
**Castor oil.** (See also *Floricin*.)
acoustic birefringence and relaxation time of, 3681*g*.
adhesive emulsion from, for spun glass, 4435*h*.
bactericidal and mycocidal properties of, 8436*e*.
balsam levigation by, 5534*g*.
bromination of, 7722*f*.
carbamic acid esters from, P 4690*h*.
cultivation in Gt. Brit. for drying oil, 8699*a*.
dehydrated, 872*b*, 1197*g*, P 6838*b*, 7238*f*.
detection in alkyd resin, 6459*g*.
drying properties of, 4871*a*.
esters of polyhydric alcs. from re-esterification of, P 5794*e*.
*dehydrated*, I no. of, 1992*i*.
polymerization with cinnamic acid and styrene and esterification of polymer with glycerol, P 5972*c*.
polymerization with monovinyl aromatic compds. and olefinic monocarboxylic acids and then polybasic acid and polyhydric alc., P 6433*d*.
polymerization with styrene, 3212*g*.
polymerization with styrene, and α-methylstyrene with $Bz_2O_2$ catalysts, P 5608*d*.
polymerization with styrene, effect of xylene and terpene solvents on, 3645*f*.
polymerization with styrene, α-methylstyrene, ethylvinylbenzene and divinylbenzene, P 5608*a*.
resinous reaction products with cyclopentadiene-styrene copolymer, and coatings therefrom, P 4029*b*.
standards for, 4786*f*.
dehydrated and oxidized, styrenated, 4871*e*.
dehydration and bodying of, 5970*g*.
dehydration and polymerization of, drying oil by, 872*a*.
dehydration of, 2450*d*.
with boric acid-$H_3PO_4$ or $BPO_4$ catalysts, P 2790*b*.
with glycerolphthalic resin as catalyst, P 4873*a*.
dehydration of, and detn. of unsatn. in dehydrated oil, 872*f*.
dehydration of, and evaluation of dehydrated oil, 6431*f*.
dehydration of, conjugated double bond formation in, and tung-oil substitutes by, 4872*a*.
density and viscosity of, 8700*i*.
as diluent and plasticizer for acrylate and methacrylate resins in impregnation of leather, 7247*e*.
effect on aging and phys. properties of reclaimed rubber, 2021*b*.
emulsifying power of egg yolk for, for fat-liquoring, 7248*c*.
esterification (re-) with glycerol to mono glycerides, 5209*i*.
esterification with diglycolic acid and glycerol, P 843*d*.
esterification with maleic anhydride and polymerization with styrene for insulating varnishes, 2445*e*.
extn. from flaked beans, detn. of rate of, 7721*b*.
extn. of, continuous countercurrent, P 5214*hi*.
fatty acids from, and their vitamin F activity, 1472*e*.
fatty acids of, surface-active esters of polymeric, with polyethylene oxide, P 6440*a*.
films on water, surface pressure of, 1240*h*.
hydraulic fluids from $BuOCH_2CH_2OH$ and blown, P 1504*i*.
hydrocarbon fuel manuf. from, P 4835*b*
hydrogenated, Li soap manuf. from, P 391*i*, P 392*c*, P 303*d*.
as ointment base, 1527*h*.
oxidation of, P 676*i*.
hydrogenation with Ni catalyst, 7722*g*
hydroxyalkylated mixt. with oiticica oil, as demulsifier, 6818*f*.
iodine no. of, 1583*d*.
in lipstick, and its detn., 9367*e*.
lubricants from—see *Lubricants*.
mixts. with BuOH as hydraulic liquid for brakes, 4790*gh*.
oiliness of, effect of additives on, 1555*d*.
oxidation and nature of blown, 6840*g*.
oxidation of, and esterification therein, 6841*f*.
oxidation of, later stages of low-temp., 6841*c*.
paint paste emulsion contg., P 878*a*
as plasticizer for adhesives for optical elements, P 2472*b*.
as plasticizer in rubbers, 3648*e*.
reaction products with inorg. polyisocyanates and polyisothiocyanates, P 9088*b*.
reaction product with $P_2O_5$ as grinding-oil additive, P 3606*d*.
relaxation time and viscosity of, 7760*g*.
resinous products from acyl halides, olefinic α,β-dicarboxylic acids, vinyl compds. and, P 3656*d*.
rubberlike gel manuf. from, P 895*c*.
sebacic acid manuf. from, resinous products from residue of, P 5997*e*.
standards for, 4786*f*.

sulfation and sulfonation of, and stability and wetting power of sulfonated products, 4031*b*.
sulfonated, effect on acid attack of mild steel, 2917*g*.
surface tension of, 6878*i*.
viscosity of films of, 2486*c*.
**Castor-oil plant** (*Ricinus communis*), analysis of, 6784*e*.
leaves, ultraviolet absorption by cuticular and waxy layers of, 1834*f*.
lipase of—see *Lipases*.
minerals in, 2354*a*.
*p*-nitrobenzamide *N*-deriv. effect on, 2357*g*.
sulfonamide effect on germination and growth of, 2677*c*.
of United States, 424*a*.
**Castor-oil substitutes**, from rice oil, 5611*c*.
**Castor pomace**. See *Castor cake*.
**Castration**. (See also *Ovariectomy; Sterility.*)
adrenal cortex after hypophysectomy and, effect of testosterone on, 8492*f*.
adrenocortical changes after, 8491*b*.
amylase activity of saliva after, 5839*a*.
androgen effect on growth of os penis after, 740*g*.
arginase and phosphatases of organs after, 3089*a*.
barbiturate action after, 1489*h*.
blood plasma protein concentrations and organ wts. after, 2303*a*.
body wt., temporal muscle and organs after, 3088*g*.
cholesterol in adrenals after, and effect of testosterone propionate thereon, 1098*c*.
effect on 17-ketosteroid excretion, 8037*i*.
effects of, role of testicular secretions and, 6717*a*.
mammary glands after, effect of adrenalectomy on, 7565*h*.
mammary structure of adrenalectomized and thiouracil-treated rats after, effect of estrogen on, 8486*g*.
muscle chemistry after, 2092*i*.
pentobarbital Na hypnosis and mortality after, effect of vitamin $B_1$ on, 2315*j*.
phosphatase in genital tract after, 2906*d*.
phosphatase in kidney after, 2302*c*.
phosphatases in blood serum after, effect of sex hormones on, 8500*c*.
phosphatases in tissue after, and after replacement therapy, 8489*f*.
respiration of brain after, 5468*c*.
testosterone propionate effect on N and chloride excretion and body wt. after, during recovery from fasting, 3090*d*.
testosterone propionate effect on seminal vesicles after, 8490*d*.
**Castrix**. See *Pyrimidine, 2-chloro-4-dimethylamino-6-methyl-*.
**Casts**, thermoplastic material for, P 5633*a*.
**Casuarina equisetifolia**, weed control in, 5525*c*.
**Catabolism**. See *Metabolism, animal; Metabolism, plant*.
**Catadyn process**. See *Oligodynamic action*.
**Catalase**, action of, 2053*i*.
action of, effect of peroxide concn. and other factors on, 6260*b*.
activation of, 255*i*.
activation of, by products of deamination of amino acids, 4309*b*.
in *Aerobacter aerogenes* and *staphylococci*, effect of bacteriophage on, 1831*d*.
antipyretic action and, 2325*a*.
in apple varieties, 278*g*.
in aspen polyploids, 5831*e*.
in bacteria, and effect of sulfon imides thereon, 724*a*.
bacterial (cryst.), 2255*e*.
benzoquinone action against, pH and, 8413*e*.
in bile, cerebrospinal fluid, gastric juice and urine, 6257*i*.
bile pigments and hematin in, 5058*g*.
in blood, effect of O on, 4713*d*
in *Cladosporium herbarum* and *Mucor* species grown in cold, 5825*g*.
compds. with peroxides, 260*g*.
in cottonseed (germinating), 1080*d*.
detn. in blood, 3868*i*.
effect on cathodic reduction of $H_2O_2$, 3052*h*.
erythrocyte (cryst. human), 2255*h*.
from erythrocytes and *Micrococcus lysodeikticus*, 2255*i*.
heat of activation of, in stenothermophilic bacteria, 2671*g*.
in *Hibiscus rosa sinensis* petals and leaves, 9174*i*.
inhibition by vitamin C, 1449*b*.
in liver of normal and cancerous rats, 2309*c*.
in meat and meat products, as index of freshness, 1119*i*.
in microörganism, functional condition of protoplasm and, 7081*c*.
in mycobacterium, 4727*c*.
nitrite oxidation by, 5842*g*.
in *Pasteurella pestis*, virulence and, 6275*b*.
in plant cells, 3892*a*.
in potato tubers, 7092*h*.
prodigiosin production by *Serratia marcescens* and, 273*d*.
review on, 7060*a*.
sugar-beet reproductive development and, 6288*f*.
in tobacco leaves, in relation to age condition, 7092*i*.
in tomatoes, effect of (2,4-dichlorophenoxy)acetic acid on, 3889*b*.
in urine in U poisoning, 8530*f*.
in willow polyploids, 5831*f*.
**Catalysis**. (See also *Catalysts; Promoters; Reaction*) P 6762*f*.
of alcohol reaction with CO by alcoholates, 3697*i*.
of alcoholysis of esters, 7418*c*.
by (−)-aluminum 2-methylbutoxide, 6155*c*.
by aluminum silicates, 1251*c*.
of ammonia decompn. on Cu and Pt, 8827*f*.
app. for—see *Reactions*.
of aromatic-amine reaction with vanadates by oxalate ion, 4548*i*.
of aromatization of heptane on Cr, 6062*e*.
auto-, in decompn. of ethylenediamine dinitrate and pentaerythritol tetranitrate, 405*d*.
auto-, of reactions of solids and at crystal edges, 8820*c*.
bio-, 3070*a*
books: Handbook der, 478*h*, Technique of Org. Chemistry. Vol. II. Catalytic Reaction, 1432*b*; Advances in, 2084*c*; in Lösungen, 3278*i*.
of bromination of 2-carbethoxycyclopentanone by metal ions, 3273*e*.
of $AcCH_2CO_2Et$, 4642*d*.
of Et cyclopentanone-2-carboxylate by bases, 3698*c*.
of $C_6H_6$, 2851*g*.
of bromine reaction with $H_2C_2O_4$ by manganic ion, 2497*h*.
of bromomethane reaction with pyridine, 1247*i*.
of calcination of gypsum, limestone and magnesite, 8021*i*.
of calcium bicarbonate reaction with $Cu(OH)_2$, 4086*i*.
of calcium sulfate reaction with $Na_2CO_3$ in aq. soln., 7311*f*.
of carbon monoxide dissocn. in reduction of metallic oxides, 4933*c*.
of carboxyl group removal from org. acids, 7800*i*.
by cobalt on faces of Cu single crystal, 6063*b*.
of condensation of HCHO with PhOH, 8737*d*.
by copper, deactivators for, 6063*c*.
in corrosion of external heating surfaces of boilers, 6808*b*.
of DDT decompn. by bases by metal ions, 3697*e*.
of *cis*-decahydronaphthalene conversion to *trans* by $AlCl_3$, 3271*g*.
of dehydrogenation—see *Dehydrogenation*
of dehydrohalogenation of aromatic halogen compds. to polymers, 1603*c*.
of disproportionation of hydrocarbons by activated C, 5656*h*.
of dissocn. of sulfates of Ca, K and Na by heat, 6895*g*.
of drying of fatty oils, 4875*a*.
of drying of oils and paints by polar driers and oxidation products of drying oils, 8693*i*.
of esterification of fatty acids with glycerol, metallic fluorides in, 4030*g*.
in explosive polycondensation of $C_2H_4O$, 8138*g*.
of fluorine reaction with graphite by HF, 2107*df*.
of Friedel-Crafts reaction by $AlCl_3$, 2851*e*.
in fuel gas manuf., first applications in America, 5924*g*.
of gaseous reactions by water vapor, 1634*g*.
of halogenation by electrolytes in AcOH, 7408*f*.
history of, 8759*h*.
of homogeneous periodic reactions, 6894*f*.
of hydrocarbon decompn., review on, 7759*c*.
of hydrogenation—see *Hydrogenation*.
of hydrogen cyanide synthesis from air, $NH_3$ and $CH_4$, 9391*g*.
of hydrogen exchange, by oxygen contact, 6497*e*.
of hydrogen (para-) conversion by metals, 26*g*.
of hydrogen peroxide decompn., by $Fe(NO_3)_3$, 25*b*.
by Fe salts, 4087*a*.
on Hg, 927*a*.
with solns. of colloidal Pt, effect of $D_2O$ on, 8829*a*.
of hydrolysis of cyanogen halides, 6496*i*.
of glycerol phosphoric acid esters, 4550*a*.
of meta- and pyrophosphates, 4549*e*.
of nitriles by $HgSO_4$, 1248*h*.
industrial, review on, 1503*d*.
ionic mechanism of, in region of unimol. adsorption, 7801*e*.
of isomerization of aldehydes into ketones by acids, 4632*f*.
of cod-liver oil by $SO_2$, 9380*g*.
of hexanes by Al halides, 5656*f*.
of isopropyl alc. decompn., 7802*i*.
journal: J. of Research Institute for, Hokkaido University, 3278*e*.
by manganese oxides, 1623*f*.
of mercury reaction with $O_2$ by activated C, 6054*c*.
by metals, 7769*d*.
multiplet theory of, hydrocarbon cracking on $Al_2O_3$ and, 1250*c*.
of 1-naphthylamine reaction with dichromate or vanadate by hydroxycarboxylic acids or $H_2C_2O_4$, 4977*f*.
neg., in oxidation of HBr, 7800*e*.
of nitric acid reaction with Zn by Pt, 6101*i*.
of nitrogen dioxide reaction with $SO_2$ on glass, 7308*d*.
of oxidation of coal and petroleum products with air, 5133*e*.
of Et linoleate by $Bz_2O_2$, 5271*g*.
of HBr by chromic acid with $MnSO_4$, 1634*f*.
of hydrocarbons, 6565*h*.
of org. compds. in flow, 927*d*.
of $PH_3$ in adsorbed layers, 6898*a*.
of $SO_2$ by metals, 5910*g*, 8325*d*.
of phenyl isocyanate reaction with alcs., 7441*a*.
by phosphorus acids, corrosion prevention in, P 8349*f*.
photochem.—see also "sensitization to" under *Light*.
poisoning in heterogeneous, 6498*b*.
of polymerization—see *Polymerization*.
of polythionate decompn., 2886*f*.
radioisotopes in studying mechanism of, 1172*f*.
of reduction by colloidal Rh in liquid phase, 27*e*.
of reduction (electrolytic) by Hg of cathode, 955*g*.
review on heterogeneous, 1634*h*.
selectivity in, 6497*h*, 8832*a*.
by semiconducting oxide catalysts, 474*i*.
of soln. of Cu by Cu and halogen ions, 6496*f*.
in sulfuric acid manuf., 8621*f*.
theory of homogeneous, in org. chemistry, 474*g*.
thermodynamic properties of adsorption complexes in, 1634*i*.
**Catalysts**. (See also *Antioxidants; Auxins; Catalysis; Enzymes; Growth substances; Hormones; Polymerisation modifiers; Promoters; Vitamins;* and "vulcanization accelerators" under *Rubber*.) P 825*ef*, P 4791*f*.
in acetal formation from butyl vinyl ether and phenols, 3783*e*.
in acetal manuf., P 2222*c*.
from $C_2H_2$ and alcs., $HgSO_4$ and $H_2SO_4$ as, P 5034*f*.
from $C_2H_2$ and alcs., $HgSO_4$ as, P 5034*g*.
from alcs. and vinyl esters, mixt. of $HgO$, acids and $BF_3$ complexes as, P 1433*h*.
in acetonitrile prepn. from $C_2H_2$ and $NH_3$, molten halides as, 3778*f*.
in acetylene and S removal from coal and synthesis gas, 3169*i*.
in acetylene reaction with AcOH, P 5035*h*.
in acrylonitrile and succinonitrile manuf.

from ethylene oxide and HCN, P 3439*g*.
in acrylonitrile manuf. from $C_2H_2$ and HCN, P 1051*ab*, P 3439*a*, P 7037*c*.
activation of CO and O desorbed from, 4088*a*.
activity of, prepn. temp. and, 4935*b*.
in acylation, with acyl chlorides, $H_2SO_4$ as, 7000*i*.
of alkyl aryl ethers, P 7967*a*.
of alkyl phenyl ethers, strong HO acids as, P 7966*g*.
of furan and thiophene, $BF_3$ complexes as, 214*b*, 6204*a*.
of furans, P 3464*i*, P 3465*bd*.
of olefins, P 2634*d*.
of thiophene, P 2643*g*, P 2644*abde*.
of thiophene, I as, P 3465*g*.
adsorption and desorption of N and stearic acid by supported, and their components, 6897*g*.
adsorption by, 2498*c*.
in alc. addn. to $(CH_2{:}CH)_2O$, effect of acid-base nature on, 2079*d*, 6157*c*.
in alc. and aldehyde manuf. from CO, olefins and H, Co or Fe as, P 5032*a*.
in alc. decompn., P 4835*d*.
in alcoholysis, disproportionation and transesterification of silicic acid esters, 5737*h*.
in alcoholysis of esters, acid, 7418*c*.
of polyvinyl esters, alkali metal alkyl carbonates as, P 6867*f*.
of soybean oil by EtOH and MeOH, alkalies as, 5209*cde*.
in aldehyde and ketone manuf. from mixts. of carboxylic acids, P 5791*h*.
in aldehyde manuf. from olefins, CO and H, Co as, P 4685*d*.
from alkali metal ferrates and Fe oxides, P 6338*g*.
in alkenylation of aromatic hydrocarbons, $BF_3$-$H_3PO_4$ as, P 7507*f*.
in alkoxyacetaldehyde acetal manuf. from formals, CO, H and alcs., Co or Ni as, P 675*a*.
in alkylation and hydrogenation (simultaneous) of quinoline, P 2241*c*.
in alkylation and isomerization, metal halide complexes with ethers as, P 8666*b*.
in alkylation and isomerization of paraffins, HF-$BF_3$ as, P 5583*i*, 8074*d*.
in alkylation and polymerization, $BF_3$ and its compds. as, 1711*f*.
in alkylation, of alkyl aromatic hydrocarbons, azines, oximes and similar =C—N— compds. as, P 6657*g*.
$AlCl_3$-nitro paraffin solns. as, 108*e*.
of aniline with alcs., P 7041*h*.
of aniline with butene, $Al_2O_3$-$SiO_2$ as, 4644*f*.
of aromatic hydrocarbons, 2966*d*.
of aromatic hydrocarbons, aromatic sulfonic acids as, and their regeneration, P 4458*c*.
of aromatic hydrocarbons, H halides and metal halides as, P 4005*a*.
of aromatic hydrocarbons, hydrous Al silicates as, P 3606*b*.
of aromatic hydrocarbons, mixt. of $Al_2O_3$, $SiO_2$ and $ThO_2$ as, P 680*a*.
of aromatic hydrocarbons or furan, anhyd. HF as, P 1174*g*.
of aromatic hydrocarbons, P acids as, and removing acid vapors from alkylates, P 9430*h*.
of aromatic hydrocarbons with alkyl halides or olefins, $AlCl_3$-hydrocarbon complex, P 5181*i*.
of $C_6H_6$, P 3844*i*.
of $C_6H_6$, $AlCl_3SO_4H$ as, 6582*h*.
of $C_6H_6$, $BF_3H_3PO_4$ as, 7915*i*.
of $C_6H_6$ with $C_2H_4$ or propene, $H_3PO_4$-$BF_3$ as, 4638*b*.
of B halides with alkyl halides, P 6220*d*.
centrifugal sepn. and return of liquid, P 3604*h*.
of cyclic hydrocarbons, anhyd. toluenesulfonic acids as, P 4458*b*.
of cyclic unsatd. hydrocarbons, Na as, P 1057*f*.
effecting contact with $AlCl_3$, by kinetic energy from pumping hydrocarbon reactants, P 1175*e*.
F compd. removal from alkylates obtained with HF, P 4002*c*, P 4006*d*.
HF and a fluoride as, P 3435*g*.
of indan and 1,2,3,4-tetrahydronaphthalene, $Al_2O_3$-$SiO_2$ as, 2197*e*.
of 2-methylbutane with $C_2H_4$, $BF_3$ and its complexes as, 3773*b*.
*in alkylation*, of 2-methylbutane with 2-methylbutene, $H_2SO_4$ as, 1554*g*.
of 2-methylpropane, $AlCl_3$ as, P 1049*e*.
of 2-methylpropane with butenes, HF as, P 5583*g*.
of 2-methylpropane with cyclopropane, 1,2-dibromopropane as, P 5583*d*.
of 2-methylpropane with $C_2H_4$, HF-$BF_3$ as, P 2422*h*.
of $C_3$-$C_5$-mixed olefins with isobutane, promoted $AlCl_3$-hydrocarbon complexes as, P 1956*e*.
of paraffins, $AlCl_3$-branched-chain paraffin mixts. as, P 3189*g*.
of paraffins, $AlCl_3$ recovery from, P 4005*i*.
of paraffins, app. using $H_2SO_4$ as, P 1175*c*.
of paraffins, Br mixts. with $CBr_4$, $CCl_4$, $CHBr_3$ or $CHCl_3$ as, P 5181*g*.
of paraffins, control of viscosity of $AlCl_3$-hydrocarbon complex, P 4005*g*.
of paraffins, fluophosphoric acid-$BF_3$ reaction products as, P 5583*b*.
of paraffins, hydrocarbon pretreatment to lengthen life of $H_2SO_4$ or S-deriv., P 3189*b*.
of paraffins, HF complexes with high-S hydrocarbons as, P 389*h*.
of paraffins in fractionating column, HF as, P 5939*a*.
of paraffins, reaction with effluents and removal of HF, P 390*a*.
of paraffins, recovery of HF, P 914*c*, P 1559*b*, P 3189*h*, P 5182*b*.
of paraffins, $H_2SO_4$ as, P 4004*i*, P 4458*d*.
of paraffins, $H_2SO_4$ dild. with $Et_2SO_4$ or di-Me ether as, P 6404*b*.
of paraffins, water as, P 3604*g*.
of paraffins with pentenes, P 3189*f*.
of phenols, carboxylic acids as, P 7966*c*.
of phenols with alcs. or ethers, $Al_2O_3$ as, P 687*f*.
of phenol with alkyl halides, drying oil gels as, P 3036*g*.
prevention of corrosion by HF, P 3190*a*.
reducing time of contact of, P 7223*b*.
$SiF_4$ removal from alkylates formed with HF, P 4006*b*.
of 1,2,3,4 - tetrahydronaphthalene, 1369*g*.
of thiophene, P 691*d*, 1395*bc*.
in alkylation of butanes with HF, defluorination of $C_4H_{10}$ with bauxite and dehydrogenation of $C_4H_{10}$ with Cr oxide, P 1174*i*.
for alkylation of naphthalene with chlorinated paraffins, 4454*i*.
of paraffins, $AlCl_3$ complex, P 7677*c*.
of paraffins, $AlCl_3$-hydrocarbon complex satd. with $AlCl_3$, P 390*a*.
of paraffins at low temps. to safety fuel, $H_2SO_4$-aliphatic mixed, P 5181*e*.
in alkyl disulfide cleavage with olefins, P 1794*c*.
in alkyl group removal from hydrocarbons, Ni-kieselguhr as, P 5584*c*.
in alkyl halide manuf. from halo olefins and isoparaffins, P 662*g*.
from H halides and olefins, $AlCl_3$ and $FeCl_3$ as, P 6218*e*.
from H halides and olefins, Th salts as, P 2628*b*.
in alkyl halide reaction with olefins, Friedel-Crafts-type, P 7035*c*.
alloys as, 4088*b*.
alumina, P 1161*c*, P 1930*a*, P 1931*a*.
β-alumina, P 1931*d*.
from alumina and $Li_2O$, P 6702*i*.
from alumina and Mo oxide, P 8579*e*.
alumina-BeO, P 2299*f*.
alumina-halogen-Pt, P 8578*h*.
alumina-$SiO_2$, P 1930*bc*, P 1932*a*, P 4792*a*, P 5887*b*, P 6338*d*.
flow of fluidized, in conduits, 6475*h*.
pressure drop in vertical tubes of fluidized, 6476*b*.
aluminum chloride, electrolytic regeneration of, P 3733*e*.
aluminum chloride supported, P 1931*b*, P 3162*e*.
aluminum halide, P 5134*h*.
in amide manuf. from amines, nitriles and $H_2O$, $SiO_2$-$Al_2O_3$ as, P 8398*g*.
from carboxylic acids, P 2240*a*.
from esters and $NH_3$ or amines, alkali metal alcoholates as, P 4289*a*.
in amination of aryl halides, CuCl as, P 3454*gh*.
in amination of isomeric butyl alcs., 1005*a*.
in ammonia decompn. hydrogenation, P 3032*e*.
in ammonia decompn., Fe as, 7312*i*.
for ammonia synthesis, adsorption of vapors by reduced-Fe, 7288*e*.
in ammonia synthesis, recovery of, P 7204*c*.
in analysis with photometer, 7860*b*, 8298*e*.
in aromatic hydrocarbon formation from $C_2H_2$, P 5040*d*.
in aromatization, $Al_2O_3$-$Cr_2O_3$ as, P 3453*i*.
of cracked distillates, aluminosilicates as, 3998*h*.
of gasolines, $Cr_2O_3$ $SiO_2$ gel as, 3997*d*.
of hydrocarbon oils, P 1955*g*.
of naphthenes or paraffins, $Cr_2O_3$ or $MoO_3$-$ZnAl_2O_4$ mixts. as, P 3605*c*.
of petroleum hydrocarbons, P 7047*b*
sulfides as, P 5039*i*.
for aromatization of gasoline from shale oil, 5577*i*.
for aromatization of hydrocarbons and hydroforming of naphtha, pptn. from hot solns. of $ZnAl_2O_4$, P 7222*f*.
for aromatization of hydrocarbons and naphthas and for reforming naphthas, $ZnAl_2O_4$ base in oxide or sulfide, P 3188*f*.
in Beckmann rearrangements of oximes, $PCl_5$ or $H_2SO_4$ as, 5740*d*.
in benzene and toluene manuf. from petroleum and its gases, 8661*a*.
in benzyl *p*-toluenesulfonate decompn., *p*-toluenesulfonic acid as, 7707*h*.
biochem., 5429*a*.
bio-, effect of trace metals on, 7014.
plant inorg., 6287*b*.
for vegetation, large scale agriculture and, 4803*d*.
in bleaching of paper, P 9418*a*.
for bleaching of paper pulps and textiles with alkali or alk. earth chlorites, P 8176*a*.
books: from Alloys of Ni and Non-catalytic Metals, 932*c*; Kataliticheskaya Aromatizatsiya Parafinovykh Uglevodorodov, 8307*b*.
boron fluoride compds. as, 5657*e*
boron fluoride-HF, recovery from org. matter, P 3949*b*.
for bromination of $C_{10}H_8$, 2851*h*.
for 1,3 butadiene prepn., 994*a*.
in butadiene prepn., from AcH and AcOEt, $SiO_2$-$Ta_2O_5$ as, 1714*a*
from EtOH, 991*i*.
from EtOH, $Al_2O_3$-Cr oxide, P 5410*i*
from EtOH, $Al_2O_3$-MgO $SiO_2$ as, 7898*d*.
from EtOH, MgO as, 2016*i*.
from EtOH, Ta oxide on $SiO_2$ as, 5733*h*.
in 1-buten-3-yne prepn., CuCl-$NH_4Cl$ and its mixt. with HCl as, 1598*d*, 3225*c*.
in butyl alc. prepn. from EtOH, 5363.
for Butyl rubber manuf., injection nozzle for, P 9522*b*.
in 2-butyne-1,4-diol prepn., 2578*a*.
in calcium carbonate decompn., gases as, 2078*d*.
calcium nickel phosphate, P 2382*c*.
in Cannizzaro reaction, 4651*d*.
from carbon impregnated with alkali-alk. earth hydroxide, P 5886*h*.
in carbon monoxide reaction with S and $H_2O$, Co and Ni sulfides as, 2532*i*
for carbon monoxide removal from gases P 1537*i*.
carbon, porosity of, 2080*c*.
in carbon-S bond cleavage in $PhCH_2SPh$, $AlBr_3$ as, 2178*c*.
in carbon tetrafluoride manuf. from halo methanes and HF, P 3437*a*.
in carbonyl compd. manuf. from olefins, CO and H, P 4287*b*.
in carbonyl group removal from α,α dialkyl derivs. of γ-cyanobutyralde hyde, peroxides as, P 3440*a*.
in carboxyl group removal from 2-furanacrylic acid, 2615*c*.
from malonic acid derivs., amines as, 7904*d*.
from org. acids, 7800*i*.
in carboxylic acid (long-chain) manuf. from ethylene and carboxylic acids, P 670*d*.
in carboxylic acid manuf. from olefins, CO and $H_2O$, P 670*i*.

in carboxylic acid (unsatd.) manuf. from CO and acetylenes, Ni salts as, P 5412*i*.
in carene conversion to *p*-cymene, $SiO_2$ as, 5767*i*.
in chlorate-bromide reaction, $H_3AsO_4$ as, 1248*f*.
in chlorination of acrylonitrile, pyridine as, 2574*d*.
of aromatic hydrocarbons, Fe filings as, P 1437*c*.
of $C_6H_6$ and its derivs., metal silicates as, P 7041*f*.
of $C_6H_6$, N compds. as, P 4295*h*.
of bis(perfluoroalkyl)benzenes, 6174*f*.
of (1-chloroethyl)benzene, I as, P 680*f*.
of $CH_2$:CHCl, Fe as, P 7035*f*.
of $C_2H_4$, $CuCl_2$ as, P 1433*e*.
of $CH_4$, Pb-Na as, 2156*f*.
of methyl silanes, P 3441*e*.
of phthalic anhydride, P 3463*i*, P 3464*a*.
of pyrazine, C-$CuCl_2$ as, P 5809*f*.
for chlorination of $C_2F_4$, 6071*a*.
for chlorine manuf. from HCl, P 1160*f*.
for chlorite manuf. from $ClO_2$, P 3159*i*.
in chloroethylene manuf. from $C_2H_2$ and HCl, $Al(OH)_3$ as promoter for $HgCl_2$, P 3437*h*.
from $C_2H_2$ and HCl, C-$HgCl_2$-ThCl$_4$ pellets as, P 1433*e*.
from $C_2H_2$ and HCl, fluorides or fluosilicates as, P 4284*e*.
from $C_2H_2$ and HCl, $HgCl_2$ on C as, P 3024*e*.
from $C_2H_2$ and HCl, Hg compds. as, P 5790*a*.
from $C_2H_2$ and HCl, metal salts as, 6969*g*.
from $C_2H_2$ and HCl, nitriles as, P 7951*b*.
in chloromethylation of aromatic hydrocarbons, $Al_2O_3$-$SiO_2$ gel or coconut charcoal as, P 5583*e*.
for chloroprene-polymerization inhibition, 1598*f*.
in chlorovinylation of satd. hydrocarbons with polychloro ethylenes, peroxides as, 9024*e*.
clay, P 7162*a*.
clay, activation with mineral acids, P 1004*d*.
clays as, 6035*g*, 6799*a*.
for combustion, P 4835*f*.
in combustion of black rocket gunpowder and rocket propellants, 9449*fh*.
compression of powd., app. for, P 6403*f*
in condensation of aldehydes and ketones, P 2632*c*.
of aldehydes with $CHBr_3$ or $CHCl_3$, P 604*e*, P 4284*h*.
of alcuritic acid and its Me ester, *p*-$MeC_6H_4SO_3H$ as, 2941*a*.
of aromatic hydrocarbons with nitriles, metal halides as, P 2424*c*.
of chlorinated paraffin wax with $C_6H_6$ and in hydrogenation of condensate, $AlCl_3$ and Ni as 2416*hi*.
of coconut fatty acid anilide with *N*-methylol chloroacetamide Na sulfonate, acids and Zn chloride as, P 8866*b*.
of crotonaldehyde, $Bu_2NH$ as, 5376*h*.
of cyclohexene and epichlorohydrin with phenols $BF_3$ as, 6173*g*.
of HCHO, aroylcarbinols as, 6159*h*.
of HCHO with PhOH, 8737*cdef*.
of HCHO with PhOH, amines as, P 5097*i*.
of HCHO with phenols, sulfonic acids as, P 9526*d*.
of ketones in presence of H, oxides as, P 2222*h*.
of ketones with phenols, mercapto carboxylic acids and their derivs. as, P 5424*b*.
of phenols with terpenes, P 6237*a*.
of 1 2,3,3-tetrachloropropene, $AlCl_3$ as, 5361*h*.
of triamines to give piperazines, P 2242*g*.
for condensation of aralkyl hydrocarbons with ketones, P 2036*h*.
of 2-furaldehyde with phenols, 5224*hi*, 5225*abcehi* 5226*abcaf*.
of thiophenes with aldehydes, P 2031*hi*.
of urea with HCHO, P 4512*h*.
in condensation of HCHO with PhOH and curing of resin, onium compds. as, P 8208*a*.
copper, P 1161*c*, P 7609*f*.
from copper-Al alloy, P 6763*f*.
copper chromite, 6336*a*.
copper-Cr oxide, crystal structure of, 5653*i*.
copper-Cr oxide, prepn. of, 6062*i*.
for cracking, P 7162*d*, P 9299*d*.
drying hydrogel, by distn. with BuOH, P 1558*f*.
of hydrocarbon oils acid-activated clay P 6403*g*, P 8662*i*.
of hydrocarbon oils, $Al_2O_3$-$SiO_2$, P 5181*a*, P 5583*b*.
of hydrocarbon oils, increasing gasoline-producing efficiency of $SiO_2$-$ZrO_2$, P 8665*c*.
of hydrocarbon oils, metal sulfide, P 844*e*.
of hydrocarbons, chambers for, P 843*g*.
of hydrocarbons to fuel gas, 6814*c*.
of petroleum, 5579*g*, 6814*d*.
of petroleum, analysis and testing of, 8124*d*.
of petroleum, attrition resistance and testing of fluid, 7217*f*.
of petroleum, crystal structure and activity of montmorillonite, 1554*d*.
of petroleum, etc., activated kaolin, P 8129*gh*.
of petroleum, Houdry app. for measuring activity of, 5176*d*.
pore-size distribution of clay and $Al_2O_3$-$SiO_2$-gel, 5575*c*.
pore size-surface area distribution of, 3180*g*.
$SiO_2$-$Al_2O_3$ $SiO_2$-MgO mixed, stable to steam, P 3188*h*.
from $SiO_2$ hydrogel and $ZrO_2$,, P 3160*i*.
in cracking and refining of low-temp. tar, 7667*h*.
in cracking and reforming of hydrocarbon oils, app. controlling circulation of suspended, P 9428*b*.
in cracking, app. for hydrocarbon stripping from fluid, P 6403*h*.
of distn. oil from rubber, clay-$V_2O_5$ mixt. as, 5619*i*.
of gasoline, gum formation and, 8656*b*.
heat of combustion of residual, and of carbonaceous deposit on, 3180*f*.
of hydrocarbon oils, fused $Al_2O_3$ as, P 386*h*.
of hydrocarbon oils in two stages, $SiO_2$ complex, P 387*a*.
of hydrocarbon oils, kiln for regenerating granular, P 8129*i*.
of hydrocarbon oils, Th phosphates as, P 9428*g*.
of hydrocarbons, $Al_2O_3$ as, 1250*c*.
of hydrocarbons, conveyor for, P 3187*i*.
of hydrocarbons, distribution in app., P 3188*a*.
of hydrocarbons, recovery and oxidative regeneration of P 9427*h*.
of hydrocarbons, regenerator for, P 3604*d*.
of hydrocarbons, Na contamination, detn. and effects on $Al_2O_3$-$SiO_2$, 2414*g*.
loss recorder for fluid, 7217*e*.
metallic contaminant detn. in $Al_2O_3$-$SiO_2$ fluid, 8655*i*.
of $CH_4$, Ir, Rh or Ru as, 3773*fg*.
of olefinic naphtha, $SiO_2$-oxide mixt. as, P 7677*i*.
of petroleum by Houdriflow and Thermofor moving-bed processes, 3180*c*.
of petroleum by Houdriflow process, 7217*i*.
of petroleum, fluid MgO-$SiO_2$, 8656*c*.
of petroleum, reactivation of $Al_2O_3$-$SiO_2$, P 9428*c*.
of S-high crude oil, steam in prevention of S poisoning of, 8656*e*.
recovery of, P 370*b*.
regeneration of, 3181*d*, P 3604*c*.
statistical procedures for fluidized-bed, 8217*a*.
in cracking of hydrocarbon oils and olefin-content reduction in cracked gasoline, P 4004*a*.
in cracking of hydrocarbon oils, regeneration of, and refining fuels with regenerated catalyst, P 9429*b*.
in cross-linking vinyl polymers, 7406*h*.
for curing of aminoplasts, P 5230*t*, P 5631*f*, P 5633*b*.
in curing of polyesters, org. peroxides as, 4892*h*.
of thermoreactive resins, spectrographic study of, 3293*a*.
of thermosetting materials, di(aryl sulfonyl) peroxides as, P 6002*h*.
in cyanoacetate (alkyl) reaction with aldehydes or ketones, P 1436*e*.
in cyanoethylation of reactive methylene compds., bases as, P 3446*h*.
in cyanohydrin (acetone) manuf. from acetone and HCN, CuCN as, P 7955*c*.
in cyanohydrin manuf. from alkylene oxides and HCN, sterically hindered amines as, P 1435*b*.
in cycloalkyl nitrite manuf. from cycloalkanes and $N_2O_4$, P 4694*a*.
in cyclohexanone reaction with Et cyanoacetate, amides as, P 7507*e*.
dehydrating-dehydrogenating, in manuf. of styrenes, P 6231*a*.
for dehydration, 2533*i*.
in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
in dehydration and isomerization, bentonite and gumbrin as, 6153*a*.
in dehydration and isomerization of BuOH, CuO-$H_3PO_4$ as, P 3833*h*.
in dehydration and isomerization of isoamyl alc., P 3834*a*.
for dehydration, isomerization or oxidation of drying oils and drying-oil fatty acids, 4025*g*.
in dehydration of amyl alcs., P 6217*h*.
of 1,3-butanediol, 5359*i*, 5360*fghi*, 5361*a*.
of 1,3-butanediol, kaolin-$Fe_2O_3$-KOH and kaolin-$H_3PO_4$ mixts. as, 2015*ghi*, 2016*abc*.
of 1,3-butanediol, stability of butadiene in kaolin-$Fe_2O_3$-KOH and kaolin-$H_3PO_4$, 4045*ef*.
of BuOH, P 7035*b*.
of castor oil, $NaHSO_4$ as, 872*g*, 4872*a*.
of cyclohexanol, 5010*e*.
of EtOH, $Al_2O_3$ gels as, 2080*e*.
of EtOH, Al as, P 1434*h*.
of glycols, Br-contg. Friedel-Crafts catalysts as, P 3834*c*.
of hydracrylic acid, P 6221*i*
of hydracrylonitrile, P 3836*i*, 4629*i*.
of α methylbenzyl alc., 592*a*.
of pinacol, P 1434*i*.
of tetrahydrofuran, P 5410*d*.
for dehydration of hydroxylated oils, $BPO_4$ or boric acid mixts. with phosphoric acids, P 2790*b*.
for dehydrocyclization and dehydrogenation, autoregenerative, P 370*e*.
for dehydrogenation, P 5410*a*.
from $Cr_2O_3$ and $Fe_2O_3$, P 7610*b*.
of hydrocarbons, P 1538*h*, P 3161*e*, P 4791*g*, P 5039*g*.
of naphthenic-oil fractions to toluene, P 5186*i*.
in dehydrogenation and hydrogenation of hydrocarbons, 6567*a*.
in dehydrogenation and racemization of *sec*-BuOH, Cu and Zn chromites as, 1249*c*.
in dehydrogenation of alcs. to aldehydes or ketones, Cu, Pb and Zn mixt. as, P 4287*f*.
of alkaryl or alkyl hydrocarbons, P 5788*e*.
of amines, 132*i*.
of benzaldehyde oxime, Cu as, 5760*f*.
of 2,3-butanediol, P 3641*h*.
of butene, Cr as, 4213*i*.
of butene, mixt. of MgO $Fe_2O_3$, CuO and $K_2O$ as, P 663*a*.
of butenes to butadiene, removal of catalyst poisons from steam in, P 7950*g*.
of cumene, mixt. of MgO, $Fe_2O_3$, $K_2O$ and CuO as, P 680*f*.
of cyclohexane, 7911*h*, 7912*a*.
of cyclohexane and decahydronaphthalene, metals and oxides as, 4551*d*.
of di- and trialkylcyclohexenones, Pd-C as, 2968*h*.
of 1,1-diaryl paraffins, P 2235*e*.
elec. heater for chamber for, P 4151*b*.
of fatty acids, 3357*c*.
of hydroaromatic compds., kinetic and adsorption coeff. study of, 1731*f*.
of hydroaromatic compds., kinetics of, 1732*a*.
of $C_2$-$C_6$-hydrocarbons, P 5030*e*.
of hydrocarbons, BeO-impregnated $Al_2O_3$ as, P 6404*c*.
of indan, $Cr_2O_3$ as, 6608*h*.
of isoborneol, 5382*e*.
of nitriles NiS-$WS_2$ as, P 2220*e*.
of olefins, P 3023*d*.
of olefins, maintaining K content of oxide, P 2764*f*.

*in dehydrogenation* of 1,4-pentanediol, Cu chromite as, P 3458*e*.
of piperazine, P 1813*d*.
poisoning of Ni, 2499*b*.
regenerating S-contg. oxide, P 3188*i*.
of secondary alcs., $Bi_2O_3$ and ZnO as, P 6650*e*.
stripping with $CO_2$, P 9078*e*.
of 2-*o*-tolyl-2-butene, 5012*d*.
in depolymerization of butene polymers, clay as, 1311*a*.
of olefin polymers, 1713*e*.
of triisobutylene, aluminosilicates as, 6151*a*.
in dialkyldihalosilane manuf., P 4286*h*.
in diaryl paraffin mol. decompn. to aromatic compds., silicates as, P 2228*f*.
in *N*, *N*-dibutylphenethylamine manuf. from styrene and $Bu_2NH$, Na as, P 681*i*.
in 1,4-dicyano-2-butene manuf., Cu salts as, P 4286*d*.
in dihydro terpene reaction with phenols, P 9085*c*.
in dimerization of acetylene, P 7951*a*.
in diphenylamine manuf. from $PhNH_2$, $Al_2O_3$ free of alkali as, P 682*g*.
in disproportionation of carene, $Fe_2O_3$-gypsum as, 5012*g*.
in dissocn. (thermal) of Ca, K and Na sulfates, 6895*h*.
drying hydrogel, P 9300*d*.
in drying of coatings from glycerol α-allyl ether phthalate and succinate, peroxides as, 9480*g*.
drying or heat-treatment of beads of gel, P 6339*i*.
drying pelleted, P 6477*a*.
in elaidinization of oils, liquid $SO_2$ as, P 5215*f*.
in elaidinization of palm oil, Raney Ni or Se as, 1582*b*.
electronic properties and activity of solid, 8251*d*.
electron microscopy of, 32*d*, 4087*b*.
in emulsification of phenol-HCHO reaction mixts., acids and bases as, 5223*h*.
in enol acetate manuf. from ketene and ketones, sulfonated, P 3838*h*, P 3839*a*.
in esterification, of AcOH with EtOH, $NaHSO_4$ as, 7799*i*.
of amino alcs., acids as, P 674*e*.
$ClSO_3H$ as, 6573*f*.
of cyanohydrins, $Et_3N$ as, P 2631*h*
of dehydrated castor oil-cinnamic acid-styrene polymer with glycerol, Ca stearate as, P 5972*d*.
of dibasic anhydrides, KOH as, 2974*g*
of enols, $H_2SO_4$ as, P 7953*h*.
of EtOH, Cu as, 8252*e*.
of α-halo acids, Zn and $ZnCl_2$ as, P 2632*h*.
of linseed fatty acids with tetramethylolcyclohexanol, stearates as, 4871*c*.
in esterification (poly) of λ-hydroxystearic acid, 2166*c*.
in esterification (re-), P 1224*a*, P 6236*d*.
of acetates with Me esters of fat acids, NaOMe as, 3631*b*.
of esters of secondary and tertiary alcs. with the desired secondary or tertiary alc., P 7951*e*.
of esters of β,β′-thiodipropionic acid, P 5414*g*.
of palm oil with EtOH, 7723*h*.
of peanut oil with EtOH, NaOH as, 3635*f*.
in ester manuf. from CO and alcs. or ethers, P 3443*c*.
in ester manuf. from CO, olefinic compds. and phenols, P 6234*i*.
in ester (α,β-unsatd.) manuf. from esters of β-alkoxy acids, P 3442*e*.
for ether formation from acetals, P 1050*a*.
in etherification of alcs., *p*-toluenesulfonic acid as, 5003*d*, 6156*e*.
in ethylation of $PhNH_2$, $Al_2O_3$ and C or $SiO_2$ as, P 1437*e*.
in ethylation of $C_6H_6$ with EtOH, $Al_2O_3$-$SiO_2$ as, 1019*d*.
in ethylene-$C_2H_6$ mixt. conversion to higher-boiling products, P 3833*g*.
in ethylene oxide formation from $(CH_2Cl)_2$, 4638*g*.
in ethylene reaction with $H_2SO_4$, $Ag_2SO_4$ as, P 6645*e*.
in ethylidene and vinyl ester manuf., P [illegible]
fluidised, P 1538*i*, 8830*f*.
d., particle size and viscosity of, 6805*g*.
*fluidised*, history of, 8074*d*.
pressure drop from vapor flow through, 6476*c*.
testing app. for, 7217*d*.
in fluorination of acetylenic hydrocarbons, Hg compds. as, P 7035*f*.
of C, fluorides as, P 3834*g*.
of Et chlorothiophosphate, $SbCl_5$ as, 1313*i*.
of halogenated hydrocarbons, $SnCl_4$ as, P 2628*e*.
of polyhalo methanes with $C_7F_2$, $AlCl_3$ as, P 3834*f*.
of unsatd. hydrocarbons, HgO-charcoal as, P 2218*e*.
in fluoro olefin reaction with HBr, 7407*b*.
in formal (Cl-contg.) manuf. from $C_2H_2$, HCHO and HCl, P 4685*g*, P 5035*b*.
formation and aging of, solid-state reactions in, 6897*c*.
for Friedel-Crafts reaction from halides on $Al_2O_3$, etc., P 3161*b*.
in furan manuf. from 2-furaldehyde, P 5047*g*.
in furfuryl alc. resin manuf., S as, P 3232*f*.
in gas (coal) purification, 3172*ei*.
in gasification of solid fuels, P 6397*c*.
in gasoline (cracked) treatment to reduce olefin and S contents, $SiO_2$-$Al_2O_3$ gel as, P 4003*a*.
gel, P 1884*d*.
beads of, P 1161*b*.
copptd., P 1930*e*.
for gelation of phenolic resins, P 2033*b*.
in germanium org. halide manuf., P 2631*e*.
in glucoside prepn. from glucopyranosyl bromide tetraacetate, 7430*h*.
in glycol manuf. from olefins and aldehydes, $H_2SO_4$ as, P 673*c*.
in Grignard coupling of *p*-(1-bromopropyl)anisole, $CoCl_2$ as, 3812*f*.
in halo acetal manuf. from vinyl esters and halohydrins, P 6649*i*.
in (haloalkyl) cycloalkane manuf. from halo olefins and cycloalkanes, P 4693*h*
in halogen and S removal from hydrocarbon oils, active C as, P 390*c*
in halogenated alc. and formal manuf. from HCHO, H halide, olefins and halogenated olefins, P 3835*h*.
in halogenation, electrolytes in AcOH as, 7408*g*.
in halogenation of bicyclic hydrocarbons with alkyl halides, $AlCl_3$ as, P 689*f*.
heat-absorbing and -retaining pelleted, P 8578*f*.
in hydration of $C_2H_2$, Hg salts as, P 3837*h*
of isoölefins to tertiary alcs., ion exchange substances as, P 8397*g*.
of nicotinonitrile, IRA-400 as, 1411*c*.
of olefins, fluoride-promoted HF, P 3438*f*.
of olefins, $W_2O_3$ as, P 8397*h*.
in hydrocarbon conversion, P 4447*h*, 4448*b*.
absorption from products, P 2764*a*.
$AlBr_3$- or $AlCl_3$-molten halide mixts as, P 4843*c*.
app. for recovery and regeneration of, P 2422*b*.
app. for regeneration of powd., P 7222*e*.
app. for varying depth of beds of, P 2422*a*.
in closed cycle, app. for conveying powd., P 388*f*, P 1174*g*.
descent through gaseous reactants of clay-type, P 843*h*.
elevator for, P 9429*d*.
fluidized beds of, P 1956*a*.
in fluid state, and sizing and sepn. of catalysts therein, P 388*b*.
fused pelleted $Al_2O_3$, P 387*h*.
reducing corrosiveness of Al halide-hydrocarbon complex, P 5582*i*
regeneration of fluidized, preventing afterburning in, P 1956*cd*.
removal of Al halide, from products, P 7222*h*.
stripping carbonaceous matter and recovering hydrocarbons from used fluid, P 388*c*.
sublimed $AlCl_3$ as, P 1174*f*.
temp. control in beds for, P 6819*c*.
vapor contact with fluidized, P 389*d*.
in vapor phase, recovery and regeneration of, P 4843*e*.
for hydrocarbon conversion, from activated $Al_2O_3$ impregnated with metal compds., P 5181*c*.
heat-treatment of, P 7608*i*.
*for hydrocarbon conversion*, Fe removal from clay, P 4843*a*.
$SiO_2$-gel, P 3604*a*.
hydrocarbon conversion with stationary bed of, app. for, and regeneration of catalysts, P 7760*h*.
in hydrocarbon-fuel manuf. from fat acids, P 4835*b*.
for hydrocarbon halide reaction with Si, P 5517*a*.
in hydrocarbon manuf. from $Me_2O$, $Al_2O_3$-$SiO_2$ as, P 3435*f*.
for hydrocarbon-oil conversion, $NH_4$ ion activated Mg silicate, P 7224*d*.
pelleted $Al_2O_3$-$SiO_2$, P 843*i*.
$SiO_2$-gel bead, P 4004*c*.
in hydrocarbon-oil conversion, in fluidized state and its regeneration, P 387*f*
maintaining const. heat evolution during continuous regeneration of, P 8664*b*.
measuring and controlling flow of powd., P 9429*a*.
recovery, scrubbing and recycling of finely divided, 844*b*.
suspension of powd., P 9429*d*.
in vapor phase, P 6403*i*.
in hydrocarbon-oil conversion or distn., maintaining powd., in fluidized phase of different ds., P 9429*f*.
for hydrocarbon-oil conversion or refining, $Al_2O_3$-$SiO_2$, P 8664*h*.
in hydrocarbon refining, aluminates as, P 3191*b*.
in hydrocarbon synthesis, control of particle size of Fe, P 3832*h*.
for hydrocarbon treatment, $Al_2O_3$-MoO, $TiO_2$ pelleted, P 1561*d*.
$Al_2O_3$-oxide pelleted, P 4004*f*
HF and HF-$BF_3$ mixed, P 844*f*
noncorrosive arylsulfonic acid-As, P 2636*e*
in hydrocarbon treatment, app. for stripping contaminated fluidized, P 388*i*
in hydrochloric acid formation in chlorinated paraffin wax, triethanolamine as inhibiting Fe, P 1179*d*.
in hydrochloric acid removal from chlorinated fatty acids or their esters, P 7502*f*.
from dichloroethane, 4628*h*.
from dichloroethane, grog as, P 7951*b*
in hydrocyanic acid manuf., $MnO_2$ as, P 1926*b*.
in hydrocyanic acid manuf., Pt as, P 9396*h*.
in hydrofluoric acid removal from polyfluoro paraffins, $CrF_3$ as, P 3437*c*
in hydrofluoric acid removal, regeneration of, P 5518*c*.
in hydroforming and S removal from petroleum, MoO₃ coppt'd. with MgO as, 2761*a*.
in hydroforming of naphthas, fluidized Zn spinel-supported oxide, P 1958*i*
in hydroforming, regeneration of Al Mo, P 9307*a*.
in hydrogenation and hydrolysis of fats and oils in autoclaves, Ni oxide as, 5609*e*.
in hydrogenation and oxidation reduction Pt as, 6062*b*.
in hydrogenation and reduction of org. compds., 6967*d*.
for hydrogenation, etc., P 2382*c*
in hydrogenation, of $C_2H_2$ to $C_2H_6$, P 3833*i*, P 5030*b*.
of acetylenic alcs., 6969*i*.
of aldehydes, NiO-$Cr_2O_3$ as, 5363*g*.
of alkynes, nitriles, nitrites and nitro compds., Ti hydride as, P 1793*i*.
of anhydrides of unsatd. acids, Co and Ni as, P 3839*d*.
of $C_6H_6$, platinized C, 1249*g*.
of $C_6H_6$, blocking of active centers of platinized C, by decompn. products, 7802*a*.
of bis(alkenyl-2-alkoxyphenyl)carbonates, P 4299*b*.
of CO, P 1171*ab*, 2397*ehi*, 2398*bdeghi*, 2399*gi*, 2400*acegh*, 2401*bdg*, 2402*a*, 3167*dfh*, P 3174*i*, P 3175*cdf*, P 4447*cf*, 4448*i*, 4828*i*, P 5574*b*, P 6810*h*, P 6811*a*.
CO adsorption by Co, Co-kieselguhr and Co-kieselguhr-ThO₂, 2413*d*.
CO adsorption by Fe, Fe-kieselguhr and Fe-kieselguhr-Cu-Mn, 2413*c*.
of CO, carbide decompn. in carburized Co, 6064*c*.
of CO, Co and Fe as, 2081*a*.
of CO, Co, Fe and Ni as, 6063*i*, 9415*h*, P 9419*i*.
of CO, Co-ThO₂ and Fe as, P 839*c*.

*in hydrogenation*, of CO, Co-$ThO_2$ as, P 4685*g*.
of CO, desorption of gases from Co, 2401*h*.
of CO, effect of G and H on adsorption of $CH_4$ by Ni Fischer, 6064*a*. $CO_2$ effect of preheating Ni, 8831*c*.
of CO, fluidized alkalized Fe as, 7664*c*.
of CO, fluidized, and their regeneration, P 8120*gi*.
of CO, heat transmission through fluidized beds of $Fe_3O_4$, 8753*h*.
of CO, H adsorption by Fe and Fe-kieselguhr, 2412*i*, 2418*ab*.
of CO in alc. synthesis, fused Fe as, 994*e*.
of CO in MeOH synthesis, 3351*i*.
of CO, Fe and Fe salts as, P 5573*b*.
of CO, Fe as, P 3994*b*, P 4446*h*, 8117*a*.
of CO, kinetics of adsorption of $CH_4$ by Ni Fischer, 6064*b*.
of CO, Ni and Co as, 2405*h*.
of CO, Ni as, 3169*e*, 7666*h*.
of CO, Ni-$ThO_2$-kieselguhr as, 5921*f*.
of CO, KF-promoted Fe compds. as, P 8121*a*.
of CO, regeneration of, P 1551*h*, P 3994*e*, P 4448*f*, P 9420*adh*.
of CO, regeneration of Fe oxide, P 6811*b*.
of CO, temp. control of, P 8650*h*.
of CO to benzine, CO absorption by, 2406*g*.
of CO, wax removal from, P 3994*fi*.
of carbonyl compds. during reaction with an amine or $NH_3$, P 2633*d*.
of carbonyl compds. in presence of S, P 2629*h*.
of cashew-nutshell liquid and its derivs., Raney Ni as, P 4497*i*.
of castor and olive oils, Ni as, 7722*h*
of cinnamic aldehyde, BzH and hydroxybenzaldehydes, Pt as, 8832*a*.
of cinnamic and crotonic acids, effect of amt. of, 8819*b*.
of citronellal, 2160*i*.
of coal, 1943*ah*, 1944*b*, 6391*d*, 8640*cdfghi*.
of coal, Ca-Cu-chromite as, 2404*d*.
Cu as, P 2218*h*.
of $NCCH_2CO_2H$, Ni as, P 2225*g*.
of cycloalkan-2-ol-1-ones, Ni or Co as, P 6220*i*.
of cyclopentane, 589*c*.
of di- to monoolefins, NiS as, 1554*i*.
of esters, effect of ratio of, on rate, 573*f*.
of esters to alcs., 573*b*.
of 2-furaldehyde, Cu and Cu compds as, 1719*a*, P 7049*a*.
of 2 furaldehyde, Ni as, 1718*i*
of furan and its derivs., P 4301*i*.
of furfuryl alc., Ni as, 1719*b*.
of glucose, Ni salts as, P 5794*h*.
of glycolonitrile in presence of HCHO, Co and Ni as, P 3839*e*.
of hexafluoro-2-butyne, 2025*h*.
of hydrocarbon oils, $MoO_3$.2HCl as, P 9431*c*.
of hydrocarbons, Co as, 6172*c*, 7663*i*.
of iso-PrPh or *m*-$C_6H_4Me_2$, Ni as, 8246*i*.
of Kogasin to gasoline, 2415*fi*.
of Me 3(α)-hydroxy-12-keto-$\Delta^{9,11}$-cholenate, 3433*g*.
of mixts. contg. higher alcs. in purification, P 5032*e*.
of 2-naphthol, 2197*c*.
of nitro compds., Cr, Mo or W sulfides as, and $CS_2$ as activator for, P 682*a*.
of N compds. Raney Ni as, 5738*i*.
of oils, life and recovery of Ni, 5210*i*.
of oils, Ni oxide-acid clay as, and effect of acid clay and water on Ni oxide, 5610*efg*
of phthalic anhydride to o-xylene, $MoS_2$ as, P 7507*e*.
Raney Ni as, 4651*i*.
of seal fats, $Al_2O_3$-Ni and $Cr_2O_3$-Ni as, 877*g*.
of semicarbazones of oxo acids, Raney Ni as, 2604*d*.
in solns., mass and, 4551*c*.
of sulfurated oil, Ni contg. S as, P 5613*b*.
of S in fuel-gas desulfurization, P 3806*e*.
of thiol esters, Ni as, P 3445*c*.
of thiophene 1,1-dioxide derivs., P 7512*e*.
of triisobutylene, $Al_2O_3$-0.1 Pd or -Pt pellets as S-resistant, P 4007*e*.
*in hydrogenation*, V oxides as, 2853*b*.
of wood, Raney Ni as, 8675*de*.
for hydrogenation, of aldehydes to unsatd alcs., P 1063*c*.
of CO, P 827*a*, P 4836*g*, P 5928*i*, 6063*g*.
of CO, acid treatment of siliceous diluents for, P 7214*e*.
of CO, activity and surface of Co, 3273*h*.
of CO, activity measurement of Ni-Si-Al, 6389*g*.
of CO, detn. of Co and Th in, 60*a*
of CO, disintegration-resistant $Fe_3O_4$, P 6397*a*.
of CO, effect of $H_2O$ on Co, 6497*a*.
of CO, Fe oxide-alkali metal ferrate, P 1950*f*.
of CO, Fe oxide-alkali metal oxalato ferrate(III), P 4448*d*.
of CO, Fe oxide-alkali metal pyroantimonate, P 1950*f*, P 4448*d*.
of CO, kieselguhr as support for Fischer, 8830*h*.
of CO, prepn. of Ni, 2853*b*.
of CO, reduction with H of Ni Fischer, 26*i*.
of CO, surface during reduction, 27*b*.
of CO, x-ray diffraction by Ni-$ThO_2$-kieselguhr, 2853*c*.
of CO, x-ray diffraction study of Fischer, 7313*c*.
of 2,3-dihydrofuran derivs., P 2643*b*.
of fats, 7607*h*.
of oils, effect of pptn. with NaOH and $Na_2CO_3$ on activity of, 5211*bc*.
from $SiO_2$ and chloroplatinic acid, P 2746*j*
of $NaHCO_2$ to $NaO_2CH$, 3301*d*
for hydrogen-atom recombination, 8251*c*.
in hydrogen-exchange reactions of paraffins, $Al_2O_3$-$AlCl_3$ as, 7897*i*.
in hydrogen halide addn. to aliphatic unsatd. compds., P 2629*a*.
in hydrogen halide addn. to cyclohexenes and hydrogenated naphthalenes, 2173*g*.
in hydrogen halide reaction with tetrahydrofuran, P 1433*d*.
in hydrogen halide removal from aromatic halogen compds. in polymer prepn., 1603*d*.
in hydrogen halide removal from halogenated hydrocarbons, P 5424*b*
for hydrogen manuf. from CO and steam, P 840*c*, 5133*d*.
in hydrogen manuf. from natural gas and steam and in hydrogenation of coal, 5171*a*.
in hydrogenolysis of aromatic nitriles, Ni as, 7916*f*.
in hydrogenolysis of 2,2,3-trimethyl 1-butanol, 1313*a*.
for hydrogen peroxide decompn., 5553*h*
for hydrogen peroxide decompn., etc., from Pb oxide, P 6096*d*.
for hydrogen reaction with S, from bauxite, P 7201*i*.
for hydrogen sulfide reaction with O to form S, P 7652*g*.
in hydrolysis of PhCl, $SiO_2$ gel as, porosity and, 7313*e*.
of esters, cation-exchange resin as, 6064*i*.
of lactams, P 2225*b*.
of polyvinyl esters, guanidine carbonate, P 5413*c*.
of proteins by acids, dodecanesulfonic acid, etc., as, 6681*a*.
in industrial chemistry, 8074*c*.
iron, P 5135*a*.
iron, N adsorption and surface of promoted, 6036*f*.
iron oxide, extruded, P 3162*d*.
for manuf. of liquid hydrocarbons and oxygenated compds., P 6762*g*.
pelleted, P 5135*b*.
in isomerization, alkylation and polymerization of hydrocarbons to branched-chain hydrocarbons, P 6217*d*.
in isomerization of butane, $AlCl_3$-$Al_2O_3$ as, P 4283*d*.
of $C_4H_{10}$, $AlCl_3$ as, P 1561*c*.
of butene to 2-methylpropene, P 2216*e*.
of camphene, 2975*d*.
of cycloalkanes, $AlCl_3$ as, 157*e*.
of cyclohexane and methylcyclopentane, 587*b*.
of dichlorobutenes, Cu and Cu salts as, P 663*f*.
of $Ph_2CHCHO$, $ZnCl_2$ as, 1753*c*.
of fats and oils, $HNO_3$-contg., P 2341*b*.
*in isomerisation* of hexane, HF-$BF_3$ mixts. as, P 4007*a*.
of β-hydromucononitrile, P 6647*f*.
of linseed oil, metals as, 4027*f*.
of methoxychloropentenes, metal halides as, 130*f*.
of morphine, Pd and charcoal as, 5786*e*.
of 1-octene, $ZnCl_2$ as, 6152*c*.
of oils, Ni-active C or Ni-active C-Se as, 2792*a*.
of olefins, HBr or HCl or their hydrolyzable salts as, P 3604*i*.
of paraffins, $AlCl_3$-hydrocarbon complexes as, P 1559*h*, P 5174*a*.
of paraffins, $AlCl_3$-FeCl$_3$ mixt. as, P 8667*b*.
of paraffins, Al halide-S compd., P 3188*e*.
of paraffins, $HBF_4$-olefin complex as, P 660*f*.
of paraffins, HCl- and $NaHSO_4$-promoted $AlCl_3$, P 4006*f*.
of paraffins, HCl-promoted $AlCl_3$ as, P 1957*g*.
of paraffins, HF-$BF_3$ mixt. as, P 4006*h*.
of paraffins in presence of H and HCl, $AlCl_3$ as, P 5182*e*.
of $C_4$-$C_9$-paraffins, liquid halides as, P 3190*c*.
of paraffins, maintaining activity of Al halide, P 4006*g*.
of pentane in presence of additives, $AlCl_3$-HCl as, 1712*d*.
of pentene isomers, silica gel as, 3343*g*.
of pinene to camphene, pyrophyllite as, P 2234*f*.
of *cis*-α,β-unsatd. acids, P 1798*d*.
of unsatd. hydrocarbons, 6153*h*.
for isomerization of butane, impregnation in catalyst bed of $AlCl_3$, P 4449*a*.
of paraffins, P 5886*f*.
of paraffin wax, $AlCl_3$ complexes with *tert*-butyl chloride or toluene, P 7677*c*.
in isomerization of olefins and alkylation of 2-methylpropane, HF as, P 1175*g*.
in isomerization, polymerization and hydrogenation of olefins, P 1561*b*.
in isopropylation of benzene with $C_3H_8$, $BF_3$, $H_3PO_4$ as, 1732*e*.
in ketene manuf. from AcOH, P 5413*d*.
in ketene reactions, 5366*h*.
in ketone manuf. from anhydrides and olefins, P 3441*i*, P 3442*a*.
from fatty acids, carbonates as, P 7037*f*.
from olefins and anhydrides or ketenes, P 4685*i*.
$ThO_2$ as, 8367*f*.
in ketone reaction with dialkylformamides, $MgCl_2$ as, 7921*a*.
in Kjeldahl digestion, of heterocyclic N compds., HgO-Se mixt. as, 7374*a*.
of proteins, Hg as, 4180*c*.
Se and Te as, 8961*g*.
in β-lactone manuf. from aldehydes and ketene, P 5037*g*.
from carbonyl compds. and ketenes, P 5795*e*.
from carbonyl compds. and ketenes, $Al_2O_3$-$SiO_2$ as, P 3840*d*.
from carbonyl compds. and ketenes, boric acid and its derivs. as, P 5414*i*.
from carbonyl compds. and ketenes, $HClO_4$ salts, $Zn(NO_3)_2$ and $Zn(CNS)_2$ as, P 1055*hi*.
from carbonyl compds. and ketenes, esters of phosphoric acids, fluoborates and Hg halides as, P 1056*ac*.
from esters of oxo acids and ketenes, P 2635*f*.
in Lewisite manuf., $HgCl_2$ and promoting chlorides as, P 5412*c*.
loss of fluidized, decreasing, P 8665*e*.
manganese dioxide as, relation to depolarizing and magnetic properties, 7313*d*.
in manganometric detn. of telluric acid, Ru salts as, 3315*i*.
manuf. of metallic, by electrolysis, P 2103*g*.
manuf. with ion exchangers, P 4791*i*.
mercury-treated charcoal, P 1932*d*.
in metalation and polymerization of rubber, alfin or alcoholate, 429*g*.
metals from salt reduction in liquid $NH_3$ as, 2535*i*.
for methane-$d_4$ reaction with $CH_4$, Ni as, 7802*f*.

in methanol manuf. from $CO_2$ and H, $Cu(OH)_2$ and $Mn(OH)_2$ as, P 7036*d*.
in methyl acetate manuf. from CO and MeOH, $Co(OAc)_2$ as, P 5035*f*.
in methylamine manuf. from $NH_3$ and MeOH, $Al_2O_3$ as, P 3440*g*.
in methylation of aromatic hydrocarbons, acid P compds. as, P 6791*i*, P 10588*i*.
in methylation of $C_{10}H_8$ with $Me_2O$, bauxite as, 2197*a*.
in 2-methylpropene reaction with nitrosyl halides, P 7950*c*.
molybdenum, 3758*e*.
molybdenum detn. in, 7864*c*.
from molybdenum oxides, P 1931*g*, P 6763*d*.
from montmorillonite, P 370*f*.
neg., in ignition of H-O mixts., org. vapors as, 407*b*.
in oxidation of rubber, phenyl-2-naphthylamine, α-tocopherol and Zn salt of mercaptobenzimidazole as, 7249*a*.
for solns. of polythionates and polythionic acids, P 7051*f*.
nickel, coated with NiS, 7802*h*.
H adsorption by, 2079*f*.
structure and activity of supported, 8831*c*.
nickel-impregnated clay, P 1162*b*.
in nitration of aromatic compds., Hg salts as, 6585*c*.
in nitration of paraffins, P 2220*a*, P 4285*c*.
in nitrile manuf. from $NH_3$ and aldehydes, Co or Cu-Zn as, P 1433*g*.
from $NH_3$ and hydrocarbons, P 3439*bcdef*, P 4285*gi*.
from $NH_3$ and olefins, P 7498*c*.
from HCN and olefins, P 3439*h*, P 4286*c*.
in nitroanisole or nitrophenetole manuf. from $O_2NC_6H_4Cl$ and alcs., P 687*gi*.
in nitrogen detn. in meat products, 7154*i*.
in nitrogen detn. in org. nitrates, $HClO_4$ and Se as, 59*g*.
for nitrogen fixation in *Azotobacter*, 8591*f*.
in octene transformation, aluminosilicates as, 6150*g*.
in olefin (di-) manuf. from monoölefins, Cu as, P 7950*c*.
in olefin manuf. from BuOH, P 6217*g*.
for olefin reactions, Fe phosphate as, P 5419*b*.
in olefin reaction with bromo derivs. of methane, P 6644*h*.
with BrCCl$_3$, P 5789*f*.
with halogenated paraffins, 3345*a*.
with thiols, Fe as, P 2219*h*.
in oleic acid compd. solidification, Sc as, P 1202*c*.
org., 4248*g*.
in oxalacetic acid decompn., ferric and cupric ions as, 6497*b*.
for oxidation, active halogen compds., P 7517*d*.
from $Al_2O_3$, $SiO_2$ and $V_2O_5$, P 6338*e*.
of coal and petroleum products, 5133*c*.
of 2-furaldehyde, P 4700*h*.
of olefins to cyclic ethers, Ag surface, P 4289*h*.
of soupfin-shark liver oil, 9379*h*.
of styrene by $H_2O_2$, 7311*e*.
of $SO_2$, P 6798*a*.
in oxidation and hydrolysis of cellulose by $HNO_3$, metal nitrates as, 1978*i*.
in oxidation (auto-) of oleic acid, metallic soaps as, 1998*c*.
in oxidation, of AcH, $Mn(OAc)_2$ as, 4633*e*.
in adsorption bleaching of oils, adsorbents as, 5208*a*.
of aldehydes to acids, P 2632*f*.
of alicyclic hydrocarbons, H halides as, P 5422*b*.
of alkyl aromatic hydrocarbons, P 5421*g*.
of alkylbenzenes, $V_2O_5$ as, P 7047*a*.
of aromatic compds., V and its oxide as, P 7510*b*.
of beeswax-hydrocarbon mixts., Co resinate and Mn linoleate mixts. as, P 1990*a*.
of benzoin to benzil, Co, Cu, Fe and Ni salts as, 1368*b*.
of crotonaldehyde, P 5034*d*, P 5416*a*.
of cyclic ethers, P 2224*e*.
of cyclohexane to maleic acid, V oxide-silica as, P 7039*h*.
of 2,4 - dimethyl - 1,3 - pentadiene, 2080*g*.
of *p*-dioxane, $Co(OAc)_2$ as, P 7503*b*.
*in oxidation*, of ethers to aldehydes with steam, P 8398*d*.
of $C_2H_4$, Ag as, P 3446*a*.
of *p*-$EtC_6H_4OAc$, P 3461*g*.
of Fischer-Tropsch waxes, Mn as, 1200*h*.
of 2-furaldehyde, mixed oxides as, 3792*i*.
of furoin, Co or Cu salts as, P 690*f*.
of gasoline, amines, phenols or amino phenols as metal deactivators in suppressing, 5932*b*.
of glucose with $HNO_3$, 4644*d*.
of D-glucose, Pt as, P 7506*c*.
of GR-S rubber, excess antioxidants as, 2460*h*.
of hydrocarbons, 1711*d*, 6565*i*.
of hydrocarbons, HBr as, P 669*a*, P 2219*c*, P 5422*a*.
of hydrocarbons to hydroxy compds., $V_2O_5$ as, P 1805*f*.
of hydrocarbons, V oxide as, P 2236*g*.
of H-$CH_4$ mixt., 2403*e*.
of $H_2S$ in gas mixts., P 7212*h*.
of iso PrOH to acetone, Ag as, 5272*e*.
of ketones, P 6654*h*.
of lubricating oils, phenylenediamines in inhibiting Fe as, P 1179*f*.
of MeOH, Ag as, P 3791*i*.
of MeOH to $CH_2O$, 6971*g*.
of 2-methyl-2-pentene, 108*d*.
of nicotine, P 1811*b*.
of olefins, $Cu_2O$ as, P 2222*f*.
of olefins, HBr as, P 5409*h*.
of olefins to their oxides, Ag-$Ag_2O$ as, P 8399*c*.
of org. substances, deactivation of metal, P 4460*a*
paraffin oil, 2411*a*.
of paraffins to acids, 7428*h*.
of paraffins to unsatd. hydrocarbons, P 1433*b*.
of paraffin wax, 4000*h*.
of paraffin wax, naphthenates as, 4000*b*.
of petrolatum, 4000*e*.
of petroleum products, Ca salt Mn salt mixts. as, P 3186*i*.
of sulfides and thiols in alk. solns. from sweetening sour hydrocarbon oils, aromatic nitro compds. as, P 8664*e*.
of $SO_2$, deterioation of V, 2744*e*.
of $SO_2$, heating-up temp. of V, 8251*f*.
of thiols in alk. solns., indigo contg. aromatic ring as, P 7223*e*.
of thiols in natural gas, Fe oxides or Co oxides as, 7666*b*.
of 2,4,4-trimethyl 1-pentene, 1309*d*.
of unsatd. long-chain acids and esters, 3611*f*.
of uranyl sulfate, salts as, 3745*i*.
of vitamin C, 1016*i*, 8465*b*.
oxidation reduction, action of, 2079*h*.
in oxidation-reduction reactions of org. compds., Raney Ni as, 191*d*.
oxide, P 3576*g*.
oxide gel, P 3161*d*.
in oxygen compd. manuf. from olefins, CO and $H_2O$, Co and Ni compds. as, P 669*h*.
palladium, on $SiO_2$ gel, structure of, 6062*a*.
palladium or Pt, P 7609*h*.
palladium oxide, P 1160*c*.
in paper-pulp digestion with phenol, 8669*f*.
in petroleum formation, minerals as, 5920*f*.
petrolum-industry catalyst supports and, electron microscopy of, 7216*c*.
petroleum-industry uses of liquid, 8122*i*.
for petroleum refining, analyses and x-ray examn. of aluminosilicate, 840*i*.
in petroleum refining, sepn. from gas-solid dispersions of powd., app. for, P 2421*g*.
in petroleum refining, water-temp. correlation in regeneration of, P 7222*f*.
from phosphoric acid, P 3576*g*.
in phosphorus pentasulfide reaction with lubricating oil, $SiO_2$ compds. as, P 1562*b*.
photochem.—*see also* "sensitization to" under *Light*.
for photopolymerization of ethylenic compds., P 444*a*, P 2818*g*.
platinized C as, effect of heat-treatment on, 1249*e*.
platinum, high activity of, 475*c*.
poisons for, detoxification of, 1536*e*, 3407*e*.
poisons for, in electrodeposition of H and in electrolytic reduction, 8907*d*.
in polyhydroxy compd. manuf. from HCHO, CO and H, Co as, P 673*e*.
for polymerization, 8199*c*.
of butadiene, 1597*c*.
of butadiene with styrene, prepn. and removal of Na, 3645*i*.
*tert*-butyl hydroperoxide derivs., 6156*i*.
of cyanogen chloride, P 2381*a*.
of *p*,α-dimethylstyrene, P 5642*f*.
dispersion in thermosetting sirup, P 2034*f*.
of $C_2H_4$, P 3238*e*, P 5640*f*, P 8742*e*.
of $C_2H_4$ and $C_4H_8$, Co-activated C, P 2763*i*.
of $C_2H_4$ compds. azodisulfonic acid salts, P 5642*a*.
of $C_2H_4$ derivs., 3231*a*.
of $C_2H_4$ with monohaloalkane or olefins, P 5640*f*.
of ethylenic monomers with polyhydric alc. esters of α-olefinic dicarboxylic acids, P 906*e*.
of 1,5-hexadiene, P 3236*b*.
at low temps., P 2034*h*.
of olefins, P 1218*bf*, P 5641*b*.
of olefins, $TiO_2$ contg. silica, P 2764*f*.
of resin oils, from clays and org. acid, P 5641*h*.
sulfinic acids, P 6002*f*.
of vinyl compds. and malonic acid derivs., P 4897*d*.
of vinyl esters in emulsions, P 4895*h*.
in polymerization and polyesterification of soybean and linseed oil fat acids, 8699*b*.
for polymerization (mixed) of 1,3 butadiene and styrene, P 2815*i*.
in polymerization, of $C_4H_6$ and its derivs. to cyclic polymers, 6194*g*, 6202*i*.
of allyl and vinyl silicone rubbers, peroxy compds. as, 2018*e*.
of allyl esters, Cu as, P 8212*bh*.
of allyl esters, Ni salts as, P 8742*f*.
of anethole, 8828*g*.
of butadiene, 3345*i*.
of butadiene, alk. earth metals, org. compds. and peroxides as, 1597*b*.
of butadiene, creatine and creatinine as, P 6859*e*.
of butadiene, K and Na as, 1596*i*.
of butadiene to popcorn, $Bz_2O_2$, rusty Fe and water as, 1598*e*.
of butadiene with 2-methylpropene, double salt of $AlBr_3$ and AlOBr as delayed-action, P 5230*d*.
of butadiene with styrene, Fe pyrophosphates as, 5987*f*.
of butadiene with styrene, Na as, 1340*b*.
of butadiene with styrene, stopping agents in destruction of, 8727.
of butadiene with styrene with Fe pyrophosphate activators, peroxides as, 8725*c*.
of butenes and $C_4H_6$ to gasoline, Cu pyrophosphate as, 4839*d*.
of chloroprene, esters as, P 1601*f*.
Cu$^{++}$ with $PbMe_4$ or $PbEt_4$ as, 5732*e*.
of *p*,α-dimethylstyrene, fuller's earth as, P 5799*d*.
of drying oils, B oxy compd. systems with org. acids or anhydrides as, P 9484*d*.
of drying oils, metal halides as, P 9484*a*.
of drying oils with styrene and α-methylstyrene, $Bz_2O_2$ as, P 5608*b*.
of drying oils with styrene, $Bz_2O_2$ and $PbO_2$ as, 3212*h*.
of $C_2H_4$, $AlCl_3$ and chlorides as, 3814*f*.
of $C_2H_4$, Ca as, P 6001*b*.
of $C_2H_4$ derivs., azo compds. as, P 6002*g*.
of $C_2H_4$, esters as, P 8742*f*.
of $C_2H_4$, Grignard-type compds. as, P 9537*c*.
of ethylenic compds. 2569*c*.
of ethylenic compds., $H_2N_2O_2$ esters as, P 5641*b*.
of ethylenic compds., org. polyperoxides as, P 905*h*.
of 2-ethylhexyl vinyl ether, 6896*i*.
of ethynyl phenyl ethers, 6997*i*.
of glycol dimethacrylate with Me methacrylate, P 6468*a*.
of In, O as, 8819*a*.
of isoprene and isoprene-styrene solns., *tert*-Bu peroxides and $Bz_2O_2$ as, 8190*i*.
of isoprene with styrene, $Bz_2O_2$ and $K_2S_2O_8$ as, 2018*h*.
of Me methacrylate, $Bz_2O_2$ as, 8189*d*.
of 2-methylpropene, $BF_3$ as, 8829*g*, 8830*b*.

*polymerisation*, of 2-methylpropene, $H_2SO_4$ as, 5176*d*.
of 2-methylpropene with diolefins, $AlCl_3$ as, and its inactivation, P 5992*c*.
of 2-methylpropene with styrene to viscous oils, $BF_3$ as, P 8130*e*.
*N*-nitrosoacylarylamines as, 5629*h*.
of olefins, P 5939*b*.
of olefins, alkali and alk. earth metals as, P 5640*g*.
of olefins (di-) alone or with unsatd. compds., Co, Fe or Ni salts as, P 2025*h*.
of olefins (di-), HF as, P 3228*a*.
of olefins, $H_3BO_2F_2$ as, 8657*b*.
of olefins, HF solns. with P acids, anhydrides or esters as, P 5939*d*.
of olefins, imino compds. and nitrohydrocarbons as, P 8666*i*.
of olefins, lubricants from spindle oil and sludge from $AlCl_3$, P 6820*i*.
of olefins, metal halide as, P 3188*b*, P 3605*h*.
of olefins, Ni oxides as, P 5788*e*.
of olefins, oximes as, P 4514*i*.
of olefins, $H_3PO_3$-diatomite-$H_3PO_4$ as, P 3190*e*.
of olefins, solid phosphoric acids as, P 1559*e*.
perchloric acid as, P 2817*c*.
peroxides as, P 6465*f*.
peroxides of cyclic ethers as, P 1812*g*.
of polyester resins and of diallyl phthalate, org. peroxides as, 4891*g*.
of polyesters, peroxides promoted with trialkanolamines as, P 1220*c*.
of propene, $AlBr_3$-HBr as, 2496*h*
of propene, $BF_3$ compds. as, 1214*h*.
of resinous products with integral patterns and sheen, P 9525*h*.
of rosin, HBr- or HCl activated $CoBr_2$ or $CoCl_2$ as, P 1996*g*.
of rosin, HBr- or HCl activated salts of amphoteric metals as, P 1580*c*
of siloxanes, alkali metal derivs. of silanols as, P 7500*l*
of styrene, 2811*b*, 5754*d*.
of styrene, acid clay as, P 1605*h*.
of styrene by neutrons, EtBr as Szilard Chalmers, 6915*b*
of styrene, diacyl peroxides as, 7311*g*.
of styrene, $K_2S_2O_8$ as, 8199*b*
of unsatd. compds., iodoso diacylate as, P 5231*c*.
of unsatd. compds., peroxides as, P 9051*l*
of unsatd. compds., peroxydicarbonates as, P 5641*i*.
of unsatd. hydrocarbons, halides as, 7313*a*.
of vinyl alkyl ethers, $GaCl_3$ as, P 2469*i*.
of vinyl chloride, alkoxybenzoyl peroxides as, P 7753*e*.
of vinyl compd. mixts., biacetyl and lauroyl peroxide as, P 876*i*.
of vinyl compds., $Bz_2O_2$ as, 5272*b*.
of vinyl compds., peroxides as, 8201*i*
of vinyl compds., sepn. of metallic Na, from polymers, P 2469*i*.
of 4-vinylcyclohexene dioxide, perchloric acid as, P 2817*c*.
of 2-vinylfluorene, P 8740*g*.
of vinyl isopropyl ethers, $BF_3$ as, P 3228*h*.
from polymerization of hydrocarbons, alkyd resin manuf. from, P 5097*c*.
in polymerization of olefins and condensation of olefin polymers with aromatic hydrocarbons, $AlCl_3$ as, P 3190*g*
in polymerization (selective) of acetylenes in diolefins, P 662*f*.
polytetrafluoroethylene-bonded, P 9300*f*.
porosity of, activity and, 6336*b*.
porous, diffusion, flow and reaction velocity in, 7313*i*.
porous-glass, P 7162*h*.
for potassium peroxydisulfate decompn., allyl alc. and MeOH as, 6055*g*.
in protein detn. in feeding stuffs, 7158*g*.
in pyridine deriv. manuf., P 5426*i*, P 5427*a*.
in pyrolysis of 1,1-difluoroethane, P 6645*a*.
of 3,4-dihydro-2*H*-pyran, P 1795*e*.
of fatty acids to olefins, P 7034*i*.
of ketones, P 7496*h*.
of org. vapors, 2849*i*.
of resin oil, 9442*i*.
of rubber, active clay as, 5619*h*.
Raney Ni, kinetics of displacement reaction on, 928*c*.
Raney Ni, $Et_3N$ and $PtCl_4$ as promoters on, 6408*a*.
reaction rate and amount of, 2498*a*.
reaction rate on granular, effect of heat and material transfer on, 3698*g*.
in rearrangement of compds. of $SO_3$ with pyridines, P 696*i*.
recovery from vapors, P 7609*e*.
in reduction, of aromatic ketones, Pd-C as, 4241*g*.
of bromobenzene and 4-bromobiphenyl, 4242*f*.
of esters of fat acids, Raney Ni as, 5363*f*.
of esters of unsatd. fat acids, 5363*d*.
of 2-furaldehyde, Co as, P 1065*a*.
of lactic acid derivs. to glycerol, P 4290*g*.
of MgO by ferrosilicon, $CaF_2$ as, 4932*f*.
of oils to higher alcs., ores as, P 3835*e*.
of PhOH to $C_6H_6$, Mo oxides as, 2081*c*.
Se detection by its action as, 8961*c*
of $Na_2WO_4$ with polysaccharides, ultraviolet light as, 5704*a*.
of S-contg. nitro compds., Raney Ni as, 6179*b*.
of tartaric acid esters to erythritol, CuO-$CrO_3$ as, 8355*c*.
for reduction of C oxides, 8076*g*.
in reductive alkylation of $NH_3$ and amines, 2155*g*.
in reductive alkylation of *p*-phenylenediamine with ketones, $Cr_2O_3$-CuO-BaO mixt. as, P 4005*e*.
in reforming of gasoline, $Al_2O_3$-halogen-Pt mixts. as, P 8664*h*.
in reforming of gasoline, Zn spinel base mixts. or $MoO_3$ on charcoal as, P 389*g*.
for reforming of hydrocarbon mixts, P 9430*a*.
on refractory carrier, 8074*e*.
regeneration of, P 370*h*, P 2764*b*, P 5134*i*.
app. for, P 2764*c*, P 6819*gh*.
in fluidized beds, app. for, P 6873*g*.
regeneration of fluidized, P 1539*a*, P 9300*b*, P 8665*h*.
regeneration of moving-bed, P 3162*e*, P 6012*a*, P 6819*h*.
removal from alkylation mixts. and $Al_2O_3$-$SiO_2$ adsorbent as cracking catalyst, P 8666*a*.
al from hydrocarbon vapors or combustion gases, P 914*e*.
removal from vapors, cyclone for, P 7275*e*.
resinous deposit removal from metal, P 6763*d*.
in ring closure of *o*-allylphenol and of *o*-ethylphenol, 4252*i*
in rubber reaction with maleic acid or anhydride, $Bz_2O_2$ as, 1595*ag*, 1596*i*
salt oil-sol. compns. stabilized by alkyl phosphates, P 3216*a*, P 7240*d*.
in sapon., 8177*e*.
metallic soaps as, P 5612*g*.
sulfonated hydroxyaromatic-alicyclic compd. condensation products as, P 2793*h*.
for sapon., from $C_{10}H_8$ reaction with oleic acid, 882*i*.
in selenium and $SeCl_4$ reaction with chloroethylenes, $AlCl_3$ as, 2159*e*.
silica-gel, P 1506*a*, P 9299*d*.
effect on lungs, 4401*b*.
pore-size control with fluorides, 8076*f*.
silica-oxide hydrogel, P 7162*e*.
in silicon reaction with MeCl, Cu as, 2160*e*.
silver, reactivation of, P 9299*g*, P 9299*i*.
silver recovery from, P 6562*g*.
sodium, P 1932*c*.
specificity of, origin and, 4087*d*.
spherical gel pellets, P 3986*c*, P 5134*b*, P 8578*f*.
spherical particles of, drying and spraying app. for manuf. of, P 6013*e*.
stripping from vapors and regeneration of fluidized, P 4457*h*.
stripping gases or vapors from spent powd., app. for, P 2764*c*, P 7677*d*.
structure of, nuclear induction and, 8831*i*
structure of solid, valence induction and, 0897*e*.
in succinic acid ester manuf. from $\beta$-alkoxypropionic acid esters and CO, P 3451*i*.
sulfide, P 1932*f*.
in sulfide manuf. from alkyl halides and thiols, P 6646*c*.
in sulfonation of anthraquinone, suppression of Hg, 617*d*.
in sulfone resin manuf. from $SO_2$ and unsatd. compds., P 1217*cd*.
in sulfuration of fatty or mineral oils, aniline derivs. as, P 1178*c*.
in sulfuric acid monoester manuf. from alcs. and $H_2NSO_3H$, amides and cyanoguanidine as, P 3024*g*.
in sulfur removal from aryl-2-thioureas, HgO as, 2948*ae*.
from gases, $MnO_2$ as, P 4450*e*.
from gasoline, active C, $H_3PO_4$, $H_2SO_4$ and $ZnCl_2$ as, 8125*d*.
from pseudoureas in their reaction with guanidines, P 1059*f*.
in sulfuryl chloride reaction with $C_2H_4$, propene and vinyl chloride, pyridine and S chlorides as, 1249*a*.
surface properties of, kinetics of unimol. reactions and, 2498*d*.
in synthesis-gas manuf., P 4836*ab*.
from $CH_4$ and $CO_2$, 1944*fgh*, 4445*g*, P 7213*b*.
from $CH_4$ and $O_2$, 7200*c*.
in synthesis of org. compds., $HgCl_2$ as, 183*ag*, 184*c*.
in tar oil decompn., charcoal as, 7664*e*.
temp. in beds of, in tubular reactors, 6007*d*.
in terpene conversion to aromatic and cycloparaffinic hydrocarbons, bleaching clay as, 6185*a*.
in terpene reactions, P 6219*e*.
in tetraethyllead manuf., acetals as, P 8398*b*.
in tetrahydrofuran cleavage, P 4284*c*.
in thallium(I)–Tl(III) exchange, Pt black as, 8817*g*.
in thiol and sulfide manuf. from olefins and $H_2S$, P 664*h*, 1000*a*.
in thiol and thiophene manuf. from olefins and $H_2S$, P 691*g*.
in thiol formation from olefins and $H_2S$ in gasoline, $H_2SO_4$ as, 3601*d*
in thiol manuf. from alkyl halides and $H_2S$, P 6646*e*.
from diesters of 1,1-alkanediols and $H_2S$, P 5418*e*.
from olefins and $H_2S$, P 5790*i*.
from olefins and $H_2S$, $SiO_2$-$Al_2O_3$ gel as, 1715*h*.
in thiol reactions with unsatd. compds., 1321*b*.
in thiol removal from hydrocarbon-oil cracked vapors, purification of brucite or fuller's earth, P 1174*e*.
in thiophene formation from ethylene oxide and $H_2S$, $AlCl_3$ as, 1391*c*.
in thiophosphoryl chloride manuf., $AlCl_3$ as, 9394*h*.
titanium dioxide as, 8828*a*.
in toluene manuf. from bibenzyl, P 3454*a*.
in toluene manuf. from terpenes, P 1437*b*.
in *p*-toluidine reaction with $Cl_3CHCO_2H$, *o*-toluidine as, 1396*h*.
transfer systems for, P 1230*b*.
in *s* triazine deriv. formation from nitriles and HCHO, $H_2SO_4$ and $ClSO_3H$ as, 657*d*.
vanadium, sintering of, 7803*a*.
vapor sepn. from granular, P 914*f*.
in vinyl aromatic compd. manuf. from $C_2H_2$ and $C_6H_6$, $C_{10}H_8$, xylene, etc., HF and Hg fluoride as, P 5636*f*.
in vinyl ester manuf. from $C_2H_2$ and carboxylic acids, $Zn_3O(OAc)_6$ as, P 5036*c*.
in vinyl ester or ether manuf. from $C_2H_2$ and AcOH, Hg compds.-$BF_3$ as, P 3839*b*.
for vinyl fluoride manuf. from $C_2H_2$ and HF, P 3660*a*.
in vinyl formate prepn. from $C_2H_2$ and $HCO_2H$, 567*f*.
in vinyl polymer manuf. from $C_2H_2$ and alkylated benzenes, $BF_3$-ether complex, P 4051*d*.
for water-gas manuf., P 3599*a*.
in water-gas reaction, $Fe_2O_3$ and $Fe_2O_3$-$Cr_2O_3$ as, 1945*e*.
from zinc aluminate and Group VI metal oxides, P 7161*i*.
zinc oxide, P 6388*d*.
zinc spinel as support for, P 2384*b*.
zirconia-gel, P 5134*a*.
in zirconium dioxide conversion to monoclinic form, $Li_2O$ as, P 1580*b*.

**Catalyzers.** See *Catalysts*.
**Catamenia.** See *Menstruation*.
**Cataphoresis.** See *Electrophoresis*.
**Cataracts**, oxygen consumption by lens in, effect of amino acids on, 8044*f*.
therapy of, 2290*i*.
**Catatonia.** See *Mental disorders*.
**Catchup.** See *Catsup*.

**Catechin.** See *Catechol; Pyrocatechol.*
**Catechin red***, effect on histidine decarboxylase, 8464*c*.
**Catechol** (*catechin*). (See also *Epicatechol; Pyrocatechol.*)
as antioxidant in butter, 2337*d*.
in cacao beans, 8011*a*.
and derivs., from tea, 3394*a*.
*d*-, and pentaacetate, in chestnut shells, 1341*b*.
*d*-, effect on anticoagulant action of di coumarol, 3931*e*.
*d*-, effect on histidine decarboxylase, 8464*c*.
effect on sulfite pulping, 3195*e*.
isomers, adrenaline potentiation by, 5116*h*.
in rhubarb varieties, 9383*h*.
of tea leaf, condensation during oxidation, 728*e*.
*epi*-**Catechol.** See *Epicatechol.*
**Catecholase.** (See also *Tyrosinase.*)
measurement of activity of, in detection of black heart in pineapples, 9286*g*.
tyrosinase and, 9105*b*.
in tyrosine prepn., 9119*d*.
**Catechol oxidase.** See *Pyrocatechol oxidase.*
**Catechu** (*cutch*). (See also *Gambier;* and "bark" under *Mangroves.*)
in fish-net preservation, 8688*e*.
**Caterpillars,** control on cabbage, 6775*d*.
control on tomatoes, 3556*f*
**Cat flea.** See *Ctenocephalides felis.*
**Cathartics.** See *Purgatives.*
**Cathepsin,** in brain and liver after washing, 4707*a*.
effect of carbonyl group reagents on kidney, 9101*c*.
in gastric secretion of aphids, 323*a*.
from liver, action on casein and gelatin, 9089*c*.
in liver in infectious hepatitis, 3922*f*.
in neoplasms and tissues of neoplasm-bearing rat, 5108*b*.
sepn. from erepsin in liver slices, 9089*gh*.
as stomach protease constituent with pepsin and parachymosin, 9100*a*.
tenderizing meats with, P 1502*c*.
II, in kidney and liver of fed and fasted rabbit, 4752*c*.
**Cathode rays.** (See also *Beta-rays; Electrons.*)
effect on carotene and vitamin $B_2$, 9276*e*.
effect on niacin, 328*g*.
effect on niacin labeled with $C^{14}$, 8863*h*.
luminescence by—see "cathodo-" under *Luminescence.*
spectrum recording by means of, 7810*e*.
supervoltage, effect on nonenzymic browning reaction of dried fruits and on chem. compds. pertaining thereto, 5878*e*.
**Cathode-ray tubes.** (See also *Television.*)
cadmium phosphate phosphors for, P 7832*b*.
cathode for, P 1666*c*.
discoloration of screen support in, glass for prevention of, P 8290*g*.
fluorescent screens for—see *Fluorescent screens.*
fluorescent substances for—see *Fluorescent substances.*
fluoride phosphors for, P 7831*f*.
heating cathodes of, P 7359*f*.
history of, 1229*e*.
luminescent screens for—see *Luminescent screens.*
luminescent substances for—see *Luminescent substances.*
phosphorescent substances for—see *Phosphorescent substances.*
screens for, P 948*f*.
screens for, performance of, 4091*b*.
**Cathodes.** (See also *Electrodes; Filaments.*)
aluminum as, lecture expt. on, 6015*c*.
for aluminum manuf., P 6926*b*.
antimony-Cs, electron secondary emission from, 3704*g*.
energy-level structure of, 3705*c*.
optical and photoelec. properties of, 32*h*.
arc, vaporization of, 7356*f*.
for cathode-ray tubes, P 1666*c*.
cesium-O-Ag, optical and photoelec. properties of, 4557*c*.
copper (amalgamated), 6052*b*.
copper, potential of, in mixt. of $CdSO_4$ and $ZnSO_4$, 2874*e*.
in corrosion prevention—see *Corrosion.*
dark space—see *Electric discharge.*
depolarization of—see *Depolarization (electrolytic).*
depolarizer, for alk. dry cell, P 4155*a*.
effect on electrolytic reduction of 2-methyl-3-buten-2-ol and 2-methyl-3-butyn-2-ol, 994*f*.
effect on electrolytic reduction of nitroguanidine to aminoguanidine and nitrourea to semicarbazide, 4150*b*.
efficiency of, in electroplating baths, detn. of, 961*g*.
electron delayed emission from, in counter operating above plateau, 4945*h*.
electron-multiplier, of Sb-Cs, 482*d*.
electron-tube (oxide-coated, etc.), P 8921*b*.
alkali-metal alloys for, 4962*e*.
Ba (free) in, production of, 7323*g*.
Ba in, and evapn. from, 5679*t*.
barium orthosilicate interface of, elec. properties of, 8856*g*.
coated with metal, P 2104*g*.
coating for, from $BaCO_3$, P 8290*f*.
coating with alk. earth oxides, P 4154*e*.
conduction mechanism and electron emission of, 8856*t*.
elec. conductivity and work functions of, 2857*g*.
elec. properties of interface of, 4092*a*.
electron emission from, 4091*e*, 4095*d*, 4560*a*.
electron emission from, decay of, during space-charge-limited operation, 4095*d*.
electron emission from, in gaseous conduction devices, 4092*h*.
electron secondary emission from, 5660*h*.
electrophoretic deposition of carbonates and oxides on, effect of alcs. on, 8908*e*.
emission of neg. ions from, 8847*t*
energy levels in, 934*a*
evapn. of, 8286*d*.
ionic cond. of, 4084*a*.
for microwave tubes, P 4966*b*
optical pyrometry of, 1658*g*.
photoelec. effect in, 5678*f*.
pulse-emission decay phenomena in, 5660*f*.
rectification characteristics of interface of, 4092*a*.
resistance of, for pulsed emission, 2857*d*.
semiconducting properties of, 7353*g*
spectra of, 7324*h*.
standards for testing sleeves and tubing for, 4615*g*
thermodynamics in, 8838*c*
for electrooptical app., heating of, P 7359*f*.
for halogen removal from halogenated benzenes, 8908*f*.
hydrogen at, excited states of, 2874*h*
with hydrogen-evolution potential lowered 504*e*.
hydrogen liberation at Hg, from buffer solns., kinetics of, 6055*c*
iron, effect of pH, O and $K_2CrO_4$ on reactions at, 4620*h*.
for magnetron, P 7357*i*
mercury (dropping-), reduction of nitro compds. at, 5379*a*.
mercury, in reduction of org. compds., effect of continuous renewal of, 955*a*
metals as, 8287*f*, 8913*i*.
overvoltage on—see *Overvoltage.*
oxalic acid reduction at, 49*a*.
photoelec., of $Cs_2O$, photoelec. emission, thermionic emission and vapor pressure of, 7767*f*.
electron-microscopic investigation of microstructure of, 6074*a*.
I-sensitized, 1641*s*.
platinum, in syringe for measuring O tension in soln. and in respiratory gases, 8963*h*.
polarization of—see *Polarization, electrolytic.*
reduction at, mechanism of, 4587*c*.
refractory (hot), Hg-type arcs with, 2523*g*.
sputtering, etching of metals by, 5679*h*.
stainless-steel, for Mn recovery, P 8918*c*.
storage-battery, expander for paste for, P 5318*i*, P 5319*a*.
thoria, TiN and Zr nitride as conduction elements in, 3731*g*.
thoria-W, electron emission from sintered, 7323*e*.
**Cathodic reduction.** See "electrolytic" under *Reduction.*
**Cation-active substances.** See *Cleaning compositions; Surface-active substances; Wetting agents;* and "invert" under *Soaps.*
**Cationites.** See *Base-exchanging compounds.*
**Cations.** (See also *Bases; Ions, electrolytic.* For systematic detection or detn. of cations, see *Analysis.*)
absorption by clays, humic acid and soils, 7618*bdg*.
by plant roots, temp. coeff. of, and its dependence on salt concn., 7089*fh*.
by plants, soil factors influencing, 1835*i*.
adsorption of, by brown algae, 3068*c*.
effect on elec. properties of unimol film of palmitic acid, 6038*f*.
by rubber-latex particles, 7249*d*.
-anion balance in guayule leaves, 281*e*.
-anion balance in plants, 5449*t*.
catalysis by, of bromination of 2-carbethoxycyclopentanone, 3273*e*.
as catalysts in condensation of 2-furaldehyde with phenol, electrode potential and, 5226*b*.
compds. with nucleic acids, and effect of nucleic acids on their precipitability, 8416*b*.
in crystals, lattice energy relation to crystallochem. electronegativities of, 8788*c*.
detn. of total, 2658*c*, 8424*i*.
in sulfite waste liquor and lignosulfonates, 1182*i*
in water, 2715*h*.
diffusion of adsorbed, in suspensoid, 7777*h*.
distribution of heavy metal, in silicates contg. several ions of different size, 8782*c*.
effect on $CO_2$ removal from aconitic acid, P 1057*b*
on decarboxylation of oxalacetic acid, 5057*t*
on elec. cond. of Amberlite IR 10, 7785*f*
exchange and recovery of, P 3950*d*
exchange between metals and their, 6890*f*, 6891*b*
exchange capacity of adsorbed, 3687*i*
exchange in water purification—see also *purification of.*
exchange of, acid detn. in tan liquors by, 1205*f*.
bacterial control in, 9308*i*.
in cellulose derivs., P 5950*k*.
dynamics of, 3268*d*.
on mordenite, 5323*d*.
with phenolsulfonate resin, 8792*a*, 8793*a*
in purification of sugar solns., app. for, P 2798*e*.
by $AgMnO_4$-decompn. product, 4968*f*.
exchangers—see *Base exchangers, compounds.*
in glass, effect on He permeability, 9401
heat of hydration of, heat of wetting of soils in relation to, 7619*e*.
of heavy metals, effect on hygroscopicity of glass surface, 2069*e*.
hydration of, Debye Huckel theory and, 7302*a*.
hydration of, effect on chromatography, 8295*a*.
hydration of exchangeable, of clay minerals and synthetic resins, 9215*h*
mobility of, in membrane, 2069*g*.
phosphate soly. and, 1511*g*.
phosphorus adsorption by chernozem and, 7621*c*.
polycationic compds., 3306*e*.
in soils—see *Soils; Soils, analyses.*
in spinels, arrangement of, 6032*f*.
**Catnip oil.** See *Oils.*
**Catsup,** estn. of tomato content of tomato, 3116*a*.
vitamin C in, 3538*c*.
**Cattails,** use of *Typha angustifolia* and *latifolia*, 9501*i*.
**Cattle.** (See also *Feeding experiments; Metabolism, animal.*)
anaplasmosis in, 6775*d*.
cobalt toxicity to, 8534*b*.
insectifuges for, P 5899*d*.
parathion toxicity to, 3139*f*.
research on, 6775*b*.
toxaphene in tissues of, from alfalfa, 8600*g*.
**Cattle tick.** See *Boöphilus annulatus.*
**Cattleya.** See *Orchids.*
**Cauliflower,** amino acid content of, in relation to Mn and Mo, 7552*c*.
amino acids in, 3534*g*.
cabbage-maggot control on, 3136*i*.
carotene and vitamin C in, 3538*a*.
carotenoids in, during development, 5454*a*.

discoloration of, 9313*e*.
European-corn borer control on, phenylsemioxamazide compns. for, P 5530*b*.
frozen, cytological and microchem. characteristics of, 5878*h*.
hexachlorocyclohexane effect on, 5148*b*.
leaf meals from, nutritive value of, 4343*e*.
molybdenum in nutrition of, 5092*i*.
seed-crop-pest control on, 4416*g*.
soil-acidity effect on, 2349*i*.
vitamin $B_1$ in, and effect of cooking thereon, 6753*h*.
vitamin C in, 5511*b*.
**Caustic potash.** See *Potassium hydroxide*.
**Caustic soda.** See *Sodium hydroxide*.
**Caustobiolites**, polymer-contg., from petroleum well, 5350*a*.
**Cavitation**, 4540*h*.
corrosion and, 6962*a*.
reactions in, 3682*e*.
by ultrasonic waves—see *Ultrasonic waves*.
**CCH-358**, in blackroot control in sugar-beet seedlings, 7175*i*.
**CCH-358A**, in blackroot control in sugar-beet seedlings, 7175*i*.
**Ceará rubber.** See "from *Manihot glaziovii*" under *Rubber*.
**Cecidomyia**, control on pears, 9348*d*.
**Cecum.** See *Intestines*.
**Cedar oil.** See *Oils*.
**Cedars.** (See also *Cryptomeria; Junipers; Thuja*.)
copper and Zn in bark, twigs and wood of *Thuja plicata* in biogeochemistry, 3321*c*.
structural board from bark of, 6409*e*.
wood of—see *Wood*.
**Cedilanid.** See *Lanatoside C*.
**Cedrela toona**, plywood and veneer from, 2812*e*.
**Cepryn.** See "1-hexadecyl— chloride" under *Pyridinium compounds*.
**Ceiba pentandra.** See *Kapok*.
**Celadonite**, -like substance in calcitic limestone in Västanfjärd, Finland, 5345*i*.
**Celandine**, effect on bile secretion in liver, 5115*d*.
**Celerio euphorbiae**, phosphorus compds. in relation to metabolic rate in pupae of, 8561*b*.
**Celery**, aphid control on, 346*c*.
carotene and vitamin C in Pascal and bleached, 3536*b*.
compn. of Fla. grown, and effect of soils thereon, 9289*c*.
compn. of, soil effect on, 2722*h*.
control of root-knot and weeds in, 5145*b*.
cooling and disinfecting of, prior to nonrefrigerated storage, 9288*g*.
cracked-stem of, and its control, 1891*f*.
fertilizer expts. with, 4802*i*, 8083*i*.
fungus control on, 7178*a*.
germination of seed of, 2288*h*.
germination-stimulation by chloropicrin and weed control in, 3134*g*.
heteroauxin effect on yield of, 1839*c*.
oleoresin manuf. from, 8573*f*.
sodium detn. in, 8956*g*
vitamin $B_1$ in Italian, 6753*h*.
vitamin C in, 5511*b*.
**Celery cabbage.** See *Cabbage*.
**Celery leaf tier.** See *Phlyctaenia rubigalis*.
**Celestite** (*celestine*), from Alps (northern), 8313*d*.
compression of, 4917*b*.
from magnesites of Oberdorf, Austria, 3748*i*.
of Sicilian S mines, crystallography of, 3319*h*.
strontium carbonate manuf. from, 368*c*.
of Trinity River Tributary area in Okla and Tex., 4607*i*.
**Celiac disease**, fat absorption and dietary starch in, 8026*a*.
proteins in blood in, 8050*h*.
**Celite** (*diatomaceous earth*), mixts. with silicic acid, chromatographic properties of, 8945*i*.
mixt. with $Ca(OH)_2$ for chromatography, 2068*a*.
**Cellafilter**, as membranes for detn. of electrolytic $H_2O$ transference, 8245*c*.
**Cellfalcicula**, in cellulose degradation in soils, 5891*e*.
**Celliton dyes.** See *Dyeing*.
**Cellobiose**, β-, octanitrate, 5007*f*.
derivs., microörganism attack on, 7692*g*.
detn. and reducing power of, 7861*c*.
effect on growth of plant tissue, 4349*a*.
effect on [illegible]plasmin formation, 7194*h*.
formation by thermophilic cellulose-fermenting bacteria, 720*d*.
octaacetate, from cellulose, 3609*b*.
——, **octoamino-***, 7430*g*.
——, **octoazido-***, 7430*g*.
**Cellobioside, 8-hydroxy-1-anthraquinonyl**, and heptaacetate, 5019*h*.
——, **β-methyl**, heptanitrate, 5007*f*.
heptanitrate, vapor pressure of acetone over solns. of, 4928*c*.
——, (*p*-**phenylazophenyl**), heptaacetate, spectrum of, 6919*f*.
**Cellobiuronic acid**, chemoimmunological properties of, 4339*a*.
**Cellohexaose**, eicosaacetate, from cellulose, 3609*c*.
**Cellopentaose**, heptadecaacetate, from cellulose, 3609*b*.
**Cellophane.** (See also *Sheet materials; Transparent materials; Wrapping materials*.)
adhesion to polymers, 8133*f*, 8207*a*.
dye diffusion through, 7778*c*.
effect on drilling muds, 8652*g*.
and kraft paper laminate of, measurement of water-vapor permeability of, 5949*c*.
labels for application to, P 1188*g*.
manuf. of, 7681*g*.
membranes of—see *Membranes*.
molds from, effect on aging and tensile properties of rubber, 2023*h*.
permeability to KCl solns., selectivity const. and ratio of mobility of cation and anion in, 8702*g*.
purification for use as dielectric, P 3119*g*.
swelling and shrinkage of, 7680*f*.
waterproof coatings for, slip agents in, P 2471*b*.
**Cellosize.** See "hydroxyethyl ether" under *Cellulose*
**Cellosolve.** See *Ethanol, 2-ethoxy-*.
**Cellotetraose**, tetradecaacetate, from cellulose, 3609*b*.
**Cellotriose**, hendecaacetate, from cellulose, 3609*b*.
**Cells.** (See also *Cytochromes*.)
biochemistry of, genes as determiners of, 2260*d*.
book: Physikalische Chemie der Zellen und Gewebe, 5815*d*.
chemotaxis of—see *Chemotaxis*.
cytoplasm, physiochem. behavior of, 6716*c*.
differentiation of, enzymic adaptation in, 1447*f*.
electrolyte distribution between surrounding media and, 7107*d*.
evolution (self-oriented) of, 8414*g*.
exudates of—see *Exudates*.
growth and metabolism of, 4710*g*.
growth substances for—see *Growth substances*.
kinetoclastic substances, properties common to carcinogens and, 8517*a*.
mitogenetic radiation from—see *Mitogenetic radiation*.
protoplasm of—see *Protoplasm*.
radiation action on, antidotes therefor, 5811*e*.
response to external reagents, denaturation and, 3050*d*.
staining of—see *Staining; Stains*.
structure of, lipides and liproproteins in, 9090*h*.
weight of, detn. of, 5438*c*.
**Cells, animal.** (See also *Eggs; Fibroblasts; Golgi's apparatus; Growth; Immunity; Metabolism, animal; Muscles; Tissue, animal;* and the cross references under *Cells*.)
acidophilic plasma and Paneth, in tissue bordering cancerous growths, 4362*h*.
activation of, change in osmotically inactive fraction produced by, 2256*f*.
activity of, bacteria in relation to, 9144*e*.
addn. complex between carcinogenic hydrocarbons and elements from, 3920*i*.
alpha-ray effect on, of brain and eyes of frog tadpole, 1445*b*.
amino acid detection in, and staining with acid dyes, reactions of nucleases on, 255*h*.
amino acid metabolism of, 3862*e*.
amplifier action of, 9099*i*.
books: Techniques of Histo- and Cytochemistry, 714*c*; Klinik und Pharmakologie des Urethans und anderer cytostatischer Stoffe, 9268*i*.
calcification of cultures of, in presence of embryo juice and mammalian serums, 8409*a*.
cancer, zinc detn. in, 2545*i*.
caryometric observations, 9246*c*.
as chem. factories, 4309*a*.
cytostatic substances, 8064*d*.
cytostatic substances, therapy with, 9268*f*.
desoxyribonucleic acid depolymerase action in living, 4713*b*.
deuterium oxide effect on, 3481*b*.
4-dimethylaminoazobenzene effect on compn. of liver and liver tumor, 4761*i*.
division of, in anterior pituitary after ovariectomy, effect of estrogens on, 4354*h*.
in brain of embryo chick, effect of acridine compds. on, 7135*g*.
in corneal epithelium in thiouracil treated and thyroidectomized rats, 7578*h*.
diphenylarsine chloride as poison of, 7576*d*.
effect of *p*-aminobenzoic acid and sulfanilamide on, 7143*f*.
effect of heparin on, 3529*f*.
effect of 1-(*p*-hydroxyphenyl)2-amino-3-butanone on, 5499*a*.
effect of mustard and N mustard on, 767*i*.
effect of mustard, ultraviolet and x-radiation and colchicine on, 770*f*.
effect of urethan on, 4380*i*.
inhibiting effect of aspidospermine on, 1427*g*.
inhibiting effect of quinones on, 1861*a*, 3526*f*.
inhibition of toxic effect of metal org. compds. on, 4773*b*.
inhibitor action against, 3526*b*.
inhibitors for, 8416*a*.
in liver, effect of thyroxine on incidence of, 1487*i*.
mercapto group uptake in relation to inhibition of, 2703*h*, 7591*b*.
prevention of poisoning of, 3478*i*.
production of multinucleated unsegmented triton eggs by substances inhibiting, 5873*f*.
in skin, in relation to sugar and phosphate, 7567*a*.
of small intestines, effect of spleen ext. on, 5103*d*.
dye effect on, oxidations and, 778*e*.
effector, adrenaline equilibrium with, 3101*f*, 5492*e*.
effector, reaction to chem. transmitters, 261*g*.
energy metabolism of, 3049*c*.
enzyme distribution in, 1852*e*, 3913*a*.
enzymes in nuclear membranes of, 704*g*.
enzyme systems of, 7064*b*.
epithelial, mutual adhesiveness of, 299*e*.
glucides, nucleic acids, nucleosides and nucleotides in, 3870*b*.
gonadotropic hormones in, 2299*i*.
growth of, biochem. and physiol. interrelationships between nucleus and cytoplasm during, 1851*b*.
growth of, during normal and pathological conditions, synthesis of hemoglobin in relation to, 750*h*.
inclusion bodies in, 4371*bc*.
in cicatrizing enteritis, 300*d*.
induced by Pb and Bi, acid-fastness of, 7539*f*.
of lymphocystis tumor in fish, osmophilic granules of cytoplasmic, 9230*g*.
iron demonstration in, 5850*f*.
karyolysis of, effect of mustard or N mustards on, 768*g*.
Kupffer, peroxidase in, 5054*i*.
liver, effect of vitamin $B_{12}$ on basophilia in, 5098*g*.
liver (normal and regenerating), $N^{15}$ in purines from nuclei and cytoplasm of, 4718*d*.
liver, particulate fractions of, 4315*d*.
liver (regenerating), 4355*f*.
malignant, effect of N mustards and penicillium exts. on, 9248*d*.
mast, in bone marrow, 3528*c*.
cytochrome oxidase and phosphatase in, 2649*c*.
as heparin source, 3915*i*.
in skin, reaction to org. chemicals, 3109*d*.
membrane of, in phosphate transfer, 5436*g*.
4-methyl-2-thiouracil effect on, 6307*i*.
mustard gas effect on, 319*d*, 2257*f*.
nerve, binding of dyes in relation to duration of stimulation of, 742*a*.
nuclear fragmentation of, by N mustards and mustard gas, 768*d*.
nuclear oligotherosome of, compn. of, 1815*h*.
nucleic acids in, absorption of ultraviolet light in relation to, 7981*e*.
nuclei of, desoxyribonucleic acid in, 2690*f*, 9093*b*, 9210*i*.

*nuclei of*, phosphatase action in, 2685*g*.
precursor of ribo- and desoxyribonucleic acids in, 5435*a*.
proteins of, 2652*e*, 4310*b*.
nuclei sepn. from liver, and detn. of their nucleic acids, 5073*i*.
nucleoprotein components from normal and cancerous, dehydrogenation of, 4304*i*.
nucleus (interphase) of cancerous and normal, 5856*a*.
nucleus (interphase) of, chromosomes in, 4715*i*.
oxidation in, flavoenzyme catalysis and, 1449*i*.
oxygen consumption by blocked and active embryonic, effect of phenylthiourea, urea, thiouracil and thiourea on, 3938*i*.
permeability to salicylates, effect of cation on, 3520*b*.
permeability to theophylline, 319*a*.
*Podophyllum* resin effect on, 5907*c*.
proliferation of, acceleration and inhibition by substances in blood serum during pregnancy, 5841*b*.
acceleration and inhibition by substances in normal and cancerous blood and urine, 4364*i*.
inhibition by urethan, 5488*d*.
vitamin $B_{12}$ effect on, 9195*i*.
by vitamin $B_{12}$, pteridine, etc., enzyme action on, 9196*b*.
proliferation rate of normal and neoplastic tissue and bone marrow, effect of pteridines on, 261*i*, 262*bc*.
protective action of Ca prepns. on, 5493*a*.
protein metabolism of, 9190*h*.
proton range-energy relations in, 6502*f*.
respiration of active and blocked embryonic, effect of diethyldithiocarbamate on, 2331*f*.
respiration of, effect of cold on, 5053*a*.
respiration of embryonic, effect of urethan on, 774*f*.
ribonucleic acid detection in, 4719*i*, 4720*b*.
sensory (campaniform), DDT effect on, of leg of cockroach, 3964*i*.
sensory, cholinergic nature of, 5842*a*.
of skins, 1203*e*.
staining of—see *Staining; Stains*.
virus combinations with host, effect of pH and electrolytes on, 1482*i*.
water movement in kidney, liver and pancreas, 3091*b*.

**Cells, electrical**. See *Cells, electrolytic; Cells, photoelectric; Cells, voltaic; Storage batteries*.

**Cells, electrolytic**. (See also *Electric condensers; Furnaces, electric; Rectifiers;* and "app. for" under *Electrodeposition, Electrophoresis, Electroplating*.) P 4588*c*, P 4966*a*.
for alkali manuf., P 3733*h*, P 3986*a*.
for allyl alc. manuf., P 3300*f*.
for aluminum manuf., 2871*d*.
anode app. for, P 5682*d*.
furnace bottom from C skull of, P 4587*g*.
for aluminum refining, P 4588*a*, 6089*e*.
for bromides and chlorides of alkali metals, P 6097*b*
for calcium manuf., 8899*d*.
for carbide sepn. from high speed steel, 7884*a*.
chlorine, P 2880*g*, P 4964*h*, P 6926*d*.
chlorine-alkali, P 3300*e*, P 7840*b*.
chlorine-alkali, asbestos diaphragms for, P 8290*d*.
chlorine-NaOH, P 50*i*, 2097*g*, P 8289*d*, P 8918*h*.
for cleaning or pickling ship hull, P 7839*h*.
with collodion coated anode for internal electrolysis, 8285*e*.
cond.—see "measurement of, cells for" under *Conductivity, electric*.
controlled-potential, 2043*e*, 2473*c*.
control of, app. for, P 4587*i*.
for copper-compd. manuf., P 7359*d*.
for copper from pozzuolana concrete, 2751*g*.
for copper plating, 8899*g*.
for copper sulfate manuf., P 7840*d*.
for detg. effect of electrode spacing on current efficiency, 1270*e*.
electrodes for—see *Anodes; Electrodes*.
for fluorine manuf., 5158*i*, 5554*i*.
for heavy-water manuf., P 7359*a*.
for hydrogenation and reduction, 5677*i*.
for hydrogen manuf., 4146*e*.
insulating tube for connecting, P 2525*f*.
for lactones, P 2104*b*.
for magnesium manuf., P 6095*h*, P 8919*d*.
for manganese manuf., 45*f*, P 2103*h*.
for manuf. of Cl and Mg, P 4588*bh*.
for manuf. of H and O, P 4587*i*, P 8758*c*.
for measurement of steady-state response, transient response and allied properties of networks, 5317*b*.
mercury-cathode, P 3733*h*, 7354*c*, P 8289*e*.
mercury-cathode, with flowing electrolyte, P 6097*a*.
for nickel manuf., P 8919*a*.
nickel-plating, P 7838*g*.
for nitric acid titration in mixed and refuse acid, 2547*e*.
for perchlorate manuf., P 7840*b*.
for peroxy-compd. manuf., 956*f*.
for polarization measurement, 8287*g*.
polarographic, for O detn. in retort gas, 3744*g*.
for polishing, elec. resistance of, anode surface and, 2522*e*.
for prepn. of O compds. of Cl, etc., P 3733*c*.
for reduction of nitroguanidine and nitrourea, 4150*b*.
for sodium sulfate (fused) electrolysis, 8898*f*.
for tin-strip-plating evaluation, 8907*f*.
for uranium-ion study, 8911*i*.
for waste-water clarification, P 2102*c*.

**Cells, photoelectric**, antimony, outgassing of, P 1666*d*.
barrier-layer, efficiency of, 4557*f*.
blocking-layer, electron passage through, 3732*e*.
books: in Industry, 2870*e*, Fotoelementy, 7830*i*.
colorimeters with—see "photoelec." under *Colorimeters*.
for colorimetry, 7365*h*.
combustion study with, 7663*a*.
electrodes for—see *Cathodes*.
electron-multipliers, for photometric use, 482*c*.
in Raman spectrography, 4139*e*.
and their use in spectrographic analysis, 3245*h*.
with wire grids, in analysis, 5693*g*.
fluorimeter with, 6472*d*.
gas effect on, 5678*e*.
lead selenide, 4062*c*.
lead sulfide, P 500*f*.
lead sulfide temp. coeff. of, 5678*c*.
materials for, 2858*f*.
materials (raw) for, sources of, 5708*e*.
multiple-layer, 4102*e*.
for particle detn. in liquid, P 3668*i*.
photometers with—see "photoelec." under *Photometers*.
reviews on, 482*b*, 2083*f*.
sedimentation app. using, P 3250*d*.
selenium blocking-layer, P 5682*d*.
selenium for, P 5162*h*.
selenium micro-, in absorption measurements, 3667*i*.
structure-factor evaluation by, 6470*e*.
thallous sulfide, P 500*g*, 4557*f*.
ultraviolet light detection with, used in conjunction with fluorescent substances, 4094*i*.

**Cells, plant**. (See also *Plants; Protoplasts; Tissue, plant;* and the cross references under *Cells*.)
absorption and hydrolysis of sucrose by, effect of P on, 1086*c*.
absorption of basic substances by, 3493*b*.
auxins for—see *Auxins*.
basic fuchsin as nuclear stain for, 263*b*.
book: Cytoplasm of, 733*d*.
brown, utilization of green light by, 1834*g*.
busting, to free nutrient, P 3143*f*.
caffeine effect on, 3889*i*.
calcium oxalate in, of bryophytes, 280*f*.
catalase action of, 3892*a*.
as chem. factories, 4309*a*.
chloroplasts of—see *Chloroplasts*.
damage and stimulation of, 5444*a*.
damage to, on freezing, prevention of, 8571*f*.
-destroying substances, 9385*g*.
division and extension of, method for study of, and effect of temp. and nutrients on, 6285*g*.
division of, effect of antipyrine on, 5830*f*.
effect of boldine on, 6704*d*.
effect of camphor on, 6704*b*.
effect of hexachlorocyclohexane isomers on, 6702*g*, 7175*g*.
effect of Mg on, 3059*c*.
inhibiting effect of *meso*-inositol on, 1865*h*.
inhibition of toxic effect of metal org. compds. on, 4773*b*.
*division of*, C-mitotic activity of opium alkaloids, 3108*b*.
C-motitic effect and substances producing it, 4347*c*.
C-mitotic effect from gammexane, effect of *m*-inositol and sugars on, 9170*i*.
in onion and rye, effect of isopropyl phenyl carbamate on, 7089*c*.
in onion, effect of (4-chloro-2-methylphenoxy)acetic acid on, 3068*c*.
in onion root-tips effect of Br on, 3068*i*, 8449*e*.
in onion root-tips, effect of N mustard on, 4348*b*.
protoanemonin as inhibitor of, 2675*c*
in root meristems, preprophase inhibition of, 9171*a*.
Na ribonucleate and, 1841*c*.
effect of lewisite and yperite on, 8013*f*.
effect of radiations from radioisotopes on, 4732*i*.
electroösmotic components of turgor and chem. and concn. potentials of, 5829*i*.
elongation of, 1871*d*.
equil. in, harmony and, 7781*d*.
essential oils and, 9170*c*.
glucides, nucleic acids, nucleosides and nucleotides in, 3870*b*.
growth-substance effect on, 8597*g*, 9351*i*.
hexachlorocyclohexane effect on, 3891*i*, 4803*g*.
of *Hibiscus manihot*, 1974*h*.
hydrogen ion concn. of, effect on urease absorption, 5829*f*.
inactivation by mustard gas, 2257*f*
lipochromes in gametes of Fucaceae, 2677*f*.
macromolecule formation in, 5437*h*.
metabolism and surface of, 2253*e*, 5434*i*.
metabolism of—see *Metabolism, plant*.
mitoclastic action of antipyrine, 6286*b*.
mitoclastic action of eserine, 8462*i*.
mitoclastic agents, tropokinetic effect of, 4346*h*.
nuclei, ultrasonic-wave effect on, 5004*h*.
nucleolus of, nucleotide content of, 6248*i*.
nucleus (interphase) of, chromosomes in, 4715*i*.
org. compds. and, 9171*f*.
osmotic pressure of fluid of, effect of external conditions on, 5453*a*.
oxidation in, flavoenzyme catalysis and, 1449*i*.
oxygen requirement of growing, 7089*i*.
parasitism and, 271*c*.
permeability to salicylates, effect of cation on, 3495*e*.
physiology of, 1838*d*.
plasmolysis of, 1835*a*.
poisons for, effect on metabolism, 3893*e*.
protein content of, proteolytic enzyme system and, 7066*a*.
protoanemonin effect on, of root-tip of corn, 5830*i*.
proton range-energy relations in, 6502*f*.
respiration of, effect of cupric ion on, 6707*d*.
respiration of green, effect of light on, 9169*a*.
salt relations of, 1082*a*.
size of *Taraxacum kok-saghyz*, 1086*f*.
staining of—see *Staining; Stains*.
transients in inorg. systems in relation to, 2253*c*.
vacuole contraction in, 2287*a*.
of vegetables, and their alteration in digestive process, 6753*b*.
walls of, arabinose in, 9433*h*.
of conifer tracheid, fine structure of, 2676*g*.
constituents of, spray penetration and, 283*g*.
crystallinity of, 8133*a*.
effect on chem. reactions, 4845*i*.
elasticity, sorption and swelling of, 4009*a*.
electron microscopy of cellulose in, 1961*d*.
fiber structure and, 4857*g*.
of pear, cellulose from, 7679*f*.
structure of, 3608*d*.
tertiary membranes of, 5092*h*.
in water absorption, effect of 3 indoleacetic acid on, 282*i*.
water movement from concd. to dilute solns. in *Nitella*, 4751*hi*.
in water movement in leaves, 1464*g*.
water movements (nonosmotic) in, 1463*i*.
water relations of, 2676*a*.
in wood pulp, cooking effect of sulfate and sulfite processes on, 1968*hi*, 1969*be*.
in wood pulp, nitric acid-cooking effect on, 1973*g*.

of yeast, 8447*b*.
**Cells, voltaic.** (*Under this heading all primary cells are indexed. For secondary cells see* Storage batteries. *See also* Anodes; Cathodes; Depolarization, electrolytic; Depolarizers; Electrodes; Polarization, electrolytic; Potential, electric.)
with aerated Fe or Mg and Fe in NaCl soln., 8906*f*.
alkali-metal, 1661*h*.
with alloy electrodes, 8907*e*.
antimonous-antimonic, potential in HCl, 8286*c*.
book: Literature Search on Dry Cell Technology, 956*c*.
cadmium, cellulose use in, P 510*a*.
ceramic electrets for, 6798*h*.
concn., metal behavior in, 8286*e*, 8908*a*, 8913*i*.
for controlled-potential electrolysis, 8946*e*.
corrosion and, 4621*d*.
in corrosion measurement, use as reference electrodes, 6092*e*.
depolarization of, with $H_2O$-sol. substances, P 6098*c*.
with depolarizer (permanganate), P 3733*i*.
for detg. ion concns. in $Et_2O$, 2075*h*.
dielecs. for, P 7262*c*.
dry, P 1274*g*, P 2526*g*.
batteries of, P 7360*f*.
bibliography on, 4587*d*.
depolarization in, 49*f*, 8917*a*.
depolarizer cathode for alk., P 4155*a*.
detn. of available O in $MnO_2$ for, 2521*h*.
with less Zn, P 4156*a*.
Mg, 1271*f*.
$MnO_2$ for, 1663*egi*.
review on, 2877*b*.
with solid KOH electrolyte, P 4154*h*.
with electrolyte (sea-$H_2O$), P 7359*b*.
with electrolytes (molten and solid), 8788*e*.
with electrolytes (solid), 7351*d*.
fuel, 1664*h*.
hydrogen HCl|AgCl|Ag, 6051*h*.
hydrogen O gas, e.m.f. variation with pressure, 4146*f*.
impregnating carbonaceous bodies for, P 6530*e*.
with lead anodes and Zn or Fe cathodes and $H_3PO_4$ electrolyte, P 6530*d*.
Leclanché type, corrosion of Zn in, 7836*d*.
with magnesium or Mg alloy cathode, P 4966*d*.
with mercury oxide-coated steel cathode and KOH electrolyte, P 7360*c*.
oxygen-concn., potential of, 2493*h*.
for oxygen detn., 8903*i*.
photoelec —see *Cells, photoelectric*.
potential in, centrifugation effect on, 3728*d*.
potential of, with solid electrolytes, 8914*c*.
potential of, with solid electrolytes (electrodes given in abstract by mistake), 6026*d*
reviews on, 6089*b*, 6524*h*.
sodium amalgam|NaOH|CuO, 5315*b*.
sulfur dioxide (liquid-), 954*g*.
zinc anode alk., P 510*d*.
zinc-anode, electrolyte for, P 7360*d*.
with zinc (sublimed) electrodes, 5315*a*.
of zinc-$H_2SO_4$-$PbO_2$ type, P 4156*a*.
**Cells** (*containers*). See *Containers*.
**Cellugel.** See "carboxymethyl ether, Na salt" under *Cellulose*.
**Cellular materials.** See *Porous materials*.
**Celluloid, book: Fabricating Methods for,** 1216*f*.
manuf. of, P 6416*c*.
molding of, P 4895*e*.
**Cellulose.** (See also *Cotton; Crude fiber; Hemicelluloses; Holocellulose; Hydrocellulose; Lignocellulose; Oxycellulose; Paper pulp; Rayon;* etc.)
accessible material in, detn. of, 8671*ce*.
acetates—see *Cellulose acetates*.
acetolysis of, 3609*a*.
acetylation of—see *Cellulose acetates*.
acidity of, 9434*i*.
acid-resistant impregnated fibers of, asphalt molding mpns. from, P 6004*c*.
adhesion of ethylcellulose and polymers to, 8133*d*.
adhesion to polymers, 8206*f*.
adhesives from, 8717*a*.
adsorption by, and entropies and heats of diln. of, 6491*e*.
adsorption by chitin and, 2254*h*.
alcs. (polyhydric) in prepn. of, 7227*a*.
alkali, P 4013*c*, P 4852*hi*.
autoxidation of, 9434*g*.
manuf. of, P 2435*d*, P 6825*de*.
oxidation of, 9439*b*.
alkali soln. of, app. for, P 6414*i*.
alkylation of—see *Cellulose ethers*.
allyl ether, polymerization of, 5943*i*.
alpha, detn. of, 1975*d*, 2773*c*.
amino acid esters of, P 3616*h*.
amorphous material in, detn. of, 4850*a*.
analysis of, for papermaking, 1185*b*, 1505*a*.
animalization of fibers of, 2425*g*.
in aspen wood, effect of location in trunk on, 3607*f*.
from asphodel tubers, etc., P 5616*h*.
bacterial, osmometer membrane from, 7782*eg*.
bacteria splitting—see *Bacteria*.
from bamboo, 2428*g*.
from bamboo, mol. wt. distribution in, 7680*g*.
in beechwood, forest-thinning effect on, 3195*h*.
benzyl, carboxymethyl, ethyl, hydroxyethyl and methyl ethers, 5588*a*.
benzyl ether and hydrate, water-vapor permeability of, 8738*d*.
benzyl ether, colloidal, 7782*b*.
compns. with benzyl ester of nitrilotriacetic acid, P 5230*a*.
lacquer bases from, in dairy-equipment construction, 5877*e*.
bleaching of, P 3198*b*.
agents for, *o*-alkoxybenzoyl derivs. of 4,4′ - diaminostilbene - 2,2′ - disulfonic acid, P 5977*h*.
with chlorite, pH control in, P 4022*a*.
degradation reduction in, P 9447*f*.
history of, 5591*a*.
with hypochlorite, P 3208*d*.
with ozone, P 5593*c*.
bonding surfaces of, P 5950*i*.
books: Degradative Action of Acids and Alkalies on, 5950*b*; Spraying, 8680*f*, Les méthodes de la chimie de la, comprenant des méthodes de recherches sur les celluloses composées, 9445*d*; Physics and Chemistry of, Fibres, 9445*d*.
in burdock and carrot roots, 6287*d*.
butyrate acetate and propionate acetate, prepn. and hydrolysis of, 1962*g*.
butyrate acetates, detn. of acetate and butyrate groups in, 1289*e*
hot-melt water vapor-resistant coatings from, P 4028*f*.
nitrocellulose detection and detn. in films of, 8967*i*.
plasticizer effect on, 5944*g*, 5945*a*.
standards for molding compns. from, 4400*c*.
butyrate and propionate, manuf. of, P 6414*f*.
butyrate crotonate, P 2468*g*.
butyrate, lacquers from nitrilotriacetic acid esters and, P 5229*h*.
carbanilate, octamethylenedicarbamate and tetramethylenedicarbamate, 1563*g*.
carboxyalkyl ethers, manuf. of, P 7685*h*.
carboxymethyl and methyl ethers, effect on soil aeration, 6771*d*.
carboxymethyl and sulfoethyl ethers, 1819*t*.
carboxymethyl ether, P 4854*a*.
Al salt, P 9536*d*.
antacid prepn. contg. alkali salt and, P 8104*f*.
by products from manuf. of, improving detergency of soaps by, P 5978*a*.
desoiling properties of, 8711*c*.
effect on drilling muds, 8652*g*.
in increasing rot resistance, swelling tendency and water absorbency of textiles, P 418*a*.
manuf. of alkali salts of, P 7686*b*.
poly(hydrogen sulfate) Na salt, P 4013*e*.
polysulfates of, P 3978*h*.
Na salt, as water softener and dirt carrier, 5977*b*.
Na salt, effect on bentonite, 8652*g*.
Na salt, effect on suspending power o. soap solns., 8709*i*.
Na salt, in detergent solns., 4876*a*.
Na salt, in drilling mud for anhydrite, 3599*g*.
in sugar jelly formation, 2709*e*.
carboxymethyl ether Na salt, and methyl ether, hydrophilic properties of, 8609*b*.
carboxymethyl ether, Na salt, and methyl ether, manuf. and use of, 6408*d*.
carboxymethyl Me ether, P 9445*e*.
catalyst-contg., dispersion in thermosetting resin, P 2034*g*.
from cellulosic by-products, P 8680*g*.
in cell wall of *Valonia ventricosa*, 1961*d*.
from cereal straw, 7226*h*.
chain-length distribution of, 9435*g*.
chain length of, viscose filterability and, 2427*a*.
changes during storage of, 7227*g*.
chemistry of, 4857*e*.
chloroacetate acetate, (guanylmercapto)-acetate acetate and *p*-toluenesulfonate acetate, 3611*a*.
in coal and petroleum formation, 2409*d*.
complex formation with streptomycin and its reversal by salt, 5825*a*.
compns. with urea and HCHO, thermosetting, P 5232*b*.
Congo red absorption by, 4848*f*.
from coniferous and deciduous wood, compn. of, 5587*a*.
contraction and swelling of, 7679*i*.
contraction and swelling of, ion exchange in, 468*g*.
copper-ammonia deriv.—see *Copper-ammonia cellulose*.
in copper electrodepositions, 1269*a*.
from cotton husks, hydrolysis of, 7225*c*.
cross-linking of, P 8137*b*.
crystallinity of, 8132*h*.
crystallinity of, hydrolysis effect on, 8135*f*.
crystallite orientation in fibers of, 5954*f*, 6829*e*.
crystn. and mol. structural order of, phys. properties and, 6829*h*.
crystal structure of, from jute and ramie, 2429*c*.
cyanoethyl ethers, acetone-sol., P 404*h*.
cyanoethyl ether, structure of, 2839*f*.
decompn. of, by bacteria from intestines of porcupine, 4336*f*.
biochem., 3609*ce*.
by myxobacteria, 6700*h*.
in soils, 1891*e*.
decompn. products of, and their effect on soil structure, 8082*e*.
degradation of, 5587*c*.
during atm. exposure, 3608*e*.
by oxidation, 5587*f*.
in soils, 5891*e*.
soly. no. in measurement of, 8133*c*.
by sunlight, oxide effect on, 8133*h*.
during viscose process, 3611*b*.
density and diam. of fibers of, detn. of, 2069*b*.
depolymerization in $H_2SO_4$, 7800*c*.
derivs., cation exchange in, P 5950*c*.
combined with *N*-alkoxymethylpolyamide, P 3659*c*.
cyanine dyes for, P 7846*c*.
disazo dyes for, P 858*g*.
disulfide-cross-link synthesis in, 3610*g*.
in drugs and cosmetics, 1529*i*.
dyes for, P 8163*a*, P 8165*a*.
and fabrics coated therewith, P 9446*g*.
films of, for NaCl tablets, P 8619*h*.
as fixatives and thickeners in printing pastes, P 9473*i*.
halo nitro olefins as solvents for, P 6646*i*.
hollow bodies from, P 1187*h*, P 4899*g*
in laminated glass manuf.—see *Glass*
mixt. with alkyd resin and fungicid, coating textiles with, P 3208*h*.
oxidative stability of, 5943*adg*.
in paints, 1577*d*.
plasticizers and softening agents for, P 4301*i*.
soly. of, 1963*i*, 1964*bdf*.
sol. in dil. alkali, P 8138*a*.
solvation of, 6044*d*.
specificity of microörganism attack on, 7692*g*.
sponges and porous materials from, 2427*c*, P 6868*a*.
stabilization of, against heat degradation, P 849*e*.
steam treatment of, reduction of swelling by, P 8137*c*.
wrinkle-drying coatings from unsatd. oils and, P 2790*e*.
and derivs., spectra of, 8886*h*.
from desert plants, 6337*g*.
detection of, 5704*a*.
detn. of, P 3196*h*, 6411*eg*, 8677*i*.
in aspen wood, 1179*f*.
by dichromate oxidation, 9435*b*.
in feeding stuffs, 7152*i*.
in pimientos, 6329*e*.
in plants, 9438*f*.

*detn. of*, in wheat bran, 3532*f*.
detn. of cryst. and amorphous material in fibers of, 4461*a*.
detn. of β- plus γ-, in paper pulp, 4464*h*.
diffusion treatment of, app. for, P 9447*e*.
digestion of, by animals, bacteria in, 8574*g*.
in feeding stuffs, treatment with bacteria and chemicals to aid, 8574*h*
in rumen and in ruminal ingests of sheep, 2694*c*.
by silkworm larvae, 3529*c*.
dispersions of fibers of, measurement of fluidity of, 4787*e*.
dopes—see *Dopes*.
drying, sorting and washing of, app. for, P 6415*e*.
dye affinity and fastness in wet state on, dicyanodiamide-HCHO condensation products improving, P 7238*b*.
dyeing—see *Dyeing*.
dyes for—see *Dyes*.
effect on filterability of viscose, 397*a*.
electrokinetic potential of, 21*d*.
electron microscopy of, 3615*d*.
esterification of—see *Cellulose esters*.
etherification of—see *Cellulose ethers*.
ethylene oxide ether, urea as diluent of textile sizes from, 8687*c*.
ethyl ether, activation of solvents for, 6044*e*.
bearing strength of, measurement of, 4891*i*.
bis(allyl lactate) maleate as plasticizer for, P 2034*c*.
casting compns. of, P 5592*de*, P 9300*g*.
coalescence of, 4892*h*.
coating compn. from glyceryl succinate resin, urea-HCHO resin and, for silk, P 6834*c*.
coating for glass fibers from, P 3987*b*.
as coating material, 876*a*.
color stabilization of, P 5796*c*.
compn. with Me methacrylate polymer, P 8740*a*.
elasticity of, temp. and, 2027*g*.
elec. insulators from silicones and, P 4894*h*.
formation of, and ethoxyl detn. in, 4845*i*.
fractional pptn. of, 8672*h*.
gelation on heating of aq. solns. of, 3611*d*.
impregnating compn. from cetyl acetamide, coumarone indene resin and, P 2033*d*.
inorg.-salt effect on gelation of, 8134*f*.
light-polarizing sheets from, P 2820*a*.
mixts. with silicones as heat-insulating materials, P 4518*b*
nonmetallic armor from, P 4402*h*.
oil- and sunlight-resistant compns. from acrylonitrile-butadiene rubber and, P 4045*i*.
plastic from, P 2815*c*.
plasticizers for, P 3242*h*, P 4518*f*, 5627*h*.
prepn. from ethyl sulfate under vacuum, 6824*b*.
prepn. of, 4848*i*.
in shadow-cast replica techniques of electron microscopy, 8846*i*.
solns. in EtOAc, expansion on diln., 6044*i*.
stabilization of, P 6414*df*.
stabilizers for, P 4853*adf*.
structural viscosity in $C_6H_6$, 8235*i*.
testing of, 4399*b*.
in waterproofing fibrous material, P 9449*a*.
fermentation by *Cladosporum herbarum*, 6704*f*.
fermentation of, by thermophilic bacteria, symbiosis in, 6699*a*.
fibers—see also *Fibers*.
fibers, rendering anionic coating material adherent to, P 5643*h*.
films from, P 849*a*.
filtering, dewatering or washing of, app. for, P 9447*f*.
fireproofing of, aminoplast resin powder mixts. with chlorinated org. compds. for, P 3210*c*.
fireproofing or flameproofing of, with $Sb_2O_3$, P 3210*c*.
in flax fiber, detn., relation to strength and calcn. of chain length, 4858*d*
flocculation of fiber suspensions of, 1181*f*.
flour, effect of *Tribolium confusum* on,
formaldehyde-resin finishes on fibers of, identification of, 4017*g*.
formaldehyde treatment of fibers of, 4121*i*.
fungi decompg. (ref. should be vol. 19), 9456*f*.
from Palestine, 8444*e*.
in soil, effect of fertilizers on, 6350*i*.
fungus control on, P 1146*c*, P 1526*a*, P 1902*b*, P 7632*f*.
German industry of, 5949*g*.
growing process of fibers of, 1462*b*.
heat of combustion and compn. of, 7225*e*.
heat of sorption of water by, and entropy change of, 9433*i*.
heat of wetting and heat of absorption of water by, 1180*h*.
heat of wetting of, by org. liquids and water, 1638*e*.
hemicellulose relations to, 3609*g*.
of hemp bast fiber, effect of degumming and encrustant removal on degradation of, 4858*f*.
hydrate, transformation into native cellulose, 1962*bd*.
hydration of, and its derivs., 845*h*.
hydrolysis of, P 3616*g*, 4461*b*, P 5187*d*, 5941*di*, P 6414*i*, P 6415*b*.
hydrolysis of, app. for, P 3197*f*.
2-hydroxy-3-butenyl and 2,3,4-trihydroxybutyl ethers, P 1979*d*.
hydroxyethyl and hydroxypropyl ethers, manuf. of, P 5592*f*.
hydroxyethyl ether, amine salts derived from boric acid complexes of, P 1800*f*.
in coating paper, 7682*i*.
compn. from urea, HCHO and, P 5640*b*.
depolymerization by ultrasonic waves, 8780*a*.
reaction with *p*-toluenesulfonyl chloride, 3784*g*.
water-sol., P 9446*a*.
hydroxyethyl ether (dyed), and its use in textile dyeing, P 416*f*
and hydroxyethyl ether, paper manuf. from, P 5594*a*.
hydroxyethyl, methyl and Na carboxymethyl ethers, thickening latexes with, 6410*i*.
ignition and combustion of, effect of chemicals on, 4468*b*.
in invertebrates of Black Sea, 6746*c*.
iodine adsorption by, 9438*g*.
irradiation effect on polymerization of, 6407*i*.
isoamyl, isobutyl, sec-butyl and isopropyl ethers, prepn. of, 5942*h*.
from jute, structure of hydrated, 4009*e*.
lacquers—see *Lacquers*.
laurate acetate, manuf. of, P 3197*a*.
from lignin-contg. material, P 7685*c*.
losses of, detn. in processing of beech wood, 6407*c*.
manganese detn. in, 6824*e*.
manuf. in sugar factory, 6400*d*
of marine algae, 2285*i*
mech. properties and structural elements of, 3202*g*.
mech. properties of, and its derivs., 1961*h*.
mercerization of—see *Mercerization*
mercerized, hydration of, and its effect on crystal structure, 397*c*.
mercerized, NaOH absorption and fixation by, 7233*g*.
methane manuf. from, 5925*d*.
methylation of, 396*d*
methylation of native and regenerated, and of Na cupricellulose, 2770*h*, 2771*a*.
methyl ether—see also *Tyloses*.
methyl ether, adhesive tape for laminating from, P 7756*d*.
aq. solns. of, vs. cellulose suspensions, 7227*c*.
in control of onion smut, 9313*b*.
in diabetic prepns., 7638*i*.
effect on polarographic analysis, 4181*h*, 4930*a*.
incompatibility with polymers in aq. soln., 6460*e*.
insectifuge from pyridine and, P 5899*d*.
monograph for, 8103*b*.
plywood adhesive from PhOH, HCHO and, P 3650*c*.
rigidity of mols. of, 20*a*.
water-resistant materials from compns. contg., P 1980*b*.
methylethyl or Me glycol ethers and Na salt of carboxymethyl ether as emulsifying agents in fats and oils, P 6437*e*.
micelles in, x-ray scattering and, 6044*e*.
mixer and cooler for solns. of, P 6410*d*.
mol. wt. and other properties of wood, 1960*i*.
nitrates—see *Nitrocellulose*.
nitration of—see *Nitrocellulose*.
nitric acid (dil.) effect on, 1973*ab*.
nitric acid effect on Cu no. and α-cellulose content of cotton, 4847*g*.
noble, and its manuf., 5587*d*.
oxazolidine derivs., P 3196*i*.
oxidation (accelerated) of cotton, 8671*g*.
oxidation of, P 404*f*, 2425*f*.
with $HNO_3$, $HNO_2$ and N oxides, 6823*d*.
with $NO_2$, 9438*a*.
with NaOCl, vat-dye effect on, 8671*g*.
oxidized, and its salts in cement retardation, P 6389*a*.
oxy-, properties of acidic, 8672*a*.
papermaking properties of, 4011*c*.
from pear cell walls, 7679*f*.
-pectin complexes, decompn. during retting of coconut husks, 5953*f*.
pentosan detn. in, 6824*f*, 7228*b*.
pentosans in, 1975*g*, 1976*acegh*, 1977*acdfh*.
photochem. degradation of dyed and undyed, irradiated by Hg spectrum, 412*f*.
photographic films from—see *Photographic films*.
photolysis by ultraviolet light of cotton, 1563*c*.
photolysis of, in presence of tungstic acid, 1181*c*.
from *Pinus insignis* and *P. pinaster*, 4010*c*.
in plant membranes, effect of stage of development, temp., light and humidity on, 5454*g*.
plasticizers for, P 3658*h*.
plastics from, 4788*g*, 4789*b*.
elec. properties of, 5250*e*.
review on, 131*f*.
sound-recording belts from, P 6468.
polyuronic acids from, chemoimmunological properties of, 4338*g*.
preservation of, esters of unsatd. tricarboxylic acid for, P 7634*d*.
product manuf. from, P 4014*d*.
purification of, and its products, P 440*a*
reactions of, 4849*f*.
with diisocyanates, 1563*d*
with HCHO, 141*b*
with HCHO and HCHO compds., 1192*e*
with nitric acid, 1978*hi*.
reactivity of, uniform constitution of wood and, 7225*a*.
recent advances in chemistry of, 845*h*
regenerated, adhesive films from, P 3240*c*.
adhesive for sheets of, P 1221*c*.
anthraquinone dyes for, P 863*e*.
bonding material for, P 2037*c*.
coating (hot-melt) for, P 1222*g*
crystal structure of, 8134*b*.
degradation prevention by steam treatment of, P 8138*b*.
dielectric from, P 3119*g*
dyes for, P 857*g*, P 2782*a*, P 3204*h*, P 4478*bfg*, P 4480*a*, P 4482*g*, P 4867*bd*, P 6426*h*, P 6427*abde*, P 7235*f*, P 7703*a*, P 7705*g*, P 7706*b*, P 8156*ag*, P 8160*h*, P 8690*a*
effect of quaternary pyridinium salts of chloromethyl ethers of polyols on, 4010*b*.
films from, P 1567*d*, P 5640*c*, P 6415*f*
in globular particles, P 4854*c*
heat-sealable moistureproof film from, P 3664*a*.
membranes from, for osmotic pressure measurement, 7743*e*.
in particle form from viscose, P 6825*d*
sheets from, P 2774*e*.
NaOH effect on, 8132*g*.
regenerating baths for, clarification of, P 4014*c*.
regeneration of, from hydrazine-cellulose, 8131*i*.
review on, 4848*i*.
in rhubarb varieties, 9383*h*.
saccharification of, P 4014*a*, P 6825*gh*.
from cotton, with formic acid, 395*e*.
formic acid recovery in, P 405*a*.
sepn. from lignocellulose, supersonic vibrations in, P 404*i*.
sheet materials from—see *Paper; Sheet materials*; etc.
size distribution of mols. of, and its relation to soly., 9485*dc*.
softening agent for, 1-(*o*-ethoxyphenyl)-5-stearoylbiguanide methylated sulfonated guanamine, P 5216*g*.
softening agent for fibers of, supermethylated stearoylcyanoguanidine, P 9498*i*.

soly. in Schweitzer reagent and $CuSO_4$-$NH_4OH$ reagent, 5324*g*.
solns. (nongelatinizing) of, P 7228*g*.
solns. of, for coating textiles, P 2786*d*.
solns. of native or regenerated, nongelatinizing ZnO-contg., for textile finishing, P 7714*c*.
of sorghum cane, 9501*d*.
sorption and swelling of, 4009*b*.
spruce, ethylenediamine effect on, 3594*b*.
stearate acetate, manuf. of, P 5592*a*.
stearate acetate, self-sealing fuel tank laminated with, P 7668*h*.
strength of fibers of, orientation and, 4402*e*.
structure and polymolecularity of, 8670*i*.
structure and properties of fibers of, 5954*e*.
structure of, 3691*d*, 4460*i*.
app. for detn. of, 1961*f*.
cell wall in plants and, 4857*g*
in cotton fibers, polymerization degree and, 413*e*.
in electron-microscope range, 3607*d*.
heat effect on, 4849*f*.
small-angle x-ray scattering and, 4460*i*.
swelling and, 5587*g*.
water sorption and, 4849*i*
structure of fibers of, effect on chem. reactions, 4845*i*.
from stump wood, 6407*e*.
sugars from, P 1980*a*.
sulfate, antagonism to alexin, 1100*i*
sulfate, effect of streptomycin on reaction of, with alexin, 5485*b*
sulfate Na salt, P 4013*i*.
sulfite liquor—see *Sulfite liquor*.
sulfite 2-stage process for making, P 3197*g*.
sulfoacetate, 2431*f*, 2432*cde*
2-sulfoethyl ether and its salts, 396*g*, P 9446*d*.
2-sulfoethyl ether and polysulfate Na salt, P 2774*f*
(2-sulfoethyl) ether, neutralization curve of, 4083*b*.
surfaces of, 6407*e*.
surgical dressings contg., P 6792*i*.
swelling properties of, 9454*h*.
textile coating and impregnating with solns. of, P 4023*h*.
textiles of—see *Textiles*.
thermochemistry of reactions of, and its derivs., 1963*dfh*.
threads of—see *Threads*.
tubes from, P 5951*a*.
ultracentrifuge in study of, and its derivs., 3195*e*
ultraviolet irradiation of, effect of water vapor and O on, 5941*b*.
uniting, to rubber, P 3227*e*.
in vegetable foods and its alteration during digestion, 6753*e*.
from vine branches, P 8680*f*.
in viscose manuf., behavior of components of, 1564*h*.
viscose of—see *Viscose*
viscosity (Cu) detn. of, 6824*d*.
viscosity detn. of, 9435*i*, 9436*d*.
viscosity of suspensions of, app. for control of, P 5950*f*.
vulcanization of, 8130*e*.
washing of, P 6415*d*
washing resistance of, Al salt of guanylurea-$CH_2O$ condensation product for increasing, P 7726*f*.
waste lyes from, recovery of solids from sulfite, P 3617*h*.
wastes from, treatment of, 6768*e*
waterproofing of, with acyl peroxides, P 4023*e*.
in wheat, effect of extn. on distribution of, 6748*g*.
in wood, effect of lignin-destroying fungi on, 8131*g*.
in wood, fungus effect on, 8670*h*.
from wood of *Trichospermum ledermannii*, 1970*i*.
wool substitutes of—see *Wool substitutes*.
wrapping materials of—see *Wrapping materials*.
xanthates—see *Cellulose xanthates*.
x-ray scattering by oriented fiber of, 8272*d*.

**Cellulose, carboxymethyl-.** See "carboxymethyl ether" under *Cellulose*.
——, **6-deoxy-***, synthesis of, 9437*d*.
——, **iodotosyl-***, 9437*g*.
——, **sulfoethyl-**. See "sulfoethyl ether" under *Cellulose*.

**Cellulose acetates.** (See also *Lacquers; Photographic films;* etc.)
acetyl detn. in, 1977*i*.
adhesive-coated, P 3240*c*.
bearing strength of, measurement of, 4891*i*.
burning control on rocket propellants by, 7229*g*.
5-*tert*-butylsalicylic acid esters for modifying, P 4697*d*.
butyrate and propionate of, prepn. and hydrolysis of, 1962*g*.
butyrates of, detn. of acetate and butyrate groups in, 1289*e*.
hot-melt water vapor-resistant coatings from, P 4028*f*.
nitrocellulose detection and detn. in films of, 8967*i*.
plasticizer effect on, 5944*g*, 5945*a*
cellulose adhesion to tri-, 8133*f*.
cellulose sheets for making, drying of, P 9445*h*.
chloroacetate, (guanylmercapto)acetate, and *p*-toluenesulfonate, 3611*a*.
coalescence of, 4892*h*
compns. with nitrilotriacetic acid esters, P 5230*a*.
cross linking of, 8672*f*.
crystallinity of, 8132*i*.
density, dye affinity, surface area, swelling and water adsorption by, during deacetylation by NH₃, 6423*a*.
derivs., stabilization of, against heat degradation, P 849*e*.
dyes for, P 2781*i*, P 2783*hi*, P 2784*ab*, P 7694*b*, P 7695*h*.
effect on soil aeration, 6771*c*.
elasticity of, temp. and, 2027*g*.
elec. properties of plastics from, 5250*i*.
for films, P 4853*h*.
films and filaments from, P 6826*d*.
films, etc., from, of high tenacity, P 9476*g*
films from, phys. pretreatment and saponifiability of, 854*d*
films from, whitened by fluorescent benzimidazole derivs., P 9474*f*
finishes for, 7259*h*
gelation of, inorg.-salt effect on, 8134*i*
for glass laminates, P 9407*h*
heat of formation of, 1963*dfh*.
heat softening of, plasticizers in, 5944*d*.
hydration of, 845*i*.
laurate, manuf. of, P 3197*a*.
manuf. of, P 1187*g*, 2430*bdhi*, 2431*beii*, 2432*abcefg*, P 5592*g*, P 6414*f*.
manuf. of stable tri-, P 7685*g*.
membranes of, permeability to KCl solns., selectivity const. and ratio of mobility of cation and anion in, 8702*g*.
microwave absorption and dispersion in, 6019*d*.
mixts. with aldehyde - polycyanoacetamido compd. condensation products, P 6003*d*
molding compds. from cellulose acetate butyrate and, standards for, 4400*b*.
mol. size distribution of, detn. of, 4189*g*.
mol. wts. of, 3266*f*.
pigments for, yellow red azo pyrazolone, P 7746*e*.
plasticizers for, P 3242*h*, 5627*h*, P 9529*f*
from dialkylphenylphosphonates, P 7752*e*.
1,4-hendecanediol dicaproate as, P 6652*b*.
mixed esters of polyhydric alcs. as, P 1796*ad*.
pentaerythritol tetraacetate as, P 3656*e*.
plastics from, 2027*ef*, 9522*ef*.
polymers from Me methacrylate, casting of, P 8741*d*
prepn. of, 1963*a*.
cellulose crystal lattice modification in, 6061*a*.
from cotton by ketene, 5595*b*.
tertiary amines in, 2769*d*.
prepn. of tri-, and films therefrom, 6408*c*.
rayon of—see *Rayon*
recovery from fines from manuf. thereof, P 3197*d*.
resorcinol disalicylate in stabilization of, P 1979*g*.
silvering of, P 4520*e*.
soly. and structure of, oxalic acid effect on, 9436*f*.
soly. of, 1963*i*, 1964*bd*.
solvents for, activation of, 6044*e*.
spectrum of, 8887*a*.
spinning of, effect of solvent compn. on, 1965*a*.
stability (heat) of, 5943*g*.
stabilization of, P 7685*f*.
stabilization of, in anhydrous medium, P 2435*e*.
stabilizers for, P 4853*a*.
standards for molding compds. from, 4787*h*.
stearate, manuf. of, P 5592*a*.
molding hollow articles from, P 4899*h*.
self-sealing fuel tank laminated with, P 7668*h*.
strain-stress relations (anomalous) in, 4510*e*.
sulfuric acid formation in drying of, 2427*d*.
systems of, 5654*g*.
tubing of, for insulation, 8751*b*.
water absorption by, 9522*d*.
water-vapor permeability of, 8738*d*.
wood pulp suitability for making, detn. of, 6408*b*.

**Cellulose esters.** (*Entries here are general. For specific esters, see* Cellulose acetates; Cellulose xanthates; Nitrocellulose; *and* "butyrates," *etc., under* Cellulose. *See also* Photographic films; Rayon; *and* "derivs. of" *under* Cellulose.)
binding material from, P 9538*d*.
5-*tert*-butylsalicylic acid esters for modifying, P 4697*d*.
coating compn. from polysulfide polymers and, P 6001*h*.
coating compns. from synthetic resins and, for textiles, P 6834*b*.
as coating materials, 5202*f*, 5970*i*, P 6003*g*.
coatings from acyl, varnishing in predetd. areas using strippable, P 8705*d*.
compns. with resins and oils, P 4051*a*.
cross linking of, 8672*e*.
dyeing of, with dinitrophenoxazine or dinitrophenothiazine, P 4488*d*.
dyes for—see *Dyes*.
for films, P 4853*h*.
fluorescent, P 4013*d*.
fuel tank (self-sealing) laminated with, P 7668*h*.
glass-fiber body from, P 4824*c*.
of higher fatty acids, purification of, P 404*g*.
insectifuges from pyridine and, P 5899*d*.
lacquers—see *Lacquers*.
manuf. of, P 2468*d*, P 5592*a*.
manuf. of stable tri-, P 7685*g*.
nitrocellulose detection and detn. in films from, 8967*i*.
pigment-contg., P 7268*a*.
plasticized, P 4514*d*.
plasticized with ethyl 1-(carbethoxyethoxy)ethyl carbonate, P 2435*d*.
plasticizers for, P 1796*ad*, P 5631*b*.
*N*-(2-aminoethyl)formamide derivs. for manuf. of, P 3028*g*.
lactic acid derivs. as, P 676*b*.
plastic material from, printing with lin seed oil-C black resist and etching of, P 4030*d*.
prepn. and hydrolysis of mixed, 1962*g*.
purification of, P 4466*c*.
ripening and stabilization of, P 5592*bc*.
ripening of, P 3616*i*.
satd.-unsatd. mixed, P 1979*c*.
solns. of, in binary solvent mixts., evapn. of, 1964*h*.
stabilization of, P 7685*e*.
in anhydrous medium, P 2435*e*.
benzyl benzoate in, P 1979*e*.
stabilizers for, P 4852*i*.
for textile lamination, P 9477*f*.
water-sol., P 1187*g*.

**Cellulose ethers.** (*Entries here are general. For specific ethers see* "benzyl ether," "ethyl ether," "methyl ether," *etc., under* Cellulose. *See also* Tylose; *and* "derivs." *under* Cellulose.)
coating compn. from polysulfide polymers and, P 6001*h*.
coating compns. from synthetic resins and, for textiles, P 6834*b*.
coatings from, P 6003*g*.
as detergent protective colloids of "soil carriers," 6436*d*.
dyeing in solid form, soln. in alkali to form dye soln. and pptn. of dye on cloth by acid, 416*b*.
dyeing of, with dinitrophenoxazine or dinitrophenothiazine, P 4488*d*.
dyes for—see *Dyes*.
elec. insulators from silicones and, P 4894*g*.
of 3,4-epoxy-1-butene and their oxidation products, P 1979*d*.
fibers or filaments from—see *Rayon*.
floor and wall coverings from, P 2448*h*, P 2449*a*.
with glycolic acid—see "carboxymethyl ether" under *Cellulose*.
lacquers—see *Lacquers*.

manuf. of, P 5592*f*.
manuf. of, alkali neutralization in, P 9446*c*.
mixts. with silicones as heat-resistant insulating materials, P 4518*b*.
pigment-contg., P 7268*a*.
plasticized with ethyl 1-(carbethoxyethoxy)ethyl carbonate, P 2435*d*.
plasticizers for, P 1796*ad*, P 2034*b*, P 4514*e*.
lactic acid derivs. as, P 676*b*.
from petroleum-cracking fractions, P 6465*c*.
prepn. of, 2426*g*.
purification of, P 4466*c*.
review on, 5588*a*.
-rubber molding powders, P 2803*c*.
as sizing for paper for diazotype process, P 8294*f*.
sol., P 9445*i*.
soly. of, 1964*f*.
solns. in alkali metal zincate to increase dye and pigment fastness on textiles, P 6428*g*.
sponge substitute from, P 6868*a*.
stabilization of, P 1187*h*, P 4466*d*.
agents for, P 4852*i*.
bis(triethyl citrate) sulfite for, P 4466*g*.
tall-oil compn. with, P 2435*g*.
in textile industry, 6420*e*.
as thickening agents in textile-finishing paint, P 7713*d*.
water-sol., plasticized with cyclotetramethylene sulfone, P 6003*d*.

**Cellulose extract**. See *Tanning materials*.

**Celluloseglycolic acid**. See "carboxymethyl ether" under *Cellulose*.

**Cellulose hydrates**. See "hydrated" under *Cellulose*.

**Cellulose nitrates**. See *Nitrocellulose*.

**Cellulosexanthanilide***, 8135*e*.

**Cellulose xanthates**. (See also *Viscose*.)
chemistry of, 1181*g*.
copper-ion diffusion in gel of, 6048*f*.
detn. in viscose, 1566*g*.
manuf. of, 4848*a*.
app. for, P 8680*h*.
control in, 8685*f*.
oxidation of, 9439*d*.
prepn. of, 3611*a*, 9436*g*.
mechanism of, 8674*d*.
pentosan effect on, 1977*g*.
swelling of gels of, in salt solns., 4079*c*

**Cellulosexanthic anhydrosulfide**, 8135*d*.

**Cellulose xanthogen disulfide***, 9439*h*.

**Cellvibrio**, in cellulose degradation in soils, 5891*e*.

**Celtis**, oils of—see "hackberry" under *Oils*.

**Celtium**. See *Hafnium*.

**Cement**. See *Adhesives; Calking compositions; Cement, hydraulic or structural; Dental fillings; Mastics; Putty; Refractory materials; Sealing compositions*.

**Cement, hydraulic or structural**. (See also "hydraulic" under *Lime*.)
acid-compd. use in, P 6388*h*.
acidproof, coating from, P 6389*f*.
adhesive from casein, hydrated CaO and, P 6004*c*.
aggregates for oxychloride or portland, P 3990*a*.
alkali detn. in, 373*f*.
alkalies in, origin and behavior toward $H_2O$, 8633*f*.
alumina detn. in, 4441*i*.
alumina, in hot climates, 2393*c*.
aluminous or bauxite, 9409*h*.
analysis of, 1165*i*.
anhydrite, 832*f*.
from anhydrite and gypsum, 2377*di*.
from anhydrite and TETs cement or blast-furnace slag, P 9410*f*.
asbestos, fly ash and boiler slag in making, 2911*c*.
asbestos-, medical problems in industry of, 4826*h*.
from ashes, 1938*b*.
from ashes, $CaCl_2$, CaO and $MgSO_4$, P 6804*h*.
barium, P 8638*d*.
burning of, 1937*bd*, 8635*g*.
app. for, P 7276*a*.
app. for detn. of O in flue gas in, 8115*h*.
with coal or elec. heat and elec. arc, P 5318*f*.
heat transfer in rotary kilns in, 1545*e*.
intensifying work of rotary kilns in, 2752*b*.
phys. properties of cement mixes and, P 3165*b*.
in rotary kilns, 8115*i*.
of California (Kern Co.), 4607*e*.
carbon dioxide effect on hydrated, 2395*h*.
in chem. engineering, 8745*c*.
as chem.-engineering construction material, 1*b*.
chromium-Mn, 1935*g*.
clay minerals and, 3580*g*.
cleaning compns. for, 4255*b*, P 3640*c*.
clinker constitution, manuf. and structure of hydrated, 1165*h*.
clinker, detn. of free CaO in, 3987*h*.
clinker, increasing formation by fluorite, 2749*e*.
coal ash as hydraulic additive for, 1936*h*.
coarse-ground, and pozzolanic addns., 8635*c*.
coating chimneys with, against flue gas, 100*c*.
coatings for, from hydrocarbon resins, P 903*c*.
concrete from—see *Concrete*.
constitution of, 6387*c*.
contraction and expansion of mixts. contg., in humid surroundings, 4825*c*.
crushing, grinding and kiln-feed system in manuf. of, 831*h*.
for dams, 9410*a*.
dense products from, P 374*d*.
drilling-mud contamination by, and $NaH_2PO_4$ in its prevention, 5175*j*.
dusts, soly. of, 6335*g*.
expanding, 2394*h*, 2395*ab*, P 6388*i*
from argillaceous slags, blast furnace slag, slaked lime and anhydrite, P 3166*e*.
contg. Ca sulfoaluminate, P 4113*e*.
expansion of, 5565*i*.
expansion of Belgian, 2751*c*.
fibrolite manuf. from, 9409*b*.
fibrous, paste for manuf. of, P 1166*i*.
fineness of, detn. of, 5565*i*.
flue-dust use in, P 8116*h*.
fuel economy in manuf. of, 4825*f*.
gas adsorption by hydrated, and surface of, 4826*d*.
German industry of, 1938*cd*.
grinding of, dicarboxylic acids as aids in, P 9410*g*.
mill liners for, 3589*g*.
review on, 1166*g*.
gypsum, for oil wells, 7214*i*.
from gypsum hemihydrate, CaO and potash-production wastes, P 9410*f*
heat of setting of, 2395*g*
hydration of, 3587*i*, 6060*b*
hydration rate of, and its ingredients, 3589*b*, 8635*i*.
hydrochloric acid-insol. residue of, detn. of, 9407*i*.
hydrogen-chloride resistant, 5132*i*
industry in 1946, 2127*a*.
as jointing material, 8635*e*.
journal: Zement-Kalk-Gips, 3989*d*.
kilns for, dolomite brick in, 3581*d*
kilns or furnaces—for merely descriptive studies see *Kilns*.
kilns (rotary) for, P 8116*i*.
latex effect on, 2752*c*.
lightweight material from bentonite and, P 1939*c*.
lime (free) detn. in, 2749*i*, 5567*f*, 7860*d*.
lime-slag, hardening of, 831*f*.
lime-slag, manuf. of, 1546*f*.
limestone effect on, 2751*e*.
limestone for, flotation of, 1938*g*.
liquid phase in manuf. of, 7205*g*.
magnesia, P 5568*h*, 9393*i*.
from magnesia and $MgCl_2$, P 6389*e*
from magnesia and $MgSO_4$, 8633*g*.
magnesite, dolomite for, 5554*f*.
magnesium-oxychloride, Cu additive for, P 833*a*.
detn. of setting time of, 831*e*.
water-insol., P 3166*f*.
manuf. of, 1165*e*, P 5568*e*, 5919*f*.
manuf. of $Al_2O_3$, Fe, etc., and, P 6143*d*.
manuf. of $Al_2O_3$, Fe, $H_2SO_4$ and, 2395*e*.
manuf. of cast Fe and, 4825*i*.
manuf. of, in elec. rotary kiln, 3589*d*.
manuf. of special, in U.S.S.R., 1035*i*.
manuf. of $SO_2$ and, P 825*i*.
manuf. of $H_2SO_4$ and, 7650*h*
manuf. of $H_2SO_4$ and, from anhydrite and shale, 2343*d*.
marl as additive for, 1545*i*.
for masonry, 8115*g*.
for metal patching, P 3771*i*.
for Mexican reclamation work, 7659*b*.
microfiller-contg., 1937*i*.
mills for, 1936*g*.
minerals in, detn. of, 5919*g*.
mixts. with lime, expansive properties and soundness of, 1938*h*.
with slag, 8635*c*.
mixts. with soils, P 5568*f*.
molded articles from waste sulfite liquor and, P 4517*f*.
mortar—see *Mortar*.
paints for, stearates in water, 4492*g*.
particle size of, measurement of, 1938*a*.
phosphate, P 373*h*.
plasticizers for, rosin and abietic resin as, 7657*i*.
Plastiment use with, 2395*i*.
Polish industry of, 2394*d*.
pozzuolana, as concrete material, 2751*g*
mortar from lime and Segni, 2750*i*.
of Segni, Italy, 2750*g*.
properties of, glassy state and, 2394*e*
properties of, phys. properties of clays and, 828*i*.
raw materials for, activation of clays or kaolins, P 3166*g*.
$Al_2O_3$-manuf. residue as, P 4435*c*.
calcg. output of mills for, 1545*b*.
calcg. proportions of, 3589*h*.
calcn. of compn. of, 1546*b*.
control of compn. of, 4826*i*.
flotation of, 1546*e*.
low-grade coal and oil shale as, P 2753*a*.
reaction with aggregates, 831*i*.
refractory, P 4442*b*, 6384*g*, P 6388*i*, 7656*g*, P 7660*e*.
research on, 2395*i*.
reviews on, 1165*g*, 1935*i*, 4788*f*, 4789*a*.
for roads in Germany, 373*d*
Roman, improvement of, P 6389*e*
roofing tile from, 5915*d*
rosin soap use in, P 7660*f*.
rubber-latex compns. with, 7208*d*.
Scandinavian industry of, 2394*e*.
sea-water effect on, 1936*h*.
sepn. of slurries for, P 3249*e*.
setting of, accelerator for, P 7660*h*, accelerators and retarders for, 3165*e*
effect of added substances on, 8834*g*
shrinkage of, during setting and hardening, 2393*d*.
sieve analysis of, 2069*h*.
silica detn. in clinker and raw material for, 2749*g*.
slag, 3589*c*, P 3590*g*, P 6144*d*, 6803*g*, 8635*e*, 8636*g*
building materials from, P 9411*b*
drying conditions and, 2393*i*.
effect of heat on, 1546*h*
manuf. and use of, 8633*i*
manuf. from Hungarian bauxite, 9000*d*
slag (blast-furnace) use in, P 6388*e*
slow-setting, for oil wells, etc., P 6065, P 5920*i*, P 6389*a*.
slurries of, prepn. from chalk and clay in mixer and gyratory screen, 2749*d*
Sorel, P 1828*e*
from Sorel cement and pozzuolanic materials, P 3590*h*.
standards for, 1165*h*, 4397*h*, 5567*e*
sulfate attack on, 6387*d*.
sulfate effect on, and its prevention, 7657*g*.
sulfate resistance of, 2750*i*.
surface area of, 18*h*.
app. for measurement of, 1546*h*
detn. of, 1937*f*
tank linings of, 6761*e*
testing of, 1165*i*.
tetracalcium aluminate ferrate(III) formation in, temp. of, 3587*g*
TETs, effect on binding properties of calcium sulfate modifications, 9409*h*
thermal-insulating, air entraining, etc., standards for, 4785*f*.
from Tuff-breccia, $CaCl_2$ and $Ca(OH)_2$ in cement dust, P 6804*h*.
Vinsol effect on suspensions of, 1546*a*
of Washington, 6547*d*.
wastes from, decolorizing agents from, P 5982*b*.
water (nonevaporable) in hardened paste of, and its detn., 6387*e*.
water-permeability of, detn. of, 3987*i*
water-repellent coating or impregnant for materials contg., P 3600*h*
white, 2393*c*.
x-ray analysis of, 3588*i*.

**Cementation**. See *Iron; Metals; Steel*.

**Cementing**. See *Adhesion; Laminated products; Plastic materials; Rubber, Rubber, substitute and synthetic*, etc.

**Cementite**. (See also *Iron; Iron carbides; Martensite; Pearlite; Steel*.)
crystn. of, in pearlite, 81*d*.
system: Fe–, 6067*i*.

**Cementitious materials**, of sandstones (Dakota), 2137*a*.

**Cenapses.** See "lipide-protein complexes" under *Blood serum.*
**Centaurea,** chem. compds. from, 7094*d.*
**Centaurium spicata,** pharmacol. action of, 4771*c.*
**Centaur X,** 7094*d.*
**Centaur Y,** 7094*d.*
**Centralite** (*N,N'* - *diethylcarbanilide*). (For derivs. see under *Carbanilide.*)
adsorption by silicic acid-Celite mixts., 8946*a.*
aging of cordite stabilized with, 3617*e.*
combustion velocity, explosion temp. and heat of explosion of, 8681*f.*
detection in explosives, 8138*i.*
manuf. of, P 1439*i.*
mixt. with camphor and castor oil, as plasticizer for celluloid, P 6416*d.*
**Centrifugalization.** See *Centrifugation.*
**Centrifugation,** in detn. of particle-size distribution, 6870*i.*
effect on potentials of galvanic cells, 3728*d.*
lubricating-grease (aircraft) stability to, measurement of, 5936*b.*
of nitrocellulose solns., 6888*e.*
of precipitates, 6473*g.*
review on, 1227*g.*
ultra-, balancing sedimentation by electrophoresis in, 4066*f.*
colloid fractionation by, 7778*c.*
effect of solvent movement on, 465*c.*
of karaya gum and locust-bean mucilage, 21*f*, 1626*h.*
measurement of diffusion and sedimentation in, 4537*g.*
**Centrifuges.** (See also *Mills; Separators;* and "spinning app. for" under *Rayon.*)
for alkylation app., P 3604*h.*
biol. and chem., 909*d.*
for casting glass, P 6386*f.*
for coal fines, P 1172*a.*
continuous, P 8750*a.*
continuous, for sepn. and detn. of colloidal particle sizes, 8800*g*
dust, P 7273*e.*
for dust sepn. in grain elevators, P 3540*a.*
for galvanic cell, 3728*d.*
for gases, P 914*c*, 5571*g*, P 8758*f*
for oil sepn. from steam, P 7273*d.*
for precipitates, 6473*g.*
for rubber latex concn., 3641*f.*
self-discharging, 6870*g*
for sepg. whey from cheese, P 3540*c*
for sludge sepn., P 6011*h*
for solids sepn. from gases, P 2476*g.*
sugar manuf —see *Sugar manufacture*
ultra-, accuracy of Svedberg oil-turbine, in sedimentation measurements, 3667*h.*
in cellulose research, 3195*e*
detn. of concn. gradients in cells of, 6870*g.*
**Cepacol.** See "1 hexadecyl— chloride" under *Pyridinium compounds.*
**Cephaeline,** isoamyl ether acid phosphate*, in amebiasis therapy, 8559*c.*
**Cephaelis ipecacuanha.** See *Ipecac.*
**Cephalin, dimyristo-*,** 570*h.*
—, **erucostearo-*,** 570*h.*
**Cephalins.** (See also *Thromboplastic substances.*)
activity curve of crude and purified, 2299*f.*
as antioxidants for thiols, P 1794*b.*
in blood plasma and liver and its relation to lecithin and sphingomyelin contents, 9214*d.*
-cholesterol flocculation reaction—see *Flocculation reactions.*
complex with streptomycin, 2668*i.*
effect on bacteriostatic action of dodecyldimethyl(phenoxyethyl)ammonium bromide, 9377*a.*
effect on fertilizin action on blood coagulation, 4390*f.*
fractionation of brain, 4318*a.*
in nerves, 3912*c.*
in phosphatide-cerebroside fraction of nervous tissue, 703*h.*
**Cephalopods,** effect of choline and acetylcholine on heart of, 3528*h.*
**Cephalopsin.** See *Visual purple.*
**Cephalostachyum pergracile.** See *Bamboo.*
**Cepharanthine,** in protozoa infection therapy, 1485*c*, 8528*b.*
**Ceramals.** See *Cermets.*
**Ceramic industry.** (See also *Kilns*
abrasion-resisting metals for, 2748*i.*
combustion control in, 2386*i.*
diamonds in, 9402*f.*
dust control in, 4436*g.*
fuels (alternate) for, 2389*a.*
German, production statistics of, 9402*e.*
heat flow in, 828*e*, 2476*a.*
lubricants for, for high-temp. use, 5177*f.*
power requirements in heavy, 2748*h.*
review on, 1541*i.*
of San Pablo, 7205*a.*
stokers in, 2392*a.*
**Ceramic materials.** (See also *Clays; Color(s); Enamels; Kaolin; Refractory materials; Slips.*)
for abrasives or insulators, P 7658*b.*
analysis of, 6111*f.*
from barium titanate contg. stannates and zirconates, P 6803*d.*
binders for improving green strength and plasticity of, P 1936*b.*
binders (org.) in, 8628*a.*
book: Thin-Section Mineralogy of, 1934*f.*
casting properties of, 6383*e.*
clay minerals in, 3580*g.*
clays of Pacific Northwest deposits as, 5559*a.*
coatings from, effect on heat-resistant alloys, 541*d.*
cordierite as, 828*g.*
crystal chemistry of, 3985*i.*
with dielec. const. high, 2388*d.*
drying of, contraction from, and app. for recording Bigot curve in, 2389*c.*
with elec. permittivity high, P 830*i.*
for faience ware, brecciated weathered loam from Karmöy as, 8320*g.*
Florida clays for, 9295*g.*
Ganges River silt as, 5164*i.*
from Guadix in Granada for bricks and earthenware, 6381*d.*
high-temp. phase equil. in, 1933*e.*
of India (Jodhpur State), 6547*e.*
instability of, 3581*g.*
instability of, detn. and elimination of, 9402*i.*
kyanite flotation conc., 3579*i.*
of liquid-phase optimum, detn. of, 3583*i.*
mica free andalusite and sillimanite, P 7206*c.*
particle size of, measurement and control of, 2388*h.*
plasticity of, 8627*i.*
plasticity of, and its measurement, 3163*e.*
properties of, phys. properties of clays and, 828*i*
rutiles and spinels, 7205*b.*
from shales of Queenston, Canada, 6801*e.*
soapstone concentrates as, 6953*e.*
testing of, by drying in high-frequency field, P 3588*e*
white clays of India, 5559*e*
of Wilcox formation of Eocene series in southern U. S., 977*i.*
zircon (carteret) as, 6385*h.*
**Ceramics,** $A_2XO_4$ type compds. in, 2388*h.*
books: Data Book, 3163*i.* Oxydkeramik der Emstoffsysteme vom Standpunkt der physikalischen Cheme, 5917*g.* Clayworker's Handbook, 8632*h.*
Goldschmidt's principles and, 2063*d*
powder metallurgy and, 8627*a.*
research on, 2388*b*, 9402*d.*
at Bureau of Mines, Ottawa, 6798*f.*
elec. furnace for, 9402*a.*
**Ceramic ware.** (See also *Cermets; China; Porcelain; Pottery, Refractory materials; Stoneware; Tile; Vitreous materials.*)
abrasive—see *Abrasives.*
for aircraft power plants, 1163*h.*
from $Al_2O_3$, etc., P 1166*b.*
alumina-high, from clays of southern Urals, 5915*d.*
from amorphous quartz and alk. earth silicates, etc., P 831*b.*
from barium titanate, electrostriction of, 2054*h.*
beryllium-oxide, recrystn. of, 2390*b*
book: Tekhnologiya Keramicheskikh Izdelii, 8115*d.*
as building material for industry and labs., 2041*c.*
casting and drying of, app. for continuous, P 9408*b.*
casting of, P 3588*f.*
in chem. engineering, 8745*c.*
as chem.-engineering construction material, 1*c.*
in chem. industry, 8626*i.*
chromium-Sn pink color on, 2391*a.*
cleaning compositions and deodorizing agents for toilet bowls, 9493*c.*
cleaning compns. for whiteware, 4256*b.*
coating on, with metals, P 1274*b*, P 5918*c.*
coatings for, from 4,4'-divinylbiphenyl polymers with styrene, P 4517*a.*
coloring of, with Fe oxide, P 5166*f.*
with color photograph design, P 8634*b.*
of cordierite, 5164*g.*
cordierite bodies from sierralite, 3579*g.*
from corundum, effect of binder on, 4437*i.*
from corundum or mullite and glass powder, P 9408*c.*
creep and strength at high temps., 5559*h.*
creep of, theory of, 6798*g.*
decalcomania use on, 830*f.*
decoration and impregnation of, P 6389*e.*
decoration of, P 8115*e.*
defects in, 9403*g.*
diaphragms of, elec. surface conductance of, 7290*i.*
dielec. const. and elec. power factor of, measurement at 100 megacycles, 8111*g.*
with dielec. const. high, 4823*d.*
dielec. properties at high temps., 7204*e.*
dielecs. of, 5164*h.*
drying of, 6798*h*, 7655*a.*
clay and, 1163*a.*
kinetics of, 7272*c.*
effect of acid and alkalies on, 5164*d.*
electrets, 6798*h.*
elec. condensers of, 7205*a.*
elec. insulators of—see *Insulators, electric.*
elec. resistor of, P 9408*a.*
electrodes from metal laminated with, P 5357*f.*
for electron tubes, m.ps. of, 49*g.*
electroplating on unglazed earthenware, 8286*a.*
emissivity of, 9402*f.*
enamels—see *Enamels.*
facing and Metlach plates, noncrit. pigments for, 3586*c.*
ferroelec., 9402*f.*
firing of, 7655*f.*
firing of, vitrification of feldspar in, 1163*f.*
fluidity of, app. for measurement of, P 6386*h.*
frits—see *Frits.*
glass-bonded, P 3164*c.*
glazes—see *Glazes.*
glazing of—see *Glazing.*
grog—see *Grog.*
high-temp. properties of, detn. of, 1542*a.*
kilns for—see *Kilns.*
lining conduits with, P 3669*e.*
manuf. of, P 374*e.*
manuf. of, in Texas, 3985*i.*
measurement of bend creep and bend strength of, 9402*g.*
metal-contg., P 5565*h.*
metal-filled, P 5918*d.*
metal union with vitrified, compn. for, P 3587*b.*
Metlach plates, 1163*c.*
Metlach plates, effect of gas medium on, 3586*f.*
molding of, screw press for, P 6386*i.*
molds for, P 9408*b.*
molds for, vacuum chamber for, P 9408*b.*
molds (porous) from, for pore-free castings, 7394*f.*
opacifiers for—see *Opacifiers.*
photographic images on, 3586*d.*
railroad ballast, 2391*c.*
reviews on, 4788*f*, 4789*a.*
sanitary, from grog faience, 3585*i.*
from silicon and Si alloy, Al silicate and flux, P 6386*i.*
size variation in, 829*a.*
swelling of, during cooling, 4823*e.*
testing of, by drying in high-frequency field, P 3588*e.*
thermal properties of vitrified, 9403*h.*
titanates as, 6385*h.*
titanium detn. in, 1285*a.*
turbine blades of, for aircraft power plants, 7654*h.*
unfired bonded, P 3164*b.*
uniting of, P 4824*f.*
uniting of, to metals, 1541*i*, P 5918*b*, 6561*c*, 9402*b.*
water elimination from Metlach plates during firing, 3586*e.*
waterproofing of, with $Me_2SiCl$-$SiCl_4$ mixt., P 9478*e.*
water-repellent compn. for, P 1505*b.*
whiteware cryst. and glassy phases, 9406*c.*
whiteware, $MoO_3$ use in, 6801*f*, 7655*g.*
whiteware of India, 6798*i.*
**Ceranthrone*,** 4663*a.*
**Cerates,** 2,3-butanediol oxidation by, in $HNO_3$, kinetics of, 7798*h.*
**Ceratitis capitata and(or) Mediterranean fruitfly,** control of, R. B. 1018 in, 4806*a.*

**Ceratochloa.** See *Grasses.*
**Ceratonia siliqua.** See *Carob beans.*
**Ceratostomella ulmi,** control of, 4417*c*, 9350*b*.
**Ceratozamia mexicana,** carotenoids in leaves of, 1836*i*.
**Cercis siliquastrum,** germination of seeds of, transformation of reserve substances during, 1081*e*.
**Cercospora,** *beticola,* control of, 3134*b*.
*melonis,* physiology and pathogenicity of, 7543*c*.
sugar-beet attack by, effect of soil disinfection on, 5525*g*.
**Cereals.** (See also *Grains; Grits; Meal; Wheat.*)
addn. of green grass, to poultry feeding stuffs to maintain carotene content, 3538*i*.
addn. of, to wheat flour, 4392*i*.
amino acids in, 2297*b*.
anticryptogam use on, 8595*g*.
bleaching of, $Bz_2O_2$ compn. for, P 2710*d*.
books: Diseases of, 1086*i*; Problema Pishchevoĭ Polnotsennosti Khleba, 5512*a*.
breakfast foods—see *Food.*
carotene losses in curing and storing hay of, 4783*i*.
compn. and yields of small grain grasses clipped at grazing heights, 9291*f*.
compn. of Egyptian, 777*b*.
control detns. on, 8565*h*.
and derivs., in human nutrition, 7153*f*.
diet rich in, protein requirements during, 5459*i*.
3,5-dinitro-o-cresol penetration into leaves of, 9337*d*.
in discoloration prevention in concd. packaged soups, P 5512*h*.
disinfectants for—see *Disinfectants.*
disinfection of seeds of, 7180*b*.
dried grasses of, carotene preservation in, effect of water content and storage temp. on, 1879*g*.
dried Indian, cystine, methionine and protein content of, 5876*d*.
enrichment with peanut flour, 4395*i*.
fertilizer expts. with, with N, 7174*e*.
flour from—see *Flour.*
germination and seed development of, effect of 2,4-D on, 1517*g*.
globulins of, properties of, 2071*i*.
glutens of, glutamic acid and Na glutamate manuf. from hydrolysis of, P 3947*b*.
insect control in stored, by DDT impregnation of sacks, 347*d*.
maltol reaction in cooked, 4391*f*.
mashes of—see *Mashes; Mashing.*
in meat scrapple preservation, P 1880*h*.
mineral supplements for, P 9296*a*.
moisture loss in, 1625*d*.
nitrogen compn. of, 7595*e*.
oxidation inhibition of glycerides in, 5-pentadecylresorcinol in, P 884*d*.
proteins of, biol. values of, 1090*i*.
roots of, electrochem. behavior of, 6525*e*.
seasoning of, monosodium glutamate and, 8572*h*.
small grain, as feed for cattle, 6331*e*.
smut of—see *Smut.*
spider-beetle control in warehouses for, 2729*a*.
stalks, compn. of, 7226*e*.
starches (waxy) from, sirup manuf. from, 888*i*.
straw, polyhydric alcs. in cellulose prepn. from, 7227*a*.
treatment with $ClO_2$, P 8071*g*.
vernalization of—see *Vernalization.*
vitamin content of, 8574*d*.
worts from—see *Worts.*
**Cerebellum.** See *Brain.*
**Cerebrin,** in ergot oil, 6367*e*.
**Cerebrosides,** in brain of infants and adults, 9207*g*.
in nerves, 3912*c*.
-phosphatide fraction of nervous tissue, 7038*g*.
**Cerebrospinal fluid.** (See also *Hematoencephalic barrier.* For specific reactions and tests involving use of cerebrospinal fluid see *Kolmer test; Lange's colloidal gold test; Takata-Ara test.*
acetylcholine and cholinesterase in, in craniocerebral trauma and epilepsy, 8519*fh*.
acetylcholine in, in epilepsy, 9232*c*.
acetylcholine in, in psychotics, 9234*i*.
albumin and γ-globulin in, and their immunochem. estn., 9232*c*.
amino acids with $C_6H_5$ and indole rings in, in normal and pathological conditions and their detn., 5110*h*.
*p*-aminosalicylic acid detn. in, 5440*h*.
ammonia and glutamine in, 9235*g*.
amylase in, in poliomyelitis, 2313*h*.
amylolytic power of, of children, 2302*a*.
analysis of, for albumin and glucose, 7539*e*.
analysis of, for globulin and total protein, 6696*h*.
arsenic-compd. penetration into, 318*d*.
base detn. in, 1070*f*.
book: Rapid Microchem. Methods for Blood and, Examinations, 4312*f*.
in brain metabolism, 8503*h*.
butyrinase of, specificity of, 7065*a*.
cadmium test, 9129*i*.
calcium in, after Ca chloride injection in meningitic and sound children, 3937*b*.
in normal and spasmophilic infants, 5487*a*.
in tetanus, 2311*g*.
catalase activity of, 6257*c*.
cell and protein contents of, and detn. of protein, 3517*d*.
chloride and Na in, 9199*i*.
cholesterol (esterified and free) detn. in, and their contents in nervous and mental diseases, 9139*d*.
cholinesterase content and characterization in, 8520*a*.
cholinesterase in, of healthy children, 738*d*.
cholinesterase in, in psychiatric cases, 4761*b*.
effect on assay of penicillins G, X and K, 271*b*.
fluorescence of, of children with various diseases, 2313*b*.
formation, diffusion and absorption of, 9208*i*.
glucose in, blood content and, 7102*d*.
glucose in, detn. of, 4317*a*, 7072*e*.
guanidine in, in epilepsy, 9238*b*.
histamine in, 4359*g*.
histamine in, of mentally deranged and normal patients, 2308*b*.
in insulin treatment of Sakel, 3937*e*.
iron in, 9201*c*.
isotopes in study of, 9208*i*.
nicotinic acid effect on, 2296*g*.
pathol. physiology of, 3876*e*.
phosphoric esters in, under normal and pathological conditions, 3937*d*.
in poliomyelitis, 3094*c*.
potassium in, 295*f*.
pressure in, therapeutics of, 765*d*.
proteins (globular) in, 1073*d*.
proteins in, 2311*d*.
proteins in, detn. of, 2667*a*, 4324*a*, 4721*i*, 7535*h*.
proteins in, in inflammatory diseases of nervous system and microdialysis of cerebrospinal fluid, 9235*ac*.
spectrophotometric investigation of, 5468*b*, 7065*b*.
streptomycin detn. in, 710*b*.
sugar in, in normal and tubercular meningitic children in relation to blood sugar, 8041*h*.
sulfadiazine and its methylated derivs. in, after administration, 5114*c*.
sulfonamide concn. in, in infancy, 2323*g*.
sulfonamides in, during lumbar drainage, 1103*c*.
urea detn. in, 4316*h*.
uric acid in, 7111*b*.
vitamin C in, in poliomyelitis, 3923*a*.
**Cerelose.** See *D-Glucose*
**Ceresa bubalus** and/or **Buffalo treehopper,** control of, DDT in, 1144*h*.
**Ceresan,** in cottonseed disinfection, 803*f*.
as disinfectant for potato sets, 343*b*.
in ergot control, 3959*g*.
as fungicide, 7178*d*.
**Ceresan, New Improved.** See "ethyl—phosphate" under *Mercury compounds.*
**Ceresan M.** See *p-Toluenesulfonanilide, N-(ethylmercuri)-.*
**Ceresin,** coating $MgNH_4PO_4$ with, to prevent decompn., 7796*g*.
mixts. with paraffin wax, P 9433*d*.
soln. in toluene, crystal size and structures at low temps., 2410*h*.
solns. in paraffin oil or xylene, flow of, 7291*h*.
**Cereus,** *carnegiea* and *coryne,* alkaloids from, 6337*g*.
**Cerevisterol,** from ergot oil, 6367*d*.
**Coriometry,** toluylene blue as indicator in, 2117*a*.
**Ceriops roxburghiana,** tan liquors from, pH values during storage, 6849*h*.
**Cerium.** (See also *Rare earth metals.*)
allotropy and crystal structure of, 8232*a*.
atomic wt. and isotopes of, 5239*g*.
calcium phosphate phosphor activated by, phosphor sensitive to corpuscular and undulatory energy contg., P 7831*d*.
calcium phosphate phosphor contg., P 1662*a*.
color reaction of ions of, with azo dyes, 597*g*.
distribution of, in infrared-sensitive phosphors, 4579*c*, 6508*h*.
effect on corrosion resistance of Mg alloys, P 992*a*.
on grain size of Al-Cu alloys, 8337*f*.
on graphite in cast Fe, 535*c*.
on oxidation of Cr-Ni alloys and Ni, 4619*f*.
electrode (ceric-cerous), temp. coeff. of, 4961*b*.
exchange between two oxidation states of, in $HNO_3$, 6532*g*.
Faraday effect and refraction of, 8242*i*.
gamma-rays of, energy of, 6075*i*.
ionization potentials of, 1254*h*.
isotope of mass 139, x-rays from, 4090*i*.
isotope of mass 141, β- and γ-rays from, 6913*h*.
isotope of mass 141, γ-rays from, 4094*d*.
isotope of mass 143, valence of, from La by β-decay, 7332*f*.
isotope of mass 144, concentration in liver, 2322*h*.
isotope of mass 144, sepn. by ionic diffusion, 8295*f*.
isotopes of, from fission of Bi, 1486*e*.
isotopes of masses 141 and 144, metabolism of, 6318*e*.
isotopes of masses 143 and 144, from Th by α-ray action, 4127*b*.
isotopic, in plant nutrition studies, 1079*i*.
magnesium pyrophosphate phosphor activated by, 5312*c*.
neutron-bombarded, 3707*i*, 6911*i*.
neutron cross section of, 6909*d*, 7813*h*.
occurrence and uses of, 3324*f*.
phosphors contg., 3723*c*.
energy transfer in, 3721*g*.
luminescence of, 4142*c*.
as photographic sensitizer for latent images in photosensitive glass, 4965*h*.
prepn. from monazite, 7851*f*.
purification and sepn. of, oxidation and hydrolysis in, 4168*e*.
reaction with D and H, 4122*d*.
sepn. from La and Pr, 6101*c*.
sepn. from Nd by ion exchange, 6535*e*.
spectrum of, persistent lines of, 5337*g*.
strontium sulfide phosphor activated by, 5667*i*.
system: H–, 2840*i*.
system: Mg–, 9011*i*.
zinc fluoride phosphors activated by, optical properties of, 1659*g*.
**Cerium, analysis,** detection, 4599*d*, 8048*c*, 8966*c*.
detn., 1681*d*, 6106*f*, 8950*bd*.
in minerals and ores, 8950*f*.
in steels, 1282*d*.
sepn. (chromatographic) in, 8295*a*.
sepn. from La, Nd, Pr and Sm, 6941*e*.
sepn. from rare earth metals and detn., 5697*c*.
**Cerium alloys.** (See also *Misch metal.*)
aluminum-, getters from, 2877*d*.
beryllium-Mg-Zr-, P 3341*i*.
iron-, Ce detn. in pyrophoric, 8950*c*.
magnesium-, magnetic properties of, 6960*g*.
magnesium-Mn-, creep, fatigue and tensile properties of, at high temps., 9013*c*.
magnesium-Mn-, creep strength of, 5356*d*.
magnesium-Zr-, 4619*e*.
**Cerium bromide,** $CeBr_3$, crystal structure data on, 3709*h*.
**Cerium chloride** ($CeCl_3$), crystal structure data on, 3709*h*.
Faraday effect and refraction of, in aq. solns., 8242*h*.
mercuric chloride and, as catalyst in hydrogen halide addn. to aliphatic unsatd. compds., P 2629*b*.
**Cerium compounds,** as catalysts in oxidation of cyclic ethers, P 2224*e*.
complexes, 4969*i*.
exchange reactions between Ce(III) and Ce(IV) in, 8272*a*.
intermetallic, 7771*b*.
with magnesium, 9012*b*.
tannin complex, 8984*f*.
**Cerium fluoride,** phosphor of rare earth fluorides and, P 500*i*.

**Cerium glycerophosphates**, hydrolysis of, 4551*b*.
**Cerium hydrides**, heavy, formation of, 4122*e*.
$CeH_2$, formation in misch metal, 2840*i*.
**Cerium nitrate**, exchange between two oxidation states of, 6532*h*.
partition between hexyl alc. and $H_2O$, 8808*a*.
Raman spectrum of, 8887*g*.
**Cerium oxalatochromate(III)**, 4970*c*.
**Cerium oxides**, catalysts of $Al_2O_3$ and, in $C_2H_4$ and toluene manuf. from petroleum and its gases, 8061*c*.
films on glass for increasing reflection, 3161*h*.
$Ce_2O_3$, aluminum phosphate phosphor contg., P 1661*e*.
as catalyst in combustion of black rocket gunpowder, 9440*f*.
lanthanum silicate phosphor contg., P 4959*a*.
magnesium pyrophosphate phosphor contg., P 1662*c*.
phosphor contg., P 7832*g*.
$CeO_2$, as catalyst in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
catalyst of, and $SiO_2$ in alkylation of thiophene with olefins, P 691*d*.
ceramic materials contg. $TiO_2$ and, 4823*d*.
effect on spectral transmission of glasses, P 827*h*.
glass contg., 3577*g*, P 8290*h*.
in glazes (opaque), P 1166*c*.
magnetic susceptibility of, 2053*d*.
mixt. with $ZrO_2$, thermal expansion of, 8254*a*.
systems with $Pr_2O_3$, $Nd_2O_3$ and $Sm_2O_3$, 8782*b*.
trypsin adsorption by, 3864*d*.
**Cerium oxysulfide**, $Ce_2O_2S$, crystal structure of, 3709*i*, 6484*f*.
**Cerium perchlorates**, water oxidation in solns. of, rate of, 8815*c*.
$Ce(ClO_4)_4$, reduction of, in light, 7349*h*
**Cerium phosphates**
$CePO_4$, crystal structure of, 15*e*
$Ce_3(PO_4)_4$, light scattering by, during gel formation, 7785*d*.
**Cerium potassium fluoride**, $KCeF_4$, crystal structure data on, 3709*i*
**Cerium salts**, effect on reduced wool, 5955*g*.
magnetic resonance absorption by, 2053*g*
phosphates activated by, phosphorescence of, 6085*b*.
**Cerium silicide**, $CeSi_2$, crystal structure of, 6484*h*.
**Cerium sodium fluoride**, $NaCeF_4$, crystal structure data on, 3709*i*.
**Cerium sulfates**, catalyst contg., for coal bustion, P 4835*f*
oxidation potential of ceric cerous, 4585*b*.
$Ce_2(SO_4)_3$, Faraday effect for, 8242*i*.
**Cerium sulfides**, crystal structure of $Ce_2S_3$ and $CeS_2$, 3709*i*, 6484*e*.
**Cermets**, P 5565*h*, P 5918*d*, 8627*f*, 9402*b*.
sintering and testing of, 4438*e f*.
from titanium carbide, 8627*f*.
from titanium carbide and Co, Mo or W, 8628*a*.
turbine blades of, for aircraft power plants, 7654*h*.
**Cerotic acid** (*hexacosanoic acid*), in *Artocarpus elasticus* latex, 4041*i*.
ester, in *Artocarpus communis* latex, 4042*i*.
films (unimol.) of, evapn. of, 7767*d*.
mixts. with palmitic acid, crystal structure of, 5253*e*.
prepn. of, 3866*h*.
– –, γ-**oxo-**, and methyl ester, 3366*g*.
**Cerotoma ruficornis**, control of, 3067*d*.
**Cerussite**, from Brazil (Lageado and Monjolinho), 2549*a*.
optical properties and thermal expn. of, 8788*h*.
of Tennessee (Bumpus Cove), 3322*b*.
**Ceryl alcohol**, cerotates, in *Artocarpus communis* latex, 4042*i*.
flow birefringence and relaxation time of, 7284*h*.
**Ceryl hyponitrite***, as catalyst for polymerization, P 5641*c*.
**Cesium**. (*Other entries relating to cesium and its compounds can be found under the heading* Alkali metals *and under such headings as* Alkali metal chlorides.)
adsorption by W, electron emission and, 6492*g*.
alpha-ray-bombarded, isotopes of La of masses 135 and 136 from, 486*f*.
amalgam, activities in liquid, 4930*i*.
bond with Cs, energy of, 8763*b*.
cathodes of Sb and, energy-level structure of, 3705*c*.
electron multiplier tubes with, 482*d*.
electron secondary emission from, 3704*g*.
optical and photoelec. properties of, 32*h*.
cathodes of O, Ag and, optical and photoelec. properties of, 4557*c*.
cation-exchanger dynamic activity toward, 3268*f*.
in coal, 1941*d*.
compressibility of, 1068*c*.
crystallochem. electronegativity of ion of, 8231*a*.
effect on $Cs_2O$ photocathode, 7767*g*.
on K requirement of lactic acid bacteria, 1828*h*.
on protoplasts, 5091*c*.
exchange of ions of, 464*i*.
exchange with phenolsulfonate resin, 8792*b*.
films of Sb and, electron diffraction by, and microscopy of, 2481*i*.
films of Sb and, optical and photoelec. properties of, 4092*a*.
gamma-rays of, energy of, 6075*i*.
gyromagnetic ratio and magnetic moment of, 4137*a*, 8262*g*.
gyromagnetic ratio of, 8865*c*.
hemolytic activity of, 5839*c*.
hydration of ion of, 8214*b*.
from iodine isotopes, 2861*e*.
ions (neg. gaseous) of, in CsCl vapor, 8868*i*.
isotope of mass 131, half-life of, 4120*f*.
isotope of mass 132, β-radioactivity of, 8268*c*.
isotope of mass 134, β- and γ-rays from, 8268*d*.
isotope of mass 134, γ-rays from, 1642*i*.
isotope of mass 135, from decay of $Xe^{135}$, 5296*g*.
isotope of mass 135, metabolism of, 6318*e*.
isotope of mass 137, β- and γ-rays from, 4949*f*.
β rays from, 8879*h*
data on forbidden β-decay of, 8860*b*
decay of, 3707*h*, 8266*i*.
instability of, 5288*c*.
magnetic moment and spin of, 8879*g*
quadrupole moment of, 8262*a*
isotopes of masses 136 and 137, from Ba by α ray action, 4127*b*.
isotope, in plant nutrition studies, 1079*f*.
magnetic moment of, 5303*d*.
minerals, Sr in, in caleg. geol. time, 2906*f*.
photocathodes with Sb and O on Ag, surface of, 6074*b*.
photocells—see *Cells, photoelectric*.
rectifier contg., 4094*g*.
in sediments and sea water, 5350*e*.
sorption of ions of, by glass, 2066*f*, 8233*h*.
spectrum of, 2509*g*, 6510*f*, 7338*b*.
system: O, 2884*i*.
toxicity to Myxomycetes, 8148*f*.
Zeeman effect in, 4953*g*, 7337*f*
**Cesium, analysis**. (See also *Alkali metals, analysis*.)
detection, 8966*c*.
detection in $Rb_2CO_3$, 5287*i*.
detn., 7307*i*
sepn. from U fission products, 4127*h*.
**Cesium acetate**, in acetic anhydride, behavior of, 2110*e*.
**Cesium arsenate**, $CsH_2AsO_4$, piezoelec. crystals of, P 3699*b*.
**Cesium barium copper thiocyanate**, $Cs_2BaCu_3(CNS)_7$, 5324*g*.
**Cesium barium silver thiocyanate**, $Cs_2BaAg_3(CNS)_7$, 5324*h*.
**Cesium bromide**, dielec. const. of, 3674*h*.
expansion in $H_2O$, 7298*f*.
vapor pressure of, 457*d*.
**Cesium bromoargentates(I)**, 4971*b*.
**Cesium carbonate**, o-hydroxyacetophenone ester rearrangements in the presence of, 2620*i*.
**Cesium chloride**, activity coeff. and f.-p. depression in formamide, 470*h*.
dielec. const. of, 3674*h*.
erythrocyte fragility in solns. of, 3087*b*.
Madelung potential of, 2838*d*.
neg. ions in vapor of, 8869*a*.
systems: $CdCl_2$–, and $CdCl_2$-RbCl–, 4595*d*.
vapor pressure of, 457*d*.
**Cesium chloroargentate(I)**, $Cs_2AgCl_3$, crystal structure of, 7771*i*.
**Cesium chlorocadmates**, 4595*d*.
**Cesium chloroplutonate(IV)**, crystal structure data on $Cs_2PuCl_6$, 3709*i*.
**Cesium chlororhodate(III)**, oxidation to Cs chlororhodate(IV), 6535*h*.
**Cesium chlororhodate(IV)**, formation from Cs chlororhodate(III), 6535*h*.
**Cesium compounds**. (See also *Alkali metal compounds;* and such headings as *Alkali metal sulfates*.)
lattice energies of, 8230*g*.
**Cesium fluoride**, bond in, 8763*a*.
Stark effect in, 941*f*.
**Cesium formate, synthesis of**, 2109*i*.
**Cesium germanide**, $CsGe_4$, 5321*e*.
**Cesium hydride**, CsH, crystallochem. electronegativity of $H^-$ in, 8231*c*.
**Cesium hydroxide**, reaction with CO, 2109*i*.
**Cesium iodide**, dielec. const. of, 3674*h*.
vapor pressure of, 457*d*.
**Cesium iodoargentate(I)**, $Cs_2AgI_3$, crystal structure of, 7771*i*.
**Cesium nitrate**, heat capacity of, 7317*a*.
soly. in $D_2O$, 1242*c*.
**Cesium nitrocobaltate(III)**, $Cs_3Co(NO_2)_6$, heat action on monohydrate of, on thermobalance, 7367*i*.
**Cesium oxalate**, $Cs_2C_2O_4$, synthesis of, 2110*a*.
**Cesium oxides**, 2884*i*.
$Cs_2O$, photocathodes of, photoelec. emission, thermionic emission and vapor pressure of, 7767*f*.
in rocks of Finland, 3323*h*.
**Cesium perchlorate**, magnetic susceptibility of, 5689*b*.
**Cesium peroxide**, $Cs_2O_2$, heat of formation of, 2828*i*.
**Cesium phosphate**, $Cs_2H_2PO_4$, piezoelec. crystals of, P 3699*b*.
**Cesium silicide**, $CsSi_8$, 5321*e*.
**Cesium sulfate** ($Cs_2SO_4$), activity and osmotic coeffs. of, 22*d*.
force consts. and spectrum of $SO_4$ ion in, 5305*a*.
reaction with $BaCl_2$, pH in, 6882*h*.
**Cesium tellurate**, $Cs_2H_4TeO_6$, 518*e*.
**Cestracion**, oils of—see "shark-liver" under *Oils*.
**Cestrum hediondinum**, compn. of, 2279*h*.
**Cetacea**. See *Whales*.
**Cetaceum**. See *Spermaceti*.
**Cetamium**. See "hexadecyltrimethyl— bromide" under *Ammonium compounds, substituted*.
**Cetane**. See *Hexadecane*.
**Cetane number**. (See also *Fuels; Ignition*.)
detn. of, ignition delay meter for, 8660*d*.
formula for, of Diesel fuel, 5569*b*.
improvement of, 2,2-dinitropropane in, 5930*h*
**Cetavlon**. See "hexadecyltrimethyl— bromide" under *Ammonium compounds, substituted*.
**Cetene**. See *1-Hexadecene*.
**Cetiol***, liniments contg., 9387*g*.
**Cetoleic acid**, in seborrhea oil, 8027*a*.
**Cetrimide**. See "hexadecyltrimethyl— bromide" under *Ammonium compounds, substituted*.
**Cetyl alcohol**. See *1-Hexadecanol*.
**Cetylamine**. See *Hexadecylamine*.
**Cetyl iodide**. See *Hexadecane, 1-iodo-*.
**Cetyl mercaptan**. See *1-Hexadecanethiol*.
**Cevadine**. (See also *Veratrine*.)
as insecticide, 2363*c*.
from *Sabadilla*, 9384*f*.
sensitization to K by, 4380*g*.
**Cevine**, sensitization to K by, 4380*g*.
**Cevitamic acid**. See "C" under *Vitamins*.
**Chabazite**, formula calcn. for, 1291*d*.
hydrogen, as sorbent, 9296*e*.
of Italy (Baveno), 3320*h*.
mercury adsorption by, 7288*g*.
**Chaetacme**, oils of—see *Oils*.
**Chaetochloa**. See *Grasses*.
**Chaetocnema pulicaria** and(or) **Corn flea beetle**, control of, 4416*h*.
**Chaetocnema tibialis**, control of, 9344*f*.
control on beets, 9346*h*.
**Chaetodacus tryoni**. See *Strumeta tryoni*.
**Chaetomium globosum**, control of, P 3558*g*.
control of, amine salts for, P 6357*h*.
on cloth, paper, wood, etc., P 1902*e*.
on cork gaskets, 4804*g*.
on textiles, P 6357*f*.
resistance of paper and paperboard to, detn. of, 9444*d*.
**Chaff**, paper pulp from materials contg., 398*d*.
**Chagas' disease**. See *Trypanosomiasis*.
**Chaguar**. See *Fibers*.

**Chain reactions.** See *Reactions.*
**Chains** (*chemical*). (See also *Homologous series; Molecules; Organic compounds; Substituents; Substitution.*)
adsorption of polar, from solns. by metals, 8789*h*.
aliphatic linear, with methyl substituents and conjugated double bonds, 5733*d*.
alternating polarity in alkyl, molar refraction and, 8770*a*.
branched, effect on distribution of alkylhydroxynaphthoquinones between org. solvents and aqueous buffers, 1386*b*.
branching and growth of, in polybutadiene popcorn formation, 1598*b*.
branching, diffusion and growth of, in ignition of CO-O and H-O mixts., 406*h*, 407*a*.
branching in, in lubricating oils, etc., detection of, 1173*f*.
configuration of, 7762*i*.
detn. of aliphatic, in fatty acid chloride-peptide condensation products, 3217*g*.
in dil. soln., 8802*b*.
elongation, orientation and scattering of, in rayon during deformation and flow, 3202*g*.
formation, breaking up and preventing formation of long, in $CrCl_3$ solns. by bases, 1591*g*.
fragmentation of linear, by electron impact, 5280*e*.
length of, of cellulose, viscose filterability and, 2427*a*.
critical concn. of colloidal electrolytes and, 20*a*.
in degraded cellulose, 5587*f*.
distribution of, of cellulose, 9435*g*.
free valency and, in free radicals, 5732*g*.
melting points of dicarboxylic acids and, 3792*h*.
mol. refraction and, of org. compds. of Hg, 5004*b*.
of org. substances, interfacial friction and, 2060*b*.
reaction of $CuCl_2$ with org. sulfides and, 1313*d*.
spectra of alkylbenzenes and, 2174*i*.
mobility of, of high-mol. substances, dielec. data on, 4530*a*.
oxidation of branched and straight, 1387*h*.
paraffin-chain salts—see *Salts.*
in polymers, 9455*f*.
propagation of, in polymerization of styrene, 3377*d*.
rotation in, 8238*h*.
side, alkyl and aryl groups in, of *N*-phenethyl amides, ring closure and, 5025*i*.
anticonvulsant activity and, 2160*f*.
configuration of, in sterols and bile acids, 1429*c*.
degradation of bile-acid, 3430*f*, P 3474*g*, 6639*e*.
degradation of steroid, P 3474*g*.
effect on taste of zingerone derivs., 2186*d*.
hydrogenation of, in furan derivs., P 4301*i*.
of naphthoquinone derivs., antimalarial activity in relation to, 1370*h*.
nitration of, of mesitylene and *m*- and *o*-xylene, 6584*d*.
oxidation of alkyl, 5773*g*.
rupture of, in alkyl benzene derivs., 5012*f*.
synthesis of alkyl, 1372*h*.
transfer, in polymerization of styrene, 1340*cf*, 5731*g*.
transfer, in polymerizations, 5731*i*.
**Chalcacene.** See *Benzonaphtheno[1,2,3-cd]perylene.*
**Chalcanthite,** detection in Cu ores, 5697*f*.
**Chalcedony.** (See also *Agate.*)
in antimony deposits of Soyatal Dist., Mex., 4982*g*.
formation and transformation to quartz in halite rocks, 8995*a*.
light transmittancy of, 5305*e*.
quartz formation in Boise Basin, Idaho, 4981*d*.
tungsten-contg. fluorescent, in Darwin, Calif., 6124*c*.
in Utah (Iron Co.), 7873*a*.
**Chalcocite,** analyses of 6543*d*.
detection in Cu ores, 5697*h*.
formation on chalcopyrite, galena and pyrite, 4146*d*.
melting relations of, 8319*b*.
of New Mexico (Taos Co.), 1692*a*.
prospecting for, barite as indicator in, 2130*s*.
**Chalcogenides,** review on, 3739*g*.
**Chalcone** (*benzylideneacetophenone, β-phenylacrylophenone*),

-CH=CHCO-

adrenaline protection by, 5542*a*.
bacteriostatic activity of, 3488*f*.
bromination and chlorination of, 1633*a*.
derivs., 1742*e*.
demethylation (partial) of, 7935*a*.
oxidation of, 640*e*.
in plant drugs, 772*a*.
prepn. of, 5379*e*.
and derivs., antibacterial action of, 5446*e*.
dibromo deriv., 6177*h*.
3,5-dinitro-*p*-tolnylhydrazone†, 6972*e*.
fungistatic activity of, 9334*b*.
phosphorylated derivs., P 6235*h*.
reaction with diethyl malonate, P 6665*b*.
reaction with 2-hydroxy-1,4-naphthoquinone, 5779*h*.
spectrum of, 2093*f*, 7819*i*, 8886*g*.
**Chalcone, 4'-amino-,** glucoside, adrenaline potentiation by, 5117*a*.
———, **β-benzylamino-,** spectrum of, 7819*i*.
———, **α-(benzylmethylamino)-,** spectrum of, 7819*i*.
———, **4' - (benzyloxy) - 5 - bromo - 2'-hydroxy-2-methoxy-,** 1742*g*.
———, **4'-(benzyloxy)-5'-bromo-2'-hydroxy-2-methoxy-,** 1742*g*.
———, **4'-(benzyloxy)-5,5'-dibromo-2'-hydroxy-2-methoxy-,** 1742*g*
———, **4'-(benzyloxy)-2'-hydroxy-2-methoxy-,** 1742*g*.
———, **4(and 4')-bromo-,** isoxazole derivs. from, 7020*h*.
———, **4'-bromo-,** isomorphism between 4'-chlorochalcone and, 5754*g*.
———, **3-bromo-2',4-dihydroxy-,** bactericidal action of, 5446*d*.
———, **5-bromo-2,2'(and 2,4')-dihydroxy-,** 5379*d*.
bactericidal action of, 5446*d*.
———, **5'-bromo-2,2'-dihydroxy-,** 5379*e*.
———, **5'-bromo-2,2'(2',3 and 2',4)-dihydroxy-,** bactericidal action of, 5446*d*.
———, **5'-bromo-2',3-dihydroxy-,** 5379*g*.
———, **5'-bromo-2',4-dihydroxy-,** 5379*f*
———, **5-bromo-2,4'-dihydroxy-3'-nitro-,** 5379*i*.
bactericidal action of, 5446*d*.
———, **3-bromo-2'-hydroxy-,** 5379*e*.
———, **3'(and 5')-bromo-2'-hydroxy-,** bactericidal action of, 5446*d*.
———, **5-bromo-2-hydroxy-,** bactericidal action of, 5446*d*
———, **5'-bromo-2'-hydroxy-4-nitro-,** 5379*h*.
bactericidal action of, 5446*d*.
———, **α-bromo-2'-methyl-3',5'-dinitro-,** 4239*d*.
———, **4'-bromo-4-nitro-,** 5379*h*.
bactericidal action of, 5446*d*.
———, **5-bromo-2,2',3',4'-tetrahydroxy-,** 5379*h*.
bactericidal action of, 5446*d*.
———, **5 - bromo - 2,2',4' - trimethoxy-,** 1742*f*.
———, **5' - bromo - 2,2',4' - trimethoxy-,** 1742*f*.
———, **2-chloro-, β-alkoxy derivs. of,** 2972*b*.
———, **4'-chloro-,** isomorphism between 4'-bromochalcone and, 5754*g*.
———, **5-chloro-2,2'-dihydroxy-,** 5379*g*.
bactericidal action of, 5446*d*.
———, **2-chloro-β-ethoxy-,** 2972*b*.
———, **2-chloro-β-methoxy-,** alcoholysis of, 2972*b*.
———, **2-chloro-β-propoxy-,** 2972*b*.
———, **3,5 - dibromo - 2,2' - dihydroxy-,** 5379*g*.
———, **3,5-dibromo-2,2'(and 2,4')-dihydroxy-,** bactericidal action of, 5446*d*.
———, **3,5-dibromo-2,2'(and 2',4)-dihydroxy-,** bactericidal action of, 5446*d*.
———, **3,5(and 3,5')-dibromo-2',4-dihydroxy-,** 5379*f*.
———, **5,5' - dibromo - 2,2' - dihydroxy-,** 5379*e*.
bactericidal action of, 5446*d*.
———, **5,5'-dibromo-β-ethoxy-2,2',4'-trimethoxy-,** 1742*h*.
———, **3,5'-dibromo-2'-hydroxy-,** 5379*e*.
bactericidal action of, 5446*d*.
———, **5,5'-dibromo-β-2,2',4'-tetramethoxy-,** 1742*h*.
———, **5 5'-dibromo-2,2',4'-trimethoxy-,** 1742*f*.
———, **2,5 - dichloro - 2,2' - dihydroxy-,** 5379*h*.
bactericidal action of, 5446*d*.
———, **2,2'(and 2',3)-dihydroxy-,** 5379*d*.
———, **2,2'(2',3,- 2',4- and 4,4')-dihydroxy-,** bactericidal action of, 5446*d*
———, **3,4-dihydroxy-,** adrenaline potentiation by, 3104*g*, 5116*h*.
———, **4,4'-dihydroxy-,** adrenaline potentiation by, 5116*i*.
———, **2',4-dihydroxy-3,6'-dimethoxy-,** 1407*i*.
———, **2',6'-dihydroxy-3,4-dimethoxy-,** monohydrate, 1407*i*.
———, **3',6'-dihydroxy-2',4'-dimethoxy-,** 640*i*.
———, **2',4' - dihydroxy - 6' - methoxy-,** 7935*a*.
———, **2',5' - dihydroxy - 4' - methoxy-,** 640*h*.
———, **2',6' - dihydroxy - 4 - methoxy-,** 1407*h*.
———, **3,4'-dihydroxy-4-methoxy-,** 4'-glucoside, adrenaline potentiation by, 5116*i*.
4'-phosphate, and its Na derivs., P 6235*i*.
4'-phosphate di-Na salt, adrenaline potentiation by, 5117*a*.
———, **4,4'-dihydroxy-3-methoxy-,** 4-phosphate, di-Na salt, P 6236*a*.
———, **2,2'-dihydroxy-5-nitro-,** 5379*i*.
bactericidal action of, 5446*d*.
———, **2',5'-dihydroxy-3',4',6'-trimethoxy-.** See *Pedicin.*
———, **2,3-dimethoxy-,** adrenaline protection by, 5542*a*.
———, **4,4'-dimethoxy-,** P 4099*g*.
reduction of, 191*g*.
———, **4-dimethylamino-,** antimalarial activity of, 5860*h*.
spectrum of, 7820*a*.
———, **α-ethyl-4,4'-dimethoxy-,** P 4099*g*.
———, **2'-hydroxy-,** adrenaline potentiation by, 5117*a*, 5542*a*.
———, **2(and 2')-hydroxy-,** bactericidal action of, 5446*d*.
———, **2'-hydroxy-4,6'-dimethoxy-,** 1407*a*
———, **2'-hydroxy-4',6'-dimethoxy-,** oxidation of, 640*h*.
———, **2' - hydroxy - 3,3',4,4',5,5' - hexamethoxy-,** 1774*h*.
———, **2'-hydroxy-4'-methoxy-,** 640*g*.
———, **2'-hydroxy-6'-methoxy-,** 1407*g*.
———, **4'-hydroxy-α-methyl-,** bacteriostatic effect of, 8434*h*.
———, **2' - hydroxy - 3,3',4,4',5' - pentamethoxy-,** 1774*f*.
———, **2' - hydroxy - 3,3',4,4',6' - pentamethoxy-,** 1772*h*.
———, **6' - hydroxy - 2',3,3',4,4' - pentamethoxy-,** 1774*b*.
———, **2' - hydroxy - 3',4,4',5' - tetramethoxy-,** 1774*c*.
———, **2'-hydroxy-3',4,4',6'-tetramethoxy-,** 1772*g*.
———, **2'-hydroxy-3',4',5',6'-tetramethoxy-,** 5396*g*.
———, **6'-hydroxy-2',3',4,4'-tetramethoxy-,** 1773*i*.
———, **2'-hydroxy-3,4,6'-trimethoxy-,** 1407*i*.
———, **2'-hydroxy-3',4',6'-trimethoxy-,** 1772*d*, 4264*f*.
methylation and oxidation of, 182*a*.
———, **6'-hydroxy-2',3',4'-trimethoxy-,** 640*i*, 1773*g*.
———, **2'-hydroxy-3',4',5'-trimethoxy-3,4-methylenedioxy-,** 1774*g*.
———, **β-methoxy-,** 7453*d*.
———, **4'-methoxy-,** 7001*a*.
———, **α-methyl-,** bacteriostatic effect of, 8434*h*.
———, **β-methyl-.** See *Dypnone.*
———, **4(and 4')-methyl-,** bromination and chlorination of, 1633*a*.
———, **2'-methyl-3',5'-dinitro-,** 4239*b*.
———, **α-4-morpholinyl-,** spectrum of, 7819*i*.
———, **β-4-morpholinyl-,** spectrum of, 7819*i*.
———, **3(and 3')-nitro-,** bromination and chlorination of, 1633*a*.
———, **2',3,3',4,4'-pentahydroxy-,** adrenaline potentiation by, 5116*i*.
bactericidal action of, 5446*d*.
———, **2',3,4,4',6-pentahydroxy-.** See *Eriodictyol.*
———, **2',3,4,4',6'-pentamethoxy-** [illegible]aline potentiation by, 5117*a*.
———, **2',3',4',5',6'-pentamethoxy-.** See *Pedicellin.*
———, **α-phenyl-.** See *Acrylophenone, α,β-diphenyl-.*

——, β-phenyl-. See *Acrylophenone, β,β-diphenyl-*.
——, 2',3,4,6'-tetrahydroxy-. See *Butein*.
——, 2',3,4,6'-tetrahydroxy-4-methoxy-, adrenaline protection by, 5542*a*.
4'-glucoside, adrenaline potentiation by, 5117*a*.
——, 2',3',4',6'-tetramethoxy-, 182*b*.
——, 3,5,5'-tribromo-2,2'(and 2',4)-dihydroxy-, 5379*fg*.
bactericidal action of, 5446*d*.
——, α,5,5'-tribromo-2,2',4'-trimethoxy-, 1742*h*.
——, 2',3,4-trihydroxy-, adrenaline potentiation by, 3104*f*, 5116*h*.
——, 2,2',4'-trimethoxy-, 1742*f*.
——, 2',4',5'-trimethoxy-, 640*h*.
**Chalcophanite**, in Yugoslavia, 4979*g*.
**Chalcopyrite** (*chalkopyrite, copper pyrites*), of Alaska (Salt Chuck Mine, Prince of Wales Is.), 74*c*.
-bismuthinite-native Bi intergrowths of Akchatau, U.S.S.R., 2901*c*.
copper electrodeposition on, 4145*i*.
detection in Cu ores, 5697*i*.
dodecahedral crystals of, from Pb-Zn ores of Rhodopian Mts., 8311*i*.
druses in calcitic limestones in Västanfjärd, Finland, 5345*h*.
of England (Pennines), 4188*d*.
formation of, of San-Donato, Middle Urals, 5707*i*.
grinding in ball mills, 4987*d*.
of Idaho (Boise Basin), 4981*c*.
of Idaho (St. Joe Mts.), 4608*c*.
of Italy, Catanzaro, 5708*f*.
Mt. Peloritani, 3318*i*.
Tuscany, 2128*b*.
of metamorphic Pb ore, 8315*g*.
metamorphic recrystn. and relictic colloid structures in, of Karabash, 6125*d*.
in mineral springs at Beppu, Japan, 5703*h*.
of Newfoundland (Southern White Bay), 1692*c*.
of New Mexico (Steeple Rock Zn-Pb dist.), 6950*f*.
of New Mexico (Taos Co.), 1692*a*.
oxidation and reduction of, in mineral formation in Cu ores of Calabona, Italy, 6949*b*.
of Sweden (Adak Area), 3321*a*.
of Sweden (Ingelsby), 7382*g*.
in tungsten deposits at Hyder, Alaska, 2131*h*.
of Turkey, 1291*g*.
of U.S.S.R. (Akol, Minusinsk region), 5707*g*.
of U.S.S.R. (Karabash), 6116*g*.
wettability of, effect of gases on, 2485*i*.
**Chalk**, cement manuf. from clay and, 2749*c*.
density (apparent) of powd., 3265*c*.
from Germany (Söhlde), 2136*g*.
of Kansas (Ft. Hays), 3753*a*.
manuf. of, P 4821*h*.
mixts. with cement, effect of humidity on, 4825*d*.
mixts. with rosin or stearic acid in foam-rubber manuf., gases evolved from powd., 6854*h*.
particle size of, measurement of, 4923*i*.
as pigment extender, 8704*a*.
**Chalkboards**. See *Blackboards*.
**Chalking**, of paints—see *Paint*.
**Chalybite**. See *Siderite*.
**Chamazulene**, partition between petr. ether and $H_2SO_4$, 5768*f*.
**Chamber process**. See "manuf. of" under *Sulfuric acid*.
**Chamois**. See *Leather*.
**Chamomile**. See *Camomile*.
**Chamosite**, crystal structure and mineralogy of, 8987*g*.
in ironstones of Northampton Sand, England, 5347*g*.
of Luxembourg, 2133*c*.
marine origin and transformations of, of Eastern Tataria and Western Bashkiria, 6951*i*.
**Chamotte**. See *Grog*.
**Champagne**. See *Wine*.
**Ch'ang Shan**. (See also *Dichroa febrifuga*.) active substances from, 1529*i*.
**Char**. (See also *Coke*.)
from animal or vegetable material—see *Charcoal*.
by fluid devolatilization of coal, 835*b*.
measurement of particle size and pore structure of, 7208*i*.
**Characteristic functions**. See *Proper functions*.
**Charcoal**. (See also *Carbon; Carbonisation; Norite*.)
acid-treated activated phosphate-impregnated, P 4452*d*.
activation of, 4922*d*, 5571*i*, 5572*acd*, 6396*c*.
adsorption and desorption by, of AcOH, 3686*i*.
adsorption by, 3686*g*, 7289*a*.
of AcOH and $BuNH_2$ from aq. solns., 2485*d*.
of aromatic hydrocarbons and reactivation by desorption, P 386*d*.
from cyclohexane mixts. with acetonitrile or $MeNO_2$, 461*e*.
in gas purification, 2744*b*.
gas selective, 8789*d*.
of Au and Ag from cyanides, P 5357*c*.
of hydrocarbon-gas, 6488*f*.
of HCl, 8796*h*.
of penicillin, 6789*d*.
in presence of gastrointestinal contents, 4767*c*.
of vapors, 4616*g*.
bone black and coconut-shell, reaction with O, 8839*g*.
bone black or animal, ash removal and decolorizing tests for, 8649*b*.
cooling of, 8649*i*.
detn. of carbonaceous residue in, 8648*d*.
drying app. for, 8649*g*.
pH of liquors filtered with, 8650*e*.
manuf. of, 8648*hi*, 8649*c*.
microstructure of, 8649*h*.
reaction of adsorbent, with O, 4546*h*
revivification of, tests for, 8650*b*.
standards for, 4398*f*.
for sugar industry, 4504*b*, 6445*g*.
trypsin adsorption by, 3864*e*.
briquets contg., for producer-gas manuf., P 4835*c*.
capillarity and surface area of, 6036*g*.
carbon black by grinding of, 1169*i*.
catalyst from, for polymerization of cyanogen chloride, P 2381*a*.
catalyst from Hg treated, P 1932*d*.
as catalyst in decompn. of coal light oil, 7664*e*.
as catalyst in dehydrogenation of cyclohexane, 7912*a*.
catalyst of $AlCl_3$ and activated, in isomerization of hydrocarbons, P 844*f*.
catalyst of HgO and, in fluorination of unsatd. hydrocarbons, P 2218*e*.
catalyst of $MoO_3$ and, in reforming cracked gasoline, P 389*g*.
catalyst of Pd and, in isomerization of morphine, 5786*e*.
cation exchangers from oxidation products of, 8076*c*.
coconut-shell, in adsorption of normal paraffins from mixts. with branched-chain paraffins, P 2215*i*.
catalytic value of, in chloromethylation of aromatic hydrocarbons, P 5583*e*.
reaction with $CO_2$, 3695*a*.
reaction with steam, 3694*f*.
sorption of $CCl_4$ and $H_2O$ vapors by, 4922*b*.
coking test for, 1947*e*.
deodorizer from, P 5516*i*.
flow through bed of, 7288*c*.
in foam prevention on lubricating oils, 6816*b*.
graphitization of, 4072*f*.
heat of adsorption of $Me_2O$ and heat of wetting of, 8835*e*.
heats of adsorption of $NH_3$ and $C_2H_4$ by, 4930*d*.
ignition and combustion of, effect of chemicals on, 4468*c*.
ignition temp. of, 7668*c*.
journal: Proceedings of the Technical Session on Bone Char, 9418*i*.
manuf. and analysis of wood, 2407*c*.
manuf. of active, P 4838*c*, P 7672*b*.
manuf. of, stainless-steel in, 8120*d*.
medicinal, and its adsorption capacity, 3974*e*.
oxygen complexes on, 2840*d*.
peat, 9414*a*.
peat, as gas-producer fuel, 2407*e*.
in phenol recovery from wastes, 1948*h*.
phosphine adsorbed by, oxidation of, 6898*a*.
picric acid adsorbed by, titration of, 6883*c*.
from pine-wood carbonization, 6392*f*.
potential between Zn and, in Zn salt soln., 4586*i*.
powd. manuf., by fluidized-wood distn., 1950*c*.
powd., mixer and grader for, P 9019*d*.
sepn. of acetone and BuOH from fermented mash by, P 6782*a*.
sorption by, of AcOH, 1238*e*.
of Br and O, 6038*b*.
of $NO_2$-$N_2O_4$, 6035*a*.
sorption in flow through activated, 6872*i*.
sorptive capacity of activated, measurement of, 4536*d*.
in sugar manuf.—see *Sugar manufacture*.
swelling of, by adsorption, 6881*i*.
from waste wood, kiln for making, 837*f*.
in water treatment—see *Water, purification of*.
wine decolorization by, testing of, 8606*i*.
zinc oxide reduction with, 6060*i*.
**Chard**, *p*-nitrobenzamide *N*-deriv. effect on, 2357*g*.
*m*-nitrobenzamide *N*-deriv. toxicity to Swiss, 7182*b*.
oxalic acid and vitamin C in Wyoming, 9273*f*.
phenolases in, 2287*b*.
phthalimide *N*-deriv. toxicity to Swiss, 7182*e*.
**Charging apparatus**. (See also *Feeding apparatus; Stokers*.)
for glass-melting furnaces, P 6386*d*.
for GR-S rubber manuf., 5986*h*.
for GR-S rubber materials for continuous polymerization, 1209*g*.
for liquids with gases, P 4058*a*.
for open-hearth furnaces, P 9018*h*.
for pilot plant, 4522*c*.
for reagents to reactions *in vacuo*, 3636*i*.
**Charles law**. See *Laws*.
**Charlock** (*Brassica arvensis*), control in oats, P 6778*d*.
3,5-dinitro-*o*-cresol penetration into leaves of, 9337*c*.
**Charlock oil**. See *Oils*.
**Chars**. See *Char*.
**Chaulmoogric acid** (*13-(2-cyclopenten-1-yl)tridecanoic acid*), bacteriostatic action of, 1322*e*.
**Chavibetol** (*5-allyl-2-methoxyphenol*), in *Ocimum kilimadjarum*, 8617*d*.
**Chavicol** (*4-allylphenol*), methyl ether—see *Estragole*.
——, 2,6-dimethoxy-, 1029*c*.
and 3,5-dinitrobenzoate, 7451*h*.
x-ray study of, 4818*d*.
**Chayotes**, carotene and vitamin C in, 3536*b*.
**Chebulinic acid**, and derivs., 1341*f*.
**Cheena**, digestible nutrients of, for fowls, 6292*h*.
as manganese source in poultry feeding stuffs, 6331*c*.
proteins of, biol. value of, 6330*h*.
**Cheese**, adjustment of fat content of milk for manuf. of, 3533*a*.
amino acids in American, 3534*g*.
analytical and organoleptic findings on, 6747*d*.
bacteria and mold inhibition in, P 7606*f*.
bacterial count, tyramine content and quality score of American Cheddar and stirred curd, made with *Streptococcus faecalis* starter, 8570*f*.
biacetyl in, changes during manufg. and curing, 8068*f*.
calcium detn. in, 9283*h*.
calcium tartrate crystals in processed, 3534*c*, 3944*c*.
Cheddar, acid effect on development of lipolytic flavor defects in, 6750*e*.
amino acid effect on, made from pasteurized milk, 9284*d*.
biacetyl in, flavor and, 8068*d*.
effect of heat on inactivation of phosphatases of, 779*d*.
effect of radio-frequency heat pasteurization on, 9284*e*.
effect of ripening temp. on tyramine content and flavor of, 4782*e*.
fat oxidation in, 327*c*.
colored casings for melted, P 7605*d*.
cultures or starters for, fatty acids in, effect of temp. on, 1497*b*.
detn. of casein and lactalbumin in, 3533*h*.
dried, P 330*c*.
fermentation (harmful) of, review on, 327*d*.
fermentation in hard and soft processed, bacteria and, 5877*g*.
**Fontina**, 8570*i*.
**Limburger** (mild), 9330*c*.
microörganism growth in cheese spread and, 3-acetyl-6-methylpyran-2,4-dione and its salts in control of, P 6758*d*.
milk pasteurization for manuf. of, 9283*h*.
from milk preserved with HCHO and bisulfites, 8568*b*.

Minas, manuf. of, 8571*a*.
niacin, pantothenic acid and riboflavin in, 8570*b*.
nitrogenous compd. detn. in, 9284*a*.
nutritive value of, 8568*a*.
oat proteins in production of melted, 7601*e*.
paraffin coatings for, 9283*i*.
penicilliosis in, effect of merthiolate on, 2337*c*.
phosphatase test for, sensitivity of, 8570*d*.
phosphatase test in, $Na_2CO_3$-$NaHCO_3$ buffer systems for, 9284*c*.
Prato, fermentation of, 1497*a*.
preservation for phosphatase test, 3042*d*.
production from milk of silage fed animals, growth-factor content and, 3894*a*.
ripening of hard rennet, 4394*d*.
ripening of, zymogens and acceleration of, P 330*a*.
sampling of, and fat and moisture detn. in, 7154*e*.
sampling of, for water detn., 8943*h*.
from sheep milk, 9283*i*.
storage (low-temp.) expts. with, 1875*d*.
streptococcal bacteriophage in, 7154*d*.
Swiss, milk quality and yields of, 9284*b*.
from vegetable rennet, 3944*a*.
as vitamin B source, 5509*h*.
vitamin $B_1$ in processed, stability of, 9276*b*.
whey as source of Fe in, 3534*c*.
whey sepn. from, centrifuge for, P 3540*c*.
wrapping materials for, P 2470*c*, P 5640*f*.

**Cheese mite**, control of, 7186*h*.

**Chelate compounds**. See *Chemical compounds*.

**Chelation**, amino acids as agents for, 2536*b*, 8049*b*.
in aromatic compds., 4627*e*.
in calcium soap stabilization in shampoos, 5533*f*.
conjugation and, in ketones, effect on spectra, 4575*d*.
coördination, covalency and, 8941*g*.
effect on deacylation of acetamides contg. $NO_2$ in *o*- or *p*-positions, 2186*i*.
in 4-glycosidaminopyrimidine derivs., 3423*a*.
in 2'-hydroxy-2-biphenylsulfonic acid and derivs., 4249*b*.
intermol., between 2-furaldehyde and phenol, 8888*d*.
in $N^4$ - (phenylguanylguanyl)sulfanilamides, 2179*c*.
spectra and, of β-amino-α,β-unsatd. ketones, 7820*b*.
stability of flavones and, 5396*b*.
thermodynamics of, 1243*a*, 7300*h*.

**Chelidamic acid** (*1,4-dihydro-4-oxo-2,6-pyridinedicarboxylic acid*), dimethyl ester monohydrate, 1409*h*.

——, 1-(*N*-**acetylsulfanilyl**)-, 2597*i*.

——, **1-methyl-**, and dimethyl ester, 1409*h*.

——, **1-sulfanilyl-**, 2597*i*.

**Chelidonic acid** (*4-oxo-1,4-pyran-2,6-dicarboxylic acid*), detection of, in tinctures, 4426*a*.

**Chelidonium**, identification of tinctures of, 4426*b*.

**Chellin**. See *Khellin*.

**Chelone**, effect on bile secretion in liver, 5115*d*.

**Chelydra serpentina**. See *Turtles*.

**Chemical action**. See *Photochemistry; Reactions*.

**Chemical activity**. See *Reactions; Reactivity*.

**Chemical affinity**. See *Affinity*.

**Chemical calculations**. See *Calculations*.

**Chemical changes**. See *Reactions*.

**Chemical compounds**. (See also *Amphoteric substances; Chemical constitution; Chemicals; Double salts; Isomerism; Isomerisation; Isomers; Isosteric compounds; Macromolecular compounds; Organic compounds; Polymers; Stereochemistry; Synthesis;* and such headings as *Cobalt compounds*.)
antagonism between structurally similar, application to studies of infectious disease, 4339*h*.
antigenic functions of simple, correlation with chem. reactivity, 4757*f*.
book: Sintezy Organicheskikh Reaktivov dlya neorganicheskogo Analiza, 2627*g*.
chelate, in oxygen manuf. from air, P 1160*h*.
of paludrine with nutritionally essential trace elements, 8551*c*.
for stabilization of cyclosiloxanes, P 5999*i*.
of 2-thiouracils, 9039*i*.
chromatographic sepn. of natural, 8234*e*.
clathrate, 922*f*, 5753*f*.
complex bonds in, 3672*b*.
π-complexes, heats of formation of, 5275*a*.
complexons, 7340*h*, 7364*e*.
complex or coördination, carboxy acids as constituents of, 5324*e*, 8242*i*.
catalytic activity of compds. forming, 8251*e*.
colloids from solns. of, 19*b*.
compn. in soln., concn. and, 4542*i*.
concept of, 7856*b*.
contg. C-C double bonds, 8940*f*.
contg. polydentate groups, 6536*d*.
crystal structure of, 2483*i*.
effect of substituents in labilizing trans-group in, 2854*f*.
fluorescence quenching by formation of, 498*g*.
formation and equilibria of, 7793*b*.
formation by halogenated compds. of Hg, Cd and Zn, 8939*i*.
formation of, and dismutation equil. for, 58*f*.
H-bond compds. as, 8220*h*.
pH effect on colored, 3306*h*.
pH of solns. and, 5685*e*.
imperfect, 7317*de*.
inorg., induced dissymmetry and optical activity of, 2538*d*.
order of stability of, 4969*b*.
partition between org. solvent and $H_2O$, 8807*f*.
polarography of, 2873*d*, 8915*g*.
potentials of solns. of, 3270*a*.
stability of chelate, 8812*c*.
structure of, 4527*a*.
valency in, 7763*a*.
of Werner type, P 5978*d*.
compn. of complicated, in finely dispersed systems, detn. of, 7316*a*.
dehydration of, by distn. with hydrophobic oil, P 6477*c*.
distn. of, vapor-pressure curves for, 4915*a*.
electrodeposition of metals from solns. contg., 8901*a*.
electron affinity of, detn. of, 8765*d*.
electronic structure of intermediate, 7770*g*.
formulas of—see *Chemical formulas*.
halogen substitution in inorg., 2495*h*.
heat of formation and stability of binary inorg., 6531*i*.
immuno-chem. comparison between ring and pseudo ring, 4370*i*.
inner-complex, of amino acids and analogous compds. with metals, 8947*h*.
interionic distance in binary, relation to heat capacity and d., 6499*i*.
intermetallic, activities in systems of liquid, 4931*a*.
analysis and sepn. by, and detn. of compn. and heat of formation of, 8245*f*.
of $A_3B$ phase, 7771*b*.
plasticity of, 2836*g*.
reactions of, 8341*e*.
interstitial, 918*c*.
isotope designation in formulas and names of inorg., 2105*f*.
larvae control by, 1867*g*.
long-chain, boundary lubrication by polar, 5933*b*.
mol., of alcs. and carbonyl compds., 7408*i*.
of asym. aromatic hydrocarbons and polynitrodiphenic acids, 1388*h*.
of carboxylic acids with alcs., 7409*b*.
oriented growth and, 6881*c*.
between solute and solvent, viscosity and, 1629*f*.
nomenclature of—see *Nomenclature*.
phases of const. and of variable compn. in relation to, 2479*e*.
prepn. of, by controlled-potential electrolysis, 8946*f*.
punched cards for, 8220*d*.
purity of, soly. as criterion of, 8311*e*.
selection rules of proper vibrations and term splittings in crystal and mol., 8765*b*.
stability of, 1678*c*.
stereochemistry of 5-coördinated, 7856*f*.
subcompds., 3672*d*.
systematization of inorg., graphic methods in, 6898*c*.
of variable compn., 8929*d*.

**Chemical constitution**. (*Under this heading entries have been made only when the subject is treated in a general way. For references dealing with the constitution of definite compounds see under the names of the compounds. See also* Chains (chemical); Isomerism; Substitution; *and* "structure of" *under* Molecules.)
acid and base properties and transformations of diazo compds. in relation to, 2491*h*.
acid-fastness and, of mycolic acid derivs., 3878*a*.
acidity and, of *p*-carboxyphenylhydrazones of hydroxy aldehydes and ketones, 5764*e*.
addn. reactions of cinnamic acid derivs. and, 7002*i*.
adrenaline liberating action of antihistaminics in relation to, 6738*i*.
adrenaline-protective action and, of flavonoids, 5542*b*.
adsorption and, 2254*h*, 6489*d*.
adsorption by active C and, of amines, 6037*g*.
adsorption by metals and, of lubricating oils, 1953*b*.
amine oxidase inhibition and, of benzedrine derivs., 9118*f*.
amine oxidase inhibition and, of phenyl alkylamines, 1817*h*.
amphiphilic properties and, 466*g*.
analeptic action and, 1778*g*.
analgesic action and, 8552*d*.
analgesic action and, of aminoalkyl benzhydryl sulfones, 1367*b*.
analgesic and antispasmodic action and, 4243*a*.
analgiphoric activity and, 9268*b*.
anesthetic action and, of alkaloids, 4426*f*.
anesthetic action and, of isoquinoline derivs., 4267*b*.
anticonvulsant action and, 2169*f*.
anticonvulsant action and, of heterocyclic pentagonal compds., 2323*i*, 5500*i*.
antifilarial action and, of cyanine dyes, 3930*d*.
antifolic acid activity and, 4268*e*.
antihistamine action and, 604*i*, 1903*i*, 4269*c*, 5782*e*, 6587*b*.
antihistamine action and, of pyridine derivs., 4265*h*.
antileukemic action and, of urethan derivs., 6737*a*.
antimalarial action and, 1415*c*, 2992*h*, 9038*e*.
of benzenesulfonanilide derivs., 4648*c*
of benzimidazole analogs of paludrine, 1404*i*.
of 2-hydroxy-1,4-naphthoquinone derivs., 2609*i*.
of naphthoquinone derivs., 1370*h*.
of quinoline and diazaphenanthrene derivs., 9376*b*.
antimitotic activity and, of quinones, 3526*g*.
antinicotinic acid activity and, 5834*h*.
antiplasmodial action and, 4674*i*.
antispasmodic activity and, 9069*i*.
antitumorigenic action and, of steroid hormones, 8532*g*.
bactericidal activity and toxicity and, of quaternary ammonium compds., 4780*c*.
bactericidal and antifungal activity and, of dithiocarbamic acid derivs., 3883*c*.
bactericidal or bacteriostatic action and, 6976*h*, 6977*c*.
of acridine antiseptics, 7549*h*.
of amines against tubercle bacillus, 6282*d*.
of β-aroylacrylic acids, esters, amides and anilides, 7192*i*.
of chalcones, 5446*e*.
of diamidines, 3064*g*.
of furan, thiophene and pyrrole derivs., 720*a*.
of 8-hydroxyquinoline and isomers, 9163*h*.
of lactones of aliphatic acids, 1322*b*.
of quaternary ammonium compds., 275*a*.
of quindolinium and quinindolinium salts, 229*d*, 230*b*.
of quinone-forming compds., 4327*h*.
of sulfonamides, 173*h*.
basicity and, of mononitronaphthyl amines, 6192*e*.
boiling points and, 9023*b*.
books: Chemismus und Konstitution, 3278*f*; Constitution chimique et activité des molécules therapeutiques, 4777*h*.
bromination and, of unsatd. compds., 109*i*.
carboxypeptidase inhibitors and, 6265*i*
carcinogenic action and, 8375*b*.

*carcinogenic action and*, of 2-acetylaminofluorene analogs, 9238*f*.
of alkylated urethans, 5108*b*.
central depressant action and, of α-substituted ethers of glycerol, 311*g*.
chem. properties and, of condensed aromatic hydrocarbons, 5019*f*.
chromophoric power and, of azines and dianils, 5756*a*.
color and, of diazonium salts, 1191*a*.
in hydrocarbons, 942*c*.
of hydroxymethoxyfuchsones, 9451*b*.
of pyridine and quinoline mol. compds. contg. electrophilic and -donor groups, 408*h*.
color reactions and, 8947*g*.
color reaction with starch I soln. and, of fatty acids, 1585*c*.
complex (cuprammonium) formation and, 3368*f*.
copper-catalytic-action deactivation and, 6063*d*.
crystal growth and, of org. compds. on NaCl, 4240*g*.
curariform activity and, 3407*g*, 3408*c*, 4267*e*.
cyclization and, of carbonyl compds., 6194*b*.
deacylation and, of *o*(and *p*)-nitroacetanilides, 5755*b*.
decarboxylation and, of β-halo fatty acids, 7901*g*.
decarboxylation and, of methyl galacturonide and pectinous substances, 2126*c*.
density and refraction of homologous hydrocarbons in relation to, 6023*c*.
detergency and, 2002*g*, 5213*d*.
detn. of, of hydrocarbon oils, 6398*i*.
detonation and, of hydrocarbons, 839*h*, 1554*c*, 5576*f*.
deuterium exchange with org. compds. and, 5011*f*.
dispersing power and, of aromatic sulfonic acids, 2009*e*.
dissocn. and, of silyl carboxylic acids, 5003*g*.
distribution and, of alkylhydroxynaphthoquinones between org. solvents and aqueous buffers, 1380*b*.
diuretic action and, of org. Hg compds., 7921*g*.
drying value and, of drying oils, 1197*g*.
effect on equil. of cis-trans isomers, 2961*e*.
effect on lactic acid bacteria and, of pantothenic acid analogs, 722*h*.
electrocapillary and physiol. actions and, of drugs, 7196*c*.
entropy and heat of formation and, of hydrocarbon vapors, 6069*b*.
enzymic hydrolysis and, of polypeptides, 9113*f*.
estrogenic action and, 6607*g*.
of hydroxy derivs. of bibenzyl and stilbene, 196*c*.
of 1,2,2-triarylethylenes, 4746*d*.
explosion performance and, of pure explosives, 6416*g*.
extinction coeffs. and, of alc. homologs, 59*d*.
fiber-forming properties and m.ps. in relation to, of polymers, 9455*h*.
fiber-forming properties and, of polymers, 9455*b*.
fibrillar and globular form of proteins and polyamides in relation to, 3050*c*.
fluorescence and, 7820*a*.
fluorescence and, of anthracene derivs., 498*b*.
fungicidal action and, of dithiocarbamates, 9335*d*.
fungistatic action and, 4803*g*.
fungistatic action and, of triphenylmethane dyes, 8435*g*.
growth activity and, of phenoxyacetic acid derivs., 8017*f*.
growth inhibition by methionine derivs. and homologs in relation to, 3499*h*.
halochromism and, of ketonic compds., 7911*c*.
heat capacity and, 4089*c*, 7316*h*.
heat of vaporization and, 2833*h*.
histaminelike activity and, 3520*i*.
hydrogenation and, of acetylenic glycols, 3783*a*.
of benzene nucleus, 2964*b*.
of unsatd. ketones, 5015*g*.
hydrogen transfer and, in styrene polymerization in hydrocarbons, 5713*h*.
hydrolysis and, of amides, 3781*d*.
of dehydropeptides, 258*b*.
of tertiary alkyl chlorides, 6968*e*.
hyperconjugation, electronic structure and, 41*f*.
indicator properties and, of azo dyes, 3309*a*.
insecticidal action and, 143*i*, 345*c*, 1335*a*, 1895*h*, 4414*i*, 6991*c*, 8086*g*.
of DDT and related compds., 3137*e*, 7028*f*.
of halo hydrocarbons, 5894*c*, 9331*h*.
of org. compds., 7625*h*.
of insulin in relation to its blood persistency, 8533*g*.
ionization and, of hydrocarbons, 8259*c*.
ionization const. and, 2074*i*.
ionization constants and partition coeffs. in relation to, of phenols, 7789*a*.
larvicidal action and, of amides, 1144*f*.
laxative action and, of triphenylmethane derivs., 2319*c*.
leukopenic action and, of urethan derivs., 3107*b*.
lipase acceleration by bile acids and, 6267*e*.
lipide phosphorylation stimulators and, 6291*c*.
lubricating properties and, 4451*f*.
lubricating properties and, of alkyl naphthalenes, 4454*h*.
luminescence and, of crystal phosphors, 5670*e*.
magnetochem. studies in, 4167*e*, 6165*i*.
magnetooptic rotation and, of hydrocarbons, 8838*i*.
melting points and, of branched-chain fatty acids, 3780*f*.
melting points and, of dicarboxylic acids and, 3792*h*.
miotic action and toxicity and, of fluophosphoric acid esters, 8350*h*.
miscibility and, 6817*b*.
c-mitotic activity and, 4347*d*.
nervous-system effect of quinoline compds. and, 9267*b*.
octane nos. of gasolines and, of $C_8H_8$-deriv. antiknock agents, 7674*c*.
octane values and oxidation resistance in relation to, of org. compds., 3997*h*.
odor and, 9387*f*.
of essential oils and aromatic chemicals, 1531*e*.
of steroids, 6788*h*.
olefin elimination reactions and, 3347*fh*, 3348*i*, 3349*a*, 3350*f*.
olfaction and, of perfumes, 4356*a*.
optical rotation and, 609*i*, 610*cf*, 4680*d*.
of pregnane derivs., 6215*c*.
of steroids, 242*g*, 1428*a*, 4680*c*, 6210*e*, 7492*h*.
oxidation-inhibiting activity and, of polycarboxylic acids and polyhydric alcs., 882*d*.
oxidation (nuclear) and, of flavones, 3823*h*.
oxytocic action and, of *N*-phenethyl-β-alanine derivs., 5766*f*.
parasiticidal activity and, 224*f*, 2623*f*, 3793*g*, 7142*h*.
pharmacol. or physiol. action and, 3096*i*, 6736*f*.
of amidone derivs., 191*h*.
of antibiotic lactones and analogs, 1110*c*.
of anticonvulsants, 2326*a*.
of antihistaminics, 4382*b*.
of azobenzene derivs., 4379*a*.
of barbituric acid derivs., 9258*a*.
of bis[trimethylammonium compds.], 6737*d*.
of biuret derivs. and related compds., 5369*g*.
of chlorinated tertiary amines, 1861*d*.
of chloro derivs. of diethanolamine and triethanolamine, 2700*b*.
of β-chloroethylamines, 4381*d*.
of choline derivs., 4385*h*.
of cholinergic drugs, 8526*f*.
of compds. related to thyroxine, 2327*c*.
of cyclics transposable to isoteric cyclics, 7545*h*.
of DDT and related compds., 2359*g*.
of diamidophosphoryl fluoride *N*-derivs., 1314*g*.
of diatropine derivs., 3929*b*.
of flavones, 1154*f*.
of flavonoid compds., 5116*g*.
of fluophosphoric acid esters, 1 1*e*.
of glycerol derivs. with muscle-relaxing action, 4774*c*.
of growth substances, 6707*c*.
of hydroxymethylanthraquinones, 4765*a*.
of 4-hydroxymethyl-1,3-dioxolane derivs., 1866*b*.
of hydroxytyramine compds., 317*c*.
of nicotinic esters, 6316*f*.
*pharmacol. or physiol. action and*, of pentagonal heterocyclic compds., 7585*i*.
of phenethylamine *N*-derivs., 7585*f*.
of polymethylene bis[quaternary $NH_4$ salts], 2703*d*.
of quaternary N ions, 8502*d*.
of sexogens, 6716*h*.
of steroids, 8512*b*.
of sympathicomimetic amines, 316*e*, 9250*f*.
of tetrazole derivs., 1865*a*.
of triphenylethylene derivs., 199*f*.
of uracil derivs., 4309*d*.
phosphorescence and, of phenols, 4957*i*.
photographic properties and, of org. addn. agents for emulsions and developers, 7361*c*.
phys. properties and, 2185*c*, 2589*e*, 2955*dg*, 2956*adg*, 2957*a*.
of alkyl β-ethoxypropionates, 1322*g*.
of alkyl naphthalenes and 1,2,3,4-tetrahydronaphthalenes, 1370*f*.
of fatty acid esters, 2164*i*.
phys. properties, biol. action and, of aliphatic acids, 6251*c*.
phytohormonal activity and, 2676*d*.
plasticization and, of polyvinyl chloride, 5028*d*.
plasticizing action and, 4885*e*.
polymer-liquid interaction and, 2461*f*.
racemization and, of *N*,2,4-trimethylsuccinanilic acid 6-derivs., 1343*g*.
Raman spectra and, of naphthalene derivs., 494*f*.
reactivity and, 6495*c*.
of ethyl chloro carboxylates in Friedel-Crafts reaction with benzene, 4638*e*.
of org. compds., 5731*e*.
reducing power and $Cu_2O$ production in relation to, of reducing sugars, 7861*d*.
refraction by paraffins and, 5243*a*.
ring cleavage of 3,3-dialkylphthalides and, 7925*g*.
ring closure and, of α-(α-alkoxybenzhydryl)-α-chlorobutyric acids, 1395*a*.
ring closure and, of *N*-phenethyl amides, 5025*i*.
sapong. power and, of alkanesulfonic acids, 8707*g*.
sapong power and, of alkylnaphthalenesulfonic acids, 8707*f*.
soly. of caffeine in aq. solns. of Na salts of org. acids and, 8803*d*.
sound velocity in hydrocarbons and, 6879*a*.
spectra and, 3715*c*.
of aldehyde derivs., etc., 1655*b*.
of alkylbenzenes, 2174*i*.
of amides, 6250*b*.
of amino-substituted unsatd. ketones, 7820*a*.
of anthracene derivs., 42*b*.
of 9,10-anthracenediamine *N*, *N'*-diaryl derivs., 7823*h*.
of benzene derivs., 1349*h*, 2868*d*, 8890*i*;
of cyclohexene and cyclohexadiene derivs., 7416*f*.
of 4-(4-diethylamino-1-methylbutylamino)quinolines, 2209*f*.
of disubstituted naphthalenes, 2864*d*.
of Gustavson's hydrocarbon, 991*e*.
of heterocyclic compds., 1655*c*, 7818*c*.
of methylpyridine derivs., 3292*f*.
of olefin reaction products with sulfur, 9976*b*.
of olefins, 383*a*.
of org. compds., 2923*e*.
of org. N compds., 6984*d*.
of peroxides, 3724*g*.
of phenanthrene alkyl derivs., 8274*f*.
of phenyl alkyl sulfides, 7820*d*.
of phosphorus compds., 1004*h*.
of polyenes, 1264*f*.
of purines, pyrimidines and 1*H*-*s*-triazolo[*d*]pyrimidines, 1425*b*.
of pyrimidines, 5307*c*.
of *p*-quinones, 5665*g*.
spectra (infrared) and, of quinones and their derivs., 2094*a*.
stabilizing and tanning effects on collagen in relation to, of glycoldialdehydes, 7735*i*.
of stand oil, 1577*i*.
styrene polymerization in presence of thiols and, of thiols, 1340*g*.
δ-sultone formation and, of unsatd. ketones, 1391*h*.
surface phenomena and, 2845*f*.
surface tension of aq. α,β-dihydroxy-γ-aryloxypropanes and, 5655*f*.
sweetness and, 7450*h*.
synergism and, 5525*g*.

taste and, of acylamides of sulfonic acids, 120*f*.
taste and, of zingerone derivs., 7001*i*.
thermodynamic properties and, 6068*i*.
toxicity and, of barbiturates and xanthines, 7591*d*.
toxicity and, of insecticides, 4806*g*.
toxicity and, of org. F compds., 2932*i*.
toxicity to plants and, of oximes, 2276*f*.
trypanocidal action and, of *p*-phenylenediguanidine derivs., 5014*g*.
urea inhibition and, of org. anions, 4707*i*.
urography and, of iodo-sugar derivs., 150*d*.
viscosity and, of alkyl naphthalenes, 9424*f*.
viscosity-temp. no. and, of hydrocarbons, 3602*a*.
vitamin A activity and, 7437*c*.
vulcanization acceleration activity and, 2022*i*.
of alkyl derivs. of tetraalkylthiurams and salts of dialkyldithiocarbamates, 5987*b*.
of org. accelerators, 3647*i*.
wilting action of amino acids and peptides on plants and, 4643*e*.
x-ray sensitivity and, of nitrogenous compds., 4133*b*.

**Chemical engineering**. See *Engineering*.
**Chemical equations**. See *Equations*.
**Chemical formulas**, isotope designation in, 2105*f*, 8927*e*.
shortening org., 6967*d*.
teaching of, 8220*c*.
**Chemical industry**. (See also *Education; Electrochemistry; Handling of materials; Industry; Patents; Raw materials; Research; Unit operations; Unit processes*.)
accidents in, and their prevention, 6335*c*.
books: 4791*b*; La sécurité dans les laboratoires et les fabriques de produits chimiques minéraux, 789*a*; Chimie appliquée, industries organiques, 1125*h*; Istoriya Khimicheskikh Promyslov i Khimicheskoĭ Promyshlennosti Rossii, 1125*h*; L'industrie chimique en Autriche, 1125*h*; Chem. Statistics Directory—index to govt. statistics of, for 1945, 1126*a*; American, 1503*h*, Die, und ihre Nebenprodukte, 1503*i*; Manuale de Chimico, 1640*c*; Buyers Guide Section, 2343*f*; Organizatsiya zavodskikh laboratoriĭ v khimicheskoĭ promyshlennosti, 2712*e*; Les débouchés des matières plastiques dans, 3231*g*; Thorpe's Dictionary of Applied Chemistry, 3543*g*; Avoidance of Toxic Hazards in Some German Chemical Factories, 3948*g*; Chimica applicata ed industriale, 4791*a*; Grundriss der chemischen Technik, 4791*a*; Encyclopedia of Chemical Technology, 4791*b*; Chemie und, 4940*d*, Teknisk och kemisk varukännedom for handel och industri, 5133*g*; Practice of Research in, 5516*h*; La Gran, 6337*i*; Guide de la chimie. Produits, fabricants, négociants, 6502*c*; Il macchinario dell'industria chimica, 7161*g*; Unfalle beim chemischen Arbeitn, 7161*h*; Statistical Methods in Research and Production with Special Reference to, 7608*d*; Impianti, 7759*f*; Lezioni di impianti, 7759*f*; Chimica organica e, 7949*b*; Khimicheskaya Tekhnologiya, 8074*i*; Auskunftsbuch für die chemische Industrie, 8075*a*; Chem. Engineering Plant Design, 8218*c*; Earliest, 8578*b*.
British, 1881*a*.
building chem. factory, 6759*g*.
building materials for, 2041*c*.
capital requirements for, 7605*hi*.
catalysts in, 8074*c*.
ceramic materials in, 8626*i*.
coöperative research in, 7605*h*.
corrosion prevention in, 548*g*.
Czechoslovakian, domestic raw materials in, 4397*g*.
inorg., 4397*f*.
plant construction in, 4397*g*.
diseases in—see *Diseases*.
education for, 2341*e*.
education in, at Brown Univ., 2049*g*.
faculty members in, 1125*a*.
fire-hazard control in, 1189*b*.
fuel economies in org., 3541*g*.
gas stns. in, 7607*d*.
German, collecting information on, 1125*b*.
German, noble metals in, 9295*i*.
in Holland, inorg., 2341*e*.
in Hungary, 8073*bc*.
ice use in, 1882*c*.
in India, 5883*c*.
instruments in, 6469*b*.
International Trade Organization and, 6759*g*.
Japanese plants, 6335*a*.
journals: Revista del centro de químicos industriales, 1882*h*; Revista técnica e industrial, 5516*g*.
lead poisoning in—see *Lead poisoning*.
location of heavy-chem. plants, 5157*h*.
marketing research in, 3117*f*.
mech. engineering in, 8577*a*.
medical service in, 2711*d*.
metallic construction materials for, 2041*b*.
mineral aggregates in, 5132*h*.
NRC Division of Chem. Technology, 0876*b*.
org., evolution of, 2155*e*.
pilot-plant control by infrared absorption analysis, 5132*f*.
pilot plants for, 4522*b*.
corrosion tests in, 9015*g*.
design and construction of, 1613*c*.
statistics and, 8216*i*.
pilot unit equipment, standard designs for, 5645*c*.
plant control by chem. methods, 8944*d*.
plant location, in agricultural process industries, 5131*i*.
detn. of, 5131*h*.
$H_2O$ supply and, 5131*h*.
in Poland, 8072*i*.
foreign turnover of, 2711*c*.
inorg., 2711*c*.
tech planning in, 8073*a*.
profits in, 331*g*.
reviews on, 2341*d*, 8071*i*.
Soviet, 2711*c*, 8073*c*.
Soviet org., 3773*a*.
statistical methods in, 4785*d*, 4901*g*.
sugar cane as source of raw materials for, 8073*c*.
in United States (western), 8577*b*, 9295*e*.
wastes from—see *Wastes*.
**Chemical Industry Medal**, to Rafferty, Jas. A., 2341*d*.
**Chemical kinetics**. See *Kinetics; Reaction kinetics*.
**Chemical laboratories**. See *Laboratories*.
**Chemical literature**. See *Literature*.
**Chemically resistant materials** (See also *Acid-resistant materials; Alkali resistant materials; Refractory materials*; etc.)
plastic materials as, testing of, 7259*g*.
**Chemical plants**. See *Chemical industry*.
**Chemical potential**. See *Affinity*.
**Chemical reactions**. See *Reactions*.
**Chemicals**. (See also *Reagents*.)
agricultural, public health aspects of, 5142*a*.
books: Statistics Directory, 1125*i*; Nederlandse chemische en pharmaceutische producten en hun fabrikanten, 2712*f*; Marketing of Chem. Products, 3119*c*; British, and their Manufacturers, 3119*d*; Dutch, and their Manuf., 5133*h*; "Analar" Standards of Lab., 6072*e*; Guide de la chimie, 6502*c*; Fiziko-Khimicheskie Svoĭstva Zernistykh i Poroshkoobraznykh Khimicheskikh Produktov, 7808*f*; Nuovo repertorio della produzione, 8075*a*; Petroleum, Industry, 8128*i*.
Britain's export trade in, 2711*c*.
in British pharmacopeia (1948), 4428*g*.
clarification of, blood product for, P 4792*e*.
from coal, industry in 1946, 2127*b*.
from coke, Soviet industry for making, 4833*i*.
com. development of, 3117*e*, 3541*e*.
containers for—see *Containers*.
in Czechoslovakia, 4397*e*.
Czechoslovakian exports of, 4397*f*.
development and sale of, 5131*f*.
dispensing apparatus—see *Dispensing apparatus*.
drying of, 3971*f*, 8752*d*.
drying of, with infrared, 2046*f*.
feeding app. for—see *Feeding apparatus*.
filter for, leaving dry residues, P 3249*f*.
fine, manuf. from coal, 9413*b*.
fine, review on, 4788*h*.
fire hazards with, control of, 1189*b*.
from Fischer-Tropsch synthesis of hydrocarbons, 9416*c*.
from fuels (synthetic), 8646*f*.
handling of, guides to, 9297*d*.
heavy inorg., in western U.S., 8577*b*.
manuf. from bagasse, 4852*e*, 9501*f*.
*manuf.* from coal-tar phenols, 3993*g*.
in Pacific Northwest, 8577*c*.
market data on, use of, 3117*g*.
marketing of, in Poland, 8072*i*, 8577*c*.
market research techniques in Canada, 2341*f*.
from natural gas by oxidation, 8643*e*.
from petroleum, 3996*g*, 7215*f*.
economics of plant location and, 5175*h*.
thermochemistry for, 5575*e*, 7215*hi*, 8654*i*.
petroleum as source of, in southwestern U.S.A., 7673*c*.
production and trade statistics on, 1230*f*.
production in U.S., 6336*g*.
recovery from wastes—see *Wastes*.
resistance to, of enameled ware, detn. of, 8115*b*.
resources of Western States, 9295*c*.
review on, 1125*b*.
from synthetic-fuel manuf., 5921*b*.
synthetic org., U.S. production and sales in, 1947, 557*d*.
thallium detn. in, 5334*g*.
in treatment of cellulose in feeding stuffs, 8574*h*.
tumors (vesical) from, 8073*f*.
United States world trade in, 8577*a*.
western, information about, 9295*e*.
**Chemical statics**. See *Equilibrium*.
**Chemical warfare agents**. (See also *Incendiary devices or materials; Lacrimators; Poisons; Respirators; Sternutators; War*; and specific substances as *Sulfide, bis(2-chloroethyl)*.)
book: Biochem. Reactions of, 1882*i*.
coated fabrics impermeable to, P 4489*b*
decontamination of clothing, leathers, etc., P 4022*g*.
decontamination of leather, 1203*i*.
disposal of captured German, 3947*g*
munition filling with, plant for, 1881*g*.
protection against, thioplast films for, P 4507*e*.
smoke—see *Smoke*.
**Chemicide**, in slime control in paper mill, 404*b*.
**Chemigum**. See *Nitrile rubbers*.
**Chemiluminescence**. See *Luminescence*.
**Chemisorption**. (See also *Sorption*.)
of gases by alloys and metals, 7877*a*
of nitrogen dioxide ($N_2O_4$), 6035*a*.
of potassium chloride by rare earth hydroxides, 8241*g*.
**Chemistry**. (See also *Agricultural chemistry; Biochemistry; Electrochemistry, Histochemistry; Inorganic chemistry, Legal chemistry; Literature; Micro chemistry; Organic chemistry; Pharmaceutical chemistry; Physical chemistry, Radiochemistry; Spectrochemistry; Thermochemistry*.)
address on, 8219*g*.
analytical—see *Analysis*.
archeological, 6478*d*.
books: Nozioni di, generale e inorganica, 478*g*, Grundriss der, für Mediziner, 478*h*; Mathematik für Naturwissenschaftler und Chemiker, 478*i*; Lehrbuch der gesamten, 932*a*; Précis de, 932*a*; Hundred Years of, 932*b*, Introduction to, 932*b*, Chem. Ciphering, 932*c*; Ervaring en deductie, 932*d*, Introduction to Chem. Science, 932*d*, Dipole Moments. Their measurement and application to, 932*f*, Fundamental, 932*g*; of Fatty Amines, 1049*c*; Das mathematische Werkzeug des Chemikers, 1254*i*, Corso di, 1255*a*; Expts. in Elementary, 1255*a*, Het nieuwe Chemieboek voor Jongens, 1255*a*; Geschichte der, 1256*a*, in Relation to Fire Risk and Fire Extinction, 1570*b*; Kurs Obshcheĭ Khimii, 2084*a*; Einführung in die, auf einfachster Grundlage, 2084*b*, Order and Chaos in World of Atoms, 2084*b*; Mensch, Scheikunde, Samenleving, 2084*c*; Tabellen mit Logarithmen für Chemiker, 2084*c*; Practische, voor de Opleiding van Analysten, 2126*h*; Fundamentals of College, 2502*b*; De geest der, 2502*d*; Traité élémentaire de, 2856*f*; Handbook of, 2856*g*; General, for Colleges, 3278*f*; General, 3278*g*, 7808*f*; Worked Examples in, 3278*h*; Weltmacht Atom, 3702*a*; for the New Age, 4554*c*, Převrat v chemii, 4554*d*; Biografias y descubrimientos químicos, 4090*c*; Chemische Streifzüge, 4090*d*; Lab. Exercises In General, 4090*e*; Science of, 4090*f*; und chemische Technologie,

4940d; Beknopt overzicht der, 4940e; Compendio de química moderna, 5276g; Russian Science Readings, 5276h; Einführung in die, für Studierende technischer Berufe, 5276i; Textbook of, 5276i; Chimie, 5277a; Kratkii Spravochnik Khimika, 5277a; Handleiding bij de practische oefeningen in de scheikunde, 5278a; Metodika Prepodavaniya Khimii v Semiletnei Shkole, 5278a; Praktikum po Obshchei Khimii, 5278a; and Human Affairs, 5659a; Chimica generale e inorganica, con elementi di chimica organica, 6072c; Kemiallisia laskutehtäviä, 6072d; Bucken, Arndol, Hand- und Jahrbuch der chemischen Physik. Bd. 8. Absch. 1B. Doppelbrechung, 6088h; Cours de, 6500h; Promenade à travers la, 6501a; Bibliotheca Alchemica et, 6501b, des cours complémentaires, 6502a; Energia universale e reazione della materia, 6502a; Anorganische und Allgemeine Chemie in Einzeldarstellungen, 6904e; générale, 6904f; Précis de chimie d'après les théories modernes, 6904f; Taschenbuch für Chemiker, 7318h; Index to, and Related Subjects; 7318i; Allgemeine und anorganische, 7319a; Chemische Unterrichstversuche, 7319a; Manuale del, 7808d; Von der, zur Philosophie, 7808e; Chimica per i medici, 7990i; Chemisches Experimentierbuch, 8256f; Così la chimica diverte, 8842c; Chemia nieorganiczna lacznie z zasadami chemii ogólnej, 8842f.
in Britain, 2827b.
calculations in—see *Calculations*.
constants—see *Constants*.
dictionaries—see *Dictionaries*.
education in—see *Education*.
on European Continent, 2826i.
food—see *Food*.
history of—see *History*.
immuno—see *Immunity; Immunology*.
industrial—see *Chemical industry*.
isotopes as indicators in, 3701g.
journals: y farmacia, 2083c; in Canada, 5276e. Engenharia e química, 5880a; Anales de la dirección general de oficinas químicas nacionales, 6072a; Buletinul de Standardizare, 6072a, Revista de la facultad de química U. N. M. S. M., 7318g; Chemicke Zvesti, 8256b; Revistele Tehnice ACIR, 8256c.
laboratories—see *Laboratories*.
lab expts. in—see *Laboratory experiments*.
lecture expts. in—see *Lecture experiments*.
libraries—see *Libraries*.
light scattering and its applications to, 932i.
medicine and, 1905g.
National Research Council Division of, 6876b.
in nitric acid (abs.), 6495g.
Nobel Prize in—see *Nobel Prize*.
nomenclature—see *Nomenclature*.
nuclear, lab. exercises in, 4909h, 8261a.
in pharmacy curriculum, 2050e.
research—see *Research*.
reviews on, 922f, 1881c, 6015d, 6894c.
specialization and culture in, 1230f.
tomorrow, 4908h.
tribo-, definition for, 1982g.
in U. S. S. R., 7761h.
**Chemists.** (See also *Biographies; Education; Obituaries.*)
analytical, in industry, 5691i.
books: Fifty Years of History of, Club, 3701b; Patent Law for, 4402b; Mémento du, 6501a, 7808a.
experience patterns of industrial research leaders, 8577d.
faculty members in industry, 1125a.
international organization of, 6477i.
organization of research, 3117d.
public and, 9f.
seventeenth-century, of Lorraine, 8759i.
steel history and, 8327g.
world food supply and, 3113g.
**Chemists' Club,** books: Fifty Years of History of, 3701b.
**Chemoreceptors.** See *Receptors*.
**Chemorheology.** See *Flow*.
**Chemotaxis.** (See also *Chemotropism; Phagocytosis.*)
in Fucaceae, 1081h.
**Chemotherapy.** See *Therapeutics*.
**Chemotropism.** (See also *Chemotaxis.*)
of plants, 7553b.
of pollen tubers, 8020e.
**Chenodesoxycholic acid*,** in bear bile, 6298a.
in bile of patients with choledochostomy drainage, 7572d.
**Chenopodium,** *album*—see *Lamb's-quarters*.
*bonus*, histamine in, 3070a.
*murale*, effect of boric and phenylboric acids on growth of seedlings of, 6704a.
effect of phenylboric acid on germination of, 5831h.
*quinoa*, cultivation, uses and nutritional properties of, 1121i.
**Chenopodium oil.** See *Oils*.
**Cheracol,** folic acid addn. to, 355i.
**Cherimoya,** melanin-forming oxidase in, 277i.
**Chernozem.** See *Soils*.
**Cherries.** (See also *Kirschwasser.*)
calcium chlorosis and metabolism in, 730g.
canning of, alc. from fermentation of wastes of, 9358i.
control of *Prunus pensylvanica*, 4414a.
fungus control on, 7177d.
gums from trees, chromatography of sugars in hydrolyzates of, 1290c.
mineral deficiencies in, 2353b.
respiration of, during ripening, 8015a.
size of Montmorency, effect of oil-wax emulsion sprays on, 1461i.
syrup of, folic acid prepn. contg., 355i.
vitamin B changes in, during growth, 8461f.
vitamin $B_1$ in, 6753i.
wines from, in Pacific Northwest, 8606f.
**Cherry casebearer.** See *Coleophora pruniella*.
**Cherry leaf spot,** control of, 6775f, 9329c.
**Cherts,** of California (Santa Maria Dist.), 2903g.
in limestones of Okla., 2136g.
of Missouri (Pearl Pb-Zn deposit), 6950i.
**Chessylite.** See *Azurite*.
**Chest.** See *Thorax*.
**Chestnut oil** See *Oils*.
**Chestnuts.** (See also *Horse chestnut.*)
choline forms in seedlings of, during growth, 8457c.
cotia, oil cake of, 8700f.
ext., condensation products for drilling-fluid degelling and viscosity reduction, P 8662c.
penicillin production by *Penicillium* grown on culture medium prepd. from, 4340e.
starch of *Castanea vesca*, 4036e.
-tanned leather, bound water in, 2799a.
tanning ext. from, 8720c.
astringency and tanning behavior of natural and sweetened, 9500i.
corrosion resistance of alloys and metals to, 9506g.
degree of dispersion and properties of sweetened, 9507b.
fixation of com. and purified, 8183f.
mellowing of, and effect of borax or $Na_2SO_3$ on penetration of, 8183h.
nomograph for nontannins in powd., 4037h.
nontannin in, 8182i.
surface tensions of, 4503g.
tanning with, phase equil. in, 9509e.
tannins of, 1341b.
detection of, 4503i.
equil. with collagen in aq. org. solvents, 4040e.
polarography of buffered solns. of, 4037i.
tannins (sweetened) from, in Italy, 5617d.
vitamin $B_1$ in, 6753i.
vitamin C in, 1454i, 5511b.
**Chetomin,** compn. and functional groups of, 7544b.
——, **desthio-*,** 7544c.
**Chewing gum,** base for edible, P 6004f.
base for, from polystyrene, etc., P 5232i.
flavoring substance for, goldenrod oil as, 2372d.
motion-sickness, P 3982b.
silver-bactericide-contg., P 8107c.
**CH Factor.** See *Growth substances*.
**Chhola.** See *Chick-pea*.
**Chickens.** (See also *Eggs.*)
estrogen effect on, and its persistence in the edible flesh, 8031i.
feeding expts. with—see *Feeding experiments*.
meat—see *Meat*.
pullorum-typoid complex in, 6775d.
**Chickling vetch.** See *Lathyrus sativus*.
**Chick-pea** (*Bengal gram, chhola, Cicer arietinum*), growth-limiting essential amino acids of, 9186g.
Hawaiian, 9292f.
nutritional value of, 4738f.
proteins of, 3537b.
vitamin $B_1$ in, and effect of cooking thereon, 6753g.
**Chickweed.** (See also *Stellaria.*)
maleic hydrazide Cu or Zn deriv. effect on, 6776b.
**Chicory.** (See also *Chondrilla; Crepis.*)
antibacterial and antifungal substances from, 3885c.
fructose-sirup manuf. from rhizome of, 888c.
photosynthesis by, 2281i.
respiratory system of, 729a.
thrips control on, (3,4-methylenedioxyphenyl)propylene compds. for, P 1903d.
vitamin $B_1$ in, 6753h.
vitamin C in, 5511b.
**Chiggers,** control of, 1518e, 8599g.
control of, agents for, 9349b.
repellents and toxicants for, 7181d.
**Childrenite,** unit cell and space group of, 8986a.
**Chili, Chilli.** (See also *Capsicum frutescens.*)
vitamin C in green, in Mexico, and effect of prepn. thereon, 1121g.
**Chili sauce,** vitamin C in, 3538c.
**Chilomonas,** *paramecium*, C and N metabolism of, kinetics and energetics of, 3881i.
*paramecium*, growth in mass cultures, 3881g.
**Chilo simplex** and(or) **Asiatic rice borer.** pyrethrin toxicity to larvae of, 5898d.
**Chimneys,** corrosion by flue gases, 100b.
**Chimonanthus praecox,** pigments in flowers of, 8449f.
**China.** (See also *Porcelain.*)
firing of Dresden, 7655g.
**China asters.** See *Asters*.
**China clay.** See *Kaolin*.
**China grass.** See *Ramie*.
**China wood oil.** See *Tung oil*.
**Chinch bug.** See *Blissus leucopterus*.
**Chinese,** book: Atomic Energy. A glossary and technical terms, 7831a.
**Chinese cabbage.** See *Cabbage*.
**Chinese vegetable tallow.** See *Fats*.
**Chiniofon.** See *Yatren*.
**Chionaspis furfura** and(or) **Scurfy scale,** control of, 5897i.
**Chironomidae.** (See also *Chironomus.*)
larvae, control in concrete reservoirs, 2717d.
**Chironomus thummi,** salivary glands of, intranuclear pH of cells of, 3532c.
**Chitin,** 4857e.
adsorption of DDT and its analogs by, 2254g.
in invertebrates of Black Sea, 6740c.
of *Limulus*, 6746h.
from silkworm pupae, P 8417h.
utilization of, 578d.
**Chitosamine.** See *Glucosamine*.
**Chlamydomonas,** *agametos*, copulation-inhibiting substance of, 5832b.
isolation of rutin, quercetin, isorhamnetin and *trans*-crocetin dimethyl ester from gametes of mutants of, 4728a.
noncopulating cells of, 5831i.
**Chlophen.** See "chloro derivs." under *Biphenyl*.
**Chloracetic acid.** See *Acetic acid, chloro-*.
**Chloral.** (*Owing to the use of chloral in biological literature to designate both trichloroacetaldehyde and its hydrate, both chloral proper and chloral hydrate have been entered here.*)
and acetals, P 5412g.
analgesic properties of, and its combination with dial and $MgSO_4$, 7141e.
anesthetic effect after hepatectomy, 7590i.
bis(*p*-chlorobenzyl) mercaptal, P 6358h.
decompn. by NaOH, kinetics of, 25g.
detn. of, in presence of alkali, chlorate and chloride, 3745b.
effect on functional structure of reflexes, 763h.
on leucocyte motion, 9263d.
on seeds, 4733i.
on uterus, 7141c.
ethylene cyclic acetal—see *1,3-Dioxolane, 2-(trichloromethyl)-*.
folic acid prepn. contg., 356c.
freezing point of, 6065c.
incompatibilities with MgO, diuretin, etc., 817e.
as insecticide, 2359h.

manuf. of, P 2632*a*, P 5412*cf*.
multinucleated unsegmented triton eggs produced by, 5873*f*.
narcotic action of, in relation to action on cholinesterase in blood, 7142*e*.
oxidation and reduction in tissue, 4769*c*.
pharmacology of bromal and, 1862*a*.
prepn. of, 2575*c*.
purification of, P 6650*c*.
reaction products with sulfonamides, P 6359*a*.
reaction product with 5,5-dimethyl-1,3-cyclohexanedione, alk. splitting of, 2964*i*.
reactions of, 6604*i*.
with amines, P 7499*d*.
with anisole, 6187*a*, P 9085*d*.
with aromatic nitriles, 2967*c*.
with biphenyl, 2979*e*.
with halo phenols, 1754*d*.
with morpholine, 1780*c*.
with phenylhydrazines, 1324*c*.
with thiocyanic acid esters and with PhNCS, 4657*f*.
with thiophene and with its derivs., 627*c*.
reduction to $Cl_3CCH_2OH$, 2570*e*.
systems: BuOH–, EtOH–, iso-PrOH–, and MeOH–, mol. wts. in $C_6H_6$, 1252*e*.
trimethylene cyclic acetal—see *m-Dioxane, 2-(trichloromethyl)-*.
waking action of sympathomimetic amines in respect to, 7141*g*.
**Chloralic acid***, *α-* and *β-*, 973*h*.
**Chloralic aldehyde***, *α-* and *β-*, 973*h*.
**Chloralimines**, as insecticides, P 5153*f*.
**Chloralose** (*glucochloralose*), anesthesia by, effect on sphincter of Oddi, 5867*g*.
detection and detn. of *α-* and *β-*, 973*e*.
effect on gastric secretion, 5871*i*.
on gastric secretory response to insulin, 8538*i*.
on temporal summation of epileptogenic stimuli, 3101*b*.
**Chloramide** (*chloramine, $NH_2Cl$*), bactericidal action against anthrax spores, 7999*h*.
base strength of, 8822*a*.
complex $[Pt(NH_3)_4(NH_2Cl)]Cl_2$, 1673*h*.
as convulsant, 3106*c*.
detn. in water, 3545*b*, 7165*e*.
effect on miracidia of *S. histosoma mansoni*, 4333*e*.
formation of, kinetics of, 6896*e*.
**Chloramine.** See *Chloramide*.
**Chloramine-B**, blackening of Cu and Cu alloys with, P 7404*f*.
as germicide, 1573*b*.
polymers with $C_2H_4$, P 6001*a*.
reaction with thio ethers, 172*d*.
**Chloramines.** (See also *Chloramide; Chloramine B; Chloramine-T;* and "chloro-" under *Amines*.)
for food-utensil sanitation, evaluating, 323*e*.
in water purification—see *Water, purification of*.
**Chloramine-T** (*chloramine, chlorasene, gansil, mianine, tochlorine, tolamine*), bacteriostatic action of, in emulsion, 3561*i*.
in bleaching cotton, 3622*b*.
disinfectant action of, 4811*e*.
poisoning by, formation of cyanogen compds. from amino acids in, 5114*h*.
polymers with $C_2H_4$, P 6001*a*.
reaction with thioethers, 172*d*.
**Chloramphenicol.** See "D-*threo*-" under *Acetamide, α,α-dichloro-N-[β-hydroxy-α-(hydroxymethyl)-p-nitrophenethyl]-*.
**Chloranil**, in cereal-seed disinfection, 7180*b*.
in cottonseed disinfection, 803*f*.
in cowpea-bacterial-canker control, 6775*e*.
detection on seeds, 803*a*.
dioxazine dye from 1-methyl-2,3-diphenylindole amino deriv. and, P 5965*d*.
in downy-mildew control on Lima beans, 3959*i*.
dust of, sepn. into particles of uniform size, 2357*b*.
effect on polymerization of allyl and methacrylate compds., 8199*h*.
effect on respiration of germinating seeds, 802*f*.
in ergot control, 3959*g*.
formation of, during chlorination of sulfosalicylic acid, 2972*f*.
as fungicide, 7178*a*.
in gladiolus-storage-rot control, 3961*g*.
in pine-root-disease control, 7179*f*.
as polymerization inhibitor and initiator in isoprene, 5621*e*.
as polymerization retarder in butadiene-vinylidene compd. mixts., P 2806*a*.
reaction (photochem.) with Et orthoformate, 6515*e*.
in smut control on sorghum, 2355*f*.
soybean-seed disinfection with, effect on nodulation, 3133*a*.
spectrum of, 5665*g*.
**Chlorantine Light dyes.** See *Dyes*.
**Chlorantinlichtbraun BRLL**, in analysis of textile auxiliary agents, 1585*b*.
**Chloraquine.** See *Quinoline, 7-chloro-4-(4-diethylamino-1-methylbutylamino)-*.
**Chlorates**, candles from, for O generation, P 5886*c*.
chlorine dioxide exchange with, 8821*a*.
chlorite detn. in, 8966*i*.
detn. of, in presence of alkali, chloral and chlorides, 3745*b*.
effect on acid production, growth and proteolytic properties of lactic acid bacteria, 4340*i*.
elec. conductivity of, 1630*d*.
manuf. of Cl and $ClO_2$ from, P 6377*f*.
oxidation of, on thermobalance, 7307*g*.
poisoning by, 5864*b*.
poisoning by, relation to chlorite poisoning, 5115*f*.
reaction with bromides, kinetics of, 1248*e*.
reaction with $SO_2$, P 3159*h*.
in weed control—see *Weed control*.
**Chlorauric acid.** See *Chloroauric acid*.
**Chlorazene.** See *Chloramine-T*.
**Chlorazol Fast Pink**, antagonism of curare by, 3102*h*.
**Chlorazol Sky Blue FF.** See *Dyes*.
**Chlorbutanol.** See *Chloretone*.
**Chlorbutol.** See *Chloretone*.
**Chlordan** (*1,2,4,5,6,7,8,8-octachloro-2,3,-3a,4,7,7a-hexahydro-4,7-methanoindene*), P 5796*i*.
in acarid control in orchards, 1523*b*.
in alfalfa-insect control, 1521*e*.
in alfalfa-snout-beetle control, 8599*d*.
in ant control, 9330*d*.
in aphid control on celery, 346*e*.
in black-fly control, effect on fish, 9352*h*.
in black-fly-larva control in Alaskan streams, 6354*c*.
in cabbage-caterpillar control, 3137*a*.
in cabbage-maggot control, 3136*i*.
carbon dioxide-propelled, toxicity of residues from, 6353*h*.
in cattle-grub control, 1520*e*.
in chinch-bug control in lawns, 5896*i*.
chlorinated, effect on livestock, 1520*a*.
in citrus-blackfly control, 3555*h*.
in clover-root-borer control, 8599*d*.
in cockroach (German-) control, 1519*h*.
in coleopterous larva control on peanuts, 1897*d*.
in Colorado-potato-beetle control, 5897*e*.
in confused-flour-beetle control, 2361*d*.
in control of cockroaches, flies and mosquitoes, 1518*h*.
of corn earworm and fall armyworm in corn, 3136*c*.
of DDT-resistant flies, 3965*e*, 6355*e*
of fall armyworm and green June beetle, 1899*a*.
of house and stable fly, 5895*g*.
of Japanese and oriental beetles in turf, 9345*i*.
in corn-flea-beetle control, 4416*i*.
in cotton-insect control, 1142*i*, 3137*b*.
detection in oil sprays, 347*f*.
effect on bacteria and yeast, 3885*f*.
on flies, 3965*e*, 6355*e*.
on kalanchoe, 1898*b*.
on soil microörganisms, 1896*i*.
on wildlife, 1524*a*.
emulsions of, toxicity of, 1899*g*.
in European-corn-borer control, 6354*e*.
in fall-armyworm control on corn, 3136*i*.
in fire-ant control, 1897*e*.
in fly control, 7629*f*.
in fly control and its toxicity to man, 8601*e*.
in grasshopper control, 3135*i*, 3136*b*, 4806*c*, 6353*f*, 7185*ef*.
in harlequin-bug control, 1897*c*.
in horn-fly control, 3135*g*, 5895*h*, 9342*e*.
in horn-fly control, effect on milk, 6355*g*.
in horse-louse control, 1520*c*.
as insecticide, 1139*g*, 6353*c*, 6775*c*.
for alfalfa and clover, 346*b*.
residual toxicity of, 5146*i*.
in Japanese-beetle control, 2730*b*.
in Japanese-weevil control, 7628*e*.
in leaf-miner control on asters, 1522*g*.
in lepidopterous-larva control, 2726*e*.
mixt. with ethylene dibromide in control of Japanese beetle on plant balls, 2361*i*.
in mosquito control, 808*f*, 2360*e*, 9345*f*.
in onion-thrips control, 1143*e*, 5897*a*.
in orange-tortrix control on berries, 5148*i*.
in peach-borer control, 8088*e*.
in peach-cat-facing control, 8088*d*.
in peach-insect control, 4417*a*.
in peach-scab control, 2356*f*.
in periodical-cicada control, 1899*c*, 7629*i*.
in plum-curculio control, 1143*g*, 3139*h*, 6777*c*.
in plum-curculio control on peaches, 5527*c*, 9348*g*.
in potato-flea-beetle control, 8599*f*.
in red-banded-leaf-roller control on apples, 7628*c*.
in red-harvester-ant control, 7627*f*.
reviews on, 9353*ah*.
in root-knot control, 809*c*.
in seed-corn maggot control on beans, 5896*h*.
in sheep-tick control, 8599*a*.
soil treated with, effect on palatability of potatoes, 7157*d*.
in southern-corn-rootworm control in peanuts, 7183*a*.
in sweet-clover-weevil control, 8599*c*.
in sweet-potato-weevil control, 7183*c*.
in termite control, 6356*g*, 7628*d*.
in tobacco-flea-beetle control, 5895*d*
in tobacco-stalk-borer control, 5147*f*.
toxicity to citrus mite and greenhouse thrips, 3138*c*.
to flies resistant to DDT, etc., 8600*e*
to honeybees, 9349*h*.
to man, 8600*f*.
toxicology of, 2705*e*, 4411*h*, 7627*h*.
in turf-insect control, 9346*g*
in two-spotted spider-mite control, 1522*i*
in velvetbean-caterpillar control, 1521*i*
in wireworm control in soils, 9346*e*
**Chlorella**, aging effects in, 5005*d*
amino acids in, 8456*i*.
chlorophyll in, Mg protoporphyrin as precursor in, 2282*a*.
compn. of, effect of environmental conditions on, 2289*e*.
photosynthesis in, intermediates in, 6287*e*.
photosynthesis in, quantum yield of, 8011*c*.
*pyrenoidosa* and *vulgaris*, gaseous losses of N from, 282*e*.
*pyrenoidosa*, carbon and N balance of, 2289*b*.
fatty acids of, 2679*c*.
light effect on respiration of, 9169*a*
metabolic conditions in, 2285*e*
metabolism of, effect of starvation on, 4734*a*.
nitrate reduction and assimilation in, 2285*c*.
phosphate metabolism in, 4727*d*
P metabolism in, in relation to photosynthesis, 1829*c*.
spectrum of, and role of carotenoids in photosynthesis by, 2281*d*.
*vulgaris*, carbohydrate formation by, 6361*g*.
glycine utilization by, 3494*a*
surface tension and chlorellin accumulation in, 1465*h*.
**Chlorellin**, accumulation in *Chlorella vulgaris*, surface tension and, 1465*h*
**Chloremia**, after frontal-lobe lesions, 3925*b*
**Chlor-ethamine.** See "dihydrochloride" under *Ethylenediamine*.
**Chloretone** (*1,1,1-trichloro-2-methyl-2-propanol*), effect on adhesion of epithelium to stroma in cornea, 7695*b*.
heart respiration and failure after treatment with, 1862*ef*.
in identification of procaine solns. in operating room, 3563*c*.
manuf. of, P 3836*b*
narcotic action of, in relation to action on cholinesterase in blood, 7142*e*.
soln. of, 3971*h*.
vanillate, 4242*a*, 7455*g*.
**Chlorex.** See *Ether, bis(2-chloroethyl)-*
**Chlorguanide.** See *Paludrine*.
**Chloride of lime.** See *Bleaching powder*.
**Chlorides.** (See also *Alkali metal chlorides; Alkaline earth chlorides; Alkyl chlorides; Chlorine, analysis; Chlorine compounds; Halides; Sulfonyl chlorides*.)
acid, acylation with, 7000*i*.
*O*-alkyloximes of *α*-oxo, P 5422*c*.
app. for prepn. of org., 5740*h*.
of aryl derivs. of aliphatic acids, ring closure of, 4659*i*.
compds. with amines and with pyridine, diacylation of $H_2O$ and of $H_2S$ with, 8353*a*.

*acid*, of β-halo acids, P 3444*e*.
manuf. of, from sapond. oils, P 2223*g*.
of phosphonic and thiophosphonic acids, P 7499*e*.
polymerized, reaction products with chlorinated paraffins and naphthalene, for lubricant improvement, P 5585*e*.
quaternary compds. from amines, aliphatic nitriles, $CH_2O$ and, as softening agents, P 2786*a*.
reaction of org., with Mg and $MgI_2$, 5388*i*.
reactions with aromatic compds. in the presence of $HgCl_2$, 1836.
reaction with alcs. and $H_2O$, rates of, 6057*d*.
reaction with biguanide, P 1814*c*.
reaction with $CH_2N_2$ in presence of tertiary amines, 5761*g*.
reaction with diazo paraffins, 1743*g*.
reaction with fatty acid nitriles, paraformaldehyde and tertiary amines, water repellent by, P 3628*f*.
reaction with $PhAsCl_2$ and with $Ph_2AsCl$ in the presence of $AlCl_3$, 6178*b*.
reaction with triethylphenylsilane in presence of $AlCl_3$, 2177*i*.
reduction of, by $NaBH_4$, 2570*d*.
reduction to aldehydes, review on, 2155*i*.
solvolysis in abs. $HNO_3$, 6495*h*.
adsorption of ions of, on $Al_2O_3$ chromatographic columns, 8271*d*.
anil addn. products with metallic, 4227*h*.
in aqueous humor, 5485*f*.
balance of premature infants on diet of evaporated milk, 5100*i*
binding by lactoglobulin and serum albumin, electrophoretic study of, 3860*i*.
in blood—see also *Chloremia*; *Hypochloremia*.
in blood after renal resection, 3086*f*.
in blood and urine after corticotropin, 7567*h*.
in blood, blood sugar and, 1114*b*.
in blood corpuscles and blood plasma, ratio of, 5470*f*, 5484*h*.
in blood plasma and urine in liver disease, 5855*e*.
in blood serum, cerebrospinal fluid and fluids of serous cavities, 9199*i*
bonding strengths of, in Co ammines, 2856*b*.
bond lengths in, 1910*e*.
in brain tissues, 1099*c*.
as catalysts for condensation of 2-furaldehyde with phenol, 5224*i*.
as catalysts in soln. of Cu, 6496*f*
catalysts of $ZnCl_2$ and metal, in isomerization of butene, P 2216*e*.
in cerebrospinal fluid after injection of nicotinic acid, 2296*h*.
chlorine dioxide exchange with, 8821*a*.
condensation of fatty acid, with peptides and analysis of products, 3217*f*.
corrosion in solns. contg., prevention of, P 5359*d*.
corrosion of metals by, P 992*b*.
in cotton, N source effect on, 8017*i*.
crystallochem. electronegativity of, 8231*b*.
dechlorination of org., 2194*d*.
decompn. potentials in molten $AlCl_3$–NaCl, 8915*d*.
dehydration of hydrates of, with carbonyl chloride or thionyl chloride, 2533*b*.
detn. of, 2892*c*, 4599*a*, 5337*i*.
in bakery products and bread, 4392*d*.
in blood, 5819*d*.
in blood corpuscles and plasma, collection of blood for, 8427*a*.
in dil. solns., 5337*k*.
for manuf. control in fish industry, 5878*b*.
in meat products, effect of heating on, 1876*b*.
in milk, 7597*f*.
org. liquids in argentometric, 8947*f*.
in petroleums, 2758*c*, 5175*e*.
in presence of alkali, chloral and chlorate, 3745*b*.
in presence of chlorate, chlorite and hypochlorite, 3316*c*.
in solns. contg. salts of molybdic and tungstic acids, 5338*c*.
titration with $Hg(NO_3)_2$ with Na nitroprusside as indicator in, 6942*e*.
in water, 1886*a*, 5889*e*.
detn. of, alone and in mixts. with iodides, 8967*c*.
dialkylaminoalkyl, liberation of, from their hydrochlorides, 6976*g*.
dicarboxylic acid, reaction with sulfanilamides, 2597*ei*.
effect on anodic oxidation, 4149*d*.
on catalase, 2566.
on eggs of *Limnaea stagnalis*, 5507*d*.
on electrokinetic potentials of sulfates, 4924*e*.
on gelling and viscosity of solns. of gelatin, 4540*f*.
on glass melting, 3577*f*.
on ionization of AcOH and MeOH, 6053*c*.
on isoelec. and isoionic points of serum albumins, 3690*b*.
on passivity of stainless steel, 6139*f*.
on photolysis of peroxydisulfate, 4144*i*.
on polymerization of $C_2H_4$ to lubricants, 384*e*.
on protoplasts, 5091*c*
on setting time of Ca tartrate gels, 6889*b*.
on spectra of $CuCl_2$ solns., 3278*b*.
on suspensions of clays, 4538*e*.
elec. cond. in various solvents, 7301*f*.
electrode potentials in fused, 8898*h*.
exchange across fiber membrane of frog sartorius, 3940*e*.
exchange on Amberlite IRA-400, 6489*f*.
excretion by hens, 2291*b*.
as fertilizers for sugar beets, 5142*i*, 6350*i*.
in food material as it moves along alimentary tract of hen, 2291*c*.
formation from oxides and $SOCl_2$, 2885*i*.
in goldfish, physiol. adjustments in, 1116*f*.
heat of hydration of, 7318*c*.
heat of transport of, 8835*d*
hemolytic activity of, 5839*c*
hydration of, 8244*b*.
activity and, 7302*a*.
electroösmosis and, 22*a*.
hydrolysis and ethanolysis of allylic, 2849*d*.
in irrigation water, and their detn., 3951*d*.
lattice energies of, 8230*g*.
magnetic susceptibility of, 7278*b*.
manuf. of anhyd., app. for, P 826*b*, P 4820*d*.
methane effect on, 5734*e*.
mixts. with nitrates, nitrate detn. in, 7374*a*.
in nutrition of beets, 1133*b*.
in patellar cartilage and intervertebral disks during degeneration, 9237*i*.
in pecan leaves, effect of fertilizer on, 2287*e*.
pentosan extn. by solns. of, 628*h*.
in perspiration, 8481*h*.
in petroleum bearing strata and waters, 1951*f*.
platinum-anode polarization by solns of, 2100*eg*, 3727*i*.
purification of volatile, P 6374*e*.
radioactive, in detn. of its transcapillary exchange, 8512*i*.
reaction with Fe, effect of carbonates, chromates and nitrites on, 9005*a*
removal from acetates and fluoroacetates, 4976*e*.
removal from $TiCl_4$, P 7652*e*.
removal of, and oxychlorides, from ad sorbents, P 5887*f*.
renal clearance of, urine formation and, 1490*c*.
retention by hen, effect of dietary level of Ca on, 2291*e*.
in saline soils, 7619*a*.
sodium-H exchange on carbonaceous ex changers in contact with, 2848*b*.
in soils, movement of, 1509*d*.
in soils of India, 9311*c*.
as soot removers, 3117*i*.
in sorghum during growth, and its relation to chinch bug injury, 4346*e*.
in tobacco, 9328*h*.
tonicity-vol. relations for systems contg. red cells and, 3087*b*.
transference nos. of, moving through colloidal membranes, 7290*g*.
urinary clearance in rabbits, 4764*b*.
in urine, Arakawa reaction of milk and, 5844*a*.
in anoxia, 1072*c*.
of castrated rats during recovery from fasting, effect of testosterone propionate on, 3090*d*.
of desert mammals, 298*i*.
in detection and treatment of dehydration with salt depletion, 1473*a*.
effect of yakriton on, 5843*i*.
in Recklinghausen disease, 8523*g*.
in schizophrenia, effect of insulin-shock therapy on, 2312*h*.
*in urine*, after surgical operations, 5487*c*.
**Chloridization**. See *Chlorination*.
**Chlorimid***, bactericidal action of, 7999*h*.
**Chlorimide** (*dichloramine*, $NHCl_2$), as convulsant, 3106*c*.
**Chlorination**. (See also *Chlorinolysis*; *Halogenation*; *Heat of Chlorination*; and "reaction" under *Chlorine*.)
of acetaldehyde, P 3027*h*.
of acetaldehyde and its homologs, 2575*b*.
of α-acetylbutyrolactone, P 6225*e*.
of acrylonitrile, 2574*d*.
of acrylonitrile alkyl derivs., P 7498*g*.
of aliphatic carboxylic acids, P 6650*g*.
of aliphatic compds., effect of substituents on, 4627*h*.
of alkyd resin, P 2031*c*.
in alkyl benzene sepn. from its mixts. with paraffins and naphthenes, P 3844*f*.
of allyl alc. and its esters, 1321*f*.
of amines, 6570*d*.
of anthraquinone derivs. and of indanthrene, 3399*e*.
app. for, P 6012*ab*.
of aromatic aldehydes, 9049*h*.
of aromatic compds., P 5900*d*.
of aromatic hydrocarbons, P 1437*b*.
of benzal chloride, kinetics of, 1246*h*.
of benzene, P 1436*g*, P 4295*gh*, P 5040*h*, P 5799*a*.
of benzene and derivs., P 7041*f*.
of benzene and toluene, 9413*c*.
of benzene, app. for, P 6658*c*.
of bis(2-chlorovinyl)mercury isomers, 560*d*
of bis(perfluoroalkyl) benzene derivs, 6173*e*
of butane, 5362*a*.
of *tert*-butylbenzene, 3377*i*.
of carbon, effect of activation on, 5572*d*.
of 1-chlorobutane, P 5048*a*.
of 1-chloro-1,1-difluoroethane and 1,1-difluoroethane, P 3023*i*.
of (1-chloroethyl)benzene, P 680*f*.
of chloroethylene in presence of Fe, P 7035*f*.
of δ-chlorovaleric acid, 6615*c*.
of cresols, P 7045*b*.
of cyclohexane, P 8090*e*.
of cyclohexanone, 2176*b*.
of cyclopentane and pentanes, 5370*i*.
of *p*-cymene, 3799*f*, P 5041*a*.
of dicarboxylic acids in α-position, 1325*c*.
of 1,2-dichlorobutane, 6567*i*.
of 1,4-dichloro-2-ethylbenzene, P 688*b*.
of 1,4-dichloro-2-ethylbenzene and PhEt, P 2636*h*
of 3,4-dichlorotetrahydrothiophene 1,1-dioxide (attempted), 5775*g*.
of 1,1-difluoroethane, P 5789*i*.
of 2,5-dihydrofuran, P 5425*a*.
of 1,5-dihydroxynaphthalene derivs., 200*c*.
of 2,6-dimethyl-3(2*H*)-pyridazone, 3006*e*.
of diphenylacetylene, 1755*e*.
disinfection by—see *Disinfection*.
of ethane, P 2217*h*.
of ethers (unsatd.), P 4083*a*.
of ethyl alcohol, P 5412*eg*.
of ethylene, P 1433*e*.
of ethyl ether, 2159*b*.
in fluidized beds, heat removal in, P 6478*c*.
of foots oil, P 5185*b*.
of furan, P 3041*c*.
furnaces for, 2475*h*.
of gas oil (Fischer) in synthesis of lubricants, 1952*i*.
of hexamethyldisiloxane, 563*d*.
of hydrocarbons, 5361*b*, P 7950*h*.
of 1-hydroxy-2-acetonaphthone and 3-hydroxy-2-naphthoic acid, 7010*e*.
of α-2-hydroxyethylacetoacetic acid γ-lactone, P 2224*d*.
of isophthaloyl and terephthaloyl chlorides, 609*e*.
of lignin, 5630*b*.
of magnesia, P 826*c*.
of methane, 2155*i*, 6154*a*.
of methane with melts contg. Cu chlorides, 1714*df*.
of methylcyclopentane, 2171*e*.
of methylcyclopentenes, 2172*c*.
of methyl silanes, P 3441*e*.
of methyl sulfide, bis(dichloromethyl) sulfide and $Cl_3CSCl$, 4629*a*.
of 1,4-naphthoquinone, 1371*i*.
of olefins, mechanism of, 1714*i*, 6149*g*.
of org. liquids, P 5409*f*.
of paper pulp—see *Paper pulp*.
of paraffins with $HgCl_2$ vapor, P 2217*f*.
of paraffin waxes, 3644*e*.

of paraffin wax, textile lubricants by, P 855*i*.
of pentachloroethylbenzene, 3377*f*.
of pentane and toluene, app. for, P 3726*e*.
of phenol, P 7045*b*.
of phenols with *N*-chloroacetanilide 6992*i*.
of phenoxyacetic acid, P 7509*i*.
of phenoxy fatty acids, P 2233*i*.
photochem., of acetylene in ultraviolet light, P 2870*f*.
of benzene to benzenehexachloride, P 5798*a*, 8601*e*.
of 1,2-cyclopentanedione, 6987*d*.
of gaseous hydrocarbons, app. for, P 2518*b*.
of hydrocarbons, P 6644*e*, P 7497*a*.
of methyl chloroformate in $CCl_4$ soln., 8896*d*.
of methyl silanes and siloxanes, P 3441*d*.
of propane, 5361*e*.
of propane or propene, P 6644*b*.
of phthalic anhydride, P 3463*hi*.
of polymers, P 1608*c*.
of polythene, P 2039*b*.
of polyvinyl chloride, P 8397*d*.
of 1,3-propanediol diacetate, 5367*g*.
of pyrazine, P 5809*g*.
of 8-quinolinol, 7484*i*.
of 3-retenol, 2985*d*.
of rubber—see *Rubber*.
of selenides, 2159*f*.
of sewage—see *Sewage*.
of soybean oil and Me esters of soybean fatty acids with *tert*-butyl hypochlorite, 5204*f*.
of soybean oil polymers in rubber synthesis, 1596*h*.
of starch, P 428*c*.
of sulfamic acid, 55*g*.
of sulfides, 7409*d*.
of swimming pools—see *Swimming pools*.
temp. effect on, of aromatic compds., 7471*d*.
of 1,1,1,2-tetrachloropropane, P 8397*c*.
of tetraphenylethylene, 7005*i*.
of thiophene, 624*d*.
of 2-thiophenecarboxylic acid, 5775*d*.
of toluene, mechanism of, 4644*d*.
of trichloromethylsilane, 563*b*.
of $\alpha,\alpha,\alpha$-trifluorotoluene, P 4693*f*.
of *s*-trithiane, 6070*e*.
of unsatd. ketones and quinones, 1633*a*.
of vinyl ether polymers, P 5585*b*.
water treatment by—see *Water, purification of*.
of wool, 7233*e*, 7691*i*.
effect on flotability from Vinyon, 6421*c*.
effect on scales and anti-scale and with-scale friction, 4858*a*.
shrinkproofing by, 9457*c*.
of xylenes in the Me groups, P 681*g*.

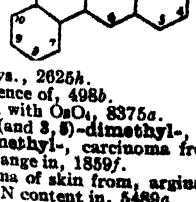
**Chlorine.** (See also *Chlorides; Chlorination; Dissnfection; Halogens.*)
absorbent for, P 8578*c*.
absorption of, rate of, 23*i*.
accumulation by thyroid, 5471*f*.
adsorption by active C, 5572*abd*.
by Cr powder and steels, 6139*g*.
by Hg electrode, 2523*a*.
in air, max. allowable concn. of, 4401*b*.
alumina purification with, 1922*i*, 1923*ac*.
aqueous humor-plasma ratios in rabbits, dogs and human beings, 2665*a*.
atom, effect on chlorination of aliphatic compds., 4627*i*.
effect on halochromism of quinoline derivs., 8391*e*.
effect on stability of arylazochloroacetic acids, 4259*c*.
phys. consts. of, 2590*h*.
and atomic Cl, partition functions of, 8838*h*.
balance in intoxication by N mustards, 3112*c*.
bleaching—see *Bleaching; Bleaching agents*.
in blood—see also *Chloremia; Hypochloremia*.
in blood and tissue during breathing of air rich in $CO_2$, 8542*a*.
in blood and urine after loading, 1858*i*.
in blood in benzene poisoning and effect of adrenaline thereon, 2316*e*.
in blood in eczema and erythrodermias, 4364*d*.
in blood plasma in brain in extracellular electrolyte depletion and its relation to electroshock seizure threshold, 5849*b*.
in blood plasma of fresh water and terrestrial invertebrates, 4388*e*.
in blood serum in typhus fever, 2304*c*.
bonds of, with Sb, As, C or P, elec. moments of, 5241*a*.
with B and Si, 8231*g*.
with C, force const. of, 2478*i*.
with C, free energy of, 3276*i*.
with C, Ge and Si, in $CH_3Cl$, $GeH_3Cl$ and $SiH_3Cl$, 8275*f*.
with Cl, energy of, 8763*b*.
molar sound-velocity increments of, 6025*b*.
with Pt, magnetic susceptibility of, 7278*b*.
cell with NaCl and Na amalgam, 8907*f*.
combustion of, in gaseous mixts., 7663*d*.
covalent and packing radii of, relation between, 10*a*.
decompn. of aq. solns. of, by light, 6515*g*.
diet free of, 1471*i*.
disinfectants contg.—see *Disinfectants*.
dissocn. of, 1630*e*
effect on Joshi effect in Br, 7322*i*.
on plants, 6284*h*.
on poliomyelitis virus, 9305*i*.
on velocity of dehydrochlorination of chlorinated hydrocarbons, 7407*g*.
on wool, 1572*b*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*
exchange with $ClO_2$, 8821*a*.
explosion of liquid, during reaction with synthetic rubbers, 405*h*.
formation of active, solid mixts. for, P 8110*cd*.
in gastric diseases, 5853*i*.
in grasses, and herbs of hay plots, 1347*i*.
gyromagnetic ratio of, 8865*b*.
hazards (industrial) of, 3947*i*
in hydrogen removal from Mg, 5356*b*
in inhibition of oxidation of CO, 3592*i*
as inhibitor of C combustion, 9417*b*
ions (neg. gaseous) of, in CsCl and RbCl vapors, 8868*f*
of, chr ratio of, 8848*a*
isotope of mass 36, $\beta$-rays from, 8870*b*
half-life of, 8870*c*.
max. positron to-negatron ratio in decay of, 4118*f*.
quadrupole moment and spin of, 8870*b*
spin and $\beta$ rays from, 8870*d*
isotope of mass 37, neutron capture cross section of, 6506*a*
isotope of mass 38, "cross over transitions" for $\gamma$-rays in, 1119*b*.
data on forbidden $\beta$ decay of, 8860*a*
decay to A $^{38}$, recoil energy in, 7810*d*.
mass value of, 8869*f*.
isotope of mass 39, radioactivity of, 8869*h*
Joshi effect in, 4101*h*, 8280*a*.
under full-ozonizer and semiozonizer excitation, 7323*a*.
under high pressure, 1641*e*.
kinetics of development of, 2085*e*.
spectral sensitivity of, 4555*g*
labilization of trans group in complex by, 2854*g*.
in lactones of *o*-hydroxy diphenylacetic acids, effect on hydrolysis rate with NaOH, 2496*c*.
in lemon-post-harvest-decay control, 3134*b*
liquefaction of, 1536*b*.
liquid, gas removal from, 8622*g*.
liquid, impenetrability radius of, 8794*e*.
lyoparachor of, 2834*d*
magnetic moment and gyromagnetic ratio of, 5303*f*.
manuf. of, 2378*f*, P 4588*g*, P 8918*g*.
cell for, 2097*g*, P 4588*bh*, P 6926*d*, P 8289*d*.
from chlorates, P 6377*f*.
corrosion of brine-carrying app. in, 2743*h*.
diaphragms for cells for, P 8290*d*.
electrolyzer for, P 2880*g*, P 3300*e*.
from fused NaCl, P 50*i*.
from HCl, P 1160*f*, P 4964*h*.
from $FeCl_2$ liquors, P 7358*b*.
from sea water, P 6926*b*, P 7840*b*, P 8110*b*.
from NaCl from sea water, P 5317*g*.
in Southwest, 368*g*.
in western U.S., 8577*b*.
manuf., production and uses of, 1158*i*.
metabolism of, effect of adrenocorticotropic hormone on, 8040*i*.
mixt. with $(NH_4)_2S_2O_8$, $Bz_2O_2$ and $KBrO_3$ in flour, effect on dogs, 2707*g*.
mixt. with NaClO, effect on holocellulose yield from beechwood, 6407*a*.
in muscles and skeletal tissue in degeneration of cartilage and bound to casein and tissue proteins, 9288*a*.
neutron absorption by, 8854*i*.
neutron binding energy of, and energy of $\gamma$-rays emitted on neutron capture by, 8861*b*.
neutron-bombarded, $S^{35}$ from, 8266*b*.
neutron cross section of, 3282*h*, 6909*d*.
oxidation of, by $KBrO_3$, effect of concn., temp. and time on, 6942*i*.
oxy ions of, bond lengths in, 4910*f*.
in oyster muscle, 3939*g*.
in paper-pulp manuf.—see *Paper pulp*.
poisoning of potatoes by, diagnosis of, 2675*f*.
proton resonance energy of, 4115*c*.
purification of, P 4822*f*.
radioactive, petroleum-well-bore logging by, P 3603*h*.
radius of bonded atoms of, 3252*c*.
in rain, snow, etc., 6876*c*.
reaction of O and, with $CCl_2$:$CCl_2$ in presence of $Bz_2O_2$, P 7954*d*.
reaction of $SO_2$ and, with alkyl halides, 6569*d*.
with hydrocarbon oils, app. for effecting, P 3726*e*.
with satd. aliphatic hydrocarbons, P 5033*c*.
with $Na_2SO_4$, P 9396*f*.
reaction with acetylenic glycols, 130*a*.
with aromatic sulfides, 2599*g*.
with $HCO_2H$, kinetics of, 2495*i*.
with $H_2S$, 7709*a*.
with $H_2S$, periodic pts. from, 7788*g*
with H, surface in, 474*b*.
with Hg vapor, 6054*a*
with metals, app. for, P 4820*d*.
with oximes, 6569*b*.
with primary, secondary and tertiary H atoms in hydrocarbons, rates of, 5270*c*.
with wood waste, P 3618*b*.
removal from chlorinated compds. by enzymes, 1815*i*.
from 1 chlorocyclohexyl cyclohexyl ketone, 5010*h*.
from 1,2-dichloro-2,2-difluoroethane, 2465*c*.
from org. chloride with Fe powder, 2194*d*.
removal from chlorodinitrobenzene and reduction of its nitro groups, P 4691*f*
renal excretion of, effect of intravenous Ca salts on, 8557*f*.
replacement in $C_6Cl_6$ by OH, $NH_2$ and $CH_3$ groups, 7803*h*.
-resistant app., P 6387*b*.
resorption by kidney in hypochloruria in kidney disturbances of pregnancy, 8517*c*.
in rhubarb varieties, 9383*h*.
in rocks of Aulanko area, Finland, 3323*i*
in saliva, 4356*h*.
in sediments and sea water, 5350*e*.
sepn. from $SO_2$, P 4822*h*.
in sewage purification—see *Sewage*.
in star $\gamma$ Pegasi, 2509*f*, 5301*e*.
substitution in inorg. compds., 2495*k*
system Cl-$Cl_2$-Br-$Br_2$-BrCl, 5265*g*
thermochor of, 8220*e*.
thermodynamic properties of, 2057*d*.
transport through frog skin, 4715*a*.
treatment of fruits and vegetables with, prior to nonrefrigerated storage, 9288*g*.
in urine, in cardiac decompensation, 4758*c*.
in eczemas and erythrodermias, 4364*e*.
effect of hypo- and hypertensors on, 8052*a*.
effect of mercurial diuretics on, 3519*g*
in vegetables, 3537*e*, 8572*d*.
water free from demand for, prepn. of, 333*f*.
in water purification—see *Water, purification of*.
x-ray absorption in, 4132*e*.
in zinc sulfide blue-fluorescent phosphors, 3294*h*.
zinc sulfide phosphor contg., 8278*g*
zinc sulfide phosphor contg., fluorescence of, 8279*a*.

**Chlorine, analysis.** (See also *Chlorides.*)
chromatographic sepn. from Br, I and CNS on paper and detection, 8972*h*
detection of active Cl, 5700*f*.
detn., 3316*d*, 6539*g*, 8059*f*.
and filtered sea water for standardizing $AgNO_3$ soln. therefor, 4975*b*.
steeloscope in, 4179*g*.
detn. in acriflavine and its hydrochloride, 9369*h*.

*detn.* in air, 4798*i*, 7373*b*.
in air, autometer for, P 3249*h*.
in antifermentatives and insecticides, 4179*e*.
in biol. solns., 8419*d*.
in bleach liquors, 401*f*.
in chromated $ZnCl_2$ solns., 2731*b*.
in DDT insecticides, 9331*c*.
in drugs, 7640*b*.
in electroplating baths, 961*g*.
in halogenated fluoresceins, 8959*f*.
in 1,6-hexanediamine-HCl, 6947*i*.
in insecticides, 9331*b*.
in mixts. with Br and I, 7369*c*, 8972*f*.
in mixts. with HCl and $SO_2$, 8970*c*.
in org. compds., 522*a*, 8959*g*.
in petroleum products, burner for, 6474*d*.
in plant tissue, 2677*h*.
in polymers, 1684*f*.
in presence of Br and I, 6942*g*, 6943*a*.
in presence of $SO_2$, 6942*e*.
in soils, 7617*a*.
in textiles, 5956*f*.
in water, 1885*i*, 2716*e*, 3545*b*, 7613*e*, 9308*h*.
in water for irrigation, 3951*d*.
detn. of free or residual Cl in water, P 450*f*, 3952*eh*, 5138*g*.
in sewage, 1887*g*, 8078*i*.
in water, app. for, 5139*a*.
detn. of meso-Cl in acridine series, 7373*e*.
**Chlorine compounds.** (See also *Hydrocarbons.*)
crit.-temp.-cube additivity for, 7277*d*.
fire-retarding compns. from aminoplast resin powders and org., P 3210*b*.
in inhibition of $CO_2$ formation in combustion fuel beds, 3592*d*.
insect (beneficial) destruction by, 6775*c*.
as insecticides, 6353*b*.
as lubricant additives, 2417*i*.
Cl nitrogen derivs., equil. of, 8821*i*.
org.—see also "acid" under *Chlorides*.
org., 2925*d*.
of oxygen, electrolyzer for prepn. of, P 3733*c*.
plasticizers for elastomers from unsatd. dehydrochlorinated, P 8732*f*.
polarography of org., 8916*g*.
polychloropolyenes, 3346*c*.
polymers from org., P 7753*b*.
polymers, stabilization of, P 2031*c*.
prepn. of polychloro, 5361*h*.
**Chlorine e.** See *Chlorine es.*
**Chlorine es.** (See also *Bacteriochlorine es; Mesochlorine es.*) P 7648*b*.
**Chlorine fluorides**, 6793*d*.
ClF, heat of formation of, 6500*e*.
$ClF_3$, Raman spectrum, symmetry and thermodynamic properties of, 8887*d*.
spectra (infrared and Raman) of, 7821*d*.
**Chlorine oxides.**
ClO, identification in gas-phase combustion, 7663*d*.
$ClO_2$, in bleaching paper pulp, 3614*a*.
chlorite manuf. from, P 2380*c*, P 3159*h*
exchange with chlorite ion and Cl in other oxidation states, 8821*a*
in flour bleaching, 1495*d*, 6325*e*.
in flour, effect on dogs, 2707*g*.
flour treated with, feeding tests with, 5101*g*
manuf. of, P 1928*i*, 1929*c*, P 3159*fg*, 3575*c*, P 3575*g*, P 5556*b*, P 6377*f*, P 8107*i*.
manuf. of, and bleaching fats and oils with, P 6844*a*.
microwave absorption by, 8888*h*.
mixt. with NaOCl, in bleaching paper pulp, 847*h*.
pectin contg.-material treatment with, P 7610*f*.
in shrimp treatment, P 3541*a*.
sporicidal properties of, in water treatment, 7613*g*.
in treatment of wheat, rye, etc., P 8071*g*
in water purification, 1127*f*, 1508*a*, 2716*e*, 3545*f*, 5522*c*, 7165*b*.
**Chlorine preparations**, in water treatment —see *Water, purification of.*
**Chlorines.** See *Chlorine es.*
**Chlorinolysis.** (See also *Chlorination.*)
of butane, 5362*a*.
of cyclic compds., P 4296*d*.
of perchlorinated unsatd. hydrocarbons, 4231*h*.
of propane, 5361*e*.
**Chloris.** See *Grasses.*
**Chlorite** (*the mineral*), -amphibole-biotite schists of Co **fahlband mineralization** of Modum dist., Norway, 8816*f*.
chem. constitution and crystal structure of, 524*d*.
chromiferous, from Mt. Albert, Quebec, 4606*g*.
of diabases of Timan, U.S.S.R., as magmatic residual formations, 6120*h*.
-epidote vein formation in hornfels at Suyama-Mura, Japan, 6549*d*.
formation from albitites, 6130*c*.
from clay minerals and salt rock, 8995*a*.
from montmorillonite, 6121*a*.
of France (Sauvage), 8318*b*.
petrography of, of eastern Himalaya, India, 1692*i*.
schists of Colombia, 525*f*.
**Chlorites.** (See also *Alkali metal chlorites; Alkaline earth chlorites; Bleaching agents.*)
activation of solns. of, P 1160*def*.
detection and detn. of, 8972*f*.
detn. of, in presence of chlorates, 8966*i*.
exchange with $ClO_2$, 8821*a*.
manuf. from $ClO_2$, P 2380*b*, P 3159*h*.
oxidation with, P 1160*d*.
poisoning by, relation to chlorate poisoning, 5115*f*.
**Chloritoid**, from Quebec (Megantic Co.), 8987*f*.
schists near Zvánovice, Czechoslovakia, 4191*g*.
**Chloroaluminates**, structures of, 960*c*.
**Chloroamines.** See *Chloramide;* and "chloro-" under *Amines.*
**Chloroantimonic(V) acid**, aryl derivs. ($ArSbCl_4H$), pyridine salts, 602*b*.
**Chloroauric acid**, toxicity and excretion of, effect of 2,3-dimercaptopropanol on, 4765*d*.
**Chlorobacterium**, nitrogen fixation by, 9155*d*.
**Chlorobutanol.** See *Chloretone.*
**Chlorocadmates**, formation of, 4595*d*.
instability const of $CdCl_4^{--}$, 923*h*.
**Chlorocarbonic acid.** See *Formic acid, chloro-.*
**Chlorocarbonyl group** See *Chloroformyl group.*
**Chlorocobaltates(II)**, bonds in, 8764*a*.
in ethyl alc. solns., 4970*i*.
spectra of, 520*a*, 7817*i*, 7818*b*, 8273*i*.
**Chlorocobaltic(II) acid**, spectrum of ion of, 5305*a*.
**Chlorocuprates(I)**, formation of, 3307*d*.
**Chlorocuprates(II)**, 5324*c*.
stability of, 4971*a*.
**Chlorocyanogen.** See *Cyanogen chloride.*
**Chloroethylation**, of benzene derivs., P 681*b*.
**Chloroferrates(III)**, of meotinamides, P 3471*b*.
**Chloroferric(III) acid**, $HFeCl_4$, extn with $(iso\text{-}Pr)_2O$, 2489*g*.
**Chloroform**, -activated protease, assay of, and detn. of activity against, 708*i*.
adsorption by charcoal as measure of solvent power for bitumen and pitch, 4841*f*.
-anabasine distribution between water and, 6789*a*.
anesthesia by, effect on sphincter of Oddi, 5867*g*.
anesthesia by, effect on thrombin inactivation, 8548*d*.
as azeotrope former for naphthenes, P 3670*d*.
azeotrope with $SiCl_4$, 1716*g*.
benzene chlorination in presence of, P 1436*g*.
catalysts of Br and, in alkylation of paraffins, P 5181*h*.
cellulose acetate soly. in solvents contg., 1963*i*.
compd. with 1,2-dichloro-1,1,2,2-tetraphenylethane, 7005*i*.
compd. with sarothamnine, 5543*d*.
compression and freezing under pressure, 4067*f*.
in dairy-product preservation for phosphatase test, 3942*c*.
decahydronaphthalene peroxide ester rearrangement in, 6188*i*.
dehalogenation by liver exts., 1816*a*.
detection and detn. in air and organs, 974*a*.
detn. in air, autometer for, P 3249*h*.
detn. in gastric juice, 7191*g*.
diffusion in polystyrene, 5654*g*.
effect on adhesive power of soybean protein, 1604*e*.
on fibrinolysis, 2684*d*.
on fluorescence of anthracene solns., 3295*f*.
on gastric passage and intestinal absorption of glucose solns., 4767*g*.
*effect* on heart and intestines, effect of methemoglobin on, 316*h*.
on ionic exchange in red blood cells in relation to narcotic action, 7143*h*.
on liver, 3527*c*.
on onions and onion roots, 9171*e*.
on soap action on bacteria, 9143*f*.
on soly. of compds. in aq. alc., 6889*h*.
on surface activity, 3687*g*.
on syneresis of Na oleate gels, 4080*b*.
on tropokinesis in onion meristems, 4346*i*.
emulsions with nitrile polymers, P 7263*a*.
evapn. rate of, 6048*c*.
extn. of aq. solns. with, 2474*e*.
fat reaction with diphtheria bacteria produced by, 1830*c*.
fluorination of, sepn. of products of, P 661*g*.
folic acid prepn. contg., 355*i*.
formation from chlorination of bis(dichloromethyl) sulfide, 4629*b*.
health hazards of, 787*h*.
heart action of, effect of ephedrine, isoamyl nitrite, $NaNO_2$ and nitroglycerin on, 758*i*.
heat capacity of, 30*c*.
heat of reaction with $AlBr_3$, 2851*f*.
1-hexadecanol sorption from, by MgO, 17*b*.
as inhibitor of C combustion, 9417*b*.
liver injury from, glucose in treatment of, 2699*c*.
lyoparachor of, 2834*a*.
metallic soap soly. in, 1998*b*.
microwave absorption by, 2514*h*.
mixts. with $C_6H_6$, dielec. properties of, 6019*b*.
with EtOH, distn. of, 2060*h*.
with org. vapors, adsorption by active carbons, 16*g*.
muscle contracture by, 1861*c*.
narcotic action on blowfly larvae, 4416*f*.
necrotizing action of urethan and, 7135*a*.
penetration into *Ascaris lumbricoides*, 9270*b*.
polarography of, 8916*h*.
prepn. of, 2156*g*.
prepn. of, from $CCl_3CO_2H$, 5361*g*.
preservation of, used in vitamin A detn., 9129*f*.
reaction (photochem.) with $Ph_2Hg$, 8895*b*.
reaction with aldehydes, P 664*d*, P 4284*h*.
with CO and $SO_2$, 9031*d*.
with chlorotrifluoroethylene, P 661*e*.
Schwartzman phenomenon inhibition by, 2320*i*.
soly. in Na xylenesulfonate solns., 1242*e*.
as solvent for *N*-vinylpyrroles, for film formation, P 2035*c*.
sorption by porous substances, 1240*e*.
spectrum of, 42*d*.
surface tension of, 4531*g*.
system: dioxane–, 1637*c*.
system: perfluoromethylcyclohexane–, 3267*a*.
tetraphenyl arsonium perrhenate soly. and extn. from Mo mixts. by, 8304*g*.
thermal cond. and viscosity of, 4065*c*.
toxicity of, nutritional factors affecting, 733*h*.
ultrasonic velocity in, 1232*g*.
ultrasonic velocity in, temp. and, 7283*i*.
vapor-d. distribution over surface of, 7282*i*.
vapor pressure of, temp. and, 8775*a*.
ventricular fibrillation from adrenaline and, 313*b*.
ventricular fibrillation from adrenaline and, protective action of various agents on, 4768*c*.
vibration frequencies of, 5307*i*.
vinyl acetate chain-transfer coeff. in, 5271*e*.
viscosity (dilatational) of, 5249*g*, 8780*a*.
**Chloroform, bromo-.** See *Methane, bromotrichloro-.*
**——, nitro-.** See *Chloropicrin.*
**Chloroform-d**, vibration frequencies of, 5307*i*.
**Chloroformic acid.** See *Formic acid, chloro-.*
**Chloroformyl group**, effect of, in chlorination of aliphatic compds., 4627*i*.
**Chlorogenic acid**, adrenaline potentiation by, 5116*i*.
effect on protein of sunflower seeds, 2335*d*.
oxidation of, to viridinic acid, 3116*g*.
in plants and its distribution, 4342*h*.
**Chlorogenin**, and derivs., 1788*h*.
**Chlorogenine.** See *Alstonine.*
**Chlorogenone***, reaction product with $N_2H_4$, 1788*i*.

**Chloroguanide.** See *Paludrine.*
**Chlorohemins.** See *Hemins.*
**α-Chlorohydrin.** See *1,2-Propanediol, 3-chloro-.*
**Chlorohydrins,** manuf. of, P 4687*b.*
manuf. of, from starch, P 428*d.*
reaction with cyanides, P 3446*f.*
of tertiary acetylenic alcs., 2182*b.*
**Chloromanganates(IV),** orbital electron configuration in, 3672*c.*
**Chloromercurates(II),** formation of, 6892*i.*
formation of, from Co complexes in EtOH solns., 4970*i.*
**Chloromethylation,** of anthracene derivs. and phenanthrene and derivs., 7013*c.*
of 1-(2-chloroethyl)-4-nitrobenzene, 646*c.*
of dehydroabietic acid, P 6665*f.*
of Sovasol No. 75 to trimethyl benzyl chlorides, P 5583*e.*
of thianaphthene, 1395*h.*
of thiophenes, 5781*e.*
of veratrole, 2970*d.*
**Chloromethyl group,** cleavage from polysiloxanes, P 3238*b.*
effect of, in chlorination of aliphatic compds., 4627*i.*
parachor of, 2057*f.*
**Chloromycetin.** See "D-*threo*-" under *Acetamide, α,α-dichloro-N-[β-hydroxy-α-(hydroxymethyl)-p-nitrophenethyl]-.*
**Chloropalladates(II),** reduction by $H_2$ and H, 2854*g.*
**Chlorophaeite,** chem. constitution of, 2899*d.*
**Chlorophora excelsa,** wood of, chlorophorin of, 5388*b.*
**Chlorophorin,** and derivs., 5388*b.*
——, **tetrahydro-,** and tetramethyl ether*, 5388*c.*
**Chlorophosphoric acids,** esters of $H_2PClO_3$ and $HPCl_2O_2$, 6166*f.*
o-methoxyphenyl esters of $H_2PClO_3$ and $HPCl_2O_2$, 6178*e.*
**$H_2PClO_3$,** dialkyl esters, hydrolysis of, 1314*h.*
2,2-dimethyl-1,3-dioxolan-4-ylmethyl Ph ester, stereoisomers, 6166*f.*
esters, 590*f*, 8350*i.*
**$HPCl_2O_2$,** 2-fluoroethyl ester, 6163*i.*
**Chlorophyceae.** See *Algae.*
**Chlorophyll-hemin***, effect on oxidation-reduction systems, 4713*e.*
**Chlorophyllis.** (See also *Protochlorophyll.*)
a and b, in leaves, 1837*a.*
a and b, in lettuce, effect of N feeding and illumination on, 8012*i.*
a, b and c, in diatoms, 2281*e.*
in apple varieties, 278*h.*
in *Aucuba japonica* and *Euonymus japonicus,* 3890*g.*
carbonic acid photochem. transformation by, interpretation according to the electronic theory, 1839*h.*
in *Cestrum hediondsinum,* 2279*i.*
in *Chlorella,* Mg protoporphyrin as precursor of, 2282*a.*
in chloroplasts, 2290*d*, 8011*g.*
c, pheoporphyrin nature of, 7089*a.*
degradation in intestines, 5832*d.*
effect on cholesterol soln. in bile, 9210*d.*
effect on streptomycin action on *Mycobacterium avium,* 6275*f.*
energy transfer between excited mols. of, 5667*e.*
fluorescence of, quenching of, 43*e*, 3295*e.*
fluorescence of solns. of, activation of, 6922*a.*
formation by phytoplankton, nutrition and, 4343*g.*
in fruit-tree leaves, N status and, 9319*e.*
in gametes of Fucaceae, 2677*f.*
hydrogen transfer from ascorbic acid to codehydrogenase I by, 8410*c.*
-less *Euglena gracilis,* streptomycin-induced, 1461*i.*
lipide oxidation in presence of β-carotene and, 2173*a.*
manganese effect on production of, 1836*g.*
in medicine, 2371*c*, 7193*g.*
metabolism, effect of streptomycin on, 2286*c.*
in orchid, $MnCl_2$ effect on, 6290*e.*
oxidation of, org. peroxides and glyoxylic acid in, 6280*i.*
oxidation-reduction reactions involving increase of free energy, photosensitized by, 44*a.*
in photosynthesis—see *Photosynthesis.*
in polyploid aspen, 5831*e.*
protochlorophyll as precursor of, 8009*h.*
sepn. from alfalfa, 5543*f.*
sol. compds. of, P 7648*a.*
in soybean leaves, effect of Ca and Mg on, 9174*h.*
spectra of solns. of, effect of O on, 7823*i.*
spectrum of, 282*d.*
structural analogy to streptomycin, 6281*c.*
synthesis in *Euglena gracilis,* effect of streptomycin on, 4388*d.*
therapeutic and physiol. effects of, 6366*a.*
tobacco prepn. contg., P 3152*a.*
tobacco products treated with, P 3152*b.*
**Chlorophytin,** P 7648*b.*
**Chloropicrin** (*trichloronitromethane*), in control of root-knot and weeds, 5145*c.*
effect on germination of corn and peanuts, 1900*g.*
effect on phosphorolysis of glycogen, 5865*a.*
as fumigant for soil, effect of $H_2O$ and temp. on, 7186*e.*
fumigation with, in pine nursery, 7179*e.*
mixts. with org. vapors, adsorption by active carbons, 16*g.*
muscle contracture by, 1861*b.*
in mushroom-disease control, 7180*d.*
reduction (electrolytic) of, 8915*h.*
in root-knot control in soil, 7186*eh.*
as soil fumigant, 3960*f*, 7179*a.*
sorption by fruit and seeds, 3962*h.*
sorption in flow through activated charcoal, 6872*i.*
spectrum of, 6016*d.*
in sugar-beet-nematode control, 3134*e.*
in weed control, 3134*g*, 3554*g.*
**Chloroplastids,** assimilation by, stained with vital stains, 1834*c.*
**Chloroplasts,** carbon dioxide reduction by hydrogenase of, product of, 5452*f.*
chlorophyll in, 2290*d.*
copper enzymes in, 2287*b.*
dehydrogenase converting glycolic acid into glyoxylic acid in, 6286*i.*
enzyme reactions in, and effect of photosynthesis inhibitors on their reduction of dyes, 8019*e.*
oxygen evolution from illuminated, 1083*j*, 8009*e.*
factors influencing, 9168*b*
in solns. of oxidants, 8009*c.*
phenolases and peroxidases in, 1083*d*
photochem. activity and inactivation of, 8013*b.*
proteins of, 8012*f.*
in spinach leaves (triturated), O evolution and, 732*g*
structure of, in aquatic plant, 8011*g.*
vitamin K detn. in, 3494*e.*
**Chloroplatinates(II),** reduction by $H_2$ and H, 2854*g.*
**Chloroprene** (*2-chloro-1,3-butadiene*). (For derivs. see inverted entries under *1,3-Butadiene.*) 2957*i.*
dimerization of, 590*h*, 591*b.*
dimer, prepn., constitution and *n* in studying purification of β-polymer, 8190*e.*
health hazards of, and its oxidation products, 4885*h*
manuf. of, P 663*h*, P 9078*fg.*
polymerization of, P 4896*a.*
in coatings, P 1222*d.*
with ester catalysts, P 1601*d.*
with Et acrylate, 5988*i.*
and inhibitors therefor, 1598*de.*
with malonic acid derivs., P 4897*d.*
regulators in, 7253*d.*
with 1,1,3,3-tetramethyl-4-vinylisocoumaran, P 7259*a.*
with vinylfuran and vinylidene chloride, P 9532*g.*
viscosity and yield point during, 2019*b.*
polymerization of, *ns* during, and specific dispersion and *ns* of polymers, 2020*eg.*
polymerization of, or its mixts. with butadienes in presence of tetraalkyldiaminodiphenylmethanes, P 1601*c.*
polymers of—see also *Neoprene; Rubber, substitute and synthetic.*
polymers of, 2072*a.*
compns. with resorcinol-HCHO resin, P 9525*d.*
elasticity of, 438*c.*
reaction products with inorg. acids or anhydrides, P 2804*c.*
with vinylfuran, P 9532*h.*
wool-shrinkproofing emulsions from, P 6429*c.*
prepn. of, 7899*a.*
reaction with methacrylic acid and its Me ester, 3373*h.*
reaction with $C_2F_4$, 3371*b*, P 4294*c.*
refractive index of, and vinylacetylene calcn. in, 2020*f.*
**Chloroquine.** See *Quinoline, 7-chloro-4-(4-diethylamino-1-methylbutylamino)-.*
**Chlororhodates(II),** reduction by $H_2$ and H, 2854*h.*
**Chloros,** in disinfection of skin, 3525*d.*
**Chlorosis** (*of plants*), biochem. changes in, 8012*a.*
calcium, in apple and cherry, 730*g.*
cure for, 8016*b.*
of fruit trees from CaO, 6773*f.*
of grapes, Mg and, 9329*h.*
of grapes (muscadine), Mg injection in prevention of, 5091*f.*
of kudzu, 3552*hi.*
from manganese deficiency, 1836*g.*
from manganese excess, 8019*b.*
of oil palms, mineral compn. of leaflets in relation to, 7088*g.*
**Chlorosulfinic acid,** 2-chloroalkyl esters, and their reactions with carboxylic acids, 1249*a*
**Chlorosulfonic acid,** aryl esters, 173*bd*
as catalyst in alkyl halide manuf. from reaction of halo olefins with iso paraffins, P 662*g.*
in ketone manuf. from anhydrides and olefins, P 3442*b.*
in reaction of nitriles with HCHO, 657*e.*
decompn. of, with $H_2SO_4$, 8075*c.*
effect on Hg catalysts in sulfonation of anthraquinone, 617*f.*
in esterification, 127*e*, 4767*a*, 6573*e.*
esters, 3800*g.*
esters, mol. refraction of, 13*c.*
2-fluoroethyl ester, 6164*a.*
mixts. with $SO_3$, vapor pressure of, 455*f.*
phenylquinolinecarboxylic acid esterification in the presence of, 127*g.*
Raman spectrum of, 7345*a.*
reaction with fatty acids and their derivs., P 2220*c*, P 3220*h.*
with 2-pentene, 3352*i.*
with vegetable oils, wetting power of sulfonated products from, 4031*f*
recovery from phosgene prepn., 6931*a*
safety with, 5909*f.*
sulfonation with, theory of, 171*i*
**Chlorosulfonyl** (*free radical*), reaction and structure of, 1248*i.*
**Chlorotellurous acid,** $H_2TeCl_6$, 4167*h*
**Chlorothallates,** 8940*a.*
drying or ignition temp. limits for $[Co(NH_3)_6]TlCl_6$, 63*h.*
**Chlorothen.** See *Pyridine, 2-[(5-chloro-2-thenyl)(2-dimethylaminoethyl)amino]-*
**Chlorous acid,** free energy of ionization of, 2075*b.*
**Chloroxone.** See *Acetic acid, (2,4-dichlorophenoxy)-.*
**Chloryl.** See *Benzene, p-dichloro; Ethane, chloro-.*
**Chocolate.** (See also *Cacao; Cocoa, Confectionery.*)
antiblushing agents for, P 1052*i*
carbon black detn. in, 7158*a.*
chemistry in industry of, 8573*h.*
coatings, P 2340*h.*
isomerization of, with $HNO_2$ catalyst in an org. solvent, P 2341*a.*
lactose detn. in, 8573*h.*
manuf. of, 5507*g.*
milk fat detn. in milk-, 6755*b.*
sugar detn. in, effect of cacao constituents on, 5880*d.*
sweet, manuf. of, P 787*a.*
**Chokecherry** (*Prunus* (*Padus*) *virginiana*), control of, 4414*a.*
rutin detn. in black, 9373*g.*
**$\Delta^{4,22}$-Choladiene, 3-keto-24,24-diphenyl-***, P 3475*e.*
**$\Delta^{20,22}$-Choladiene, 3(α),12(α)-dihydroxy-24,24-diphenyl-***, and 12(α) acetate, P 3475*c.*
diacetate, P 3474*h.*
——, **24,24-diphenyl-***, P 3475*d*
——, **3(β)-hydroxy-3-chloro-24,24-diphenyl-***, P 3475*e.*
acetate, P 3475*b.*
——, **3(α),7(α),12(α)-trihydroxy-24,24-diphenyl-***, and triacetate, P 3475*d*
**Choladienic acid.** (See also *Norcholadienic acid.*)
**$\Delta^{1,4}$-Choladienic acid, 3-keto-***, derivs., 7494*f.*
**$\Delta^{4,11}$-Choladienic acid, 3-keto-***, and methyl ester, P 3980*a.*
**3,5-Choladienic acid, 3(β),12(α)-dihydroxy-***, methyl ester diacetate, 1790*d.*
**$\Delta^{5,22}$-Choladien-3-ol, 24,24-diphenyl-***, acetate, progesterone from, P 4700*g*
**5,22-Choladien-3(β)-ol, 24-phenyl-***, and derivs., 4281*h.*
**$\Delta^{20,22}$-Choladien-3-one, 12(α),21-dihy-**

droxy-24,24-diphenyl-*, and rivs., 6639*g*.
3,12-diacetate, and isomer, 3430*h*.
——, 12(α)-hydroxy-21-bromo-24,24-diphenyl-*, 12-acetate, 3430*g*.
——, 12(α)-hydroxy-24,24-diphenyl-*, 12-acetate, two forms of, 3430*g*.
4,23-Choladien-3-one, 24-phenyl-*, 4281*i*.
**Cholagogs.** (See also *Bile; Choleretics.*)
nicotinamide and Na nicotinate as, 9256*d*.
review on, 320*a*.
**Cholalic acid.** See *Cholic acid.*
**Cholam.** See *Sorghum.*
**Cholanic acid.** (See also *Allocholanic acid; Bisnorcholanic acid; Norcholanic acid.*)
manuf. of, P 7509*f*.
——, 3(α)-acetoxy-11(and 12)-keto-*, methyl ester, spectra of, 3019*g*.
——, 3,3-bis(*p*-acetamidophenylmercapto)-7,12-diketo-*, 7033*i*.
——, 3,3-bis(carboxymethylmercapto)-7,12-dihydroxy-*, 7033*i*.
——, 3,3-bis(carboxymethylmercapto)-7,12-diketo-*, and tri-Me ester, 7033*h*.
——, 3(α),12(α)-diacetoxy-7-keto-*, methyl ester, spectrum of, 3019*g*.
——, dihydroxy-, in bile of patients with choledochostomy drainage, 7572*c*.
—, 3(α),6(α)-dihydroxy-. See *Hyodeoxycholic acid.*
——, 3(β),12(α)-dihydroxy-*(?), methyl ester diacetate, 1790*h*.
——, 3(β),12(β)-dihydroxy-*, spectrum of, 3018*i*.
——, 3,12-dihydroxy-11-keto-*, isomers, and derivs., 4679*d*.
——, 3(α),12(α)-dihydroxy-7-keto-*, spectrum of, 3019*g*.
——, 7,12-dihydroxy-3-oxo-, bis(carboxymethyl mercaptal), 7033*i*.
——, 3,12-diketo-*, methyl ester, spectrum of, 3019*g*.
——, 7,12-diketo-3,3-bis(phenylmercapto)-*, 7033*i*.
——, 7,12-diketo-3-(carboxymethylene)-*, and diethyl ester, 1431*c*.
——, 7,12-diketo-3-(cyanocarbethoxymethylene)-*, ethyl ester, 1431*c*.
——, 3,6-diketo-12(α)-hydroxy-*, methyl ester acetate, 1790*e*.
——, 12-dimethylamino-3(α)-hydroxy-*, ethyl ester, methiodide, degradation of, 9076*h*.
——, 3(α),9(α)-epoxy-11-keto-*, methyl ester, spectrum of, 3019*g*.
——, 3(α)-hydroxy-. See *Lithocholic acid.*
——, 3-hydroxy-7,12-diketo-3-(carbethoxymethyl)-*, ethyl ester, 1431*d*.
——, 3(α)-hydroxy-11(α),12(α)-epoxy-*, spectrum of, 3018*i*.
——, 3-hydroxy-12-keto-*, methyl ester benzoate, reduction of, P 7509*g*.
and 3-succinate (acid), P 702*a*.
——, 3(α)-hydroxy-11-keto-, 4679*d*.
methyl ester, spectrum of, 3019*g*.
——, keto-*, derivs., reaction with Et bromoacetate and Et cyanoacetate, 1431*b*.
——, 3-keto-4-bromo-12(α)-hydroxy-*, methyl ester acetate, 1790*d*.
——, 7-keto-3,12-dihydroxy-*, ethyl ester, reduction of, P 7509*h*.
salts, effect on gram-pos. protein complexes, 269*d*.
——, 3(α),7(α),12(β)-trihydroxy-. See *Cholic acid.*
——, 3,7,12-triketo-. See *Dehydrocholic acid.*
**Cholan-24-ol-11-one, 3(α),9(α)-epoxy-24,24'-diphenyl-***, spectrum of, 3019*g*.
**Cholanthrene,**



derivs., 2625*h*.
fluorescence of, 4986.
reaction with $OsO_4$, 8375*a*.
——, 3,4(and 3,5)-dimethyl-, 2626*a*.
——, 3-methyl-, carcinoma from, Ca-ion exchange in, 1859*f*.
carcinoma of skin from, arginase activity and N content in, 5489*a*.
from cholesterol by pyrolysis, 7573*i*.
and compd. with 1,3,5-trinitrobenzene, 2625*h*.
effect on bone-callus formation, 9239*f*.
on embryo, 3516*e*.
on mutability of *Drosophila melanogaster*, 9271*f*.
on papain action, 5054*d*.
on skin transplantability, 7135*a*.
on viscosity of paramecium, 2311*a*
fluorescence of, 4986.
mutagenicity of, 3530*b*.
photodimer, 7012*c*.
prostate tumors from, 305*f*.
reaction with maleic anhydride, 2199*g*.
reaction with $OsO_4$, 8375*a*.
sebum as vehicle for, 5956*c*.
solubilization in assocn. colloids, 4363*e*.
tumors of alimentary tract after feeding, in mineral oil, 8046*d*.
$\Delta^{4\ 20,22}$-Cholatriene, 3-keto-24,24-diphenyl-*, P 3475*a*.
$\Delta^{9,11,20,22}$-Cholatriene, 3(β)-hydroxy-24,24-diphenyl-*, and acetate, P 3475*a*.
$\Delta^{1,3,5}$-Cholatrienic acid, 3-hydroxy-1-methyl-10-normethyl-*, and *p*-nitrophenylazo deriv., 7494*f*.
**Cholecystectomy,** fecal fat excretion after, 740*f*.
**Cholecystokinin,** assay of, 5538*e*.
**Choleglobin,** legume, biliverdine formation from, 4729*h*.
**Cholelithiasis.** (See also "biliary" under *Calculi.*)
polysaccharides in blood serum in, 9230*d*.
**5-Cholen-24-al, 3(β)-hydroxy-***, and derivs., 3433*a*.
$\Delta^5$-Cholene, 3(β),24-dihydroxy-*, and esters, 3432*g*.
——, 3(β),20-dihydroxy-24,24-dimethyl-*, and 3(β)-acetate, 6638*c*.
——, 3(β)-hydroxy-24-keto-24-(*p*-methoxyphenyl)-*, and oxime, 3433*f*.
——, 3(β)-hydroxy-24-keto-24-phenyl-*, and derivs., 3433*f*.
$\Delta^{7}$-Cholene, 3(α),12(α)-dihydroxy-22-bromo-24,24-diphenyl-*, diacetate, P 3474*h*.
——, 3(β)-hydroxy-5-chloro-24,24-diphenyl-*, acetate, P 3474*i*.
**4-Cholene, 3,24-diketo-24-phenyl-***, 3433*e*.
**5-Cholene-3(β),24-diol, 24-phenyl-***, isomers, and derivs., 3433*b*.
**Cholenic acid.** (See also *Norcholenic acid.*)
$\Delta^{4}$-Cholenic acid, 3-keto-*, P 2244*d*.
——, 3-keto-6-bromo-12(α)-hydroxy-*, methyl ester acetate, 1790*e*.
——, 3-keto-12-hydroxy-*, methyl ester, and its 2,4-dinitrophenylhydrazone, 4282*h*.
——, 3-keto-12(α)-hydroxy-*, methyl ester acetate, 1790*d*.
$\Delta^{9,11}$-Cholenic acid, 3(α)-acetoxy-*, spectrum of, 3018*i*.
——, 3(α)-acetoxy-12-keto-*, and methyl ester, spectra of, 3019*g*.
——, 3(α),12(α)-dihydroxy-*, derivs., 3434*b*.
——, 3(α),12(β)-dihydroxy-*, and derivs., 3434*ab*.
spectrum of, 3018*i*.
——, 3(α)-hydroxy-*, methyl ester, 3433*h*.
spectrum of, 3018*i*.
——, 3(α)-hydroxy-12-keto-*, and derivs., 3433*f*.
——, 3(α)-hydroxy-12(α)-methoxy-*, methyl ester, 3434*d*.
——, 3(α)-hydroxy-12(β)-methoxy-*, spectrum of, 3018*i*.
$\Delta^{11}$-Cholenic acid, 3(α)-acetoxy-*, methyl ester, 9076*h*.
——, 3(α)-hydroxy-*, spectrum of, 3018*i*.
——, 3-keto-*, methyl ester, P 3980*b*.
and methyl ester, P 3980*c*.
$\Delta^{20,22}$-Cholenic acid, 3,21-dihydroxy-*, lactone and its 3-acetate, P 7976*d*.
**5-Cholenic acid, 3(β),12(α)-dihydroxy-***, and derivs., 1790*c*.
——, 3(β)-hydroxythiol-*, esters, desulfurization of, 3432*e*.
**23-Cholen-3(β)-ol, 5-chloro-24-phenyl-***, acetate, 4282*a*.
$\Delta^{23}$-Cholen-11-one, 3(α),9(α)-epoxy-24,24'-diphenyl-*, spectrum of, 3019*g*.
**Cholera,** fowl, sulfaquinoxaline treatment in, 8002*a*.
fowl, treatment of, 7589*f*.
preventive for chicken, P 1913*d*.
**Cholera vibrios.** See "cholera" under *Vibrio.*
**Choleresis.** See "secretion of" under *Bile.*
**Choleretics.** (See also *Cholagogs.*) 5493*f*.
effect on bile compn. in dog with permanent biliary fistula, 2318*f*.
effect on excretion of pigment and bromosulfalein in bile, 1869*i*.
nicotinamide and Na nicotinate as, 9256*d*.
review on, 320*a*.
7,8,14-trihydroxyabietic acid, P 1913*i*.
trithio-*p*-methoxyphenylpropene as, 1489*a*.
$\Delta^{3,5}$-Cholestadiene, 243*h*, 1784*e*.
as cholesterol pyrolysis product, 7578*i*.
reaction with $HClO_4$, 7494*c*.
$\Delta^{5,7}$-Cholestadien-3(β)-ol*, acetate, spectrum of, 3018*i*.
**4,6-Cholestadien-3(β)-ol***, and acetate, 3020*d*.
$\Delta^{1,4}$-Cholestadien-3-one*, 7494*i*.
2,4-dinitrophenylhydrazone, 4282*d*.
——, 6-bromo-*, 7495*a*.
$\Delta^{3,5}$-Cholestadien-7-one*, from liver of cattle, 1818*g*.
spectrum of, 3019*g*.
$\Delta^{4,6}$-Cholestadien-3-one*, 3021*e*, 3022*a*.
2,4-dinitrophenylhydrazone, 4282*d*.
and semicarbazone, 7494*i*.
spectrum of, 3018*i*.
**Cholestane,** from cholesterol by pyrolysis, 7574*a*.
from hydrogenation of 2,3-oxidocholestane, 3831*g*.
spiro derivs. of, 659*b*.
——, 3-acetoxy-4(α),5-oxido-*, isomers, 6640*i*.
——, 3(α)-chloro-*, 246*a*.
——, 3(α),5-dihydroxy-*, 6641*b*.
and esters, 1784*a*.
——, 3,4-dihydroxy-*, epimers, and derivs., 1785*b*.
——, 3(β),5-dihydroxy-*, and acetate, 5408*g*, 6641*b*.
and esters, 1784*b*.
——, 3(β),6(β)-dihydroxy-*, and diacetate, 5408*h*.
——, 3(β)-hydroxy-6,7-diketo-*, compd. with MeOH, 246*f*.
——, 6-keto-*, derivs., 245*h*.
——, 7-keto-3(β)-acetoxy-*, 246*d*.
——, 3-keto-5-hydroxy-*, and oxime, 1784*h*.
——, 2(α),3(α)[and 2(β),3(β)]-oxido-*, 3831*e*.
——, 4,5-oxido-*, derivs., 6640*i*.
**6-Cholestaneacetic acid*, γ-lactone***, 3430*d*.
**Cholestane-6[7-dicarboxylic acid, 3(β)-acetoxy-***, 9077*f*.
——, 3(β)-hydroxy-*, and derivs., 246*a*.
**2,3-Cholestanediol,** and esters, 3831*g*.
**3,4-Cholestanediol,** spectrum of, 3018*i*
**3(β),5(α)-Cholestanediol***, 3021*d*.
**3,4-Cholestanedione,** 7495*c*.
**3,6-Cholestanedione,** 247*g*.
reaction product with $N_2H_4$, 1788*i*.
**3,5,6-Cholestanetriol,** sulfonation of, 5028*g*.
**3(β),6,7-Cholestanetriol,** and tris(*p*-nitrobenzoate), 9077*e*.
**Cholestanol,** chromatographic sepn. of epicholestanol and, 2894*f*.
effect on carcinogenic potency and elimination rate of benzopyrene, 307*e*.
α glucoside, tetraacetate, P 5428*b*.
——, 5,6-dibromo-, acetate, reaction product with $SbCl_3$, spectrum of, 5307*g*.
——, 6-keto-*, acetate, reaction product with $SbCl_3$, spectrum of, 5307*g*.
——, 7-keto-*, acetate, reaction product with $SbCl_3$, spectrum of, 5307*g*.
***epi*-Cholestanol.** See *Epicholestanol.*
**2-Cholestanol, α-, and β-, configurations of,** and derivs., 3831*e*.
**3(α)-Cholestanol***, acetate, spectrum of, 3018*i*.
**3(β)-Cholestanol***, and acetate, spectra of, 3018*i*.
and formate, 243*e*.
**Cholestan-3(β)-ol-6-one***, 245*i*.
spectrum of, 3018*i*.
**Cholestan-3(β)-ol-7-one***, benzoate, 243*d*.
**Cholestanone,** dialkyl mercaptoles of, P 1532*f*.
methyl(2,4-dinitrophenyl)hydrazone, 4282*i*.
in oxidation-reduction reactions in the presence of Raney Ni, 191*e*.
reaction product with $SbCl_3$, spectrum of, 5307*g*.
——, tribromo-, bromine detn. in, 968*i*.
**2-Cholestanone,** and oxime, 3832*e*.
**3-Cholestanone,** 243*e*.
diethyl mercaptole*, P 1532*h*.
2,4-dinitrophenylhydrazone, 4282*e*.
and oxime, 244*a*.
spectrum of, 3018*i*.
——, 2-acetoxy-*, 2,4-dinitrophenylhydrazone, 4282*e*.
——, 2-bromo-, P 366*f*.

*antagonism* to atropine in action on sphincter muscle of iris, 4381*b*.
to *N*, *N*-dimethyl-3-cyclopentylidene-3-phenylpropylamine, 8359*f*.
to drugs in effect on blood vessels, 2704*g*.
to vitamin $B_1$ in action on heart, 1093*i*.
barium chloride action and, 5505*h*.
in blood, 1851*e*.
in gastro-duodenal ulcers, 3514*d*.
in labor and child bed in relation to serum cholinesterase, 9201*d*.
in brain tissue, forms of, 7106*c*.
bromide, effect on cholinesterase in blood serum, blood sugar and, 2311*c*.
in carotid sinus and *carotis communis*, 5842*a*.
in cerebrospinal fluid in craniocerebral trauma and epilepsy, 8519*fh*.
in cerebrospinal fluid in psychotics, 9234*i*.
chloride, detection and detn. as iodide with Bi and Sb, 357*d*.
chloromanganate, pharmacology of, 7129*f*.
in cholinergic fibers, synaptic fatigue and, 9260*h*.
cholinesterase action on, free-energy change in, 9124*i*.
as convulsant, 6744*i*.
convulsive activity and, 9260*h*.
depressor-drug quant. relation to, 5872*d*.
diisopropyl fluophosphate and thujone effect on body, 8535*g*.
effect on adenosinetriphosphatase activity of myosin prepns., 3053*b*.
on adenosinetriphosphate action on blood vessels, 8482*b*.
on adhesion of epithelium to stroma in cornea, 769*c*.
on adrenaline release from chromaffin tissue, 7128*e*.
on aortic pressure, 4776*a*
on auricle, 4385*e*
on autolysis of animal tissue, 1071*f*
on axonal conduction and synaptic transmission, 9261*h*.
on blood pressure and respiration after intracisternal injection, 7130*c*
on carotid body, effect of NU 683 on, 7134*c*.
on carotid body, effect of tetraethylammonium on, 321*f*.
on Cl and water excretion and on blood pressure, 8052*b*.
on circulation and gaseous metabolism, 3936*e*.
on contractile activity of uterus, 1488*d*.
on convulsions from elec. shock, 2327*h*.
on coronary blood flow, 8539*a*
on excitability of fatigued muscles, 2685*b*.
on fast and slow muscles, 5872*h*.
on ileum in relation to survival time, 761*i*.
on medullar excitability, 7578*a*.
on muscle fibers, 5863*f*.
on nerve chronaxia, effect of vitamins on, 6293*b*.
on neuromuscular action of 2,4-di chlorophenoxyacetate, 2329*f*.
on pancreas and its respiratory activity, 7146*h*.
on permeability of hemoencephalic barrier, 9203*f*.
on pulmonary circulation, 9248*b*.
on smooth muscle of elasmobranch and teleost, 4763*d*.
on NaCl in tears, 9214*c*.
on spinal cord of frog, 316*c*.
on stomach muscle, 4771*b*.
on unimol. films of lecithin, 7526*e*
on ventricle of turtle and frog, 1117*b*
electrocardiographic changes produced by, 1489*c*.
epilepsy-neuronal activity and, 9232*b*.
esterase—see *Cholinesterase*.
ether-sol. form of, in central nervous system, 7106*e*.
in heart, 2686*i*.
heart response to, in cephalopods, gastropods and molluscs, 3528*h*.
compared with intermediate products of carbohydrate metabolism, 5865*c*.
effect of adrenaline, Na oleate and tetraethyl-ammonium on, 8056*f*.
effect of hydrastinine on, 3102*f*.
effect of morphine and its derivs. on, 3102*c*.
effect of NU 683 on, 7134*f*.
effect of thiaminase on, 4767*h*.
*heart response to*, in relation to its synthesis, 4383*b*.
hydrolysis rate of, 3271*h*
-inhibiting compds., 8546*a*.
interaction with other autonomic drugs on intestines, 3097*i*.
intestinal response to, 7565*a*.
effect of tetraethylammonium ion on, 1110*g*.
paralyzed by phlorizin, 5872*e*.
intestinal spasms from, effect of antihistamines and other substances on, 3934*e*
intracranial hypertension from, 765*e*.
in iris, effect of tetanus toxin on, 4764*e*.
liberation of, during anaphylactic shock, 1478*a*.
by heart after electrical stimulation, 7118*d*.
by stimulation of vagus, 3083*h*.
lysolecithin effect on pharmacol. action of, 311*d*.
muscle contraction by, effect of gravitol on, 8543*d*.
muscle sensitivity to, 8056*d*.
effect of acetone on, 3478*c*.
effect of isotonic glucose on, 1853*b*
effect of vitamin $B_1$ and its phosphorylated derivs. on, 291*f*
after removal of tendon, 766*c*.
muscle stimulated by, effect of detergents on, 2330*h*.
as nerve-impulse transmitter of cutaneous vasodilator nerves, 8504*a*.
in nettle plants, 8455*a*.
in organs of fish, and effect of eserine thereon, 8560*h*.
in organs of *Helix pomatia*, effect of physostigmine and prostigmine on, 353*d*
pharmacodynamic action of, 8526*c*
pharmacol. action of, 4753*b*, 9259*i*
physiology of, 4753*a*.
in placenta, abortion and, 8479*i*
in placental metabolism, 8509*b*
salts, stability of, 9374*g*.
in sauerkraut juice, effect on bactericidal effectiveness, 6277*g*.
sensitivity to, cholinesterases and cholinergic symptoms in relation to, 4305*a*
sensitization of ventricle of *Helix pomatia* and leech muscle to, by local anesthetics, 1107*ef*
shock from, ocular tension and retinal arterial pressure in, 6723*a*
sparteine effect on, 8542*e*.
in stimulus transfer in afferent nerves, 4749*c*.
stimulus transmission from nerve to muscle and, 5469*i*.
sweating from, 2323*c*.
synaptic transmission in spinal cord and, 7102*a*.
synthesis in brain, 7130*h*.
in brain at low O tension, effect of succinic acid on, 756*e*.
in central nervous system, 747*h*.
tachycardia from, 7576*e*.
thephorin effect on action of, 4764*a*.
vasomotor properties of, effect of papaverine, atropine and tetraethylammonium on, 7134*a*.
zinc sulfate effect on action of, compared with that of vitamin $B_1$ and other substances, 3903*a*
—, **acetyl-β-methyl-***, chloride, bronchospasm from aerosol contg., protective action of diphenylhydramine and aminophylline in, 1861*f*.
chloride, effect on convulsant response to drugs, 9260*i*.
chloride, effect on heart, 8058*g*
effect on adrenaline toxicity, 311*b*
effect on heart arrested by paludrine, 2704*b*.
spasms in intestines from, effect of antihistamines and other substances on, 3934*e*.
—, **benzoyl-**. See "benzoate" under *Choline*.
—, **carbamyl-**, chloride—see "chloride carbamate" under *Choline*.
—, **diethyl-***, effect on growth, liver fat and kidney degeneration, 1470*g*.
—, **α-glycerylphosphoryl-†**, D- DL- and L-, and compds. with $CdCl_2$, 6166*e*.
—, **propionyl-***, hydrolysis by acetylcholine esterase, 9124*h*.
—, **triethyl-***, chloride, effect on heart, 8058*g*.
effect on lipide phosphorylation, 6291*d*.
lipotropic activity of, 3104*a*.
—, **triethylacetyl-***, iodide, effect on heart, 8058*g*.
**Choline acetylase**, effect on axonal conduction and synaptic transmission, 9261*h*.
**Choline oxidase**, in liver of rats and guinea pigs, fatty liver and, 3075*a*.
**Cholinesterase**. (See also *Anticholinesterase*.) P 7069*b*.
acylation reactions mediated by, 9121*h*.
in blood and brain during recovery from diisopropyl fluorophosphate poisoning, 6743*i*.
in blood and cerebrospinal fluid in psychiatric cases, 4761*b*.
in blood and cerebrospinal fluid of healthy children, 738*d*.
in blood, arterial pressure and, 4760*i*.
in diseases, 4360*g*, 5857*e*.
on high Mountains, 3504*d*
of homothermic and poikilothermic animals, temp. and, 3528*h*.
in liver disease, 7126*a*, 7570*e*.
properties of, 6679*d*.
after trauma, 209*e*.
in blood plasma and tissue, 1818*i*
in blood serum, brain and muscle in normal and adrenalectomized rats, 7102*i*
in blood serum, in anaphylactic shock, 4761*b*.
arterial pressure and, 1071*e*
blood sugar and, 2311*i*
in $CCl_4$ poisoning, 5116*a*.
in collapse after bleeding and in traumatic shock, 8042*i*
effect of hyperthyroidism and thujone oil on, 9244*i*.
effect of pituitrin on, 1488*c*.
in hyperthyroidism, 6722*i*.
insulin hypoglucemia and, 3529*d*
in kala-azar, 3923*b*.
in normal and paralytic limbs, 2311*i*
in pathological conditions, 3092*k*
in relation to aging and preservation, 5435*g*.
in skin diseases, 4362*a*.
structure of, 6678*a*.
in toxemia of pregnancy, 5922*g*
in blood serum in labor and child bed in relation to acetylcholine content and effect of histamine, pituitrin and follicullin thereon, 9201*d*.
in brain, 297*d*, 2692*f*.
effect of antipyrine on, 7117*b*
effect of Mg on, 7588*d*
of elephant, 5064*g*
after isopropyl fluophosphate administration, elec. changes and, 412*i*
of normal and febrile rabbit, 2692*a*
in relation to elec. pattern produced by isopropyl fluophosphate, 92*i*
in brain, erythrocytes and myocardium, effect of cardiotonic glycosides on, 4380*f*.
cardiac drugs and, 7131*g*
in carotid sinus and *aortic compound*, 5842*a*.
in cerebrospinal fluid and its characterization, 8520*a*.
in cerebrospinal fluid in craniocerebral trauma and epilepsy, 8519*fh*
cholinergic symptoms and sensitivity to acetylcholine in relation to, 4305*b*
DDT effects on, of insects and animals, 5495*a*.
detection in tissue, 5437*i*.
detn. in blood, 6272*bd*, 8426*h*, 9108*h*
detn. in nervous system, 712*h*
differentiation from fatty acid esterases, 7984*c*.
distinction between acetylcholine esterase and other choline ester-splitting enzymes, 9111*d*
e-, action on noncholin esters, 9122*h*
effect of drugs on, 4379*a*
effect of neostigmine in blood plasma of dogs and myasthenia on, 6733*f*
effect of venom of Mexican scorpion on, 1868*e*.
effect on axonal conduction and synaptic transmission, 9261*h*.
erythrocyte age and, 7990*d*.
erythrocyte, specificity of, 5062*e*.
folic acid effect on, 3497*a*.
in heart, 2686*i*.
-inhibiting activity of org. P compds., 1109*g*.
inhibition of, by adrenaline, 257*b*.
by caffeine, 4380*c*.
by Et tetraphosphate, Et pyrophosphate, physostigmine, neostigmine and isopropyl fluophosphate, 3930*g*.
kinetics of, 7528*e*.
by methadon, 1108*e*.
by physostigmine, reversibility 3865*a*.

*inhibition of*, relation to function in neuroeffector system, 5866*d*.
tubocurarine antagonism and, 5504*h*.
**inhibitors, 5866*g*.**
effect on brain dehydrogenases, 7066*e*.
effect on ileum in relation to its survival time, 761*i*.
effect on respiration and elec. activity of brain, 7147*f*.
effect on synaptic transmission in crayfish, 5123*g*.
ions and, 3855*b*.
in iris, effect of tetanus toxin on, 4764*e*.
local anesthetic effect on, 762*e*.
in myosin, 2246*c*.
narcotics and, 7142*d*.
of nerve, effect of diisopropyl fluophosphate on, 9259*e*.
in nerve tissue, 5842*f*.
in nervous physio-pathology, 2311*d*.
in organs of selachian and teleost, 6324*h*.
physostigmine effect on, effect of thiamine on, 4767*h*.
properties of, 7989*f*.
in retina, 1473*e*.
selective inhibition of, 9103*a*.
sepn. into subfractions of blood plasma, 5433*d*.
in snake venoms, 261*f*, 4718*ab*.
specificity and differentiation of, 3857*h*.
streptomycin effect on, 6676*b*
substrate concn. and specificity of, 9120*e*.
tetraethyl pyrophosphate effect on, 8556*b*.
in tissue of different animals, 6298*a*.
vitamin inhibitors of, 2258*f*.
**Cholla gum**, hydrolyzate of, chromatography of sugars in, 1290*d*.
**Chondocurarine chloride***, P 1914*g*.
**Chondocurarine iodide***, P 1914*g*
**Chondocurine**, P 1914*g*.
*d*, dihydrochloride, 2626*b*.
dimethochloride, 3938*g*
**Chondrilla**, *nucula*, sterols from, 4271*d*
**Chondrillastanol**, identity with poriferastanol, 4271*h*.
**Chondrillastenyl acetate***, α, 4271*g*
**Chondrillasterol**, identity with Δ⁵·⁷·²²-poriferastadien-3-ol, and esters, 4271*d*.
**Chondriomes, Chondriosomes** See *Mitochondria*.
**Chondrite**. See *Meteorites*
**Chondrocurine**. See *Chondocurine*.
**Chondrodendron**, *tomentosum*, alkaloids from, 2626*b*.
**Chondroitinsulfuric acid**, 148*c*
in cartilage biology, 3910*g*, 7118*c*
in cartilage in osteoarthritis, 6727*i*.
combination with protein, 5104*e*.
detection of, 5704*a*
fibrinolysin release in blood serum by, 7125*h*.
heparinsulfuric acid and, 2247*a*
prepn. of, 3483*h*, 3484*b*.
review on, 6678*e*.
sulfate S utilization in synthesis of, 6713*i*.
**Chondrosamine**, in blood-group substances, 3479*g*.
**Chondrosin**, structure of, and derivs., 5008*di*, 5009*c*.
——, ***N*-acetyl-***, and derivs., 5009*i*.
**Chondrosinic acid***, salts, 5009*i*.
——, ***N*-acetyl-***, salts, 5009*i*.
**Chondrosinite**, compd. with cinchonidine, 5009*c*.
——, ***N*-acetyl-***, compd. with cinchonidine, 5009*c*.
**Chondrus**, *canaliculatus*, polysaccharides in, 4728*i*.
*crispus*—see *Carrageen*.
ext. and mucilage, monograph for, 8103*b*.
**Chophytol***, effect on cholesterol soln. in bile, 9210*d*.
**Chorazy, Michal**, obituary, 8760*i*.
**Chorio-allantoic membrane**, formation of, 8509*c*.
**Chorion**, penetration of, of *Rhodnius prolixus*, 5527*g*.
**Chortophila**. See *Hylemya*.
**Christiansen filter effect**, in slurries of org. crystals, 1657*d*.
**Chromammines**. See *Chromium compounds*.
**Chroman** (*dihydrobenzopyran*),



**, keto-**. See *Chromanone*; *Hydrocoumarin*.
**, oxo-**. See *Chromanone*; *Hydrocoumarin*.
——, **2,2'-oxybis[2-methyl-**, 7001*h*.
——, **2-phenyl-**. See *Flavan*.
**2 - Chromancarboxylic acid, 5,7 - dihydroxy-4-oxo**, 4265*e*.
spectrum of, 6919*b*.
——, **5-hydroxy-4-oxo-**, and esters, 4265*d*.
spectra of, and Et ester, 6919*b*.
——, **4-oxo-**, ethyl ester, spectrum of, 6919*b*.
**3-Chromancarboxylic acid, 5,6,7,8-tetrahydro - 4 - (*p* - methoxyphenyl) - 2-oxo-**, ethyl ester, 3418*g*.
——, **5,6,7,8 - tetrahydro - 2 - oxo - 4-phenyl-**, ethyl ester, 3418*d*.
**2,3-Chromandione, 6-hydroxy-**†, 6598*f*.
**6 - Chromanol, 5,7 - diethyl - 2 - methyl-2 - (4,8,12 - trimethyltridecyl)-**, P 821*i*.
——, **2,8 - dimethyl - 5,7 - bis(methylmercapto) - 2 - (4,8,12 - trimethyltridecyl)-(?)**, acetate, 2620*i*
— —, **2,5(or 2,7)-dimethyl-7(or 5)-methylmercapto-2-(4,8,12-trimethyltridecyl)-(?)**, acetate, 2620*g*.
——, **2,5(or 2,8)-dimethyl-8(or 5)-methylmercapto-2-(4,8,12-trimethyltridecyl)-(?)**, acetate, 2620*g*.
— —, **2,7(or 2,8)-dimethyl-8(or 7)-methylmercapto-2-(4,8,12-trimethyltridecyl)-(?)**, acetate, 2620*g*.
——, **2,5 - dimethyl - 2 - (4,8,12 - trimethyltridecyl)-(?)**, 2620*g*.
——, **2,8 - dimethyl - 2 - (4,8,12 - trimethyltridecyl)-(?)**, and *p*-phenylazobenzoate, 2620*g*.
——, **8 - ethyl - 2,5,7 - trimethyl - 2-(4,8,12 - trimethyltridecyl)-**, P 822*a*.
——, **2 - methyl - 2 - (4,8,12 - trimethyltridecyl)-**. See *Tocol*.
—, **2,2,5,7,8-pentamethyl-**, P 693*d*
——, **2,5,7,8 - tetramethyl - 2 - (4,8,12-trimethyltridecyl)-**. See *α-Tocopherol*.
——, **2,5,7 - trimethyl - 2 - (4,8,12 - trimethyltridecyl)-**, phosphate, P 3152*i*.
—, **2,5,8 - trimethyl - 2 - (4,8,12 - trimethyltridecyl)-**. See *β-Tocopherol*.
——, **2,7,8 - trimethyl - 2 - (4,8,12 - trimethyltridecyl)-**. See *γ-Tocopherol*.
**Chromanone**, **5**(and **7**)**-hydroxy-**, polymeric, 4009*n*.
**2-Chromanone**. See *Hydrocoumarin*
**3-Chromanone, 4-acetyl-8-methoxy-**, 1771*a*.
——, **7-methoxy-**, and 2,4-dinitrophenylhydrazone, 1770*i*.
——, **8-methoxy-**, and 2,4-dinitrophenylhydrazone, 1771*a*.
**4-Chromanone** (*2,3-dihydrochromone*).
——, **3-acetyl-6,7-dimethoxy-**, 7461*i*
——, **7,8 - dihydroxy - 2,2 - dimethyl-**, 1771*e*.
——, **7,8 - dimethoxy - 2,2 - dimethyl-**, 1771*e*.
——, **7-hydroxy-2-methyl-**, and 2,4-dinitrophenylhydrazone, 1771*c*.
——, **7-methoxy-2-methyl-**, and derivs., 1771*d*.
——, **2-phenyl-**. See *Flavanone*.
**Chromansil**. See *Steel*.
**Chromate 658**, as fungicide, 7177*i*.
**Chromates**. (See also *Alkali metal chromates*; *Pigments*.)
complexes, as fungicides, 7177*i*.
as corrosion inhibitors, 1706*g*, 3337*e*, 6139*h*, 8340*e*.
as corrosion inhibitors for light metals, 4622*c*.
detection of, 4599*d*, 8299*h*.
detn. of, 8972*a*.
in electroplating baths, 961*g*
in plant tissue, 2677*i*.
dichromate detn. in satd solns of, 1686*c*.
effect on cathodic polarization, 8285*c*.
on Fe reaction with chlorides and perchlorates, 9005*a*.
on O production by illuminated chloroplasts, 8009*d*.
on setting time of Ca tartrate gels, 6889*b*.
exchange on Amberlite IRA-400, 6489*f*.
explosive delay powders from metals and, P 408*e*.
hazards (industrial) of, 3947*i*.
of nicotine, P 8605*b*.
polarographic hydrolysis current of ion of, 5076*c*.
printing pastes from chromable dyes and, P 2443*b*.
solvolysis in abs. $HNO_3$, 6495*h*.
waste waters contg., treatment of, 6344*g*.
water pollution by alkali, 5519*f*.
**Chromaticity**, of colors—see *Color(s)*.
**Chromatin**, of bacteria, 3488*g*.
detn. in yeasts, 3065*b*.
optical polarization measurements in, effect of temp. on, 261*b*.
**Chromatium**, nitrogen fixation by, 9155*d*, pigmentation by, 276*f*.
**Chromatography**, acid (org.) qual. analysis by two-dimensional paper partition, 5095*i*.
of acids (org.), one- and two-dimensional paper partition, 6946*h*.
of adenine and guanine, 4722*d*.
of alc. epimers, 2894*f*.
of alcs., 67*h*.
of aldehydes, 2067*g*.
of aldehydes and ketones of tars, 5341*d*.
of alkaloids, 9379*g*.
alumina for, 1535*b*.
aluminum hydroxide for, 5328*a*.
of amines, 2263*b*, 4315*h*, 6113*a*.
amino acid (*N*-substituted) paper, 6269*b*.
of amino acids, 3746*c*.
with applied voltage, 137*i*.
furan derivs. in paper, 8299*a*.
of homologous series, 7996*a*.
ninhydrin-collidine or BuOH-AcOH in two-dimensional paper, 7377*d*.
by ninhydrin photometric method, 2267*c*.
ninhydrin soln. in BuOH in paper, 5440*f*.
in plants, 3764*e*.
in protein hydrolyzates, 5341*h*.
quant. filter-paper, 3057*c*, 3875*f*.
in saliva, 1076*b*.
on starch column, 2266*g*, 5818*c*.
in tissue, 6685*b*, 8427*c*.
in urine in liver disease, 4364*c*.
using capillary ascent, 138*e*, 8777*j*.
of amino acids and org. bases, 8806*h*.
of amino acids and other ninhydrin-reacting substances in plasma, 8429*c*.
of amino acids and peptides, 238*a*, 2659*e*, 2663*f*, 4314*a*.
amino acid (S-contg.) detection and detn. by paper, 2665*i*.
ammonia and methylamine sepn. by, 121*i*.
of anions (inorg.) with $NH_4OH$-satd. BuOH, 6883*b*.
of anthocyanidins, 9359*i*
of antimony, 61*e*.
app. for, for sep. eluates from selected zones, P 6013*c*.
app. for paper partition, 8747*e*.
app. for, with horizontal flow of solns., 2048*f*.
ascending paper, on large paper sheets, 8806*f*.
automatic paper, 8776*i*
of bituminous materials from oil wells, 7676*a*.
of blood serum (normal and *Brucella*-immune), 9228*c*.
book: of Sugars and Related Substances, 2215*f*.
buffer action of $Al_2O_3$ in inorg., 8234*d*, 8293*i*.
calcium hydroxide mixt. with Celite in, 2068*a*.
of carbonyl compds. in apricot concentrates, 1120*i*.
of carotene isomers, 6881*g*.
of catechols, 3394*a*.
cation sepn. and identification by paper, 5702*b*.
of cations, with $Al_2O_3$ column, 8945*h*.
on cellulose, 4595*g*.
with cupferron, β-naphthoquinoline and 8-quinolinol, 8973*b*.
exchange by soil minerals in, 3540*h*.
paper, 2888*f*.
on ZnS, 7859*d*.
with Celite-silicic acid adsorbents, 8945*i*.
chloride-group-anion sepn. by paper, 8972*h*.
of cobalt sulfate, $CuSO_4$ and $Fe_2(SO_4)_3$ on $Al(OH)_3$, 2070*h*.
of colorless compds., fluorescent acylating agents for, 7936*f*.
of colorless compds., fluorescent silica gel in, 1711*d*.
continuous developing technique in descending paper, 8298*i*.
of creatine and creatinine, 2268*g*.
of creatine, creatinine and related compds. in urine, 1451*f*.
of 2,4-dinitrophenylhydrazones, 1289*i*.
in diphtheria-toxin production, 4325*f*.
of di-, tri- and tetramethylfructoses, 6947*d*.

of dyes used in foods, 777*c*.
elec.-streaming potential in paper, 6040*b*.
of ergothioneine, 5441*b*.
in explosives lab., 5593*d*.
fatty-acid ($C_{11}$-$C_{19}$ satd.) partition, 69*e*.
of fatty acids from acid fats and oils, 4029*g*.
of fatty acids in linseed oil, 4496*c*.
of flavonoid pigments, 6285*a*.
fraction-collecting app. for, 8755*i*.
frontal adsorption in quant., of org. substances, 5325*d*.
of fumaric acid, 9127*f*.
of gasolines (cracked) and petroleum products for hydrocarbon groups, 3998*e*.
glycine reagent for paper, 4078*a*.
of glycosidoaminopyrimidine derivs., 145*b*, 146*c*.
of growth substances, 8447*g*.
in γ-hexachlorocyclohexane detn., 9330*i*.
of hexachlorocyclohexane isomers, 8978*e*.
of high-mol. substances, 4066*g*, 6037*h*.
of hydrocarbon mixts., transport factors and developer in elution methods of adsorptive percolation in, 7868*d*.
of hydrocarbon oils from fatty oil mixts., 9489*d*.
of hydrocarbon oils with $Al_2O_3$, 6399*a*.
improving sharpness and regularity in, 3264*f*.
iodine in development in paper, 5336*e*.
of iodine in thyroid gland, 8417*i*.
ion-exchange, 465*a*, 8971*f*.
ionic hydration and, 8295*b*.
of isolinoleic acid and Me isolinoleate in linseed oil, 8707*c*.
in lanthanum sepn. from mesothorium 2, 8792*g*.
of lignin, 5590*a*.
liver-ext. paper partition, 710*d*.
of lubricating oils, 5932*e*, 6400*h*.
of lysine, 9126*f*.
of *N*-methyl amino acids, 3788*g*.
of methyl arachidonate, 2260*e*.
of methylated sugars, 1331*f*.
microquant. inorg. paper, 7859*g*.
microquant., of inorg. compds, separatory power of solvents in, 6537*b*.
micro-, with adsorbent fixed on rigid surface, 2114*i*.
in molybdic acid sepn. from perrhenic acid, 8794*b*.
of natural compds, 8234*e*.
of nitrophenolic compds. in felt, 1194*b*.
noble-metal paper, 3743*c*.
of nucleic acid derivs., 4723*c*.
of nucleotides, 7075*b*.
of oils, 4874*h*.
of oxo acids on filter paper, 5342*g*.
paper partition, 6489*i*.
area of spots and log of concn. in quant., 5695*h*.
deposition and concn. of dil. solns. in, 4183*a*.
effect of partition of substances between aq. and nonaq. phases in quant., 8298*h*.
partition, in analytical chemistry, 8978*g*.
of penicillin, 2737*b*, 4322*e*.
of peptides from albumin hydrolysis, 2651*a*.
of perilla oil, fluorescent, 4031*i*.
of petrolatum in propellant explosives, 1979*i*.
of petroleum products for aromatic compds., 3179*c*.
of petroleums of Germany, 5175*c*.
of pharmaceuticals, 8094*f*.
phenol purification for use in, 5758*d*.
of *p*-phenylazobenzoates of natural estrogens, 5787*e*.
in phosphorescence chemistry, 1659*e*.
of platinum metals, 8304*d*.
potentiometric indication of substances in, 8911*c*.
under pressure, 8790*f*.
of propellant explosives, 8138*i*.
in protein chemistry, 1447*d*.
of pterins, 3529*h*.
of purine and pyrimidine derivs. with paper in ultraviolet light, 5704*c*.
of purines and pyrimidine, 7536*e*.
of pyrethrum flowers, 8602*f*.
quebracho-tannin-ext. paper, 3641*a*.
radioactive tracers in paper, 4951*c*.
radioactivity in, 8271*d*.
in resolution of 2,8-dimethyl-5,11(6*H*,12*H*) - methanodibenzo[*b*,*f*][1,5]diazocine, 9072*h*.
reviews on, 58*d*, 1025*b*, 1679*c*, 2113*f*, 2569*b*, 3307*g*, 5255*d*, 7775*b*, 7859*d*, 8293*h*.
of riboflavin decompn. products, 7073*f*.
of ribonucleosides on starch, 3794*i*.
salt effect on partition, 266*c*.
of salts of org. acids with Amberlite IR-100, 5703*c*.
scanning app. for paper partition, 4055*h*.
of sea-urchin-egg jelly coat, 4389*e*.
for semi-industrial application, 2840*a*.
of *Senecio* alkaloids, 9076*d*.
on starch, 4036*i*.
steric factor in, 7452*f*.
of steroids, 3872*f*.
of stillingia oil and its acids, 7721*b*.
streptomycin prepn. paper partition, 819*h*.
in sugar analysis and purification, 4033*h*.
of sugars and related substances, 425*h*.
of sugars and their methylated derivs., 2542*a*.
of sugars, from gum of *Sterculia setigera*, 4881*c*.
qual. paper, 9433*f*.
three-component systems in paper partition, 8312*a*.
two-dimensional paper partition, 1290*b*.
of synthol, 1169*e*.
systematic analysis by, 2542*a*.
of tall oil, 9442*d*.
of tar oils from fir stumps for polycyclic hydrocarbons, 3182*f*.
theories of, 6883*a*, 8945*h*.
of unsaponifiable matter of marine-animal oils, 3635*a*.
of unsaponifiable substance of olive and teaseed oils, 1582*g*.
of urine reducing substances, 8426*h*.
of vitamin A, oxidative, 158*b*.
zone movement in, temp. and, 2067*h*.

**Chromatophores**, in frog skin, effect of trimethylamine on, 738*g*.
hormone affecting—see "hormones of posterior lobe of, melanophore," under *Pituitary gland*.

**Chrome alum**. See *Alums*.
**Chrome bricks**. See *Bricks*.
**Chrome dyes**. See *Dyes*.
**Chrome green**. See *Pigments*.
**Chrome iron**. See *Iron alloys*.
**Chrome liquors**. See *Tanning materials*.
**Chrome orange**. See *Pigments*.
**Chrome tanning**. See *Tanning*.
**Chrome yellow**. See *Lead chromate; Pigments*.

**Chromic acid**. (See also "$CrO_3$" under *Chromium oxides*.)
corrosion of Cu-Au and Au-Ag alloys in solns. of, 7879*e*.
in corrosion prevention, 9015*e*.
effect on latent image formed by charged particles, 2527*b*.
effect on Zn coatings, 546*c*.
formation of, and oxidation of fatty materials with, P 884*a*.
free energy of ionization of, 2075*b*.
glycoside degradation with, 243*d*.
hydrobromic acid oxidation by, in presence of $MnSO_4$, kinetics of, 1634*e*.
isopropyl alc. oxidation with, kinetics of, 2847*g*.
manuf. of, P 2880*h*, P 6794*e*.
oxidation with, of aliphatic alcs., 2925*i*.
of 2-alkyl-3-hydroxy-1,4-naphthoquinones, 1386*i*.
of 2-deuterio-2-propanol, kinetics of, 3272*h*.
of diisobutylene, 1310*f*.
mechanism of, 2193*i*, 7418*h*.
waste waters contg., treatment of, 6344*g*.

**Chromicyanides**. See *Cyanochromates(III)*.

**Chromite** (*the mineral*), of Alaska, 74*c*, 2130*e*.
of Alaska and its dressing, 4608*d*.
analysis of, 7866*h*, 7867*a*.
beneficiation of Brazilian, 2907*a*.
beneficiation of Indian, 1695*d*.
of Brazil (Itaú, Minas Gerais), 2132*fg*.
British *vs.* Indian, 6552*e*.
of California, 74*d*, 2901*fg*, 3750*b*, 6951*e*.
of Egypt, 1692*d*, 8316*a*.
flotation of, P 4998*d*.
of Montana, 2132*de*.
of Oregon, 4984*i*.
of Quebec (Mt. Albert), 4606*h*.
of Rumania, 6125*c*.
of Wyoming, 8990*d*.

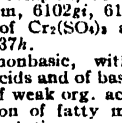
**Chromites**, catalyst contg., in conversion of hydrocarbons from hydrogenation of CO, P 4448*a*.
catalyst from calcium, Cu and, in hydrogenation of coal, 2404*d*.
in ceramics, 2388*c*.
formation of, 6531*f*.
reaction of $C_2H_2$ with HF in the presence of, P 660*h*.

**Chromium**, adsorption of Cl and O by powd., 6139*g*.
albumin films on, 2842*b*.
Alexandrite color and, 6028*g*.
allotropy of, 3260*i*.
alumina wetting with, 4438*c*.
book: Electro-plating and Anodising, 956*d*.
in brain, 6719*h*.
casein rayon aftertreatment with, effect on wet strength, 6421*h*.
as catalyst, in decompn. of $H_2O_2$, 5553*h*
in dehydrogenation of butylene, 4213*i*.
in H-atom recombination, 8251*d*.
in isomerization of β-hydromucononitrile, P 6647*f*.
catalysts contg., for dehydrogenation of hydrocarbons, P 3162*a*.
catalysts of $Al_2O_3$, Cu and, in dehydrogenation of 1,1-diaryl paraffins, P 2235*e*.
catalysts of Co, Cu and, in hydrogenation of mixts. contg. higher alcs., P 5032*e*
catalysts of Cu and, in hydrogenation of bis(alkenyl-2-alkoxyphenyl) carbonates, P 4299*b*.
catalysts of Cu or Mg and, for hydrocarbon oxidation, 927*e*.
catalysts of, heptane aromatization on, 6062*e*.
cleaning, penetration and corrosion loosening compn. for, P 6147*h*.
in coal, 1941*c*, 8630*e*.
coating with—see also *Chromizing*.
coating with, on Cu, Fe and steel alloy by thermal decompn., 8903*h*
on front-surface reflectors, P 3735*b*
on Fe and steel, P 7404*i*, P 7405*b*
on steel by thermite reaction, 3772*a*.
on steel pipes, 2916*e*.
combination with collagen, 6258*h*.
corrosion of hard layers of, 9015*a*
crystallochem. electronegativity of ion of, 8231*b*.
deactivators for, P 3840*a*.
deuteron-bombarded, Mn from, 8266*h*
effect on Al-Mg-Zn alloys, 3333*h*.
on brittleness of steel, 1301*e*.
on cast Fe, 93*b*, 5366*a*, 2559*b*.
on Cr-Ni steel, 4201*d*.
on color reaction of azo dyes with Mg ion, 597*h*.
on corrosion resistance of steel, 538*g*
on decompn. of oxalosuccinic acid, 1014*b*.
on detn. of Mn and Ni in steel, 4508*f*
on grain size of Al-Cu alloys, 8337*f*
on graphite form in cast Fe, 7395*a*
on Fe-Mn alloy for welding electrode, P 3344*c*.
on Fe-Mn and Fe-Mn-Ni alloys, 8338*g*.
on isothermal austenite transformation, 85*e*.
on luminescence of NaCl exposed to x-rays, 7816*a*.
on Mn cast steel, 4993*i*.
on metallic coating by vacuum evaporation, P 104*f*.
on *Mycobacterium smegmatis*, 5444*e*
on N absorption in elec.-arc welding, 9017*c*.
on oxidation of Ni, 4619*f*.
in photometric detn. of V, 8298*g*
on pptn. hardening of Be-Cu alloys, 7390*c*.
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on pyrometry of liquid steel, 7396*g*
on rehardening of martensitic alloy steel, 90*b*.
on stability of cast C-Mo steel, 537*h*
on steel, 534*g*, 7397*e*.
on steel transformations, 8332*a*.
on stress corrosion of Hy 43 and Igedur, 6961*f*.
on temper brittleness of steels, 9009*f*
electrodeposition of, effect of high-frequency currents on, 2872*h*.
electrodeposits (fissured) of, P 2878*h*.
electrodeposits (hard) of, 8902*i*.
electrodeposits (hard) of, improvement by heat-treatment, 8900*e*.
electrodeposits of, adhesion to steel, 2099*g*.
electrodeposits (thick) of, 4147*e*.
-electroplated bearings, 8902*h*.
-electroplated parts, judging quality of, 8901*f*.
-electroplated rolls for mills for smokeless powder manuf., P 2438*b*.
electroplate of hard, 8901*h*.
effect of heat-treatment on hardness and gases in, 9014*e*.

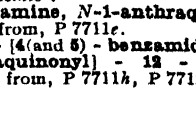
*electroplate of hard*, wear resistance of, 8902*h*.
electroplates of, corrosion resistance of, in red fuming $HNO_3$ and in acid mixts., 986*g*.
effect of rubbing on, 9009*c*.
effect on yeast-fermented doughs, 4781*h*.
in food industry, 2706*i*.
microfissures in, and their effect on fatigue strength of steel, 2099*c*.
from sulfate baths, gases in, 8901*i*.
wear-resisting properties of, 1662*h*.
electroplating with, 2098*g*, P 2878*h*, P 5317*e*.
on airplane propeller blades, P 4152*f*.
on Al and Al alloys, 7833*f*.
on automotive-die-cast trim, 6523*a*.
on ball bearings, rack for, P 2524*h*.
on busbar contacts, 7837*g*.
$Cr^{3+}$ detn. in, 4597*g*.
in combination with Au, 1268*g*.
current control in, 7352*g*.
from fluosilicic acid baths, 46*f*.
in industry, 950*d*.
on light alloys, 2872*c*.
on metal-stamping die, P 5318*g*.
on powd.-brass parts, 6924*h*.
removal of incrustation from Pb anodes from, P 2102*g*.
with reversed current, P 7839*a*.
$H_2SO_4$ detn. in baths for, 4583*d*.
wastes from, treatment of, 3125*g*.
on Zn-base die castings, 3727*b*.
electroplating with bright Ni and decorative, without reracking, 6923*e*.
electroplating with bright, temp. control and, 4583*a*.
electroplating with hard, anode for, P 3734*a*.
on plastic and rubber molds, 3727*a*.
with superimposed high-frequency current, 8904*g*.
electroplating with porous, on cylinders, piston rings, etc., P 8917*h*.
gamma-ray-bombarded, neutrons from, 4116*b*.
heat transfer by radiation to surface of, 4939*b*.
industry in 1946, 2127*a*.
isotope of mass 51, nuclear spectra of, 6913*b*.
isotope of mass 51, thermal exchange in solns. contg. complex ions with, 4967*b*.
isotopes of, natural abundance of, 1649*f*.
isotopic wt., packing fraction and binding energy of, 4129*h*.
luminescent materials contg., decay after cathode-ray excitation, 5670*c*.
molds from, effect on aging and tensile properties of rubber, 2023*h*.
neutron cross section of, 6909*d*.
oxidation of trivalent, in chromic acid plating baths, 8901*e*.
in petroleum, 2139*b*.
as phosphoglucomutase activator, 6259*a*.
phosphors contg., 3723*c*.
poisoning by, review on, 6759*h*.
polishing (electrolytic) of, 508*e*.
powd., P 2879*b*.
powd., manuf. by electrolysis, 5313*g*.
in precipitating org. substances from sulfite waste liquor, 7227*e*.
protactinium deposition on, 7791*g*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with $\alpha,\beta$-unsatd. carboxylic acids, 8202*g*.
reaction with gases, 29*f*, 6053*f*.
recovery of, by ion exchange, 3668*c*.
ion-exchange resins for, from tanning solns., P 2344*f*
from tanning liquors, P 5238*e*.
from tanning wastes, P 4884*b*, P 8186*c*.
removal from Al scrap, 6552*f*.
removal from leather—see *Leather*.
removal of, from metal-plating wastes by ion-exchange materials, 4797*b*.
in sedimentary rocks of Germany, 8995*g*.
in soils of France, 3955*h*.
solid solns. in Fe, 1300*h*.
soly. in Al alloys, 7886*i*.
soly. in Hg, 7880*f*.
soln. in acids, 506*g*.
spectrum of, 7858*h*.
in star AF Pavonis, 7335*e*.
in star $\rho$ Cassiopeiae, 1262*g*.
in star $\gamma$-Equulei, 1263*g*.
in star HD 45910, 2509*d*.
in star Nova Cygni 1948, 39*d*.
in stars $\alpha$ Canis Minoris and $\alpha$ Persei, 5901*f*.
in stars of class A, 8882*a*.
in stars of late type, 6916*b*.
steel alloying with, compn. for, P 9020*i*
steel coated with, brazing, soldering and welding of, 6561*d*.
steel contg. B and, effect of N on hardenability and notch toughness of, 8332*e*.
in steel deoxidation, 7397*a*.
in steel manuf., oxidation and reduction reactions of, 1295*b*.
in steel refining, relation to C, 947*i*, 2560*f*.
structural units of, 1234*e*.
in sulfur removal from synthesis gas, P 7214*d*.
in sun, 39*a*.
surface tension of, 8255*e*.
surface-treatment effect on, 7391*h*.
system: Al–Mg–Zn–, 91*e*.
system: Fe–, 4074*d*.
system: Ni–Ta–, 3332*d*.
systems: C–Fe–Mo–, and C–Fe–W–, 2914*a*, 6958*b*.
systems: Cu–P–, Fe–P–, Mn–P–, and Ni–P–, 5719*a*.
system: Sn–, 6136*h*.
target, *d* value of, 4567*d*.
uniting of, with B carbide, 9402*b*.
from uranium by $\alpha$-ray action, 489*a*.
in wastes from metalworking plant, treatment of, 8587*f*.
waste waters contg., effect on sewage treatment, 8586*e*.
in water (drinking), and its effect on humans, 8583*d*.
**Chromium, analysis**, detection, 7860*e*, 8299*h*, 8972*d*, P 8980*g*.
detection and detn., 7858*h*.
detection in alloys, 7866*b*.
in Al alloys, 2120*g*.
in complexes with plant materials, 3071*b*.
in steel, 8965*de*.
detn., 959*h*, 1286*c*, 1672*a*, 1681*d*, 2543*c*, 6106*f*, 7367*g*, 7376*i*, 8298*e*, 8304*c*, 8953*a*.
detn. in alloys and metals, 519*e*.
in $Al_2O_3$, 2541*f*.
in Al alloys, 5330*c*.
in Berlin blue, 8697*b*.
in Be and Be compds., 8949*f*.
in Be-Cu alloys, 8965*f*.
in chromated $ZnCl_2$ solns., 2731*a*.
in chrome tanning materials, 6851*d*.
in chromites, 7866*i*, 7867*b*.
in cracking catalysts, 8655*i*.
in electroplating baths, 961*g*, 4148*f*.
in ferrous metals, 4176*f*.
in inclusions in steel, 6110*h*, 6111*d*.
in Fe, 966*b*, 2117*g*.
in Fe and steel, 1682*f*.
in Fe-Cr alloys, 965*bc*.
in Fe ores and assocd. rocks, 5710*b*.
in minerals and ores, solid reagents for, 6935*b*.
in paints and pigments, 1195*e*.
in plant tissue, 2677*i*.
in sediments from Tyrrhenian Sea, 4610*g*.
in steels, 501*c*, 970*g*, 1283*g*, 2546*ce*, 4176*i*, 4598*c*, 4600*h*, 5695*c*, 6110*d*, 6938*g*, 6941*a*, 8965*c*, 8972*b*.
in steels, effect of dimensions and mass of samples in spectral, 6541*a*.
in Vitallium, 4181*g*.
detn. of $Cr^{3+}$ in plating baths, 4597*g*.
sepn. from Ni, 7371*d*.
sepn. from S detd. as $BaSO_4$, 7374*gi*.
**Chromium, metallurgy of**, electrolytic recovery, 7834*f*.
from phosphates in elec. furnace, P 4964*g*.
reduction in stages, 1295*a*.
from wastes, P 8345*a*.
**Chromium acetates**, in acetic anhydride, behavior of, 2110*g*.
condensation with dicyandiamide and HCHO, dye-fixing agent by, 3620*h*.
**Cr(OAc)$_3$**, effect on catalyst in hydrogenation of CO, 2399*h*.
**Chromium alloys.** (See also *Discaloy; Elinvar; Hastelloy-C; Inconel; N155 alloy; Ni-chrome; Nimonic; Ni-resist; Refractaloy; Refractaloy 26; Silchrome; Stellite; Vitallium; Worthite*; "system" under *Chromium*; and "chromium" under *Steel*.)
aluminum-C-Fe-Mn-Si-Ti-, cold-rolled strip of, 4206*a*.
aluminum-, coating steel pipes with, 2916*e*.
aluminum-Co-Cu-Fe-Mn-Ni-Si-Ti-, P 7404*e*.
aluminum-Fe-, Fe-, Fe-Ni-, Fe-Si-, and Ni-, oxidation resistance of, 2150*a*.
aluminum-Fe-Mn-Mo-Si-Sn-Ti-V-, P 6563*g*.
aluminum-Fe-Mn-Si-W-, and Fe-Mn-Si-Ti-W-, magnetic, P 6966*g*.
aluminum-Mg-, P 5000*g*.
aluminum-Mg-Si-, corrosion of, under tension, 549*b*.
aluminum-Mg-Zn-, 91*e*, P 4626*d*.
aluminum-Ni-, prevention of corrosion of electrodes of, in salt baths, P 4153*g*.
aluminum-Ni-Ag-, P 8348*h*.
aluminum-Ni-, with or without Fe, elec. resistors of, P 2878*g*.
aluminum-W-, magnetic, P 5358*d*.
antimony-Mn-, magnetic interactions and magnetic susceptibility of, 4911*g*.
beryllium-B-Co-Ni-W-, P 5358*c*.
boron-, $Al_2O_3$ wetting by, 4438*c*.
ceramic-molded-bodies contg., P 5566*a*.
coating of, with black oxide glaze, P 8346*b*.
cobalt-Cb-Fe-Mn-Mo-Ni-W-, for gas-turbine rotor disks, 3331*c*.
cobalt-Cu-Fe-Mn-Ni-, age-hardenable, P 9020*g*.
cobalt-Cu-Mo-Ni-, heat- and stress-resistant, P 2922*c*.
cobalt-, corrosion resistance to body fluids, 1303*f*.
cobalt-Fe-, as mirror support, P 4441*e*.
cobalt-Fe-Mn-Mo-Ni-W-, for turbosupercharger buckets, P 3341*b*.
cobalt-Fe-Mo-Ni-Si-, as weld-rod material, P 3771*f*.
cobalt-Fe-Ni-W-, for hard-facing valves, P 9021*b*.
cobalt-W-, for turbines, 7392*c*.
copper-, and Cu-Ni-, elec. resistance of, effect of pressure and temp. on, 5679*b*.
copper-Fe-Mo-Su-, magnet from, P 5000*i*.
copper-Ni-Ag-, oxidation-resistant, P 6147*a*.
corrosion of, 6140*c*.
corrosion underground, 6141*b*.
elec. resistors of, insulation of, P 6098*f*.
iron-, and Fe-Ni-, color metallography of, 79*i*.
iron-, and Fe-Ni-, in ceramic industry, 2748*i*.
iron-, and Fe-Si-, low in C, 2553*h*.
iron-, anodic oxidation in NaOH, 8912*a*.
C detn. in, 1283*h*, 1285*d*.
Cr detn. in, 965*bc*.
$(Cr,Fe,Mn)_7C_3$ trigonal crystals in, 1686*a*.
elec. resistance and magnetic properties of, 6961*d*.
flux for welding of, P 3344*b*.
hardening and softening of, 4618*h*.
high-temp. strength and melting temp. of, 90*f*.
magnetic, P 6966*gh*.
magnetization of elastically distorted, 9013*b*.
manuf. in cupola, P 8347*f*.
occlusions in, 8331*f*.
from oxide ores, P 2152*d*.
purification of, P 6146*b*.
reactions in vacuum, 29*g*, 6053*f*.
soln. rate of, pH and, 1703*e*.
for turbine buckets and wheels, P 5729*f*.
with iron, etc., for gas turbines, P 556*b*.
iron-Mn-, P 7894*d*.
iron-Ni-, P 4626*f*, 7887*h*.
cast, heat-resistant, 8337*a*.
compn. and mech. properties of bars, rods and sections of, 5718*i*.
corrosion resistance at high temp. in controlled atm., 2918*b*.
creep-resistant, P 990*h*.
heat resistance of, 4206*c*, 8332*f*.
heat-resistant, P 4210*h*.
for heat-treating equipment, 2150*b*.
powd., P 2879*b*.
standards for wire of, 5719*a*.
iron-Ni-W-, resistant to Pb compds., P 2154*e*.
iron-Si-, compns. for manuf. of, P 5729*h*.
machining (hot-spot) of, 7393*h*.
manuf. of, briquets for, P 6145*e*.
melting of, elec. furnace for, 4581*f*.
molybdenum-, arc-melted, 8336*i*.
molybdenum-Ni-Si-, P 5000*i*.
nickel-, cladding with Cu, P 6564*i*.
corrosion in $H_2SO_4$ or HCl, 2151*c*.
effect of elements on oxidation of, 4619*f*.
for gas turbines, minor phases in, 540*g*.
oxidation of, 541*g*.
scale removal from, Ffeo-Virgo process for, 553*d*.

*nickel-*, thermal anomaly of, 4619*f*.
nickel-, or Fe-Ni-, coating of, with oxides, P 4153*e*.
nickel-Ta-, oxidation resistance of, 3332*d*.
nickel-W-, adhesion to molten glass, 9400*b*.
nickel-W-, by powder metallurgy, P 1710*a*.
oxidation resistance of high-melting, 3331*h*.
oxide films on, 985*h*.
powder metallurgy of refractory, P 6146*h*.
for sealing to glass, P 1274*f*.
titanium , 3766*a*.
wire from, for sealing to glass, P 8018*f*.
**Chromium aluminate**, $CrAlO_3$, as ceramic color, 9403*d*.
**Chromium amide**, $Cr(NH_2)_3$, decompn. by heat and transformation into hexammine salt, 6101*e*.
**Chromium ammonium sulfate**, 4172*i*.
**Chromium antimonide**, $CrSb_2$, bonds and interatomic distances in, 2052*d*.
**Chromium boride**, CrB, properties of, and sintered CrB, 3303*b*.
**Chromium bromide** ($CrBr_3$), 7851*i*.
magnetic absorption by, 4141*h*.
**Chromium bromide sulfate**, $CrSO_4Br$, 7852*e*.
**Chromium carbides**. (See also "hard" under *Alloys*.)
detn. in Cr-Ni steels, 965*d*.
identification of $Cr_7C_3$ and $Cr_{23}C_6$ in steels, 1685*i*.
$CrC_4$, detn. in steel, 6111*b*.
$Cr_7C_3$, in steel, 3764*b*.
**Chromium carbonate**, $Cr_2(CO_3)_3$, effect on catalyst in hydrogenation of CO, 2399*h*.
**Chromium chlorides**. (See also *Chromyl chloride*.)
basic, resin-exchange studies on complex, 6851*b*.
$CrCl_3$, as absorbent for O in gas analysis, 4599*gh*.
dehydration of hydrate with $COCl_2$ or $SOCl_2$, 2533*c*.
as reductor in Fe detn., 5698*d*.
$CrCl_4$, aging, constitution and turbidity during increasing basicity, 1591*b*.
effect of salts on complex formation and tanning action of, 6851*f*.
effect on bread doughs, 4781*g*.
interaction with silicic acid sols, 8237*d*.
volatility of, 4068*c*.
**Chromium compounds**, P 3983*i*.
acetato, $Cr(HCrO_4)(OAc)_2$, 7419*a*.
with aluminum, $Al_7Cr$, structure of, 7886*i*.
ammines, P 3158*a*.
ammino, contg. oxidizing groups, explosive properties of, 5187*e*.
ammino, formation of $Cr(NH_3)_6(NO_3)_3$ from $Cr(NH_2)_3$, 6101*e*.
analysis of, ion exchangers in, 7863*a*.
with antimony, As, N, O, P, Se, Si, S and Te, magnetic properties of, 6018*c*
basic, effect of complex-active acid radicals on constitution and complex formation by, 6851*e*.
as catalysts in oxidation of cyclic ethers, P 2224*e*.
complexes, 4969*i*, 4970*ac*.
Cr thermal exchange in solns. contg., 4967*c*.
conductometric study of formation of, 8939*d*.
formation of, with additives in Al sulfate and chrome alum tanning solns. and analysis with ion-exchanging resins, 9508*e*.
formation of, with formates and oxalates and analysis with ion-exchanging resins, 9507*g*.
with heterocyclic N bases, 2534*c*.
with heteropoly acids and amines, 1672*a*.
induced dissymmetry and optical activity of, 2538*f*.
with salts of α-hydroxy and weak org. acids, 8183*i*.
structure of, 6102*g*.
complexes from dibasic acids and their salts and, 6102*i*, 6103*a*.
corrosion-inhibiting, and their mixts., P 102*f*.
with dyes, (*Patents*.) 857*g*, P 1574*h*, 1987*h*, 2441*f*, 3626*d*, 4482*cdef*, 5598*b*, 5600*efg*, 7695*d*, 7698*ad*, 7699*a*, 8150*g*, 8155*fh*, 8691*abe*, 9459*e*, 9460*ef*, 9461*c*.
as fungicides for cotton fabric, 8085*f*.
with iron in Fe ores and assocd. rocks in Sweden, 5710*b*.
with iron in sediments from Tyrrhenian Sea, 4610*f*.
in leather, coördination reactions with Na salt anions, 9510*f*.
in leather from 1- and 2-bath tanning, 6450*ce*.
with nitrilotriacetic acid, 2888*c*.
org., as polymerization activators, 8727*g*.
with 1,1′-*m*-phenylenedibiguanide, 8941*d*.
polarography of complex, 4037*i*.
with 8-quinolinol, 8953*c*.
salicylate org. complex, for chroming dyes, P 6427*g*.
sexivalent, properties of, 8785*a*.
tanning with—see *Tanning; Tanning materials*.
as termite repellents, 9341*e*.
with tetrakisazo dyes, P 8161*g*.
**Chromium fluoride** ($CrF_3$), catalysis by, in esterification of fatty acids with glycerol, 4031*a*.
catalyst from, P 9300*f*.
as catalyst in $CF_4$ manuf. from C halides and HF, P 3437*a*.
as catalyst in dehydrofluorination of polyfluoro paraffins, P 3437*c*.
effect on catalyst in hydrogenation of CO, 2399*h*.
magnetic absorption by, 4141*h*.
magnetic susceptibility of, 4060*g*.
as wool preservative, 3622*i*.
**Chromium halides**, Curie point, pressure and, 8784*a*.
**Chromium hydrides**, crystal structures of, 3260*i*.
**Chromium hydroxide** ($Cr(OH)_3$). (See also *Chromium oxides*.)
colloidal, 8801*a*.
formation and temp. limits for weighing of, 8953*a*
formation from $CrCl_3$ soln., aging and constitution of α- and β-, 1591*c*.
ignition temp. of analytical ppt. of, 2543*c*.
**Chromium iron tungsten carbide**, $(Cr,Fe,W)_3C_2$, crystal structure of, 2914*b*, 6958*b*
**Chromium lithium sulfate**, 4172*i*.
**Chromium magnesium sulfate**, 4172*i*
**Chromium manganese sulfate**, 4172*i*.
**Chromium nitrates**, as catalyst for condensation of 2-furaldehyde with phenol, 5226*b*.
as catalyst in nitric acid oxidation of cellulose, 1978*i*.
$Cr(NO_3)_3$, effect on catalyst in hydrogenation of CO, 2399*h*.
effect on dil. nitric acid reaction with cellulose, 1973*b*.
in polymerization of vinyl aromatic compds. in mol.-wt. control, P 8743*a*.
**Chromium nitride**. (See also "hard" under *Alloys*.)
$Cr_2N$, formation from $Cr(NH_2)_3$, 6101*f*.
**Chromium ores**. (See also *Chromite*.)
of Alaska (northwestern), 8314*i*.
concn. of, 77*h*, P 5726*h*.
ferro-Cr production from oxide ores, P 2152*c*.
flotation of chromite, P 4998*d*.
iron removal from, P 103*f*, P 6143*d*.
in stainless steel production, P 1307*e*.
of Tanganyika Terr. (Njombe district), 5347*f*.
of Turkey, 1291*g*.
of world, 5708*e*.
**Chromium oxides**. (See also *Chromium hydroxide; Pigments*.)
catalysts contg., in dehydrogenation of $C_4H_{10}$, P 1175*a*.
in manuf. from low-grade fuel, P 4836*g*.
in S removal from coal and synthesis gas, 3169*i*.
as catalysts for Cl manuf. from HCl, P 1160*f*.
catalysts of $Al_2O_3$ and, in $C_6H_6$ and toluene manuf. from petroleum and its gases, 8661*c*.
in 1,3-butadiene manuf. from EtOH, P 5410*d*.
in dehydrogenation of 1,1-diaryl paraffins, P 2235*f*.
catalysts of $Al_2O_3$ or $SiO_2$, Ti or Zr and, in oxidation of high-mol. paraffins, P 1433*b*.
catalysts of Al and Mo oxides and, P 1930*f*.
catalysts of Ca Ni phosphate and, P 2382*i*.
catalysts of Cu and, 6062*i*.
catalysts of Cu oxide or sulfide and, in S removal from fuel gas, P 380*c*.
coating with, on Cr-alloy wire, P 8918*f*.
coating with, on Mg or Mg alloy, P 8734*e*.
colloidal, catalyst from, P 8161*d*.
detn. of $CrO_3$ and $Cr_2O_3$ in paints and pigments, 1195*e*.
effect on cellulose degradation by light, 8133*i*.
formation of $CrO_3$ from $Cr_2O_3$, 8296*f*.
glass surface treatment with, P 1934*i*
as indicators in silicate melts, 5322*g*.
systems: CaO-$Cr_2O_3$ and CaO-MgO-$Cr_2O_3$, and formation of 9CaO·$Cr_2O_3$·$Cr_2O_3$, 2110*a*.
**CrO**, 5322*b*.
**$Cr_2O_3$**, abrasive from $Al_2O_3$ and, P 1936*d*
in alkali removal from glass, 5163*e*.
as catalyst in combustion of black rocket gunpowder, 9449*f*.
in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
in dehydrogenation of butene, 1635*c*
in dehydrogenation of cyclohexane and decahydronaphthalene, 4551*d*
in dehydrogenation of cycloparaffins, kinetics of, 1732*a*.
in dehydrogenation of hydroaromatic compds., kinetics of, 1731*f*.
in dehydrogenation of indan, 6608*h*
in steam oxidation of ethers to aldehydes, P 8398*d*.
catalysts from, for dehydrogenation, P 7610*b*.
catalysts from, specificity of, 4087*d*
catalysts of $Al_2O_3$ and, 6897*e*.
in aromatization, P 3453*i*, P 7047*c*
in dehydrogenation of $C_2$-$C_5$ hydrocarbons, P 5030*e*.
in isomerization of unsatd. hydrocarbons, 6153*h*.
catalysts of $Al_2O_3$, CuO and, in dehydrogenation of 2-o-tolyl 2-butene, 5012*d*.
catalysts of BaO, CuO and, in alkylation of *p*-phenylenediamine with ketones, P 4005*e*.
catalysts of Co and, in hydrogenation of $C_6H_6$, PhMe and xylene, 6172*d*
catalysts of $Co(OH)_2$ and, in oxidation of *p*-$EtC_6H_4OAc$, P 3461*g*.
catalysts of Co oxide or $Fe_2O_3$, an alkali compd and, for dehydrogenation, P 5410*a*.
catalysts of CuO and, in hydrogenation of 2-furaldehyde, 1719*ad*.
catalyst of Cu, ZnO and, in MeOH synthesis, 3352*a*
catalysts of $Fe_2O_3$ and, in water-gas reaction, 1945*f*.
catalysts of MgO and, in oxidation of hydrocarbons, 6566*h*.
catalysts of Ni and, in hydrogenation of seal fat, 877*g*.
catalysts of NiO and, in hydrogenation of unsatd. aldehydes, 5363*g*
catalysts of $SiO_2$ and, in aromatization of gasolines, 3997*d*.
catalysts of $ZnAl_2O_4$ and, for aromatization and reforming, P 3188*f*.
catalysts of $ZnAl_2O_4$ and, in aromatization of naphthenes or paraffins, P 3605*f*
cement contg., 1935*g*.
as coloring principle in blue halloysites, 6122*a*.
effect on $Al_2O_3$ reaction with $BaSO_4$, 6894*i*.
effect on catalyst in hydrogenation of CO, 2399*h*.
elec. cond. of, 4533*i*, 7285*e*.
formation and temp. limits for weighing of, 8953*a*.
on Hastelloy, 1299*g*.
neutron cross section of, 4558*h*
reaction with 2 - (cycloalkylalkyl) - 1,4 naphthoquinones, 1-substituted cycloalkanols and 1-substituted cycloalkenes, 3365*g*.
reduction of, 4988*f*.
removal from glass vessels, 6876*c*.
system: CaO-MgO-, 9405*a*.
**$CrO_2$**, 7363*c*.
**$CrO_3$**—see also *Chromic acid*.
as catalyst in oxidation of oleic acid and its esters, 3611*g*.
catalysts contg., in hydrogenation of coal, 5171*b*.
catalysts of CuO and, in reduction of tartaric acid esters, 8355*d*.
catalysts of Zn spinel and, in reforming of cracked gasoline, P 389*g*.
elec. resistors from, P 8920*b*
in oxidation of alkyl side-chains in 3-alkyl 2-hydroxy - 1,4 - naphthoquinones, 5773*g*.
properties of, 8785*a*.
reaction with heterocyclic N bases, 2534*c*.
soly. in anhyd. $HNO_3$, 5265*a*.

soln. in $Ac_2O$, deflagration in oxidation with, 3199*c*.
vapor pressure of satd. soln. of, 8840*a*.
**Chromium oxychloride.** See *Chromyl chloride.*
**Chromium phosphate** ($CrPO_4$), formation and temp. for weighing of, 8953*b*.
ignition temp. of analytical ppt. of, 2543*c*.
**Chromium phosphide,** $Cr_2P$, systems: $Cu_3P$–, $Fe_3P$–, $Mn_3P$–, and $Ni_3P$–, 5719*b*.
**Chromium potassium sulfate,** 4172*i*.
**Chromium rubidium sulfate,** 4172*i*.
**Chromium salts.** (See also *Tanning; Tanning materials.*)
basic, aging and constitution of, 1591*a*.
magnetic resonance in, 4568*d*.
manuf. of, P 6794*e*.
in polymerization of vinyl aromatic compds. in mol.-wt. control, P 8742*i*.
removal from leather waste, P 4506*a*.
spectra of, 8883*c*.
titration (conductometric) of, app. for, 7270*i*.
**Chromium selenide,** $CrSe_2$, compd. with $KCrSe_2$, crystal structure of, 919*c*.
**Chromium sodium sulfate,** 4172*i*.
**Chromium steel.** See *Steel.*
**Chromium sulfates,** basic, resin-exchange studies on complex, 6851*b*.
complexes from, 6102*gi*, 6103*a*.
polarograms of $Cr_2(SO_4)_3$ and $CrOHSO_4$ solns., 4037*h*.
reaction of nonbasic, with salts of α-hydroxy acids and of basic sulfate with Na salts of weak org. acids, 8184*a*.
**$CrSO_4$,** oxidation of fatty materials with, and electrolytic regeneration of, P 884*a*.
**$Cr_2(SO_4)_3$,** aging, constitution and turbidity fate on rendering basic, 1591*i*.
compd. with nicotine sulfate, 8297*a*.
light transmittancy of, 5305*e*.
manuf. of, P 6794*e*.
**Chromium sulfides,** as catalyst in hydrogenation of nitro compds., P 682*a*
catalysts from copper oxide or sulfide and, in S removal from fuel gas, P 380*c*.
elec. conductivity of, 1621*c*
**Chromium sulfite,** $Cr_2(SO_3)_3$, magnetic absorption by, 4141*h*.
**Chromium telluride,** CrTe, elec. resistance in magnetic field, 7278*i*.
**Chromium vanadate (V),** $CrVO_4$, crystal structure of, 6033*b*.
**Chromizing,** of steel, 986*a*.
**Chromobacterium iodinum,** structure of pigment of, 3057*i*.
**Chromogenesis.** See *Color(s).*
**Chromogens,** with max. absorption at 545 mμ, and light-sensitive derivs., 157*i*.
**Chromone** (*1,4-benzopyrone, γ-benzopyrone*),

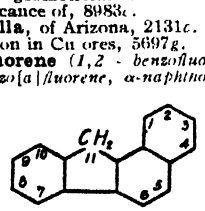


derivs., 9066*i*.
——, **3-acetyl-6,7-dimethoxy-,** and 2,4-dinitrophenylhydrazone, 7461*f*.
——, **3 - acetyl - 6,7 - dimethoxy - 2-methyl-,** and 2,4-dinitrophenylhydrazone, 7461*e*.
——, **2,3-dihydro-.** See *4-Chromanone.*
——, **5,7 - dihydroxy - 2,8 - dimethyl-,** and diacetate, 6622*b*.
——, **5,7-dihydroxy-2-methyl-,** and diacetate, 1775*h*.
——, **6,7-dimethoxy-,** 7461*d*.
——, **5,7 - dimethoxy - 2,6(and 2,8)-dimethyl-,** 6622*c*.
——, **6,7-dimethoxy-2-methyl-,** 7461*e*.
——, **6,7 - dimethoxy - 3 - (3,4 - methylenedioxystyryl)-,** 7461*e*.
——, **3 - hydroxy - 6,7 - dimethoxy - 2-methyl-,** and acetate, 7461*g*.
——, **5 - hydroxy - 7 - methoxy - 2,6-dimethyl-,** eugenitin and, and derivs., 6621*i*, 6622*c*.
——, **5 - hydroxy - 7 - methoxy - 2,8-dimethyl-,** isoeugenitin and, 6622*bc*.
——, **7-hydroxy-2-methyl-,** nitration of, 9067*a*.
——, **7 - hydroxy - 2 - methyl - 6,8 - dinitro-,** 9067*a*.
——, **7 - hydroxy - 2 - methyl - 8 - nitro-,** and acetate, 9067*a*.
——, **7-methoxy-2-methyl-,** nitration of, 9067*a*.
——, **7 - methoxy - 2 - methyl - 6,8-dinitro-,** 9067*a*.
——, **7 - methoxy - 2 - methyl - 8 - nitro-,** 9067*a*.
——, **6-methoxy-2-styryl-,** 2621*e*.
——, **2-(*m*-nitrostyryl)-,** 2621*e*.
——, **2-phenyl-.** See *Flavone.*
**Chromono(7',8',6,5) - α - pyrone.** See "lactone" under *1,4-Benzopyran-8-acrylic acid, 7-hydroxy-4-oxo-.*
**Chromophores** or **Chromophoric systems,** 1-alkenyl thiolacetates, 7418*b*.
of azines and dianils, 5756*a*.
direction in oriented silk fibroin and, 6422*c*.
interaction of several, in same mol., 8855*h*.
**Chromophyllins,** in photosynthesis, 6517*a*.
**Chromoplastin,** from tomatoes, 2286*b*.
**Chromoplasts,** carotene bodies and, 731*d*.
**Chromosmon.** See *Methylene blue.*
**Chromosomes,** aceuaphthene effect on, 9170*e*.
acriflavine action on, 5080*i*.
amino acid constituents of *Drosophila,* 7152*a*.
components (variable and const.) of, 7522*g*.
diploid and tetraploid, of yeasts, nicotinic acid in, 1147*e*.
effect of absorbed radio P on, 4732*g*.
effect of atomic bomb radiations on, 277*e*.
effect of radiations from radioisotopes on, 4732*i*.
fixative for root-tip, HCl as, 5450*h*.
fragmentation of, from hexachlorocyclohexane, 6702*g*.
heteroploidy of drug plants, 5547*i*.
in interphase nucleus, 4715*i*.
lampbrush, morphological and biochem. study of, 7150*a*.
mustard gas effect on, 2257*g*.
nitrogen mustards and, 7523*b*.
nucleic acids in, of normal and leukemic mouse spleen, 2306*e*.
nucleic acids of salivary gland, degree of orientation of, 9092*g*.
nucleoproteins of, accumulation of trypaflavine by, 7525*d*.
nutritional requirements of yeast in relation to, 6273*d*.
polyploid, in aspens from normal and x-rayed pollen and their effect on compn., 5831*d*.
in *Crepis capillaris,* from colchicine, 3889*d*.
effect on compn. of *Sinapis* seeds, 8459*a*.
effect on soybeans, 1079*b*.
from gammexane, 9170*f*.
from hexachlorocyclohexane, 6702*g*
in *Lilium longiflorum,* from colchicine, 4350*a*.
in medicinal plants, 4347*c*.
osmotic pressure of, 1834*d*.
in sugar beets, 3069*g*.
ribonucleoproteins of, enzymic degradation of, 4717*a*.
sensitivity to irradiation at different miotic stages in oöcytes of *Sciara,* 6325*b*.
sodium ribonucleate action on, 1841*c*.
structure of, 3050*e*.
tetraploid, of *Taraxacum kok-saghyz,* 1086*f*.
ultrasonic-wave effect on, 5094*h*.
Y-, nucleic acids in *Drosophila* eggs in relation to, 4387*g*.
**Chromosphere.** See *Sun.*
**Chromotropic acid.** See *2,7-Naphthalenedisulfonic acid, 4,5-dihydroxy-.*
**Chromyl chloride,** reaction with glycols, 7418*h*.
**Chronaxia,** in acid-base imbalance, antagonistic or synergistic effects of vitamins on, 288*c*.
alc. action and, 5499*i*.
in anaphylactic shock, 2696*g*.
effect of acids, vitamins and other substances on, 1092*g*.
effect of anaphylactic shock and histamine on, vitamins antagonizing, 3901*h*.
effect of $CaCO_3$ and NaCl on, 777*g*.
effect of cholesterol and Na oleate on, and effect of nicotinamide, pantothenic acid, methionine, etc., on, 1092*e*.
effect of histamine and its antagonists on, 7130*a*.
effect of nicotinic acid and nicotinamide on vestibular, 4351*i*.
muscle, effect of iboga and ibogaine on, 4772*e*.
in rachitic and scorbutic pigeon, 2290*h*.
vitamin B effect on vestibular, 4740*g*.
vitamin E effect on muscular, 1842*g*.
vitamin effect on, antagonism of, 284*b*.
in vitamin studies, 3496*d*.
**Chronometers,** registering electro-, for detection and detn. of ions, 959*i*.
**Chronometry.** See *Time.*
**Chrozophora,** oils of—see *Oils.*
**Chrysalis oil.** See *Oils.*
**Chrysanthemum.** (See also *Pyrethrum.*)
*cinerariaefolium,* pyrethrins in flowers of, 3148*f*.
*frutescens,* effect of C compds. on growth of crown gall tissue from, 4348*h*.
fungus control on, 7178*e*.
insecticidal-aerosol effect on, 1523*f*.
insecticides for, Se as, 2357*f*.
pest control on, with Se, 1141*f*.
pest control on, with $Na_2SeO_4$, 1142*a*.
**Chrysanthemum aphid.** See *Macrosiphoniella sanborni.*
**Chrysanthemumic acid.** See *Chrysanthemummonocarboxylic acid.*
**Chrysanthemum lace bug.** See *Corythucha marmorata.*
**Chrysanthemum midge,** control with $Na_2SeO_4$, 1142*a*.
**Chrysanthemummonocarboxylic acid** (*chrysanthemumic acid, 2,2-dimethyl-3-(2 - methylpropenyl)cyclopropanecarboxylic acid*), 3-(butenyl)-4-methyl-2-oxo-3-cyclopenten-1-yl esters, 1335*a*.
esters with 2-alkyl-4-hydroxy-3-methyl-2-cyclopenten-1-ones, 5752*a*.
and piperonyl ester, P 2732*h*.
——, **dihydro-.** See *Cyclopropanecarboxylic acid, 3-isobutyl-2,2-dimethyl-.*
**γ - Chrysanthemummonocarboxylolactone, hydro-δ-hydroxy-*,** 812*d*.
**Chrysanthemum thrips.** See *Thrips nigropilosus.*
**Chrysarobin,** 4814*c*.
effect on conjunctiva, 756*c*.
**Chrysazin** (*1,8 - dihydroxyanthraquinone*), 3401*b*.
glycosides of, 5019*g*.
spectrum of, 7341*h*.
in termite control, 6356*f*.
zinc lake, as termite repellent, 6856*f*.
——, **4,5-dinitro-,** reaction with amines, P 9468*c*.
——, **3 - (hydroxymethyl)-(*aloe emodin*),** incompatibilities with MgO, diuretin, etc., 817*c*.
polarography of, 2521*a*.
——, **4-methyl-,** 2984*h*.
——, **4-nitro-5-(2,2',2"-trihydroxy-*tert*-butylamino)-,** P 9468*c*.
**Chrysean.** See *2-Thiazolecarboxamide, 5-aminothio-.*
**6-Chrysenamine,** *N*-1-anthraquinonyl-†, dye from, P 7711*e*.
——, *N* - [4(and 5) - benzamido - 1 - anthraquinonyl] - 12 - bromo-†, dyes from, P 7711*h*, P 7712*a*.
**Chrysene,**



as cholesterol pyrolysis product, 7573*i*.
in coal tar, pitch and pitch distillates, 6809*d*.
derivs., P 5428*c*, P 7055*bcef*, 7926*e*.
from 3(β),17-dihydroxy-13-nor-D-homoandrostane, 7942*c*.
electron cloud distribution and reactivity of, 6905*i*.
metabolism of, 9207*h*.
reaction (attempted) with maleic anhydride, 2199*g*.
scintillation counting with, 4111*h*.
spectrum and structure of, 4589*g*.
spectrum of, 7818*f*.
synthesis of, and its derivs., 3402*e*.
**Chrysene, 6,12-dibromo-,** dye from, P 7711*h*.
——, **6,12-diethoxy-,** 3402*g*.
——, **11,12-dimethyl-,** reaction with $OsO_4$, 8375*a*.
——, **4b,5,6,10b,11,12-hexahydro-,** *cis-* and *trans-,* 3402*f*.
——, **4b,5,6,10b,11,12 - hexahydro-2,8-dimethoxy-,** 3402*h*.
——, **1-methoxy-,** 9207*h*.
**6,12 - Chrysenediamine,** *N* - (4 - benzamido - 1 - anthraquinonyl) - *N'*-(5 - benzamido - 1 - anthraquinonyl)-, dye from, P 7711*g*.
——, *N, N'* - bis(5 - acetamido - 1 - anthraquinonyl)-, dye from, P 7711*g*.
——, *N, N'* - bis(4 - benzamido - 1-anthraquinonyl)-, dye from, P 7711*f*.

——, *N,N'* - **bis(5 - benzamido - 8-methoxy - 1 - anthraquinonyl-)**, dye from, P 7711*f*.
——, *N,N'* - **bis(5 - cinnamoylamino-1-anthraquinonyl)-**, dye from, P 7711*h*.
——, *N,N'* - **di - 1 - anthraquinonyl-**, dye from, P 7711*d*.
**6,12-Chrysenediol**, and diacetate, 3402*f*.
——, **2,8-dimethoxy-**, diacetate, 3402*h*.
**Chrysenedione**, effect on polymerization of styrene, 8735*a*.
**6,12 - Chrysenedione,4b,5,10b,11 - tetrahydro - 2,8 - dimethoxy-**, 3402*h*.
**Chrysenequinone**. See *Chrysenedione*.
**α-Chrysenic acid**. See *Benzoic acid, o-2-naphthyl-*.
**1-Chrysenol**, in feces, 9207*i*.
**3(2 *H*) - Chrysenone, 1,11,12,12a - tetrahydro-**, and oxime, 6609*f*.
**Chrysin** (*5,7-dihydroxyflavone*), and derivs., 638*h*.
oxidation of, 636*i*.
——, **6-methoxy-**. See *Oroxylin*.
——, **3,4',8-trimethoxy-**, 227*a*.
**Chrysoberyl**. (See also *Alexandrite*.)
origin of, in quartz-sillimanite veins in Nigeria, 6117*i*.
system: corundum-, 2535*d*.
twins, geometrical and structural significance of, 8983*c*.
**Chrysocolla**, of Arizona, 2131*c*.
detection in Cu ores, 5697*g*.
**Chrysofluorene** (*1,2 - benzofluorene, 11 H-benzo[a]fluorene, α-naphthofluorene*),



**7-Chrysofluorenol**, 2059*g*.
**11 - Chrysofluorenone, 7 - methoxy-**, 2059*g*.
**Chrysoidine** (*4 - phenylazo - m - phenylenediamine*), effect on benzidine-peroxidase color, 7521*e*.
germicidal action of, effect of supersonic waves on, 1461*a*.
reaction with $NaHSO_3$, 2596*c*.
——, **4'-ethoxy-**. See *Serenium*.
——, **2'-methyl-†**, hydrochloride, P 6434*c*.
——, **4'-nitro-†**, color reaction with Mg, 597*d*.
——, **4'-sulfamyl-**. See *Prontosil*.
*allo*-**Chrysoketone**. See *7 H-Benzo[c]fluoren-7-one*.
**Chrysolite**. See *Olivine*.
**Chrysomela menthastri**, control of, 9344*f*.
**Chrysomphalus aonidum** and(or) **Florida red scale**, control of, 9349*e*.
control of, effect of DDT control of mosquitoes on, 7631*b*.
**Chrysophanic acid** (*1,8 - dihydroxy - 3-methyl anthraquinone, chrysophanol*), in rhubarb varieties, 9383*i*.
**Chrysophanol**. See *Chrysophanic acid*.
**Chrysophenine G**. See *Dyes*.
**Chrysoprase**, light transmittancy of, 5305*d*.
**Chrysotile**, of Alaska (Kobuk River deposits), 4190*d*, 8318*h*.
colloidal, electron microscopy of, 6040*g*.
decompn. by heat and compn. of, 4606*e*
of France (Upper-Maurienne) (*C. A.* has chrysolite by mistake), 8992*d*.
x-ray diffraction by, 38*c*.
**Chufa**. See *Cyperus esculentus*.
**Chyle**, lecithin in, during fat absorption, 9198*b*.
**Chyme**. See *Stomach contents*.
**Chymosin**. See *Rennin*.
**Chymotrypsin**, action on acetyl-L-tyrosinamide, effect of methanol on, 9112*i*.
action on adhesion of epithelium to stroma in cornea, 7690*b*.
on fertilization in *Pomatoceros triqueter*, 7768*h*.
on intercellular cohesion in corneal epithelium, 8514*e*.
on placental transplants, tumors and Jensen sarcoma, 7124*a*.
on sea-urchin egg, 7748*h*, 7755*e*.
α and γ-, sedimentation studies on, 7067*h*.
crystn. of, 2258*a*.
electrophoretic homogeneity and isoelec. point of, 2247*c*.
esterase and peptidase activities of, 5055*i*.
gelatin digestion by, effect of pH and buffer on vol. during, 6263*f*.
hydrolysis of tyrosylglycinamide derivs. and isomers by, 5056*g*.
inhibition by structural analogs of specific substrates, 7531*a*.
inhibitor in blood serum in health and disease, 6676*c*.
inhibitor in Lima beans, 8477*h*.
isopropyl fluorophosphate effect on, 6670*i*, 6680*a*.
in malignancy treatment, 6734*c*.
mercapto-compd. effect on, 2254*f*.
spectrum of, 5665*d*.
substrates for, structural requirements of, 7989*i*, 7990*a*.
**Chymotrypsin B**, electrophoresis and soly. of, 9118*a*.
**Chymotrypsinogen**, crystn. of, 2258*a*.
electrophoretic homogeneity and isoelec. point of, 2247*d*.
mercapto compd. effect on, 2254*f*.
sedimentation studies on, 7067*h*.
spectrum of, 5665*d*.
**Chymotrypsinogen B**, electrophoresis and soly. of, 9118*a*.
**Ciba 63**. See *Pyridine, 2-[benzyl(2-dimethylaminoethyl)amino]-*.
**Ciba dyes**. See *Dyes*.
**Cibanone Brilliant Pink**. See *Dyes*.
**Cibanone Orange R**. See *Dyes*.
**Cibanone Orange 6R**, photosensitization of oxidation and polymerization by, 4580*c*.
**Cibanone Yellow 2GR**, photosensitization of oxidation and polymerization by, 4580*c*.
**Cibanone Yellow R**, photosensitization of oxidation and polymerization by, 4580*c*.
**Cibazol**. See *Sulfathiazole*.
**Cicatrization**. See "healing of" under *Wounds*.
**Cicer arietinum**. See *Chick-pea*.
**Cicerin**, biol. value of, 4738*f*.
**Cichorium endivia**. See *Endive*.
**Cicoil**. See "oiticica" under *Oils*.
**Cicuta virosa**, poisoning by, 5499*c*.
**Cicutoxin**, identification of, 5537*a*.
poisoning by, 5499*c*.
**Cider**. (See also *Apple juice*.)
acidity of, detn. of, 3537*b*.
defecation for detn. of sugars, 3116*f*.
iron removal from, 5522*b*.
stability of, 2364*h*.
as wine addn., detn. of, 6778*h*.
**Cigaret beetle**. See *Lasioderma serricorne*.
**Cigaret papers**. See *Paper*.
**Cigarets**, chlorophyll-treated, P 3152*b*
smoke—see *Tobacco*.
**Cigars**, chlorophyll-treated, P 3152*b*.
smoke—see *Tobacco*.
**Ciliary body**. See *Eyes*.
**Cimex lectularius**. See *Bedbugs*.
**Cinchocaine**. See *Dibucaine*.
**Cinchomeronic acid** (*3,4-pyridinedicarboxylic acid*), manuf. of, P 697*e*, P 8402*e*.
——, **1 - benzyl - 1,6 - dihydro - 5-hydroxy-6-methyl-**, dimethyl ester, halogenation of, P 697*f*.
——, **1,6 - dihydro - 5 - hydroxy - 1,6-dimethyl-**, diethyl ester, halogenation of, P 697*g*.
**Cinchomerononitrile, 5-amino-2-chloro-6-methyl-**, 4673*h*.
——, **5-amino-6-methyl-**, 4673*i*.
——, **2-chloro-6-methyl-5-nitro-**, 4673*g*.
——, **1,2 - dihydro - 6 - methyl - 5-nitro-2-oxo-**, 4673*f*.
——, **1,2 - dihydro - 6 - methyl - 2 - oxo-**, P 3470*c*, 4670*h*, 4673*e*.
——, **2,6-dimethyl-**, 4670*h*.
**Cinchona**, alkaloid detn. in, ext. of, 4810*f*, 8094*i*.
alkaloid detn. in tinctures of, 8097*c*.
alkaloid isolation from, 3975*d*.
culture in French territories, 5543*h*.
growth, alkaloid content, etc., of, 3975*fg*.
identification of fluidexts. of, 1908*c*.
*ledgeriana*, distribution and interrelationship of alkaloids in bark of, 2284*a*.
pests, control on, 9340*e*.
production in Latin America in 1938–45, 361*g*.
**Cinchona alkaloids**, P 4431*b*.
addn. compds. with alkyl halides, splitting of, 5027*i*.
distribution and interrelationships of, in *Cinchona ledgeriana* bark, 2284*a*.
distribution in tree, 3975*g*.
germicidal and toxic action of, 4767*b*.
from Indian plants, 3566*d*.
pharmacology of, 5114*d*.
in plants grown in French territories, 5543*i*.
reaction with phosphorus bromides, 4676*e*.
reviews on, 1154*e*, 7192*i*.
as vulcanization accelerators, 8730*b*.
in vulcanization of halogenated vinyl resins, P 902*a*.
**Cinchonamine**, 4678*i*.
**Cinchonidine**. (See also *Cinchona alkaloids*.)
chromatography of, 8911*e*.
in *Chinchona* grown in French territories, 5544*a*.
in *Cinchona* species, 361*h*.
compds. with *N*,2,4-trimethylsuccinanilic acid 6-derivs., 1343*a*.
compd. with pantothenic acid, P 2634*h*
derivs., 4226*c*, 5008*di*.
distribution and relationships to other alkaloids in *Cinchona ledgeriana*, 2284*a*
fluocolumbate(V), 5786*a*.
isolation by electrodialysis, 3975*e*.
(+)-pantothenate, 7903*d*
salt with (+)-phenethylsuccinic acid, 5380*e*.
salt with (2-thenyl)succinic acid, 6611*c*
soly. in alc.-$H_2O$ mixt., 8610*e*
surface tensions of solns. of, 3267*h*.
toxicity of, 4767*b*.
**Cinchonidine, 6-aminodihydro-***, in protozoa infection therapy, 1485*b*, 8528*b*
**Cinchoninaldehyde, 6-methoxy-**. See *Quininaldehyde*
**Cinchoninamide, 2-butoxy-***N*-(2-diethylaminoethyl)-. See *Dibucaine*
——, **2 - butoxy - *N* - [2 - (2 - diethylaminoethylmercapto)ethyl]-**, and citrate, 6184*d*.
—— ——, **2 - (butylmercapto) - *N* - (2 - diethylaminoethyl)-**, hypotensive action of, 3101*i*.
——, ***N* - (2 - diethylaminoethyl) - 2-ethylmercapto)-**, anesthetic, P 7647*d*.
——, **6,7-dimethyl-**, 4674*h*
——, **6,7-dimethyl-2-phenyl-**, 4675*c*
——, ***N*-homopiperonyl-**, and deriv., 1421*e*.
**Cinchoninamidine**, *N,N*-diamyl-, hydrochloride, P 5801*e*.
——, *N,N*-**dibutyl-**, hydrochloride, P 5801*e*.
——, *N,N*-**diethyl-**, hydrochloride, P 5801*d*.
——, *N,N*-**dipropyl-**, hydrochloride, P 5801*e*.
**Cinchonine**. (See also *Cinchona alkaloids*.)
in *Chinchona* grown in French territories, 5544*a*.
in *Cinchona* species, 361*h*.
compd. with glucuronic acid, 2043*i*
conversion into cinchotoxine, effect of acid strength on velocity of, 2341*b*
detn. of, 4810*f*, 8098*h*
*d*- and *l*-, effect on heart of mollusks with left and right handed spirals, 3932*f*.
distribution and relationships to other alkaloids in *Cinchona ledgeriana*, 2284*a*.
fluocolumbate(V), 5785*a*.
iodosalicylate, 3148*d*.
isolation by electrodialysis, 3975*d*
precipitation with heteropoly acids, 1672*b*
salting-out of, 9224*h*.
soly. in alc.-$H_2O$ mixt., 8610*e*
toxicity of, 4767*b*.
**Cinchonine, benzyl-***, 5028*e*.
*h*-**Cinchonine**, 4678*i*.
**Cinchoninic acid** (*4-quinolinecarboxylic acid*), derivs., 2209*h*.
effect on appearance of phenol red in kidneys, 3502*i*.
halochromism of derivs. of, 8394*d*, 8392*a*.
——, **2-amyl-3-isopropoxy-**, 227*h*
——, **3 - amyl - 6 - methyl - 2 - (2-thienyl)-**, 228*c*.
——, **6 - bromo - 2 - (4 - methoxy - *m*-tolyl)-3-phenyl-**, 3825*g*
——, **6 - bromo - 2 - (4 - methoxy - *m*-tolyl)-3-phenyl-**, 3825*h*.
——, **2-butoxy-**, esters, 6184*d*.
——, **2-butyl-3-isopropoxy-**, 227*h*
——, **3-butyl-2-methyl-**, 1417*d*
——, **3 - butyl - 6 - methyl - 2 - (2-thienyl)-**, 228*b*.
——, **2-butyl-3-propoxy-**, 227*g*.
——, **2-chloro-3,6-dimethyl-**, and sodium salt, 4675*d*.
——, **2-cyclohexyl-**, 1411*d*.
——, **3 - decyl - 6 - methyl - 2 - (2-thienyl)-**, 228*d*.
——, **5,6-dimethyl-**, 4675*d*.
——, **6,7-dimethyl-**, and derivs., 4674*h*
——, **2',3' - dimethyl - 2,3 - dipl *ar'*-propoxy-**, 7925*a*.

——, 2-ethyl-3-isopropoxy-, 227*h*.
——, 2-ethyl-3-propoxy-, 227*g*.
——, 3 - heptyl - 6 - methyl - 2 - (2-thienyl)-, 228*c*.
——, 3-(2-thienyl)-, 228*c*.
——, y-, antidiuretic action of,
effect on appearance of phenol red in kidneys, 3502*i*.
prepn. of, 1778*f*.
——, 3-hydroxy-, derivs., antidiuretic action of, 3929*g*.
——, 3-hydroxy-5,6-dimethyl-, 4675*d*.
——, 2(and 3)-hydroxy-3(and 2)-methyl-, antidiuretic action of, 3929*g*
effect on appearance of phenol red in kidneys, 3502*i*.
——, 3-hydroxy-3-phenyl-, antidiuretic action of, 3929*h*.
effect on appearance of phenol red in kidneys, 3502*i*.
——, 2 - (6 - isoamoxy - 3,4 - xylyl) - 3 - phenyl-, 7924*i*.
——, 2-isoamyl-3-isopropoxy-, 227*h*.
——, 2-isoamyl-3-propoxy-, 227*g*.
——, 2-isobutyl-3-isopropoxy-, 227*h*.
——, 3-isopropoxy-2-propyl-, 227*h*.
——, 6-methoxy-. See *Quininic acid*.
——, 2 - (4 - methoxy - *m* - tolyl) - 3-phenyl-, 3825*g*.
——, 2 - (4 - methoxy - *o* - tolyl) - 3-phenyl-, 3825*h*.
——, 2 - (6 - methoxy - 3,4 - xylyl) - 3-phenyl-, 7924*h*.
——, 2-methyl-, antidiuretic action of, 3929*h*.
effect on appearance of phenol red in kidneys, 3503*a*.
——, 6 - methyl - 3 - nonyl - 2 - (2-thienyl)-, 228*d*.
——, 6 - methyl - 3 - octyl - 2 - (2-thienyl)-, 228*c*.
——, 2 - (3 - methyl - *p* - phenetyl) - 3-phenyl-, 3825*g*.
——, 6 - methyl - 2 - (6,7,8,9 - tetrahydro - 5*H* - cycloheptabenzen - 3-yl)-, and picrate, 2965*f*.
——, 2-(3-methyl-2-thienyl)-, 4666*f*.
——, 2-phenyl-. See *Cinchophen*.
——, 3 - phenyl - 2 - (4 - propoxy - *o*-tolyl)-, 3825*h*.
——, 3-propoxy-2-propyl-, 227*g*.
——, 2-(6-quinolyl)-†, 3000*f*.
Cinchoninonitrile, 2-phenyl-, P 3470*c*.
Cinchophen (*atophan, 2-phenylcinchoninic acid*), antidiuretic action of, 3929*h*.
derivs., by Pfitzinger reaction, 3825*f*.
detn. of, 4811*b*.
effect on cholesterol soln. in bile, 9210*d*.
effect on phenol red appearance in kidney tubules, 3502*i*.
intoxication with, effect of Et alc. on, 2316*i*.
mixt. with salicylic acid, effect on metabolism, 5115*f*.
salicylate group of drugs, antipyretic action of, 8553*i*.
sodium salt, effect on excretion of pigment and bromosulfalein in bile, 1870*a*.
——, 4'-acetamido-, 3000*e*.
——, 4'-amino-, 3000*e*.
——, 3-anilino-, halochromism of, 8391*f*.
——, 6-bromo-4'-ethoxy-3'-methyl-, 3825*g*.
——, 6 - bromo - 4' - methoxy - 2',3-dimethyl-, 3825*h*.
——, 6 - bromo - 4' - methoxy - 2',6'-dimethyl-, 7925*a*.
——, 6 - bromo - 4' - methoxy - 3,3'-dimethyl-, 3825*g*.
——, 6 - bromo - 4' - methoxy - 2'-methyl-, 3825*h*.
——, 6 - bromo - 4' - methoxy - 3'-methyl-, 3825*g*.
——, 4'-butoxy-3,5'-dimethyl-, 3825*g*.
——, 4' - butoxy - 3 - ethyl - 3' - methyl-, 3825*g*.
——, 4'-butoxy-3'-methyl-, 3825*g*.
——, 3' - *tert* - butyl - 2' - methoxy - 3,4'-dimethyl-, 7924*i*.
——, 3-*m*(*o* and *p*)-chloroanilino-, 2210*d*.
halochromism of, 8391*f*.
——, 2',3-dimethyl-4'-propoxy-, 3825*h*.
——, 2',5' - dimethyl - *ar'* - propoxy-, 7924*i*.
——, 3-(diphenylarsinomethyl)-, oxide, and its derivs., 8352*b*.
——, 4'-ethoxy-3,5'-dimethyl-, 3825*g*.
——, 4' - ethoxy - 3 - ethyl - 3' - methyl-, 3825*g*.
4' - ethoxy - 5' - isopropyl - 2',3-methyl-, 7924*i*.
y-3'-methyl-, 3825*g*.
——, 3-ethyl-4'-methoxy-3'-methyl-, 3825*g*.
——, 3-hydroxy-, antidiuretic action of, 3929*g*.
effect on appearance of phenol red in kidneys, 3502*i*.
——, 4'-hydroxy-6-methoxy-, 1421*b*.
——, 2' - isoamoxy - 3,5' - dimethyl-, 3825*h*.
——, 2' - isoamoxy - 4',5' - dimethyl-, 7924*i*.
——, 2'-isoamoxy-5'-methyl-, 3825*h*.
——, 4'-isoamoxy-3'-methyl-, 3825*g*.
——, 2' - isoamoxy - 3,4',5' - trimethyl-, 7924*i*.
——, 4'-isobutoxy-2'-methyl-, 3825*h*.
——, 4'-(α-isonitrosoacetamido)-, 3000*g*.
——, 3-isopropoxy-, 227*h*.
——, 5' - isopropyl - 4' - methoxy - 2'-methyl-, 7924*i*.
——, 3-*o*(and *p*)-methoxyanilino-, 2210*d*.
——, 3-*p*-methoxyanilino-, halochromism of, 8391*f*.
3-*p*-methoxyanilino-4'-methyl-, 7924*h*.
——, 4'-methoxy-2',3-dimethyl-, 3825*h*.
——, 4' - methoxy - 2',6' - dimethyl-, 7925*a*.
——, 4'-methoxy-3,3'-dimethyl-, 3825*g*.
——, 4'-methoxy-2'-methyl-, 3825*h*.
——, 4'-methoxy-3'-methyl-, 3825*f*.
——, 2' - methoxy - 3,4',5' - trimethyl-, 7924*h*.
——, 4'-methyl-3-*p*-phenetidino-, halochromism of, and salts, 8392*d*.
——, 2'-methyl-4'-propoxy-, 3825*h*.
——, 4' - methyl - 3 - *m*(*o* and *p*) - toluidino-, halochromism of, and salts, 8392*e*.
——, 3-(2-naphthylamino)-, halochromism of, 8391*f*.
——, 3 - *p* - phenetidino-, halochromism of, 8391*f*.
——, 3-phenyl-. See *Cinchoninic acid, 2,3-diphenyl-*.
——, 3-propoxy-, 227*g*.
——, 3-*m*-toluidino-, (incorrectly given in abstr. as *m*-methoxyphenyl, m. 220°), 2210*e*.
——, 3-*m*(*o* and *p*)-toluidino-, halochromism of, 8391*f*.
——, 2',3,5' - trimethyl - *ar'* -propoxy-, 7924*i*, 7925*a*.
**Cinchotoxine**, formation from cinchonine, effect of acid strength on velocity of, 2316*b*.
——, *N*-benzyl-*, acid oxalate, 5028*c*.
**Cinders**. (See also *Ash(es)*.)
lead-sheath corrosion by, 4621*e*.
sepn. from coke, app. for, P 1172*b*.
**Cinematographic films**, color, Dupont, 7361*b*.
color, metallic salt sound track on Ansco 16-mm., 7360*i*.
color, processing control procedures for Ansco, 7361*c*.
emulsions for, multilayer, P 4592*h*.
support for safety, 511*e*.
with vinyl acetal polymer hydrophilic sublayers, P 3738*f*.
**Cinematography**, color, 511*d*.
diazo compds. in color, 1665*i*.
emulsion for, prepn. of several dye images in single-layer, P 8924*i*.
of flames of open-hearth furnaces, 2142*a*.
latensification studies in, 957*e*.
**Cinenic acid**, α-, tetrahydro-2,6,6-trimethyl - 2*H* - pyran - 2 - carboxylic acid as constitution of, 5736*d*.
**Cineole** (*eucalyptole, 1,3,3-trimethyl-2-oxabicyclo[2.2.2]octane*). (For derivs. see under *2-Oxabicyclo[2.2.2]octane*.)
in *Lavandula stoechas* oil, 9381*d*.
in *Melaleuca alternifolia* and its yield, seasonal variations in, 6787*h*.
in *Melaleuca alternifolia* varieties, 6788*c*.
in *Ocimum kilimadjarum*, 8617*d*.
in *Origanum virens* oil, 9383*e*.
sepn. from hydrocarbons and azeotropes with phenol, P 2476*g*.
**Cineole, 6-keto-**. See *2-Oxabicyclo[2.2.2]-octan-6-one, 1,3,3-trimethyl-*.
**1,4-Cineole***, sepn. from hydrocarbons and azeotrope with phenol, P 2476*g*.
**Cinerin I**, analogs of, 5752*a*.
synthesis and relative toxicity of isomers of, 1334*d*.
**Cinerolone***, compds. related to, 5751*h*.
reaction with $Pb(OAc)_4$, 6988*d*.
——, dihydro-*, reaction with $Pb(OAc)_4$, 6988*d*.
**Cinerone***, 2-(2-butenyl)-3-methyl-2-cyclopenten-1-one and, 1334*f*.
**Cinnabar** (*cinnabarite*). (See also *Mercury ores*.)
alpha-conduction pulses in, 8203*h*.
antimonial, compn. and structure of, 3685*h*.
in antimony deposits of Soyatal Dist., Mex., 4982*e*.
of California (Oakville Dist.), 3749*i*.
of Colombia (Cajamarca), 525*f*.
of Mexico (Huahuaxtla district), 4981*g*.
of Oregon (Grant Co.), 524*i*.
in pyrite ore of Sibaj, U.S.S.R., 2900*f*.
of Turkey, 1291*g*.
in Urals, 2130*h*.
**Cinnamaldehyde**, air disinfection by aerosol contg., 5083*f*.
azine, 1654*e*.
bactericidal action of, 5446*d*, 8430*f*.
from benzaldehyde and $BF_3$.$Et_2O$, 3805*b*.
bromine no. of, detn. of, 6540*f*.
cinnamyl alc. from, P 1063*d*.
complex with $CdCl_2$, 7000*i*.
derivs., as insecticides, P 4420*f*.
derivs., spectra of, 1654*h*.
detn. of, 1688*b*.
dibenzyl mercaptal, 1321*d*.
flavoring material from flour and, 788*a*.
as fungistat, 9334*h*.
hydrogenation of colloidal Pd, 8832*a*
hydrolysis of, 5763*c*.
isomerization of, 183*a*.
phenylhydrazone, from α ethynylbenzyl alc., 1348*i*.
reaction products with mercaptoacetic acid and stearamide, surface-active, P 7242*e*.
reaction product with sulfathiazole, -HCl, 4238*a*.
reaction with $AlLiH_4$, 603*i*.
with BuMgBr, 1718*g*.
with *n*-heptamide, 2600*g*.
reduction of, 1312*f*, 2570*f*.
**Cinnamaldehyde, α-bromo-**, 1348*i*.
——, 3,4-dimethoxy-, 1181*i*.
——, 4-hydroxy-3-methoxy-. See *Feruldehyde*.
——, α-methyl-, reaction with carbamates, 1390*b*.
——, β-methyl-, and semicarbazone, 7413*h*.
——, *p*-nitro-, 2,4-dinitrophenylhydrazone, 3000*i*.
——, 3,4,5-trimethoxy-, hydrolysis of, 5763*d*.
**Cinnamamide**, prepn. of, 7002*g*.
——, *N*-acetyl-, 3822*d*.
——, *N*-allyl-, in penicillin production, 2273*e*.
——, α-amino-, stereoisomers, 1399*h*.
——, *p*-amino-*N*-(5,8,13,14-tetrahydro-5,8,14 - trioxonaphth[2,3-*c*]acrid-6-yl)-, P 8170*c*.
——, *N*-*tert*-amyl-, 2165*e*.
——, α - benzamido - *N* - (benzyloxy)-, 8383*c*.
——, *m* - bromo - *N* - (5,8,13,14 - tetrahydro - 5,8,14 - trioxonaphth[2,3-*c*]acrid-6-yl)-, P 8170*c*.
——, *m* - chloro - *N* - (5,8,13,14 - tetrahydro - 5,8,14 - trioxonaphth[2,3-*c*]acrid-6-yl)-, P 8170*c*.
——, *N* - cyclohexyl - *N* - 2 - hydroxyisobutyl-, P 2639*i*.
——, 3,4 - dichloro - *N* - (2 - naphthylsulfonyl)-, P 7963*c*.
——, *N*-(3,4-dichlorophenylsulfonyl)-, P 7963*e*.
——, *N*,*N*-diethyl-, 7002*h*.
——, *N* - [2 - (2 - diethylaminoethylmercapto)ethyl]-, citrate, 6184*c*.
——, *N* - [2 - (2 - diethylaminoethylmercapto)ethyl]-*N*-ethyl-, hydrochloride, 6184*d*.
——, *N*,*N*-diisopropyl-, insecticide from DDT and, P 350*c*.
——, *N* - (1 - dimethylcarbamylethyl)-*N* - ethyl - 3,4 - dimethoxy-, P 249*c*.
——, *N*,*N*-dipropyl-, insecticide from DDT and, P 350*c*.
——, 4-ethoxy-3-methoxy-, 2177*c*.
——, *N*-3-hydroxyethyl-, in penicillin production, 2273*e*.
——, *N*-isobutyl-, 7002*h*.
——, *o*(and *p*)-methoxy-α-methyl-, *trans*-, 1745*e*.
——, *N*-(2-naphthylsulfonyl)-, P 8622*c*.
——, β-phenyl-. See *Acrylamide, β,β-diphenyl-*.
——, *p* - phenyl - *N* - (5,8,13,14 - tetrahydro - 5,8,14 - trioxonaphth[2,3-*c*]acrid-6-yl)-, P 8170*c*.

——, *N*-(5,8,13,14-tetrahydro-5,8,14-trideuonaphth[2,3-*c*]acrid-6-yl)-, P 8170*c*.
——, *N*-2-thiazolyl-, P 6239*d*.
——, *N*-*o*-tolylsulfonyl-, P 8622*c*.
**Cinnamamidine**, *N*, *N*-dibutyl-, hydrochloride, P 5801*e*.
**Cinnamanilide**, 1654*h*, P 5413*a*.
prepn. of, 7002*g*.
——, α-acetyl-, 5013*i*.
——, *N*-methyl-, 7002*h*.
**Cinnamene**. See *Styrene*.
**Cinnamic acid** (*β-phenylacrylic acid*), α-amino-*p*-toluenesulfonamide salt, P 686*c*.
assocn., dipole moment and elec. polarization in $C_6H_6$, 6493*i*.
catalase activation by, 4309*c*.
*cis*-, ultraviolet spectra in relation to stereochem. structure of, 7093*f*.
and derivs. in surviving vegetable tissues, 726*g*.
derivs., reactions (1,2- and 1,4-addn.) with Grignard reagents, metallic amides and Na derivs. of ketones, 7002*e*.
detection of, 6105*h*.
3-diethylaminopropyl ester—see *Apothesine*.
effect on shrinkage temp. of collagen, 7113*i*.
esters, 2021*b*.
with amino alcs., hydrochlorides, P 2639*f*.
of *Ficus glabella* latex, 4042*h*.
phys. consts. of, 2591*f*.
seborrhea from, 8026*g*.
esters (mixed) with linseed oil acids and coatings therefrom, P 877*b*.
ethyl ester, acoustic birefringence and relaxation time of, 3681*f*.
and ethyl ester, bromination of, with AcNHBr, 5754*c*.
and ethyl ester, fungistatic activity of, 9334*c*.
ethyl ester, reactivity of, 9024*c*.
glucuronic acid excretion after ingestion of, liver function and, 2322*h*.
heat of mixing with citric, oxalic and picric acids in acetone and $H_2O$, 6070*f*
hydrogenation of, effect of amt. of catalysts on rate of, 8819*b*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*
isopropyl ester, 5150*e*.
labeled with $C^{13}$ in $CO_2H$ group, 5004*i*.
methyl ester, condensation (attempted) with iso-$PrNO_2$, 1319*h*.
and methyl ester, spectra of, 3715*b*.
phenylhydrazide, toxicity to corn borer, 7182*h*.
2-[3-(1-piperidyl)propylmercapto]ethyl ester-HCl, 6184*c*.
polymerization of, with dehydrated castor oil and styrene and esterification of polymer with glycerol, P 5972*c*.
polymerization of, with styrene or α methylstyrene and dehydrated castor oil and drying oil fatty acids and then polybasic acid and polyhydric alc., P 6433*c*.
3-pyridylmethyl ester, P 8105*h*.
*p*-quinone dioxime deriv., as vulcanizing agent, 5623*d*.
reaction with HBr, P 3024*c*.
reduction (electrolytic) of, 4587*d*.
sodium salt, effect on albumin denaturation by urea, 4707*i*.
sodium salt, hydrogenation rate of, mass of catalyst and, 4551*c*.
spectra of *cis*- and *trans*-, 8886*g*.
system: picric acid-, 6066*d*.
2-thenoylmethyl ester, 2614*i*.
*trans*-, salt with piperazine, 235*d*.
in urine of pregnant mares, 2685*i*.
viscosity of solns. of, 8243*cd*.
**Cinnamic acid**, α-acetamido-, inhibition of chymotrypsin by, 7531*a*.
methyl ester, 1399*h*.
——, *p*-(*N*-acetylsulfanilyl)-, 7450*d*.
——, α-(alanylamino)-, DL-, 257*d*.
——, *o*-amino-, lactam—see *Carbostyril*.
——, α-(α-aminoacetamido)-, hydrolysis by enzymes, 258*d*.
——, α-[α-(α-aminoacetamido)acetamido]-, 257*i*.
——, *m*-arsenoso-, 4237*c*.
——, *m*-arsono-, 4237*b*.
——, α-benzamido-, and derivs., 4669*b*.
——, α-benzamido-2,5-dimethoxy-, isomers, 6598*i*.
——, α-benzamido-*p*-hydroxy-, methyl ester, 1399*g*.
——, α-benzamido-*p*-(methylsulfonyl)-, 7449*i*.
——, α-benzamido-*p*-(phenylsulfonyl)-, 7449*i*.
——, β-(bromomethyl)-, ethyl ester, 7002*d*.
——, *o*-carboxy-β-hydroxy-, γ-lactone—see $\Delta^{1,3}$-*Phthalanacetic acid, 3-oxo-*.
——, (*o*-carboxyphenyl)-†, 8378*a*.
——, α-[α-(α-chloroacetamido)acetamido]-, 257*i*.
——, *p*-(*p*-chlorophenylsulfonyl)-, 7450*c*.
——, α-(α-chloropropionylamino)-, *dl*-, 257*f*.
——, *o*-cyano-, hydrogenation of, 2189*a*.
——, α-cyano-, ethyl ester, 3398*f*.
ethyl ester, fungistatic activity of, 9334*d*.
labeled with $C^{13}$ in CN group, 5004*h*.
——, α-cyano-*p*-dimethylamino-, 2-hydroxyethyl ester H maleate, P 5601*b*.
——, α-cyano-2-hydroxy-4-methoxy-, 7936*f*.
——, *o*-(*o*-cyanophenyl)-, and *p*-nitrobenzyl ester, 8378*a*.
——, *p*-(α,β-diethyl-*p*-methoxystyryl)-β-(hydroxymethyl)-, γ-lactone, 4655*a*.
——, 2,4-dihydroxy-. See *Umbellic acid*.
——, 2,5-dihydroxy-, 5263*f*.
——, 3,4-dihydroxy-. See *Caffeic acid*.
——, *p*-(2,5-dihydroxyphenylsulfonyl)-, 7450*c*.
——, 3,5-dimethoxy-α,β-dimethyl-, ethyl ester, 8385*a*.
——, *o*,α(and *p*,α)-dimethyl-, *cis*- and *trans*-, 1745*bc*.
——, α,α′-dithiobis[*m*-chloro-, 605*f*.
——, α,α′-dithiobis[3,4-dimethoxy-, 3820*d*
——, α-dithiocarboxyamino)thiol-(?), S benzyl *S*,*S*-Et ester, 1400*c*.
——, *o*-ethoxy-, 1030*e*.
——, β-ethoxy-, ethyl ester, 6168*g*.
——, 2-ethoxy-4,5-dimethoxy-, 7459*i*.
——, 5-ethoxy-2,4-dimethoxy-, 7460*c*.
——, β-ethyl-, and benzylamine salt, 3351*g*.
——, α-ethyl-β-phenyl-. See *Butyric acid, α-benzhydrylidene-*.
——, α-ethyl-2,4,5-trimethoxy-, ethyl ester, 2608*i*
——, α-2-fluorenyl-†, and derivs., 7468*d*.
——, *o*(and *p*)-formyl-, and derivs., 7456*e*.
——, hydroxy-, and derivs., in surviving vegetable tissues, 726*g*.
——, *o*-hydroxy-, 5263*f*.
——, *p*-hydroxy-, in urine of pregnant mares, 2685*i*.
——, 4-hydroxy-3,5-dimethoxy-. See *Sinapic acid*.
——, 4-hydroxy-3-methoxy-. See *Ferulic acid*.
——, α-(hydroxymethyleneamino)-, lactone—see *5(4H)-Oxazolone, 4-benzylidene-*.
——, *m*-(1-hydroxy-2-naphthoylamino)-, dye from, light absorption by, 7232*b*.
——, *p*-methoxy-, 6596*i*.
esters (mixed) with linseed oil acids and coatings therefrom, P 877*c*.
ethyl ester, 1043*d*, 2973*d*.
methyl ester, formation by *Lentinus lepideus*, and its significance in lignification, 9172*a*.
——, β-methoxy-, methyl ester, 6168*h*.
——, *o*(and *p*)-methoxy-α-methyl-, *cis*- and *trans*-, 1745*c*.
——, *p*-(*p*-methoxyphenylsulfonyl)-, 7450*c*.
——, α-methyl-, 5026*h*.
*cis* and *trans*-, and dimer, 1744*hi*.
——, β-methyl-, and ethyl ester, 2571*a*, 5026*f*.
——, α-(*N*-methylalanylamino)-, DL-, 257*e*.
——, α-(α-methylaminoacetamido)-, 257*e*.
——, 3,4-methylenedioxy-, bactericidal action of, 4327*h*.
esters (mixed) with linseed oil acids and coatings therefrom, P 877*c*.
ethyl ester, as synergist for pyrethrin, 3555*c*.
——, 5-methyl-2-methylmercapto-, 1746*c*.
——, β-(naphthyl)-. See *Naphthaleneacrylic acid, β-phenyl-*.
——, *m*-nitro-, *o*-acetylphenyl ester, 2621*b*.
——, *p*-nitro-, piperazine salt, 235*f*.
——, *p*-(*p*-nitrophenylsulfonyl)-, 7450*c*.
——, α(or β)-phenyl-. See *Acrylic acid, diphenyl-*.
——, *p*-(phenylsulfonyl)-, 7450*c*.
——, *p*-sulfamyl-, 7450*c*.
——, *p*-sulfanilyl-, 7450*d*.
——, 3,4,5-trimethoxy-, methyl ester, 8452*g*.
**Cinnamic alcohol**. See *Cinnamyl alcohol*.
**Cinnamohydroxamic acid**, α-benzamido-, and derivs., 8382*h*.
——, α-benzamido-*O*-benzyl-†, 8383*c*.
——, α-benzamido-*p*-ethoxy-, 8383*b*.
**Cinnamon**, from Madagascar, histology and chemistry of, 8573*c*.
**Cinnamonitrile**, isomerization (cis-trans) of, 183*a*.
labeled with $C^{13}$ in CN group, 5004*i*.
polymers with piperylenes, P 4897*f*.
——, α-phenyl-. See *Acrylonitrile, α,β-diphenyl-*.
——, β-phenyl-. See *Acrylonitrile, β,β-diphenyl-*.
**Cinnamophenone**. See *Chalcone*.
***o*-Cinnamotoluidide**, 1654*h*.
——, α-acetyl-, 5013*i*.
***p*-Cinnamotoluidide**, α-acetyl-, 5013*i*
**Cinnamoyl chloride**, and derivs., anthraquinonebenzacridone dyes from, P 8170*c*.
reduction of, to $PhCH_2CH_2CH_2OH$, 2570*e*
——, *p*-methoxy-, reaction with $BrCH_2CO_2Et$ and Mg, 2973*d*.
——, *p*-methoxy-α-methyl-, 7021*e*.
**Cinnamoyl peroxide**, 3394*f*.
**Cinnamyl** (*free radical*), 612*c*.
**Cinnamyl alcohol** (*3-phenyl-2-propen-1-ol*)
(For derivs. see under *2-Propen-1-ol*)
acrylate, and polymers, P 4686*d*.
acrylate, polymers with Et acrylate, 5988*i*.
butyrate, 9375*e*
from cinnamaldehyde, P 1063*d*
*l*-citronellate, 4633*g*.
hydrolysis of, 5763*i*.
in narcissus oil, 2372*e*.
prepn. of, 2570*f*
propionate, phys. properties, soly. and application to flavors and perfumery, 2372*g*.
and reaction with $AlLiH_4$, 603*i*.
surface tension of aq., 8797*f*
**Cinnamyl bromide**. See *Benzene, (3-bromopropenyl)-*.
**Cinnamyl chloride** See *Benzene, (3-chloropropenyl)-*.
**Cinnamyl disulfide**, 1044*c*.
**Cinnamyl trisulfide**, 1044*a*.
**Cinnamyl vonedrine***, pharmacology of, 8554*b*.
**Cinnoline** (*1,2-benzodiazine, α phenazine*),
derivs., 652*f*, 1781*c*, 3012*f*, 7938*f*
electronic structure of, 2095*b*.
——, 4-amino-, prepn. of, 1780*d*.
——, 4-amino-8-methyl-, 1782*b*
——, 4-amino-7-methyl-8-nitro-, 1781*a*
——, 4-amino-8-methyl-5(or 7)-nitro-, 1782*c*.
——, 4-amino-8-nitro-, 1782*a*.
——, 4-anilino-8-methyl-, 1782*b*.
——, 4-anilino-8-methyl-5(or 7)-nitro-, 1782*c*.
——, 4-chloro-8-methyl-, 1782*b*.
——, 4-chloro-7-methyl-8-nitro-, 1781*h*.
——, 4-chloro-8-methyl-5(or 7)-nitro-, 1782*c*.
——, 8-chloro-4-phenoxy-, 1781*i*.
——, 4,8-dichloro-, 1781*i*.
——, 7-methyl-8-nitro-4-phenoxy-, 1781*h*.
——, 8-methyl-5(or 7)-nitro-4-phenoxy-, 1782*c*.
——, 7-methyl-4-phenoxy-, 1781*g*.
——, 8-methyl-4-phenoxy-, 1782*b*.
——, 8-nitro-4-phenoxy-, 1781*i*.
——, 4,6,7-trichloro-, 1782*c*.
**3-Cinnolinebutyric acid**, 4-hydroxy-, 3012*f*.
**4-Cinnolinol**, and derivs., 652*g*.
——, 3-bromo-, and acetate (ester), 653*a*.
——, 3-bromo-6-chloro-, and acetate (ester), 653*c*.
——, 6-bromo-3-chloro-, and acetate (ester), 653*a*.

, **8-chloro-**, and acetate (ester), 653*a*.
, **8-chloro-**, 1781*i*.
, **3,6-dibromo-**, and acetate, 653*e*.
, **3,6-dichloro-**, and acetate (ester), 653*d*.
, **8-ethyl-**, 3012*f*.
, **7-methyl-**, and acetate (ester), 1781*g*.
, **8-methyl-**, 1782*a*.
, **7-methyl-6-nitro-**, 1781*i*.
, **7-methyl-8-nitro-**, 1781*g*.
, **8-methyl-5**(or **7**)**-nitro-**, 1782*c*.
**Circulation.** (See also *Analeptics; Blood pressure; Blood vessels; Heart; Pulse.*)
acetylcholine effect on, 3936*e*.
in acidosis, 6303*f*.
adrenaline effect on, 6728*f*.
antabuse effect on, 4379*d*.
apomorphine effect on, 5863*h*.
benzylimidazoline effect on, 5866*h*.
in brain, antihistaminics and, 3520*c*.
effect of amphetamine sulfate on, 8552*g*.
after frontal lobotomy, 3937*d*.
in idiopathic epilepsy, 9231*h*.
in intracranial injury, 9232*a*.
of copper, administered parenterally and enterally, 1452*d*.
dibenamine effect on, 6309*g*.
dihydroergocornine effect on, 5501*c*.
disorders of, O deficiency in, 3093*d*.
effect of amidine derivs. on, 1868*c*.
effect of barbiturates on, direct comparison of, 3110*d*.
effect of caffeine, cordiamine and ephedrine on, in typhus, 8535*h*.
effect of compds. related to adrenaline on, 7137*c*.
effect of dilaudid, codeine and morphine on, 4382*b*.
effect of ephedrine and neosynephrine on, effect of dibenamine on, 7140*i*.
effect of glucose and adrenaline on, 7145*e*.
effect of nembutal, pentothal and pentothal-tubocurarine on, 4764*c*.
effect of sympathonimetic substance on, differentiation of, 9249*b*.
failure in adrenal insufficiency, 5855*f*.
failure of, after subcutaneous injection of glucose, 7110*h*.
in fat embolism, effect of amyl nitrite on, 1479*d*.
fluorescein as indicator of local, and its result in frost bite, 5858*df*.
in heart, effect of acetylcholine, adrenaline and noradrenaline on, 8539*a*.
in heart, effect of pituitary exts. on, in relation to action of nicotine and to smoking, 4385*a*.
hepatic vasodepressor involved in regulation of, 2251*h*.
histamine effect on peripheral, 4386*b*.
homeostasis, hepatorenal factors in, 1855*g*.
index of, derivation and use of, 6723*b*.
intracranial, in headache, effect of drugs on, 9232*g*.
after intracranial pressure increase, and effect of atropine thereon, 8063*h*.
in kidneys, effect of cessation of, 7572*h*.
effect of emotional disturbance on, 7115*h*.
effect of partial obstruction of renal vein on, 7116*a*.
in neurogenic hypertension, effect of quinine and quinidine on, 2329*h*.
in liver, measurement of, 8039*e*.
in lungs, alveolar O tension and ventilation in relation to, and agents acting on, 5104*hi*.
effect of $CO_2$ and O on, 3910*d*.
effect of nicotinic acid on, 3519*e*.
effect of vasoconstricting and vasodilating substances on, 9248*a*.
relation to ventilation during pulmonary gas exchange, 8511*e*.
through muscles, effect of adrenaline, aleudrine and noradrenaline on, 8544*h*.
2-(1-naphthylmethyl)imidazoline effect on, 9242*e*.
nicotinic acid effect on, 3076*ac*.
pentamethonium iodide effect on, 8541*b*.
peripherin effect on, 1106*f*.
renal vasoexcitor in regulation of, 2686*f*.
review on, 5838*i*.
in stomach, effect of prostigmine on, 5864*d*.
strychnine effect on, 8543*c*.
substances affecting—see *Adenylic acid; Histaminelike substances; Pituitary extracts; Pitutrin; Sympathins; Sympathomimetic substances; Vagomimetic substances.*
tetraethylammonium chloride effect on, 5114*f*.
theophylline-isopropanolamine effect on, 4383*e*.
in thermal injury, 7109*i*.
time of, vitamin B in detn. of, 5465*i*.
during tissue damage due to cold, 6725*h*.
**Circulators,** for gases and liquids, 4*a*.
mercury pump as, 448*b*.
**Circulin,** antibiotic action of, 5081*f*, 8004*i*.
the term, 8006*c*.
**Cirphis unipuncta** and(or) **Armyworm,** control of, 7182*f*.
control of, nicotine synergists for, 5894*b*.
**Cirrhosis,** antidiuretic substance in urine in, 8043*i*.
development of, 8519*b*.
diet and, 7097*d*, 9195*b*.
effect of lipotropes on, 2696*e*.
electrolyte partition of urine in, 4758*d*.
hepatorenal vasotropic factors in, 4363*i*.
liver cytoplasm compn. in, 3512*g*.
methylene-blue reduction by blood plasma in, 2648*i*.
pigmentary—see *Hemochromatosis.*
proteins in blood in, 1454*a*, 8050*i*.
renal excretion of water and antidiuretic substances in, 8043*f*.
sodium-restriction effect on ascites in, 9225*a*.
treatment of, 7148*c*.
xanthomatous biliary, 3095*f*.
**Cirsium.** See *Thistles.*
**Citraconic acid** (*methylmaleic acid*), copper(I) chloride complexes with, 8940*h*.
diesters of, polymers with vinyl chloride, P 2035*e*.
esters, phys. consts. of, 2591*f*.
fungistatic activity of, 9334*c*.
rare earth complexes, 4969*f*.
**Citraconic anhydride,** effect on extinction coeff. of vitamin D, 7992*c*.
reaction with 1-vinylnaphthalenes, 8376*h*.
**Citraconimide,** antimitotic action of, 7591*c*.
**Citral** (*geranial*), a and b, 2,4-dinitrophenylhydrazones, spectra of, 3374*e*.
acylhydrazones†, 6972*fi*, 6973*i*.
biol. action of, 1488*g*.
from linalool, 7900*d*.
mixts. of, dielec. relaxation of, 6020*c*.
mutation by, 1115*i*.
and semicarbazone, 7413*h*.
spectrum and structure of, 1657*a*.
——, **ε-methyl-***, and semicarbazone, 7900*d*.
**Citramalic acid** (*α-hydroxy-α-methylsuccinic acid, α-methylmalic acid*), and β-lactone Me ester, P 2635*g*.
**Citrates,** in bones during growth, 5841*a*.
effect on atebrin action on *Escherichia coli*, 1826*b*.
on 2,4-dichlorophenoxyacetic acid inhibition of $NO_3^-$ uptake by wheat, 6288*d*.
on gelling and viscosity of solns. of gelatin, 4540*f*.
on heart metabolism, 9267*i*.
on O uptake by larva cells of *Gastrophilus intestinalis*, 1872*c*.
on respiration of aorta, 7114*f*.
on storage life of butter, 3276*b*.
on U inhibition, 2256*i*.
exchange on Amberlite IRA-400, 6189*f*.
formation of, in $CO_2$ fixation by α-ketoglutarate in tissue, 3912*g*
in fluoroacetate poisoning, 9265*b*.
by kidney cortex exts., 9111*a*.
metabolism of, hydrases in, 7058*c*.
metabolism of, in tobacco leaves, 5455*c*.
mixt. with glucose for blood preservation, 6690*i*.
oxidation by kidney, effect of fluoroacetate on, 7985*i*.
oxidation by liver mitochondria, 7520*h*.
in plant sap, soil pH tolerance and, 2288*e*.
in saliva, teeth erosion and, 1101*e*.
in testosterone metabolism by liver, 2966*b*.
tooth decalcification by, effect of fluoride on, 6310*e*.
uranyl complexes, 8270*d*.
urinary excretion of, in U poisoning, 5118*h*.
utilization by heart, 9210*g*.
**Citrasinic acid***, azo dye from, P 7711*c*.
derivs., P 3571*i*.
**Citric acid,** alkali metal derivs., detection of, 2548*b*.
ammonium and iron prepns.—see *Iron preparations.*
ammonium salt—see *Ammonium citrate.*
as antioxidant for soupfin-shark-liver oil, 3568*e*.
antirachitic action of, 1094*g*, 5464*b*.
asymmetric, biosynthesis of, 7990*e*.
barium salt, ionization of, 7790*g*.
in blood in rickets, 5464*f*.
blood pyruvic acid after ingestion of, 8500*i*.
in blood serum after galactose- and glucose-tolerance tests, 9226*e*.
in blood serum in Addison's disease, 9226*c*.
in cacao bean covering, 8011*a*.
in calcareous and similar formations in invertebrates, 9270*f*.
calcium metabolism and, 9205*a*.
calcium salt—see *Calcium citrate.*
chlorothen salt—see "citrate" under *Pyridine, 2 - [(5 - chloro - 2 - thenyl)(2-dimethylaminoethyl)amino]-.*
choline deriv., detn. of, 4184*h*.
chromatographic sepn. from org. acids, 6947*a*.
complex formation with $Cd(NO_3)_2$, 5691*f*.
compds. (mol.) of, 7409*ac*.
condensation products with long-chain alcs., surface-active, P 6846*c*.
copper complex, stability of, 4971*a*.
copper salt and Ca Cu citrate, 4182*b*.
corrosion of Al and stainless steel by, 5721*e*.
in cotton fiber in relation to ash alky. and leaching by rain, 853*g*.
in cotton plant, 8017*h*.
cycle interruption by fluoroacetic acid, 7984*c*.
dehydrogenase of—see *Citric dehydrogenases.*
detection of, 5342*e*.
detn. of, 4603*h*, 4724*c*, 5343*a*.
in citrus juices, etc., 8977*e*.
in milk serum, 8566*i*.
differentiation from oxalic and tartaric acids, 8977*h*.
effect on diffusion of strong electrolytes, 8773*g*.
on flavor and oxidative stability and Fe scavenging from soybean oil, 882*f*, 7723*d*.
on growth of plant tissue, 4349*e*.
on indoleacetic acid action on growth of *Avena* coleoptile, 5831*c*.
in nitrocellulose lacquers, 7718*h*.
on soly. of $Cu_2O$ in soil solns., 7542*b*.
on stainless steel cooking utensils, 2707*a*.
on urea formation from citrulline and glutamate, 6250*i*.
in egg shells, 4751*b*.
and its ester in ethylcellulose stabilization, P 4853*e*.
esters, sulfites of, P 4466*h*.
in excretion of U compds., 8530*b*.
fermentation—see also *Fermentation.*
formation of, during alc. fermentation, 6777*h*.
by *Aspergillus niger*, 3141*c*, 8433*e*, 9165*h*.
in grapes during ripening, 728*c*.
by smooth and wrinkled streptococcus colonies, 1832*e*.
by submerged fermentation, medium constituents in, 813*h*.
in fruit juice, 3944*e*.
glass attack by, 2385*c*.
heat of mixing with amines, camphor and cinnamic acid in acetone and aq. solns., 6070*f*.
incompatibilities with $NaHCO_3$ and $NaHSO_3$, 817*c*.
ionization and thermodynamic properties of, 6051*d*.
iron and ammonium prepns.—see *Iron preparations.*
iron salt—see *Iron citrate; Iron preparations.*
magnesium complexes with, 4970*g*.
in mandarin oranges, vitamin C and, 7603*g*.
manuf. by fermentation, P 7638*b*, P 9362*a*.
manuf. from sugar cane, 2366*c*.
metabolism of, 2690*f*.
metabolism of, in tobacco, and effect of isocitrate and acetate thereon, 9177*d*.
mixt. with $Na_2HPO_4$, in preservation of canned crustacean meat, P 787*a*.
in oranges, phosphate fertilizer and, 9324*c*.
osmosis of mixts. with alcs., 7300*g*.
oxalic acid formation from, by *Aspergillus niger*, 6701*g*.
packaging materials impregnated with, and resistance to rancidity in fats, 8531*g*.

penetration compd. with basic Cr sulfate, 8883e.
for photographic use, specifications for, 6930b.
polymers of, with vinyl acetate and vinyl acetate-phthalate, emulsifying power in nitrocellulose lacquers, 5606i.
potassium salt—see *Potassium citrate*.
in potatoes, 1083a.
from potato juice, P 6333g.
procaine salt, interfacial tension at water-olive oil boundary, 7290d.
rare earth complexes, 4969g.
reaction with ferric iron, 1660b.
in reduction of discoloration of potatoes on cooking, 7603i.
in reproductive-gland secretions as indicator of male sex hormone activity, 5843b.
in rickets treatment, 5464e.
salt with 2-[(5-chloro-2-thenyl)(2-dimethylaminoethyl)amino]pyridine, 5781f.
with (dialkylaminoalkylmercapto)-alkyl esters, 3395b.
with 2-diethylaminoethanol esters, 7464b.
with 2-diethylaminoethyl 3-amino-5,6,7,8-tetrahydro-1-naphthoate, 203b.
with 2-diethylaminoethyl 4-amino-5,6,7,8-tetrahydrothiol-1-naphthoate, 6193a.
with 2-diethylaminoethyl dicyclohexylacetate, P 2234h.
with guanylurea, diuretic action of, 6308f.
with piperazine, 235e.
with (1-pyrrolidyl)alkyl disubstituted acetates, 1388e.
of S-contg. amines, 6184c.
in *Schisandra chinensis* berries, 5550h.
in semen, 6718e.
sodium salt—see *Sodium citrate*.
substitutes for, in Spiegler-Jolles reaction and Esbach soln., 6789i.
sucrose inversion by, 4503d.
sulfite, tri-Et and other esters, P 4853g.
in sweet potato firming, 9289i.
synthesis by condensation of acetate and oxalacetate, 6680e.
toxic effects of Na citrate and, 314c.
trialkyl esters sulfite (neutral), P 5796c.
in tumor tissue and in normal tissue of tumor-bearing rats, 4761g.
urinary excretion of, 7591e.
urinary excretion of, effect of vitamin $B_1$ on, 8022e.
utilization by *Drosophila*, 322i.
zirconyl sodium deriv., effect on metabolism of Pu and Y, 5467i.
zirconyl sodium salt, prepn. and toxicity of, 312h.

**Citric acid, fluoro-**, formation from fluoroacetic acid in heart, 7984d.

**Citric dehydrogenases**, in plastics, 8454b. in polyploid aspen, 5831e.

**Citricola scale**. See *Coccus pseudomagnoliarum*.

**Citrifoliol**, and diacetate, 4669i.

**Citrifolioside**, and heptaacetate, 4669h.

**Citrin**. (See also "P" under *Vitamins*.)
adrenaline potentiation by, 5116i
antibody production and, 1481e.
treatment of arthritis and toxemia of pregnancy with, 1087b.

**Citrinin**, constitution or structure of, 2185a, 9066e.
detn. of, 4723f.
effect on urease activity, 8401i.
identity with 4,6-dihydro-8-hydroxy-3,4,-5-trimethyl-6-oxo-, and Me ester, 6206a.

**Citronella grass**. See *Grasses*.

**Citronellal** (*citronellaldehyde*), in *Eucalyptus citriodora*, 1155e, 6788a.
hydrogenation of, 2160i.
identification of, 3003c.
mutation by, 1115i.
spectrum and structure of, 1657a.

**——, hydroxy-***, mutation of *Drosophila melanogaster* eggs or larvae from, 1115i.

**Citronellic acid**, bactericidal and bacteriostatic action of *d*-, 5906b.
inactive and *l*-, from *Callitris glauca* wood oil, 7238e.
*l*-, and esters, 4633f.

**Citronellic anhydride**, *l*-, 4633h.

**Citronellol**. (See also *Rhodinol*.)
acrylate, and polymers, P 4686d.
polymers with Et acrylate, butyrate, 9375e.
*l*-citronellate, 4633g.
esterification of, 1319f.
and esters in *Eucalyptus citriodora*, 1155d.
propionate, phys. properties, soly. and application to flavors and perfumery, 2372g.
spectrum and structure of, 1657a.

**——, dihydro-**. See *l-Octanol, 3,7-dimethyl-*.

**Citron oil**. See *Oils*.

**Citrulline** (*δ-ureidonorvaline*), chromatography on starch columns, 5818e.
detn. in proteins, 8423g.
effect on *Treponema pallidum*, 9144h.
effect on urea formation during low-protein diet, 9209f.
formation of, glutamine and α-ureidoglutaric acid in, 7113i.
by liver homogenate, effect of glutamine and *N*-carbamylglutamic acid on, 1848h.
from ornithine, $CO_2$ fixation in, 1816c.
in metabolism by *Neurospora crassa*, 2278c.
urea formation in glutamate, aspartate and α-ketoglutarate systems with, 6250h.

**Citrullus**, *vulgaris*—see *Watermelons*.

**Citrus**. (See also *Grapefruit; Lemons; Limes; Oranges*.)
acetylesterase from, inhibition by diisopropyl fluophosphate and tetraethyl pyrophosphate, 258h.
antioxidant for animal fats from peel, pulp or albedo tissue of, P 3948e.
book: Products—Chem. Compn. and Chem. Technology, 4402b.
calcium, Mg and P in, K effect on, 8018c.
canker control on, 5143f.
canning and by-product research at Fla Expt. Sta., 1121c.
citrus-snout-beetle control on, 5149e.
control on, of aphids, mites and thrips, 1518c.
control on, of dicky-rice weevil, leafroller and mealy bug, 7185b.
DDT deposits on, prevention of decompn. of, 5148c.
DDT effect on, in mosquito control, 7631a.
decay of, control of, P 4419g.
2,4-D effect on seedlings of, 9338h.
drying app. for peel, pulp or juice of, P 9295b.
2,4-D use on, for drop control, 1518c.
fertilization of, 3131f.
fertilizer expts. with, with K, 1132c.
flavones from, 3822i.
fumigation of, nylon tents for, 1524h.
fungus control on, 7177h.
grasshopper control in groves of, 3136a.
hull, leaves or pulp, use in resinous products, P 9526i.
insect control on, parathion in, 9349e.
insect control on, with DDT, 1522c.
irrigation of, 9317e.
juices, Al and Al alloy containers for, $SO_2$ and, 1877g.
citric acid detn. in, 8977e.
feed yeast production from, 2708g.
scale in evaporators for, 9295g.
$SO_2$ in, 5129b.
long-tailed-mealy-bug control on, 4805d.
*maxima*, availability of vitamin C in, 2298c.
melanose of, control of, 3553g.
molasses from, 9504c.
molybdenum deficiency of, 7551b.
oils from—see *Oils*.
oxygen supply in nutrient soln. and, 6702b.
peel, pectin from, P 1502g.
peels, for use as supplemental therapeutic food, P 3151e.
potassium deficiency in leaves of, 1132h.
pulp, compn. of feeds from, 3538i.
quality of, production conditions and practices in relation to, 1135d.
respiration in, during development, 4731c.
respiratory gas exchange in, and its role in stability of fruit, 8453e.
root system, soil moisture and, 9317b.
salt in soil and, 4803c.
seed, maintaining viability in storage, 1515i.
snail control on, 4414e.
soils, effect of fumigation, fertilization, etc., on, 3130c.
soils in Florida, 9314e.
storage of fruit, effects of 2,4-D and 2,4,5-T on, 1517a.
sulfur burn of, 9336c.
termite control on, 5147d.
*trifoliata*, heteroside of, 4669h, 6582g.
waste from, acetylesterase from, P 2340f.
feed from, P 1503a, P 5512b, 8573c
submerged combustion in processing of, 9287f.
treatment by ion exchange, 6441g.
yeast manuf. from, 9295f.
waste waters from processing of, stream pollution control activities and, 8079i
waste waters from, treatment of, P 5881i.
weed control in, 6352g.
wrapping materials for, impregnation of paper for, 5591b.

**Citrus blackfly**. See *Aleurocanthus woglumi*.

**Citrus mealybug**. See *Pseudococcus citri*

**Citrus red mite**. See *Paratetranychus citri*.

**Citrus scales**. See *Coccus pseudomagnoliarum; Icerya purchasi; Lepidosaphes*.

**Citrus snout beetle**. See *Sciobius grandis*.

**Citrus thrips**. See *Scirtothrips citri*

**Civetol, dihydro-**. See *Cycloheptadecanol*

**Civetone**, in perfumery, 1909i.

**——, dihydro-**. See *Cycloheptadecanone*

**Cladding**, of cooking utensils, P 6561h
of iron or Fe alloys with Cu or Cu alloys, P 2154b.
powd. metal in, P 2020b.
with precious metals, P 6966b
of soft steel with hard, P 6966f
stainless steel Ni plating for, 4148i
of steel, 940d.
of steel with stainless steel, P 3770e

**Cladonia**, *alpestris*, usnic acid from, 1455i
*cristatella*, production of didymic, rhodocladonic and usnic acids by fungus component of, 9143g.

**Cladophora**, *fracta*, peroxidase in, 1837e
nucleus of, reaction with polyphenol 1837i.
*rupestris*, biochemistry of, 3495f.

**Cladosporium**, control on tomatoes, 9128
*herbarum*, action on cucumbers, 6704i
butterfat treated with, fatty acid produced by, 8560f.
catalase, invertase and protease activities of, grown in cold, 5825g
humus formation from, 7617i
toxin production by, 8002c.
in soils, 1513a

**Cladothrix**, and its relation to Fe and Mn, 7080d.

**Claisen condensation**, in acylation and carboxylation of lepidine, 2-picoline and quinoldine, 7022d.
mechanism of, 4525i.
resonance and, 6206h
so-called internal, in β-diketone prepn from esters of o-hydroxyacetophenones 2620i.

**Claisen rearrangement**. See *Rearrangements*.

**Clams**, adenosinetriphosphatase activity of myosins from *Mya arenaria*, 9123e
lipolytic and proteolytic enzymes in stomach juice of giant, 2332e
shells, increasing adhesivity of asphalt to, P 5168h.

**Clapeyron, Benoit Paul Émile**, biography, 915e.

**Clarain**. (See also *Durain; Fusain; Vitrain, Vitrinite*.)
adsorption by, color reactions in, 6035e
low-pressure carbonization of, 1948b
swelling properties of, 377f.

**Clarification**. (See also *Filtration; Sedimentation*.)
app. for—see also *Centrifuges; Filters*
app. for, P 4406h, P 6011a.
app. for, controlling removal of sludge from, P 915a.
of beer—see *Beer*.
of emulsions—see *Emulsions*.
enzymes for, 261f, 3855b.
of protein-contg. solns., by plant juices 6749a.
of sewage—see *Sewage*.
in sugar analysis—see *Sugars, analysis*.
in sugar manuf.—see *Sugar manufacture*.
of wastes—see *Wastes*
in water treatment—see *Water, purification of*.
of worts—see *Worts*.

**Clarite**. See *Clarain*.

**Clarke, Hans Thacher**, biography, 2825c.

**Clary sage**. See *"Salvia sclarea"* under *Sage*.

**Classification**, decimal system for chem. engineering, 6876b.
of inorg. compds., graphic methods in, 6996c.

of methods in quant. chem. analysis, 7762*c*.
of org. compds., 105*i*.
**Classifiers.** See *Ores, treatment of; Separators.*
**Clasterosporium carpophilum,** control of, S in, 5143*e*.
**Clastics,** the term, 5676*b*.
**Clathrate compounds.** See *Chemical compounds.*
**Clausilia.** See *Snails.*
**Clausius-Clapeyron equation,** derivation and application of, 8774*i*.
**Clavacin.** (See also *Patulin.*)
effect on heart, 7138*h*.
expansin identity with, 8003*h*.
spectrum of, 9386*g*.
toxic action on heart, 1110*d*.
**Clavatol.** See *Acetophenone, 2,4-dihydroxy-3,5-dimethyl-.*
**Claviceps.** See *Ergot.*
**Claviformin.** (See also *Clavacin; Clavatin; Patulin.*)
identity with expansin, 8003*h*.
**Clays.** (See also *Bentonite; Bleaching agents; Bricks; Ceramic industry; Ceramic materials; Ceramic ware; Fuller's earth; Gumbrin; Laterites; Montmorillonite; Refractory materials; Slips.*)
acid-treatment and drying of, P 9300*a*.
activated, detection of, 1287*i*.
activated, in bleaching of oils by adsorption, 3635*c*.
activation for cement, P 3166*g*.
adsorbent, 977*c*.
adsorbent, drying of, P 6476*h*.
adsorption (interlamellar) by, 5254*i*.
adsorption of Ra and Th isotopes by red, of deep ocean, 7386*h*.
in alkali removal from glass, 5163*e*.
alumina extn. from—see *Alumina.*
alumina-high, of Irwinton dist., Ga., 6952*g*.
alunite, heat effect on, 9404*c*.
analysis of, 8628*d*.
in asphaltic bitumens, 5178*f*.
backlash in plastic, 2389*f*.
base-exchange capacity of, 9316*a*.
bentonite, in porcelain manuf., 3581*b*.
beryllium detn. in, 61*i*.
in bleaching and refining of mustard- and rape seed oils, 2000*g*.
bleaching, as catalyst in terpene conversion to aromatic and cycloparaffinic hydrocarbons, 6185*b*.
bleaching, glass-contg., in upper Bavarian Molasse formation, 4985*g*.
blue Cambrian, 8111*i*.
books—The Clayworker's Handbook, 8632*k*, Kaolin, and Their Industrial Uses, 9407*c*.
of Brazil (Amapá State), 4609*c*.
of Brazil (Paraná), 2136*d*.
for bricks, testing of, 9404*f*.
of California (Kern Co.), 4607*c*.
of California (Napa Co.), 2901*f*.
casting properties of, 4437*a*.
as catalyst carrier in hydrogenation of CO, 2398*i*, 2399*c*.
as catalysts, 6035*g*, 6799*a*, 8251*e*.
in alkylation of thiophene with olefins, P 691*d*.
in dehydration of α-methylbenzyl alc., 502*a*.
in depolymerization of butene polymers, 1311*a*.
in depolymerization of olefin isomers, 1713*e*.
in 2-methylpropene reaction with nitrosyl halides, P 7950*g*.
in petroleum formation, 5929*g*.
in pyrolysis of rubber and in cracking of distd. oil, 5619*i*.
in styrene polymerization, P 1605*f*.
in synthesis gas manuf. from hydrocarbons, P 7213*b*.
catalysts from, P 7162*a*.
by activation with mineral acids, P 4004*d*.
for cracking of hydrocarbon oils, activation by two $H_2SO_4$ treatments, P 8602*i*.
for hydrocarbon conversion, descent of, through gaseous reactants, P 843*h*.
regeneration of, after use in cracking of petroleum, 3181*d*.
catalysts from activated, for cracking petroleum hydrocarbons in vapor phase, P 6403*g*.
catalysts from activated, for cracking, pore-size distribution of, 5575*c*.
catalysts from $AlCl_3$ and, P 3162*c*.
catalysts from $AlCl_3$ and, in condensation of chlorinated paraffin wax with $C_6H_6$, 2416*h*.
catalysts from org. acids and, polymerization of resin oils with, P 5641*g*.
cement contg., P 6388*h*.
as cementing substances for sands, 6550*d*.
cement manuf. from chalk and, 2749*c*.
ceramic-body drying and, 1163*a*.
ceramic railroad ballast and constructional aggregates from, 2391*d*.
chem. and mineral compn. and geology of, of the Margreteberg, Sweden, 7382*c*.
chem. constitution, dehydration rates, thermal analyses and x-ray diffraction patterns of Egyptian, 6121*b*.
china—see *Kaolin.*
clinker from lime and, for refining sugar, P 890*a*.
coatings on paper, $TiO_2$, $TiO_2$-$CaSO_4$ and $CaSO_4$ pigments in, 8696*i*.
colloidal properties of western, 2070*a*.
complexes with org. compds., 463*c*.
of Condroz Basin, 3163*b*.
consolidation of, 1163*a*.
copper content and absorption capacity of, effect on Cu in sedimentary rocks, 978*h*.
copper in, in coal deposits of Ural-Volga petroleum region, 2138*h*.
in cracking and refining of coal tar, 7667*h*.
crystal forms of, 1129*c*.
crystal structure of, error from neglecting refraction in detn. of, 2863*f*.
dehydration of, kinetics of, 6799*c*.
demand and supply of, for pulp and paper manuf., 5948*h*.
deposition of, in deep-sea deposits, Ra content in detg. rate of, 5298*i*.
detn. in molding sands, app. for, 4613*f*.
detn. in soils in Palestine, 8590*b*.
diatomaceous, of S. Africa, 1692*g*.
drilling fluids contg.—see *Drilling fluids.*
drying and firing at mine, 5559*g*.
drying and grinding of bentonite-type, effect on drilling muds, 2409*f*.
drying of, 7204*i*.
drying of, vapor pressure-capillarity relations in, 2748*c*.
effect on elastic behavior of Buna S, 4045*d*.
of Efreminsk, 1163*d*.
elec. conductivity of, and ion diffusion in, 1542*c*.
electrophoresis of, 6091*f*.
exchange capacity of, effect on Ca and Na uptake by barley and pea roots, 8010*a*.
fire or refractory, anatase in, 4605*d*.
cordierite-type mineral from casting-pit refractories from, 5705*f*.
effect of C and graphite on, 8112*a*.
impregnation by fused FeS, 3257*d*.
mullite from, 3580*a*.
in Paris Basin, 8902*a*.
in Raniganj and Jharia coalfields of India, 8091*i*.
from Shis Mt. in Caucasus, 977*d*.
standards for, 4397*i*.
from Uchkeken, U.S.S.R., halloysite character of, 4187*d*.
firing of, heat for, 2391*i*.
of Florida, 6126*e*.
of Florida for ceramic ware, 9295*g*.
formation of, soil type and, 6770*h*.
fractionation and properties of, from soils of Pearman and Maury series, 795*c*.
of France (eastern), 3162*i*.
for Fuller's earth, 7651*d*.
gases in black, of Asov Sea region, 5711*c*.
glass-surface treatment with, P 1934*f*.
grog of—see *Grog.*
gypsum, waterproofing materials from, 7205*h*.
of Hawaii (Oahu), compn. and lithification of, 2136*i*.
hydration of exchangeable cations of, 921*h*.
of Illinois (southern), 2902*a*.
of India, 6798*i*.
of India (Jodhpur State), 6547*e*.
industry in 1946, 2127*a*.
ion absorption by, 7618*b*.
iron and P in pyrite-contg., in genesis of delvauxite-like mineral, 2898*h*.
iron oxide-contg., hydraulic classification of, and refined brown pigments from, 7716*i*.
iron removal from, for catalysts, P 4843*a*.
iron removal from Maine, 8318*i*.
Japanese acid—see *Japanese acid clay.*
jet disperser and mixer for, P 3588*b*.
of Kansas, 2134*f*.
light-weight aggregates from, 1547*c*, P 9410*i*.
for light-weight aggregate, testing of, 2391*d*, 9404*c*.
local elongation of, 2389*h*.
London, 372*a*, 3163*ab*.
lyogels of, 4540*e*.
manuf. of $Al_2O_3$, cements and $SO_2$ from, P 826*a*.
marlsand sedimentary, of Casale, Italy, 2552*e*.
mech. analyses of, 7875*a*.
in mercury deposits in the Urals, 2130*h*.
methylation of, 6347*f*.
microscopy and sedimentation of, 372*e*.
minerals, 3580*e*, 9315*b*.
in Sb deposits of Soyatal Dist., Mex., 4982*g*.
base-exchange power of, 8232*i*.
of Capalbio, Italy, hydrothermal stratum of, 5706*d*.
coating with sesquioxides, 7620*g*.
formation from mica, 7200*c*.
formation of Al, Fe and hydrogen ions from, by acids and salts, 372*b*.
heat effect on, 3583*g*.
of montmorillonite group, identification of, 2129*i*.
in red mudstones and sands in Rocky Mt. region, 2137*d*.
segregation in soils, 2721*d*.
in soil, $H_3PO_4$ fixation and, 6347*f*.
in soils, origin of, 6347*c*.
weathering of, 3127*c*, 3957*g*.
x-ray powder photographs of, 6544*g*.
mixts. with $SiO_2$, reheat shrinkage of, 828*i*.
mixt. with $CaSO_4$ and $H_2SO_4$ as electrolyte for Pb battery, P 4590*e*.
montmorillonitic, as catalyst in acylation of thiophene, P 2643*h*, P 2644*e*.
of multicolored sediment beds of Don Basin, 6130*fg*.
nodules in oil-bearing layers of Apsheron peninsula, U.S.S.R., 978*e*.
of Pacific Northwest, ceramic tests on, 5559*a*.
for paper fillers, 4011*a*.
particle size of, measurement of, 4923*i*.
of Pennsylvania, 4434*i*.
in petroleum hot-water sepn. from bituminous sand, 9421*f*.
plasticity and thixotropy of, adhesion of inorg. binders and, 828*h*.
polyhalite secondary formation in salt, 8995*d*.
purification with HCl, P 1166*b*.
radioactivity of, 7331*h*.
radioactivity of, in sedimentary sands, 1261*f*.
radium and U contents, seasonal deposition and geol. age of varved, of Hartford, Conn., 2552*i*.
relaxation time in, 7590*a*.
review on, 5559*g*.
as rubber filler, measurement of activity and electronmicrography of, 6454*d*.
rubber pigmentation and reinforcement by, 1593*d*.
rubber viscosity and, 7251*c*.
salt detn. in ceramic, 9404*a*.
in salt rocks, quartz crystn. in formation of, and reactions of salts with clay minerals, 8904*i*.
sedimentation of absorbent, in lubricating oils, effect of surface-active constituents on, 3183*a*.
shrinkage of, 8630*c*.
silicon manuf. from, P 5358*g*.
soils—see *Soils.*
in soils, phosphate adsorption by, 9315*c*.
Spanish, 8590*c*.
stokers in industry of, 2392*a*.
stress-strain hysteresis loops of bars of, 2389*e*.
structure of, 4072*g*.
surface area of, measurement by neg. adsorption, 6799*b*.
suspensions of, calcium and potassium ions in, activities of, 1133*a*.
effect of pH on properties of, 4538*i*.
effect of particle shape on properties of, 4436*g*.
gas sampling from, app. for, P 5179*g*.
filtration of, app. for detn. of rate of, 3665*d*.
fire-fighting value of, 1570*a*.
flow of, 5259*e*.
structure formation in, and thixotropy of, 5257*i*.
ultrasonic dispersion in, 4538*b*.
swelling of, NaOH solns. for prevention of, P 6817*i*.
system: quartz–, 3582*dh*.

tech. properties of, colloid chemistry and, 5915*h*.
thermal analysis curves for, 8987*h*.
thixotropy of, measurement of, 794*h*.
titanium detn. in, and clay products, 1285*a*, 5699*bc*.
uses of, 2380*a*.
Utah ancient, 5708*f*.
Washington pottery and refractory, 6547*d*.
of West Virginia, 74*h*.
white, of India, 5559*e*.
whiteware, deposit in Fergus County, Mont., 4436*i*.
of Wilcox formation of Eocene series in southern U.S., 977*h*.

**Clay ware.** See *Ceramic ware*.

**Cleaning.** (See also *Detergency; Laundering; Washing;* and specific things cleaned.)
app. for—see also "app. for" under *Precipitation, electric*.
app. for, P 4525*c*.
book, 1585*g*.
of kettles, pipeline, warm-$H_2O$ installations, etc., 7399*g*.
marine electro-, app. for, P 7839*h*.
of textiles—see *Textiles*.
of water tanks, standpipes and reservoirs, specifications for, 2346*d*.

**leaning compositions.** (See also *Paint removers; Polishing materials; Shampoos; Soaps; Surface-active substances; Varnish removers; Wetting agents;* and "removal of" under *Grease*.) P 2795*h*.
abrasive hand cleaners, dish-washing compds., etc., 425*b*.
adsorbent, P 9298*g*.
adsorption by oil-$H_2O$ interfaces, 8796*h*.
from alumina colloidal hydrate and powd. soapwort root-Na naphthalenesulfonate mixt., P 6844*f*.
for aluminum, corrosion test for, and definitions of terms relating to detergents, 4399*g*.
amide derivs., P 9496*f*.
amide reaction products, P 8712*gh*.
amides of fat acids, P 5978*hi*, P 5979*ab*.
amino acid alkali salts, P 4877*i*.
6-(aminomethyl)dehydroabietic acid for, P 6665*f*.
amino propionate alkyl ester salts, P 5978*c*.
analysis and evaluation of, 1201*h*, 8180*b*.
analysis (qual.) of, for textile use, 1584*i*.
anion-active, effect on intercellular cohesion in corneal epithelium, 8514*j*.
effect on wool frictional coeffs., 4858*c*.
with high wetting power and solvents, P 9498*a*.
*N* - 2 - benzothiazolyl - 3 - hydroxy - 2-naphthamide, for plant fibers, P 4498*i*.
books: Cleaning and, 1585*g*; Chem. Betriebskontrolle in der Waschmittelindustrie, 8711*h*.
for bottle washing, from Be compds., P 6375*a*.
caustic differential of, 2451*h*.
Na zincate- and Na phosphate-contg. alk., P 4034*b*.
sulfonate wetting agents in improving action of alkali, 3636*g*.
and their builders, 6436*b*.
cake or molded, manuf. of, 6436*f*.
caking inhibition in powd. alkali, by $Mg_3(PO_4)_2$ or wetting agents, P 6438*d*.
caprylamide-HCHO-triethanolamine reaction product, acetate deriv., P 7728*g*.
carboxylic acid (long-chain) salts, P 670*h*.
carboxymethylcellulose in enhancing power of nonionic, 8711*c*.
carboxymethylcellulose Na deriv. in increasing effectiveness of, 4876*a*.
from cellulose ethers or cellulose chloroacetylation by-products and soaps, P 5978*a*.
chem. structure and performance of, 2002*g*.
chem. structure and use of, and relation to water quality, 5213*d*.
classification and review on, 4497*c*.
classification, standards and washing tests for, 9492*b*.
coconut fatty acid anilide condensation product with *N*-methylol chloroacetamide Na sulfonate, P 886*c*.
compn. of, and admixts. for, 5976*i*.
cream, 3972*g*.
crit. concns. of anionic and cationic, effect of temp. on, 2843*e*.
crit. micelle concns. of, 2843*g*.
for dairy industry, 3941*e*.
delipidation of lipide-protein cenapses by cationic, 8420*f*.
detergency of—see *Detergency*.
detn. of, by titration of anionic with cationic soaps, 5976*e*.
2,4-diamino-*s*-triazine derivs. for, P 699*h*, P 5216*gh*.
1,4-dicyano-2-butanesulfonate salts for, P 3840*c*.
disinfectant, from alkali metal salts and tetra-Na and quaternary $NH_4$ salt of ethyldiamine tetraacetic acid, P 6438*h*.
disinfectant, giving off nascent O, long-chain aliphatic, P 1587*e*.
dispersion powers of, measurement of, 6436*e*.
for drainpipes and washrooms, 9493*c*.
for drilling-mud washing from oil wells, P 5582*d*.
dry-cleaning—see also *Solvents*.
dry-cleaning, P 9498*d*.
dust-free alk., P 6438*i*.
in dyeing, 2775*i*.
effect of cationic, on oxidase systems, 3857*e*, 6253*i*.
effect on development of sea-urchin eggs, 4390*d*.
on fibers, 3218*i*.
on muscle stimulated by acetylcholine, 2330*h*.
on potentiometric reaction and contractility of nerves and muscles, 2325*e*.
on sewage purification, 5140*e*.
on shrinkage rate of wool shirting, 6423*f*.
efficiency of surface-active, concn., time of scouring and force in relation to, 2002*h*.
elec cond., foaming, pH, opacity and surface tension of solns. of, effects of concn. on, 6435*d*.
in emulsion breaking, 3178*g*.
from esters of hydroxycarboxylic acids and cycloaliphatic alcs. and anion active wetting agents, P 8714*b*.
from esters of unsatd. dicarboxylic acids with *N*-hydroxyalkyl amides of fatty acids, Na salt, P 4500*e*.
from ethylene oxide reaction with fatty acids from oxidation of paraffin wax, nonionic, 5213*f*.
ethylene (poly-) glycol, detn. of, 8710*e*.
evaluation of alkali, 2451*g*.
fatty acid chloride condensation products with peptides, analysis and prepn. of, 3217*f*.
fatty acid sulfoaryl hydrazides, P 251*i*.
films of, on salt solns., 7776*h*.
foam formation on solns. of, 8795*g*.
foam-fractionated, surface tensions of solns. of, 3087*e*.
foaming and wetting agent-contg., from borax, $Na_2CO_3$, etc., P 4877*f*.
for food-plant cleaning, 4497*d*.
free flowing granular mixts. with alkali metal polyphosphates, P 9495*c*.
in fur industry, 5213*e*.
for furs and textiles, montmorillonite clays as, 977*c*.
for glass, 8180*d*.
glycerol monococonut oil monosulfuric acid ester Na salt, P 9495*d*.
from grapevine exts. and $Na_2CO_3$.2Na-$HCO_3$, P 6844*i*.
for heat exchangers in petroleum refining, 3179*h*.
hemolysis and increase in capillary permeability by, in comparison with sperm lysin and leucotaxine, 3112*g*.
from 2-heptadecylbenzimidazole Na sulfonate reaction with chloroacetic acid, P 886*d*.
history of, 4875*i*.
hydrazine monocarboxyacylated deriv. reaction products with saccharides, P 9497*g*.
from hydrocarbon-oil emulsification with peat ext., P 3220*h*.
from hydrochloric acid and org. N bases, noncorrosive, P 6439*a*.
*N*-(hydroxymethyl)stearamide-Na sulfamate reaction product, P 7726*e*.
influenza-virus complexes with cationic, 3051*b*.
insecticidal, P 7634*h*.
for laundering in sea water, evaluation of, 2003*b*.
laundering with—see *Laundering*.
lubricant detergents—see *Lubricants*.
manganese dioxide suspension in solns. of, 3688*h*.
manuf. in western U.S., 8577*c*.
manuf. of "Dreft" from dodecanol, lab expt. on, 2477*h*.
Mersolat-contg., prepn. for spray drying 5211*e*.
for metals, 1705*a*, P 3772*f*, P 6147*g*, 6439*b*, P 7163*e*.
health hazards of, 787*e*.
Na silicates as, 3766*e*.
of metals—see *Metals*.
for milk-fat detn., 8067*i*.
mixts. with imidazole compds., fluorescence-generating optical bleach, 6429*h*.
2-naphthalenesulfonic acid derivs. for textile, P 7969*cd*.
org. synthesis in industry of, 3636*b*.
palmitolyl-*o*-tolylhydrazide Na sulfonate P 4498*e*.
in parasitology, 6699*g*.
for pectin removal from textile plants, P 4022*e*.
petroleum products in making, 839*g*.
pharmacology of, 4774*d*.
polyhydroxynaphthalene sulfonate-contg., P 2795*h*.
from polyoxyethylene esters of tall oil or rosin and sulfonates, P 6438*f*.
protein complexes with, in solubilization, 9492*b*.
quaternary ammonium compds., P 7729.
quaternary ammonium compds., effect on milk quality, 8575*h*.
quaternary ammonium nitrates for, P 667*c*.
for radiators of automobiles, 5214*a*.
rancidity prevention in, P 886*g*.
removal from sewage, 7168*g*.
Renex nonionic, effect on detergency of sulfonates and soap in hard water, 5976*a*.
reviews on, 882*i*, 2793*c*, 4788*f*, 4789, 5612*d*, 6843*c*.
scouring, of U.S. and United Kingdom, 8180*d*.
for silicone lubricants on glass app., 1226*d*.
silicosis and tuberculosis from dust of, 4497*b*.
for skin for mineral-oil removal, 3543.
for skin, from paraffin wax mixts., sulfonates, etc., P 2452*i*.
from soap grinding with fuller's earth or kaolin, P 4877*hi*.
soap *vs.* synthetic, 2451*f*.
for soda saving, 6435*g*.
from sodium or K hexametaphosphate of pH 9.2-10 for household use, P 6438*e*.
from sodium polyphosphates and Na metasilicates, water-softening non-caking, P 6438*g*.
from sodium silicates, 6335*c*, 6435.
from sodium silicate, $Na_2CO_3$ and NaOH, P 8712*b*.
solubilization by, 3688*c*.
solubilization by, concn. and, 7780*d*.
solubilization of *trans*-azobenzene, dimethylaminoazobenzene and Orange OT in, and crit. concn. of, effect of electrolytes on, 4876*c*.
solns. of disks of, app. for, P 7242.
sponge (synthetic rubber) exuding, P 4890*e*.
for stain removal—see *Stains*.
from stearamide reaction product with crotonaldehyde and $NaHSO_3$, P 5078*f*.
from stearic acid hydrazide-acetonesulfonic acid condensate reduction product, P 7729*d*.
from stearic acid hydrazide-Na benzaldehydedisulfonate condensate reduction products, P 7730*a*.
for steel (pickled), 1304*d*.
sulfated and(or) sulfonated, P 886*c*, P 4877*e*, P 6844*h*, P 9496*i*.
ethanolamides, P 2004*d*.
fatty acid-alkanolamine condensation products, analysis of, 8705*g*.
for impregnating metal-wool pads, P 9497*b*.
improvement by fatty acids or their esters, P 4034*a*.
increasing apparent d. with moistening agents, P 9495*h*.
manuf. of aryl-, from olefins, P 2469*c*.
noncaking and nondusting, P 4034*c*.
protein dispersion in aq., P 2785*b*.
rancid odor inhibition in mixed stored alkylaryl, P 6845*ac*, P 6846*a*.
stearoyldimethylphenylbiguanide, 4879*c*.
Tipral, 4861*i*.

*sulfated and(or) sulfonated*, from whale-brain oil, P 6844*g*.
from sulfite (alkyl) alkali salts, P 7037*b*.
sulfites or sulfonates on carrier having abrasive, adsorbent, detergent or solvent properties, P 4877*e*.
sulfonated alkyl benzenes, P 9495*i*.
sulfonated alkyl-substituted aromatic hydrocarbons as, P 6232*ei*, P 6657*i*.
sulfonated amides and Na salts, P 2004*a*.
sulfonated anisole reaction product with $(ClCH_2)_2O$-stearamide reaction products, Na salt, P 1588*f*.
sulfonated castor oil $Na_2CO_3$-aromatic solvent paste, P 8712*c*.
sulfonated 3-heptadecyl-5-methyl-1-phenyl-1,2,4,1 *H*-triazole, P 7730*c*.
sulfonated hydroaromatic-substituted aromatic hydrocarbons as, P 1562*i*.
from sulfonated hydrocarbon, hydrocarbons and oxalic acid, for painted surfaces, etc., P 3640*b*.
sulfonated phenol condensation product with $(ClCH_2)_2O$-stearamide reaction product, Na salt, for textiles, P 1588*d*.
from sulfonates and $Na_2SO_4$, evaluation of ternary mixts. with soaps and electrolyte builders, 3635*i*
sulfonation products, P 9408*f*.
from sulfuric acid esters, sulfonic acids or their salts, P 7242*b*.
sulfuric acid esters with guanidine derivs., P 4499*b*.
surface-active-material detn. in, 8791*g*.
surface tension and wetting powers of, 8711*b*.
synthetic resin fillers in, skin compatibility with, 7197*b*.
tasteless, for dentifrices, mouthwashes, etc., P 3151*d*.
from tetrahydronaphthalenesulfonamide-Na formaldehyde-bisulfite reaction product with 6 (chloromethyl-1,2,3,4-tetrahydronaphthalene, for textiles, P 7726*d*.
tetrahydrothiophene-3-ol 1,1 - dioxide esters, P 1441*e*.
in textile industry, 5976*e*.
for textiles, 8710*b*.
unsatd. acids for, P 7502*g*.
and their use, 5976*a*.
for wooden floors, P 3640*c*.
for wool, affinity and antibacterial activity of, 4017*f*.
in wool scouring, evaluating effectiveness of, 5976*h*.
nonionic, 7690*a*.
petroleum derivs. as, 2151*g*.
from stearic acid-*N*-methylolamide reaction with Na $\beta$-hydroxyethanesulfonate, P 5218*a*.
zein in aq., 3090*e*.
**Cleavage** See *Decomposition; Degradation, Hydrolysis; Saponification;* etc.
**Clematis**, *flammula*, aphrogenic principle of, 6306*d*.
*recta* and *vitalba*, pharmacology of, 9380*d*
*virginiana*, antibacterial and antifungal substances from, 3885*c*.
**Clément**, biography, 8759*h*.
**Clemmensen reduction.** See *Reduction*.
**Clerodendrum**, *yunanesis*, identification, occurrence, compn. and antimalarial action of, 7194*e*.
**Climate** (See also *Weather*.)
anthocyanidins of flowers and, 3068*g*.
carbon dioxide in atm. and, 7621*h*.
corrosion and, 2564*i*.
grape nitrogenous and phosphate nutrition in relation to, 6349*ef*.
grape potassium supply and, 7174*d*.
salt excretion in desert, 298*h*.
subarctic, food consumption in, 6292*c*.
vitamin C in tomatoes and, 784*b*.
**Clinker**, cement—see *Cement, hydraulic or structural*.
from clay and lime for refining sugar, P 890*a*.
dolomite, P 7206*c*.
**Clinoenstatite.** (See also *Pyroxenes*.)
dielec. properties of, 7205*b*.
**Clinohumite**, of Italy (Aosta Valley), 2128*b*.
from Kaveltorp, 6543*f*.
**Clinopyroxene**, of chromite vein in Itaú, Brazil, 2132*i*.
**Clinozoisite**, from Ireland (Camaderry Mt.), 6119*e*.
**Clionasterol**, and benzoate, 2626*h*.
——, **7-dehydro-***, identity (suggested) with provitamin D of *Litorina*, 2626*h*.
**Clitandra.** (See also *Rubber*.)
as rubber source, 5221*e*.
**Clitocybe nebularis**, pyrocatecholases of, 3886*b*.
**Clitocybine**, 7080*e*.
**Clivia nobilis**, leaves, ultraviolet absorption by cuticular and waxy layers of, 1834*f*.
**Clocks**, metals for, 6058*i*.
**Cloresene.** See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Clorina.** See *Chloramine-T*.
**Cloroben.** See *Benzene, o-dichloro-*.
**Clostridium**, *aceticum*, nutritional requirements of, 2276*i*.
*acetobutylicum* and *butyricum*, conversion of acetoacetic acid to acetic acid and butyric acids by, 6700*d*.
*acetobutylicum* and *saccharobutyricum*, fermentation of pyruvate, $\beta$-hydroxybutyrate and $C_4$-dicarboxylic acids by, 3489*b*.
*acidi urici*, acetic acid synthesis and uric acid decompn. by, 9146*i*.
*aerogenes capsulatum*—see *"perfringens"* below.
*botulinum*, hemagglutination by toxin of, 1826*h*.
protection of adrenal ext. and steroids against, 8054*g*.
toxin of, 1829*c*.
*butanologenum* and no. KM, BuOH-iso-PrOH fermentation by, 1145*e*.
culture in medium contg. vitamins $B_1$ and C, 1460*h*.
gas-gangrene, sulfonamide effect on growth and staining reactions of, 1459*h*.
*hemolyticum* and *novyi*, toxins of, 720*d*.
hemotoxin production by, effect of penicillin on, 4340*c*.
*histolyticum* and *perfringens*, gelatinase in, 6260*b*.
for jute retting, 9456*c*.
*kluyveri*, synthesis of valeric and caproic acids by, 7077*h*.
*lacto-acetophilum*, acetic acid and $CO_2$ in fermentation of lactate by, 2276*h*.
nitrogen fixation by, 5446*h*.
*novyi* and *perfringens*, bactericidal activity of ammonium sulfoichthyolate on, 3488*d*.
*novyi*, antitoxins, effect on toxin action in heart-lung prepn., 6740*f*.
*novyi*, toxin of, physiol. action of, 6740*d*.
*oedematiens*—see *"novyi"* above.
*pasteurianum*, $Ca_3(PO_4)_2$ solubilization in soils by, 5521*i*.
effect of *Azotobacter* on, 5825*h*.
in soil, effect of wheat roots on, 5523*b*.
*pastorianum*—see *"pasteurianum"* above.
penicillin effect on, 4340*b*.
*perfringens*, $\kappa$ and $\lambda$ antigens of, 4367*e*.
antihyaluronidase in antiserum to, 7087*a*.
collagenase of, 6257*h*.
dehydrogenation of org. substrates by weakened forms of, 5448*f*.
enzyme systems of, effect of bacteriophage on, 1831*d*.
glutamic acid decarboxylase and histidine decarboxylase from, 3065*f*.
gonadotropin inactivation by enzyme from 5060*d*.
hyaluronidase of, production and properties of, 7985*d*.
iota toxin of, 4329*i*.
lysis of, 9158*d*.
lysozyme action on, 3059*a*.
in Mg deficiency, 3059*c*.
reduction of nitrates to nitrites by, 8447*c*.
toxin of, antitoxin in tissue after immunization with, 4326*b*.
toxin of, physiol. action of, 6699*i*.
*perfringens* and *tetani*, bacteriotoxic effect of glycerite of $H_3O_3$ and other substances on, 5533*i*.
*perfringens*, *septicum* and *tetani*, toxins from, effect on respiration and hemolysis of dogfish erythrocytes and on respiration of marine eggs, 9144*e*.
*putrefaciens* and *tetani*, adsorption of metal colloids on, 274*g*, 4726*d*.
*saccharobutyricum*, effect of Na arsenite on butyric acid production from pyruvate by, 4331*e*.
malonate inhibition of, effect of inositol and pyrone derivs. on, 716*b*.
synthesis of $NH_3$ and aspartic acid by, 3489*h*.
*septicum*, antitoxin, penicillin and sulfadiazine in treatment of infections with, 9164*e*.
*sporogenes*, amino acid and fatty acid requirements of, 7083*e*.
effect of antibiotics on metabolism of, 4340*a*.
*sporogenes* and *saccharobutyricum*, effect of O on amino acid oxidase of, 8430*g*.
tartrate-fermenting, 273*i*.
*tetani*, toxin—see "toxins" under *Tetanus*.
*thermosaccharolyticum*, N requirements of, 5447*g*.
*tyrobutyricum*, in fermentation of processed cheese, 5877*h*.
*welchii*—see *"perfringens"* above.
**Closure devices.** (See also *Bottle caps*.)
for containers—see *Containers*.
cork substitute for, P 6004*e*.
**Cloth.** See *Textiles*.
**Clothing.** See *Textiles; Wearing apparel*.
**Cloud chambers**, contaminated, 7812*c*.
for cosmic rays, 3281*f*, 5661*f*.
in a magnetic field, 7326*g*.
pressure, probability of meson track endings in, 4095*b*.
pressure, with intense magnetic field, 4095*b*.
radial, for high altitudes, 4094*a*.
with rear illumination, 8756*c*.
Wilson, lamp for, 1664*f*.
**Cloud point**, detn. of, 4399*c*.
**Clouds.** (See also *Fog; Mists; Smoke*.)
ice-nucleus effect in, 8761*g*.
measurement of extinction coeffs. and visibility in dense, 6039*f*.
nucleation of supercooled $H_2O$ clouds by AgI smokes, 6039*a*.
particles in stratus, 6039*b*.
**Clove oil.** See *Oils*.
**Clover**, carbon dioxide assimilation and dry matter production by, grown under dry conditions, 5088*h*.
carotene and vitamin C in, 3536*b*.
carotene preservation in, during storage, 4395*i*.
compn. of, 6331*f*.
compn. of red, at various stages of growth, 727*d*.
control in barley and oats, 6775*i*.
cotton substitute from external fibers of, P 1990*h*.
decompn. of sweet, in soils, 1891*e*.
dehydrogenase in plastids of, 8454*b*.
development of biennial sweet, effect of top-growth removal on, 1134*a*.
diamine deamination by, 6706*e*.
effect of red and sweet, on N and org. matter in soils, 9319*c*.
effect on humus in podzol, 8590*b*.
effect on K in soil, 1131*i*.
Egyptian—see *Berseem*.
estrogens in, 6702*e*.
factor causing paralysis of smooth muscles in, relation to bloat, 6306*e*.
fall-armyworm control in, 1809*a*.
fertility of soil and, 2348*g*.
fertilizer expts. with red, with Mg, 9320*g*.
fertilizer expts. with *Trifolium repens*, 1516*a*.
fertilizer expts. with, with Na, 7173*e*.
hardiness of, 1084*a*.
hay—see *Hay*.
improving taste of water-sol. constituents of, P 6334*g*.
insect control on, 346*b*.
lime from city ruins for, 7173*i*.
manganese deficiency in red, 1513*b*.
manganese sensitivity of sweet, 7088*c*.
mineral deficiency in subterranean, 4801*g*.
phosphorus (org.) in red, 1510*d*.
potassium (nonexchangeable) effect on, 1132*e*.
potassium-supplying power of soils for ladino, 3551*b*.
red, effect on soil bacteria, 3957*i*.
response of Alyce and crimson, to minor elements, effect of liming on, 8593*c*.
sampling of Alyce, 7158*c*.
seed, flow of suspension in gases through pipe, 912*b*.
seed of hubam, and meal therefrom, 1998*g*.
selenium in sweet, 3890*f*.
soils under, pH and P of, 339*h*.
spittle-bug control on, 1521*f*.
spraying of, with nutrient elements, 7093*b*.
subterranean, effect of Cu, phosphate and Zn on, 8590*i*.
survival of ladino and white, in ice, 7088*f*.
**Clover mite.** See *Bryobia praetiosa*.
**Clover root borer.** See *Hylastinus obscurus*.
**Clover-seed oil.** See *Oils*.
**Cloves**, oleoresin manuf. from, 8573*f*.
**Clubroot** (*finger and toe disease*), control on cabbage, 801*h*.
**Clupeine**, amino acid compn. and prepn. of, 5431*h*.

effect on fertilizin action on blood coagulation, 4390*g*.
**Clutches**. (See also *Friction materials*.)
corrosion preventive for, P 7896*b*.
facings for, P 3241*c*.
**Clysma**. See *Enema*.
**Coacervates**, of gelatin and dodecyl Na sulfate, 8801*h*.
gelatin-gum arabic, effect of pH and salts on diam. of drops of, 3691*a*.
the term, 5654*f*.
**Coacervation**, as phase equil. in colloidal systems, 5654*f*.
**Coagglutination**. See *Hemagglutination*.
**Coagulates**, structure-mech. properties of, 7779*i*.
**Coagulation**. (See also *Albumins; Blood; Colloids; Emulsions; Milk; Proteins; Rubber, Sewage; Water, purification of;* etc.) P 7*a*.
by ultrasonic waves, 8577*g*.
**Coal**. (See also *Coke; Fuels;* and other coal products.)
abietic acid in characterization of, 4830*d*.
acid (org.) manuf. from, P 3176*a*.
activator for, P 8651*a*.
agglutinating power of, measurement of, 3594*d*.
of Alaska, 2130*e*, 5708*h*, 8314*i*, 9413*f*.
of Alberta, 3989*e*, 5922*e*.
of Alberta (Kootenay formation), geology of, 6547*g*.
of Algeria, 3591*b*.
analyses of German, 1549*e*.
analysis (micro-) of, 5172*c*.
analysis of mineral-contg., 3168*d*.
anodes from, for Al manuf., 8915*b*.
anthracite, for automotive gas producer, 1547*g*.
as cupola fuel, 9411*g*.
dewatering fine, 9411*g*.
distn. of, app. for, P 3176*h*.
fluidization of, 6805*i*.
of France, 9411*f*.
polarized light in microscopic examn. of, and detn. of ligneous tissue in, 5569*f*.
reduction degree in, 2289*h*.
review on, 6550*i*.
screening and classification of fines, 2404*f*.
in sintering Fe ore, 9411*h*.
ash, cathodoluminescence of rare earths in, 6087*f*.
cement from, 1938*b*, P 6804*i*.
as cement hydraulic additive, 1936*h*.
Ge in Indian, 8118*c*.
refractory manuf. from, 5562*f*.
ash detn. in, 1941*e*, 3169*b*, 5922*i*.
ash removal from, 1940*g*, 8118*c*.
of Australia, 526*e*, 6115*b*.
beneficiation capacity of, detn of, P 9419*b*.
black-powder substitute or primer component from, P 4468*f*.
books. Elements of, Chemistry, 3174*f*, Studi sopra l'utilizzazione del, del Sulcis, 4446*e*; De monsterneming van heterogene binomiale korrelmengsels, in het bijzonder steenkool, 5236*f*, Lerhbuch der Kohlenmikroskopie, 8120*f*.
breakage and strength of, effect of moisture films on, 1238*g*.
briquets—see *Briquets, fuel*.
British *vs.* Indian, 6552*e*.
brown—see also *Briquets, fuel; Lignite*.
brown, of Austria, 3992*f*.
coke from—see *Coke*.
coking properties of Hungarian, 8118*b*, 9417*e*.
detn. of coking properties of, 9417*h*.
fluidization of, in gasification, 9414*g*.
of Hungary, 8642*h*.
storage of, 9413*h*.
tar—see *Tar*.
water detn. in, 4445*b*, 6807*b*.
wax of—see *Montan wax*.
of Bulgaria, 4609*e*, 9411*h*.
caking of tar-contg., gas generator for, P 6397*b*.
caking property of, 1941*a*.
of California (Siskiyou Co.), 2901*f*.
calorific value of, and its detn., 8117*fh*.
calorific value of, elementary compn and, 2753*i*.
carbon (active) from, 5572*b*.
carbon black by grinding of, 1169*i*.
carbonization of—see *Carbonization*.
carbonized, fine structure of, 9412*d*.
carbonized, molded products from, P 3176*i*.
carbonizing properties of, 378*c*, 4443*i*.
carbonizing properties of, test for, 1947*b*.
carbon monoxide manuf. from, P 2408*a*.
cement manuf. from low-grade, P 2753*b*.
chemical manuf. from, 9413*b*.
of China, 2902*efghi*, 2903*ab*.
cleaning of, 5922*f*, 6391*a*.
for coking, adaptation of, 4446*d*.
blending to improve coke and extend reserves of, 3992*b*.
in Central Provinces, India, 1949*e*.
lab. assay for selection of, 7667*h*.
prepn. of, 1168*g*.
selection of, 837*g*.
S in, radioactive tracers for study of, 837*i*.
coking of—see *Coking*.
coking properties of, 1949*f*, 4834*e*, 9414*a*.
of Balkan deposits, 8647*f*.
coal classification and, 6806*f*.
phys. characteristics and, 5172*i*.
test for, 1947*e*.
theory of, 4833*i*.
colloidal properties and clinkering of, 4830*b*.
as colloid (solid), 6391*a*.
of Colombia, 8994*b*.
combustion gases from beds of, $NH_4Cl$ sublimed crystals from, 6116*i*.
combustion of, 5569*h*.
detn. of losses from incomplete, 4830*e*.
smoke abatement and, 3592*i*, 3593*a*.
constitution of, 8638*h*.
copper in, of Ural-Volga petroleum region, 2138*g*.
crystal structure of, 4072*f*.
density and fine structure of, 5653*f*.
density (bulk) of, and use of cannel, effect on coke-oven gas production, 2755*b*.
devolatilization of, 835*b*.
distn. (low-temp.) of, P 838*h*.
plant for, 3755*b*.
pressure effect on, 5569*i*.
distn. of, app. for, P 5648*i*.
in liquid bath, P 3175*g*.
under pressure, 5570*c*.
products from, 8641*fhi*, 8642*b*.
drying of, 2404*h*, 3991*g*.
dust—see also *Burners*.
dust, detn. in foundry sand, 5713*i*.
effect of chemicals on ignition and combustion of, 4468*b*.
explosibility detn. and explosions of, 405*i*.
in gas works, and its prevention, 4445*f*.
petrology of, in mines, 2405*b*
portable elec. explosion gallery for, 5952*d*.
recovery and utilization of, 375*h*.
sieve analysis of, 2069*h*
wetting-agent compn. for control of, P 838*i*.
wetting agents in control of, 375*i*.
effect of unburned, on ash fusibility, 1941*i*.
elec. power from, by electrochem. means, 1664*h*.
for electrode C, 375*f*.
elements (minor) in, 1941*c*, 8639*d*
elements (minor) in, concn. by org. addns., 2137*i*.
evaluation of, 1549*a*.
evaluation of, for gas manuf., 7661*e*.
exploration for, paleogeography in, 3320*i*.
explosions in mines—see *Explosions*.
explosives for mining—see *Explosives*
extn. and x-ray diffraction of, 3593*d*.
extn. of, P 1950*hi*.
by ethylenediamine, 3593*h*.
intermediates by, P 5602*b*.
with solvents at high temp., 1942*i*
fat synthesis from, 5878*a*, 6327*h*.
fines, agglomeration of, P 1170*e*, 3594*b*.
fines, centrifuge for, P 1172*a*.
fireclays in Raniganj and Jharia fields of, 8991*i*.
fire extinguishing in bunkers of, 7663*b*.
firing of—see *Firing*.
formation and structure of, 8639*b*.
formation of, 8319*e*.
formation of, metamorphosis of C and, 6395*d*.
of France (Contrexéville region), 2902*c*.
of France, petrography of, 3167*i*, 3168*c*.
furnaces for—see *Furnaces*.
gas—see *Gas, fuel (manufactured)*.
for gasification, effect on coke properties, 2755*a*.
gasification (underground) of, 3169*bc*, 3993*d*, P 3994*d*, 4831*c*, 5172*a*, 7210*g*, 9414*h*.
for gas manuf. in English Midlands, 1944*e*.
gasoline substitute and lubricant from, P 4844*e*.
gas removal from seams of, 5923*e*.
gas value no. of, gas yield and, 2404*i*.
germanium in, distribution of, 2754*h*.
germanium in, of Ostrava-Karvina Basin, Czechoslavakia, 2138*h*.
grain size of blends of, coke properties and, 6392*a*.
humic acid properties and, 1168*g*.
hydrocarbons from, 4638*a*.
in hydrocyanic acid synthesis, 6983*a*.
hydrogenation of, 1942*h*, 1943*aeg*, 1944*a*, 3591*e*, 5170*e*, 5171*df*, 6391*b*, 8642*g*, 8640*cdfghi*, 8641*bcef*.
chemicals from, 5921*c*, 8646*g*.
coal-to-vehicle-ratio effect on, 6806*h*
to fuel oil, 1549*i*.
at high temp., 4444*h*.
instrumentation in, 6806*i*, 7664*e*.
liquid fuels by, 5570*i*, P 6810*f*.
materials for app. for, 8646*c*.
temp. effect on, 2404*d*.
thermal efficiency of, 2754*e*.
hydrogen detn. in, 5921*i*.
ignition (spontaneous) of, 9411*e*
ignition (spontaneous) of, measurement of tendency for, 2754*f*.
industry in 1946, 2127*ab*.
journal—Zeitschrift fur Kohle, Gas Treibstoff und Elektrizität, 8120*e*
light-reflecting capacity of Hungarian, 8639*g*.
liquid fuels from, 2397*c*, 3989*g*, 6390*h*, 7209*e*, 9414*f*.
of Manitoba (southern), 5347*c*.
marine bands and faunal marker horizon, in sedimentary cycles of, in Derbyshire and Nottinghamshire, 3752*i*
methane detn. in, 1549*e*.
methanol sorption by, energies of, 8835*i*
mineral matter in, effect on combustion and gasification, 5169*i*, 7663*c*.
mines—see *Mines*.
mining—see *Mining*
molded products from, P 4449*i*
of Newfoundland, 5708*h*.
nodules from western Pennsylvanian beds, 6547*f*.
of Ohio, 375*e*, 3168*d*.
oils of—see *Oils*.
of Oklahoma (Haskell Co.), 5348*i*
origin, evolution and C:H-ratio charts of, 2400*c*.
oxidation (anodic) of, 376*a*, 1942*d*
oxidation of, 9412*h*.
changes in colloid-chem. structure during, 3593*b*.
detn. of degree of, P 9419*b*
oxidation of products of, with air, catalysis of, 5133*e*.
oxygen absorption by, app. for detn of, 8759*a*.
oxygen detn. in, 7661*d*.
performance of, chem and petrographic compn. and, 5170*d*, 6392*a*.
petrographic analysis of, 5922*c*.
petrographic and x-ray study of, 7661*fh*, 7662*d*.
petrography of, of Sulcis, Sardinia, 3323*b*
petroleum-like liquid from Tkvibulsk deposits of, 8122*g*.
in phenol recovery from wastes, 1948*h*
phosphorus compds. in, and their detn., 834*e*.
powd.—see also *Burners; Firing; Fuels*.
powd., feeder for, 6872*a*.
inflammability of, 6806*e*.
water content of, effect on boiler performance, 5021*e*
water detn. in, 8971*b*
prepn. of, 6549*i*, 8638*h*.
prepn. of, for steelmaking, 3992*a*
pyrite from, utilization of, 7209*a*
pyrite recovery from, 2907*a*, 5911*h*
pyrolysis of, 7759*c*.
pyrolysis of, removal of acidic and phenolic components from gases from, P 5574*a*.
quality of, effect on critical air-blast test of coke, 2407*a*.
removal from sand, app. for, 3248*h*.
research on, 5922*b*.
reserves in U. S. S. R. and world, 6390*i*.
reserves of British commonwealth, 8638*fi*.
resins from, 2405*e*.
adhesives from GR-I rubber or Neoprene and, P 3229*ef*.
for tackifying GR-S rubber, P 3229*e*.
sampling of, 3168*f*.
app. for, P 6397*b*.
for float-and-sink tests, 4444*h*.
sapropel, of Moscow and effect of petrography on light tar distillate, 7207*i*.

separator for, P 9419*c*.
slurry, app. for recovery of, P 7668*i*.
smoke—see *Smoke*.
soly. in alc. potash, 3593*f*.
of South Africa, 526*f*, 4609*d*, 8115*g*.
standards for, 4786*i*.
for stokers, performance of, 6806*g*.
stoking app. for—see *Stokers*.
structure (colloidal) of, 9411*i*.
structure of, 8638*h*.
structure of, oxidation and reduction in relation to, 4830*g*.
sulfur detn. in, 2405*d*, 8117*f*.
sulfur detn. in high-S, 3168*h*.
sulfur removal from, 2754*i*.
during beneficiation, 4830*g*.
during carbonization, 9414*b*.
swelling of, 8639*h*.
swelling of hard, in pyridine, kinetics of, 8815*d*.
swelling properties of, 377*d*.
tar—see *Tar*.
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
of Turkey, 1291*g*.
of U. S. S. R., 2134*i*, 7209*d*.
of U. S. S. R. (Sarmatian strata of Asov Sea region), gases in, 5711*a*.
United States Bur. Mines report on, 8638*g*.
United States Geol. Survey work on coal reserves and, 6547*i*.
utilization (chem.) in Italy, 3167*c*.
volatile-matter detn. in, 376*i*.
washing of, 3992*a*, 6807*a*, 9411*h*.
of Washington, 6547*d*.
washing wastes, fuel gas manuf. from, 1945*h*.
waste (breaker), reclamation by froth flotation, 9411*g*.
waste, treatment and utilization of, P 9419*c*.
water adsorption by, 1167*i*.
in water treatment—see *Water, purification of*.
wetting of, with anthracene to increase bulk d., 3108*i*.
zinc oxide reduction with, 6060*i*.

**Coalescence**, of aerosols—see *Colloids*
of bubbles below surface of liquids, film formation and, 6814*e*.
of polymers, 4802*f*.

**Coal tar**. See *Tar*.

**Coal-tar colors**. See *Dyes*.

**Coal-tar creosote**. See *Creosote*

**Coating(s)**. (See also *Bonderization; Bronzing; Calorization, Chromizing, Cladding; Coloring; Dopes; Electrodeposition; Electrodeposits; Electroplating; Enameling; Enamels; Films; Fireproofing, Galvanization; Galvanized iron; Glazes; Glazing; Insulation, electric; Insulators, electric; Lacquering, Lacquers; Laminated products; Lining(s); Paint; Parkerization; Patina; Pearl essence; Silvering; Slushing compounds; Varnish, Veneers; Waterproofing; Waxes; Waxing*, "sputtering" under *Cathodes*; "insulating materials" under *Sound*; and "finishes for" under *Wood*.)
abrasion resistance of, test for, 4786*f*.
with abrasives—see *Abrasives*.
from 2-acetylamino-1,3-butadiene polymer with vinyl acetate, P 3651*b*.
acidproof, P 6389*f*.
with acrylonitrile-vinylidene chloride polymer solns., P 7755*b*.
N-acylaminoalkylacrylamide polymers for, P 9531*d*.
from acyl halides, castor oil, olefinic $\alpha,\beta$-dicarboxylic acids and vinyl compds., P 3656*e*.
from 1-acyloxy-1,3-butadienes and acrylonitrile, P 3658*g*.
adhesive—see *Adhesives*.
adhesives for, from dextrins or starch and urea-HCHO resins, P 901*f*.
aging of, app. for testing by accelerated, P 6433*b*.
for aircraft fixtures and patterns in open storage, 6862*f*.
from aldehyde diesters, P 8742*c*.
from *N*-alkoxymethyl polyamide, P 6466*c*.
from allyl(poly-)ether compns. contg. orthosilicic acid ester, P 9538*c*.
allylsucrose polymers for, 9041*i*.
of aluminum, 8325*g*.
with chromates, phosphates and protective coats, 7237*f*.
for drawing and ironing pretreatment, 3333*e*.
with metals from fluoride solns., 4995*d*.
*of aluminum*, for painting, 5199*i*.
of aluminum alloys with Al alloys, P 990*g*.
of aluminum and Al alloys, 2143*h*, P 3342*h*, P 7404*g*.
in arsenate-chromate-fluoride-phosphate soln., P 6147*i*.
in arsenate-chromate-fluoride soln., P 6564*c*.
with Fe, etc., P 8917*h*.
with Fe for soldering, P 5002*h*.
with protein for dyeing, P 5001*d*.
for aluminum and Mg railway equipment, 420*d*.
aluminum-casein, stabilizer for, P 3242*g*.
aluminum flake-pigmented, 874*e*.
aluminum powder compn. with polychloroprene for, P 3659*d*.
for aluminum welding rod, P 7406*b*.
from amide-aldehyde resins and polyester plasticizers, P 2814*ac*.
amide esterification and polymerization product for, P 9537*f*.
from amide polymer *N*-derivs. and hydroxylated materials, P 1610*e*.
from amide polymer-pinene resin-wax compn., P 5632*d*.
from amide polymers, P 3240*g*, P 7264*a*.
from amide polymers and hydrolyzed $C_4H_4$-vinyl ester copolymer, P 443*c*.
from amide (poly-) waste regeneration, 1571*a*.
from aminotriazine-aldehyde reaction products, polyvinyl acetal resins and phenolic resins, P 4898*i*.
from aminotriazine, guanidine or urea, alc., HCHO and dicarboxylic acid reaction product with polyamide or polyamide-forming salt, P 9525*a*.
of ammonium nitrate crystals with paraffinic mazut, 2741*h*.
amylamine-tetrachlorophthalic anhydride waxes for flame-resistant corrosion-preventing, P 2004*c*.
analysis of, 3212*g*.
anionic, rendering adherent to anionic bases, P 5643*h*.
anodes with collodion, internal electrolysis with, 8285*e*.
anodic, of alloys and metals, ultraviolet radiation during, 8900*g*.
on Al, 2872*i*, 4620*e*.
on Al alloys, P 4963*d*, 8910*f*.
on Al and Al alloys, P 3300*d*, P 5681*f*, P 7358*h*, 8284*g*.
on Al and light alloys, 1270*a*, P 4588*c*.
on Al and Zn, growth and structure of, 6923*i*.
on Al, electrolytic sealing of, P 5317*f*.
on Al from oxalate solns., 6523*f*, 6924*i*.
on Al or other wire, P 4589*c*.
effect of chlorides on, 4149*d*.
on Au in alkali solns., 4583*i*.
on Mg, P 6926*a*.
on Mg alloys, P 7880*c*.
on metals, 7709*e*.
oriented deposition in, 1269*i*.
in study of solid solns. of Al-Mg alloys, 6960*c*.
on Zn, P 5681*d*.
on Zn and Zn alloys, 5724*c*.
antifouling, 3961*c*
antifouling, poison leaching rate and behavior of, 3631*f*.
application methods, raw materials and use requirements of, 4028*d*.
with asbestos by spraying, 7608*a*.
of asbestos with colloidal oxides for improvement of dielec. and tensile strengths, 8075*g*
from asphalt and paraffin wax, P 3606*g*.
asphalt, antistripping agents for, P 3193*g*.
asphalt, preventing sweating of layers of, of different penetration index, P 5186*d*.
from benzenediacetic acid unsatd. ester polymers, P 3661*e*.
in beryllium diffusion studies with light metals and alloys, 2559*e*.
bituminous, 3603*c*.
from coal-tar and petroleum pitches, 2446*a*.
for hot application, 6833*h*.
for black and tin plate from $\alpha,\beta$-butenedioic ester and vinyl chloride, P 9535*d*.
for blackboards of paper, P 1612*b*.
of boiler-heating surface for slag prevention, 6390*e*, 8584*d*.
books: Handbuch für Oberflächenschutz und Veredelung durch chem. Beizen, 876*f*; Principles of High-Polymer Theory and Practice, 900*g*; Electroplating and Anodizing, 956*d*; Taschenbuch des chem. Bautenschutzes, 1904*b*; Metalliche Ueberzüge, 3768*a*; Technology of Film-forming Substances (in Russian), 5607*d*; Phosphatierung, 7890*h*; Hot-Tinning, 8343*f*; Metal Finishing Guidebook and Directory, 8343*g*; Org., in Theory and Practice, 9482*f*.
for bread baking pans, P 4396*f*.
from butadiene deriv.-maleic ester-vinyl compd. interpolymer, P 3230*e*.
from butadiene-isobutene-vinylidene chloride polymers, of low moisture-transmission limits, P 7259*c*.
from 1,3-butadiene mixed polymers with styrene, etc., P 2816*g*.
from butadiene-vinyl acetate-vinylidene chloride polymers, abrasion- and water-resistant, P 7259*d*.
of cadmium, Cu or Zn with alkali chromate-NaCN soln., P 1710*i*.
from calcium chloride, glucose and CaO, P 9412*a*.
on calcg. machines, 1578*i*.
on cans, detn. of Sn or Sn alloy in, 9275*c*.
carbylamine polymers with carboxylic acids for, P 4515*g*.
castor protein for, P 4899*g*.
for cathodes from $BaCO_3$, P 8290*f*.
cathodic protection and, 6094*a*.
for cellophane, slip agents in moisture-proof, P 2471*b*.
from cellulose acetate butyrate and bis-(2-ethylhexyl) phthalate for hot-melt use, water vapor-proof, P 4028*e*.
on cellulose, adhesion of polymer, 8133*g*.
from cellulose derivs. and unsatd. oils, for wrinkle-finishing, P 2790*e*.
from cellulose esters, 5202*f*, 5970*i*.
from cellulose esters, varnishing in predetd. areas using strippable, P 8705*d*.
from cellulose ethers and silicones, P 4894*g*.
from cellulose ethyl ether, 876*a*.
of cellulose (regenerated-) film with acrylonitrile - vinylidene chloride copolymer, P 3664*b*.
from cement, etc., P 1167*b*.
of ceramic bodies with Pt for sealing, P 4824*g*.
of ceramic materials with metals, P 5918*c*.
from cetyl acetamide, coumarone indene resin and ethylcellulose, P 2033*d*.
from chain polymers, net polymers and loose polymers in producing weather-resistant films, 7717*h*.
for cheese, paraffin-petrolatum, 9283*i*.
from chlorinated polythene, P 5642*h*, P 9534*bd*.
from chlorine compd.-disulfide condensation products, P 6863*g*.
from chloroformate polymers (unsatd.), P 5230*g*.
from chloroprene polymers and C black, P 3659*h*.
from chloroprene polymers and stripping agent, P 3659*f*.
chocolate, P 2340*h*.
of chromium-alloy wire with Cr oxide, P 8918*g*.
of chromium with phosphate, 9015*b*.
for citrus fruit, dehydroacetic acid use in, P 6758*c*.
classification and specification of org., 8175*f*.
of clay minerals with sesquioxides, 7620*g*.
clean lump-free, 1197*h*.
cobalt, 2916*i*.
with cobalt or Ni by chem. reduction, 46*g*.
for coils or wires from $C_2HF_3$ polymers, P 1608*f*.
coloring or toning agents for, triphenylmethane dyes, P 4485*b*.
combustion-retarding, 8075*f*.
for communication devices in the tropics, fungicidal org., 873*d*.
for concrete and steel above and below water, 6835*f*.
condensation polymers for, 5998*e*, P 6865*g*.
of condenser surfaces with silicones to effect dropwise condensation, P 6467*a*.
conjugated linkages in the C chain and, 4025*f*.
consistency of, 873*f*.
of cooking utensils, silicone-grease compn. for, 3544*e*.
of cooking utensils with silicones, P 5634*d*.
of copper alloys with Al, P 1710*g*.
of copper and Cu alloys, alkali metal chlorite-NaOH mixt. for black, P 3341*g*.

of copper, Fe and steel alloys with Cr, Mo and W by thermal decompn., 8903*h*.
of copper, Fe and steel with Pb alloys, P 556*e*.
with copper or Ag by evapn. and deposition, P 102*c*.
copper with solder, corrosion of, 4622*a*.
corrosion-preventing, 2151*d*, P 2567*i*, 4996*a*, P 6148*hi*.
corrosion-preventing and priming, from synthetic resins and rubbers, 1198*d*.
for corrosion prevention by salt water, 1579*a*.
from coumarone, indene or styrene resins with maleic anhydride, phenol and HCHO, P 1607*d*.
from coumarone, indene or styrene resins with phenol, aldehydes and urea or thiourea, P 1607*b*.
crackle-finish decorative org., with repellents in first coat and discontinuous second coat, P 4874*de*.
on crystals, dichroism of, 7871*i*.
of cutlery with steel, P 5358*b*.
cyclized polymer reaction products with P halides for, P 8668*h*.
cyclopentadiene - styrene copolymer resinous reaction products with drying oils, P 4029*a*.
damages to, 5202*h*.
from diallyl diglycolate polymers with unsatd. compds., P 2035*h*
from diallyl tetrachlorophthalate and unsatd. alkyd resin, P 3233*c*.
from 3,5-diamino-1,2,6(4*H*)-thiadiazine-1,1-dioxide condensation products with aldehydes, P 9528*b*.
from 1,1-dichloroethylene polymers with unsatd. ketones, P 9531*i*.
from difural ketones, P 3234*f*.
from dimethylene-D-gluconic acid polyesters, P 2817*a*.
for Dinas-hot repair in coke ovens, 5916*i*.
from 4,4′-divinylbiphenyl polymers with styrene, P 4517*a*.
drying and driers in org., 8698*i*.
drying of, and fatty oils as raw materials for, 5202*h*.
drying org., 5971*a*.
Duralumin with Al-Mg-Si-alloy, corrosion and, 2918*a*.
dust-collecting, P 3120*fg*.
of dyeing-resistant fibers with N-contg. condensation product with HCHO, P 4440*h*.
dyes for, P 7705*d*.
for egg yolks, hydrogenated egg oil for, P 6758*e*.
for elec. app., from xylenolphenol-HCHO resin solns., moisture-resistant, P 3214*f*.
elec. charge-inhibiting, P 4520*g*.
of elec. inductors with waterproof compn., P 2104*i*.
for elec. industry, 1993*f*.
for elec. lamps, luminescent silicate, P 8920*h*.
of elec. lamps with $SiO_2$, 3299*b*.
of elec. motors at Westinghouse, 874*b*.
of elec. nonconductors with metals for electroplating, P 1274*b*.
of electrodes for electron tubes, P 6529*a*.
for electrodes, getter, 2877*b*.
for welding, P 1308*i*, 4208*a*, P 4212*g*, 8342*c*, 8630*a*.
for welding, electron-emissive, P 6566*c*.
for welding, plasticity of ceramic, 8628*a*.
for welding, rutile-contg., 8342*h*.
for welding, waterproof, P 7406*a*.
of electrodes with cordierite, P 4151*d*.
for electroforming sepn., 5674*c*.
"electroless," surface in, 4995*f*.
electrolytic, on Al and Al alloys, P 2104*a*
on Mg-base alloys, P 2525*b*.
on steel to improve adhesion of baked lacquers, 6837*d*.
of electron-tube cathodes (oxide-coated) with metals, P 2104*g*.
of electron-tube cathodes with alk. earths, P 4154*f*.
of electron tubes by electrostatic processes, 2523*g*.
by electrostatic process, 6862*a*.
by electrostatic spraying and detearing, 3632*f*.
enteric, P 2739*c*.
from ester (mixed) polymers with styrene, P 1223*a*.
with ester (poly-) resins, P 3242*b*.
from esters from drying oil acid-polyhydric alc. partial esters heated with monohydric alc.-polycarboxylic acid monoesters, P 4030*b*.
esters from kerosene oxidation and their mixts. with glycerides and rosin esters for, 3181*i*.
from esters of benzoic acids or mixed esters of benzoic acids and monocarboxylic acids, P 422*f*.
from esters of Diels-Alder adduct of maleic anhydride and polyunsatd. compd. with allyl alc. or methallyl alc., P 2819*b*.
from esters of polymeric polyhydric alcs. with drying-oil acids, P 1996*c*.
from esters (polymeric linear), P 1224*d*, P 6236*d*.
from ethylene polymer-coated metal powder pigments, corrosion-preventing, P 6838*d*.
of ethylene polymer-insulated cable joint with polyolefins, 4046*a*.
with ethylene polymer molten mixt. with polyisobutylene, P 6003*f*.
ethylene polymer-polyvinyl acetal compn., P 444*e*.
ethylene polymer powder for, with flame gun, P 1610*i*.
from ethylene polymers, 899*c*, P 906*d*, P 4515*c*.
from ethylmercapto polymers, P 8209*f*
from *N*-ethyltoluenesulfonamide, Norelac and wax, P 2037*b*.
evaluation of protective, 2446*d*.
of explosives (wax-desensitized) with proteins or protein derivs., P 1084*b*
of explosives with combustible colloids, P 6418*d*.
factory hazards in industry of, 3210*e*.
for felt-base material, P 3242*e*.
of fibrous materials with polyvinyl acetals, P 2786*c*.
for filaments and textiles, chemically resistant, P 4284*h*.
film formation and ingredients of, 3631*b*
fire hazards and prevention in plants applying flammable, 870*b*.
fire-protection system for plants making, 875*i*.
fire-retardant, P 1126*g*, P 6763*g*, P 6764*a*, 8177*b*.
for fish nets treated with bactericides, 8688*l*.
flatting agents in, 5202*b*.
flatting agents in clear, transparent extender pigments as, 5606*a*.
for flocking of fibers, 1199*e*.
of flowers, foliage and biol. specimens to preserve color and form, P 3950*i*.
of fluorescent lamps with silicones, P 7840*f*.
for fluorescent object of same color in visible and ultraviolet light, P 2517*c*.
for foods and food packages, gelatin-base fat-resistant, P 8576*c*.
for foods, lecithin-gum, P 5881*a*.
for fruit, antisticking, P 7605*e*.
for fruits and vegetables, fungicidal wax, P 5900*e*.
fungicidal, Cu 8-quinolinolate-contg., 1993*d*.
from furfuryl acrylate polymer with Me acrylate, P 2035*b*.
of galvanized Fe with org. finishes, 873*g*.
on galvanized sheets, detn. of wt. of Zn, 2893*h*.
from gasoline (cracked) polymer and mercaptide, P 8349*d*.
on gas pipes for natural gas, 99*a*.
on gas-turbine brass separator, Ag as, 6559*d*.
with germanium, P 3340*b*.
of glass—see also *Mirrors*.
for glass-cloth food-container seals, P 1935*b*.
in glass-fiber dyeing, 2775*i*.
on glass-fiber making equipment, reducing contamination by Pt, P 4440*g*.
for glass fibers, P 3987*b*.
for glass, from allyl halosilanes, P 5999*g*
from hydroxyethylcellulose, HCHO and urea, P 5640*c*.
of miner's lamps, 5914*i*.
to prevent mirror formation, P 3120*e*.
from $Cl_3SiH$ and rubber, P 8194*d*.
on glass, increasing mech. strength of Al, P 7657*ef*.
of glass substitutes, P 5952*a*.
of glass thread with Al, P 3988*b*.
of glass with powders, P 7657*b*.
of glass with quartz, P 1935*e*.
from glycerol α-allyl ether polyesters with phthalic and succinic acids, 9480*g*.
glycerol and alkyd resins in, 2446*f*.
from glycerol mixed esters of monocarboxylic acids, P 877*a*.
from glycidol ether autocondensation polymers, P 904*d*.
of grain products, for mineral and vitamin enrichment, P 8071*f*.
from grapeseed oil-linseed oil mixts., elasticity of, 7241*b*.
from guanamine-aldehyde condensation products, P 3662*f*.
of gypsum (molded) with water-impermeable layers, P 6389*d*.
hammer-finish synthetic-resin, 876*b*.
hardness of org., measurement of, 3632*b*, 7239*c*.
on heat-resistant alloys, high-temp attack of ceramic, 541*d*.
from hydrocarbon resins, P 903*ac*, P 5630*h*.
hydroxy compd. waxy ether esters for, P 886*g*.
inorg. particles with C black, for filling rubber, etc., P 7745*c*.
on insulator caps of temper coatings, 6139*b*.
of ion chambers with B, 4560*g*.
on iron and steel, corrosion protection by metallic, 3766*f*.
on iron and steel, corrosion protection by plastic, 6962*h*.
of iron anodes with Pb for hard Cr baths, P 3734*b*.
for iron, Fe alloys and(or) steel, scuff-resistant, 7392*b*.
of iron, Fe alloys and(or) steel with V, P 6564*f*.
with Cr, P 7404*i*, P 7405*b*.
with Cu, P 6564*g*.
with metals, P 555*g*.
with metals from solns. of salts, P 7895*e*.
with soln. contg. Zn salt and/or $Cr_2(SeO_4)_3$, P 6967*e*
with Zn or Zn alloys, P 3342*d*
on iron, rust films as paint-holding, 5202*h*
of iron, with Al, P 2154*e*.
with Cu, P 9022*d*.
with Pb, P 2155*b*
by "thermoxyd" method, 956
from isocyanate polymers, 1601*i*
journal Revêtement et protection 5886*b*.
from ketenes, P 1494*e*.
from lactic acid lactate condensation products with drying oils, P 1996*a*
lapping bronze, Fe and steel with SiC contg. metals, 3766*h*.
with lead or Pb alloys, precleaning castings for hot-dip, P 2154*h*.
of lead photoconductive electrodes with PbSe, 4962*c*.
for leather, 1204*g*, 8198*h*.
for leather, casein and nitrocellulose pigmented, 9510*g*.
for leather, paper and textiles, emulsions of alkyd and melamine-HCHO resin mixts. for use as, P 6434*e*.
for leather, paper, textile and wood from complex acetates, P 7606*f*.
of leather (suede) with thermoplastics to prevent dye cracking, P 9512*c*
of litharge particles with red Pb, P 826*e*
on magnesium, 3334*e*.
of magnesium alloys, 7399*gh*.
from dichromate solns., P 8348*e*.
with $MgF_2$, 2148*d*.
with $H_2SeO_3$-dichromate soln., 4206*f*
of magnesium $NH_4$ phosphate with ceresin to prevent decompn., 7796*g*.
of magnesium and Mg alloys, P 2567*g*, P 4211*d*.
with chromate, P 992*a*.
with oxides of Cr or Mn, P 3734*e*.
in powder form, P 2152*i*.
on magnesium, effect on ignition of pyrotechnic compns., 2108*h*.
from magnesium oxychloride, P 3948*i*.
for magnesium, types and application of org., 876*b*.
on magnetic sheets, P 4402*d*.
for masonry and like surfaces, from aq K silicate, etc., P 3214*e*.
for meats (fresh frozen), P 3540*f*.
from melamine-HCHO resins, plasticized with polyesters, P 9527*d*.
from melamine or urea resin mixts. with alkyd resins, 2446*i*.
melamine or urea resin use in, 3632*g*.
from melamine-urea-alc.-HCHO resin, P 5999*c*.
from mercapto dicarboxylic acid polyesters with dihydric alcs., P 3633*b*
metallic, corrosion of, 7399*h*.
sprayed, 985*i*, 7888*e*.
structure of sprayed, 7888*e*.
with metal-powder dispersions, P 8346*d*.
from glycidol ether autocondensation polymers, P 904*d*.
of grain products, for mineral and vitamin enrichment, P 8071*f*.
from grapeseed oil-linseed oil mixts., elasticity of, 7241*b*.
from guanamine-aldehyde condensation products, P 3662*f*.
of gypsum (molded) with water-impermeable layers, P 6389*d*.
hammer-finish synthetic-resin, 876*b*.
hardness of org., measurement of, 3632*b*, 7239*c*.
on heat-resistant alloys, high-temp attack of ceramic, 541*d*.
from hydrocarbon resins, P 903*ac*, P 5630*h*.
hydroxy compd. waxy ether esters for, P 886*g*.
inorg. particles with C black, for filling rubber, etc., P 7745*c*.
on insulator caps of temper coatings, 6139*b*.
of ion chambers with B, 4560*g*.
on iron and steel, corrosion protection by metallic, 3766*f*.
on iron and steel, corrosion protection by plastic, 6962*h*.
of iron anodes with Pb for hard Cr baths, P 3734*b*.
for iron, Fe alloys and(or) steel, scuff-resistant, 7392*b*.
of iron, Fe alloys and(or) steel with V, P 6564*f*.
with Cr, P 7404*i*, P 7405*b*.
with Cu, P 6564*g*.
with metals, P 555*g*.
with metals from solns. of salts, P 7895*e*.
with soln. contg. Zn salt and/or $Cr_2(SeO_4)_3$, P 6967*e*
with Zn or Zn alloys, P 3342*d*
on iron, rust films as paint-holding, 5202*h*
of iron, with Al, P 2154*e*.
with Cu, P 9022*d*.
with Pb, P 2155*b*
by "thermoxyd" method, 956
from isocyanate polymers, 1601*i*
journal Revêtement et protection 5886*b*.
from ketenes, P 1494*e*.
from lactic acid lactate condensation products with drying oils, P 1996*a*
lapping bronze, Fe and steel with SiC contg. metals, 3766*h*.
with lead or Pb alloys, precleaning castings for hot-dip, P 2154*h*.
of lead photoconductive electrodes with PbSe, 4962*c*.
for leather, 1204*g*, 8198*h*.
for leather, casein and nitrocellulose pigmented, 9510*g*.
for leather, paper and textiles, emulsions of alkyd and melamine-HCHO resin mixts. for use as, P 6434*e*.
for leather, paper, textile and wood from complex acetates, P 7606*f*.
of leather (suede) with thermoplastics to prevent dye cracking, P 9512*c*
of litharge particles with red Pb, P 826*e*
on magnesium, 3334*e*.
of magnesium alloys, 7399*gh*.
from dichromate solns., P 8348*e*.
with $MgF_2$, 2148*d*.
with $H_2SeO_3$-dichromate soln., 4206*f*
of magnesium $NH_4$ phosphate with ceresin to prevent decompn., 7796*g*.
of magnesium and Mg alloys, P 2567*g*, P 4211*d*.
with chromate, P 992*a*.
with oxides of Cr or Mn, P 3734*e*.
in powder form, P 2152*i*.
on magnesium, effect on ignition of pyrotechnic compns., 2108*h*.
from magnesium oxychloride, P 3948*i*.
for magnesium, types and application of org., 876*b*.
on magnetic sheets, P 4402*d*.
for masonry and like surfaces, from aq K silicate, etc., P 3214*e*.
for meats (fresh frozen), P 3540*f*.
from melamine-HCHO resins, plasticized with polyesters, P 9527*d*.
from melamine or urea resin mixts. with alkyd resins, 2446*i*.
melamine or urea resin use in, 3632*g*.
from melamine-urea-alc.-HCHO resin, P 5999*c*.
from mercapto dicarboxylic acid polyesters with dihydric alcs., P 3633*b*
metallic, corrosion of, 7399*h*.
sprayed, 985*i*, 7888*e*.
structure of sprayed, 7888*e*.
with metal-powder dispersions, P 8346*d*.

with metals, 6525*g*, 6559*c*.
by evapn., P 104*c*.
by spraying, 546*c*, P 1611*d*, 3766*e*, P 4626*h*, 8339*i*.
by spraying, app. for, P 4626*h*.
by vacuum evapn. and sputtering processes, 1697*h*.
for metals, $NH_3$- and moisture-resistant polymeric, 5606*c*.
from Araldite, 2029*f*, 9481*g*.
Avigel 100 as strippable, 8734*f*.
org., 421*b*, 8701*c*.
resinous, P 1710*i*.
of metals and plastics with metal spray, 5720*b*.
of metals and wood fibers with thermoplastics, P 4518*a*.
on metals, electrochem. studies and corrosion protectiveness of, 6835*d*.
kinetics of formation and destruction of, 9014*g*.
measurement of porosity and thickness of, 9481*h*.
of metals (light), 9003*b*.
of metals (light) with Cr salts, P 990*f*.
of metals, with bituminous mastic, P 6148*f*.
with chromated proteins, P 7895*d*.
for cold-working with org. lubricant mixts. with water glass-forming water-liberating inorg. materials, P 6405*i*.
with hard face, electrode for, P 6565*d*.
with hard layer, P 6150*a*.
with heat-resistant mixts., P 102*d*.
by metal carbonyl decompn., P 7893*b*
with metals by spark discharge, P 8917*g*, P 8918*a*.
with metals by spraying, P 3341*i*
with metals, powder in hard, P 2920*b*
with polyamide mixt. with rubberlike polymers, P 6457*b*.
with protoactinium, 7791*g*.
for sealing prevention at high temps., P 2155*d*.
with temporary coating for protection in storage or transit, P 2922*f*
with thermoplastic materials, P 1626*i*.
from methacrylate compns. contg. colloidal $SiO_2$, P 5634*h*.
from methacrylate polymer with drying oils and linseed oil-modified alkyd resins, P 1995*f*.
from methacrylic ester polymers with dihydrodicyclopentadienyl methacrylate, P 4874*c*
of methyl methacrylate polymers, etc., with vinyl compd. mixts. and catalysts and their polymerization in light, P 876*h*.
of methyl methacrylate polymers with polyethyl acrylate for lamination, P 2468*g*.
from methylsiloxane polymers, P 6867*d*.
military, testing German, 5606*b*.
mirror-protecting, P 5565*g*.
of mirrors (front-surface) with SiO, 2822*e*.
for molded products (reinforced), 7718*a*.
for molds for centrifugal casting, 981*g*.
for molds for Pb alloys, P 6562*h*.
of molybdenum and W filaments with B, 6133*i*.
of nickel alloys with Cu, P 5732*b*.
of nickel-Cr-alloy resistance wire with oxides of Cu, Cr and Ni, P 4153*e*.
from nitrilotriacetic acid esters, P 5229*h*.
nitrocellulose viscosity relation to film strength of, 5588*g*.
nontoxic colors, vehicles, etc., for, 3629*d*.
nonvolatile content of, detn. and effects of, 1578*e*.
of nylon with polyamide interpolymer for gasoline resistance, P 3208*i*.
on office equipment, 875*a*.
from oils (drying), 2787*h*.
from olefin(di-) interpolymers with vinyl sulfones, P 7266*i*.
from olefin polymers, P 5231*e*.
optical and phys.-chem. properties of, pigment-particle size and shape effects in (vol. reference should be 33), 3629*b*.
of optical elements by distn. in vacuum, P 8634*a*.
optical, hardening by electron bombardment, P 4824*e*.
oxide, on Al, P 3772*b*.
on Al and Al alloys, P 4999*d*.
on Al and Al alloys, formation by M.B.V. process and coloring thereof, 3629*e*.
on Al and Al alloys, improvement of capacity for white-pigment absorption by, P 9021*e*.
on Al and Al alloys, treatment with Al salt, P 8350*b*.
on Al, coloring, P 7720*c*, P 9483*b*
on Al, growth and structure of, 1234*b*.
on Al, measurement of permeability of, 47*a*.
on Al, structure of, 2481*h*.
on blades for gas and steam turbines, P 4625*c*.
cleaning compns. for removal of, P 3640*c*.
on electrodes—see *Cathodes; Electrodes*.
on electrolytically polished Al, 2871*g*.
electron-diffraction study of, on metals, 985*f*.
on ferrous metals before drawing through dies, P 8346*a*.
formation rate and thickness of, 8916*b*
on Hastelloy A, B, C and D, 1299*d*.
on Fe, 84*f*.
on Fe, breakdown and repair of, 9005*a*.
on Fe formed in HCl, 6931*c*
kinetics of formation and structure of, 7309*d*.
on Ni cathodes, electron emission by, 4091*e*.
resistance for pulsed emission, 2857*d*.
on Si steel, P 7893*g*.
with oxides, on Al and Al alloys, 2914*f*, 8899*h*.
on Al and Mg, 2143*c*.
on Al, O efficiency in, 951*f*.
on Al, rate of, 1245*f*.
on Cu, 4960*f*.
by Eloxal process, 2521*k*.
on evapd. Al mirrors, 7356*a*
on Fe prior to lacquering, 9015*b*.
on metals, 96*g*.
on Si steel for elec. insulation, 4201*c*.
for paper, P 850*f*.
antioxidants from bacterial action for waxy, P 3193*e*.
latex as adhesive for, 4464*a*.
from nylon plasticized with isobutylene styrene copolymer, P 5229*e*.
for packaging tacky elastomers, from soap and wax emulsions, P 8732*i*.
from plastics, 6410*i*.
starch adhesive-contg., penetration of, 1185*f*.
testing consistency of, detection and control of errors in, 6112*e*.
treatment of $CaSO_4$ for, P 1568*c*.
of paper, 3614*c*, P 4014*g*, 4464*a*.
with corrosion-preventive materials to wrap steel articles, 7684*e*.
with hydroxyethylcellulose, 7682*i*.
with resinous products for container closure, P 8741*f*.
with urea-HCHO resin, P 1188*e*.
for paper and like fibrous sheets, ethylcellulose-plasticizer-wax waterproof, P 9419*a*.
on paper and textiles, infrared drying of vinyl chloride plastic, P 4870*a*.
for paper and textiles, from fungicidal aminoplasts modified with nitro compds., P 4894*f*.
of paper and textiles in continuous strip, app. for, P 7229*b*.
for paper, regenerated cellulose and textiles, hot-melt, P 1222*g*.
on paper, $TiO_2$, $TiO_2$-$CaSO_4$ mixed and $CaSO_4$ pigments in, 8696*i*.
for paper, wood, etc., ethers of dimethylolurea for, P 1200*g*.
paraffin oxidation residues in making rust-inhibiting, stoving and water-resistant, 1993*b*.
from pentaerythritol-fatty acid resinous esters, P 3232*g*.
permeability to electrolytes, corrosion and, 6489*i*.
for petroleum refineries, priming, colored and finish, 7237*d*.
from phenol condensation products with alkylbenzenes and dihaloalkane, P 3654*h*.
from phenol-HCHO and polyvinyl resins, P 6863*e*.
from phenol-HCHO resins modified by rosin, and conjugated double-bonded oils, wrinkle-finish, P 2448*a*.
from phenolic resins, 4891*f*.
heated with drying-oil fatty acids, P 7720*a*.
modified with rosin, P 9526*g*.
resistant to pigment flotation, P 5206*b*.
phosphate, increasing corrosion resistance of, P 8350*b*.
on Fe plate, effect of sulfate on, 5721*c*.
*phosphate*, on lacquered black Fe cans, 7603*a*.
on steel, corrosion resistance and, 2918*g*, 7400*d*, 7715*i*.
on steel, weather resistance of, 6138*e*.
with phosphates, P 989*c*, P 4627*a*, P 5730*h*, 7395*i*, P 7893*h*, P 7895*c*, 8342*g*, 9008*g*, P 9022*d*.
analysis of baths for, 7375*f*.
by Atrament process, 6138*d*.
before cold-forming steel, 2913*b*.
by electrolysis, 3730*h*.
on Fe, Zn and their alloys, P 8345*h*.
on nonferrous metals, P 556*c*.
paste for selective, P 4209*f*.
as pretreatment for siccative finishing coat, P 5730*i*.
pretreatment of metals for, P 2922*d*, P 3342*a*.
quenching metals before, P 989*d*.
on steel, acid ratio in, 9008*h*.
sulfonated indigoids as accelerators for, P 3772*c*.
on wires and tubes and in deep drawing, 3336*d*.
$ZnCl_2$ use in, P 2922*g*.
with phosphates and colored plastic, 899*c*.
for photographic equipment, for black weather-resistant finishes, 420*g*.
for photographic support, alkyl methacrylate polymer, P 3735*k*.
from phthalocyanine coalesced pigments, P 1994*i*.
of piezoelec. crystals with Au, etc., P 3735*a*
pigments for—see *Pigments*.
of pigments with ω-aminonitrile polymers, P 1995*a*.
pipe-line, 6138*e*.
from piperylene-chloromaleic anhydride rubbers, P 3227*i*.
on pipes, fault locator for, 547*a*.
pitch, measuring flexibility of, 8092*b*.
of plaster-of-Paris articles with metals, P 5168*f*.
plasticizers and synthetic resins in, 875*f*.
plasticizers in org., 3651*f*.
from plastic materials in corrosion control, 421*c*, 899*d*.
for plastics, 7259*g*.
from plastics, 899*d*.
with plastics, app. for, 435*c*.
of plastics with Cu films for electrodeposition, 8901*b*.
platinum electrode with Cd, in polarography, 8946*h*.
from Pliolite S-5, 5606*e*.
from polyhydroxy compds. and β-propionolactone, P 2033*a*.
polymer chemistry and, 2787*k*.
polymerization of, P 1222*c*.
polymers for, 6462*i*.
from polysaccharide esters or ethers and volatile bases, P 6003*g*.
porosity of, measurement of, 5202*g*, 9481*i*.
priming, for Al and Mg alloys for industrial, marine and rural atm., 4489*i*.
of Al with $ZnCrO_4$-pigmented vinyl butyral resin wash, 2787*i*.
for automobiles, synthetic-resin spray, 8695*f*.
exposure tests on wood, 7238*i*.
for ferrous metals, deterioration in atm., 3212*a*.
for light alloys, 870*d*.
for marine atms., 5969*c*.
from plasticized rosin, P 4513*f*.
on wood, durability and compn. of oil-phthalic resin, 8696*a*.
for wood, effect of extender pigments on durability of oil-phthalate, 1199*b*.
Zn chromate-pigmented rust-preventing, 8697*d*.
from Zn yellow, corrosion testing in sea water, 5605*c*.
prolamins for, P 6466*g*.
of pyrotechnic components with combustible colloids, P 6418*e*.
with quartz, P 5919*b*.
of quartz and refractories with metals, compn. for, P 3587*f*.
with quartz, $B_2O_3$ in, P 5919*a*.
rawhidelike, P 5643*g*.
raw materials for, availability in Germany, 2787*i*.
in Canada, 2787*e*.
review on, 899*a*.
for record material, 3,3-bis(4-dimethylamino-*m*-tolyl)phthalide as, P 252*d*.
on reflecting bases, optical detn. of, 1621*f*.
reflection-reducing or transmission increasing—see *Films*.

on reflectors (front-surface), P 3735*b*.
of reproduction paper, 7682*h*.
Resin 985E as, 7259*f*.
reviews on, 1198*f*, 6835*h*.
rheology and, 5202*e*.
for roads, 1547*b*.
for roads, asphalt-synthetic rubber, 7256*c*.
for roofing and siding (prefabricated), from asphalt varnishes, asbestos, drying oils and metallic flakes, P 7240*e*.
for roofing or wire, flame-resistant compns. for, P 334*d*.
for roofing papers, from tar and bitumens, 419*e*.
for rubber (Butyl) particles to prevent agglomeration, P 9520*a*.
from rubber (chlorinated), 4493*a*.
and their corrosion-protecting value, 875*g*.
pore formation in, 5620*d*.
from rubber (chlorinated), polymerized linseed oil, etc., P 3240*b*.
from rubber (cyclized), P 5008*g*.
rubber (cyclized) in making moisture-proof, 1208*d*.
for rubber linings of self-sealing gasoline tanks, P 6003*e*.
with rubber, on textiles—see *Textiles*.
with rubber on wire, P 2464*d*.
for rubber protection from sun, from polyethyl acrylate and chlorinated rubber or polychloroprene, P 5224*d*.
on rubber, reducing cracking and wrinkling of polyvinyl chloride, P 895*i*.
from rubbers (acrylonitrile-diene) mixed with phenolic resins, P 2807*b*.
from rubbers (polysulfide) with dithiocarbamate compd. coalescing agents and $V_2O_5$ corrosion inhibitors, for fuel-tank seams, etc., P 4508*g*.
rubber staining in contact with, test for, 4400*c*.
with rubber substitute on phenolic resin-satd. sheet, P 4490*a*.
from rubber (synthetic) for wire, fast-curing, P 8194*f*.
from rubber (synthetic) solns. and unsatd. oils for wrinkle-finishing, P 2790*c*, P 5608*h*, P 5972*e*.
of rubber with polymeric silicones to reduce adhesion of ice, P 6860*e*.
sampling, testing and properties of, 870*f*.
sebacic acid polyesters in, 6162*i*.
with selenium for blocking-layer formation, P 5682*d*.
selenium paste, P 7360*a*
for ship-interior preservation, corrosion-resistant, 96*d*.
on ships, corrosion-preventing metallic, 8696*a*.
of silicate cooking vessels with metals, P 5166*f*.
of silica (vitreous) with C, 2833*a*.
of silica with basic Pb silicate-basic Pb sulfate mixt., basic pigments by, 871*b*.
silicic acid ester and amine film-forming compns. for, P 6647*d*.
from silicone resins, 1214*a*, 3632*g*, P 5639*e*.
from silicones, Al powder-pigmented heat-resisting, 875*b*.
silicon org. compds. for, P 3657*d*, P 8211*f*.
from siloxane polymers, P 440*f*, P 3237*d*, P 5635*a*, P 7262*f*.
from siloxanes, P 442*e*, P 3237*g*.
with siloxanes, P 7610*i*.
with silver, by spraying, 545*i*.
from soap gels in paraffin wax, stabilization against sepn. on heating, P 5643*e*.
of soap particles to reduce dusting, P 1587*a*, P 6438*a*.
soaps (Al) for, P 2452*f*.
of sodium chloride tablets with cellulose derivs., P 8619*h*.
of sodium polyphosphate with $Na_2CO_3$ or Na polyphosphate, P 6438*g*.
from sodium silicates and sea water, fire- and water-resistant, P 6764*c*.
solvents for org., 4028*c*.
solvent-vapor control in, 2342*e*.
soybean oil in, 1577*i*.
special-effect, 420*b*.
for special requirements, formulation of org., 5202*f*.
on spinnerets for collagen solns., basic N compds. as, P 7248*e*.
of spinnerets for rayon with polyorganosiloxane, P 5188*c*.
of spinneret with condensation product of ethylene oxide and sorbitan monolaurate, P 5593*c*.
from S-polymers, 5988*f*.
spray booth, 5970*i*.
stearates in, 4492*f*.
of steel bearings with In, P 4211*e*.
on steel, blister failure in water-immersion tests, 4872*e*.
impact tester for alkyd-resin and baked-phenolic, 3653*f*.
$Mg(OH)_2$ as corrosion-preventive, 6141*g*.
$HNO_3$ resistance of ferrosilicon, 545*h*.
in prevention of corrosion-fatigue failures, 6560*e*.
Sn under-, for anti-corrosive and -fouling paints, 4492*e*.
for steel, contg. half-ester of styrene-maleic anhydride copolymer, P 1711*b*.
steel exhaust stacks with high-temp. ceramic, in bombers, 6559*e*.
of steel panels with asphaltum-impregnated felt and weatherproofing resins, P 6148*b*.
for steel, petroleum-base, 4996*g*.
of steel pipes with blown asphalt, 5720*h*.
of steel pipes with Cr and Cr-Al alloys, 2916*e*.
of steel with Al, 7888*d*, 8335*a*.
with Al, effect on catalytic oxidation of $SO_2$, 5910*h*.
with Al phosphates, P 6565*a*.
with Cu, 3337*i*.
with Cu-Ti alloy, 8331*c*.
with Pb, etc., P 9022*g*.
with metals, 550*i*.
with polythene by flame-spraying, 6962*a*.
with Sn, oils for, 2762*e*.
with Sn, selective process for, P 2568*b*
with Zincilate, 4207*b*
steel with Al, corrosion resistance of, 2151*d*.
steel with metal, brazing, soldering and welding of, 6561*d*.
for stencils—see *Stencils*.
of stringed instruments with gelatin soln., P 4494*f*.
from styrenated drying oils, 1577*i*, 3212*g*, 4871*f*, 8701*b*.
from styrene polymers, oilproof, P 1605*f*
plasticized with $p,\alpha$ dimethylstyrene polymers, P 5642*g*.
with polyhydric alc. mixed esters, P 4051*f*
stripping, 875*a*.
stripping brass, bronze, Cu and Ni, from scrap, 3297*b*.
from sulfide (poly-) polymer, P 6001*f*.
for suppositories, P 8621*d*.
from synthetic drying oils, P 876*gh*.
from synthetic resin compns. contg. citrus and pineapple products, P 9527*a*.
from synthetic resins, 875*e*.
emulsified, P 1611*c*.
emulsified nonskinning water-insol., P 1995*a*.
from fuel oil or gas oil, P 4008*h*.
from synthetic resins (fatty acid-modified alkyd), wrinkle-finish, P 5206*a*.
synthetic resins for—see *Phenol condensation products; Resinous products; Vinyl compounds;* and "condensation products" under *Urea* and *Urea, thio-*.
from synthetic resins (oil-modified chlorinated alkyd), P 2031*b*.
from synthetic resins, slip-proof, solvent-resistant, P 4050*i*.
from synthetic resins (styrenated alkyd), 4492*h*.
on terne plate, A.S.T.M. standards for, 4202*g*.
from terpene polymers, P 3236*a*.
testing, 418*i*.
testing of, at low temps., app. for, 1578*d*.
from tetraallylsilane polymers, P 5637*f*.
1,1,2,2-tetrafluorocyclobutane unsatd. deriv. polymers for, P 4295*f*.
with tetrafluoroethylene polymers, P 2037*d*.
from tetramethylethylene oxide polymers, P 2038*f*.
for textile-covered aircraft, fire-retardant, 8074*g*.
for textiles, amide polymer fraction for, P 7266*g*.
from amide polymers, P 2034*b*.
from 1,3-butadiene polymers with diallyl chloromaleate, P 6866*c*.
from castor oils, flexible wrinkle-finish, P 2447*h*.
from cellulose esters or ethers, alkyd resins and melamine or urea resins, P 6834*b*.
cellulose solns., P 2786*d*.
cellulosic derivs., P 9446*g*.
$C_2H_4$-polymer emulsion, P 4869*f*.
from halogenated polyethylene and polyhaloprenes, P 4508*e*.
Hycar-terpene resin base and Neoprene-Hycar-chlorinated polyethylene finish, P 2786*d*.
from plastic materials, 8687*a*.
from polymeric acids, water-resistant, P 3240*b*.
from urea-HCHO resin, P 2466*a*.
of textiles—see also *Leather substitutes*.
of textiles with alkyd resin-cellulose deriv.-fungicide compn., P 3208*g*.
with cellulose solns., P 4023*b*.
with elec. conductor, P 6528*e*.
with $C_2H_4$ polymer-metal naphthenate mixts., P 4023*a*.
with hydrophobic transparent material for translucent fabric, P 9478*f*.
with phenolic varnishes, P 2033*d*.
with polyvinyl chloride resin, P 4870*g*.
with Rubrax for doubling, P 5200*b*
with vinyl plastisols, 7693*b*.
textiles with, from condensation products of S or polysulfides and org. dihalides, impermeable to chem. war materials and solvents, P 4489*k*.
by thermite reaction, P 3772*a*.
with tin, P 9022*c*.
from tin, chem. resistance of, 502*d*.
from tin, detg. thickness of, 2893*g*, P 6148*a*.
with tin, flux for, P 4212*b*.
of titanium by cyanidation, P 1709.
titanium compd., 9027*a*.
from titanium ester-modified oils and phenolic resins, 2787*b*.
of tractors, 7716*b*.
of tungsten (porous) with Ag oxide, P 3770*a*.
from urea-HCHO resins and alk. earth hydroxides, P 8739*b*
of valves, alloy for, P 9021*b*.
vehicles for, 1125*c*
of vinyl acetal polymers with metals, 2029*e*.
from vinyl acetal resins, P 2814*a*
vinyl acetate polymer treated with poly basic acids for, P 1141*i*.
from vinyl acetate resin and conjugated double-bonded oil, wrinkle finish, P 9485*c*.
from vinyl alc. (poly-), P 1670*f*
from vinyl alc. (poly-), gelling of, P 1670*e*
from vinylaromatic compd. polymers with olefinic acids, drying oils or their fatty acids, polyhydric alcs. and poly basic acids, P 6433*e*.
from vinyl butyral acetal polymer, P 5634*c*.
vinyl butyral-polymer dispersions, P 2038*d*.
from vinyl chloride-haloethylene resin and fatty oil acid glycerides, P 9485*a*
from vinyl chloride resins, P 3233*c*.
corrosion prevention by, 2028*e*.
stain-resistant, P 1222*e*.
from vinyl chloride-vinyl acetate polymers, plasticizer effect on, 5627*f*
from vinyl compd.-monocarboxylic olefinic acid-drying oil (or fatty acid) interpolymers, P 5972*d*.
from vinyl ester partially hydrolyzed polymers, P 1610*b*.
from vinyl formal polymer, P 2037*c*.
from vinyl halide polymers, emulsified, P 5635*e*.
from vinylidene chloride polymer, prevention of discoloration by light, P 2037*h*.
from vinylphenoxathiin polymers, P 9057*b*
from vinyl polymers, P 2470*i*, P 3242*b*, 4052*a*, 4510*i*, P 4894*i*, 8735*c*.
from 2-vinylthiazole polymers, P 2805*h*
vitreous, P 5168*a*.
for wallpaper, clays as, 2380*a*.
of water-distribution systems with corrosion-preventing coats, 4795*d*.
waterproofness of, elec. testing of, 8577*h*
water-sensitive, agents for uniting to org.-sol. base materials, P 5636*a*.
wax, on paper—see *Paper*.
weathering of, evaluating test results in, 2787*c*.
for weatherproofing of pictures, P 5614*b*.
for welding rods, P 2156*c*, P 6763*e*, P 7406*c*.
on welding rods, function of, 1707*c*.
for welds, from silicone resins, P 7896*e*.

white, optical properties of, 6431*f*.
for wire, corrosion-preventing multipigmented, P 9488*b*.
for wire, from chlorosilane resins, P 6464*g*.
on wires, testing of Zn, 4619*h*, 5354*b*.
of wire with Pb, 4583*g*.
wire with nonferrous, P 9020*a*.
for wood, antiseptic, P 7188*f*.
fire-retardant, and their testing, 4492*i*.
resistance to corrosive chemicals of bituminous, cashew shell oil, creosote and phenolic, 3632*d*.
wood-grain reproduction by, 1578*i*.
of wood with spray gun, 1993*f*.
with wrinkle finishes by electrostatic spraying, 874*g*.
wrinkle formation in alkyd or wood oil, prevention of, 3631*c*.
yarns with plastic, 1571*c*.
of zinc alloys with phosphates by electrolysis, P 4589*d*.
from zinc, bending quality of hot-dip, 2564*c*.
from zinc, chromic acid effect on, 546*c*.
of zirconium by heating in air, N and O, 8910*h*.

**Coaservates.** See *Coacervates*.

**Coaservation.** See *Coacervation*.

**Cobalt,** adsorption by $MnO_2$ and Mn ore, 7774*i*.
adsorption of CO and H by, 3686*e*.
alumina wetting with, 4438*c*.
antagonism to adrenaline, 3931*g*.
in bacteria, function of, 9163*h*.
in blood pigments, 8497*g*.
book: 988*c*.
in cassiterite-sulfide deposits of Far Eastern U.S.S.R., 6124*a*.
as catalyst, in aldehyde manuf. from CO, olefins and H, P 4685*d*.
in aldehyde reaction with $NH_3$, P 1433*g*.
in aryl ester manuf., P 6234*i*.
in Cannizzaro reaction, 4651*e*.
in $CO_2$ reaction with $CH_4$, 1944*h*.
in CO reaction with olefins and H, P 5032*a*.
in chlorite manuf., P 3159*i*.
in ester manuf. from CO and alcs. or ethers, P 3443*c*.
in hydrogenation of anhydrides of unsatd. acids, P 3839*d*.
in hydrogenation of CO, 2398*e*, 2405*h*, 3167*d*, P 3174*i*, P 3175*c*, 3273*h*, P 4447*f*, 4448*i*, 4828*i*, P 4835*g*, 6063*g*, 9415*h*, P 9420*g*
in hydrogenation of cycloalkan-2-ol-1-ones, P 6229*i*.
in hydrogenation of 2,3-dihydrofuran derivs., P 2643*b*.
in hydrogenation of glycolonitrile and derivs., P 3839*f*.
in hydrogenation of hydrocarbons, 7663*i*.
in hydrogenation of monocyclic aromatic hydrocarbons, 6172*c*.
in H-atom recombination, 8251*d*.
in isomerization of β-hydromucononitrile, P 6647*f*.
in nitrile manuf. from olefins and $NH_3$, P 7498*d*.
in oxidation of gasoline, deactivation of, 5932*c*.
in reaction of CO, HCHO and H, P 673*e*.
in reaction of CO, formals, H and alcs., P 675*a*.
in reduction of 2-furaldehyde to furfuryl alc., P 1065*a*.
catalyst of $Al_2O_3$ and, in hydrogenolysis of 2,2,3-trimethyl-1-butanol, 1313*a*.
catalyst of Cr, Cu and, in hydrogenation of mixts. contg. higher alcs., P 5032*e*.
catalyst of Cu, thorium oxide and, in hydrogenation of CO, 2406*h*.
catalyst of thoria and, in hydrogenation of CO, P 840*a*.
catalysts, adsorption and desorption of N and stearic acid by, 6897*g*.
for hydrogenation of CO, 2081*a*, P 4836*h*, P 9419*i*.
for hydrogenation of CO, carbide decompn. in carburized, 0064*c*.
for hydrogenation of CO, effect of $H_2O$ on, 6497*a*.
for hydrogenation of CO, regeneration of, P 4448*g*, P 8120*i*, P 9420*dh*.
catalysts of activated C and, for polymerization of $C_2H_4$ and $C_6H_6$, P 2763*g*.
catalysts of, and its mixts. with kieselguhr or kieselguhr and $ThO_2$, in gasoline synthesis, CO adsorption by, 2413*d*.
nger dynamic activity toward, 3268*f*.
ceramals from TiC and, 8627*h*, 8628*a*.
in coal, 1941*d*.
coating of, with black oxide glaze, P 8346*b*.
coating with, by chem. reduction, 46*g*.
on Cu single crystal, 6063*a*.
on Fe and steel, P 555*h*.
color reaction of ions of, with azo dyes, 597*f*.
compression of, 4917*a*.
concn by microörganisms, and Co deficiency in sheep in relation to, 1096*g*.
in concn. cells, 8908*b*.
crystallochem. electronegativity of ion of, 8231*b*.
deactivators for, P 3840*a*.
deuteron-bombarded, Mn from, 8266*h*.
deuteron bombardment of, angular distribution of neutrons from, 8866*d*.
effect on adrenaline and insulin, 742*c*.
on amino acid inhibition of phosphatases of bone, intestine and osteogenic sarcoma, 6743*d*.
on amino acids in legumes, 342*a*.
on arginase activity of liver and mammary homogenates, 4322*a*.
on blood-vessel tone, 5116*a*.
on carbide segregation in high-speed steel, 4994*e*.
on Cr-Ni steel, 4201*d*.
on compacted-Fe-powder magnets, 2556*h*.
on detn. of Cr, Mn and Ni in steel, 4598*f*.
on dyeing of wool with chrome dyes, 5953*c*.
on grain growth in Cr steel, 1297*b*.
on grain size of Al-Cu alloys, 8337*f*.
on Pb inhibition of hematopoietic enzyme from gastric mucosa, 5430*d*.
on *Mycobacterium smegmatis*, 5444*c*.
on polarography of As, 3297*g*.
on polymyxin action, 9153*b*.
on pptn. hardening of Be-Cu alloys, 7399*b*.
on *Proteus vulgaris* and *P.* $X_{19}$, 1455*f*.
on yeast-cell division, 8431*g*.
on ZnS-Cu phosphors, 1265*b*.
elasticity of, effect of magnetization on, 3328*e*.
elasticity of, temp. and, 5715*c*.
electrodeposition of, P 50*d*.
electrodeposition of Ge and, 2876*b*.
electrodeposition with Mo, 6923*c*.
electrodeposit on steel cathodes for electrolysis of NaCl, 504*h*.
electrodeposits (disperse) of, 5675*e*.
electroplates from, 2916*i*.
electroplating with bright, P 5680*h*.
electroplating with, pitting prevention in, P 4152*bd*.
electroplating with, review on, 7833*i*.
emissivity-temp. curves for, 83*a*.
in enzyme activity, 1820*b*.
exchange between cobaltous ion and cobaltic hydroxide, effect of $H_2O_2$ on, 8820*i*.
exchange reactions of ions ($Co^{++}$, $Co^{+++}$) of, and their hexammino complexes, 6508*e*.
gamma-rays from, 1642*i*.
glasses contg., colors of, 2092*g*.
in glycylglycine dipeptidase action, 2250*b*.
in grasses and herbs of hay plots, 4347*i*.
health hazards of, 4614*d*.
hematopoietic action of, 765*b*, 3524*g*.
hematopoietic and toxic actions of, 6311*c*.
industry in 1946, 2127*b*.
isotope of mass 55, decay of, 5294*g*.
isotope of mass 60, "cross-over transitions" for γ-rays in, 4119*b*.
decay of, 2506*g*.
detn. of half-life of, 3283*e*.
γ-rays from, 8867*e*, 8872*d*.
measurement of γ-ray spectra from, with magnetic-lens spectrometer, 4119*f*.
multiple Compton scattering in $H_2O$ of γ-rays from, 4119*e*.
in research, 7814*i*.
standardization of, 7812*i*.
in liver, Co-deficiency ailment and, 8463*c*.
luminescent substances activated by, 5670*i*.
magnetron cathode from, P 7358*a*.
metabolism inhibition by, mechanism of, 8063*g*.
metabolism of, 733*e*, 9190*b*.
mineralization in Blackbird Dist., Idaho, 2550*b*.
**minerals contg. ions of, 8782*d*.**
neutron absorption by, 8854*i*.
neutron binding energy of, and energy of γ-rays emitted on neutron capture by, 8861*c*.
neutron bombardment of, 7364*d*.
neutron cross section of, 6506*a*, 6909*d*.
neutron interaction with, 4946*g*.
neutron reflection by, 6505*f*.
neutron scattering by, 5294*i*.
-nickel and -Ni-Fe ratios in meteorites and rocks, 5710*f*.
from nickel by neutron action, 4119*i*.
in nutrition, 1466*e*.
in nutrition of sheep, 4354*s*, 8071*a*.
organotropism for liver and lungs, proteins and nucleoproteins in relation to, 6732*h*.
in peanut growth, 2290*b*.
in petroleum, 2139*b*.
phosphors of ZnS, Cu and, 4578*b*, 4579*a*.
-phosphorus ratio in vitamin $B_{12}$, 5432*b*.
polycythemia from, effect of ascorbic acid, glucoascorbic acid and isoascorbic acid on, 8478*f*.
effect of BAL on, 761*b*.
effect of choline on, 1870*c*.
effect of cysteine, histidine and methionine on, 1843*h*.
powd., manuf. by electrolysis, 5313*h*.
powder metallurgy of, effect of tensile forces on shrinkage in, 5714*h*.
production in Australia, 6546*h*.
radioactive, accumulation by yeast cells, 8432*c*.
diffusion into Al-Ni alloys, 8231*i*.
in therapeutics, 3524*c*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with α,β-unsatd. carboxylic acids, 8202*g*
reaction with pyrophosphates, 8935*f*.
reaction with $Na_2O$, $Na_2O_2$, $NaSO_4$ and $Na_2S$, 2109*b*.
reduced in H, structure of, 2883*b*.
reduction of, in glass, 3161*f*, 3985*e*.
removal from Zn-recovery electrolytes, P 6527*i*
removal from $ZnSO_4$ by chromatographic adsorption, 1659*e*.
in respiratory enzymes and pigments, 1816*g*.
sepn. from Cu, 3549*i*.
sepn. from Ni, P 8109*a*.
in soils of Hawaii, 9314*a*.
solid solns. in Fe, 1300*h*, 4130*i*.
soly. in Hg, 7880*f*.
spectrum of, 7858*h*.
in sun, 3711*b*.
system: Al-Fe-, 3763*g*.
system: C-Fe-, 2914*a*, 6958*b*.
system: Cu-Si-, 2915*h*.
system: Mn-, γ-phase in, 7887*b*.
system: N-, 5322*d*.
system: Sn-, 6136*h*.
system: TiC-WC-, 1297*h*.
target, *d* value of, 4567*d*.
tolerance of dairy cattle to, 8534*e*.
in tumor glycolysis, fermentation and dehydrogenation, interrelationships with biotin and $CO_2$, 2694*g*.
uniting of, with B carbide, 9402*b*.
wear-resistant material from WC and, 5352*c*.
x-ray investigation of thin sections of, 4198*c*.

**Cobalt, analysis,** chromatographic, 4595*g*.
detection, 2116*b*, 6938*e*, 7860*e*, 8945*i*, 8966*c*, 8979*h*.
detection and detn., 2122*g*, 3313*g*, 7858*h*.
detection in alloys, 7866*b*.
detection in alloy steels, 8965*e*.
detn., 57*c*, 959*h*, 961*b*, 1672*a*, 3309*g*, 5330*d*, 6106*f*, 7370*ad*, 7376*e*, 8946*d*, 8955*b*.
detn. in alcs., solvents in chromatographic, 6537*c*.
in alloys and metals, 519*e*.
in $Al_2O_3$, 2541*f*.
in Be-Cu alloys, 8965*f*.
in bright Ni-plating solns., 5677*d*.
in dusts in cemented W carbide industry, 3311*b*.
in electroplating baths, 8904*a*.
in EtOH, 8950*h*.
in Fischer-synthesis catalysts, 60*a*.
in Fe ores and assocd. rocks, 5710*b*.
in metallic soaps, 1998*f*.
in Ni-plating solns., 4147*a*.
in ores, 4602*b*, 7862*i*.
in plant material, 2677*i*, 7998*e*.
in presence of Ni, 57*e*.
in sediments from Tyrrhenian Sea, 4610*h*.

*detn.* in **steels**, 6941*a*, 8303*a*.
in **water**, 4800*c*.
**detn. of allotropic forms of** Co, 4177*a*.
**sepn.**, detection and detn., 2888*h*.
**sepn. from Al**, 5696*i*.
from Cu, Fe or Ni, 8973*c*.
from Ni, 3313*g*, 7371*d*, 7860*a*.
**sepn. from Ni and detn. in Zn**, 2546*e*.
**sepn. from sulfides of Group III**, 2074*c*.
**Cobalt, metallurgy of**, P 6965*b*.
electrolytic recovery from Cu-Co flotation **concentrate**, 8996*g*.
electrolytic recovery, purification of soln. for, P 8107*f*.
**extn. with $NH_4$ salts**, P 4998*g*.
**from wastes**, P 8345*a*.
**Cobalt acetates**, catalyst contg. Mn acetate, Pb acetate and, in oxidation of oleic acid and its esters, 3611*g*.
**$Co(OAc)_3$**, in acetic anhydride, behavior of, 2110*g*.
**as catalyst** in CO reaction with MeOH, P 5035*f*.
in oxidation of *p*-dioxane, P 7503*h*.
in partial oxidation of alkyl derivs. of aromatic hydrocarbons, P 5421*g*.
**Cobalt alloys**. (See also *Carboloy; Cobalt compounds; Fernico; N155 alloy; Refractaloy; Refractaloy 26; Steel; Stellite; Vitallium;* and "system" under *Cobalt*.)
aluminum-Cr-Cu-Fe-Mn-Ni-Si-Ti-, P 7404*d*.
antimony-Mn-, magnetic interactions and magnetic susceptibility of, 4911*g*.
beryllium-B-Cr-Ni-W-, P 5358*c*.
chromium-Cb-Fe-Mn-Mo-Ni-W-, for gas-turbine rotor disks, 3331*c*
chromium-Cu-Fe-Mn-Ni-, age-hardenable, P 9020*g*.
chromium-Cu-Mo-Ni-, heat- and stress resistant, P 2922*c*.
**chromium-**, corrosion resistance to body fluids, 1303*f*.
**chromium-Fe-**, as mirror support, P 4441*e*.
**chromium-Fe-Mn-Mo-Ni-W-**, for turbo supercharger buckets, P 3341*b*.
chromium-Fe-Mo-Ni-Si-, as weld-rod material, P 3771*f*.
**chromium-Fe-Ni-**, minor phases in, 540*g*.
chromium-Fe-Ni-W-, for hard-facing valves, P 9021*b*.
chromium-W-, for turbines, 7392*c*.
coating of, with black oxide glaze, P 8346*b*.
copper-, effect of magnetic field on crystn. of, 5718*g*.
forgeable, 4203*i*.
gold-, elec. resistance of, effect of pressure and temp. on, 5679*d*.
gold-Ru-, for elec. contacts, P 5357*e*
iron-, and Fe-Ni-, magnetic properties of, 7394*b*.
iron-, and Ni-, emissivity-temp. curve for, 83*a*.
iron-, effect of magnetic field on recrystn. of, 8768*b*.
**hardening and softening of**, 4618*h*.
**magnetic properties of sintered**, 536*b*.
**order-disorder transformation in**, magnetostriction and, 4060*b*.
**spectral emissivity of**, 941*d*.
W-carbide binding with, P 4822*d*.
**iron-V-**, magnetic and mech. properties of, 8338*a*.
**machining** (hot-spot) of, 7393*h*.
**metallography** (color) of, 80*b*.
**molybdenum-W-**, P 5358*e*.
**nickel detn. in**, 8955*g*.
**nickel-**, electrodeposition of, 4148*a*, 6923*h*.
**nickel-**, high-temp. strength and melting temp. of, 90*f*.
**nickel-Pd-**, and their electrodeposition, P 4588*g*.
**platinum-**, ordering rate in, 3260*f*.
**platinum-**, ordering reaction in, 9011*f*.
**tungsten-**, electrodeposited, 7834*b*.
**tungsten-**, electrodeposition from citrate bath, 45*g*.
**Cobalt amide**, $Co(NH_2)_2$, decompn. by **heat**, and its conversion to hexammine Co(II) nitrate, 2887*d*.
**Cobaltammines**. See *Cobalt compounds*.
**Cobalt ammonium sulfate**, $CoSO_4 \cdot (NH_4)_2SO_4$, mixt. with $K_2Cr_2O_7$, color **standards** for methyl yellow and methyl orange from, 1280*d*.
**Cobalt antimonides**, $CoSb_2$, bonds and interat. distances in, 2052*c*.
**Cobalt borate**, **as feeder drier** in controlling **drying time of inks**, 7717*b*.
**Cobalt bromide** ($CoBr_2$), in acetic anhydride, **behavior of**, 2110*f*.
**as catalyst in polymerization of rosin**, HCl- or HBr-activated, P 1996*g*.
**humidity indicator from**, P 2714*d*.
lattice energy of, 2829*f*.
**Cobalt carbides** detn. in **steels**, 4181*c*.
$Co_2C$, decompn. in carburized Fischer-Tropsch **catalyst**, 6064*c*.
**Cobalt carbonates**, **effect on aging and drying time of inks**, 7717*c*.
**$CoCO_3$**, **adsorption and desorption of N** and stearic acid by, 6897*h*.
as catalyst in decarboxylation of **2-furanacrylic acid**, 2615*d*.
**Cobalt carbonyls**, **as catalyst** in ester manuf. from CO and alcs. or ethers, P 3443*c*.
**as catalyst in reaction of olefins**, CO and $H_2O$, P 669*h*.
catalyst of **active C and**, in reaction of **olefins**, CO and $H_2O$, P 670*i*.
manuf. of, P 9398*b*.
solns. of, P 9397*d*.
**$Co(CO)_3$**, **complex with $Ph_3P$**, as catalyst for trimerization of $C_2H_2$ and its derivs., 6202*e*.
**$Co(CO)_4$**, manuf. of, P 8107*i*.
**Cobalt chlorides**, exchange between $Co(NH_3)_6Cl_3$ and, 6508*f*.
**$CoCl_2$**, **activity and osmotic coeffs** of, 22*d*.
antiferromagnetism of, 11*a*.
**as catalyst** in Grignard coupling of *p*-(1-bromopropyl)anisole, 3812*f*.
in polymerization of acrylonitrile with butadiene, P 2025*i*.
in polymerization of rosin, HCl- or HBr-activated, P 1996*g*.
decompn. potential in molten $AlCl_3$-NaCl, 8915*e*.
dehydration of hexahydrate of, with $COCl_2$ or $SOCl_2$, 2533*c*.
**effect on antibiotic properties of penicillin**, 1458*i*.
**effect on bactericidal action of Ceepryn**, 9147*f*.
**humidity indicator from**, P 2714*f*, 5516*i*.
hydration of, activity and, 7302*b*.
lattice energy of, 2829*f*.
mixts. with $Na_2Cr_2O_7$, color standards for $C_2HCl_3$ detn. from, 2122*i*
permeability of larval cuticle of *Phormia regina* to, 8561*h*.
reaction with $BrF_3$, 3739*f*.
**Cobalt chloroiodate(III)**, $Co(ICl_2)_3$, ammoniates of, 8298*b*.
**Cobalt compounds**, with aluminum, structure of $Co_2Al_9$, 1235*i*.
ammino, 2887*d*, P 3158*a*.
**chromatography of**, 8295*b*.
contg. oxidizing groups, explosive properties of, 5187*e*.
detn. of $NH_3$ in hexammine and pentammine, 5701*g*.
drying or ignition temp. limits for $[Co(NH_3)_6]TiCl_6$, 63*h*.
exchange of di- and trivalent Co ions in, 6508*e*.
polarography of, 2520*b*.
reduction by $H_2$ and H, 2854*h*.
spectra of, 5305*a*.
sulfate detn. with $[Co(NH_3)_5]Br_2$, and formation of $[Co(NH_3)_5BrSO_4$, 3316*b*.
thermochemistry of, 2855*a*.
unstable, 7364*b*.
with antimony, As, N, O, P, Se, Si, S and Te, magnetic properties of, 6018*d*.
with 4-aryl-2,6-dinitrosoresorcinols, 3810*e*.
with biguanide derivs., 7365*f*.
as catalysts in oxidation of cyclic ethers, P 2224*e*.
as catalysts in reforming of hydrocarbons, P 9430*a*.
chelate, 7364*e*.
chelate complexes with $\beta,\beta',\beta''$-triaminotriethylamine, stability of, 8812*e*.
colors and magnetic properties of, electron arrangement and, 2092*g*.
complexes, in EtOH soln., 4970*g*.
in exchange and Szilard effects, 7364*c*.
with heteropoly acids and amines, 1672*a*.
induced dissymmetry and optical activity of, 2538*f*.
stability of, 4960*c*.
thermochemistry of, 7805*g*, 7806*e*.
cyanide complexes, polarography of, 5676*e*.
**as driers for oils in chamoising**, 1592*e*.
formation of $[Co(NH_3)_5][InCl_5]$ and its use in detn. of In, 8952*h*.
four- and six-coördinated, inversion of Stark patterns of, 2479*h*.
**as fungicides for cotton fabric**, 8085*f*.
halogen complexes, spectra of, 520*a*, 7817*ei*, 8273*h*.
with histidine, 4968*i*.
with histidine, other amino acids and O, 7856*ce*.
with hydroxynaphthaldehyde and [ethylenebis(nitrilomethylidyne)]dinaphthol, 1678*g*.
with 3-hydroxy-2-naphthoic acid and pyridine, 2538*g*.
intermetallic, 7771*c*.
with iron in Fe ores and **assocd. rocks** in Sweden, 5710*b*.
with iron in sediments from Tyrrhenian Sea, 4610*f*.
of nicotine salts, P 8605*b*.
with nitrilotriacetic acid, 2888*c*.
org., antiseptic and fungicidal, P 363*i*
oxygen-carrying, 6932*e*.
with 1,1'-*m*-phenylenedibiguanide, 8941*d*
$[Ph_3P]Co(CO)_3$, as catalyst for trimerization of $C_2H_2$ and its derivs., 6202*e*.
phthalocyanines, P 3214*g*, P 3215*b*.
with protein hydrolyzates, 5432*e*.
purification of, P 8107*f*.
with silicon, bonds in $(CoSiO_4)$, 8764*a*.
with sodium 2-formyl-1-phenol 4-sulfonate, 1678*d*.
with tetrachlorophthalic anhydride and urea, green pigment, P 5607*g*.
tri-*o*-phenanthroline oleate, effect on mol.-wt. changes, O absorption rate and peroxide formation in paints, 6836*e*.
**Cobalt copper chloride**, $3Cu(OH)_2 \cdot CoCl_2$, 8929*g*.
**Cobalt cyanide**, $Co(CN)_2$, heat of formation and lattice energy of, 2830*a*.
**Cobalt cyanoplatinate(II)**, $CoPt(CN)_4$, prepn. and reduction to PtCo, 3260.
**Cobalt ferrates(III)**, 5354*i*
**$CoFe_2O_4$**, 7315*c*.
formation, crystal structure and magnetic properties of, 3304*f*.
magnetic properties and solns. of, 6017*e*
**Cobalt ferricyanide**, $Co[Fe(CN)_6]$, detection of, 8966*e*
**Cobalt ferrocyanides**, detection of, 8966*e*
as toner for photographic film in detn. of x ray intensities, 1650*h*.
**Cobalt fluorides**.
**$CoF_2$**, antiferromagnetism of, 11*a*
catalysis by, in esterification of fatty acids with glycerol, 4030*g*.
in fluorination of $\alpha,\alpha,\alpha$-trichlorotoluene, 8364*h*.
heat of formation and lattice energy of, 2829*i*.
**$CoF_3$**, polycyclic hydrocarbon fluorination with, P 4301*b*.
prepn. of, 6793*d*.
**Cobalt formate**, $Co(HCO_2)_2$, heats of formation and soln. in HCl, and lattice energy of, 2830*a*.
**Cobalt halides**, Curie point, pressure and, 8784*a*.
**Cobalt hydroxides**, mixt. with kieselguhr, in S removal from water gas, 2401*i*
**$Co(OH)_2$**, catalyst of, and $Cr_2O_3$ in oxidation of *p*-EtC$_6$H$_4$OAc, P 3461*g*.
lattice energy of, 2829*f*.
in system $CoSO_4$-CoO-$H_2O$, 2403*a*
**$Co(OH)_3$**, exchange with cobaltous ion effect of $H_2O_2$ on, 8820*i*.
**Cobalt iodate**, $Co(IO_3)_2$, equil. with its hydrate and their satd. solns., 5267*a*
**Cobalt iodide** ($CoI_2$), in acetic anhydride, behavior of, 2110*f*.
decompn. potential in fused $AlI_3$ or NaAlI$_4$, 6519*g*.
electrolysis in $Ac_2O$, 2876*h*.
humidity indicator from, P 2714*g*.
lattice energy of, 2829*f*.
mixt. with molten NaI, decompn. potential of, 4582*g*.
**Cobaltite**, compression of, 4917*b*.
of Ontario (Gowgandu), 2549*i*.
**Cobalt mercury thiocyanates**. (See also *Cobalt thiocyanatomercurate* (II).)
antifouling properties of, 3964*a*.
**balt molybdates**, manuf. of, P 5160*b*.
**balt nitrates**, as catalyst for condensation of 2-furaldehyde with phenol, 5226*b*.
as catalyst in oxidation and hydrolysis of cellulose by nitric acid, 1979*a*.
**$Co(NO_3)_2$**, activity and osmotic coeffs. of, 22*d*.
catalysts of, in reforming of hydrocarbons, P 9430*b*.
chromatography on soil minerals, 3549*h*.
color of solns. in EtOH and HCl, and elec. cond. of alc. solns., 4970*g*.
lattice energy of, 2829*f*.
**Cobalt nitrides**, 5322*e*.

**CoN**, formation from $Co(NH_2)_2$, 2887*d*.
**Cobalt ores**, arsenide minerals from, 2895*i*.
copper-Ni-, of Vest prospect, Va., 6545*i*.
flotation of Cu-Au-Ag-S-, 1693*d*.
nickel-, of Hosanger Mine, Norway, 6545*h*.
of Norway (Modum dist.), petrography of fahlband, 8316*d*.
prospecting for, by compn. of plants and soils, 3549*f*.
of world, 5708*e*.
**Cobalt oxalate**, as hydrogen cyanide stabilizer, P 1536*i*.
**Cobalt oxides**, as catalyst in ester manuf. from CO and alcs. or ethers, P 3443*c*.
as catalyst in oxidation of mercaptans in natural gas, 7066*c*.
in purification of fuel gas, 3173*a*.
in toluene manuf. from bibenzyl and H, P 3454*b*.
catalyst of $Cr_2O_3$, an alkali compd. and, for dehydrogenation, P 5410*a*.
catalysts of $Al_2O_3$ and, in dehydrogenation of 1,1-diaryl paraffins, P 2235*f*.
catalysts of $SiO_2$ and, for acylation of thiophene, P 2643*g*.
effect on $Fe_2O_3$ catalysts for reduction of esters, 5363*d*.
magnets contg., P 3770*d*.
oxygen exchange with CoO and $Co_3O_4$, 8821*i*.
in waterproofing resins from aniline, HCHO and di-, tri-, tetra- or pentaglycol dichloride, P 2033*b*.
**CoO**, antiferromagnetism of, and its solid solns. with MgO, 11*a*.
catalysts of $Al_2O_3$, $Cr_2O_3$ and, in dehydrogenation of 2-*o*-tolyl-2-butene, 5012*d*.
formation of, thermodynamics of, 2907*e*.
hydrate, effect on aging and drying time of inks, 7717*c*.
reaction with $Fe_2O_3$, 3304*h*.
reaction with O and $SO_2$, 6931*g*.
system: $CoSO_4$-$H_2O$-, pH in, 2493*a*.
system: $Fe_2O_3$-, 5355*a*, 7314*i*.
system: $SiO_2$-, 2909*h*.
**Cobalt perrhenate**, $Co(ReO_4)_2$, 5688*e*.
**Cobalt phosphate** ($Co_3(PO_4)_2$), as catalyst in dehydrochlorination of chlorinated fatty acids or their esters, P 7502*f*.
humidity indicator from, P 2714*e*.
**Cobalt phosphides**, formation of $Co_2P$ and CoP and crystal structure of $Co_2P$, 2064*e*.
**Cobalt phosphomolybdate**, $Co_3(PO_4)_2 \cdot 12MoO_3)_2$, 7366*a*.
**Cobalt phosphotungstate**, $Co_3(PO_4)_2 \cdot 12WO_3)_2$, 7366*a*.
**Cobalt potassium ferrocyanides**, formation of $5Co_2Fe(CN)_6 \cdot K_4Fe(CN)_6$ and $4Co_2Fe(CN)_6 \cdot 3K_4Fe(CN)_6$, 961*a*.
**Cobalt salts**, catalysts in bleaching paper, P 9448*a*.
catalysts in oxidation of benzoin to benzil, 1368*b*.
in oxidation of furoin, P 690*f*.
in polymerization of butadiene hydrocarbons, P 2025*i*.
with 3,5-diiodo-4-oxo-1(4*H*)-pyridineacetic acid, 5780*f*.
effect on protoplasm, 8015*b*.
of grapeseed-oil acid, as drier for linseed oil, 8699*f*
magnetic resonance in, 4005*i*, 4568*cd*.
**Cobalt selenide**, $CoSe_2$, bonds and interat. distances in, 2052*c*.
**Cobalt sodium iodide**, $NaCoI_3$, in acetic anhydride, behavior of, 2110*f*.
**Cobalt sulfates**, transmittancy of solns. of, and of its mixts. with Cu sulfate, 8275*g*.
$CoSO_4$, compd. with nicotine sulfate, 8297*a*.
entropy, heat capacity and magnetic properties of, 8766*g*.
formation and vapor pressure of, 6931*h*.
humidity indicator from, P 2713*e*.
sepn. from $CuSO_4$ and $Fe_2(SO_4)_3$ by chromatography, 2070*i*.
spectrum of, 3293*c*.
system: CoO-$H_2O$-, pH in, 2493*a*.
system: $K_4Fe(CN)_6$-$H_2O$-, physicochem. analysis of, 960*i*.
**Cobalt sulfides**, in carbon monoxide oxidation, 2076*i*.
as catalyst in reaction of CO with S and $H_2O$, 2532*i*.
as catalyst in toluene manuf. from bibenzyl and H, P 3454*b*.
as catalysts in hydrogenation of org. S compds. to thiols, P 2630*c*.
oxygen in pptd., as $HOCo_2S$, 2108*i*.
pptn. of CoS and $CoS_2$, 2531*i*.
**CoS**, as catalyst in reaction of alkyl disulfides with olefins, P 1794*d*.
oxidizability of pptd., 5700*i*.
soly. of pptd., in acid, 2074*a*.
**$Co_2S_3$**, as catalyst in manuf. of thiols from diesters of 1,1-alkanediols and $H_2S$, P 5418*e*.
**$CoS_2$**, bonds and interat. distances in, 2052*c*.
**Cobalt telluride**, $CoTe_2$, bonds and interat. distances in, 2052*c*.
**Cobalt thiocyanate** ($Co(CNS)_2$), heat of formation and lattice energy of, 2829*i*.
humidity indicator from, P 2714*g*.
**Cobalt thiocyanatomercurate(II)** ($Co[Hg(CNS)_4]$). (See also *cobalt mercury thiocyanate*.)
crystal structure of, 5325*a*, 6482*g*.
mol. wt. of, 8764*i*.
system: $Cd[Hg(CNS)_4]$-, and $Zn[Hg(CNS)_4]$-, 7803*i*.
**Cobalt vanadate(III)**, $CoV_2O_4$, 6519*d*.
**Cobalt vanadate(V)**, $Co(VO_3)_2$, prepn. and soly. of, 8247*f*.
**Cobefrin**. See *Norephedrine, 3,4-dihydroxy-*.
**Cobra venom**. See *Venoms*.
**Coca**, norecgonine ext. from, 5544*b*.
**Cocaine**, adulteration of, 5544*h*.
anesthetic action of, 1111*a*.
detection and detn. of, 7191*c*.
detection in foods, 9273*h*.
detn. of, 8094*h*.
dosage of, detn. of, 3110*c*.
effect on heart, 1489*h*.
on intestine, 7589*i*.
on penicillin activity, 4772*d*.
on respiration of brain, 8056*g*.
fluorescence of, 5341*a*.
heart failure from, 1862*f*.
hydrochloride, effect on cholinesterase, 702*f*.
identification of, 1151*g*, 1529*d*, 7190*h*.
identification of, for use in operating room, 3563*e*.
local anesthetics resembling, 7642*h*.
manuf. of, 8100*h*.
as mitosis inhibitor, 8416*a*.
sensitization of ventricle of *Helix pomatia* and muscle of leech to acetylcholine by, 1107*f*.
**Cocarboxylase**, biol activity of, 3003*d*.
in blood and urine of healthy and sick children, 4749*f*.
in blood and urine, vitamin $B_1$ and, 1480*d*.
in blood corpuscles (red and white), in health and disease, 1841*i*.
in rat and man, 736*f*.
vitamin $B_1$ supply and disease in relation to, 5102*d*.
in blood in tuberculosis, 8465*b*.
dephosphorylation and synthesis of, effect of atebrin and chloraquine on, 5057*g*.
in diabetic coma treatment, 8060*h*.
effect on heart, 1860*f*, 5865*d*.
on muscle sensitivity to acetycholine, 291*g*.
on tone of thyroxine-treated intestine, 7578*g*.
formation from vitamin $B_1$ by yeast, 9159*d*.
metabolism in typhoid fever, 2294*c*.
in metabolism of cockroach muscle, 2333*c*.
phosphatase (urinary) action on, 6265*d*.
prepn. of, 9122*c*.
urinary, in thiamine deficiency, 8475*g*.
**Cocarcinogenic substances**, action of, 2695*c*.
**Coccell acid**, in lichens, 5077*c*.
**Coccl**, anticoccoid compds., thiazole derivs., P 3978*e*.
of Gorini—see *Streptococcus faecalis*.
**Coccidioidin**, sensitivity to, pulmonary calcification and, 3513*g*.
**Coccidiosis**, chick cecal, hypo- and hyperthyroidism and, 9330*b*.
control of cecal, in chickens, 9314*c*.
drug for treatment of, P 7592*i*.
halogenated benzenearsonic acids and salts for control of, P 9388*h*.
4-hydroxy-3-nitrobenzenearsonic acid and salts for treatment of, P 368*a*.
nitrofurazone in treatment of, 5869*c*.
sulfaguanidine in control of, 9290*b*.
sulfaquinoxaline in control of, 321*g*.
sulfasuxidine in control of, 4375*e*.
treatment of, 8061*h*.
**Coccus** (*bacteria*). See *Cocci*.
**Coccus caoti**. See *Cochineal*.
**Coccus pseudomagnoliarum** and(or) **Citricola scale**, control of, 4805*a*.
**Cochineal**, detection in wine, 8092*a*.
**Cochineal insect**. See *Dactylopius coccus*.
**Cochlea**. See *Ears*.
**Cocklebur oil**. See *Oils*.
**Cockleweed, seeds**, dextrin manuf. from, P 1590*b*.
seeds, starch manuf. from, P 1590*c*.
**Cockroaches**, azo-dye effect on *Blatella germanica*, 8089*c*.
control of, P 6358*d*.
halogen-P compds. in, 9353*f*.
parathion in, 4806*b*, 9349*b*.
smokes of DDT or hexachlorocyclohexane in, 9342*c*.
control of *Blatella germanica*, 1519*h*, 2360*g*.
control of *Blatella germanica* and *Periplaneta americana*, chlorinated org. compds. in, 1518*g*.
DDT effect on *Blatta orientalis*, 6355*c*.
DDT effect on motor and sensory structures in leg of *Periplaneta americana*, 3964*i*.
insecticide testing with *Periplaneta americana*, 1139*i*.
mite control in lab. rearings of *Periplaneta americana*, 1899*f*.
muscle of *Periplaneta americana*, metabolism of, 2333*a*.
nutritional studies with *Blatella germanica* reared under aseptic conditions, 7152*a*, 8564*i*.
requirement of *Blatella germanica* for choline and related compds., 3939*h*.
toxicity of DDT and related compds. to German, 7628*f*.
toxicity to *Periplaneta americana*, of azobenzene and related compds., 2727*c*.
vitamin C absorption by *Blatella*, 8561*e*.
vitamin requirements of *Blatella* and *Periplaneta*, 8066*b*.
**Cocks**. See *Stopcocks; Valves*.
**Cock's comb**. See *Combs*.
**Cocoa**. (See also *Cacao; Chocolate*.)
chemistry in industry of, 8573*h*.
mixt. with sugar sirup, P 3541*d*.
theobromine detn. in, app. for, 2709*d*.
for use without heating, P 7606*d*.
**Cocoa butter**. See *Cacao butter*.
**Coconut**. (See also *Copra*.)
charcoal from, as catalyst in chloromethylation, P 5583*e*.
dried, research on, 5880*b*.
feeds from, compn. of, 3538*i*.
fibers—see *Fibers*.
flavoring materials from levulinic acid, 784*d*.
husks, retting of, 1985*d*, 5953*e*.
soils of Madagascar, 1509*g*.
**Coconut cake**, antioxidant activity and vitamin A of copra, 424*g*.
**Coconut leaf roller**. See *Omiodes blackburni*.
**Coconut meal**, analysis of, 6842*a*.
**Coconut oil**, absorption of, 1842*e*.
acids of, condensation with acetone-sulfonic acid and hydrazine, wetting agent by, P 5216*i*.
dodecyl ester, hydrogenation of, 6063*a*.
Et ester, 881*e*.
hydrogenation of Me esters to alcs., 5208*d*.
reaction product with cyanoguanidine, ethanolamine and glycidol or ethylene oxide, sulfuric acid esters, as textile aids, P 7727*c*.
reaction with $C_2H_4O$, textile assistants by, P 7727*a*.
surface-active agents from, P 4499*c*.
amides of acids of, pharmaceutical carriers for, P 2375*d*.
reaction products with crotonaldehyde and mercaptoacetic acid, surface-active, P 7242*d*.
reaction products with crotonaldehyde and $NaHSO_3$, P 8712*g*.
reaction with crotonaldehyde and mercaptoacetic acid, detergent by, P 5978*h*.
amine (alkyl mixed) from, condensation with Me acrylate and hydrolysis of condensate to surface-active Na amine salt, P 5978*b*.
anilide of fatty acids from, condensation product with chloro-*N*-(hydroxymethyl)acetamide sulfonic acid, P 886*b*.
Bellier no. of, 8178*h*.
compn. of copra, 881*c*.
cracking of, under reduced pressure, 424*b*.
detn. of fusion point of mixts. contg., 6327*g*.
distn. of hydrogenated, *in vacuo*, cacao-fat substitute from residue from, 5610*h*.
effect on yield and compn. of butterfat, 1874*g*.

esterification with glycerol, monoglycerides by, P 6843*i*.
esters (mono-) with glycerol and $H_2SO_4$, Na salts, P 9495*e*.
foaming of, and its blends with vegetable oils in frying, 5612*b*.
hydrazide and *N*-(hydroxymethyl)amide of, reaction products with $NH_4$ salts or salts of primary amines and paraformaldehyde, P 1434*g*.
hydrazides of fatty acids from, condensation with glucose, wetting agents by, P 4499*e*.
hydrazides of fatty acids of, reaction with glucose, foaming and wetting agents by, P 9497*i*.
hydrolysis of, 2580*a*.
hydrolysis of, velocity of, and effect of metals thereon, 8706*f*, 8707*a*.
*N*-(hydroxymethyl)amides of acids from, as textile assistants, P 8712*e*.
*N*-(hydroxymethyl)amides of acids of, reaction products with ethylene oxide, P 8713*d*.
lipase action on, formation of partial glycerides during, 9121*a*.
mixt. with glycerol, polyesters with mercaptosuccinic acid, and coatings therefrom, P 3633*d*.
reaction of sapond., with $COCl_2$, P 2223*g*.
reduction (Bouveault-Blanc) of, P 3835*g*.
sapon. of, with water in autoclave, and glycerol in unsplit fat, 9487*d*.
stabilizers for, 5127*g*.
surface tension of, 6878*i*.
**Coconut rhinoceros beetle.** See *Strategus quadrifoveatus*.
**Cocoons,** silkworm—see *Silkworms*.
**Cocopeat,** the name, 4412*c*.
**Cocos.** See *Coconut*.
**Coco yam.** See *Taro*.
**COC-S** (*C-O-C-S spray*). See "basic, basic sulfate" under *Copper chlorides*.
**Cod,** acidity of muscle of red and ling, effect on bacteria and $Me_3N$, 5128*e*.
oil from—see *Cod-liver oil*.
protein extn. from, P 9390*e*.
protein from meal of, 4790*c*.
sodium nitrite addn. to fillets of, effect on bacteria and formation of trimethylamine, 6751*gi*.
**Codecarboxylase,** detn of, 9135*a*.
1-ethoxy-1,3-dihydro-6-methylfuro-[3,4-*c*]pyridin-7-ol 7-dihydrogen phosphate with activity of, P 6672*b*.
identity of, 6680*c*.
**Codehydrase.** See *Codehydrogenases*.
**Codehydrogenase I** (*coenzyme I, cozymase*), in amino acid synthesis from $NH_3$ and keto acids by bacteria, 5084*e*.
in blood in typhoid fever, 5110*f*.
breakdown by nervous tissue, 9105*d*.
decompn. and synthesis by bacteria, 2670*e*.
degradation by enzymes in living organisms, 5432*g*.
detn. of, in tumors, 2303*h*.
detn. or assay of, 2265*e*, 2659*h*.
hydrogen transfer from ascorbic acid to, by chlorophyll, 8410*c*.
in *Lactobacillus arabinosus*, 6278*a*.
in polyploid aspen, 5831*e*.
reduced, reaction with MeI and $Me_2SO_4$, 7525*g*.
reduction by $NaBH_4$, 2249*b*.
synthesis of, 2649*h*.
**Codehydrogenase II,** in blood in typhoid fever, 5110*f*.
**Codehydrogenases,** in liver in infectious hepatitis, 3922*f*.
**Codeine.** (See also *Opium alkaloids.*)
alc. detn. in infusion of, 9370*i*.
analgesic action of, evaluation of, 1487*d*.
detection in foods, 9273*h*.
detn. in tablets, 2368*i*.
effect on blood flow, 4382*b*.
effect on succinic oxidase system, 3521*c*.
fluocolumbate(V), 5786*a*.
in opium from Greece, 2372*e*.
in opium tinctures, 2368*c*.
phosphate, folic acid prepn. contg., 355*i*.
sensitization of heart and muscle to acetylcholine by, 3102*c*.
sepn. from morphine, P 3572*d*.
**Codeine, dihydro-,** degradation of, 4280*b*.
**Codeinone, dihydro-,** detn. of, 2126*e*.
**———, dihydrohydroxy-.** See *Eucodal*.
**Codling moth and (or) Carpocapsa pomonella,** control of, 807*c*, 810*f*, 3965*b*, 6354*f*, 7630*b*, 9347*a*.
control of, on apples, 804*b*.
nitrobenzamide *N*-derivs. in, 1144*i*, 4997*g*.
control of, testing insecticides for, 7181*h*.
**Cod-liver oil.** (See also "fish-liver" under *Oils.*)
bacteriostatic action of, and its distillate, 4726*i*.
effect on development of rabbit, 3078*h*.
on milk and fat production, 3896*e*.
on milk stability, 3941*e*.
on nicotinic acid synthesis from tryptophan in animal organism, 9180*g*.
on reproduction capacity in vitamin E deficiency, 9190*g*.
on tocopherols in blood of sheep, 758*f*.
11-eicosenoic acid from, from *Gadus callarias*, 4220*a*.
fat acid extn. from, and soly. diagrams in EtOH and MeOH, 7724*b*.
hydrogenation of, conservation of carotene and vitamins A and D in selective, 6841*i*.
isomerization of, 9380*g*.
nutritional hindrance from diet rich in, 8021*h*
odor and taste removal from, P 5158*c*.
surface tension of, 6878*i*.
vitamin A and carotenoid storage by chicks fed, 2291*g*.
vitamins A and D in, 9380*b*.
**Coefficient of expansion, etc.** See *Expansion*, etc.
**Coenzymes.** (See also *Cocarboxylase; Codehydrogenases;* and "pyridine" under *Nucleotides*), 9110*d*.
A, as growth stimulant for *Acetobacter suboxydans*, 6699*e*.
in liver, effect of dietary protein restriction on, 9195*d*.
pantothenic acid liberation from, 3047*e*.
in rat and duck tissues in pantothenic acid deficiency, 293*d*.
of alk. phosphatase, 7989*a*.
in biol. oxidation-reductions, 595*c*.
for diamine oxidase in legumes, 6706*f*.
glucose phosphates as, 2258*h*.
I—see *Codehydrogenase I*.
of phosphoglucomutase, 1070*g*, 3477*i*, 7528*h*.
review on, 9122*h*.
II—see *Codehydrogenase II*.
**Coercive force,** of cobalt-Fe-V alloys, 8338*b*.
of hard metal alloys, evaluation by, 1298*a*.
theory of, 8767*i*.
**Coffea.** See *Coffee*.
**Coffee.** (See also *Caffeine.*)
analysis of coffee exts. and, 1498*f*.
analytical and organoleptic findings in, 6747*d*.
caffeine detn. in, 1689*f*, 1878*d*.
caffein recovery from green, P 6371*c*.
caffein removal from, P 5882*i*.
drying of, 1013*e*.
effect on longevity, 3893*a*.
effects in sports, 8543*a*.
exts. (concd., powd., sol., etc.), P 1124*f*, P 4398*c*, P 5512*h*, P 5513*a*.
decaffeinated, P 6334*d*.
identification of, 361*c*.
preservation of aroma of, P 5514*a*.
fertilizer expts. with, 9314*d*.
flavor components of, 8574*a*.
roasting of, effect on flavor, 8574*a*.
viridic acid formation in raw, through insect action, 3116*g*.
wastes from, effect of tannins in, on dissolved O detn., 6770*a*.
**Coffee substitutes,** analysis of, 1498*f*.
from cacao-bean waste, P 332*c*, P 3118*b*.
preservation of odor of, P 5884*a*.
**Coghill, Robert D.,** biography, 9385*d*.
**Cognac.** See *Brandy*.
**Cohesion.** (See also *Heat of cohesion; Tensile strength.*)
of bitumens, 9425*f*.
of collagen, effect of vegetable tanning on, 8719*d*.
const. of van der Waals—see *Equation of state*.
pore formation in light metals in relation to, 2149*h*.
of steel, effect of H on, 8331*g*.
**Coils,** wire—see *Wire*.
**Coincidences,** device for registering, 934*f*.
diode circuit for, 4091*f*.
**Coins,** British, and alloys therefor, 3335*h*.
**Coir.** See "coconut" under *Fibers*.
**Coke.** (See also *Char.*)
acid (org.) manuf. from, P 3176*a*.
analysis of, 4971*i*, 5172*e*.
ash and S in, in blast-furnace operation, 3598*e*.
for automotive gas producer, 1547*gh*.
bauxite sludge treatment of, P 5928*d*.
book: Kurs tekhnologii Koksokhimicheskogo Proizvodstva, 8120*a*.
breakage of, 3174*b*.
breakage of, testing of, 7667*i*.
breeze—see "wastes" under *Coking*.
from brown coal of Hungary, 9417*e*.
button, measurement of agglutinating power of coal by, 3594*d*.
caking properties of, reactivity and, 1949*f*
carbon black by grinding of, 1169*h*.
carbon monoxide manuf. from, P 2408*a*.
from coal blended with anthrafines or low-grade Pocahontas, 3992*b*.
coal-swelling properties and, 377*i*.
from coal tar, 6809*a*.
from coal wastes, 1948*e*.
colloidal structure of, 5172*f*.
combustible easily, P 9421*a*.
combustion of, inhibition of CO oxidation during, 3592*f*.
critical air-blast test of, 2407*a*.
density (lump) of, pore size and, 378*h*.
dust in gas works, and its prevention, 4445*f*.
dust, wetting-agent compn. for control of, P 839*a*.
effect on blast-furnace operation, 79*a*.
fines, agglomeration of, P 1170*e*
formation in cracking of hydrocarbon oils to gasoline, prevention of, P 8665*d*.
from gasification coal, 2755*a*
gasification of, effect of moisture and fuel size on, 3596*h*.
from gas industry, disposal of, 837*h*.
graphitization of, 4072*f*.
from high-pressure distn. of coal, 5570*f*
hydrocarbon-oil conversion in presence of fluidized hot, and manuf. and temp maintenance by burning coke in flame reactor, P 8663*h*.
industry in 1946, 2127*b*.
metal abrasive wear by, 5721*a*.
metallurgical or blast furnace, 4146*f*
for converter-pig-iron manuf., 1551*d*.
effect of d. on blast-furnace oxidation zone, 4195*d*.
effect of grain size of coal blends on properties of, 6392*b*.
gas permeability of, blast-furnace efficiency and, 4195*h*.
manuf. of, 5172*h*, P 6812*e*
quality of, 9417*d*.
from wallaba-wood resin, 379*a*
from molasses pyrolysis, 9422*f*.
for open fires, 3174*b*.
from peat, 2407*e*, 5927*a*, 8118*f*.
petrographic and x-ray study of, 7661*f*, 7662*d*.
petroleum, burning of, P 4846*g*
of low volatile content, 9426*a*.
rate of graphite formation from, 1236*f*
from petroleum cracking coils, as paraffin oil dewaxing aid and wax crystal modifier, 4456*a*.
petroleum tars and cracked Mazut as source of, 3184*e*.
Polish industry of, 2755*e*.
powd., and its mixts. with lignite dust, gasification of, 5923*g*.
powd., mixer and grader for, P 9019*f*
quenching (dry) of, 7668*a*.
quenching (dry) of, plant for, in Fe and steel works, 2555*i*.
reactions with steam at high pressure, 3170*i*.
reaction with petroleum-refinery acid sludge to recover $SO_2$, P 5183*a*.
research on, 7665*b*.
residue, detn. in coal-tar fuels, 1551*c*
saving of, in Fe and steel production, 6352*hi*.
semi—see also *Coke ovens*.
semi- or low-temp., from coal of Yakutsk, A.S.S.R., 7209*d*.
detn. in coal carbonization, 1947*d*.
extn. and x-ray diffraction of, 3593*e*
by low-pressure carbonization, 1948*b*
mixing with heated steel balls, temp in, 29*h*.
in phenol recovery from wastes, 1948*h*.
pressure effect on yield of, 5570*b*.
from sand schists of Chitin region, U.S.S.R., 2900*a*.
from sapropele coal of Moscow, 7207*h*.
stability in briquetting, 5172*i*.
sepn. from cinder, app. for, P 1172*b*
smoke abatement and, 3593*a*.
Soviet industry of, 4833*i*.
standards for, 4786*i*.
strength decrease of, detn. of cause of, 2755*e*.
structure and properties of, 837*g*.
structure (micro-) of, formation of, 4834*d*.
sulfur detn. in, 2405*d*.
sulfur in, radioactive tracers in study of, 887*i*.

sulfur removal from, P 5574*d*, 9414*b*.
zinc oxide reduction with, 6060*i*.
**Coke-oven gas.** See *Gas, fuel (manufactured)*.
**Coke ovens.** (See also *Carbonisation.*)
with benzene yield increased, P 2755*i*.
book: Wärmetechnik der Gaserzeugungöfen, 7668*g*.
by-product, P 2758*a*.
carbonizing period in, detg. length of, 1551*e*.
at Chicago, 3598*d*.
Dinas repair in, coatings for, 5916*i*.
Dinas with Mn binder for, 5916*e*.
free-expansion, 378*h*.
gas from—see *Gas, fuel (manufactured)*.
gas permeability of brickwork of, calcn. of, 8114*h*.
heating of, with enriched fuel gas, P 2408*h*.
for low-volatile coal, P 3598*i*.
maintenance of, 6807*f*.
refractory materials for retorts, 4438*i*.
review on, 7665*c*.
for semicoking of coal, P 6398*d*.
for steaming at Kiel, 6809*f*
temp. detn. on walls of, 1169*f*, 5926*f*.
walls of, repair of, P 8651*c*.
**Coking.** (See also *Carbonisation; Destructive distillation.*)
ammoniacal liquor from—see *Ammoniacal liquor.*
ammonia from—see *Ammonia, manufacture of.*
ammonium sulfate from—see *Ammonium sulfate.*
of briquetted western coal, 3598*c*.
by products of, 5926*e*.
of coal and lignite, 4444*i*.
of coal, anthracene oil in, 4830*c*.
of coal blends, effect of grain size on, 6392*b*.
coals for—see *Coal*.
compn. of charges for, 4446*c*.
gas—see *Gas, fuel (manufactured)*.
gas liquor from—see *Gas liquor*
of hydrocarbon oils, P 1952*b*.
of peat, 9413*e*.
of peat briquets, 8118*f*.
of petroleum heavy residuum oils and tars, 9425*i*.
of petroleum stocks for catalytic cracking, 8134*l*, 8656*h*.
of petroleum tarry cracking residues on coke to recover petroleum products, P 389*b*.
of petroleum tars and cracked mazuts, reconstruction of batteries for, 3184*e*.
pressure relationships in, 5173*b*.
properties of coal—see *Coal*.
of residue from high-pressure distn of coal-oil suspension, 5570*d*.
semi- or low-temp., plant for, 7212*c*.
pressure effect on, 5569*i*.
retort for detn. of products from, 2403*c*.
of shales of Baltic area, 9421*h*.
of solvent-extd. coal, P 1950*i*.
sulfur in, radioactive tracers in study of, 837*h*, 9418*e*.
sulfur removal from coal during, 2754*i*.
swelling properties of coal in relation to, 377*e*
temp. of, effect on critical air-blast test of coke, 2407*b*.
test for, 1947*d*.
theory of, 4833*i*.
wastes (breeze), treatment and utilization of, P 9419*c*.
wastes from, treatment of cyanide-contg., P 3126*h*.
wastes from, use in steam generation, 836*b*.
waste water contg. phenols from, treatment of, 3126*a*.
waste waters from, publications on, 7170*b*.
**Cola.** See *Kola*.
**Colamine.** See *Ethanol, 2-amino-*.
**—, phosphoryl-*, hydrolysis and synthesis by phosphatases, 9091*d*.**
**Colchiceine, and benzoate, 8376*c*.**
polarography of, 3728*f*.
**—, bromotetrahydro-*, and diacetate, 8376*c*.**
**—, hexahydro-*, stereoisomers, and derivs., 8376*c*.**
**—, tetrahydro-*, and 2,4-dinitrophenylhydrazone, 8376*f*.**
**Colchicine, analogs, 2606*i*.**
in *Colchicum* **corm and seed, 2366*d*.**
**derivs., 2986*d*.**
**detn. in saffron powders and exts., 7191*f*.**
**detn. of, 3973*b*,**
**effect on conjunctiva, 756*c*.**
**on cornea, effect of mustard gas, ultraviolet and x-radiation compared to, 770*e*.**
**on *Drosophila*, 7149*g*.**
**on *Escherichia coli*, 3062*d*.**
on fibroblastic cells, 1073*b*.
on growth and development of tadpoles and on hormone action, 5112*e*.
on growth of animals and plants, 296*f*.
on leucocyte motion, 9263*d*.
on mitosis in root meristems, 9171*b*.
on muscle, 7127*i*.
on onions and onion roots, 9171*e*.
on plants as response to enzyme poisoning, 2678*g*.
on seed germination and plant growth, 6287*a*.
on spermatogenesis of *Allolobophora chlorotica*, 5873*d*.
on *Staphylococcus aureus* multiplication, 8434*d*.
on sugar beets, 3069*h*.
on tropokinesis in onion meristems, 4346*i*.
mitosis induced by, and toxic effects of, 9171*f*.
c-mitotic action of opium alkaloids and, 3108*a*.
c-mitotic activity of, 4347*c*.
mitotic poisoning, inhibition by *meso*-inositol, 1865*i*.
multinucleated unsegmented triton eggs produced by, 5873*f*.
polarography of, 3728*g*.
polyploidy from, in *Crepis capillaris*, 3889*d*.
in *Lilium longiflorum*, 4350*a*.
in *Lobelia* varieties, 4347*e*/*g*.
reviews on, 8064*d*, 9075*h*.
in seeds of *Colchicum autumnale*, 5544*c*.
structure of, 190*c*, 7194*d*, 8376*b*, 8377*e*.
**Colchicinic acid, trimethyl-*, c-mitotic quality of, 4347*c*.**
**Colchicum, assay of corm and seeds of, 2368*d*.**
*autumnale*, colchicine in seeds of, 5544*c*.
colchicine detn. in powders and exts. of, 7191*f*.
fat removal from prepns. of, 1149*c*.
identification of fluidexts. of, 1908*c*.
identification of tinctures of, 4426*b*.
**Colchinol, deamino-*, methyl ether, 190*d*.**
**Cold.** (See also *Refrigeration; Temperature.*)
cholinesterase in blood and serum after, 299*f*.
effect on adrenaline in adrenals, 8485*f*.
on adrenal wt., effect of ascorbic acid on, 8025*b*.
on biol. activities, 5051*i*.
on black quarter development, 3072*f*.
on fibrinogen in blood, 6715*b*.
on filtration and absorption of fluid in forearm, 8039*c*.
on hormonal thermoregulation, effect of methylthiouracil on, 9244*b*.
on infant rats, 4754*e*.
on insect embryos, 6748*a*.
on mammary carcinoma development, 2695*a*.
on metabolic response to thyroid-depressant drugs, 5868*h*.
on metals, 80*f*.
on nutritive value of butter and vegetable fats, 4738*g*.
on protein metabolism, 7119*i*.
on protoplasmic colloids, 3932*i*.
on tumor formation, 7123*f*.
iodide effect on thyroid glands in, 5497*c*.
protection against, in young, normal and adrenalectomized rats, adrenal cortical hormones in, 6721*b*.
resistance to, of black locust in relation to bark compn., 9167*f*.
effect of 2-thiouracil on, 8037*b*.
of infant and adult rats, 4754*g*.
of infusoria, effect of salts on, 8564*h*.
tissue damage from, 6725*f*.
**Cold cream.** See *Cosmetics*.
**Colds, benzedrine compd. with *N*-sulfanilylacetamide for therapy of, P 4297*d*.**
**Cold storage.** See *Refrigeration*.
**Coleophora pruniella and(or) Cherry casebearer, control of, 5897*i*.**
**Coleoptiles, oat—see *Oats*.**
**Coleps hirtus, calcification of integument of, 3941*a*.**
**Coleus, *blumei*, stomatal frequency and distribution in, photosynthesis in relation to, 283*i*.**
**tillering in, auxin and, 7555*g*.**
**Colicins, bacterial mutants resistant to, 4330*hi*.**
bacteria producing, in feces, 9163*b*.
destruction by bacterial proteinases, 1455*i*.
effect on *Escherichia coli*, 5444*h*.
from Enterobacteriaceae, 1456*ab*.
**Colitis, nitrogen metabolism in, and its therapeutic significance, 8522*f*.**
polysaccharides in blood serum in ulcerative, 9230*e*.
treatment of, curd from whole milk for, P 6757*i*.
**Collagen, adsorption by, and entropy and heat of diln. of, 6491*e*.**
alignment of, in tendons, 7113*c*.
alkali effect on, 3862*b*.
amino acid compn. and titration curve of, 3861*i*.
amino acid layerwise compn. of, of goat, kangaroo, rabbit and steer skins, 7734*h*.
amino acids (basic and dicarboxylic) and their detn. in, and min. mol. wt. of collagen, 7734*d*.
cohesion of, effect of vegetable tanning on, 8719*d*.
crystal structure of, x-ray diffraction pattern of, 7333*g*.
deamination and esterification of, effect on reactivity, 6258*g*.
degradation into parent gelatin, 6888*g*.
denaturation of, intermol. organization of fish and mammal collagen and its bearing on, 9510*i*.
distribution in tissue and its detn., 1825*e*.
electron microscopy and structure of, 4041*a*.
electrophoresis of modified, 8184*d*.
equil. with tannins in aq. org. solvents, 4040*d*.
expansivity of, in water, 4041*d*.
films (unimol.) of, 6039*i*.
formaldehyde fixed by guanidyl groups in hydrothermal stabilization of, 4040*h*.
formadehyde-tanned, structural stability of fibers of, 4040*g*.
liming effect on, and pH-swelling curves for, 6448*h*.
in liver in cirrhosis, 5110*i*.
proteinase action on, in bating, 7735*g*.
protoplasm vitreous state in, 7989*e*.
purification with trypsin, and analyses and specifications for purified collagen, 8184*a*.
reaction of native and deaminated, with glycoldialdehydes, 7735*i*.
reactions with acids, bases and salts, 1203*f*.
with dihydric phenols, H bonding in, and effect on shrinkage temps., 7736*b*.
with high-mol. compds., protein accessibility and, 1447*g*.
with lignosulfonic acid, effect of drying of wattle-tanned hide powder on, 7731*h*.
shrinkage of, 7113*f*.
shrinkage of fibers of, by heat, 468*b*.
shrinkage rate, heat, entropy and free energy of activation of shrinkage of tendon, 7247*e*.
shrinkage temp. of, 1203*i*.
shrinkage temp. of, app. for measurement of, 9505*f*.
spinning solns. of, P 7248*d*.
spinning, stretching treatment, chrome tanning and softening of strands from, P 7248*f*.
structure of, 2844*b*.
swelling of, effect of histamine on, 4373*g*.
tannin electrovalent interaction with, 6449*d*.
tannin (syntans) and sulfite cellulose tan bonds with, 6449*e*.
tensile strengths of fibers of, effect of chrome and HCHO tanning on, 7246*g*.
ultraviolet absorption of, 8404*g*.
waste, purification and bleaching of, and extn. of glue and gelatin from, P 1593*a*.
water-vapor sorption by, 7294*d*, 8237*b*.
in wet-salted hides, quality of, 6447*g*.
**Collagenase, of *Clostridium welchii*, 6257*h*.**
**Collards.** (See also *Kale.*)
carotene and vitamin C in, 3536*b*.
carotene, dry wt. and vitamin C of, effect of environment and fertilizers on, 6754*a*.
compn. of Fla. grown, and effect of soils thereon, 9289*c*.
DDT injury to, 808*b*.
insect control on, phenylsemioxamazide compns. for, P 5530*c*.
**-nitrobenzamide *N*-deriv. effect on, 2357*g*, 7182*b*.**

phthalimide-*N*-deriv. toxicity to, 7182*e*.
vitamin C in, 9329*i*.
**Colletotrichum**, *gossypii*, control on cotton-seed, 3133*f*.
*lindemthianum*, control on dwarf beans, 7180*e*.
**Collidine**, aldehyde—see *2-Picoline, 5-ethyl-*.
***s*-Collidine** (*2,4,6-trimethylpyridine*), diazo ketone rearrangement in the presence of, 4654*b*.
surface potential and surface tension of, pH and, 2845*f*.
surface potential and surface tension of solns. of, 2845*g*.
——, $\alpha^4$**-phenyl-†**, and derivs., 4671*e*.
***s*-Collidine-3,5-dicarboxanilide**. See *3,5-Pyridinedicarboxanilide, 2,4,6-trimethyl-*.
***s*-Collidine-3,5-dicarboxylic acid, 1,4-dihydro-**. See *3,5-Pyridinedicarboxylic acid, 1,4-dihydro-2,4,6-trimethyl-*.
**Collodion**, anodes coated with, internal electrolysis with, 8285*e*.
electron scattering by, 8269*h*.
membranes—see *Membranes*.
prepn. of, 1565*d*.
**Collodion cotton**. See *Nitrocellulose*.
**Collodion wool**. See *Nitrocellulose*.
**Colloidal gold test**. See *Lange's colloidal gold test*.
**Colloidal solutions**. See *Colloids*.
**Colloid chemistry**, books, 3278*i*; Fiziko-Khimiya Kolloidov, 2502*c*; Taschenbuch, 3278*h*; Fizicheskaya i Kolloidnaya Khimiya, 5276*h*; Uchebnik Fizicheskoi i Kolloidnoi Khimii, 5276*i*; Kurs Kolloidnoi Khimii, 5277*a*; Kurze Einführung in die, 5658*i*; Surface Chemistry, 5660*a*; Kurzes Lehrbuch der, 8256*d*.
clay tech. properties and, 5915*h*.
definition of, 1625*b*.
education in, 2049*hi*, 2050*d*.
in food technology, 1493*d*.
high-frequency sound in, 5901*h*.
pharmaceuticals and, 2733*h*.
review on, 1625*b*, 5255*d*.
of silicon, 2884*d*.
**Colloid-osmotic pressure**. See *Osmotic pressure*.
**Colloids**. (See also *Adsorbents; Adsorption; Clays; Disperse systems; Dispersion; Drops; Emulsions; Flocculation; Gelatin; Gelatinous materials; Gelation; Humus; Macromolecular compounds; Micelles; Particles; Smoke; Surface-active substances;* and the substances that commonly occur in colloidal form or that have been made in that form.)
absorption from joints, 8504*g*.
active gels in dry form, P 3161*e*.
aerogel, from $SiO_2$ hydrogel, P 1556*i*.
aerosols—see also *Dust; Fog; Mists;* etc
aerosols, air disinfection by aldehyde- and essence-contg., 5083*e*.
air sterilization with, 3953*h*.
condensation in presence of foreign gaseous substances, 7290*a*.
counting of particles of, 6038*i*.
deposition of, 6039*e*.
deodorant, 9364*e*.
dust particles and aq., 7607*c*.
effect of adrenaline and theophylline, on pulmonary vol., 4374*c*.
effect of polyvinylpyrrolidone on pulmonary dilator action of adrenaline and aleudrine, 4374*d*.
effect of surface-active substances on coagulation of, 2068*d*.
effect of type of nebulizer on activity and duration of bactericidal power of, 9387*a*.
formation on mixing gases contg. vapors, 7775*c*.
guinea-pig resistance to histamine-contg., 1108*d*.
hypochlorous acid-contg., P 1532*h*.
in industry, 9297*c*.
inhalation of drug-contg., 8538*d*.
insecticidal—see *Insecticides*.
isuprel, in asthma treatment, 2326*g*.
lesions from, of histamine and vitamin K, 9181*h*.
light scattering by hygroscopic, 4076*e*.
manuf. of, P 352*a*.
measurement of particle concns. in, 2068*d*.
measurement of particle size and production of monodisperse, 6039*d*.
measurement of particle size of, 6883*f*.
measurement of particles of, 6883*f*.
as parasiticide-dispersive agents, 5527*e*.
pharmacol. action of dibenzylmethylamine and diethylaminoethyl ester of phenylcyclopentanecarboxylic acid, 4374*e*.
physiol. actions of histamine and vitamin K, 9181*h*.
polarographic detn. of, 64*e*.
pulmonary vol. and, 7128*g*.
sensitizing action of ergotamine to acetylcholine, 3520*g*.
stability of, 5255*g*.
from thermal waters, 1531*f*.
triethylene glycol as disinfectant, 9377*c*.
uses of, 8087*b*.
from welding with Mn electrodes, effect on health, 6561*e*.
aerosols (coned.), 7775*e*.
aerosols, sampling of liquid, and impaction of droplets, 4975*f*.
alkylsilicone sols and gels, P 1504*i*.
antigen-antibody reactions in gels, 9227*h*. factors detg. site of ppt. in, 5485*h*. time factor in, 5485*i*.
in apple juice, ascorbic acid in prevention of pptn. of, 2708*c*.
barium sulfate suspensoids, 4426*c*.
of basic salts, formation during electrolysis, 5675*h*.
in biol. stimulation and depression, 3932*h*.
from blood serum, P 7198*a*.
books: Uchenye o, 2502*b*, Aerosol terapeutici, 3151*c*; Modern, 4090*d*; Science, 4554*i*, Systems, 4554*c*; Aerosoli nella pratica clinica, 5506*e*.
bound water detn in hydrogels, 6943*c*.
bronchospasm from mecholyl, protective action of diphenylhydramine and aminophylline in, 1861*f*
Brownian movement of—see *Brownian movement*.
catalysts from, improvement with fluorides, 8076*e*.
at cathode in electrolysis of $CuSO_4$ solns., 950*g*.
from cellulose decompn. and their effect on soil structure, 8082*e*
coacervation—see *Coacervates; Coacervation*.
coagulation (directed) of anisotropic, 922*c*.
coagulation in contact with immiscible liquid phases, 4926*g*.
coagulation of, kinetics of, 7796*c*.
in coal, 9411*i*.
coal as solid, 6391*a*.
in coal tar and pitch, 8647*d*.
complex-forming systems as, 19*b*
compds., identification of, 7316.
compression and torsion of, 19*d*
concn of dispersed phase of solid, P 7164*b*.
contraction and swelling of gels, 922*f*.
in copper electrodeposition, 1269*a*.
corrosion by $H_2O$ in hot-$H_2O$ supply and heating systems in relation to, 6141*h*.
crystn. of solid, at high temps., rate of, 1236*e*.
crystals in $V_2O_5$, 32*g*.
dialysis of—see *Dialysis; Dialyzers*.
diasolysis from organophilic compds., 4077*f*.
diffusion, electrophoresis, mol. wt., sedimentation and viscosity of metaphosphates, 2070*c*.
dyeing theories and, 6827*d*.
effect of org., on drilling fluids, 8652*g*.
effect on foam formation in beer, 9359*g*.
elasto-plastic properties of gels, measurement of, 6047*d*.
elec. charge and size of, measurement of, 6490*e*.
elec. charge and stability of, 8793*i*.
electroendosmosis of—see "electroend-" under *Osmosis*.
electrolyte, diffuse ionic layer in relation to lamella micelles in, 6886*i*.
effect of salts and chain length on crit. concn. of, 20*a*.
effect of temp. on crit. concn. and cond. of, 2071*d*.
elec. cond. and osmotic activity of, 20*c*.
high-field conductance of, 7836*b*.
penicillin G as, 4926*i*.
properties of, 6887*a*.
Na triisopropylbenzenesulfonate as, 6041*e*.
structure of, 7780*f*.
electron microscopy of, 6040*f*.
electrophoresis (cataphoresis) of—see *Electrophoresis*.
filtration (ultra-) of—see "ultra" under *Filters*.
flocculation of, optical d. during, 2070*i*.
flow of, 5259*e*.
flow of, irregularities during filtration and, 4541*c*.
flow of structured dilute, 7291*f*.
formation of gels in alfin polymerization of butadiene, 3345*i*.
fractionation by supercentrifuges, 7778*c*.
functionality of methylsilicone systems and, 438*g*.
gel, from Irish-moss ext., locust-bean gum and edible salt, P 5132*b*, 5510*f*.
gel-jelly transition temps. of Napalm, swelling vol. and, 8179*i*.
gel, microgel and sol concepts, 4506*c*
gluten sulfate gels, utilization of, P 6332*e*
in gold-quartz vein formation, 4980*h*
hydrogels, P 370*c*, P 2050*a*, P 9298*h*
hydrophilism of, detn. of, 7781*h*.
hydrophylic, in chill haze of beer and cold turbidity of wort, 9360*b*.
infrared absorption and transmission by blacks, 944*b*.
inorg. gels, 4527*a*.
interaction of, 3687*i*.
ionotropy of, 4539*e*.
isoelectric points of—see *Isoelectric point*
jelly strength of—see *Jelly strength*
layer silicates as, 2841*a*.
Liesegang rings in—see *Liesegang rings*
light scattered by sols, depolarization of, 7783*f*.
light scattering by, 4078*d*.
limited-swelling gels, wood as, 4929*e*
at low temps., 4928*h*.
lyophilic and lyophobic, of polymers, 7782*a*.
lyophilism of, 6042*b*, 7781*f*.
metallic—see *Metals*
in methylcellulose aq. solns and cellulose suspensions, 7227*b*.
microwave absorption and dispersion in, 6019*d*
mills—see *Mills*.
mineral gel formation from dispersed, 2133*e*
optical polarization measurements in thymonucleic acid gels, effect of temp on, 261*b*
optics of, 2488*e*
organogel, P 9299*a*.
in paper manuf., 5588*e*.
particle size of, sepn. and detn with continuous centrifuge, 8800*g*
from pectins and pectic acids, 6327*i*
peptization of bitumens by liquids of high surface tension, 6817*a*.
peptization of GR-S rubber in mastication, 8723*i*.
peptization of proteins in dry peas, effect of autocalving on, 2338*d*.
peptization of soaps dispersed in oils, 4455*h*.
phase sepn. in aq. systems of, 4540*e*
phosphatatic activity of hydrogels, 4549*ei*.
photographically active ingredients in, removal of, P 958*f*.
prepn. for electron microscopy, effect of elec. charge of carrier foil on, 921*g*
protective, galactomannan and glucomannan carboxyethyl and cyanoethyl ethers as, P 4504*e*.
in nutrition of infants, 3901*a*.
for photographic emulsions from polyvinyl amines, P 5635*g*.
polymers of acrylates of hydroxy amides, P 3446*i*.
protein hydrolyzates as, in dyeing, 9454*f*.
radioactive elements as, 7814*c*.
with radioisotopes of Cb, La, Y and Zr, 4539*c*.
refractive index of, calcn. of, 4078*d*
refractometry of, 6040*c*.
reticuloendotheliotropic, hematologic modifications from, 4766*a*.
reversible gel compn., 8076*d*.
review on, 6033*f*.
rotating magnetic field in study of, 7291*i*
settling of, photoelec. app. for study of, P 3250*e*.
shape of particles of, effect on interaction, 7292*b*.
soil, in Italy, 5891*c*.
soil-mineral, 3127*d*.
soils and, 9316*i*.
soil, structure and sorption of, 7171*a*.
solubilization of carcinogenic hydrocarbons by assocn., 4363*d*.
solvation of, 6490*g*.
spherical gel particles, P 1506*a*, P 3161*d*, P 3986*b*, P 5134*b*, P 7608*f*, P 8578*d*.
stability of beer, 8971*b*.

stability of hydrophobic, interaction of electrochem. double layers and, 3265*i*.
stability of lyophobic, 3260*a*.
stability of rubber-latex, detn. of, 9511*f*.
stabilization of inorg. gel, against wetting, P 2746*c*.
stabilization of lyophobic, 2486*i*.
structurized systems of, measurement of relaxation in, 6888*f*.
in sugar-cane juice in scale formation, 887*f*.
suspengel of clay, diffusion of adsorbed cations in, 7777*h*.
syneresis of—see *Syneresis*.
testing solns. of, by dye solubilization, 6041*h*.
thermal cond. of gels, 6888*i*.
thickening systems of, rheological properties of, 2844*a*.
thixotropy of—see *Thixotropic substances; Thixotropy*.
treatment of gel and gelatinous ppts., P 825*c*.
Tyndall effect in—see *Tyndall effect*.
ultramicroscopy of lyogels, 4540*d*.
ultrasonic-wave effect on, 8255*f*.
viscoelastic properties of, measurement with pendulum, 2072*e*.
viscosity of, 2487*a*.
viscosity of, concn. and, 6885*e*, 8235*c*.
washing of hydrophilic without swelling, P 7164*c*.
x-ray scattering by, 8255*f*.
x-ray scattering by, particle shape and size in relation to, 4925*d*, 8272*c*.
zeolitic alkali removal from gels, P 9299*b*.
**Collophane**, in magnesian limestone of Durham, 4607*d*.
**Colloxylin** See *Pyroxylin*.
**Collybia butyracea**, pyrocatecholases of, 3886*b*.
**Collyria**. See *Eye lotions*.
**Colocasia antiquorum**, starch of, 4036*e*
**Colomba, Colombo**. See *Calumba*.
**Colon**. See *Intestines*.
**Colonial bent grass**. See *Grasses*.
**Colophony**. See *Rosin*.
**Color(s)** (See also *Chromophores; Coloring; Color reactions; Discoloration; Dyes; Fading; Halochromism; Indicators; Lakes; Phototropy; Pigments; Solvatochromism; Thermochromism; Yellowing;* and "Beer's" under *Laws*.)
of Agfacolor positive dye mixts., representation of, 6099*b*.
of alkali metal nitrate melts plus alkali oxide and $MnO_2$, 5687*c*
of aluminum-Ni alloys, 1203*i*.
amazonite green, 6118*e*.
of amethyst, blue and yellow halite and violet fluorite from colloidal Fe compds., 8313*b*
of aminoacridines and diaminoacridines, 1189*i*.
of 1-amino-4-anilino-2-anthraquinonesulfonic acid derivs., 6193*f*.
of anthocyanins, changes of, 7860*h*
of antimony sulfide, 3685*h*.
Becke line, in *n* detn. on minerals, 8981*f*
of blue Cambrian clay, 8111*i*.
books: e Colorificio, 2788*h*, An Introduction to, 7808*c*.
of Bremen greens on storage, 5605*a*.
of bromothymol blue and neutral red in alkali chloride solns., 3307*i*.
of brookite, 71*g*.
of Buna S originally, after lacquering and after ultraviolet irradiation, 1209*i*.
of cadmium sulfide coagulate pigments, structure of colloidal aggregates and, 5201*i*.
centers (*F*) of, energy levels of trapped electrons in, in ionic solids, 5311*e*.
centers, in alkali halide crystals irradiated with x-rays, d. and, 4132*c*.
in alkali halides, 5669*g*.
formation in halite by x-rays, 7871*a*.
quantum states and optical transitions of electrons in, 3717*d*.
in smoky quartz, 946*g*.
in smoky quartz, decompn. of, 8785*d*.
in NaCl crystals, 3718*bh*.
in Na-Ni phosphor, 5670*d*.
ceramic Cr-Sn pink, 2391*a*.
ceramic, optical testing of, 9403*c*.
chem. constitution and, of β-carotene and lycopene, 493*e*.
of diolefins, 5733*d*.
of hydrocarbons, 942*c*.
of quinoline and diasaphenanthrene derivs., 9376*b*.
[illegible] (cotia-) oil, 8700*e*.
[illegible](VI) compds., 8785*e*.
of cobalt nitrate in EtOH, effect of HCl on, 4970*g*.
of cobaltous compds. and cobalt glasses, 2092*g*.
of complexes, effect of H-ion concn. on, 3306*h*.
of conjugated hydrocarbons contg. a triple bond, electronic structure and, 4569*i*.
control of uniformity of, in printing, 1196*i*.
of copper complexes magnetic moment and, 8222*b*.
copper mineral blue, 8082*f*.
of cordierite, 976*i*.
cotton blue, and its diffusion through fiber in alk. bath, 6831*a*
of cottonseed oil, effect of prepn. and cooking of meats on, 1999*e*.
of crystals, from irradiation, paramagnetic resonance absorption and, 6909*e*.
of cyanine dyes, 407*i*
of cyclooctatetraene, 2479*h*.
of diazonium salts, 1191*a*.
of diphenylmethane dyes, directing influence of substituents and, 2589*e*.
dispersed org., in rubbers, vinyls and plastics, 5985*a*.
of *Drosophila melanogaster*, 9269*d*.
effect on concrete durability, 9409*g*.
effect on crystal-twin formation, fragility and hardness of quartz, 976*f*.
of eggs, detn. and definition of, 2337*e*.
of enamels, effect of electrolytes on, 9406*g*.
of ethylcellulose stabilization of, P 5796*c*.
for facing and Metlach plates, 3586*b*.
fastness of cellulose acetate rayon, test for, 4399*i*
of feldspars (ferruginous), 523*f*.
filters—see *Light*
of fish-liver oils from Adriatic Elasmobranchia, 5210*e*
of flowers, pH of plant juice and ash content of flowers in relation to, 8450*ae*.
of fluorine minerals from Fe and Mn, 7381*b*
of foods, chem. and phys. tests in relation to, 6747*d*
of foods, N in preservation of, 9273*g*.
of formazyl compds., 4261*a*.
of fruits (red), stabilization of, P 9294*f*
of fruit-tree leaves, N status and, 9319*d*.
of 2-furaldehyde phenol condensation products, 5225*f*
of gelatin from blue-whale skin, effect of no of extns on, 1206*g*.
glass—see *Glass*.
in glazes, chrome-tin reds and pinks, 8632*f*.
of gold (adsorbed), 2485*g*.
of gold (colloidal), 6885*g*.
of hair, 4423*i*.
halite blue, 6543*e*.
hallovsite blue, from $Cr_2O_3$, 6122*a*.
hydrocarbon-oil purity and, 6935*a*.
ink nontoxic, 3629*d*
of inulin suspensions in mixed solvents, 8801*b*.
of iron complex $[Fe(S_2O_3)]^+$, 6536*b*.
of iron perrhenates, 5688*f*.
isano oil red, from oxidation product and polymerized glycerides, 3629*i*.
of 4-isonitroso-5,5 dimethyl-2-thiohydantoin metal derivs , 6171*i*
lacquers and, 8695*d*
of leather, chrome pretanning in improving, 1205*d*.
effect of borax or $Na_2SO_3$ in chestnut ext. on, 8183*h*.
effect of $MgSO_4$, glucose and sucrose on, 1206*e*.
tanned with mangrove and sulfited mangrove tannins, 4039*f*.
of luminescent and phosphorescent pigments, 871*c*.
of manganese$^{III}$/Mn$^{IV}$ indicators in fluoride melts contg acid or basic oxides, 5687*d*.
for margarine blocks, P 1124*h*.
matching of, effect of local adaptation on, 6907*f*.
measurement and compensation of, tubes for, 8301*b*.
measurement and formulas for changes of, of pigments in light, 5201*f*.
measurement of—see also *Colorimetry*.
measurement of, 6478*h*, 8749*c*.
app. for—see also *Colorimeters*.
of army motor fuel, 4787*b*.
of dry milk products, 8567*h*.
of egg yolk, 4782*h*.
*measurement of*, of fats and oils, 5975*c*, 6838*i*.
of glycerol, 5974*i*.
of leaded ZnO, 1577*h*.
of lecithins from soybean oil, 2791*a*.
of liquids in photoelec. colorimeter, 6934*i*.
of melt, 3142*f*.
of oils, 2000*a*, 2792*g*.
of petroleum products, 1553*g*.
in printing-ink-flow control, 1196*i*.
of refined sucrose by ultraviolet absorption, 9499*d*.
of soap from bone grease, 1581*d*.
of soybean oil, 5975*c*.
of sugar, 6439*g*.
of tomatoes (raw and canned), 1122*c*.
of turbid waters, 7165*d*.
measurement of changes of, of (α-aminobenzal) - 4 - nitrophenylhydrazine and its 2-Me deriv. involving tautomeric equil., 3747*e*.
measurement of chromaticity distribution, gamut and luminous transmittance of dye mixts., 2775*f*.
measurement of Lovibond, by photoelec. colorimeters and tristimulus filters, 7719*g*.
of mercury-O interstitial compds., 7288*i*.
metallography, 79*g*.
of metals on annealing, 5714*i*.
of methyl orange and methyl yellow, artificial standard solns. with, 1280*d*.
of milk (evapd.), effect of processing time and temp. on, 9281*d*.
of Milori Blue and Monastral Fast Blue and Fast Green, 7715*i*.
mineral, combination of, 8275*g*.
in minerals (colored), 6116*g*.
of molasses, adsorption by $CaCO_3$, 8791*h*.
of multicolored "Cu" sediment beds of Don Basin, 6130*d*.
of naphthenic acids, 7674*h*.
of nickel reaction product with dimethylglyoxime in presence of oxidizing agents, 8935*d*.
of oils (vegetable), formation by oxidation in adsorption bleaching, 5208*a*.
of ointments, 5534*h*.
in paint industry, 8175*f*
of paints (alkyd. resin), retention of, 1579*b*.
of palm oil, retention in hydrogenation, 6841*i*.
of paper pulp, cause of, 1184*g*.
of paraffin oil, effect of oxidation on, 2410*i*.
of peach leaves, 8593*g*
of peanuts (stored), refrigeration and prevention of deterioration of, 3534*i*.
of pearls, 6543*g*.
of peas (canned), preservation of, P 7606*a*.
of pigments (yellow), retention of, 3211*g*.
of plant ashes due to Mn, 2279*g*.
of polyvinyl chloride, effect of plasticizer on, 2465*e*.
of potato proteins, improvement of, P 4786*a*.
preservation of, in foods (frozen), 8571*f*.
printing in—see *Photography, color; Printing, Textile printing*.
of pyridine analogs of di- and triphenylmethane dyes and leucobases, 410*c*.
of quinoline derivs , electronic theory and, 8386*f*.
reaction-velocity measurement by, 5267*c*.
refractive index and, of org. pigments, 1577*g*.
removal of —see *Decolorization*.
review on, 4788*e*.
in Roman-authors' works, 1229*h*.
of rosin (polymerized), improvement of, P 1996*e*.
for rubber, 6855*c*.
for rubber, nitro compds. of indole series as, 2022*a*.
of rutile crystals, effect of heat on, 1622*i*.
of silicon carbide crystals, 2064*c*.
of soaps (Japanese), 5612*c*.
of stamps on animal skins or meat, effect of brine and smoking on, 8068*i*.
of steroids, 7865*c*.
of strawberries (frozen), effect of pectinates on, 3535*d*.
from sugar juices, 2453*be*.
of sugar, quality and, 4500*f*.
of sugars, effect of reducing substances on, 4501*e*.
temps.—see *Temperature*.
of thiaxanthene, 5,5-dioxide derivs., 4274*a*.
of tomatoes, effect of variety and environment on, 1462*h*.

of tomatoes, extn. and measurement of, 2894*c*.
trichloroethylene-detn. standard, 2122*h*.
of turquoise, 5705*b*, 8986*e*.
of varnishes contg. Iranolin 2241, 3209*h*.
of vinyl-halide resins, stabilization of, P 3655*f*.
of viridine, 6119*g*.
vision—see *Vision*.
vitreous, 6801*g*.

**Coloradoa rufomaculata**, control of, DDT mixts. with methylated naphthalene for, P 1902*g*.

**Coloradoite**, density and x-ray data on, 8982*g*.

**Colorado potato beetle**. See "Colorado" under *Potato beetle*.

**Colorimeters**. (See also "measurement of, app. for" under *Color(s)*.) P 450*e*
Duboscq, use in nephelometry, 3665*h*.
in industrial analysis, 5645*c*.
for liquids contg. bubbles, foam, floating particles, fumes, sublimates, etc., P 6012*a*.
for measurement of effect of local adaptation on color matching, 6007*g*.
microadapter for Evelyn macro-, 4719*b*.
photoelec., 7270*h*, P 7759*h*.
photoelec., for detn. of concn. of disinfectants in air, 4798*h*.
photo-, in ferrous-metal analysis, 911*b*.
photometric, for petroleum products, 1553*h*.
Stammer, 8749*d*.
for textile labs., etc., 5234*h*.
ultraviolet, 8884*i*.

**Colorimetry**. (See also *Spectrophotometry*; and "measurement of" under *Color(s)*.)
by abridged spectrophotometry, 6083*h*.
books: Colorimetric analysis, 522*f*; und Spektralphotometrie, 3278*g*.
of electroplating baths, 961*g*, 8903*i*.
increasing color sharpness by org. reagents in, 4174*e*.
indicators for—see *Indicators*.
in direct, 58*g*, 3747*d*.
in ionization detn., 7302*h*.
of metals, effect of foreign ions on quant., 4174*c*.
photo, direct-reading, 5440*a*
photoelec., with tristimulus filters, 7719*g*.
photometric, 7365*h*.
precision, 5696*g*.
without previous extn., 63*i*.
review on, 7858*h*.

**Coloring**. (See also *Bronzing; Color(s); Decoration; Discoloration; Dyeing; Staining*.)
aluminum-alloy anodic coating for, P 4963*e*.
of aluminum and Al alloys, 2914*g*, P 7404*b*.
of aluminum-Cu-Mg alloys by etching, 2147*a*.
of aluminum foil, flattening for, P 9022*b*.
of aluminum powder, P 7720*c*, P 8345*g*, P 9483*b*.
of apples by spraying, 9313*g*.
of apples, thiocyanates in, 9313*h*.
books: Colori e, 2788*h*; Metallfärbung, 7890*g*.
of ceramics with Fe oxide, P 5166*f*.
of coatings (M. B. V.) on Al and Al alloys, 3629*e*.
of copper alloys, P 3341*f*.
of copper alloys black, P 2567*f*.
of copper and Cu alloys black, P 3341*g*, P 7404*e*.
of denture pastes, P 7268*b*.
of emulsions by basic dyes, 5975*g*.
of fibrous materials, P 856*a*, P 2443*d*.
of foods, in dye-contg. wrappers, P 7605*d*.
of glass—see *Glass*.
of lead, 1705*c*.
of magnesium and Mg alloys, P 4211*e*.
of metals, 4148*i*, 5352*h*.
of metals blue in salt baths, 4990*i*.
of paper, history of, 5949*h*.
in photography—see *Photography, color*.
of plastics, P 7267*c*.
of rubber or vinyl plastic objects, P 1607*f*.
of rubbers, vinyls and others plastics with dispersed org. colors, 5985*b*.
of stainless steel, bath for, P 7893*i*.
of steel in furnaces, 4992*b*.
of vinyl aromatic resins, P 5632*c*.
of vinyl chloride polymers, effect of lubricants and stabilizers on, 5996*c*.

**Coloring matter**. See *Anthocyanins; Color(s); Dyeing; Dyes; Pigments*; etc.

**Color photography**. See *Photography*, review on, 2148*b*.

**Color reactions**, in molybdenum-blue formation, 1681*a*.
review on, 8047*g*.
sharpness of org., increasing, 4174*e*.

**Colors**. See *Color(s)*.

**Color temperature**. See *Temperature*.

**Colostrum**, amino acids in, 7598*a*.
carotene and vitamin A concn. and compn., 8472*f*.
compn. of, 5469*a*.
compn. of, production of heifers milked prepartum in relation to, 8498*c*.
electrophoresis of, 2264*d*.
fat and vitamin A in sow, effect of lactation and ration on, 3907*a*.
in feeding dairy calves, 9193*c*.
D-glucose in, 1496*b*.
isolation of immune proteins from, and their role in immunity, 300*h*.
lysozyme in, 3898*b*.
nitrogen constituents of, of dairy cow, effect of prepartal rations on, 740*h*.
nutrition and compn. of sow, 8466*i*.
pre-, immune-globulin fraction from, 9226*g*.
proteins of bovine, 7102*i*.
tocopherols in, after prepartum supplementation, 1848*b*.

**Colpidium campylum**. (See also *Tetrahymena geleii*.)
lipide synthesis in relation to growth in, 8560*f*.
tricarboxylic acid cycle in, 8560*e*.

**Columba, Columbo**. See *Calumba*.

**Columbia burreti**, wood from, paper pulp from, 1970*h*.

**Columbites**, crystal structure of, 72*g*.
in granite pegmatite dikes near Mt. Legnoncino, Italy, 4610*a*.
-tantalite of Kalima region, Belgian Congo, 6546*b*.
tantalo-, origin in quartz-sillimanite rocks from Nigeria, 6117*i*.

**Columbium**, compression of, 4917*a*
from disintegration of Pu or U, 7813*a*.
effect on alloy steel wear resistance, P 105*c*.
on Cr-Fe-Ni alloys, P 990*h*.
on Cr-Ni alloys, 4619*f*, 8332*h*.
on Cr-Ni steel welds, 552*g*.
on grain growth in Cr steel, 1297*b*
on grain size of Al-Cu alloys, 8337*f*.
on graphitization of Mo steel, 3760*a*
electrodeposition of, P 6526*c*.
gamma ray bombarded $Cb^{93}$, 936*g*.
isotope of mass 95, $\beta$- and $\gamma$-rays from, 487*b*.
dialysis in $UO_2(NO_3)_2$ soln., 7814*c*.
metabolism of, 6318*c*
isotope of mass 96, $\beta$- and $\gamma$-rays from, 6507*g*.
isotope of mass 97, $\beta$-rays from, 8271*a*.
isotopes, isomerism, shell structure and spin of, 4129*f*.
isotopes of mass 95, with half-lives of 90 hrs. and 35 days, 4120*g*.
isotopic, in plant nutrition studies, 1079*f*.
neutron capture cross section of, 6506*a*
powd., manuf. by electrolysis, 5313*g*.
purification of, 5688*h*.
radioisotope of, localization of colloids contg., in bone marrow, liver and spleen, 5113*e*.
radioisotopes of, colloids contg., 4539*c*.
spectrum of, 7858*h*.
system: C-Fe-, 2914*a*, 6958*b*.

**Columbium, analysis**, detection, 4174*h*, 8948*af*.
detection and detn., 7858*h*.
detn., 57*c*, 950*h*.
detn. in alloys, 8050*i*
in ferrotantalum, ferrocolumbium and steels, 2119*b*.
in minerals, ores, etc., 2543*d*.
in presence of Ta and Sn, 6106*g*.
in presence of Ti, 4177*c*.
in presence of Ti and W, 2543*g*.
in steel, 4177*e*, 4597*h*, 8965*c*.
sepn. from Ta, etc., and detn., P 976*bc*.
sepn. from W and detn. in steel, 5335*e*.

**Columbium alloys**, chromium-, and Ni-, oxidation resistance of, 3331*h*.
chromium-Co-Fe-Mn-Mo-Ni-W-, for gas-turbine rotor disks, 3331*c*.
chromium-Fe-Ni-, minor phases in, 540*h*.
iron-, analysis for Cb and Ta, 2119*b*.
hardening and softening of, 4618*h*.
H soln. in liquid, 2490*a*.
mech. properties of, diagram of state and, 1299*g*.
iron-Ni-, for glass sealing, P 6145*i*.

**Columbium boride**. (See also "hard" under *Alloys*.)
$CbB_2$, 8933*a*.

**Columbium bromide**, $CbBr_5$, boiling point, melting point and vapor pressure of, 7851*i*.

**Columbium carbides**, detn. in steel, P 522*h*.

**CbC**, crystal structure and systems with other carbides, 3163*e*.

**Columbium chloride** ($CbCl_5$), boiling point, melting point and vapor pressure of, 7851*h*.
Raman spectra and mol. structure of, 2513*i*.

**Columbium halides**, 7851*h*.

**Columbium hydrides**, in uniting metals to nonmetals, 6561*c*.

**$CbH_2$**, formation in Cb Fe alloys, 2490*e*.

**Columbium nitride** (CbN), bolometers, 2044*d*.
bolometers, effect of $\alpha$-ray-bombardment on, 8851*a*.
properties of, at radio frequencies, 1957

**Columbium oxides**, magnetic susceptibility of, 2053*c*.
precipitation of, pH of, 4083*c*.

**$CbO_2$**, free energy and heat of formation of, 9006*h*.

**$Cb_2O_5$**, reaction with $SOCl_2$, 2886*a*

**Columbium salts**, for analytical uses, 4597*h*.

**Columbo**. See *Calumba*.

**Columns**. (See also *Absorption apparatus; Distillation apparatus; Extraction apparatus*.)
flow through randomly packed, 6475*f*
mass transfer in wetted-wall, 6053*f*

**Colza oil**. See *Rape oil*.

**Coma**, diabetic—see *Diabetes*.

**Comandra chromosa**, selenium in, 3800*f*

**Comanic acid, 5,6-dihydro-**. See *1,2-H Pyran-6-carboxylic acid, 3,4-dihydro-2-oxo-*.

**Combs**, estrogen effect on, of birds, 8031*f*
growth-promoting hormones and growth tests—see *Androgenic hormone, Androsterone*.
masculinization of capon, antagonistic effects of adrenaline and thyroxine in, 6717*b*.
methyl testosterone effect on, 262*f*

**Combustibility**. (*Only entries of general interest, e.g., methods of measurement, are entered here. For values of combustibility of specific materials see* Wood; *etc. See also* Inflammability
measurement of, of liquids, 4532*d*
measurement of, of treated wood, 4780*i*
reducing—see *Fireproofing*
of solid fuels and its detn., 1939*g*, 5921*h*

**Combustibles** (See also *Coal, Coke, Fuels*; etc.)
detection of gaseous, app. for, 4522*f*
with low upper limit of flame propagation, prevention of explosions in gases by, 7230*i*.
production of, evolution of org. chem industry in relation to, 2155*f*

**Combustion**. (See also *Firing, Flames, Heat of combustion; Ignition; Oxidation; Thermoregulators*.)
of aluminum in O, 4593*h*.
in analysis—see *Analysis*.
of blast-furnace and coke-oven gas, detn. of excess air used in, 4445*i*.
books: Spectroscopy and, Theory, 1170*c*; Thermodynamic Charts for, Processes, 3174*f*; Propagation des, dans les melanges gazeux, 8140*d*, Theory of—Vol. II. Turbulent and Heterogeneous Combustion [in Russian], 8140*e*; Mekhanizm Okisleniya Goreniya Vodoroda, 8250*f*.
of 1,3-butadiene with He-O and N-O mixts., rates of, 5268*c*.
calcn. of volumes for burning oil fuel, 2419*e*.
of carbon adsorbents, detn. of time required for, 8648*f*.
of carbon and CO, inhibition of, 3592*e*.
of carbon, effect of purity and crystal structure on rate of, 26*c*.
and inhibition secondary reactions therein, 9417*a*.
on powd. contact agents, and control of temps. and after burning therein, P 8665*i*.
in regeneration of clay cracking catalysts, 3181*e*.
as spherical particle, effect of secondary reaction on, 5268*a*.
in tubes, 2495*a*, 6896*a*.

carbon formation during, inhibition by $SO_2$, 4145*a*.
of cellulose, coal dust and charcoal, effect of chemicals on, 4468*c*.
of coal, 5569*h*.
behavior of mineral constituents in, 5169*i*, 7663*c*.
under pressure, 1548*h*.
of coal (powd.), moisture effect on, 5921*e*.
of coke (gasoline), P 4846*g*.
of coke in controlling temp. in conversion of hydrocarbon oils, P 8663*i*.
control of, 834*c*.
to avoid explosions in furnaces, electronic unit for, 3617*f*.
in ceramic industry, 2386*i*.
from flue gas analysis, 2403*g*.
of rocket propellants by cellulose acetate, etc., 7229*g*.
of cyanogen, effect of $H_2S$ on, 6053*i*.
distribution of active centers of zone of, 8248*d*.
elec cond. in study of, 3591*h*.
engine for study of, 8126*h*
in engines, 6398*f*.
deposit effect on octane no. requirements, 8655*b*.
effect of compression ratio and mixt strength on, 2111*j*
of explosive colloidal powders, laws and velocity of, 5189*c*.
of explosive colloidal powders, potential and velocity of, 8681*e*.
of filter paper, 60*b*.
flameless, of gases, 7665*i*.
in fuel beds, 3592*b*.
of fumes from oil and varnish, 1617*c*.
furnace for study of, 5921*g*.
of gases, effect of promoters, inhibitors and phys. properties in, 3617*gi*
mechanism of, 7663*d*.
properties of flames in, 3989*f*.
gases of—see *Flue gases; Gases*.
of gas (fuel), 3170*h*.
characteristics of, 3596*e*, 6394*b*
control of, 8119*e*.
detn. of air requirements for, 3171*g*
plant operation and, 3171*e*.
of gas mixts., 5576*c*.
in gas turbines, 1167*e*
in Germany, 2753*d*.
Golay photothermal detector in study of, 2403*a*.
on grates, 833*i*.
of hydrocarbon fuels, 8751*h*.
of hydrocarbons, 3724*e*, 5576*c*
effect of light on, 7825*e*.
$H_2O_2$ formation and decompn. in slow, 3696*h*.
of hydrogen and $CH_4$ series, effect of A, $CO_2$, He and N on, 3618*e*.
of hydrogen on Pd plate, 4087*c*.
in internal-combustion engines, 1167*d*
of kerosene spray, evapn. in, 4840*a*.
kinetics or velocity of, app. for detn. of, 5921*h*.
in fuels with octane nos. greater than 100, etc., measurement of retardation of, 6813*i*.
of gases, 2056*c*.
measurement of, in dust analysis, 6112*g*.
of rocket powders, radiation path length and, 9449*i*.
in lampblack manuf., evaluation of, 6396*a*.
of lignite, 1044*b*.
in lime kiln, 6373*b*.
losses from incomplete, detn. of, 4830*c*.
of methane, 1167*h*, 2402*g*.
kinetics of, 2420*b*.
photosensitization and inhibition in, 3591*g*.
of methyl nitrate, 1981*e*.
of mixts. of natural gas and manufd. gas, interchangeability of properties of, 836*i*.
of nitroglycerin (gelatinized), 1980*i*.
in open-hearth furnace, 1227*e*, 2908*d*
org.—see *Analysis*.
orthi[illegible]
[illegible]-deficiency effect on, 720
ozone in activation of, P 4835*e*.
of paraffins, 8962*c*.
partial, of oil for peak-load gas manuf., 3171*f*.
of phosphorus in $H_3PO_4$ manuf., 2378*g*, 7649*f*.
photoelec. cells in study of, 7663*a*.
phys. chemistry of, 8123*a*.
of propene, 5268*c*.
properties of liquids, app. for detn. of, P 8760*a*.
-retarding coating compn., 8075*f*.
reviews on, 5921*g*, 7759*b*.
of rocket black gunpowder and propellants, and effects of catalysts thereon, 9449*f*.
of shale-clinker C, 7671*e*.
of shale (spent) in oil recovery, P 1174*c*.
of slurry of solid fuels, 3591*f*.
submerged, in processing of citrus wastes, 9287*f*.
theories of, 5569*d*, 9411*d*.
in vitiated atm., 8637*h*.
wave development in flowing gas, 4467*b*
**Combustion tubes**, lining for, P 2750*a*
porcelain, 5917*e*.
**Comets**, carbon monoxide in, 6918*d*.
OH in, 2510*b*.
spectra of, 490*i*.
spectra of 1947 *n*, 2508*i*
spectra of 1948*g*, 39*f*, 3711*c*.
spectra of 1948*l*, 5662*f*.
spectroscopic study of, 4560*a*
spectrum of Bester (1947*k*), 938*c*
**Comminution**. (See also *Crushing, Grinding; Pulverization;* etc.)
of DDT, P 350*f*
**Common cattle grub**. See *Hydoderma lineatum*.
**Communication apparatus**, coatings and fungicides for, in the tropics, 873*d*.
**Comparators**, color—see *Color(s)*.
**Complement**, in alloxan diabetes, 7569*c*.
antagonistic action of protamine sulfate and cellulose sulfate on, 1100*i*.
antibody system for *Brucella*, effect of sulfadiazine on, 9256*f*.
anticomplementary effect of blood serum Wassermann reaction in atypical pneumonia, liver infections or malaria in relation to, 1856*d*.
benzopyrene effect on, 5105*f*.
in blood serum, effect of dicoumarol and heparin on, 8543*f*.
effect of vitamins on, 6294*c*.
during vegetarian and omnivorous diet, 3892*f*.
effect of vitamins on content of, in blood, 6294*c*.
effect on agglutination, 5108*i*.
hemolysis by homologous, in presence of tannic acid, 5490*n*.
inactivation by N mustard, 2698*b*.
preservation of, 5857*i*.
reaction with cellulose sulfuric ester, effect of streptomycin on, 5485*b*.
**Complement fixation** (See also *Antibodies; Wassermann reaction;* etc.)
antigen of foot and mouth disease, isolation of, 1102*i*.
evaluation of, 1075*h*.
with fecal antigens in viral hepatitis, 9223*b*.
glutathione effect on, 7569*b*.
in lymphogranuloma venereum, 752*c*.
measurement of, 3920*c*.
with neurotropic viruses, antigens for, 4759*i*
with Newcastle disease immune avian serum, 4760*a*.
pooled sheep cells for use in hemolytic system of, 3920*c*.
quantitative studies of, 1103*a*, 9238*h*
**Complex compounds**. See *Chemical compounds*.
**Complexity constant**. See under *Ionization, electrolytic*.
**Complexons**. See *Chemical compounds*.
**Complex salts**. See *Chemical compounds*.
**Compnosperma auriculata**, lignin sepn. from, 733*b*.
**Compost**. See *Fertilizers*.
**Compound 42**. See *Coumarin, 3-(α-acetonylbenzyl)-4-hydroxy-*.
**Compound 497**, toxicity to mosquitoes and fish, 9345*g*.
**Compound 4430**. See *Biguanide, 5-(p chlorophenyl)-1-isopropyl-1-methyl-*
**Compound E** (Kendall). See *Corticosterone, 17-hydroxy-11-dehydro-*.
**Compound G-11**. See *Phenol, 2,2'-methylenebis[3,4,6-trichloro-*.
**Compounds**. See *Chemical compounds*.
**Compressibility**, of adsorbed films on solids, 8789*e*.
of alumina, 8228*c*.
of β-brass, 1621*h*.
calcn. of, of liquids, 7298*e*.
of carbon tetrachloride and inorg. halides, 6024*i*.
of cerium, 8232*b*.
of cesium, 4068*c*.
chart and ideal reduced vol., 2475*e*.
charts, for H, O and N, 3156*g*.
of cyclic compds., 4532*a*.
of *cis-* and *trans-*decalin, 6879*b*.
effect on laminar boundary layers and their sepn., 4062*c*.
effects in two-phase flow, 7271*i*.
elec.-field effect on liquid, 6025*c*.
of ethyl alc. mixts. with NaCl and $H_2O$, 5652*d*.
of fluids in wells, 446*h*.
of gases at high temps., 6480*g*.
of gases, temp. and, 3677*g*.
of hydrogen mixts. with N, 6021*d*.
of liquids, 7283*i*, 7284*c*.
of macromols., 7783*a*.
of natural gas, 8643*e*.
of natural gas, vol. correction for, 8645*e*.
of polyisobutylene, 7294*f*.
of polythene, 5249*i*.
of propene, 8832*c*.
of rubidium iodide, 8788*g*.
of single crystals, 2063*b*.
of water and $D_2O$, 8225*i*.
**Compression**, fracture (delayed) of materials under, 4048*h*.
of gelatin films on water, 2487*b*.
heating by adiabatic, in syntheses, 6022*d*.
high-capacity, 4903*e*.
of liquids, 4067*e*.
of metal powders, app. for, 4614*b*.
of metals, creep during, 82*e*.
polytropic, in centrifugal compressors, 7271*h*.
rapid, effect on heat-capacity ratio of gases, 8836*d*.
strength of, measurement of, of cement mortar, standards for, 4397*h*.
of substances to 30,000 kg./sq. cm., 4916*i*.
tests for shipping containers and rubber, 4400*a*.
wave vibration, oil extn. from fish fragments by, P 6844*c*.
**Compressometers**, Schieffer modified, for permanence of deformation of bated skin, 7735*f*.
**Compressors**. (See also *Pumps*.)
air, C-O complex on C deposits in initiation of explosions in, 5952*c*.
design of, 6471*c*.
distn. app. with internal, P 6874*b*.
piston, 4903*e*.
polytropic compression in centrifugal, 7271*h*.
silencer for, 8214*h*
**Compton effect**. (See also *X-rays*.)
in gamma-ray scattering in water, 4119*d*.
in wave-length detns. with focusing crystal spectrometer, 4948*d*.
**Computers**. See *Calculations*.
**Comuccite**. See *Jamesonite*.
**Conalbumin**, complex with Fe, 9211*de*.
electrophoretic homogeneity and isoelec. point of, 2247*d*.
precipitation by antiserums, 5857*b*.
**Conamandin**, precipitation of phosphoric esters by, effect of pH on, 6268*e*.
**Conarachin**, spectrum of, 7341*b*.
**Concentrate 40**, in Bermuda-grass control, 3967*b*.
**Concentration** (*the condition*), book: Nomogrammy Pereschela Kontsentratsil, 7808*g*.
comparison of, by elec. conductivity, 448*c*.
detection of changes in, app. for, P 8760*a*.
detn. of, app. for, P 3250*b*.
by two-solvent system, 6946*b*.
in ultracentrifuge cells, 6870*g*.
expression of, of binary solns., 2074*c*.
mol. assocn. and, of higher phenols and aromatic alcs., 178*f*.
**Concentration** (*the process*). (See also *Thickening*.)
of dispersed phase of solid colloid, P 7104*b*.
by distn.—see *Distillation*.
by evapn.—see *Evaporation*.
of fruit juices by freezing, 3944*f*.
of nitric acid—see *Nitric acid*.
of ores—see *Ores, treatment of*.
by org. reagents in spectrographic analysis, 2541*e*.
of org. substances in vegetable oils or fats, P 7949*d*.
**Concentrators**. (See also *Drying apparatus; Evaporators; Separators; Thickeners*.)
for brine, P 6477*b*.
freezing, for juices, etc., P 7760*a*.
for liquids and suspensions, P 5649*b*.
for ores—see *Ores, treatment of*.
**Concrete**. (See also *Cement, hydraulic or structural; Stone, artificial*.)
aggregate-cement reaction in, 831*i*.

aggregate effect on durability and strength of, 5168*d*.
aggregates for, 2396*a*.
detn. of d. and $H_2O$ content of, 6387*i*.
mineralogic and petrographic characteristics of, 5167*f*.
from slag, P 2396*h*.
test for reaction with alkali, 3589*i*, 6388*d*.
aggregates (lightweight) for, P 1548*b*.
from clays, shales, slates, etc., 1547*c*.
from expanded vermiculite, P 3990*b*.
from waste slate, 1939*a*, P 3990*a*.
air-entraining agents for, Darex and Vinsol resin as, 4827*e*.
air entrainment in, 2751*d*.
air-retaining agent use in, 1543*g*, 4827*d*.
albuminous-product-contg., 4828*a*.
as barrier for γ-rays from Ra, 8871*d*
bituminous and ready-mixed, standards for, 4398*f*.
bituminous cold-mix, 7660*e*.
blocks, curing of, 9409*g*.
calcite, 4827*b*.
calcium chloride effect on, 3589*e*.
carbon dioxide effect on, 2395*h*.
cleaning compns. for, P 3640*c*.
coatings for, for use above and below water, 6835*f*.
coatings for, from chlorinated rubber, 1198*d*, 4493*b*.
corrosion of, by sea water, 1937*a*.
corrosion-resistance tests on floors of, 2752*e*.
for dams, 9409*i*.
DDT toxicity on, 9344*i*.
defects in, 373*e*.
deterioration of, from carbonic acid, 8636*i*.
in refrigeration-plant tanks, 8637*c*.
in structures, 9410*b*.
detn. of layer sepn. and workability of, P 3590*i*.
durability of, and use of reactive aggregate, 4827*a*.
effect of air entraining and dispersion promoting agents on mixing and properties of, 2751*h*.
effect of air-entrainment, C black and coloring on, 9409*f*.
expansion of, control of, 5567*g*.
flow (plastic) of, in relief of high-load stress concns., 6387*i*.
foamed, gas-expanded, and concrete with light limestone aggregate, 6387*g*.
frost-resistant, P 7662*a*.
gunite, as lining in petroleum tanks, 4622*a*, 5929*h*.
haydite aggregate for, 5560*a*.
heat of setting of, 2395*g*.
hydrogen sulfide from sewage effect on, 2340*h*, 3547*e*.
insecticide films on, 9330*g*.
lime (free) detn. in, 5567*f*.
from magnesia and $MgCl_2$, P 6389*c*.
manuf. of, 5567*g*.
masonry, covering and filling for joints in, P 5633*d*.
materials for, in Union of South Africa, 8115*g*.
microfiller-contg., 1938*a*.
mixes for, control and design of, 1546*i*.
paints for, from Pliolite S-5, 5606*f*.
paints for, rubber-contg., P 1200*b*.
Plastiment use with, 2395*i*.
from pozzuolana cement, 2751*g*.
prestressed, 9410*a*.
refractory, 6384*g*, 6385*b*, 7656*g*.
refractory, from vermiculite and Ca aluminate cement, P 5168*g*.
reinforcements for, A.S.T.M. standards for, 4202*dh*.
research on, 2395*i*.
for roads in Germany, 373*c*.
siliceous admixt. for, of Davis Dam, 3165*f*.
slag (blast-furnace) for, P 1167*a*.
from Solvay lime sludge, portland cement and pulverized scrap glass, P 6804*i*.
standards for, 4785*g*.
strength of, age and, 3988*h*.
Vinsol effect on, 1546*d*.
water mains of, reinforced with steel, 551*d*.
water (nonevaporable) in, and its detn., 6387*e*.
water-permeability of, detn. of, 3987*f*.
x-ray attenuation in, 4132*d*.

**Concretions.** (See also *Calculi.*)
agate and quartz, in tuff from Templeton, Calif., 2899*a*.
of *Ficus elastica*, 5830*g*.
formation of, 7297*a*.

**Concussion,** buffering capacity of brain after, 9212*d*.

**Condensation, chemical.** (See also *Claisen condensation; Dieckmann condensation; Polymerisation; Reactions; Ring closure.*) 4248*b*.
of acetylene compds., 6167*g*.
of acetylene compds. with esters, 6168*f*.
of acetylenic halides with α,β-unsatd. ketones, P 5798*b*.
of alcs., acyclic hydrocarbons by, 5003*e*.
of alcs. with aromatic compds. with $AlCl_3$, 164*a*, 1369*f*.
in aldehyde (α-ethylenic) reduction, 4253*i*.
of aldehydes and ketones, P 2632*b*, 6159*i*.
of aldehydes (aromatic), 9049*h*.
of aldehydes with amides, 2600*gh*, 6182*b*.
with 2 amino 1,3-propanediol derivs., P 2633*g*.
with 3,4-dihydro-1(2 *H*)-naphthalenone, 2971*g*.
aldol, 4526*e*, P 5415*h*, 5756*c*.
by alkali metal amides, 629*g*, 4253*g*.
of alkyl cyanoacetates with HCHO, P 6222*f*.
of alkyl (higher) esters of α-amino acids, 4640*i*.
of amines (tertiary) with carboxylic acid halides, mechanism of, 4240*g*.
of α-amino acid derivs., 575*b*.
of α-amino amides with 1,2-dicarbonyl compds., 3009*e*.
of ammonia to hydrazine, elec.-discharge app. for, P 6096*g*.
of aralkyl hydrocarbons with ketones, P 2036*h*.
of aromatic acid halides with fatty acid halides, P 5586*b*.
of aromatic hydrocarbons with olefin polymers with $AlCl_3$ catalysts to oils, P 3190*h*.
arsenic-contg. arylsulfonic acid solns. in, P 2636*f*.
of basic ions in hydrolysis of Al and U nitrates, 7308*a*.
of basic ions in the hydrolysis of Pb salts, 472*e*
of basic Pb ions, 2073*i*, 8277*a*.
of benzene with chlorinated paraffin wax with $AlCl_3$-active clay catalysts in lubricating oil prepn., 2416*gi*.
of benzyl benzoate, dimethylaniline and HCHO with activated clay catalysts, lubricant antioxidants by, P 2424*e*.
of biacetyl with phenols, 8370*d*.
of biacetyl with primary aromatic amines, 4234*e*
of α-carbethoxy-γ-butyrolactones with amidines and with guanidine, 6172*i*.
of chlorinated paraffin wax with $C_{10}H_8$ and diisobutylene, P 7680*d*.
of 4-chloroquinaldine with compds. contg. an active $CH_3$ group, 228*i*
of chlorotrifluoroethylene and of $C_2F_4$ with unsatd. compds., P 4293*g*.
of coconut fatty acid anilide with *N*-methylol chloroacetamide Na sulfonate, P 886*b*.
of crotonaldehyde with cyclic compds. and their conversion to aromatic compds., 5376*h*.
of cyclohexene and epichlorohydrin with phenols, 6173*g*
of diaminopyrimidines with benzil and benzoin and their dimethoxy derivs., 3010*b*.
of 2,4-dimethyl-2-cyclopenten-1-one with dienes, 1333*h*.
of esters, 7022*d*.
of esters, agents for, 6170*g*.
of ethylene oxide, explosive polv-, catalyzed by acids and bases, 8138*f*
of formaldehyde, aroylcarbinols as catalysts for, review on, 6159*h*.
with PhOH, kinetics of, 8737*a*
with sugars, mechanism of, 148*i*.
with urea, catalyst for, P 4512*h*
with urea, kinetics of, 1247*a*.
of furfuryl alc., P 6464*a*.
of furfuryl alc. polymers with phenols, P 2037*a*.
of guanidine with diesters of phthalic acid, 6170*e*.
of hexachlorocyclopentadiene with trichloroethylene, 4231*b*.
hydrogenation and, of CO with $C_2H_4$, 4829*f*.
in inorg. chemistry, 1669*h*, 5685*d*.
intermol., of alkyl derivs. of aromatic hydrocarbons, P 1440*b*.
of β-ionone and homologous ketones with oxalic acid esters, 2587*d*.
of isothiocyanates with oximes, 4232*e*
of ketones (unsymmetrical), 643*g*.
of ketones with phenolic ethers, 2970*e*.
of lignin in paper-pulp digestion, 8675*i*
macromol. compds. by, 5262*f*.
of 2′-methyl-3′,5′-dinitrochalcone with di-Et malonate, 4239*b*.
of methyl 2(1 *H*)-pyridones, 6627*f*.
of molybdate $MoO_3$ anion in molybdic acid titration, 4182*g*.
of olefins on $Al_2O_3$ catalysts, 1250*e*.
of phenols with terpenes, P 6237*a*.
of 1-phenyl 1,3-butadiene with acrolein and acrylic acid, 8363*a*.
poly-, 142*e*.
of aleuritic acid and its Me ester, 2941*a*.
kinetics of, 7310*i*.
shrinkage in, 4048*c*.
theory of hardening of resins from, 4509*e*.
potassium hydroxide compds with ethers as agents for, P 6664*g*
Raney Ni in, 646*i*.
retrograde, of $CaBr_2$ and pentane from gas mixts., 1553*i*
by sodium, 111*a*
of 1,2,3,3-tetrachloropropene, 5361*h*
of vinyl ketones, 5023*i*.

**Condensation, physical.** (See also *Heat of condensation; Liquefaction.*)
of aerosols in presence of foreign gases 7290*a*.
of arsenic oxide, 5230*b*.
Bose-Einstein—see *Bose-Einstein condensation.*
capillary, adsorption point in hysteresis loop and, 3181*b*.
capillary, in porous media, 8789*d*.
dropwise, P 6467*a*.
on finned tubes in vertical row, 4461*i*
freezing, of vapors, Lewis coeff. and 11*c*.
liquid phase, in degassing low boiling liquids, 8622*g*
models for instruction, 4062*h*.
nuclei in, 6047*i*.
of phthalic anhydride, P 1228*f*
preventing or minimizing, on glass—see *Anti-fogging agents*
reflux, of vapor mixt. of any no. of components, 6022*f*
retrograde, of gas and oil condensate reservoir fluids, 7672*d*
statistical theory of, 5240*a*
of water vapor, AgI vapor as nucleus for, 4062*h*.
of zinc vapors, P 6563*b*

**Condensation principle,** the term, 1440*b*

**Condensation products.** (*Entries are given here only when definite compound products, or classes of products* as Bakelite, Dental materials insulators, electric; Phenol condensation products; Resinous products; *etc., specified. See also* Urea, Urea, thio-, *etc.*)
nitrogenous—see *Nitrogen compounds*
poly-, review on, 4789*b*

**Condensers.** (See also *Distillation apparatus; Electric condensers.*)
copper-alloy standards for, 4615*b*
corrosion of, 2150*g*
countercurrent, 8746*h*.
for dropwise condensation, P 6467*a*
for fuel-gas manuf., 5172*d*.
glass lab., 8746*h*
for hydrocarbon gases, 8653*a*
for metal vapors, P 2920*c*.
performance of steam, aboard U.S. naval vessels, 791*g*.
for petroleum refining, corrosion of and its prevention, 7221*a*.
for propane in Thermofor cracking units, corrosion of, 385*e*.
reflux, air-cooled, 3665*i*
reflux, with distillate controls, P 7780*c*
-tube plates of Naval and rolled brass, 5719*f*.
for vacuum evaporators, 4056*d*.
water for, treatment with Cl, 4794*b*
for zinc, 2823*a*, P 2921*b*.

**Condensers** (*lens*). See *Lenses*

**Condenser tubes,** copper-alloy, standards of A.S.T.M. for, 4202*i*, 4203*a*.
corrosion of Admiralty, by $NH_3$ in petroleum refinery, prevention by $H_2S$, 6401*h*.
corrosion of, and its prevention, 98*a*.
corrosion of, by microörganisms, 98*d*.
corrosion resistance of Cu-alloy, 7398*i*
corrosion-resistant Admiralty, Cu-Ni and Muntz metal, in petroleum stills, 5178*i*.

steel, standards of A.S.T.M. for, 4202*c*.
**Condiments.** (See also *Food; Salad dressings; Sodium chloride substitutes; Soy sauce substitutes; Spices;* etc.)
extn. of water-sol. components from fluid, with starch, P 3117*c*.
for food, P 9294*b*.
mineral supplements for, P 9296*a*.
monosodium glutamate as, 8572*g*.
parsley as, 8573*d*.
plants yielding, 6365*i*.
from sodium diacetate and $NaH_2PO_4$, P 7606*f*.
for soup, 1494*d*.
**Condition equation.** See *Equation of state*.
**Conduction, electric.** (See also *Insulation, electric*.)
by assocd. compds., 8772*b*.
electrons—see *Electrons*.
by films of metals, 6026*b*.
by fused salts, 12*d*.
by graphite, 2484*e*.
in insulators, 2083*e*.
by metals, review on, 2062*f*.
in nonmetal, theory of, 8910*h*
semi-, by oxide cathodes, 7353*g*
in semiconductors, 2083*f*.
of solid electrolytes (electrodes given in abstract by mistake), 6026*d*
super-, quantum mechanics of, 3678*c*.
in swollen polar polymers, 3688*i*.
thermomechanics of electronic, 5250*d*.
by walls of capillary tube, 3265*h*
**Conduction, thermal.** (See also *Insulation, thermal*.)
in glass, 8620*f*.
in helium II, 3678*d*.
liquid theory and, 1065*a*
through rocks, 3320*h*
**Conductivity, electric.** (See also *Electric resistance*.)
of acetamide system with ICl and $PhNO_2$, 6900*i*.
of acetic acid system with $HNO_3$, 923*c*
of acetic acid system with $H_2O$, 6900*f*
of acetic anhydride solns., 2110*h*.
of alkylammonium chlorides in aq. solns. of their homologs, 1243*g*.
of aluminum bromide complexes in fused state, 1232*i*.
of aluminum bromide, MeAlBr$_2$ and $Me_2AlBr$ in solns., 8810*gi*.
of Amberlite IR-100, cation and, 7785*f*.
of ammonia in alcs., 5655*h*.
of ammonium nitrate system with $Pb(NO_3)_2$, 518*h*.
of arabic acid solns., 8809*f*.
of arsenic trioxide-reaction products with $H_2S$, 5320*i*.
in ash detn. in white sugars, 9502*ce*.
of bacterial suspensions, 3883*h*.
of barium titanate in elec. field, 4068*e*.
of blood and blood plasma in mountain climate, 3504*ef*.
book: Electron Theory of Superconductivity, 5314*e*.
of boric acid mannitol complexes, 6894*b*.
of bromine vapor in silent discharge, hysteresis in, 3730*i*.
of butyl bromide addn. compds. of 4 vinylpyridine-styrene copolymers in $MeNO_2$-dioxane mixts., 7786*d*.
cadmium ferrocyanide compn. and, 1677*i*.
calcn. of, of saline fluids in petroleum reservoir rocks, 3177*g*.
of caramel solns., 7781*b*.
of carbon black (reinforcing furnace), 6855*a*.
of cathodes (oxide-coated), 2857*g*.
of cellulose, 1181*d*.
for checking accuracy of water analyses, 6765*g*.
of chloroantimonates in liquid $SO_2$, 8935*i*
of chromium sesquioxide, 7285*e*.
of chromium sulfides, 1621*c*.
of clays and sands, 1542*c*.
of cobalt nitrate solns. in EtOH with halides or thiocyanate, 4970*h*.
of coke, structure and, 4834*e*.
of colloidal electrolytes, 20*c*, 2071*c*, 6887*a*.
of colored crystals of KBr and KCl, 6879*i*.
of complex-forming systems, 19*b*.
of conducting droplets in nonconducting medium, 7776*h*.
in control of cleanliness of heating surfaces, 6009*a*.
of copper(II) chloride in acetone, 6886*d*.
of copper(II) chloride system with HCl and $H_2O$, 5324*d*.
of detergent and soap solns., effect of concn. on, 6435*d*.
of dielectrics under electron bombardment, 8847*g*.
of diketene and related compds., 1320*e*.
of dodecylammonium chloride and Me derivs. in soln., 5677*g*.
of dodecylammonium chloride
electrolytes, 6892*a*.
detn. by difference of internal resistances, 7302*c*.
interactions in solns. and, 7301*f*.
of elements of group VIB, 1622*d*.
of ferromagnetic substances at low temps., 4529*f*.
of flames and fuel mixts. with air and O, 3591*h*.
in flame (transient) or flush, 481*a*.
glass with low surface, P 1934*h*.
of gum-jeol solns., 2797*f*.
of gum-jeol solns., effect of salts on, 8717*f*.
of halide systems, 6498*h*.
of hexadecylpyridonium chloride solns., 5265*e*.
of hydrochloric acid in $H_2O$ and DCl in $D_2O$, 4544*d*
of interstitial phases, 918*l*
of iodine chloride system with $C_5H_5N$, 6901*a*.
in ionization detn., 7302*h*.
in ionization detn. for resins, 7302*e*.
of lanthanum ferricyanide solns., 4082*g*
of lithium bromide, effect of polyelectrolytes on, 8242*g*.
of lithium bromide in acetone, 6055*c*
of lithium nitride, 1621*a*.
of lithium salts in $Et_2O$, 8790*g*.
of lithium, Ag and Na ions in pyridine, effect of $NH_3$ and $H_2O$ on, 8811*b*.
of long-chain alcs., 5246*a*.
of long chain electrolytes, in aq. MeOH, 1243*i*, 2491*d*.
in elec. field, 7836*a*
in water and org. solvents, 7303*e*.
of long-chain salts, effect of addn. agents on, 3268*i*.
of magnesium compd. with Sn, $Mg_2Sn$, 4533*f*.
magnetic-field effect equation for, 8221*g*.
measurement of, 923*g*.
app. for visual, 3245*h*.
cell for, 6008*c*
in comparing concns. of solns., 448*c*.
in detn. of emulsion type, 7290*e*.
of electrolytes, 5234*d*.
in electrophoretic diagram, 2876*i*.
in teaching ionic dissocn., 2826*d*.
of water, app. for, 5889*g*.
of membranes, effect of electrolytes on, 8245*h*.
microchem. aspects of, 58*f*, 1687*b*.
of milk, time and, 7597*f*.
of molten alloys and metals, 7880*e*.
of nonmetallic crystals, 7767*i*.
of oxalic acid system with $Sn(OH)_4$, 7365*c*.
of oxide-coated cathodes, 4084*a*.
of oxides and spinels at high temps., 4533*i*.
of penicillin G solns., 4926*i*.
of penicillin salt soln., 8244*f*.
of perchloric acid systems with AcOH or $H_2O$, 7315*gi*.
of phosphoric acid and of K and Na dihydrogen phosphates, 8809*c*.
of phosphoric acids (condensed) and their salts, 6533*i*, 6534*h*.
photo- see also "inner" under *Photoelectric effect*.
photo-, 2085*c*
of anthracene and naphthalene, 6503*b*
of Sb-Cs films, 3705*d*.
of $Bi_2S_3$, 6503*c*.
of Cd, 3705*g*.
of CdS single crystals, 6031*e*.
catalysis with, 8251*e*.
of PbS films contg. Pb and O impurities, 8848*d*.
monochromator for measurement of, of luminescent solids, 8281*e*.
of powders, measurement of, 6074*c*.
secondary electrons in, 6074*i*.
of sulfides in infrared light, 482*e*.
in tungstate phosphors, 5312*a*.
of (Zn, Cd)S, 8894*g*.
of phthalocyanine semiconductors, 1272*h*.
of plastic materials, 435*c*.
of platinum ammines, 2538*d*.
of polyelectrolytes, 1626*f*.
of polymer-adsorbate systems, effect of adsorbed salts and temp. on, 3689*b*.
of potassium bromoaluminate in $PhNO_2$, 6899*b*.
of potassium bromochloroaluminate system with $PhNO_2$, 6898*i*.
of potassium chloride solns. contg. $CdCl_2$, $HgCl_2$, or $ZnCl_2$, 6892*h*.
of potassium iodate and salts of oxyacids, 1630*c*.
of potassium oxide ($KO_3$) in liquid $NH_3$, 4169*i*.
of rubber, C black particle size and, 1600*a*.
of saline-alkali soils, effect of leaching on, 3550*c*.
of salts in liquid $NH_3$, 6892*b*.
of selenium contg. Tl, 4068*g*.
of selenium, increase of, P 5162*h*.
semi-, of films in study of heterogeneous reactions, 474*h*.
of silica systems with $Al_2O_3$, CaO and MnO, 4936*h*.
of sintered materials, control of, P 6388*b*.
of sodium aluminum bromide in $PhNO_2$, 6898*g*.
of sodium-ammonia solns., 4065*i*.
of sodium carbonate solns., 6050*h*.
of sodium metaphosphate solns., 4088*g*.
of sodium triisopropylbenzenesulfonate solns., 6041*f*.
of sodium-W bronzes, 5719*h*.
of solid solns., 5252*i*.
of solid solns. of AgBr-$PbBr_2$, AgCl-$PbCl_2$ and AgCl-$CdCl_2$, 7772*e*.
of solns. of $CaCl_2$ and $MgSO_4$, 2480*b*
of solvates in anhyd. $HNO_3$, 5265*a*.
of split crystals, 6026*b*.
of strong electrolytes, theory of, 4544*b*.
super-, Bose-Einstein condensation of free electron pairs and, 8257*c*.
electrodynamic potential and, 6879*h*.
of In and Sn, effect of pressure on, 4069*f*.
to microwaves, 4069*e*.
perturbation by currents of acoustic frequencies, 4070*a*.
reviews on, 2062*f*, 3258*a*, 4540*e*, 6015*d*, 7765*b*, 8772*a*.
of soft solder, 6016*f*.
of Ta, 4070*c*.
theory of, 12*g*, 4068*i*, 4532*g*, 6025*i*, 6879*g*, 8765*d*.
transition to, 457*f*.
surface, effect in electrophoresis, 7778*ab*.
surface, of capillary systems, 7290*h*.
of telluric acid solns., 2534*e*.
of thiourea oxides, 1325*e*.
of transformer oil, effect of $SiO_2$ gel and triethanolamine oleate on, 6039*h*.
of trichlorobenzene-alc. mixts., effect of electrolysis and stabilizer on, 7837*e*.
of tris (hydroxyalkyl) alkylammonium chlorides, 6041*a*.
of tungsten(VI) oxide, 8783*i*.
in water analysis for solids, 7612*h*.
in water detn. in flour, wheat meal, etc., 3532*g*.
in water detn. in grains, 3941*c*.
of water for irrigation, as measure of its suitability, 3951*e*.
of zinc silicate phosphors, 947*b*.
**Conductivity, temperature or thermometric.** See *Diffusivity (thermal)*.
**Conductivity, thermal.** (See also *Insulation, thermal*.)
of aggregates and gases, 7316*g*.
of antimony single crystals, effect of magnetic field on, 5243*f*.
book: Over de physische gasanalyse volgens de—methode, 8312*f*.
calcn. of, and its use in thermodynamics, 2854*e*.
of chromium K alum and glass, 7316*e*.
of coke-oven walls, 5926*g*.
comparison of, of fluids, 6499*d*.
of deuterium, HD, and $H_2$, 2057*c*.
drying and, 8753*b*.
elec. insulators with improved, P 3948*h*
of flame of atomic H, 8253*f*.
of gallium, 8781*a*.
of gases, 2832*f*.
of gases with central intermol. forces, 2832*g*.
in gas-solid systems, 8834*h*.
of gels, 6888*i*.
of glasses, 4070*g*, 8786*i*.
of glass mass, 3579*a*.
of glycols, 6499*f*.
of GR-S latexes, 3644*i*.
of helium of mass 3 mixts. with $He^4$, 8224*h*.
of helium II, 455*d*, 3681*a*.

of liquid metals, Bidwell's intercept relation and, 2062*e*.
of liquids, 7284*c*.
measurement of, 7272*e*.
gas analysis by, P 6543*a*.
of gases, 1615*e*, 6903*a*.
of refractory materials, app. for, 3584*h*.
of metal contacts, 533*f*.
of molten alloys in metals, 7880*d*.
of molybdenum, 4901*d*.
of nitrogen and O, 3253*c*.
of org. materials near m.p., 2501*e*.
of particles in a fluidized state *vs.* in a static bed, 4834*d*.
of peat oil, 8653*g*.
of porous refractory bodies, effect of firing temp. on, 3583*a*.
of rarefied gases, sensitivity range of Pirani gages and, 3667*c*.
recorder for, of gas from deep wells, P 1955*a*.
of refractories (oxide heavy), 3584*g*.
of refractory brick (light-wt.), 5563*i*.
of refrigerating salt solns., 5655*i*.
of silicone liquids, 8777*c*.
of sulfite waste liquor, 9441*f*.
of superconductors, 5250*c*.
theory of, of liquids and compressed gases, 4064*g*.
of vapors of $C_6H_6$, EtOH, MeOH and $H_2O$, effect of pressure on, 4553*b*.
of vitrified ceramic ware, 9403*i*.
of water, mol. complexity and, 475*h*.
in water vapor detn. in air, 1288*c*.

**Conductivity cells.** See "measurement of, cells for" under *Conductivity, electric.*

**Conductors, electric.** (See also *Cables; Copper; Copper alloys; Insulation, electric; Insulators, electric; Wire.*)
aluminum-Mg alloy for, P 9020*e*.
bearings, P 7895*g*.
ceramic refractory, P 5919*d*.
coatings, measuring porosity and thickness of, 9481*h*.
coating with, on refractories, etc., P 3587*f*.
equation of state of, 4916*c*.
fabric, P 6528*e*.
from fabrics and fibrous and porous materials, P 6528*f*.
flexible, P 4589*e*.
insulated, P 5518*f*.
insulated tinsel, P 5518*f*.
insulated with silicone compd. and polytetrafluoroethylene tape, P 2040*e*.
laminated panel contg. C black, P 2526*f*.
rubber, 1207*h*, 8722*h*.
sealing compns. for spot-welded joints, P 7896*d*.
for sealing to glass, P 1274*f*.
semi-, 5659*g*.
bombarded by deuterons, 4095*g*.
bombarded by neutrons, 8858*b*.
cond.-pressure-temp. relations in, 4095*h*.
Cu phthalocyanine and phthalocyanine as, 3731*h*.
corrosion through, 8340*a*.
dyes as, 1272*g*.
elec. conduction and photoelec. effect in, 2083*f*.
electronic, 2083*e*.
Ettingshausen and Nernst effects in, 4066*i*.
Ge as, 2877*f*.
liquids, 8780*d*.
$Mg_2Sn$ as, 475*a*.
oxides and spinels as, 4534*c*.
photoconductivity of infrared-irradiated PbTe, effect of room-temp. radiation on, 4140*d*.
photoeffect (external) in, 482*d*, 8846*c*.
photoeffect (internal) in, effect of dyes on, 7349*d*.
photoelec. emission and contact potentials of, 1256*h*.
physics of, 1641*g*.
rectifiers, theory of, 8910*h*.
temp. dependence of resistivity of, 5280*h*.
temp. dependence of work function of, 4555*d*.
temp. dependence of work function of, effect of surface states on, 4555*f*.
variation of Hall effect and thermoelec. power with vapor pressure of, 4555*c*.
sepn. from nonconductors, P 4906*h*.
silver bromide as, 2071*a*.
standards for, 4202*h*, 4203*b*, 4615*d*.
super-, effect of current magnitude on bolometer of, in transition region, 2044*c*.
heat capacity of, 6069*f*.
high-frequency of, 8771*f*.
intermediate state and magnetization of, 4069*ad*.
magnetic field penetration in, 3673*f*.
thermal cond. of, 5250*c*.
of V, crit. fields of, 4067*a*.
temp. effect on resistance of, 2501*c*.
water-impermeable, coating for, P 2104*i*.

**Conduits.** (See also *Gas pipes; Pipes; Water pipes.*)
for corrosive fluids, P 3669*cf*.
flow of fluidized solids in, 6475*h*.
paper, resin-impregnated, P 9448*i*.

**Condurango,** identification of fluidext. of, 9371*h*.

**Conessi.** See *Holarrhena antidysenterica*

**Conessine,** detn. in kurchi bismuth iodide, 3564*g*.
irritant action of, compared with isoconessine and neoconessine, 2327*d*.
pharmacology of, 1868*h*.
and its use in treatment of amebiasis, 8101*a*.

**Confectionery,** chemistry in industry of, 8573*h*.
colored casings for melted hard, P 7605*d*.
fat detn. in caramels, etc., 6433*g*.
flavoring material for, goldenrod oil as, 2372*d*.
flavoring materials for, 8573*f*.
flavoring of, 8573*g*.
from inulin-contg. tubers or roots, P 6334*d*.
marshmallows, waterproofing of, P 6759*f*.
milk (powd.) compn. with wheat germ for use in, P 329*i*.
mint use in, 8573*c*.
prepn. of sugar candy in presence of $MnSO_4$, 2005*f*.
raw materials for, from cacao, P 6759*c*.
from seed of *Cucurbita pepo*, 9285*i*.
vitamin $B_1$ in, stability of, 9276*a*.
wastes from, lactose manuf. from, 1119*d*.

**Configuration.** See *Chemical constitution;* and "structure of" under *Molecules.*

**Confused flour beetle.** See *Tribolium confusum.*

**Congelation.** See *Crystallization; Solidification;* etc.

**Conglomerates,** deformation of quartz, in Norway, 76*f*.
of Nova Scotia (Gays River), 5347*d*.
of U.S.S.R. (Ufa, Tataria), 6954*c*.

**Congo blue.** See *Trypan blue.*

**Congo esters.** See *Copals.*

**Congoic acid,** and methyl ester, 9052*a*.

**Congo red,** absorption by cellulose, 4848*f*.
adsorption by starch, 8715*g*.
as adsorption indicator in argentometric titrations, 61*a*.
antagonism to curare, 3102*g*.
cornea tolerance to, 3110*g*.
disappearance from blood serum, effect of persiston on, 6311*h*.
effect on hyaluronidase and staphylocoagulase, 3855*h*.
effect on lysozyme, 3855*g*.
prepn. of, electrolytically, 4961*f*.
sepn. from malachite green by paper chromatography, 8777*b*.

**Congo violet,** precipitation of serum proteins with, 9236*e*.

**Congress of Utrecht,** 7761*i*.

**Conhydrine,** *d*-, and *l*-, and their salts with *d*- and *l*-6,6′-dinitrodiphenic acids, 7937*b*.

**Coniferaldehyde, methyl-*,** 1181*i*.

***p*-Coniferaldehyde.** See *Ferulaldehyde.*

**Coniferin,** hydrolysis (alk.) of, 5763*i*.
in plants, 2283*b*.
as substrate in lignin formation by oxidases, 2282*d*.

**Conifer needles.** (See also *Pine needles.*)
alcs. (polyhydric) in cellulose prepn. from, 7227*a*.
copper and Zn in, in geochemistry, 3321*d*.
extn. of active substances from, P 6371*f*.

**Conifers,** classification of, 9440*e*.
copper and Zn in cones of, in geochemistry, 3321*d*.
heartwood exts. from, 7679*e*.
oils of—see *Oils.*
resin acids of, 6185*d*.
tracheid of, fine structure of wall of, 2676*g*.
wood—see *Wood.*

**Coniferyl alcohol** (*3-(4-hydroxy-3-methoxyphenyl)-2-propen-1-ol*), color reactions of, 1181*i*.

**Coniferyl series,** constitution of, 2600*f*.

**Coniine, *d*-, identification of,** 8365*e*.

**Coniophora cerebella,** control of, components of coal-tar oil in, 4417*h*.

**Conium maculatum.** See *Hemlock (poison).*

**Conjugase,** of chicken pancreas, specificity of, 9111*b*.
in liver, effect of pteroylglutamic acid on, 5098*d*.

**Conjugation.** (See also *Double bonds;* and "diene" under *Synthesis.*) 3373*f*.
bromination and, in olefins, 109*i*.
color and, in β-carotene, 493*e*.
conjugated systems, 9059*h*, 9060*d*.
detn. of, in drying oils and their fatty acids, 4025*h*.
diene, triene and tetraene, in dehydrochlorination of chlorinated soybean oils, 5204*h*.
electronic structure and, 3713*ab*, 5302*i*, 6512*c*.
electronic structure and interaction of two conjugated systems, 8223*h*.
electronic structure, color and, in hydrocarbons contg. a double bond, 4569*g*.
electron transfer in compds. contg. double bonds and, 1012*b*.
energy of, of bonds, 8885*i*.
free radical reaction with ethylenic double bonds and, 5733*b*.
hyper-, 556*i*, 6583*e*.
autoxidation of olefins and, 5733*d*.
chem. properties and, in diolefins, 5733*d*.
in cyclohexene and cyclohexadiene derivs., 7416*f*.
electronic structure, chem. constitution and, 41*f*.
halochromism and, of Me groups, 8392*b*.
of Me groups in aromatic heterocyclic nuclei, effect on diamagnetism, 8767*f*.
of org. sulfides, 7410*e*.
in reaction of alkyl bromides with $Hg(NO_3)_2$, 557*h*.
in ketones, effect on spectra, 4575*d*.
of linoleic acid during autoxidation, 9488*e*.
of olefinic bond with aromatic nucleus, 165*g*, 1756*i*, 2181*e*.
phys. properties of compds. with, 2501*i*, 2592*a*.
Raman spectra and, 7345*i*.
scintillation property and, 4111*e*.
spectra and, of polyenes, 1264*f*
of sulfones, 7411*b*.
tetraenoic and trienoic, of arachidonic acid and of oxidation products of linolenic and linoleic acids during alkali isomerization, 5974*d*.

**Conjunctiva.** See *Eyes.*

**Conjunctivitis,** vernal, urinary 17-keto steroids in, 7126*g*.

**Conopia exitiosa.** See *Sanninoidea exitiosa*

**Conorhynchus mendicus,** control on beets, 9346*h*.

**Conotrachelus nenuphar** and(or) **Plum curculio,** control of, 3139*h*, 6777*i*, 9329*h*.
control of, on apples, 804*c*.
effect on parasitization of oriental fruit moth, 1144*a*.
on peaches, 1143*g*, 4417*a*, 5527*i*, 7630*g*, 9348*g*.

**Conquinine.** See *Quinisine.*

**Conserves.** (See also *Food, Jelly, Marmalades.*)
analytical and organoleptic findings on, 6747*d*.
ash detn. in jams, 2547*h*.
cans for, testing laquers for, 6432*e*.
coatings of cans for, detn. of Sn in, 9275*c*.
grape, DDT residues in, 6328*h*.
pectin effect on cranberry and red currant, 3536*h*.
prepn. of, 5507*g*.
reducing sugar detn. in, 7153*b*.
strawberry, measurement of solid content of, with hand refractometer, 5879*g*.
strawberry, reduction of color loss in, 1500*i*.
vitamin C in orange and tomato, 3538*c*.
vitamin C retention in fruit, 2709*b*.
water-insol. solid detn. and, 8572*a*.

**Consistency.** (See also *Viscosity.*)
measurement of, of aircraft lubricating [illegible]
of coatings, 873*f*.
of incendiary gels, 4015*a*
of paints and enamels, 4
of petrolatum and waxes,

**Consistometers.** (See also *Viscometers.*)
for rennet curd, 4393*i*.
**Constantan,** elec. resistance of, effect of pressure and temp. on, 5679*b*.
**Constants.** (See also *Bonds; Dielectric constants; Fine-structure constants;* etc.)
atomic and nuclear, values of, 8842*h*.
atomic, changes and additions in consistency diagram of, 4948*c*.
atomic, formulas of interpolation for detn. of, 7815*d*.
book: **Tables de constantes et données numériques. T. 2. Constantes sélectionées physique nucléaire,** 948*c*.
electrochem., effect of new elec. units on, 2101*f*.
**Constitution.** See *Chemical constitution.*
**Contact angles,** hysteresis of, 1239*f*, 1240*a*.
imaginary, Jones-Ray effect and, 8234*f*.
measurement of, of chromate cleaning mixt. contg. HF against glass, 4599*f*.
of small drops, 17*f*.
surface structure and, 1239*d*.
of tritolyl phosphate on calcite, Cu and quartz, 8234*f*.
of water and water vapor with leather, 3639*i*.
of water with Fe or Zn coated with adsorbed org. compds., 28*e*.
with metals or sulfides, effect of gases on, 2485*h*.
with paraffin wax, 1239*c*.
**Containers.** (See also *Ampuls; Bags; Barrels; Bottles; Cans; Ceramic ware; Cylinders; Enameled ware; Flasks; Glass; Hollow articles; Kettles; Packaging; Tank cars; Tubes.*)
bacterial growth in water stored in glass, 1328*f*.
for baking bread, coatings for, P 4396*f*.
for bituminous substances, coatings for, P 907*f*.
book: **Vorschriften und Regeln der Technik fur Druckgefässe,** 5648*g*.
bottle caps—see *Bottle caps.*
calcium sulfate and $Cr_2O_3$ crusts on glass, removal of, 6876*c*.
cells, for spectroscopic examn. of volatile liquids, 6472*i*.
from cellulose acetate, 9522*e*.
closures for, P 8744*f*.
cork compn for, P 4518*i*.
from peptized plasticized rubber compns., P 2025*c*.
concrete storage tanks for refrigeration plants, deterioration of, 8637*c*.
decoration of metal, 871*i*.
for dyeing—see *Dyeing apparatus.*
for feeding stuffs, effect on bleaching and aroma of contents, 1880*a*.
for fermentation—see *Fermentation.*
fiberboard, effect on storage life of army biscuits, 778*e*.
flow from tanks, nomographs for, 4906*b*.
for foods, coatings for, P 2813*f*, P 8576*e*.
cornstarch size as allergen in, 1122*g*.
gelatin base coating for, P 8576*d*.
heating rates of food, 1491*i*.
inks for printing on waxed, 4870*i*.
rodent urine detection on, 323*h*.
for fruit juices, 8571*g*.
for fruit juices, from Al and Al alloys, 1877*f*.
for fuels and oils for aircraft, coated or lined with polyamide mixts. with rubberlike polymers, P 6457*b*.
for fuels, fitting compn. for, from butadiene-acrylonitrile elastomer and phenolic resin, P 2807*c*.
interliners for, P 6466*e*.
for rockets, 9449*i*.
ghee storage in, 6327*f*.
glass for, 2748*b*.
glass for, effect of rinsing on chem. durability of, 3578*i*.
for hydrocarbons, self-sealing, P 7668*g*.
for hydrogen peroxide, 5553*g*.
for insecticides for aerosols, 7625*c*.
insulating materials for, 6761*g*.
leaks in—see *Leaks.*
level of material in—see *Level.*
lining(s)—see *Lining(s).*
oil tanks—see *Petroleum.*
for petroleum liquefied gases, 2412*d*.
for pickling—see *Pickling.*
from plastic sheets, formation of, 6862*c*.
pressure, creep in design of, 8216*a*.
prestressed shells for, 8215*i*.
standards of A.S.T.M. for, 4202*bdi*.
with thick walls, 7271*g*.
reaction—see "app. for effecting" under *Reactions.*
for rubberlike tacky materials, P 1212*d*.
salt-bath, 4990*i*.
sampling app. for—see *Sampling apparatus.*
sealing of—see *Sealing compositions; Seals.*
for shipping, standards and definitions of terms for, 4787*f*, 4788*c*.
sodium hydroxide preservation from contamination in metal, P 1882*i*.
for sodium (purified), 8762*a*.
for standard electrode, P 6097*f*.
standards for, 4399*i*.
stoppers for—see *Stoppers.*
tanks for brine and ammoniacal liquor, 99*h*.
thermal insulation of process vessels, expansion and, 5236*a*.
tin plate for—see *Tin plate.*
vacuum—see *Vacuum containers.*
for water—see also *Water, potable and industrial.*
waterproofing of, with rubbers, 4884*h*.
water tanks, cathodic protection of, anodes for, 6141*g*.
water tanks, degreasing of, P 6966*i*.
**Contarinia pyrivora** and(or) **Pear midge,** control of, 9348*c*.
**Contraceptives,** aliphatic hydroxy compds., P 4818*i*.
**Contractin,** from muscle exts., 2258*e*, 6253*h*.
**Contraction,** of cellulose, 7680*f*.
of cement mixts., 2393*d*.
on calcination, 3165*b*.
humidity and, 4825*c*.
of fibers, ion exchange and, 468*g*, 8237*g*.
of gels, 922*f*.
of gels of polymeric acids by ionization, 8803*b*.
of hardboard, 8079*i*.
of liquid mixts., foam formation and, 8779*c*.
of magnesia during calcination, 3156*e*.
measurement of, of molded plastics, 4787*i*.
measurement of, of synthetic resins during hardening, app. for, 1213*a*.
of multivalent filamentous mols. with ionization, 8812*e*.
of polymers (oriented), 2810*e*.
of protein fibers by heat, 468*c*.
of refractories during heating, 3163*d*.
in sintering of metals, 7391*b*.
of wood and paper and their control, 5941*b*.
**Contractometer,** for electrodeposit stress, 5315*c*.
**Contrainsulin.** See "hormones of anterior lobe of" under *Pituitary gland.*
**Contrast media.** See *Radiography.*
**Control apparatus.** (See also *Thermoregulators,* etc.)
analytical instruments in automatic, 8213*b*.
for electroplating, 7352*e*.
for high pressure valves, 4523*f*.
infrared gas analyzer, 4054*g*.
for liquid level—see *Level.*
for object stage in electron microscope, P 3669*a*.
photoelec., 6871*i*.
for pickling systems, 7399*f*.
using infrared spectrometry, P 6873*d*.
in water and sewage plants, maintenance and repair of, 6344*c*.
**Convallaria,** identification of fluidexts. of, 3145*h*.
identification of tinctures of, 4426*b*.
*majalis* (*lily of the valley*), active principles from, 3976*d*.
cardiotoxins of, effect on *Daphnia,* 8616*f*.
concentrate of, P 6371*f*.
sodium α-naphthylacetate effect on life of cut, 5092*b*.
**Convallatoxin,** cardiotonic properties of, 5116*e*.
isolation from *Convallaria majalis,* 3976*d*.
triacetate, 1431*a*.
**Convallatoxin acid*,** triacetate and its Me ester, 1431*a*.
**Convalloside,** 818*c*.
**Convection.** See *Flow; Heat.*
**Conversion.** See *Heat of conversion;* for internal conversion, see *Gamma-rays.*
**Conversi-Pancini-Piccioni effect,** 34*c*.
**Converters.** (See also *Electric converters;* and "catalytic, app. for effecting" under *Reactions.*)
flow in side-blown, 7878*f*.
lining compn. for, P 3988*d*.
for nitrogen-low steel, 3327*e*.
**Conveyers.** (See also *Belts; Charging apparatus.*)
for catalysts through hydrocarbon cracking zone, P 3187*i*.
disperse-system movement in screw, 6872*b*.
for heat-treated shells, etc., P 8*f*.
**Convulsants.** (See also *Anticonvulsants; Antispasmodics.*)
coramine and metrazole actions as, locus of action of, 7137*d*.
effect on carbonic anhydrase, 5865*f*.
**Convulsions,** acetylcholine and, 6744*i*, 9260*h*.
acid-base changes and, 308*c*.
from ammonium chloride injection, 2302*g*.
audiogenic, effect of anticonvulsants on, 2699*h*.
carbon dioxide effect on, 4770*d*, 9261*f*.
effect on cortins and ketosteroids in urine, 9235*h*.
electrically induced, decamethonium iodide in controlling, 6739*i*.
effect of acetylcholine, amyl nitrite, benzedrine and prostigmine on, 2327*h*.
effect on water metabolism in psychotic patients, 9234*g*.
elec. patterns in, production of, 5122*e*.
elec. shock, effect of anticonvulsants on threshold for, 3101*b*.
epileptic, and convulsions from phenolic compds., 305*c*.
flour producing running, in dogs, 2707*g*.
insulin, 9247*b*.
lactates, phosphates and pyruvates in brain in, 9202*e*.
metrazole, action of, 8553*c*.
from nitrogen chloride, effect of $CO_2$ on, 3106*d*.
potentials of, effect of anoxia, asphyxia and $CO_2$ on, 9260*d*.
production of unilateral epileptiform, by benzedrine, 1865*i*.
proprioception and, 7134*g*.
running fits in dogs, brain in, 8047*f*.
from strychnine, atropine antagonism and, 314*f*.
effect of adrenaline and pitressin on, 315*h*.
effect of prostigmine on, 2327*h*.
temporal and spatial distribution of changes in brain during, 9238*g*.
threshold for, with and without diphenyl hydantoin, effect of vasomotor drugs on, 4765*e*
of epileptics and nonepileptics, 9231*g*.
in normal and desoxycorticosterone-treated animals, cations in blood plasma and brain in relation to, 7146*a*.
**Cooking,** of beef, effect on protein biol. value, 5510*b*.
of cabbage, effect on vitamins, 9288*c*.
of chili peppers, effect on vitamin C, 1121*h*.
of corn, effect on vitamin content, 9288*c*.
of cowpeas, effect on vitamin content, 1121*e*.
effect on vitamins $B_1$ and C in Lima beans and soybeans, 1121*f*.
of eggs, effect on folic acid content, 4782*i*.
with electronics, effect on food nutritive value, 4779*e*.
of foods of the Punjab, effect on vitamin $B_1$, 8565*e*.
hydrolysis of vegetable proteins due to, 8572*g*.
of mangos and papaya, effect on vitamin C, 9276*h*.
of milk, effect on acid formation in curd, 9283*c*.
of peaches, effect on carotenoids and vitamin C, 3535*h*.
of potato pancakes, fat losses during, 6754*f*.
with radar energy, 1493*a*.
of rice, effect on vitamin $B_1$, 6755*b*, 7595*c*, 8065*i*.
of sausage meat, effect on vitamin content, 9285*b*.
of soy grits, effect on proteins and vitamins, 1495*b*.
of spinach, effect on vitamin content, 9288*f*.
vanilla flavor (synthetic) for, P 332*b*.
of vegetables (Italian), effect on vitamin $B_1$, 6753*i*.
**Cooking utensils.** (See also *Enameled ware.*)
cladding of, P 6564*h*.
coating of, with silicones, P 5634*d*.
effect of Al alloy, on vitamin C in foods, 5125*e*.
of silicates, raising fire-resistance of, P 5166*f*.

silicone-grease compns. for coating, 3544*e*.
stainless steel, effect of org. acids on, 2707*a*.
for starchy and similar materials, P 6448*f*.
**Cooling.** (See also *Refrigeration;* and "low" under *Temperature.*)
of absorbers for hydrocarbons from natural gas, 7220*ef*.
of absorption oils, $C_3H_8$ in, 382*g*.
of adsorbent beds, 1253*g*.
of anode flame in C arc, 4145*d*.
antifreeze substances for—see *Antifreeze substances.*
of blast-furnace hearths, 4612*ef*.
of bone char, 8649*i*.
of butadiene and butadiene-styrene polymers, 8191*e*.
of butter, effect on quality, 5877*g*.
of camptonites from Tyan-Shan, U.S.S.R., 6128*g*.
of ceramic ware, swelling during, 4823*e*.
of coke—see "quenching" under *Coke.*
of cows with mist, effect on body temp. and milk production, 6775*b*.
curves—see also *Thermal analysis.*
curves, accuracy of, 9001*e*.
curves, app. for detn. of, 8754*g*.
effect on elasticity of rennet curd, 4394*c*.
of flue gases in regenerating catalysts from conversion of hydrocarbons, P 1956*c*.
of fluidized solid reactor beds, P 6478*a*.
of fruits and vegetables prior to nonrefrigerated storage, 9288*f*.
of fuel vapors in cylinder, increased antiknock effect by, 7674*f*.
of gases on mixing, 8773*c*.
of gas (fuel), spray scrubbers in, 8119*g*.
in gas-mixt. fractionation and purification, P 3176*d*.
of glass—see *Glass.*
of glass tanks by air, 9399*c*.
of lead chambers for manuf. of $H_2SO_4$, P 6793*h*.
liquids for, P 661*g*.
of engines, fuel knock-limited performance of, 839*i*.
for machining metals, P 6819*b*.
stabilization of halogenated-hydrocarbon, P 5887*h*.
of lubricating grease in enclosed system, P 5940*e*.
from magnetization of ferromagnetic alloys, 3673*d*.
of metals, P 6144*a*.
of milk (powd.) *in vacuo*, P 1124*a*.
in petroleum cracking, solar oil in, 3601*g*.
rate of, effect on lubricant properties at low temp., 7675*c*.
rate of, of basaltic magmas, crystal size and distance from cooling wall in relation to, 6127*g*.
of reactors, 2823*g*.
rocket-motor, 4619*h*.
of rubber (reclaimed), refining mill with compressed air, P 6459*a*.
of steel wire with compressed air in patenting, 8335*d*.
sub-, of liquid metals, 8776*h*.
subzero metal treatment by—see *Metals.*
super—see *Supercooling.*
of tea oil (hydrogenated Chinese), 5207*d*.
of tools for cutting water-sol. crystals, P 2343*g*.
water for, control of pH in, 3184*h*.
in nuclear-fission operations, purification of, 8079*f*.
phosphate detn. in, 1887*c*.
treatment of, 7169*d*, 8584*c*.
water systems for, prevention of scale formation with liquid $SO_2$, 8584*b*.
**Cooling apparatus.** (See also *Condensers; Refrigerating apparatus;* and "-exchange app." under *Heat.*) P 2048*d*.
for butadiene and butadiene-styrene polymers, 8191*e*.
for cellulose solns., P 6416*d*.
for coke—see "quenching" under *Coke.*
for electromagnetic app., P 6874*d*.
engine—see *Engines; Radiators.*
frost adhesion to, compn. for preventing, P 3949*f*.
for fruits and vegetables, 9288*g*.
for gases, P 8758*d*, P 8759*b*.
for glass—see *Glass.*
for hydrochloric acid manuf., 9391*f*.
multi-stage evaporative, 1616*g*.
scale formation in, 3952*h*.
scale removal from, 792*d*.
for sulfuric acid, 2743*c*.
towers, app. for injecting HCl into make-up water of, P 3250*g*.
calcn. of size of, 4902*c*
towers, maintenance of, 1128*g*.
**Coördinated compounds.** See *Chemical compounds.*
**Coördination.** (See also *Bonds; Valency.*)
chelation, covalency and, 8941*g*.
**Coördination compounds.** See *Chemical compounds.*
**Coördination number,** of bismuth in airol and dermatol, 1354*d*.
of cadmium complexes, 5692*a*.
in heteropoly acids, 8938*d*.
relation to heat capacity of solids, 6499*h*.
**Copalquin,** bark ext., opium adulteration with, 8616*c*.
**Copals.** (See also *Dammar; Resins;* etc.)
adhesive from, P 7756*c*.
Congo, 9051*h*.
formation, classification, properties and uses in varnishes of Congo copal and, 1198*g*.
jelutong, acid nos., ester nos., formation and varnishes of, 1198*i*.
kauri—see *Kauri.*
Manila—see *Resins.*
phenolated, adhesives from Neoprene-AC and, 7743*i*.
running or thermal processing of, 6837*g*.
**Copiapite,** magnesium-high, from Vedrin, Belgium, 72*h*.
**Copper.** (See also *Sprays.*)
absorption by clays and soils, 7618*e*.
absorption by humic acid and soil, 7618*d*.
adhesive for, 9521*d*.
adsorption by $Fe(OH)_3$, 2544*b*.
alpha-ray stopping power of, 4124*i*.
amalgamation by Hg-salt solns., 6520*e*.
annealing of, antioxidant for, P 6966*a*.
annealing of, in protective gas, 3757*d*.
annealing twins in, 7887*f*.
anodes of, contg. S, anodic behavior of Pd in, 2519*c*.
anodic and cathodic behavior of, 8913*i*.
anodic behavior of, 47*a*, 7792*f*.
anodic soln. in $H_3PO_4$, texture and, 5677*c*.
anodic soln. of textured, potential of, 6523*c*.
anthocyanin formation in *Spirodela oligorrhiza* and, 7550*g*.
arsenical, of Aegean region, 2825*h*.
atomic wt. of, 8764*h*.
bactericidal action on *Vibrio cholerae,* etc., 9154*h*.
in beer, 1147*d*.
biogeochemistry of, 3321*c*
bismuth-contg., working behavior of, 83*e*.
bismuth embrittlement in deoxidized, elimination by Li, 5718*f*.
bismuth embrittlement of, 6555*d*.
blackening of, P 3311*g*, P 7404*f*.
in blood, of *Brucella* immune and normal, rabbits, 9228*e*.
of children, 5475*g*.
in Grave's disease, 7571*c*.
in kala azar, 3923*f*.
of protein deficient and Fe-deficient swine, 2292*c*.
during sexual cycle of *Torpedo marmorata,* 8560*h*.
bond with C, stability of, 8940*i*.
book: Electro plating and Anodising, 956*d*.
bound by protein in biuret reaction, 4305*i*.
in brain, 6719*h*.
in butter, and effect of washing thereon, 8568*i*.
in calcium gluconate prepn., 8614*h*.
in carboxypeptidase from pancreas, 3859*h*.
catalysis by, deactivators for, 6063*c*.
catalysis by, of bromination of $AcCH_2CO_2Et$, 4642*d*.
as catalyst alone and with Cr in hydrogenation of bis(alkenyl-2-alkoxyphenyl) carbonates, P 4299*b*.
as catalyst in bromination of 2-carbethoxycyclopentanone, 3273*e*.
in Cannizzaro reaction, 4651*e*.
in chlorination of methyl silanes, P 3441*e*.
in chlorite manuf., P 3159*i*.
in decarboxylation of 2-furanacrylic acid, 2615*d*.
in decompn. of $NH_3$, 8827*f*.
in decompn. of $H_2O_2$, 5553*h*.
in decompn. of oxalacetic acid, 5839*d*, 6497*b*.
in dehydration of EtOH, 2498*d*.
in dehydrogenation and racemization of *sec*-BuOH, 1249*c*.
in dehydrogenation of alcs., 1635*c*.
*as catalyst* in dehydrogenation of benzaldehyde oxime, 5760*f*.
in dehydrogenation of $Et_2N(CH_2CHMeNH_2)$, 133*f*.
in dehydrogenation of piperazine, 1813*d*.
in diolefin manuf. from monoölefin, P 7950*c*.
in ester-exchange manuf. of esters of secondary and tertiary alcs., 7951*f*.
in esterification of EtOH, 8252*e*.
in hydrogenation of 2-furaldehyde, 1719*a*, P 7049*a*.
in hydrogenation of org. compds., 2218*i*.
in H-atom recombination, 8251*d*
in isomerization of dichlorobutenes, 663*f*.
in isomerization of β-hydromuconic nitrile, P 6647*f*.
in oxidation of gasoline, deactivation of, 5932*c*.
in oxidation of MeOH, 8074*c*.
in oxidation of org. substances, deactivation by amino aldehyde-amine condensation products, P 4460*a*.
in oxidation of paraffin oil, 2411*b*
in oxidation of vitamin A in soupfish shark-liver oil, 9379*h*.
in polymerization of allyl esters, 8212*bh*.
in purification of fuel gas, 3172*i*.
in reaction of Ge with MeCl, P 2631
in reaction of Si with alkenyl chloride P 6220*e*.
in reaction of Si with MeCl, P 1051 2160*e*.
in reaction of Si with MeOH, 6647*d*.
in steam oxidation of ethers to aldehydes, P 8398*d*.
catalyst pellets of, P 1161*c*.
catalysts contg., P 7609*f*.
in dehydrogenation of isobutane 5382*e*.
in dialkyldihalosilane manuf., 4286*h*.
for hydrogenation of CO, P 48[illegible]
in hydrogenation of furan and derivs., P 4301*i*.
catalysts of $Al_2O_3$ and, in picoline manuf. from allyl alc. and $NH_3$, P 5426*i*
catalysts of $Al_2O_3$, Cr and, in dehydrogenation of 1,1-diaryl paraffins, P 2[illegible]
catalysts of Al, Fe and, in nitration of paraffins, P 4285*c*
catalysts of $H_3BO_3$, Fe, Mn and, alkali and temp. effect on hydrogenation of CO by, 2397*h*.
catalysts of Ca, chromite and, in hydrogenation of coal, 2404*d*
catalysts of Cr and, hydrocarbon oxidation on, 927*e*
catalysts of Cr, Co and, in hydrogenation of mixts. contg. higher alcs., P 5032*e*
catalysts of chromium oxide and, 6062*e*
catalysts of $Cr_2O_3$, ZnO and, in methane synthesis, 3352*a*.
catalysts of Co, $ThO_2$ and, in hydrogenation of CO, 2406*h*
catalysts of CuO and, in dehydrogenation of 2,3-butanediol, P 3811*h*
catalysts of Fe, kieselguhr, Mn and, in gasoline synthesis, CO adsorption by, 2413*e*.
catalysts of $PbCrO_4$ or $SnCrO_4$ and, in hydrogenation of $C_2H_2$ to $C_2H_4$, P 3833*i*.
catalysts of Pb, Zn and, in dehydrogenation of alcs. to aldehydes or ketones, P 4287*f*.
catalysts of Mg and, for hydrogenation and dehydrogenation, P 9430
catalysts of $H_3PO_4$ or $H_2SO_4$ and, in dehydration of hydracrylic acid, P 6221*i*.
catalysts of Si and, for reaction of hydrocarbon halides with Si, P 5517*b*.
catalysts of synthetic zeolite and, P 4791*i*.
catalysts of Zn and, in $NH_3$ reaction with aldehydes, P 1433*g*.
catalysts of Zn and, in hydrogenation of acetylenic alcs., 6969*i*
cathodes, chloropicrin reduction at, 8915*h*.
current growth and cathode spot in arc discharge with, 3704*e*.
in electrolytic reduction of 2-methyl-3-buten-2-ol and 2-methyl-3-butyn-2-ol, 994*g*.
hydrogenation and reduction on, 5677*b*

*cathodes*, in oxalic acid reduction, 49*e*.
in reduction of nitroguanidine or nitrourea, 4150*e*.
cation-exchanger dynamic activity toward, 3268*f*.
ceramic-molded-bodies contg., P 5566*a*.
in chem. engineering, 1*c*, 8745*c*.
chromatography on $Al_2O_3$, 8293*i*.
cladding with, on Cr-Ni alloys, P 6564*i*.
cladding with, on iron or iron-alloys, P 2154*b*.
in clays and sedimentary rocks of the Apennines, Italy, 978*h*.
cleaning antique, 3335*i*.
cleaning of, before electroplating, 95*b*.
cleaning of, from heavy-metal compds., P 7405*c*.
in coal, 1941*d*, 8639*e*.
-coated iron, in cladding Be-Cu alloys with precious metals, P 6966*b*.
-coated steel, brazing, soldering and welding of, 6561*d*.
coating of, P 1710*i*.
with Cr, Mo or W, 8903*h*.
with Pb alloys, P 556*c*.
with Ni, P 7893*c*.
coatings for, from glycerol α-allyl ether phthalate and succinate, 9480*h*.
coatings from, on electron-tube cathodes, P 2104*g*.
sprayed, 546*c*, 986*a*.
stripping from scrap, 3297*b*.
coating with, on ferrous metals, P 6564*g*.
on Fe and steel, P 555*h*, P 7895*f*.
on Fe particles, P 9022*d*.
on Ni alloy, P 5732*b*.
on nonconductors, P 1274*c*.
on plastics for electrodeposition, 8901*b*.
on steel, 3337*i*.
by vacuum evapn., P 104*d*.
coins, 3335*h*.
colloidal, in org. solvents, 6886*d*.
in coloring horizons of multicolored Permian sediments of Don Basin, 6130*d*.
coloring of, 4148*i*, 5352*h*.
color reaction of ions of, with azo dyes, 597*f*
complexes with conalbumin and siderophilin, 9211*d*.
with pyridine and benzoic, salicylic and acetylsalicylic acids, 70*b*.
with respiratory inhibitors, 8561*i*.
compression of, 4917*a*.
in concn. cells, 8286*g*.
corrodibility of foils of, 8327*f*.
corrosion inhibitor adsorption by, 6139*h*.
corrosion in metallic systems contg., inhibitors for, P 8349*c*.
corrosion of, 5722*g*, 5723*i*.
in $Ac_2O$ and glacial AcOH, temp. and, 6111*f*.
by butyl oil, 813*f*.
and its control in starch-sirup manuf., 889*b*.
detn. of rate of, 7401*c*.
by engine exhaust, 9016*i*.
by hydrocarbons and oxygenated org. compds., and effect of water thereon, 8128*d*.
by microorganisms, 98*d*.
in refrigerating app. by lubricating oils, 5177*h*
by S, anthraquinone as inhibitor in, 4207*h*
in $SO_2$, 101*g*.
by S in hydrocarbon oils, prevention by *tert*-butyl hydroperoxide, P 5582*f*.
underground, 6141*a*.
by water, 6343*h*.
corrosion of solder-coated, 4622*a*.
corrosion resistance to HCl, 550*a*
corrosiveness of S in motor fuels to, testing, 9426*b*.
couple with Sn, pectin gelation by, 3266*g*.
creep of, 4615*i*, 6555*f*.
in crops and soils and long-term fertilizing expts. of Cu, 4410*f*.
crystallochem. electronegativity of ion of, 8231*a*.
crystal orientation of cold-rolled and annealed strip, 2558*c*.
crystals (single) of, Co deposition on, 6063*a*.
$Cu_2O$ formation on, 2003*h*.
electron scattering by, 6907*g*.
crystal structure of, 6482*g*.
crystal structure of films of, 4066*a*, 5053*c*.
crystal structure of films of, on galena, 6483*e*.
deactivators for, P 3840*a*.
deficiency of, in acid soils and effect on Mn toxicity, 2349*i*.
effect on rate of wool growth and nature of fleece of Merino sheep, 4850*c*.
in oat nutrition, 2352*h*.
in plants, soil condition and, 7618*i*.
in strawberries, 9329*h*.
in subterranean clover, 4801*h*.
in tung trees, 3552*e*.
deformation and recrystn. of, 6956*d*.
deformation and stress of, 82*e*.
deformation (plastic) of, 83*c*.
depolarization (cathodic) of, 1663*e*.
deposits in boilers, effect on corrosion, 4995*g*.
destruction of, detn. of resistance to, 1299*c*.
deuteron bombarded, Mn from, 8266*h*.
deuteron bombardment of, angular distribution of neutrons from, 8866*d*.
deuteron bombardment of, neutrons from, 8866*h*.
diffusion between brass and, 1622*h*.
diffusion const., diffusion current and half wave of reduction of, 5327*b*.
diffusion in Al-Cu-Mg alloys, detection of, 9011*e*.
in galena, 6483*i*.
in Fe, 8334*f*.
in suspengel of bentonite, 7777*h*.
diffusion of ions of, in cellulose xanthate gel, 6048*f*.
diffusion of radioactive, during oxidation of Cu foil, 2851*b*.
in *Digitalis purpurea* leaves, 6703*i*.
displacement from soln. by Raney Ni catalyst, kinetics of, 928*c*.
displacement of ion of, by Ni and Cu removal from Ni-plating bath, 7796*i*.
drilling of, effect of liquids on, 7889*g*.
dust from S and, in *Sclerotinia sclerotiorum* control on beans, 2355*g*.
dust from S and, peanut treatment with, and Cu content of peanuts, 9322*f*.
effect on adrenaline and insulin, 742*c*.
on alcoholysis of penicillins, 1455*d*.
on Al-Mg-Zn alloys, 3333*h*.
on Alyce clover, crimson clover and soybeans, effect of liming on, 8593*c*.
on amino acids in legumes, 342*a*.
on bush beans, oats and potatoes on peat soils, 7623*a*.
on cast Fe, 2559*b*, 6553*i*.
on cast Fe bearings, 5716*i*.
on catalase inhibition by vitamin C, 1449*c*.
on catalyst in hydrogenation of CO, 2397*i*, 2398*b*, 2400*a*
on cell respiration, 6707*d*.
on corrosion resistance of Al-Cr-Mg-Si alloys, 549*b*.
on corrosion resistance of plated Duralumin, 2918*a*.
on creep in Pb alloys, 2563*a*.
on detn. of Cr, Mn and Ni in steel, 4598*f*.
on discoloration of canned fish, 8069*b*.
on dyeing of wool with chrome dyes, 5953*c*.
on forging, rolling and die-stamping of steel for bearing balls, 532*c*.
on grain growth in cast Al, 2143*c*.
on graphite form in cast Fe, 7395*a*.
on high-C Cr steel, 532*e*.
on high-Si cast Fe, 536*a*.
on intestine, 310*h*.
on Fe-Mn alloy for welding electrode, P 3344*c*.
on light sensitivity of AgCl, 6927*f*
on metabolism of Cu and P by milking cows, 9313*a*.
on *Mycobacterium smegmatis*, 5441*c*.
on Ni detn. in steel, 1284*c*.
on Ni plating solns., 2098*g*.
on oxidation of ferrous ions inhibited by sulfide, 1246*d*
on oxidation of molten Pb, 7881*g*.
on oxidation of Ni, 4619*f*.
in photometric detn. of Fe, Mo and Ni, 8298*f*.
on pig Fe castings, 1296*e*.
on plants in South Australian soils, 8590*i*, 8591*d*.
on plastic deformation of Al, 2557*h*.
on polarographic drop time, 1270*h*.
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on reduction ability of whole and skim milk and cream, 9278*i*.
on AgBr emulsions, 4155*e*.
on spectrum of Al, 7338*d*.
on steel, 7397*e*.
on steel by powder metallurgy, 3755*i*.
on steel contg. Cr, Al and Si, P 3770*h*.
*effect* on steel corrosion by $NH_4NO_3$ solns., 5722*c*.
on steel resistance to tap water, 1301*d*.
on steel-wire patenting, 2558*c*.
on stress corrosion of Hy 43 and Igedur, 6961*f*.
on stress-corrosion resistance of Al-Mg-Zn alloys, 92*c*.
on vegetables, 1134*e*.
on velocity of hydrolysis of coconut oil, 8707*a*.
on viscosity of Al, 1701*i*.
effects of feeding to growing foals, 8467*a*.
in egg and its distribution during development of embryo, 3531*c*.
elastic and structural properties of, 9001*g*.
elastic consts. of, 2482*h*.
elasticity of, 3332*i*, 8864*e*.
at low temps., 7398*a*.
temp. and, 5715*c*.
elec. skin effect for, 5679*g*.
electrodeposition of, baths for, 2872*g*.
on chalcopyrite, galena and pyrite, 4146*d*.
colloids in, 1269*a*.
from cyanide solns., effect of pressure on efficiency of, 46*c*.
effect of addn. agents on polarization in, 950*e*.
from fluoborate baths, 8908*a*.
output and work of, 3725*h*.
from slightly sol. salts, 8905*d*.
from solns. contg. complex ions, 8901*b*.
on steel in test for cleanliness, 8899*g*.
electrodeposition of Ge and, 2876*b*.
electrodeposits (disperse) of, 5674*h*.
electrodeposits of, stresses in, 4147*f*.
electrodes in $Na_2SO_4$ soln., effect of org. compds. on capacity of, 5316*c*.
electroforming, P 8918*b*.
electroforming, rough and streaky deposits in, 7353*a*.
electron-bombarded, x-rays from, 1262*c*.
electron bombardment of, 4120*i*.
electron d. of, 31*g*, 4100*f*.
electroplating on, racks for, 8907*g*.
electroplating with, 2098*e*, P 2103*b*, P 4152*h*, P 6094*g*.
on Al aircraft components, 7833*f*.
on Al and Al alloys, P 4588*d*, 7833*h*.
analysis and control of cyanide solns. for, 7352*e*.
on bearings, P 7896*a*.
on Be-Cu alloy, 3727*h*.
carbonate removal from cyanide solns. for, 6520*h*.
on Cr-alloy wire for sealing to glass, P 8918*f*.
on Cr-Ni resistance wire, P 4153*f*.
destruction of cyanides from, by electrolysis, 6924*c*.
diaphragm tanks for, 8899*g*.
effect of high-frequency currents on, 2872*i*.
on fabric and fibrous or porous materials, P 6528*h*.
on ferrous metal, P 2878*h*.
H embrittlement in, 8903*e*.
by internal electrolysis, 8285*a*.
on piezoelec. crystals, P 1666*g*.
pitting prevention in, P 4152*bd*.
on powd.-brass parts, 6924*h*.
with reversing current, P 956*e*.
from Rochelle soln., 4147*g*.
on rotary-printing cylinders, P 7358*h*.
on steel wire, 4583*h*.
wastes from, effect on fish, 3125*b*.
wastes from, effect on sewage-treatment process, 3125*d*.
on Zn-base die castings, 3727*a*.
electroplating with brass and, P 4151*i*.
equation of state for, 4916*c*.
erosion (bridge) of contacts of, 1235*c*.
exchange between Cu ion and, 6890*g*.
films of active, 6531*i*.
films of, elec. resistance and optical properties of, 2830*c*.
films on ZnS, crystal growth in, 7286*a*.
flake and powders, pigment extenders for, in antifouling paints, 7715*c*.
fluorescent screen contg., P 7832*d*.
in foods, 323*d*.
in food, toxic effects and allowable limits of, 2705*i*.
friction between In and Zn and, 5273*c*.
friction (internal) in, and its systems with Al, Au, Sn and Zn, 3258*e*.
in fruits and vegetables, 9289*a*.
fungicides—see *Fungicides*.
galvanized-steel corrosion by, in hot-water system, 8334*a*.

gamma-ray absorption by, 1647*a*, 8867*a*.
gamma-ray-bombarded, neutrons from, 4116*b*.
gamma-ray bombardment of, thresholds for reactions in, 4115*g*.
gamma-ray cross section of, 3283*f*.
gamma-ray scattering by, 8266*a*.
gamma-rays from, after neutron capture, 5282*b*.
gas removal from, with N, 5715*d*.
glass coloration with, 8111*f*.
glass contg., luminescence of, 5671*h*.
glass surface contg., P 1934*g*.
grain coarsening in, 2558*a*.
grape court-noué and, 803*b*.
in graphite (Acheson), 8276*c*.
in grasses and herbs of hay plots, 4347*i*.
halite (blue) color from, 6116*i*.
hardening of, by cold-working under influence of surface-active substance, 2144*g*, 2145*g*.
heat transfer by radiation to surface of, 4039*b*.
hexadecane spreading on, effect of fatty acids on, 4055*b*.
hollow ware of, refinishing of, 5676*a*.
hydraulic fluid for use with, P 5519*c*.
hydrogen overvoltage on, in HCl contg. MeOH, 503*e*.
hydrogen overvoltage on, in MeOH solns., 4585*e*.
hypoglycemia from, 3515*g*.
industry in 1946, 2127*b*.
insecticides—see *Insecticides*.
ions of, as catalyst in the decompn. of DDT by bases, 3697*e*.
iron or steel cementation with, 2146*e*.
isotope of mass 61, γ-rays from, 935*b*.
isotope of mass 64, absorption of, after administration of high doses and after pretreatment with Cu or Fe, 3098*g*.
angular distribution of 2 annihilation photons from, 8869*c*.
annihilation radiation from, 4948*b*.
β-rays from, 3280*g*, 4119*h*, 4563*f*.
biol. action of, 1445*d*.
electron-positron ratio of, 1259*f*.
measurement of *K*-capture radiation from, 4131*c*.
measurement of concn. in organs, 1445*c*.
from $Zn^{64}$ by neutron action, 8266*b*.
from $ZnCl_2$ by neutron action, 2089*b*.
isotope of mass 65, packing fraction difference between $Pt^{196}$ and, 8869*d*.
isotopes of masses 61 and 64, decay of, 7329*i*.
isotopes of, natural abundance of, 1649*g*.
isotopes (radioactive) of, as indicators, 1452*c*.
in nutrition studies, 1841*i*.
in organs after administration in pregnancy, 9208*c*.
laccase action and, 6247*i*.
lead adsorption by, active centers and, 6028*c*.
lead sheet contg., P 6563*a*.
in leaves of forest vegetation, 725*f*.
liners for gas pipes, 3330*h*.
lining tubes of, with Sn, P 5730*a*.
liquid, limit of soly. in liquid $Cu_2S$, 3319*b*.
lithium treatment of, 3764*d*.
in liver, Co-deficiency ailment and, 8463*c*.
in liver of fetal and newborn lambs, 4361*c*.
luminescent materials contg., decay after cathode-ray excitation, 5670*c*.
luminescent prepns. contg., 5670*i*, 7347*e*.
magnetic moment and gyromagnetic ratio of, 5303*f*, 8262*g*.
magnetic properties of pure, cold-working and, 80*h*.
magnetic steel contg., P 6966*gh*.
magneto-optical rotation of cupric ion, 5244*a*.
mass photoelec. absorption coeff. of, 4834*d*.
in melanose control on grapefruit, 3553*g*.
metabolism inhibition by, mechanism of, 8063*g*.
metabolism of, during childhood and its relation to schizophrenia, 9237*c*.
effect of Mo on, 9187*e*.
in infancy, 8520*f*.
radioactive tracer studies in, 3098*e*.
metal crystn. on, 3684*g*.
in metallo-aromatic compd. prepn., 2592*d*.
minerals, blue colors of, 8982*f*.
of India, 525*c*.
minerals, of Kern Co., Calif., 4607*e*.
of Siskiyou Co., Calif., 2901*f*.
molds from, effect on aging and tensile properties of rubber, 2023*h*.
native—see *Copper ores*.
in Neoprene aging, 894*d*.
neutron absorption by, 8854*i*.
neutron binding energy of, and energy of γ-rays emitted on neutron capture by, 8861*c*.
neutron bombardment of, excitation functions for, and for production of $Cu^{64}$ from $Zn^{64}$, 4117*i*.
neutron cross section of, 3282*h*, 6506*a*, 6909*d*.
neutron scattering cross section and resonance levels of, 5286*c*.
in nutrition of sheep, 4354*e*.
in nutrition of tung tree, 1462*g*.
in ophiolitic rocks of Leghorn and serpentines of Tuscany, 6954*b*.
orange blemish from sprays contg., 9353*h*.
in orange leaves, phosphate fertilizers and, 9324*b*.
in orange (Valencia) leaves, effect of rootstock on, 3491*g*.
in org. chemistry, 2923*f*.
organotropism for lungs, nucleoproteins and, 3927*i*, 6732*h*.
oxidation of, 2851*a*, 4546*b*.
by air at high temps., 8930*h*.
by air, rate of, 8916*c*.
to CuO, 6063*e*.
theory of, 3272*g*.
oxidation of single-crystal film of, 6880*f*.
for oxychloride cement, P 833*a*.
oxygen-free high-cond., P 8345*g*.
in paints (antifouling), loss of, under raft and service conditions, 3631*i*.
in paints (antifouling), toxic and corrosive action of, 3963*h*, 8695*h*.
peanut-hay residue, effect on livestock, 9329*g*.
penetration into luminescent ZnS crystals, 7348*b*.
in perspiration, 4739*f*.
in petroleum, 2139*a*.
in petroleum, age and, 8654*h*.
phosphor of CdS and ZnS activated by, luminescent screens contg., P 1267*b*, P 1268*c*.
phosphor of CdS and ZnS activated by, temp. effect on cathodoluminescence of, 8280*a*.
phosphors contg., 1265*f*, 3723*c*.
Lenard, 8280*g*.
quenching of, 7347*c*.
stimulating action of exciting light in, 5668*f*.
temp.-stability of luminescence of, 3723*e*.
in phosphorus removal from steel, P 5729*d*.
photographic images of, in glass, 4965*g*.
in pigmentation of mammals, 3084*c*.
pigments, prepn. from roasted Cu pyrites, 2443*h*.
in plants and soil, 6772*b*.
polarization in sulfate solns. contg. oxidants, 47*e*.
polarography of, 504*c*.
effect of org. compds. on, 5316*a*.
in fused salts, 5314*i*.
polishing (electrolytic) of, 4960*e*.
porous structure from shot of, P 3049*b*.
potential against Ta in electrolytes, 2101*e*.
potential and soly. in Ni-plating solns., 4959*h*.
potential of cathode of, in mixt. of $CdSO_4$ and $ZnSO_4$, 2874*e*.
potential of foreign metals in solns. of ions of, 2875*b*.
powd., coating with $C_2H_4$ polymers and corrosion-preventing compns. from coated particles, P 6838*d*.
densification of compacts from, 2556*e*.
filters from, P 913*h*.
manuf. by electrolysis, 5313*g*.
manuf. of, P 2919*i*.
manuf. of friction materials contg., 80*c*, P 5519*a*.
mixts. with Al and Zn dusts for gold bronzing, 4489*h*.
mixts. with Pb, sintered product from, 9000*f*.
mixts. with Zn, sintering of, 7391*f*.
standards for, 4786*e*.
powder-metallurgy bodies from, recovering surface permeability of, P 8345*e*.
powder metallurgy of, 7879*e*.
powder metallurgy with Au and Ag powders, 7879*a*.
precipitation in $ZnSO_4$ soln. with ZnO, 2493*c*.
precipitation on Al from Cu salt solns., 4996*d*.
as promoter in hydrogenation of CO, 8117*b*.
protactinium deposition on, 7791*g*.
protection of, by powd. Zn and undecylenic acid, P 1710*g*.
protein contg., from blood serum, 4309*h*.
proton-bombarded, mesotrons from, 4112*b*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with α,β-unsatd. carboxylic acids, 8202*g*.
reaction with Sb, As, and Bi compds. in presence of alkali and alkali cyanides, 8951*i*.
with 1-iodo-2-methylanthraquinone, 7472*h*.
with pyrophosphates, 8935*f*.
recovery by ion exchange, 3668*e*.
recovery from waste alloys, P 7358*a*.
recrystn. of, 3757*e*.
recrystn. (secondary) in, 9004*a*.
removal from alloys, P 4626*e*.
from cognac alc., 5901*c*.
from methyl violet, 4175*c*.
from wine, 2734*d*.
from Zn-recovery electrolytes, P 7839*e*.
in respiratory enzymes and pigment, 1816*g*.
reviews on, 5355*h*, 6960*i*.
in rubber aging, 4870*h*, 9517*h*.
in rubbers and rubber-bearing, 2799*d*.
scale removal from, Isco-Virgo process for, 552*d*.
in scintillation counters, 4112*h*.
in sedimentary deposits of Ural-Volga petroleum region, 2138*g*.
sepn. from Co by chromatography, 3549*h*.
sepn. from fission fragments, 487*c*.
silica gel covered with ions of, luminescence of anthraquinone derivs. adsorbed on, 6085*h*.
silicone films on, frictional properties of, 7219*e*.
silver coating on, O diffusion through, 5267*g*.
silver diffusion into, effect of, on, 7393*h*.
slip of crystals of, 3329*f*.
slip of crystals of, and transient plastic deformation, 81*b*.
soil retaining power for, 3955*a*.
in soils, effect of decompn. of alfalfa meal and oat straw on soly. of, 1514*c*.
N metabolism of plants and, 3888*a*, of Sweden, 7615*f*.
solder for, low temp. properties of, 987*e*.
soldering (brazing) of, to metals, 1301*h*.
effect of temp. on, 7890*a*.
to Fernico, alloy for, P 4211*h*.
solid solns. with elements, lattice spacings of, 3084*h*.
with Au-AuCu$_3$, order disorder in, 3260*e*.
with Au, neutron studies of order disorder in, 4130*i*.
with Fe, 1300*h*.
soly. in Al, 2561*a*.
soly. in Hg, 7880*f*.
soln. in $(NH_4)_2S_2O_8$ solns., kinetics of, 1245*c*.
soln. of, catalysis by Cu and halogen ions, 6496*f*.
specifications of A.S.T.M. for various kinds of, and for products thereof, 4202*h*, 4615*d*.
spectral lines of, relative intensities of, 1652*i*.
spectra of, from Durulumin and steel electrodes during heat-treatment, 5694*f*.
spectrum of, 7858*h*.
in speiss formation, 1696*d*.
stearic acid films on, 7769*f*.
in steel, corrosion and, 5722*i*.
*Streptomyces griseus* requirements for, 1456*i*.
sulfur affinity for, temp. effect, 2558*f*.
in sulfur removal from synthesis gas, P 7214*c*.
sulfur resistance of, 3337*f*.
surface area of, 8325*d*.
surface energy and tension of, 5653*a*.
surface tension of, 2558*b*, 8255*e*.

system: Al–Mg–, 4204*e*.
system: Al–Ni–, 92*g*.
system: Al–Si–, 91*a*.
system: Al–Zn–, 6961*g*.
system: Sb–Sn–, 985*c*.
system: C–, 2914*a*, 6958*b*.
system: Au–, 7771*a*.
system: Au–Ag–, 2562*c*, 9014*a*.
system: Au–, transitions in, 8254*e*.
system: Fe–, activities in liquid, 4931*a*.
system: Fe–S–, 1637*f*.
system: Pb–Ag–, 3335*g*.
system: Mg–Zn–, 2148*a*.
system: Mn–Zn–, 9012*f*.
system: Ni–, 4074*d*.
system: O–, electron arrangements in, 15*a*.
systems: Al–Ni–, Co–Si–, Mg–Sn–, Mn–Si–, Ni–Si–, and Ni–Sn–, 2915*g*.
systems: Bi–Zn–, and Pb–Zn–, Parkes processes and, 3764*f*.
systems: Cr–P–, Fe–P–, and Ni–P, 5719*a*.
system: Si–, 92*g*.
systems: Sn–, and Zn–, hardness of, 6136*e*.
system: S–, 4988*i*.
systems with Al, Zn and transition elements, 3258*g*.
system: Zn–, plasticity of, 2836*h*.
target, *d* value of, 4567*d*.
in therapy, 8614*c*.
thermoelectric force studies with, 2912*c*.
thermoelectricity of, extreme pressure lubricants and, 6400*f*.
tinned, corrosion by NaOCl and its inhibition, 8341*d*.
in tomato-disease control, 4413*b*.
tritolyl phosphate contact angles with, 8231*f*.
trituration of, 357*b*.
tubes in gas mains and services, 5925*f*
tubing from, 983*e*.
in tumor glycolysis, fermentation and dehydrogenation, interrelationships with biotin and $CO_2$, 2694*g*.
uniting of, to glass, prepn. for, P 1935*c*
use of scrap, 1697*g*
in vitamin C loss in milk and soybean milk, 8508*e*
in vitamin C oxidation, 1016*i*, 8465*b*
effect of ethereal sulfides on, 1096*b*
in fruit juices, 9286*f*.
wastes of industry of, treatment of, 7885*g*.
waste waters contg., effect on sewage treatment, 8586*e*.
in waterproofing resins from aniline, HCHO and di-, tri-, tetra- or pentaglycol dichloride, P 2033*b*.
in water supplies drawn from pipes of Cu, 5521*a*.
welding of, electrodes for, P 1309*a*, P 6506*e*.
wettability of, effect of gases on, 2486*a*.
in wine prepn., 7188*i*.
wire—see *Wire*.
work function of, 8257*e*.
x-ray absorption in, 2088*b*.
x-ray-bombarded, isomeric transitions in, 36*d*.
in yeast growth, 5081*c*.
zinc-plated, cathodic polarization in zincate electrolytes, 8907*c*.
in zinc sepn. from Cd, 8245*f*.
zinc sulfide phosphors contg., 6514*b*.
decay of luminescence of, 5667*f*
distribution of phosphorescence "traps" in, 8277*g*.
effect of Co on, 1265*c*.
electron traps in, 7347*h*.
energy-storing, P 7831*e*.
formation of emission centers in, 6514*e*.
growth of luminescence of, 4579*a*.
infrared extinction in, 5669*c*.
luminescence of, dependence on wave length of exciting light, 4578*b*.
luminescence of, excited by $\alpha$- and $\gamma$-rays, 7826*e*.
luminescence of, excited by light of long wave length, 5311*e*.
measurement of abs. yield of luminescence of, 4578*h*.
quenching of phosphorescence of, 6920*k*.
temp. effect on luminescence of, 3720*i*, 7826*e*.

**Copper, analysis.** (See also *Hydrogen sulfide group.*)
chromatographic, 3743*d*, 4595*g*.
detection, 60*i*, 2110*b*, 4175*a*, 5897*e*, 7369*b*, 7375*i*, 7860*e*, 8299*k*, 8370*gi*, 8945*i*, 8948*f*, 8955*i*, 8966*c*, 8973*d*, 8979*h*.
detection and detn., 2117*i*, 7858*h*.
detection in altered rocks over blind ore bodies, 8990*a*.
in Al alloys, 2120*f*.
in blue halite, 6116*i*.
in boiler scale, 3310*a*.
in Duralumin, 4181*f*.
detection of volatilized Cu in condensed steam, 3314*a*.
detn., 57*c*, 62*adg*, 519*f*, 959*h*, 961*h*, 1671*h*, 1681*d*, 1682*g*, 2043*f*, 2112*i*, 2114*h*, 3743*a*, 4602*g*, 5340*e*, 5698*ac*, 6106*f*, 6113*g*, 6935*d*, 7361*i*, 7376*e*, 8298*g*, 8303*h*, 8946*d*, 8947*abe*, 8948*a*, 8951*dg*, 8952*b*, 8966*f*.
detn., a.-c. discharge through $C_2H_2$-air flame in, 4595*i*.
$CaCl_2$ as auxiliary electrolyte in polarographic, 5327*a*.
spark excitation of oxide powder mixts. in, 2540*f*.
detn. in alloys and minerals, 7859*e*.
in Al, 6538*h*.
in Al alloys, 970*f*.
in Al alloys, brasses, bronzes and Sn alloys, 4973*b*.
in Al and Mg alloys, 62*f*.
in Al and Zn alloys, 3311*c*.
in Al-Cu-Si alloys, 8307*c*.
in babbitts and solders, 3314*i*.
in Be-Cu alloys, 8965*f*.
in biol. material, 4319*i*, 7998*a*.
in biol. materials and paper, 6104*h*.
in blood, 9127*e*.
in Cu acetylide, 4972*i*.
in Cu salts, 4182*b*.
in Cu-Ag alloys, 5693*b*.
in culture media prepd. by enzymic digestion of muscle protein, 4321*e*.
in cuprammonium solns., 2117*h*.
in Duralumin, 7863*e*, 8952*c*.
in Duralumin and Silumin sorting, 1279*f*.
in egg and embryo, 3531*c*
in electroplating baths, 961*g*, 4150*a*, 6939*e*, 8901*a*
in fats, oils, etc., 879*a*.
in foods, 2706*h*, 7151*c*.
in galena, 6934*d*.
in gelatin, 5510*g*
in hydrogenated fat, 1199*h*.
in $FeSO_4$, 2890*e*
in leachate from antifouling paints, 3963*h*.
in Pb alloys, 7863*d*.
in Pb and Sn alloys, 1282*h*
in Pb-Cu alloys, 1282*f*
in lubricating oils, 4399*f*
in Mg and Mg alloys, 5330*e*.
in minerals, 5330*i*.
in minerals and rocks, 6106*g*.
in mixts. with $Cu_2O$ and CuO, 2543*h*, 8969*d*
in Ni-bearing irons and steels, 5330*g*.
in Ni electrolyte, 4177*g*, 4973*e*.
in Ni films and wire, 6108*f*
in oil sprays, 6777*d*.
in ores, 1682*h*, 4178*f*, 4602*b*.
in ores, mats and oxides, 62*b*.
in plant parts in geochemistry, 3321*gh*
in plants and soils, 3310*e*, 8083*d*.
in plant tissue, 2677*i*.
in presence of Fe, 8303*c*, 8951*b*.
in presence of Fe with high concns. of Na diethyldithiocarbamate, Fe complexing with $NH_3$ citrate in, 7863*c*.
in sedimentary rocks of the Appennines, Italy, 978*g*.
in spring water contg. $H_2S$, 7611*g*
in steels, 965*f*, 2544*a*, 2546*e*, 4177*h*, 8965*c*.
in steels, effect of dimensions and mass of samples in spectral, 6541*a*.
in tanning materials, 4039*d*.
in textiles, 4399*h*.
in Sn alloys, 7864*g*.
in Sn-bearing brasses and bronzes, 4178*a*.
in tonic prepns., 2735*e*.
in water, P 4800*c*, 5325*i*, 6765*d*.
in wine, 3559*h*.
in yeasts, 5509*g*.
in Zn alloys, 1286*g*.
detn. of As, 1681*f*.
of Cd, Mg and P, 3314*b*.
of Cu aerosols, 64*f*.
of Pb, 1283*h*.
of Pb, Ni and Zn, 968*e*.
of O, 8215*h*, 8963*g*.
of Se and Te, 520*d*.
sepn. and detn. in alloys, liquid amalgams in, 7863*gh*.
sepn., detection and detn., 2888*h*.
sepn. from alk. earths and Pb and detn., 2115*f*.
from Cd and detection, 6112*h*.
from Cd and Pb and detn., 1282*e*.
from Co, Fe or Ni, 8973*c*.
from Group II cations and detection, 4597*h*.
from Pb, 7864*b*.
from Mn and detn. in raw materials of rubber industry, 8187*b*.
from Ni, 5333*f*.
from Zn, 7372*g*.
spectrochem., 6103*g*.

**Copper, ethyl-**, 5732*d*.

**Copper, metallurgy of,** from antimony-Cu-Pb-Sn alloy, P 3341*d*.
bismuth removal, 6551*d*.
blast-furnace process, S recovery from gases from, 4987*h*.
deoxidation with Be, 6555*c*.
from dross, P 5681*c*.
electrolytic cell for, 2751*h*.
electrolytic, colloids in, 1269*a*.
electrolytic refining, anodic behavior of Pd in, 2519*c*.
furnace for, history of reverberatory, 1296*g*.
from German silver shot, 8327*a*.
in Germany (Lower Harz), 1696*e*.
hydro-, pptn. from solns of cupric sulfate-chloride by $SO_2$, 3326*e*.
from lead-Zn-Cu ores at Oker, 529*c*.
matte conversion, 4988*h*.
matte conversion, loss of Se and Te in, 8322*f*.
from mine water, P 7890*i*.
at Morenci smelter of Phelps Dodge Corp., 2554*e*.
from plated scrap, 6090*c*.
reverberatory-furnace output increase, 2142*b*.
reviews on, 5355*h*, 6961*a*.
roasting, reactions in, 4988*g*.
from scrap, 529*g*, 5712*f*, P 6562*d*.
from scrap, inverting bosh of blast furnace in, 5713*b*.
from sulfide ore contg. Hg, by treatment with HF, P 6964*g*.
from wastes, P 8345*a*.
from zinc-Cu alloys, P 4210*b*.

**Copper, methyl-**, 5732*d*.

**Copper 8** See "copper deriv." under *8-Quinolinol*.

**Copper A.** See "basic" under *Copper chlorides*.

**Copper acetates,** basic, P 5161*c*.
repellents for carnivorous fish from, 2734*b*.

**CuOAc,** in acetic anhydride, behavior of, 2110*f*.
complexes with methylamine for diolefin extn. from hydrocarbons, P 1955*g*.
soln. of $NH_4OAc$ and, used in extn. of 1,3-butadiene purification of, P 4682*c*.

**$Cu(OAc)_2$,** ammonia reaction with polyfluorethylenes in presence of, P 1444*f*.
as catalyst in oxidation of benzoin, 1368*a*
concn. cells from Cu and, 8918*i*.
decompn. by heat, 125*a*.
exchange between Cu and, 6890*i*.

**Copper acetylides,** in hydrocarbon-fuel manuf. from fat acids, P 4835*b*.

**$Cu_2C_2$,** copper detn. in, 4972*i*.
oxidation products of, 2112*h*.

**Copper alloys.** (See also *Admiralty metal; Aluminum bronze; Bearing metals; Brass; Bronze; Constantan; Copper compounds; Ferry; Heusler alloys; Igedur; Isabellin; Mallory 1000; Manganin; Monel; Munts metal; Nickel silver; Ni-Resist; Solders; Speculum metal; Tombac;* and "solid solutions" and "system" under *Copper.*)
aluminum-, 2915*c*.
for aircraft pistons, P 2567*e*.
Al recovery from, 6089*e*.
anodic coating on, 8899*i*.
Be diffusion in, 2559*f*.
breakdown during quenching of, 3759*e*.
catalysts from, P 6762*g*.
coating on, P 1710*g*.
crystal boundaries in, during melting, 8336*e*.
crystal structure of, 2147*f*.
effect of alloying elements on grain size of, 8337*e*.
effect of oscillating temp. on homogenization and diffusion in, 2915*a*.
effect of quenching on age hardening of, 9010*i*.
electrolysis and heteropolarity of solid, 6136*b*.

*aluminum-*, electrolytic polishing of clad articles of, P 8347*e*.
expansion coeffs. of, 4204*c*.
hardening (pptn.) of, stresses and, 82*d*.
heat-treatable, 1704*g*.
plastic deformation in, 2557*g*.
plastic deformation in, detection of, 8337*h*.
by powder metallurgy, P 7403*e*.
pptn. in, 5718*c*, 7886*a*, 8335*h*.
reversion in, 8336*f*.
Rückbildung of, 7885*c*.
segregation in, 6557*f*.
size effects in quenching of, 9010*h*.
structural evolution of tempered, 2560*i*
thermoelec. force of, 2912*e*.
transitions in β-, 7887*c*.
vol. changes from dissocn. of, 8232*c*.
Zn diffusion in, 534*b*.
aluminum-, Al-Ni-, Ni-Zn-, and Zn-, erosion resistance of, 96*a*.
aluminum-, and Ag-, manuf. by powder metallurgy, P 5729*g*.
aluminum-Be-Zn-, for casting, P 9021*c*.
aluminum-Bi-Zn-, mold for resinous products from, P 9020*d*.
aluminum-Cr-Co-Fe-Mn-Ni-Si-Ti-, P 7404*e*.
aluminum-In-Mn-, In-Mn-Sn-, and In-Mn-, 4618*e*.
aluminum-Fe-Mg-Mn-Ni-Si-, heat-treatment of, P 6563*h*.
aluminum-Mg-, 4204*d*.
age hardening of, 4618*c*.
anodic coating of, 2914*f*.
detection of Cu diffusion in, 9011*e*.
effect of annealing and rolling on, 5355*d*.
effect of atm. exposures on stress corrosion of, 7885*i*.
effect of Si on, 5718*e*.
effect of Zn on, 542*b*.
grain coloring and etching of, 2147*a*.
identification of, 7352*h*.
potential in buffered NaCl solns., 7835*i*.
soly. of Ti and Zr in $Cu_2O$, 7886*i*.
structural changes during solidification of, 5718*d*.
welding of, P 2924*a*.
aluminum-Mg-, and Al-Mg-Si-, brittle cracking in, 1702*f*.
aluminum-Mg-Si-, aging of, 5718*a*.
aluminum-Mg-Si-, for casting, 6557*i*.
aluminum-Mg-Zn-, 2567*e*.
for casting and forging, 2147*d*.
coating with Al-Zn alloys on, in corrosion protection, P 990*g*.
D.I.N.E. 1724, 7886*f*.
hardness and tensile properties of pressure-cast, 7888*c*.
wrought, 3333*h*.
aluminum-Mn-, 4204*b*.
aluminum-Ni-, and Sn-, elastic martensitic crystals in, 6880*h*.
aluminum Si, 91*a*.
analysis for Cu, Fe, Mg, Mn and Si, 8307*c*.
for bearings, P 6145*h*.
aluminum-Ag-, hardenability of, 1703*c*.
aluminum-Ag-Pd-, for jewelry, P 8349*a*.
aluminum-Zn-, and Zn-, cold-rolled, 1703*f*.
aluminum-Zn-, impact testing of, 7886*h*.
aluminum-Zn-, reaction with Fe, 2148*e*.
amalgams, cathodes of, 6052*b*.
analysis of, for Pb and Ni, 968*f*.
analysis of, lab.-cast pin for spectrographic, 8952*a*.
antimony-, 7394*a*.
antimony detn. in, 2543*a*.
antimony-Pb-Sn-, Cu removal from, P 3341*d*.
antimony-Pb-Sn-, sepn. by fractional crystn., P 6145*e*.
antimony-Mn-, magnetic interactions and magnetic susceptibility of, 4911*g*.
arsenic detn. in, 1681*f*.
beryllium-, analysis of, 8965*e*.
cladding, with precious metals, P 6966*b*.
damping capacity of, in transverse vibrations, 533*a*.
heat-treatment of, 3334*a*.
metallography of, 9011*h*.
pickling and electroplating on, 3727*h*.
rate of pptn. hardening of, 7390*b*.
re-formation in, 6136*f*.
beta-phase regions in ternary, 2915*f*.
bismuth embrittlement in, elimination by Li, 5718*f*.
blackening, P 2567*f*, P 3341*g*.
cadmium-In-Ag-Zn-, for brazing, P 2156*b*.
cadmium-Ag-Zn-, for brazing, P 2156*c*.
cadmium-Sn-, as catalyst in pyrolysis of fatty acids to olefins, P 7035*a*.
calcium detn. in, 8949*i*.
calcium-Pb-, as storage-battery anode, 7836*h*.
as chem. engineering construction material, 1*c*, 8745*c*.
chromium-Co-Fe-Mn-Ni-, age-hardenable, P 9020*g*.
chromium-Co-Mo-Ni-, heat- and stress-resistant, P 2922*c*.
chromium-Fe-Mo-Sn-, magnet from, P 5000*i*.
chromium-Ni-Ag-, oxidation-resistant, P 6147*b*.
coating of, with black oxide glaze, P 8346*b*.
cobalt-, effect of magnetic field on crystn. of, 5718*g*.
coloring of, P 3341*f*, 5352*h*, P 7404*f*.
condenser tubes of, corrosion resistance of, 7398*i*.
copper recovery from, 5712*f*, P 7358*a*.
corrosion of, 5723*i*.
corrosion resistance of, 2150*a*.
corrosion (stress-) cracking of, 2562*b*.
corrosion underground, 6141*a*.
crystal formation in binary, 4619*d*.
deformation and stress of, 82*e*.
elec. resistance of, effect of pressure and temp. on, 5679*b*.
etching (electrolytic) of, P 2880*d*.
forgings from, 3329*f*.
gallium-Mn-, 3765*g*.
gallium-Mn-, and In-Mn-, 9012*d*.
gold-, and Au-Ag-, order in, lattice parameter and, 4205*c*.
gold-, and Ag-, elec. resistance of, 3684*a*.
gold-, crack formation in stress corrosion of, 7879*e*.
effect of neutron bombardment on order in, 6915*a*.
elasticity of, temp. and, 5715*d*.
expansion by heat, 542*i*.
order of, 7770*i*.
superlattice formation in, 542*f*.
superlattices of, 8788*a*.
superstructure formation in, 9001*i*.
gold-Mn-Ni-Zn-, for dental use, P 6563*i*.
gold-Ni-Pd-Pt-Ag-Zn-, for dental work, P 2922*d*.
gold Pd-Pt-Ag-, chromatography of, 3743*c*.
gold-Ag-, structure of, 2562*c*.
gold-Ag-, transformations in, 4618*d*.
indium Mn-, 4205*f*.
interface energies in, 9011*a*
iron, P 2922*a*.
corrosion of, control of, 2564*e*
elec. resistance and magnetic properties of, 6961*d*.
hardening and softening of, 4618*h*.
manuf. in cupola, P 8347*f*.
iron-Ni-, diffusion in, 3761*i*.
iron-Ni-, electrolytic polishing of, 2101*c*.
iron-Ni-P-, abrasion- and corrosion-resistant, P 3342*i*.
iron or Fe-alloy cladding with, P 2154*b*.
lead-, bearings, testing of corrosion by lubricants, 7839*h*.
electrodeposition from fluoborate solns., 6520*f*.
improving working conditions in smelting and pouring of, 6559*b*.
pulverization of, 2561*g*.
lead-, Cu detn. in, and prepn. of Cu-Pb-Sn and Cu-Pb-Sn-Sb standard alloys, 1282*g*.
lead-P-, P 5000*cd*.
lithium-, 1300*f*.
lithium treatment of, 3764*d*.
magnesium-, and Mg-Zn-, in nodular graphite cast Fe manuf., 7395*f*.
magnesium-, reaction with EtI, 1717*g*.
magnesium-Zr-, 4619*e*.
manganese-, and Ni-, thermocouples from, P 5001*c*.
manganese-, and Sn-, gas removal from, with N, 5715*d*.
manganese-, prepn. from blast-furnace Fe-Mn, 9013*f*.
for standard elec. resistors, 3334*a*.
twinning in, 984*i*.
manganese-Zn-, for elec. resistors, P 1710*b*.
mirror supports from, P 4441*f*.
molybdenum-Ni-W-, for uniting W to backing member, P 5001*f*.
in Neoprene aging, 894*g*.
nickel-, annealing in protective gas, 3757*d*.
castings of, 5718*h*.
*nickel-*, coins of, 3335*i*.
compn. and mech. properties of bars, rods and sections of, 5718*i*.
in condenser tubes of petroleum stills, 5178*i*.
corrosion by salts, 6962*f*.
diffusion during sintering, 982*h*.
effect of elastic deformation on magnetization of, 4529*d*.
elasticity at low temps., 7398*a*
electron distribution and magnetism of, 4941*e*.
erosion-corrosion of, 5723*e*.
Mn detn. in, 3314*c*.
standards for wire of, 5719*a*.
weldable, P 2153*i*.
nickel-Si-Sn-Zn-, welding rod of, P 7405*c*.
nickel-Ag-, etching by cathodic sputtering, 5679*h*.
oxygen detn. in, 8963*g*.
painting pretreatment for, P 3300*i*.
phosphorus-, as solder, 4623*e*.
phosphorus detn. in, 5336*g*.
phosphorus-Ag-, as brazing alloy, P 4211*b*.
platinum-, para H conversion on, 4088*c*.
platinum-Ag-, and Ag-, electrodeposition of, 4148*c*.
with precious metals, P 4626*c*.
refining, P 1307*g*.
reviews on, 5355*h*, 6960*i*.
scale removal from, Efco-Virgo for, 552*d*.
silicon-, as catalyst, chlorophenylsilan 1027*n*.
silicon-, reaction v hydroca ides, P 4685*ac*.
silver-, automatic gravimetric anal 5693*b*.
coating with, on ceramic w 5918*c*.
crystal structure and thermal sion of, 6960*a*.
electrochem. restoration of 5679*e*.
eutectics in, 4935*e*
oxidation of, 4206*i*
silver-Sn Zn-, as solder, P 2570*a*
silver-Sn Zn-, for welding Al alloys, P 4628*b*.
soldering dissimilar metals to solid solns in, lattice spacin
specifications of A. S. T. M. for kinds of, and fo products ther 4202*h*, 4615*b*.
tin-, and Zn-, elasticity of, 3312
tin detn in, 2889*h*, 3312
tin-, detn. of intracryst impu 489*h*.
tin-, Zn, electrodeposition of, P
tin-Zn-, electroplating with,
tin-Zn, for brazing, P 6566
titanium-, coatings of, on mild 8334*c*.
tubing from, 983*e*
for vaporization deposition, for, P 102*c*
Weidmann Franz Lorenz rati
welding electrodes of, 8342*c*
welding of, electrode for, P 1309*a*
for welding (resistance) of Al alloys, P 9020*f*.
zinc-, P 6147*d*.
Cu and Zu recovery from, P 1210*b*
elastic and structural properties of, 9001*g*.
elasticity and internal friction of, 2561*g*
electrodeposition of, 4117*i*
electroplating with, 8901*c*
pptn. in, 7887*e*.
recrystn. of, 3757*e*.
zinc-, and Al-Zn-, effect of temp impact strength of, 7886*e*.
zinc distn. from, 9011*f*.
**Copper-ammonia cellulose.** (See *Rayon.*)
flow of solns. of, in cylindrical tubes, 7681*g*.
fluidity of, measurement of, 7692*i*.
prepn. of, and its use in cellulose-viscosity detn., 9435*i*, 9436*d*.
viscosity of, detn. of, 4851*g*, 6824*d*.
**Copper ammonium arsenate,** $5CuO \cdot 2As_2O_5 \cdot (NH_4)_2O$, 2885*d*.
**Copper ammonium sulfate,** plastic materials from silicates and, P 6865*e*
**Copper arsenates,** antifouling properties of, 3963*i*.
basic, P 3159*a*.
effect of heat and reduction on, 3302*i*.
prepn. and properties of, 2885*b*.
in tobacco-flea-beetle control, 9316*b*
toxicity to larvae of Colorado potato beetle, 9340*a*.

**Copper barium cesium thiocyanate**, $Cs_2BaCu_3(CNS)_7$, 5324*g*.
**Copper benzoate**, $Cu(OBz)_2$, decompn. by heat, 125*a*.
**Copper borate**, $Cu(BO_2)_2$, prepn. of, 2443*i*.
**Copper bromides**,
$Cu_2Br_2$, as catalyst in 1,4-dicyano-2-butene manuf., P 4286*d*.
$CuBr_2$, as catalyst in isomerization of methoxychloropentenes, 131*a*.
exchange between Cu and, 6890*i*.
humidity indicator from, P 2714*b*.
lattice energy of, 2829*e*.
in termite control in birch, 9341*d*.
$Cu_2Br(OH)_3$, structure of, 7772*c*.
**Copper cadmium chloride**, $3Cu(OH)_2 \cdot CdCl_2$, 8929*g*.
**Copper carbonates**, basic, P 3159*b*.
basic, dispersed in asphaltic bitumens, 5178*f*.
basic, Werner complexes with $NH_3$ or cyclohexylamine, reaction with org. acids, P 5978*d*.
$CuCO_3$, catalysts of, and its mixt. with $ZnCO_3$ in decarboxylation of 2 furanacrylic acid, 2615*d*.
plant protectants contg., P 3140*g*
in wheat-bunt control, 3553*e*.
$CuCO_3 \cdot Cu(OH)_2$, catalyst from $[(NiOH)_2CO_3]_3$ and, 7607*g*.
magnesium-oxychloride cement contg., P 3166*f*.
**Copper chlorides**, basic, P 3159*c*, P 5161*d*, 8930*a*.
basic, in anthracnose control, 7180*f*.
in control of haloblight of beans, 8595*i*.
in downy-mildew on Lima beans, 3959*h*.
as fungicide for botrytis blight, P 3962*a*.
as fungicides, 8597*b*.
for grease-spot control on passion vine, 7180*a*.
manuf. by electrolysis, P 6096*h*.
for mildew control on magnolias, 7179*g*.
mixt with basic $CuSO_4$ in potato-fungus control, 9328*c*.
mixt. with $Cu_2O$ in pest control on grapes, P 5528*f*.
plant-protective spray contg. colloidal, P 5528*d*.
prepn of $CuCl_2 \cdot 3Cu(OH)_2$, 2443*i*.
for *Sclerotinia* control in cabbage, 7179*i*.
in smut control, 8595*h*.
systems of $Cu(OH)Cl$ and $Cu_2(OH)_4Cl$ with basic Ni chlorides, 8929*i*.
fungicidal, P 9355*e*.
methane chlorination with melts contg., distribution of products of, 1714*f*.
methane chlorination with melts contg., kinetics of, 1714*d*.
phosgene manuf. from, P 3160*b*.
in termite control in birch, 9341*d*.
CuCl, butadiene sepn. from olefins by aq. solns. of amino alcs. contg., P 6218*b*.
as catalyst in amination of aryl halides, P 3154*gh*.
in 1,4-dicyano-2-butene manuf., P 4286*d*.
in unsatd nitrile manuf. from HCN and diolefins, P 4286*c*.
catalysts of $Al_2(SO_4)_3$, $NH_4Cl$ and, in dimerization of $C_2H_2$, P 7951*a*.
catalysts of $NH_4Cl$, HCl and, in vinylacetylene prepn., 1598*e*, 3225*c*.
catalysts of As, Bi or Sb chlorides and, in acrylonitrile manuf. from $C_2H_2$ and HCN, P 3439*a*.
catalysts of HCl and, in partial hydration of myrcene, P 6219*g*.
complexes with fumaric and maleic acids, 1677*i*.
complex with $Ph_3P$, as catalyst for trimerization of $C_2H_2$ and its derivs., 6202*e*.
compds. with phosphine oxides and phosphinous acid esters, 3802*a*.
compd. with NOCl, 3305*h*.
effect on Li detn. in soils, 2544*k*.
electrode potential in fused, 8898*i*.
formation on Cu anodes and periodic soln. of, 7792*g*.
manuf. of, 3326*fh*, P 6375*h*.
as polymerization inhibitor for 2-furaldehyde and butadiene, P 7970*a*.
reaction of $C_2H_2$ with HCN in the presence of $ZnCl_2$ and, P 1794*h*.
reaction of $C_2H_2$ with ethylene oxide in presence of $AlCl_3$ and, 2182*e*.
reaction with $BrF_3$, 3739*f*.
soly. in $NH_4Cl$, HCl, KCl or NaCl solns., 3307*d*.
soly. in aq. allyl alc., 6889*d*.
soly. in maleic acid solns. and complexes with unsatd. acids, 8940*fh*.
solns. of $PhNMe_2 \cdot HCl$, HCl and, in extn. of $C_2H_4$ from hydrocarbon mixts., P 1432*h*.
spectrum of, 492*e*.
$CuCl_2$, absorption by clays and soils, 7618*g*.
as accelerators for rubber curing, P 8732*a*.
activity and osmotic coeffs. of, 22*d*.
aluminum corrosion by solns. of, 4996*b*.
binding energy of, 6895*f*.
as catalyst in $C_2H_2$ reaction with HCl, 6969*h*.
in chlorination of $C_2H_4$, P 1433*e*.
in condensation of 2-furaldehyde with phenol, 5224*h*.
in decarboxylation of 2 furanacrylic acid, 2615*d*.
catalyst of active C and, in chlorination of pyrazine, P 5809*f*.
compd. with sulfadiazine, 3804*a*.
constitution in aq. soln., 3278*a*.
cornea tolerance to, 3111*a*.
decompn. potential in molten $AlCl_3$-NaCl, 8915*e*.
dehydration of dihydrate of, with $COCl_2$ or $SOCl_2$, 2533*c*.
effect of vitamin C and, on intestine and uterus, 3903*cd*.
effect on acetylcholine action, 3903*b*.
on bread dough, 4781*g*.
on metamorphosis of Bugula species, 8563*n*.
elec. conductivity of solns. contg. $NH_3$ and, 19*b*.
equil. with KOH and K salts, 7789*c*.
exchange between Cu and, 6890*i*.
in halogenation of unsatd. hydrocarbons, P 3436*h*.
humidity indicator from, P 2714*f*.
hydrolysis of, 4086*g*.
lattice energy of, 2829*e*.
reaction with Hg or Ag, 2875*c*.
reaction with Zn dispersed in nonaq. solvents, 6886*a*.
refractive indexes of solns. contg. $NH_4Cl$, HCl, KCl, NaCl and, 6049*f*.
soil cement mixts. contg., P 5568*g*.
structure of, 7772*c*.
system: HCl $H_2O$-, 5324*d*.
in wheat-smut control, 5523*e*.
**Copper chlorocuprate(III)**, $Cu[CuCl_4]$, 7362*g*.
**Copper chromates**, as fungicide for potatoes, 801*e*.
**Copper chromites**, in 2,3-butanedione manuf, P 1797*c*
as catalyst in dehydrogenation of 2,3-butanediol, P 3841*h*.
in hydrogenation of citronellal, 2160*i*.
in hydrogenation of 2-furaldehyde, P 7049*c*.
in hydrogenation of 2-naphthol, 2197*c*.
crystal structures of $CuCr_2O_4$ and $Cu_2Cr_2O_5$, 5653*h*.
$Cu_2Cr_2O_5$, catalysts of, 6336*a*.
**Copper cobalt chloride**, $3Cu(OH)_2 \cdot CoCl_2$, 8929*g*.
**Copper compounds**, with acetoacetic acid derivs., 7909*c*
alkali tartrates and Schweitzer reagent, 5324*f*.
with aluminum and Mg, $CuAl_2$, $Al_2CuMg$ and $Al_6CuMg_4$, 4204*e*.
with aluminum and Zn, $Cu_9Al_4$ and $CuZn_8$, 6880*e*.
with aluminum, $CuAl_2$, 5718*c*.
with aluminum, structure of $Al_2Cu$, 7887*a*.
with amides, 6249*i*.
of amines and petroleum mahogany sulfonic acids, as fungicides and insecticides, P 2424*i*.
with amines, color in turquoise from, 8986*f*.
with amino acids, 6250*c*.
ammines, P 1928*h*, P 3158*a*.
analysis for $NH_3$, Cu, etc., 2117*h*.
complexes with glycosides and with related compds., 3368*d*.
formation of, 8295*i*.
for grape spraying, P 5152*d*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
reaction products with Me methacrylate polymers with $\alpha,\beta$-unsatd. carboxylic acids, 8202*g*.
stability of solns. of, 1533*i*.
ammoniacal solns. of, regeneration of, P 1928*f*.
with 5-amyl-6-methyl-2-thiouracil, 3013*e*.
as antioxidant promoters in hydrocarbons, P 386*f*.
antiseptic and fungicidal, P 363*i*.
with (2-benzimidazolyl)guanidine derivs., 1405*f*.
with biguanide derivs., 7365*c*.
book, in Agriculture and Industrial Microbiology, 1146*b*.
in bottle protection against alkali extn., 3578*i*.
as catalysts in oxidation of cyclic ethers, P 2224*e*.
as catalysts in reforming of hydrocarbons, P 9430*a*.
in *Cercospora beticola* control, 3134*b*.
chelate complexes with $\beta,\beta',\beta''$-triaminotriethylamine, stability of, 8812*e*.
with 1-(*o*-chlorophenyl)-3-phenyl-1,3-propanedione, 6183*b*.
with citrates and tartrates, 4182*b*.
complexes, 3307*d*.
bond type and stereochemistry of four-coördinated, 8222*a*.
$CuCl_3^-$ and $CuCl_4^{--}$, 6049*f*.
with dehydroactidione, 2999*a*.
with ethylenediamine, 6536*e*.
with heteropoly acids and amines, 1671*h*.
polarography of, 6933*a*.
with Schiff bases, crystal structures of, 4073*d*.
stability of, 4969*c*, 4970*i*.
with 1,1-diethylbiguanide, 8941*b*.
with $\beta$-diketones, 4253*g*.
with dyes, 6418*i*, 6419*c*; (*Patents*), 415*g*, 857*g*, 1574*h*, 1988*g*, 2440*i*, 2441*bf*, 4486*acfgh*, 4865*d*, 4866*c*, 5198*cde*, 5597*h*, 5598*dfg*, 5926*h*, 5964*g*, 6832*h*, 7235*h*, 7696*e*, 7697*ce*, 7698*e*, 7699*bi*, 7700*abcdegi*, 7701*abc*, 7702*i*, 7703*ceg*, 8143*i*, 8144*abcdefghi*, 8146*d*, 8151*b*, 8156*i*, 8158*ci*, 8161*h*, 8690*a*, 8691*b*, 9460*g*, 9461*e*, 9462*hi*.
with ethylenediamine, light absorption and stability of, 7857*d*.
of formazyl compds., 6589*a*.
with formazyl dyes, P 5198*h*.
as fungicides, 7177*b*.
as fungicides for cotton fabric, 8085*f*.
with germanium, electrodeposition of $Cu_3Ge$, 2876*b*.
with gold, effect of neutron bombardment on order in $Cu_3Au$, 6915*a*.
with gold, solid solns. of Au-Cu-$AuCu_3$, order-disorder in, 3260*e*.
hair coloration by, 6255*i*.
histidine complexes, 7856*d*.
with hydroxynaphthaldehyde and [ethylenebis(nitrilomethylidyne)]dinaphthol, 1678*g*.
with 3-hydroxy-2-naphthoic acid and pyridine, 2538*g*.
intermetallic, 7771*c*.
intermetallic, compressions of, 4917*a*.
with kojic acid, as fungicides, P 4419*c*.
with lecithin and phytic acid, P 5156*d*.
with magnesium ($MgCu_2$), 2148*b*.
manuf. of, electrolytic cell for, P 7359*d*.
with 2-mercapto-5,5-dimethyl-4(5 *H*)-imidazolethione, 6171*e*.
in mildew control on grapes, 8596*i*.
in Neoprene aging, 894*e*.
of nicotine salts, P 8605*b*.
*N*-nitroso-*N*-phenylhydroxylamine deriv., soly. of, 2488*b*.
oil sprays contg., 9353*i*.
org., as polymerization activators, 8727*g*.
in pest control on grapes, P 5528*g*.
phthalocyanine, P 3214*g*, P 3215*b*, P 7705*d*, P 8169*b*, P 8172*g*, P 8173*c*, P 8692*h*.
improving color properties of, P 7712*g*.
toner mixts. with Sn phthalocyanine, P 8705*b*.
transformations in, 2483*e*.
with phthalocyanine thio ethers, P 7710*d*.
with proteins, phenoloxidase action of, 3855*i*.
with pyridine and salicylic acid, 2536*i*.
pyridine perchlorate complexes, 2114*a*, 3699*f*.
removal of insol., from rubber dispersions, P 432*b*.
rotproofing value of chelate, in cotton duck, 5957*i*.
sodium cupricellulose, methylation of, 2771*a*.
with sodium 2-formyl-1-phenol-4-sulfonate, 1678*d*.

## Copper cyanides


with sulfanilamide derivs., 6996g.
sulfosalicylic complexes, 5326a.
with sulfur for use in rectifiers, prepn. and analysis of, 7863i.
with tetrachlorophthalic anhydride and urea, green pigment, P 5607g.
with tetrakisazo dyes, P 8161g.
for wood preservation, 9341c.
with zinc, 6067b.
with zinc, elasticity of CuZn, 8864e.

**Copper cyanides.**
$Cu_2(CN)_2$, as catalyst in 1,4-dicyano-2-butene manuf., P 4286e.
as catalyst in HCN reaction with acetone, P 7955c.
$Cu(CN)_2$, antifouling properties of, 3963i.
heat of formation and lattice energy of, 2829i.

**Copper ferrates(III)**, solid solns. with Zn ferrate, P 4625f.
$CuFe_2O_4$, magnetic properties and solns. of, 6017a.

**Copper ferricyanide** ($Cu_3[Fe(CN)_6]_2$, detection of, 8966e.
reduction to brown ferrocyanide by $H_2O_2$, 8307i.

**Copper ferrocyanides**, membranes from cellophane and, solute diffusion through, 2486h.
$Cu_2Fe(CN)_6$, detection of, 8966e.
formation of, and of 5 $Cu_2Fe(CN)_6 \cdot K_4Fe(CN)_6$ satd. solid soln., 8966f.
membranes of, activation energy of diffusion and potential of KCl through, 5257b.

**Copper fluoborate**, $Cu(BF_4)_2$, concn. cells from Cu and, 8913i.

**Copper fluoride** ($CuF_2$) catalysis by, in esterification of fatty acids with glycerol, 4031a.
crystallochem. electronegativity of Cu ion in, 8231c.
in fluorination of $\alpha,\alpha,\alpha$-trichlorotoluene, 8364h.
heat of formation and lattice energy of, 2829i.
manuf. from Cu-Hg ore and reduction with H, P 6964g.
prepn. of, 6793d.

**Copper fluosilicate**, as catalyst in $C_2H_2$ reaction with HCl, P 4284e.

**Copper formates**, ammoniacal soln. of, regeneration of, P 1928f.
decompn. of $(HCO_2)_2Cu$ to $HCO_2Cu$, 1279a.
$Cu(HCO_3)_2$, lattice energy of, 2829e.

**"34" Copper fungicide.** See "basic" under *Copper sulfates*.

**Copper glance.** See *Chalcocite*.

**Copper halides**, Curie point, pressure and 8784a.
films absorbing infrared and ultraviolet waves from, P 9537b.

**Copper Hydro 40.** See *Copper hydroxides*.

**Copper hydroxides**, colloidal, 5654c.
manuf. of, P 5161d.
mixt. with kieselguhr, in S removal from water gas, 2401f.
mixt. with Pb arsenate and hormones, effect on tomatoes, 9337e.
for *Sclerotinia* control in cabbage, 7179i

**CuOH**, manuf. of, P 7202f.

**$Cu(OH)_2$**, as catalyst in $CO_2$ reaction with H, P 7030d.
as catalyst in furan manuf. from 2-furaldehyde, P 5047h.
complexes with ethylenediamine and sulfanilamide derivs., 6996g.
copptn. with $Ni(OH)_2$ and formation of $CuNi(OH)_4$, 8029e.
decompn. by heat, 6063e.
detection of synthetic, in Cu ore analysis, 5697g.
hydrogen-ion concn. for pptn. of, 2493d.
lattice energy of, 2829e.
precipitation of, 8295g.
prepn. and soly. in $NH_4OH$, 2489a.
prepn. of, 7361h.

**$Cu(OH)_2$**, 7362g.

**Copper hypochlorite**, $Cu(OCl)_2$, as fungicide for vegetables, 4411i.

**Copper iodides.**
**CuI**, as catalyst in 1,4-dicyano-2-butene manuf., P 4286d.
decompn. potential in fused $AlI_3$ or $NaAlI_4$, 6519g.
decompn. potential in fused NaI, 4582g.
decompn. potential of molten, 4582f.
thermal stability for analytical ppts. of, 8977f.

**$CuI_2$**, lattice energy of, 2829e.

**Copper isothiocyanate**, CuNCS, in acetic [illegible] behavior of, 2110g.

**Copper lactate**, effect on flavor and keeping quality of butter, 6750ac.

**Copper magnesium chloride**, $3Cu(OH)_2 \cdot MgCl_2$, 8929g.

**Copper nickel chloride**, basic, 8929gi.

**Copper nickel hydroxide**, 8929f.

**Copper nitrates**, as catalyst for condensation of 2-furaldehyde with phenol, 5226b.
in termite control in birch, 9341d.

**$Cu(NO_3)_2$**, activity and osmotic coeffs. of, 22d.
aluminum corrosion by solns. of, 4996c.
as catalyst in oxidation and hydrolysis of cellulose by nitric acid, 1979a.
concn. cells from Cu and, 8913i.
effect on autodisplacement of Pb, 2846f.
elec. conductivity of solns. contg. $NH_3$ and, 19b.
equil. with KOH and K salts, 7789c.
exchange between Cu and, 6890h.
films absorbing infrared and ultraviolet waves from, P 9537b.
hydrolysis of, 4086g.
lattice energy of, 2829e.
magneto-optic rotation of, 5244a.
Raman spectrum of, 8887f.

**Copper number**, autoxidation rate and, of cellulose, 9434h.

**Copper ores.** (See also *Chalcocite; Chalcopyrite; Malachite; Tetrahedrite.*)
of Alaska, 74b, 2130e, 2131a, 6949g, 7384d, 8314i.
analysis of Ni-, for Pt group metals and Sn, 5339a.
analysis (qual. phase) of, 5607f.
of Arizona (Pinal Co.), 2131b.
of Belgium (Mezzel Creek), 2901e.
of California, 3750b, 5706ghi, 5707abcdef.
of China (Tungchuan dist., Yunnan), 8315f.
cobalt-Ni-, of Vest prospect, Va., 6545i.
of Colombia, 525ghi
concn. of, 77h.
at Balkash plant, Russia, 2140f.
by gravity and by flotation, 465e.
at Superior, Ariz., 981h.
testing of, 1294d.
concn. of Ag-Sn-, of Pershing Co., Nev., 1693i.
of Cyprus, 1294g.
dressing of Pb-Ag-Zn-, of Harz Mts., 527h.
fires in mines of sulfidic, 1569a.
flotation of, P 2151h, P 5725c.
coarser grinding in, 7387g.
effect of O adsorption and oxide films on Cu in, 7875f.
oxidation in, 1293f.
with N-phenyldithioimidocarbonate, 4998i.
from silica, 2139g.
flotation of Co-Au-Ag-S-, 1693d.
flotation of Pb-Zn-, 529c, 1693h.
of France, 2549i, 8989d.
of Georgia (Chestatee deposit), 3321b.
of Germany (Thuringia), 3750g.
gold-Pb-Ag-Zn-, from Cascade Co., Mont., 5711f.
gold-Ag-Zn-, of Sherritt Gordon Mines, Manitoba, 4188a.
of Idaho (Borah Peak quadrangle), 6954b.
iron-Ni-, of Stillwater Complex, Mont., 4981i.
of Italy, 3322a, 6949b.
lead-Zn-, of Mt. Rielson, Alaska, 7383b.
of Ophir Hill Consolidated Mine, Utah, 6950c.
of Steeple Rock, N. Mex., 6950f.
mining of, Mn steel in, 3753h.
native and sulfide, of Colombia, 525f.
native Cu near ophiolites of Leghorn, 6954c.
nickel-, of Canyon Creek, Alaska, 2131g.
nickel-, of Siberian Plateau basalts, genesis of sulfide, 3750b.
of North Carolina (Scarlet Mine), 6545c.
of Oregon (Kerby Quadrangle), 4984i.
of Peru, 73h, 6545ab.
of Philippine Islands (Jetafe, Bohol), 7872g.
prospecting for, analyses of plant parts in, 3321ei.
barite as indicator in, 2130i.
paleogeography in, 3320i.
in pyrite ores of Pyriton, Ala., 6949h.
schists of Pnom Sarakam, Siam, 2900h.
of Tanganyika Terr. (Njombe district), 534f.
of Trinity River Tributary area in Okla. and Tex., 4607i.
of Turkey, 1291g.
of U.S.S.R. (Greater Dzheskazgan), 2550a.
uranium-, of Luiswiaki, Belgian Co[illegible] 1292b.
of Vermont (Ely Mine), 4188b.
of Virgilina Copper dist., Va. and N. Car., 2131c.
of Virginia (Floyd Co.), 74a.
of world, 5708e.
zinc-, of Blue Ledge Mine, Calif., 7382g.
zinc-, of Keystone and St. George, Ariz., 6949h.

**Copper oxalates**, antifouling properties of, 3964b.
catalyst in pyrolysis of resin acids, 9443g.

**Copper oxides.** (See also *Cuprite; Tenorite.*)
analysis of mixts. of $Cu_2O$, CuO and Cu, 8969d.
as catalyst in S removal from fuel gas, P 380c, 3173a.
catalyst of Cu and, in dehydrogenation of 2,3-butanediol, P 3841h.
catalysts of $Al_2O_3$ and, in dehydrogenation of 1,1-diaryl paraffins, P 2233f.
as DDT diluent, 2728e.
detn. of $Cu_2O$ and CuO in presence of each other and Cu, 2543h.
effect on cellulose degradation by light, 8133e.
films on glass for increasing reflectance, 3161h.
formation of, on Cu anode, 47b.
from Cu film, 6880g.
on Cu in air at high temps., 8630h.
as fungicides for vegetables, 4411i.
gas adsorption by, effect on elec. resistance, 474i.
in glass, effect on gas release from, 2068d.
manuf. of, P 5161d.
prepn. of $Cu_2O \cdot 3H_2O$ and $Cu_2O$, 7[illegible]
rectifiers—see *Rectifiers*.
reduction of films of, 6531i
in tobacco-blue-mold control, 4[illegible]

**$Cu_2O$**, analysis of, 4786e.
as catalyst in oxidation of ketones, 6654i.
in oxidation of olefins, P 4[illegible]
in reaction of $p$-$O_2NC_6H_4Cl$ [illegible] or MeOH, P 687g
coating with, on Ni-Cr resistors, P 4153e.
in copper films on galena, 648[illegible]
Cuprocide, in ergot control, 3[illegible]
cuprous ion diffusion in, during tion, 2851c.
in downy mildew control, 3[illegible]
effect on grain growth in Cu, formation of, on Cu at h 2851a.
on Cu single crystals, 2[illegible]
from cupric tartrate in [illegible] powers of sugars, 7[illegible]
on polished Cu, 4060f
thermodynamics of, 2907c
as fungicide, 3950h.
manuf. of, P 7202df.
mixt. with Cu oxychloride in pest on grapes, P 5528g
neutron-irradiated semiconductor 8858e.
in paints (antifouling), 3[illegible]
crit. toxic vol. of, 1577e
effect of surface-available, on rates, 6837b.
leaching rates and particle [illegible] 8096d.
pigment extenders for, 7715.
toxic and corrosive action of, periodic formation and soln. of, in HCl, 7792g.
as photocurrent carrier, sign of, 8896a.
photoelec. current and dark current in alternating elec. field, 7[illegible]
photoelec. effect in, 8846b.
in *Sclerotinia* control on cabbage, as seed disinfectant, 7179b
solubilization by soil fungi, 7345
in tomato-blight control, 4413i
voltaic cells contg., 7351e
Yellow Cuprocide in date pest [illegible] 4417a.

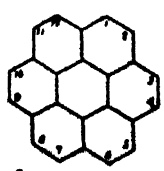
**CuO**, absorbent for gases from [illegible] and, P 8578c.
adsorption of $H_2O$ vapor by, [illegible]
as catalyst in decarboxylation of acrylic acid, 2615d
in oxidation of 2-methyl-[illegible] 1084d.
in oxidation of paraffin oil, [illegible]
catalyst of $Cr_2O_3$ and, in hydro[illegible] 1719ad.

talyst of $CrO_3$ and, in reduction of tartaric acid esters, 8355*d*.
talyst of $Fe_2O_3$, MgO, $K_2O$ and, in dehydrogenation of butene, P 663*a*.
talyst of $Fe_2O_3$, MgO, $K_2O$ and, in dehydrogenation of cumene, P 680*f*.
talyst of PbO and, in ethylene oxide formation from $(CH_2Cl)_2$, 4638*h*.
talyst of MgO, MnO and, in prepn. of BuOH from EtOH, 5363*c*.
talyst of $MnO_2$ and, in oxidation of $H{\cdot}CH_4$ mixt., 2403*f*.
talyst of $H_3PO_4$ and, in dehydration and isomerization of BuOH, P 3833*h*.
talysts of BaO, $Cr_2O_3$ and, in alkylation of *p*-phenylenediamine with ketones, P 4005*a*.
l with Na amalgam and NaOH, 5315*b*, 8907*e*.
emical character of hydrated, hydration and, 8295*h*.
ystallochem. electronegativity of Cu ion in, 8231*c*.
compn. by heat and formation from Cu, 6063*e*.
tection in Cu ores, 5697*f*.
ect on $Fe_2O_3$ catalysts for reduction of esters, 5363*d*.
x with PbO, prepn. of $PbO(CuO)Pb$, 1285*d*.
mation in Bremen green on storage, color changes from, 5605*b*.
mation in copptn. of Cu-Ni hydroxide, 8929*f*.
ophiolitic rocks of Leghorn and serpentines of Tuscany, 6954*c*.
ygen exchange with, 8821*i*.
action with $CH_4$ in fluidized bed, 7199*h*
ractory elec. conductors from, P 5919*e*.
ber compounded with, $H_2S$ evolution by, 5620*h*.
y. of, 7789*d*.
ectrum of, 3712*f*
stem: $CuSO_4$–$H_2O$–, pH in, 2492*i*.
ermal stability limits for analytical ppts. of, 8071*i*
**er oxychloride**. See "basic" under *Copper chlorides*.
**er oxychloride sulfate**. See "basic, basic sulfate" under *Copper chlorides*.
**er pentathionates**, stabilization of solns. of, P 7651*g*.
**er perchlorates**, soly. of, 7789*c*.
$ClO_4)_2$, complexes with pyridine, 2114*a*.
ncn cells from Cu and, 8913*i*.
**hosphate** ($Cu_3(PO_4)_2$), catalyst of ), $H_3PO_4$ and, in dehydration of )H, P 7035*b*.
ysis of, in distd. $H_2O$, 8905*d*
**iosphides**.
ystems: $Cr_2P$–, $Fe_2P$–, $Mn_2P$–, $Ni_2P$–, 5719*b*.
anuf. of, P 825*d*.
**otassium arsenate**, 2885*c*.
**otassium sulfate**, magnetic reso ce absorption in, 4568*e*.
with $MgK_2(SO_4)_2$, magnetic re tion time of proton in $H_2O$ of tn. of, 8878*g*.
heat of, at low temp., 7336*h*
**yrophosphates**, catalysts from vated C and, in polymerization of ins, P 1559*h*.
lysts in polymerization of butenes $C_4H_8$ to gasoline, 4839*d*.
alysts in polymerization of $C_2H_4$ monohaloalkanes, P 5640*f*
**lts**. (See also *Fungicides*.)
tion and electrolytic polarization olns. of, 503*h*.
P 5161*c*.
equilibria in aq. solns. of cupric alkali salts, 7789*b*.
ne sepn. from olefins by aq. solns mino alcs. contg., P 6218*b*.
alysts in isomerization of dichloro-butenes, P 663*f*.
xidation of furoin, P 690*g*.
xidation of $PH_3$, 6898*a*.
alfur removal from pseudoureas in heir reaction with guanidines, P 1059*f*.
of $PbEt_4$ or $PbMe_4$ and, for nerization, 5732*e*.
s with $Na_4P_2O_7$, 6104*a*.
by heat of, of carboxylic acids,
1(4 *H*)-pyridineacetic acid, 5780*f*.
from acetylenes by, 6218*a*.
bacteria, 5824*e*.
r and keeping quality of butter,
*effect* on foam formation in beer, 9359*g*.
on protoplasm, 8015*b*.
fungicides and insecticides from thiourea and, P 5529*e*.
fungicides from humates and, P 6778*g*.
of grapeseed-oil acid, effect on drying of linseed oil, 8699*f*.
by hydrometallurgy, 3326*f*.
magnetic resonance in, 4568*d*.
manuf. from waste Cu alloys, P 7358*b*.
microwave spectral lines in, width of, 4095*e*.
phosphorescent pigments contg., P 7832*d*.
plastic materials from asbestos, HCHO and, P 8208*h*.
reaction with reduced wool, 5955*f*.
textile rotproofing with, P 4185*b*.
**Copper Sandoz**, in *Cercospora beticola* control, 3134*b*.
**Copper selenates**, in greenhouse-pest control, 1141*d*.
as insecticides, 2357*f*.
in termite control in birch, 9341*d*.
**Copper selenide**, synthesis of CuSe, 8982*d*.
**Copper selenite**, in termite control in birch, 9341*d*.
**Copper silicates**, nicotine salt, as fungicide and insecticide, P 5899*g*, P 5900*a*, P 7634*b*.
$Cu_3SiO_4$, 1670*h*.
**Copper sodium arsenate**, 2885*c*.
**Copper sprays**. See *Bordeaux mixture; Fungicides; Paris green; Sprays*.
**Copper sulfamate**, $(H_2NSO_3)_2Cu$, concn. cells from Cu and, 8913*i*.
**Copper sulfate**. (See also *Bordeaux mixture; Chalcanthite*.)
absorption of heat and light by solns. of, 7821*i*.
air bubbles in soln. of, potential from, 4587*a*.
in alga control in reservoirs, 1885*d*.
aluminum corrosion by solns. of, 4996*i*.
antifouling properties of, 3964*c*.
in asphaltic bitumens, 5178*f*.
basic, P 2154*a*.
$CuSO_4.3Cu(OH)_2$, 7361*i*.
in downy-mildew control on cucumbers, 9329*h*.
in downy-mildew control on Lima beans, 3959*i*.
in ergot control, 3959*g*.
and its mixt. with basic Cu chloride, in potato-fungus control, 9328*i*
and its mixt. with Cu oxychloride, as fungicides, 7177*df*.
in tomato blight control, 4413*ac*.
in tomato-fungus control, 9328*d*.
as catalyst in decarboxylation of 2-furanacrylic acid, 2615*d*.
catalysts of Te and, in Kjeldahl digestion, 8961*g*.
chromatography on soil minerals, 3519*h*.
compd. with nicotine sulfate, 8297*a*
concn. cells with Cu, 8913*i*.
cornea tolerance to, 3110*h*.
corrosion of Cu-Au and Au-Ag alloys in solns. of, 7879*e*.
in *Corticium salmonicolor* control, 5891*i*
effect on adenosinetriphosphatase in heart muscle, 8058*b*.
on blood sugar, 3523*i*.
on crude-protein detn. in feeding stuffs, 7158*g*.
on discoloration of canned fish, 8069*b*.
on gas formation in ruminal ingesta of sheep, 2604*a*.
on metals with adsorbed org. films, 28*g*.
on stomach lining, 3106*c*.
elec. cond. of solns. contg. tartrate and, 19*c*.
elec. spark in solns. of, velocity of, 1244*h*.
electrolysis of aq., ultramicroscopy of, 950*g*.
equil. with KOH and K salts, 7789*c*.
exchange between Cu and, 6890*i*.
fire-retardant compns. from, P 1126*i*.
in fish-net preservation, 8688*e*.
as fungicide for vegetables, 4411*i*.
fungicide from molasses or sugar and, P 5899*e*.
fungus growth in concd. solns. of, 720*g*.
hydrolysis of, 4086*g*.
interaction of nuclear spins in, 8273*d*.
interaction with silicic acid sols, 8237*d*.
luminous spark in solns. of, from application of high potential, 4091*f*.
magnesium oxychloride cement contg., P 3106*f*.
magnetic resonance absorption by, 3252*e*, 3293*h*, 4066*i*, 4568*e*, 5244*c*.
magneto-optic rotation of, 5244*a*.
manuf. of, P 3159*d*.
from chalcopyrite, P 8624*a*.
by electrolysis, P 7840*c*.
in mildew control on grapes, use with Na isopropylxanthate, P 4807*b*.
mixt. with $As_2O_3$ and $Na_2Cr_2O_7$, for preservation of green bamboo, 3553*i*.
with $H_2O_2$, effect on detn. of N in meat products, 7155*a*.
with $H_2SO_4$, limiting c.d. in, 4585*a*.
in oat-smut control, 1137*g*.
in phosphorus-injury treatment, 6743*c*.
for photographic use, Am. standard specifications for, 6930*b*.
polarization of dropping-Hg electrode in, 2875*d*.
polarography of, 2873*b*.
in potato-late-blight control, 9336*g*.
reaction with $CaCO_3$, 1138*gh*.
reaction with NaOH, 8295*h*.
sepn. from $CoSO_4$ and $Fe_2(SO_4)_3$ by chromatography, 2070*i*.
soil-cement mixts. contg., P 5568*g*.
in soil (peat) improvement, 7621*g*.
soil treatment with, 4410*g*.
soly. in aq. alc., effect of $C_6H_6$ or $CHCl_3$ on, 6889*h*.
spectrum of, 3293*c*.
in stabilization of solns. of polythionates and polythionic acids, P 7651*h*.
system: CuO–$H_2O$–, pH in, 2492*i*.
in termite control in bamboo, 3553*i*.
in termite control in birch, 9341*d*.
as termite repellent, 9341*e*.
in *Tilletia*-spore control on wheat, 8085*e*.
toxicity to bees, 344*e*.
transmittancy of solns. of, and of its mixts. with Co sulfate, 8275*g*.
in tree control on southern upland, 6352*i*.
vineyard-stake preservation with, 6352*e*.
in water purification—see *Water, purification of*.
in wheat-bunt control, 3553*e*.
wood impregnants from, P 4808*f*.
in wood preservation, 5892*i*.
in zinc-ore concn., 1293*h*.
**Copper sulfides**, catalyst contg., in S removal from coal and synthesis gas, 3169*i*.
as catalyst in S removal from fuel gas, P 380*c*.
detection in Cu ores, 5697*f*.
formation in crème de menthe and on wool, 924*d*.
minerals, analyses and geochemistry of, 6543*d*.
plant protectants contg. CuS and (or) Cu polysulfide, P 3140*g*.
$Cu_2S$, in Cu films on galena, 6483*f*.
melting point of, and soly. limit of liquid Cu in, 3319*b*.
reaction with H, equil. in, 2558*g*.
**CuS**, adsorption on, of element 43, 2507*d*.
elec. supercond. of, 4532*h*.
oxidizability of pptd., 5700*i*.
roasting of, 4988*g*.
$Cu_2S$, prepn. and crystal structure of, 6102*c*.
**Copper tartrates**, optical rotation of, effect of alkali on, 8242*i*.
prepn. and properties of $CuC_4H_4O_6.3H_2O$, 7287*h*.
stability of, 4971*a*.
**Copper tellurate**, $CuH_4TeO_6$, 518*e*.
**Copper tellurite**, in termite control in birch, 9341*d*.
**Copper thiocyanate** ($Cu(SCN)_2$), antifouling properties of, 3963*i*.
heat of formation and lattice energy of, 2829*i*.
**Copper tower**, 6063*g*.
**Copper vanadate(V)**, prepn. and soly. of 8247*f*.
**Copper zinc chloride**, $3Cu(OH)_2.ZnCl_2$, 8929*g*.
**Copper zinc chromates**, as fungicide for turf, fruit and potatoes, 6775*f*.
in tomato-blight control, 4413*c*.
**Copra**, carbohydrates and protein of, 8811*c*.
meal—see *Coconut meal*.
**Copra oil**. See *Coconut oil*.
**Copratoporphyrin**. See *Deuteroporphyrin*.
**Coprecipitation**. See *Precipitation*.
**Coprinus**, *fimetarius*, mutation in, from N mustard, 6702*f*.
identification of, 9177*h*.
*lagopus*, nutritional requirements of, 8065*f*.
*similis*, antibiotic substance from, 2274*i*.
**7(8),22(23)-Coprosergostadiene**, 7493*f*.
**3(α)-Coprosergostanol**, 7493*g*.
**7(8)-Coprosergostene**, 7493*f*.
**Coprophagy**, effect on biotin and folic acid requirements, 5833*b*.

**Coproporphyrin**, affinity of neoplastic, embryonic and traumatized tissue for, 749*c*.
detn. and extn. in urine, 7992*h*.
distribution coeff. between ether and phosphoric acid, 6696*g*.
in urine in porphyrinuria, 7533*d*.
**Coproporphyrin I**, absorption ratios in ultraviolet for coproporphyrin III and, 2094*e*.
**Coproporphyrin III**, absorption ratios in ultraviolet for coproporphyrin I and, 2094*e*.
and its tetramethyl ester, isolation from *Corynebacterium diphtheriae* culture filtrates, 2671*b*.
**Coprosma**, chemistry of, 210*b*.
**Coprostane**, from cholesterol by pyrolysis, 7574*a*.
——, **3(α)(and 3(β))-acetoxy-4,5-oxido-***, reaction with $AlLiH_4$, 1786*f*.
——, **3(β)-acetoxy-4(β),5-oxido-***, 6641*a*.
——, **3(α),5-dihydroxy-***, and 3(α)-acetate, 1786*i*.
and derivs., 1785*b*.
——, **3(α),5(and 3(β),5)-dihydroxy-***, and their 3-acetates, 3830*e*.
——, **3(β),5-dihydroxy-***, 5408*i*.
and 3(β)-acetate, 1786*f*.
carbonate, 1787*b*.
——, **3(α)(and 3(β))-hydroxy-4(β),5-oxido-***, and acetates, 1785*d*, 3830*g*.
——, **3-keto-5-hydroxy-***, 1786*c*, 1787*a*.
——, **3-keto-4(β),5-oxido-***, 1785*d*.
——, **4,5-oxido-***, derivs., 1785*d*.
——, **3(α),4,5-trihydroxy-***, and diacetate, 1786*d*.
*epi*-**Coprostanol**. See *Epicoprostanol*.
**Coprostanone**, bromination of, 7495*b*.
in oxidation-reduction reactions in the presence of Raney Ni, 191*e*.
reaction product with $SbCl_3$, spectrum of, 5307*g*.
——, **dibromo-**, 7495*a*.
——, **4,4-dibromo-***, bromination of, 4681*a*.
——, **2,4,4-tribromo-***, 2,4,6-tribromocholestenone and, 4681*a*.
**3-Coprostanone**, spectrum of, 3018*i*.
——, **7-methoxy-***, β-, and 2,4-dinitrophenylhydrazone, 3022*c*.
**Coptis chinensis**, antibacterial action of exts. of roots of, 716*h*.
bactericidal substances in, 7643*i*.
**Copying process**. (No entries this year. See *Printing; Transfers;* and "electrolytic facimile" under *Recording*.)
**Corals**, iodine in scleroproteins of gorgonin of Gorgonidae, 1871*a*.
iodotyrosine in gorgonin of *Gorgonia verrucosa*, 1871*d*.
provitamin D prepn. from, P 7648*d*.
reef of Leduc oil field, Alberta, 8319*g*.
strontium content and prepn. from, 5350*b*.
strontium sulfate manuf. from, P 6796*h*.
**Coramine** (*N,N - diethylnicotinamide*). (For derivs. see under *Nicotinamide*.) P 689*b*.
effect on work output of heart, 8421*e*.
haloferrates(III), P 3471*b*.
hematoporphyrin effect on action of, 7137*a*.
locus of action of, 7137*d*.
metabolism of, 6718*d*.
quaternary ions from, effect on nerves, 8502*i*.
reduction to 3-(diethylaminomethyl)pyridine, 121*h*.
in respiration stimulation, 5122*d*.
**Corasole**. See *Metrasole*.
**Corbasil**. See *Norephedrine, 3,4-dihydroxy-*.
**Corbefrin**. See *Norephedrine, 3,4-dihydroxy-*.
**Corchorus**. See *Jute*.
**Corcyra cephalonica**, toxicity to, of S compds., 4415*c*.
**Cord**. (See also *Ropes; Threads; Twine*.)
dynamic elastic modulus and hysteresis of, measurement of, 2439*e*.
dynamic properties of, at sonic frequencies, 4016*d*.
improving elasticity, heat resistance and strength of vegetable-fiber, P 5602*g*.
increasing flex-fatigue resistance and tensile strength of cotton, P 418*b*.
rayon, adhesion and dip-pickup of, flex life of tires and, 2012*g*.
rubber adhesion to, compression test for, 9514*g*.
rubber bond with cotton and rayon, fatigue tests on, 7253*b*.
rubberized, Fortisan rayon in manuf. of, 6408*g*.
rubber reinforcement with polyisocyanate-treated rubberized, P 2024*i*, P 2025*a*.
tire, adhesives and measuring adhesion of rayon, to rubber, 4044*i*, 4045*b*.
energy losses exhibited by, 6422*h*.
rayon as, 7692*f*.
**Cord grass**. See *Grasses*.
**Cordiamine***, effect on circulatory system in typhus, 8535*h*.
**Cordierite**, in Black Forest rock development, 8993*e*.
ceramic ware of, 3579*g*, 5164*g*.
coating with, on electrodes, P 4151*d*.
crystn. of, in industrial glasses, 1540*h*.
expansion and firing properties of, 3320*a*.
of France (Lyons), 8992*d*.
iron and synthetic Mg, in blast-furnace linings and hearths and fireclay casting-pit refractories, 5705*c*.
iron, in refractory materials, 3583*h*.
norites of Kok-Arche Mts., Altai, U.S.S.R., 2904*d*.
optically positive, from khondalites of Pachipenta, India, 976*h*.
thermal properties of, 9403*i*.
of Wyoming and its use in ceramic bodies, 828*f*.
**Cordierite gneiss**. See *Gneisses*.
**Cordite**, ignition by hot gases, 5188*g*.
*N*-nitroso-*N*-ethylaniline and its nitro derivs. in aged diethyldiphenylurea-stabilized, formation, identification and detn. of, 3617*e*.
smoke from, light scattering by, 4076*f*.
**Core oil**. See *Oils*.
**Cores**. See *Magnetic cores; Molds (I); Wells*.
**Coriandrol**. See *Linaloöl*.
**Cori ester**. See *Glucose phosphates*.
**Coriolus**. See *Polystictus*.
**Cork**, binder for, zein compns. for, P 2039*f*.
bleaching of, 5585*i*.
compns., P 4518*g*.
and cork products, 1841*f*
dust of, molded articles from waste sulfite liquor and, P 4517*e*.
dust of, sludge separator for, P 6871*a*.
gaskets from, fungicides for, 4803*i*.
plastic insulation from granules of, P 3235*c*.
removal from guayule rubber, 2799*i*
-rubber compns., P 5990*g*.
thermal insulator from, P 1126*c*
**Cork substitutes**, for gaskets, P 6466*i*
from peat, P 6004*d*.
**Corn**. (See also *Cereals; Grains; Silage*.)
amino acids in, 3534*p*, 7602*c*.
amino acids in pollen of sweet, 9177*i*.
amylases in, 9102*c*
amyloses from, effect of acid hydrolysis on retrogradation of, 2455*c*.
amyloses from, streaming birefrigence of, 3221*g*.
antibacterial and antifungal substances from, 3885*c*.
blanching of, with radiofrequency, 783*h*.
bread from, effect of sunflower meal on, 9183*a*.
bromine and Cl in, 3537*f*, 8572*d*.
canned, vitamins in, effect of storage temp. on, 1493*h*.
carbohydrates and nicotinic acid in, 277*g*.
carotene and vitamin C in yellow, 3536*b*.
carotenoids in, effect on growth of chicks and storage in their tissues, 4353*h*
chlorosis of, biochem. changes in, 8012*a*.
chromosome alteration and gene mutations in, by at. bomb radiations, 277*e*.
cobs, adhesive extender from, 8738*a*.
compn. and uses, 788*g*.
2-furaldehyde and pentoses from, 2171*c*.
holocellulose from, 4009*g*.
lignin from saccharification of, in phenolics, 7747*a*.
saccharification of, analysis in control of, 6412*a*.
compn. of, and its action in poultry rations, 2339*b*.
compn. of endosperm, germ, bran and tip-cap of, 2333*h*.
control of budworm and corn earworm in, with DDT, 7183*f*.
control of corn earworm and fall armyworm in, 3136*cf*.
cooling and disinfecting of, prior to nonrefrigerated storage, 9288*g*.
DDT injury to, 8088*b*, 1520*i*.
2,4-D effect on, 2727*d*.
diet of, effect of penicillin on dent caries during, 6709*c*.
diet of, nicotinic acid in tissue during, 3075*f*.
disinfection of seed, 7179*a*.
diuretic from, P 6791*c*.
effect on growth of young rat, 1091*d*.
effect on N and org. matter in soil, 9319*c*.
European-corn-borer control in—see *Pyrausta nubilalis*.
European-corn-borer mortality on, 7183*h*
exudations by roots of, effect of *Azotobacter* on yield in relation to, 9149*p*
fall-armyworm control on, 3136*e*.
feeds from, compn. of, 3538*i*.
fermentation of, moldy bran in, 5901*b*
fertilizer expts. with, 1129*e*, 1134*e*, 9313*c*, 9328*f*.
fertilizer expts. with, with phosphate, 1135*a*, 1891*c*, 1892*c*.
fillers for phenolic plastics from cob and stover of, 6862*e*.
flakes of, carbohydrates and vitamin I in, effect of steam on, 5875*i*
freezing injury of seed of, tests for, 2290.
frozen, effect of blanching and storage on, 1495*e*.
germination capacity of, detn. of, 3494*d*
germination of, effect of chloropicrin on, 1900*h*.
germination of, effect of photosensitivity of coumarin on, in light and darkness, 8010*d*.
germ removal from, 5876*b*, P 8718*d*
glucose manuf. from, P 427*d*.
gluten—see *Gluten*.
glycogen of Golden Bantam, 6849*b*
grits, mixt. for fortifying, P 8071*e*
growth retarding effect of, in nicotinic acid-low rations and its counteraction by tryptophan, 2680*c*.
heredity of oil in, 2675*b*.
husks of, nutritive value of, 6330*d*
hygroscopic equil. of whole-kernel, 478.
inheritance of protein and its components in, 7088*d*.
insect control on, chlorinated camphene in, 1143*c*.
insecticides for, DDT mixt. with hexachlorocyclohexane as, 2729*e*
isopropyl carbanilate persistence in under, 3961*a*.
magnesium deficiency of, 9313*c*
maleic hydrazide Cu or Zn deriv. effect, 6776*b*.
manuf. of products from, plant, 8716*d*.
mash—see *Mashes*.
neutral-red effect on growth of, 1081
nicotinic acid, pantothenic acid, vitamin $B_2$ and vitamin C in, during growth, 6289*h*.
*m*-nitrobenzamide-*N*-deriv., toxicity, 7182*b*.
in nutrition, 5837*c*, 9179*d*.
pellagragenic action of, 7556*f*
peroxidase in, 1905*d*.
*o*-phenylenediamine oxidase in, 1904*b*
phosphorus downward translocation in roots of, 5093*h*.
phosphorus movement in, 8021*a*
phytic acid in, 3116*d*.
processing of, biochem. factors in, 5875*g*.
insect problem in plants for, 150
statistical control in, 4901*g*.
products from, P 6332*a*.
proteins of, biol. value of, 1090*i*, 5101, 7559*a*.
hydrotropic action of urea on, 7505
in manuf. of Na glutamate, 5507*i*
oxidation-stable, oil- and starch free, P 8711*i*.
quality of, 9288*h*.
supplementary value of protein of marine animals for, 3892*i*.
proteins of germ and endosperm of, biol value of, 3077*i*.
protoanemonin effect on root tip of, 5830*i*.
radicle development in seedlings of, effect of Ca, Mg, Na or K on, 283*i*.
radioactive P introduction into, 329*i*
rations of alfalfa and, digestibility and metabolizability by lambs, 7158*e*.
repellent or toxic to European corn borer, soil treatment for producing, 9336*d*.
respiration during germination, effect of surface microflora on, 802*f*.
roots of, effect of 2,4-D on, 6352*i*.
seasoning of, monosodium glutamate and, 8572*h*.
selenium in, 3800*e*.

sodium detn. in, 8956*g*.
soil-$H_2O$ loss under, 6771*h*.
solvent extn. in dry milling of, P 2710*e*.
starch—see *Starch*.
steeping of, effect on structure of kernel, 324*f*.
steep water detn. of dry substance in, 5217*i*.
steepwater, for use in manuf. of penicillin, P 8106*e*.
stored-grain-insect control on, 1898*f*.
substitutes for, in fattening beef calves, 6712*b*.
tryptophan-niacin relation in, 6287*h*.
in turkey rations, 9328*g*.
urea as supplement for, 6712*a*.
vitamin A and carotenoid storage by chicks fed, 2291*g*.
vitamin $B_1$ in Punjab, and effect of cooking thereon, 8565*f*.
vitamin C in, 1454*i*.
vitamins in, effect of large scale methods of prepn. on, 9288*d*.
water detn in, 8708*c*.
waxes from yellow and waxy, 2450*h*.
weed control in, 1893*i*, 1894*d*.
weed control in, with 2,4-D, 1894*hi*, 7180*i*.
weevil control in bags of, 1900*c*.
yield factors of, 4309*a*.
zinc deficiency of, acid-extractable Zn in soils and, 1133*h*.

**Corn beetles**, 2-hydroxyethyl thiocyanate effect on, 2945*g*.
**Cornea**. See *Eyes*.
**Corn earworm**. See *Heliothis armigera*.
**Corn flea beetle**. See *Chaetocnema pulicaria*.
**Corn flour**, agenized, effect on animals and humans, 3532*i*.
detn of cold-water-absorptive capacity of pregelatinized, 325*b*.
diastatic activity of, 7596*d*.
by dry milling corn, P 6332*c*.
mixt. with farina and wheat germ, 5-pentadecylresorcinol antioxidant in, P 884*e*.
tryptophan in, 5837*d*.
**Cornin** See *Verbenalin*.
**Corn meal**, amino acids in yellow, 3534*g*.
by dry milling corn, P 6332*c*.
in laying rations for hens, 9290*b*.
**Corn oil**, 2150*i*.
absorption from digestive tract, 9211*i*
analysis of, for double bonds, OH groups and branchings in C chains, 1173*f*.
by products of manuf. of, 5218*g*.
cake, nutritive value of, 6330*f*.
cultivation in Gt. Brit. for drying oil, 8699*a*.
effect on microörganisms in cecal contents of rats, 2277*a*.
fatty acids in, 5875*h*.
heredity of, in corn kernel, 2675*b*.
in kernels, 2333*i*.
linoleic acid detn. in, 7721*i*.
manuf. of, by wet-milling process, P 6332*c*.
manuf. of, plant for, 8716*d*.
recovery of, 1581*h*, P 2710*f*, 5876*c*, P 8711*i*.
recovery of, measurement of rate of, 7721*b*.
solvent fractionation of, at low temps. and calcn. of its glyceride structure, 1581*e*
surface tension of, 6878*i*.
**Corn sirup**. See *Glucose (the sirup and its dried products)*.
**Cornstarch**. See *Starch; Corn flour*.
**Corn sugar**. See *Glucose (the sirup and its dried products)*.
**Cornus**. See *Dogwood*.
**Cornwallite**, prepn. of, 2885*d*.
**Coroglaucigenin**, and derivs., 4679*i*.
**Corona** (*electrical discharge*), analysis of pos. and neg., 1255*c*.
effect on $SF_6$, 7354*i*.
point-to-plane, onset potentials of, 7323*b*.
**Corona** (*of sun*). See *Sun*.
**Coronenamine**, 5020*c*.
**Coronene**,



effect on fluorescent spectrum, transition temps. and x-ray patterns of gibbsite, 3819*f*.
manuf. by hydrogenation of coal, 5171*c*.
structure of, 3672*i*, 5020*a*.
viscosity of solns. of, 1629*i*.
——, **acetamido-**. See *Acetamide, N-coronenyl-*.
——, **benzoyl-**. See *Ketone, coronenyl phenyl*.
——, **dibromo-**, 5020*d*.
——, **dinitro-**, 5020*d*.
——, **nitro-**, 5020*c*.
——, **tetrabromo-**, 5020*d*.
——, **1,2,2a,3,4,4a,6a,7,8,8a,9,10,10a,-12a-tetradecahydro-(?)**, 5020*a*.
**Coronenedione**, 5020*e*.
**Coronenequinone**. See *Coronenedione*.
**Coronilla glauca**, glycosides of, 4679*f*.
**Corotoxigenin***, cyclic hemiacetal, 4680*b*. and derivs., 4679*i*.
**Corpuscles**. See *Blood corpuscles; Blood corpuscles, red; Cosmic rays; Electrons; Leucocytes; Particles; Photons;* etc.
**Corpuscular mechanics**. See *Quantum mechanics*.
**Corpus luteum**, cholesterol and vitamin C in, hormonal factors in, 8033*ad*.
estrogen effect on, 8494*a*.
hormone effect on, 7436.
hormone of—see *Corpus luteum extracts; Progesterone*.
pregnancy and, 5473*b*.
**Corpus luteum extracts**. (See also *Ovarian extracts; Progesterone*.)
effect on alkali reserve of blood, 8485*c*.
**Corresponding states**, theorem of, 7281*c*.
**Corrosion**. (See also *Evans effect; Tarnishing; Weathering*.)
of acid-resistant alloys by $H_2SO_4$ or HCl, 2151*b*.
by alk. soln., 1704*i*.
alloys resistant to—see *Alloys; Iron alloys;* etc.
of aluminum, 548*i*, 2667*h*.
crystal breakage and orientation in relation to, 1698*b*.
lecture expt. on, 6015*c*.
by salt solns., 4906*b*.
under tension, 549*a*.
of aluminum alloy pipe lines, 96*h*.
of aluminum and Al alloys, thickness and, 3337*c*.
of aluminum-coated steel, 7888*d*.
by aluminum-Zn alloys of Fe, 2148*f*.
by ammonium sulfate, 6141*d*.
of anodes and cathodes of Fe, 4620*h*.
anodic, of Ni and steel in sulfate soln., 1705*f*.
of articles in tomb of Tut-Ankh-Amen, 451*e*.
atm., of Fe, 6138*g*.
bacteria and other microörganisms in, 98*d*.
bacterial, pH and, 547*b*, 5356*g*.
bacterial, in sea water, 1706*d*.
of bearings in turbines, etc., 548*g*.
of boiler by water contg. NaCl, 6141*i*.
by boiler-feed water, 4404*g*.
of boiler heating surfaces, 1305*g*, 4622*f*, 6808*bf*.
of boilers, condensers and pipe lines, 2150*g*.
of boilers, effect of Cu and Fe oxide deposits on, 4905*g*.
by inhibited HCl, 1305*h*.
station design and material compn. in, 335*f*.
in boilers (high-pressure), 3546*c*.
books: Prevention of Fe and Steel, 554*b*; Bibliographic Survey of, 4998*c*; of Metals (in Russian), 7890*f*.
of brasses and Al brasses, 2149*b*.
of brasses, Zn loss in, 1704*d*, 7399*d*.
of brass pipe fittings, chlorination of water and, 3545*h*.
of brine-carrying app. in Cl plants, 2743*h*.
of building materials, 3337*g*.
by butyl alc. mixts. with castor oil, 4790*g*.
by butyl oil and its prevention, 813*e*.
of cable sheaths underground, 99*c*.
of cadmium, Fe and Zn by acids, effect of Sb salts on, 6140*h*.
calcium carbonate deposition and, 7889*e*.
by calcium petroleum sulfonate and Ca sulfonate-$NH_4Cl$ complex, P 5584*f*.
of cans contg. fish, 1498*d*.
of castings of Fe and steel by Al- and Si-contg. light alloys, 1705*d*.
of chromium, 9015*a*.
climatic effects on, 2564*i*.
coating permeability to electrolytes and, 6489*i*.
of coatings (metallic), 7399*h*.
of concrete—see *Concrete*.
by concrete, of steel, effect of $CaCl_2$ on, 3589*g*.
in condensate gas wells, 3590*e*, 8250*i*.
in condensate reservoirs, 7672*f*.
of copper—see also *Patina*.
by copper and $Cu_2O$ in antifouling compns. and protection against corrosion under marine conditions, 8695*i*.
of copper, and its control in starch-sirup manuf., 889*b*.
by HCl, 550*a*.
in refrigerating app. by lubricating oils, 5177*h*.
of copper pipe by water, 3643*h*.
of copper-Ag alloys, 4206*i*.
of copper-Ag alloys, and their restoration, 5679*e*.
of copper surfaces heated above b.p. of corrodant, 6141*f*.
cost of, to U.S., 8342*b*.
of Duralumin plated with Al-Mg-Si alloy, 2918*a*.
education and research on, 9015*g*.
effect of acid additives in lacquers on, 7718*i*.
effect of load and vibration on, 9014*g*.
elec. currents in, measurement of, 6092*g*.
of elec. power cables underground, 6093*h*.
electrochemistry of, 4621*d*.
electrolytic, in gas- and oil-well fluids, 2918*h*.
by leakage current from elec. railways, 4995*h*.
of pipes by elec railways, 4621*h*.
rate of, 9014*h*.
and its significance, 3337*a*.
emission of photographically active particles in, 2869*i*.
by emulsions and testing corrosiveness of lubricating oils, 2564*g*.
erosion-, 5723*c*.
by ethyl chloro- and fluorothiophosphates, 1313*i*.
of exhaust pipes of combustion motors, 9016*i*.
fatigue, failures in steel from, prevention with org. coatings, 6560*e*.
of high-C steel, shot peening and, 2917*d*.
of steel under asym. stress in sea water, 2565*b*.
of ferrosilicon coatings by $HNO_3$, 545*h*.
of foils, 8327*e*.
by fuel components, 986*d*, 8128*c*.
by fungicides in humid tropical climate, 873*e*.
of galvanized steel in hot-water system in presence of Cu, 8334*b*.
of gas conduits, 3597*c*.
of gas mains and services, 5724*a*
of gas mains by bacteria, 8645*h*
by gasoline, 2412*h*.
by halogens, O and S, 90*i*.
of heating and hot-$H_2O$ supply systems in relation to colloids, 6141*h*.
at high temps., 1698*h*, 6140*f*, 8343*c*.
intercryst. or intergranular, of chrome-Mn steels, 7400*e*.
of stainless steel, and its prevention, 538*g*, 5720*d*.
of steel in $NH_4NO_3$ solns., 5722*a*.
of steels derived from 18-8 type, 538*e*
of intermetallic compds., 8341*e*.
journal: Revêtement et protection, 5886*b*.
of lacquer drums, 1197*i*.
of lead, in chem. industry, 7400*b*.
by cinders, 4621*e*.
by $Pb(NO_3)_2$ solns., 2846*f*.
by viscose-spinning-bath-evaporator linings, 6824*a*.
by liquids at high temps. and pressures, 9015*g*.
local elements in, and chem. *vs.* electrolytic corrosion, 81*c*.
by lubricants contg. extreme-pressure additives, 6400*f*.
lubricants which decrease—see *Lubricants*.
of magnesium alloys with Cd and Zr, 8339*b*.
magnetic effects in study of, and corrosion of Pb and Ag by S, 8340*a*.
marine, 4414*e*.
measurement of, by Al cleaners and industrial waters, 4399*g*.
elec. app. for, 6092*d*.
electrolytic prepn. of test metal for, P 7839*g*.
half-cells as reference electrodes in, 6092*e*.
by industrial waters, 4787*d*.
in neutral medium, 547*e*.
under paint films, 6833*h*.
in pilot plant, 9015*g*.

*measurement of*, pulse polarizer in, 7401*b*.
punched cards for filing data from, 546*h*.
of membranes of metals by a.c., 4621*c*.
Navy research on, 6139*c*.
of nickel in steam condensate, effect of gases on, 4996*e*.
nitric acid (red fuming) and mixed acid as cause of, 986*f*.
by org. liquids, 2918*e*.
oxygen isotopes in study of, 2564*f*.
of packings of metal, 5723*g*.
from painting steel when wet, 9479*f*.
under paints and testing corrodibility under paint films, 6430*i*.
in paper-pulp manuf., 4010*h*.
in petroleum disposal wells by salt-water injection, 3599*e*.
in petroleum-distg. and fluid-catalytic cracking unit, 6401*f*.
in petroleum-distg. unit and condensers, 7220*i*.
of petroleum pipe lines by sour oil, 5581*g*.
in petroleum refineries, 385*e*, 1954*f*, 8127*g*.
of petroleum tanks, 4621*i*, 5929*h*.
of pipe lines, 1706*b*.
of pipe lines and its prevention, 986*h*.
of pipes covered by brass or Cu screen, 1705*g*.
of pipes underground, 6962*c*.
-preventing properties of turbine oil, test for, 4399*f*.
and its prevention, 5721*a*.
prevention of—see also *Bonderization; Coating(s); Galvanisation; Lining(s); Paint*.
prevention of, 421*b*, 2151*e*, 4995*fi*, 6962*gh*, 9295*g*.
by acids, 9014*f*, P 5730*d*.
adsorption of agents for, 6559*g*.
adsorption of inhibitors and, 6559*i*.
agents for, P 102*f*, 547*i*, 548*d*, 1305*e*, P 1308*f*, 1706*gi*, 1707*b*, 1953*f*, 2564*e*, 3336*f*, 4207*i*, P 4627*b*.
in air-conditioning system, 8342*b*.
of airplane engines, 5516*c*.
by alc. antifreeze, 8076*h*.
of Al alloys, 549*c*, 2143*h*.
by Al halide-hydrocarbon complex catalysts in hydrocarbon conversion with alk. earth metals, P 5582*i*.
with amine salts of diesters of SP(OH)$_3$, P 665*g*.
Sb-Pb-Sn alloys for, P 6095*a*.
by aromatic hydrocarbons alkylated with aromatic sulfonic acid catalysts, P 4458*c*.
by aromatic hydrocarbons alkylated with P acid catalysts, P 9430*g*.
of automobile fenders by NaCl with polyphosphate, 7401*a*.
with basic Zn chromate pigment, 6836*d*, 8697*e*.
with BzOH esters and BzONa, 6962*i*.
in boiler-feed pumps, materials for, 2345*h*.
of boilers, 3546*b*, 6138*h*.
of boilers with amine treatment of steam, 9307*b*.
of brake or clutch surfaces, agents for, P 7896*a*.
of brass and steel by 2-furaldehyde with mercaptobenzothiazole, P 9430*i*.
by $H_2CO_3$, P 5730*e*.
in catalysis with phosphorus acids, P 8349*f*.
cathodic, 99*g*, 506*a*, 1305*c*, 4620*f*, 5356*f*.
cathodic, and with bituminous coatings, for water tanks, 6343*g*.
cathodic, anode for, P 3734*b*.
cathodic, anode materials for, 6560*h*.
cathodic, of Al and Al alloys, 2914*f*.
cathodic, of bronze wires in paper-pulp manuf., 4012*i*.
cathodic, of gas lines, 4445*e*, 7400*h*.
cathodic, of hot-water tanks, P 2923*b*.
cathodic, of Pb-cable sheaths, 1305*a*.
cathodic, of pipe lines, 1705*i*, 1706*ab*, 2151*a*, 3336*e*, 7400*g*.
cathodic, of water tanks, 6141*g*, 6342*i*.
cathodic, symposium on, 6092*cdefghi*, 6093*abcdghi*, 6094*a*.
cathodic, with light-metal anodes, 6962*i*.
cathodic, with Mg, Zn and Zn-Li anodes, 6525*b*.
in chem. industry, 548.
by chlorides, P 992*b*, 5359*d*.
with chromates, 3337*e*, 8340*e*.
with chromic acid and $K_2CrO_4$, 9015*b*.
cleaning compn. for, P 3772*f*.
*prevention of*, coatings and, 2151*d*.
of Cu by S, 4207*bf*.
of Cu by S in petroleum oils with *tert*-butyl hydroperoxide, P 5582*f*.
of Cu or Fe, with powd. Zn and undecylenic acid, P 1710*g*.
by DDT-pyrethrum aerosols, 9330*d*.
2,4-diamino-*s*-triazine derivs. for agents for, P 7053*h*.
dicarboxylic acid combinations with alkyl acid esters of P acids for, P 1180*b*.
dicyclohexylamine nitrite for, P 1058*c*.
by electrodeposition and selective oxidation, 4149*b*.
in engine-cooling systems and radiators, app. for, P 6149*b*.
of engines by $H_2O$, 7888*h*.
of ferrous metals by acid cleaning compns. with glyoxal, P 6439*b*.
by flue gases, 100*a*.
by fuel oils, insulating oils, etc., agents for, P 4008*b*.
in gas and oil wells, $H_2S$ in, P 3185*i*.
in gas-condensate wells, 551*f*, 6813*a*, 7217*a*, 8651*d*.
of gas lines, 98*i*, 2150*h*.
hydrocarbon resins for, P 5630*h*.
by HCl, 986*c*.
in HF-catalyzed alkylation with Sb, As or Bi or their halides, P 3190*a*.
H overpotential and, 952*a*.
hydroxyarylalkyl amine condensation products for, P 1176*a*.
hydroxyaryl amines in, P 1062*a*.
of idle boilers by $NH_3$, 4623*d*.
with imidazoline derivs., P 5001*i*.
of insulator caps of temper castings, 6139*b*.
of interiors of inactive ships, 96*c*.
with Fe oxide pigment, 5201*c*, 8697*d*.
of light metals, agents for, 4622*c*, 9003*b*.
by lubricants—see *Lubricants*.
of Mg alloys by salt water with chlorododecylbis(octyloxy)silane, P 6430*e*.
by mercaptide compn. with polymer of cracked gasoline, P 8349*d*.
with metal coatings, 550*e*.
by moisture, wrapping material for, P 5640*f*.
of multiple-metal systems, agents for, P 8349*b*.
of Ni by As, 8903*a*.
in Ni plating, naphthalene sulfonic acids for, 883*a*.
in oil tankers, 8127*e*.
in oil wells, refineries, etc., P 6406*g*.
oily sulfonate-contg. compns. for, P 1564*b*.
org. sulfides for, P 6646*d*.
with Orlon, 9015*f*.
of oxide-coated Al and Al alloys, P 8350*b*.
by paraldehyde-contg. fuels with org. bases, antioxidants, etc., P 8130*b*.
by passivation, 28*i*.
by petroleum contg. $CaCl_2$ or $MgCl_2$ with alkali metal sulfates, P 9431*a*.
petroleum derivs. for, 884*i*.
by petroleum distillates in pipe lines with sodamide inhibitor and $Na_2SO_3$, P 6402*i*.
petroleum mahogany purified sulfonates for compns. for, P 3194*g*.
petroleum-product discoloration by phenol reaction products with alk. agents for, 1553*f*.
in petroleum refineries by sour oils, 1171*g*.
in petroleum refineries, metals and alloys in, 8127*i*.
of petroleum-refining app., 96*h*.
in petroleum sour wells, Kontols in, 1553*a*.
in petroleum-still overhead system, 5178*g*.
of petroleum-well equipment by $CO_2$ with $CS_2$ or S, P 3185*hi*.
in petroleum wells and petroleum processing by $CO_2$ with S compds., P 7221*g*.
in petroleum wells with phenolic materials, P 8662*e*.
of pipe lines for corrosive media, P 2568*d*.
of pipes, 547*a*, 9016*g*.
of pipes in soil, 7888*g*.
with plastic coatings, 421*c*, 899*d*, 2028*e*.
plastics and rubber in, 1707*b*.
with polymers, 6455*e*.
*prevention of*, by polysulfide sealing compds., $V_2O_5$ in, P 4508*g*.
in the power industry, 98*a*.
$C_2H_2$ polymers for, P 7223*c*.
of pumps in deep wells, 1883*i*.
ratfish-liver oil-hydrocarbon oil polishing solns. for, P 8714*d*.
in recirculating $H_2O$ systems, 6560*h*.
in refrigerator systems, inhibitors for, P 2568*e*.
reviews on, 7888*f*, 9014*f*.
by rolling or shot-peening, P 5730*i*.
with rubber latex contg. BzONa, 6559*f*.
with rubber linings, 2918*h*.
of salt-bath electrodes, P 4153*f*.
with salts of reaction products of P sulfides with chlorinated paraffins, P 666*e*.
by salt water, 1578*i*.
during scale removal from ferrous metals, P 3772*e*.
by sea water, agents for, 9016*d*.
by sea water with $NaNO_2$, 7888*i*.
in sewage-treatment plant, with active C, 1887*f*.
of structures, design and, [illegible]
of structures with petr.-base coatings, 4996*g*.
sulfonates for addn. to compns. for, P 3192*i*.
sulfonic acids for, P 396*b*.
in superphosphate industry, 9014*e*.
testing agents for, 97*f*.
$\alpha,\alpha'$-thio difatty acids for, P 3840*e*.
thio ether-substituted org. acid compds. with fatty acid esters of polyhydric alcs. for, P 7224*f*.
with Sn Zn electroplate on steel, 7834*d*.
of tools, 6560*g*.
of turbine journals by sea water, 9017*a*.
by turbine oil, addn. agent for, 3603*i*.
of vessels for heat generating reactions, P 102*i*.
of water-distribution systems
of water heaters, P 1628*a*
of water pipes with limestone, 1107*i*
of water tanks, standpipes, towers, 2346*d*.
water treatment for—see *Purification of*.
wrapping paper for, 7684*e*.
of Zn and Zn alloys, 5724*b*.
prevention of intergranular, of Cr-Fe-Mn alloy, P 7894*e*.
prevention of stress, cracking cathodic protection in, 6091*a*.
prevention of stress, of Hy, 7887*a*
products of—see *Rust*
of propellers in cavitation, 3682*e*.
radioactive tracers in, 4620*e*
rate of, 5721*i*.
in atm., 5722*e*.
measurement of, 550*e*
of refractory alloys, construction of turbo reactors and, 5723*f*.
resistance, of alloys during food processing, 777*e*.
of alloys of high m. p., 3331*h*
of anodes for water electrolysis, 1704*i*
of beryllized Al, 2559*h*.
of brass contg. Ni and Be, 2916*a*.
of Cr-Ni furnace parts, 2918*b*.
of Cr-Ta-Ni alloys, 3332*d*
of Co-Cr alloy and steel surgical plates, 1303*f*.
of Cu-alloy condenser tubes, 7398*i*
of gas appliances, measurement of, 6963*a*.
of high-alloy steel in industrial atm., 2017*i*.
improvement of, P 1307*f*, P 5730*g*.
of Pb coatings, 3727*a*.
of Li and Li alloys, 1300*f*
of Mg alloy contg. Cd and Ag, P 2921*i*.
of Mg alloys, effect of Ni on, 3337*i*.
of Mg and Mg alloys, 2148*b*
of magnetic cores, improvement of, P 9022*h*.
measurement of, 7888*g*.
of metals to tanning solns., 9506*e*
of Ni-alloy castings, 3335*e*
of phosphate coatings, improvement of, P 8350*c*.
of phosphatized steel, 6139*e*, 7400*d*.
by pigments for printing inks, 1190*e*.
of powder-cut steels, 3767*b*.
of Ag mirrors, 2387*f*.

*resistance*, of stainless steel, 1706*c*.
of steel contg. Cu, 98*e*.
of steel in tap-water, 1301*e*.
of steels in petroleum refineries, 8127*f*.
of Ti, 9015*f*.
of welded Al and Al alloys, 3338*d*.
of Zn and Zn alloys, improvement of, P 7894*i*.
resistance to, of Al, and its prevention, 3337*f*.
resistance to stress, of Al-Mg alloys, improvement by heterogenization, 8340*h*.
resistance to stress, of Al-Mg-Zn alloys, effect of addns. on, 92*c*.
resistant materials—see also *Acid-resistant materials; Alkali-resistant materials;* etc.
-resistant valves for petroleum equipment, 83*f*.
reviews on, 550*h*, 5721*i*, 6559*f*.
by salts, 6962*e*.
by sea water, 1937*a*.
of silver by HF, 4992*a*.
in soda ash manuf., 99*g*.
by sodium chloride soln., potentials in, 8906*d*.
by sodium chloride solns. and natural waters of rotating steel, 2150*c*.
by sodium hypochlorite and its inhibition, 8341*c*.
of standpipes, effect on water yield in drilled wells, 2346*a*.
of steam line supports underground, 9016*g*.
steel resistant to—see *Steel*.
of steels contg. Cu, 5722*i*.
of steel (stainless), org. acids and, 2707*a*.
of steel Zn 3, 6560*d*.
stress, 9014*f*.
of Admiralty metal in presence of Hg, 6142*a*.
of Al alloys, effect of atm. exposures on, 7885*h*.
of Al alloy sheet, 98*c*.
of Cu alloys, 2562*a*.
cracking in alloy steel gas cylinders, 1303*g*.
of Hy 43 and Igedur, 6961*f*.
of jewelry alloys, 9014*a*.
of solid solns., crack formation in, 7879*e*.
by sulfates, 1706*f*.
sulfation and sulfonation equipment, tests on, 97*c*.
by sulfite cellulose liquors, residues and exts., 6141*e*.
sulfur-contg. air and, 3337*f*.
by sulfur dioxide, 2151*d*.
by sulfur dioxide, effect of temp. and moisture on, 101*d*.
in sulfuric acid manuf., 9015*f*.
of sulfur-producing steel tubes, 9015*h*
as surface reaction, 7769*d*.
in tanneries, 1204*e*, 1589*f*.
of telephone equipment outside, 5723*h*.
testing cavitation-erosion of metals, 1705*h*.
testing corrodibility, app. for, 2918*e*.
lab. for, 3336*e*.
of painted metals, 4489*f*.
of painted steel in sea water, 6835*d*.
of painted steel in Vila app., 4023*d*, 8701*d*
of paints for under-water use, 3210*f*.
of plain and alloy steels, 551*c*.
of stainless steel, 9015*h*.
of steel in $SO_3$ atm., 2918*f*.
of steels to $NaClO_3$ and NaOCl bleaching solns., 854*h*.
of structural steel under stress, 3766*h*.
testing corrosiveness of aircraft lubricating greases, 5936*e*.
of gasolines and lubricants, 839*i*.
of lubricants, P 1180*e*, 8221*a*.
of lubricating oils toward Cd-Ni bearings, 8126*b*.
of polar-type inhibitors in oils, 2420*g*.
of salt spray, app. for, 2150*e*.
of salt spray, bibliography on, 95*h*.
of S in motor fuels, 9426*a*.
theories of, 90*g*, 547*f*, 1705*ce*, 1705*e*, 4207*a*, 6835*h*, 6962*a*.
thermal-diffusion potentials and, 6493*a*.
of tin by active O, 9015*e*.
of titanium, 3765*i*.
in turbines, causes and prevention of, 8078*g*.
underground, and its prevention, 6140*i*.
by water, dissolved O in, 1954*f*.
of water heaters by flue gases, 4622*a*.
by water in Buenos Aires, 5720*h*.
of water pipes, 4621*f*.
of water pipes by bacteria, 2504*h*.
wear of cast Fe and steel and, 5721*a*.
of welded joints, measurement of, 2919*b*.
of well (water), screens and its prevention, 2346*b*.
of wires of Fe and steel, 2917*c*.
of zinc-bath furnaces, 9017*b*.
of zinc in Leclanché-type cells, 7836*d*.
**Corrosive sublimate**. See *Mercury chlorides*.
**Corrosive substances**, conduit for, P 3669*ef*.
pump for liquid, 4903*f*.
**Corticium**, *croceum*, corticrocin from, 6982*d*.
*salmonicolor*, on *Hevea* and its control, 5891*i*.
**Corticosteroids**, 1787*b*.
in urine after KCl treatment, 5872*i*.
**Corticosterone**, compds. having activity like, 4658*i*.
effect on phosphatase of intestine after adrenalectomy, 9201*g*.
——, $\Delta^{11}$-**anhydro-***, and acetate, 6639*f*.
and derivs., 3430*f*, 3431*c*.
——, **dehydro-***, and acetate, P 5812*a*.
——, **11-dehydro-***, and acetate, 1788*b*.
acetate, effect on enzymes of liver and kidney, 2253*i*
synthesis of, 1428*i*.
——, **17-dehydro-***, effect on nucleic acids and phospholipides in liver and thymus, 8403*h*.
——, **desoxy-***, acetate, P 7978*e*.
and acetate, P 7056*h*.
acetate, absorption from implants and effect on blood pressure, 8480*g*.
absorption from intestinal tract, 8036*a*.
in carbohydrate metabolism, 8496*i*.
cholinesterase action on, 9122*b*.
effect after splanchnicectomy and adrenalectomy, 1853*f*.
effect of thyroxine and, on lipases in blood, 7136*c*.
effect on adrenal cortical tumor formation, 7124*h*.
effect on adrenal glands in inanition, 289*a*.
effect on amino acids and glycogenesis in liver after adrenalectomy, 8544*b*.
effect on CaHa poisoning, 765*b*.
effect on blood pressure of dogs on high NaCl intake, 745*i*.
effect on blood-sugar regulation, 7563*g*.
effect on carbohydrate utilization after pancreatectomy, 8495*c*.
effect on cholesterol in blood, aorta and liver, 7118*i*.
effect on glycogen formation in liver, 3520*a*.
effect on glycosuria of partially depancreatized rats, 1474*g*.
effect on hypophyseal corticotropin production, 315*a*.
effect on insulin coma, 8550*d*.
effect on kidney damage from antiplacenta serum in pregnancy, 3517*c*.
effect on lipase in blood, 7136*c*.
effect on metabolism in acclimatization to heat, 8408*c*.
effect on pubic relaxation, 8035*a*.
effect on water metabolism and blood pressure, 8038*h*.
hypertension from, effect of adrenalectomy and adrenal cortical exts. on, 7146*d*.
insulin hypersensitivity after administration of, 8492*e*.
kidney in hypertension caused by, 5849*e*.
nephrosclerosis from, 5489*g*.
and acetate, spectra of, 3018*i*.
adrenal atrophy from, 7591*g*.
in alcoholism, 9231*d*.
antitumorgenic action of, progestational activity and, 8532*h*.
biol. action of, 2303*c*.
detection of, 5816*i*, 7993*i*.
detoxification by liver, 8487*h*.
effect on adrenal cortical ext. and, on hypertension, 8057*d*.
effect on alkali in blood plasma of negroes after ingestion of K salts, 2687*r*.
on carbohydrate metabolism of muscle, 9201*i*.
on convulsive threshold, brain and plasma cations in relation to, 7146*a*.
on elimination of water and NaCl in normal and adrenalectomized dogs, 1848*h*.
on glycogen formation in liver and muscle after adrenalectomy, 9202*a*.
*effect* on glycogen formation in muscles, 9202*a*.
on glycogen metabolism during work in diaphragms of normal and adrenalectomized rats, 3904*h*.
on glycogen phosphorylation by muscle and liver after adrenalectomy, 1098*f*.
on granulation tissue, 8492*a*.
on lactation, 8032*e*.
on metamorphosis from thyrosine in axolotl, 9213*e*.
on phosphatase activity in genital tract, 5840*g*.
on phosphomonoesterases and pyrophosphatases in kidney and intestine after adrenalectomy, 1818*d*.
on respiration of brain homogenates, 7579*e*.
on respiration of yeast, 9144*c*.
fluid intake and pressor responses in relation to output of antidiuretic factor after administration of, 3090*h*.
β-D-glucoside, tetraacetate and β-maltoside, P 5428*b*.
liver damage by, 9267*c*.
narcotic action of, 309*h*.
palmitate, P 2648*f*.
propionate, P 1916*f*.
in steroid control of gonadotropic function of hypophysis, 8035*e*.
stilbestrol-like analogs of, 9055*e*.
therapy with, 1844*e*.
——, **17-hydroxy-**, in urine in Cushing's syndrome assocd. with diabetes mellitus, 302*a*.
——, **17-hydroxy-11-dehydro-***, effect on amino acids and glycogenesis, 8544*b*.
effect on carbohydrate metabolism of muscle, 9201*i*.
on glycogen formation in liver, and muscle, 9202*a*.
on thyrotropin-stimulating effect of adrenaline, 7566*h*.
**Corticotropic substances**. See "cortex of, substances affecting" under *Adrenal glands;* and "hormones of anterior lobe of, adrenotropic" under *Pituitary gland*.
**Corticrocin**, and derivs., 6982*d*.
**Cortin**. See "hormones of cortex of" under *Adrenal glands*.
**Cortis**. See *Metrasole*.
**Cortisone**. See *Corticosterone, 17-hydroxy-11-dehydro-*.
**Corundum**. (See also *Alumina; Emery; Ruby; Sapphires*.)
abrasives from, structure of binder in, 1164*a*.
in alumina system with CaO and $SiO_2$, 8937*c*.
bend creep and bend strength of single crystals of, and prepn. of sintered corundum, 9402*h*.
Canadian, 2343*c*.
ceramic ware from, effect of binder on, 4437*i*.
color of, 9403*c*.
differentiation from glass, mica, etc., and detn. by microscope, 3315*a*.
manuf. from Al scrap, P 6096*c*.
of Montana, 8318*h*.
powd., iron (metallic) detn. in, 8303*e*.
powd., surface area of, 18*h*.
refractories of, for glass manuf., 9405*g*.
refractories of glass-bonded, 6383*f*.
system: chrysoberyl–, 2535*d*.
**Corycium enigmaticum**, carbon$^{12}$-C$^{13}$ ratio and age of, 2906*c*.
**Corydaldine** (*3,4-dihydro-6,7-dimethoxy 1(2 H)-isoquinolone*).
——, **2-benzoyl-**, 656*g*.
**Corydalis cava**, cuticular transpiration in, and its relation to membrane swelling capacity, 730*e*.
**Corylus**. See *Hasel*.
**Corynanthéidine**, 9378*b*.
**Corynantheine**, 9378*b*.
fluocolumbate(V), 5786*a*.
identification of, 9372*a*.
sympathicolytic activity and toxicity of, compared with corynanthine, 7584*d*.
**Corynanthine**, effect on 2,4-dinitrophenol poisoning, 3105*g*.
fluocolumbate(V), 5786*a*.
identification of, 8372*a*.
sympathicolytic activity and toxicity of, compared with corynantheine, 7584*d*.
tartrate, pharmacol. properties of, 6319*d*.
**Corynebacterium**, *diphtheriae*, action of antibiotic from soil bacteria on carriers of, 270*h*.
*diphtheriae*, amino acids of, 8001*e*.
chloroform-fat reactions with, 1830*c*.

*diphtheriae*, dextrose metabolism of, 8000*d*.
effect of air and $CO_2$ on toxin production and growth of, 4726*b*.
effect of chemotherapeutic agents on, 4325*i*.
enzymes protective against, in urine, 751*i*.
folic acid requirements of, 8441*f*.
HCHO-resistant, 9155*e*.
metachromatic granulation in relation to metaphosphoric acid of, 6277*i*.
metachromatic granulations and nuclear app. of, 6277*d*.
mutation in single-cell culture of, 4336*h*.
penicillin effect on, and its reversal by yeast ext., 9166*b*.
peptone decompn. by, 8000*a*.
porphyrin isolation from culture filtrates of, 2671*b*.
starch synthesized from glucose phosphate by, 3062*h*.
sulfanilamide effect on, 9146*d*.
sulfonamide effect on growth and staining reactions of, 1459*h*.
toxin of—see *Toxins;* and "toxins" under *Diphtheria*.
vitamin $B_2$ formation by, 721*f*.
*michiganense*, vitamin $B_1$ and related compds. in pigment production by, 3057*h*.
phytopathogenic, nutrition of, 5081*d*.
*pyogenes*, from mastitis, effect of antibacterial agents on, 3880*i*.
satellitism in, due to growth factor, 6278*i*.

**Coryneum beyerinckii**. See *Clasterosporium carpophilum*.

**Corythucha gossypii** and(or) **Cotton lacebug**, 2,4,5-trichlorophenyl esters for treatment of cottonseed for preventing infection by, P 3459*g*.

**Cosalite**, goongarrite and warthite identity with, 8983*a*.

**Cosmetics**. (See also *Bath preparations; Lotions; Soap*.) 3561*i*.
alginates in, 1905*i*.
analysis for gases and detn. of d. of creams, 2734*i*.
analysis in making, 3145*a*.
analysis of, 3973*a*.
anhydrohexitols for use in, P 4301*i*.
astringent—see *Astringents*.
bacteriostatic base for, P 3978*d*.
barrier creams, 5901*h*.
bases, alginates in, 8003*e*
books: Principles and Practice of Modern, 820*i*; Kosmetik und allgemeine Pathologie, 1104*d*; Fabricación de perfumes y, modernos, 3570*h*, Handbuch der gesamten Parfumerie und, 5552*d*; Tech. of Beauty Products, 6791*c*.
cake make-up, P 4434*g*.
cellulose derivs. in, 1529*i*.
coal-tar colors used in, identification of, 6364*c*.
creams, P 364*b*, 1906*h*.
ash detn. in, 2547*h*.
bases and emulsifying agents for, 356*e*.
specifications for, 9492*d*.
disulfide-contg., P 4820*b*.
dusting powder, P 5910*c*.
emulsifying agents for, esters of (hydroxyalkoxy) compds., P 6663*g*.
emulsifying wax in, 1528*i*.
9,10-epoxyoctadecanol polymers for, P 3660*g*.
ethers for manuf. of, P 8400*f*.
eyebrow pencils, eye shadows and mascaras, 9368*c*.
fatty acids for, 7193*b*.
glycerol detection in, 3145*i*.
glycols in, 3147*g*.
hardness of, measurement of, 2369*c*.
insect repellents as, 9335*g*.
intermediates for, from silk waste, 6793*b*.
lanolin derivs. for use in, P 9391*d*.
leg, 1906*g*.
lip rouge, eosin detn. in, 8095*i*.
lipstick, castor oil in, and its detn., 9367*e*.
lipsticks and rouges, 9365*c*.
locust-bean gum in manuf. of, 8717*e*.
micromethods in making, 4424*h*.
nail polish—see *Nails (finger and toe)*.
oleic acid (purified) for manuf. of, P 3838*a*.
pantothenate-contg., P 4434*f*.
perfume ingredients which cause discoloration in, 6362*i*.
perspiration remedies—see *Perspiration*.
powders, analysis of, [illegible]
protective creams for skin exposed to mineral oil, 3543*d*.
review on, 9363*e*.
rheological tests in industry of, 8750*d*.
sorbitol and sorbitan derivs. in, 2736*i*.
stabilizing agent for, from gelatinized oat fractions, P 4784*e*.
sterols in, 3568*c*.
sunburn preventive agents, 8618*g*.
sunscreen compds., 7189*i*.
waxy polyol ether esters for, P 886*g*.
yeast-contg., P 4434*e*.

**Cosmic rays**. (See also *Ionisation, gaseous*.)
absorption of, in C and Pb at high altitudes, 4095*g*.
absorption of nucleonic component of, 3279*i*.
alpha-particle of, nuclear disintegration, by, 8848*i*.
alpha-rays in, 1644*f*.
asymmetry (east-west) of, at Hobart, Tasmania, 34*g*.
books: 5672*h*; Physics, 2097*b*; Lavinnye Protsessy v Kosmicheskikh Luchakh, 7830*g*.
bursts, 4103*f*.
nuclear interactions of particles produced in, 7810*g*.
at sea level, 2086*c*.
at sea level and under 30 m. of clay, 2085*i*.
at 3500 m., 4103*f*.
bursts and nuclear disintegrations, 1645*b*.
bursts and showers, 6504*d*.
cascades, in Pb, 4564*f*.
cascade theory of, 4099*b*.
with charge of two or greater, 4104*i*.
cloud chambers for—see *Cloud chambers*.
counters for—see *Counters*.
decay products of, at great depth, 1643*b*.
detector for, AgCl as, 4093*f*.
electrons and photons in, 6504*f*.
electrons in, 6503*i*.
energy of, 5284*b*.
ionization by, 4092*f*.
energy of mesotrons and protons in, at high altitudes, 4093*i*.
energy of particles and photons of, 6504*c*.
genetically related impulses from, coincidences in proportional counters and, 2859*i*.
geomagnetic effects of, meson formation and, 4943*e*.
hard component of, mesons in, 4105*f*.
heavily-ionizing, at high altitudes, 4092*i*.
heavy-particle formation by component of, and absorption of the generating component, 4558*e*.
heavy particles of, absorption of, 4942*i*.
energies of, 4104*i*.
origin of, 8849*f*.
horizontal component of, at sea level, 5661*i*.
impulses produced by, in the stratosphere, ionization-chamber measurement of, 5661*g*.
increases in, during solar flares, 5282*g*.
measurement of hard and soft components of, 3705*g*.
measurement of intensities of, by telescope method, 5283*bc*.
mesotrons in—see *Mesotrons*.
neutron production by, 4104*e*, 8849*b*.
nuclear disintegration by, cross section for, 7812*b*.
nuclear disintegrations induced by, 4091*h*.
at 11,500 ft., 4091*d*.
study with proportional counters, 6504*b*.
nuclear explosions produced by, in AgBr emulsions, 488*a*.
nuclear processes initiated by, mechanism of, 4560*f*.
nuclear splinters produced by, 7811*a*.
origin of, 6501*h*, 6502*d*.
origin of, Milne's cosmology and, 2860*a*.
penetrating, at 4300 m., intensity of, 4104*g*.
penetrating particles of, knock-on secondaries of, emerging from Pb plates, 8849*c*.
photographic emulsions in research on, 3281*f*.
photographic study of, 5284*d*, 7326*a*.
photographic study of, pantograph and tilting stage for use in, 8852*d*.
photography of radioactivity and, 1644*f*.
photography of, removal of background tracks from plates for, and prevention of photoregression in treated plates, 2860*h*.
photons in, origin of, 7319*i*.
primary, 4095*a*.
primary, absorption in Pb and Fe of, producing penetrating showers, 4103*a*
charge and energy of heavy nuclei in, 1643*g*.
energy of heavy nuclei of, 8849*e*.
heavy nuclei in, 1643*e*, 6504*e*.
protons as primary components of, 4105*g*
as radioactivity products, 4092*f*.
research on, with balloons, app for, 3281*f*.
review on, 4556*e*.
showers, in air, 2086*f*, 4091*de*, 4095*f*, 4558*d*, 5283*i*.
in air, lateral distribution function of, 4095*f*.
angular distribution and multiplicity of neutrons associated with, 8849*i*.
in atm. at 3600 m. and under Pb, 2859*g*.
conversion effect in atm., 2859*f*.
correlation of penetrating, with air showers, 4103*b*.
discharges in 2 ionization chambers from, 1644*h*.
energy distribution in, 1645*d*.
energy of electrons in, 2859*b*
extensive and penetrating, 4558*b*
heavy particles or their origin as constituents of narrow, 1644*g*
at high altitudes, 4094*g*.
in Pb, 3705*i*, 4557*i*, 5282*hi*, 8260*g*, 8848*h*.
mixed, at sea level, 4103*c*.
neutrons in, 1643*i*, 5283*ig*.
penetrating particles in, 3279*n*, 4558*a* 4943*a*, 8259*e*.
production at 14,000 ft., 34*e*
secondary max. of, in Au, Hg and Pb 5285*a*.
soft component of, generation in upper atm., 8261*g*.
soft component of, pos temp coeff of, 4093*e*
stars, 7321*c*.
in electron sensitive emulsion, 8863
in Pb, transition effect and, 7813
in stratosphere, 4557*gh*
variations in, mesotron-decay theory and, 4943*c*

**Cosmological constant**. See *Constant*.

**Cosmology**, 38*g*.

**Cosmopolites sordidus** and(or) **Banana root borer**, control of, 5147*h*

**Coste, John Henry**, obituary, 3619*e*

**Costus oil**. See *Oils*.

**Cotarnine**, identification of, 5535*h*
reduction (electrolytic) of, P 4965*i*
sensitization of heart and muscle to acetylcholine by, 3402*i*

**Cothromboplastin**, assay of, 9135*e*

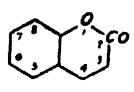
**Cotinis nitida** and(or) **Green June beetle**, control in lawns, 1896*a*.
control in soil, 9328*h*

**Cotton**, acetylation of, by ketene, 5505*h*
acids in raw, in relation to ash alkalinity leaching by rain, 8531*f*.
acids of, 8017*h*
adaptation to high salt concns. in soil 3889*g*
air retaining power of, 851*e*.
arsenic effect on cultivation of, 1835*b*
barium no. of, detn. of, 2489*b*
bleaching of, 4018*e*.
boll and lint quality in N. C., 9370*g*
boll development on, 9350*f*.
boll weevil control on—see *Boll weevil*
bollworm control on—see *Heliothis armigera; Pectinophora gossypiella*.
bonded fabrics united by thermoplastic fibers, 4470*h*.
break-twisting angle of, 6421*g*
cellulose—see *Cellulose*.
cord—see *Cord*.
crystallinity of, 8132*i*.
in cuprammonium solns., measurement of fluidity of, and water detn. in cotton, 7692*i*.
2,4-D effect on, 805*a*, 9350*e*.
degradation during atm. exposure 3608*e*
destruction of fibers of, by sunlight, 3622*g*.
deterioration of, by blown asphalts contg. catalysts, prevention by Pb naphthenate, P 9476*e*.
diffusion of heat and water through, 3623*e*.
dyeing of—see *Dyeing*.
dyes for—see *Dyes*.
effect of adenine and nicotinic acid on, 3492*b*.
elastic properties of, 9435*f*.
explosion of mixts. of liquid F and, 406*e*
fertilizer expts. with, 8592*f*.
with N, 2354*f*.

*fertiliser expts. with*, with phosphates, 1135*a*.
with $NaNO_3$, 9328*h*.
with superphosphate, 1891*c*.
fiber length, fineness, spiral structure, strength and degree of polymerization of, relations among, 1191*g*.
fiber strength of, degree of polymerization and, 1961*h*.
fiber structure and degree of polymerization and structure of cellulose mols. in, 413*e*.
fiber structure of, 6420*h*.
flowering rate of, effect of mineral nutrition on, 3492*c*.
fungi causing deterioation of, 5953*h*.
fungicide testing on, 3140*d*.
growth of cell of, changes in refractive index during, 1462*b*.
heat of wetting of, 1181*b*, 1638*f*.
hydrolysis of bleached, 5941*e*.
hydrolysis of, dextrose yield from, and cellulose detn. in, 8078*a*.
insect control on, 1142*i*, 1143*bd*, 3137*b*, 7178*i*, 7183*d*.
insect control on, diluents in, 1142*h*.
linters—see *Linters*.
maturity of fibers of, differential dyeing tests for, 7689*c*.
maturity of raw, dyeing in judging, 5595*b*.
mercerization of—see *Mercerization*.
nematode and wilt control on, 3134*f*.
nitration of—see *Nitrocellulose*.
nitrogen in semiarid irrigated soils for, 6349*d*.
nutrition and wilt resistance of, 9328*f*.
onion thrips control on, 1143*e*.
pentosan detn. in, 7228*b*.
phthalimide-*N*-deriv. toxicity to, 7182*e*.
radicle development in seedlings of, effect of Ca, etc. on, 283*c*.
root bark of, gossypol isolation from, 5208*h*.
silvering of, P 2712*i*.
sleeving for elec. insulators, standards for, 4400*b*.
slivers—see *Slivers*.
soil salinity and, 7619*b*.
soils, kankar in, 9315*a*.
Southern Regional Research Lab. work on, 6820*g*.
spectrum of, 8887*a*.
stapling with electronic fibrograph, 1571*c*.
stems from, nitric acid pulping of, 1973*d*.
surface-active-agent adsorption by, 1193*g*.
surface area of, calcn. of, 7693*f*.
swelling and shrinkage of, 7680*f*.
tanning substances in leaves of, attacked by viruses, 279*e*.
tenacity and other textile properties of, 1570*g*.
tensile strength of, flat-bundle testing of, 1191*f*.
testing of, standards for, 4309*h*.
textiles—see *Textiles*.
thread—see *Threads*.
velanized, flotation from fiber mixts under alk. conditions, 6421*d*.
wadding—see *Wadding*.
waste control in, in opening room, 8686*h*
waste, in chem. cotton manuf., 6830*b*.
waterproofing of, P 6759*f*.
waterproofing of, halosilanes for, P 8744*a*.
wax detn. in raw, 2439*c*.
wetting (internal) of, as factor in deterency, 8687*h*.
x ray scattering by, 2091*f*, 4460*i*
yarn—see *Yarns*.
**Cotton aphid**. See *Aphis gossypii*.
**Cotton bollworm**. See *Heliothis armigera*; *Pectinophora gossypiella*.
**Cotton flea hopper**. See *Psallus seriatus*.
**Cotton lacebug**. See *Corythuca gossypii*.
**Cotton leafworm**. See *Alabama argillacea*.
**Cotton-Mouton effect**. See "magnetic double" under *Refraction*.
**Cottonseed**. (See also *Gossypol*.)
compn. of varieties of *Gossypi dense* and *G. hirsutum* and storage on pigments, 1998*i*.
disinfectants for, phenol esters as, 3133*f*.
disinfection of, 803*e*, 7179*b*, 7180*c*.
disintegration in solvent slurries and fractionation of meats, 423*d*.
feeds from, compn. of, 3538*i*.
fertilizer expts. with, 8502*f*.
flour, amino acids in, 3534*g*.
flour, lactation of rats fed, 2293*b*
fractionation of, in pilot-plant, 9490*d*.
germination of, catalase and peroxidase in, 1080*d*.
globuline, purifying, 5136*g*.
gossypol detn. in, and its products, 1581*a*.
heating and deterioration in, effect of ethylene chlorohydrin and related compds. on, 4733*h*.
hulls, adhesive extenders from, 8738*a*.
effect on water infiltration into soils, 794*c*.
feeding stuffs contg., digestibility and metabolizability by lambs 7158*e*.
as fillers for PhOH-HCHO compns., P 5633*h*.
hydrolysis of, 7225*b*.
pentosan concn. from, and fat and protein enrichment of, 5208*i*.
saccharification of, analysis in control of, 6412*a*.
meat prepn. and cooking, effect on color and storage property of oils, 1999*e*.
mixt. with dry or green fodder in feeding of buffaloes, 6330*c*.
molds in moist stored, relation to production of $CO_2$, fatty acids and heat, 4875*e*.
-pigment gland, toxicity for rats, mice, rabbits and guinea pigs, 1105*c*.
pink-bollworm control in, 1900*f*.
protein dispersions of, viscosity of, 4400*h*.
protein from, relation of carbohydrate to antigenic properties of, 7575*c*.
proteins from, fibers from dispersions of, P 4021*e*.
treatment of, effect on growth and viability, 1900*d*.
2,4,5-trichlorophenyl esters for treatment of, P 3459*g*.
**Cottonseed cake**, antioxidant activity of, vitamin A spectra of cottonseed oil in detn. of, 424*g*
effect on human organism, 1471*d*.
as feeding stuff for milk cattle, 9292*g*.
methionine in, 5876*e*
substitutes for, in fattening beef calves, 6712*b*
**Cottonseed meal**, carotene mixt. with, 3971*e*
in chick diet, 287*d*
effect of catalyst on crude protein detn. in, 7158*g*.
as fertilizer, effect on insecticide action on soil microörganisms, 1896*i*.
gossypol detn. in, 1581*a*
gossypol in, effect of cooking methods for meats on, 1999*b*
growth factor in, 9179*i*
isopropanol extd., effect on egg storage quality, 1497*c*.
nutritional value of, for cattle, effect of method of prepn. on, 6711*e*.
paints (water) from, P 4493*c*.
phenolic molding compns. from, P 5633*h*.
**Cottonseed oil**, absorption of, 1842*e*.
Bellier no. of, 8178*h*
bleaching of, continuous vacuum, 8709*b*.
color and storage properties of pressed, effect of prepn. and cooking of meats on, 1999*e*.
cracking of, under reduced pressure, 424*h*.
decolorization of, with ferric salt Mg silicate mixt., P 885*a*.
deodorization (steam-) of, stabilized by *Larrea divaricata* powd. leaves and stems, P 2793*g*.
detn. on tin plate, 9490*a*
dienes, trienes and spectrophotometry of crude, oxidized and refined, 4874*h*.
digestibility of, 8023*i*
effect on aging and phys. properties of reclaimed rubber, 2021*a*
emulsions of, type of, 7290*f*.
esterification (inter-) of, with glycerol directed to sep. satd. di- and monoglycerides and high- and low melting fatty acids into sep. ester fractions, 5207*f*.
extn. of, with $CHCl_3$, 1581*h*.
from flaked seeds, detn. of rate of, 7721*b*.
with $C_5$-$C_7$ hydrocarbon solvent, 423*g*.
screw-type app. for, P 6437*c*.
by solvent process, 423*b*.
fatty acids of, esterification with polyhydric alcs. and drying oils therefrom, 6432*b*.
fatty acid sulfoaryl hydrazides from, P 251*g*
feeding expts. with milk and, on calves, 7604*a*.
fertilizer expts. with, 8592*h*.
filter for, P 2824*a*.
flavor and odor of hardened, from soybean unsaponifiable matter addns., 7723*c*.
fuel from, for compression-ignition engine, 4827*g*.
gossypol detn. in, 1581*b*.
gossypol in, and discoloration by gossypol oxidation, condensation or decompn. products, 5208*g*.
hydrogenation of, in presence of hydroperoxide to inhibit oxidation of γ-tocopherol in white soaps, P 6437*k*.
mixts. with feeding stuffs, effect on compn. of milk fat, 3943*g*.
oxidation (aut-) of, formation of $\Delta^{2,4}$-decadienal, hexanal and $\Delta^2$-octenal during, 5973*b*.
oxidation of, with $SeO_2$, P 5792*d*.
peroxide no. of, detn. of, 2450*c*.
solidification of, P 1202*c*.
soly. in Na xylenesulfonate solns., 1242*e*.
sulfation and sulfonation of, and stability and wetting power of sulfonated products, 4031*b*.
sulfuration of, and hydrogenation with Ni catalyst contg. S, solid fat by, P 5613*b*.
surface tension of, 6878*i*.
vitamin A in, effect on antioxidant activity of press cake, 424*g*.
**Cotton substitutes**, from clover external fibers, P 1990*g*.
from milkweed fibers, P 1990*g*.
from rice straw, P 6833*d*.
**Cottony-cushion scale**. See *Icerya purchasi*.
**Cottrell process**. See *Precipitation, electric*.
**Cotunnite**, of German mine near Essen-Borbeck, and its formation from galena, 975*d*.
**Couch grass**. See *Grasses*.
**Couepic acid**. See *Licanic acid*.
**Couette apparatus**. See *Viscometers*.
**Coulomb energy**. See *Energy*.
**Coulomb functions**, for heavy nuclei, 4090*g*.
**Coulteria tinctoria**. See *Divi-divi*.
**Coumalamide**, derivs., P 2239*h*.
—, *N*, *N*-diallyl-4,6-dimethyl-, P 2239*i*.
—, *N*, *N*-diethyl-4,6-dimethyl-, P 821*h*.
—, 4,6-dimethyl-*N*, *N*-dipropyl-, P 2239*i*.
**Coumalic acid** (*2-oxo-1,2 H-pyran-5-carboxylic acid*), effect on heart, 1110*d*, 7138*h*.
**Coumalin**. See *2 Pyrone*.
**Coumalyl chloride**, 4,6-dimethyl-, P 2230*i*.
**Coumaran**. See *Benzofuran, 2,3-dihydro-*.
**Coumarano[2′,3′,3,4]coumarin***, derivs., 1771*f*.
**Coumaranone**. See *3(2 H)-Benzofuranone*.
**2-Coumaranone** See *2(3 H)-Benzofuranone*.
**Coumaric acid**. See *Cinnamic acid, hydroxy-*.
**Coumarilaldehyde**, 5,6-dimethoxy-3-methyl-, and oxime, 7460*e*.
—, 3,6-dimethyl-, and derivs., 3413*d*.
—, 6-hydroxy-3-methyl-, and derivs., 3412*h*.
**Coumarilic acid** (*2 benzofurancarboxylic acid*).
—, 5-acetyl-6-hydroxy-4,7-dimethoxy-, 7480*i*.
—, 7-acetyl-6-hydroxy-4-methoxy-, and derivs., 3413*g*.
—, 6-(benzyloxy)-, ethyl ester, 3412*c*.
—, 6-(benzyloxy)-4,7-dimethoxy-, ethyl ester, 7480*h*.
—, 6-(cyclohexylmethoxy)-, ethyl ester, 3412*d*.
—, 2,3-dihydro-6-methoxy-3-oxo-, ethyl ester, 1771*i*.
—, 2,3-dihydro-7-methyl-3-oxo-, ethyl ester, 1771*h*.
—, 2,3-dihydro-3-oxo-, ethyl ester, reaction with resorcinol, 1777*f*.
—, 2,3-dihydro-3-oxo-2-(3-exobutyl)-, ethyl ester, 1012*g*.
—, 3-(2,4-dihydroxyphenyl)-, δ-lactone, and its acetate, 1771*f*.
—, 3-(2,4-dihydroxyphenyl)-6-methoxy-, δ-lactone, and its acetate, 1772*a*.
—, 3-(2,4-dihydroxyphenyl)-5(and 7)-methyl-, δ lactones, and their acetates, 1771*gi*.
—, 3,6-dimethyl-, 3413*c*.
—, 3-hydroxy-, ethyl ester, color reaction with $FeCl_3$, 1008*a*.
—, 6-hydroxy-, and derivs., 3412*d*.
—, 6-hydroxy-4,7-dimethoxy-, derivs., 7480*i*.
—, 3-[2-hydroxy-3,4(and 4,6)-dimethoxyphenyl]-, δ-lactone, 1771*g*.
—, 3-[2-hydroxy-3,4(and 4,6)-dimethoxyphenyl]-6-methoxy-, δ-lactones, 1772*a*.

——, 3-(2-hydroxy-4-methoxyphenyl)-, δ-lactone, 1771*f*.
——, 3-(2-hydroxy-4-methoxyphenyl)-6-methoxy-, δ-lactone, 1772*a*.
——, 3-(2-hydroxy-4-methoxyphenyl)-7-methyl-, δ-lactone, 1771*i*.
——, 6-hydroxy-3-methyl-, acetate, 3412*h*.
——, 3-(*o*-hydroxyphenyl)-, δ-lactone, derivs., 1771*f*.
——, 6-methoxy-3-(2,3,4-trihydroxyphenyl)-, δ-lactone, and its diacetate, 1772*a*.
——, 3-methyl-3-[2,3,4(and 2,4,6)-trihydroxyphenyl]-, δ-lactones, and their acetates, 1771*h*.
——, 3-(2,3,4-trihydroxyphenyl)-, δ-lactone, and its diacetate, 1771*g*.
——, 3-(2,4,6-trihydroxyphenyl)-, δ-lactone, 1771*g*.

**Coumarin** (*1,2-benzopyrone*),



antagonism to heteroauxin, 5893*b*.
in bedbug control, 4414*h*.
blastokolin and rhizocalin action of, 9108*a*.
in clover seed (hubam), 1998*h*.
derivs., P 693*gh*, P 694*a*, 3414*i*, 5399*d*, 7935*a*.
as antithrombins, 3934*h*, 8539*i*.
bromination of, 5024*c*.
nitration of, 2621*f*.
prepn. of, 5013*h*.
in tuberculosis chemotherapy, 8553*f*.
effect on flower initiation, 5456*c*.
on germination of barley, 5091*b*.
on germination of barley, antagonistic action of thiourea on, 1834*a*.
on growth of *Avena* coleoptile and *Pisum* internodes, 5094*f*.
on heart, 1110*d*, 7138*h*.
on multiplication of *Lemna* fronds, 8010*e*.
on plants and its prevention by BAL, 8462*g*.
on root growth and its relation to pH, 8454*h*.
on root growth in cress and peas, 8454*e*.
on yeast activity and growth of seed sprouts, 726*h*.
intoxication by, 1114*c*
pharmacology of, 5871*d*
photosensitivity of, effect on germination of seeds in light and darkness, 8010*c*.
spectrum of, 4574*h*.
sulfanilamide derivs. of, 2179*d*.

**Coumarin, 3-acetamido-6-hydroxy-**, acetate, 6598*c*.
——, 3-(α-acetonylbenzyl)-4-hydroxy-, as rodenticide, 5898*f*.
——, 3-acetyl-6,7-dimethoxy-, and 2,4-dinitrophenylhydrazone, 7460*i*.
——, 3-acetyl-4-hydroxy-, P 693*h*.
——, 3-acetyl-5-hydroxy-6-nitro-, 7925*b*.
——, (*N*⁴-acetylsulfanilamido-. See *Acetanilide, p-(2-oxo-1,2 H-benzopyranylsulfamyl)-*.
——, aminonitro-, 2179*i*.
——, 3-amyl-4-hydroxy-, P 4701*i*.
——, 7-benzoyl-6-hydroxy-4-phenyl-, benzoate, 7017*c*.
——, 5(or 8)-benzyl-7-(benzyloxy)-6-hydroxy-4-methyl-(?), and acetate, 3823*c*.
——, 3-benzyl-4-hydroxy-, P 4702*a*.
——, 7-(benzyloxy)-6-(galactopyranosyloxy)-*, and tetraacetate, 4670*c*.
——, 7-(benzyloxy)-6-(galactopyranosyloxy)-4-methyl-*, and tetraacetate, 4670*d*.
——, 7-(benzyloxy)-6-(glucopyranosyloxy)-4-methyl-*, and tetraacetate, 3823*c*.
——, 7-(benzyloxy)-6-hydroxy-4-methyl-, and acetate, 3823*b*.
——, 7-(benzyloxy)-6-methoxy-4-methyl-, 3823*d*.
——, 3,6-bis(*N*⁴-acetylsulfanilamido)-, 2179*i*.
——, 6,7-bis(benzyloxy)-4-methyl-, 3823*c*.
——, 3-butyl-4-hydroxy-, P 4701*i*.
——, carboxy-. See *1,2 H-Benzopyrancarboxylic acid, 2-oxo-*.
——, 6-*o*-carboxyanilino-†, 7028*d*.
——, 3,3'-(carboxymethylene)bis[4-hydroxy-†, ethyl ester, biol. and anticoagulant properties of, 5870*a*.
——, 3,3' - (carboxymethylene)di-†, ethyl ester, detection in blood, 7995*i*.
——, 3-chloro-, P 7513*e*.
——, 3,6-diamino-, 2179*h*.
——, 3,4-dihydro-. See *Hydrocoumarin*.
——, 6,7-dihydroxy-. See *Esculetin*.
——, 7,8-dihydroxy-. See *Daphnetin*.
——, 6,7-dimethoxy-, 7460*h*.
effect on capillary resistance and blood pressure, 4376*b*.
——, 3,4-dimethyl-, effect of multiplication of *Lemna* fronds, 8010*e*.
——, 3,6-disulfanilamido-, 2179*i*.
——, 3-ethyl-4-hydroxy-, P 4701*h*.
——, 3-ethyl-4-hydroxy-6,7-dimethoxy-, 7461*d*.
——, 3,3'-ethylidenebis[4-hydroxy-, blastokolin and rhizocalin action of, 9108*a*.
——, 6-(galactopyranosyloxy)-7-hydroxy-*, 4670*d*.
——, 6-(galactopyranosyloxy)-7-hydroxy-4-methyl-*, 4670*e*.
——, 3-hexadecyl-4-hydroxy-, P 4701*i*.
——, 3,4,5,6,7,8-hexahydro-4-(*p*-methoxyphenyl)-, 3418*h*.
——, 3,4,5,6,7,8-hexahydro-4-phenyl-, 3418*f*.
——, 4-hydroxy-, P 693*i*, P 694*b*.
derivs., P 693*f*.
and derivs., P 4701*d*, P 6671*c*.
——, 7-hydroxy-. See *Umbelliferone*.
——, 3-hydroxy-6,7-dimethoxy-, 7460*i*, 7461*a*.
——, 4-hydroxy-6,7-dimethoxy-, and acetate, 7461*a*.
——, 4 - hydroxy - 6,7 - dimethoxy - 3-methyl-, 7461*c*.
——, 4-hydroxy-3-isopropyl-, P 4701*i*.
——, 7-hydroxy-6-methoxy-. See *Scopoletin*.
——, 4-hydroxy-3-methyl-, P 693*i*, P 4701*h*.
——, 3-hydroxy-5-nitro-, and 2,4-dinitrophenylhydrazone, 1765*h*.
——, 4-hydroxy-3-phenyl-, P 4702*a*
——, 4-hydroxy-3-propyl-, P 4701*h*.
——, 4-hydroxy-3-(2-salicyloylethyl)-, P 4702*a*, P 7050*f*.
——, 7-methoxy-. See *Herniarin*
——, 3(and 4)-methyl-, effect of multiplication of *Lemna* fronds, 8010*e*.
——, 3,3'-methylenebis[4-hydroxy-, P 4701*g*, 5543*b*.
in adhesion prevention after operations, 8541*e*.
antagonism of digitalis substances to, 8057*g*.
as antithrombin agent, 3934*i*.
in bedbug control, 4414*h*.
blastokolin and rhizocalin action of, and its derivs., 9107*h*.
coagulation anomaly in vitamin K deficiency and poisoning by, 2681*d*.
detection in blood, 7995*i*.
detn. in biol. fluids, 5438*a*.
effect on Ac-globulin and prothrombin, 2321*i*.
on bactericidal action of blood, 5114*d*.
on blood coagulation at various prothrombin levels, 761*e*.
on blood coagulation, effect of vitamin P compds. thereon, 3931*d*.
on blood coagulation, mechanism of, 2686*c*.
on blood coagulation time as measured in silicone tubes, 7112*f*.
on complement and prothrombin, 8543*g*.
on embryonic liver and spleen, 761*b*.
on erythrocyte sedimentation rate, 9258*f*.
on prothrombin and thrombotropin concn. in blood, 3106*d*.
on thromboplastic activity of brain, 3519*e*.
and esters, P 1067*c*.
4 - hydroxy - 3 - (2 - salicyloylethyl)-coumarin from, P 4702*b*.
monophosphate, P 2645*f*, P 7050*f*.
muscle-juice thrombosis prevention by, 8543*e*.
properties and application of, 3105*i*.
prothrombin formation and, 8481*h*.
prothrombin-level lowering by, inhibition by methionine, vitamins K and PP and casein hydrolyzate, 309*c*.
prothrombin-level lowering by, vitamin K and, 290*c*, 2329*a*.
prothrombin time in therapy with, 6315*i*.
prothrombin produced by rabbits treated with, 4777*c*.
reviews on, 1095*f*, 6365*f*.
in thromboembolic prophylaxis after surgery, 4384*b*.
in thrombosis prevention, 5501*i*.
in thrombosis treatment, 5861*c*, 8521*a*.
rutin effect on action of, 761*c*.
, 3,3'-propylidenebis[4-hydroxy-, P 3470*a*.
——, sulfanilamido-. See *Sulfanilamide, N⁴-(2-oxo-1,2 H-benzopyranyl)-*.
——, 3,6,7-trimethoxy-, 7461*a*.
——, 4,6,7-trimethoxy-, 7461*b*.
——, 4,6,7 - trimethoxy - 3 - methyl-, 7461*c*.
——, 5,6,7 - trimethoxy - 4 - methyl-, 1773*f*.

**Coumarinacetic acid.** See *1,2 H-Benzopyranacetic acid, 2-oxo-*.

**Coumarincarbonitrile.** See *1,2-Benzopyrancarbonitrile, 2-oxo-*.

**Coumarincarboxylic acid.** See *1,2 H-Benzopyrancarboxylic acid, 2-oxo-*.

**Coumarone.** See *Benzofuran*.

**Counters.** (See also "measurement of, app for" under *Radioactivity*.)
alpha-particle spark, 5292*c*.
for alpha-rays, operation of, 3706*h*.
for angular correlation of α- and γ rays, 7810*i*.
bromine-filled, P 8284*b*.
cadmium sulfide crystal, 4110*gh*, 8875*g*.
cathode of, delayed emission of electrons from, operating above plateau, 4945*h*
circuits, differential counting with reversible decade, 7327*k*.
coincidence corrections for, detn. of, 4091*f*.
for cosmic-ray showers, wire and-plate type, 7327*g*.
counting rate meters *vs.* scalers, 4055*g*.
crystal, 5663*f*.
crystal, for neutrons, 6909*b*.
crystal, Geiger-Müller and continuous gas flow proportional, 5288*a*
diamond crystal, removal of space charge in, 8264*a*.
efficiency of, 3706*f*.
electron multiplier as, for 10-e kv protons, 3282*b*.
frequency, in heat-capacity measurement, 7280*e*
gamma-ray, efficiency of, 935*a*
gas, filled with $CO_2$ and $CS_2$, efficiency of 8263*e*.
Geiger, 2861*a*, 7885*a*.
for assay of low specific activity samples of $C^{14}$, 6688*c*.
contg. $PbMe_4$, 4095*a*.
crystal use in, 7286*i*.
discharge at voltages above plateau, 4110*b*.
discharge in, 1259*b*.
expts. with, 8261*b*.
improved-quenching circuit for, 4945*i*
multicellular, for γ rays, 5663*i*
prospecting with, 6505*c*
spurious counts in, analysis of, 4945*i*
spurious counts in, pretreatment of electrodes and, 8853*d*.
for Th detn. in thoriated W wire, 4945*g*.
Geiger-Müller, 1259*c*, 8215*e*.
adjustable, 3706*i*.
after-effect of discharge in, 5290*b*
background rate in γ-ray, 7811*g*
circuit for study of operation of, 8756*d*
construction of metal, 8852*b*.
contg. alc. and A, 5288*f*.
contg. different gases, 5291*g*
contg. ether-A mixts., 3281*g*.
dead time in, 5291*e*.
dead time in, measurement of, 4960*k*.
dead time in, reduction of, 4110*a*
demountable, with filling gases at atm. pressure, 8853*c*
deterioration of $CH_4$-filled, 4844*a*.
detn. of deadtime and recovery time of, 4946*a*.
development of discharge in, 5291*b*.
$CH_2Br_2$ as quenching agent in, 5292*b*.
discharge characteristics of, 4092*i*, 5289*c*.
with external cathode, 8263*e*.
extinction of discharge in, 5291*d*.
for γ-rays, 4110*d*.
He-contg., 8851*i*.
life of self-quenching, 4831*i*.
for making γ-ray surveys of diamond drill holes, 6073*i*.
pressure - regulated thin - window, 5663*h*.
production of, discharge mechanism and, 7327*i*.

*Geiger-Müller*, pulse size and threshold voltage of, 5290*f*.
and quenching unit therefor, 3281*h*.
spherical, 4945*f*.
starting potential of discharge of, 1646*a*.
temp. dependence of self-quenching, 8863*c*.
time interval of after-discharge in, 5290*g*.
velocity of formation of ion sheath along central wire of, 5291*h*.
x-ray spectrometer with, 6469*h*.
halogen-contg., 8853*a*.
for health protection, 7326*f*.
for low-energy ionizing particles, 935*b*.
with low operating potentials, 4091*e*.
luminescent, 4110*f*.
measurement with, 1648*g*.
in metallography of surfaces, 7391*g*.
microwave gas-discharge, 3282*c*.
nonlinearity of, detn. of, 5288*b*.
parallel-plate, 6076*g*.
photoelec.-nucleus, calibration of, 2087*i*.
point, for thin-section analysis, 8747*e*.
proportional, 6076*b*.
fluctuations for, 4091*e*.
$CH_4$-flow B-, 7327*f*.
with rectangular cross section, 5292*a*.
resolving power and anisotropy of, 2861*b*.
for soft x-rays, 4131*c*.
proportional $\alpha$-, for atm. dust filters, 4521*i*.
rate meter for, 2043*i*.
scale units, analysis of, 3667*f*
scintillation, for $\beta$- and $\gamma$-rays, 4095*a*.
931-A type multiplier as, 6076*f*.
for measurement of half-lives of short-lived isomers, 6914*d*.
measurement of particle energies with, 5292*d*.
org. crystals as, 8264*b*.
as proportional device, 5663*f*.
quant. measurements with, 4112*f*.
sensitivities of org. compds. for, 4111*d*.
using org. compds., 7811*i*.
scintillation coincidence, 4111*f*.
self-quenching, pulse shape of, 4094*g*.
silver chloride crystal, rise time of pulses in, 4092*h*.
spark, 4946*d*.
tubes for, lined with Th foil or U oxide, 5298*a*.
ultra-fast, 4092*e*.
in x-ray measurements, 8844*c*.
**Counting**, of aerosol particles, 6038*i*.
of distant scintillations, 3281*i*.
**Coupling reactions**, azo, effect of substituents on, 4646*i*.
**Couplings**, for vacuum systems, 8748*c*
**Courbonia virgata**, compn. and basic constituents of, 5544*d*.
toxic principle of, 4346*h*.
**Coustal effect**, 6087*d*.
**Covalency**. See *Valency*.
**Covellite**, analyses of, 6543*d*.
formation on pyrite, 4146*d*.
of Italy, 2128*b*, 5708*f*.
**Covillea**. See *Creosote bush; Larrea*.
**Cowpeas**, bacterial canker of, control of, 6775*d*.
feeding swine with dwarf sorghum and, 9192*d*.
growth limiting essential amino acids of, 9186*g*.
in Hawaii, 9292*e*.
as manganese source in poultry feeding stuffs, 6331*c*.
nutritive value of, 9328*g*.
nutritive value of cooked, 1121*e*.
sensitivity to Mn, 7088*c*.
**Cowper stoves**. See *Stoves*.
**Cowpox**. See *Vaccinia*.
**Cows**. See *Cattle*.
**Cowwheat**, seeds of purple, dextrin manuf. from, P 1590*b*.
seeds of purple, starch manuf. from, P 1590*c*.
**Cozymase**. See *Codehydrogenase I*.
**CR 1639**, in apple scab control, 9327*f*.
**Crab grass**. See *Grasses*.
**Crabmeat**, *Bacillus proteus* as cause of food poisoning by, 7602*g*.
**Crabs**, blood sugar regulation in *Libinia emarginata*, 8560*c*.
canning, with $NaH_2PO_4$ and citric acid, P 787*a*.
flea—see *Gammarus pulex*.
as food products, and microbe development therein, 7602*s*.
hormone effect on nervous system of, 5806*g*.
king—see *Limulus*.
oils of—see *Oils*.
provitamin D prepn. from, P 7648*d*.
spider—see *Maia squinado*.
**Cracca**. See *Tephrosia*.
**Crackers**. See *Bakery products*.
**Cracking**. See *Hydrocarbon oils; Hydrocarbons; Methane; Petroleum refining; Pyrolysis; Tar*; etc.
**Cracks**, concn. at end of, in materials with at. constitution, 2837*f*.
propagation (discontinuous) of, 9010*b*.
**Crag 531**, as fungicide, 6775*e*.
**Cranberries**, fruit-rot-control on, 804*d*, 7177*h*.
jam, effect of pectins on, 3536*g*.
juice, yeast in, 3536*g*.
wastes from packing, CaO treatment of, 1508*e*.
**Cranium**, injury within, blood flow and O consumption in brain in, 9232*a*.
pressure within, circulatory changes and pulmonary lesions following increased, and effect of atropine thereon, 8063*i*.
**Crankcase oil**. See *Lubricants*.
**Crass, Maurice F., Jr.**, biography, 5649*e*.
**Crataegus**. See *Hawthorn*.
**Crayfish**, muscle inhibition in, effect of different ions on, 2333*d*.
synaptic transmission in, effect of anticholinesterases on, 5123*g*.
**Crayons**, fluorescent, P 2517*e*.
x-ray-opaque, P 2872*a*.
**C-rays**. See "pairs" under *Electrons*.
**Cream**. (See also "fat" under *Milk*.)
addn. to milk, to produce product of standard fat and protein contents, 7599*e*.
antistiffness factor in, 2680*h*.
butter from, by rapid method, 7600*i*.
calcium salt effect on vol. of, 326*e*.
concd. to 80–98% milk fat, P 5131*a*.
cooling highly concd., butter manuf. by, P 3117*b*.
emulsified by Si trihalides, triethoxy derivs. or tripolyclycol esters, P 9495*a*.
fatty acid detn. in, 9282*h*.
fatty acids (water insol.) in, 6749*h*.
flavor (oxidized) in, 9281*i*.
frozen, nordihydroguaiaretic acid as antioxidant in, 1873*b*.
ghee manuf. from, direct heating method for, 9283*d*.
iron distribution in, 326*a*.
phosphatase activity of, effect of fat solvents on, 326*d*.
phosphatases in, effect of heat on inactivation of, 779*c*.
production of sour, in U.S.S.R., 9280*f*.
quality of, effect of segregation and mixing on, 8068*b*.
reduction ability of, effect of pasteurization on, 9278*i*.
stability of fats and fat-sol. vitamins in, effect of nordihydroguaiaretic acid, NaCl and temp. on, 7600*f*.
treatment of, effect on hardness and consistency of butter, 1874*e*.
viscosity of concd., and effect of concn. on fat globules therein, 781*a*.
volatile-acid development in, 6749*fg*.
**Creamery**. See *Dairy industry; Dairy products*.
**Cream of tartar**. See *Potassium tartrate*.
**Creaseproofing**, of cotton textiles, 4862*b*.
esters (semi-) of dicarboxylic acids with hydroxyalkylamides of fat acids for, P 7241*g*
hexamethylolmelamine thiourea-modified resins for, P 2444*c*.
with melamine-HCHO resin, P 4869*d*.
of rayon and wool fabrics, 5193*a*.
of rayon, stable HCHO-urea solns. for, P 417*f*.
of rayon (viscose), and cross bonding therein, 853*b*.
Sapamine R in, 8141*g*.
textile resistance to, improvement of, P 9477*d*.
tricarbamate derivs. for, P 5968*c*.
with urea-HCHO resins, effect on tensile strength of cotton and wool, 5596*b*.
**Creatinase**, of *Pseudomonas*, component enzymes of, 9125*f*.
**Creatine**. (See also *Creatinuria*.)
in blood in myohemoglobinuria, 300*g*.
in blood plasma and urine after methyltestosterone administration, source of, 4373*a*.
in blood plasma and urine, effect of testosterone and methyltestosterone on, 2301*f*.
as catalyst in polymerization of butadiene, P 6859*c*.
creatinine from, 147*a*, 3051*d*.
deamination by $NaClO_3$ and NaClO and detn., 2891*g*.
dehydration of, thermodynamics of, 2082*f*.
detection of, 2268*g*.
detn. in blood serum and urine, 8426*a*.
detn. in urine, 1451*f*.
formation of, by animal tissue, choline and methionine as methyl donors in, 6681*c*.
from arginine and histidine isomers, 2254*b*.
in cryst. lens, 7059*e*.
from guanidoacetic acid in liver autolyzates, 8481*b*.
from histidine and related substances by animal tissue, 9102*h*.
from histidine in animal tissues, 3861*g*.
in liver in muscular dystrophy of vitamin E deficiency, 5836*c*.
metabolism of, in males, 3904*b*.
metabolism of, in pregnancy, 8495*h*.
in muscle after castration, 2092*i*.
in muscles in tonic and atonic states, 5478*a*.
phosphate—see *Creatinephosphoric acid*.
reabsorption by renal tubules, 7115*g*.
in urine in arthritis, 6302*b*.
effect of hormones on, 743*c*.
effect of intramine, $\alpha$-naphthylisothiocyanate and rhodanine on, 7136*g*.
effect of thyroxine with estrone or testosterone on, 1107*cd*.
of nephrotic and normal children, 8501*df*.
of steers, 3084*h*.
**Creatine hydrolase**, as creatinase component, 9125*g*.
**Creatine oxidase**, as creatinase component, 9125*g*.
**Creatine phosphopherase**, actin and, 7063*c*.
of retina, 8040*d*.
**Creatinephosphoric acid**. (See also *Phosphagens*.)
creatinine formation from, 3051*e*.
in retina, 8040*d*.
sodium salt, prepn. of, 2268*i*.
**Creatininase**, bacterial, 7527*a*.
**Creatinine** (*2 - imino - 1 - methyl - 4-imidasolidone*). (See also *Creatinuria*.)
-amino acid ratio in urine in U poisoning, 7581*g*.
anticonvulsant properties of, 317*f*.
in blood in myohemoglobinuria, 300*g*.
in blood of cows, effect of temp. on, 9209*h*.
in blood plasma and urine, effect of testosterone and methyltestosterone on, 2301*f*.
in blood plasma and urine in osmotic diuresis, 298*b*.
in blood serum, 7110*g*.
as catalyst in polymerization of butadiene, P 6859*c*.
clearance after sucrose injection, 8548*i*.
from creatine, 147*a*, 3051*d*.
derivs., 7456*c*.
detection of, 2268*g*, 5704*b*.
detn. in blood, 6083*e*, 7072*c*.
in blood serum and urine, 8426*a*.
in serum, 6691*h*.
in urine, 1451*f*.
effect on pain of muscle ischemia, 5846*h*.
effect on *Treponema pallidum*, 9144*h*.
fate in rat, 2294*h*.
identification of, and reaction product with *p*-tolyl isocyanate, 8365*i*.
loading in normal and diabetic boys, urinary flow, excretion of solutes and osmosis during diuresis of, 1858*i*.
metabolism of, in males, 3904*b*.
metabolism of, in psychotic states, 5486*h*.
in perspiration, 8481*h*.
-uric acid ratio of urine in adrenal insufficiency and in normal subjects, effect of adrenocorticotropin on, 8517*h*.
in urine, 3085*i*.
of nephrotic and normal children, 8501*df*.
of newborn infants, 2294*b*.
in pregnancy, 1848*c*.
in schizophrenia after insulin-shock therapy, 2312*i*.
seasonal variation in, 5848*c*.
of steers, 3084*h*.
tryptophan content of diet and, 3074*b*.
**Creatinine, *N* - acetyl - 5 - benzylidene-**, spectrum of, 6984*c*.

——, *N*-salicyloyl-†, monohydrate, P 4431*g*.
**Creatinine hydrase**, as creatinase component, 9125*f*.
**Creatinuria**, from guanidoacetic acid and its relation to site of action of methyltestosterone, 7117*e*.
thyroxine-vitamin $B_1$ antagonistic effects on, 2679*h*.
**Creep**. (See also *Flow; Metals; Plastic deformation;* and the specific metals.)
of ceramic bodies, 5559*h*, 6798*g*.
of laminated plastics, 7259*h*.
of laminated products, effect of temp. on, 5227*f*.
of laminated products in bending, tension and torsion, 2811*e*.
measurement of bend, of ceramic ware, 9402*g*.
measurement of, of textiles, 1573*g*.
of phthalic acid ester systems with polyvinyl chloride, 9524*d*.
of plasticized polyvinyl chloride and Vinylite VYNW, 5628*h*.
in plasticized polyvinyl chloride compns., 6462*b*.
pressure-vessel design and, 8216*a*.
of rubbers (GR-S and *Hevea*), 8724*c*.
of rubbers (GR-S and *Hevea*), aging and, 2013*d*.
of styrene polymer, 6461*e*.
theories of, 3259*d*, 6029*d*.
**Crematogaster brunnea matsumurai**, toxicity to, of kerosene, pyrethrin and $H_2O$, 5895*a*.
**Crenic acid**, 7617*c*.
**Creosol** (*2 - methoxy - p - cresol, 4-methylguaiacol*),



——, *α* - (**5 - arsenoso - 2 - hydroxyphenylimino**)-, 599*a*.
——, *α,α* - **bis**(*p* - **dimethylaminophenyl**)-, for lubricant improvement, P 9132*g*.
——, *α,α* - **bis**(*p* - **hydroxyphenyl**)-, and triacetate, 5772*c*.
——, *α,α*-**diphenyl**-, and acetate, 8684*i*.
——, *α,α'*-**dithiodi**-, 9438*c*.
——, *α* - (*p* - **hydroxyphenyl**) - *α*-**phenyl**-†, and diacetate, 8683*d*.
——, *α*-**mercapto**-, 9438*c*.
**Creosote**. (See also *Absorption oils*.)
in bark-beetle control in elm logs, 4417*d*.
in bluestain control on pine, 8597*c*.
in citrus-snout-beetle control in soil, 5149*g*.
cleaning and drying of, app. for, P 7632*c*.
coatings from, on wood, resistance to corrosive chemicals, 3632*e*.
formation from $C_2H_2$, 5376*e*.
mixts. with Cu naphthenates, in fungus control on fibers, 6831*f*, 7693*b*.
mixts. with petroleum oil, detn. of sludging properties of, 2731*e*.
petroleum, toxicity to fungi, 3902*b*.
from pine-root tar, P 3176*i*.
in tree control on southern upland, 6352*i*.
vineyard-stake preservation with, 6352*d*.
for wood preservation, 6351*h*.
wood preservation with—see *Wood*.
wood preservatives contg., sludge control in, 2731*h*.
wood-preservatives contg., testing of, 2731*b*.
**Creosote bush**. (See also *Larrea*.)
use of, 6337*g*.
**Creosote oil**, tanning agent from hard-wood, P 2008*d*.
wood preservation with—see "preservation of" under *Wood*.
**Crepis capillaris**, polyploidy of, from colchicine, 3889*d*.
**Cresantol-15***, synergistc effect of aerosol OT on, 3065*c*.
**Cresidine***, naphthoquinoneimide dye from, P 8167*b*.
*p*-**Cresidine***, disazo dye from, P 1574*d*.
**Cresol**(s) (*methylphenol; OH* = 1). (See also *Phenols; Tar acids*.)
alkylation of, P 687*e*.
antihistamine action of, 1112*i*.
benzoate—see "tolyl ester" under *Benzoic acid*.
*tert*-butyl derivs., cleavage of *tert*-butyl group from, 3804*h*.
*tert*-**butyl substituted**, toxicity of, 8554*a*.
chloro derivs. and mixts. with xylenol in citrus-snout-beetle control in soil, 5149*g*.
condensation products of—see *Phenol condensation products*.
detn. of, British standards for, 1527*e*.
formation from lignin by hydrogenation, 8675*b*.
*α*-halo derivs., reaction with phenols, 5019*a*.
hydrogenation of, cleaning metal catalysts from, P 6763*e*.
manuf. of, P 2638*f*.
manuf. of, by hydrogenation of coal, 5171*c*, 8646*g*.
nitro derivs., 4216*g*.
phenol detn. in, 9422*i*.
phosphate—see *Tolyl phosphate*.
reaction with butyl vinyl ether, 3783*d*.
with $SiS_2$, 4631*d*.
with terpenes, P 6237*bc*.
recovery of, from petroleum-refinery waste waters, 3601*e*.
removal from natural waters, 7169*g*.
soap-oil dispersion peptization by, 4455*h*.
sodium deriv., oxidation of thiols in solns. of, P 6235*b*.
sulfonation of, 6994*g*.
synergism with aerosol OT, 3065*c*.
utilization in industry, 5927*d*.
in wood preservation, 4418*a*.
in zinc electrolytic production, P 5680*f*.
**Cresol**, *α* - (**amylmercapto**) - *ar* - **octyl**-, and barium deriv., P 845*b*.
——, **benzhydryl**-. See *Xylenol, α,α-diphenyl*-.
——, **benzyl**-*, synergistic effect of aerosol OT on, 3065*c*.
——, *α*-**benzylidene**-. See *Stilbenol*.
——, *α,α*-**bis**(**aminophenylmercapto**)-†, 6179*f*.
——, *α,α*-**bis**(**aminophenylmercapto**)-**methoxy**-†, 6179*f*.
——, *α,α*-**bis**(**nitrophenylmercapto**)-†, reduction of, 6179*f*.
——, **chloro**-, derivs., P 7014*g*, P 7045*a*.
——, **dinitro**-, effect on alc. absorption, excretion and oxidation, 7127*b*.
insecticide from, P 9356*e*.
insecticides from benzenesulfonamide derivs. and, P 4419*h*.
——, **methoxy** - *α,α* - **bis**(**nitrophenylmercapto**)-†, reduction of, 6179*f*.
——, *α*-**phenyl**-, *ar'*-polyalkyl derivs., for hydrocarbon oil stabilization, P 4457*f*.
——, *α,α'* - (**propylenedinitrilo**)**di**-, copper deriv., 8222*d*.
——, *ar,ar'*-**sulfonyldi**-, tanning prepns. from, P 4883*b*.
*m*-**Cresol**, acetylation of, 9049*g*.
aluminum chloride deriv., reaction with BzH, 5398*e*.
condensation with HCHO, 1603*f*.
detn. of, and Brit. standards for, 1527*d*.
detn. of, in air, 4798*i*.
in complex biochem. mixts., 1453*e*.
in mixts. with *p*-cresol, 5343*e*.
in waters, 4185*b*.
effect on d., moisture absorption and swelling properties of nylon, 5191*e*.
on polarography of metals, 5316*a*.
on protein fibers, 468*e*.
on syneresis of Na oleate gels, 4080*b*.
on Sn electrodeposition, 1269*f*.
hydracrylate, 3393*c*.
identification of, 7447*c*, 7448*d*.
mixt. with $Ph_3CCl$ as catalyst for polymerization of 2-ethylhexyl vinyl ether, 6896*c*.
nitramide decompn. in, catalyzed by amines, 8828*f*.
oscillating magnetic field effect on, 6087*e*.
partition between cyclohexane and phosphate buffer or $H_2O$, ionization const. and, 7788*i*.
reaction with biacetyl, 8370*f*.
reaction with cyclohexene and with epichlorohydrin, 6173*i*.
sepn. from *p*-cresol by countercurrent distribution, 7789*b*.
sepn. of, by means of its compd. with 2,4-xylenol, P 3459*c*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectrum of, 2512*g*, 5665*i*.
spectrum of, and effect of NaOH thereon, 8881*c*.
systems (binary) of, 4063*e*.
system: Na palmitate–, x-ray diffraction by, 2793*b*.
toxicity of, 1867*f*.
toxicology of, 5514*d*.
*m*-**Cresol**, **4-amino**-, azo stilbene dye from, P 5198*c*.
prepn. from *o*-nitrotoluene, 3729*g*.
——, **4-amino-2-chloro**-, and diacetyl deriv., 182*g*.
——, **5-amino-4-ethyl**-, 3385*g*.
——, **6 - amino - 4 - propyl**-, 3385*g*.
——, **amyl**-, antifouling properties of, 3964*a*.
——, **4-(benzyloxy)**-, 3387*b*.
——, **4-bromo**-, 3,5-dibromo-2,4-cresotate, 2603*i*.
——, **6-*tert*-butyl**-, spectrum of, and effect of NaOH thereon, 8881*c*.
——, **4-chloro**-, benzoate, 5387*d*.
*d*- and *dl*-camphorates, as fungicides, P 1901*i*.
——, **6-chloro**-, identification of, 7447*d*, 7448*e*.
——, **4 - chloro - α,α - bis**(*p* - **dimethylaminophenyl**)-, derivs., 5387*d*.
——, **2**(and **6**) - (*p* - **chlorophenylazo**)-**4-ethyl**-, 3385*i*.
——, **2**(and **6**) - (*p* - **chlorophenylazo**)-**4-propyl**-, 3385*i*.
——, **cyclohexyl**-, isomers, 6173*i*.
——, **4,6 - dichloro - 5 - methoxy**-, 3,5 - dichloro - 4,6 - dimethoxy - *o*-toluate, 609*a*.
——, *α,α'* - **dithiobis**[**5 - methoxy**-, 7014*h*.
——, **4-ethyl**-, substitution in, 3385*h*
——, **5-ethyl**-, 2969*a*.
partition between cyclohexane and phosphate buffer or $H_2O$, ionization const. and, 7788*i*.
——, **2-ethyl-5-isopropyl**-, and carbanilate, 2969*c*.
——, **4 - ethyl - 2**(and **6**) - **phenylazo**-, 3385*i*.
——, **5-hexyl**-, 2969*a*.
——, **5 - [***m*(*o* and *p*) - **hydroxyphenoxy**]-, P 2232*d*.
——, **5-isopropyl**-, 2969*a*.
——, **6-isopropyl**-. See *Thymol*.
——, *α* - **mercapto** - **5** - **methoxy**-7014*h*.
——, **4-methoxy**-, 3387*a*.
——, (**1 - methylcyclopentyl**)-, 2171*c*
——, **6,6'** - **methylenebis**[**4** - **chloro**-, P 9389*i*.
tuberculocidal activity and toxicity of, 8614*i*.
——, **nitroso**-, antifouling properties of, 3964*a*.
——, **4-nitroso**-, spectrum and isomerism of, 5378*h*.
——, **5-phenoxy**-, P 2232*d*.
——, **4-propyl**-, and substitution in, 3385*g*.
——, **5-propyl**-, and carbanilate, 2969*a*.
——, **2',4,6,6' - tetrachloro - 5-methoxy-2,5'-oxydi**-, 608*h*.
——, **thiodi**-, as stabilizer for vinyl compds., P 2469*a*.
——, **4-*o*-tolylazo**-, 3801*b*.
——, *α,α,4*-**trichloro**-, benzoate, 5387*d*
——, *α,α,α*-**trifluoro**-, carbanilate, 593*f*
——, **trinitro**-, 6585*h*.
reaction with tribenzylamine in $C_6H_6$, equil. in, 7793*a*.
——, **2,4,6-trinitro**-, 5013*c*.
*o*-**Cresol**, chelation, intermol. energy and mol. assocn. of, 7300*i*.
chlorination of, P 7045*b*.
condensation with HCHO, 1603*f*.
detn. of, 7867*i*.
in air, 4798*i*.
in waters, 4185*b*.
detn of, and Brit. standards for, 1527*d*.
deuterium exchange with, 5011*g*.
effect on syneresis of Na oleate gels, 4080*a*.
formation from NaHS degradation of lignin, 6824*a*.
hydracrylate, 3393*c*.
identification of, 7447*c*, 7448*d*.
oscillating magnetic field effect on, 6087*e*.
partition between cyclohexane and phosphate buffer or $H_2O$, ionization const. and, 7788*i*.
phosphate, cholinesterase inhibition by, 9103*b*.
reaction with biacetyl, 8370*e*.
reaction with cyclohexene and with epichlorohydrin, 6173*i*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectrum of, 2512*g*, 5665*i*.
spectrum of, and effect of NaOH thereon, 8881*c*.
system: Na palmitate–, x-ray diffraction by, 2793*b*.
testing disinfectant action of, subculture media in, 274*d*.
toxicity of, 1867*f*.
toxicology of, 5514*d*.
*o*-**Cresol**, **4** - (**6 - acetamido - 4-quinolyl**-

amino) - α - 1 - piperidyl-, dihydrochloride, P 7514*g*.
—, 4 - (9 - acridylamino) - α - diethylamino-, dihydrochloride, P 1068*f*, P 7516*d*.
—, 5 - (9 - acridylamino) - α - diheptylamino-, P 7516*e*.
—, 6 - allyl - 4 - amino - α - diallylamino-, P 1062*c*.
—, 6 - allyl - 4 - (6 - bromo - 2-methoxy - 9 - acridylamino) - α - heptylamino-, dihydrochloride, P 7516*e*.
—, 6 - allyl - 4 - (6 - chloro - 2-methoxy - 9 - acridylamino) - α - diallylamino-, and dihydrochloride, P 1068*e*.
—, 6 - allyl - 4 - (6 - chloro - 2-methoxy - 9 - acridylamino) - α - diethylamino-, dihydrochloride, P 1068*e*, P 7516*b*.
—, 6 - allyl - 4 - (6 - chloro - 2-methoxy - 9 - acridylamino) - α - 1-piperidyl-, P 1068*e*.
—, 6 - allyl - 4 - (5 - chloro - 8-methoxy - 4 - quinolylamino) - α-diamylamino-, P 7515*e*.
—, 6 - allyl - 4 - (7 - chloro - 4-quinolylamino) - α - diethylamino-, P 7514*i*, P 7515*a*.
—, 6 - allyl - 4 - (7 - chloro - 4 - quinolylamino) - α - 1 - piperidyl-, P 7515*a*.
—, α - amino-, 10 - camphorsulfonate (ester) and its -HCl, 6998*i*.
—, 4-amino-, prepn. from *m*-nitrotoluene, 3730*g*.
—, 5 - amino - 4 - bromo - α - diethylamino-, P 1062*c*.
—, 4-amino-α-butylamino-, P 1062*b*.
—, 6 - amino - 4 - *tert* - butyl - α-diethylamino-, P 1062*c*.
—, 4-amino-α-(butylethylamino)-, P 1062*c*
—, 6 - amino - 4 - chloro - α - diethylamino-, P 1062*c*.
—, α - amino - 4 - (6 - chloro - 2-methoxy - 9 - acridylamino)-, dihydrochloride, P 7516*c*.
—, 4-amino-α-diamylamino-, P 1062*c*
—, 4-amino-α-dibutylamino-, P 1062*c*.
—, 4-amino-α-diethylamino-, dihydrochloride, P 1062*b*.
—, 5-amino-α-diethylamino-, P 1062*c*
—, 4-amino-α-dihexylamino-, P 1062*c*.
—, 4-amino-α-dioctylamino-, P 1062*c*.
—, 4-amino-α-ethylamino-, P 1062*b*
—, 4-amino-α-hexylamino-, P 1062*b*.
—, 4-amino-α-isobutylamino-, P 1062*b*.
—, 4 - amino - α - (2 - methylallylamino)-, P 1062*b*.
—, 4-amino-α-4-morpholinyl-, dihydrochloride, P 1062*c*.
—, 6-amino-4-nitro-, azo dyes from, P 8148*c*.
—, 4-amino-α-1-piperidyl-, dihydrochloride, P 1062*c*.
—, α - (3 - amino - 1 - piperidyl)-4-(7 - chloro - 4 - quinolylamino)-, trihydrochloride, P 7514*e*.
—, α - [(2 - amino - 4 - pyrimidyl)-methylamino]-, 2212*f*.
—, 4-amino-α-1-pyrrolidyl-, dihydrochloride, P 1062*c*.
—, 4-(6-amino-4-quinolylamino)-α-1-piperidyl-, trihydrochloride, P 7514*g*.
—, 4-amino-α-4-thiamorpholinyl-, P 1062*c*.
—, α - amylamino - 4 - (7 - chloro-4-quinolylamino)-, dihydrochloride, P 7515*e*.
—, α,α - bis(*p* - dimethylaminophenyl)-, for lubricant improvement, P 9482*g*.
—, 4 - bromo-, 3,5 - dibromo - 2,4-cresotate, 2603*i*.
—, 4 - bromo - 5 - (6,7 - dimethyl-4-quinolylamino) - α - ethylamino-, dihydrochloride, P 7515*f*.
—, 4 - (6 - bromo - 2 - methoxy - 9-acridylamino) - α - 4 - morpholinyl-, P 1068*f*.
—, 6 - (7 - bromo - 4 - quinolylamino)-4 - chloro - α - diamylamino-, P 7515*d*.
—, 6 - (7 - bromo - 4 - quinolylamino)-4 - chloro - α - ethylamino-, dihydrochloride, P 7515*f*.
—, 4 - (7 - bromo - 4 - quinolylamino)-5-chloro-α-1-piperidyl-, P 7515*a*.
—, 4 - (7 - bromo - 4 - quinolylamino)-α-diethylamino-, dihydrochloride, P 7515*a*.
—, 4-*tert*-butyl-, and nitration of, 3804*h*.
—, α - butylamino - 4 - (7 - chloro-3-methyl-4-quinolylamino)-, P 7515*a*.
—, α - butylamino - 4 - (7 - chloro-4-quinolylamino)-, hydrochloride, P 7515*e*.
—, 4 - *tert* - butyl - 6 - (6 - chloro - 2-methoxy - 9 - acridylamino) - α-diethylamino-, dihydrochloride, P 1068*d*, P 7516*c*.
—, 4 - *tert* - butyl - α - cyclohexylamino-, 3425*f*.
—, α-(butylimino)-, 4235*c*.
—, 4-*tert*-butyl-6-nitro-, 3805*a*.
—, 4-*tert*-butyl-α-phenyl-, 2969*d*.
—, α-chloro-, 5019*e*.
—, 4(and 6)-chloro-, P 7045*b*.
—, 5-chloro-, and derivs., 1347*i*.
identification of, 7447*d*, 7448*e*.
—, 6 - chloro - 4 - (6 - chloro - 2-methoxy - 9 - acridylamino) - α-diethylamino-, dihydrochloride, P 1068*e*, P 7516*c*.
—, 4 - chloro - α - diethylamino - 6-(6 - methoxy - 4 - quinolylamino)-, P 7515*b*.
—, 4 - (6 - chloro - 2,3 - dimethyl - 9-acridylamino) - α - diethylamino-, dihydrochloride, P 1068*f*, P 7516*d*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - diallylamino-, P 1068*d*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - dibutylamino-, dihydrochloride, P 1068*d*.
—, 4(and 5) - (6 - chloro - 2 - methoxy - 9 - acridylamino) - α-diethylamino-, dihydrochloride, P 1068*c*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - diethylamino-, dihydrochloride, P 1062*b*.
—, 6 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - diethylamino-4-phenyl-, dihydrochloride, P 1068*e*, P 7516*c*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - dihexylamino-, dihydrobromide, P 1068*d*.
salts, P 7516*e*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - dioctylamino-, dihydrochloride, P 7516*e*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - ethylamino-, dihydrochloride, P 1068*d*, P 7516*c*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - hexylamino-, dihydrochloride, P 7516*e*.
—, 4 - (6 - chloro - 2 - methoxy - 9-acridylamino) - α - 1 - piperidyl-, dihydrochloride, P 1068*d*, P 7516*c*.
—, 4 - (5 - chloro - 8 - methoxy - 4-quinolylamino) - α - diethylamino-, P 7515*b*.
—, 4 - (7 - chloro - 3 - methyl - 4-quinolylamino) - α - diethylamino-, dihydrochloride, P 7514*c*.
—, 4 - (7 - chloro - 3 - methyl - 4-quinolylamino) - α - dihexylamino-, dihydrochloride, P 7515*d*.
—, 4 - (7 - chloro - 3 - methyl - 4-quinolylamino) - α - 4 - morpholinyl-, P 7515*a*.
dihydrochloride, P 7514*f*.
—, 4 - (7 - chloro - 3 - methyl - 4-quinolylamino) - α - 1-piperidyl-, dihydrochloride, P 7514*f*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-cyclohexylamino-, dihydrochloride, P 7515*f*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-diamylamino-, dihydrochloride, P 7515*c*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-dibutylamino-, P 7514*i*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-diethylamino-, P 7193*a*, 7514*ci*.
effect on islands of Langerhans, 3522*b*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-diheptylamino-, and dihydrochloride, P 7515*c*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-dihexylamino-, and dihydrochloride, P 7515*c*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-dioctylamino-, and dihydrochloride, P 7515*c*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-ethylamino-, P 7514*i*.
dihydrochloride, P 7515*e*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-heptylamino-, salts, P 7515*e*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-hexylamino-, dihydrochloride, P 7515*e*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-isobutylamino-, hydrochloride, P 7515*f*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α - (1 - methylallylamino)-, dihydrochloride, P 7515*f*.
—, 4 - (7 - chloro - 4 - quinolylamino) - α - (2 - methyl - 1-piperidyl)-, dihydrochloride, P 7514*ei*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-4-morpholinyl-, dihydrochloride, P 7514*di*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-octylamino-, P 7515*f*.
—, 4 - (7 - chloro - 4 - quinolylamino) - α - (1,4,4*H* - oxazin-4-yl)-, dihydrochloride, P 7514*e*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-1-piperazyl-, trihydrochloride, P 7514*e*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-1-piperidyl-, and dihydrochloride, P 7514*ei*.
—, 4 - (7 - chloro - 4 - quinolylamino)-α-4-thiamorpholinyl-, dihydrochloride, P 7514*e*.
4 - (7 - chloro - 4 - quinolylamino)-α - (1,4,4*H* - thiazin - 4 - yl)-, dihydrochloride, P 7514*e*.
—, 4(and 6)-cyclohexyl-, 6173*i*.
—, 4-cyclohexyl-α-phenyl-, 2969*d*.
—, α - diamylamino - 4 - (6 - methoxy - 4 - quinolylamino)-, P 7515*d*.
—, 4,6-di-*tert*-butyl-, spectrum of, and effect of NaOH thereon, 8881*c*.
—, dichloro-, identification of, 7448*e*.
—, α-(2,4-dichlorophenyl)-, 2969*e*.
—, dicyclohexyl-, 6173*i*.
—, α - didecylamino - 4 - (2 - methyl-9 - acridylamino)-, dihydrochloride, P 7516*e*.
—, α - diethylamino - 4 - (6,7 - dimethyl - 4 - quinolylamino)-, P 7515*b*.
—, 5 - (2 - diethylaminoethylamino)-, 225*f*.
—, α - diethylamino - 4 - (6 - methoxy - 4 - quinolylamino)-, dihydrochloride, P 7514*c*.
—, 4,4′ - (diethylidenedithylene)bis-[6-allyl-, and esters, 4247*c*.
—, α - dihexylamino - 4 - (6,7 - dimethyl - 4 - quinolylamino)-, P 7515*b*.
—, α - diisoheptylamino - 4 - (6,7-dimethyl - 4 - quinolylamino)-, P 7515*d*.
—, α-(2,3-dimethoxyphenyl)-, 2969*e*.
—, α,α - di - 4 - morpholinyl-, 7030*a*.
—, dinitro-, inhibitor, 5721*f*.
—, 4,6-dinitro-, 3804*i*, 5013*d*.
and ammonium and Na derivs., in weed control, 8598*b*.
detection on woody plants, (journal No. 8–9 was omitted from reference), 65*i*.
effect on honey bee, 344*b*.
on O consumption of ext. from sea-urchin eggs, 4778*i*.
on respiration of oats and peas, 6290*k*.
effect on insect respiration and speed of insecticidal activity of, 9342*i*.
as fungicide for cork gaskets, 4804*g*.
in grasshopper control, 7185*e*.
insecticidal value of, and its derivs., 9328*i*.
as insecticide, 6353*c*.
insecticide from, P 9356*d*.
in lepidopterous-larva control, 2726*e*.
in locust control, 3557*e*, 4806*d*.
metal derivs., for weed control, P 5900*i*.
in mold control on leather in tropics, 7734*d*.
in *Parasetigena segrata* control, 348*d*.
penetration into leaves, 9337*c*.
potato vine killing with, 1517*i*.
in prevention of As injury to plants, P 5151*f*.
in red spider control, 811*b*.
sepn. from *p*-nitrophenol and detn. in felt, 1194*b*.
sodium deriv., in buffalo-grass-seed production, 5525*d*.
in European-red-mite control, 5898*c*.
as fungicide for apples, 7177*d*, 9327*g*, 9347*b*.

*sodium deriv.*, as insecticide and vermicide, 9354*a*.
in leaf removal from shrubs and trees before storage, 1893*a*.
in weed control in vegetables, 2358*i*.
in wood preservation, 5892*i*.
toxicity of, to insects and man, 2728*f*.
——, **4-ethoxy-α-phenyl-**, 2969*d*.
——, **4(and 5)-ethyl-**, and esters, 1028*h*.
——, **α,α′-(ethylenedinitrilo)di-**, adrenaline potentiation by, 5116*i*.
cobalt complex, 6932*e*.
copper complex, crystal structure of, 4073*e*.
——, **6-hydroxymercuri-5-nitro-**, biol. interaction with cysteine, 9335*h*.
——, **α-imino-**, copper and Ni complexes, crystal structure of, 4073*e*.
——, **5-isopropyl-**. See *Carvacrol*.
——, **4,4′-isopropylidenedi-**, P 5424*e*.
——, **4-methoxy-**, 3387*a*.
——, **α-(p-methoxyphenyl)-**, 2969*e*.
——, **4-methoxy-α-phenyl-**, 2969*d*.
——, **4-(6-methoxy-4-quinolylamino)-α-4-morpholinyl-**, dihydrochloride, P 7514*f*.
——, **4-(6-methoxy-4-quinolylamino)-α-1-piperidyl-**, P 7515*a*.
dihydrochloride, P 7514*f*.
——, **4-(6-methoxy-4-quinolylamino)-α-1-pyrrolidyl-**, P 7515*b*.
——, **(1-methylcyclopentyl)-**, 2171*h*.
——, **α-methylimino-**, copper complexes, crystal structure of, 4073*e*.
——, **4-(6-methyl-4-quinolylamino)-α-4-morpholinyl-**, and dihydrochloride, P 7514*f*.
——, **4-(6-methyl-4-quinolylamino)-α-1-piperidyl-**, dihydrochloride, P 7514*f*.
——, **α-1-naphthylimino-**, dimorphism of, 1757*c*.
——, **4-nitro-**, isocyanate, 169*a*.
——, **α-[p-(p-nitrophenylsulfonyl)-phenylimino]-**, 2592*i*.
——, **4-(6-nitro-4-quinolylamino)-α-1-piperidyl-**, dihydrochloride, P 7514*g*.
——, **4-nitroso-**, antifouling properties of, 3964*a*.
spectrum and isomerism of, 5378*h*
——, **α-phenyl-**, azo dyes from, P 7696*a*.
——, **α,α′-(o-phenylenedinitrilo)di-**, adrenaline potentiation by, 5116*i*.
copper complex, crystal structure of, 4073*e*.
——, **α-phenylimino-**, copper complex, 4073*e*.
——, **α,α′-(propylenedinitrilo)di-**, copper complex, as antioxidant for cracked gasoline, 5932*c*.
as copper deactivator, 6063*d*.
——, **α-(p-sulfanilylphenylimino)-**, 2592*i*.
——, **4,4′-sulfonyldi-**, 6994*g*.
——, **tetrabromo-**, as fungicide in lacquer, P 6434*c*.
——, **6,6′-thiobis[4-bromo-**, 6995*b*.
——, **α,α′-[thiobis(p-phenylenenitrilo)]di-**, 4427*a*.
——, **thiodi-**, as stabilizer for vinyl compds., P 2469*a*.
——, **6,6′-thiodi-**, 6995*b*.
——, **4-m-tolylazo-**, chlorosulfonate (ester), 3800*i*.
——, **3,4,6-tribromo-5-chloro-**, 1348*a*.
——, **4,5,6-trichloro-**, 1348*a*.
——, **trimethylol-***, P 8137*c*.
——, **5-vinyl-**, isocyanate, and derivs., P 5422*g*.
***p*-Cresol**, azo 1,3-benzodioxan-6-amine dyes from, P 5194*a*.
azo dyes from, P 7697*c*, P 8146*b*.
benzenesulfonates, 4249*e*.
chlorination of, P 7045*b*.
condensation products with 2-furaldehyde, 5225*b*.
condensation with HCHO, 1603*f*.
detn. of, 7867*i*.
in air, 4798*i*.
in mixts. with *m*-cresol, 5343*e*.
in urine, simultaneously with phenol, 6693*i*.
detn. of, and Brit. standards for, 1527*d*
deuterium exchange with, 5011*g*.
dyes from, P 9460*g*.
effect on syneresis of Na oleate gels, 4080*a*.
formation by bacteria, 6280*e*, 9146*h*.
hydracrylate, 3393*c*.
identification of, 7447*c*, 7448*d*.
isocyanate, in identification of heterocyclic compds., 8365*b*.
oscillating magnetic field effect on, 6087*e*.
oxidation of, 3386*i*.
partition between cyclohexane and phosphate buffer or $H_2O$, ionization const. and, 7788*i*.
reaction with biacetyl, 8370*f*.
reaction with cyclohexene and with epichlorohydrin, 6173*i*.
sepn. from *m*-cresol by countercurrent distribution, 7789*b*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectrum of, 2512*g*, 5665*i*.
spectrum of, and effect of NaOH thereon, 8881*c*.
systems (binary) of, 4063*e*.
testing disinfectant action of, subculture media in, 274*d*.
toxicity of, 1867*f*.
toxicology of, 5514*d*.
***p*-Cresol, α-amino-**, conjugation and deamination of, 2702*d*.
——, **2-amino-**, azo dyes from, P 8148*b*.
hydrochloride, 6616*c*.
——, **3-amino-**, azo dyes from, Cu-contg., P 8144*d*.
——, **2-amino-3,5-dichloro-**, azo dyes from, P 8148*c*.
——, **2-amino-5-nitro-**, azo dyes from, P 5600*f*, P 7703*a*, P 8148*a*.
——, **2-amino-5(and 6)-nitro-**, azo dyes from, P 8148*b*.
——, **2-amino-6-nitro-**, dyes from, P 9460*i*.
——, **α-[(2-amino-4-pyrimidyl)-methylamino]-**, 2212*f*.
——, **α,α-bis(p-dimethylaminophenyl)-**, for lubricant improvement, P 9432*g*.
——, **2,6-bis(1,1,3,3-tetramethylbutyl)-**, P 6663*b*.
——, **2-bromo-**, 3,5-dibromo-2,4-cresotate, 2603*i*.
——, **2-*tert*-butyl-**, spectrum of, and effect of NaOH thereon, 8881*c*.
——, **2,2′-butylidenebis[6-(1,1,3,3-tetramethylbutyl)-**, as antioxidant for rubber, P 7257*d*.
——, **2-chloro-**, P 7045*b*.
——, **3-chloro-**, identification of, 7447*d*, 7448*e*.
——, **2-chloro-α-dihexylamino-6-(2,3-dimethoxy-9-acridylamino)-**, and dihydrochloride, P 7516*e*.
——, **α-(7-chloro-4-quinolylamino)-**, 2212*f*.
——, **di-*tert*-butyl-**, effect on ultraviolet light degradation of polyvinyl chloride, 8737*h*.
——, **2,6-di-*tert*-butyl-**, as butadiene-vinyl copolymer stabilizers, P 8195*c*.
in hydrocarbon oil stabilization, P 4457*g*.
manuf. of, and stabilization of isobutene-isoprene polymer with, P 5992*d*.
spectrum of, and effect of NaOH thereon, 8881*c*.
——, **2,6-diisobornyl-**, 1355*c*.
——, **α-(2,6-dimethyl-4-pyridyl)-**, 4672*d*.
——, **α,α-diphenyl-**, and acetate, 8684*i*.
——, **3-ethoxy-**, and diethylcarbamate, P 252*b*.
——, **3-fluoro-**, and benzoate, 7917*i*.
——, **α-(p-hydroxyanilino)-**, P 3604*f*.
——, **2-isobornyl-**, 1355*c*.
——, **2-isooctyl-**, azo dye from, P 4488*c*.
——, **2-methoxy-**. See *Creosol*.
——, **α-methylamino-**, conjugation and deamination in rabbits, 2702*e*.
——, **(1-methylcyclopentyl)-**, 2171*h*.
——, **6-methyl-2,2′-methylenedi-†**, and diacetate, 5019*b*.
——, **α-(1,2,3,4,5,6,7,8-octahydro-2-methyl-1-isoquinolyl)-**, and hydrobromide, 6635*i*.
——, **α-phenyl-**, 6622*e*.
——, **2-(phenylsulfonyl)-**, 7006*e*.
——, **2,2′-sulfonyldi-**, 6994*g*.
——, **α,α,α-trimethyl-**. See *Phenol, p-tert-butyl-*.
——, **α,α,α-triphenyl-**, 7005*h*.
**Cresolase**. (See also *Tyrosinase*.)
in tyrosine prepn., 9119*d*.
***m*-Cresolbensein***, 5398*g*.
**Cresols**. See *Cresol(s)*.
***o*-Cresolsulfonephthalein, dibromo-**. See *Bromocresol purple*.
**Cresolsulfonic acid**. See *Toluenesulfonic acid, hydroxy-*.
**Cresorcinol** (*4-methylresorcinol*).
——, **6-amino-α-1-piperidyl-**, P 1062*d*.
——, **6-(5-chloro-6-methoxy-4-quinolylamino)-α-ethylamino-**, dihydrochloride, P 7515*g*.
——, **6-(7-chloro-4-quinolylamino)-α-1-piperidyl-**, P 7514*i*.
——, **6-(2,3-dimethoxy-9-acridylamino)-α-propylamino-**, dihydrochloride, P 1068*f*.
——, **5-ethyl-**, 9066*e*.
——, **6-(2-hydroxy-1-methylpropyl)-†**, as degradation product of citrinin, 2185*c*.
and derivs., 9066*e*.
**2,5-Cresotaldehyde** (*2-hydroxy-5-methylbenzaldehyde*).
——, **4-(benzyloxy)-**, 3412*g*.
**2,3-Cresotanilide, 3′(1,3-dioxolan-2-yl)-**, quinonimine dye from, P 8168*b*.
**2,3-Cresotic acid** (*2-hydroxy-3-methylbenzoic acid*), azo dyes from, P 7702*h*, P 8151*g*.
——, **4-amino-**, azo dye from, P 4475*h*
——, **5-(p-aminobenzamido)-**, P 8158*b*
——, **5-(p-aminophenylazo)-**, azo stilbene dye from, P 4486*h*.
——, **5-(3-amino-4-sulfobenzamido)-**, azo dyes from, P 858*e*.
——, **5-(4-amino-2-sulfophenylazo)-**, tetrakisazo dye from, P 5963*d*
——, **5-(2-methoxy-5-nitrophenylazo)-**, azo dye from, P 4864*d*.
**2,4-Cresotic acid** (*2-hydroxy-4-methylbenzoic acid*), esters, bromination of, 2603*g*.
trisazo dye from, P 4481*e*.
——, **5-amino-**, trisazo dye from, P 4477*h*
——, **5-bromo-**, esters, 2603*h*.
——, **3,5-dibromo-**, esters, 2603*i*.
**2,5-Cresotic acid** (*2-hydroxy-5-methylbenzoic acid.*), anti-fouling properties of, 3964*b*.
azo dyes from, P 8151*g*.
——, **α-(3-carboxy-4-oxo-2,5-cyclohexadien-1-ylidene)-α-phenyl-†**, β-lactone, 5770*h*
——, **α-hexadecyloxy-**, sodium salt, P 1064*a*.
——, **α-(4-hydroxy-5-sulfo-1-naphthyl)-**, P 2641*g*, P 4488*b*
azo dyes from, P 8148*e*.
methyl ester sultone, and its acetate, 204*h*.
**2,6-Cresotic acid** (*2-hydroxy-4-methylbenzoic acid*), formation by *Penicillium claviforme*, 5080*a*.
——, **4-methoxy-**. See *Everninic acid*.
**4,2-Cresotic acid** (*4-hydroxy-2-methylbenzoic acid*).
——, **3,5-dichloro-6-(3,5-dichloro-6-hydroxy-4-methoxy-o-toloxy)-**, and derivs., 608*d*.
**Cresotinic acid**. See *Cresotic acid*.
**Cress**. (See also *Lepidium; Nasturtium, Water cress.*)
effect of auxins and antiauxins on root of, 5803*a*.
germination of, effect of thiouracil and uracil on, 8452*c*.
growth inhibition in, by auxins and nicotinic acid, 4732*f*.
growth inhibition in, by quinone derivs., 8413*e*.
root growth in, effect of (2,4-dichlorophenoxy)acetic acid and coumarin on, 8454*f*.
root growth in, pH relationships of, and its inhibition by (2,4-dichlorophenoxy)-acetic acid and coumarin, 8454*h*
in soil-sickness detn., 8081*c*.
**Cresyl blue**, effect on reduction of methemoglobin in red blood cells, 6732*d*
fungistatic action of, oxidation-reduction potential and, 8435*f*.
**Cresylic acid**. See *Cresol(s)*.
**Cresyl violet**, effect on influenza virus infection, 7589*c*.
**Crichtonite**. See *Ilmenite*.
**Crime**. See *Legal chemistry*.
**Cristobalite**, α- and β-, in kiln deposits, 9400*i*.
α-, formation in $Al_2O_3$-$SiO_2$-Tl-O $H_2O$ system, 8932*d*.
formation of, from amorphous $SiO_2$ and transformation to quartz, 5323*a*.
formation of, in an Fe-smelting furnace, 2910*f*.
from kieselguhr, cryst. intermediates in, 4073*b*.
from quartz, effect of oxides and temp. on, 371*d*.
from silicic acid, 8934*h*.
inversion of, 2390*d*.
in iron-O-Si system, 84*i*.
in silicate analysis, 6484*d*
thermal properties of, 9404*h*

in whiteware, 9406e.
**Critical constants**, of *n*-alkanes, 3254g.
calcn. of, from d. and viscosity, 3678i.
of liquids, 8775g.
from molar refraction and parachor, 2833f.
calcn. of pressure-vol.-temp. properties of gases from, 2832d.
density and temp., calcn. from d. and viscosity, 8226c.
density and temp., of $He^3$, 3679d.
of gas of nonspherical mols., relation to virial coeffs., 3677d.
of 2-methylpropane, 8778e.
models for instruction, 4062h.
of nitromethane, 5247a.
pressure and temp., of $He^3$, 3679c.
pressure and temp., properties of substances above, 8779d.
pressure, of liquids, 6065b.
pressure, of mixing of 2 liquids, 5256h.
of propene, 8832d.
soln. properties and, 3692b.
temp., additivity of $T_c^2$ for nonlinear mols., 7277c.
calcn. of liquid ds. near, 3255h.
criterion for course of vapor-pressure curve at, 4063b.
of $C_2H_4$, opalescence at, 1231i.
in flame propagation in hydrocarbons and H, 3618f.
of hydrocarbon mixts., 6903f.
of hydrocarbon oils, correlation with equilibrium vaporization consts. and mol. wts., 8658b.
of $Ni(CO)_4$, 2057f.
velocity of ultrasonic waves in org. liquids in region of, 1020d.
viscosity and, 4064i.
of 2,2,4-trimethylpentane, 2833e.
**Critical pressure**. See *Critical constants*.
**Critical solution temperature**, of mixing in liquid identification and detn., 8308h.
of polystyrene in octadecyl alc., 8804b.
**Critical states**, in binary liquid systems, 4531g.
hydrogen at, structure of, 7764h.
of satd soln. in binary systems, 4937c.
soly. measurement near, 6492b.
thermodynamics of, 5247e.
**Critical temperature**. See *Critical constants*.
**Crocetin**, dimethyl ester of *trans*-, isolation from gametes of *Chlamydomonas* mutants, 4728a.
spectra of α-, β- and γ-, 2093h.
**Crocus** (*abrasive*), acidity of suspensions of, detn. of, 2390i.
**Crocus sativus**. See *Saffron*.
**Crop**, glands, desoxyribonuclease inhibitor in, 5056i.
glands, hormones affecting—see "hormones of anterior lobe of, lactogenic" under *Pituitary gland*.
**Crops**. See *Plants*.
**Cross-striped cabbage worm**. See *Evergestis rimosalis*.
**Crotalaria**, of Hawaii, 9292f.
mulch of, for tung trees, 9324i.
**Crotonaldehyde**, 3345c.
alcs. (higher) and fatty acids starting from, 5363g.
azine, 1654d.
condensation product with 4,4′-di(biguanidino)biphenyl, P 4879f.
condensation to cyclic compds. and their conversion to aromatic compds., 5376h.
cyclohexylcarbonylhydrazone†, 4233b.
derivs., 6577g.
derivs., spectra of, 1654h.
detn. of, 1688b, 3316i.
formation of, by dehydration of butenediols, 2579a.
formation of, from 2,4-dihydroxy-2-pentenoic acid γ-lactone pyrolysis, 4222c.
as fungistat, 9334b.
hydrogenation to BuOH, P 7035h.
mutation by, 1115i.
oxidation of, P 671e, P 3443a, P 5034c, P 5415i.
reaction product with coconut oil acid amide and mercaptoacetic acid, surface-active, P 7242g.
with oleamide and $NaHSO_3$, P 8712g.
with sulfathiazole, 4238a.
reaction with AcH, 991i.
with 3,4-dimethyl-1,3-pentadiene, 3376b.
with ketene, P 5415a.
with mercaptoacetic acid and coconut oil acid amide, stearamide or stearic acid hydrazide, washing agents by, P 5978hi, P 5979ab.
with nitromethane, 2926g.
with 1-octene, 4637d.
with phthalimide and with succinimide, 6169i.
with piperylene, 164f.
with stearamide and $NaHSO_3$, washing agent by, P 5978g.
with sulfamide and urea, 5996a.
reduction of, to 2-buten-1-ol, 2570e.
and semicarbazone, formation on oxidation of 1,3-butanediol, 2934g.
textile auxiliary agent from, P 4500b.
**Crotonaldehyde, γ-bromo-**, dimethyl acetal (prepn. attempted), 4219a.
——, **γ-cyclohexenyl-**. See *Cyclohexenecrotonaldehyde*.
——, **γ-hydroxy-**, 5774h.
——, **β-methyl-**. See *Senecialdehyde*.
**Crotonamide, *N*-(*N*-acetylsulfanilyl)-α,β-dimethyl-†**, P 7962b.
——, ***N*-allyl-*N*-(1-diethylcarbamylethyl)-**, P 249f.
——, ***N*-allyl-*N*-(1-dimethylcarbamylethyl)-**, P 249f.
——, ***N*-allyl-*N*-(1-dimethylcarbamylpropyl)-**, P 250g.
——, ***N*-allyl-*N*-(1-dimethylcarbamylpropyl)-α,β-dimethyl-**, P 250g.
——, ***N*-butyl-*N*-(1-dimethylcarbamylethyl)-**, P 249g.
——, ***N*-sec-butyl-*N*-(1-dimethylcarbamylethyl)-**, P 248e, P 249g, P 4686g.
——, ***N*-butyl-*N*-(1-dimethylcarbamylpropyl)-**, P 250h, P 7955i.
——, ***N*-sec-butyl-*N*-(1-dimethylcarbamylpropyl)-**, P 248f, P 250i.
——, **β-chloro-*N*-(1-diethylcarbamylethyl)-*N*-ethyl-**, P 6653i.
——, **β-chloro-*N*-(diethylcarbamylmethyl)-*N*-ethyl-**, P 248i.
——, **β-chloro-*N*-(1-diethylcarbamylpropyl)-*N*-methyl-**, P 249i.
——, **β-chloro-*N*-(1-dimethylcarbamylethyl)-*N*-ethyl-**, P 249b.
——, **β-chloro-*N*-(1-dimethylcarbamylethyl)-*N*-methyl-**, P 249a.
——, **β-chloro-*N*-(1-dimethylcarbamylethyl)-*N*-propyl-**, P 249e.
——, **β-chloro-*N*-(1-dimethylcarbamylpropyl)-*N*-ethyl-**, P 250a.
——, ***N*-(1-diallylcarbamylpropyl)-*N*-ethyl-**, P 250d.
——, ***N*-(1-diethylcarbamylethyl)-*N*-isopropyl-**, P 249f.
——, ***N*-(1-diethylcarbamylethyl)-*N*-methyl-**, P 249b.
——, ***N*-(1-diethylcarbamylethyl)-*N*-propyl-**, P 249f, P 6654a.
——, ***N*-(1-diethylcarbamylpropyl)-*N*-methyl-**, P 249i.
——, ***N*-(1-diethylcarbamylpropyl)-*N*-propyl-**, P 250f.
——, ***N*-(1-dimethylcarbamylethyl)-α,β-dimethyl-*N*-propyl-**, P 249e.
——, ***N*-(1-dimethylcarbamylethyl)-*N*-ethyl-**, P 248e, P 249b, P 4686f, P 5793d.
——, ***N*-(1-dimethylcarbamylethyl)-*N*-ethyl-α,β-dimethyl-**, P 4686h.
——, ***N*-(1-dimethylcarbamylethyl)-*N*-isopropyl-**, P 249f, P 6654b.
——, ***N*-(1-dimethylcarbamylethyl)-*N*-methyl-**, P 249a.
——, ***N*-(1-dimethylcarbamylethyl)-*N*-propyl-**, P 249e.
——, ***N*-(1-dimethylcarbamylisobutyl)-*N*-propyl-†**, P 6654a.
——, ***N*-(2-dimethylcarbamylisopropyl)-*N*-ethyl-**, P 251e.
——, ***N*-(dimethylcarbamylmethyl)-*N*-ethyl-**, P 4291e.
——, ***N*-(1-dimethylcarbamylpropyl)-**, P 4687a.
——, ***N*-(1-dimethylcarbamylpropyl)-*N*-ethyl-**, P 248e, P 250a, P 4431h, P 4687a, P 6224i, P 7956a.
——, ***N*-(1-dimethylcarbamylpropyl)-*N*-isopropyl-**, P 250f.
——, ***N*-(1-dimethylcarbamylpropyl)-*N*-methyl-**, P 249h.
——, ***N*-(1-dimethylcarbamylpropyl)-*N*-propyl-**, P 248f, P 250f, P 4686g, P 5793e.
——, **α,β-dimethyl-*N*-(p-nitrophenylsulfonyl)-**, P 7961h.
——, **α,β-dimethyl-*N*-sulfanilyl-**, P 7961a, P 7961dh, P 7962b.
calcium salt, P 7647h.
and sodium deriv., *r* 0200e.
——, **α-ethyl-**, reduction to 2-ethylbutylamine, 121g.
——, ***N*-ethyl-*N*-[1-(ethylmethylcarbamyl)ethyl]-**, P 249c.
——, ***N*-ethyl-*N*-[1-(ethylmethylcarbamyl)propyl]-**, P 250b.
——, ***N*-[1-(ethylmethylcarbamyl)propyl]-*N*-methyl-**, P 249h.
——, ***N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)ethyl]-**, P 249e.
——, ***N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-**, P 250d.
——, ***N*-2-hydroxyethyl-**, in penicillin production, 2273b.
**Crotonanilide, *p*-bromo-*N*-ethyl-**, P 5413i.
——, ***p*-bromo-*N*-ethyl-α,β-dimethyl-**, P 5414b.
——, ***m*-chloro-*N*-ethyl-α,β-dimethyl-**, P 5414b.
——, **o-chloro-*N*-methyl-**, P 5413h.
——, **4-chloro-2-nitro-**, 2993a.
——, **3,4-dichloro-*N*-ethyl-**, P 5413i.
——, **β,β′-(ethylenediimino)bis[*N*-methyl-]**, P 822h.
**o-Crotonanisidide, *N*-ethyl-**, P 5414a.
——, ***N*-ethyl-α,β-dimethyl-**, P 5414b.
***p*-Crotonanisidide, *N*-methyl-**, P 5414a.
——, ***N*,α,β-trimethyl-**, P 5414b.
**Croton bug**. See *Cockroaches*.
**Crotonic acid** (*2-butenoic acid*). (*Unsubstituted 2-butenoic acids which have been assigned the cis configuration are entered as* Isocrotonic acid; *undesignated and trans-acids are entered here. All derivatives of these acids are entered as inverted entries under* Crotonic acid *with "cis-" in the modification when they have been so designated.*)
2-chloroallyl ester, polymers with butadiene, P 432i.
copper(I) chloride complexes with, 8940h.
decyldinitrophenyl ester, in brown-rot control, 3553h.
derivs., lactones of, 4639i.
dinitro-*sec*-octylphenyl ester, as fungicide, 7177a.
effect of, on bacteriostatic action of dodecyldimethyl(phenoxyethyl)ammonium bromide, 9377b.
on diffusion of strong electrolytes, 8773g.
in nitrocellulose lacquers, 7718h.
esters, in cellulose ester stabilization, P 7685e.
detn. of, 8976e.
dimers of, P 5792g.
phys. consts. of, 2591f.
with ricinoleic acid, reaction product with thiophosphoric acid, P 4877h.
ethyl ester, copolymer with vinyl acetate, P 2031a.
reaction with formanilide, 576c.
reaction with $CH_3NO_2$, 5775h.
hydrogenation of, effect of amt. of catalysts on rate of, 8819b.
hydrogenation of, mass of catalyst and rate of, 4551c.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565h.
manuf. of, P 671e, P 3442i, P 3838d.
methyl ester, ammonolysis rate of, 6495g.
methyl ester, condensation (attempted) with $PrNO_2$, 1319h.
mol. assocn., dipole moment and elec. polarization in $C_6H_6$, 6493i.
polymerization of, with styrene or α-methylstyrene and dehydrated castor oil and drying oil fatty acids and then polybasic acid and polyhydric alc., P 6433c.
polymerization of, with vinyl aromatic compds. and drying oils and esterification of polymer, P 5972b.
*p*-quinone dioxime deriv., as vulcanizing agent, 5623c.
reaction with guanidine and urea, 5996a.
**Crotonic acid, α-acetamido-**, spectrum of, 3857a.
——, **β-(p-acetamidoanilino)-**, ethyl ester, 1778a.
——, **β-[α-(p-acetamidophenyl)-p-toluidino]-**, methyl ester, 646a.
——, **α-acetyl-**. See *Acetoacetic acid, α-ethylidene-*.
——, **β-anilino-**, ethyl ester, 228i.
——, **γ-anthryl-**. See *Anthracenecrotonic acid*.
——, **α-benzamido-**, 9033h.
——, **β-6-benzothiazolylamino-**, ethyl ester, 7478f.

——, α - **benzoyl** - β - **hydroxy-**, ethyl ester acetate, P 6655*d*.
——, **α-bromo-**, *cis-*, and ethyl ester, 4224*g*.
——, **γ-bromo-**, methyl ester, reaction with 6-cyclohexyl-2-hexanol in the presence of Zn, 8361*c*.
——, γ - **bromo** - γ - **hydroxy** - β-**methoxy**-γ-**phenyl-**, γ lactone, 7459*d*.
——, β - [α - (*p* - **bromophenyl**) - *p*-**toluidino**]-, methyl ester, 646*a*.
——, **α-butyl-**. See *Caproic acid, α-ethylidene-*.
——, β - *p* - **carboxyanilino**-†, *p*-ethyl methyl ester, 646*a*.
——, **α-chloro-**, P 4288*d*.
Raman spectrum of, 6082*i*.
——, β-(**1-chloro-2-naphthylamino**)-, ethyl ester, 1418*e*.
——, β - [α - (*p* - **chlorophenyl**) - *p*-**toluidino**]-, methyl ester, 646*a*.
——, **β-cyano-**, *cis-* and *trans-*, esters, and polymers, P 6651*g*.
——, **α,β-dibromo-**, and ethyl ester, 4220*c*.
——, **β,γ-dichloro-**, *cis-* and *trans-*, and ethyl esters, 6161*f*.
——, **β-diethylamino-**, methyl ester, 7434*b*.
——, β - **diethylamino** - γ - **hydroxy**-γ-**phenyl-**, γ-lactone, 7459*e*.
——, γ,γ - **dihydroxy** - β - **methoxy**-γ-**phenyl-**, γ-lactone, 7459*e*.
——, β,γ - **dihydroxy** - γ - **phenyl-**, γ-lactone, 7459*f*.
——, β - (**2,5** - **dimethoxyanilino**)-, methyl ester, 646*a*.
——, γ - **formyl-**. See *Glutaconic - γ - aldehydic acid*.
——, **β-hydroxy-**, ethyl ester acetate, P 6655*a*.
ethyl ester acetate, mixt. with Et 3-hydroxy - 3 - butenoate acetate, P 1436*c*.
——, **γ-hydroxy-**, γ-lactone, derivs., 4654*f*.
——, γ - **hydroxy** - β - **methoxy** - γ-**phenyl-**, γ-lactone, 7459*c*.
——, **methoxy-**, ethyl ester, fungistatic activity of, 9334*c*.
——, **γ-methoxy-**, *cis-* and *trans-*, methyl esters, P 3442*h*
——, β - [α - (*p* - **methoxyphenyl**) - *p*-**toluidino**]-, methyl ester, 646*a*.
——, **α-methyl-**. See *Angelic acid; Tiglic acid*.
——, **β-methyl-**. See *Senecioic acid*.
——, **β-*p*-nitroanilino-**, methyl ester, 646*a*.
——, **γ-oxo-γ-phenyl-**. See *Acrylic acid, β-benzoyl*.
——, **β-phenyl-**. See *Cinnamic acid, β-methyl-*.
——, **γ-thienyl-**. See *Thiophenecrotonic acid*.
——, **α,β,γ-trichloro-**, isomers, and Et esters, 6161*g*.
**Crotonic anhydride**, hydrogenation of, P 3839*d*.
manuf. of, P 8398*f*.
**Crotononitrile**, chlorination of, P 7498*h*.
——, **γ-chloro-**, P 7498*h*.
——, **α-methyl-**. See *Angelonitrile*.
*o* - **Crotonophenetidide**, *N* - **ethyl** - **α,β-dimethyl-**, P 5414*b*.
*p* - **Crotonophenetidide**, *N* - **ethyl-**, P 5414*a*.
**Crotonophenone**, spectrum of, 7819*i*.
——, **α-bromo-**, prepn. of, 7819*e*.
——, **2,4-dihydroxy-**, 1771*c*.
——, **α-4-morpholinyl-**, prepn. of, and its spectrum, 7819*g*.
——, **β-4-morpholinyl-**, spectrum of, 7819*i*.
——, **2,4,6-trimethyl-**, 3389*i*.
*?* - **Crotonotoluidide**, **chloro** - *N* - **ethyl-**, P 5413*i*.
*m* - **Crotonotoluidide**, *N* - **ethyl-**, P 5413*g*.
——, *N* - **ethyl** - **α,β** - **dimethyl-**, P 5413*i*.
*o* - **Crotonotoluidide**, *N* - **ethyl-**, P 5413*f*, P 7954*f*.
as fungicide and insecticide, P 7634*a*.
scabicidal and bacteriostatic action of, 3109*g*.
——, *N* - **ethyl** - **α,β** - **dimethyl-**, P 5413*i*.
——, *N*-**isoamyl-**, P 5414*a*.
——, *N*-**isopropyl-**, P 5413*i*.
——, *N*-**methyl-**, P 5413*h*.
——, *N*,**α,β-trimethyl-**, P 5413*i*.
*p*-**Crotonotoluidide**, *N*-**ethyl-**, P 5413*h*.
——, *N*-**methyl-**, P 5413*h*.
——, *N*,**α,β-trimethyl-**, P 5413*i*.
**Crotonyl alcohol**. See *2-Buten-1-ol*.
**Crotyl alcohol**. See *2-Buten-1-ol*.
**Crown gall**. See *Galls*.
**Crucibles**, with bottom removable, P 7273*c*.
filtering—see *Filters*.
graphite, borax substitute for, P 6803*f*.
graphite, repair of, P 6804*a*.
for high-frequency furnaces, 2391*h*.
lead, for F detn., 9273*h*.
for light metals, P 9018*h*.
for physicochem. measurements, 4901*d*.
platinum-iridium, for coking test, 1947*f*.
**Cruciferae**. See *Crucifers*.
**Crucifers**, insect control on, 807*h*.
mustard oil-contg sprouts of, 8013*e*.
oil of—see *Oils*.
seeds, S compds. in, 880*i*, 3888*b*.
**Crude fiber**, and its deta., 4848*h*.
detn. in feeding stuffs, 7152*g*, 9275*a*.
in oil meals, 6842*a*.
in soybean flour, 5975*c*.
energy value of, for chickens, 1087*i*.
in hays, digestibility of energy and of dry matter in relation to, 6755*f*.
of paprika (powd.), 5879*h*.
in range forage of Southern Great Plains area, 1501*g*.
in red clover and timothy at various stages of growth, 727*h*.
of vegetable foods, and its alteration during digestion, 6753*b*.
**Cruorins**. See *Erythrocruorins*.
**Crushing**. (See also *Comminution; Grinding*.) 1227*g*.
energy and surface in, of brittle solids, 8751*e*.
**Crushing apparatus**. (See also *Grinding apparatus; Mills; Pulverizing apparatus*.)
for ores—see *Ores, treatment of*.
vertical, P 3250*e*.
**Crustaceans**. (See also *Crabs; Lobsters; Shellfish*; etc.)
antifouling-paint toxicity to, 3963*i*.
blood-sugar regulation in, 8560*i*.
**Cryoglobulins**, in blood plasma in multiple myeloma, 9101*h*.
**Cryolite**. (See also *Sodium fluoaluminate*.)
bee poisoning by, 344*b*.
in cabbage-pest control, 5147*i*.
in codling-moth control, 9347*a*.
in control of dicky-rice weevil, leafroller and mealy bug on citrus, 7185*b*.
in control of orange tortrix and Willamette mite on raspberries, 3137*d*.
in corn-earworm control, 8598*d*.
in corn-flea-beetle control, 4416*i*.
crystal structure of, 8984*c*.
in fall-armyworm control on corn, 3136*f*.
formula for, 5695*f*.
in grape-berry-moth control, 9340*d*.
industry in 1946, 2127*c*.
as insecticide in S. Africa, 346*h*.
manuf. of, 3983*b*, P 6378*b*.
in migratory-locust control, 4806*f*.
mixts. with $Al_2O_3$, anodic overvoltage on graphite in molten, 6519*e*.
in orange-tortrix control on berries, 5148*c*.
residues on cucumbers and squash, 9329*h*.
synthesis and properties of, 2379*c*.
systems: phlogopite–, and phlogopite–orthoclase–, crystn. temps. and optical data for, 6544*d*.
system: thenardite–, anomalous mixed crystals in, 8787*e*.
in tobacco-flea-beetle control, 9329*h*, 9346*b*.
uses of, 6381*a*.
in velvetbean-caterpillar control, 1521*i*.
in white-fringed-beetle control, 9347*d*.
in white-fringed-beetle control, adhesives for, 806*h*.
**Cryolithionite**, 8984*b*.
**Cryometers**, dilatometric, 8748*e*.
dilatometric, for $C_6H_6$ purity detn., 8978*a*.
**Cryoscopy**. See *Freezing points*.
**Cryostats**. (See also *Thermoregulators*.)
for alc.-aldehyde solns., 5740*c*.
liquid-He, 911*e*, 4055*f*.
liquid-He, thermoregulator for, 4056*e*.
**Cryptoagglutinoids**, fractionation of, 3920*a*.
**Cryptocarya**, alkaloids in, 1155*b*.
**Cryptococcus fagi** and(or) **Beech scale**, control on beech, 5895*b*.
**Cryptogams**. See *Plants*.
**Cryptogenin**, derivs., 655*e*.
and derivs., 655*b*.
——, **16-dihydro-***, and derivs., 655*c*.
**Cryptol** (*4 - isopropyl - 2 - cyclohexen-1-ol*), (+)-*cis-* and (−)-*trans-*, and derivs., 160*g*.
, **dihydro-**. See *Cyclohexanol, 4-isopropyl-*.
**Cryptomelane**, 3303*e*.
**Cryptomeria**, *japonica*, lignin sepn. from, 733*b*.
vitamin B and C concentrates from, P 6792*c*.
**Cryptone** (*4-isopropyl-2-cyclohexen-1-one*), (−)-, 160*g*.
**Cryptonemiales**, soln. of, in manuf. of $N_2H_2$, P 7652*b*.
**Cryptonol**. See *Quinosol*.
**Cryptopinone**, isopimarinol and, 1390*f*.
**Cryptorchidism**, hyaluronidase in testicles in, 8035*c*.
17-keto steroid excretion in urine in, 8037*i*.
**Cryptostegia**, copper, Fe and Mn in, and its rubber, 2799*e*.
**Cryptotermes brevis**. See *Termites*.
**Cryptoxanthin** (*cryptoxanthol*). (See also *Neocryptoxanthin*.)
effect on growth of chicks and storage in tissue, 4353*i*.
in loquat, 8456*g*.
in oranges, 2708*h*.
sepn. from other pigments in egg-yolk and chick carcass, 2291*h*.
vitamin A activity of, 7560*f*.
vitamin A storage after feeding, 8024*f*
**Crystal forms**. (See also *Crystallography, Crystal structure; Dimorphism; Isomorphism; Polymorphism*.)
of amino acid derivs. with 2-nitrohydantoin-1,3-dione, 69*i*.
of ammonium chloride, effect of anions on, 2483*c*.
of *d*- and *dl*-amphetamine sulfate, 9375*i*.
of antihistamines, 9366*c*.
of barite near Belgrade, 4979*i*.
basis of vectorial morphological descriptions, 4071*a*.
of benzylpenicillinic acid, 460*e*.
of calcium chromite, 9405*b*.
of calcium stearate (anhyd.) from monohydrate, and of Ca palmitate, 4919*d*
of carotene isomers, 6881*g*.
of cassiterite (artificial), 6031*g*.
of chrome green and chrome yellow, 7237*i*
of chromium (VI) compds., 8785*a*.
of copper tartrate, 7287*h*.
of eucryptite and spodumene, 7804*f*.
of explosives, effects of prepn. methods and solvents on, 6415*i*.
of homopolar crystals, 8228*g*.
internal structure and, 8229*e*.
of iron(III) oxides, 8934*e*
of manganese oxides, 3303*f*.
of metals (electrolytic), 953*a*.
modification (mutual) of, of NaCl and dipolar ions, 7772*c*.
number of theoretical connections between lattice structures and quadratic forms of Debye-Scherrer-(Hull) diagrams of cubic symmetry, 3260*b*
of oriented growth of org. compds., 6027*i*.
of quinine-HCl, 2839*c*.
of soil minerals, 1129*c*
sugar manuf. and, 6845*i*.
of tartrates, 7287*f*.
of vanadium oxide ($V_2O_5$) sol particles, 32*g*.
vectorial properties of lattice and, 4071*a*.
**Crystallin**, nucleic acids of, 6262*e*.
**Crystallinity**, of Carbawax compds., effect of surface-active agents on, 8609*e*
of cellulose, 8132*h*.
of cellulose, hydrolysis effect on, 8135*e*
of ethylene polymers, effect of pressure on, 5249*i*.
of fiber-forming polymers, 9455*c*.
**Crystallites**, in cryst. powder, distribution of dimensions of, 5252*c*.
heat of fusion of part of, in increasing sp heat of elongated rubbers, 3642*h*.
metal strength and, 4198*c*.
orientation of *c* axes of $BaTiO_3$, in elec fields, 6485*d*.
orientation of, in cellulose fibers, 5954*f*, 6829*e*.
in polyethylene, 6045*h*.
in stretched rubber, 2458*c*.
in plasticized polyvinyl chloride, creep and, 6462*c*.
size of, of C black, reënforcing properties in rubber and, 7251*i*.
soap, grease properties and, 9425*a*.
theory of liquids, 6879*c*.
**Crystallization**. (See also *Granulation; Precipitation; Water of hydration*.)
P 6013*b*.
adsorption from solns. on layering or, 4586*e*.

of albite system with anorthite and diopside, rate of, 1252*i*.
of alkali metal halides, effect of org. compds. on, 13*c*.
of alkyl side chains in alkyl polyacrylates, 2064*h*.
of alloys (binary), 4619*d*.
alloy sepn. by fractional, P 6145*d*.
of γ-alumina, effect of $SiO_2$ on, 3685*d*.
of aluminum system with Li and Mg, 2500*f*.
of amalgams, 7880*g*.
of ammonium and K alums, distribution of impurities in, 5553*e*.
of ammonium chloride, effect of anions on, 2483*c*.
of ammonium sulfate as large crystals, P 4435*d*.
of argols in grape products, prevention of, P 9294*i*.
in aromatic-compd. purification, 8225*d*.
of barium sulfate, rate of, 6941*f*.
of basaltic magmas, 6127*f*.
of butadiene and butadiene-styrene low temp. polymers on cooling, 8191*b*.
of butadiene elastomers, and its measurement to est. m.l. regularity, 8728*e*.
of calcium chloride brines, 2743*d*.
of camphor eutectic with naphthalene, effect of stearic acid on rate of, 8832*d*.
of clouds by AgI smokes, 6039*a*.
of cobalt-Cu alloys, effect of magnetic field on, 5718*g*.
of components of mixts., P 8759*e*.
compd. sepn. by, P 5236*h*.
of compds. on sucrose, 8238*f*.
controlled, P 3668*b*.
of cordierite in industrial glasses, 1540*h*.
of DDT, P 1526*c*.
of DDT or analogs from aq. emulsion, prevention of, P 6358*e*.
dislocations in, 6027*d*.
in elec. field, P 4587*h*.
in electrodeposition, 502*b*, 953*a*, 7356*h*, 7836*c*.
of esters (aromatic poly-), 6045*e*.
of ethylenediamine tartrate, 458*h*.
of eutectics in presence of surface-active substances, 7315*e*.
fatty acid sepn. from oils by, P 884*f*.
of ferromagnetic superlattice alloys, theory of, 4061*a*.
of finely divided solids in suspension, 791*f*.
of fructose, P 3639*f*.
of D-glucose, 8716*fg*, 9499*i*.
of glycerides in fatty acid radical rearrangement, P 883*i*.
of gutta-percha in hexane and of rubber-HCl from solns., 7739*d*, 8728*h*.
of hexa-substituted $C_6H_6$ derivs. on inorg. carrier lattices, 3262*c*.
of hydrofluoric acid from azeotropic mixts. with water, P 3189*h*.
of hydrothermal minerals, 8321*f*.
of ice, by adiabatic expansion of gas, 1231*f*.
of ice, in lab. and in atm., 6039*b*.
impurity displacement in, from melt, 14*c*.
kinetics of, review on, 3684*f*.
of lead sulfide on rock salt, 3685*f*.
in Liesegang rings—see *Liesegang rings*.
of linseed oil and stillingia-oil fatty acids at low temps., 4025*i*, 4026*g*.
of linseed oil (brominated), fatty acid compn. detn. by, 4496*c*.
of magnesia in calcination, 1924*g*.
of magnesioferrite from solid soln., 8229*d*.
of magnesium hydrogen phosphate and $Na_2SO_4$, 8228*i*.
of metallic films, 5352*d*, 7286*a*.
of mica (synthetic) from silicate metals, 5159*a*.
of microscopic crystals, on crystals exposed to α-rays, 7769*g*.
of mutually diffusing substances, spatial distribution of ppts. during, 5264*b*.
of naphthalene derivs. on inorg. lattices, 2484*h*.
of Neoprene, effect of storage on, 5986*h*.
from nonaq. solns., 8804*c*.
nuclei of, 3277*i*.
formation in condensed systems, theory of, 2847*e*.
of fusions, 3277*i*.
in region of increased sp. heat in elongated rubber, 3642*h*.
of octachloropropane, 2839*a*.
of olivine basalts, 2904*a*.
of org. substances on inorg. carrier lattices, 4918*a*.
oriented, effect of crystal structure and mol. shape on, 1287*b*.
oriented, of org. compds., 6881*c*.
oriented overgrowths in, 8230*b*.
of paraffin wax and its effect on cloud point or pour point of lubricants, 3182*c*.
of paraffin wax from paraffin distillate-propane soln., 4455*h*.
in pearlite, calcn. of rate of eutectic, 81*c*.
of phthalocyanine printing compns., prevention of, P 8706*b*.
of piezoelec. substances, P 5135*d*.
of piezoelec. substances with controlled cond., P 368*i*.
of pigments (org.), 2483*d*.
of plant exts., for study of changes in processed foods, 1493*e*.
of platinum complexes, 3683*e*.
of polyhalite from K salt mother brines, 8995*c*.
of polymers, thermodynamics of, 5254*e*.
of polymorphous substances from vapor phase, 4534*f*.
polysynthetic twinning and conditions of, 6032*a*.
of potassium chlorate, 2377*i*.
of potassium chloride and NaCl, seasonal cycle of, 3752*h*.
of potassium chloride as coarse crystals, P 6376*g*.
of potassium sulfate from melt, occlusion of Ra by, 4917*f*.
of precipitates, rate of, 5260*a*.
of precryst. phases, 4541*b*.
purification by, 8833*e*.
of quartz from alk. solns., 6026*i*.
re-, of Al, 982*h*, 7768*f*, 7879*h*.
of Al, effect of impurities and cold-hardening on properties during, 81*i*.
of Al-Mg-Mn alloys, 4204*h*.
of Al of high purity, 1300*e*.
α,α′-azodiisobutyronitrile, explosions in, 8681*i*.
of Be, 2557*i*.
of Be oxide bodies, 2390*a*.
of black Se, 4198*a*.
of brass, 9013*h*.
of cold-rolled Al in annealing, 1697*i*.
of Cu and Cu Zn alloy, 3757*e*.
of Cu strip, 2558*e*.
formation of nuclei of, 6026*g*.
magnetic-field effect on, 8768*a*.
of metals, 6956*c*, 7394*d*, 8325*b*.
of metals, creep and, 81*f*.
of metals under stress, 4198*i*.
of metamict gadolinite, euxenite and samarskite, 8983*i*.
of relaxed animal fibers, 8416*f*.
secondary, in Cu, 9004*a*.
of steel for deep-drawing, 3760*a*.
of strained metals, 7879*f*.
texture in Al, 7881*a*.
theory of, 1697*i*.
review on, 1227*g*.
of rubber, detn. of degree of, 2458*c*.
at low temps., 6853*f*.
on vibration, etc., effect on hysteresis, 9513*h*.
of rubber in stretching—see *Rubber effect*.
of rutile, seed for, P 8624*h*.
of salts as extremely small crystals, P 4525*a*.
of salt solns., prevention of, P 1926*d*
of silicates (molten), 6899*d*.
of silicic acid, 8934*h*.
of silver chloride ribbons and slabs, 6008*e*.
of skeletal crystals, 4070*i*.
of slags (blast-furnace), 4195*f*.
of sodium chloride, frequencies of formation of plane, edged and angled nuclei in, 2063*g*.
in large crystals, P 6796*d*.
on $NaNO_3$ in $NH_4Cl$ soln., 6028*a*.
from vapor phase, 8787*g*.
of solid colloids at high temps., rate of, 1236*e*.
of solutes with point of min. soly., P 2824*g*.
of steel, 6135*c*.
effect of B and V on, 531*h*.
effect of Ti and of B, V and Ti on, 532*a*.
as ingots, 6552*c*.
of sucrose, effect of Mn salts on, 2005*e*.
impurity occlusion during, 2003*i*, 2004*i*, 2005*ac*.
kinetics of, 5613*g*, 7729*g*.
in sugar manuf.—see *Sugar manufacture*.
of tar oils, P 4846*d*.
temp. of mica, 6544*c*.
temps. of minerals, crystal size *vs.* distance from walls in magmatic dikes and, 7873*g*.
of tin and water drops, effect of temp. on nucleation rate in, 2061*d*.
of tungstic acid, 13*g*.
of polyurethan, 5254*b*.
of xylose sirups, 5979*c*.

**Crystallization apparatus.** (See also *Granulating apparatus.*) P 5236*g*, P 7760*e*.
cleaning continuous, P 6873*h*.
continuous, 3668*b*.
for D-glucose, 9499*i*.
for monocrystals, 7286*e*.
for sugar, automatic control of, 425*h*.
for tar oils, P 4846*d*.

**Crystallochemical electronegativity,** 8230*i*, 8788*b*.

**Crystallography.** (See also *Crystal forms; Crystal structure; Isomorphism; Polymorphism.*)
accuracy of at. coördinates derived from Fourier series in x-ray, 4918*f*.
of barbituric acid derivs., 8612*e*.
book, 2502*d*.
extinction in x-ray, 4918*h*.
neutron and secondary extinction, 3260*c*.
optical, of org. compds., 6105*e*.

**Crystal purple,** germicidal action of, effect of supersonic waves on, 1461*b*.

**Crystals.** (See also *Crystal structure; Isomorphism; Polymorphism.*)
with Alexandrite color, 6028*f*.
alpha-ray effect on, 7769*g*.
asterism of, 8311*h*.
asymmetry of, 7770*a*.
atom size in metallic, 8783*f*.
axial dispersion, extinction angles and interference figures of, of amino acid derivs. with 2-nitroindan-1,3-dione, 69*i*.
binding forces in oriented overgrowths of org. substances on inorg. carrier lattices, 4918*a*.
bonds in ionic, 8762*g*.
books: Cryst. State, 3278*g*; and X-rays, 4582*b*; Electronic Processes in Ionic, 4582*b*; Molecules and, and Inorg. Chemistry, 5692*f*; Das Geheimnis der Kristallwelt, 6072*e*; Chem. Morphologie der, 6502*b*; The Diffraction of X-rays by Finite and Imperfect, 6517*d*; Étude théorique de quelques propriétés des cristaux ioniques, 6904*f*; Die Festigkeitserscheinungen der, 6904*g*.
boundaries in Al and Al alloys during melting, 8336*e*.
chemistry of, since Goldschmidt, 2063*d*.
in *Cladophora rupestris*, 3495*g*.
cleavage of Fe, 4991*h*.
cleavage of mica, 8313*i*.
conglomeration of, 1622*a*.
of copolymers and polymers and their mixts. with diluents, theory of, 5254*e*.
of corrosion products on Al, K and Na, 7400*a*.
corrosion (stress) of, of solid solns., crack formation in, 7879*e*.
crystallogenic disequil. in nature, 6481*h*.
cutting water-sol., cooling tools for, P 2343*g*.
Debye-Scherrer-theory application to substances with pseudosymmetry, 7285*h*.
deformation of metals and, 7394*c*.
deformation or distortion of, of γ-$Al_2O_3$, 3685*b*.
of γ-$Al_2O_3$, effect of $SiO_2$ on, 3685*d*.
of Al, latent strengthening in, 4991*d*.
by motion of single ions, 3259*d*.
of quartz conglomerates in Norway, 76*f*.
degrees of freedom of simple symmetry operations, 8762*a*.
detn. in amorphous materials, 5252*b*.
detn. in polythene samples, 6485*h*.
with dielec. const. high, 3073*g*.
dielec. const. of ionic, polarizability and, 5244*f*.
differentiation of, 8309*c*.
diffraction by, 4094*c*.
directional character of long-range order parameter, 4918*i*.
disintegration and growth of homopolar, 8228*g*.
dispersion (low-frequency) in ionic, 5245*a*, 7768*i*.
dissocn. of binary-alloy, vol. changes from, 8232*b*.
dodecahedral chalcopyrite, 8311*i*.
dynamics of mol., 8783*a*.
elasticity of, measurement of, 5251*g*, 8787*b*.
elastic martensitic, 6880*h*.
electric breakdown of ionic, by electron avalanches, 7286*g*.

elec. contact between, 3731*f*.
elec. cond. of faces of split, 6026*b*.
elec. cond. of nonmetallic, 7767*i*.
elec. contacts with, coating with Bu methacrylate polymer, P 8919*f*.
electron d. in, detn. of, 31*g*, 1261*k*.
electron d. in NiAl, 6030*i*.
electronegativity and energy of lattice of, 8230*k*.
electronic interactions in, discontinuities in at. distances from, 6030*g*.
electronic proper functions in ionic, 4568*h*.
electronic properties of one-dimensional model of, 6026*f*.
electron scattering by, Kicuchi envelopes in, 6072*i*, 6073*ab*, 8843*a*.
electron-wave interference in small, 8858*i*.
electro-optic effect in, of primary-phosphate type, 4066*e*.
electroplating on metallic, 4148*e*.
entropy of ions in, soly. of salts and, 1241*i*.
equation of state of valence, 4916*c*.
etch figures in differentiating hexagonal and rhombohedral silicon carbide, 8311*i*.
expansion by heat, measurement of, 4066*f*.
extinction angles of β-leonhardite, 3320*f*.
faces (lateral) of, statistical distribution of, 6032*c*
Faraday effect and magnetooptic anomaly of cubic, 5251*e*.
in films, effect of heat on, 4923*c*.
flow effect on, in petrolatum, 4540*c*.
formation of—see *Crystallisation*.
goniometers for—see *Goniometers*.
grain boundaries of, quant. predictions from dislocation models of, 4072*a*.
growing of, from seed, P 7760*f*.
growth in deformed matrix and inclusions in Al, 4918*e*.
growth of, 8787*f*.
dendritic, 6026*i*.
dislocations in, 6027*d*.
of hexa-substituted $C_6H_6$ derivs. on inorg. carrier, 3262*c*.
in ingot Fe, fractography of, 8326*d*.
in metal films on crystals, 7286*a*.
microscopy of, 6498*d*.
of org. compds. on NaCl, 4240*g*.
review on, 3684*f*.
growth (oriented) of org., 6027*i*.
heat capacity of linear ionic lattice, 3700*e*.
heat of polarization in ionic, of NaCl type, 4535*d*.
identification (microchem.) of, transformation of gnomograms in, 6487*a*.
identification of, 6030*a*.
impurities (bivalent) in, theory of, 5252*k*.
inclusions in Al, 7768*f*.
interactions in ferromagnetic resonance, 7278*i*.
intergrowths of oriented and unoriented, limits of laws of, 3317*g*.
ion exchange with, 4534*g*, 6047*e*.
of iron and of $Fe_2O_3$ on Fe, 84*f*.
kinetics of precryst. phases, 4541*a*.
lattice energy of, calcn. of, 8230*f*.
of Co ammines, 2856*a*.
of metallic carbides, 4093*d*.
relation to crystallochem. electronegativities, 8788*b*.
of rock-salt, 2838*a*.
of salts of metals of subgroups of periodic system, 2829*a*.
limits of, 6065*a*.
liquid—see *Liquid crystals*.
Lorentz-Lorenz formula for, generalization of, 3683*b*.
luminescence of, 2515*i*.
macromol., electron microscopy of, 3671*f*.
Madelung potential of ionic lattice, calcn. of, 2838*b*.
magnetic resonance absorption in, colored by irradiation, 6909*e*.
magnetic, spin-inversion of electrons in, 7767*h*.
metal films on, crystal structure of 6483*e*.
mix—see *Solutions, solid*.
mol. packing in, of org. compds., 7773*c*.
naphthalene-deriv. crystn. on inorg., 2484*h*.
neutron diffraction by, 7806*e*.
neutron scattering by paramagnetic, 4106*c*.
neutron scattering in, 4106*b*.
nuclei of—see *Crystallisation*.
optical properties of, of 4-cyclohexyl- and 4-phenylcyclohexanols, 7773*c*.
optics of org., 6105*e*.
orientation of, app. for detn. of, 8748*i*.
of Cu strip, 2558*e*.
of cotunnite, 975*a*.
detn. of, 6510*a*.
of dolomites or limestones, 2905*d*.
with goniometer head, 4917*i*.
of Fe-Si alloys, effect on grain boundary energies, 2557*g*.
in magnesium sheet, rolling and, 7881*h*.
in magnetic field, 10*h*.
of metals under plastic deformation, 4198*f*.
of polycryst. $BaTiO_3$, 4066*i*, 6485*c*.
of quartz in tectonites, 6549*f*.
of recrystd. Be, 2557*i*.
of Tl halides, 6029*f*.
of viscose rayon skin and core, 5954*b*.
oscillation in calcite, 4955*f*.
oscillations in, spectra and, 4575*i*.
photoelastic properties of ionic, 5251*h*.
phys. properties of, enumeration of independent consts. for, 6483*b*.
physics of, C. V. Raman and, 3251*a*.
piezoelec.—see *Piezoelectric substances*.
potential and size of, of $MnO_2$ in dry cells, 1663*e*.
pyroelec.—see *Pyroelectricity*.
reactions of, 8820*d*.
with lamellar structure, 5266*c*.
in petrogenesis, classification of, 2551*i*.
rates of, 8820*d*.
reflections from, measurement of intensity of x-ray, 6509*b*.
refractive indexes of sections of uniaxial and biaxial, nomograph for, 8311*h*.
refractive index of, measurement of, 5652*h*.
with reticular disorder, 8789*ab*.
review on, 1235*d*.
seignettoelec.—see *Seignettoelectric substances*.
selection rules of proper vibrations and term splittings in, 8765*b*.
shape of—see *Crystal form*.
of silver chloride sheets, glide bands in, 7772*g*.
single, of alloy (aged), x-ray diffraction by, 2914*d*.
of alpha brass, slip in, 9003*a*.
of Al, coarsening and recrystn. textures in, 7881*b*.
of Al-Cu alloys, 7886*b*.
of Al, grain boundaries in, 2911*h*.
of Al, recovery from strain, 8325*f*.
of Al, surface imperfections in, 1698*c*.
of Al, transverse bending of, 9003*e*.
of $NH_4H_2PO_4$ as ultrasonic generators, 1233*g*.
anomalies in electron diffraction by, 6880*a*.
of Sb, effect of magnetic field on, 5243*f*.
app. for obtaining and transporting, 7286*e*.
of $BaTiO_3$, 3261*gh*, 4066*d*, 4917*h*.
of $BaTiO_3$, elec. properties of, 4061*d*.
of Cd and Zn, magnetic susceptibility of, 8767*c*.
of CdSb and ZnSb, 3260*h*.
of CdS, elec. and optical properties of, 6031*d*.
of Cd, "thermal hardening" of, 2142*h*.
of chrome alums, magnetic resonance absorption in, 916*g*.
compression of, 2063*b*.
of Cu, Co deposition on, 6063*a*.
of Cu, $Cu_2O$ formation on, 2063*h*.
Cu film of, oxidation of, 6880*f*.
of Cu, plastic deformation of, 83*c*.
of $CuSO_4$, magnetic absorption by, 5244*c*.
of corundum, bend creep and bend strength of, 9402*h*.
electron interference patterns of, at high potentials, 7324*d*.
of Ga, 8781*b*.
growing of, P 6013*a*.
of ice, 8220*b*.
of Fe, acid brittleness of, 7395*f*.
of Fe and Ni, magnetostriction in, 5243*c*.
of Fe, homogeneous yielding of carburized and nitrided, 2558*h*.
of Fe, magnetic resonance absorption in, 4066*h*.
of Fe, strain-aging and yielding of carburized and nitrided, 7881*e*.
of $MnF_2$, magnetic anisotropy of, 8222*i*.
single, of metals, effect of size of, on stress-strain diagram and strength-lowering effect of adsorption, 7768*a*.
of metals, prepn. of, 8787*g*.
of metals, small isolated crystals in, 4072*b*.
of Ni, elastic consts. and internal loss in, 7768*d*.
of paraffin wax, formation in elec. field and dielec. strength of, 2480*d*.
particle size and slip in plastically deformed, 2144*f*.
patterns of, in electron diffraction, 7319*b*.
plastic flow of, 4614*e*.
of quartz, manuf. of, 6026*h*.
of rutile, 1622*h*, 6482*h*.
of salts of Fe group of elements, magnetism at low temps., 2479*h*.
of scheelite, growth of, 4111*i*.
of Ag, effect of surface-active substances on rate of growth of electrolytic, 4584*c*.
of NaCl, kinetics of soln. of, 6054*e*.
of $NaClO_3$, extra reflections from, 6484*c*.
of stearic acid, polymorphic transition of, 6482*d*.
thermomagnetic Nernst effect for, 8221*h*.
of Sn, deformation in solns. of oleic acid, 6028*h*.
of Sn, effect of surface-active substances on deformation of, 8230*c*.
of Sn, supereonductive transition in, 457*h*.
of $WO_3$, 8783*h*.
ultrasonic-wave absorption by, 4535*b*.
of Zn, damping capacity and elasticity of, 83*i*.
of Zn, elasticity and orientation of, 6482*b*.
of Zn, internal friction of, 2482*h*
of Zn, kink bands in, 7882*f*.
of Zn, magnetic susceptibility of, 4066*h*.
size of, of camphor eutectic with naphthalene, effect of stearic acid on, 8832*e*.
catalytic activity and, 6897*c*.
of ceresin in toluene and of paraffin in solar oil at low temps., 2410*h*
in dikes, 6127*f*, 7873*g*
of MgO, during calcination, 3156*e*
of psilomelane and pyrolusite, properties and, 1663*i*.
of ZnS, luminescence with α ray excitation and, 5668*i*.
slip and other properties of metal, 8325*b*
slip of metal, 84*bd*, 3329*c*.
slip planes in, unevenness of, 7767*i*
soundness of, detn. of, 6482*f*
spectra of, 4571*b*, 4575*f*.
in steel at upper yield point, strength and, 9008*i*.
stresses in, relief by solute atoms, 3259*b*
surface area of, measurement by adsorption of gas, 2066*b*.
surface energy of heteropolar, 5653*b*.
surface free energy of, 3260*a*.
surface layers of, 3259*h*.
surface of, anisotropy of, 7871*h*
surfaces of, selection rules for ions in, 7769*b*.
surface structural deviations in ionic, 4072*c*.
symmetry of, effect on limiting vibrations of mol. lattices, 8783*c*.
symmetry of, phys. properties and, 6481*i*
systems of, dispersed structure of, 8828*f*.
thickness of thin, measurement of, 14*b*
topological (dynod) analysis of mol., 920*e*.
twinned, of brass and Cu from annealing, 7887*f*.
of brass from annealing, 7887*g*
of bredigite, 5705*i*.
of chrysoberyl, 8983*d*.
crystn. conditions and, 6032*a*.
of cuspidine, 5706*a*.
of fluorite, 8984*a*.
on geodeforming pyrites, 6116*a*.
of quartz, 4980*d*, 8986*g*.
of rutile, 6117*f*.
of staurolite, 8987*a*.
of topaz, 8986*g*.
of wollastonite, from slag, 8987*b*.
twinning and phys. behavior of colored and colorless quartz, 976*e*.
twinning of, of calcite, 72*h*.
of kernite, 8984*e*.
of pseudobrookite, 3747*h*.
vapor adsorption by org., 2066*h*.

vapor pressure of cube of, edge length and, 5250b.
variation in quartz, 4066a.
vibration in SiC, x-ray reflection by, 4535h.
vibrations in finite linear lattice and Born's cyclic lattice hypothesis, 5251f.
vibrations of infinite linear lattice of two types of particles, 6030e.
viscosity of solns. and, 7299b.
working of, effect on surface structure, 4071i.
x-ray absorption in crystals in interference case, 6509f.
x-ray diffraction by—see *X-rays*.
zinc-sublimation, 6484a.

**Crystal structure.** (*For indexing purposes the expression "crystal structure" has been interpreted broadly to include the structure of mesocrystalline materials whose organisation is not three-dimensional, but which give x-ray patterns indicative of some degree of organisation. See also* Crystal forms; Crystallography; Isomorphism, Polymorphism; "structure of" *under* Molecules; "diffraction of" *under* X-rays; *and specific minerals.*)
of abietic acid and abieto-maleic complex macrocrystals, 8704c.
of acenaphthylene dimer, 6487c.
of acid salts of monocarboxylic acids, 2484f.
of adenine-HCl, 3263a.
of alk. earth nitrites, 3261h.
of alk. earth phosphomolybdates and phosphotungstates, 2537g.
of alloys, 14g.
of alloys and metals and its detn., 7885a.
of alloys (binary) contg. eutectic, 4935g.
of alloys, empirical formulas and, 6880d.
of allylthiourea, 3263a.
of γ-alumina, 3685b.
of γ-alumina and its mixt. with Eu nitrate, 3319c.
of alumina films on Al, 5250i.
of aluminosilicate catalysts, 840i.
of aluminum alloys with Fe and Cu alloys with Au, 9001i.
of aluminum chloride and its basic derivs., 587d.
of aluminum compd. with Co, $Co_2Al_5$, 123a.
of aluminum compd. with Ni, NiAl, 8231h.
of aluminum-Cu alloys, 2147f.
of aluminum dilaurate, 4081f.
of aluminum dilaurate and Napalm, 8170h.
of aluminum-Ni alloys, 6031a.
of aluminum oxide layers on Al, 1234b.
of aluminum soaps, 1584c.
of aluminum solid solns. with elements, 3684g.
of alums, 8036g.
of amino acid derivs. with 2-nitroindan-1,3-dione, 69g.
of o-aminophenol, 4919c.
of aminopyrimidine and purine derivs., 6487c.
of ammonia-Ni(CN)₂-org. compd. complexes, 5753f.
of ammonium chloride and AgI vapors, 7769h.
of ammonium chloride compd. with $CdCl_2$, 1623b.
of ammonium pentachloroiodate, 1236a.
of ammonium Na triphosphates and Ni Na triphosphates, 6103f.
of anodic films on Al and Zn, 6923i.
of anthracene, 4556d.
of anthranilic acid, 8232g.
of anthraquinone, 2484i.
of antimony and Sb-Cs films, 2481i.
of arsenic (condensed), 8787h.
of atacamite and cupric compds., 7772b.
of austenite retained in Fe-C alloys, 4205g.
axial angle 2V in, nomograph for detn. of, 8311h.
of azulene and its homologs, 3262k.
of barium and strontium orthophosphates, 3261c.
of barium borates, 4438k.
of barium cesium copper thiocyanate and $CsBaAg_3(CNS)_5$, 5324k.
of barium chloride, 460c.
of barium dithionate dihydrate, 8932e.
of barium platinate titanates, 1236d.
of barium titanate, 3261gk, 4917k.
of barium titanate, elec. properties and, 7286f.
of d-benzalcamphor, 60
of 1,12-benzoperylene,
of p-benzylideneaminophenol, 2838h.
of beryllium LiNa fluoride, 5253c.
of beryllium oxyacetate, 6033c.
of bismuth arsenate, 918f.
of α-bismuth fluoride, 8282f.
of s-bis(nitramino)ethane, 2839c.
of bis(phenylsulfonyl) sulfide and bis(p-tolylsulfonyl) sulfide, 6881c.
books: Fourier Technique in X-ray Org. Structure Analysis, 2097a; Anorganische Struckturchemie, 3308g; Röntgenanalyse van kristallen, 7830h; Rentgenograficheskoe Issledovanie Struktury Tetranitropalladita Kaliya, 8256g.
of boron-coated Mo and W filaments, 6133i.
of butadiene and butadiene-styrene low-temp. polymers, 8191a.
of butadiene, butadiene-isoprene and isoprene polymers prepd. at low temps., 8725h.
of butadiene low-temp. polymers, 8727c.
of cadmium and Ni dithiocarbamates, 8307h.
of cadmium and Zn antimonides, 3260g.
of cadmium Ni chloride and $MnCl_2 \cdot 2MgCl_2$, 2064f.
of calciferol 4-iodo-5-nitrobenzoate, 2839b.
of calcium aluminates, 1278f, 8937c.
of calcium fluoride films on glass, 4071c.
of calcium silicate and silicophosphate, 4073g.
of β-calcium silicate and $NaBeF_3$, 5253a.
of calcium sulfite hydrates, 3302i.
of calcium uranate and $SrUO_4$, 3710c.
of carbides in Mo steel, 7397g.
of carbides in steels, 7396h.
of carbides (refractory), 3163d.
of ε-carbobenzoxy-α-carboxyl-l-lysine anhydride and polymer, 6488c.
of carbon and coal, 4072f.
of carbon black, 1949g.
of carbon, graphitization and, 4072e.
of carbon monofluoride, 2108a.
of carbon, oxidation and, 26c.
of catalyst from Ni, $ThO_2$ and kieselguhr, 2853c.
of catechols and related compds., 3304b.
of cellulose—see *Cellulose*.
of ceramic materials, 3985i.
of cerium, 8232a.
of cesium and Cs oxides, 2885a.
of cesium chloroargentate (I), $Cs_2AgI_3$, $K_2CuCl_3$, $Rb_2AgI_3$ and $K_2AgI_3$, 7771i.
of cesium chloroplutonate, 3709i.
of choline fatty-acid esters, 7940a.
of chrome yellows, chrome oranges and chrome reds, 4490i, 4491b.
of chromium boride, 3303c.
of chromium hydrides, 3260h.
of chromium oxide (CrO), 5322d.
of chromium(VI) compds., 8785b.
of coal, 8638i.
of coal, coke and graphite, 7661i, 7662d.
of cobalt and Ni ferrates(III), 3304g, 5355b.
of cobalt nitrides, 5322e.
of cobalt phosphide, 2004e.
of cobalt-Pt alloys, 9011f.
of cobalt reduced in H, 2883b.
of collagen, 4041d.
of complex ionic crystals, review on, 2483i.
of copper alloys with Au and Ag, 4618e.
of copper chlorides (basic), 8929h, 8930a.
of copper chromites and Cu-Cr oxide catalysts, 5653h.
of copper complexes with Schiff bases, 4073d.
of copper-Au alloys, 542f.
of copper polished electrolytically, 4900f.
of copper sulfide ($Cu_2S$), 6102c.
of corrosion products, 7399h.
of cotton, 6420h.
crystal habit and, 8229e.
of cytidine, 7773i.
deposition (oriented) of org. mols. and, 1237a.
detn. of, 2863b, 7800k, 8782g.
accuracy of, 4918f, 6485e, 7816e.
ambiguity of, 6078f.
application of method of least squares to x-ray, 4096a.
calcn. for Patterson, 8847a.
calcn. of x-ray structure factors in, 459g.
center of symmetry detn. by x-rays in, 6079e.
of coarsely cryst. metallic phases, 2091c.
by direct Fourier synthesis, phase detn. in, 6079b.
detn. of, with divergent-beam x-ray photography, 1262e.
effect of refraction on, 2863e.
by electron diffraction, 4556g.
electrophotoluminescence in, 6086f.
extension of Banerjee's method for detg. signs of Fourier coeffs. in, 6509h.
extra spots in Laue photographs in, 8875e.
Fourier and new point-diagram synthesis in x-ray, 8858c.
Fourier method of, 7815f, 8874cdfg, 8875ab.
gnomonic projector for x-ray Laue-grams in, 8851g.
implication theory in, ambiguity factor in, 3289b.
implication theory in, Fourier aspects of, 8847a.
inequality method of detg. signs of Fourier coeffs. in, 6509h.
of lamellae, app. for, 1256h.
lattice const. by electron microscopy, 3279g.
by Laue method, 7816b.
measurement and correction of intensities from single-crystal x-ray photographs in, 6509i.
mechanization of calcns. in x-ray, by Fourier analysis, 3288i, 4952g.
of metallic phases, 4055b.
of metals, effect of cold deformation and recrystn. on, 6956c.
method of steepest descents and, 3289c.
multiple Guinier cameras for, 911i.
of noncubic substance, 3709f.
photoelec. app. for evaluation of structure factors, 6470e.
by powder and rotating-crystal methods, 8859a.
powder diagrams with single crystal in, 4566g.
punched cards in, 6509d.
Raman effect in, 2513c.
relation between distributions and corresponding Patterson distributions in, 4566c.
setting of crystals by x-rays in, 6509g.
simplifying calcns. in Fourier method of, with previously established structural information, 4093d.
of single crystals, x-ray counterspectrometer for, 4566f.
subtraction of atom images from a Fourier synthesis in, 4566c.
summation of Fourier series in, 6078d.
table of interplanar spacings for back-reflection region for, 4567c.
with x-rays, 2091a, 4073k.
detn. of, and data for Fe, 4535f.
of dibiphenyleneethylene, 3263c.
of diborides of Cb, Ta, Ti, V and Zr, 8933a.
of diethyl terephthalate, 6485i.
of 2,2'-diiododiethyl trisulfide, 15i.
of 4,6-dimethyl-2-hydroxypyrimidine, 920a.
of 2,6-dinitronaphthalene, 4074i.
of dinitronaphthalenes, 1236k.
of dinitrososulfites, 5241i.
of 3,4-diphenyl-1,5-hexadiene and related compds., 611i.
of dithionates of Ca, Pb and Sr, 2483i.
in electrodeposition, 502b.
of electrodeposits, origin of block, 8906a.
electron emission from metals and, 6492e.
of elements of group VIB, 1622d.
of elements of 5f-series, 6484dfg.
in engineering, 2752g.
factors, projection on reciprocal lattice, 8858g.
of ferroferricyanides, 1677e.
of ferromagnetic foils, 8858k.
of fibers, 4857f.
of films of Al, Cu and Ag, 5653c.
of fluotungstic acids, 1671e.
Fourier-transform evaluation by Fourier synthesis, 9188.
of gadolinium nitride, 5252i.
of gallium compd. with Pr, $PrGa_2$, 8339f.
for glancing angles with Fe x-radiation, 8859d.
of glutaric and pimelic acids, 2838e.
of glycerides, 134d, 7425f.
of β-glycylglycine, 7773g.
of graphite compds. with HF, 2534b.
of gutta-percha, rubber and rubber-HCl and -HBr, 7739b.
of heavy-element compds., 3709h.
of Heusler alloys c ntg. In, 4618g.
of 1,2,3,4,5,6-hexachlorocyclohexane γ-isomer, 3686a,

of hexamethylenediamine-2HBr, 6486c.
of hexamethylenediamine-2HBr and -2HCl, 7773c.
of N, N'-hexamethylene-α, δ-dihydroxy adipamide polymer, 8232g.
of hydrocarbon systems at low temps., 2410g.
of ice, 8229c.
of ice (heavy and light), 5252e.
of ice, structure of water and, 1621a.
indexing powder photographs of, 1261gh, 3709g, 6510a.
of indium hydroxide and Sc(OH)3, 2533a, 4072i.
of inert gases, 3671e.
of insulin, 16d.
of intermetallic compds., 7771b.
of iodides of palmityl- and stearylcholine, 7288a.
ionic refraction increments in, 3683f.
of iron compd., K2FeCl5.H2O, 3301g.
of iron compd., (NH4)2FeCl5.H2O, 3301f.
of iron, compds. with Cr or Mo (FeCr or FeMo), 7882a.
of iron silicide (FeSi), 918i.
of iron(III) chloride, 8782i.
of iron(II) titanate, 2108g.
of iron Zn spinel, 4171f.
of β-lactoglobulin, 1623c.
of lead and of Ag alloys, 6960a.
of lead azide, 6031c.
of lead chromate pigments and PbSO4, 4023i.
of lead fluorides and oxyfluorides, 459i.
of lead oxide (pseudo cubic) of variable compn., 459h.
of lead sulfide deposits on rock salt, 3685f.
of lead thioantimonites, 8936i.
of leather substitutes, 1204g.
of limonin and its solvates, 7773e.
of lubricating greases contg. Ca soap, effect of water and additives on, 4455f.
of magnesia, 6032d.
of magnesium and Zn-V spinels, 4171b.
of magnesium carbides, 1671b.
of magnesium pyrophosphate, 8822g.
of magnetic substances, 1234c.
of manganese dioxide in dry cells, potential and, 1663f.
of manganese oxides (supported), 5654c.
of 2-mercaptobenzothiazole, 6033f.
of mercury chloride addn. compds. with pyridine and pyridine bases, 7868i.
of metallic films deposited on crystals, 7285i.
of metals, 1622c.
in arc-welding seam, 4623f.
on crystal surfaces, 6483d.
in films, 2482d.
of 2-methylnaphthalene, 1237c.
of minerals—see *Minerals;* and the specific minerals.
of mixts. of long-chain compds., 5253d.
models of, blowing bubbles for (Bragg's dynamic), 6029i.
energy levels in simple, 4092g.
polar mols. in, 8770f.
of γ-molybdenum oxide, 4072h.
of molybdenum oxides, 3260i.
of molybdenum oxide system with WO3, 8248f.
of montmorillonite, catalytic cracking activity and, 1554d.
of myoglobins from horse and whale, 3686b.
of naphthols, 2065d.
of naphthylamines, 2064i
of neptunium oxide and U3O8, 7855b.
of nickel arsenide and NiAsS, 4167h.
of nickel compd. with W, Ni4W, 3764g.
of nickel oxide, temp. and, 919a.
of nitric acid and hydrates, 7286e.
of nitrides (ternary), 4170hi.
of p-nitroaniline, 3262d.
of nitryl perchlorate, 460d.
of noble-metal systems, 15a.
normal, imperfections and, 6482g.
number of theoretical connections between lattice structures and quadratic forms of Debye-Scherrer-(Hull) diagrams of cubic symmetry, 3260b.
of nylon, 5311d.
of org. compds., 929a.
of oxide film on metals, 7309e.
of oxides of metals, 1236a.
of palladium catalysts on SiO2 gel, 6062a.
of paraffin wax, control and correlation with dewaxing aids and filter rate, 4455i.
of penicillin and derivs., 4919f.
of penicillins and related compds., 4920h.
periodic system of elements forming ionic, with O, OH and F, 8231d.
phase detn. and values for oxalic acid dihydrate, 919f.
of phenanthrene, 919g.
of α-phloroglucitol, 6881f.
of phloroglucitol diammoniate, 6486h.
of phosphomolybdates and phosphotungstates, 7366a.
piezoelectricity and, 8782f.
of pigments, reinforcing effects in rubbers and, 1593d.
of pimelic acid, 2064g.
of platinum compd., [Pt(NH3)4Cl2]Cl2, 4535i.
of platinum compd., [Pt(NH3)5Cl]Cl3, 7287a.
of platinum on C, effect of heat-treatment on, 1249f.
of polymers, effect on interaction with liquids and on mech. properties and swelling, 8728h.
mech. properties and, 2801b.
mol. structure and, 2071h.
of potassium dinitrososulfite, 8781h.
of potassium fluocobaltate (K3CoF7), K3CuF5 and K2NiF5, 8940d.
of α-potassium hydroxide, 7771d.
of potassium ozonides, 4170b.
of potassium Na tartrate, 4916d, 7771h.
of L-proline, 6488e.
of proteins (globular), 7990c.
of pyridindene derivs., 6488a.
of pyrrhotite, 8934f.
randomness in, 4527a.
of rare earth hydroxides, 2108e.
of rare earth phosphates, 15d.
of rayon, phys. properties and, 6829h.
reactions between solid and gas in relation to, 2065g.
reactions in solids and, 5250g.
of real crystals, 6030b.
review on, 3260b.
of rubber, effect of vulcanization on, 1600a.
of rubidium iodide, 8788g.
of rubidium selenochromate(III), RbCrSi2, KCrSe2.CrSe2 and NaCrSe2, 919c.
of rutile, 6483a.
of samples ground in air and in vacuum, 4056c.
of scandium chloride, TiCl3 and VCl3, 6031h
of selenious acid, 8788e.
of selenium (black), 4197i.
of silicates, optical properties and, 8784b.
of silicon and its oxides, 2837a.
of silicon carbide, impurities and, 2063i.
of α-silicon carbide type 51 R, 8785c.
of silicon films, 6028g.
of silicon monoxide, 6101d.
of silver-As alloy and Ag2S grown on Ag crystals, 4071d.
of silver iodide vapors, 4062g.
of silver nitrate, Ag7NO11, 2484a.
of silver nitride and VN, 5690i, 5691c.
of silver on mirrors, 2387f, 2388b.
of silver sulfide films on Ag, 32e.
of soap and its control, 9492d.
of soap hemihydrates, 5253i.
of soaps (com. and pure), 6434h.
of sodium bromide-NaCl solid solns., 6031i, 8782h.
of α sodium hydroxide, 8232c.
of sodium metaphosphates, 4088f.
of sodium sesquicarbonates, 7771f.
of sodium tetraborate hydrates, 8933d.
of solid solns., 7285h, 8782a.
of soybean proteins and fibers therefrom, 4860h.
of spinels, 1623b, 6032f.
of spinel solid solns. of system MgAl2O4-ZnAl2O4, 8296g.
of strontium aluminate, 1278d.
of strontium laurate, 4536b.
of strychnine selenate and sulfate, 4918c, 5254c.
of sulfanilamide, 7287i.
of sulfonamides and their derivs., 3262f.
superlattices, general theory of quasi-chem. method in statistical theory of, 8787i.
superstructures, 9001g.
of sympathomimetic amines, 8611e.
of d-tartaric acid, 4074h.
of technetium, 918d.
of tellurium dioxide, 8781f.
of tetraaryl compds. of Pb, Si and Sn, 8764d.
of tetracarbon monofluoride, 2107i.
of tetrachlorocyclohexane, 6487d.
of 1,2,3,4-tetraphenylcyclobutane centro-symmetric isomer, 6486a.
of thallium aluminosilicates, 8932d.
of thallium iodate, 3685f.
of thiuram sulfide vulcanization accelerators, 3225h.
of thorium(IV) chloride and UCl4, 7773a.
of tin alloys with transition metals, 6136h.
of α-titanium, and effects of O and N thereon, 7882c.
of titanium chloride, 3261f.
of titanium (ductile), 2565g.
of titanium tungsten carbide, P 3576b.
topological analysis of mol. crystals, 920e.
transformation of axes, 8762e.
of 1,3,5-tris(p-chlorophenyl)benzene and vitamin C, 450i.
of tungsten carbide surface, 6483c.
of tungsten selenides and W sulfides, 5321i.
of tungsten(VI) oxide, 8783i.
of tungsten sulfides, 5273d.
of uranium, 6485b.
of uranium carbides, 3685e.
of uranium compds. with metals, 7770d
of uranium hexachloride, 3710d.
of uranium trioxide and U3O8, P 8109f.
of uranyl fluoride, 3710a.
of uranyl nitrate hexahydrate, 8788i.
of vanadates of heavy metals, 6032i.
of vanadium oxide compds. with bivalent basic oxides, 4172a.
of vanadium spinels, 6519c.
vectorial properties of crystal lattice relation to crystal morphology, 4071a
of vinyl alc. polymer, 16b.
of virus of tomato bushy stunt, 919h
of yttrium hydroxide, 2064d.
of zirconium boride, ZrB2, 6898e.
of zirconium oxysulfide, 3261b.

**Crystal triodes.** See *Transistors.*

**Crystal violet,** amino acid reduction by, 7136b.
anhyd. cryst., and its double salt with Zn chloride and nitro hydrocarbon, I 3206b
cornea tolerance to, 3110g
in disinfection of skin, 3525d
effect on benzidine-peroxidase color, 7521e.
effect on respiration of yeast, effect of spermine, agmatine, arcaine, cadaverine and streptomycin on, 7134b
nitration of, 2982a.
pyridine analogs of, 4096d
spectrum of, in Na silicate soln., 2093g
as stabilizer for neoprene, P 3519f.

**Crystox,** effect on mosquitoes, 3965h.

**CTAB.** See "hexadecyltrimethyl — bromide" under *Ammonium compounds, substituted.*

**Ctenicera aereipennis destructor** and/or **Prairie grain wireworm,** control in potatoes, 2726h.

**Ctenocephalides felis** and(or) **Cat flea,** biol. requirements of, 1871h

**Cubanite,** from Karabash, U S S R., 6116e.

**Cubé.** (See also *Lonchocarpus.*)
in citrus-blackfly control, 3555h.
in elm-leaf-beetle control, 1897h.
in European-corn-borer control, 1896e.
in Mexican-bean-beetle control, 810e
in western-raspberry-worm control, 9341g

**Cucumbers.** (See also *Pickles.*)
amino acids in, 3534g.
bacterial-metabolism-inhibiting substances in, 9165b.
carotene and vitamin C in, 3536b.
cryolite residues and downy-mildew control on, 9329h.
DDT effect on, 1520h.
DDT toxicity to, 5148a.
effect of aerosols of DDT, Et4P4O10 and parathion on, 1523f.
fungicides for, 6775d.
lactic fermentation of, effect of bacteriophage, antibiotics and Eu on, 4726b
microelements in, 9289b.
mottling on, etiology of, 6704e.
pectins of Indian, 7156b.
pest control on, 7178i.
photosynthesis by, 2281i.
red spider control on, 807b, 811f.
vitamin B1 in, 6753h.
vitamin C in, 5511b.
wilting coeff. of, 4801f.

**Cucumis sativus.** See *Cucumbers.*

**Cucurbita.** (See also *Gourds; Pumpkin; Squash.*)
oils of—see *Oils.*
*piriformis,* seed treatment with colchicine, 6287a.

**Cucurbitaceae, Cucurbits,** downy-mildew control on, 2725d.

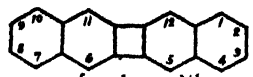
fungicides for, 9327*g*.
fungicides for, Cu compds. as, 4411*i*.
fungus control on, 7178*b*.
globulins of seeds of, 5450*i*.
vitamin B changes in leaves of, during development, 5456*f*.
Culex. See *Mosquitoes*.
**Culture media.** (*Culture media for specific bacteria, as* Mycobacterium tuberculosis, *are indexed only under the names of the organisms.*)
agar agar-replacing, 275*i*.
analysis for Cu and Fe in, prepd. by enzymic digestion of muscle protein, 4321*e*.
casein (devitaminized) for, P 8072*f*.
in disinfectant testing, 274*b*.
for ergot, 3959*h*.
keratin hydrolysis products for, P 6764*h*.
for lactic-acid streptococcus, abnormal milk as, 1490*c*.
pectic acid-salt gels, P 5887*i*.
starch-contg., 274*h*.
sulfur-contg., effect on ellipsoidal yeasts, 1906*b*.
tetrathionate-enriched, 8000*g*.
for tobacco microörganisms, 1910*i*.
**Cumaldehyde** (*p-isopropylbenzaldehyde*), azine (mono-) with naphthalic anhydride, 2982*g*.
hydrazones and their derivs., 6591*h*.
prepn. of, 6182*h*.
**Cumamide, *N*-(phenylsulfonyl)-,** P 8622*b*.
Cumbu. See "pearl" under *Millet*.
**Cumene** (*isopropylbenzene*), 6583*d*.
alkylation (long-chain) of, with $C_5H_4$, P 6057*g*.
bromination of, velocity of, 6583*f*.
chain-transfer coeffs. for styrene in, 5731*h*.
chloro derivs. of, 6583*i*.
compression and freezing under pressure, 4067*e*.
dehydrogenation of, P 680*e*, 4234*c*, 5275*f*.
effect of oscillating magnetic field on, 6087*e*.
extn. from nonane with liquid-$NH_3$ solns., P 3192*e*.
formation in pyrolysis of polystyrene, 2810*g*.
formylation of, under pressure, Gattermann Koch reaction in, 6182*f*.
herbicidal action of, 1895*e*.
history of nomenclature of, 2923*g*.
hydrogenation of, equil. in, 8246*h*.
intermol. condensation of, P 1440*c*.
manuf. of, P 680*d*, P 3844*i*, P 4005*d*, P 5040*a*.
metalation of, 3346*b*.
prepn. of, 1732*f*, 4638*b*, 7916*c*.
thermochemistry of, 8651*a*.
toxicology of, 5514*d*.
as ultraviolet-light filter, 944*i*.
vapor pressure of, 5187*g*.
**Cumene, *p*-amino-.** See *Cumidine*
**—, 3-(chloromethyl)-4-methyl-,** textile assistant from, P 4408*h*.
**—, 3,4-dichloro-,** as scavenger in leaded gasoline, P 8667*g*.
**—, *p*,α,β,β,β,β′,β′ - heptachloro-,** 6584*b*.
**—, *p*,α,β,β,β,β′(and *p*,α,β,β,β′,β′)-hexachloro-,** 6584*a*.
**—, *p*,α,β,β,β′,β′-hexachloro-,** P 6231*b*.
**—, hexahydro-.** See *Cyclohexane, isopropyl-*.
**isopropyl-.** See *Benzene, diisopropyl-*.
**, *m*-methyl-.** See *m-Cymene*
**, *o*-methyl-.** See *o-Cymene*.
**, *p*-methyl-.** See *p-Cymene*.
**—, *p*,α,β,β,β,β′,β′,β′-octachloro-,** 6584*b*
**—, pentachloro-,** as synergist for nicotine, 5893*h*.
**—, *p*,α,β,β,β,β′-pentachloro-,** 6583*i*, 6584*a*.
**—, α,β,β,β′,β′-pentachloro-,** 6584*c*.
**—, *p*-(1,2,2,2-tetrachloroethyl)-,** P 8399*g*.
**—, vinyl-.** See *Styrene, isopropyl-*.
**ψ-Cumene.** See *Pseudocumene*.
**2,5-Cumenediol.** See *Hydroquinone, isopropyl-*.
**Cumene hydroperoxide*,** as initiator and modifier in oxidation-reduction polymerization of butadiene and styrene, 5987*g*.
as oxidizing agent in polymerization of butadiene with styrene in reduction-oxidation systems with Fe salts, 8723*f*, 8727*f*.
**m-Cumenesulfonic acid, 5-amino-6-hydroxy-,** azo dye from, P 9461*e*.
**Cumenol.** See *Phenol, isopropyl-*.
**Cumic acid** (*p-isopropylbenzoic acid*), from cumaldehyde, 6182*h*.
esters, as rotenoid solvent, P 350*e*.
**——, 2-acetyl-α-chloro-, and semicarbazone,** 6595*g*.
**——, α-chloro-,** 3799*g*.
**——, hydroxy-,** 7917*e*.
**Cumidine** (*p-isopropylaniline*), prepn. of, 6587*b*.
stabilization of, P 251*f*.
**ψ-Cumidine.** See *Pseudocumidine*.
**Cuminaldehyde.** See *Cumaldehyde*.
**Cumin oil.** See *Oils*.
**Cuminyl alcohol, α-pyridyl-.** See *Pyridinemethanol, α-p-cumyl-*.
**Cummingtonite,** formation of, in S. Dak., 76*e*.
**ψ-Cumohydroquinone.** See *Pseudocumohydroquinone*.
**ψ-Cumoquinone.** See *Pseudocumoquinone*.
**Cupferron,** aluminum deriv., ignition temp. for, as analytical ppt., 8305*c*.
in analysis, 6103*g*.
in analysis of Group III cations, 7862*c*.
in blackrot control of sugar-beet seedlings, 7175*i*.
as chromatographic adsorbent for cations, 8973*b*.
gallium deriv., min. temp. for formation of, 8952*e*.
rotproofing value in duck, 5958*b*
**Cupolas,** alloying of gray Fe in, P 8347*f*.
charge time in, calcn. of, 4989*f*.
control of stack emissions from, 4194*b*.
dolomite-brick use in, 3581*d*.
iron smelting in, 2554*h*.
operation in casting process—see *Casting process*.
operation with anthracite, 9411*g*.
oxygen-enriched-blast use in, 4989*d*, 5713*c*.
for rock-wool manuf., P 103*i*, 4790*d*, P 6338*a*.
for scrap remelting, P 4209*i*
slag—see *Slags*.
**Cuprammonium compounds.** See *Copper-ammonia cellulose; Copper compounds*.
**Cuprenox.** See "basic" under *Copper chlorides*.
**Cupric, Cuprous, etc.** See *Copper*, etc.
**Cupriphotometry,** 519*f*.
**Cuprite,** detection in Cu ores, 5607*g*.
of Italy (Calabona), 6939*b*
morphology and structure of, 3747*g*
**Cupro,** as fungicide in *Cercospora beticola* control, 3134*b*
**Cuprocide.** See "$Cu_2O$" under *Copper oxides*.
**Cupro-K.** See "basic" under *Copper chlorides*.
**Cuprophane,** as membrane for detn. of electrolytic $H_2O$ transference, 8245*a*
**Cuprouranite.** See *Torbernite*.
**Cuprox.** See "basic" under *Copper chlorides*
**Curacite,** as detergent additive, 6436*d*
**Curare,** 3938*g*.
alkaloids, 2626*a*.
alkaloids of calabash, 1155*c*
antagonism by Congo red and related compds., 3102*g*
assay of, 3973*b*, 8612*i*.
central nervous system responses and, 9262*e*.
cholinesterase inhibition by, 9103*b*
convulsant response to, effect of eserine, prostigmine and mecholyl on, 9260*i*
effect of purified on heart, 315*c*
effect on axonal conduction and synaptic transmission, 9261*h*.
on cortical responses to afferent stimulation, 9261*d*.
on fast and slow muscles, 5872*h*.
on metabolic action of 2,4-dinitrophenol and thyroxine, 5863*a*.
on nerve and muscle excitability, 8053*i*.
on nerve phase-boundary potentials, 8527*b*.
on NaCNS sensitization of muscle to K, 8056*d*.
on spermatozoa of batrachians, 5873*h*.
effects of, prolongation of, and anticurarizing action, 3103*e*.
electroencephalogram and, 9260*c*.
gastric-secretion depression by, 7113*b*.
histamine-liberating action of, 8558*i*.
natural and synthetic, 9378*c*.
NU 683 effect on action of, 7132*b*.
pharmacology of, 5497*h*.
potassium-ion reaction with, at motor end-plate, 766*a*.
prepns., P 3153*b*.
prostigmine antagonism to, 4373*d*.
purification of tubo-, P 3153*b*.
reviews on, 361*g*, 3976*f*, 5871*c*, 5906*g*, 9261*g*, 9363*b*, 9378*c*.
toxicity of intramuscular and oral, 8527*h*.
**Curarelike substances,** P 5155*g*, 5406*f*.
ammonium compds. of benzhydryl ether derivs., P 5046*b*.
ammonium compds. (quaternary), 1486*h*, 6366*b*, 6590*d*, 8058*i*, 8099*g*.
atropine derivs., 3929*c*.
bis[trimethylammonium compds.], 6737*c*.
bis(trimethylammonium)decane and pentane diiodide as, 3525*d*.
chem. constitution and activity of, 3407*g*, 3408*c*, 4267*e*.
effect on denervated and normal effectors, 5872*c*.
effect on muscle and sympathetic ganglia, 5504*e*.
from *Erythrina africana*, 3148*h*.
from *Geissospermum laeve*, 9380*h*.
*N*-methyloxyacanthine iodide as, 3103*i*
pharmacology of, 5497*h*.
polyesters of trialkyl(2-hydroxyethyl)-ammonium compounds, 2190*d*.
polymethylene bis-quaternary ammonium salts, 2703*c*.
reviews on, 5871*c*, 9261*g*, 9378*c*.
synthesis of, 9363*c*.
tri(diethylaminoethoxy)benzene triethyliodide as, 5501*g*.
**Curcas oil.** See *Oils*.
**Curculio caryae** and(or) **Pecan weevil,** control of, 9330*a*.
**Curd.** (See also *Casein; Cheese; Milk*.)
in butter, and effect of washing thereon, 8568*h*.
elasticity of rennet, effect of pasteurization and cooling on, 4394*c*
elastic properties of rennet, 4393*h*.
storage of, acidity of ghee and, 9283*e*.
**Curd, Francis Henry Swinden,** obituary, 5239*a*.
**Curie point,** of barium titanate, 4917*i*, 6485*c*.
of barium titanate mixts. with $SrTiO_3$, 2054*c*.
of copper-In-Mn alloys, 4618*f*
dielec. const. of ferromagnetic ferrite at magnetic, 5244*e*.
of iron alloys and Ni, 6961*d*.
of iron carbide modifications, 3699*h*.
of iron(III) oxide, 8933*i*, 8934*f*.
order-disorder reactions and, 6959*d*.
of palladium hydride, 8768*i*.
pressure and, 8783*i*.
reaction speeds near, 6018*e*.
**Curium,** 2083*g*.
metabolism of, 3098*b*.
**Curling factor,** produced by *Penicillium janczewskii*, identity with griseofulvin, 7543*i*, 9164*c*.
**Currant aphid.** See *Capitophorus ribis*.
**Currants** and(or) **Ribes,** *Dasyneura tetens* control on black, 807*c*.
gooseberry-fruit-worm control on, 9328*i*.
jam from red, effect of pectins on, 3536*g*.
juice of black, 5510*d*.
juice of black, Al and Al-alloy containers for, 1877*g*.
juice of black, vitamin C in, 3944*i*.
vitamin B changes in, during growth, 8461*f*.
vitamin C in preserved black, 2709*d*.
wines from, in Pacific Northwest, 8606*f*.
**Current.** See *Electric current*.
**Curtius reaction,** in polymerization of triglycine, 5743*c*.
**Curtius rearrangement.** See *Rearrangements*.
**Curves,** graphical study of metallurgical equil., 4931*h*.
in inorg.-compd. systematization, 6898*c*.
probability paper for, in estg. deviation of distributed textile test data, 5191*c*.
surface-fitting in three variables, 6015*f*.
titration, construction of, 5265*g*.
**Cuscohygrine** (*1,3-bis(1-methyl-2-pyrrolidyl)-2-propanone*), synthesis of, 4256*h* 9064*i*
**Cushing's disease,** in diabetes mellitus, 17-hydroxycorticosterone in urine in, 302*a*.
glucose tolerance in, 8424*g*.
**Cusparine,** spasmolytic effect of, 3527*i*.
**Cuspidine,** from dolomite contact skarns, Broadford, Skye, and its synthesis, 5706*a*.
**Custard apple.** See *Annona; Papaw*.
**Custerite,** identity with cuspidine, 5706*b*.
**Cutch.** See *Catechu*.
**Cuticle.** (See also *Epithelium; Skin*.)
arthropod, 6746*h*.
insect, 9273*b*.
water-protecting properties of, 6043*b*.

**Cutin**, in rhubarb varieties, 9383*h*.
**Cutlery**, electroplating on forks and spoons with Ag and Cr, 2098*f*.
**Cutting fluids**. See *Lubricants*.
**Cuttle-fish oil**. See *Oils*.
**Cutworms**, control on apricots and peaches, 1522*h*.
control on celery, 346*d*.
**Cyamopsis psoraloides**, in Hawaii, 9292*f*.
**Cyanamide** ($CNNH_2$). (See also *Calcium cyanamide*.)
anion-exchange resin from acrylonitrile, polyamine and, P 7162*h*.
carbamide structure of, 1074*d*.
condensation products of, or its derivs. with HCHO for improving nylon dye affinity, P 2442*i*.
condensation products of, with HCHO, complex with $Na_2WO_4$, for fireproofing, P 3210*a*.
condensation products of, with phenols, P 2469*g*.
condensation with HCHO, textile raising by, P 9476*h*.
derivs., reaction with guanidine derivs., 9035*i*.
effect on pecan leaves, 2287*f*.
equil. with cyanide, 8930*d*.
hydrolysis of, catalysis by $HgSO_4$, 1248*i*.
hydroxyalkyl derivs., condensation products with aldehydes, for dye fastness improvement, P 3206*d*.
labeled with $C^{14}$, 5007*b*.
labeled with $C^{14}$, synthesis of, 7814*g*.
manuf. of, P 825*b*, P 868*e*, P 2380*c*, P 5556*c*.
melamine from, P 699*e*.
metal derivs., review on, 3739*h*.
reaction with streptamine, 6579*i*.
reaction with thiourea derivs. in presence of a dethionating agent, P 1799*d*.
in weed control in vegetables, 9352*a*.
**Cyanamide**, (*p*-**acetamidophenyl**)-†, 5014*b*.
**benzyltriphenylmethyl**-, 4645*b*.
**bis**(**2-chloroethyl**)-, 2927*b*.
**butylmethyl**-, 9036*b*.
(**2-chloroethyl**)-, 2946*a*.
(**3,4-dihydro-3,4-dioxo-1-naphthyl**)-†, 1383*e*.
**isopropylmethyl**-, 9036*a*.
**phenyl**-. See *Carbanilonitrile*.
**sulfanilyl**-. See *Sulfanilamide, N*¹-*cyano*-.
**Cyanase**, 2246*e*.
**Cyanates**, ions (neg.) of, 8848*a*.
**Cyanhemoglobin**. See *Cyanohemoglobin*.
**Cyanic acid**. (See also *Isocyanic acid*.)
distillation of, from animal tissue, 3864*h*.
distillation of, from aq. solns. of NaCNO, 2583*a*.
free energy of ionization of, 2075*b*.
reaction with $NH_3$, mechanism of, 6896*i*
salts, effect on protein stability, 5062*i*.
**Cyanide process**. (See also *Gold, metallurgy of; Silver, metallurgy of*.)
char use in, P 8344*d*.
hydrogen-ion concn. control in, 78*c*.
**Cyanides**. (*Organic cyanides are indexed either as nitriles* [*or as in the case of acids and aldehydes*] *as cyano derivatives. See also* Alkali metal cyanides; Cyano compounds; Nitriles; Sodium cyanide; *etc.*)
anoxia from, effect on adrenal gland, 3931*c*.
bonds in, 8764*a*.
carbon detn. in, 8306*h*.
competition with histidine in complex formation with Co, 7856*d*.
complex—see also *Ferricyanides; Ferrocyanides; Thiocyanates*.
complex, with Hg compds., P 3837*e*.
detection of, in alk. solns., 8956*a*
in KCNS and $NH_4CNS$, 5539*b*.
in wines, 2733*d*.
detn. of, 2546*i*, 4603*f*.
in Cd plating solns., 4072*h*.
in electroplating baths, 961*g*.
in plant materials, 6110*d*.
in Ag electroplating baths, 8903*i*
diazo, 595*d*.
dust contg., in gas mains, 8119*f*.
effect on glycine concn. by diaphragm, 9120*c*.
on glycogenolysis by phosphorolysis and by hydrolysis with amylase, 5864*i*.
on oxidation rate of ferrous ions, 1246*c*.
on photochem. aftereffect in decompn of $H_2O_2$ by $K_4Fe(CN)_6$, 6088*a*.
electroplating solns. contg., analysis and control of, 7851*f*.
electroplating with, carbonate removal from solns. for, 6520*g*.
equil. with cyanamide, 8930*d*.
in food and water as causative agent for poliomyelitis and paralysis, 1101*c*.
formation in animal organism, effect of cysteine on, 3498*f*.
heart respiration inhibition by, 9210*i*.
ions (neg.) of, 8848*a*.
manuf. from HCN from coke oven gas, 7666*g*.
oxidation by I, potentials of systems and equil. consts. of ions reacting during, 2121*a*.
poisoning by, 7142*g*.
polymerization activation in butadiene by, P 7258*a*.
reaction with chlorohydrins, P 3446*f*
reaction with S compds. in viscose, 9439*i*.
reducing properties and oxidation by permanganates, 2076*b*.
sodium dithionite effect on, rhodanese action on, 4709*b*.
sodium thiosulfate antagonism to, 8412*c*.
wastes contg., decompn. by electrolysis, 2099*b*, 6924*c*.
effect on sewage treatment, 336*b*, 3125*d*, 8586*e*.
electrolytic oxidation of, 6924*b*.
treatment of, P 3126*f*, 6344*g*, 6924*e*, 8903*g*.
**Cyanidin** (*cyanidin chloride, 3,3′,4′,5,7-pentahydroxyflavylium chloride*), in cacao, 8011*a*.
in flowers in relation to mutation and climate, 3068*f*.
3-gentiobioside—see *Mecocyanin*.
**Cyanin chloride**, adrenaline potentiation by, 3104*g*, 5116*h*.
**Cyanine***, antibacterial properties of, 8444*d*.
**Cyanine dyes**. See *Dyes*; and "sensitizers for" under *Photography*.
**2,2′-Cyanine iodide**, **1,1′-ethylene-***, P 7845*b*.
**2,4′-Cyanine iodide**, **1′,1′-trimethylene-bis**(**1-ethyl-***, P 3737*a*.
**Cyanines**. (See also *Dyes; Hemocyanins; Phthalocyanines*; etc.), 851*h*.
in *Australorbis glabratus* control, 9352*c*.
synthesis of dequaternized, 8291*f*.
**Cyanite**. See *Kyanite*.
**Cyano** (*free radical*), heat of formation of, 6479*d*.
**Cyanochromates(III)**, chromium thermal exchange in solns. contg., 4967*c*.
**Cyano compounds** (*cyanogen compounds*). (See also *Cyanides; Nitriles*.)
effect on oxidation rate of ferrous ions, 1246*c*.
formation from amino acid in chloramine -T poisoning, 5114*h*.
nitrosyl complexes, 3303*h*.
for paper manuf., 4459*i*.
**Cyanoethylation**, 7411*d*.
of α-acylsuccinic acid esters, P 2634*i*.
of amines and arsines, 8351*e*.
of diamines, P 5414*e*.
of β-keto esters and ketones, 2582*d*.
of malonic acid derivs. and of β-oxo esters, P 4689*g*.
of mesityl oxide, 6578*e*.
of methylene (reactive) compds., P 3446*g*.
of *s*-trithiane 1,3,5-tris(dioxide), P 5427*e*, P 6674*b*.
**Cyanoferrates(II)**. See *Ferrocyanides*.
**Cyanoferrates(III)**. See *Ferricyanides*.
**Cyanogen**, combustion of, 7663*d*.
combustion of, effect of $H_2S$ on, 6053*i*.
combustion of, inhibition of C formation in, by $SO_2$, 4145*a*.
detection in foods, 9273*g*.
in producer gas and its detn., 4833*c*.
reaction with ClF, $ClF_3$ or F, 6793*e*.
reaction with phenols, 1035*d*.
sewage treatment with activated sludge in presence of, 336*b*.
**Cyanogen** (*free radical*), from combustion of cyanogen, 4145*a*, 7663*e*.
in comets, 490*i*, 938*e*, 2509*a*, 3711*e*, 5662*g*.
spectra bands of, in spectra of rare earth oxides, suppression of, 5337*g*.
spectrum of, 939*i*, 7338*h*.
in stars in Cygnus, 939*d*, 7334*g*.
in stars of classes B and O, 7335*b*.
in stars of classes R and N, 3711*f*.
**Cyanogen bromide**, hydrolysis of, kinetics of, 6496*i*.
microwave spectroscopy of, 4141*a*.
microwave spectrum of, 1658*a*.
potential function of, calcn. of interaction terms in, 8765*c*.
**Cyanogen chloride**, hydrolysis of, kinetics of, 6496*i*.
microwave absorption by, 8888*h*.
microwave spectrum of, 1658*a*.
polymerization of, P 2381*a*.
potential function of, calcn. of interaction terms in, 8765*c*.
reaction with *N*-derivs. of 2-aminoethanol, P 252*e*.
reaction with sodium alcoholates, 9034*h*.
spectrum of $CNCl^{35}$, 8870*b*.
**Cyanogen compounds**. See *Cyano compounds*.
**Cyanogen fluoride**, prepn. of FCN and trimer, 6793*d*.
**Cyanogen group**. See *Cyano group*.
**Cyanogen halides**, hydrolysis of, kinetics of, 6496*h*.
**Cyanogen iodide**, equil. consts. during oxidation of cyanide by I, 2121*b*.
microwave spectroscopy of, 4141*a*.
microwave spectrum of, 1658*a*.
potential function of, calcn. of interaction terms in, 8765*c*.
reaction with $HgI_2$, 6793*d*.
**Cyano group**, bonds in, 8764*a*.
detn. of, 3304*a*.
effect on polymer-liquid reaction, 2461*f*
effect on reaction rate of $OsO_4$ with aromatic compds., 8375*b*.
labilization of trans-group in complex by, 2854*g*.
parachor of, 2057*g*.
**Cyanohemoglobin**, isomorphous transformation from oxyhemoglobin, 7538*g*.
**Cyanohydrins**, acetylation of, 564*a*
of cycloalkanones, dissocn. of, 7936*g*
esters, P 2631*g*.
manuf. of, P 1434*i*, P 3446*e*, P 6647*g*
as polymerization inhibitors for unsatd nitriles, P 2220*e*.
pyrolysis of, P 666*h*.
reaction with liquid $NH_3$, 3409*e*.
stabilization of, during distn. with I, P 2223*i*.
**Cyanol**, binding by nerve cells, duration of stimulation and, 742*b*.
**Cyanomanganates(II)**, polarography of, 4595*b*.
**Cyanophyceae**. See *Algae*.
**Cyanosis**, from nitrates in water supplies 7165*b*, 8077*f*.
**Cyanuric acid**, azo stilbene dyes from, P 4473*d*.
formation of, during prepn. of urea, 2946*d*.
infrared Christiansen filter effect in 1657*f*.
melamine from, P 698*h*.
——, **trithio**-, anion-exchange resin from tetraethylenepentamine and, P 5517*e*
**Cyanuric chlorides**, anthraquinone dyes from, P 1575*h*.
azo dyes from, P 2440*b*, P 2780*b*, P 4472*afh*, P 4479*abcdefghi*, P 4480*b*, P 4866*h*, P 5195*gi*, P 5196*ab*, P 5590*i*, P 5963*efgh*, P 7234*i*, P 7235*dl*, P 7703*b*
azo stilbene dyes from, P 4864, P 4865*dfg*, P 5950*d*.
manuf. of, P 2381*a*.
reaction products with aryl sulfonic acids as mothproofing agents, P 4422*f*
reaction with Na alcoholates, 9034*h*.
stilbenedisulfonic acid dyes from, 5965*efghi*, P 5966*ab*.
stilbene dye from, P 5198*a*.
**Cyanuric halides**, anthraquinone dyes from P 1575*g*.
azo dye from, P 5194*e*.
disazo stilbene dyes from, P 4862*b*, 4863*b*.
**Cyanurotriamide**. See *Melamine*.
**Cybium**, oils of—see *Oils*.
**Cycad**, lactic acid manuf. by fermentation of seeds of, P 9362*b*.
**Cyclamen**, adsorption of org. substances by leaves of, plant respiration and, 1084*c*.
**Cyclamen mite**. See *Tarsonemus pallidus*
**Cyclanes**. See *Cycloalkanes; Naphthenes*.
**Cyclanols**. See *Cycloalkanols*.
**Cyclanones**. See *Cycloalkanones*.
**Cyclenes**. See *Cycloalkenes*.
**Cyclic acetals**. See *Acetals*.
**Cyclic compounds**. (*For a classified list of the parent ring systems represented in this index, see the* Index of Ring Systems *on pages 10023-7 of the* Introduction.) (See also *Heterocyclic compounds; Hydroaromatic compounds; Ring; Ring closure*.)
**anilinomethylene and aryliminomethyl derivs.**, P 8692*f*.

bi-, halo derivs., P 688*f*.
bi-, with polymembered ring, validity limit of Bredt's rule for, 7907*b*.
chem. constitution and phys. properties of, 2955*ek*.
chlorinolysis of aromatic, P 4296*d*.
compressibility and ultrasonic velocity in, 4531*i*.
condensation products of aliphatic, with hydroxyaromatic compds., catalysts of sulfonated, in sapon., P 2793*h*.
in const.-vol. polymerization, 4048*c*.
effect on binary azeotropes, 2834*g*.
macro-, 2374*c*.
fatty acid transformation to carbinols, 1581*a*.
in perfumery, 1909*i*.
synthesis of, 163*f*.
meso-lonic, 7479*e*, 7480*d*.
nomenclature of, designation of "extra" H in, 4909*e*.
from olefins, 3776*h*.
oxidative ring cleavage of, 2175*i*, 2176*abc*.
poly-, electronic structure of, carcinogenesis and, 9234*e*.
metabolism of, 8505*i*.
in perfume chemistry, 6365*a*.
structure and synthesis of, 2610*d*.
synthesis of, 208*g*, 1333*h*, 3829*ag*.
in polymer-pyrolysis products, 2810*g*.
synthesis of, related to steroids, 2585*i*.
**cyclic hydrocarbons**. See *Hydrocarbons*.
**cyclic ketones**. See *Cycloalkanones; Ketones*.
**cyclic peptides**. See *Peptides*.
**cyclitols**, 2175*d*.
oxidations and reductions of, 9122*i*.
**cyclization**. See *Ring closure*.
**cycloaliphatic compounds**. See *Hydroaromatic compounds*.
**cycloalkadienes**, polymers and $P_2S_5$-treated polymers, as lubricant additives, P 4515*d*.
**2-Cycloalkanediols**, P 6229*i*.
**Cycloalkanes**. (See also *Naphthenes*.)
chain opening of, on $Al_2O_3$ catalysts, 1250*e*.
chloro derivs., reaction with $H_2C{:}CCl_2$, 3372*d*.
crit. temp. cube additivity for, 7277*d*.
dehydrogenation of, adsorption coeffs. in, 1731*e*.
dehydrogenation of, kinetics of, 1732*a*.
extractive distn. from naphthenic gasoline and isomerization of, hydroaromatic cycloparaffins by, P 3605*f*.
formation from terpenes on active C, 3657*c*.
halo derivs., reaction with $C_2H_4$ and with its halo derivs., 3371*h*.
isomerization of, 157*e*.
magnetic rotation of, 8839*a*.
in Mirzaan gasoline 95–122° fraction, 4838*i*.
oxidation of, P 2225*i*, P 3842*b*.
oxidation (partial) of, and their halo derivs., P 5422*b*.
in petroleum (Ponca) fraction, 5176*c*.
prepn. of, 6185*d*.
prepn. of, by Grignard reaction, 3773*i*.
as reaction modifiers in paraffin isomerizations, P 3833*b*.
reaction with $NH_3$ to give nitriles, P 3439*c*.
with halo olefins, P 4693*g*.
with $N_2O_4$, P 4693*i*.
with polychloro ethylenes in the presence of peroxides, 9024*e*.
as solvents, 3118*f*.
stereochemistry of, 2961*ae*, 2962*dh*.
strain in, 4059*i*.
thermochemistry and thermodynamics of, 7215*i*.
**Cycloalkanols, and acetates**, 3799*a*, 6988*d*.
amino, stereochemistry of, 3372*g*.
nitriles, P 4693*i*.
polymembered, and their acetates and carbanilates, 3799*b*.
1-substituted, oxidative fission of, 3365*g*.
**Cycloalkanones**, 2-acyl-2-(4-cyanobutenyl), P 6230*i*.
2-acyl-2 (2-cyanoethyl), P 7040*f*.
2-acyl, reaction with acrylic acid esters, P 5417*a*.
chem. constitution of, and its effect on cis-trans isomerism, 2961*e*.
cyanohydrins, dissocn. of, 7906*g*.
2-hydroxy, hydrogenation of, P 6229*i*.
oxidation of, 2176*a*.
oximes, isomerization of, 5400*a*.
**Cycloalkenes**, 1,2-dichloroperfluoro, P 3844*d*.
oxidation of, 2173*b*.
prepn. of, by Grignard reaction, 3773*i*.
1-substituted, oxidative fission of, 3365*g*.
**Cycloalkylation**, tetrafluorocyclobutanes by, 3370*c*.
**Cyclobutadibenzene**,



derivs., 3796*c*.
formation in hydrazobenzene rearrangement, 3810*a*.
**1,3-Cyclobutadiene**, and derivs., 3796*c*.
strain in, 4059*i*.
**Cyclobutadinaphthalene**,

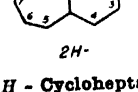


[1,2-*b*, 3,4-*b'*]

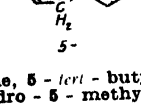
**Cyclobuta[1,2-*b*, 3,4-*b'*]dinaphthalene-5,6,11,12-tetrone, 5a,5b,11a,11b-tetrahydro-**, 2985*c*.
——, **5a,5b,11a,11b-tetrahydrodimethyl-**, 2985*c*.
**Cyclobutane**, derivs., 586*d*, 3369*f*.
derivs., spectra of, 8274*h*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
prepn. and Raman spectrum of, 5309*e*.
prepn. of, 3796*a*.
thermodynamic properties of, 2501*b*.
**Cyclobutane, acetyl-**. See *Ketone, cyclobutyl methyl*.
——, **3-allyl-1,1,2,2-tetrafluoro-**, P 4295*e*.
——, **bromo-**, 3796*b*.
——, **1-bromo-1-(bromomethyl)-**, 586*f*.
——, **1-bromo-1,2,2,3,3,4-hexafluoro-**, 7407*c*.
——, **1-bromo-2-methylene-**, 586*e*.
——, **1-bromo-2,2,3,3-tetrafluoro-1-vinyl-**, P 4295*e*.
——, **3-(3-buten-1-ynyl)-1,1,2,2-tetrafluoro-**, P 4295*e*.
——, **1-chloro-1-ethyl-2,2,3,3-tetrafluoro-**, 3371*d*.
——, **3-(chloromethyl)-1,1,2,2-tetrafluoro-**, 3370*f*.
——, **1-(chloromethyl)-2,2,3,3-tetrafluoro-1-methyl-**, 3370*f*.
——, **3-chloro-1,1,2,2-tetrafluoro-**, 3370*e*, P 4294*a*.
——, **1-chloro-2,2,3,3-tetrafluoro-1-vinyl-**, 3371*b*, P 4294*i*.
——, **3-(1-chlorovinyl)-1,1,2,2-tetrafluoro-**, 3371*b*, P 4294*i*.
——, **1,2-dibromo-**, 587*a*.
——, **1,2-dibromo-3,4-dichloro-**, 6200*a*.
——, **dichlorohexafluoro-**, P 4284*g*.
——, **1,1-dichloro-2,2,3,3-tetrafluoro-**, 3370*f*.
——, **1,2(and 1,3)-di-3-isoquinolyl-3,4-(and 2,4)-diphenyl-**, 3821*b*.
——, **3-(1,2-epoxyethyl)-1,1,2,2-tetrafluoro-**, 3370*i*, 3371*a*.
——, **ethyl-**, 3369*i*.
freezing point, purification, and purity of, 2924*g*.
isomerization of, 157*f*.
——, **ethylidene-**, 3360*h*.
——, **1-ethyl-1,2,2,3,3-pentafluoro-**, 3370*e*, 3371*d*.
——, **3-ethyl-1,1,2,2-tetrafluoro-**, 3370*d*, P 4294*a*, P 4295*b*.
——, **1-ethyl-2,2,3,3-tetrafluoro-1-methyl-**, 3370*d*.
——, **3-ethynyl-1,1,2,2-tetrafluoro-**, 3371*d*, P 4293*i*, P 4295*a*.
——, **isopropyl-**, 3370*a*.
——, **isopropylidene-**, 3370*a*.
——, **methyl-**, 3370*b*.
mixt. with 2-methyl-1-butene in Gustavson's hydrocarbon, 991*f*.
——, **methylene-**, 3370*b*.
bromination of, 586*d*.
——, **octafluoro-**, as energy-transfer medium, P 8219*a*.
soly. and solvent action of, 3266*i*.
——, **1,1,2,2,3-pentafluoro-3-vinyl-**, 3371*b*, P 4294*i*.
——, **phenyl-**. See *Benzene, cyclobutyl-*.
——, **1,2,3,4-tetrabromo-**, 6200*d*.
——, **tetrabromodichloro-**, 6200*a*.
——, **1,1,2,2-tetrafluoro-**, aryl derivs., P 4294*a*.
derivs., P 4293*g*.
and derivs., 3370*c*.
derivs. contg. an unsatd. side chain, and their polymers, P 4294*g*.
——, **1,1,2,3-tetrafluoro-3,3-dimethyl-**, 3370*d*, P 4294*c*.
——, **1,1,2,3-tetrafluoro-3,4-dimethyl-**, 3370*g*.
——, **1,1,2,3-tetrafluoro-3-(1-fluorovinyl)-**, 3371*b*, P 4294*i*.
——, **1,1,2,3-tetrafluoro-3-isopropenyl-3-methyl-**, P 4295*e*.
——, **1,1,2,2-tetrafluoro-3-methyl-**, 3370*d*, P 4294*b*.
——, **1,1,2,2-tetrafluoro-3-methylene-**, 3371*c*, P 4295*a*.
——, **1,1,2,3-tetrafluoro-3-methyl-3-vinyl-**, 3371*a*, P 4295*e*.
——, **1,1,2,2-tetrafluoro-3-piperonyl-†**, 3370*i*.
——, **1,1,2,3-tetrafluoro-3-propenyl-**, 3371*b*.
——, **1,1,2,2-tetrafluoro-3-propyl-**, 3370*d*.
——, **1,1,2,2-tetrafluoro-3-vinyl-**, 3371*a*, P 4294*b*.
and polymers, P 4295*a*
——, **1,2,3,4-tetrakis(*p*-carboxyphenyl)-**, 2983*a*.
——, **1,2,3,4-tetrakis(*p*-guanylphenyl)-**, 2982*g*.
——, **1,1,3,3-tetraphenyl-**, 2569*g*.
——, **1,2,3,4-tetraphenyl** isomers, 2983*d*
structure of centrosymmetric isomer of, 6486*a*.
as structure of photodimeric stilbene, 5020*e*.
——, **1,1,4-trichloro-2,2,3,3-tetrafluoro-**, 3370*f*.
——, **vinyl-**, 3369*i*.
**Cyclobutaneacetic acid, 3-acetyl-2,2-dimethyl-**. See *Pinonic acid*.
**Cyclobutaneacetonitrile, 2,2,3,3-tetrafluoro-**, 3370*h*.
**Cyclobutanecarbononitrile, 2,2,3,3-tetrafluoro-**, 3370*g*, P 4294*c*.
——, **2,2,3,3-tetrafluoro-1-vinyl-**, P 4295*e*.
**Cyclobutanecarboxaldehyde, 2,2,3,3-tetrafluoro-**, 3370*h*.
——, **2,2,3,3-tetrafluoro-1-methyl-**, 3370*h*.
**Cyclobutanecarboxylic acid**, derivs., 3796*b*.
and esters, phys. constants of, 2955*e*.
——, **1-chloro-2,2,3,3-tetrafluoro-**, allyl ester, P 4295*e*.
methyl ester, 3370*f*.
——, **1-phenyl-**, 2-diethylaminoethyl ester, and -HCl, P 6655*h*.
——, **2,2,3,3-tetrafluoro-**, 3370*g*.
and vinyl ester, P 4295*b*.
——, **2,2,3,3-tetrafluoro-1-methyl-**, anhydride with methacrylic acid, and 2-methallyl ester, P 4295*e*.
and methyl ester, 3370*g*.
**1,2-Cyclobutanediacrylic acid, 1,2-dihydroxy-**, dilactone—see *Anemonin*.
**1,2-Cyclobutanedicarbonitrile**, 3779*c*.
**Cyclobutanedicarboxylic acid**, esters, phys. constants of, 2955*e*.
**1,2-Cyclobutanediol, 3,4-dibromo-**, 6200*d*.
**1,3-Cyclobutanedione, 2,4-dibenzamido-**, 2988*e*.
**Cyclobutanemethanol, 2,2,3,3-tetrafluoro-**, 3370*i*.
**Cyclobutanemethylamine**, (*α-cyclobutylmethylamine*), hydrochloride, 586*i*.
**Cyclobutanenitrile**. See *Cyclobutanecarbonitrile*.
**Cyclobutanol**, cyclobutanecarboxylate, 3796*b*.
——, **2,2,3,3-tetrafluoro-**, acetate, 3370*h*.
acrylate, P 4295*e*.
**Cyclobutene**, and compd. with *N*-bromosuccinimide, 587*a*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
——, **1-allyl-3,3,4,4-tetrafluoro-**, P 4295*e*.
——, **3-bromo-**, 587*a*.
——, **1-(bromomethyl)-**, 586*e*.
——, **1,2-dibutoxy-3,3,4,4-tetrafluoro-**, 7418*g*.
——, **3,4-dichloro-**, and derivs., 6199*f*.
——, **3,4-dichloro-1,2-dinitro-(?)**, 6200*c*.
——, **1,2-diethoxy-3,3,4,4-tetrafluoro-**, 7418*g*.
——, **hexafluoro-**, 3345*f*.
heat of chlorination of, 6071*c*.
reaction with alcs., 7418*f*.
reaction with HBr, 7407*c*.
——, **3,3,4,4-tetrafluoro-1,2-di-**
——**y-**, 7418*g*.

## Cyclobutene

——, 3,3,4,4 - tetrafluoro - 1,2 - dipropoxy-, 7418g.
——, 3,3,4,4 - tetrafluoro - 1 - (2,2,3,3-tetrafluorocyclobutyl)-, 3371e, P 4293i.
——, 3,3,4,4 - tetrafluoro - 1 - vinyl-, 3371d, P 4293i.
and polymers, P 4295a.
2 - Cyclobutene - 1 - carboxylic acid, 2-hydroxy-1,3-dimethyl-4-oxo-, ethyl ester, electrolytic dissocn. const. of, 1320e.
3-Cyclobutene-1,2-diol, diacetate, 6200e.
Cyclodecane, 1,1,6,6 - tetrakis(hydroperoxy)-, and tetraacetate, 6189g.
Cyclodecanedione, peroxide*, and its tetraacetate, 6189g.
1,6-Cyclodecanedione, 6189i.
Cyclodecanol, and esters, 6988f.
Cyclodecanone, oxime, 5400d.
——, 6-hydroxy-, 6189b.
and derivs., 6190b.
——, 6-methoxy-, and semicarbazone, 6190e.
Cyclodehydration. See *Ring closure;* and "cyclo" under *Dehydration (chemical).*
Cyclodehydrogenation. See *Aromatization; Dehydrogenation; Ring Closure.*
Cyclododecanecarbonitrile, 1-hydroxy-, dissocn. of, 7907a.
Cyclododecanol, and esters, 6988f.
Cyclododecanone, oxime, 5400d.
reaction with HCN, 7907a.
Cycloeicosanecarbonitrile, 1-hydroxy-, dissocn. of, 7907a.
Cycloeicosanol, and esters, 6988h.
Cycloeicosanone, oxime, 5400f.
reaction with HCN, 7907a.
Cycloestrol. See *Phenol, p,p'-(1,2 diethylethylene)di-.*
Cyclogeraniolene, bromomethyl-*, 6601a.
——, methyl-*, bromination of, 6601a.
Cyclohendecanecarbonitrile, 1-hydroxy-, dissocn. of, 7907a.
Cyclohendecanol, and esters, 6988f.
Cyclohendecanone, oxime, 5400d.
reaction with HCN, 7907a.
Cycloheptaamylose*, and compd. with *p*-xylene, 2584e.
Cycloheptabenzene,



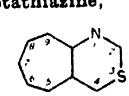
2H-


5-

5 *H* - Cycloheptabenzene, 5 - *tert* - butyl-6,7,8,9 - tetrahydro - 5 - methyl-5736g.
——, 6,7,8,9-tetrahydro-, 2965d
——, 6,7,8,9 - tetrahydro - 5,5 - dimethyl-, 5736f.
——, 6,7,8,9 - tetrahydro - 1,2,3,8 - tetramethoxy-, 3403d.
——, 6,7,8,9 - tetrahydro - 5,5,9,9 - tetramethyl-, 5736g.
5 *H* - Cycloheptabenzene-3-butyric acid, 6,7,8,9-tetrahydro-, and picrate, 2965f
——, 6,7,8,9 - tetrahydro - γ - oxo-, and methyl ester, 2965c.
5 *H* - Cycloheptabenzene - 5,6 - diol, 6,7,8,9-tetrahydro-, 5753d.
5 *H* - Cycloheptabenzene - 5,6(7 *H*)-dione, 8,9-dihydro-, and derivs., 5753c.
5 *H* - Cycloheptabenzene - 3 - valeric acid, 6,7,8,9-tetrahydro-δ-oxo-, and derivs., 2965f.
5 *H* - Cycloheptabenzen - 1 - ol, 6,7,8,9-tetrahydro - 2,3,8 - trimethoxy-, 3403c.
5 *H* - Cycloheptabenzen - 5 - ol, 6,7,8,9-tetrahydro - 2,3,4,6 - tetramethoxy-, and 3,5-dinitrobenzoate, 3403f.
2 *H* - Cycloheptabenzen - 2 - one, 3,4,4a,-5,6,7,8,9-octahydro-, and semicarbazone, 7908e.
5 *H* - Cycloheptabenzen - 5 - one, 6 - hydroxy-, 5753a.
——, 6,7,8,9 - tetrahydro - 4 - hydroxy-2,3,6-trimethoxy-, and derivs., 3403d.
——, 6,7,8,9 - tetrahydro - 2,3,4,6 - tetramethoxy-, and 2,4-dinitrophenylhydrazone, 3403d.
——, 6,7,8,9 - tetrahydro - 1,2,3 - trimethoxy-, and 2,4-dinitrophenylhydrazone, 3404a.
——, 6,7,8,9 - tetrahydro - 2,3,4 - trimethoxy-, and 2,4-dinitrophenylhydrazone, 3403i.
——, 2,3,4,6-tetrahydroxy-, purpurogallin and, 3403a.
Cycloheptadecamethylenimine. See *Azacyclooctadecane.*
Cycloheptadecanecarbonitrile, 1-hydroxy-, dissocn. of, 7907a.
Cycloheptadecanol, and esters, 6988g.
Cycloheptadecanone, oxime, 5400e.
reaction with HCN, 7907a.
9 - Cycloheptadecen - 1 - one. See *Civetone.*
Cycloheptanaphthalene,

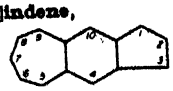
*4—[b]*

1 *H* - Cyclohepta[*b*]naphthalen - 1 - one, 2,3,4,6,7,8,9,10 - octahydro-, and semicarbazone, 2965g.
Cycloheptane, isomerization of, 157g.
phys. constants of, 2956a.
——, 1,2-epoxy-. See *8-Oxabicyclo[5.1 - 0]octane.*
——, ethyl-, isomerization of, 157g.
——, 1 - methoxy - 1 - (methoxymethyl)-, 6197c.
——, methyl-, isomerization of, 157g.
——, tetradecafluoro-(?), P 3834h.
Cycloheptanecarbonitrile, 1 - hydroxy-, dissocn. of, 7906a.
Cycloheptanecarboxaldehyde, and derivs., 6197d.
Cycloheptanecarboxamide, 6197e
Cycloheptanecarboxylic acid, 6197e
——, 1 - (3 - chloro - 2 - butenyl) - 2-oxo-, ethyl ester, 7908c.
Cycloheptanepropionic acid (*β-cycloheptyl propionic acid*).
——, 1-acetyl-2-oxo-, methyl ester, P 5417c
Cycloheptanevaleric acid (*δ-cycloheptyl valeric acid*).
——, 1-carboxy-2-oxo-, diethyl ester, 5375c
——, 2-hydroxy-, and methyl ester, 5375c.
——, 2-oxo-, and methyl ester, 5375d
Cycloheptanol, acetate, 6988e.
——, 2-amino-5-methyl-, and hydrochloride, 2966c.
——, 2-chloro-, *cis*-, 2966c.
——, 2-chloro-1(and 5)-methyl-, *cis*-, 2966c
——, 3-methyl-, *trans*-, 2966a.
Cycloheptanone, 2 acyl derivs., reaction with acrylic acid esters, P 5417c.
oxidation of, 2176a.
oxime, 5400c.
reaction with $Bz_2O_2H$, kinetics of, 8358g
——, 2-(3-chloro-2-butenyl)-, phenyl semicarbazone, 7908d
——, 2-(chloromethyl)-, 4278d
——, 2-chloro-5-methyl-, 2966b
——, 3-methyl-, and semicarbazone, 2965i
——, 2,6,6-trimethyl-, and semicarbazone, 4637g.
3,1-Cycloheptathiazine,



3,1-

——, 2 - amino - 4,5,6,7,8,9 - hexahydro-, and picrate, 4278e.
1,3,5-Cycloheptatriene, electronic structure of, 6918g
——, 7-methylene-, elec. moment and electronic structure of, 6918g.
1,4,6 - Cycloheptatriene - 1 - acetic acid, 2 - carboxy - 4 - hydroxy - 3 - oxo-, 3404c.
——, 2 - carboxy - 4 - methoxy - 3 - oxo-, dimethyl ester, 3404c.
2,4,6 - Cycloheptatrien - 1 - one, 2 - hydroxy - 3(4 and 5) - isopropyl-, 5016a.
——, 2-hydroxy-6-methyl-, 3404c.
Cycloheptene, phys. constants of, 2956a.
1 - Cycloheptene - 1 - valeric acid, and derivs., 5375e.
2 - Cyclohepten - 1 - one, 2,6,6 - trimethyl-, and semicarbazone, 4637g.
Cycloheptʃ*f*]indene,



*f*

——, 1,2,3,5,6,7,8,9-octahydro-, 2965h
Cycloheptʃ*f*]inden - 5(1 *H*) - one, 2,3,6,-7,8,9-hexahydro-, and semicarbazone, 2965h.
Cycloheptaamylose, action of maceran's amylase on, and maltose, 584b.
Cycloheptadecamethylenimine. See *Azacycloheptadecane.*
Cycloheptadecanecarbonitrile, 1 - hydroxy-, dissocn. of, 7907a.
Cycloheptadecanol, and esters, 6988g.
Cycloheptadecanone, oxime, 5400e.
reaction with HCN, 7907a.
Cyclohexadiene, chloro derivs., pyrolysis of, P 1437d.
derivs., mesomerism in, 4650d.
reaction with $C_2F_4$, 3371c.
——, acetyl-. See *Ketone, cyclohexadienyl methyl.*
——, dimethyl-, from rubber decompn. by heat and pressure, 5169f.
in rubber distillate, 5984a.
1,3-Cyclohexadiene, condensation with *p*-quinone, 2181g.
in gasoline from Puertollano shale, 5578f
hydrogenation of, 5752e.
——, 1(and 2)-(3-biphenylyl)-3(and 1)-(4-biphenylyl)-, 6186a.
——, 1(and 2)-(3-biphenylyl)-3(and 1)-phenyl-†, 6185i.
——, 1(and 2)-(4-biphenylyl)-3(and 1)-phenyl-, 6114a.
——, 1,3-bis(3-biphenylyl)-, 6186a
——, 1,3-bis(4-biphenylyl)-, 6114b
——, 3-chloro-1-vinyl-, 5901i.
——, 5,6-dimethylene-. See *o-Quinodimethan.*
——, 2-heptyl-5-isoamyl-3-methyl-, 7913e.
1,4-Cyclohexadiene, hydrogenation of, 5752e
mol. structure of, 6082e.
——, 3,6-diimino-. See *Quinonediimine.*
——, 2,3(and 3,6)-dimethyl-, 1018a
——, 3,6-dimethylene-. See *p-Quinodimethan.*
1,3 - Cyclohexadiene - 1 - acrylic acid, *1,3 - cyclohexadien - 1 - ylacrylic acid*
——, 6-methyl-, and ethyl ester, 5377c
1,4 - Cyclohexadiene - 1 - carbonyl chloride, 4-isopropenyl-, 3797d
1,3 - Cyclohexadiene - 1 - carboxaldehyde, 6-methyl-, and derivs., 5376a
1,4 - Cyclohexadiene - 1 - carboxamide, 4-isopropenyl-, 3797d.
1,3 - Cyclohexadiene - 1 - carboxanilide 5 - (*p* - diethylaminophenylimino 3' - (1,3 - dioxolan - 2 - yl) - methyl-2-oxo-, P 8168d.
——, 5 - (*p* - diethylaminophenylimino 3' - (1,3 - dioxolan - 2 - yl) - 2 - oxo P 8168d.
1,4 - Cyclohexadiene - 1 - carboxanilide 4-isopropenyl-, 3797d.
1,4 - Cyclohexadiene - 1 - carboxylic acid 3 - (3 - carboxy - 4 - hydroxybenhydrylidene) - 6 - oxo -, β lactone, 5770h.
——, 3,6-dioxo-, ethyl ester dioxime, vulcanizing agent, 5623e.
——, 4-isopropenyl-, and ethyl ester, 3797c.
2,4 - Cyclohexadiene - 1 - carboxy acid, and ethyl ester, 6203b.
2,5 - Cyclohexadiene - 1,4 - dicarboxy acid, P 7839a.
3,5 - Cyclohexadiene - 1,2 - dicarboxy acid, P 7839a.
2,5 - Cyclohexadiene - 1,4 - dione. See *Quinone.*
3,5 - Cyclohexadiene - 1,2 - dione. See *o-Quinone.*
1,3 - Cyclohexadiene - 1 - hydracrylic acid (*β - 1,3 - cyclohexadien - ylhydracrylic acid*).
——, 6-methyl-, ethyl ester, 5377b.
1,3 - Cyclohexadiene - 1 - methanol, methyl-, 5377a.
2,4 - Cyclohexadiene - 1 - sulfonic acid, 3,5 - bis(*p* - acetamidoanilino)- 2596b.
——, 3,5 - bis(*p* - aminoanilino)-, salts, 2596a.
2,5 - Cyclohexadiene - 1 - sulfonic acid, 1,3-diamino-4-oxo-, phenylhydrazone, 2596d.

1,3 - **Cyclohexadiene - 1,3,5 - tricarboxylic acid, 5-methyl-**, labeled with $C^{14}$ in the 1,3,5-positions, 9051*g*.
1,3 - **Cyclohexadiene - 1,3,5 - triol, 5-ethoxy-**, trisodium deriv., spectrum of, 2599*a*.
1,4 - **Cyclohexadien - 1 - one, 6 - benzhydrylidene-**, spectrum of, 3292*e*.
—, **3,5-dihydroxy-**, sodium deriv., spectrum of, 2599*a*.
—, **6-imino-**. See *o-Quinone imine*.
—, **6-methylene-**, 433*e*.
2,5 - **Cyclohexadien - 1 - one, 4 - benzhydrylidene-**. See *Fuchsone*.
—, **4 - benzhydrylidene - 2 - methoxy-**, 8683*g*, 9451*c*.
—, **4 - (*p,p'* - dihydroxybenzhydrylidene)-**. See *Aurin*.
—, **4 - (4,4' - dihydroxybenzhydrylidene)-2-methoxy-**, 9451*c*.
hydrochloride, 5772*e*.
—, **4 - (4,4' - dihydroxy - 3,3' - dimethoxybenzhydrylidene) - 2-methoxy-**. See *Rubrophen*.
—, **4 - (4,4' - dihydroxy - 3 - methoxybenzhydrylidene) - 2 - methoxy-**, 9451*c*.
—, **4 - (4,4' - dihydroxy - 3,3',5,5'-tetranitrobenzhydrylidene) - 2,6-dinitro-(?)**, 2982*c*.
—, **hexachloro-**, in chigger control, 8599*h*.
as termite repellent, 6350*e*.
—, **4-hydroxy-**. See *Quinol*.
—, **4 - (*p* - hydroxybenzhydrylidene)-**. See *Benzaurin*.
—, **4 - (4 - hydroxybenzhydrylidene)-2-methoxy-**, 9451*c*.
—, **4 - (4 - hydroxy - 3 - methoxybenzhydrylidene)-**, derivs., 8683*e*.
—, **4 - (4 - hydroxy - 3 - methoxybenzhydrylidene)-2-methoxy-**, 9451*c*.
—, **4 - (4 - hydroxy - 2 - methylbenzhydrylidene) - 3 - methyl-**, 5398*g*
—, **4 - (*p* - hydroxyphenylimino)-** see *Indophenol*
—, **4-imino-**. See *Quinone imine*.
—, **4-methylene-**, 433*e*
Cyclohexanamine See *Cyclohexylamine*
Cyclohexane, absorption by polystyrene films, 1437*d*.
alkyl derivs., d. and refraction of, 602*b*.
alkyl derivs., viscosity-temp. properties of mono-, 3602*a*.
azeotropic partition between water and, 6789*b*
catalysis of mixts. of $CCl_4$ and, Raman spectra in, 7858*f*.
azeotropic distn. from naphtha, P 1958*a*
catalytic extn. from, with liquid $NH_3$ vapor, P 3192*e*.
bonds in, energy of, 2052*h*.
carbon dioxide partition between aq. NaCl and, 7297*g*.
chloro derivs., insecticidal, P 8090*e*.
—, **parasiticide from thiocyanate and**, P 8605*a*
—, **for pest control**, P 2732*b*.
compressibility and ultrasonic velocity in, 4552*b*.
compression and freezing under pressure, 8067*e*
crystn. and nuclei in melt of, 3278*a*.
decahydronaphthalene peroxide ester rearrangement in, 6188*i*.
dehydrogenation of, 6567*a*, 7911*h*, 7912*a*, 8255*d*.
—, **to $C_6H_6$ by enzymic action**, 4343*b*.
—, **$C_6H_6$ manuf. from**, 8061*d*.
—, **blocking of catalysts in**, 7802*e*.
—, **kinetics of**, 1731*g*, 1732*b*.
—, **on platinized C**, 1249*f*.
derivs., **asym synthesis of**, 3797*e*.
—, **hydrogenation of, by Br**, 158*e*.
—, **dehydrogenation on catalysts**, 1635*a*.
—, **heat capacity of**, 1638*f*.
and derivs., **effect on binary azeotropes**, 2834*g*.
—, **mol. structure of**, 2964*g*.
—, **structure and isomers of**, 6988*h*.
detn. in crude $C_6H_6$, 6472*f*.
as diluent in $C_2H_2$ **reaction with carbazole**, P 7036*h*.
distn. from methylcyclopentane, P 3670*d*.
—, **effect of, on cryoscopic behavior of 1,1-dimethylcyclohexane**, 2964*g*.
—, **on isomerization of pentane**, 1712*d*.
—, **in polymerization of Me methacrylate and on viscosity of polymer**, 8189*f*.
emulsions of, 2072*b*.
in ethylene chlorohydrin **recovery from aq. solns.**, P 2633*b*.
fires in, **extinguishing of**, 6417*g*.
—, **formation and isomerization of**, 157*f*.
—, **formation of, in hydrogenation of 1-Me-$C_{10}H_7$**, 3814*a*.
—, **formation of, in isomerization of hexane**, P 3833*b*.
—, **free energy of**, 477*h*.
—, **in gasoline (Mirzaan)**, 4839*a*.
—, **hexadecanol sorption from, by MgO**, 17*b*.
—, **inflammability limits for mixts. of MeBr and**, 3619*b*.
—, **interfaces with water, films at**, 2068*h*.
—, **ionization of, by electron impact**, 6503*c*.
—, **isomerization of**, 587*b*.
—, **knocking tendencies and crit. compression ratios of, contg. $Et_3Hg$, $Fe(CO)_5$ and $Et_4Pb$**, 5576*g*.
—, **lyoparachor of, and of cyclohexane ring**, 2834*a*.
—, **magnetic rotatory power of**, 2053*e*.
—, **magnetic susceptibility of**, 2479*g*
—, **manuf. by hydrogenation of $C_6H_6$ in petroleum fraction and recovery by fractional distn.**, P 5938*g*.
—, **manuf. of**, P 1958*d*, P 3032*e*, P 3453*g*, P 5798*f*, P 7509*g*.
—, **from $C_6H_6$**, P 7950*a*.
—, **from hydrocarbon mixts. contg. isomeric heptanes**, P 1957*h*.
—, **from naphtha and other hydrocarbons**, P 1958*i*.
—, **from petroleum**, P 3186*i*, P 4460*gh*.
—, **mass spectrum of**, 3288*g*.
—, **mixts. with acetonitrile or $MeNO_2$, adsorption from**, 461*e*.
—, **with $C_6H_6$ or $CCl_4$, adsorption by charcoal**, 461*d*.
—, **with cyclopentane, dehydrogenation and hydrogenation of**, 155*c*.
—, **with hydrocarbons, dehydrogenation rate of**, 2499*b*.
—, **with org. vapors, adsorption by active carbons**, 16*g*.
—, **with unsatd. hydrocarbons, selective hydrogenation of**, 7673*h*.
—, **nitration of**, 1018*s*.
—, **nitrogen soly. in**, 8803*h*.
—, **octane value of, double bond positions and sensitivity to $PbEt_4$ in relation to**, 3997*h*.
—, **orientation of mols. of, on metallic and oxide dehydrogenation catalysts**, 4551*d*.
—, **oxidation of**, P 3842*c*
—, **kinetics of**, 927*e*.
—, **to maleic acid**, P 7039*h*.
—, **parachor and thermochor of**, 2923*f*.
—, **phenol partition between phosphate buffers or $H_2O$ and**, 7789*a*.
—, **phys. constants of**, 2955*h*.
—, **polychloro sulfide, in control of *Haplocompa flava***, 3964*f*.
—, **as polymerization modifier in butadiene acrylonitrile or -styrene rubber manuf.**, P 4890*h*.
—, **prepn. of, from $C_6H_{11}Br$**, 1312*b*
—, **purification of, for spectroscopic use**, 7817*g*.
—, **reaction of, and its derivs. with S**, 5370*e*
—, **reaction products with S, as acid inhibitors**, P 5730*d*
—, **reactions of, under hydrogenating conditions over Fischer-Tropsch Co catalyst**, 7664*b*
—, **with $N_2O_4$**, P 4694*b*.
—, **with $COCl_2$**, P 3033*d*.
—, **with polychloro ethylenes**, 9024*i*.
—, **resonance energies of**, 10*e*.
—, **sepn. from methylcyclopentane**, P 7223*e*.
—, **as solvent for bitumen**, 6817*c*.
—, **as solvent in cottonseed-oil extn.**, 423*h*.
—, **sorption by $Fe_2O_3$**, 1240*e*.
—, **sorption by Napalm**, 8180*a*.
—, **structure of**, 463*f*, 4232*g*.
—, **styrene chain-transfer coeffs. in**, 5731*h*.
—, **system: Chlorex-**, 1251*f*.
—, **system: 1,2-dichloroethane-**, 4938*b*.
—, **system: EtOH-**, 6023*a*.
—, **systems with C halides**, 1637*c*.
—, **thermochemistry of**, 7215*i*.
—, **Townsend coeffs. of vapor of**, 6006*c*.
—, **toxicity of**, 1867*g*.
—, **ultrasonic velocity in**, 8239*e*.
—, **Verdet const. ratio to refractive dispersion for**, 4911*b*.
**Cyclohexane, amyl-**, spectrum of, 3715*i*.
——, **benzyl-**. See *Methane, cyclohexylphenyl-*.
——, **1-(4-biphenylyl)-3-phenyl-†**, 611*b*.
——, **1,3-bis(4-biphenylyl)-**, 611*b*.
——, **bis(hydroxymethyl)-**. See *Cyclohexanedimethanol*.
——, **bromo-**, dielec. properties and structure of, 4912*b*.
—, **hydrogenolysis of, with $LiAlH_4$**, 1312*b*.
—, **phys. constants of**, 2955*i*.
—, **reaction with $C_2H_4$ and with $C_2H_5Br$**, 3372*a*.
—, **reaction with $Hg(NO_3)_2$, kinetics of**, 557*g*.
——, **3-bromo-1,1-dimethyl-**, 9044*f*.
——, **(2-bromoethyl)-, reaction with $C_2H_4$**, 3372*a*.
——, **1-(2-bromoethyl)-1-ethyl-**, 3372*a*.
——, **1-bromo-3(and 4)-methyl-, ultrasonic velocity in, temp. and**, 7283*i*.
——, **3-(bromomethyl)-1,1-dimethyl-**, 9044*g*.
——, **1-bromo-2-(trichloromethyl)-**, 4636*h*, 9024*d*.
——, **2 - bromo - 1,1,2 - trimethyl - 3-methylene-**, 6601*a*.
——, **butyl-, effect of, on cryoscopic behavior of 1,1-dimethylcyclohexane**, 2964*f*.
—, **resonance energies of**, 10*e*.
—, **spectrum of**, 8890*b*.
——, ***sec*-butyl-, spectrum of**, 8890*b*.
——, ***tert*-butyl-, spectrum of**, 8890*c*.
——, **(1-butylhexadecyl)-**. See *Eicosane, 9-cyclohexyl-*.
——, **1 - *tert* - butyl - 2(3 and 4) - methyl-, and their stereoisomers**, 6989*c*.
——, **2-butyl-1,1,3-trimethyl-**, 3798*h*.
——, **cetyl-**. See *Hexadecane, 1-cyclohexyl-*.
——, **chloro-, configuration of**, 4232*h*.
—, **hydrogenolysis of (attempted), with $LiAlH_4$**, 1312*c*.
—, **lyoparachor of**, 2834*a*.
—, **phys. constants of**, 2955*i*.
—, **prepn. of**, 3780*e*.
—, **reaction with $Cl_3C:CH_2$**, 3372*e*.
—, **reaction with $C_2H_4$ and with $C_2H_5Cl$**, 3371*h*.
——, **1-chloro-2-(chloromethyl)-**, 588*i*.
——, **1-chloro-1-ethyl-, reaction with $C_2H_4$**, 3371*i*.
——, **1-(2-chloroethyl)-1-ethyl-**, 3371*i*.
——, **1 - (2 - chloroethyl) - 1 - methyl-**, 3371*i*.
——, **1-chloro-1-methyl-, reaction with $C_2H_4$ and with $C_2H_5Cl$**, 3371*i*.
——, **1-chloro-1(and 2)-methyl-**, 2173*h*.
——, **1-chloro-2-methylene-**, 588*i*.
——, **2-chloro-4-methyl-1-methylene-**, 589*c*.
——, **1-chloro-1-nitro-**, prepn. and hydrogenation of, 156*h*.
——, **chlorononafluorobis(trifluoromethyl)-**, ultrasonic velocity in, 1232*f*.
—, **Verdet constant of**, 2924*h*.
——, **(2-chlorovinyl)-**, 9024*i*.
——, **cyclohexyl-**. See *Bicyclohexyl*.
——, **cyclopentyl-, mixt. with dodecane for testing distn. columns**, 4621*f*.
——, **decafluorobis(trifluoromethyl)-, nitrogen soly. in**, 8803*h*.
—, **ultrasonic velocity in**, 1232*f*.
—, **ultraviolet transmission by**, 1653*h*.
—, **Verdet constant of**, 2924*h*.
——, **decafluoro-1,2(1,3 and 1,4)-bis(trifluoromethyl)-, soly. and solvent action of**, 3260*i*.
——, **decyl-**. See *Decane, 1-cyclohexyl-*.
——, **(1-decylhendecyl)-**. See *Heneicosane, 11-cyclohexyl-*.
——, **1,2-dibromo-**, 4658*i*.
——, **(2,2-dibromoethyl)-**, 3372*d*.
——, **1,3-dichloro-**, 2173*i*, 7420*e*.
——, **(2,2-dichloroethyl)-**, 3372*b*.
——, **1-(2,2-dichloroethyl)-1-methyl-**, 3372*e*.
——, **1,2-dichloro-1-nitro-**, 2946*c*.
——, **1,2-dichloro-1-nitroso-**, 2946*b*.
——, **(2,2-dichlorovinyl)-**, 3372*e*, 9025*b*.
——, **(2,2-dichlorovinyl)methyl-**, 9025*b*.
——, **1,1-diethyl-**, 3372*b*.
——, **1,2-diiodo-**, 7420*d*.
——, **1,4-diiodo-, *cis-* and *trans-***, 7435*i*.
——, **dimethyl-, dehydrogenation of**, 159*f*.
—, **mixt. with xylene, adsorption by Ni catalyst**, 2498*e*.
—, **reaction with $NH_3$**, P 3439*ce*.
——, **1,1-dimethyl-**, 123*g*, 9044*f*.
—, **cryoscopic behavior of, contg. hydrocarbon impurities**, 2964*f*.
—, **from hydrogenation of dimedone**, 475*c*.
——, **1,1(1,2-, 1,3-, and 1,4)-dimethyl-, isomers, thermal data on**, 5275*i*.
——, **1,2-dimethyl-, *cis-* and *trans-*, spectra of**, 8890*b*.
—, **from hydrogenation of 1-MeC$_{10}$H$_7$**, 3814*a*.
——, **1,2(1,3 and 1,4)-dimethyl-, in gasoline (Mirzaan)**, 4839*a*.
——, **1,2(and 1,4)-dimethyl-, effect of, on cryoscopic behavior of 1,1-dimethylcyclohexane**, 2964*g*.

——, **1,3-dimethyl-**, *cis-*, azeotrope with toluene, 7916*e*.
dehydrogenation of, 1731*f*, 1732*b*, 8246*h*.
——, **1,3(and 1,4)-dimethyl-**, formation from cycloalkane isomerization, 157*f*.
——, **1,2-diphenyl-**, 4233*c*.
——, **dodecafluoro-**, 2157*b*, P 8834*h*.
mass spectrum of, 3288*g*.
mol. structure of, 7277*a*.
soly. and solvent action of, 3266*i*.
spectrum of, 1656*i*.
——, **dodecyl-**. See *Dodecane, 1-cyclohexyl-*.
——, **1 - (2,3 - epoxypropoxy) - 3,3,5-triethyl-†**, P 2634*a*.
——, **1 - (2,3 - epoxypropoxy) - 3,3,5-trimethyl-†**, P 2634*a*.
——, **1 - (2,3 - epoxypropoxy) - 3,3,5-tripropyl-†**, P 2634*a*.
——, **ethyl-**, 591*a*.
in gasoline (Mirzaan), 4839*a*.
herbicidal action of, 1895*d*.
isomerization of, 157*h*.
resonance energies of, 10*e*.
sepn. from octane by adsorption, P 6011*g*.
spectrum of, 8890*b*.
thermal data on, 5275*i*.
——, **1-ethyl-2-methyl-**, from hydrogenation of 1-MeC$_{10}$H$_7$, 3814*a*.
——, **(1-ethyloctadecyl)-**. See *Eicosane, 3-cyclohexyl-*.
——, **hendecafluoro(trifluoromethyl)-**, as dispersing agent in emulsion polymerization, 2019*f*.
nitrogen soly. in, 8803*h*.
soly. and solvent action of, 3266*i*.
spectrum of, 1656*i*.
systems: C$_6$H$_6$–, CCl$_4$–, PhCl–, CHCl$_3$–, and toluene–, 32b7*a*.
ultrasonic velocity in, 1232*f*.
ultraviolet transmission by, 1653*h*.
Verdet constant of, 2924*h*.
——, **heptachloro-**, as insecticide, 5894*f*.
isomers, detn. and spectra of, 8601*i*.
in tech. hexachlorocyclohexane, 8978*i*.
—, **heptyl-**. See *Heptane, 1-cyclohexyl-*.
—, **1,2,3,4,5,6-hexachloro-** (*benzene hexachloride*). (*Most entries refer to the γ-isomer* (*Gammexane; Lindane; 666*) *or its mixtures.*)
in *Agriotes* control, 811*i*
in alfalfa-insect control, 1521*e*.
in alfalfa-snout-beetle control, 8599*d*.
antagonism to *meso*-inositol, 5462*e*.
in aphid control on celery, 346*e*.
in aphid control on flue-cured tobacco, 5897*c*.
in apple-scab control, 804*c*.
in Argentine-ant control, 7185*d*.
atypical growth, abnormal mitosis, polyploidy and chromosome fragmentation induced by, 6702*g*.
in banana-root-borer control, 5147*c*.
in beet-insect control, 9346*h*.
in black-fly control, effect on fish, 9352*h*.
in black-fly-larva control in Alaskan streams, 6354*c*.
in body-strike control in sheep, 7184*h*.
in *Brassica*-seed-crop-pest control, 9336*b*.
in breech-strike control, 7184*g*.
in cabbage-caterpillar control, 3137*a*.
in cabbage-maggot control, 3136*i*.
in cabbage-pest control, 2358*d*, 5147*g*, 7179*h*.
in cantaloupe-insect control, 2725*g*.
in *Capnodis tenebrionis* control, 3555*f*.
carbon dioxide-propelled, toxicity of residues from, 6353*h*.
cattle feeding with, to control tsetse flies and ticks, 5526*g*.
in cattle-grub control, 1520*e*.
in cauliflower-seed-crop-pest control, 4416*h*.
in *Cecidomyia* control on pears, 9348*e*.
in chigger control, 8599*h*.
in clover-root-borer control, 8599*c*.
in cockroach (German-) control, 1519*h*.
in codling-moth control, 3965*b*, 6354*f*.
in coleopterous-larva control on peanuts, 1897*d*.
in Colorado-potato-beetle control, 5146*f*.
in confused-flour-beetle control, 2361*d*.
in control of boll weevil and cotton aphid, 2730*a*.
of cockroaches, flies and mosquitoes, 1518*h*.
of corn earworm and fall armyworm in corn, 3136*c*.
of dicky-rice weevil, leafroller and mealy bug on citrus, 7185*b*.
of fall armyworm and green June beetle, 1899*a*.
*in control* of flies and mosquitoes in buildings, 9341*i*.
of root worm and wire worm in soil, 9329*g*.
of tail louse and ticks on livestock, 8598*h*.
of turnip aphid and foliage-feeding larvae on Chinese cabbage, 7628*a*.
in corn-flea-beetle control, 4416*i*.
in cotton-insect control, 1142*i*, 1143*bd*, 3137*b*.
in cotton-insect control, diluents for, 1142*h*.
crystal structure of, 3686*a*, 7288*b*.
in culture-mite control, 2361*h*.
in cutworm control on apricots and peaches, 1522*b*.
in date-insect control, 4417*e*.
deodorized, granular, P 7187*c*.
derivs., pyrolysis of, P 1437*c*.
detn. of, 8311*d*, 8602*b*.
in com. products, 7868*h*.
in insecticidal dusts, etc., 2896*e*.
in insecticides, 9330*h*.
by mass isotope diln. method, 4805*b*.
with polarograph, 5896*b*, 8087*a*.
in presence of isomers, 2896*e*.
effect on bees, 5148*i*.
on blowfly larvae, effect of succinate on, 4416*f*.
on flies, 3965*e*, 6355*e*.
on fungi of skin, 7541*e*.
on fermentation and on germination of fungus conidia, 8089*g*.
on insect respiration, speed of insecticidal activity and, 9342*i*.
on kalanchoes, 1898*b*.
on livestock, 1520*a*.
on *Lupinus albus* seedlings, 7626*b*.
on mitosis in root meristems, 9171*b*.
on odor and taste of pork, 3556*h*.
on onions and onion roots, 9171*e*.
on paper durability, 5896*c*.
on plant cells, 3891*e*, 4803*g*.
on root tips of *Corchorus capsularis*, 7094*h*.
on soil microörganisms, 1896*i*.
on wildlife, 1523*i*.
effect on wheat seedlings and use as weed killer, 5896*d*.
in elm-leaf-beetle control, 1897*g*.
in European-apple-sawfly control, 810*d*
in European-corn-borer control, 1896*f*, 6354*e*.
in fall-armyworm control on corn, 3136*e*.
in fire-ant control, 1897*e*.
in fly control, 3555*i*, 7629*f*.
in fly control and its toxicity to man, 8601*e*.
in fly (DDT-resistant) control, 3965*e*, 6355*e*, 9345*a*.
in fox-scabies control, 4418*d*.
in gladiolus-thrips control, 5148*g*.
glue for wallpaper contg., P 4808*f*.
in grain-pest control, 9335*b*.
in granary-weevil control on wheat, 6777*b*.
in grasshopper control, 3135*i*, 6353*f*, 7185*eg*.
in grasshopper control in citrus groves, 3136*b*.
grease- and stain-removers contg., P 1146*c*.
in hairy-spider-beetle control in cereal warehouses, 2729*a*.
in harlequin-bug control, 1897*c*.
in *Heteronychus sanctae-helenae* control, 7185*a*.
in *Hoplocampa brevis* control on pear trees, 8600*c*.
infrared spectrum of, 6104*i*.
in insect-ectoparasite control on sheep, 7631*g*.
insecticidal activity of, and related compds., chem. constitution and, 5894*f*.
as insecticide, 346*f*, 810*d*, 1139*g*, 2729*d*, 4805*b*, 6353*c*, 6775*b*, 6776*g*.
for alfalfa and clover, 346*b*.
residual toxicity of, 5146*i*.
resistance of insects to, 8561*g*.
review on, 345*a*.
in S. Africa, 346*g*.
testing of, 7627*c*.
insecticide contg., P 2732*e*, P 8604*e*.
insecticide from DDT and, 2729*e*.
insecticide from 3,4-dichloro-3',4'-dichlorobenzenesulfonanilide and, P 4419*h*.
insecticide from N, P or S compds. and, P 4420*a*.
insecticide from phenyl isocyanide and, 7184*e*.
insecticides from DDT or its analogs and, P 6358*g*.
insecticides from diphenyl sulfides, diphenyl sulfones, diphenyl sulfoxides or halogenated diphenyl sulfides and, P 4419*i*.
insecticides from nitrophenols and, 4420*a*.
insecticides from S compds. and, 4420*a*.
isomers, analysis of mixt. of, 2124*h*, 8601*f*.
chromatographic sepn. and detn. of, 8978*eg*.
dehydrochlorination of, rates of, 7811*a*.
effect on bacteria and yeast, 3886*e*.
elec. moment and mol. configuration of, 8770*i*.
elec. moments of, 3676*b*.
elec. properties and mol. structure of, 6877*g*.
as insecticides, 5146*d*, 9340*g*.
manuf. of, P 5798*a*.
properties and toxicities of, 1898*i*.
removal of δ-, from its mixts. with other isomers, P 5797*i*.
sepn. of γ-, from mixts. of α-, β- and γ-isomers, P 1436*h*.
toxicities of, 1140*c*, 2705*e*, 4411*h*, 7175*g*, 7627*h*.
toxicities to *Macrosiphoniella sanborni* and *Oryzaephilus surinamensis*, 9343*a*.
δ- and γ-isomers, effect on O uptake of brain, 5113*g*.
γ- and δ-isomers, effect on tubercle bacilli, 3061*i*.
β- and γ-isomers, structure of, 6989*a*.
α-isomer, structure of, 5752*f*.
in Japanese-beetle control, 9340*g*.
in Japanese-weevil control, 7628*e*.
in leaf-miner control on asters, 1522*g*.
in lepidopterous-larva control, 2726*e*.
lindane as name for, 7625*f*.
in locust control, 3557*e*, 4806*c*.
in *Lymantria monacha* control, 7626*d*
in malaria control, 9264*f*.
manuf. from coal, 9413*f*.
manuf. of, P 1436*g*, P 1525*c*, 4295*gh*, 6778*f*, 8601*e*.
in mealy-bug control on pineapples, 4417*a*
in *Melolontha melolontha* control, 5526*e*, 8088*f*.
c-mitosis from, effect of *meso*-inositol and sugars on, 9170*i*.
mitotic poisoning by, inhibition by *meso*-inositol, 1805*i*.
monohalo derivs., toxicities of, 345*d*
in mosquito control, 2360*d*, 2728*f*, 8602*b*, 9345*f*.
in mushroom-pest control, 7184*f*.
in olive fruit-fly control, 9349*f*.
in onion-thrips control, 5897*a*.
in onion-thrips control on cotton, 1143*e*
in Oriental-beetle control, residual toxicity in soil, 1522*f*.
paramorph induction in *Neurospora* and *Syncephalastrum* by, 6276*b*.
in pea-aphid control, 1897*a*.
in peach-cat-facing control, 8088*d*.
in peach-scab control, 2350*f*.
in pear psylla control, 9348*f*.
in pecan-nut-casebearer control, 7630*i*
in pecan-weevil control, 9330*a*
in periodical-cicada control, 1899*c*, 7629*e*
pesticides contg., P 7634*f*.
in plum-curculio control, 1143*g*, 6777*e*, 9329*h*.
effect on parasitization of oriental fruit moth, 1143*i*.
on peaches, 5527*b*, 9348*g*.
in poll-strike control in rams, 7184*g*.
as polyploidizing agent, 9170*f*.
as potato spray, 4413*h*.
in potato-tuberworm control, 6776*g*, 8599*f*.
purification of, P 1436*i*, P 3033*b*
in red-banded-leaf-roller control on apples, 9347*e*.
in red-harvester-ant control, 7627*f*.
reviews on, 810*d*, 6777*a*, 9341*h*, 9353*ah*
in root-knot control, 809*c*.
in scorpion control, 4416*c*.
in seed-corn-maggot control on beans, 5896*h*.
in sheep-ectoparasite control, 9352*f*.
in sheep-tick control, 8598*i*.
smokes, 5146*f*, 9342*a*.
soil disinfectants from aldehydes and, 9357*c*.
in soils, persistence of, 9343*f*.
soil treated with, effect on palatability of potatoes, 7157*d*.
soly. in Na xylenesulfonate solns, 1242*e*.

in southern-corn-rootworm control in peanuts, 7182*i*.
in spittle-bug control, 1521*f*.
in stink-worm control, 9813*c*.
structure of, 2838*i*.
in sugarcane-borer control, 3136*h*.
and sulfonated deriv., in *Hoplocampa flava* control, 3964*f*.
in sweet-clover-weevil control, 8599*c*.
in termite control, 1145*b*, 5147*d*, 6356*f*.
in tobacco-flea-beetle control, 5895*d*, 9346*a*.
toxicity of, 5883*e*.
to bees, 344*h*, 9349*h*.
to citrus mite and greenhouse thrips, 3138*c*.
to flies resistant to DDT, etc., 8600*e*.
to man, 8600*f*.
to plants, 5147*i*.
to *Psoroptes cuniculi*, 758*d*.
to rats, 8602*c*.
in tsetse-fly control on cattle, 1141*a*.
in turnip-aphid control, 5897*a*.
in two-spotted-spider-mite control, 2357*i*.
in velvetbean-caterpillar control, 1521*i*.
in white-spring-tail control in mulch under fruit trees, 7184*i*.
in wireworm control, 347*i*, 348*c*.
in Lima-bean fields, 5896*g*.
on potatoes, 808*b*, 2726*g*.
in soils, 3139*i*, 9346*e*.
on sugar beets, 8088*g*.
in sugar cane, 2726*i*.
—, **1,2,3,4,5,6 - hexachloro - 1 - (trifluoromethyl)-**, P 4693*f*.
—, **hexadecyl-**. See *Hexadecane, 1-cyclohexyl-*.
—, **hexyl-**. See *Hexane, 1-cyclohexyl-*.
—, **(1-hexyltetradecyl)-**. See *Eicosane, 7-cyclohexyl-*.
—, **iodo-**, phys. constants of, 2955*i*.
—, **1-iodo-4-(iodomethyl)-**, 7436*i*.
—, **isopropyl-**, dehydrogenation equil., heat capacity and heats of combustion and formation of, 8246*h*.
spectrum of, 8890*b*.
—, **isopropylmethyl-**. See *Menthane*.
—, **methoxy-**. See *Ether, cyclohexyl methyl*.
—, **1 - methoxy - 4 - (1 - methoxyethyl)-**, 2577*e*.
—, **methyl-**, compression and freezing under pressure, 4067*e*.
dehydrogenation of, 1635*b*, P 5039*h*.
kinetics of, 1731*f*, 1732*b*.
to toluene, 159*e*.
estn in hydrocarbon cuts and infrared spectra of, 2759*c*.
estn from ethyl cyclopentane, P 3670*e*.
estn from naphthenic oil and dehydrogenation to toluene, P 5186*h*.
estn from heptane, and toluene extn. from methylcyclohexane with liquid $NH_3$ solns., P 3192*d*.
formation from cycloalkane isomerization, 157*f*.
in gasoline (Mirzaan), 4839*a*.
heptane removal from, P 9431*f*.
herbicidal action of, 1895*d*.
manuf. of, P 3032*e*.
mixts. with toluene, distn. in packed columns, 4053*g*.
naphtha of shale oil, 4453*g*.
oxidation of, and its mixts. with diisobutylene, P 7950*b*.
oxidation of, kinetics of, 927*e*.
phys. consts. of, 2955*h*.
prepn. from heptane fraction of petroleum, 3603*c*.
reaction (addn.) products with 3-chloropropene, P 4693*h*.
reaction with $NH_3$, P 3439*c*.
reaction with polychloro ethylenes, 9025*b*.
resonance energies of, 10*e*.
separn. from heptane by adsorption, P 6011*g*.
spectrum of, 4573*g*, 8890*b*.
system: Chlorex-, 1251*g*.
system: 1,2 dichloroethane-, 4938*b*.
system: EtOH-, 8813*f*.
system: heptane-, 2474*b*.
system: 2,2,4 - trimethylpentane 8773*d*.
thermochemistry of, 7215*i*.
—, **methylene-**, oxide—see *1-Oxaspiro[2.5]octane*.
—, **(1-methylnonadecyl)-**. See *Eicosane, 2-cyclohexyl-*.
—, **1-methyl-2-phenyl-**, prepn. and spectrum of, 2175*b*.
—, **naphthyl-**. See *Naphthalene, cyclohexyl-*.
—, **nitro-**, 157*a*.
dehydrogenation of, P 4683*e*.
formation in reaction of cyclohexane with $NaO_4$, P 4694*c*.
sodium deriv., reaction with *α*-chloro-*p*-nitrotoluene, 8365*a*.
—, **nonafluoro - 1,3,5 - tris(trifluoromethyl)-**, soly. and solvent action of, 3266*i*.
—, **octachloro-**, as insecticide, 5894*f*.
isomers, detn. and spectra of, 8601*i*.
as synergist for hexachlorocyclohexane, 7175*h*.
—, **octyl-**. See *Octane, 1-cyclohexyl-*.
—, **(1-octyldodecyl)-**. See *Eicosane, 9-cyclohexyl-*.
—, **phenyl-**, dehydrogenation of, with S, 5376*g*.
formation from cyclohexyl phenyl ketone, 1753*f*.
oxidation of, 3366*c*.
prepn. and spectrum of, 2175*a*.
sulfonation of, 2957*f*.
—, **propyl-**, resonance energies of, 10*e*.
—, **(1-propylheptadecyl)-**. See *Eicosane, 4-cyclohexyl-*.
—, **tetrachloro-**, elec. moment of, 3676*b*.
structure of, 6487*d*.
—, **[*p* - (1,2,2,2 - tetrachloroethyl)-phenyl]-**, P 8399*g*.
—, **tetrachloroheptafluoro(trifluoromethyl)-**, P 3033*g*.
—, **tetradecyl-**. See *Tetradecane, 1-cyclohexyl-*.
—, **tetramethyl-**, mixt. of isomers, from amylcyclopentane, 157*g*.
—, **tolyl-**. See *Toluene, cyclohexyl-*.
—, **1,3,5-trianisoyl-**, stereoisomers, 3797*f*.
—, **1,2,4**(and **1,3,5**)**-tributoxy-**, 6203*d*.
—, **(trifluoromethyl)-**, polymerization of, 2157*e*.
—, **1,2,4**(and **1,3,5**)**-trimethyl-**, formation from cycloalkane isomerization, 157*f*.
—, **1,3,5 - tris(*p* - methoxybenzyl)-**, stereoisomers, 3797*e*.
**Cyclohexane-1,2,3,4,5,6-$d_6$, 1,2,3,4,5,6-hexachloro-**, in detn. of *γ* isomer of hexachlorocyclohexane, 4805*c*.
**Cyclohexaneacetaldehyde**, and derivs., 3372*c*.
—, **1-methyl-**, and derivs., 3372*c*.
—, **α-phenyl-**, isomerization of, 4633*a*.
**Cyclohexaneacetamide** (*α* - *cyclohexylacetamide*).
—, *N* - **(2 - diethylaminoethyl) - α-phenyl-**, P 2636*e*, P 3453*f*.
—, *α* - **(2 - diethylaminoethyl) - α-phenyl-**, detn. of, 1280*g*.
—, *N*-**2-hydroxyethyl-**, in penicillin production, 2273*e*.
—, **2-phenyl-**, *cis-*, 2174*b*.
—, **4-phenyl-**, *cis-*, 1376*b*.
**Cyclohexaneacetic acid**, ethyl ester, 573*d*.
—, **3-amino-**, *trans-*, 1730*c*.
—, **2-bromo-**, ethyl ester, 2586*h*.
—, **2 - [1 - carboxy - 3 - (1,5 - dimethylhexyl) - 2 - oxocyclopentyl]-**, diethyl ester, bs 213–16°, 2587*d*.
—, *α* - **[2 - (carboxymethyl)cyclohexylidene] - 3 - oxo-**, diethyl ester oxime, 1730*e*.
—, **2 - (1 - carboxy - 2 - methyl - 2 - cyclopenten-1-yl)-**, and derivs., 2587*c*.
—, **2 - (5 - carboxy - 5 - methyl - 1-cyclopenten-1-yl)-**, dimethyl ester, 3829*d*.
—, **1**(and **3**)**-carboxy-2-oxo-**, diethyl esters, 2613*h*.
—, **2 - (1 - carboxy - 2 - oxocyclopentyl)-**, diethyl ester, 2587*a*.
—, **α-cyano-**, ethyl ester, 5150*e*.
—, *α* - **cyano - α - (2 - methyl - 2-cyclopenten - 1 - yl) - (?)**, ethyl ester, 2580*g*.
—, **2 - (1 - cyclohexen - 1 - yl) - 1-hydroxy-**, ethyl ester, 4251*d*.
—, **4-cyclohexyl-**, *cis-* and *trans-*, 1375*i*.
—, **4 - cyclohexyl - α - phenacyl-**, and ethyl ester, 1377*g*.
—, **4-cyclopentyl-**, isomers, 1375*e*.
—, **α,4 - dimethyl - 3 - oxo-**, ethyl ester, and its semicarbazone, 2605*f*.
—, **α,1-epoxy-**. See *1-Oxaspiro[2.5]octane-2-carboxylic acid*.
—, **α-ethyl-4-hydroxy-**, 2195*f*.
—, **α-ethyl-α-phenyl-**, and derivs., 3392*a*.
—, **1-hydroxy-**, hydrazide, reaction with $HNO_2$, 2993*b*.
—, **3 - hydroxy - α,4 - dimethyl-**, ethyl ester, 2605*f*.
—, **methyl-**, 9025*b*.
—, **1-methyl-**, 1375*b*.
—, **2 - [2 - methyl - 1(or 2) - cyclopenten-1-yl]-**, 3829*c*.
—, **α-oxo-**. See *Cyclohexaneglyoxylic acid*.
—, **3-oxo-**, ethyl ester oxime, 1730*e*.
—, **2-(2-oxocyclopentyl)-**, ethyl ester and its semicarbazone, 3829*c*.
—, **α-phenyl-**, P 2636*d*.
2-diethylaminoethyl ester, parasympathicolytic action of, 4381*a*.
2-dimethylaminoethyl ester, effect on adrenaline action, 4770*i*.
esters, P 679*f*, 3395*d*, P 7040*i*.
esters with amino alcs., P 3453*de*.
2 - (1 - methylbutylamino)ethyl ester, -HCl, P 2640*a*.
and (1-pyrrolidyl)alkyl esters, 1388*b*.
—, **2-phenyl-**, *cis-* and *trans-*, and their derivs., 2174*b*.
—, **4-phenyl-**, *cis-* and *trans-*, 1376*b*.
**Δ¹,α-Cyclohexaneacetic acid, 2-bromo-**(?), ethyl ester, 2586*i*.
—, **2-carboxy-α-cyano-**, diethyl ester, 4279*b*.
—, **3 - [1 - carboxy - 3 - (1,5 - dimethylhexyl) - 2 - oxocyclopentyl]-**, diethyl ester, bs 215–20°, 2587*d*.
—, **2 - (1 - carboxy - 2 - oxocyclopentyl)-(?)**, diethyl ester, 2587*a*.
—, **α-cyano-**, ethyl ester, 4251*f*
—, *α* - **cyano - 2 - (1 - cyclohexen - 1-yl)-**, ethyl ester, 4251*f*.
—, *α* - **cyano - 2 - cyclohexyl - 2 - hydroxy-**(?), *γ*-lactone, 4251*g*.
—, *α* - **cyano - 2 - (1 - hydroxycyclohexyl)-(?)**, *δ*-lactone, 4251*g*.
—, *α* - **cyano - 2 - (2 - methyl - 2 - cyclopenten-1-yl)-(?)**, ethyl ester, 2586*g*.
**Cyclohexaneacetonitrile**, *α* - **(2 - diethylaminoethyl) - α - phenyl-**, detn. of, 1280*g*.
—, **1 - (dimethylaminomethyl) - α,α-diphenyl-**, 4243*e*.
—, **α-ethyl-α-phenyl-**, 3392*a*.[3]
—, **α-phenyl-**, detn. of, 1280*g*.
**Cyclohexaneacetyl chloride, α-ethyl-α-phenyl-**, 3392*a*.
—, **1-methyl-**, 1375*b*.
**Cyclohexanealdehyde**. See *Cyclohexanecarboxaldehyde*.
**Cyclohexanebutanol** (*4 - cyclohexyl - 1-butanol*).
—, **α-ethyl-β-methyl-**, 1337*b*.
—, *α* - **ethyl - β,2,2,6 - tetramethyl-**, 1337*i*.
**Cyclohexanebutyramide** (*γ-cyclohexylbutyramide*).
—, **4-cyclohexyl-**, *cis-* and *trans-*, 1375*g*.
—, *N*-**2-hydroxyethyl-**, in penicillin production, 2273*h*.
—, **β-methyl-**, 1375*b*.
**Cyclohexanebutyric acid** (*γ - cyclohexylbutyric acid*), 1375*f*.
—, **4-cyclohexyl-**, *cis-* and *trans-*, and their Me esters, 1375*g*.
—, **4-hydroxy-**, acetate, 1381*g*.
and methyl ester, 1377*i*.
—, **β**(and *γ*)**-methyl-**, 1375*b*.
**Cyclohexanebutyryl chloride, 4-cyclohexyl-**, *cis-* and *trans-*, 1375*g*.
—, **4-hydroxy-**, acetate, 1381*h*.
—, **β**(and *γ*)**-methyl-**, 1375*b*.
**Cyclohexanecapric acid** (*ε-cyclohexylcapric acid*), derivs., P 3039*d*.
—, **ε,4-dimethyl-**, 566*b*.
**Cyclohexanecaproic acid** (*ε-cyclohexylcaproic acid*).
—, **δ,1-dibromo-ε-oxo-**, 587*g*.
—, **4 - (1,4 - dihydro - 2 - hydroxy-1,4 - dioxo - 2 - naphthyl) - ε - oxo-**, and methyl ester and its acetate, 1387*d*.
—, **δ,1-dihydroxy-ε-oxo-**, and *δ*-lactone, 587*h*.
—, **ε-oxo-**, and derivs., 587*d*.
and semicarbazone, 3366*e*.
**Cyclohexanecarbamic acid**, esters, 4233*a*.
—, **4-cyclohexyl-**, ethyl ester, 1377*f*.
—, *N*-**ethyldithio-**, compd. with *N*-ethylcyclohexylamine, identification of, 6856*h*.
**Cyclohexanecarbinol**. See *Cyclohexanemethanol*.
**Cyclohexanecarbonitrile, 1-anilino-**, an insecticide, 4415*i*.
—, **1,1'-azodi-**, decompn. kinetics of, 3354*h*.
—, **4-chloro-2,6-diphenyl-**, 2964*b*.
—, **1-cyclohexylamino-**, as insecticide, 4415*i*.
—, **2 - cyclohexylidene - 1 - hydroxy-**, 1359*c*.

## Cyclohexanecarbonitrile

—, 1-diethylamino-, as insecticide, 4415g.
——, 1-hydroxy-, acetate, P 3027g.
dissocn. of, 7906i.
——, 2-hydroxy-, 588e.
——, 4 - hydroxy - 2,6 - diphenyl-, and esters, 2963e.
——, 1 - (2 - hydroxyethylamino)-, as insecticide, 4415g.
——, 2 - hydroxy - 2 - methyl-, hydrolysis of, 6172b.
——, 1-hydroxy-2-phenyl-, *cis-trans-*, 1357e.
——, 1 - hydroxy - 2 - (3,4 - xylyl)-, 1358g.
——, 4-methoxy-2,6-diphenyl-, 2963i.
——, 1-methylamino-, reaction with $CS_2$, 1766c.
——, 2-oxo-, 588e.
**Cyclohexanecarbonyl chloride**, P 3033d.
——, 2,2,6-trimethyl-, 4813e.
**Cyclohexanecarboxaldehyde**, P 4287c, P 4685f.
and 2,4-dinitrophenyl hydrazone, 8359h.
formation of, from 3-nitroso-1-ox-3-azaspiro[4.5]decan - 2 - one and KOH, 2993c.
——, 1-bromo-, 8359h.
——, 1-bromo-2-methyl-, 8360c.
——, 2,2-dimethyl-, 8362c.
——, 3,5-dimethyl-, and semicarbazone, 8362a.
——, 4,4-dimethyl-2,6-dioxo-, now identified as bis(4,4-dimethyl-2,6-dioxocyclohexyl)acetic acid, 2965a.
——, 4-isopropyl-, isomers, and semicarbazones, 7434g.
——, 3-methyl-, and semicarbazone, 2966a.
**Cyclohexanecarboxamide**, 4233a.
——, *N* - (2 - diethylaminoethyl) - *N*-ethyl-1-phenyl-, and hydrochloride, P 7958i.
——, *N* - (2 - diethylaminoethyl) - *N*-ethyl-1-(3,4-xylyl)-, P 5797h.
——, *N* - (2 - dimethylaminoethyl) - *N*-ethyl-1-phenyl-, and hydrochloride, P 7959a.
——, *N* - (1 - dimethylcarbamylethyl)-*N*-ethyl-4-methyl-, P 249c.
——, 3,3 - dimethyl - *N* - 1 - naphthyl-, 9044f.
——, *N*-(2,4-dioxo-3-pyrrolidyl)-, 2988f.
——, *N*-2-hydroxyethyl-, 573a.
——, 2-phenyl-, *cis-* and *trans-*, 2174c.
**Cyclohexanecarboxamidine**, picrate, P 2231a, P 5038g, 7445b.
——, *N*-phenyl-, and picrate, 7444c.
**Cyclohexanecarboxanilide**, *p*-sulfamyl-, 1028c.
**Cyclohexanecarboxylic acid**, combination with serum albumins, 4708c.
2-diethylaminoethyl ester, 1023c.
esters with keto steroids, 2,4-dinitrophenylhydrazones, 4282c.
formation of, from hydrogenation of 2,4-cyclohexadiene - 1 - carboxylic acid, 6203b.
hydrazides, 4232i.
1-hydroxycyclopentyl ester, 5150e.
——, 1-amino-, ethyl ester, and its -HCl, 572g.
ethyl ester, hydrogenation velocity of, 574a.
——, 5 - (1,3 - benzodioxan - 6 - ylazo)-2,2-dimethyl-4,6-dioxo-, ethyl ester, P 8149c.
——, 3-bromo-1-methyl-2-oxo-, ethyl ester, 2605d.
——, butoxy-, isomers, Bu esters, 6203c.
——, 1 - (3 - chloro - 2 - butenyl) - 2-oxo-, ethyl ester and its phenylsemicarbazone, 7907g.
——, 1-(2-cyanoethyl)-2-oxo-, ethyl ester, 1012i.
——, 1 - cyano - 4 - hydroxy - 2,6 - diphenyl-, and its δ-lactone, 2963g.
——, 2-cyano-2-methyl-4-oxo-, ethyl ester and its semicarbazone, 2200a.
——, 1-cyano-4-oxo-2,6-diphenyl-, and ethyl ester, 2963f.
——, cyclohexyl-. See [*Bicyclohexyl*]*carboxylic acid*.
——, 4 - (1,4 - dihydro - 3 - hydroxy-1,4 - dioxo - 2 - naphthyl)-, 1387d.
——, 1,5 - dihydroxy - 2,3 - diphenyl-, diacetate and γ-lactone acetate, 157d.
——, 2,3(2,4 and 2,5)-dimethyl-, 2964b.
——, 2,6-dimethyl-4-oxo-, and ethyl ester, 1391a.
——, 1 - (3 - ethoxypropyl) - 2 - oxo-, ethyl ester and its 2,4-dinitrophenylhydrazone, 1414g.
——, 1 - [5 - (ethylmethylamino) - 3-oxoamyl]-2-oxo-, ethyl ester and acid oxalate, 7432i, 7433a.
——, formyl-, methyl ester, P 4685f.
——, 2 - (hexahydro - 2,4,6 - trioxo - 5-pyrimidyl)-, ethyl ester, P 1800d.
——, 2-hydroxy-, 588g.
——, 4-hydroxy-, *cis-* and *trans-*, and derivs., 7436di, 7437a.
——, 1 - (1 - hydroxycyclohexyloxy)-, 4253f.
——, 4-hydroxy-2,6-diphenyl-, and its δ-lactone, 2963h.
——, 2-hydroxy-2-methyl-, stereoisomers, 6172c.
——, 1 - hydroxy - 5 - oxo - 2,3 - diphenyl-, and derivs., 157c.
——, 2 - [2 - (3 - indolyl)ethylcarbamyl-methyl]-, 7492c
lactam—see *Benz*[*g*]*indolo*[2,3-*a*]*quinolizin-5*(1*H*)*-one*, 2,3,4,4a,7,8,13,14a-octahydro-.
——, 4-methoxy-, ethyl ester, 7437b.
——, 4-methoxy-2,6-diphenyl-, 2963i.
——, 4 - (*p* - methoxyphenyl) - 1-methyl-2-oxo-, ethyl ester, 3373c.
——, 1-methyl-, reaction of, $H_2SO_4$ and $HN_3$, 9027f
——, 1 - (2 - methyl - 2 - cyclopenten-1-yl)-2-oxo-, ethyl ester, 2586f.
——, 1-methyl-2-oxo-, ethyl ester, 1381b.
——, 2-methyl-4-oxo-, ethyl ester, 3807e.
——, 4-methyl-2-oxo-, ethyl ester, color reaction with FeCl₃, 1008b.
——, 4 - (5 - methyl - 2 - oxo - 4 - imidazolidylmethyl)-, 1769g.
——, 2-oxo-, ethyl ester, color reaction with FeCl₃, 1008a.
ethyl ester, enol-keto tautomerism in gas phase, 6979g.
ethyl ester, reaction with 1,1 dialkyl 4-oxopiperidinium salts, 7432i
——, 4-oxo-, 2958d.
——, 2-oxo-4,4,6-trimethyl-, ethyl ester, 1013g.
——, 2,3,4,5,6-pentamethyl-, 2964b.
——, 2-phenyl-, 8364g.
*cis-* and *trans-*, and benzylamine salt, 8363i.
*cis-* and *trans-*, and salts with 2-benzyl-2-thiopseudourea, 8363e
*cis-* and *trans-*, and their derivs., 2174b.
——, 4-phenyl-, 4-phenylcyclohexyl ester, 1376h.
——, 2,3,4,6(and 2,3,5,6)-tetramethyl-, 2964b.
——, 1-*p*-tolyl-, 2-dimethylaminoethyl ester, P 7959c.
——, 2,3,4(2,3,6 and 2,4,5)-trimethyl-, 2964b.
——, 1,3,3-trimethyl-4-oxo-, and derivs., 7462c.
**1,3-Cyclohexanediacetic acid**, 1-carboxy-2-oxo-, triethyl ester, 2613i.
——, 2-hydroxy-2-phenyl-, diethyl ester, 2613i.
——, 2-oxo-, and diethyl ester, 2613i.
**1,2 - Cyclohexanedicarboxaldehyde**, and derivs., 6196i.
**Cyclohexane - 1,2 - dicarboximide, 3,6-endomethylene-** See *2,3-Norcamphanedicarboximide*
**1,2 - Cyclohexanedicarboximide**, *N*-butyl-, P 4421e
**1,2-Cyclohexanedicarboxylic acid**, alkyl derivs., as corrosion inhibitors, P 1180c.
*cis-*, 6196i.
——, 2,6-dioxo-, diethyl ester, color reaction with FeCl₃, 1008f.
——, 1-methyl-, *trans-*, and diethyl ester, 2200b.
——, 1-methyl-5-oxo-, diethyl ester and its semicarbazone, 2200b.
**1,3 - Cyclohexanedicarboxylic acid, 1-isopropyl - 4 - methyl - 6 - oxo-**, diethyl ester, 3807f.
——, 5 - isopropyl - 2 - methyl - 4 - oxo-, diethyl ester, 3807f.
——, 5 - isopropyl - 2 - methyl - 6 - oxo-1-(3-oxobutyl)-, diethyl ester, 3807f.
——, 4-methyl-6-oxo-, diethyl ester, 3807e.
——, 1,5,5-trimethyl-4-oxo-, diethyl ester, 7462c.
**1,1 - Cyclohexanedimethanol**, α - cyclohexyl-, ethers of, P 902f.
**1,2-Cyclohexanediol**, 7421b.
*cis* and *trans-*, P 6230a.
*cis-* and *trans-*, and derivs., 7434h.
effect on oiliness of lubricants, 1555h.
prepn. of, 7915f.
*trans-*, prepn. of, 1730c.
——, 3-isopropyl-6-methyl-, 7915g.
——, 1-methyl-, diacetate, 2173e.
——, 3-methyl-, and diesters, 2173d.
**1,4-Cyclohexanediol**, *cis-* and *trans-*, and derivs., 7435f.
effect on oiliness of lubricants, 1555h.
*trans-*, polyesters of, P 7755a.
——, 1-ethynyl-, and 4-benzoate, 7416hi.
——, 2-heptyl-5-isoamyl-3-methyl-, 7913c.
**1,2-Cyclohexanedione**, from cyclohexanone, 2196f.
dioxime, 2176c.
as analytical reagent, 3313g.
nickel deriv., 8938g.
reaction with Fe(II), 6032a.
monoxime, as stabilizer for Cl-contg. resins, P 8739f.
1-phenylhydrazone, 7938g.
——, 3,5-dimethyl-, 2-phenylhydrazone, 7938f.
——, 3,4,5,6-tetrahydroxy-, and bis(phenylhydrazone), 153b.
——, 3,4,5-trihydroxy-, and bis(phenylhydrazone), 4726h.
**1,3-Cyclohexanedione**, and derivs., 7478f and derivs., reaction with mercaptans, P 6230h.
and derivs. with aldehydes, 1336c.
——, 2,2'-anisylidenedi-, 1336e.
——, 2,2'-benzylidenedi-, 1336d.
——, 2,2'-butylidenedi-, 1336d
——, 2,2'-cinnamylidenedi-, 1336e.
——, 2,2'-cuminylidenedi-, 1336e
——, 5,5-dimethyl-, disemicarbazone, reaction with NaOEt and with KOH, 123g.
effect on melanoidin formation from amino acids and sugars, 450h.
effect on pepsin, 4709i
formaldehyde detn. with, in carbohydrate oxidation, 1330f.
hydrogenation of, 475c.
reaction product with chloral, alk. splitting of, 2964i.
spectrum of, 4575c.
——, 2,2' - (*p* - dimethylaminobenzylidene)di-, 1336e.
——, 5,5-dimethyl-4-phenyl-, dioxime, 7479b
——, 5,5 - dimethyl - 2 - (2,2,2 - trichloro - 1 - hydroxyethyl)-, 2965i
——, 2,2' - (2,4 - dinitrobenzylidene)di-, 1336e
——, 4,5-diphenyl-, and dioxime, 7479d
——, 2,2'-ethylidenedi-, 1336d.
——, 2,2'-furfurylidenedi-, 1336e
——, 2,2' - (*m* - hydroxybenzylidene)di-, 1336e.
——, 2 - hydroxy - 4,5,5 - trimethyl-2-methacrylate, P 2634g
——, 2,2' - (*p* - methylbenzylidene)di-, 1336e.
——, 2,2' - methylenebis[5,5 - dimethyl-, 1330f.
——, 2,2'-methylenedi-, 1336a
——, 2-methyl-5-phenyl-, dioxime, 7479c.
——, 2,2' - [*m*(*o* and *p*) - nitrobenzylidene]di-, 1336e.
——, 2,2'-piperonylidenedi-, 1336e
——, 2,2'-propylidenedi-, 1336d
——, 2,2'-vanillylidenedi-, 1336e
——, 2,2'-veratrylidenedi-, 1336e
**1,2 - Cyclohexanediphosphonic acid**, mixt. with 1,3 and 1,4 isomers, 8366b.
**1,3 - Cyclohexanediphosphonic acid**, mixt. with 1,2- and 1,4 isomers, 8366b.
**1,4 - Cyclohexanediphosphonic acid**, mixt. with 1,2- and 1,3-isomers, 8366b.
**1,2-Cyclohexanedithiol**, 7419b, 7420b
**Cyclohexaneëthanol** (*2-cyclohexylethanol*)
prepn. of, 573d.
——, β - (2 - dimethylaminopropyl)-α-ethyl-β-phenyl-, 3391d
——, 1-methyl-, and derivs., 3372a
**Cyclohexaneëthylamine** (*2-cyclohexylethylamine*), 1026e.
——, α-dimethyl-, *d-* and *l-*, and salts, P 1802e.
effect on heart, 9250g.
and hydrochloride, 1026f.
——, *N*,1-dimethyl-, hydrochlorides of *d-* and *l-*, pharmacology of, 9249f
——, α-ethyl-*N*-methyl-, P 1802f.
——, α-methyl-, effect on heart, 9250g.
and hydrochloride, 1026f.
——, *N*,α,β-trimethyl-, P 1802e
——, *N*,α,4-trimethyl-, (*cyclohexylpropylic acid*).
**Cyclohexaneglyoxylic acid**
——, 2-oxo-, ethyl ester, color reaction FeCl₃, 1009b.

—, α-thio-, 3820e.
**Cyclohexanehendecanoic acid** (*11-cyclohexylhendecanoic acid*).
—, 4-methyl-, 5666.
**Cyclohexanehexol.** See *Inositol.*
**Cyclohexanemalonic acid, 4-carboxy-α,4-dimethyl-2-oxo-,** triethyl ester, 2605e.
—, 4-carboxy-4-methyl-3-oxo-, triethyl ester, and its semicarbazone, 2605d.
—, 4-cyclohexyl-, diethyl ester, 1377e.
**Cyclohexanemethanediol,** diacetate, reaction with $H_2S$, P 5418e.
**Cyclohexanemethanesulfonic acid** (*cyclohexylmethanesulfonic acid*).
—, 3,3-dimethyl-, and derivs., 9044e.
—, 5-hydroxy-3,3-dimethyl-, and benzidine salt, 9044e.
**Cyclohexanemethanethiol,** and acetate, P 5418f.
**Cyclohexanemethanol,** H 3-nitrophthalate, isomers, 5767e.
—, 1-amino-, and hydrochloride, 572h.
—, 2-amino-, 589b.
—, 2-chloro-, 589a.
—, 1,2-dibromo-, acetate, 159d.
—, α-(2-diethylaminoethyl)-α-phenyl-, hydrochloride, 9071d.
—, 3-(and 2,6)-dimethyl-, 164g
—, 3,3-dimethyl-, and esters, 9044g.
—, α-(2-dimethylaminoethyl)-α-phenyl-, hydrochloride, 9071d.
—, 1,3-dimethylcyclohexyl)-2-hydroxy-4,4,6-trimethyl-†, P 5687
2-hydroxy-, bis(cyclohexanecarbamate), 4233a
—, and derivs., 588k.
4-hydroxy-, *cis-* and *trans-*, and [illegible], 7436e.
2-hydroxy-4-methyl-, 589b.
4-hydroxy-α,α,1,3,4-pentamethyl-, 3777i.
4-methoxy-, and 1-naphthalenecarbamate, 7437c.
α-methyl-α-pyridyl-. See *Pyridylcyclohexanol, α-cyclohexyl-α-methyl-.*
α-phenyl-, esters, P 5797f
3,4-xylyl-, esters, P 5797g.
**Cyclohexanemethylamine, 2-chloro-,** [illegible]
2-cyclohexyl-, and hydrobromide, [illegible]
2-cyclohexyl-N,N-diethyl-, [illegible]
2-cyclohexyl-N,N-dipropyl-, and hydrochloride, 1359d.
2-cyclohexyl-N-propyl-, hydrobromide, 1359d
N,N-diethyl-, and acetate, P [illegible]
N,N-diethyl-2-phenyl-, 1357h.
N,N-dimethyl-2-phenyl-, 1357h
N-ethyl-, and acetate, P 2630h.
2-ethyl-, *cis-* and *trans-*, and picrate, [illegible]
2-methoxyphenyl)-, and hydrochloride, 1357i, 1358f
α-methyl-2-phenyl-, and hydrochloride, 1357i, 1358c.
2-phenyl-, stereoisomers and their hydrochlorides, 1357f.
2-phenyl-N,N-dipropyl-, 1357h.
2-3,4-xylyl)-, and hydrochloride, 1357i, 1358e
**Cyclohexanepentanol** (*5-cyclohexyl-1-pentanol*)
α-cyclohexyl-†, 5015f.
α-isobutyl-, 4651i
α-methyl-, and derivs., 8361a.
**3,4,5-Cyclohexanepentol.** See *Quercitol.*
**Cyclohexanephosphonic acid,** 1315e.
**Cyclohexanephosphonyl chloride†,** 1315e.
**Cyclohexanepropanol** (*3-cyclohexyl-1-propanol*), and esters, 1375f.
—, β-amino-, and salts, 572i.
—, β-amino-4-hydroxy-, and oxalate, [illegible]
—, 4-hydroxy-α,2,6,6-tetramethyl-, 4813g.
—, 4-hydroxy-α,2,2,6-tetramethyl-, isomers, 3798g, 8499b.
—, α-methyl-, and esters and ethers of, P 670d.
and 1-naphthalenecarbamate, 8360k.
—, α-methyl-α-propyl-, 1337c.
—, α-propyl-, and 1-naphthalenecarbamate, 8360h.
**Cyclohexanepropionamide** (*β-cyclohexylpropionamide*).
4-cyclohexyl-, *cis-* and *trans-*, 1375k.
α-methyl-, 1375b
—, 2-phenyl-, *cis-* and *trans-*, 2174e.
**Cyclohexanepropionanilide, 1-ethyl-,** 3371i.
**Cyclohexanepropionic acid** (*β-cyclohexylpropionic acid*).
—, 1-acetyl-2-oxo-, methyl ester, P 5417b.
—, 1-butyryl-2-oxo-, ethyl ester, P 5417c.
—, 1-(1-cyclohexen-1-yl)-2-oxo-, P 6230e.
—, 4-cyclohexyl-, *cis-* and *trans-*, 1375h.
—, β-(*p*-methoxyphenyl)-2-oxo-, and derivs., 3418k.
—, α-methyl-, 1375b.
—, 2-oxo-, 1-acyl derivs., γ-acylazelaic acid esters from, P 6225i.
—, 2-oxo-β-phenyl-, ethyl ester, oxime, 3418f.
—, 2-oxo-1-propionyl-, butyl ester, P 5417c.
—, 2-phenyl-, *cis-* and *trans-*, and their derivs., 2174b.
—, 3-(trifluoromethyl)-, 1382b.
**Cyclohexanepropionitrile** (*β-cyclohexylpropionitrile*).
—, 1-acetyl-2-oxo-, P 7040g.
—, 1-butyryl-2-oxo-, P 7040h.
—, 1-dimethylamino-α,α-diphenyl-, 4243d.
—, 2-oxo-, 1-acyl derivs., γ-acylazelaic acid esters from, P 6225i.
—, 2-oxo-1-propionyl-, P 7040g.
**Cyclohexanepropionyl chloride, 4-cyclohexyl-,** *cis-* and *trans-*, 1375h.
—, 3-(trifluoromethyl)-, 1382b.
**Cyclohexanepropylamine** (*3-cyclohexylpropylamine*).
—, *N,N*-diethyl-, acetate and oxalate, 131d.
—, *N,N*-dimethyl-, and picrate, 1026g.
**Cyclohexane ring.** See *Cyclohexane.*
**Cyclohexanesuccinic acid** (*cyclohexylsuccinic acid*).
—, 4-cyclohexyl-, and monoethyl ester, 1377f.
—, 1-hydroxy-, γ-lactone, and its Me ester, 590f.
**Δ¹ α-Cyclohexanesuccinic acid** (*cyclohexylidenesuccinic acid*), 590e.
**Cyclohexanesuccinic anhydride, 4-cyclohexyl-,** 1377e.
**Cyclohexanesulfamic acid,** as hardening agent for resins, P 9526d.
**Cyclohexanesulfonic acid, 1-hydroxy-,** sodium salt, as antioxidant for photographic developer, P 2106d.
—, 2-hydroxy-, sodium salt, 7421b.
**Cyclohexanesulfonyl chloride,** reaction with hide powder, 4039f.
**1,1,3,3-Cyclohexanetetramethanol, 2-hydroxy-,** esterification with linseed fatty acids, 4871c.
and esters, P 9527i.
**1,1,3,3-Cyclohexanetetrapropionamide, 5,5′-isopropylidenebis[2-oxo-,** P 2228i.
—, 5,5′-oxybis[2-oxo-, P 2228c.
—, 5,5′-thiobis[2-oxo-, P 2228c.
**1,1,3,3-Cyclohexanetetrapropionitrile, 5,5′-methylenebis[2-oxo-,** P 2228c.
**Cyclohexanetetrol, diacetamido-,** isomers, 6582a.
—, diamino-, isomers, and derivs., 6581e.
—, dibromo-, isomers, and derivs., 6581b.
**Cyclohexanethiol,** and lead deriv., 998c.
manuf. of, P 2630a.
and mercury deriv., 1000a.
—, 2-(*tert*-butylmercapto)-, 7420b.
—, 2-[2-(*tert*-butylmercapto)cyclohexylmercapto]-, 7420b.
—, 2-chloro-, and acetate, 7419i.
—, 2-(ethylmercapto)-, 7420b.
—, 2-[2-(ethylmercapto)cyclohexylmercapto]-, 7420b.
—, 2-methyl-, 999e.
—, 2-*N*-methylanilino-, 7420c.
**1,2,3-Cyclohexanetricarboxylic acid, 1,3-dimethyl-,** and its esters, 1042h.
**1,3,5-Cyclohexanetricarboxylic acid,** and trimethyl ester, 3797g.
**1,3,5-Cyclohexanetriol,** α-, crystal structure and configuration of, 6881f.
compd. with $NH_3$, crystal structure of, 6486g.
**1,3,5-Cyclohexanetrione,** trioxime, as vulcanizing agent, 5623f.
—, hexamethyl-, spectrum of, 2598f.
**1,2,3-Cyclohexanetrisulfonic acid, 1,3-dihydroxy-,** trisodium salt, 2595g.
**Cyclohexanevaleric acid** (*δ-cyclohexylvaleric acid*), in penicillin production, 2273i.
—, δ-oxo-, 587e.
**Cyclohexanol,** acetate, 6988e.
acetate and 2-naphthalenecarbamate, 2588i.
acetate, solubilization with Na secondary alkyl sulfates, 466a.
acetate, spectrum of, 1656c.
acetoacetate, 5150e.
acrylate, P 6651b, P 7754h.
adsorption by C and graphite, 7288i.
benzoate, 5150e.
in chloride argentometric detn., 8947f.
α-chloroacrylate, polymer with 1,3-butadiene, P 2471a.
*l*-citronellate, 4633g.
crystn. and nuclei in melt of, 3278a.
dehydration of, 5010e.
dichloroacetate and trichloroacetate, 4220d.
effect on oiliness of lubricants, 1555h.
effect on soly. of petr. ether in water, 465h.
ester(di-) with γ-acetylazelaic acid, P 6226c.
ester (di-) with thiobis[thionoformic acid], 144d.
esters with 3-carboxy-1-methylpyridinium bromide and nicotinic acid, 2622i.
ester with diglycolic acid, 9032e.
ester with maleate of glycerol, polymer with diallyl tetrachlorophthalate, P 3233b.
ethylene chlorohydrin recovery from aq. solns. with, and its esters, P 2633c.
formation in reaction of cyclohexane with $N_2O_4$, P 4694c.
fumarate, P 903h.
heat of wetting of activated charcoal by, 8835f.
insecticide from, P 6778d.
isocyanate—see "cyclohexyl ester" under *Isocyanic acid.*
levulinate, toxicity of, 1867f.
manuf. of, and its alkyl derivs., and lubricant additives by reaction with $P_2S_5$ and salts, P 1959e.
methacrylate, fractionation of polymers of, 6861b.
*p*-nitrobenzoate, in chigger control, 8600b.
phys. consts. of, and its esters, 2955h.
propionate, as flavoring component, 2370h.
reaction with $SOCl_2$, 3780e.
soly. in Na xylenesulfonate solns., 1242e.
in starch fractionation, 6446f.
sucrose soln. interfacial tension against, 2845b.
sucrose soln. work of adhesion in, 2845d.
system: glycerol-$H_2O$-, P 9081d.
*p*- and α-toluenesulfonates, as plasticizers for polysulfone resins, P 7751d.
**Cyclohexanol, 2-amino-,** *dl-*, *cis-* and *trans-*, and derivs., 3372g.
—, 2-(aminomethyl)-, *cis-trans-* and *trans-*, and salts, 588g.
—, 2-(aminomethyl)-1-methyl-, 588k.
—, 1-amyl-, oxidation of, 3366f.
—, 4-*tert*-amyl-, acrylate, P 7754i.
—, 1-benzyl-, oxidation of, 3366d.
—, 2-[(benzylmethylamino)methyl]-1-phenyl-, P 5417f.
—, 1-(3-buten-1-ynyl)-3(and 4)-methyl-, 1166, 1176.
—, 2-chloro-, effect on seeds, 4733i.
thiocyanate, 998g.
*trans-*, 588f, 7435d.
—, 4-chloro-, *cis* and *trans-*, 7435i.
—, 4-(chloromethyl)-, *cis-* and *trans-*, and derivs., 7436h.
—, 4-chloro-4-methyl-, benzoate, 7417c.
—, 1-cyclohexyl-, 5011a.
oxidation of, 3366c.
—, 2-cyclohexyl-, as insect repellent, 2363c.
mixt. with 2-phenylcyclohexanol, as insect repellent in cosmetics, 9335g.
—, 4-cyclohexyl-, acrylate, P 7754i.
*cis-* and *trans-*, and derivs., 159i.
*cis-* and *trans-*, H bonding in, 6174c.
optical crystallographic properties of, 7773c.
—, 2-cyclohexylidene-1-(2-pyridyl)-, and hydrochloride, 2205f.
—, 2,4-diamyl-, acrylate, P 7754i.
—, 1,1′-(1,2-dibromoethylene)di-, 4253b.
—, 2-(diethylaminomethyl)-1-phenyl-, 1357i.
—, 1-(3-diethylamino-1-propynyl)-, acetate (ester), hydrogenation of, 131d.

——, **4,4'-(1,2-diethylethylene)di-**, *meso-* and its dibenzoate, 2194*f*.
stereoisomers, 2195*e*.
——, **4-(α,β-diethyl-β-hydroxy-*p*-methoxyphenethyl)-†**, 2195*g*.
——, **4-(α,β-diethyl-*p*-hydroxyphenethyl)-**, *dl-*, 7007*i*.
*cis-dl-* and *trans-dl-*, and their benzoates, 2195*b*.
and monobenzoate, 2194*g*.
——, **1,2-dimethyl-**, and oxidation of, 2176*b*.
——, **2,3-dimethyl-**, 475*c*, 9044*f*.
——, **3,5-dimethyl-**, 165*c*.
isomers and esters, 2962*i*.
——, **3-dimethylamino-**, α-methyl-α-propylvalerate (ester), P 3443*f*.
——, **2-(dimethylaminomethyl)-6-methyl-1-phenyl-**, P 5417*f*.
——, **2-(dimethylaminomethyl)-1-phenyl-**, 1357*i*.
and esters, P 5417*e*.
——, **2-(dimethylaminomethyl)-1-*o*-tolyl-**, P 5417*f*.
——, **1-(3,7-dimethyloctyl)-**, 3366*a*.
——, **2-(2,4-dinitrophenylmercapto)-**, 7421*a*.
——, **2,6-di-1-piperidyl-**, and dipicrate, 7912*e*.
——, **2-(dipropylaminomethyl)-1-phenyl-**, 1357*i*.
——, **1-dodecyl-**, 3366*a*.
——, **1-ethyl-**, *p*-nitroperoxybenzoate, 6189*g*.
——, **1,1'-ethylenedi-**, 4253*d*.
——, **4,4'-ethylenedi-**, 590*h*.
——, **2,2'-(ethylenedithio)di-**, 7421*a*.
——, **1-ethyl-3-methyl-**, 165*a*.
——, **3-(ethylmethylamino)-**, α-ethyl-α-methylcaproate (ester), P 3443*g*.
——, **1-ethynyl-**, 7437*d*.
——, **1-ethynyl-2,6-dimethyl-**, rearrangement of, 1017*f*.
——, **1-hexacosyl-**, 3366*a*.
——, **1-hexadecyl-**, 3366*a*.
——, **(hydroxymethyl)-**. See *Cyclohexanemethanol, hydroxy-*.
——, **4-(3-hydroxypropyl)-**. See *Cyclohexanepropanol, 4-hydroxy-*.
——, **2-iodo-**, and acetate, 7435*b*.
——, **4-iodo-**, 7436*a*.
——, **4-(iodomethyl)-**, *trans-*, benzoate, 7436*i*.
——, **1-isopropyl-**, oxidation of, 3366*f*.
——, **4-isopropyl-**, *cis-*, hydrogen phthalate, 161*c*.
——, **2-isopropyl-5-methyl-**. See *Menthol*.
——, **2-phenyl-**, mixt. with 2-cyclohexylcyclohexanol—see *Cyclohexanol, 2-cyclohexyl-*.
——, **2-mercapto-**, 7420*i*.
derivs., 7420*a*.
——, **4-(methoxymethyl)-**, *cis-* and *trans-*, and derivs., 7436*g*.
——, **1-(*o*-methoxyphenyl)-**, 1358*f*.
oxidation of, 3366*d*.
——, **methyl-**, phosphate (neutral), in mercerizing solns., P 9478*b*.
toxicity of, 1867*f*.
——, **1-methyl-**, *p*-nitroperoxybenzoate, 6189*f*.
——, **2-methyl-**, and derivs., 2961*b*.
fluophosphate, 121*e*.
——, **2(3 and 4)-methyl-**, acrylates, P 7754*i*.
——, **2(and 4)-methyl-**, nicotinates, 2622*i*.
*trans-*, H 3-nitrophthalates, 5767*d*.
——, **3-methyl-**, 164*i*.
——, **4-methyl-**, acrylate, P 6651*b*.
*trans-*, benzoate, 7437*b*.
——, **2-(methylaminomethyl)-1-phenyl-**, P 5417*f*.
——, **2-methylene-**, and carbanilate, 589*a*.
——, **1-(1-naphthyl)-**, 3366*d*.
——, **1-octadecyl-**, 3366*a*.
——, **phenyl-**, insect-repellent stick from, P 4421*b*.
——, **1-phenyl-**, oxidation of, 3366*c*.
——, **2-phenyl-**, 5150*f*.
and *N*-acetylglycine ester, as insect repellents, 2363*c*.
in cosmetics, 9335*g*.
**mono-**, di- and trichloroacetates, 4220*d*.
as tsetse fly repellent, 1900*i*.
——, **4-phenyl-**, 1376*h*.
*cis-* and *trans-*, and derivs., 159*i*.
*cis-* and *trans-*, H bonding in, 6174*c*.
optical crystallographic properties of, 7773*c*.
——, **1-phenyl-2-(1-piperidylmethyl)-**, P 5417*f*.
——, **1-[3-(1-piperidyl)propyl]-**, and hydrochloride, P 6241*d*.
——, **4-propyl-**, isomers of, 6989*e*.
——, **1-(2-pyridyl)-**, and hydrochloride, 2205*e*.
——, **1-tetradecyl-**, 3366*a*.
——, **2,2,6,6-tetrakis(hydroxymethyl)-**, and esters with rosin acids, P 8402*b*.
——, **1-(2,7,11,15-tetramethylhexadecyl)-**, 3366*a*.
——, **2,2'-thiodi-**, 7420*i*.
——, **2-*p*-tolylsulfonyl-**, 7421*b*.
——, **2,3,5-trimethyl-**, acrylate and methacrylate, P 7754*i*.
oxidation of, P 1217*g*.
toxicity of, 4401*h*.
——, **1-vinyl-**, 6970*c*.
——, **1,1'-vinylenedi-**, 4253*b*.
——, **1-(3,4-xylyl)-**, 1358*d*.

**Cyclohexanone**, acetal with cholesterol, P 3980*g*.
acylating oxidation of, with $Hg(OAc)_2$, 7915*e*.
2-acyl derivs., reaction with acrylic acid esters, P 5417*b*.
acyl derivs., ring cleavage of, 2174*e*.
acylhydrazones†, 6072*fi*, 6973*c*.
adsorption by $Ph_2NH$, 464*f*.
adsorption by steel, 6559*h*.
3-alkyl derivs., 9045*c*.
azine, 1654*e*, 1655*a*.
chlorination of, 2176*b*.
cobalt xanthate soly. in, 2122*g*.
compds. with amine bisulfites, 3355*h*, 3356*b*.
compd. with phenol, infrared and Raman spectra of, 107*b*.
compd. with $NaHSO_3$—see "sodium salt" under *Cyclohexanesulfonic acid, 1-hydroxy-*.
cyanohydrin—see *Cyclohexanecarbonitrile, 1-hydroxy-*.
cyclohexylcarbonylhydrazone-†, 4233*c*.
derivs., 3373*d*.
in perfumery, 1909*i*.
reactions of 2 aryl, 5010*f*.
(dichlorophenyl)hydrazones, 622*d*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
halochromism in, 7910*i*.
hydrazones and their derivs., 6591*i*, 6632*adeg*.
in insecticidal aerosol, effect on plants, 1523*f*.
lyoparachor of, 2834*b*.
manuf. of, and its alkyl derivs., and their reduction to alcs. in lubricant additive manuf., P 1959*d*.
microwave absorption in solns. of, 6019*g*.
oxidation (auto-) of, 2196*f*.
oxidation of, 2176*a*, 7912*g*.
oxime, P 3844*d*.
benzenesulfonate, 2594*d*.
as catalyst in polymerization of olefins, P 4515*b*.
and oxime, 156*i*, 4232*c*.
phys. consts. of, 2955*i*.
polymethyl derivs., Darzens condensation with, 8361*h*.
reaction with diethyl succinate, 590*c*.
with 3,6-dimethyl-1,7-octadiyne-3,6-diol, 3359*e*.
with ethyl cyanoacetate, P 7507*d*.
with formamide, 3373*e*.
with hippuric acid, 7427*b*.
with HCN, 7906*i*.
with $BzO_2H$, kinetics of, 8358*g*.
with *o*-$HO_2CC_6H_4CO_2H$, 7434*d*.
with 2,4-thiazolidinedione, 3820*b*.
reduction of, P 7509*g*.
regeneration of, from its semicarbazone by treatment with $HNO_2$, 2957*h*.
resins from, detection of, 6459*c*.
sodium deriv., reaction with 3-bromopropene, 1730*b*.
solubilization of, 466*af*.
spectrum of, 1656*c*, 3715*g*.
toxicity of, 1867*f*.
vinyl acetate polymer soln. in, mech. properties of, 2810*b*.
wetting effectiveness improvement of Na di-*tert*-butylnaphthalenesulfonate by, P 3638*h*.

**Cyclohexanone**, **2-(5-acenaphthenyliminomethyl)-**, 1779*b*.
——, **2-acetyl-**, P 7954*b*.
——, **4-acetyl-**, and derivs., 2577*b*.
——, **2-(2-acetyl-2-methylcyclopentyl)-**, 3829*f*.
——, **2-allyl-**, prepn. of, 1730*b*.
——, **2-(aminomethylene)-**, 586*e*.
——, **2-*p*-anisoyl-**, 2174*e*.
—, **2-benzylidene-**, derivs., as insecticides, P 4420*h*.
—, **2-[(benzylmethylamino)methyl]-**, hydrochloride, P 5417*f*.
**2,6-bis(*p*-methylbenzylidene)-**, halochromism in, 7910*i*, 7911*d*.
——, **3-butyl-**, and derivs., 9045*c*.
——, **3-*tert*-butyl-**, and derivs., 9045*d*.
——, **2-chloro-**, 2176*b*.
oxime, 2946*b*.
——, **2-(3-chloro-2-butenyl)-**, and phenylsemicarbazone, 7908*a*.
——, **4-cyclohexyl-**, azine and oxime, 1377*e*.
and derivs., 160*d*.
——, **2-cyclohexylidene-**, 2175*i*.
——, **2,6-dibenzyl-2,6-dimethyl-**, 2962*b*.
——, **dibenzylidene-**, hydrogenation of, 4652*a*.
——, **2,6-dibenzyl-2-methyl-**, 2961*h*.
——, **2,6-dibromo-**, dehydrobromination of, in $C_5H_5N$, 7912*c*.
——, **4,4'-(1,2-diethylethylene)di-**, *dl-* and *meso-*, and derivs., 6187*d*.
——, **4-(α,β-diethyl-*p*-hydroxyphenethyl)-**, *dl-*, 2194*h*.
*dl-*, and benzoate, 2195*e*.
——, **4-(α,β-diethyl-*p*-methoxyphenethyl)-**, *dl-*, and semicarbazone, 2195*a*.
——, **2,3-dimethyl-**, and semicarbazone, 8362*g*.
——, **2,4-dimethyl-**, *d-*, and derivs., 2998*f*.
——, **3,5-dimethyl-**, *cis-*, and derivs., 2962*dh*.
formation of, during aromatization of 3,5-dimethyl-2-cyclohexen-1-one, 2968*i* and oxime, 2962*h*.
——, **2-(dimethylaminomethyl)-6-methyl-**, hydrochloride, P 5417*f*.
——, **6-(ethoxymethylene)-2,3-dimethyl-**, 8362*h*
——, **2-(3-ethoxypropyl)-**, and derivs., 1414*h*.
——, **3-ethyl-**, 9045*c*.
——, **4,4'-ethylenedi-**, 590*g*.
——, **4-[1-ethyl-2-(4-oxo-2-cyclohexen-1-yl)butyl]-†**, *dl-* and *meso-*, 6187*f*.
——, **2-ethyl-3,5,5-trimethyl-**, 1013*i*
——, **2-hydroxy-**, 2176*c*.
and acetate, 7915*c*.
——, **4-hydroxy-**, benzoate, and derivs., 7416*g*.
benzoate and its semicarbazone, 7436*i*.
——, **4-(3-hydroxybutyl)-3,3,5-trimethyl-(?)**, *cis*, 3798*g*
——, **2-hydroxy-5-methyl-**, acetate, 7915*f*.
——, **6-(hydroxymethylene)-2,3-dimethyl-**, 8362*h*.
——, **2-(hydroxymethyl)-5-methyl-**, 589*b*.
——, **3-isobutyl-**, and derivs., 9045*d*.
——, **2-(isopropoxymethylene)-**, 3016*g*
——, **3-isopropyl-**, 9045*c*.
——, **4-isopropylidene-**, and derivs., 6578*g*.
——, **2-isopropylidene-5-methyl-**. See *Pulegone*.
——, **2-isopropyl-5-methyl-**. See *Menthone*.
——, **4-isovaleryl-**, and semicarbazones, 2958*c*.
——, **2-methoxy-**, 2966*c*.
——, **2-(*p*-methoxyphenyl)-**, 1358*f*.
——, **5-(*p*-methoxyphenyl)-2-methyl-**, 3373*c*.
——, **2-methyl-**, hydrogenation of, 6989*f*
——, **2(3 and 4)-methyl-**, phys. constants of, 2955*i*.
——, **3-methyl-**, 164*i*, 589*b*, 9045*c*.
acylation oxidation of, with $Hg(OAc)_2$, 7915*f*.
compd. with phenol, infrared and Raman spectra of, 107*b*.
*d-*, *dl-* and *l-*, and derivs., 3356*b*.
——, **4-methyl-**, in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
halochromism in, 7910*i*.
——, **4-(β-methylcaproyl)-†**, and bis(2,4-dinitrophenyl)hydrazone, 2958*g*.
——, **2-(2-methyl-2-cyclopenten-1-yl)-**, 2586*f*.
——, **4-(3-methyl-2-hexenoyl)-†**, and monosemicarbazone, 2958*f*.
——, **4-methyl-2-*p*-methylbenzylidene-**halochromism in, 7910*i*, 7911*d*.
——, **2,2,4,5,6-pentahydroxy-**. See *Inosose*.
——, **2-phenyl-**, 1357*e*.
——, **4-phenyl-**, 1375*a*.
and derivs., 160*b*.
and semicarbazone, 5762*d*.

——, 3-propyl-, and derivs., 9045*c*.
——, 4-propyl-, hydrogenation of, 6989*e*.
——, 4-senecioyl-, and disemicarbazone, 2958*b*.
——, tetrabenzyl-, 2962*c*.
——, 2,2,3,6-tetramethyl, Darzens condensation with (attempted), 8362*e*.
——, 2,2,3-trimethyl-, 2,4-dinitrophenylhydrazone, 8362*i*.
——, 3,3,6-trimethyl-, oxime, enlargement of ring of, P 3450*i*.
reaction with fuming $H_2SO_4$, 9043*i*.
wetting effectiveness improvement of Na di-*tert*-butylnaphthalenesulfonate by, P 3638*h*.
——, 2,4,4-trimethyl-3-(3-oxobutyl)-, and bis(phenylsemicarbazone), 4813*h*.
——, 3,3,5-trimethyl-4-(3-oxobutyl)-, *cis*-, 3798*g*.
*cis*-, and derivs., 8499*b*.
——, 2-(3,4-xylyl)-, and semicarbazone, 1358*e*.
**Cyclohexasilane,**

$SiH_3.SiH_2.SiH_2.SiH_2.SiH_2.SiH_3$.
1 2 3 4 5 6

——, **dodecamethyl-**, 4218*e*.
**Cyclohexene** (*tetrahydrobenzene*),

$CH{:}CH.CH_2.CH_2.CH_2.CH_2$.
1 2 3 4 5 6

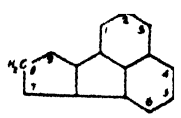
acylating oxidation of, with $Hg(OAc)_2$, 7915*c*.
azeotrope with *p*-dioxane, 6989*b*.
bromination of, 4658*h*, 9034*e*.
chloro derivs., pyrolysis of, P 1437*d*.
compressibility and ultrasonic velocity in, 4532*b*.
derivs., dehydrogenation of alkyl, 104*f*.
reaction with *N*-bromosuccinimide and H halides, 2173*g*.
ring-cleavage of, 7428*d*.
ethylation of, with ethylene, P 1057*h*.
formation of, in dehydration of cyclohexanol, 5010*e*.
free energy of, 477*h*.
freezing point, purification and purity of, 2924*g*.
as fungistat, 9334*b*.
heat, equil. const. and free energy of formation of, 8254*i*.
heat of dehydrogenation of, 6071*a*.
hydrogenation of, 5752*e*.
hydroxylation of, 1730*c*.
isomerization of, and its derivs. to cyclopentenes, 2173*b*.
knocking tendencies and crit. compression ratios of, contg. $Et_2Hg$, $Fe(CO)_5$ and $Et_4Pb$, 5570*g*.
magnetic susceptibility of, 2479*g*.
manuf. of, P 6656*c*.
manuf. of, and derivs., P 5418*f*.
mixts. with unsatd. hydrocarbons, selective hydrogenation of, 7673*h*.
mol. structure and thermodynamic properties of, 2831*b*.
oxidation of, kinetics of, 8825*a*.
oxidation (photochem.) of, kinetics of, 4934*bd*.
oxide—see *7-Oxabicyclo[4.1.0]heptane*.
phys. consts. of, 2955*h*.
polymerization of, 2569*g*.
reaction with $NH_3$, P 4285*h*.
with CO and H, P 4287*c*.
with diketene, P 2634*e*.
with enanthaldehyde, 4637*d*.
with phenols in presence of $BF_3$, 6173*g*.
with $H_2S$, 1000*a*.
with S, 995*g*.
reactivity of, 9024*d*.
spectrum of, 7818*d*, 8890*b*.
sulfide—see *7-Thiabicyclo[4.1.0]heptane*.
thermodynamic properties of, 1254*c*.
unsatn. of, detn. and use as standard in unsatn. detns., 7368*c*.
**Cyclohexene, acetyl-**. See *Ketone, cyclohexenyl methyl*.
——, **benzoyl-**. See *Ketone, cyclohexenyl phenyl*.
——, **3-bromo-**, 4658*h*.
prepn. and its reaction with $NaBS$, 9985*b*.
——, **3-(2-bromoethyl)-**, 1377*h*.
——, **bromo(trichloromethyl)-**, 4636*i*.
——, **1-(3-buten-1-ynyl)-4(and 5)-methyl-**, 1164, 1174.
——, **1-chloro-**, derivs., P 6230*a*.
——, **1-chloro-4-(chlorovinyl)-**, 8190*f*.
——, **1-chloro-5-(1-chlorovinyl)-**, 5904.
——, **4,5-dibromo-**, Raman spectrum of, 6919*i*.
——, **3-(dichloramethylene)-**, 4636*h*.
——, **1,2-dichlorooctafluoro-**, P 3844*f*.
——, **dimethyl-**, reaction with $NH_3$, P 4285*g*.
——, **2,4-dimethyl-**, 1654.
——, **4-(1,5-dimethyl-2,4-hexadienyl)-1-methyl-**. See *Zingiberene*.
——, **diphenyl-**, 4233*d*.
——, **4,5-epoxy-**. See *7-Oxabicyclo[4.1.0]-3-heptene*.
——, **1-(3,4-epoxy-3-methyl-1-butynyl)-**, 1337*a*.
——, **ethoxy-**. See *Ether, cyclohexenyl ethyl*.
——, **3-ethyl-**, P 1057*h*.
——, **1-ethyl-3-methyl-**, extn. from gasoline, P 4003*g*.
——, **1-ethyl-3(and 5)-methyl-**, 1654.
——, **1-ethynyl-**, 7437*d*.
reaction with $Et_2NH$, 1316.
——, **3-isopropyl-4,6-dimethyl-**, 5751*c*.
——, **1-methoxy-4-(1-methoxyvinyl)-**, 2577*a*.
——, **methyl-**, mixt. of isomers, 1656.
reaction with $NH_3$, P 4285*g*.
from rubber decompn. by heat and pressure, 5169*f*.
from rubber distillate, 5984*a*.
——, **1-methyl-**, oxidation (photochem.) of, kinetics of, 4934*bd*.
phys. constants of, 2955*h*.
reaction with $H_2S$, 999*d*.
reaction with sulfur, 996*e*.
spectrum of, 7411*b*.
——, **1(3 and 4)-methyl-**, 2173*b*.
——, **4-methyl-**, P 5418*g*.
reaction with 2-cyclohexyl-*p*-cymene and 2,4-diisopropyltoluene, 1339*f*.
——, **naphthyl-**. See *Naphthalene, cyclohexenyl-*.
——, **phenanthryl-**. See *Phenanthrene, cyclohexenyl-*.
——, **1-phenyl-**, P 7510*h*.
oxidation of, 3366*c*.
——, **trimethyl-**, mixt. of isomers, 1646.
——, **1,3,5-trimethyl-**, extn. from gasoline, P 4003*g*.
——, **1,5,5-trimethyl-6-methylene-**. See "γ" under *Pyronene*.
——, **1,3,3-trimethyl-2-(3-methyl-1,3-hexadien-5-ynyl)-†**, 1338*b*.
——, **vinyl-**, 5914.
formation in pyrolysis of polybutadiene, 2810*g*.
herbicidal action of, 1895*e*.
reaction of, CO and H, P 4685*f*.
——, **1-vinyl-**, and condensation with 2,4-dimethyl-2-cyclopenten-1-one, 1334*a*.
——, **3-vinyl-**, polymers of, with Et acrylate, 5988*i*.
——, **4-vinyl-**, P 5231*i*, P 5418*g*.
detn. and removal from butadiene, app. for, 8975*d*.
detn. in 1,3-butadiene, 8975*e*.
detn. in recycle styrene, 7216*e*.
diepoxide†, polymerization of, P 2817*b*, P 5639*e*.
——, **xylyl-**. See *Xylene, ar-cyclohexenyl-*.
**Cyclohexeneacetamide** (*α-cyclohexenylacetamide*).
**1-Cyclohexene-1-acetamide, α-allyl-**, 3798*c*.
——, **α-butyl-**, 3798*c*.
——, **α-ethyl-**, 3798*c*.
——, **α-hexyl-**, 3798*c*.
——, **α-methyl-**, 3798*c*.
**Cyclohexeneacetic acid, α-oxo-**. See *Cyclohexeneglyoxylic acid*.
**1-Cyclohexene-1-acetic acid**, derivs., 3797*h*.
——, **α-allyl-**, 3798*b*.
——, **6-bromo-(?)**, ethyl ester, 2586*i*.
——, **α-butyl-**, and 2-diethylaminoethyl ester, 3798*b*.
——, **α-butyl-α-cyano-**, ethyl ester, 3798*a*.
——, **2-carboxy-**, 4279*b*.
——, **5-carboxy-5-methyl-2-(2-methylmercaptoethyl)-6-oxo-**, derivs., 7433*i*.
——, **6-(1-carboxy-2-oxocyclopentyl)-(?)**, diethyl ester, 2587*a*.
——, **α-cyano-**, ethyl ester, 3797*i*.
——, **α-cyano-α-ethyl-**, ethyl ester, 3798*a*.
——, **α-cyano-α-hexyl-**, ethyl ester, 3798*a*.
——, **α-cyano-α-methyl-**, ethyl ester, 3798*a*.
——, **α-cyano-α-propyl-**, ethyl ester, 3798*a*.
——, **2-(1-cyclohexen-1-yl)-**, and ethyl ester, 4251*d*.
——, **cyclohexyl-**, ethyl ester, 1375*i*.
——, **2-ethyl-**, and 2-diethylaminoethyl ester, 3798*b*.
——, **α-hexyl-**, and 2-diethylaminoethyl ester, 3798*b*.
——, **α-methyl-**, and 2-diethylaminoethyl ester, 3798*b*.
——, **4-phenyl-**, and ethyl ester, 1376*a*.
——, **α-propyl-**, 3798*b*.
**2-Cyclohexene-1-acetic acid**, ethyl ester, 1377*g*.
——, **α-2-cyclopenten-1-yl-**, (1-pyrrolidyl)alkyl esters and their salts, 1388*e*.
——, **α,4-dimethyl-**, ethyl ester, 2605*f*.
——, **α-phenyl-**, 2-diethylaminoethyl ester, P 679*h*.
and (1-pyrrolidyl)alkyl esters and their derivs., 1388*a*.
**3-Cyclohexene-1-acetic acid, α,4-dimethyl-**, ethyl ester, 2605*f*.
**1-Cyclohexene-1-acetonitrile, α-allyl-**, 3798*b*.
——, **α-butyl-**, 3798*a*.
——, **2-(1-cyclohexen-1-yl)-**, 4251*g*.
——, **α-ethyl-**, 3798*a*.
——, **α-hexyl-**, 3798*a*.
——, **α-methyl-**, 3798*a*.
——, **α-propyl-**, 3798*a*.
**3-Cyclohexene-1-acetonitrile, 2,2,3-trimethyl-**. See *α-Campholenonitrile*.
**Cyclohexeneacrylic acid** (*β-cyclohexenylacrylic acid*).
**3-Cyclohexene-1-acrylic acid, 2-carboxy-5,6-dimethyl-**, dimethyl ester, 590*a*.
——, **5-carboxy-2,6-dimethyl-**, dimethyl ester, 590*a*.
**3-Cyclohexene-1-acrylonitrile, 2-cyano-**, 6172*f*.
**2-Cyclohexene-1-butyric acid**, 1377*h*.
**3-Cyclohexene-1-butyric acid**, and esters, 1378*a*.
**2-Cyclohexene-1-butyryl chloride**, 1377*h*.
**3-Cyclohexene-1-butyryl chloride**, 1378*a*.
**Cyclohexenecaproic acid** (*ε-cyclohexenylcaproic acid*).
**1-Cyclohexene-1-caproic acid, ε-oxo-**, and derivs., 587*f*.
**Cyclohexenecarbonitrile, vinyl-**, and derivs., 4217*i*, 4218*c*.
**1-Cyclohexene-1-carbonitrile, 2(or 6)-cyclohexyl-**, 1359*a*.
——, **6-cyclohexylidene-**, 1359*a*.
——, **2,6-diphenyl-**, 2964*a*.
——, **2(or 6)-(*p*-methoxyphenyl)-**, 1358*f*.
——, **2(or 6)-phenyl-**, 1357*f*.
——, **2(or 6)-(3,4-xylyl)-**, 1358*e*.
**2-Cyclohexene-1-carbonitrile, 2,6-diphenyl-**, 2964*a*.
**3-Cyclohexene-1-carbonitrile**, 7428*d*.
——, **2-phenyl-**, 8364*e*.
**3-Cyclohexene-1-carbonyl chloride, 3(and 4)-chloro-1-methyl-**, 3373*k*.
——, **1-methyl-**, 3373*g*.
——, **1,3,4-trimethyl-**, 3373*i*.
**1-Cyclohexene-1-carboxaldehyde, and derivs.**, 8359*i*.
——, **4-isopropyl-**. See *Phellandral*.
——, **2-methyl-**, and derivs., 8360*c*.
**3-Cyclohexene-1-carboxaldehyde**, 8359*k*.
action of molten alkalies on, P 5416*g*.
dehydrogenation of, 5377*e*.
——, **1-(3-cyclohexen-1-ylhydroxymethyl)-**, P 902*g*.
——, **2,6(and 5,6)-dimethyl-**, 164*g*.
——, **6-ethyl-1,3,4-trimethyl-, and semicarbazone**, 1040*d*.
——, **2-methyl-**, and derivs., 1731*b*.
——, **4-methyl-**, 1731*d*.
——, **2,2,3,6(and 4,5,5,6)-tetramethyl-**, and derivs., 3370*b*.
**3-Cyclohexenecarboxamide, 2,2,3-trimethyl-**. See *α-Campholenamide*.
**3-Cyclohexene-1-carboxamide, 3(and 4)-chloro-1-methyl-**, 3373*k*.
——, **1-methyl-**, 3373*g*.
——, **2-methyl-**, 1731*d*.
**Cyclohexenecarboxamidine, *N*-2-biphenylyl-**, and picrate, 7445*i*.
**1-Cyclohexene-1-carboxamidine, *N*-phenyl-**, and salts, 7444*c*.
**1-Cyclohexene-1-carboxanilide, *p*-sulfamyl-**, 1028*c*.
**Cyclohexenecarboxylic acid, butoxy-**, isomers, Bu esters, 6203*c*.
——, **diphenyloxo-**, and derivs., 157*c*.
——, **methyl-**, isomers, 7428*e*.
——, **phenyl-**, 7428*e*.
**1-Cyclohexene-1-carboxylic acid, 2-[2,6-dihydroxy-4-(1,2-dimethylhexyl)phenyl]-4-methyl-**, δ-lactone (omitted from abstr.), 8383*f*.
**2-[2,6-dihydroxy-4-(1,2-dimethyloctyl)phenyl]-4-methyl-**, δ-lactone (omitted from abstr.), 8383*f*.
**2-[2,6-dihydroxy-4-(1,2,4-trimethylhexyl)phenyl]-4-methyl-**, δ-lactone, 8384*e*.
**2-Cyclohexene-1-carboxylic acid,**

**butyl-2,6-dimethyl-4-oxo-**, ethyl ester, 2969*b*.
——, **2,3-dimethyl-4-oxo-**, ethyl ester, 8362*f*.
——, **3-ethyl-2,6-dimethyl-4-oxo-**, ethyl ester and its 2,4-dinitrophenylhydrazone, 2969*b*.
——, **6-isopropyl-2-methyl-4-oxo-**, ethyl ester, effect on action of DDT-pyrethrin, 7184*a*.
——, **2,5-*endo*-methylene-**. See *Bicyclo-[2.2.1]-5-heptene-2-carboxylic acid*.
——, **2-methyl-4-oxo-**, ethyl ester, 8362*e*.
**3-Cyclohexene-1-carboxylic acid**, P 5416*h*. methyl ester, reaction of, CO and H, P 4085*f*.
——, **6-acetyl-3,4-dimethyl-**, 1040*c*.
——, **6-acetyl-2,5-diphenyl-**, 1040*d*.
——, **3(and 4)-chloro-1-methyl-**, and methyl esters, 3373*h*.
——, **1-cyano-**, methyl ester, P 6222*f*.
——, **1-(2-cyanoethyl)-4-ethoxy-6,6-dimethyl-2-oxo-**, ethyl ester, 1013*b*.
——, **1-(2-cyanoethyl)-4-ethoxy-6-methyl-2-oxo-**, ethyl ester, 1013*b*.
——, **4-(2-dimethylaminoethyl)-2-oxo-**, ethyl ester, salts, 7432*g*.
——, **4-ethoxy-6,6-dimethyl-2-oxo-**, ethyl ester, 1013*a*.
——, **1-methyl-**, and derivs., 3373*g*.
——, **2(and 4)-methyl-**, 1731*d*.
——, **3-methyl-**, methyl ester, 7428*e*.
——, **1-methyl-2-oxo-**, ethyl ester, 2605*d*. ethyl ester, reaction with anisole, 3373*c*.
——, **4-methyl-2-oxo-**, ethyl ester, color reaction with $FeCl_3$, 1008*b*.
——, **2-phenyl-**, *cis-* and *trans-*, 8363*b*. *cis-* and *trans-*, and ethyl ester, 8363*h*.
——, **1,3,4-trimethyl-**, and methyl ester, 3373*i*.
**1-Cyclohexene-1-crotonaldehyde** (*γ-1-cyclohexen-1-ylcrotonaldehyde*).
——, **α,2,6,6-tetramethyl-**, P 1800*h*. and derivs., 2588*d*.
**1-Cyclohexene-1,4-dicarbonitrile, 4-vinyl-**, 2574*b*.
**4-Cyclohexene-1,2-dicarboximide, *N*-butyl-**, P 4421*g*, 5150*f*.
——, ***N*-butyl-3-methyl-**, P 4421*g*.
——, **3,6-endomethylene-**. See *Bicyclo-[2.2.1]-5-heptene-2,3-dicarboximide*.
**Cyclohexene-1,2-dicarboxylic acid**, dimethyl ester, toxicity of, 4401*g*.
**1-Cyclohexene-1,2-dicarboxylic acid**, 5389*c*.
**1-Cyclohexene-1,4-dicarboxylic acid, 4-vinyl-**, and diethyl ester, 2574*b*.
**2-Cyclohexene-1,2-dicarboxylic acid, 5-methyl-6-propenyl-**, 589*i*.
**3-Cyclohexene-1,2-dicarboxylic acid, 5-methyl-6-propenyl-**, dimethyl ester, 589*i*.
**4-Cyclohexene-1,2-dicarboxylic acid**, 7428*e*.
diethyl ester, or mixt. of isomers, 6203*b*
——, **4-fluoro-**, P 2218*f*.
——, **4-fluoro-5-methyl-**, P 2218*g*.
——, **4-methyl-3-(3-methyl-2-butenyl)-**, 362*f*.
**4-Cyclohexene-1,2-dicarboxylic acid, 6-methyl-2-propenyl-**, dimethyl ester, 589*i*.
**4-Cyclohexene-1,2-dicarboxylic anhydride**, 8700*c*.
——, **4-amyl-**, 1311*f*.
——, **4-chloro-5-methyl-**, 3352*c*.
——, **3-cyano-**, 4217*i*.
——, **3,4-dimethyl-**, 3778*c*.
——, **3,5-dimethyl-**, reaction with linseed oil, 8700*c*.
——, **4-ethyl-**, 1311*f*.
——, **3(and 4)-methyl-**, reaction with linseed oil, 8700*c*.
——, **4-methyl-3-(3-methyl-2-butenyl)-**, 362*f*.
**4-Cyclohexene-1,3-dione, 5-hydroxypentamethyl-**, spectrum of, 2598*g*.
——, **2,6,6-trichloro-4-hydroxy-5-methyl-**, hydrate, 609*c*.
**Cyclohexeneëthanol** (*2-(cyclohexenyl)ethanol*).
**2-Cyclohexene-1-ethanol**, 1377*h*.
**3-Cyclohexene-1-ethanol, β,4-dimethyl-**, 2605*f*.
**3-Cyclohexene-1-glyoxylic acid** (*3-cyclohexen-1-ylglyoxylic acid*).
——, **6-isopropyl-4-methyl-2-oxo-**, ethyl ester, 1013*d*.
——, **4,6,6-trimethyl-2-oxo-**, ethyl ester, 1013*d*.
**1-Cyclohexene-1-malonamide** (*α-1-cyclohexen-1-ylmalonamide*).
——, ***N*,*N*-diethyl-**, P 1797*i*.
——, ***N*,*N*,*N*′,*N*′-tetraethyl-**, P 1797*i*, P 3842*f*.
——, ***N*,*N*,*N*′,*N*′-tetraethyl-α-methyl-**, P 1797*i*, P 3842*f*.
**2-Cyclohexene-1-malonic acid, α-phenyl-**, diethyl ester, 1388*a*.
**1-Cyclohexene-1-methanesulfonic acid** (*1-cyclohexen-1-ylmethanesulfonic acid*).
——, **5,5-dimethyl-3-oxo-**, and derivs., 9044*b*.
**Cyclohexenemethanol, α-methyl-α-pyridyl-**. See *Pyridinemethanol, α-cyclohexenyl-α-methyl-*.
**1-Cyclohexene-1-methanol**, acetate, reaction with Br, 159*d*.
——, **4-isopropyl-**, and derivs., 7434*e*.
**3-Cyclohexene-1-methanol**, P 5416*h*.
——, **4-hydroxy-α-methylene-**, diformate, 2576*i*.
**Cyclohexene oxide**. See *7-Oxabicyclo-[4.1.0]heptane*.
**1-Cyclohexene-1-propylamine** (*3-(1-cyclohexen-1-yl)propylamine*).
——, **α,2,6,6-tetramethyl-(?)**, and salts, 1349*g*.
**1-Cyclohexene-1-succinic acid**, and monoethyl ester, 590*d*.
**Cyclohexene sulfide**. See *7-Thiabicyclo-[4.1.0]heptane*.
**1-Cyclohexene-1-sulfonic acid, 2-hydroxy-4,4-dimethyl-6-oxo-**, and derivs., 9044*h*.
**2-Cyclohexene-1-sulfonic acid, 2,6,6-trimethyl-4-oxo-**, and derivs., 9044*b*
**5-Cyclohexene-1,2,3,4-tetrone, 5,6-dihydroxy-**. See *Rhodizonic acid*.
**3-Cyclohexene-1-thiol**, formation of, from di-3-cyclohexen-1-yl sulfide, 998*i*.
**2-Cyclohexene-1-thione, 3,5,5-trimethyl-**, P 1063*b*.
**1-Cyclohexene-1-valeric acid** (*δ-1-cyclohexen-1-ylvaleric acid*).
——, **δ-oxo-**, and methyl ester, 587*e*
**Cyclohexenol**, acetate, P 5795*i*, P 7038*b*, P 7953*i*.
**1-Cyclohexen-1-ol**, acetate, P 3838*i*.
**2-Cyclohexen-1-ol**, acetate, 7915*c*.
——, **4-(dichloromethylene)-**, 4636*i*.
——, **1,1′-ethynylenebis[3,5,5-trimethyl-(?)**, 569*h*.
——, **5-isopropenyl-2-methyl-**, acetate, 7915*e*.
——, **4-isopropyl-**. See *Cryptol*.
**3-Cyclohexen-1-ol**, and 3,5-dinitrobenzoate, 7435*g*.
——, **4-methyl-**, and derivs., 7417*b*.
**Cyclohexenone**, derivs., dehydrogenation to phenols, 2968*i*.
**2-Cyclohexen-1-one**, derivs., 9044*i*.
derivs., thiophenols from $H_2S$ and, P 1062*i*.
——, **3-(3-biphenylyl)-**, and 2,4-dinitrophenylhydrazone, 6185*h*.
——, **3-(4-biphenylyl)-**, and derivs., 610*i*.
——, **3-butyl-**, and 2,4-dinitrophenylhydrazone, 9045*b*.
——, **3-*sec*-butyl-**, and derivs., 9045*b*.
——, **3-*tert*-butyl-**, and derivs., 9045*c*.
——, **3-butyl-5,5-diethyl-**, reaction with $H_2S$, P 1063*c*.
——, **2-butyl-3,5-dimethyl-**, and 2,4-dinitrophenylhydrazone, 2969*c*.
——, **4,4′-(1,2-diethylethylene)di-**, *dl-* and *meso-*, 6187*f*.
——, **2,3-dimethyl-**, and 2,4-dinitrophenylhydrazone, 8362*g*.
——, **3,5-dimethyl-**, and derivs., 1718*f*.
——, **3-(2-dimethylaminoethyl)-**, oxalate (acid), 7432*h*.
——, **3-ethoxy-**, syntheses with, 9044*i*.
——, **3-ethyl-**, and 2,4-dinitrophenylhydrazone, 9045*a*.
——, **2-ethyl-3,5-dimethyl-**, and 2,4-dinitrophenylhydrazone, 2969*b*.
——, **3-ethyl-5,5-dimethyl-**, reaction with $H_2S$, P 1063*b*.
——, **4-[1-ethyl-2-(4-hydroxy-1,5-cyclohexadien-1-yl)butyl]-**, *dl-* and *meso-*, 6187*d*.
——, **2-ethyl-5-isopropyl-3-methyl-**, and 2,4-dinitrophenylhydrazone, 2969*b*.
——, **3-(ethylmercapto)-**, P 6230*i*.
——, **3-(ethylmercapto)-5,5-dimethyl-**, P 6230*i*.
——, **2-(ethylmercapto)-5-methyl-**, P 6230*f*.
——, **3-(ethylmercapto)-5-phenyl-**, P 6230*i*.
——, **4-[1-ethyl-2-(4-oxocyclohexyl)-butyl]-**, *dl-* and *meso-*, 6187*f*.
——, **2-ethyl-3,5,5-trimethyl-**, 1013*d*.
——, **3-hydroxy-5,5-dimethyl-**, *p*-benzenedisulfonate, 2967*i*.
electrolytic dissocn. const. of, 1320*e*.
——, **3-isobutyl-**, and derivs., 9045*b*.
——, **3-isopropyl-**, and 2,4-dinitrophenylhydrazone, 9045*b*.
——, **4-isopropyl-**. See *Cryptone*.
——, **6-isopropyl-3-methyl-**. See *Piperitone*.
——, **3-methoxy-5,5-dimethyl-2-(2,2,2-trichloro-1-hydroxyethyl)-**, 2965*c*.
——, **3-methyl-**, and 2,4-dinitrophenylhydrazone, 9045*a*.
——, **3-phenyl-**, 3366*c*.
——, **3-propyl-**, and 2,4-dinitrophenylhydrazone, 9045*b*.
——, **3,5,5-trimethyl-**. See *Isophorone*.
**3-Cyclohexen-1-one, 4,4′-(1,2-diethylethylene)di-**, and disemicarbazone, 8370*d*.
**2-Cyclohexen-1-ylamine, *N*,*N*-diethyl-**, 2174*b*.
**2-Cyclohexen-1-yl hydroperoxide**, spectrum of, 4934*c*.
**2-Cyclohexen-1-yl sulfide**, spectrum and structure of, 7410*d*.
**3-Cyclohexen-1-yl sulfide**, prepn. of and its reduction, 998*c*.
**Cyclohexylamine**, adsorption by steel, 6559*h*.
in anthracene purification, P 2641*h*.
in carbon disulfide removal from $C_6H_6$, P 7041*e*.
compds. with dithiocarbamate of Zn hydracrylate, P 7506*g*.
with phenols, as activators for thiazole accelerators, P 2808*e*.
with Zn dithiocarbamate and Zn dimethyldithiocarbamate, 7177*i*
derivs., stabilization of 2-(chloromethyl)-thiophene with (2-chlorothiophene of abstract is an error), P 3041*a*
2,4-dinitro 6-cyclohexylphenol salt, for prevention of arsenical injury to plants, P 5151*g*.
identification of, 7446*g*, 7448*a*.
naphthoquinone imine dye from, P 8167*b*
reaction product with paraformaldehyd and *N*-(hydroxymethyl)stearamide, 1434*g*.
reaction with NaOCl, P 3033*c*.
salt with *N*-[*p*-[1-(2-amino-4-hydroxy-6-pteridyl)ethylamino]benzoyl]glutamic acid, 3424*a*.
salt with 1,4-naphthalenediol diphosphate, 3526*i*.
steam treatment with, in corrosion prevention, 9307*c*
thiocyanate, 578*g*.
Werner complex with basic Cu carbonate, reaction with naphthenic or oleic acids P 5978*c*.
**Cyclohexylamine, 1-(*p*-aminobenzyl)-†**, 8365*b*.
——, **1-benzyl-**, 9047*e*.
——, ***N*-[2-(*o*-benzylphenoxy)ethyl]-**, and hydrochloride, 3386*f*.
——, ***N*-chloro-**, P 3033*c*.
——, **2-chloro-**, *dl-cis-*, hydrochloride, 3373*b*.
——, ***N*-5-chloroamyl-**, hydrochloride, 3421*c*.
——, ***N*-(2-chloroethyl)-**, hydrochloride, 3386*b*, 3419*c*.
——, **1-(chloromethyl)-*N*,*N*-dimethyl-**, 4243*g*.
——, ***N*-[1-(chloromethyl)propyl]-**, hydrochloride, 3419*d*.
——, **cyclohexyl-**. See [*Bicyclohexyl-amine; Dicyclohexylamine*.
——, ***N*-(2,2-diethoxyethyl)-†**, and hydrochloride, 6074*d*.
——, ***N*-2,2-dimethoxyethyl-†**, and hydrochloride, 6074*c*.
——, ***N*,*N*-dimethyl-**, reaction with halomethyl compds., textile-treating agents by, P 4488*i*.
reaction with tris(halomethyl)phthalocyanines, P 8172*h*.
——, **3,5-dimethyl-**, isomers of, and their derivs., 2903*c*.
——, **2-(3-ethoxypropyl)-**, *trans-*, 1414*h*.
——, ***N*-ethyl-**, compd. with *N*-ethyldithiocyclohexanecarbamic acid, identification of, 6856*h*.
——, ***N*-isobutylidene-**, 1654*e*.
——, **1-methyl-**, 9027*f*.
——, **2-methyl-**, *cis-* and *trans-*, and derivs., 2961*e*.
——, **4,4′-methylenebis-**, polyamides of, P 6867*e*.
——, **1-methyl-*N*-2-nitroisobutyl-**, P 8136.

——, *N*-**methyl**-*N*-**phenyl**-, amine oxidase inhibition by, 9118*e*.
——, *N*-**2-nitroisobutyl**-, P 813*b*.
——, **3,3,5-trimethyl-***N*-**(2,2,2-trichloroethylidene)**-, P 7499*d*.
as insecticide, P 5154*a*.
**Cyclohexyl disulfide**, 996*c*, 1000*a*.
spectrum and structure of, 7410*g*.
**Cyclohexyl fluophosphate** ($(C_6H_{11})_2PO_2F$), 121*d*.
volatility and vapor pressure of, 8841*a*.
**Cyclohexyl group**, detection in organosilicon polymers, 3318*a*.
effect on analgesic action, 4245*h*.
on estrogenic activity, 3812*h*.
on miscibility of liquids, 6817*c*.
**Cyclohexyl hexasulfide**, 1002*d*.
spectrum and structure of, 7410*g*.
**Cyclohexyl ketone**, reduction of, to dicyclohexylcarbinol, 2570*f*.
**Cyclohexyl nitrate**, P 4694*e*.
**Cyclohexyl nitrite**, P 4694*c*.
**Cyclohexyl sulfide**, 996*b*, 1000*a*, 1003*c*.
**Cyclohexyl sulfone**, 1003*c*.
**Cyclohexyl tetrasulfide**, 1002*c*.
**Cyclohexyl thiophosphate**, $(C_6H_{11}O)_2PS_2H$, in Mo detection, 7859*b*.
**Cyclohexyl trisulfide**, 996*c*.
**Cyclolapacholsulfonic acid***, and derivs., 1386*g*.
**Cyclonal**. See *Evipal*.
**Cyclone** (*the compound*). See *Cyclopentadienone, tetraphenyl-*.
**Cyclones** (*the apparatus*). See *Separator*.
**Cyclones** (*meteorological*), effect on $O_3$ content of atm., 5302*h*.
**Cyclonite**. See *Hexogen*.
**Cyclonium**. See *Promethium*.
**Cyclononadecanecarbonitrile, 1-hydroxy-**, dissocn. of, 7907*a*.
**Cyclononadecanol**, and esters, 6988*h*.
**Cyclononadecanone**, oxime, 5400*f*.
reaction with HCN, 7907*a*.
**Cyclononanecarbonitrile, 1-hydroxy-**, dissocn. of, 7907*a*.
**Cyclononanol**, and acetate, 6988*f*.
**Cyclononanone**, oxime, 5400*c*.
reaction with HCN, 7907*a*.
reaction with $Na(O_2N)C(CHO)_2$, 161*h*.
**Cyclooctadecanecarbonitrile, 1-hydroxy-**, dissocn. of, 7907*a*.
**Cyclooctadecanol**, and esters, 6988*h*.
**Cyclooctadecanone**, oxime, 5400*f*.
reaction with HCN, 7907*a*.
**Cyclooctadiene, bromo-**, 591*d*.
**-, dibromo-**, 591*e*.
**1,5-Cyclooctadiene**, 590*i*.
and derivs., 591*d*.
**-, 1,5-dichloro-**, 591*ac*.
**5,7-Cyclooctadiene-1,4-diamine**, *N*, *N*, *N'*, *N'*-**tetramethyl-**, and derivs., 591*g*.
**Cyclooctadienylamine**, *N*, *N*-**dimethyl-**, 591*e*.
**Cyclooctamethylenimine**. See *1-Azonine, octahydro-*.
**Cyclooctane**, 591*ad*.
isomerization of, 157*g*.
magnetic susceptibility of, 2479*g*.
prepn. of, 6194*i*.
**-, 1-cycloocten-1-yl-†**, 6195*b*.
**-, 1,2-dibromo-**, 6195*a*.
**Cyclooctaneacetic acid**, (omitted from abstr.), 1375*e*.
**-, 1-hydroxy-**, and ethyl ester, 1375*e*.
**Cyclooctanecarbonitrile, 1-hydroxy-**, dissocn. of, 7907*a*.
**Cyclooctanecarboxylic acid**, 6195*b*.
**-, 1-(3-chloro-2-butenyl)-2-oxo-**, methyl ester, 7908*e*.
**1,4-Cyclooctanediamine**, *N*, *N*, *N'*, *N'*-**tetramethyl-**, and derivs., 591*g*.
**Cyclooctanemethanol**, and carbanilate, 6195*d*.
**Cyclooctanol**, and esters, 6195*a*, 6988*e*.
**-, 1-phenyl-**, 3366*a*.
**Cycloöctanone**, oxime, 5400*c*.
reaction with HCN, 7907*a*.
reaction with $Na(O_2N)C(CHO)_2$, 161*h*.
**-, 3(or 4)-methyl-**, 2966*a*.
**Cyclooctasiloxane**,




**-, hexadecamethyl-**, P 5791*e*.
**Cyclooctatetraene**, 591*b*.
and derivs., 3796*c*, 6194*g*, 6201*c*.
electron diffraction by vapor of, and mol. structure of $C_8H_8$, 6480*h*.
entropy, heat capacity, heat of fusion, heat of vaporization and vapor pressure of, 6500*b*.
properties of, structure and, and transition of solid $C_8H_8$, 2479*f*.
**Cyclooctatetraene oxide***, 6195*b*.
**Cyclooctatriene**, 591*f*.
and derivs., 6195*c*.
**Cyclooctatrienedicarboxylic acid**, and lithium salt, 6195*c*.
**Cyclooctene**, magnetic susceptibility of, 2479*g*.
prepn. and reactions of, 6194*i*.
**-, 1-cyclooctyl-**, 6195*b*.
**-, 1-octadecyl-**, 3366*b*.
**-, 1-phenyl-**, 3366*b*.
**1-Cyclooctene-1-acetamide** (omitted from abstr.), 1375*e*.
**1-Cyclooctene-1-acetic acid**, and ethyl ester, 1375*e*.
**Cyclooctene oxide***, 6195*a*.
**Cyclooctylamine**, *N*, *N*-**dimethyl-**, 591*f*
**Cycloölefins**. (See also *Cycloalkadienes, Cycloalkenes*.) 591*b*.
acylating oxidation of, 7915*b*.
detn. in petroleum products, 3998*c*.
in gasoline (Thermofor cracked) $C_6$ fraction, 4453*d*.
manuf. of, P 4681*h*.
in naphtha of shale oil, 4453*h*.
polymers of diolefins, compns. with butadiene polymers, etc., P 8742*h*.
reaction with $NH_3$ to give nitriles, P 4285*f*.
with diketene, P 2634*d*.
with $N_2O_4$, P 665*a*.
reactivities of double bonds of, toward free radicals, 4036*f*.
sepn. from straight chain olefins in gasoline, P 4003*f*.
**Cyclopal** (*5-allyl-5-(2-cyclopenten-1-yl)barbituric acid*), crystallography and identification of, 8612*e*.
identification of, 8612*c*.
**Cycloparaffins**. See *Cycloalkanes; Naphthenes*.
**Cyclopentacenaphthylene**,



8 — [*a*]

8*H*-**Cyclopent**[*a*]**acenaphthylen-8-one**, 7,9-**diphenyl-**, diene syntheses with, 2614*f*.
**Cyclopentacycloheptene**,



See *Azulene*.
**-, 1,3(1,4 and 4,8)-dimethyl-**, spectra of, 4139*b*.
**-, 2-ethyl-**, partition between petr. ether and $H_2SO_4$, 5768*f*.
**-, 2-isopropyl-**, partition between org. solvents and $H_2SO_4$, 5768*f*.
**-, 6-isopropyl-4,8-dimethyl-**, spectrum of, 4139*b*.
**-, 6-(1-isopropyl-2-methylpropenyl)-**, 6203*g*.
**-, 1(2-, 4-, 5- and 6)-methyl-**, partition between mineral acids and org. solvents, 5768*f*.
**-, 1(2-, 5- and 6)-methyl-**, spectra of, 4139*b*.
**-, 2-propyl-**, partition between petr. ether and $H_2SO_4$, 5768*f*.
**6-Cyclopentacycloheptenecarboxylic acid, 4,8-dimethyl-**, ethyl ester, spectrum of, 4139*b*.
**-, 1,2,3,5-tetrahydro-**, ethyl ester, 6203*e*.
**Cyclopentadecanecarbonitrile, 1-hydroxy-**, dissocn. of, 7907*a*.
**Cyclopentadecanol**, and esters, 6988*g*.
**Cyclopentadecanone**, oxime, 5400*e*.
in perfumery, 1909*i*.
reaction with HCN, 7907*a*.
**-, 2-hydroxy-4(and 14)-methyl-**, mixt., and semicarbazones, 163*i*.
**-, 3-methyl-**. See *Muscone*.
**-, 4-methyl-**, mixt. with muscone, 163*f*.
**Cyclopentadiene**, adducts with hexahalocyclopentadiene, halogenated derivs., P 5796*k*.
cation-exchange resin from indene and, P 5517*c*.
detn. of, 5346*b*.
detn. of, in petroleum-refinery $C_5$ fractions, 8123*f*.
Diels-Alder adducts of, P 4693*c*.
and dimer, P 4292*i*.
dimerization of, kinetics of, 4934*h*.
extn. from olefins and paraffins with liquid $NH_3$ solns., P 3192*c*.
formation of, from $C_2H_2$, 5376*d*.
from cyclopentene, kinetics of, 3271*f*.
in polymer pyrolysis, 2810*h*.
in pyrolysis of alkyl benzenes, 7916*h*.
in gasoline from Puertollano shale, 5578*e*.
knocking tendencies and crit. compression ratios of, contg. $Et_2Hg$, $Fe(CO)_5$ and $Et_4Pb$, 5576*g*.
in maleic acid recovery from aq. solns., P 3031*c*.
manuf. of, P 3032*c*.
manuf. of, and its derivs., P 3032*d*.
mobile orders of conjugated single bonds for, 8224*a*.
and peroxide, as corrosion inhibitors, 9426*c*.
polymerization of, with isobutene at low temps. with fluorinated hydrocarbon dispersants, 2019*g*.
in presence of haloalkene, P 5231*f*.
with styrene, P 4029*d*.
polymers of, and $P_2S_5$-treated polymers, as lubricant additives, P 4515*d*.
polymers of, with drying oil, P 7754*b*.
with Et acrylate, 5988*i*.
with styrene, resinous reaction products with drying oils, P 4029*a*.
reaction products of, and its alkyl derivs., with maleic anhydride, reactions with linseed oil, 8700*c*.
reaction product with maleic anhydride, allyl ester, P 2819*d*.
reaction with methacrylic acid and its Me ester, 3373*i*.
reaction with quinone imines, 4649*g*.
recovery from coke-oven light oil, P 382*a*.
**Cyclopentadiene, hexabromo-**, Diels-Alder adducts of, P 4693*d*.
**-, hexachloro-**, 4231*i*, 5370*h*.
Diels-Alder adducts of, P 4693*c*.
and dimer, 4230*d*.
fluorination of, P 678*g*.
**-, 5-methylene-**. See *Fulvene*.
**-, pentabromochloro-**, Diels-Alder adducts of, P 4693*d*.
**-, 1,2,3,4,5-pentachloro-5-(1,2,2,2-tetrachloroethyl)-**, 4231*c*.
**-, 1,2,3,4,5-pentachloro-5-(trichloromethyl)-(?)**, 4231*i*.
**-, 1,2,3,5,5(or 1,2,4,5,5)-pentachloro-4(or 3)-(trichlorovinyl)-**, 4231*d*.
**-, 1,2,3,4-tetrachloro-5,5-diethoxy-†**, 4230*e*.
**-, 1,2,3,4-tetrachloro-5,5-dimethoxy-†**, 4230*e*.
**-, 1,2,3,4-tetrachloro-5-(tetrachloroethylidene)-**, 4231*c*.
**-, 1,2,3(or 1,2,4)-trichloro-4(or 3)-(trichlorovinyl)-5,5-dimethoxy-†**, 4231*f*.
**Cyclopentadiene-$\Delta^{1,\alpha}$-acetamide, $\alpha$,2,3,4,5-pentachloro-N,N-diethyl-**, 4231*d*.
**Cyclopentadiene-$\Delta^{1,\alpha}$-acetanilide, $\alpha$,2,3,4,5-pentachloro-**, 4231*e*.
**Cyclopentadiene-$\Delta^{1,\alpha}$-acetic acid, $\alpha$,2,3,4,5-pentachloro-**, methyl ester, 4231*e*.
**Cyclopentadiene-$\Delta^{1,\alpha}$-acetyl chloride, $\alpha$,2,3,4,5-pentachloro-**, 4231*d*.
**1,3-Cyclopentadiene-1,2,3-triol, 5-methyl-**, as reductic acid structure, 6988*c*.
**Cyclopentadienone, 2-acetyl-5-ethyl-4-hydroxy-**, acetate, 2585*f*.
**-, 4-(4,4'-dihydroxy-3-methoxybenzhydrylidene)-2-methoxy-**, and triacetate, 5772*g*.
**-, 2-ethyl-3-hydroxy-**, and acetate, 2585*f*.
**-, tetrachloro-**, acetals, 4230*e*.
**-, tetraphenyl-**, derivs., diene synthesis with, 2585*b*, 5370*f*.
diene syntheses with, 2614*f*.
**-, 2,3,4(or 2,3,5)-trichloro-5(or 4)-trichlorovinyl)-**, and dimer and dimethyl acetal, 4231*f*.
**Cyclopenta**[*a*]**fluorene**,

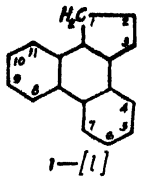


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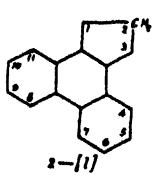
derivs., 1789*a*.
———, 3-(1,5-dimethylhexyl)-1,2,3,3a,-4,5,5a,5b,6,7,10a,10b - dodecahydro-3a,5b-dimethyl-, 3018*d*.
**Cyclopentanaphthalene.** See *Benzindene*.
**Cyclopentane,** chlorination (photochem.) of, P 6644*h*.
compressibility and ultrasonic velocity in, 4532*b*.
dehydrogenation of, 8255*a*.
derivs., 5370*g*, 5751*a*, 7911*e*.
d. and refraction of *n*-alkyl, 6023*f*.
heat capacity of, 1638*c*.
hydrogenation of, 7906*g*.
hydrogenation of, with ring opening, 1332*b*, 5009*i*.
detn. in petroleum-refinery $C_5$ fractions, 8123*f*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
extn. from 2,2-dimethylbutane with liquid $NH_3$ solns., P 3192*e*.
formation from cyclohexane under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7664*b*.
in gasoline (Thermofor cracked), 4453*c*.
hydrogenation of, 589*c*.
hydrogenation of, with ring opening, 155*c*.
manuf. of, P 6818*g*.
mass spectrum of, 3288*g*.
oxidation of, P 2225*i*, P 5422*c*.
phys. consts. of, 2955*h*.
reaction with polychloro ethylenes, 9024*h*.
thermochemistry of, 7215*i*.
Verdet const. ratio to refractive dispersion for, 4911*b*.
**Cyclopentane, acetyl-.** See *Ketone, cyclopentyl methyl*.
———, **amyl-.** See *Pentane, 1-cyclopentyl-*.
———, **benzyl-.** See *Methane, cyclopentylphenyl-*.
———, **bromo-,** phys. constants of, 2955*i*.
———, **5-bromoamyl-,** 1375*c*.
———, **1-bromo-2-methyl-,** 1039*f*.
———, **bromo(trichloromethyl)-,** 4636*i*
———, **butyl-,** freezing point, purification, and purity of, 2924*g*.
isomerization of, 157*f*.
———, **chloro-,** phys. constants of, 2955*i*.
———, **1-chloro-1-methyl-,** 2172*a*.
reaction with $C_2H_3Cl$, 3372*d*.
———, **1-chloro-1(2 and 3)-methyl-,** 2171*e*.
———, **1-chloro-1-propyl-,** 2173*i*.
———, **(2-chlorovinyl)-,** 9024*h*.
———, **cyclohexyl-.** See *Cyclohexane, cyclopentyl-*.
———, **cyclopentyl-.** See *Bicyclopentyl*.
———, **decafluoro-,** P 3834*h*, P 3844*b*.
energy of vaporization of, 8814*f*.
mass spectrum of, 3288*g*.
mol. structure of, 7277*a*.
soly. and solvent action of, 3266*i*.
surface tension and refractive index of, 8225*g*.
———, **1-(2,2-dichloroethyl)-1-methyl-,** 3372*d*.
———, **dimethyl-,** distn. from naphthenic oil and dehydrogenation to toluene, P 5186*h*.
———, **1,1(1,2 and 1,3)-dimethyl-,** isomers, heats of combustion, formation and isomerization of, 5275*h*.
———, **1,2-dimethyl-,** *cis-* and *trans-*, spectra of, 8890*b*.
*cis-*, detn. in hydrocarbon cuts and infrared spectra of, 2759*c*.
isomerization of, 157*g*.
———, **1,3-dimethyl-,** *cis-*, spectrum of, 4573*g*.
freezing point, purification, and purity of, 2924*g*.
from norcamphane, 2191*i*.
———, **(1,2-dimethylpropyl)-,** 5370*h*.
———, **endoethylene-.** See *Norcamphane*.
———, **1,2-epoxy-.** See *6-Oxabicyclo[3.1.0]-hexane*.
———, **ethyl-,** azeotrope with toluene, 7916*e*.
chlorotridecafluoro deriv., 4231*g*.
distn. from Me cyclohexane, P 3670*f*.
heats of combustion, formation and isomerization of, 5275*h*.
isomerization of, 157*f*.
in naphtha of shale oil, 4453*g*.
spectrum of, 4573*g*, 8890*b*.
———, **1-ethyl-2-methyl-,** isomerization of, 157*g*.
———, **iodo-,** phys. constants of, 2955*i*.
———, **2-isopropenyl-1,1-dimethyl-,** 5751*d*.
———, **2-isopropyl-1,1-dimethyl-,** 5751*e*.
———, **3-isopropyl-1,2-dimethyl-,** 3375*b*.
———, **1-isothiocyano-1-methyl-†,** 2171*g*, 2172*f*.
———, **methyl-,** aromatization of heptane and, P 3458*h*.
azeotropic distn. from mixts. with $C_6H_6$ and cyclohexane, P 1958*d*.
azeotropic distn. from mixts. with cyclohexane, P 3670*d*.
azeotropic distn. with $C_6H_6$ to sep. from hexane mixts., P 7034*h*.
chlorination (photochem.) of, P 6644*h*.
cracking of, 1250*h*.
derivs., 2171*d*, 2172*a*.
effect on isomerization of pentane, 1712*e*.
formation and isomerization of, 157*f*.
formation from cyclohexane, 7664*b*, 7911*i*.
in gasoline (Thermofor cracked), 4453*c*.
hexane isomerization in presence of, as reaction modifier, P 3833*b*.
hexane isomerization in presence of, or its mixts. with H, as reaction modifier, P 4007*a*.
hydrogenolysis of, 6567*a*.
isomerization of, 587*b*.
isomerization of, to cyclohexane, P 1957*i*, P 1958*i*, 3371*g*.
mixt. with $C_6H_6$ and hexanes, alkylated benzenes and cyclohexane by isomerization and alkylation of, P 1958*d*.
mixt. with $C_6H_6$, cyclohexane and octene, selective hydrogenation of, 7673*h*.
phys. consts. of, 2955*h*.
reaction with $NH_3$, P 3439*e*.
recovery from nontertiary hydrocarbons, P 7223*e*.
as solvent in cottonseed oil extn., 423*h*
spectrum of, 8890*b*.
thermochemistry of, 7215*i*.
———, **nitro-,** sodium deriv., reaction with α-chloro-*p*-nitrotoluene, 8365*a*.
———, **nonafluoro-,** mass spectrum of, 3288*g*.
surface tension and refractive index of, 8225*g*.
———, **nonafluoro(pentafluoroethyl)-,** soly. and solvent action of, 3266*i*.
———, **octafluorobis(trifluoromethyl)-,** soly. and solvent action of, 3266*i*.
———, **phenyl-.** See *Benzene, cyclopentyl-*.
———, **propyl-,** isomerization of, 157*f*.
———, **(1-propylbutyl)-†,** 5370*h*.
———, **tolyl-.** See *Toluene, ar-cyclopentyl-*.
———, **(1,2,4-trichloro-3-butenyl)-,** 9024*i*.
———, **1,1,3(1,2,3 and 1,2,4)-trimethyl-,** azeotropes with toluene, 7916*e*.
———, **1,2,3-trimethyl-,** freezing point, purification, and purity of, 2924*g*.
isomers, 155*i*.
stereoisomers, hydrogenation of, 1332*b*.
———, **1,2,4-trimethyl-,** in naphtha of shale oil, 4453*g*.
spectrum of, 8890*b*.
**Cyclopentaneacetamide** (*α-cyclopentylacetamide*).
———, **2-[2,4(2,5 and 3,4)-xylyl]-,** 3796*d*.
**Cyclopentaneacetic acid, 2-(5-acenaphthenyl)-,** and ethyl ester, 3796*g*
———, **α-bromo-,** 2-diethylaminoethyl ester, P 4693*b*.
———, **α-butyl-,** (1-pyrrolidyl)alkyl esters and their hydrochlorides, 1388*g*.
———, **4-carboxy-α-cyano-2,2-dimethyl-,** diethyl ester, 7462*g*.
———, **4-carboxy-α-cyano-2,2,4-trimethyl-,** diethyl ester, 7462*h*.
———, **3-carboxy-2,3-dimethyl-,** 3796*i*.
———, **4-carboxy-2,2-dimethyl-,** 7462*g*.
———, **4-carboxy-2,2,4-trimethyl-,** and diethyl ester, 7462*i*.
———, **1,3-dicarboxy-2,3-dimethyl-4-oxo-†,** triethyl ester, 3796*h*.
———, **2,2'-(2,5-dimethyl-*p*-phenylene)bis-,** and diethyl ester, 3796*f*.
———, **2,2'-(4,5-dimethyl-*o*-phenylene)bis-,** diethyl ester, 3796*e*.
———, **2,2'-(4,6-dimethyl-*m*-phenylene)bis-,** diethyl ester, 3796*j*.
———, **2-mesityl-,** and ethyl ester, 3796*g*.
———, **2-methyl-α-phenethyl-,** 1039*g*.
———, **3-(2-naphthyl)-5-oxo-,** *cis-*, reaction with HF, 241*f*.
———, **2-oxo-5-phenyl-,** and ethyl ester, 9042*i*.
———, **α-phenethyl-,** 1039*e*.
———, **α-phenoxy-,** 2-diethylaminoethyl esters, P 6229*h*.
———, **α-phenyl-,** and (1-pyrrolidyl)alkyl esters and their hydrochlorides, 1388*e*.
———, **2-phenyl-,** and ethyl ester, 9042*i*, 9043*a*.
———, **α-propyl-,** (1-pyrrolidyl)alkyl esters and their hydrochlorides, 1388*f*.
———, **α-*m*-toloxy-,** 2-diethylaminoethyl ester, P 7958*c*.
———, **2-[2,4(2,5 and 3,4)-xylyl]-,** and ethyl esters, 3796*d*.
**Δ¹,α-Cyclopentaneacetic acid, 4-carboxy-α-cyano-2,2-dimethyl-,** diethyl ester, 7462*f*.
———, **4-carboxy-α-cyano-2,3,4-trimethyl-,** diethyl ester, 7462*h*.
**Δ¹,α-Cyclopentaneacetonitrile, α-(*p*-methoxyphenyl)-,** 8359*b*.
———, **α-phenyl-,** 8359*a*
———, **α-3-thienyl-†,** 8359*b*.
**Cyclopentaneacetyl chloride, 2-phenyl-,** 9043*a*.
**Cyclopentanealdehyde.** See *Cyclopentanecarboxaldehyde*.
**Cyclopentanebutyric acid** (*γ-cyclopentylbutyric acid*), 1375*c*.
———, **2-carboxy-2-methyl-,** diethyl ester, 3829*h*.
**Cyclopentanecaproic acid** (*ε-cyclopentylcaproic acid*), 1375*c*.
**Cyclopentanecapronitrile,** 1375*c*.
**Cyclopentanecarbonitrile, 2-(acetylimino)-†,** and derivs., 9008*c*.
———, **1-hydroxy-,** dissocn. of, 7906*i*.
**Cyclopentanecarbonyl chloride, 3-phenyl-,** 3398*e*.
**Cyclopentanecarboxaldehyde,** 2,4-dinitrophenylhydrazone, 7435*b*.
formation from cyclohexene oxide, 7431*c*.
———, **2,5-dimethyl-,** and semicarbazone isomers, 4255*a*.
**Cyclopentanecarboxamide, *N*-butyl-*N*-(2-dimethylaminoethyl)-1-phenyl-,** and hydrochloride, P 7959*a*.
———, ***N*-(2-diethylaminoethyl)-1-ethyl-1-*o*-tolyl-,** and hydrochloride, P 7958*i*.
———, ***N*-(2-diethylaminoethyl)-1-(*p*-methoxyphenyl)-,** and hydrochloride, P 7958*h*.
———, ***N*-(2-diethylaminoethyl)-*N*-methyl-1-phenyl-,** P 5797*d*.
———, ***N*-(2-diethylaminoethyl)-*N*-methyl-1-*m*-tolyl-,** and hydrochloride, P 7958*i*.
———, ***N*-(2-diethylaminoethyl)-1-phenyl-,** P 7958*f*.
———, ***N*-(2-diethylaminoethyl)-1-*p*-tolyl-,** and hydrochloride, P 7958*h*.
———, ***N*-(2-diethylaminoethyl)-1-(3,4-xylyl)-,** and hydrochloride, P 7958*i*.
———, ***N*-(2-dimethylaminoethyl)-1-(*p*-methoxyphenyl)-,** and hydrochloride, P 7958*i*, P 7959*a*.
———, ***N*-(2-dimethylaminoethyl)-*N*-methyl-1-phenyl-,** and hydrochloride, P 7958*h*.
———, ***N*-(2-dimethylaminoethyl)-1-phenyl-,** and hydrochloride, P 7958*h*.
———, ***N*-(2-dimethylaminoethyl)-1-(3,4-xylyl)-,** and hydrochloride, P 7959*a*.
———, ***N*-(1-dimethylcarbamylethyl)-*N*-ethyl-,** P 249*h*.
———, **2,5-dioxo-(?),** 7910*g*.
———, ***N*-2-hydroxyethyl-,** in penicillin production, 2273*d*.
———, **2(and 3)-phenyl-,** 3398*e*.
**Cyclopentanecarboxanilide, 2(and 3)-phenyl-,** 3398*e*.
**Cyclopentanecarboxylic acid,** 2176*c*.
———, **1-amino-,** ethyl ester, hydrogenation of, 572*h*.
———, **1-benzyl-2-oxo-,** ethyl ester, 3399*b*.
———, **2-bromoacetyl-1-methyl-,** ethyl ester, 3829*h*.
———, **1-bromo-2-oxo-,** ethyl ester, 3273*e*.
———, **1-(3-chloro-1,4-dihydro-1,4-dioxo-2-naphthyl)-2-oxo-,** ethyl ester, 1377*d*.
———, **1-cyclo- -2-oxo-,** ethyl ester, 2586*g*.
———, **1,2-dihydroxy-,** 586*f*.
———, **1-(3-dimethylamino-3-oxo-amyl)-2-oxo-,** ethyl ester, salts, 7432*d*.
———, **2-(1,3-dimethylcyclohexyl)-2-oxo-,** ethyl ester, 2587*c*.
———, **(1,3-dimethylhexyl)-1-methyl-2-oxo-,** ethyl ester, 7911*g*.
———, **4-(1,3-dimethylhexyl)-3-methyl-2-oxo-,** ethyl ester, 1335*a*.

—, **2,3-dimethyl-4-oxo-**, and derivs., 7462*f*.
—, **2,5-dioxo-(?)**, ethyl ester and its derivs., 7909*d*, 7910*a*.
hydrazide hydrazone, 7910*g*.
——, **2 - (hexahydro - 2,4,6 - trioxo - 5-pyrimidyl)-**, ethyl ester, P 1800*d*.
——, **2 - isopropyl - 1 - methyl-**. See *Fenchole acid*.
——, **3 - isopropyl - 2 - oxo-**, ethyl ester, 1749*f*.
——, **1 - [*m*(*o* and *p*) - methoxyphenyl]-, 2 - diethylaminoethyl esters, and hydrochlorides, P 6229*e*.
——, **1 - [3 - (*m* - methoxyphenyl)propyl]-2-oxo-**, derivs., 9043*e*.
——, **1 - (5 - methylmercapto - 3-oxoamyl)-2-oxo-**, derivs., 7433*g*.
——, **2-methyl-2-oxo-**, ethyl ester, 2584*i*.
——, **2-oxo-**, ethyl ester, bromination of, 3273*e*, 3698*d*.
ethyl ester, color reaction with $FeCl_3$, 1008*a*.
ethyl ester, enol-keto tautomerism in gas phase, 6979*g*.
ethyl ester reaction with 1,1-dialkyl-4-oxopiperidinium salts, 7432*c*.
ethyl ester, reaction with thiapyrylium comods., 7433*f*.
——, **2 - oxo - 1 - (3 - oxo - 4 - pentenyl)-**, ethyl ester, 7432*e*.
——, **3-oxo-2-phenyl-**, 3398*g*.
——, **1-phenyl**, basic esters, P 7959*c*.
2-diethylaminoethyl ester, aerosol contg., effect on pulmonary vol., 7128*g*.
aerosol, pharmacol. action of, 4374*e*.
central action of, 7131*c*.
effect on anaphylactic and normal lungs, 7130*i*.
effect on basal metabolism and on thyroid, 4373*i*.
effect on cardio-inhibitory center, 7133*c*.
effect on cell respiration of striated muscle, 1486*f*
effect on decerebrate rigidity, spinal reflexes and skeletal muscle, 6733*bd*.
effect on nervous functions, 1487*a*.
effect on vasomotor properties of acetylcholine, 7133*i*.
effect on vegetative nervous system, 7127*g*.
locus of action of, 1107*b*.
pharmacology of, 3109*h*.
2-diethylaminoethyl ester, and -HCl, P 6229*c*.
esters with amino alcs., P 6655*hi*, P 6656*a*.
ester with diethyl(2-hydroxyethyl)methylammonium chloride, P 5790*h*.
2 - (isopropylmethylamino)ethyl ester, and -HCl, P 6229*d*.
2-(4-morpholinyl)ethyl ester, and -HCl, P 6229*e*.
——, **2(and 3)-phenyl-**, and derivs., 3398*d*.
**1-*m*-tolyl-**, esters with amino alcs., P 6655*i*.
——, **1-*o*-tolyl-**, 2-diethylaminoethyl ester, and -HCl, P 6229*f*, P 6656*a*.
——, **1-*p*-tolyl-**, 2-diethylaminoethyl ester and -HCl, P 6656*b*, P 7958*e*.
——, **1-(3,4-xylyl)-**, basic esters, P 6229*f*.
2-diethylaminoethyl ester, P 6656*b*.
esters with amino alcs., P 6655*i*.
**1,1 - Cyclopentanedicarboxamide, *N*,*N*,*N*′,*N*′ - tetraethyl-**, P 1797*i*, P 3842*g*.
**1,1 - Cyclopentanedicarboxylic acid, 3-methyl-**, diethyl ester, reaction with $NH_2CONHMe$, P 3472*i*.
**1,3 - Cyclopentanedicarboxylic acid, 5-(4 - carboxybutyl) - 1 - methyl-**, prepn. (attempted) of, 1355*b*.
**1,3 - Cyclopentanedicarboxylic acid, 2-(carboxymethyl) - 1,2 - dimethyl-4-oxo-**, triethyl ester, 3796*h*.
——, **1 - chloro - 3 - methyl - 4,5-dioxo-**, diethyl ester, 6988*b*.
——, **4,5-dioxo-**, diethyl ester, 6987*c*.
——, **3 - hydroxy - 1,4,4 - trimethyl-**, and derivs., 7462*d*.
——, **1 - methyl - 4,5 - dioxo-**, diethyl ester, 6988*a*.
——, **3 - methyl - 4,5 - dioxo-**, diethyl ester, 6987*f*.
——, **- oxo - 3 - phenyl-**, dimethyl ester, 3398*g*.
——, **1,2,2 - trimethyl-**. See *Camphoric acid*.
——, **1,4,4 - ——**. See *Isofenchocamphoric*
——, **4,4,5-trimethyl-**, *cis*- and *trans*-, 2605*a*.
**1,1-Cyclopentanediol**, monocyclohexanecarboxylate, 5150*e*.
**1,2-Cyclopentanediol**, manuf. of, P 6230*a*.
——, **2,3-dimethyl-**, diacetate, 2173*e*.
——, **3-ethyl-**, and diacetate, 2173*d*.
——, **1-methyl-**, diacetate, 2173*e*.
*trans*-, and monoformate, 2172*d*.
——, **3-methyl-**, and diesters, 2173*d*.
**1,2-Cyclopentanedione**, 6987*d*.
——, **3-bromo-**, P 2227*f*.
——, **3-chloro-**, P 2227*f*, 6987*d*.
——, **3-chloro-4-methyl-**, 6987*g*.
——, **3-methyl-**, 6988*b*.
——, **4-methyl-**, 6987*f*.
**1,3-Cyclopentanedione**, derivs. and isomeric enol-lactones, 7910*a*.
prepn. of, 7908*i*.
**Cyclopentanehendecanamide**, 1731*a*.
**Cyclopentanehendecanoic acid** (*11-cyclopentylhendecanoic acid*), 1731*a*.
——, **2(and 3) - (naphthyl)-**, ethyl ester, 566*d*.
——, **2(and 3)-(2-thienyl)-**, ethyl ester, 566*d*.
**$\Delta^{1,\alpha}$ - Cyclopentanemalonamide, *N*,*N*,-*N*′,*N*′ - tetraethyl-**, P 1797*i*, P 3842*f*.
**Cyclopentanemalonic acid, α-butyl-**, 1388*b*.
——, **2-methyl-α-phenethyl-**, and diethyl ester, 1039*g*.
——, **α-phenethyl-**, and diethyl ester, 1039*d*.
——, **α-propyl-**, (incorrectly given in abstr. as α-butyl-2-cyclopentene-1-malonic acid), 1388*b*.
**Cyclopentanemethanol**, 7431*i*.
——, **1-amino-**, and salts, 572*h*.
——, **2,5-dimethyl-**, and carbanilate, 4255*a*.
——, **α,α-dimethyl-2-phenyl-**, 3398*h*.
——, **1(or 2)-methyl-**, and carbanilate, 2961*c*.
——, **α-phenyl-**. See *Benzyl alcohol, α-cyclopentyl-*.
——, **α,α,2,2-tetramethyl-**, 5751*f*.
**Cyclopentanemethylamine, 2-amino-**, picrate, microscopic identification of, 6104*e*.
**Cyclopentanenitrile**. See *Cyclopentanecarbonitrile*.
**Cyclopentanepentanol**, and carbamate, 1375*c*.
**Cyclopentanepropionamide, *N* - sulfanilyl-**, therapeutic activity of, 3097*g*.
**Cyclopentanepropionic acid** (*β-cyclopentylpropionic acid*).
——, **1-acetyl-2-oxo-**, methyl ester, P 5417*a*.
——, **1-butyryl-2-oxo-**, ethyl ester, P 5417*b*.
——, **1-carboxy-β,2-dimethyl-2-oxo-**, diethyl ester, 2584*i*.
**2 - (carboxymethyl) - β,3 - dimethyl-**, diethyl ester, 2584*h*.
——, **2 - (carboxymethylene) - β,3-dimethyl-**, diethyl ester, 2585*a*.
——, **2 - (carboxymethyl) - 2 - hydroxy-β,3-dimethyl-**, δ-lactone lit ester, 2585*a*.
——, **β,3-dimethyl-2-oxo-**, and derivs., 2584*i*.
——, **2-oxo-**, 1-acyl derivs., γ-acylsuberic acid esters from, P 6225*i*.
butyl ester, P 6226*b*.
——, **2-oxo-1-propionyl-**, butyl ester, P 5417*b*.
——, **2-phenyl-**, and ethyl ester, 9043*a*.
——, **1,4,4-trimethyl-2-oxo-**, and semicarbazone, 7462*b*.
**Cyclopentanepropionitrile, 1-acetyl-2-oxo-**, P 7040*h*.
——, **1-butyryl-2-oxo-**, P 7040*h*.
——, **2-oxo-**, 1-acyl derivs., γ-acylsuberic acid esters from, P 6225*i*.
——, **2 - oxo - 1 - propionyl-**, P 7040*h*.
**Cyclopentanepropionyl chloride, 2-phenyl-**, 9043*b*.
**$\Delta^{1,7}$ - Cyclopentanepropylamine** (*3-cyclopentylidenepropylamine*).
——, ***N*,*N*-dimethyl-β-phenyl-**, and hydrochloride, 8358*i*.
——, ***N*,*N* - dimethyl - γ - phenyl-**, and salts, 8359*c*.
——, ***N*,*N*-dimethyl-γ-2-thienyl-†**, hydrochloride, 8359*e*.
——, **γ - (*p* - methoxyphenyl) - *N*,*N*-dimethyl-**, hydrochloride, 8359*e*.
**Cyclopentane ring**. See *Cyclopentane*.
**Cyclopentanethiol, 1-methyl-**, 2172*e*.
**1,2,4 - Cyclopentanetricarboxylic acid, 3,3,4-trimethyl-5-oxo-**, triethyl ester, 5380*h*.
**Cyclopentanetrione, methyl-**, derivs., 6987*h*.
**Cyclopentaneundecylic acid**. See *Cyclopentanehendecanoic acid*.
**Cyclopentanevaleric acid** (*δ-cyclopentylvaleric acid*).
——, **γ, 1-dibromo-δ-oxo-**, 587*g*.
——, **2,3 - dicarboxy - 2 - methyl-†**, prepn. (attempted) of, 1355*b*.
——, **γ,1-dihydroxy-δ-oxo-**, γ-lactone, 587*h*.
——, **δ-oxo-**, and derivs., 587*d*.
**Cyclopentanol**, and esters, phys. constants of, 2955*h*.
formation of, in oxidation of cyclopentane, P 2226*a*.
manuf. of, and its alkyl derivs., and lubricant additives by reaction with $P_2S_5$ and salts, P 1959*e*.
prepn. of, 2570*e*.
——, **2-(aminomethyl)-**, 588*h*.
——, **2 - *tert* - butyl - 1,4 - dimethyl-**, 118*c*.
——, **2 - *tert* - butyl - 4 - methyl-**, 118*c*.
——, **methyl-**, esters, 2171*i*.
——, **1/2 and 3)-methyl-**, dehydration of, 2172*b*.
——, **3-methyl-**, phys. constants of, 2955*h*.
——, **1-phenyl-**, oxidation of, 3366*f*.
——, **2,3,4-trimethyl-**, 156*d*.
**Cyclopentanone**, 2-acyl derivs., reaction with acrylic acid derivs., P 5417*a*.
acylhydrazones†, 6972*f*.
compds., with amine bisulfites, 3355*h*, 3356*b*.
compd. with phenol, infrared and Raman spectra of, 107*b*.
cyanohydrin—see *Cyclopentanecarbonitrile, 1-hydroxy-*.
derivs., 241*c*, 1333*h*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
halochromism in, 7910*i*.
manuf. of, P 5422*c*, P 5791*h*.
manuf. of, and its alkyl derivs., and their reduction to alcs. in lubricant additive manuf., P 1959*d*.
oxidation of, 2170*a*.
oxime, benzenesulfonate, 2594*c*.
phys. consts. of, 2955*h*.
reaction with HCN, 7906*i*.
reaction with $BzO_2H$, kinetics of, 8358*g*.
reduction of, to cyclopentanol, 2570*e*.
semicarbazone, 588*f*.
solvents of, and its derivs., for polyvinyl chloride, P 1126*d*, P 2817*f*.
spectrum of, 1656*c*, 3715*g*.
**Cyclopentanone, 2-acetyl-**, reaction with acrylic acid esters, P 5417*a*.
——, **2-benzyl-**, 3390*b*.
——, **2 - bromo - 2 - methyl - 3 - (2-naphthyl)-**, 241*i*.
——, **2-*tert*-butyl-4-methyl-**, 118*b*.
——, **2-cyclohexyl-**, and semicarbazone, 2586*h*.
——, **2,3-dimethyl-**, and semicarbazone, 7911*f*.
——, **3 - (1,5 - dimethylhexyl) - 2, methyl-**, and semicarbazone, 1335*c*, 7911*g*.
——, **2,4 - dimethyl - 2 - phenyl-**, and semicarbazone, 119*d*.
——, **3,4-diphenyl-**, 2962*c*.
——, **2 - ethyl - 3,4 - dimethyl-**, and semicarbazone, 116*f*.
——, **3 - ethyl - 2,4 - dimethyl-**, and semicarbazone, 116*c*.
——, **2 - ethyl - 3 - hydroxy - 3,4-dimethyl-**, and semicarbazone, 116*g*.
——, **3 - ethyl - 4 - methyl - 2 - propyl-**, and semicarbazone, 6623*g*.
——, **2 - [2 - (*m* - methoxyphenyl)propyl]-**, and semicarbazone, 9043*f*.
——, **3-methyl-**, and 2,4-dinitrophenylhydrazone, 2172*e*.
——, **3-methyl-**, phys. constants of, 2955*h*.
——, **4 - methyl - 2,3 - diphenyl-**, and semicarbazone, 6624*i*.
——, **2-phenyl-**, 3398*i*.
——, **3 - phenyl - 2,5 - dipiperonylidene-**, 3398*i*.
——, **2,2,5,5 - tetrakis(hydroxymethyl)-**, and esters, P 9527*i*.
——, **2,3,4,4 - tetramethyl-**, and semicarbazone, 1333*e*.
——, **2,3,4-trimethyl-**, and derivs., 156*d*.

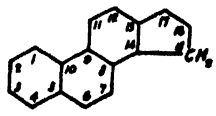
**Cyclopentaphenanthrene,**



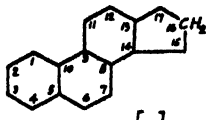
1—[*l*]



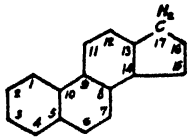
2—[*l*]



15—[*a*]



16—[*a*]



17—[*a*]

**Cyclopenta[*a*]phenanthrene.** (For derivatives see also *Androgenic hormones; Estrogenic hormones; Progestational hormones; Steroids;* "sex" under *Hormones;* and specific hormones such as *Androstane; Androstenone; Cholestane; Estrone; Progesterone; Testosterone.*)
derivs. of polyhydro, P 3980*a*, P 5428*e*.
derivs. of polyhydro, in rheumatic fever etiology, 3110*a*.
α-dicarbonyl compd. of polyhydro derivs. of, P 2377*a*.
dimethyl derivs. of polyhydro, P 4432*g*.
esterification of diols and triols of perhydro derivs. of, P 1533*d*.
glucosides of polyhydro derivs. of, P 1532*i*, P 2376*h*.
ketones of polyhydro derivs. of, P 305*h*, P 821*c*, P 824*e*, P 1918*e*.
polyhydric derivs. of polyhydro derivs. of, P 6247*a*.

1 *H* - **Cyclopenta[*l*]phenanthrene, 2,3,4,5,6,7,8,9,10,11 - decahydro-,** 7013*g*.
——, **2,3-dihydro-,** and picrate (omitted from abstr.), 7013*g*.

15 *H* - **Cyclopenta[*a*]phenanthrene, 16,17-dihydro-,** derivs., 621*f*.
——, **16,17 - dihydro - 12 - isopropyl-,** and compd. with 2,4,7-trinitro-9-fluorenone, 621*i*.
——, **16,17 - dihydro - 12 - methyl-,** and compd. with 2,4,7-trinitro-9-fluorenone, 621*i*.
——, **16,17 - dihydro - 17 - methyl-,** 7573*i*.
——, **17 - (1,5 - dimethylhexyl) - 16,17-dihydro-,** 7574*a*.
——, **17 - (1,5 - dimethylhexyl) - 11,12,13,14,16,17 - hexahydro - 13-methyl-,** 7573*i*.
——, **12 - ethyl - 16,17 - dihydro-,** and compd. with 2,4,7-trinitro-9-fluorenone, 621*i*.

16 *H* - **Cyclopenta[*a*]phenanthrene,** derivs., 3429*f*.

16 *H* - **Cyclopenta[*a*]phenanthrene - 15-acetic acid, 11,12,13,17 - tetrahydro-16-oxo-,** and methyl ester, 3430*b*.

**Cyclopentaphenanthreneacrylic acid** (*β - cyclopentaphenanthrylacrylic acid*).

17 *H* - **Cyclopenta[*a*]phenanthrene - 17-acrylic acid, 3 - hydroxy - β-(hydroxymethyl)-,** γ-lactone, polyhydro derivs., P 4818*f*.

17 *H* - **Cyclopenta[*a*]phenanthrene-11,17(13 *H*) - dione, 13,14,15,16-tetrahydro-,** 241*g*.
——, **13,14,15,16 - tetrahydro - 13-methyl-,** 241*d*.

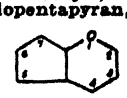
**Cyclopenta[*a*]phenanthrenemalonic acid,** polyhydro derivs., adrenaline salts, P 6674*g*.

1 *H* - **Cyclopenta[*l*]phenanthren - 1-one, 2,3,4,5,6,7,8,9,10,11-decahydro-,** and 2,4 - dinitrophenylhydrazone, 7013*f*.

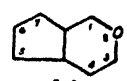
2 *H* - **Cyclopenta[*l*]phenanthren-2-one, 1,3-diphenyl-,** diene synthesis with, 2585*d*, 2614*b*.

17 *H* - **Cyclopenta[*a*]phenanthren-17-one, 15,16-dihydro-12-isopropyl-,** 621*i*.
——, **15,16 - dihydro - 12 - methyl-,** 621*i*.
——, **12 - ethyl - 15,16 - dihydro-,** and semicarbazone, 621*i*.
——, **12 - ethyl - 11,12,15,16 - tetrahydro-,** 621*i*.
——, **11,12,15,16 - tetrahydro - 12-isopropyl-,** 621*i*.
——, **11,12,15,16 - tetrahydro - 12-methyl-,** 621*i*.

**Cyclopentapyran,**



[*b*]

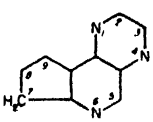


[*c*]

**Cyclopenta[*b*]pyran - 7a(2 *H*) - acetic acid, hexahydro - 4,7 - dimethyl-2-oxo-†,** ethyl ester, 2585*a*.

**Cyclopenta[*c*]pyran - 5(1 *H*) - one, hexahydro - 3,3,7 - trimethyl-,** and semicarbazone, 2162*g*.
——, **3,4,6,7 - tetrahydro - 3,3,7 - trimethyl-,** and semicarbazone, 2162*f*.

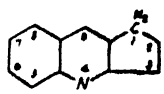
**Cyclopentapyrazinopyridine,**



7*H*—[*b*]—[*d*]

7 *H* - **Cyclopenta[*b*]pyrazino[*d*]pyridin-5-ol, 8,9 - dihydro - 2,3 - diphenyl-,** acetate (salt), 9068*i*.

1 *H* - **Cyclopenta[*b*]quinoline,**

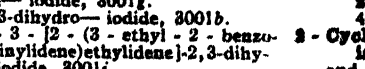


1—[*b*]

-, **2,3-dihydro-,** cyanine dyes from, 3001*a*.

1 *H* - **Cyclopenta[*b*]quinolinium compounds,** 3 - (anilinomethylene)-2,3-dihydro-4-methyl— iodide, 3001*c*.
3 - (2,4 - dihydro - 4 - methyl - 1 *H*-cyclopenta[*b*]quinolin - 3 - ylmethylidyne)-2,3 - dihydro - 4 - methyl— iodide, 3001*f*.
2,3 - dihydro - 4 - methyl - 3 - [2 - (3 methyl - 2 - benzothiazolinylidene)-ethylidene]— iodide, 3001*i*.
2,3 - dihydro - 4 - methyl - 3-[2-(3-methyl - 2 - benzoxazolinylidene)-ethylidene]— iodide, 3001*i*.
2,3 - dihydro - 4 - methyl - 3 - (1-methyl-2(1 *H*) - quinolylidene)— iodide, 3001*e*.
2,3 - dihydro - 4 - methyl - 3 - [2 - (1-methyl - 2(1 *H*) - quinolylidene)ethylidene]— iodide, 3001*g*.
2,3 - dihydro - 3 - [2 - (1 - methyl-4(1 *H*)-quinolylidene)ethylidene] - 4-methyl— iodide, 3001*h*.
2,3 - dihydro - 4 - methyl - 3 - [2 - (1,3,3-trimethyl - 2 - indolinylidene)ethylidene]— iodide, 3001*d*.
3 - (*p* - dimethylaminobenzylidene)-4-ethyl-2,3-dihydro— iodide, 3001*i*.
3 - (*p* - dimethylaminophenylimino)-2,3-dihydro - 4 - methyl— iodide, 3001*c*.
3 - [2 - (1,6 - dimethyl - 2(1 *H*) - quinolylidene)ethylidene] - 2,3 - dihydro-4-methyl— iodide, 3001*g*.
4-ethyl-2,3-dihydro— iodide, 3001*b*.
4 - ethyl - 3 - [2 - (3 - ethyl - 2 - benzothiazolinylidene)ethylidene]-2,3-dihydro— iodide, 3001*i*.
4 - ethyl - 3 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 2,3 - dihydro— iodide, 3001*i*.
4 - ethyl - 3 - (4 - ethyl - 2,4 - dihydro-1 *H* - cyclopenta[*b*]quinolin - 3 - ylmethylidyne) - 2,3 - dihydr iodide, 3001*f*.
4 - ethyl - 3 - [2 - (1 - ethyl - 2(1 *H*)-quinolylidene)ethylidene] - 2,3-dihydro— iodide, 3001*g*.
4 - ethyl - 3 - [2 - (1 - ethyl - 4(1 *H*)-quinolylidene)ethylidene] - 2,3 - dihydro— iodide, 3001*h*.

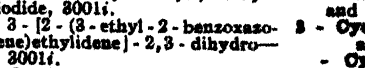
**Cyclopentasiloxane,**



O.SiH₂.O.SiH₂.O.SiH₂.O.SiH₂.O.SiH₂.
1 2 3 4 5 6 7 8 9 10

——, **decamethyl-,** P 6221*c*.

**Cyclopentene,**



CH:CH.CH₂.CH₂.CH₂.
1 2 3 4 5

chlorofluoro derivs., P 678*h*.
compressibility and ultrasonic velocity in, 4532*b*.
decompn. of, kinetics of, 3271*e*.
derivs., from cyclohexenes, 2173*b*.
detn. in petroleum-refinery C₅ fractions, 8123*f*.
formation from $C_3H_3$, 5376*d*.
heat, equil. const. and free energy of formation of, 8254*i*.
mol. structure and thermodynamic properties of, 2831*b*.
spectrum of, 8890*b*.
thermodynamic properties of, 1254*c*
——, **3-bromo-3-methyl-,** 2586*e*.
——, **bromo(trichloromethyl)-,** 4636*i*
——, **1,2-dichlorohexafluoro-,** P 678*h*, 3844*f*.
——, **1,3(and 2,3) - dimethyl-,** 2173*b*
——, **1(and 3)-ethyl-,** 2173*c*.
——, **1,2,3,3,4,4 - hexachloro - 5-(dichloromethylene)-(?),** 4231*i*.
——, **3 - isopropyl - 1,2 - dimethyl-,** 3375*b*.
——, **1-methyl-,** extn. from gasoline, P 4003*g*.
——, **1(and 3)-methyl-,** 2173*b*.
formation in dehydration of cyclohexanol, 5010*c*.
——, **1(3 and 4)-methyl-,** and derivs 2172*a*.
——, **3-methyl-,** phys. constants of 2955*h*.
——, **octachloro-,** 4230*h*, 4231*i*.
——, **tetrachlorotetrafluoro-,** P 678*h*
——, **trichloropentafluoro-,** P 678*h*.
——, **1,2,3-trimethyl-,** 156*b*.

1 - **Cyclopentene - 1 - acetic acid, 2-(4-biphenylyl)-5-oxo-,** 3429*i*.
——, **2-*p*-cumyl-5-oxo-,** 3429*i*.
——, **2 - (*p* - cyclohexylphenyl)-5-oxo-,** 3429*i*.
——, **2 - (*p* - ethylphenyl) - 5 - oxo-,** 3429*i*.
——, **2 - (4 - methoxy - 1 - naphthyl)-5-oxo-,** and semicarbazone, 3429*i*.
——, **2 - (*p* - methoxyphenyl) - 5 - oxo-** and derivs., 3429*i*.
——, **2 - (*p* - 1 - methylbutylphenyl)-5-oxo-,** 3429*i*.
——, **5-oxo-2-phenyl-,** ethyl ester, 9012*i*
——, **5-oxo-2-*p*-tolyl-,** 3429*i*.

2 - **Cyclopentene - 1 - acetic acid,** ethyl ester, arylation of, 3796*d*.
——, **α-butyl-,** (1-pyrrolidyl)alkyl esters and their salts, 1388*f*.
——, **α-phenethyl-,** 1039*f*.
——, **α-phenyl-,** and (1-pyrrolidyl)alkyl esters and their derivs., 1388*d*.
——, **α-propyl-,** (1-pyrrolidyl)alkyl esters and their hydrochlorides, 1388*f*.

1 - **Cyclopentene - 1 - acetonitrile,** α-(2-dimethylaminoethyl) - α-phenyl-, 8359*c*.
——, **α - (2 - dimethylaminoethyl)-α-2-thienyl-†,** hydrochloride, 8359*c*.

2 - **Cyclopentene - 1 - acetonitrile,** α-(2-dimethylaminoethyl) - α-phenyl-, hydrochloride, 8359*f*.
——, **α-phenyl-,** 8359*f*.

3 - **Cyclopentene - 1 - acetonitrile,** α,α,3-trimethyl-. See *α-Fencholenonitrile.*
——, **2,2,3 - trimethyl-.** See *α-Campholenonitrile.*

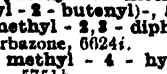
1 - **Cyclopentene - 1 - carbonitrile,** 2-methyl-, 1335*e*.

1 - **Cyclopentene - 1 - carboxaldehyde, 2,3-dimethyl-,** and semicarbazone, 4254*i*.

2 - **Cyclopentene - 1 - carboxaldehyde, 3-isopropyl-1-methyl-,** 1751*g*.

3 - **Cyclopentene - 1 - carboxaldehyde,** and 2,4-dinitrophenylhydrazone, 1750*b*.
- **Cyclopentene - 1 - carboxamide,** action of molten alkalies on, P 5416*i*.
- **Cyclopentene - 1 - carboxamide, 1 - hy-(and 2) - butenyl] - 1 - hy- - 4 - methyl-2-oxo-,** 1334*i*.

**2 - Cyclopentene - 1 - carboxanilide, 3-isopropyl-1-methyl-**, 1750*a*.
**1 - Cyclopentene - 1 - carboxylic acid, 5,5 - dimethyl - 3 - oxo-**, and semicarbazone, 1335*h*.
——, **2-hydroxy-5-oxo-(?)**, ethyl ester *p*-nitrobenzoate, 7910*e*.
**2 - Cyclopentene - 1 - carboxylic acid, 2-cyano - 5 - (1,5 - dimethylhexyl)-1-methyl-**, ethyl ester, 7911*h*.
——, **3-isopropyl-1-methyl-**, 1751*g*. and derivs., 1749*d*.
**3 - Cyclopentene - 1 - carboxylic acid**, P 5416*i*.
——, **3 - [2(and 3) - butenyl] - 1 - hydroxy-4-methyl-2-oxo-**, ethyl ester acetate, 1334*i*.
——, **3 - (2 - butenyl) - 4 - methyl-2-oxo-**, ethyl ester, 1334*h*.
——, **3 - [2(and 3) - butenyl] - 4-methyl-2-oxo-**, Et ester, 1334*h*.
——, **2 - (1,5 - dimethylhexyl) - 1-methyl-5-oxo-**, ethyl ester, 7911*g*.
——, **2-hydroxy-1-methyl-**, ethyl ester, 3829*eh*.
——, **1 - methyl - 2 - (2 - oxocyclohexyl)-**, ethyl ester, 3829*e*.
——, **1 - methyl - 5 - (1,2,3,4-tetrahydro-1-oxo-2-naphthyl)-**, ethyl ester, 3829*i*.
**1 - Cyclopentene - 1,3 - dicarboxylic acid, 3,5,5-trimethyl-**, 7462*e*.
**2 - Cyclopentene - 1,2 - dicarboxylic acid, 3 - (1,5 - dimethylhexyl) - 1-methyl-(?)**, 7911*e*.
**3 - Cyclopentene - 1,3 - dicarboxylic acid, 4 - hydroxy - 1 - methyl - 5 - oxo-**, diethyl ester and its Na deriv., 6988*a*.
**Cyclopentenedione, dichloro(trichlorovinyl)-**, 4231*f*.
**2 - Cyclopentene - 1 - hendecanoic acid.** See *Hydnocarpic acid*.
**2 - Cyclopentene - 1 - malonic acid, α-phenethyl-**, and diethyl ester, 1039*f*.
——, **3-isopropyl-1-methyl-**, oxidation of, 1751*g*. and oxidation of, 1750*b*.
**3-Cyclopentene-1-methanol-**, P 5416*i*.
**1 - Cyclopentene - 1 - propylamine** (*3-(1-cyclopenten-1-yl)propylamine*).
——, *N*, *N*-**dimethyl-γ-phenyl-**, and hydrochloride, 8359*d*.
**2 - Cyclopentene - 1 - propylamine, *N*, *N* - dimethyl - γ - phenyl-**, and derivs., 8359*f*.
**1 - Cyclopentene - 1,2,4 - tricarboxylic acid, 3,3 - dimethyl - 5 - oxo-**, triethyl ester Na deriv., 1335*f*.
**2 - Cyclopentene - 1 - tridecanoic acid.** See *Chaulmoogric acid*.
**2 - Cyclopentene - 1 - undecylic acid.** See *Hydnocarpic acid*.
**1 - Cyclopentene - 1 - valeric acid** (*α-1-cyclopenten-1-ylvaleric acid*).
——, **5-oxo-**, and methyl ester, 587*e*.
**2-Cyclopenten-1-ol, 2-methyl-**, 2586*e*.
**Cyclopentenone, dibromotetrachloro-**, 4231*a*.
——, **hydroxymethyl-**, in gas liquor from wood-fed generators, 5926*a*.
**2-Cyclopenten-1-one**, derivs., 3429*f*, P 5039*c*. and semicarbazone, 588*f*.
——, **2 - allyl - 4 - hydroxy - 3-methyl-**, 5751*i*.
——, **5 - bromo - 2,3,4,4,5 - pentachloro-**, 4230*i*.
——, **2 - [2(and 3) - butenyl] - 4-hydroxy-3-methyl-**, 5751*i*.
——, **2 - [2(and 3) - butenyl] - 5 - hydroxy - 3 - methyl-**, and derivs., 1335*a*.
——, **2 - (2 - butenyl) - 3 - methyl-**, cinerone and, 1334*f*.
——, **2 - (3 - butenyl) - 3 - methyl-**, 1334*g*.
——, **3 - butyl - 4 - hydroxy - 3-methyl-**, 5751*i*.
——, **2 - *tert* - butyl - 4 - methyl-**, 118*a*.
——, **2,3-dihydroxy-**. See *Reductic acid*.
——, **2,3-dihydroxy-4(and 5)-methyl-**, 6087*f*.
——, **2,4-dimethyl-**, diene condensation with, 1333*h*.
——, **2,4 - dimethyl - 3 - octyl-**, and derivs., 6624*b*.
——, **3,4 - dimethyl - 2 - phenyl-**, and semicarbazone, 119*c*.
——, **2 - ethyl - 3,4 - dimethyl-**, isomers and semicarbazones, 116*a*.
——, **3 - ethyl - 2,4 - dimethyl-**, and derivs., 116*b*.
——, **3 - ethyl - 2,4 - dimethyl - 4-propyl-**, and semicarbazone, 1333*f*.
——, **3 - ethyl - 4 - methyl - 2-propyl-**, and derivs., 6623*f*.
——, **hexachloro-**, 4230*h*. heat of fusion and system: hexachloro-3-cyclopenten-1-one-, 4552*f*.
——, **4 - hydroxy - 3 - methyl - 2 - (2-methylallyl)-**, 5751*i*.
——, **4 - hydroxy - 3 - methyl - 2 - (3-methyl - 2 - butenyl)-**, 5751*i*.
——, **4 - methyl - 2,3 - diphenyl-**, and semicarbazone, 6624*i*.
——, **3 - methyl - 4 - hydroxy-**, 2-derivs., 5751*h*.
——, **2 - methyl - 3 - (2 - naphthyl)-**, 241*i*.
——, **2,3,4,4,5 - pentachloro-**, 4230*i*.
——, **3-phenyl-**, and semicarbazone, 3366*f*.
——, **2,3,4,4 - tetramethyl-**, and semicarbazone, 1333*a*.
——, **2,3,4-trimethyl-**, 156*a*.
**3-Cyclopenten-1-one, hexachloro-**, heat of fusion and system: hexachloro-2-cyclopenten-1-one-, 4552*f*.
**Cyclopent[*a*]indene,**



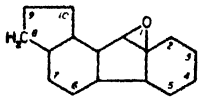
[*a*]

derivs., 3398*c*.
**Cyclopent[*a*]inden - 8(1*H*) - one, 2,3,-3a,8a - tetrahydro-**, and derivs., 3399*a*.
**6*H* - Cyclopent[*g*]isoquinoline,**



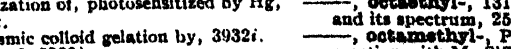
6*H*—[*g*]

——, **7,8 - dihydro - 1 - (5 - indanylmethyl)-**, 8390*d*.
——, **7,8 - dihydro - 1 - piperonyl-**, 8390*e*.
——, **3,4,7,8 - tetrahydro - 1 - (5 - indanylmethyl)-**, and picrate, 8390*d*.
——, **3,4,7,8 - tetrahydro - 1 - methyl-**, and picrate, 8390*f*.
**8*H* - Cyclopent[*a*]oxiro[*k*]fluorene,**

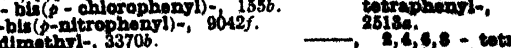


8*H*—[*o*]—[*k*]

——, **tetradecahydro-**, derivs., 1790*b*.
**Cyclopentylamine**, thiocyanate, 578*g*.
——, **1 - (*p* - aminobenzyl)-†**, 8365*b*.
——, **1-benzyl-**, 9047*e*.
——, ***N*-isobutyl-**, P 253*i*, P 255*a*.
——, **1-methyl-**, 2171*g*.
**Cyclophorase**, 2248*d*, 5055*d*, 7059*fh*.
**Cyclopropane**, alkylation with, of hydrocarbons, 108*g*.
alkylation with, of 2-methylpropane, P 5583*d*.
anesthesia by, adrenaline effect on cardiac rhythm of dogs in, 760*d*.
arterial pressure in induction of idioventricular rhythms under, 1111*e*.
dihydroergotamine and dihydroergocornine in prevention of cardiac irregularities during, 4381*h*, 4763*g*.
lymph production after, 1869*g*.
arrhythmia from adrenaline and, effect of dibenamine on, 2700*d*.
derivs., 635*c*, 9042*a*.
from cyclopropyl Me ketone, 2955*a*.
spectra of, 8274*h*.
fuel antiknock ratings of, 382*i*.
polymerization of, photosensitized by Hg, 7350*c*.
protoplasmic colloid gelation by, 3932*i*.
structure of, 5366*i*.
**Cyclopropane, acetyl-**. See *Ketone, cyclopropyl methyl*.
——, **1,1 - bis(*p* - aminophenyl)-**. See *Aniline, p,p'-cyclopropylidenedi-*.
——, **1,1 - bis(*p* - chlorophenyl)-**, 155*b*.
——, **1,1-bis(*p*-nitrophenyl)-**, 9042*f*.
——, **1,1-dimethyl-**, 3370*b*.
——, **1,1-diphenyl-**, nitration of, 9042*f*. phenyl-carbon-phenyl angle in, 155*b*.
——, **ethyl-**, 2955*b*.
——, **1-ethyl-1-methyl-**, 3369*i*.
——, **hexafluoro-**, formation of, from tetrafluoroethylene, 3295*g*.
——, **isopropenyl-**, 2955*c*.
——, **isopropyl-**, 2955*d*.
——, **1 - isopropyl - 1 - methyl-**, 3370*a*.
——, **1 - methyl - 1 - (2 - methylallyl)-†**, 2158*a*.
——, **1,2,3-tribenzoyl-**, *cis-*, 6993*a*.
——, **vinyl-**, polymerization of, and its homologs, 3646*a*.
**Cyclopropanecarbonitrile, 1 - (*p*-nitrophenyl)-**, 9042*b*.
——, **1-phenyl-**, nitration of, 9042*e*.
**Cyclopropanecarbonyl chloride, 1-(*p*-nitrophenyl)-**, 9042*b*.
——, **2-(*p*-nitrophenyl)-**, 635*g*.
**Cyclopropanecarboxamide, 1 - (*p* - nitrophenyl)-**, 9042*b*.
——, **2-(*p*-nitrophenyl)-**, 635*g*.
**Cyclopropanecarboxanilide, 1-(*p*-nitrophenyl)-**, 9042*b*.
——, **2-(*p*-nitrophenyl)-**, 635*g*.
**Cyclopropanecarboxylic acid, and esters**, phys. constants of, 2955*e*.
——, **1-(*p*-acetamidophenyl)-**, 9042*e*.
——, **2-(*p*-acetamidophenyl)-**, 635*h*.
——, **1-(*p*-aminophenyl)-**, 9042*e*.
——, **2-(*p*-aminophenyl)-**, 635*h*.
——, **2,2 - dimethyl - 3 - (2-methylpropenyl)-**. See *Chrysanthemummonocarboxylic acid*.
——, **1-(*p*-nitrophenyl)-**, and methyl ester, 9042*b*.
——, **2 - [*m*(or *o*) - nitrophenyl]-**, 635*f*.
——, **2 - (*p* - nitrophenyl)-**, and derivs., 635*f*.
**1,1 - Cyclopropanedicarboxamide, *N*,*N*, *N'*, *N'* - tetraethyl-**, P 1797*i*, P 3842*g*.
**1,2 - Cyclopropanedicarboxanilide**, *cis-* and *trans-*, 635*h*.
**1,1 - Cyclopropanedicarboxylic acid**, esters, phys. constants of, 2955*e*.
**1,2 - Cyclopropanedicarboxylic acid**, *trans-*, 635*h*.
**Cyclopropanemethanol, α,α - dimethyl-**, 2955*c*.
——, **1-methyl-**, and 3,5-dinitrobenzoate, 3370*b*.
——, **α - methyl - α - pyridyl-**. See *Pyridinemethanol, α-cyclopropyl-α-methyl-*.
**Cyclopropanenitrile**. See *Cyclopropanecarbonitrile*.
**Cyclopropyl group**, reactions of, 3389*i*.
**Cyclorubber**. See *Rubber*.
**Cyclosilazanes**, manuf. of, P 5033*h*. waterproofing leather with, 8185*i*.
**Cyclosiloxanes**, disubstituted, spectra of, 2512*i*.
methyl derivs. of, spectra of, 4140*g*.
polymerization of, P 3657*g*, 4048*e*.
stabilization of, with metal chelate compds., P 5999*i*.
**Cyclostomes**, vitamin A in liver of, 6746*a*.
**Cyclotetradecamethylenimine**. See *Aza-cyclopentadecane*.
**Cyclotetradecanecarbonitrile, 1 - hydroxy-**, dissocn. of, 7907*a*.
**Cyclotetradecanol**, and esters, 6988*g*.
**Cyclotetradecanone**, oxime, 5400*e*. reaction with HCN, 7907*a*.
**Cyclotetramethylene sulfone.** See "1,1-dioxide" under *Thiophene, tetrahydro-*.
**Cyclotetramethylenetetranitramine***, 4856*b*, 5187*h*.
**Cyclotetrasilazane,**




——, **2,2,4,4,6,6,8,8 - octaethyl-**, 1316*a*.
——, **2,2,4,4,6,6,8,8 - octamethyl-**, 1315*i*, P 5034*a*.
**Cyclotetrasiloxane,**




——, **octaethyl-**, 1316*c*. and its spectrum, 2513*a*.
——, **octamethyl-**, P 3441*c*, P 6221*c*. reaction with Me₃SiOK, P 3658*a*. and its spectrum, 2513*a*.
——, **octaphenyl-**, and its spectrum, 2513*a*.
——, **2,4,6,8 - tetraethyl - 2,4,6,8-tetraphenyl-**, and its spectrum, 2513*a*.
——, **2,4,6,8 - tetramethyl - 2,4,6,8-tetraphenyl-**, and its spectrum, 2513*a*.
**Cyclotridecamethylenimine.** See *Aza-cyclotetradecane*.

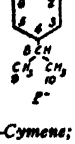
**Cyclotridecanecarbonitrile, 1-hydroxy-,** dissocn. of, 7907*a*.
**Cyclotridecanecarboxylic acid, 1 - (3-chloro - 2 - butenyl)-2-oxo-,** methyl ester, 7908*g*.
**Cyclotridecanol,** and esters, 6988*f*.
**Cyclotridecanone,** oxime, 5400*d*.
reaction with HCN, 7907*a*.
**Cyclotrimethylenetrinitramine.** See *Hexogen*.
**Cyclotrisilazane,**

NH.SiH₂.NH.SiH₂.NH.SiH₂
1 2 3 4 5 6

——, **2,2,4,4,6,6 - hexaethyl-,** 1315*i*, 6971*f*.
——, **2,2,4,4,6,6-hexamethyl-,** 1315*i*, P 5033*i*, P 5034*a*.
**Cyclotrisiloxane,**

O.SiH₂.O.SiH₂.O.SiH₂
1 2 3 4 5 6

——, **hexaethyl-,** 1316*c*.
and its spectrum, 2513*a*.
——, **hexamethyl-,** P 3441*c*, 6158*h*.
and its spectrum, 2513*a*.
——, **hexaphenyl-,** and its spectrum, 2513*a*.
——, **2,2,4,6 - tetraethyl - 4,6 - diphenyl-,** and its spectrum, 2513*a*.
——, **2,4,6 - triethyl - 2,4,6 - triphenyl-,** and its spectrum, 2513*a*.
——, **2,4,6-trimethyl-,** 1315*f*.
——, **2,4,6 - trimethyl - 2,4,6 - triphenyl-,** and its spectrum, 2513*a*.
**Cyclotrons.** (See also *Ions, gaseous; Synchrocyclotron.*) 1445*c*, 2083*g*, P 7351*c*, P 8898*c*.
British, 8261*c*.
elec. deflector for Berkeley, 3281*c*.
electromagnets of, soft Fe for, 4199*c*.
electrostatic deflection of beam of, 5663*e*
neutron beam of 184-in., cloud-chamber study of particles in, 4092*d*.
operation of 184-in., 4092*d*.
personnel working with, blood of, 6505*a*.
radiation field and shielding at 184-in., 4092*g*.
radio-frequency system for 184-in., 4108*i* at Rochester, 4109*a*.
**Cycloversion process.** See under "cracking" under *Petroleum refining*.
**Cycopol,** 4492*h*.
**Cydia,** *molesta*—see *Grapholitha molesta*.
*pomonella*—see *Codling moth*.
**Cylas formicarius elegantulus** and(or) **Sweetpotato weevil,** control of, 1142*d*, 6775*c*, 7182*c*, 7183*b*, 9328*g*.
**Cylinder oils.** See *Lubricants*.
**Cylinders.** (See also *Containers.*)
engine—see *Engines*.
heat transfer in gases between coaxial, 6902*i*.
of hydrogen, N and O, charts of compressibility factors and quantities delivered by, 3156*g*.
stress-corrosion cracking in gas, 1303*g*.
**Cymarin,** oxidation of, and its derivs., 1430*g*.
pharmacology, chemistry and clinical use of, 5862*i*.
prepn. from *Adonis amurensis*, 2371*b*.
**Cymarylic acid*,** and derivs., 1430*g*.
**Cymathaere triplicata,** phytochem. study of, 8616*e*.
**Cymbopogon.** See *Grasses;* for oils—see *Oils*.
**Cymene,**



(See also *m-Cymene; o-Cymene; p-Cymene.*)
——, **7-chloro-,** textile assistant from, P 4498*g*.
——, **hexahydro-.** See *Menthane*.
**m-Cymene** (*m-isopropyltoluene*), in naphtha of shale oil, 4453*h*.
prepn. and phys. consts. of, 7439*i*.
**o-Cymene** (*o-isopropyltoluene*), formation from 2-*o*-tolyl-2-butene, 5012*e*.
in naphtha of shale oil, 4433*h*.
ir. and phys. consts. of, 7439*i*.
(*p - isopropyltoluene*), 5015*a*,
chlorination of, 3799*f*, P 8041*a*.
effect of oscillating magnetic field on, 6087*e*.
formation of, from dipentene tetrabromide and from terpineol, 159*g*.
from hydrocarbons on active C, 5656*h*.
from isoprene and its dimer, 109*c*.
history of nomenclature of, 2923*g*.
lyoparachor of, 2834*a*.
metalation of, 3346*b*.
in naphtha of shale oil, 4453*h*.
nitration of, and dealkylation in, 9046*a*.
oxidation products of, 7916*i*.
and oxygenated derivs., limonene, *p*-menthane and derivs. in relation to, 6366*d*.
prepn. and phys. consts. of, 7439*i*.
prepn. of, 6185*c*.
prepn. of, from carene, 5012*f*, 5767*i*.
soly. in Na xylenesulfonate solns., 1242*e*.
in turpentine from sulfite pulping, 5590*d*.
Verdet const. ratio to refractive dispersion for, 4911*b*.
viscosity of, 5249*d*.
***p*-Cymene, 2-amino-.** See *Carvacrylamine*.
**2-bromo-,** 1339*g*.
**3-chloro-,** 3799*f*, 5762*g*, 7917*c*.
**2-cyclohexyl-,** and reaction with 4-methylcyclohexene, 1339*f*.
**dicyclohexyl-,** 1339*i*.
**2,6-dinitro-,** 9046*b*.
**2,5-dinitroso-,** as vulcanizing agent, 5623*f*.
**2-hydroxy-.** See *Carvacrol*.
**3-hydroxy-.** See *Thymol*.
**2-isopropenyl-,** 1339*g*.
**(1,2,2,2 - tetrachloroethyl)-,** P 8399*h*.
**2 - *p* - Cymenecarboxaldehyde,** and derivs., 5015*a*.
**3 - *p* - Cymenecarboxaldehyde,** and derivs., 5015*a*.
**2 - *p* - Cymenecarboxylic acid,** 5015*d*.
ethyl ester, hydrogen bonding and spectrum of, 1351*e*.
**3-*p*-Cymenecarboxylic acid,** 5015*d*.
ethyl ester, hydrogen bonding and spectrum of (incorrectly given in abstr. as 3,5-isomer), 1351*e*.
**7 - *p* - Cymenecarboxylic acid, 7 - *α*-hydroxybenzhydryl-†,** dehydration of, 2085.
**2,5-*p*-Cymenediol.** See *Thymohydroquinone*.
**2,5-*p*-Cymenedione.** See *Thymoquinone*.
**2-*p*-Cymeneglycolic acid,** 5015*c*.
**3-*p*-Cymeneglycolic acid,** 5015*c*.
**5-*o*-Cymeneglycolic acid,** and ethyl ester, 188*c*.
**2 - *p* - Cymenemethanol,** 3,5 - dinitrobenzoates, 5015*d*.
**, *α,α*-dimethyl-,** 1339*g*.
**3 - *p* - Cymenemethanol,** 3,5 - dinitrobenzoate, 5015*d*.
**Cymenesulfonamide,** condensation product with Na formaldehydesulfoxylate, P 7726*c*.
isomers, manuf. of, and reaction with Na formaldehydebisulfite, P 3220*i*.
**2(or 3) - *p* - Cymenesulfonamide,** *N*-(*o*-**aminophenylsulfonyl**)-†, and azo 5-pyrazolone dyes from, P 8149*h*.
***m* - Cymene - 2,6,7 - tricarboxylic acid†,** 1747*i*.
**2-*p*-Cymenol.** See *Carvacrol*.
**3-*p*-Cymenol.** See *Thymol*.
**8-*p*-Cymenol,** as foam producer in ore flotation, P 4624*e*.
**2-Cymidine.** See *Carvacrylamine*.
**Cymonic acid.** See *Acetic acid, fluoro-*.
**Cymophane.** See *Chrysoberyl*.
**Cynodon.** See *Grasses*.
**Cynoglossum,** oils of—see *Oils*.
*viridiflorum,* alkaloids of, 2625*b*.
**Cynthia** (*butterflies*). See *Vanessa*.
**Cyperus esculentus** and(or) **Chufa,** starches of, 4036*e*, 5218*g*.
**Cyperus rotundus,** control of, 3967*ab*, 5145*a*, 9338*h*.
2,4-D in control of, 343*e*.
growth-substance effect on, 9351*i*.
starches of, 4036*e*, 5218*g*.
**Cypress,** sawdust from *Taxodium,* pH of, and its mixt. with soil, 3130*e*.
**Cypridina hilgendorfi,** luciferin of, 4388*g*.
**Cyren.** See *4,4'-Stilbenediol, α,α'-diethyl-*.
**Cystathionine,** detection of, 2666*b*.
diketopiperazine*, availability for growth, 8477*f*.
**Cysteamine.** See *Ethanethiol, 2-amino-*.
**Cysteic acid** (*β-sulfoalanine*), acetaldehyde formation by ninhydrin action on, pH and, 5430*f*.
chromatography on starch columns, 5813*e*.
detection of, 2666*b*.
**Cysteine** (*β-mercaptoalanine*), as antagonist to bacteriostatic activity of *p*-sulfamylthiophenol, 9246*e*.
antibacterial activity of, 3879*h*.
antidotal activity in oxophenarsine poisoning, 9251*a*.
compd. with *l*-protolichesterinic acid, 1322*d*.
derivs., P 692*f*.
derivs., action of alliinase on, 6576*g*.
detection of, 2666*b*, 9138*g*.
detection of, and m.p. and optical crystallographic properties of its nitroindandionate, 69*i*.
detn. in albumins and blood serum, 4315*f*.
in diabetes production, 6302*a*.
*Drosophila*-larva tolerance to, 1871*f*.
effect of Se salts and, on lupines, 8452*a*.
effect on alloxan and its action, 9242*bc*.
on alloxan diabetes, 5118*c*.
on antibacterial action of mercuriated sulfamide, 1456*e*.
on antiseptic mercurials, 9376*f*.
on bacterial lysis by amino acids and bacterial exts., 715*g*.
on blood sugar and uric acid and its relation to alloxan activity, 4378*f*
on chymotropsin, chymotrypsinogen and trypsin, 2254*f*.
on diabetes from pancreatectomy, 5118*f*.
on enzymes in fig latex prepn, 6327*e*
on fungicidal action of mercury derivs., 9335*h*.
on glycogen phosphorylation by muscle and liver after adrenalectomy, 1098*g*.
on glycolysis inhibition by Na 1,2-naphthoquinone - 4 - sulfonate, 7581*d*.
on hexokinase and phosphohexokinase inhibition, 9124*e*.
on mercapto groups in tissue, 5118*e*
on niacin stability under cathode rays, 328*i*.
on oxidative activity of cataractous cryst. lens, 8044*g*.
on oxytocinase activity of blood plasma, 2330*i*.
on penicillin action, 3060*c*.
on pepsin activity, 7983*f*.
on polycythemia from Co, 1843*h*.
on proteolytic properties of lactic acid bacteria, 4341*a*.
on psittacosis virus, 305*i*.
on respiration of *Escherichia coli*, 5078*b*.
on selenate inhibition in *Escherichia coli*, 9157*g*.
on tubercle bacilli, 7546*c*.
on wound healing in trees, 9173*g*
ethyl ester, effect on glycolysis in brain, 7520*f*.
as flour additive, effect on phys. properties of dough and gluten, 8067*c*.
glutathione detn. in presence of, 713*b*
as growth factor for *Bacteroides*, 9151*i*
in *Histoplasma capsulatum* growth, 9152*a*
hydrochloride, 1402*d*.
hydrochloride, potentiation of adrenaline effects by, 3104*f*, 5116*h*.
in *Lathyrus sativus* seeds, 1449*f*.
in liver, 739*e*.
metabolism of, by *Microsporum gypseum* in wool degradation, 8142*d*.
oxidation by laccase, 6248*c*.
pharmacodynamic action of, 9252*b*.
protective action against bacteriophage x-ray inactivation, 2275*g*.
reaction with alkyl *α*-formylphenacetates, P 1440*b*.
reaction with alloxan and dialuric acid, 4306*g*.
in seeds of vetches, 1448*i*.
Shwartzman-like phenomenon in prepared skin after injection of, 5859*a*.
synthesis from cystine and KCN, 1014*f*
synthesis of, 5742*h*.
in tobacco mosaic virus, 7092*b*.
tryptophan decompn. in presence of, 3855*d*.
**Cysteine, *N*-acetyl-,** acetate, 2166*e*.
derivs., formation by cystinuric and normal dogs, 5845*c*.
——, ***S*-benzyl-.** See *Alanine, β-(benzylmercapto)-*.
——, ***N*-caproyl-,** DL-, 2990*i*.
——, ***S*-ethyl-.** See *Valine, β-mercapto-*.
——, ***β,β*-dimethyl-.** See *Alanine, β-(ethylmercapto)-*.
——, ***N*-glycyl-, L(+)-,** hydrochloride, 3257*e*.

–, **S-methyl-**. See *Alanine, β-methylmercapto-*.
–, **S,S' - methylenedi-**. See *Djenkolic acid*.
–, **β-phenyl-**, and derivs., 1399*e*.
hydrochloride, P 692*h*, 1402*a*.
**Cysteine oxidase**, in decarboxylating bacteria, 6281*e*.
**Cysteinesulfinic acid***, alanine formation from L-, 5430*e*.
detection of, 2666*b*.
**Cystine** (*β,β'-dithiodialanine*), in actin, 9095*h*.
as antagonist to bacteriostatic activity of *p*-sulfamylthiophenol, 9246*e*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308*fgh*.
antibacterial activity of, 3879*h*.
bis(trimethyl betaine), lipotropic activity of, 3103*i*.
in blood, effect of diet on, 5834*f*.
in casein digestion products after acid and enzymic hydrolysis, 1819*d*.
in cell nuclei, 2652*h*.
chromatography on starch columns, 5818*e*.
cobalt complexes with, 5432*e*.
in cockroach nutrition, 8565*a*.
copper deriv., 8222*d*.
decompn. in ball mill and autoclave, 4306*b*.
deficiency, lanthionine availability for growth of rats when added to, 2295*c*.
liver diseases in, 1095*a*.
massive liver necrosis and, 4351*h*
detection of, 2666*b*, 9138*g*.
detn. in plants, 3485*e*.
disulfoxide*, detection of, 2666*b*.
*Drosophila* larva tolerance to, 1871*f*.
effect of dietary, 2681*gi*.
effect on alanine (free) and pyruvate in blood, 1860*i*, 4354*e*.
on antibacterial action of blood, 3879*d*.
on cholesterol action on chronaxia, 1092*f*.
on inhibition of O consumption of tissues by Au salts, 2328*g*.
on malignancy, 2307*d*.
on niacin stability under cathode rays, 328*i*.
on N metabolism, 8472*b*.
on oxidation rate of ferrous ions, 1246*c*.
on rate of wool production by Merino sheep, 4859*b*.
on streptomycin action on *Mycobacterium avium*, 6275*e*.
on S compds. in urine in inanition, 8472*b*.
on thyrotropic hormone potency, 3909*a*.
on toxic action of pyridine and related compds., 2321*h*.
on toxicity of dichloroethane and dichloropropane, 3077*e*.
on vitamin E deficiency, 3902*f*.
in food (dried Indian), 5876*d*.
formation of, *Aspergillus nidulans* in elucidating, 8402*h*.
in hides, 5617*c*.
from homolanthionine in animal organism, 6712*c*.
by lactic acid bacteria, 4334*a*.
in glycoproteins, 7062*g*.
in hair and epidermis of cattle, 7737*a*.
inactivation by autoclaving, 6676*f*.
labeled with $S^{35}$, 7902*ek*.
in lactogenic hormone of pituitary, 5474*f*.
in *Lathyrus sativus* seeds, 1449*f*.
in liver, diet and, 7562*i*.
metabolism of, by *Microsporum gypseum* in wool degradation, 8142*d*.
methionine conversion to, in cystinuria, 9221*a*.
in milk albumin, 7597*c*.
in mycelium and yeast proteins, 1818*b*.
in nutrition of *Aedes aegypti* larva, 3940*i*.
in nutrition of tissue cells, 9190*i*.
oxidation of, 4224*e*.
oxidation of, by plant tissues, 2283*g*.
in peas (dried), effect of autoclaving on, 2338*f*.
peptides, ammonia formation from, 1071*c*.
in pollen collected by bees, 732*e*.
protective action against bacteriophage x-ray inactivation, 2275*g*.
in protein metabolism, 3498*e*.
in proteins of epidermis and dermis, 744*a*.
radioactive, production in pile, 2861*i*.
reaction with $ClCH_2CO_2H$ in presence of Zn, P 8451*e*.
reaction with KCN, 1014*f*.
requirement of tissue cells for, 3862*g*.
requirements of turkey poults for, 5462*e*.
in reticulin, 6263*c*.
in royal jelly, 7149*f*.
in rumen bacteria of sheep and effect of feed thereon, 5818*f*.
sepn. from hydrolyzed egg albumin, 8807*c*.
from serine, 3786*i*.
in soybean milk and curd, 8476*a*.
in soybean-protein adhesives, 1604*f*.
as sulfate source in formation of ethereal sulfates, 5836*b*.
sulfur in urine in hepatopathy after feeding, 1481*h*.
synthesis of, 2166*d*, 5742*h*, 7903*e*.
*Tetrahymena geleii* requirements for, 9272*d*.
therapeutic action of, 4774*g*.
in thyroglobulin, 9121*h*.
tryptophan decompn. presence of, 3855*d*.
urinary excretion of, in cystinuria, 4364*d*.
in vetch seeds, 1448*i*.
from wool, 6830*ce*.
in wool, conversion to lanthionine, 6423*c*.
in wool, effect of chem. treatments on, 2778*i*.
wool stabilization by reduction of, 5955*f*.
in yeast nutrition, 1826*a*.
**Cystine, *N,N'*-bis(chloroacetyl)-**, ammonia formation from, by liver digests, 1071*e*.
——, ***N,N'* - bis(α - chloropropionyl)-**, prepn. of, and effect of liver digests thereon, 1071*d*.
——, ***N,N'*-diacetyl-**, prepn. of, and effect of liver digests thereon, 1071*d*.
——, ***N,N'*-dialanyl-**, ammonia formation from, by liver digests, 1071*e*.
——, ***N,N'*-diglycyl-**, ammonia formation from, by liver digests, 1071*e*.
**Cystinuria**, amino acid excretion in, 4364*d*.
mercapturic acid formation in, 5845*c*.
methionine conversion to cystine in, 9221*a*.
**Cystogon**, in sugar-beet nematode control, 3134*d*.
**Cystoliths**. See *Concretions*.
**Cystophyllum**, blood-sugar-lowering substance from, 8558*h*.
**Cystopteris montana**, hydrocyanic acid detection in, 3148*g*.
**Cytidine**, assay of, 2074*d*.
chromatographic sepn. of, from its mixts., 3795*a*.
conversion to uridine, 8510*e*.
deamination and prepn. of, 4716*g*.
formation from orotic acid in liver, 7108*b*, 8495*f*.
isolation from yeast ribosenucleic acid, 2666*h*.
methylation of, 4635*b*.
nucleoside, 2650*a*.
2'-phosphate and its Ba deriv., 2170*e*.
recovery from aq. solns., 3423*i*.
structure of, 7773*i*.
sulfate, 144*f*.
**Cytidine, 3',5'-benzylidene-***, and derivs., 2170*e*.
——, **$N^4$,1-dimethyl-***, 4635*b*.
——, **1-methyl-***, 4635*b*.
**Cytidylic acid** (*cytosylic acid*), effect on sarcoma development, 4367*e*.
**Cytisine**, 3016*i*, 6627*g*.
from *Baptisia perfoliata*, 650*ab*.
in *Genista tinctoria*, 5543*e*.
sepn. from ext. of *Thermopsis lanceolata* seeds, P 6371*a*.
——, **methyl-**, 3016*i*.
——, ***N*-methyl-**, from *Baptisia perfoliata*, 650*ab*.
**Cytisus scoparius**. (See also *Broom*.)
hydroxytyramine in, 3070*c*.
and its papermaking use, 397*h*.
sparteine in, 819*d*, 1631*a*.
**Cytochrome oxidase**, azide action on, 7981*d*.
-cytochrome system, effect of snake venoms on, 2260*c*.
-cytochrome system in thyroxine synthesis, 3908*e*.
desoxycholate-treated, 6254*e*.
destruction by autolysis, 2260*g*.
detergents (cationic) and, 3857*e*, 6253*i*.
detn. of, 7075*a*, 9104*a*.
echinoderm oxidase and, 4707*g*.
effect of adenylpyrophosphoric acid and KCl on, 9096*h*.
in embryos of chick, 4712*d*.
heat of activation of, in stenothermophilic bacteria, 2671*g*.
in mast cells, 2649*c*.
in melanoma granules, 8047*a*.
in plants, 725*g*.
in plastids, 8454*c*.
in preputial gland, 2649*b*.
in prostate gland and seminal vesicle, effect of androgen and estrogen on, 8488*e*.
in respiration by potatoes, 2280*i*.
**Cytochromes**, b, reduction by cytochrome c, respiratory catalyst required for, 8408*g*.
$c_1$, 5060*c*.
c, antigenicity of, 3512*f*.
in brain, 6720*c*.
in cockroach muscle in relation to O consumption, 2333*b*.
effect on cathodic reduction of $H_2O_2$, 3052*h*.
effect on O consumption of tissue, 6710*i*, 7587*d*.
effect on respiration by potatoes, 2280*i*.
heat of activation of, in stenothermophilic bacteria, 2671*g*.
pH and stability of, 7522*a*.
in mast cells, 2649*c*.
in melanoma granules, 8047*a*.
metabolism of, relation to hemoglobin metabolism, 5475*i*.
oxidation by laccase, 6248*c*.
oxidation-reduction potential of, 5065*h*.
radioactive, 1818*g*.
reduction by xanthine oxidase, 6266*d*.
spectrum of, 7062*e*.
stability of dried, 7522*e*.
-cytochrome oxidase system, effect of snake venoms on, 2260*bc*.
cytochrome oxidase system in thyroxine synthesis, 3908*e*.
in heart, as glucose dehydrogenase carrier, 4712*g*.
phosphate esterification during oxidation of β-hydroxybutyrate to acetoacetate in liver and, 6256*g*.
succinic dehydrogenase system activity in tissue prepns., 6260*d*.
**Cytology**. See *Cells; Cells, animal; Cells, plant*.
**Cytolysins**. No entries this year. See *Hemolysins; Lysins*.
**Cytolysis**. No entries this year. See *Bacteriolysis; Hemolysis; Lysis*.
**Cytophaga**, *auraniaca*, in cellulose degradation in soils, 5891*e*.
in soils, effect of fertilizers on, 6350*d*.
**Cytoplasm**. See *Protoplasm*.
**Cytosine** (*4-amino-2(1 H) pyrimidone*), detn. during enzyme reactions, 1810*h*.
and picrate, 4228*h*.
prepn. from desoxyribonucleic acid and deamination to uracil, 8510*e*.
in ribonucleic acids from pancreas and yeasts, 2655*i*.
sepn. by ion exchange, 5440*d*.
spectrum of, 5307*c*.
synthesis of isotopic, and its metabolism, 3893*c*.
——, **1-methyl-**, and picrate, 4635*b*.
——, **5-methyl-**, derivs., 4228*h*.
salts, 4228*h*.
**Cytosine deaminase**, study procedure for, 1816*g*.
**Cytosine desoxyriboside***, vitamin $B_{12}$ activity of, for lactic acid bacteria, 4334*e*.
**Cytostatic substances**. See under *Cells*.
**Cytosylic acid**. See *Cytidylic acid*.
**Czechoslovak**, books: -English Dictionary, 6501*c*; Anglicko-technicky, 8256*d*.

**2,4-D** See *Acetic acid, (2,4-dichlorophenoxy)-*.
**Dacites**, of Alps (eastern), 527*b*.
of Carpathian orogeny and Presov Mts., 75*f*.
of New Mexico (northeastern), 6128*b*.
porphyries of Blue Bell fluorite mine, Utah, 6952*h*.
porphyritic, of Sb deposit of Riosucio, Colombia, 526*b*.
of Spain (Tarragona), 6548*g*.
**Dacrydium**, oils of—see *Oils*.
**Dactin**. See *Hydantoin, 1,3-dichloro-5,5-dimethyl-*.
**Dacus oleae** and(or) **Olive fruitfly**, control of, 9349*f*.
**Dagenan**. See *Sulfapyridine*.
**Daguerreotypes**, preservation of, 1276*g*.
**Dairy industry**, books: Chemie für Molkereifachleute, 3946*f*; Dairy Manufg. Processes, 4396*e*; Elementary Expts. in Dairy Bacteriology, 8448*f*; Practical Dairy Bacteriology, 9298*i*.
in Holland, 1496*f*.

hydrogen peroxide use in, 778*h*.
journal: Indian Journal of Dairy Science, 786*d*.
microbiol. control in, daily lab. control and, 8568*d*.
review on, 8567*i*.
synthetic materials in construction of equipment for, 5877*c*.
wastes from, plant for treatment of sewage and, 2346*i*.
**Dairy products**. (See also *Butter; Cheese; Milk;* etc.)
books: Standard Methods for the Examn. of, 1123*g*; Chemistry and Manuf. of Indian, 5130*f*; Methods of Analysis of Milk and its Products, 5130*g*; Onderzoekingsmethoden van Zuivelproducten, 8071*e*.
canned Army and cheese spreads, vitamins in, effect of storage temp. on, 1493*h*.
compn. of, and method of analysis, 6326*i*.
decompn. in, 9282*h*.
fat detn. in, 7599*h*.
grading of, review on, 6749*e*.
of India, 3943*b*.
lactose detn. in, 9280*g*.
lipides in, deterioration of, 780*f*.
nordihydroguaiaretic acid as antioxidant in, 1873*b*.
oxidized flavor in, 780*e*.
phosphatases of, effect of heat on inactivation of, 779*a*.
preservation of, for phosphatase test, 3941*i*.
of soft curd properties, prepn. of, 3942*g*.
starter organisms for, growth in abnormal milk, 1496*b*.
technology of, 5507*b*.
wastes from, clarifier for recovery of milk solids from, P 792*i*.
plant losses and, 4796*h*.
two-stage filtration of, 3548*b*.
treatment in Mo., 4796*g*.
wastes from condensed milk manuf., treatment in England, 5509*a*.
waste waters from, stream pollution control activities and, 8079*i*.
water detn. in, 5509*b*.
**Dakin-Carrel solution**. See *Carrel-Dakin solution*.
**Dakin solutions**. See *Carrel-Dakin solutions*.
**Dakin-West reaction**, in prepn. of α-acylamino ketones, 4226*h*.
**Dalbergia sissoo**, plywood and veneer from, 2812*e*.
**Dallis grass**. See *Grasses*.
**Daltonides**. See *Chemical compounds*.
**Damalina ovis**, control of, 9352*df*.
**Dammar**. (See also *Kauri;* and "Manila" under *Resins*.)
book: Chem.-tech. Verwerking van, 8178*b*.
detection and fluorescence of, 4492*d*.
**Damourite**, classification of, 7872*e*.
from Uganda (Mbale mine), 8985*c*.
**Damping**, fluids for, organopolysiloxanes as, P 6220*i*.
vibrations, of app. and matter—see *Vibrations*.
**Dams**, concrete for, 9409*i*.
**Dana, Edward Salisbury**, biography, 915*f*.
**Danburite**, at Silver Harbour, Lake Superior, Ont., 4606*c*.
**D & C Dyes**. See *Dyes*.
**Dandelions**, carotene and vitamin C in false, 3536*c*.
catalase action of, 3892*a*.
control in lawns, 2727*g*.
control of, 2,4-D in, 9313*b*.
Russian—see *Taraxacum*.
tyrosinase prepn. from, 4305*f*.
**Dandruff**, pantothenic acid prepn. for treatment of, P 4434*f*.
-removing compn., P 5554*c*.
**Danish**, book: Engelsk-dansk teknisk Ordbog, 7320*a*.
**Danish Flax Research Institute**, 5595*h*.
**Danthron**. See *Chrysazin*.
**Daphnandra**, alkaloids of, 3017*c*.
*aromatica*, alkaloids of, 6787*g*.
**Daphnetin, 6-ethyl-4-methyl-**, 6206*g*.
**Daphnia**, effect of cardiotoxins from plants on, 8616*f*.
hemoglobin passage from blood into eggs of, 1872*f*.
insecticide toxicity to, 2728*f*.
*magna*, toxicity of sea waters on, 4392*a*.
mercury effect on, 1492*f*.
*pulex*, effect of oleander exts. on, 3149*g*.
toxicity to, of isomers of hexachlorocyclohexane, 7175*g*.
**Daphnoline**, 6787*g*.
**Darex**, as concrete admixt., 4827*e*.
effect on concrete, 2751*h*.
**Dark adaptation**. See *Vision*.
**Darkling ground beetles**, control of, 3139*e*.
**Dark space**. See *Electric discharge*.
**Darvisul***, in virus infection treatment, 4382*h*, 5496*ghi*.
**Darwinol**. See *Myrtenol*.
**Darzens reaction**, with β-ionone, 1337*e*.
**Dasheen**. See *Taro*.
**Dasyneura tetensi**, control on black currant, 807*c*.
**Dates**, acidity in relation to quality of, 4345*b*.
carotene and vitamin C in, 3536*a*.
desert, toxicity to fresh water snails, 9314*d*.
fungus spoilage and insect infestation of, and their control, 4417*d*.
**Datolite**, at Silver Harbour, Lake Superior, Ont., 4606*c*.
**Datura**, alkaloids in Indian, 9380*i*.
embryo development in, following self and hybrid pollinations, 1086*d*.
embryos of, effect of amino acids on growth of, 2280*b*.
*ferox*, alkaloids in, 9379*g*.
*innoxia*, as scopolamine source, 1912*b*.
grown on synthetic media, alkaloid content of, 1529*h*.
*metel*, effect of pruning and exfloration on growth and alkaloid content of, 3067*h*.
*stramonium*, alkaloid formation in, effect of growth regulators on, 8597*f*.
alkaloids in, and nitrogenous fertilization of, 2724*b*.
alkaloids in smoke from powders of, 3149*i*.
detn. of alkaloids of, 8095*g*.
fat removal from prepns. of, 1149*c*.
identification of fluidexts. of, 3145*h*.
tincture, folic acid prepn. contg., 356*c*.
*stramonium* and *tatula*, morphology, biology and alkaloid content of, 5544*f*.
**Daucus carota**. See *Carrots*.
**Davidenkov, Nokolai Nikolaevich**, biography, 6013*f*
**Davy, Humphry**, biography (book), 4940*e*.
**Dayflower**, control in sugar cane, 805*f*.
**Day Medal**, to Morey, George W., 9*b*, 6013*h*.
**DBH**. See "δ-" under *Cyclohexane, 1,2,3,4,-5,6-hexachloro-*.
**DBS**. See *Salicil, 5,5'-dibromo-*.
**DD** (*D-D-mixture*). See "mixt. with 1,2-dichloropropane" under *Propene, 1,3-dichloro-*.
**DDA**. See *Acetic acid, bis(chlorophenyl)-*.
**DDD**. See *Ethane, 1,1-dichloro-2,2-bis(chlorophenyl)-*.
***p,p'*-DDD**. See *Ethane, 1,1-dichloro-2,2-bis(p-chlorophenyl)-*.
**DDE**. See *Ethane, 1,1-dichloro-2,2-bis(p-chlorophenyl)-*.
**DDM**. See *Diethylamine, 2,2'-dichloro-N-methyl-; Phenol, 2,2'-methylenebis[4-chloro-*.
**DDT** (*p,p'-DDT*). See *Ethane, 1,1,1-trichloro 2,2-bis(p-chlorophenyl)-*.
***o,p'*-DDT**. See *Ethane, 1,1,1-trichloro-2-(o-chlorophenyl)-2-(p-chlorophenyl)-*.
**De-**. (*Starred names which were formerly entered here are indexed only as inverted entries at the name of the parent compound, as* Androsterone, dehydro-.
**Deacetylation**. See *Acetyl group*.
**De-Acidite B**, sepn. of acidic amino acid and org. acids by, 8807*a*.
**Deacylation**. See *Acyl groups*.
**Deaeration**. See *Air*.
**Dealdolization**. See *Aldol*.
**Dealkoxylation**. See *Alkoxy groups*.
**Dealkylation**. See *Alkyl groups*.
**Deaminases** (See also *Adenosine deaminase; Adenylic acid deaminase; Amino acid deaminases; Asparaginase; Glutaminase*.)
in *Escherichia coli*, relation to growth, 7084*a*.
**Deamination**. (See also *Hydrolysis*.)
of acetylated dehydroamino acids by kidney and liver, 3857*b*.
of adenosinephosphoric acids by adenylic acid deaminase in presence of liver exts., 703*c*.
of adenylpyrophosphoric acid by myosin and protein II, 9093*i*, 9094*b*.
of amino acids, 6570*b*.
catalase activation by products of, 4309*b*.
*of amino acids*, by yeast, 7541*f*, 9160*f*
of amino acids, N compds. and peptides by NaClO, 2891*g*.
of α-amino alcs. with $HNO_2$, 2600*d*.
of aminopyrimidines, by hydrolysis, 8395*f*.
of aspartic acid, serine and threonine, biotin and adenylic acid in, 706*a*.
of casein hydrolyzate by *Bacterium fluorescens liquefaciens* and *Proteus vulgaris*, effect of glucose on, 5448*e*.
of collagen, effect on isoelec. point, 8184*e*.
of collagen, effect on reactivity, 6258*g*.
of cytidine, 4716*g*.
of 1-(dimethylaminomethyl)-2-methoxynaphthalene, 4249*i*.
of glycine by green algae, 3494*b*.
of glycine by x-rays, 4133*b*.
of hides, reducing leather resistance to trypsin by, 8183*h*.
of hydrazones (attempted), 5769*f*.
of *p*-hydroxybenzylamine and related compds., relation to conjugation, 2702*c*.
by kidneys at low O tension, effect of succinic acid on, 756*e*.
by nitrous acid, 6268*i*.
selective, of aliphatic-aromatic diamines, 9046*h*.
**Dearylation**. See *Aryl groups*.
**1-Deazapurine**. See *1H Imidazo[b]pyridine*.
**3-Deazapurine**. See *1H-Imidazo[c]pyridine*.
**Debenal**. See *Sulfadiazine*.
**Debenal-M**. See *Sulfamerazine*.
**Debenzylation**. See *Benzyl group*
**Debiteuse**. See *Glass*.
**Debromination**. See *Bromine*.
**Debutylation**. See *Butyl group*
**Debye, Peter J. W.**, biography, 4057*f*.
Gibbs Medal to, 5237*i*.
**Debye effect**, detection in solns. by ultrasonic waves, 7301*b*
**2,4-Decadienal**, from cottonseed oil by oxidation, 5973*c*.
**2,6-Decadienamide, *N*-isobutyl-**. See *Pellitorine*.
**1,9-Decadiene, 1,10-diphenyl-**, spectrum of, 493*b*.
**1,5 - Decadiene - 4,7 - diol, 10 - ethoxy-3,7 - dimethyl - 1 - (2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-**, 1338*g*.
**1,9 - Decadiene - 5,6 - diol, 5,6 - dimethyl-**, 5735*h*
**3,7 - Decadiene - 2,5,6,9 - tetrol, 2,9-dimethyl-5,6-diphenyl-**, and tetra acetate, 571*g*
**2,4-Decadienoic acid**, 4026*i*.
**3,7 - Decadien - 5 - one, 4,7 - dimethyl-**, 1333*f*.
**3,7 - Decadien - 5 - yne, 4,7 - dimethyl-**, and cyclization and hydration of, 1333*b*.
**2,8 - Decadien - 5 - yne - 4,7 - diol, 3,8-dimethyl - 1,10 - bis(2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-**, isomers and derivs., 2588*f*.
**1,7 - Decadien - 5 - yn - 4 - ol, 10 - ethoxy - 3,7 - dimethyl - 1 - (2,6,6 - trimethyl - 1 - cyclohexen - 1 - yl)-**, 1338*e*.
**3,7 - Decadiene - 2,5,6,9 - tetrol, 2,9-dimethyl-5,6-diphenyl-**, and derivs., 571*f*.
**Decalcification**. See "removal of" under *Calcium*.
**Decalcomanias**. (See also *Transfers*.)
in ceramic-ware decoration, P 8116*a*.
removal of, compn. for, P 9301*a*.
use of, 830*e*.
for vinyl chloride plastics, P 4895*f*.
**Decalin**. See *Naphthalene, decahydro-*.
**Decalol**. See *Naphthol, decahydro-*.
**Decamethonium iodide**. See "decamethylenebis[trimethyl— iodide]" under *Ammonium compounds, substituted*.
**Decamethylene glycol**. See *1,10-Decanediol*.
**Decanal**. See *Capraldehyde*.
**Decane**, compds. with desoxycholic acid, 3429*e*.
compression and freezing under pressure, 4067*e*.
crit. consts. of, 3254*g*.
herbicidal action of, 1895*e*.
and isomers in shale-oil naphtha, 4453*g*.
methylnaphthalene exts. from, with liquid $NH_3$ solns., P 3192*e*.
mixts. with $C_6H_6$ and 2,4-dimethylpentane, viscosities of, 8777*h*.

mixts. with toluene, polystyrene soly. in, 2465*f*.
oxidation of, rate of, 5269*f*.
in paraffin cracking distillate, 8124*h*.
resonance energies of, 10*e*.
sucrose-soln. interfacial tension against, 2845*c*.
systems: $C_6H_6$–, H– and $CH_4$–, 6052*i*.
Verdet const. ratio to refractive dispersion for, 4911*b*.
viscosity of, 8839*e*.
**Decane, 1,10-bis(2-chloroethoxy)-**, in pest control, P 9358*c*.
—, **1-bromo-**, dielec. properties and structure of, 4912*b*.
phys. consts. of, 2591*a*.
—, **1-bromo-2-methyl-**, 6165*e*.
—, **1-chloro-**, phys. consts. of, 2590*i*
—, **1-cyclohexyl-**, resonance energies of, 10*e*.
spectrum of, 3715*i*.
—, **5,6-dibutyl-**, 188*f*
—, **4,7-dimethyl-**, 1333*e*.
—, **1,10-di-4-morpholinyl-**. See *Morpholine, 4,4'-decamethylenedi-*.
—, **4-methyl-**, 558*f*.
—, **2-methyl-2-phenyl-**, P 6232*h*.
—, **1-[1(and 2)-naphthyl]-**, 4454*h*.
—, **1-(2-naphthyl)-**, 9424*e*.
and picrate, 1370*e*.
Raman spectrum of, 8888*f*.
—, **1-phenyl-**, resonance energies of, 10*e*.
, **2-phenyl-**, prepn. and oxidation of, 8308*b*.
, **1-(5,6,7,8-tetrahydro-2-naphthyl)-**, 1370*d*.
, **2-*p*-tolyl-**, P 6232*d*.
, **2,5,9-trimethyl-**, 9023*d*
, **2-(2,4-xylyl)-**, P 6232*e*.
**1-Decanecarboxylic acid.** See *Hendecanoic acid*.
**1,10-Decanediamine**, polyamides from, P 4519*i*.
from sebaconitrile, 1312*e*.
, *N,N'*-**bis**[*o*(and *p*)-**chlorophenethyl**]-, dihydrobromides, P 3455*g*.
salts, 3379*bc*.
, *N,N'*-**bis(1,1-diallyl-3-butenyl)-**, and salts, 3379*i*.
, *N,N'*-**bis(2-diethylaminoethyl)-**, and tetrahydrobromide, 3380*d*.
, *N,N'*-**bis(3,4-dimethoxyphenethyl)-**, salts, P 3455*f*.
and salts, 3378*f*
, *N,N'*-**bis(2-ethylhexyl)-**, dihydrochloride, P 3455*d*.
salts, 3379*h*.
, *N,N'*-**bis(*p*-methoxyphenethyl)-**, dihydrobromide, 3378*h*, P 3455*c*.
, *N,N'*-**bis(*p*-methylphenethyl)-**, dihydrobromide, P 3455*h*.
, *N,N'*-**bis(4-phenylbutyl)-**, dihydrobromide, P 3455*h*.
salts, 3379*d*.
, *N,N'*-**bis(3-phenylpropyl)-**, dihydrobromide, P 3455*g*.
salts, 3379*d*.
, *N,N'*-**dicyclohexyl-**, and dihydrochloride, 3380*b*.
, *N,N'*-**digeranyl-**, dihydrobromide, 3380*a*.
, *N,N'*-**dihendecyl-**, dihydrobromide, 3379*h*, P 3455*h*.
, *N,N'*-**diheptyl-**, salts, 3379*g*, P 3455*c*.
, *N,N'*-**dihexyl-**, salts, 3379*g*.
, **2,9-dimethyl-*N,N'*-dioctyl-**, dihydrobromide, 3380*b*.
, *N,N'*-**diphenethyl-**, salts, 3379*d*, P 3455*e*.
, *N,N,N',N'*-**tetraamyl-**, compds. related to, 3380*f*.
, *N,N,N',N'*-**tetrabutyl-**, acid succinate, 3380*e*.
**1,10-Decanedicarboxylic acid.** See *Dodecanedioic acid*.
**Decanedioic acid.** See *Sebacic acid*.
**1,10-Decanediol, azodiformates**, 8730*d*, 8731*c*.
bis(Me azodiformate), P 4293*g*.
bis(Me bicarbamate), P 4293*d*.
dicarbamate, P 4690*h*.
esterification with adipic acid, kinetics of, 4547*c*.
esters (poly-) with adipic acid, 4228*b*, 6578*c*.
ester with mono-Et azodiformate, P 5626*i*.
sulfite, polymers, P 4853*d*.
superpolyesters with dimeric fat esters and adipic acid or sebacic acid, tensile strengths of elastomeric, 8699*c*.
**1,5-Decanedione, 3-hydroxy-**, 5751*i*.
**1,10-Decanedisulfonyl chloride**, 4857*a*.
**Decanesulfonic acid**, potassium salt, hydrolyzing power for oils, 8707*g*.
**1-Decanethiol**, as ointment-base constituent, hydrophilic properties of, 8610*a*.
**Decanoic acid.** See *Capric acid*.
**1-Decanol.** See *Decyl alcohol*.
—, **2-hexyl-**, P 3438*f*.
—, **2-methyl-**, 6165*e*.
**1-Decanone, 1-(2-thienyl)-**, reaction with 5-methylisatin, 228*a*.
**2-Decanone**, 2185*h*, 4637*d*.
semicarbazone, 7914*d*.
**3-Decanone**, phys. consts. of, 2589*h*.
**4-Decanone**, 4637*d*.
—, **3-methoxy-**, and semicarbazone, 6974*i*.
, **1,1,1-trichloro-2-hydroxy-**, 3785*c*.
**5-Decanone, 6-butyl-6-hydroxy-**, and 2,4-dinitrophenylhydrazone, 5368*g*.
—, **4,7-dimethyl-**, 1333*f*.
**Decantation**, app. for, P 6012*f*.
countercurrent, 6132*i*.
electro-, sugar-juice purification by, P 8290*c*.
**Decapryn**®, identification and differentiation of, 9366*e*.
succinate, metabolism of, 8551*e*.
succinate, toxicity of, 2315*g*.
**Decarbonization.** See *Carbon*.
**Decarboxylases.** See *Carboxylases; Glutamine decarboxylase; Ornithine decarboxylase; Oxalacetic carboxylase*.
**Decarboxylation.** See *Carboxyl group*.
**Decarburization.** See *Iron; Steel*.
**Decasiloxane, 1,19-diethoxyeicosamethyl-**, P 6221*e*.
—, **docosamethyl-**, P 4402*f*.
**2,4,6,8-Decatetraene**, spectrum of, 1264*g*.
**1,3,7,9-Decatetraene-5,6-dione, 3,8-dihydroxy-1,10-bis(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, 2588*b*.
—, **1,10-diphenyl-**, 187*c*.
**3,5,7,9-Decatetraenoic acid, 4-hydroxy-8-methyl-2-oxo-10-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, methyl ester, 2588*b*.
**1,3,7,9-Decatetraen-5-yne, 3,8-dimethyl-1,10-bis(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, 2588*d*.
**1,5,7-Decatrien-4-ol, 10-ethoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, 1338*f*.
**3,5,7-Decatrien-9-yn-2-ol, 10-(1-cyclohexen-1-yl)-**, 8361*g*.
**4,6,8-Decatrien-1-yn-3-ol, 1-(1-cyclohexen-1-yl)-**, 8361*f*
**3,5,7-Decatrien-9-yn-2-one, 10-(1-cyclohexen-1-yl)-**, semicarbazone, 8361*g*.
**Decay.** See specific materials such as *Wood*.
**Decay** (*radioactive.*) See *Radioactivity*.
**2-Decenal**, and derivs., 5736*h*.
**Decene**, formation of, from depolymerization of triisobutylene, 6152*a*.
isomers, 4212*i*.
isomers, in shale-oil naphtha, 4453*h*.
phys. consts. of, 2591*g*.
—, **4,7-dimethyl-**, 1333*e*.
**1-Decene**, herbicidal action of, 1895*e*.
in paraffin cracking distillate, 8124*i*.
—, **4-methyl-**, 558*f*.
**3-Decene**, 9023*f*.
**2-Decenedianilide**, 2184*g*.
**2-Decenedioic acid**, from penicillin, 2184*g*.
—, **4,7-dioxo-**. See *Anemoninic acid*.
**8-Decene-2,5-dione, 9-hydroxy-**, 5751*i*.
—, **3-hydroxy-9-methyl-**, 5751*i*.
**9-Decene-2,5-dione, 3-hydroxy-**, 5751*i*.
**2-Decenoic acid, 2,4-dihydroxy-**, γ-lactone, and *p*-nitrobenzoate, 4222*a*.
—, **4-oxo-**, and semicarbazone, 3785*d*.
**3-Decenoic acid, 3-hydroxy-2-methyl-**, β-lactone, labeled with $C^{14}$, mixt. with 2-hexyl-3-hydroxy-3-pentenoic acid β-lactone labeled with $C^{14}$, 4220*g*.
**9-Decenoic acid, 2,2,5,9-tetramethyl-**, P 7037*g*.
**2-Decen-1-ol**, and esters, 5736*h*.
—, **2-hexyl-**, P 3438*f*.
**Decenylamine**, *N,N*-**dimethyl-**, as lubricant additive, P 8668*c*.
**1-Decen-5-yne-4,7-diol, 10-ethoxy-3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, 1338*e*.
**Dechêne effect**, 6087*d*.
**Dechlorination.** See *Chlorine*.
**Decholin.** See "sodium salt" under *Dehydrocholic acid*.
**Decicaine.** See *Pontocaine*.
***n*-Decoic acid.** See *Capric acid*.
**Decolorization.** (See also *Bleaching.*)
of enamels (Ti) by Mo, 2749*a*.
of *Euglena gracilis* by streptomycin, 4388*c*.
of fish oils, 1584*a*.
of glass—see *Glass*.
of hydrocarbon oils, regeneration of Mg silicates from, P 5134*h*.
of hydrocarbon resin, P 3233*g*.
of lubricating oils with phenol-cresol mixt., 5580*d*.
of oils, P 4842*i*.
by acid clay, effect of acids on, 8709*b*.
with $NH_4$ ion-activated Mg silicate, P 7224*d*.
with ferric salts and Mg silicate, P 884*i*.
with Ganges River activated silt, 5165*a*.
of paper for microscopic examn., 402*d*.
of petrolatum by oxidation and adsorbents, P 8132*d*.
of petroleum oils—see *Petroleum refining*.
of phosphatides contg. lecithin, P 5552*i*.
of polyvinyl chloride, P 4898*c*.
of rice oil, 5611*a*.
by acid, 8709*a*.
by $H_2O_2$, 5611*b*.
of rock salt (blue and ultraviolet), 7817*d*.
of sea-wolf oil, 6842*g*.
of shale oil fraction in voltolization, 5581*b*.
of soupfin-shark liver oil, 9379*i*.
of starch hydrolyzates with synthetic resins, 5980*d*.
in sugar manuf.—see *Sugar manufacture*.
of sulfuric acid satd. esters, satd. sulfonic acids or their salts with peroxide or peracid salts, P 7242*b*.
in tartaric acid manuf., P 2226*f*.
in water treatment—see *Water, purification of*.
of wine, 8606*f*.
of wine by charcoal, testing of, 8606*i*.
of wool fat, P 4876*h*.
of xylose solns. with CaO, 8714*g*.
**Decolorizing agents.** (See also *Bleaching agents; Carbon; Charcoal; Clays; Gumbrin.*)
alumina (hydrated), P 9427*c*.
alumina-$SiO_2$ gel, 4792*c*.
from cement waste, Mg compds., etc., P 5982*b*.
earths, 7159*g*.
earths, electron microscopy of, for petroleum industry, 7216*c*.
earths, from hydrocarbon-oil refinement, regeneration of, P 4844*d*.
fuller's earth as, improvement of, P 7609*a*.
in lubricating-oil filters, cycle washing with naphtha of, 7218*b*.
magnesium silicate, $NH_4$ ion-activated, P 7224*d*.
optical bleaching, P 5426*de*.
for petroleum, analyses and x-ray examn. of, 840*i*.
sulfonate resins, P 2344*f*.
**Decomposition.** (See also *Degradation; Heat of decomposition; Pyrolysis;* and the specific substances decomposed.)
of complex mols. by heat, 3697*c*.
**Decontamination**, from poison gases—see *Chemical warfare agents*.
**Decoration.** (*Entries are made only for very general treatments of the subject. For the decoration of or with specific materials see* Ceramic ware; Coating(s); Color(s); Paper; etc.)
films bearing designs, P 9301*b*.
**Decyl alcohol.** (For derivs. see *1-Decanol.*)
acrylate, copolymers with longer-chain acrylates for lubricant improvement, P 5585*e*.
adipate (neutral), unimol. layer of, 4537*e*.
ester (di-) with thiobis[thionoformic acid], 144*c*.
esters, 6162*c*, 6168*d*.
flow birefringence and relaxation time of, 7284*h*.
laurate, dielec. relaxation times of solid solns. contg., 3676*h*.
phys. constants of, 2956*b*.
propionate, as flavoring component, 2370*i*.
soly. in aq. K soaps, 6041*d*.
ultrasonic velocity in, 8786*c*.
**Decyl butyl phosphate**, $(C_6H_{11})(C_4H_9)HPO_4$, as antioxidant for thiols, 1794*b*.
***n*-Decylic acid.** See *Capric acid*.

**Decyl selenide**, as antioxidant for lubricants, 6400*a*.
**Decyl sodium sulfate**, crit. micelle concns. of, temp. and, 2843*f*.
detn. of residues of, on skin, 2263*e*.
reaction with serum albumin, 5064*i*.
**Decyl sulfite** ($(C_{10}H_{21})_2SO_3$), P 6219*h*.
in cellulose treatment, P 4853*g*.
**Decylxanthic acid.** See *Xanthic acid, decyl-*.
**5-Decyne-4,7-diol, 4,7-dimethyl-**, 1333*d*.
——, **4,7-dipropyl-**, 569*g*.
**Deëlectronators.** See *Oxidising agents*.
**Deer**, repellents for, 9353*b*.
**Defecation**, of apple musts and ciders for detn. of sugars, 3116*f*.
in sugar industry—see "clarification" under *Sugar manufacture*.
**Defects.** See *Radiography; Testing materials; X-rays;* and specific materials having defects as *Glass* and *Steel*
**Deflocculation.** See *Dispersion*.
**Defluorination.** See *Fluorine*.
**Defoliation.** See *Leaves*.
**Deformation.** (See also *Elastic deformation; Plastic deformation;* etc.)
of complex anions, Raman effect in study of, 2513*f*
of crystal structure of solid solns., 7285*h*
of Lactoprene, chain-configuration changes in birefringence and stress in relation to, 2801*f*.
measurement of, of plastics, 4787*i*.
measurement of permanence of, of bated skins, 7735*f*.
measurement of temp. of, of refractory materials, 8632*b*
of metals—see *Metals*
of quartz of Au veins of Beresov, 2900*a*.
of rayon, 3202*h*.
recording residual, of rubber, app. for, P 3650*d*.
of tin single crystals, effect of surface-active substances on, 8230*b*.
**Degradation.** (See also *Decomposition.*)
of 2-acetoxy-12-keto-α-amyrane, 6602*i*.
of acetoxymethyldisiloxanes, 6158*g*.
of amino alc. (acetylenic) esters during hydrogenation, 131*c*.
of arsines (aromatic), 6178*a*.
Barbier-Wieland, of 2-phenylcyclohexaneacetic and 2-phenylcyclohexanepropionic acids, 2171*c*.
of bicycloekosantalic acid, 5383*g*.
of bile acids, 3430*f*.
of bile acid side chains, 6639*e*.
of cellulose—see *Cellulose*.
of collagen into parent gelatin, 6888*g*.
of 2-desoxyechinocystic acid, 212*g*.
of desoxyvomicine and vomicine quaternary salts, 7942*d*.
of dihydrocodeine, 4280*b*.
of β-diketones, 2174*e*.
of dyes by light, 4015*c*.
of fat acids (branched) in animal metabolism, 6165*g*.
of fatty acids, 9027*bg*.
of fatty acids by alkali fusion, 2164*d*.
of friedelin, 7025*i*.
of gliotoxin, 6204*i*.
of glycosides with chromic acid, 243*d*.
Hofmann, of quaternary N compds., 2624*c*.
Hofmann, of steroid derivs., 9076*g*.
by hydrogenation, 7916*f*.
of lignin, 154*e*.
of long-chain mols., 472*h*.
of macromols. by ultrasonic waves, frequency and, 5263*i*.
of malic and succinic acids contg. $C^{14}$, 1324*g*.
of D(+)-3-methylheptacosanoic acid, 7900*g*.
of 6-nitro-1,2-benzisoxazole-3-carboxylic acid and its derivs., P 6236*d*.
of org. compds., 4660*a*, 6191*b*, 7008*e*.
of organosilanes by HCl, 8306*d*.
of ouabagenin, 1792*d*.
of α-oxo carboxylic acids, 6979*i*.
of pectin, P 5137*a*.
of phenylhydrazones by Br, mechanism of, 4247*h*.
in polyamide formation, 577*d*.
of polyethylene and polystyrene by heat, 8205*f*.
of polymers, 7292*g*.
of polymers in soln., 7294*a*.
of polymethyl methacrylate by heat, 5629*h*.
of polystyrene by heat, 8203*f*.
of sitosterols (soybean), P 4706*c*.
of starch—see *Starch*.
of steroidal 2,4-dinitrophenylhydrazones, 4282*e*.
of steroid side chains, P 3474*g*.
of streptomycin B, 3367*c*.
of sydnones, 3417*f*.
of tertiary amines to secondary amines, 2574*h*.
of *N, N, N', N'*-tetraalkyl-1-butene-1,3-diamines, 4248*g*.
of vinyl chloride polymers, 8737*g*.
**Degras.** (See also *Wool fat.*)
corrosion inhibitor from, P 7896*b*.
**Degreasing.** See *Grease*.
**Deguelia.** See *Derris*.
**Deguelin**, spectra and toxicity of, 3960*g*.
**Degumming.** See *Gums*.
**Dehalogenation.** See *Halogens*.
**Dehumidification.** See *Air; Drying; Gas, natural*.
**Dehydracetic acid.** See *Dehydroacetic acid*.
**Dehydrases.** See *Dehydrogenases*.
**Dehydration** (*chemicals*). (See also *Drying; Drying agents; Drying apparatus; Evaporation; Heat of dehydration;* and "sepn." under *Water*.)
of alcs., 111*g*, 557*b*, 2156*i*, P 5032*h*, 6967*g*, 7899*d*.
catalysts for, P 6763*b*.
to ethers, catalysts for, P 9300*f*.
of alk. earth aluminates, 1277*eh*, 1278*cd*.
of alk. earth chlorides, 1278*f*.
of 7-alkoxy-1,2-dialkyl-1,2,3,4-tetrahydro-1-hydroxy-2-phenanthrenecarboxylic acids, P 3848*f*.
of alumina, P 3733*a*.
by alumina, system $Al_2O_3$–$H_2O$ and, 8833*g*.
of aluminosilicates, 2067*f*.
of aluminum selenate, 5687*b*.
of amides, P 3836*d*.
of amides in the presence of sulfites, P 3470*c*.
of 2-(aminomethyl)-1-indanol, P 1440*g*
of amyl alcs., P 6217*h*.
of bentonite and kaolin, 8233*a*.
of beryllium hydroxide, 5300*c*.
of beryllium sulfate tetrahydrate, 2499*h*.
of 2-biphenylethanol, 2182*i*.
of borax, 8933*d*.
of 1,3-butanediol, butadiene by, 2015*fhi*, 2016*a*, 5350*i*, 5360*fghi*, 5361*a*.
of 1,3-butanediol, stability of butadiene in kaolin mixed catalysts in, 4015*d*.
of butyl alc., P 3833*h*, P 6217*g*, P 7035*b*, 7899*b*.
of butyl alc., bentonite and gumbrin as catalysts in, 6153*a*.
of castor oil, 2450*d*, 6431*g*, 7238*f*.
conjugated double bond formation in, and tung-oil substitutes by, 4872*a*.
in drying oil prepn., 872*af*.
with glycerol-phthalic resin as catalyst, P 4873*a*.
castor oil continuous bodying and, 5970*g*.
catalysis by $TiO_2$, 8828*b*.
catalysts for, 2533*i*, 8251*e*.
of chloride hydrates with carbonyl chloride or thionyl chloride, 2533*b*.
of 4-chloro-2-methyl-3-butyn-2-ol, P 6645*b*.
of clays, kinetics of, 6799*c*.
of colloid in chill haze of beer and cold turbidity of wort, 9360*c*.
of compds. by distn. with hydrophobic oil, P 6477*c*.
of cotton, effect on degree of polymerization, 413*h*.
curves for brecciated weathered loam and fuller's earth from Karmöy, Norway, 8320*g*.
cyclo-, 4662*g*.
aromatic, 6194*b*.
of L-glutamic acid, 143*f*.
of *N*-7-quinolylformamide, 3421*i*.
of cyclohexanol, 5010*e*.
of 2,5-dichloro-α-methylbenzyl alc., P 2637*a*.
of α,α'-dimethyl-4,4'-biphenyldimethanol, P 5803*d*.
of 4,7-dimethyl-5-decyne-4,7-diol, 1333*d*.
of 3,4-dimethyl-α-nitromethylbenzyl alcohol, P 5803*f*.
of 3,6-dimethyl-1,7-octadiyne-3,6-diol, 3359*e*.
of α,α-diphenylacetamide, 611*c*.
of α,α-diphenylcycloalkanemethanols, 3797*a*.
of 1,2-diphenyl-5-hexen-3-yn-2-ol, 6624*g*.
of emulsions—see *Emulsions*.
of ethyl alc.—see *Ethyl alcohol*.
of ethylene γ-glycols, 6163*a*.
of formaldehyde, polarography and, 25*d*.
furnaces for, 2475*h*.
of furyl polyhydric alcs., 4864*s*, 5891*i*.
of gibbsite, 975*g*.
of glycols, P 3834*c*.
of grapeseed oil, 6434*g*.
of gypsum, P 3166*i*.
of halloysite, 6121*i*.
of 1-hexadecanol in lubricant prepn., 8125*h*.
of 3,5-hexadien-2-ol, 557*i*.
of hydracrylic acid, P 6221*h*.
of hydracrylonitrile, P 2220*i*, P 3439*i*, P 3836*i*, 4629*i*, P 8308*a*.
of hydrocarbon-HCl mixts. by distn., P 4007*f*.
of hydrochloric acid, P 4525*a*.
of hydrogenation product from Et alc condensation, P 1955*e*.
of hydroxy acids, esters and nitriles, P 2220*f*, P 6220*b*.
of hydroxyanthracenes, 2199*bc*.
of 4-hydroxy-2-butanone and unsatd alcs., 1338*i*.
of hydroxyl compds. in double-bond conjugation production in drying oils and their fatty acids, 4025*h*.
of 3-hydroxy-3-methyl-2-butanone, 3352.
of 3-hydroxy-3-methyloxindole derivs., 1411*e*.
of 17-hydroxy steroids, 1429*b*.
of α- and β-ionone, 3798*i*.
of isoamyl alc., 3355*a*, P 3833*f*, P 3834*a*
of isoborneol 4-derivs., 1354*f*.
of isopropyl alc. on $Cr_2O_3$ catalysts, 4087*d*.
of isopropyl alc. on NiS catalysts, 7802*i*
of laumontite and β-leonhardite, 3320*g*
of lubricating greases, fiber-structure disintegration by, 4455*f*.
of lupan-2-ol and its isomers, 3808*h*.
of magnesium chloride, P 7201*ab*, 7852*h*
of magnesium hydroxide, kinetics of 8816*c*.
of maleic acid, P 2226*c*, P 4690*f*.
of 4-*p*-menthanol, 3374*g*.
of α-methylbenzyl alc., 592*a*.
of α-methylbenzyl alc. derivs., 1734.
of 2-methyl-3-butyn-2-ol, 3777*d*.
of methylcyclopentanols, 2172*b*.
of α-methylnaphthalenemethanol, P 5804*i*.
of *p*-methyl-α-nitromethylbenzyl alcohol P 5803*e*.
of 2-methyl-4-phenyl-3-butyn-2-ol, 2182*h*
of 2-methyl-4-(2,5-xylyl)-2-butanol, 2182*h*.
of minerals, effect of pressure and temp on, 5349*e*.
of 7-octen-5-yn-4-ol, 6623*d*.
of oils, agents for foam prevention in, P 8211*d*.
of oils (hydroxylated) with boric acid $H_3PO_4$ or $BPO_3$ catalyst, drying oils by, P 2790*a*.
of oximes, P 2220*d*.
of pentaerythritol in presence of aromatic sulfonic acid and $H_3PO_4$, P 7239*g*
of perlite, 1294*a*.
of 2-phenoxathiinemethanol, P 1814*b*
of 1-phenyl 1,2-ethanediol to form $PhCH_2CHO$, P 3461*e*.
of 22-phenyl-3-methoxy-22-hydroxybisnor-5-cholene, 3018*f*.
of pinacol, P 1434*i*.
of pinocampheol *p*-toluenesulfonate isomers, 189*a*.
of 2-pyrimidineëthanols, 5785*e*.
rates of, of Egyptian clays by heating, 6121*b*.
of silicic acid-Celite mixts., effect on adsorptive strength, 8946*b*.
of silicic acid (colloidal), 8800*i*.
of silicone intermediate polymers, P 5099*h*.
of sodium dihydrogen phosphate, 8296*c*
of Spanish clays in kaolins, 8590*c*.
in steroid differentiation, $HCO_2H$ in, 7865*b*.
of sugars, 9060*h*.
of 2,2'-sulfonyldiethanol and derivs., P 7952*g*.
of talc, 5911*i*.
of tetrahydrofuran, P 5410*c*
of tetrahydrosylvan with phosphate catalyst, P 2805*b*.
of α,β,β-triphenylhydracrylic acid and derivs., 208*a*.
of unsatd. alcs., 1311*s*, 1338*d*.
of vinylacetylene glycols, 2162*g*.
**Dehydration** (*physiological*). (See also *Drying; Drying apparatus.*)
agents for, effect on phosphatases in lymphatic nodules of rabbit appendix, 709*h*.
detection and treatment of, urine chloride detn. in, 14734.

muscle extracellular and intracellular fluid phases during, 9190*i*.
**Dehydroacetic acid** (*3-acetyl-6-methyl-1,2-pyran-2,4(3 H)-dione*), 1724*e*.
in alc. beverage manuf., P 6784*a*.
food disinfection with, and its derivs., P 6758*ab*.
in food preservation, P 6758*d*.
as fungistat, 9334*b*.
**Dehydroaromatisation**. See *Aromatisation*.
**Dehydroascorbic acid**, in cantaloupes, 1120*e*.
in foods (fresh and processed), and its oxidation to diketogulonic acid, 6327*i*.
formation in $CH_2O$ reaction with ascorbic acid, 6979*i*.
isolation of L-, 2667*d*.
in Lima beans (fresh and frozen), 1121*f*.
in peas during germination, 3888*e*.
in phanerogams, 8014*f*.
spectrum of, 6080*f*.
in tissues during *Trypanosoma hippicum* infection, 1478*d*.
in vegetables (canned), effect of storage on, 1122*e*.
**Dehydrobromination**. See *Hydrobromic acid*.
**Dehydrochlorination**. See *Hydrochloric acid*.
**Dehydrocholic acid**. (See also *Bile acids*.)
dilactam 7-oximino acid from, detn. of amino N in, 4323*h*.
effect on Ca absorption, 7557*a*.
effect on gram-positive protein complexes of *Micrococcus aureus*, 269*d*.
esters with amino alcs., P 1814*f*.
ethyl ester, 1431*b*.
3-mercaptals and their derivs., 7033*h*
purification of, P 4304*g*.
reduction of, P 7509*g*.
sodium salt, effect on blood serum cholinesterase, 2258*h*.
effect on excretion of pigment and bromosulfalein in bile, 1870*a*.
effect on intestinal motility, 1865*f*.
standards of, 3568*c*.
and tablets, monograph for, 8103*b*.
**Dehydrocyclisation**. See *Aromatisation*
**Dehydrofluorination**. See *Hydrofluoric acid*.
**Dehydrogenases**. (See also *Codehydrogenases; Oxidases*.)
alcohol—see *Alcohol dehydrogenase*.
aldehyde—see *Aldehyde dehydrogenase*.
amino-acid—see *Amino-acid dehydrogenase*.
arsenite—see *Arsenite dehydrogenase*.
bacteria contg., detection of variants of, 711*h*.
brain inhibition by anticholinesterases, 7066*e*.
carbonyl group reactivity and action of, in isatin series, 215*b*.
citric-acid—see *Citric dehydrogenases*.
in *Escherichia coli* degenerative forms, 5078*e*.
of *Escherichia coli*, effect of sulfanilamide and derivs. on, 9154*g*.
of fat acids, 9090*i*.
formic acid—see *Formic dehydrogenase*.
glucose—see *Glucose dehydrogenase*.
glutamic-acid—see *Glutamic dehydrogenase*.
glycine—see *Glycine dehydrogenase*.
glycolic acid-oxidizing, in chloroplasts, 6286*i*.
heat of activation of, in stenothermophilic bacteria, 2671*f*.
lactic-acid—see *Lactic dehydrogenase*.
malic-acid—see *Malic dehydrogenase*.
of neoplastic and normal tissue, 3922*a*.
nicotinamide and vitamins $B_1$ and $B_2$ in, 4736*h*.
of pea seedlings, 8091*i*.
of plastids, 8454*a*.
in pneumococci in relation to resistance to drugs, 2672*b*.
pyruvic-acid—see *Pyruvic dehydrogenase*.
of sea-urchin eggs, thermal activation of, 4778*g*.
succinic-acid—see *Succinic dehydrogenase*.
in vegetables, effect of alc. and ether on, 2251*g*.
**Dehydrogenation**. (See also *Aromatisation; Oxidation*.)
of abietic acid, 8605*d*.
of DL-alanine, org. catalysts in, 4248*h*.
of alcs., 7896*d*.
to aldehydes or ketones, 2852*c*, P 4287*f*.
to ketones, P 8650*c*.
of alkaryl or alkyl hydrocarbons, P 5788*d*.
of alkylbenzenes to styrenes, and of di- and monoölefins to acetylenes, 5275*f*.
of alkyl cyclohexenes, 164*e*.
of alkyl derivs. of aromatic hydrocarbons, P 1440*b*.
of amines, and kinetics of, 132*i*.
of amino acids, effect of isatins on, 215*b*.
of benzaldehyde oxime and derivs. by Cu, 5760*f*.
of 2,3-butanediol, P 3841*h*.
of butane or butene, temp. control in, P 6819*e*.
of butane with Cr oxide catalysts, P 1175*a*.
of 1-butene, app. for, P 3436*e*.
of butenes, P 662*i*, 3644*b*, P 8603*d*.
to butadiene, 4213*i*.
to butadiene, catalysts for, P 5135*d*.
removal of catalyst poisons from steam in, P 7950*g*.
of *sec*-butyl alc. by Cu and Zn chromite, 1249*c*.
catalysis of, 8251*d*.
catalysis of, by $TiO_2$, 8828*c*.
catalyst chamber for, elec. heater for, P 4151*b*.
catalysts for, P 370*c*, P 5410*a*, P 6762*g*, P 7610*b*, P 8579*f*.
catalysts in, 1635*a*.
alumina as, 1250*d*.
poisoning of Ni, 2499*b*.
regenerating S-contg. oxide, P 3188*i*.
catalyst transfer in, P 1230*d*.
of cholesteryl acetate, 5408*d*.
by *Clostridium welchii*, 5448*f*.
of cumene, P 680*e*.
cyclo-, 4249*h*.
of 1,1′-binaphthyl, 3402*h*.
of Schiff bases, 9065*f*.
synthesis of morphinans by, 6635*e*.
of cyclohexadiene and cyclohexene derivs., 5377*d*.
of cyclohexane, 6567*a*, 7911*hi*.
to $C_6H_6$ by enzymic action, 4343*b*.
blocking of catalysts in, 7802*c*.
on platinized C, 1249*f*.
of cyclohexane and cyclopentane, 8255*a*.
of cyclohexane and decahydronaphthalene on oxide and metallic catalysts, orientation of mols. in, 4551*d*.
of cyclohexane derivs. by Br, 158*e*.
of cyclohexenones to phenols, 2968*h*.
of cyclopentene, kinetics of, 3271*f*.
of 1,2-diacyl derivs. of hydrazine to diimide derivs., 5368*i*.
of 1,1-diarylparaffins, P 2235*d*.
of dienes by nickel-Clarite, 109*a*.
of diethyl bicarbamate, 1725*g*.
of 8,9 - dihydro - 5*H* - cycloheptabenzene-5,6(7*H*)-dione, 5753*c*.
of dimethylcyclohexane and isopropylcyclohexane, equil. in, 8246*h*.
of dimethylcyclopentane and methylcyclohexane to toluene, P 5186*i*.
of 1,3-dimethyl ether of 5-allylpyrogallol, 1029*c*.
of ethane by selective oxidation, 7898*a*.
of ethyl alc., 8252*h*, 9028*a*.
of ethyl alc. and HCOOH vapors on catalysts, 6497*i*.
of ethyl alc., thermodynamics of, 8247*b*.
of ethylbenzene, 473*a*.
of ethyl benzenes, kinetics of, 165*d*.
of fats, 3976*f*.
of fatty acids, 2940*f*, 3357*c*.
of fichtelite, 6601*f*.
of formic acid on Cu-Pt alloys, 4088*c*.
of gasoline with Pt-C catalyst in hydroaromatic-hydrocarbon identification, 4838*i*.
of hydroaromatic compds., adsorption coeffs. in kinetic study of, 1731*e*.
of hydroaromatic compds., kinetics of, 1732*a*.
of hydrocarbon oils in vapor phase with mixed oxide catalysts, P 5181*b*.
of hydrocarbon oil with catalysts evolving const. amt. of heat during continuous regeneration, P 8664*c*.
of hydrocarbons, P 5030*e*, P 5031*c*, P 5039*g*.
by activated C, 5656*h*.
with $Al_2O_3$-BeO catalyst, P 6404*c*.
$Al_2O_3$-$MoO_3$-$TiO_2$ catalysts for, P 1561*d*.
app. for catalytic, P 6873*g*.
catalysts for, P 1538*h*, P 1930*h*, P 3161*e*, P 4791*g*, P 6763*b*, 9209*f*.
Cu-Mg catalyst for, P 9430*d*.
in presence of gaseous diluent, P 4683*e*.
prevention of secondary reactions in, P 3191*d*.
stripping catalyst used in, with $CO_2$, P 9078*e*.
hydrogenation and, of cyclohexane-cyclopentane mixts., 155*c*.
hydrogenation and, of hydrocarbon oils, P 1955*f*.
hydrogen evolution in, app. for measurement of, 8749*i*.
of indan, 6608*h*.
of α- and β-ionone with bromosuccinimide, 2589*a*.
of isoborneol, 5382*e*.
isomerization and, of $C_4H_{10}$ and paraffins, P 1955*i*.
of isopropyl alc. on $Cr_2O_3$ catalysts, 4087*d*.
of isopropylbenzene to α-methylstyrene, 4234*c*.
of lanosterol derivs., 7495*e*.
by *Merulius lacrymans* and *Marasmius chordalis*, 9160*h*.
of *N*-(3,4-methylenedioxyphenethyl)-2-pyridineacetamide (attempted), 1412*i*.
of naphthenes with S, 5376*e*.
of naphthenic hydrocarbons, app. for, P 7678*b*
of nitriles, P 2220*e*.
of nitro compds., P 4683*d*.
of nucleoprotein components from normal and cancerous cell nuclei, 4304*i*.
of olefins, P 3023*c*.
catalysts for, P 2382*ei*.
while maintaining K content of catalyst, P 2764*f*.
of paraffins, P 660*g*.
of 1,4-pentanediol, P 3451*e*.
of petroleum oils, catalyst for, P 1931*g*.
pilot plant for, 4522*c*.
of piperazine, P 1813*d*.
in pyrolysis of alky derivs. of benzene, 7916*h*.
of resinenes, 3597*i*.
with rhodium, effect of S on, 27*i*.
of rosin or rosin oil, nondrying oils by, P 4873*c*.
of rubber distn. oil during cracking with active clay-$V_2O_5$ catalysts, 5620*b*.
temp. control in, P 2763*g*.
of 6,7,8,9-tetrahydrobenzo[*g*]quinoline, 1420*g*.
of 1,2,3,4-tetrahydrocarbazole and derivs., 1391*b*.
of 1,2,3,4-tetrahydronaphthalene 2-derivs., 1382*d*.
of 1,2,3,4 - tetrahydro - 1 - naphthaleneéthanol, 6609*f*
of 2-o-tolyl-2-butene, 5012*d*.
in tumor, interrelationships of biotin, $CO_2$ and heavy metals in, 2694*g*.
with uranium, 7853*h*.
of yohimbine, 5786*b*.
**Dehydrohalogenation**. See *Hydrogen halides*.
**Dehydroisoascorbic acid***, 1690*c*.
**Dehydromucic acid**. See *2,5-Furandicarboxylic acid*.
**Dehydropeptidases**, differentiation from peptidases, 9113*i*.
multiple nature of, 257*d*.
peptidases and, 258*f*.
in tumors, 6725*d*.
**11-Dehydroprogesterone**. See *Δ4,11-Pregnadiene-3,20-dione*.
**Dehydrothiopseudocumidine***, dye from, P 5600*h*.
**Dehydrothio-*p*-toluidine**. See *Benzothiazole, 2-(p-aminophenyl)-6-methyl-*.
**Dehydro - *p* - toluidinesulfonic acid***, stilbene dyes from, P 1575*b*.
**Deiodination**. See *Iodine*.
**Deionization, electrolytic**, in water purification—see *Water, purification of*.
**Deionization, gaseous**. See *Ions, gaseous*.
**Dekalin**. See *Naphthalene, decahydro-*.
**Delafossite**, of Italy (Catanzaro), 5708*f*.
**Delcaine**. See *Pseudococaine*.
**Delépine reaction**, with β-bromopropionic acid, 2943*e*.
**Delessite**, formation and transformations in diabases of Timan, U.S.S.R., 6120*i*.
**Delia**, *brassicae*—see *Hylemya brassicae*.
**Delignification**. See *Lignin*.
**Delineascope**, with polaroid disks, 6015*a*.
**Delivery apparatus**. (See also *Dispensing apparatus; Distributing apparatus; Feeding apparatus; Pipets*.)
for microbiol. media, 3055*c*.
**Delmo-E-lime**, as fungicide, 7177*f*.
**Delphicol**, folic acid addn. to, 355*i*.
**Delphinidin** (*delphinidin chloride, 3,3′-4′,5,5′,7,-hexahydroxyflavylium chloride*), in flowers in relation to mutation and climate, 3068*f*.
**Delphinium**, flowering of, delay by 3-indoleacetic acid, 2358*a*.

**Del Rio, Andrés Manuel**, biography, 915*e*.
**Deltamax**, magnetic-core alloy, 3764*f*.
**Delta-rays**, from alpha-ray-bombarded solid bodies, 3702*g*.
**Deltexane**. See "δ-" under *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Delvauxite**, mineral similar to, from sediments of Moscow Basin, 2808*e*.
**Delvinal** (*sodium 5-ethyl-5 (1 methyl 1-butenyl)barbituric acid, sodium delvinal*), crystallography and identification of, 8612*e*.
detection in urine, 1077*b*.
identification of, 8612*c*.
solubility in iso-PrOH, 3147*i*.
**DEMA**. See *Diethylamine, 2,2'-dichloro-N-methyl-*.
**De-Ma**. See *Supronal*.
**Demagnetization**, of iron(II) sulfate heptahydrate, 6018*a*.
**Dementia praecox**. See *Mental disorders*.
**Demerol**. See "ethyl ester" under *Isonipecotic acid, 1-methyl-4-phenyl-*.
**Demethylation**. See *Methyl group*.
**Demi-photons**. See *Neutrinos*.
**Demissine**, from wild tomato leaves, 5551*b*.
**Democritus**, biography, 8761*d*.
**Demulsifiers**. See *Emulsions*.
**Dem'yanov, N. Ya.**, biography, 7761*c*.
**Denaturants**. See *Ethyl alcohol;* etc.
**Denaturation**, of proteins—see *Proteins*.
**Dendrocalamus**. See *Bamboo*.
**Dendromecon rigida**, alkaloids of, 8616*g*.
**Denigès, George**, biography, 5649*d*.
**Denitration**, of sulfuric acid—see *Sulfuric acid*.
**Denitrification**, in detn. of B.O.D., suppression of, 3544*i*.
**Densimeters**. See *Density*.
**Densitometers**. (See also *Density; Photometers*.)
for drilling muds, P 843*b*.
**Density**. (See also *Specific volume*.)
of animal organism in relation to fat and water content, 4746*g*.
boiling point and mol. wt. in relation to, of hydrocarbon oils, 8058*c*.
book: Calcn. of Sp. Grs. of Petroleum Products (Nomograms) [in Russian], 8661*h*.
calcn of, of liquids, 3255*g*, 5247*e*.
of liquids and vapors, 7279*h*.
of petroleum fractions, 8653*d*.
of sugar solns , 6847*e*.
of coke, effect of method of detn. and temp. of coke prepn. on, 5172*f*.
configuration of glass and, 5163*i*.
control of, in fractionating column, P 6010*e*.
control of, of sirups, app. for, 7243*a*, P 9388*f*.
crit. consts. and, 8226*c*.
crit. consts. and viscosity in relation to, 3678*i*.
of essential oils, conversion of sp. gr. to wt. per ml., 8100*b*.
flowmeter accuracy and, 8756*g*.
gradient tube, for brewery control, 8607*e*.
homology and, of esters of hydracrylic acid, 4639*h*.
indicator for, P 3248*i*.
interionic distance in binary compds. and, 6499*i*.
at liquid-vapor boundary, 4531*f*.
measurement of, app. for—see also *Balances; Hydrometers; Pycnometers*.
measurement of apparent and true, of carbonaceous solids, 5653*f*.
measurement of apparent and true, of carbonized coal, 9412*d*.
measurement of apparent, of dry powders, 3265*a*.
measurment of bulk, 2388*e*.
measurement of bulk, of thermal insulating materials, 4786*h*.
measurement of, of aq. alcs., 8310*i*.
of atomic beam, 8765*e*.
of $C_6H_6$, 7283*f*.
of bones, 8419*b*.
of building stone and refractory materials, 4397*i*.
of cellulose fibers, 2069*b*.
of concrete aggregate and sand, 6387*i*.
of fuel-gas mixt., 3993*a*.
of gases, 1946*a*, 3171*f*.
of Au objects to det. fineness, 6112*b*.
of hydrocarbon liquids, 4399*e*.
of isotopic gases, 2056*b*.
of leather, 4503*g*.
of liquids, 6878*a*.
of malt sirup, 1525*h*.
of nonpouring molding powders and plastics, 4787*i*.
of pastes and creams, 2734*i*.
*measurement of*, of petroleum liquefied gases, 6813*f*.
of pharmaceuticals, 6783*d*.
of phenolic resins, 3229*i*.
of pigments, 6835*i*.
of powders, 2069*i*.
of rayon, 2778*d*.
of rubber, 429*b*, 7741*e*.
of solns. at high pressures, app. for, 469*a*.
with thermal balance, 7803*g*.
of $H_2O$, 4531*d*.
periodic system and, 2827*e*.
pore size and lump, of coke, 378*h*.
recorder for, of flowing stream, P 8*a*.
refraction and structure of homologous hydrocarbons in relation to, 6023*e*.
symbols and terminology for, 4058*i*.
temp. and, of lubricating fluids, 6399*f*.
of tomatoes, dry-matter content and, 8070*g*.
of urine in anoxia, 1072*c*.
vapor, distribution over surface of volatile liquid, 7282*h*.
viscosity and, of hydrocarbons, 8775*i*.
**Dental caries**. See *Teeth*.
**Dental fillings**, amalgams, 9014*b*.
ethylcellulose compn. with Me methacrylate polymer for, P 8740*a*.
**Dental materials**, aluminum and Al alloys as, anodic treatment of, 8284*g*
amalgams contg. Au, 9014*b*.
copper Au-Ni-Pd-Pt-Ag-Zn alloy, P 2922*d*.
gold alloys with Cu, Ni, Zn and Mn, P 6563*i*.
for impressions, P 1884*h*.
methacrylic acid ester polymers as, 1213*a*.
trichloroethyl methacrylate polymers, P 4898*g*.
**Dentifrices**, 9364*d*.
alginates in liquid, 1905*i*.
analysis and formulas for, 8614*d*.
calcium glycerophosphate-contg , P 7650*a*.
contg. soap and sulfonated 2-hendecylbenzimidazole, P 6794*a*.
detergents (tasteless) for, P 3151*d*.
lactose-contg., P 1532*c*.
Lamepon 4C-contg , P 9392*a*.
paste, P 5910*d*.
perborate-contg., bactericidal action on oral spirochetes, 9159*e*.
specifications for, 9492*e*
vitamin C contg., P 5552*g*
**Dentine**. See *Teeth*.
**Dentistry**. (See also *Anesthesia; Anesthetics*.)
atomic energy program and, 9100*h*
books: Grundzüge der inneren Medizin fur Zahnärzte und Studierende der Zahnheilkunde, 5112*b*. Kurzes Lehrbuch der Pharmakologie in der Zahnheilkunde, 8064*i*.
chewing gum contg. Ag bactericides for use in, P 8108*c*.
**Dentures**. (See also *Teeth*.)
from acrylic materials, P 2472*c*, P 5644*e*.
acrylic, repair of, P 6468*c*.
alginates in fixative for, 1906*g*.
molding compns. for, P 9538*f*.
pastes for, coloring of, P 7268*b*.
pastes for, from polymethyl methacrylate, P 7268*b*.
from polymethyl methacrylate, strain-free, 8202*a*.
rubber compds. for, P 2026*h*.
**Deodorization**. (See also *Sewage; Water, purification of*.)
aerosols for, 8087*b*, 9364*e*.
agents for, 1906*h*.
carbonaceous, P 5516*i*
goldenrod oil as, 2372*d*.
phenethylamines and phenethyl isocyanates as, P 5800*i*.
of air, 3542*g*.
of air, compns. for, P 3950*f*.
blocks and drip solns. for, of washrooms and drain pipes, 9493*c*.
of chrysalis oil, P 7241*h*.
of cod liver oil, P 5158*d*.
cosmetic prepn. for, 3561*i*.
of fats and oils stabilized by nordihydroguaiaretic acid, P 2793*g*.
of fats and oils, still for steam, 3636*i*.
of fats and oils under vacuum, 5609*c*, 8705*h*.
of fats, app. for, P 7242*a*.
of fats in semicontinuous units, 4494*i*.
of Neoprene, P 6456*i*.
of oils, P 3638*a*, P 5215*d*.
app. for, 2792*h*.
effect on dienes and trienes, 4874*i*.
*of oils*, by steam distn., sludges from, and metallic soaps therein, 7724*h*.
of olive oil by steam, oxidation inhibition by, 8707*i*.
of perspiration, agents for, 8618*h*.
of refrigerated storage, effect on keeping qualities of food, 4779*g*.
by saliva of cow, 4358*h*.
of seal fat, 878*f*.
of shark-liver oil, 1531*b*.
of sirup from gur and Khandsari molasses, 4879*h*.
of soybean oil, citric acid, sorbitol and phosphatides in, 7723*e*.
of soybean salad oil, 882*c*.
of wool fat, P 4876*h*.
**Deoxy-**. See *Desoxy-*.
**Deoxygenation**. See "removal of" under *Oxygen*.
**Dephlegmators**. (See also *Distillation apparatus*.)
efficiency of, calcn. of, 6008*h*.
for hydrocarbon-gas analysis, 8653*a*.
**Dephosphorylation**, review on, 6300*a*.
**Depilation**. See "unhairing" under *Hides*.
**Depilatories**. (See also "unhairing" under *Hides*.)
review on, 5533*g*.
**Depolarization** (*electrolytic*), cathodic, 1663*d*.
in dry cell, 49*f*, 8917*a*.
in halide series titration with Ag ion, 6942*b*.
by lead oxide ($Pb_3O_4$), corrosion by paints and, 6431*c*.
by manganese dioxide, relation to catalytic and magnetic properties, 7313*d*
of oxygen, 6091*h*.
of platinum in chloride solns., 2100*f*.
with water-sol. substances, P 6098*c*.
**Depolarization** (*of rays or waves*). (See also *Neutrons; Raman effect*.)
by alcs. in flow, 7285*a*.
by diisopropyl ketone and $Pr_2O$, 6016*e*.
by gases, 7281*i*.
during gel formation, 7785*b*
by isotropic particles in suspension, 5257*g*
of light scattered by macromol. solns , 4094*e*.
by polymethacrylic acid solns., 2487*i*, 6494*d*.
scattered by sols, 7783*f*.
scattered from dil. macromol. soln , 7783*h*.
**Depolarizers**, cathode for alk. dry cell, P 4155*a*.
effect on cathodic polarization, 8285*c*
manganese dioxide mixt. with MnO, P 7202*h*.
**Depolymerase**. (See also *Desoxyribonucleic acid depolymerase*.)
action on desoxyribonucleic acid, 8415*b*
in yeast cellular debris, 1832*g*.
**Depolymerization**. (See also *Heat of Depolymerization*.)
of acrylate and methacrylate polymers, 1634*c*.
of butene polymers, 1311*a*.
of dicyclopentadiene, P 3032*c*.
of dicyclopentadiene and its derivs , P 3032*d*.
of formaldehyde polymers and of similar compds., P 3026*e*.
by heat, P 5231*e*.
hydrogenation and, in pyrolysis of rubber waste with petroleum heavy oil, 5984*b*.
in hydrogenation of coal, 1943*i*.
of hydroxyethylcellulose and polystyrene by ultrasonic waves, 8779*i*.
of methyl methacrylate polymers, 5629*i*.
of methyl methacrylate polymers, prevention of, P 4051*f*.
of 2-methylpropene polymers and its copolymers with butene, 1713*d*.
of olefin-$SO_2$ polymers, 2497*f*.
of paraldehyde in gas phase, catalysis by acids, 7801*e*.
of polyamides and polyesters, effect on mol. wt., 4542*a*.
polymerization and, 1017*h*, 1018*c*.
of polystyrene, 7749*a*, 8204*i*.
rate const. and viscosity during, 7800*h*
in rubber aging, 2023*f*.
of rubber (reclaimed), P 4890*e*.
of siloxanes, P 3441*b*.
of triisobutylene, 6151*a*.
of vinyl-polymer scrap, P 6865*c*.
**Deposits**. See *Boiler scale; Electrodeposits; Incrustations; Iron ores; Muds; Ore deposits; Salt deposits; Scale; Sediments*.
**Depression**. See *Mental disorders*.
**Depsides**, abnormal osmotic effects of, 5386*h*.

effect on vapor pressure, 5386*i*.
**Deriphyllin.** See "-2,2'-iminodiethanol complex" under *Theophylline*.
**Dermatitis.** (See also *Acrodynia; Skin;* and "B," "$B_2$" and "$B_6$" under *Avitaminosis* and *Vitamins*.
antihistamines in treatment of, 3938*f*.
contact, from morphine, 3150*e*.
from cutting oils and solvents, 5885*d*.
in fish industry, 2711*f*.
from 4-(2-haloethyl)pyrocatechols, 7451*d*.
industrial, 3947*i*, 7605*i*.
ivy—see *Poison ivy*.
from mercury compds., 8540*d*.
occupational, 5131*g*.
ointments for treatment of—see *Ointments*.
photo-, from chlorinated naphthalene, 7122*c*.
from plastics, 5996*c*.
powders causing, waxing of, P 1884*b*.
from pyrethrum, 3557*b*
from pyrethrum exts., AcOH and, 8602*f*.
from textile finishes, 6423*h*.
from textiles, finishes and dyes, 5131*f*, 7693*f*.
in thiodiphenylamine manuf., 6761*a*.
**Dermatol,** constitution of, 1354*a*.
**Dermatology.** See *Skin*.
**Dermatomycosis.** See "diseases of" under *Skin*.
**Dermatophytes,** *p*-aminobenzoic acid effect on, 1826*e*.
Gammexane effect on, 7541*e*.
growth and morphology of, effect of nutrition on, 8002*b*.
**Dermatophytosis,** interdigitale—see *Athlete's foot*
**Dermatosis.** See *Skin*
**Dermestes frischii,** control in meat meal, P 8604*f*.
**Dermestes maculatus** and (or) **Hide beetle,** control of, 2725*h*.
**Dermestes vulpinus.** See *Dermestes maculatus*.
**Dermestids,** control in insect boxes with DDT, 7631*b*.
**Derris** (See also *Insecticides*.)
antifouling properties of, 3904*b*
assay of roots of, guppies in, 2730*i*.
in cinchona pest control, 9340*f*.
in citrus snout beetle control in soil, 5149*n*.
in Colorado potato-beetle control, 5146*g*.
compns. with alkylhalonaphthalenes, P 7633*i*.
compn. with cyclohexanol, P 6778*e*.
in control of diamond-back moth and imported cabbage worm on cabbages, 2358*d*.
in downy-mildew control on Lima beans, 3959*h*.
*elliptica*, effect of root diameter on chem. and biotoxicant constituents of, 7631*f*.
rotenone detn. in, 6354*a*.
toxicity to flies, 5150*a*.
in elm leaf-beetle control, 1897*h*.
extn. of, for rotenone detn., 5149*i*.
*fordii*, insecticides from, 3557*b*
in grape berry-moth control, 9340*d*.
in *Hoplocampa flava* control, 3964*f*.
insecticides from phenylhydrazine and, P 9356*d*.
as insecticide, temp. and, 807*h*
in potato-tuberworm control, 3965*a*.
rotenoids in, 3966*e*.
rotenone detn. in, 3966*d*.
rotenone equiv. of, 5150*c*.
rotenone in, effect of drying on, 7631*e*.
toxicity of, detn. of, 1522*d*, 3966*fhi*.
toxicity to cockroaches, 1140*a*.
in western-raspberry-worm control, 9341*g*.
**Des-.** (*Starred names which were formerly entered here are indexed only as inverted entries at the name of the parent compound, as* D-Glucose, 2-desoxy-.)
**Desaminases.** See *Deaminases*.
**Desamulon-N,** in rubber latex biochem. degradation and thermal sensitization, 5983*e*.
**Desensitizers.** See *Photography*.
**Deseptyl.** See *Sulfanilamide*.
**Desiccants.** See *Drying agents*.
**Desiccation.** See *Drying*.
**Desiccators.** (See also *Drying apparatus*.)
for alkali metals and other hygroscopic materials, 8216*b*.
for fibrous suspensions, P 4058*a*.
**Designs.** See *Decoration*.
**Desmanthus virgatus,** proteins in, 9292*e*.
**Desmine.** See *Stilbite*.
**Desmodium, *canum* and *tortuosum*,** in Hawaii, 9292*f*.
**Desmodurs.** See "poly-" under *Isocyanates*.
**Desmodur T.** See "hexamethylene ester" under *Isocyanic acid*.
**Desmophens.** See "poly-" under *Hydroxy compounds*.
**Desmotropism.** See *Isomerism*.
**Desmotropopseudosantonin*,** isomers, 4242*d*.
**Desogen,** 4427*c*.
bactericidal action of, 6363*i*.
**Desormes,** biography, 8759*h*.
**Desorption.** (See also *Heat of desorption*.)
of acetic acid from charcoal, 3686*i*.
of aromatic hydrocarbons from charcoal, P 386*d*.
of bromine from brine, 1535*g*.
of carbon tetrachloride and $H_2O$ vapors from coconut-shell charcoals, 4922*b*.
of chloroform from polystyrene, 5654*h*.
of corrosion inhibitors from steel, 6560*b*.
of gases from catalyst in Fischer-Tropsch synthesis, 2401*h*
of gases from Cu oxide films, effect on elec. resistance, 474*i*.
of gas from powders by wetting, 7289*g*.
gas-mol. activation by, 4088*a*.
of hydrogen from Pt plate by impact of slow electrons, 5279*e*.
of lauric, palmitic and stearic acids from hexane-$H_2O$ interface, 8819*g*.
mechanism of, 6897*b*.
of methanol from coal, 8836*a*.
of methanol vapor from $SiO_2$ gel, effect of heating on, 1628*e*.
of monolayers, 8798*b*.
of nitrogen and stearic acid from supported catalysts and their components, 6807*g*.
of nitrogen in calcg. pore size-surface area distribution of cracking catalysts, 3180*g*.
of org. compds. from electrodes, 5316*d*.
rate of, effect of variable diffusion coeff. on, 8789*f*.
review on, 1623*d*.
of water from nylon, 4018*b*.
from oxides, 8822*b*.
from porous glass and $SiO_2$ gel, 8790*i*.
from $SiO_2$ gel, 1237*f*, 6034*d*.
from silk, 4018*a*.
**Desoxo-.** See *Desoxy-*.
**Desoxy-** (*Starred names which were formerly entered here are indexed only as inverted entries at the name of the parent compound, as* Leucopterin, desoxy-*.)
**Desoxyanisoin.** See *Acetophenone, p-methoxy-α-(p-methoxyphenyl)-*.
**Desoxybenzoin** (*benzyl phenyl kelone, α-phenylacetophenone*). (For derivs. see under *Acetophenone*, etc.)
from α-(aminomethyl)benzhydrol deamination, 2600*d*.
in chigger control, 8600*a*.
derivs., 5773*f*.
formation from $Ph_2CHCHO$, 1753*c*, 4632*i*.
oxime, 7008*c*.
from reaction of benzaldehyde with metals, 4238*i*.
from reaction of PhCOC(:NNH$_2$)Ph with NaOH, 123*a*.
reaction (photochem.) with Et orthoformate, 6515*e*.
reaction with 4-ethoxy-3,4-dihydro-3-phenyl-2(1*H*)-quinazolinethione, 1047*a*.
reduction to bibenzyl, 191*f*.
and semicarbazone, 2178*b*.
**Desoxycholic acid.** (See also *Bile acids*.)
bacterial mutation by, 2275*f*.
biliary excretion of, after choledochostomy, 7572*c*.
cholic acid as source of, 5848*e*.
compds. with paraffins, 3429*b*.
effect on cytochrome oxidase, 6254*e*.
effect on gram-positive protein complexes of *Micrococcus aureus*, 269*d*.
manuf. of, P 7509*g*.
sodium salt, effect on carcinogenic potency and elimination of 3,4-benzopyrene, 307*f*.
effect on intestinal motility, 1865*f*.
paramorphic induction in *Neurospora* and *Syncephalastrum* by, 6276*b*.
x-ray study of, 3688*c*.
and sodium salt, effect on diuresis, 1107*a*.
3-succinate (acid) and oxidation of, P 701*a*.
**Desoxyephedrine.** See *Phenethylamine, N,α-dimethyl-*.
**Desoxynorephedrine.** See *Phenethylamine, α-methyl-*.
**Desoxypentosenuclease,** in yeast and specific nature of its cellular regulation, 1832*g*.
**Desoxyribonuclease,** action on rickettsia, 1455*h*.
inhibitor for, 5056*h*.
magnesium ion in relation to activity of, 6249*d*.
**Desoxyribonucleic acid depolymerase,** action in living cells, 4713*b*.
**Desoxyribonucleotides.** See *Nucleotides*.
**Desoxy sugars,** 1727*a*, 4635*h*.
from anhydrosugars, 1327*f*.
derivs., P 7507*cd*.
1-substituted, reaction with aromatic hydrocarbons in the presence of $AlCl_3$, P 3448*a*.
**Desoxy-*p*-toluoin*,** formation from di-*p*-tolylacetaldehyde, 4632*i*.
**Despedicellin*,** 5396*b*.
**Desthiobiotin.** See *4-Imidazolidinecaproic acid, 5-methyl-2-oxo-*.
**Destructive distillation.** (See also *Carbonization; Distillation apparatus; Retorts*.)
of coal—see *Coal*.
fluidized two-zone, P 9426*i*.
of fuels—see *Fuels*.
furnaces for—see *Furnaces*.
gas, manuf. by—see *Gas, fuel (manufactured)*.
of lignite—see *Lignite*.
of peat—see *Peat*.
of petroleum—see *Petroleum refining*.
review on, 4788*di*.
of shale—see *Shales*.
of solids in a liquid bath, P 3175*g*.
tar from—see *Tar*.
of wood—see *Wood*.
**Desulfinicase,** action on cysteinesulfinic acid, 5430*g*.
**Desulfovibrio,** *aestuarii*, in marine sediments, 5076*f*.
*desulfuricans*, sulfate reduction by, 6273*c*.
**Desulfurization.** See *Sulfur;* and such headings as *Iron, metallurgy of; Metallurgy;* and *Petroleum refining*.
**Desyl,** anionic nature of, 1753*h*.
**Desylamine.** See *Acetophenone, α-amino-α-phenyl-*.
**Desyl benzyl phosphate,** $(C_{14}H_{11}O)(C_7H_7)_2PO_4$, 600*c*.
**Desyl sulfide.** See *Acetophenone, α,α'-thiobis[α-phenyl-*.
**Detection,** of radio waves—see *Rectification*.
**Detectors.** See *Electron tubes; Hertzian waves; Rectifiers*.
**Detergency.** (See also *Cleaning compositions; Soaps*.) 5213*a*.
address on, 1202*a*.
internal wetting of fibers in, 8687*h*.
and its measurement, 7724*i*.
measurement of, 1201*h*.
on chopped fibers, 8180*b*.
of soap-synthetic detergent-electrolyte builder systems, 3636*a*.
of textiles with various detergents, 9492*h*.
phys. chem. theories of, and their use in textile processing, 5213*c*.
of synthetic compns., 3218*i*.
theories of, and relations of emulsification to, 5975*i*.
theory of colloid-chem. processes in, 2793*e*.
**Detergents.** See *Cleaning compositions, Soaps*.
**Detinning.** See *Tin, metallurgy of*.
**Detonating gas,** chlorine—see *Chlorine*.
**Detonation.** (See also *Explosions; Gasoline Heat of explosion; Octane number a value;* and "internal-combustion, anti knock" under *Fuels*.)
of acetyl peroxide, 405*g*.
of ammonite charges, and effect of storage on transmission of detonation, 3617*d*.
books: Propagation des, dans le melanges gazeux, 8140*d*; Theory of (in Russian), 8140*e*.
in engines, 2753*e*.
agents for prevention of, P 1558*d* 5578*h*, 7673*i*, 7674*b*.
agents for prevention of, trialkyl amines as discoloration inhibitor for aromatic-amine, P 4003*d*.
alc.-water-$PbEt_4$ injections in prevention of, 383*h*.
aldehydes and peroxides as causes of 2411*b*.
bromo- or chlorohydrocarbon scavenger mixt. with Pb alkyl compds for prevention of, P 8667*e*.
energy of activation of fuel mixts. and 1167*d*.
HCHO and $NO_2$ as agents for prevention of, 5579*e*.
of gaseous hydrocarbons, 382*i*.

*in engines*, heptane and isoöctane as reference fuels in testing, 383*g*.
history of $PbEt_4$ use in prevention of, 6814*a*.
knocking behavior of hydrocarbons, 1554*b*.
knocking tendency and structure of hydrocarbons, 5576*f*.
knock-limited performance of internal coolants, 839*i*.
knock rating of alkanes, alkenes and alkynes, free energy of formation and, 3600*g*.
knock ratings and double-bond position in org. compds., 3997*h*.
knock ratings and Pb susceptibility of gasoline, effect of S compds. on, 383*i*.
knock ratings of rich mixts., 7674*d*.
mol. structure, sensitivity and $PbEt_4$ response of hydrocarbons and, 839*h*.
piezoelec. quartz indicator in detection of, and photography of pressures during, 5931*g*.
prevention of, 2411*e*.
testing, 4399*c*, 4787*a*.
testing, and app. for recording ionization current therein, 4453*d*.
testing, and fuel antiknock requirements of French automobiles, 8655*d*.
testing app. for, 8656*h*.
testing, by elec. cond. of flames, 3592*b*.
waste liquor recovered from soda washing of petroleum for prevention of, P 5939*i*.
equil. in wave-front and adiabatic expansion of products of, of solid explosives, 4013*i*.
of explosives, by grit, 1982*d*.
under impact, 1982*b*.
mechanism of, 3617*f*.
of gaseous mixts. in wide tubes, and nature of condensed gas in wave front, 5188*h*.
injuries from, 8521*e*.
of lead azide, fractures in polymethyl methacrylate from, 8785*a*.
of liquid explosives, by impact and effect of bubbles on sensitivity, 8139*c*.
of liquid explosives by impact, transient pressures during, 9450*e*.
of liquid transparent explosives, photographic study of, 3197*i*.
of methyl nitrate, 1981*f*.
in nitroglycerin and liquid nitric esters at low velocity, 4467*b*.
of nitroglycerin (gelatinized), 1981*d*.
of nitroglycerin mixts. with inert salts, 1567*f*.
parameters of, of liquid and solid explosives, calcn. of, 6416*h*.
products from, fugacity and thermodynamic equil. consts. for, 407*e*.
radiographs (flash) and x-ray bursts in study of, 5593*g*.
research on, at Claude Bonnier Institute, 8123*a*.
solid-explosive low-order, 405*f*.
stability, theories and wave of, 8130*b*.
temp. measurement in, of explosives, 4467*a*.
tribochem. decompn. in, of explosives, 1982*g*.
of trinitrotoluene and its mixts. with $NH_4NO_3$, Al, $BaSO_4$ or NaCl, 2775*e*, 2776*b*.
of trinitrotoluene, effect of water on, 8682*e*.
velocity of, d. of explosives and, 6417*a*.
velocity of, in high explosives, 4467*a*.
wave-propagation velocities in gas mixts., 5576*c*.
waves, mechano-chemistry of, 3682*f*.

**Detonators.** (See also *Detonation; Fuses; Mercury fulminate; Primers.*)
caps and compns., 4467*d*.
elec. blasting, 4467*d*.
glycerol-$H_2O_2$-$H_2O$, P 1190*f*.
lead- and Se-contg., for rocket propellants, etc., P 8683*b*.
lead azide-nitrocellulose, P 6828*b*.
manuf. of, 4466*i*.
theory of, 3617*f*.

**Detoxication**, 2325*b*, 2702*c*, 6312*h*, 6313*i*.
of barbiturates, 4766*b*.
of benzoic acid by glucuronic acid in normal conditions and in liver disease, 8800*g*.
2,3 - bis(aminomethylmercapto) - 1 - propanol derivs. for use in, P 3571*g*.
of castor-bean pomace for livestock feeding, 9330*d*.
of catalyst poisons—see *Catalysts*.
of exhaust gases—see *Gases*.
of gas—see *Gas, fuel (manufactured)*.
by glucuronic acid produced in liver, effect of vitamin $B_1$ on, 4372*h*.
Lundsgaard effect and, 3056*f*.
nutrition and, 9194*c*.
of sodium benzoate by animal organism, effect of vitamin A on, 5837*a*.
of solanine in sprouting potato tubers, 8538*c*.

**Dettol***, disinfection of skin by, 3525*d*.

**Deuterio-.** (*For the indexing of deuterium compounds the Boughton names, approved by the A.C.S. Nomenclature Committee (cf. the Introduction, p. 10020). have been used instead of names utilising the likewise approved prefix "deuterio-." E.g., for deuterioammonia the headings* Ammonia-*d*, Ammonia-$d_3$ and Ammonia $d_3$ *are used as needed; for deuterium chloride*, Hydrochloric acid-*d*, *and for deuterium sulfide*, Hydrogen-*d* sulfide and Hydrogen-$d_2$ sulfide. *When the information is indefinite or mixtures are involved see* "heavy" *under* Ammonia *or whatever other compound may be under consideration.*)

**Deuterium.** (See also "isotopes" under *Hydrogen;* "heavy" under *Water;* and specific compounds formed by introduction of deuterium as *Ethane-d*, *Methane-$d_3$* and *Phenol-d.*)
deuteron bombardment of, differential cross section for reaction in, 4093*g*, 4112*i*.
energy of $He^4$ from, 935*h*.
n H mass difference from, 7328*i*.
relative yields from, 8264*e*.
distribution between water and $OH_3^+$, $NH_4$, $CH_4$ and $NH_4^+$, 6078*a*.
exchange—see also "heavy" under *Water*.
exchange of, with butenes, kinetics of, 24*f*.
in C-H bonds, reaction mechanisms and, 5011*d*.
between $D_2O$ and *p*-nitrotoluene, 4574*a*.
between $Me_3CD$ and $Me_2(C^2H_3)CH$, 7897*e*.
between (+)3-methylheptane and $D_2SO_4$, 1247*g*.
in paraffins, 7897*g*.
with quinhydrone, 452*b*.
in exchange reactions, 7800*g*.
flame of O and, spectrum of, 4141*i*.
flames of, 7282*a*.
flames of mixt. with H and O, 3254*d*
fumaric acid hydrogenation with, 4727*a*.
gamma-ray-bombarded, angular distribution of photoneutrons from, 8264*f*.
disintegration of, 8855*g*.
energy of neutrons from, 6506*c*.
protons and neutrons from, 935*i*.
from hydrogen by neutron action, 1259*h*.
in ice (fossil), 2050*g*.
as indicator of chem. reactions, 7333*a*.
in Claisen rearrangement, 602*i*.
in metabolic studies on steroids, 4323*e*.
in reaction of cinnamaldehyde with $AlLiH_4$, 604*b*.
ionization cross sections of H and, 2862*h*.
ions (gaseous)—see also *Deuterons*.
in lipide synthesis studies, 5481*b*.
magnetic moment and gyromagnetic ratio of, 5303*f*, 8262*g*.
magnetic moment of, 4567*i*.
mass defects of, 8271*i*.
mobility of ions of, 4544*e*
molecular stopping power of, 4004*a*.
mol. with H(HD), mass spectrum of, 8889*b*.
mol. with H(HD), prepn. and mass spectra of, 4967*b*.
neutron-bombarded, neutron yield from, 3283*a*.
neutron cross section of, 3282*h*.
neutron scattering by, 4107*c*, 6506*e*.
nucleus—see *Deuterons*.
prepn., introduction into org. mols. and exchange in $UD_3$ amalgam, 7853*ahi*.
proton-bombarded, neutrons from, 3282*i*.
reaction with Ce and La, 4122*d*.
in spectroscopy of 1,2-dibromoethanes, 2865*f*.
thermal conductivity and viscosity of, 2832*h*.
thermal properties of, and its mol. with H, 2057*c*.
tritium reaction with, cross section for, 4946*g*.

**Deuterium, analysis,** detn. in water, 8965*a*.

**Deuterium compounds.** (See also note under *Deuterio-.*)
asymmetric, 3392*d*.
book: Bibliography of Research on, 7351*b*.
mass spectra of hydrocarbon, 4096*c*.
optical activity in, 8226*g*.

**Deuterium hydride.** See "mol. with H" under *Deuterium*.

**Deuterium ion.** See *Deuterons*.

**Deuterium oxide.** See "heavy" under *Water*.

**Deutero-.** (*For the indexing policy with reference to deuterium compds., which are named by some by use of the prefix "deutero-," see note under* Deuterio-.)

**Deuterons,** aluminum bombarded by, $\alpha$-rays and protons from, 4118*a*.
aluminum bombarded by, $Na^{22}$ and $Na^{24}$ from, 4093*e*.
anthracene bombarded by, fluorescence of, 4111*g*.
argon bombarded by, $\beta$-rays from, 4948*a*.
beam of, from 10 m.e.v. cyclotron, 7326*i*.
beryllium bombarded by, Doppler broadening of $\gamma$-ray lines from, 4117*c*.
$\gamma$-rays and neutrons from, 4093*g*, 4561*h*.
$\gamma$-rays from, 4093*g*, 8876*ab*.
from beryllium by proton action, 5294*b*, 8864*c*.
binding energy of, 8862*b*.
bismuth bombarded by, 7813*e*.
bismuth bombarded by, Po and RaE from, 4123*h*.
bombardment with, of Al and O, angular distribution of protons from, 8861*h*
of Al and Si, protons from, 8265*h*
of Al, Mg and Si, protons from, 3284*e*.
angular distribution of neutrons from, 8866*d*.
of $A^{40}$ and $Ca^{40}$, comparison of products of, 6507*b*.
of $Be^9$ and $Li^6$, $Li^7$ from, 2088*g*.
of Br and Se, 485*i*.
of C and Cu, neutrons from, 8866*h*
excitation functions for nuclear reactions from, 4560*e*.
$\gamma$ rays from, 4113*a*.
of gaseous targets in cyclotron, 4090*h*.
of Ir and Pt, Au and Pt isotopes from, 4125*a*.
Mn from, 8266*h*.
in 184-in. cyclotron, 4092*e*.
boron bombarded by, 1260*b*.
calcns. on, review on, 5659*h*.
carbon bombarded by, 8869*i*.
$\gamma$-rays and neutrons from, 5294*d*.
$\gamma$-rays from, 4093*h*.
resonances of protons from, 4947*f*.
threshold for nuclear reaction in, 5294*c*.
from carbon by neutron action, 4947*e*.
from carbon by proton action, 1646*g*.
deuterium bombardment with, differential cross section for reaction in, 4093*g*, 4112*i*.
energy of $He^4$ from, 935*h*.
n-H mass difference from, 7328*i*.
relative yields in, 8264*e*.
deuteron-bombarded, 2088*ce*.
deuteron-bombarded, neutrons from, 4113*c*.
disintegration of, angular distribution of neutrons from, 8861*g*.
angular distribution of protons from, 6900*g*.
by $\gamma$-rays, 4561*f*.
to neutron and proton, 35*i*.
neutron-proton scattering and, 8862*a*.
protons from, 4561*e*.
disintegration of Bi and Pb by, 8855*e*.
elec. quadrupole moment of, 7336*f*.
energy loss by, in Al and Au, 1646*c*, 4123*f*.
excited state of, 6073*c*.
gadolinium bombarded by, Tb isotopes from, 4949*i*.
gallium bombarded by, 936*b*.
ground state of, 3279*d*.
helium ($He^3$) bombarded by protons from, 8865*g*.
from hydrogen by neutron action and their binding energy, 1259*h*.
iodine liberation from org. iodides by, 8872*b*.
lanthanum bombarded by, Ce and neutrons from, 486*f*.
lithium bombarded by, 8869*e*.
lithium bombarded by, neutrons from, 4114*b*.

lutecium bombarded by, $Hf^{176}$ from, 4124a.
magnesium bombarded by, 4562h, 6506g.
magnesium bombarded by, protons from, 4117g.
mesotron absorption by, 2857a, 5661d, 7829b.
mesotron emission by, interacting with nucleons, 5664a.
mesotron production by bombardment of C with, threshold energy for, 4561c.
molybdenum bombarded by, element of at. no. 43 from, 1647c.
molybdenum bombardment with, 2089d.
from neutron bombardment of nuclei, 8862c.
neutron capture by, 3703h.
neutron scattering by, 6908b.
neutron scattering by, spin dependence of, 4107b.
neutrons scattered by, angular distribution of, 6909h.
nitrogen bombarded by, 8866e.
angular distribution of protons from, 6910c.
neutrons from, 3707e.
nucleon scattering by, 933c.
phosphorus bombarded by, upper limit for $H^2$ production from, 4118e.
photographic plates bombarded by, stars in, 4113d.
photographic range-energy curves for, 35f.
potentials for noncentral forces, calcn. of depths of, 2502h.
scattering of, by He, 6506f.
selenium bombarded by, As from, 936e.
semiconductors bombarded by, 4095g.
skin irradiation by, 1445f.
skin lesions from, 3479a.
sodium bombarded by, neutrons from, 8853f.
soln. of, in metal, Bose-Einstein condensation of, 8257b.
source for, 4109e.
sulfur bombarded by, protons from, 4095b, 4118h.
tantalum bombarded by, $Tm^{167}$ from, 5297a.
thorium bombarded by, α-ray-emitting radioactive series from, 4126h.
thorium bombarded by, Pa series from, 37b.
titanium bombarded by, Sc from, 6507g.
transmutations produced by, 1640i.
**Deuteroporphyrin**, distribution coeff. between ether and phosphoric acid, 6696g.
**Developers.** See *Photographic developers.*
**Development.** (See also *Evolution; Growth; Ontogeny.*)
adenosinetriphosphatase in embryonic, 5477d.
book: Natur und Entfaltung organischer Gestalten, 7069a.
cod liver oil effect on, of rabbit, 3078h.
DDT effect on, of larvae of *Rana pipiens* and *Fundulus heteroclitus*, 5507a.
differentiation during amphibian, 3530b.
of domestic animals, 4353b.
effect of colchicine alone or with hormones on, of tadpoles, 5112e.
of eggs—see *Eggs.*
of embryos—see *Embryos.*
of *Lymnaea stagnalis*, effect of Li on, 2706e.
oxidation of indicators during, in *Triturus*, 3530f.
physiology of, 5467a.
of sea-urchin eggs, effect of detergents on, 4390d.
sodium azide effect on, of amphibians, 8563d.
**Development** (*photographic*). See *Photographic development.*
**Dewar vessels.** See *Vacuum containers.*
**Deweylite**, from Italy (Mezzavalle), identity with serpentine, 8314b.
**Dew point**, calcn. of, 8776e.
of combustion gases contg. S oxides, silica-smoke effect on, 2403h.
measurement of, app. for, P 4057b.
of flue gas, 6806e.
of fuel gas, 6394a.
in hydrocarbon gases, water detn. by, 6398f, 9422h.
nomograph for, of CaBr-toluene-xylene mixts., 2050f.
recorder for, 3732f.
recorder for, in automatic control systems, 8213c.
**Dexane.** See "3-isomer" under *Cyclohexane, 1,2,3,4,5,6-hexachloro-.*
**Dexedrine.** See *Phenethylamine, α-methyl-.*
**Dextran**, as blood plasma substitute, 3914a, 5502a, 8888e.
color reaction with orcinol and $H_2SO_4$, 3795i.
compds. with penicillin and its salts, 3154f.
enzymic breakdown of, 4307g.
formation of, by enzymic action of *Betacoccus arabinosaceous* and *Leuconostoc*, 1331b.
by *Leuconostoc*, effect of p-aminobenzoic acid and sulfanilamide on, 8438h.
by *Leuconostoc mesenteroides*, 2269b.
by *Leuconostoc*, serological properties of, 5532a.
by *Leuconostoc*, vitamin requirements for, 8438g.
fractions of, properties of, 6886e.
hydrolysis with HCl, 4307c.
manuf. from aguamiel by *Leuconostoc*, 5531f.
manuf. from sucrose, P 5081d.
mol. assocn. in, 2583f.
soil aggregation and, 2348i.
tricarbanilate, 154c.
**Dextran, trimethyl-***, 1331c.
**Dextranase**, 3050i.
**Dextrinase**, limit, of barley malts, 8407b.
**Dextrins.** (See also *Amylodextrin.*)
adhesive from borax and, P 8744b.
alginate-contg., P 8212i.
as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278e.
conversion into polysaccharide with serological properties of dextran by bacteria, 7079d.
detection of, 5704a.
detn. in beer and must, 3970g.
in sirup, 4502b.
in sugar mixts., 8979f.
in dye stabilization, 4856f.
effect on dental caries, 8022i.
on growth of plant tissue, 4349a.
on growth rate of electrolytic single crystal of Ag, 4584c.
on histoplasmin formation, 719h.
on intestinal microflora of hens, 736e.
on microörganisms in cecal contents of rats, 2277a.
electrodeposition in presence of, elec. oscillations from, 2874f.
hydrolysis of, phosphatases in, 5061d.
limit or residual, -A in amylolytic degradation of starch, sensitization of, 723f.
limit or residual (β-amylase), mol. assocn. in, 2584a.
β-limit or residual, malt α-amylase adsorption by, 9504k.
limit or residual, phosphorus in, 5218f.
macerans-amylase action on, 584b.
malt-amylase action on, 5219a.
malt, in preservation of aroma of coffee substitutes, P 5884a.
malt, in preservation of aroma of teas, P 5884b.
mixts. with alkali and borax, properties of, 9500b.
mixt. with maltose, milk and rice in baby food, 8566h.
pastes, 8717a.
raw materials for, P 1590a.
reaction products with urea-HCHO resins, P 901e.
recovery from stillage sirup, P 816c.
Schardinger, 6986h, 7906e.
Schardinger, and derivs., 2584c.
tricarbanilates from corn β-amylase limit, corn torrefaction and Schardinger β-, 154b.
utilization by *Drosophila*, 322h.
**Dextropimaric acid.** (See also *Isodextropimaric acid.*)
detn. of, 5550g.
oxidation of, 6185e.
from pine oleoresin, 1390c.
sodium salt, chem. structure and emulsifying activity in GR-S rubber polymerization, 8724i.
**Dextropimarylamine***, from rosin amine, 9379a.
**Dextrose.** See *D-Glucose.*
**DFDT.** See *Ethane, 1,1,1-trichloro-2,2-bis-(p-fluorophenyl)-.*
**DFP.** See "(iso-PrO)$_2$P(:O)F" under *Isopropyl fluophosphates.*
**D.H.S. Activator**, in mosquito control, 2730g.
**Dhupa fat.** See *Fats.*
**Dhurra.** See *Sorghum.*
**Di-.** *See also words beginning with* Bi-.
**Diabases.** (See also *Diorites; Dolerite.*)
of Atlantic (mid-) ridge, 6548c.
of California, 2904h.
Caucasus Jurassic, 2552c.
effect on properties of magnesite refractories, 6384b.
enstenization in Palisade Sill, in Minas Gerais, Brazil, 5709b.
micropegmatitic, of British Guiana, 3751h.
of Minnesota (Duluth area), 6548e.
norms of average analyses of, 2552b.
Siberian basalt diabase porphyrites and, Cu and Ni in, 3750c.
sodium metasomatosis and, 6130d.
of Sweden (Schäre Halsaren) and its hybrids with Jotnian sediments, 4984i.
**Diabetes.** (*Diabetes mellitus is usually meant unless otherwise stated; see also* Glycemia; Glycosuria; Paradiabetes.)
acetate and pyruvate utilization by heart and diaphragm in, 8513d.
acetone bodies and sugar in blood in, effect of nicotinamide on, 4383g.
acetylation in, 9220f.
acidosis in, Ca, Mg and K in blood serum in, 5855a.
aconitases (α- and β-) in relation to, 7058g.
alloxan, 301d, 2304ef, 5483c, 7122f, 8523h.
adrenal cortex in, 8043h.
amino acid excretion in urine during, 8057b.
antibody formation in, 1481a.
BAL in prevention of, 758a.
benzopyrene-induced sarcoma in, 3515c.
bile secretion during, 4364f.
after clamping renal pedicles, 3513c, 5106e.
coagulability of blood in, 1478h.
complement in, 7569c.
diet effect on, 4364h.
diethylstilbestrol effect on, 7138b.
effect of high-fat diet in, 9234c.
effect of insulin on intestinal glucose absorption in, 317d.
effect of thiouracils and cysteine on, 5118c.
effect on cholesterol atherosclerosis, 5859d.
effect on fertility and gestation, 5106c.
glucose metabolism after hemorrhage in, 753d.
hyaluronidase in testis in, 1479a.
incidence, control and regression of, 5111c.
insulin secretion and, 4362d.
ketosis in, 4762d.
kidneys in, 748h, 5484g.
lipase in blood serum in, 9216a.
methylene blue effect on, 5498h.
and its modification by hypophysectomy, 5851d.
oxidation of D-glucose in, 2310a.
pancreas in, 1100f.
pantothenic acid effect on, 294d.
phosphatase in blood serum in, 5486h.
phosphatase in intestine and kidneys in, and effect of insulin thereon, 2318c.
pituitary, adrenal and thyroid glands and pancreatic insular tissue in, 1853i, 1854ab.
sensitivity to insulin in, and effect of methylthiouracil thereon, 4377fg.
in sheep, 8049c.
in sheep under fasting and nonfasting conditions, 753a.
thiamine deficiency in rats in, 293i.
thiamine effect on carbohydrate metabolism in, 2696b.
vitamin $B_1$ requirements in, 2306f.
in young and old, 7578h.
antibody response in, blood sugar and hypoproteinemia in relation to, 4759h.
antidiabetic properties of sumac, 6746a.
antimellitus principle from *Scoparia dulcis*, P 366i.
appetite in, 5485d.
from barbituric acid, uracil, ninhydrin and urethan, 2314g.
blood sugar in relation to diastase content in, 3505b.
books: The Endocrines in, 756a; Manual, 1104d; und Tuberkulose, 3925i; and its Treatment, 4371e.
bronze—see *Hemochromatosis.*
caramelized honey in diet in, 3515e.
coma, blood sugar in, 9234d.
MeOH in tissue in, 9236i.
potassium in blood serum in, 4366b.
coma from treatment of, in relation to biochemistry of sugar metabolism, 8060g.
Cushing's syndrome in, 17-hydroxycorticosterone in urine in, 803a.
development and progression of, 6301i.
fat action in, effect of thiouracil on, 7588i.

fetal hypophysis ability to produce, 1854*b*.
gangrene in, arteries in, 8047*d*.
glandular activities and nutrition in, 8523*h*.
from glucose administration, 7569*d*.
glucose and N in urine in, after hypophysectomy, effect of pituitary growth and adrenocorticotropic hormone on, 2692*b*.
glucose, ketone bodies and N in urine in, effect of pituitary growth and adrenocorticotropic hormones on, 2691*i*.
glucose metabolism in diaphragm and, 8029*c*.
glucose tolerance in, 8424*g*.
glutathione effect on, 6299*c*.
glycogen in kidneys in, 8518*d*.
glycogen in liver in, 751*h*.
hexokinase reaction of tissue in, 4369*i*.
hormones inducing—see "of anterior lobe" under *Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland*.
insipidus, kidney function and blood proteins in, 7568*e*.
insipidus, posterior pituitary powder in treatment of, 8520*h*.
insulin implantation in, 5121*a*.
ketone body excretion in, effect of fatty acids on, 1479*i*.
labile, electroencephalographic status and effect of anticonvulsive therapy in, 1102*f*.
lactic and pyruvic acids in blood after glucose and exercise in, 5111*b*.
after ligation of ovarian pedicles, 3512*g*.
lipemia and hemochromatosis in, 1858*e*.
lipides and P in blood, liver and muscles after exercise in, 9217*e*.
metabolism in, 5487*c*.
metabolism in, effect of adenosinetriphosphoric acid on, 2698*f*.
nutrition and, 749*i*.
organ lysates in treatment of, 5961*a*.
from pancreatectomy, effect of 2-thiouracils and cysteine on, 5118*f*.
from pancreatectomy, glomerular sclerosis of kidneys in, 5106*e*.
pancreatic in calf, 6305*c*, 9233*h*.
phenylurea deriv. of insulin in treatment of, 8533*g*.
phlorizin—see also *Phlorizin*.
from phlorizin, 1097*g*.
phlorhizin, in vitamin deficiencies, 5484*b*.
from pituitary adrenocortotropic hormone, metabolism of uric acid, glutathione and N and excretion of 11-oxy and 17-keto steroids during induction of, 4366*h*.
from pituitary exts. (growth-promoting), 5852*c*.
-producing substances, biosynthesis of vitamin C in relation to response to, 3501*h*.
pyruvic acid in blood in, 3093*d*.
sirups for use in, 3144*i*.
sugar-free and nonglycogenetic prepns. for use in, 7638*h*.
sugar in blood and urine in, effect of nicotinic acid on, 8470*c*.
thyroid effect on, 5850*g*.
and its treatment, 6314*i*.
undulating, 9226*d*.
urinary flow, solute excretion and osmosis during diuresis of solute loading in, 1858*h*.
vitamin A in adrenals and liver in, 7570*h*.
vitamin $B_1$ action in, 9183*g*.

**Diabrotica,** control of, chloralimine compns. for, P 5154*c*.
control of, compns. for, P 4420*gi*.
control of, esters of ether-dicarboxylic acids for, P 5152*g*.

**Diabrotica duodecimpunctata, Southern corn rootworm,** and(or) **Spotted cucumber beetle,** control in peanuts, 7182*i*.

**Diabrotica 11-punctata** and(or) **Western spotted cucumber beetle,** control of, P 2732*g*.

**Diabrotica 11-punctata howardi,** control on peanuts, 1897*d*.

**Diabrotica vittata** and(or) **Striped cucumber beetle,** control of, P 2732*g*.

**Diacetamide,** $(CH_3CO)_2NH$.
and hydrochloride, 4220*i*.
preps. of, 128*c*.
———, *N*-[1(or 2)-acetamido-2(or 1)-naphthyl]-, 9058*c*.
———, *N*-(6-acetyl-6 *H*-quinindol-9-yl)-, 220*b*.
———, α,α′-bis(*p*-nitrophenyl)-, 4241*g*.
———, α-chloro-, 4220*i*.
———, α,α′-diamino-(?), derivs., 3781*i*.
———, α,α′-dichloro-, 4221*c*.
———, α,α′-diphenyl-, 4241*f*.
———, *N*-(3,6-diphenyl-2-pyrazinyl)-, 3005*f*.
———, *N*-(3-hydroxy-7-isopropyl-1-methyl-9-phenanthryl)-, acetate, 7470*i*.
———, *N*-phenyl-. See *Diacetanilide*.

**Diacetanilide,** $(CH_3CO)_2NPh$.
———, *ar,ar*-dimethyl-. See *Diacetoxylidide*.
———, *p*-(2-fluorenylcarbonylmethyl)-, 7468*i*.
———, *ar*-methyl-. See *Diacetotoluidide*.
———, *p*-(*p*-nitrophenyldithio)-(?), 3802*h*.
———, *p*-(2,2′,2″-trihydroxy-*tert*-butylsulfamyl)-, triacetate, 3383*f*.

**Diacetic acid.** See *Acetoacetic acid*.

**Diacetonalkamine.** See *2-Pentanol, 4-amino-4-methyl-*.

**Diacetone alcohol.** See *2-Pentanone, 4-hydroxy-4-methyl-*.

**Diacetone sugars.** *Individual diacetone sugars are entered under the names of the corresponding sugars, e.g.,* D-Glucose, diisopropylidene-.

***o*-Diacetotoluidide, 5-amino-2-nitro-,** 592*f*.

***p*-Diacetotoluidide,** α⁴-(2-fluorenylcarbonyl)-†, 7468*i*.

**2,6-Diacetoxylidide,** α-diethylamino-, 1025*c*.

**Diacetyl.** See *2,3-Butanedione*.

**Diadrenalone*,** and derivs., 3800*f*.

**Dial** (*5,5-diallylbarbituric acid*), analgesic properties of, and its combinations with chloral hydrate and $MgSO_4$, 7141*e*.
detection in urine, 1077*b*.
effect on spinal reflexes of decapitated, decerebrated and decorticated cat, 7131*b*.
effect on uterus, 7141*c*.
identification of, 8612*c*.
solubility in iso-PrOH, 3147*i*.
unsatn. detn. in, 4976*e*.

**Dialin.** See *Naphthalene, dihydro-*.

**Diallage,** of Italy (Rossena), 5709*d*.

**Diallylamine,** polymers with allylpolysiloxane-dimethylpolysiloxane polymer, 2018*g*.
———, 2,2′-dichloro-, 2928*b*.
———, 2,2′-dichloro-*N*-methyl-, 2928*c*.
———, *N*-2,2-dimethoxyethyl-†, and oxalate, 6974*b*.
———, *N*-2,2-dimethoxyethyl-2,2′-dimethyl-†, and hydrochloride, 6974*c*.

**Dialogite.** See *Rhodochrosite*.

**Dialuric acid** (*5-hydroxybarbituric acid*), reaction with mercapto group, 4306*f*.
stability and spectrum of, 4306*d*.
system: alloxan-, polarography of, 7835*c*.
———, 5-[10-(4-diethylamino-1-methylbutyl)-2,3,4,10-tetrahydro-8-methoxy-2,4-dioxopyrimido-[4,5-*b*]quinoxal-7-yl]-†, 1781*b*.

**Dialysis.** (See also *Diasolysis;* and "ultra" under *Filtration*.)
of caramel solns., 7781*b*.
through cellophane-Cu ferrocyanide membranes, 2486*h*.
of cerebrospinal fluid, 9235*d*.
continuous, P 8758*g*.
drop, for preparing biol. specimens for electron microscope, 5442*i*.
electro-, of antibiotics, 7195*i*.
in cation detn., 8424*i*.
effect on base-exchange capacity of montmorillonite, 2549*f*.
of gum jeol, 2797*e*.
in improving taste of water sol. constituents of forage crops, P 6334*h*.
in isolation of alkaloids, 3975*c*.
in mica decompn. and resynthesis, 6120*c*.
of $Na_2SO_4$, 4587*b*.
of soils in boric acid soln., 3957*h*.
of soybean-protein solns., 5257*c*.
sugar-juice purification by, P 8290*c*.
whey demineralized by, 4393*f*.
ionic-wt., detn. by, 2074*e*.
membrane for, 8213*f*.
of sodium metaphosphates, 4088*f*.
vivo-, effect on K in blood plasma, 7117*d*.

**Dialysers.** (See also "ultra-" under *Filters*.)
from cellophane tubes, 910*g*.
for hemicellulose liquor, 9440*i*.
-ultrafiltrator as artificial kidney, 8424*g*.

**Diamagnetism.** See *Magnetism*.

**Diamidines.** See *Amidines*.

**Diamidophosphoric acid,** $(H_2N)_2POOH$.
derivs., insecticides contg., P 4420*b*.
———, *N,N′*-diallyl-, in printing pastes, P 9473*h*.
———, *N,N′*-diphenyl-, 3353*h*.
———, *N,N″*-(sulfonyldi-*p*-phenylene)-bis-, P 6233*c*.
———, *N,N″*-(sulfonyldi-*p*-phenylene)-bis[*N′,N′*-dimethyl-, 7037*a*.

**Diamidophosphoryl fluoride** ($(H_2N)_2POF$), *N*-derivs., 1314*d*.
———, *N,N*-dibenzyl-, 1314*f*.
———, *N,N′*-dibutyl-, 1314*e*.
———, *N,N′*-dicyclohexyl-, 1314*f*.
———, *N,N′*-dimethyl-*N,N′*-diphenyl-, 1314*f*.
———, *N,N′*-diphenyl-, 1314*e*.
———, tetraethyl-, 1314*e*.
———, tetramethyl-, 1314*e*.
volatility and vapor pressure of, 8841*a*.

**Diamidothiophosphoric acid,** derivs., in secticides contg., P 4420*b*.
———, *N,N′*-diphenyl-, 3353*g*.

**Diamine oxidase.** (See also *Histaminase*.)
in brans, 3070*b*.
in plants, and its adaptive formation by bacteria, 6706*c*.

**Diamines.** See *Amines*.

**Diamondback moth.** See *Plutella maculipennis*.

**Diamond fuchsin,** germicidal action of, effect of ultrasonic waves on, 1461*a*.

**Diamonds,** abrasion of, 8227*eg*.
abrasives from—see *Abrasives*.
alpha-conduction pulses in, 8263*h*.
bond energy in, 452*g*, 453*a*.
crystal lateral faces of, statistical distribution of, 6032*c*.
crystal structure of, origin of extra spots in Laue photographs in detn. of, 8875*f*.
electron-bombardment cond. in, 2085*i*.
equation of state for, 4916*d*.
gas nucleation by, 3682*h*.
identification of, 5703*g*.
in industry, 9295*i*, 9402*f*.
photoelastic properties of, 4071*h*.
Raman spectrum and vibrations of, 4570*g*.
recovery from drill crowns, 1270*d*, 2521*i*.
sound velocity in, calcn. of, 4955*e*.
space-charge effects in bombardment conductivity through, 3279*f*.
spectrum (x-ray) of, 4131*f*.
synthesis of, review on, 6478*g*.
of the world, 2900*a*, 5708*e*.

**Diamylamine,** phys. constants of, 2956*e*.
———, 5-chloro-, hydrochloride, 3121*d*.

**Diamylene*,** oxidation of, P 7950*b*.

**1,5,3,6-Dianhydromannitol.** See *Nemannide*.

***o*-Dianisidine*,** in tungsten detn., 8310*b*
in vanadium detn., 8310*d*.

**Dianthracene*,** 619*h*, 6194*b*.

**Dianthrimide.** See *Anthraquinone, iminodi-*.

**1,1′-Dianthrimide-2,2′-acridone*,** derivs., P 865*d*, P 866*i*.

**2,1′-Dianthrimide-1,2′-acridone,*** derivs., P 865*d*, P 866*i*.

**Dianthrimideacridones*,** P 7708*g*.

**1,1′-Dianthrimide-2′-carboxylic acid, 8-benzamido-*,** and benzyl ester, P 866*a*, P 867*c*.
———, 8-benzamido-*, and benzyl ester, P 866*h*, P 867*h*.

**2,1′-Dianthrimide-2′-carboxylic acid, 8-benzamido-*,** and methyl ester, P 866*d*, P 867*e*.

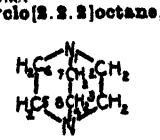
**Diaphania hyalinata** and(or) **Melon worm,** control of, 7182*ac*.
control of, nicotine synergists for, 5894*a*.
control of, on pumpkin leaves, phenylsemioxamazide compns. for, P 5530*b*.

**Diaphoresis.** See *Perspiration*.

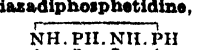
**Diaphragm** (*abdominal*). See *Abdominal diaphragm*.

**Diaphragms.** (See also *Membranes; Osmosis*.)
book: Diafragmy dlya elektroliza vodnykh rastvorov, 2524*d*.
from chlorinated polythene, P 9534*b*.
for chlorine-alkali cells, P 8290*d*.
electrolytic-cell—see *Cells, electrolytic*.
Fortisan rayon in manuf. of, 6408*g*.
glass, decompn. potentials of fused salts in presence of, 3909*g*.
effect on diffusion rate of electrolytes, 8775*g*.
leaks for gas analysis with mass spectrometer, 2822*d*.

rubber, straight-chain hydrocarbon diffusion through, to sep. from branched-chain hydrocarbons, P 7223*d*.
storage-battery—see *Storage batteries*.
**Diaporthe citri**, phosphorus (radioactive) effect on, 5825*b*.
**Diarrhea**. (See also *Ekiri*.)
fat absorption in, in Addison's disease, 4759*g*.
treatment of, curd from whole milk for, P 6757*i*.
white, -typhoid complex in chickens, 6775*d*.
**Diarsine**. See *Biarsine*.
**Diasolysis**, 8800*d*.
use of, 4077*e*.
**Diaspore**, hydroxylic surfaces of, 1131*h*.
iron (metallic) detn. in powd., 8303*e*.
reaction with $H_2SO_4$, P 6527*h*.
refractories for glass melting from, 3584*b*.
for refractory materials, 7655*g*.
**Diastases**. (See also *Amylases; Malt*.)
action on glucofructosans, 7526*i*.
in blood, 3505*a*.
effect on pancreatic activity on, 3504*i*.
in typhus, 3515*i*.
in blood serum in perforated peptic ulcer and pancreatitis, 8522*b*.
detn. of, 4421*h*.
in human milk, 4724*g*.
in malt, 3142*f*.
extn. of, P 2366*h*.
in feces, effect of penicillin treatment on, 9245*d*.
in flour, activity of, 7596*d*.
flour strength and activity of, 325*f*.
histochem. studies with, 8406*a*.
in honey, 9106*g*.
in malt, effect of NaCl in extn. on, 8092*e*.
in milk (human) and its relation to Arakawa reaction, 4755*h*.
in milk (human), effect of vitamin $B_1$ on, 9214*i*.
propylene glycol effect on, 1070*d*.
starch hydrolysis by light passed through, 5980*c*.
taka-, effect of complex-forming mineral acids on, 9099*f*.
**Diastereomers**. See "diastereo" under *Isomers*.
**Diathesis**, hemorrhagic—see *Hemophilia*.
**Diatomaceous earth**. See *Celites; Kieselguhr*.
**Diatomite**. See *Kieselguhr*.
**Diatoms**. (See also *Navicula*.)
buoyancy of, of plankton, 1081*g*.
fossil, of Ranomafana hot springs, Madagascar, 8904*de*.
marine, in fresh water in relation to NaCl concn., 8416*c*.
South African deposits contg., 1692*f*.
spectrum of, and role of carotenoids in photosynthesis by, 2281*c*.
**Diatraea saccharalis** and(or) **Sugarcane borer**, control of, 3136*g*.
**Diatrin**. See *Ethylenediamine, N, N-dimethyl-N'-phenyl-N'-2-thenyl-*.
**4,12-Diazabenz[*a*]anthracene**. See *Benzo[*b*][1,7]phenanthroline*.
**5,7-Diazabenz[*a*]anthracene**. See *Quinolo[3,4-b]quinoline*.
**5,12-Diazabenz[*a*]anthracene**. See *Quinolo[4,3-b]quinoline*.
**7,10-Diazabenz[*a*]anthracene**. See *Benzo[*f*]pyrido[4,3-b]quinoline*.
**1,2-Diazabenzene**. See *Pyridazine*.
**1,3-Diazabenzene**. See *Pyrimidine*.
**1,4-Diazabenzene**. See *Pyrazine*.
**1,3-Diazabenz[*e*]indene**. See *Naphth[1,2]imidazole*.
**1,3-Diaza-1*H*-benzonaphthene**. See *Perimidine*.
**1,4-Diazabicyclo[2.2.2]octane**,

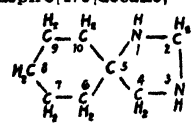


reaction with $(ClCH_2CH_2)_2S$, 6336*i*.
**4,7-Diazacephenanthrylene**. See *Indolo[3,3-fg]quinoline*.
**1,3-Diazacyclobutane**. See *Uretidine*.
**2,7-Diazacycloheptene**. See *1,3,1H-Diazepin, 4,5,6,7-tetrahydro-*.
**1,4-Diazacyclohexane**. See *Piperazine*.
**1,2-Diazacyclopentane**. See *Pyrazolidine*.
**1,3-Diazacyclopentane**. See *Imidazolidine*.
**9,14-Diazadibenz[*a*,*c*]anthracene**. See *Dibenzo[a,c]phenazine*.
**3,7-Diaza-1,5-dioxacyclooctane**. See *1,5,3,7(2H,6H) - Dioxadiazocine, tetrahydro-*.
**1,3,2,4-Diazadiphosphetidine**,

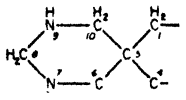


NH.PH.NH.PH
1 2 3 4

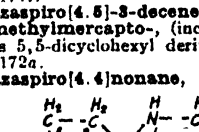
——, **2,4-dianilino-1,3-diphenyl-**, 2,4-dioxide and 2,4-disulfide, 3354*f*.
2,4-disulfide, reaction with amines, 3353*b*.
**2,9-Diazafluorene**. See *9H-Pyrid[3,4-b]indole*.
**7,10-Diazahexadecane-1,16-diamine†**, and polymers, P 4052*g*.
**1,2-Diazanaphthalene**. See *Cinnoline*.
**1,3-Diazanaphthalene**. See *Quinazoline*.
**1,4-Diazanaphthalene**. See *Quinoxaline*.
**2,3-Diazanaphthalene**. See *Phthalazine*.
**2,10-Diazaphenanthrene**. See *Pyrido[3,4-c]isoquinoline*.
**Diazaphenanthrene series**, color and antimalarial action of, 9376*a*.
**15,16-Diazaphenanthro[*fghij*]picene**. See *Diphenanthro[9,10,1-def; 1',10',9'-hij]phthalazine*.
**1,3-Diazaspiro[4.5]decane**,



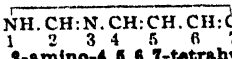
**7,9-Diazaspiro[4.5]decane**,



**1,3-Diazaspiro[4.5]decane-2,4-dione, 2-thio-**, (incorrectly given as 5,5-dicyclohexyl deriv. in abstr.), 6172*a*.
**1,3-Diazaspiro[4.5]decane-2,4-dithione**, (incorrectly given as 5,5-dicyclohexyl deriv. in abstr.), 6171*i*.
**1,3-Diazaspiro[4.5]decane-2-thione, 4-imino-**, (incorrectly given as 5,5-dicyclohexyl deriv. in abstr.), 6172*a*.
**7,9-Diazaspiro[4.5]decane-6,8,10-trione, 1,7(and 2,7)-dimethyl-**, P 4429*g*.
——, **2,7-dimethyl-**, P 3472*i*, P 4429*fg*.
——, **1,2,4,7-tetramethyl-**, P 4429*h*.
——, **1,4,7-trimethyl-**, P 4429*g*.
**1,3-Diazaspiro[4.5]-3-decene-2-thione, 4-methylmercapto-**, (incorrectly given as 5,5-dicyclohexyl deriv. in abstr.), 6171*i*.
**1,3-Diazaspiro[4.5]-3-decene-4-thione, 2-methylmercapto-**, (incorrectly given as 5,5-dicyclohexyl deriv. in abstr.), 6172*a*.
**1,3-Diazaspiro[4.4]nonane**,

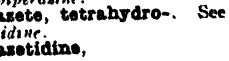


**1,3-Diazaspiro[4.4]nonane-2,4-dione**, 572*f*.
**1,4-Diazatriphenylene**. See *Dibenzo[f,h]quinoxaline*.
**1,3,1*H*-Diazepine**,



NH.CH:N.CH:CH.CH:CH.
1 2 3 4 5 6 7

——, **2-amino-4,5,6,7-tetrahydro-**, *p*-toluenesulfonate, P 6670*f*.
——, **2-benzyl-4,5,6,7-tetrahydro-**, picrate, P 5049*i*.
——, **4,5,6,7-tetrahydro-**, derivs., P 5049*e*.
——, **4,5,6,7-tetrahydro-2-[*p*-(methylsulfonyl)phenyl]-**, picrate, P 5049*i*.
——, **4,5,6,7-tetrahydro-2-(3-pyridyl)-**, P 5049*i*.
——, **4,5,6,7-tetrahydro-2-sulfanilamido-†**, P 6670*f*.
**1,4-Diazepine, hexahydro-**. See *Homopiperazine*.
**1,2-Diazete, tetrahydro-**. See *1,2-Diazetidine*.
**1,2-Diazetidine**,



NH.NH.CH$_2$.CH$_2$.
1 2 3 4

**1,2-Diazetidine-1,2-dicarboxylic acid, tetrafluoro-, esters**, P 3445*i*.
**Diazil**. See *Sulfamethazine*.
**1,2-Diazindene**. See *Inidazole; Isoindazole*.
**1,3-Diazindene**. See *Benzimidazole*.
**1,2-Diazine**. See *Pyridazine*.
**1,3-Diazine**. See *Pyrimidine*.
**1,4-Diazine**. See *Pyrazine*.
**Diazine blue**, germicidal action of, effect of ultrasonic waves on, 1461*b*.
**Diazoaminobenzene**. See *Triazene, 1,3-diphenyl-*.
**Diazo compounds**. (See also *Azo compounds*.)
acid and base properties and transformations of, structure and, 2491*h*.
acyl, rearrangement of, 6992*e*.
books: The Aromatic, and Their Tech. Applications, 7496*e*; Die aromatischen Diazoverbindungen, 8397*a*.
cyanides, 595*d*.
decompn. of, in neutral soln., 7443*h*.
detn. of, 5694*h*.
dustproofing dry stabilized, with dialkyl carbonates, P 9473*i*.
ether sulfides, as initiators and modifiers in butadiene-styrene polymerizations, 5987*f*.
formation in oxidative nitration of aromatic nitroso compds. and arylhydroxylamines, 5013*b*.
free-radical reaction of aromatic, 7895*i*.
iron inactivation by $Na_2H_2P_2O_7$ with, 4856*h*.
isomerism (absence of) in aryl-, sulfonates, sulfinates and sulfones, 5756*d*.
keto, reaction with thio amides, 2992*e*.
2-naphthol-1-sulfonates, 236*f*.
oxides, 2495*r*, 2967*e*.
in photography and diazotype printing, 1665*h*.
reaction with malonic acid derivs., 4258*i*, 4259*e*.
structure and transformations of, 169*g*, 595*f*, 1736*d*, 1737*b*.
**3,6-Diazooctane-1,8-diamine**. See *Triethyleneletramine*.
**Diazocyanides**, isomerism of, 7455*d*.
**Diazoimide**. See *Hydrazoic acid*.
**1,2-Diazole**. See *Pyrazole*.
**1,3-Diazole**. See *Imidazole*.
**Diazomethane**. See *Methane, diazo-*.
**Diazonium compounds**. (*For the individual compounds see* Benzenediazonium compounds; Naphthalenediazonium compounds; *etc*.)
*p*-aminoaryl, spectra of, 8880*b*.
in antimony and arsenic org. compd. prepn., 4647*b*.
aryl derivs., 1736*f*.
color and constitution of, 1191*a*.
decompn. of, 4649*d*.
in electrolytic recording, P 2881*e*.
fluoborates of heterocyclic, 5783*e*.
fluosilicates of, 6992*b*.
photodecompn. of, 4235*d*.
printing pastes contg. prevention of thinning of, P 9473*g*.
reaction with 3,4-dialkylphenols, 3385*f*.
with diketones, 5778*f*.
with methacrylic acid, 1744*d*.
with 1,4-naphthoquinones, 1380*c*.
with nitro alcs., 4646*f*.
with *o*-quinone monooximes, 3810*b*.
with $NaNO_2$, 1734*a*.
with 2-thiouracil, 2953*c*.
reactivity of, 4647*a*.
stabilization of, P 5420*d*.
thinning action on carbohydrate-thickened printing pastes, prevention by olefin amides, P 3207*a*.
**Diazonium group**, detn. of, 5341*f*.
replacement by azido group, 8365*i*.
replacement by nitro group, 1734*a*.
**Diazooxides**. See *Diazo compounds*.
**Diazo reaction**. (See also *Bilirubin; van den Bergh reaction*.) 3055*f*.
in bilirubinemic serums, 1853*d*.
of blood serum in jaundice, 8516*c*.
in melanuria, 7119*c*.
metallo-aromatic compds. by, role of Cu in, 2592*d*.
reagent for, 5074*e*.
**Diazosulfonates**, *anti-*, 616*c*.
**Diazotization**. (See also *Tetrazotization*.) 595*f*.
in amine identification, 5344*a*.
of aminoguanidine salts, 1769*k*.
of benzophenone hydrazone, 5769*g*.
iron salt inactivation by $Na_2H_2P_2O_7$ in, 4856*h*.
mechanism of, 596*c*, 5756*b*.
selective, of aliphatic-aromatic diamines, 9046*f*.
**Diazotype process**, 1665*h*.

coupling agent for, resorcinolcarbonamides as, P 5320*e*.
diazo complexes for, P 7850*i*.
dyes for, P 7846*f*.
papers for, with cellulose ether sizing, P 8294*f*.
sensitive layers for, P 4165*g*.
vitamin C in, P 4593*b*.

**Dibarbiturylamine***, oxidation-reduction equil. with murexide, 7304*i*.

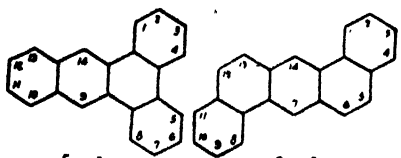
**Dibenamine**. See *Dibenzylamine, N-(2-chloroethyl)-*.

**Dibenzamide**, $(PhCO)_2NH$.

——, **2,2'-dihydroxy-***N*-**(4-methyl-2-thiazolyl)-**, P 6239*c*.

——, **2,2'-dihydroxy-***N*-**2-thiazolyl-**, P 6239*c*.

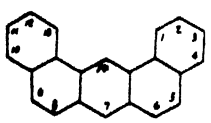
**Dibenzanthracene,**



*[a c]*



*[a h]*



*[a j]*

**Dibenz[*a,c*]anthracene**, electronic structure and carcinogenic activity of, 9234*e*.

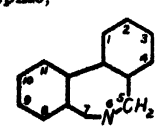
**Dibenz[*a,h*]anthracene**, effect on carcinoma growth in rats maintained on high and low protein diets, 306*f*.
effect on nucleic acids in livers of rats on high- and low-protein diets, 306*d*.
electronic structure and carcinogenic activity of, 9234*e*.
fluorescence of, 498*b*.
growth inhibition and S metabolism after injection of, 320*d*.
growth inhibition, toxicity and protein metabolism in rats treated with, 306*b*.
interat. distances in, 4569*d*.
radioactive, synthesis of, 1258*i*.
reaction with maleic anhydride, 2199*g*.
reaction with $OsO_4$, 8375*b*.
solubilization in assocn. colloids, 4363*e*.
tumors of alimentary tract after feeding, in mineral oil, 8046*d*.

**Dibenz[*a,j*]anthracene**, electronic structure and carcinogenic activity of, 9234*e*.

***lin*-Dibenzanthracene**. See *Pentacene*.

**1,2,5,6-Dibenzanthracene-9,10-endo-α,β-succinic acid**. See *7,14-Ethanodibenz[a,h]anthracene-15,16-dicarboxylic acid, 7,14-dihydro-*.

**Dibenzazepine,**



*5 — [c,e]*

**5*H*-Dibenz[*c,e*]azepine-5,7(6*H*)-dione**. See *Diphenimide*.

**Dibenzenesulfonamide**, $(PhSO_2)_2NH$.

——, **3-amino-**. See *Metanilamide, N¹-(phenylsulfonyl)-*.

——, **2-amino-4,4'-dichloro-**, azo 5-pyrazolone dyes from, P 8150*d*.

——, **2'-amino-2,4-dichloro-**, azo 5-pyrazolone dyes from, P 8150*d*.

——, **3-amino-2',4'-dichloro-6-methyl-**, azo 5-pyrazolone dyes from, P 8150*c*.

——, **5-amino-4',2-dimethyl-**, azo 5-pyrazolone dyes from, P 8150*b*.

——, **2'-amino-2**(or **5**)**-isopropyl-5**(or **2**)**-methyl-**, and azo 5-pyrazolone dyes from, P 8149*h*.

——, **3-amino-4-methyl-**, P 8150*e*.

——, **2'-amino-2,4,5-trichloro-**, azo 5-pyrazolone dyes from, P 8150*d*.

——, ***N*-butyl-**, soly. in Na xylenesulfonate solns., 1242*e*.

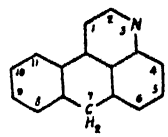
——, **4,4'-diamino-**. See *Disulfanilamide*.

——, ***N*-(2-nitro-*p*-tolyl)-**, 1426*f*.

——, ***N*-(5-nitro-*m*-tolyl)-**, 1426*f*.

——, **3,4,4'-trichloro-2'-nitro-**, P 8150*a*.

**Dibenzisoquinoline,**



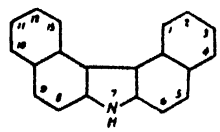
*7 — [f,i]*

**7*H*-Dibenz[*f,ij*]isoquinoline-2,7(3*H*)-dione, 6-amino-3-methyl-**, dye from, P 7711*i*.

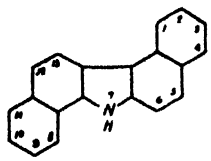
**7*H*-Dibenz[*f,ij*]isoquinoline-4-sulfonic acid, 3-acetyl-2,3-dihydro-2,7-dioxo-6-*o*-toluidino-**, sodium salt, P 8165*e*.

**7*H*-Dibenz[*f,ij*]isoquinolin-7-one, bis(bromomethyl)methyl-*p*-toluidino-**, dye from tetramethylthiourea and, P 8163*h*.

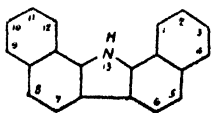
**Dibenzocarbazole,**



*7 — [c g]*



*7 — [a g]*



*13 — [a i]*

**7*H*-Dibenzo[*c,g*]carbazole**, and picrate, 5774*c*.

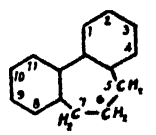
**13*H*-Dibenzo[*a,i*]carbazole**, and picrate, 5774*d*.

**7*H*-Dibenzo[*a,g*]carbazole-7-sulfonic acid**, sodium salt, effect on enzymes, 8417*e*.

**13*H*-Dibenzo[*a,i*]carbazole-13-sulfonic acid**, sodium salt, effect on enzymes, 8417*e*.

**Dibenzo[*a,c*][1,3]cycloheptadien-5-amine**, and hydrochloride, 8378*h*.

**Dibenzo[*a,c*][1,3]cycloheptadiene,**



*[a,c][1,3]*

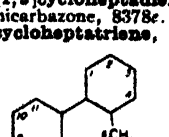
mol. structure of, 942*g*.
synthesis of, 8377*d*.

——, **5**(**and 5**)**-acetamido-**†, 8378*h*.

**Dibenzo[*a,c*][1,3]cycloheptadiene-6-carbonitrile, 5-imino-**, 8378*g*.

**Dibenzo[*a,c*][1,3]cycloheptadien-5-one**, and semicarbazone, 8378*e*.

**Dibenzo[*a,c*]cycloheptatriene,**



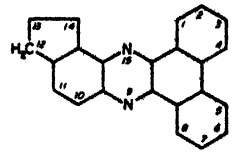
*[a,c]*

mol. structure of, 942*g*.

**Dibenzo[*a,c*]cycloheptatrien-5-one**, 2986*e*.

——, **1,2,3,9-tetramethoxy-**, 2986*e*.

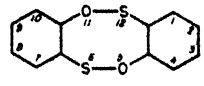
**12*H*-Dibenzo[*a,c*]cyclopenta[*h*]phenazine.**



*12H — [a,c] — [h]*

——, **13,14-dihydro-**, 616*i*.

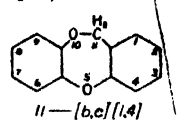
**Dibenzo[1,3,2,6]dioxadithiocin,**



*[1,3,2,6]*

——, **2,8-dimethyl-**, 6,6,12,12-tetraoxide†, 7006*d*.

**Dibenzodioxepin,**



*11 — [b,e][1,4]*

**11*H*-Dibenzo[*b,e*][1,4]dioxepin-11-one, 2,4,7,9-tetrachloro-3-hydroxy-8-methoxy-1,6-dimethyl-**†, diplorcin and, 608*d*.

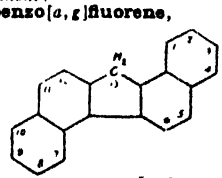
**Dibenzo-*p*-dioxin** (*diphenylene dioxide, phendioxin*),

**Dibenzo-*p*-dioxindicarboxylic acid**, vat dye from 1-amino-5-benzamidoanthraquinone and, P 4484*c*.

**Dibenzo[*a,jk*]fluorene**. See *Benzo[j]fluoranthene*.

**Dibenzo[*h,jk*]fluorene**. See *Benzo[k]fluoranthene*.

**13*H*-Dibenzo[*a,g*]fluorene,**



*13 — [a g]*

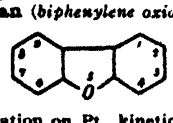
derivs., 2981*h*.

——, **7,9**(**7,10 and 8,9**)**-dimethyl-**, and picrates, 2981*i*.

——, **8**(**and 13**)**-methyl-**, and picrates, 2981*i*.

**13*H*-Dibenzo[*a,g*]fluorene-11-sulfonic acid**, sodium salt, effect on enzymes, 8417*e*.

**Dibenzofuran** (*biphenylene oxide*),



hydrogenation on Pt, kinetics of, 5657*d*.
melting point and purity of, systems with acenaphthene and fluorene and prepn of styphnate, 7803*c*.
mol. structure of, 942*f*.
sulfonation of, 6203*g*.
in wood preservation, 4418*b*.

——, **3-acetamido-**, carcinogenic activity of, 9238*e*.

——, **2-[3-(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthyl)propyl]-**†, 1379*h*

——, **2-vinyl-**, polymers with vinyl compds., P 1220*a*.

**3-Dibenzofurancarbonyl chloride**, 857.

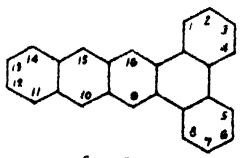
**3-Dibenzofuran... flide. 2-hydroxy-4'-(4-morpholinyl)-**, P 8162*h*.

——, **2-hydroxy-4'-(4-morpholinyl)-3'-nitro-**, P 8162*i*.

**Dibenzofurancarboxylic acid, hydroxy-**, P 3040*e*.

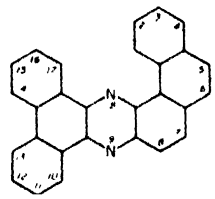
**2-Dibenzofurancarboxylic acid, 3,9b-dihydro-7-methoxy-1,9b-dimethyl-3-oxo-**, antibacterial activity of, 5445*e*.

———, 3,9b-dihydro-7-methoxy-1,6,9b-trimethyl-3-oxo-, antibacterial activity of, 5445*e*.
———, 1,2,3,3a,9a,9b-hexahydro-1,7,-9,9b-tetramethyl-3-oxo-, antibacterial activity of, 5445*f*.
**Dibenzofuran-2,8-dicrotonic acid**, γ,γ'-dioxo-, 7192*h*.
**Dibenzofurandisulfonic acid**, formation of, in sulfonation of dibenzofuran, 6203*h*.
**2-Dibenzofuranol**, anthraquinone dyes from P 8690*g*.
Mannich reaction with, 1392*c*.
———, 1-(dimethylaminomethyl)-, 1392*c*.
**2(1*H*)-Dibenzofuranone**, 3,4-dihydro-, 1012*h*.
——— , 3,4,4a,9b-tetrahydro-9b-hydroxy-, 1012*h*.
**Dibenzofuransulfonic acid**, and salts, as precipitant for K and Na, 5021*b*.
**2-Dibenzofuransulfonic acid**, and salts, 6203*g*.
**Dibenzo[*a,c*]naphthacene**,



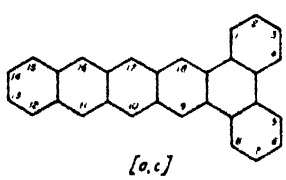
[*a,c*]

1363*c*.
**Dibenzo[*a,c*]naphthacene-10,15-dione**, 1363*d*.
**Dibenzo[*a,c*]naphthacen-10(15*H*)-one**, 1363*f*.
**Dibenzo[*a,c*]naphtho[1,2-*h*]phenazine**,



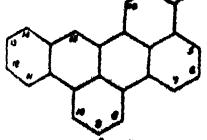
[*a,c*]—[1,2-*h*]

———, 3,16-diisopropyl-7,10-dimethyl-7470*g*.
**Dibenzo[*a,c*]pentacene**,



[*a,c*]

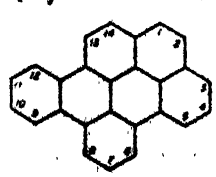
1363*g*.
———, 10,17-dihydro-, 1364*a*.
**Dibenzo[*a,c*]pentacene-10,17-dione**, 1364*d*.
**Dibenzoperylene**,



[*bn*]

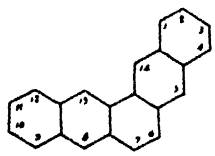


[*a,e*]

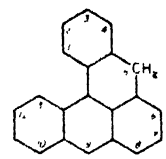


[*a,pqr*]

**Dibenzo[*a,o*]perylene**, and derivs., 5391*a*.
———, 7,16-dimethoxy-, and photooxide, 5391*e*.
———, 3,4-dimethyl-, and photooxidation of, 5391*a*.
**Dibenzo[*b,pqr*]perylene**, 5390*e*.
**Dibenzo[*a,o*]perylene-1,6-dicarboxylic acid**, 7,16-dihydro-7,16-dioxo-, 1760*e*.
**Dibenzo[*a,o*]perylene-7,16-diol**, derivs., 5391*c*.
**Dibenzo[*a,o*]perylene-7,16-dione**. See *Helianthrone*.
**Dibenzo[*b,n*]perylene-15,16-dione**, 7928*d*.
**Dibenzophenanthrene**,

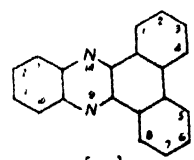


[*bh*]



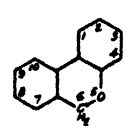
5*H*—[*c,mn*]

**Dibenzo[*b,h*]phenanthrene**, electronic structure and carcinogenic activity of, 9234*e*.
spectrum and structure of, 4569*g*.
spectrum of, 1365*c*.
**Dibenzo[*c,i*]phenanthrene**. See *Picene*.
**1,2,5,6-Dibenzophenanthrene**. See *Benzo[*a*]chrysene*.
**1,2,7,8-Dibenzophenanthrene**. See *Picene*.
**5*H*-Dibenzo[*c,mn*]phenanthren-5-one**, 4603*a*.
**Dibenzo[*a,c*]phenazine**,



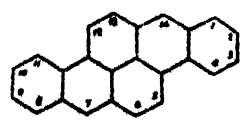
[*a,c*]

———, 3-acetamido-7-isopropyl-1-methyl-4-nitro-, 7470*e*.
———, 7-isopropyl-1-methyl-2-nitro-, 4252*d*.
———, 7-isopropyl-1-methyl-4-nitro-, 7470*h*.
**6*H*-Dibenzopyran**,

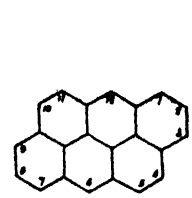


6-

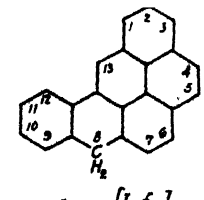
———, 6-oxo-. See "lactone" under *2-Biphenylcarboxylic acid, 2'-hydroxy-*.
**6*H*-Dibenzopyran-1,6(2*H*)-dione**, 3,4-dihydro-8-hydroxy-3,3-dimethyl-†, 5023*g*.
———, 3,4-dihydro-8-methoxy-3,3-dimethyl-†, 5023*g*.
**6*H*-Dibenzopyran-1-ol**, 3-amyl-6,6,9-trimethyl-. See *Cannabinol*.
———, 3-(1,2-dimethylhexyl)-7,8,9,10-tetrahydro-6,6,9-trimethyl-, 8383*g*.
———, 3-(1,2-dimethyloctyl)-7,8,9,10-tetrahydro-6,6,9-trimethyl-, 8383*g*.
———, 3-hexyl-6,6,9-trimethyl-. See *Cannabinol*.
———, 7,8,9,10-tetrahydro-6,6,9-trimethyl-3-(1,2,4-trimethylhexyl)-, 8383*g*.
**Dibenzopyrene**,



[*ah*]

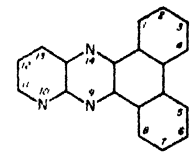


[*cd,jk*]



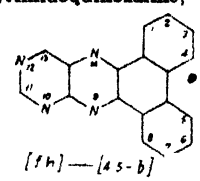
8—[*b,fg*]

8*H*-Dibenzo[*b,fg*]pyrene, and picrate, 5390*f*.
**Dibenzo[*a,h*]pyrene-7,14-diol**, disulfate di-Na salt, effect on enzymes, 8417*e*.
———, 2,9-dichloro-, disulfate di-Na salt, effect on enzymes, 8417*e*.
**Dibenzo[*a,h*]pyrene-7,14-dione**, acid treatment of vat dyes, P 2442*b*.
**Dibenzo[*cd,jk*]pyrene-6,12-dione**, reaction with piperidine, 1760*a*.
———, 4,10-di-1-piperidyl-, 1760*b*.
———, 4-(1-piperidyl)-, 1760*b*.
**8*H*-Dibenzo[*b,fg*]pyren-8-one**, 5390*e*.
**Dibenzo[*f,h*]pyrido[2,3-*b*]quinoxaline**,



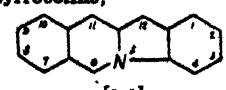
[*f,h*]—[2,3-*b*]

———, 12-bromo-, 1425*f*.
**Dibenzopyrimidoquinoxaline**,



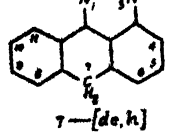
[*f h*]—[4 5-*b*]

**Dibenzo[*f,h*]pyrimido[4,5-*b*]quinoxaline-3-sulfonic acid**, 11,13-diamino-(?), 4269*a*.
**Dibenzo[*f,h*]pyrimido[4,5-*b*]quinoxaline-6-sulfonic acid**, 11,13-diamino-(?), 4269*a*.
**Dibenzo[*f,h*]pyrimido[4,5-*b*]quinoxalin-13-ol**, 11-(ethylmercapto)-, 2212*h*.
**6-Dibenzopyrone**. See "lactone" under *2-Biphenylcarboxylic acid, 2'-hydroxy-*.
———, 3,8-dihydroxy-†, and diacetate, 5023*d*.
———, 1,3-dihydroxy-8-methoxy-†, 5023*g*.
———, 3,8-dimethoxy-†, 5023*h*.
———, 3,8-dimethoxy-1-methyl-†, 5023*g*.
———, 3-(1,2-dimethylhexyl)-7,8,9,10-tetrahydro-1-hydroxy-9-methyl-†, 8383*f*.
———, 3-(1,2-dimethyloctyl)-7,8,9,10-tetrahydro-1-hydroxy-9-methyl-†, 8383*f*.
———, 3-hydroxy-8-methoxy-†, 5023*h*.
———, 3-hydroxy-8-methoxy-1-methyl-†, 5023*g*.
———, 7,8,9,10-tetrahydro-1-hydroxy-9-methyl-3-(1,2,4-trimethylhexyl)-†, 8384*e*.
———, 1,3,8-trihydroxy-†, and triacetate, 5023*f*.
———, 1,3,8-trimethoxy-†, 5023*g*.
**Dibenzopyrrocoline**,



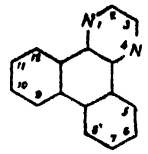
[*b,f*]

**Dibenzo[*b,f*]pyrrocoline-6,12-dione**, 7930*d*.
**Dibenzopyrrole**. See *Carbazole*.
**Dibenzoquinazoline**,



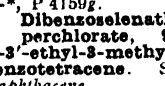
7—[*de,h*]

**7 H-Dibenzo[*de,h*]quinazolin-7-one, 6-amino-**, fluoranthene dyes from, P 5966*d*.
——, **8-amino-**, dyes from, P 7711*hi*.
**Dibenzo[*f,h*]quinoxaline,**

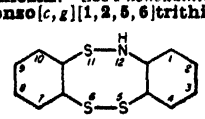


*[fh]*

7013*h*.
——, **2-(5-bromo-2-thienyl)-3-phenyl-**, 4666*b*.
**4,5,4',5' - Dibenzoselenacarbocyanine bromide, 3,3'-dimethyl-***, P 7848*i*.
**4,5,4',5'-Dibenzoselenacyanine chloride, 3,3'-dimethyl-***, P 7848*i*.
**4,5,4',5' - Dibenzoselenathiacarbocyanine bromide, 3,3' - diethyl - 9-methylmercapto-***, P 4159*g*.
——, **3'-ethyl-3-methyl-9-methylmercapto-***, P 4159*g*.
**4,5,4',5' - Dibenzoselenathiacarbocyanine perchlorate, 9-decylmercapto-3'-ethyl-3-methyl-***, P 4159*g*.
**1,2,3,4-Dibenzotetracene.** See *Dibenzo[a,c]naphthacene*.
**4,5,4',5' - Dibenzothiacarbocyanine***, 9-alkyl derivs., P 8926*b*.
**2-Dibenzothiophenamine**, and 5,5-di oxide, 2987*d*.
**Dibenzothiophene** (*biphenylene sulfide*),

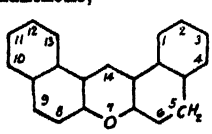


in chigger control, 8600*a*.
derivs., 2987*c*.
hydroxy derivs., for lubricant improvement, P 9432*a*.
mol. structure of, 942*f*.
——, **3-acetamido-**, and 5-oxide, carcinogenic activity of, 9238*e*.
——, **acetyl-**. See *Ketone, dibenzothienyl methyl*.
——, **amino-**. See *Dibenzothiophenamine*.
——, **2,8-diacetamido-**, and 5,5-dioxide, 2987*e*.
——, **2,8-diacetyl-**, and dioxime, 2987*e*.
——, **2,8-dinitro-**, 2987*d*.
——, **4-methoxy-**, 5,5-dioxide, 2987*f*.
——, **2-nitro-**, and 5,5-dioxide, 2987*c*.
**Dibenzothiopheneamine**. See *Dibenzothiophenamine*.
**2,8-Dibenzothiophenediamine**, and 5,5-dioxide, 2987*e*.
**2,8-Dibenzothiophenediol**, P 9432*b*.
**Dibenzothioxin**. See *Phenoxathiin*.
**12 H-Dibenzo[*c,g*][1,2,5,6]trithiazocine,**

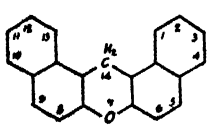


*12H—[c,g][1,2,5,6]*

antimalarial activity of, 5860*h*.
**Dibenzoxanthene,**

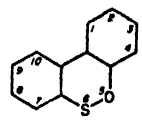


*5—[a,j]*



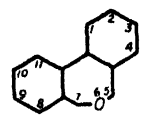
*14—[a j]*

**5 H-Dibenzo[*a,j*]xanthene-14-valeric acid** (*5 - 5 H-dibenzo[a,j]xanthen - 14 - yl-valeric acid*).
——, **α,β,γ,δ,9-pentahydroxy-5-oxo-**(?), 141*i*.
**14 H - Dibenzo[*a,j*]xanthene - 14 - valeric acid, α,β,γ,δ,5,9-hexahydroxy-**(?), 142*a*.
**Dibenz[*c,e*]-*o*-oxathiin,**



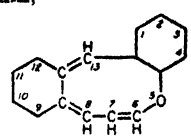
*[c,e]-o-*

6-dioxide—see "sultone" under *2-Biphenylsulfonic acid, 2'-hydroxy-*.
**Dibenzoxepin,**



*[c,e]*

**Dibenz[*c,e*]oxepin-5,7-dione.** See *Diphenic anhydride*.
**Dibenzoxonin,**



*[b,e]*

**Dibenz[*b,e*]oxonin-7,13(6H,8H)-dione, 3,-10,11-trimethoxy-**(?), and monoximes, 2868*a*
**Dibenzoyl.** See *Benzil*
**Dibenzoyl peroxide.** See *Benzoyl peroxide*.
**Dibenzyl.** See *Bibenzyl*.
**Dibenzylamine**, formation in hydrogenation of PhCN, 1336*c*.
hydrogen (active) detn. in, 3316*f*.
reaction with chloramines, 6570*h*.
reaction with $SiS_2$, 4632*b*.
system: formic acid-, 6066*d*.
thiocyanate, 578*g*.
——, ***N*-chloro-**, 6570*h*.
——, ***N*-(2-chloroethyl)-**, antiadrenolytic action of, 8553*f*.
in cancer therapy, 5505*d*.
effect on absorption of colloids and fluids from joints, 8505*a*.
on adrenaline toxicity, 311*a*.
on adrenaline vasopressor action, effect of piperidinomethylbenzodioxan on, 5497*h*.
on anaphylactic and normal lungs, 7131*b*.
on blood flow and cardiac output, 6309*g*.
on chloroform-adrenaline ventricular fibrillation, 4768*d*.
on circulatory reactions to ephedrine and neosynephrine, 7140*i*.
on cyclopropane-adrenaline arrhythmias, 2700*d*.
on easily split Fe of blood, 8051*f*.
on heart, 9250*h*.
on luteinizing hormone release from pituitary by estrogen and on its action, 8490*gi*.
on ovulation, 7579*b*.
on renal function, 3104*d*.
on renal hypertension, 314*h*.
on vasoconstricting action of adrenaline and noradrenaline, 8538*f*.
on ventricular fibrillation from petroleum ether and adrenaline, 313*b*.
and hydrochloride, 9052*e*.
hydrochloride, adrenergic blocking effect of, 4381*b*.
hydrochloride, pharmacology of, 1861*e*.
protective action of, after hemorrhage and muscle trauma, 761*g*.
in psychopathologic syndromes, 9262*i*.
—, ***N*-(2-chloroethyl)-*p,p'*-dimethoxy-**, hydrochloride, pharmacology of, 1861*e*.
—, ***N*-(2-chloroethyl)-*m,m'*(and *o,o'*)-dimethyl-**, hydrochlorides, adrenergic blocking effects of, 4381*e*.
—, ***o,o'*-dichloro-*N*-(2-chloroethyl)-**, hydrochloride, adrenergic blocking effect of, 4381*e*.
—, ***p,p'*-dichloro-*N*-(2-chloroethyl)-**, hydrochloride, pharmacology of, 1861*e*.
, ***o,o'*-diethyl-**, hydrochloride, 4218*b*.
, ***N*-2,2-dimethoxyethyl-†**, and hydrochloride, 6974*d*.
–, **2,2'-diphenyl-**, hydrochloride, 1356*b*
**dodecahydro-**. See *Dimethylamine, 1,1'-dicyclohexyl-*.
**α-ethyl-**, 7921*d*.
and hydrochloride, 1341*b*.
——, ***N*-(*p*-methoxyphenyl)-†**, as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
——, **4,4''-methylenebis-**, and dihydrochloride, 3382*d*.
——, ***N*-*p*-phenetyl-†**, as catalyst in sulfuration of fatty or mineral oils, P 1178*c*.
——, **o-phenyl-**, and hydrochloride, 1355*i*.
——, **3,3',4,4'-tetramethoxy-**. See *Di veratrylamine*.
**Dibiphenyleneëthylene.** See *Δ^9,9'-Bifluorene*.
**Diborane.** See *Boron hydrides*.
——, **chloro-**, P 6795*f*.
——, **tetramethyl-**, spectrum of, 4573*c*.
**Dibucaine** (*2-butoxy-N-(2-diethylaminoethyl)cinchoninamide*), anesthetic action of, 1111*a*.
anesthetic potency of, measurement of, 8095*b*.
camphorsulfonate, 7642*c*.
cholinesterase inhibition by, 9103*b*.
effect on adrenaline penetration into eyes, 3563*g*.
on intestine, 7590*b*.
on penicillin activity, 4772*d*.
on respiration of brain, 8056*h*
hydrochloride, effect on cholinesterase, 762*f*.
hydrochloride, monograph for, 8103*b*.
review on, 5906*a*.
salts derived from boric acid complexes of carbohydrates or of sugar alcs., P 1800*g*.
sensitization of ventricle of *Helix pomatia* and muscle of leech to acetylcholine by, 1107*f*.
**Dibutoline***, ganglionic blocking action of, 6309*c*
**Dibutylamine**, as catalyst in condensation of crotonaldehyde to cyclic compds., 5376*h*.
compd. with dibutyldithiocarbamic acid, P 4508*h*.
identification of, 4630*e*.
manuf. of, P 2633*c*.
phys. constants of, 2956*g*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*c*.
reaction with styrene, P 681*i*
thiocyanate, 578*g*.
——, ***N*-benzyl-†**, compds. with phenol derivs., P 4298*f*.
——, ***N*-[3-(*o*(and *p*)-benzylphenoxy)-propyl]-**, and hydrochlorides, 3386*de*
——, ***N,N'*-(4,4'-biphenylenedimethylene)bis-†**, dihydrobromide, 3381*e*
——, **4,4'-bis(diethylamino)-1,1'-dimethyl-**, 1349*h*.
——, ***N*-(2-chloropropyl)-**, P 667*a*.
——, ***N*-(2,2-diethoxyethyl)-†**, 6974*d*
——, ***N*-[2-(2,2'-dimethoxybenzhydryloxy)propyl]-**, P 3463*e*.
——, ***N*-2,2-dimethoxyethyl-†**, and oxalate, 6974*c*.
——, ***N*-[2-(9-fluorenyloxy)ethyl]-**, P 6671*d*.
——, **1-methyl-**, P 253*h*.
——, ***N*-phenethyl-†**, P 681*i*.
compd. with pentachlorophenol, P 4298*g*
***N*-phenyl-**. See *Aniline, N,N-dibutyl-*.
–, ***N*-*o*-phenylbenzyl-†**, and hydrochloride, 1355*h*.
**Di-*sec*-butylamine**, identification of, 4630*e*.
phys. constants of, 2956*g*.
——, ***N*-ethyl-**, as catalyst in HCN reaction with alkylene oxides, P 1435*a*.
**Di-*tert*-butylamine**, as catalyst in HCN reaction with alkylene oxides, P 1435*a*
——, **2,2',2'',2''',2'''',2'''''-hexakis(*p*-tolylsulfonamido)-**, 2936*d*.
**Dicaine.** See *Pontocaine*.
**Dicarboxylic acids.** See *Acids*.
**Dication effect**, 579*c*.
**Dichloramine.** See *Chlorimide*.
**Dichloricide.** See *Benzene, p-dichloro-*.
**α,γ-Dichlorohydrin.** See *2-Propanol, 1,3-dichloro-*.
**Dichloromethyl group, effect of**, in chlorination of aliphatic compds., 4027*i*

**2,4-Dichlorophenyl potassium chloroacetaldehyde disulfonate***, as termite repellent, 6356*f*.
**Dichroa febrifuga**, active substances from, 1529*f*.
alkaloids of, 5405*i*.
identification, occurrence, compn. and antimalarial action of, 7194*e*.
**Dichroine**, *α*-, *β*- and *γ*-, 1530*a*.
*γ*-, antimalarial and pharmacological activity of, 3929*h*.
**Dichroism**. (See also *Pleochroism*.)
circular, of Na and K vanadyl *d*-tartrate, 2830*i*, 2831*a*.
of coatings on crystals, 7871*i*.
of colloids in magnetic field, 7291*f*.
of feldspars (ferruginous), 523*g*.
infrared, in polymers, 5311*c*.
of pigments, refractive index and, 1577*g*.
of platinum complexes, 3683*c*.
of soybean protein fibers, 4861*f*.
in ultraviolet, in study of inframicroscopic structures, 945*i*.
**Dichroite**. See *Cordierite*.
**Dichromates**, cellulose detn. by, 6411*e*.
cellulose oxidation by, 8672*b*.
chromium exchange in solns. contg. ions of, 4967*c*.
in coating Mg alloys, P 8348*e*.
in corrosion control, 3337*e*.
detection of, 8299*h*.
detn. of, in presence of chromates in satd solns., 1686*c*.
polyvinyl acetate film hardening by, P 6001*e*.
**Dichromic acid**, salts with 2- and 4-benzylpyridines, 643*f*.
**Dickite**. (See also *Kaolin*.)
in clays, 3580*f*.
in gold mines (Daggafontein) of Witwatersrand, 6121*e*.
in magnesian limestone of Durham, 4607*d*.
thermal analysis curves for, 8987*h*.
of U.S.S.R. (Crimean), 2899*c*.
**Dicky rice weevil**. See *Maleuterpes spinipes*.
**Dicoumarol**. See *Coumarin, 3,3'-methylenebis[4-hydroxy-*.
**Dicrocoelium lanceolatum**, control of, 4414*c*.
**Dictionaries**, books: Deutsch-englisches und englisch-deutsches, für Fachausdrucke aus dem Lack- und Farbengebiet, 876*e*; Kunststofftechnisches, 900*g*, Chem. Synonyms and Trade Names, 2083*d*; Thorpe's, of Applied Chemistry, 3543*g*; German-English Medical, 5065*f*; Teknisk och kemisk varukännedom för handel och industri, 5133*g*; of Metallography, 5357*a*; Cyclopedic Medical, 5437*f*; Short Ital., 5658*g*; English-German, of Tech. Words, Paper, Printing and Official Correspondence, 5658*h*; Inglese-italiano per le scienze mediche, 6268*h*, Des termes techniques, 6268*i*; Czech-English, 6501*c*; Elektrotech. Englisch, 6525*i*; técnico de ingeniería, 6761*h*; Nouveau, technique, 6761*i*; Engelsk-dansk teknisk, 7320*a*; tecnico italiano-inglese e inglese-italiano, 7808*d*, 8256*e*; Hendersons', of Scientific Terms, 7808*h*; At. Energy. Glossary and Tech. Terms (Engl., French, Chinese, Russian and Spanish), 7831*a*; Medizinisches Taschenwörterbuch, 7990*i*; Stedman's medical, 7991*b*; Anglicko-český slovník technický, 8256*d*; of Chemistry, 8842*g*; Blakiston's New Gould Medical, 9125*i*.
of minerals and related subjects, references on, 8981*d*.
of mining terms, 6543*c*.
paint, Am.-Ger. and Ger.-Am., 8693*h*.
**Dictyostelium discoideum**, acrasin in development of, 5124*f*.
**Dicumarol**. See *Coumarin, 3,3'-methylenebis[4-hydroxy-*.
**Dicuminylamine**, *N*-**(2-chloroethyl)-**, hydrochloride, adrenergic blocking effect of, 4381*c*.
**Dicyanamide**, alkali metal salts of, dyes, pharmaceuticals, etc., contg., P 1532*d*.
salts, reaction with amines, P 2636*a*.
**Dicyandiamide, Dicyanodiamide**. See *Guanidine, cyano-*.
**Dicyandiamidine**. See *Urea, guanyl-*.
**Dicyanogen**. See *Cyanogen*.
**Dicyclohexylamine**, 2-(chloromethyl)thiophene stabilization with, P 3041*a*.
compns. contg., and silicic acid esters, P 6647*d*.
compds. with phenols, as activators for accelerators, P 2808*e*.
compd. with 2-cyclohexyl-4,6-dinitrophenol, as acaricide, 1523*a*, 7630*a*.
as fruit insecticide, 804*d*.
as fungicides, 7177*c*.
in mite control, 1897*g*.
in mite control with DDT, 809*h*.
for prevention of arsenical injury to plants, P 5151*f*.
in red spider control, 811*be*.
in two-spotted spider mite control, 1523*c*.
in Willamette mite control, 3137*d*.
compd. with 2,2'-methylenebis[5-chlorophenol], tuberculocidal activity and toxicity of, 8614*i*.
and formate, 3373*f*.
nitrite, P 1058*a*.
nitrite, toxicity of, 7140*e*.
phys. constants of, 2950*g*.
thiocyanate, 578*g*.
**Dicyclohexylamine, 3,3',5,5'-tetramethyl-**, 2963*d*.
**Dicyclopentadiene***. (See also "polymers" under *Cyclopentadiene*.) P 3032*c*.
depolymerization of, and its derivs., P 3032*d*.
Diels-Alder adducts of, P 4693*d*.
ignition and oxidation of, and its mixts., 7210*a*.
liquefied, P 4693*e*.
and peroxide, as corrosion inhibitors, 9426*c*.
reaction with $C_2F_4$, 3371*c*.
resinous product from indene and, as cation-exchange material, P 5517*c*.
**Didodecanesulfonamide**, *N*-**hydroxy-**, and acetate, 2572*i*.
**DIDT**. See *Ethane, 1,1,1 trichloro-2,2-bis(p-iodophenyl)-*.
**Didymic acid**, production by fungal component of *Cladonia cristatella*, 9143*g*.
**Didymium**. See "mixture with praseodymium" under *Neodymium*; or "mixture with neodymium" under *Praseodymium*.
**Didymocarpus**, *pedicellata*, methylpedicinin from, 4264*b*.
**Dieckmann condensation**, 3829*c*.
**Dielectric absorption**, by ammonium salts in solvents of low dielec. const., 7279*a*.
of benzene, $CCl_4$, $Et_2O$ and $PhNO_2$, 4912*h*.
in esters and ketones, 8223*f*.
of methyl palmitate, resonance in, 2055*e*.
of microwaves—see *Microwaves*.
mol.-inertia effect on, 3676*f*.
of org. compd. solns. in $C_6H_6$ and paraffin oil, 6019*a*.
in rubbers, 5984*i*.
**Dielectric constants**. (See also *Electric capacitance*.)
of adsorbed vapors, 2831*h*.
of alkali halide crystals, 3674*f*.
of amine (tertiary) addn. compds. with $SO_3$ and $SO_2$, 5241*b*.
of barium titanate, 453*gh*, 2055*e*, 4917*i*.
crystal structure and, 7286*f*.
transition point and, 8832*h*.
of barium titanate mixts. with $SrTiO_3$, 2054*f*.
of barium titanate single-domain crystals, 4061*de*.
of benzene, $CCl_4$, $Et_2O$ and $PhNO_2$, 4912*h*.
of benzene derivs., etc., 1619*f*.
of benzophenone, 1,1-bis(*p*-chlorophenyl)-cyclopropane and 1,1-diphenylcyclopropane, 155*b*.
of bromomethane, 8810*g*.
of carbonyl cyanide, 3682*i*.
of carboxylic acids in $C_6H_6$, 6493*i*.
of cellophane (purified), P 3120*a*.
of cellulose plastics, 5250*e*.
of ceramic materials for centimeter waves, 7204*e*.
ceramic materials with high, P 831*a*, 2388*d*, 4823*d*.
of clinoenstatite, rutile and titanates, 7205*b*.
of concd. polar media, theories of, 6018*g*.
of conducting droplets in nonconducting medium, 7776*h*.
crystals with high, 3673*g*.
of *p*-dibromobenzene-$AlCl_3$ reaction mixt., 7918*f*.
of 1,2-dichloroethane in $C_6H_6$, 6480*f*.
of dioxane-$MeNO_2$ mixts., effect on elec. cond. of BuBr addn. compds. of 4-vinylpyridinestyrene copolymers, 7786*e*.
of dipolar solids, frequency and, 8770*b*.
dispersion of, in sein solns., 3690*g*.
electrolyte interaction and, 7801*f*.
of ethyl alc. in waveguide, 4912*g*.
of ferromagnetic ferrite at magnetic Curie point, 5244*d*.
of films from $C_2F_4$ polymers with $C_2F_3H$, P 5637*h*.
of films from phenoxathiin vinyl derivs. and butadiene, P 1223*e*.
of foam materials, 1215*g*.
of formamide, 8769*h*.
of Fosterite varnishes, 2445*f*.
of germanic acid, 7790*b*.
of germanium, 6513*g*.
of halides (org.), 4912*ace*.
of heavy water and water, 3676*c*.
of helium II, 455*e*.
of hexachlorocyclohexanes, 6877*g*.
of high-mol. substances, 4530*b*.
of hydrogen-bonded substances, 4529*i*.
indicator soly. and, 8813*i*.
of inks (printing) and pigment dispersions at rest and under shear, 8175*g*.
of insulators at ultrahigh frequency, effect of water on, 2480*b*.
internal rotation and, 8880*c*.
of ionic crystals, polarizability and, 5244*f*.
of ionic solids, 6877*f*.
of *α*-irone, 5549*g*.
of linseed oil, effect of oxidation and polymerization on, 9480*i*.
of long-chain alcs., 5245*h*.
Maxwell equations in tensor form for region of varying, 6026*f*.
measurement of, app. for, 1125*f*.
by cavity perturbation, 8769*i*.
of ceramics at 100 megacycles, 8111*g*.
of fluids, bridge for, 6480*a*.
by free-wave method, 7763*g*.
of insulators, 4400*a*.
of liquids, 3675*b*.
of phenolic resins, 3229*h*.
of polar liquids in cm. band, 453*i*.
recording paper for, P 7229*cd*, P 7230*a*.
of rubber, app. for, 5221*f*.
of solids with microwaves, 2523*e*.
of solns. and solvents, 7764*b*.
of tanning solns., electron-coupled oscillator in, 8181*h*.
of metal solns. in $NH_3$, 2500*d*.
of mixed ketones, coöperative transition and, 6020*d*.
mol. orientation in crystals and, 8770*f*.
mol. structure and, 7279*d*.
of nervous tissue, effect of physiologically active substances and, 6887*g*.
of org. compds. in dil. solns., 5245*d*.
of petroleum products, 2409*h*.
of phosphors, effect of local electronic states on, 8893*i*.
of plastic materials, 435*d*.
of polar liquids, 8769*b*.
in polar liquids in mixts. with acetone, 454*b*.
of polar solvents, effect of ions on, 7763*i*.
of polyisobutylene and polystyrene solns. in toluene, effect of concn. and shear on, 6491*a*.
of polymers, effect on adhesion to cellulose, 8133*g*.
of potassium acid fluoride, 8763*g*.
of reaction medium, alternating effect in copolymerization and, 7261*b*.
of Rochelle salt, dispersion at low frequencies, 4061*h*.
of Rochelle salt, effect of humidity and temp. on, 8840*e*.
of rubber and GR-S ebonites contg. reclaimed rubber, 7256*g*.
of rubbers, 5984*i*.
of rubbers (synthetic), 5221*h*.
of rubber (synthetic) ebonites, effects of temp. and frequency on, 5986*e*.
of rutile single crystals, 1622*i*.
of selenium carbonyl, 1673*d*.
of sintered materials, control of, P 6388*b*.
of soils, moisture and, 793*i*.
soly. and, 1241*g*.
of solns. of $CaCl_2$ and $MgSO_4$, 2480*b*.
of solvents, activity coeff. and, 7304*g*.
effect on catalytic action of $HgCl_2$, 183*f*.
effect on hydrolysis of EtOAc, 8827*e*.
effect on nitramide decompn., 8828*f*.
polymerization of 2-ethylhexyl vinyl ether and, 6896*d*.
soly. of salts and, 7297*d*.
of starch sols, hydrophilism and dispersion of, 6888*c*.
of sulfinic acids, 5245*e*.
of tellurium, 4066*h*.

theory of static, 11*b*.
of thiophene and its derivs., 3253*b*.
of titanate ceramics, 5164*i*.
of titanates at ultra-high frequencies, 2877*h*.
titanates with high, P 5919*a*.
titanates with high, ceramic and elec. properties of, 6385*h*.
of uranium hexafluoride, 4530*g*.
for vinylbiphenyl polymers, P 1609*i*.
of vinylphenoxathiin polymers, P 905*a*.
of water at high temps., 6480*d*.
in water detn., 3941*c*, 8971*b*.
of water, dispersion of, 7279*c*.
water of constitution and moisture and, 1625*d*.
of water vapor for microwaves, 6019*i*.

**Dielectric Curie point.** See *Curie point*.

**Dielectric loss**, of alcs. (long-chain), 5245*h*.
of cellulose plastics, 5250*e*.
of ceramic materials for centimeter waves, 7204*e*.
ceramic ware with low, P 1166*c*.
of cryst. (poly-) dielecs., 5561*a*.
of crystals (ionic) contg. foreign ions, 5245*a*.
of ebonite, effect of $MgCO_3$ filler on, 430*e*.
of ebonite, effect of org. vulcanization accelerators on, 431*c*, 8729*g*.
of electrolytes (strong) in soln., 6081*c*.
of esters in soln. in polyisobutene and polythene, 6020*a*.
glass with low, P 5917*h*.
of halides (org.), 4912*ace*.
heating by—see *Heating*.
of insulators at high frequencies, effect of humidity on, 2054*a*.
of liquids, relaxation time of optical anisotropy and, 7767*c*.
measurement of, app. for, 1125*f*.
by cavity perturbation, 8769*i*.
by free-wave method, 7763*g*.
of solids for microwaves, 2523*f*
of nitrobenzene and octyl alc., 6019*c*.
of org.-compds. in $C_6H_6$ and paraffin oil, 6019*a*.
of org. compds. in $C_6H_6$ for microwaves, 6018*h*.
of plastic materials, 435*d*.
of polar liquids in $C_6H_6$, 6019*f*.
of polar solvents, effect of ions on, 7763*i*.
of rubber by swelling, 9514*e*
of rubber during vulcanization by radio heating, 5989*c*.
of rubber (Na-butadiene) mixts. with channel black, 8188*e*.
of solns. of $CaCl_2$ and $MgSO_4$, 2480*b*.
of titanium dioxide ceramic materials, 4823*d*.
*ar*-trichlorostyrene polymers with low, P 4514*f*.
of 12-tricosanone, 8223*f*.
of zinc silicate, 947*a*
of zinc silicate phosphors, luminescence and, 2515*h*.

**Dielectric potential.** See *Potential, electric*.

**Dielectric properties.** See *Electric properties*.

**Dielectric relaxation.** See *Relaxation*.

**Dielectrics.** (See also *Electrets; Insulators, electric.*)
agglomeration of powd., detn. of temp. of, 7607*f*.
alkaline earth titanate, P 5566*b*.
amylamine-tetrachlorophthalic anhydride reaction products with $PhNH_2$, P 2004*c*.
from barium titanate contg. stannates and zirconates, P 6803*d*.
bentonite films as, 331*g*.
book: Theory of, 7161*g*.
breakdown—see also *Dielectric strength; Electric discharge; Electric spark*.
breakdown of, 954*c*, 2842*i*.
breakdown of ionic crystal, by electron avalanches, 7286*g*.
breakdown of org., by electrochem. reactions, 7837*b*.
breakdown voltage of—see *Dielectric strength*.
as catalysts, 8251*e*.
cellulose (regenerated-), P 3119*g*.
ceramic, 5164*h*.
for condensers, P 831*a*.
with high dielec. const., 2388*d*.
from chlorinated fluorenone, P 2344*g*.
chlorinated hydrocarbons as, neutralization of decompn. products of, P 2714*h*.
dioxane derivs., P 667*g*.
elec. properties of, in region of centimeter waves, 7204*e*.
electrodeposition on, 8285*i*.
from esters of tetrahydrofurfuryl alc. for condensers, P 9302*b*.
from ethylene glycol, furfural and PhOH-cresolformaldehyde condensation product, P 8740*a*.
fluorinated hydrocarbons, P 3834*f*.
halofluoropropanes, P 661*g*.
halogenated diphenylethylene polymers, P 6866*a*.
halogenated-hydrocarbon mixts. with N heterocycles as, P 2217*e*.
halogenated hydrocarbon, stabilization of, P 5887*h*.
halo toluenes, P 3033*e*.
heating (high-frequency) of, P 2524*c*.
heating (low frequency) of, in liquid, 3731*b*.
from magnesia, plastics and $TiO_2$, P 1883*g*.
mesotron capture and decay in, 2505*a*.
microwave absorption by, 6019*f*.
org., 8766*e*.
from phenoxathiin vinyl derivs and vinylidene compds., P 1223*e*.
polycryst., dielec. loss and polarization in, 5561*a*.
resinous, coating porous refractory insulators with, P 9536*i*.
review on, 2342*hi*.
rheological properties of, app. for study of, 6469*i*.
silicon compds. (org.), P 7500*f*.
silicon org. polymers as, P 6000*a*.
siloxane, P 5420*h*, P 6221*b*.
stabilizer for, octachlorobiphenylquinone, P 814*b*.
styrene polymers with vinyl isocoumarans for, P 7262*d*.
styrene polymer with 2,2′,5,5′-tetrachloro-4,4′ divinylbiphenyl, P 6002*a*
titanate, P 510*c*, P 2106*a*, P 5918*i*.
from vinyl carbazole polymers, P 9534*i*.
vinyl carbazole resin as, 4891*f*.
2-vinylfluorene polymers, P 8740*h*.
from vinyl isocoumaran polymers with vinyl monomers, P 7262*c*.
from vinylphenoxathiin polymers, P 905*b*.
vinyl-polymer cable, P 4894*i*.

**Dielectric strength.** (See also "sparking" under *Potential, electric.*)
of alumina films, 5251*a*.
of argon, N and their mixts., 3299*b*.
of asbestos, improvement of, 8075*g*.
of asbestos, increase with $SnO_2$, 3544*d*.
of cellophane (purified), P 3120*a*.
of copper sulfate solns., 1244*i*.
of films, 3731*c*.
of gases, breakdown and, 454*f*.
of insulating oils and its testing, 8661*f*.
of lignin-contg. plastics, 8198*e*.
measurement of, 4788*c*.
app. for, 1125*e*.
of phenolic resins, 3229*i*.
of melamine-resin-bonded paper laminates, 433*h*.
of paper for elec. condensers, 8288*d*.
of paraffin waxes and polymers, 2480*c*.
of rubber (ebonite), effect of $MgCO_3$ filler on, 430*e*.
of sheet material from soybean proteins, 4790*a*.
stabilization of, and measurements of crit. currents in glow tube, 5235*g*.
*ar*-trichlorostyrene polymers with high, P 4514*f*.

**Diels-Alder reaction.** (See also "diene" under *Synthesis.*) 1529*b*, P 2234*e*, P 4693*c*, 5731*e*.
of cyclopentadiene with quinone imines, 4649*g*.
of formaldehyde with 2-methyl-1,3-pentadiene, 3411*i*.
of maleimide with cyclopentadiene, 4232*b*.
phenanthrenecarboxylic acid derivs. by, 8376*f*.
of 1-phenyl-1,3-butadiene with acrolein and acrylic acid, 8363*a*.
of 1-phenyl-1,3-butadiene with acrylic acid, Et acrylate and methyl vinyl ketone, 8363*g*.
review on, 2155*f*.
in tetracarboxylic acid manuf., P 846*d*.
1-vinylnaphthalene in, 5019*f*.

**Dienes.** See *Olefins; Unsaturated compounds*

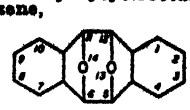
**Dienestrol.** See *Phenol, p,p′-(diethylidene-ethylene)di-*.

**Diene synthesis.** See *Synthesis*.

**Dienols.** See *Alcohols*.

**Dienophiles**, acetylenic and ethylenic, in Diels-Alder reaction, 2155*f*.

**5,12,6,11 - Dioxycyclobuta[1,2,5,6]dibenzene,**



*5,12,6,11—[1,2,5,6]*

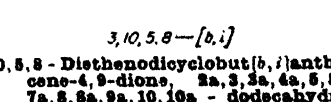
**, 5,6,11,12-tetrahydro-5,6,11,12-tetraphenyl-**, 2985*d*.

**Dies.** (See also *Molds(I)*; and "hard" under *Alloys.*)
alloy-steel, P 7404*b*, P 9020*a*.
drop-forge and progressive-stamping, 8998*i*.
lubricant for drawing, 8999*a*.
metal-stamping, P 5318*g*.
for plastics, P 8346*i*.
by powder metallurgy, 1697*a*.
for refractory materials, 372*h*.
for steel cold extrusion, 7882*h*.
steels contg. Ti for, 88*a*.
temp. control for die-casting, 1697*b*.
from tungsten carbide, P 7402*i*.
wire-drawing, lubricants for, and measuring effect of shape of, 384*e*.

**Diet** (See also *Avitaminosis; Beriberi; Feeding; Feeding experiments; Feeding stuffs; Food; Meals; Nutrition, animal; Pellagra; Rickets; Scurvy; Vitamins.*)
acetaldehyde metabolism and liver changes during purified, 7100*c*.
adrenocorticotropic hormone action on urinary N, glucose and electrolytes in relation to, 7098*f*.
amino acids in blood in relation to, 5834*d*
amino acids in liver in relation to, 5095*h*, 7562*g*.
amino acids in, growth and, 1843*e*.
amino acids in, interaction with tissue proteins, 9187*c*.
arginine and methionine excesses in, 1470*d*.
azo dyes in, hepatic vitamin $B_2$ and tumor formation in rats fed, 1858*b*.
for beriberi, 1090*e*.
biotin- and pantothenic acid-deficient, oral manifestations during, 5833*d*.
body wt. and compn. and survival after hypophysectomy in relation to, 8468*h*.
for breeding mice, 1845*d*.
calcium and Mg in, effect on digestibility of fatty acids, triglycerides and natural and hydrogenated fats, 5460*g*.
calcium and P in, tooth structure and, 6294*f*.
calcium excretion and, 3902*h*.
calcium in, utilization of, 288*b*.
calcium low, calcium hypophosphite and other Ca compds. as supplements in, 5835*b*.
calcium-P balance in hypotropic children in relation to, 735*i*.
calcium-P ratio in, blood balance and, 6708*g*.
caloric content of, effect on liposarcoma, 7119*c*.
caloric intake of growing rat, 1467*f*.
caloric restriction in, effect of estrogen on cancer incidence and adrenal chances after ovariectomy during, 7573*g*.
effect on adrenal response after ovariectomy, 7125*c*.
effect on protein metabolism, 1468*i*.
physiol. effects of, 2298*e*.
caramelized honey in, in diabetes, 3515*c*.
carbohydrate and fat in, effect on diethylstilbestrol-induced mammary cancer, 8028*a*.
carbohydrate- and protein-high, effect on arginase and phosphatase in liver and kidneys of normal and adrenalectomized rat, 1847*a*.
carbohydrate- and protein-high, effect on glycosuria production after partial pancreatectomy, 3498*h*.
carbohydrate and protein, in nutritional disturbances, 9188*i*.
carbohydrate-free, vitamin $B_6$ and, 1095*c*.
carbohydrate-high, fat-free, lipotropic need for inositol on, 2295*g*.
carbohydrate-high, pancreatic islet hyperplasia in, 6709*a*.
carbohydrate, protein and salt in, effect on arterial pressure in renal hypertension, 6297*d*.
carbohydrates in, effect on caries in teeth, 1845*i*.


—during

carcinogenicity of compds. and, 750*h*.
carotenoids in, effect on growth of chicks and storage in tissue, 4353*g*.
casein-contg., effect of feeding excess glycine, arginine and methionine during, 4739*b*.
casein-contg., in protection against $CCl_4$ poisoning, 2292*g*.
casein (devitaminized) for, P 8072*f*.
casein-low, effect of gelatin on transformation of tryptophan to niacin on, 3500*a*.
casein salad oil and egg white-salad oil, vitamin A activity of, 9185*h*.
cereal-rich, protein requirements during, 5459*i*.
Chinese cabbage as supplement to cereal, 3892*g*.
chloride-low, effect in eczema, 4364*e*.
chlorine-free, 1471*i*.
cholesterol in, effect on metabolic rate and hyperthyroidism, 6709*a*.
choline, cystine and methionine effects in, 2681*gi*.
choline-deficient, effect of fats on tumor development on, 6295*g*.
renal lesions from, 4737*d*.
response of guinea pigs to, 3075*a*.
cod liver-rich, effect of vitamin B factors on nutritional hindrance from, 8021*h*.
complement in blood serum during vegetarian and omnivorous, 3892*f*.
corn, effect of penicillin on dental caries during, 6709*c*.
corn, nicotinic acid in tissue during, 3075*g*
cystine- and methionine-deficient, lanthionine availability for growth of rats when added to, 2295*d*.
cystine, nordihydroguaiaretic acid and vitamin C in, effect on vitamin E deficiency symptoms, 3902*f*.
deficiency in proteins and vitamins A and D, thymectomy on, 1093*h*.
deficiency syndromes in Indian soldiers, 4352*i*.
deficient, amino acid excretion during, 8470*e*.
lemon juice as stimulant of osteoclast formation in, 6295*a*.
yeast and skim milk as supplements to, 3897*a*.
density of, effect on food intake, 8478*d*.
dental caries and, 6295*f*, 9314*c*.
in dental-caries control, 7098*h*.
dental caries-producing, effects at various stages of pre- and postnatal development, 9187*i*.
*p*-dimethylaminoazobenzene-contg., levels of carcinogenic azo dyes in livers of rats fed, 2310*d*.
dog foods (canned and dry) in, 8071*a*.
edema from deficient—see *Edema*.
effect of previous, on metabolism during fasting, 8028*g*.
effect on alc. consumption, 9217*a*.
on alloxan diabetes, 4364*h*.
on alloxan poisoning, 2082*f*.
on anemia plus hypoproteinemia, 3500*c*.
on animal ability to do work during subsequent fasting, 1091*g*.
on choline lipides in potato beetle, 3532*d*.
on fat of turkeys, 1087*h*.
on glucose action in periodic paralysis, 3919*g*.
on lipide and nucleic acid concns. of thymoma, 5853*f*.
on liver regeneration after partial hepatectomy, 7100*f*.
on nephrosclerosis, periarteritis nodosa and cardiac lesions from endocrine kidney, 8043*d*.
on resistance to $CCl_4$, 3072*d*.
on riboflavin content and *N, N* dimethyl-*p*-aminoazobenzene destruction by liver, 8524*a*.
on susceptibility to pneumonia virus, 3080*a*.
on toxicity of dichloroethane and dichloropropane, 3077*c*.
on U deposition in bone, 1114*h*.
on uropepsin output in cats treated with caffeine and histamine, 297*h*.
energy and protein content of, effect on protein synthesis, 7100*c*.
energy balance with, 2297*b*.
enzyme content of pancreas and, 2682*h*.
fat and protein content of, in relation to fatty changes, fibrosis and necrosis of liver, 3904*d*.
at-high, effect in alloxan diabetes, 9234*c*.
effect on methionine excretion, 6307*b*.
liver diseases and, 1095*a*.
fat in, caloric efficiency of, 4741*i*.
economy of food utilization and, 5461*c*.
effect on growth and amino acid excretion, 7559*i*.
effect on growth and on food and water consumption during vitamin $B_1$ deficiency in relation to exercise, 9184*b*.
feces in, effect on biotin and folic acid requirements of rats, 5833*b*.
fluorine in, 1095*b*.
in formation of blood elements, 1467*a*.
glucose, starch and sucrose, caries-producing capacity of, 8474*h*.
glutamic acid and vitamin $B_1$ in, psychological effects of, 8467*h*.
growth and, 3078*b*.
hippuric acid producing, effect on penicillin retention, 9244*e*.
insulin sensitivity and, 734*i*
interrelations in, 1844*b*, 5099*c*.
iron absorption and, 8478*i*.
ketogenic, effect on excretion of substances regulating carbohydrate metabolism of anterior pituitary, 7096*i*.
lactic acid in, effect on dental caries, 6709*d*.
lactose-free, in treatment of galactemia, hepatomegaly and cataract, 2291*a*.
leucopenia from milk, effect of vitamin A and folic acid on, 2296*a*.
lipides in, alloxan toxicity and, 8485*b*
liver — see *Liver*.
liver cirrhosis and, 7097*d*.
liver injury and, 2699*b*, 3077*b*, 3080*e*, 4351*g*, 9195*b*.
liver injury from, effect of liver exts. on, 734*e*.
magnesium-deficient, rats on, 734*g*.
microorganisms in cecal contents of rats fed various, 2276*i*.
milk (evaporated), electrolyte-balance studies on premature infants on, 5100*s*.
monocrotaline toxicity and, 8535*h*.
nicotinic acid and tryptophan in, 1093*f*.
nicotinic acid-deficient, growth-retarding effect of corn in, and its counteraction by tryptophan, 2680*c*.
nicotinic acid-deficient, tryptophan in nutrition during, 3075*b*.
oxalate in, Ca metabolism and, 3802*e*.
pantothenic acid-deficient, ulcers from, 8469*a*.
phosphatide content of blood and liver in relation to, 5463*h*.
potassium and Mg in, growth rate and, 294*b*.
potassium- and Na-low, effect on cholesterol in adrenal gland, 7102*h*.
protein-free, nicotinic acid, riboflavin, D-amino acid oxidase and arginase in livers of rats fed, 2297*h*.
protein-high and -low, effect of 1,2,5,6-dibenzanthracene on growth of Walker carcinoma in, 306*f*.
protein-high and -low, effect of 1,2,5,6-dibenzanthracene on nucleic acid in livers of rats on, 306*d*.
protein-high, effect on hypophysis and genital tract as affected by age, 1842*i*.
effect on life cycle, 5461*e*.
hypophysis in, 734*a*.
kidney and liver of dogs fed alc. during, 7097*a*.
urea excretion in desert rodents during, 5476*a*.
protein-low, effect of choline on, 733*i*
effect of citrulline and ornithine on urea formation during, 9209*s*.
effect on liver, 7097*e*.
effect on oxidation of phenylalanine and tryosine by liver, 6296*e*.
effects of, 3076*g*.
in etiology of anemia of malignant malnutrition, 4352*f*.
loss of body proteins and antibody production on, 4352*c*.
nucleic acids in liver during, and during repletion, 5490*b*.
P metabolism on, 5465*b*.
renal lesions on, 4737*d*.
S balance on, 8022*d*.
protein-low or balanced, effect of folic acid on growth and blood during, 4352*d*.
protein optimal for, for children, 737*g*.
proteins and vitamin $B_6$ in, effect on body compn., 287*e*.
proteins (heated) in, growth and, 5458*g*.
proteins in, activity and, 6296*k*.
amino acid excretion in urine and, 4351*c*.
bones and, 5097*h*.
*proteins in*, caloric intake in relation to quantity and quality of, 6713*b*.
$CCl_4$ poisoning and, 3497*d*, 4737*c*.
effect on adrenocorticotropin secretion, 8035*g*.
effect on coenzyme A in liver, 9195*d*.
effect on N retention and wt. gain produced by hypophyseal growth hormone, 7561*a*.
effect on tumor genesis and growth, 4368*f*.
effect on turnover of phospholipides, ribonucleic acid and desoxyribonucleic acid in liver, 1844*e*.
effect on vitamin $B_2$ in skin diseases, 1471*h*.
in glomerulonephritis, effect on proteinuria and blood-serum protein, 2697*b*.
time factor in feeding supplementary, 1469*g*.
tuberculosis resistance and, 6293*i*.
urea in blood serum and, 6710*h*.
proteins in infant artificial, 9189*b*.
reproduction and lactation of rats receiving pork, 1089*h*.
restricted, effect of vitamins on, 8021*i*.
restricted, effect on gonadotropin and lactogen in pituitary of intact and ovariectomized rats, 5471*e*.
rice, effect on blood pressure, 8476*f*.
rice, nutritive effects of supplements on, 8028*d*.
self selection of, 5458*e*.
sodium low, in cirrhosis of liver, ascites formation and, 9225*a*
starch in, in celiac disease, fat absorption and, 8026*a*
supplements to, effect on nutritional life history, 5099*c*.
tooth compn. and, 2681*e*.
tryptophan in, nicotinic acid derivs., tryptophanlike compds., etc., in urine and, 3074*b*.
urinary excretion of 2,3-azotoluene split products in relation to, 6315*c*.
valine-deficient, motor disorders during, 9191*i*.
vitamin $B_2$ in, and in blood serum, red cells, white cells and urine, 265*f*.
vitamin C in, of lower-income Toronto families, 9195*a*.
vitamin efficacy of balanced, effect of adsorbent C on, 1846*a*.
vitamins B in tissues of pregnant rats fed satisfactory and unsatisfactory, 1089*d*.
xanthine oxidase of liver and, 3900*f*, 8469*h*.
yeast-contg., effect on tumor development by 2-acetylaminofluorene, 306*g*.
yeast (dried) in Army, retention of palatability and nutritive stability in, 9275*i*.
**Dietetics**, books: Hutchinson's Food and Principles of, 4396*f*; Rose's Lab. Handbook for, 8029*c*.
journal: Anales de bromatologia, 3539*i*.
milk in, and effect of preserving processes on its nutritive value, 6748*i*.
**Diethanolamine**. See *Ethanol, 2,2'-iminodi-*.
**3,10,5,8-Diethenodicyclobut[*b,i*]anthra-**



*3,10,5,8—[b,i]*

**3,10,5,8-Diethenodicyclobut[*b,i*]anthracene-4,9-dione, 2a,3,3a,4a,5,5a,-7a,8,8a,9a,10,10a-dodecahydro-**, 6198*d*.
**Diethylamine**, adsorption by activated C, 6037*e*.
adsorption by α-bromopalmitic acid monolayers, 8797*a*.
compd. with *p*-aminobenzenephosphonic acid, 1737*i*.
with coumarin derivs., 5399*f*.
with 3,5-diiodo-4-oxo-1(4*H*)-pyridineacetic acid, pharmacology of, 762*b*.
with 3-hydroxy-2,2'-methylenebis(1,4-naphthoquinone, 1385*a*.
with 2-mercapto-5,5-dimethyl-4(5*H*)-imidazolethione, 6171*e*.
with salicylic acid, effect of cation on permeability of animal skin and cells to, 3520*b*.
with salicylic acid, effect of cation on permeability of plant cells and skin to, 3495*f*.

*compd.* with α-tocopherol phosphate, P 4702*e*.
effect on blood vessels of frog prepns., 5493*b*.
formation of, from hydrolysis of $Et_3NO$-$SO_3$, 2574*h*.
identification of, 4630*c*.
lithium deriv., reaction with *p*-bromoanisole, 1348*b*.
lubricant from stearic acid, org. sulfonate and, P 9431*i*.
lyoparachor of, 2834*a*.
phys. constants of, 2956*g*.
reaction with 2-azetidinone, 8357*d*.
with 2-bromothianaphthene 1,1-dioxide, 8379*h*.
with α,α-dimethylsuccinyl chloride, P 6227*b*.
with isopropenylmethylmalonyl chloride, P 6226*g*.
with propylene oxide, kinetics of, 926*e*.
with $SiCl_4$ and with $SiS_2$, 4632*c*.
selenium (glassy) metallization in, 459*e*.
sepn. from its mixts. with triethylamine, P 3837*b*.
**Diethylamine, *N*-allyl-**. See *Allylamine, N, N-diethyl-*.
——, ***N*-(1,4-benzodioxan-2-ylmethyl)-**. See *1,4-Benzodioxan, 2-(diethylaminomethyl)-*.
——, **2-(2-biphenylyloxy)-*N*-*sec*-butyl-2′-chloro-†**, antagonism of adrenaline and histamine with, 6309*b*.
——, **2-(2-biphenylyloxy)-2′-(2-chloroethyl)-*N*-isobutyl-†**, antagonism of adrenaline and histamine with, 6309*b*.
——, **2-(2-biphenylyloxy)-2′-chloro-*N*-isopropyl-†**, antagonism of adrenaline and histamine with, 6309*b*.
——, **2-(2-biphenylyloxy)-2′-chloro-*N*-methyl-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*.
——, **2,2′-bis(2-chloroethylmercapto)-*N*-methyl-**, in cancer therapy, 5505*d*.
——, ***N*-butyl-**. See *Butylamine, N, N-diethyl-*.
——, ***N*-*sec*-butyl-2,2′-dichloro-†**, in cancer therapy, 5505*c*.
——, ***N*-*tert*-butyl-2,2′-dichloro-†**, in cancer therapy, 5505*c*.
——, ***N*-chloro-**, 6570*h*.
base strength of, 8822*a*.
——, **2-chloro-**, in cancer therapy, 5505*d*
hydrochloride, pharmacology of, 1861*e*.
——, **2-chloro-2′-(2-chloroethoxy)-*N*-methyl-**, 1005*f*.
——, **2-chloro-*N*-methyl-**, hydrochloride, pharmacology of, 1861*d*.
——, ***N*-[3-(1-cyclohexen-1-yl)-2-propynyl]-†**, hydrogenation of, 131*d*.
——, **2,2′-diamino-**. See *Diethylenetri-*
——, **2,2′-dichloro-**, in cancer therapy, 5505*c*.
effect on heart, 2700*c*.
——, **2,2′-dichloro-*N*-isobutyl-†**, in cancer therapy, 5505*c*.
——, **2,2′-dichloro-*N*-methoxy-†**, 7422*h*.
——, **2,2′-dichloro-*N*-(methoxymethyl)-**, 2927*c*.
——, **2,2′-dichloro-*N*-methyl-**, 1005*f*.
aristapedia induction in *Drosophila virilis* by hydrochloride of, 8564*c*.
biol. action of, and its hydrolysis products, 5503*a*.
in cancer therapy, 5505*c*.
carcinoma (bronchogenic) after treatment with, 7135*b*.
cholinesterase inhibition by, 9103*b*.
complement inactivation by, 2698*b*.
effect on adrenal-cortex activity, 5115*h*.
on blood coagulation, 4764*g*.
on cytoplasmic factor kappa in *Paramecium aurelia*, 8065*b*.
on development of eggs of *Tubifex*, 6322*b*.
on erythroblastic hyperplasia, 8556*g*.
on *Escherichia coli*, 273*h*.
on karyolysis, 768*h*.
on lipide and nucleic acid concn. of thymoma, 5853*f*.
on mitosis in onion root, 4348*b*.
on mitotic and wound healing activities of corneal epithelium, 768*a*.
on normal and malignant lymphoid tissue and effect of adrenalectomy thereon, 3109*f*.
on respiratory exchange, 4374*g*.
*effect* on Shwartzman reaction, 1487*e*.
on synthesis *in vitro*, 7139*c*.
on thymus gland, 2701*c*.
genetic effects of, 3048*c*.
in Hodgkin's disease treatment, 7143*e*.
hydrochloride, adrenergic blocking effect of, 4381*c*.
hydrochloride, effect on nucleic acid phosphatase, 8416*a*.
mutation induced in *Coprinus fimetarius* by, 6702*f*.
picrate, toxicity to rats, 348*f*.
mutagenic action of, in *Ophiostoma*, 3885*i*.
nuclear fragmentation from, 768*d*.
ocular lesions from, 767*g*.
pharmacology of, and derivs., 3521*f*.
reaction with $PhCH_2CO_2Et$, P 3471*g*.
in sterilization of blood and blood plasma, 4341*d*.
therapy with, 9263*g*.
toxicity of, 8059*e*.
toxic substance formed by water soln. of, 5113*d*.
**2,2′-dichloro-*N*-nitroso-**, 7422*h*.
**2,2′-dicyano-**. See *Propionitrile, β,β′-iminodi-*.
**2,2′-difluoro-**, 2927*f*.
**2,2′-difluoro-*N*-methyl-**, 2927*g*.
**2,2′-dihydroxy-**. See *Ethanol, 2,2′-iminodi-*.
——, **1,2-diphenyl-**, and hydrochloride, 1341*a*.
——, **2-(2-methoxybenzhydryloxy)-*N*-methyl-**, P 3462*h*.
and hydrobromide, P 1064*f*.
——, ***N*-methyl-**, amine oxidase inhibition by, 9118*e*.
——, ***N*-methyl-2,2′-bis(*p*-phenylazophenoxy)-**, toxicity to rats, 348*h*.
——, ***N*-propyl-**. See *Propylamine, N, N-diethyl-*.
——, ***N, N′*-thiobis-**, hydrolysis of, 2886*b*.
**Diethyl carbitol**. See *Ether, bis(2-ethoxyethyl)-*.
**Diethyldithione**. See *Carbamic acid, diethyldithio-*.
**Diethylenediamine**. See *Piperazine*.
**Diethylene glycol** (*2,2′-oxydiethanol*), absorption of gasoline and liquefied petroleum gas by, from natural gas, 3180*a*
air disinfection with vapors of, 9387*b*.
allyl carbonate, polymer with Et acrylate, 5988*i*.
binder for cork from zein and, P 2039*g*.
bis(allyl carbonate), polymer with allyl carbamate, P 9531*f*.
bis(chloroformate), reaction product with monoricinoleate of triethanolamine, as demulsifier, P 6818*e*.
bis(Et azodiformate), P 4203*g*.
bis(Et bicarbamate), P 4293*d*.
carbonate, esters with amino alcs., P 5180*g*.
carbonate, esters with derivs. of 2-imidazoline-1-ethanol, di-HCl, P 5180*e*.
chloromaleate and maleate, polymerization with vinyl compds., P 1220*c*.
detection of, and laws regulating its use, 818*b*.
and dinaphthenate and monoöleate, as foam inhibitors, 7161*d*.
dinitrate, combustion velocity, explosion temp. and heat of explosion of, 8681*f*.
detection in explosives, 8138*i*.
detonation with cylindrical tetryl primer, photographic record of, 3190*b*.
dioleate, reaction with $AcO_2H$, P 3030*e*.
as diolefin absorbent, P 7275*b*.
dithiocyanate—see "diethylene glycol diester" under *Thiocyanic acid*.
effect on ammonolysis of esters, 6495*e*.
on formation of $H_2S$, 1672*g*.
on *Staphylococcus aureus* in air, 3954*b*.
esterification of, 6842*h*.
esterification of maleic anhydride polymers with Me methacrylate with, 8202*c*.
esters, P 843*e*.
mixed, P 1796*a*.
with mono-Et azodiformate, P 5626*i*.
polymeric, P 1608*h*.
maleate, polymerization with styrene, P 3239*e*.
maleate, polymers with diallyl tetrachlorophthalate, P 3233*b*.
monoethyl ether—see *Ethanol, 2-(2-ethoxyethoxy)-*.
nitration of, 4013*i*.
poisoning by, 7130*f*.
polymerization with maleic anhydride and styrene, P 906*f*.
prepn. of, 6163*a*.
reaction product with maleic acid and linseed oil, impregnating material for castings from styrene and, P 2469*h*.
reaction with ethylene oxide and propylene oxide, P 4289*f*.
sorbic ester, for drying to hard films, P 3634*b*.
sulfite, polymers, P 4853*c*.
system: cresol-, 4063*f*.
system: Na palmitate-, x-ray diffraction by, 2793*b*.
toxicology of, 5514*e*.
**Diethylenetriamine** (*2,2′-diaminodiethylamine*), $H_2NCH_2CH_2NHCH_2CH_2NH_2$ (*N*, *N″*, *N′*)
amine stabilization by, P 251*f*.
cobalt complex with, in exchange and Szilard effects, 7364*c*.
condensation products with epichlorohydrin, anion-exchange resins from, P 6339*g*.
copper complexes, polarography of, 6933*a*.
in dehydration of 2-butanone, 8753*d*.
piperazine from, P 2242*g*.
reaction with $CO_2$ and then tall-oil fatty acids, amidoamine soaps by, P 5614*d*
toxicity of, 4401*f*
——, ***N″*-(2-aminoethyl)-†**, metal complexes, 8812*c*.
**Diethyl ether**. See *Ethyl ether*.
**Diethyl ketone**. See *3-Pentanone*.
**Diethyl sulfate**. See *Ethyl sulfate*.
**Differentiation**. (See also *Development*; cellular and genetic, enzymic adaptation in, 1447*f*.
of embryos—see *Embryos*.
**Diffraction**, by clay suspensions, 372*g*
by crystal lattices, 4094*c*.
of electrons—see *Electrons*
of neutrons—see *Neutrons*.
of x rays—see *X-rays*.
**Diffusing factors**. See *Hyaluronidases*
**Diffusion**. (See also *Effusion; Osmosis, Permeability; Separation.*)
of adsorbates, 7288*f*
of adsorbed cations in suspengel, 7777*h*.
into adsorbents, 6489*b*.
with adsorption (nonlinear), 3253*h*.
in alloys, 1622*e*, 2564*b*
in alloys two-phase, 3761*h*.
in aluminum alloys, effect of oscillating temp. on, 2915*a*.
in aluminum compd. with Ni, $NiAl_3$, 8231*h*.
antihistamine action on, 3927*h*.
app. for, for polymers, 2042*b*.
aureole in formation of skeletal crystals, 4070*i*.
in austenitic grain-size detn. in steel, 4992*h*.
of bacteriophages, 7084*i*.
of beryllium in light alloys and metals, 2559*e*.
of beryllium in steel, 1699*g*.
of bismuth into Cd-Pb-Sn alloy, 6136*d*.
of blue color through cotton fiber in alk. bath, 6831*b*.
books: Metingen over Thermodiffusie en Inwendige Wrijving in enkele Gas mengsels bij Lage en Zeer Lage Temperaturen, 5658*h*; Engineering Developments in Gaseous, 7273*c*; Diffuziya i Teploperedacha v Khimicheskoi Kinetike, 7808*c*.
of boron in austenite, 6958*a*.
of calcium chloride in aq. solns., 8806*b*.
calcn. of, 7796*d*.
of gases, 8774*d*.
of liquids, 3692*f*.
of carbon and N in Fe, heat of activation of, 7881*d*.
of carbon and N in steel, 4200*c*.
of carbon dioxide and $H_2O$ vapor through Butyl rubber, rubber and silicone tubings, 1596*d*.
of carbon dioxide in carbonation of $NH_4^+$-salt solns., 3155*a*.
of carbon, in austenite, 86*c*.
in Fe, 9004*c*.
into steel during carburization, calcn. of curves for, 2144*d*.
in cellulose-pulp treatment, app. for, P 9447*e*.
of chloroform in polystyrene, 5654*g*.
consts. and currents for Bi, Cd, Cu, Pb, Mn and Zn, 5327*b*.
of copper and Ti into Fe, 8334*f*.

of copper in Al, 2561*b*.
of copper in Al-Cu-Mg alloys, detection of, 9011*e*.
of copper (radioactive) during oxidation of Cu foil, 2851*b*.
crystn. during, spatial distribution of ppts. in, 5264*b*.
current in polarography—see *Polarography*.
cylindrical, with discontinuous boundary, 6048*e*.
of decompn. products through plastic materials, 4509*h*.
of dextran fractions, 6886*e*.
of dyes, through cellophane, 7778*c*.
in cellulose, 1983*d*, 3199*g*.
through semipermeable membranes, 2486*f*.
in transfer of image in hydrotype method of color photography, 8921*d*.
in electrodeposition, 7356*h*.
of electrolytes (colloidal), 6887*a*.
of electrolytes, concn. differences caused by, and effect of glass diaphragms on diffusion rate, 8773*f*.
of electrolytes through org. membranes, 6489*i*.
of electrons and He ions in He, 6504*h*, 8774*g*.
energy and entropy changes in, 6020*h*.
with finite amount of diffusing substance, 2839*h*, 4082*d*.
flames, stability and structure of, 7764*d*.
in formation of granite, gneiss, etc., 8253*e*.
in gases, 454*e*.
of gases, into alloys, hardening by, P 8347*c*.
through capillary tube, sepn in, 4062*d*.
into flowing liquid, 255*c*.
in metals, 4917*d*.
in polystyrene at high pressures, 2811*d*.
in reaction with Ti, 9007*a*.
temp. effects in, 8773*b*.
through tissue, detn. of, 5439*h*.
in volatile-compd. detn, 3745*d*.
of glycogen (methylated), 3687*h*.
of gramicidin, gramicidin S and tyrocidine, 6043*c*.
by heat—see "thermal" below.
of heat—see *Heat*.
of helium, H and O through Al tubes, 6021*e*.
hydrocarbons (straight-chain) through rubber diaphragm to sep. from branched-chain hydrocarbons, P 7223*d*.
of hydrogen, in Fe, brittleness and, 7395*g*.
in Fe during annealing, 1701*c*.
in liquid Fe and Fe alloys with Cb, Ta and Ti, 2490*c*.
into metals, effect of metallic and org. films on, 6139*i*.
through Pt film, 4913*i*.
in steel, 2559*i*.
of hydrogen ion and O at Cu cathodes, 6052*a*.
of hydrogen peroxide vapor into air, 2056*i*.
in hydrogen removal, from reversible gas reactions, P 5031*c*.
of India ink in tissue in alloxan diabetes, effect of hyaluronidase on, 5483*d*.
interstitial, in metals, 7879*d*.
ionic, in sepn. of radioactive rare earths, 8295*e*.
in iron alloys, 3334*b*.
of iron(III) chloride solns. in photogravure, 5684*a*.
of iron(II) oxide in acid open-hearth process, 8327*e*.
in iron-Si alloys, 9001*b*.
in iron-Si compacts, 2562*d*.
of lead and Ag on galena, 6483*gh*.
of lead in radioactive minerals, 7379*h*.
in Liesegang-ring formation—see *Liesegang rings*.
measurement of, of antiseptics from ointment bases, 8093*e*.
app. for, 3*e*, 5655*a*.
in aq. solns., cell for, 21*h*.
in colored solns., app. for, 3667*g*.
in liquids in ultracentrifuge, 4537*g*.
in liquids with radioactive tracers, 2490*h*.
in metals, 2541*a*.
in soln., 3692*g*.
in media with variable properties and effect of variable diffusion coeff. on rates of absorption and desorption, 8789*f*.
metal-powder alloying by, 982*f*.
in metals, effect of plastic deformation on, 7394*e*.
of metaphosphates, 2070*d*.
mol.-wt. detn. by, for polymers, 2071*f*.
of nitrogen and O into Zr, 8910*g*.
in ore (replacement) deposit formation, 8322*b*.
of org. substances into tissue water of fish, 4387*f*.
of organophilic compds. through membranes in sepn. of colloidal and hydrophilic substances, 4077*e*.
of oxygen and its soly. in $H_2O$, 8823*h*.
of oxygen through Ag on Ag coated Cu wire, 5267*g*.
of palmitic acid in polar solvents, 5259*e*.
of penicillin, 4714*c*.
of plasticizers in polymers, 6460*i*.
of polonium amalgam into Hg, 7791*b*.
in porous catalysts, 7313*i*.
through porous membranes, 7778*d*.
of potassium chloride, in aq. solns., 4930*b*.
through membranes of $Cu_2Fe(CN)_6$, 5257*a*.
in $H_2O$, 7300*d*.
potential between concd. and dil. solns. contg. KCl plus $KNO_3$, 7789*g*.
potentials in nonisothermal electrolytic systems, 6492*h*.
of precipitates in metals, effect of elec. current on, 6056*a*.
in precipitation study, 7296*h*.
of protons in Fe, 7304*i*.
pumps—see *Pumps*.
radial, in gravitational field, 74*i*.
rate relations in, 9211*i*.
reaction rates controlled by, 7796*b*.
reactions at surface, theory of, 3694*d*.
reactions controlled by, reduction of Fe oxides as, 4932*f*.
reactor design and, 3247*i*.
in retardation of tangential movements of the surface of Hg drops by BuOH, 8911*g*.
rotatory, of flexible mols., 7781*d*.
in rubber, 8722*h*.
of salicylates in Salipec into skin, etc., 3562*h*.
sedimentation-, detn. of mol. wt. of polystyrene by, 4077*a*.
self-, in metals, 4917*b*.
in sintering metallic particles, 2557*d*.
of Na in NaCl, 4067*a*.
of silver into Cu, effect of Sb on, 7393*h*.
in soils—see *Soils*.
in solids, 8784*i*.
of solutes, in agar-agar gels, 7788*c*.
in nonelectrolytes, particle size and, 7299*g*.
through semipermeable membranes, 2486*g*.
steel deoxidation by, 88*i*.
of sucrose in aq. soln., 7780*e*.
in sugar manuf.—see *Sugar manufacture*.
surface, in NaCl crystn. from vapor phase, 8787*g*.
theory of, 8226*d*.
"thermal," 1638*b*, 8805*i*.
in analysis of hydrocarbon oils, 8123*c*.
in aq. solns., 2490*i*.
in condensed phases, 8835*c*.
distn. in relation to, 8774*d*.
of electrolytes, 5265*h*.
error in studies of gas-metal equil. from, 4932*h*.
in gaseous and liquid systems, 2480*i*.
in H-hydrocarbon mixts., 7281*d*.
in isotope sepn.—see *Isotopes*; and the individual elements.
of para-H into ortho-H, 3253*b*.
pressure and temp. in relation to, 8224*e*.
review on, 4530*c*.
and thermal diffusion, calcn. of, for gases and gaseous mixts., 4531*b*.
thermoeffect, 4082*e*, 6875*g*.
thermoelec., 8806*a*.
of transmuting particles, velocity of waves from, 2860*f*.
turbulent, 2056*c*.
of two components in same soln., 8807*d*.
of uranium compds. in polarography, 8928*f*.
of water, in packaging, 3615*a*.
in plant cell, 1464*a*.
through textiles and absorbents, 3623*e*.
in wood, 3607*d*.
of water (sea) into *Daphnia magna*, 4392*e*.
in wool dyeing with acid dyes, 7688*e*.
of zinc in Al and Al alloys, 5346.

**Diffusion** (*of rays*). See *Compton effect; Raman effect; Rayleigh radiation;* and under *Electrons; Gamma-rays; Ions, gaseous; Light; Neutrons; Ultrasonic waves; X-rays*.

**Diffusivity** (*thermal*), eddy, in turbulent flow, 6474*e*.

**Diflavine**. See *Acridine, 2,6-diamino-*.

**Diformanilide, 4 - hydroxy - 2,3,5-trimethyl-**, 180*d*.

**Diformyl**. See *Glyoxal*.

**Digby, Kenelm**, biography, 8759*i*.

**Digesters**, cleanliness of heating surface in, control of, 6009*b*.
for paper—see *Paper pulp*.
for sewage—see *Sewage*.

**Digestibility**. (See also *Diet; Feeding experiments; Feeding stuffs; Food; Nutrition, animal*.)
of breads from different flours, 7153*f*.
of cell membranes of vegetable foods, 6753*b*.
of cottonseed and rapeseed oils, 8023*i*.
of fatty acids, triglycerides and natural and hydrogenated fats, effect of dietary Ca and Mg on, 5460*g*.
of feeding stuffs, detn. of, 7152*i*.
of fresh forage and silage, 6756*c*.
of grazed pasture, detn. of, 4741*d*.
of hays fed to cattle, 6755*e*.
of proteins of dry peas, effect of autoclaving on, 2338*e*.
under reduced pressure, 5099*d*.
of starch, effect of grinding on, 1093*e*.
of sugar-beet by-products, 2338*i*.
of wheat products, 3902*d*.

**Digestion**. (See also *Nutrition, animal*.)
of cellulose—see *Cellulose*.
enzymes—see *Enzymes*.
of fats—see *Fats*.
of lipides, 2296*b*.
of paper—see *Paper pulp*.
peptic—see *Pepsin*.
ruminant, 1475*c*.
of starch—see *Starch*.

**Digestive juices**. (See also *Gastric juice; Intestinal juice; Pancreatic juice*.)
effect on erythro- and thrombocytopoiesis, 3085*h*.

**Digestive tract**. (See also *Gastroenterology; Intestines; Stomach*.)
absorption in—see *Absorption* (*biological*).
allergy of, 9231*a*.
bacterial flora of, effect of penicillin treatment on, 9245*c*.
book: Handbook of, Diseases, 8051*a*.
cholinesterase activity of, of selachian and teleost fish, 6325*a*.
destruction of pantothenic acid and vitamin $B_2$ in, 1094*c*.
disorders of, in hypothyroidism, 9233*c*.
disturbances of, tryptophan in, 1468*e*.
hemorrhages from, after lesions to frontal lobe, 3925*b*.
of hen, changes in compn. of food material as it moves along, 2291*c*.
iodoestradiol in, after administration, 3081*h*.
meperidine effect on, 8552*h*.
metol in, 72*a*.
1 - methyl - 4 - (3 - hydroxyphenyl)4-piperidyl ethyl ketone effect on, 6734*f*.
motility of lactose effect on, 3902*h*.
parasites of, control in sheep, 9313*i*.
phosphatase in, 3083*b*.
review on, 5838*g*.
of sheep, 2693*h*.
tumors of, after feeding carcinogenic hydrocarbons in mineral oil, 8046*c*.
in uranium poisoning, 8528*g*.
vitamin A in pyloric appendix of *Eupomotis aureus*, 6745*i*.

**Digilanide**, effect on adenosinetriphosphatase in heart muscle, 8058*b*.
standardization of, 1908*a*.

**Digilanide A**, effect on electrocardiogram and myocardium, 4380*h*.

**Digilanide C**, effect on electrocardiogram and myocardium, 4380*h*.

**Diginonic acid**, D-, and 2-benzyl-2-thiopseudourea, 1727*h*.

**Diginose**, D-, identity of, and 2-desoxy-3-methylfucose, 1727*a*.
from odoroside A and B, 7034*b*.

**Diginoside, methyl**, α-D-, and 4-*p*-toluenesulfonate, 1727*g*.

**Digitalin**, effect on blood coagulation, 8057*g*.

**Digitalis**. (See also *Digilanide; Gitalin*.)
2374*d*, 9372*a*.
assay or detn. of, 5904*f*, 6364*d*, 8613*a*.
bigeminy from, 5121*c*.
book: Die Digitalisbehandlung, 9268*h*.
caffeine antagonism to, on heart, 8051*g*.

cardiac glycoside from, P 5909*e*.
effect on blood coagulability, 9255*d*.
on blood coagulation and its antagonism to dicumarol, 8057*f*.
on Ca metabolism, 8536*h*.
on cholinesterase, 7131*h*.
on papillary muscles of heart of dog, 2318*g*.
on stomach lining and skin, 3106*c*.
efficiency of prepns. of, 7644*a*.
extn. of, 2871*c*.
ext., effect on germination of endive, 5829*e*.
germination of, effect of photosensitivity of coumarin on, in light and darkness, 8010*d*.
glycosides of, assay of, 4811*a*.
biol. detn. of, 4425*f*.
effect of Ca on lethal dose of, 5872*i*.
effect on intestines, 5872*d*.
fixation on heart, 5493*c*.
pharmacol. action of, 313*f*.
retention by guinea-pig heart, 1106*g*
infusion of, 1907*c*.
infusions, prepn. and stability of, 1149*f*.
*lanata*, glycosides from, 2734*h*.
lethal dose of, effect of rate of injection on, 8552*c*.
-like principles from *Tanghinia venenifera*, 6366*e*.
pharmacology, chemistry and clinical use of, 5862*i*.
prepns. of, 2733*i*.
*purpurea*, cardiotoxins of, effect on *Daphnia*, 8616*f*.
glycosides of, 3566*h*.
identification of exts. of, 361*c*.
metallic elements in leaves of, 6703*i*
sensitivity to, after penicillin treatment, 8547*g*.
sterilization of prepns. of, 3561*i*.
tablets contg., activity after storage, 7189*g*.
tincture, folic acid prepn. contg., 356*c*.

**Digitalose**, 7431*e*.
D-, and triacetates, 4635*i*.

**Digitaloside, methyl**, α-D-, 4636*d*.

——, **methyl 2,4-diacetyl-**, α-D-, 4636*d*.

**Digitaria**. See *Grasses*.

**Digitonin**, detn. of, standard for, 5905*a*.
effect on retention of dyes in tissue, 5870*g*.

**Digitoxigenin**, 3567*a*.
detn. of, 9372*b*.
from odoroside A, 7034*b*.

**Digitoxin**, 3566*i*.
biol. action of histamine and, 313*i*.
detection and detn. of, effect of alkalies on, 2374*d*.
detn. of, 1152*a*, 9372*a*.
detn. of, in blood serum, 2658*d*.
effect on blood coagulability, 9255*d*.
on electrocardiogram and myocardium, 4380*h*.
on muscle, 1485*h*.
on phosphorylated intermediates of rat, 2321*h*.
evaluation of, 3106*a*.
glycosides resembling, formation from purpurea glycosides-A in digitalis prepns., 7644*b*.
heart in therapy by, 1112*a*.
standardization of, 1908*a*.
synthesis of radioactive, 1910*c*.
toxicity of, penicillin effect on, 8547*i*.
urinary excretion of, 7583*c*.

**Digitoxose**, identification of, 3003*c*.

**Diglycerol***, analysis of com., for glycerol, diglycerol and polyglycerol, 880*a*.
esters, P 9494*b*.
from glycerol pitch, P 4033*b*.

**Diglycol chlorohydrin**. See *Ethanol, 2 (2-chloroethoxy)-*.

**Diglycolic acid** (α,α′-*oxydiacetic acid*), bis (*p*-nitrobenzyl) ester, 6459*e*.
diallyl and bis(2-methylallyl) esters, polymerization of, P 7750*h*.
diallyl ester, polymer with styrene, P 2035*h*.
and esters, 9032*d*.
esters (acid) with 9,11-linoleodiricinolein dimer, P 675*e*.
esters, with acyloxy compds. and polyhydric alcs., P 1955*c*.
as fungicides and insecticides, P 5152*f*.
with polyhydric alcs., for demulsifying petroleum and break induction in hydrocarbon oils, P 843*d*.
monoallyl ester, ester with allyl glycolate, and polymers, P 7754*d*.
optical crystallographic data for, 6105*f*.
polyesters from, P 1057*b*.

**Digoxigenin**, 3,11-diacetate, oxidation of, P 2243*d*, P 2244*a*.

**Digoxin**, evaluation of, 3106*a*.

**Diguanide**. See *Biguanide*.

**Diguanidine***, effect on glycolysis in muscle exts., 7581*f*.

**Diheterolevulosan**, anthrone reaction with, 66*g*.

**Dihexylamine, 6,6′-diamino-**, polymers with dibasic acids, P 4052*g*.

——, **2,2′-diethyl-**, toxicity of, 4401*f*.

**Dihexylenetriamine***, polymers with dibasic acids, P 4052*g*.

**Dihydrofolliculin**. See *Estradiol*.

**Dihydroxyfluoboric acid**. See *Fluoboric acids*.

**Diimide**,
HN:HN.
diacyl derivs., α-diketones from, 5368*i*.

——, **benzoylphenyl-**, phenylhydrazone—see *Toluene, α-phenylazo-α-phenylhydrazono-*.

——, **diacetyl-**, 5369*a*.

——, **dibutyryl-**, 5369*b*.

——, **dicrotonyl-**, 5369*c*.

——, **dipropionyl-**, 5369*a*.

**Diimidedicarboxylic acid**. See *Fo acid, azodi-*.

**Diindogen**. See *Indigotin*.

**Diisoamyl**. See *Octane, 2,7-dimethyl-*.

**Diisoamylamine**, phys. constants of, 2956*g*.

**Diisobutylamine**, identification of, 4630*e*.
phys. constants of, 2956*g*.

**Diisobutylene*** (*diisobutene*), 4628*d*.
bromination of, 109*i*.
condensation with chlorinated paraffin wax-naphthalene condensate, P 7680*d*.
depolymerization and isomerization of, 1713*e*.
herbicidal action of, 1895*d*.
knocking tendencies and crit. compression ratios of, contg. $Et_2Hg$, $Fe(CO)_5$ and $Et_4Pb$, 5576*g*.
octane no., prepn. and secondary changes in, 5176*ei*, 5177*a*.
oxidation of, 1310*f*, 2571*d*, P 7950*a*.
from polyisobutene by pyrolysis, P 2810*g*.
polymerization of, cyclization of polymer and treatment with $PCl_5$, P 8668*g*.
polymerization with butadiene at low temps. and reaction of polymers with P sulfide, lubricant additive by, P 2766*a*.
reaction with $Ac_2O$, P 4686*a*.
with MeCN in the presence of $H_2SO_4$, 1715*e*.
with $H_2S$, P 664*h*.
with nitriles, 2165*e*.

**Diisoeugenol***, as antioxidant, P 1586*d*.

——, **dihydrodehydro-***, 2428*c*.

**Diisopropenyl**. See *1,3-Butadiene, 2,3-dimethyl-*.

**Diisopropyl**. See *Butane, 2,3-dimethyl-*.

**Diisopropylamine**, as catalyst in HCN reaction with alkylene oxides, P 1435*a*.
identification of, 4630*d*.
nitrite and picrate, 5745*e*.
phys. constants of, 2956*g*.
reaction with $SiCl_4$ and with $SiS_2$, 4632*c*.
toxicity of, 8052*e*.

——, **2,2″-bis(diethylamino)-**, 1349*g*.

——, ***N*-[3-(3-chlorobenzhydryloxy)-isobutyl]-†**, P 3463*d*.

——, ***N*-methyl-**, as catalyst in HCN reaction with alkylene oxides, P 1435*a*.

**Diisosafrole***, chem. constitution and spectra of, 7924*a*.

**Dikain**. See *Pontocaine*.

**Dikes**, across gneiss and ferruginous quartzites at Robertsonpet, India, 523*d*.
crystal size and distance from walls in magmatic, 7873*g*.
crystal size in, cooling velocity of basaltic magma and distance from margin in relation to, 6127*f*.
granitic, in Brazil, age calcns. on, 8321*d*.
of Idaho (Boise Basin), 4981*a*.
igneous, intrusions in clastics in Calif., 2904*h*.
nondilational emplacement of aplite and pegmatite, in Nigeria, 75*b*.
pegmatite, near Lake Como, Italy, U minerals in, 4979*h*.
pegmatite, near Mt. Legnoncino, Italy, 4609*h*.
potash-high, in Homestake Mine, S. Dak., 75*i*.

**Diketene**. See "dimer" under *Ketene*.

**Diketones**. See *Ketones*.

**Dilantin**. See "sodium deriv." under *Hydantoin, 5,5′-diphenyl-*.

**Dilatation**. See *Expansion*.

**Dilatometers**, for high temps., 8253*g*.
holder for thin samples in, 2822*i*.
vacuum, for metallurgy, 2569*h*.

**Dilatometry**, piezo, and its applications, 7070*a*.

**Dilaudid**. (For derivs. see under *Morphinone, dihydro-*.)
detn. of, 2126*d*.
effect on blood flow, 4382*b*.

**Dilinoleic acid**. See "dimer" under *Linoleic acid*.

**Dilituric acid** (*5-nitrobarbituric acid*), compds. with sulfonamides, crystal structure of, 3262*g*.
dehydration of, thermodynamics of, 2082*f*.

**Dill**, weed control in, 343*d*, 1894*e*.

**Dillantin**. See "sodium deriv." under *Hydantoin, 5,5-diphenyl-*.

**Dillapiole**. See *Apiole*.

**Dill oil**. See *Oils*.

**Dimalone**. See "dimethyl ester" under *Bicyclo[2.2.1]-5-heptene-2,3-dicarboxylic acid*.

**Dimedon**. See *1,3-Cyclohexanedione, 5,5-dimethyl-*.

**Dimenformone**. See "benzoate" under *Estradiol*.

**Dimensional analysis**, in chem. engineering, 8215*f*.

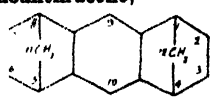
**Dimercaprol**. See *1-Propanol, 2,3-dimercapto-*.

**Dimerization**. See *Heat of polymerization, Polymerization*.

**Dimers**. See *Polymers*.

**Dimethallyl**. See *1,5-Hexadiene, 2,5-dimethyl-*.

**Dimethanoanthracene**,



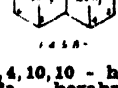
*1,4,5,8-*

**1,4,5,8-Dimethanoanthracene-9,10-diimine, 1,4,4a,5,8,8a,9a,10a-octahydro-**, and dihydrochloride, 4650*a*.

**1,4,5,8-Dimethanoanthracene-9,10-dione, 1,4,4a,5,8,8a,9a,10a-octahydro-**, 4649*i*.

**1,4,5,8-Dimethanoanthracen-9(4*H*)-one, 1,4a,5,8,8a,9a,10,10a-octahydro-10-imino-**, and hydrochloride, 4649*h*.

**1,4,5,8-Dimethanonaphthalene**,



*1,4,5,8-*

——, **1,2,3,4,10,10-hexachloro-1,4,-4a,5,8,8a-hexahydro-**, 9345*h*, 9346*a*, 9349*i*.
and oxygenated deriv., as insecticides, 6353*he*.

**Dimethylamine**, adsorption by activated C, 6037*e*.
from *Courbonia virgata*, 5544*e*.
DDT decompn. by, 3697*d*.
detn. of, in soins. contg. $NH_3$, $MeNH_2$ and $Me_3N$, 69*b*.
disazo stilbene dye from, P 4862*i*.
formation of, from hydrolysis of $Me_3NO \cdot SO_2$, 2574*g*.
formation of, in pyrolysis of allyltrimethylammonium hydroxide, 3779*i*.
fuel knock-limited performance of CFR engine cooled by aq., 840*e*.
identification of, 4630*c*.
manuf. of, P 3440*g*.
naphthoquinoneimide dye from, P 8167*h*.
reaction with HOCl, kinetics of, 6896*e*.
reaction with propylene oxide, kinetics of, 926*e*.
separation (chromatographic) from its mixts. with $NH_3$, $MeNH_2$ and $Me_3N$, 121*i*.
in urine, 7070*i*.

**Dimethylamine, 1,1′-bis(2-cyclohexylcyclohexyl)-**, hydrochloride, 1359*h*.

——, **1,1′-bis(2,2-dimethyl-1,3-dioxolan-4-ylmethyl)-**, P 8181*b*

——, ***N*-chloro-**, base strength of, 8822*a*.
formation of, kinetics of, 6896*e*.

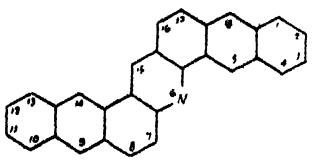
——, **1,1′-dinitramino-*N*-nitro-†**, 4633*c*.

——, ***N*-ethyl-**. See *Ethylamine, N,N-dimethyl-*.

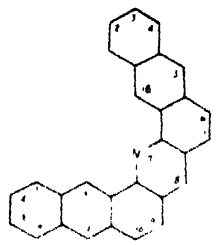
**Dimethylamino group**, angle of twist with respect to ring of, in *N,N*-dimethyl aniline derivs., 6618*i*.

**Dimethyl ketazine**. See "azine" under *Acetone*.

**Dimethyl yellow.** See *Aniline, N,N-dimethyl-p-phenylazo-*.
**Dimetina.** See *Ethylenediamine, N-benzyl-N',N'-dimethyl-N-phenyl-*.
**Dimorphism.** (See also *Polymorphism.*)
of braunite and hausmannite, 3750*e*.
of ethyl palmitate, 7940*f*.
of α-1-naphthylimino-o-cresol, 1757*c*.
of 1,1,1 - trichloro - 2,2 - bis(*p*-methoxyphenyl)ethane, 6187*c*.
**DINA.** See "dinitrate" under *Ethanol, 2,2'-(nitroimino)di-*.
**Dinaphthacridine,**

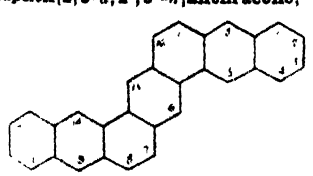


[2,3-a, 2',3'-h]



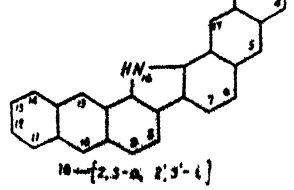
[2,3-c, 2',3'-h]

Dinaphth[2,3-*a*, 2',3'-*h*]acridine-5,9,14,-15,18(6*H*)-pentone, derivs., P 8654, P 866*i*
and derivs., P 9469*e*.
—, 1(and 10) - amino-, and sulfate, P 866*e*, P 867*h*.
—, 10-amino-, dye from, P 7709*a*.
—, 1(and 10)-benzamido-, P 866*e*.
—, 1,10-diamino-, P 9469*h*.
—, 1,10-dibenzamido-, P 9469*h*.
Dinaphth[2,3-*c*, 2',3'-*h*]acridine-5,8,11,-16,18(17*H*)-pentone, derivs., P 865*d*, P 866*i*.
and derivs., P 9469*e*.
—, 4-acetamido-, P 866*c*.
—, 1-amino-, P 866*h*, P 867*i*.
—, 4-amino-, and sulfate, P 866*c*, P 867*f*.
—, 4(and 6)-amino-, dyes from, P 7708*h*.
—, 6-amino-10-benzamido-, P 9469*h*.
—, 4 - (2 - anthraquinonylcarbonylamino)-, P 866*c*.
—, 1-benzamido-, P 866*h*.
—, 4-benzamido-, P 866*b*.
—, 6-benzamido-10-nitro-, P 9469*h*.
—, 4-o-chlorobenzamido-, P 866*c*.
—, 6,10-diamino-, P 9469*h*.
—, 1,12(4,12 and 6,10)-dibenzamido-, P 9469*h*.
—, 4(and 6) - (7 - oxo - 7*H* - benz[*de*]-anthracen-3-ylamino)-, P 7708*i*.
**Dinaphth[2,3-*a*,2',3'-*h*]anthracene,**



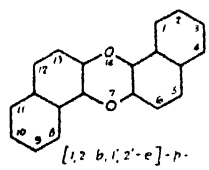
[2,3-a, 2',3'-h]

1364*i*.
**Dinaphth[2,3 - *a*,2',3' - *h*]anthracene-5,9,14,18-tetrone,** 1365*a*.
**Dinaphthocarbazole,**



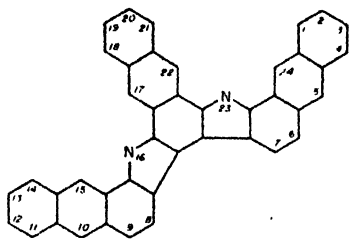
10—[2,3-a, 2',3'-i]

16*H* - **Dinaphtho[2,3 - *a*,2',3' - *i*]carbazole - 5,10,15,17 - tetrone, 4-benzamido - 9 - [*m* - (methylsulfonyl)benzamido]-,** P 8171*d*.
——, **4(and 6)-benzamido-9-[*p*-(phenylsulfonyl)benzamido]-,** P 8171*d*.
——, **4,11 - bis[*p* - (phenylsulfonyl)-benzamido]-,** P 8171*d*
**Dinaphtho[1,2-*b*,1',2'-*e*]-*p*-dioxin,**



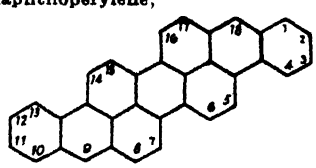
[1,2-b,1',2'-e]-p-

of Tomita (*C. A.* **27**, 724), 1737*d*.
**Dinaphthonaphthindolocarbazole,**

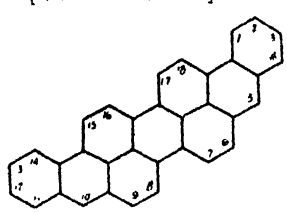


[2,3-a,2',3'-i]—[2'3',6,7]—[2,3-c]

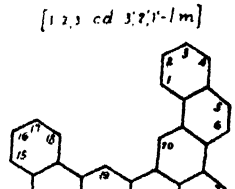
**Dinaphtho[2,3 - *a*,2',3' - *i*]naphth[2',3',-6,7]indolo[2,3 - *c*]carbazole - 5,10,-15,17,22,24 - hexone, 18 - benzamido - 16,23 - dihydro-,** P 7705*a*, P 9468*h*
——, **18 - *p* - chlorobenzamido - 16,23-dihydro-,** P 7705*a*.
——, **dibenzamido - 16,23 - dihydro-,** P 7705*b*
——, **16,23 - dihydro - 18 - (3 - pyridylcarbonylamino)-†,** P 7705*a*
**Dinaphthoperylene,**



[1,2,3-cd,1',2',3'-lm]

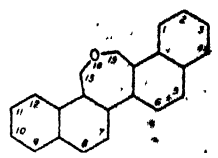


[1,2,3-cd,1',2',3'-lm]



[1,2-b,2',1'-n]

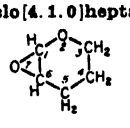
**Dinaphtho[1,2-*b*,2',1'-*n*]perylene(?),** and derivs., 7928*d*.
**2,3,10,11-Dinaphthoperylene.** See *Dinaphtho[1,2-b,2',1'-n]perylene*.
**Dinaphtho[1,2,3 - *cd*,1',2',3' - *lm*]perylene-9,18-dione.** See *Isoviolanthrone*.
**Dinaphtho[1,2,3 - *cd*, 3',2',1' - *lm*]perylene-8,10-dione.** See *Violanthrone*.
**Dinaphtho[1,2 - *b*,2',1' - *n*]perylene-19,19a,20(19b*H*)-triol(?),** triacetate and tribenzoate, 7928*f*.
**Dinaphthoxepin,**



[1,2-c,2',1'-e]

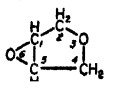
**Dinaphth[1,2 - *c*,2',1' - *e*]oxepin - 13,18-dione.** See *[2,2' - Binaphthalene]-1,1' dicarboxylic anhydride*.
**Di-2-naphthylamine,** 606*b*.
**Dinaphthyline.** See *[2,2'-Bi-1-naphthylamine]*.
**Dinestrol.** See *Phenol, p,p'-(1,2-diethylidenedethylene)di-*.
**Dinicotinic acid.** See *3,5-Pyridinedicarboxylic acid*.
**Dinitriles.** See *Nitriles*.
**Dinitrososulfites*,** structure of the $SO_3N_2^{--}$ ion, 5241*i*.
**Dinoc.** See "sodium deriv." under *o-Cresol, 4,6-dinitro-*.
**Dinoderus minutus,** control of, 3967*e*.
**Dintoina.** See "sodium deriv." under *Hydantoin, 5,5-diphenyl-*.
**Diocaine,** effect on adrenaline penetration into eyes, 3563*g*.
**Dioctadecylamine,** as corrosion inhibitor for pipe lines, P 2568*d*.
reaction products with $P_2S_5$, lubricant additives from, 6400*c*.
**Diodone.** See "compd. (salt) with 2,2'-iminodiethanol" under *1(4H)-Pyridineacetic acid, 3,5-diiodo-4-oxo-*.
**Diodoquin.** See *8-Quinolinol, 5,7-diiodo-*.
**Diodrast.** See "compd. (salt) with 2,2'-iminodiethanol" under *1(4H)-Pyridineacetic acid, 3,5-diiodo-4-oxo-*.
**Diogenes,** of Apollonia, biography, 8761*d*.
**Diolefins.** See *Olefins*.
**Diolein.** See *Olein*.
**Dionine** (*ethylmorphine hydrochloride*), sensitization of heart and muscle to acetyl choline by, 3102*d*.
**Diopside.** (See also *Pyroxenes.*)
in chromite deposits of Carbon Co., Mont., 2132*e*.
formation in metamorphism of siliceous dolomites, 6129*g*.
of Greenland (Holsteinborg dist.), 8313*c*.
from limestone xenoliths of Vinitska, U.S.S.R., 4187*c*.
in magnetite ores of Mont Chemin, Switzerland, 6124*h*.
in marble from Tiree Is., Hebrides, 4606*c*.
-pyroxene series, 8993*b*.
stone (artificial) from, P 3167*a*.
system: albite-anorthite-, 1252*i*.
**Diopterin.** See *Glutamic acid, pteroyl-α-glutamyl-*.
**Diorites.** (See also *Diabases; Dolerite.*)
altered by granitic intrusives in Rastenberg, Austria, 8320*c*.
of Annam, 2135*c*.
biotite-quartz, of Grant Co., Ore., 524*h*.
Californian quartz diorite and, 2904*h*.
of Celebes (eastern), 8320*a*.
delimitation of, and related rocks, 4610*b*.
gabbro-, of Terska-Alatau Ridge, origin and transformations of, 7386*b*.
of Japan (Gosaisho-Takanuki dist.), 6127*i*.
norms of average analyses of quartz diorites and, 2552*a*.
orbicular, from Eext, Netherlands, 4610*a*.
of Oregon (Kerby Quadrangle), 4984*h*.
quartz—see also *Tonalite*.
quartz, of Percy Quadrangle, N. Hampshire, 6129*c*.
relations among granites, schists and, in western Odenwald, 8320*b*.
of Sardinia (Geremeas territory), 978*c*.
schistose terrane intrusion by, in Minn., 6129*a*.
in serpentinite at Harper's, N. Z., 4610*d*.
of Spain (Tarragona), 6548*g*.
of Union of S. Africa, 6128*f*.
**Diose.** See *Glycolaldehyde*.
**Diosgenin,** 655*b*.
**Diospyros,** *kaki*—see "Japanese" under *Persimmons*.
**Diosterol,** I and II, and esters, 4281*e*.
**Diothane,** compds. related to, 6204*d*.
effect on cholinesterase, 762*f*.

**2,7-Dioxabicyclo[4.1.0]heptane,**



9061*b*.

**3,6-Dioxabicyclo[3.1.0]hexane,**



dispiro derivs., 4253*e*.

**1,3,2-Dioxaborin,**

O.BH.O.CH$_2$.CH.CH.
1 2 3 4 5 6

——, **5,6-dihydro-**, polymers contg., P 2631*c*.

**Dioxacyclohexane.** See *Dioxane*.

**Dioxacyclopentane.** See *Dioxolane*.

**4,7-Dioxadecane-1,10-diamine†**, polyamide with terephthalic acid, P 5602*i*.

**1,3-Dioxa-5,6-diaza-2-mercurepine,**

O.Hg.O.CH.N.N:CH.
1 2 3 4 5 6 7

——, **4,7-dimethyl-**, 5368*i*.

——, **4,7-dipropenyl-**, 5369*c*.

——, **4,7-dipropyl-**, 5369*b*.

**1,5,3,7(2*H*,6*H*)-Dioxadiazocine,**

O.CH$_2$.N:CH.O.CH$_2$.N.CH.
1 2 3 4 5 6 7 8

——, **tetrahydro-3,7-dinitro-**, 8355*a*.

**1,3-Dioxa-6,7-dithionane,**

O.CH$_2$.O.CH$_2$.CH.S.S.CH$_2$.CH$_2$.
1 2 3 4 5 6 7 8 9

polymerization of, 4048*e*.

***m*-Dioxan-5-amine**, *N*-**2-nitroisobutyl-**, P 813*b*.

***p*-Dioxan-2-amine**, *N*-**(1,4-dihydro-3-hydroxy-1,4-dioxo-2-naphthylmethyl)-2-methyl-†**, 1384*i*.

**Dioxane**, absorption by polystyrene films, 437*d*.
- alkyl vinyl ether hydrolysis rate in aq., 3272*a*.
- azeotropes of, 5247*c*.
- benzoic acid salting out from aq., 922*h*.
- compd. with sarothamnine, 5543*d*.
- compd. with $SO_3$, reaction with olefins, 171*i*.
- configuration of, 4232*h*.
- detn. in air, 8976*f*.
- effect on autodisplacement of Pb, 8811*g*. on H overvoltage on Sn in HCl, 503*e*. on thixotropy of bentonite suspensions, 6885*d*.
- ester ammonolysis in, 6495*d*.
- hydrochloric acid acidity function and ionization in, and proton affinities of, 4544*hi*.
- hydrogen-ion activity in aq., 7304*h*.
- *p*-hydroxybenzaldehyde assocn. in, 8814*e*.
- mixts. of, with acetone, dielec. polarization in, 454*b*.
  - with $C_6H_6$, Raman spectrum of, 8890*g*.
  - with EtOH and $H_2O$, swelling of agar and gelatin in, 7788*b*.
  - with $MeNO_2$, BuBr addn. compds. of 4-vinylpyridine-styrene copolymers in, elec. cond. and viscosity of, 7785*h*, 7786*d*.
- polymer compatibility in, 6862*i*.
- sorption by porous substances, 1240*d*.
- sulfur trioxide f.p. lowering in, 2490*h*.
- system: BzH–$H_2O$–, 8833*b*.
- system: HCl–$H_2O$–, 1637*g*.
- system: $H_2S_2O_7$–, 6901*c*.
- systems with C halides, 1637*c*.
- uranyl nitrate diffusion in, 2490*i*.
- uranyl nitrate fluorescence in combination with, 2512*c*.

**Dioxane, amino-.** See *Dioxanamine*.

——, **tetramethyl-**, 6163*d*.

***m*-Dioxane** (*dihydro-m-dioxin*).

——, **5-(allyloxy)-2-phenyl-**, 7423*i*.

——, **2-benzylidene-**, 1404*g*.

——, **2-α-bromobenzyl-**, 1404*c*.

——, **2-(bromomethylene)-**, 1404*g*.

——, **5-chloro-4-(chloromethyl)-2-phenyl-**, 6976*d*.

——, **2-(chloromethyl)-**, (omitted from abstr.), 1404*c*.

–, **2-(chloromethylene)-**, 1404*g*.

–, **2-(dibromomethyl)-**, 1404*c*.

–, **2-(dichloromethyl)-**, 1404*c*.

–, **5-(dichloromethyl)-**, P 4685*h*, 5035*c*.

——, **2-(dichloromethylene)-**, 1404*g*.

——, **4,4-diethyl-2-(3,4-methylenedioxyphenyl)-**, as synergist for pyrethrin, 3555*c*.

——, **5-(2,2-dimethyl-1,3-dithiolan-4-ylmethoxy)-2,2-dimethyl-**, 7424*b*.

——, **4-(*p*-methoxyphenyl)-5-methyl-**, 5150*f*.

——, **2-methylene-**, and derivs., 1403*i*.

——, **4(or 5)-methyl-5(or 4)-(3,4-methylenedioxyphenyl)-**, as synergist with pyrethrins, P 4420*d*.

——, **5-methyl-4-(3,4-methylenedioxyphenyl)-**, effect on action of DDT-pyrethrin, 7184*a*. as synergist for pyrethrin, 3555*c*.

——, **5-methyl-5-nitro-2-propyl-**, 5150*f*.

——, **2-(trichloromethyl)-**, 1404*c*.

***p*-Dioxane** (*tetrahydro-p-dioxin*), antimony(III) fluoride soly. in, 6890*b*.
- azeotrope with cyclohexene, 6089*b*.
- compd. with $H_2SO_4$, as catalyst in etherification of myrcene, P 6219*g*.
- compressibility and ultrasonic velocity in, 4532*c*.
- dipole moment of $PhNH_2$ and its Me derivs. in, 7438*d*.
- ethylene halohydrin reaction with hydroxyl ion in, 2848*f*.
- formation of, in reaction of ethylene oxide with $H_2S$, 2024*h*.
- mol. association and Raman spectrum of *p*-hydroxyacetophenone in soln. in, 6920*b*.
- oxidation of, P 7503*a*.
- purification of, 7938*b*.
- soly. in Na xylenesulfonate solns., 1242*e*.
- valency angle of O in, 7487*d*.
- structure of, 463*f*.

***p*-Dioxane, 2,5-bis(2-dimethylpropyl)-2,5-dimethyl-**, 1309*g*, 1310*b*.

——, **3,6-di-*tert*-butyl-2,2,5,5-tetramethyl-**, 1309*i*.

**Dioxanecarbamic acid, 5-methyl-**, ester with Bu *p*-hydroxybenzoate, 593*h*.

**5,5-*m*-Dioxanedimethanol**, and diacetate, P 4290*h*.

**2,5-*p*-Dioxanedione, 3,3,6,6-tetraphenyl-**. See *Benzilide*.

**4,6-*m*-Dioxanedione, 2,2-dimethyl-**. See "monoisopropylidene cyclic ester" under *Malonic acid*.

**Dioxaneëthanol** (*2-(dioxanyl)ethanol*).

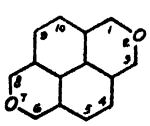
**2-*m*-Dioxaneëthanol, 4-hydroxy-β,β,5,5-tetramethyl-**, 6577*h*.

——, **β,β,5,5-tetramethyl-**, 6577*i*.

**2-*m*-Dioxanone.** See "cyclic carbonate" under *1,3-Propanediol*.

**3,9-Dioxa-2,4,6,8,10-pentasilahendecane, 2,2,4,4,6,6,8,8,10,10-decamethyl-**, 563*f*, P 3656*g*.

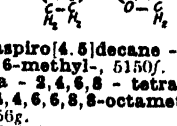
**Dioxapyrene,**



**2,7-**

**2,7-Dioxapyrene-1,3,6,8-tetrone.** See *1,4,5,8-Naphthalenetetracarboxylic dianhydride*.

**1,4-Dioxaspiro[4.5]decane,**



**1,4-Dioxaspiro[4.5]decane-2-methanol, 6-methyl-**, 5150*f*.

**3,7-Dioxa-2,4,6,8-tetrasilanonane, 2,2,4,4,6,6,8,8-octamethyl-**, 563*e*, P 3656*g*.

**1,5-Dioxa-2,4,6,8-tetrasilocane,**

O.SiH$_2$.CH$_2$.SiH$_2$.O.SiH$_2$.CH$_2$.SiH$_2$.
1 2 3 4 5 6 7 8

——, **2,2,4,4,6,6,8,8-octamethyl-**, 563*h*.

**3,13-Dioxa-5,7,9,11-tetrazapentadecane, 5,7,9,11-tetranitro-**, 9074*g*.

**1,3,2-Dioxathian-5-amine, 5-methyl-**, 2-oxide†, 7422*e*.

**1,3,2-Dioxathiane,**

O.S.O.CH$_2$.CH$_2$.CH$_2$.
1 2 3 4 5 6

2,2-dioxide†, 2934*e*.

2-oxide—see "cyclic sulfite" under *1,3-Propanediol*.

——, **5-(chloromethyl)-5-nitro-**, 2-oxide†, 2935*i*.

——, **4,6-dimethyl-**, 2,2-dioxide†, 2934*e*.

——, **5-ethyl-4-isopropyl-**, 2-oxide—see "cyclic sulfite" under *1,3-Hexanediol, 2-ethyl-*.

——, **4-methyl-**, 2,2-dioxide†, 2934*d*.

2-oxide—see "cyclic sulfite" under *1,3-Butanediol*.

——, **5-methyl-5-nitro-**, 2-oxide†, P 6223*a*.

——, **4,4,6-trimethyl-**, 2-oxide—see "cyclic sulfite" under *2,4-Pentanediol, 2-methyl-*.

**1,3,2-Dioxathiane-5-methanol, 5-nitro-**, 2-oxide†, 2935*i*.

2-oxide†, and its sulfite, P 6223*a*.

**1,3,2-Dioxathiolane,**

O.S.O.CH$_2$.CH$_2$.
1 2 3 4 5

2-oxide—see *Ethylene sulfite*.

——, **4,5-dimethyl-**, 2-oxide—see "cyclic sulfite" under *2,3-Butanediol*.

——, **4-methyl-**, 2-oxide—see *Propylene sulfite*.

**2,10-Dioxa-4,6,8-triazahendecane, 4,6,8-trinitro-**, 9074*h*.

**3,11-Dioxa-5,7,9-triazatridecane 5,7,9-trinitro-**, 9074*i*.

**Dioxin,**

(*m*) O.CH$_2$.O.CH$_2$.CH:CH.
1 2 3 4 5 6

(*p*) O.CH CH.O.CH:CH.
1 2 3 4 5 6

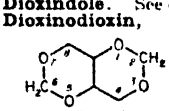
***m*-Dioxin, dihydro-.** See *m-Dioxane*.

***p*-Dioxin**, aromatic character of, 3827*e*.

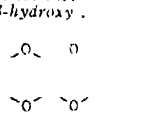
——, **tetrahydro-.** See *p-Dioxane*.

**Dioxindole.** See *Oxindole, 3-hydroxy-*.

**Dioxinodioxin,**



*m*—[5,4-*d*]-*m*—

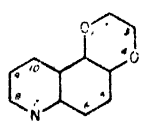


*p*—[*b*]-*p*

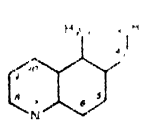
***m*-Dioxino[5,4-*d*]-*m*-dioxin**, sugar derivs., 5006*i*.

***p*-Dioxino[*b*]-*p*-dioxin, hexahydro-**, as solvent for polymeric glyoxal hydrates, P 4689*a*.

**Dioxinoquinoline,**



*p*—[*f*]



1*H*-*m*—[5,4

***p*-Dioxino[*f*]quinoline, 6-amino-2,3-dihydro-**, 1413*g*.

——, **2,3-dihydro-6-(5-isopropylaminoamylamino)-**, and salts, 1413*g*.

——, **2,3-dihydro-6-nitro-**, 1413*g*.

**1*H*-*m*-Dioxino[5,4-*f*]quinoline**, 1414*a*

——, **6-nitro-**, 1414*c*.

**1*H*-*m*-Dioxino[5,4-*f*]quinolin-1-one, 6-nitro-†**, 1414*d*.

**3,6-Dioxooctanedial†**, and bis(diethyl acetal) and bis(2,4-dinitrophenylhydrazone), 2577*f*.
- tanning power of, 7735*i*

**1,3-Dioxolane** (*dihydro-1,3-dioxole*),

O.CH$_2$.O.CH$_2$.CH$_2$.
1 2 3 4 5

- derivs., P 8169*h*.
- derivs., from pregnene derivs., 3430*e*.
- derivs., quinonimine dyes from, P 8168*h*
- polymeric derivs., for improvement of electrodeposition of Sn, P 6095*d*.
- polymers of, P 3237*a*.
  - with alkylbenzenes, P 3658*g*.
  - with $C_2H_4$, P 2471*b*.
  - with vinyl esters, P 9532*c*.
- toxicity of, 4401*g*.

——, **2-[*m*-[α-acetyl-α-(*p*-diethylaminophenylimino)acetamido]phenyl]-†**, P 8162*d*.

——, **4-[(allyloxy)methyl]-2,2-dimethyl-**, 7423*g*

**2-(*m*-α-benzyl)-†**, azomethine dyes from, 8162*a*.

——, **2 - [*m* - [α - benzoyl - α - (*p* - diethylaminophenylimino)acetamido]phenyl]-†**, P 8162*d*.
——, **2-benzylidene-**, 1404*a*.
——, **2-benzyl-2-methoxy-**, 1404*e*.
——, **2-α-bromobenzyl-**, 1404*c*.
——, **2-(bromomethyl)-**, (omitted from abstr.), 1404*c*.
——, **2-(bromomethylene)-**, and polymer, 1404*f*.
——, **2-(chloromethyl)-**, (omitted from abstr.), 1404*c*.
——, **4-(chloromethyl)-2,2-dimethyl-**, P 8181*a*.
——, **2-(chloromethylene)-**, and polymer, 1404*e*.
——, **2 - (chloromethyl) - 2 - methoxy-**, 1404*e*.
——, **4-(chloromethyl)-2-methyl-**, P 6650*a*.
——, **2-(dibromomethyl)-**, 1404*c*.
——, **2-(dichloromethyl)-**, (omitted from abstr.), 1404*c*.
——, **2-(dichloromethylene)-**, 1404*f*.
——, **2 - (dichloromethyl) - 2 - (2 - hydroxyethoxy)-(?)†**, dichloroacetate, 1404*f*.
——, **2 - (dichloromethyl) - 2 - methoxy-**, 1404*f*.
——, **4 - (2,2 - dimethyl - 1,3 - dithiolan-4-yl)-2,2-dimethyl-**, 7424*g*.
——, **4 - [(2,2 - dimethyl - 1,3 - dithiolan - 4 - ylmethoxy)methyl] - 2,2-dimethyl-**, 7423*i*.
——, **2,2 - dimethyl - 4,5 - divinyl-, D-**, 1721*h*.
——, **2,2 - dimethyl - 4 - [(*o* - methylbenzyloxy)methyl]-**, 7000*f*.
——, **2-ethoxy-2-methyl-**, 1404*f*.
——, **2 - ethyl - 2 - (6 - methoxy - 2-naphthyl)-**, (omitted from abstr.), 3814*f*.
——, **2 - hexyl - 4 - (methoxymethyl)-**, 5150*f*.
——, **4,4′ - iminodimethylenebis[2,2-dimethyl-†**, P 8181*b*.
——, **2-methoxy-2-methyl-**, 1404*d*.
——, **methyl-**, toxicity of, 1401*h*.
——, **2-methyl-**, P 1434*b*, 2624*b*.
——, **2-methylene-**, and derivs., 1403*i*.
——, **2-phenyl-**, derivs., P 4299*f*.
——, **2,2,4,5-tetramethyl-**, *l*-, 1320*i*.
——, **2-(trichloromethyl)-**, 1404*i*.

**1,3 - Dioxolane - 4 - acrylic acid, 4-hydroxy - β - methoxy - 2,2,5,5-tetramethyl-**, γ lactone, 1722*e*.

**1,3 - Dioxolane - 2 - carboxylic acid, 2-(1 - bromo - 2 - hydroxyisopropyl)-**, γ-lactone, 6980*h*.

**1,3-Dioxolane-4-methanol**, derivs., pharmacology of, 1866*a*.

——, **2-amyl-2-methyl-**, pharmacology of, 7582*a*.

——, **2,2-dimethyl-**, chloroformate, textile assistant from 2-hendecylbenzimdazolesulfonic acid and, P 1990*i*
chlorophosphate and phosphate, stereoisomeric esters, 6166*f*.
*dl*-, prepn. of, 1720*i*.

——, **2-hexyl-**, 5150*f*.

——, **2 - (3,4 - methylenedioxyphenyl)-**, as synergist for pyrethrin, 3555*c*.

**1,3 - Dioxolane - 4 - methylamine, 2,2-dimethyl-**, P 8181*b*.

**1,3-Dioxolan-2-one**. See "cyclic ethylene ester" under *Carbonic acid*.

——, **4-(hydroxymethyl)-**. See "1,2-cyclic carbonate" under *Glycerol*.

**1,3 - Dioxolan - 4 - one, 2 - methyl-**. See "lactone" under *Acetic acid, l-hydroxyethoxy-*.

**1,3-Dioxole,**




——, **dihydro-**. See *1,3-Dioxolane*.

——, **2 - [*m* - [α - (3 - oxo - 1(3*H*) - isobenzofurylidene)acetamido]phenyl]-†**, P 7850*b*.

**Dioxolobenzopyran,**



*6H-1,3—[h][1]*

**6*H* - 1,3 - Dioxolo[*h*][1]benzopyran - 6 - one, 7 - methoxy - 8 - phenyl-**, 7935*d*.

——, **8-phenyl-**, 7935*d*.

**5*H*-[1,3]Dioxolo[*f*]indole,**

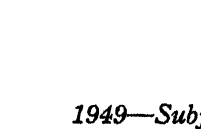


*5-[1,3]——[f]*

7020*b*.

——, **6-methyl-**, 7020*b*.

**Dioxoloisoquinoline,**



*1,3—[g]* *1,3—[h]*

**1,3 - Dioxolo[*g*]isoquinoline, 6 - benzoyl-5,6,7,8 - tetrahydro - 5 - (6 - methoxy-4-quinolyl)-**, 1421*i*.

——, **6 - benzoyl - 5,6,7,8 - tetrahydro-5-(4-quinolyl)-**, 1421*g*.

——, **6 - benzoyl - 5,6,7,8 - tetrahydro-5-(8-quinolyl)-**, 1422*c*.

——, **5 - benzyl - 7,8 - dihydro-**, and hydrochloride, spectra of, 1412*g*.

——, **5 - benzyl - 7,8 - dihydro - 7-phenyl-**, and hydrochloride, 5026*b*.

——, **5 - benzylidene - 5,6,7,8 - tetrahydro-6-methyl-**, spectrum of, 1412*g*

——, **7,8 - dihydro - 5,7 - diphenyl-**, and picrate, 5026*b*.

——, **7,8 - dihydro - 5 - (5 - indanylmethyl)-**, and picrate, 8390*e*.

——, **7,8 - dihydro - 5 - (6 - methoxy - 4-quinolyl)-**, and derivs., 1421*i*.

——, **7,8 - dihydro - 5 - methyl-**, and hydrochloride, spectra of, 1412*g*.

——, **7,8 - dihydro - 5 - methyl - 7-phenyl-**, and picrate, 5026*b*.

——, **7,8 - dihydro - 5 - (2 - pyridylmethyl)-**, and dihydrochloride, spectra of, 1412*g*.

——, **7,8 - dihydro - 5 - (4 - quinolyl)-**, and derivs., 1421*f*.

——, **7,8 - dihydro - 5 - [6(and 8) - quinolyl]-**, and derivs., 1422*c*.

——, **5-(5-indanylmethyl)-**, and salts, 8390*f*.

——, **5,6,7,8 - tetrahydro - 5 - isoamyl - 4 - methoxy - 6 - methyl-**, and hydrobromide, 2213*b*.

——, **5,6,7,8 - tetrahydro - 5 - isobutyl-4-methoxy-6-methyl-**, and hydrobromide, 2213*b*.

——, **5,6,7,8 - tetrahydro - 4 - methoxy-6-*m*-methoxybenzyl-**, cardiac inhibitory effects of, 2320*e*.
hydrochloride, 2212*c*

——, **5,6,7,8 - tetrahydro - 5 - (6 - methoxy-4-quinolyl)-**, and salts, 1421*i*.

——, **5,6,7,8 - tetrahydro - 5 - (2 - pyridylmethyl)-**, 1413*a*.

——, **5,6,7,8 - tetrahydro - 5 - (2 - pyridylmethylene)-**, spectrum of, 1412*g*.

——, **5,6,7,8 - tetrahydro - 5 - (4 - quinolyl)-**, and picrate, 1421*g*.

——, **5,6,7,8 - tetrahydro - 5 - [6(and 8)-quinolyl]-**, and picrate, 1422*c*.

**1,3 - Dioxolo[*h*]isoquinoline, 6,7,8,9-tetrahydro - 4 - methoxy - 8 - *m*-methoxybenzyl-**, cardiac inhibitory effects of, 2320*e*.
hydrochloride, 2212*c*.

**1,3 - Dioxolo[*g*]isoquinolinium compounds, 5 - benzyl - 7,8 - dihydro-6-methyl— hydroxide**, spectrum of, 1412*g*.

5 - benzyl - 7,8 - dihydro - 6 - methyl - 7-phenyl— iodide, 5027*d*.

5 - butoxy - 6 - ethyl - 5,6,7,8 - tetrahydro - 4 - methoxy - 6 - methyl— iodide, 2213*a*.

5 - butoxy - 5,6,7,8 - tetrahydro - 4-methoxy - 6,6 - dimethyl— iodide, 2213*a*.

6 - decyl - 5 - ethoxy - 5,6,7,8 - tetrahydro - 4 - methoxy - 6 - methyl— iodide, 2213*a*.

5 - (decyloxy) - 6 - ethyl - 5,6,7,8 - tetrahydro - 4 - methoxy - 6 - methyl— iodide, 2213*a*.

7,8 - dihydro - 5,6 - dimethyl - 7 - phenyl— iodide, 5027*d*.

7,8 - dihydro - 5 - (6 - methoxy - 4 - quinolyl) - 6 - methyl— iodide methiodide, 1421*i*.

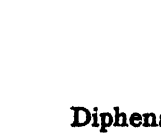
6 - ethyl - 5,6,7,8 - tetrahydro - 5 - isobutyl - 4 - methoxy - 6 - methyl— *p*-toluenesulfonate, 2213*b*.

5,6,7,8 - tetrahydro - 5 - isoamoxy - 4-methoxy - 6,6 - dimethyl— iodide, 2213*a*.

5,6,7,8 - tetrahydro - 5 - isoamyl - 4-methoxy - 6,6 - dimethyl— *p* - toluenesulfonate, 2213*c*.

5,6,7,8 - tetrahydro - 5 - isobutyl - 4-methoxy - 6,6 - dimethyl— *p* - toluenesulfonate, 2213*b*.

**1,3-Dioxolo[*f*]quinoline,**



*1,3—[f]*

——, **5-amino-**, 1413*e*.

——, **5 - (3 - diethylaminopropylamino)-**, and hydriodides, 1413*f*.

——, **5-nitro-**, 1413*e*.

**Diparcol**. See *Phenothiazine, 10-(2-diethylaminoethyl)-*.

**Diparopsis castanea**, cotton-boll attack by, 9350*h*.

**Dipentaerythritol**, dehydration of, in presence of aromatic sulfonic acid and $H_3PO_4$ and esterification of product in tall oil-rosin-linseed oil mixt., P 7240*c*.
esterification with fatty acids and drying oil therefrom, 6432*b*.
esterification with tall oil and varnishes from esters, 3212*i*.
hexaorthophosphate, for flameproofing, P 5604*c*.
linoleate, linolenate and oleate, prepn., I values and sapon. equivs. of, 3631*a*.
sepn. from its aq. mixts. with pentaerythritol, P 1435*i*.

**Dipentene**. (See also *Limonene*.)
addn. product with phenol, condensation product with thiourea, HCHO and HCl, for textile slipproofing, P 3222*c*.
in citrus oils, 6366*d*.
compression of, 4067*f*.
condensation products with thiourea, -naphthol or *p*-phenylphenol, and bis(chloromethyl) ether, P 2796*e*.
as corrosion inhibitor, P 5730*d*.
and derivs., from native resin turpentine, 2192*c*.
effect on polymerization of styrene with drying oils, 3645*e*.
as flotation agent, P 6964*f*.
formation in polymer pyrolysis, 2810*h*.
formation of, by reaction of 3-methyl-1,3-butanediol with $H_2SO_4$, 111*g*.
ignition and oxidation of, and its mixts., 7210*a*.
manuf. of, P 5423*f*.
in *Origanum vrens* oil, 9383*e*.
reaction on activated charcoal, 5656*h*.
reaction product with maleic anhydride, allyl ester, P 2819*d*.
reaction product with 2-naphthol, ($ClCH_2$)$_2$O and pyridine, as textile assistant, P 4500*d*.
reaction with phenols, P 6237*c*.
from rubber by pyrolysis, 2009*h*, 5169*e*.
from rubber cracking, depolymerization to tetrahydrotoluene and *m*-dihydroxylene, 5984*a*.
sampling and testing of, 4785*h*.
viscosity of, and its mixt. with *l*-limonene, 5249*c*.

**Dipentenecarbinol***, α-thiocyanopropionate, in chigger control, 8599*i*.

**Dipeptidases**. (See also *N-Glycylglycine dipeptidase; N-Glycylleucine dipeptidase*.) 2249*i*.
steric specificity of, 4311*d*.

**Dipeptides**. (See also *Peptides*.)
manuf. of, P 5422*d*.
prepn. of, related to gramicidin S, 4641*c*.
reactions with sugars, 4501*h*.
synthesis from L-amino acids by pancreatic juice, 7988*h*.

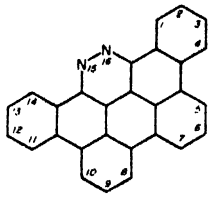
**Diperoxyphthalic acid**. See *Peroxyphthalic acid*.

**Diphantoin**. See "sodium deriv." under *Hydantoin, 5,5-diphenyl-*.

**Diphedan**. See "sodium deriv." under *Hydantoin, 5,5-diphenyl-*.

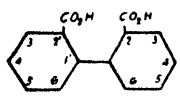
**Diphenamic acid** (*2′-carbamyl-2-biphenylcarboxylic acid*.)
——, **4′(or 4) - isopropyl - *N*,3(or *N*,3′)-dimethyl-**, 3815*h*.
—, **4′(or 4)-isopropyl-3(or 3′)-methyl-*N*-1-naphthyl-**, 3815*h*.
—, ***N*-phenyl-**. See *Diphenanilic acid*.

**Diphenanilic acid, 4'(or 4) - isopropyl-3(or 3')-methyl-,** 3815*h*.
**Diphenanthro[9,10,1 - *def*,1',10',9' - *hij*]-phthalazine,**

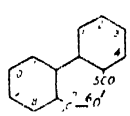


*[9,10,1-def, 1',10',9'-hij]*

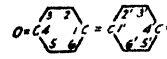
7928*d*.
**Diphenethylamine,** effect on blood pressure, 7585*f*.
——, **α,α'-dimethyl-,** 1349*f*.
**Diphenhydramine.** See *Ethylamine, 2-(benzhydryloxy)-N, N-dimethyl-*.
**Diphenic acid** (*2,2'-biphenyldicarboxylic acid*),



polynitro derivs., compds. with asym. aromatic hydrocarbons, 1388*h*.
——, **4,4'-dimethoxy-,** 191*c*.
——, **5,5'-dinitro-,** 2190*b*.
——, **6,6'-dinitro-,** *d*-, and *l*-, salts with *d*- and *l*-conhydrine, 7937*c*.
——, **4'-isopropyl-3-methyl-,** and derivs., 3815*h*.
——, **4,4',6,6'-tetranitro-,** dimethyl ester, racemic, compd. with 1-methylacenaphthene, 1388*i*.
**Diphenic anhydride, 4' - isopropyl - 3-methyl-,** (omitted from abstr.), 3815*h*.
**Diphenide,**



——, **7-oxo-.** See *Diphenic anhydride*.
**Diphenimide** (*2,2'-biphenyldicarboximide*).
——, **4'-isopropyl-3-methyl-,** 3815*h*.
**Diphenoquinone,**

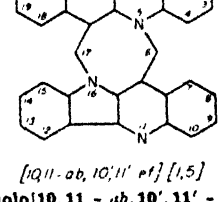


and derivs., 5017*i*.
——, **octachloro-,** P 813*c*.
**Diphensuccinda-9,11-diene.** See *Indeno[2,1-a]indene*.
**Diphensuccindene.** See *Indeno[2,1-a]indene, 5,10-dihydro-*.
**Diphenyl.** See *Biphenyl*.
**Diphenylamine,** adsorption and electrolytic polarization in solns. contg., 503*h*.
adsorption by activated C, 6037*e*.
alc. adsorption by, 464*e*.
*p*-alkoxy derivs., 3386*f*.
antifouling properties of, 3964*b*.
as antioxidant and odor inhibitor in alkyl benzenesulfonates, P 6845*c*.
in bamboo-powder-post-beetle control, 3967*e*.
chloro nitro derivs., reduction of, 1734*e*.
compds. with 1-benzylquinolinium chloride, 1-ethylquinolinium iodide, 1-methylquinolinium *p*-toluenesulfonate and 1-methylpyridinium *p*-toluenesulfonate, absorption of light by, 408*i*.
derivs., 3799*h*, P 9470*b*.
derivs., for Neoprene compounding, P 2026*c*.
detection in explosives, 8138*i*.
detection in gasoline, 2760*e*.
effect on elec. capacity of electrodes in $Na_2SO_4$ soln., 5316*c*.
on heat deterioration of GR-S rubber, 8188*g*.
on polarography of metals, 5315*i*.
on Sn electrodeposition, 1269*cf*.
fatty acid adsorption on, 1238*i*.
flow birefringence of, temp. and, 456*h*.
formylation of, 1336*b*.
heptylated, effect on heat deterioration of GR-S, 8188*g*.
hydrogen (active) detn. in, 3316*f*, 8964*f*.
identification of, 7447*a*.
manuf. of, P 682*f*, P 5799*f*, P 8399*h*.
manuf. of, and its derivs., P 3454*f*.
reaction with acrylonitrile, 8351*g*.
with chloramines, 6570*g*.
with mustard gas, 6336*i*.
with $PhCH_2CO_2H$, 4672*i*.
with Na vanadate, catalysis by oxalic acid, 4549*a*.
as rubber stabilizer in *m*-dinitrobenzene-vulcanized rubber, 2023*b*, 3226*de*.
as rubber vulcanization accelerator, 3648*a*.
system: ethylenediamine–, 2082*c*.
system: formic acid–, 6066*c*.
triphenylmethyl derivs., 7005*g*.
ultrasonic velocity in solns. in $CCl_4$, 8793*a*.
**Diphenylamine, 4-amino-.** See *p-Phenylenediamine, N-phenyl-*.
——, **4 - amino - 3' - dimethylamino-,** reaction with $HCO_2H$, 647*e*.
——, ***p*-amoxy-,** 3386*g*.
——, ***p*-(benzyloxy)-,** 3386*g*.
——, ***p*-butoxy-,** 3386*g*.
——, ***p*-chloro-,** 6570*g*.
——, **2-chloro-6-nitro-,** 6175*g*.
——, **2(3 and 4)-chloro-2'-nitro-,** 6175*g*.
——, **3-chloro-2-nitro-,** reduction of, 1731*f*.
——, **3(4 and 5)-chloro-2-nitro-,** 6175*f*.
——, **4-chloro-4'-nitro-,** 9037*i*.
——, **2,4-diamino-.** See *1,2,4-Benzenetriamine, N¹-phenyl-*.
——, **3,3'-diamino-,** 169*b*.
——, **3,3'(and 3,4')-diamino-,** reaction with $HCO_2H$, 647*e*.
——, **4,4'-diamino-,** polymers with dibasic acids, P 4052*g*.
——, **4,4'-dichloro-,** 6570*g*.
as insecticide, 2359*h*.
——, **3,5 - dichloro - 2',4' - dinitro-,** 3799*h*.
——, **4,4 - dichloro - *N* - methyl-,** as insecticide, 2359*h*.
——, **2,2'(2,3' and 2,4')-dichloro-6-nitro-,** 6175*h*
——, **2',3(2',4-, 2',5-, 3,3'-, 3,4'-, 3',4-, 3',5-, 4,4'- and 4',5)-dichloro-2-nitro-,** 6175*g*.
——, **2',4(3',4 and 4,4')-dichloro-2-nitro-,** reduction of, 1731*g*.
——, **3,5 - dichloro - 2,2',4,4' - tetranitro-,** 3799*i*.
——, **4,4' - dichloro - *N* - (trichloromethyl)-,** as insecticide, 2359*h*
——, ***ar,ar'*-dimethyl-.** See *Ditolylamine*.
——, **3,3'-dinitro-,** 169*b*.
——, **4,4'-dinitro-,** 7444*a*.
as insecticide, 2359*h*.
——, ***p*-(dodecyloxy)-,** 3386*g*.
——, ***N*-ethyl-,** amine oxidase inhibition by, 9118*e*.
——, ***ar*-ethyl-*N*-methyl-,** amine oxidase inhibition by, 9118*e*.
——, ***p*-(heptyloxy)-,** 3386*g*.
——, ***p*-(hexadecyloxy)-,** 3386*g*.
——, ***ar*-hexahydro-.** See *Cyclohexylamine, N-phenyl-*.
——, **3,3',4,4',5,5' - hexamethyl-,** P 5790*f*.
——, **2,2',4,4',6,6'-hexanitro-,** ammonium deriv., effect on benzidine-peroxidase color, 7521*e*.
calcium deriv., in K recovery from sea water, etc., P 1159*f*.
——, ***p*-(hexyloxy)-,** 3386*g*.
——, **isopropoxy-*,** as antioxidant and odor inhibitor in alkyl benzenesulfonates, P 6845*c*.
——, ***ar*-isopropoxy-,** for preservation of pigments in alfalfa, P 6760*c*.
——, ***p*-isopropoxy-,** 3386*g*.
——, ***ar*-methyl-.** See *Toluidine, N-phenyl-*.
——, ***N*-methyl-,** compd. with 1-methylquinolinium *p*-toluenesulfonate, light absorption by, 409*a*.
——, **2-nitro-,** chloro derivs., 6175*c*.
——, ***p*-(*p*-nitrophenylazo)-,** color reaction with Mg, 597*d*.
——, ***N*-nitroso-,** in chigger control, 8599*h*.
detection in explosives, 8138*i*.
effect on heat deterioration of GR-S rubber, 8188*g*.
scorching reduction in rubber tread stocks contg. reënforcing furnace blacks by, 7251*h*.
——, ***p*-nitroso-,** P 7507*i*.
——, ***p*-(octyloxy)-,** 3386*g*.
——, **2,2',4,6,6' - pentanitro - 4' - vinyl-,** polymeric, P 6372*e*.
——, ***p*-propoxy-,** 3386*g*.
——, **2,2',4,4'-tetrachloro-,** 6570*g*.
——, **2,2',4,4'-tetranitro-,** formation of, in oxynitration of benzene, 179*h*.
reaction with acetone in the presence of alkali, 6175*b*.
**Diphenylamine-2-carboxylic acid.** See *Anthranilic acid, N-phenyl-*.
**Diphenylenazone.** See *Benzo[c]cinnoline*
**Diphenylene.** See *Cyclobutadibenzene*.
**Diphenylenemethane.** See *Fluorene*.
**Diphenylene oxide.** See *Dibenzofuran*.
**Diphenylene sulfide.** See *Dibenzothiophene*.
**Diphenylenimine.** See *Carbazole*.
**Diphenyl oxide.** See *Phenyl ether*.
**Diphenyl sulfide.** See *Phenyl sulfide*.
**Diphenyl sulfone.** See *Phenyl sulfone*.
**Diphosgene** (*surpalite trichloromethyl chloroformate*), physiol. action of, localization of site of, 8557*c*.
spectrum of, 8885*c*.
**Diphosphoinositide*,** brain, 4318*bf*.
**Diphosphopyridine nucleotide-cytochrome c reductase,** in liver fractions, 4356*c*.
**Diphosphopyridine nucleotide nucleosidase,** 2250*i*.
**Diphosphopyridine nucleotide pyrophosphatase,** 2250*h*.
triphosphopyridine nucleotide structure and, 255*g*.
**Diphosphothiamine.** See "phosphate" under "$B_1$" under *Vitamins*.
**Diphtheria.** (See also *Corynebacterium diphtheriae*.)
antiserum, $(NH_4)_2SO_4$ replacement by NaCl in, P 3154*a*
antitoxin and toxin, effect on oxidation of ascorbic acid, 8434*d*.
antitoxin avidity detn. and diln. ratio of sera against toxin of, 9228*i*.
antitoxin, fractionation of, 7071*e*.
antitoxin-toxin reaction in gels, 9227*h*
calcium and Mg in blood in, 1100*d*
cholinesterase in blood in, 5857*e*.
iron in liver and spleen in, 5106*i*.
nitrogen metabolism of brain in, 7122*b*
prothrombinemia in, 301*h*, 3516*a*
toxin, chromatography in production of, 4325*f*.
effect of 2,3 dimercapto 1-propanol on 4377*h*.
effect of glutaric acid on toxicity of, 3879*d*.
effect of lipotropic factors and vitamins in poisoning by, 9256*i*
effect on healing of wound, 8434*b*
effect on K in blood serum, 5481*c*
effect on resistance to uranyl nitrate, 764*e*.
enzyme activity of, 9152*i*
protection of adrenal exts. and steroids against, 8054*g*.
sensitivity of egg to, 8618*b*.
vitamin C in endocrine glands under intoxication by, 1104*a*.
toxin and toxoid, amino acid constitution of, 4700*h*.
toxoid, adsorption by $AlPO_4$, 6300*b*.
prepn. of, 4325*h*.
review on, 7120*f*.
toxoid-antitoxin floccules, effect of heat on, 7119*h*.
treatment of, based on enzyme theory of anaphylaxis and immunity, 1855*c*.
**Diphtheroids.** See *Corynebacterium*.
**Dipicolinic acid.** See *2,6-Pyridinedicarboxylic acid*.
**Dipicrylamine.** See *Diphenylamine, 2,2',4,4',6,6'-hexanitro-*.
**Di-1-piperidinecarboxamide,** 5369*h*.
**Diplodia,** *natalensis*, control of, on oranges, 3536*e*, 9339*b*.
*natalensis*, phosphorus (radioactive) effect on, 5825*b*.
*pinea*, control on pine, 8597*c*.
**Diplogen.** See *Deuterium*.
**Diploicin,** constitution of, 608*d*.
**Diplons.** See *Deuterons*.
**Dipole moment.** See *Electric moments*
**Dipoles.** See *Molecules*.
**Dipping fluids,** for buffalo fly and ticks on cattle, 4416*g*.
chlorinated-insecticide-contg., effect on livestock, 1520*a*.
2 - ethylhexyl *N* - octadecyltetrachlorophthalamate for, P 3558*h*.
for fox scabies, Jacutin as, 4418*c*
for lemon post-harvest decay, 3133*i*.
for sheep ectoparasites, 9352*d*.
**Diprene,** complex compd. with $AgNO_3$, 5621*g*.
**Dipropionamide,** prepn. of, 4221*b*.

**Dipropylamine**, P 5412*a*.
identification of, 4630*d*.
phys. constants of, 2956*g*.
thiocyanate, 578*g*.
——, **2,3' - bis(diethylamino) - 1,1'-dimethyl-**, 1349*g*.
——, **3' - bromo - 2,2 - dimethyl-**, hydrobromide, 3421*d*.
——, *N*-**(2-chloroethyl)-**, hydrochloride, pharmacology of, 1861*d*.
——, **3'-chloro-1-ethyl-**, hydrochloride, 3421*d*.
——, **2,2'-dichloro-***N*-**methyl-**, 1005*f*, 7422*c*.
——, **3,3' - di - 2 - furyl - 1,1' - dimethyl-**, 1349*f*.
——, *N* - **2,2 - dimethoxyethyl-†**, 6974*b*.
——, *N* - **[2 - (4,4' - dimethylbenzhydryloxy)ethyl]-**, P 3462*h*.
and hydrochloride, P 1064*f*.
——, *N*-**phenyl-**. See *Aniline, N, N-dipropyl-*.
**Dipropylene glycol***, maleate, polymer with diallyl tetrachlorophthalate, P 3233*b*.
**Diproxid**. See "diisopropyl ester" under *Formic acid, dithiobis[thiono-*.
**Dipsacus azureus**, alkaloids from, 2213*c*.
**Dipyridopyrazidilinium,**

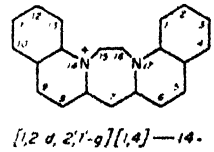
*[1,2-a,1',2'-d]*

**Dipyrido[1,2 - *a*,1',2' - *d*]pyrazidiinium compounds**, 6,12-dihydro— dibromide, 2996*h*.
tetradecahydro— dibromide, 2997*a*.
**Dipyridyl**. See *Bipyridine*.
**Dipyridylamine**. See *Pyridine, aminodi-*.
**Diquindolodiazocine,**



*[10,11-ab,10',11'-ef][1,5]*

**Diquindolo[10,11 - *ab*,10',11' - *ef*][1,5]diazocine - 6,17 - dione**, 11,11a,22,22a - tetrahydro - 11a,22a - dihydroxy-11,22-dimethyl-, 230*a*.
**Diquinodiazepinium,**



*[1,2-d,2',1'-g][1,4]—14-*

**Diquino[1,2 - *d*,2',1' - *g*][1,4]diazep - 14-inium compounds**, 15,16-dihydro— iodide, P 7845*b*.
**Dirac theory**, of electrons, 5660*c*.
hydrogen eigenfunctions in, 4554*i*.
**Disaccharides**. (See also *Sugars, analysis*.)
effect on vitamin C oxidation, 1016*h*.
fermentation of, 1904*g*.
formation and decompn. in grape vines, 3069*a*.
reaction with amino acids, melanoidin formation in, 4501*h*.
**Discaloy 28**, minor phases in, 540*g*.
**Discoglossus pictus**, effect of thiouracil on metamorphosis of, 322*f*.
**Disco-Lipiodol**, in radiography of subarachnoid space, 5534*d*.
**Discoloration**. (See also *Color(s); Staining; Yellowing*.)
of apricots, effect of 2-furaldehyde and sugars on, 1120*g*.
of brines of green Spanish olives, 5511*c*.
of Buna S X-392 and X-393, prevention of, 2017*c*.
of butadiene-vinyl copolymers, prevention of, P 3195*c*.
of cauliflower, 9313*e*.
of chlorine-contg. polymers, prevention of, P 2034*e*.
of cosmetics and soap by perfume, 6362*i*.
of cottonseed oil by gossypol, 5208*h*.
of coumarone-indene resins in ultraviolet, stabilizers for preventing, P 4511*f*.
of crème de menthe and wool by sulfides, 924*d*.
of eggs (whites and yolks), effect of isopropanol-extd. cottonseed meal on, 1497*d*.
of fish balls (canned), 8069*a*.
of foods, 5880*b*.
of fruits after thawing or removal from refrigeration, prevention of, P 7605*f*.
of fruits and vegetables by inactivation of enzymes, prevention of, P 5882*c*.
of fruits and vegetables during production and storage, 9329*b*.
of fruits (dried), 5128*i*.
of fruits (dried), effect of supervoltage cathode rays on, 5878*e*.
of fruits (frozen), vitamin C in prevention of, 3535*e*.
of fuels contg. aromatic-amine antiknock agents, alkyl amines as inhibitors of, P 4003*d*.
of glass support for luminescent screen in cathode-ray tube, prevention of, P 8290*g*.
of glycerides, inhibition by 5-pentadecylresorcinol, P 884*e*.
of lacquers (nitrocellulose) contg. acids by Fe, 7718*h*.
measurement of, of Buna S by ultraviolet radiation, 1209*h*
of methionine on autoclaving with glucose, fluorescence and amino N in relation to, 9276*i*.
of milk (dry) on storage, 780*d*.
of muscle pigments, effect of $O_2$ on, 782*a*.
of Neoprene GN (white) by sunlight, 7254*f*.
of pears (canned), effect of vitamin C on, 8070*f*.
of petroleum distillates in pipe lines, prevention of, P 6402*i*.
of petroleum products in pipe lines by *p*-indophenol, 1553*f*.
of potato chips, control of, P 331*d*.
of potatoes, after storage, 9289*h*.
of potatoes on cooking, prevention of, 7603*i*.
prevention of, hydroxyarylalkyl amine condensation products for, P 1176*a*.
of rubber by diphenylguanidine and methylenedi-2-naphthol, 7740*g*.
of skin, waxing of powders causing, P 1884*b*.
of soaps, prevention by mercaptobenzothiazole biguanide salts, P 5216*a*.
of soaps (white), inhibiting oxidation of γ-tocopherol to prevent, P 6437*g*.
of soups (concd. packaged), prevention with cereals, P 5512*h*.
of strawberry preserves, prevention of, 1500*i*.
of tar acids, prevention of, P 6398*b*
of vegetable butts, prevention of, P 1124*e*.
of vinyl chloride polymers by heat and ultraviolet light and its prevention, 8737*h*.
by heat, prevention of, P 2468*b*, P 4049*h*.
by ultraviolet light, prevention of, P 2468*b*.
of vinyl chloroacetate polymers, 7749*g*.
of vinyl halide resins, prevention of, P 9528*c*.
of vinylidene chloride polymer by light, prevention of, P 2037*i*.
**Diseases**. (See also *Health; Infections; Therapeutics;* the different organs as *Kidneys;* and the specific diseases as *Tuberculosis;* etc.)
albumin lability to NaOCl in, 7568*d*.
antagonism of structurally similar compds. in relation to, 4339*h*.
blood pyruvic acid in, 8500*i*.
books: Bacterial and Virus, 755*h*; The Natural History of, 755*i*; Pharmacology and Therapeutics with Special References to Tropical, 4777*h*; Dermatology and Venereology for Nurses, 5112*c*; Communicable, 8051*b*.
catheptic proteinase in urine in, 1479*g*.
of dairy cattle, milk production and, 3941*d*.
deficiency—see *Avitaminosis; Diet; Nutrition, animal; Vitamins*, this year.
diagnosis of, by enzymic methods, 8408*b*.
hemolysis by venoms in, 7569*b*.
HCl-collargol reaction as, 8044*i*.
fecal-borne, control in China, 9126*e*.
hypertonic, cholesterol and ketones in blood in, 7126*c*.
infectious, 3513*b*.
chemotherapy of, 7148*g*.
*infectious*, glutamic acid and glutamine in blood plasma in, 6719*d*.
hyaluronidase inhibition by blood serum in, 9222*h*.
thymol-turbidity test in, 4760*b*.
vitamin C relation to Fe in, 8475*a*.
17-ketosteroids excretion in, 6299*b*.
nitrogen deficiency in, 6295*h*.
occupational—see also *Dermatitis; Poisoning; Silicosis; Skin*.
occupational, in Fe and metal-pickling industries, 7888*f*.
prevention of, 1881*h*.
of textile workers, 1573*h*.
plant—see *Plants;* and the specific plants.
protein metabolism in, 3915*c*, 8516*f*.
prothrombin in blood in, 3516*a*.
treatment of, based on enzyme theory of anaphylaxis and immunity, 1854*i*.
tuberculin and histoplasmin sensitivity in, 300*h*.
vitamin C in blood in, 287*i*.
water-borne, 7165*a*, 8077*f*.
**Diseptal A**. See *Sulfanilanilide, 4'-(dimethylsulfamyl)-*.
**Diseptal B**. See *Sulfanilanilide, 4'-(methylsulfamyl)-*.
**Diseptal C**. See *Sulfanilanilide, 4'-sulfamyl-*.
**Dishes**, phys. properties of aminoplastic, 5125*f*.
**Dishwashing**, sanitizing in, testing germicides for, 323*d*.
**Disilane**, decompn. by heat, kinetics of, 2078*e*.
——, **hexaamyl-**, 124*f*.
**2,4-Disilapentane, 2-chloro-4-fluoro-2,4-dimethyl-†**, 563*i*.
——, **2,4-dichloro-2,4-dimethyl-†**, 563*i*.
——, **2,4-difluoro-2,4-dimethyl-†**, 563*e*.
**2,4 - Disilapentane - 2,4 - diol, 2,4 - dimethyl-†**, 563*g*.
**Disilazane,**

$H_3SiNHSiH_3$
1 2 3

——, **1,3 - diethyl - 1,1,3,3 - tetramethyl-**, 1316*a*.
——, **1,1,1,3,3,3-hexaethoxy-**, 1006*b*.
——, **1,1,1,3,3,3-hexamethoxy-**, 1006*d*.
——, **1,1,3,3 - tetramethoxy - 1,3-diphenyl-**, 1006*h*.
**Disilicoethane**. See *Disilane*.
**Disiloxane,**

$H_3SiOSiH_3$
1 2 3

derivs., P 667*c*, P 1803*c*.
——, **1,3 - bis(chloromethyl) - 1,1,3,3-tetramethyl-**, 2930*a*, P 3441*d*, P 7500*g*.
——, **1,3 - bis(dichloromethyl) - 1,1,3,3-tetramethyl-**, P 3837*e*.
——, **1,3 - bis(hydroxymethyl) - 1,1,3,3-tetramethyl-**, and esters, 6158*g*.
——, **(carboxymethyl)pentamethyl-†**, 5003*g*.
——, **(chloromethyl)pentamethyl-**, 563*d*, P 3441*d*.
reactivity of, 2920*e*.
——, **1,3 - diethoxy - 1,1,3,3 - tetramethyl-**, P 6221*c*.
——, **[(dimethylsilylene)dimethylene]-bis[pentamethyl-†**, 563*f*, P 3656*g*.
——, **hexabenzyl-**, P 667*g*.
——, **hexaethyl-**, formation in Friedel-Crafts reaction of EtSiPh with acid chlorides, 2178*a*.
in sulfuric acid (100%), 4215*e*.
——, **hexamethyl-**, 562*eg*, P 667*e*, 2929*i*, 2930*b*, P 4402*f*.
chlorination of, 563*d*.
compression of, 4067*f*.
in sulfuric acid (100%), 4215*e*.
toxicology of, 1807*b*.
——, **hexaphenyl-**, P 667*e*, 8366*d*.
——, **(hydroxymethyl)pentamethyl-†**, acetate, 6158*g*.
——, **(iodomethyl)pentamethyl-**, reactivity of, 2920*e*.
——, **methylenebis[pentamethyl-†**, 563*e*, P 3656*g*.
——, **pentamethylphenyl-**, P 667*f*, P 1803*c*.
——, **pentamethyl(trimethylsilylmethyl)-†**, 563*e*, P 3656*f*, P 7500*f*.
——, **1,1,3,3-tetraethoxy-**, 9028*c*.
——, **1,1,3,3 - tetramethyl - 1,3 - bis(pentamethyldisiloxanylmethyl)-†**, 563*g*, P 3656*h*.
——, **1,1,3,3 - tetramethyl - 1,3 - diphenyl-**, P 667*f*.
——, **1,1,1-tribenzyl-3,3,3-trimethyl-**, P 667*g*.
——, **1,1,1-trimethyl-3,3,3-triphenyl-**, P 667*e*.

——, 1,1,3-trimethyl-1,3,3-triphenyl-, P 607*f*.

**Disinfectants and Antiseptics.** (*Exact distinction between antiseptics and disinfectants for indexing purposes has proved to be impossible. See also* Acriflavine; Antiblastic substances; Bactericidal action; Carrel Dakin solution; Carvasept; Ceresan; Chloramine-T; Dipping fluids, Formaldehyde; Fumigants; Fungicides; Germisan; Insecticides; Lysol; Mercury compounds; Merthiolate; Mouthwashes; Pharmaceuticals; Phenol coefficients; Prontosil; Quinosol; Resorcinol, hexyl-; Soaps; Sprays; Sulfanilamide; Sulfapyridine, Sulfonamides, Zephirol; *etc.*)

acridine derivs., P 4703*d*.
of acridine series, 7549*h*.
acylated sulfonamides, P 2231*e*, P 7963*e*, P 8622*a*.
aerosols of, effect of type of nebulizer on activity and duration of action of, 9387*a*.
for air, 4797*f*, 4798*e*.
dispersal of vapors of, 4798*d*.
evaluation of, 4338*e*.
α-hydrocarboxylic acids as, 4797*i*.
lactic acid as, 4798*a*.
levulinic acid as, 4798*b*.
propylene glycol as, 4797*h*.
triethylene glycol as, 9377*c*.
alums as, for pickles, 8572*i*.
amine salts, P 6357*g*.
aminoacridine compds. with sulfathiazole, P 2738*g*.
5 - amino - 2 - (*p* - aminophenylsulfonyl)-pyridine, P 1803*g*.
4-amino-2-(hydroxymercuri)benzoic acid cyclic anhydride as, P 7968*b*.
amino ketones for, P 7509*a*.
ammonium compds. as, 8006*i*.
ammonium compds. (quaternary), P 2229*a*, 2370*g*, P 3034*c*, P 4430*i*, P 4431*e*, 5540*b*, P 5910*e*, 7192*g*, P 8620*d*, 9365*a*, P 9392*cd*.
contg. Ca salts, P 9390*a*.
testing of, 358*i*, 4425*ad*, 7639*b*.
ammonium compds. (quaternary) and hypochlorites as, 724*c*.
ammonium salt of ethylenediamine tetraacetic acid, alk. detergents contg., P 6438*h*.
antagonism of basic, and basic compds., 3058*a*.
apomorphine, P 7197*h*.
from aromatic unsatd. carbonyl compds., P 4420*g*.
arylidene alicylic ketones, P 4420*i*.
3-(aryloxy)-1,2-propanediol solns., P 7508*g*.
bacteria in mouth and, 6698*h*.
bacteria in water and, 4799*a*.
bacterial-spore resistance to heat and, 719*i*.
bactericidal action of, effect of blood on, 6278*b*.
bactericidal action of, in air, 4798*f*.
benzotriazolium compds. as, P 7971*b*.
*p*,*p*′-biphenol derivs, 5017*i*.
biphenyl derivs., 8614*d*.
bivalent metal salts of halogen-substituted phenol sulfides, P 2739*h*.
for black rot on sweet potatoes, 7180*f*.
book: Germicides, Antiseptics and Disinfectants for Hospital Use, 3978*a*.
bromo thiazoles, P 3042*c*.
for bulbs, 9337*i*.
calcium cyanamide, 1137*g*.
cationic, bacteriological evaluation of, 9387*e*.
cationic, testing of, 3873*e*.
for cellulosic materials, P 7632*f*.
chloralimine compns., P 5154*c*.
chloramine and Eusol in emulsion, 3561*i*.
chlorinated paraffin wax amines, P 349*h*.
chlorine dil. solns. as, 9159*g*.
[4 - (2 - chloro - 4′ - dimethylamino - 5-hydroxybenzhydrylidene) - 2,5 - cyclohexadien - 1 - ylidene]dimethylammonium hydrogen sulfate, 5387*e*.
chlorophenyl ethers, P 4808*b*, P 6663*b*.
classification and constitution of British, 9364*h*.
for coccidiosis and related infections, P 868*a*.
complex cyanides of Hg compds. as, P 3837*g*.
for cottonseed, phenol esters as, 3133*e*.
for cowpea-bacterial canker, 6775*e*.
detergent, nascent O-liberating, P 1587*e*.
detergents as, in food plants, 4497*d*.
detn. in air, 4798*g*.
5,5′-dibromosalicil, 5540*f*.
from *o*-dichlorobenzene, P 6778*e*.
5,7 - dichloro - 8 - hydroxyquinaldine, P 6242*b*.
5,7 - dichloro - 2 - methyl - 8 - quinolinol for, P 4431*h*.
from dichlorophthalic anhydride-deriv. esterification, P 5529*f*.
2,5 - dichloro - *N* - *p* - tolylsulfonylbenzamide, P 7960*g*.
diethyl tetrathiobis[thionoformate], P 7040*b*.
diffusion from ointment bases, measurement of, 8093*f*.
*N* - [*p* - [(2,4 - dihydroxy - 6 - pteridylmethyl)amino]benzoyl]glutamic acid, P 9389*b*.
4,4′ - (2,3 - dimethyltetramethylene)dipyrocatechol, P 5158*b*.
for duck, Cu complexes as, 5957*i*, 5958*a*.
effect on accumulation of hydroxyphenyl compds. in large intestine after tyrosine consumption, 3898*h*.
effect on molds, 714*h*.
efficiency of water-in-oil emulsions, effect of water on, 5533*b*.
from esters of ether-dicarboxylic acids, P 5152*g*.
esters of (hydroxyalkoxy) compds., P 6663*g*.
esters of unsatd. tricarboxylic acids, P 7634*d*.
ethyl phenethyl sulfone derivs., P 5801*f*.
evaporator for liquid, P 7273*i*.
for fish nets, 8688*d*.
flavines, 2370*h*.
for foods, 8065*h*, 9273*h*.
3 - acetyl - 6 - methylpyran - 2,4-dione or its derivs , P 6758*d*.
from complex acetates, P 7606*f*
dehydroacetic acid and derivs., P 6758*ab*.
for food utensils, evaluating, 323*d*.
German wartime, 6363*f*
for glass, Zn compds. as, P 374*b*.
from glucose caramelization products, 3147*d*.
glycerite of $H_2O_2$ as, 5533*i*.
from glycol ethers, P 352*d*.
glycol, vaporizer for, P 6370*h*.
halo amidines, P 688*g*.
halogen (active) compds., P 7517*d*.
halophenyl acetals, P 3968*c*.
for hard fibers, naphthenic acid, Cu soaps and pentachlorophenol derivs. as, 6831*f*, 7693*b*.
of heavy metal group, 2277*f*.
1 - (hydroxymethyl) - 2(1*H*) - pyridone, P 7973*f*.
hypochlorites as, 8099*a*.
indicator for, P 363*g*.
intermediate for, *N*,*N*′-sulfonyldi-*p*-phenylenebis[amidophosphoryl chloride] as, P 5156*g*.
intermediates for, ω-thiocyanoalkyl esters as, P 5153*c*.
intestinal, aryl or alkaryl 5-*tert*-butylsalicylates, P 4697*d*.
iodide detn. in I-iodide, 6111*h*.
1 - (4 - isopropylbenzyl)piperazine as, P 3558*f*.
for laundries (mobile), 1573*b*.
for leather, paint, textiles and wood, 2446*d*.
for marine fauna and flora, from dithiocarbamic acid or thiuram derivs., P 4872*h*.
mercurated 5-nitroguaiacol as, 8553*a*.
mercurimercapto quaternary ammonium compds., P 667*h*, P 6648*g*.
mercury-compd., P 9355*i*.
metalloörg., P 363*g*, P 690*ac*, P 7953*d*.
α - methylbenzylidenemalononitrile, P 3461*b*.
for mildew on textiles—see *Mildew*.
morpholinium and piperidinium compds., P 3045*ab*.
naval stores chemicals as, 9378*i*.
nitrophenolic, detn. in felt, 1194*b*.
nonpoisonous, 9364*i*.
for oat helminthosporium blights, Semesan Jr. as, 1892*i*.
for oat smut, 1137*f*.
octachlorobiphenylquinone, P 814*b*.
ointments contg., effect of particle size, type of base and wetting agent on, 3562*h*.
for orange decay, 2-aminopyridine as, 3133*i*.
ozone-liberating, P 1532*a*.
for paints (antifouling), 8695*h*.
abieto-maleic acid salts, 7719*d*.
saving Cu and Hg, 7715*b*.
paper contg., 9444*i*.
in paper mills, 2-hydroxyethylpyridinium-2-benzothiazyl sulfide as, 3615*c*.
for paper-mill slime control, 2774*b*, 8680*c*.
from peat, P 6794*b*.
phenethylamine and phenethyl isocyanates, P 5800*i*.
(phenoxyethyl)ammonium compds., P 1158*c*.
pine-oil, for washrooms, 9493*c*.
piperidinium and pyridinium compds., P 695*i*.
for plants, P 3968*def*.
for plants and seeds, phenyl Hg salts, P 9355*d*.
for potato sets, 343*a*.
properties and structure of, 4427*b*.
properties and use of, 5533*c*.
for proteinaceous fibers, pentachlorophenolate and HCOOH as, P 9475*i*
*p* - (4 - pyridylsulfamyl)acetanilide, P 364*i*.
pyrimidine derivs., P 4704*c*.
quinone resorcinol polymers, P 6452*e*.
review on, 9387*c*.
*N*-salicyloyl-β-alanine, P 1914*f*.
seed, 1138*degh*.
for citrus, 1516*f*.
detection on seeds, 802*i*.
hydroxyphenyldiazonium compds , P 9355*a*.
org. thiomercury compds., P 6648*f*
for sorghum, 2355*c*.
4a,5,8,8a - tetrahydro - 1,4 - naphthalenediones and 5,8-dihydro-1,4-naphthalenediols, P 7632*d*.
for seeds and soil, 7179*a*.
from selenium or S compds., P 6778*e*.
silver, chewing gum contg , P 8107*i*
silver ion, P 2739*h*.
for skin, mercurials as, 1456*g*.
skin (pre operative), 6365*f*.
soaps as, 1201*g*.
soaps contg. halogenated 2,2′-dihydroxydiphenylmethane or its salts, P 1587*i*.
soil, from aldehydes, P 9357*b*.
sulfanilamides mixed with diphenyl methane derivs., P 9389*i*.
*p*,*p*′-sulfonyldianiline derivs , P 5042*b*
sulfur dioxide as, for musts and wines see *Wine*
sulfurous acid as, in distillery, 6361*b*
for surgical dressings - see *Surgical dressings*.
synergism with aerosol OT, 3065*i*
from tar acids from producer-gas manuf., 4833*h*.
from tar base, P 8622*d*.
testing of, 1151*i*, 1493*a*, 3873*c*, 8095*i*
testing of, phenol coeff. in, 8444*c*.
testing of, subculture media in, 274*c*.
for textiles, P 5528*g*.
phenolic dyes as, 8141*i*.
phenyl mercurials as, 5523*f*.
phenylsalicylic acid salts as, P 8694*c*
for textiles, etc., 413*i*.
thiocyanates, P 9392*b*.
thiomercury compds. (org.), P 6648*b*.
vasoconstrictive, P 9388*g*.
for water supplies, Br as, 7165*b*.
for wheat smut, 5523*e*.
for wine making, 7635*f*.
for wool, affinity and activity of, 4017*f*.

**Disinfection.** (See also *Bactericidal action, Fumigation; Pasteurization; Sterilization.*) 5540*c*.
of air, 9387*a*.
by aldehydes and essences, 5083*c*.
by chemicals, 4797*e*.
by hypochlorites, 4797*f*.
in industry with aerosols, 9297*d*.
by low-temp. vaporization, 4798*c*.
with phenol aerosols, etc., 3953*h*
of bottles with alkali detergents and sulfonate wetting agents, 3636*g*.
of cooling towers, Cl in control of algae in, 1128*g*.
of cottonseed, 803*e*, 7180*c*.
of flaxseed, 1138*c*.
of fruits and vegetables prior to nonrefrigerated storage, and app. for, 9288*g*.
of gladiolus corms, 9327*h*, 9338*c*.
in laundering, $NH_4$ quaternaries in, 7725*g*.
of milk with O, P 1123*h*.
of nasal secretions, 6278*f*.
by oligodynamic action—see *Oligodynamic action*.
of paper and textiles, P 856*g*.
principles underlying, chemotherapeutics and, 7083*d*.

of refrigerators, with $Cl_2$, 6747*e*.
of reservoirs, flames in, 2717*c*.
review on, 6790*a*.
seed, 4411*h*, 7180*b*.
effect on respiration during germination, 802*f*.
poisoning by alkyl Hg compds. in, 8073*e*.
of siliceous and polystyrene filters, chlorination in, 9308*i*.
of skin, 3525*c*.
of soils—see *Soils*.
of soybean seed, nodulation by nodule bacteria and, 3133*a*.
in sugar manuf., 9502*h*.
by tar acids, chlorination and, 4833*i*.
of textiles, 8141*h*.
of textiles with salts forming carboxymethyl compds., P 418*b*.
of water—see *Water, purification of*.
of water storage tanks, etc., 1128*e*, 2346*e*.
of wool by detergent, disinfecting, mothproofing and wetting agents, 4017*d*.

**Disintegration**. No entries this year. See *Atomic nuclei; Crushing; Grinding; Mining*.

**Disintegrators**. No entries this year. See *Crushing apparatus; Grinding apparatus; Mills*, etc.

**Dismutation**. (See also *Fermentation; Reduction*.)
in analysis, and dismutation equil. for ampholytes, 58*e*.

**Disorder** (See also *Solutions, solid*.)
in alloy $Cu_3Au$, effect of neutron bombardment on, 6915*a*.
crystals with reticular, 8789*ab*.
elec. conduction and lattice, 6026*c*.
geometric, in linear polymers, 4510*f*.
in lamellar silicates, 6121*i*.
order, in alloys, study by neutron diffraction, 4130*i*.
magnetostriction and, 4060*a*
phenomena in Co Fe V alloys, 8338*b*
reactions, effect on phys. properties of alloys, 6956*b*.
in solid solns. of Au Cu-AuCu, 3260*c*.
transformation, superlattice with directional character defined by kinetics of, 4919*a*.
transitions in alloys, 5247*f*, 8254*d*.
in silver halides with addns. of foreign ions, 7772*c*.

**Dispensatories**. (See also *Pharmacopeias*.)
United States XIII, and D A.-B. 6, 815*g*.

**Dispensing apparatus**. (See also *Delivery apparatus, Distributing apparatus; Feeding apparatus; Syringes*.)
for sodium (purified), 8702*a*

**Dispermine**. See *Piperazine*.

**Disperse systems**. (See also *Colloids; Emulsions; Particles; Solutions; Suspensions*.)
combined water detn. in, 6943*c*.
compd. identification in, 7316*a*.
of crystals, 8228*f*.
dielec. const. and elec. cond. of, 7776*h*
elec. oscillations in, 7776*f*.
flow in cylindrical and conical tubes, 6872*c*.
flow of adjacent, having properties of a viscous plastic body, 7271*c*.
hydrophilism of, detn. of, 7781*h*.
lyophilism of, 6042*b*, 7781*f*.
metallic, structure-mech. properties of, 7779*f*.
movement in screw conveyer, 6872*b*.
nonionic-stabilizing agent for, of thermosetting resins, P 7267*b*.
particle concn. measurement in, 2068*e*.
repulsion and van der Waals attraction forces between particles of, 5214*a*.
rheological kinematics of, 5259*d*.
sliding of, along walls, 7778*g*.

**Dispersing agents**. (See also *Emulsifying agents; Wetting agents*.)
amide derivs., P 5078*e*.
amide reaction products with HCHO and $NH_4$ salts or salts of amines, P 5218*b*.
ammoethyl ester of glycerophosphoric acid diesters, P 1052*i*.
for antifoaming agents, P 1202*h*.
for chloroprene-polymer latexes, 2009*e*.
definition of, 1196*c*.
detergents as, 4407*e*.
2,4-diamino-*s*-triazine derivs., P 699*h*.
for dyeing and printing prepns., org. acid amides as, P 9473*e*.
effect on toxicity of DDT spray powders, 8087*h*.
ethers of [1-(hydroxymethyl)cyclohexyl]-cyclohexylcarbinol, P 902*h*.
glycerol monococonut oil monosulfuric acid ester Na salt, P 9495*d*.
hydrazine monocarboxyacylated deriv. reaction products with saccharides, P 9497*g*.
locust-bean gums, 8717*e*.
for lubricants, 7219*a*.
*N* - (phenylsulfonyl)octadecylanilinesulfonic acid and *N*-(*p*-tolylsulfonyl)octadecenylanilinesulfonic acid, P 4487*b*.
for pigments, 5213*h*.
polyethylene glycol reaction product with octadecyl stearate, P 9080*f*.
in polymerization of isobutene and its mixts. with diolefins, fluorinated hydrocarbons as, 2010*f*.
quaternary ammonium nitrates, P 667*c*.
for rubbers (synthetic), soaps as, P 896*c*.
silica as, for calamine lotion, 8609*c*.
for soaps (lime), stearoyldimethyl phenylbiguanide sulfonated deriv., P 4879*c*.
sodium palconate as, 1960*i*.
for solvent extn. of fat from rockfish livers, 9286*e*.
sulfonated alkyl benzenes, P 9496*d*.
textile-industry, 4875*i*, 8710*h*.

**Dispersion**. (See also *Colloids; Emulsification; Particles;* "colloid" under *Mills;* and the substances commonly dispersed, e.g., *Pigments* and *Rubber*.)
19*a*.
of amines (aromatic secondary), P 690*e*.
app. for, jet, P 3588*b*.
app. for, sonic, P 3250*d*.
carbon black degree of, in toluene solns. of Ca naphthenate, 5933*d*.
crit., of coned. emulsions, 7776*c*.
of disinfectant vapors in air, 4798*d*.
fiber science and, 4857*f*.
of gases in liquids, app. for, P 8*c*.
by high-frequency sound, 5901*h*.
of manganese dioxide in detergent solns., 3688*h*.
measurement of poly-, of polymers, 3089*d*.
nature of, 1196*c*.
of polytetrafluoroethylene, P 9528*c*.
power of detergents, measurement of, 6436*e*.
review on, 6040*g*.
of triethylene glycol vapor with aerosol bombs, 4405*a*.
of vinyl chloride resins, P 3233*c*.
of water (atomized) into moving solvent in dry-cleaning, app. for, P 7242*d*.

**Dispersion** (*of rays or waves*). (See also *Tyndall effect*.)
by anthracene crystals, 8781*d*.
by benzine, calcn. and measurement of, 2415*c*.
of birefringence, carbonate-mineral identification by, 8313*c*.
by chloroprene during polymerization, 2020*h*.
by colloidal materials, $PhNO_2$ and octyl alc., 6019*c*.
by dipolar solids, 8770*b*.
of elec. waves—see *Electric waves*.
by formamide, 8769*h*.
glasses with low, 3577*i*.
of hertzian waves—see *Hertzian waves; Microwaves*.
by inhomogeneous solid, 6040*e*.
magnetic rotatory, by hydrocarbons, 4911*a*.
magnetic rotatory, by $TiCl_4$, 453*c*.
magnetooptic, of hydrocarbons, 8839*b*.
by org. crystals, 6105*c*.
rotatory, of camphor and its derivs. and *l*-borneol, 610*f*.
of 10-camphorsulfonates, 610*cc*.
of K and Na vanadyl *d*-tartrate, 2830*i*, 2831*a*.
by rubbers, 5984*i*.
of sound—see *Sound*.
in spectral analysis, 961*c*.
by stibnite films, 2062*a*.
of ultrasound—see *Ultrasonic waves*.
of x-rays—see *X-rays*.

**Dispersoid chemistry**. See *Colloid chemistry*.

**Dispersoids**. See *Colloids; Disperse systems*.

**Dispersol dyes**. See *Dyes*.

**Dispiro[cyclohexane - 1,2' - (3,6 - dioxabicyclo[3.1.0]hexane) - 4',1" - cyclohexane]**, 4253*e*.

**Dispiro[furan - 2(5*H*),1' - cyclobutane-3',2"(5"*H*) - furan] - 5,5" - dione**. See *Anemonin*.

**Displacement**, of arsenic by Ni, 8903*a*.
of atom from diatomic mol., 8816*h*.
auto-, of Pb, 2845*i*, 8811*f*.
of β-chloro-β-hydroxydiethyl sulfide and $(ClCH_2CH_2)_2S$, kinetics of, 6057*e*.
concerted, 1247*h*.
of copper-ion by Ni, 7796*h*.
of tin by Fe, 8912*i*.
of tin by Ni from $SnCl_2$ solns., 8245*g*.

**Disproportionation**. (See also *Heat of disproportionation*.)
of carene to *p*-cymene, 5012*f*.
of ethylsilver, 5732*e*.
of free radicals in gas phase, 5270*e*.
of hydrocarbons on active C, 5650*h*.
of hydroxylamine, 3303*h*.
of methylchlorosilanes, kinetics and thermodynamics of, 4931*f*.
of plutonium(V), 6531*g*.
of silicic acid esters, 5737*h*.
of stannous oxide to Sn and $Sn_3O_4$, 2108*c*.
of stiboso aromatic compds., 3696*d*.
of thallium triiodide, 8932*i*.
of uranium(V), 5269*b*.
of uranium(V) in perchlorates, kinetics of, 8911*h*.
of uranyl ion, 8928*g*.

**Dissimilation**. See *Metabolism, animal; Metabolism, plant*.

**Dissociation**. (See also *Heat of dissociation; Predissociation;* and "free" under *Radicals*.)
of alk. earth oxides, 8838*c*.
of amine(tertiary) addn. compds. with $SO_2$ and $SO_3$, 5241*b*.
of ammonium phosphates and $H_3PO_4$ by heat, 7307*g*.
of antimony, As, Bi, N, and P, and their oxides, 5240*e*.
of binary metal crystals, vol. changes from, 8232*b*.
of bromine, BrCl and $Cl_2$, 1630*e*.
of bromine, H, I and N, kinetics of, 7797*e*.
of calcium chromate, 9405*b*.
of calcium sulfate, $K_2SO_4$ and $Na_2SO_4$, 2493*i*.
of *dl*-camphorcarboxylic acid into *d*- and *l*-forms, 6055*e*.
in carbon monoxide explosions, 849*i*, 851*e*.
of carbon monoxide in reduction of metallic oxides, kinetics of, 4933*b*.
of carbonyl compounds, 452*g*.
of cerium hydride, pressure of, 2840*i*.
of copper-$C_5H_5N$ perchlorates, 3699*f*.
of cycloalkanone cyanohydrins, 7906*g*.
of diazomethane, 7412*b*.
of *m*-dinitrobenzene compd. with $C_{10}H_8$ in acetone, 6070*f*.
of diphenylselenium dibromide unsymmetrical derivs., 8809*i*.
of dolomite into individual carbonates, 6059*e*.
of double salts by heat, redistribution of ions in, 7306*g*.
electrolytic—see *Ionisation, electrolytic*.
of ethyl alc.-$H_2O$ mixts. by NaCl, 5052*c*.
of hydrogen on metals, 6553*c*.
of iron compds. with Al, Si, Ti or Zr, 4546*c*.
of magnesium hydroxide, pressure of, 8823*a*.
of magnesium nitride, 8837*a*.
measurement of, of imperfect complexes, 7317*d*.
of mercuric and mercurous iodide vapors by heat, 6895*d*.
of nitrogen mol., 8221*a*.
of org. hydrates, pressures of, 2082*f*.
of organic mols. by electron impact, 6503*c*.
of org. sulfides, 7411*a*.
of pentaarylethanes, effect of alkyl groups and halogen atoms on rate of, 2607*e*.
of pentaphenylethane type of hydrocarbons, kinetics of, 5387*e*.
photo—see *Light; Light, ultraviolet*.
of potassium acid fluoride, pressure of, 8763*f*.
of silver oxide, kinetics of, 4086*a*.
of slag compds., 6553*a*.
of 1,1,1,2-tetraphenyl-2-arylethanes, kinetics of, 194*d*.
of trimethylborine compd. with quinuclidine, 3422*c*.
of tritium and TH, 476*c*.
of uranium hydride, 7853*c*.

**Dissolution**. See *Solution*.

**Dissolved substances**. See *Solutes*.

**Distemper** (*disease*), Mitisol in treatment of, 5503*d*.

**Distempers** (*paints*), DDT residual toxicity on, 346*i*.
white, atm.-resistant, P 5206*e*.

**Disthene**. See *Kyanite*.

**Distilbene***, 2983*d*.

**Distillation**. (See also *Destructive distillation; Distillation apparatus; Evaporation*.) 912*i*, P 7608*e*.

in air stream, 4053*i*.
in alternate heating and cooling zones, P 8218*d*.
analytical, 2113*g*, 8299*b*.
of hydrocarbons, 3178*h*, 6472*e*.
of petroleum at high altitudes in pressure app., 8654*a*.
in aromatic-compd. purification, 8225*d*.
azeotropic—see *Azeotropes;* and specific compounds forming azeotropic mixtures as *Acetic acid; Ethyl alcohol*.
of binary mixts. in packed columns, 4053*f*.
of binary mixts. in wetted-wall column, 1614*g*.
books: Phys. Principles of Gas Liquefaction and Low Temp. Rectification, 5236*d*; Short History of Art of, 5648*g*, Manuel du distillateur, 6476*g*.
calcn. of, 2*c*, 3247*ab*, 6022*g*, 7215*f*.
of binary mixts., 3255*g*.
of binary mixts. in columns, 3246*i*.
from volatility of binary mixts., 2060*f*.
calcn. of min. reflux ratio for multicomponent fractional, 2758*i*.
calcn. of tray requirements in multicomponent, under conditions of variable molal overflow, 4902*d*.
of coal—see *Coal*.
coating by vacuum, P 8634*a*.
in columns (plate fractionating), 2043*h*.
in columns (sieve-plate fractionating), 909*egi*.
in column with porcelain mushroom caps, 4902*i*.
control and instrumentation of, 2041*h*.
control of, by light absorption of products, P 3191*e*.
control of fractional, 3240*h*.
dehydration by, P 6477*c*.
distribution curves of, 2045*f*.
extractive-, P 2048*h*, 7758*f*.
calcns. in, 8746*h*.
of volatile metals with metal halides, P 5728*e*.
of fatty acid stock, P 671*d*.
flash, P 2639*e*.
foaming inhibition in, phenoxyalkanols for, P 1202*h*.
fractional, 385*d*, 2473*g*, 2474*c*.
in gas manuf.—see *Gas, fuel (manufactured)*.
with gas (preheated), P 5648*h*.
by heating liquid-vapor interface, 7297*h*.
heat pumps in, 3248*d*.
high-temp., review on, 1227*h*.
of hydrocarbon oils—see *Hydrocarbon oils*.
of hydrocarbons—see *Hydrocarbons*.
isothermal, of aerosols, 5255*h*.
detn. of mol. wt. by, 6878*c*.
in porous-disk osmometer, 4063*g*.
lab. fractional, 5645*d*, 6870*d*.
liquid and vapor compn. in columns with different molal heats of vaporization of individual components, 8839*e*.
mol., 2041*d*, 6006*c*.
analytical detns. by, 8299*d*.
with centrifugal still, 6871*c*.
guided-free-film, P 449*c*.
of oils, 4875*c*.
review on, 911*h*.
and sepn. of isotopes thereby, P 500*e*.
theory of, 7764*i*.
multicomponent, 445*e*.
multi-stage, reducing excessive vols. of noncondensible vapors by, and calcns. for, 7673*fg*.
of petroleum—see *Petroleum refining*.
with solvent, P 4524*i*.
spray, P 1618*a*.
with superheated feed vapors, 3667*c*.
thermodiffusion and, 8774*d*.
ultrasonic-wave effect on fractional, 6870*e*.
vacuum, 81*a*, 8709*h*, P 8757*f*.
vacuum, in triglyceride-oil processing, 419*i*.
vapor-loss detector for, P 5236*f*.
vapor-pressure curves of vacuum, 4914*h*.
of volatile material from natural products, 4521*h*.
of water—see *Water*.
zygograph in, 1*i*.

**Distillation apparatus.** (See also *Carbonization; Condensers; Dephlegmators; Furnaces; Furnaces, electric; Gas, fuel (manufactured); Receivers; Retorts.*) 913*a*, P 7242*a*.
for acetone-butanol fermenting liquid, 813*f*.
for alc., P 5902*c*, 9358*h*.
for alc., pressure regulator in water-removing chamber in fractionating, P 5902*c*.
for alc. recovery from pomace, P 2734*e*.
for ammonia, $C_4H_8$, etc., P 5649*b*.
analytical pressurized, for high altitudes, 8654*b*.
for arsenic detn. in pharmaceuticals, 3973*a*.
for benzene recovery from wash oil, P 2768*a*, P 6403*c*.
for binary systems (miscible), 4902*h*.
bubble-cap plates, hydraulic gradient across, 6473*a*.
with bubble caps of porcelain, 4902*i*.
for butadiene sepn. from its dimer, 8975*e*.
calcn. of tray requirements for, under conditions of variable molal overflow, 4902*d*.
with centralized control, 6873*b*.
Cheronis semimicro tube, 2473*f*.
for cineole sepn. from hydrocarbons with phenols, P 2476*h*.
for coal, peat, sawdust, shale, wood, etc., P 3176*h*, P 5648*i*.
contact surface and temp. gradient in, 2*g*.
design of, 4902*c*.
design of, equil. flash-vaporization curves in, 8654*g*.
distribution curves of, 2045*f*.
extractive and fractionating, 3603*c*.
for fatty acids, P 671*a*.
for fatty acids and glycerol, 2449*b*.
for flash or mol. distn., 6006*c*.
for fluidized destructive distn. in two zones, P 9427*a*.
fractionating (fractionating columns, towers, etc.), 4902*f*, 7270*c*, P 7760*b*, P 8757*c*, P 8759*c*.
for analysis, 6472*c*, 8299*c*, 8653*a*.
for azeotropic distn., 1225*b*.
calcns. for, for binary mixts., 3246*i*.
control of, 3246*i*, P 4524*h*.
with d. control, P 6010*e*.
for double rectification of gaseous mixts., P 6010*d*.
entrainment and efficiency in, 6005*h*.
evaluation of vacuum, 4521*f*.
gas-liquid contact surface for, P 5650*a*
glass rings for Fenske, 2822*c*.
head for, 1225*d*.
head for vacuum, 4903*b*.
liquid removal from, P 3250*c*.
max. recovery in stripping in, 8213*i*.
measurement of efficiency of, 2473*g*, 2474*c*.
packing and flooding technique for, 5645*d*.
packing for, 5645*f*.
plate action in, 2043*h*.
plate calcns. of, 4902*f*.
plate calcns. without sidestream cuts for, 4901*i*.
plates for, P 3249*a*.
for polymerizable compds., 4053*h*.
pressure drop in, 2041*i*.
preventing flooding of, app. for, P 6403*d*.
screens for packing, P 6010*e*.
semimicro-, 4053*e*.
sieve-plate, 909*egi*.
stainless steel McMahon packing in, 5646*c*.
trays for, P 8218*e*.
for gasoline plants, instrumentation for, 7673*e*.
for glycerol, 7758*c*.
head for, 4521*h*.
head (glass) for, P 6874*b*.
with heat recovery, P 3670*a*.
for hospital pharmacy, 815*g*.
for hydrocarbons—see *Hydrocarbon oils*.
for hydrogen cyanide, corrosion prevention in, P 3342*g*.
for hydrogen halide-olefin mixts., P 6010*b*.
Kjeldahl, connecting bulb for, 2891*c*.
Kjeldahl micro-, 6470*f*.
lab. high-efficiency glass, 6870*d*.
for lipides, 6693*a*.
low-pressure multipurpose Pyrex glass, 3636*h*.
for mash, P 9362*e*.
for mash, etc., P 4907*b*.
for mercury, P 7*c*.
micro-, with capillary-tube offtakes, P 2476*c*.
mol., centrifugal, 6005*b*, 6871*c*.
falling-film, 7269*c*.
semimicro, 1226*c*.
for sepn. of isotopes, P 500*e*.
nomograph for lab., 2041*c*.
for oil-extn. app., 7269*h*.
for oils (essential), 7191*i*.
for oils (essential), receiver for, P 9390*i*.
for oil shales, etc., P 9426*h*.
packing materials for, P 5237*c*.
for peppermint oil, 5532*i*.
for petroleum—see *Petroleum refining*.
for petroleum vapors, etc., P 7224*i*.
for pharmaceutical oils and vitamins, P 3572*g*.
with precipitate flushing, P 6010*a*.
with recovery of heat of vaporization, P 8218*t*.
reflux head, vacuum-jacketed vapor dividing, 6008*a*.
reflux-product splitter for condensate streams contg. water, 1615*a*.
reflux-ratio divider for, 4901*e*.
reflux-ratio head, 4903*b*.
reflux-ratio timer for, 1225*f*.
review on, 2473*f*.
rotating-band, 445*d*.
setting of, refractory materials for, 8631*h*
for shales, 6812*i*.
for solvent recovery in oil extn. from seeds, P 5215*b*.
steam-, P 7*b*.
trap for water detn., 7269*g*.
vacuum, P 914*d*, 6233*h*, P 6874*c*, P 8757*ef*.
continuous, 1615*f*.
for high-boiling mixts., P 6010*a*.
for Mg sepn. from Pb-Mg alloys, P 2567*c*.
with magnetic stirring, for oils, 4001*i*
for microquantities, 6005*g*.
relief valve for, 1*h*.
vapor-compression-type, P 6874*b*.
vapor-liquid equil., 1615*h*, 6871*c*, 8775*h*
for water detn. in fuel oil-sea water emulsion, 2420*a*.
for water, portable, P 8080*h*.
for water (sea), P 2347*e*, P 2348*a*
for water (sea), etc., P 7*d*.
for wines, P 1148*d*, P 9362*e*

**Distillery.** (See also *Mashes; Vinasse.*)
antiseptic in, $SO_2$ as, 6361*b*.
beverage fermentation in, 9357*f*
books: Cours de, 1148*a*, Distillazione agraria pratica moderna, 1906*c*, Traité de la Distillerie de Betterave, 3561*d*.
corn steep liquor from, in microbiology, 1459*c*.
heat balance in, 6361*a*.
slops or wastes, aerobic treatment of, 3547*i*.
dextrin recovery from, P 816*c*.
evaluation of dried feedstuffs for chickens from, 285*g*.
recovery by spray drying, 3970*f*
spray-drying of, 4809*b*.
sucrose detn. in, 8312*a*.
treatment of, and by-product recovery therefrom, 4797*d*.
yeast for, 3560*i*.

**Distoma hepaticum** See *Fasciola hepatica*.

**Distributing apparatus** (See also *Delivery apparatus; Dispensing apparatus.*)
for sugar beet cossettes in diffusion cells, 9503*f*.

**Distribution.** See *Partition*

**Distribution function**, of activation energies in activated adsorption, 3261*a*
chem. constitution, antimalarial activity and, of alkylhydroxynaphthoquinones between org. solvents and aqueous buffers, 1385*i*.
of system obeying Bose statistics, 8772*e*

**Disulfamide***, passage into aqueous humor, 4772*a*.
passage into conjunctival tissue, 4771*i*
passage into tears and blood, 4771*i*

**Disulfan.** See *Sulfanilamide, N'-sulfamyl-*

**Disulfanilamide** (*p,p'-diaminodibenzenesulfonamide*).

——, *N*¹, *N*¹'-**diacetyl-** *N*¹-**2-thiazolyl-**, P 3978*f*.

**Disulfide, bis[(allyloxy)tolyl]**, P 5992*k*.

——, **bis(aminophenyl)**. See *Aniline, ar,ar'-dithiodi-*.

——, **bis[o(and *p*)-chlorobenzyl]**, as insecticides, 2359*h*.

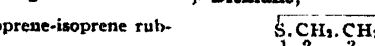
——, **bis(2-chloroethyl)**, condensation products with metallic disulfides, P 6863*f*.

——, **bis(2-chloro-1,1,2,2-tetrafluoroethyl)**, P 6646*e*.

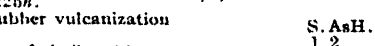
——, **bis(diamylthiocarbamyl)**, prepn. and value as vulcanization accelerator in GR-S rubber, 5987*a*.

——, **bis(dibutylthiocarbamyl)**, prepn. and value as vulcanization accelerator in GR-S rubber, 5987*a*.

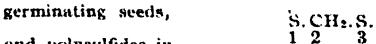
——, **bis[2,4(and 3,4)-dichlorobenzyl]**, as insecticides, 2359*h*.
——, **bis(diethylthiocarbamyl)**, P 4690*h*.
antifouling paints, etc., contg., P 4872*h*.
antifouling properties of, 3964*b*.
biol. effect of EtOH and, 4379*g*.
clinical trials with, 9266*h*.
effect on ebonite, 430*g*, 8729*g*.
effect on respiration and circulation, 4379*d*.
formation of AcH after ingestion of EtOH and, 4379*e*.
as plasticizer in chloroprene-isoprene rubbers, P 4891*a*.
prepn. and value as vulcanization accelerator in GR-S rubber, 5987*a*.
in rubber tread-type mix formulation, 4889*a*.
sensitization to EtOH by, 4379*c*, 5501*a*.
——, **bis(dimethylthiocarbamyl)**, antibacterial and antifungal activity of, 3883*e*.
antifouling paints, etc., contg., P 4872*h*.
antifouling properties of, 3964*a*.
in apple-scab control, 804*c*.
in blackroot control on sugar-beet seedling, 7175*h*.
in cereal-seed disinfection, 7180*b*.
in cottonseed disinfection, 803*f*.
in cowpea-bacterial-canker control, 6775*d*.
crystal structure of, 3225*h*.
detection and use as rubber vulcanization accelerator, 2800*e*.
effect on compression set of nitrile rubbers, 7255*c*.
on Neoprenes, 3225*g*.
on phys. properties of Hycar OR-15, 3649*c*.
on respiration of germinating seeds, 802*f*.
on yield of cyclic and polysulfides in dihydromyrcene reaction with S, 4886*e*.
in ergot control, 3959*g*.
as fungicide, 7179*a*.
in gladiolus-corm treatment, 3961*g*, 9327*h*, 9338*ac*.
in gram moth and rice weevil control, 1898*g*.
identification of, 6856*h*.
as insecticide, P 4420*a*.
mixt. with di(benzothiazolyl) monosulfide as vulcanization accelerator in rubber, 2022*d*.
for mold prevention in rubber hydrochloride film, P 3227*e*.
Neoprene GN treatment with, removal of combined radio-S in, and sol. plastic production by S linkage cleavage in, 7254*d*.
in onion-smut control, 9313*b*.
in pine-root-disease control, 7179*f*.
as polymerization stopping agent, 8727*i*
prepn. and value as vulcanization accelerator in GR-S rubber, 5987*a*.
in *Pythium* root rot control on aroids and Easter lilies, 3133*e*.
in rubber vulcanization, 2011*h*.
in smut control on sorghum, 2355*f*.
spectrum and structure of, 7410*i*.
as vulcanization accelerator, 8192*df*, 8193*b*.
——, **bis(2,4-dinitrophenyl)**, 222*e*, 3803*a*.
——, **bis(dipropylthiocarbamyl)**, prepn. and value as vulcanization accelerator in GR-S rubber, 5987*a*.
——, **bis(ethoxytolyl)†**, P 5992*g*.
——, **bis(ethylmethylthiocarbamyl)**, identification of, 6856*h*.
——, **bis(methoxytolyl)†**, P 5992*g*.
——, **bis(2-methylcyclohexyl)**, 999*e*.
——, **bis(*o*-nitrophenyl)**, 8366*g*.
——, **bis(*p*-nitrophenyl)**, 3802*g*.
——, **bis[5,6,7,8-tetrahydro-3(and 4)-nitro-1-naphthoyl]**, 6192*h*.
——, **cyclohexenyl cyclohexyl**, 996*c*.
——, **isobutyl 2-methylpropenyl**, 996*g*.
——, **methylcyclohexenyl methylcyclohexyl**, 996*f*.
**Disulfides**. See *Sulfides*.
**Disulfoxides**. See *Sulfoxides*.
**Disulfuric acid**. See *Pyrosulfuric acid*.
**Disulon**. See *Sulfanilanilide, 4'-sulfamyl-*.
**Ditane**. See *Methane, diphenyl-*.
**Diterpenes**, 1751*h*, 2978*a*, 6601*g*.
derivs., 6601*f*.
in perfume chemistry, 6365*a*.
**Diterpenoids**, 6601*f*.
**Dithane**. See "disodium salt" under *Carbamic acid, ethylenebis[dithio-*.
**Dithane A-10**. See "disodium salt" under *Carbamic acid, ethylenebis[dithio-*.
**Dithane D14**. See "disodium salt" under *Carbamic acid, ethylenebis[dithio-*.
**Dithane Z-78**. See "zinc salt" under *Carbamic acid, ethylenebis[dithio-*.
**Di-2-thenylamine**, 1763*e*.
and hydrochloride, 2201*g*.
——, **5,5'-dichloro-**, hydrochloride, 1764*c*, 2201*h*.
——, **5,5'-dimethyl-**, 1763*f*.
hydrochloride, 2201*g*.
**Dithiacyclohexane**. See *Dithiane*.
**Dithiacyclopentane**. See *Dithiolane*.
***p*-Dithiane**,



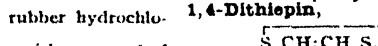
configuration of, 4232*h*.
prepn. of, 2624*h*.
valency angle of S in, 7487*d*.
——, **(chloromethyl)-**, and 1,1,4,4-tetroxide, 7030*c*.
——, **2-(chloromethyl)-1,1,4,4-tetrahydro - 1,4 - (*p* - tolylsulfonylimino)-**, 7030*c*.
——, **methyl-**, 1,1,4,4-tetroxide, 4279*a*, 7030*e*.
——, **2-methylene-**, 1,1,4,4-tetroxide, 7030*d*.
**5-*m*-Dithianecarboxylic acid**, 2580*f*.
**2-*p*-Dithianemethanol**, and derivs., 7030*e*.
**1,3,2-Dithiarsenole**,



**1,3,2-Dithiarsenole-4-methanol, 2-(3-amino-4-hydroxyphenyl)-†**, pharmacology of, 3931*b*.
**1,3,5-Dithiazine**,



——, **5,5-dihydro-2,4,6-trimethyl-**, effect on antiseptic mercurials, 9376*g*.
**1,2,4-Dithiazole, 4,5-dihydro-**. See *1,2,4-Dithiazolidine*.
**1,2,4-Dithiazolidine, 3,5-diimino-**. See *Thiuret*.
**Dithienyl**. See *Bithiophene*.
**1,4-Dithiepane**, 1,1,4,4-tetroxide, 4278*i*
**1,4-Dithiepan-6-ol**, and derivs., 4278*g*.
*p*-nitrobenzoate and 1,1,4,4-tetroxide, 7030*b*.
**1,4-Dithiepan-6-one**, 1,1,4,4-tetroxide, and its phenylhydrazone, 4278*i*.
**1,4-Dithiepin**,



——, **2,3-dihydro-**, 1,1,4,4-tetroxide, 4278*i*.
——, **tetrahydro-**. See *1,4-Dithiepane*.
***p*-Dithiin**,



——, **2,3-dihydro-5-methyl-**, 1,1,4,4-tetroxide, 7030*d*.
——, **tetrahydro-**. See *p-Dithiane*.
**Dithiocarbonic acid**. See *Carbonic acid, dithio-*.
**Dithiodiglycolic acid**. See *Acetic acid, dithiodi-*.
**1,3-Dithiolane**,



——, **4-butyl-2,2-dimethyl-**, 7417*h*.
——, **4 - (2,2 - dimethyl - *m* - dioxan - 5-yloxymethyl)-†**, 7424*b*.
——, **4-(2,2-dimethyl-1,3-dioxolan-4-yl)-2,2-dimethyl-†**, 7424*g*.
——, **4-[(2,2-dimethyl-1,3-dioxolan-4-ylmethoxy)methyl] - 2,2 - dimethyl-†**, 7423*i*.
**1,3-Dithiolane-4-carboxamide, 2,2-dimethyl-**, 3783*h*.
**1,3-Dithiolane-4-carboxylic acid, 2,2-dimethyl-**, and methyl ester, 3783*h*.
**1,3-Diozolane-2-thione, 4,4-dimethyl-†**, 7419*b*.
——, **4-(hydroxymethyl)-†**, 7419*d*.
——, **4-methyl-†**, 7419*b*.
**Dithiole, dihydro-**. See *Ditholane*.
**1,2-Dithiole**,



**1,2-Dithiole-3-thione**, derivs., 4652*b*.
and derivs., 1042*i*.
——, **4,5-diphenyl-**, 1043*a*.
——, **5-(*p*-methoxyphenyl)** 1043*d*, 4652*b*.
effect on bile, 1489*a*, 2318*f*.
——, **5-phenyl-**, 1043*c*, 4652*b*.
**1,2 - Dithiol - 3 - one, 5 - (*p* - methoxyphenyl)-**, 1043*d*, 4652*c*.
——, **5-phenyl-**, 1043*b*, 4652*d*.
**Dithionites**, detn. of, 8309*h*.
in dyeing—see *Dyeing*.
**Dithizone** (*phenylazothionoformic acid phenylhydraside*), acid properties and analytical use of, and instability consts. of its Cd, Pb and Zn salts, 5344*ds*.
copper deriv., rotproofing value in duck, 5958*b*.
mercury deriv., formation and use in analysis by reversion, 6107*d*.
reaction with Fe, 1680*i*.
in spectrochem. analysis of metals by reversion, 6107*a*.
**Di-*p*-toluenesulfonamide, 3-amino-**, azo 5-pyrazolone dyes from, P 8150*b*.
**Di-*m*-tolylamine**, manuf. of, P 5799*f*.
**Di-*o*-tolylamine**, manuf. of, P 5799*f*.
**Di-*p*-tolylamine**, manuf. of, P 5799*f*.
——, **α,α,α,α',α',α'-hexaphenyl-**, 7005*g*.
**Dittler, Emil**, obituary, 1220*f*.
**Dityrin**. See *Tyrosine, diiodo-*.
**Diuresis**, adrenaline, effect of ergotoxine and yohimbine on, 8542*f*.
antidiuretic action of atropine, 7128*i*.
antidiuretic action of relaxin-contg. prepns., 9250*c*.
antidiuretic function, cell reactions in hypothalamus after overloading, 5479*f*.
antidiuretic substance in blood of normal and adrenalectomized animals, 3084*e*.
antidiuretic substances in urine, in cirrhosis of liver, 8043*i*.
after desoxycorticosterone administration, relation of fluid intake and pressor responses to, 3000*i*.
detn. of, 7994*i*.
in hepatic cirrhosis and dietary liver injury, 8043*f*.
in hypertension, 8044*b*.
bile constituents and, 1107*a*.
effect of ephedrine, peritin, sympathol and veritol on, 8542*g*.
effect of hydroxytyramine and other sympathomimetic amines on, 6308*b*.
effect of urea and its derivs. on, 6308*e*.
emotion and, 7115*h*.
in epileptics, 305*c*.
extracellular- and intracellular-fluid phases of tissue during, in normal and hypoproteinemic animals, 3919*c*.
glycosuria and, 2308*g*.
-inhibiting activity of posterior pituitary, 8613*g*.
-inhibiting effect of 3-hydroxycinchoninic acid derivs., 3929*g*.
isotonic solns. and, 4373*f*.
by kidney, effect of drugs on, 310*b*.
osmotic, in hydropenia, urinary flow and excretion of solutes in relation to, 6721*g*.
pituitrin effect on, 4763*i*.
from potassium acetate, 2684*f*.
pyramidone effect on, 7113*b*.
salt, effect of salyrgan on effects of oxytocin and vasopressin on, 5115*e*.
smoking effect on, 4384*c*.
sodium and water excretion during osmotic, 297*i*.
of solute loading in hydropenia in man, urinary flow, excretion of solutes and osmotic work during, 1858*h*.
urea, effect on renal excretion of electrolytes, 8512*g*.
**Diuretics**. (See also "hormones of posterior lobe of" under *Pituitary gland*.)
chem. constitution and, action of org. Hg compds., 7921*g*.
from corn, P 6791*c*.
effect on kidney tubular function, 9218*f*.
on renal tubular transport of glucose and *p*-aminohippurate, 6734*a*.
on Na in urine, 4373*b*.
mercurated 1-allyl-5,5-diethylbarbituric acids, 2170*b*.
mercurial, effect of ascorbic acid on heart toxic action of, 4373*c*.
effect on Cl, K and Na excretion, 3519*g*.
effect on tubular salt absorption, 9257*c*.
nephrosis from, 1112*f*.
pharmacol. action of, 2323*e*.
toxic action of, 5867*a*.
nucleosides and purines as, 4635*b*.
org. mercury S compds., P 9084*a*.
phenylmercury compds. as, 7922*g*.
sparteine as, 4763*f*.
theophylline-isopropanolamine as, 4383*e*.
**Diuretin**, incompatibilities with phenolphthein, aloe emodin, etc., 817*a*.

**Divaricatic acid**, in lichens, 5077*d*.
**Diveratrylamine**, 2177*a*.
**Divi divi**, tan liquors from, pH values during storage, 6849*h*.
**Dixanthides**. See under *Formic acid, dithiobis[thiono-*.
**Di-3,4-xylylamine**, P 5799*f*.
**Di-3,5-xylylamine**, P 5799*f*.
**Djenkolic acid**, detection of, 2666*b*.
**DN**. See *Phenol, 2-cyclohexylnitro-*.
**DN 1**. See *Phenol, 2-cyclohexyl-4,6-dinitro-*.
**DN 2**. See *o-Cresol, 4,6-dinitro-*.
**DN-75**. See *Phenol, 2-cyclohexyldinitro-*.
**DN 111**. See "compd. with dicyclohexylamine" under *Phenol, 2-cyclohexyl-4,6-dinitro-*.
**DNB**. See *Benzene, dinitro-*.
**DNOC**. See *o-Cresol, 4,6-dinitro-*.
**DNT**. See *Toluene, 2,4-dinitro-*.
**Dobera**, oils of—see *Oils*.
**Döbereiner, Johann Wolfgang**, biography, 915*e*.
**Doca**. See "acetate" under *Corticosterone, desoxy-*.
**Dock**. (See also *Canaigre; Rumex*.)
control of curled, 2,4-D in, 9313*b*.
**Docks**, oil removal from, P 3949*e*.
**Docosadienoic acid**, in rape-seed oil, 1201*b*.
**Docosahexaenoic acid**, in fish oils, 8179*c*.
**Docosane**, dielec. strength of, 2480*d*.
from Douglas fir lignin residue, 1182*g*.
——, **11-decyl-**, Verdet const. ratio to refractive dispersion for, 4911*b*.
——, **11,12-dipropyl-**, 107*d*.
**Docosanedioic acid**. See *Phellogenic acid*.
**Docosanoic acid**. See *Behenic acid*.
**1-Docosanol**, elec. properties and mol. rotation in, 5245*h*.
as ointment-base constituent, hydrophilic properties of, 8609*i*.
prepn. of, 5363*e*.
**2-Docosanol**, from Douglas fir lignin residue, 1182*g*.
**Docosapentaenoic acid**, in fish oils, 8179*c*.
**Docosenoic acid**, in avocado pear pulp oils, 9490*i*.
**12-Docosenoic acid, 3,12,15-trimethyl-**, pathogenic effect of, 4375*g*.
**13-Docosenoic acid**. See *Brassidic acid; Erucic acid*.
**Doctylopius coccus**, control of, 346*i*.
**Documentation**. See *Literature*.
**2,4 - Dodecadienamide, *N* - isobutyl-**, 1719*f*.
**2,10 - Dodecadiene - 5,8 - dione**, reaction products with P acids, P 4877*h*.
**3,9 - Dodecadiyne - 2,5,8,11 - tetrol, 2,5,8,11-tetramethyl-**, 3359*e*.
**2,4,6,8,10,12-Dodecahexaene**, spectrum of, 1264*g*.
**Dodecane** (*duodecane*), aerosol OT in, elec. transference and x-ray scattering by, 7780*i*.
compression and freezing under pressure, 4067*e*.
herbicidal action of, 1895*d*.
mixts. with $C_6H_6$ and 2,4-dimethylpentane, viscosities of, 8777*h*.
with cyclohexylcyclopentane for testing distn. columns, 4521*f*.
with hexane, activity coeffs., vapor pressures and statistical thermodynamics of, 5247*a*.
prepn. of, 1312*a*, 2156*g*.
resonance energies of, 10*e*.
spectrum of, 3715*h*.
viscosity of, 8839*e*.
**Dodecane, 2-benzyl-1-phenyl-**, spectrum of, 4140*e*.
——, **1-bromo-**, P 2628*a*.
dielec. properties and structure of, 4912*b*.
phys. consts. of, 2591*a*.
——, **4-bromo-**, reaction with Mg (attempted), 107*h*.
——, **1-bromo-10-ethyl-**, 3780*i*.
——, **1-bromo-9-propyl-**, 3781*a*.
——, **1-chloro-**, dielec. properties and structure of, 4912*b*.
hydrogenolysis of, with $LiAlH_4$, 1312*a*.
phys. consts. of, 2690*i*.
——, **1-chloro-1-*p*-tolyl-**, P 4431*e*.
——, **1 - [*p* - [*p* - chloro - *α* - (trichloromethyl)benzyl]phenyl]-**, P 6360*b*.
——, **1-cyclohexyl-**, resonance energies of, 10*e*.
——, **2,6-dibromo-4,4-dichloro-**, 3345*d*.
——, **2-(*p*-ethylphenyl)-**, P 6232*d*.
——, **4-iodo-**, 107*h*.
——, **1-[1(and 2)-naphthyl]-**, 4454*h*
——, **1-(2-naphthyl)-**, 9424*e*.
Raman spectrum of, [illegible].
——, **1-phenyl-**, chromatography of, transport factor on $SiO_2$ gel for, 7868*e*.
resonance energies of, 10*e*.
sulfonated, Na salt, $MnO_2$ suspension in, 3688*i*.
——, **6-phenyl-**, P 6232*f*.
——, **6-propyl-**, 9023*e*.
——, **2-*p*-tolyl-**, P 6232*c*.
**1,2-Dodecanedicarboxylic acid**. See *Succinic acid, decyl-*.
**1,12-Dodecanedicarboxylic acid**. See *Tetradecanedioic acid*.
**Dodecanedioic acid**, in urine of pregnant mares, 2685*i*.
——, **2-acetyl-2-(2-cyclopenten-1-yl)-3-oxo-**, diethyl ester, 1730*h*.
**1,9-Dodecanediol**, 3781*a*.
**1,10-Dodecanediol**, 3780*i*.
**1-Dodecanesulfinic acid**, and derivs., 2572*d*.
**Dodecanesulfonic acid**, effect on hydrolysis of proteins, 6681*b*.
potassium salt, hydrolyzing power for oils, 8707*g*.
**1-Dodecanesulfonic acid**, elec. cond. of, 2071*d*.
ester with 1-dodecanethiol, 2572*e*.
foam from aq. solns. of, 5687*e*.
sodium salt, as food disinfectant, 9273*i*.
surface and interfacial tensions of, 3267*d*.
surface films of, 7776*i*.
thallous salt, 3352*g*.
**Dodecanethiol**, effect on heat deterioration of GR-S rubber, 8188*g*.
as polymerization regulator in butadiene-styrene mixts., 6856*f*.
radioactive $S^{35}$-tagged, as modifier in Neoprene GN polymerization system in end-group detn., 7254*c*.
**1-Dodecanethiol**, 6455*b*.
1-dodecanesulfonate, 2572*e*.
effect on crosslinking in polymers, 5227*c*.
on emulsion copolymerization of isoprene and styrene, 2019*b*.
on polymerization of allyl methacrylate, 8199*i*.
as ointment-base constituent, hydrophilic properties of, 8610*a*.
as polymerization modifier for isoprene, 8193*f*.
as polymerization modifier in Et acrylate blends, 5989*a*.
as stabilizer for aerosols, 9330*e*.
as stabilizer for polysulfone resins, P 9527*e*.
styrene polymerization in presence of, 1340*f*.
as synergist for nicotine, 5894*a*.
**Dodecanoic acid**. See *Lauric acid*.
**1-Dodecanol**. See *Dodecyl alcohol*.
——, **10-ethyl-**, and carbanilate, 3780*i*.
——, **9-propyl-**, and 1-naphthalenecarbamate, 3781*a*.
——, **1-*p*-tolyl-**, P 4431*e*.
**4-Dodecanol**, 4637*c*.
**1-Dodecanone, 1-(naphthyl)-**. See *Lauronaphthone*.
——, **1-phenyl-**. See *Laurophenone*.
——, **1-(2-thienyl)-**, reaction with 5-methylisatin, 228*a*.
**3-Dodecanone, 2-methyl-**, and derivs., 2932*f*.
**4-Dodecanone**, 4637*c*.
**2,4,6,8,10-Dodecapentaenal**, and derivs., 5363*g*.
**Dodecasiloxane, hexacosamethyl-**, P 4402*f*.
**2,6,10-Dodecatrienal, 3,7,11-trimethyl-**, review on, 9375*h*.
and semicarbazone, 7900*f*.
**1,6,10 - Dodecatrien - 3 - ol, 3,7,11 - trimethyl-**. See *Nerolidol*.
**2,6,10 - Dodecatrien - 1 - ol, 3,7,11 - trimethyl-**. See *Farnesol*.
**4,6,10 - Dodecatrien - 3 - one, 7,11 - dimethyl-**, spectrum of, 8893*c*.
**Dodecene**, phys. consts. of, 2591*g*.
prepn. of, 2156*i*.
spectrum of, 3715*h*.
**1-Dodecene**, herbicidal action of, 1895*e*.
**2-Dodecene, 1-bromo-3,7,11-trimethyl-**, 1764*e*.
**Dodecenoic acid**, in muskrat scent glands, 1580*i*.
**2-Dodecenoic acid**, 2164*g*.
——, **3,7,11-trimethyl-**, 1764*d*.
**1 - Dodecen - 3 - ol, 3,7,11 - trimethyl-**, 1764*e*.
**Dodecenylamine**, *N,N*-dimethyl-, as lubricant additive, P 8668*c*.
***n*-Dodecoic acid**. See *Lauric acid*.
**Dodecyl alcohol** (*1-dodecanol, lauryl alcohol*). (For derivs. see under *1-Dodecanol*.)
aconitate, as disinfectant, fungicide and insecticide, P 7634*f*.
acrylate, P 5036*b*.
"Dreft" manuf. from, lab. expt. on, 2477*h*.
effect on elec. conductivity of dodecylamine-HCl solns. in aq. MeOH, 3269*a*.
effect on surface and interfacial tensions, 3267*f*.
elec. properties and mol. rotation in, 5245*h*.
esters, 4641*a*, 7003*h*.
with caprylate of the hydracrylate of hydracrylic acid, P 1053*h*.
with coconut-oil fatty acids, hydrogenation of, 6063*a*.
with diglycolic acid, 9032*e*.
with γ-lactone of 5-hydroxy-2,3-norcamphanedicarboxylic acid, P 3032*i*.
with Na salt of sulfoacetic acid, identification by x-ray diffraction patterns, 6915*i*.
esters (half-) with maleic anhydride-styrene sulfonated copolymers, as fat-liquoring agents, P 7738*c*.
gallate, P 6665*c*.
iodine no. of, 1583*d*.
mixts. with $C_6H_6$, elec. birefringence of, 469*h*.
monoester of fumaric or maleic acid, polyvinyl chloride compns. contg., P 2038*a*.
oxalate (neutral), unimol. layer of, 4537*d*.
potassium deriv.—see *Potassium dodecyl oxide*.
prepn. of, 572*d*, 5363*h*.
propionate, as flavoring component, 2370*i*.
trichlorothiolacetate, as polymerization modifier in $K_3Fe(CN)_6$-activated GR-S rubber recipe, P 4046*f*.
ultrasonic velocity in, 8786*c*.
**Dodecylamine**, absorption by quartz, 8321*i*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
bentonite complex, 6121*f*.
compd. with 2-cyclohexyl-4,6-dinitrophenol, for prevention of As injury to plants, P 5151*g*.
hydrochloride, effect of electrolytes on elec. cond. of, 8810*d*.
effect on antiseptic ointments, 3562*i*.
elec. cond. in aq. solns., 1243*h*, 5677*g*.
elec. cond. of aq., effect of alcs. on, 3268*i*.
elec. properties in $H_2O$-org. solvent systems, 4079*h*, 4925*f*.
from lauronitrile, 1312*e*.
mixt. with oleic acid as asphalt antistripping agents, P 3194*a*.
salts, as fungicides and bactericides, P 6357*h*.
salts, ionization in aq. mixts. of org. solvents, 7303*f*.
as vulcanization activator in GR-S latex coagulated with $Al_2(SO_4)_3$, P 8194*f*.
**Dodecylamine, *N*, *N*-dimethyl-**, hydrochloride, elec. cond. of solns. of, 5677*g*.
——, ***N*-methyl-**, hydrochloride, elec. cond. of solns. of, 5677*g*.
——, ***N*-*p*-sulfanilylphenyl-**, P 2637*g*.
**Dodecyl butyl phosphate**, $(C_{12}H_{25})(C_4H_9)HPO_4$, as corrosion inhibitor with dicarboxylic acids, P 1180*c*.
***tert*-Dodecyl mercaptan***, 1716*a*.
effect on emulsion copolymerization of isoprene and styrene, 2019*b*.
as polymerization modifier with $FeSO_4$, P 6458*a*.
**Dodecyl phosphates**, corrosion inhibitors of $(C_{12}H_{25})H_2PO_4$ and $(C_{12}H_{25})_2HPO_4$ with dicarboxylic acids, P 1180*c*.
lubricant additives of $(C_{12}H_{25})H_2PO_4$ and $(C_{12}H_{25})_2HPO_4$, P 1177*c*.
**$((C_{12}H_{25})_2)HPO_4$**, as antioxidant for thiols, P 1794*b*.
**Dodecyl phosphite**, $(C_{12}H_{25})H_2PO_3$, as antioxidant for thiols, P 1794*b*.
**Dodecyl pyrophosphates**.
$(C_{12}H_{25})_2H_2P_2O_7$, as corrosion inhibitor acids, P 1180*c*.
$(C_{12}H_{25})_4P_2O_7$, P 9357*a*.
**Dodecyl selenide**, 6400*a*.
**Dodecyl selenone**, 6400*a*.
**Dodecyl selenoxide**, thermal decompn. products from, 6399*f*.
**Dodecyl sodium sulfate**, binding of, by proteins, 1241*e*.
complexes with polypeptides or proteins, infrared spectrum of, 7062*f*.
complex with gelatin, 8801*g*.
detn. of, P 6950*a*.

detn. of residues of, on skin, 2263*e*.
effect on albumin denaturation by urea, 4707*i*.
on antiseptic ointments, 3562*i*.
on concrete, 2751*i*.
on penicillinase action, 7519*d*.
films from octanol and, at $C_8H_{18}$-$H_2O$ interfaces, 2068*i*.
films of, and its mixt. with octyl alc., surface tension of, 17*d*.
films of, at oil-water interfaces, 2068*h*.
foam-fractionated, surface tension of soln. of, 3087*e*.
identification of, by x-ray diffraction patterns, 6915*h*.
in lubrication of polyvinyl acetate granules, P 441*c*.
lysozyme complex with, 1445*g*.
ointment base (oil-in-water) contg. 5534*i*.
reaction with gelatin, 2488*g*.
reaction with serum albumin, 5064*i*.
surface and interfacial tensions of, 3267*e*.
titration with cetyltrimethylammonium bromide, with pinacyanol bromide indicator, 5076*f*.
zein solns. in aq , 3690*e*.
**Dodecyl sulfide**, corrosion inhibition by, P 7221*h*.
as corrosion inhibitor against $CO_2$ in petroleum wells and refining, P 7221*h*.
**Dodecyl telluride**, as lubricant additive, P 6820*b*.
**Dodecylxanthic acid**. See *Xanthic acid, dodecyl-*.
**Dodonaea**, oils of—see *Oils*.
**Doebereiner, Johann Wolfgang**, biography, 4057*g*.
**Doebner-Miller reaction**, and aldehydes, 3002*g*, 3003*ac*.
**Doebner reaction**, with glyoxol and 2-$C_{10}H_7NH_2$, 5025*g*.
mechanism of, 7026*h*.
**Dogbane**, copper, Fe and Mn in, and its rubber, 2790*e*
**Dogfish** (See also *Sharks*.)
repellent for, P 2734*b*.
**Dogfish-liver oils**. See *Oils*.
**Dogwood**, bactericidal substances in *Cornus officinalis*, 7644*a*.
control of *Cornus alternifolia*, 4414*a*.
**Doisynolic acid***, and derivs., constitution and activity of, 6716*h*.
and derivs., review on, 3085*d*.
estrogenic potency and toxicity of, 3935*g*.
——-, **bisdehydro-***, effect on genital tract of chick embryos, 1474*c*.
and 3-methyl ether, 8034*c*.
3-methyl ether, inactivation by liver, 7580*g*.
——-, **methoxybisdehydro-***, assay of, 7994*cd*.
effect on arginase and phosphatases of organs, 3090*a*.
——, **5-methyl-***, 4270*i*.
——, **7-methylbisdehydro-***, and *l*-menthyl ester, sepn. of racemic isomers of natural, P 5805*a*.
**Dokuimo**, as fermentation raw material, 1146*f*.
**Dol**. See "ethyl ester" under *Isonipecotic acid, 1-methyl-4-phenyl-*.
**Dolantin**. See "ethyl ester" under *Isonipecotic acid, 1-methyl-4-phenyl-*.
**Dolerites**. (See also *Diabase; Diorites*.)
albite, from Nakop Brook in Pozega Mt., 4191*b*.
andesine, of Squilver Hill, Shropshire, 4606*a*.
of Belgian Congo (Katanga), 2136*a*.
dikes near Robertsonpet, India, 523*d*.
dikes of Barramiya Mining Dist., Egypt, 1692*d*.
graphic representation of analyses of Karroo, and their crystn. sequence, 8992*h*.
of Italy (Mt. Berici), 2135*h*.
Karroo, of Union of S. Africa, 6128*d*.
olivine, from Fu-Shun, Manchuria, 6118*d*.
pegmatites from Mt. Arthur, East Griqualand, 5347*a*.
quartz, of Pennines, England, 4188*e*.
in serpentinite at Harper's, N. Z., 4610*d*.
of Spain (Prat zone of Tarragona), 6548*f*.
**Dolichos lablab**, growth-limiting essential amino acids of, 9186*g*.
in Hawaii, 9202*f*.
**Dolomites**. (See also *Limestone; Magnesium carbonate*.)
analysis of, for $CO_2$, lime and magnesia, 4001*f*.
of Australia, 6546*f*.
book: 830*h*.
bricks—see *Bricks*.
British *vs*. Indian, 6552*c*.
of Bushimae Basin, Belgian Congo, 6550*d*.
calcination of, 8115*i*, 9395*g*.
calcination of, in elec. arc, P 7838*f*.
calcining metallurgical, furnace for, 5911*ef*.
calcining or half-burning and sintering of, 5554*e*.
calcium nitrate manuf. from, P 4436*c*.
of California, 2901*h*.
cathodoluminescence of, 947*b*, 2516*c*.
as cementing substance for sands, 6550*d*.
clinker from, P 7206*c*.
decompn. by heat, 7306*g*.
dissocn. of, 6059*e*.
druses in calcitic limestones in Västanfjärd, Finland, 5345*h*.
drying and sizing of, 6471*g*.
effect on phosphate migration in soils, 2723*e*.
flotation of, P 3160*e*.
in glass manuf. for vacuum bottles, 9401*b*.
grinding and firing, for metallurgical use, 5910*h*.
grinding of, acceleration of, 5562*b*.
of Idaho (Boise Basin), 4981*d*.
of Idaho (Borah Peak quadrangle), 6954*a*.
of India (Northern), 8991*h*.
of Ireland, 526*e*.
in limestones of Okla., 2136*g*.
of Luxemburg, 2550*e*.
magnesia manuf. from, P 4821*g*.
magnesium carbonate manuf. from, P 6795*g*.
magnesium detn. in, 7370*h*.
magnesium extn. from, 2553*d*, 9394*c*.
as magnesium source for red clover, 9320*g*.
metamorphism of siliceous, 6129*f*.
of muds of thermal springs of Budapest, 8094*f*.
of Norway (Rana Mines), 6546*c*.
petroleum-bearing, porosity and, 2905*a*, 5573*h*.
of Quebec, 525*d*.
refractories—see *Refractory materials*.
sands of Italy, 1542*g*.
of Texas (Ellenburger group), 4986*c*.
of Turkey, 1291*g*.
of U. S. S. R., 3323*i*.
Abano, Lopanis-Tskhali River, 5911*a*.
Solikamsk, Urals, 6122*c*.
Ufa, Tataria, 6054*c*.
of Virginia (Shenandoah Valley), 2551*f*.
**Dolophine**. See *3-Heptanone, 6-dimethylamino-4,4-diphenyl-*.
**Dolosal**. See "ethyl ester" under *Isonipecotic acid, 1-methyl-4-phenyl-*.
**Dolphin oil**. See *Oils*.
**Domeykite**, $\alpha$-, $\beta$- and $\gamma$-, and natural and synthetic, and relations to algodonite and whitneyite, 6116*c*.
**Donax cuneatus**, compn. of shells of, 5878*d*.
**Donaxine**. See *Gramine*.
**Donnan equilibrium**, lecture demonstration of, 6014*i*.
in wool combination with acids, 3202*c*, 6829*c*.
in wool reaction with acids and acid dyes, 7687*i*.
**Donovania granulomatis**, fermentation reactions and sensitivity to streptomycins, 7079*b*.
**Dopa**. See *Alanine, β-(3,4-dihydroxyphenyl)-*.
**Dopa decarboxylase**, effect of pteroylglutamic acid-displacing agents on, 257*c*.
oxidation and, 7983*e*.
renin, renal hypertension and, 302*b*.
specificity of, 8061*a*.
substrate specificity of, 9103*f*.
**Dopa oxidase**. (See also *Tyrosinase*.)
in melanoma granules, 8047*b*.
**Dopa reaction**, 5469*fh*.
**Dopes**. (See also *Fuels; Lacquers; Textiles; Varnish*.)
for rayon finishing, 853*c*.
**Doppler effect**, in gamma-ray lines, 4117*b*.
in hydrogen, 480*h*.
in hydrogen and Hg in canal rays, 4135*b*.
in mercury, 491*e*.
**Doralis pomi**. See *Aphis pomi*.
**Dorycnium suffruticosum**, germination of seeds of, transformation of reserve substances during, 1081*e*.
**Doryl**. See "chloride carbamate" under *Choline*.
**Doryphora decemlineata**. See *Potato beetle*.
**Dosing apparatus**. See *Feeding apparatus*.
**Dotriacontane**, activities of $\alpha$ and $\beta$ forms and solubilities of, 6890*c*.
**1,32-Dotriacontanedicarboxylic acid**. See *Tetratriacontanedioic acid*.
**16,17-Dotriacontanedione**, 3791*i*.
**2,10,12,14,16,18,20,22,30 - Dotriacontanonaene, 2,6,10,14,19,23,27,31-octamethyl-**, 1311*g*.
**16-Dotriacontanone, 17-hydroxy-**, and 2,4-dinitrophenylhydrazone, 3791*k*.
**Double bonds**. (See also *Bromine number; Conjugation; Iodine number; Thiocyanogen number; Unsaturation;* and "diene" under *Synthesis*.)
bromine addn. to, with *N*-bromoacetamide, 5753*h*.
in Buna-S, I no. and, 5986*a*.
character of, bond order and other criteria of, 5240*d*.
chemistry of, 557*a*.
complexes contg., 8940*f*.
conjugated, formation in autoxidation of peanut oil, 5973*b*.
formation in dehydration of castor oil, 4872*a*.
formation in isomerization of vegetable oils, 2791*i*.
formation in linseed-oil isomerization with Zn catalysts, 4027*g*.
in marine and vegetable oils, 5609*h*.
in methyl-substituted aliphatic linear chains, 5733*d*.
oxidation in dil. solns. of substances with system of, 6080*c*.
and their role in coatings, 4025*f*.
detection in lubricating oils, etc., 1173*f*.
detn of, 3316*g*, 4976*d*.
detn. of dienes and trienes in oils, and effect of oxidation and refining on, 4874*h*.
detn. of external and internal, in 1,3-butadiene copolymers with 2,3-dimethyl-1,3-butadiene, 8190*c*.
detn. of, in unsatd. fat acids, 125*f*.
effect on assocns. between ethers and water, 3671*g*.
energies of C, 452*g*, 453*b*.
energies of, in hydrocarbons, 2052*h*.
ethylenic, 5367*a*.
ethylenic, reactions of, with free radicals, 5732*i*.
force const. of, in $C_2Cl_4$, 7342*g*.
force consts. for C-Cl bonds in relation to, 2478*i*.
heat of dissocn. of, 1250*c*.
hydrogenation of, 3775*d*.
hydrogenation of inert, in lanosterol derivs., 242*c*.
in lignin, 4850*d*.
lyoparachor of, 2834*e*.
mercapto-compd. addn. to, 1722*f*.
nitrogen, covalent radius of, 7276*i*.
of nitrogen with C or N, heats of formation of, 931*a*.
olefinic, conjugation with aromatic nucleus, 1756*i*, 2181*e*.
optical rotation due to, 4080*e*.
phys. consts. of, 2591*g*.
racemization and, of *N*,2,4-trimethylsuccinanilic acid 6-derivs., 1343*h*.
reaction with $AlLiH_4$, 603*i*.
reaction with ICl, 5362*c*.
reactivities of aromatic, 8374*g*.
reactivities of, of cycloölefins toward free radicals, 4636*f*.
reduction of isolated, 3270*c*.
in rubber chain, effect of reaction with S on position of, 1211*c*, 3648*c*.
semipolar, existence of, 5650*f*.
in steroids at 7,8-position, 1428*a*.
stretching of vinyl chloride, interaction between deformation of terminal angles and, 8221*b*.
**Double refraction**. See *Refraction*.
**Double salts**, dissocn. by heat, redistribution of ions in, 7306*g*.
nomenclature of, 8927*h*.
**Dough**. (See also *Bakery products; Flour; Leavening agents*.)
for bakery products, treatment of, P 8071*h*.
baking properties of, effect of heat treatment of dry milk solids and $KBrO_3$ on, 6326*a*.
cabinet fermentation of corn., 6325*g*.
control of, rheological methods in, 8750*d*.
drying of wheat, kinetics of, 7272*c*.
fermentation of, bacteria and, 4392*h*.
cabinet for, 325*d*.
effect on vitamins, 2336*e*.
gas production in, effect of metals and metallic salts on, 4781*e*.
phys. properties of, effect of $NaHSO_3$, AcH, etc., on, 8067*b*.
preleavened packaged, P 9293*i*.
protein decompn. in, 325*h*.
relaxation time of, 7595*h*.
**Doughnuts**, effect of fat storage time on palatability of, 1497*h*.

pastry, mustard- and rape-seed oils in prepn. of, 2001*d*, 5128*a*.
**Douglas, George**, biography, 6477*g*.
**Douglas fir**. (See also *Wood*.)
bark of, 4462*f*.
bark of, fiber sepn. from comminuted, P 1188*a*.
bark of, tannin from, 9172*b*.
copper and Zn in parts of, 3321*c*.
**Dow 9, Dow 9A, Dow 9B**. See "zinc deriv." under *Phenol, 2,4,5-trichloro-*.
**Dow Contact Herbicide**. See *Phenol, 2-sec-butyl-4,6 dinitro-*.
**Dowex 30**, regeneration of, 6872*f*.
**Dowex 50**, in vanadium pentoxide-sol prepn., 8840*a*.
**Dow F-800**, as fungicide, 7178*e*.
**Dowfume 40**. See *Ethane, 1,2-dibromo-*.
**Dowfume G**, as soil fumigant, 7186*e*.
**Dowfume N**. See "mixt. with 1,2-dichloropropane" under *Propene, 1,3-dichloro-*.
**Dowfume W-10**. See *Ethane, 1,2-dibromo-*.
**Dowfume W-15**. See *Ethane, 1,2-dibromo-*.
**Dowfume W-40**. See *Ethane, 1,2-dibromo-*.
**Dowicide 6**. See *Phenol, 2,3,4,6-tetrachloro-*.
**Dowicide B**. See "sodium deriv." under *Phenol, 2,4,5-trichloro-*.
**Dowicide C**, as fungicide, 7177*d*.
**Dowicide G**. See "sodium deriv." under *Phenol, pentachloro-*.
**Dow Seed Disinfectant No. 5**. See *Chloranil*.
**Dow Selective Herbicide, Dow Selective Weed Killer**. See "ammonium deriv." under *Phenol, 2-sec-butyl-4,6-dinitro-*.
**Dowspray 66 Improved**. See *Phenol, 2-sec-butyl-4,6-dinitro-*.
**Dowtherm, A**, toxicology of, 5514*f*.
**DPE**. See *Ethane, 1,1,1-trichloro-2,2-diphenyl-*.
**DPT**. See *1,3,5,7-Tetrazabicyclo[3.3.1]-nonane, 3,7-dinitro-*.
**Draba nemorosa**, sinapine iodide isolation from, 8452*e*.
**Dracunculus vulgaris**, vitamin C in, 8459*b*.
**Draft diverters**, testing of, 448*h*.
**Drainage**. See *Soils*.
**Dramamine***, 7193*a*.
identification and differentiation of, 9366*e*.
pharmacology of, 6319*a*
**Drawing apparatus**, for glass—see *Glass*.
**Drawings**, reproduction of, P 2532*e*.
**Drebbel, Cornelis**, biography, 5649*i*.
**Dreft**, in titrating immiscible $CCl_4$ exts. with NaOH solns., 6537*g*.
**Dressing materials**. No entries this year. See *Leather; Paper; Textiles*.
**Dressings**. See *Surgical dressings*.
**Driers** (*apparatus*). See *Drying apparatus*.
**Driers** (*desiccants*). See *Drying agents*.
**Driers** (*for coatings*), abieto-maleic salts, 7719*d*.
alicyclic alcs. for, P 5416*f*.
aluminum soaps, P 2452*e*.
in chamoising, Co or Mn compds. as, 1592*e*.
cobalt coördinated soaps as, 6836*d*.
effect on varnish films, 6837*a*.
esters of acids from wood, P 1200*f*.
function of, 3210g, 5969*h*.
halogen (active) compds., P 7517*d*.
hexogen and naphthenic acid Co, Pb and Mn derivs. as, 4024*f*, 5969*i*.
ink Co feeder, in controlling drying time of printing inks, 7717*a*.
for inks (printing), and effect on drying of linseed oil and ink, 4025*a*.
linoleates, naphthenates and resinates as, for linseed oil, 8699*h*.
manganese resinate manuf. from rosin, 5971*e*.
manuf. and uses of, 8698*i*.
naphthenate *vs.* octoate, 6431*i*.
octoate, 4492*b*.
in paint drying, 8694*i*.
from polymers of branch-chain 1,3-hexadienes and $\alpha,\beta$-unsatd.-$\alpha,\beta$-dicarboxylic acids, P 5637*c*.
reviews on, 4788*g*, 4789*b*.
salt (org. acid) compns. stabilized by alkyl phosphates, P 3216*a*, P 7240*d*.
by sapon. of acids obtained by oxidation of petroleum hydrocarbons, P 3216*b*.
Soligen-Iron as, in Fe paints, 6432*a*.
tall oil use for, 8676*f*.
tetrabasic polyacid metallic salts, P 846*g*.
vinoleates in drying of linseed oil, 8699*e*.
**Drilling for gas**—see *Gas, natural*.
for petroleum—see *Petroleum*.
for water—see *Water, potable and industrial*.
**Drilling fluids**, anhydrite contamination of, control of, 6397*f*.
barium sulfate-contg., P 6402*g*.
carboxymethylcellulose Na salt-contg., for anhydrite, 3599*g*.
cement contamination of Na pyrophosphate-treated, $NaH_2PO_4$ in prevention of, 5175*f*.
and their control in use, 3995*c*.
control of, 8121*f*.
degelling and viscosity reduction of, with condensation and polymerization products, P 8062*b*.
densitometer for, P 843*b*.
from dried and ground bentonite-type clays, 2409*f*.
flow of, and detn. of yield value and rigidity, 2757*b*.
foaming and water loss from, lowering by rosin soap and petroleum, P 8662*a*.
of France, 8652*f*.
gelatinized starch-contg. water-base, preventing fermentation of, P 6402*e*.
gel strength and viscosity of, lowering by alkali stannates, P 1173*i*.
for heaving-shale control, 6397*g*, P 6817*h*, P 6818*b*.
loss through porous walls, prevention by resin-impregnated paper, P 8662*f*.
oil-base, with blown asphalt as plastering agent, P 8128*i*.
resinous-product use with, 899*a*.
stabilized by alkali metal silicates and fatty acids, P 3185*g*.
reclamation of waste oil-base, P 8662*c*.
reconditioning salt-contaminated, with ion-exchange materials, P 9426*g*.
removal from oil wells, P 5582*d*, P 5938*c*.
review on, 381*d*.
starch product for, P 6850*d*.
sulfate removal from, by $BaCO_3$ or $Ba(OH)_2$, 8651*f*.
with sulfonated lignin, lignosulfonic acid and its derivs. as emulsifiers, P 8661*i*.
thixotropy of, $SiO_2$ aerogel in improving, P 1556*h*.
treatment and testing of clay and bentonite-type, 3599*h*.
viscosity and water loss of, reduction by soap, P 5179*hi*.
viscosity of, lowering by oxides, P 1556*i*.
viscosity of, measurement at high temps., 381*e*.
water-loss reduction from, 3599*i*, P 5179*g*.
**Drills**, of alloy steel and W carbide, 6135*i*.
diamond recovery from, 1270*d*, 2521*f*.
rock corrosion-inhibiting lubricants for, P 9433*d*.
**Drimeter**, for water detn. in textiles, 8686*g*.
**Dromiceius novae-hollandiae**. See *Emu*.
**Dropping funnels** See *Funnels*.
**Drops**. (See also *Particles*.)
capillarity effects in, 1239*b*.
contact angles of, 17*f*.
contact angles of tritolyl phosphate, on calcite, Cu and quartz, 8231*f*.
of DDT sprays, toxicity and size of, 3138*i*.
dielec. const. and elec. cond of conducting, suspended in nonconducting medium, 7776*h*.
electrification of spray, 6039*g*.
size of condensed, between 2 quartz lenses, 6882*d*.
surface tension of, size and, 5256*b*.
of suspension falling in pure dispersion medium, hydrodynamics of, 7291*a*.
tangential movements of Hg, retardation by BuOH solns., 8911*e*.
**Dropsy**, abdominal—see *Ascites*.
**Drosera**, and tinctures, 5544*g*.
**Drosophila**, amino acids in tissue and chromosomes of, 7152*a*.
carbon dioxide sensitivity of, 4778*i*.
colchicine effect on female, 7149*g*.
eggs of, nucleic acids in, and Y-chromosome effect in relation to, 4387*g*.
*melanogaster*, benzo[*a*]pyrene effect on nondisjunction frequency in, 8525*i*.
color of, 9269*d*.
control of, DDT and related compds. in, 2360*f*.
control of, DDT inactivation by light in, 7183*f*.
DDT toxicity to, droplet size of oil sprays and, 3139*b*.
effect of heterochromatin on mosaicism in, 8564*f*.
folic acid antagonists and development of, 2331*g*.
longevity factors and, 2333*f*.
2-methylcholanthrene effect on mutability of, 9271*f*.
mite control in lab. rearings of, 1899*f*.
*melanogaster*, mutation of eggs of, by unsatd. aldehydes, 1115*i*.
peptidase in salivary gland of, during growth, 7150*g*.
protein of salivary-gland secretion in, 5124*g*.
in testing insecticides, 199*f*.
toxicity to, of DDT and related compds., 2359*g*.
toxicity to, of DDT and 1,1,4,4-tetra(*p*-chlorophenyl)-2,2,3,3-tetrachlorobutane, 7184*d*.
in mutagen testing, 5873*i*.
mutation by methylcholanthrene, 3530*b*.
mutation by thymonucleic acid, 8564*d*.
nutritional requirements of, 7594*h*.
peptidase activities of salivary gland exts. of, 6746*c*.
tolerance of larvae of, to amino acids, 1871*e*.
utilization of sugars, alcs, etc. by, 322*g*.
*virilis*, aristapedia induction by N mustard in, 8564*c*.
zoöpherin in, 2331*d*.
**Drought**, plant resistance to, direction of enzyme action and, 728*d*
**Drugs**. See *Materia medica; Pharmaceuticals*.
**Drums**. See *Drying apparatus*.
**Dry cells**. See *Cells, voltaic*.
**Dry cleaning**. See *Cleaning compositions; Solvents; Textiles*.
**Drying**. (See also *Dehydration (chemical); Dehydration (physiological); Drying agents; Drying apparatus; Emulsions; Evaporation;* and "sepn." under *Water*.)
of acid-treated siliceous materials, P 9300*a*.
of air—see *Air*.
of alc.—see *Ethyl alcohol*.
of alcs. and ketones, P 1228*d*.
of alfalfa, review on, 6330*c*.
of amides, sulfated oils and tallows for textile finishing, yellowing during, 1193*c*, 2779*g*.
of anthracite, 9411*g*.
of bacterial cultures, 4328*c*.
of benzene, 9078*b*
book: Freeze, 8218*c*.
of bread, acetic acid and propionic acid loss during, 9278*b*.
of brick, $SO_2$ in, 1931*i*.
of 2-butanone, P 2048*i*, 8753*c*.
of carbon black latex pellets, P 2803*e*
of carbon dioxide (liquid), P 8109*g*
carotene preservation during, of carrots and red clover, 4395*i*.
of casein, 6882*b*.
of casein, effect on adsorption of $H_2O$ vapor, 4537*c*.
of cellulose acetate, $H_2SO_4$ formation in, 2427*d*.
of cellulose, app. for, P 6415*e*.
of cellulose pulp sheets, P 9145*h*.
of ceramic pastes, contraction from, and app. for recording Bigot curve in, 2389*c*.
of ceramic ware, 6798*h*, 7655*a*.
of ceramic ware, clay and, 1163*a*.
of cereal grasses and ryegrass, effect on vitamin content, 8574*e*.
of cheese with Na citrate soln., P 330*c*.
of 2-chloroethanol, P 1435*e*.
of citrus wastes, for stock food, 9287*f*.
of clay adsorbents, P 6476*h*.
of clays, 7204*i*.
in drilling-mud prepn., P 2409*f*.
from mine, 5559*g*.
vapor pressure-capillarity relation in, 2748*c*.
of clay suspensions, effect on activity of Ca and K ions, 1133*a*.
of coal, 2404*h*, 3991*g*.
of coatings—see *Coating*(*s*).
of compds. by distn. with hydrophobic oil, P 6478*a*.
continuous, P 5238*g*.
of corn-stalk insulating board, 9444*a*.
of cotton, effect on degree of polymerization, 413*g*.
of drugs, chemicals and reagents, 3971*f*.
of dyes and pigments, 8685*a*.
effect on checking of macaroni, 8066*i*.
on hydraulic properties of powd blast-furnace slags, 2393*i*.
on montmorillonite, 463*i*.
on rotenone in derris, 7631*f*.
on shrinkage rate of wool shirting, 6423*f*.
on Na-water infiltration into sandy loam, 1511*c*.
electronic, 8752*i*.

*electronic*, of ceramic and similar materials, testing by, P 3588*e*.
of gums, soap stock or like viscous org. materials, P 6438*b*.
of tablet granulations, 8607*i*.
of vegetables, P 6759*a*.
of emulsions—see *Emulsions*.
of ethers, P 4683*b*.
evaporation during, 8753*b*.
of fertilizer pellets from $NH_4NO_3$ and marl in rotary drier, 6351*a*.
of fiberboard, 6411*d*.
of fiber glass fabric for bonding with phenolic resins, P 8208*i*.
of fibrous materials, P 8759*a*.
flash, 8752*d*.
of fluids, P 4907*e*.
of foaming materials, P 4002*d*.
of food and drug products, P 4784*c*.
of food (powd.) products, P 6332*i*.
food preservation by partial, followed by freezing, P 8576*c*.
of foods, 5507*g*, P 6758*f*.
from cannery fruit and vegetable waste, P 330*e*
by freezing, P 4785*c*.
by freezing, 2041*f*.
of fruit juice by freezing, P 331*b*.
of gases, by $CaCl_2$ solns., 2841*d*.
for chem., paint and varnish industries, 7607*e*.
in cooled fluidized bed, P 7274*d*.
of gas (natural), 836*fh*, 3171*i*, 5571*d*, 5924*i*, P 9419*h*.
of gas (natural) and oil before absorption, 7217*c*.
of gas (town), 4831*f*, 6808*g*.
of goatskins (dry-salted), effect on ease of soaking of skins and on greasiness, molds and pink stains on glace kid, 7736*h*.
of grain, 8565*g*.
of granulated materials, 4906*a*.
of granules in rotary driers, 5048*b*.
of grass, digester gas in, 3131*a*.
of green fodder, P 6334*f*
of GR S rubber, 2801*i*.
of halogenated hydrocarbon solvents, P 5940*h*.
of haws, effect on vitamin C content, 8070*b*
of heat-sensitive materials, 1613*e*, P 4058*c*.
of heavy-oil-water gas tar, 6394*a*
of hide powder (wattle-tanned), effect on reaction with chromic salts and acids, 7731*f*
with hot air, 1617*c*.
humidity (crit.) in, detn. of, 3246*c*.
of hydrocarbon conversion products for F compd. removal, P 1558*i*
of hydrogel catalysts, P 1558*f*, P 9300*d*.
infrared, 8756*g*.
of chem. products, 2046*f*.
of food, 8565*d*.
of hides, 9505*h*.
in paper industry, 1975*c*.
in pharmacy, 4423*f*.
of refractory materials, 7205*c*.
of sulfide-ore concentrates, 8322*e*.
of tablet granulations, 8609*a*.
temp. of filaments of lamps for, 1272*e*.
of textiles, 414*b*, 3201*f*.
of ink—see *Ink*.
of iron ores, 969*g*.
of isopropyl alc., P 7276*a*.
of juices of lemons and limes, P 5882*b*.
of lacquers—see *Lacquers*.
of leather, 1204*g*, 6450*i*.
effect of glucose, $MgSO_4$ and sucrose on, 427*h*.
effect of method of, 7733*f*.
of leather (sheepskin), 7238*c*.
of lignite for gasification, 8118*f*.
of lignite in hot oil, 4831*a*.
of lime and lime-soda sludge, 8587*e*.
of manure (cow), effect on male hormone, 9125*c*.
of manure (poultry), N loss in, 342*h*.
of metal chips and borings, 530*g*.
of Metlach plates during firing, 3586*e*.
of milk—see *Milk*.
of mirabilite, P 4526*a*.
of mirrors, effect on adhesion of Ag, 2387*i*.
of molasses, 6439*f*, 9295*g*.
in mold control on stored grain, 324*d*.
of mucous membrane for pepsin manuf., 7195*g*.
of nitriles, P 2690*d*.
of oils—see *Linseed oil*; *Oils*.
of orange juice, 328*f*, P 5882*b*.
of orange juice and other foods, review on, [illegible]
of org. compds. by azeotropic distn., P 3835*i*.
of org. wastes (domestic), 6770*a*.
of paints—see *Paint*.
of paper, 2772*g*, 4465*ef*.
effect of condensate and air on, 7684*g*.
gas-fired radiant heaters in, 6411*d*.
of paper (light- and heat-sensitive), 7082*i*.
of peanuts, 2000*d*.
of peat, P 8651*c*.
of penicillin, 6789*e*, P 6791*h*.
of petroleum—see "emulsions of, breaking" under *Petroleum*.
in petroleum refineries, corrosion prevention by, 8127*i*.
of phosphate tailing by electrophoresis, 8905*f*.
of polyisobutylene, P 6002*i*.
of polymers, P 3660*i*.
of porous materials, kinetics of, 7272*b*.
of porous media, 4056*f*.
of potato juice, 6754*h*.
of proteins in faulty freezing of foods, 8571*d*.
of rayon, 8142*g*.
of rayon cakes and wound filamentary packages, P 2444*b*.
of rayon (viscose) packages or threads, P 2785*g*.
reactions in, 7757*i*.
of reagents with Na-K alloy, 7279*h*.
of retorts, 6552*i*.
reviews on, 1227*dh*, 2016*f*.
of rice polishings, improving oil extn. and yield by, 5610*c*.
rotary, heat and mass transfer, holdup and dusting in, 8752*e*.
of rubber latex deposits, 1207*a*.
of salad dressing, P 6333*bd*.
of slag, P 4999*b*.
of soap, 9492*d*.
soap forms and rates of, 5612*e*.
of sodium nitrite, P 3984*i*.
of sodium sulfate, 5909*h*, 9393*g*.
of soils, effect on buffering, 7620*c*.
of solns., 3277*d*.
of souptin shark liver, 9379*i*.
spray, P 8218*d*.
spray, distillery residue recovery by, 3970*f*, 4809*b*.
of sugar-bearing juices, P 1503*a*.
in sugar manuf.—see *Sugar manufacture*.
of sulfate, 1540*e*.
of sulfite waste liquor, 9441*f*.
of sulfur, P 3160*h*.
of sumac leaves, effects on tannins, etc., 9507*i*.
of tan liquor analytical solns., 9506*h*.
of tar, 378*h*, 1948*i*, 8646*g*.
temp. limits for, of Tl deriv. analytical ppts., 63*g*.
temps. for U ppts., 2889*i*.
of tetrahydropyran, P 5650*b*.
of textiles, 5957*d*.
textile (wool) defects in, 2779*g*.
theory of, 4905*h*.
of tobacco leaf, tannin modification during, 8616*c*.
of tobacco, wt. losses and energy derived from, 1818*g*.
of tomatoes, 1122*a*.
vacuum, 81*a*.
of gravimetric ppts., 3742*i*.
at low-temp., 5647*h*.
vacuum-freeze, review on, 2823*f*.
of varnish—see *Varnish*.
of vegetables, aroma value as quality standard for, 3945*f*.
of vegetables, formation of vitamin-C-like materials during, and their interference in detn. of vitamin C, 5879*a*.
of water-gas tar, 837*de*.
of wood for pulping, effect on pulp and by-product yields, 2428*e*.
wool damage by, 7092*c*.

**Drying agents**. (See also *Driers*.)
from alumina and $SiO_2$, P 4792*c*.
calcium carbide as, for citrus products, P 9295*b*.
calcium hydride as, 2342*h*.
effect on N fixation by *Azotobacter*, 9160*a*.
gels, P 9299*d*.
from glass fibers, P 3987*e*.
in hydrogenation of CO, P 1171*ac*.
liquid, from $CaCl_2$, $MgBr_2$, etc., and glycerol, glycol, etc., P 1126*d*.
oxide gels, P 3980*d*.
silica gel as, in microtechnique, 3873*b*.
silicate, P 4907*f*.
sodium *p*-nitrophenolate as, for desiccators and solvents, 6935*c*.
for solvent extn. of fat from rockfish livers, 9286*e*.
water-vapor pressure over, app. for detn. of, 6881*i*.

**Drying apparatus**. (See also *Centrifuges*; *Concentrators*; *Desiccators*; *Evaporators*; *Ovens*.)
for air—see *Air*.
for ammonium sulfate, P 8760*f*.
for catalyst spherical particles, P 6013*e*.
cell-type, movement of material in, 5235*h*.
for cellulose suspensions, P 9447*ef*.
for ceramic ware, app. for continuous, P 9408*b*.
for char, 8649*g*.
for citrus fruit peel, pulp or juice, P 9295*b*.
columns (azeotropic), 8217*i*.
continuous, P 5238*g*.
for creosote, P 7632*c*.
for dolomite, 6471*g*.
drum, calcn. of heat consumption and steam take-off of, 1164*f*.
drum, grease for water seals of, 5934*d*.
for dyes and pigments, 8685*a*.
elec., for petroleum and its products, P 6402*h*.
electronic, for oil foots or gum, P 6438*c*.
for emulsion breaking—see *Emulsions*.
for ethyl alcohol, 2058*f*.
floor, 9480*h*.
for flour, wheat meal, etc., 3532*g*.
for food products (dried), P 6332*i*.
for foods, P 1123*h*.
for foundry sand, 6133*g*.
for gases, P 5649*a*.
for gases, calcium chloride columns as, 2841*e*.
for granular materials, 4906*a*, P 7274*f*.
for heat sensitive materials, P 4058*c*.
for infrared drying of textiles with elec. lamps, 414*c*.
for leather, 6450*i*.
for liquids (effervescent), P 7273*g*.
for mirabilite, P 4526*a*.
for paper, 401*e*.
pilot-plant, 1613*e*.
review on, 2823*f*.
rotary, 8752*e*.
for granular materials, 5648*h*.
transport in continuous, 6473*i*.
scale formation in drum and spray, 6473*i*.
for ship interiors, 96*c*.
sludge-dewatering tank for dust collectors, P 3250*e*.
solar, for $SiO_2$ gel, P 4403*a*.
spray, P 6014*a*, P 6874*h*, P 8218*d*.
for sulfates, 1540*f*.
for tan-liquor analytical solns., 9506*i*.
for textiles, P 2443*d*.
towers, design of $H_2SO_4$, 9392*g*.
for transformer oil, P 394*b*.
vacuum, for low temps., 5647*h*.
water vapor in, detn. of, 7272*c*.
for zinc sulfide ppt. in N, 517*h*.

**Drying oils**. See *Oils*.
**Drying polymers**. See *Polymers*.
**Dryograph**, for ink drying time on paper, 5202*d*.
**Dubay 1451-D**. See *p-Toluenesulfonanilide, N-(ethylmercuri)-*.
**Dubay 1452-F**. See *p-Toluenesulfonanilide, N-(ethylmercuri)-*.
**Duboisine**. See *Hyoscyamine*.
**Duck**. See *Canvas*.
**Duckweed**, gaseous losses of N from *Lemna minor*, 282*e*.
methylcoumarins and, 8010*e*.
soil-extractive effect on *Lemna minor*, in nutrient solns., 8081*d*.
**Ducts**, flow in, 7878*a*.
**Dugesia dorotocephala**, development in, effect of Na thiocyanate and Li chloride on, 773*h*.
**Dulcin** (*p-phenetylurea*), P 4786*b*.
detn. in foods, 4391*e*.
poisoning by, 3105*h*.
system: saccharin–, 1148*g*.
toxicity of, 5499*d*.
**Dulcitol**, as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278*f*.
effect on growth of plant tissue, 4349*d*.
——, **1,6-dithio-***, antidotal activity in oxophenarsine poisoning, 9251*a*.
**Dulite**, electroplating with, wastes from, treatment of, 3125*g*.
**Dullness**, measurement of, of multilayer-glass blocks, 3579*c*.
**Dunascaine***, sensitization of muscle to acetylcholine by, 1107*g*.
sensitization of ventricle to acetylcholine by, 1107*f*.
**Dunites**, of Alaska (Kenai Peninsula), 4608*d*.
norms of average analyses of, 2552*b*,

**Dunite serpentinite.** See *Serpentinites.*
**Dunnione,** *dl-,* 3408*e.*
**Du Noüy phenomenon.** See *du Noüy phenomenon.*
**Duodecane.** See *Dodecane.*
**Duodenal contents.** See *Intestinal contents.*
**Duodenal juice.** See *Intestinal juice.*
**Duodenum.** See *Intestines.*
**Duolite,** 345*a.*
**Duplexite,** from Londonderry, Australia, 4186*i.*
**Duplication.** See *Printing; Transfers;* "electrolytic facsimile" under *Recording;* etc.
**Duponol,** effect on Irgamid penetration into eyes, 3563*g.*
**Duponol 189,** effect on muscle stimulated by acetylcholine, 2330*h.*
**DuPont 1155HH,** citrus-seed treatment with, 1516*f.*
**DuPont 1451-GGG.** See *p-Toluenesulfonanilide, N-(ethylmercuri)-.*
**DuPont 1452F.** See *p-Toluenesulfonanilide, N-(ethylmercuri)-.*
**Duprene.** See *Neoprene.*
**Durain.** (See also *Clarain; Fusain; Vitrain.*)
low-pressure carbonization of, 1948*b.*
oxidation (anodic) of, 1942*g.*
swelling properties of, 377*f.*
**Duralumin,** analysis of, 4181*f.*
annealing of, effect on U phase, 1701*e.*
anodic soln. of textured, 5677*c.*
copper detn. in, 1279*f,* 7863*e,* 8952*c.*
corrosion by fungicides in humid tropical climate, 873*f.*
corrosion of Al-Mg-Si-plated, 2918*a.*
corrosion under tension, 549*a.*
deformation of, under longitudinal impact loads, 1298*i.*
electron microscopy of, 7879*i.*
heat-treatment of electrodes of, spectrum lines emitted during, 5694*e.*
oxidation (anodic) of, ultraviolet radiation from, 8900*h.*
sheets of, P 6146*a.*
solidification of, structural changes during, 5718*e.*
tempering of, by "reversion" heat-treatment, 2914*e.*
**Duranol dyes.** See *Dyes.*
**Duran-Reynals diffusing factor.** See *Hyaluronidases.*
**Durazol Blue 3R-200.** See *Dyes.*
**Durene** (*1,2,4,5-tetramethylbenzene*), formation of, 3377*d.*
history of nomenclature of, 2923*g.*
prepn. and phys. consts. of, 7439*c.*
spectrum of, 4140*e.*
——, **3-acetyl-.** See *Acetophenone, 2,3,5,6-tetramethyl-.*
——, **3-benzoyl-.** See *Benzophenone, 2,3,5,6-tetramethyl .*
——, **$\alpha^2,\alpha^4$-dichloro-,** effect on growth of cottonseed, 1900*e.*
in wool treatment, 5955*d.*
——, **nitro-,** polarography in aq. dioxane, 4586*b.*
**3,6-Durenediamine.** See *p-Phenylenediamine, 2,3,5,6-tetramethyl-.*
**$\alpha^1,\alpha^2,\alpha^4,\alpha^5$-Durenetetramine,** *N, N, N′, N′, N″, N″, N‴, N‴* - **octaethyl-,** tetrakis(ethobromide), curarelike action of, 8059*c.*
**Durenol** (*2,3,5,6-tetramethylphenol*), and derivs., 7465*d.*
reaction with HCHO, 7450*i.*
——, **4-amino-,** 180*g.*
——, **4-(ethoxymethyl)-,** 7465*h.*
and benzoate, 7451*a.*
——, **4-(methoxymethyl)-,** 7451*a,* 7465*i.*
——, **4,4′-methylenedi-,** 7465*d.*
and diacetate, 7450*i.*
——, **4-(1-piperidylmethyl)-,** 7451*a.*
**Durestos,** for orthopedic appliances, 2029*g.*
**Durimet,** corrosion of, by sulfates, 1706*f.*
**Duriron,** corrosion resistance of, in red fuming $HNO_3$ and in mixed acid, 986*g.*
**Durol.** See *Durene; Durenol.*
**Durometer,** rubber-indentation test with, 4400*c.*
**Duroquinone** (*tetramethylquinone*), spectrum of, 5665*g.*
**Durra.** See *Sorghum.*
**Durvillea utilis,** polysaccharides of, 4728*i.*
**Durylic acid** (*2,4,5-trimethylbenzoic acid*), hydrogenation of, 2964*b.*
**Dust.** (For dust removal from gases, see also *Centrifuges; Fillers; Precipitation, electric; Respirators; Separation; Separators.* See also *Flue dust; Fungicides; Insecticides; Particles; Pneumoconiosis; Powders.*)
aluminum—see *Aluminum; Aluminum bronze.*
analysis of, 6112*f.*
aqueous aerosols and, 7607*c.*
blast-furnace, Fe detn. in, 965*i.*
from Fe-Mn smelting, 2555*h.*
top diam. and, 7393*a.*
book: Silicosis, Pneumokoniosis and, Suppression in Mines, 3948*g.*
cadmium oxide, quartz and ZnO, retention after respiration, 5434*a.*
in cemented-W-carbide industry, health hazards of, 4614*d.*
coal—see *Coal.*
control of cupola-stack, 4194*b.*
control of, in ceramic industries, 4436*g.*
in industry, 7607*b.*
in manuf. of glass fibers, 1161*g.*
in metallurgy plants, 1293*e.*
detn. of, in air, 4405*b.*
detn. of, in gases, 972*b.*
erosion by, 6475*c.*
explosibility of starch, 7230*e.*
explosions of, lecture expt. on, 8220*d.*
exposure of animals to, app. for, 7532*g.*
formation in rotary drying, 8752*e.*
furnace, C detn. in, 1285*d.*
in gas mains, 8119*f.*
in gas-works practice, and its prevention, 4445*e.*
insecticidal action of inert, 1142*f.*
measurement of, app. for—see also *Konimeters.*
of metals—see "powd." under *Magnesium; Metals; Zinc;* etc.
mine, petrology of, in South Wales, 2405*b.*
as nuclei of crystn., 3278*a.*
polarography of industrial, $CaCl_2$ as auxiliary electrolyte in, 5327*d.*
prevention of, in lacquer and paint plants, 420*d.*
quartz, luminescence analysis of, 1287*i.*
radioactivity of, 5298*i.*
removal, sepn. or collection of, from air by beds of fluidized solids, 6475*a.*
compns for, P 3120*fg.*
electrostatic precipitator for, P 2050*c,* P 7760*e.*
from fuel gas, P 6397*d.*
from furnace gases, P 5573*f.*
from gases, app. for, P 2421*g.*
in grain elevators, centrifuge for, P 3540*a.*
on large scale, app. for, 8213*h.*
in metallurgical plants, 1293*e.*
skimmer tank for app. for, P 4057*d.*
sludge dewatering tank for app. for, P 3250*e.*
removal, sepn. or collection of mercury-contg., in fur cutting and felt manuf., 8688*g.*
retention by surfaces during gas purification, 3666*d.*
rubber, for hard-rubber-casting manuf., P 2462*i.*
sampling of, in hematite mine with P.R.V. hand pump, 910*f.*
silica-contg., 4789*e.*
silica-contg., soly. of industrial, 6335*f.*
size of, measurement of, 5255*f.*
of soap powders—see *Soap.*
sodium chloride in atm., of Venice, 5239*c.*
tea, caffeine prepn. from, 5535*b.*
thallium detn. in, 5334*g.*
of tungsten carbide industry, Co detn. in, 3311*b.*
uranium dioxide, toxicity and particle size of, 1866*g.*
in washing-powder factories, silicosis and tuberculosis from, 4497*b.*
**Dvi-manganese.** See *Rhenium.*
**Dwarfism,** from propylthiouracil, 748*b.*
**Dyeing.** (See also *Absorption; Coloring; Staining.*)
with acid metallized dyes on animal fibers with nonionic surface-active agents, P 9472*a.*
aftertreatment of cellulose fibers and rayon, dicyanodiamide-HCHO-methyl urethan condensates for, P 2786*h.*
aftertreatment of cellulose fibers or rayon, stearoyltriaminotriethylene - biguanide-urethan-HCHO condensate for, P 2786*g.*
of agates, 8313*e.*
of aluminum and Al alloys, coatings for, P 5001*e.*
of aluminum articles, P 9022*a.*
with Anthrasols, 6831*e.*
**assistants and auxiliary products for, alkylene oxide condensation products with dimerized fatty acid alkylolamides, P 9472*e.***
***assistants and auxiliary products for,* amide derivs., P 5978*e.***
**2,4-diamino-*s*-triazine derivs., P 699*h.***
**lubricants contg. petroleum mahogany sulfonates, P 2424*h.***
**quaternary ammonium compds., P 7729*c.***
**reaction products of sulfonic acids with quaternary ammonium compds., P 1802*i.***
**assistants and auxiliary products in, 2775*h.***
with azo dyes, P 8152*a.*
books: Agenda del químico, 1574*a;* Chem. Technology of, 1574*a;* Fundamental Processes of Dye Chemistry, 4019*d;* Die neuesten Fortschritte in der Anwendung der Farbstoffe. Bd. II., 4471*e;* History of, in Bombay Presidency, 7694*a.*
British studies of, and dyeing with Monastral Blue, 5952*i.*
with Celliton Fast Navy Blue B on rayon for Jacquard-type effects, P 3207*i*
of cellulose ester and ether products with dinitrophenoxazine or dinitrophenothiazine, golden-orange or -brown, P 4488*d.*
of cellulose ethers in solid form and of textiles with alkali soln. of dyed cellulose ether, P 4166.
of cellulose fibers with direct dyes, 4856*h.*
of cellulose, rate of, 1983*d.*
cellulosic fiber damage in, 5191*b.*
colloidal aspects of, 6827*d.*
in continuous unit, 8685*c.*
control and evaluation of, 3619*g.*
of cotton and rayon, brown, fast to light and washing, 8140*h.*
of cotton and rayon with direct and S colors at low temps., 6419*h.*
of cotton with acylamino anthraquinone dyes, P 865*d.*
with alkenyloxyaminodiphenylamine azo dyes by ice-color method, P 856*d.*
with aroylamino anthraquinone vat dyes, P 863*b.*
with azo dyes, HCHO in decreasing loss in fiber strength in, 3622*f*
with azo pyrazolone dyes, P 858*b.*
to det. maturity, 5595*b,* 7689*e.*
with indigo vat dyes, P 7707*f*
without metallic salts, 9455*a.*
with vat dyes by continuous and pad methods, 7687*f*
of diallyl phthalate resins with polyhydric alc. assistants, P 3206*f.*
diffusion in, 2839*h.*
dispersing and leveling agents for, *N*-(phenylsulfonyl)octadecylaminesulfonic acid and *N*-(*p*-tolylsulfonyl)octadecenylaminesulfonic acid, P 4487*b.*
fastness improvement in, dicyanodiamide or ammeline resins for, P 2786*i.*
to laundering, P 4022*b.*
to perspiration, water and washing, hydroxyalkyl - guanidine - aldehyde condensation products for, P 3206*c.*
to washing with complex Cu compds. and HCHO-dicyandiamidine condensation products, P 5004*c.*
to water, lauroyltriaminotriethylene-biguanide acetate for, P 4879*a.*
to water, stearoyltriaminotriethylene-biguanide citrate for, P 4879*d.*
fastness improvers and leveling agents for, nonionic, 7690*a.*
fine structure of fibers in relation to, 4857*g.*
fixing agents for, P 667*c.*
of cellulose with chrome dyes, P 5198; D.Ts.Kh., D.Ts.M. and D.Ts.U., 3620*g.*
esters of acids from wood, P 1200*f.*
foaming of baths for, agents for prevention of, P 7610*c.*
fundamental research *vs.* technological study of, 6419*g.*
of fur pelts, 7689*g.*
of fur pelts (sheepskin), 7692*a.*
of furs, detergents in, 5213*e.*
of furs (rabbit), 7689*f.*
in Germany, 6827*f.*
of glass and other dye-resistant fibers, P 4440*g.*
of glass fabrics with pigment dispersions in vinyl polymers and carbamide-HCHO resins, P 415*c.*
of glass fibers, 2775*i.*
of hair, 4423*h.*
of hair with *p*-phenylenediamine, 2737*g.*
at high temps., 3199*f.*

at high temps. for rapid continuous dyeing, 411*c*.
history of, 6477*h*.
in classical Greece, 6419*h*.
with direct, S and vat dyes, 5951*i*.
of hosiery, 7232*e*.
hydrogen-ion concn. control in, 411*a*.
with insol. dyes, 4015*c*.
iron action on dyes in, $Na_2H_2P_2O_7$ and phosphates in prevention of, 4856*g*.
of leather, 1204*g*, 6853*a*, 8184*i*, 8721*d*.
with acid or direct dyes, 7736*f*.
pretreatment with cationic agents for, 7733*g*.
with sulfonated dyes, capillary-active agents for improving, P 2008*f*.
of leather and wool, protein chemistry in, 6828*d*.
of leather (sheepskin) and wool, 7233*c*.
of leathers (suede), use of polymers preventing crocking in, P 9512*c*.
of leather with hair or fur in acid bath, P 5982*h*.
with leuco esters of vat dyes on wool, 3621*a*.
leuco vat dye acid ester mixts. with org. bases or salts and org. acid amides for, P 9473*d*.
leveling agents for, evaluation of, 3624*b*.
lauroylphenylbiguanide methylated and sulfonated derivs., P 2442*d*, P 4878*i*.
monocarboxy - acylated hydrazine deriv. reaction products with saccharides, P 9497*h*.
*N*-polyoxyalkylamine deriv., P 4499*de*.
stearoylphenylbiguanide methylated and sulfonated derivs., P 4879*bc*, P 5199*e*.
stearoylphenylbiguanide methylated and sulfonated guanamine deriv., P 5216*e*.
trimethyl sulfo Na salt of 6 heptadecyl-1,2,3,4 - tetrahydro - 2,4 - diimino-1-phenyl-*s*-triazine, P 3474*c*.
of linen yarns, 7232*g*.
mercerization in increasing color depth obtained in, 3622*a*.
of mercerized cotton hosiery with naphthol and vat fast colors, 3620*i*.
of methyl methacrylate polymers for dentures, P 7268*b*.
microscopy (chem.) in, 6420*b*.
mordant, P 3206*e*.
mordants for—see *Mordants*.
with Neolan Red REC on wool yarns in pink shades, 8141*e*.
nitrogen-contg. fiber pretreatment with amino compds. and acids and, with direct cotton dyes, P 868*d*.
of nylon, 6829*g*.
with acetate dyes and steaming after-treatment, P 7712*a*.
with acid dyes, P 9473*a*.
with chrome dyes, 1569*h*, 9454*i*.
with direct cotton dyes and improving nylon dye affinity with HCHO-cyanamide condensates, P 2442*h*.
yellow, P 6428*a*.
of nylon and nylon blend yarns, 7232*g*.
of nylon hosiery, 6419*g*.
of nylon hosiery in presence of tannic acid, P 8692*c*.
of nylon, rayon and silk and dyeing after-treatments for photochem. oxidation testing, P 1192*e*.
of nylon-rayon mixts. with 3-nitro-4-amino-2′-chlorobiphenyl in green-yellow shades, P 2442*g*.
of nylon-wool blends, 6827*h*.
of nylon-wool mixts. with acid and chrome dyes, 7689*b*.
of Orlon, rayons, Vicara and Vinyon N, 9454*f*.
padding, of cotton, 1191*c*.
padding, pickup of liquors in, 3623*g*.
with pigment colors, 7689*g*.
with pigment dispersion in rubber emulsions in urea resin or protein dispersions, P 1990*i*.
of plastics, 7688*h*.
with prechromed dyes, boiling-off, exhaustion and leveling in, 5594*i*.
printing—see *Textile printing*.
problems in, 5952*i*.
properties of alginate rayon, improvement of, P 7712*d*.
of cellulose acetates during deacetylation by $NH_3$, 6423*a*.
of cellulose, dicyanodiamide-HCHO condensation product for improving, P 7238*b*.
of cellulose, orientation and, 6830*a*.
properties of cellulose textiles, improvement by steaming during scouring, P 5200*d*.
of cellulose textiles, improvement with strong hydroxide and acrylonitrile, P 6428*f*.
of cellulose textiles or rayon, improvement with amino groups, P 3208*b*.
of cotton yarns and textiles, improvement by mercerization, 6423*g*.
of Orlon acrylic fiber, 7232*h*.
of polymers, chem. constitution and, 9455*c*.
of rayon, effect of water absorption and swelling on, 9457*i*.
of textiles, improvement with alkali zincate solns. of cellulose ethers, P 6428*g*.
of textiles, improvement with polymeric vinyl isocyanate compds., P 6428*d*.
of viscose rayon with high swelling, 3200*h*.
of wool, effect of cross-linkage formation on, 9457*g*.
protein hydrolyzates as amphoteric materials and protective colloids in, 9454*f*.
of rayon, 411*b*, P 4488*f*.
in cake or package forms, 6828*f*, 7232*d*.
control in, 7689*b*.
to detect thin-walled fibers, 7689*c*.
with direct and vat dyes, 3200*i*.
rate of, in classification of direct dyes, 7688*f*.
swelling capacity and, 9454*h*.
of rayon and silk in skein form, 4469*f*.
of rayon-contg. textiles for two sides in differing colors, P 8693*a*.
of rayon crepe with Algosol or Indigosol acid or vat dyes, P 3206*g*.
of rayon (Fibro), 5190*h*.
of rayon (Rhofil), 6420*a*.
resinous products for, 5995*i*.
review on, 3619*g*.
of sausage casings from regenerated cellulose, P 7605*c*.
of soybean protein sheet material, 4790*a*.
spectrophotometer in, 6827*d*, 8685*a*.
stable prepns for, P 4488*e*.
steam use, etc., in, 8685*c*.
with Sulfur Black, alk. aftertreatments of cotton yarns in decreasing tendering by, 3621*f*.
surface-active sulfonation products for use in, P 9498*f*.
temp. control in, 8140*h*.
of tubular and warp-knit textiles and blends, 5953*b*.
two-stage, 3619*h*.
with vat dyes, 1191*e*, 4856*i*, 3620*e*, 6827*ef*.
on alkali-sensitive fibers by acid reduction, P 414*h*.
by jig and pad-jig methods, 6827*g*.
uneven shade and other faults in, 6827*g*.
of unwoven fibers in running lengths, P 2784*e*.
of vinyl resins, P 1217*d*.
waste liquors from, analysis for NaCl and $Na_2SO_4$, 6419*e*.
dye adsorption from, and reuse of, P 8174*f*.
treatment of, 3621*b*.
wetting agents for—see *Wetting agents*.
of wood, P 6390*f*.
of wool, 6829*b*.
with acid and chrome dyes, exhaustion, leveling and rate of, 4015*g*.
with azo dyes, P 7698*d*.
chrome and vat processes for, 3200*f*.
with chrome dyes, effect of metals on, 5953*b*.
continuous process for acid, 8139*i*.
with disazo dyes, P 7701*g*.
effect of lubricants, scouring agents and emulsifying agents on, 2780*d*.
effect on passage of air, heat, moisture and ultraviolet light, 8141*h*.
effect on susceptibility to raising, 6828*i*.
pH values, rate and temp. of acid, 7687*i*.
with indigo dyes from $NH_4OH$-$Na_2S_2O_4$ vats, P 415*i*.
with level-dyeing acid dyes, 5593*i*.
temp. effect on, 6828*f*.
of wool roots and tips with chrome dyes in neutral Cr salt solns., 2776*i*.
of wool unions, dye decompn. during, and Na perborate and urea in its prevention, 851*k*.
of zinc and Zn alloys, P 7894*i*.
**Dyeing apparatus.** (See also *Textile printing*.) 3619*g*.
for continuous dyeing, 8140*g*, 8685*b*.
for high-temp. use, 411*c*.
for hosiery, 7232*e*.
for insol. dyes, 4015*c*.
pad, 6827*f*.
for rayon in cake form, 7232*d*.
with steam-condensing means of producing vacuum, P 9472*fh*.
for testing dyes, 2776*h*.
for unwoven fibers in running lengths, P 2784*g*.
for vat dyeing of wool, 3200*g*.
**Dye intermediates.** See *Intermediates*.
**Dyes.** (*The entries under this heading are classified on the basis of chemical constitution, the dyeing method, kind of material dyed and color in this order. See also* Acridine Orange; Acridine Red; Acriflavine; Alizarin; Alizarin Red S; Amaranth; Auramine; Auxochromes; Benzopurpurin; Bismark Brown; Brilliant cresyl blue; Brilliant green; Bromocresol purple; Bromophenol blue; Bromothymol blue; Butter yellow; Caledon; Capri blue; Chlorazol Fast Pink; Chromophores; Chrysoidine; Cochineal; Color(s); Congo red; Congo violet; Cresyl violet; Crystal violet; Cyanines; Cyanol; Dyeing; Eosin; Erythrosin; Evans Blue; Flavone; Fluorescein; Fuchsin; Fuchsone; Gentian violet; Indicators; Indigo; Indigosols; Intermediates; Janus Blue; Janus Green; Janus Purple; Kamala; Lakes; Malachite green; Methylene blue; Methyl green; Methyl orange; Methyl red; Methyl violet; Naphthol Green; Naphthol Yellow S; Neutral red; Nile blue; Orange I; Orange G; Orange OT; Phenolsulfonephthalein; Phenosafranine; Phthalocyanines; Pigments; Pomiferin; Rhodamines; Rhodulin; Rose Bengal; Rubrophen; Safranine; Stains; Thionine; Titan Yellow; Toluidine blue; Toluidine red; Toluylene blue; Uranin; and "sodium salt" under Alizarinsulfonic acid.)
absorption and binding of anionic and cationic, by fibrins, effect of dye and salt concns. and pH on, 411*f*.
acenaphthenethianaphtheneindigo, vat, 4855*e*.
from acetamide, triethylenetetramine and HCHO, cotton, brown, P 1574*b*.
Acid Green LX, for making moisture-sensitive paper, P 1188*h*.
acid, level-dyeing, 5593*h*.
acid, reaction with wool, 7687*h*.
acridine (amino-) and diaminoacridine, color, fastness and dyeing properties of, 1189*i*.
from acridines, basic and vat, 7028*g*.
adsorption of acid and chrome, by wool, 4015*e*.
adsorption of anions of, by Ag halides, 4536*h*.
adsorption of, by clays, 2070*b*.
colloidal $Al_2O_3$ for, P 4820*i*.
by leaves, 1464*h*.
in presence of salts, 1624*i*.
adsorption of ions of, by $PbSO_4$ and AgBr, effect of excess ions on, 8790*g*.
in agar-agar gels during syneresis, 8793*e*.
Alizurol Purple SS, spectrophotometric detn. of, 7367*d*.
from *Amaranthus*, food, P 6371*f*.
amidinium vinylogs, 3359*f*.
amino acid reduction by coal-tar, 7136*a*.
aminoazo, intracellular compn. of liver after feeding, 7123*c*.
aminoazo protein-bound, formed from 4-dimethylaminoazobenzene and its monomethyl derivs., 8048*a*.
aminoazo, sulfonated, P 3203*f*.
aminoazo, sulfonated, wool, red, P 858*b*.
aminoazo, 1,2,4,2 *H*-thiadiazine-3,5(4 *H*,-6 *H*)-dione, nylon and rayon, yellow, P 4868*e*.
aminoazo, wool, green, for chrome dyeing, P 1988*bcd*.
4 - amino - 1,8 - naphthalimidedisulfonic acids, wool, yellow, fluorescent, P 7710*f*.
aminopolyazo, leather, brown, P 891*b*, 892*ab*.
aminotrisazo, sulfonated, leather, gray to green-black, P 428*h*.
in analysis (inorg. qual.), 6106*c*.

analysis of, hydrophilic solvents in, 1569*f*.
analysis of mixts. in soln., Beer's law and, 469*d*.
Anchusa red, from *Anchusa tinctorium* roots, 4596*h*.
Aniline Orange, chromatographic sepn. from malachite green, 8777*a*.
anthradiisothiazole, vat, olive, P 5601*d*.
anthrapyridazone, sulfonated, wool, orange to orange-red, P 8165*f*.
1,9 - anthrapyridone anthraquinone chrysene, vat, cotton, brown, P 7711*i*.
1,9-anthrapyridone, cellulose derivs., red and red-violet, resistant to acid fading and light, P 8165*a*.
anthrapyrimidine anthraquinone chrysene, vat, cotton, red-brown, P 7711*h*.
anthrapyrimidine fluoranthene, vat, P 5966*d*.
anthraquinone, P 1808*f*, P 1986*e*, P 8163*d*, P 9468*a*.
anthraquinone, acid, nylon, silk and wool, P 3205*f*.
anthraquinone acyl amino derivs., sulfonamide, vat, fast to bucking, Cl and washing, P 863*b*.
anthraquinone acyl amino derivs., vat, cotton, linen, rayon or regenerated cellulose, P 7705*g*.
anthraquinone 2-amino-1,2,3,4-tetrahydronaphthalene, sulfonated, animal fibers, blue to green, P 860*f*.
anthraquinone and Quinoline Yellow base, green smoke-producing compn from, P 8684*b*.
anthraquinone and related, contg. quaternary ammonium groups, P 8164*a*.
anthraquinone and related, sulfonium salt-contg., P 8164*a*.
anthraquinone, animal fibers, blue, P 5197*bfghi*, P 5198*a*.
anthraquinone aroylamino derivs., sulfonated, vat, P 802*g*.
anthraquinonebenzacridone benzanthrone, vat, cotton or regenerated cellulose, olive-gray, P 6427*c*.
anthraquinonebenzacridone fluoranthrene, vat, P 5966*d*.
anthraquinonebenzacridone, sulfonated, vat, cotton, blue or violet, P 7706*b*.
anthraquinonebenzbenzacridone, vat, P 8170*bd*.
anthraquinone benzacridone, vat, cotton, blue-red, P 1986*h*.
anthraquinone benzanthreneacridine, vat, cellulose fibers, gray, fast to light, peroxide and washing, P 7706*f*.
anthraquinone benzanthronedicarboxylic acid, vat, cotton or regenerated cellulose, yellow and green-yellow, P 6426*i*, P 6427*a*.
anthraquinonebenzanthrone, vat, P 8170*e*.
anthraquinone benzanthrone, vat, cotton and rayon, blue-violet, P 8170*i*.
anthraquinone benzanthrone, vat, cotton, olive-green, P 7236*a*.
anthraquinone 1,4-bis(2-hydroxyethylamino) derivs., bis(hydrogen sulfate), silk and wool, blue, P 4483*i*.
anthraquinone, blue, P 9467*e*.
anthraquinone, blue smoke-producing compns. from, P 8684*a*.
anthraquinone 2-*tert*-butyl derivs., 8139*g*.
anthraquinone, by acylating sulfonated 4-(*p*-phenylazoanilino)anthraquinones, wool, brown, fast to light and washing, P 3626*h*.
anthraquinone carbalkoxy amino sulfonamides, nylon and wool, blue, P 7709*k*.
anthraquinone carboxyphenyl amino sulfonamides, P 7709*i*.
anthraquinone - chrysene condensation product, acid, wool, P 7711*e*.
anthraquinone-chrysene condensation products, vat, cotton, P 7711*dfghi*.
anthraquinone, contg. trifluoromethyl group, P 7709*e*.
anthraquinone, Cu-contg., 6419*c*
anthraquinone, cotton, blue, P 9467*d*.
2,3-anthraquinonedicarbonitrile derivs., rayon, resistant to gas fading, P 8164*h*.
anthraquinonedisulfonic acid, animal fibers, linen and nylon, blue, fast to light and washing, P 4482*h*.
anthraquinone fluoranthene, vat, P 5966*cde*.
anthraquinone halogenated alkylphenylamino derivs., P 3205*a*.
anthraquinone halogenated amino derivs., sulfonated, Cu-contg., animal fibers, blue, P 7703*f*.
anthraquinone halogenated anilino derivs., red-blue, P 5197*a*.
anthraquinone indanthrene, vat, cotton or regenerated cellulose, blue-green, P 6427*d*.
anthraquinone, nylon and rayon, blue and blue-green, P 4483*b*.
anthraquinone oxadiazole, vat, red, P 4484*a*.
anthraquinoneoxazole naphthacridinetrione, vat, cotton, yellow-olive-green, P 7705*i*.
anthraquinone, *p*-phenylazoanilino derivs., sulfonated, wool, fast to light and wet treatments, P 8164*b*.
anthraquinone 1-(4-phenylsulfonylbenzamido)-4-benzamido deriv., vat, cotton, red, P 7706*d*.
anthraquinone, phthalic acid deriv., rayon, blue, P 4020*g*.
anthraquinone, rayon, blue, P 1986*f*, P 4483*h*.
anthraquinone, rayon, blue or blue-violet, fast to acid fading and light, P 9468*a*
anthraquinone, rayon, fast to gas fading and light, P 3205*b*.
anthraquinone, rayon, navy blue, P 6421*j*.
anthraquinone, rayon, violet, P 6832*e*.
anthraquinone, silk and wool, blue, P 9467*c*.
anthraquinone stilbene, sulfonated, nylon and wool, P 9467*f*.
anthraquinone, sulfonated, blue, P 8163*b*, P 9468*d*.
anthraquinone, sulfonated, cellulose acetates, blue and blue-violet, P 2783*i*, P 2784*ab*.
anthraquinone, sulfonated, cellulose acetates, red-violet and rose, P 2783*ghi*
anthraquinone, sulfonated, cellulose derivs., red-blue, resistant to acid fading, P 8162*i*.
anthraquinone, sulfonated, Cl-contg., silk and wool, green-blue, P 2782*i*, P 2783*cdefg*.
anthraquinone, sulfonated, Cu-contg., animal fibers, green-blue, fast to light and tanning, P 7703*c*.
anthraquinone, sulfonated, cotton, violet, P 4483*g*.
anthraquinone, sulfonated, halogen-contg., nylon and wool, blue, P 8164*d*.
anthraquinone, sulfonated, silk, wool, etc., red-blue, P 4867*f*
anthraquinone, sulfonated, wool, P 7704*a*.
anthraquinone, sulfonated, wool, blue, P 4183*f*, P 4867*eg*.
anthraquinone, sulfonated, wool, red violet, fast to light and wet treatments, P 8690*g*.
anthraquinone-2-sulfonic acid 1-amino-4-anilino derivs., 6193*g*.
anthraquinone, S-contg., rayon, P 4483*i*.
anthraquinone 1,2,3,7-tetrahydroxy-6-methyl deriv., wool, 210*d*.
anthraquinone thianaphthene, vat, cotton, pink, P 5967*a*.
anthraquinone thianthrene, vat, P 5966*g*.
anthraquinone thiazole, vat, reducing particle size and increasing uniformity of, P 3626*e*.
anthraquinone triazine, vat, cotton, blue-red, P 1575*e*.
anthraquinone triazine, yellow-green, P 9468*a*.
anthraquinone, vat, cotton, blue-red, P 5601*c*.
anthraquinone, vat, cotton, brown, P 5602*a*, P 7712*a*.
anthraquinone, vat, cotton, orange, P 4484*c*.
anthraquinone, vat, cotton, rayon and silk, Bordeaux, fast to alkali, Cl, light and wet treatments, P 1576*a*.
anthraquinone, vat, cotton, red and brown-red, P 5966*eg*.
anthraquinone, vat, cotton, scarlet-red, P 4484*e*.
anthraquinone, vat, cotton, yellow, P 4484*bdefgh*, P 8691*ef*.
anthraquinone, vat, prepn. by alkali fusion, 5189*g*.
anthraquinone, vat, solvation and stability to flocculation by electrolytes and relation to migration, 7232*c*.
anthraquinone, wool, blue, 1761*a*, P 7235*h*.
anthrathiazole benzanthrone, vat, cotton and regenerated cellulose, brown-orange, P 6427*c*.
anthrathiazole fluoranthene, vat, P 5966*d*.
anthrimidazole fluoranthene, vat, P 5966*d*.
anthrimidecarbazole, P 7704*g*.
anthrimidecarbazoleacridone, vat, cotton, olive, fast to Cl and light, P 9469*a*.
anthrimidecarbazole, cotton, brown, P 9468*g*.
anthrimidecarbazole, sulfonated, vat, P 8171*b*.
anthrimidecarbazolethiaxanthone, vat, vegetable fibers, orange to red-brown, fast to Cl and light, P 9468*h*.
anthrimidecarbazole, vat, vegetable fibers, violet-brown, P 7705*a*.
anthrimide, chlorosulfonated or sulfonated vat, cotton, gold-yellow, P 7708*b*.
azamethine, yellow to orange, P 8166*c*.
azo, 2611*i*, P 2634*h*, 4788*i*, P 8154*d*.
azo alkenyloxyaminodiphenylamine, ice color, cotton, P 856*d*.
azo, 6-alkoxy-2-naphthol, sulfonated, metallized, gray, olive and olive-green, fast to light, milling and potting, P 7698*a*.
azo, aminonaphthalenesulfonic acid, wool, red, P 5194*g*.
azo, 3-amino-2-naphthoic acid, sulfonated, wool, yellow-red, P 1987*g*.
azo, 3-amino-2-naphthoic acid, sulfonated, Cr-contg., wool, yellow-green, P 8690*i*, P 8691*c*.
azo, aminonaphtholsulfonic acid, cotton, red-brown, fast to light and washing, P 7235*f*.
azo, aminonaphtholsulfonic acid, wool, red, P 2440*cdefgh*.
azo, (2-amino-1-naphthylazo)phenolsulfonic acids, Cr-contg., wool, yellow green, P 8155*f*.
azo, analysis of, 6948*a*.
azo and azo stilbene, sulfonated, cotton, P 7694*j*.
azo and Ciba Blue 2B, improving color properties of blue, P 7712*g*.
azo and vat, lecture demonstrations on, 8762*d*.
azo, 4-(arylazo)-3-hydroxy-2-naphthanilides, cellulose and ink, fast to ultra violet light, nonbleeding, P 8155*f*
azo, 2-(arylazo) 1-(4 morpholinyl)-2 nitro propane, P 8154*a*
azoarylguanide derivs., P 7710*h*
azo, barbituric acid sulfonated, wool, green-blue, P 7697*f*.
azo, benzimidazole pyrazolone, cotton, orange, P 5194*f*.
azo, benzimidazole, sulfonated, wool, fast to ultraviolet light, P 9460*a*
azo, 1,3-benzodioxan, nylon and rayons, yellow to red-orange, fast to sea water and washing, P 8149*a*.
azo, benzodioxan, rayon, yellow, solvent sol., P 5194*ab*, P 7697*c*.
azo, *N*-benzodioxan-6-yl-3-hydroxy-2-naphthamide, P 8151*h*.
azo, *N*-benzodioxan-6-yl-3 hydroxy-2-naphthamide, lacquers, varnishes, etc., fast to light and washing, P 8152*a*.
azo, 1*H*-benzotriazole or naphthotriazole, cellulose esters, nylon, silk and wool, P 3625*d*.
azo, biphenyl, nylon and rayon, yellow and orange, P 5597*g*.
azo, *N*, *N* - bis(hydroxyethyl)aniline, rayon, orange, P 7696*f*, P 8689*i*.
azo, *N*, *N* - bis(hydroxyethyl)aniline, rayon, scarlet, P 4019*h*.
azo, *N*, *N*-bis(hydroxyethyl)-*m*-toluidine rayon, P 4020*a*, P 4474*ac*.
azo, *N*, *N*-bis(hydroxyethyl)-*m* toluidine, rayon, violet, P 7697*g*
azo, 4,4′-bis(3-methyl-5-oxo-2-pyrazolinyl)biphenyl - 2,2′ - disulfonic acid-derived, wool, yellow, P 1987*d*
azo, bisulfite derivs. of 1-nitrosonaphthol and of *p*-quinones in making, 2437*h*
azo, 4-butyl-1-naphthol, wool, P 4865*m*
azo, carcinogenesis from, blood-serum proteins in, 4370*c*.
azo, cellulose esters, nylon and vinyl polymers, orange, P 9461*i*.
azo, 4-chloro-6-amino-1-phenyl-2 sulfonic acid—8-amino-1-naphthol 4-sulfonic acid, Cu-contg., wool, yellow, P 2441*d*.
azo, 4-chloro-(or 3,4-dichloro)-5-nitro-2-aminophenol-6-sulfonic acid—5,8-dichloro-1-naphthol, wool, blue and blue-green, fast to light and water, P 2440*h*.
azo, color reactions with adsorbents, 8035*f*.
azo, color reactions with metal ions, 5066.

azo, constitution and indicator properties of, 3309*a*.
azo, 2,2 - dialkyl - 3,4 - dihydroxytetrahydroquinoline nucleus-contg., nylon, etc., P 8624*a*.
azo, diaminobenzenesulfonamide, wool, red-brown, P 6832*g*.
azo, 1-dibutylamino-2-nitrobutane, rayon, silk and wool, orange-yellow, P 8153*i*.
azo, dinitrobenzene, cellulose esters and ethers, nylon and varnishes, P 9462*e*.
azo, dustproofing with dialkyl carbonates, P 9474*a*.
azo, effect on cockroach, 8089*c*.
azo, effect on cotton destruction by sunlight and atm., 3622*f*.
azo, ethyl(hydroxyethyl)aniline—chlorosulfoacetic acid—nitroaniline, P 4019*e*.
azo, 4-ethyl-1-naphthol, wool, blue, P 4866*ab*.
azo, from 5-amino-1-naphthol and its derivs., potentiometric titration and structure of, 4467*h*.
azo, from aromatic amino acids and 1-(2-biphenylyl)-3-methyl-5-pyrazolone and its $SO_3H$ deriv., P 2238*g*.
azo, from diketones, 5778*f*.
azo, from 2-pyrrolesulfonic acid, 7016*b*.
azo, from sulfa drugs, 9047*g*.
Azogrenadin S, diffusion in agar-agar gels, 7788*d*.
azo, having hydroxy groups ortho to azo group, Cu-contg, 6418*i*.
azo, 7-hydroxy-1-naphthalenecarbamic acid, sulfonated, wool, blue and green, P 5960*hi*, P 5961*ab*.
azo, 4-hydroxy-1-naphthyl phenyl ketone, Cr-contg., lacquers, red-blue, P 7697*i*.
azo, maleamide, rayon, yellow, P 4474*c*, P 4475*ef*.
azo, manuf. by electrolysis, 4961*d*.
azo, metal-contg, P 9460*e*
azomethine, from acylacetamidobenzaldehyde acetals, P 8161*h*
azo, 2-*N*-methylanilinoethanol, rayon, scarlet, P 7697*h*.
azo, *N*-methylanilinoethyl $NH_4$ succinate, rayon, yellow, P 4471*f*.
azo, *N*-methylanilinoethyl chlorosulfoacetate, P 4475*a*.
azo, *N*-methylanilinoethyl chlorosulfoacetate, rayon, orange, P 4471*fg*
azo, morpholine salts, P 3300*gi*.
azo, morpholinylarylides of o hydroxy acids, orange to blue and brown, P 8162*d*.
azo, naphthalene, halogen-contg., hydrocarbon-sol., orange to brown, P 7712*e*
azo, naphthalenesulfonic acid, silk and wool, blue, P 7696*a*.
azo, naphtholdisulfonic acid, Cr-contg., wool, navy blue, P 5600*g*.
azo, 2-naphthol-6,8-disulfonic acid, cotton, orange, P 5960*a*.
azo, naphtholdisulfonic acid, wool, blue, P 5597*e*.
azo, 1-naphthol-4-sulfonamide wool, red-violet, fast to light and moisture, for chrome dyeing, 1987*b*.
azo, 2-naphthol-6-sulfonanilide, wool, orange or red, fast to fulling, light and potting, for chrome baths, P 1987*a*.
azo, naphtholsulfonic acid, cellulose and wool, brown, fast to Cl and washing, P 4475*gi*.
azo, naphtholsulfonic acid, Cr-contg., formic acid bath, wool, green-blue, P 6427*i*.
azo, 1-naphthol-8-sulfonic acid, Cr-contg., formic acid bath, wool, wine red, P 4805*g*.
azo, naphtholsulfonic acid, Cr-contg., wool, blue, P 4482*d*.
azo, naphtholsulfonic acid, Cr-contg., wool, blue-olive-green, P 4482*e*.
azo, naphtholsulfonic acid, Cr-contg., wool, gray, P 4482*d*.
azo, naphtholsulfonic acid, Cr-contg., wool, violet, fast to water, P 4482*c*.
azo, naphtholsulfonic acid, Cu-contg., cotton, black-brown, P 7697*b*.
azo, naphtholsulfonic acid, Cu-contg., cotton, red-violet, P 5597*g*.
azo, naphtholsulfonic acid, cotton, violet-black, P 4473*c*.
azo, naphtholsulfonic acid, green-blue, P 4473*c*.
azo, naphtholsulfonic acid pyrazolone, cellulose, brown-orange, P 5194*h*.
azo, naphtholsulfonic acid salicylic acid, cellulose and rayon, brown, P 5597*f*.
azo, naphtholsulfonic acid salicylic acid, cotton, orange-brown, fast to light and washing, P 4474*d*.
azo, 2-naphthol-6-sulfonic acid, wool, blue-green, P 1987*g*.
azo, 2-naphthol-4-sulfonic acid, wool, claret red, P 4864*a*.
azo, naphtholsulfonic acid, wool, dark brown, fast to fulling, light and potting, P 5959*i*.
azo, 1-naphthol-8-sulfonic acid, wool, green, violet and blue to gray, P 8148*a*.
azo, naphtholsulfonic acid, wool, olive-green, for chrome dyeing, P 1987*def*.
azo, naphtholsulfonic acid, wool, red-brown, P 6832*f*.
azo, naphtholsulfonic and phenolsulfonic acid, metal-contg., mordant, wool, blue-gray, blue and olive, P 7695*c*, P 9459*e*.
azo, naphthotriazole stilbene, sulfonated, Cu-contg., brown, P 5964*g*, P 5965*bcd*
azo, naphthotriazole stilbene, sulfonated, Cu-contg., olive, P 5965*c*.
azo, *N*-1-naphthylphthalamic acid derivs., sulfonated, Cr-contg., wool, P 8155*h*.
azo, nylon and rayon, P 7697*i*, P 8155*a*.
azo, nylon and rayons, fast to Cl, light, over-dyeing, S and washing, P 8144*i*.
azo, phenolsulfonic acid, Cr-contg., wool, olive-brown, P 4488*bc*.
azo, phenolsulfonic acid, wool, blue-red, P 6425*b*.
azo, phenolsulfonic acid, wool, violet-blue, P 7697*e*.
azo, phthalamide, rayon, yellow, P 4475*ce*.
azo, pyrazolone, 4272*c*, P 8149*d*.
azo, pyrazolone, acid, wool, yellow, fast to fulling, seawater and washing, P 6424*i*.
azo, pyrazolone, Cr-contg., resins, orange, P 1987*h*.
azo, pyrazolone, Cr-contg., wool, orange, P 4482*e*.
azo, pyrazolone, Cu-contg., for khaki pigment dyeing, P 7698*e*.
azo, pyrazolone, cotton, red, fast to washing, P 7697*d*.
azo, pyrazolone, halogen-contg., wool, yellow to orange, fast to fulling, light, sea water and washing, P 8149*g*.
azo, pyrazolone, maleic esters, sulfonated, rayon, yellow, P 8153*c*.
azo, pyrazolone, rayon, scarlet-red, P 7235*c*.
azo, pyrazolone, rubber and synthetic resins, yellow-red, P 7746*d*.
azo, pyrazolone, succinic esters, sulfonated, rayon, yellow, P 8153*b*.
azo, pyrazolone, sulfonated, Cr-contg., Aralac, leather, nylon and wool, P 8150*g*.
azo, pyrazolone, sulfonated, Cr-contg., wool, yellow-red, fast to light and washing, P 9461*c*.
azo, pyrazolone, sulfonated, Cu-contg., cellulose, P 9461*d*.
azo, pyrazolone, sulfonated, Cu-contg., cotton, red, P 7696*e*.
azo, pyrazolone, sulfonated, orange and yellow or yellow-brown, P 857*e*.
azo, pyrazolone, sulfonated, rayon, yellow, P 7235*b*, P 8146*c*, P 8153*d*.
azo, pyrazolone, sulfonated, vegetable fibers, green, P 3624*hi*.
azo, pyrazolone, sulfonated, wool, P 7698*d*.
azo, pyrazolone, sulfonated, wool, yellow, P 4020*f*, P 5961*b*, P 8689*h*.
azo, pyrazolone, sulfonated, wool, yellow, fast to light and perspiration, P 5600*h*.
azo, pyrazolone, vegetable fibers, red, P 5198*fg*.
azo, pyrazolone, vegetable fibers, violet-brown, P 5198*ef*.
azo, pyrazolone, wool, orange, P 4475*b*.
azo, pyrazolone, wool, yellow, P 4867*ghi*.
azo, pyridobenzoxazine, P 2781*e*.
azo, rayon, fluorescent, P 1986*c*.
azo, rayon, orange or red, dispersed in gas black dispersions, P 415*s*.
azo, rayon, yellow, P 8689*e*.
azo, reaction with antibodies, 3516*g*.
azo, salicylic acid, cellulose and leather, brown, P 4864*cd*.
azo, salicylic acid, sulfonated, cellulose, red-brown, fast to Cl, light, soap and soda, P 5597*a*.
azo, salicylic acid, wool, Bordeaux, P 4471*g*.
azo, stilbenedisulfonic acid, cellulose, Bordeaux, P 8144*c*.
azo, stilbenedisulfonic acid, cellulose, bronze, P 5194*c*.
azo, stilbenedisulfonic acid, cellulose, red, P 4863*e*.
azo, stilbenedisulfonic acid, cellulose, yellow, P 4863*ghi*, P 4864*a*.
azo, stilbenedisulfonic acid, Cu-contg., cellulose, brown, P 4485*efghi*, P 5198*cde*, P 8143*h*, P 8144*abcde*, P 8151*a*.
azo, stilbenedisulfonic acid, Cu-contg., cellulose, gray, P 4485*g*, P 5198*c*.
azo, stilbenedisulfonic acid, Cu-contg., cotton and rayon, yellow-orange, fast to light and washing, P 2784*c*.
azo, stilbenedisulfonic acid, Cu-contg., cotton, brown, P 1988*f*, P 4485*c*, P 4486*gh*, P 7235*g*.
azo, stilbenedisulfonic acid, Cu-contg., cotton, brown-red, P 4486*g*.
azo, stilbenedisulfonic acid, Cu-contg., cotton, golden-yellow, P 4486*h*.
azo, stilbenedisulfonic acid, Cu-contg., Glauber salt bath, cotton, red-orange, P 4486*ef*.
azo, stilbenedisulfonic acid, Glauber salt bath, cotton, orange, P 4486*i*.
azo, stilbenedisulfonic acid naphthotriazole, cellulose, olive, P 4474*g*.
azo, stilbenedisulfonic acid pyrazolone, cellulose, orange-yellow, P 4864*e*, P 5959*c*.
azo, stilbenedisulfonic acid pyrazolone, Cu-contg., cotton and rayon, yellow, P 4865*cfg*.
azo, stilbenedisulfonic acid pyrazolone, cotton and rayon, yellow, fast to light and washing, P 4473*d*.
azo, stilbenedisulfonic acid pyrazolone, cotton, brown, P 4472*ghi*.
azo, stilbenedisulfonic acid pyrazolone, cotton, yellow, P 4472*df*.
azo, stilbenedisulfonic acid triazine, cellulose and regenerated cellulose, yellow, P 7235*d*.
azo, stilbenedisulfonic acid pyrazolone triazine, cellulose, yellow, P 5194*d*.
azo, stilbenedisulfonic acid triazine, cellulose, orange, P 5198*a*.
azo, stilbenedisulfonic acid triazine, cotton, yellow, P 4472*fg*.
azo, succinamide, rayon, yellow, P 4475*g*.
azo, sulfamyl-1-naphthol-8-sulfonic acid, Cr-contg., wool, wine red and green-gray, P 5600*efg*.
azo, sulfanilamide derivs., therapeutic activity of, 3097*c*.
azo, 8-(*m*-sulfobenzamido)-2-naphthol, wool, red-violet, P 5597*i*.
azo, sulfonated, P 5199*b*.
azo, sulfonated, cellulose, P 8145*f*, P 8146*c*.
azo, sulfonated, Cr-contg., wool, blue-green, fast to light and wet treatments, P 8146*f*.
azo, sulfonated, cotton, yellow, fast to washing, P 9459*eghi*, P 9460*a*.
azo, sulfonated, rayon, blue, P 9495*b*.
azo, sulfonated, rayon, red-brown, P 9459*d*.
azo, sulfonated, rayon, scarlet red, P 9459*d*.
azo, sulfonated, rayon, violet, P 9458*f* P 9459*c*.
azo, sulfonated, rayon, yellow, P 8146*b*.
azo, sulfonated, wool, blue-red, P 9458*ghi*, P 9459*a*.
azo, sulfonated, wool, fast to milling, perspiration, potting and washing, P 8147*c*.
azo, sulfonated, wool, orange to brown, P 5960*f*.
azo, sulfonated, wool, red-violet, P 5960*d*, P 9459*ab*.
azo, sulfonium salts, cotton, yellow, fast to light, soda ash, soda boiling and washing, P 8146*h*.
azo, tetrahydroacenaphthenol derivs., red-brown, 4250*g*.
azo, 3-thianaphthenol derivs., 6204*f*.
Azotol, saving caustic in soln of, 3624*b*
azo, *o*-toluidinomethanesulfonic acid, rayon, yellow, P 8689*g*.
azo, triazine, cotton, orange-brown, fast to light and washing, P 4472*a*.
azo, triazine, naphtholsulfonic acid, Cu-contg., cellulose, fast to light and wet treatments, P 7699*a*, P 8161*h*.
azo, triazine, rayon, regenerated cellulose and vegetable fibers, green, P 4480*c*.
azo, triazine, vegetable fibers, blue-green, P 4479*i*.

azo, urea deriv., cotton, yellow, fast to washing, P 4487*g*, P 9459*ghi*.
azo, wool, for metachrome process, P 414*h*.
basic metachromatic, retardation of growth of transplantable carcinoma in mice fed, 1856*i*.
benzidine-peroxidase color inhibition by, 7521*c*.
benzimidazole, sulfonated, blue to violet, fluorescent, P 8173*i*.
benzothiazole, sulfonated, cellulose, yellow, P 5600*gh*, P 7705*d*.
binding by native and denatured proteins, 1073*g*.
by nerve cells, duration of stimulation and, 742*a*.
by tobacco mosaic virus proteins, 8407*h*.
by 2,6-bis(5-benzamido-1-anthraquinonylamino)naphthalene condensation, cotton, red-brown, P 1578*a*.
books: Chimica analitica applicata all'industria, 1573*i*; Química aplicada a la industria textil. T. 1. Quimica de las, 1980*b*; Fundamental Processes of, Chemistry, 4019*d*, Les couleurs, 5194*a*; Tech. Analysis in Production of—(in Russian), 5597*a*, Las materias colorantes, 6424*e*, History of, in Bombay Presidency, 7694*a*.
Brilliant Blue (FD & C Blue No. 1), Na acetate detn. in, 9452*b*.
British industry of, 3199*f*.
carbocyanine, 2617*a*.
cellulose esters, orange-yellow, P 9470*b*.
chem. constitution and color of, 942*c*.
Chlorazol Sky Blue FF and Chrysophenine G, adsorption by cellulose, 8234*a*.
2'-chloro-3-nitroxenylamine, nylon and rayon, green-yellow, P 2442*h*.
chromaticity distribution, gamut and luminous transmittance computation for cyan, magenta and yellow, 2775*f*.
chrome, metal salt-contg., P 8166*g*.
chrome wool, effect of heavy metals on colors of, 5953*c*.
chromium salicylate compds. for chroming sulfonated, animal fibers, P 6427*g*.
Chrysophenine, adsorption by starch, 8715*g*.
Chrysophenine G, effect of carboxyl groups in viscose sheet on, 4015*h*.
Ciba Blue 2B and Cibanone Orange R, effect on cellulose oxidation, 8671*i*.
Cibanone Brilliant Pink 2R Micro Paste, pink and red, fast to Cl, light and washing, 8141*f*.
Cibanone Green B, Indanthrene Olive Green B, Indanthrene Marine Blue and halogenated, vat, light fastness in yellow-orange-red by, 7687*f*.
Cibanone Orange R, photosensitization of oxidation and polymerization by, 4580*c*.
classification of direct, 407*h*.
from coal exts., alkali sulfide vat, cotton, brown to black, P 5602*b*.
compds. with nucleic acids, 8416*c*.
concn. and control of, radioactive materials in relation to, 8685*f*.
concn. of solns. of, by heating liquid-vapor interface, 7297*i*.
Coriacid or Igenal, leather, 6853*a*.
cosmetic, spectral identification of, 6364*c*.
cyanine, P 54*i*, 851*h*, P 2784*c*, 4211*h*, P 7846*c*.
cyanine and styryl, effect on glycolysis in muscle exts., 7581*f*.
cyanine, antifilarial action of, 2334*g*, 3930*b*.
cyanine, color and light absorption by, 407*i*.
cyanine, from 2,3-dihydro-1*H*-cyclopenta[*b*]quinoline, 3001*a*.
cyanine, from 2-methylbenzothiazolol isomers, 9453*d*.
cyanine, from (phenylselenyl)alkyl *p*-toluenesulfonates, P 7042*d*.
cyanine, from thianaphthene derivs., 2201*b*.
cyanine, of pyridine series, 7024*d*.
cyanine, prepn. of, 8291*f*.
cyanine (trinuclear), P 958*h*, 2527*i*.
cyanoacetanilide *p* - dialkylaminobenzaldehyde, nylon, yellow, P 6428*a*.
Czechoslovakian industry of, 4469*a*.
D&C Blue No. 1 and D&C Red No. 9, Pb detn. in laked, 7231*h*.
D&C Orange No. 4, detn. in FD&C Orange no. 1, 9452*d*.
D&C Red Nos. 6 and No. 7, *p*-toluidine detn. in rosinated, 7231*e*.
D&C Red Nos. 7, 8, 10 and 31, detn. in lakes and pigments, 7231*f*.
decompn. of acid and direct, in high-temp. dyeing, 411*e*.
decompn. of direct, during dyeing of wool unions, and Na perborate and urea in its prevention, 851*h*.
degradation (photochem.) of, 4015*c*.
dermatitis from, 5131*f*, 7693*f*.
detection in wine of, 8091*f*.
detn. in DHC Red No. 34 Ca Lake, D&C Red No. 14 Na Lake and Ext. D&C Red No. 2 Ba Lake, 9452*e*.
detn in textiles, 3201*d*.
from *o*-diacetylbenzene and amino acids, 1031*b*.
dianthrimideacridone, vat, cellulose, brown to gray to olive, P 9469*d*.
dianthrimideacridone, vat, cellulose fibers, violet to violet-brown, P 7708*h*.
dianthrimideacridone vat, cellulose, orange to scarlet to brown, fast to Cl and washing, P 865*d*, P 867*a*.
dianthrimidecarbazole, sulfonated, vat, cotton, orange-gold, P 7708*d*.
dianthrimidecarbazole, sulfonated, vat, cotton, red-brown and olive, P 7708*c*.
dianthrimide chlorosulfonated or sulfonated, vat, cotton, red-brown, P 7707*i*.
dianthrimide, sulfonated, wool, gray, P 3627*a*.
from diazonium salts, resonance theory of color of, 1191*a*
dibenzanthrone *bz* 2,2'-dihydroxy mixed alkyl derivs., sulfonated, paint, P 2788*i*.
dibenzopyrenequinone, vat, $H_2SO_4$ digestion to obtain fine particles, P 2442*b*.
6,9 - dichloro - 2,3 - dihydro - 2 - (1-oxonaphtho[2,1 - *b*]thiophen - 2(1*H*)-ylidene) - 1*H* benz[*e*]indol - 1 one, brown, P 8173*f*.
diffusion of, through cellophane, 7778*c*.
into cellulose, 1983*d*, 3199*g*.
through semipermeable membranes, 2486*f*.
in transfer of image in hydrotype method of color photography, 8921*d*.
*o,o'*-dihydroxy azo and *o*-hydroxy carboxy azo, Cr contg., mordant, acid, P 2441*f*.
dihydroxy azo, Cr-contg., wool, P 3626*c*
*o,o'* dihydroxy azo, esters, animal fibers, P 8153*e*
*o,o'*-dihydroxy azo, naphthalenedisulfonic acid, wool, blue, fluorescent, P 7698*i*.
*o,o'*-dihydroxy azo, naphthaleuesulfonic acid, Cr-contg., wool, green, P 7698*i*.
*o,o'* dihydroxy azo, naphtholsulfonic acid, wool, blue-gray, fluorescent, P 7699*a*.
*o,o'*-dihydroxy azo, naphtholsulfonic acid, wool, red-blue, fluorescent, P 7698*h*.
*o,o'*-dihydroxy azo, pyrazolone, wool, yellow-red, P 7698*fh*.
*o,o'*-dihydroxy azo, sulfonated, wool, P 5959*gh*, P 5960*b*.
from *N*, *N*-dimethylaniline and dimethyl-(*p* - nitrobenzoyl)phenylammonium chloride, violet, 4240*i*.
dioxazine, cotton, blue-green, P 5965*d*.
dioxazine (triphenodioxazine), sulfonated, cotton, blue, P 7236*i*.
diphenylamine 4 sulfonamide derivs., rayon, golden-yellow to brown, P 8143*f*.
diphenyl and triphenylmethane, pyridine analogs and leucobases, 410*c*.
diphenyl- and tripyridylmethane, tanned cotton and wool, 409*d*.
diphenylmethane, effect of substituents on color of, 2589*c*.
direct and S, 5951*i*.
disazo, 2-amino-6-chloro-1-phenolsulfonic acid anthranilic acid 1,3-bis(5-hydroxy-7-sulfo-2-naphthyl)urea, Cu-contg., cellulose, Bordeaux, P 2441*b*.
disazo, aminonaphtholdisulfonic acid, cellulose, green-blue, P 5598*c*.
disazo, aminonaphtholdisulfonic acid, rayon, blue, P 5598*i*.
disazo, aminonaphtholsulfonic acid, cotton, blue and green, P 4866*bc*.
disazo, aminonaphtholsulfonic acid triazine, Cu-contg., cellulose, blue-red, P 2780*h*, P 2781*ab*.
disazo, 8-anilino-1-naphthalenesulfonic acid, wool, blue, fast to fulling, light and sea water, P 5195*a*.
disazo, anilinonaphthalenesulfonic acid, wool, green-blue and red, P 5962*cf*.
disazo, benzimidazole, cellulose, yellow to orange, P 8145*g*.
disazo, bis(4-methyl-3-aminophenyl) sulfone 2 - amino - 8 - hydroxynaphthalene-6-sulfonic acid, wool, blue-red, P 1987*i*.
disazo, carbanilide, acid, cotton, green-yellow, P 5962*f*.
disazo, carbanilide, sulfonated, Cu-contg. cotton and regenerated cellulose, yellow to orange, fast to light and washing, P 8156*g*.
disazo, carbanilide, sulfonated, vegetable fibers, blue-red, P 8690*c*.
disazo, cellulose acetate and nylon, orange, P 7695*e*.
disazo, 6,6'-diamino-*m*,*m'*-biphenol derivs., P 8157*a*.
disazo, dihydroxybiphenyl, P 4476*abc*.
disazo, 3,3'-dihydroxy-4,4'-diaminobiphenyl, cellulose, blue and violet, P 8155*i*.
disazo, dihydroxynaphthalenesulfonic acid, Cu contg., cellulose, gray blue, P 5962*h*.
disazo, 3,3'-dimethoxybenzidine, sulfonated, Cu-contg., cellulose, blue, P 8158*i*.
disazo, from isomeric biphenyldiamines, P 8174*c*.
disazo, 4-hydroxy 3-methylbenzyl alcohol, paraffin oil, stearin and varnish, orange, P 8690*c*.
disazo, 7-hydroxy-1 naphthalenecarbamic acid phenolsulfonic acid, Cr contg., wool, blue-green, P 5598*h*.
disazo, 3-hydroxy-2 naphthoic acid-coupled, rayon, green, fast to Cl, light, overdyeing, S and washing, P 1571*b*.
disazo, 8 hydroxy 7 quinolinesulfonic acid, Cu-contg., cotton, yellow-red, fast to light and water, P 7700*n*
disazo, 6,6'-iminobis[1 naphthol 3 sulfonic acid], purple, P 5598*c*.
disazo, 2,7 naphthalenediol and 7 amino 2-naphthol, Cu contg., cotton, navy and marine blue, P 5598*f*.
disazo, 2,6 naphthalenediol, Cu contg., cotton, marine blue, P 7701*a*
disazo, naphthalenediol or naphthol, cellulose, navy blue, P 6421*g*
disazo, naphthalenesulfonic acid, Cu contg., cotton, blue, P 7700*e*
disazo, naphthalenesulfonic acid, lacquers, orange, P 7699*fh*, P 7697*a*
disazo, naphthalenesulfonic acid, wool, violet blue to navy blue, P 7701*c*.
disazo, naphthimidazolesulfonic acid, cellulose, P 5961*fgh*.
disazo, naphtholdisulfonic and naphthol sulfonic acids, Cu contg., vegetable fibers, blue, P 2440*i*.
disazo, naphtholdisulfonic acid, cotton, ruby red, P 4471*h*.
disazo, 1-naphthol-5-sulfonic acid, animal fibers and nylon, green to brown, P 8156*c*.
disazo, naphtholsulfonic acid, cellulose, P 5961*def*.
disazo, naphtholsulfonic acid, cellulose, red, P 5961*defgi*, P 5962*abcd*
disazo, naphtholsulfonic acid, Cu contg., cellulose, red, fast to light and washing, P 7700*g*.
disazo, naphtholsulfonic acid, Cu contg., cotton, blue, P 7700*cde*.
disazo, naphtholsulfonic acid, Cu-contg., cotton, purple, fast to light and washing, P 7701*c*.
disazo, 1-naphthol-3-sulfonic acid, cotton and rayon, blue, red or violet, P 8157*i*.
disazo, naphtholsulfonic acid, cotton and regenerated cellulose, red, fast to washing, P 8689*i*.
disazo, naphtholsulfonic acid, wool, blue-red, red and yellow-red, P 4476*cfg*.
disazo, naphtholtrisulfonic acid, Cu contg., cotton and rayon, blue, fast to light, washing and water, P 5598*d*.
disazo, pyrazolone, Cu-contg., cellulose, Bordeaux red, fast to light and washing, P 7700*f*, P 9402*i*.
disazo, pyrazolone, Cu-contg., cellulose, red, P 7699*i*, P 9462*g*.
disazo, pyrazolone, Cu-contg., cotton, wine red, P 7699*i*, P 7700*ab*.
disazo, pyrazolone, cotton, red, fast to washing, P 5958*ghi*, P 5959*ab*.
disazo, pyrazolone salicylic acid, plant fibers, red, fast to light and washing, P 5597*b*.
disazo, pyrazolone, sulfonated, silk and wool, P 9463*a*.

disazo, resorcinol phenolsulfonic acid, Cu-contg., P 5598*g*.
disazo, stilbene, cellulose, red, P 4863*b*.
disazo, stilbenedisulfonic acid, cellulose, P 4862*hi*, P 4863*abg*.
disazo, sulfonamido, cellulose derivs., cotton and wool, P 858*f*.
disazo, 6-sulfosalicylic acid, cotton and rayon, red-yellow, P 5195*c*.
disazo, 5,5'-ureylenedianthranilic acid pyrazolone, cotton, brown-yellow, P 4864*b*.
Dispersol, Duranol, Solacet and S.R.A., effect on photochem. degradation of rayon and nylon, 853*i*.
drying of, 8685*a*.
Durazol Blue 3R-200, adsorption by rayon, 2777*b*.
Echinoidea, 2608*h*.
effect of acetate, on viscose rayon and wool flotability, 6421*c*.
effect of azo and new, on tubercle bacilli, 7545*h*.
effect on cell division, oxidations and, 773*e*.
on internal photoeffect in semiconductors, 7349*d*.
on light transmission in textiles, 3201*f*.
on photochem. degradation of cellulose irradiated by Hg spectrum, 412*f*.
on reduction of methemoglobin in red blood cells, 6732*c*.
on tubercle bacilli, and its relation to metachromasia, 4330*f*.
on water detn. in textiles, 2780*a*.
as elec. semiconductors, 1272*g*.
in electrocapillary analysis of soil, 3127*a*.
emulsion (oil) stabilization by, 5975*g*.
excretion from animal after aminothiazole administration, 8029*d*.
fastness of—see also *Fading*.
fastness of, on cotton, 3203*b*.
and its detn., 3619*f*.
in textile industry, 852*h*.
on textiles, light-sensitive papers as controls in testing, 1572*g*.
Fast Red, adsorption by burnt pholerite prepns., 6035*h*.
fat-sol., in fat detn. in milk, 8067*i*.
flavanthrone, vat, cotton, yellow and yellow-orange, P 8172*c*.
fluorescein (4,5-dimethyl-) and its halogen derivs. and diacetates and dibenzoates, 1983*g*.
of fluorescein type, identification of, 9453*a*.
fluorescence of, effect of antioxidants on, 947*d*.
quenching of, 498*i*, 7347*a*.
fluorescent, and their uses, 4015*b*.
fluorescent, detn. in urine, 264*e*.
food, chromatography of, 777*c*.
food, effect on animal organism, 1488*e*.
formazyl, Cu-contg., wool, blue, P 5198*h*.
2-furaldehyde nitrosophenol S $Na_2SO_4$, alkali-sol., P 1988*e*.
in gelatin isoelec.-point detn., 6884*d*.
for hair, 9386*h*.
and danger therefrom, 2373*h*.
pyrogallol detn. in, 9368*d*.
Hansa Orange (Ext. D&C Orange No. 1), spectrophotometric analysis of, 7231*e*.
"hemicyanine," 633*a*.
history of, 6418*i*, 6477*h*.
history of immedial, 851*f*.
hosiery, 7232*e*.
Höchst Yellow R and U and Indigo Yellow 3G, 7930*c*.
β-hydromuconononitrile derivs., P 3847*i*.
o-hydroxy azo, naphtholsulfonic acid, fading-resistant, P 5597*h*.
identification and classification of, 2437*i*.
Indanthrene Blue RS, transformations in, 2483*e*.
Indanthrene Printing Violet BF, vat, identification of, 851*f*.
indanthrene, vat, prepn. by alkali fusion, 5189*gh*, 5190*g*.
indanthrone, 3400*f*.
indigoid, history at Badische Anilin- and Soda-Fabrik, 407*h*, 9451*d*.
indigoid, naphthothioindoxyl, vat, cellulose fibers, P 9470*d*.
indigoid, reactions of, 6614*e*.
indigoid, vat, cellulose fibers, fast to Cl, light and washing, P 7700*g*.
indophenol, light absorption by, 7231*i*.
in influenza-virus-infection control, 7589*c*.
infrared-sensitive, 8291*b*.
for inks (stamping), 1992*c*.
iron salt inactivation in making acid, azo and chrome, 4856*k*.
lead detn. in, 9451*i*.
leather, 6853*a*, 7733*g*, 8721*d*.
measuring light fastness, penetration and soly. of, 7736*e*.
recovery from leather scrap, P 4505*a*.
leuco anthraquinone azo $H_2SO_4$ esters, vegetable fibers, P 7703*h*.
leuco anthraquinone $H_2SO_4$ esters, Cu-contg., red, P 415*g*.
leuco anthraquinone $H_2SO_4$ esters, vat, P 3205*h*.
leuco compds. of algol and indanthrene vat, enol-keto rearrangement of, 3199*g*.
leuco compds. of Calcosol Red BN and Indanthrene Brilliant Green B for alk. vat dyeing, rayon, P 9471*a*.
leuco soln. prepn. from Brilliant Violet K, chloroindanthrene and Golden Yellow polycycloketone, 3619*d*.
merocyanine, P 1988*d*.
merocyanine, polarity and resonance in, 4910*g*.
methine, sulfonated, rayon, green-yellow, fast to light, P 8691*cd*.
methine-type, rayon, green-yellow, P 5600*i*.
2,2'-methylenebis[5-acetylthiophene] and derivs., P 6238*d*.
2-methyl-2-*o*-nitroanilino-1,3-propanediol derivs., yellow, P 7694*b*.
methylpteridine red cryst., cotton and wool, 9452*h*.
Methyl Violet 2RR, poisoning from, in indelible pencils, etc., 7595*b*.
of Mexico (pre-Columbian), 4469*b*.
Monastral (Fast Blue BS, Fast Green G and Fast Green GS), for inks and paint, 7715*i*.
Naphthochrome Green G prepn. of, and use in Be detn., 1681*h*, 7862*b*.
Naphthol AS—see *2-Naphthanilide, 3-hydroxy-*.
Naphthol AS-RL—see *2-Naphth-p-anisidide, 3-hydroxy-*.
of Naphthol AS type, identification of, 5344*c*.
Naphthol Blue Black (D&C Black No. 1) and Toluidine Maroon (D&C Red No. 38), detn. of 3-nitro-*p*-toluidine and *p*-nitroaniline in, 9454*d*.
Naphthol Blue Black (D&C Black No. 1), *p*-nitroaniline detn. in, 7231*i*.
naphthoquinone imine leuco or hydro compds., P 8166*i*.
naphthotriazole, chrome, wool, yellow, P 2784*b*.
naphthoylenebisbenzimidazole and perylenetetracarboxylic diimide, vat, finely divided, P 9469*i*.
National Brilliant Oil Blue BMA, surface-active agent detection by solubilization of, 4497*e*.
nitrogenous tar-oil products for making, P 4451*f*.
nitro, sulfonated, animal fibers, brown, P 7236*e*.
occlusion by sucrose crystals during growth, 2003*i*, 2004*i*, 2005*a*.
Orange II—see "sodium salt" under *Benzenesulfonic acid, p-(2-hydroxy-1-naphthylazo)-*.
orientation of mols. of, by illumination, 6080*b*.
for paper-pulp and paper manuf., 5948*h*.
for paper treatment, P 1188*h*.
pentaanthraquinonetetracarbazole, vat, P 1576*h*.
pentamethinecyanine, 6928*d*.
periodicals for industry of, 5953*a*.
petroleum chemicals in industry of, 1172*h*.
phenolic, in fiber protection from bacteria, 8141*h*.
photocond. of, used as photographic sensitizers, 6074*e*.
for photography—see *Photography*.
phthalocyanine azo, green, fast to wet treatments, P 7694*h*.
phthalocyanine, contg. quaternary ammonium, ternary isothiouronium or sulfonium groups, Cu-contg., blue or green, P 8172*g*, P 8173*b*.
phthalocyanine, Cu-contg., P 8169*a*.
phthalocyanine hexadecachloro deriv., Cu-contg., coatings, green, P 7705*c*.
phthalocyanine polyhydroxyalkylsulfonamides, blue to green-blue, stable to alkalies and light, P 8168*h*.
phthalocyanine sulfonamides, cotton, ink, silk and wool, blue, P 8692*h*.
phthalocyanine, sulfonated, cotton, blue or green, P 7704*e*.
phthalocyanine, sulfonated thio ethers, cellulose, silk, etc., green, P 4487*e*.
phthalocyaninesulfonic acid hydrazides, ink and silk, green, P 4487*b*.
phthalocyanine thio ether, Cu-contg., green, P 7710*e*.
for plastics, 7688*i*.
polyazo, 8-amino-1-naphthol-3,6-disulfonic acid, cotton, blue-green, P 2440*bc*.
polyazo, aminonaphtholsulfonic acid salicylic acid, cellulose, green to gray-blue, P 5600*b*.
polyazo, aminonaphtholsulfonic acid triazine, cotton, brown-orange, P 5963*efgh*.
polyazo, carbanilide, cellulose, red, P 4020*a*.
polyazo, naphthalene, metal-contg., P 4482*g*.
polyazo, naphthalenesulfonic acid, cotton and rayon, red-brown, P 5196*h*.
polyazo, naphtholsulfonic acid, cellulose, brown, P 5196*g*.
polyazo, naphtholsulfonic acid, Cu-contg. cotton, orange-brown, fast to light and washing, P 7703*a*.
polyazo, naphtholsulfonic acid, cotton, red-gray, P 4480*h*.
polyazo, naphtholsulfonic acid, cotton, violet-black, P 4472*i*.
polyazo, naphtholsulfonic acid·salicylic acid, cellulose, red to green-gray, P 3204*c*.
polyazo, naphtholsulfonic acid triazine, cotton, orange-brown, P 5963*efgh*.
polyazo, of benzene, naphthalene or pyrazolone series, benzidine, cellulose, red, P 8148*e*.
polyazo, pyrazolone, cellulose, brown, P 9466*b*.
polyazo, pyrazolone, sulfonated, cellulose and rayon, red-brown, P 5599*g*.
polyazo, stilbenedisulfonic acid, cellulose, yellow, fast to wetting, P 7234*i*.
polyazo, stilbenedisulfonic acid, cotton, red, P 9466*a*
polyazo, stilbenedisulfonic acid, rayon and vegetable fibers, yellow, P 5195*gi*, P 5196*ab*.
polyazo, sulfonated, P 9464*a*.
polyazo, sulfonated, alc.-sol., orange, P 9465*aef*.
polyazo, sulfonated, alc.-sol., red, P 9465*cdh*.
polyazo, sulfonated, alc.-sol., red-brown, P 9465*h*.
polyazo, sulfonated, cellulose and regenerated cellulose, deep blue, P 6426*f*.
polyazo, sulfonated, cellulose, blue, P 9466*i*, P 9467*a*.
polyazo, sulfonated, cotton and rayon, marine blue, P 9466*g*.
polyazo, sulfonated, cotton and regenerated cellulose, brown, P 3204*h*, P 4482*g*.
polyazo, sulfonated, cotton, linen and rayon, P 9464*f*.
polyazo, triazine cotton, brown, fast to light and washing, P 4866*gi*.
polyazo, triazine, cotton, green-yellow, fast to washing, P 4478*i*.
polyazo, triazine, cotton, yellow, fast to washing, P 4479*abcdefgh*.
polycladin, cotton, yellow, 8101*i*.
Ponceau R, effect on benzidine-peroxidase color, 7521*d*.
Ponceau 2R, 4R and 6R, for foods, and their estn., 7595*a*.
Ponceau 3R (FD&C Red No. 1), for food, and its estn., 7595*a*.
Ponceau 3R (FD&C Red No. 1), measuring pseudocumidine boiling range in, 7231*b*.
Ponceau 4R, adsorption by $CaCO_3$, 8791*h*.
Ponceau SX (FD&C Red No. 4), in identification of procaine solns., 3563*d*.
prechromed, and their leveling properties, 5594*i*.
for printing, 5953*d*.
production in France, development of, 6417*i*.
pyranthrone, vat, particle-size control by $H_2SO_4$, P 3205*g*.
pyrimido-2'-cyanine, for roundworm infestations, P 8167*d*.
Quinizarin Green (D&C Green No. 6), and its detn., 9452*i*.
quinoid and triphenylmethane, fungistatic action in relation to constitution and oxidation, 8435*eg*.
Quinoline Red, quenching of fluorescence of, 7346*i*.

quinone imine, blue to green, fast to wet treatments, P 8167*f*.
quinone imine, S and thiazole, 407*i*.
radioactive, in localization of brain tumors, 1856*f*.
from *Raphiolepis umbellata* bark, for pongee, 851*i*.
rapid, 7687*e*.
rayon, 6828*g*, 6820*a*, 7232*d*.
for rayon (acetate) printing, 4460*f*.
rayon, fluorescent, P 3628*a*.
recovery from spent dye liquors, P 8175*f*.
reduction (photochem.) by chloroplasts, effect of photosynthesis inhibitors on, 8019*e*.
of *Relbunium atherodes* and *R. hypocarpsum* roots, 1569*e*, 1983*g*.
for resins on textile fibers, 7233*b*.
retention in frogs, effect of saponin on, 5870*f*.
reviews on, 407*h*, 7689*i*.
Roccelin, prepn. by electrolysis, 2876*c*.
selectivity for fibers and penetration into fibers, 3619*g*.
sensitizing—see *Photography*.
for smokes (pyrotechnic), P 5190*e*.
solubilization by detergents, 7780*d*.
by penicillin G solns., 4926*i*.
by soaps, 9492*a*.
testing colloidal solns. by, 6041*h*.
sorption of, in padding, 1191*e*.
spectra of, 1653*i*, 2864*h*
effect of ionization on, 3714*d*.
in sol. silicate solns., 2093*f*.
from starch chlorination products, P 428*e*.
stilbenedisulfonic acid benzobistriazole, cellulose, yellow to brown-red, fast to light and moisture, P 1574*e*.
stilbenedisulfonic acid naphthotriazole, cotton, red-yellow, fast to light, water and washing, P 4486*a*.
stilbenedisulfonic acid triazine, cellulose, P 5965*efghi*, P 5966*ab*.
stripping from fibers, nonionic compds. for, 7690*a*.
stripping vat, lauroylphenylbiguanide methylated and sulfonated derivs. for, P 2442*d*, P 4878*i*.
stripping vat, phenylstearoylbiguanide derivs. for, P 4879*bc*, P 5190*e*, P 5210*e*, P 7727*e*.
Sudan III adsorption by $Al_2O_3$, 6035*c*.
sulfur, P 4020*h*.
Sulfur Black, cotton-yarn tendering by, 1192*h*, 3621*f*.
sulfur, brown, P 5958*e*.
sulfur, reduction with $Na_2S$, 3619*i*.
sulfur, $Na_2S$ vat, brown, P 7705*b*.
sulfur, solns in alkylolamines, P 8169*i*.
Sunset Yellow (FD&C Yellow No. 6) and C I. No. 26, and their analysis and prepn., 9451*e*.
tetrakisazo, aminonaphthalenesulfonic acid, cellulose and rayon, blue-gray, P 4478*fh*.
tetrakisazo, aminonaphthalenesulfonic acid, cellulose and regenerated cellulose, gray-green, P 4478*a*.
tetrakisazo, aminonaphthalenesulfonic acid, cellulose, gray-blue, P 4478*c*.
tetrakisazo, aminonaphthalenesulfonic acid, cellulose, green, P 4478*d*.
tetrakisazo, aminonaphthalenesulfonic acid, cotton and rayon, green, P 4478*e*.
tetrakisazo, aminonaphtholsulfonic acid, cotton, blue and violet-black, P 2781*cd*.
tetrakisazo, carbanilide, sulfonated, cotton, red, P 5963*a*.
tetrakisazo, cellulose, red-brown, 4867*d*.
tetrakisazo, 1-(*o*-hydroxyphenylazo)-2-naphthol-4-sulfonic acid, metal-contg., cotton, linen and rayon, blue-gray, fast to light and wet treatments, P 8161*a*.
tetrakisazo, naphthalenesulfonic acid, cotton and regenerated cellulose, yellow-brown, P 4867*a*.
tetrakisazo, naphtholdisulfonic acid, cellulose, gray, P 5597*c*.
tetrakisazo, naphtholsulfonic acid, cellulose, marine blue, P 5196*e*.
tetrakisazo, naphtholsulfonic acid, Cu-contg., vegetable fibers, red-gray, P 4477*i*.
tetrakisazo, naphthylamine, cotton and regenerated cellulose, blue-gray, P 4478*g*.
tetrakisazo, stilbenedisulfonic acid, cellulose, blue-red, P 4863*cd*.
tetrakisazo, sulfonated, cellulose, orange-brown, P 4867*e*.
tetrakisazo, sulfonated, Cu-contg., cellulose, marine blue, P 8144*efghi*, P 8691*b*.
tetrakisazo, sulfonated, cotton and regenerated cellulose, orange-brown, P 4867*cd*.
tetrakisazo, sulfonated, cotton, black, P 6426*ce*.
tetrakisazo, sulfonated, cotton, blue, gray-blue and red-blue, P 6425*efghi*, P 6426*d*.
tetrakisazo, sulfonated, cotton, violet, P 6426*bd*.
tetrakisazo, sulfonated, cotton, violet and violet-brown, P 6425*bf*, P 6426*ad*.
tetrakisazo, sulfonated, food and leather, gray or black, P 5222*b*.
tetrakisazo, sulfonated, green, P 860*i*.
textile-finish effect on, 6423*h*.
thianaphthene, vat, cotton, red, P 4867*i*.
thianaphthene, vat, cotton, rose, P 6427*e*.
*o*- and *p*-toluidine detn. in, 9454*e*.
trianthrimidecarbazole, sulfonated, vat, cotton, red, P 7708*g*.
trianthrimidecarbazole, sulfonated, vat, cotton, red-brown, P 7708*e*.
triazole, mordant, sulfonated, Cr-contg., wool, yellow, fast to light, P 8691*d*.
triphenylmethane, 184*c*, P 861*d*.
triphenylmethane, cotton, silk and wool, violet-blue, P 4484*i*.
triphenylmethane diamino derivs., spectra in concd $H_2SO_4$, 5306*i*.
trisazo, aminonaphthalenesulfonic and aminonaphtholsulfonic acid, cellulose, gray, fast to boiling, P 4866*cfg*.
trisazo, aminonaphtholdisulfonic acid, cellulose, green-marine blue, P 5963*h*.
trisazo, aminonaphtholsulfonic acid, cellulose, gray, P 5599*a*.
trisazo, aminonaphtholsulfonic acid, cellulose, marine blue, P 5964*abcef*.
trisazo, aminonaphtholsulfonic acid, cellulose, red-marine blue, P 5961*abdfg*.
trisazo, aminonaphtholsulfonic acid, Cu-contg., cellulose, violet-brown, P 6832*h*.
trisazo, 5 - amino - 1 - naphthol - 3 - sulfonic acid, cotton, dischargeable, olive-black, P 2440*a*.
trisazo, aminonaphtholsulfonic acid triazine, cotton, gray, fast to light and boiling, P 5599*d*.
trisazo, aminonaphtholsulfonic acid triazine, vegetable fibers, gray, fast to light and washing, P 5599*b*.
trisazo, Cu-contg., Glauber salt bath, cotton, P 4480*i*, P 4481*cde*.
trisazo, cotton, blue, P 4477*fgh*.
trisazo, naphthalenediol salicylic acid, cotton, brown, P 5195*e*
trisazo, naphtholsulfonic acid, P 7701*g*.
trisazo, naphtholsulfonic acid, cellulose, blue, P 7701*i*.
trisazo, naphtholsulfonic acid, cellulose, blue-green, P 7701*h*.
trisazo, naphtholsulfonic acid, Cu-contg., cotton and rayon, blue, fast to light and washing, P 4481*fg*
trisazo, naphtholsulfonic acid, Cu contg., cotton, blue and gray, P 4482*ab*
trisazo, naphtholsulfonic acid, Cu-contg., cotton, blue-gray, P 4481*hi*.
trisazo, naphtholsulfonic acid, Cu-contg., cotton, red-blue, P 4481*h*.
trisazo, naphtholsulfonic acid, cotton and regenerated cellulose, red-blue, P 7702*i*.
trisazo, naphtholsulfonic acid, cotton, blue, P 4477*ce*.
trisazo, naphtholsulfonic acid, cotton, blue-black, brown-violet, violet and violet-brown, P 7702*cefg*.
trisazo, naphtholsulfonic acid, cotton, brown, P 4477*b*.
trisazo, naphtholsulfonic acid, cotton, violet, P 4476*g*, P 4477*abc*, P 5962*i*.
trisazo, naphtholsulfonic acid, cotton, violet-black, P 4477*d*.
trisazo, 1-naphthol-3-sulfonic acid derivs., cellulose, P 8159*g*.
trisazo, 1-naphthol-3-sulfonic acid triazine, cotton and regenerated cellulose, P 8160*h*.
trisazo, naphtholsulfonic acid triazine, cotton, gray, fast to boiling and light, P 8159*d*.
trisazo, naphtholsulfonic acid triazine, cotton, olive-gray, P 4480*g*.
trisazo, naphtholsulfonic acid urea, cotton, gray, P 4480*efgh*.
trisazo, phenolsulfonic acid, cotton, red-brown, P 7702*h*.
trisazo, pyrazolone, cotton, red, fast to washing, P 5959*bc*.
trisazo, pyrazolone, cotton, violet-brown, fast to washing, P 5958*i*.
trisazo, sulfonated, cellulose, blue, P 9463*cefgh*.
trisazo, ureylenebis[naphtholsulfonic acid], cotton, gray, fast to washing, P 4480*bd*.
trypanocidal, 3147*b*.
tumors in industry of, 8073*g*.
Turkey Red, effect of Fe sulfates in, on rubber, 4870*g*.
ultrasonic-wave effect on, 1460*i*.
Ursol A and D, mol. wts. and solubilities of oxidation products from, 6419*d*.
Ursol D, spectra of oxidation products of, and their exts., 6419*c*.
vat, 6417*i*, 6827*g*.
vat, cotton sensitized by, $H_2O_2$ and photochem. degradation of, 412*b*.
vat, dyeing *vs.* printing suitability of, 3620*e*.
vat, effect on photochem. degradation of nylon, rayon and silk, 412*d*, 1192*a*.
vat, esterification of, P 2242*f*.
vat, heat resistance of, 3199*g*.
vat, photosensitization by, 4580*b*.
vat, stability at high temps., reduction reactions, detn. of strength of reducing soln. and dextrins in stabilizing reduced dyes, 4856*f*.
viscosity of solns. of, effect on duration of their metastable states, 7828*b*.
waxing of powd., P 1884*b*.
wool, effect on pattern-raising susceptibility, 6828*h*.
in wool stabilization to sunlight and weather, 3622*h*.
Yellow AB (FD&C Yellow No. 3) and Yellow OB (FD&C Yellow No. 4) compn. for margarine blocks, P 1124*e*.
**Dynad**, the term, 920*g*
**Dynamics**. (See also *Electrodynamics*, *Kinetics*; *Mechanics*.)
of beam in linear accelerator, 4093*b*
of fluids in bubble-plate columns, 4001*i*
quantum—see *Quantum mechanics*
**Dynamite** (See also *Explosives*.) 1467*b*
detonation of, fugacity and thermodynamic equil. consts for products from, 407*f*.
improving extrudibility and plasticity of gelatin, with glycol ethers, etc., P 3619*c*.
from nitrated ethylene glycol glycerol mixt. and nitrocellulose, plastic gelatin, P 1190*d*.
**Dynamos**. See *Electric generators*.
**Dynarsan**. See *Acetarsone*.
**Dynatrons**. See *Megatrons*.
**Dyox**, application to flour, 6325*e*.
**Dypnone** (*β-methylchalcone*), toxicity of, 4401*g*.
**Dyscrasite**, from Ontario (Cobalt), 8982*i*
of U. S. S. R. (Akol, Minusinsk region), 5707*g*
**Dysdercus nigrofasciatus**, cotton boll attack by, 9350*h*.
**Dysentery**, antiserum to Shiga, agglutinins in protein fractions of, 7126*e*.
antisulfonamide action of ascaride in, 8536*a*.
bacteria causing—see also "*dysenteriae*" and "*paradysenteriae*" under *Shigella*
effect of sulfanilamide derivs. of coumarin on bacilli causing, 2180*b*
toxemia, body fluids in, 6302*e*
**Dyspnea**, 10-(dialkylaminoalkyl)phenothazines effective against, P 2648*e*
**Dysprosium**. (See also *Rare earth metals*.) as cathodo-luminescence activator, 2516*d*
isotope of mass 156 occurring naturally, 1261*e*.
isotope of mass 165, 6911*e*.
isotopes, abundance of, 4130*f*
as luminescence activator in minerals, 947*c*.
luminescent materials contg., decay after cathode-ray excitation, 5070*c*.
luminous transitions in ions of, incorporated in phosphors, 4567*g*.
neutron absorption by, 8854*i*.
spectrum of, persistent lines in, 5337*g*.
terbium 3.3-hr. radioactivity caused by impurity of, 6077*c*.
**Dysprosium, analysis**, detn., 6017*i*.
sepn. from other rare earths, 8301*a*.
**Dysprosium bromate**, spectrum of, 2093*a*.
**Dysprosium compounds**, nitriloacetate complex stability as function of pH and prepn. and decompn. by heat of, $Dy_2NH_3 \cdot H_2O$, 8301*a*.
**Dysprosium hydroxide**, 2108*d*.

**Dysprosium sulfate**, spectrum of, 2093*a*.
**Dysprosium vanadate(V)**, $DyVO_4$, crystal structure of, 6033*b*.
**Dystrophy**, in alimentary deficiencies, 1471*h*.
carbonic anhydrase in blood in, 750*a*, 5480*f*.
hippuric acid test in lipophile, 3055*d*.
lipophile, 8474*g*.
nitrogen metabolism in lipophile, effect of therapeutic treatments on, 8497*b*.
protein metabolism in lipophile, 8471*f*.
Takata-Ara reaction in, peptization effect of glucose on, 3481*a*.
tissue-protein breakdown in lipophile, 3093*i*.

**E-605**. See *Parathion*.
**EA-1**. See *Hexylamine, N,1-dimethyl-*.
**EA-83**. See *2-Heptanol, 2-methyl-6-methylamino-*.
**Ears**. (See also *Hearing*.)
books: Diseases of the Nose, Throat and, 755*f*, 5491*d*.
cochlear app., effect of arsacetin on, 5865*e*.
nutrition and, 8022*f*.
stoppers for, compn. for manuf. of, P 908*h*.
vestibular action of streptomycin, 1108*d*.
**Earth**. (See also *Atmosphere; Geochemistry*.)
abundance of $A^{40}$ and $K^{40}$ in, 3709*a*.
age of crust of, 38*h*.
age of, Pb isotopes and, 3288*b*.
calcareous and gypsiferous deposits of, and their origin, 76*g*.
carbon $^{13}/C^{12}$ ratio and methane cycle in, 2906*b*.
crystallogenic disequil in, 6481*i*.
development of upper lithosphere, 5710*f*.
element concn and distribution in, from oxidation-reduction reactions, 8996*c*
elements in hydrosphere, lithosphere and zones of, 2137*e*.
hydrosphere, equil. of radioelements in, 7814*e*, 8873*b*.
lead and U isotopes and Th in, geophysics of, 8322*a*.
neutrino capture by, 479*c*.
radial diffusion, stability in gravitational field and formation of concentric layers in, 75*a*.
radioactivity of, 6903*h*.
sealing subterranean formations in, phenol HCHO resin dispersions for, P 2421*e*.
structure of interior of, 4986*f*.
**Earthenware**. See *Ceramic ware*.
**Earths** (See also *Bleaching agents; Clays; Decolorising agents; Oxides*.)
absorbent, review on, 7159*g*.
adsorbent—see *Adsorbents*.
in bleaching vegetable oils by adsorption, 3035*d*.
gasoline purification with acid, effect on antioxidant power, 2414*g*.
medicinal, 2733*i*.
**Earthworms**, calcite formation by, 341*e*.
control of *Lumbricus terrestris*, 9354*a*.
crop production and, 1514*h*.
Hexachloran effect on, 348*a*.
nitrogen metabolism of, 4778*c*, 9272*a*.
soil fertility and, 9322*i*.
spermatogenesis in *Allolobophora chlorotica*, effect of colchicine on, 5873*d*.
zoöpherin in, 2331*d*.
**East Coast fever**, control in cattle, 5526*h*.
**Eastern tent caterpillar**. See *Malacosoma americanum*.
**Eating utensils**. See *China; Dishes*; etc.
**EBA** See *Triethylamine, 2,2'-dichloro-*.
**Eberthella, *flexneri*—see *Shigella paradysenteriae***.
sensitivity to penicillin, streptomycin and sulfadiazine, 4336*g*.
*typhosa*—see *Salmonella typhosa*.
**Ebesal***, 1351*b*.
**Ebonite**. See "hard" under *Rubber;* and *Rubber, substitute and synthetic*.
**Ebullioscope**, modified Menzies-Wright, 4085*e*.
**Ebullioscopy**. See *Boiling points*.
**Ecgonine** (*3-hydroxy-2-tropanecarboxylic acid*), prepn. of, 8100*i*.
**Echinacea**, oils of—see *Oils*.
*pallida* and *purpurea*, active constituents of, 5906*g*.
**Echinocactus lewinii**, alkaloids from, 6337*g*.
**Echinocardium cordatum**, amino acids in basic protein fraction from sperm nuclei of, 4328*a*.
**Echinocystic acid**, **16-acetyl-***, methyl ester, 2136*h*.
—, **2-desoxy-***, and methyl ester, 212*i*.
and derivs., 212*i*.
**2-desoxy-16-acetyl-***, 213*d*.
keto lactone, 213*e*.
—, **2-keto-16-acetyl-***, methyl ester, and its oxime, 213*b*.
**Echinoderm oxidase**, cytochrome oxidase and, 4707*g*.
**Echinoderms**, eggs and oöcytes of, respiration of, 3112*i*.
**Echinoidea**. See *Sea urchins;* and "sea-urchin" under *Eggs*.
**Echinoidea dyes**. See *Dyes*.
**Echinops horridus**, copper and Zn in leaves of, in geochemistry, 3321*d*.
**Echinostoma revolutum**, DDT effect on, 4414*d*.
**Echtrotsalz AL**, in analysis of textile auxiliary agents, 1585*d*.
**Economics**, book: Economic Crops. Vol. I. Bananas, 9293*i*.
of chem. development and sale, 5131*g*.
of chem. markets, 3541*e*.
profits in chem. industry, 331*g*.
**Eczema**. (See also *Dermatitis*)
antihistaminic substances in treatment of, 5500*e*
aspasan in prophylaxis of, 4426*e*.
blood serum (autogenous) in treatment of atopic, protein content and, 3092*d*.
chlorine in blood and urine in, and effect of low-chloride diet in, 4364*de*.
cholinesterase and sugar in blood in, 4362*b*
cholinesterase in blood in, 5857*f*.
porphyrin elimination in, 6300*a*.
vitamin $B_{12}$ in, 1471*f*.
**Edaphology**. See *Soils*.
**EDB**. See *Ethane, 1,2-dibromo-*.
**Edema**, alimentary, metabolism of protein-rich substitute foods used in treatment of, 8471*i*.
angioneuroic, antihistamines in treatment of, 3938*e*.
in choline deficiency, 1477*f*.
after cold injury, 5858*a*.
egg-white, effect of adrenaline and arterenol on, 6309*e*.
electrolyte partition in urine in, 4758*bd*.
fluid from, detn of proteins in, 5442*a*.
hunger, 1479*e*.
mammary, nitrogenous constituents of colostrum of cow in relation to, 741*c*.
from plastic intravenous tubing, 899*f*.
proteins of blood serum in, effect of NaOCl on, 8408*e*.
pulmonary, 7132*h*.
from adrenaline and noradrenaline, 9250*b*.
from adrenaline, effect of Antadryl on, 6729*c*.
from adrenaline, effect of drugs on, 7582*i*
from adrenaline, effect of histamine on, 1380*e*.
from adrenaline, effect of vitamin C on, 1107*h*.
from $NH_4$ salts, 4382*i*, 8050*c*.
after CO poisoning, 3105*d*.
effect of 10-(2-dimethylaminopropyl)-phenothiazine on, 320*b*.
effect of histamine and histaminase on, 2699*i*, 2700*a*.
in lower-nephron nephrosis, 1112*f*.
starvation, liver in, 3898*d*.
**Edestin**, detection of, 4324*h*.
purification of, 5136*g*.
**EDNA**. See *Ethylenediamine, N,N'-dinitro-*.
**Education**. (See also *Laboratories; Laboratory experiments; Lecture experiments;* and "books" under such headings as *Chemistry* and *Physical chemistry*.)
on acids and bases in textbooks, 3251*g*.
adapting college chemistry to student needs, 1229*i*.
in analysis, classification of methods in, 7702*c*.
in analysis (quantized qual.), 7762*c*.
book: Practische Scheikunde voor de, van Analysten, 2126*h*.
for chem. industry, 2341*e*.
chem. research in liberal-arts colleges, 4909*b*.
chemico-technological, 3670*h*.
in chemistry, at Brown Univ., 2049*g*.
in high school, reducing cost of, 2826*f*.
history in, 2049*f*.
at Hope College, 1229*i*.
at Oberlin College, 9*f*.
safety in lab. in, 2050*e*.
semimicro techniques for, 5239*g*.
chemistry-lab. max. use in, 7762*d*.
college chemistry testing program, 6875*h*.
in colloid chemistry, 2049*hi*, 2050*d*.
correlation between freshman testing program and first-semester chemistry, 7762*b*.
correlation of high-school and college chemistry courses, 1229*i*.
on corrosion, 9015*g*.
in electrolytic ionization, 2826*d*.
in engineering, 2826*g*.
engineering and industrial research at Univ. of Florida, 9295*f*.
in equations, formulas and symbols, 8220*c*.
faculty members in industry, 1125*b*.
in industrial chemistry at Brown Univ., 2049*g*.
in inorg. chemistry, 6875*e*, 8220*c*.
in instrumentation, 2050*e*.
in iodimetry, vitamin C detn. in, 2548*b*.
in isotopes, 5650*f*.
lab. instruction in chemistry in U.S.A., 8759*g*.
in org. chemistry, 4909*g*.
of perfumery chemistry, 1911*f*.
in periodic law, 2826*e*.
in pharmacy, chemistry in, 2050*e*.
philosophy of teaching, 7762*b*.
presentation of fundamental ideas of chemistry to elementary students, 1230*e*.
for professional training, 5650*e*.
in quant. analysis, 1618*i*, 1619*ab*.
Debye-Huckel theory and, 6014*i*.
liquid unknowns in, 6015*b*.
value of error problems in, 4909*g*.
radiochem., remodeling lab. for, 2505*f*.
rare elements in freshman chemistry, 6015*b*.
report of Committee on Professional Training on, 2826*f*, 6478*e*.
reports on professional training, 4526*f*.
research for senior chemistry students, 8219*h*.
research in small colleges, 7275*i*.
in science, aids of, 6015*c*.
with films, 5239*f*.
in secondary school, 6478*g*.
statistical quality control in college analytical labs., 7275*i*.
teacher coöperation with Atomic Energy Commission, 1619*b*.
teaching accuracy, precision and evaluation of data in analysis, 4178*e*.
technical editing as career for bachelors of chemistry, 1229*i*.
theoretical principle in chem., 451*a*.
**Eel oil**. See *Oils*.
**Eels**, euryhalinity of, hypophysis and, 6321*h*.
reproductive organs of, effect of sex hormones on, 8481*g*.
tropisms during migration of, physicochem. factors of estuarian waters and, 5126*c*.
**Eelworms**. (See also *Heterodera;* and the specific kinds of eelworms.)
control in onion seeds, 3962*g*.
**Effective cross section**. No entries this year. See *Neutrons*.
**Effervescent substances**, dehydrator for concentration of, P 7273*g*.
**Effusan 3436**. See *o-Cresol, 4,6-dinitro-*.
**Effusion**, of gases at crit. velocities, 2055*i*.
of refrigerants from refrigerating app., 3541*g*.
thermal, of gases, theory of, 2069*e*.
transient-pressure in, 4530*h*.
**Efremov, Nikolai Nikolevich**, obituary, 5239*b*.
**Egg oil**. See *Oils*.
**Eggplant**, carotene and vitamin C in, 3536*b*.
growth inhibitors in seeds of, 3493*a*.
microelements in, 9289*b*.
vitamin C in, 5511*b*.
**Eggs**. (See also *Chorion; Fertilisation; Ovulation; Ovum*.)
amino acids in, 2297*b*, 3534*g*, 8469*h*.
amino acids in herring and spring salmon, 3115*f*.
of *Artemia salina*, zoöpherin in, 2331*d*.
axolotl, effect of stilbestrol on mitotic divisions of, 2705*h*.
biotin uptake by, 1088*g*.
book: The Avian, 1118*b*.
calcium (radioactive) secretion and, 6715*c*.
cleavage rate, O consumption and ribose nucleic content of, 5126*b*.
cold-storage, effect of controlled atms. on, 4779*g*.
color of, detn. and definition of, 2337*e*.
concg., P 330*d*.
copper in, and its distribution during development of embryos, 3531*c*.

cross fertilization of, 776*c*.
of *Daphnia*, hemoglobin passage from blood into, 1872*f*.
destruction of insect—see also *Insecticides, Sprays*
detn. in alimentary pastes, 5877*i*.
in diet, effect on hemoglobin and plasma-protein production, 3500*d*.
dried or powd., detn. of quality of, 5509*i*, 7154*h*.
detn. of water-insol. fatty acids in, 6750*i*.
after fermentation, for use in baking industry, P 7605*a*.
fluorescence development in, 7154*f*.
from herring and salmon, compn. during putrefaction, 327*g*.
inhibition of oxidation of, fats in, 2449*e*.
reducing-sugar removal before drying to improve storage life of, P 3948*b*.
of *Drosophila melanogaster*, benzo[*a*]pyrene passage into, and effect on nondisjunction frequency, 8526*a*.
of *Drosophila melanogaster*, mutation by unsatd. aldehyde treatment of, 1115*i*.
of *Drosophila*, nucleic acids in, Y-chromosome effects and, 4387*g*.
drying app. for, P 6014*b*.
echinoderm, protective action of cations on membrane forming capacity of, 8559*i*
fat extn. from, P 5977*d*.
folic acid in, effect of cooking on, 4782*i*.
frog, activation of, effect of heparin in, 5873*i*.
frog, permeability to and exchange of radioactive Na in, 8560*b*.
glycerol detn. in egg products and, 9284*g*.
grasshopper, coverings for, during development, 5124*e*.
development of resistance to toxic substance, 8087*d*
isolation of wax-like material from, 6323*c*
hatchability of, biotin and, 8463*i*.
of chickens fed dried distillery feedstuffs, 285*i*
dietary factors essential for, built-up floor litter as source of, 285*d*.
from hens fed protein supplements in open pens and batteries, 285*c*.
hatching of chicken and turkey, at high altitudes, O in, 8482*a*.
hatching of, effect of high altitude and insufficient O on, and egg-storage treatments, 9313*e*.
incubation period of, effect of thyroprotein treatment of hen on, 8054*i*.
insect, permeability of shells of, 5527*g*, 7594*d*.
shells of, 9273*b*.
wax layers in waterproofing of, 6322*g*.
laying of, mineral element excretion by hens during, 2291*c*.
lecithin of, hydrolysis of, and its constitution, 9091*d*.
lecithin prepn. from, 3868*e*.
of lobster (American), estrogens in, and their detn., 773*b*.
of *Lymnaea stagnalis*, chloride effect on, 5507*e*.
LiCl effect on, 2706*f*, 3114*bc*, 3939*e*.
thiourea effect on, 1116*d*.
mold rot of, control of, 8597*d*.
mucoid from, carbohydrates of, 3481*d*.
of *Nereis limbata*, relation of plasma membrane, vitellin membrane and jelly in, 2706*d*.
*Nereis*, sensitization and activation reactions of, 8065*e*.
nutritive value of proteins of, 1469*c*, 3900*d*.
pancakes from, fat losses in prepn. of, 5508*i*.
of *Pomatoceros triqueter*, fertilization of, 776*h*.
preservation by freezing, P 6332*i*.
production and hatchability of, effect of leucine on, 280*g*.
production and hatchability of, effect of pteroylglutamic acid and an unidentified factor on, 5458*h*.
production and quality on free-choice feeding, 9192*i*.
production and shell quality of, effect of thyroprotein on, 287*a*.
production of, effect of estrogens on, 294*h*.
effect of lactose on, and effect of fats thereon, 7557*h*.
effect of thyroprotein and sex hormones on, 294*i*.
in hyperthyroidism, 294*g*.
protein products from fermented, P 6332*h*.
proteins of—see also *Albumins*.
proteins of, changes during cold storage, 8571*b*.
respiration of fertilized and unfertilized, of echinoderms, 3112*h*.
respiration of marine, effect of bacterial toxins on, 9144*e*.
ribonucleic acid in, and its relation to chromosome content, 7523*a*.
sea-urchin, adenosinetriphosphate turnover in, 2332*f*.
agglutination by basic proteins, 5506*h*.
carbohydrate component of jelly coat of, genus specificity of, 4389*e*.
carbohydrate metabolism in homogenized, 2706*c*.
change in osmotically inactive fraction produced by activation of, 2256*g*.
changes occurring at formation of fertilization membrane of, 775*e*.
cholesterol in, during development, 2331*b*.
detn. of dorso-ventral axis in, 4390*c*.
detn. of oral side of, 4390*d*.
effect of basic sperm proteins on, 3114*a*.
effect of Ca on respiration and acid formation by, 7150*c*.
effect of chymotrypsin and trypsin on, 774*h*.
effect of dinitrocresol and phosphate on O consumption of ext. from, 4778*i*.
effect of dyes on cell division of, oxidations and, 773*f*.
effect of fertilization on respiration of, 6321*c*.
effect of fertilizin from, on blood coagulation and effect of basic proteins and cephalin thereon, 4390*f*.
fertilizin from, effect on coagulation compared with heparin, 4391*a*.
hexosamine in jelly coat of, 9271*h*.
jelly coat of, 4389*f*.
membrane formation during maturation of, 775*i*.
1,2-propanediol phosphate effect on respiration in, 3112*f*.
respiration of, effect of $H_2O_2$ and x-ray irradiated sea water on, 9272*g*.
stratification and deformation of centrifuged, in caffeine solns., 3939*d*.
temp. coeffs. of respiration in, 6321*a*.
thermal activation of dehydrogenase systems of fertilized and unfertilized, 4778*g*
sensitivity to diphtheria toxin, 8618*b*.
shells of, albumin recovery from, P 788*b*.
citric acid in, 4751*b*.
sulfur-contg. amino acids in, 1450*i*.
of silkworms infected with silkworm jaundice virus, electrophoresis of, 6747*a*.
sodium sulfacetamide fate in incubating, 1473*d*.
staphylococcus-toxin formation in products from, 7601*f*.
storage of, mixt. for, P 8072*f*.
succinic acid in decompd. products from, 6750*g*.
triton, production of multinucleated unsegmented, by influence of antimitotic substances, 5873*f*.
of *Tubifex*, effect of methylbis(2-chloroethyl)amine on development of, 6322*b*.
of *Tubifex*, effect of quinones on, 1861*a*.
vitamin A in, 7601*h*.
vitamins in, effect of storage on, 1875*f*.
**Egg substitutes**, from casein, P 5512*e*.
Milei products as, 3533*f*.
**Egg white**. See *Albumins*.
**Egg yolk**, blood sugar-lowering substance from, 8558*h*.
color detn. of, 4782*h*.
color of, effect of isopropanol-extd. cottonseed meal on, 1497*c*.
dehydrated powd., folic acid detn. in, 9370*d*.
effect of freezing storage on, 6775*a*.
egg oil (hydrogenated) as coating for pressed and molded, P 6758*e*.
emulsifying power of, on oils for fat-liquoring, detn. of, 7248*c*.
hydrogen-ion concn. of, 5509*i*.
lipovitellenin isolation from, P 2340*a*.
livetin fraction of, compn. of, 6679*g*.
lysolecithin prepn. from, 311*c*.
oil extn. from, P 3540*d*.
oil of, nutritive value of, 8028*f*.
phospholipides of, glycerophosphate in, 8483*c*.
pigment sepn. from, 2291*h*.
vitamins in, effect of storage on, 1875*g*.
**Egg-yolk substitutes**, Milei G as, 3533*f*.
**Egregia menziesii**, phytochem. study of, 8616*e*.
**Ehrlich's diazo reaction**. See *Diazo reaction*.
**Eichhornia crassipes**. See *Water hyacinth*
**Eicosadienoic acid**, in fat of humans 8494*e*.
**Eicosahexaenoic acid**, in fish oils, 8179*c*.
**Eicosane**, crit. consts. of, 3254*h*.
fatty acids (branched) from, 6165*a*.
resonance energies of, 10*e*.
——, **1(2-, 3-, 4-, 5-, 7- and 9)-cyclohexyl-**, spectra (infrared) of, 4637*h*.
——, **9,11-dipropyl-**, 107*d*.
——, **1(2-, 3-, 4-, 5-, 7- and 9)-phenyl-** spectra (infrared) of, 4637*h*.
——, **9,10,11,12-tetrapropyl-**, 107*di*.
**Eicosanoic acid**. See *Arachidic acid*.
**1-Eicosanol**, from Douglas fir lignin residue 1182*g*.
as ointment-base constituent, hydrophil properties of, 8609*i*.
**Eicosapentaenoic acid**, in fish oils, 8179*c*, and methyl ester, in adrenal lipoids 2260*e*.
**Eicosatetraenoic acid**. (See also *Arachidonic acid*.)
**11-Eicosenamide**, 4220*b*.
——, *N*-**hydroxy-**, *cis*- and *trans*-, 4220*b*.
**11-Eicosenanilide**, 4220*b*.
**Eicosenoic acid**, in fat of humans, 8494*e*, in rape seed oil, 1201*b*, 9488*d*.
**11-Eicosenoic acid**, *cis*- and *trans*-, and derivs., 4220*a*.
**11-Eicosen-2-one**, reaction products with acids, P 4877*h*.
**Eigat effect**. See "light action on" under *Electric discharge*.
**Eigenfunctions**. See *Proper functions*.
**Eight hundred ninety-nine**. See *Octoöl*
**Eimeria**, *tenella*, sulfaguanidine in control of coccidiosis caused by, 9290*b*.
**Einstein-de Haas effect**. See *Gyromagnetic ratio*.
**Eisenia**, *foetida* and *rosea*, crop production and, 1514*h*.
*submontana*, vitamin $B_2$ in luminous material from, 4779*b*.
**Ekacesium**. See *Francium*.
**Ekaiodine**. See *Astatine*.
**Ekaosmium** See *Plutonium*.
**Ekarhenium**. See *Neptunium*.
**Ekatantalum**. See *Protactinium*
**Elaeocarpus joga**, wood from, paper pulp from, 1970*h*.
**Elaesis**. See *Palms*.
**Elaidic acid**, cobalt and U salts, prepn. solubilities and catalytic effects on autoxidation of oleic acid, 1997*i*.
fungistatic activity of, 9334*c*.
**Elaidin**, 1,3-dipalmito-2-, and 1,3 distearo 2-, crystal structure of, 7425*g*
ingestion of, lipides of blood plasma after 8494*c*.
**Elaidinisation**, effect on keeping quality of fats and oils, rate of peroxide formation and, 2789*g*.
of oils with $SO_2$ as catalyst, P 5215*e*.
of palm oil with Raney Ni or Se catalysts 1582*a*.
**Elasmobranch**, oils of—see *Oils*.
**Elasmopalpus lignosellus** and(or) **Lesser cornstalk borer**, control of, 2729*c*.
control of, parathion in, 6775*c*.
**Elastic deformation**, of bitumen, 9425*g*.
magnetization and, 4529*b*.
of metals and alloys under longitudinal impact loads, 1298*g*.
of rubber, crystn. and, 9513*i*.
in thermocouple studies, 2912*cf*.
**Elasticity**. (See also *Photoelasticity*.)
of alumina, 8228*b*.
of ammonium bromide and NH₄Cl, 8787*c*.
of amorphous substances, aftereffects in, 8772*a*.
of bitumens, 9425*e*.
of β-brass, 1621*h*.
calcn. of, of polymers, 438*a*.
of cellulose fibers, 9435*e*.
of cell walls in wood, 4009*a*.
of cobalt, effect of magnetization on, 3328*e*.
of copper, Ni and their alloys at low temps., 7398*a*.
of copper, Sn, Zn and their alloys, 3332*h*.
of copper-Zn alloys, 2561*i*.
of crystals (single), 8864*e*.
of ethylenediamine tartrate, 7285*g*.
of fibers, 9456*d*.
of fibers, mol. structure and, 5190*h*.
of films (org.), 2788*e*.
of glass fibers, delayed effect in, 2387*a*.
of iron, aftereffect in, 6017*g*.
of martensite crystals, 6880*h*.
measurement of, of bated skins, 7735*f*.

*measurement of*, of bricks, 829*g*.
of colloidal systems with pendulum, 2072*e*.
of concrete, 4398*i*.
of cords and yarns, 2439*d*.
of crystals, 5251*g*, 8787*b*.
of gels, 6047*d*.
of glass fibers, 7654*g*.
of incendiary gels, 4015*a*.
of knitted fabrics, 3202*b*.
of paper and paper products, 4788*b*.
of phenolic resins, 3229*i*.
of plastic materials, 1603*c*.
of polymers, 6045*a*.
of rheonomic systems, 4540*g*.
of rubber, 3643*g*.
of solids by ultrasonic methods, 2482*g*.
of thermostat metals, 4615*g*.
measurement of shear, of liquids at ultrasonic frequencies, 4065*c*.
of metals, 9001*g*.
of mixts. of potassium chloride with Na oleate and water, 2488*b*.
of nickel single crystals, 7768*c*.
of oleate systems with KCl, 6491*f*.
of oleate systems with KCl and KOH, 4080*g*.
of paper, vulcanization effect on, 8136*d*.
of plastics, 1601*g*, 2027*f*.
of polyisobutylene, 4510*e*.
polymerization degree and, 7294*h*.
of polymers, cross-linking and, 5227*cd*.
nomenclature of, 6490*h*.
structure and, 2810*c*, 2071*h*.
of polymer solns , 467*a*.
of polyvinyl chloride plastic extruded forms, improvement of, P 4507*d*.
of protein monolayers, thermal denaturation and, 2487*d*.
of rayon, 3202*f*.
of rayon (HCHO treated), 1192*g*.
of rayon staples spun in cotton yarn spinning mill, 5191*i*.
of rennet curd, 4393*h*.
of rennet curd, effect of pasteurization and cooling on, 4394*c*.
residual strain energy and, 7768*e*.
Rochelle-salt-single-crystal anomalous, 4071*f*.
of rubber—see *Rubber; Rubber, substitute and synthetic*.
of sodium bromate and $NaClO_3$, 8228*c*.
of steel, effect of inclusions on, 2560*i*.
of steel, temp. and, 7396*a*.
temp. and, 5715*b*.
of textiles and effects on stress strain relations in polymers, 1573*e*.
theory of rubberlike, 4079*g*, 8238*i*.
of thioplast impermeable films, improvement of, P 4507*e*.
of wheat gluten, 7595*g*.
of wool, effect of melamine resins on, 7691*h*.
of zinc crystals, orientation and, 6482*b*.
of zinc single crystals, 83*i*.

**Elastic materials or products.** (See also *Plastic materials; Resilient materials; Rubber, substitute and synthetic; Yarns.*)
from *N*-alkoxymethyl polyamides, 3653*b*.
carbonic acid mixed esters with alkenols and hydroxy derivs. of hydrogenated thiophene 1,1-dioxide for use in, P 691*c*.
chem. constitution and properties of, 9455*d*.
in chem. engineering, 8745*c*.
dynamic modulus of, app. for measurement of, 1573*f*.
elasticity of, theory of, 4079*g*.
flow and microfluid state of aggregation of, 3643*b*.
force-deformation law for viscous, 7768*a*.
from gluten, P 3241*h*.
hardness of, expression of, 2462*d*.
martensitic crystals, 6880*h*.
mol. structure and phys. properties of, 2071*h*.
phenyl-1,2-ethanediol esters as plasticizers for, P 6663*h*.
phys. behavior of fibrous visco-, 4042*e*.
reflection and refraction of plane shear waves in viscoelastic media, 4067*b*.
resinous fibrous, for shoe soles, etc., P 4507*c*.
review on, 5003*a*.
rubber-backed, P 1194*g*.
structure mechanics of viscous, 4540*f*.
systems with gases, equil. and transport phenomena in, 8730*a*.
textiles—see *Textiles*.

**Elastic relaxation.** See *Relaxation*.
**Elastin, amino acid compn. of**, 4708*f*.
fibers of, structure of, 468*c*.

**Elastomers.** See *Elastic materials or products; Rubber; Rubber, substitute and synthetic*.
**Elastonon.** See *Phenethylamine, α-methyl-*.
**Elbs persulfate oxidation.** See *Oxidation*.
**Elder**, conjugate-unsatd. acids in *Sambucus nigra*, 137*a*.
pigments from berries of, detection in wine, 8091*e*.
rutin detn in, 9373*g*.
rutin in, 9384*h*.
**Electrets**, ceramic, 6798*h*.
**Electric absorption.** See *Dielectric absorption*.
**Electrical apparatus.** (See also the specific kinds of electrical apparatus as *Electron tubes* and *Rectifiers*.)
aluminum for, effect of V on, 533*h*.
book: Raumexplosionen durch, 8140*d*.
coatings for, from xylenol-HCHO resin, etc., moisture-resistant, P 3214*f*.
for concn. detn. in solns., P 3250*b*.
cooling app. for, P 6874*d*.
glasses (soft) for, 3161*i*, 3985*g*.
high-frequency, in tanning research and control, 8181*g*.
iron contg. Si for, 536*d*.
methacrylate compns contg. colloidal $SiO_2$ for, P 5634*h*.
plastics from keratin meal for, P 8186*h*.
potting and sealing compn. for, P 2716*a*.
for reproducing movements of pointer of balance, 5235*f*.
for rubber-mixing and -processing plant, 4505*c*.
sealing glass parts of vacuum, P 4590*d*.
for spectrography, 4905*a*.
steel in, 89*h*.
**Electrical measurements**, concordant with basic units of length, temp. scales and units of heat, 4526*g*.
**Electric amplifiers**, direct-current, with resistance electrodes for pH measurements, 6525*f*.
**Electric anisotropy.** See *Anisotropy*.
**Electric arc.** (See also *Electric discharge.*)
for acetylene manuf., 1664*a*.
books: Hochstromkohlebogen, 5672*f*; Mercury, 7357*c*.
carbon electrode a.-c., in quant. analysis, 4971*h*.
cement burning with, P 5318*f*.
cooling and heating anode flame of C, 4145*d*.
electrodes—see *Anodes; Cathodes; Electrodes*.
electrode vapor jet production by, 1664*b*.
extraneous-element effects in, 6083*f*.
furnaces—see *Furnaces, electric*.
lamps—see *Lamps, electric*.
as light source for spectral analysis, 6083*be*.
mercury-type, with hot refractory cathodes, 2523*g*.
properties of, 954*c*.
quenching of, plastic materials in, 8734*f*.
-resistance of insulating materials, 4787*h*.
for spectrographic analysis, 1273*a*.
spectrum of, of low intensity, 40*a*.
streaming velocity of anode flame of C, 8914*i*.
temp. and electron pressure of C, measurement of, 940*g*.
temp. in C, 8015*a*.
welding—see *Welding*.
**Electric batteries.** See *Cells, voltaic; Storage batteries*.
**Electric breakdown.** See *Dielectrics; Dielectric strength; Electric discharge; Electric spark*.
**Electric brushes**, contg. rare earth oxides or fluorides, P 511*a*.
of graphite, P 4403*c*.
for high altitudes, P 4590*b*.
**Electric cables.** See *Cables*.
**Electric capacitance**, of alumina films, 5250*i*.
of discharge circuits igniting $CS_2$, H and illuminating gas, 407*c*.
of double layer, detn. of zero points of metals from, 470*i*.
of double layer on oxidized metal, 2522*h*.
of electrodes in $Na_2SO_4$ soln., effect of $Ph_2NH$, 2-naphthol and thymol on, 5316*c*.
in electrophysiology, 4923*i*.
measurement of, bridge for, 6480*a*.
measurement of, of elec. double layer, 4066*c*.
of mercury electrode, frequency and, 6522*g*.
of Rochelle salt, effect of humidity and temp. on, 8840*f*.
of soil, moisture and, 793*g*.
units of, transition from international to abs., 8762*f*.
**Electric capacitors.** See *Electric condensers*.
**Electric charge.** (See also *Space charge.*)
on carbon atoms in org. mols., 6582*e*.
of carrier foil, effect on prepn. of colloids for electron microscopy, 921*g*.
on colloids, stability and, 8703*i*.
conservation of, in nuclear field, 4097*g*.
distribution of, in AgBr, AgCl and NaCl, 5311*d*.
on electron—see *Electrons*.
of erythrocytes, 5484*i*.
formation of static, by vehicles with rubber tires, 1208*b*.
formation on drops in sprays, 6039*g*.
on gelatin mols. in soln., deformation by varying, 7787*f*.
on lipides in buffer soln. contg. anionic surface-active agents and its use in detg. lipides on bacterial surfaces, 2673*e*.
long-chain-mol. dimensions and, 6050*e*.
measurement of, on colloidal particle, 6490*e*.
mesic charge, of nucleon, Dirac's hole theory and, 3279*c*.
on micelles of colloidal electrolytes, 6887*a*.
nuclear, at. no., heat of combustion and effective, 8844*h*.
of nucleons, 7321*a*.
on photographic film, prevention with antistatic subbing layer, P 7851*a*.
prevention of, films for, P 4520*g*.
on rayon, prevention with fatty alc. sulfate, P 3207*e*.
on rubber and GR-S rubber during mastication and meter for its measurement, 7255*g*.
thermal, in piezoelec. substances, 2062*c*.
tires reducing effects of static, 8722*i*.
transport in thermodynamics, 7317*h*.
units of, transition from international to abs., 8762*f*.
**Electric-circuit breakers.** (See also *Electric fuses.*)
lubricants for impregnating pads for contact with, P 844*g*.
**Electric circuits**, in calorimetry for minimizing transient effects, 3248*a*.
for detn. of dead-time of Geiger-Müller counter, 8756*d*.
history of, 7761*f*.
measurement of steady-state response, transient response and allied properties of networks, electrolytic tank for, 5317*b*.
thermoregulators for—see *Thermoregulators*.
**Electric coils.** (See also *Magnetic cores.*)
cellophane for insulation of, P 3120*a*.
coatings for, from trifluoroethylene polymers, P 1608*f*.
impregnants for, P 1223*g*.
from silicones, P 5999*h*.
from tetraallylsilane polymers, P 5637*f*.
with magnetic cores, P 9300*h*.
review on toroids, 4525*i*.
silicone insulation for magnet, 4048*g*.
soldering to Ni-alloy, P 5732*a*.
**Electric condensers**, aluminum anodes for, P 510*c*.
with bentonite-film dielectric, 331*g*.
cellophane for, P 3120*a*, P 5518*f*.
ceramic, 7205*b*.
ceramic materials for, 1541*i*.
dielectrics for, P 7262*c*.
ceramic, P 831*a*.
from esters of tetrahydrofurfuryl alc., P 9302*b*.
from halogenated diphenylethylene polymers, P 6866*a*.
standards for, 4400*b*.
titanates as, 2388*e*.
embedding media for plates for, P 1221*b*.
glass insulators for, P 373*a*.
heat-resisting, P 6529*g*.
for high-frequency, P 509*h*.
impregnants for, from chlorinated fluorenone, P 2344*g*.
hydrogenation product of dimeric *p*,*α*-dimethylstyrene as, P 4518*f*.
from tetraallylsilane polymers, P 5637*f*.
paper for, elec. testing of, 8288*d*.
from silver-covered dielectric from Mg $TiO_3$ and plastic substances, P 18
stabilization of paper, 7837*c*.
with titanate dielectrics, P 510*c*, P 2106*a*.
from titanium dioxide ceramic materials, 4828*e*.

**Electric conductivity.** See *Conductivity, electric.*
**Electric conductors.** See *Conductors, electric.*
**Electric contacts.** (See also *Electric brushes.*)
chromium-plated busbar, and protection of contacts against oxidation, 7837*f*.
cobalt alloys with Au and Ru for, P 5357*d*.
with crystals, coating with Bu methacrylate polymer, P 8919*f*.
erosion (bridge) of, 1235*a*.
films on, 3731*f*.
measurement of resistivity of, standards for, 4615*g*.
molybdenum, 3758*f*.
pickling of, P 6147*d*.
spark quenching at relay d.-c., 3732*a*.
theory of metallic, 8910*h*.
of tungsten, uniting to backing member, P 5001*f*.
**Electric converters.** (See also *Rectifiers.*)
measuring, and their use in electrochemistry, 5679*f*.
**Electric current.** (See also *Electric shock; Ionization, gaseous;* "Ohm's" under *Laws.*)
book: Biol. Reactions Caused by, and by X-rays, 3483*e*.
control of, in electroplating, 7352*e*.
corrosion by leakage current from elec. railways, 4995*h*
dark, in $Cu_2O$ in alternating elec. field, 7324*i*.
density, for cathodic protection, 6092*ef*.
efficiency of cathodoluminescence and, 4091*b*.
in electrolysis of alk. NaOCl, 6519*h*.
effect on diffusion of pptd. substances in metals, 6956*a*.
on HCl secretion by gastric mucosa, 3507*d*.
on Fe in $HNO_3$, 7792*b*.
on superconducting bolometer in transition region, 2044*c*.
efficiency at anodes, 5677*e*.
in electrolysis, electrode spacing and, 1270*f*.
in electrolysis of fused salts, 949*i*.
in elec. discharges, growth rate of, 3704*c*.
exchange, in nuclei, 5278*d*.
high-frequency, effect on electrodeposition of Cr, Cu and Ni, 2872*h*.
electrolysis with, 6520*c*.
milk preservation by, 5127*d*.
for petroleum prospecting, 3599*d*.
reactions in gases in, P 2880*i*.
in iron Zn couple in KCl soln., effect of paint films and time on, 6431*a*.
limiting, for H ion discharge on rotating amalgamated Cu cathode, 6052*a*.
measurement of, 5679*g*.
in corrosion, 6092*g*.
in detn. of emulsion type, 7290*e*.
around underground structures, for corrosion-protection calcn., 99*g*.
measurement of crit., in glow tube, 5235*g*.
measuring variations of grid, conductometric analysis by, 8044*a*.
in neutralization of milk, 7596*i*.
phosphorescence-extinguishing effect of feeble, 6087*d*.
photo- —see *Photoelectricity.*
in polarography—see *Polarography.*
rectification of—see *Rectification; Rectifiers.*
in sewage purification, P 7614*i*.
in solns., discontinuous thermal variations in, 5676*a*.
stray, electrolysis by, 6092*f*.
streaming, measurement in concd. solns., 4925*a*.
supercond. perturbation by, of acoustic frequencies, 4070*a*.
in tin deposition, 1269*ae*.
units of, transition from international to abs., 8762*f*.
in water purification, 7612*g*.
**Electric discharge.** (See also *Corona; Electric arc; Electric spark; Electron tubes; Lightning;* and "breakdown" under *Dielectrics.*)
afterglow—see *Luminescence.*
in air, N and O, spectra from, 3290*i*.
ammonia decompn. in, rate of, 6524*i*.
app. for synthesis of NO, etc., P 6096*f*.
for argon purification, 5678*d*.
in brain during spontaneous seizures, 9238*h*.
breakdown probability of a low-pressure gas, 4101*e*.
bromine-vapor cond. in silent, hysteresis in, 3731*a*.
in carbon tetrabromide vapor, 3723*c*.
cold-cathode glow, effect of magnetic field on, 4060*d*.
decrease of, by external radiation, 8862*e*.
effect on $SF_6$, 7354*i*.
elec. current growth and cathode spot in, 3704*d*.
electrodeless, in rarified gases, 2877*g*.
electrolysis by silent, 8910*d*.
in gases of different dielec. strengths, 454*e*.
glow, initiation of low-pressure, 4962*d*.
in helium, breakdown in high-frequency, 4101*e*.
high-pressure, electron mobility in, 5660*d*.
high pressure Hg-vapor, 7319*g*.
hydrocarbon gas dissocn. by, P 3994*d*.
in hydrogen and N, secondary electron production in, 4941*i*.
in hydrogen, elec. fields in cathode dark space in, 4095*d*.
in inert gases at high pressures, 5278*i*, 7357*a*.
lamps—see *Lamps, electric.*
light action on, 4556*a*.
in air, 6074*e*.
in Br, 2085*g*.
in Br and H and their mixts., 7322*h*.
in Cl, 2085*e*, 4101*h*, 8289*a*.
in Cl, spectral sensitivity of, 4555*g*.
in Cl under full-ozonizer and semi-ozonizer excitation, 7323*a*.
effect of exposure time on, 1641*e*.
effects of applied potential and high-frequency component of discharge current on, 2858*c*.
intensity, frequency and amount of irradiation in, 6074*g*.
in I, 8857*a*.
in I, spectra of iodine vapor produced during, 8883*a*.
in Hg vapor, 8258*a*.
in O, 5281*f*, 8847*c*.
steady conductance and, 2858*a*.
in $SO_2$, 8258*d*.
vacuo-junction and diode detection in relation to, 2523*h*.
in various gases, 2858*b*.
as light source for spectral analysis, 6083*bd*.
in mercury in cylindrical tubes with glass walls, 4094*h*.
in mercury vapor, effect of Ba vapor on, 3279*e*.
movable electrode for studying, 6905*i*.
nitrogen fixation in—see *Nitrogen fixation.*
phosphorescence-extinguishing effect of silent, 6087*d*.
reaction of CO with H in silent, 1272*c*.
reaction of N and S in silent, 2516*g*.
reactions in, P 2881*c*.
rectifiers—see *Rectifiers.*
in sodium vapor, neg. ions in, 4942*a*.
in water vapor, prepn. of atomic O by, 8823*d*.
**Electric discharge tubes.** See *Electron tubes; Lamps, electric.*
**Electric double layer,** capacity of, detn. of zero points of metals from, 470*i*.
capacity of, measurement of, 4066*c*.
interaction of, stability of hydrophobic colloids and, 3205*i*.
in nerve membranes from change of N covalency, 8502*h*.
on oxidized metal, 2522*h*.
at polarized electrode (ideal), thermodynamics of, 1625*i*.
at polarized electrode, structure of, 2101*d*.
potential of, calcn. of, 2522*g*.
theory of, 8814*b*.
**Electric energy,** free, of long-chain mols., 6050*f*.
**Electric field,** alternating, effect on osmotic process, 8235*a*.
birefringence in—see *Kerr effect (electrooptical).*
blanching and drying of vegetable tissues in high frequency, P 6759*a*.
in cathode dark space of a H discharge, 4095*d*.
crit., of superconducting V, 4067*a*.
crystn., evapn. and reactions in, P 4587*h*.
drying ceramic and similar materials and products in high-frequency, testing by, P 3588*e*.
effect of high-frequency, on microörganisms, 9150*e*.
effect on aerosols, 5255*h*.
on crystn. of paraffin wax, 2480*d*.
on decompn. of $N_2O$ by α-rays, 3295*h*.
on elec. cond. of $BaTiO_3$, 4068*e*.
on force consts. of alkali sulfates, 5304*i*.
on Ge, 4066*c*.
*effect* on heat transfer in gases, 6068*f*.
on infrared extinguishing effect on phosphorescence, 6087*d*.
on luminescence of x-ray-irradiated sulfides, 3721*d*.
on nuclear fissions, 2861*e*.
on optical properties of $BaTiO_3$, 6032*i*, 6485*d*.
on optical rotation of Rochelle salt crystals, 8771*g*.
elec. cond. of paraffin-chain electrolytes in, 7836*a*.
interaction in diat. mols., quantization and, 4527*b*.
ion movement in soln. by, 8800*b*.
measurement of, 5679*g*.
modulation with, of ultrasonic signals in liquids, 6025*b*.
osmosis in, frequency and, 7789*g*.
palladium-ion penetration into rock salt crystals in presence of, 3684*c*.
particle scattering in, 4080*g*, 4094*c*.
phosphorescence extinction by, 6087*c*.
reactions in gases in high frequency, P 2880*i*.
in sepn. of polar and nonpolar liquids, 2521*e*.
Stark effect in—see *Stark effect.*
with superimposed magnetic field at right angles, motion of charged particles in, 1641*c*.
**Electric filaments.** See *Filaments.*
**Electric filters,** ethylenediamine tartrate, piezoelec. resonator for, 8227*d*.
**Electric furnaces.** See *Furnaces, electric.*
**Electric fuses,** igniters for, lead salts of 2,4-dinitroresorcinol for use in, 5190*f*.
**Electric generators** (*includes dynamos and electrostatic generators*), for acceleration of charged particles, 4559*h*.
dynamoelec., cores for, P 2154*g*.
electrostatic, study of nuclear physics with, 8850*c*.
for ion accelerators, 6075*i*.
for plating, 6924*g*.
Van de Graaff, 4003*a*.
Van de Graaff, ion-source equipment for, 4093*a*.
wind-driven, for cathodic protection, 6093*a*.
**Electric heating.** See *Furnaces, electric; Heaters; Heating.*
**Electric inductance,** in electrophysiology, 4923*i*.
**Electric industry,** rayon in, 7602*f*.
**Electricity.** (See also *Piezoelectricity; Pyroelectricity; Thermoelectricity.*)
accidents in labs from, 7159*h*.
book, 2856*c*.
economics of industry of, 7666*d*.
galvano-magnetic, thermomagnetic and thermoelec. effects, 2062*g*.
journals: Zeitschrift fur Kohle, Gas Treibstoff und Elektrizitat, 8120*e*
Revistele Tehnice AGIR, 8256*e*
photo—see *Photoelectric effect.*
quantum of—see also *Electrons.*
static—see *Electric charge.*
tribo-, in detonation of explosives, 1982*h*.
**Electric lamps.** See *Lamps, electric.*
**Electric meters.** (See also *Voltmeter.*)
for electrostatic charges on rubber and GR S rubber during mastication, 7255*h*.
germanium-crystal diode use with, 6094*b*.
**Electric moments.** (See also *Polarization, dielectric.*)
of acrylonitrile, 1594*f*.
adsorption (interlamellar) and, 5255*a*.
of alcs., 470*a*.
of aldoketene dimers, 4220*h*.
of aniline in $C_6H_6$, 7763*g*.
of aniline, PhNHMe and PhNMe$_2$ in benzene and in *p*-dioxane, 7138*f*.
of azobenzene and benzo[*c*]cinnoline and their oxides, 3009*d*.
of azulene, 2831*f*.
of azulene, and fulvene and its derivs., 5246*c*.
of benzophenone, 1,1-bis(*p*-chlorophenyl)-cyclopropane and 1,1-diphenylcyclopropane, 1558.
of bonds, 5240*h*.
book: Dipole Moments. Their measurement and application to chemistry, 932*f*.
of borine carbonyl, 7821*f*.
of carbon-H bond in benzene derivs., 3714*h*.
of carbonyl cyanide, 3682*i*.
of carbonyl selenide, 1673*d*, 4141*e*.
of carboxylic acids in $C_6H_6$, 6403*i*.
of Chlorex in hydrocarbons, 4937*h*.

of chlorogermane, $SiH_3Cl$ and $CH_3Cl$, 8275*f*.
of (2-chlorovinyl)mercury chloride isomers, 560*d*.
of cyclooctatetraene, 6194*h*.
detn. of, 6068*g*.
of 1,5-dichloro-4,8-dimethoxynaphthalene and 1,5-dimethoxynaphthalene, 201*d*.
of 1,2- and 1,3-dichloropropene isomers, 558*g*.
of diethyl sulfite, $Et_4SiO_4$ and $Et_3PO_4$, 2832*b*.
of 5,6 - dihydro - 7 - nitroso - 2,1,3,4 *H*-benzoxaselenazole, 7479*a*.
of dinitrotoluene, 3670*a*.
of dipolar solids, 8770*d*.
drying-oil oxidation products and driers having permanent, catalyzing drying of paints by, 8694*h*.
of enantiomers, 2054*g*.
of fluorine aromatic compds., 3252*h*.
of formamide, 8769*i*.
of furan-group compds., 4913*a*.
of γ-glycols and their derivs., 11*d*.
of hexachlorocyclohexane isomers, 6877*h*, 8770*i*.
of hexachlorocyclohexane isomers and of tetrachlorocyclohexane, 3670*b*.
of 1,3,5-hexatriene, 558*a*.
of hydrocyanic acid and dimer, 5244*h*.
of hydrogen fluoride, 2054*c*.
iodine soly. and, 2844*e*.
of ionic solids, 6877*g*.
of isolewisite and lewisite, 916*i*.
of liquid crystals, 3675*b*.
of long chain of $CH_2$ groups, 7822*d*.
measurement of, 7764*a*.
of merocyanine dyes, 4910*g*.
of methyl chloride, 5310*c*.
of 7-methylene-1,3,5-cycloheptatriene, 6918*g*.
mol. assocn. and, of higher phenols and aromatic alcs., 178*h*.
mol. structure and resonance in relation to, 4527*a*.
of monocetyl succinate monolayers, 8798*a*.
of nitrobenzene solns., 5245*c*.
of nitrogen-S bond, $SO_2$, $Bu_3N$, $Et_3N$-$SO_2$, $Et_3N$-$SO_4$, and $Bu_3N$-$SO_2$, 5241*a*.
of olefins and thiophene, 4061*f*.
of org. compds., H bonds and, 6020*g*.
of org. vapors, 6020*f*.
of paraffin α,ω disubstituted derivs., 7762*i*.
of phenol and $H_2O$, 6480*bd*.
of 2-picoline, 223*i*.
of polar groups in polymers, effect on adhesion to cellulose, 8133*g*.
of polar liquids in $C_6H_6$, 454*b*.
of polymer chains, 8238*h*.
of 5 *H* pyrazolo[*a*][3,1]benzoxazin-5 ones, 5025*b*.
quadrupole, of Al, 1264*a*.
of Sb, 8879*c*.
of $B^{10}$ and $B^{11}$, 491*f*, 8869*g*.
of $Cl^{35}$, 8870*b*.
of covalent bonding distributions, 5240*c*.
of deuterons, 7336*f*.
effect in nuclear paramagnetic resonance absorption, 4095*c*.
of $Ge^{73}$, 8871*a*.
interaction with mol. rotation in asym.-top mols., 43*c*, 4140*g*.
of $I^{128}$, 8879*d*.
of $Li^6$, 4114*c*.
of Li, sign of 8273*a*.
nuclear shell structure and, 8261*c*.
of $S^{35}$, 8869*g*.
reaction rates in homologous series and, 6895*a*.
of rubber, 3223*h*.
of rubber solns. in benzene, 5221*f*.
of rubbers (synthetic), 1594*e*, 5221*h*.
sepn. of polar from nonpolar mols. and, 2521*f*.
of sesamin, 8769*g*.
of solvents, absorption spectra of I solns. and, 7817*g*.
stereomerism and, 2479*d*.
of sulfinic acids, 6245*e*.
of sydnones, 3418*a*, 7480*d*.
of thiotolene derivs., 8223*d*.
of 1,1,2-trichloroethane and 1,1,2,2-tetrachloroethane, 8770*g*.
of trimethylsilylbenzenes, 8222*i*.
of unsatd. hydrocarbons, 7279*f*.

**Electric motors**, finishing of, at Westinghouse, 8746*b*.
insulating varnishes for, 8703*h*.
lubrication of antifriction bearings by greases in, 8933*h*.

**Electric networks.** See *Electric circuits*.

**Electric oscillations**, in cell with Ag electrodes in bath of $AgNO_3$, KCN and KOH, 4584*f*.
in disperse systems, 7776*f*.
in electrodeposition of metals, 2874*f*.
in germanium crystals, 4092*a*.

**Electric oscillators**, analysis by, measuring variations of grid current, 8943*i*.
from ethylenediamine tartrate with zero temp. coeff. of frequency, 8227*c*.
in heat-capacity measurement, 7280*e*.
for linear accelerators, 4093*b*.
magnetostriction, metastable states of Ni and, 8222*f*.
for moisture detn. in paper, 6413*g*.

**Electric permittivity.** See *Dielectric constants*.

**Electric power.** (See also *Power*.)
from coal by electrochem. means, 1664*h*.
dielec. loss—see *Dielectric absorption; Dielectric loss*.
reservoirs for stations furnishing, effect on properties of ground water, 8077*d*.
units of, transition from international to abs., 8762*f*.

**Electric power factor**, of asbestos, effect of $SnO_2$ on, 3544*d*.
of cellophane, P 3120*a*.
of chlorobenzene, 3731*b*.
of dimethyl silicone polymers, P 2813*e*.
of 4,4′-divinylbiphenyl polymers with styrene, P 4516*i*.
of films from $C_2F_4$ polymers with $C_2F_3H$, P 5637*h*.
glass with low, P 372*i*.
of insulators at ultrahigh frequency, effect of water on, 2480*b*.
of linseed oil, effect of oxidation and polymerization on, 9480*i*.
measurement of, of ceramics at 100 mega cycles, 8111*g*.
of insulators, 4400*a*.
of phenolic resins, 3229*h*.
of plastic materials, 435*f*.
of rubber and GR-S ebonites contg reclaimed rubber, 7256*g*.
of rubber (synthetic) ebonites, effects of temp. and frequency on, 5986*c*.
of rubber with different reënforcing fillers, effect of deformation or stretching on, 9514*a*.
of styrene polymers with maleic anhydride-castor oil half-esters, 2445*f*.
of titanate ceramics, 5164*i*.
for vinylbiphenyl polymers, P 1609*i*.
of vinylphenoxathiin deriv.-butadiene films, P 1223*e*.
of vinylphenoxathiin polymers, P 905*a*.

**Electric precipitation.** See *Precipitation, electric*.

**Electric properties**, of adsorbed vapors, 2831*g*.
of amine(tertiary) addn. compds. with $SO_2$ and $SO_3$, 5241*a*.
of barium platinate titanate, 1236*e*.
of barium titanate mixts. with $BaSnO_3$ and $CaSnO_3$, 5244*i*.
of barium titanate mixt. with $SrTiO_3$, 2054*e*.
of barium titanate single-domain crystals, 453*jh*, 4061*d*.
of 3 benzylidenephthalide polymers with styrene, P 7754*a*.
book: des résines synthétiques, 1210*f*.
of Buna S X-392 and X-393, 2017*c*.
of 1,3-butadiene-styrene mixed polymers, P 2815*i*.
of butadiene-vinylidene chloride-olefin ternary polymers, 2017*h*.
of cadmium sulfide, 3294*e*, 6031*d*.
of cellulose plastics, 5250*e*.
of ceramic condensers, 7205*b*.
of chlorinated polythenes at radio-frequencies, 6019*g*.
of crystals with polar mols., 8770*g*.
dielec. aftereffects, 8772*a*.
of *p*,α-dimethylstyrene trimer, P 1224*h*
of expanded plastics and rubbers, 429*d*.
of fluoroprene rubbers, 1598*i*.
of formamide, 8769*g*.
of glass, 4529*i*.
of γ-glycols and their derivs., 11*c*.
of gum jeol, effect of salts on, 8717*f*.
of halides (org.), 4912*e*.
of heavy water and water, 3670*c*.
of high-mol. substances, chain mobility and, 4530*a*.
of inks (printing), flow characteristics and, 8175*g*.
of insulating materials, app. for detn. of, 1125*e*.
of insulators at ultrahigh frequency, effect of water on, 2480*b*.
of lacquer films from Desmodur and Desmophen, 1605*a*.
of linseed oil during glycerolysis, 9481*b*.
of magnesium compds. with Pb and Sn ($Mg_2Pb$ and $Mg_2Sn$), 474*i*.
of magnesium compd. with Sn ($Mg_2Sn$), 4533*f*.
of metals, effect of gas removal on, 5715*d*.
of metal surfaces, 7769*d*.
of methyl palmitate, 2055*e*.
of methylvinylpolysiloxane-methyl methacrylate copolymers, 2018*f*.
microwaves in measuring, 2514*g*.
optical, in crystals of primary-phosphate type, 4066*e*.
of oxide-cathode interface, 4092*a*.
of paper-phenolic resin varnish laminates, 1578*d*.
of plastics, 435*c*, 4047*g*.
of polar solvents, effect of ions on, 7763*i*.
of polychloronaphthalene, 8766*f*.
of polymers, 6020*b*.
of pyrite, 8321*f*.
of rubber (ebonite), effect of $SiO_2$ loaders and water on, 4044*c*.
of rubber (ebonite), effect of type of raw rubber on, 8729*g*.
of rubber (reclaimed) and of ebonites contg. reclaims, 7256*i*.
of rubber (reclaimed) on telephone wires, 2021*c*.
of rubber (synthetic) ebonites, 5986*b*.
of silicon and Si alloys contg. B and P, 4068*f*.
of silicones, 6459*i*.
of siloxane copolymers, P 2036*e*.
of soil moisture and their measurement, 793*g*.
of solids for microwaves, 2523*f*.
of solids, review on, 2054*c*.
of styrene-diolefin resins, 7743*d*.
of styrene-polymer compn. with chlorinated *m*-diphenylbenzene, P 1610*d*.
of styrene-polymer compn. with mineral-oil ext., P 2467*i*.
of synthetic materials and demonstrating app. therefor, 920*e*.
of synthetic membranes, 4892*e*.
of tellurium, 4066*c*.
of thermosetting plastic laminates, 2028*e*.
of thorium, 8227*c*.
of titanates, 6385*h*.
of titanates at ultra-high frequencies, 2877*g*.
of trimethylsilyl group, 8222*i*.
of tungsten(VI) oxide, 8783*i*.
of unimol. film of palmitic acid, effect of adsorption of multivalent cations on, 6038*f*.
of vinyl chloride polymers plasticized with mixed esters of multivalent alcs., P 4895*c*.
of vinyl polymers plasticized with air-blown exts. of mineral-oil fractions, P 5998*h*.
of water vapor to microwaves, 6019*h*.
of zinc silicate phosphors, 2515*g*.

**Electric relays**, spark quenching in d.-c., 3732*a*.

**Electric resistance.** (See also *Conductivity, electric*.)
of alloys, effect of pressure and temp. on, 5678*i*.
of alumina films, 5251*a*.
of aluminum, effect of V on, 533*h*.
of aluminum-Mg-Si and Al-Mg-Zn systems, 4534*i*.
of ammonium dihydrogen phosphate crystals, control of, P 368*i*.
of antimony single crystals, effect of magnetic field on, 5243*f*.
calcn. of, of metals at low temps., 8771*c*.
of carbon, graphitization and, 4072*e*.
of chloroethylene polymer, increasing, P 5642*d*.
of chromium alloys, 2561*c*.
of cobalt-Fe alloy, 4060*b*.
of cobalt-Fe-V alloys, 8338*b*.
contact, between piston ring and cylinder wall of running engine, effect of lubricating oils and additives on, and measurement of, 8658*g*.
of copper-Au alloy, 6915*a*.
of copper-In-Mn alloys, 4618*f*.
of cylindrical conductors in transverse magnetic field, 4069*b*.
of electrolytes, effect of rapid changes in pressure and temp. on, 3692*i*.
of electrolyte, shape, dimensions and disposition of electrode in relation to, 2874*b*.
of elements, temp. and, 2501*c*.
of ferromagnetic Mn-Sb alloy in magnetic field, 7278*g*.

of films of Cu and Cu oxide, 6531*i*.
of gallium, 8781*a*.
of germanium at low temps., 4066*c*, 8288*i*.
of glass, effect of electrolysis on, 6379*f*.
of gold at low temps., 8784*a*.
of gold in Ag, 3683*g*.
of gold-Pt system, 2853*g*.
of helium I and He II, 455*d*.
of insulating couplings for underground cable and pipe lines, 6090*d*.
of insulators at high frequencies, effect of humidity on, 2054*a*.
of iron alloys and Ni, 6961*d*.
of iron, effect of strain aging on, 7881*c*.
of iron for magnetic app., increase by Mo, P 9020*h*.
of iron of high purity, 2559*b*.
of iron-Si compacts, 2562*d*, 9001*b*.
of iron wire during cementation, 6018*f*.
of Isabellin, effect of thermal treatment on, 2149*b*.
of lacquers in calcg. chem. resistance, behavior under stress and porosity, 3213*d*.
of lead sulfide contg. Pb, 4532*i*.
of magnesium compds. with Pb and Sn ($Mg_2Pb$ and $Mg_2Sn$), 475*a*.
magneto-, in Bi, 10*g*, 4066*f*.
of manganese, 6555*h*.
of manganese-Ni alloy in magnetic field, effect of ordered phase on, 1231*b*.
measurement of, app. for, 1125*f*.
of contact and resistance materials, standards for, 4615*g*.
of lubricant film, app. for, 4842*c*.
of phenolic resins, 3229*h*.
of plasticized polyvinyl chloride, 2465*f*.
of rubber and rubberlike materials, 4788*b*.
of sheet plastics, 9521*i*.
of metal films, 2836*c*, 6026*c*, 8771*e*.
of metallic solid solns., 2836*d*.
of molybdenum, 4901*d*.
of nickel electrodeposits, 2100*i*.
of nickel oxide and $SrTiO_3$, effect of $Li_2O$ and La ion, resp., on, 6015*h*.
of perchloric acid in aq. soln. and solns. contg. Pb, 4929*h*.
of petroleum shales, detn. of connate water by, 2757*h*.
of platinum foil, effect of atm. on, 6481*g*.
of polishing (electrolytic-) cell, anode surface and, 2522*e*.
of psilomelane and pyrolusite, crystal structure and, 1063*i*.
ratio between a.-c. and d.-c., for Cu, iron and manganin, 5679*g*.
of rubber, and its measurement, 1207*i*, 8722*h*.
of rubber (ebonite) surface, in light, effect of light-absorbent pigments on, 8729*f*.
of rubber, effect of stearic acid adsorption by C blacks on, 1599*h*.
of rubber (Na-butadiene) filled with channel black, 8188*c*.
of rubber (S-polymer), 5988*e*.
of rubbers vulcanized at high pressures, 4888*f*.
of selenium (annealed and crystd. in amines), 459*f*.
of semiconductors, temp. dependence of, 5280*h*.
of sericin sol, pH and, 853*e*.
of silica system with $Na_2O$, 1636*g*.
of silicate glasses, 4534*d*.
of silicon and Si alloys with B and P, 4068*f*.
of silicon monoxide, 11*g*.
of silver alloys with Sb, Pd and Sn, 4919*b*.
skin, of metals at low temps., 8768*a*.
of sodium-$NH_3$ solns., 4066*g*, 8780*i*.
of soil in measurement of $H_2O$, app. for, P 3554*b*.
in solid-reaction-kinetic measurements, 5656*e*.
spreading, discrepancies in Ge, 4066*c*.
of superconductors to high frequency, 8771*f*.
of superstructure alloy in longitudinal magnetic field, 7278*d*.
surface, 8910*h*.
of tellurium, pressure and, 7285*f*.
of tetracarbon monofluoride, 2107*i*.
of thorium, 8227*c*.
of tin single crystals, effect of oleic acid soln. on, 6029*b*.
of titanium, effect of H, N and O on, 7882*d*.
of tung oil gelled by anhyd. $FeCl_3$, 5605*f*.
units of, transition from international to abs., 8762*f*.
of uranium hydride, 7853*c*.
of yarns from pure and mixed fibers and its relation to water content, 5954*h*.
of zirconium (ductile), 8327*c*.

**Electric resistors.** (See also "elec." under *Heaters*.)
alloys for, P 1710*b*, 3334*a*, P 6563*g*.
from aluminum-Cr-Ni-Ag alloy, P 8348*h*.
carbon, P 7163*c*.
chromium-Ni wire for, coating with oxides, P 4153*e*.
coatings for, P 6002*a*.
cores for, from cordierite, 5164*g*.
corrosion in furnaces, 2918*b*.
enamel for metal-film, P 4442*h*.
for furnaces, 4901*c*.
for furnaces, etc., P 3732*i*.
and heat-treatment thereof, P 2878*g*.
insulated, P 6098*f*.
manuf. by photographic process, P 2532*g*.
measurement of resistivity of, standards for, 4615*g*.
metal-ceramic, P 5565*h*.
with neg. coeff. of resistance, P 8920*a*.
Pyrobar nichrome, 3725*g*.
from sintered MgO and $TiO_2$, P 5682*f*.
of sintered oxides, P 4403*a*.
for temp. indicators, P 9407*h*.
temp.-stable molded, P 6529*h*.
thermistors of $UO_2$, 7346*h*.
weatherproofing transmitter with silicone pastes, P 5644*g*.

**Electric shock.** (See also *Electric current*.)
acetylcholine and cholinesterase in cerebrospinal fluid after, 8519*g*.
blood after, 4383*a*, 5108*f*.
bromides in blood after, 9235*f*.
cholinesterase in blood in, 5857*e*.
cholinesterase in cerebrospinal fluid after, 8520*c*.
convulsions from, decamethonium iodide in controlling, 6739*i*.
effect of anticonvulsants on threshold for, 3101*b*.
effect on water metabolism in psychotic patients, 9234*g*.
effect on blood sugar, leucocytes and lymphocytes, 3924*g*.
effect on protoplasmic colloids, 3932*i*.
epileptic convulsions from, effect of blood vessel-constricting and -dilating substances on, 2327*g*.
fibrinolysis after, 3915*e*.
lactate, phosphate and pyruvate in brain in, 9202*g*.
lymphocytic and biochem. responses to, in schizophrenia and affective disorders, 3924*d*.
seizure threshold in, effect of acid-base changes on, 308*c*.
threshold for, effect of extracellular electrolyte depletion on, 5849*b*.
thresholds for, after adrenalectomy, relation between brain and blood plasma electrolytes and, 6304*i*.

**Electric skin effect**, of copper, iron and manganin, 5679*g*.

**Electric spark.** (See also *Electric discharge; Lightning;* and "breakdown" under *Dielectrics*.)
coating Al or Al alloys with Fe, etc., by, P 8917*h*.
in coating conductors with metals, P 8917*g*, P 8918*a*.
effect on $SF_6$, 7354*i*.
electrodes for, uniting to backing member, P 5001*f*.
electrode vapor jet production by, 1664*b*.
excitation temp. of, 8277*b*.
gaps, P 1666*d*.
generators for, electrolytic rectifier for, 6525*g*.
hydrogen-filled gaps for, 4525*i*.
ignition by—see *Explosions; Ignition*.
luminous, in $CuSO_4$ solns. from application of high potential, 4091*f*.
plugs—see *Spark plugs*.
potentials—see *Dielectric strength; Potential, electric*.
quenching at relay contacts interrupting d.c., 3732*a*.
spectra—see *Spectra*.
in spectrochem. analysis, 6083*b*.
in spectrochem. analysis, light from low-tension, 8297*e*.
for spectrographic analysis, 1273*a*, 6006*i*.
from Cu or Ag electrode, 7857*g*.
generator for, 448*s*, 1616*c*.
interchanging Beaudouin, Durr and Feussner sources of, 5695*c*.
interrupted, 5325*h*.
for spectrographic analysis, synchronous switches for generators for, 5695*d*.
velocity of anodic, in $CuSO_4$ solns., 1244*h*.

**Electric steel.** See *Steel*.

**Electric strength.** See *Dielectric strength*.

**Electric switches**, synchronous, for spark generators for spectrochem. analysis, 5695*d*.
thermostatic—see *Thermoregulators*.

**Electric transformers.** See *Transformers*.

**Electric valves.** See *Electron tubes; Rectifiers*.

**Electric waves.** (See also *Hertzian waves; Microwaves*.)
anodic and reduction, in polarographic detn. of Sb, 8301*h*.
dispersion of, in ionic crystals contg foreign ions, 5245*a*.
dispersion of low-frequency, in ionic crystals, 7768*i*.
pulses of various amplitudes, analyzer for, 6076*e*.
temporal application of, uricemia and, 704*b*.

**Electrification.** See *Electric charge*.

**Electro-.** (*For other entries starting "electro-" see also under such headings as* Oxidation, Reduction.)

**Electroanalysis.** See *Analysis*

**Electrocapillarity**, liquid pretreatment for treatment by, P 8290*b*
of mercury in presence of multivalent ions, 4545*c*.
of physiologically active substances, effect of H ions on, 6887*e*.
soil analysis by, 3126*i*.
of solns. of pyridine, quinoline and their derivs., pH and, 2845*e*

**Electrocardiographs.** See *Heart*

**Electrochemistry.** (See also *Corrosion; Electrolysis*.)
acoustical electrochem. effects, 508*g*
bibliography on org., 4961*d*.
books: The Development of Theoretical 509*a*, Rukovodstvo k Laboratornym Rabotam po Prikladnoi Elektrokhimii 5317*d*
of complex ions, 8915*g*.
consts., effect of new elec. unit on, 2101*f*.
of corrosion, 4021*d*.
education in, 151*a*.
electrodeposition relation to, 4146*h*.
industry of, 4788*a*.
industry of, in Norway, 4959*d*.
of ion-exchange substances and plant roots, 6525*d*.
lecture demonstrations on, 8762*c*
of macrostructures of Fe and steel, 8288*g*.
measuring converters in, 5670*f*
of metals, 4959*g*, 7351*eh*.
of mineral membranes, 2069*g*.
of org. solvents, 8907*h*.
profession of, 6089*b*.
of reactions of C compds. 6875*f*.
of uranium, 5313*i*.

**Electrocrystallization.** See *Crystallization*.

**Electrocution**, of weeds in vegetables, 9352*a*.

**Electrodecantation.** See *Decantation*

**Electrodeposition.** (See also *Coating(s); Electrolysis; Electroplating;* and the various metals electrodeposited.)
of alloys, 2872*fg*, P 8918*d*.
from aq. solns., 8900*i*.
cathode potential in, 4147*i*.
from sulfamate baths, 4148*a*.
on aluminum and Al alloys, P 8917*g*
app. for—see also *Cells, electrolytic*.
app. for, 950*e*.
of bright metal, 46*i*.
of catalysts, P 2103*g*.
by cathodic disintegration—see "sputtering" under *Cathodes*.
in cell with colloidion coated anode, 8285*e*.
of colored films on metals, 5352*h*.
by controlled cathode potential in analysis, 2043*e*.
crystal formation and form in, effect of inhibitors on, 953*a*.
crystal growth and structure during, 502*b*.
crystal growth in, 7836*c*.
crystn. and diffusion in, 7356*h*.
on dust in its analysis, 6112*g*.
electrochemistry relation to, 4146*h*.
electroforming Cu, P 8918*b*.
electroforming Cu, rough and streaky deposits in, 7353*a*.
electroforming, separating films for, 5674*c*.

electrophoretic, P 4151*g*.
of carbonates and oxides with thermoelectronic emission, effect of alcs. on, 8908*e*.
of resinous dielectric on porous refractory, P 9536*i*.
on fabrics and fibrous and porous materials, P 6528*f*.
flexible conductors by, P 4589*f*.
of hard alloys, 7834*b*.
of kaolin, effect of NaOH on, 6091*c*.
of metals from solns. contg. complex ions, 8901*a*.
of metals on Hg, 5315*i*.
on nonconductors, 8285*i*.
overvoltage in, 5674*d*.
periodic phenomena in, 2874*d*.
pitting prevention in acid, P 4152*bd*.
on plastics, use of Cu film in, 8901*b*.
of precious-metal alloys, 2097*i*.
in printing industry, 6924*g*.
review on, 8908*d*.
of simple ions, 2875*i*.
of synthetic resins, 954*h*.
**Electrodeposits**, adhesion of, 8901*g*.
adhesion of, measurement of, 4584*g*.
bonding of, P 2524*i*.
crystals in, block structures of, 8906*a*.
disperse, at high c ds , 5674*h*.
phys. properties of, 2100*h*.
pit formations in, 3727*d*.
porosity of, 8327*e*.
porosity of, measurement of, 6923*f*.
roughness of, 7769*e*.
stresses in, calcn. of, 5315*g*.
str[illegible] fo
measurement of, 5315*e*.
thickness of, measurement of, 4148*h*.
**Electrodes**. (See also *Anodes; Cathodes*.)
alloy, galvanic cells with, 8907*e*
alloy, spectral lines emitted during heat-treatment of, 5694*e*.
antimony, prepn. of, and analysis of acid mixts. with, 5696*b*
in aqueous solns., processes at, 7351*e*.
arc, P 6097*d*.
arsenic, from arsine, 8904*i*.
as metal-metal oxide O electrode, 8904*g*.
properties of $As_2O_3$ and, 8905*b*.
battery, from coated sheets, P 7360*d*
bismuth, in pH detn , 8900*ac*.
calomel reversible, P 8290*e*.
carbon, P 509*b*, P 7359*e*.
cyclone scrubber for elimination of tar fog from manuf. of, 4405*f*.
production in lab. furnace, 8899*d*.
purification of, 5336*i*.
from rubber, P 5092*f*.
from carbon (active), 5572*g*.
carbon for, ash removal from coal for 1940*h*.
carbon for, from coal, 5927*d*, 375*f*.
in cells with solid electrolytes, C and Pt as, 7351*e*.
ceric-cerous, temp. coeff. of, 4961*b*.
complex with unsolvated ion, energy-distance curve of, 5315*c*.
condenser, P 509*i*.
corrosion-measurement reference, half-cells as, 6092*e*.
cylindrical and plane, electrolyte resistance and, 2874*b*.
depolarization (electrolytic) of—see *Depolarization, electrolytic*.
direct-current amplifier with resistance, for pH measurements, 6525*f*.
dropping-Hg, holder for, 4056*d*.
dropping-Hg, Hg compd.-tube formation on, 48*g*.
dropping, polarographic studies with—see *Polarography*.
elec. capacity in $Na_2SO_4$ soln., effect of org. compds. on, 5316*c*.
elec. double layer on ideal polarized, thermodynamics of, 1625*i*.
elec. double layer on polarized, 2101*d*.
for electrolytic cells, P 1666*b*.
electron, in liquid $NH_3$, 1270*i*.
electron-tube, P 1274*e*
coating of, P 6529*a*.
for high-pressure discharges, P 7840*d*.
make-alive, P 2518*d*.
from Pt-W alloy, P 6530*a*.
electroplated, spectra of, 4090*h*.
for ethyl ether, 2075*h*.
furnace, for glass making, P 6386*c*, P 8632*i*.
for melting scrap metal, etc., P 509*a*.
Söderberg system of, 4959*e*.
getters for, 2877*b*.
glass, P 4441*b*.
chem. durability and voltage anomalies of, 3728*a*.
*glass*, glass for, 827*d*.
in pH detn., 8255*d*.
for pH detn. in blood, 4316*b*.
pH response of, 6051*f*.
protective devices for, 6008*i*.
theory of, 4960*i*.
thickness of inhibiting films on, 4083*i*.
for titration of weak org. acids in nonaq. solns., 59*e*.
for heat-treating app., P 4151*c*.
holder for, for setting of micro-spark gap, 2541*a*.
hydrogen, concn. of dissolved H and, 7790*g*.
effect of ultrasonic waves on potential of, 7301*d*.
mechanism of overvoltage at, 8284*h*.
potential in org. solvents, 8907*hi*.
-ion complexes in electrode process, energy *vs* distance in, 4149*c*.
for ionization chambers, P 5357*f*.
iridized, polarization of, 2521*i*.
iron and Hg, detn. of Townsend coeff. in discharge tube with, 6906*h*.
lead-in, P 3164*f*.
lead, in polarography, 4149*f*.
manuf. of, 8899*b*
mercury-Hg(I), phosphate, 5677*a*.
mercury multicapillary tube, in polarography, 8946*f*.
mercury, O reduction at, 8912*f*.
movable, for study of gas discharges, 6905*i*.
overvoltage on—see *Overvoltage*.
piezoelec. crystal, P 3735*a*.
platinum, automatic recording in polarography with, 7355*f*.
polarographic analysis of fused salts with dipping solid, 8947*b*.
reactions of U(VI) U(IV) system at, 8270*i*.
platinum dipping solid, and its use in polarography, 8946*i*.
polarization of—see *Polarization, electrolytic*.
polarography with solid, 8947*d*.
polarography with solid Pt, Ag or amalgamated, 8946*f*.
porous, for electrolytic cells, P 6097*e*.
potential—see *Potential, electric*.
for potentiometric titration of thiosulfates, 6934*e*.
pretreatment of, spurious counts in Geiger counters and, 8853*d*.
quinhydrone, in analysis of acid mixts., 5696*a*.
reactions at, kinetics of, 2523*a*, 4931*e*, 6893*h*.
rectifier, app. for making contact with Se, P 6529*e*.
from CuO, P 2525*g*.
electroforming of, P 2526*d*.
liquid treatment of Cu-oxide, P 4590*a*.
from Se, P 2525*h*, P 2526*ae*.
Se counter, P 2526*b*.
salt-bath, P 3734*c*.
prevention of corrosion of, P 4153*g*.
replenishment of, P 4154*a*.
sealing of, in capillary tubing, 3665*f*.
selenium, heat-treatment of, P 5682*e*.
semicond. of liquids and, 8780*d*.
silver-$Ag_2C_2O_4$, 2101*g*.
silver-$Ag_2O$, photoelectrochem. processes on, 2503*f*.
single, effect of temp. on potential of, 7836*f*.
sodium, shale barriers as, 2757*g*, 3177*f*.
spacing of, effect on current efficiency, 1270*e*.
spark-plug, P 1712*b*.
spark-plug, from sintered precious metals, P 7403*a*.
spectrochem. - analysis, porous - cup, 8945*b*.
spectrographic C, purification of, 3732*b*.
spectrum from elec. arc, between Pt, 40*a*.
standard, container for, P 6097*f*.
storage-battery, Ca-Pb-Sn alloys for, P 1665*b*.
expander for, P 8920*f*.
from Pb (sponge) or $PbO_2$ in coke, etc., P 8292*a*.
of light metal coated with Pb, P 4590*f*.
of Ni and Cd, 954*e*.
paste for, P 826*f*.
reconditioning of, P 957*a*.
tungsten, uniting to backing member, P 5001*f*.
vapor jets from, production by arcs and sparks, 1664*b*.
vibrating, in polarography, 4*i*.
voltage required by pointed and spherical, to ignite gases, 407*d*.
for welding, P 1308*i*, 6561*d*, P 6565*f*.
basic - coated, deep - penetrating, 4208*c*.
borax in coating of, 7401*d*.
coatings for, 8342*h*, 8630*a*.
covered with slag-forming mixt., P 5002*h*.
coverings for, 8342*c*.
effect of Mn-contg., on health, 6561*e*.
effect of various elements in coating of, 4208*a*.
effect on impact and tensile strength of welds, 553*a*.
effect on N and O, 987*a*.
by elec. resistance, 8342*e*.
electron-emissive coating for, P 6566*c*.
fumes from coatings on, 9017*e*.
function of coatings of, 1707*c*.
German, 4208*b*.
for hard-facing, P 6565*d*.
for high-strength steels, 6963*e*.
of light metals, P 2924*b*.
N absorption by welds and, 9017*c*.
from N-contg. Cr-Ni steel, 2912*i*.
of nonferrous metals, coating for, P 4212*f*.
nongassing Fe-Mn for, P 3344*c*.
plasticity of ceramic coatings for, 8628*a*.
powders for, measurement of particle size and surface area of, 6883*i*.
self-starting, P 1308*h*.
silicone-resin coatings for, P 7896*e*.
standards for, 4614*i*.
for use under $H_2O$, P 7405*e*.
of zinc on Pt, prepd. by sublimation, 5314*i*.
zinc-ZnO, photoelectrochem. process at, 2858*h*.
**Electrodialysis**. See *Dialysis*.
**Electrodynamics**, quantum, application of renormalization of charge and mass to divergences in, 5277*d*.
quantum, interaction of H-like atoms with radiation field and, 5659*h*.
**Electroendosmosis**. See *Osmosis*.
**Electroforming**. See *Electrodeposition*.
**Electrokinetics**. (See also *Electrophoresis;* and "electro-" under *Osmosis*.)
of antibiotics, effect on action, 1458*h*.
of capillary systems, 7290*h*.
of phase boundary, 3265*g*.
potential—see *Potential, electric*.
**Electrolysis**. (See also *Electrodes; Oxidation; Reduction;* and such headings as *Copper, metallurgy of;* also various substances commonly electrolyzed commercially as *Sodium chloride;* and the electrolytic products, as *Chlorine* and *Sodium hydroxide*.)
in acetic anhydride, 2876*f*.
analytical, servo instrument for, 5647*d*.
app. for—see also *Cells, electrolytic*.
app. for, for scale prevention in water containers, P 509*e*.
of aqueous solns., P 8918*g*.
basic-salt colloidal soln. formation during, 5675*h*.
bipolar, app. for, P 6098*a*.
books: Electrolytic Reactions, 1432*b*; Diafragmy dlya elektroliza vodnykh rastvorov, 2524*d*.
at controlled potential, analysis by, and uses of, 8946*e*.
convection (natural) in, 4584*i*.
corrosion—see *Corrosion*.
current thermal variations in, 5676*a*.
deburring of laminated magnetic cores by, P 8919*c*.
electrode processes in, 7351*e*.
of fused salts, current efficiency in, 949*i*.
in glass, 6379*e*.
with high-frequency current, 6520*c*.
internal, in analysis, 8946*d*.
in Cu detn., liquid amalgams in, 7863*g*.
with protective films, 8285*d*.
Sn detn. in Sn concentrates by, 8956*h*.
of keratin-water system, 3689*a*.
Kolbe synthesis by—see *Kolbe's electrochemical reaction*.
with mercury-cathode cell, 7354*c*.
microapp. for, 6525*a*.
output and work of, 3725*h*.
polishing by—see *Polishing*.
quinoline salt for, P 5682*c*.
restoration of corroded Ag-Cu alloys by, 5679*e*.
reversed-current, P 7838*i*.
sepn. of isotopes and metals by, P 4963*e*.
by silent discharge, 8910*d*.
of slightly sol. salts, 8905*d*.
in solid intermetallic phases, heteropolarity and, 6136*e*.

stray-current, 6092*f*.
tin-plate stripping by, P 1065*g*.
ultramicroscopy of, of $CuSO_4$ solns., 950*g*.
water transference by, membranes for detn. of, 8245*a*.
**Electrolytes**. (See also *Acids; Amphoteric substances; Bases; Conductivity, electric; Mineral elements; Osmosis; Salts; Solutions*.)
in blood plasma and brain, electroshock-seizure thresholds in adrenalectomy in relation to, 6304*i*.
book: Conductimetric Titrations of Mixed, 2126*h*.
in brain after cerebral concussion, 5111*f*.
coagulation of colloids by—see *Colloids*.
colloidal, diffuse ionic layer in relation to lamella micelles in aq., 6886*i*.
effect of salts and chain length on critical concn. of, 20*a*.
effect of temp. on cond. and crit. concn. of, 2071*d*.
effect on bacteria, 9143*e*.
elec. cond. and osmotic activity of, 20*c*.
properties of, 6887*a*.
Na triisopropylbenzenesulfonate as, 6041*e*.
structure of, 7780*f*.
condenser—see *Electric condensers*.
diffusion of, into nerve fibers, 4744*a*.
diffusion of strong, concn. differences from, and effect of glass diaphragms on diffusion rate, 8773*g*.
diffusion of, through org. membranes, 6480*i*.
dry-cell—see *Cells, voltaic*.
effect on anthraquinone vat dye migration and solvation, 7232*c*.
on color value of enamels, 9406*g*.
on crit. concn. and solubilization of dimethylaminoazobenzene, Orange OT and *trans*-azobenzene in detergent solns., 4876*c*.
on crit. micelle concn. of soaps, 2823*h*.
on elec. cond. of aq. dodecylammonium chloride, 8810*d*.
on grinding of refractory materials, 5562*b*.
on naphthenic emulsions for defatting hides, 6447*i*.
on periodic ppts. of Ca phosphate in agar gels, 7788*g*.
on reaction between iodide and persulfate, 8236*f*.
on saponification of glycerides in emulsions, 8795*c*.
on stability of nitrocellulose lacquer emulsions, 5607*a*.
on stability of S sols, 4926*d*.
on virus-host cell combinations, 1482*i*.
elec. cond. of, 6892*d*.
app. for measurement of, 5234*d*.
detn. by difference of internal resistances, 7302*c*.
effect of rapid changes in pressure and temp. on, 3692*i*.
elec. cond. of strong, theory of, 4544*b*.
extracellular depletion of, effect on brain electrolyte pattern and electroshock seizure threshold, 5849*b*.
flow between surfaces in close proximity, 4927*a*.
glass as, in e.m.f. measurements on alloys, 6092*a*.
hertzian-wave absorption by, 6081*c*
imbalance, effect on adrenal gland, 7102*h*.
interactions in, 7301*e*.
ionization of—see *Ionisation, electrolytic; Ions, electrolytic*.
ion migration in counterflowing, as basis for electrochem. exchange process, 6091*f*.
long-chain, dimensions of charged mols. in, 6050*e*.
properties in $H_2O$ mixts. with org. solvents, 7303*d*.
solubilization of polar-nonpolar substances in solns. of, 6041*c*.
mixts. of, activity coeffs. of, 6048*h*.
mixts. of, refractive index of, 6049*e*.
in moving-boundary systems, 4082*f*.
nonpolar-polar org., physiol. effects of, 2325*e*.
nonstationary phenomena in, 4544*a*.
osmotic coeffs. of strong, calcn. of, 4929*i*.
oxidation-reduction reactions in solns. of, 409*s*.
paraffin-chain, high-field conductance of, 7836*b*.
partition between cells and surrounding [illegible], 7107*d*.
partition between liquid and solid phases, 6885*i*.
penicillin G as, and colloidal electrolyte, 4926*i*.
permeability to—see *Permeability*.
for polarographic detn. of As-subgroup cations, 7377*b*.
poly-, 1626*b*, 7785*g*, 8242*b*.
electrostatic interaction with simple electrolytes, 4078*f*.
viscosity of, and mixts. with simple electrolytes, 7299*c*.
viscosity of solns. of, ionic strength and, 7783*c*.
$H_2O$-insol., from BuBr and 4-vinylpyridine polymers, 4892*e*.
pressure-temp.-vol. relations in, 7298*c*.
properties of, 2491*d*, 3268*i*, 5265*d*, 6892*b*, 8810*fgi*, 8811*b*.
properties of, and elec. cond. of long chain electrolytes in aq. MeOH, 1243*i*.
properties of, degrees of dissocn. and, 4544*f*.
properties of strong, extrapolation of, 7298*i*.
reaction of org., with proteins, 3050*d*.
resistance of, electrode dimensions, disposition and shape in relation to, 2874*b*.
rotation in magnetic field, 4066*b*.
salting-out by—see *Salting-out*.
in serums, removal or replacement of, P 3153*h*.
solid, piles with, 7351*d*.
solid, potential of piles with, 8914*e*.
solid, potential of piles with (electrodes given in abstract by mistake), 6020*d*.
solubilities of strong, calcn. of, 8805*c*.
soly. in multicomponent systems, calcn. of, 2844*c*.
of storage batteries—see *Storage batteries*.
in sulfur dioxide (liquid), 8935*g*.
theory of concd. solns. of strong, 6892*e*.
thermal diffusion of, 5265*b*.
thermal diffusion potentials in nonisothermal systems of, 6492*h*.
thermal properties of, Debye-Huckel theory and, 7317*h*.
thermodynamic properties of, in formamide, 470*h*.
ultrasonic-wave absorption by, 7765*a*.
ultrasonic waves in study of, 7301*b*.
in urine, diet in relation to adrenocorticotropic hormone effect on, 7098*f*.
in edema of various origins, 4758*b*.
in hepatic cirrhosis, 4758*d*.
voltaic cells with solid and molten, 8288*e*.
weak, in moving-boundary systems, 8808*c*
for zinc-anode batteries, P 7360*d*.
**Electrolytic cells**. See *Cells, electrolytic*.
**Electrolytic condensers**. See *Electric condensers*.
**Electrolytic dissociation**. See *Ionization, electrolytic*.
**Electrolytic oxidation**. See *Oxidation*.
**Electrolytic pickling**. See *Pickling*.
**Electrolytic polishing**. See *Polishing*.
**Electrolytic reduction**. See *Reduction*.
**Electrolytic refining**. See the specific metallurgy headings as *Copper, metallurgy of*.
**Electrolyzers**. See *Cells, electrolytic*.
**Electromagnetic field**. (See also *Fields of force*.)
acetylene polymerization by, 3344*e*.
of atomic nuclei, quantum-mechanical fluctuations of, 1652*i*.
Maxwell's equations of, in tensor form for region of varying dielec. const. and magnetic permeability, 6026*f*.
**Electromagnetic induction**, nuclear, catalyst structure and, 8831*i*.
units of, transition from international to abs., 8762*f*.
**Electromagnetic waves**. No entries this year. See *Absorption (of rays); Dispersion (of rays); Gamma-rays; Hertzian waves; Light; Light, infrared; Light, ultraviolet; Microwaves; Reflection; Stictography; X-rays*.
**Electromagnetism**. See *Magnetism*.
**Electromerism**. See "electronic" under *Isomerism*.
**Electrometallurgy**. See *Furnaces, electric; Metallurgy;* and the various specific metallurgy and metal headings as *Iron, metallurgy of* and *Steel*.
**Electrometers**, ceramic electrets for, 6798*h*.
**Electrometric titration**. See *Titration*.
**Electromotive force**. See *Potential, electric*.
**Electromotive force series**, corrosion and, 8343*d*.
of metals in molten KBr and NaBr, 6089*f*.
**Electronegativity**, of crystal lattice, 8230*h*.
of radicals—see *Radicals*.
**Electron gas**, Bose-Einstein condensation of, 8257*b*.
equation of state of, effect of formation of electron pairs on, 5660*b*.
in metals, 8765*d*.
model in studying spectra of dyes, 1653*i*.
surface condensation of heat capacity of, Eötvös rule and, 457*e*.
transport phenomena in, 7324*e*, 8772*h*.
transport phenomena of, in metals,
**Electron heat**. See *Heat capacity*.
**Electronics**, books: Industrial, 500*a*; Advances in, 4958*i*.
ceramic research and, 9402*e*.
cooking with, effect on food nutritive value, 4779*e*.
in food processing, 9329*ae*.
food products and, 5880*c*.
in industry, 8745*e*.
molybdenum in, engineering, 3758*d*.
in process control, 6469*h*.
review on, 1881*c*.
in rubber industry, 3643*h*.
wire for, A.S.T.M. standards for, 4203*e*.
**Electron microscopes**. See *Microscopes*.
**Electron microscopy**. See *Microscopy*.
**Electron multipliers**. See *Cathodes; Electron tubes*.
**Electronography**. See "diffraction of" under *Electrons*.
**Electrons**. (See also *Beta-rays; Bonds; Cathode rays; Delta rays; Electron tubes; Ionization, gaseous; Ions, gaseous; Particles;* and "structure of" under *Atoms*.)
acceleration of, app. for—see *Accelerators*.
acceleration of, by a single resonant cavity, 4090*h*.
acceleration of, by cylindrical cavities, 4094*c*
affinity for, of C, 4093*d*, 5303*g*.
in cationoid $C_6H_6$ substitution, 8841*d*
of compds., detn. of, 8765*d*
fungicidal activity and, of substituents of ethylenic compds., 9333*i*.
of OH, $O_2H$, $O_2$ and $O_2^-$, 5651*c*.
affinity (residual) for, of conjugated and resonating hydrocarbons, 6512*b*
angular correlation between neutrino and, in $\beta$-decay, 933*f*, 5277*i*.
atomic, effect on decay const. of Be, 3283*d*.
-atom ratios in alloy phases, 6880*i*.
avalanches of, in breakdown of ionic crystals, 7286*g*.
in azulene, 2831*f*.
bands—see *Spectra*.
in benzofulvene and fulvene, 10*e*.
from betatron gun, x-ray output and emission of, 8850*h*.
from betatron, producing external beam of, 4094*f*.
in biradicals, 6601*h*.
bombardment with, cond. in diamond during, 2085*c*, 3279*f*.
cond. of films of dielectrics during, 8847*g*.
cross sections for excitation by, 3290*d*
in electron microscope, effect on org. compds., 7324*b*.
fragmentation of linear C chains by, 5280*e*.
H desorption from Pt plate by, 5279*e*.
liberation of ions from anodes by, 4941*g*.
optical-coating hardening by, P 4824*e*
oxidation of $SO_2$ by, 6087*h*.
of $Ag^{109}$, $Ag^{107}$ and $Cu^{63}$, 4120*i*
books: Elektron- og atomfysik, 947*f*, Atoms, Metals and Alloys, 948*d*, Physics, 948*a*; Elettroni al lavoro, 2098*a*; Atoms, and Rays, 2517*c*, Electronic Processes in Ionic Crystals, 4582*b*; The Present Situation in the Theory of Elementary Particles, Electron Theory of Superconductivity, 5314*e*; Electronic Interpretations of Org. Chemistry, 5409*e*; Electronic Theory of Org. Chemistry, 5409*e*, Collisions of, with Gaseous Atoms, 8283*d*.
Bose-Einstein condensation of, supercond. and, 8257*c*.
bound, creation in decay of H³, 4112*e*.
Bremsstrahlung from 19.5-m.e.v., detn. of energy of, 7328*h*.
cameras utilizing—see *Cameras*.
re of, 7811*d*.
ionization chamber, 2505*g*.

*capture of*, by ions, 4094*b*.
capture of *K*-, 5288*e*.
by $Be^{7}$, 8866*c*, 8872*d*.
in $Br^{76}$ and $Br^{77}$, 485*i*.
in $Co^{58}$, 5294*h*.
in $Cu^{61}$ and $Cu^{64}$, probability ratio to positron emission, 7329*i*.
by $Ge^{71}$, 5295*f*.
in $Au^{196}$, 4564*bc*.
in Au isotopes, 6911*h*.
in $In^{114}$, 6911*a*.
by Kr isotopes, 936*i*.
in $K^{40}$, 6507*d*.
in $K^{40}$, decay const. for, 485*g*.
in $Sn^{126}$ decay to $In^{126}$, geol. age and, 1691*g*.
capture of *K*-electrons and emission of internal-conversion, in decay of $At^{210}$, 4123*i*.
by Au and Pt isotopes, 4125*b*.
by Tm isotopes, 5297*a*.
capture of *K*-, in $I^{124}$ and internal-conversion electrons from $Au^{198}$, 8268*d*.
capture of *L*- and *K*-, in $A^{37}$, probability of, 8266*e*.
capture of *L*-, in $A^{37}$, 6076*a*.
capture of orbital, relation between half-life and disintegration energy in, 8854*e*.
from cerium and La, 486*f*.
charge on, oil-drop method for detn. of, 6906*i*.
charge on, ratio to mass, 4107*f*.
cloud chambers for—see *Cloud chambers*.
cloud, chem. reactivity in fused aromatic hydrocarbons and distribution of, 6905*h*.
cloud displacement theory in analysis with As compds., 57*e*.
collisions of, with Bloch's "spin waves" and phonons, 4529*f*
with mesotrons, 34*c*.
with positrons, 7325*f*
concn. of, near earth's orbit, 7334*f*.
configuration, arrangement or distribution of, 2509*i*.
accuracy of density maps in x-ray analysis showing, 6509*i*
in aromatic hydrocarbon derivs., 7809*f*.
in benzothiazole and thiazole and their Me derivs., chem reactivity and, 2511*g*.
in bibenzyl, etc., 41*c*.
in bonds, 8703*i*.
in Co compds., colors and magnetic properties in relation to, 2092*h*.
color of conjugated hydrocarbons contg triple bond and, 4569*i*
in conjugated systems, 5302*i*, 6512*c*, 8223*h*.
detn. from at. nos. and display in periodic table, 2478*c*.
detn. in aromatic mols., 2479*e*.
detn. in crystals, 31*f*, 1261*h*.
detn. of, summation of Fourier series in, 6078*e*.
in excited states of diat mols., 4568*h*.
in free radicals and biradicals, detn. by methods of mol. orbitals and mesomerism, 2511*i*.
in heterocyclic compds. contg. more than one N atom, 2094*i*.
in lattice of metallic Cu, 4100*f*.
magnetism and, 4941*e*.
in 7-methylene-1,3,5-cycloheptatriene, 6918*g*.
in NiAl crystals, 6030*i*.
in nonbenzenoid hydrocarbons, 5650*i*.
periodic system and, 6014*h*.
polarity of aromatic hydrocarbons, hydroxy compds. and acids in relation to, 2093*a*.
in quinones and quinonoid compds., 4954*h*.
in solids, 931*i*.
spectra and prediction of, 3715*d*.
in styrene derivs., 3293*g*.
from copper ($Cu^{64}$), ratio to no. of positrons, 1259*e*, 4583*f*.
cosmic-ray, 4103*c*, 4558*e*, 4943*c*, 6504*acf*.
in bursts and showers, 6504*d*.
energy of, 2859*b*, 5284*b*.
ionization by, 4092*f*.
production in showers in Pb, 8848*h*.
showers of, at high altitudes, 4093*i*.
in stratosphere, 4557*h*.
counters for—see *Counters*.
detection of, in photographic emulsions, 8921*f*.
diffraction of, and app. therefor, 1256*h*.
diffuse background in, 4556*d*.
flint-glass films as film supports in,
*diffraction of*, by $C_2Cl_4$, hindering potential barrier and, 4527*e*.
high-temp. furnace for study of, by films, 7323*h*.
internal rotation and, 8880*c*.
by metals, polishing for, 8910*a*.
photography with, 8259*b*.
in steel analysis, 7397*b*.
in study of structures of crystals and mols.—see *Crystal structure; Molecules*.
surface examination and, 4939*g*.
diffusion (ambipolar) of ions and, 4091*g*.
diffusion in He, measurement of, 6504*i*, 8774*g*.
effect on energy levels and thermionic emission of oxide cathode coatings, 934*c*.
effect on incident particles, 4559*c*.
elec. conduction by, thermomechanics of, 5250*d*.
electrodes, in liquid $NH_3$, 1270*i*.
emission const. for, 481*cd*.
emission (delayed) of, from cathode in counter operated above plateau, 4945*h*.
emission of—see also *Auger effect*.
emission of, 5659*d*.
and band overlap therein, 3704*i*.
from Ba-Sr oxide cathodes during space-charge-limited operation, decay of, 4095*d*.
from $B_2O_3$ bombarded by K ions, 1256*f*.
by $Cs_2O$ photocathode, 7767*f*.
by light—see *Photoelectric effect*.
from metal crystals, 6492*ef*.
by Mo, 3758*d*.
from oxide-coated cathodes, 4095*d*, 4560*a*, 8856*i*.
by oxide-coated cathodes in gaseous conduction devices, 4092*h*.
by oxide-coated Ni cathodes, 4091*c*.
emission (secondary) of—see also *Matter effect*.
emission (secondary) of, 4101*f*.
from Sb-Cs cathodes, 3704*g*.
from conducting films of $SnO_2$, 4092*a*.
from ionium, 2859*d*.
in mol. gas discharges, 4941*i*.
from Mo and Ni by action of neutral atoms of Hg and K, 4100*h*.
from solids, 5660*g*
emission (simultaneous) of 2, in decay of $Rb^{87}$, 8867*f*.
-emitting electrodes—see *Cathodes; Electrodes; Filaments*.
energy levels or states of, in conjugated mols., 3713*ab*.
effect on dielec. const. of phosphors, 8893*i*.
electromagnetic shift of, 4135*a*.
of org. mols., 1653*f*.
in simple crystal models, 4092*g*.
energy loss by, without light emission in (Zn, Cd)S, 8894*g*.
energy of, in Al, 4131*a*.
in hydroquinones and quinones, 6524*g*.
in metals, calcn. of, 8784*g*.
energy of mobile, in graphite crystallites, 2484*d*.
energy of photo-, emitted from semiconductors exhibiting photoelec. effect, 482*e*.
energy of photo-, from As, Sb and Bi, 8257*h*.
energy (proper) of, 6905*a*.
energy-range and other relations for, 8851*e*.
energy-range relations, 2859*c*.
equations of motion of, 4554*i*.
exchange or transfer of, between dihydrodiphosphopyridine nucleotide and O, esterification of inorg. phosphate coupled to, 6256*b*.
exchange or transfer of, during HCl secretion by stomach, 3506*i*.
-exchange polymers, 5263*c*.
excitation energy of, transfer between mols., 5667*d*, 6079*i*.
in ferromagnetic crystals, spin-inversion of, 7767*h*.
in field of neutral atom, continuous wave function of, 4097*c*.
gas—see *Electron gas*.
gyromagnetic ratio—see *Gyromagnetic ratio*.
from hafnium ($Hf^{176}$), 4124*a*.
heavy—see *Mesotrons*.
history of study of, 1255*b*.
in hydrocarbons (unsatd.), 7279*g*.
interactions of, in crystals, discontinuities in at. distances from, 6030*g*.
with neutrons, 4096*c*, 6908*d*, 7321*b*.
in nonbonded systems, 6918*e*.
interference in waves of, in small crystals, 8858*i*.
interference patterns of, at high potentials, 7324*b*.
interference patterns of, through thin plates, 6907*a*.
in intermediate compds. and superlattice alloys, 7770*g*.
internal-conversion, 6075*i*.
from $Ba^{139}$, 1260*i*.
calcn. of coeff. for production of, in *K*-shell, 479*d*, 4565*a*, 6073*e*.
measurement of energy of, 7329*g*.
from neutron-bombarded Te isotopes, 8268*a*.
from neutron-bombarded V, 8872*c*.
from Rb, 4120*f*, 4122*f*.
from $Sc^{46}$, 3285*b*.
from $Ta^{181}$, 3285*f*.
from Tm isotopes, 5297*a*.
from iodine ($I^{131}$), 3285*c*.
ionization by, 4092*g*, 6503*c*.
ionization by and energy loss of, 34*d*.
ionization of Hg vapors by, 7324*f*.
ionization potentials of *K*- and *L*-, 4131*d*.
in iron alloys, 8338*a*.
light-emitting, theory of, 483*f*.
magnetism and, 6877*c*.
mass spectra of elementary particles and theory of, 6904*i*.
measurement of pressure of, in C arc, 940*g*.
from mesotron-bombarded elements, 6504*g*.
from mesotron decay, 933*g*.
energy of, 1256*i*, 4943*g*, 7325*f*.
in Mg, time distribution of, 8866*f*.
momentum of, 479*e*.
penetration of, 4104*f*.
mesotron production by, 5293*c*, 8849*a*.
in metals, 8765*c*.
mobility of, effect of pos. ions on, 5660*d*.
moments in atoms, 3703*d*.
motion of, in deflecting field of magnetic dipole, 4095*c*.
neutron (delayed) production by, 4122*h*.
nonlocalized, 2479*a*.
one-, state of diat. mols., 3290*h*.
orbitals—see *Proper functions*.
orbits in solids, number of movements corresponding to, 4916*b*.
orbits of, of N in org. compds., deformation of, 4570*d*, 7340*g*.
org. chemistry and, 470*e*.
-pair production, effect on equation of state of electron gas, 5660*b*.
-pair production, internal, 8855*d*.
pairs, angular distribution of, 3702*h*, 5297*h*.
capture of, from internal conversion, 4950*i*.
emission of 3 photons in annihilation of, 6501*f*, 8854*d*.
passage through boundary layers, 3732*e*.
in periodic system, 916*f*.
photographic emulsion sensitive to, selective development of fission tracks in, 3287*b*.
photographic emulsions sensitive to, calibration of, 8921*f*.
in photographic plates, from x-ray action, 5300*a*.
photographic tracks of, development of, 4560*i*.
photographic tracks of, methods of producing, 4109*e*.
photography of, 51*i*.
photography of, fine-grain emulsions for, 2527*b*.
photomicrographs of tracks of, 3700*g*.
$\pi$-, charges due to, of atoms in cyclic N compds., 4670*e*.
notation showing the position of, 40*e*.
reactivity and structure of dienes and their polymers and, 2017*a*.
steric hindrance because of, in bicyclic unsatd. ketones, 7908*h*.
from platinum ($Pt^{193}$), 37*a*.
polarization of, 6907*a*.
of acrylonitrile, 1594*g*.
reflection-transmission effect in, 3705*f*.
positive—see *Positrons*.
-positron ratio in decay of $Cl^{36}$, 4118*f*.
pressure, gas pressure and, in stellar atms., 6916*c*.
properties of one-dimensional crystal model, 6026*f*.
properties of solids, catalytic activity and, 8251*d*.
in proteins, energy distribution and, 3481*g*.
quantum states and optical transitions of,

in polarons and in crystal color centers, 3717*d*.
radius of, 4953*a*.
range in Al, 8861*f*.
in reflection by metals, 480*f*.
scattering (Coulomb) of relativistic, 1642*c*.
scattering cross sections for, 4098*e*, 8847*e*.
scattering of, 8269*g*.
by Cu single crystal, 6907*g*.
by crystals, Kikuchi envelopes in, 6072*i*, 6073*ab*, 8843*a*.
effect in stellar atms., 5662*c*.
in Au, 6911*i*.
by H atoms, 8849*g*.
secondary, effect in Geiger-Müller counters, 5288*g*.
secondary, in photoelec. conduction, 6074*i*.
shells in mols., 3672*f*.
shells, spectroscopy of, 3701*h*.
in solids, 14*i*.
source of, 3704*e*.
spectral lines and vibratory, 480*c*.
spin states of, ionic structures and the method of, 3672*a*.
states of, in solids, 5659*f*.
stopping effects for, 4099*g*.
in sun's atm., 4134*b*.
synchrotron as generator of, 8850*e*.
from tellurium ($Te^{121}$), 3285*e*.
from tellurium ($Te^{125}$), 486*c*.
from thallium, 4564*e*.
theory (Dirac) of, 5660*c*.
theory of, in org. reactions, 555*i*.
theory of, in quinoline condensation reactions, 8386*f*.
theory of valency—see *Valency*.
tracks of, in contaminated cloud chamber, effect of α-particles on, 7812*d*.
transitions in colored NaCl crystals, 3718*h*.
transitions in precision thermometry, 2501*c*.
trapped, binding energy of, in KCl, 4096*a*.
binding energy of, in NaCl, 1641*c*.
energy levels of, in ionic solids, 5311*d*.
trapping of, in AgCl, 3205*b*.
-trap process in phosphors, 1659*a*, 3720*a*.
traps, infrared stimulation of phosphors and, 7826*h*.
traps, in zinc fluoride phosphors, thermoluminescence and, 8281*g*.
valence, loss in isomeric nuclear reactions, 7332*i*.
normalized wave functions for different states of, 6511*b*.
thickness of atm. of, in metals, 8911*a*.
velocity distribution in celestial gaseous assemblies in radiative equil., 5302*e*.
wave functions of, 2827*d*.
wave mechanics and, 8274*d*, 8862*h*.
waves, properties of de Broglie, 2084*f*.
work function of—see *Work function*.
in zinc, heat capacity and no. of, 4061*a*.

**Electron tubes, Electric discharge devices or Thermionic valves.** (See also *Accelerators; Betatron; Cathode-ray tubes; Cells, photoelectric; Cyclotrons; Electric converters; Electrons; Filaments; Lamps, electric; Rectifiers; Transistor; X-ray tubes.*) P 2518*f*, P 7832*g*.
book: Anwendung der, 4958*h*.
cements for, 2020*h*.
coating of inner surface of, with Ba, P 8284*c*.
double diode and vacuo-junction detectors, Joshi effect and, action of, 2523*i*.
electrodes for—see *Cathodes; Electrodes*.
electronic intensity regulator for H-contg., 942*a*.
electron multipliers, 8259*a*.
α-ray-counting, 4094*f*.
931-A type, as scintillation counter, 6076*f*.
checking linearity of circuit of, 3282*e*.
in spectral analysis, 8297*g*.
fluorescent substances for—see *Fluorescent substances*.
gaseous-discharge triodes, P 956*g*.
gases from metals in, microanalysis of, 5646*e*.
getters for—see *Getters*.
glass for, P 5917*h*.
glass-to-metal seals in, 4823*c*.
laminated envelope structure for, P 2518*c*.
luminescent substances for—see *Luminescent substances*.
for measurement of Townsend coeffs., 6906*e*.
melting points of alloys, ceramic materials and metals for, 49*g*.
molybdenum in, 3758*e*.
painting (electrostatic) of, 2523*h*.
from porcelain, 4439*a*.
for radar, $Cd_2P_2O_7$ phosphor for targets of, P 6518*b*.
raw materials for, sources of, 5708*d*.
review on, 4525*i*.
secondary-electron-emission, BeO on polished electrodes of, 2482*d*.
thyratron contg. H, 4941*f*.
thyratrons in electrolytic polishing of magnetic materials, 5354*h*.
transient (pos.-ion) in Townsend, 4091*g*.

**Electroösmosis.** See *Osmosis*.

**Electroöxidation.** See *Oxidation*.

**Electrophoresis** (*cataphoresis*). (See also *Electrodeposition; Electrokinetics; Iontophoresis; Osmosis.*)
alk. earth complex demonstration by, 4970*f*.
app. for, 448*c*, 2668*c*, 2822*i*.
of bile (bovine), 2204*c*.
of blood during regeneration after phlebotomy, 7112*g*.
of blood plasma and blood serum of lambs and sheep, 9204*h*.
of blood-plasma proteins in disease, 5856*i*.
in pneumococcic infections, 2305*g*.
variation with isoelectric points, 3860*f*.
of blood-plasma proteoses, 2304*a*.
of blood proteins, of normal and diseased patients, 1453*i*.
of blood-serum albumin, 3863*c*.
of blood serum, effect of disease on ante- and post-mortem, 6691*f*.
effect of reciprocal steroid treatment on, 8034*e*.
in *Leishmania donovani* infection, 4757*h*.
of normal and hypoproteinemic swine, 2293*g*.
after removal of lipides, 3052*i*.
in rheumatoid arthritis, 5487*h*.
in typhus fever, 5855*c*.
of blood-serum γ-globulins, 1071*i*, 5107*g*.
of blood-serum proteins in mothers and young during pregnancy and lactation, 4744*e*.
of blood-serum proteins of blood dyscrasias, 4758*a*.
of Buna S latex, 2013*g*.
in calcium chloride diffusion in aq. solns., 8806*d*.
of caramel solns., 7781*c*
of cerebrospinal fluid proteins in inflammatory diseases of nervous system, 9235*a*.
of chymotrypsinogen B and chymotrypsin B, 9118*a*.
of clay, 6091*f*.
of clay, colloid content and, 2070*b*.
of collagen (modified), 8184*d*.
of colostrum, 2264*d*.
compensating device in, electrolytic injector as, 3265*f*.
of egg white, 9110*b*.
of gum jeol solns., 2797*f*.
ion hydration and, 6493*c*.
of lactoglobulin and serum albumin, effect of binding by salt ions on, 3860*h*.
liquid pretreatment for treatment by, P 8290*b*.
of lymphoid tissue and thymus gland, 3049*a*.
of magnesium dust in hydrocarbons, app. for, P 7*h*.
marking of meniscuses and measurement of cond. in diagrams in, 2876*i*.
measurement of, of proteins, 2487*c*.
membrane, relation to bioelec. polarization effects, 4923*i*.
of metaphosphates, 2070*d*.
of myoglobin of whales, 6248*d*.
of myosin, 3866*c*.
of ovalbumin, 5433*c*.
of pea proteins, 7065*e*.
of phosphate tailing for dewatering, 8905*f*.
of plakalbumin, 5065*c*.
protein fractionation by, and app. therefor, 7071*e*.
of protein peptic digestion products, 6250*d*.
of proteins from bark of black locust in relation to frost hardiness, 9167*g*.
of proteins, homogeneity and, 2247*b*.
reviews on, 1619*c*, 2071*i*, 3265*e*, 8800*g*.
sedimentation balancing by, in ultracentrifuge, 4066*f*.
of sericin sol, pH and, 853*e*.
of silkworm eggs infected with silkworm jaundice virus, 6747*a*.
surface-cond. effect in, 7778*ab*.
of synovial fluid, 9202*b*.
of tobacco-mosaic-virus reaction product with HCHO, 9168*h*.
of tobacco-mosaic-virus strains, 9178*b*.
utilization of, at 20°, 2660*d*.

**Electrophotoluminescence.** See *Luminescence*.

**Electrophotometers.** See *Photometers*.

**Electrophotometry.** See *Photometry*.

**Electroplated ware,** heat-treatment of, app. for, P 4210*i*.
quality of, judging of, 8901*f*.

**Electroplating.** (See also *Electrodeposition;* and the various metals used in electroplating as *Chromium, Nickel* and *Silver;* as well as their alloys, as *Brass, Nickel alloys* and *Zinc alloys.*)
adsorption and, 7351*i*.
with alloys from cyanide baths, 1208*i*.
on aluminum, 8903*g*.
on aluminum and Al alloys, pretreatment for, P 4588*d*.
on aluminum for aircraft components, 7833*c*.
analysis (spectrochem.) of metals and solns. in, 8901*h*.
app. for—see also *Cells, electrolytic*.
app. for, P 509*c*.
app. for, maintenance of, 2099*b*.
on automotive hardware, 6089*h*.
barrel, 2098*i*.
basis-metal effect on, 4148*c*.
baths or solns. for, analysis and control of cyanide, 7351*i*.
analysis of, 961*g*.
basic component detn. in, 6039*d*.
carbonate removal from cyanide, 6520*g*.
colorimetric analysis of, 8903*i*.
detn of impurities in, 2893*e*, 4148*f*, 8904*a*.
effect of impurities and purif. of, 2098*gh*.
nitrate removal from, 7833*i*.
on bearings, P 7896*a*.
on beryllium Cu alloy, 3727*h*.
books: and Anodising, 956*d*; Electrolytic Polishing and Bright Plating of Metals, 2102*b*, in Heat Treatment of Steel, 5317*d*.
bright, 46*i*
cleaning metals before, 8284*g*.
cleaning Zn and Zn alloys before, P 3299*g*.
control of, 1661*i*, 6089*h*, 7352*e*
on corrosion testing elements, P 7839*s*
on die cast trim of automobiles, 6524*a*
on dough mixers, effect on yeast fermented doughs, 4781*h*.
engineering planning in department for, 8907*h*.
generators for, 6024*g*.
in Germany, 4148*h*.
hazards and nuisances in, 2099*b*.
lab. for, 2098*g*.
on lead, 1705*c*.
on light metals, 9003*b*.
on machine tools, 6089*h*.
on magnesium alloys, 7399*h*.
on magnesium and Mg alloys, 4147*h*.
in magnesium industry, 3758*d*.
metal prepn. for, 94*h*.
on nonconductors, P 1274*b*, 8286*a*.
periodic-reversal, app. for, 2100*c*.
on pressed metal powder parts, 6924*h*.
pretreatment for, P 7358*g*.
on printing cylinders, P 7358*g*.
rack for, P 2524*h*, 8907*g*.
reversed-current, P 7838*i*.
rinsing in, 8907*a*.
-shop layout, 4148*g*.
on silicate cooking vessels, P 5166*l*.
on steel (stainless), 2100*c*.
on steel wire, 4583*f*.
on strip, app. for, P 6026*a*.
surface-active substances in, 1707*g*.
tanks in, heating of, 4583*c*.
throwing power in, 2099*df*, 7835*b*.
with uncommonly plated metals, 8904*c*.
vacuum tank for, P 4151*h*.
wastes from, disposal of, 4405*b*, 6090*c*.
disposal of cyanide, 6924*c*, 8903*g*.
electrolytic oxidation of cyanide, 6924*b*.
ion exchange in removal of toxic substances from, 4797*a*.
reduction of, 4796*i*.
stream pollution control activities and, 8079*i*.
treatment of, 3548*c*, 6344*g*, 6769*d*.
treatment of cyanide, P 3126*g*.
water pollution from, 8903*h*.
on wire forms and stampings, 8335*f*.

on zinc-base castings, 3727*a*, 7834*e*.
**Electroreduction**. See *Reduction*.
**Electroscopes**, for carbon$^{14}$ activities, 7757*d*.
quartz-fiber, for health protection from radioactivity, 7326*g*.
**Electrostatic screen**. See *Electric field*.
**Electrostriction**, of barium titanate ceramics, 2054*h*, 4067*a*.
in gases, heat transfer and, 6068*f*.
**Electrothermics**. See *Heating*.
**Electroviscosity**. See *Viscosity*.
**Electrum**, of Idaho (Custer Co.), 4607*g*.
**Eledone moschata**, active substances in posterior salivary glands of, 4387*c*.
**Elegas**. See *Sulfur fluoride*.
**Elektyl**. See *Sulfanilanilide, 4'-(dimethylsulfamyl)-*.
**Elemazulene**. See *Vetivazulene*.
**Elementary bodies**. See *Blood platelets; Viruses*.
**Elements**. (See also *Atoms; Isobars; Isotopes; Periodic system; Radioelements.*)
abundance of, 8761*d*.
calcn. of, 31*d*.
neutron capture process of formation and, 1648*h*, 2084*f*.
origin and, 8261*d*.
table of, 4095*c*.
in universe, 8856*a*.
of atomic no. 0—see *Neutrons*.
of atomic no. 4—see *Beryllium*.
of atomic no. 43—see *Technetium*.
of atomic no. 61—see *Promethium*
of atomic no. 71—see *Lutetium*.
of atomic no. 72—see *Hafnium*.
of atomic no. 75—see *Rhenium*.
of atomic no. 85—see *Astatine*.
of atomic no. 87—see *Francium*.
of atomic no. 91—see *Protactinium*.
of atomic no. 93—see *Neptunium*.
of atomic no. 94—see *Plutonium*.
of atomic no. 95—see *Americium*.
of atomic no. 96—see *Curium*.
atomic wts., between Ag and I, discrepancies between physically and chemically detd., 5230*h*.
books: Desintegracion atomica y nuevos elementos artificiales, 1661*c*; Trace, in Food, 2710*a*; Oxidation States of, and their Potentials in Aq. Solns., 2878*b*, Bibliography of the Literature on the Minor, and their Relation to Plant and Animal Nutrition, 3867*i*; Die Entwicklung der chemischen Elemente, 4582*b*, Kunstliche neue, 6922*g*.
concn. and dispersion in earth from oxidation-reduction reactions, 8096*c*.
density of solid, 2827*e*.
distribution of accessory, in pegmatites, 8993*c*.
in earth and universe, 2137*d*.
effect on polymorphism of Fe, 1636*c*.
elec. resistance of, temp. and, 2501*c*.
electrode potential and thickness of valence-electron atm of, 8911*a*.
equation of state of, based on generalized Fermi Thomas theory, 5240*f*.
formation of, by neutron capture, effect of nuclear stability on, 5277*h*.
frequency distribution of, 4526*g*.
genesis of, 7807*i*
geol. sources of commoner, 4102*f*.
of group III, systems with group III and group IV elements, 4058*i*.
heat capacities of, 3671*c*.
hypothesis of, 3709*b*.
of mass no. 10, nuclear spin of, 491*i*.
origin of, 2049*f*.
penetrating rays of, biol. effect of, 9093*e*.
prepn. and sepn. of, 2051*b*.
properties of, 2051*d*.
properties of metallic, regularities in, 4066*e*.
rare, in freshman chemistry, 6015*b*.
synthesis of, from He nuclei, 7809*a*.
trace or minor, in biogeochemistry, 3321*g*.
in Chilean nitrate, effect on sugar beets, 799*h*.
in coal, 8639*e*.
deficiency in soil, soil sickness and, 8081*d*.
detection and detn. in potable water, 3951*h*.
detn. in soils, 5802*c*.
effect on biocatalysts, 704*c*.
effect on feeding stuffs in containers, 1880*a*.
effect on vegetables, 799*g*, 1134*d*.
enzymes and, 9110*d*.
in free C, 3597*d*.
in fruits and vegetables, 9289*a*.
*trace or minor*, fungi and, 4339*b*.
in fungi nutrition, 9161*e*.
in Indian soils, 9311*h*.
interaction with vitamins and hormones, 3903*c*.
in life process, 6720*d*.
in mineral and thermal springs, significance and detn. of, 5889*b*.
in minerals, 2137*g*.
in minerals, concn. by org. addns., 2137*i*.
in nutrition, 733*e*, 3900*c*.
in petroleum, age and, 8654*g*.
in pineapple juice, Br as, 783*i*.
in plant respiration, 8459*c*.
in plants and animals, 7907*g*.
in plants and soils, 2347*f*.
response of Alyce clover, crimson clover and soybeans to, effect of liming on, 8593*c*.
for rice, soybeans and sugar cane, 6775*b*.
in sedimentary rocks of Germany, 8996*a*.
in soils, 5891*d*.
in Spanish foods of animal origin, 7602*d*.
in Spanish foods of vegetable origin, 4395*c*.
tests for truck crops, 9328*h*.
and their use in research and technology, 3324*f*
in water supplies, 7165*b*.
transition, properties of, 7762*b*.
transuranium, 3701*d*.
chemistry of, 8261*a*.
disintegration of, 4096*i*.
isotope no. in predicting properties of, 4554*h*.
valency of—see *Valency*.
**Elemi**, refining, with petroleum ether, 1993*g*.
**Elemic acid**. See *Elemolic acid*.
**Elemi oil** See *Oils*.
**α-Elemolic acid**, and derivs., 7463*e*.
——, **dihydro-***, 7463*e*.
**β-Elemolic acid**, 7463*f*.
——, **dihydro-***, 7463*f*.
**γ-Elemolic acid**, 7463*e*.
**Eleostearic acid**, acrolein formation from oxidized, 5971*i*.
α- and β-, compds. with acrylic esters, P 2034*d*.
α-, in mahaleb oil, 2791*f*.
α-, reaction product with acrolein, derivs. of, P 3039*e*.
in makita oils, 4031*g*.
in stillingia oil, 4026*i*.
——, **γ-oxo-**. See *Licanic acid*.
**Eleostearin**, in tung oil extd. by Krupp expeller, 4871*i*.
**Elephant grass**. See *Grasses*.
**Elephantiasis**, scroti, heparin and heparinocytes in, 3915*h*.
**Eleudron**. See *Sulfathiazole*.
**Eleusine**. See *Grasses; Millet*.
**Eigetol**. See "sodium deriv." under *o-Cresol, 4,6-dinitro-*.
**Elinvar**, elasticity of, temp. and, 7396*a*.
**Elityran**. See *Thyroglobulin*.
**Elixirs**, aromatic, 5533*g*.
folic acid-contg., 355*h*.
**Elkosin**. See *Sulfanilamide, N$^1$-(2,6-dimethyl-4-pyrimidyl)-*.
**Elliptone**, spectra and toxicity of, 3966*g*.
**Elms** and(or) **Ulmus**, bark-beetle control in, 4417*c*, 7629*h*.
Dutch blight of, control of, 7629*h*, 9350*a*.
fungus control on, 7178*h*.
reaction of English, with $HNO_3$, film-forming resin by, P 5206*d*.
sawdust, pH of, and its mixts. with soil, 3130*c*.
tannins from *Ulmus japonica*, 889*f*.
wood of—see *Wood*.
**Elodea canadensis**, chloroplast structure and chlorophyll in, 8011*g*.
effect of pH of cell sap and environment on urea uptake by, 5829*i*.
salts in, with advancing age, plasmolysis form in relation to, 5089*e*.
**Elon**. See *Metol*.
**Elongation**, measurement of, of leather, 4503*g*.
**Eloxal**. See "coatings" under *Aluminum*.
**Elution**, calcn. of, for adsorption and ion exchange in flow systems, 464*i*.
**Elymus**. See *Grasses*.
**Embden ester**. See *Glucose phosphates*.
**Embedding materials**, butyl methacrylate as, in leather microscopy, 9510*h*.
from siloxane copolymers, P 1221*b*.
**Embelia kilimandscharica**, embelin in, 1838*f*.
**Embelic acid**. See *Embelin*.
**Embelin** (*3-hendecyl-2,5-dihydroxy-p-quinone*), derivs., 9047*h*.
in Myrsinaceae, 1838*e*.
**Embolism**, air, fat and, 1479*c*.
blood-platelet adhesiveness in, 9227*i*.
from cholesterol, 1479*d*.
dicumarol prophylaxis against, after surgery, 4384*b*.
fat, from bone marrow curettage, effect of choline chloride on, 4768*g*.
lung, effect on action potential of inferior right cardiac nerve, 4763*c*.
**Embrocations**. See *Lotions*.
**Embryos**. (*For embryos of plants and seeds see* Cereals; Grains; Plants; *and the specific plants and seeds as* Corn and Wheat.)
adenosinetriphosphatase activity and glycolysis of homogenates of, 9090*e*.
adenosinetriphosphatase in development of, 5477*d*.
affinity for porphyrins and metalloporphyrins, 749*b*.
*p*-aminobenzoic acid effect on, of *Paracentrotus lividus*, 9269*c*.
blood sugar of, during normal birth and prolonged parturition, 8030*i*.
*Brucella* infection in chick, aureomycin in treatment of, 7589*a*.
*Brucella* infection in chick, therapy of, 1113*e*.
calcium deposition in femora of, effect of estradiol benzoate on, 7579*f*.
carbohydrate metabolism of hybrid and normal amphibian, 3531*a*.
carbonic anhydrase in central nervous system of, 4747*d*.
cold effect on insect, 6748*a*.
copper distribution during development of, 3531*c*.
copper in organs of, after administration to mother, 9208*d*.
copper, Fe and Pb in liver of lamb, 4301*c*.
copper (radioactive) in, after injection, 1445*d*.
cytochrome oxidase accumulation in chick, 4712*d*.
deformities in chick from biotin and insulin, 8466*e*
dicoumarol effect on liver and spleen of, 761*a*.
differentiation in, of amphibian, 3530*b*.
of ascidian, apyrase activity and, 5124*a*.
physiology of, 5467*a*.
effect of benzopyrene and methylcholanthrene on, 3516*e*.
effect of desoxypyridoxine and vitamin $B_6$ on development of, 6293*g*.
effect of folic acid, 4-aminofolic acid and related substances on chick, 9186*g*.
ephedrine effect on blood sugar in chick, 5868*i*.
erythropoietins in blood plasma from sheep, 8504*d*.
folic acid antagonists and chick, 7097*b*.
genital tracts of chick, effect of bisdehydrodoisynolic acid on, 1474*c*.
glycogen in liver of, effect of decapitation on, 7104*e*.
hemoglobin in human, 3904*g*.
hemoglobin of sheep, 4360*h*.
hemoglobin specificity of cattle, 1850*c*.
hemopoiesis in chick, effect of liver ext. and folic acid on, 3869*a*, 9131*e*.
hypophysis of, adrenotropin production by, 295*d*.
hypophysis of, diabetogenic activity of, 1854*b*.
indicator oxidation in *Triturus*, during development, 3530*f*.
insulin action on chick, effect of adrenal cortical exts. on, 8033*h*.
insulin action on, effect of nicotinamide and α-ketoglutaric acid on, 4776*h*.
insulin micromelia in chick, hypoglycemia in, 3872*b*.
iodine 131 fixation by thyroid of, 7060*b*.
juice, calcification of cell cultures in presence of, 8409*b*.
of *Lymnaea*, 4778*a*.
malformations in, from pantothenic acid deficiency in maternal diet, 2683*a*.
metabolites in, in pigment synthesis, 745*b*.
mitosis and O consumption in brain of chick, effect of acridine compds. on, 7135*g*.
neoplasms in, 1103*i*.
nucleic acids in brain of chick, 3502*f*.
nucleic acids in, during development, 3502*h*.

nutritive requirements of early chick, 5465*c*.
organization in, 4710*g*.
organizer of, 3529*g*.
oxygen consumption of blocked and active cells of, effect of urea, thiourea, phenylthiourea and thiouracil on, 3938*i*.
oxygen consumption of blood of sheep, 7108*f*.
oxygen consumption (total) of, integration from that of tissues, 747*d*.
oxygen starvation of chick, at high altitudes, 9273*d*.
oxygen uptake of *Asterias*, before hatching, 4777*i*.
papillary muscles of heart of, effect of ouabain on, 2318*h*.
phosphatase in membranes of, 5466*d*.
phosphatase in retina of chick, 8495*a*.
phosphoprotein phosphatase in, 5471*h*.
phosphorus distribution in, 3913*h*.
phosphorus 32 incorporation into nucleoproteins and phosphoproteins of sea-urchin, 7063*i*.
potassium equil. in muscles of, effect of temp. on, 4751*f*.
protein metabolism of amphibian, 4389*c*.
reproductive system and comb of chick, effect of sex hormones on, 5478*f*.
respiration by cells of, effect of amino acids on, 2307*c*.
effect of diethyldithiocarbamate on, 2331*f*.
effect of urethan on, 774*f*.
salicylate toxicity to, 6316*e*.
sex differentiation in, effect of hormones on, 5478*e*.
sodium azide effect on frog, 8563*e*.
steroid effect on amphibian, 4388*c*.
sulfonamide effect on *Ambystoma*, 4388*h*.
thyroid development in chick, effect of thyroxine and iodinated casein on, 8482*b*.
thyroid gland of, effect of thiouracil given to mother on, 8543*i*.
thyroid gland of, growth of and accumulation of thyroxinelike and other I compds. in, 8493*i*.
thyroid size and incubation period of, from hens given thyroxine, thiouracil and thyroprotein, 8531*f*.
vitamin A stored by calf, utilization after birth, 9188*a*.
vitamin $B_1$ in hen, 7559*eg*.
vitamin E metabolism between placenta and, 1851*c*.

**Emelista**. See *Cassia*.

**Emeralds**. (See also *Beryl*.)
synthesis of, 4909*f*.

**Emery**, of Turkey, 1291*g*.

**Emery cloth** or **Emery paper**, manuf. of, app. for, P 4442*d*.

**Emetine**, amines from, 3378*c*.
biogenesis and structure of, 2623*d*.
bismuth iodide complex with, in amebiasis treatment, 3066*g*
camphorsulfonate, 7642*c*.
constitution of, 7492*e*.
decompn. in emetine Bi iodide, 1530*e*.
detn. in pharmaceuticals and injectable solns., 1908*b*.
distribution in tissue, 7592*b*.
effect on conjuctiva, 756*c*
on cornea, 8057*h*.
on *Endamoeba*, 8528*b*.
and related compds., 656*a*.
structure of, 2624*a*.
and derivs., 7194*d*.
review on, 5787*e*.
toxicity, distribution and excretion of, 1862*c*.
trichomoniasis therapy with, 1485*g*.

——, **dehydro-***, chloride, 656*a*.

——, **tetrahydrodehydro-***, and derivs., 656*a*.

**Emission**. See *Electrons; Neutrons; Radiation;* etc.

**Emissivity** (*thermal*). (See also "emission of" under *Light*.)
of iron (liquid), optical temp. scale and, 9004*e*.
of metals, 83*a*.
of refractories for radiant heating, 3170*c*.
of refractory materials, 9402*g*.
of titanium, 6070*b*.

**Emodin** (*1,3,8-trihydroxy-6-methylanthraquinone*), in drugs, 4810*i*.
in frangula, 4736*e*.
identification of drugs contg., 9366*c*.
in *Rheum officinale* rhizomes in relation to laxative action, 4765*b*.
in rhubarb, 8102*c*, 9883*i*.

**Emotion**. (See also *Fear*.)
blood changes caused by, 5846*e*.
brain metabolism in, 745*h*.
water diuresis and renal blood flow in relation to, 7115*h*.

**Empoasca fabae** and(or) **Potato leafhopper**, control of, 4413*h*, P 6358*d*.
control on alfalfa and peanuts, 807*i*.
on apple nursery stock, 1522*b*.
on beans, DDT in, 3967*d*.

**Empressite**, density and x-ray data on, 8982*g*.

**Empyema**, from *Nocardia asteroides*, 9230*h*.

**Emulgents**, synthetic, 2367*b*.

**Emulphor Oil soluble**, effect on wetting power of liquids for pigments, 8697*i*.

**Emulsept***, bactericidal action of, 3884*i*.

**Emulsification**. (See also *Dispersion; Sprays*.) 465*g*.
of *N*-alkoxypolyamides, P 5232*b*.
app. for, P 426*b*.
of hydrocarbons, P 3588*b*.
wetting of, type of emulsion formed and, 7776*c*.
of benzene, 4923*c*, 7297*d*.
of bitumens, 870*j*, P 4846*f*.
detergency and, 5975*i*.
without emulsifying agents, P 5516*i*
of esters of fatty acids and polyglycols with metallic soap emulsifiers, P 4876*h*.
of fat in intestines, 9197*i*
of hydrocarbon oils with peat alk ext., cleaning compn. by, P 3220*h*.
of lactalbumin, P 2375*h*.
of nitrocellulose, 1197*f*.
of olefins and paraffins with $H_2SO_4$ for alkylation, P 9430*f*.
of phenol-HCHO reaction mixts, acids and bases as catalysts in, 5223*h*
by ultrasonic waves, 5207*g*.

**Emulsifying agents**. (See also *Wetting agents*.)
alginic acid esters, P 4291*g*.
alkali metal oleates as, 7775*i*.
aluminum soaps, P 2452*f*.
amino alc. salts with hydroxy fatty acids, P 1053*b*.
amino propionate alkyl ester salts, P 5978*c*.
anhydrohexitols, P 4301*h*.
for asphalt, hydroxy fatty acid condensation products, P 5186*c*.
for bituminous materials, etc., hemicellulose soln. in NaOH, P 4846*b*.
for bituminous materials, rosin oil soap, P 4846*b*.
book: Pharmaceutical Emulsions and, 9388*b*.
cellulose methyl ether or Me glycol ether or Na salt of (carboxymethyl)cellulose as, P 6437*f*.
for copper-oil sprays, 9353*i*
for cosmetics, esters of (hydroxyalkoxy) compds., P 6663*g*.
for creams and ointments, 356*e*.
as 2,4-D activators, 805*i*.
detergents as, 4497*e*.
2,4-diamino-*s*-triazine derivs., P 699*h*.
for drilling fluids, lignosulfonic acid and its derivs. and sulfonated lignin as, P 8661*i*.
effect on viscosity of nitrocellulose lacquer emulsions, 5606*h*.
egg yolk as, testing of, 7248*c*.
fatty acid sulfoaryl hydrazides, P 251*i*.
films of, on emulsion droplets, 5256*h*.
for food industry, stearins as, 5971*h*.
gluten sulfate gels as, P 6332*e*.
glycerol mixed esters with fatty and hydroxy acids, P 9493*i*
glycol alginates, P 1557*g*.
for grease removal from pickled sheepskins, 4042*d*.
of hair-waving compn., P 8621*e*.
for hydrocarbon oils, sulfonic acids, P 3966*b*.
in ice-cream manuf., 9281*g*.
Igepal W, 883*e*.
for inks (intaglio), polyvinyl alcs. and their derivs. as, 2445*c*.
for leather and textiles, from sulfonated beeswax, sulfonated hydrocarbons and oxygenated hydrocarbons, P 1989*i*.
for medicinal substances for cutaneous use, 6363*a*.
milk (dehydrated or concd. skim) as, P 5909*b*.
*a*-monostearin and Na stearate and their mixts. as, 7725*b*.
for nitrocellulose lacquers, resinous products as, 5606*i*.
nonionic, 3219*b*, 7690*a*.
for ointments, 8609*i*.
for paints, $NH_4$ salt of dodecyl or octadecyl amides of bicyclo[2,2,1]-5-heptene-2,3-dicarboxylic acid, P 5205*f*.
in parasitology, 6699*g*.
phosphatase stabilization in dairy products by, 779*d*.
for polyethylene polysulfides, lignosulfonates, P 5992*f*.
polyhydric alc. reaction products with acids, P 8712*d*.
polymeric org. Si compds., P 9494*i*.
in polymerization, 438*i*.
of butadiene or isoprene or their mixts with styrene or chlorostyrenes in Buna S-3 system, alkylnaphthalenesulfonates as, 8189*b*.
of butadiene, Na or K salts of *l*-pimaric acid-maleic anhydride addn. product esters as, P 4508*a*.
of butadienes with vinyl compds., org. solns. of soaps as, P 5991*d*.
of butadienes with vinyl compds., Na terphenylsulfonate as, P 5991*e*.
of butadiene with methyl isopropenyl ketone, amine salts and Na salts of fat acids, resin acids and alkyl sulfates as, 5987*i*.
of butadiene with styrene, Na salts of, Et and Pr esters of *l*-pimaric acid-maleic anhydride addn. product as, 7252*h*.
of butadiene with vinyl compds., hydrogenated tallow soap as, P 5991*e*.
in GR-S rubber manuf., alkyl aromatic sulfonates as, 8725*c*.
in GR-S rubber manuf., resin acid soaps as, 8724*i*.
of vinyl compds., polyoxyalkylene sorbitan monostearate as, P 4896*b*
of vinyl hydrocarbons, hydroxytetrahydroabietic acid and rosin soaps as, P 896*h*.
quaternary ammonium compds., P 4430, P 7729*c*.
quaternary ammonium nitrates, P 667*e*
removal from vinyl chloride polymers, P 5231*a*.
salts of long-chain carboxylic acids, P 670*h*
for soap (Ca), guanamine derivs., P 5216*d*/*g*.
for soap (Ca), palmitoyl-*o*-tolylhydrazide Na sulfonate, P 4498*f*.
sulfated ethanolamides, P 2004*d*
sulfoaryl hydrazides of fatty acids, P 7955*a*.
sulfonated (alkylaryl), rancid-odor inhibition in mixed stored, P 6845*a*, P 6846*a*
sulfonated 3-heptadecyl-5-methyl-4-phenyl-1,2,4,1*H*-triazole, P 7730.
sulfonated sulfolanyl sulfones, P 2238*d*
sulfonates (hydroaromatic), P 1562*i*
4-sulfophthalic acid diester with *N*,*N*-hydroxyethyl stearamide and its $NH_4$ salt, P 4878*d*.
4-sulfophthalic acid esters salts, P 5123*e*
sulfuric acid esters with guanidine derivs., P 4499*b*.
for textile industry, qual. analysis of, 1584*i*.
thioglycol esters, P 3062*b*.
in titrating immiscible $CCl_4$ exts. with NaOH solns., 6537*g*.

**Emulsin**, adsorption by yeast, 8003*e*

**Emulsions** (See also *Colloids; Dispersed systems*.)
adhesive, for spinning glass wool, 1435*h*
adhesive, in food industry, 5507*h*
antiseptic efficiency in water-in-oil, effect of water on, 5533*b*.
asphaltic, P 5186*c*.
flow of, and effect of centrifuging on, 2420*d*.
for ground fixation, P 4828*d*
org. polyphosphate-contg., P 4815*a*
bacteriostatic, Ensol and chloramine in, 3561*i*.
of bentonite with fats and oils for leather dressing, P 1206*h*.
bituminous, forming nonre-emulsifiable films, P 5186*g*.
for road building, 2446*b*.
rosin oil soap-emulsified, P 4816*b*
breaking —see also "sepn." under *Water*.
breaking, P 8758*g*.
acid esters of polycarboxylic acids with 9,11-linoleodiricinoleïn dimer for, P 675*e*.
with acylated derivs. of basic amino alcs., P 5937*g*.
app. for, P 7274*c*, P 8760*b*
$CaCl_2$, $FeSO_4$ and $H_2SO_4$ in, 3125*f*.

**breaking**, in penicillin extn., hexadecyltrimethylammonium bromide for, I 2742*c*.
**breaking fuel oil-sea water, with deter gents, 3178*g*.**
**breaking lubricating-oil, 3183*c*.**
**breaking petroleum, 1553*c*, P 1557*bca*, P 1955*a*, 2758*e*.**
**agents from petroleum acid sludge for, 3996*e*.**
**with amine soaps, P 3186*c*.**
**app. for, P 385*h*, P 7221*i*.**
**carbonic acid amides of glyoxalidines for, P 9427*a*.**
**with cation-active polychlorides, P 5180*bg*.**
**diglycolic acid esters for, P 843*d*.**
**diglycolic acid mixed esters for, P 1955*d*.**
**esters of (hydroxyalkoxy) compds. for, P 6663*g*.**
**with hydroxy alkylated oxidized castor oil-oiticica oil condensate, P 6818*f*.**
**with oxyalkylated, oxidized and hydroxylated polyethylenic acids and their glycerides, P 7221*i*.**
**with polychlorides, P 6818*d*.**
**regenerating sand and gravel bed for, P 7076*g*.**
**with salts of sulfonated cyclic terpenes, P 3186*e*.**
with ultrasonic waves, 8577*h*.
breaking polymer, with nitrites, P 5232*e*
breaking sulfonated hydrocarbon-oil, P 5938*i*.
breaking water-gas tar and oil-gas tar, P 4451*f*.
breaking wood-tar, P 9121*a*
of butadiene polymers and melamine- or urea-HCHO resins for wool proofing against felting, fulling and shrinking, P 5602*c*.
of butadiene polymers (oxidized) and alkyd resins from textile fiber treatment, P 6859*e*
of carnauba wax, waxing rubber goods with, P 2803*b*.
for coatings for fresh frozen meats, P 3540*f*.
coloring and stabilizing water-in-oil, by dyes, 5975*g*.
of conducting drops, dielec const elec. cond. of, 7776*h*.
cosmetic—see *Cosmetics*
cracking atomized, of petroleum etc , I 3187*i*.
crit. dispersity of concd , 7776*c*
detergency of, colloid-chem. processes in, 2793*c*.
dry-cleaning, P 4022*b*.
of elastomeric, resinous and organosilicon polymers for waterproofing of leather, 8185*e*.
elec oscillations in, 7776*g*.
emulsifier films on droplets of, 5250*h*.
engine corrosion by, in lubricating oils, 2564*g*.
essential-oil-disinfectant, 9364*i*.
ethylene-polymer, P 1222*h*.
ethylene-polymer, for fabric coating and impregnation, P 4869*e*.
of ethylene(poly-) polysulfides, P 5992*e*.
fat, for intravenous feeding, 5098*b*.
for fat liquoring of chrome leathers, 3223*c*.
of fats, oils, etc., emulsified by cellulose Me ethers and Na salt of (carboxymethyl)cellulose, nonfrothing stable, P 6437*e*.
from fish albumin in leather polishes, 5018*b*.
of foaming-preventing agents for lubrication oils, 3602*i*.
formation in soap manuf., prevention of, P 1586*i*.
fuel—see *Fuels*.
fungicidal—see *Fungicides*.
gelatin, for screen printing, improving resistance to alkalies and water, 9455*a*.
gelatinized, 6884*b*.
gelatinized, of $C_6H_5$ and alkali metal oleate solns., 7775*i*.
glycol alginate-emulsified, P 1557*f*.
of glycol diesters, P 9533*g*.
of growth substances and paraffin waxes or lanolin in reduction of scald on fruit, P 330*h*.
of gums, glues or starches with kerosene or perfume for coating soap particles, P 1587*b*.
homatropine, therapeutic effect of, 8093*e*.
homogenization of concd., 7775*h*.
of hydrocarbon waxes for sizing textiles, P 2444*d*.
ink—see *Ink*.
insecticidal—see *Insecticides*.
intravenous infusion of, effect on blood, 1487*h*.
lacquer—see *Lacquers*.
of lecithin for leather industry, 5220*h*.
lipoid, P 1913*c*.
lubricant—see *Lubricants*.
of melamine-HCHO and phthalic-glyceride resin mixts., P 6434*c*.
naphthenic, for defatting hides, effect of electrolytes on, 6447*i*.
paint—see *Paint*.
of paraffin oil and water contg α-mono stearin and Na stearate and their phase sepn , 7725*d*.
of paraffins as water- and weather-proofing agents for fibers, 3623*g*.
of paraffin wax oily stock, prepn. and cryst. wax sepn. from, 5581*e*.
paraffin wax particle size measurement and correlation of gloss and stability of, 9491*f*.
pharmaceutical—see *Pharmaceuticals*
photographic—see *Photography*.
polymerization in—see *Polymerization*
of polymers, coagulation of, P 5635*g*.
of polysulfides, P 4876*i*.
saponification, 8795*a*.
silicon trihalide-, triethoxy deriv - of tripolyglycol ester-emulsified oil, I 9494*h*.
size—see *Sizes*.
spray—see *Sprays*.
stability of, in metal cleansing, 1705*a*
starch oxidation products for, P 7244*i*
structure of transparent, 18*c*.
tar, manuf. of, P 5171*h*.
for textile printing, from pigment dispersion in rubber soln and urea-HCHO protein dispersion, P 1990*h*.
theory of, 5250*f*.
of thermosetting plastics, P 6000*e*.
thickening solns for, P 4898*h*
of thiols (aromatic) for butadiene styrene polymer improvement, P 7258*b*
type of, elec. current in detn. of, 7290*e*.
factors affecting, 2072*a*
wetting of container and, 7776*b*.
from unsatd. polyesters with vinyl monomers, P 7264*f*.
vinyl acetate-polymer, P 7267*a*.
vinyl acetate-polymer, contg chromates, P 6001*d*
vinyl halide-polymer, P 5635*d*.
of vitamins and oil with glycerol, P 3572*g*.
water detn. in, 9374*e*.
waxes, sprout growth inhibition on potatoes with, P 7160*d*.
of waxes with salts of abietate maleic anhydride resin, P 9495*a*.
**Enameled ware**, acid resistance of, detn of, 8115*b*.
cleaning compns. for, P 3640*c*.
defects in, 1934*d*.
iron for, detn. of Ni on, 9406*i*.
sheeting, P 5566*g*.
stresses (residual) in, 830*f*.
welding of, 987*c*.
**Enameling**, 3585*f*.
of aluminum alloy, 7205*d*
app for, of thin sheets without impairing tensile strength, P 7240*d*.
of cast steel in chemical-equipment industry, 9407*b*.
fluorosis of farm animals from, 3508*h*.
furnaces for, instrumentation for measuring temp. in, 6802*c*.
furnaces for, operation of gas-fired, 3585*h*.
glycerol in, 9482*c*.
iron oxide pigments for, 8697*d*.
iron *vs.* steel for, 7205*e*.
of light metals, P 5001*g*.
of nameplates, 372*h*, 2302*h*.
oven for, conversion from producer-gas heated to coke-oven gas, 6394*i*.
steel for, 7650*i*.
steel for, pretreatment for, to avoid gas formation, P 1936*d*.
of titanium steel, 1934*d*, 5917*d*, 7206*a*.
**Enamels**. (See also *Coating(s); Glazes; Lacquers; Paint.*) P 6804*e*.
adherence of blue sheet-Fe ground coats, detn. of, 5165*b*.
for aluminum, 7205*d*, 7656*h*.
color of, effect of electrolytes on, 9406*g*.
in corrosion protection of ferrous metal, 6962*h*.
defects in, detection of, 3579*e*, 6802*e*.
finish of, evaluation of, by replicas, 5165*c*.
frits for—see *Frits*.
history of, 9406*g*.
for light metals, P 5001*g*.
lithium compds. in, 1544*a*.
mat-surface, P 5920*d*.
for metal-film resistors, P 4442*h*.
mottled, marblelike, 6802*c*.
for nails (finger and toe)—see *Nails (finger and toe)*.
opacification of, P 5566*f*, P 6804*e*.
opacifiers in, antimonates as, 2392*g*
pigments (Fe oxide) for, 5201*c*.
for railroad-signaling equipment, 3585*f*.
reaction with Fe, 2749*b*.
removal of, 5564*g*.
solder glasses, 3162*f*.
surface tension of, 1544*a*.
of teeth—see *Teeth*.
texture of, detn. of, 7656*h*.
titanium, contg. Li compds., 7206*b*.
decolorization with $MoO_3$, 2749*a*.
effect of $Li_2O$, $K_2O$ and $Na_2O$ on, 4439*c*.
review on, 2749*a*.
for titanium steel, 5917*d*.
weather resistance of, 2392*h*, 4430*b*.
**Enanthaldehydo**, acylhydrazonest, 6972*beh*, 6973*bei*.
compds. with amine bisulfites, 3350*c*.
decompn. of, 7-tridecanol formation in, 1715*d*.
formation in autoxidation of peanut oil, 5972*i*.
hydrazone, reaction with $N_2H_4.H_2O$ (attempted), 123*c*.
identification of, 3003*c*.
3-methoxypropylene cyclic acetal—see *1,3-Dioxolane, 2-hexyl-4-(methoxymethyl)-*.
polymerization of, 3791*a*.
in racemization of, 2-methyl-1-butanol, 4215*c*.
rancidity and, 3217*c*.
reaction with HCHO, 6576*a*.
reaction with olefins, 4637*b*.
solubilization of, with Na secondary alkyl sulfates, 466*a*
system: $C_7H_{15}OH$–, f.p. compn. of, 5740*c*.
**Enanthaldehyde, α-bromo-**, diethyl acetal, 3791*a*
——, **α-hydroxy-**, oxidation-reduction of, 3790*i*
**Enanthamide**, manuf. of, P 2233*d*, P 3028*a*.
prepn on, 3774*e*.
reaction with 5-chloro- and 3,5-dichlorosalicylaldehydes, 6182*c*.
reaction with cinnamaldehyde, 2600*g*.
——, **α-amyl-α-butyl-**, 568*f*.
——, ***N*-(5-chlorosalicylidene)-**, 6182*d*.
——, ***N*, *N'*-cinnamylidenebis-**, 2600*g*.
——, **α,α-diamyl-**, 568*f*.
——, ***N*, *N'*-(3,5-dichlorosalicylidene)-bis-**, 6182*e*.
——, **α,ε-dimethyl-**, 2586*b*.
——, **α-(*N*-ethylacetamido)-*N*, *N*-dimethyl-**, P 251*b*.
——, **α-ethylamino-*N*, *N*-dimethyl-**, P 251*b*.
——, ***N*, *N'*-(3-propylpropylidene)bis-**, 2601*a*.
**Enanthic acid** (*heptanoic acid*), adsorption by active carbons from phenol-aldehyde resins, 6037*c*.
adsorption by active C, structure of C and, 7289*d*.
antibacterial activity of, 3879*h*.
benzylamine salt, 3351*f*.
erythrocyte penetration and hemolysis by, 8502*b*.
ester (tri-) with 2-amyl-2-(hydroxymethyl)-1,3-propanediol, 6578*c*.
ester with 2-chloroallyl lactate, P 5037*a*.
ester with methyl salicylate, P 4701*i*.
ethyl ester, formation from ethyl oleate oxidation, 3612*a*.
ethyl ester, kinetics of, 7418*e*.
fatty-acid adsorption by, effect of ultrasonic waves on, 7774*g*.
foams, 2841*h*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 5654.
manuf. of, P 2632*g*.
methyl ester, 2590*d*.
and 1-methylheptyl ester, formation in pyrolysis of 2-octanol nitrite, 3779*b*.
from 5-oxoenanthic acid, 3792*c*.
phys. constants of, 2950*b*.
potassium salt, solubilities of alcs. in, 6041*d*.
prepn. of, 3774*e*.
surface tension of aq., 8797*f*.
**Enanthic acid, α-acetyl-**, ethyl ester, cyanoethylation of, P 4689*h*.
——, **α-acetyl-α-(2-cyanoethyl)-**, ethyl ester, P 4689*h*.
——, **α-acetyl-α,ε-dimethyl-**, ethyl ester (omitted from abstr.), 7911*f*.

—, α-acetyl-ζ-dimethylamino-δ-oxo-, ethyl ester, oxalate, 7432g.
—, α-acetyl-ε-methyl-, ethyl ester (omitted from abstr.), 7911f.
—, α-amino-, DL-, 4223b.
—, ζ-amino-, lactam—see *Heptamethylenimine, 2-oxo-*.
—, α-amino-α-amyl-, 1323a.
—, α-amyl-α-butyl-, 568h.
—, ζ-benzoyl-, and semicarbazone, 3366g.
—, γ-benzoyl-γ-ethyl-, 2932a.
—, γ-benzyl-γ-ethyl-, 2932b.
—, α-(carboxymethylmercapto)-ζ-phenoxy-, and diethyl ester, P 7504g.
—, ζ-chloro-, *p*-phenylphenacyl ester, 109g.
—, ζ-(chloroformyl)-α-methyl-, ethyl ester, 1381d.
—, ζ-chloro-ε-oxo-, ethyl ester, 7905a.
—, α-cyano-, hydrazides and other derivs., 4222f.
—, α,γ-diamino-, and hydrochloride, 5005d.
—, α,α-diamyl-, 568h.
—, α,γ-dibenzamido-, 5006b.
——, α,α-dimethyl-, 2-diethylaminoethyl ester, P 3443h.
——, α,ε-dimethyl-, 1335c, 2586b.
——, γ, δ(and γ,ε)-dimethyl-, 1373i.
——, α,α-dimethyl-ε-oxo-. See *Geronic acid*.
——, β-ethyl-, triglyceride, metabolism of, 6165g.
——, β-ethyl-γ-methyl-, 1374b.
——, α-hydroxy-, 3791b.
——, ε-hydroxy-, ethyl ester, 2176a. hydrazide and ε-lactone, 8358h.
——, ε-hydroxy-α,γ-dioxo-, ethyl ester, 1406g.
——, γ-hydroxy-β-methyl-, derivs., 4254f.
——, γ-hydroxy-ε-methyl-, γ-lactone, 3786e.
——, β-hydroxy-β-methyl-δ-oxo-, β-lactone, P 1055i.
——, β-hydroxy-β-methyl-ε-oxo-, β-lactone, P 1056b.
——, ζ-mercapto-, esters (mixed), P 4290d.
—, α-methoxy-, and bismuth salts, 2488i.
——, β-methyl-γ-oxo-, 4254g.
——, γ-methyl-β-oxo-, (+)-, methyl ester, 6160d.
——, ε-methyl-γ-oxo-, and semicarbazone, 6625b.
——, ε-methyl-δ-oxo-γ-phenyl-, 2932c.
——, ζ-naphthyl-. See *Naphthalene enanthic acid*.
——, δ-oxo-, reduction of, 3792b.
——, ε-oxo-, 2173f, 2174g.
——, β-oxo-ζ-phenyl-, ethyl ester, 3392i, 3393a.
——, β,β′-oxydi-, P 5037e.
——, β-phenyl-. See *Hydrocinnamic acid, β-hutyl-*.
——, γ-propyl-, 1374b. and triglyceride, 6165d.
——, ζ-thenoyl-. See *Thiophenecaprylic acid, η-oxo-*.
——, thiol-, benzyl ester, hydrogenation of, P 3445c.

**iso-Enanthic acid.** See *Isoenanthic acid.*

**Enanthole.** See *Enanthaldehyde.*

**2-Enanthonaphthone** (*hexyl 2-naphthyl ketone*), 9424f.

——, 5,6,7,8-tetrahydro-, 9424f.

**Enanthonitrile,** phys. consts. of, 2592b.

——, α-amino-β-ethyl-, and hydrochloride, 3409i.

——, α-amyl-α-butyl-, 568d.

——, α,α′-azobis[α-methyl-, decompn. kinetics of, 3354g.

——, α-butyryl-γ-oxo-, 2938f.

——, α,β-diamyl-, 568d.

——, α,ε-dimethyl-, 1335c.

——, β-ethyl-α-hydroxy-, 3409h.

——, ε-methyl-γ-oxo-, and semicarbazone, 6625b.

——, ε-methyl-δ-oxo-γ-phenyl-, 2932c.

——, γ-propyl-, 6165d.

**Enanthophenone** (*hexyl phenyl ketone*), 2,4-dinitrophenylhydrazone, 6991b.

——, 2,5-dimethyl-, 6090g.

**Enanthotoxin,** from *Oenanthe crocata*, 6368b.

**Enanthyl chloride,** α,ε-dimethyl-, 2586b.

——, β,γ(γ, δ and γ,ε)-dimethyl-, 1373i.

——, γ-propyl-, 1374b.

**iso-Enanthyl chloride.** See *Isoenanthyl chloride.*

**Enanthylic acid.** See *Enanthic acid.*

**enantiomers.** See "stereo-" under *Isomers.* (See also *Allotropy; Isomerism.*)

of ammonium acid malate, 8762d.
of crystals, 7770b.
theory of, 6482a.

**Enargite,** 6543d.
of Idaho (Boise Basin), 4981d.

**Encephalartos altensteinii,** lignins in, 2283b.

**Encephalitis,** cholinesterase in blood in, 5857f.
from corneal inoculation of hyaluronidase-treated rabbits, 5857i.
Darvisul in treatment of, 5496h.
post-vaccinal, 3916f.

**Encephalomyelitis,** blood in equine, 7122e.
meningo-, pyribenzamine in beeswax in protection against, 1113c.
virus (mengo) of, 4757de.

**Enchresy,** the term, 1637i.

**Enchytraeidae,** insecticide toxicity to, 2728f.

**Enchytraeus,** control of, 9354a.

**Encyclopedias,** books: Modern Drug, and Therapeutic Index, 1158a; of Chem. Technology, 4791b.

**Endamoeba histolytica.** (See also *Entamebiasis.*)
effect of exts. of *Jacaranda decurrens, Nectandra pichury* and *Simaruba officinalis* on, 8550f.
phosphatase in, 270a.
therapy of infection by, 9265g.

**End body** or **End piece.** See *Complement.*

**Endellite,** of Indiana (Gardner Mine Ridge), 3751d.
the name, 2130b.
thermal analysis of, 8987h.

**Endive,** calcium in, utilization by rats, 288c.
germination of, effect of *Digitalis* ext. on, 5829e.
photosynthesis by, 2281i.

**Endocardiograms.** See *Heart.*

**Endocarditis,** glutathione in blood in, 3093g.
sodium salicylate in treatment of, 1105g.

**Endochin.** See *4-(Quinolinol, 3-hepty-7-methoxy-2-methyl-.*

**Endocrine glands.** See *Glands;* and the specific glands, as *Adrenal glands.*

**Endocrinology,** books: Essentials of Gynecologic, 3915b; Practice of, 3915b.

**Endoenzymes.** See *Enzymes.*

**Endoethylenecyclopentane.** See *Norcamphane.*

——, 1,2,3,6-tetrahydro-. See *Bicyclo-[2.2.1]-6-heptene-2-carboxylic acid.*

**3,6 - Endomethylenecyclohexane - 1,2-dicarboximide.** See *2,3-Norcamphanedicarboximide.*

**3,6 - Endomethylene - 4 - cyclohexene-1,2-dicarboximide.** See *Bicyclo-[2 2.1]-5-heptene-2,3-dicarboximide.*

**3,6-Endomethylenephthalimide, hexahydro-.** See *2,3-Norcamphanedicarboximide.*

——, 1,2,3,6-tetrahydro-. See *Bicyclo-[2 2.1]-5-heptene-2,3-dicarboximide.*

**1,5 - Endomethylene - 1,3,5,7 - tetrasacyclooctane.** See *1,3,5,7-Tetrasabicyclo[3.3.1]nonane.*

**Endomyces,** *magnusii,* effect of biotin and vitamin $B_1$ on catalase activity of, 7081c.
*vernalis,* fat formation by, 6361g.

**Endomycopsis fibuliger,** amylase of, 3857c.

**Endomycoarditis,** glutathione in blood in, 3093g.

**1,4 - Endo - *o* - phenylenenaphthalene, 1,2,3,4-tetrahydro-.** See *9,10-Ethanoanthracene, 9,10-dihydro-.*

**Endoseptale®,** effect on Na salicylate in blood, 9242i.

**Endosmosis.** See *Osmosis.*

**Endo - 9,10 - (α,β - succinic anhydride)-anthracene.** See *9,10-Ethanoanthracene - 11,12 - dicarboxylic anhydride, 9,10-dihydro-.*

**Endothelial reticular system.** See *Reticulo-endothelial system.*

**Endothelium** granulopexy of, histamine and, 4766e.
histamine effect on, 3108e.

**Endotoxins.** See *Toxins.*

**Enemas,** glycols as substitutes for glycerol in, 3147h.

**Energy.** (See also *Electric energy; Heat; Power; Quantum theory; Work;* and such headings as *Heat of activation.*)
-absorbing ability of carpets, measurement of, 5957g.
absorption of, of high-frequency currents in ionized H, 480f.
of alpha-rays, half-life of elements and, 4125e.
atomic, 1255c, 2083h, 5277e, 5659ef, 6914h, 7319bc.
*atomic,* British research on, 8261c.
dentistry and, 9100h.
fire protection and, 7688c.
independence of release of, from surrounding atm. conditions, 4091f.
international situation and, 6914i.
lecture demonstration of, 2501h.
minerals—see *Minerals; Uranium ores;* etc.
power production and, 2856i.
production of, in combination chem. fuel for rockets, 5664f.
radioactivity and, 3285g.
for ramjet propulsion, 4828h.
rubber in production of, 7740i.
teacher coöperation with Atomic Energy Commission, 1619b.
in therapeutics, 3524b.
of beryllium nucleus in virtual excited state, 1646f.
of beta-rays from $He^6$ and $H^3$, 5293d.
of binary alloys, 7770g.
binding, abundance ratio of isotopes and, 6071i.
of α-particles in at. nuclei, 3702i, 8863i.
of at. nuclei, 3702d, 8869e.
of deuterons, 1259h, 7329b, 8862b
of elements contg. approx 82 protons and 126 neutrons, 8844g.
of isotopes of Br, Cr, Fe and Zn, 4129h.
of mesomeric ions, 5241e.
of neutrons and protons in region of Pb, 5297g.
of neutrons in Ni isotopes, 4130c.
of self-trapped electrons in KCl, 4096a.
of self-trapped electrons in NaCl, 1641c.
of triton, tensor forces and, 4096d, 5278f.
of Bloch wave in metal, calcn. of, 8784g
bond —see *Bonds, Double bonds.*
books: Atomenergie, 500b, Young People's Book of At., 948b, Énergie atomique, 1266e, 5314f, 6922f, 7351b, Energiegewinnung aus Atomkernen, 1661c; Atomenergie und ihre Ausnutzung, 2096i; Atomo y energía atomica., 2097a; Énergie atomique et ses applications, 2870e, Bombe atomique, énergie atomique, 5314d Physics—Story of, 5058g; Het ontstaan en vergaan van de zon Sub atomaire energie en de levensloop van de sterren, 5072i, and Matter, 6088i; Universale e reazione della materia, 6502a, Horizons de l'énergie atomique, 6517c; At., Year Book, 6517d, National Nuclear, Series Div. III, 7830h, 7351b; At., Glossary and Technical Terms, 7831a, Constructive Uses of At., 7831a; Probleme der Atomenergie, 8898b.
in Bose-Einstein condensation of charged particles in magnetic field, 8257b
calcn. of, of rocket fuel-oxidizer systems and liberation in oxidation of B hydrides, 7229g.
in carbon monoxide explosions, dissocn and latent energy in relation to missing, 851e.
of conjugation of bonds and of levels, 8885i.
conservation of, in nuclear field, 4097f.
of cosmic rays—see *Cosmic rays.*
in crushing, 8751e.
in cutting of metals, 8227h.
of deformation of rayon, 3202h.
density of nuclear liquid, 3702g.
of detachment of film from solid, 2842d
in dielec. relaxation and diffusion, 6020h
difference in, between rotational isomers of 1,2-dichloroethane, 5308d, 8872h.
difference in, between stereoisomers of ethylene dihalides, 8843c.
differences in electrostatic, 1042c.
differential (total), of irreversible processes, 8246e.
dissipation for isotropic turbulence, 8778f
-distance curve of complex between electrode and unsolvated ion, 5315c.
distribution (delayed) in gas, among degrees of freedom, viscosity from, 7281e.
distribution in proteins, 3481e.
in dodecylamine hydrochloride micelle, 20i.
elec. and mech. equivs. of, 8835b.
of electrode-ion complexes in electrode process, 4149c.
of electrons, in Al, 4131a.

*of electrons*, in cosmic rays, 5284*c*.
range and, 2859*c*.
in relation to their photographic action, 52*c*.
exchange of, between system of nuclear spins and lattice vibrations of insulating crystals, 8273*c*.
excitation, intra- and inter-molecular migration of, 8841*i*.
flame, kinetic and potential, calcn. of, 1231*h*.
free and internal, of $T_2$ and TH, 476*c*.
free, of acetylene dimerization and reaction with HCN, 2830*e*.
of activation of org. halides, 4912*c*.
of activation of oxidation of metals, 7309*e*.
of activation of shrinkage of tendon collagen, 7247*e*.
of activation of viscosity of paraffins, 8839*e*.
of activation of viscous flow of protein monolayers, 3689*i*.
in actomyosin reactions, 6247*f*.
of adsorption and desorption on cracking catalysts, area of film-gas interface and, 3181*b*.
of adsorption complexes in heterogeneous catalysis, 1635*a*.
of adsorption of water vapor by diglycylglycine, diketopiperazine, glycine, and leucine, 2066*i*.
of binary systems, 8253*b*.
of bonds in org. compds., 3276*f*.
calcn. of, of org. compds., 5658*c*.
of Cannizzaro reaction, 2848*c*.
of coal interaction with MeOH, 8835*i*.
of colloid particles, 3688*a*.
of conversion of $Al_2O_3$ or KAl sulfate to $AlCl_3$, 3694*b*.
of crystal surface, crystal habit and, 8229*f*.
of cyclobutane and quartic oscillator, 2501*b*.
of dehydration of org. hydrates, 2082*f*.
of diiodoacetylene and symmetrical-top acetylenes, 8838*f*.
of dilu. of nitrocellulose and protein solns., 6491*e*.
of dilu. of polystyrene solns , 4541*g*.
of dissocn. and reduction of alk. earth oxides, 8838*c*.
of dissocn. of compd. of $Me_3B$ with quinuclidine, 3422*e*.
of dissocn. of cycloalkanone cyanohydrins, 7906*i*.
of dissocn. of diphenylselenium dibromide unsymmetrical derivs., 8810*b*.
of dissocn. of imperfect complexes, 7317*e*.
of dissocn. of $HS_2O_3^-$, 2074*g*.
of elec. double layer at ideal polarized electrode, 1625*i*.
enchresy and enpony as terms for Lewis and Helmholtz, 1638*a*.
of EtOAc, 8247*d*.
of EtOH systems with toluene, 6022*i*.
of EtOH system with methylcyclohexane, 8813*h*.
of eviction of aromatic hydrocarbons and of H by cycloparaffins in catalytic dehydrogenations, 1731*h*.
of exchange adsorption of $NH_4$ and K ions by soils, 7021*c*.
exchange in hydrolysis of acetylcholine by cholinesterase, 9124*i*.
of formation of alkanes, alkenes and alkynes, octane nos. and, 3600*g*.
of formation of $C_9H_{12}$, cumene, PhEt, styrene and toluene, 8654*i*.
of formation of $Cu_2S$, FeS and MnS, 2558*g*.
of formation of cyclohexane, cyclopentane, methylcyclohexane and methylcyclopentane, 7215*i*.
of formation of cyclohexene and cyclopentene, 8254*i*.
of formation of diolefins, methylstyrenes and styrene, 5275*c*.
of formation of ethylene oxide, 2500*i*.
of formation of gaseous org. compds., 477*f*.
of formation of groups in complexes, labilizing action and, 2854*g*.
of formation of Fe complexes with hydroxyl, 5690*h*.
of formation of $MgC_2$, 1617*b*.
of formation of $\gamma$-$Mg_3N_2$, 8837*a*.
of formation of metal oxides, 2907*e*.
of formation of naphthalene picrate, 5274*i*.
of formation of $SiO_2$ forms and Na silicates, 2082*e*.
*free*, of formation of $Ag_2S$ and of H reaction with $Ag_2S$, 8834*c*.
of formation of sulfosalicylic acid complexes, 5325*b*, 5326*b*.
of formation of surfaces, activation energy in relation to, 8778*g*.
of gelatin-fraction solns., 8837*i*.
of heptane system with hexadecane, 6070*e*.
of HF, 7790*f*.
of hydrogenation of $C_5H_5N$ and reduction of $PhNO_2$, 5678*a*.
of hydroxide formation and neutralization in electrolysis, 5675*h*.
of iodide reaction with persulfate, 8236*f*.
of ionization, constitution and structure in relation to, 2074*i*.
of ionization of $NH_3$, 7303*d*.
of ionization of BzOH, effect of substituents on, 8811*d*.
of ionization of butyric acid in aq. iso-PrOH, 1244*h*.
of ionization of chloroacetic acids, 4083*a*.
of ionization of citric acid, 6051*f*.
of ionization of succinic acid, 478*c*.
in iron systems with Mn or Ni, 9006*d*.
of ketene, 1657*d*.
of macromol. solns., 5262*f*.
of martensite transformation, 9008*c*.
of mercury reaction with $HgI_2$, 7857*b*.
of metals, affinity for O and, 4991*a*.
of MeOH and $H_2O$ in solns. contg. NaBr, 6902*g*.
of $Me_2S$ and MeSH, 7804*g*.
of mixing rubber with solvents, 8826*c*.
of monolayers, 8795*d*.
or order-disorder transitions and pptn. in metallic solns., 8254*e*.
oxidation-reduction reactions involving increase of, photosensitized by chlorophyll and Mg phthalocyanine, 44*a*.
of phase boundaries, 3259*i*.
phase change in binary alloys and, 5247*g*.
of racemization of tartaric acid, 4543*f*.
of reduction and roasting, 4988*d*.
of reductions of halides, oxides and sulfides of metallurgical importance, 4931*e*.
of SiO, 11*h*.
of Ag soln. in Au, 6092*b*.
of NaBr solid solns. with NaCl, 2854*i*.
of sublimation of SiO, 7794*a*
of substances in Fe and steelmaking, 9006*h*.
of S vapor, 8838*a*.
of thiophene, 6070*a*.
of TiC, $W_2C$ and ZrC, and free energy of reduction of Al, Mn, Si, Ti, W and Zr from oxides, 4546*f*.
of tobacco-mosaic virus, 1461*g*.
of vinyl halides, 4553*c*.
of viscosity, liquid structure and, 5248*c*.
of wetting coal, 1168*f*.
of Zn soln. in Pb, 4935*c*.
friction and, 6879*d*.
of gamma-rays, emitted during the reaction $F(p,\alpha)O$, 4091*a*.
of heavy nuclei in cosmic rays, 4104*i*.
of heavy particles, grain d. in photographic tracks and, 3281*d*.
history of theory of, 7809*d*.
intensity factor of, in plant nutrition, 3067*c*.
interface, in Al and Cu alloys, 9011*a*.
intermol., of *o*-derivs. of PhOH, 7300*h*.
intermol. potentials, in Ne and A, 4527*d*.
intermol. transfer of, fluorescence and, 5667*d*, 6079*i*.
internal conversion of electronic excitation, to oscillatory, 2511*d*.
internal, in engines, entropy and, 9422*g*.
of $He^3$ liquid, 3679*c*.
of nonpolar gases calcn. of, 7764*d*.
of order-disorder transitions and pptn. in metallic solns., 8254*e*.
of polythene, 5250*a*.
of stretched polymers, 6855*f*.
of thermodynamics of Schottky, Ulich and Wagner, 6903*e*.
inverse kinetic, matrix elements in acyclic mols., 452*e*.
ion kinetic, nonstationary phenomena in electrolytes and, 4544*b*.
of ions in crystals and crystal surfaces, 7769*c*.
lattice, 8230*h*.
calcn. of, 8230*f*.
of Co ammines, 2856*a*.
of metallic carbides, 4093*d*.
*lattice*, of metal salts of subgroups of periodic system, 2829*a*.
of mixed crystals of NaBr and NaCl, 8782*h*.
relation to crystallochem. electronegativities, 8788*b*.
of rock salt crystals, 2838*a*.
levels of, 7811*b*.
of $Al^{28}$ and $Si^{29}$, 8265*i*.
of Sb-Cs cathode, 3705*c*.
of $A^{41}$, 4095*b*.
of asym. rotor, 7820*h*.
of atoms in crystals, 7336*i*.
of biphenyl, 4569*d*.
of bound electrons, electromagnetic shift of, 4135*a*.
of butadiene, hexatriene and their isomers, 2863*i*.
of Ca, 8871*c*.
of $Ca^{41}$, 6507*b*.
of $Ca^{41}$ and $Na^{24}$, 8869*i*.
calcn. of energy matrixes of, 1652*a*.
calcn. of sums of, for atoms and ions, 39*i*.
of cata-condensed hydrocarbons, 7819*b*.
derived from optical spectra, 8883*e*.
detn. of Fermi, at amorphous As surfaces, 4942*g*.
of diat. mols., 2510*i*.
electromagnetic shift of, 1653*a*, 4953*b*.
electrons in ground, 2509*i*.
evaluation of small splittings in, 4568*b*.
excitation probability functions of at. and mol., 3291*d*.
of hydrocarbons, 7818*g*.
of $H_2$, 7338*ef*.
of insulators, work functions and, 933*h*.
of $Fe^{54}$, 6507*e*.
of $Li^6$, 4114*b*.
of $Li^7$ from deuteron-bombarded $Li^6$ and $Be^9$, 2088*g*.
of $Mg^{24}$, 8853*g*.
of Mg isotopes, 4117*h*.
of neutral phenol and phenolate ion, 8881*f*.
of $N^{14}$, 8869*i*.
of $N^{15}$ and $N^{16}$, 8866*e*.
no. of singlet, in complicated mols., 4137*c*.
of one-dimensional crystal model, 6026*f*.
oscillator strengths for transitions between, 6511*bc*.
of oxide cathode coatings, 934*a*.
of photochem. colored alkali halides, 3719*c*.
possibility of bands of, in proteins, 6918*e*.
rotational constant $B_J$ of molecular, 2092*d*.
rotational, of $D_2O$ and $H_2O$, 1658*c*.
of semiconductor, elec. cond. and, 5280*h*.
of $Si^{30}$, 8870*i*.
of simple crystal models, 4092*g*.
of S, 4118*h*.
of ThC′, 4950*h*.
of trapped electrons in ionic solids, 5311*d*.
widths of, 5278*c*.
of liquid-solid adhesion, effect of adsorbed films on, 8234*e*.
loss of, by deuterons and protons in Al and Au, 4123*f*.
by electrons in matter, 34*c*.
by fission fragments along their path, 6912*i*.
by $H^1$, $H^3$, $He^4$, $Li^6$ nuclei in Al and Au, 1646*c*.
by multiple scattering, 1255*c*, 4098*f*.
by Ni single crystals, 7768*d*.
by nucleon traversing a nucleus, 5278*d*.
by sound wave in metals from scattering and diffusion, 1233*c*, 2836*i*.
by tire cords, 6422*h*.
in malignant tumors, chemotherapy and, 303*g*.
materialization of—see *Beta-rays; Gamma-rays;* and "pair production" under *Electrons*.
math. expression of, for any reactive structure, 3775*c*.
measurement of, of $\alpha$-, $\beta$- and $\gamma$-rays with crystal fluorescence counter, 2861*c*.
of $\beta$- and $\gamma$-rays, instrument for, 6505*c*.
of $\beta$-rays, 7329*g*.
of $He^3$ from D—D reaction, 935*h*.
of neutrons, 4112*h*.
of neutrons with emulsions loaded with $Li^6$, 8853*e*.

*measurement of*, of particles, with scintillation counter, 5292*d*.
of merocyanine dyes, 4911*a*.
of mesotron disintegration products, 4104*c*, 5293*b*, 7325*f*.
of mesotrons at sea level, 7319*i*.
metabolism—see *Metabolism, animal; Metabolism, plant*.
migration of, in fluorescent solns., 7824*c*.
of mols. in explosions 5266*b*.
for muscle contraction, storage of, 5841*i*.
of neutrons from $O^{17}$, 4116*e*.
of neutrons scattered by protons and paraffin, 8854*i*.
of nitrogen mol., 8221*a*.
of nucleons at diff. levels of atm., 5661*b*.
-period relation of α-emitter radioelements, 2090*c*.
Planck's radiation formula for zero-point, 8842*i*.
in plasticizer-polymer systems, 4506*c*.
in positron collisions, 7325*i*.
potential, application of curve model of, to fluorescence of silicate phosphors, 5311*g*.
deviation from law of mass action and Raoult's law in relation to, 6048*gh*
of mean force between atoms in liquid A, 8840*h*.
nonintersection of curves of, and predissociation of, 2511*f*.
of water mol., 2051*f*.
potential barriers of, for $Cr_2O_3$ catalysts for dehydration or dehydrogenation of iso-PrOH, 4087*h*.
in 1,2-dichloroethane, 5308*f*.
of $C_2Cl_6$, 4527*e*.
hindering rotation around single bonds, 5240*b*.
hindering rotation in EtOH, 4527*h*.
restricting internal rotation in MeOH vapor, 3276*g*.
potential functions of H halides, 7276*g*
potential functions of polyatomic mols., cross terms in, 2510*i*.
interaction terms in, 8221*b*, 8765*c*.
structural properties and, 2478*g*.
proper, of electrons, 6905*a*.
from proton bombardment of Be and Li, 8864*b*.
of protons, relation to range, 8850*a*.
radiant—see *Heat; Light; Radiation;* etc.
of recoil (kinetic), effect on energy balance in recoil theory of β-decay, 3280*f*.
of recoil, of nucleus in β-decay of $Cl^{38}$, no. of droplets produced in cloud chamber and, 7810*d*.
of resilience of rubbers (new and reclaimed), 4884*i*.
resonance (mesomerism)—see *Resonance (mesomerism)*.
resources of, 4058*g*.
of rotating mol., 1619*h*.
self-, of photon, 1040*h*.
solar, 3251*h*.
of solutes, 8243*h*.
stead-flow balance of, in chem. engineering, 6006*e*.
in steric effects, 4627*g*.
straggling of protons, 3280*d*.
strain, of cyclobutadiene, cycloparaffins and $C_3H_4$, 4059*i*.
strain, elastic moduli and residual, 7768*e*.
stress of polyethylene and polyvinyl chloride in terms of, thermodynamic analysis of, 2801*e*.
of strontium ($Sr^{89}$), 8860*f*.
of strontium ($Sr^{90}$) and $\gamma^{90}$, 8860*e*.
surface—see *Surface energy*.
of system of boundary phase and liquid phase with 2 independent solutes, 6887*g*.
threshold for meson production by bombardment with charged particles, 4561*b*.
threshold for neutron emission in proton bombardments, 8850*d*.
transfer of, by activated mols. in oxidation of C, 7308*e*.
chromophyllins and, in photosynthesis, 6517*a*.
between Hg and N, 8282*e*.
from sensitizer to activator in phosphors, 3721*g*.
of transition from ground state to first excited state, 4570*a*.
transmission of, P 8218*i*.
units of, in at. physics, 8842*h*.
unreleased, in CO explosions, 849*i*.
valence-state, of bivalent O atom, 6511*g*.
-viscosity curves for mastication of rubber, 7737*f*.
-vol. coeff. of $CCl_4$ and inorg. halides, 6024*i*.
-vol. relation for liquids and solns., 7298*g*.
in water, effect of ion hydrates on, 6493*b*.
of wetting of soils, differential and integral, 7619*e*.
of x-rays (scattered), 2507*g*.
**Energy of dilution, Energy of formation, etc.** See *Heat of dilution; Heat of formation;* etc.
**Enesol***, stability of, 7637*h*.
**Engineering.** (See also *Apparatus; Education; Laboratories; Unit operations.*)
of the atom, 4553*f*.
atomic-power-plant, 8850*b*.
books: Materials, 789*b*; Chem., Catalog, 913*e*, 8757*e*; Public Health 1129*a*; Patent Law for Engineers, 4402*b*; Plastics in, 5228*c*; Petroleum Refinery, 5937*f*; Diccionario técnico de ingeniería, 6761*h*; Chem., Plant Design, 8218*c*.
chem., compressed air in, 5645*c*.
construction materials for, 1*b*.
decimal classification system for, 6876*b*.
dimensional analysis in, 8215*f*, 8745*b*.
in paint industry, 3627*g*.
plant and machinery, 4788*di*.
review on, 1881*b*.
thermodynamics in, 6006*e*.
vacuum in, 1615*b*.
crystal chemistry and, 2752*f*.
in food sterilization, 1492*i*
geological and mining, references on, 8081*c*.
journals: Midwest Engineer, 789*a*, Science &, 1640*b*, Engenharia e química, 5886*a*.
mech., in chem. industry, 8577*a*
nuclear, education for, 6908*c*, 7319*c*.
planning in plating department, 8907*h*
rayon in, 7692*f*.
rubber as material of, 9512*i*.
sanitary, in occupied zone of Germany, 9308*e*.
at University of Florida, 9295*f*.
**Engineers**, address on, 8219*f*.
analyst, role of, 5692*h*.
**Engines**, aircraft, alloy steel in, 89*h*.
aircraft, ceramics for, 1163*h*.
protection against rust, 5516*c*.
refractory materials for continuous-combustion, 4439*a*.
scavengers for prevention of lead-compd. deposition in, 1173*a*.
carburetion in, with liquefied petroleum gas, 3991*e*.
cleaning compns. for, P 6439*b*.
combustion in—see *Combustion*.
cooling liquids for—see *Antifreeze substances; Cooling*.
cooling systems of, app. for prevention of corrosion, scale, etc., in, P 6149*b*.
corrosion protection of parts of, P 1710*f*.
cylinders and piston rings of, electrodeposition of porous Cr on, P 8917*h*.
deposition and oil deterioration in motored, 4453*i*.
deposition of lacquer and sludge in, 5580*e*.
deposits and wear in Diesel, S in fuels and, 6400*i*.
deposits of sludge and varnish in, effect of gasoline additives and compn. on, 5579*h*.
exhaust-gas and O use in two, coupled by exhaust and intake, P 9419*d*.
exhaust gases from—see *Gases*.
exhaust lines of, corrosion of, 9016*i*.
exhaust smoke from Diesel, 2,2-dinitropropane in reducing, 5930*i*.
exhaust stacks for, of ceramic-coated steel, 6559*e*.
experimental, 8126*gh*.
flushing oils for—see *Flushing oil*.
fuel antiknock requirements of, 8655*c*.
fuels for—see *Fuels*.
for gasoline of higher vapor-pressure, 382*i*.
jet, alloys and metals for, 6140*b*.
jet, ceramic materials for, 8627*d*.
knocking in—see *Detonation*.
leaded-fuel effect on design and performance of, 6814*a*.
lubricant consumption by, detn. of, 3184*a*.
lubricant film between piston ring and cylinder wall of, 8658*f*.
lubricant oxidation in piston zone of, 5932*i*.
lubricants for—see *Lubricants*.
for lubricating-oil testing, 6816*d*.
lubrication of—see *Lubrication*.
octane-no. requirements of French, 8655*c*
optimum octane no. of fuels for, 8655*g*
oxygen use in, 5921*c*.
radiators for—see *Radiators*.
ram-jet, atomic heating in, 4828*h*.
ram-jet, burners for, 9411*c*.
silencer for, 8214*h*.
spark-gap app. for, P 1666*d*.
thermodynamics of, 9422*g*.
thermodynamics of combustion, and research on jet engines, 8123*a*.
turbojet, power-output calcn. of, 375*a*
variable sp. heat corrections for efficiency of basic internal-combustion thermodynamic cycle and their application to const.-vol., const.-pressure Diesel and Humphrey pump cycles, 4089*b*.
water for, prevention of corrosion and scale formation by, 7888*h*.
wear of, by S compds. in gasoline, 383*i*
**Engobes.** See *Slips*.
**Engraving**, paint-type fillers, wax pencils etc., for, 5199*i*.
photo-, 5683*i*.
dye process for line or half-tone image in, 5683*h*.
fish glue in, 7737*c*.
$La_2Si_2O_7$ phosphor for fluorescent lamps used in, P 4959*a*.
magenta color masking in, 5683*hi*.
review on, 5683*i*.
vinyl alc. polymers for deep-etch plates in, 5684*b*.
pos. reversal in, 1275*a*.
**Enniatine A**, structure of, 3788*ai*
**Enniatine B**, 3788*di*.
**Enniatine C**, 3788*i*.
**Enolization.** See *Isomerization*
**Enols.** (See also *Alcohols*, and "Tautomerization, enolization" under *Isomerization.*)
acetates, P 3838*h*, P 3839*a*, P 7505*f*, P 7953*h*.
acetates, from α-diketones, P 3451*e*
isomerization of, P 7954*a*
prepn. from ketene and carbonyl compds., 5366*g*.
bromination of, 6980*e*.
esters, acylation with, P 5795*g*, P 7077*h*
esters, reaction with anhydrides, P 7688
and related intermediates, absorption spectra of, 2093*f*.
**Enpony**, the term, 1637*i*.
**Ensilage.** See *Silage*.
**Enstatite.** (See also *Pyroxenes.*)
formation of, 3274*i*.
formation of, of Roroimá, Brazil and British Guiana, 3751*g*
of Italy (Rossena), 5709*d*.
**Enstenite**, formation in Palisade Sill diabase in Minas Gerais, 5709*b*.
**Entamebiasis**, therapy of, 1485*f*, 8528*b*
**Entamoeba, Entameba.** See *Endamoeba*
**Enteramine**, in mollusk exts., 1491*f*
**Enteramine-like substance**, in mollusk exts., 1491*f*.
in salivary glands of octopods, 4387*i*
**Enterectomy.** See *Intestines*.
**Enteritis**, cicatrizing, giant-cell inclusions in, 300*d*.
food for babies with non-fevery dyspeptic, 8566*h*.
in pantothenic acid-deficient pig, effect of biotin on, 1466*g*.
**Enterococcus**, folic acid requirements of, 8441*f*.
**Enterogastrone**, effect on gastric secretion, 5497*d*.
manuf. from tissue ext., P 8621*c*
prepn. of, 4747*c*.
**Enteromorpha intestinalis**, antifouling paint toxicity to, 3963*i*
**Enthalpy.** See "content" under *Heat*
**Entomology.** (See also *Insects.*)
books: Veterinary Helminthology and, 778*a*; A Textbook of Agricultural, 1146*b*; Introduction to Applied, 1525*a*.
review on, 1115*h*.
**Entoson***, in *Trichomonas foetus* infection therapy, 4382*d*.
**Entrombicula tropica.** See *Chiggers*.
**Entropy**, of activation of Cannizzaro reaction, 2848*e*.
of activation of isopropyl chlorocarbonate decompn., 6057*b*.
of org. halides, 4912*c*.
of shrinkage of tendon collagen, 7247*e*.
of Ti reactions with gases, 9007*a*.
of Zr reaction with O, 8817*c*.
of adsorption complexes in heterogeneous catalysis, 1685*a*.
of adsorption (exchange) of $NH_4$ and K ions by soils, 7621*e*.

of adsorption of long-chain fatty acids at hexane-$H_2O$ interface, 8819*g*.
of air and steam, 3677*g*.
of air, combustion products of kerosene and of their mixts., 3671*d*.
of alkali metal halides, 457*e*.
of aluminum chloride (AlCl), 4932*c*.
of ammonium vanadate, 3276*a*.
of austenite, 7314*h*.
of benzene, 476*f*.
of benzene and $H_2O$ from deviation from perfect-gas behavior, 7280*h*.
of bonds, regularities in, 475*i*.
book: 2083*c*.
of butane, 476*e*.
of butyric acid in aq. iso-PrOH, 1244*h*.
calcn. of network, of rubber, 7739*h*.
catalytic reactions and, 2852*s*.
of cobalt sulfate, 8766*g*.
communal, of liquids, 5247*f*.
of creep of laminated plastics, 7250*i*.
of cyclobutane and quartic oscillator, 2501*b*.
of cyclohexene and cyclopentene, 1254*c*.
of cyclooctatetraene, 6500*b*.
of dehydration of org. hydrates, 2082*f*.
of dielec. relaxation and diffusion, 6020*h*.
of diiodoacetylene and symmetrical-top acetylenes, 8838*f*.
of diln. of amino acids, 6070*c*.
of polymers, 6491*e*, 6888*a*.
of polystyrene solns., 4541*i*.
of dimethylcyclohexane and ethylcyclohexane isomers, 5276*a*.
of diolefins, 5275*d*
of disproportionation of methylchlorosilane, 4931*g*.
of dissocn. of assocd. compds., 8772*c*
of diphenylselenium dibromide unsymmetrical derivs., 8810*b*.
of imperfect complexes, 7317*e*.
of triethylborine compd with quinuclidine, 3422*e*.
of elec. double layer at ideal polarized electrode, 1625*i*.
in engines, 9422*g*.
enthalpy-, chart for calcn. of turbojet power output, 373*i*.
enthalpy- diagram for air and its use in thermodynamic study of turboreactors, 2753*f*, 4089*e*.
of esters, hydrolysis and, 6065*a*.
of ethyl acetate, 8247*d*.
of ethyl alc. system with methylcyclohexane, 8813*h*.
of ethyl alc. system with toluene, 6022*i*
of ethylene oxide, 2500*i*, 8837*b*.
of formation of cadmium complex, 3277*b*.
of hydrocarbon vapor, 6069*b*.
of iron-complex with hydroxyl, 5690*h*.
of fusion, of benzotrifluoride, 1620*c*.
of Fe carbide, Fe silicide and Si, 477*e*.
of lead, 4935*c*.
of trichlorobenzene isomers, 8225*c*.
galvanic piles with solid electrolytes and, 7351*d*.
of heptane system with hexadecane, 6070*e*.
of hydrocarbons, pressure effect on, 5576*ab*.
of hydrofluoric acid, 7790*f*.
of ionization of ammonia, 7303*d*.
of $NH_4$ (substituted) ion, 6904*b*
of citric acid, 6051*f*.
of org. acids, 477*h*.
of ions in crystals and soly. of salts, 1241*i*.
of iron(II) sulfate heptahydrate, 6018*a*.
of isopropyl alc., 476*g*.
of ketene, 1657*d*.
of macromol. solns., 5262*f*.
of magnesium nitride, 8836*i*.
of mercury, HgI and $HgI_2$, 6895*e*.
of methanethiol and $Me_2S$, 7804*g*.
of methanol and $H_2O$ in solns. contg. NaBr, 6902*g*.
of mixing of solns. of rubber, 8826*c*.
of mixts. of $C_6H_{12}$-$C_7H_8$, $C_6H_{12}$-$C_6H_6$, plant $C_6H_6$ and $C_6H_6$-$C_6H_4$, 7215*i*.
of nitrogen mol., 8221*a*.
of octafluorocyclobutane, P 8219*b*.
of polymer (cryst.) solns., 5254*a*.
of polymerization, 2497*c*.
of polythene, 5250*a*.
of potassium fluorides, 8763*d*.
of precipitation and order-disorder transitions in metallic solns., 8254*a*.
of rayon deformation and flow, 3202*h*.
of reaction of iodide with persulfate, 8236*f*.
of silicon monoxide, 11*h*, 7794*b*.
of sodium bromide solid solns. with NaCl, 2854*f*.
of soln. of silver in Au, 6602*b*.
of sorption of water by cellulose, 9434*g*.
of stellar material, 6916*d*.
stress of polyethylene and polyvinyl chloride in terms of, thermodynamic analysis of, 2801*e*.
of sulfur vapor, 8838*a*.
theorem of Carathéodory and, 8838*d*.
of thiophene, 6069*i*.
of tobacco mosaic virus, 1461*g*.
transport in thermodynamics, 7317*h*.
of 1,1,1-trifluoroethane, 1656*h*.
of tritium and TH, 476*c*.
of vanadium carbide and VN, 3275*h*.
of vaporization, calcn. of, 8775*g*.
of MeOH, 8765*i*.
of $TaBr_5$, 8224*i*.
of vinyl halides, 4553*c*.
-vol. diagrams, interpretation of states of gas mixts. by, 4914*b*.

**Enuresis**, proteins in blood in, 8050*h*.

**Enynes**. See "acetylenic ethylenic" under *Hydrocarbons*.

**Enzymes**. (See also *Amidases; Amylases; Antienzymes; Carbohydrases; Carbonic anhydrase; Carboxylases; Catalases Coenzymes; Deaminases; Diastases Emulsin; Esterases; Fibrinolysin; Glycolysis; Growth substances; Guanase, Histaminase; Kynureninase; Lipases, Lysins; Nucleases; Peroxidases; Phosphatases; Phosphorylase; Proteases, Proteinases.*) 9110*d*.
accessory, in butanol and acetone manuf. from starch or sugars, P 1148*c*.
acetylsalicylic acid hydrolysis by, 7983*f*.
acidoproteolytic lactic, 6265*e*.
action of, 2252*d*, 8801*g*.
on air-dried proteins, 9108*g*.
on blood serum vasoconstrictor, 1075*i*.
bromomethane effect on, 2338*b*.
on cardiac glycosides, 4679*i*.
kinetics of, 9100*g*, 9211*i*.
mechanism of, 9125*b*, 9160*h*, 9162*a*.
mol. structure and, 7988*h*.
prevailing direction of, as index of drought resistance in cultivated plants, 728*d*.
on rickettsia, 1455*h*.
on vitamin $B_{12}$ and pteridine, 9196*b*.
adaptation by, 1447*e*.
adaptive, formation in mycobacteria, effect of various compds. on, 6274*f*.
formation in mycobacteria, streptomycin effect on, 714*d*.
uronic acid utilization by *Escherichia coli* and, 4333*i*.
adsorption by yeast, 8003*d*.
adsorption of bacterial, by whiting, 5448*i*.
adsorption sepn. by salting-out, 1624*f*.
amino acid liberation from raw and heated casein by, 1819*b*.
in anaphylaxis and immunity, disease treatment and, 1854*i*.
in aorta, 3906*f*.
aspartic acid oxidation by, 3051*g*.
assay of, 4425*g*.
in auxin formation in oat coleoptiles, 3071*b*.
of bacteria, 2277*i*.
effect of bacteriophage on, 1831*c*.
genetic and chem. factors in synthesis of 9158*g*.
BAL effect on metal contg., 6739*e*.
bates—see *Hides*.
benadryl degradation by tissue, 7524*d*.
of blanched fruits and vegetables, nutritive value and quality in relation to, 9320*e*.
of blood, 5811*h*, 6268*c*.
in blood serum in perforated peptic ulcers, 8522*b*.
books: Chemistry and Technology of, 709*i*; Les diastases, 1074*i*; Wasserstoffübertragende Fermente, 1075*b*; Untersuchungen über Kohlenhydrate and, 1432*b*; La recherche de l'unité en Biologie, 5815*e*; Schwermetalle als Wirkungsgruppen von Fermenten, 6268*h*; Anderson's Respiratory, 6683*a*; Vitamine, ormoni e fermenti, 7197*g*; Fermente, Hormone, Vitamine und die Beziehungen dieser Wirkstoffe zueinander, 7531*b*; Wirkstoffe, Fermente, Vitamine, Hormone, 9125*h*.
brewing problems, 2365*f*.
in canned foods, effect of processing, time and temp. on, 9275*g*.
of carbohydrate metabolism, effect of Na *p*-dimethylaminobenzenediazosulfonate on, 4381*f*.
of carbohydrate metabolism, effect of tobacco on, 8407*a*.
carbon dioxide fixation by, in α-oxoglutaric acid, 2249*c*.
cell, 7064*b*.
in chemotherapy, 3147*b*.
in clarification of fruit juices, 8069*h*.
in clarification of fruit juices and liquors, 261*f*, 3855*b*.
citric acid synthesis by condensation of acetate and oxalacetate by, 6080*e*.
concn. or drying of, P 4784*c*.
copper, in chloroplasts, 2287*b*.
in corn, effect of steam on, 5875*i*.
cycles of, 259*b*.
cytochrome oxidase activity of prepns. of, measurement of, 9104*a*.
DDT effect on systems of, 5146*c*.
dehalogenation of brominated and chlorinated compds. by, 1815*i*.
development and, in embryos, 5467*b*.
dextran breakdown by, 4307*g*.
digestive, effect of $CS_2$ on, 7577*e*.
2,4-diketo acid hydrolysis by, 705*g*.
disease diagnosis by, 8408*b*.
in dough, inactivation by metal salts, 4781*g*.
effect of drugs, pressure and temp. on, 4717*a*.
exo-, in bacteria in fermentive refining of plant fibers, 724*i*.
fermentation—see *Fermentation*.
from fish entrails, for hide maceration and tanning, P 4881*i*.
folic acid-attacking, 4308*g*.
formation by lampbrush chromosomes, 7150*b*.
formation of, inhibition by arsenate, 2275*b*.
in formation of lignin, 1029*c*.
in fruits and vegetables, 7603*b*.
galactose transformations into glucose derivs. by, 6680*f*.
galacturonic acid liberation from fruit products by, decompn. detection by, 7155*f*.
in gene control of biochem. reactions, 2260*e*.
during germination, 8451*i*.
glycogen breakdown by, 4307*e*.
of glycolysis, inhibitors of, in cancer treatment, 5856*g*.
for glycolysis in tumors, 7575*h*.
glycolytic, in fractions of tissue homogenates, 2652*b*.
gonadotropin inactivation by, 5060*d*.
hematopoietic, from stomach, bivalent cations as inhibitors of, 5430*c*.
hemin, in N fixation by *Azotobacter*, 7172*h*.
histidine active, 722*b*.
histo- and cytochemistry of, 5432*i*.
hormonal effects on, 5467*d*.
in hydrocarbon oxidation by bacteria, 6281*h*.
hydrogen-activating, during insect metamorphosis, fluctuation of pH, buffer capacity and pH dependence of, 2333*d*.
hydrolysis of amidine bonds by, 3790*f*.
hydrolyzing, in laundering, 3203*b*.
α-hydroxy acid oxidation by, from plants, 6267*a*.
3-hydroxyanthranilic acid conversion to nicotinic acid by, 6266*f*.
(*p*-hydroxyphenyl)pyruvic acid inactivating, 4300*d*.
inactivation of, in fruits and vegetables, P 5882*c*.
by heat, 323*c*.
by light in presence of riboflavin, 6264*g*.
3-indoleacetic acid inactivation by, 1465*e*.
industrial, 1146*i*.
inhibition of, as basis for chemotherapy, 8413*a*.
inhibition of, in biol. processes, 7067*a*.
inhibitors, effect on psittacosis virus, 305*h*.
interaction with small ions, 4311*a*.
intestinal, hypercalcemia effect on, 8050*g*.
intracellular distribution of, 1853*e*, 3913*a*.
from kidney, fatty acid oxidation by, 1449*h*.
of kidneys, renal hypertension and, 302*c*.
kinetics and mechanism of processes involving, 7526*a*.
lactic, 718*c*.
lactic-mannitol, action on pyruvic acid, 9358*f*.
liver, action on quinoline derivs., 6267*f*.
in liver tenderizing, P 5512*e*.
of maple and birch saps, 8455*a*.
in melanotic and amelanotic granules of melanomas, 8047*a*.
metallo-, 9123*i*.

metal-protein, prosthetic group of, 6267e.
Michaelis consts. of, with respect to two substrates, detn. of ratio of, 7984i, 9118g.
of microörganisms grown in cold, 5825g.
milk-coagulating, of *Ficus carica*, 11196.
in milk, effect of $H_2O_2$ treatment on, 3115a.
and models thereof, 5813g.
monophenol oxidation by, 2251f.
morphine ester hydrolysis by, 702b.
mucolytic, 2696i, 3094gi, 9222h.
of *Mycobacterium tuberculosis* and other acid-fast bacteria, 4324i.
New York expt. station reports on, 9329a.
nonoxidative, nonproteolytic, 9123a.
in nuclear membranes, 704g.
in organisms during evolution, 8414i.
ovomucoid-digesting, from snails, 3481e.
oxidation and reduction by, 1447e.
oxidation of carotenoids and unsatd. fats by, 8406b.
oxidative, in clover, winter hardiness and, 1084b.
oxidizing—see *Dehydrogenases; Oxidases*.
pancreatic, dietary factor regulating, 2682h.
in hydrolysis of proteins, P 1880e.
in soaking and cleaning textiles, 8711e.
in pancreatic tissue of dogs killed under various conditions, 4746b.
pantothenic acid liberation from biol. materials by, 2249f.
in peaches (frozen), effect on oxidation of thiourea, 7155f.
pectic, fortified with pectin esterase, P 2656c.
pectin-decompg.—see also *Pectase; Pectinase*.
pectin degradation by, prepn. of galacturonic acid by, 5432h.
pectolytic, in wine manuf., 5901f, 6780d.
peptide hydrolysis by, 258c.
phosphate, of plants, effect of 2,4-dichlorophenoxyacetic acid on, 8009a.
phosphorylation by—see *Phosphorylation*.
for photochem. reactions in chloroplasts, 8019i.
pituitrin-destroying, in blood of pregnant women, 1488d.
in placental metabolism, 8509b.
in plants, adaptability and, 4731f.
poisoning, colchicine and colchicine-like reactions as response to, 2678h.
polymetaphosphate breakdown by, 8403h, 8404a.
precursors and activity of, 1083g.
pressor amine formation from amino acids by, 8061a.
propylene glycol effect on, 1070d.
protective against streptococci and bacilli, in urine, 751i.
proteins of, resistance of pneumococci to drugs in relation to, 2673a.
proteins partially decompd. by, and seasoning agents for food, P 9294c.
protein synthesis and, 4710f.
in psychotic states, 5486h.
from pyloric ceca of fish, 1815f.
reaction mechanism of, detn. of, 7987h.
reactions of, long-range forces in, 1479f.
receptor-destroying, effect on pituitary and chorionic gonadotropins, 5474i.
effect on serum inhibitor of hemagglutination, 7120i.
of *Vibrio cholerae*, inactivation by immune serum, 6279g.
of *Vibrio cholerae*, inactivation of gonadotropin by, 1102c.
from *Vibrio cholerae* in influenza treatment, 3511c.
recovery from aqueous solns. and product therefrom, P 1451c.
reduction of retinenes to A vitamins by, 5837b.
regulation of, 9100g.
in reproduction, hormones and, 5467c.
respiratory, in animal tissue, 5059f.
blocking by thiocyanate in relation to toxic action, 7582e.
inhibition by derivs. of sulfuric acid, 8417c.
of stenothermophilic bacteria, temp. activation of, 2671e.
trace elements in, 1816g.
of retina, 8040c.
reviews on, 259c, 5814a, 9100g.
ribonucleoprotein degradation in chromosomes, nucleoli and cytoplasm by, 4717a.
-rich food, from koji, P 5132d.
sanguanarine effect on, 361e.
Schardinger—see also *Xanthine oxidase*.
Schardinger's, of milk, effect of *p*-aminobenzoic acid and sulfonamides on, 5429d.
sensory substance-destroying, 5842c.
in size removal from textiles, 2439g.
sodium nitrite effect on, that reduce trimethylamine oxide in fish, 6751g.
starch-converting, demand and supply of, for pulp and paper manuf., 5948h.
starch degradation and synthesis by, 8181d.
starch hydrolysis by, P 3540b.
starch-splitting and ring-closing action of, from *Bacillus macerans*, 9111g.
stereoisomeric forms of, morphological inversion of organisms and, 3861f.
from stomach mucous membrane, P 7991c.
streptomycin effect on, 719b.
structural analogs in studies of, 2244g.
study procedure for, 1816g.
sulfhydryl, inhibition by α-, β- and γ-rays, 6682e.
sulfhydryl, reagents inhibiting, effect on smooth muscles, 1485h.
suramin effect on, 6257b.
synthesis of compds. of nucleic acids and adenine with amino acids by, 8410g.
in tallow, inhibition of hydrolyzing and oxidizing, by buffered solns., 8177f.
in textile processing, 6829c.
trace elements and, 1820b.
triacetic acid-hydrolyzing, purification and properties of, 6266i.
triacetic acid lactone degradation by, 9211a.
triphosphopyridine nucleotide specific, catalyzing decarboxylation of malic acid in plants 9168e.
tryptophan conversion to auxin by tobacco, 2288g.
in tryptophan oxidation by bacteria, 8005d.
uranium ion effect on, 9118h.
urethan effect on, 9258c.
in vanilla, inactivation and vacuum infiltration of, 7157h.
viruses and, 9165f.
in virus from jaundiced silkworms, 3051f.
vitamin $A_1$ alc. esterification by animal tissue, 2294h.
vitamin $B_6$ and its derivs. in reactions of, 8028b.
vitamin C-oxidizing, of honeybees, 3113e.
as water-softening agents, 5977b.
x-ray action on, 4716c.
of yeast cells, effect of ionizing radiations on, 7081h.
yellow—see also *Flavoproteins* and "$B_1$," "$B_2$," "$B_3$ complex," etc., under *Vitamins* this year.
yellow, suppression of, 1449i.

**Eosin**, accumulation in yeast cells, 8436c.
adsorption by AgBr, 4536i.
in cosmetics, tetrahydrofurfuryl esters as solvents for, 9365c.
derivs., spectra and toxic action of, 8532d.
detn. in lip rouge, 8095i.
effect on internal photoeffect in semiconductors, 7349e.
retention in tissue in frogs, effect of saponins on, 5870f.
sepn. from methylene blue by paper chromatography, 8777b.

——, **iodo-**. See *Erythrosin*.

**Eosin Bluish**, effect on benzidine-peroxidase color, 7521e.

**Eosinophiles**. (See also *Leucocytes*.)
anaphylactogenic property of, transportation of, 4757a.
effect of adrenaline, ephedrine or sympathol on, 2327f.
in tissue bordering cancerous growth, 4362h.

**Eosinophilia**, in trichinosis, effect of cortical exts. and other agents on, 7105b.

**Eötvös constant**, of water, pressure and, 7283f.

**Eötvos law**. See *Laws*.

**Epanutin**. See "sodium deriv." under *Hydantoin, 5,5-diphenyl-*.

**Eperua**, resins from wood of, coke from, 379d.

**Ephedra**, alkaloids in Indian, 1910c.
*fragilis*, lignins in, 2283b.

**Ephedrine** (*α - (1 - methylaminoethyl)benzyl alcohol*). (See also *Pseudoephedrine*.)
-adrenaline group, 5542e.
amine oxidase inhibition by, antifibrillatory action of, 758
*α*-bromoisovalerate, P 7647f.
camphorsulfonate, 7642c.
cardiovascular effects of, 8546c.
compds. with sulfanilamide derivs., P 9388g.
compd. with sulfathiazole, P 9389h.
derivs., 604i.
detection of, and derivs., 1529e.
detn. of, 7640h.
*d-* and *l-*, salts with *d-* and *l-*, α,γ-dihydroxy - β,β - dimethylbutyric acid, P 3448gi.
*dl*, hydrochloride, crystallography of, 8611e.
detn. of, 168b.
effect on Cl and water excretion and on blood pressure, 8052b.
identification of, 1907i.
monograph for, 8103c.
*d-*, salt with *d-β*-ethyl-6-methoxy-α,α dimethyl - 2 naphthalenepropionic acid, 6608a.
disinfectant sols (ozone-liberating) contg., P 1532g.
effect on adhesion of epithelium to stroma in cornea, 7c.
on blood pressu 9249c.
on blood sug in chick embryos, 5868i.
on carbohydrate metabolism, 5403h.
on circulation, effect of dibenamine on, 7140i
on circulatory system in typhus, 8535h.
on coagulation time of blood plasma, 7136i.
on convulsant threshold with and without diphenylhydantoin, 4765e
on diuresis, 8542g.
on eosinophiles, 2327g.
on heart, 1489f.
on intracranial hypertension, 765e
on male frogs and toads, 8566b
on mimosa leaves, 3475i.
on narcosis by chloral hydrate and medinal and on latent reflex time and body temp., 7141gi
on nervous system of segmented worms, 316e.
on onion cells and root growth, 9171g
on respiration, 5863e.
on retinal arterial pressure, 6735a
on smooth muscle of elasmobranch and teleost, 4763d
on stomach muscle, 4771b.
on synephrine action on blood pressure, 7137b.
on unimol. films of lecithin, 7526e
fluorescent substance from, 708h.
folic acid prepn. contg., 355h.
hydrochloride, crystallography of, 8611e
hydrochloride, detn. of, 168b.
identification of, 1907i, 3563i
penicillin salt of *l-*, pharmacology of and chemotherapy with, 4382c.
pharmacology of, 1489c.
[*p* - (2 - pyridylsulfamyl)anilino]methanesulfonate, P 4298d.
reaction (attempted) with $CO_2$, 1351g
sulfate, detn. of, 4810f.
tetraethylammonium effect on action of, 8552a.

**Ephedrine, desoxy-**. See *Phenethylamine, N,α-dimethyl-*.

——, **dihydroxy-**, bronchospasmolytic contg., 4426e.

——, **3,4-dihydroxy-**, vascular effects of, effect of ergotamine on, 3028f.

——, ***N*-ethyl-**, identification of, 3564a

——, ***p* - hydroxy-**, bronchospasmolytic contg., 4426e.
detn. of, 168b.
effect on heart, 1489f.

——, ***N*-methyl-**. See *Norephedrine, N, N-dimethyl-*.

**ψ-Ephedrine**. See *Pseudoephedrine*

**Ephedronium sulfathiazole***, P 9389h.

**Ephestia**, proteins of $a^+a^+$ and *aa*, 9278b

**Ephestia elutella and(or) Tobacco moth**, control in cereals by DDT-impregnated sacks, 347d.

**Ephestia kühniella and(or) Mediterranean flour moth**, control in rye flour, P 8604f.
control of, 2360g.
toxicity to, of S compds., 4415c.

**Ephetonine**. See "*dl-*, hydrochloride" under *Ephedrine*.

**Epiallobiotin** (*trans - hexahydro - 2 - oxo - 1H - thieno[3,4]imidazole - 4 - valeric acid*), P 4388a.

**Epiallocholesterol**, 243f.

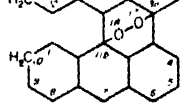
**Epiallopregnan - 3 - ol - 20 - one***, 821c.

**Epicatechin**. See *Epicatechol*.

**Epicatechol**, adrenaline potentiation by, 5116*h*.
chronaximetric antagonism with vitamins, 284*d*.
effect on acid-base balance, 1092*g*.
(−)-, and derivs., 3394*a*.
**Epicauta**, control of, R. B. 1018 in, 4806*a*.
**Epichlorohydrin**, anion-exchange resins from polyamines and, P 5518*a*, P 6339*e*.
compd. with styrene-maleic anhydride polymer, 8202*i*.
condensation products from phenols and, P 1996*d*.
effect on seeds, 4733*i*.
reaction product with *p*,*p*′-isopropylidenediphenol, P 5999*d*.
reaction with phenols, P 5421*h*.
with phenols in the presence of $BF_3$, 6173*g*.
with S compds., 7420*h*.
**β-Epichlorohydrin**. See *Propane, 1-chloro-1,3-epoxy-*.
**Epicholestanol**, and acetate, 3831*g*.
chromatographic sepn. of cholestanol and, 2894*f*.
**Epicholesterol**, and acetate, 1784*a*.
chromatographic sepn. of cholesterol and, 2894*f*.
**Epicoprostanol**, in oxidation-reduction reactions in the presence of Raney Ni, 191*e*.
**Epidermis**. See *Leaves; Skin*.
**Epidermomycosis**. See "diseases of" under *Skin*.
**Epidermophyton**, hexylresorcinol effect on, 1827*a*.
**Epididymis**, seasonal changes in, of deer, 8490*c*.
**Epidiorite**, in serpentinite at Harper's, N. Z., 4610*d*.
transformation of, of Tawaewae Point, New Zealand, 8314*h*.
**9,10-Epidioxyanthracene**,

*9,10-*

——, **9,10-dihydro-**. See "peroxide" under *Anthracene*.
**3a,11b(10*H*,13*H*)-Epidioxydibenzo[*a*,*o*]perylene**,

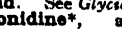


*3a,11b(10H,13H)—[a,o]*

——, **7,16-dimethoxy-**, radical from, 5391*e*.
**3a,11b(10*H*,13*H*)-Epidioxydibenzo[*a*,*o*]perylene-7,16-diol**, esters, radicals from, 5391*c*.
**5,12-Epidioxynaphthacene**,

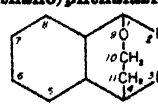
*5,12-*

——, **5,12-dihydro-**. See "peroxide" and "photoöxide" under *Naphthacene*.
**Epidon**. See *2,4-Oxazolidinedione, 5,5-diphenyl-*.
**Epidosite**, of Peloritani Mts., Sicily, 978*e*.
**Epidote**, of China (Kumush, Sinkiang), 3323*h*.
-chlorite vein formation in hornfels at Suyama-Mura, Japan, 6549*d*.
in druses in granite and rhyolite of Drăganului Valley, Rumania, 5709*b*.
in Germany (Bavaria) and statistical methods in its analysis, 4986*c*.
of Italy (Aosta Valley), 2128*a*.
of sand of rivers of West Ethiopia, 2129*e*.
in sands of Ticino River, Italy,
**Epieudesmin**, 1018*f*.
——, **bromo-**, 1018*h*.
——, **bromonitro-**, 1018*g*.
——, **dibromo-**, 1018*h*.
——, **dinitro-**, 1018*g*.
——, **nitro-**, α- and β-, 1018*f*.
**Epifluorohydrin**, reaction with HF, 6163*d*.
volatility and vapor pressure of, 3841*b*.
**Epihydrin alcohol**. See *Glycidol*.
**Epihydrinaldehyde**. See *Glycidaldehyde*.
**Epihydrinic acid**. See *Glycidic acid*.
**Epihydrocinchonidine***, and derivs., 4676*g*.
**Epihydrocinchonine***, and derivs., 4676*e*.
**Epihydroquinine**, bromide, 4677*d*.
**Epilinose**, *dl*-, phenylhydrazone, 149*d*.
**Epilachna varivestis** and(or) **Mexican bean beetle**, control of, P 350*b*, 810*e*.
control of, bis(2-hydroxy-3-nitro-5-chlorophenyl) sulfide for, P 1901*f*.
2,2-bis(*p*-methylthiophenyl)-1,1,1-trichloroethane for, P 7187*f*.
on canning beans, 9328*i*, 9329*d*.
with DDT contg. cyclohexyldiphenyl ether, P 812*i*.
*tert*-diacylamines for, P 4422*d*.
hexachlorocyclohexane toxicity to, 1140*d*.
repellents for, (3,4-methylenedioxyphenyl)propylene compds., P 1903*d*.
**Epilepsy**, acetylcholine and cholinesterase in cerebrospinal fluid in, 8519*h*.
Agene-induced canine, 1869*e*, 9233*i*.
albumins, globulins and total protein in lumbar fluid in cryptogenic, 2667*b*.
antiepileptic compds., 1405*i*, 2370*h*, 8611*h*.
antiepileptic compds., 1-allyl-5-phenylhydantoin, P 4818*c*.
brain blood flow and metabolism in, 9231*h*.
brain tissue in, glycolysis and respiration of, 9230*h*.
convulsive threshold in, 9231*g*.
electroencephalogram in, effect of anticonvulsants on, 9262*c*.
encephalogram in, effect of hypoglucemia on, 9224*f*.
guanidine in blood and cerebrospinal fluid in, 9238*b*.
from hexogen, 8682*c*.
neuronal activity in, acetylcholine and, 9232*b*.
5-phenyl-5-thienylhydantoin action in, 760*g*.
thyroid efficiency, diuresis, etc. in, 305*c*.
**Epilobium angustifolium**, antibacterial and antifungal substances from, 3885*c*.
**Epilupan-2-ol***, dehydration of, and saponification of its esters, 3808*h*.
**Epinephrectomy**. See *Adrenalectomy*.
**Epinephrine**. See *Adrenaline*.
**Epinine** [*4-(2-methylaminoethyl)pyrocatechol*], effect on blood pressure, blood sugar, intestines and spleen vol. compared with adrenaline and arterenol, 8542*c*.
and hydrochloride, 2602*f*.
pharmacology of, 317*b*, 1489*c*.
**Epiphenylin**, *o*-**benzyloxy-***, P 4432*a*.
**Epiphysis**. See *Bones; Pineal gland*.
**Epipinoresinol**, configuration of, 1018*e*.
dimethyl ether*, 1018*f*.
, **bromo-***, α-, dimethyl ether*, 1018*h*.
, **bromonitro-***, dimethyl ether*, 1018*g*.
, **dibromo-***, dimethyl ether*, 1018*h*.
, **dinitro-***, dimethyl ether*, 1018*g*.
, **nitro-***, α- and β-, dimethyl ether*, 1018*f*.
**Epipregnane-3(α),20-diol-11-one***, and diacetate, spectra of, 3019*g*.
**Epiquinine**, bromide*, 4677*e*.
**Epitaxy**, of double decompn. during isothermal evapn. on mica, 6027*i*.
**Epithelioma**, chorionic, effect of estrogens on development of malignant, 9256*g*.
Guerin, amino acid dehydrogenase in kidneys, flavoproteins in liver, and metastasis in relation to, 1477*hi*.
**Epithelium**. (See also *Cuticle; Skin*.)
formation of, 8509*c*.
histamine effect on, 3108*e*.
**Epitrix cucumeris** and(or) **Potato flea beetle**, control of, 4413*h*.
control of, chlordan and DDT in, 8599*f*.
control of, DDT in, 8088*b*.
**Epitrix hirtipennis** and(or) **Tobacco flea beetle**, control of, 5895*d*, 9329*h*, 9346*a*.
**Epoxides**. See "cyclic" under *Ethers*.
**1,4-Epoxy-2,3,1*H*-benzoxazine**,



*1,4—2,3,1H-*

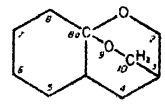
——, **2,4-dihydro-1,3,4-triphenyl-**, 7017*i*.
——, **2-(*p*-dimethylaminophenyl)-3,4-dihydro-1,4-diphenyl-**, 7018*a*.
**1,4-(Epoxyethano)phthalazine**,



**1,4-(Epoxyethano)phthalazin-10-one**. See "ε-lactone" under *1-Phthalazineacetic acid, 4-hydroxy-*.
**4,7-Epoxyisobenzofuran**,

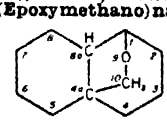
*4,7-*

**4,7-Epoxyisobenzofuran-1,3-dione, hexahydro-3a,7a-dimethyl-**. See *Cantharidin*.
**8a,3-(Epoxymethano)-1,8a*H*-benzopyran**,



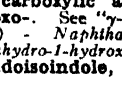
*8a,3—1,8aH*

**8a,3-(Epoxymethano)-1,8a*H*-benzopyran-2,10(3*H*)-dione, hexahydro-†**, derivs., 3418*e*.
**1,4a(8a*H*)-(Epoxymethano)naphthalene**,



*1,4a(8aH)-*

**1,4a(8a*H*)-(Epoxymethano)naphthalene-1(2*H*)-carboxylic acid, hexahydro-10-oxo-**. See "γ-lactone" under *1,4a(2H)-Naphthalenedicarboxylic acid, octahydro-1-hydroxy-*.
**4,7-Epoxypseudoisoindole**,



*4,7-*

**4,7-Epoxypseudoisoindole-1,3(2*H*)-dione, 3a,4,5,6,7,7a-hexahydro-3a,7-dimethyl-2-*p*-sulfamylphenyl-†**, 2598*c*.
**Epsomite**. (See also *Magnesium sulfate*.)
from salt deposits of Hallstatt, Austria, 2129*b*.
of Washington, 6547*d*.
**Epsom salt(s)**. See *Magnesium sulfate*.
**Equalizing agents**. See "leveling agents" under *Dyeing*.
**Equation of state**, 2055*h*.
of anabasine mixts. with $C_6H_6$ and $H_2O$, 2481*e*.
of benzene, 476*g*.
of carbon dioxide, detn. of, 6021*c*.
of conduction solids, liquids and valence crystals, 4916*b*.
detn. of, of compds. under high pressures, 2776*c*.
detn. of, of liquids, 5247*e*.
of deuterium, HD and $H_2$, 2057*c*.
of electron gas, effect of formation of electron pairs on, 5660*c*.
of elements based on generalized Fermi-Thomas theory, 5246*f*.
of gases, 8773*d*.
of gases and liquids, 7764*b*.
heat-of-vaporization calcn. from, 3700*h*.
at high pressures and its application to surface film on liquids and solids, 6034*a*.
at high pressures and temps., 4914*e*.
of imperfect gases, 4530*e*.
limiting, for dil. gases, 8774*c*.
of liquids, 3678*e*.
mech., of metals, nucleation theory and, 84*c*.
of all phases, generalized correlation for, 3954*f*.

of polystyrene, 6046*b*.
of pure substance, 8774*a*.
of rayon mech. behavior, 3202*g*.
second law and, 4062*i*.
of solns., 8241*i*.
van der Waals, 7281*c*.
**Equations**, teaching of, 8220*c*.
**Equations** (*mathematical*). See *Mathematics*.
**Equilenin**, acetate, spectrum of, 3018*i*.
detn. of, 8427*h*, 8613*b*.
hydrogen sulfate, Na salt, 7032*g*.
*p*-phenylazobenzoate, 5787*g*
**17-Equilenone**, *β*-, 6609*i*.
——, **14,15-dehydro-***, and semicarbazone, 6610*e*
**Equilibrium**. (See also *Phase rule; Pressure*.)
acid-base—see *Acid-base equilibrium*.
in alloys—see *Alloys*.
in binary mixts of nonelectrolytes, 4542*i*.
calcn. of chem., 3275*e*, 3541*e*.
of cation-exchange resin with salt solns, 7785*e*.
corresponding to macrocryst. nonvolatile phase, 8823*a*.
crystallogenic disequil. in nature, 6481*h*.
of detonation products, 407*e*.
in detonation-wave front from solid explosives, 4013*i*.
diagrams of binary alloys, calcn of simplest, 7314*g*.
disorders of, streptomycin and, 7131*d*
Donnan—see *Donnan equilibrium*
effect of additive varying heat of reaction on, 2077*a*.
between gas and liquid under pressure, 8832*b*.
in gas-elastomer systems, 8730*a*
harmony and, 7781*c*.
in heterogeneous systems of two or more components, 7305*d*
in hydrocarbon reactions, 8246*h*
in hydrogenation of esters and of indoles, 2164*i*.
hypothesis of, in theory of abs. reaction rates, 2847*c*.
of indicators in two-component systems, 8813*h*.
interface, thermodynamics of, 6887*g*
among ions, simple mols. and condensed mol., 3693*g*.
of isomeric hexanes, 5056*f*.
lecture demonstration on, 8762*b*
liquid-vapor, calcn. for ternary mixts, 2058*c*.
detn. of, 5272*i*
of $He^3$ solns. in $He^4$, 8775*a*
high-pressure, 8770*c*
in nonideal systems, 8653*h*.
still, 6871*c*.
maintenance of, during isentropic expansions through nozzle, 6021*h*
metallurgical, graphical study of, 4931*h*
non-, processes, 8772*g*.
states in chem. reactions, 5266*b*.
states in microheterogeneous systems, 8801*f*.
in ore reduction, 8323*d*.
oxidation-reduction—see *Oxidation* or *Reduction*.
phase, description, 1251*f*.
phase, thermodynamic relation between, in 2-component systems, 5266*i*
proportions of ideal mixts., 6878*d*.
of protein metabolism, 3864*a*.
review on, 7759*a*
salt effect on ionic, 5265*h*.
in satd. solns., 2854*d*
seven liquid phases in, 7285*c*.
in silicon monoxide systems, 7793*h*.
state of branched mol., 8815*a*.
statistical-mech. treatment of, 6494*c*
in ternary alloys, 6961*a*.
thermodynamics of, 7317*h*.
of vapors in multicomponent mixts., 2854*e*.
**Equilin**, acetate, spectrum of, 3018*i*
detection and detn. of, 3870*f*.
detn. of, 8427*e*, 8613*b*.
effect on adrenal cortical tumor formation, 7124*g*.
hydrogen sulfate, quinidine and Na salts, 7032*g*.
*p*-phenylazobenzoate, 5787*g*.
**Equipment**. See *Apparatus*.
**Equisetum** (*Horsetails, Scouring rush* and (or) *Shave grass*), *arvense*, compn. of, 5129*e*.
*arvense*, lignins in, 2283*b*.
*palustre*, isolation of thymine and $Me_2SO_4$ from, 6366*f*.
**Equitransferent**, the term, 4082*h*.
**Erasers**, manuf. of, 3225*a*.
**Erbium**. (See also *Rare earth metals*.)
as cathodo-luminescence activator in dolomites, 2516*d*.
gamma-rays of, energy of, 6075*i*.
ionization potentials of, 1254*h*.
isotope of mass 166, from decay of $Ho^{166}$, 5207*c*.
neutron-bombarded, 4096*d*, 4948*f*, 6911*e*.
proton-bombarded, Tm isotopes from, 5297*b*.
spectrum of, persistent lines in, 5337*g*.
**Erbium, analysis**, detection, 8948*h*, 8966*c*.
detn., 6917*i*.
sepn. from other rare earths, 8301*a*.
**Erbium compounds**, complexes, 4969*i*.
stability of nitriloacetate complex as function of pH and prepn. and decompn by heat of $ErCl_3 2NH_3$, 8301*a*.
**Erbium ethyl sulfate**, $Er(EtSO_4)_3 . 9H_2O$, spectrum of, 5304*b*
**Erbium hydroxide**, 2108*d*.
basicity of surface of, 8244*g*.
**Erbium nitrate**, spectrum of, 5304*b*
**Erbium salts**, magnetic resonance absorption by, 2053*g*.
spectra of, 5304*a*.
**Erbium sulfate**, spectrum of, 5304*b*, 6917*h*.
**Erbium vanadate(V)**, $ErVO_4$, crystal structure of, 6033*b*.
**Eremothecium ashbyii**, antivitamin activity of dichloroflavin upon, 1457*g*
flavin pigment from, 1457*i*, 1833*c*.
sulfonamide action on, effect of *p*-aminobenzoic acid and nucleic acids on, 9163*f*.
**Erepsin**. (See also *Peptidases*.)
in brain and liver after washing, 4707*a*.
casein digestion by, amino acid liberation in, 1819*e*.
in protein metabolism at high pressures, 704*i*
sepn. from cathepsin in liver slices, 9089*gh*.
**Ereptase**. See *Erepsin*.
**Ergamine**. See *Histamine*.
**Ergobasine** See *Ergonovine*.
**Ergobasinine***, prepn. of *d*- and *l*-, P 2741*b*.
**Ergocornine**, effect on blood pressure, 4776*a*.
——, **dihydro-**, adrenolytic action of, 5501*e*.
effect on blood pressure, 4776*b*, 6314*i*
on blood pressure, influence of kidney function on, 3524*f*.
on cardiac irregularity during cyclopropane anesthesia, 4381*h*, 4763*g*.
on circulation, 5501*e*.
on heart, 7128*a*, 7583*f*.
on histaminergic reactions, 3928*i*.
on hypoxemia, 3520*f*.
on metabolism, 4375*d*.
mixt. contg., effect in ischemia of renal cortex, 9249*a*
**Ergocristine**, effect on blood pressure, 4776*a*.
effect on heart, 7128*a*.
hydrogenation of, P 3474*d*.
——, **dihydro-**, P 3474*d*.
effect on blood pressure, 4776*b*.
effect on histaminergic reactions, 3928*i*.
mixt. contg., effect in ischemia of renal cortex, 9249*a*.
**Ergocryptine**, effect on blood pressure, 4776*a*.
——, **dihydro-**, effect on blood pressure, 4776*b*.
effect on heart, 7128*b*.
effect on histaminergic reactions, 3929*a*
mixt. contg., effect in ischemia of renal cortex, 9249*a*.
**Ergokryptine**. See *Ergocryptine*.
**Ergoline**. See *Indolo[4,3-fg]quinoline, 1,-6,6a,7,8,9,10,10a - octahydro-*.
**Ergology**, of pharmaceuticals, 6783*b*.
**Ergometrine**. See *Ergonovine*.
**Ergon**. See *Neutrinos*.
**Ergonovine**, effect on convulsant threshold with and without diphenylhydantoin, 4765*f*.
isolation by electrodialysis, 3975*d*.
maleate, stability of, 1148*h*.
at parturition, 7585*h*.
**Ergosine**, effect on blood pressure, 4776*a*.
effect on heart, 7128*a*.
hydrogenation of, P 3474*d*.
——, **dihydro-**, P 3474*d*.
**$\Delta^{7(8),9(11)}$ - Ergostadien - 3(β)-ol**, and esters, 7493*d*.
**8(9),14 - Ergostadien - 3(β)-ol***, benzoate, 243*d*.
**Ergostanol**, acetate, as antistiffness factor, 2680*h*.
acetate, inhibition by 7-dehydrocholesteryl bromide, 9241*g*.
**3(β)-Ergostanol**, 7493*g*.
esters, 1428*b*.
**Ergostenol**, α-, acetate, as antistiffness factor, 2680*h*.
γ-, acetate, 1428*b*.
**$\Delta^{8(9)}$-Ergosten-3(β)-ol**, and esters, 7492*i*.
**$\Delta^{8(14)}$-Ergosten-3-ol**, acetate, 7493*a*.
——, **dehydro-***, acetate, hydrogenation of, 7492*i*.
**$\Delta^{14}$-Ergosten-3-ol**, hydrogenation of, 7492*i*.
**7-Ergosten-3-one**, 243*d*.
**Ergosterin**. See *Ergosterol*.
**Ergosterol**. (See also "D" under *Provitamins*.)
and derivs, 7493*e*.
detection of, 4718*i*.
formation in *Lentinus lepideus*, lignification and, 9125*b*.
irradiated—see also "D" and "$D_2$" under *Vitamins*.
irradiated, mutarotation of resins of, 5408*c*.
irradiation product from, P 3152*h*.
mixt. with α-dihydroergosterol, neosterol and, 1428*f*.
in *Neurospora crassa*, 9143*g*.
palmitate, from *Penicillium citrinum*, 8433*g*.
in *Penicillium notatum*, 6368*i*.
perchlorate (salt), 7494*c*.
reaction product with $SbCl_3$, spectrum of, 5307*g*.
stereochemistry of, 246*g*.
**Ergosterol, dehydro-***, α, 7493*e*.
sterol C identity with, 6367*e*.
——, **α-dihydro-**, 7493*f*.
acetate, 1428*a*
mixt. with ergosterol, neosterol and, 1428*f*.
**Ergosterone**, hydrogenation of, 7493*e*
**Ergostetrine**. See *Ergonovine*.
**Ergot**. (See also *Ergonovine*.)
control and production of, 3959*f*.
detn. of, 6364*d*.
detn. of concn. of, in drugs, 7639*b*
effect on convulsant threshold with and without diphenylhydantoin, 4765*f*
ergothioneine prepn. from, 9378*e*
identification of fluidexts. of, 3145*h*.
nonalkaloidal constituents of, 2371*e*
parasite producing, in *Spartina maritima* pharmacology of, 3933*d*.
review on, 9384*h*
thioneine in, from different plant hosts, 9379*b*.
**Ergot alkaloids**, P 2740*g*.
blood-pressure action of natural and dihydrogenated, 4776*a*.
detn., compn., formation, etc., 3611*r*
effect of natural and dihydro, on heart, 7128*a*.
effect on heart, 9250*h*.
effect on histamine action, 3928*i*
isolation from ergot, 3975*d*.
isomerism of lysergic and isolysergic acids, 7031*g*.
in medicine, 7193*g*.
pharmacology of, 8538*b*.
reviews on, 1155*d*, 3149*h*, 5550*h*, 8616*i*.
**Ergotamine**, antagonism to adrenaline and sensitizing action to acetylcholine aerosol, 3520*f*.
antiadrenolytic action of, 8553*f*.
detn. of, 7640*g*.
effect on action of adrenaline and amino alcs., 3928*de*.
on auricle, 4385*e*.
on blood pressure, 4776*a*.
on convulsant threshold with and without diphenylhydantoin, 4765*f*.
on denervated and normal nictitating membrane, 5872*c*.
on denervated and normal uterus 8064*b*.
on emetic center, 4375*c*.
on heart, 1489*eg*, 7128*a*.
on O consumption, 4775*f*, 8539*b*
on smooth muscle of elasmobranch and teleost, 4763*d*.
on vascular action of adrenaline and isopropyladrenaline, 7576.
on vasoconstricting action of adrenaline and noradrenaline, 8538*f*.
**Ergotamine, dehydro-***, effect on blood iron, 8051*f*.
effect on normal and denervated effectors 5872*c*.
——, **dihydro-**, effect on blood pressure 4776*b*.
effect on cardiac irregularities during cyclopropane anesthesia, 4381*h*, 4763*g*.

*effect* on metabolic rate, 4375*d*.
on O consumption, 8539*b*.
pharmacology of, 4374*h*, 7128*b*.
tartrate, P 3151*i*.
**Ergothioneine.** See *Thioneine*.
**Ergotocine.** See *Ergonovine*.
**Ergot oil.** See *Oils*.
**Ergotoxine,** effect on adrenaline diuresis, 8542*f*.
effect on alloxan diabetes, 301*e*.
on body temp., age and, 2692*h*.
on body temp., O consumption and, 5871*d*.
on smooth muscle of elasmobranch and teleost, 4763*d*.
isolation by electrodialysis, 3975*d*.
——, **dihydro-,** P 3151*h*.
**Ergotrate.** See "maleate" under *Ergonovine*.
**Ericaceae,** tannins from barks of, in Italy, 5617*d*
**Erinnyis ello,** control of, R. B. 1018 in, 4806*a*.
**Eriobotrya japonica.** See *Loquats*.
**Eriochromecyanin R,** in aluminum detn. and prepn. of reagent solns., 1681*d*.
**Eriodictin.** See *Eriodictyol*.
**Eriodictyol** (*3′, 4′, 5,7-tetrahydroxyflavanone*), adrenaline potentiation by, 5116*i*.
glucoside—see *Citrin*.
——, **3-hydroxy-*,** adrenaline protection by, 5542*b*.
**Erion.** See *Quinacrine*
**Eriophorum vaginatum,** effect of nutrient supply on assumption of xeromorphic forms of, 5089*a*.
**Eriside,** alc. detn. in infusion of, 9370*i*.
**Ernita** See *Garnets*
**Erosion.** (See also *Corrosion; Weathering*.)
bridge, of elec contacts, 1235*a*
in carbonate rock accumulation, 3321*a*
-corrosion of alloys and metals, 5723*c*.
by dust particles in gas stream, 6745*c*
of metals by fly ash, 5923*b*
of soils—see *Soils*.
**Ertron.** See "*D*" under *Vitamins*
**Erubescite.** See *Bornite*.
**Eruca,** oils of—see *Oils*.
**Erucic acid** (*cis-13-docosenoic acid*), cerium, Co, Th and U salts, prepn., solubilities and catalytic effects on autoxidation of oleic acid, 1998*a*.
derivs., 566*d*.
esters with choline and 2-dimethylaminoethanol and their derivs., 7940*b*.
ethyl ester, effect on fat absorption, 1813*a*.
ethyl ester, reduction of, 5363*e*.
oils, 2000*e*.
oils, utilization of, 7240*i*.
oxidation of, with $OsO_4$, 1319*d*.
in rape-seed oil, 1201*b*.
synthesis of, 6161*d*.
**Erucin,** 3-stearo-1-, 570*i*
**Erysiphe.** (See also "powdery" under *Mildew*.)
*polygoni*, control on beans, 2355*d*.
**Erysocine, tetrahydro-*,** hydrobromide, 4281*c*.
**Erysodine,** and derivs., 4281*b*, 5544*i*.
etheration of, P 6674*c*.
——, **dihydro-*,** 5545*e*.
——, **methoxy-*,** and picrate, P 6674*d*.
——, **tetrahydro-*,** 5545*a*.
and derivs., 4281*c*.
**Erysopine,** and derivs., 4281*b*.
etheration of, P 6674*d*.
——, **tetrahydro-*,** and hydrobromide, 4281*c*.
**Erysotrine,** and derivs., 4281*d*.
**Erysovine,** and derivs., 4281*b*.
etheration of, P 6674*d*.
**Erythema,** cholinesterase and sugar in blood in, 4362*b*.
of x-rays, administered in whole or fractionated doses, 8405*c*.
**Erythraea.** See *Centaurium*.
**Erythraline,** and derivs., 5544*i*.
——, **dihydro-*,** identity with erythramine, 5545*a*.
——, **tetrahydro-*,** and derivs., 5545*a*.
**Erythramine,** identity with dihydroerythraline, 5545*a*.
**Erythremia** (*polycythemia vera*). (See also *Polycythemia*.)
cholinesterase in blood in, 4366*h*.
histamine in blood in, 6725*b*.
radioactive P in treatment of, 1258*i*.
**Erythrina,** alkaloids of, 5544*i*.
*africana,* alkaloid of, 3148*h*.
bactericidal substances in, 7644*a*.
**Erythrite,** of England (Pennines), 4188*d*.
of Italy (Mt. Peloritani), 3819*a*.
**Erythritol** (*1,2,3,4-butanetetrol*). (For derivs., see under *1,2,3,4-Butanetetrol*.)
1-cellulose ethers, P 1979*e*.
DL-, 4219*d*.
effect on growth of plant tissue, 4349*d*.
esters, P 9494*d*.
isomers, 2578*f*, 8355*c*.
oxidation with ammonical Ag soln. and detection of, 2548*d*.
prepn. of, 572*c*.
sepn. from mixts of polyhydric alcs., P 3839*g*.
——, **dibenzylidene-*,** 8355*e*
——, **dithio-*,** isomers, and derivs., 7424*g*.
——, **1,4-dithio-*,** antidotal activity in oxophenarsine poisoning, 9251*a*.
**Erythroamylose,** hydrolysis and structure of, 9505*b*.
**Erythroblastosis,** fetalis, Shwartzman phenomenon and, 7123*i*.
**Erythrocruorins,** of *Planorbis corneus,* spectra of, 256*g*.
**Erythrocytes.** See *Blood corpuscles, red*.
**Erythroderma,** chloride in blood and urine in, 4364*de*.
**Erythrohexulose.** See *Psicose*.
**Erythroidine,** *β*-, 6729*l*, 9261*g*.
*β*-, antagonism by Congo red, etc., 3102*h*.
effect on muscle tension, site of, 8053*b*
——, **desmethoxy-*,** *β*-, 6729*g*.
——, **dihydro-,** *β*, antagonism by Congo red, etc., 3102*h*.
*β*-, convulsive response to, effect of eserine, prostigmine and mecholyl on, 9260*i*.
*β*-, review on, 9261*g*.
**Erythrol** (*3-butene 1,2-diol*), 1-cellulose ethers, P 1979*d*.
derivs., 6157*d*.
diacetate, 7424*e*.
elec. moment of, 11*d*.
magnetic susceptibility of, 4911*e*
and diacetate, 2578*i*.
prepn of, and its diesters, 7419*e*.
**Erythrophleum,** compn. of, 8101*a*.
*guineense,* alkaloids of, 4676*a*.
**Erythropoiesis.** (See also *Hemoglobin; Hemopoiesis*.)
in anoxia, humoral mechanism and, 3918*i*.
cellular growth and, 751*c*.
effect of digestive juices on, 3085*h*.
effect of liver exts. and nicotinamide on, 1853*g*.
effect of yellow bone marrow exts. and batyl alc. on, 6737*f*.
hemorrhagic, O satn. in bone marrow and blood during, 307*i*.
substances causing, in blood plasma of sheep fetuses, 8504*e*.
**Erythropterin,** in butterfly wings, 3529*i*.
**Erythrose, 2,4-benzylidene-,** D-, 5747*e*
**Erythrosiderite,** bonds in, 3672*b*.
structure of, and prepn. and structure of synthetic mineral, 3747*h*.
**Erythrosin,** adsorption by AgBr, 4536*i*.
effect on internal photoeffect in semiconductors, 7349*f*.
energy transfer between fluorescein and, 6080*a*.
**Esbach reagent,** acetic and formic acids as substitutes for citric acid in, 6789*i*.
**Escarole.** See *Endive*.
**Escherichia,** *coli,* acetoacetic acid oxidation by, 9145*b*.
*coli,* acetylhistamine formation from histamine by, 3478*e*.
acridine uptake by, 4325*e*.
acriflavine inhibition of respiration in, effect of salts on, 4325*e*.
adaptation to growth in $NH_4$ salt media and relation between growth and deaminase activity, 7083*h*.
adenine conversion to hypoxanthine by, 1816*i*.
amino acid formation from $NH_3$ and keto acids by, 7547*a*.
amino acid oxidases of, 6281*d*.
amino acids in acid-hydrolized, 138*d*.
2-amino-5-heptenoic acid effect on, 574*g*.
*p*-aminosalicylic acid effect on, 8001*i*.
antibacterial-agent effect on, 5444*h*.
arginine decarboxylase from, 3065*e*.
arginine decarboxylation by, effect of pH on, 8446*g*.
aspartic decarboxylase in, 8440*a*.
bactericidal action of quaternary $NH_4$ compds. against, 3884*e*.
bactericidal activity of ethylene glycol and monoalkyl ethers against, 1827*c*, 7079*e*.
*coli,* bacteriophage action on, effect of acriflavine and phosphine GRN on, 3066*c*.
bacteriophages active on—see *Bacteriophages*.
in beverages, source and prevention of, 4423*a*.
biliary-acid effect on, 7077*h*.
$CO_2$ effect on, 715*i*.
$CO_2$ fixation in α-oxoglutaric acid by, 2249*c*.
$CO_2$ production from aspartic acid by, after incubation in phosphates and effect of biotin thereon, 1833*f*.
$CO_2$ replacement in metabolism of, 5445*c*, 8435*b*.
in chlorinated water, secondary appearance of, 1886*i*.
chlorophyll conversion to phylloerythrin by, 5832*e*.
coagulation of citrated plasma by, 1830*i*.
colchicine effect on, 3062*d*.
colicin-producing, 9163*c*.
colloid (metal) adsorption by, 274*g*, 4726*d*.
compn. of, 3875*g*.
Cu effect on, 9154*i*.
cozymase decompn. and synthesis by, 2670*f*.
degradations and syntheses effected by, 8431*e*.
dehydrogenase activity of degenerative forms of, 5078*f*.
dehydrogenase system of, effect of sulfanilamide and derivs. on, 9154*g*.
detection in frozen concd. orange juice, 8571*i*.
detn. in beer, 1147*c*.
effect of anionic, cationic and nonionic agents on growth of, 4330*d*.
effect of cysteine and other thio derivs. on respiration of, 5078*b*.
effect of (methylsulfonyl)$_2$ derivs. of amidines and amines on, 1740*d*.
effect of quindolinium and quinindolinium salts on, 2305*h*.
2- and 6-fluoronicotinamide effect on, 4267*b*.
formic hydrogenase in, 4341*b*.
glucose fermentation by, 5080*i*.
glycolysis by, effect of fatty acids on, 717*i*.
gram staining of, effect of desoxyribonucleic acids on, 273*e*.
hemolytic activity of food products infected with, 7601*g*.
$H_2O_2$ action on, 9159*h*.
indole production by, 721*e*.
infections with, treatment by immunization with glucidolipide, 5483*b*.
inhibition by 2-chloro-4-aminobenzoic acid, effect of pantothenic acid on, 3497*f*.
inhibition by growth substance from sheep cardiac muscle, 1849*e*.
inhibition by hydroxy sulfones, 9376*e*.
inhibition by iodonium compds., 2684*i*.
inhibition by serine and production of serine-resistant mutants, 5826*e*.
inhibition of, effect of Ca, Mg, Mn and Ba on, 1826*a*.
lactase from, 267*g*.
lactic and pyruvic acid formation from $CO_2$ and alc. or AcOH by, 8443*f*.
lysis by amino acids and bacterial exts., incubation temp. and, 715*f*.
lysis by *Bacillus subtilis* ext. and norvaline, effect of oxidation-reduction potential of medium on, 715*h*.
lysis by norvaline mixt. with *Bacillus subtilis,* effect of bacterial no. and amounts of peptones on, 715*e*.
from mastitis, effect of antibacterial agents on, 3880*i*.
in meat, effect of $NaNO_2$ on, 9284*h*.
$HgCl_2$ fixation on, 715*h*.
Hg-compd. effect on, 1138*f*.
6-methyl-3-sulfanilamidopyridazine effect on, 178*e*.
in milk, effect on sol. N, 8067*g*
mutant produced by glycine, 4
mutants resistant to colicins, 4330*h*.
mutation by cancerigenic and non-cancerigenic substances, 2275*e*.
mutation during growth of, 2671*i*.
mutation during growth of biochem. mutants of, consequences of, 8439*e*.

*coli*, mutation to streptomycin resistance and dependence in, 6280*h*.
nicotinic acid and nicotinamide deficiency in, 3885*h*.
nitrogen mustard effect on, 273*g*.
nucleic acid synthesis by, 9155*d*.
nucleosides as growth promoting substance for, 716*g*.
nutrient effect on growth of streptomycin-sensitive, -resistant and -dependent strains of, 3061*b*.
oxidases of, effect of amidines on, 9154*c*.
oxidation-reduction phenomena in relation to reproduction and variation, 717*c*.
P (radioactive) uptake by, 8436*a*.
proline synthesis and bacteriophage resistance of, 5821*e*.
purine-requiring strain of, 3883*c*.
pyrophosphatase of, 9145*c*.
pyruvate synthesis in, acetyl precursor in, 1829*h*.
resistance of, to mutagenic agents, 5075*i*.
respiration in presence of hexose phosphates, permeability in, 8002*h*.
respiration of, effect of amino acids on, 6274*i*.
respiratory coeffs. of, 4332*e*.
salicylic acid toxicity for, effect of pantonine and pantoic acid on, 715*b*.
selenate inhibition of, and its reversal, 9157*g*.
Ag-ion effect on, 2277*g*.
streptomycin action on, effect of nucleic acid on, 5447*i*.
sulfonamide binding by, and effect on growth, 9142*g*, 9143*b*.
sulfonamides effect on, 173*i*.
threonine oxidation by, effect of streptomycin on, 4334*a*.
ultraviolet action on, recovery from, 5062*c*.
urea-deriv. effect on, 6279*i*.
uronic acid utilization by, adaptive enzyme formation in study of, 4333*i*.
utilization of amino acids and peptides by mutants of, 9148*c*.
vitamin $B_{12}$ in filtrates of, 3062*c*.
colicins from, 1456*ab*.
*freundii*, from urine of typhoid patients, 5444*e*.
α-methylglucoside fermentation by, 5082*f*.
sensitivity to penicillin, streptomycin and sulfadiazine, 4336*g*.
in sugar mills, 887*a*.
**Esculetin** (*6,7-dihydroxycoumarin*), adrenaline potentiation by, 3104*g*, 5116*h*.
derivs., 3823*a*, 4670*b*.
dimethyl ether—see *Coumarin, 6,7-dimethoxy-*.
6-glucoside—see *Esculin*.
——, **7 - benzyl - 4,6 - dimethyl-***, 3823*d*.
——, **7 - benzyl - 4 - methyl-***, and acetate, 3823*b*.
——, **6,7-dibenzyl-4-methyl-***, 3823*c*.
——, **dihydro-**, adrenaline potentiation by, 5116*i*.
**Esculin**, adrenaline potentiation by, 4376*b*, 5116*i*.
derivs., 3823*a*.
and derivs., 4670*b*.
detection of, 5704*b*.
effect on connective tissue ground substances, 7100*g*.
fluorescence of, effect of procaine on, 5540*h*.
fluorescence of solns. of, 6921*d*.
——, **4-methyl-***, 4670*b*.
and derivs., 3823*a*.
**Esculoside**. See *Esculin*.
**Eserine**. See *Physostigmine*.
**Esparto, Esparto grass**. See *Grasses*.
**Essences**. (See also *Flavoring materials; Oils; Perfumes; Spirits.*)
ethyl alc. detn. in mixts. with, 8311*a*.
**Essential oils**. See *Oils*.
**Essexite**, Caucasus Jurassic, 2552*e*.
**Esterases**. (See also *Acetylesterase; Lipases; Phosphatases;* etc.) 2262*d*.
acetylcholine—see *Cholinesterase*.
of blood plasma, 6258*b*.
in blood serum in liver disease, 9238*d*.
carboxypeptidase activity as, 4712*b*.
cholesterol—see *Cholesterases*.
choline—see *Cholinesterase*.
chymotrypsin action as, 5055*i*.
detection in tissue, 6678*f*.
differentiation of, eserine in, 7984*a*.
insect, 6677*c*.
of leucocytes, 9124*i*.
liver, crystn. of, 4711*f*.
local anesthetic effect on, 762*e*.
monoacetylmorphine—see *Monoacetylmorphine esterase*.
procaine—see *Procaine esterase*.
review on, from liver, 259*c*.
of silkworm larvae, specificity of, 6677*g*.
trypsin activity as, kinetics of, 7068*a*.
**Ester gums**, reaction products with oils and rosin, wax from candelilla wax and, P 5232*h*.
**Esterification**, of acetic acid with EtOH in vapor phase over $NaHSO_4$, 7799*h*.
of acylated α-amino acids, 1323*f*.
with alcs. (water-insoluble), 1319*e*.
of alcs. with 3-nitrophthalic anhydride, 5767*b*.
of aliphatic dibasic acids with polyvinyl alc., 6155*i*.
4-alkylmorpholine-$SO_3$ compds. as agents for, P 2242*f*.
of amino alcs., P 674*e*, P 9495*g*.
of BuOH with phthalic acid, kinetics of, 1747*a*.
of cellulose—see *Cellulose esters*.
chlorosulfonic acid in, 5767*a*, 6573*e*.
of collagen, effect on reactivity, 6258*g*.
of cyanohydrins, P 2631*g*.
of dibasic anhydrides with primary alcs., rate of, 1354*dh*.
of Diels-Alder adduct, P 2819*b*.
of diglycolic acid with polyhydric alcs., P 843*d*.
of drying-oil acids with polyhydric polymeric alcs. in coating manuf., P 1996*c*.
of enols, P 7953*h*.
of ethyl alc., kinetics of, 8252*e*.
of fatty acids with glycerol, 5207*ab*.
drying oil by, 6839*h*.
fluoride catalysis of, 4030*g*.
of fatty acids with higher alcs. and re-esterification of oils to lower acid no., 5609*f*.
of fatty acids with polyhydric alcs., 6432*b*.
of fatty acids with polyhydric alcs., drying oils by, 7239*h*.
of flax pectins, 2778*e*.
of glycerol with kerosene-oxidation products, 3182*b*.
of α-halo aliphatic acids, P 2632*h*.
of hydracrylic acid, dehydration and, P 4288*f*.
of hydrogenated oils with wool-fat acids to waxes, P 3220*g*.
of (hydroxyethyl)cellulose, 3784*g*.
of lactic acid, P 6224*d*.
of lactic acid, as means of purification, 2941*f*.
of lac with methylated spirits, P 5991*h*.
of lauroyl chloride with mannitol, 5741*a*.
of linseed fatty acids with 2,2,6,6-tetramethylolcyclohexanol, 4871*c*.
of maleic anhydride polymers with Me methacrylate, 8202*b*.
of maleic anhydride-poly-unsatd. compd. adducts with allyl alc. or methylallyl alc., P 2819*b*.
of 2-methyl-1,4-naphthalenediol, P 4300*e*.
of oils (unsatd.) during oxidation, 6841*ce*.
of pentaerythritol (dehydrated) with tall oil-rosin-linseed oil mixt. to resin, P 7240*b*.
of pentaerythritol or its condensation products with rosin and dibasic acids, P 4511*h*.
of pentaerythritol with rosin, 2788*c*.
of phenylquinolinecarboxylic acid in the presence of $ClSO_3H$, 127*g*.
of phosphate coupled to electron transport between dihydrodiphosphopyridine nucleotide and O, 6256*b*.
of phthalic anhydride with primary alcs., 2974*f*.
of polyhydric alcs. with vinyl aromatic compd.-monocarboxylic olefinic acid-drying oil polymers, P 5972*b*.
of polyhydric alcoholyzed drying oil with rosin-styrene polymers, P 2448*g*.
poly-, kinetics of, 4547*c*.
poly-, of hydroxy acids, 2166*c*, 2941*cd*.
of proteins of bacteria, effect on staining, 9155*f*.
re—see also *Alcoholysis*.
re-, trans- or inter-, of acetates of pentaerythritol and dipentaerythritol with Me esters of oleic, linoleic and linolenic acids, 3631*a*.
of acrylic acid derivs. with glycol esters, P 1608*gi*, P 1609*c*.
of acrylic acid esters, P 5036*a*, P 6650*i*.
re-, of alcs. with fatty materials by acid and then alk. catalysts, P 3637*d*.
in alkenyl acrylate manuf., P 4686*c*.
of 2-butoxyethyl chloroacetate, P 2223*e*.
of BuOH and EtOAc, 8827*e*.
of di- and monoglycerides with hydroxy acids, mixed triglyceride emulsifiers by, P 9493*i*.
of drying oil fatty acid-polyhydric alc. partial esters with monohydric unsatd. alc.-polycarboxylic acid monesters, P 4029*e*.
ester manuf. by, P 7951*eh*.
of esters with polyhydric alcs., monoglycerides by, P 9494*c*.
of EtOH with palm oil with various catalysts, 7723*h*.
of EtOH with peanut oil with NaOH as catalyst, 3635*f*.
of fatty oils with glycerol to monoglycerides, 5209*i*.
of glycerides directed to satd. mono- and diglycerides and to sep. high- and low-melting fatty acids into sep. esters, 5207*f*.
of glycerides in manuf. of polyhydric alc. esters, P 5794*d*.
of glycerides, satd. mono- and diglycerides by, P 4877*b*.
of glycerol - 9,11 - octadecadienoic acid α-monoester with phthalic anhydride and abietic acid, P 4873*b*.
of glycerol with fats and oils, monoglycerides by, P 6843*g*.
of glycerol with linseed oil, 3213*a*.
of glycerol with linseed oil, monoglycerides by, 1213*i*, 2463*h*.
higher ricinoleic acid esters by, P 6222*b*.
kinetics of, 7418*c*.
with lower alcs., P 1586*fh*.
of lower esters of β,β′-thiodipropionic acid, P 5414*g*.
in manuf. of bis(dialkylaminoalkyl)-2,5 - diaryl - 1 - methyl - 3,4-pyrroledicarboxylates, P 4700*f*.
manuf. of mixed esters of polyhydric alcs. by, P 1795*h*, P 1796*b*.
of methyl o-benzoylbenzoate, P 3847*g*.
of monohydric alcs. with palm oil, P 2794*i*.
in perfumery, 8179*e*.
of *N* - phenethyl - β - alanine esters, 5766*a*.
of polyhydric alcs. with fats, oils and waxes, monoesters from, P 2794*c*.
of silicic acid esters, 5737*h*.
of tetrahydrothiophenealkanoates, P 5806*c*.
of tung oil with colza oil or curcas oil, 1992*e*.
review on, 7759*b*.
of rosin-unsatd. acyclic hydrocarbon condensates, P 9486*c*.
of rosin-unsatd. heterocyclic compd. condensates, P 9486*h*.
of rosin with pentaerythritol and betulinol, P 9485*e*.
of rosin with polyallyl acetates or allyl acetate-vinyl acetate copolymers, P 9485*g*.
of secondary and tertiary alcs., P 7951*di*.
self-, of hydroxy acid of perilla oil, polymerized oil by, 4872*d*.
of starch, P 4038*b*.
of steroid diols and triols, P 1533*d*, P 6247*b*.
of sulfo aromatic dicarboxylic acid, P 6236*h*.
with sulfuric acid, 623*a*, 6057*c*.
of tall oil with glycerol, pentaerythritol or polyhydric alc., 3212*i*.
of tertiary hydroperoxides, 6189*d*.
of tetrahydrothiophene-3-ol 1,1-dioxide, P 1441*f*.
of xylitol by aliphatic and rosin acids and by phthalic anhydride, and transesterification of vegetable oils with xylitol, 6859*g*, 6860*g*.
**Ester number**, detn. of, of fats and oils, 879*c*.
**Esterol**. See "methyl ester" under *Acetic acid, (2,4-dichlorophenoxy)-*.
**Esteron**. See "isopropyl ester" under *Acetic acid, (2,4-dichlorophenoxy)-*.
**Esters**. *(Only entries of more or less general interest are made under this heading. Specific esters of inorganic acids have their own headings, as* Ethyl nitrate; *general studies of esters of specific inorganic acids or groups of acids are entered under the acid headings. Esters of organic acids are indexed under the*

*names of specific acids or groups of acids, as* Amino acids, *with the following exceptions: (1)* Ethyl acetate *has its own heading. (2) Acetates, benzoates, carbanilates, formates and p-toluenesulfonates of complex radicals are indexed under the names of the corresponding alcohols or phenols, and esters of cellulose are entered at* Cellulose acetates, Cellulose esters, Nitrocellulose, *etc. (3) Esters of fat acids and of fatty acids are entered below. See also* Depsides; Lactones.)
of acetal disulfide thioplasts, P 5644*d*.
of (acrylamino) imidic acids, hydrohalides, P 672*g*.
of α-acyloxycarboxylic acids, P 5036*i*.
of acyloxy compds., diglycolic acid and polyhydric alcs. for use as demulsifiers or flooding agents for oil recovery, P 1955*b*.
of aldehydic acids, prepn. of, P 3468*f*.
of alicyclic carboxylic acids, P 5416*f*.
of aliphatic and α,β-ethylenic-β-aryl carboxylic acids with glycerol, coatings from, P 877*a*.
of 1,1,3-alkanetriols, hydrogenation of, P 7503*g*.
alkenyl, of β-alkenoxy fatty acids, P 5037*a*.
of alkoxy acids, P 1055*d*.
of alkoxy acids, from reaction of acetylene with alkyl carbonates, 6167*g*.
alkoxyalkyl, of unsatd acids, for improvement of rubber hydrochloride film, P 3227*d*.
α-alkoxy and α-aryloxy, acylation of, 4248*c*.
alkylation with, of organomagnesium compds., 3819*b*.
(alkylmercapto)alkyl, P 3447*e*.
amide di-, as plasticizers for vinyl chloride resins, P 7750*i*.
of amino alcs. (acetylenic), hydrogenation to amine salts, 131*c*, 6977*g*.
of amino alcs., with α-alkylidene or α,α-dialkyl fatty acids, P 3443*d*.
with (aminoalkoxy) acids, P 3462*d*.
with aryl cycloalkanecarboxylic acids, P 6655*gh*i, P 6656*ab*.
with aryl substituted aliphatic acids, P 2639*f*.
with benzoic acid and its derivs., salts, P 4696*g*.
with 5 carboxy-1,2,4-trimethyl-3-pyrroleacrylic acid, P 4302*i*.
with dehydrocholic acid, P 1814*f*.
as demulsifiers, P 5937*g*.
with 2,5-diaryl-1-methyl-3,4-pyrroledicarboxylic acid, P 4700*i*.
with fatty acids, amphoteric surface-active, P 3638*g*.
with *N*-phenylanthranilic acid and its derivs., P 4097*b*
with pyrroledicarboxylic acid derivs., P 4302*fgh*.
related to 6-dimethylamino-4,4-diphenyl-3-heptanone, 3390*h*.
for removal of org. compds. from oil wells and pipe lines, P 5938*d*.
for removing mud sheaths from oil wells, P 5938*c*.
salts, P 6652*b*.
for soap improvement, P 9495*f*.
with 3-thiophenecarboxylic acid, 630*f*.
with trisubstituted acetic acids, 3391*i*.
from amino nitriles, 9052*c*.
ammonolysis of, effect of solvents on, 6495*c*.
analgesic and antispasmodic action of, 4243*a*.
of 1-arylcycloalkanecarboxylic acids, P 7958*d*.
assocn. of, 5248*e*.
as azeotrope formers in concn. of aq. solns. of HCHO, P 2221*d*.
azeotropes of, 2835*ab*, 5247*c*.
basic, P 5797*e*, P 6229*g*, P 7958*c*.
basic, of 1-arylcyclopentanecarboxylic acids, P 6229*d*.
of betaine hydrochlorides, 6976*i*, 6977*c*.
of *p*-bis(ω-hydroxyalkoxy)benzenes, polymerization of, P 4512*b*.
blowing and esterification of unsatd., with P acids, P 4877*f*.
calcn. of free energy function, heat content, heat and free energy of formation of, 5658*e*.
carbalkoxylation of, with mixts. of dialkyl carbonates and alcoholates, P 2225*g*.
of carbothiolic acid as polymerization modifier in butadiene rubber manuf., P 2805*c*.
of carboxylic acid sulfides, P 7504*d*.
as catalysts for polymerization of $C_2H_4$, P 8742*f*.
of chlorinated alkylidenediphenols with unsatd. acids, polymers, P 1808*b*.
of chlorinated fatty acids, HCl removal from, P 7502*e*.
of chlorinated paraffin wax and sulfonic acids for lubricant improvement, P 3193*b*.
2-chloroallyl, rubberlike polymers with butadiene, P 432*h*.
chloroethane reaction with Pb-Na alloy in presence of carboxylic acid, P 4287*e*.
chromatography with fluorescent silica gel, 1711*e*.
in citrus oils, 3975*i*.
of coconut-oil fatty acids with lauryl alc., hydrogenation of, 6063*a*.
complex, and their polymers, P 901*c*.
condensation of, agents for, 6170*g*.
condensation of, with acetylene compds., 6168*f*.
as corrosion inhibitors in lubricants, etc., 1953*g*.
crit. temp. cube additivity for, 7277*d*.
α-cyano, P 4288*g*.
of 7-dehydro sterols, P 6674*f*.
detection of, sirupy $H_3PO_4$ in, 8974*b*.
detn. of, 1280*g*, 8974*e*.
in hydrocarbons, 8943*c*.
in oxidized rubber, 7741*e*.
detn. of fat-acid and sulfated fat-acid, in fat-acid - alkanolamine detergents, 8705*h*.
detn. of fatty-acid, in serum, 8429*g*.
detn. of α,β-unsatd., 8976*d*.
(dialkylaminoalkylmercapto)alkyl, 3395*a*.
of dicarboxylic acids, aircraft lubricants from metallic soaps and branched-chain alkyl di-, P 1178*g*.
condensation with glycols, P 2228*h*.
in grinding of cement, P 9410*g*.
ionization of mono-, 7303*a*.
lactones of, P 2635*f*.
lubricating greases from, P 5183*i*.
plasticizing and vulcanizing acrylonitrile-butadiene rubbers from di-, P 898*e*, P 2034*c*.
dielec. absorption in, 8223*g*.
of *o,o'*-dihydroxyazo dyes, P 8153*e*.
of dihydroxy sulfides, for grease manuf., P 3606*e*.
of drying oil fatty acids with polyhydric alcs., modified drying oils by heating with monoester of monohydric unsatd. alc. and polycarboxylic acid, P 4029*d*.
effect on acetate rayon, 2777*f*.
on foam formation in beer, 9359*g*.
on interfacial friction, 2060*a*.
on nitrocellulose, 6061*a*.
emulsions with vinyl monomers and unsatd. poly-, P 7264*f*.
of enols, acylation with, P 5795*g*, P 7037*h*.
of enols, reaction with anhydrides, P 7038*c*.
epoxides from fatty acid, P 3030*d*.
equil. of biol., 6266*b*.
from ether (cyclic) reaction products with polyols, P 886*e*.
ether derivs., P 6224*a*.
ethers from, by reaction with $AlCl_3$, 2931*f*.
ethylene chlorohydrin extn. by, 5*i*.
from 2-ethyl-1,3-hexanediol and dicarboxylic acids, as plasticizers for amide-aldehyde condensation products, P 2814*a*.
ethylidene and vinyl, P 3838*d*.
ethyl, of coconut-oil fatty acids, prepn. of, 881*e*.
of fatty acids of soybean oil extd. by alcoholysis, 5209*f*.
of fatty acids of tall oil, autoxidation of, 9442*f*.
of halo carboxylic acids, reactivity of halogen in, 4638*e*.
of stillingia oil acids, chromatographic absorption in concg. optically active acid from, 7721*c*.
exchange of radicals of—for this year see "re-" under *Esterification*.
of fatty acid, in blood serum, 9197*e*.
condensation products with $C_2H_4O$ for textile industry, 4016*c*, 5953*e*.
with hexitol anhydride and with polyoxyalkylene derivs. of hexitol anhydride, lubricants contg., P 5938*e*.
with inner ether of hexitols, ethylene oxide condensation product of, for conditioning rayon, P 3207*e*.
in paraffin oxidation residues, 1993*b*.
fatty-acid partial, with polyhydric alcs. from highly esterified polyhydric alc. esters, P 9494*c*.
films (unimol.) of di-, 4537*d*.
of fluoro alcs., 6163*h*.
fluoro, and their polymers, P 5413*a*.
fluoro derivs., insecticidal, P 6358*e*.
of formaldehyde-ketone condensation products, P 9527*h*.
free energy of bonds in, 3276*h*.
glyceryl—see *Ester gums; Glycerides; Glycerol*.
glycol and polyglycol, of fatty acids, phys. properties and solubilities of, 2002*g*.
of glycol ethers as azeotropic agents in styrene recovery from hydrocarbon oils, P 5582*h*.
of glycol ethers of lac for lacquers, paints or varnishes, P 4030*b*.
of glycol (mono-) ethers in azeotropic sepn. of xylene isomers, P 4007*c*.
of glycols, P 6652*a*.
with di- or hydroxycarboxylic acids, increasing heat stability of acyl peroxide-vulcanized, P 7746*a*.
mixed, P 1795*h*, P 7504*a*.
with naphthalenedicarboxylic acids, fiber-forming superpolymeric, P 7236*g*.
as plasticizer in GR-S, 3648*e*.
of 1,1-glycols, reduction of, in the presence of $NH_3$ or an amine, P 2630*g*.
Grignard reaction with allylic, 9051*d*.
of α-halo acids, P 2632*h*.
halogenated fatty-acid, lower homologs from, P 2794*c*.
halogenated, lubricant additives from metal carboxylates and, P 845*g*.
hydrogenation of, to alcs., 572*b*.
equilibria in, 2164*i*.
velocity of, 573*f*.
hydrolysis of—see *Hydrolysis*.
of hydroxy acids, P 670*f*, P 6224*a*.
hydroxy-acid, surface tension of, 8779*e*.
of hydroxy acids with amino acids, for use as local anesthetics, P 2913*h*.
of (hydroxyalkoxy) compds., P 6663*d*.
of *N*-(hydroxyalkyl) amides and fatty acids as plasticizers in butadiene elastomers, P 7258*h*.
hydroxyalkylamide semi-, of fat acids with dicarboxylic acids, P 7241*g*.
of α-hydroxy carboxylic acids, 188*a*.
of hydroxy carboxylic acids, cleaning compns. from, P 8714*b*.
of hydroxy carboxylic and sulfonic acids, for waterproofing textiles, P 418*e*.
hydroxycarboxylic - polycarboxylic, P 9529*c*.
of hydroxy fatty acids, dehydration of, P 2220*g*, P 6220*b*.
of hydroxy fatty acids, oxidation of, P 676*h*.
of hydroxy nitriles, P 2631*g*, P 3027*f*.
ignition temps. of, 5658*b*.
of imidic acids, for thiol removal from hydrocarbon distillates, P 4844*c*.
of iminodi, oxydi and thiodi carboxylic acids, as fungicides and insecticides, P 5152*e*.
ionization in $H_2SO_4$, 8808*d*.
of β-isonitroso acids, Beckmann rearrangement of, 1723*g*.
from kerosene oxidation, prepn. of film-forming and ester mixts. from, 3181*i*.
-ketone mixts., reduction of, 2944*c*.
of lac resins with monohydric alcs., rubberlike materials by polymerization of, P 5991*g*.
lubricant pour-depressants from fatty-acid, 2416*c*.
lubricants from, P 393*b*, 2417*c*, 5936*d*, 8660*b*, 9423*i*.
maleic anhydride-styrene sulfonated copolymer half-, as fat-liquoring agents, P 7738*c*.
manuf. and sapon. of fatty-acid, P 1586*fh*.
manuf. of, P 5412*d*.
by oxidation of heavy alkylate hydrocarbons with per compds., P 5584*c*.
from reaction of CO with alcs. or ethers, P 3443*b*.
from soaps of resinous and fatty acids from wood, P 1200*e*.
from synthetic fuels, 8646*g*.
manuf. of mixed, of polyhydric alcs. with drying oil and mercapto acids, P 9081*f*.
of mercapto dicarboxylic acids with dihydric alcs., satd. poly-, and coatings therefrom, P 3633*b*.
methyl, of bonito-oil unsatd. acids, lubricating oil by polymerization and hydrogenation of, 2416*f*.

*methyl*, of coconut-oil acids, hydrogenation to higher fatty alcs., 5208*e*.
detn. of, 1687*i*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
of dimeric fat esters of linseed and soybean oils, prepn., hydrogenation and polyesterification with glycols, alkanolamines and diamines, 8699*c*.
of 2- and 5-ketohexonic acids, detection and detn. of, 1689*h*.
of linseed, perilla and tobacco seed oils, adsorption of Me linoleate and Me linolenate on silicic acid from, 6840*a*.
polybromide yield and Me arachidonate estn. in mixed, 2791*g*.
prepn. from soap-boiling fractions and analysis of, 3218*i*.
prepn. of, 567*a*.
of soybean-oil fatty acids, reaction with *tert*-butyl hypochlorite, 5204*f*.
mixed, for use as drying oils, P 876*gh*.
mixed, for use as drying oils, and polymers with vinylidene compds. and esters of butenedioic acids, P 1995*e*.
of (4-morpholinyl) alcs., P 9086*g*.
multivalent-alc. mixed, plastic compns. from, P 4895*b*.
of naphthene oxidation products with polyhydric alcs. for drying oil use, P 3633*b*.
of α-nitro carboxylic acids, 127*c*.
nonionic surface-active, of fatty-acid polymers with polyalkylene glycols or oxides, P 6439*d*.
optical rotation of, 4680*e*.
organosilicon, P 3441*f*.
ortho, and related compds., 3359*h*.
ortho, reactions of sugar acetates with $NH_3$, 5747*g*.
reaction with Grignard reagents, 5365*g*.
reaction with ketenes, P 1055*f*.
of sugars, mol. structure of, 2964*h*.
oxidation of thiol, with peroxyacetic acid, 6975*e*.
oxidation of unsatd., carotene in, 9076*f*.
of β-oxo acids, acetylation with ketene in the presence of tertiary amines, P 6655*a*.
from acylpyruvates, 139*i*.
bromine migration in, 7908*i*.
cyanoethylation of, 2582*d*, P 4689*g*.
formation in Reformatskiĭ reaction, 613*b*.
reaction with aromatic amines, 228*d*, 1416*b*.
of oxo acids, reaction with ketene, P 3840*c*, 5366*i*.
of oxo acids, reaction with ketene and its derivs., P 1436*b*.
β-oxo α-nitroso, oximes of α-oxo esters from, 1746*e*.
of palm-oil fatty acids, as Diesel motor fuels, 2402*e*.
paraffin-wax soly. in, 8126*d*.
of pentaerythritol-thiodiglycol reaction product, P 9081*e*.
peroxide structures in oxidized, polarograph in distinguishing, 2789*i*.
of peroxy acids, as catalysts for polymerization of ethylene, P 3238*f*.
of phenol-formaldehyde polymers, as detergents, P 1588*a*.
of phenols, Fries rearrangement of, 2187*a*.
of phenols in cottonseed treatment, 3133*e*.
of phenols with carboxylic acids, P 6234*h*.
of phenyl-1,2-ethanediol derivs. as plasticizers for elastomers, P 6663*g*.
of phosphorus acids, 121*b*, 1314*d*, 8350*h*.
phys. properties of, 2590*d*.
physical properties of naturally occurring fatty-acid, 2164*g*.
plasticizers from phenols and, P 2034*a*.
poly-, P 1056*i*, P 4897*h*.
acylated azelates and suberates for manuf. of, P 6226*c*.
of adipic acid with ethylene glycol or 1,10-decanediol, 6578*c*.
from α-alkyl ether of glycerol and dicarboxylic acid as plasticizer for amide-aldehyde coatings, P 2814*c*.
———, *sz.*, crystn., 4530*c*.
catalyst effect on formation of, 4891*g*.
coating from, P 3242*b*.
condensation products with polyamides, P 4517*g*.
constitution and properties of, 9455*d*.
in crumbible form, P 2032*e*.
crystallinity and dilatometric properties of, 9045*d*.
*poly-*, crystn. of aromatic, 6045*e*.
depolymerization of, 4542*b*.
of dicarboxylic acids with glycols, $Fe_2O_3$-reinforced peroxide-cured rubbers from, P 432*d*.
of dimethylene-D-gluconic acid, P 2816*h*.
of ethylene glycol, with soybean-oil dimerized acids, reaction products with rosin and triethanolamine, P 896*c*.
fibers from, 2778*c*.
of glycols with terephthalic acid, sizing yarns of, P 3628*a*.
from hydroxy acid formed by hydrogenation of acrolein-eleostearic acid reaction product, P 3039*f*.
isocyanate-modified, or polyester amides, mixts. of polyvinyl acetal and, P 3661*a*.
linear, P 1223*g*, P 6236*d*.
manuf. of, P 6865*f*.
molding glass-fiber laminate contg., 2029*g*.
mol. wt. distribution of, 4228*a*.
org.-peroxide catalysts for curing unsatd., 4892*h*.
as plasticizers, P 4894*e*, 5627*f*.
as plasticizers for melamine and urea resins, P 4513*c*.
as plasticizers for melamine-HCHO resins, P 9527*b*.
polymerization with vinyl compds., P 1220*b*.
from *trans*-quinitol, P 7755*a*.
review on, 5996*e*.
of sebacic acid, in surface coatings, 6462*i*.
of terephthalic acid, degradation of, P 4519*a*.
unsatd., and their polymers, P 4298*g*.
uses of, 5993*f*.
of polyalkylene glycols, with fatty acids, P 5792*e*.
polyamide, P 7266*e*.
polyamide, compn. from, P 9537*f*.
polyglycol, P 6652*f*, P 7726*i*.
of polyglycols, polyhydric aliphatic alcs. or condensates, in heat-stabilization of vinylidene chloride polymers, P 3233*f*.
of polyglycols, with fatty acids, emulsification with metallic soaps, P 4876*i*.
polyhydric alc. mixed, P 4290*c*.
with benzoic acids and monocarboxylic acids, P 422*d*.
from kerosene oxidation products and rosin, P 3634*c*.
polymers with styrene, P 1223*a*, P 4051*h*.
with 2 unsatd. carboxy acids, P 1557*c*.
polyhydric alc. partial, of fat acids, 137*d*.
of polyhydric alcs. with fatty acids, and their condensates with ethylene oxide in drying of rayon, P 2785*g*.
with fatty acids as drying oils, 6432*c*.
with fatty acids as ointment-base constituents, hydrophilic properties of, 8610*a*.
manuf. of, P 5794*d*.
with α-olefinic dicarboxylic acids, polymerization with ethylenic monomers, P 906*e*.
with poly-unsatd. fatty acids, as plasticizers for polyvinyl-acetal resins, P 3655*h*.
with resin acid-styrene copolymers, resinous, P 2448*e*.
with unsatd. acids, 9078*i*.
with unsatd. monocarboxylic acids, for use as drying oils, P 3634*a*.
polymer compatibility in, 6862*d*.
polymerizable, P 2819*b*, P 7502*i*, 8352*e*.
polymerization of, amines as promoters of, P 5230*d*.
of drying-oil acids, 2787*g*.
of fatty acids with monovinyl aromatic compds. and monocarboxylic olefinic acids, P 5972*c*.
of unsatd. alcs., P 443*f*.
of unsatd. alcs. with α,β-unsatd. dicarboxylic acids, with olefins, P 3236*c*.
of unsatd. dicarboxylic acid and unsatd. monohydric alcs. with halopenes, P 4891*a*.
of unsatd. fatty acids, 5974*g*.
polymerized, as lubricant additives, P 6821*c*.
polymers of, diisocyanate-modified, vulcanization with S, P 4046*g*.
polymers of maleic anhydride and unsatd. polycarboxylic, P 9532*i*.
polymers of unsatd. dicarboxylic acid, with vinyl chloride, sponge compn. from, P 3239*f*.
polyolefinic, polymers with Et acrylate, 5988*h*.
poly-, or polyesteramides, compns. with diisocyanates, increasing soly. in org. liquids, P 7753*a*.
of polyoxyalkylenediols, P 3446*c*.
1,2-polyoxypropylene monoalkyl ether, with fatty acids, P 1562*e*.
prepn. of, $ClSO_3H$ in, 127*e*.
prepn. of fatty-acid, for film study, 3631*a*.
prepn. of mono-, from fat acids and polyalcs., 6842*h*.
pseudo, 140*b*.
pseudo, of dicarboxylic acids, 8368*f*.
of *p*-quinonedioxime in vulcanization of Butyl rubber, 5623*cf*.
reaction of di-, of 1,1-alkanediols with $H_2S$, P 5418*e*.
reaction of, with acetylene, 7453*b*.
with amines, 2926*e*.
with $NH_3$ or amines, P 4289*a*.
with biguanide, P 1814*d*.
of fatty acids, with aromatic hydroxy compds., drying oils by, P 9481*i*.
with ketones, 4253*g*.
with methyl 2-thienyl ketone, 629*g*.
with sulfanilamide, 2597*i*.
of thio phosphoric acid, with acyl and alkyl halides, 560*g*.
of unsatd. carboxylic acids, with phenols, P 5044*g*.
of vinyl alc. derivs. with amines, P 6652*c*.
reaction of unsatd., with biguanide, P 3854*f*.
with H halide, P 7954*b*.
with α hydroxy nitriles, P 4288*g*.
with nitro paraffins, 1319*g*.
reactivity of tertiary alkyl, 3776*g*.
recovery from fruit juices, etc., P 330*i*.
recovery of fatty acid mono-, with polyhydric alcs., from oils and waxes, P 2794*e*.
reduction of, P 3835*g*, P 7497*c*.
with alc. and alkali metals, P 5216*a*
of α-amino acids, 1723*a*.
of fat acids, Raney nickel as catalyst in, 5303*f*.
of unsatd. fat acids to unsatd. alcs., catalysts in, 5363*d*.
removal from glycerol alc. solns., P 3638*e*.
removal from higher alcs. by hydrogenation, P 5032*e*.
resinous, P 6464*c*.
resinous, of fatty acids with pentaerythritols, P 3232*g*.
resinous products from unsatd., P 7750*g*.
rust-preventing compds. from thioether substituted org. acids and fatty-acid, with polyhydric alcs., P 7224*f*.
sapon. of molten fatty-acid, P 3638*c*.
sepn. from reaction products of hydrogenation of CO, P 7213*f*.
sodium salts of alkyl, of *l*-pimaric acid-maleic anhydride addn. product as emulsifiers in GR-S rubber polymerization, 7252*h*.
solid solns. in hexacosane or paraffin wax, dielec. relaxation times of, 3676*g*.
solns. in polyisobutene and polythene, dipole orientation in, 6019*i*.
as stabilizing agents for icings, P 6759*c*
steroid, P 6247*a*.
of steroids (hydroxy oxo) with polybasic acids, P 700*i*.
sterol, of perilla oils, 4032*b*.
of sulfo aromatic dicarboxylic acids, as textile assistants, P 6230*g*.
of sulfo carboxylic acids, for improvement of electroreduction of metals, P 4152*e*.
of sulfonic acids, as catalysts for curing urea-$CH_2O$ resins, P 4512*i*.
of sulfonic acids, with α-hydroxy acids or their derivs., 2941*g*.
of sulfur-contg. carboxylic acids, spectra of, 4215*hi*.
in sulfuric acid, behavior of, 568*i*, 623*a*.
of tall-oil acids, polyhydric alcs. and dibasic acids, and varnishes therefrom, 3212*i*.
of tall-oil acids with polyethylene glycols, oxidized mixed, P 1557*c*.
tall-oil fatty-acid mono-, with polyhydric alcs., cutting-oil base from rosin soaps and, P 4845*f*.
of tetrabasic pol———ids for use as resins, P 846*g*.

thermochor of, 8226*e*.
ω-thiocyanoalkyl, insecticidal, P 5152*h*.
of thioglycols, P 3662*b*.
of thiols, hydrogenation of, P 3445*c*.
of thiols (tertiary), P 3444*i*.
thio, of phosphorus acid, 1004*c*.
thorium nitrate partition between water and, 6890*e*.
ultrasonic velocity in, 8780*e*.
of α,β-unsatd. acids from esters of β-alkoxy acids, P 3442*e*.
unsatd. di-, P 3847*c*.
unsatd. dicarboxylic acid half-, with *N*-hydroxylalkyl amides of fatty acids, and their surface-active Na salts, P 4500*e*.
of unsatd. higher acids, P 6651*f*.
of unsatd. tricarboxylic acids, as disinfectants, fungicides and insecticides, P 7634*d*.
vapor pressure at crit. point, 4063*c*.
vapor pressures of high-boiling, 3677*i*.
vinyl—see *Vinyl alcohol*.
of vitamin A and their biol. activity, 5371*i*.
of wax-substituted hydroxyaromatic compds. for hydrocarbon oil stabilization, P 1562*a*.
of wool fat, detn. in wool, 6423*c*.
in wool wax, 6491*e*.
yeasts forming, 3560*i*.

**Estilbin "MCO."** See *4,4'-Stilbenediol, α,α'-diethyl-*.

**Estol H**, in potato-late-blight control, 9338*g*.

**Estradiol** (*dihydrofolliculin, dihydrotheelin, dihydroxyestrin*). (See also *Estrogenic hormones*.)
α- and β-, bis(*p*-phenylazobenzoates), 5787*g*.
benzoate, age factor in breast cancer formation by, 2305*i*.
carcinoma of uterine cervix in mice treated with, 2311*a*.
effect of 2-acetylaminofluorene and, on Wistar rat, 305*h*.
effect of ultraviolet irradiation on, 7521*g*.
effect on Ca deposition in femora of chick embryos, 7579*g*.
effect on castrated women, 1486*a*.
effect on cholesterol deposition in corpus luteum, 8033*b*
effect on dietary fatty liver, 7560*c*.
effect on hemopoiesis in frogs, 3530*f*.
effect on mammary gland, 9206*b*.
effect on mammary glands of parabiotic rats, 4750*g*.
pathological conditions from, and attempts to modify, 1854*c*.
standards for, 3561*h*.
and benzoate, assay of, 7994*c*.
3-benzoate β-maltoside heptaacetate, P 5428*c*.
conversion to estrone by streptomyces, 4331*b*, 9147*h*.
cytostatic action in prostate carcinoma, 9263*h*.
detection of β-, in presence of α-estradiol, 7865*c*.
detn. in urine, 9136*f*.
detn. of α- and β-, 8427*e*.
diacetate, spectrum of, 3018*i*.
dipropionate, effect on gonads of eels, 8481*g*.
effect on liver, 1474*d*.
effect on mammary tumors *N*-fluorenylacetamide, 2698*e*.
and dipropionate, effect on male rabbits, 4776*f*.
effect of, alone and with testosterone on body and organ wts. and arginase and phosphatases of organs, 3090*a*.
effect on adrenal cortical tumor formation, 7124*g*.
on artificial premature climacteric of gonadal origin produced by ovariectomy in rats, 2301*d*.
on corpora lutea, mammary gland, etc., 7436.
on differentiating gonads of frogs, 7104*b*.
on frogs, effect of 4-aminopteroylglutamic acid and pteroylglutamic acid on, 1474*f*.
on granulation tissue, 8492*b*.
on growth, 3507*h*.
on lymphatic tissue of spleen, 6720*h*.
on metabolism in osteoporosis, 5487*i*.
on metamorphosis of axolotis by thyroxine, 324*e*, 9213*c*.
on nervous system of crab, 5506*g*.
on oviducts, effect of aminopterin on, 9202*h*.
*effect* on phosphatase activity in genital tract, 5840*g*, 5841*d*.
on phosphatase in kidney, 2302*c*.
on phosphatases in blood serum before and after castration, 8500*f*.
on prostate gland, effect of 4-aminopteroylglutamic acid on, 8508*f*.
on respiration of brain homogenates, 7579*e*.
on sensitivity of uterus to hypophysin, adrenaline and histamine, 1848*f*.
estrogenic activity of, and of its benzoate and dipropionate, 3508*d*.
estrone reduction to, by vitamin C, 4357*h*.
as fattening agent for broilers, 9290*b*.
feminization of plumage of capons by, and its benzoate, 1098*c*.
growth stimulated by, nucleic acids and phosphatase in tissue during, 2686*a*.
inactivation by liver, 8486*a*.
inactivation products of, effect on pituitary gonadotropic content and secretion, 3083*i*.
lymphoid tumors from, age and, 7119*e*.
metabolism of, 8509*h*.
metabolism of α- and β-, 8034*c*.
mixts., P 365*e*.
monoglucoside, P 1533*b*, P 2376*i*.
17-monophosphate, P 7056*f*, P 7969*a*.
and 17-monophosphate and 3,17-diphosphate, effect on alk. phosphatase, 6716*d*.
narcotic action of, 309*h*.
phys. properties of, 5254*d*.
progesterone antagonism to, 5116*b*.
propionates, P 6248*a*
in symphysis pubis relaxation, 8034*i*.
in urine of stallions, 5174*a*.

**Estradiol, ethynyl-***, effect on fatty liver, 7560*c*.
lipotropic effect of, 9203*e*.

**——, 17-ethynyl-***, color and fluorescence tests for, 3870*e*.
diacetate, P 7978*i*.
hydration of, P 7054*e*.

**——, iodo-**, distribution and metabolism of labeled, 3081*g*.

**— 16-keto-***, color and fluorescence tests for, 3870*f*.

**——, 1-methyl-***, 4271*d*.
effect on arginase and phosphatases of organs, 3090*a*.

**Estragole** (*p-allylanisole*), in goldenrod oil, 2372*c*.

**$\Delta^{1,3,5(10),6,8,14}$-Estrahexaen-17-one***, spectrum of, 3018*i*.

**——, 3-methoxy-***, spectrum of, 3018*i*

**$\Delta^{1,3,5(10),6,8}$-Estrapentaen-16-one***, spectrum of, 3019*g*.

**$\Delta^{1,3,5,14}$-Estratetraene, 3-hydroxy-17-cyano-***, nitrogen detn. in, 5336*f*.

**$\Delta^{1,3,5}$-Estratriene, 3-(benzyloxy)-17(α)-hydroxy-16-keto-***, and 17-acetate, 3434*g*.

**- ——, 3,17(α)-dihydroxy-16-keto-***, and diacetate, 3434*g*.

**——, 3 - methoxy - 17(α) - hydroxy - 16-keto-***, 3434*g*.

**Estrin**. See *Estrogenic hormones;* for "dihydroxyestrin" see *Estradiol;* for "ketohydroxyestrin" see *Estrone;* and for "trihydroxyestrin" see *Estriol*.

**Estriol** (*follicular hormone hydrate, therelol, trihydroxyestrin*). (See also *Estrogenic hormones*.) 3435*a*.
color and fluorescence tests for, 3870*f*.
detn. of, 8427*h*.
detn. of, in urine, 4317*e*, 9136*f*.
effect on adrenal cortical tumor formation, 7124*g*.
effect on castrated women, 1486*a*.
formation from 16-ketoesterone, 2301*d*.
triacetate, spectrum of, 3018*i*.
tris(*p*-phenylazobenzoate), 5787*g*.

**Estrofolliculin**. See *Estrogenic hormones*.

**Estrogenic hormones or principles.** (*Hormones not sufficiently characterized to be put under the specific headings such as* Estrone *and* Estriol; *those called "estrin," "female sex," "follicular," "thelykinin," etc.; and other naturally occurring or synthetic compounds showing estrogenic activity are entered here. See also* Cyclopenta[*a*]phenanthrene; Equilenin; Equilin; Estradiol; Estriol; Estrone; Ovarian extracts; 4,4'-Stilben,ediol α,α'-diethyl-; *and* "sex" *under* Hormones.)
absorption through skin, toxic effects of, 8506*h*.
acids from, 9093*a*.
acids with action of, 3814*e*.
activity and constitution of, 6607*g*.
activity of, administered percutaneously, 2318*i*.
assay of, 264*e*, 1848*d*, 5070*b*, 7074*d*, 7994*bd*.
bibenzyl and stilbene derivs., 196*c*, 9056*d*.
in bile in pregnancy, 8490*e*.
bis(hydroxyphenyl)hexane and bis(hydroxyphenyl)hexene derivs. with action as, P 3979*h*.
α,β - bis(*p* - hydroxyphenyl) - α - methylvaleric acid with properties of, 613*d*.
in British pharmacopeia (1948), 4428*g*.
cancer production in rhesus monkeys with, 304*a*.
carcinoma of uterine cervix in mice treated with, 2310*i*.
3-*cis*,17-*trans*-androstanediol as, 3087*g*.
compds. related to, 6605*f*.
conjugated sulfate hydrolysis by enzyme prepn. of *Aspergillus oryzae*, 7983*g*.
conjugation with glucuronic acid in liver, 5479*h*.
detection and detn. of, 3870*e*, 5816*a*.
detn. of, 6687*d*, 6602*c*, 7534*d*.
detn. of, in urine, 710*i*, 4317*e*, 5438*e*, 8426*e*.
1,2 - dialkyl - 1,2,3,4 - tetrahydro - 7-methoxy - 2 - phenanthrenecarboxylic acids, P 5047*g*.
*p,p'* - (1,2 - diethylethylene)diphenol bis(acid phosphate) salts, P 2236*f*.
*p,p'* - (1,2 - diethylethylene)diphenol diacetate, P 2236*e*.
*p,p'* - (1,2 - diethylethylene)diphenol disulfate, P 1915*g*.
*p,p'* - (diethylideneëthylene)diphenol esters, P 823*f*.
dispersing and associating action on hydrophobic substances, 3083*e*.
doisynolic acids as, 3085*d*.
effect of, alone and with testosterone on body and organ wts. and arginase and phosphatases of organs, 3089*i*.
effect on anterior pituitary, effect of ovaries on, 8034*a*.
on blood compn. in chickens and turkeys, 7561*a*.
on bone calcification in ducks, 5471*a*.
on cancer incidence and adrenal changes after ovariectomy during calorie restriction, 7573*f*.
on cholinesterase in blood serum in labor and child bed, 9201*e*.
on corpus luteum, 8494*a*.
on cytoplasmic reactions in vaginal epithelium, 739*i*.
on embryonic sex differentiation, 5478*e*.
on estrus, 1098*f*.
on genital tract, effect of purine antagonist on, 7103*h*.
on glycogen in liver, 3937*a*.
on lactation, 8488*g*.
on laying hens, 294*g*.
on male rabbits, 3086*f*, 4776*f*.
on malignant chorio-epithelioma, 9256*g*.
on mammary gland, 4750*f*.
on mammary glands after castration, effect of adrenalectomy on, 7565*h*.
on mammary structure of adrenalectomized and thiouracil-treated rats, 8486*g*.
on metamorphosis from thyroxine in amphibians, 9213*g*.
on mitotic activity in anterior pituitary after ovariectomy, 4354*i*.
on oxidation of lipides *in vitro*, 739*f*.
on phosphatase, effect of α-tocopheryl phosphate on, 7530*h*.
on plants, 7553*c*.
on senile skin, 8514*c*.
on sexual characteristics, 2302*c*.
on skeleton, 8040*e*.
on succinic dehydrogenase and cytochrome oxidase in prostate and seminal vesicle, 8488*e*.
on succinic oxidase system of liver, 3862*c*.
on testis and pituitary of sparrows, 7565*e*.
on thyroid function, 295*c*.
on tract specificity in feather chimaerae of capons, 8508*c*.
on transmission of activity of sympathetic nerves, 747*d*.
on udder after implantation, 7128*f*.
on uterus in vitamin E deficiency, 4738*h*.
on vitamin $B_2$ in blood plasma, 8491*e*.
on x-rayed ovaries, 4743*g*.
in eggs of American lobster and their detn., 773*b*.

estrous cycle control by, 8054*f*.
estrus from, effect of subtosan on, 4768*a*.
ethylene derivs., 7467*g*.
1 - ethyl - 1,2,3,4,4a,9,10,10a - octahydro - 7 - methoxy - 2 - methyl - 2-phenanthrenecarboxylic acid stereoisomers, 7033*g*.
formation of, 3910*f*.
in Gierke's disease treatment, 3923*e*.
glucide metabolism and, 4377*i*.
in grass and their effects on milk secretion, 6702*d*.
inactivation by liver, effect of inanition on, 8024*h*.
Kober reaction for, 16-ketoesterone in, 7535*a*.
lipotropic effect of, 9203*e*.
in liver lesions, 5854*a*.
luteinizing hormone release by, neutral factor in, 8490*f*.
in mammary cancer treatment, 8521*f*.
mammary hyperplasia from, thyroid gland in, 8485*d*.
from medicinal mud, 2246*c*.
metabolism of, 1474*i*, 4357*h*, 7106*f*.
metabolism of synthetic, 7114*c*.
metabolism of, vitamin B complex in, 5834*f*.
1,2,3,4,4a,9,10,10a - octahydro - 7-methoxy - 1,2 - dimethyl - 2 - phenanthrenecarboxylic acid stereoisomers, 7033*c*.
2-phenanthrenecarboxylic acids, P 7048*h*.
phenanthrene derivs., P 6667*c*.
*p*-phenylazobenzoates of natural, 5787*e*.
2-phenylindan derivs., 1757*h*.
precursor, storage mechanism of, 5479*d*.
protein-bound, detn. in blood, 7534*f*.
pseudopregnancy from, mammary glands in, 5840*h*.
reviews on, 2300*hi*, 4747*a*, 8064*d*.
secretion by tumors of adrenal cortex, 1478*i*, 5855*i*.
stereochem. considerations in activity of, 3909*d*, 7093*f*.
stilbene derivs., P 6666*eg*.
synthetic, 603*f*, 613*h*, 3812*h*, 3814*d*, 5014*i*, P 7048*c*, 7468*i*, 7927*f*, P 7968*i*, 8367*b*, 8370*d*.
potency and toxicity of, 3935*f*.
prepn. and administration of, 9363*i*.
1,2,3,4 - tetrahydro - 2 - phenanthrenecarboxylic acid derivs., P 3849*g*.
tissue growth induced by, effect of folic acid antagonists on, 8491*c*.
1,2,2-triarylethylene as, in relation to chem. constitution, 4746*d*.
triarylethylenes as, 7006*h*.
trimethylenediphenol derivs., P 4699*g*.
triphenylethylene derivs., 199*f*, 7468*i*.
in tulip bulbs, 4727*i*.
tumors from, effect of pregnenolones on, 300*f*.
turkey finish and, 9330*c*.
from urine, P 5158*d*.
in urine, as ethereal sulfates and monoglucuronides, 8506*a*.
during ovarian cycle and pregnancy, 3508*b*.
during pregnancy, effect of diethylstilbestrol on, 5476*h*.
in toxemia of pregnancy, fetal health and, 9233*d*.
in vernix caseosa, 7105*i*, 9200*d*.
**Estrolic acid***, lactone acetate, color and fluorescence tests for, 3870*f*.
lactone and lactone acetate, metabolism of, 8034*c*.
**Estromon.** See *4,4'-Stilbenediol, α,α'-diethyl-*.
**Estron.** See *Rayon*.
**Estrone** (*folliculin, ketohydroxyestrin, menformone, theelin.*) (See also *Estrogenic hormones.*)
acetate, spectrum of, 3018*i*.
assay of, 7904*ce*.
detection of, 8975*g*.
detn. of, 6687*d*, 6692*c*, 8094*g*, 8427*e*, 8613*b*.
detn. of, in urine, 4317*e*, 9136*f*.
effect of, on adrenal cortical tumor formation, 7124*g*.
on dietary fatty liver, 7560*c*.
on mating behavior of female, 8055*h*.
on metamorphosis from thyroxine in amphibians, 9213*h*.
on phosphatase of intestine after adrenalectomy, 9201*g*.
in pregnancy, 8494*e*.
effect of thyroxine and, on creatinuria, 1107*e*.
estradiol conversion to, by streptomyces, 4331*b*, 9147*h*.
isolation from urine of pregnant mares, 3798*g*.
lipotropic action of, 9203*e*.
*p*-phenylazobenzoate, 5787*f*.
and 3-phosphate, effect on alk. phosphatase, 6716*d*.
phys. properties of, 5254*d*.
reaction product with $SbCl_5$, spectrum of, 5307*g*.
standards for, 3561*h*.
synthesis of, and related compds., 3431*e*.
vitamin C effect on estrogenic action of, 4357*i*.
**Estrone, 16-(hydroxymethylene)-***, and *p*-nitroanil, 245*f*.
——, **16-keto-***, conversion to estriol *in vivo*, 2301*d*.
in Kober reaction, 7535*a*.
——, **1-methyl-***, effect on arginase and phosphatases of organs, 3090*a*.
and methyl ether, 4270*i*.
**Estrone-16-sulfonic acid***, ammonium salt and Me ester, 2214*g*.
——, **1-methyl-***, and derivs., 2214*h*.
**Estrus.** (See also *Ovarian cycle; Sexual activity.*)
effect of 3,4-bis(3-methyl-4-hydroxy-5-allylphenyl) - 2,4 - hexadiene and its esters on, 4247*d*.
from estrogenic hormones, effect of subtosan on, 4768*a*.
hormonal factors influencing, 1098*e*.
hormones producing—see *Equilenin; Equilin; Estradiol; Estriol; Estrogenic hormones; Estrone.*
**Estrus cycle.** See *Ovarian cycle*.
**Etamon chloride.** See "tetraethyl— chloride" under *Ammonium compounds, substituted*.
**Etching.** (See also *Engraving; Lithography; Photogravure; Printing.*)
of aluminum, P 6147*f*.
of aluminum-Cu-Mg alloys, 2147*a*.
of bismuth, nital soln. decompn. in, 5593*f*, 7220*e*.
book: Handbuch der Metallbeizerei, 7890*h*.
of brass, 3761*f*, 6961*h*.
by cathodic sputtering, 5679*h*.
of cellulose ester plastic sheets, P 4030*d*.
of chromium plated rolls, P 2438*c*.
in color metallography, 79*i*.
electrolytic, 6090*f*.
of Cu alloys for painting, P 3300*e*.
of Cu-base alloys, P 2880*d*.
with stencils, P 3734*g*.
of galvanized Fe for coating with org. finishes, 873*g*.
of lead, 1705*c*.
of metals, review on, 9014*f*.
review on, 7888*f*.
of silver, 3758*f*.
of silver, effect on exchange with Ag ions, 7791*c*.
of steel for electron microscopy, 8328*i*.
**Ethacrylic acid.** See *Butyric acid, α-methylene-*.
**Ethanal.** See *Acetaldehyde*.
**Ethanamide.** See *Acetamide*.
**Ethane,** acyldiazo derivs., rearrangement of, 6902*e*.
adsorption by charcoal, 6488*f*.
by KCl and NaCl, 2066*b*.
by NaCl, 6034*c*.
aryl and pyridyl derivs., dissocn. of, 1231*a*.
atomic function and viscosity of, 8774*f*.
bonds (σ) in, 2478*f*.
calcn. of force consts., infrared-absorption spectra and vibration configurations of, 6479*b*.
chlorination of, P 2217*h*, 5361*b*.
conversion of, with fused $Al_2O_3$ pellets, P 387*h*.
decompn. by heat, rate of, 5269*d*.
dehydrogenation of, by selective oxidation, 7898*a*.
detn. in coke-oven gas, 5234*g*.
detn. in hydrocarbon gases, 8653*b*.
1,2-dihalogen derivs. of, rotational isomers of, 8873*a*.
effect on myocardium sensitivity to adrenaline, 1111*e*.
enthalpy of, 6903*f*.
entropy and heat content of, and its mixt. with $CH_4$, effects of pressure on, 5576*a*.
ethylene manuf. from, 5571*i*.
flame propagation limits for, 3618*e*.
flame temp. of, 1231*i*.
force const. of C-H bond for, relation to HCH angle, 4059*i*.
formation of, 108*c*.
in acetyl peroxide decompn., 3776*b*.
*formation of*, from EtOH and $C_2H_4$ on $TiO_2$, 8828*b*.
from AgEt and AgMe, 5732*e*.
from hexadecane, 3343*e*.
in $CH_4$-filled Geiger-Müller counters, 484*b*.
from methylcyclopentane, 6567*c*.
in polymer pyrolysis, 2810*g*.
in reaction of EtI with Mg, 1717*f*.
from reaction of hydroxyl radical with ethylene, 6149*i*.
in thermal decompn. of mixts. of $Et_4Pb$ with hydrocarbons, 5576*f*.
fuel antiknock characteristics of, 382*i*.
halogenated aromatic derivs., P 2235*g*.
heat capacity of, reduced pressure and temp. in relation to, 2758*g*.
heat of dissocn. into Me radicals, 453*a*.
heavy—for this year see *Ethane-d; Ethane-1,1,2,2-d*$_4$; etc.
hexaaryl, C-C bonds in, resonance energy of benzyl radical and, 5306*f*.
lyoparachor of, 2834*a*.
manuf. of, by conversion of hydrocarbon oils, P 388*h*.
mixt. of, with $C_4H_{10}$, Mollier diagram for, 7216*a*.
with $C_2H_4$, conversion to higher-boiling products, P 3833*g*.
with $CH_4$, $C_2H_2$ manuf. from, P 5175*a*.
with $CH_4$ and $C_2H_2$, manuf. of, 1550*g*.
with $C_4H_8$ and $C_4H_{10}$, by hydrogenation of CO, 2398*cfhs*, 2399*abcde*.
mobility of ions of, 4559*a*.
mol. orbitals for, 4094*b*.
neutron cross section of proton in, 4096*b*
oxidation of, kinetics of, 473*h*, 6565*i*.
oxidation of, rate of, 5269*g*.
oxidation (photochem.) of, sensitized by Hg, 6516*a*.
pentaaryl, dissocn. of, 2607*e*.
polychlorinated, fluorination of, P 2217*i*
polychloro derivs., reaction with CO, 9031*d*.
polyhalo derivs., reaction with CO, P 1434*d*.
Raman spectrum of, 2866*h*.
reactions at high pressure of, process and app. for effecting, P 6811*d*.
reaction with OH, rate of, 8820*h*.
resonance energies of, 10*c*.
rotation in, potential barriers hindering, 5240*c*.
from rubber by pyrolysis at high pressure, 5169*d*.
sepn. of, from natural gas, 7210*i*.
at natural-gas gasoline plants, 7217*b*, 8657*e*.
in natural-gas gasoline plants, app for, 7220*ef*.
soly. in $H_2O$, 5264*d*.
spectrum of, 4572*a*.
system: $B_2H_6$–, 5247*b*.
system: decane–, 6052*i*.
system: $CH_4$–, 4531*c*.
systems of, 4914*f*.
tetrahalo derivs., P 8399*f*.
1,1,2-trialkoxy derivs., P 675*a*.
1,1,1-tribalo 2,2-diaryl derivs. in insect-proofing fibers, P 9478*g*.
virial coeffs. of, 3677*d*.
**Ethane, 1 - (allyloxy) - 1 - (2 - chloroethoxy)-†**, P 6650*a*.
——, **arsenoso-**, 6971*c*.
——, **2 - (benzylmercapto) - 1,1 - diethoxy-†**, 7903*f*.
——, **1,2-bis(allyloxy)-**, polymer with Et acrylate, 5989*a*.
——, **2,2-bis(*p*-aminophenyl)-1,1,1-trichloro-**. See *Aniline, p,p'-(2,2,2 trichloroethylidene)di-*.
——, **2,2-bis(*p*-amoxyphenyl)-1,1,1-trichloro-**, insecticidal action of, 9343*c*.
——, **1,2-bis(1-amylheptylmercapto)-**, 2572*h*.
——, **1,2-bis(1-amylheptylsulfonyl)-**, 2572*i*.
——, **2,2-bis(4-biphenylyl)-1,1,1-trichloro-**, 2979*g*.
——, **2,2-bis(bromonaphthyl)-1,1,1-trichloro-**, 9332*g*.
——, **1,1 - bis(bromophenyl) - 2,2 - dichloro-**, P 4300*b*.
——, **1,1-bis(*p*-bromophenyl)-2,2-dichloro-**, 9333*f*.
as rodenticide, P 4808*d*.
——, **2,2-bis(*p*-bromophenyl)-1,1,1-trichloro-**, 2359*i*, 5894*d*.
as acaricide and insecticide, 3137*f*.
effect on respiration of *Oryzaephilus surinamensis*, 9342*i*.
insecticidal action of, 9343*b*.
residual toxicity of, 6354*g*.

toxicity to flies, 5147*f*.
to flies and roaches, 7628*f*.
to termites, 347*a*.
——, 2,2 - bis(bromotolyl) - 1,1,1 - trichloro-, insecticidal action of, 9332*c*.
——, 2,2-bis(*ar*-bromotolyl)-1,1,1-trichloro-, 9332*g*.
——, 2,2-bis(*α*-bromo-*p*-tolyl)-1,1,1-trichloro-, 2359*h*.
——, 2,2 - bis(*p* - butoxyphenyl) - 1,1,1-trichloro-, insecticidal action of, 9343*c*.
——, 1,2 - bis(butylmercapto)-, P 1794*d*.
——, 1,1-bis(3-chloroallylmercapto)-†, 2928*e*.
——, 1,2-bis(3-chloroallylmercapto)-, 2928*b*.
——, 1,1-bis(3-chloroallyloxy)-†, 2928*c*.
——, 1,1-bis(2-chloroethoxy)-†, 5365*g*, 6159*c*, P 6649*i*.
——, 1,2-bis(2-chloroethoxy)-, resinous products from $PhNH_2$-$CH_2O$ condensation products and, P 2033*a*.
——, 1,2 - bis[2 - (2 - chloroethoxy)-ethoxy]-, resinous products from $PhNH_2$-$CH_2O$ condensation products and, P 2033*a*.
——, 1,1 - bis(2 - chloroisopropoxy)-†, P 6649*i*.
——, bis(*p*-chlorophenoxy)-*, as acaricide and insecticide, 3137*i*.
——, 1,1-bis(*p*-chlorophenyl)-, 5894*d*, P 9357*e*.
as acaricide and insecticide, 3137*h*.
insecticidal action of, 9343*b*.
——, 1,1-bis(*p*-chlorophenyl)-2-nitro-, P 5046*c*.
——, 2,2-bis(*p*-chlorophenyl)-1,1,1-trifluoro-, 2359*h*.
as acaricide and insecticide, 3137*h*.
——, 1,1 - bis(3,4 - dichlorophenyl)-, 5894*d*, P 9357*e*.
——, 1,1-bis(2,3-dichloropropoxy)-†(?), P 6650*b*.
——, 1,2 - bis(2,2 - diethoxyethoxy)-†, 2577*f*.
——, 1,2 - bis[2 - (2,2 - diethoxyethoxy)ethoxy]-†, 2577*g*.
——, 1,2-bis(dodecylmercapto)-, 2572*f*.
——, 1,2-bis(dodecylsulfonyl)-, 2572*g*.
——, 1,1-bis(2-ethoxyethoxy)-†, 5365*g*.
——, 1,1-bis(2-fluoroethoxy)-†, 6163*h*.
——, 1,2 - bis[2 - (2 - naphthoxy)ethylmercapto]-, toxicity to rats, 348*f*.
——, 1,1-bis(*p*-nitrophenyl)-, derivs., 4658*a*.
——, 1,2 - bis(1,2,2,2 - tetrachloroethoxy)-, P 7188*c*.
——, bromo-, compd. with metrazole, 5540*g*.
dehalogenation by liver exts., 1816*a*.
dielec. properties and structure of, 4912*b*.
effect on ignition pressure of H-O mixts., 406*i*.
elec. breakdown in, 454*g*.
heat capacity of, 30*d*.
heat of soln. of $AlBr_3$ in, 2851*f*.
labeled with $C^{14}$ in the 1 and in the 2 position, 9031*f*.
lyoparachor of, 2834*a*.
manuf. of, P 3024*d*.
phys. consts. of, 2590*i*.
reaction with Al, 924*b*.
with $Hg(NO_3)_2$, kinetics of, 557*g*.
with pentamethylacetone, 111*d*.
with $Na_2Sn$, 4632*d*.
with thiosulfate ion, kinetics of, 1632*h*.
spectra of $AlBr_3$ in, 2930*d*.
spectrum of, 2867*h*.
as Szilard-Chalmers catalyst in polymerization of styrene by neutrons, 6915*b*.
ultrasonic velocity in, 1232*g*, 7283*i*.
——, 1-bromo-1,1-bis(*p*-chlorophenyl)-, as acaricide and insecticide, 3137*h*.
——, 1-bromo-2-chloro-, dehalogenation by liver exts., 1816*a*.
in root-knot control in soil, 7186*h*.
in root-knot nematode control on gardenias, 1139*e*.
——, 1 - bromo - 2 - chloro - 1,1,2 - trifluoro-, 7407*b*.
——, 1 - bromo - 2,2 - dichloro - 1,1 - difluoro-, 7407*c*.
——, 2-bromo-1,1-diethoxy-†, 2575*h*.
——, 1-bromo-2-fluoro-, 3774*g*, 6154*e*.
——, 1-bromo-1-nitro-, 6569*b*.
——, 1 - (4 - bromo - 2 - nitrophenoxy)-2-ethoxy-, P 5421*f*.
——, bromopentachloro-, prepn. and vapor pressure of, 2923*i*.
——, 1-[*m*(*o* and *p*)-bromophenyl]-1,1,-2,2-tetraphenyl-, 2607*h*.
——, 2-[*m*(*o* and *p*)-bromophenyl]-1,1,-1,2-tetraphenyl-, 2607*i*.
——, 2 - (*p* - bromophenyl) - 1,1,1-trichloro - 2 - (*p* - chlorophenyl)-, 1753*a*.
——, 1 - bromo - 1,1,2,2 - tetrafluoro-, 7407*c*.
——, 1 - butoxy - 1 - (2 - chloroethoxy)-†, 159*d*.
——, 1 - butoxy - 2 - (4 - chloro - 2-nitrophenoxy)-, P 5421*f*.
——, 1 - butoxy - 2 - (2 - chloro - 4-nitro-*o*-toloxy)-, P 5421*g*.
——, 1-butoxy-2-ethoxy-, in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
——, 1-butoxy-1-phenoxy-†, 3783*d*.
——, 1-butoxy-2-(2-thiocyanoethoxy)-. See "2 (2-butoxyethoxy)ethyl ester" under *Thiocyanic acid*.
——, 1-butoxy-1-*m*(*o* and *p*)-toloxy-†, 3783*d*.
——, 1-(butylmercapto)-2-(2-chloroethylmercapto)-, 2928*h*.
——, 1(and 2)-(*p*-butylphenyl)-1,1,2,2-(and 1,1,1,2)-tetraphenyl-, 2608*a*.
——, 1(and 2)-(*p*-*sec*-butylphenyl)-1,1,-2,2( and 1,1,1,2) - tetraphenyl-, 2608*a*.
——, 1(and 2)-(*p*-*tert*-butylphenyl)-1,1,-2,2(and 1,1,1,2) - tetraphenyl-, 2608*a*.
——, 1 - (butylsulfonyl) - 2 - (2 - chloroethylsulfonyl)-, 2928*h*.
——, chloro-, adsorption by charcoal and graphite, 6036*h*.
adsorption by graphite, 1638*h*.
in air, max. allowable concn. of, 4401*a*.
decompn. of, kinetics of, 471*h*.
dehydrochlorination of, kinetics of, 7407*d*, 7408*d*.
effect on ignition pressure of H-O mixts., 406*i*.
effect on seeds, 4733*i*.
elec. breakdown in, 454*g*.
heat capacity of, 30*d*.
lyoparachor of, 2834*a*.
manuf. of, P 2217*h*, P 2628*c*, P 2629*b*, P 6218*g*, 6969*d*.
manuf. of, and alkylation of $C_6H_6$ with, P 4005*a*.
microwave absorption by, 6022*c*.
mixts. with org. vapors, adsorption by active carbons, 16*g*.
prepn. of, 5361*b*.
as promoter for $AlCl_3$-isobutane complex catalysts in alkylation of $C_2$-$C_5$ olefins, P 1956*g*.
reaction with Pb-Na alloy, P 8308*b*.
reaction with Pb-Na alloy in the presence of carbonyl compds., P 4287*de*.
spectrum of, 2867*h*.
——, 1-(3-chloroallylmercapto)-2-(2-chloroethylmercapto)-, 2928*b*.
——, 1-chloro-1,1-bis(*p*-chlorophenyl)-, as acaricide and insecticide, 3137*h*.
——, 2-chloro-1,1-bis(*p*-chlorophenyl)-, 5894*c*.
——, 2-chloro-1,1-bis(*p*-nitrophenyl)-, 4658*c*.
——, 1-chloro-2-diazo-, 4634*b*.
——, 2-chloro-1,1-diethoxy-†, as catalyst in $PbEt_4$ manuf., P 8398*c*.
reaction with glycols and with $NaOCH_2CO_2Na$, 2577*f*.
——, 1-chloro-1,1-difluoro-, 2925*c*.
chlorination of, P 3023*i*.
——, chlorodiphenyl-, insecticidal action of, 9332*c*.
——, 2-chloro-1,1-diphenyl-, nitration of, 4658*c*.
toxicity of, 345*e*.
——, 1-(2-chloroethoxy)-1-ethoxy-†, 6159*c*.
——, 1 - (2 - chloroethylmercapto) - 2-(ethylmercapto)-, (compd. omitted from abstr.), 2928*h*.
——, 1 - (2 - chloroethylmercapto) - 2-methylmercapto-, (compd. omitted from abstr.), 2928*h*.
——, 1-(2-chloroethylmercapto)-2-propylmercapto-, 2928*h*.
——, 1-chloro-1-fluoro-, P 2218*a*, 2925*c*.
——, 1-chloro-2-fluoro-, 6154*c*.
——, 1-(2-chloro-4-nitrophenoxy)-2-ethoxy-, P 5421*f*.
——, 1-(4-chloro-2-nitrophenoxy)-2-ethoxy-, P 1062*g*.
——, 1-(4-chloro-2-nitrophenoxy)-2-(2-ethylbutoxy)-, P 5421*f*.
——, 1-(4-chloro-2-nitrophenoxy)-2-(2-ethylhexyloxy)-, P 5421*f*.
——, 1-(4-chloro-2-nitrophenoxy)-2-methoxy-, P 5421*f*.
——, 1-(*o*-chlorophenoxy)-2-(1,2,2,2-tetrachloroethoxy)-, P 7188*c*.
——, 1-[*m*(*o* and *p*)-chlorophenyl]-1,1,-2,2-tetraphenyl-, 2607*h*.
——, 2-[*m*(*o* and *p*)-chlorophenyl]-1,1,-1,2-tetraphenyl-, 2607*i*.
——, 1-chloro-2-selenocyano-†, 2160*a*.
——, chlorotetrafluoro-, as pyrethrum solvent, P 351*f*.
——, 1-chloro-1,2,2-trifluoro-1,2-dinitro-, P 3025*a*.
——, 1(and 2)-*p*-cumyl-1,1,2,2(and 1,1,-1,2)-tetraphenyl-, 2608*a*.
——, 1(and 2)-cyclohexyl-1,1,2,2(and 1,1,1,2)-tetraphenyl-, 2608*a*.
——, diazo-, prepn. of, 4652*i*.
reaction with acyl chlorides, 1743*g*.
——, 1,2-di-2-benzimidazolyl-. See *Benzimidazole, 2,2'-ethylenebis-*.
——, 1,2-dibenzoyl-. See *1,4-Butanedione, 1,4-diphenyl-*.
——, dibromo-, fumigant from, P 6357*b*.
ultrasonic velocity in, temp. and, 7283*h*.
——, 1,2-dibromo-, compression and freezing under pressure, 4067*f*.
cotton wilt and nematode control with, 3134*f*.
dehalogenation by liver exts., 1816*a*.
dielec. properties and structure of, 4912*b*.
fluorination of, 3774*f*.
formation of, from reaction of $PhSO_2$-$CH_2CH_2Br$ with KF, 6154*e*.
in fumigation of pine nursery, 7179*e*.
heat capacity of, 30*e*.
heat of soln. of $AlBr_3$ in, 2851*f*.
isomers of, 5308*d*.
as lead scavenger in aviation gasoline, 11736.
lyoparachor of, 2834*d*.
manuf. from sea water, 4819*d*.
mixt. with chlordan in Japanese-beetle control on plant balls, 2361*i*.
with naphtha, in wireworm control on potatoes, 808*c*.
with $Et_4Pb$, effect on oxidation stability of aviation gasoline, and effect of antioxidants on storage time of, 5579*b*.
phys. consts. of, 2591*a*.
polarography of, 8916*i*.
Raman lines of, polarization and intensities of, 2514*a*.
reaction with $EtOCS_2Na$ and with $Na_2$-$S_2O_3$, 2569*i*.
in root-knot control in soil, 7186*h*.
as soil disinfectant, P 349*e*, 7178*i*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectra (Raman and infrared) of, 2865*f*.
spectrum of, 4573*g*.
ultrasonic velocity in, 1232*g*.
in wireworm control in soil, 3139*i*.
——, 1,1-dibromo-2,2-bis(*p*-bromophenyl)-, P 5899*c*.
——, 1,2-dibromo-1,1-bis(*p*-bromophenyl)-2-chloro-, P 5046*g*.
——, 1,1-dibromo-1-chloro-2,2-bis(*p*-chlorophenyl)-, P 3969*c*.
——, 1,1-dibromo-2,2-diphenyl-, P 5899*c*.
——, 1,1-dibromo-2,2-di-*p*-tolyl-, P 5899*c*.
——, dibromotetrachloro-, vapor pressure of, 2924*e*.
——, 1,1-dibromo-2,2,2-trichloro-1-*p*-tolyl-†, 345*f*.
——, 1,1-dibutoxy-†, 995*g*, P 5034*f*, 5365*f*, 7426*b*.
hydrolysis of, 3272*b*.
phys. consts. of, 2590*c*.
——, dichloro-, ammonia partition between water and, 6891*i*.
condensation of, with $C_6H_6$ and alkylation of product with chlorinated paraffins in synthesis of lubricants, 1953*a*.
condensation of, with ethylbenzenes, lubricating oils by, P 1176*c*.
dehalogenation by liver exts., 1816*a*.
formation in chlorination of ethane, P 2217*h*.
halide cond. in, 7301*g*.
heat of reaction with $AlBr_3$, 2851*f*.
mixts. with benzene in testing fractionating columns, 2474*c*.
reaction (photochem.) with $Ph_2Hg$, 8895*c*.
reaction with $Na_2SO_3$, 396*g*.
system: $C_6H_6$-, 2474*b*.
systems with alcs., 1254*a*.
ultrasonic velocity in, temp. and, 7283*h*.
——, 1,1-dichloro-, azeotrope with $Me_2SiCl$ and with $SiCl_4$, 1716*f*.
manuf. of, P 5410*e*.
——, 1,1(and 1,2)-dichloro-, 5361*c*.

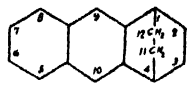
dehydrochlorination of, kinetics of, 7407*dk*, 7408*c*.
heat capacity of, 30*e*.
iodine soly. in, 2844*c*.
Raman spectra of, in solid state, 2514*c*.
——, **1,2-dichloro-**, 6154*d*.
adsorption by soil, 3960*h*.
anabasine distribution between water and, 6789*a*.
aromatic amine reaction with diketene in, 1247*d*.
chloroethylene from, P 1793*e*.
condensation of, with alkali metal polysulfides, rubberlike substances by, P 6456*g*.
in control of corn earworm and fall armyworm in corn, 3136*c*.
decompn. by heat, kinetics of, 7307*c*.
dehalogenation by liver exts., 1816*a*.
dehydrochlorination of, P 664*b*, P 3835*b*, 4628*h*, P 7951*b*.
dielec. const. and polarization in $C_6H_6$, 6480*e*.
dielec. properties and structure of, 4912*b*.
dipole moment, electron diffraction, entropy and spectra of, 8880*d*.
effect on seeds, 4733*i*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
ethylene oxide formation from, 4638*g*.
fluorination (attempted) of, 3774*g*.
hydrochloric acid removal from, P 3024*f*
lyoparachor of, 2834*a*.
methyl ester prepn. in, 567*b*.
mixts. with $C_6H_6$, distn. of, 913*a*.
with C black, polysulfide rubbers from, P 2464*a*.
with $CCl_4$, from solvent dewaxing of lubricants, HCl removal from, P 5940*i*.
in peach-borer control, 8088*e*.
phys. consts. of, 2590*i*.
poisoning by, 2705*a*.
in potato-germination speeding, P 349*g*.
potential barrier in, 5308*f*.
Raman spectrum of, 42*f*.
reaction with $NCCH_2CO_2Et$ and $H_2C(CO_2Et)_2$, P 9475*i*.
reaction with sulfites, P 660*d*.
rotational isomers of, 5308*d*.
rotational isomers of, energy difference between, 5308*d*, 8872*h*.
as soil fumigant, 7186*e*.
soly. in water, vapor pressure and azeotrope with water, 3691*f*.
spectrochem. detn. of, 7367*a*.
spectrum of, 4573*g*.
systems with hydrocarbons, 4938*a*.
toxicity of, effect of diet on, 3077*c*.
to insects, route of administration and, 9340*h*.
nutritional factors affecting, 733*h*.
ultrasonic velocity in, 1232*g*.
——, **1,1 - dichloro - 2,2 - bis(chlorophenyl)-**, P 4300*b*.
——, **1,1 - dichloro - 2,2 - bis(*p* - chlorophenyl)-**, 5894*d*, P 5899*c*, 9333*f*.
as acaricide and insecticide, 3137*g*.
in alfalfa-snout-beetle control, 8599*e*.
in aphid control on celery, 346*e*.
in cabbage-caterpillar control, 3137*a*.
in caterpillar control on tomatoes, 3556*g*.
in confused-flour-beetle control, 2361*d*.
in control of citricola scale, citrus thrips and yellow scale, 4805*a*.
of corn earworm and fall armyworm in corn, 3136*c*.
of orange tortrix and Willamette mite on raspberries, 3137*c*.
of oriental-fruit moth and plum curculio on peaches, 7630*g*.
in corn-borer control, 6354*d*.
in corn-borer (European-) control, 1896*f*, 6354*e*.
in corn-flea-beetle control, 4416*i*.
effect on livestock, 1520*a*.
on respiration of *Orysaephilus surinamensis*, 9342*i*.
on wildlife, 1524*a*.
in fall-armyworm control on corn, 3136*e*.
in fly control, 5895*g*.
in fly control and its toxicity to man, 8601*d*.
in hairy-spider-beetle control in flour bags, 2729*b*.
in horn-fly control, 5895*h*, 9273*e*; 9342*d*.
on dairy cattle, 3135*g*.
effect on milk, 6355*g*.
as insecticides, 9331*g*, 9343*b*.
insecticides from dibenzo heterocyclic compds. and, P 4420*b*.
insecticides from $H_3PO_4$ diamides, P 4420*b*.
irradiation of, 4246*a*.
in Mexican-bean-beetle control, 810*f*.
in mosquito control, 1519*a*, 9345*ef*.
in mosquito control in snow water, 808*f*.
in orange-tortrix control on berries, 1521*i*, 5148*c*.
in potato-tuberworm control, 6776*g*.
in red-banded-leaf-roller control, 2720*f*, 5527*d*, 7628*c*.
residual toxicity of, 6354*g*.
reviews on, 9353*a*, 9353*h*.
in sheep-tick control, 8599*a*.
in sweet-potato-weevil control, 7183*c*.
toxicity of, 2705*e*, 4411*h*, 7627*h*.
to honeybees, 9349*i*.
to man, 8600*f*.
to termites, 347*a*.
——, **1,1 - dichloro - 2,2 - bis(*p* - chlorophenyl)-1,2-difluoro-**, 2359*h*.
——, **1,1 - dichloro - 2,2 - bis(*p* - fluorophenyl)-**, 9333*f*.
——, **1,1 - dichloro - 2,2 - bis(*p* - iodophenyl)-**, 9333*f*.
——, **1,1 - dichloro - 2,2 - bis(methoxyphenyl)-**, P 4300*b*.
——, **1,1 - dichloro - 2,2 - bis(*p* - methoxyphenyl)-**, P 8400*i*.
toxicity to termites, 347*a*.
——, **1,1 - dichloro - 2,2 - bis(*p* - nitrophenyl)-**, 4658*c*.
——, **1,2 - dichloro - 1,1 - difluoro-**, P 2218*a*
dechlorination of, 2465*c*.
——, **1,2 - dichloro - 1,2 - difluoro-**, P 5031*i*.
——, **1,2 - dichloro - 1,2 - difluoro - 1,2-dinitro-**, P 3025*a*.
——, **dichlorodiphenyl-**, insecticidal action of, 9332*c*.
——, **1,1 - dichloro - 2,2 - diphenyl-**, P 5899*c*.
nitration of, 4658*c*.
toxicity of, 345*e*.
——, **1,1 - dichloro - 2,2 - di - *p* - tolyl-**, P 5899*c*.
toxicity to termites, 347*a*.
——, **1,1 - dichloro - 2,2 - [di - 2,4(2,5 and 3,4)-xylyl]-**, 9333*e*.
——, **1,1-dichloro-1-fluoro-**, 2925*c*.
——, **1,2-dichloro-1-fluoro-**, P 2218*a*.
——, **1 - (2,5 - dichloro - 4 - nitrophenoxy)-2-isopropoxy-**, P 5421*f*.
——, **1 - (2,5 - dichlorophenylhydrazono)-1-nitro-†**, 4646*i*.
——, **1,1 - dichloro - 2 - selenocyano-†**, 2159*i*.
——, **dichlorotetrafluoro-**, as pyrethrum solvent, P 351*f*.
——, **1,2 - dichloro - 1,1,2,2 - tetrakis(*p*-chlorophenyl)-**, 7006*b*.
——, **1,2 - dichloro - 1,1,2,2 - tetrakis(3,5 - dichloro - 4 - methoxyphenyl)-**, 7006*b*.
——, **1,2 - dichloro - 1,1,2,2 - tetrakis(*p*-fluorophenyl)-**, 9332*f*.
——, **1,2 - dichloro - 1,1,2,2 - tetraphenyl-**, isomers and their derivs., 7005*i*.
4,4′,4″,4‴-tetrahalo derivs., toxicities of, 345*d*.
——, **1,2-dicyano-**. See *Succinonitrile*.
——, **1,1-diethoxy-**. See *Acetal*.
——, **1,1-diethoxy-2-methoxy-†**, 7903*e*
——, **1,1 - diethoxy - 2 - methylmercapto-†**, 7903*f*.
——, **1,1-difluoro-**, P 660*h*, P 2218*a*, 2925*c*, P 3834*i*, P 6644*b*, P 6645*b*.
azeotropic mixt. with $CCl_2F_2$ as refrigerant, P 8580*f*.
chlorination of, P 3023*i*, P 5789*i*.
dehydrofluorination of, P 3437*d*.
pyrolysis of, P 6645*a*.
——, **1,2-difuryl-**. See *Furan, ethylenedi-*.
——, **1,1-diisoamoxy-†**, 5365*g*.
——, **1,1-diisobutoxy-†**, 5365*f*.
phys. consts. of, 2590*c*.
——, **1,1 - diisobutoxy - 2 - methoxy-†**, P 675*c*.
——, **1,1-dimethoxy-**. See "dimethyl acetal" under *Acetaldehyde*.
——, **1,2-dimethoxy-1-phenyl-**, 6197*a*.
——, **1 - (1,1 - dimethyl - 4 - penten - 2-ynyloxy)-1-ethoxy-†**, 124*h*.
——, **1 - (1,1 - dimethyl - 4 - penten - 2-ynyloxy)-1-isobutoxy-†**, 124*h*.
——, **1 - (1,1 - dimethyl - 4 - penten - 2-ynyloxy)-1-methoxy-†**, 124*g*.
——, **1,2-di-2-naphthyl-**, 2183*b*.
——, **1,2-dinitro-**, P 6655*b*.
halo derivs., P 3024*i*.
hydroxylamine from, P 3025*c*.
——, **1 - (2,4 - dinitrophenylazo) - 1-(*p*-nitrophenylhydrazono)-**, and derivs., 4261*e*.
——, **1 - (2,4 - dinitrophenylazo)-1-phenylhydrazono-**, and derivs., 4261*b*.
——, **1 - (2,4 - dinitrophenylhydrazono) - 1 - [*m*(*o* and *p*)-nitrophenylazo]-**, and derivs., 4261*c*.
——, **1 - (2,4 - dinitrophenylhydrazono)-1-phenylazo-**, and derivs., 4261*a*.
——, **1,1-diphenoxy-†**, 3786*c*.
——, **1,1-diphenyl-**, 5894*d*, 6994*a*.
conversion to styrene over Morden bentonite, 1251*c*.
formation from benzene and $CH_2$:CHCl, 5914.
halogenated derivs., P 4300*a*.
——, **1,2-diphenyl-**. See *Bibenzyl*.
——, **1,2-diphenyl-1,2-di-1-pyrenyl-**, 5390*i*.
——, **1,1-dipropoxy-†**, 5365*f*.
compd. with KOH as condensing agent, P 6665*a*.
phys. consts. of, 2590*c*.
——, **1,1-dithienyl-**. See *Thiophene, ethylidenedi-*.
——, **1,2-dithienyl-**. See *Thiophene, ethylenedi-*.
——, **1,1 - dithymol - 2,2,2 - trichloro-***, toxicity to termites, 347*b*.
——, **1,1-di-*p*-tolyl-**, P 9357*e*.
decompn. (mol.) of, P 2228*g*.
——, **1,1-di-2,4-xylyl-**, decompn. (mol.) of, P 2228*g*.
——, **1,1-di-3,4-xylyl-**, P 9357*e*.
——, **1 - (2 - ethoxyethoxy) - 2 - (2-iodoethoxy)-**, 3784*e*.
——, **1 - ethoxy - 2 - (2 - iodoethoxy-**, 3784*e*.
——, **1(and 2)-(*p*-ethylphenyl)-1,1,2,2-(and 1,1,1,2)-tetraphenyl-**, 2608*a*
——, **fluoro-**, manuf. of, P 3835*a*.
Raman spectrum of, 4139*c*.
——, **hexachloro-**, in control of black carpet beetle and moths, 9348*i*
in fly-larva control in sewage, 5526*f*.
formation of, from chlorinolysis and pyrolysis of perchlorinated olefins, 4231*h*.
formation of, in chlorination of butane, 5302*a*.
hindering potential barrier of, 4527*e*.
as insecticide, 2359*h*.
powd., P 5031*d*.
prepn. of, 5361*f*.
reaction (photochem.) with $Ph_2Hg$, 8895*c*.
——, **hexafluoro-**, P 3834*h*.
——, **hexamethyl-**. See *Butane, 2,2,3,3-tetramethyl-*.
——, **hexaphenyl-**, deuterium exchange with, 5011*g*.
——, **iodo-**, adsorption by solids, 7288*d*
as azeotrope former for naphthenes, P 3070*d*.
compd. with $(EtS)_3P$, 561*b*.
decompn. by γ-rays, deuterons and neutrons, 8871*i*.
effect on ignition pressure of H-O mixts., 406*i*.
heat capacity of, 30*e*.
heat of soln. of $AlBr_3$ in, 2851*f*.
labeled with $C^{14}$, 37*h*.
lyoparachor of, 2834*b*.
neutron-bombarded, extn. of radioactive I from, 8871*f*.
photolysis and photooxidation of, 5313*e*
phys. consts. of, 2591*a*.
reaction with Mg and its alloys, 1717*f*.
with phosphorus thio esters, 560*i*.
with pyridine in acetone, effect of pressure on kinetics of, 6054*h*.
with quinuclidine and with $Et_3N$, kinetics of, 3422*g*.
spectrum of, 2867*h*.
ultrasonic velocity in, 1232*h*, 7283*i*.
——, **methoxy-**. See *Ether, ethyl methyl*
——, **1 - (methoxymethoxy) - 2 - vinyloxy-†**, P 9080*b*.
prepn. and its polymerization, P 1051*g*.
——, **nitro-**, aluminum chloride soln. of, as catalyst in alkylation of hydrocarbons, 108*f*.
sodium deriv., reaction with *o*-chloro-*p*-nitrotoluene, 8364*i*.
soly. in Na xylenesulfonate solns. 1242*f*.
thallous deriv., 3352*h*.
transformation into *aci*-nitroethane, rate of, 2649*g*.
——, **2-nitro-1,1-di-*p*-tolyl-**, P 5803*d*.
——, **2-nitro-1,1-di-3,4-xylyl-**, P 5803*e*.
——, **pentachloro-**, dehydrochlorination of, kinetics of, 7407*e*.
effect of soap action on bacteria, 9143*f*
moments and rotational configurations of, 8770*h*.

heat capacity of, 30*g*.
as insecticide, 2359*h*.
prepn. of, by photochlorination of $C_2H_3$, P 2870*f*.
reaction with CO, P 1434*d*.
spectrochem. detn. of, 7367*a*.
——, **1,1,1,2,2-pentachloro-2-(chlorophenyl)-†**, 5146*h*.
——, **1 - (pentachlorophenyl) - 1,2 - diphenyl-**, 3377*g*.
——, **1 - (pentachlorophenyl) - 1-phenyl-**, 3377*g*.
——, **pentafluoroiodo-**, 3775*b*.
——, **pentaphenyl-**, 1965*b*.
chain-transfer coeffs. for styrene in, 5731*h*.
dissocn. kinetics of, 5387*f*.
——, **tetrabromo-**, in stabilization of vinylidene chloride polymers to light, P 4520*d*.
——, **1,1,2,2-tetrabromo-**, heat capacity of, 30*f*.
soly. in Na xylenesulfonate solns., 1242*f*.
spectrum of, 42*d*.
ultrasonic velocity in, 1232*i*, 7283*i*.
——, **1,1,2,2-tetrabutoxy-†**, toxicity of, 4401*g*.
——, **tetrachloro-**, detection and detn. in air and organs, 974*a*.
reaction (photochem.) with $Ph_2Hg$, 8895*c*.
as solvent in Friedel-Crafts reaction, 209*h*.
styrene transfer consts. in, 5271*b*.
——, **1,1,1,2-tetrachloro-**, removal from $C_2Cl_4$, P 3137*g*.
spectrochem. detn. of, 7367*a*.
——, **1,1,1,2(and 1,1,2,2)-tetrachloro-**, dehydrochlorination of, kinetics of, 7407*e*.
——, **1,1,2,2-tetrachloro-**, in air, max. allowable concn. of, 4401*a*.
azeotrope with $CHBr_3$, 2834*f*.
elec. moments and rotational configurations of, 8770*h*.
heat capacity of, 30*e*.
lyoparachor of, 2834*a*.
spectrochem. detn. of, 7367*a*.
spectrum of, 42*d*, 4573*g*.
ultrasonic velocity in, 1232*h*, 7283*i*.
——, **1,1,1,2 - tetrachloro - 2,2 - bis(*p*-chlorophenyl)-**, 2359*h*, 5894*d*.
as acaricide and insecticide, 3137*h*.
insecticidal action of, 9343*b*.
rearrangement in the presence of $H_2SO_4$ to form 4,4'-dichlorobenzil, 199*b*
——, **1,1,1,2 - tetrachloro - 2,2 - bis(*p*-nitrophenyl)-**, 4658*e*.
——, **1,1,1,2 - tetrachloro - 2,2 - difluoro-**, P 5789*a*.
——, **1,1,2,2 - tetrachloro - 1,2 - difluoro-**, P 5031*i*.
——, **1,1,1,2 - tetrachloro - 2,2 - diphenyl-**, in European-corn borer control, 1896*f*.
mtration of, 4658*e*.
——, **1,1,2,2 - tetrachloro - 1 - fluoro-**, 2925*b*.
——, **1,1,2,2-tetrafluoro-1,2-dinitro-**, P 3025*b*.
——, **1,1,2,2 - tetrakis(*p* - bromophenyl)-1,2-dichloro-**, 7006*b*.
——, **1,1,1,2-tetraphenyl-**, 2-aryl derivs., dissocn. kinetics of, 194*d*.
——, **1,1,2,2-tetraphenyl-**, 188*e*.
formation in oxidation of $Ph_2CH_2$ and its oxidation, 2194*b*.
formation of, from reaction of $Ph_2C{:}NNHPh$ with NaOH, 1027*a*.
——, **1,1,1,2(and 1,1,2,2)-tetraphenyl-2-(and 1)-*p*-propylphenyl-**, 2608*a*.
——, **1,1,1,2 - tetraphenyl - 2 - *m*(*o* and *p*)-tolyl-**, dissociation of, kinetics of, 5387*f*.
——, **1,1,1,2(and 1,1,2,2) - tetraphenyl-2(and 1)-*p*-tolyl-**, 2608*a*.
——, **1,1,1,2 - tetraphenyl - 2 - [2,3-(2,4-, 2,5-, 3,4- and 3,5)-xylyl]-**, dissocn. of, 6496*d*.
——, **1,1,1 - tribromo - 2,2 - bis(*p*-bromophenyl)-**, effect on respiration of *Oryzaephilus surinamensis*, 9342*i*.
insecticidal action of, 9343*b*.
——, **1,1,1 - tribromo - 2,2 - bis(*p*-chlorophenyl)-**, 2359*h*.
effect on respiration of *Oryzaephilus surinamensis*, 9342*i*.
insecticidal action of, 9343*b*.
——, **1,1,1 - tribromo - 2,2 - bis(*p*-fluorophenyl)-**, P 351*a*.
insecticidal action of, 9343*b*.
——, **1,1,1 - tribromo - 2,2 - bis(*p*-iodophenyl)-**, insecticidal action of, 9343*b*.
——, **1,1,1 - tribromo - 2,2 - bis(*p*-nitrophenyl)-**, 4658*d*.
——, **trichloro-**, as solvent in degreasing pickled sheepskins, 4042*d*.
system: $MeNO_2$–, 4909*i*.
——, **1,1,1-trichloro-**, 3372*e*, P 7035*f*.
aryl derivs., P 351*b*, P 5040*d*.
2,2-bis(carboxyalkylaryl) derivs., P 2364*e*.
2,2-diaryl derivs., P 4420*c*, P 7968*h*.
prepn. by photochlorination of $C_2H_3$, P 2870*f*.
reaction with BuMgCl, 2925*g*.
——, **1,1,2-trichloro-**, in air, max. allowable concn. of, 4401*a*.
in 2-butanone drying, 8753*e*.
condensation products with anacardic material, P 904*e*.
dehydrochlorination of, kinetics of, 7407*e*.
elec. moments and rotational configurations of, 8770*h*.
manuf. of, P 3834*e*.
removal from $C_2Cl_4$, P 3437*g*.
spectrochem. detn. of, 7367*a*.
spectrum of, 42*d*.
in sugar-beet-nematode control, 3134*f*.
——, **1,1,1 - trichloro - 2,2 - bis(*p*-chlorobenzylmercapto)-†**, P 6358*h*.
——, **1,1,1 - trichloro - 2,2 - bis(4'-chloro - 4 - biphenylyl)-**, and derivs., 7927*e*.
——, **1,1,1 - trichloro - 2,2 - bis(4-chloro - 3,5 - dinitrophenyl)-**, as acaricide and insecticide, 3137*g*.
——, **1,1,1 - trichloro - 2,2 - bis[3(and 4)-chloro-4(and 3)-fluorophenyl]-**, P 351*a*.
——, **1,1,1 - trichloro - 2,2 - bis(1-chloro-2-naphthyl)-**, as acaricide and insecticide, 3137*g*.
——, **1,1,1 - trichloro - 2,2 - bis(2-chloro-1-naphthyl)-**, as acaricide and insecticide, 3137*g*.
——, **1,1,1 - trichloro - 2,2 - bis(4-chloro-2-nitrophenyl)-**, 2359*h*.
——, **1,1,1 - trichloro - 2,2 - bis(4-chloro-3-nitrophenyl)-**, as acaricide and insecticide, 3137*g*.
——, **1,1,1 - trichloro - 2,2 - bis(*p*-chlorophenyl)-(*DDT*)**, P 4299*h*.
as acaricide and insecticide, 3137*f*
in acarid control in orchards, 1523*b*.
adsorption of, and its analogs by chitin, 2254*g*.
aerosol of, effect on plants, 1523*e*.
aerosols contg. pyrethrum and, stability of, 9330*d*.
in *Agriotes* control, 811*i*.
in alfalfa-insect control, 1521*e*.
in alfalfa-snout-beetle control, 8599*e*.
analogs of, 1752*i*.
and analogs, speeds of action of, and their effect on respiration of insects, 9342*g*.
in *Anomala vitis* control, 7184*b*.
as anthelmintic for horses, 5503*e*.
anticryptogam, fungicide, insecticide and parasiticide from, P 5530*a*.
in apache wasp control, 3556*b*.
in aphid control on celery, 346*d*.
in *Aphodius howitti* control and persistence in soil, 1898*h*.
in apple-pest control, 2362*e*.
in apple-scab control, 804*d*.
in bamboo-insect control, 3967*e*.
in banana-root-borer control, 5147*c*.
in beet-insect control, 9346*h*.
biol. action of, and related compds., 2359*g*.
in black-fly control, effect on fish, 9352*h*.
in black-fly-larva control in Alaskan streams, 6354*b*.
in blood and tissue after feeding, 8062*e*.
in blowfly control, 3139*d*.
in boll-weevil control, 6775*b*.
book: Recientes adquisiciones y técnicas del empleo del, 2364*a*.
in *Brassica*-seed-crop-pest control, 9336*b*.
in buffalo-fly control, 4416*g*.
in buffalo-treehopper control, 1144*a*.
in cabbage-caterpillar control, 3137*a*.
in cabbage-maggot control, 3136*i*.
in cabbage-pest control, 5147*g*.
in cantaloupe-insect control, 2725*g*.
in *Capnodis tenebrionis* control, 3555*f*.
in caterpillar control on tomatoes, 3556*g*.
cattle feeding with, to control tsetse flies and ticks, 5526*g*.
in cauliflower-seed-crop-pest control, 4416*g*.
in *Cecidomyia* control on pears, 9348*e*.
in cereal-insect control by impregnation of sacks, 347*c*.
in chinch-bug control in lawns, 5896*i*.
chlorine detn. in, in insecticides, 9331*c*.
in cinchona-pest control, 9340*f*.
in citrus-blackfly control, 3555*g*.
on citrus, inhibition of decompn. of deposits of, 5148*c*.
in citrus-insect control, 1522*c*.
in citrus-snout-beetle control in soil, 5149*h*.
in cockroach (German-) control, 1519*h*.
in codling-moth control, 1144*i*, 3965*b*, 5897*h*, 6354*f*, 7630*b*, 9347*a*.
in coleopterous-larva control on peanuts, 1897*d*.
in Colorado-potato-beetle control, 5146*g*, 5897*e*, 9333*g*.
comminution of, P 350*f*.
compds. related to, 6604*i*.
in confused-flour-beetle control, 2361*d*.
constitution of, and related compds., insecticidal action and, 1895*h*, 5894*c*.
in control of *Agrotis* and wireworms, 8599*b*.
of Angoumois grain moth and rice weevil on corn, 1898*f*.
of Angoumois moth and Indian-meal moth, 9352*b*.
of bamboo and bean insects, 3967*ca*.
of boll weevil and cotton aphid, 2730*a*.
of budworm and corn earworm in sweetcorn, 7183*f*.
of citricola scale, citrus thrips and yellow scale, 4805*a*.
of cockroaches, flies and mosquitoes, 1518*h*.
of corn earworm and fall armyworm in corn, 3136*cg*.
of diamond-back moth and imported cabbage worm on cabbages, 2358*d*.
of dicky-rice weevil, leafroller and mealy bug on citrus, 7185*b*.
of fall armyworm and green June beetle, 1899*a*.
of house and stable fly, 5895*f*.
of Japanese and oriental beetles in turf, 9345*i*.
of murine typhus and plague, 3555*i*.
of tail louse and ticks on livestock, 8598*h*.
of turnip aphid and foliage-feeding larvae on Chinese cabbage, 7628*a*.
in corn-borer control, 1896*e*, 6354*de*.
in corn-flea-beetle control, 4416*i*.
in cotton-fleahopper control, 1143*f*.
in cotton-insect control, 1142*i*, 1143*bd*, 3137*b*.
in cotton-insect control, diluents for, 1142*h*.
crystn. from aq. emulsion, prevention of, P 6358*e*.
crystn. of, P 1526*c*.
in culture-mite control, 2361*h*.
in cutworm control on apricots and peaches, 1522*b*.
in darkling-ground-beetle control, 3139*e*.
decompn. by bases, 3697*d*.
in dermestid control in insect boxes, 7631*b*.
detection on sprayed surface, 2359*f*.
detn. and identification on sprayed surfaces, 4416*b*.
detn. of, 2896*a*.
in air and dry samples, 7869*c*.
in insecticides, 9354*b*.
on sprayed walls, 6354*i*.
detn. of residues of, 5895*e*, 7629*b*.
1,1 - dichloro - 2,2 - bis(*p* - chlorophenyl)-ethylene from, P 5424*a*.
in Dutch-elm-disease control, 9350*d*.
in eastern-tent-caterpillar control, 2730*d*.
effect on animal organism, 5146*c*.
on bacteria and yeast, 3885*s*.
on bees, 2361*a*, 2729*b*, 5148*i*.
on *Blatta orientalis*, 6355*c*.
on blowfly larvae, reversibility of, 4416*c*.
on cholinesterase systems of insects and animals, 5495*a*.
on *Culex pipiens autogenicus* larvae, 2358*g*.
on development of larvae of *Rana pipiens* and *Fundulus heteroclitus*, 5507*a*.
on fermentation and on germination of fungus conidia, 8089*g*.
on fish and wildlife, 1523*i*.
on Lima beans, 4805*g*.
on livestock, 1520*a*.
on motor and sensory structures in cockroach leg, 3964*i*.
on neuromuscular function, 4383*f*.
on orchard-biol. balance, 5893*e*.
on peach trees, 809*a*.
on rats, 7155*i*.

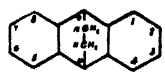
*effect* on respiration and $H_2O$ loss in black blowfly, 9354*e*.
on soil microörganisms, 1896*h*.
on tomatoes, 4413*a*.
on trematode larva and on intermediate molluscan hosts, 4414*c*.
in elm-bark-beetle control, 7629*h*.
in elm-leaf beetle control, 1897*g*.
emulsifiable oils for, P 2733*b*.
in European apple-sawfly control, 810*d*.
in European-fruit-lecanium control on peaches, 5895*i*.
in fall-armyworm control on corn, 3136*e*.
in fiber insectproofing, P 9478*i*.
films on gelatin or size, 9330*g*.
in filter-fly control, 5894*i*.
in fire-ant control, 1897*e*.
in flea-beetle control, 9313*e*.
flies resistant to, 6355*bc*, 8600*d*.
and their control, 9344*i*.
effect of Gammaesan and Octa-Klor on, 3965*e*, 6355*e*.
in fly control, 1519*cfg*, 6355*c*, 8602*e*.
failure of, 7629*d*.
particle size of aerosol in relation to, 6777*f*.
toxicity of residues on surfaces in, 9344*g*.
in fly control and its toxicity to man, 8601*d*.
in fly-larva control, 3555*i*.
in food-crop-insect control, 8598*d*.
in gladiolus-thrips control, 3961*h*, 5148*g*.
glue for wallpaper contg., P 4808*f*.
in grain-pest control, 9336*b*.
in grape-berry-moth control, 9340*d*.
in grasshopper control, 6353*f*.
grease- and stain-removers contg., P 1146*c*.
in greenhead-fly control, 9344*e*.
in greenhouse-pest control, 1523*h*.
as growth substance for plants, 1520*h*.
in gypsy moth control, 347*b*.
in hairy-spider beetle control in cereal warehouses, 2729*a*.
in harlequin-bug control, 1897*c*.
in hazelnut-weevil control, 6777*d*.
in *Hoplocampa brevis* control, 6355*d*, 8600*c*.
in horn-fly control, 5895*h*, 9273*e*, 9342*d*.
on dairy cattle, 3135*g*.
effect on milk, 6355*g*.
in horse-louse control, 1520*c*.
insecticidal activity of, and related compds., 2360*f*.
insecticidal activity of compds. related to, 199*c*.
as insecticide, 346*f*, 807*ag*, 2727*i*, 2728*e*, 2729*d*, 4805*b*, 6353*c*, 6776*g*, 9332*c*, 9343*b*, 9344*f*
for alfalfa and clover, 346*b*.
anticholinesterase action and, 2359*d*, 3964*h*.
for apple trees, red-banded leafroller increase and, 809*i*.
cyclohexyldiphenyl ether as synergist for, P 812*i*.
droplet size and toxicity of oil sprays of, 3138*i*.
effect of moisture and temp. on residual property of, 7628*h*.
with esters of bicyclo[2.2.1]-5-heptene-2,3-dicarboxylic acid, P 7633*e*.
for forest, 810*a*.
inactivation by light, 7183*f*.
in mists, 807*i*.
mite control and, 809*h*.
mode of action of, 5146*d*.
review on, 345*a*.
in S. Africa, 346*g*.
testing of, 7626*e*, 9342*f*.
toxicity of residues of, 2728*a*, 5146*i*.
as insecticide and toxicity to rats, 2363*c*.
insecticide mixt. with amides or imides, P 350*c*.
with benzenesulfonamide derivs., P 4419*h*.
with dibenzo heterocyclic compds., P 4420*b*.
with diphenyl sulfides, diphenyl sulfones, diphenyl sulfoxides or halogenated diphenyl sulfides, P 4419*i*.
with hexachlorocyclohexane, 2729*e*.
with methyl naphthalene, P 1902*e*.
with N, P or S compds., P 4420*a*.
with nitrophenols, P 4420*a*.
with $H_3PO_4$ diamides, P 4420*b*.
with polyhalogenated hydroaromatic compds., P 6358*f*.
with pyrethrum in fly control, materials for increasing effectiveness of, 7183*i*.
with sabadilla, 7628*i*.
with S compds., P 4420*a*.
*insecticide mixt.* with xanthone, P 350*f*.
in Japanese-beetle control, 2730*c*, 9346*g*.
in Japanese-beetle-larvae control in soil, 9329*d*.
in Japanese-weevil control, 7628*e*.
kalanchoe growth response to, 1898*a*.
in lepidopterous-larva control, 2726*e*.
in *Lipoptena mazamae* control, 6355*f*.
liver injury from, 2701*i*.
in livestock pest control, 5525*i*.
in long tailed-mealy-bug control on citrus, 4805*d*.
in *Loxagrotis albicosta* control, 1142*g*.
in *Lymantria monacha* control, 7626*c*.
in malaria control, 9264*f*, 9266*f*.
in malaria control by residual indoor spraying, 9345*b*.
manuf. and use of, 6761*e*.
manuf of, P 351*b*, P 1808*b*, P 4420*c*, P 4808*b*, P 5046*e*, P 5530*fg*, P 6237*c*, P 7968*h*.
manuf. of, and analogs, P 6358*h*.
manuf. of, fluosulfonic acid use in, P 2732*g*.
in mealy-bug control on pineapples, 4417*a*.
in *Melolontha melolontha* control, 5526*e*, 8088*f*.
in Mexican-bean-beetle control, 810*f*.
in migratory-locust control, 4806*d*.
in milk from cows fed pea-vine silage contg. DDT residues, 6356*a*.
in milk of cows fed alfalfa hay, 1501*b*, 8575*a*.
for mosquito control, P 7633*h*.
in mosquito control, 1519*ac*, 2730*h*, 3965*g*, 9345*ef*.
by airplane, effect on citrus growth, 7631*a*.
in Alaska, 6354*i*.
in houses, 2728*f*.
in houses, residual effect of, 3139*c*.
in snow water, 808*e*.
mosquito control with incense from pyrethrum and, 8602*h*.
mosquito resistance to, 2360*d*.
in mouse control, 1524*c*.
-oil larvicides, filus from, 8087*f*.
in olive-fruit-fly control, 9349*f*.
in onion thrips control, 1897*i*, 5896*i*.
in onion thrips control on cotton, 1143*e*.
in onion-thrips control on tomatoes and its effect on spotted wilt, 7184*b*.
in orange-tortrix control on berries, 5148*c*.
in Oriental-beetle control, residual toxicity in soil, 1522*f*.
in oriental-fruit-moth control, 5527*s*, 7630*h*.
in *Ornithodoros erraticus* control, 7629*c*.
in *Oscinosoma frit* control on grain, 8088*c*.
in oystershell-scale control, 3139*f*.
paints contg., 9345*i*.
in pea-aphid control, 9330*d*.
in peach-borer control, 8088*e*.
in peach-cat-facing control, 8088*d*.
in peach-deforming sucking-bug control, 1143*i*.
in peach-insect control, 4417*b*.
in pea-weevil control, 1521*g*.
in pecan-nut-casebearer control, 7630*i*.
in pecan-weevil control, 9330*a*.
in periodical-cicada control, 1899*c*, 7629*i*.
piperonyl chrysanthemumate as synergist for, P 2732*h*.
in plants, translocation of, 1521*b*.
in plum curculio control, effect on parasitization of oriental fruit moth, 1143*i*.
in plum-curculio control on peaches, 9348*g*.
poisoning by, 2316*f*, 8058*f*, 8525*i*, 9263*a*.
in pork, 2337*h*.
in potato-flea-beetle control, 8599*f*.
potato fungicides contg., 801*g*.
in potato-leafhopper control on apple nursery stock, 1522*a*.
as potato spray, 4413*h*.
in potato-tuberworm control, 3965*a*, 6776*f*, 8599*f*.
prepn. of, 6186*d*.
purification of, P 8970*a*.
in Queensland-fruit-fly control, 7184*c*.
rearrangement in the presence of $H_2SO_4$ to form 4,4′-dichlorobenzil, 1996*b*.
in red-banded-leaf-roller control, 2729*fh*, 5527*d*, 7628*c*, 9347*d*.
in red-harvester-ant control, 7627*f*.
in red-wax-scale control on mango, 9314*b*.
residues of, on alfalfa hay and seed chaff, 1898*d*.
on apples, removal of, 5895*i*.
*residues of*, in grapes, grape juice and jam, 6328*h*.
on strawberries and vegetables, 1898*b*.
resistance of insects to, 8581*f*.
reviews on, 6353*b*, 9331*h*, 9353*a*.
in root-knot control, 809*c*.
in scorpion control, 4416*c*.
in sheep-ectoparasite control, 9352*f*.
in sheep-tick control, 6776*i*, 8598*i*.
in sludge-fly control, 7629*g*.
in slug control, 9339*i*.
smoke of, 5146*f*.
smokes, for indoor use, 9342*a*.
soap contg., P 4808*c*.
in soils, persistence of, 9343*f*.
soly. in Na xylenesulfonate solns., 1242*e*.
solvent for, P 9356*b*.
in southern-corn-rootworm control in peanuts, 7182*i*.
in spittle-bug control, 1521*g*.
spray powders, effect of dispersing and spreading agents on toxicity of, 8087*h*.
stabilization of, with weakly basic compds., P 7634*a*.
storage of conditioned and wettable powders of, 807*d*.
in sugar-beet-curly-top control, 1897*i*.
in sugar-beet-nematode control, 3134*e*.
sunlight effect on toxicity of deposits of, 5895*e*.
in sweet-clover-weevil control, 8599*c*.
in sweet-potato-weevil control, 1142*a* 7183*c*.
in termite control, 1145*b*, 6356*e*.
in thrips control on nectarines, 7184*c*.
in tobacco-flea-beetle control, 5895*a* 9329*h*, 9346*a*.
in tobacco-stalk-borer control, 5147*f*.
in tomato-fruit-worm control, 9328*h*
toxicity of, 1867*f*, 3936*i*, 7627*h*, 8528*a*.
to bees, 344*b*, 9349*i*.
to birds and mice, 7628*g*.
detn. in residues, 9345*c*.
detn. of, 9344*a*.
to fish, 4805*e*.
to flies, 5147*f*.
to flies and roaches, 7628*f*.
to insects, route of administration and 9340*h*.
to man, 8600*e*.
to mice and rats, 347*f*.
to plants, 5147*i*.
in residues, 808*f*.
in residues to flies and mosquitoes 6354*j*.
toxicity of, and its analogs to *Macrosiphoniella sanborni* and *Oryzaephilus surinamensis*, 9343*a*.
toxicity of residues from carbon dioxide propelled, 6353*g*.
toxicity of wettable powders contg particle size and, 7628*e*.
toxicology of, 2705*d*, 3556*c*, 4411*h*.
tremor and changes in reflex status produced by, 6318*i*.
in tsetse-fly control, 7629*h*.
in tsetse-fly control on cattle, 1140*i*.
tuberculocidal activity and toxicity of, 8615*c*.
in turnip-aphid control, 5897*b*.
in two-spotted-spider-mite control, 2357*i*
two-spotted-spider-mite increase in presence of, 1522*h*.
ultraviolet light effect on, 4245*i*.
in vegetable-insect control, 1141*b*.
in vegetable-weevil control, 5146*h*.
in velvetbean-caterpillar control, 1521*h*
waxes contg., for floors, etc., P 5614*a*.
in white-fringed-beetle control, 8094*d*, 9347*d*.
in Willamette-mite control on raspberries, 3137*d*.
in wireworm control in irrigated lands, 2362*b*.
in potatoes, 2726*g*.
in soils, 3139*i*.
in wool-insect control, 8089*d*.
—, 1,1,1-trichloro-2,2-bis(chlorotolyl)-, 9332*h*.
—, 1,1,1-trichloro-2,2-bis(4-chloro-*o*-tolyl)-, as acaricide and insecticide, 3137*f*.
—, 1,1,1-[illegible]-2,2-bis(3,5-dichloro-4-m[illegible]yl)-, 1896*c*.
—, 1,1,1-trichloro-2,2-bis(3,5-dimethoxyphenyl)-, P 8401*a*.
—, 1,1,1-trichloro-2,2-bis[*p*-(dodecyloxy)phenyl]-, P 8400*i*.
—, 1,1,1-trichloro-2,2-bis(5-ethoxycarvacryl)-, antimalarial activity of, 5860*i*.
—, 1,1,1-trichloro-2,2-bis(*p*-ethylphenyl)-, as acaricide and insecticide, 3137*f*.

——, **1,1,1-trichloro-2,2-bis(3-fluoro-4-methoxyphenyl)-**, P 351*a*.
——, **1,1,1-trichloro-2,2-bis(*p*-fluorophenyl)-**, P 350*h*, 2359*i*, 9332*g*.
as acaricide and insecticide, 3137*f*.
effect on bacteria and yeast, 3885*e*.
effect on respiration of *Oryzaephilus surianamensis*, 9342*i*.
in European-corn-borer control, 7182*g*.
as insecticide, 2360*f*, 9331*h*, 9333*c*, 9343*b*.
residual toxicity of, 6354*g*.
toxicity of, 7627*h*.
to flies, 5147*f*.
to flies and roaches, 7628*f*.
——, **1,1,1 - trichloro - 2,2 - bis(fluorotolyl)-**, isomers, 6186*h*.
——, **1,1,1-trichloro-2,2-bis(hydroxyphenyl)-**. See *Phenol, ar,ar'-(2,2,2-trichloroethylidene)di-*.
——, **1,1,1-trichloro-2,2-bis(*p*-iodophenyl)-**, 2359*i*, 5894*d*.
effect on respiration of *Oryzaephilus surianamensis*, 9342*i*.
insecticidal action of, 9343*b*.
——, **1,1,1-trichloro-2,2-bis(methoxyphenyl)-**, 1896*g*.
——, **1,1,1-trichloro-2,2-bis(*p*-methoxyphenyl)-**, 1753*c*, 6187*a*, 7175*g*, P 8400*i*, P 9085*d*, 9353*ah*.
as acaricide and insecticide, 3137*f*.
in aphid control on celery, 346*e*.
in cabbage-caterpillar control, 3137*a*.
in codling-moth control, 7630*c*
confused flour-beetle control with, 2361*d*.
in control of corn earworm and fall armyworm in corn, 3136*f*
in control of oriental-fruit moth and plum curculio on peaches, 7630*g*.
in corn borer control, 6354*d*
in corn-flea beetle control, 4416*i*.
effect on livestock, 1520*a*.
effect on respiration of *Oryzaephilus surianamensis*, 9343*a*.
in fall armyworm control on corn, 3136*e*.
in fly control, 5895*g*, 7629*f*, 9345*a*.
in fly control and its toxicity to man, 8601*d*.
fly resistance to, 8600*d*.
in grasshopper control, 4806*e*.
in horn-fly control, 5895*h*, 9342*d*.
on dairy cattle, 3135*g*.
effect on milk, 6355*g*.
insecticidal action of, 9343*c*.
in Mexican bean-beetle control, 810*e*.
in mosquito control in snow water, 808*f*.
in onion-thrips control, 5897*a*.
in red-banded-leaf roller control, 5527*d*.
residual toxicity of, 6354*g*.
in sheep-tick control, 8598*i*.
in tobacco flea beetle control, 5895*d*.
toxicity of, 2705*f*, 4411*h*.
to flies and roaches, 7628*f*.
to man, 8600*f*.
to termites, 347*a*.
in two-spotted-spider-mite control, 1522*i*.
in velvetbean-caterpillar control, 1521*i*.
in Willamette-mite control on raspberries, 3137*d*.
——, **1,1,1-trichloro-2,2-bis[*p*-(methylmercapto)phenyl]-**, P 7187*d*.
——, **1,1,1-trichloro-2,2-bis(*m*-nitrophenyl)-**, 6605*b*.
——, **1,1,1-trichloro-2,2-bis(*p*-nitrophenyl)-**, 4658*a*.
as acaricide and insecticide, 3137*f*.
effect on murine typhus, 3101*c*.
——, **1,2,2-trichloro-1,1-bis(*p*-nitrophenyl)-**, 4658*f*.
——, **1,1,1-trichloro-2,2-bis(5-propoxycarvacryl)-**, antimalarial activity of, 5860*i*.
——, **1,1,1-trichloro-2,2-bis(*p*-propoxyphenyl)-**, effect on respiration of *Oryzaephilus surianamensis*, 9343*a*.
insecticidal action of, 9343*c*.
——, **1,1,1-trichloro-2,2-bis(α,α,α-trifluoro-*p*-tolyl)-**, 9332*h*.
——, **1,1,1-trichloro-2-(*o*-chlorophenyl)-2-(*p*-chlorophenyl)-**, 2359*h*, 6186*d*.
as acaricide and insecticide, 3137*f*.
removal of, from DDT, P 3970*a*.
residual toxicity of, 6354*g*.
toxicity of, 7627*h*.
toxicity to termites, 347*b*.
——, **1,1,1-trichloro-2-(*p*-chlorophenyl) - 2 - (*p* - dodecylphenyl)-†**, P 6360*b*.
——, **1,1,1-trichloro-2-(*p*-chlorophenyl)-2-(*p*-fluorophenyl)-**, P 350*i*.
——, **1,1,1-trichloro-2-(*p*-chlorophenyl)-2-(*p*-iodophenyl)-**, 1753*b*.
——, **1,1,1-trichloro-2-(*p*-chlorophenyl)-2-phenyl-**, 2359*i*, P 6360*a*.
as acaricide and insecticide, 3137*f*.
effect on respiration of *Oryzaephilus surianamensis*, 9342*i*.
as insecticide, 2360*g*, 9343*b*.
residual toxicity of, 6354*g*.
toxicity of, 345*i*.
——, **1,1,1-trichloro-2-(*p*-chlorophenyl)-2-*p*-tolyl-**, P 6360*a*.
toxicity of, 346*a*.
——, **1,1,1-trichloro-2-(*p*-chlorophenyl)-2-(2,4-xylyl)-**, as acaricide and insecticide, 3137*f*.
——, **1,1,1-trichloro-2,2-di-2-fluorenyl-**, 6604*i*.
——, **1,1,2-trichloro-1,2-difluoro-**, P 5031*i*.
——, **1,2,2 - trichloro - 1,1 - difluoro-**, hydrochloric acid removal from, 2465*c*.
——, **1,1,1-trichloro-2,2-dinaphthyl-**, as acaricide and insecticide, 3137*g*.
——, **1,1,1-trichloro-2,2-di-*p*-phenetyl-**, P 8400*i*.
effect on respiration of *Oryzaephilus surianamensis*, 9343*a*.
insecticidal action of, 9343*c*.
toxicity to termites, 347*a*.
——, **1,1,1-trichloro-2,2-diphenyl-**, 2359*h*, 5894*d*, P 6358*h*.
as acaricide and insecticide, 3137*g*.
and derivs., as plasticizers, P 4514*d*.
*ar*-derivs., for pest control, P 3970*c*.
and *p,p'*-dihalo derivs., toxicities of, 315*d*
halo and alkoxy derivs., as plasticizers, P 3207*f*.
insecticidal action of, 9331*i*, 9332*c*, 9343*b*.
toxicity to flies and roaches, 7628*f*.
toxicity to termites, 347*a*
——, **1,2,2-trichloro-1,1-diphenyl-**, 4658*c*.
——, **1,1,1-trichloro-2,2-dithienyl-**. See *Thiophene, (2,2,2-trichloroethylidene)di-*.
——, **1,1,1-trichloro-2,2-ditolyl-**, effect on *Magnicada septendecim*, 1899*c*.
——, **1,1,1-trichloro-2,2-di-*m*-tolyl-**, in brown-rot control, 3553*h*.
——, **1,1,1-trichloro-2,2-di-*p*-tolyl-**, 2359*h*.
as acaricide and insecticide, 3137*f*.
as insecticide, 2360*g*.
residual toxicity of, 6354*g*.
toxicity of, 345*f*.
to flies and roaches, 7628*f*.
to termites, 347*b*.
——, **1,1,1-trichloro-2,2-dixylyl-**, insecticidal action of, 9333*b*.
——, **1,1,1-trichloro-2,2-di-2,4(2,5 and 3,4)-xylyl-**, as acaricide and insecticide, 3137*f*
——, **1,1,1-trichloro-2,2-di-3,4-xylyl-**, 9333*e*
——, **1,1,2-trichloro-1-fluoro-**, P 2218*a*, 2925*b*.
——, **1,1,1-trichloro-2-(*o*-fluorophenyl) - 2 - (*p* - fluorophenyl)-**, 6186*g*, 7627*h*.
——, **1,1,1-trichloro-2-(*p*-fluorophenyl)-2-(*p*-methoxyphenyl)-**, P 350*i*.
——, **1,1,1-trichloro-2-(*p*-fluorophenyl)-2-phenyl-**, P 350*i*.
——, **1,1,1-trichloro-2-(*p*-fluorophenyl)-2-*p*-tolyl-**, P 351*a*.
——, **1,1,1-trichloro-2-(*p*-methoxyphenyl)-2-*p*-phenetyl-**, 1753*b*.
——, **1,1,1-trichloro-2-(*m*-nitrophenyl)-2-(*p*-nitrophenyl)**, 4658*b*.
——, **trichlorotrifluoro-**, polymerization of, 2157*e*.
——, **1,1,1-trichloro-2,2,2-triphenyl-**, 9332*i*.
toxicity of, 345*f*.
——, **1,1,2-triethoxy-†**, P 675*d*, 7903*f*.
——, **1,1,1-trifluoro-**, moment of inertia and microwave spectrum of, 43*b*.
spectrum and thermodynamic properties of, 1656*g*.
——, **1,1,1-trifluoro-2,2-bis(*p*-fluorophenyl)-**, 2359*h*.
——, **1,1,2-triisobutoxy-†**, P 675*c*.
——, **1,1,2-trimethoxy-†**, P 675*b*.
——, **1,1,2-triphenyl-**, 6177*c*.
——, **1,1,1-triphenyl-2,2-di-*m*(and *p*)-tolyl-**, dissocn. of, kinetics of, 5387*f*.
——, **1,1,1-triphenyl-2,2-di-*o*-tolyl-**, 5387*g*.
——, **1,1,1-tris(chlorophenyl)-**, 9333*a*.
**Ethane-*d***, exchange reactions of, 7897*g*.
Raman spectrum of, 7344*h*.
spectrum of, 4572*d*.
——, **1,2-dibromo-**, Raman and infrared spectra of, 2865*f*.
**Ethane-1,1-$d_2$, 1,2-dibromo-**, Raman and infrared spectra of, 2865*f*.
**Ethane-1,2-$d_2$, 1,2-dibromo-**, Raman and infrared spectra of, 2865*f*.
**Ethane-1,1,2-$d_3$, 1,2-dibromo-**, Raman and infrared spectra of, 2865*f*.
**Ethane-1,1,2,2-$d_4$, 1,2-dibromo-**, Raman and infrared spectra of, 2865*f*.
**Ethane-$d_6$**, calcn. of force consts., infrared-absorption spectra and vibration configurations of, 6479*b*.
**Ethaneboronic acid**, ester with polyvinyl alc., P 2631*d*.
**Ethanedial**. See *Glyoxal*.
**1,2-Ethanediamine**. See *Ethylenediamine*.
**1,2-Ethanedicarbamic acid, tetrathio-**. See *Carbamic acid, ethylenebis[dithio-*.
**1,1-Ethanedicarboxylic acid**. See *Malonic acid, methyl-*.
**1,2-Ethanedicarboxylic acid**. See *Succinic acid*.
**1,2-Ethanediimine**, derivs., as antioxidants for butter, etc., P 9294*e*.
**Ethanedioic acid**. See *Oxalic acid*.
**1,1-Ethanediol**, diacetate, P 3838*g*.
dimethacrylate, polymerization with Me methacrylate with biacetyllauroyl peroxide catalyst, P 876*i*.
formation of, 2495*g*.
**1,2-Ethanediol**. See *Ethylene glycol*.
——, **cyclohexyl-**, 573*d*.
——, **1,1-dicyclohexyl-**, 573*d*.
*dl*-, 4253*d*.
——, **1,2-diphenyl-**. See *Hydrobenzoin*.
——, **1,2-di-2-thienyl-**, and dibenzoate, 9063*a*.
–, (*p*-**methoxyphenyl**)-, 4240*f*.
–, **phenyl-**, 572*c*, 4240*f*.
dehydration of, to $PhCH_2CHO$, P 3461*e*.
detn. of active H in, 3316*f*.
ester derivs. as plasticizers for elastomers, P 6663*g*.
——, **tetraphenyl-**. See *Benzopinacol*.
——, **tolyl-**, and diacetate, P 6064*a*.
**1,2-Ethanedione**. See *Glyoxal*.
**1,1-Ethanedisulfonic acid**. See *Methionic acid, methyl-*.
**1,2-Ethanedithiol**, 2935*g*.
bis(5,6,7,8 - tetrahydro - 4 - nitro - 1-naphthoate), 6192*i*.
reaction with ethylene oxides, 7421*a*.
as stabilizer for polysulfone resins, P 9527*e*.
**Ethanenitrile**. See *Acetonitrile*.
**Ethaneorthosiliconic acid**, triethyl ester—see *Silane, triethoxyethyl-*.
**Ethanephosphonic acid, 2-phenyl-**, 8366*c*.
——, **thio-**, *O,S*-diethyl ester, 1004*f*.
**Ethaneseleninic acid, 2-chloro-**, hydrochloride, 2160*b*.
**Ethaneselenyl chloride, 2,2-dichloro-**, 2159*i*.
**Ethanesulfonamide**, 120*g*.
——, **2-amino-**, derivs., P 3450*d*.
——, **2-amino-*N*-benzyl-**, P 3450*h*.
——, **2-amino-*N*-(5-bromo-2-pyridyl)-**, hydrochloride, P 3450*g*.
——, **2 - amino - *N* - (5 - bromo - 2-pyrimidyl)-**, and hydrochloride, P 3450*f*.
——, **2-amino-*N*-(5-chloro-2-pyridyl)-**, hydrochloride, P 3450*g*.
——, **2 - amino - *N* - (5 - chloro - 2-pyrimidyl)-**, P 3450*g*.
——, **2-amino-*N*-2-naphthyl-**, P 3450*g*.
——, **2-amino-*N*-2-pyridyl-**, and derivs., P 3450*d*.
——, **2-amino-*N*-2-pyrimidyl-**, and derivs., P 3450*f*.
——, **2-amino-*N*-2-quinolyl-**, and derivs., P 3450*g*.
——, **1-chloro-*N*-1(and 2)-naphthyl-**, 6569*a*.
——, **1,2-dibromo-2-phenyl-**, 172*c*.
——, **2-(α,γ-dihydroxy-β,β-dimethylbutyrylamino)-†**, antimalarial action of, effect of Ca pantothenate on, 9254*g*.
derivs., P 3450*c*.
**Ethanesulfonanilide, 2-amino-**, P 3450*h*.
——, **2-amino-*p*-chloro-**, P 3450*h*.
——, **2-amino-3',5'-dibromo-**, P 3450*f*.
——, **2-amino-*N*-ethyl-**, hydrochloride, P 3450*g*.
——, **2-amino-*p*-nitro-**, P 3450*h*.
——, **2-amino-*p*-sulfamyl-**, and derivs., P 3450*h*.
**1-chloro-**, 6508*i*.
***p*-Ethanesulfonanisidide, 2-amino-**, P 3450*h*.
**Ethanesulfonic acid**, chloro fluoro derivs., intermediates for manuf. of, P 6645*i*, P 6646*a*.

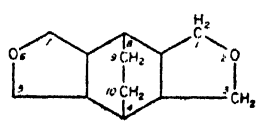
and ethyl ester, 1313*g*.
, **2-amino-**. See *Taurine*.
, **2-(benzotriazolyl)-**. See *Benzotriazoleethanesulfonic acid*.
**1-benzoyl-**, 5763*f*.
**2-chloro-**, salts, P 660*d*.
**2-hydroxy-**. See *Isethionic acid*.
, **2-nitro-**, potassium salt, P 9079*b*.
, **2-(piperidyl)-**. See *Piperidineethanesulfonic acid*.
, **2-(stearoylaminomethoxy)-**, sodium salt, P 9496*e*.
, **1(and 2)-veratroyl-**, hydrolysis (alk.) of, 5763*e*.
***m*-Ethanesulfonophenetidide, 1-chloro-**, 6569*a*.
***m*-Ethanesulfonotoluidide, 1-chloro-**, 6568*i*.
***o*-Ethanesulfonotoluidide, 1-chloro-**, 6568*i*.
***p*-Ethanesulfonotoluidide, 2-amino-**, P 3450*h*.
——, **1-chloro-**, 6568*i*.
**Ethanesulfonyl chloride**, 120*g*.
——, **2-nitro-**, P 5411*i*.
**1,1,2,2-Ethanetetracarboxylic acid**, tetraethyl ester, 4217*f*.
——, **1-phenyl-**, and tetraethyl ester, 4227*i*.
**1,1,2,2-Ethanetetrol**, disulfate, as catalyst in partial hydration of myrcene, P 6219*g*.
tetramethacrylate, and polymers, P 2034*e*.
**Ethanethiol**, catalysts of $AlCl_3$ and, in isomerization of $C_4H_{10}$, P 3188*e*.
chlorofluoro derivs., intermediates for manuf. of, P 6646*a*.
as corrosion inhibitor against $CO_2$ in petroleum wells and processing, P 7221*h*.
detn. in gasoline, 6944*b*.
effect on contact oxidation of vitamin C by Cu ions, 1097*b*.
formation from ethylene oxide reaction with $H_2S$, 1391*d*.
formation from reaction of $SiS_2$ with EtOH, 4631*d*.
phys. constants of, 2956*d*.
reaction with ethylene oxides, 7420*i*.
reaction with streptomycin B, 3367*d*.
spectrum of, 2867*g*.
thallous deriv., 3352*h*.
**Ethanethiol, 2-amino-**, diethylgold deriv., 7421*e*.
——, **2-(amylmercapto)-**, 2935*f*.
——, **2-[2-(amylmercapto)ethylmercapto]-**, 2935*f*.
——, **2-[2-(*p*-*tert*-amylphenoxy)ethoxy]-**, P 4507*i*.
——, **2-bromo-**, chlorothiolacetate, 2935*f*.
——, **2-butoxy-**, (compd. omitted from abstr.), 2928*h*.
——, **2-(butylmercapto)-**, (compd. omitted from abstr.), 2928*h*.
——, **2-chloro-**, and chlorothiolacetate, 2935*e*.
5,6,7,8 tetrahydro-4-nitro-1-naphthoate, 6192*i*.
——, **2-[2-(*p*-cumyloxy)ethoxy]-**, P 4507*i*.
——, **2-[2-(*p*-cyclohexyloxyphenoxy)ethoxy]-**, P 4507*i*.
——, **2-[2-(2,4-di-*tert*-amylphenoxy)ethoxy]-**, P 4508*a*.
——, **2-diethylamino-**, esters of 5,6,7,8-tetrahydro-1-naphthoic acid derivs., 6193*a*.
hydrochloride, P 6649*c*.
——, **2,2'-(ethylenedithio)di-**, 2935*g*.
——, **2-[2-[*p*-(5-methylhexyl)phenoxy]ethoxy]-**, P 4507*i*.
——, **2-methylmercapto-**, 2935*f*.
(compd. omitted from abstr.), 2928*h*.
——, **2-[2-(2-naphthoxy)ethoxy]-**, P 4507*h*.
——, **2-phenoxy-**, P 4507*h*.
——, **2-(2-phenoxyethoxy)-**, P 4507*h*.
——, **2-[2-(2-phenoxyethoxy)ethoxy]-**, P 4507*i*.
——, **2-(2-phenylmercaptoethoxy)-**, P 4507*h*.
——, **2-propoxy-**, (compd. omitted from abstr.), 2928*h*.
——, **2-propylmercapto-**, (compd. omitted from abstr.), 2928*h*.
——, **2-[2-(*p*-1,1,3,3-tetramethylbutylphenoxy)ethoxy]-**, P 4507*h*.
——, **2-[2-[2-(*p*-1,1,3,3-tetramethylbutylphenoxy)ethoxy]ethoxy]-**, P 4507*i*.
——, **2,2'-thiodi-**, 2935*g*.
——, **2-*p*-toloxyethoxy-**, P 4507*i*.
**1,1,2-Ethanetricarboxylic acid**, triethyl ester, 6611*c*.
triethyl ester, azo 5-pyrazolone dyes from, P 8149*f*.
**1,4-Ethanoanthracene**,



**9,10-Ethanoanthracene**,

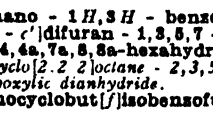


**9,10-Ethanoanthracene-11,12-dicarboxylic acid, 9,10-dihydro-**, diallyl ester, P 2819*e*.
, **9,10-dihydro-9,10-dinitro-**, and diethyl ester, 1758*i*.
**Ethanoanthracene-11,12-dicarboxylic anhydride, 1,4-dihydro-9,10-diphenyl-**, 2983*g*.
**Ethanoanthracene-11,12-dicarboxylic anhydride, 9,10-dibromo-9,10-dihydro-**, 1758*h*.
, **9,10-dichloro-9,10-dihydro-**, 1758*h*.
, **9,10-dihydro-**, P 2819*d*.
, **9,10-dihydro-9,10-dinitro-**, 1759*a*.
, **9,10-dihydro-9,10-diphenyl-**, 2983*g*.
, **9,10-dihydro-9-nitro-**, 1758*h*.
, **9,10-dihydro-9-phenyl-**, 2983*g*.
**9,10-Ethanoanthracene-11-methanol, 9,10-dihydro-**, methacrylate, P 2025*i*.
**4,8-Ethano-1*H*,3*H*-benzo[1,2-*c*,4,5-*c'*]difuran**,



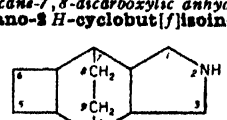
*4,8—1H,3H—[1,2-c,4,5-c']*

**4,8-Ethano-1*H*,3*H*-benzo[1,2-*c*,4,5-*c'*]difuran-1,3,5,7-tetrone, 3a,4,4a,7a,8,8a-hexahydro-**. See *Bicyclo[2.2.2]octane-2,3,5,6-tetracarboxylic dianhydride*.
**4,7-Ethanocyclobut[*f*]isobenzofuran**,



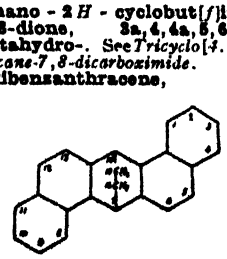
*4,7—[f]*

**4,7-Ethanocyclobut[*f*]isobenzofuran-1,3-dione, 3a,4,4a,5,6,6a,7,7a-octahydro-**. See *Tricyclo[4.2.2.0$^{2,5}$]decane-7,8-dicarboxylic anhydride*.
**4,7-Ethano-2*H*-cyclobut[*f*]isoindole**,



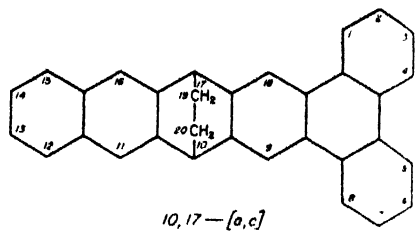
*4,7—2H—[f]*

**4,7-Ethano-2*H*-cyclobut[*f*]isoindole-1,3-dione, 3a,4,4a,5,6,6a,7,7a-octahydro-**. See *Tricyclo[4.2.2.0$^{2,5}$]decane-7,8-dicarboximide*.
**Ethanodibenzanthracene**,



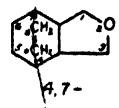
*7,14——[ah]*

**7,14-Ethanodibenz[*a,h*]anthracene-15,16-dicarboxylic acid, 7,14-dihydro-**, disodium salt, bacterial mutation by, 2275*f*.
**10,17-Ethanodibenzo[*a,c*]pentacene**,



*10,17—[a,c]*

**10,17-Ethanodibenzo[*a,c*]pentacene-19,20-dicarboxylic anhydride, 10,17-dihydro-**, 1364*d*.
**Ethanoic acid**. See *Acetic acid*.
**4,7-Ethanoisobenzofuran**,



*4,7-*

**4,7-Ethanoisobenzofuran-1,3-dione, tetrahydro-**. See *Bicyclo[2.2.2]octene-2,3-dicarboxylic anhydride*.
**Ethanol**. See *Ethyl alcohol*.
——, **2-(allylamino)-**, 7246*f*.
——, **2,2'-(allylimino)di-**, 7246*f*.
——, **2-(allyloxy)-**, phthalate, as plasticizer for vinyl chloride resins, P 7755*i*.
——, **2-amino-**, anthraquinone dyes from, P 7709*f*.
benzoate-HCl, 3014*f*.
butadiene sepn. from olefins by aq. solns of cuprous salts contg., P 6218*b*.
carbon dioxide absorption by, kinetics of, 23*g*.
cellulose degradation by, in encrustant removal from hemp fiber, 4858*f*
choline from, and D- and L-methionine, 6573*i*.
chromatography on starch columns, 5818*e*
compd. with dodecyl sulfoacetate, detn. of, P 6950*a*.
with 2-mercaptobenzothiazole, for addn. to drilling muds, P 6402*e*.
with 1-sulfanilyl-2-thiourea, P 6874
*N*-derivs., reaction with CNCl, P 252*e*
detection of, 2648*h*.
detn. in mixt. with di- and triethanol amine, 6364*e*.
*N,N*-dialkyl derivs, esters, 2190*f*
dialkyl, reaction with benzhydryl halide in the presence of alkali metal carbonate, P 1064*f*.
effect on blood vessels of frog preps 5493*b*.
on fat of turkeys, 1087*h*.
on heart, 9250*f*.
on lipide phosphorylation, 1843*f*.
on liver-phospholipide formation, 9264*g*.
ester (acid) with sulfuric acid, reaction with quinizarin derivs., P 9467*c*.
esters with 1,3-dimyristate and 1-erucate 3-stearate of 2-glycerophosphoric acid, 570*h*.
with 1,3-dipalmitate of 2-glycerophosphoric acid, P 1052*f*.
with fatty acids, hydrohalides, P 674*e*.
heat of ionization of ammonium ion from, 6904*b*.
and 2-hydroxyethylcarbamate (salt), 6157*i*.
in lipides of tissue, phosphatide content and, 4355*c*.
naphthoquinoneimide dye from, P 8167*b*
as peptizing agent in phenothiazine prepn., P 3572*c*.
pharmaceutical, monograph for, 4809*f*, 8103*c*.
phenylacetate-HCl, effect on penicillin production, 2269*h*.
phosphate, hydrolysis and synthesis by phosphatases, 9091*d*.
reaction product with coconut oil acid, cyanoguanidine, and glycidol or ethylene oxide, sulfuric acid esters, as textile aids, P 7727*ce*.
reaction product with paraformaldehyde and *N*-(hydroxymethyl)stearamide, P 1434*g*.
reaction with *o*-chlorobenzaldehyde and with salicylaldehyde, 4235*b*.
reaction with mustard gas, 6336*i*.
requirements of laying chickens for, 8466*g*.

salt with *p*-aminobenzenephosphonic acid, 1737*i*.
salt with *p*-[(2-hydroxyethylcarbamyl)-methoxy]benzenearsonic acid, 3364*g*.
sepn. of mixt. of, $(HOCH_2CH_2)_2NH$ and $(HOCH_2CH_2)_3N$ by azeotropic distn., P 674*c*.
system: $Et_2O$–pyridine–, 8833*b*.
——, **2-(2-amino-4-arsenosophenoxy)-**, in amebiasis therapy, 8559*c*.
——, **2-amino-1,2-bis(*p*-chlorophenyl)-**, and hydrochloride, 3369*e*.
——, **2-[*N*-(4-amino-6-butoxy-*s*-triazin-2-yl)anilino]-**, 4269*e*.
——, **2-[(4-amino-6-butoxy-*s*-triazin-2-yl)ethylamino]-**, 4269*e*.
——, **2-(4-amino-2-chlorophenoxy)-**, P 7695*i*.
——, **2-(4-amino-6-chloro-*s*-triazin-2-ylamino)-**, 1426*c*.
——, **2-[*N*-(4-amino-6-chloro-*s*-triazin-2-yl)anilino]-**, 1426*d*.
——, **2-[(4-amino-6-chloro-*s*-triazin-2-yl)ethylamino]-**, 1426*d*.
——, **2-amino-1,1-diphenyl-**. See *Benshydrol, α-(aminomethyl)-*.
——, **2-(2-aminoethylamino)-**, and derivs., P 674*f*
effect on blood vessels of frog prepns., 5493*c*.
as solvent for dye analysis, 1569*f*.
——, **2-(2-aminoisopropylamino)-(?)**, toxicity of, 4401*g*.
——, **2-[*N*-(4-amino-6-methoxy-*s*-triazin-2-yl)anilino]-**, 4269*e*.
——, **2-[(4-amino-6-methoxy-*s*-triazin-2-yl)ethylamino]-**, 4269*e*.
——, **2-(1-amino-2-naphthoxy)-**, disazo dyes from, P 1574*c*.
——, **2-[*m*(and *p*)-aminophenoxy]-**, azo dyes from, P 7695*i*.
——, **2-(*o*-aminophenoxy)-**, arsenic derivs., 599*b*.
——, **2-[2-[2-(*p*-aminophenoxy)ethoxy]-ethoxy]-**, anthraquinone dyes from, P 3205*d*
——, **2-[3-(*p*-aminophenoxy)propylsulfonyl]-**, 8388*g*.
——, **2-(*o*-aminophenylsulfonyl)-**, azo dyes from, maleic and succinic acid esters of, P 8153*d*.
——, **2-(3-aminopropylamino)-(?)**, toxicity of, 4401*g*.
——, **2-[2-(2-amino-4-pyrimidylamino)-ethylamino]-**, and trihydrochloride, P 4704*g*.
——, **2-(4-amino-*o*-toloxy)-**, azo dye from, P 7695*i*.
——, **2-amino-1,1,2-triphenyl-**, deamination of, 2600*e*.
——, **2-amylamino-**, *p*-aminobenzoate-HCl, effect on cholinesterase, 762*f*.
*p*-ethoxybenzoate-HCl, local anesthetic, P 4430*e*.
——, **2-(*p*-*tert*-amylphenoxy)-**, in foam control, P 1202*g*, P 4879*e*.
——, **2-anilino-**, P 673*i*.
——, **2-anilino-1,2-bis(*p*-chlorophenyl)-**, and hydrochloride, 3369*e*.
——, **2-(anthryl)-**. See *Anthracenethanol*.
——, **2,2'-(bens[*a*]anthracen-7-ylmethylimino)di-**, and hydrochloride, 621*b*.
——, **2-(benshydrylsulfonyl)-**, and acetate, 1306*f*.
——, **2,2'-(*p*-1,3-benzodioxan-6-ylazophenylimino)di-**, P 8149*c*.
——, **2-(benzothiazolyl)-**. See *Benzothiazoleethanol*.
——, **2-(2-benzothiazolylmercapto)-**, as insecticide, 4415*a*.
——, **2-benzotriazolyl-**. See *Benzotriazoleethanol*.

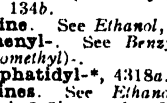
1321*c*.

lactate acetate and lactate butyrate, P 676*d*.
——, **2-[benzyl(2-pyridyl)amino]-(?)**, 5783*c*.
——, **2-bicyclo[3.1.1]-2-hepten-2-yl-**. See *Bicyclo[3.1.1]-2-heptene-2-ethanol*.
——, **2-bicyclo[3.1.1]heptyl-**. See *Norpinanethanol*.
——, **2,2',2'',2'''-(4,4'-biphenylenedinitrilo)tetra-**, 7443*d*.
——, **1-(biphenylyl)-**. See *Biphenylmethanol, α-methyl-*.
——, **2-(biphenylyl)-**. See *Biphenylethanol*.
——, **2-(2-biphenylylamino)-**, picrate, 7443*b*.
——, **2,2'-(4-biphenylylimino)di-**, 7443*b*.
——, **1,1-bis[*p*-(benzyloxy)phenyl]-2-phenyl-**, 7469*e*.
——, **1,1-bis(*p*-bromophenyl)-2-(*p*-chlorophenyl)-**, 7469*a*.
——, **1,1-bis(*p*-butoxyphenyl)-2-phenyl-**, P 6666*h*.
——, **1,1-bis(*p*-*sec*-butoxyphenyl)-2-phenyl-**, P 6666*g*.
——, **1,2-bis(*p*-chlorophenyl)-**, and derivs., 3369*b*.
——, **1,2-bis(*p*-chlorophenyl)-2-diethylamino-**, and hydrochloride, 3369*f*.
——, **1,2-bis(*p*-chlorophenyl)-2-(*p*-diethylaminoanilino)-**, and hydrochloride, 3369*e*.
——, **1,2-bis(*p*-chlorophenyl)-2,2'-(ethylimino)di-**, and hydrochloride, 3369*f*.
——, **1,2-bis(*p*-chlorophenyl)-2,2'-iminodi-**, and hydrochloride, 3369*e*.
——, **1,2-bis(*p*-chlorophenyl)-2-octylamino-**, and hydrochloride, 3369*e*.
——, **2,2-bis(ethylmercapto)-†**, P 5626*h*.
——, **1,1-bis[*p*-(ethylmercapto)phenyl]-2-phenyl-**, 7469*e*.
——, **1,1-bis[*p*-(hexadecyloxy)phenyl]-2-phenyl-**, P 6666*f*.
——, **1,1-bis(*p*-isopropoxyphenyl)-2-phenyl-**, P 6666*h*.
——, **1,1-bis(*p*-methylmercaptophenyl)-2-phenyl-**, 7467*g*.
——, **2-bromo-**, P 3024*c*.
effect on heating and deterioration in seeds, 4733*i*.
hydrocinnamate, 1404*d*.
reaction with hydroxyl ion, kinetics of, 2848*f*.
——, **1-butoxy-**, esters, 3786*a*, 6576*f*, 7425*i*.
——, **2-butoxy-**, P 674*a*.
bactericidal action against *B. coli*, 7079*f*, 9387*d*.
in 2-butanone drying, 8753*d*.
chloroacetate, P 2223*e*.
chloroacetate and dichloroacetate, 4220*d*.
disinfectant contg., P 352*e*.
effect on adhesion of epithelium to stroma in cornea, 769*a*.
ester with γ-lactone of 5-hydroxy-2,3-norcamphanedicarboxylic acid, P 3032*i*.
fluoroacetate, P 3140*h*.
iron oxide pigment powder wetting by, 8697*i*.
lactate and its acetate, P 676*c*.
methacrylate, fungistatic activity of, 9334*c*.
paint remover contg., P 9302*b*.
phosphate (compd. omitted from abstr.), 3677*i*.
phosphate (neutral), in mercerizing solns., P 9478*b*.
phys. constants of, 2956*b*.
sebacate, vapor pressure of, 3678*a*.
vanillate, 4241*i*, 7455*g*.
——, **2-(2-butoxyethoxy)-**, acetate, as mosquito repellent, 3140*b*.
effect on adhesion of epithelium to stroma in cornea, 769*a*.
ester with diglycolic acid, 9082*e*.
lactate acetate, P 676*e*.
——, **2-(2-butoxyethylmercapto)-**, (compd. omitted from abstr.), 2928*h*.
——, **1-butoxy-2,2,2-trichloro-**, as insecticide, 2359*h*.
——, **2-*sec*-butylamino-**, diphenylacetate-HCl, P 2630*h*.
——, **2-butylamino-1,2-bis(*p*-chlorophenyl)-**, and hydrochloride, 3369*e*.
——, **1-(*tert*-butyldioxy)-2,2,2-trichloro-†**, P 2629*h*, 6156*h*.
——, **2-(butylmercapto)-**, 7420*i*.
phthalate, P 3447*g*.
——, **2-[2-(butylmercapto)ethylmercapto]-**, (compd. omitted from abstr.), 2928*h*.
——, **2-(carbazolyl)-**. See *Carbazoleethanol*.
——, **chloro-**, azeotropes of, 5247*c*.
——, **2-chloro-**, adsorption and extn. of, 5*i*, 6*a*.
anisate, behavior in $H_2SO_4$, 569*e*.
azeotropes with styrene and like-boiling hydrocarbons, P 5040*e*.
β-benzoylacrylate, 7192*h*.
α-butylcaproate, P 6241*g*.
carbanilate, in weed control, P 1904*d*.
chloroacetate, 1404*e*.
chlorobenzoates, 5764*h*.
condensation products from phenols and, P 1996*d*.
as diolefin absorbent, P 7275*b*.
drying of, P 1485*e*.
effect on adhesion of epithelium to stroma in cornea, 769*e*.
on germination of old seeds, 5823*h*.
*effect* on heating and deterioration in seeds, 4733*h*.
esters, 1720*e*.
with carbamic acid derivs., 4633*i*.
with P acids, 8351*b*.
volatility and vapor pressure of, 8841*a*.
ethylene glycol from, 9031*d*.
fluophosphate, 121*e*.
formation of, from $(CH_2Cl)_2$, 4638*i*.
kinetics of, 119*e*.
in reaction of $C_6H_6$ with ethylene oxide in presence of $AlCl_3$, 2182*e*.
7-hydroxy-1-naphthalenecarbamate, P 5598*c*.
laurate, myristate, palmitate and stearate, spectra of, 38*f*.
manuf. of, P 2633*a*.
nicotinate, 2622*f*.
*p*-nitrobenzoate, as insecticide, 1896*c*.
*p*-nitrobenzoate, in chigger control, 8600*b*.
oxidation of, P 1795*g*.
α-phenoxycyclopentaneacetate, P 6229*h*.
in potato-germination speeding, P 349*g*.
prepn. of, 3783*i*, 5765*b*.
Raman spectra of, 2514*e*.
reaction with BuOCH:$CH_2$ and with EtOCH:$CH_2$, 6159*c*.
reaction with cyanides, P 3346*f*.
reaction with NaCN, and heat of, 4629*g*.
ricinoleate, P 6222*c*.
spraying seed potatoes with, 1500*a*.
sulfate, 6164*a*.
5,6,7,8-tetrahydro-4-nitrothiol-1-naphthoate, 6192*i*.
vanillate, 4242*a*, 7455*g*.
——, **2-(3-chloroallylmercapto)-**, 2928*a*.
——, **2-[2-(3-chloroallylmercapto)ethylmercapto]-**, 2928*b*.
——, **2-[4-(2-chloro-4,6-dinitrophenylazo)-*N*-2-phenoxyethyl-*m*-toluidino]-**, sulfate (acid ester), P 8154*h*.
——, **2-(2-chloroethoxy)-**, effect on seeds, 4734*a*.
lactate acetate, P 676*d*.
——, **2-[2-(2-chloroethoxy)ethoxy]-**, effect on seeds, 4733*i*.
——, **2-(2-chloroethylamino)-**, benzoate (ester), salts, 7423*c*.
——, **2-(2-chloroethylmercapto)-**, (benz[*a*]anthracen-7-ylmethyl)carbamate, 621*e*.
kinetics of hydrolysis and displacement reactions of, and thiophosphate, 6057*e*.
——, **2-[(2-chloroethyl)methylamino]-**, 1005*f*.
tissue culture expts. with, 5503*b*.
——, **2-[5-(6-chloro-2-methoxy-9-acridylamino)-2-hydroxybenzylamino]-**, dihydrochloride, P 7516*c*.
——, **2-[2-(7-chloro-3-methyl-4-quinolylamino)ethylamino]-**, 1776*g*.
spectrum of, 1655*g*.
——, **2-[*p*-(2-chloro-4-nitrophenylazo)-*N*-2-phenoxyethylanilino]-**, sulfate (acid ester), P 8154*f*.
**2-[3-chloro-4-(*p*-nitrophenylazo)-*N*-2-phenoxyethylanilino]-**, P 8154*h*.
**2-[*p*-(2-chloro-4-nitrophenylazo)-*N*-(2-phenoxypropyl)anilino]-**, sulfate (acid ester), P 8154*g*.
**2-(*m*-chloro-*N*-phenethylanilino)-**, sulfate (acid ester) Na salt, azo dyes from, P 8155*b*.
**2-(*p*-chlorophenoxy)-**, as disinfectant, P 352*e*.
**2-(*m*-chloro-*N*-2-phenoxyethylanilino)-**, sulfate (acid ester), azo dyes from, P 8154*h*.
**2-[*N*-[2-(*p*-chlorophenoxy)ethyl]anilino]-**, sulfate (acid ester), azo dye from, P 8154*h*, 8155*c*.
**2-[*N*-[2-(*p*-chlorophenoxy)ethyl]-*p*-(2,6-dichloro-4-nitrophenylazo)anilino]-**, sulfate (acid ester), P 8154*g*.
**2-(*p*-chlorophenyl)-1,1-bis(*p*-iodophenyl)-**, 7469*a*.
**2-(*p*-chlorophenyl)-1,1-bis(*p*-[illegible])-**, 7469*a*.
**2-(*p*-chlorophenyl)-1,1-di-*p*-phenetyl-**, 7469*a*.
**2-(*p*-chlorophenyl)-1,1-diphenyl-**, 7469*a*.
**2,2'-(*m*-chlorophenylimino)di-**, azo dyes from, P 8145*e*.
**2,2'-(*p*-chlorophenylimino)di-**, and picrate, 7443*b*.

——, **2 - [2 - (7 - chloro - 4 - quinolylamino)ethylamino]-**, and dihydrochloride, 1776*g*.
spectrum of, 1655*g*.
——, **2-chloro-1,1,2-triphenyl-**, 2600*e*.
——, **2-cumyl-**. See *Phenethyl alcohol, p-isopropyl-*.
——, **2-(cyclohexenyl)-**. See *Cyclohexeneethanol*.
——, **2-(1-cyclohexen-1-ylamino)-**, P 7844*h*.
——, **2-cyclohexyl-**. See *Cyclohexaneethanol*.
——, **2-cyclohexylamino-**, *p*-dialkylaminobenzoates, hydrochlorides, P 2640*c*.
esters, hydrochlorides, P 2639*h*.
and picrate, 572*i*.
——, **2-(1-cyclopenten-1-ylamino)-**, P 7844*g*.
——, **2,2' - [(5,5' - diallyl - 4,4' - dihydroxy - 3,3' - biphenylene)bis(methyleneimino)]di-**, P 4696*a*.
——, **2,2',2'',2''' - [(5,5' - diallyl - 4,4'-dihydroxy - 3,3' - biphenylene)-bis(methylenenitrilo)]tetra-**, P 4696*a*.
——, **2-(di-*tert*-amylphenoxy)-**, as antifoaming agent, P 1202*g*, P 4879*e*.
——, **2-dibutylamino-**, 3-thiophenecarboxylate (ester) and -HCl, 630*g*.
——, **2,2-dichloro-**, chlorobenzoates, 5764*h*.
prepn. of, 5765*a*.
——, **2 - [2 - (dichloromethyl) - 1,3-dioxolan - 2 - yloxy]-(?)**, dichloroacetate, 1404*f*.
——, **2 - [*p* - (2,6 - dichloro - 4 - nitrophenylazo) - *N* - 2 - phenoxyethylanilino]-**, sulfate (acid ester), P 8154*g*.
——, **2-diethylamino-**, α-alkyl-1-cyclohexene-1-acetates, 3798*c*.
*p*-aminobenzoate—see *Procaine*.
4-amino-1-naphthoate—see *Naphthocaine*.
carbonate, ester with testosterone, assay of, 7993*h*.
cyclohexaneacetates (esters), P 7041*b*.
2-cyclohexene-1-acetate (ester), P 679*h*.
dehydrocholate (ester), P 1814*f*.
detn. of, 1821*c*.
dicyclohexylacetate (ester) and its salts, P 679*g*.
9,10 - dihydro - 9 - anthroate, identification of, 9366*d*.
*p* - (2,5 - dimethyl - 1 - pyrryl)benzoate (ester) and its -HCl, P 690*h*.
3,5 - dinitrobenzoate - HCl, reaction with acetone in the presence of alkali, 6175*c*.
diphenylacetate—see *Trasentin*.
effect on arrhythmia and its physiol. disposition, 2700*e*.
effect on phospholipide formation in liver, 6291*d*.
esters, 1023*b*, 2190*h*, 2980*h*, P 4693*b*, 6592*b*, P 6655*hi*, P 6656*ab*, 7463*i*, 7464*a*.
with acrylic acid derivs., 7192*h*.
with α-alkylidene or α,α-dialkyl fatty acids, P 3443*f*.
and their derivs., P 2234*g*.
fungistatic activity of, 9334*g*.
hydrochlorides, 3392*b*.
and their hydrochlorides, 5018*i*.
with Me H 1,2,5-trimethyl-3,4-pyrroledicarboxylate, P 4302*h*.
with 1 - methyl - 4 - phenylisonipecotic acid, anesthetic action of, 4426*f*.
with *N*-phenylanthranilic acid and its derivs., P 4697*c*.
with 1-phenylcyclopentanecarboxylic acid derivs., P 6229*e*.
with 3,4-pyrroledicarboxylic acids, P 4302*f*, P 4701*a*.
with 5,6,7,8-tetrahydro-1-naphthoic acids, and their salts, 203*a*.
of 5,6,7,8-tetrahydrothiol-1-naphthoic acid derivs., 6193*a*.
with tetrahydro - 2,5 - thiophenedicarboxylic acid, 6612*b*.
9-fluorenecarboxylate, effect on stomach muscle, 4771*b*.
nicotinate and its -HCl, 2622*g*.
pharmacology of, 815*i*, 1861*e*.
α-phenoxycyclopentaneacetate, P 6229*h*.
α-phenylcyclohexaneacetate, P 3453*e*.
phenylcyclohexaneacetate, parasympathicolytic action of, 4381*a*.
1-phenylcyclopentanecarboxylate and its -HCl, P 7959*c*.
1-phenylcyclopentanecarboxylate, effect on basal metabolism and on thyroid, 4273*i*.
*1-phenylcyclopentanecarboxylate*, effect on cell respiration of striated muscle, 1486*f*.
effect on nervous functions, 1487*a*.
and -HCl, P 6229*c*.
locus of action of, 1107*b*.
pharmacology of, 3109*h*, 4374*e*.
2 - phenyl - 1,2,3,2*H* - triazole - 4 - carboxylate, -HCl, 2619*e*.
reaction with tris(halomethyl)phthalocyanines, P 8172*h*.
sympatholytic effects of, 6734*d*.
thionocarbanilate-HCl, prepn. and anesthetic action of, 2703*b*.
3-thiophenecarboxylate (ester) and -HCl, 630*g*.
α - *m* - toloxycyclopentanecarboxylate, P 7958*c*.
1 - *p* - tolylcyclopentanecarboxylate, P 7958*e*.
——, **2 - (2 - diethylaminoethylmercapto)-**, 2-butoxycinchoninate (ester)-HCl, 6184*d*.
and esters, P 3461*c*.
esters, salts, 3395*b*.
——, **2 - [2 - (2 - diethylaminoethylmercapto)ethylmercapto]-**, diphenylacetate (ester), citrate, 3395*c*.
——, **2 - (3 - diethylaminopropylmercapto)-**, β,β'-diphenylisobutyrate (ester), citrate, 3396*d*.
——, **2,2' - [1,2 - diethylethylenebis(*p*-phenyleneoxy)]di-**, 8370*d*.
——, **2-diisopropylamino-**, as catalyst in HCN reaction with alkylene oxides, P 1435*a*.
——, **2,2',2'',2''' - (3,3' - dimethoxy-4,4' - biphenylenedinitrilo)tetra-**, dipicrate, 7443*e*.
——, **dimethylamino-**, α-phenylcyclohexaneacetate (ester), P 7041*a*.
——, **2-dimethylamino-**, P 3839*e*, P 7501*b*.
azeotropes with styrene and like boiling hydrocarbons, P 5040*d*.
*p* - butylaminobenzoate - HCl—see *Pontocaine*.
choline from, and D- and L-methionine, 6573*i*.
γ - dimethylamino - α,α - diphenylvalerate (ester), di-HCl, 611*e*.
(2 - dimethylaminoethoxy)diphenylacetate (ester), P 3462*f*.
diphenylacetate-HCl, spasmolytic activity of, 8546*b*.
effect on lipide phosphorylation, 1843*f*.
ester(di-) with 1-benzyl-2,5-dimethyl-3,4-pyrroledicarboxylic acid, P 4302*i*.
ester(di-) with 5-carboxy-1,2,4-trimethyl-3-pyrroleacrylic acid, P 4302*i*.
esters, 2190*g*.
with derivs. of pyrroledicarboxylic acids, P 4302*g*, P 4701*a*.
with Et H 1,2,5-trimethyl-3,4-pyrroledicarboxylate, P 4302*h*.
with fatty acids and their hydrochlorides, 7940*b*.
with penicillin G, -HCl, 633*f*.
with 5,6,7,8-tetrahydro-1 naphthoic acids, and their hydrochlorides, 203*b*.
esters, derivs., 3392*b*.
α - methyl - α - propylvalerate (ester), P 3443*f*.
in nutrition of German cockroach, 3939*i*.
pharmacology of, 1861*e*.
α - phenylcyclohexaneacetate (ester), P 679*g*.
1 - phenylcyclopentanecarboxylate (ester), P 6655*h*.
3 - thiophenecarboxylate (ester) and -HCl, 630*g*.
1 - *p* - tolylcyclohexanecarboxylate, P 7959*c*.
——, **2 - (2 - dimethylaminoethylmercapto)-**, diphenylacetate (ester), citrate, 3395*b*.
——, **2,2' - [4 - (*p* - dimethylaminostyryl) - 6 - methyl - 2 - pyrimidyliimino]di-**, 3427*b*.
–, **2,2',2'',2''' - (3,3' - dimethyl - 4,4'-biphenylenedinitrilo)tetra-**, dipicrate, 7443*e*.
–, **2 - (2,2 - dimethylpropylamino)-**, 3421*c*.
–, **2 - [4 - (2,4 - dinitrophenylazo)-*N* - 2 - phenoxyethyl - *m* - toluidino]-**, sulfate (acid ester), P 8154*g*.
–, **2,2' - [*p* - (3,5 - dinitrophenylazo)phenylimino]di-**, and ester with chlorosulfoacetic acid, P 9462*f*.
–, **2-(dioxanyl)-**. See *Dioxanethanol*.
–, **1,1-diphenyl-**. See *Benzhydrol, α-methyl-*.
——, **1,2 - diphenyl - 1 - *p* - propoxyphenyl-**, P 6666*h*.
——, **1,1-di-2-pyridyl-**, 4266*b*.
and dihydrochloride, 2205*e*.
——, **1,1'-dithiodi-**, allophanate carbamate, 2945*d*.
——, **1-ethoxy-**, esters, 3786*a*, 6576*e*.
——, **2-ethoxy-**, P 676*d*, 6163*c*.
acetate, cholinesterase action on, 9122*b*.
bactericidal action of, 7079*e*, 9387*d*.
disinfectant contg., P 352*e*.
effect on ammonolysis of MeOAc, 6495*d*.
esters, behavior in $H_2SO_4$, 569*b*.
ester with γ-lactone of 5-hydroxy-2,3-norcamphanedicarboxylic acid, P 3032*i*.
fumarate, P 903*h*.
hydraulic fluid from blown castor oil and, P 1504*h*.
iron oxide pigment powder wetting by, 8697*h*.
lactate and its acetate, P 676*c*.
laurate, as plasticizer for polystyrene, P 8209*c*.
3-methoxysalicylate, 7455*h*.
3-methoxysalicylate and vanillate, 4241*i*.
naphthoquinone imine dye from, P 8167*h*.
oleate, reaction product with $H_3PO_4$, P 4877*g*.
phys. constants of, 2956*b*.
in plant extns., 9363*b*.
polyvinyl acetate solns. in, as hydraulic fluids, P 4791*f*.
reactions with phthalocyanine derivs., P 8173*f*.
in styrene recovery from hydrocarbon oils, P 5582*k*.
——, **2-(2-ethoxyethoxy)-**, arsenic compd of, as motor fuel additive, P 9431*e*.
chloroformate, condensation product with sulfonated 2 hendecylbenzimidazole, P 441*f*.
and derivs., 3784*d*.
as dolefin absorbent, P 7275*b*.
lactate acetate, P 676*e*.
maleate, as foam inhibitor, 7161*d*.
phthalate, as lubricant additive, P 1960*b*
system: cresol, 4063*e*.
vanillate, 4242*a*, 7455*g*.
——, **2 - [2 - (2 - ethoxyethoxy)ethoxy]-**, and *p*-toluenesulfonate, 3784*d*.
——, **2 - (2 - ethoxyethylmercapto)-**, (compd. omitted from abstr.), 2928*b*
——, **2-ethylamino-**, effect on phospholipide formation in liver, 6291*d*.
esters, local anesthetics, P 4430*d*.
——, **2-*N*-ethylanilino-**, azo dyes from, P 4019*e*, P 7235*c*.
1,3-benzodioxan-6-ylazo dyes from, P 8149*c*.
disazo dye from, P 859*e*.
——, **2-(2-ethylbutoxy)-**, vanillate, 4241*i*, 7455*g*.
——, **2,2' - (ethylenediimino)di-**, effect on perfused frog prepn., 5493*i*.
——, **2,2',2'',2''' - (ethylenedinitrilo)-tetra-**, dihydrochloride, 2927*d*.
——, **2,2'-ethylenedioxydi-**. See *Triethylene glycol*.
——, **2-(2-ethylhexyloxy)-**, acrylate, P 3030*i*.
lactate acetate, P 676*d*.
——, **2 - [2 - (2 - ethylhexyloxy)ethoxy]-**, acrylate, P 3030*i*.
——, **2-ethylideneamino-**, P 7955*e*.
——, **2,2'-(ethylimino)di-**, P 2633*g*.
——, **2-(ethylmercapto)-**, 7420*i*.
and esters, P 3447*g*.
——, **2 - [ethyl(1 - naphthylmethyl)-amino]-**, hydrochloride, antagonism to adrenaline and histamine, 2320*a*.
——, **2 - (1 - ethyl - 4 - piperidylamino)-**, and derivs., 2207*c*.
——, **2-(1-ethylpropylamino)-**, 3421*c*.
diphenylacetate-HCl, P 2639*h*.
——, **2-(2-fluorenylamino)-**, 7443*d*.
——, **2-fluoro-**, and esters, 6163*f*.
and esters, volatility and vapor pressure of, 8841*a*.
fluophosphate, 121*e*.
α-fluoroacrylate, P 6413*b*.
and 1-naphthalenecarbamate, 6163*c*.
2-naphthalenecarbamate, toxicity to rats, 348*g*.
reaction with hydroxyl ion, kinetics of, 2848*f*.
*p*-toluenesulfonate, 2927*g*.
——, **2-(2-fluoroethoxy)-**, 6163*cg*.
——, **2-(furyl)-**. See *Furanethanol*.
–, **2-guanidino-**. See *Guanidine, (2-hydroxyethyl)-*.
, **2-(hendecylmercapto)-**, 2928*g*.
, **2,2' - [[2 - [2 - (8 - heptadecenyl)-2 - imidazolin - 1 - yl]ethylimino]-bis(ethyleneoxy)]di-**, P 5180*e*.

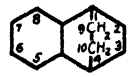
—, **2,2′ - [2 - (8 - heptadecenyl) - 2 - imidazolin - 1 - yl]ethylimino]-di-**, P 5180*s*.
—, **2-(heptylmercapto)-**, 2928*g*.
—, **1-(heptyloxy)-**, acetate, 6576*f*.
—, **2-(hexyloxy)-**, bactericidal action of, 7079*f*, 9387*d*.
—, **2,2′-hydrazodi-**, reaction with glycidol or stearic acid, textile assistants by, P 2796*c*.
—, **2 - (hydroxy - *N* - 2 - phenoxyethyl-toluidino)-**, sulfate (acid ester), azo dyes from, P 8155*a*.
—, **2,2′-iminodi-**, alkyd resins from tetrachlorophthalic acid and, 8733*d*.
*N*-alkyl derivs., P 2633*e*.
and bis(2-hydroxyethyl)carbamate, 6158*a*.
chloro derivs., effect on heart, 2700*b*.
compd. (salt) with 3,5-diiodo-4-oxo-1(4 *H*)-pyridineacetic acid—see *1(4 H)-Pyridineacetic acid, 3,5-diiodo-4-oxo-*.
compd. with *p,α*-dimethylbenzyl camphorate, effect on albumin turnover, 7587*h*.
with maleic hydrazide, effect on plant growth, 6776*b*.
with 1-sulfanilyl-2-thiourea, P 687*a*.
with α-tocopherol phosphate, P 4702*e*.
detn. of, in mixt. with mono- and triethanolamine, 6364*e*.
3,4 - dihydro - 3 - iodo - 6 - methyl - 2,4-dioxo-1(2 *H*)-pyridineacetate, P 6241*f*.
effect on blood vessels of frog prepns., 5493*b*.
on liver-phospholipide formation, 9264*g*.
on phospholipide formation in liver, 6291*d*.
esters with fatty acids, hydrohalides, P 674*g*.
hydrochloride, as plasticizer for polyvinyl alc., P 9533*e*.
hydrogen sulfide absorption by, from natural gas, 3180*a*.
mono-*p*-butoxybenzoate-HCl, local anesthetic, P 4430*d*.
as peptizing agent in phenothiazine prepn., P 3572*c*.
reaction product with *p-tert*-butylphenol, HCHO and HCl, P 3186*d*.
reaction with nitriles and with KCN, 2579*c*.
sepn. of mixt. of, $H_2NCH_2CH_2OH$ and $(HOCH_2CH_2)_2N$ by azeotropic distn., P 674*c*.
-theophylline complex—see under *Theophylline*.
—, **2-(3-indolyl)-**. See *Tryptophol*.
—, **2-iodo-**, reaction with hydroxyl ion, kinetics of, 2848*f*.
—, **1-isoamoxy-**, acetate, 6576*f*.
—, **2-isoamoxy-**, phosphate (neutral), in mercerizing solns., P 9478*b*.
—, **2-(isoamylmercapto)-**, 7420*i*.
—, **1-isobutoxy-**, esters, 6576*f*.
—, **2-isobutylamino-**, *p*-aminobenzoate-HCl—see *Monocaine*.
*p*-ethoxybenzoate-HCl, local anesthetic, P 4430*e*.
—, **2 - (1 - isobutylisoamylamino)-**, esters, hydrochlorides, P 2639*h*.
—, **2-isopropoxy-**, esters, P 3030*i*.
lactate acetate, P 676*d*.
—, **2-(2-isopropoxyethoxy)-**, acrylate, P 3030*i*.
—, **2-isopropylamino-**, 6587*c*.
α-phenylbutyrate-HCl, P 2639*g*.
—, **2-(isopropylmethylamino)-**, 6587*c*.
—, **2-[2(1*H*)-isoquinolyl]-**. See *2(1 H)-Isoquinolineethanol*.
—, **1-mercapto-**, γ-1-mercaptoethylallophanate, 2945*e*.
—, **2-mercapto-**, 2935*g*.
derivs., 6573*i*.
detn. of, 6114*c*.
effect on chymotrypsin, chymotrypsinogen and trypsin, 2254*f*.
effect on polymerization of allyl and methacrylate compds., 8199*i*.
as stabilizer for polysulfone resins, P 9527*e*.
—, **2 - (2 - mercapto - 4 - pyrimidyl-amino)-**, 8395*d*.
—, **2-methoxy-**, and acetate, for azeotropic sepn. of xylene isomers, P 4007*c*.
and acetate, in styrene recovery from hydrocarbon oils, P 5582*h*.
bactericidal action of, 7079*e*, 9387*d*.
chloroformate, condensation product with sulfonated 2-heptadecylbenzimidazole, P 441*e*.
disinfectant contg., P 352*e*.
ester with diglycollic acid, 9032*e*.
iron oxide pigment powder wetting by, 8697*h*.
lactate acetate, P 676*d*.
methacrylate, P 5036*b*.
phthalate, effect on absorption value of pigments, 8698*d*.
phys. constants of, 2956*b*.
silicate, 2160*c*.
*p*-toluenesulfonate, as plasticizer for polysulfone resins, P 7751*e*.
vanillate, 4241*i*, 7455*g*.
—, **2-*m*-methoxyanilino-**, azo stilbene dyes from, P 8151*g*.
—, **2-*p*-methoxyanilino-**, 7442*i*.
—, **2-(2-methoxyethoxy)-**, effect on ammonolysis of esters, 6495*d*.
lactate acetate, P 676*e*.
as synergist for nicotine, 5894*a*.
system: cresol-, 4063*e*.
vanillate, 4242*a*, 7455*g*.
—, **2 - (2 - methoxyethylmercapto)-**, 2928*h*.
—, **2,2′-(methoxyimino)di-**, and picrate, 7422*g*.
—, **2-(methoxymethoxy)-**, ester with diglycolic acid, 9032*e*.
reaction with $C_2H_2$, P 1051*g*, P 9080*b*.
—, **2,2′ - (methoxymethylimino)di-**, P 3839*f*.
—, **2 - (*m* - methoxy - *N* - 2 - phenoxyethylanilino)-**, sulfate (acid ester), azo dyes from, P 8154*i*.
—, **2,2′ - (6 - methoxy - *m* - tolylimino)di-**, azo dyes from, P 8145*e*.
—, **2-methylamino-**, 572*i*.
effect on lipide phosphorylation, 1843*f*.
—, **2-*N*-methylanilino-**, azo dyes from, P 7697*h*, P 8145*e*.
and chlorosulfoacetate, azo dye from, P 4475*a*.
esters, azo dyes from, P 4471*f*.
—, **2-(1-methylbutylamino)-**, 3421*c*.
esters, hydrochlorides, P 2639*h*.
—, **2 - (1 - methylheptylamino)-**, *p*-diethylaminobenzoate-HCl, P 2640*c*.
—, **2,2′-(methylimino)di-**, 2927*d*, P 3839*e*.
polyelectrolyte from, 1626*d*.
tissue culture expts. with, 5503*b*.
—, **2-methylmercapto-**, derivs., 2571*g*.
—, **2 - (2 - methylmercaptoethylmercapto)-**, (compd. omitted from abstr.), 2928*h*.
—, **1 - (*p* - methylmercaptophenyl)-1,2-diphenyl-**, 7467*f*.
—, **2-(4-morpholinyl)-**. See *4-Morpholineethanol*.
—, **2-(2-naphthoxy)-**, P 673*h*.
hypnotic contg., P 8105*b*.
—, **2 - [*N* - 2 - (1 - naphthoxy)ethylanilino]-**, sulfate (acid ester), azo dyes from, P 8155*a*.
—, **1-(naphthyl)-**. See *Naphthalenemethanol, α-methyl-*.
—, **2-(naphthyl)-**. See *Naphthaleneethanol*.
—, **2 - [*N* - 2 - (1 - naphthyl)ethylanilino]-**, sulfate (acid ester), azo dye from, P 8155*c*.
—, **2,2′-(1-naphthylimino)di-**, picrate, 7443*c*.
—, **2,2′-(2-naphthylimino)di-**, and picrate, 7443*c*.
—, **2,2′,2″-nitrilotri-**, alkyd resins from tetrachlorophthalic acid and, 8733*d*.
as butadiene-styrene rubber softener, P 3230*b*.
chlorinated paraffin wax stabilization by, P 1179*d*.
chloro derivs., effect on heart, 2700*b*.
compd. with 2-*sec*-butyl-4,6-dinitrophenol, as insecticide for fruit trees, 5897*h*, 5898*c*.
with coumarin derivs., 5399*f*.
with 2-cyclohexyl-4,6-dinitrophenol, in codling moth and mite control, 7630*c*.
with halogenated stearic acids as extreme-pressure agents in lubricants, P 6821*a*.
with maleic hydrazide, effect on plant growth, 6776*b*.
with naphthalenesulfonic acids, mixts. with Ca lignosulfonates for addn. to concrete, 2752*a*.
with sulfanilamide derivs., therapeutic activity of, 3097*d*.
with 1-sulfanilyl-2-thiourea, P 687*a*.
with tartaric acid, and its reaction product with $H_2SnO_3$, 6171*c*.
condensation products with *N*-(hydroxymethyl) amides, P 7728*e*.
as cutting-oil component, P 13075*b*.
detn. in mascara, 9368*c*.
detn., in mixt. with mono- and diethanolamine, 6364*e*.
(2,4-dichlorophenoxy) acetate (salt), effect on growth of pathogenic fungi, 3133*c*.
effect on blood vessels of frog prepns., 5493*b*.
on phospholipide formation in liver, 6291*d*.
on respiratory exchange of liver, 4385*i*.
on soly. of Cu(OH)$_2$ in $NH_4OH$, 2489*e*.
hydrochloride, as expectorant, 8615*i*.
lubricants from monocarboxylic acids, org. sulfonates and, P 9431*i*.
monoricinoleate, reaction product with diethylene glycol bis(chloroformate), as demulsifier, P 6818*e*.
oleate, effect on elec. cond. of transformer oil, 6039*h*.
oleate, mixts. with Aerosol OT and glycerol as antifoaming agents in oils, 6815*a*.
as peptizing agent in phenothiazine prepn., P 3572*c*.
as promoter for peroxide polymerization catalysts, P 1220*c*.
reaction products with polyesters and rosin, P 896*c*.
reaction product with tall oil, as activator for thiazole or thiuram vulcanization accelerators, P 4046*h*.
sepn. of mixt. of, $H_2NCH_2CH_2OH$ and $(HOCH_2CH_2)_2NH$ by azeotropic distn., P 674*c*.
soap in rubber dispersion, P 2463*b*.
for tech. and pharmaceutical use, 6789*f*.
textile agents from, P 8694*ef*.
—, **2,2′,2″-[nitrilotris(ethyleneoxy)]-tri-**, esters, P 9446*f*.
reaction product with *N*-(hydroxymethyl)oleamide, P 8712*f*.
—, **2-nitro-**, P 665*c*.
for insolubilization of polyvinyl alc. and esters, 9533*f*.
nitrate, P 5411*c*.
—, **2,2′-(nitroimino)di-**, dinitrate, P 4286*g*.
—, **2 - [3 - (*p* - nitrophenoxy)propylsulfonyl]-**, and acetate, 838—
2 - [9 - (*p* - nitrophenylazo) - 1 *H*-naphtho[2,3]triazol - 4 - ylamino]-, P 3626*b*.
—, **2 - [*p* - (*p* - nitrophenylazo) - *N*-2 - phenoxyethylanilino]-**, sulfate (acid ester), P 8154*f*.
—, **2 - [*p* - (*p* - nitrophenylazo) - *N*-(3 - phenoxypropyl)anilino]-**, sulfate (acid ester), P 8154*f*.
—, **2,2′-(nitrosoimino)di-**, 7422*g*.
—, **2-nonylmercapto-**, 2928*g*.
—, **2 - [2 - [2 - [2 - [2 - (octylphenoxy)-ethoxy]ethoxy]ethoxy]ethoxy]-**, as lubricant additive, P 1177*f*.
—, **2 - [2 - [2 - [2 - [2 - (octyltoloxy)-ethoxy]ethoxy]ethoxy]ethoxy]-**, as lubricant additive, P 1177*f*.
—, **2,2′-oxydi-**. See *Diethylene glycol*.
—, **(phenethylamino)-**, effect on blood pressure, 7585*g*.
—, **2-*N*-phenethylanilino-**, sulfate (acid ester), azo dye from, P 8155*c*.
—, **2 - (phenethylsulfonyl)-**, P 5801*e*.
—, **2 - (*N* - phenethyl - *m* - toluidino)-**, sulfate (acid ester), azo dye from, P 8155*c*.
—, **1 - *p* - phenetyl - 1,2 - diphenyl-**, P 6666*h*.
—, **1 - *p* - phenetyl - 2 - phenyl - 1 - *p*-propoxyphenyl-**, P 6666*h*.
—, **1-phenoxy-**, acetate, 3786*c*.
—, **2-phenoxy-**, acetate, 5150*f*.
acetate, as insecticide and insectifuge, 7181*d*.
esters, 7455*g*.
as GR-S polymerization promoter, P 6457*i*.
lactate acetate, P 676*d*.
3 methoxysalicylate and vanillate, 4241*i*.
2-(2-phenoxyethoxy)-, acrylate, P 3030*i*.
2 - (*N* - 2 - phenoxyethylanilino)-, sulfate (acid ester), azo dyes from, P 8154*g*, P 8155*c*.
2 - (*N* - 2 - phenoxyethyl - *m*-toluidino)-, sulfate (acid ester), azo dyes from, P 8154*g*.
2 - [*N* - (3 - phenoxypropyl)anilino]-, sulfate (acid ester), azo dyes from, P 8154*f*.
1-phenyl-. See *Benzyl alcohol, α-methyl-*.
—, **2-phenyl-**. See *Phenethyl alcohol*.
—, **2,2′ - (*p* - phenylisopropylimino)di-**, carcinogenicity of, 3501*f*.

——, **2,2′ - (*o* - phenylbenzylimino)di-**, 1355*h*.
——, **2 - phenyl - 1,1 - bis(*p* - propoxyphenyl)-**, P 6666*f*.
——, **2 - phenyl - 1,1 - bis(*p* - propylmercaptophenyl)-**, 7469*e*.
——, **2,2′-phenylenedi-**. See *Benzenediethanol*.
——, **2,2′ - (*p* - phenylenedioxy)di-**, esters, polymerization of, P 4512*b*.
——, **2,2′-(phenylimino)di-**, P 674*a*.
azo dyes from, P 4019*h*, P 7696*f*, P 8145*d*, P 8689*g*, P 9459*d*.
monooxalate (acid ester), P 2634*g*.
as polymerization stopping agent, 8727*i*.
——, **2-phenylmercapto-**, P 673*i*.
——, **2-(phenylselenyl)-**, *p*-toluenesulfonate, P 7042*e*.
**2 - (1 - phenyl - 1*H* - tetrazol-5-ylmethylamino)-**, hydrochloride, P 7972*b*.
pharmacology of, 1864*i*.
——, **2-(1-piperazyl)-**. See *1-Piperazineethanol*.
——, **2-(piperidyl)-**. See *Piperidineethanol*.
——, **2 - [3 - (1 - piperidyl)propylmercapto]-**, *β,β′* diphenylisobutyrate (ester), citrate, 3395*d*.
esters, 6184*b*.
——, **1-propoxy-**, esters, 6576*e*.
——, **2-propoxy-**, bactericidal action of, 7079*e*, 9387*d*.
disinfectant contg., P 352*e*.
——, **2 - (2 - propoxyethylmercapto)-**, (compd. omitted from abstr.), 2928*h*.
——, **2 - (1 - propylbutylamino)-**, *α*-phenylbutyrate-HCl, P 2639*h*.
——, **2 - (2 - propylmercaptoethylmercapto)-**, (compd. omitted from abstr.), 2928*h*.
——, **2-(pyridyl)-**. See *Pyridineethanol*.
——, **2-(pyrimidyl)-**. See *Pyrimidineethanol*.
——, **2-(pyrrolidyl)-**. See *Pyrrolidineethanol*.
——, **2-(quinolyl)-**. See *Quinolineethanol*.
——, **2-[1(2*H*)-quinolyl]-**. See *1(2H)-Quinolineethanol*.
——, **2-(8-quinolyloxy)-**, P 673*i*.
——, **2-salicylideneamino-**, 4235*c*.
——, **2-*p*-styrylanilino-**, 7443*c*.
——, **2,2′ - (*p* - styrylphenylimino)di-**, 7443*d*.
——, **2-sulfanilyl-**, azo dyes from, P 7235*b*, P 8146*b*.
azo dyes from, maleic and succinic acid esters of, P 8153*b*.
——, **2,2′-sulfonyldi-**, dehydration of, P 7952*g*.
toxicity to pyruvate oxidase, 7590*d*.
——, **2-(terphenylyl)-**. See *Terphenylethanol*.
——, **2 - [1,4,5,6 - tetrahydro - 4(or 6)-methyl - 2 - pyrimidylamino]-**, and picrate, 4273*d*.
——, **2-(tetrahydro-3-thienylamino)-**, *S,S*-dioxide, as plasticizer, P 4514*b*.
——, **2-(thiatriazinyl)-**. See *Thiatriazineethanol*.
——, **2-(thiazolinyl)-**. See *Thiazolineethanol*.
——, **2-(2-thienyl)-**. See *2-Thiopheneethanol*.
——, **2-thiocyano-**†, laurate, toxicity of, 2705*e*, 4411*h*.
——, **2,2′-thiodi-**, P 674*a*, 6057*i*.
cornea tolerance to, 3110*h*.
diacetate, 5150*f*.
and dicarbamate, 2935*g*.
as diolefin absorbent, P 7275*b*.
effect on clotting time and clot opacity, 9102*g*.
on cornea, 771*b*.
on pyruvate oxidase system of brain, 7590*d*.
and monoacetate, 1321*b*.
poly-, compounding Glycide rubber prepared from, 4043*b*.
reaction product with pentaerythritol, esters of, P 9081*e*.
spectrum of, 8885*c*.
——, **2-toloxy-**, P 7960*c*.
——, **2-(*N*-2-*p*-toloxyethylanilino)-**, sulfate (acid ester), azo dyes from, P 8154*h*.
sulfate (acid ester) Na salt, azo dye from, P 8155*c*.
——, **2 - *o* - toluidino-**, toxicity of, 4401*h*.
——, **2,2′-(*m*-tolylimino)di-**, azo dyes from, P 7697*g*, P 8145*e*, P 9458*f*, P 9459*b*.
bis(hydrogen oxalate), P 1988*h*.
chlorosulfoacetate, azo dyes from, P 4474*b*.
——, **2,2′ - [*m*(and *p*) - tolylimino]di-**, 7443*a*.
——, **2,2′-(*o*-tolylimino)di-**, picrate, 7443*a*.
——, **2-*p*-tolylsulfonyl-**, 7421*b*.
——, **2-*s*-triazin-1(2*H*)-yl-**. See *s-Triazine-1(2H)-ethanol*.
——, **2,2,2-tribromo-**. See *Avertin*.
——, **trichloro-**, methacrylate, polymers of, P 4898*f*.
——, **2,2,2-trichloro-**, 2570*e*.
benzoate, behavior in $H_2SO_4$, 569*d*.
chlorobenzoates, 5764*h*.
methacrylate, fungistatic activity of, 9334*c*.
methacrylate, polymers of, P 4895*d*.
prepn. of, 5765*b*.
——, **2,2,2-trichloro-1-ethoxy-**, manuf. of, P 5412*e*.
reaction with carboxylic acids, P 5412*d*.
——, **2,2,2-trifluoro-**, sodium deriv., P 2219*f*.
——, **2-[2,3,5(2,4,5 and 2,4,6)-trimethylbenzyloxy]-**, as insect repellents, P 5153*e*.
——, **1,1,2-tris(*p*-chlorophenyl)-**, 7469*a*
——, **2,2,2 - tris(dimethylaminomethyl)-**†, 134*b*.
**Ethanolamine**. See *Ethanol, 2-amino-*.
——, **2-phenyl-**. See *Benzyl alcohol, α-(aminomethyl)-*.
——, **phosphatidyl-***, 4318*a*.
**Ethanolamines**. See *Ethanol, 2-amino-; Ethanol, 2,2′-iminodi-; Ethanol, 2,2′,2″-nitrilotri-*; and "amino" under *Alcohols*.
**Ethanolysis**. See *Alcoholysis*.
**1,3-Ethanonaphthalene**,



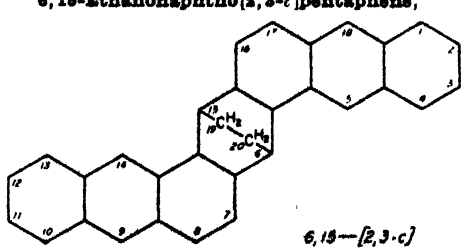
*1,3-*

——, **1,2,3,4-tetrahydro-**, 3399*a*.
**1,4-Ethanonaphthalene**,



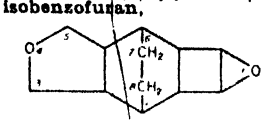
*1,4-*

**1,3 - Ethanonaphthalene - 6 - sulfonamide, 1,2,3,4-tetrahydro-**, 3399*a*.
**1,3 - Ethanonaphthalene - 7 - sulfonamide, 1,2,3,4-tetrahydro-**, 3399*a*
**1,4 - Ethanonaphthalene - 5,6,9,10 - tetracarboxylic dianhydride, 8-(*p*-*tert*-butylphenyl) - 1,4,4a,5,6,7-hexahydro-**, 206*d*
——, **3 - chloro - 8 - (*p* - chlorophenyl)-1,4,4a,5,6,7-hexahydro-**, 206*e*
——, **8 - (*p* - chlorophenyl) - 1,4,4a,5,6,7-hexahydro-**, 206*e*.
——, **8 - *p* - cumyl - 1,4,4a,5,6,7 - hexahydro-**, 206*d*
——, **8 - (*p* - ethylphenyl) - 1,4,4a,5,6,7-hexahydro-**, 206*d*.
——, **3 - fluoro - 8 - (*p* - fluorophenyl)-1,4,4a,5,6,7-hexahydro-**, 206*e*.
——, **3 - fluoro - 1,4,4a,5,6,7 - hexahydro-8-*p*-tolyl-**, 206*e*.
——, **8 - (*p* - fluorophenyl) - 1,4,4a,5,6,7-hexahydro-**, 206*d*.
——, **1,4,4a,5,6,7 - hexahydro - 3-methoxy-7-methyl-**, 1757*b*, 2970*a*.
——, **1,4,4a,5,6,7 - hexahydro - 3-methyl-8-*p*-tolyl-**, 206*e*.
——, **1,4,4a,5,6,7 - hexahydro - 8 - *p*-tolyl-**, 206*b*.
**1,3 - Ethanonaphthalen - 4(1*H*) - one, 2,3-dihydro-**, and derivs., 3398*d*.
**6,15-Ethanonaphtho[2,3-*c*]pentaphene**,



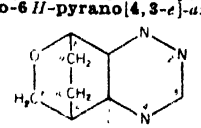
*6,15—[2,3-c]*

**6,15 - Ethanonaphtho[2,3 - *c*]pentaphene - 19,20 - dicarboxylic acid, 5,6,9,14,15,18 - hexahydro - 5,14-dihydroxy-**, dilactone, 1365*b*.
**6,15 - Ethanonaphtho[2,3 - *c*]pentaphene - 19,20 - dicarboxylic anhydride, 5,6,9,14,15,18 - hexahydro-5,9,14,18-tetraoxo-**, 1365*a*.
**Ethanone, 1,2-di(2-furyl)-2-hydroxy-**. See *Furoin*.
——, **2-hydroxy-1,2-diphenyl-**. See *Benzoin*.
——, **2 - hydroxy - 1,2 - di - 2 - thienyl-**, 9062*i*.
and oxime, 1763*b*.
——, **2 - hydroxy - 1,2 - di - 3 - thienyl-**, P 6237*i*.
——, **1-phenylazo-**, phenylhydrazone—see *Ethane, 1-phenylazo-1-phenylhydrazono-*.
——, **1,2,2-triphenyl-**. See *Acetophenone, α,α-diphenyl-*.
**2,6 - Ethanooxiro[3,4]cyclobut[1,2 - *f*]isobenzofuran**,



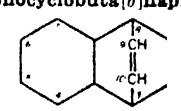
*2,6—[3,4]-[1,2-f]*

**2,6 - Ethanooxiro[3,4]cyclobut[1,2 - *f*]isobenzofuran - 3,5 - dione, 1a,1b, 2,2a,5a,6,6a,6b - octahydro-** See *4-Oxatetracyclo[5.2.2.0^{2,6}.0^{3,5}]undecane-8,9-dicarboxylic anhydride*.
**5,8-Ethano-6*H*-pyrano[4,3-*e*]-*as*-triazine**,



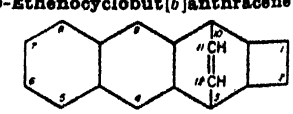
*5,8—6H—[4,3-e]*

——, **3 - amino - 5,8 - dihydro - 6,6,8 trimethyl-**, 7926*i*.
**5,8 - Ethano - 6*H* - pyrano[4,3 - *c*] - *s* triazin - 3 - ol, 5,8 - dihydro - 6,6,8 trimethyl-**, 7926*g*.
**Ethanoyl chloride**. See *Acetyl chloride*
**Ethene**. See *Ethylene*
**1,1 - Ethenedicarboxylic acid, 2 - phenyl-** See *Malonic acid, benzylidene*
**Ethenethiol, 2-phenyl-**, acetate, 7417*h*
**3,8-Ethenocyclobuta[*b*]naphthalene**,



*3,8—[b]*

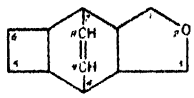
**octahydro-4,7-dimethoxy-**, m 119–20°, 6198*d*.
**2a,3,8,8a - tetrahydro - 4,7 - dimethoxy-**, 6198*d*.
**3,8 - Ethenocyclobuta[*b*]naphthalene-4,7-diol, octahydro-**, 6198*d*.
——, **2a,3,8,8a-tetrahydro-**, and diacetate, 6198*b*.
**3,8 - Ethenocyclobuta[*b*]naphthalene-4,7-dione, 1,2-dichloro-1,2,2a,3-3a,7a,8,8a-octahydro-**, 6200*i*.
——, **2a,3,3a,7a,8,8a-hexahydro-**, 6198*a*
**3,10-Ethenocyclobut[*b*]anthracene**,



*3,10—[b]*

**3,10 - Ethenocyclobut[*b*]anthracene-4,9 - dione, dibromo - 1,2 - dichlorooctahydro-**, and isomer, 6199*i*.
——, **1,2 - dichloro - 1,2,2a,3,10,10a-hexahydro-**, 6199*h*.
——, **1,2 - dichloro - 1,2,2a,3,3a,9a,-10,10a-octahydro-**, 6199*g*.
——, **1,2,2a,3,10,10a-hexahydro-1,2-dihydroxy-**, diacetate, 6200*g*.
——, **1,2,2a,3,3a,9a,10,10a - octahydro-1,2-dihydroxy-**, diacetate, 6200*g*.
——, **2a,3,10,10a-tetrahydro-**, 6198*e*.

**4,7-Ethenocyclobut[*f*]isobenzofuran,**



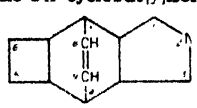
*4,7— [f]*

**4,7 - Ethenocyclobut[*f*]isobenzofuran-1,3-dione, 3a,4,4a,6a,7,7a-hexahydro-.** See *Tricyclo[4.2.2.0$^{2,5}$] - 3,9-decadiene - 7,8 - dicarboxylic anhydride.*

——, **3a,4,4a,5,6,6a,7,7a - octahydro-.** See *Tricyclo[4.2.2.0$^{2,5}$] - 9 - decene-7,8-dicarboxylic anhydride.*

——, **4,4a,6a,7-tetrahydro-.** See *Tricyclo[4.2.2.0$^{2,5}$] - 3,7,9 - decatriene-7,8-dicarboxylic anhydride.*

**4,7-Etheno-2*H*-cyclobut[*f*]isoindole,**



*4,7— 2H— [f]*

**4,7 - Etheno - 2*H* - cyclobut[*f*]isoindole-1,3 - dione, 3a,4,4a,6a,7,7a - hexahydro-.** See *Tricyclo[4.2.2.0$^{2,5}$]-3,9-decadiene-7,8-dicarboximide.*

**Ethenol** See *Vinyl alcohol.*

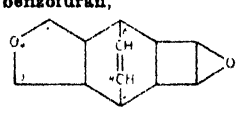
—, **2-nitro-**, potassium deriv., 1004*b*

—, **1-phenyl-**. See *Benzyl alcohol, α-methylene-*

—, **2-phenyl-**, acetate, polymer with styrene, P 7264*d*.

**Ethenone** See *Ketene.*

**2,6 - Ethenoöxiro[3,4]cyclobut[1,2 - *f*]isobenzofuran,**



*2,6— [3,4]— [1,2 f]*

**2,6 - Ethenoöxiro[3,4]cyclobut[1,2 - *f*]isobenzofuran-3,5-dione, 1a,1b,2,2a,5a,6,6a,6b-octahydro-.** See *4-Oxatetracyclo[5.2.2.0$^{2,6}$.0$^{3,5}$] - 10 - hendecene - 8,9 - dicarboxylic anhydride.*

**Ether, acenaphthenyl methyl.** See *Acenaphthene, methoxy-.*

-, **allyl *p*-chlorophenyl**, as acaricide and insecticide, 3138*c*.

——, **allyl cinnamyl**, oxidation with $BzO_2H$, 2181*b*.

——, **allyl 2,3-dichloropropyl**, P 4683*a*.

——, **allyl [1 - (4 - methyl - 3 - cyclohexen - 1 - yl)isopropyl]**, 8369*d*.

——, **allyl 1-methylheptyl**, 558*g*.

——, **allyl phenyl**, oxidation with $BzO_2H$, 2181*b*.

rearrangement in the presence of 3,5-$D_2C_6H_3OH$, 602*i*.

——, **allyl propyl**, 2159*c*.

——, **allyl (2,2,3,3 - tetrafluorocyclobutyl)methyl**, P 4295*e*.

——, **amyl 3-chloro-4-pentenyl**, 9025*f*.

——, **amyl 5-chloro-3-pentenyl**, 9025*f*.

——, **amyl ethyl**, phys. consts. of, 2590*b*.

——, **amyl methyl**, phys. consts. of, 2590*b*.

——, ***tert*-amyl methyl**, 113*e*.

, **amyl [1 - (4 - methyl - 3 - cyclohexen - 1 - yl)isopropyl]**, 8369*c*.

, **amyl phenyl**, phys. consts. of, 2590*b*.

, ***p* - *tert* - amylphenyl isobornyl**, 1355*a*.

, ***α* - 9 - anthrylbenzyl methyl†**, 9060*c*.

, **anthryl methyl**. See *Anthracene, methoxy-.*

, **benzhydryl 2-bromoethyl**, P 2641*d*, P 3462*i*.

, **2 - (benzhydrylsulfonyl)ethyl ethyl**, 1366*g*.

, **benzyl 7-bromocholesteryl***, P 5810*f*.

, **benzyl *p*-chlorophenyl**, as acaricide and insecticide, 3138*b*.

, **benzyl 2,4-dichlorophenyl**, as acaricide and insecticide, 3138*b*.

, **benzyl ethyl**, 6622*e*.

, **benzyl 2-nitro-*m*-tolyl**, 1765*d*.

, **benzyl 2-nitro-*o*-tolyl**, 1765*h*.

—, **benzyl *m*-1-pentadecenylphenyl**, 6999*c*.

——, **benzyl *m*-pentadecylphenyl**, 6999*c*.

——, **benzyl phenethyl**, 1350*g*.

——, **benzyl phenyl**, 6622*e*.
as acaricide and insecticide, 3138*c*.

—, **2 - (benzylsulfonyl)isopropyl ethyl**, 6995*f*.

—, **2 - (benzylsulfonyl)isopropyl phenyl**, 6995*f*.

—, **benzyl 1,2,2,2-tetrachloroethyl**, P 7188*b*.
as insecticide, P 7635*a*.

—, **4-biphenylyl 2,2-dichlorovinyl**, P 7045*h*.

—, **biphenylyl methyl**. See *Anisole, ar-phenyl-.*

—, **bis[6,6'-bis(dimethylamino)benzhydryl]†**, reduction of, 191*h*.

—, **bis[2-(2-chloroethoxy)ethyl]**, in pest control, P 9358*c*.
resinous products from $PhNH_2$-$CH_2O$ condensation products and, P 2033*a*.

—, **bis(chloroethoxyhexenyl)**, 5737*d*.

—, **bis(chloroethyl)**, in control of corn earworm and fall armyworm in corn, 3136*c*.
spectrum of, 8885*c*.

—, **bis(1-chloroethyl)**, reaction with benzene derivs., P 681*b*.

—, **bis(2-chloroethyl)**, in cheese-mite control, 7186*h*.
in 2-chloroethanol synthesis, theory of formation of, 119*e*.
emulsions with nitrile polymers, P 7263*a*.
hydrolysis velocity of, 129*e*.
insecticide from nicotine and, P 2732*f*.
lubricating oil soly. in, aniline point and, 3602*g*.
phys. consts of, 2590*b*.
resinous products from $PhNH_2$-$CH_2O$ condensation products and, P 2033*a*
systems: cyclohexane-, methylcyclohexane-, methylbenzenes-, styrene-, and ethylbenzene-, 1251*gi*, 1252*a*.
systems with hydrocarbons, 4937*g*.
toxicology of, 5514*e*.

—, **bis(chloromethyl)**, condensation products from dipentene and carvene with thiourea, naphthols and *p*-phenylphenol, P 2769*e*.
reaction product with *N*-(chloromethyl) deriv. of urea condensation product with *N*-(hydroxymethyl)stearamide, HCHO and pyridine, for waterproofing, P 7728*a*.
with $PhNMe_3$ and amides of hydrogenated fish-oil acids, P 1588*e*.
with metallic disulfides, P 6863*f*.
with 2-naphthol, dipentene and pyridine, as textile assistant, P 4500*d*.
with stearamide, condensation with PhOH, P 886*a*.
with stearamide, condensation with phenol, sulfonation of product and Na salt as detergent for textiles, P 1588*d*.
with stearamide, detergents and wetting agents by reaction with sulfonated anisole, P 1588*e*.
reaction with alkali salt of abietic acid and then thiourea, textile slipproofing agent by, P 2795*i*.
reaction with rosin and then dicyanodiamide or thiourea, textile slipproofing agents by, P 2796*bc*.
reaction with Na abietate and then $Me_3N$, fiber-interlocking agent by, P 2796*a*.

——, **bis(chlorophenyl)**, in chigger control, 8600*a*.

——, **bis(*p*-chlorophenyl)**, as acaricide and insecticide, 3137*i*.

——, **bis(2-cyanoethyl)**. See *Propionitrile, β,β'-oxydi-.*

——, **bis(2,3-dichloropropyl)**, P 4683*a*.

——, **bis[2-(2,2-diethoxyethoxy)ethyl]†**, 2577*g*.

——, **bis(4b, 5-dihydroindeno[2,1-*a*]-inden-5-yl)†**, (?), 4661*k*.

——, **bis(3,7-dimethyloctyl)**, dielec. relaxation of mixts. of, 6020*c*.

——, **bis(2,4-dinitrophenyl)**, reaction with acetone in the presence of alkali, 6175*b*.

——, **bis(2,3-epoxypropyl)**, anion-exchange resins from alkylene polyamines and, P 5518*c*.
condensation products from phenols and, P 1996*e*.

——, **bis(2-ethoxyethyl)**, phys. consts. of, 2590*b*.
system: cresol-, 4063*f*.

——, **bis(ethoxymethyl)†**, P 1052*c*.

——, **bis(isobutoxymethyl)†**, P 1052*b*.

——, **bis(4-isopropyl-1-cyclohexen-1-ylmethyl)**, 7434*f*.

——, **bis[2-(2-methoxyethoxy)ethyl]**, phys. consts. of, 2590*b*.

——, **bis(methoxymethoxymethyl)†**, P 1052*d*.

——, **bis(methoxymethyl)†**, P 1052*d*.

——, **bis(3-methoxy-2-pentenyl)**, 5737*c*.

——, **bis(2-methylallyl)**, polymer with Et acrylate, 5989*a*.
reaction with $C_3F_4$, 3371*c*.

——, **bis(4-methylbenzhydryl)**, 3810*f*.

——, **bis(1-methylcyclopropylmethyl)**, 3370*b*.

——, **bis(2-thiocyanoethyl)**. See "diethylene glycol diester" under *Thiocyanic acid.*

——, **2-bromo-1-butenyl ethyl**, 2158*f*.

——, **1 - (1 - bromo - 2 - chloroethyl) - 2-phenyl-2-propynyl methyl**, 1021*c*.

——, **7-bromocholesteryl ethyl***, P 5810*e*.

——, **7-bromocholesteryl phenyl***, P 5810*f*.

——, **7-bromocholesteryl triphenylmethyl***, P 5810*e*.

——, **1 - (1 - bromoethyl) - 3 - phenyl-2-propynyl methyl**, 1021*b*.

——, **1 - (2 - bromoethyl) - 3 - phenyl-2-propynyl methyl**, 1021*c*.

——, **2-bromoisoamyl butyl (?)**, 3359*a*.

——, **2-bromoisoamyl ethyl (?)**, 3359*a*.

——, **2-bromoisoamyl isobutyl (?)**, 3359*a*.

——, **2-bromoisoamyl methyl (?)**, 3359*a*.

——, **1-(bromomethyl)-3-butenyl ethyl**, 7898*h*.

——, **2 - bromo - 3 - methyl - 1 - butenyl ethyl**, 2158*g*.

——, **2 - bromo - 3 - methyl - 2 - butenyl ethyl**, 5363*a*.

——, **1 - (bromomethyl) - 3 - butenyl methyl**, 2208*g*.

——, **bromomethyl *sec*-butyl**, 2926*d*.

——, **bromomethyl isoamyl**, 2926*c*.

——, **bromomethyl isobutyl**, 2926*c*.

——, **1-(bromomethyl)isobutyl butyl (?)**, 3359*a*.

——, **1-(bromomethyl)isobutyl ethyl (?)**, 3359*a*.

——, **1-(bromomethyl)isobutyl isobutyl (?)**, 3359*a*.

——, **1-(bromomethyl)isobutyl methyl (?)**, 3359*a*.

**bromomethyl isopropyl**, 2926*c*.

**bromomethyl 2-methylbutyl**, 2926*c*.

, **bromomethyl 1-methylheptyl**, 2926*d*.

, **bromomethyl 1-methylhexyl**, 2926*d*.

-, **1 - (bromomethyl) - 3 - phenyl-2-propynyl ethyl**, 1020*a*.

-, ***p*-bromophenyl *p*-chlorobenzyl**, as acaricide and insecticide, 3138*a*.

-, **2-bromopropenyl ethyl**, 2158*e*.

-, **β-bromostyryl methyl**, 1404*a*.

-, **α-1,3-butadienylbenzyl methyl**, 2576*h*.

-, **1-butenyl ethyl**, parachor, surface tension, etc., of, 456*a*.

-, **2-butenyl ethyl**, 2934*i*.

-, **α-3-buten-1-ynyl-α-methylbenzyl methyl**, 118*f*.

-, **α-butylbenzyl methyl**, 2576*i*.

-, **butyl 2-(2-chloroethylmercapto)-ethyl**, 2928*h*.

-, **butyl 10-chloroindeno[2,1-*a*]inden-5-yl†**, 4662*d*.

-, **butyl chloromethyl**, reaction with 1,3-butadiene, 6568*c*.

-, **butyl 3-chloro-1-methyl-4-pentenyl**, 9025*g*.

-, **butyl 5-chloro-1-methyl-3-pentenyl**, 9025*g*.

-, **butyl 3-chloro-4-pentenyl**, 6568*d*, 9025*f*.

-, **butyl 5-chloro-3-pentenyl**, 6568*d*, 9025*f*.

-, **butyl 2,3-dibromopropyl**, 2159*d*.

-, **butyl 3,7-dimethyl-3-(3,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-2,4,6,8-nonatetraenyl**, P 1801*e*, 5327*a*.

-, **butyl ethyl**, phys. consts. of, 2590*b*.

-, **butyl methyl**, phys. consts. of, 2590*b*.

-, ***sec*-butyl methyl**, 113*g*.

-, **α-butyl-α-methylbenzyl methyl**, 118*f*.

-, **butyl 3-methyl-3-butenyl**, 114*f*.

-, **butyl [1-(4-methyl-3-1-yl)isopropyl]**, 8369*c*.

——, **butyl 3-methyl-2-penten-4-ynyl**, P 1801*d*, 5373*b*.
——, **butyl phenyl**, phys. consts. of, 2590*b*.
——, ***tert*-butyl phenyl**, P 7966*d*.
——, **butyl 1,2,2,2-tetrachloroethyl**, as insecticide, 2359*h*.
——, **butyl trimethylsilylmethyl**†, 1716*h*.
——, **butyl triphenylmethyl**, as insecticide, P 2732*c*.
——, **butyl vinyl**, detn. of, 69*a*.
hydrolysis in aq. dioxane, rate of, 3272*b*.
parachor, surface tension, etc., of, 455*i*.
polymerization of, P 2469*i*.
effect of O-contg. compds. on, 995*a*.
at —70 to —80° with $Et_2O$-$BF_3$ catalyst, P 2808*d*.
with styrene, 6991*c*.
with vinyl isopropyl ether at low temps. with $BF_3$ catalysts, P 3228*i*.
reaction (addn.) with carboxylic acids, 6576*f*.
reaction (addn.) with fatty acids, 7425*i*.
reaction with $ClCH_2CH_2OH$, 159*d*.
reaction with phenols, 3783*c*.
——, **1-butynyl ethyl**, 2158*h*.
——, ***p*-chlorobenzyl *o*-chlorophenyl**, as acaricide and insecticide, 3138*b*.
——, ***p*-chlorobenzyl *p*-chlorophenyl**, as acaricide and insecticide, 3137*i*.
——, ***p*-chlorobenzyl 2,4-dichlorophenyl**, as acaricide and insecticide, 3138*b*.
——, ***p*-chlorobenzyl *p*-nitrophenyl**, as acaricide and insecticide, 3138*a*.
——, ***p*-chlorobenzyl pentachlorophenyl**, as acaricide and insecticide, 3138*b*.
——, ***p*-chlorobenzyl phenyl**, 166*e*.
as acaricide and insecticide, 3138*b*.
——, ***p*-chlorobenzyl *p*-tolyl**, as acaricide and insecticide, 3138*b*.
——, **3(and 4)-chloro-2-butenyl ethyl**, P 3968*g*.
**4-chloro-2-butenyl methyl**, P 968*f*.
**4-chloro-2-butenyl phenyl**, as fungicide, P 4419*f*.
——, **4-chlorobutyl phenyl**, hydrolysis velocity of, 129*b*.
——, **3-chloro-1-(chloromethyl)-4-pentenyl ethyl**, 5737*c*.
——, **3(and 5)-chloro-1-(chloromethyl)-4(and 3)-pentenyl ethyl**, 2158*i*.
——, **4-chloro-α-(*p*-chlorophenyl)-*o*-tolyl 2,2-dichlorovinyl**, P 7045*g*.
——, **4-chloro-2-cyclohexylphenyl 2,2-dichlorovinyl**, P 7045*g*.
——, **2-chloroethyl 3-chloro-4-pentenyl**, 9025*g*.
——, **2-chloroethyl 5-chloro-3-pentenyl**, 9025*g*.
——, **2-chloroethyl *o*-cyclohexylphenyl**, in chigger control, 8600*a*.
——, **1-chloroethyl ethyl**, 1019*i*, 7898*f*.
——, **2-chloroethyl ethyl**, hydrolysis velocity of, 129*c*.
reaction with 2-(2-dimethylaminoethylamino)pyridine, P 3471*c*.
——, **2-chloroethyl 2-fluoroethyl**, 6163*g*.
——, **2-(2-chloroethylmercapto)ethyl ethyl**, (compd. omitted from abstr.), 2928*h*.
——, **2-(2-chloroethylmercapto)ethyl methyl**, 2928*h*.
——, **2-(2-chloroethylmercapto)ethyl propyl**, 2928*h*.
——, **1-(2-chloroethyl)-3-phenyl-2-propynyl methyl**, 1021*b*.
——, **2-(2-chloroethylsulfonyl)ethyl propyl**, 2928*h*.
——, **2-chloroethyl 1,2,2,2-tetrachloroethyl**, P 7188*c*.
as insecticide, P 7634*i*.
——, **2-chloroethyl tolyl**, P 7960*c*.
——, **2-chloroethyl triphenylmethyl**, 4657*e*.
——, **2-chloroethyl vinyl**, polymers of, with Et acrylate, manuf. and curing of, 3646*i*.
toxicity of, 4401*f*.
——, **2-chloro-1-fluorovinyl phenyl**, P 9084*h*.
——, ***o*(and *p*)-(chloromercuri)phenyl phenyl**, 4236*f*.
——, **4-chloro-3-methyl-1,3-butadienyl methyl**, 5362*i*.
——, **2-chloro-3-methyl-2-butenyl ethyl**, 5362*f*.
——, **2-chloro-3-methyl-2-butenyl methyl**, 4362*f*.
——, **chloromethyl ethyl**, reaction with 1,3-butadiene, 6568*c*.
tion products with cyanoguanidine f softening and waterproofing textiles, P 6440*d*.
**chloromethyl isobutyl**, reaction with 1,3-butadiene, 6568*d*.
——, **chloromethyl methyl**, 7409*i*.
reaction with terpenes, 5017*g*.
——, **3-chloro-1-methyl-4-pentenyl ethyl**, 9025*g*.
——, **5-chloro-1-methyl-3-pentenyl ethyl**, 9025*g*.
——, **3-chloro-1-methyl-4-pentenyl isobutyl**, 9025*g*.
——, **5-chloro-1-methyl-3-pentenyl isobutyl**, 9025*g*.
——, **chloromethyl propyl**, dipropoxymethane from, 6568*e*.
——, **1-(6-chloro-2-naphthyl)ethyl methyl**†, 1756*c*.
——, **3-chloro-4-pentenyl cyclohexyl**, 9025*g*.
——, **5-chloro-3-pentenyl cyclohexyl**, 9025*g*.
——, **3-chloro-4-pentenyl ethyl**, 6568*c*, 9025*f*.
——, **5-chloro-3-pentenyl ethyl**, 6568*c*, 9025*f*.
——, **3-chloro-4-pentenyl isoamyl**, 9025*f*.
——, **5-chloro-3-pentenyl isoamyl**, 9025*f*.
——, **3-chloro-4-pentenyl isobutyl**, 6568*d*.
——, **5-chloro-3-pentenyl isobutyl**, 6568*d*.
——, **3-chloro-4-pentenyl methyl**, 9025*f*.
isomerization of, 130*g*.
——, **5-chloro-3-pentenyl methyl**, 9025*f*.
isomerization of, 130*g*.
——, **3-chloro-4-pentenyl 2-methylhexyl**, 9025*f*.
——, **5-chloro-3-pentenyl 2-methylhexyl**, 9025*f*.
——, **3-chloro-4-pentenyl propyl**, 9025*f*.
——, **5-chloro-3-pentenyl propyl**, 9025*f*.
——, ***p*-chlorophenyl 2,4(and 3,4)-dichlorobenzyl**, as acaricide and insecticide, 3138*b*.
——, ***p*-chlorophenyl dichlorovinyl**, P 7966*a*.
——, ***p*-chlorophenyl 2,2-dichlorovinyl**, P 7045*g*.
——, ***p*-chlorophenyl dodecyl**, as synergist for nicotine, 5893*i*.
——, ***o*-chlorophenyl α,α,α-trifluoro-*m*-tolyl**, P 6234*h*.
——, **3-chloropropyl ethyl**, hydrolysis velocity of, 129*c*.
——, **1-chloropropyl methyl**, 6974*e*.
——, **3-chloropropyl phenyl**, hydrolysis velocity of, 129*c*.
——, **2-chloro-1,3,3,3-tetrafluoropropenyl phenyl**, P 9084*h*.
——, **α-chloro-*p*-tolyl isopropyl**, 6587*e*.
——, ***p*-chloro-α-(trichloromethyl)benzyl ethyl**, as insecticide, 2359*h*.
prepn. and toxicity to insects, 199*e*.
——, ***p*-chloro-α-(trichloromethyl)benzyl methyl**, as insecticide, 2359*h*.
prepn. and toxicity to insects, 199*d*.
——, **cholesteryl ethyl***, 659*g*.
——, ***i*-cholesteryl ethyl***, 659*f*.
——, **cholesteryl methyl**, reaction product with $SbCl_5$, spectrum of, 5307*g*.
——, ***i*-cholesteryl methyl***, reaction with EtOH in the presence of *p*-$MeC_6H_4SO_3H$, 659*f*.
reaction with thiourea, kinetics of, 659*h*.
——, **2-(1-cyclohexen-1-yl)-3,7-dimethyl-2,6-nonadiene-4,5-diynyl methyl**, 1337*d*.
——, **2-cyclohexen-1-yl ethyl**, reaction with *N*-bromosuccinimide, 2174*a*.
——, **3-cyclohexen-1-ylmethyl methyl**, 7436*g*.
——, **cyclohexyl cyclohexylphenyl**, 6173*h*.
——, **cyclohexyl ethyl**, P 9087*b*.
phys. constants of, 2955*i*.
——, **cyclohexyl methyl**, phys. constants of, 2955*i*.
——, **2-cyclohexyl-1-methylpropyl methyl**, P 679*e*.
——, **cyclohexyl phenyl**, 6173*h*.
——, **cyclohexylphenyl phenyl**, as synergist with DDT, P 812*h*.
——, **cyclohexyl 1,2,2,2-tetrachloroethyl**, P 7188*c*.
as insecticide, P 7634*i*.
——, **cyclohexyl *m*(and *o*)-tolyl**, 6173*i*.
——, **cyclopentyl ethyl**, phys. constants of, 2955*h*.
——, **cyclopentyl methyl**, phys. constants of, 2955*h*.
——, **7-dehydrocholesteryl ethyl***, P 5810*e*.
——, **7-dehydrocholesteryl octyl***, P 5810*e*.
——, **7-dehydrocholesteryl tetrahydrofurfuryl***, P 5810*e*.
——, **β,γ-dibromo-α-(2-bromoethyl)-, cinnamyl methyl**, 1021*c*.
——, **β,γ-dibromo-α-(bromomethyl)-cinnamyl ethyl**, 1020*b*.
——, **β,γ-dibromo-α-(2-chloroethyl)cinnamyl methyl**, 1021*c*.
——, **3,6-dibromo-3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-4,8-nonadienyl methyl**, 1339*e*.
——, **1,2-dibromoethyl ethyl**, 1019*i*, 7898*g*.
——, **1,2-dibromoisoamyl ethyl**, 2158*d*.
——, **2,3-dibromopropyl propyl**, 2159*c*.
——, **4,4'-dichlorobenzhydryl ethyl**, as acaricide and insecticide, 3137*i*.
——, **4,4'-dichlorobenzhydryl methyl**, as acaricide and insecticide, 3137*h*.
——, **2,4-dichlorobenzyl 2,4-dichlorophenyl**, as acaricide and insecticide, 3138*b*.
——, **1,2-dichloroethyl ethyl**, and reaction with 1,3-butadiene, 2158*h*.
——, **2,2-dichloro-1-fluorovinyl phenyl**, P 9084*h*.
——, **2,2'-dichloroisopropyl phenyl**, 570*a*.
——, **4,4'-dichloro-α-methylbenzhydryl methyl**, as acaricide and insecticide, 3137*i*.
——, **4-(dichloromethylene)-2-cyclohexen-1-yl ethyl**, 4636*i*.
——, **2,4-dichlorophenyl 2,3-dichloropropyl**, as insecticide, P 4808*a*.
——, **2,4(and 2,5)-dichlorophenyl 2,2-dichlorovinyl**, P 7045*g*.
——, **2,4-dichlorophenyl isobornyl**, 1355*a*.
——, **1,3-dichloropropyl methyl**, 1021*b*
——, **2,2-dichlorovinyl α,α-diphenyl-*p*-tolyl**, P 7045*h*.
——, **2,2-dichlorovinyl methyl**, 1404*a*.
——, **2,2-dichlorovinyl *p*-nitrophenyl**, P 7045*h*.
——, **2,2-dichlorovinyl pentachlorophenyl**, P 7045*g*.
——, **2,2-dichlorovinyl phenyl**, P 7045*g*
——, **2,2-dichlorovinyl 2,4,5-trichlorophenyl**, P 7045*g*.
——, **1,1-dimethylallyl methyl**, 113*d*, 114*d*, 6970*c*.
——, **4,8-dimethyl-10-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3,5,7,9-decatetraenyl ethyl**, 1338*c*.
——, **4,8-dimethyl-10-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3,7,9-decatrien-5-ynyl ethyl**, 1338*f*.
——, **3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenyl ethyl**, 1339*f*.
——, **3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenyl methyl**, 1339*e*, P 1801*d*, P 3152*f*, 5372*a*, P 6657*e*, P 9083*ci*, P 9391*b*.
——, **3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenyl phenyl**, P 1801*f*, 5372*a*.
——, **3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,4,6,8-nonatetraenyl triphenylmethyl**, P 3152*e*.
——, **3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,6,8-nonatrien-4-ynyl ethyl**, 1339*e*.
——, **1,5-dimethyl-1-vinyl-4-hexenyl ethyl**, P 6219*g*.
——, **1,5-dimethyl-1-vinyl-4-hexenyl isobutyl**, P 6219*g*.
——, **1,5-dimethyl-1-vinyl-4-hexenyl methyl**, P 6219*g*.
——, **1,5-dimethyl-1-vinyl-4-hexenyl phenethyl**, P 6219*g*.
——, **2,4-dinitrophenyl 2-nitro-3,4-xylyl**, 5758*k*.
——, **2,4-dinitrophenyl pentachlorophenyl**, as synergist for nicotine, 5893*k*.
——, **dodecyl pentachlorophenyl**, as synergist for nicotine, 5893*i*.
——, **2,3-epoxy-3-phenylpropyl 2,3-epoxypropyl**†, 2181*b*.

——, **2,3-epoxypropyl phenyl.** See *Propane, 1,2-epoxy-3-phenoxy-.*
——, **α-ethylcinnamyl methyl,** 1021*e*.
——, **ethyl 1-ethylcyclopropylmethyl,** 3369*i*.
——, **ethyl α-ethylidenebenzyl,** 7921*c*.
——, **ethyl hexyl,** phys. consts. of, 2590*b*.
——, **2-ethylhexyl vinyl,** polymerization of, 6896*c*, 8202*h*.
——, **ethyl indeno[2,1-*a*]inden-5-yl†,** 4662*e*.
——, **ethyl 2-iodoethyl,** 3784*e*.
——, **ethyl isobutyl,** lyoparachor of, 2834*b*.
——, **ethyl methyl,** effect on syneresis of Na oleate gels, 4080*a*.
elec. moment of vapor of, 6020*g*.
formation in EtOH-MeOH decompn., P 4835*d*.
——, **ethyl *m*-methylbenzyl,** 166*d*.
——, **ethyl α-methylbenzyl,** 612*h*.
——, **ethyl 3-methyl-1-butynyl,** 2158*h*.
——, **ethyl α-methylcinnamyl,** 1020*c*.
——, **ethyl [1 - (4 - methyl - 3 - cyclohexen - 1 - yl)isopropyl],** 8369*c*.
——, **ethyl 1-methylene-2,4-pentadienyl,** 2159*a*, 5737*b*.
——, **ethyl 1-methylene-3-phenyl-2-propynyl,** 1020*d*.
——, **ethyl 4-methyl-3-hexen-5-ynyl,** 1338*d*.
——, **ethyl 3-methyl-2-penten-4-ynyl,** 1339*b*, P 1793*h*.
——, **ethyl 1-methyl-3-phenylpropyl,** 1020*c*.
——, **ethyl 1-methyl-3-phenyl-2-propynyl,** 1020*c*.
——, **ethyl 2-methylpropenyl,** parachor, surface tension, etc., of, 456*a*.
——, **ethyl 2-nitroisopropyl,** P 665*d*.
——, **ethyl 1-nitromethylbutyl,** 1716*d*.
——, **ethyl 1-nitromethylpropyl,** 1716*c*.
——, **ethyl norcamphanyl.** See *Norcamphane, ethoxy-.*
——, **ethyl phenyl.** See *Phenetole.*
——, **ethyl 4-phenyl-3-butynyl,** 1021*b*.
——, **1-ethyl-3-phenylpropyl methyl,** 1021*e*.
——, **1 - ethyl - 3 - phenyl - 2 - propynyl methyl,** 1021*b*.
——, ***m* - ethylphenyl α,α,α - trifluoro-*m*-tolyl,** P 6234*h*.
——, **ethyl propenyl,** parachor, surface tension, etc., of, 456*a*.
——, **ethyl propyl,** lyoparachor of, 2834*b*.
parachor and thermochor of, 2923*f*.
——, **ethyl 1-propynyl,** 2158*g*.
——, **ethyl 1,2,2,2-tetrachloroethyl,** 1404*a*.
——, **ethyl 2,2,3,3-tetrafluoro-1-vinylcyclobutyl,** P 4295*e*.
——, **ethyl thianaphthenyl.** See *Thianaphthene, ethoxy-.*
——, **ethyl 2,2,2-trifluoroethyl,** P 2210*f*.
——, **ethyl trimethylsilylmethyl†,** 1716*h*, 2929*h*.
——, **ethyl vinyl,** P 1050*a*.
acetaldehyde acetals from, and alcs., 5365*d*.
detn. of, 69*a*.
hydrolysis in aq. dioxane, rate of, 3272*b*.
parachor, surface tension, etc., of, 455*i*.
polymers of, with diolefins or acetylenes, reaction products with inorg. acids or anhydrides, P 2804*d*.
polymers with maleic anhydride, 8202*h*.
reaction (addn.) with carboxylic acids, 6576*e*.
reaction with $ClCH_2CH_2OH$, 6159*c*.
system: EtOH–$H_2O$–, 8833*b*.
——, **ethynyl phenyl,** polymerization of, 6997*a*.
——, ***p*-fluorophenyl isobornyl,** 1354*i*.
——, **heptyl vinyl,** parachor, surface tension, etc., of, 456*a*.
reaction (addn.) with AcOH, 6576*f*.
——, **hexyl methyl,** phys. consts. of, 2590*b*.
——, **hexyl phenyl,** phys. consts. of, 2590*b*.
——, **hexyl vinyl,** parachor, surface tension, etc., of, 455*i*.
——, **indanyl methyl.** See *Indan, methoxy-.*
——, **indeno[2,1-*a*]inden-5-yl methyl†,** 4662*d*.
——, **indenyl methyl.** See *Indene, methoxy-.*
——, ***o*(and *p*)-iodophenyl phenyl,** 4236*f*.
——, **isoamyl methyl,** 113*f*.
——, **isoamyl [1 - (4 - methyl - 3 - cyclohexen - 1 - yl)isopropyl],** 8369*a*.
——, **isoamyl vinyl,** parachor, surface tension, etc., of, 455*i*.
reaction (addn.) with AcOH, 6576*f*.
——, **isobornyl 4-isobornyl-*o*-tolyl(?),** 1354*i*.
——, **isobornyl *p*-methoxyphenyl,** 1355*a*.
——, **isobornyl phenyl,** 1354*i*.
——, **isobornyl *o*(and *p*)-tolyl,** 1354*i*.
——, **isobornyl 2,4(and 3,5)-xylyl,** 1355*a*.
——, **isobutyl 3-methyl-2-butenyl,** 114*f*.
——, **isobutyl [1 - (4 - methyl - 3 - cyclohexen - 1 - yl)isopropyl],** 8369*c*.
——, **isobutyl vinyl,** detn. of, 69*a*.
parachor, surface tension, etc., of, 455*i*.
polymers of, 6462*h*.
isomers of, 9523*g*.
osmotic pressure of isomeric, 8802*f*.
properties and structure of, 2028*h*.
ultrasonic velocity in, 8239*f*.
reaction (addn.) with carboxylic acids, 6576*f*.
——, **isopropenyl methyl,** P 1050*a*.
——, **isopropyl 3 - methyl - 2 - butenyl,** 114*f*.
——, **isopropyl phenyl,** phys. consts. of, 2590*b*.
——, **isopropyl vinyl,** parachor, surface tension, etc., of, 455*i*.
polymerization of, P 2469*i*.
polymerization of, with $BF_3$ catalysts at low temps., spongy rubbers by, P 3228*g*.
polymers with maleic anhydride, 8202*h*.
resinous products from $COCl_2$ and, P 4051*c*.
——, **2 - methylallyl 2,2,3,3 - tetrafluoro - 1 - methylcyclobutylmethyl,** 3371*c*, P 4294*b*, P 4294*h*.
——, **3 - methyl - 2 - butenyl propyl,** 114*f*.
——, **[1 - (4 - methyl - 3 - cyclohexen-1 - yl)isopropyl] propyl,** 8368*i*.
——, **methyl 3-methylamyl,** 113*g*.
——, **methyl α-methylbenzyl,** 6195*i*.
——, **methyl 3-methyl-2-butenyl,** 113*d*, 114*d*, 6970*c*.
——, **methyl 5-methyl-1,4-cyclohexadien-1-yl,** 2521*g*.
——, **methyl [1 - (4 - methyl - 3 - cyclohexen - 1 - yl)isopropyl],** 8368*i*.
——, **methyl 1-methylcyclopentyl,** 2172*f*.
——, **methyl 1-methyleneallyl,** 2957*i*, 6157*g*.
dimerization of, 2576*i*.
——, **methyl 3-methyl-2-hexenyl,** 115*b*.
——, **methyl 3-methyl 2-hexen-5-ynyl,** P 9082*g*.
——, **methyl 3-methylhexyl,** 115*d*.
——, **methyl 3-methyl-2-pentenyl,** 113*f*.
——, **methyl 3-methyl-2-penten-4-ynyl,** P 1793*h*.
——, **methyl 1-methyl-1-vinylbutyl,** 115*b*.
——, **methyl 1-methyl-1-vinylpropyl,** 113*f*.
——, **methyl naphthyl.** See *Naphthalene, methoxy-.*
——, **methyl 2-nitroisopropyl,** P 665*d*.
——, **methyl 1-nitromethylheptyl,** 1716*d*.
——, **methyl norcamphanyl.** See *Norcamphane, methoxy-.*
——, **methyl 2,4-pentadienyl,** 5737*b*.
——, **3-methyl-2-penten-4-ynyl phenyl,** P 1801*e*, 5373*g*.
——, **3 - methyl - 2 - penten - 4 - ynyl triphenylmethyl,** P 1793*h*.
——, **methyl phenanthryl.** See *Phenanthrene, methoxy-.*
——, **methyl phenyl.** See *Anisole.*
——, **methyl α-(10-phenyl-9-anthryl)-benzyl†,** 9060*a*.
——, **methyl 2-propynyl,** reaction with AcSH, 7418*a*.
——, **methyl styrylphenyl.** See *Stilbene, ar-methoxy-.*
——, **methyl 1,2,2,2-tetrachloroethyl,** 1404*a*.
——, **methyl 2,2,3,3-tetrafluorocyclobutyl,** 3370*i*.
——, **methyl thianaphthenyl.** See *Thianaphthene, methoxy-.*
——, **methyl thymyl.** See *Anisole, 2-isopropyl-5-methyl-.*
——, **methyl tolyl.** See *Anisole, methyl-.*
——, **methyl 1,1,4-trimethyl-4-penten-2-ynyl,** 3782*f*.
——, **methyl trimethylsilylmethyl†,** 1716*g*.
——, **methyl vinyl,** P 1050*a*, P 7036*g*.
detn. of, 69*a*.
polymers of, incompatibility with other polymers in aq. soln., 6460*e*.
*polymers of,* isomers of, 9523*g*.
with maleic anhydride, as dispersing agent for vinyl halide polymerization, P 6002*c*.
reaction with $C_2F_4$, 3370*i*, P 4294*d*.
——, **1-naphthylmethyl tetradecyl†,** as insecticide, P 2732*d*.
——, **1 - naphthyl α,α,α - trifluoro - *m*-tolyl†,** P 6234*g*.
——, **9-octadecenyl vinyl,** chlorinated polymers, lubricant additive, P 5585*b*.
——, **octadecyl pentachlorophenyl,** as synergist for nicotine, 5893*i*.
——, **phenyl propyl,** phys. consts. of, 2590*b*.
systems with $CCl_4$, $SiCl_4$, $GeCl_4$ and $SnCl_4$, 2535*c*.
——, **phenyl α,α,α-trifluoro-*m*-tolyl,** P 6234*g*.
——, **phenyl *p*-vinylphenyl,** polymerization with butadiene, 1597*f*.
——, **propyl vinyl,** parachor, surface tension, etc., of, 455*i*.
reaction (addn.) with carboxylic acids, 6576*e*.
——, **2,2,3,3 - tetrafluorocyclobutyl vinyl,** P 4295*e*.
——, **α,α,α - trifluoro - *m* - tolyl 2,4-xylyl,** P 6234*h*.

**Ether** (*ethyl*). See *Ethyl ether.*
**Ether** (*of space*). No entries this year. See *Electromagnetic field; Space.*
**Ether alcohols.** See *Alcohols; Ethers; Glycols.*
**Ethereal oils.** See *Oils.*
**Ethereal salts.** See *Esters.*
**Ethereal sulfates,** biol. studies on, 3894*b*, 5836*b*, 6312*h*.
**Etherification,** of alcs. (long-chain satd.), 5003*d*, 6156*e*.
of alkaloids, P 6674*c*.
in aminotriazine-aldehyde condensation, control of, P 2471*d*.
of dialkylvinylcarbinols, isomerization in, 113*b*.
of flax pectins, 2778*e*.
of 2-hydroxy-1,4-naphthoquinone, 1371*i*.
**Ethers.** (*Most organic compounds which are primarily ethers are, if simple, indexed under such names as* Ethyl ether, Phenyl ether; *if complex under* Ether. *However, common names such as* Anisole *and* Phenetole *are used, and ethers of ring compounds may be treated as ethoxy, methoxy and other derivatives. Ethers are independently treated and are not indexed under the parent hydroxy compounds, except that the heading* Cellulose ethers *is used. See also* Ethoxy group; Methoxy group; *etc.*)
from acetals, P 1049*i*.
acetylenic, 6997*a*.
acetylenic, 2-bromovinyl and 1,2-dibromoalkyl, 2158*b*.
alcoholysis of, alkyl group exchange in, 2972*b*.
2-alkenyl, reaction with alkali metals, P 4284*d*.
alkenyl aryl, halo derivs., P 9084*e*.
alkyl aryl, acylation of, P 6235*g*, P 7966*i*.
alkyl 1,3-butadienyl, 2570*d*.
alkyl chloroalkenyl, reaction with KOH or $NaOC(Me)_3$, 5737*a*.
alkyl 2-chloroethyl, reaction with 2-(2-dimethylaminoethylamino)pyridine, P 3471*c*.
alkyl α-1-nitroalkylbenzyl, P 2232*h*.
alkyl, of carboxylic acids, 6167*g*, 6168*f*.
alkyl phenyl, acylation of, P 7966*f*.
alkyl phenyl and dialkyl, phys. properties of, 2590*a*.
alkyl phenyl, reaction with halo derivs. of acetaldehyde, P 8400*h*.
alkyl, reaction with H halides and Si, P 3025*d*.
alkyl (trimethylsilylmethyl), 1716*g*.
allyl aromatic, oxidation of, 2181*b*.
allyl, from allylpyridinium chloride and alcs., 2159*d*.
of anacardic materials, P 3240*i*.
of anacardic materials, reaction products with aldehydes, P 3241*b*.
polymeric compns. contg. silicic esters, P 9538*a*.
from starch, P 4038*c*, 7902*a*.
of amino alcs., 630*h*.
amino derivs.—see *Amines.*
antihistaminic, 1909*g*, 4265*h*.
aralkyl diethylaminoalkyl, P 5043*e*.
aryl 3-amino-2-hydroxyalkyl, *N*-derivs., P 7045*h*.
aryl 4-chloro-2-butenyl, as fungicides, P 4419*d*.
aryl, contg. one or more $CF_3$ groups, P 6234*f*.

assocns. between water and, effect of double bond on, 3671*h*.
as azeotrope formers in concn. of aq. solns. of HCHO, P 2221*d*.
azeotropes of, 2835*abc*.
benzhydryl amino, P 5803*g*.
benzhydryl 2-haloethyl, reaction with tertiary amines, P 2641*b*.
bromomethyl branched-chain alkyl, 2926*a*.
calcn. of free energy function, heat content, heat and free energy of formation of, 5658*e*.
in carbon black, 2068*g*.
of cardanol (hydrogenated) for sludging inhibition in hydrocarbon oils, P 8129*d*.
catalyst complexes of halides and, in alkylation and isomerization of hydrocarbons, P 8666*c*.
chloroalkenyl, 9025*d*
chloromethyl, of polyols, pyridinium salts, reaction with regenerated cellulose, 4010*a*.
*p*-chlorophenyl, P 6663*b*.
compds. with KOH as condensing agents, P 6664*g*.
cyclic, P 3030*d*, P 3042*h*.
anion-exchange resins from alkylene polyamines and, P 5518*b*.
condensation products with (hydroxyalkyl) amides for leveling and penetration of metallized acid dyes, P 9472*a*.
condensation with dimerized fatty acid alkylolamides, P 9472*c*.
in extn. of polyhydric alcs., P 3839*g*.
in fatty materials, detn. of, and oxirane O detn. in, 6841*b*.
Grignard reaction with, 3776*d*, 6155*b*.
hydration of, 1310*e*.
α-keto derivs., 139*c*.
lubricants from reaction products with alcs., unsatd. acids, maleic acid or anhydride, and aliphatic amines, P ¶379*a*.
manuf. from olefins, P 8399*b*.
manuf. from olefins, reactivating Ag catalyst from, P 9299*h*.
manuf. from olefins, Ag-surface catalysts for, P 4289*h*.
oxidation of, P 2224*e*, P 5415*b*.
peroxides of, as polymerization catalysts, P 1812*g*.
reactions with maleic anhydride copolymers, 8202*i*.
reaction with alkylenimines, P 7955*c*.
reaction with amines and $NH_3$, 926*d*.
reaction with HCN, P 1435*b*, P 6647*g*.
reaction with HF, 6163*b*.
reaction with phenol-HCHO polymers, surface-active agents by, P 1587*f*.
reaction with polyols and esterification with palmitic or stearic acid, P 886*e*.
reaction with S compds., 7420*e*.
reaction with thiols, 6574*a*.
reductive cleavage of, of steroid epoxides, 1786*f*, 1787*b*, 3830*e*, 5408*e*.
in stabilization of dichlorobutadiene resins, P 441*b*.
stabilization of protein-HCHO dispersions by, P 3120*b*.
treatment of alginate fibers with diepoxides, P 7237*a*.
vinyl chloride polymerization in presence of, P 7753*c*.
detn. of, 8974*e*.
dichlorovinyl, P 7045*f*.
2-dimethylaminoethyl, of α-phenyl-*o*-cresols, 2969*e*.
drying, P 4683*b*.
effect on acetate rayon, 2777*f*.
2,3-epoxyalkyl 3,3,5-trialkylcyclohexyl, P 2633*i*.
ester derivs. of, P 6224*a*.
ester formation from, by reaction with $AlCl_3$, 2931*f*.
of ethylene glycol with lac, manuf. and esterification with fatty or resin acids, P 4030*b*.
α-ethylpiperonyl, P 2639*c*.
fluorinated, P 2219*e*.
as foam inhibitors, P 4407*c*.
free energies of, 477*h*.
free energy of bonds in, 3276*h*.
of glycerol, naturally-occurring, 1997*a*.
of glycidol and polyglycerols, P 903*i*.
glycidyl, 2130*h*, 2131*bc*.
glycol, and ether esters as azeotropic agents in styrene recovery from hydrocarbon oils, P 5862*h*.
glycol dialkyl, complexes with KOH as catalysts in condensation of $CHBr_3$ or $CHCl_3$ with aldehydes, P 664*e*, P 4284*h*.
glycol mono-, and their esters as azeotropic sepn. of xylene isomers, P 4007*c*.
glycol mono-, for addn. to gelatin dynamite, P 3620*a*.
glycol mono-, pigment powder wetting by mixed monoalkyl, 8698*a*.
halo derivs., velocity of hydrolysis of, 128*i*.
halogenated aryl alkyl, as insecticides, P 5529*e*.
halogenation of unsatd., P 4682*g*.
α-halo, reaction with 1,3-butadiene, 6568*b*.
higher alkyl, of dimethylolurea, P 1200*f*.
hydrogenation of, of acetylenic glycols, 3782*d*.
of hydroxy acids, formation and decompn. in oxidation of paraffin wax with naphthenate catalysts, 4000*c*.
hydroxyalkenyl, 6157*d*.
hydroxy and keto poly-, as lignin models, 3610*e*.
hydroxy, complexes with halloysite and montmorillonite, 463*e*.
hydroxy-polyoxyalkylene, of sorbitan monooleate, lubricants contg., P 5938*f*.
imido—see "esters" under *Imidic acids*.
as insect repellents, P 5153*d*.
from *d*-limonene, 8368*h*.
of lupinine, 6210*b*.
lyoparachors of O in, 2834*d*.
manuf. of, P 9086*i*.
manuf. of, from alcs., catalysts for, P 9300*f*.
mercuri, prepn. of aromatic, by Nesmeyanov reaction, 4236*e*.
mixed, for treatment of wood pulp, P 1980*e*.
mixts. with alcs. and water, and their detn., 5273*g*.
monoalkyl, bactericidal activity against *Bacterium coli*, 1827*c*.
monoalkyl, of hydroquinones, 3386*g*.
nitroalkyl, P 665*d*, 1716*c*.
2-nitroethyl, manuf. of, P 5033*b*.
nitrophenyl, P 687*gi*.
2-norcamphanyl alkyl, P 3462*a*.
octane values of, constitution and, 3998*b*.
oxidation of, to aldehydes, P 8398*d*.
parachors of, 2057*g*.
paraffin-wax soly. in, 8126*d*.
phenol alkylation with, P 687*f*.
phenolic, cleavage of, 5758*i*.
condensation with ketones, 2970*a*.
manuf. of, P 7966*c*.
reactions with acid chlorides in the presence of $HgCl_2$, 183*b*.
reaction with β-aryl glutaconic anhydrides, 4639*i*.
reaction with cyclohexene and with epichlorohydrin, 6173*i*.
terpene, 1354*h*.
with unsatd. side chains, phenol condensation products of, P 4513*a*.
plasticizers, P 5421*e*.
polyalkylene poly-, for improvement of electrodeposition of Sn, P 6095*d*.
polyethylene, for foam prevention, 6815*c*.
of polyethylene glycols, derivs. of, 3784*b*.
polyglycol, effect on sewage treatment, 5140*e*.
polyhydric-alc., hydraulic fluid from, P 1504*d*, P 3949*i*.
polymers with $C_2H_4$, P 3235*h*.
polyolefinic, polymers with Et acrylate, 5988*h*.
polyoxyethylene, for salt manuf. from brine, P 6796*d*.
polyoxypropylene glycol mono-, esters of, as lubricants, P 1562*e*.
prepn. of symmetrical, from long-chain satd. alcs., 5003*d*, 6156*e*.
pyrolysis of, 7895*h*.
of *p*-quinonedioxime in vulcanization of rubbers, 5623*d*.
reaction with CO to give esters, P 3443*b*.
reaction with quaternary ammonium salts, 6622*c*.
reactivity of tertiary alkyl, 3776*g*.
solubilities of homologous, in water, 6889*i*.
soly. in water, heteroatom polarizability and, 3671*i*.
as solvents for org. finishes, 4028*d*.
spectra of *S*-contg., 4215*g*.
of stigmasterol and *i*-stigmasterol, 658*i*.
for sulfur removal from hydrocarbon distillates, P 4844*c*.
systems with $CCl_4$, $SiCl_4$, $GeCl_4$ and $SnCl_4$, 2535*ab*.
tetrachloroethyl aryl, insecticides and fumigants, P 763[illegible]
tetrachloroethyl, as insecticides, P 7634*i*.
thermochor of, 8226*e*.
(2,4,5-trihalophenyl), of glycerol and their derivs., P 675*e*.
ultrasonic velocity in, 8780*e*.
unsatd., dialkyl acetals of alkoxyacetaldehydes for, manuf. of, P 675*d*.
vinyl, P 4683*b*, P 5411*a*.
manuf. of, P 3839*a*.
manuf. of, $C_2H_2$ carburetion for use in, P 7036*f*.
polymers, P 664*f*, P 4051*c*, P 9471*c*.
and their polymers, P 9080*a*.
polymers of, chlorination of, P 5585*b*.
polymers of (Igevins), as adhesives, 8737*i*.
polymers of, stabilized with S, P 8210*b*
polymers with polyolefins, P 3660*c*.
vinyl alkyl, addn. reaction with monocarboxylic acids, 6576*d*.
detn. of, 68*i*.
hydrolysis of, P 7501*b*.
hydrolysis rates in aq. dioxane, 3272*a*
parachors, surface tension, etc., of, 455*h*.
polymerization of, P 2469*h*.
reaction with fatty acids, 3785*i*.
reaction with haldhydrins, 6159*b*.
structure of polymers of, 9523*i*.
of vitamin A and their biol. activity, 5371*i*.
of phenol-HCHO resins, P 5631*a*.

**Ethine.** See *Acetylene*.

**Ethionine.** See *Butyric acid, α-amino γ (ethylmercapto)-*.

**Ethiopine,** 1156*f*.

**Ethocel,** elasticity of, temp. and, 2027*g*

**Ethoxy group,** detn. in ethyl cellulose, 4845*i*.

**Ethyl** (*free radical*), conversion to $C_2H_6$ in hydrocarbon decompn., 5576*f*.
electronic structure of, 2512*a*.
formation from ethane and HO, 8820*h*
heat of formation of, 6470*c*.
reactions in gas phase, 5270*d*.

**Ethyl acetate,** acetic acid parachor in, 8805*b*.
ammonolysis in glycol, rates of, 6495*f*
cellulose nitrate solvation in, 3266*d*.
charcoal heat of wetting by, 8835*f*.
compd. with 3,4,7,8-tetrahydro-3,7 dimethyl - 1,9(2*H*,6*H*) - phenoxaselenindone, 7479*c*.
compression and freezing under pressure, 4067*f*.
corrosion by vapors of, 5721*c*.
decahydronaphthalene peroxide ester re arrangement in, 6188*i*.
effect on adhesive power of soybean protein, 1604*e*.
effect on plants, 2677*b*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
evapn. rate of, 6048*c*.
fires in, extinguishing of, 6417*g*.
formation of, from EtOH, 8247*b*, 8252*e*
from EtOH oxidation in presence of bromate and Br, 7800*g*.
from reaction of amides with EtOH, 4221*d*.
from reaction of ethyl (trimethylsilyl) acetate with EtOH, 562*g*.
in Reformatskiĭ reaction with Br $CH_2CO_2Et$, 613*c*.
hydrolysis of, HCl effect on, 7303*a*.
kinetics of, 6064*i*, 8827*d*.
transient intermediates in, 5267*c*.
ionization in $H_2SO_4$, 8808*g*.
lyoparachor of, 2834*b*.
manuf. of, P 5412*d*.
mixt. with acetone, dielec. polarization in, 454*b*.
parachor and thermochor of, 2923*f*.
phys. consts. of, 2590*d*.
prepn. of, 127*f*.
pyrolysis of, P 6643*e*.
reaction with AcH to produce 1,3-butadiene, 1713*i*.
with BuOH, rate of, 8827*e*.
with Et formate in presence of Na or NaOEt, 5745*a*.
soly. in Na xylenesulfonate solns., 1242*e*.
solubilization with Na secondary alkyl sulfates, 466*e*.
solns. of ethylcellulose and nitrocellulose, in, expansion on dilu., 6044*h*.
sorption by $Fe_2O_3$, 1240*e*.
spectrum of, 1656*e*.
surface tension of, 8774*g*.
systems: $Et_2O$-, and PrOH-, foam

formation and duration, surface tension, viscosity and vol. contraction of, 8779*d*.
systems with other liquids, 2854*c*.
ultrasonic velocity in, 1620*e*.
vinyl acetate chain-transfer coeff. in, 5271*e*.
viscosity of, 2058*i*.
zinc sol in, autocoagulation of, 7292*b*.
**Ethylal.** See *Methane, diethoxy-*.
**Ethyl alcohol.** (See also *Distillery; Fermentation; Spirits;* etc. For derivatives, see *Ethanol.*)
absolute, P 6362*b*.
absorption by blood and lymph, 8537*a*.
absorption, excretion and oxidation of, effect of dinitrophenol and dinitrocresol on, 7127*c*.
from acetaldehyde, P 2219*a*.
acetoin formation from, by *Bacillus subtilis*, 5824*b*.
-acetone fermentation, effect of conditions of, 4421*i*.
-acetone fermentation, effect of sugar concn. on, 5529*h*.
addiction or habituation to, blood compn. and vitamin $B_1$ content of urine in, 2330*cd*.
genetotropic factors in etiology of, 9217*a*.
as metabolic disease, 9231*c*.
addn. to $(CH_2{:}CH)_2O$, effect of acid base nature of catalyst on, 2079*d*.
adsorption of aq., by catalysts, 2498*d*.
adsorption of, by charcoal, 3686*h*.
by $Ph_2NH$, 464*e*.
by macromols. in binary solvent mixts., 2066*g*.
by $SiO_2$ and $TiO_2$, 6034*c*.
sorbent structure and, 461*i*.
in air, max. allowable concn. of, 4401*a*.
ammonia elec. conductivity in, 5655*h*.
analysis of, for cations, solvents in chromatographic, 6537*c*.
analysis of, for Co and water, 8950*i*.
in *Azotobacter* nutrition, 5821*c*.
from *Balanites aegyptica*, 8572*c*.
from barley, 3561*c*, 6359*c*.
from *Bassia latifolia* flowers, 8605*f*.
from beet molasses, 4036*b*.
benzene detn. in, 2123*d*.
in blood after adrenaline injection and under low barometric pressure, 2691*c*.
in blood after street accidents, 8547*d*.
brain-respiration inhibition by, at varied temps., 1863*b*.
in butadiene and synthetic rubber prepn., history of, 3644*a*.
butadiene prepn. from, 1713*i*, 4213*g*, P 5410*d*, 5733*g*, 7898*c*.
piperylene formation during, 991*h*.
reaction mechanism of, 8349*g*.
calcium compd. removal from material for producing, P 3972*b*.
canned fuel from peat and, P 6810*h*.
from cannery wastes, 9358*h*.
capillary osmosis of, 7765*g*.
caproic and valeric acid synthesis from, by *Clostridium kluyveri*, 7077*i*.
carbon tetrachloride poisoning and, 3523*g*.
from cassava, 5530*i*.
cellulose acetate soly. in solvents contg., 1964*d*.
chlorination of, P 5412*eg*.
chlorophenols in manuf. of, P 6782*c*.
as citrus-seed disinfectant, 1516*g*.
cobalt halide and thiocyanate complexes in, 4070*g*.
cognac, Cu removal from, 5901*c*.
compn. of raw, effect of raw materials and distn. app. on, 9358*h*.
compd. with *N*-benzyladrenalone, 7456*d*.
with $BF_3$, as catalyst in alkylation of 2-methylbutane with propene, 1711*g*.
with *a*-fagarine, salts, 4280*g*.
with 6-iodo-6-desoxy-D-galactose, 150*g*
with sarothamnine, 5543*e*.
with $H_6TeO_6$, 8934*i*.
with 1,2,3,4-tetrahydro-1-pheuyl-2-(1-piperidylmethyl)-1-naphthol, P 5417*h*.
control of bacteria and molds with, in immersion freezing, 4391*d*.
cornea tolerance to, 771*b*, 3110*g*.
from corn fermented with moldy bran, 5901*b*.
decompn. of, by heat, 7899*d*.
by heat in butadiene synthesis with MgO catalysts, 2016*i*.
on $TiO_2$, 8828*b*.
dehydration and dehydrogenation on catalysts, 6407*i*.
dehydration by azeotropic distn. with $C_6H_6$ and system with $C_6H_6$ and $H_2O$, 2058*e*.
dehydration of, P 1434*h*.
on $Al_2O_3$ gels, 2080*e*.
by azeotropic distn., P 3836*a*.
to $C_2H_4$, 2498*c*.
dehydrogenase—see *Alcohol dehydrogenase*.
dehydrogenation of, 9028*a*.
dehydrogenation of, to EtOAc, equil. in, 8247*b*.
denatured, P 5902*a*.
analysis for acetone and iso-PrOH, 7377*g*.
detection of pyridine in, 3146*a*.
from desert plants, 6337*g*.
from deteriorated-cane blackstrap, 5615*d*.
detn. of, 6946*b*.
in blood, 7073*c*.
in grape residue, 5531*c*.
in infusions, 9370*h*.
in MeOH mixts., 522*d*.
in mixts. with essences, 8311*a*.
in spirit-water mixts., 1528*i*.
in tinctures, 6783*f*, 9365*i*.
in wine, 353*a*.
detn. of, and oxidation with $K_2Cr_2O_7$, 5702*f*.
in diabetic prepns., 7638*h*.
dielec. const. in waveguide, 4912*h*.
distn. of, app. for, 4902*i*.
app. for, pressure regulator in water-removing chamber in fractionating, P 5902*c*.
from azobenzene, 8762*c*.
in plate columns, 2043*i*.
in sieve-plate columns, 909*fhi*.
tower for, P 5902*c*.
in wetted-wall column, 1614*i*.
drops condensed between quartz lenses, size of, 6882*e*.
duration of action of, chronaxia and, 5499*i*.
effect of concn. of, on velocity of alcoholysis of soybean oil, 5209*c*.
effect on active substances in tinctures, 8094*c*.
on adhesion of epithelium to stroma in cornea, 709*a*.
on allergic reactions, 9252*g*.
on ascorbic acid oxidase, peroxidase and dehydrogenase of vegetables, 2251*g*.
on autodisplacement of Pb, 2846*c*, 8811*g*.
on conduction to third roots of crayfish abdominal ganglia, 9259*g*.
on d., moisture absorption and swelling properties of nylon, 5191*e*.
on dentine permeability to radioactive phosphates, 1863*d*.
on flame propagation limits of $C_4H_{10}$, H, $CH_4$ and $C_2H_4$ mixts. with air, 3617*g*.
on fluoroacetate poisoning, 3103*c*.
on formation of $H_2S.6H_2O$, 1672*g*.
on functional structure of reflexes, 763*h*.
on germination of seeds and growth of plants and bacteria, 2079*b*.
on H overvoltage on Sn cathode in HCl, 503*e*.
on ignition pressure of H-O mixts., 406*i*.
on immunity to *Trichinella spiralis*, 8516*e*, 9223*h*.
on intoxication with phenylcinchoninic acid, 2316*i*.
on invertase, 1817*f*.
on $Fe(OH)_3$ sols, 5259*d*.
on ketone metabolism, 4774*i*.
on kidney and liver during high-protein diet, 7097*a*.
on leucocyte motion, 9263*d*.
on long-chain electrolytes in aq. soln., 7303*f*.
on methyl alc. poisoning, 3105*e*, 3936*g*.
on N fixation by *Azotobacter*, 9160*b*.
on osmotic pressure of poly(4-vinyl-1-butylpyridinium bromide), 8242*b*.
on persons receiving antabuse, 9266*h*.
on plants, 2077*b*, 4349*d*.
on polarography of *p*-nitroaniline, 8908*b*.
on seeds, 4733*i*.
on serum amylase, 7592*d*.
on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489*f*.
on stability of supersatd. solns. of $KNO_3$, 8805*h*.
on stomach lining and skin, 3106*b*
on surface tension of solns., 8794*f*.
on thixotropy of bentonite suspensions, 6885*d*.
*effect* on viscosity of poly(4-vinyl-1-butylpyridinium bromide) solns., 7299*d*.
esterification (inter-) of peanut oil with, with NaOH as catalyst, 3635*f*.
esterification of, kinetics of, 8252*e*.
esterification with AcOH in vapor phase over $NaHSO_4$, 7799*i*.
esters, spectra of, 1656*c*.
from ethylene, P 5032*h*.
catalyst for, P 5887*b*.
by hydration, P 7035*i*.
ethylene glycol manuf. from, P 1434*h*.
from ethyl sulfate, P 7498*ac*.
fires in, extinguishing of, 6417*g*.
formation, by acetone-EtOH bacteria from 3-C compds., 8446*h*.
during alanine fermentation by *Saccharomyces ellipsoideus*, 7541*g*.
by *Clostridium*, 1145*f*.
effect of proteolytic enzymes and yeast nutrients on, 351*i*.
by *Polyporus anceps*, 5094*b*.
from reaction of $Al_2O_3$ with ethylene oxide, 2624*i*.
from reaction of hydroxyl radical with ethylene, 6150*f*.
by *Saccharomyces cerevisiae*, N and, 9150*d*.
from starch by yeast, 6255*e*.
by tartrate-fermenting *Clostridium*, 274*a*.
by thermophilic cellulose-fermenting bacteria, 720*d*, 721*d*.
from *Urginea maritima*, 5092*d*.
free energy of C-OH bond in, 3276*g*.
fuels contg.—see *Fuels*.
gases contg., formation of supersatd. vapor and aerosol on mixing, 7775*d*.
gasoline octane no. extension by injecting $PbEt_4$ solns. in aq., 383*i*.
gel of, P 9299*b*.
from D-glucose-1-$C^{14}$, 3969*f*.
from grain, 9359*ab*.
halogenated, reaction with benzene derivs., P 4300*a*.
heat capacity of, 1638*d*.
heat of wetting of (activated) charcoal by, 8835*f*.
heat of wetting of agar, gelatin, $SiO_2$ gel and starch with, 7781*f*.
heat of wetting of dispersed systems by, 6042*i*.
hexadecanol sorption from, by MgO, 17*b*.
hydrocarbon oil (petroleum-like satd.) synthesis from, P 1955*d*.
hydrocarbons from, 558*c*.
hydrochloric acid acidity function and ionization in, and proton affinities of, 4544*hi*.
hydrogenation of, 5363*c*.
identification of, for use in operating room, 3563*c*.
internal-revenue regulations on, in Czechoslovakia, 5529*i*.
intoxication by, bisulfite-binding material and vitamin $B_1$ deficiency in, and its relation to polyneuritis, 8549*g*.
kojic acid formation from, by *Aspergillus oryzae*, 8007*a*.
labeled with $C^{14}$ in the 1 and in the 2 position, 9031*f*.
lactic and pyruvic acid formation from $CO_2$ and, by *Escherichia coli*, 8443*f*.
losses during fermentation of grape juice, 8090*h*.
from malt-converted corn mashes, enzymes in formation of, 8090*i*.
manganese sulfate ionization in aq., 8792*g*.
manuf. and use as antifreeze, 3117*i*.
manuf. of, P 3562*b*, P 4692*i*, P 5156*a*, 5507*g*, P 6645*e*.
app. for, P 6448*f*.
and app. therefor, P 815*e*.
from asphodel tubers or similar materials, P 5616*h*.
in presence of inorg. adsorbents, P 8094*a*.
removal of water-insol. impurities in, P 5790*f*.
in medicine, 1909*e*.
metabolism of, 3074*e*.
metabolism of, effect of insulin on, 2321*b*.
methanol detection in, 6541*h*, 9372*h*.
methanol detn. in, 68*b*, 1911*e*.
microwave absorption by, 5310*e*.
mixts. with AcOH, $Me_2CO$, $PhNH_2$, $PhNO_2$ and $CCl_3CHO$, mol. wts. in $C_6H_6$, 1252*c*.
with AcOH, $Me_2CO$ or MeOH, rheochors of, 2058*a*.
with acids and sugars, osmosis of, 7300*g*.

*mixts.* with acids, soybean treatment with, 1604*c*.
with air and $H_2O$ vapor, ionization by β-rays in, 3284*c*.
with $PhNH_2$, d., magnetic susceptibility, *n* and viscosity of, 8833*i*.
with $C_6H_6$, soly., swelling and $C_{10}H_8$ adsorption by butadiene rubber in, 8187*e*.
with $CHCl_3$, distn. of, 2060*h*.
with cyclic amines, ultraviolet absorption by, 4138*i*.
with dioxane and $H_2O$, swelling of agar and gelatin in, 7788*b*.
with formic acid, soybean-protein denaturation with, 1604*b*.
with iso-AmOH, iso-BuOH or PrOH, heats of vaporization and vapor pressures of, 477*b*.
with MeOH, pyrolysis of, P 4835*d*.
with org. vapors, adsorption by active carbons, 16*g*.
with pyridine, Raman spectra of, 7345*d*.
with NaCl and $H_2O$, ultrasonic velocity and intermol. action in, 5652*c*.
with toluidine isomers, d., magnetic susceptibility, *n* and viscosity of, 8834*a*.
with $H_2O$, mixt. law for rheochor of, 7283*a*.
and mixt. with methanol, blending octane values in gasoline, 7674*b*.
mobility of ions of, 4559*a*.
from molasses, by Arroyo process, 3141*b*.
detn. of yield of, 9504*b*.
lab. expt. on, 2477*h*.
yeast for production of, 3560*h*.
molasses extn. with, 6445*c*.
molasses stillage, scale formation in evaporators from, 4521*d*.
mold amylase in production of, 2363*h*.
naphthoquinoneimide dye from, P 8167*b*.
narcotic action of, in relation to action on cholinesterase in blood, 7142*e*.
optical activity of camphor and derivs. in, effect of $H_2O$ on, 8813*ad*.
oxidation of, to AcH, catalysts for, 8074*g*.
in liver, 9129*a*.
in presence of bromate and Br, 7800*g*.
parachor and thermochor of, 2923*e*.
parachor of aq., 8805*a*.
from peat, P 5156*b*.
in peppermint oil, 4427*f*.
from petroleum, 6568*b*.
-phenol-essential oil disinfectants, 9364*i*.
phys. constants of, 2956*a*.
pigment powder wetting by, 8698*c*.
potassium deriv.—see *Potassium ethoxide*.
purification of, for spectroscopic use, 7817*g*.
Raman effect and H bond formation in, 7345*g*.
reaction of equimol. mixt. of PrOH and, 992*i*.
reaction with acrolein, P 7497*h*.
with $NH_3$, P 7953*c*.
with Br, kinetics of, 7800*e*.
with 2-butanone, 993*d*.
with butyryl chloride, rate of, 6057*d*.
with 2-butyne-1,4-diol, P 5414*c*.
with $O_2NC_6H_4Cl$, P 687*ge*.
with *i*-cholesteryl methyl ether in the presence of *p*-$MeC_6H_4SO_3H$, 659*g*.
with 1,2-dinitropropane and with 2-nitroisopropyl nitrate, P 665*e*.
with $Et_2SO_4$, 3778*f*.
with ethyl (trimethylsilyl)acetate, 562*g*.
with $H_3O^+$ ion, 4545*c*.
with olive oil, 1715*f*.
with PhNCO, kinetics of, 7441*ae*, 7442*bd*.
with $SiS_2$, 4631*b*.
with $SiCl_4$ in the presence of $H_2O$, 2573*h*.
with $H_2SO_4$, rate of, 6057*c*.
recovery of, from fermentation $CO_2$, P 2366*f*.
in oil extn., P 2794*g*.
from pomace, distn. app. for, P 2734*f*.
from reeds, 9501*i*.
review on, 2326*f*.
rotation (hindered) in, 4527*f*.
Rush no. of phenols for, 8766*b*.
salting out of BzOH and 2-cinchonine from aq., 922*h*.
sensitization of organism to, drug for, 5501*a*.
sensitization to, by tetraethylthiuram disulfide, 4379*c*.
sepn. from aq. solns., P 1906*d*.
sepn. from MeCOEt, 2*k*.
from solutes by heating liquid-vapor interface, 7297*i*.
silver chloroacetate ionization in aq., 7793*e*.
sodium deriv.—see *Sodium ethoxide*.
soly. in aq., effect of supplementary component on, 6889*h*.
as solvent above crit. temp., 8779*e*.
as solvent for soap detn. in wool, 6423*d*.
solvolysis of *sec*-alkyl chlorides by, 7308*a*.
sorption by porous substances, 1240*d*.
spectrum of, 8887*b*.
from starchy substances, P 9362*c*.
from sugar-beet juices, 3141*f*.
from sugar beets, org. acids in, 3141*e*.
-sugar ratios in grape musts and sweet wine, 5901*a*.
from sulfite liquor, 399*af*, 3969*d*, P 4424*b*, 4851*f*, 7682*de*, 8091*b*, 8677*f*.
neutralization-temp. effect on yield of, 399*c*.
tanning material production from slops from, 6449*g*.
sulfur dioxide formation during manuf. of, 3141*a*.
surface tensions of, methylated spirits and EtOH-$H_2O$ mixts., 4064*e*.
system: dichloroethane–, 1254*a*.
system: dodecylammonium chloride-$H_2O$–, elec. cond. of, 4079*i*.
system: ethyl vinyl ether-$H_2O$–, 8833*b*.
system: glycerol-$H_2O$–, foaminess and foam stability of, 7775*h*.
system: MeOH–$H_2O$–, foam formation and duration, surface tension, viscosity and vol. contraction of, 8779*d*.
system: methylcyclohexane–, 8813*f*.
systems: $NH_3$–, and cyclic amine–, 5657*g*.
systems: $C_6H_6$–, cyclohexane–, toluene–, 2,2,4-trimethylpentane–, heptane–, and tetraethylsilane–, 6022*h*.
systems: cod-liver oil–cod-fat acids–, and hake-liver oil–hake-fat acids–, soly. diagrams for, 7724*c*.
system: Na palmitate–, x-ray diffraction by, 2793*b*.
system: $H_2O$–, 930*g*, 2854*b*, 3692*d*.
thermal cond. and viscosity of, 4065*c*.
thermal cond. of vapors of, pressure and, 4553*b*.
tolerance in subjects with chronic producer gas intoxication, 1866*e*.
toxicity of, 1867*g*.
trichlorobenzene electrolysis in, 7837*e*.
ultrasonic velocity in, 8786*c*.
vapor-d. distribution over surface of, 7282*i*.
vapor pressure of, temp. and, 8775*a*.
from vegetable wastes, P 3562*a*.
ventricular fibrillation from adrenaline and, 313*b*.
from viscose-industry wastes, 6408*h*.
viscosity (dilatational) of, 5249*g*, 8780*a*.
from wheat, 7635*c*.
in wine, effect of sugar addn. on, 7635*g*.
in wine grading, 8606*h*.
from wine residues and vine shoots, 6360*i*.
in wines (Italian), 6779*g*.
from wood, 1903*g*.
yield in fermentation, effect of DDT, hexachlorocyclohexane, α-chlorotoluene and α,α-dichlorotoluene on, 8089*g*.

**Ethyl-$d_1$ alcohol-*d***, deuterium exchange with org. compds. and, 5011*d*.

**Ethylamine**, adsorption by activated C, 6037*e*.
adsorption by α-bromopalmitic acid monolayers, 8797*a*.
as catalyst in hydrolysis of lactams, P 2225*b*.
condensation with amino aromatic aldehydes, antioxidants by, P 4460*b*.
as corrosion inhibitor for light metals, 4622*d*.
derivs., 2176*i*, 5782*g*, 7449*g*.
2-derivs., from α-amino acids (attempted), 6978*d*.
1,2-diaryl derivs., 7008*c*.
effect on blood vessels of frog prepns., 5493*b*.
formation from MeCN, 5367*c*.
β-halogenated derivs., effect on ventricular fibrillation and on heart, 7131*f*.
identification of, 4630*c*.
manuf. of, P 7953*c*.
reaction with propylene oxide, kinetics of, 926*e*.

**Ethylamine, 2-(benzhydryloxy)-**, 5783*a*.
derivs., P 3462*fi*.
—, **2-(benzhydryloxy)-*N*, *N*-dimethyl-**, 1104*g*.
antibacterial activity of, 9147*d*.
compd. with 8-chlorotheophylline, 7193*a*
identification and differentiation of 9366*e*.
pharmacology of, 6319*a*.
degradation by tissue enzymes, 7524*e*.
detn. of, 7535*h*.
effect on anaphylactic hypersensitive vascular and cardiac lesions, 3523*b*.
on blood vessels, 2704*g*.
on body temp. before and after adrenalectomy, 1808*i*.
on circulation in brain, 3520*d*.
on gastric secretion stimulation by Tween 20, 760*e*.
on hypotension, 3102*f*.
on intestine, effect of lysolecithin on 311*e*.
on stomach, 3106*c*, 4771*b*.
on tuberculin reaction, 3518*e*.
histamine-antagonizing and antispasmodic effects of, 3934*e*.
in histamine shock prevention, 6722*d*.
metabolism of, 7584*f*.
mixt. with aminophylline, pharmacology of, 3938*e*.
pharmacol. action of, 3934*c*, 5500*f*.
pharmacol. and therapeutic action of 3937*f*, 3938*bf*.
potentiation of sedative action of barbiturates by, 312*g*.
and related compds., 6587*i*.
salts, P 3462*h*.
and salts, P 1064*e*.
spasmolytic activity of, and related compds., 8545*i*.
vascular refractoriness produced by, 6320*b*.
—, **2-(benzhydryloxy)-*N*-methyl-**, hydrochloride, P 3462*h*.
—, **2-(*o*-benzhydrylphenoxy)-*N*, *N*-dimethyl-**, and nitrate, 2969*i*.
—, **2-(benzhydrylsulfonyl)-*N*, *N*-dimethyl-**, 1366*f*.
—, ***N*-benzylidene-**, and Grignard reaction with, 1340*i*.
—, **2-(2-biphenylyloxy)-**, *N*-derivs., antagonism of adrenaline and histamine with, 6309*a*.
—, **1,2-bis(*p*-methoxyphenyl)-**, and hydrochloride, 7008*c*.
—, **1,2-bis(3,4-methylenedioxyphenyl)-**, 7008*c*.
—, **2-bromo-*N*, *N*-dimethyl-**, hydrobromide, pharmacology of, 1861*e*.
—, **2-[α-(*p*-bromophenyl)-*o*-toloxy]-*N*, *N*-dimethyl-**, and hydrochloride, 2969*g*.
—, **2-(4-*tert*-butyl-α-phenyl-*o*-toloxy)-*N*, *N*-dimethyl-**, and hydrochloride, 2969*f*.
—, **2-chloro-**, derivs., 7442*g*.
derivs., adrenergic blocking effects of, 4381*b*.
hydrochloride, pharmacology of, 1861*e*.
—, ***N*-*m*-chlorobenzylidene-2,2-diethoxy-†**, 5783*i*.
—, **2-[4-chloro-α-(*p*-chlorophenyl-*o*-toloxy]-*N*, *N*-dimethyl-**, and hydrochloride, 2969*h*.
—, **2-chloro-*N*, *N*-dimethyl-**, 6179*i*.
in cancer therapy, 5505*d*.
and hydrochloride, 6976*h*.
hydrochloride, adrenergic blocking effect of, 4381*c*.
hydrochloride, pharmacology of, 1861*d*.
reaction with 2-(*p*-methoxybenzylamino)-pyridine, P 3470*f*.
—, **2-chloro-*N*-methyl-**, 1005*f*.
hydrochloride, pharmacology of, 1861*e*.
—, **2-chloro-*N*-methyl-*N*-nitroso-**, 7422*h*.
—, **2-[α-[*m*(*o* and *p*)-chlorophenyl]-*o*-toloxy]-*N*, *N*-dimethyl-**, and hydrochlorides, 2969*g*.
—, **2-(4-chloro-α-phenyl-*o*-toloxy)-*N*, *N*-dimethyl-**, antihistamine activity of, 7134*h*.
—, **2-[4(and 5)-chloro-α-phenyl-*o*-toloxy]-*N*, *N*-dimethyl-**, and salts, 2969*g*.
—, **2-(α-cumyl-*o*-toloxy)-*N*, *N*-dimethyl-**, and hydrochloride, 2969*g*.
—, **1-cyclohexyl-**. See *Cyclohexanemethylamine, α-methyl-*.
—, **2-cyclohexyl-**. See *Cyclohexaneethylamine*.
—, **2-(α-cyclohexylbenzyloxy)-*N*, *N*-dimethyl-**, and hydrochloride, 631*c*.
—, **2-[2-(cyclohexylmethyl)cyclohexyloxy]-*N*, *N*-dimethyl-**, hydrochloride, 3396*e*.

—, **2-(4-cyclohexyl-α-phenyl-o-toloxy)-*N*,*N*-dimethyl-**, and hydrochloride, 2969*f*.
—, **2-[α-(2,4-dichlorophenyl)-o-toloxy]-*N*,*N*-dimethyl-**, and hydrochloride, 2969*h*.
—, **2-(4,6-dichloro-α-phenyl-o-toloxy)-*N*,*N*-dimethyl-**, and hydrochloride, 2969*h*.
—, **2,2'-(2,5-dimethoxy-p-phenylene)bis-**, and derivs., 3388*a*.
—, **2,2'-(2,5-dimethoxy-p-phenylene)bis[*N*,*N*-dimethyl-**, and dihydrochloride, 3388*c*.
—, **2-[α-(2,3-dimethoxyphenyl)-o-toloxy]-*N*,*N*-dimethyl-**, 2969*h*.
—, ***N*,*N*-dimethyl-**, reaction with propylene oxide, kinetics of, 926*f*.
—, ***N*,*N*-dimethyl-2,2-diphenyl-1-(α-phenyl-o-tolyl)-(?)**, and hydrochloride, 6177*d*.
—, ***N*,*N*-dimethyl-2-[o-(α-methylbenzyl)phenoxy]-**, and hydrochloride, 2969*h*.
—, ***N*,*N*-dimethyl-2-(nitrophenylmercapto)-**, hydrochloride, reduction of, 6179*c*.
—, ***N*,*N*-dimethyl-2-(p-nitrophenylmercapto)-**, and hydrochloride, 6180*a*.
—, ***N*,*N*-dimethyl-2-(nitrophenylsulfonyl)-**, reduction of, 6179*c*.
—, ***N*,*N*-dimethyl-2-(p-nitrophenylsulfonyl)-**, and derivs., 6180*b*.
—, **2,2'-(4,6-dimethyl-m-phenylene)bis-**, 6591*d*.
—, ***N*,*N*-dimethyl-2-(phenylmercurimercapto)-**, P 6684, P 6648*f*, P 6649*f*.
—, ***N*,*N*-dimethyl-2-(α-phenylphenethyloxy)-**, and hydrochloride, 631*c*.
—, ***N*,*N*-dimethyl-2-(α-phenyl-2-thenyloxy)-**, and derivs., 631*b*.
—, ***N*,*N*-dimethyl-2-(α-phenyl-o-toloxy)-**, hexahydro deriv., hydrochloride, 3386*e*.
—, ***N*,*N*-dimethyl-2-[α-phenyl-o (and p)-toloxy]-**, and hydrochlorides, 3386*b*.
—, ***N*,*N*-dimethyl-2-(α²-phenyl-2,4-xylyloxy)-**, and hydrochloride, 2969*f*.
—, ***N*,*N*-dimethyl-2-(propylmercurimercapto)-**, P 6648*e*, P 6649*d*.
—, ***N*,*N*-dimethyl-2-toloxy-**, P 7960*d*.
—, ***N*,*N*-dimethyl-2-(triphenylmethoxy)-**, hydrochloride, spasmolytic activity of, 8546*b*.
—, **1,2-diphenyl-**, and acyl derivs., 5027*a*.
and derivs., 7008*c*.
sulfonation of, P 8163*c*, P 9468*f*.
—, **2,2-diphenyl-**, and salts, 5026*d*.
—, **2-(α,α'-diphenyl-2,6-xylyloxy)-*N*,*N*-dimethyl-**, hydrochloride, 3386*e*.
—, **2,2'-dithiobis[*N*,*N*-dimethyl-**, hydrochloride, P 6648*d*.
—, **2-(4-ethoxy-α-phenyl-o-toloxy)-*N*,*N*-dimethyl-**, and hydrochloride, 2969*g*.
—, **2-(ethylmercapto)-**, diethylgold compds., 7421*g*.
—, **2-(ethylmercurimercapto)-*N*,*N*-dimethyl-**, P 6674, P 6648*d*, P 9355*i*.
—, **2-(fluoranthenyl)-**. See *Fluoranthenethylamine*.
—, **2-fluorenyl-**. See *Fluorenethylamine*.
—, **2-(9-fluorenyloxy)-*N*,*N*-dimethyl-**, P 6671*d*.
—, **2-fluoro-**, hydrochloride, 2927*i*.
—, ***N*-furfurylidene-**, 3406*i*.
—, **2-(α-2-furylbenzyloxy)-*N*,*N*-dimethyl-**, 6587*i*.
—, **2-(4-imidazolyl)-**. See *Histamine*.
—, **2-(indanyl)-**. See *Indanethylamine*.
—, ***N*-isobutylidene-**, 1654*e*.
—, **2,2'-(4-methoxy-m-phenylene)bis-**, 6591*f*.
—, **1(and 2)-(p-methoxyphenyl)-2(and 1)-phenyl-**, and hydrochlorides, 7008*d*.
—, **2-[α-methoxyphenyl)-o-toloxy]-*N*,*N*-** -1-, and hydrochloride, 2969*g*.
—, **2-(4-methoxy-α-phenyl-o-toloxy)-*N*,*N*-dimethyl-**, and hydrochloride, 2969*f*.
—, ***N*-methyl-2-(α-phenyl-o-toloxy)-**, hydrochloride, 3386*e*.
—, **2-(naphthyl)-**. See *Naphthalenethylamine*.
—, **2,2'-(naphthylene)bis-**. See *Naphthalenebisethylamine*.
—, **2,2',2''-nitrilotris-**. See *Triethylamine, 2,2',2''-triamino-*.
—, **2-phenanthrofuryl-**. See *Phenanthrofuranethylamine*.
—, **2-(phenanthryl)-**. See *Phenanthrenethylamine*.
—, **2-phenoxy-**, and picrate, 121*h*.
—, **1-phenyl-**. See *Benzylamine, α-methyl-*.
—, **2-phenyl-**. See *Phenethylamine*.
—, **2,2'-*p*-phenylenebis-**, 6591*b*.
derivs., 3387*i*.
—, ***N*,*N*,1,1-tetrafluoro-**, 6793*e*.
—, **2-(tetrahydro-3-thienyloxy)-**, *S*,*S*-dioxide, as plasticizer, P 5514*b*.
—, **2,2'-thiobis-**, reaction products with $CS_2$, P 5224*f*.
—, ***N*-veratrylidene-**, 2177*a*.
—, **2-(xanthyl)-**. See *Xanthenethylamine*.

**Ethylation**, of aniline, P 1437*e*.
of benzene and cyclohexane mixts., P 1958*e*.
of benzene, with $AlCl_3$ catalyst, P 1175*d*, P 1176*c*, 2966*e*.
with EtOH, 1019*d*.
with $C_2H_4$, iron phosphate catalysts for and in, P 5419*b*.
with $C_2H_4$ with $AlCl_3$-$C_2H_4$ complex catalysts, P 5182*a*.
of cellulose, 4848*i*.
of cellulose with ethyl sulfate under vacuum, 6824*c*.
of cyclohexene, P 1057*h*.
of *p*-dichlorobenzene, P 2636*h*.
of 1,2,3,4-tetrahydronaphthalene, 2197*h*.
**Ethyl barium phosphate**, 600*a*.
**Ethyl borate** ($Et_3BO_3$), as catalyst in β-lactone manuf. from carbonyl compds. and ketenes, P 5414*i*.
effect on flame propagation limits of $C_4H_{10}$, H, $CH_4$ and $C_2H_6$ mixts. with air, 3617*g*.
**Ethyl bromide**. See *Ethane, bromo-*.
**Ethylbutyl Cellosolve**. See *Ethanol, 2-(2-ethylbutoxy)-*.
**Ethyl butyl silicate**, $EtBu_2SiO_4$, 9028*e*.
**Ethyl calcium sulfate**, pharmacology of, 4426*g*.
**Ethyl carbonate**. See "diethyl ester" under *Carbonic acid*.
**Ethylcellulose**. See "ethyl ether" under *Cellulose*.
**Ethyl centralite**. See *Centralite*.
**Ethyl chloride**. See *Ethane, chloro-*.
**Ethyl chlorofluothiophosphate**, EtO PClF(:S), 1313*i*.
**Ethyl chlorophosphate**, $Et_2PO_3Cl$, 599*h*.
**Ethyl chlorosulfonate**, Raman spectrum of, 7345*a*.
**Ethyl chlorothiophosphates**.
**(EtO)$_2$ClPS**, 1314*a*.
**(EtO)Cl$_2$PS**, prepn. and fluorination of, 1313*h*.
**Ethyl chlorothiophosphites**.
**(EtS)$_2$PCl**, 560*i*.
**(EtS)PCl$_2$**, 561*a*.
**Ethyl compounds**. See *Ethyl group*.
**Ethyl disulfide**, phys. constants of, 2956*f*.
**Ethylene**. (See also *Vinyl compounds*.)
adsorption by charcoal, 6488*f*.
adsorption from olefin gases by activated charcoal, 8789*d*.
alkylation with, of aromatic hydrocarbons, 108*g*.
of $C_6H_6$, P 1175*d*, P 1176*c*, P 3844*i*, P 4005*a*, 4638*a*.
of $C_6H_6$ and cyclohexane mixts., P 1958*e*.
of $C_6H_6$, iron phosphate catalysts for use in, P 5419*c*.
of isobutane, P 390*b*, P 1049*d*, P 2422*h*.
of 2-methylbutane in presence of $BF_3$ catalysts, 3773*b*.
of thiophene (attempted), 1395*d*.
bonds in, 2478*f*, 6877*b*, 8764*a*.
bonds in, force const. of C—H, relation to HCH angle, 4059*i*.
bromination of, 5731*e*.
1-butene manuf. from, P 2763*h*.
carbon deposition from, on vitreous $SiO_2$, 2833*b*.
in carbon monoxide hydrogenation to hydrocarbons, P 5573*c*.
chlorination of, P 1433*e*.
chlorofluoro derivs., polymers of, 5159*a*.
combustion of, effect of light on, 7825*e*.
compd. with $AlCl_3$, as catalyst, 1713*c*.
condensation with CO, 4829*f*.
condensation with rosin with $BF_3$ catalyst, and esterification with MeOH to varnish resin, P 9486*d*.
control in refrigerated storage, effect on keeping qualities of food, 4779*g*.
conversion to alc. or ether, catalyst for, P 5887*b*.
copolymer of, and $C_2F_4$, P 5410*g*.
crit. opalescence of, 1231*i*.
derivs.—see also *Ethylene compounds; Olefins; Vinyl compounds*.
derivs., azo compds., as catalysts for polymerization of, P 6002*g*.
force consts. of, 4527*i*.
photochem. reactions with phenanthrenequinone, 2984*k*.
polymerization of, azodisulfonic acid salts as catalysts for, P 5642*a*.
polymerization with esters of $H_2N_2O_2$, P 5641*b*.
polymerization with peroxydicarbonate catalysts, P 5642*a*.
reactions of, 4211*k*.
1,2-derivs., copolymerization of, chain transfer in, 7748*i*.
and derivs., reaction with hydrogen halides, P 2629*b*.
detn. of, 2759*f*, 6688*f*.
detn. of, in gases of petroleum industry, 8962*d*.
diaryl derivs., condensation with maleic anhydride, 206*a*.
diffusion and soln. in polystyrene at high pressures, 2811*d*.
dihalogenated derivs., polymerization in emulsions, P 9530*c*.
effect on germination of old seeds, 5828*k*.
on mold-decay control on citrus fruits, 3536*e*.
on myocardium sensitivity to adrenaline, 1111*d*.
on N metabolism in apples, 2677*e*.
on orchids, 8014*a*.
on ripening rate of bananas, 6289*b*.
electron residual affinity of, 6512*c*.
energy states of, 2863*i*.
enthalpy and entropy of, effects of pressure on, 5576*a*.
enthalpy and heat capacity of, 7215*h*.
enthalpy of, 6903*f*.
flames of, structure and stability of, 7764*e*.
flame temp. of, 1231*i*
fluoro derivs., polymers of, in lining chem.-plant app., 1214*f*.
fluoro derivs., resonance in, 7762*h*.
fluorohalo derivs., polymers with vinyl chloride, P 9485*b*.
formation of, from $C_2H_2$ on NiS catalysts, 7803*a*.
from aq. EtOH, 2498*c*.
from (2-chloroethyl) silanes, 561*i*.
from depolymerization of triisobutylene, 6151*c*.
by diseased plant tissues, 8458*d*.
from EtOH and hydrogenation on $TiO_2$, 8828*b*.
from AgEt, 5732*e*.
from hexadecane, 3343*e*.
in $CH_4$-filled Geiger-Müller counters, 484*b*.
in pyrolysis of polystyrene, 2810*g*.
during reaction of 2-butanone and EtOH, 993*d*.
in reaction of EtI with Mg, 1717*f*.
from ripening avocados, 283*f*.
from vinyl radicals, 3694*d*.
fuel antiknock ratings of, 382*i*.
halogen derivs., polymers of, vulcanized fabric coatings from polyhaloprenes and, P 4508*e*.
polymers with vinylidene fluoride, P 5638*b*.
reaction with halo derivs. of $CH_4$, P 661*d*.
heat capacity of, 2758*g*.
heat of adsorption by active charcoal, 4939*d*.
heat of dissocn. of, 1250*c*.
heat of vaporization of, 8254*b*.
hydration of, P 4692*i*, P 5032*h*, P 6645*e*, P 7036*a*.
hydrogenation on Cu-Pt alloys, 4088*c*.
hydropolymerization of, 108*a*.
inflammability limits for mixts. of MeBr and, 3619*b*.
inflammability of mixts. of air with, effect of solid particles on, 6806*d*.
labeled with $C^{14}$, 37*i*.
magnetic susceptibility of, and chloro and fluoro derivs., 6016*f*.
manuf. of, P 4383*d*, P 6643*e*.
from $C_2H_2$, P 3833*i*, P 5030*b*.
by conversion of gaseous hydrocarbons, P 387*i*.
by conversion of hydrocarbon oils, P 388*k*.

*manuf. of*, by cracking of gas oils, P 8663*d*.
by cracking of hydrocarbon oils, P 386*h*.
by cracking of hydrocarbon oil vapors in steam, P 8129*g*.
from dihydropyran pyrolysis, P 1795*e*.
from $C_2H_6$, 5571*i*.
from EtOH, P 1434*h*.
from $C_3H_8$, P 7071*b*.
manuf., from cracked gases and alkylation of 2-methylpropane with, aviation gasoline blending stock by, P 5180*i*.
mixing with CO or N, temp. effects in, 8773*c*.
mixts. with $C_3$, $C_4$ and $C_5$ olefins, alkylation with isobutane with $AlCl_3$-isobutane complex catalysts, P 1956*h*.
with $C_3H_8$, conversion to higher-boiling products, P 3833*g*.
with gases, thermal diffusion of, 8224*f*.
mol., 557*a*.
neutron cross section of proton in, 4096*b*.
orbital mol. diagrams and, 6479*e*.
oxidation of, P 3028*i*, P 3446*a*, P 8399*h*.
to ethylene glycol, 6976*b*.
to ethylene oxide, P 4290*a*.
HCHO in, 6567*e*.
kinetics of, 26*d*, 927*g*, 6565*i*.
polychloro derivs., reaction with satd. hydrocarbons, 9024*e*.
polyfluoro derivs., reaction with $NH_3$, P 1444*e*.
polymerization of, P 906*a*, P 1218*ci*, P 1219*a*, P 3238*e*, P 5640*i*, P 5788*f*, P 6001*a*, P 8742*e*.
with azodisulfonic acid salts as catalysts, P 5642*c*.
with $H_3BO_3$-diatomite-$H_3PO_4$ catalyst to oils, P 3190*f*.
with ester catalysts, P 8742*f*.
with Grignard-type catalysts, P 9537*c*.
with imino compd. or nitrohydrocarbon catalyst, P 8666*h*.
with iodoso diacylate catalyst, P 5231*e*.
with isobutylene, P 1602*c*.
with isobutylene or propylene, P 5640*h*.
lubricants by, 384*d*.
with malonic acid derivs., P 4897*d*
with monohaloalkane or higher olefins, P 5640*f*.
with oxime catalysts, P 4515*a*.
and polymers, 6149*h*, 8198*a*.
polymers of, 437*a*, P 3235*h*, P 6000*i*.
with 1-[2-acetamido-2'-(acrylylamino)-isopropyl]-3-methylurea, P 9531*e*.
adhesion to metals, 3651*g*.
alkyl aromatic hydrocarbon derivs., P 6657*f*.
amorphous content of, detn. of, 6485*h*.
azo pyrazolone yellow-red pigments for, P 7746*e*.
brittleness at low-temps., 1209*a*, 8723*e*.
with butadiene, cracking of, P 1049*h*.
cable insulation from, P 3657*d*.
$CaCO_3$ in, P 4897*g*.
with $CO_2$, P 4515*d*.
with CO and propene or diethyl maleate, P 3236*h*.
cellular product from, P 6001*c*.
chlorinated, P 5642*g*.
and chlorinated derivs., adhesion to cellulose, 8133*d*.
and chlorinated derivs., $H_2O$ permeability of laminates with polyvinyl alc., 6862*d*.
chlorinated, dielec. and mech. properties of, 6019*g*.
chlorinated, elec. insulation from, P 9534*e*.
chlorinated, reduction of soly. and thermoplasticity of, P 9533*i*.
chlorinated, transparent products from, P 2039*a*.
chlorinated, with reduced soly. and fusibility, P 9534*c*.
coalescence of, 4892*h*.
coating and waterproofing textiles with, mixts. with metal naphthenate, P 4023*a*.
coating cable joints insulated with, with polyethylene and polyolefins, P 4046*a*.
coating (hot melt) from, P 1222*g*.
coating metal-powder-pigments with, P 6888*d*.
coatings with, 899*b*.
*polymers of*, coating with mixt. of polyisobutylene and, P 6003*f*.
constitution and properties of, 9455*d*.
covering cable or wire with strips or tapes of, P 5632*b*.
curing of, P 2038*d*.
decompn. by heat, 2015*a*, 8205*f*.
and derivs., dispersions of, P 6762*a*.
dielec. strength of, 2480*e*.
with di-Et fumarate and vinyl acetate, P 9531*h*.
with 1,3-dioxolane, P 2471*b*.
dipole orientation in solns. of esters in, 6019*i*.
effect of pressure on crystallinity, thermodynamic properties and vol. of, 5249*i*.
effect of relaxing and stretching on, 6045*h*.
elasticity of, temp. and, 2027*g*.
elec. insulating casing for dry-plate rectifiers from, 7360*b*.
elec. insulators from, 1604*h*.
elec. insulators from, and their attack by soil microörganisms, 9517*g*.
elec. properties of, 435*f*.
emulsions for fabric coating and impregnation, P 4869*c*.
emulsions of, P 1222*h*.
with ethers, P 3235*g*.
extrudable compn. from, P 444*d*.
fiber-forming properties and m. ps. of, 9455*i*.
fibrous-tissue stimulant from, 1483*h*.
films of, 7747*b*.
flame-spraying of, 6961*i*.
with fluoromethacrylate esters, P 6405*g*.
intravenous-tubing complications from, 899*f*.
light transmission and formation and decay of spherulites in, 8802*i*.
lining for chem.-plant app. from, 1214*f*.
lubricants for, P 4520*g*.
mixts. with bitumens, P 7224*i*.
optical and thermodynamic analysis of mech. properties, mol. processes and polymer structure of, 2801*b*.
O mask from, 4509*g*.
packaging with, 8136*g*.
with polyisobutylene, 9522*g*.
with polyvinyl acetal, P 444*e*.
powd., P 1610*i*.
powd., and dispersions therefrom, P 7755*a*.
pyrolysis of, and mass spectrometry and mol. wt. detn. of fractions, 7742*e*.
pyrolysis products of, 2810*g*.
resinography of, 6459*h*.
sepn. into mol.-wt. fractions, P 3236*i*.
soly. in xylene, 8804*h*.
spectra of, 6081*f*, 7822*c*.
structure of, 9523*h*.
with $C_2F_4$, dispersions of, P 444*b*.
tubing of, effect on penicillin, 4428*d*.
ultrasonic velocity in, 7782*i*, 8239*e*.
with vinyl acetate, alcoholysis of, P 6867*g*.
with vinyl acetate, antistatic coatings from sapond., P 4520*g*.
with vinyl acetate, hydrolyzed, P 1610*a*, P 5230*g*.
with vinyl chloride, adhesion to cellulose, 8207*b*.
with vinyl esters, P 7264*e*.
with vinyl esters, insolubilization of hydrolyzed, P 442*h*.
with vinyl esters, isocyanates of hydrolyzed, P 1219*e*.
with vinyl esters, mixts. of hydrolyzed, with polyamide derivs., P 443*a*.
with vinyl esters, tenaceous fibers from hydrolyzed, P 5603*a*.
with vinyl isocoumarans, P 7262*b*.
for water pipes, 7165*h*.
water-vapor permeability of, 8738*d*.
working of, P 9533*b*.
wrapping material from, 9522*f*.
x-ray transmission in, 8874*b*.
potential functions of, 2478*h*.
prepn. of, from $C_2H_4$, 7898*b*.
Prins reaction with, 6967*h*.
reaction of, and its halo derivs. with cycloalkyl halides, 3371*h*.
reaction with $NH_3$, P 3439*de*.
with Br, effect of neutron capture on, 2078*a*.
with CO and H, P 4685*d*.
with CO and $H_2O$, P 669*i*.
with $CCl_4$, free radicals in, 109*e*.
*reaction* with carboxylic acids to produce long-chain acids, P 670*b*.
with $Me_3CCH_2Cl$, 3372*f*.
with 2-chloro-2-methylpropane, P 7035*e*.
with $Bu_2S_2$, P 1794*d*.
with 1,3-diolefins, P 5418*f*.
with HCHO in presence of AcOH, 5367*d*.
with HBr in $SO_2$, P 3024*c*.
with H halides, P 6218*e*.
with $H_2S$ or thiols, P 7952*f*.
with OH, rate of, 8820*h*.
with $Hg(OAc)_2$ and amines, 7449*c*.
with $N_2O_4$, P 665*a*.
with $SO_2Cl_2$, 1249*a*.
with $C_2F_4$, 3370*c*, P 4294*c*.
and reaction with 1,3-butadiene, P 6656*c*.
recovery from coal gas and its utilization, 8119*a*.
sepn. from gases, P 7670*d*.
sepn. from hydrocarbon mixt., P 379*i*, P 1432*h*, P 4283*h*, P 6403*b*.
soly. in $H_2O$, 5264*d*.
spectrum of, 7818*e*.
strain in, 4059*i*.
structure of, wave function theory and, 492*b*.
system: butane-, 4937*b*.
system: naphthalene-, 4937*f*.
systems with org. compds., crit. phenomena in, 4937*e*.
tetrahalo derivs., reaction with S chlorides, P 6646*a*.
triaryl derivs., 7006*h*.
triaryl derivs., estrogenic action of, 4746*d*
virial coeffs of, 3677*d*

**Ethylene, 1-arsenoso-2-chloro-**, 561*f*
——, **benzoyl-** See *Acrylophenone*
——, ***N*-benzyl-*N'*, *N'*-dimethyl-*N*-2-pyridyl-**. See *Pyridine, 2-[benzyl(2-dimethylaminoethyl)amino]-*.
——, **1-(4-biphenylyl)-2-bromo-1-(*p*-methoxyphenyl)-2-phenyl-**, 7007*e*
estrogenic action of, 4746*d*.
——, **1-(4-biphenylyl)-1-(2-furyl)-2-phenyl-†**, 7007*e*.
——, **1-(4-biphenylyl)-1-(*p*-methoxyphenyl)-2-phenyl-**, 7007*e*.
estrogenic action of, 4746*e*.
——, **1,1-bis[*p*-(allyloxy)phenyl]-2-phenyl-**, 7469*f*.
——, **1,1-bis[*p*-(benzyloxy)phenyl]-2-phenyl-**, 7469*f*.
——, **1,1-bis(4-biphenylyl)-2,2-dichloro-**, 2979*i*.
——, **1,1-bis(4-biphenylyl)-2-phenyl-**, estrogenic action of, 4746*g*
——, **1,1-bis(*p*-bromophenyl)-2-chloro-**, P 5046*g*.
——, **1,1-bis(*p*-bromophenyl)-2-(*p*-chlorophenyl)-**, 7469*b*.
——, **1,1-bis(*p*-bromophenyl)-2,2-dichloro-**, 2359*h*, P 5899*b*.
——, **1,1-bis(*p*-bromophenyl)-2,2-diphenyl-**, 7006*a*.
——, **1,1-bis(*p*-chlorophenyl)-**, 2359*h*.
as acaricide and insecticide, 3137*g*.
prepn. and toxicity to insects, 199*e*.
——, **1,1-bis(*p*-isopropoxyphenyl)-2-phenyl-**, 7469*f*.
——, **1,1-bis(*p*-methylmercaptophenyl)-2-phenyl-**, 7467*g*.
——, **1,1-bis(*p*-nitrophenyl)-**, 4658*e*.
——, **1,2-bis(phenylazo)-**, 1654*h*.
——, **bromo-**, formation of, in fluorination of $(CH_2Br)_2$, 3774*f*.
manuf. of, P 2629*b*.
polymers with dialkyl esters of maleic acid and vinylidene halides, P 2818*c*.
reaction with at. Na, 3694*c*.
reaction with bromocyclohexane, 3372*d*
thermodynamic functions of, 4553*c*
——, **1-bromo-2,2-bis(*p*-bromophenyl)-1-(*p*-chlorophenyl)-**, 7469*b*.
——, **1-bromo-2,2-bis[*p*-(hexadecyloxy)phenyl]-1-phenyl-**, P 6666*f*.
**1-bromo-2,2-bis(*p*-isopropoxyphenyl)-1-phenyl-**, P 6666*f*.
**1-bromo-1-(*p*-bromophenyl)-2,2-diphenyl-**, 7469*c*.
——, **1-bromo-1-(*p*-chlorophenyl)-2,2-bis(*p*-iodophenyl)-**, 7469*b*.
——, **1-bromo-1-(*p*-chlorophenyl)-2,2-bis(*p*-methoxyphenyl)-**, 7469*b*.
——, **1-bromo-1-(*p*-chlorophenyl)-2,2-di-*p*-phenetyl-**, 7469*c*.
——, **1-bromo-1-(*p*-chlorophenyl)-2,2-diphenyl-**, 7469*b*.
——, **1-bromo-2-(*p*-chlorophenyl)-1,2-diphenyl-**, 1894.
——, **1-bromo-2-(*p*-chlorophenyl)-1-(*p*-nitrophenyl)-2-phenyl-**, 2006.

——, 1-bromo-1,2-dichloro-, 2572c.
——, 1-bromo-1,2-diphenyl-2-p-propoxyphenyl-, P 6666f.
——, 1-bromo-2-(4'-methoxy-4-biphenylyl)-1,2-diphenyl-, estrogenic action of, 4746e.
——, 1-bromo-2-(p-methoxyphenyl)-2-p-phenetyl-1-phenyl-, fungistatic activity of, 9334e.
——, 1-bromo-2-(p-methylmercaptophenyl)-1,2-diphenyl-†, 7467g.
——, 1-bromo-1-(p-nitrophenyl)-2,2-diphenyl-, 200a.
——, 1-bromo-2-p-phenetyl-1,2-diphenyl-, isomers, P 6666f.
——, 1-bromo-2-p-phenetyl-1-phenyl-2-p-propoxyphenyl-, P 6666f.
——, 1-bromo-1-phenyl-1,1-bis(p-propoxyphenyl)-, 7469h.
——, 1-bromo-1-phenyl-2,2-bis(p-propoxyphenyl)-, P 6666f.
——, 1-(p-bromophenyl)-2,2-dichloro-1-(p-chlorophenyl)-, 1753a.
——, 2-(p-bromophenyl)-1,1-diphenyl-, 7469c.
——, bromotrifluoro-, reaction with S chloride, P 6646a.
——, bromotriphenyl-, 5754d.
metabolism of, 7106h.
radio-Br-contg., detn. in biol. material, 1454b.
——, bromotris(p-chlorophenyl)-, 7469b.
——, 1-(p-tert-butylphenyl)-1-phenyl-, 206a.
——, chloro-, chlorination of, in presence of Fe, P 7035g.
coating compn. from casein, alginate and, P 1611d.
derivs., 9024f.
double-bond stretching of, interaction between deformation of terminal angles and, 8221b.
effect in thermal vulcanization of butadiene-Na rubber, 6858a.
formation from dichloroethanes, kinetics of, 7407eh, 7408c.
magnetic susceptibility of, 6016h.
manuf. and polymerization of, P 906g.
manuf. of, P 663i, P 1433e, P 1793d, P 2629ab, P 3024df, P 3437g, P 3835b, P 4284d, P 5790ab, P 6644i, P 7037d, P 7496h.
manuf. of, from acetylene, P 7951a.
manuf. of, from 1,2-dichloroethane, P 7951b.
microwave spectrum of, nuclear quadrupole effects in, 5310c.
polymerization of, P 901f, P 906b, P 2817g, P 6465h, P 7753c, P 8212d.
catalysis by $Bz_2O_2$ and polyvinyl chloride, 5272b.
from 1,2-dichloroethane decompn., 7307e.
in emulsions, P 6465h.
in emulsions, Ag-$NH_3$ ion as promoter for, P 7264i.
isoprene as inhibitor of, 5621h.
with malonic acid derivs., P 4897d.
peroxides of cyclic ethers as catalysts in, P 1812h.
in presence of epoxides, P 7753b.
in presence of seeds, 8735b.
stabilization during, P 5642d.
with vinyl β-alkoxybutyrates, P 7753g.
polymers of—see also *Igelites; Vinidur;* and "PeCe fiber" under *Rayon.*
polymers of, 6462h.
acyl derivs. of alkyl polylactates as plasticizers for, 3651e.
adhesion to Al and cellulose, 8206g.
adhesion to cellulose, 8133e.
with alkenyl silanes, P 1223c.
with alkyl ester of unsatd. dicarboxylic acid, sponge compn. from, P 3239f.
antiblocking agent for films of plasticized, P 5999b.
azo pyrazolone yellow-red pigments for, P 7746e.
blends with nitrile rubbers, 434h, 5980g.
bricks and plates from, P 4512a.
with butadiene and 1,1-dichloroethylene, 2017e, P 7259d.
with α,β-butenedioic ester, coatings for black and Sn plate from, P 9535e.
as celluloid like ——s, 3236i.
cementing layers of, P 4898c.
and their chem. resistance, 421d.
chlorination of, P 6907d.
Cl detn. in,
polymers of, with chloroprene, 1598f.
coagulation from aq. emulsions, P 2469d.
coalescence of, 4892h.
coating for glass fibers from, P 3987b.
coatings from, corrosion and, 2028f.
coating textiles with plasticized, P 4870d.
cold-fracture temp. of, 8199a.
compns. from plasticized, P 4895a, P 7755c.
compns. with butyl acetylricinoleate, 6861h.
compns. with colloidal $SiO_2$, P 5229d.
compns. with imidazolidines, P 8738g.
compns. with nitrilotriacetic acid esters, P 5229i.
compounding and curing of butadiene-acrylonitrile and -methacrylonitrile rubbers with, 3646b.
in corrosion prevention against chemicals, 6455f.
coverings for elec. conductors from, P 902d.
creep in plasticized, 6462a.
cross-linking, 7406h.
cyclopentanone or derivs. as solvents for, P 1126d, P 2817f.
degradation and stabilization of, 8737g.
depolarization of light scattered by solns. of, 7784d.
with dialkyl esters of maleic acid and vinylidene halides, P 2818c.
dicarbonate esters as plasticizers for, P 5998b.
with 1,1-dichloroethylene (vinylidene chloride)—see also *Saran.*
with 1,1-dichloroethylene, P 7265f, P 9530c.
with 1,1-dichloroethylene, adhesive from, P 7265c.
with 1,1-dichloroethylene, blends with vinyl chloride-vinyl acetate polymers, P 2471c.
with 1,1-dichloroethylene increasing tensile strength of thermosetting, P 5637h.
with 1,1-dichloroethylene modification with PhOH-HCHO resins, P 3239c.
with 1,1-dichloroethylene plasticized film from, P 8209a.
with 1,1-dichloroethylene plasticized with esters of 3,6-endomethylene-1,2,3,6-tetrahydrophthalic acid, P 2817h.
with 1,1-dichloroethylene prepn. of filaments and films from, and stabilization against heat and light, P 8741e.
with 1,1-dichloroethylene stabilization to heat and sunlight, P 8741gh.
with diesters of citraconic or mesaconic acid, P 2035e.
with diethyl fumarate, emulsions of, P 5635e.
with diethyl maleate, P 8742g.
with diolefins or acetylenes, reaction products with inorg. acids or anhydrides, P 2804c.
dispersion of, P 3233c.
dispersions of polystyrene with plasticized, P 2037f.
drying of, P 3660i.
dyeing Rhofil, 6420a.
dyes for, P 8166d.
effect of lubricants and stabilizers on coloring of plasticized, 5996c.
elasticity of, temp. and, 2027g.
as elec. insulators, 1604i.
emulsifier removal from, P 5230i.
esters of chlorophthalic acid for plasticizers of, P 3464a.
evaluation of plasticizers for, 2465d.
fibers from, 6421h.
filler from, P 5632f.
with α-fluoroacetoxyacrylonitrile derivs. and styrene, P 5636d.
with fluorohaloethylenes, P 9485b.
with fluoromethacrylate esters, P 6465g.
foam products from, 4893b.
with *N*-2-formamidoethylacrylamide and vinylidene chloride, P 9531e.
heat-stabilized compns. from, P 2037i.
hollow objects from, P 1607e, P 5633g.
hydrocarbon oil as filler and plasticizer for, P 2817i.
identification of, 893g.
improving elasticity of extruded plasticized, P 4507d.
infrared drying of coatings from, on paper and textiles, P 4870a.
polymers of, inks for writing on sheets of, P 4872i.
intramol. statistics, elasticity, double refraction and partition function of chain mols. in stressed, 6855g.
intravenous tubing of, 899g.
with isopropenyl acetate, P 3661c.
laminates with polyvinyl alc., permeability to $H_2O$, 6862d.
latex of, wrinkle-finish coatings for flexible materials from drying oils and, P 2790d.
Pb salt stabilizers for, P 4512g.
limestone impregnation with, 3590a.
linoleum compns. from coumarone or rosin and, P 4874f.
with maleic acid and vinyl acetate, alcoholysis or hydrolysis products from, P 2470e.
manuf. of articles and sheets of, by spraying, P 4511i.
membrane permeability to KCl solns., selectivity const. and ratio of mobility of cation and anion in, 8702g.
with Me acrylate, latex from, P 3232e.
with methyl methacrylate, sheet materials from, P 4052b.
with 2-methylpropene, P 1224e, P 4897c.
molding compns. from cracking-coil tars and, P 9538e.
molding powder from, P 5229b.
mol. wt. of, 435i.
oil-resistant adhesives for, 7261d.
optical and thermodynamic analysis of mech. properties, mol. processes and polymer structure of, 2801b.
phys.-mech. properties of leather substitutes from, 5981g.
plastic from asphaltic material and, P 8208f.
plastic from mixed esters of multivalent alcs. and, P 4895b.
plasticization of, P 4514c.
plasticization with air-blown exts. of mineral-oil fractions, P 5998g.
plasticization with chlorinated biphenyl, $(C_7H_7)_3PO_4$ and dibutyl phthalate, 436b.
plasticized, 5628h, P 5229g.
plasticized with dialkyl chlorophthalates, P 2817d.
plasticizer effect on, structure and, 5628d.
plasticizers for, 5627i, P 6002d.
porous materials from, P 6464i.
prevention of discoloration of, P 2468b, P 4049h.
printing on, P 4895f.
properties of plasticized, 5629a.
pyrolysis of, 2010b.
reducing cracking and wrinkling of coatings of, on rubber, P 895i.
review on plasticized, 1603c.
sepn. into mol.-wt. fractions, P 3236i.
softeners for, for artificial leather manuf., 6451e.
soil microorganism attack on elec. insulators from, 9517g.
sound-insulating pad from fibrous glass and, P 5518e.
spectra of, 6081f.
stabilization of, P 664c.
stabilization with alkali metal stannates, P 4898b.
stabilization with tetra-2-thienyltin, P 9530h.
stabilized to ultraviolet discoloration, P 2468a.
stabilized with o-sulfobenzimide or its derivs., P 3238i.
stabilized with tri(2-alkenyl) phosphites, P 1606r.
stable against thermal decompn., P 9530e.
stain-resistant coatings for fabrics from, P 1222e.
structure of, 9523i.
systems with phthalic acid esters, dynamic mech. properties of, 9524b.
tape from, P 3234g.
with $C_2F_4$, P 5410g.
textile coatings from Hycar OR-15, Neoprene and, P 2786f.
tubing of, effect on penicillin, 4428d.
use in packing industry, 8203e.
with vinyl acetals, porous compns. from, P 9535a.
with vinyl acetate, P 9532b.
with vinyl acetate, alcoholysis of, P 6867g.
with vinyl acetate, coating compn. from, P 3242b.

*polymers of*, with vinyl acetate, combustion-retarding coating from, 8075*f*.
with vinyl acetate, covering cables or wire with strips or tape of, P 5631*i*.
with vinyl acetate, dielec. strength of, 2480*f*.
with vinyl acetate, elec. properties of, 435*h*.
with vinyl acetate, fibers from, 2778*b*.
with vinyl acetate, flow of, 6860*i*.
with vinyl acetate, measurement of bearing strength of, 4892*e*.
with vinyl acetate, paper contg., P 9448*f*.
with vinyl acetate, plasticized with polyalkylnaphthalenes, P 9528*e*.
with vinyl acetate, plasticizers for, P 3242*h*, P 7752*e*.
with vinyl acetate, plasticizers in, 5627*c*.
with vinyl acetate, removal of stresses from calendered sheets of, P 901*h*.
with vinyl acetate, rubbery product from butadiene-acrylonitrile elastomer, phenolic resin and, P 2807*c*.
with vinyl compds., P 8741*a*.
with vinyl compds., self-lubricating products from rubberlike, P 7678*c*.
vol. effects in mixing with plasticizers, 1214*g*.
vulcanization of, P 901*i*.
$H_2O$-repellent, P 4898*a*.
water-vapor permeability of, 8738*d*.
wrinkle-drying coatings from conjugated double-bonded oils and, P 5972*e*.
polymers of, and copolymers with vinyl acetate, plasticized with diester amides, P 7750*i*.
polymers of, bonds with rubber, and rubber derivs. for their bonding, 4888*d*.
prepn. of, 4628*h*, 6154*d*, 6969*g*.
reaction with at. Na, 3694*c*.
with benzene in the presence of $AlCl_3$, 591*h*.
with cycloalkyl halides, 3372*b*.
with HCl to give $CH_3CHCl_2$, P 5410*e*
with Se and $SeCl_4$, 2159*e*.
with Si in the presence of Cu, P 6220*e*.
with $SO_2Cl_2$, 1249*a*.
with $C_2F_4$, 3370*e*.
sepn. from $C_2H_2$, P 3835*c*.
thermodynamic functions of, 4553*c*.
——, **2-chloro-1,1-bis(*p*-chlorophenyl)-**, as acaricide and insecticide, 3137*g*.
——, **1-chloro-2,2-bis(*p*-isopropoxyphenyl)-1-phenyl-**, 7469*h*.
——, **2-chloro-1,1-bis(*p*-nitrophenyl)-**, 4658*d*.
——, **1-chloro-2-chloromercuri-**. See "(2-chlorovinyl)— chloride" under *Mercury compounds*.
——, **1-chloro-2,2-di-*p*-phenetyl-1-phenyl-**, 7469*g*.
——, **1-chloro-1-fluoro-**, copolymer of, and $C_2F_4$, P 5410*g*.
polymers with acrylonitrile, P 3239*b*.
polymers with dialkyl esters of maleic acid and vinyl esters, P 2818*c*.
——, **2-(*p*-chlorophenyl)-1,1-bis(*p*-iodophenyl)-**, 7469*b*.
——, **2-(*p*-chlorophenyl)-1,1-bis(*p*-methoxyphenyl)-**, 7469*b*.
——, **1-chloro-1-phenyl-2,2-bis(*p*-propoxyphenyl)-**, 7469*h*.
——, **1-(*o*-chlorophenyl)-1-(*p*-chlorophenyl)-**, 2359*h*.
toxicity to insects, 199*f*.
——, **2-(*p*-chlorophenyl)-1,1-di-*p*-phenetyl-**, 7469*c*.
——, **1-(*p*-chlorophenyl)-1,2-diphenyl-**, and nitro deriv., 199*i*.
——, **2-(*p*-chlorophenyl)-1,1-diphenyl-**, 7469*b*.
——, **chlorotrifluoro-**, compds. (addn.) with esters of azodiformic acid, P 3445*h*.
magnetic susceptibility of, 6016*i*.
and polymers, P 4284*g*.
polymers of, adhesion to cellulose, 8133*e*.
in infrared and Raman spectroscopy, 8882*f*.
Verdet const. of, 2924*h*.
**and polymers**, ultrasonic velocity in, 1232*f*.
**reaction with** 1,3-butadiene, P 4294*a*.
with $CHCl_3$ and with $CCl_4$, P 661*e*.
with HBr, 7407*b*.
with S chlorides, P 6646*a*.
——, **chlorotriphenyl-**, activation of, effect of partial hepatectomy on, 8086*h*.
**effect on blood compn.** in chickens and turkeys, 7561*b*.
fungistatic activity of, 9334*e*.
——, **1-*p*-cumyl-1-phenyl-**, 206*a*.
——, **cyclobutyl-**. See *Cyclobutane, vinyl-*.
——, **cyclohexenyl-**. See *Cyclohexene, vinyl-*.
——, **cyclohexyl-**. See *Cyclohexane, vinyl-*.
——, **2-(4-cyclohexylcyclohexyl)-1,1-diphenyl-**, 1376*d*.
——, **1,2-dibenzoyl-**. See *2-Butene-1,4-dione, 1,4-diphenyl-*.
——, **dibiphenylene-**. See *$\Delta^{9,9'}$-Bifluorene*.
——, **1,1-dibromo-**, polymers with dialkyl esters of maleic acid and vinyl esters, P 2818*b*.
——, **dichloro-**, condensation products with metallic disulfides, P 6863*f*.
emulsions with nitrile polymers, P 7263*a*.
——, **1,1-dichloro-**, coating compns. from casein, alginate and, P 1611*d*.
and derivs., 5227*b*.
formation from 1,1,2-trichloroethane, kinetics of, 7407*e*.
magnetic susceptibility of, 6016*h*.
polymerization of, P 6866*d*.
in emulsions, P 9530*c*.
in emulsions, Ag-$NH_3$ ion as promoter for, P 7264*i*.
with malonic acid derivs., P 4897*e*.
in presence of seeds, 8735*b*.
stabilization during, P 5642*d*.
with styrene, 6991*c*.
with vinyl β-alkoxybutyrates, P 7753*g*.
polymers of, with acrylonitrile, cellulose film coated with, P 3664*b*.
with acrylonitrile, coating compns. from, P 3242*c*.
with acrylonitrile, films from butadiene-acrylonitrile polymers and, P 2470*c*
with acrylonitrile, prevention of gelation in 2-butanone, P 7755*b*.
adhesion to cellulose, 8133*d*.
with alkenyl silanes, P 1223*c*.
with butadiene and chloroethylene, tear-resistant and of low-curing time, P 7259*d*.
with butadiene and Et acrylate, oil-resistant, P 7260*c*.
with butadiene and isobutene, of low internal friction, P 7259*b*.
with butadiene and α-methylstyrene, of good chem. resistance and elec. properties, P 7260*a*.
with butadiene and olefins, 2017*d*.
with butadiene and styrene, and films therefrom, P 8732*e*.
with butadiene and vinyl acetate, abrasion- and moisture-resistant, P 7259*c*.
cable cover from, P 5135*h*.
Cl detn. in, 1684*f*.
with chloroethylene(vinyl chloride)— see also *Saran*.
with chloroethylene, P 7265*f*, P 9530*c*
with chloroethylene, adhesive from, P 7265*c*.
with chloroethylene blends with chloroethylene-vinyl acetate polymers, P 2471*c*.
with chloroethylene, heat-stabilized compns. from, P 2038*b*.
with chloroethylene, increasing tensile strength of thermosetting, P 5637*h*.
with chloroethylene, modification with PhOH-HCHO resins, P 3239*d*.
with chloroethylene, plasticized compns. from, P 4895*a*.
with chloroethylene, plasticized film from, P 8209*a*.
with chloroethylene, prepn. of films and films from, and stabilization against heat and light, P 8741*e*.
with chloroethylene, stabilization of, P 8741*gh*, P 9530*i*.
cold-stretched films and tubes oriented in 2 directions from, P 2026*f*.
compounding and curing of butadiene-acrylonitrile and -methacrylonitrile rubbers with, 3646*b*.
contg. light stabilizer, P 7265*h*.
definitions and uses of, 875*f*.
with dialkyl esters of maleic acid and vinyl esters, P 2818*b*.
dicarbonate esters as plasticizers for, P 5998*b*.
with Et acrylate, Et maleate or vinyl chloride, plasticized with esters of 3,6-endomethylene-1,2,3,6-tetrahydrophthalic acid, P 2817*h*.
*polymers of*, fibers from, 2778*c*, P 8743*g*
with *N*-2-formamidoethylacrylamide and vinyl chloride, P 9531*e*.
measurement of bearing strength of, 4892*e*.
with methacrylate, P 8741*a*.
with Me acrylate, latex from, P 3232*e*
with 2-methylpropene, P 1224*e*, P 4897*c*.
review on, 4047*e*.
solns. in amides, P 4515*g*.
solns. in sulfoxy-group solvent, P 4515*i*.
stabilization to heat, P 3233*e*.
stabilization to light, P 2037*h*.
stabilization to ultraviolet light by $C_2H_2Br_4$, P 4520*d*.
structure of, 9523*h*.
with styrene, mixt. with butadiene-styrene polymers, P 2035*i*.
with $C_2F_4$, P 5410*g*.
translucent sheet from glass fibers and, P 908*d*.
tubing from, P 8209*i*.
with unsatd. ketones, P 9531*i*.
with vinylfuran, P 9532*f*.
with vinyl halide or ester, delustering filaments from, P 8693*f*.
reaction with alkyl and cycloalkyl chlorides, 3372*d*.
with benzene in presence of $AlCl_3$, 2193*c*.
with $C_2F_4$, 3370*f*, P 4294*d*.
——, **1,2-dichloro-**, *cis*- and *trans*-, formation from 1,1,2-trichloroethane, kinetics of, 7407*e*.
*cis*- and *trans*-, spectrochem. detn. of, 7367*a*.
and derivs., 9024*g*
heat capacity of, 30*f*.
iodine soly. in *cis*- and *trans*-, 2844*c*.
isomerization of, photochem., sensitized by I, 5672*a*.
magnetic susceptibility of *cis*- and *trans*-, 6016*h*.
polymers of *cis*- and *trans*-, with vinyl acetate, kinetics of KI reaction with, 4215*a*.
reaction with Se and $SeCl_4$, 2159*e*
spectra of *cis*- and *trans*-, 8889*c*
*trans*-, P 6218*i*.
——, **1,1-dichloro-2,2-bis(4'-chloro-4-biphenylyl)-**, (omitted from abstr.), 7927*e*.
——, **1,1-dichloro-2,2-bis(*p*-chlorophenyl)-**, 2359*h*, P 5424*a*, 5894*l*, P 5899*a*.
as acaricide and insecticide, 3137*g*
in DDT spray deposits, 5148*d*.
insecticidal action of, 9343*b*
irradiation of, 4246*a*.
toxicity of, 3466*a*
——, **1,1-dichloro-2,2-bis(*m*-nitrophenyl)-**, 6605*c*.
——, **1,1-dichloro-2,2-bis(*p*-nitrophenyl)-**, 4658*d*
——, **1,1-dichloro-2-(*p*-chlorophenyl)-2-(*p*-iodophenyl)-**, 1753*b*.
——, **1,1-dichloro-2,2-difluoro-**, heat of chlorination of, 6071*c*.
magnetic susceptibility of, 6016*h*
manuf. and polymerization of, 2465*c*.
reaction with HBr, 7407*b*.
——, **1,1-dichloro-2,2-diphenyl-**, nitration of, 4658*d*.
——, **1,1-dichloro-2,2-di-*p*-tolyl-**, P 5899*b*.
——, **1,1-dichloro-2-(*m*-nitrophenyl)-2-(*p*-nitrophenyl)-**, 4658*c*.
——, **1,2-dichloro-1-selenocyano-**, 2159*g*.
——, **1,1-difluoro-**, manuf. and polymerization of, 2465*c*.
polymerization of, P 9066*a*.
with dialkyl esters of maleic acid and vinyl esters, P 2818*b*
with $C_2H_4$ and halogenated ethylenes, P 5038*b*.
with $C_2F_4$, P 5410*g*.
——, **1,2-diiodo-**, *trans*-, 6568*a*.
——, **1-[*p*-(2,5-dimethyl-1-pyrryl)-phenyl]-1,2-diphenyl-†**, 7007*f*
estrogenic action of, 4740*f*.
——, **1,2-di-1(and 2)-naphthyl-**, *cis*- and *trans*-, 1756*g*.
——, **1,1-diphenyl-**, and derivs 7448*h*.
and dimers, 2193*c*.
*ar*-halogenated derivs., prepn. and polymerization of, P 6866*a*.
polymerization of, electronic structure and, 1633*g*.
——, **1,2-diphenyl-**. See *Stilbene*.
——, **1,1-di-*p*-tolyl-**, P 2235*e*.
——, **1-(*p*-[illegible]enyl)-1-phenyl-**, 206*a*.

——, **ethynyl-**. See *1-Buten-3-yne*.
——, **fluoro-**, P 660*i*, P 3437*d*, P 3885*a*, P 6645*ad*, P 7035*f*.
copolymer of, and $C_2F_4$, P 5410*g*.
manuf. and polymerization of, P 3659*i*.
polymerization of, P 906*b*.
catalysis by azodisulfonic acid salts, P 5642*c*.
with malonic acid derivs., P 4897*e*.
polymers of, 4047*e*, P 9530*d*.
adhesion to cellulose, 8133*e*.
with dialkyl esters of maleic acid and vinylidene halides, P 2818*c*.
with fluoromethacrylate esters, P 6465*g*.
stabilized with glyceryl monolaurate, P 8740*f*.
structure of, 9523*h*.
with trifluoroethylene, P 1608*e*.
with vinyl chloride, heat-stabilized compns. from, P 2038*b*.
with vinylidene fluoride, P 5638*c*.
——, **1-(*p*-fluorophenyl)-1-phenyl-**, 206*a*.
——, **1-(*p*-fluorophenyl)-1-*p*-tolyl-**, 206*b*.
——, **furyl-**. See *Furan, vinyl-*.
——, **iodo-**, thermodynamic functions of, 4553*c*.
——, **naphthyl-**. See *Naphthalene, vinyl-*.
——, **1-(1-naphthyl)-2-(2-naphthyl)-**, *cis-* and *trans-*, 1756*f*.
——, **1-(naphthyl)-1-phenyl-**. See *Naphthalene, α-methylenebenzyl-*.
——, **1-(naphthyl)-2-phenyl-**. See *Naphthalene, styryl-*.
——, **nitro-**, manuf. of, and polymers, P 7504*c*.
polymer, P 4032*a*.
and polymers, P 9079*a*.
reaction with $NaHSO_3$, P 5411*g*.
——, **2-(*p*-nitrophenyl)-1,1-diphenyl-**, 200*a*.
——, **1-nitro-2-(2-thienyl)-†**, and derivs., 9063*h*.
——, **phenanthryl-**. See *Phenanthrene, vinyl-*.
——, **phenyl-**. See *Styrene*.
——, **2-phenyl-1,1-bis(*p*-propoxyphenyl)-**, 7469*f*.
——, **1-phenyl-1-*p*-tolyl-**, polymerization with fumaronitrile, P 4516*g*.
——, **tetrabenzoyl-**. See *2-Butene-1,4-dione, 2,3-dibenzoyl-1,4-diphenyl-*.
——, **tetrachloro-**, anthelmintic effect of, 2699*f*, 3566*c*.
in chlorinolysis and pyrolysis reactions, 4231*h*.
formation from pentachloroethane, kinetics of, 7407*e*.
formation in chlorination of butane, 5362*a*.
fungistatic activity of, 9334*e*.
heat capacity of, 30*f*.
lyoparachor of, 2834*d*.
magnetic susceptibility of, 6016*h*
potential functions of, 2478*h*.
prepn. of, 5361*f*.
purification of, P 3437*g*.
reaction with Cl and O in presence of $Bz_2O_2$, P 7954*d*.
with $CHCl_2F$, P 661*e*.
with satd. hydrocarbons, 9025*c*.
spectrochem. detn. of, 7367*a*.
spectrum of, 7342*g*.
toxicology of, 5883*e*.
——, **tetrafluoro-**, (incorrectly given in abstr. as $C_2H_2F_6$), 3775*b*.
compds. (addn.) with esters of azodiformic acid, P 3445*h*.
copolymers of, P 5410*f*.
heat of chlorination of, 6070*h*.
magnetic susceptibility of, 6016*i*.
mesotron-bombarded, electrons from, 6504*g*.
polymerization of, P 901*d*, P 906*a*.
polymers of, aq. dispersions of, P 9528*e*.
coating with, and extrusion of, P 2037*d*.
elasticity of, temp. and, 2027*g*.
elec. insulators from, P 2714*i*.
elec. properties of, 435*e*.
with $C_2H_4$, dispersions of, P 444*b*.
insulation with, P 2040*e*.
molding of powder from, P 2820*e*.
pellets or tablets bonded with, P 9300*e*.
reviews on, 4047*e*, 8203*d*.
structure of, 9523*h*.
with $C_2F_3H$, P 5637*g*.
with vinylidene fluoride, P 5638*d*.
reaction (photochem.) of, itised by Hg, 3295*g*.
reaction with $NH_3$, P 1444*f*.
with HBr, 7407*c*.
with olefins, 3370*c*.
with polyhalogenated methanes, P 3834*f*.
with styrene, P 4294*f*.
with S chlorides, P 6646*a*.
with unsatd. compds., P 4293*g*, P 4294*g*.
stabilization of, P 6218*h*.
——, **tetraiodo-**, fungistatic activity of, 9334*e*.
reactions with $BrF_3$ and $IF_5$, 3774*i*.
——, **tetrakis(*p*-chlorophenyl)-**, in DDT spray residue, 5148*d*.
——, **tetrakis(*p*-fluorophenyl)-**, 9332*f*.
——, **tetrakis(*p*-methylmercaptophenyl)-**, 7467*i*.
——, **tetramethyl-**. See *2-Butene, 2,3-dimethyl-*.
——, **tetraphenyl-**, 193*a*.
bromination of, 5731*e*.
derivs., 7005*i*, 7467*f*.
reduction potential of, 3270*b*.
——, **trichloro-**, in 2-butanone drying, 8753*e*.
copolymers of, P 901*c*.
decompn. of, in the degreasing of Al, 6515*f*.
and derivs., 9024*i*.
detection and detn. in air and organs, 974*a*.
detection in air, 974*e*.
detn. of, 2122*h*, 7367*a*, 9371*b*.
diazonium salt stabilization with, P 5420*d*.
dielec. strength of, 454*h*.
formation from tetrachloroethanes, 7407*e*.
fungistatic activity of, 9334*e*.
health hazards of, 787*h*.
heat capacity of, 30*f*.
lyoparachor of, 2834*d*.
magnetic susceptibility of, 6016*h*.
poisoning by CO and, 3934*f*
reaction with hexachlorocyclopentadiene, 4231*b*.
reaction with $C_2F_4$, 3370*f*.
as solvent for extn. of soybean oil, etc., 1581*f*.
soybean extn. with, toxicity of meals from, and detn. in oils, 9491*b*.
soybean-oil extn. by mixt. with alc., 1999*c*.
——, **trichlorofluoro-**, magnetic susceptibility of, 6016*h*.
——, **trichloronitro-**, 1716*b*.
——, **trichloro(3-nitro-*p*-phenetyl)-†**, 6991*e*.
——, **trifluoro-**, compds. (addn.) with esters of azodiformic acid, P 3445*h*.
heat of chlorination of, 6071*c*.
polymers of, P 1608*d*.
polymers of, and copolymers with $C_2F_4$, P 5637*g*.
——, **trifluoroiodo-**, reaction with S chlorides, P 6646*a*.
——, **trimethyl-**. See *2-Butene, 2-methyl-*.
——, **triphenyl-**, bromination of, 5731*e*.
bromination of, with AcNHBr, 5754*d*.
derivs., 7468*s*.
and derivs., substitution reactions of, 199*f*.
as fungistat, 9334*b*.
——, **tris(*p*-chlorophenyl)-**, 7469*b*.
**Ethylene-*d***, spectra (infrared and Raman) of, 7342*e*.
**Ethylene-1,2-$d_2$, 1,2-dichloro-**, spectra of *cis-* and *trans-*, 8889*d*.
**Ethylenearsonic acid, 2-chloro-**, *cis-*, 561*d*.
toxicity to rats, 348*f*.
**Ethylene bond**. See *Double bonds*.
**Ethyleneboronic acid, 2-chloro-**, dimethyl ester, ester with polyvinyl alc., P 2631*d*.
**Ethylene bromide**. See *Ethane, 1,2-dibromo-*.
**Ethylene chlorohydrin**. See *Ethanol, 2-chloro-*.
**Ethylene compounds**. (See also *Olefins; Vinyl compounds;* and "derivs." under *Ethylene*.)
detection of, 963*b*.
as dienophiles in Diels-Alder reaction, 2155*f*.
as fungicides, 9333*i*.
phys. properties of, 2591*e*.
polymerization of, P 905*h*, 2569*c*, P 4896*a*.
catalysts for, 3231*a*.
in light, P 444*a*.
in light, disulfides as catalysts for, P 2818*h*.
*polymerization of*, with polyhydric alc. esters of α-olefinic dicarboxylic acids, P 906*e*.
polymers of, P 3232*c*.
with alkenyl silanes, P 1223*c*.
with terpenes, stabilization of, P 3235*i*.
with vinyl esters, partially hydrolyzed, P 1610*a*.
with vinylidene compds., etc., P 1609*f*.
reaction with $HO_2CCHBrCH(CCl_3)CO_2H$ esters in the presence of peroxides, P 6226*d*.
with carbonium ions, 1733*b*.
with phenols and CO to give esters, P 6234*i*.
**Ethylene cyanohydrin**. See *Hydracrylonitrile*.
**Ethylenediamine**, in analysis of metals, 2541*c*.
azeotropes with styrene and like-boiling hydrocarbons, P 5040*e*.
carboxymethylation of, 9031*i*.
as catalyst in gelation of phenolic varnishes, P 2033*c*.
as catalyst in hydrolysis of lactams, P 2225*b*.
coal extn. by anhyd., 3593*h*.
complexes of, with CO, in exchange and Szilard effects, 7364*c*.
with Co, thermochemistry of, 7805*h*.
with Co, thermochemistry of Werner-Miolatti series of, 7806*g*.
with Cu, 6536*e*, 8222*e*.
with Cu and sulfanilamide derivs., 6996*g*.
with Cu, light absorption and stability of, 7857*d*.
with Cu, polarography of, 6933*a*.
with Fe and nioxime, 6932*b*.
order of stability of, 4969*c*.
with Pt, 1675*d*, 2538*c*, 4172*g*, 8942*b*.
with Pt, acidic properties of, 1673*g*.
with Pt, magnetic susceptibility of, 7278*a*.
with $Me_2PtI$, 6536*d*.
condensation products of, with dimerized fatty acids, coating compn. from, P 2037*c*.
with epichlorohydrin, anion-exchange resins from, P 6339*g*.
with $C_2H_4O$ or propylene oxide, 5995*h*.
with HCHO and naphthol or phenol carboxylic acid for lubricant improvement, P 2766*cf*.
derivs., P 682*h*, P 3028*e*, P 3039*a*, 6176*c*, 6587*a*.
derivs. (tetrasubstituted), P 5420*b*.
*N,N'*-di and *N,N,N',N'*-tetraphenacyl derivs. and their reduction products, 3800*d*.
dihydrobromide, in fireproofing fibrous material, P 4024*c*.
dihydrochloride, contg. $C^{14}$, 1324*g*.
dinitrate, crit. hot-spot temp. of, 4856*b*.
dinitrate, thermal decompn. of, 405*c*.
dyes from, P 5199*c*.
effect on blood vessels of frog prepns., 5493*b*.
effect on polymerization of allyl and methacrylate compds., 8199*g*.
heterocyclic derivs., 7023*d*.
hexachlorocobaltate, spectrum of, 5305*a*.
indium compds. of, 6932*g*.
oxidation of, 6570*b*.
as peptizing agent in phenothiazine prepn., P 3572*c*.
in photographic sensitization, P 53*e*.
polyamide resins from polymerized unsatd. fat acids and, P 440*d*.
properties of, 3256*h*.
reaction product with chlorinated paraffin wax as anion-exchange resin, P 6338*i*.
with paraformaldehyde and *N*-(hydroxymethyl)stearamide, P 1434*g*.
with phosphonitrile chloride trimer, 5364*i*.
with polymer of vinylphenyl isocyanate and ethyl acrylate, P 5423*a*.
reaction with $(NH_4)_2CO_3$, P 691*i*.
with α-(benzhydryloxy)thioacetamide, 4669*h*.
with $CO_2$ and then tall-oil fatty acids, amidoamine soaps by, P 5614*d*.
with cyanides and HCHO, P 3449*e*.
with 4,6-dichloroquinazoline, 5784*h*.
with $1\text{-}C_{18}H_{37}CH_2CO_2H$, P 692*c*.
with org. acids, 8832*e*.
with phenanthrenequinone imine, 7013*h*.
with Pt-pyridine complexes, 2887*c*.
reaction with $CO_2$ and formation of its carbonate, 6157*i*.

salts (insol.) with heteropoly acids and metallic cations, 1671*f*.
salt with 1-benzyl-3-sulfanilylurea, P 1061*c*.
systems: $Ph_2NH$–, $Ph_2CHOH$–, pinacol–, salicylaldehyde–, and $Ph_2COH$–, 2082*c*.
tartrate, elastic and piezoelec. coeffs. of, 7285*g*.
growing crystals of, 458*h*.
piezoelec. resonator of, 8227*c*.
Raman spectrum of, 4956*g*.
tellurate, 518*e*.
-theophylline—see *Theophylline*.
thiocyanate (mono-), 578*g*.
in vulcanization of halogenated vinyl resins, P 902*a*.

**Ethylenediamine**, *N*-**acetyl-**. See *Acetamide*, *N*-(*2-aminoethyl*)-.
——, *N* - **allyl** - *N*′, *N*′ - **dimethyl** - *N*-**phenyl-**, and hydrochloride, P 682*i*.
——, *N*-(**2-aminoethyl**)-. See *Diethylenetriamine*.
——, *N*′-**benshydryl-** *N*, *N*-**dimethyl-**, dihydrochloride, spasmolytic activity of, 8546*b*.
——, *N* - **benshydryl** - *N*, *N*′, *N*′ - **trimethyl-**, dihydrochloride, spasmolytic activity of, 8546*b*.
——, *N*-**benzyl-** *N*-**cyclohexyl-** *N*′, *N*′-**dimethyl-**, P 3039*b*.
——, *N* - **benzyl** - *N*′, *N*′ - **diethyl** - *N*-**phenyl-**, P 683*c*.
——, *N*′-**benzyl-** *N*, *N*-**dimethyl-**, P 3472*c*.
and dihydrochloride, 7023*d*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-(**5-methyl-***o*-**phenetyl**)-, P 683*c*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-*o*-**phenetyl-**, P 683*c*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-**phenyl-**, P 1437*h*.
antibacterial activity of, 9147*c*, 9152*h*.
antidiffusion activity of, 3927*i*.
antihistamine action of R. P. 3277 and, 2323*h*.
antispasmodic effect of, 3934*e*.
compds. related to, 6588*f*.
detn. in blood, 6684*e*.
detn. of, 1911*g*.
effect on histamine action on chronaxia and on anaphylaxis, 7130*b*.
on respiration, 9258*b*.
on uterus, 6732*a*.
in histamine shock prevention, 6722*d*.
hydrochloride, P 683*b*.
and hydrochloride, P 682*e*, P 822*d*, P 2229*f*, P 3039*b*.
identification of, 1151*h*.
urinary excretion of, 4774*f*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**. See *Pyridine*, *2-[benzyl(2-dimethylaminoethyl)amino]-*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-**2-pyrimidyl-**. See *Pyrimidine*, *2-[benzyl(2-dimethylaminoethyl)amino]-*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-**2-thiazolyl-**†, P 1914*c*.
——, *N*-**benzyl-** *N*′, *N*′-**dimethyl-** *N*-*o*-**tolyl-**, P 683*c*.
——, *N* - **benzyl** - *N* - **ethyl** - *N*′, *N*′-**dimethyl-**, P 3039*b*.
——, *N*′-**benzyl-** *N*-**ethyl-1-phenyl-**, dihydrochloride, 6176*h*.
——, *N*-**benzyl-** *N*-[*o*(and *p*)-**methoxyphenyl**]-*N*′, *N*′-**dimethyl-**, P 683*c*.
——, *N*-**benzyl-** *N*′-**methyl-** *N*-**phenyl-**, and hydrochloride, P 683*b*.
——, *N*-[**2-(benzyloxy)ethyl**]-*N*′, *N*′-**dimethyl-** *N*-**phenyl-**, P 682*c*.
——, *N*-**benzyl-** *N*-**phenyl-**, and hydrochloride, P 683*b*.
——, *N*-**benzyl-1-phenyl-**, dihydrochloride, 6176*h*.
——, *N*, *N*′′ - (**4,4′ - biphenylene**)**bis**-[*N*′, *N*′-**diethyl-**†, and salts, 3381*g*.
——, *N*, *N*′-**bis**(**2-aminoethyl**)-. See *Triethylenetetramine*.
——, *N*, *N*′-**bis**(**3-aminopropyl**)-, and derivs., P 5414*f*.
——, *N*, *N*′-**bis**(**2-chloroethyl**)- *N*, *N*′-**diethyl-**, dihydrochloride, pharmacology of, 1861*e*.
——, *N*, *N*′-**bis**(**2-hydroxyethyl**)-. See *Ethanol*, *2,2′-(ethylenedisimino)di-*.
——, **1,3-bis**(*p*-**hydroxyphenyl**)- *N*, *N*′-**dimethyl-**. See *Phenol*, *p,p′-[1,2-bis(methylamino)ethylene]di-*.
——, **1,3-bis**(*p*-**methoxyphenyl**)- *N*, *N*′-**dimethyl-**, and derivs., 614*a*.
——, **1,3-bis**(*p*-**methoxyphenyl**)- *N*, *N*′-**dimethyl-** *N*, *N*′-**dinitroso-**, 614*e*.
——, **1,3 - bis**(*p* - **methoxyphenyl**) - *N*-**methyl-**, 614*f*.
——, *N*, *N*′-**bis**(*α*-**methylbenzylidene**)-, spectrum of, 5756*a*.
——, *N*, *N*′-**bis**[**4**(**or 5**)-**methyl-2-imidazolin-2-yl**]-†, and dipicrate, 4273*e*.
——, *N*, *N*′-**bis**(**2,4,6-trimethylbenzylidene**)-, spectrum of, 3388*g*.
——, *N*-(**2-bromo-3-thenyl**)- *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**†, 2987*c*.
pharmacology of, 3103*b*.
——, *N*-(**5-bromo-2-thenyl**)- *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**. See *Pyridine*, *2 - [(5 - bromo - 2 - thenyl)(2 - dimethylaminoethyl)amino]-*.
——, *N* - **butyl** - *N*′, *N*′ - **dimethyl** - *N*-**phenyl-**, and hydrochloride, P 822*d*.
——, *N*′ - (**5 - chloro - 2 - nitrophenyl**)- *N*, *N*-**diethyl-**, and salts, 3008*i*.
——, *N*-(**2-chloro-3-thenyl**)- *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**†, 2987*c*.
pharmacology of, 3103*b*.
——, *N*-(**5-chloro-2-thenyl**)- *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**. See *Pyridine*, *2-[(5-chloro-2-thenyl)(2-dimethylaminoethyl)amino]-*.
——, *N*-**cuminyl-1-phenyl-**, dihydrochloride, 6176*h*.
——, *N*′ - *p* - **cumyl** - *N*, *N* - **dimethyl-**, 6587*g*.
——, *N*-*p*-**cumyl-** *N*-**furfuryl-** *N*′, *N*′-**dimethyl-**, 6587*h*
——, *N*′-*o*-**cyclohexylbenzyl-** *N*, *N*-**diethyl-**, 1359*g*.
——, *N*′ - (**2 - cyclohexylcyclohexylmethyl**)- *N*, *N*-**diethyl-**, and picrolonate, 1359*d*.
——, *N*, *N*′′-**decamethylenebis**[*N*′, *N*′-**diethyl-**†, and tetrahydrobromide, 3380*d*.
——, *N*, *N*′-**diacetyl-**. See *Acetamide*, *N*, *N*′-*ethylenebis-*.
——, *N*, *N*-**diamyl-**, P 4703*i*.
——, *N*, *N*′-**dibenzoyl-**. See *Benzamide*, *N*, *N*′-*ethylenebis-*.
——, *N*, *N*′-**dibenzylidene-**, resonance energy of, 931*b*.
spectrum of, 3388*g*.
——, *N*, *N*-**dibutyl-**, P 4703*i*.
——, *N*′-(**2,2-dibutylhexyl**)- *N*, *N*-**diethyl-**, 4265*g*.
——, *N*-(**2,2-dibutylhexyl**)- *N*′, *N*′-**diethyl-** *N*-**2-pyridyl-**†, and dihydrochloride, 4265*f*.
——, *N*-(**2,2-dibutylhexyl**)- *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**†, and dihydrochloride, 4265*f*.
——, *N*, *N*′-**dicarbamyl-**. See *Urea*, *1,1′-ethylenedi-*.
——, *N*-(**2,5-dichloro-3-thenyl**)- *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**†, 2987*c*.
——, *N*, *N*-**dicyclohexyl-**, P 4703*h*.
——, *N*, *N*-**diethyl-** *N*′-(**3-methoxy-***p*-**tolyl**)-, 225*f*.
——, *N*, *N*-**diethyl-** *N*′-(**4-methyl-1-thiaxanthyl**)-†, and hydrochloride, 226*i*.
——, *N*, *N* - **diethyl** - *N*′ - (*m* - **nitrophenyl**)-, and picrate, 3008*g*.
——, *N*, *N*-**diethyl-** *N*′-**phenyl-**, P 6926*e*.
——, *N*, *N* - **diethyl** - *N*′ - *o* - **phenylbenzyl-**, and salts, 1355*h*.
——, *N*, *N*-**diethyl-** *N*′-**phenyl-** *N*′-**2-thenyl-**, and hydrochloride, P 3039*b*.
——, *N*, *N*-**diisoamyl-**, P 4703*h*.
——, *N*, *N*-**diisobutyl-**, P 4703*i*.
——, *N*, *N*-**dimethyl-** *N*′-(**1-methyl-3-piperidyl**)-†, and tripicrate, 6207*d*.
——, *N*, *N*-**dimethyl-** *N*′-[**2-(4-methyl-5 - thiazolyl**)**ethyl**] - *N*′ - **phenyl-**†, and dihydrochloride, P 822*f*.
——, *N*, *N* - **dimethyl** - *N*′ - (*o* - **nitrophenyl**)-, 7021*h*.
and hydrochloride, 5783*d*.
——, *N*, *N*-**dimethyl-** *N*′-**phenethyl-** *N*′-**phenyl-**, P 683*d*.
——, *N*, *N*-**dimethyl-** *N*′-**phenyl-**, *N*′-(2-alkoxyethyl) and *N*′-(2-aralkyloxyethyl) derivs., P 682*bd*.
*N*′-derivs., P 1437*g*.
——, *N*, *N* - **dimethyl** - *N*′ - *o* - **phenylbenzyl-**, 1355*h*.
——, *N*, *N*-**dimethyl-** *N*′-**phenyl-** *N*′-**tetrahydrofurfuryl-**, and dihydrochloride, P 822*e*.
——, *N*, *N*-**dimethyl-** *N*′-**phenyl-** *N*′-**2-thenyl-**, and hydrochloride, P 822*f*, P 3039*b*.
identification of, 9366*d*.
——, *N*, *N*-**dimethyl-** *N*′-**phenyl-** *N*′-**4-thiazolylmethyl-**†, P 822*f*.
——, *N*, *N*-**dimethyl-** *N*′-**pyridyl-** *N*′-**thenyl-**. See *Pyridine*, *[(2-dimethylaminoethyl)thenylamino]-*.
——, *N*, *N*-**dimethyl-** *N*′-**2-pyridyl-** *N*′-**3-thianaphthenylmethyl-**†, hydrochloride, 1396*b*.
——, *N*, *N*′-**dinitro-**, 4856*b*.
crystal structure of, 2839*c*.
decompn. by heat, 2775*c*.
explosive mixts. with trinitrotoluene, P 6827*c*.
——, *N*, *N*′-**diphenyl-**, as polymerization stopping agent, 8727*i*.
——, *N*, *N*′-**disalicylidene-**. See *o-Cresol*, *α,α′-(ethylenedinitrilo)di-*.
——, *N*, *N*′-**di-***o*-**tolyl-**, effect on heat deterioration of GR-S, 8188*g*.
——, *N* - (**2 - ethoxyethyl**) - *N*′, *N*′ - **dimethyl-** *N*-**phenyl-**, and hydrochloride, P 682*c*.
——, *N* - **ethyl** - *N*′, *N*′ - **dimethyl** - *N*-**phenyl-**, P 1437*h*.
and hydrochloride, P 822*d*.
——, *N* - **ethyl** - *N*′ - **2 - ethylbutyl** - **1-phenyl-**, dihydrochloride, 6176*h*.
——, *N*-**ethyl-1-**(*p*-**methoxyphenyl**)-, dihydrochloride, 6176*i*.
*N*-**ethyl-1-phenyl-**, and dihydrochloride, 6176*h*.
——, *N*-**furf** **1-** *N*′, *N*′-**dimethyl-** *N*-**phenyl-**, 7h.
and dihydrochl ide, P 822*e*.
——, *N*-**f** **yl-** *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**† and monohydrochloride, 4274*c*.
——, *N* - **furfuryl** - *N* - (*p* - **methoxyphenyl**)- *N*′, *N*′-**dimethyl-**, and disuccinate, 6587*i*.
——, *N*-**2-imidazolin-2-yl-**†, and dipicrate, 4273*d*.
——, *N*-**2-imidazolin-2-yl-** *N*′-**1-naphthyl-**†, and picrate, 4273*b*.
——, *N*-**isoamyl-** *N*′, *N*′-**dimethyl-** *N*-**phenyl-**, P 682*e*.
——, *N*-**isopropyl-1-phenyl-**, dipicrate, 6176*h*.
——, *N*-(*o*-**methoxybenzyl**)- *N*′, *N*′-**dimethyl-** *N*-**phenyl-**, P 683*d*.
——, *N*-(*p*-**methoxybenzyl**)- *N*′, *N*′-**dimethyl-** *N*-**phenyl-**, P 683*d*.
hydrochloride, P 5420*b*.
——, *N*-*p*-**methoxybenzyl-** *N*′, *N*′-**dimethyl-** *N*-**2-pyridyl-**. See *Pyridine*, *2 - [(2 - dimethylaminoethyl)(p - methoxybenzyl)amino]-*.
——, *N*-*p*-**methoxybenzyl-** *N*′, *N*′-**dimethyl-** *N*-**2-thiazolyl-**†, hydrochloride, pharmacology of, 8557*a*.
——, *N* - **2** - **methoxyethyl** - *N*′, *N*′ - **dimethyl-** *N*-**phenyl-**, and hydrochloride, P 682*d*.
——, *N*′-(*p*-**methoxyphenyl**)- *N*, *N*-**dimethyl-**, 6587*g*.
——, *N*, *N*′′-(**methylenedi-***p*-**phenylene**)**bis**[*N*′, *N*′-**diethyl-**, and tetrahydrochloride, 3381*i*.
——, *N*-[**4**(**or 5**)-**methyl-2-imidazolin-2-yl**]-†, and dipicrate, 4273*e*.
——, *N*-**methyl-1-phenyl-**, and dihydrochloride, 6176*h*.
——, *N*′-*o*-**phenylbenzyl-** *N*, *N*-**dipropyl-**, 1355*i*.
——, *N*, *N*, *N*′, *N*′-**tetrakis**(**2-chloroethyl**)-, 2927*d*.
in cancer therapy, 5505*d*.
——, *N*, *N*, *N*′, *N*′-**tetrakis**(**2-hydroxyethyl**)-†, dihydrochloride, 2927*d*.
——, *N*, *N*, *N*′, *N*′-**tetramethyl-**, reaction with halomethyl compds., textile-treating agents by, P 4488*i*.
——, *N*-**2-thenyl-**, derivs. of, 2980*h*.
——, *N*, *N*, *N*′-**triethyl-** *N*′-**phenyl-**, P 683*c*.
identification of, 9366*d*.

**Ethylenediaminetetraacetic acid**. See *Acetic acid*, (*ethylenedinitrilo*)*tetra-*.
**Ethylene dibromide**. See *Ethane*, *1,2 dibromo-*.
**Ethylene dichloride**. See *Ethane*, *1,2 dichloro-*.
*s*-**Ethylenedimercaptan**. See *1,2-Ethanedithiol*.
**Ethylenedinitramine**. See *Ethylenediamine*, *N*, *N*′-*dinitro-*.
**1,2-(Ethylenedioxy)benzene**. See *1,4 Benzodioxan*.
**Ethylene glycol** (*glycol*). (For derivs. see *1,2-Ethanediol*.)
acetates and formates, in gas liquor from wood-fed generators, 5926*a*.
aerosols of, effect of *Staphylococcus aureus* in air, 3953*h*.
alkyd resins from nitrophthalic acids or tetrachlorophthalic acid and, 8733*d*.
analysis of mixts. of glycerol and, by frontal adsorption, 5325*g*.
*Aspergillus oryzae* action on, 8007*d*.

**azeotropes with heptanol or 2-octanol, 2884*e*.**
**bactericidal action of, 1827*c*, 7079*e*, 9387*d*.**
**bis(fluoroacetate), 2933*f*.**
**bis(5,6,7,8 - tetrahydro - 4 - nitrothiol-1-naphthoate), 6192*i*.**
**in 2-butanone drying, 8753*d*.**
**carbonate (cyclic), hydroxyethylation with, P 673*g*.**
**cellulose degradation by, in encrustant removal from hemp fiber, 4858*g*.**
**in cellulose prepn. from vegetable material, 7227*a*.**
**chlorohydrin—see *Ethanol, 2-chloro-*.**
**compns. with furfural and PhOH-cresol-formaldehyde condensation product, P 8740*b*.**
**compds. (mol.) of, 7409*a*.**
**crit. mixing temps. in identifying and detg. benzene, and benzene derivs., homologs and halogen derivs. and binary org. mixts., 8309*a*.**
**cyanoacetate, methine dye from, P 8691*c*.**
**detection of, and laws regulating its use, 818*b*.**
**detn. in lotions, 9369*f*.**
**diacetate and monoacetate, as diolefin absorbents, P 7275*b*.**
**and diacetate, system: cresol–, 4063*f*.**
**dicarbamate, P 4690*g*.**
**differentiation from glycerol, 6113*b*.**
**diformate, P 7503*a*.**
**dimethacrylate, polymers with Me methacrylate, damping material from, P 3241*f*.**
**dinicotinate, 2623*a*.**
**dinitrate—see *Ethylene nitrate*.**
**disinfection of air with vapors of, 9387*b*.**
**di-*p*-toluenesulfonate, as plasticizer for polysulfone resins, P 7751*d*.**
**drying agent (liquid) from, P 1126*d*.**
**effect on ammonolysis of MeOAc, 6495*e*.**
**on autodisplacement of Pb, 8811*g*.**
**on coagulation of $As_2S_3$ by $BaCl_2$, 8794*a*.**
**on cornea, 7716*b*.**
**on formation of $H_2S.6H_2O$, 1672*g*.**
**on seeds, 4733*i*, 5828*h*.**
**esterification of maleic anhydride polymers with Me methacrylate with, 8202*c*.**
**esterification with adipic acid, kinetics of, 4547*e*.**
**esters, 4242*b*, P 9494*e*.**
**with diene monocarboxylic acids, for drying to hard films, P 3634*b*.**
**with fatty acids, phys. properties and solubilities of, 2002*g*.**
**manuf. and polymerization of, P 1600*f*.**
**with phenoxy dicarboxylic acids, fiber-forming superpolymeric, P 7236*i*.**
**as plasticizers in GR-S, 3648*e*.**
**in prevention of crystn. of DDT or its analogs, P 6358*e*.**
**esters (mixed), P 1795*i*.**
**esters (mono-) with ω-(*p*-hydroxyphenyl)-stearic acid, P 5044*h*.**
**esters (poly-) of, with adipic acid, 6578*c*.**
**with adipic acid, mol. wt. distribution of, 4228*b*.**
**with *p,p'*-(ethylenedithio)dibenzoic acid and *p,p'*-thiodibenzoic acid, fiber-forming, P 7236*i*.**
**with mercaptosuccinic acid, and coatings therefrom, P 3633*c*.**
**with sebacic acid, osmotic measurements on, 7782*h*.**
**with soybean oil dimerized acids, reaction products with rosin and triethanolamine, P 896*c*.**
**with terephthalic acid, 5380*f*.**
**ether of poly-, in detergent industry, 3636*c*.**
**ethers (mono-), as disinfectants, P 352*d*.**
**ethers (mono-), as insect repellents, P 5153*e*.**
**ethers with lac, manuf. and esterification with fatty or resin acids, P 4030*b*.**
**formation from $C_2H_4O$, rate of, 4549*b*.**
**formation from reaction of hydroxyl radical with ethylene, 6149*i*.**
**heat of wetting of activated charcoal by, 8835*f*.**
**hendecenoate, reaction products with $H_4P_2O_7$, P 4877*g*.**
**hydraulic fluids from, P 1504*h*, P 3950*d*.**
**magnesium corrosion by, inhibitors for, 4622*e*.**
**magnesium treatment with $H_2SO_4$-acidified, in bonding to rubber with rubber-deriv. adhesives, P 2607*g*.**
**maleate, polymerization with vinyl formate, 1 9*a*.**
**manuf. and use as antifreeze, 3118*d*.**
**manuf. of, P 673*g*, P 6652*f*, P 7955*b*.**
**from EtOH, P 1434*h*.**
**by $C_2H_4$ oxidation, 6976*b*.**
**melt with gelatin, porous spongy product from, P 5618*i*.**
**mixt. with 2-ethylhexanol as foam suppresser, P 7610*d*.**
**mixt. with isopropylene glycol, polyesters with dicarboxylic acids, $Fe_2O_3$-reinforced peroxide-cured rubbers from, P 432*e*.**
**monoacetate, P 674*a*.**
**monobutyl ethers of mono- or poly-, paint remover from, P 9302*b*.**
**mono (dichloroacetate), 1404*f*.**
**monoöleate ethyl phosphate, as foam inhibitor, 7161*c*.**
**monophosphate, acid hydrolysis of, 147*i*.**
**monosalicylate, 2603*f*.**
**monostearate, as ointment-base constituent, hydrophilic properties of, 8610*a*.**
**monothiocyanate and its carbamate, 2945*b*.**
**oxidation with ammoniacal Ag soln. and detection of, 2548*d*.**
**oxidation with $HIO_4$, detn. of acids from, 2006*e*.**
**pinene ether, effect on mosquitoes, 3965*i*.**
**poly—see "poly" and "polyethylene" under *Glycols***
**polyterephthalate, degradation of, 7292*h*.**
**prepn. of, 9031*d*.**
**properties of, and its solns., 7298*f*.**
**reactions with aliphatic or haloalkyl acid or aromatic amido acids, surface-active agents by, P 8712*d*.**
**with $(NH_4)_2CO_3$, P 691*i*.**
**with aromatic amines, 7026*i*.**
**with $SiCl_2F_2$, P 6220*a*.**
**resinous products from aryl polyoxy polycarboxylic acid and, P 5998*a*.**
**resinous reaction products with sulfates, for textile softening, etc., P 4870*b*.**
**sepn. from mixts. of polyhydric alcs., P 3839*g*.**
**soap-oil-dispersion peptization by, 4455*h*.**
**solubilities in, of $H_3BO_3$, KBr and succinic acid, 1241*h*.**
**solubilization in, 466*c*.**
**as solvent for extn. of aromatic hydrocarbons, P 8670*d*.**
**as solvent for org. finishes, 4028*d*.**
**superpolyesters with dimeric fat esters and adipic acid or sebacic acid, tensile strengths of elastomeric, 8099*c*.**
**surface potential of aq., 8797*h*.**
**system: montmorillonite–$H_2O$–, 463*f*.**
**terephthalate, sizing yarns of, P 3628*a*.**
**tetrachlorophthalate, resinous products from, P 3654*i*.**
**thermal cond. of, 6499*g*.**
**in tobacco smoke, 5905*e*.**
**toxicity of, 818*d*.**
**toxicology of, 5883*e*.**
**ultrasonic velocity in, 8239*f*.**
**vanillates, 7455*g*.**
**vapor pressure of aq., 2481*c*.**

**Ethylene glycol, dithio-.** See *1,2-Ethanedithiol*.

——, **monothio-.** See *Ethanol, 2-mercapto-*.

**Ethylene group** (—$CH_2CH_2$—). (See also *Double bonds; Olefins.*)
labilization of trans group in complexes by, 2854*g*.

**Ethylenelactic acid.** See *Hydracrylic acid*.

**Ethylene nitrate,** acetone vapor pressure over solns. of, 4928*c*.
combustion and detonation of, 1981*h*.
detonation of, parameters of, 6416*i*.

**Ethylene oxide** (*oxirane*). (For derivatives see *Oxirane;* and inverted "epoxy" entries under names of hydrocarbons and other compounds.)
cellulose ethers, urea as diluent of textile sizes from, 8687*c*.
compd. with styrene-maleic anhydride polymer, 8202*i*.
condensation of mixts. contg. propylene oxide and, P 4289*e*.
condensation products of, with alcs., amides or fatty acid esters for textile industry, 4016*c*, 5953*e*.
as detergents in worsted wool washing, 2451*h*.
with dimerized linoleic-linolenic acid mixt., stabilizing agent from, P 7267*b*.
with esters of fatty acids, in drying of rayon, P 2785*k*.
with fatty acid esters of inner ethers of hexitols, for conditioning rayon, P 3207*e*.
with sorbitan monolaurate, coating spinneret with, P 5593*c*.
condensation with *p*-(*N*-*n*-sorbitylamino)-oleanilide or -stearanilide, leveling agents by, P 4499*d*.
derivs., in fatty materials, detn. of, and O detn. in, 6841*b*.
manuf. of, P 3446*a*.
reaction with ally alc., 5741*d*.
reaction with peracetic acid, 8354*a*.
in splitting of alkyl halide addn. compds. with cinchona alkaloids, 5027*i*.
effect on germination in seeds and potatoes, 2338*b*.
entropy, heat capacity, heats of fusion and vaporization and vapor pressure of, 8837*b*.
explosion and pressure-temp. relations of, 5951*g*.
explosive polycondensation of, in cylinders, 8138*e*.
fluoro derivs., P 674*b*.
formation from $(CH_2Cl)_2$, 4638*g*.
hydration of, P 6652*f*.
hydration of, kinetics of, 4549*a*.
manuf. of, P 3028*i*, P 3445*i*, P 4290*a*, P 8399*e*.
manuf. of, reactivation of Ag catalyst from, P 9209*h*.
microwave absorption by, 5310*e*.
microwave spectrum, moment of inertia and Stark effect in, 944*a*.
mixt. with $CO_2$ as fumigant for grains, 9336*a*.
phenol condensation products of, lacquer from dicyanodiamide, aldehyde condensation product and, P 2448*d*.
polymers of, constitution and properties of, 9455*d*.
detection in textile auxiliaries, 1585*b*.
solubilization of dyes by, 7780*d*.
spreading rate on glass and paint, 1625*g*.
ultrasonic velocity in, 8239*f*.
poly-, surface-active esters with fatty acid polymers, P 6440*a*.
reaction of, and its derivs. with S compds., 7420*e*.
reaction product with coconut oil, cyanoguanidine, and ethanolamine, sulfuric acid ester, as textile aid, P 7727*e*.
with *N*-(hydroxyalkyl) derivs. of amides of dimers of unsatd. acids, P 9472*f*.
with palmitate of dehydrated sorbitol, P 5586*d*.
with 1,2-propanediol, fatty acid esters, P 3446*d*.
reactions of, 6163*bf*.
with $(NH_4)_2CO_3$, P 691*i*.
with aromatic hydrocarbons, 2182*d*.
with cellulose, P 5592*f*.
with coconut-oil fat acid, oleic acid or stearic acid, textile assistants by, P 7727*abc*.
with Et acetoacetate, P 678*a*.
with fatty acids, oxidation of paraffin wax, nonionic detergents from, 5213*f*.
with Grignard reagents, 6155*b*.
with HBr, P 3024*c*.
with HCN, P 1435*b*, P 3029*b*, P 3439*f*.
with $H_2S$, 1391*c*, 2624*g*.
with oxidized cashew-nutshell liquid, P 1557*f*.
with polygalacturonic acid, 140*f*.
with polyols and esterification with palmitic or stearic acid, waxlike compds. by, P 886*e*.
with stearic acid, P 6652*g*.
with stearic acid-glycidol reaction product or stearic acid hydrazide, textile assistants by, P 2796*d*.
with sucrose, 4635*c*.
resinous products from urea, amines, etc., and, 5995*g*.
in San José-scale control, 1144*k*.
sorption by fruit and seeds, 3962*k*.
spectrum of, 5305*g*.
structure of, 4576*b*, 5366*i*.
thermodynamic properties of, 2500*i*.

**Ethylene oxide, (chloromethyl)-.** See *Epichlorohydrin*.

——, **methyl-.** See *Propylene oxide*.

**Ethylene oxide-carboxylic acid.** See *Glycidic acid*.

**Ethylenephosphonic acid, 2-phenyl-.** See *β-Styrenephosphonic acid*.

**Ethylene polysulfides,** polymerized—see

also *Rubber, substitute and synthetic; Thiokols.*
polymerized, as plug-cock lubricants, P 7679*d*.
polymerized, emulsions of, P 5992*e*.
**Ethylene sulfide** (*thiirane*). (For derivs. see under *Thiirane.*)
and derivs., 7419*h*, 7420*h*.
poly-, spectra of, 7410*g*.
prepn. and reactions of, 2935*e*.
reaction with biguanide, P 1799*b*.
**Ethylene sulfite**, P 4853*b*.
hydroxyethylation with, P 673*g*.
**Ethylenesulfonamide, 2-phenyl-**. See *β-Styrenesulfonamide.*
**Ethylenesulfonic acid**, $CH_2:CHSO_3H$.
methyl ester, 7411*h*.
sodium salt, kinetics of, bromination of, 7408*g*.
——, **2-phenyl-**. See *β-Styrenesulfonic acid.*
**Ethylenetetracarboxylic acid**, tetraethyl ester, fungistatic activity of, 9334*c*.
tetraethyl ester, reaction with PhMgBr, 4227*i*.
**Ethylene tetrasulfide**, polymerized—see *Rubber, substitute and synthetic; Thiokols.*
**Ethylenethiol**. See *Ethenethiol.*
***N, N'*-Ethyleneurea**. See *2-Imidazolidone.*
**Ethylenic linkage**. See *Double bonds.*
**Ethylenimine** (*aziridine*). (For derivs. see under *Aziridine.*)
and derivs., reaction with cyclic ethers, P 7955*d*.
derivs., reaction with thiuram disulfides, rubber vulcanization accelerators and activators by, P 3229*g*.
derivs., rearrangement of, 3419*b*.
ketones, 3388*g*, 3389*ae*.
polymeric, for fireproofing, P 6428*i*.
polymers of, in wet-strengthening of paper, 403*g*.
**Ethylenimonium compounds**. See *Aziridinium compounds.*
**Ethyl erbium sulfate**, spectrum of, 5304*b*.
**Ethyl ether**, 2571*d*.
acetaldehyde detection in, 5341*d*.
adsorption by $SiO_2$ gel, lecture expt. on, 8232*i*.
in air, max. allowable concn. of, 4401*a*.
alkylation with, of indan and 1,2,3,4 tetrahydronaphthalene, 2197*e*.
anabasine distribution between water and, 6789*b*.
anesthesia by, effect on cervical lymph flow and protein content, 2329*c*.
effect on P fractions of blood, 4386*d*.
effect on sphincter of Oddi, 5867*g*.
effect on thrombin inactivation, 8548*d*.
effect on vitamin A in liver, 9181*f*.
assocn., compressibility, mol. size and sound velocity in, 7284*b*.
assocn. with water and properties of solns., 3671*h*.
benzene detn. in, 2123*e*.
in brain, blood and muscles during ether elimination, 2318*a*.
camphor optical activity in, effect of $H_2O$ on, 8813*a*.
catalysts of $BF_3$ and, in acetal formation from butyl vinyl ether and phenols, 3783*e*.
in acylation of furans and thiophene, 6204*a*.
in alkylation of thiophene, 1395*e*.
in polymerization of 2-methylpropene, 8829*h*.
for polymerization of 2-vinylfluorene, P 8740*g*.
in reactions of ketene, 5366*h*.
chlorination of, 2159*b*
compds. (mol.) of, 7409*a*.
compds. with 2-benzhydryl-2-chloro-1-hydroxy-3-oxo-1-indancarboxylic acid, 1384*f*.
compd. with $BF_3$, reaction with BzH, 3805*b*.
detn. of, and oxidation with $K_2Cr_2O_7$, 5702*f*.
detn. of concn. of, in drugs, 7639*b*.
dielec. absorption and const. of, 4912*h*.
in disinfection of skin, 3525*d*.
dotriacontane soly. in, 6890*c*.
effect on ascorbic acid oxidase, peroxidase and dehydrogenase of vegetables, 2251*g*.
on bile flow, 305*a*.
on carcinogenic potency and elimination of 3,4-benzopyrene, 307*f*.
on decompn. of benzyl *p*-toluenesulfonate, 7797*h*.
on elec. activity of brain, 9261*b*.
*effect* on flame propagation limits of $C_4H_{10}$, H, $CH_4$ and $C_2H_2$ mixts. with air, 3617*g*.
on gastric passage and intestinal absorption of glucose solns., 4767*g*.
on gastric secretory response to insulin, 8538*i*.
on histamine-produced granulopexy of endothelium, 4766*g*.
on polymerization of 2-methylpropene, 6061*c*.
on renin-hypertensinogen reaction, 1860*h*.
on sedimentation rate of serum albumin, 6264*f*.
on tropokinesis in onion meristems, 4348*i*.
on uptake of radioactive P by erythrocytes, 3103*h*.
elec. moment of vapor of, 6020*g*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
explosion of vapors of, 8681*c*.
fires in, extinguishing of, 6417*g*.
fixation by blood serum, 3855*f*.
formation from $Et_2SO_4$ and EtOH, mechanism of, 3778*e*.
in German pharmacopeia based on B.P. 1948, 5551*i*.
in hafnium sepn. from Zr, 2883*c*.
identification of, for use in operating room, 3563*c*.
in ignition retarding of Diesel fuels, 6805*d*.
ion-concn. detn. in, 2075*h*.
lithium-salt elec. cond. and soly. in, 8790*h*.
lymph production after anesthesia by cyclopropane or, 1869*g*.
lyoparachor of, 2834*b*.
manuf. from $C_2H_4$, catalyst for, P 5887*b*.
manuf. in EtOH-MeOH decompn., P 4835*d*.
meniscuses of, 4064*c*.
mixts. with acetone, dielec. polarization in, 454*b*.
mixts. with org. vapors, adsorption by active carbons, 16*g*.
mol. assocn. and sound velocity in, 2835*e*.
narcosis by, effect on enzymic activity of pancreas of dogs killed by bleeding, 4740*c*.
occlusion of vapor of, from air current by layer of active C, 5255*c*.
octane value of, 3998*c*.
oxidation on catalyst, 928*b*.
parachor and thermochor of, 2923*f*.
peroxide in, effect on butterfat test, 5509*d*.
phys. consts. of, 2590*a*.
purification of, P 8620*b*.
for spectroscopic use, 7817*g*.
for use in Grignard prepn., 3780*d*.
reaction product with Br, 1313*b*.
recovery of, in 1,3-butadiene manuf from EtOH, P 7950*d*.
salt refraction and vol. in, 4543*c*.
solubilities of metallic soaps in, 1998*b*.
soly. in Na xylenesulfonate solns., 1242*e*.
solubilization of, with Na secondary alkyl sulfates, 466*a*.
as solvent for fatty matter in wool, 6423*d*.
spectrum of, 4573*h*.
sucrose-soln. interfacial tension against, 2845*b*.
sucrose-soln. work of adhesion in, 2845*d*.
system: acetone–, surface tension of, 2491*c*.
system: anthraquinone–, 4937*d*.
system: $C_6H_6$–, 4937*h*.
system: ethanolamine–pyridine–, 8833*b*.
system: $GeCl_4$–, 2535*a*.
systems: EtOAc–, MeOH–, and PrOH–, foam formation and duration, surface tension, viscosity and vol. contraction of, 8779*d*.
systems with methyl chlorosilanes, 2490*i*.
thermal cond. and viscosity of, 4065*c*.
thermal cond. of, 7284*d*.
uranyl nitrate fluorescence in combination with, 2512*c*.
uranyl nitrate partition between $HNO_3$ and, 3267*b*.
vapor-d. distribution over surface of, 7282*i*.
ventricular fibrillation from adrenaline and, 313*b*.
viscosity-vol. relation for, 2835*i*.
**Ethyl europium sulfate**, spectrum of, 2093*a*, 7337*a*.
**Ethyl fluophosphates**.
**$EtHPO_2F$**, 2-chloroethyl ester, volatility and vapor pressure of, 8841*a*.
**$Et_2PO_2F$**, 121*c*.
volatility and vapor pressure of, 8841*a*.
**Ethyl fluosulfonate**, volatility and vapor pressure of, 8841*c*.
**Ethyl fluothiophosphates**.
**$(EtOPF_2(:S))$**, 1313*i*.
**$(EtS)_2POF$**, 121*g*.
**Ethyl group**, detection in organosilicon compds., 3318*a*.
effect on curarizing power, 6592*e*.
removal from hydrocarbons, P 5584*a*.
ultrasonic velocity of, 8780*g*.
**Ethyl holmium sulfate**, spectrum of, 6917*h*.
**Ethyl hydrogen peroxide**. See *Ethyl hydroperoxide.*
**Ethyl hydroperoxide**, compds. with catalase, 260*g*.
reaction with enzymes, 9121*b*.
spectrum of, 3724*f*.
**Ethyl hyponitrite**, as catalyst for polymerization, P 5641*c*.
**Ethylidene diacetate**. See "diacetate" under *1,1-Ethanediol.*
**Ethylidene peroxide***, polymer, 5509*e*
**Ethylidenimine**, ***N*,1-difluoro-**, 6793*e*
——, ***N*-methyl-1-phenoxy-†**, and picrate, 2594*f*.
——, ***N*-methyl-1-*p*-toloxy-†**, and salts, 2594*g*.
**Ethyl iodide**. See *Ethane, iodo-.*
**Ethyl ketone**. See *3-Pentanone.*
**Ethyl mercaptan**. See *Ethanethiol.*
**Ethyl metaphosphate**, 120*i*.
acetyl esterase inhibition by, 259*a*
**Ethyl methyl fluophosphate**, volatility and vapor pressure of, 8841*a*
**Ethyl methyl triphosphate**, $Et_2MeP_3O_{10}$, cholinesterase-inhibiting activity and toxicity of, 1109*h*.
**Ethyl nitrate**, azeotropes of, 2835*c*.
catalyst of, and $Et_3PO_4$ in ketene manuf from AcOH, P 5413*e*.
decompn. of, kinetics of, 6901*i*
effect on combustion velocity and octane no., 6814*a*.
explosibility of, and effect on flame propagation limits of $C_4H_{10}$, H, $CH_4$ and $C_2H_2$ mixts. with air, 3617*g*.
ignition of vapors of, before decompn. and explosion of liquid, 8139*d*.
in ignition retarding of Diesel fuels, 6805*d*
**Ethyl nitrite**, azeotropes of, 2834*i*.
in deamination of α-amino alcs., 2600*e*
explosibility of, 3617*i*.
**Ethyl number**, the term, 6814*a*.
**Ethyl orange***, silica gel prepd. in presence of, 6480*c*.
**Ethyl orthoformate**. See "triethyl ester" under *Orthoformic acid.*
**Ethyl orthosilicate**. See *Ethyl silicate*
**Ethyl oxalate**. See "diethyl ester" under *Oxalic acid.*
**Ethyl peroxide**. (See also *Ethyl hydroperoxide.*)
effect on flame propagation limits of $C_4H_{10}$, H, $CH_4$ and $C_2H_2$ mixts. with air, 3617*g*.
spectrum of, 3724*f*.
**Ethyl phenyl triphosphate**, $Et_4PhP_3O_{10}$, P 9356*h*.
**Ethyl phosphates**, tetraethyl pyrophosphate detn. in mixts. of, 2125*a*.
**$EtH_2PO_4$**, acid hydrolysis of, 147*i*.
fertilizer expts. with, 3131*e*.
**$Et_2HPO_4$**, prepn. of (in high purity), 1315*a*.
**$Et_3PO_4$**, catalysts of, and nitric acid esters in ketene manuf. from AcOH, P 5413*e*.
elec. moment of, 2832*b*.
as foam inhibitor, 7161*d*.
in hexaethyl tetraphosphate, 4417*f*.
hydraulic fluid from diisobutyl ketone and, P 5519*b*.
in mercerizing solns., P 9478*b*.
reaction with $POCl_3$ and $P_2O_5$, 1004*g*.
**Ethyl phosphites**, platinum complexes of $Et_3PO_3$ and $Et_2HPO_3$, 4172*g*
**$Et_2HPO_3$**, 599*h*.
**Ethyl propyl thiophosphites**.
**$PrOP(SEt)_2$**, 1004*d*.
**$(PrO)_2PSEt$**, 1004*d*.
**Ethyl pyrophosphate** ($Et_4P_2O_7$), 120*h*, P 9357*a*.
in acarid control in orchards, 1523*b*.
acetyl esterase inhibition by, 258*g*.
in aphid control on flue-cured tobacco, 5897*c*.
cholinesterase-inhibiting action and toxicity of, 1109*h*.
cholinesterase inhibition by, kinetics of, 7528*f*.
compn. and hydrolysis rate of, 2077*f*.
detn. of, 4417*f*.
in com. products, 7375*e*.

*detn. of*, in Et phosphate mixts., 2125*a*.
in $Et_4P_2O_{11}$, 8976*f*.
effect on brain function and metabolism, 7147*g*.
on dehydrogenases of brain, 7066*f*.
on kalanchoe, 1898*b*.
on nerve-muscle prepn. and central nervous system, 7587*i*.
on pseudocholinesterase and acetylcholine 4305*c*.
on wildlife, 1524*a*.
in grasshopper control, 6353*f*.
in greenhouse-pest control, 1523*h*3.
in hexaethyl tetraphosphate, 3965*d*.
as insecticide, 3556*b*, 5146*e*.
in mite control on berry bushes and fruit trees, 1897*g*.
in pea-aphid control, 1897*a*, 9330*d*.
in peach-silver-mite control, 1523*e*.
in periodical-cicada control, 1899*b*, 7629*i*.
pharmacol. comparison with other anticholinesterases, 3930*f*.
pharmacology of, 7133*h*.
phosphorus detn. in, 6937*a*.
physiol. action of, and its use in myasthenia gravis treatment, 8556*b*.
in plum-curculio control on peaches, 5527*c*.
poisoning by, 9330*e*.
in potato nutrition, 1899*e*.
prepn. and hydrolysis of, 1314*h*.
in red-banded-leaf-roller control, 5527*e*.
review on, 9353*a*.
stability of, 5526*b*.
toxicity to citrus mite and greenhouse thrips, 3138*c*.
to flies resistant to DDT, etc., 8600*e*.
to honeybees, 9349*i*.
to man, 8600*f*.
toxicology of, 2705*d*, 4411*h*.
in two spotted-spider-mite control, 1523*e*.
in two-spotted-spider mite control, effect of dusts on, 2730*a*.
in vegetable-insect control, 1141*b*.
in Willamette-mite control on raspberries, 3137*d*.

**Ethyl selenide**, as chloroprene-polymerization inhibitor, 1598*f*.

**Ethyl silicates**, formation of $Et_6Si_2O_7$, $Et_8Si_3O_{10}$ and $Et_{10}Si_4O_{13}$, 2573*i*.
formation of $Et_6Si_2O_7$, $Et_8Si_3O_{10}$, $Et_{10}Si_4O_{13}$, $Et_{12}Si_5O_{16}$ and $Et_{14}Si_6O_{19}$ from $EtSiO_4$, 5738*f*.
mixts. of $MgCl_2$ with, as fire-resistant material, P 1050*c*.
paints from, 8695*d*.
prepn. of $Et_6Si_2O_7$ and $Et_{12}Si_5O_{16}$, 4631*h*.

**$EtSiO_4$**, azeotope with isobutyl isovalerate, 2834*e*.
elec. moment of, 2832*b*.
paper treatment with, 8136*e*.
polymerization of, P 6464*h*.
Raman spectrum of, 422*i*.
siloxanes from, P 3237*g*.
toxicity of, 4401*h*.
toxicology of, 1866*i*.
urea-HCHO resins contg., P 4894*c*.

**Ethylstibamine**, in schistomiasis mansoni therapy, 9266*g*.
trypanosomiasis therapy with, 1485*e*, 8528*b*.

**Ethyl sulfate** ($Et_2SO_4$). (See also *Ethylsulfuric acid*.)
as catalyst in ether formation from acetals, P 1050*a*.
in ethylcellulose prepn. under vacuum, 6824*b*.
hydrolysis and purification of, 4845*i*.
hydrolysis of, P 7497*i*, P 7498*c*.
reaction with EtOH, 3778*f*.
toxicity of, 4401*f*.

**Ethyl sulfide**. (See also *Ethyl disulfide; Ethyl tetrasulfide*.)
compd. with AuCl, 1313*d*.
as corrosion inhibitor against $CO_2$ in petroleum wells and processing, P 7221*h*.
effect on contact oxidation of vitamin C by Cu ions, 1097*a*.
manuf. of, P 7952*f*.
phys. constants of, 2956*e*.
reaction with *N*-haloamides, 172*d*.

**Ethyl sulfite** ($Et_2SO_3$), in cellulose treatment, P 4853*g*.
elec. moment of, 2832*b*.
ethyl alc. from, P 6645*e*.
rearrangement of, 1313*g*.

**Ethyl sulfoxylate**, $S(OEt)_2$, hydrolysis of, 2886*b*.

**Ethylsulfuric acid**, as catalyst in ether formation from acetals, P 1050*a*.

**Ethyl tetraphosphate** ($Et_6P_4O_{13}$), acetylesterase inhibition by, 259*a*.
aerosols of, effect on plants, 1523*e*.
in aphid control on celery, 346*e*.
in cabbage-aphid control, 5526*d*.
in cabbage-pest control, 5147*g*.
compn. of, 3965*d*.
effect on ileum in relation to its survival time, 761*i*.
on kalanchoe, 1898*b*.
on nerve-muscle prepns. and central nervous system, 7587*i*.
on pseudocholinesterase and acetylcholine, 4305*c*.
as fertilizer and reaction with aqua regia, 3131*c*.
in gladiolus-thrips control, 5148*h*.
in grasshopper control, 7185*g*.
in greenhouse-pest control, 1523*h*.
as insecticide, 1139*g*.
as insecticide, mode of action of, 5146*e*.
manuf. of, P 3836*g*.
in migratory-locust control, 4806*c*.
mixt. (com.), compn. of, 120*i*.
in onion-thrips control, 5897*a*.
in pecan-nut-casebearer control, 7631*a*.
in periodical-cicada control, 1899*c*, 7629*i*.
pharmacol. comparison with other anticholinesterases, 3930*f*.
pharmacology of, 7132*c*.
phosphorus detn. in, 6937*a*.
in plum-curculio control, 1143*g*, 5527*c*.
as potato nutrient, 1899*d*.
in *Pterocomma smithiae* control on willow, 1899*b*.
in red-banded-leaf-roller control on apples, 9347*e*.
reviews on, 9353*ah*.
in spittle-bug control, 1521*g*.
stability of, 5526*b*.
in sweet-potato-weevil control, 7183*c*.
tetraethyl pyrophosphate detn. in, 4417*f*, 8976*g*.
toxicity to honeybees, 9349*i*.
toxicology and pharmacology of, 2699*g*.
toxicology of, 2705*d*, 4411*h*.
in two-spotted-spider-mite control, 1523*c*.
in white-spring-tail control in mulch under fruit trees, 7184*i*.

**Ethyl tetrasulfide**, 998*h*, 1002*c*.
spectrum and structure of, 7410*g*.

**Ethyl thiophosphates**.
**$(EtO)_2PS_2H$**, in Mo detection, 7859*a*.
**$(EtS)_3PO$**, 121*f*.
reaction with AcCl, 561*b*.

**Ethyl thiophosphite**.
**$(EtO)_2PSEt$**, 1004*d*.
**$EtOP(SEt)_2$**, 1004*d*.
**$Et_3PS_3$**, and compd. with EtI, 560*i*, 561*b*.

**Ethyl titanate**, $Et_4TiO_4$, 9026*i*.

**Ethyl triphosphate**, $Et_5P_3O_{10}$, 120*i*.

**Ethyl vinyl silicate**, in reinforced plastics, P 8208*i*.

**Ethyl violet**, retardation of growth of transplantable carcinoma in mice fed, 1857*a*.

**Ethyne**. See *Acetylene*.

**Ethynyl** (*free radical*), formation from HO and acetylene, 8820*h*.
heat of formation of, 6479*d*.

**Ethynylation**, with acetylene, 5733*f*.

**Etioallocholanic acid, 3-keto-***, methyl ester 2,4-dinitrophenylhydrazone, 4282*c*.

**Etioallocholanone, 3-acetoxy-**, semicarbazone, 8909*c*.

**Etioallocholanyl chloride, 3($\beta$)-acetoxy-***, 6638*d*.

**$\Delta^1$-Etioallocholenic acid, 3-keto-***, methyl ester 2,4-dinitrophenylhydrazone, 4282*c*.

**$\Delta^{5,6}$-Etiobilienic acid, 3-hydroxy-***, and derivs., 2213*i*.

**$\Delta^{5,6}$-Etiobilienic-17-acid-16-carbinol, 3-hydroxy-***, and lactone acetate, 2214*b*.

**$\Delta^{5,6}$-Etiobilienic-16-acid chloride, 3-acetoxy-***, 17-methyl ester, 2214*a*.

**$\Delta^{1,4}$-Etiocholadienic acid, 3-keto-***, methyl ester 2,4-dinitrophenylhydrazone, 4282*d*.

**$\Delta^{4,6}$-Etiocholadienic acid, 3-keto-***, methyl ester, and its 2,4-dinitrophenylhydrazone, 4282*d*.

**4,11-Etiocholadienic acid, 12-keto-***, methyl ester, 1788*g*, P 8402*g*.

**3($\alpha$),17($\alpha$)-Etiocholanediol***, metabolic formation of, 8043*c*.
as metabolic product of etiocholan-3($\alpha$)-ol-17-one, 295*h*.
spectrum of, 3018*i*.

**3($\alpha$),17($\beta$)-Etiocholanediol***, from bile of pregnant cow, 1824*f*.
as metabolic product of etiocholan-3($\alpha$)-ol-17-one, 295*h*.

**Etiocholane-3($\alpha$),17($\alpha$)-diol-11-one***, and diacetate, spectra of, 3019*g*.

**3,17-Etiocholanedione**, and bis(2,4-dinitrophenylhydrazone), 5067*e*.
as metabolic product of etiocholan-3($\alpha$)-ol-17-one, 295*h*.
spectrum of, 3018*i*.

**3,11,17-Etiocholanetrione**, 5067*i*.
spectrum of, 3019*g*.

**Etiocholanic acid**. (See also *Etioallocholanic acid*.)
derivs., P 2243*d*, P 3046*g*.

—— , **3($\beta$)-acetoxy-11-keto-***, P 5812*b*.

——-, **3($\alpha$),7($\alpha$) - diacetoxy - 12 - keto-***, methyl ester, spectrum of, 3019*g*.

—— , **dihydroxy-**, P 3046*h*.

—— , **3,11-dihydroxy-***, P 2244*a*.

——-, **3,12-dihydroxy-***, 12-acetate, P 5428*e*.

——-, **3($\alpha$),12($\beta$)-dihydroxy-***, esters, P 5428*h*.

——-, **3($\alpha$),7($\alpha$)-dihydroxy-12-keto-***, methyl ester, spectrum of, 3019*g*.

——-, **hexahydroxy-**, derivs., 1792*e*.
tetraacetate, 1792*h*.

—— **3($\alpha$)-hydroxy-11-keto-***, 6212*c*.
methyl ester, spectrum of, 3019*g*.

——-, **3-keto-12-hydroxy-***, 12-acetate, P 5428*e*.

——-, **pentahydroxy-**, methyl ester tetraacetate, 1792*e*.

——-, **3($\alpha$)-succinoxy-7($\alpha$)-acetoxy-12-keto-***, methyl ester, spectrum of, 3019*g*.

—— , **3($\alpha$)-succinoxy-12($\alpha$)-acetoxy-7-keto-***, methyl ester, spectrum of, 3019*g*.

——-, **3($\beta$)-(thevetopyranosyloxy)-***, derivs., 1792*b*.

——-, **3,11,14-trihydroxy-***, P 2244*a*.

**Etiocholan-3($\alpha$)-ol-11,17-dione**, and acetate, 5067*i*.
and acetate, spectra of, 3019*g*.

**Etiocholan-3($\alpha$)-ol-17-one***, and acetate and benzoate, spectra of, 3018*i*.
and derivs., 5067*c*.
metabolism of, 295*g*.
in urine, 6727*e*.

**Etiocholan-3($\beta$)-ol-17-one***, and acetate, spectra of, 3018*i*.

——-, **5($\alpha$),6($\alpha$)-epoxy-***, acetate, spectrum of, 3018*i*.

——— , **5($\beta$),6($\beta$)-epoxy-***, acetate, spectrum of, 3018*i*.

**3-Etiocholanone**, spectrum of, 3018*i*.

**16 - Etiocholanone, 3($\alpha$),12($\alpha$) - dihydroxy-***, 7493*g*.

**17-Etiocholanone, 3($\alpha$)-acetoxy-***, 7032*f*.

**Etiocholenic acid**, derivs., P 7519*a*.

**$\Delta^4$-Etiocholenic acid, 3-keto-***, and methyl ester, P 1070*a*, P 2244*c*.

**$\Delta^5$-Etiocholenic acid, 3-acetoxy-***, P 7520*b*.

——-, **3($\beta$)-acetoxy-17-methyl-***, 3830*i*.

**$\Delta^{11}$-Etiocholenic acid, 3($\alpha$)-hydroxy-***, methyl ester acetate, P 5428*i*.

——-, **3-keto-***, P 5428*f*.
methyl ester, P 8402*f*.

**14-Etiocholenic acid, 3($\beta$)-(thevetopyranosyloxy)-***, methyl ester diacetate, 1792*b*.

**14,15-Etiocholenic acid, 3,11-dihydroxy-***, P 2244*a*.

**$\Delta^9$-Etiocholen-3($\alpha$)-ol-17-one***, 5067*h*.
and acetate, spectra of, 3018*i*.

**$\Delta^{11,12}$-Etiocholen-3($\alpha$)-ol-17-one***, spectrum of, 3018*i*.

**4-Etiocholenoyl chloride, 3-keto-***, reaction with $(C^{14}H_3)_2Cd$, 4680*i*.

**$\Delta^5$-Etiocholenyl chloride, 3($\beta$)-acetoxy-***, 6638*c*.

——-, **3($\beta$)-acetoxy-17-methyl-***, 3830*i*.

**Ettinghausen effect**, corrosion measurement by, 8340*c*.
equation for, 8221*g*.
in semiconductors at high temps., 4066*i*.

**Etymology**. See *Nomenclature*.

**Eubasinum**. See *Sulfapyridine*.

**$\beta$-Eucaine**, anesthetic potency of, measurement of, 8095*b*.
dielec. potential and surface tension of, at different H-ion concns., 7196*cg*.
hydrochloride, effect on cholinesterase, 762*f*.
identification of, 7190*h*.
sensitization of ventricle to acetylcholine by, 1107*f*.

**Eucalyptole**. See *Cineole*.

**Eucalyptus**, *citriodora*, citronellal and citronellol in, 1155*d*.
*citriodora*, citronellal yield and content of, 6788*a*.
mistletoe control on, 7181*a*.
paper pulp from—see *Paper pulp*.
*regnans*, thioliginin from, 7225*h*, 7226*a*.
residue, films of hydrocarbon oils contg., 6884*g*.

rutin detn. in, 9373*g*.
*sieberiana*, tannins from, 5219*f*.
as tannin source in N.S.W., 5219*f*.
wood of—see *Wood*.
**Eucalyptus oils**. See *Oils*.
**Eucarvone**, hydrogenation of, 4637*g*.
——, *β*-**dihydro-***, and semicarbazone, 4637*g*.
——, **tetrahydro-***, and semicarbazone, 4637*g*.
**Eucatropine**, intermediate for manuf. of, P 9080*g*.
**Euchlaena**. See *Grasses*.
**Eucodal**, detn. of, 2126*e*.
**Eucolloids**, water use in organosols of hydrophobic, 6044*d*.
**Eucryptite**, crystal forms of natural and synthetic, 7804*f*.
**Eucupine** (*isoamylhydrocupreine*), salts derived from boric acid complexes of carbohydrates or of sugar alcs., P 1800*g*.
**Eudemis moth**. See *Polychrosis viteana*.
**Eudialite**, carmine-colored, in nepheline syenite of Bou Agrao, Morocco, 6127*d*.
**Euflavine**. See *Acriflavine*.
**Eugenia**, *aromatica*, eugenin from, 1775*g*.
*caryophyllata*, constituents of, 6621*i*.
**Eugenin**, and derivs., 1775*g*.
**Eugenitin**, 5-hydroxy-7-methoxy-2,6-dimethylchromone and, 6621*i*, 6622*c*.
**Eugenol** (*4-allyl-2-methoxyphenol*). (See also "clove" under *Oils*.)
in *Artemisia scoparia* oil, 1155*b*.
and carbonate, P 4299*c*.
color reactions of, 1181*i*.
cytologic activity of, 9170*c*.
desquamation of mucus epithelium in gastric pouches from, effect of Ca and Mg on, 8048*f*.
differentiation from oil of clove, 3973*d*.
effect on dentine permeability to radioactive phosphates, 1863*d*.
effect on polarography of metals, 5316*a*.
in narcissus oil, 2372*e*.
reaction with $H_2S$ and NaHS, 9438*b*.
in rose oil, 5550*b*.
——, **dihydro-***, 3,5-dinitrobenzoate, 8675*b*.
and esters, 5589*i*.
from hydrogenated lignin, 2427*i*.
——, **methyl-***, color reactions of, 1181*i*.
in *Melaleuca bracteata* oil, 3566*gh*.
as mosquito repellent, 3140*b*.
**Euglena gracilis**, decolorization by streptomycin, 4388*c*.
effect of antipernicious anemia factor on, 3488*e*.
streptomycin-induced chlorophyll-less races of, 1461*i*.
**Euglobulins**, in blood serum, Ca-formol gel reaction and, 4321*a*.
in cerebrospinal fluid, 2311*e*.
mol. form of, 3477*g*.
mol. wt. of, detn. of, 4538*g*.
1, 11a and 11b, immune functions and, 1101*b*, 2305*f*.
*β*-**Euionone**. See *3,5-Hexadien-2-one, 4-methyl-6 (2,6,6-trimethyl-1-cyclohexen-1-yl)-*.
**Eulan BL**. See *Benzenesulfonamide, 3,4-dichloro-N-methyl-*.
**Eulan NK**. See "(3,4-dichlorobenzyl)triphenyl— chloride" under *Phosphonium compounds*.
**Eulia velutinana**. See *Argyrotaenia velutinana*.
**Eumydrine**, curarelike action of, 3929*d*.
**Eunarcon** (*sodium 5-(2-bromoallyl)-5-isopropyl-1-methylbarbiturate*), detoxication of, 4766*c*.
effect on circulation and respiration, 3110*e*.
narcosis by, 318*c*.
pharmacology of, 6307*c*.
**Euonymus**, *europaeus*, alkaloids from seeds of, 5545*i*.
*europaeus*, insecticide from, 3557*a*.
glycoside from—see *Evonoside*.
gutta-percha and resins from, in Spain, 4886*h*.
*japonicus*, chlorophyll in, 3890*g*.
**Euphilippia olivina**, control of, 9344*f*.
**Euphorbia**, *canariensis*, rubber latex and resins from, 4883*d*.
*intisy*, and *pirahaso*, as rubber sources, 5221*e*.
*maginata*, as rubber source, 4872*c*.
*pepius*, pharmacologically active substances from, 9240*i*.
*pilulifera*, pharmacology of, 8551*f*.
*pulcherrima*, stomatal frequency and distribution in, photosynthesis in relation to, 284*c*.
*tirucalli*, compn. of latex from, 4041*i*.
dried latex from, 8704*f*.
isoeuphorol from latex from, 9511*i*.
**Euphorbia oil**. See *Oils*.
**Euphoria** (*the genus*), *longana*, constituents of leaves of, 8611*c*.
**Euphoria** (*a sense of well being*), book: Genuss und Betäubung durch chemische Mittel, 5506*d*.
**Euphorol***, and acetate, 9512*f*.
and esters, 8704*g*.
**Euphorone***, and derivs., 8704*f*.
——, **dihydro-***, and derivs., 8704*g*.
**Euphylline**. See "-ethylenediamine" under *Theophylline*.
**Eupomotis aureus**, vitamin A in pyloric appendix and liver of, 6745*i*.
**Euproctis chrysorrhoea**, org.-compd. toxicity to, chem. constitution and, 7625*i*.
**Euradin***, effect on plant growth, 1830*f*.
**Eurax***, scabicidal and bacteriostatic action of, 3109*g*.
**European apple sawfly**. See *Hoplocampa testudinea*.
**European chafer**. See *Amphimallon majalis*.
**European corn borer**. See *Pyrausta nubilalis*.
**European fruit lecanium**. See *Lecanium corni*.
**European red mite**. See *Paratetranychus pilosus*.
**Europium**. (See also *Rare earth metals*.)
beta-rays from, 486*g*, 4559*h*.
as cathodo-luminescence activator in calcites and dolomites, 2516*d*.
distribution in infrared-sensitive phosphors, 4579*c*, 6508*h*.
effect on SrSe phosphor, 8277*f*.
Faraday effect and refraction of, 8242*i*.
gamma-rays of, energy of, 6075*i*.
isotopes of, 937*d*.
isotopes of masses 155, 156 and 157, from Th by *α* ray action, 4127*b*.
as luminescence activator in minerals, 947*c*.
neutron absorption by, 8854*i*.
neutron-bombarded, 5296*h*, 6911*d*.
phosphors activated by, inertia effects in infrared-sensitive, 2515*f*.
phosphors activated by, luminescence of, 4142*c*.
phosphors of $La_2O_2S$ activated by, coupled with other metals, P 3296*f*.
spectrum of, magnetic intensification of absorption lines of, 1263*f*.
spectrum of, persistent lines in, 5337*g*.
in stars of class A, 8882*a*.
strontium sulfide phosphor activated by, 5067*i*.
**Europium, analysis**, detn., ignition curves for ppts. in, 8305*a*.
**Europium bromate** ($Eu(BrO_3)_3$), spectrum of nonahydrate of, 2093*a*, 7337*a*.
**Europium chlorides**.
$EuCl_2$, spectra of, in water, 2510*a*.
$EuCl_3$, Faraday effect and refraction of, in aq. solns., 8242*i*.
spectrum of hexahydrate of, 2093*a*.
**Europium compounds**, flame spectra of, 7816*i*.
**Europium ethyl sulfate** $Eu(C_2H_5SO_4)_3$, spectrum of nonahydrate of, 2093*a*, 7337*a*.
**Europium nitrate**, mixt. with $\gamma$-$Al_2O_3$, fine structure of ignited, 3319*d*.
**Europium oxide**, $Eu_2O_3$, ignition temps. for, as analytical ppt., 8305*b*.
**Europium salts**, spectra of, 7337*a*.
**Europium sulfate** ($Eu_2(SO_4)_3$), spectra of octahydrate of, 2093*a*, 3290*b*.
**Europium vanadate(V)**, $EuVO_4$, crystal structure of, 6033*b*.
**Eusimulium latipes**, control in Alaskan streams, 6354*b*.
**Eusol**, bacteriostatic action of, in emulsion, 3561*i*.
**Eutannin**. See *Chebulinic acid*.
**Eutectics**. (See also *Systems*.)
alloy, and eutectic crystn. in presence of surface-active substances, 7315*e*.
alloy, nature of, 6136*c*.
alloys (binary) contg., 4935*d*.
binary, from two series of homologs, 8833*d*.
modifying binary, 8832*d*.
in pharmaceutical testing, 4809*i*.
pseudo-, of NiAs and NiSb, 8834*f*.
**Eutinobothrus brasiliensis**, control of, R.B. 1018 in, 4806*b*.
**Eutocin**, in amniotic fluid, placenta and uterus and its extn. and purification, 9198*gh*.
**Eutonic points**, of polytherms in multicomponent systems, 6902*c*.
**Euvernil**. See *Urea, sulfanilyl-*.
**Euxenite**, recrystn. of metamict, 8983*i*.
**Evans blue**, antagonism of curare by, 3102*h*.
in blood, effect of vitamin D on, 787*c*.
capillary permeability to, effect of hyaluronidase on, 6721*e*.
detn. in blood and urine, 713*g*.
disappearance from blood stream, plasma-protein level and, 3871*c*.
skin permeability to, after injection of meningococcal toxin, solvent effect on, 2320*i*.
testing purity of, and relation of impurities to errors in plasma-vol. detn., 8428*d*.
**Evans effect**, with iron electrodes in NaCl soln., 8906*d*.
**Evansite**, allophane-, of Gardner Mine Ridge, Ind., 3751*e*.
fluorescence spectra and U content of, 2119*f*.
**Evaporation**. (See also *Distillation; Heat of vaporization; Vaporization*.)
of acids, from filtrate of group I in analysis, 1681*b*.
of antimony, effect of atm. on rate of, 4066*h*.
of barium from oxide cathodes, 5679*h*.
of calcium chloride solns., P 3158*f*.
of carbon tetrachloride from chlorinated paraffin wax soln., P 5586*f*.
of carrier liquid in dispersions and suspensions, P 6012*g*.
in condensed milk manuf., 5509*a*.
during drying, 8753*b*.
in elec. field, P 4587*h*.
epitaxy of double decompn during isothermal, on mica, 6027*i*.
film, of foaming liquids, etc., P 8760*e*.
of fruit juices, etc., P 330*i*.
of gallium, 4065*i*.
gasoline losses by, 5931*g*.
of greases and oils, measurement of loss of, 4787*b*.
of greases in elec. motors, 5933*i*.
heat pumps in, 3248*d*.
hydrocarbon analysis by, 2122*e*.
in kerosene burning spray, 4840*a*.
losses—see also *Gasoline; Petroleum*.
of magnesium in vacuum, 29*g*, 6053*i*.
measurement of, of aircraft lubricating grease, 5935*i*.
of mercury drops, 6058*c*, 7607*a*.
of metals and salts, film prepn. by, 8785*b*.
in multiple-effect evaporator, 5648*b*.
multiple effect, law of, 6847*f*.
of naphthas (extn.), rates of, 4496*h*.
in nature, 4529*e*.
nuclei in, 6047*i*.
of oxide cathodes, 8286*d*.
of polar-hydrocarbon monolayers, 7767*d*
with preheated gas, P 5648*h*.
rate of, combustibility and, 4532*e*
measurement of, 6048*b*.
measurement of heat of sublimation from, 8754*c*.
as rate process, 1233*i*.
review on, 1227*h*.
of sodium hydroxide solns., P 3158*h*.
in sugar manuf.—see *Sugar manufacture*
of sulfite waste liquor, economies of, 399*a*.
theory of, 4905*h*.
of volatile from nonvolatile materials, P 6011*e*.
of water-softening brines, 8587*e*.
of water, through duplex films, rate of, 6884*f*.
in graphite and porcelain tubes, heat transfer in, 448*i*.
from tower packings, 3248*e*.
in wetted-wall column, rate of, 6053*i*.
**Evaporators**. (See also *Concentrators; Drying apparatus*.) P 3248*i*, P 4525.
aeration, for salt solns., P 7760*g*.
for alcs. in extn. of oils, P 2794*h*.
capacity of, calcn. of, 2046*d*.
circulation velocity of, calcn. of, 1816*h*.
for citrus juices and molasses, scale in, 9295*g*.
cleanliness of heating surface in, control of, 6009*b*.
coating heat-exchange surface with solid formed, P 3669*b*.
condensers for vacuum, 4056*d*.
control of rapid flow, app. for, P 4938*j*
corrosion of Ni tubes of, by steam condensate, 4896*e*.
for foaming liquids, P 7241*a*

glass lab., 4905g.
for insecticidal, sterilising or therapeutic liquids, P 7278i.
lead corrosion in linings of, for viscose-spinning-baths, 6824a.
for massecuite continuous concn., P 9506c.
multiple-effect, max. evaporative power in, 5648b.
with recovery of heat of vaporization, P 8218c.
refrigerants boiling in horizontal-tube, heat-transfer rates for, 2475g.
scale formation in, 4521c.
for silica solns., 912c.
steam-heated, P 2478a.
submerged-combustion, P 5556e.
sugar-juice, 7242i.
heat interchange in, 9490c.
increasing power of, 426g.
prevention of scale formation in, 887f.
tetraphosphoglucosate and incrustations in, 9500h.
for sulfite waste liquor, 8677abce, P 9447i.
thermal-compression, P 5238f.
for water purification for isotopic analysis, 4531e.
**Evening primrose** (*Oenothera biennis*), leaves of, as tobacco substitute, 7195b.
**Evergestis rimosalis** and(or) **Cross-striped cabbage worm**, control of, 7182c.
**Evergreens**. See *Conifers; Trees*.
**Everninic acid, 3,5-dichloro-**, methyl ester, 608h.
**Evipal** (*5-(1-cyclohexen-1-yl)-1,5-dimethylbarbituric acid*), crystallography and identification of, 8612e.
and derivs., 9375a.
detection in urine, 1077b.
detoxication of, 4766c.
effect on circulation and respiration, measurement of, 3110e.
effect on functional structure of reflexes, 763h.
pharmacology of, 9258a.
sedative action of, potentiation by antihistamine drugs, 313a.
**Evipal sodium** (*evipal soluble*), anesthesia with, effect on P fractions of blood, 4386d.
effect on blood sugar and insulin action, 8055i.
narcosis by, 318c.
**Evipan**. See *Evipal*.
**Evisceration**, amino N in blood plasma after, relation of temp. and insulin dosage to, 8055e.
galactose distribution after nephrectomy and, effect of insulin on, 8053a.
glucose tolerance after, effect of adrenaline on, 6319e.
effect of isuprel on, 7583d.
effect of work on, 2691h.
glucose tolerance after nephrectomy in, 207a.
survival time after, effect of insulin and D-glucose on, 2306a.
**Evobioside**, and acetate, 1791h.
**Evodiamine**, structure of, 7194d.
**Evodia xanthoxyloides**, alkaloids of, 648g.
**Evodione**, and derivs., 2994e.
---, **benzylidenedihydro-***, 2994f.
---, **dihydro-**, and derivs., 2994f.
**Evolution**. (See also *Heredity.*)
biochem. changes in organisms during, 8414h.
biochemistry of, 8414i.
book: Biochem., 3483d.
cardiac muscle, in vertebrates, 8509d.
**Evomonoside**, 2371i.
and acetate, 6791h.
**Evonoside**, 1791g, 2371h.
**Evonymus**. See *Euonymus*.
**Evoxanthine**, 648i.
**Ewos 936**, in potato-late-blight control, 9336g.
**Ewos 936**, in potato-late-blight control, 9336g.
**Exalgin**. See *Acetanilide, N-methyl-*.
**Exaltol**. See *Cyclopentadecanol*.
**Exaltone**. See *Cyclopentadecanone*.
**Excelain**, structure of, 8843g.
**Excelsior**, paper pulp from, P 9447d.
**Exchange reactions**. See *Reactions*.
**Exchangers**. See *Anions; Base-exchanging compounds; Heat; Ions, electrolytic*.
**Excrements**. See *Feces; Urine*.
**Exercise**. (See also *Muscles; Work.*)
black quarter development and, 8072e.
coffee effects in sports, 8843d.
effect on absorption [illegible] and fluid from joints,
*effect* on aortic pressure, 4775h.
on fibrinolysis, 8541a.
on growth, and food and water consumption during vitamin $B_1$ deficiency in relation to fat content of diet, 9184b.
on heat production by animal organism in relation to fat content of diet, 5461c.
on lactic and pyruvic acid in blood in diabetes, 5111b.
on lactic and pyruvic acids in blood in thiamine deficiency, 5832h.
lactates in blood during, in neurocirculatory asthenia, anxiety neurosis or effort syndrome, 5855d.
leucocyte response to, pantothenic acid and, 8494h.
lipide mobilization after, 9217c.
metabolic rate as influenced by sympathomimetic compds. in relation to spontaneous, 9249f.
training, effect on compn. of muscle, 5480a.
training of muscles, 7107e.
**Exhaust gases**. See *Gases*.
**Exitatin**, the name, 5836i.
**Exoascus**. See *Taphrina*.
**Exochorda**, hydrocyanic acid in, 3493h.
**Exosmosis**. See *Osmosis*.
**Exostemma sanctaeluciae**, alkaloids in, 3975h.
**Exotoxins**. See *Toxins*.
**Expansin**, the name, 8003g.
**Expansion**. (See also *Dilatometers; Heat of expansion; Swelling.*)
of alloys and metals by heat, 6959t.
of aluminum phosphate types by heat, 9404h.
of cement—see *Cement, hydraulic or structural*.
of cerussite by heat, 8788h.
coeff. of thermal, for Se and Te, 1622e.
coeffs. of, for 2-picoline, 223c.
of detonation products from solid explosives, 4013i.
of gas-water mixt. through de Laval nozzle, 7271i.
of glass—see *Glass*.
of graphite and $ZrO_2$ and its mixt. with other oxides by heat, 8253g.
of light-wt. refractory brick by heat, 5563i.
of lithium minerals, 3319i.
of magnesites on hydration, app. for detn. of, 2391b.
measurement of linear thermal, at high temps., 3246d.
measurement of thermal, of crystals, 4006f.
of metal powders during sintering, 7390c, 7391b.
of multivalent filamentous mols. with ionization, 8812e.
through nozzle, maintenance of near equil. during isentropic, 6021h.
of perlite, energy for, 1293b.
of polymers, 6045c.
of polymer solns. on dilu., 6044h.
of polystyrene by heat, 6461h.
of real gases, effective gamma for isentropic, 1231e.
of rubber (ebonite), effect of $MgCO_3$ filler on, 430a.
of salts in $C_2H_4(OH)_2$ and water, 7298f.
of sucrose by heat, 6439h.
thermal insulation of process vessels and, 5236a.
**Expansion joints**, asphalt, P 1940b.
for coke-oven walls, P 8652a.
preformed, and their testing, 4785g.
rubber (powd.) in asphaltic road, 5984g.
**Expectorants**. (See also *Tussipekt.*)
2,2',2''-nitrilotriethanol as, 8615h.
**Explosibility**. (See also *Inflammability.*)
of acetyl peroxide, 3190e.
of ammines (Cr and Co), 5187e.
of ammonia-$N_2O$ mixts., 3618h.
of ammonium nitrate and $HClO_4$, 6827a.
of calcium hexammine, 7851f.
of chlorosilanes and MeCl, 7229h.
of coal dust, and its detn., 405i.
of coal dust, elec. gallery for demonstration of, 5952e.
of copper(I) acetylide, 2112i.
of ethyl nitrate and Et nitrite, 3617i.
of fluorine (liquid) near org. material, 406g.
of hydroperoxides, 6189e.
of lead chlorite, 8971h.
measurement of, of oil-tanker atm., 8127e.
of nitrogen (liquid)-O mixts., and of liquid air, 9450d.
of nitroglycerin in cavity impact in presence of gases, 4467g.
of solvent vapors, 2342e.
of starch dust, 7230e.
of trinitrotoluene, effect of light and water on, 8682d.
of turpentine, 7687d.
**Explosions**. (See also *Detonation; Flames; Heat of explosion.*)
of acetylene, prevention by carburetion with MeOH, P 7036f.
of ammines, power and temp. of, 5187e.
of azodiisobutyronitrile solns. in acetone of MeOH, 8682a.
of benzoyl peroxide, 405g.
in benzoyl peroxide purification, 1570a.
books: Raum—durch elek. Anlagen, 8140d; Theory of—Vol. I Thermal Explosion in Gases (in Russian), 8140e.
of bromine-H mixts., 4084eg.
in bromine trifluoride reactions with $NH_4Cl$ and $NH_4F$, 3739f.
of carbon monoxide, dissocn. and unreleased energy in, 849i.
of carbon monoxide, effect of water vapor on flame temps. in, 851d.
of carbon monoxide mixts. with O and H or $PH_3$, 4548b.
during chlorine (liquid) reaction with synthetic rubbers, 405h.
of chromium trioxide soln. in $Ac_2O$, 3199c.
of coal dust, 405i.
of coal dust, prevention of, 7663c.
coal-mine and space dust, and effect of sheaths on gases from explosions, 6827a.
in compressed-air systems, C-O complex in initiation of, 5952c.
of Dewar flasks, wrapping to prevent, 405g.
of 3,5-dinitro-4-hydroxybenzenearsonic acid, 2437a.
dust, lecture expt. on, 8820d.
of dusts (starch and metal), 7230e.
of ethylene oxide, 5951g, 8138e.
of ethyl ether and Skellysolve B in refrigerators, 8681b.
flame from, ionization in, 481a.
of flammable liquids in refrigerators, 6827a.
of fluorine-cotton and -neoprene mixts., 406e.
in furnaces, electronic unit for combustion control to prevent, 3617f.
gases from, detn. of equations for phase of, 6417a.
of gases in chem. plants, prevention with combustible having low upper limit of flame propagation, 7230i.
in gas mixts., 5576d.
Golay photothermal detector in study of, 2403a.
of *n*-heptane-N-O mixt., study with orthicon spectrograph, 5313a.
of hydrazine perchlorate, 8934c.
of hydrocarbon gases by elec. discharge, P 9430a.
of hydrogen peroxide in vapor phase by hot wire or spark, 8139e.
hydrothermodynamic theory of, and calcn. of parameters for, of liquids and solids, 6416h.
in liquids initiated from gas phase, 8139c.
of nital soln. after etching of Bi, 5593e, 7229e.
of nitrates, gases from, 405d.
of *p*-nitrotoluene on soln. in $H_2SO_4$, 8681a.
nonequil. states in, 5266b.
of perchloric acid mixts. with $Ac_2O$,
of perchloric acid-$H_2SO_4$ mixts. used as oxidizing agents, prevention of, 2436i.
piezoelec. measurement in, tourmaline gages for, 4467b.
of potassium (di-) nitroacetate, 4855a.
pressure tests on glass windows, 9402a.
radiographs (flash) and x-ray bursts in study of, 5593g.
review on, 6826i.
in sodium azide manuf., prevention of, 3618g.
of solid explosives, compns. of gases from, during adibatic expansions, 4014h.
in sugar factories, 8714f.
times of impact, 4855d.
of trinitrotoluene at high temps., 7687e.
of vinyl acetate during polymerization, 438f.
waves in gaseous mixts., structure of helicoidal, 2424d.

**Explosives.** (See also *Centralite; Cordite; Dynamite; Hexogen; Nitrocellulose; Nitroglycerin; Picric acid; Pyrotechnic compositions; Toluene, trinitro-*; "mixed" under *Acids*; and "tetranitrate" under *Pentaerythritol.*)
acetone peroxide and its mixts. with other explosives, P 6418*c*.
aluminum powder-kieselguhr-nitroglycerin brisant shock-insensitive, P 2437*c*.
Amatol, $NH_4NO_3$ for making pourable, 6417*b*.
ammines (Cr and Co) as, 5187*e*.
ammonites, increasing energy concn. and storage of, 3617*c*.
ammonites, nonbrisant, NaCl-contg., P 3200*c*.
from ammonium nitrate and emulsified explosive, granular, for blasting, P 2776*d*.
ammonium-nitrate, low-melting, P 2437*e*.
nitroglycerin-sensitized hygroscopic, for blasting, P 6828*a*.
and their use in mining, 4466*i*.
ammonium nitrate mixts. with $Mg(NO_3)_2$ or $KNO_3$ or both, with small d. changes during temp. cycles, P 5952*g*.
ammonium nitrate-nitroglycerin blasting, improving extrudibility and plasticity of, P 3619*c*.
bags for charges of, smolder- and wear resistant, P 7714*h*.
black blasting powder, for safety fuses, 4467*d*.
black gunpowder, combustion of, effects of catalysts on, and products from, 9449*e*.
black powder substitute, from coal exts., P 4468*f*.
for blasting, stabilized against evolution of N oxides, P 5594*d*.
for bombs, P 1190*c*.
books: Poudres et, 852*b*; Sprengstoffe und Schiesstoffe, 2437*c*.
cartridges—see *Cartridges (explosives)*.
chem. constitution and performance of pure org., 6416*g*.
chromatographic sepn. and identification of propellent, 8138*i*.
chromatography of high and propellent, 5593*d*.
coated free-flowing waterproofed, P 6418*d*.
combustion velocity of colloidal powders, potential and, 8681*e*.
D—see "ammonium salt" under *Picric Acid*.
decompn. by heat, 2775*b*.
decompn. by heat in dicyclohexylphthalate and TNT solns., 5187*g*.
decompn. by heat of $NH_4NO_3$, ethylenediamine dinitrate, nitroglycerin and pentaerythritol tetranitrate, 405*c*.
demolition charges, adhesives for, P 9536*a*.
density of, velocity of detonation and, 6417*a*.
desensitized, coated with wax and protein or protein derivs., P 1984*b*.
detonation of—see *Detonation*.
detonators—see *Detonators*.
3,5-dinitro-4-hydroxybenzenearsonic acid and its salts, 2436*i*.
disposal of captured German, 3947*g*.
ethylenedinitramine-trinitrotoluene, P 6827*c*.
firedamp-proof, inert salts in, 3199*e*.
glycerol-$H_2O_2$-$H_2O$, impact-insensitive, P 1190*e*.
hexogen-petrolatum plastic, P 7688*d*.
history of guncotton and nitroglycerin, 2435*i*.
hydrazine and hydrazine hydrate as, 5187*i*.
hydrocarbon mixt. vapors as, 5187*f*.
ignition of gaseous, by elec. sparks, 407*b*.
ignition of gaseous, in shock waves, 5951*b*.
impact sensitivity of liquid, from adiabatic heating by compression of gas bubbles, 8139*c*.
incendiary mixts. from, P 8682*h*.
initiating, 4467*d*.
from magnesium dust and oxidizing agent, P 8682*g*.
manuf. of, 4013*h*.
manuf. of high and permissible, 4465*i*.
mechano-chemistry of, 3682*f*.
nitramine alc. nitrates, 9073*e*, 9074*i*.
nitrate (inorg.) detn. in propellent, 6417*b*.
nitrates of hydroxy amides, P 1797*ac*.
nitric acid liquid esters, P 408*d*.
nitroaminoguanidine Pb deriv., P 3200*c*.
nitro compds. for use in, P 6647*a*.
nitroglycerin mixts. with inert salts, 1567*e*.
Nitrolite, hygroscopicity of, and corrosion of brass and Fe by, 5721*h*.
*N*-nitroso-*N*-ethylaniline and its nitro deriv. detn. in aged diethyldiphenylurea-stabilized propellent, 3617*d*.
octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine, P 9079*h*.
petrolatum detection in, 1979*i*.
phthalic acid detn. in propellent, 2775*a*.
plastic detonating, from nitrated ethylene glycol- glycerol mixt. and nitrocellulose, P 1190*d*.
poisoning in handling, 9449*d*.
poisoning in manuf. of, 8681*c*.
from polynitric cryst. esters, aromatic nitro compds. and nitrocellulose, P 852*c*.
power of, ballistic mortar in detn. of, 9449*e*.
prepn. of, of fixed particle size and shape, 6415*g*.
projectiles contg.—see *Projectiles*.
pulvis fulminans, 8759*h*.
review on, 6826*i*.
safety in handling, in labs., 7159*h*.
sensitiveness of solid, to impact, and hot spot formation in, 4855*b*.
sensitizers for, P 6223*i*.
smokeless powder, Cr-plated rolls for mills for, P 2438*b*.
combustion laws and velocity of nitrate-base, 5189*c*.
diethyl phthalate detn. in, 1568*f*.
dinitrotoluene detn. in, 1567*i*.
double-base flashless noneroding, P 4856*c*.
molded propellent, with low pressure index, P 9450*h*.
$KClO_4$ detn. in, 1567*h*.
stabilization of, 6825*i*.
tetranitropentaerythritol, brisant desensitized, P 2438*a*.
1,3,5,7-tetranitro-1,3,5,7-tetrazacyclooctane, 8355*a*.
thickening chlorate, nitrate or perchlorate, with chlorinated hydrocarbon and resin, P 2437*d*.
**Ext D&C dyes.** See *Dyes*.
**Extensograms,** of flours, effect of mixing, NaCl and consistency on, 4780*i*.
**Extensometer,** for hides and leather at fixed load for shrinkage-temp. detn., 9505*f*.
**Extinction angles.** See *Crystals*.
**Extinction coefficients.** (See also *Absorption (of rays); Spectra.*)
measurement of, effective layer length in cylindrical cells in, 8275*i*.
measurement of mol., P 8760*b*.
measurement of, of dense smoke and cloud, 6039*f*.
of mineral suspensions, particle size and, 2843*b*.
**Extraction.** (See also *Heat of extraction; Leaching; Percolation; etc.*)
of acetaldehyde and $Me_2CO$ from vinyl acetate with water in packed column, 2042*e*.
of acids (aliphatic) from aq. solns., P 670*i*.
of alc. metabolites from mixts. contg. satd. and unsatd. alkylhydroxynaphthoquinones, 1386*d*.
of aluminum and Al alloys with Hg, 7392*g*, 7880*f*.
of aluminum from Ca aluminates with soda soln., 1924*hi*, 1925*a*.
of aluminum-Si alloys with Zn, 9003*b*.
of amino acids from protein hydrolyzates, P 6654*c*.
analysis of org. acid mixts. by, with immiscible solvents, 8976*i*.
analytical, 2113*g*.
2-butanone drying by, 8753*c*.
chem. constitution, antimalarial activity and constant of, of alkylhydroxynaphthoquinones between ether and aq. buffers, 1385*i*.
of coal, 3593*dfh*.
continuous, calcn. of, 3247*d*.
continuous, of aq. solns., P 3250*a*.
control by light absorption of products, P 3191*f*.
control of purity, temp. and throughput in Soxhlet, 4*b*.
of corn in milling, P 2710*e*.
countercurrent, in columns with fine packing, 2042*c*.
countercurrent liquid-liquid, P 2421*f*, P 3023*a*, 4840*i*.
of derris roots, 5149*i*.
dismutation equil. for, 58*f*.
-distn.—see *Distillation*.
of ethylene chlorohydrin, 5*i*.
of fats—see *Fats*.
with fluidized materials, P 8218*h*.
fractional, 2*g*.
of gases, efficiency in, 5646*f*.
of glycerol from aq. solns. and phases in, P 9081*d*.
of hydrocarbons, P 5409*g*.
hydrocarbon sepn. by, 7758*hi*.
of hydrocarbons, inhibiting corrosiveness and polymerization of 2-furaldehyde in, P 9430*i*.
of hydrogen sulfide from hydrocarbons, 7297*h*.
of insect toxins from sesame oil, P 3969*c*
ionization, of org. acids, 8214*c*.
of iron chloride with $(iso\text{-}Pr)_2O$, 2489*g*.
liquid-liquid, calcn. of, 8747*d*.
liquid-liquid, of sulfite waste liquor, 7682*e*.
of liquids, P 4907*b*.
of liquids with liquids under pressure, 2474*e*.
of magnesium carbonate (basic), 9394*c*
of metals as complexes with org. solvents, 8807*f*.
of molasses, 6445*c*.
with molten metals, P 5727*e*.
of naphthalene from gas, 3597*a*.
of oils—see *Oils*.
of pentosans by chloride solns., 628*h*.
of phenolic moldings, 7261*e*.
of phenols—see *Phenols*.
of plants to det. resins and rubber, tests
of polymers, fractionation by, 6460*d*
of proteins from seeds, 3544*f*.
rate of, agitation efficiency and, 5647*b*
rate of, effect on baking quality of wheat, 8565*i*.
of resin from vegetable materials, P 4873*e*
review on, 1227*h*.
of sesamin, P 5151*c*.
of solids, 2477*i*.
solvent removal after, P 5886*b*.
solvents for—see *Solvents*.
of soybean oil by alcoholysis, 5209*be*.
of soybean protein with $H_2SO_3$, 5133*a*
of starch, cyclohexanol and thymol in, 6446*f*
of sugar-cane wax, 7730*f*.
in sugar manuf.—see *Sugar manufacture*
of sulfonic acids from sulfonating agent, P 7224*a*.
of sulfur, P 7652*h*.
with sulfuric acid emulsions, P 9430*e*
of tanning materials—see *Tanning materials*.
of volatile materials from natural products, 4521*h*.
**Extraction apparatus,** P 3669*e*
for bulk material, P 5238*a*.
continuous, for aq. solns., P 3250*a*
countercurrent, 5647*e*.
Kennedy continuous, 911*i*.
packing for columns, 2042*d*
for detn. of theobromine in cocoa, 2709*d*.
for fat acid from paraffin-wax-oxidation mass, P 8667*b*.
for fat detn. in vegetables, 1122*f*.
for fat fractionation, P 1585*i*.
for gas from plant sap or tissue, 8454*e*
glass, for large quantities, 8747*b*.
for hydrocarbon mixts., 8654*a*.
from hydrocarbon oils with liquid $NH_3$-solvent mixts., P 3192*ccf*.
for hydrogen sulfide removal from hydrocarbons, 7297*h*.
for iron chloride with ether, 2042*g*
liquid-liquid, 4031*e*.
countercurrent, P 3023*a*.
lab., 4901*f*.
for liquids, P 4907*b*.
for liquids with liquids under pressure, 2474*e*.
micro-, for phenol detn., 974*c*
multiple-, 8756*b*.
for oil and resin from vegetable materials, P 4873*f*.
for oils, P 884*h*, P 5214*i*, 6841*h*.
continuous countercurrent, 5973*d*.
distn. app. for, 7269*h*.
for oils and their by-products from seeds, P 2794*g*.
for oil seeds, continuous countercurrent, P 4524*h*.
for ozocerite, P 6404*d*.
for ozocerite, etc., P 5186*b*.
solid-liquid, and its application for sugar extn., 4813*f*.

for solids, 2477*i*.
for solvents lighter than water, 3607*h*.
for soybean oil with $C_2HCl_3$, 9491*b*.
for spices, 8573*f*.
spray, P 8759*c*.
for stand oils and Zn-white enamels, 5202*i*.
for sugar manuf., —see *Sugar manufacture*.
thimble, P 8218*h*.

**Extracts.** No entries this year. See *Flavoring materials; Fluidextracts; Infusions; Organ extracts; Pharmaceuticals; Tanning materials; Tinctures;* as well as *Pancreatic extracts*; etc.

**Extrinsic factor or principle.** (See also "antianemic factor" under *Anemia*.)
pteroyl derivs. as, 9196*d*.

**Extrusion,** of cellulose acetate sheets, 2027*c*.
of colored articles from vinyl polymers, P 5632*c*.
of fused filament-forming compns., P 6000*c*.
of magnesium alloys, arbors for, 9014*d*.
plastic-material working by, 9524*f*.
of rayon—see *Rayon*.
of steel in cold, 7882*h*.
of tetrafluoroethylene polymers, P 2037*d*

**Extrusion apparatus.** (See also *Molding*.)
for aluminum, P 989*d*.
for fused filament forming compns., P 6000*c*, P 6832*i*.
for fused org. materials, P 5907*f*.
for plastics, 5988*g*, 9524*f*.
for polyethylene, P 9533*b*.
for polyisobutylene drying, P 6002*i*.
for rayon—see "spinning app. for" under *Rayon*.
for thermoplastics, P 7262*g*.

**Exudates.** (See also *Transudates*.)
acetone bodies in, 2691*a*
coagulation of, 2307*h*
leucopenic factor in alk., 4756*d*
lipases in, 2691*b*.
lipases in inflammatory, blood content and, 2697*i*.
polypeptide content of, 2691*a*.

**Eye lotions,** buffer solns. for, 355*e*

**Eyes** (See also *Cataracts, Glaucoma, Vision; Visual purple; Xerophthalmia*, and "A" under *Avitaminosis* and *Vitamins*.)
accommodation, effect of thiamine on, 4771*g*.
acetalphosphatides in structures of, 4753*i*
amphetamine effect on, 4772*c*.
anaphylactic reaction in, 5109*b*.
anesthesia of, butacaine in, 3522*i*.
aqueous humor, compn. of, 5485*i*
effect of atropine, homatropine, eserine and prostigmine on osmotic pressure of, 4775*a*.
effect of histamine on exchange between blood and, 1113*i*
filtration and secretion in formation of, 4750*b*.
histamine in, during injection of histamine, 1473*f*.
passage of substances from blood to, 1847*h*.
purine substance in, 3503*f*.
Na entrance into, 4750*a*.
streptomycin in, after subconjunctival injection, 8057*i*.
sulfonamide passage into, 4771*i*.
aqueous humor-plasma chloride ratios in rabbits, dogs and human beings, 2665*a*.
biochemistry of, 4305*b*.
blood barrier, action of histamine and antihistaminics on permeability of capillaries of, 3526*a*.
books: Physiology of, 748*a*; Diseases of the Fundus Oculi with Atlas, 755*g*, Diseases of, 755*k*; Ophthalmology in the War Years, 756*b*; May's Manual of Diseases of, 8051*b*.
burns of, from alkali, 2341*i*.
burns of, from chemicals, 2711*e*.
carbonic anhydrase in, in ontogenesis, 4358*i*.
cells of frog tadpole, effect of α-rays on, 1445*b*.
chemosis of rabbit, by mustard oil, effect of antihistamines on, 2315*d*.
conjunctiva, drug effect on, 756*c*.
conjunctiva, passage of sulfonamides into, 4771*h*.
cornea and lens, distribution of glutathione and vitamin C in, 1849*i*.
cornea, emetine effect on, 8057*h*.
cornea, injury by mustard gas and allied toxic agents, 766*i*, 8110*e*.
corneal epithelium, adhesion to stroma, compns. affecting, 768*d*,
*corneal epithelium*, adhesion to stroma, effect of histamine and related substances on, 769*c*.
adhesion to stroma, effect of mustard on, 769*d*.
effect of antihistamines on loss of adhesiveness of, after histamine administration, 2700*h*.
intercellular cohesion in, 8514*d*.
mitotic and wound healing activities of, in thiouracil treated and thyroidectomized rats, 7578*i*.
diseases of, aureomycin in treatment of, 6368*i*.
diseases of, lactoflavin and nicotinic acid in, 9196*g*.
dolantin effect on, 4771*f*.
drugs used on, effect on penicillin activity, 4772*d*.
effect of citral and β-ionone on, 1488*g*.
ganglion cells of retina in methanol poisoning, 1859*i*.
glycine effect on, of chicks, 2293*d*.
gold in, in arthritis, 763*e*.
hemato barrier, effect of antihistamines on permeability of capillaries of, 1107*i*.
in hydrocyanic acid poisoning, 3522*g*.
iris of, antagonism of acetylcholine and atropine in action on sphincter muscle of, 4381*b*.
iris of, effect of tetanus toxin on acetylcholine and cholinesterase in, 4761*e*
-irritating factors in smog, 7672*h*.
Kayser-Fleischer ring in, chem. nature of, 4762*c*.
lens of, albuminoids of, 1815*d*.
cancer and, 748*b*.
oxidative capacity of cataractous, effect of amino acids on, 8044*f*
oxidative metabolism of, effect of riboflavin on, 3503*e*.
readily available space of, 9207*b*.
transmethylation in, 7059*e*
lens substance, action of proteolytic enzymes on, 3512*i*
lesions of, from lewisite and other arsenical vesicants, BAL in treatment of, 4372*b*.
lipoid exts. from, effect on dark adaptation, 3933*i*.
mucoproteins of, 7525*e*.
myelin in optic tracts in underfeeding, 734*f*.
nerves—see "optic" under *Nerves*.
nutrition and, 8022*f*.
ointments for, 2734*h*.
in pantothenic acid and pyridoxine deficiencies, 5457*i*.
phosphate exchange between blood and, 1473*g*.
pilocarpine effect on glaucomatous, effect of pH on, 764*b*.
pressure in, effect of insulin on, 1106*i*.
prostigmine effect on, 4772*a*.
pupil, effect of asphyxia, anemia, anoxemia and $CO_2$ on, 4374*i*.
pupillary response to adrenaline, effect of low temp. on, 5053*b*.
retina, behavior of photographic plate and, 1276*f*.
cholinesterase in, 1473*e*.
effect of amphetamine, ephedrine and adrenaline on blood pressure in, 6735*a*.
effect of priscol on blood pressure in, 3522*g*.
glycolytic activity of, during dark adaptation, 3503*g*.
hemorrhages of, in avitaminosis K of newborn, 1486*h*.
metabolism and light sensitive substances of, 7107*c*.
phosphatase activity of, of chick embryo, 8495*a*
P compds. and enzyme systems of, 8040*c*.
respiration and glycolysis of, after section of optic nerves, 7105*e*.
vitamin $B_1$ in, 8514*f*.
retinenes in, reduction to vitamin $A_1$, 3077*e*.
sclera, mucoids of, 3506*b*, 5103*c*.
tension in, and retinal arterial pressure in acetylcholine shock, 6723*a*.
tension in, diencephalon in regulation of, 755*d*.
tolerance to Al and its alloys blood pressure in, 6735*b*.
tuberculosis of, streptomycin in treatment of, 6729*a*.
uranium compd. absorption through, and damage to, 8529*f*.
visual purple state in retina and scotopic dominator, 8503*f*.
vitamin A content of plasma in relation to, 5458*c*.
vitamin $B_1$ in, of fishes, 1117*a*.
vitamin C in cornea, corium and retina of, 5848*a*.
vitamin prepns. from, P 7198*b*.
wetting agents in treatment of, 3563*f*.
zinc sulfate effect on, 5860*c*.

**Eye-spotted budmoth.** See *Spilonota ocellana*.

**Eye washes.** See *Eye lotions*.

**Eykman formula.** See *Refraction*.

**Ezomatu,** lignin from, structure detn. by hydrogenation of, 2427*hi*.

**Faba vulgaris.** See "broad" under *Beans*.

**Fabiatrin,** and hexaacetate, 1770*d*.

**Fabrics.** See *Dyeing; Textiles*.

**Facsimile recording.** See *Recording*.

**Factice.** (See also *Rubber, substitute and synthetic*.)
adhesives for tape from, P 1610*i*.
compns. from polyisobutylene and, P 2040*b*.
dispersions (aq.) of, amine soap-contg., P 2463*b*.
emulsions in urea resin or protein for pigment printing and dyeing, P 1990*k*.
from isano oil, 3630*d*.
manuf. of, P 895*f*.
as plasticizer in synthetic elastomers, 2010*i*.
reaction products with inorg. polyisocyanates and polyisothiocyanates, P 9088*b*.

**Factor A.** See *Carotene;* and "A" under *Vitamins*.

**Factor $A_2$.** See "$A_2$" under *Vitamins*.

**Factor CH.** See *Growth substances*.

**Factor V** (*factor five*), prepn. and properties, 2255*c*

**Factor G P-1.** See *Folic acid*.

**Factor L.** See "L" under *Vitamins*.

**Factor I** (*factor one*). See "$B_2$ complex" and "$B_c$" under *Vitamins*.

**Factor PP.** See *Nicotinic acid*.

**Factor R.** See *Hyaluronidases*.

**Factor Rh.** See "Rh factor" under *Blood*.

**Factor VI,** identity with Ac-globulin, 1815*e*.

**Factor S. L. R.** See *Rhisopterin*.

**Factor $U_1$.** See *Ergosterol*.

**Fading.** (See also *Bleaching; Color(s); Dyes*.)
of army clothing by monochloramine-B in laundering, 1573*e*.
of astacin pigments in fish, effect of sulfa compds. on, 1498*e*.
effect in photometric detn. of Ni and Fe, 8208*f*.
measurement of, control of humidity and temp. in Fade-Ometer in, 8685*d*.
photochem. degradation of dyed nylon and rayon in relation to, 854*c*.

**Faeces.** See *Feces*.

**Fagara.** See *Zanthoxylum*.

**α-Fagarine,** 602*d*, 1778*f*.
compds. related to, 2211*i*.
compds. related to, pharmacol. action of, 2320*d*.
identity with α-allocryptopine, and derivs., 4280*g*.
pharmacol. action in toad, 7583*g*.
toxic action of, 7584*a*.

**γ-Fagarine,** from *Aegle marmelos*, 2993*g*.

**Fagarines,** II, and derivs., 4280*i*.
III, and hydrochloride, 4280*i*.

**Fagarol,** from *Zanthoxylum*, 5546*f*.

**Fagopyrum.** See *Buckwheat*.

**Fagus.** See *Beech*.

**Faience.** See *Ceramic ware*.

**Faktorovskya aschersoniana,** effect of minerals on fruit formation in, 8459*e*.

**Falkmanite,** identity with boulangerite, 8983*c*.

**Fall armyworm.** See *Laphygma frugiperda*.

**Fallopian tubes.** See *Oviducts*.

**Fallot's tetrad,** oxidation-reduction potential of blood serum in, 5483*f*.

**False spider mites,** control with parathion, 8088*i*.

**Fans,** flow in discharges from, 6871*b*.

**Fanweed.** See *Pennycress*.

**Fanyline.** See "phenylhydrazide" under *Acetic acid, fluoro-*.

**Faraday constant,** 4948*c*.

**Faraday effect.** See "magnetic" under *Optical rotation*.

**Faradiol,** and derivs., 1750*f*.

**Faradione,** 1750*h*.

**Farina,** mixt. with corn flour and wheat germ, 5-pentadecylresorcinol as antioxidant in, P 884*e*.
mixt. with sand, flow through screw conveyer, 6872*c*.

**Farinograph**, measurement of absorption of water by mixt. of flour and nonfat milk solids with, 2336*h*.
**Farma 939***, effect on hyaluronidase and staphylocoagulase, 3855*h*.
effect on lysozyme action, 3855*g*.
**Farnesal***, review on, 9375*h*.
and semicarbazone, 7900*f*.
**Farnesol** (*3,7,11 - trimethyl - 2,6,10 - dodecatrien-1-ol*), com. prepns., 2370*h*.
**Fasciola hepatica**, DDT effect on, 4414*d*.
effect of drugs on, 5503*h*.
vitellogens of, staining of, 3529*d*.
**Fassaite**, in marble from Tiree Is., Hebrides, 4606*c*.
**Fasting**. See *Inanition*.
**Fastness**. See *Dyes; Fading*.
**Fast Red**. See *Dyes*.
**Fat acid oxidase**. See *Oxidases*.
**Fat acids**. See *Acids; Fatty acids*.
**Fatigue** (*mechanical*), of austenitic cast Fe, 6554*a*.
book: des métaux, 5724*f*.
cold work and, 7394*e*.
corrosion—see *Corrosion*.
crack (discontinuous) propagation in, 9010*c*.
of magnesium alloys at high temps., 9013*c*.
measurement of, economy in, 8999*b*.
of metals and alloys, 1302*f*.
of plastic materials, 1603*c*.
of rubber-cord bond, 7252*b*.
of metals, 1697*c*.
in petroleum still overhead system, prevention of, 5179*a*.
prevention of, by rolling or shot-peening, P 5731*a*.
resistance to, of Cr and Ni plated parts, improvement by heat-treatment, 8900*e*.
of solder, 6964*a*.
of steel rods, magnetic properties and, 4616*b*.
steel structure and, 6556*g*.
strength, of crankshaft steel, effect of nitriding on, 2560*h*.
of Ni electrodeposits, 2100*i*.
of S.A.E. 1095 steel after various heat-treatments, 539*h*.
of steel, creep strength and, 1302*c*.
of steel, effect of inclusions on, 2146*g*.
of steel, effect of microfissures in Cr plate on, 2099*c*.
testing subzero, of metals, 80*f*.
of titanium, 3765*i*, 7882*a*.
**Fatigue** (*physiological*), adrenals and, 7102*f*.
caffein prepn. for use against, P 5909*c*.
of heart, effect of adrenal cortical hormone on, 1851*f*.
muscle excitability in, acetylcholine effect on, 2685*b*.
synaptic, chem. mediators of post-ganglionic fibers and, 9260*h*.
**Fat liquors**. See *Leather*.
**Fats**. (*For studies of general interest relating to analytical indexes, as methods for their detn., see such headings as* Hydroxyl number; Iodine number; Saponification number. *See also* Butter; Cacao butter; Cacao butter substitutes; Glycerides; Grease; Lard; Lipides; Lipolysis; Oils; Shortening; Stearin; Tallow; *etc.*)
absorption and deposition in animal body, linoleic acid in relation to, 3497*d*.
absorption and digestion of, 9197*h*.
absorption and transport of, effect of internal secretion on, 9198*c*.
absorption of, 1842*d*, 8509*a*.
in celiac disease, dietary starch and, 8026*b*.
continuous enteral diffusion in studies on, 4359*e*.
in diarrhea in Addison's disease, 4759*g*.
from digestive tract, 9211*h*.
effect of fat acids on, 1842*i*.
from intestine in thoracic-duct fistula, 8522*c*.
acids—see *Fatty acids*.
acrolein formation from, 5971*h*.
analysis of, 422*i*.
com. report on, 6837*i*.
for conjugated and nonconjugated poly-unsatd. constituents by spectrophotometry, 7722*a*.
discussion of, in Austrian pharmacopeia, 815*f*.
selective absorption in, 2840*a*.
spectrochem., 878*g*.
uniform methods comm. report on, 5975*b*.
analysis of, and detn. of phys. consts., 3145*b*.
analytical and organoleptic findings on, 6747*d*.
anemia from, lipotropic action and, 2315*c*.
in animal organism after hypophysectomy, effect of adrenocorticotropic and growth hormones on, 8489*d*.
in animal organism and organs, effect of testosterone propionate and growth hormone on, 3089*f*.
in animal organism, d. of body and, 4746*g*.
antiacrodynic potency of, effects of autoxidation on, 1104*i*.
antioxidants for, 3633*f*, P 6333*f*, P 9294*d*.
from butylated hydroxyanisole, 9286*a*.
from citrus fruits, P 3948*e*.
diisoeugenol, P 1586*d*.
in foods, etc., P 1880*f*.
fumaric and maleic acids as, 3633*f*.
Mg glycerophosphate, P 4876*g*.
norconidendrin as, 6842*a*.
nordihydroguaiaretic acid, P 2793*e*.
nordihydroguaiaretic acid-$H_3PO_4$ synergistic mixt., P 3637*g*.
from rice bran, P 1586*b*.
used in baking, 5127*f*.
in aquatic animals and fish, selective distribution by mol. size, 8179*d*.
in bacon, carotene-bleaching and peroxidizing substances in, 3633*g*.
from bacury (*Platonia insignis*) seeds, glyceride compn. of, 7720*g*.
of Balsaminacea, AcOH and parinaric acid in, 134*h*.
bear, 879*g*.
bleaching of, P 3219*d*, P 5612*i*.
with $ClO_2$, P 6844*a*.
$NaClO_2$ in, 8705*f*.
in blood—see also *Lipemia*.
in blood in anoxia, 2302*a*.
effect of dietary soybean and butter oils on, 8473*e*.
after ligation of thoracic duct, 3081*c*.
in NaOH poisoning, 8549*a*.
in blood serum, in hypertony, 8522*a*.
interfacial tensions and, 1823*f*.
in xanthomatous biliary cirrhosis, 3095*f*.
bone and kidney, of horse, 6839*c*.
of bone marrow, incorporation of methylene C atom of glycine into, 5054*b*.
bone, specifications and analytical methods of Brit. Standard Inst. for, 1581*c*.
books: De scheikunde der, 883*h*; Theoretical Bases of Hydrogenation of, (in Russian), 3219*d*; Análisis de, y sus mezclas com., 6436*i*; Chimica e tecnologia degli, e derivati, 6843*e*; Books on—1940-49, 6843*f*; Constantes et données numériques des corps purs de la chimie des corps gras, 6843*f*; Chinese Vegetable, 7725*i*; Gewinnung von, 8180*g*; Vegetable, 8611*g*.
butter adulteration with, 781*g*.
caloric efficiency and, 4741*h*.
in *Cestrum hediondinum*, 2279*i*.
in cheese—see *Cheese*.
Chinese vegetable tallow, 5205*i*.
-chloroform reaction with diphtheria bacteria, 1830*c*.
cholesterol detn. in, 0695*g*.
in chyle, EtOH absorption by blood and lymph in relation to, 8537*b*.
citrus-seed hydrogenated oil as edible, 880*f*.
coatings resistant to, for foods, etc., P 8576*d*.
colorimeter for industry of, P 6012*b*.
color of, measurement by spectrophotometer, 5975*d*.
colostrum—see *Colostrum*.
consts. of, detn. of, 879*a*.
corrosion inhibitors for use in, dicarboxylic acid mixts. with alkyl acid esters of P acids, P 1180*e*.
in cream—see *Cream*.
cryoscopic studies of Indian edible, 6840*b*.
in dairy products—see *Dairy products*.
deacidifying and deodorizing, app. for, P 7242*a*.
deacidifying and deodorizing, under vacuum, 5609*c*, 8705*h*.
degradation of, in organism, 1475*e*.
dehydrogenation of, 3976*f*.
deodorization of, in semicontinuous units, 4494*i*.
deodorization of, still for steam, 3636*i*.
deposition in body, effect of choline, cystine and methionine on, 2681*g*.
deposition of trienoic fatty acids in, of pig and rat, 292*e*.
detn. of, 5972*g*.
in bones, 6751*f*.
in dairy products—see *Cheese; Dairy products; Ice cream; Milk, analysis*.
in feces, 4313*i*, 4322*g*.
in flour products after baking, 7596*h*.
in foods, 9285*e*.
in milk—see *Milk, analysis*.
in nuts and nut products, 9290*i*.
in plants, 3746*b*.
in presence of much sugar, 6433*g*.
by refractometer, 5609*a*.
in vegetables, app. for, 1122*f*.
from dhupa (*Vateria indica*) seeds, fatty acids and glycerides of, 4873*h*.
in diet, Ca excretion and, 3902*h*.
effect on diethylstilbestrol-induced mammary cancer, 8028*a*.
effect on growth and amino acid excretion, 7559*i*.
effect on growth and food and water consumption in vitamin $B_1$ deficiency in relation to exercise, 9184*b*.
effect on tumor development in choline-deficient rats, 6295*g*.
effect on work capacity during subsequent fasting, 1091*g*.
liver damage and, 3077*c*, 3080*f*.
of pregnant women during war-time rationing, 1845*e*.
in relation to fatty changes, fibrosis and necrosis of liver, 3894*i*.
diet low in, effect on alloxan intoxication, 2682*h*.
diet rich i effect in alloxan diabetes, 9234*c*.
effect on amino acids in blood, 5834*e*.
effect on amino acids in liver, 5095*i*.
effect on methionine excretion, 6307*b*.
liver diseases and, 1095*a*.
digestibility of natural and hydrogenated, effect of dietary Ca and Mg on, 5460*g*.
digestion of, delayed gastric emptying and, 5105*d*.
from ears, feet and lips of cattle and hogs, 5220*g*.
economy of food utilization in relation to, 5461*b*.
economy of, in Czechoslovakia and Poland, 2789*g*.
economy of, in detergent industry, 3636*c*.
effect on absorption of β-carotene, 9196*c*.
on Ca and P metabolism during growth, 7558*c*.
on cholesterol in blood and organs of mice, 8506*f*.
in diabetes, effect of 2-thiouracil on, 7583*i*.
on duodenal secretion, 8028*h*.
on foam formation in beer, 0359*g*.
on growth of chicks, riboflavin and, 7559*h*.
on intestinal synthesis of biotin, 5461*a*.
on lactose metabolism by chickens, 7557*h*.
on reproduction capacity in vitamin E deficiency, 9190*e*.
elaidinated, keeping quality of, 2789*g*.
embolism, 1479*c*.
emulsifying agents for—see *Emulsifying agents*.
emulsions of, with bentonite for leather dressing, P 1206*h*.
effect on O consumption, 6733*h*.
for intravenous feeding, 4768*h*, 5098*b*.
in intravenous feeding, 2679*i*, 4741*g*.
nonfrothing stable, emulsified by cellulose Me ethers and Na salt of (carboxymethyl)cellulose P 6437*e*.
from erucic acid oils, 7240*i*.
esterification (re-) of, with glycerol, monoglycerides by, P 6843*g*, P 9494*e*.
from estrogen-treated birds, effect of feeding, on human subjects, 8032*b*.
extn. of carotene and carotenoid from, after sapon., P 3220*e*.
extn. of edible, 6751*f*.
extn. of, from egg or entrails, P 5977*d*.
from foods, 7602*e*.
by liquid-propane Solexol process, 2787*g*.
from nuts, P 6844*d*.
fate of deposited, fried, heated and ingested, 1997*d*.
fatty acid content of, 2449*b*.
fatty acid radical rearrangement in triglyceride, P 863*h*.
from fatty acids (branched), 6164*g*.
in feces after cholecystectomy, 740*f*.
feed supplements high and low in, comparative value with alfalfa hay, 8473*i*.

in fish meal, 1877*a*, 7155*c*.
fish oil (unhydrogenated) detection in, 880*a*.
in food, loss during prepn., 5508*i*.
formation of, in adipose tissue, 2690*c*.
from carbohydrates, effect of vitamin B complex on, 1468*e*.
choline as lipotropic factor in, 1467*a*.
in dairy cows, estg., 7600*b*.
in *Fusarium lini*, effect of naphthoquinones on, 9161*a*.
lipotropic factors in, 2324*i*.
microbiol., P 9166*h*.
by molds, requirements for, 4335*h*, 4336*a*.
by pancreas factors, 6268*b*.
in pigs, effect of thiouracil on, 8466*h*.
in pigs, feeding expts. on, 9193*a*.
from pyruvic acid in heart and diaphragm, 8513*e*.
in rats, inositol, choline, etc., in, 2295*g*.
from sulfite-liquor fermentation, 8091*c*.
in turkeys, effect of thiouracil on, 8466*b*.
by yeasts, 6361*g*.
fungicidal action of, 4413*cd*.
of *Fusarium*, effect of solanione on, 9162*b*.
fusion point of, measurement of, 6327*f*.
in grain, storage effect on, 324*c*.
heated, biol. effects of, 5102*i*.
hemolysins in animal and plant, 1119*g*.
in herring, 8069*c*.
human, 8494*d*.
hydrogenated, detn. of Cu and Ni in, 1199*h*.
effect on Ca and P utilization compared with butter fat, 8476*d*.
isoöleic acids in Indian, 2449*c*.
hydrogenation of—see *Hydrogenation*.
-hydrolysis enzymes—see *Lipases*.
hydrolysis of, in autoclave, 4873*g*.
in autoclave, Zn in, 3215*h*.
with naphthalene-sulfonated-terpene condensation products, P 3219*d*.
hydrolysis of unsatd., in autoclave with Ni oxide, 5609*d*.
hydroxyl-group detn. in toluene-sol., 66*i*.
illipe—see "mowrah" below.
industry of, history of, 3215*g*.
infants sensitive to, curd from skim milk for food for, P 6757*i*.
in insects, susceptibility to DDT and benzene hexachloride in relation to, 8561*f*.
International Chem. Union Comm. report on, 3634*f*.
in invertebrates of Black Sea, 6746*c*.
iodine value during processing of, 6840*c*.
iodoestradiol in, after administration, 3081*h*.
iron detn. in, 8953*i*.
isomerization of, P 2341*a*.
lactogenic-hormone effect on, in liver and carcass, 8493*a*.
leather quality and, 2456*h*.
linoleic acid detn. in edible, 3215*h*.
lipides in blood after administration of, in normal and pathological conditions, 2296*bcd*.
in liver, effect of adrenocorticotropic and growth hormones on, 9197*b*.
effect of adrenocorticotropic hormone on, 5472*e*.
effect of diethylcholine and ethionine on, 1470*g*.
after hypophysectomy and thyroidectomy, and effect of choline thereon, 7580*c*.
in infectious hepatitis, 3922*f*.
during pregnancy, 6717*d*.
during protein depletion, 8478*c*.
of rat fed protein-free diet, 2297*h*.
liver infiltration with, effect of estrogenic hormones on, 9203*e*.
loss of, during prepn. of potato pancakes, 6754*f*.
for lubricating-grease manuf., 5971*g*.
in lymphocytes, effect of β-chloroethyl vesicants on, 2701*e*.
lysis by various compds., 3103*i*.
mahua—see "mowrah" below.
manuf. and uses of, 6839*g*.
in margarine, change on storage, 327*d*.
metabolism of—see "lipide or fat" under *Metabolism, animal*.
microorganisms in cecal contents of rats fed various, 2276*d*.
milk—see *Butter; Cheese; Cream; Dairy products; Ice cream; Milk*.
mobilization of reserve, hormonal and nervous factors in, 9196*d*.
mowrah, detn. of rate of extn. of, 7721*b*.
mowrah, sulfation and sulfonation of, and stability and wetting power of products, 4031*b*.
of *Myrica cordifolia* fruit coat, 3217*d*.
neutral substance in acid, detn. of, 4029*g*.
in nutrition, 3901*f*.
nutritive value (comparative) of, 8023*g*.
nutritive value of vegetable, compared with butter during low temps., 4738*g*.
as ointment bases, 6301*i*.
olive-oil detn. in mixed, 5973*i*.
in organisms during evolution, 8414*i*.
in organs, effect of vitamin C and gluconic acid on, 9182*h*.
oxidase affecting—see *Lipoxidase*.
oxidation and spoilage of, 3216*i*.
oxidation (aut-) of, detn. of speed of, 879*d*.
oxidation (aut-) of olefinic, 4493*g*.
oxidation of, 4311*b*.
in detn. of functional groups, 6840*i*.
inhibition of, 2449*e*.
lipoprotein in, 4311*c*.
in milk powders, detection of, 2707*h*.
in pharmacy, 3976*f*.
spectrophotometric studies on, 7987*c*.
oxidation of unsatd., by enzymes, 8406*b*.
oxidizability and action of antioxidants on, measurement of, 1583*g*, 2791*d*.
of ox, pig and sheep bodies, 2790*g*.
peroxide detn. in, 6840*g*.
peroxide structures in oxidized, polarograph in distinguishing, 2789*i*.
pharmaceutical use of, 5546*b*.
phase investigations of, 6839*a*.
in phosphatide-cerebroside fraction of nervous tissue, 703*h*.
in placenta during O starvation, 4359*c*.
from *Platonia insignis*—see "bacury" above.
processing of, 1497*f*.
production and uses of sol., 5609*h*.
-proofing—see "-proofing" under *Grease*; and "-resistant" under *Oils*.
rancidity detection or detn.—see *Rancidity*.
rancidity development in, packaging materials for prevention of, 3531*f*.
rancidity in eviscerated poultry, 1087*g*.
rancid, nutritive characteristics of, 9180*a*.
recovery from leather scrap, P 4505*a*.
recovery from waste waters, P 2720*c*.
recovery of—see also *Grease*.
recovery of monoesters with polyhydric ales. and of volatile nonsaponifiable matter from, P 2794*f*.
removal from bone liquor in glue prepn., 4504*g*.
from fuller's earth, P 7609*c*.
from pharmaceuticals, 1149*c*.
from rutin exts., P 1913*e*.
from wool-scouring wastes, 8080*dc*.
rendering, activated-sludge treatment of wastes from, 6767*g*.
rendering, in presence of hydrated silica, P 1585*h*.
reviews on, 4495*i*, 4595*f*, 4788*f*, 4789*a*, 5203*g*, 6433*g*.
of *Sapium sebiferum*—see "Chinese vegetable tallow" above.
sapon. of—see *Saponification; Saponification number*.
in seeds during germination, 8457*d*.
shea, analysis for double bonds, OH groups and branchings in C chains, 1173*f*.
shea, unsaponifiable matter of, 7462*i*.
sheep-body, 1997*b*.
of sheep, effect on utilization of energy and proteins in rations, 5130*d*.
sodium carbonate incorporation and, 7567*f*.
solvent fractionation of, P 1585*i*.
solvents for, effect on phosphatase activity of skim milk and buttermilk, 326*d*.
spoilage of, 5972*h*.
detn. of degree of, 1997*a*
$H_2O_2$ detection to test for incipient, 5205*h*.
stability tests for, 2791*d*.
stabilization of, P 4397*b*.
sterols from, P 9088*d*.
storage effect on cooking quality, 1497*h*.
substances accompanying, and phospholipide detn. in, 4029*h*.
as suppository bases, 3563*f*.
synthesis of, from coal, 6827*h*.
from coal by Fischer-Tropsch products and air by paraffin oxidation, 5878*a*.
by hydrogenation of sulfurated vegetable oils with Ni catalyst contg. S, P 5613*b*.
by oxidation of hydrocarbons, 7241*d*.
synthetic, from fat acids with odd nos. of C from oxidation of paraffins, 9487*e*.
injuries of nervous system after feeding, 9195*g*.
succinic acid in urine after eating, 5097*c*.
in thromboangiitis obliterans, 299*c*.
tissue—see "adipose" under *Tissue, animal*.
toxicity of 2,4-dinitrotoluene and trinitrotoluene in relation to, 9194*g*.
transformation of, 3-C-atom compds. in, 421*i*.
o-tritolyl phosphate detn. in, 1911*e*.
in turkeys, effect of diet on, 1087*h*.
utilization in liver, choline in, 1852*a*.
utilization of, effect of galactose on, 737*b*.
utilization of parenterally administered, 9189*c*.
water detn. in, 9366*e*.
whale—see also *Oils*.
from wine residues and vine shoots, 6360*i*.
wool—see *Wool fat*.

**Fatty acid oxidase.** See *Oxidases*.

**Fatty acids.** (*For the purposes of this index so-called unsaturated fatty acids, e.g., those commonly found in fats, are entered here as well as the true fatty acids* ($C_nH_{2n}O_2$). *See also* Acids. *For studies of general interest relating to analytical indexes, as methods for their determination see such headings as* Iodine number.)
of *Abrus praecatorius* seed oil, 4496*a*.
absorption of, 1842*e*.
in *Acanthias vulgaris* egg oil, 5210*h*.
acidimetric properties of, and derivs., 3269*h*.
acrodynia and, 3497*b*.
β-acyloxy, P 1053*d*.
adsorbed at $Ph_2NH$-air boundary, 1238*i*.
adsorption by C black, 7289*e*.
by C black, effect on C dispersion in rubber, 1599*f*.
by C, effect of ultrasonic waves on, 7774*f*.
of alfalfa-leaf meal, 1999*i*.
β-alkyl- and arylmercapto, P 1054*f*.
allergy from infection and, 5857*d*.
analysis of mixts. of, by extn. with immiscible solvents, 8976*i*.
analysis of mixts. of volatile, 8976*h*.
antagonism to surface-active agents on gram-positive bacteria, 5822*c*.
aquatic- and marine-animal fat complex unsatd., 8179*c*.
arsenic derivs. of Ph substituted, 4237*a*.
in arteries in diabetic gangrene, 8047*e*.
β-aryloxy, P 1053*i*.
aryloxy derivs., purification of, P 7045*e*.
in avocado pear pulp oils, 9489*i*.
of babassu oil, 5207*e*.
bactericidal and bacteriostatic action of, 5906*b*.
of bacury-seed fat, 7720*h*.
from basil-seed oils, 1582*d*.
of *Benincasa cerifera* seed oil, 6842*e*.
in blood of chickens and turkeys, effect of estrogens on, 7561*b*.
in blood plasma of allergic and normal subjects after administration of soy-bean oil, 5107*e*.
in blood serum in hypertony, 8522*a*.
in nervous diseases, 5110*f*.
during Vichy cure, 5500*a*.
book: Bijdrage tot de physiologie van de essentiële vetzuren, 8029*b*.
boundary-friction-coeff. lowering in polysiloxane lubricants by, P 5939*g*.
branched-chain, 2931*f*, 3780*f*.
branched, tuberculosis and, 1855*i*.
in bread, effect on consumer acceptability, 2336*c*.
breakdown of, 9198*d*.
in buffalo-milk fats, 7600*d*.
in butterfat, 8569*d*.
of butterfats, hydrogenated groundnut oils and mustard oil, 1997*d*.
of candlenut oil, 5203*i*, 7723*b*.
in caoba-seed oil, 7722*c*.
carbon$^{14}$ detn. in, 4719*h*.
from castor oil and their vitamin F activity, 1472*e*.
in cheese cultures, effect of temp. on, 1497*b*.
of *Chlorella*, 2679*c*.
chlorinated, degradation of, 2164*d*.
HCl removal from, P 7502*e*.
reaction with metal carbonates, 2164*f*.
(chloroaryloxy) derivs., P 2234*a*.

(chlorophenoxy) derivs., P 2233*i*.
in cholesterol soln. in blood, 9210*f*.
chromatographic sepn. and detn. of satd. $C_{11}$-$C_{19}$, 69*d*.
chromatographic sepn. from perilla oil, 4031*i*.
chromatography of, in acid fats and oils, 4029*g*.
cis-trans transformation of unsatd., in autoxidation of peanut oil, effect on mol. enlargement and viscosity, 5973*b*.
of citrus-seed oils, 880*f*.
in coconut, cottonseed and sesame oil fractions distd. under reduced pressures, 424*c*.
coconut-oil, condensation with acetone-sulfonic acid and hydrazine, wetting agents by, P 5216*i*.
reaction of hydrazides of, with glucose, foaming and wetting agents by, P 9497*i*.
reaction with $C_2H_4O$, textile assistants by, P 7727*a*.
complex with streptomycin, 2668*i*.
concn. of, P 3637*c*.
condensation products and syntheses of, in detergent industry, 3636*c*.
condensation products with amino alcs., analysis of sulfated, 8705*g*.
conversion to alcs., P 1202*c*.
in corn, effect of oil sepn. on, 5875*h*.
of corn oil, 2450*i*.
as corrosion inhibitors and detergents in turbine lubricants, 842*a*.
corrosion inhibitors for use in, dicarboxylic acid mixts. with alkyl acid esters of P acids, P 1180*c*.
cream and butter water-insol., 6749*h*.
of Cruciferae oils, 9487*i*.
from cuttle-fish oil, lubricant prepn. from, 9424*a*.
cyano derivs., P 7502*g*.
dehydrogenation of, 2940*i*, 3357*c*.
deposition of trienoic, in fats of pig and rat, 292*e*.
desaturase of, 9090*i*.
detn. of, 3483*g*.
in butter and cream, 9282*h*.
in fats, 423*a*.
in feces, 2658*g*, 4322*g*.
in glycero-phthalic resin mixts. with polyvinyl acetate, 5226*g*.
in liquid toilet soaps, 5976*g*.
in olive husks, 4875*d*.
in soap fractions and soap boiling process, 3218*g*.
in soaps and oil residues, 8710*c*.
in tall oil, 9442*f*.
detn. of free, and their solidification temp. in bone grease, 1581*d*.
detn. of free, and their solidification temp. in tallow, 1581*c*.
detn. of free, in fats and oils, 879*c*, 6838*i*.
in fatty acid chloride-peptide condensation products, 3217*h*.
in wool, 6423*c*.
detn. of sol. and insol. volatile, in fats and oils, 3634*g*.
deuterium incorporation into, in animal, thyroid effect on, 8030*f*.
α,α-dialkyl ethylenic, P 7037*g*.
α-(2,4-dichlorophenoxy) derivs., P 7045*d*.
digestibility of, effect of dietary Ca and Mg on, 5460*g*.
dimerized, condensation products with ethylenediamine, coating compn. from, P 2037*c*.
distn. of, P 671*d*.
distn. of, app. for, P 671*a*, 2449*b*.
distn. of satd., of hydrogenated oils, 5207*c*.
distn. pretreatment for, 6433*i*.
distn. *vs.* extn. from natural products, 4521*h*.
of *Dodonaea viscosa* seed oil, 2451*a*.
of drying and semidrying oils, polymerization rate consts. and, 5605*h*.
drying, mixts. with rosin, plasticizer for GR-S rubber by sulfuration of, P 8732*h*.
drying-oil, bonding agents for friction materials from sulfurized, P 3949*a*.
conjugation of, by isomerization, dehydration and oxidation, 4025*g*.
polymerization with monovinyl aromatic compds. and monocarboxylic olefinic acids, P 5972*a*.
polymerization with vinyl compds. and olefinic acids and then polyhydric alc. and polybasic acids, P 6433*b*.
reaction with alkylphenol-$CH_2O$ resin, coatings by, P 7720*a*.
*drying-oil*, replacing nondrying, by polymerized fatty acids, P 9483*e*.
resins from pentaerythritol condensation products and, P 3232*i*, P 3233*a*.
effect on aging and drying rate of inks and formation of free acids in inks contg. Co salts of fatty acids, 7717*e*.
effect on concrete, 2751*i*.
on elasticity of oleate systems with KCl, 6401*f*.
on fat absorption, 1842*i*.
on glycolysis by *Escherichia coli*, 717*i*.
on ketone body excretion in diabetes, 1479*i*.
on ketones in blood of ruminants, 9188*b*.
on metabolism of acid-fast bacteria, 5082*h*.
on metabolism of normal and diabetic sheep, 753*c*.
on O uptake of *Blastomyces dermatidis*, 3883*i*.
on tubercle bacilli development, 717*h*.
in eggs (dried), detn. of water insol., 6750*i*.
epoxy, P 3030*d*.
essential, 9180*a*.
esterification and sepn. from resin acid solns. in *sec*-AmOH, P 3637*e*.
esterification of, with glycerol, 5207*a*.
with glycerol, fluoride catalysis of, 4030*g*.
with higher alcs. from sperm oil, 5609*f*.
esters—see *Esters; Glycerides*.
ethers of hydroxy, in mercerizing solns., P 9477*f*, P 9478*a*.
from ether-sol.-ext. of fish eggs, effect of putrefaction on, 327*i*.
extn. from fish oils and soly. diagrams for, 7724*b*.
extn. of free, from olive oil by alc., 4031*d*.
fat synthesis from branched, 6164*g*.
filtration and liquid phase extn. in fractional sepn. of higher, P 2793*i*.
of fish-liver oils from Adriatic Elasmobranchia, 5210*e*.
fish-oil, complex unsatd., 8179*b*.
metallic imino derivs., P 5978*d*.
spectra of isomerized polyunsatd., 879*i*.
flavor defect in Cheddar cheese and, 6750*e*.
formation of, 7065*i*
from acetamide and pyruvamide in liver, 3074*a*.
in aorta, 7114*g*.
in cottonseed in storage, relations of molds and moisture to, 4875*e*.
in ghee, effect of curd storage and boiling of milk on, 9283*e*.
in liver in presence of heavy water or labeled acetate, 5481*a*.
from pyruvic acid, 3073*i*.
formation of conjugated tetraenoic and trienoic, in autoxidized linolenic and linoleic acids and oils during alkali isomerization, 5974*c*.
friction at m.p. and reaction with metals of long-chain, in lubrication tests, 2417*g*.
in fruit peel, removal from fruit juice, P 331*c*.
as fungicides, 9386*i*.
of *Galeorhinus australis* oils, 2451*b*.
of *Galsum verum* waxes, 424*i*.
German synthetic, for coatings industry, availability of, 2787*i*.
in ghee, 1579*h*.
in ghee, effect on keeping quality, 8569*f*.
of *Gmelina asiatica* seed oil, 5612*a*.
in green oils, 9480*a*.
β-guanidino derivs., 3793*a*.
of habilla-seed oil, 7722*d*.
β-halo, decarboxylation of, 7901*f*.
halogenated satd., lower homologs from, P 2794*c*.
halogen-substituted, Raman spectra of, 6082*g*.
α-halo, reaction with chlorocresol, P 7044*g*.
halo, reaction with Na deriv. of allylbenzene, 3351*f*.
of *Hemideina thoracica*, 8562*b*.
of hempseed oil, 5208*b*.
of herring oil, 2001*e*.
higher dibasic, uses of, 5206*i*.
high-temp. processing of, 9488*h*.
in horse bone and kidney fats and bone marrow, 6839*c*.
of horse-chestnut oil, 1498*i*.
hydrocarbon-fuel manuf. from, P 4835*a*.
hydrogenation of, P 5977*af*.
*hydrogenation of*, app. for, P 5977*e*.
distn. of hydrogenation-resistant substances before, P 4032*h*.
hydroxy, 3785*a*.
condensation products of, in asphalt emulsification, P 5186*c*.
dehydration of, P 2220*g*, P 6220*b*.
ω-hydroxy, from wool, esterification with hydrogenated oils to waxes, P 3220*g*.
β-hydroxy, manuf. of, P 7039*a*.
hydroxy unsatd. higher, manuf. of, P 5792*c*.
identification and detn. of, crit. mixing temps. of paraffin oil in, 8309*a*.
identification of, from black bear fats 879*g*.
identification of, in textile auxiliaries 1585*c*.
identification of type of, in soaps, 6434*i*.
iodine no. of liver, detn. of, 9131*g*.
ionization of, effect of H and OH ions on, 8793*h*.
of *Ipomoea muricata* seed oil, 8708*h*.
of isano oil, 3630*a*.
Japan wax (bleached), 5211*g*.
Japan wax (hydrogenated) $C_{16}$ and $C_{18}$, and dibasic acids, 5207*d*.
of *Jatropha curcas* seed oils, 5975*i*.
of kamala-seed oil, 4027*c*.
ketone manuf. from aq. mixts. of, P 7037*e*.
linoleic acid detn. in mixed, 7721*h*.
of linseed oil and oils from seeds of niger, rubber, safflower, *Stillingia sebifera*, sunflower and *Tetracarpidium*, 4026*b*.
in linseed oil, detn. of, and formulas for, 4496*b*.
from linseed oil, esterification with 2,2,6,6 - tetramethylolcyclohexanol, drying oils by, 4871*e*.
in linseed-oil films having coordinated soaps as oxidation catalysts, effect on drying properties, 6836*i*.
of linseed, rubberseed and soybean oils 7718*d*.
in lipides of tissue, phosphatide content and, 4355*c*.
long chain dibasic, manuf. by hydrogenation of drying oils, splitting oils and disruptive oxidation of free fatty acid recovered, P 5214*d*
as lubricant pour-point depressant 2416*c*.
of *Luffa aegyptiaca* seed oil, 6842*e*.
lysozyme inhibition by, 7981*a*.
of mahaleb oil, 2791*f*.
in malaria-infected red blood cells, 4167*e*.
in mamey-seed oil, 7722*e*.
manuf., hydrogenation and esterification of, 7239*h*.
manuf. of, P 669*d*, P 3838*b*, P 5035*d*
by products from, in paint and varnish industry, 4028*c*.
by fermentation, P 4810*b*, P 7638*e*.
from low-grade fatty materials by re esterification and distn. of esters, P 3637*d*.
from monoolefins, P 1066*a*.
by oxidation of Fischer-Tropsch waxes, 1200*h*.
from paraffins, 3633*c*, 9029*bd*, 9030*acghi*, 9031*b*.
from paraffin wax, P 3607*a*, 4000*h*.
from paraffin wax, leaching from reaction mass, P 8667*a*.
β-mercapto and β,β′-thiodi, P 1054*d*
α mercapto, dithiolcarbonates as corrosion inhibitors, P 7955*f*.
of *Mesua ferrea* seed oil, 8708*f*.
metabolism of, 290*g*.
metal compds. of unsatd., and effect of acidic group in autoxidation of acids 1907*i*.
microwave absorption and dispersion in, 4092*i*.
in milk fat, acetate as precursor of, in ruminants, 4358*f*.
in milk (sheep), casein content and, 9280*c*.
of millet (Italian) oil, 4496*g*.
mixed micelle formation by soap ions and, formed by hydrolysis, and dissocn consts. of higher acids, 8179*i*.
mixt. with paraffins, oxidation of, 9029*a* 9030*a*.
mobilization of, during physiol. and pathol. states, 9217*c*.
monolayers of, phase changes in, 8796*f*.
from muskrat scent glands, 1579*h*.
in mustard- and rape-seed oils, effect of refining and bleaching on, 1001*c*, 2000*h*.
of *Myrica cordifolia* fruit-coat fat, 3217*d*
of *Nandina domestica* seed oil, 8708*i*.

in napahuite-seed oil, 7722*a*.
nitriles from, 4629*f*.
from oils, alkyd resin modified with, P 2815*e*.
of okra-seed oil, 880*h*.
olefins from, P 7034*i*.
olive-oil, linolenic acid detn. in, 3635*e*.
of onion-seed oil, 6842*f*.
in ovaries in pregnancy, effect of gonadotropic stimulation on, 3910*g*.
oxidation (aut-) of unsatd., 1446*d*.
oxidation (biol.) of, 4755*c*.
oxidation of, 2248*dh*, 2249*a*, 9030*a*, 9122*h*.
by kidney enzymes, 1449*h*.
by kidney homogenates, effect of fluoroacetic and fluorobutyric acids on, 4709*f*.
by liver mitochondria, 7520*g*.
of nervous tissue, 3505*h*.
ω-oxidation of, carbohydrate metabolism and, 9179*g*.
oxidation of dienoic, in fat spoilage, 3217*a*.
oxidation of hydroxy, P 676*h*.
oxidation of long-chain unsatd., with $OsO_4$, 1319*d*.
oxidation of unsatd., 125*f*.
oxidation of unsatd., in normal and scorbutic animals, 3895*b*.
oxidation products of, pyrolysis of, 9030*i*.
oxo—see *Acids*.
palm-oil, 2792*c*, 4031*g*, 5208*d*.
palm-oil, system: MeOH–palm oil–, 8834*g*.
of paraffin oxidation residues, 1993*b*.
from paraffin oxidation, synthetic fats from glycerol and, 9487*f*.
from paraffin-wax oxidation, 4000*h*.
from paraffin-wax oxidation, reaction with ethylene oxide, nonionic detergents from, 5213*f*.
of pataua oil, 2792*e*.
of peanut oil, oxidation of, 5212*g*.
peanut-oil quality and content of free, 8178*i*.
of *Perilla frutescens* seed oil, 8709*a*.
peroxide (org.) desensitization with, P 1807*a*.
phenoxy, P 689*d*.
physiol. action of, and examn. and sepn. of constituents of unknown mixts., 6839*g*.
plaster of Paris contg., P 4444*h*.
polymerization of dienes and acrylonitrile or styrene in presence of, P 2819*f*.
polymerization of higher unsatd., to drying oils, 4872*d*.
polymerization of unsatd., in drying oils, 1997*c*.
polymerization, polyesterification and hydrogenation of, from linseed and soybean oils, 8699*a*.
polymerized unsatd., polyamide resins from ethylenediamine and, P 440*d*.
from polymyxin, 9386*f*.
in polymyxins A, B and D, 9386*e*.
poly-unsatd., effect on fat metabolism, 1093*f*.
in poppy-seed oil, effect of seed treatments on, 4031*h*.
potassium salts, for thiol removal from hydrocarbon distillates, P 4844*d*.
prepn. of higher, starting from crotonaldehyde, 5363*g*.
of rape-seed oil, 1201*a*.
reaction of unsatd., with thiols, P 2219*g*.
reaction products with acrylic esters, P 2034*d*.
reactions (addn.) of ethylenic, in their isolation, 565*i*.
reactions (addn.) with butyl vinyl ether, 7425*i*.
reactions with acetylene, P 7036*i*.
with alkyl vinyl ethers, 3785*i*.
with Al alkoxides, 3688*g*.
with $NH_3$, P 666*f*.
with chlorosulfonic acid, P 2220*c*, P 3220*h*.
with $CH_2O$, 567*c*.
with metals, formation of lubricating layers and, 8799*g*.
with $H_2SO_4$ and $HN_3$, 9027*bg*.
rearrangement of radicals of, in triglyceride fats, P 883*i*.
removal from fats and oils, *in vacuo*, 5609*c*, 8705*h*.
from fats, app. for, P 7242*a*.
from higher alcs. by hydrogenation, P [illegible].
from olive oil by alc.-$NH_3$ mixt., 5208*f*.
from rice oil, by vacuum distn., 8709*i*.
removal of free, from oils, P 9494*f*.
removal of vaporized, scrubbing app. for, 4405*i*.
requirements of *Clostridium sporogenes* for, 7083*e*.
resinous reaction products of, from drying oils with glycerol and maleic anhydride, P 3216*c*.
reviews on, 6433*g*, 9488*g*.
of rice-bran oil, 6842*d*.
from rice oil foot by hydrogenation and hydrolysis, 5611*h*.
in rice oil from stored polishings, 5610*a*.
in rice-oil wax, 5611*e*.
ruminant digestion of, 1475*c*.
salts—see *Salts; Soaps*.
of seal blubber oil and liver fats, 6839*e*.
segregation of fish-oil and soybean, by preferential neutralization, and drying oils by esterification of sepd. acids with glycerol, 6839*h*.
sepn. (fractional) of free, from oils by crystn. and vacuum filtration, P 884*f*.
sepn. of fish-oil unsatd., from mixts. with linolenic acid by Li and Na salt-acetone methods, 7721*f*.
sepn. of mixts. of, 7193*b*.
in shark-liver oils from Hamazame and Hosomezame, 7724*a*.
of sheep body fat, 1997*b*.
in soap manuf., P 8178*f*.
soap-oil dispersion peptization by, 4455*h*.
solubilization by soaps, 9492*a*.
solubilization with Na secondary alkyl sulfates, 466*a*.
of *Sophora japonica* seed oils, 2449*i*.
of sorghum-seed oil, 2450*g*.
in soybean oil during hydrogenation, 5209*h*.
spectra of, 7340*e*.
spreading of, on vaporized metallic films, 4923*g*.
stability of highly unsatd., 7721*d*, 9488*e*.
in steel cleaning, 1304*d*.
steel soln. in, rate of, 540*a*.
of stillingia oil, chromatography and spectrophotometry of, 7721*b*.
from *Stillingia sebifera* fruit-coat fat, 5206*h*.
strengths of, 470*c*.
structure of, nutritive value and, 9194*i*.
sulfated, in metal finishing, 4032*e*.
sulfation and sulfonation of vegetable-oil mixed, and stability and wetting power of products, 4031*b*.
sulfoaryl hydrazides, P 251*f*, P 6660*c*, P 7954*i*, P 7955*b*.
sulfo, as catalysts in ketone manuf. from anhydrides and olefins, P 3442*b*.
sulfurized, as corrosion inhibitors in lubricants, P 4459*c*.
in sunflower-seed oil, 882*h*.
tall-oil, 8676*f*.
autoxidation of, 9442*f*.
esterification with polyhydric alcs. to drying oils, 6432*b*.
oxidation of unsatd., 3611*g*.
in tangarine-seed oil, 7723*f*.
tanning (Fe) with aid of lower, from paraffin oxidation, 6852*d*.
tea-oil (hydrogenated Chinese) $C_{16}$ and $C_{18}$, 5207*d*.
ω 2-thienyl, 3817*f*.
thiodi, P 1054*h*, P 3840*e*.
titration of, and their mixts. with soaps, conductometric and potentiometric, 7239*h*.
titration (potentiometric) of higher, with $AgNO_3$, 4495*d*.
tocopherol destruction by, 737*e*.
transformation of, 3-C-atom compds. in, 421*i*.
unsatd., in oil, 7721*f*.
and their uses, 2449*b*.
of *Vatteria indica* seed fat, 4873*h*.
of whale oil (hydrogenated Antarctic finback), 5207*c*.
of whale oil, sepn. by crystn. from acetone and prepn. of Me esters, 2451*c*.
of wheat-germ oil, 7241*d*.
from wool fat, prepn. of specific hydroxy, P 3219*h*, P 3220*a*.

**Fatty degeneration or infiltration**, of liver—see *Liver*.

**Fatty materials**, antioxidants for, from vegetable oils, P 3637*fg*.
color of, measurement by photoelec. tristimulus filters, 7719*g*.
deodorization of, P 3638*a*.
detn. in wool, 6423*c*.
esterification (re-) with alcs. and acid and then alk. catalysts, P 3637*d*.
hydroxyl value of, 8177*h*.
oxidation of, in detn. of functional groups, 6840*i*.
oxidation of long-chain unsatd., to short-chain satd. compds., P 884*a*.
rancidification of, 1581*d*.
sepn. into components by filtration and liquid phase extn., P 2793*i*.

**Fatty oils**. See *Oils*.

**Faults**. See *Testing materials*.

**Favorskii-Babayan reaction**, 569*g*.

**Fayalite**, formation in Fe-cordierite synthesis, 5705*d*.
heat of soln. in HCl-HF mixt., 4187*h*.
in iron-O-Si system, 84*i*.
solid soln. with forsterite, heat of formation of, 3701*a*.

**F-centers**. See "centers of" under *Color(s)*.

**FD&C dyes**. See *Dyes*.

**Fear**, effect on HCl secretion by stomach, 5852*f*.

**Feathers**, amino acid compn. of, 4708*g*.
color pattern of, effect of thyroxine and antithyroid compds. on, 7455*b*.
feminization of capon, by hexestrol and estrogens, 1098*h*.
hydrolysis products of, P 6764*g*.
insecticides for, adipodinitriles, P 8604*f*.
isocyanate derivs. of powd., P 3241*e*.
pest control in, P 4422*e*.
pigmentation of, of bronze turkey, lysine in, 8466*a*.
pigmentation of, of vitamin D-deficient chicks, 284*i*, 8465*i*.
tract specificity, effect of estrogen on, 8508*c*.
water detn. in, 1824*c*.
water-repellence of duck, structure and, 1239*g*.

**Febrifuges**. See *Antipyretics*.

**Febrifugine**, and derivs., 5406*b*.
identity with β-dichroine, 1530*a*.
——, **dihydro-**, 5406*e*.
——, **nitroso-**, 5406*d*.

**Fecanin**, the name, 5099*g*.

**Feces**. (See also *Meconium*.)
acetylhistamine formation from histamine in, 3478*e*.
acholia of, 3918*e*.
amino acids in, 1852*h*.
amino acids in, effect of fat and diet on, 7560*a*.
analysis for fat and fatty acids, 4822*g*.
antianemic activity of ext. from, of pernicious anemia patient, 7586*f*.
antibiotic-producing organisms in, 4326*c*.
antigens in, in viral hepatitis, complement fixation with, 9223*b*.
arsenic excretion in, 3931*a*.
bilin in, of healthy children of countries with indigenous malaria, 3516*c*.
bilinogen in, of children, 2691*d*.
biliviolin-type spectra in, 3094*b*.
blood (occult) detection in, 7993*e*, 9139*b*.
calcium and P excretion in, in osteoporosis, effect of steroid hormones on, 5487*i*.
calcium, carbonates, chlorides and P in, of hens, 2291*b*.
calcium elimination in, 7556*h*.
carbon (radioactive and total) detn. in, 1285*h*.
chick growth factor from, 284*g*.
3-chrysenol isolation from, after chrysene administration, 9207*h*.
colicin-producing bacteria in, 9163*c*.
copper (radioactive) in, 3098*f*.
creatinine in, 2294*i*.
decompn. of, app. for collecting gases from, P 4837*a*.
diastase in, effect of penicillin treatment on, 9245*d*.
diseases borne by, control of, 9126*e*.
eating of—see *Coprophagy*.
effect on egg production, 294*i*.
fat detn. in, 4313*i*.
fat in, after cholecystectomy, 740*f*.
fats of, effect of feeding fats of different linoleic acid contents on, 3497*c*.
fertilizers contg.—see *Fertilizers*.
growth effects of methyltestosterone and, 1097*e*.
growth factor in cow, vitamin $B_{12}$ in relation to, 2298*b*.
iodoestradiol in, after administration, 3081*h*.
lignins of, 2285*a*.
lipide detn. in, 2658*e*.
lysozyme in, during breast feeding or artificial alimentation, 3898*b*.
male hormone of cow, effect of temp. and drying on activation of, 9126*d*.
microflora of hen, effect of carbohydrate and biotin-deficiency on, 736*e*.

microörganisms in, of rats fed carbohydrates and fats, 2276*i*.
nitrogen (endogenous) in, 4359*e*, 8025*c*.
pantothenic acid and vitamin $B_3$ in, 1094*c*.
phosphatase of, purification of, 9134*g*.
protein (metabolic) in, 5099*f*.
silver in argyrosis, and effect of BAL thereon, 7587*a*.
stomach chem. processes in relation to compn. of, 2687*c*.
streptococci from infants, and their tyrosine decarboxylase activity, 5080*b*.
sulfur (radioactive) excretion in, after administration, 4376*a*.
urobilinogen detn. in, 1452*i*, 4322*i*.
urobilinogen in, in hepatitis, 8522*g*.
vitamin $B_3$ in, effect of pteroylglutamic acid on, 5098*f*.
vitamin $B_{12}$ in chicken, 3062*c*.

**Fechner, G. T.**, biography, 7761*f*.

**Fecosterol**, 7493*c*.

**Feeding**. (See also *Diet; Feeding experiments; Feeding stuffs; Food; Nutrition, animal.*)
fat emulsion for intravenous, 5098*b*.
force, effect on N balance in burns, 7110*c*.
of premature babies, 8039*b*.
sham, gastric mucin secretion after, 8512*e*.

**Feeding apparatus**. (See also *Burners; Charging apparatus; Delivery apparatus; Dispensing apparatus; Stokers.*)
for chlorine to water, 334*h*.
for distn. column for petroleum, P 6403*d*.
for drum vacuum filters, P 4906*g*.
for gas, Hg cut-offs for introductor, 5646*h*.
for glass-melting tanks, P 9407*e*.
for lime soln. in purification of sugar juices, P 9506*c*.
metering, for solids, 3666*f*.
pneumatic, for finely divided solids, 6872*a*.
proportional, for chemicals to boiler water, 335*d*.
for sulfide ores to roaster, P 5727*h*.
for sulfuric acid in refining oils, P 4845*f*.
for water to recording calorimeters, 8217*c*.
for wood chips in continuous cooking of kraft pulp, 7681*h*.

**Feeding experiments**. (See also *Diet; Digestibility; Metabolism, animal; Nutrition, animal.*)
with alfalfa, corn and cottonseed hulls on lambs, 7158*e*.
with alfalfa hay contg. DDT residues on DDT content of milk, 8575*a*.
with alfalfa hay contg. fat-rich and fat-low concentrates, 8472*i*.
with alfalfa treated with toxaphene on cattle and sheep, 8600*g*.
with bagasse on rats, 1847*f*.
on beef, sheep and swine, 6711*c*.
with betaine, choline, methionine and fish products on chickens, 8465*c*.
with biotin on hens, 1088*g*.
with buffalo-milk fat and ghee, 7600*d*.
with calcium-diets on hens, 2291*e*.
with carotene-low rations on blood, milk and liver concns. of vitamins A and C in ewes and their lambs, 8467*c*.
with carotene on cattle, 6712*a*.
with carotenols on fowl, 1088*c*.
with cereal grains on fowl, 6292*h*.
on chicks over humidity and temp. ranges, 5459*e*.
with clover hay and timothy hay, 7604*c*.
with cobalt on sheep, 8071*a*.
with colostrum on dairy calves, 9193*c*.
with copper, 4410*i*.
with copper on growing foals, 8467*a*.
with corn (hybrid and other) on poultry, 2339*b*.
with cottonseed and soybean meal on chicks, 287*d*.
with cottonseed and soybean meals prepared in different ways on cattle, 6711*e*.
with cottonseed oils and purified and skim-milk diets on calves, 7604*a*.
on dairy cattle, 3941*d*.
with dried distillery feedstuffs on chickens, 285*g*.
on fat and vitamin A level of sow's milk, 3907*a*.
fat effect on energy and protein utilization by sheep in, 5130*d*.
with fat-rich rations and suboptimal levels of riboflavin on growth of chicks, 7580*h*.
with ferrophosphorus, 7159*a*.
fertilizer effect on feed in, on rabbits, 1091*e*.
with fiber on chickens, 1087*i*.
with fish and soybean meals contg. tryptophan, 2293*a*.
with flour-improving agents on dogs, 2707*h*.
with forage (preserved) on dairy cows, 9291*i*.
with forage (range) on beef cattle, 1501*d*.
with fortified all-plant rations on rats, 2293*a*.
with free-choice feeding of laying hens, 9192*h*.
with garbage on swine in Hawaii, 9292*hi*.
with glycine on chicks, 2293*d*.
with grapefruit peel on dairy cows, 785*i*.
with growing and fattening pigs, 9193*a*.
with growth factors (unidentified) on chicks, 284*h*.
Hawaii expt. station reports on, 9314*a*.
with hay (wild meadow) on beef cattle, 3946*c*.
with iodinated casein on cattle, 8474*d*.
with isopropanol-extd. cottonseed meal, effect on storage quality of eggs, 1497*c*.
with koa haole on chicks, 286*f*.
with leucine, methionine and tryptophan on egg production and hatchability, 286*g*.
with linseed oil, ethanolamine, etc., on turkeys, 1087*h*.
with magnesium on dairy cows, 7557*b*.
with mash, mash-grain and wet-beet pulp on cattle, 9313*f*.
with milk (filled) on dairy calves, 8473*b*.
New Jersey expt. station reports on, 9313*a*.
with oils (hydrogenated coconut and peanut) on buffaloes and cows, 1874*g*.
with oil supplements, effect on milk fat, 3943*g*.
Oklahoma expt. station reports on, 9330*c*.
with packing-house cooked feeds, 5464*h*.
with pantothenic acid on pigs, 8467*f*.
with pasture from fertilized and non-fertilized soils on cattle, 6711*g*.
with peanut hay, Cu residue and, 9329*g*.
with phosphorus (radioactive) in corn on poultry, 329*d*.
with prepartal rations on nitrogenous constituents of colostrum of cow, 740*h*.
with protein-factor supplements on pigs, 9293*c*.
with protein-rich feeds on fertility of hybrid bulls, 8038*d*.
with protein-rich rations on chicks and poults, 8465*e*.
with proteins on poultry, 6330*g*.
with proteins on wool strength of lambs, 7099*c*.
with protein supplements and roughages on cattle, 9292*b*.
with protein supplements on cattle, 6711*h*.
on chicks, 285*a*.
on hatchability of eggs, 285*c*.
with *Pteridium aquilinum* roots, 5880*g*.
with purified diet on turkey, 1088*d*.
with sawdust on rats, 1847*e*.
with seed cake on milk cattle, 9292*g*.
with sex hormones and thyroprotein on hens, 294*h*.
with silage and nonsilage rations on growth-factor content of milk, 3893*h*.
with silage on milk cows, 6756*c*.
with sodium chloride on growing chicks, 286*c*.
South Carolina expt. station reports on, 9328*g*.
with soybean meal (untoasted) on chicks, 287*b*.
with soybean proteins on rats, 1495*a*.
with soybeans and soybean meal on carotene and vitamin A in blood plasma and milk of cows, 8479*d*.
with starfish meal on rats, 1879*b*.
with substitutes for corn and cottonseed cake in fattening beef calves, 6712*b*.
with sulfaquinoxaline on chicks, 287*c*.
with sulfur on hens, 7563*h*.
with sweet-potato meal and winter pasture on dairy cows, 786*a*.
with sweet potatoes (dehydrated) on swine, 6775*a*.
with sweet potatoes on dairy cattle, 3946*g*.
on swine, 9192*b*.
with synthetic diet on pigs, 2680*d*.
thiouracil effect in, on turkeys, 8466*b*.
with thyroprotein during starting, growing and laying on chicks, 287*a*.
with thyroprotein on chickens, 285*i*, 294*g*, 9330*a*.
*with thyroprotein* on cows during lactation and pregnancy, 9313*h*.
on dairy cows, 3906*g*, 5468*a*.
with torula yeast on poultry, 8465*f*.
with 2,4,5-trichlorophenol derivs., 8071*b*.
with tryptophan on swine, 1466*f*.
with urea, on N balance of sheep, 3901*i*.
as protein supplement for cattle and sheep, 3496*f*.
in supplementing corn and dried sweet potatoes, 6712*a*.
on rabbits, 1843*c*.
with vitamin A and related substances on chicks, 2291*g*.
with vitamin B supplements on pigs, 2680*e*.
with vitamin concentrates on turkeys, 9193*e*.
with whole-wheat proteins on chicks, 286*h*.
on wool production by Merino sheep, 4859*b*.

**Feeding stuffs**. (See also *Alfalfa; Cereals; Grains; Grasses; Hay; Oil cake; Pasture; Silage;* and "forage" under *Plants.*)
amino acids in chick, 8469*h*.
analysis of, for carotene and vitamin A, 6756*h*.
analysis of, for sulfaguanidine and sulfaquinoxaline, 9291*a*.
from asphodel tubers, etc., P 5616*h*.
barley-bran-residue dried, 778*g*.
calcium phosphates in, 797*h*.
from *Calmagrostis, Carex* and arctic grasses in Europe, 7604*f*.
carotene detn. in, 9276*b*.
carotene in poultry, prevention of loss of, 3538*h*.
carotene preservation in dried, effect of water content and storage temp on, 1879*g*.
carotenoid- and vitamin A-contg., for chicks, 2291*f*.
cellulose in, treatment with chemicals and bacteria to aid digestibility, 8574*h*.
choline stability in, 1123*d*.
from citrus molasses, 9504*d*.
from citrus wastes or by-products, P 1503*a*, P 5512*b*, 8575*c*, 9287*j*.
from clover-seed meal, 1998*i*.
commercial (1947 to 1948), 3538*i*
consumption by chickens, environment and, 5459*d*.
corn bran (low-oil) for, P 2710*f*
from corn, plant for manuf. of, 8716*d*.
cottonseed mixt. with dry or green fodder, for buffaloes, 6330*c*.
crude fiber detn. in, 7152*g*, 9275*a*
DDT residues on, 1898*e*.
deer selectivity and compn. of, 6331*f*
dental caries in relation to particle size and consistency of, 8022*h*.
from desert plants, 6337*g*.
digestibility of—see also *Digestibility*.
from distillery solubles after spray drying, 4809*c*.
from distillery (whisky) wastes, 4797*e*.
drying green fodder, P 6334*f*.
effect on heart rate in hyperthyroidism by thyroprotein, 293*h*.
effect on odor and taste of milk, 5877*b*.
Egyptian green fodders, dried roughages and by-products, 777*c*.
enrichment with vitamins $B_2$ and $D_3$ for laying hens, 7601*h*.
from fermentation, residues of cannery wastes, 9358*i*.
fermentation of, for poultry, P 332*d*
from ferrophosphorus, 7158*hi*.
fishery products for, [illegible] acids and tyrosine in, 3115*c*.
from fish-press water, protein- and vitamin-contg., P 2342*b*.
fodder substitutes, P 1504*a*.
forage value of, from chem. analysis, 8575*d*.
from garbage, for cattle, P 8570*g*.
from garbage, for swine, 9292*hi*.
from grapefruit peel (dried), 785*i*.
green, for poultry, 3946*a*.
hydrogen-ion concn. effect on preservation of, 2709*g*.
iodine detn. in mixed, 9291*c*.
keratin hydrolysis products, P 6764*h*.
limestone in, for poultry, 9313*g*.
magnetic-material sepn. from, app. for, P 3249*c*.
manganese content and detn. in, for poultry, 6331*a*.
4-methyl-2-thiouracil-contg., P 1880*i*.
from milkweed, 9296*i*.
from millet and sorghum, 9276*i*.

mineral acids in manuf. of, 5892*b*.
mineral compn. of, and sample prepn. for Ca and P detn., 9291*b*.
mixts. with animal protein factor, soils and vitamin $B_{12}$, effect on pig growth, [illegible]
from mollusk shells, for poultry, 5878*d*.
oil-contg., 3943*g*.
Oklahoma expt. station reports on, 9303*c*.
from osage orange-fruit pulp, 9490*i*.
oxalic acid in Indian, 6685*d*.
of Palestine, 8575*f*.
from pea-vine residue, 8575*e*.
from phosphate (super-), calcination for S removal from, P 788*c*.
plum-kernel meal as, 3538*e*.
from *Polymnia sonchifolia*, 7155*i*.
from potato juice and potato pulp, 6754*h*.
from potato-starch manuf., 7244*a*.
preserved, value of, 9291*h*.
from proteins from brewing, 9360*h*.
proteins in, effect of catalysts on detn. of, 7158*g*.
proteins in, for poultry, 6330*g*.
from *Pteridium aquilinum* roots, 5880*g*.
range forage, on Southern Plains Exptl. Range, 1501*c*.
from seed cake for milk cows, 9292*g*.
from *Setaria palmaefolia*, 7159*b*.
from *Sophora japonica* seed extn. residues, 2450*c*.
from sorghum grains, 7243*i*.
from spent grain and hops press liquor, 4423*e*.
stabilization of, P 3542*c*.
from starch by-products, for cattle, 6330*d*.
storage of, 5875*c*.
sugar-cane trash, 425*g*.
from sweet potatoes for dairy cattle, 3946*f*.
for swine in Hawaii, 9292*i*.
taste of water-sol. constituents of, improvement of, P 6334*g*.
University of Ga. reports on, 9290*b*.
from *Urginea maritima* fermentation by-products, 5092*e*.
vitamin A emulsions in mixed, stability and utilization of, 8466*a*.
vitamin content of, 1123*d*.
vitamin deficiencies in rations of natural, 9192*f*.
vitamin enrichment of, P 8576*g*.
winter, for cattle, 6331*d*.
from wood-sugar molasses for chicks, 329*e*.
yeast for, from citrus-press juice, 2708*g*.

**Fehling solution**, reaction with urea-HCHO resins, 7745*i*.

**Feigl, Fritz**, biography, 6477*d*.

**Felbeck, George Theodore**, biography, 6013*g*.

**Feldspar pegmatite**. See *Pegmatites*.

**Feldspars**. (See also *Adularia; Albite; Anorthite; Microcline; Oligoclase; Orthoclase; Perthites; Plagioclase*.)
of Australia, 6546*g*.
authigenic, in nonmetamorphic sediments, 73*e*.
of California (Kern Co.), 4607*e*.
as cementing substance for sands, 6550*e*.
flotation from beryl-mica ores, 4609*b*.
formation of, 5323*b*.
in Black Forest, 7874*c*.
in Mt. Blanc massif, 2899*b*.
gallium-porphyrin complex in, 2138*a*.
in granite, radioactivity in study of, 4128*f*.
in granite (Vosges), 37*f*.
hydrothermal alteration of, at 250–400°, 8313*f*.
identification of acid, by *n*, 3315*c*.
of India (Jodhpur State), 6547*e*.
industry in 1946, 2127*b*.
iron-bearing, colors of red and yellow, 523*f*.
of Italy (Baveno), 3320*e*.
metal abrasive wear by, 5721*a*.
metasomatic deposition of, in origin of orbicular diorites at Bext, Netherlands, 4610*b*.
minor elements in, formation conditions and, 2137*h*.
of Montana, 8318*k*.
of New Jersey, 74*g*.
optics of, effect of heat and temps of crystn. on, 3749*b*.
pegmatites of Jasper Co., Ga., 8993*b*.
-quartz rocks of Njombe, Tanganyika Terr., 8347*f*.
of Quebec, 525*d*.
refractive indexes of, measurement of, 4605*i*.
rubidium, $Rb^{87}$, Sr and radiogenic Sr in, from Scotland, 6132*d*.
structure of, 3672*e*.
tantalum-bearing, of Pilbara goldfield, W. Australia, 6124*f*.
of Texas (Badu) and its beneficiation, 6952*i*.
of Texas (San Antonio Canyon Pb-Zn deposits), 6950*h*.
of Utah in ancient soil, 5708*g*.
vitrification of, in firing ceramic masses, 1163*f*.

**Feldspathoids**, formation of, 5323*a*.
quant. compns. and standards for, 2135*g*.

**Felsites**, of India (Marconahalli, Mysore), 2136*e*.

**Felt**, abrasion- and water-proofing of, with oxidized drying oil, P 7720*d*.
analysis of woolen, for 2,4-dinitro-1-naphthol and its K or Na salt mothproofing agents, 5956*c*.
asphalt-impregnated, coating steel sheets with, P 6148*c*.
bitumen-impregnated paper, P 6390*a*.
bitumen-satd., for adhesive attachment to surfaces and coating compns. for same, P 3242*e*.
doped resilient, for loom temples, etc., P 6430*c*.
drying (radiation) of matted and woven wool, 414*b*.
dyes for, P 7703*ef*.
hats—see *Hats*.
from heat-activatable thermoplastic or thermosetting fibers and their mixts., P 8175*ab*.
lubricant for impregnation of, for high-speed mechanisms, P 844*g*.
manuf. of, 5192*b*.
manuf. of, from peat, P 5174*h*.
microporous sheet material building and porosity control by wool, P 6834*d*.
nitrophenolic proofing agent detn. in, 1194*b*.
for papermaking—see "machines for making" under *Paper*.
roofing—see *Roofing*.
shaped articles of, from nonfelting fibers and resin fibers, P 3208*f*.
standards for, 4399*di*, 4787*e*.
testing roll-wool, for arctic footwear, 6830*f*.
uniting to Al, adhesive for, P 4899*d*.
waterproofing of, P 6760*a*.

**Felting**, of nonfelting fibers with resin fibers tackified by heat, P 3208*ef*.
review on, 8685*i*.
of wool, 6423*b*, 7233*e*.
wool tendency to, reduction of, 4858*c*, P 5602*e*.
reduction of, by melamine resins, 7691*f*.
reduction of, by org. silicon polymers, 4017*a*.
reduction of, with $KMnO_4$, 5192*e*.
reduction of, with vinyl isocyanate compd. polymers, P 6428*d*.

**Fenchane** (*1,3,3-trimethylnorcamphane*).
——, **2-hydroxy-**. See *Fenchyl alcohol*.

**6-Fenchanethiol**, manuf. of, P 2630*a*.

**2-Fenchanol**. See *Fenchyl alcohol*.

**Fenchene**, isomers, 1529*g*.

**β-Fenchocamphorone** (*5,5-dimethylnorcamphor*), and semicarbazone, 7462*f*.

**Fenchol**. See *Fenchyl alcohol*.

**Fencholic acid**, in penicillin production, 2273*g*.
——, **2-hydroxy-**, isomers, and derivs., 1749*gi*.
——, **2-oxo-**, ethyl ester, 1749*f*.

**Fenchone**, acylhydrazones†, 6972*fi*, 6973*c*.
chromatography of, and its oxime, 7452*g*.
3,4-xylidine from, 4234*i*.

**Fenchyl alcohol** (*2-fenchanol*), α- and β-, racemization of, 4215*c*.
α-chloroacrylate, P 3027*c*.
thiocyanoacetate—see *Thanite* this year.
——, **2-(2-pyridyl)-**, *dl-*, and hydrochloride, 2205*e*.

**Fenite**, of Norway (Fensfelt) and its formation, 4191*d*.

**Fennel**, vitamin $B_1$ in, 6753*k*.
vitamin C in, 5511*b*.
weed control in sweet, 343*d*.

**Fennel oil**. See *Oils*.

**Fenoxycolin**. See *2-Phenanthrenecarboxylic acid, 1-ethyl-1,2,3,4-tetrahydro-7-methoxy-2-methyl-*.

**Fenton's reagent**, alc. oxidation with, 5269*h*.

**Fenugreek**, carotenoids in, during development, 5454*a*.
in Hawaii, 9292*f*.

**Feosol elixir**, folic acid addn. to, 355*i*.

**Fergusonite**, neptunium and Pu in, 1649*a*.

**Fermate**. See "iron salt" under *Carbamic acid, dimethyldithio-*.

**Fermentation**. (*Alcoholic unless stated to be otherwise. See also* Brewing; Distillery; Enzymes; *Pasteur reaction*; Phosphorylation; Yeasts; "manuf. of" *under* Acetic acid, Butyric acid, Ethyl alcohol *and* Lactic acid; *and* "composts" *and* "manure" *under* Fertilizers.) P 6781*cd*, P 9362*c*.
acetoin condensation in, 4907*g*.
acetone and BuOH, P 5902*b*, P 6362*c*, P 6781*gi*, P 7638*f*.
distn. of liquid for, 813*d*.
of molasses, 5901*e*.
acetone, BuOH and fatty acid manuf. by, P 7638*e*.
acetone-EtOH, effect of conditions of, 4421*i*.
effect of sugar concn. on, 5529*h*.
of 3-C compds., 8446*g*.
acid manuf. by, P 6781*f*.
adenylpyrophosphatase in, and occurrence of trehalose during fermentation, 7065*i*.
adhesive from, P 6868*c*.
adsorbents (inorg.) and, P 8094*a*.
air disinfection in industry of, 9297*d*.
aldehyde, glycerol and EtOH by, P 3562*a*.
amino acid decrease during, prevention of, 4807*h*.
of amino acids, deamination during alc., 7541*f*.
*p*-aminobenzoic acid effect on, 3559*b*.
app. for, P 355*b*, P 815*e*, P 9362*d*.
of aquamiel by *Lactobacillus*, 5531*e*.
by bacteria, 720*c*.
of *Balanites aegyptica* pulp, 8572*c*.
of banana, 5153*g*.
of barley roots, carbohydrate loss and $CO_2$ production during, 4808*h*.
of *Bassia latifolia* flowers, 8605*d*.
of beer, 4423*c*.
beverage distillery, 9357*f*.
biotin-analog effect on, 2245*a*.
book: Micro-organisms and, 3561*d*.
bottom, 9361*h*.
of bread, effect of baker's yeast in, 4725*i*.
2,3-butanediol, 3561*ab*, 7187*g*.
2,3-butanediol and EtOH, of wheat by *Aerobacillus polymyxa*, 7635*b*.
butanol, carbohydrates and, 813*g*.
butanol-isopropyl alc., 1145*e*.
butyl gallate effect on, 2253*g*.
of cacao, 8010*i*.
of cacao-bean wastes, coffee substitute by, P 3118*c*.
calcium-compd. removal from materials for, P 3971*a*.
of carbohydrate mashes, P 6782*a*.
of carbohydrates from viscose-industry wastes, 6408*h*.
of cassava, 5530*i*.
of cellulose by thermophilic bacteria, symbiosis in, 6699*a*.
of cheese, 327*d*.
of cheese, effect on vitamin content, 8570*c*.
of cheese (hard and soft processed), bacteria as cause of, 5877*g*.
of cheese (Prato), 1497*a*.
chlorophenols in, P 6782*c*.
citric acid, 813*i*, 6777*h*, P 7638*b*.
by *Aspergillus niger*, 3141*c*.
by *Aspergillus niger* mutants, 8438*e*.
of molasses, P 9362*a*.
cold effect on, 5051*i*.
combustible gas from, P 6781*d*.
of corn, moldy bran in, 5901*b*.
of dental plaques, lactobacillus count and, 1101*e*.
dextran manuf. by, P 5981*d*.
of disaccharides, 1904*g*.
dokuimo as raw material for, 1146*f*.
of dough, bacteria and, 4392*k*.
cabinet for, 325*d*.
effect on vitamins, 2336*e*.
of doughs and sponges, 6325*g*.
effect of DDT, hexachlorocyclohexane, α-chlorotoluene and α,α-dichlorotoluene on, 8089*g*.
of eggs before drying, P 3948*b*, P 7605*a*.
fatty acids from, P 4810*b*.
of feeding stuffs for poultry, P 332*d*.
fertilizer and $CH_4$ by, app. for, P 3143*c*.
flavor-substance formation during, 1909*g*.
foam suppresser for, P 7610*c*.
foam-suppressing agent addn. regulation in, P 6781*d*.
food preservation by, 9329*a*.

fortifying supplements for industrial, wastes as, 9359*c*.
of fructofuranose, 1145*g*.
fungus decompn. products from, P 816*a*.
of galactose by yeast, 9154*a*.
of galactose by yeasts, effect of arsenate on, 2276*c*.
of galacturonic and glucuronic acids by *Escherichia coli*, fermentation of pentoses in relation to, 4333*i*.
in galenical pharmacy, 5901*i*.
gene-controlled combinations of carbohydrate, in yeast hybrids, 4330*a*.
of glucose by *Aerobacter aerogenes*, 2,3-butanediol formation in, 1320*h*.
contg. $C^{14}$, 3969*e*.
by *Escherichia coli*, 5080*i*.
by yeast enzymes, trehalose from, 7544*d*.
glycerol and EtOH, P 3562*a*.
glycerol-contg. stillage from, plastics from dicarboxylic acids or anhydrides and, P 5229*e*.
glycerol recovery from concentrates of, 8608*f*.
of grain (overwintered), as test for toxic principles, 1117*c*.
of grape juice, alc. losses during, 8090*h*.
of grape juice, pH and, 8606*e*.
greases from, P 4810*c*.
hazards of closed or semiclosed places in processes for, 1871*i*.
of horse-chestnut meal, 1499*c*.
hydrogen-ion-concn. control in, 4904*f*.
industrial, 3969*e*.
industries, review on, 4788*h*, 4789*c*.
industry in Poland, 2733*c*.
-inhibiting substances, effect on gas formation in ruminal ingesta, 2693*i*.
inhibition or prevention of, analysis of agents for, for Br, Cl and I, 4179*e*.
in citrus molasses production by submerged combustion, 9287*g*.
of foods, 823*c*.
of gelatinized starch in drilling muds, P 6400*f*.
by U and effect of citrates, carbonates and phosphates thereon, 2256*i*.
in intestines in relation to stomach chem. processes, 2687*d*.
itaconic acid manuf. by, P 4424*c*.
of lactate by *Clostridium lactoacetophilum*, acetic acid and $CO_2$ in, 2276*h*.
of lactic acid baking-aid, P 4396*h*.
lactic-acid, of cucumbers, effect of bacteriophage, antibiotics and E$_H$ on, 4726*b*.
in food-product prepn., P 330*e*.
of molasses, 6359*f*.
of sugar cane, potatoes, etc., P 9362*b*.
of sulfite waste liquor, P 6826*b*.
of lactose by yeasts, 2750, 6283*a*.
of malt-converted corn mashes, enzymic activity during, 8090*i*.
of maltose, 9357*i*.
malt requirement for grain etc., effect of proteases and yeast nutrients on, 351*i*.
of mamoeira fruit, 8089*i*.
material for, freeing cells of, P 3143*f*.
methane, 7187*g*.
methane, of vegetable waste, 5925*c*.
of α-methylglucoside by *Escherichia* and *Aerobacter* species, 5082*f*.
of molasses, 5615*c*, P 6782*g*.
alc. and rum from, 3141*b*.
to Ca lactate, 6445*f*.
mold, P 6362*d*.
mold amylase in, 2363*h*.
of muscovado sugar, 9501*g*.
of must, 5532*d*, 6780*f*.
of org. matter, chem. dynamics of soil and, 7172*d*.
of pickles, 9329*e*.
pipe for diving bell, 1077*b*.
of plant fibers, bacteria in, 724*i*.
products from, analysis by distribution coeffs., 8977*a*.
pyrimidine-deriv. effect on, 1822*g*.
of pyruvate, β-hydroxybutyrate and $C_4$-dicarboxylic acids by butyric acid-forming organisms, 3489*a*.
review on, 7759*b*.
of seaweed, org. acids from, 1145*i*.
secondary products of, balance among, 8089*f*.
of sewage or sludge—see *Sewage*.
of silage—see *Silage*.
slops from, of oil-bearing vegetable matter, oil from, P 6437*b*.
of soybeans, etc., P 3562*b*.
of soy sauce, 5158*a*.
of starch and sucrose by *Botrytis cinerea* toxin in relation to its action on cabbage, 1840*b*.
stimulation of, in yeast cells, 5444*a*.
of straw for hot beds, 4411*d*.
sugar losses from, in diffusion, 5217*e*.
of sulfite liquors, 4851*f*, 7682*d*, 8091*b*, 8677*g*.
economics of, 399*a*.
tanning agents from phenols, aldehydes and slops from, P 9512*a*.
sulfur dioxide formation during, 3141*a*.
tanks (open *vs.* closed) for, 354*d*.
of tea (Ceylon), 5879*i*.
of tobacco, 1156*a*, 1910*i*, 7194*i*.
acceleration of, 1910*h*.
tannin modification during, 8616*c*.
in tumor, interrelationships of biotin, $CO_2$ and heavy metals in, 2694*g*.
of tung-tree fruits to loosen kernels, 5204*a*.
of tyrosine by marine bacteria, 9146*g*.
of vinegar, 5507*g*.
of waste vegetables, to produce foods, P 6334*f*.
waste waters from anaerobic, of dead leaves, analysis of oxidizability of, 9309*c*.
of wheat meal, test for time of, 3531*h*.
of wine—see *Wine*.
of wood sugar, 2425*g*.
by yeasts, effect of F on, 268*b*.
by yeasts, effect of soil distillates and exts. on, 1889*g*.

**Ferments**. See *Enzymes;* and the individual ferments.

**Fernelius, W. Conard**, biography, 4527*a*.

**Fernico**, soldering Cu to, P 4211*b*.

**Ferns**. (See also *Bracken*.)
lignin of *Dicksonia antarctica*, 7552*i*.
pest control on, with parathion, 8088*i*.
rhizome of male, 5543*b*.
vitamin $B_1$ inactivation by *Pteris aquilina*, 4737*e*.

**Ferrates(III)**. (See also *Alkali metal ferrates*.)
dielec. const. of, at magnetic Curie point, 5244*e*.
Ferroxcube, 6017*a*.
formation of, 6531*f*.
magnetic properties of, 6877*e*, 7394*b*.
solid solns. with Zn ferrate, P 4625*e*.

**Ferric, Ferrous, etc**. See *Iron*, etc.

**Ferric(III) acid**, FeOOH, identification of, in dispersed systems, 7316*b*.

**Ferric ferrocyanide**. See *Prussian blue*.

**Ferricyanides**, complex, 1677*g*, 2113*b*, 7365*a*.
detection of, 8299*h*, 8966*c*.
detection of, and differentiation from ferrocyanides, 8966*d*.
detn. in water, 1506*i*.
effect on oxidation rate of ferrous ions, 1246*c*.
of nicotine, P 8605*b*.
potential of ions of, 4586*g*.

**Ferrihemoglobin**. See *Methemoglobin*.

**Ferriin***, kinetics of formation and dissocn. of, 1630*h*, 2078*h*.

**Ferrite** (*steel constituent*). (See also *Steel*.)
austenite transformation to, free energy of, 9008*d*.
crystn. of, in pearlite, 81*d*.
formation during isothermal decompn. of austenite, rate of, 86*a*.
formation in steel, effect of N on, 2912*i*.
grain size of, effect on notch toughness in steel, 3760*c*.
identification of, by color metallography, 80*a*.

**Ferrites**. See *Ferrates(III)*.

**Ferritin**, identity with hepatic vasodepressor substance, 1855*g*.
and its relation to anemia, 6291*a*.

**Ferroaluminum**. See either *Aluminum alloys* or *Iron alloys*.

**Ferrochrome, Ferrochromium**. See either *Chromium alloys* or *Iron alloys*.

**Ferrocyanides**, complex, 1677*g*, 2113*b*, 7365*a*.
detection of, 6106*c*.
detection of, and differentiation from ferricyanides, 8966*d*.
detection of, in wines, 2733*d*.
detn. of, 5701*g*, 7376*a*.
detn. of, in photographic materials, 7360*i*.
effect on oxidation rate of ferrous ions, 1246*c*.
formation of heavy-metal, amperometric study of, 8966*e*.
of nicotine, P 8605*b*.
systems: $NiSO_4$–water–, physicochem. analysis of, 5326*f*.

**Ferroelectric substances**. See *Seignette-electric substances*.

**Ferroferricyanides**, 1676*f*.

**Ferrohemoglobin**. See *Hemoglobin*.

**Ferroin***, kinetics of formation and dissocn. of, 1630*h*, 2078*h*.

**Ferromagnetism**. See *Magnetism*.

**Ferromagnons**, the term, 4529*f*.

**Ferromanganese**. See either *Iron alloys* or *Manganese alloys*.

**Ferromesoporphyrin***, protein complexes, 6249*e*.

**Ferromolybdenum**. See either *Iron alloys* or *Molybdenum alloys*.

**Ferron**. See *5-Quinolinesulfonic acid, 8-hydroxy-7-iodo-*.

**Ferronickel**. See either *Iron alloys* or *Nickel alloys*.

**Ferrophosphorus**. See either *Iron alloys* or *Phosphorus alloys*.

**Ferroporphyrins**. See *Hematins*.

**Ferrosilicon**. See either *Iron alloys* or *Silicon alloys*.

**Ferrotungsten**. See either *Iron alloys* or *Tungsten alloys*.

**Ferrous acid** See *Ferric(III) acid*.

**Ferrovanadium**. See either *Iron alloys* or *Vanadium alloys*.

**Ferroxcubes**, manuf. and properties of, 6107*a*.
III, dielec. const. of, at magnetic Curie point, 5244*e*.

**Ferruginetta**, from Monte Maggiore, Italy, and its value as construction material, 2135*e*.

**Ferry**, elasticity of, temp. and, 5715*c*.

**Fertility**. (See also *Reproduction: Sterility* and "E" under *Vitamins*.)
in diabetes from alloxan, 5106*c*.
of hybrid bulls, and effect of feeding thereon, 8038*c*.
nicotine effect on, 3102*h*.
nutrition and, 7097*i*.
of potato beetle, effect of lecithin on, 4387*a*
progesterone effect on, 8487*a*.
progesterone effect on, of gonadotropin treated female, 8032*f*
of semen, effect of thyroxine on, 5473*f*
of soils—see *Soils*.

**Fertilization**. (See also *Fertilizers, Guanines*.)
effect on respiration of sea urchin eggs, 6321*c*.
in Fucaceae, 1081*h*
hyaluronidase and phosphatase in, 5467*a*
hyaluronidase inhibitors and, 8484*h*
membrane of sea-urchin egg, action of chymotrypsin and trypsin on, 774*h*
membrane of sea urchin eggs, changes occurring during formation of, 775*c*
of *Paracentrotus lividus*, *p*-aminobenzoic acid effect on, 9269*e*
in *Pomatoceros triqueter*, 776*g*.
species specificity in, 776*b*.

**Fertilizers** (See also *Ammonium nitrate, Ammonium salts; Ammonium sulfate, Bone meal; Calcium nitrate; Calcium phosphates; Guano; Lime; Limestone; Nitrates; Nitrogen; Nitrogen fixation; Nutrition, plant; Phosphates; Phosphorus; Potash; Potassium; Slags; Sodium nitrate; Thomas meal;* and the individual elements as *Copper*.)
absorbents for, P 5517*i*.
absorbents for, from anion-active resins, P 6339*cg*.
aldehyde-contg., P 9357*c*.
alfalfa, expts., effect of Ca-Mg ratio on, 3956*g*.
from ammonium imidodisulfonate and $NH_4$ nitrilosulfonate, 9326*d*
ammonium-nitrate, P 3132*g*, P 7170*e*
from ammonium nitrate and marl, drying pellets of, in rotary drier, 6351*a*
ammonium-nitrate, manuf. of, 1536*c*.
ammonium-phosphate, manuf. of, 7174*g*
ammonium-sulfate, $NH_3$ loss from, 1512*b*
analysis of, 2724*a*.
analysis of, for $NH_3$ and $P_2O_5$, 3315*f*
apple, expts., 9321*df*.
from ashes and fecal slurry, P 5144*d*
from ashes, superphosphate, etc., for seedling treatment, P 6774*g*.
biocatalysis in plants and, 3070*a*.
books: Physico-chem Investigation on Treatment of Rock Phosphate with $HNO_3$, 3983*e*; and Manures, 8596*d*
borax detn. in, 7175*a*.
boron as—see *Borax; Boric acid; Boron*
calcium, expts. with peanuts, 1513*h*.
calcium phosphates in, 797*h*.
calcium-Si slags as, sulfides and, 6773*h*.
carbon dioxide as—*Carbon dioxide*.
celery, expts., 4802*f*.

citrus, 8131*f*.
citrus, expts., 1135*d*.
from citrus wastes, P 1504*a*.
city ruins as, 7173*i*
compost humus and decompn. of green manures, 2724*c*.
composts and manure, effect on soil aeration, 6771*d*.
composts or artificial manures, from animal refuse and rubbish mixed with chem. fertilizers, P 5524*c*.
app. for manuf. of, P 3143*e*.
evaluation of, 9326*f*.
from garbage and night-soil, 3960*a*.
from garbage, industrial wastes and night soil, P 9327*b*.
humus compn. in, 9326*e*.
as humus source, 8595*c*.
N availability from, 342*g*.
N detn. in, 340*e*.
from water hyacinth, 3130*g*.
cotton, expts. with lint and seed properties, 8592*f*.
cottonseed meal as, effect on insecticide action on soil microorganisms, 1896*i*.
2,4-D-contg., P 7187*b*.
from diammonium phosphate, 3958*i*.
dolomite for, 5554*g*.
drying of nitro chalk, 4906*a*.
effect on alkaloids in *Hyoscyamus muticus*, 9381*b*
on Ca and P in turnip greens, 4783*h*
on C and N in prairie soil, 1129*i*.
on dry wt., carotene and vitamin C in collards, broccoli and carrots, 6754*a*.
on essential oil yield, 5907*a*.
on foliage crops (Hawaiian), 9292*e*
on labiate development and oil content, 6290*b*.
on migration of P and other elements in soils, 7624*a*.
on N, P, protease and pectase in tobacco leaves, 2284*f*.
on nutritional value of pasture for cattle, 6711*g*.
on nutritive value of feeds for rabbits, 1091*e*.
on pecan leaves, 2287*d*.
on P in plants, 7622*d*.
on K in Dunmore silt, 2354*f*
on properties of irrigated chestnut soil, 2350*a*.
on proteins and tuberin in potatoes, 1560*e*.
on sugar beet compn., 6443*e*.
on sugar-beet growth, 4395*f*.
on tobacco infected with mosaic virus, 2284*g*.
on vegetables (Fla.-grown), 3536*e*.
on vitamin $B_1$ in peanuts, 6284*b*, 6330*b*.
on vitamin C in English tomatoes, 784*b*.
on vitamin C in vegetables, 3958*h*.
on Zn in apple leaves, 9321*c*.
expts. with, with barley and lettuce, 7622*h*.
with beets, potatoes and wheat, 9313*e*.
in fields as basis for planning fertilizer practice, 8594*e*.
isotopic tracers in, 4554*f*.
with Kentucky blue grass and white clover, 1516*a*.
New Jersey expt. station reports on, 9313*a*.
North Carolina expt. station reports on, 9320*g*.
with oats, rye, rye grass and vetch, 9321*a*.
with pasture and tobacco, 9313*f*.
plot size for, 4408*f*.
with radioactive materials, 1134*g*.
reports of University of Hawaii Agricultural Expt. Station on, 9313*i*.
with rice, soybeans and sugar cane, 6775*a*.
from fish or seed, P 6774*h*.
forage botanical compn. and, 2348*g*.
fruit, expts., 2726*a*.
in Germany, review on, 5892*e*.
granular, P 3132*d*.
granulation of, 3958*bc*.
grape court-noué and, 803*d*.
grape, expts., 9329*f*.
for grass, digested sludge as, 3131*a*.
grass, expts. for erosion control, 1135*e*.
green manure, decompn. of, 9322*e*.
guayule-rubber-mill wastes as, 1515*a*.
humo-nitrogenous, P 3132*i*.
hydrogen peroxide and O as, 5142*d*.
industry, cost and product control in, 8594*g*.
kudzu, expts., 3552*i*.
lettuce (leaf), expts., 4802*g*.
limestone in Polish, 8594*i*.
liquid, 802*b*.
liquid manure and urine as, 3131*i*.
magnesium and K, expts. with wheat, 7623*c*.
magnesium as, 6774*e*.
magnesium, in Canadian-crop production, 9326*f*.
expts. with New Jersey soils, 3956*f*.
expts. with red clover, 9320*g*
expts. with tomatoes, 2358*a*
CaO in soil and, 9320*d*.
soil conditions and, 5142*b*.
manganite-contg., P 8596*d*.
manure and mineral, soil org. matter and, 9319*b*.
manure, effect on org. matter in soil, 7617*d*.
effect on K deficiency of peaches, 9319*a*.
effect on soil aggregation, 2722*a*.
enrichment with mineral, 5143*a*.
exchange capacity of, 3132*a*.
as mulch, 3130*a*.
N loss in drying poultry, 342*h*.
substitutes for, in hot beds, 4411*c*.
microörganisms in, phosphate mobilization by, 5522*h*.
milk production in relation to, 3941*d*.
nuxts. with ethyl Hg iodide or HCHO in pine-root-disease control, 7179*f*.
"Nettolin," expts., 3131*h*.
New York expt. station reports on, 9329*a*.
nitrate content of foods in relation to, 2338*a*.
nitrate detn. in, 1687*a*.
nitrogen detn. in, 3551*k*, 9325*e*.
nitrogenous, $NH_3$ and N-contg. solns. as, 797*a*
$(NH_4)_2SO_4$ as, 1135*h*.
anions and cations in cotton in relation to, 8017*i*.
Bermuda hay expts., 3552*d*.
effect of $(NH_4)_2SO_4$ and $NaNO_3$ on soils, 2352*b*.
effect on ascorbic acid in green plants, 3552*i*
effect on cotton and soil, 2354*f*
effect on Fe and Mg in pineapple, 8018*i*.
expts. with $NH_3$, 342*b*, 2723*i*
expts. with $NH_4$ and anions, 7171*b*
expts. with apple trees, 8083*b*
expts. with Burma paddy soils, 2352*e*
expts. with cereals, 7174*f*.
expts. with dry matter and protein of pastures, 340*i*.
expts. with millet, 7622*c*.
expts. with oats, 1890*k*, 2352*g*.
expts. with oats and peas, 800*e*.
expts. with peaches, 8593*g*.
expts. with potatoes, 8083*c*.
expts. with prunes, 8592*h*.
expts. with radioactive materials, 9330*b*.
expts. with *Strammonium*, 2724*b*.
expts. with sugar beets, 5142*g*.
expts. with sugar beets with Chilean nitrate, minor elements and, 799*h*.
expts. with sugar cane, 341*g*, 9501*g*.
expts. with wheat, 4801*b*, 9325*b*.
University of Ga. reports on, 9290*c*.
urea form prepns. as, 1514*g*.
nitrogenous and P, effect on vitamin content of peas, 9289*e*
expts. with potatoes, 2722*i*.
manuf. in Poland, 9325*c*.
percolation from soils, 4803*d*.
nitrogenous and K, expts. with carnations, 4804*c*, 9337*h*.
expts. with sugar beets, 7622*b*.
expts. with tung trees, 9324*h*, 9325*a*.
nitrophosphate, P 5160*g*, P 6374*h*, P 7176*bcd*.
orange, expts., 3130*b*, 9319*g*.
org., as growth substances, 3131*f*.
org., effect on auxin in soils, 3958*e*.
pasture, expts., 9320*f*.
peanut, expts., 1513*c*, 2722*c*, 8083*c*, 9322*e*.
peat-soil, expts., 7621*e*.
phosphate detn. in, 9324*d*.
phosphate rock as, 1133*h*.
phosphate soly. in, effect of K fertilization on, 7623*f*.
phosphatic, P 4412*e*.
adsorption by clay constituents of soils, 9315*d*.
analysis of, phosphate soly. and, 3958*k*.
*Apposphatic*, from apatite, P 3554*b*.
availability in soil, 2351*c*.
with available magnesia, 5142*c*.
Ca trimetaphosphate as, 7624*d*.
classification and flotation of, 802*b*.
contg. Mg, manuf. in elec. furnace, 7175*c*.
curing superphosphate-contg., 8595*c*.
effect of N salts, lime, K and org. matter on availability of P from, 1133*f*.
effect on P in starch of potatoes, 9323*i*.
effect on soil-phosphate uptake, 8084*f*.
effect on sugar in carrots, 7624*c*.
efficiency on calcareous soils, 6350*g*.
expts. in Eure et Loir, 797*g*.
expts. on Egyptian soils with superphosphate, 1891*a*.
expts. with, 5141*g*, 7624*c*.
expts. with alfalfa and subterranean clover, 8590*i*.
expts. with Al, Ca and ferric phosphates and Thomas phosphates, 798*d*, 799*a*.
expts. with loblolly and slash pine, 6350*i*.
expts. with New Jersey soils, 3956*d*.
expts. with oranges, 9323*i*.
expts. with org. phosphates, 3131*b*.
expts. with radioactive P, 793*a*.
fixation of, soil temp. and, 8082*d*.
with F removed, P 8596*e*.
granular and powd., P 3132*e*.
industry in Brazil, 8084*f*.
Fe compds. and, 2724*f*.
manuf. from olivine and phosphate, 45*d*.
manuf. in Canada, 2343*c*.
manuf. of, 7174*gh*.
manuf. of calcined, from phosphate rock, 7624*d*.
from phosphorites, P 8596*f*.
P content of soil and application of, 339*i*.
prepn. of radioactive, 7775*d*.
from Ranis Caves, Thüringia, 6126*c*.
serpentinites of Wairere, N.Z., as, 1092*h*.
soil P and, 1892*b*.
soil relation to raw phosphate, 3131*g*.
Supertomasyna, 8595*a*.
utilization by crops, 1134*g*.
utilization from green-manure crops, 6774*d*.
phosphatic and K, expts., 1510*e*.
expts. with legume hay, 2723*b*.
spontaneous mobilization of reverted soils, 8594*a*.
pine, expts., 4408*h*.
placement expts., 7173*d*.
*Plantoradon* as, 7174*a*.
Polish industry of, 2724*a*, 8594*gh*.
Polish research on, 8594*h*.
potash, effect on phosphate soly. in fertilizers and soils, 7623*f*.
expts. in tropics, 798*b*.
expts. with citrus, 1132*c*.
expts. with oranges, 1132*g*.
expts. with peas, 1513*f*.
expts. with tobacco, 4802*h*.
expts. with tung trees, 1136*e*.
manuf. from K silicates, P 6375*c*.
manuf. in Carpathian foothills, 2742*h*.
in Poland, 8594*f*.
K humate as, 2725*a*.
potash for, 341*g*.
potassium detn. in, 342*be*, 1136*c*.
potassium sulfate manuf. for, 1920*h*.
potato, expts. with slags, 7172*a*.
potato mineral content and, 2675*f*.
production in U.S.S.R., 3156*c*, 3958*e*.
from reeds, 9501*i*.
requirements of soils—see *Soils; Soils, analysis*.
reviews on, 1891*a*, 3131*f*.
rice, expts., 4803*b*.
sampling of, and segregation in, 802*c*.
sawdust as, 3130*e*.
from sewage and industrial wastes in Poland, 3547*a*.
sewage or sewage sludge as, 2346*g*, 3959*b*, 5143*b*, 8595*f*.
from sewage sludge, 3547*h*, 4795*k*, 7168*h*.
from silkworm pupae, P 4804*f*.
slags from blast furnaces and elec. furnaces as, 1135*i*.
sodium-contg., 7173*d*.
soil fertility and, 1129*d*.
soil losses and, 6771*i*.
soil management and, 9323*k*.
soil microflora and, 6350*b*.
South Carolina expt. station reports on,

spruce, expts., 3955*d*.
starfish as, 1892*a*.
sugar-beet, expts., 5142*ei*, 9326*bc*, 9503*c*.
sugar-beet, expts. with chlorides and sulfates, 5142*i*, 6350*i*.
sugar-beet quality and, 4411*f*.
sugar-cane, expts., 1136*h*, 9325*i*, 9326*c*.
sweet-potato, expts., 8082*d*.
for tobacco, 7624*e*.
tobacco and extd. residues as, 2373*b*.
tobacco, expts. with N, 2351*h*.
tomato, effect on mites, 5892*d*.
tomato, expts., 9322*ab*.
trace or minor elements as—see *Elements; Nutrition, plant;* and the individual elements, as *Copper; Manganese; Zinc*.
tung-tree, expts., 9324*f*.
two-spotted spider mite reproduction rate and, 6349*i*.
from urea, P 5524*d*.
urea as foliar, for peaches, 8594*i*.
from *Urginea maritima* fermentation by products, 5092*e*.
vegetable, expts., 1134*d*, 8083*h*.
water detn. in, 9325*g*.
weed-control, P 1904*f*.
wheat, expts., 8084*c*.
wheat nutritive value and, 5524*a*.
wheat take-all disease and, 9323*d*.
from wine residues and vine shoots, 6360*i*.
wood ash of Northern Rhodesia as, 337*g*.

**Fertilizin**, and its effect in sperm agglutination, 4390*a*.
from sea-urchin eggs, effect on blood coagulation and effect of basic proteins and cephalin thereon, 4390*f*.
of sea-urchin eggs, effect on coagulation compared with heparin, 4391*a*.

**Ferulaldehyde** (*4-hydroxy-3 methoxycinnamaldehyde*), color reactions of, 1181*i*.
in wood and lignin prepns., and 2,4-dinitrophenylhydrazone, 4461*g*.

**Ferulic acid** (*4-hydroxy-3-methoxycinnamic acid*), as lignin model, 4848*d*.
pigment precursors in tomato juice, 8459*c*.
in urine of pregnant mares, 2685*i*.

——, **α,β-dihydro-**. See *Hydroferulic acid*.

**Fescue**. See *Grasses*.

**Fesogenin**, and diacetate, 655*c*.

**Festuca**. See "fescue" under *Grasses*.

**Fetus**. See *Embryos*.

**Fever**. (See also *Antipyretics*.)
blood vol. and pressure changes in, in hypertension, 301*h*.
in cancer treatment, 763*c*.
cholinesterase in brain in, 2692*d*.
glycolysis and respiration in brain during, 7146*i*.
malarial—see *Malaria*.
milk—see *Milk fever*.
in paralysis therapy, Fe in blood in, 2312*a*.
paratyphoid—see *Paratyphoid fever*.
parrot—see *Psittacosis*.
phosphorus and phosphatide and non-phosphatide fat acids in blood and liver in, 9217*d*.
porphyrin in, 7570*g*.
-producing substances, 1911*i*, 5535*b*.
action of, 7127*b*.
assay of, 4425*g*, 8613*i*.
prepn. of solns. and plasma free of, 6361*i*.
problem posed by, 7121*g*.
sources and testing of, 762*c*.
ulcer-inhibiting action of, 4770*f*.
production by pyrogenic substances, effect of *N*-ethyl-*N*-(2-bromoethyl)-1-naphthylenemethylamine-HBr on, 3522*d*.
quinine toxicity in, antagonists for, 4768*i*.
rheumatic—see "inflammatory" under *Rheumatism*.
spotted—see *Meningitis; Typhus*.
typhoid—see *Typhoid fever*.
undulant—see *Brucellosis*.

**Fiberboard**. (See also *Paperboard*.)
from agricultural-residue fibers, 2760*a*.
from banana stalks, P 9450*b*.
from cane fiber, 6439*f*.
from cheap woody raw materials, 3196*e*.
containers of, effect on storage life of army biscuits, 778*c*.
corn-stalk insulating, water absorption 9443*f*.

[illegible]-polymer-im-

7*b*.

heat-treatment of hard, 8679*b*.
ignition (spontaneous) in wood, 4086.
manuf. of, 7683*i*.
from peat, P 5174*h*.
preservation of insulating, with chlorinated phenols, 1516*i*.
from reeds, 9501*i*.
from straw, 2769*a*.
strength of, moistening and stretching in relation to, 5591*e*.
swelling and shrinkage of, and measurement thereof, 1978*f*.
uniting, to butadiene-acrylonitrile polymer or Neoprene with chlorinated adhesives, P 2807*f*.
water-resistant felted, P 5594*b*.

**Fiberglas**. See "fibers" under *Glass*.

**Fibers**. (See also *Bagasse; Collagen; Cotton; Crude fiber; Flax; Hair; Hemp; Jute; Manila hemp; Ramie; Rayon; Silk; Sisal; Straw; Wool; Wool substitutes;* and "estarto" under *Grasses*.)
air-retaining power of textile, 854*e*.
albumin, $H_2O$ absorption by ov-, phys. structure and, 7787*h*.
aloe, light effect on, 4345*b*.
animalized, 3201*g*.
anionic-coating-material adhesion to, improvement of, P 5643*h*.
ash content and growth factors of plants in relation to, 9456*i*.
bast, cottonized, 3201*h*.
biol. attack on animal, proofing against, P 9475*g*.
bleaching—see *Bleaching*.
blending of, at drawing, 1571*d*.
books: Textile, and Their Use, 4019*d*, Abriss der chem. Technologie der Textilfasern, 4471*e*; Science, 6832*d*; Untersuchung der Textilfasern, 8689*d*; Physics and Chemistry of Cellulose, 9445*d*; Unterscheidung der Textilfasern—Qual. und Quant. Analyses von Faserstoff-Mischungen, 9458*e*.
break-twisting angle as index of brittleness of, 6421*e*.
brightening agents for cellulose, P 7726*h*.
from bulrush, 3621*e*.
butadiene oxidized polymer-alkyd resin emulsions for treating textile, P 6859*e*.
Caroá, 5192*a*.
cellulose, P 4852*g*.
of cellulose hydrate, structure of, swelling and, 5587*g*.
chem. constitution and properties of synthetic, 9455*b*.
as chem.-engineering construction material, 1*c*, 8745*c*.
classification, crystal structure and properties of cellulose, 5954*e*.
coconut, cellulose detn. in, 6411*i*.
dust of, 4412*c*.
structure and identification of damage of, 5595*d*.
tensile strength of, 1985*d*.
as construction material for industry and labs., 2041*c*.
contraction and swelling of, ion exchange in, 468*g*.
contraction of, ion exchange and, 8237*g*.
of cord—see *Cord*.
crimp of, and testing crimped fibers, 4861*g*.
cross-linking in animal, by 3,4-isopropylidene - 1,2,5,6 - dianhydromannitol, 8141*i*.
cryst. and amorphous material in cellulose, detn. of, 4461*a*.
crystallinity and polyphase structure of cellulose, water sorption and, 4849*c*.
crystal lattices of micelles of cellulose, 4460*i*.
crystallite orientation in cellulose, 5954*f*, 6829*e*.
crystallization(re-) of relaxed animal, 8416*f*.
crystal structure and micellar orientation of cellulose, 2091*f*, 4460*i*.
crystal structure, crystn. and amorphous regions in, and properties depending on amorphous regions, 4857*fg*.
damage to cellulose, by chemicals during processing, 5191*b*.
damage to textile, origin and identification of, 7690*g*.
detergency evaluation on chopped single, 8180*c*.
detergency expts. with, 5213*a*.
detergent (synthetic) effect on, 3218*i*.
detn. in bagasse, 9502*a*.
dissipative and elastic properties of, 6045*a*.
drafting element for textile [illegible]
with chlorinated synthetic rubber surface, P 416*i*.
drafting textile, lap-resistant roll cover with synthetic rubber surface for, P 417*a*.
dyeing aftertreatment of cellulose, dicyanodiamide-HCHO-Me urethan condensates for, P 2786*h*.
dyeing aftertreatment of cellulose, stearoyltriaminotriethylenebiguanide-urethan-HCHO condensate for, P 2786*g*.
dyeing of—see *Dyeing; Dyeing apparatus*.
effect on drilling muds, 8652*g*.
elastic properties of cellulose, 9435*e*.
felt—see *Felt*.
felting of—see *Felting*.
fermentative refining of plant, bacteria in, 724*i*.
fineness of single, calcn. from fluidity measurement, 5190*i*.
fireproofing of, P 6764*a*.
flocking of, with org. coatings, 1199*e*.
flotation of mixts. of, 6420*i*.
formaldehyde-resin-finish identification on cellulosic, 4017*g*.
formaldehyde-tanned collagen, structural stability and tensile strength of, 4040*g*.
friction between single, measurement of, 4857*i*.
fungal and mold control on hard, 6831*f*, 7693*b*.
fungi causing deterioration of cellulose (ref. should be vol. 19), 9456*f*.
fungi destroying cellulosic textile, 5953*g*.
glass—see *Glass*.
from glass or other rods, P 6386*e*.
growing process and *as* of cellulose, 1462*b*.
gum removal from raw plant, P 4868*h*
of hides and skins, 1203*e*.
from hydrous oxides or silicates, water proofing of, P 3242*h*.
identification of, 412*i*.
chem. microscopy in, 6420*b*
contg. tertiary amines, 8685*a*
improving chem. resistance and strength of, P 9476*b*.
inorg., P 5888*c*.
inorg., sound- and heat-insulating materials from bentonite, saponin and, P 8580*b*
insectproofing of cellulose, or their mixts., P 9478*g*.
keratin, 4857*g*.
mechanochem. testing of animal, 5955*a*.
from milkweed, 9296*i*.
mineral-wool—see *Mineral wool*.
mol. structure of textile, 2779*a*, 4016*c*
mol. structure of textile, elastic properties and swelling in relation to, 5190*h*
mothproofing—see *Moths*.
mounting medium for textile, from Aroclor 1242 and isobutyl methacrylate polymer, 1570*h*.
nylon—see *Nylon*.
obtaining plant, P 6833*a*.
obtaining plant, detergent for soln. of pectin in, P 4022*e*.
oiling of, and products therefor, 3203*i*
oil oxidation on textile, 4857*i*.
optical properties of, 4857*f*.
oxidation of, $HClO_4$ in, 6420*h*.
in paper—see *Paper*.
paper-pulp—see *Paper pulp*.
polyalkylene glycols for lubricating and finishing, P 4289*g*.
polyamide—see *Nylon*.
protein, reviews on, 4788*e*, 4789*a*
recovery from hides by peptic enzymes, P 8722*c*.
from reeds, 9501*i*.
resin differentiation and detn. on textile, 7233*a*.
-resin interaction, spectrographic study of, 3293*a*.
retting of—see *Retting*.
review on, 6829*b*.
in rhubarb varieties, 9383*h*.
roselle, 4469*c*.
-rubber upholstery pads, P 8170*c*.
rustling matting on cellulose, stearic acid polyglycol esters for imparting, P 6652*f*.
slipproofing agent for, from Na abietate reaction with dichlorodimethyl ether and then $MeoN$, P 2796*b*.
slivers—see *Slivers*.
softening agent for textile, from *p*-aminostearanilide condensation with [illegible] P 4499*d*.

[illegible] P 9

staple—see *Rayon*.
strain-gage system for testing, 3201*h*.
from straw, P 3198*e*.
strength of cellulose, orientation and, 4462*e*.
structure and properties of, 4857*e*.
structure of cellulose, cell wall in plants and, 4857*g*.
structure of cellulose, effect on chem. reactions, 4845*i*.
structure of, orientation of mols. by stretching and, 5190*i*.
structure of textile, 3621*d*, 6420*h*, 8686*c*.
sulfonated alc. acidic bath for treatment of textile, P 4022*f*.
surface-active-agent adsorption by textile, 1193*f*.
swelling and dispersion in relation to, 4857*f*.
swelling in water, measurement of, 7600*e*.
tensile strength of collagen, effect of chrome and HCHO tanning on, 7246*g*.
tensile strength of, improvement of, P 2784*f*.
measurement of, 5191*b*.
tester for, 8748*e*.
tension-stretching properties of single, measurement of, 9456*c*.
textile—see *Textiles*.
in threads—see *Threads*.
vulcanized, P 6826*e*.
effect of water on dielec. properties of, at ultrahigh frequency, 2480*b*.
test for ply adhesion of, 4787*g*.
washing or dewatering suspensions of, app. for, P 9447*ef*.
water- and weather-resistant properties of, and metallic soaps and paraffin emulsions as protective agents for, 3623*g*.
waterproofing agents for, amide derivs., P 5978*e*.
waterproofing of cellulose, HCHO-treated heptadecylcarbamic acid deriv. condensation product with guanidine compds. for, P 7714*g*.
water-repellent finishing of, with urea- or thiourea-HCHO resins and paraffins, P 3209*a*.
weight variations in rovings of, app. for measuring, 7690*d*.
wetting agents for—see *Wetting agents*.
wood, coating or impregnating, P 4518*a*.
wood, microstructure of, 2767*b*.

**Fibrin**, clots of, soly. in urea, 9096*e*.
digestion by pepsin, products of, 1816*b*.
dye binding by, effect of dye and salt concns. and pH on, 411*f*.
electron-microscope studies of, 3867*e*, 7524*f*.
film, persistence in tissue and its modification by heat, 7110*i*.
foam, 5543*a*.
foam and film, 3054*h*.
formation of, during blood plasma coagulation, thrombin and, 9200*f*.
from fibrinogen by hydroxyl compds., 9102*d*.
from fibrinogen by protein pptg. agents, 9107*h*.
platelet exts. and, 746*c*.
hydrolyzates of, utilization of peptides of, 6741*b*.
pancreatic juice action on, and products therefrom, 9089*e*.
in placental metabolism, 8509*b*.
powd. blood, adhesive for leather from, P 6854*b*.

**Fibrinogen**. (See also *Thrombin*.) 3054*h*.
acid fractionation of, 6270*c*.
bile salt effect on, and its clotting, 9096*b*.
in blood, effect of cold on, 6715*b*.
in hemolytic disease, effect of cold on, 2697*d*.
in myocardial infarction, 4772*g*.
in blood plasma and serum, equil. with albumin and globulin, 1813*i*.
in blood plasma and serum of sheep, 9204*i*.
blood-plasma, at high altitudes, 3504*b*.
in blood plasma in pneumococcic infections, 2305*h*.
blood-serum gelation with, 4760*g*.
in blood serum of normal, tumor-bearing and immunized chickens, 1477*e*.
in bone — in various conditions, 4350*d*.
coagulation of, [illegible]
*coagulation of*, mercapto groups in, 5436*b*.
deficiency in blood in pregnancy, 5110*c*.
detn. of, 7075*c*.
in blood, 9127*c*.
in blood plasma, 4314*g*.
electron-microscope studies of, 3867*e*, 7524*f*.
fibrin formation from, 9102*d*, 9107*h*.
formation in blood of people who met sudden death, 9210*a*.
heparin and, 6268*c*.
iodinated, effect of thrombin on, 4358*b*.
after parathyroidectomy, 295*c*.
parathyroid effect on circulating, 5471*c*.
reaction with thrombin, effect of blood-serum proteins and Ca ion on, 5472*g*.
reaction with thymol, 9093*c*.
reducing properties of, and mercapto groups in clotting, 9096*f*.
sepn. from blood plasma fraction I, 746*h*.
sepn. from blood serum, 3486*c*.
soly. in urea, 9096*e*.
"symplex" with ribose-nucleic acids, 9122*a*.
tissue—see *Thromboplastic substances*.
titration curves of, and clotted fibrinogen, 9097*d*.
in tuberculosis of children, 2313*b*.

**Fibrinogenase**, in blood of people who met sudden death, 9210*a*.

**Fibrinolysins**. (See also *Antifibrinolysins*.)
-activated protease, assay of, and detn. of activity against, 708*i*.
antifibrinolysin action on, 8400*f*.
in blood, activation and purification of, 2663*c*.
blood fluidity after death and, 4367*b*.
from blood plasma, 2260*i*.
blood-serum, release by sp. antigens, peptone and polysaccharides, 7125*g*.
effect on oxytocin, vasopressin and hypertensinogen, 2321*c*.

**Fibrinolysis**, in blood, effect of exercise and adrenaline on, 8541*a*.
after electrically induced convulsions, 3915*e*.
heparin effect on, 6735*i*, 9251*g*.
mechanism of, 2684*c*.
paroxysmal, in cold, 2697*c*.
rate of, 708*i*.

**Fibro**. See *Rayon*.

**Fibroblasts**, effect of adrenochrome, colchicine and adrenaline on, 1073*a*.
inhibition by growth substance from sheep cardiac muscles, 1849*e*.
nucleoprotein content of, 6257*d*.
urethan effect on division of, 3526*b*.

**Fibrocytes**. See *Fibroblasts*.

**Fibrographs**, electronic, 1571*c*.

**Fibroin**, enzymic hydrolysis of silk, 3790*i*.
oriented silk, dependence of ultraviolet absorption and chromophores on direction in, 6422*c*.
piperazinedione detection in silk, 6422*d*.
structure of silk, 3691*d*.
testing purity of, 5819*g*.
water absorption by, effect of phys. structure on, 7787*h*.

**Fibrolite**. See *Sillimanite*.

**Fibromyoma**, uterine, alkali reserve of blood in, 4365*i*.

**Fibrosarcoma**. See *Sarcoma*.

**Fibrosis**, of liver, relation of fat and protein intake to, 3894*i*.

**Fibrous materials**. (See also *Lanital; Mineral wool; Paper pulp; Pulps*.)
absorbent, pigmentation of, P 856*a*, P 2443*d*.
acetylene storage in porous mass of, 7212*d*.
adhesive penetration into, control with alginates, P 8212*i*.
bleaching—see *Bleaching*.
building materials of—see *Building materials*.
coating and stiffening with polyvinyl acetal, P 2786*c*.
containers of—see *Containers*.
drying of, P 8759*a*.
dyeing—see *Dyeing; Dyeing apparatus*.
felting—see *Felting*.
for filtration—see *Filtering materials*.
fire-, mildew- and waterproofing of, with melamine pyrophosphate, P 4023*h*.
of, with polyamine hydro- P 4024*c*.
resistance and strength
from — *Laminated*
P 374*h*.
s, P 5439*f*
mol. structure and phys. properties of, 2071*h*.
mothproofing—see *Moths*.
mothproofing agents for—see *Moths*.
pest control in, P 4422*e*.
polymerization of impregnating materials in, P 3238*c*.
retting of—see *Retting*.
rotproofing of, 413*i*.
rubber detn. in, 7739*h*.
sheets of—see *Sheet materials*.
sizes for, P 2471*h*.
textiles of—see *Textiles*.
thermal insulators of—see *Insulators, thermal*.
waterproofing of, with $Me_2SiCl_2$–$SiCl_4$ mixt., P 9478*e*.
wax location in impregnated, detn. of, 65*d*.
wetting, with monohydroxy compd. and wetting agent or detergent, P 6429*f*.

**Fichtelite**, 6601*f*.

**Ficin**, in β-amylase estn. in barley, 8092*c*.
ultraviolet light inactivation of, quantum yield for, 7983*b*.

**Fick's law**. See *Laws*.

**Ficus**. (See also *Rubber*.)
*carica*—see *Figs*.
*elastica*, cystoliths of, 5830*g*.
stomatal frequency and distribution in, photosynthesis in relation to, 284*a*.

**Fiehe reaction**, grape juice (heated) in relation to, 783*e*.

**Fields of force**. (See also *Electric field; Electromagnetic field; Magnetic field*.)
mesotron—see *Mesotrons*.
mol., in calculating vibration frequencies, 4571*c*.
of mols., 5242*e*, 5651*a*.
tensor equation of, in region of variable refractive index, 6026*e*.
theory of, divergencies in, 5277*c*.
theory of, elimination of infinities in quantized, 6903*h*.

**Figs**, carotene and vitamin C in, 3536*a*.
juice, clarification of protein-contg. solns. by, 6749*a*.
juice, tenderizing meat with, P 1502*d*.
latex of, protease activators in, 9287*i*.
maturation of Calimyrna, effect of growth regulator on, 5893*c*.
maturation of Calimyrna, effect of hormones on, 2726*f*.
milk-coagulating enzyme of, 1119*c*.
parthenocarpy in, growth substances in induction of, 2287*i*.
vitamin $B_1$ in, 6753*i*.
vitamin C in, 5511*c*.

**Filaments**. (See also *Cathodes; Electrodes; Fibers; Threads*.)
boron-coated Mo and W, 6133*i*.
coating of, with metals, P 104*c*.
coatings for, chemically resistant, P 4284*h*.
dynamic properties of, at sonic frequencies, 4016*d*.
glass—see *Glass*.
nickel, P 5318*c*.
of polyacrylic acid, effect of ionization on, 8812*f*.
Portevin-Le Chatelier phenomenon in steel, 7883*a*.
rayon—see *Rayon*.
of silver, electrodeposition of, 953*b*, 7356*g*.
surface-active agents for manuf. of, P 9496*f*.
thoriated W, activity of, bombarded by alkali-metal ions, 7323*c*.
titanium nitride formation on hot, 2885*f*.
tungsten recovery from lamp, 6556*a*.
tungsten, reducing brittleness of carburized, P 102*b*.

**Filariasis**, cyanine dyes in treatment of, 2334*g*, 3930*b*.
ethyl 4-methyl-1-piperazinecarboxylate and its salts in treatment of, P 6671*f*.
hetrazan effect on, 1490*f*, 8540*e*.
1-piperazinecarboxamides in treatment of, P 6245*a*.

**Filberts**. See *Hazel*.

**Filling apparatus**. No entries this year. See *Feeding apparatus; Funnels*.

**Filling materials**. (See also *Caulking compositions; Impregnating materials; Molded products; Packing materials; Plastic materials; Putty; Rubber; Upholstery*.)
from bituminous-oil-distillate base and synthetic resins, P [illegible]
castor materials for, P [illegible]
for cellular rubber, $SiO_2$ aerogels as, [illegible]
cement contg. micro-, 1987*i*.

for cement, limestone as, 2751*f*.
for cracks, 7659*c*.
for engraving, paint-type, 5200*k*.
for GR-S rubber, effect on elasticity, 4045*c*.
for GR-S rubber, peat as, 2801*f*.
for joints from rubber-contg. bitumen, 4443*c*.
for joints in concrete masonry, P 5633*d*.
for lubricating greases, 8660*b*.
in lubricating greases, effect on wear of antifriction bearings, 7675*f*.
mixing slurry of, with bituminous material, P 2754*a*.
paper—see *Paper*.
for phenolic moldings, extractives in water-absorption test, 7261*e*.
for plastics from agricultural residues, 6862*d*.
for plastics, microscopy of, 2027*i*.
for polythene, $CaCO_3$ as, P 4897*g*.
for putty, wallboard or phonograph records from waste slate, 1939*b*.
for roads—see *Roads*.
from rubber and solvents, P 6859*a*.
for rubber, etc., C black-coated inorg. particles, P 7745*b*.
silica-aerogel, for life jackets, P 1506*a*.
for soap—see *Soap*.
for urea-HCHO condensation products, lignocellulose as, P 6865*e*.
for vinyl chloride polymers, hydrocarbon oil as, P 2818*a*.

**Film balances**. See *Balances*.

**Films**. (See also *Adsorbed substances; Coating(s); Sheet materials; Spreading; Surface; Wrapping materials;* and "sputtering" under *Cathodes*.)
from acrolein acetal polymers, P 5636*a*.
from acrylonitrile polymers, P 3658*e*, P 5636*a*.
from acrylonitrile polymers with butadiene and with vinylidene chloride, P 2470*c*.
from 2-acylamino-1,3-butadiene-vinyl compd. copolymers, P 3650*i*.
from acyl halides, castor oil, olefinic α,β-dicarboxylic acids and vinyl compds., P 3656*e*.
adhesion to Fe particles, 4077*i*.
adhesion to solids, 2842*c*, 7769*f*.
adhesive—see *Adhesives*.
adhesives for, P 3240*b*.
from alginic materials, P 7755*e*.
from alkyl acrylate polymers with vinyl acetate and vinyl benzoate, P 9532*e*
from *N*-(alkylsulfonyl)- and *N*-(arylsulfonyl)vinylamines copolymers, P 8211*i*.
from allyl alc. polymers with allyl fumarate and styrene, P 905*d*.
alumina, as carriers for electron microscopy, 2524*a*.
alumina, properties of insulating, 5250*h*.
from aluminum, Cu and Ag, crystal structure of, 5653*c*.
from aluminum, Ge, Si and Ag, structure and properties of, 4066*a*.
from aluminum, on ionic substrates, 8786*h*.
from amides (poly)—see *Nylon*.
on anodes, 47*b*.
antimony and Cs-on-Sb, 2481*i*.
antimony-Cs, optical and photoelec. properties of, 4092*a*.
from aromatic amine and polymethylol melamine, P 9537*g*.
bentonite, as dielectric, 331*g*.
between benzene solns. of cholesterol-lecithin and aq. solns. of gelatin, 8800*d*.
from bismuth and Ag, polonium distribution on, 4093*h*.
from bitumens, detg. stability at various temps., 5178*e*.
bituminous-emulsion, nonreëmulsifiable, P 5186*h*.
blocking of plasticized vinyl-resin, agent for prevention of, P 5999*b*.
book: Über monomolekulare Filme an Wassergrenzflachen und über Schichtfolien., 478*i*.
Bose-Einstein condensation for, 8225*e*.
from Buna-S Type III, tensile strengths of, 2009*b*.
from butadiene-isobutene-vinylidene chloride polymers, of low moisture-transmission limits, P 7259*c*.
from butadiene-styrene-vinylidene chloride polymers, P 8732*d*.
from butadiene-vinyl chloride-vinylidene chloride polymers, tear-resistant, P 7260*a*.
from calcium fluoride on glass, crystal structure of, 4071*b*.
from carbon monoxide-olefin polymers, P 3236*h*.
carbylamine polymers with carboxylic acids for, P 4515*g*.
of Cellophane—see *Cellophane*.
from cellulose acetate and viscose, whitened by fluorescent benzimidazole derivs., P 9474*e*.
from cellulose acetates, 6408*c*.
dyes for, P 2783*h*.
effect of plasticizers on heat softening of, 5944*e*.
of high tenacity, P 9476*g*.
manuf. of, 2027*e*, P 6826*d*.
phys. pretreatment and saponifiability of, 854*d*.
resorcinol disalicylate in stabilization of, P 1979*h*.
cellulose derivs. for—see *Cellulose acetates; Cellulose esters; Cellulose ethers; Cellulose xanthates; Nitrocellulose; Viscose;* and "derivs." under *Cellulose*.
cellulose oxazolidone ethers for, P 3196*i*.
cellulosic (from esters, ethers, regenerated cellulose, etc.), P 849*a*, P 1567*d*, P 4852*g*, P 6416*b*.
benzyl benzoate in stabilization of, P 1979*f*.
contg. *N*-alkoxymethylpolyamide, P 3659*d*.
from mixed esters, nitrocellulose detection and detn. in, 8967*i*.
waterproofing with acyl peroxides, P 4023*d*.
from chlorinated polythene, P 2039*a*, P 9534*bd*.
from chlorovinyl polymers, uniting of, P 5231*h*.
cinematographic—see *Cinematographic films*.
cold-fracture temp. of plastic, detn. of, 8199*a*.
compns. forming, from resins and oils, P 4050*i*.
compressibility effect on laminar boundary, and their sepn., 4062*c*.
on copper anode in HCl, periodic formation and soln. of, 7792*f*.
from copper oxide, reduction of, 6531*i*.
copper single-crystal, oxidation of, 6880*f*.
from copper, structure of, 4066*a*.
from corrosion products, electron diffraction by, 7399*i*.
on crystals, 3259*g*.
from DDT-oil larvicides, 8087*f*.
design-bearing, P 9301*b*.
from detergents (sol.) on salt solns., 7776*h*.
detn. of, on reflecting bases, 1621*f*.
from 1,1-dichloroethylene polymers with unsatd. ketones, P 9531*i*.
dielec. strength of, 3731*c*.
dissipative and elastic properties of, 6045*a*.
from dodecylamine on quartz, 8321*i*.
duplex, rate of evapn. of water through, 6884*f*.
from egg albumin, 2842*b*.
on elec. contacts, 3731*f*.
electrodeposited—see *Electrodeposits*.
for electroforming sepn., 5674*c*.
electrolysis (internal) with protective, 8285*d*.
electron diffraction by, furnace for study of, 7323*i*.
from emulsifiers on emulsion droplets, 5256*h*.
emulsion-stabilizing, strength of, 6884*b*.
equation of state at high pressures and, on liquids and solids, 6034*a*.
from esters (mixed) of mercapto acids with polyhydric alcs., P 4290*d*.
from esters of aminotriazine-aldehyde condensation products, P 4050*c*.
from esters (polymeric linear), P 1224*d*, P P 6236*d*.
from ethylcellulose and bis(allyl lactate)-maleate, P 2034*c*.
from ethylcellulose, casting process for, P 5592*de*.
from ethylene polymer and polyisobutylene, 9522*h*.
from ethylene polymers, P 906*d*, P 4515*c*, P 6001*a*, 9522*f*.
from ethylene-vinyl ester polymers, P 7264*f*.
from ethylmercapto polymers, P 8209*f*.
fibrin, 3054*h*.
effect of dye and salt concns. and pH on dye binding by, 411*g*.
persistence in tissue and its modification by heat, 7110*i*.
flow phenomena on contact of mutually sol. liquid, 4531*h*.
fluorescent, P 6518*e*.
formation and stability of, 8795*g*.
formation of, coating ingredients and, 3031*b*.
by evapn., 1621*e*.
on glass by acids, 2385*acefh*.
on metals, 6139*d*.
solvents in, 873*c*, 6432*e*.
from furfuryl acrylate polymer with Me acrylate, P 2035*a*.
from galactomannan and glucomannan gum carboxyethyl and cyanoethyl ethers, P 4564*e*.
from gelatin on water, 2487*b*, 8798*f*.
gelatin, solubilization of insol., 8037*e*.
germanium, optical consts. of, 6513*e*.
germanium, *n* of, 4066*a*.
on glass-electrodes, thickness of inhibiting, 4083*i*.
from glass for electron microscopy, 371*b*
from gluten compns., P 3241*h*
from gold and Ag, spreading of oils over 8799*a*.
from gold, light absorption by, 4957*c*.
from gold, MgO, Ag and ZnO, effect of heat on structure of, 4923*b*.
from gold, Ni and Pt, crystal structure of, 4074*g*.
from guanamine-aldehyde condensation products, P 3062*f*.
from guaran triacetate, stress-strain properties of, 7750*a*.
from gutta-percha, increasing thermal stability by rosin filler and milkweed, saghyz and Soyprene rubbers, 6855*d*
from halogen-contg. polymers, uniting to base, P 7265*b*.
hardness of org., measurement of indentation, 2788*d*.
from helium II, transfer rates in, 12*a*, 3254*e*, 8779*a*
from hydroxyethylcellulose, HCHO and urea, P 5640*c*.
insecticidal power and microscopic structure of residual, of hexachlorocyclohexane mixts. with phenyl isocyanide, 7184*e*.
from insecticides on building materials, gelatin and size, 9330*f*
irreversible and reversible properties of, 921*f*.
from keratin dispersions, P 6465*d*
lacquer—see *Lacquers*.
laminar-, hypothesis, 4938*i*.
laminated products from—see *Laminated products*
on leaves, 1464*i*.
light-filter, P 2871*a*.
light-polarizing—see *Polarization (of rays or waves)*.
from linear condensation polymers, P 6865*g*
linseed oil—see *Linseed oil*.
liquid, mass transfer between gas in flow and, 6053*f*.
liquid, measurement of strength of, P 6764*d*.
on liquids, 3264*g*.
on liquids, kinetic phenomena of, 7765*i*.
lubricants—see *Lubricants*.
metallic and salt, prepn. by evapn., 8785*b*.
metallic, bonding material for, P 2037*c*.
on crystals, crystal growth in, 7286*a*
crystal structure of, on crystals, 6483*e*.
elec. resistance and optical properties of, 2830*c*.
elec. resistance of, 6026*c*, 8771*e*
growth and structure of, 5352*d*
heat effect on, 2482*b*.
passage of cathodic H through, 4913*i*.
prepn. by evapn. onto liquids, 2481*f*.
spreading of fatty acids on, 4923*g*
structure of, 2482*d*.
on metals, growth of, 4149*b*.
from methacrylate compns. contg. loidal $SiO_2$, P 5634*f*.
from methylpentadienearalkenyl copolymers, for food packing, P 6458*e*.
from methylsiloxane on glass, photobromination of, 2096*f*.
mineral concn. in, conditioning for, P 5726*d*.
on mirrors—see *Mirrors*.
mixed adsorbed, at oil-water interfaces, 2068*h*.
nickel, H adsorption by, 2079*f*.
nickel, spectral analysis of, 6108*e*.
on nickel tetraammoniate solns. 7776*e*
nitrated birch bark for, P 3617*a*.

**nitrocellulose, effect of irradiation in electron microscope on, 7324*a*.**
**nitrocellulose for—see *Nitrocellulose*.**
**nonthermoplastic synthetic-resin, P 3662*b*.**
**oil, formation, stability and viscosities of, 6814*e*.**
**oil, stability and surface pressure of, 1240*g*.**
**from oils (drying), deterioration of, 2787*g*.**
**at oil-water interfaces, 2068*g*.**
**from olefin polymers, P 5231*e*.**
**from oleic acid on alk. substrates, 8797*c*.**
**from oleic or myristic acids, adhesion tension of, bond energies and, 7777*b*.**
**from oleic or stearic acids on steel, 8659*c*.**
**optical properties of, 3258*c*.**
**from org. acids, arrangement of mols. in, 8794*e*.**
**oxide, on Al, metals, etc.—see *Aluminum; Metals;* etc.; also *Coating(s)*.**
**oxide, on glass, increase of reflection by, 3161*g*.**
**oxide, on steel baths, N pickup and, 980*b*.**
**from oxides (hydrous) or silicates, waterproofing of inorg., P 3242*h*.**
**paint—see *Paint***
**from pectinates for food packaging, 6717*f*.**
**penetration of, micelle formation by, 7780*f*.**
**penetration of, soly. by, 20*i*.**
**from phenol-HCHO resins, P 5630*i*.**
**from phenoxathiin vinyl derivs. and vinylidene compounds, P 1223*e*.**
**photographic—see *Photographic films*.**
**plastic, 7747*a*.**
**absorbing infrared and ultraviolet waves, P 9537*a*.**
**app. for testing by accelerated aging, P 6433*b*.**
**convertible to dichroic polarizers and image carriers, P 6864*i*.**
**detn. of wt. loss on heating, 8198*g*.**
**softening of, P 5229*g*.**
**from plasticized hydroxylated polymers, P 5640*c*.**
**plasticizer for, $p,\alpha$-dimethylstyrene polymer as, P 5642*f*.**
**plastic products for—see *Plastic materials*.**
**platinum, effect of atm. on elec. resistance of, 6481*g*.**
**platinum, on aq. solns., 6038*h*.**
**from polyalkylcyclohexyl acrylate polymers, P 7754*h*.**
**from polyester amides, P 7266*e*.**
**from polymeric phosphonitrile esters, 4048*c*.**
**from polymer (polyunsatd.) reaction products with acids or anhydrides, P 2804*e*.**
**from polymers of acrylates of hydroxy amides, P 3446*i*.**
**polyvinyl acetal, P 2814*a*.**
**of polyvinyl acetate on water, surface pressure and area of, 437*b*.**
**from polyvinyl amines, P 5635*g*.**
**porosity of free, measurement of, 5202*h*.**
**protein dispersions in aq. detergents for, P 2785*c*.**
**protein, hardening with HCHO and formates, P 4868*i*.**
**protein, insolubilizing and hardening, P 6833*e*.**
**reflection-modifying, P 4900*c*.**
**reflection-reducing, for glass, P 2394*a*.**
**reflection-reducing, on lenses, prisms, etc., P 1164*i*.**
**from resinous products, $C_2H_4$ polymers as tackifiers for, P 6001*b*.**
**resinous products for—see *Phenol condensation products; Resinous products; Vinyl compounds;* and "condensation products of" under *Urea, Urea, thio-*, etc.**
**resistance of gaseous and liquid, in carbonation of $NH_4^+$ salt solns., 3155*a*.**
**rubber (Butyl) dispersions for, P 9519*i*.**
**from rubber (chlorinated), acid, alkali and heat resistance of, 875*h*.**
**rubber, drying of latex, 12076.**
**heat generated by solvent vapor in contact with, 5221*i*.**
**kinetics of oxidation of, 7741*d*.**
**manuf. of, 891*e*.**
**mol. structure and arrangement in stretched, 891*h*, 9513*g*.**
**photoelastic analysis in design of, 5620*d*.**
**from rubber-HCl, $CO_2$-permeable, P 3227*d*.**
**from rubber-HCl, improving mech. properties of, 1594*i*.**
**from rubber (Na-butadiene) oxidation with $O_2$, 7741*gi*.**
**from rubber-$SO_2$ reaction products, P 4890*g*.**
**from rubber (S-polymer), 5988*e*.**
**rupture of, in testing foam inhibitors, 7161*a*.**
**selenium pore-free, P 4153*d*.**
**silica, for reflection reduction, P 6803*a*.**
**from silicones on metals, 7219*d*.**
**silicon, formation and structure of, 6028*g*.**
**silicon org. compds. for, P 3656*i*.**
**from siloxanes, P 2036*e*, P 5635*a*.**
**from silver sulfide on Ag, electron diffraction by, 32*e*.**
**soap, gas-analysis app. using, 8971*a*.**
**stand-oils—see *Stand oils*.**
**from stearic acid on Cu, structure of, 7769*f*.**
**stibnite, infrared $n$ and dispersion of evapd., 2062*a*.**
**from styrene polymer, absorption of org. vapors by, 437*c*.**
**from sulfone resins, P 7751*d*.**
**surface-active substances for manuf. of, P 9496*f*.**
**from surface-active substances on metals, 883*c*.**
**surface pressures of, on solids, 1237*e*.**
**from tetrafluoroethylene polymers with $C_2F_3H$, P 5637*g*.**
**thickness of liquid from receding meniscus, measurement of, 2059*b*.**
**thickness of, radioactive materials in measuring, 8685*e*.**
**from thioplast, impermeable to solvents and war gases, P 4507*e*.**
**from tin(IV) oxide, secondary electron emission from, 4092*a*.**
**from titanic acid ester reaction products with linseed-oil glycerides, 7239*b*.**
**from trifluoroethylene polymers, P 1608*f*.**
**uni- and multimol., of octadecyl alc. and stearates, lubrication with, 9424*c*.**
**unimol., amine adsorption by negatively charged, 8796*i*.**
**collagen, 6039*i*.**
**desorption of, 8798*b*.**
**from diesters, 4537*d*.**
**evapn. of polar-hydrocarbon, 7767*d*.**
**from γ-hydroxystearic acid, lactonization in, 6883*g*.**
**hygroscopicity of, 8798*e*.**
**from insulin and from pepsin, 3261*h*.**
**kinetic salt effect in reactions of, 4086*e*.**
**from lauric acid and myristic acid, 4537*f*.**
**from lecithin, effect of neurohormones on, 7526*d*.**
**from lipides, effect of plant-growth substances on, 7554*d*.**
**measurement of force-area curves of, 8216*d*.**
**measurement of mech. properties of penetrated, 4076*g*.**
**on metals, 3263*g*.**
**microbalance for measuring pressures of, 7271*c*.**
**mixed, 17*d*.**
**from monocetyl succinate, 8797*i*.**
**from myosin, effect of adenosinetri phosphate on, 2654*f*.**
**from palmitic acid, effect of adsorption of multivalent cations on elec. properties of, 6038*f*.**
**from proteins, effect of thermal denaturation on elastic properties of, 2487*d*.**
**from proteins, mol. structure and viscosity of, 3689*g*.**
**salt effect on ionized, 8796*h*.**
**for stabilization of $C_2H_3$ emulsions, 7776*b*.**
**structure of condensed, 8796*e*.**
**thermodynamics of, 8795*d*.**
**transformations of different orders in, 8796*b*.**
**on water interfaces and layer films, 4710*i*.**
**from urea-deriv. polymers, P 5640*a*.**
**varnish—see *Varnish*.**
**from vinyl acetal polymers, P 4513*i*, P 6001*e*.**
**from vinyl aromatic polymers and colloidal $SiO_2$, P 5636*e*.**
**from vinyl chloride polymers, cementing of, P 4898*c*.**
**from vinyl chloride polymers, stabilization of, P 664*c*.**
**from vinyl chloride polymers with vinylidene chloride, P 8209*a*, P 8741*egh*.**
**from 4-vinylcyclohexene dioxide polymers, P 5639*f*.**
**from vinyl formal polymer, P 2037*c*, P 6867*d*.**
**vinyl-formal polymers for, P 4894*b*.**
**from vinylidene chloride polymer, prevention of discoloration by light, P 2037*h*.**
**from vinylidene chloride polymers, cold-stretched and oriented in 2 directions, P 2026*h*.**
**vinylidene chloride-polymer solns. in amides for, P 4515*i*.**
**from vinylidene fluoride polymers with $C_2H_4$ and halogenated ethylenes, P 5638*c*.**
**from vinyl isocoumaran polymers with vinyl monomers, P 7262*b*.**
**from vinylphenoxathiin polymers, P 905*b*.**
**from vinyl polymers and $SiO_2$, P 5229*d*.**
**from vinyl polymers, waterproof, P 2471*c*.**
**vinyl-polymer, testing stabilizers in, 5226*i*.**
**from $N$-vinylpyrrole polymers, P 2035*b*.**
**from vinyl-resin latex, P 3232*e*.**
**from viscose, colored, P 9475*b*.**
**viscosity of, 2486*a*.**
**from water on coal, effect on breakage and strength, 1238*g*.**

**Filterability, of viscose, 2770*a*.**
**Filter cake, for sugar manuf.—see *Sugar manufacture*.**
**Filter fly, control of *Psychoda albipunctatus* and *P. alternata*, 5894*i*.**
**control of *Psychoda* in sewage-treatment plant, 7629*g*.**
**control of *Psychoda* with Cl, 2718*e*.**
**Filtering materials. (See also *Absorbents; Adsorbents.*) P 8758*b*.**
**aids for, clay of Amapá as, 4609*d*.**
**asbestos as, 1125*d*.**
**base-exchanging—see *Base-exchanging compounds*.**
**for bleaching—see *Bleaching agents*.**
**from cellulose wadding and filter paper, P 6873*h*.**
**collodion membranes, 8746*d*.**
**from cracking catalysts (spent), P 370*c*.**
**for decolorization—see *Decolorising agents*.**
**diatomaceous earth as, filter using, P 2048*b*.**
**glass fiber, P 3987*d*.**
**kieselguhr as, filter using, P 2048*b*.**
**mineral wool, P 5566*e*.**
**rayon as, 7692*f*.**
**for respirator—see *Respirators*.**
**for sewage—see *Sewage*.**
**specifications for, for percolating filters, 1225*e*, 1507*g*.**
**stainless steel wire cloth, P 2476*e*.**
**for sugar manuf.—see *Sugar manufacture*.**
**suspensions, P 6*i*.**
**for water purification—see *Water, purification of*.**
**zig-zag folded, P 8758*a*.**

**Filter paper, absorptive capacity of, effect of polyethylenimine on, 403*h*.**
**acid adsorption by, in titrations, 519*f*.**
**acid-alkali testing, dyed with ext. from *Perilla nankinensis* leaves, P 3318*e*.**
**adsorption by, in presence of salts, 1624*g*.**
**burning of ashless, loss of wt. and water in, 60*b*.**
**cation-exchange capacity of, 2429*f*.**
**Congo red-dyed, acidity indicator from, P 4186*f*.**
**decompn. of, P in, 4802*e*.**
**dextrose yield from hydrolysis of, and cellulose detn. in, 8678*a*.**
**filter cartridges from cellulose wadding and, P 6873*h*.**
**ignition and combustion of, effect of chemicals on, 4468*c*.**
**pellets of, in spectrochem. analysis of solns., 2114*h*.**
**testing analytical, 4788*b*.**

**Filter press. See *Filters*.**

**Filters. (See also *Dialysers; Filtering materials; Separators.*) P 2823*i*.**
**air, P 913*e*, P 8757*g*.**
**dust-collecting compn. for, P 3120*f h*.**
**for pneumatically operated tools, P 6009*h*.**
**bag, P 6009*f*, P 8758*b*.**
**for blood, P 267*d*.**
**book: Some Aspects of Diat., Design, 5648*k*.**
**cartridge for oil, P 3249*f*.**
**cartridges from cellulose wadding and filter paper, P 6873*h*.**
**cationic, P 6009*f*.**
**for cellulose pulp, P 9447*e*.**
**for centrifugal gas scrubber, P 6009*h*.**
**ceramic, for gases, 1541*f*.**
**for chemicals and edible oils leaving dry residues, P 3249*f*.**

cleaning compns. for sand or stone beds of, P 3640*c*.
continuous, P 2824*a*.
corrugated, of metal powder, P 4056*i*.
for cottonseed oil, etc., P 2824*a*.
crucible, Gooch, as amalgam container in Cu detn. by electrolysis, 7863*i*.
crucible, stainless-steel, penetration by surface-active agents, 8791*d*.
with diatomaceous earth as filtering aid, P 2048*b*.
diatomite, with air-bump wash, P 6009*g*.
disk, P 6*g*.
disk, continuous-sectional, P 4056*i*.
drum, app. for feeding, P 4906*g*.
for dry-cleaning fluids, P 8757*f*.
for dust—see also *Dust*.
for dust and fog, 2041*g*.
for dust and smoke, 1*f*.
for dust, proportional-alpha counter for, 4521*i*.
elec.—see *Electric filters*.
for flue dust, P 6009*i*.
for formaldehyde removal from exhaust gases, 1547*i*.
frameless, P 4906*g*.
funnels—see *Funnels*.
for gas (natural), 5571*g*.
for generator gases, etc., P 2476*f*.
glass-fiber, P 3987*d*.
glass (sintered-), 8625*h*.
for iron removal from molten Sn, P 554*d*.
light—see *Light; Light, infrared; Light, ultraviolet; Polarization (of rays or waves.)*
for lubricating oils, cycle washing of spent percolation, with naphtha, 7218*b*.
in engines, P 4458*e*.
Fe detn. in, 6939*a*.
for milk before pasteurization, P 329*i*.
for nicotine, 9383*a*.
for oil, P 2048*b*.
by powder metallurgy, P 913*g*, P 5565*h*.
presses, P 6009*i*.
continuous, P 4906*h*, P 8758*a*.
for vegetable juice extn., etc., P 3541*c*.
vertical, P 3249*e*.
radial-fin-type, P 4056*h*.
for radioactive-tracer expts., 8746*b*.
rapid-sand, construction and operation of, 791*a*.
respirator—see *Respirators*.
for rock-salt solns., P 6378*f*.
rotary-drum, P 6*e*, P 913*g*, P 7273*d*.
blower for, 8213*e*.
scraper for, P 8759*a*.
Rupp-Frantz vibrating, 3665*b*.
sand, 909*d*.
self-cleaning, P 2476*d*.
self-cleaning, back-flow, P 7760*c*.
for sewage—see *Sewage*.
stainless-steel powder, P 3341*a*.
stainless-steel wire cloth, P 2476*e*.
streamline, 4541*e*.
suction, adapter for, 8213*c*.
for sugar manuf.—see *Sugar manufacture*.
suspension-using, P 6*h*.
trickling, for clarification systems, P 4406*h*.
trickling, vitrified-clay block for, standards for, 4785*i*.
ultra-, and dialyzer as artificial kidney, 8424*g*.
for viscose, 4010*a*, P 6873*g*, P 7228*i*.
for viscose, etc., P 913*e*.
for water purification—see *Water, purification of*.
of wire screen and zig-zag folded material, P 8758*a*.
for x-rays—see *X-rays*.
for zinc sulfate purification with Zn dust, P 8757*h*.

**Filtrate factor.** See "$B_1$ complex" under *Vitamins*.

**Filtration,** of air, oil, etc., 8745*h*.
of clay suspensions, app. for detg. rate of, 3665*d*.
of dust—see *Dust*.
effect in solns., 8213*d*.
enzymes—see under *Enzymes*.
history of, 1619*d*.
irregularities during, colloid flow and, 4541*c*.
at low temps., 3665*h*.
of lubricants—see *Lubricants*.
review on, 1227*h*.
of sewage—see *Sewage*.
of solute from solvent and its role in geology, 6124*b*.
in sugar manuf.—see *Sugar manufacture*.
suspension use in, P 6*h*.
vacuum, 8745*i*.
in water purification—see *Water, purification of*.

**Filtration effect,** the term, 6124*a*.

**Filtrol,** catalysts for cracking, pore size-surface area distribution of, 3180*g*.
catalytic activity for cracking of petroleum and crystal structure of, 1554*e*.
super, catalyst in synthesis gas manuf. from hydrocarbons, P 7213*b*.
zirconia catalyst diln. with, in decreasing losses in cracking of hydrocarbon oils, P 8665*g*.

**Fineness,** of particles—see "size of" under *Particles*.

**Fine-structure constant,** exptl. value of, 3279*c*.
in interaction in solids, 4916*a*.

**Finger and toe disease.** See *Clubroot*.

**Finger grass.** See *Grasses*.

**Fingernails.** See *Nails (finger and toe)*.

**Fingerprints,** developing of, Hg poisoning from, 9258*f*.

**Finishes.** See *Coating(s); Lacquers; Leather; Paint; Textiles; Varnish; Wood*.

**Fir.** (See also *Wood*.)
bark exts. of, tanning substance detn. in, P 3224*c*.
copper and Zn in twigs and wood of *Abies amabilis* in geochemistry, 3321*f*.
Douglas—see *Douglas fir*.
tar from stumps of, polycyclic hydrocarbons in lubricating oil from, 3182*f*.

**Fire boxes,** flow in locomotive, 6871*b*.

**Firebricks.** See *Bricks*.

**Fireclays.** See *Clays*.

**Firedamp.** (See also *Methane*.)
explosives proofed against, by inert salts, 3190*e*.

**Fireflies,** bioluminescence of, adenosine triphosphate in, 9101*f*.
light organ of, anatomy and physiology of, 4388*g*.

**Fire point,** detn. of, 382*e*.
detn. of, of drying oils, 5975*b*.
detn. of, of fats and oils, 6839*a*.

**Fireproofing,** agents for, P 4292*g*, 9298*a*.
agents for, bis(tetrachloropropoxy)methane and tetrachloropropanol, P 3835*i*.
from chlorinated paraffin wax, urea-HCHO condensation product, etc., P 3655*c*.
from Cl-contg. resin and ZnO or Zn(OH)$_2$, P 5232*h*.
from ethylene glycol tetrachlorophthalate, P 3655*a*.
hexahalo derivs. of 4,7-methanoindene, P 5797*c*.
octachlorobiphenylquinone, P 814*b*.
polyhydric. alc. reaction products with sulfates, P 4870*c*.
Si compds. as, P 8211*e*.
Th salts of org. acids as, P 3457*b*.
of cellulose, aminoplast resin powder mixts. with chlorinated org. compds. for, P 3210*a*.
of cellulose and textiles with $Sb_2O_3$, P 3210*c*.
coatings for, 4492*i*, P 6763*g*, P 6764*a*, 8177*b*.
of fabric-covered aircraft, 8074*g*.
from modified Si esters and a cellulose ester or ether, P 1050*b*.
of fibrous materials with melamine pyrophosphate, P 4022*i*.
of fibrous materials with polyamine hydrohalides, P 4024*c*.
of rubber, P 895*a*.
testing of, 8638*c*.
of textiles, phosphonic acid esters for, P 7600*b*.
with polyethylenimine and phosphoric ester derivs. of dipentaerythritol, P 5604*b*.
with $Na_2WO_4$ insolubilized by cyanamide-HCHO resin, P 3210*a*.
of textiles soaked in polyethylenimine solns. with pentaerythritol tetraphosphate, P 6428*h*.
of textiles, wood, etc., P 8138*c*.
with water glass mixt. with sea water, P 6764*c*.
of wood, P 6764*c*, P 7188*e*.
F compds. in, 8603*g*.
insecticidal value of Flamm Schutz Albert and Intravan N for, 5895*a*.
report on, 6351*i*.

**Fire-resistant materials.** (See also *Refractory materials; Solvents.*)
amylamine-tetrachlorophthalic anhydride reaction products with $PhNH_2$, P 2004*b*.
asphalt roofing, P 1940*e*.
barns, 9313*d*.
from bitumens, etc., P 334*c*.
for building—see *Building materials*.
chlorinated wax-polystyrene compns., P 5626*a*.
linoleum, P 3216*e*.
paper, P 9448*d*.
paperboard, P 7230*b*.
paper treated with sulfamic acid as, 8136*h*.
silicate cooking vessels, improvement of, P 5166*f*.
tests for, 4786*i*.
textiles impregnated with chlorinated paraffin and laminated with cellulose acetate soln., P 2443*c*.
trichloroethyl methacrylate polymer, P 4895*d*.
for wood, etc., P 1126*g*.
for wood, permanence of, 2712*c*.
wool (charred) and wool-asbestos unions as, 1192*i*.

**Fires.** (See also *Incendiary devices;* and "incendiary" under *Bombs*.)
book: Chemistry in Relation to Fire Risk and Fire Extinction, 1570*b*.
in copper mines, 1568*i*.
extinguishing, agents for, decafluorocyclopentane as, P 3844*c*.
in $C_6H_5$, foam in, 5189*d*.
with $CH_2ClBr$, and toxicity of products therefrom, 1983*a*.
with $CO_2$ and foam systems, 1984*a*.
in $CrO_3$ solns. in $Ac_2O$, 3199*d*.
in coal bunkers, 7663*b*.
in exhaust gases by halogenated hydrocarbons, P 1984*c*.
foams emulsified by alkyl Si derivs. for, P 9495*a*.
foams for, and Mel in, 5952*f*.
gases for, 7607*d*.
in gasoline or oil, on $H_2O$, C for, P 3949*e*.
in hydrocarbon oils, 6417*e*.
in liquids by incombustible gases or liquids, 6417*f*.
measuring strength of agents for, P 6761*f*.
powder-forming refractory crust for, P 5594*e*.
$NaHCO_3$-$SiO_2$ aerogel powder for, P 6418*f*.
in solvent process plant for pine stumps, protein foam system for, 8681*g*.
stabilized foam-forming compns. for, P 5594*g*.
flash points of perfumery solvents and, 2373*h*.
hazards of chlorinated hydrocarbon mixts with hydrocarbons, 7160*h*.
history of making of, 8681*g*.
lighters for—see *Igniters; Kindling*.
perchloric-acid, 1982*i*.
prevention of, atomic energy and, 7688*c*
in coating plants with $CO_2$, 875*i*.
in gasoline mixing with $PbEt_4$, 8655*d*
in industries using chemicals, 1180*b*
in liquefied petroleum gas, 2412*d*
in mines of Ontario, 7688*c*.
in painting and finishing plants, 870*a*.
in pyroxylin triangles in paper, 7687*d*.
in solvent dyes for plastics, 7688*i*
review on, 6826*i*.
in rubber tires, testing and extinguishing, 6454*f*.
in sugar factories, 8714*f*.

**Fireworks.** See *Pyrotechnic compositions*

**Firing.** (See also *Burners; Combustion; Stokers.*)
atomization of liquid fuels in, 4443*g*.
book: Wärmetechnik der Gaserzeugungöfen, 7668*g*.
of cement—see "burning of" under *Cement, hydraulic*.
of ceramic ware, 7655*f*.
of clay at mine, 5559*g*.
of clays, heat for, 2391*i*.
with coal and oil, smoke abatement and, 3990*i*.
of coal and wood refuse combined, 3591*e*.
of coal of low quality, 2397*a*.
with coal tailings, 4831*a*.
of coke ovens, effect on gas production, 2755*b*.
of coke ovens, versatility of, 3598*e*.
control (automatic) of, from flue gas analysis, 2403*g*.
of dolomite, furnace for, P 3164*g*, 5911*e*.
of Dresden china, 7655*g*.
effect on clay properties, 2070*b*.
with gas in nonferrous metal industry, 8687*f*.
of gas turbines with coal 1548*f*

of grog in rotary kiln, 5560*h*.
of grog in shaft kilns, briquets for, 8113*d*.
of kilns, 3391*e*.
with anthracite fines, 8639*f*.
to produce glasslike surfaces, P 7657*c*.
kilns for—see *Kilns*.
of kilns (rotary), 8115*h*.
of lime kilns with low-grade fuels, 5979*g*.
of liquid fuels, P 379*g*.
of lithium minerals, 3320*a*.
of marine boilers, smoke abatement and, 3991*b*.
of Metlach plates, moisture elimination during, 3586*e*.
with oil, of open-hearth and reheating furnaces, 3755*c*.
with oil, of water-gas machines converted to oil-gas manuf., 1550*e*.
of open-hearth furnaces with coke-oven gas, 7389*h*.
of open-hearth furnaces with oil, 4613*e*.
of porcelain with gas, 5917*e*.
of refractory materials, 372*h*.
of silica gel, effect on structure, 1628*d*.
of slurry, 3591*f*.
of talc, intermediate expansion in, 1542*f*.
temp. of porous-refractory bodies, effect on thermal cond., 3583*a*.
valve control for, 6469*e*.

**Firs** See *Fir*.

**Fischer, Frans**, biography, 7275*e*

**Fischer, Hans**, biography, 2825*c*

**Fischer, Hermann O. L.**, biography, 6477*d*.
Sugar Research Foundation Intermediate Award to, 4525*f*.

**Fischer base**. See *Indoline, 1,3,3-trimethyl-2-methylene-*.

**Fischer-Tropsch synthesis**. See "of carbon monoxide" under *Hydrogenation*.

**Fisetin** (*3,3',4',7-tetrahydroxyflavone*), fluorescence of, and detn. in quebracho tannin, 3641*b*.

**Fish**. (See also *Cod; Eels; Goldfish; Haddock; Herring; Salmon; Sardines; Sharks; Trout*.)
acetylcholine in organs of, and effect of eserine thereon, 8560*h*.
amino acids in products from, 3115*d*.
analysis of Spanish, 782*a*.
analytical and organoleptic findings on, 6747*d*.
anaphylaxis in, 306*a*.
bacterial growth on, effect of antibiotics, $NaNO_2$ and sulfa compds. on, 1498*d*.
buffer action of natural waters for, 9303*f*.
canned, corrosion and swelling in, 1498*d*.
discoloration of, 8069*a*.
improving taste of, P 3540*g*.
as staphylococcus food poisoning source, 6751*i*, 7601*f*.
cavitation resistance of, 4541*a*.
chick growth factor from, 284*g*, 285*b*, 286*d*, 5462*a*.
cholinesterase activity of organs of selachian and teleost, 6324*h*.
cold-storage, effect of controlled atms. on, 4779*g*.
compn. and nutritive value of Bombay, 782*b*.
compn. of, of Madras province, 9286*c*.
condensed solubles, relation of nutritive value of, to quality of raw material, 8465*h*.
cyanide plating and carburizing salt effect on, 3125*b*.
DDT toxicity to, 4805*e*.
detn. of chlorides for control in processing, 5878*b*.
downstream migration of amphibiotic migratory, physiol. detn. of, 8565*b*.
dried, preservation of, P 6758*f*.
eggs—see *Eggs*.
entrails, enzymic product from, for hide maceration and tanning, and fish-meal manuf., P 4881*i*.
fertilizer from, P 6774*h*.
food poisoning from products of, 6752*a*.
frozen, antioxidants and rancidity prevention in, 1498*b*.
frozen, vitamin C in preservation of, 9275*b*.
gas-evolving baits for, P 4786*c*.
hydrogen-ion concn. of blood of, effect of decrease in salinity on, 5507*d*.
industry of, medical hazards in, 2711*e*.
insecticide effect on, 1833*i*, 2728*e*, 9345*fg*.
insulin from, 3150*c*.
liver—see *Liver*.
meal, cholesterol from, 8535*b*.
effect of catalysts on crude protein detn. in, 71[illegible]
effect on [illegible] of eggs, 285*c*.
meal, fat in, 1877*a*, 7155*c*.
as feeding stuff for swine, 9292*i*.
mixt. with animal protein factor, effect on pig growth, 9293*c*.
screw-type extractor of oil from, P 6437*c*.
tryptophan availability from, for chicks, 2293*a*.
mercury effect on, 1492*g*.
phosphorus turnover in lake and, 9098*g*.
poison from *Adina cordifolia* wood, 8016*e*.
poisoning by Australian, 327*f*.
preservation of fish residues and, effect of pH on, 2809*h*.
preservation of, wood-tar-oil use in, 6396*a*.
products, in feeding of chickens, 8465*c*.
products of South African, 818*f*.
proteins of, 4790*b*.
in leather polishes and waxes, 5618*b*.
nutritional value of, 3498*g*.
of Szechuan, biol. value of, 3892*i*.
quality of, detn. of, 1120*c*.
quality of, fluorescence in control of, 1120*a*.
repellent of carnivorous, P 5154*c*.
respiration of, effect of salinity of external medium on, 5874*c*.
salt detn. in, 5128*d*.
scales, resinous product contg., P 9525*g*.
spoilage of fresh, and its control, 2337*i*.
sulfur dioxide detn. in, 1877*b*.
thiaminase activity in live and dead, 4308*g*.
thyroid gland of, effect of thiourea on, 5508*b*.
tissue water of, diffusion of nonelectrolyte org. substances into, 4387*f*.
toxicity of quaternary ammonium compds. to, 4780*b*.
vitamin $B_1$ in eyes of, 1117*a*
-waste processing plant for ships, P 6437*c*
wastes from, utilization of, 1815*f*, 1827*d*
waste waters from canning of, stream pollution control activities and, 8079*i*.
water (press) from, feed supplements from, P 2342*a*.

**Fisher, Harry Linn**, biography, 5237*i*.

**Fish fat**. See *Fats*.

**Fish-liver oils**. See *Cod-liver oil; Oils*.

**Fish nets**, dyeing of, fixing agents for, 3620*h*.
preservation of, 8688*d*.
rot- and waterproofing of, pentachlorophenol acyl derivs. in, 6831*h*, 7693*b*

**Fish oil**. See *Oils*.

**Fish roe**. See *Eggs*.

**Fits**. See *Convulsions*.

**Fittig-Wurtz reaction**. See *Wurtz-Fittig reaction*.

**Fixation reactions**. See *Complement fixation*.

**Fixtan acids**, for protection of cloth, 5523*g*.

**Flagellates**, in sea water, Mn content and, 8078*b*.

**Flajani-Basedow's disease**. See "exophthalmic" under *Goiter*.

**Flakes**, fluidized beds of, mass and momentum transfer in, 6475*e*.

**Flames**, of aluminum in O, 4593*h*.
in blast-furnace oxidizing zone, 2908*a*.
book: Theory of Combustion, Detonation and Explosion. Vol. I. Propagation of, in Gases [in Russian], 8140*e*.
carbon monoxide, formation of electronically excited O in, 4571*i*.
carbon monoxide, infrared emission bands of O from, 4571*g*.
chemistry and physics of, 2753*e*.
colored, candle giving, P 8580*d*.
combustion efficiency in relation to, 9411*e*.
cyanogen, effect of $H_2S$ on luminosity of, 6054*a*.
detection of, ionization methods of, 7327*d*.
of deuterium and H, 7282*a*.
diffusion, in vitiated atms., 8637*h*.
diffusion, structure and stability of, 7704*d*.
elec. conductivity of, 3591*h*.
extinction of $C_2H_2$, 8822*k*.
failure of, control for, 5648*c*.
flat, application to burners for town and hydrocarbon gases, 8645*h*.
formation, structure and stability of, 3939*f*.
heat transfer from, 7805*a*.
hydrocarbon cool, periodic reactions in, 6894*g*.
hydrocarbon, thermodynamics of, 1231*g*.
hydrodynamic theory of, 5569*d*.
of hydrogen (atomic), thermal conduction in,
hydrogen-O, structure of rising, 3254*c*.
of hydrogen peroxide, stabilization at low pressures, 8139*f*.
ignition velocity and stability of, 3178*c*.
ionization in, of metal vapors, 5303*g*.
ionization in transient, 481*a*.
length of, burner and, 2056*f*.
low-pressure, free radicals in, 5312*g*.
low-pressure, spectroscopy of, 4958*b*.
luminosity of, 4832*f*.
micro, combustion in, 7665*i*.
micro, industrial heating with, 7665*i*.
open-hearth-furnace, cinematography of, 2142*a*.
photometer—see *Photometers*.
propagation and stability of aerated, 6022*d*
propagation limits in glass tubes, and flames of gases and vapors in mixts. with MeBr, 3619*b*.
propagation limits of, effect of promoters, inhibitors and phys. properties on, 3617*g*.
propagation limits of, of $NH_3$-$N_2O$-air mixts., 3618*g*.
propagation of, effect of solid particles on, 6806*c*.
in H and $CH_4$ mixts., effect of A, $CO_2$, He or N on, 3618*d*.
in town gas, mixt. strength and power output in relation to, 2411*f*.
propagation velocity in gas mixts., 8248*h*.
of propane in tubes, 7282*b*.
propene cold, 5268*e*, 6059*a*.
reaction zone in Bunsen, 3253*i*.
in reservoir disinfection, 2717*c*.
review on, 6826*i*.
spectra of Br and MeBr, 5312*g*.
spectra of oxy D and oxy-H, 4141*i*.
spectrum of acetylene O, 7822*h*.
spectrum of, contg small particles, 499*a*.
spectrum of CuCl, 492*e*.
spectrum of $C_2N_2$, 4145*a*.
speed in gases, measurement of, 2406*b*.
stabilization of, in ramjet burners, 9411*c*.
temp. and velocity of, O-deficiency effect on, 7207*i*
temps. of, in CO explosions, effect of water vapor on, 851*d*.

**Flame throwers**, incendiary fuels for, rheological properties of, 4015*a*.
Napalm fuel for, 8180*a*.

**Flammable substances**. See *Combustibles*.

**Flamm Schutz Albert**, for fireproofing, 5895*a*.

**Flashlamps**, carbon dioxide-contg., P 4966*c*.
filter for, for use with daylight color film, P 4166*f*.
krypton-Ne, 3731*i*.

**Flash point**. (See also *Fire point;* and "temp." under *Ignition*.)
of chlorinated hydrocarbon mixts. with hydrocarbons, 7160*g*.
equation for, of hydrocarbon mixts., 5187*f*.
fire risk and, of solvents in perfumery, 2373*h*.
measurement of, of coal-tar fuels, 1551*c*.
of fats and oils, 6839*a*.
of petroleum fractions, 382*e*.
of turbine oils, 3603*b*.
measurement of, of drying oils and measurement of closed-cup flashpoint, 5975*b*.

**Flasks**, Florence, for volatile essences, 1530*d*.
Kjeldahl—see *Nitrogen, analysis*.
stirring app. for sealed, 8745*h*.
for titration of volatile liquids, 3665*e*.
volumetric, app. for calibration of, 6470*d*.

**Flattening agents**. See *Coating(s); Lacquers; Paint*.

**Flavacidin**, structure of, 4921*d*.

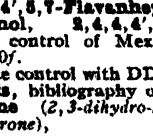
**Flavan** (*2-phenylchroman*.)

**2,3,3',4,4',5,7-Flavanheptol**, 641*a*, 3491*b*.

**2'-Flavanol, 3,4,4,4',7-pentamethyl-**, in control of Mexican bean beetle, 810*f*.
in mite control with DDT, 809*h*.

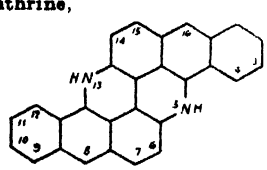
**Flavanols**, bibliography on, 3976*g*.

**Flavanone** (*2,3-dihydro-2-phenyl-1,4-benzopyrone*),



bacteriostatic activity of, 3488*f*.
deriv., from peanuts, 3491*b*.

derivs., 1772e, 1774e, 5396b.
derivs., from Douglas-fir heartwood, 395d.
glycosides, 7935e.
hydrolysis of (alk.), 5763d.
from peanuts, 784f.
**Flavanone, 3',4'-dihydroxy-**, adrenaline potentiation by, 5116h.
——, **5,8-dihydroxy-6,7-dimethoxy-**, 5397c.
——, **4',5-dihydroxy-7-methoxy-**. See *Sakuranetin*.
——, **4',5-dimethoxy-**, 1407h.
, **3,3',4',5',6,7,8-heptahydroxy-**, 1775a.
, **3',4',5',6,7,8 - hexamethoxy-**, 1774i.
——, **5-hydroxy-7-methoxy-**, 7935b.
——, **7-hydroxy-5-methoxy-**, 7935b.
, **5 - hydroxy - 6,7,8 - trimethoxy-**, 5396d, 5397c.
——, **6-hydroxy-5,7,8-trimethoxy-**. See *Isopedicin*.
, **5-methoxy-**, 1407g.
, **3,3',4,4',7-pentahydroxy-**, adrenaline potentiation by, 5116i.
——, **3,3',4',5,7-pentahydroxy-**, 3195c.
adrenaline protection by, 5542b.
and pentaacetate and Me deriv., 3195b.
——, **3',4',5,6,7-pentamethoxy-**, 1774b.
——, **3',4',5,7,8-pentamethoxy-**, 1772h.
, **3',4',6,7,8-pentamethoxy-**, 1774f.
, **3,4',5,7-tetrahydroxy-**. See *Katsuranin*.
, **3',4',5,7-tetrahydroxy-**. See *Eriodictyol*.
, **3',4',7,8-tetrahydroxy-**, adrenaline potentiation by, 5116i.
, **5,6,7,8-tetrahydroxy-**, 5396b.
, **4',5,6,7-tetramethoxy-**, 1773i.
, **4',6,7,8-tetramethoxy-**, 1774f.
, **5,6,7,8-tetramethoxy-**, 5396c.
, **4',5,7-trihydroxy-**. See *Naringenin*.
, **3',5,7-trihydroxy-4'-methoxy-**. See *Hesperetin*.
——, **4',5,7-trihydroxy-3'-methoxy-**. See *Homoeriodictyol*.
, **5,6,8 - trihydroxy - 7 - methoxy-**, 5396b.
——, **3',4',5-trimethoxy-**, 1407i.
——, **5,6,7-trimethoxy-**, 640i, 1773g.
——, **5,7,8-trimethoxy-**, 1772e.
——, **6,7,8-trimethoxy-**, 1774e.
——, **6,7,8-trimethoxy-3',4'-methylenedioxy-**, 1774g.
**Flavanthrine**,



**8,16 - Flavanthrinedione, 5,13 - didehydro-**. See *Flavanthrone*.
**Flavanthrone**, and derivs., manuf. of, P 8172e.
——, **6,14-dibromo-**, P 8172f.
**4,5,8 - Flavantrione, 6,7 - dimethoxy-**, 5396d.
**Flavianic acid** (*2,4-dinitro-1-naphthol-7-sulfonic acid.*)
adsorption-complex formation by, 3308e.
casein derivs., adsorption and bonding of water by, 7787d.
compd. with DL-arginine, 6169c.
sodium salt, complex with α-$Zn(OH)_2$, adsorption of org. liquids and $H_2O$ by, 5255b.
**Flavicidin**, 1767f.
**Flavin, dichloro-***, antivitamin action of, 1457g.
**Flavins.** (See also *Flavoproteins; Lumiflavin;* and "$B_1$," "$B_2$," "$B_2$ complex," etc., under *Vitamins.*)
-adenine dinucleotide and flavin mononucleotide, sepn. and identification of, 9116e.
-adenine-dinucleotide, cleavage of, 9194a.
-adenine dinucleotide, synthesis of, 2649h.
antiseptic, 2370h.
enzymes—see "respiratory" or "yellow" under *Enzymes*.
in plants, respiratory systems and, 728i
production by *Eremothecium ashbyii*, 1833c.
synthesis of, secondary amines for, P 5044a.
**Flavobacterium, *maris*,** oxidation of cholesterol by, 7079f.
in sugar mills, 887a.
**Flavoglaucin***, 4-heptyl-2,5-dihydroxy-3-methylseneciophenone as structure of, 7918a.
——, **decahydrodesoxy-***, 7913c.
——, **tetrahydrodesoxy-***, 7914a.
**Flavone** (*2-phenylchromone*), bacteriostatic activity of, 3488f.
derivs., 5398a.
oxidation of, 4263g, 5779f.
as remedies, 5547g.
detn. in flour, as measure of extn. degree, 9277a.
, **3-anisoyl-8-hydroxy-4',5-dimethoxy-**, anisate, 3414g.
, **6-benzamido-**, 5779e.
, **7-(benzyloxy)-5,8-dimethoxy-**, 639e.
, **7-(benzyloxy)-5-hydroxy-**, and oxidation of, 638i.
, **7-(benzyloxy)-5-hydroxy-3,4'-dimethoxy-**, 227a, 5398b.
, **7-(benzyloxy)-5-hydroxy-8-methoxy-**, 639e.
, **8-(benzyloxy)-5-hydroxy-3,3',4',7-tetramethoxy-**, 5398e.
, **7-(benzyloxy)-5-hydroxy-3,3',4'-trimethoxy-**, 5398c.
, **7-(benzyloxy)-5-hydroxy-3,4',8-trimethoxy-**, 227b.
, **8-(benzyloxy)-3,3',4',5,7-pentamethoxy-**, 5398e.
, **7-(benzyloxy)-3,3',4',5-tetramethoxy-**, 5398d.
, **7-(benzyloxy)-3,4',5-trimethoxy-**, 5398c.
, **3',5'-diacetamido-†**, 2621f.
, **3',5'-diamino-**, 2621f.
, **5,7-diethoxy-6-methoxy-**, 5397d
, **2,3-dihydro-**. See *Flavanone*.
, **3',4'-dihydroxy-**, adrenaline potentiation by, 3104j, 5116h.
, **3,5-dihydroxy-**, and diacetate, 1407g.
, **5,7-dihydroxy-**. See *Chrysin*.
, **5,8-dihydroxy-**. See *Primetin*.
, **7,8-dihydroxy-**, 7935d.
and derivs., 640a.
——, **5,7-dihydroxy-6-methoxy-**. See *Oroxylin*.
, **5,7-dihydroxy-8-methoxy-**. See *Wogonin*.
——, **5,8-dihydroxy-4'-methoxy-**, and diacetate, 3414b.
, **5,8-dihydroxy-7-methoxy-**. See *Isowogonin*.
——, **7,8-dihydroxy-3-methoxy-**, 640e
, **4',5-dihydroxy-3,6,7,8-tetramethoxy-**. See *Calycopterin*.
——, **5,7-dihydroxy-3,3',4',5'-tetramethoxy-**, oxidation of, 638j.
——, **5,7-dihydroxy-3,3',4'-trimethoxy-**, oxidation of, 636i.
, **5,7-dihydroxy-3,4',8-trimethoxy-**. See *Tambulin*.
——, **3,5-dimethoxy-**, 1407g.
——, **5,8-dimethoxy-**, demethylation of, 6371.
, **7,8-dimethoxy-**, 640e, 7935e.
——, **3',5'-dinitro-**, 2621e.
, **7-ethoxy-3,3',4',5,6-pentamethoxy-**, 4265c.
——, **3,3',4',5,5',7,8-heptahydroxy-**. See *Hibiscetin*.
, **3,3',4',5,6,7,8 - heptahydroxy-**, synthesis of, 639f.
, **3,3',4',5',6,7,8-heptahydroxy-**, heptaacetate, 1775a.
, **3,3',4',5,5',7,8-heptamethoxy-**, 638f.
, **3,3',4',5,6,7,8-heptamethoxy-**, 639i.
, **3,3',4',5',6,7,8 - heptamethoxy-**, 1775a.
**3,3',4',5,5',7-hexahydroxy-**. See *Myricetin*.
, **3,3',4',5,6,7-hexahydroxy-**. See *Quercetagetin*.
——, **3,3',4',5,6,8-hexahydroxy-**, 224f.
——, **3,3',4',5,7,8-hexahydroxy-**. See *Gossypetin*.
——, **3,3',4',6,7,8-hexahydroxy-**, 1774f.
, **3,4',5,6,7,8-hexahydroxy-**. See *Calycopterelin*.
——, **3',4',5,6,7,8-hexahydroxy-**, 4263i.
——, **3',4',5',6,7,8 - hexahydroxy-**, and hexaacetate, 1774i.
——, **3,3',4',5,6,8-hexamethoxy-**, 224f.
, **3,3',4',5,7,8 - hexamethoxy-**, 182c, 636i.
——, **3,4',5,6,7,8-hexamethoxy-**, 640a.
——, **3',4',5,6,7,8-hexamethoxy-**. See *Nobiletin*.
——, **3',4',5',6,7,8-hexamethoxy-**, 1774i.
——, **hydroxy-**, bacteriostatic activity of, 3488f.
——, **3-hydroxy-**, derivs., 5398a.
——, **8-hydroxy-**, adrenaline potentiation by, 5116i.
from farina from *Primula verticillata*, 5086g.
oxidation of, 637i.
——, **7-hydroxy-**, nitration of, 9067a.
oxidation of, 640b.
, **3 - hydroxy - 3',4' - dimethoxy-**, adrenaline potentiation by, 5116h.
, **3-hydroxy-4',5-dimethoxy-**, monohydrate, 1407h.
, **5-hydroxy-3,7-dimethoxy-**, oxidation of, 636b.
, **8-hydroxy-4',5-dimethoxy-**, and esters, 3414f.
, **7-hydroxy-6,8-dinitro-**, 9067a.
, **3-hydroxy-3',4',5,5',7,8-hexamethoxy-**, 1408b.
, **3-hydroxy-3',4',5',6,7,8-hexamethoxy-**, 1774i.
, **5-hydroxy-3,3',4',5',6,8-hexamethoxy-**. See *Gardenin*.
, **3-hydroxy-5-methoxy-**, 1407g.
, **5-hydroxy-7-methoxy-**, oxidation of, 637a.
, **7-hydroxy-3-methoxy-**, oxidation of, 640e.
, **7-hydroxy-8-nitro-**, and acetate, 9067a.
, **3-hydroxy-3',4',5,6,7-pentamethoxy-**, 1774c.
, **5-hydroxy-3,3',4',5',7-pentamethoxy-**, oxidation of, 638d.
, **5-hydroxy-3,3',4',6,7-pentamethoxy-**, and oxidation of, 639g
, **8-hydroxy-3,3',4',5,7-pentamethoxy-**, and acetate, 5398b
, **3 - hydroxy - 3',4',5,7 - tetramethoxy-**, and 3-O-diglucoside, 8449i.
, **3-hydroxy-4',5,6,7-tetramethoxy-**, 1774a.
, **3-hydroxy-4',5,7,8-tetramethoxy-**, 1772h
, **3-hydroxy-5,6,7,8-tetramethoxy-**, 5396f.
, **5-hydroxy-3,3',4',7-tetramethoxy-**, oxidation of, 636h.
, **5-hydroxy-3,4',6,7-tetramethoxy-**, and oxidation of, 639o
, **5-hydroxy-3',4',6,7-tetramethoxy-**, 4263i.
, **7-hydroxy-3,3',4',5-tetramethoxy-**, and acetate, 5398b
, **3-hydroxy-3',4',5-trimethoxy** dihydrate, 1407i.
, **3 - hydroxy - 5,6,7 - trimethoxy** 1773h.
, **3 - hydroxy - 5,7,8 - trimethoxy-**, 1772f.
, **5 - hydroxy - 3,4',7 - trimethoxy-**, oxidation of, 638d.
, **7 - hydroxy - 3,4',5 - trimethoxy-**, 5398a.
, **3-hydroxy-6,7,8-trimethoxy-3',4'-methylenedioxy-**, 1774h.
, **7-hydroxy-4',6,8-trinitro-**, 9067a
, **5-methoxy-**, 638b.
, **7-methoxy-**, nitration of, 9067a
, **6-methoxy-3',5'-dinitro-**, 2621f
, **7-methoxy-6,8-dinitro-**, 9067a
, **6-methoxy-4'-nitro-**, 2621f
, **7-methoxy-8-nitro-**, 9067a.
, **7,8-methylenedioxy-**. See *1,3 Dioxolo[h][1,4]benzopyran-6-one*
, **2'(and 4')-nitro-**, 2621f
, **2',3,4',5,7-pentahydroxy-** See *Morin*.
, **3,3',4',5,7-pentahydroxy-** See *Quercetin*.
, **3,4',5,6,7-pentahydroxy-**, 1774b
, **3',4',5,6,7-pentahydroxy-**, 1263d
and pentaacetate, 1774c.
, **3,4',5,6,8-pentahydroxy-**, 224c
, **3,4',5,7,8-pentahydroxy-** See *Herbacetin*.
, **3',4',5,7,8-pentahydroxy-**, and pentaacetate, 1772i.
, **3,4',5,7,8-pentahydroxy-**, 1774j
, **3',4',5,7,8-pentahydroxy-**, 1771f
, **pentamethoxy-**, auranetin and, 3822i.
, **3',4',5,6,7-pentamethoxy-**, 1774c
4263i.
, **3,4',5,6,8-pentamethoxy-**, 224c.
, **3,4',5,7,8-pentamethoxy-**, 638c.
, **3',4',5,7,8-pentamethoxy-**, 1772h
, **3,4',5,7,8-pentamethoxy-**, 5396i.
, **3,5,6,7,8-pentamethoxy-**, 1408a.
, **3,3',4',8-tetrahydroxy-**, See *Fisetin*.
, **3,3',4',7-tetrahydroxy-**.

—, **3,4',5,7-tetrahydroxy-**. See *Kaempferol*.
—, **3',4',5,7-tetrahydroxy-**. See *Luteolin*.
—, **3,5,6,8-tetrahydroxy-**, 224*d*.
—, **3,5,7,8-tetrahydroxy-**, 636*a*, 1772*g*.
—, **4',6,7,8-tetrahydroxy-**, tetraacetate, 1774*f*.
—, **3,4',5,6-tetrahydroxy-7,8-dimethoxy-**, 3566*b*.
—, **3,4',5,7-tetrahydroxy-3-methoxy-**. See *Isorhamnetin*.
—, **3,4',5,7-tetrahydroxy-8-methoxy-**. See *Tambuletin*.
—, **3,3',4',5-tetramethoxy-**, 1407*i*.
—, **3,5,7,8-tetramethoxy-**, 636*d*, 1772*g*.
—, **4',5,6,7-tetramethoxy-**, 1774*a*.
—, **4',6,7,8-tetramethoxy-**, 1774*f*.
—, **3,6,7,8-tetramethoxy-3',4'-methylenedioxy-**, 1774*h*.
—, **3,3',4'-trihydroxy-**, adrenaline potentiation by, 3104*f*.
—, **3,4',5-trihydroxy-**, and triacetate, 1407*h*.
—, **3,5,7-trihydroxy-**. See *Galangin*.
—, **3,7,8-trihydroxy-**, 640*e*.
—, **5,6,7-trihydroxy-**. See *Baicalein*.
—, **5,6,8-trihydroxy-**, derivs., 224*c*.
—, **5,7,8-trihydroxy-**, 1772*f*.
and triacetate, 636*i*.
—, **6,7,8-trihydroxy-**, and triacetate, 1774*e*.
—, **3,4',5-trihydroxy-7-methoxy-**. See *Rhamnocitrin*.
—, **5,7,8-trihydroxy-3-methoxy-**, and acetate, 636*g*.
—, **5,7,8-trihydroxy-3,3',4',5'-tetramethoxy-**, 638*h*.
—, **5,7,8-trihydroxy-3,3',4'-trimethoxy-**, 636*i*.
—, **3,4',5-trimethoxy-**, 1407*h*.
—, **4',5,8-trimethoxy-**, 3414*g*.
—, **5,6,7-trimethoxy-**, 1773*h*.
—, **5,7,8-trimethoxy-**, 1772*e*.
oxidative demethylation of, 637*a*.
—, **6,7,8-trimethoxy-3',4'-methylenedioxy-**, 1774*h*.

**Flavones**, 1154*f*, 1772*bi*, 1774*c*.
in farina secreted by *Primula*, 5086*g*.
hydroxy derivs., 1407*f*.
and hydroxy derivs., adrenaline protection by, 5542*a*.
oxidation (nuclear) of, 636*ai*, 637*h*, 638*ch*, 639*f*, 640*ae*, 3823*f*, 4265*b*.
oxidation (nuclear) of, and related compds., 4264*a*.
in peppermint, anthocyanins and, 3149*b*
in plant drugs, 771*i*.
solvent for, P 2739*e*.

**Flavonoids**, adrenaline protection by, 5542*a*.
effect on röntgen irradiation disease, 7122*h*.

**Flavonols**. See *Flavone, hydroxy-*; and "hydroxy derivs." under *Flavones*.

**Flavono(7',8',6,5)-α-pyrone**. See "lactone" under *1,4-Benzopyran-8-acrylic acid, 7-hydroxy-2-phenyl-*.

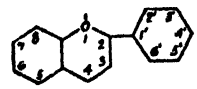
**Flavoproteins**, in heart, as glucose dehydrogenase carrier, 4712*g*.
in liver of rats with Guerin epithelioma, and effect of vitamin $B_2$ thereon, 1477*i*.

**Flavopurpurin** (*1,2,6 - trihydroxyanthraquinone*), diglucoside and its octaacetate, 5019*i*.
identification of, and distinguishing from purpurin, 6944*g*.

**Flavor**. (See also *Taste*.)
of butter—see *Butter*.
of canned goods—see *Canned goods*.
of cheese—see *Cheese*.
of dairy products—see *Dairy products*.
of food—see *Food*.
of fruits and vegetables during production and storage, 9329*b*.
of milk—see *Milk*.

**Flavoring materials**. (See also *Vanilla*.)
from apple juice, P 9294*i*.
in beverages (alc. and nonalc.), 2339*a*.
for butter, synthetic, 4394*d*.
butyrates (aromatic and terpene) as, 9375*e*.
butyrates as, 8573*i*.
for candies and chewing gum, goldenrod oil as, 2372*d*.
coconut, from levulinic acid, 784*d*.
for confectionery, 8573*f*.
extn. from fluid foods and condiments, with starch, P 3118*a*.
formation during fermentation, 1903*g*.
for gin, 2365*b*.
maple (imitation) acid and from aminobutyric
peppermint, ...
in potatoes, 5879*d*.
propionates (aromatic and terpene) as, 2372*g*.
propionates as, 2370*i*.
recovery from fruit juices, P 3541*a*.
sources, preservation and deterioration of, 1878*h*.
sugar (reducing) detn. in, 7153*b*.
use in industry and prepn. of, 5507*h*.

**Flavylium**,



**Flavylium compounds**. (See also *Benzopyrylium compounds*.)
4-amino-3,5,7-trihydroxy— chloride—see *Betanin*.
4 - [4 - (*p* - dimethylaminophenyl) - 1,3-butadienyl]-7-hydroxy— chloride, P 6100*c*, P 7849*d*.
4 - (*p* - dimethylaminostyryl) - 7 - hydroxy— chloride, P 6100*b*, P 7849*a*.
4 - (*p* - dimethylaminostyryl) - 7 - methoxy— chloride, P 6100*b*, P 7849*c*.
3,3',4',5,5',7-hexahydroxy— chloride—see *Delphinidin*.
7 - hydroxy - 4 - (*p* - hydroxystyryl)— chloride, P 6100*b*, P 7849*c*.
7-hydroxy-4'-methoxy—chloride, P 6100*f*, P 7849*c*.
7 - hydroxy - 4 - (*p* - methoxystyryl)— acetate, P 6100*c*, P 7849*d*.
3,3',4',5,7-pentahydroxy— chloride—see *Cyanidin*.
3,4',5,5',7 pentahydroxy - 3'- methoxy— chloride—see *Petunidin*.
3,4',5,7-tetrahydroxy— chloride—see *Pelargonidin*.
3,4',5,7 tetrahydroxy 3',5' - dimethoxy— chloride—see *Malvidin*.
4',5,7 - tris[6 - (carboxydihydroxyphenyl)glucosyloxy] - chloride, 7935*h*.

**Flax**, ash content and fiber quality of, 9456*i*.
bleaching of, lignin content and, 4470*i*
break-twisting angle of raw and bleached, 6421*g*.
cellulose detn. in, 6411*i*.
compn. and quality of fiber from, 4858*d*.
crystallinity of, 8132*i*.
cultivation of, and fiber prepn. from straw, 5595*h*.
cyanogenetic content of, 8015*g*.
decompn., oxidation, pectins and retting of, 3201*h*.
2,4-D effect on, 6773*c*.
effect on soil bacteria, 3957*i*.
fermentative refining of, bacteria in, 725*a*.
fiber recovery from unmature or retted, P 6833*c*.
fungi causing deterioration of, 5953*i*.
hemicellulose of *Phormium tenax*, 5589*a*.
herbicide effect on, 1139*b*.
irrigation of, 2286*f*.
middle lamella of fiber of, analyses of, and extn. to promote wet-spinning of unretted flax, 7690*i*.
middle lamella of fibers from, compn. and tensile strength of, 4016*g*.
pectins and treatments of, 2778*e*.
processing equipment for fiber, in U.S., 7690*i*.
retting of, bacteria in, and in liquor purification, 1985*c*.
retting of, with aeration of liquors, 2438*i*.
shives, adhesive extender from, 8738*a*.
spinning of, 7232*i*.
tendering in, distinguishing types of, 8686*f*.
wilting coeff. of, 4801*f*.
x-ray scattering by, 2091*f*, 4460*i*.

**Flax bollworm**. See *Heliothis ononis*.

**Flaxedil**. See "[*p*-phenenyltris(oxyethylene)]tris[triethyl— iodide] under *Ammonium compounds, substituted*.

**Flaxseed**, disinfection of, 1138*c*, 7179*b*.
feeds from, 3539*a*.
heating and deterioration in, effect of ethylene chlorohydrin and related compds. on, 4733*h*.
mucilage of, submicroscopic structure of, 4881*g*.
water detn. in, 8708*c*.

**Flaxseed meal**. See *Linseed meal*.

**Flaxseed oil**. See *Linseed oil*.

**Flea beetles**, control of, bis(2-hydroxy-3-nitro-5-chlorophenyl) sulfide for, P 1901*f*.
control with DDT, 9318*e*.

**Fleas**, control in clothing, agents for, 9349*c*.
control of, agents for, 6356*h*.
control of murine-typhus and plague, 3556*a*.
control on rodents, 7186*b*.
repellents for, P 4421*b*.

**Fleece worms**. See *Lucilia*.

**Fleming, John Ambrose**, biography, 915*f*.

**Flesh**. See *Meat*.

**Flexibility**, measurement of, of plasticized polyvinyl chloride, 2465*e*, 5628*e*.

**Flexible materials**, with wrinkle-textured coating, P 2790*c*.

**Fleximer**, materials for building industry, 7208*d*.

**Flies**. (*Entries referring to specific kinds of flies, with the exception of the housefly (Musca domestica), have been put under the common and scientific names.*)
alc. effect on, synergism in, 5525*g*.
biting, repellents and toxicants for, 7181*d*.
control of, aerosol-particle size and, 6777*f*.
agents for, 6356*h*, P 7634*g*, P 9358*b*.
agents for, and their toxicities to man, 8601*d*.
alkyldinitriles for, P 8604*g*.
with 2-alkyl-4-hydroxy-3-methyl-2-cyclopenten-1-ones, 5752*a*.
app. for, 5894*h*.
with aromatic unsatd. carbonyl compds. and pyrethrum, P 4420*g*.
arylidene-alicyclic ketone-pyrethrum compns. for, P 4420*i*.
2,2 - bis(*p* - methylthiophenyl) - 1,1,1-trichloroethane for, P 7187*f*.
in buildings, hexachlorocyclohexane in, 9341*i*.
chloralimine compns. for, P 5154*c*.
chlordan, DDT, hexachlorocyclohexane and methoxy analog of DDT in, 7629*d*.
chlorinated org. compds. in, 1518*g*.
compns. from ester of ether-dicarboxylic acids and, P 5152*g*.
DDT in, 1519*cfg*, 2728*a*, 6355*c*.
DDT-residue toxicity on surfaces in, 9344*g*.
DDT-sabadilla mixts. in, 7629*a*.
*tert* - diacylamine compns. for, P 4421*b*.
diaryl disulfide for, P 9358*d*.
3,4 - dichloro - 1 - (1 - chloro - 2,2,2,-trichloroethyl)-benzene, P 7188*c*.
effect of dispersing and spreading agents on toxicity of DDT spray powders in, 8087*h*.
effect of moisture and temp. on residual effectiveness of DDT in, 7628*i*.
effect of sun on toxicity of DDT deposits in, 5895*e*.
on farms, effect of chlorinated chem. residues, sanitation and weather on, 5895*f*.
halogenated-unsatd. compds. for, P 5899*a*.
insecticide residues in, 9345*c*.
α-methylbenzylidenemalononitrile, P 3461*b*.
methylenedioxyphenyl derivs. as synergists for pyrethrins in, 3555*b*.
(3,4 - methylenedioxyphenyl)propylene compds. for, P 1903*d*.
piperonyl chrysanthemumate for, P 2732*h*.
pyrethrin in, 2363*a*.
R. B. 1018 in, 4806*b*.
sesamin exts. for pyrethrins for, P 5151*b*.
in sewage with hexachloroethane, 5526*f*.
smokes of DDT or hexachlorocyclohexane in, 9342*c*.
supplements for DDT-pyrethrum formula for, 7184*a*.
testing DDT compns. in, 9342*f*.
testing larvicides for, 8602*d*.
tetrachloroethyl ethers of phenols for, P 7638*b*.
ω-thiocyanoalkyl ester compns. for, P 5153*c*.
control of larva of, 3555*h*.
DDT action on, 2359*a*, 3964*h*.
in DDT detection in milk, 6356*c*.
DDT-resistant, 6355*bc*.
control of, 8600*d*, 9344*i*.
effect of Gammaesan and Octa-Klor on, 3965*e*, 6355*a*.
effect of piperonyl butoxide, piperonyl cyclonene and pyrethrum applied to selected parts of, 8602*i*.
insecticide testing on, 7627*a*.
repellents for livestock, 8603*h*.

toxicity to, of azobenzene and related compds., 2727*b*.
of 2,2-bis(*p*-bromophenyl)-1,1,1-trichloroethane and 2,2-bis(*p*-bromophenyl) - 1,1,1 - trichloroethane, DDT and pyrethrins, 5147*e*.
of DDT and related compds., 7628*f*.
of DDT residues, 808*g*.
of *Derris* and *Lonchocarpus*, 5150*b*.
of org.-compds., chem. constitution and, 7625*i*.
of residues of DDT analogs and related chlorinated hydrocarbons, 6354*g*.

**Flint.** See *Quartz*.

**Floats**, oil removal from, P 3949*e*.

**Flocculation.** (See also *Agglutination;* and "coagulation of" under *Colloids*.)
of bitumens by liquids of low surface tension, 6816*i*.
of cellulose fiber suspensions, 1181*f*.
interfacial tensions of blood serum in relation to, 1823*d*.
optical d. during colloidal, 2070*i*.
of silver iodide, 8236*b*.
in water purification—see *Water, purification of*.

**Flocculation reactions**, cadmium reaction for blood-serum lability, 9225*d*.
cephalin-cholesterol and thymol, in catatonia, 3925*a*.
cholesterol-desoxycholic acid as, of liver dysfunction, 9225*b*.
in tuberculosis, 3517*f*.

**Floor polish.** See *Polishing materials*.

**Floors**, abrasion and corrosion of, in tanneries, 1589*f*.
cleaning compositions for—see *Cleaning compositions*.
concrete, chlorinated rubber coatings for, 1198*d*.
corrosion-resistance tests on, 2752*e*.
Pliolite S-5 enamel paint for, 5606*f*.
coverings for—see also *Carpets; Rugs*.
coverings for, P 2040*d*.
alkali-resistant, from phenol-modified coumarone-indene resin and cellulose ether, 2448*i*.
from chlorinated polythene, P 5642*i*. P 9534*be*.
leather waste-vinyl acetate plastic for, P 4506*b*.
tall oil-cellulose ether compn. as binder in, P 2436*a*.
waterproofed felt for, P 7720*f*.
driers for, 9480*h*.
linoleum for—see *Linoleum*.
linoleum substitutes for—see *Linoleum substitutes*.
mildew control on, amine salts for, P 6357*h*.
pigment (Fe-oxide) uses in, 5201*c*, 8697*d*.
rubber-cellulose ether molding powder for, P 2803*d*.
tiles for—see *Tiles*.

**Floor varnish.** See *Varnish*.

**Floor wax.** See *Waxes*.

**Floricin**, in lubricants, effect on elec. contact resistance between piston ring and cylinder wall, 8658*i*.

**Floriculture.** See *Flowers*.

**Florida earth.** See *Fuller's earth*.

**Florida red scale.** See *Chrysomphalus aonidum*.

**Floridose**, sodium mannoglycerate in, 8014*g*.

**Floridin.** See *Fuller's earth*.

**Floss**, milkweed, 9296*i*.

**Flotation.** (See also *Ores, treatment of; Separation; Separators;* and the specific ores, as *Copper ores*.) P 4057*d*.
agents for, aromatic alcs., P 4624*d*.
brine mixts. with fatty acid-amine salts, P 5519*d*.
citronella oil, P 3249*h*.
esters of (hydroxyalkoxy) compds., P 6663*g*.
of nonsulfide minerals, P 5725*d*.
of apatite and ilmenite, P 4624*b*.
of apatite from Ti minerals, P 5727*d*.
app. for, 7387*i*.
in lab., 4609*i*.
rotary, 3325*a*.
for sepn. of coke and cinder, P 1172*b*.
of arsenopyrite and pyrite, thiocyanates in, 979*e*.
of barite or $BaSO_4$, 2134*b*, 4611*b*, P 6402*g*.
of beryl, 3322*g*.
of beryl-mica ores, 4609*b*.
of bone particles from bone meal, P 1124*i*.
bubble formation in, 3325*f*.
of cellulose regenerating baths, clarification by, P 4014*c*.
of cement raw materials, 1546*e*.
conditioning for, P 5726*d*.
of copper, Au and Ag, effect of O on, 7875*f*.
of cryolite, 2379*d*.
of diaspore, 7655*h*.
of dolomite and magnesite, P 3160*f*.
of endellite, 3751*e*.
of fibers, 6420*i*.
with fluidized materials, P 8218*h*.
of fluorite, 6952*i*.
gas adsorption and, 3325*c*.
of glass sand, 7653*c*.
of graphite, 1924*d*, 2379*b*, 6125*h*, 6373*f*, P 7204*b*.
hydrogen-ion concn. and, 1227*i*.
hydrophobism of sulfide minerals in, 7875*e*.
lecture demonstration on, 8762*b*.
of limestone, 1938*e*.
of lubricating oils to remove metal particles, P 5183*c*.
of magnesium carbonate from $CaCO_3$, P 3984*g*.
of minerals, effect of gas liberated from soln. on, 3*g*.
mineral-surface pretreatment for, 6131*g*.
in pea cleaning, 9280*d*.
of phosphate minerals, 802*b*, 2378*i*, P 3160*cd*, P 3986*b*.
of quartz, 6953*i*.
radioactive tracers in study of, 8321*i*.
review on, 1227*h*.
of sheelite and sulfides, P 9018*b*.
of scheelite from cassiterite and heavy metal sulfides, 2139*i*.
sepn. factors in, 465*d*.
of sericite, 1503*e*.
of smithsonite, P 9018*c*.
of sphalerite, P 9018*c*.
of spodumene, 6546*a*.
of sulfur ore, 2379*c*.
surface-active substances in, 1707*g*.
theory of, Russian work on, 2140*h*.

**Flour.** (*Wheat flour is meant unless otherwise stated; see also* Baking; Corn flour; Dough; Meal; Oat flour; Rye flour.)
addn. of cereals, legumes and potato products to, 4393*a*.
adhesive from, P 4899*b*.
analysis of, 7153*f*, 8505*h*.
arsenic detn. in, 1118*d*.
ash and cellulose of, effect of *Tribolium confusum* on, 2335*i*.
bags for, insect-proofing of, 7186*c*.
baking properties and viscosity of, for cookies and crackers, 8566*e*.
baking qualities of, vitamin $B_1$ effect on, 6325*d*.
baking quality or strength of, diastatic activity and, 325*f*.
barley detn. in, 9277*c*.
beet addn. to, in bread manuf., 4392*i*.
benzoic acid detn. in, 9277*g*.
bleaching of, $Bz_2O_2$ compn. for, P 2710*d*.
broad-bean flour as addn. agent for, 4393*a*.
chlorine dioxide-treated, feeding tests with, 5101*g*.
definitions and standards for, and related products, 1495*d*.
dehydroacetic acid as disinfectant for, P 6758*b*.
detn. of cold-water-absorptive capacity of pregelatinized, 325*b*.
diastatic activity of, 7596*d*.
Dyox application to, 6325*e*.
enrichment with Chinese-tallow-nut flour, 785*a*.
extensograms of, effect of mixing, NaCl and consistency on, 4780*i*.
extn. degree of, ash content and, 777*i*, 7596*c*.
extn. degree of, detn. of, 9277*a*.
as flavor carrier for synthetic species, P 787*c*.
from flaxseed meal for adhesive manuf., P 9536*a*.
of France, British milling standards for, 777*d*.
grinding effect on, 6325*d*.
hairy-spider-beetle control in bags of, 2729*b*.
heat of hydration and specific heat of, 4391*h*.
improvement of, P 5130*g*.
for loaf vol.—see *Bread*.
manuf. and enrichment of, 7153*f*.
maturing agents for, 8565*i*.
millet, lipases in, 4709*a*.
milling procedures for, effect on chem., phys. and baking properties, 2707*d*.
mite-infested, effect on water content of sound flour, 2707*b*.
mixts. with baking powder, app. for detn. of $CO_2$ in, 3531*i*.
mixt. with nonfat milk solids, measurement of absorption of water by, 2336*h*.
mixt. with sucrose and wheat germ, food from, 777*f*.
moisture detn. in, 3532*g*.
nitrogen chloride treated, biol. effects of, 3499*a*.
convulsant action of, effect of $CO_2$ on, 3106*d*.
effect on animals and humans, 3532*i*.
effect on dogs, 2707*g*, 9233*i*.
physiol. action of, 1843*b*.
oxidation and reduction of, mechanism of, 2707*f*.
palm, of *Guilielma speciosa*, 3116*d*.
peanut and wheat, in diet, effect on hemoglobin and plasma-protein production, 3500*e*.
pentosan detn. in, and their relation to mineral matter, 4781*c*.
phosphate detn. in, 9277*f*.
phosphorus in, 5508*g*.
potassium bromate-starch mixts. for bleaching and maturing of, and explosibility of, 7230*f*.
protease detn. in, 9277*i*.
protein detn. in, 325*c*.
proteins of, hydrotropic action of urea on, 7595*e*.
quality detn. of, 7596*b*.
self-rising, $CO_2$ detn. in, app. for, 7153*h*
soybean—see *Soybean flour*.
sulfur dioxide in treatment of, P 786*e*.
tryptophan detn. in, 7153*e*.
vitamin $B_1$ detn. in, 2336*a*.
vitamins $B_1$ and $B_2$ in, 5508*f*.
water detn. in, 8971*b*.
wood compn. contg., P 1188*d*.

**Flour beetles**, control with MeBr, 1900*g*

**Flour substitutes**, of Morocco, 4391*g*.

**Flow.** (See also *Circulation; Fluidity, Thixotropy; Viscosity;* and "creep" under *Metals* and *Steel*.)
of adjacent disperse masses having properties of viscous-plastic body, 7271*e*.
of adsorbed mols., 6883*d*.
of air through small orifices, 8751*g*.
anisotropic plastic, 4614*d*.
app. for high-pressure treatment of gases or liquids, 2473*b*.
of asphaltic emulsions, 2420*d*.
through beds, 4906*d*.
through beds (fixed and fluidized), 6475*f*.
birefringence or double refraction of—see *Refraction*.
in blast furnace of burden and gases, 7878*e*.
book: Industrial Rheology and Rheological Structures, 4402*c*.
of calcium-soap dispersions in hydrocarbon oils, 8710*c*.
calcn. of, 4906*c*.
elec. analog computer in, 8271*i*.
of liquids in piping, bends, etc., 8751*h*.
of calking compds., 3166*b*.
capillary hydrodynamics in sol. liquid pairs as result of neg. surface tension, 4531*h*.
capillary, in soils, 3955*e*.
of carbon-black suspensions, 419*g*
in catalysts (porous), 7313*i*.
of cellulose acetate plastics, 9522*e*.
of clays (plastic), 2390*a*.
coatings industry and, 5202*e*.
of colloids, irregularities during filtration and, 4541*c*.
compressibility in, of gases, 4906*c*.
compressible, 2046*c*.
compressible-fluid mixing in laminar, 3667*b*.
of concrete in relief of high-load stress concns., 6387*i*.
constitution of materials and, 19*d*.
control and measurement of, 447*b*.
in control in industry, 8750*c*.
critical, through sharp-edged orifices, 8752*b*.
of cuprammonium cellulose solns. in cylindrical tubes, 7681*g*.
in curved ducts at large Reynolds nos., 447*c*.
of dielectrics, app. for study of, 6469*i*.
in diffusion, 8806*i*.
of disperse systems, 5259*d*.
in cylindrical and conical tubes, 6872*c*.
through screw conveyer, 6872*b*.
along walls, 7778*g*.
of drilling muds, 2757*b*.
of drops of suspension falling in pure dispersion medium, 7291*a*.
in drying drums (cell-type), 5235*h*.
effect on petrolatum, 4540*c*.
electrolytic-processes convection, 4584*i*

of explosives under impact, 4855*d*.
in filtration—see *Filtration*.
through fluidized beds and randomly packed columns, 6475*f*.
of fluidized glass spheres, 6474*h*.
in fluidized reaction systems, 4906*d*.
of fluidized systems through pipes, friction in, 912*a*.
in gas-d. measurement, 1946*a*.
of gases, 4531*a*.
combustion-wave-development during, 4407*b*.
in long pipelines, 7272*b*.
at low pressure, 4906*e*.
through porous media, 7288*b*.
through porous $SiO_2$, 6883*d*.
in sorbents, 6488*g*.
temp. measurement in high-velocity, 2475*i*.
viscosity corrections in formulas for, 5172*c*.
of gas-liquid mixts., 4906*c*.
of gas-solid mixts. in conduits, 6475*h*.
gas steady, substitution principle for, 6021*f*.
of geysers, 6131*d*.
of glass, 8625*e*.
of glass in hardness measurement, 5558*e*.
through granular layer, sorption in, 6872*g*.
through granular solids, mass transfer in, 8751*h*.
of GR-S rubber charging stocks, app. for control and measurement of, 1209*g*, 5986*h*.
of GR-S rubber, energy of activation of, 1210*c*.
of heat—see "transfer or transmission of" under *Heat*.
of helium (liquid $He^3$ and liquid $He^4$), 4130*a*.
of helium II, 12*a*, 4063*h*, 7765*c*, 8226*f*, 8779*a*.
of incendiary gels, 4014*i*.
of inks (printing), 3620*f*, 8175*g*.
of ionic crystals, structural deviations and, 4072*d*.
of iron sulfide (fused FeS), 3257*b*.
jet, 2056*c*.
of long mols. in high-viscosity solns., 4055*h*.
of lubricants—see *Lubricants*.
of macaroni, effect of drying on, 8066*i*.
through macromols. in soln and through swarms of particles, 6050*d*.
of magnesium bentonite clay, 6871*h*.
measurement of, 5236*b*.
app. for—see also *Meters*.
of gas, at low pressure, 1613*i*.
of gases, app. for, 3246*f*.
of gases from drill holes, app. for, P 8758*d*.
of gas, torsion balance for, 6005*d*.
of liquid fuels, 8214*f*.
of phenolic resins, 3229*i*.
of powd. catalyst to hydrocarbon-oil conversion zone, P 9429*a*.
of rubber, app. for, 429*c*.
in wind tunnels, 4975*f*.
from micropipets, 3245*d*.
of nitrocellulose pigments, 5606*g*.
nomographs for, 4906*b*.
of oleate systems contg. KCl, 5260*d*.
in open-hearth furnaces, 7878*abc*.
oxidation (catalytic) of org. compds. in, 927*d*.
in packed towers, 1614*d*.
of paints, effect of particle size of $CaCO_3$ extenders on, 6836*c*.
of particles of large diam. in vertical transfer lines, pressure drops in, 6476*e*.
of pastes, 2823*d*.
of petroleum limestone-reservoir fluids, 8651*g*.
in petroleum pipe lines, 1954*k*, 5175*i*.
in petroleum prospecting and app. for detg. rate of gas flow into test wells, P 4456*e*.
of phenol-HCHO novolac and vinyl chloride-acetate resins, 6860*i*.
in pipes or tubes, isothermal 2-phase 2-component, 2046*a*.
of non-Newtonian liquids, 6008*b*.
pressure losses in horizontal, 7759*d*.
Reynold's similarity laws of, 2045*e*.
below 2 inches, 2045*h*.
plastic—see also *Creep; Plastic deformation*.
of polyisobutylene, 7295*c*.
of polymers, 7294*i*.
of polymers, nomenclature of, 6490*h*.
of polymer solns., 6490*i*.
of polystyrene, 8226*h*, 9533*c*.
of polystyrene (molten), 6461*b*.
in porous media, 1239*h*.
of rayon, 3202*f*.
reaction kinetics in, in study of transient intermediates, 5267*c*.
reactor design and, 3247*i*.
in reactors (cylindrical), distribution of reaction times for laminar, 4084*c*.
from reservoir over plane, 4064*h*.
resistance to, of bitumen-aggregate mixts., measurement of, 5919*h*.
of layer of grains, packing d. and, [illegible]
of lubricants at low temps., measurement of, 7218*g*.
of paper stock in pipes, frictional, 6413*i*.
review on, 4906*b*.
Reynolds no., calcn. of, 4*h*.
chart for agitation studies, 4903*c*.
of $Fe(OH)_3$ hydrosols, 5259*c*.
review on, 6040*g*.
through rocket nozzle, 2847*e*, 6021*i*.
of rubber, 3649*i*, 8721*f*.
activation energy for, 2010*g*.
at low shearing stresses, 7738*i*.
at low temps., 3642*h*.
and its measurement, 1207*f*.
mol. distribution and, 1593*g*.
of rubber (polysulfide) in cold, from chem. reactions, 2012*i*.
of satd. liquids, temp. and pressure in relation to, 3668*f*.
soln. rate of NaCl monocrystals and, 6054*e*.
of steel, 9010*d*.
in steel converter, 7878*f*.
of structured dilute sols and suspensions, 7291*f*.
substitution flows in theoretical gas, 4066*a*.
in sugar-diffusion cells, 8714*f*.
supersonic patterns of, 6022*b*.
between surfaces in close proximity, 4927*a*.
of suspensions (non-Newtonian), 4906*c*.
of suspensions, particle shape and, 4436*h*.
theory of, 8226*d*.
thermo hydrodynamics of explosions, 6416*h*.
of thermoplastics test for, 4787*g*.
thermoregulators controlling—see *Thermoregulators*.
of thickening colloidal systems, 2843*i*.
of tin single crystals, effect of surface-active substances on, 8230*c*.
turbulence in, theory of, 8778*i*.
turbulence spectrum at large Reynold's nos., 8778*h*.
turbulent, combustion of C tubes under, 6896*a*.
eddy diffusivities and temp. gradients in, 6474*f*.
over infinite plate, 4903*h*.
outside circular boundary, 4903*h*.
two-phase, compressibility effects in, 7271*i*.
valves controlling—see *Valves*.
of vapors through moving beds, pressure drop in, 6476*c*.
viscosity control in, app. for, P 3250*b*.
of water and water vapor into leathers, 3639*h*.
of water in open channels, salt concn. and, 6763*i*.
of water in porous media, 2069*a*.

**Flowers.** (See also *Buds; Pigments, plant.*)
anthesis in tomato, nutrient-element balance and time of, 9322*b*.
anthocyanins in Australian, 3068*e*.
aromatic principle extn. from, P 9391*a*.
auxin effect on initiation of, 5456*b*.
color of, pH of plant juice and ash content of flowers in relation to, 8450*ac*.
compn. of mango, 3070*i*.
2,4-dithiobiuret effect on, 2678*i*.
ethylene production by infected, effect on healthy flowers, 8458*e*.
formation of, by cotton, effect of mineral diet on, 3492*c*.
delay by 3-indoleacetic acid, 2357*i*.
by fruit trees near gas-producing boreholes, 5830*a*.
growth cycle metabolism in relation to, 9175*h*.
by tomatoes, effect of naphthaleneacetic acid on, 3494*f*.
in *Xanthium*, 729*i*.
in *Xanthium*, effect of auxin, 2,4-dichloroanisole and triiodobenzoic acid on, 6705*c*.
in *Xanthium*, effect of 2,4-dichloroanisole and triiodobenzoic acid on, 6705*d*.
-forming substances, 1083*h*.
hesperidin and neohesperidin in seed vessels and stigmas of orange, 6328*b*.
insect enemies of, 3554*h*.
keeping quality of cut, improvement of, P 4792*f*.
of Kentucky bluegrass, effect of photoperiodism and temp. on, 2287*h*.
morphology and biology of *Datura*, 5544*f*.
opening of orange, fruiting in relation to, 8020*b*.
poisoning (self-) of cut, 8458*g*.
preservation of, P 3950*g*.
sodium α-naphthylacetate effect on life of cut, 5092*b*.
stigmas of, germination-promoting substance from, 5089*f*.

**Flowmeters.** See *Meters*.

**Flue dust.** (See also *Cement, hydraulic or structural; Precipitation, electric.*)
filter for, P 6009*i*.
lead oxide detn. in, 2121*c*.
nodulizing Fe, in rotary kiln, 7391*g*, 7878*h*.
use in cement, P 8116*h*.

**Flue gases.** (See also *Fumes; Precipitation, electric; Smoke.*)
analysis of, 9415*d*.
in automatic combustion control, 2403*g*.
from petroleum refineries, mass spectrometer in, 7673*b*.
for S and $SO_2$, 4601*d*.
boiler deposits from, 6808*b*.
carbon dioxide detn. in, P 914*h*.
carbon dioxide recovery from, P 8121*d*, P 8758*e*.
catalyst loss in, in fluid-catalytic cracking units, recorder for, 7217*e*.
cooling of, in regenerating catalysts from conversion of hydrocarbons, P 1956*c*.
corrosion by, and its prevention, 100*a*.
corrosion by, of water heater, 4622*a*.
cyclone for, P 7273*e*.
Dry Ice from, 9296*g*.
dust removal from—see *Flue dust*.
oxygen detn. in, P 4836*i*.
app. for, P 380*h*.
of cement kiln, app. for, 8115*h*.
from rotary kilns, 8116*f*.
precipitation of ashes, dust and soot from, P 5573*f*.
sulfur content of, effect on corrosion of boiler heating surfaces, 6808*e*.
sulfur dioxide recovery from, 368*h*.
sulfur dioxide removal from, P 7201*g*.
sulfur trioxide detn. in, 65*b*.
water detn. in, 8119*i*.

**Flues,** corrosion protection of, 100*d*.

**Fluid crystals.** See *Liquid crystals*.

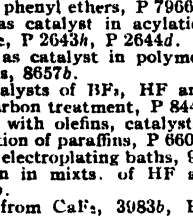
**Fluidextracts.** (See also such headings as *Cinchona; Hydrastis; Ipecac.*)
identification of, 1908*b*, 3145*h*.
thromboplastic action of, 5533*h*.

**Fluidity.** (See also *Flow; Viscosity.*)
of coal, combustion properties and, 5170*e*, 6392*a*.
elec. cond. and, of silicate melts, 4937*b*.
measurement of, of bitumens, P 3590*h*.
of cellulose-fiber dispersions, 4787*e*.
of ceramic bodies, app. for, P 6386*h*.
of cotton cellulose in cuprammonium soln., 7692*i*.
super-, review on, 7765*b*.
super-, theory of, 4063*hi*, 4064*a*.

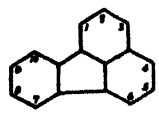
**Fluidization,** of anthracite coal, 6805*i*.
in calcite sepn. from EtOH, 7298*c*.
in coal gasification and catalytic processes, 9414*g*.
destructive distn. by, P 9426*i*.
flow in fluidized reaction systems, 4906*d*.
mechanism of, 6474*h*.
nomenclature and symbols for, 6474*g*.
in petroleum distn. from bituminous sand, 9421*d*.
pilot plants for, 1613*e*.
review on, 4906*d*, 9656*f*.
in zinc manuf., P 7892*i*.

**Fluidized solids,** catalysts, 8830*f*.
catalysts, history of, 8074*d*.
catalysts, regeneration of, P 9300*b*.
characteristics of systems of, 6805*g*.
in coal-gas purification, 3172*d*.
contact with fluids, P 8218*f*.
copper oxide, reaction with $CH_4$, 7199*h*.
flow in conduits, 6745*h*.
flow through beds of, 6475*f*.
gas drying by, P 7274*e*.
heat removal from beds of, P 6478*a*.
heat transfer by beds of, 6474*i*, 8753*g*.
mass and momentum transfer in beds of, 6475*d*.
mixing of gas and solid in, 6475*i*.
properties of, 6474*g*.
reactions using, app. for effecting, P 6873*f*.

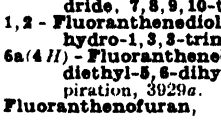
removal of dust and mists from air by beds of, 6475*a*.
systems with gases, mass transfer in, 5646*i*.
vapor flow through, pressure drop in, 6476*c*.
in vertical tubes, pressure drop in, 6476*a*.
**Fluids.** (See also *Body fluids; Gases; Liquids.*)
compressibility of, in wells, 446*h*.
contact with fluidized materials, P 8218*f*.
dynamics of, review on, 1227*h*.
flow of—see *Flow*.
kinetic theory of—see *Kinetic theory*.
mixing (laminar) of compressible, 3667*b*.
**Flukes.** No entries this year. See *Fasciola; Liver flukes; Schistosomes; Snails*.
**Fluoaluminates.** (See also *Alkali metal fluoaluminates.*)
structures of, 960*c*.
**Fluoborates,** as catalysts, in reaction of ketene with carbonyl compds., P 1056*c*.
diazonium (heterocyclic), 5783*e*.
glass, P 5165*i*.
manuf. of, 3983*b*.
*p*-toluenediazonium, 7917*h*.
**Fluoboric acids,** as catalyst in acylation of alkyl phenyl ethers, P 7966*h*.
**$H_2BO_2F$,** as catalyst in acylation of thiophene, P 2643*h*, P 2644*d*.
**$H_3BO_2F_2$,** as catalyst in polymerization of olefins, 8657*b*.
**$HBF_4$,** catalysts of $BF_3$, HF and, for hydrocarbon treatment, P 844*d*.
compds. with olefins, catalysts for isomerization of paraffins, P 660*g*.
detn. in electroplating baths, 961*g*.
formation in mixts. of HF and $HBO_2$, 2494*b*.
manuf. from $CaF_2$, 3983*b*, P 4435*b*, P 6374*a*.
**Fluocolumbates(V),** of alkaloids, 5785*h*.
**Fluocuprates(II),** stability of, 4971*a*.
**Fluophosphates,** effect on brain function and metabolism, 7147*g*.
**Fluophosphoric acids,** alkyl esters, review on, 9027*i*.
as catalyst in acylation of alkyl phenyl ethers, P 7966*h*.
reaction products of $H_2PO_2F$ and $HPO_2F_2$ as catalysts in alkylation of paraffins, P 5583*c*.
**$H_2PO_2F$,** esters, 121*c*.
esters, toxicity and miotic action of, [illegible]
**$HPF_6$,** salts with sterols, 7494*a*.
**Fluoran,**



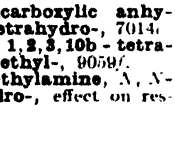
laxative activity of, 2319*e*.
——, **3′,6′-dihydroxy-.** See *Fluorescein*.
——, **3′,4′,5′,6′-tetrahydroxy-.** See *Gallein*.
**3′,6′-Fluorandiol.** See *Fluorescein*.
**1-Fluoranthenamine,** and complex with 2,4,7-trinitro-9-fluorenone, 7014*f*.
**Fluoranthene,**



3401*g*.
compression and freezing under pressure, 4067*f*.
derivs., 9059*b*.
and derivs., 7014*bd*.
Friedel-Crafts reaction with, 7473*c*.
indexes of free valences of, 3252*c*.
mol. structure of, 4569*c*.
reaction (attempted) with maleic anhydride, 2199*g*.
——, **acetyl-.** See *Ketone, fluoranthenyl methyl*.
——, **benzoyl-.** See *Ketone, fluoranthenyl phenyl*.
——, **8,9-bis(ethylmercuri)-7,10-diphenyl-,** 2614*f*.
——, **bis[4-[*m*-(methylsulfonyl)benzamido]-1-anthraquinonyl-amino]-,** dyes from, P 8171*f*.
——, **diacetyl-,** 7473*g*.
——, **dibenzoyl-1,2,3,10b-tetrahydro-,** 7474*b*.
——, **dibromo-,** dye from 1-amino-4-[*p*-(phenylsulfonyl)benzamido]anthraquinone and, P 8171*f*.
——, **dihydro-1,3-dimethyl-,** 9059*e*.
——, **3,10b-dihydro-1,3,3-trimethyl-,** 9059*e*.
——, **1,3-dimethyl-,** 9059*e*.
and derivs., 3401*e*.
——, **1,3-diphenyl-,** and picrate, 9059*a*.
——, **hexacosafluorohexadecahydro-,** P 4301*b*.
——, **3-methyl-1-phenyl-,** and compd. with 1,3,5-trinitrobenzene, 9059*b*.
——, **1,2,3,10b-tetrahydro-,** benzoylation of, 7474*a*.
——, **1,2,3,10b-tetrahydro-1,3-dimethyl-,** 9059*a*.
——, **1,2,3,10b-tetrahydro-1,3-diphenyl-,** 9059*a*.
——, **6b,7,10,10a-tetrahydro-7,10-diphenyl-,** 2986*c*.
——, **1,2,3,10b-tetrahydro-3-methyl-1-phenyl-,** 9059*a*.
——, **6b,7,10,10a-tetrahydro-7-phenyl-,** 2986*c*.
——, **1,2,3,10b-tetrahydro-1,2,3-trimethyl,** isomers and derivs., 9059*f*.
——, **1,2,3,10b-tetrahydro-1,3,3-trimethyl-,** isomers, 9059*c*.
——, **1,2,3-trimethyl-,** and compd. with 2,4,7-trinitro-9-fluorenone, 9059*ch*.
and derivs., 3401*h*.
**1-Fluoranthenecarbamic acid** (*1-fluoranthenylcarbamic acid*), ethyl ester, 7014*f*.
**3-Fluoranthenecarboxanilide,** 7473*e*.
**Fluoranthenecarboxylic acid,** anthraquinone dye from, P 5966*e*.
**1-Fluoranthenecarboxylic acid,** and derivs., 7014*f*.
——, **1,2,3,10b-tetrahydro-,** 7014*f*.
——, **1,2,3,10b-tetrahydro-3-oxo-,** and semicarbazone, 7014*e*.
**3-Fluoranthenecarboxylic acid,** and methyl ester, 7473*i*.
**Fluoranthenedicarboxamide,** *N,N′*-bis-[5-[*m*-(methylsulfonyl)benzamido]-1-anthraquinonyl]-, P 8171*g*.
**Fluoranthenedicarboxylic acid,** anthraquinone dyes from, P 5966*cd*.
and dimethyl ester, 7473*i*.
**2,3-Fluoranthenedicarboxylic anhydride,** 7014*d*.
**8,9-Fluoranthenedicarboxylic anhydride,** 7,8,9,10-tetrahydro-, 7014*i*.
**1,2-Fluoranthenediol,** 1,2,3,10b-tetrahydro-1,3,3-trimethyl-, 9059*f*.
**6a(4*H*)-Fluoranthenëthylamine,** *N,N*-diethyl-5,6-dihydro-, effect on respiration, 3929*a*.
**Fluoranthenofuran,**



*[8,9-c]*



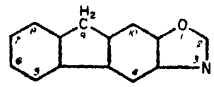
*[2,3-c]*

**Fluorantheno[2,3-*c*]furan-1,3-dione†,** 7014*d*.
**Fluorantheno[8,9-*c*]furan-8,10-dione,** 7,7a,10a,11-tetrahydro-†, 7014*c*.
**Fluorapatite.** See *Apatite*.
**Fluorenamine,** effect on papain, 3476*g*.
——, *N*-**acetyl-.** See *Acetamide, N-fluorenyl-*.
**1-Fluorenamine,** and compd. with trinitro-9-fluorenone, 4246*c*.
**2-Fluorenamine,** carcinogenic activity of, 300*c*.
derivs., 5770*a*.
radioactive, contg. 9-$C^{14}$, 3917*f*.
reaction with di-Et dihydroxymalonate and with pyruvic acid, 193*a*.
——, *N*-**3-camphorylidene-†,** 4812*g*.
——, **7-chloro-,** 7005*e*.
——, *N*-**(2-chloroethyl)-,** 7443*d*.
——, *N,N*-**dimethyl-,** 1367*i*.
**9-Fluorenamine,** *N*-**(2-chloroethyl)-*N*-ethyl-,** in pulmonary edema studies, 9250*b*.
——, *N*-**(*p*-dimethylaminophenyl)-2-nitro-,** 2981*e*.
——, **2-nitro-*N*-phenyl-,** 2981*gh*.
**Fluorene** (*diphenylenemethane*),

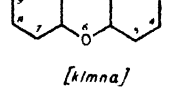


amino derivs., 2981*eg*.
bromination of, 4658*f*.
bromination (photo) of, 7004*g*.
chain-transfer coeffs. for styrene in, 5731*h*.
compression and freezing under pressure, 4067*f*.
derivs., 7004*i*.
derivs., hyperthyroidism treatment with, 2705*a*.
elec. moment of, 7279*g*.
formation from $C_2H_2$, 5376*d*.
hydrogenated derivs. of, in spindle-oil fractions, 4001*h*.
metabolism of, 3919*f*.
metalation of, with K or Na, 429*h*.
mol. structure of, 942*g*, 4569*c*.
oxidation of, 1367*h*.
radioactive, contg. 9-$C^{14}$, 3917*f*.
reaction (attempted) with maleic anhydride, 2199*g*.
reaction with acetone, 3401*e*, 9058*e*, 9059*b*.
reaction with $NaCHCO_2Et$, 207*c*, 6203*e*.
in scintillation counters, 4111*f*.
spectrum of, 4140*c*, 4663*f*.
system: acenaphthene–dibenzofuran, 7803*c*.
thermal analysis of mixt. of trinitrotoluene and, 3317*b*.
**Fluorene, acetamido-.** See *Acetamide, N-fluorenyl-*.
——, **acetyl-.** See *Ketone, fluorenyl methyl*.
——, **amino-.** See *Fluorenamine*.
——, **benzoyl-.** See *Ketone, fluorenyl phenyl*.
——, **9-bromo-,** 4658*g*.
reaction with NaI, rate of, 4628*f*.
——, **1-α-bromobenzyl-,** 196*a*.
——, **2-chloro-7-nitro-,** 7005*d*.
——, **2-(*p*-chlorostyryl)-,** 7468*e*.
——, **9,9-dibromo-,** 4658*h*.
——, **9-(1,3-dimethyl-2-butenylidene)-,** 9058*g*.
and picrate, 9059*b*.
——, **9-(1,3-dimethylbutyl)-,** 9059*b*.
——, **9-(1,3-diphenylpropyl)-,** 9058*i*.
——, **9-(1,3-diphenylpropylidene)-,** 9058*i*.
——, **docosafluorododecahydro-,** P 4301*a*.
——, **9-(ethylsulfonyl)-,** 1366*d*.
——, **2-(*p*-methoxyphenethyl)-,** 7468*a*.
——, **2-(*p*-methoxystyryl)-†,** 7468*eh*.
——, **2-nitro-,** radioactive, contg. 9-$C^{14}$, 3917*f*.
——, **2-(*p*-nitrostyryl)-,** 7468*e*.
——, **phenylacetyl-.** See *Ketone, benzyl fluorenyl*.
——, **propionyl-.** See *1-Propanone, 1-(fluorenyl)-*.
——, **2-styryl-,** *cis-* and *trans-,* and derivs., 7468*c*.
——, **1(and 4)-(1,2,2,2-tetraphenylethyl)-,** prepn. and dissocn. kinetics of, 194*e*.
——, **2-vinyl-,** manuf. of, P 5804*f*.
polymers of, P 8740*f*.
**Fluoreneacetamide,** *N*-**2-hydroxyethyl-,** 3864*a*.
**2-Fluoreneacetic acid,** 7468*c*.
——, **α-(*p*-aminobenzyl)-,** 7468*g*.
——, **α-(*p*-aminobenzylidene)-,** 7468*e*.
——, **α-anisylidene-,** 7468*d*.
——, **α-benzylidene-,** 7468*d*.
——, **α-*p*-chlorobenzylidene-,** 7468*d*.
——, **α-(*p*-dimethylaminobenzylidene)-,** 7468*d*.
——, **α-*p*-nitrobenzylidene-,** 7468*d*.
**Fluoreneamine.** See *Fluorenamine*.
**2-Fluoreneacapric acid** (ω-*2-fluorenylcapric acid*).
——, **ω-methyl-,** ethyl ester, 566*d*.
——, **ω-octyl-,** methyl ester, 566*d*
**1-Fluorenecarbamic acid,** ethyl ester, 4246*c*.
**1-Fluorenecarbonitrile,** 1951.
**2-Fluorenecarbonitrile,** 3811*b*.
——, **9-chloro-,** 3811*g*.
**4-Fluorenecarbonitrile,** 1954.
——, **9-oxo-,** 8377*g*.
**9-Fluorenecarbonitrile,** 5770*b*.
**1-Fluorenecarbonyl azide,** 4246*c*.
**1-Fluorenecarbonyl chloride,** 9-bromo-, 3402*a*.
——, **9-chloro-,** 3402*a*, 3811*d*.

**2-Fluorenecarbonyl chloride, 9-chloro-,** 3811*f*.
**9-Fluorenecarboxaldehyde,** and oxime, 5770*d*.
**1-Fluorenecarboxamide,** 1951*i*, 3401*i*, 4246*b*.
——, **9-bromo-,** 3402*a*.
**2 - Fluorenecarboxamide, 9 - chloro-,** 3811*g*.
**4-Fluorenecarboxamide,** 1955*d*.
**2-Fluorenecarboxamidine,** and hydrochloride, 3811*a*.
**2-Fluorenecarboximidic acid,** ethyl ester-HCl, 3811*c*.
**Fluorenecarboxylic acid, [2-(4-morpholinyl)ethyl]-,** ethyl ester, and its -HCl, 4245*d*.
**1-Fluorenecarboxylic acid,** 3401*i*.
and derivs., 4246*b*.
——, **2**(and **7**)**-benzoyl-9-oxo-,** 7473*f*.
——, **9-bromo-,** and methyl ester, 3402*a*.
——, **9-chloro-,** ethyl ester, 3811*e*.
and methyl ester, 3402*a*.
——, **9-hydroxy-,** 3401*i*, 3811*d*.
——, **9-iodo-,** 3402*a*.
——, **9-oxo-,** and derivs., 3401*h*, 3402*c*.
and ethyl ester, 4246*b*.
**2-Fluorenecarboxylic acid,** 1367*h*.
——, **9-chloro-,** esters, 3811*f*.
——, **9-hydroxy-,** 3811*f*.
——, **9-oxo-,** 1367*h*, 1753*g*.
**9-Fluorenecarboxylic acid,** and derivs, 7468*a*.
2-diethylaminoethyl ester, effect on stomach muscle, 4771*b*.
esters, 3395*c*.
——, **9-allyl-,** 7468*b*.
**2,7-Fluorenediamine,** and dihydrochloride, 7005*c*.
**Fluorenediazonium compounds,** 2-chloride, 7468*f*.
**2,7-Fluorenedicarbamic acid,** diethyl ester, 1368*a*.
**Fluorenedioxindolecarboxylic acid*,** ethyl ester, 1934*d*.
**9 - Fluorenediethylamine** (*2 - (9 - fluorenyl)-ethylamine*).
——, *N,N*-**diethyl-,** and sulfate, P 1810*g*.
**2 - Fluorenehendecanoic acid** (*11 - (2-fluorenyl)hendecanoic acid*), ethyl ester, 5661*d*.
**2 - Fluorenemethanol, α - (diethylaminomethyl)-,** hydrochloride, 1946*b*.
——, **α - (3,4 - dihydro - 2(1*H*) - isoquinolylmethyl)-†,** hydrochloride, 1944*c*.
——, **α - (dipropylaminomethyl)-,** hydrochloride, 1944*d*.
——, **α - 4 - morpholinylmethyl-†,** hydrochloride, 1946*b*.
——, **α - (octahydro - 1(2*H*) - quinolylmethyl)-†,** *trans-,* hydrochloride, 1944*c*.
——, **α-1-piperidylmethyl-†,** hydrochloride, 1946*b*.
**4-Fluorenemethanol, α-phenyl-,** 1955*f*.
**2 - Fluorenepelargonic acid** (*8 - (2 - fluorenyl)pelargonic acid*).
——, **8-nonyl-,** methyl ester, 5661*d*.
**9 - Fluorenepropanol** (*3 - (9 - fluorenyl) - 1-propanol*).
——, **α,γ-diphenyl-,** and 3,5-dinitrobenzoate, 9058*i*.
——, **α-methyl-γ-phenyl-,** 9059*a*.
**1 - Fluorenepropionic acid** (*β - 1 - fluorenylpropionic acid*).
——, **α - acetyl - 9 - bromo - β - oxo-,** ethyl ester, 3402*b*.
——, **α - acetyl - 9 - chloro - β - oxo-,** ethyl ester, 3402*b*.
——, **α - acetyl - 9 - iodo - β - oxo-,** ethyl ester, 3402*b*.
**9 - Fluorenesuccinic acid** (*9 - fluorenylsuccinic acid*), 7014*e*.
**9 - Fluorenesuccinic anhydride** (*9 - fluorenylsuccinic anhydride*), 7014*e*.
**9-Fluorenethiol,** 1366*d*.
**Fluorenol,** assocn. of, 178*h*.
**2-Fluorenol,** 7020*f*.
——, **3-amino-,** 7020*f*.
——, **3-nitro-,** 7020*f*.
**9-Fluorenol,** 4658*h*.
aminoalkyl ethers of, P 6671*d*.
oxidation of, to **fluorenone,** 191*e*.
——, **2-nitro-,** 2981*e*.
**9-Fluorenone,** and chloro derivs., as dielectrics, P 2344*g*.
from 9-fluorenol oxidation in the presence of Raney Ni, 191*e*.
hydrazone, 1367*i*.
in racemization of alcs., 4215*b*.
radioactive, contg. 9-$C^{14}$, 3917*f*.
——, **1-acetyl-,** 3401*h*.
——, **2-(2-amino-4-thiazolyl)-,** and hydriodide, 7005*b*.
——, **2-(5-bromo-2-thenoyl)-,** 4666*c*.
——, **2,2'-carbonyldi-,** 6604*i*.
——, **2 - [2**(and **5**) **- methyl - 2 - thienyl]-,** 4666*ef*.
——, **2**(and **3**)**-nitro-,** 3394*g*.
——, **2,3,4,7-tetramethoxy-,** 190*e*.
——, **2-(2-thenoyl)-,** 4665*g*.
——, **trinitro-,** compd. with 1-fluorenamine, 4246*c*.
——, **2,4,7-trinitro-,** compds. with 12-alkyl - 16,17 - dihydro - 15*H* - cyclopenta[*a*]phenanthrene, 6211*i*.
compds, with fluoranthene derivs., 7014*f*, 9059*g*.
prepn. of, 1753*g*.
**9*H*-Fluoreno[3,2]oxazole,**



*9H—[3,2]*
——, **2-benzyl-,** 7020*g*.
——, **2-phenyl-,** 7020*g*.
**2',1',2,3-Fluorenopyridine.** See *11H-Indeno[2,1-f]quinoline.*
**Fluoreno[*klmna*]xanthene,**



*[klmna]*
7929*f*.
**Fluorenylamine.** See *Fluorenamine.*
**9-Fluorenyl ether,** 4658*h*.
**Fluorescein** (*9-(o-carboxyphenyl)-6-hydroxy-3 isoxanthone, 3',6'-dihydroxyfluoran*), bactericidal action of, 6363*h*.
boron phosphor activated by, duration of metastable state of, 7828*b*.
cornea tolerance to, 3110*g*.
crystn. on sucrose, 8238*g*.
distribution in body fluids after injection, 5858*d*.
energy transfer between erythrosin and, 6080*a*.
energy transfer between excited mols of, 5667*e*.
fluorescence of, concn. quenching of, 7824*e*.
fluorescence of, effect of antioxidants on, 9479*d*.
halogen derivs., Br and Cl detn. in, 8959*f*
identification of, and its derivs., 9453*a*.
laxative activity of, 2319*e*.
metal derivs., fixation by blood serum proteins, 8049*g*.
prepn. of, 184*a*.
sodium deriv.—see *Uranin.*
**Fluorescein, dibromo-2',7'-dihexyl-,** and diacetate, 3806*f*.
——, **2,7-dibromo-4,5-dimethyl-,** and its diacetate and their prepn., 1984*e*.
——, **3',6'-dichloro-4,5-dimethyl-,** and its diacetate and dibenzoate and their prepn., 1984*h*
——, **2',7'-dihexyl-,** and diacetate, 3806*d*.
——, **4',5'-dihydroxy-.** See *Gallein.*
——, **diiodo-,** radioactive, in localization of brain tumors, 1856*f*.
——, **2,7-diiodo-4,5-dimethyl-,** and its diacetate and their prepn., 1984*f*.
——, **4,5-dimethyl-,** and its diacetate and dibenzoate, and their prepn., 1983*g*.
**Fluorescein sodium.** See *Uranin.*
**Fluorescence.** (See also *Auger effect, Fluorometers; Fluoroscopy; Luminescence; Phosphorescence; Radiation.*)
of α-acetylcinnamanilide, 5013*i*.
of acridine derivs., 647*d*.
of acylating agents from umbelliferone, 7936*e*.
in adrenals and liver in icterus, diabetes and uremia, vitamin A and, 7570*h*.
of alkali metal salts exposed to x-rays, 7816*a*.
of γ-alumina-Eu nitrate mixt. and of perylene adsorbed on gibbsite, 3319*d*.
of 12 - amino - 10 - methoxy - 6 - phenylquino[3,4-*b*]quinoline, 2211*a*.
of 4-aminonaphthalimide derivs., P 7511*e*.
analysis by—see *Analysis.*
of anthracene, 4111*g*.
of anthracene derivs., 498*a*.
of anthraquinone derivs., detn. of life of excited state of, 6085*d*.
quenching by NO, 7828*c*.
quenching by O, 7829*h*.
of aromatic hydrocarbons, 1860*a*.
atomic no. and, 7815*e*.
of bentonite and beidellite, 8988*a*.
of benzacridines, benzoquinolines and phenanthridines, 1418*a*.
of benzanilide derivs., 1345*e*.
of benzimidazole derivs., P 5426*cdf*.
of benzo[*a*]pentacene, 1363*b*.
of 2,4-benzopyrene and 9,10-dimethyl-1,2-benzanthracene in skin, 6815*g*.
of 3,4-benzopyrene in its identification in animal organism, 5072*d*.
of bianthryls, 7472*i*.
book: and Phosphorescence, 8898*b*.
of cadmium sulfide single crystals, 6031*e*.
of calcite, 6117*i*.
of calcium fluoride contg. $UO_3$ and CaO, 2869*f*.
of calcium halophosphate phosphors, 4577*e*.
of cerebrospinal fluid, 7065*b*.
of cerebrospinal fluid of children with various diseases, 2313*b*.
of chlorophyll of diatoms, 2281*f*.
of chlorophyll solns., activation of, 6922*a*.
effect of O on, 7823*i*.
quenching of, 3295*e*.
of cholesterol, 5703*d*.
defect detection in metals by, P 3339*i*.
defect detection on surfaces by, 7368*a*.
of degradation products of auroglaucin and flavoglaucin, 7913*g*.
development of, in egg powder and glucose-glycine mixts., 7154*f*.
of diamond and zircon, 5703*g*.
of dibenzo[*a,c*]naphthacene, 1363*f*.
of dibenzo[*a,c*]pentacene, 1364*c*.
of 5 - (3,4 - diethoxyphenyl) - 4 - methyl-2-phenyloxazole, 1424*a*.
of β,1 - dihydroxy - 2 - naphthaleneacrylic acid δ-lactone, 3415*c*.
of 4,4'-dimethyl[2,2'-bithiazole]-5,5'-diethanol diacetate, P 5807*a*.
of 1,8 - dimethyl - 9 - phenylxanthydrol, 5398*h*.
of dinaphth[2,3-*a*,2',3'-*h*]anthracene, 1365*c*.
of dyes, antioxidant effect on, 947*d*.
of eggs (dried), palatibility and, 5510*a*.
energy transfer between mols. and, 5667*d*, 6080*a*.
of esculetin glycosides, 4670*e*.
of esculin solns., 6921*c*.
of europium compounds, 7816*i*.
of europium sulfate, 3290*c*.
in fish quality control, 1120*a*.
of fluorite, 6116*g*.
of folic acid and xanthopterin, 9128*g*.
of formaldehyde, radical spectra in, 5312*f*.
of iodine vapor, 1265*i*.
in leak detection in vacuum system, P 5672*i*.
of linseed oil, 9481*b*.
of magnesium nitride, 8837*b*.
of marine algae, 282*b*.
of methionine by autoclaving with glucose, amino N and browning in relation to, 9276*i*.
of 4-methylesculin, 3823*d*.
microorganism examn. by, 8436*h*.
microscopy—see *Microscopy.*
of minerals, U content and, 2119*e*.
of mustard- and rape-seed oils, 2001*c*.
of naphthalene, 8892*i*.
of optical glasses, 6797*h*.
of org. compds., 7828*a*.
of org. compds., pH and, 8282*c*.
of organs accumulating vitamin A in animals with avitaminosis E, 2296*h*.
of ovary during menstrual cycle, 8033*d*.
in petroleum prospecting, P 1556*fg*, P 3185*f*.
of pharmaceuticals, 8611*d*.
of phosphors, satn. of, 8281*i*.
in photosynthesis, 1083*f*.
in plants, 2286*f*.
polarization of, in study of inframicroscopic structures, 945*h*.
of polybenzyl alc. solns., 5760*a*.
of 4,11-pregnadien-21-ol-3,20-dione 21-acetate, 1788*c*.
procaine effect on, of solns., 5540*h*.
of quebracho tannin, 3641*a*.
quenching of, 7346*i*.
by -complex formation, 498*g*.
kinetics of, 7796*c*.
of Mg phthalocyanine and of chlorophyll, 43*e*.

*quenching of*, in nonaq. solvents, 3295*f*.
of oils, P 4842*i*.
in org. dye solns., "inductive resonance" and, 7824*c*.
of quinaldines, 3002*g*, 3003*bc*.
of quinine and other alkaloids, 5340*i*.
of quinoline derivs., 1659*i*.
of rare earth chlorides, 2509*i*.
of rare-earth glasses, 3577*h*.
of resins, 4492*d*.
review on, 2084*e*.
of rhodamine B in $C_6H_6$-contg. soap, 4081*c*.
of Rose Bengal in liver cells, 5496*i*.
of silicate phosphors, 5311*g*.
of silver atoms in glasses and crystals, 3294*h*.
of squill heterosides, 2372*f*.
of starch from potatoes, 4882*a*.
of steroids, 7865*c*.
of strontium sulfide phosphor activated by rare earth metals, 5667*h*.
structure of mols. and, 7829*a*.
of tungsten-contg. minerals of Darwin, Calif., 6124*c*.
ultraviolet intensity and, 8278*i*.
of uranin solns., electro-fluorimeter in study of, 2096*a*.
of uranyl nitrate combinations with org. compds., 2512*c*.
of uranyl salts, 3295*a*.
in willemite, decay and quenching of, 2869*g*.
of zinc oxide, 2462*a*, 5604*i*.
of zinc sulfide phosphor, Na and Li as activators of, 8279*a*.
of zircons from rock type, 8986*h*.

**Fluorescent lamps**. See *Lamps, electric*.

**Fluorescent screens**. (See also *Cathode-ray tubes*.) P 5674*a*.
for cathode-ray tubes, P 7832*d*.
for x-rays, measurement of luminescence of, 8281*h*.

**Fluorescent substance $F_2$**. See *$F_2$ factor*.

**Fluorescent substances**. (See also *Luminescent substances;* and "fluorescent" under *Dyes*.)
from adrenochrome decompn., 9135*h*.
alk. earth fluophosphate, P 7831*g*.
alk. earth halophosphate, 6925*d*.
alk. earth silicate, P 7352*b*.
alumina-$Fe_2O_3$-$Li_2O$, 6084*d*.
from amino acids, 708*g*.
barium Pb Mg silicate, P 4959*b*.
benzimidazole derivs., bleaching cellulosic textiles with soap contg., P 5604*e*.
bismuth as activator of, 8893*i*.
bleaching agents, 2780*d*, 4471*a*.
book: Handbook of Fluorescent Gems and Minerals, 7876*c*.
cadmium calcium silicate, P 6089*a*.
cadmium phosphate, P 7832*b*.
calcium silicate, P 6517*h*, P 6518*a*.
for cathode-ray tubes and fluorescent lamps, P 6517*f*.
from cerium fluoride and other rare earth fluorides, P 500*i*.
colored the same in visible and ultraviolet light, P 2517*c*.
crayons and inks, P 2517*d*.
decay of lumen efficiency of, exposed to low-pressure mercury arc, 5311*h*.
detergent mixts. with imidazole compds., for optical bleaching, P 6430*a*.
dial panel of, P 6518*f*.
for elec.-discharge devices, P 7832*g*.
films, P 6518*e*.
for fluorescent lamps, 4939*i*.
imidazole series derivs., P 9474*f*.
infrared stimulation of, electron traps and, 7826*h*.
laminated phosphorescent, P 6518*g*.
lanthanum silicate, P 4959*a*.
luminescence of—see *Fluorescence; Luminescence; Phosphorescence*.
magnesium pyrophosphate, doubly and triply activated, 5312*c*.
for mercury-vapor lamps, P 8920*h*.
in milk (dry), effect of storage on, 780*d*.
pneumonitis from Be-contg., 787*e*.
from *Pseudomonas fluorescens*, lactoflavin as component of, 3884*d*.
rayon, P 3627*f*.
rayon contg. ZnS or ZnS-CdS mixt., P 7713*e*.
for red fluorescence in low-pressure Hg-vapor discharge devices, P 2098*a*.
silica gel, in chromatography, 1711*d*.
sulfides, P 948*g*.
for surface-condition testing, 7368*b*.
textiles treated with amino stilbene deriv. condensation products with HCHO, P 7942*h*.
textiles treated with 1,3,5-triazine stilbene deriv. condensation products with HCHO, P 4880*f*.
thermosetting resinous, P 7832*e*.
tungstate, absence of photocond. in, 5312*a*.
white, from yellow ZnBe silicate and blue ZnS, P 2870*f*.
for x-ray intensifying screens, P 500*g*.
zinc fluoride, optical properties of, 1659*f*.
zinc silicate, differential thermal analysis in study of formation of, 7827*i*.
zinc sulfide, P 6517*e*.
activated by P, 7826*g*.
Cl in, 3294*h*.

**Fluorescin**, production by *Pseudomonas aeruginosa*, mineral requirements for, 5078*g*.

**Fluorides**. (See also *Alkali metal fluorides; Alkaline earth fluorides; Fluorine, analysis; Halides; Rare earth fluorides*.)
absorption and excretion of, 8052*d*.
aluminum coating with metals from solns. contg., 4995*d*.
for aluminum manuf., P 5680*e*.
in analysis, 7867*a*.
asbestos-paper treatment with, P 6340*e*.
bond lengths in, 4910*f*.
catalysis by metallic, of esterification of fatty acids with glycerol, 4030*g*.
catalyst (gel) treatment with, 8076*e*.
chlorine-resistant app. from, P 6387*b*.
coating with, on lenses, 1621*e*.
as corrosion inhibitors for Mg, 4622*e*.
crystallochem. electronegativity of, 8231*b*.
detection in foods, 9273*h*.
detn. in fused salt baths, 2546*i*.
detn. of, 6942*b*, 8967*e*.
effect on acid phosphatases of brain, 7060*e*.
on adenosinetriphosphatase in heart muscle, 8058*b*.
on adhesion of epithelium to stroma in cornea, 769*b*.
on crystn. of $NH_4Cl$, 2483*c*.
on dentine permeability to radioactive phosphates, 1863*d*.
on glass melting, 3577*f*.
on indoleacetic acid action on growth and respiration of pea seedlings, 2290*e*.
on isoelec. and isoionic points of serum albumins, 3690*c*.
on K fixation by soil minerals, 1132*b*.
on respiration of aorta, 7114*f*.
on respiration of *Escherichia coli*, permeability and, 8002*i*.
on tooth decalcification by citrate and lactate, 6310*e*.
on yeast fermentation and on phosphatases, 6253*f*.
exchange on Amberlite IRA-400, 6489*f*.
glass, P 5165*f*.
hemolytic activity of, 5839*c*.
hydration of ions of, 8244*b*.
with ionic crystal structures, 8231*c*.
lattice energies of, 8230*g*.
manuf. of, 3983*c*.
in masking reactions of molybdate, tungstate and vanadate ions, 4598*d*, 6539*b*.
melts of, investigations with color indicators, 5687*d*.
metal, as fluorinating agents, 8364*g*.
mouthwash contg., effect on dental caries, 1101*d*.
phosphors contg., P 500*i*.
phosphors, for cathode-ray tubes, P 7831*f*.
physiol. action of org., 5863*f*.
of radioelements, 3286*g*.
reactions in presence of, P 678*e*.
reaction with glass and $SiO_2$, 3579*e*.
recovery of, P 1159*f*.
soly. in $Be(NO_3)_2$, 6049*h*.
structure of $FHF^-$, 4957*a*.
in tin-plating solns., testing for ratio to Sn, P 6527*f*.
titration with $Th(NO_3)_4$, 6472*c*.
tooth enamel satn. with, 7105*g*.
in water, of coastal plain of Ala., 4403*e*.
of Dakota, effect on teeth of young children, 6766*c*.
of geol. formations of Tertiary area of Ala., 5889*g*.
for irrigation, 3951*d*.
in water supplies, 335*a*, 1507*b*.
in wood fireproofing and preservation, 8603*g*.
zirconium complexes, 8929*b*.

**Fluorimeters**. See *Fluorometers*.

**Fluorination**. (See also *Halogenation;* and "reaction" under *Fluorine*.)
of acyclic halogenated olefins, P 5031*f*.
of α-bromotoluene derivs., 165*i*.
of carbon, P 3834*g*.
of carbon tetrachloride, P 660*b*.
of carbon tetrachloride, sepn. of products of, P 662*a*.
of chloro dialkyl benzenes, P 5040*i*.
of chloroform, sepn. of products of, P 661*g*.
of dibromo or dichloro paraffins, 3774*f*.
of dichloromethylsilane, 5739*b*.
of ethyl chlorothiophosphate ($EtOPCl_2(:S)$), 1313*h*.
fluorides (metal) as agents for, 8364*g*.
of halo derivs. of ethylene oxides, P 674*b*
of halogenated hydrocarbons, P 2628*e*.
of hexachlorobenzene, P 3845*d*.
of hexachlorocyclopentadiene, P 678*g*.
of hexachloropropene in the presence of $SbCl_5$, P 8397*e*.
of hydrocarbons, 2157*a*.
of metals with $ClF_3$, 6793*d*.
of org. compds., 2924*i*.
of periodic acid, 518*f*.
of polychlorinated ethane, P 2217*i*.
of polycyclic hydrocarbons, P 4300*g*, P 4301*c*.
of toluene derivs., 7917*e*.
of unsatd. hydrocarbons, P 2218*e*.

**Fluorine**. (See also *Halogens*.)
atom, effect on miotic action and toxicity, 8351*c*.
bonds with As and P, energies of, 8764.
with As or C, elec. moments of, 5240*i*.
with B and Si, 8231*g*.
with C, 7851*h*.
with C, force const. and spectrum of, 2865*h*.
with F, 8764*a*.
with F, energy of, 8763*b*.
cadmium phosphate phosphor contg., P 7832*a*.
contamination by, in Fort William area, 5883*f*.
control in soils and toxicity to plants, 9319*i*.
dental and skeletal hygiene in relation to, 9217*ef*.
dental caries and, 1482*a*, 6302*g*, 7121*i*.
dentine calcification during low-Ca rickets and, 6295*d*.
in diet, 1095*b*, 3900*c*.
effect on adrenaline and insulin, 742*d*
on animals in Fort William area, 5884*e*.
on buckwheat, peach and tomato, 3129*e*.
on individuals in Fort William area, 5884*i*.
on respiration of heart, 9210*i*.
on teeth in Fort William area, 5884*g*
energy levels, ionization potentials, magnetic splitting factors and spectrum of, 8883*f*.
fire hazards with, control of, 1189*b*.
in foods, 8473*e*.
in formation of dentine and predentine, effect of blood Ca on action of, 6710*a*
as glass-melting accelerator, 5914*e*.
gyromagnetic ratio and magnetic moment of, 5303*f*, 8262*g*.
heat capacity of, 3671*d*.
in industry, 1920*i*.
insecticides contg.—see *Insecticides*.
ions (neg.) of, mass-charge ratio of, 8848*a*.
isotope of mass 16, from C by α-ray action, 4561*d*.
isotope of mass 17, from O by deuteron action, 4118*e*.
isotope of mass 18, γ-rays from, 484*c*.
isotope of mass 18, positrons from, 7329*c*.
isotope of mass 22, mass value of, 8809*f*.
lyoparachor of, 2834*e*.
magnetic moment of, 4114*f*, 4567*i*.
manuf. and prepn. of, review on, 6531*f*.
metabolism of, 9190*b*.
in milk, 1119*b*.
mineralizer action of, 8936*a*.
minerals, in Canada, 2343*c*.
in mineral springs of Japan, 9303*i*.
minerals, spectroscopic analyses of, and colors due to Fe and Mn in, 7381*b*.
mixts. of liquid, with cotton or neoprene, explosions of, 406*a*.
neutron bombardment of, relative cross sections for nuclear reactions from, 4114*f*.
neutron cross section of, 6909*d*.
poisoning by—see also *Fluorosis*.
poliomyelitis and, 9234*f*.
prepn. by electrolysis, C and graphite anodes in, 2871*h*.
prepn., properties and handling of, 5554*h*.

proton bombarded, α-rays from, 3284g, 7329d.
γ-rays and Ne from, 36b.
γ-rays from, 1260a, 4091a, 8860h.
resonance voltage for α-rays from, 3283d.
radius of bonded atoms of, 3252g.
reactions—see also *Fluorination*.
reaction with $(CN)_2$, Se or $H_2O$, 6793e.
reaction with graphite, 2107df.
removal from fertilizers, 798a, P 8596e.
from phosphate rock, 7174h, P 7652i.
from phosphates, solubilization by, 8084g.
reviews on, 5158i, 6373e.
in rocks of Aulanko area, Finland, 3323g.
substitution (isomorphic) in benzoic acid derivs., 187g.
thermochlor of, 8226e.
toxicity following inhalation of, 8530i.
toxicosis, opacities of teeth and, 5107i.
in water, effect on deciduous teeth, 6766e.
policies and procedures regarding, 8582h.
toxic level of, 8045d.
of Ukrainian S.S.R., 8582h.
of United States, 6341f, 9301e.
of western Tex., 7611b.
in water (sea) and sediments, 5350e.
in waters (hot spring) of Croat Zagorje, 5138e.
of Daruvar, Lipik and Sisak in Yugoslavia, 2345b.
of Transvaal, 8581f.
water treated with, at Madison, Wis., 4793i.
water treated with, dental effects of, 9219i, 9220a.

**Fluorine, analysis.** (See also *Fluorides*.)
detection, 9681.
detn., 3314e, 3744e, 4599e, 5065i, 8396d.
detn., effect of pH on PbClF pptn. in, 5332c.
detn. in biol. material, 7998a.
in $CaF_2$ and fluorite, 8960c.
in ores and minerals, 4180a.
in org. compds., 2890i.
in NaCl, 5875d.
in vegetable ash, 1084g.
in water, 2345c, 3545d, 3951d, 9302i, 9303i.
in water, etc., 8960d.
in yeast cell protoplasma, 268a.
lead crucible for, 9273h.

**Fluorine compounds**, complexes with Co, Cu, Fe and Ni, 8940c.
constitution and toxicity of org., 2932i.
elec. moments and structures of aromatic, 3252h.
esters and their polymers, P 5413a.
fragmentation of chain, by electron impact, 5280f.
heat of reaction of, 6070h.
heterocyclic, 5783d.
insecticides contg.—see *Insecticides*.
in lubricants, P 5183h.
org., manuf. of, P 1444e, P 2217i, 5159a.
prepn. of, 2924i, 3774f, 6793d, 6992b.
removal of, from $C_4H_{10}$ with bauxite catalyst, P 1175a.
from hydrocarbon conversion products with $SiO_2$-contg. contact materials, preventing siliceous deposits in, P 1558h.
from hydrocarbons, P 661a, P 1557g, P 2764e, P 4006e, P 6218d, P 6643c.
reviews on, 3776d, 5002i, 6373e, 6531f.
silica detn. in, 8969i.
ultraviolet transmission by, 1653h.
vapor pressure and volatility of org., 8840i.
in western-raspberry-worm control, 9341g.

**Fluorine oxide.** See *Oxygen fluoride*.

**Fluorite** (*fluorspar*). (See also *Calcium fluoride*.)
alpha-ray effect on, 7769h.
cathodo-luminescence of Indian, contg. rare earths, 4576d.
in cement-clinker formation, 2749e.
of Colorado, 6547a, 7385d.
colored, spectroscopic analyses of, and colors due to Fe and Mn in, 7381c.
coloring ingredients and properties of green and violet, 6116h.
compression of, 4917b.
concn. of, from tailings and mine waste rock, 1693d.
crushing of, 8751f.
crystal morphology and vectorial properties of lattice of, 4071a.
druses in calcitic limestones in Västanfjärd, Finland, 5365h.
elec. cond. of split face of, 6020c.
of England (Pennines), 4188d.
flotation of, 1228b, P 4822f.
effect of gases liberated in soln. on, 3g. gas adsorption and, 3325c.
fluorescence and phosphorescence of, 6116g.
fluorine detn. in, 8960c.
fusion of siliceous, 1535e.
of Germany (Thuringia), 3750f.
in glass manuf., 1539i.
of Illinois (Douglas property), 4190e.
industry in 1946, 2127b.
of Italy, 3319a, 3320e.
of Kentucky, 2551cd.
manuf. of, 9395h.
in metal bonding to nonmetallic compds., P 3104f.
minor elements and rare earth metals in, 2137h.
of Newfoundland (St. Lawrence area), 1292e.
of New Mex., 1692a, 2133i.
purification of, P 5913b.
shaped articles from, P 4442f.
sintering of, P 6378c.
of South Africa, 1292d.
structure of, 4570h.
of Texas (San Antonio Canyon Pb-Zn deposits), 6950h.
twins, morphological and structural relations of, 8984a.
of U.S.S.R. (Lower Artinsk layers of Tartaria and Chuvashiya), 7381c.
use of, review on, 1920i.
of Utah (Blue Bell deposit) and its flotation, 6952h.
violet, from Kopaliny, Silesia, and Fe compds. in its coloring, 8313a.
of Washington, 6547d.

**Fluoro-.** (See also entries beginning *Fluo-*.)

**Fluorocarbons.** (See also "fluorinated" under *Hydrocarbons* and *Paraffins*.)
aromatic, P 3845c.
compression and freezing under pressure, 4007f.
lubricants contg.—see *Lubricants*.
manuf. of, 2876d, P 3834g.
mass. spectra of, 3288f.
polycyclic satd., P 4300f.
purification of, P 749b.
reviews on, 2157a, 5554i, 7407a.
sepn. from hydrocarbon reaction mixts., P 7035d.
solubility and solvent action of, 3266h
ultrasonic velocity in liquid, 1232e.
-vapor balance, 1225g.
verdet constants of, 2924g.

**Fluoro-DDT.** See *Ethane, 1,1,1-trichloro-2,2-bis(p-fluorophenyl)-*.

**Fluoroform**, magnetic susceptibility of, 6016i.
microwave investigations of, 4141f.

**Fluorogesarol.** See *Ethane, 1,1,1-trichloro-2,2-bis(p-fluorophenyl)-*.

**Fluorolube.** See "fluorocarbon" under *Lubricants*.

**Fluorometers**, Klett photoelec., 6472d.
for thiamine detn., 8215g.

**Fluorone.** See *3-Isoxanthone*.

**Fluoropicrin**, prepn. of, 6793f.

**Fluoroprene**, manuf. of, P 660h, P 2218e, P 7035f.,
manm. of, catalyst for, P 1932d.
polymerization of, or its mixts. with 1,3-dienes or vinyl compds., 1598g.
reaction with $C_2F_4$, 3370e.

**Fluoroscopy**, compn. for use in, P 3153g.

**Fluorosis**, bones in, 5854d.
book: 7592i.
dental—see *Teeth*.
endemic, in U.S.S.R., 8582i.
of farm animals from industrial processes, 3508h.
nutrition and, 8473h.
in rats, 6742a.

**Fluorspar.** See *Fluorite*.

**Fluorylamine.** See *Fluoreneamine*.

**Fluosilicates**, amine and diazonium, 6992b.
effect on *Trichoderma viride* on wood, 7623i.
luminescence of, activated by Ti, 3723b.
in wood fireproofing and preservation, 8803g.

**Fluosilicic acid** ($H_2SiF_6$), anabasine salt, prepn. and decompn. of, 2481e.
effect on dialysis of $Cb^{95}$, $La^{140}$ and $Zr^{95}$ in $UO_2(NO_3)_2$ soln., 7814c.
glass attack by, 2385f.
manuf. in Canada, 2343c.

**Fluostannates(IV)**, luminescence of, activated by Ti, 3723b.

**Fluosulfonic acid**, as catalyst in acylation of alkyl phenyl ethers, P 7966h.
hydrofluorination of olefins in presence of, P 3834i.
recovery of, and use in DDT manuf., P 2732g.

**Fluotungstic acids**, $aWO_3.bWO_3.cHF$, 1671e.

**Fluouranates**, 6102d.

**Flushing oils**, for engines, P 6406de.

**Fluxes**, for bonding metals to vitrified ceramic, P 3587b.
for brazing—see *Soldering*.
elec.-furnace, from metallurgical slags, P 6144d.
galvanizing, P 6150b.
galvanizing, foaming-type, P 6565b, P 6967a.
for lithium-Mg-alloy melting, P 2921i.
for magnesium-alloy melting and casting, 3334g.
for melting and refining metal scrap and residues, 1696f.
for soldering—see *Soldering*.
for tinning, P 4212b.
for titaniferous Fe ores, P 6142h.
for welding—see *Welding*.

**Fly.** See *Flies*.

**Fly ash.** See *Ash(es)*.

**Foam.** (See also *Foam volume*.)
of beer—see *Beer*.
colorimeter for, P 6012b.
detergents fractionated by, surface tensions of, 3687e.
fibrin, 3054h, 5543a.
fire-extinguishing, alkyl Si-emulsified, P 9495a.
history of, and MeI as, 5952e.
stabilized compns. for producing, P 5594f.
system protecting solvent process plant for pine stumps, 8681g.
use of, 1984a.
use with $C_6H_5$, 5189d.
heptylic-acid, 2841h.
liquids forming, measurement of film strength of, P 6764f.
in lubricating systems, 6815f.
prevention or removal of, from mercerizing liquors, phosphoric acid esters in, P 9478a.
production and stability of, of liquid mixts., 7775g.
production of, agents for—see also *Lathering agents*
agents for, P 441efgh.
agents for, from licorice root ext., P 6846c.
agents for, in clarification of cellulose-regenerating baths, P 4014c.
alkyl benzene sulfonates for, P 9496d.
Al soaps for, P 2452f.
amide derivs. for, P 5978e.
amino propionate ester salts for, P 5978c.
analysis and prepn. of fatty acid chloride condensation products with peptides for, 3217f.
2,3 - bis(caproyloxy)propanesulfonic acid for, P 5217a.
1,2 - bis(2 - hydroxyethyl)hydrazine-glycidol reaction product for, P 2796d.
bubble size and, 456c.
caprylate caprate of 2,3-dihydroxy-1-propanesulfonic acid for, P 4878f.
coconut fatty acid anilide condensation product with *N*-methylol chloroacetamide Na sulfonate for, P 886b.
by detergent in soap solns., effect of concn. on, 6435d.
on detergent solns., 8795g.
of fermented malt beverages, 8608f.
monocarboxyacylated hydrazine deriv. reaction products with saccharides for, P 9497g.
in oils in improving drying and degassing, P 3186c.
of proteins, 9098d.
by shaving prepns., 3977f.
by soap-synthetic detergent-electrolyte builder systems, 3635i.
Na salts of half esters of unsatd. dicarboxylic acids with *N*-hydroxyalkyl amides of fatty acids for, P 4500e.
*p* - stearoylaminobenzohydraside - glucose reaction product for, P 3639b.
fatty acids or their esters for, 4034e.
surface tension and viscosity in relation to, 8794f.
in textile industry, history of agents for, 4875i.

*production of*, vol. contraction of liquid mixts. and, 8779*c*.
in whipping foods, stearins in, 5971*h*.
of sea water, 2050*h*.
on sodium oleate solns., 8794*g*.
solid, transformation to fluid foam under shear, 6*c*.
stability in oils and effect of foam stabilizers on film viscosity, 6814*f*.
stabilization of, protein compn. for, 8075*h*.
syneresis of, 456*b*.
**Foaming** (*includes priming*), bacteriophage concn. by, 4337*b*.
in boilers, sol.-salt concn. and, 1128*f*.
evapn. of liquids showing, P 8760*e*.
of frying oil and its prevention, 5612*b*.
of paper-pulp suspensions and its control, 8679*e*.
prevention of, agents for, 7160*i*, P 7610*c*.
agents for, for pulp and paper manuf., 5948*h*.
of alcs., oils, etc., polymers of chlorofluorinated org. compds. for, P 846*c*.
in aq. gas-liquid system, P 6346*c*.
in boilers, surface-active compds. for, 4407*b*.
in concg. surface-active agents by boiling, butylsilanes in, P 3638*i*.
cyclic Si condensation polymers for, P 8211*d*.
by cyclohexyl and norcamphanyl derivs. of butanediols, P 1058*h*.
of drilling fluids by rosin soap and petroleum, P 8662*a*.
in extractive distn. of hydrocarbons with furfural, P 914*b*.
with halogenated hydroxyaliphatic amines, P 2348*b*.
in Kjeldahl distn., trap for, 2891*e*.
of lubricants, agents for, P 7219*a*, 7679*d*.
of lubricants by absorbents and solvent extn., 6816*a*.
of lubricants by Aerosol OT or glycerol mixts. with chemicals, 6815*b*.
of lubricants, dithiocarbamates and sulfonates for, P 1177*i*.
of lubricants, emulsified agents for, 3602*i*.
of lubricants, silicones in, P 1177*b*.
of lubricants with *N*-dialkylaryl amine salts of alkyl alkylene di phosphates, P 1561*h*.
in 2-methylpropene steam distn. from $H_2SO_4$, P 5582*g*.
of oils, Aerosol OT-glycerol mixts. in, 6814*h*.
in oils, effect of inhibitors for, on film viscosity, 6814*g*.
of oils with amine salts of diesters of $SP(OH)_3$, P 665*g*.
in phenol manuf. from alkali metal sulfonates, P 2638*f*, P 2639*a*.
phenoxyalkanols for, and carriers therefor, P 1202*g*.
phenoxyalkanol-$Na_2CO_3$ mixts. for, P 4879*d*.
regulation of addn. of agents for, in fermentation, boiling, etc., P 6781*d*.
with silicones, P 4002*d*.
in steam generators, P 792*h*, P 3548*i*, P 5890*g*.
in turbine oil, 3603*a*.
of soap—see *Soap*.
**Foam materials**. See *Porous materials*.
**Foam volume**, calcn. and definition of, of lubricating oil, 6815*h*.
measurement of, of oils, 6814*h*, 6815*b*.
**Fodder**. See *Feeding stuffs*.
**Fog**. (See also *Clouds; Fumes; Mists; Smog*.)
filters for, 2041*g*.
manuf. of, app. for, P 450*f*.
particles in, 6039*b*.
pickling-room, elimination of, 4989*h*.
prevention of, on glass, etc.—see *Anti-fogging agents*.
**Fogging**. See *Fog; Photography*.
**Foils**. See *Films; Metals*.
**Folacin**. See *Folic acid*.
**Foliar diagnosis**. See *Leaves*.
**Folic acid**. (See also "*casei*, growth factor for" under *Lactobacillus;* and "Bc" under *Vitamins*.)
**$N^4$-(2-amino-4-hydroxy-6-pteridylmethyl)sulfanilamide as substitute for**, P 8106*b*.
**analogs antagonistic to**, 5444*d*.
**analogs of**, 3424*a*.
**in anemia and sprue treatment**, 1095*g*.
**in anemia from $C_6H_6$ poisoning**, 8060*b*.
in anemia (pernicious), 5850*b*.
**in anemia treatment**, 8028*i*.
**antagonism between sulfathiazole and**, 2324*g*.
**antagonists to**, 1856*c*, 3065*i*, 9205*g*.
antimalarials as, 8520*b*.
in control of Rous chicken sarcoma, 763*f*.
effect on development of *Drosophila melanogaster*, 2331*g*.
effect on embryonated eggs, 7097*b*.
effect on estrogen induced tissue growth, 8491*c*.
effect on leukemia, 5498*d*, 6733*i*.
pteridine derivs. as, 4269*b*.
**as antianaphylactic**, 6306*c*.
bacteria requirement for, sulfonamides and, 8442*f*.
balance in monkeys, 1469*e*.
in blood-disease treatment, 5498*d*.
in bran exts., 1147*b*.
in canned goods, effect of high-temp. storage on, 1493*h*.
cell-proliferating action of, enzyme action on, 9196*b*.
chronaximetric antagonism with other vitamins, 284*d*.
compds. related to, hematologic effect of, 8555*e*, 8556*f*.
compds. with action of, P 1914*c*, P 3490*e*.
conjugate, extn. from yeast, 8429*a*.
in cucurbit and tomato fruits during growth, and relation to size, 8461*f*.
in cucurbit and tomato leaves during development, 5456*g*.
deficiency and antagonist, effect on chicks, 7097*c*.
deficiency of, adenine and thymine as substitutes for folic acid in, 8463*e*.
anemia from, in swine, and effect of its administration, 8471*a*.
anemia (pernicious) and, 288*b*
effect of vitamin C on, 292*g*.
hematologic and histologic findings in, 1470*e*.
during lactation, effect of sulfasuxidine on, 1092*a*.
pediculosis in, 9188*i*.
in pigs, production of, 2680*d*
thyroxine effect in, 7561*d*.
urinary excretion of nicotinic acid and $N^1$-methylnicotinamide in, 293*g*.
derivs., in cancer study, 7576*h*
effect on leukemia, 9249*d*.
effect on sarcoma 180, 5505*a*
and their role in anemia treatment, 5100*b*
detn. of, 1821*e*, 3872*i*, 4315*g*, 4341*f*, 4720*df*, 5818*a*, 8977*d*.
in beef and dried spinach, 7151*d*.
in milk, 5877*a*.
in mustard greens, soy flour, egg yolk and yeast, 9370*c*.
in pharmaceuticals, 8613*c*.
in plants, 1075*e*.
substances interfering in, 7536*g*.
-displacing agents, 257*c*.
effect on acid-base balance, 1092*g*.
on anemia and nicotinic acid deficiency, 1088*h*.
on anemia induced by x-irradiation, 2681*c*.
on antimalarial activity of chloroguanide, 6734*g*.
on aromatic amino acid metabolism of premature infants, 5096*c*.
on blood and growth during balanced or protein-poor rations, 4352*d*.
on cholinesterase activity, 3497*a*.
on egg production and hatchability, 5458*h*.
on estradiol action on frogs, 1474*f*.
on gastric secretion, 8051*i*.
on glycine and porphyrin metabolism, 5835*c*.
on growth of chick embryo, 9186*g*.
on hemoglobin regeneration in chicks, 5834*i*.
on hemopoiesis in chick embryo, 3869*a*, 9131*e*.
on kidneys and liver, 9182*a*.
on kidney wt. and phosphatase, 5462*h*.
on lactation and reproduction in rat, 1091*i*.
on lactation and reproduction of rats fed purified rations, 1091*d*.
on leucopenia from succinylsulfathiazole or milk diet, 2290*a*.
on leukemia treatment by 4-amino-$N^{10}$-methylpteroylglutamic acid, 9186*i*.
on liver compn., 5098*c*.
**on metabolism**, 5431*i*.
*effect* on nervous effects of acetylcholine, adrenaline, adrenochrome and choline, 6293*c*.
on nucleic acid synthesis in *Lactobacillus casei*, 4328*b*, 6697*b*.
on pathogenic fungi, 9147*b*.
on reproduction, 6291*h*.
on reticulocytes in pernicious anemia, 734*c*.
on Rous chicken sarcoma, 735*h*, 7120*e*
on splenectomized rabbits, 1092*i*.
on streptomycin action on *Mycobacterium avium*, 6275*d*.
on sulfadiazine action on bacteria, 4337*d*.
on sulfadiazine action on psittacosis virus, 7077*a*.
on tissue cell proliferation, 262*a*
on tyrosine metabolism in scurvy, 5835*e*.
on vitamin $B_{12}$ in feces, 5098*f*.
in eggs, effect of cooking on, 4782*i*.
endocrine and physiol. effects of, 4737*h*
enzyme system attacking, 4308*g*
estrogen action and, 5834*g*, 8508*f*.
fluorescence spectra of, compared with xanthopterin, 9128*g*.
in food (Mexican), 1494*f*.
as growth factor for bacteria, 1827*c*, 8441*d*.
for *Leuconostoc citrovorum*, 1829*c*, 9148*c*.
for *Tetrahymena geleii*, 9157*d*.
in heart in normal and diseased condition, 7568*g*.
in hydrocephalus incidence, 1470*i*.
*Leuconostoc* requirement for, for dextran synthesis, 8438*h*.
lipotropic need for, of rats, 2295*g*
manuf. of, P 1812*f*, P 6673*e*
manuf. of, and related compds., P 6672*e*
manuf. of, and salts, P 7518*h*.
metabolism of, 4340*h*, 6714*g*.
metabolism of, and related substances in anemia, 1094*d*.
mixt. with pantothenic acid, effect on physiopathologic effects of large amounts of nicotinamide, 1093*d*
pharmaceuticals contg., 355*g*.
precursor of, 722*b*.
pteroic acid formation from, by bacterial degradation, 2275*d*.
purification of, P 6672*h*.
purification of, and related compds., P 4430*f*, P 6672*i*, P 6673*b*
rat requirements for, and spleen lesions in folic acid deficiency, 1091*a*
rat requirements for, effect of coprophagy on, 5833*b*.
relation to structurally similar metabolites 6676*d*.
requirement for, during lactation, 4746*i*
reviews on, 1095*f*, 1471*d*, 1472*e*, 1842*d*, 5465*e*, 8022*f*, 9190*d*.
in saliva, 1094*i*.
sepn. from related pterins, P 7052*g*, P 7974*e*.
staphylococcus requirement for, 8442*a*.
swine requirements for, 1089*a*.
synthesis of, in intestinal tract of horses, 8467*c*.
synthesis of, intermediate in, P 7974*h*
tolerance to, sex differences in, 8547*c*
turkey requirements for, 1088*d*.
tyrosinase and xanthine oxidase in livers of chicks receiving, 2297*e*.
in tyrosine oxidation by liver tissue, 9098*h*.
urinary excretion of, effect of succinyl sulfathiazole on, 5117*i*.
xanthine oxidase in liver after dietary, 8469*i*.
in yeast (food), effect of aeration and agitation on, 1123*b*.
**Folic acid, 4-amino-**. See *Glutamic acid, N-{p-[(2,4-diamino-6-pteridyl methyl)amino]benzoyl}-*.
**——, $N^{10}$-formyl-**. See *Glutamic acid, N{p-[N-(2-amino-4-hydroxy-6-pteridylmethyl)formamido]benzoyl}-*.
**——, 2-hydroxy-**. See *Glutamic acid, N{p-[(2,4-dihydroxy-6-pteridyl methyl)amino]benzoyl}-*.
**——, 7-methyl-**. See *Glutamic acid, N{p-[(2-amino-4-hydroxy-7-methyl-6-pteridylmethyl)amino]benzoyl}-*.
**Folic acid conjugases**, in blood, 6714*h*.
**Follicles, graafian**—see *Ovaries;* for hormones stimulating, see *Gonadotropic hormones;* and "hormones of anterior lobe of" under *Pituitary gland*.)
**Follicular hormone**. See *Estrogenic hormones; Estrone;* for "dihydrofollicular

hormone" see *Estradiol;* and for "follicular hormone hydrate" see *Estriol.*

**Folliculin.** See *Estrone;* for "dihydrofolliculin" see *Estradiol;* and for "folliculin hydrate" or "trihydrofollículin" see *Estriol.*

**Fontamide.** See *Urea, 1-sulfanilyl-2-thio-.*

**Fontinalis antipyretica,** plasmolysis form in relation to content of mineral salts in, with advancing age, 5088*e.*

**Food.** (See also *Cereals; Condiments; Conserves; Diet; Eggs; Feeding stuffs; Flavoring materials; Fruit; Meat, Milk; Milk preparations; Nutrition, animal; Nutrition, plant; Nuts; Shortening; Soups, Vitamins.*)
- acidifying products for, 6360*f.*
- adhesion to cooking utensils, prevention of, P 5634*e.*
- adhesive use in industry of, 5507*g.*
- agenized, toxicity of, 5102*a.*
- amino acids in, 1493*d,* 2297*a.*
- analytical and organoleptic findings on, 6747*d.*
- antioxidant for fats or oils in, P 1880*f.*
- antioxidants for, phospholipide carriers for, P 6333*e.*
  - from polyphenols, P 2339*h.*
  - from rice bran, P 2340*a.*
- antiseptics for, 8065*h.*
- antithyroid effect of, radioactive I in detn of, 7602*h.*
- aromatic material use in industry and prepn. of, 5507*h.*
- base for products of, P 3540*a.*
- books: Products, 1123*f,* Applied Chemistry. Vol. II, 1123*g;* -Plant Sanitation, 1502*a,* Trace Elements in, 2710*a,* Hutchinson's, and Principles of Dietetics, 4396*f,* Water Bonding in, 5130*f,* Gemusebau auf ernährungswissenschaftlicher Grundlage, 7624*f,* Introductory, 8576*b.*
- breakfast, from corn mush, 353*h.*
- canned—see *Canned goods; Canning*
- from cannery wastes, fruits and vegetables, P 330*e.*
- carotene and vitamin C in Fla grown, 3535*i.*
- casings (colored) for, P 7605*c.*
- casings (gut) for, P 2710*b.*
- changes in, chem. means to combat, 3941*b*
- changes in processed, crystallographic method for study of, 1493*e*
- childrens', vitamin B₁ in, 4393*c.*
- Chinese, compn. of, 4780*f*
- chromium plating and stainless steel in industry of, 2706*i*
- coating for, lecithin gum preservative, P 5881*a*
- coatings for, gelatin-base, P 8576*d*
- colloid chemistry in technology of, 1493*d.*
- colors for, from *Amaranthus,* P 6371*i.*
- concn. of, through cellulose membranes, P 4784*c.*
- consumption and selection of, effect of methylthiouracil on, 6709*e.*
- consumption of, after amino acid administration, 6710*e.*
  - in army camps, 6292*b.*
  - by dog, effect of intravenous glucose on, 5465*f.*
  - effect of gluconic acid and vitamin C on, 9182*e.*
  - effect of nutritive d. on, 8478*d.*
  - effect on bases in blood serum, 7108*c.*
  - in relation to basal metabolism, 6713*c.*
  - in subarctic climate, 6292*c.*
  - in vitamin B₁ deficiency, effect of exercise and fat content of diet on, 9184*a.*
- containers for—see also *Cans.*
- containers for, coatings for, P 2813*f,* P 8576*e.*
  - corn starch size as allergen in, 1122*g.*
  - inks for printing on waxed, 4870*i.*
  - seal for, P 1935*a.*
- cooking of—see *Cooking.*
- corn germ for, P 2710*f.*
- crops, review on, 1125*c.*
- digestion of—see *Digestibility; Digestion.*
- dried, drying of, and app. therefor, P 6332*i.*
- dried products for, P 6758*f.*
- drying app. for, using N and $CO_2$, P 1123*h.*
- drying (partial) of, P 8576*b.*
- drying, with infrared rays, 8565*d.*
- dyes for, P 5222*c.*
  - effect on animal organisms, 1488*e.*
  - and their estn., 7595*a.*
- in energy-diet balance, 2297*b.*
- from *Equisetum arvense,* 5129*e.*
- extn. of water-sol. components from fluid, with starch, P 3117*c.*
- fat extn. from, 7602*e.*
- fat in, loss during prepn., 5508*i,* 6754*f.*
- flavor of, 1878*h.*
- fluorine in, 8473*e.*
- folic acid in Mexican, 1494*f.*
- fortification products for, from casein, 7598*g,* 7599*b.*
- frozen—see *Freezing; Frozen foods.*
- fumigant effect on, 2338*a.*
- Fusaria-contg., P 329*g.*
- gases dissolved or occluded in liquid, app. for analysis of, 4779*d.*
- goat milk as, 1496*e.*
- grading of, review on, 6749*d.*
- from grass, herbage, etc., P 3946*i.*
- gruels, specifications for, 5129*d.*
- gum use in manuf. of, 2005*h.*
- habits and preferences of humans, 9328*f.*
- heating rates of, in glass and other containers, 1491*i.*
- *p*-hydroxybenzoic acid esters as bacteriostats and fungistats for, 7193*d.*
- hygiene in U. S. S. R., history of, 8565*d.*
- for infants, effect of nitrates on health of infants and adults, 2337*i.*
  - from mixt. of powd. milk, rice and dextrin-maltose, 8566*g.*
  - terminal heating of, effect on heat-labile nutrients, 4779*f.*
- ingestion of, effect of atropine on, 6744*d.*
- intake by rat, effect of D-glucose and protein hydrolyzates on, 2298*g.*
- iodine in, from endemic goiter regions, 8044*i.*
- ion exchange resins in industry of, 6747*b.*
- iron sulfate-contg. enrichment compn. for, P 5881*c.*
- journal: Anales de bromatologia, 3539*i.*
- keeping quality of, biochemistry and, 323*c.*
- locust-bean-gum use in industry of, 8717*e.*
- measurement of acceptance of, 1494*b.*
- metabolism of, in diabetes, 8523*h.*
- metal-ion removal from, ion-exchange resins for, P 2344*f,* P 5238*e.*
- metallic contaminants in, 323*d.*
- Mexican, 7644*c.*
- microorganism growth in carbohydrate-contg., dehydroacetic acid and its derivs. for prevention of, P 6757*i,* P 6758*a.*
- microorganism growth in proteinaceous and fatty, 3-acetyl-6-methylpyran 2,4-dione or its derivs in control of, P 6758*d.*
- microorganisms as, 6747*e*
- millet and sorghum as, 9270*i.*
- mineral supplements for, P 9295*b.*
- mold-growth inhibition in, 9273*h.*
- New York expt station reports on, 9329*a.*
- nutrient value of native Russian, 1844*i.*
- nutritive value of, effect of processing on, 7154*a.*
- odors and taste of, 1494*c.*
- packaging of moisture-sensitive, 5875*b.*
- packaging or wrapping materials for, P 2470*c,* P 5640*f,* P 9532*f.*
  - from chlorinated polythene, P 5642*i,* P 9534*e.*
  - film from vinyl chloride polymer with vinylidene chloride, P 8741*gh.*
  - methylpentadiene-aralkenyl copolymer films, P 6458*e.*
  - polyethylene films, 9522*f.*
  - from rubber-HCl, P 3227*d.*
  - ultraviolet absorbing materials for rancidity prevention, P 5881*g.*
- from Palestine, compn. and nutritive value of, 8574*c.*
- paper and paperboard in industry of, public health and, 3313*h.*
- phosphorus as growth substance in, 9273*f.*
- phys. properties of, in relation to nutritional value, 3901*a.*
- pigments of, 6365*i.*
- poisoning—see *Poisoning.*
- potassium and Na in, 4780*d.*
- prepn. and preservation of, 5507*f.*
- preservation of, apomorphine for use as, P 7198*a.*
- preservation of perishable, 1122*g.*
- preservative for, from pyroligneous liquors, P 1502*a.*
- processing of, corrosion resistance of alloys during, 777*c.*
  - electronics of, and chemistry of proteins and allied substances in, 9329*e.*
  - selection of cleaning compns. for industrial plants, 4497*d.*
- protein-contg., from potato juice and potato pulp, 6745*h.*
- from protein-contg. substances charged with $CO_2$, P 2339*h.*
- protein-rich substitute, metabolism of, 8471*i.*
- quality of, government control and, 8565*e.*
  - N in protection of, 9273*f.*
  - organoleptic tests and, 8065*g.*
  - phys. consts. of milk and control of, 9278*h.*
- quality of gruels, meats and soups, detn. of, 5129*c.*
- refrigeration of—see *Refrigeration.*
- review on, 4788*h,* 4789*c.*
- rodent-repellent contg., 8604*b.*
- roots of *Pteridium aquilinum* as, 5880*g.*
- sandwich spread, from seeds of *Cucurbita pepo,* 9285*i.*
- sanitation, 7595*a.*
- seasoning agent for, P 9294*b.*
- seed oils (*Balsaminaceae*), 136*c.*
- specific dynamic action of—see *Specific dynamic action.*
- spoilage organisms of, effect of benzoic acids on, 1493*f.*
- stabilization of oily, P 3540*e,* P 5881*h.*
- stabilizing agent for, from gelatinized oat fractions, P 4784*ef.*
- stearin uses in, 5971*h.*
- sterilization of, scientific principles in, 1492*h.*
- supplemental therapeutic, P 3151*e.*
- technology of, developments in, 5880*b.*
- β,β′-thiodipropionic acid esters for use in, P 5414*h.*
- trace elements in Spanish, 4305*c.*
- utensils for, testing germicides for sanitizing, 323*d.*
- utilization of, 1095*b.*
  - effect of vitamin B complex on, 1468*d.*
  - fat and, 5461*c.*
- vitamin- and enzyme-contg., from koji, P 5132*d.*
- vitamin B₁ in Punjab, 8565*e.*
- vitamin C-contg., from hawthorn prepns., 8069*i.*
- vitamin C, dehydroascorbic acid and diketogulonic acid in, 6328*a.*
- vitamin C in, as served to college students of Pacific Northwest, 1493*c.*
- vitamin-contg., P 8576*f.*
- vitamins in African, 8070*c.*
- vitamins in Hawaiian, 9276*f.*
- wastes from processing, treatment in Mo., 4795*g.*
- waste waters from, removal of materials in suspension in, P 2348*e.*
- water in, effect of mites on, 9275*d.*
- waterproofing of, P 6760*b.*
- world supply of, chemists and, 3113*g.*
- yeast as, 5101*b.*
- yeast, compn. of, 5125*i.*
  - manuf. of, 6439*f.*
  - phosphatides of, 5126*d.*
  - from wood hydrolyzates, 1878*i.*

**Food, analysis.** (See also *Butter; Crude fiber; Fats; Feeding stuffs; Frozen foods; Milk, analysis; Sugars, analysis.*)
- books: Méthodes actuelles d'expertises employées au lab. municipal de Paris et documents sur les matières relatives à l'alimentation. T. III Boissons et dérivés immédiats, 1148*a;* Water Detn., 5130*f.*
- of bread materials, 4392*e.*
- detection and detn. of monochloroacetic acid, 9274*f.*
- detection of Pb and other metals, 7864*c.*
  - of poisons, 9273*g.*
  - of rodent urine in manufg. plants, 323*h.*
- detn. of arginine, 2265*d.*
  - of Cd, 4597*d.*
  - of carotene, 9276*b.*
  - of chlorides in bakery products and bread, 4392*d.*
  - of Cu, 7151*c.*
  - of DDT spray residue, 7629*b.*
  - of dulcin, 4391*e.*
  - of egg in alimentary pastes, 5877*i.*
  - of extraneous matter, 4780*e.*
  - of fat, 3943*d,* 9285*e.*
  - of gases, 4779*d.*
  - of glycerophosphoric acid, 785*r.*
  - of isoleucine, 9138*b.*
  - of leucine, 2337*a,* 4337*h.*
  - of metals, 2705*i.*
  - of moisture in grain by elec. resistance and dielec. const., 3941*c.*
  - of monochloroacetic acid, 7155*d.*
  - of phenylalanine, 4331*i.*
  - of K and Na, 4780*e.*
  - of quaternary ammonium compds., 7151*e.*

*detn.* of reduced Fe in vitamin-enrichment mixts., 8066*g*.
of reducing sugars, 7153*a*.
of saccharin—see *Saccharin*.
of sugar, 8070*i*.
of $PbEt_4$, 4604*a*.
of thiourea, 9274*i*.
of tryptophan, 7153*d*.
of vitamins—see *Vitamins*.
of water, 4391*c*, 6747*c*, 9274*h*.
of Zn, 1683*h*.
microbiol. examn. of dehydrated foods, 6747*c*.
organoleptic finding in relation to, 6747*d*.
polarographic, $CaCl_2$ as auxiliary electrolyte in, 5327*d*.
review on, 2705*h*.
sepn. and identification of dyes, 777*d*.
**Foot-and-mouth disease**, formaldehyde in treatment of, 5503*d*.
vaccination against, blood and blood serum after, 3512*i*.
virus of, immunizing effect of irradiated, alone and combined with $Al(OH)_3$, 4757*i*.
irradiation with ultraviolet rays, 5108*i*.
isolation of, 1102*i*.
survival in meat and offal, 6280*i*.
**Force constants**. See *Bonds*.
**Forces**. (See also *Atoms; Bonds; Ions, electrolytic; Molecules; Neutrons; Protons*.)
between ammonia mols., 5278*h*.
of atomic nuclei—see *Atomic nuclei*.
book: Nuclear, 2097*b*.
as fictitious idea, 451*f*.
fields of—see *Fields of force*.
interat., in liquids and solids, 7767*g*.
interface, 8794*e*.
intermol., calcn. of surface tension from, 7284*e*.
for collisions in gases, 4531*a*.
infrared absorption in H and $CO_2$ induced by, 8880*h*.
infrared absorption in N and O induced by, 5307*i*.
tensile strength increase in Na-butadiene rubber during oxidation by increased, 7742*a*.
in ionic hydration, 8243*h*.
between liquids and solids, 2068*b*.
mol., 2051*f*.
of proton *S* states, 4097*i*.
repulsive and van der Waals' attractive, between particles of dispersions, 5214*a*.
surface—see *Surface*.
tensor, and the neutron-proton interaction, 2857*b*.
tensor, binding energy of tritons and, 4096*d*, 5278*f*.
in transmutations of elements, 1639*e*.
van der Walls', between a proton and a H atom, 2501*i*.
van der Waals', in holding films of chain polymers, 7717*i*.
**Forensic chemistry**. See *Legal chemistry*.
**Forensic medicine**. See *Legal medicine*.
**Forensic pharmacy**. See *Legal pharmacy*.
**Forest floor**, of Hawaiian Is., 9314*b*.
**Forests**, 3607*c*.
book: Pathology, 4351*b*.
brush control in, 3134*i*.
humidity in, effect of undergrowth on, 8084*b*.
insects in, effect of DDT on, 810*a*.
light and water in relation to growth and competition of species in, 7556*a*.
management of, for tannin production in N.S.W., 5219*f*.
mycorrhiza and planned, 9176*e*.
nurseries mildew-proofing burlap for, 6351*g*.
nutrient ratios of, 7172*b*.
products from, of Western States, 9295*e*.
Soviet advances in chemistry of, 3193*h*.
wastes (industrial) use in, 7171*i*.
**Forest soils**. See *Soils*.
**Forging**, furnaces for, energy consumption of, 7892*a*.
of grinding balls of cast Fe, P 3342*d*.
of turbine blades, 540*f*.
**Forgings**, aluminum-alloy, 7885*i*.
cleaning of, 8999*a*.
copper-alloy, A.S.T.M. standards for, 4203*a*.
for gas-turbine rotors, P 990*i*, 3330*i*.
review on, 3329*f*.
standards for steel, 4202*e*, 4615*a*.
**Formal**. See *Methylal*.
**Formaldehyde**. (See also *Paraformaldehyde*.)
acetals—*individual acetals with exception of dimethyl acetal are entered as derivatives of* Methane.
acetals, P 9081*f*.
chloro derivs., P 4685*g*.
with halogenated alcs., P 3835*g*.
reaction with CO, H and alcs., P 675*a*.
acid removal from solns. of, anion-active resins for, P 6339*c*.
adhesive from rice starch, Na silicate and, P 4899*e*
adsorption by lignin, 5254*i*.
aldehydic function and, 6159*g*.
alkyl halophenyl acetals, P 3968*a*.
in anthrax-spore control, 7999*h*, 8000*a*.
azeotropic distn. of aq. solns. of, P 2221*cd*, P 7273*i*.
benzylphenylhydrazone, 1654*i*.
bisulfite, Na salt, reaction product with tetrahydronaphthalenesulfonamide and 6-(chloromethyl)-1,2,3,4-tetrahydronaphthalene, P 7726*d*.
Na salt, reaction with cymenesulfonamide isomers, textile assistants by, P 3221*a*.
Na salt, reaction with isomeric tetrahydronaphthalenesulfonamides, printing assistants by, P 2785*a*.
Na salt, reaction with *N*-stearoyl-*p*-toluenesulfonamide, textile assistant by, P 2795*g*.
in body fluids and tissues, 5468*g*.
bond energies and dissocn. of, 452*h*.
compds. (mol.) of, 7409*a*.
condensation of, with aldehydes in presence of $Ca(OH)_2$, P 7505*a*.
with aldehydes or ketones in vapor phase, P 3026*a*.
with (alkoxyphenyl) amines, 6593*i*.
with amines and phenols, 3425*e*.
catalysts for, 6159*h*.
with dicyandiamide and Cr acetate, dye-fixing agent by, 3620*h*.
with PhOH, advances in, 5378*i*.
with PhOH, catalysis by acids and bases and kinetics of, 5223*hs*.
with PhOH, kinetics of, 8737*a*.
with phenols, 7450*i*.
with PhHgOAc and sulfonic acids, P 690*a*.
to sugars, mechanism of, 148*h*.
condensation of, with 2-naphthalenesulfonic acid and tannin soln. from quebracho with condensate, 1590*i*.
condensation products of—see also *Melamine; Phenol condensation products; Resinous products; Urea; Urea, thio-*.
condensation products of, with amines, as gelatin hardeners and tanning agents, 7246*e*.
with aminotriazine, P 8743*c*.
with aminotriazine and hydroxy compds., printing-ink emulsions from, P 7239*f*.
with aminotriazines, and alcs., surface-active, P 4498*i*.
with benzyl benzoate and dimethylaniline, lubricant antioxidant, P 2424*e*.
with 2,4-diamino-*s*-triazine derivs., P 7053*h*.
with dicyandiamidine, for dye wash-fastness improvement, P 5604*f*.
with dicyanodiamide, condensation with $NH_4Cl$ and HCHO, P 4880*c*.
with dicyanodiamide for dye-affinity and wet-fastness improvement on cellulose, P 7238*a*.
with dicyanodiamide, stable sirups of, P 9533*i*.
with ethylenediamine or morpholine and phenolcarboxylic acid, α-naphthol or hydroxy compds. for lubricant improvement, P 2766*cf g*.
with guanidine, guanylurea or urea compds., salts of, P 7726*f*.
hydrogenation of, P 3839*g*.
with ketones, esters of, P 8402*a*, P 9527*h*.
with 2-mercaptobenzothiazole and $NH_3$, vulcanization-accelerating, P 6239*d*.
with phenolsulfonic acid, ion-exchange agents from, P 337*b*.
with *p*-phenylphenol, 9484*f*.
with polymethylenebis[4,6-diamino-*s*-triazines], P 3662*e*.
with polythio glycols, P 6001*e*.
with sulfanilamide derivs., 4237*g*.
with sulfathiazole, P 6234*c*, P 8401*a*.
with 1,3,5-triazine stilbene derivs., P [illegible]
cornea tolerance to, 8110*h*.
*Corynebacterium diphtheriae* resistant to 9155*e*.
cyanohydrin—see *Glycolonitrile*.
demand and production of, 568*i*.
detection of, 8974*g*.
in foods, 9273*h*.
ketone sensitization of fuchsin-$H_2SO_3$ reagent for, 4596*h*.
in resin finishes on cellulose fibers and wool, 4017*h*.
detn., diffusion current, heat of hydration and polarographic reduction potential of, 5702*i*.
detn. of, 4184*a*, 4976*g*, 8974*h*.
in milk, 8067*e*.
in periodate oxidation of carbohydrates, 1330*e*.
in presence of fumaric, maleic and satd. acids, 3316*i*.
in urea resins, 66*a*.
dibenzyl mercaptal—see *Methane, bis(benzylmercapto)-*.
diethyl mercaptal—see *Methane, bis(ethylmercapto)-*.
dimethyl acetal—see *Methylal*.
dimethyl mercaptal—see *Methane, bis(methylmercapto)-*.
in discoloration prevention in lettuce butts, P 1124*f*.
distn. of solns. of, and state in vapor phase, 6470*h*.
effect on discoloration and furfural in apricots, 1120*g*.
on gas formation in ruminal ingesta of sheep, 2694*a*.
on germination of seeds and root growth, 2357*e*.
on hemagglutination and infectivity of influenza and Newcastle disease viruses, 1856*e*.
on org. films adsorbed on metals, 28*a*.
on stiffness, stress strain properties and wrinkle resistance of rayon and wool fabrics, 5193*a*.
on $H_2O$ adsorption and bonding by casein, 7787*c*.
ethylene cyclic acetal—see *1,3-Dioxolane*
fibrinogen clotting with, 9097*a*.
fluorescence in, radical spectra in, 5312
in foot-and-mouth disease treatment, 5503*d*.
formation and detection in xanthine bases 1689*b*.
formation of, in combustion of hydrocarbons, 7825*e*.
in MeOH poisoning, 7144*g*
in oxidation of $C_4H_8$, 6516*b*.
in oxidation of $C_4$ hydrocarbons, 1309*c*.
in $K_2S_2O_8$ decompn. in MeOH, 6055*g*
from reaction of hydroxyl radical with hydrocarbons, 6149*i*.
in silent discharge from CO and H, 1272*c*.
in 2,4,4-trimethyl-1-pentene oxidation, 1308*d*.
in tryptophan reaction with MeOH, 4185*h*.
as fuel antiknock additive, 5579*e*.
in fumigation of pine nursery, 7179*e*
hydration of, spectra study of, 940*e*.
hydrazones, 601*b*.
hydrogenation of glycolonitrile in presence of, P 3839*e*.
influenza A virus infectivity destruction by, 9216*h*.
in lubricant deterioration and deposit formation in motored engines, 4454*d*
manuf. of, 2435*h*, P 3837*g*, P 5791*i*, P 7560*i*, P 7501*a*.
from $CH_2(OMe)_2$, P 5791*i*.
elec.-discharge app. for, P 6096*g*.
free of $HCO_2H$, anion exchange in, 4632*e*.
by I. G. Farbenindustrie, 6971*f*.
from $CH_4$, P 5792*b*.
from natural gas, 3993*e*.
mercaptals—*individual mercaptals are entered as derivatives of* Methane.
mercaptals, 7409*f*.
1-(*p*-methoxyphenyl)-2-methyltrimethylene cyclic acetal—see *m-Dioxane, 4-(p-methoxyphenyl)-5-methyl-*.
microwave spectrum of, 6920*g*.
in milk and milk-product preservation for phosphatase test, 3942*c*.
in milk ($CH_2O$-treated), 8067*f*.
milk preserved with, and products made therefrom, 8868*b*.
mixt. with fertilizer in pine-root-disease [illegible], 7179*f*.
with [illegible]ins and alkylene oxides, P 8132*e*.
with resorcinol-HCHO resin, rheologi-

cal properties during thickening of, 2844*a*.
in mushroom-disease control, 7180*e*.
in nematode control in nutriculture, 4805*a*.
3-nitro-*p*-toluylhydrazone†, 6973*b*.
in oat-smut control, 1137*f*.
in onion-smut control, 7179*c*.
oxidation of ethylene and, kinetics of, 6567*e*.
oxidation of, rate of, 4085*d*.
for photographic use, Am. standard specifications for, 6930*b*.
polarography of, dehydration rate and, 25*c*.
polymer (linear) treatment with, P 902*h*.
polymers—see also *Paraformaldehyde; s-Trioxane; Trioxymethylene*.
polymers, depolymerization of, P 3026*e*.
in potato preservation, 6329*g*.
prepn. of, 6159*ab*.
purification and stabilization of, P 5034*a*.
quaternary compds. from aliphatic nitriles, acid chlorides, amines and, as softening agents, P 2785*i*.
rayon (casein) aftertreatment with, effect on wet strength, 6421*h*.
reaction of, and $NH_4Cl$ with thiophenes, 1763*e*, 2201*e*.
reaction product with *p-tert*-butylphenol for tackifying GR-S rubber, P 8195*g*.
with stearanilide, condensation with thiourea, textile water repellent by, P 7238*c*.
with stearoyltriaminotriethylenebiguanide and urethan, as surface-active agent, P 2786*g*.
with thiouracils, 3013*h*.
reaction with AcH, P 3447*h*.
with MeCOPh and $MeNH_2$.HCl, 9050*b*.
with $C_2H_2$ and HCl, P 5035*b*.
with alkyl cyanoacetates, P 6222*f*
with amides and then $NH_4$ salt or salt of primary amines, textile assistants by, P 5218*b*.
with amines and nitro paraffins, P 5424*g*.
with amino acids and proteins, 1204*f*.
with 2-amino-1,3-propanediol derivs., P 2633*h*.
with 3-aminopyridine derivs. and alkali metal bisulfites, P 3470*g*.
with $NH_3$, 1316*d*.
with aniline-HCl and urea for mordants, P 3206*e*.
with ascorbic acid, 6979*h*.
with 2-butanone, P 1051*e*.
with CO and $H_2$, P 673*d*.
with cellulose, 1192*f*.
with collagen, 6258*h*.
with cyanides and polyamines, P 3449*e*.
with enanthaldehyde, 6576*a*.
with ethylenediamine and NaCN, 9031*i*.
with $C_2H_4$ in the presence of AcOH, 5367*d*.
with fatty acids, 567*c*.
with glycine and melamine, bleaching agent for leather by, P 5018*f*.
with iso-PrOH, 994*a*.
with 7-isoquinolinol and primary or secondary amines, P 9086*e*.
with methylenediphenols, 4698*h*.
with 2-methyl-1,3-pentadiene, 3411*i*.
with nitriles, 657*d*, 5405*c*, 7031*c*.
with olefins in anabolism of plants, 5090*a*.
with pectin material, 140*f*, P 5887*h*.
with polymethyl-*p*-methoxyanilines, 180*a*.
with propene to form 1,3-butanediol, P 673*d*.
with proteins, 3481*i*, 4861*c*, 6257*f*.
with 8-quinolinol and derivs., 1413*h*.
with rayon, 1571*f*.
with (stearoylaminomethyl)urea, P 6227*g*.
with *p,p'*-sulfonyldiphenol and its sulfo derivs., P 6660*b*.
with tobacco mosaic virus, 9168*h*.
with urea, kinetics of, 1247*a*, 2079*b*.
removal from exhaust gases, filter for, 1547*i*.
removal from hydrocarbons, P 8435*i*.
resonance in, 7763*h*.
solns. of urea and, for textile finishing, stabilization of, P 417*e*.
spectrum of, 1656*c*, 8713*f*, 8724*g*.
as stabilizer for soapfin-oil liver oil and vitamin A, 8979*h*.
staphylococcus sensitivity to, 4827*d*.
in sterilization of cation-exchange compns., 9309*a*.
tanning—see *Tanning*.
ultrasonic velocity in aq., 4543*g*.
uterus-contracting-material stability toward, 8408*c*.
in vaccinia virus attenuation and purification, 3916*ef*.
wood and wood-product impregnation with urea or thiourea and, P 6466*h*.

**Formaldehyde, benzoyl-**. See *Glyoxal, phenyl-*.
——, **bromo-**, oxime—see "oxime" under *Formyl bromide*.
——, **iodo-**, oxime—see "oxime" under *Formyl iodide*.
——, **thiocyano-**, oxime, 6083*f*.
**Formaldehyde bisulfite**. See "bisulfite" under *Formaldehyde*.
**Formaldehydesulfoxylic acid**, alkali metal salts—see *Alkali metal formaldehydesulfoxylates*.
sodium salt—see *Sodium formaldehydesulfoxylate*.
**Formalin**. See *Formaldehyde*
**Formalites**. See *Phenol condensation products*.
**Formals** See *Acetals*.
**Formamide**, activity coeffs. and f.-p. depression of CsCl, KCl and RbCl in, 470*h*.
as antifreeze agent in polymerization of butadiene and styrene and in vinyl compd. polymerization, 8728*a*.
derivs., P 3445*d*.
derivs., reaction with acrylic acid esters, 575*h*.
dialkyl derivs., reaction with ketones, 7920*g*.
dielec. properties of, 8769*g*.
effect on mech. properties of polymers, 2810*e*.
effect on wool digestibility by pancreatin and x-ray pattern, 2778*i*.
exchange between a formamido group and, 6984*a*.
lead autodisplacement and, 8811*g*.
mixt. with glycerol α-chlorohydrin, photographic subbing compn. contg., P 3740*b*.
in protein-fiber bond breakage and shrinkage, 468*e*.
reaction product with furfural and polyvinyl alc., P 6864*e*.
reaction with *o*-amino-*N*-butylbenzamide and with *N*-methylanthranilic acid, 3425*b*.
with carboxylic acids, P 3452*b*.
with cyclohexanone, 3373*f*.
with hydrocinnamaldehyde (attempted), 2601*a*.
with oleic acid, 8353*f*.
**Formamide, *N*-(2-aminoethyl)-**, derivs., P 3028*e*.
——, ***N*-(4-amino-2-methyl-5-pyrimidylmethyl)-**, P 6673*h*.
——, ***N*-(4-amino-2-methyl-5-pyrimidylmethyl)thio-**, as growth factor for *Mycobacterium agreste*, 4331*f*.
——, ***N*-benzyl-**, P 5800*e*, 6596*a*.
reaction with Et acrylate, 576*a*.
——, ***N*-benzyl-*N*-(2-benzylaminoethyl)-**, P 3028*f*.
——, ***N*-(*p*-benzylphenethyl)-**, 5027*b*.
——, ***N*-benzylthio-**, 6596*c*.
——, ***N,N*-bis(*m*-aminophenyl)-**, 3,6-diaminoacridine from, 647*e*.
——, ***N*-*tert*-butyl-**, 2165*i*, P 3028*i*.
——, ***N*-butyl-*N*-(2-butylaminoethyl)-**, P 3028*f*.
——, **α-chloro-*N,N*-bis(2-chloroethyl)-**, 2927*b*.
——, ***N*-cyclohexyl-**, 576*a*.
——, ***N*-cyclohexyl-*N*-(2-cyclohexylaminoethyl)-**, P 3028*f*.
——, ***N*-cyclohexyl-*N*-[1-(1-cyclohexylaminoethyl)octyl]-**, P 3028*g*.
——, ***N*-cyclopropyl-*N*-(2-cyclopropylaminoethyl)-**, P 3028*f*.
——, ***N*-(4,6-diamino-2-mercapto-5-pyrimidyl)-**, 580*a*.
——, ***N*-(4,6-diamino-5-pyrimidyl)-**, labeled with $C^{13}$ in formamido group, 6984*b*.
labeled with $N^{15}$, 3367*b*.
——, ***N,N'*-(3,5-dichlorosalicylidene)-bis-**, 6182*e*.
——, ***N,N*-diethyl-**, spectrum of, 1656*c*.
——, ***N,N*-diethyl-α-[(*p*-nitrophenylsulfonyl)guanyl]-**, P 6660*i*.
——, ***N,N*-diethyl-α-sulfanilylguanyl-**, P 6660*i*.
——, ***N*-(α,α-dimethylphenethyl)-**, 2166*b*.
——, ***N,N*-diphenyl-**, detection in explosives, 8138*i*.
——, **α,α'-dithiobis[*N,N*-diamylthio-**. See *Disulfide, bis(diamylthiocarbamyl)*.
——, **α,α'-dithiobis-[*N,N*-dibutylthio-**. See *Disulfide, bis(dibutylthiocarbamyl)*.
——, **α,α'-dithiobis[*N,N*-diethylthio-**. See *Disulfide, bis(diethylthiocarbamyl)*.
——, **α,α'-dithiobis[*N,N*-dimethylthio-**. See *Disulfide, bis(dimethylthiocarbamyl)*.
——, **α,α'-dithiobis[*N,N*-dipropylthio-**. See *Disulfide, bis(dipropylthiocarbamyl)*.
——, ***N*-dodecyl-*N*-(2-dodecylaminoethyl)-**, P 3028*f*.
——, ***N*-dodecyl-*N*-[1-(dodecylaminomethyl)tetradecyl]-**, P 3028*f*.
——, ***N*-[2-(3-ethoxypropyl)cyclohexyl]-**, *cis-trans-* and *trans-*, 1415*a*.
——, ***N*-ethyl-*N*-(2-ethylaminoethyl)-**, P 3028*f*.
——, ***N*-2-hydroxyethyl-**, as plasticizer, P 5632*h*.
——, ***N*-(hydroxymethyl)-**, 569*f*.
——, ***N*-imidazo[*b*]pyrid-5-yl-**, 7023*i*.
——, ***N*-isobornyl-**, 2165*h*.
——, ***N*-(5-isopropyl-8-methyl-7-quinolyl)-**, 3421*i*.
——, ***N*-*m*-methoxybenzyl-*N*-5-methoxyhomopiperonyl-**, 9046*g*.
——, ***N*-(methoxymethyl)-**, 569*f*.
——, ***N*-methyl-**, reaction with acrylic acid esters, 575*h*.
——, ***N*-(8-methyl-7-quinolyl)-**, 3422*a*.
——, ***N*-[*p*-(methylsulfonyl)benzyl]-**, 8539*e*.
——, ***N*-naphthyl-*N*-[2-(naphthylamino)ethyl]-**, P 3028*f*.
——, ***N*-(3-phenylpropyl)-**, 5739*a*.
——, ***N*-propyl-*N*-(2-propylaminoethyl)-**, P 3028*f*.
——, ***N*-3-pyridyl-**, reaction with ethyl acrylate, 576*b*.
——, ***N*-*p*-sulfamylbenzyl-** 8539*e*.
——, ***N*-1,1,3,3-tetramethylbutyl-**, 2165*f*.
——, **thio-**, 2202*g*.
——, **α,α'-thiobis[*N,N*-diethylthio-**. See *Sulfide, bis(diethylthiocarbamyl)*.
——, **α,α'-thiobis[*N,N*-dimethylthio-**. See *Sulfide, bis(dimethylthiocarbamyl)*.
**Formamidine**, derivs., 1779*e*, 3424*e*.
labeled with $N^{15}$, 3367*a*.
——, **α-azido-**, 1769*h*.
——, **α,α'-azobis[chloro-**, effect on glycolysis in muscle exts., 7581*f*.
——, ***N,N'*-bis[*m*(and *o*)-chlorophenyl]-**, hydrochlorides, 170*d*.
——, ***N,N'*-bis[*m*(*o* and *p*)-chlorophenyl]-**, and salts, 5757*i*.
——, ***N*-(*p*-chlorophenyl)-*N'*-[4-(2-diethylaminoethylamino)-5-ethyl-6-methyl-2-pyrimidyl]-**, 1779*g*.
——, ***N*-(*p*-chlorophenyl)-*N'*-[4-(2-diethylaminoethylamino)-6-methyl-2-pyrimidyl]-**, 1779*g*.
——, ***N*-(*p*-chlorophenyl)-*N'*-(4,6-dimethoxy-2-pyrimidyl)-**, 1779*g*.
——, **[5,5'-dimethyl-2,2'-bis(methylmercapto)benzhydryl]-***, hydrochloride, 7474*g*.
——, ***N,N'*-diphenyl-**, 1779*h*, 2595*d*, 5757*h*.
Raman spectrum of, 6081*h*.
salts, 1353*h*.
——, ***N,N'*-di-*m*(*o* and *p*)-tolyl-**, and salts, 5757*i*.
——, ***N,N'*-di-*o*(and *p*)-tolyl-**, hydrochlorides, 170*d*.
——, ***N*-methyl-*N,N'*-diphenyl-**, Raman spectrum of, 6082*d*.
——, ***N*-phenyl-*N'*-*o*(and *p*)-tolyl-**, Raman spectra of, 6081*h*.
**Formamido group**, exchange between formamide and, 6984*a*.
**Formanilide**, reaction with acrylic acid esters and with Et crotonate, 575*i*.
as stabilizer for *N*-vinylpyrroles, P 2037*f*.
——, **p-amino-**, tetrakisazo dyes from, P 861*a*.
——, **4-amino-2,5-bis(benzyloxy)-**, P 4165*g*.
——, ***m*-anilino-**, 647*h*.
——, ***N*-(2-anilinoethyl)-**, P 3028*f*.
——, ***m*-chloroacetyl-**, 7452*b*.
——, ***N*-(3-diethylaminopropyl)-**, 598*e*.
——, **3,4-dimethoxy-**, 2177*f*.
——, **4-ethoxy-*N*-ethyl-3-methoxy-**, 2177*g*.
——, **4-ethoxy-3-methoxy-**, 2177*g*.
——, **4-hydroxy-2,3,5-trimethyl-**, and acetate, 180*d*.

——, *ar*-**methoxy-**. See *Formanisidide*.
——, *N*-**phenyl-**. See *Formamide, N, N-diphenyl-*.
*p*-**Formanisidide, 2,3,5-trimethyl-**, 180*f*.
**Formates.** (See also *Alkali metal formates; Alkaline earth formates.*)
detection of, 1289*b*.
dielec. loss, microwave absorption and relaxation time in, 6018*h*.
exchange on Amberlite IRA-400, 6489*f*.
in metabolism, 5482*h*.
**Formation.** See *Heat of formation*.
**Formation constant.** See under *Ionisation, electrolytic*.
**Formazan, 2-phenyl-3-(*o*-carboxyphenyl)-5-heptyl-***, 5314*a*.
- —, *C, N, N'*-**triphenyl-**. See *Toluene, α-phenylazo-α-phenylhydrazono-*.
**Formazylcarboxylic acid***, in analysis, 5696*f*.
**Formazyl compounds**, 4257*h*, 4260*i*.
and copper and Ni complexes, 6589*a*.
dyes, P 5198*h*.
**Formica** (*ant genus*). See *Ants*.
**Formic acid.** (*Formates of inorganic bases have their own headings. Those of organic bases are entered under the names of the bases. Simple esters (ethyl, methyl, etc.) are entered here, and the others as derivatives under the names of their corresponding hydroxy compounds.*) (See also *Fatty acids.*)
in alc. from sugar beets, 3141*e*.
1-alkoxyethyl esters, 3786*a*, 6576*e*.
allyl ester, polymerization of, P 8742*d*.
aluminum corrosion by, 5721*g*.
amyl and butyl esters, thermochors of, 8226*e*.
as antifreeze agent in polymerization of butadiene with styrene, 8728*d*.
arylazo derivs., reaction of Hg compds. with K salts of, 171*c*.
azeotrope with AcOH-$C_5H_5N$, P 2220*i*.
in blood, brain and urine in MeOH poisoning, 3869*h*.
in butane combustion, 3724*i*.
1-butoxyethyl ester, 7425*i*.
butyl ester, as azeotrope former for naphthenes, P 3670*d*.
butyl ester, in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
2-chloroallyl ester, polymers with butadiene, P 432*i*.
2-(*o*-chlorophenylhydrazide)†, 4260*c*.
chorion of *Rhodnius prolixus* penetration by, 5527*h*.
as citric acid substitute in Esbach soln., 6789*i*.
complex-ion formation with, in Al sulfate and chrome alum tanning solns., 9507*h*.
compds. (mol.) of, 7409*ac*.
compds. with antibiotics, P 1158*f*.
copper complex, stability of, 4971*a*.
crit. mixing temps. in identifying and detg. halogen derivs. of aliphatic hydrocarbons, 8309*a*.
cyclohexyl and cyclopentyl esters, phys. constants of, 2955*h*.
as dehydrating reagent in steroid differentiation, 7865*b*.
dehydration and dehydrogenation on catalysts, 6497*i*.
dehydrogenase of—see *Formic dehydrogenase*.
dehydrogenation on Cu-Pt alloys, 4088*c*.
dehydrogenation on Rh, effect of S on, 27*i*.
detection of, 5342*a*.
detn. of, 4807*i*.
in drugs, 7639*b*.
in mixts. of fatty acids, 8976*h*.
in mixts. with acetic, butyric and(or) propionic acids, 8977*a*.
in tan liquors, 1205*f*.
dicyclohexylamine salt, 3373*f*.
*p*,α-dimethylstyrene dimerization by, 7916*h*.
effect on elec. cond. of gelatin and nylon,
on protein fibers, 468*e*.
on silage prepn., 1879*c*.
on stability of supersatd. solns. of $KNO_3$, 8805*h*.
on stainless steel cooking utensils, 2707*a*.
erythrocyte penetration and hemolysis by, 8502*b*.
esters, 2576*i*, P 3027*g*.
with *N, N*-bis(2-hydroxyethyl)oleamide, P 4878*h*.
formation from CO and alcs., kinetics of, 3696*e*.
esters, with *N*-2-hydroxyethyloleamide, P 4878*g*.
with *N*-2-hydroxyethylstearamide, P 4878*h*.
with hydroxy steroids, 7941*e*.
lyoparachors of, 2834*b*.
parachors and thermochors of, 2923*f*.
phys. consts. of, 2590*d*.
with tertiary alcs., manuf. and decompn. of, P 1434*c*.
ethylene ester, P 7503*a*.
ethyl ester, condensation with Et homophthalate in prepn. of 1-oxo-2,1*H*-benzopyran-4-carboxylic acid, 1045*f*.
dilatational viscosity of, 5249*g*, 8780*a*.
effect on plants, 2677*b*.
in formylation of amines, 1336*a*.
reaction with AcOEt in presence of Na or NaOEt, 5745*a*.
reaction with 3-heptanone, 643*g*.
formaldehyde free of, anion exchange in manuf. of, 4632*e*.
formation of, in methanol poisoning, 7144*g*.
from reaction of hydroxyl radical with hydrocarbons, 6149*i*.
from sugars, 7730*i*.
by thermophilic cellulose-fermenting bacteria, 720*d*, 721*d*.
from tyrosine, 1746*a*.
as fungicide in fats and oils, 4413*d*.
gasoline treatment with, to lengthen catalyst life in alkylation of 2-methyl propane, P 3189*c*.
glass attack by, 2385*e*.
heat of wetting of activated charcoal by, 8835*f*.
hydrazide—see *Carbazaldehyde*.
hydrogenation of mesoxalic acid oxime esters and nitrosomalonic acid esters in the presence of, and its esters, P 3445*e*.
hydrogenlyase of—see *Formic dehydrogenase*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
labeled with $C^{14}$, hypoxanthine formation from, in liver homogenates, 3869*c*.
in lubricant deterioration and deposit formation in motored engines, 4454*d*.
manuf. from its *tert*-Am ester, P 3026*h*.
metabolism of, in rabbits, dogs and men, 2317*efh*.
methyl ester, ammonolysis rate of, 6495*g*.
mixts. with alcs., osmosis of, 7300*g*.
with EtOH, soybean-protein denaturation with, 1604*b*.
with EtOH, soybean treatment with, 1604*c*.
with org. vapors, adsorption by active carbons, 16*g*.
as nutrient and energy source of *Bacterium formicum*, 7549*a*.
oxidation with Cl, kinetics of, 2495*i*.
penetration compd. with basic Cr sulfate, 8883*e*.
phenylhydrazide†, as insecticide, 5526*a*.
plastic materials from silicates and, P 6865*e*.
pyridine reaction with *p*-quinone in presence of, 5781*a*.
pyruvate synthesis by *Escherichia coli* in presence of adenosinetriphosphate and, 1830*a*.
reaction with cycloalkene with $H_2O_2$ in presence of, 2173*d*.
reaction of $H_2O_2$ with methylcyclopentenes in presence of, 2172*d*.
reaction with carboxylic acids in aldehyde manuf., P 5791*h*.
with diarylamines, 647*b*.
with 5,10-dihydrophenarsazine, 4675*f*.
with 2-methyl-3-butyn-2-ol, 3352*c*.
recovery from saccharification of cellulose, P 405*a*.
in saccharification of cellulose and wood, 395*e*.
serine and glycogen formation from glycine and, 3859*f*.
solubilities of $H_3BO_3$ and succinic acid in, 1241*h*.
sorption by anionites, 1238*c*.
spectra of, and its esters, 1656*c*.
spectrum of, 3724*g*.
steel soln. in, rate of, 540*a*.
systems of, refractive index of, 3678*f*.
systems with amines, 6066*b*.
2,4,5-trichlorophenyl ester, P 3459*h*.
2,4,5-trichlorophenyl ester, cottonseed treatment with, 8133*f*.
ultrasonic velocity in, 8786*c*.
uric acid synthesis from, 3501*g*.
and vinyl ester and its polymers, 567*e*.
vinyl ester, polymerization with ethylene glycol maleate, 439*a*.
in wattle bark tanning, 9510*c*.
yeast fermentation and respiration stimulation by, 5444*b*.
**Formic acid, acetyl-**. See *Pyruvic acid*.
——, **amino-**. See *Carbamic acid*.
——, **[(4-amino-2-ethyl-5-pyrimidyl-methyl)thiocarbamyl]-†**, P 3042*a*.
——, **azodi-**, diethyl ester, prepn. of, 1725*g*.
diethyl ester, reaction with allylbenzene, 612*g*.
esters, P 4293*f*, 8730*d*, 8731*c*.
addn. compds. with polyfluoro derivs of $C_7H_4$, P 3445*h*.
for low-temp. vulcanization, P 5626*h*.
——, **benzoyl-**. See *Glyoxylic acid, phenyl-*.
——, **bromo-**, ester with glycerol 1,2-cyclic carbonate, P 6652*h*.
——, **carbamyl-**. See *Oxamic acid*.
——, **chloro-**, alkenyl esters, reaction with polyhydric phenols, P 4298*h*.
*tert*-butyl ester, 578*h*.
3-chloroallyl ester, 2928*d*.
2-chloroethyl ester, volatility and vapor pressure of, 8841*b*.
diester with diethylene glycol, reaction product with monoricinoleate of triethanolamine as demulsifier, P 6818*e*.
diester with *p,p'*-isopropylidenediphenol, P 4293*e*.
esters, condensation products with sulfonated 2-hendecylbenzimidazole, P 4441*ef*.
ester with Bu *p*-hydroxybenzoate, 593*i*.
with 2,2-dimethyl-1,3-dioxolane-4-methanol, textile assistant from 2-hendecylbenzimidazolesulfonic acid and, P 1990*i*.
with glycerol 1,2-cyclic carbonate, P 6652*h*.
with unsatd. alcs., polymers of, P 5230*f*.
ethyl ester, chloroethane reaction with Pb-Na alloy in presence of, P 4287*e*.
2-fluoroethyl ester, 6164*c*.
isopropyl ester, kinetics of thermal decompn. of, 6056*h*.
methyl ester, photochlorination to chloromethyl ester, 8896*d*.
methyl ester, reaction product with Na 2-heptadecylbenzimidazolesulfonate, P 886*d*.
trichloromethyl ester—see *Diphosgene*.
——, **(chloroformyl)-**. See *Glyoxylic acid, chloro-*.
——, **(diphenylphosphino)-**, oxide, ethyl ester, 3802*b*.
——, **dithiobis[thiono-**, diesters, 6983*g*.
diethyl ester, in chigger control, 8600*b*.
diisopropyl ester, detn. of, 6455*a*.
effect on emulsion polymerization of butadiene, 7253*d*.
effect on polymerization of allyl and Me methacrylates, 8199*i*.
dipropyl ester, 8189*b*.
esters, and reaction with KCN, 1181*g*.
esters, as vulcanizing agents, P 4509*c*.
esters, for vulcanization of synthetic rubber, P 1212*e*.
——, **dithiotriazo-**, sodium salt, in Cu analysis, 4175*a*.
——, **fluoro-**, esters, 3741*g*.
ethyl ester, 2933*d*.
——, **formyl-**. See *Glyoxylic acid*.
——, **hydrazino-**. See *Carbazic acid*.
——, **hydrazodi-**. See *Bicarbamic acid*.
——, **iminodi-**. See *Imidodicarboxylic acid*.
——, **isothiocyano-**, ethyl ester, and reaction with α-amino nitriles, 1402*d*.
——, **naphthoyl-**. See *Naphthaleneglyoxylic acid*.
——, **2-naphthylazothiono-**, 2-naphthylhydrazide, purification and spectrum of, 9057*b*.
——, **phenylazo-**, phenylhydrazide, reaction with phenylmercury borate, 9376*f*.
——, **phenylazothiono-**, phenylhydrazide—see *Dithizone*.
——, **propionyl-**. See *Butyric acid, α-oxo-*.
——, **styryl-**. See *Cinnamic acid*.
——, **(*p*-sulfophenylazo)-**, potassium salt, 171*e*.
——, **tetrathiobis[thiono-**, diethyl ester, P 7040*a*.
[illegible]s[thiono-, esters, 1445, 1181*g*.

**Formic anammonide.** See *Hydrocyanic acid.*
**Formic dehydrogenase,** in *Escherichia coli,* 4341*b.*
in oxidation mechanism of peas, 8462*c.*
in plants, 8462*a.*
**Formimidic acid,** ethyl ester, -HCl, 3367*a.*
**Formin** (*the heterocyclic compound.*) See *Hexamethyleneteiramine.*
**Forming.** See *Molding.*
**Formo-Cibasol*,** constitution of, 4237*g.*
**Formoguanamine.** See *s-Triazine, 2,4-diamino-.*
**Formohydroxamic acid,** α-**carbamyl-,** copper deriv., spectrum of, 6250*a.*
**Formohydroxamyl bromide.** See "oxime" under *Formyl bromide.*
**Formohydroxamyl iodide.** See "oxime" under *Formyl iodide.*
**Formol.** See *Formaldehyde.*
**Formol-gel reaction,** in blood plasma and serum, 4759*b.*
other clinical protein reactions vs., 7569*h*
**Formonitrile.** See *Hyarocyanic acid.*
*p*-**Formophenetidide,** *N*-**ethyl-3-methoxy-†,** 2177*g.*
——, **3-methoxy-†,** 2177*e.*
**2,3-Formoxylidide,** 7439*f.*
**2,6-Formoxylidide,** *N*-(**2-diethylaminoethyl**)-, and hydrochloride, 1025*e.*
**Formula indexing,** 3343*d,* 6967*f.*
**Formularies.** (See also *Pharmacopeias.*)
addns. to National, IX, 4809*f,* 8103*a.*
books: Chem. Rezepte für die Fabrikation verschiedenster Artikel fur den taglichen Gebrauch, 2712*f;* Manufacturer's Practical Recipes, 2712*f.*
National, 1527*c.*
**Formulas.** (See also *Chemical formulas.*)
mathematical—see *Mathematics.*
structural, in org. chemistry, 7405*g.*
**Formvar,** expanded, elec. and mech. properties of, 429*d.*
**Formyl** (*free radical*), heat of formation of, 6479*c.*
**Formylation,** of amines with $HCO_2Et$, 1336*a.*
of methyl γ-cyano-γ-(2,3 dimethoxy phenyl)-ε-ethoxycaproate, 6636*d.*
of 2(and 4) nitroresorcinols, 7925*a.*
**Formyl bromide,** oxime, 6983*e.*
**Formyl chloride, phenylazo-,** phenylhydrazone—see *Methane, chloro(phenylazo)phenylhydrazono-.*
**Formyl group,** detection in rubber reclaim, 1600*c.*
spectrum of, in HCHO fluorescence, 5312*f.*
**Formyl iodide,** oxime, 6983*c.*
**Formylmethyl group,** characterization of, 3003*a.*
**Forsterite,** from chrysotile thermal decompn., 4606*f.*
formation and reaction with talc, 3274*h.*
formation in metamorphism of siliceous dolomites, 6129*g.*
heat of soln. in HCl-HF mixt., 4187*h.*
melting of, in quartz crystn. in olivine basalt, 4191*c.*
refractories from dolomites and serpentenite, 6799*e.*
refractories from serpentine materials, 5562*i.*
solid solns. with merwinite in slag from ferrovanadium manuf., 1691*c.*
solid soln. with fayalite, heat of formation of, 3701*a.*
synthesis of, 8804*g.*
**Forsythia,** rutin detn. in flowers of, 9373*g.*
**Fortisan.** See *Rayon.*
**Fossil resins.** See *Resins.*
**Fossils,** combustible Triassic, 4984*f.*
as indicators of environments of deposition, 5710*a.*
phys. characteristics of, 8994*d.*
**Fossil wax.** See *Ozocerite.*
**Fosterite,** styrene-maleic ester copolymer solvent-reacting varnishes, 2445*e.*
**Fouadin,** antimony distribution and fate after administration of, 6740*a.*
effect on tissue culture growth and on protozoiasis, 277*c.*
in leishmaniasis treatment, 2330*a.*
in schistosomiasis mansoni therapy, 9266*g.*
trypanosomiasis therapy with, 1485*e,* 8528*b.*
**Foul brood.** See *Bees.*
**Founder, antihistamine compds. in treatment of,** 1104*h.*
**Founding.** See *Casting process.*
**Foundry cores.** See *Molds* (*I*).
**Foundry sand.** See "molding" under *Sand.*
**Fountain effect, of helium II,** 8226*f.*
**Fourier series. ——ation of, in detn. of F distributions,** 6078*d.*
**Fourmarierite,** 8983*g.*
**Fourneau 809.** See *Bayer 205.*
**Fourneau 710.** See *Quinoline, 8-(3-diethylaminopropylamino)-6-methoxy-.*
**Fourneau 929.** See *Triethylamine, 2-thymyloxy-.*
**Fourneau 933.** See *1,4-Benzodioxan, 2 (1-piperidylmethyl)-.*
**Fourneau 1162.** See *Sulfanilamide.*
**Fourneau 1262.** See *Triethylamine, 2-(2-biphenylyloxy)-.*
**Fourneau 1571.** See *Ethylenediamine, N, N, N'-triethyl-N'-phenyl-.*
**Fourneau 2268.** See "trimethyl(2-methyl-1,3-dioxolan-4-ylmethyl)— iodide" under *Ammonium compounds, substituted.*
**Fourneau 2429.** See "(2-chloroethyl)trimethyl— iodide" under *Ammonium compounds, substituted.*
**Fourneau 2512.** See "triethyl(2-phenoxyethyl— iodide" under *Ammonium compounds, substituted.*
**Fourneau 2557.** See "[*m*-phenylenebis(oxyethylene)]bis[triethyl— iodide]" under *Ammonium compounds, substituted.*
**Fourneau 2559.** See "[*p*-phenenyltris(oxyethylene)]tris[triethyl— iodide]" under *Ammonium compounds, substituted.*
**Fourneau 2987.** See *Phenothiazine, 10 (2-diethylaminoethyl)-.*
**Four thousand eight hundred eighty eight.** See *Paludrine.*
**Four thousand four hundred** and **thirty.** See "acetate" under *Biguanide, 5 (p-chlorophenyl)-1 isopropyl 1-methyl-.*
**Fowler solution,** folic acid prepn. contg., 355*h.*
**Foxes,** scabies control on, 4418*c.*
**Foxtail.** See "*Alopecurus*" and "foxtail" under *Grasses.*
**Fractional distillation.** See *Distillation.*
**Fractography,** of ingot Fe, 8326*d.*
of ship plates, 3761*e.*
**Fracture,** brittle—see *Brittleness.*
cold-, temp. of thermoplastic materials, detn. of, 8198*i.*
delayed, of materials under compression, tension and torsion, 4048*h.*
of solids, 3578*e.*
from transient stress waves, 8784*i.*
**Fractures.** See *Bones.*
**Fragaria.** See *Strawberries.*
**Fragilaria,** antifouling-paint effect on, 3963*g.*
**Francium,** energy-period relation of, 2090*d.*
pronunciation of, 4909*f.*
from thorium bombarded by deuterons, 4126*i.*
**Frangula** (*alder buckthorn, black alder*), 8103*b.*
bark, differentiation from cascara sagrada and powd. oak, 8100*h.*
bark of, 362*b,* 4736*d.*
identification of anthraquinone derivs. in prepns. of, 4810*h.*
**Frangula emodin.** See *Emodin.*
**Frankland, Percy Faraday,** 1618*h,* 7275*h.*
**Fraxinus.** See *Ash.*
**Frederick, Donald S.,** biography, 2825*d.*
**Freedom,** degrees of, of simple symmetry operations, 8762*e.*
detn. of degrees of, corresponding to proper vibrations, 8765*b.*
**Free energy.** See *Energy.*
**Freezing.** (See also *Refrigeration.*)
bacteria and mold control in sugar-soln., 4391*d.*
of beef, effect on survival of foot-and-mouth disease, 6280*i.*
beef tenderness and temp. of, 3534*d.*
book: Freeze-drying, 8218*c.*
concn. by, app. for, P 7760*a.*
concrete or mortar resistant to, P 7662*a.*
condensation of vapors, Lewis coeff. and, 11*e.*
corn (seed-) injury by, tests for, 2290*c.*
drying by vacuum, 2823*f.*
effect of repeated, on water-stability of soils, 6771*f.*
effect on histamine in blood, 8484*i.*
effect on stability of nitrocellulose lacquer emulsions, 5607*a.*
egg preservation by, P 6332*i.*
food changes during, 8571*d.*
of food products for dehydration, P 4785*c.*
of foods—see also *Frozen foods.*
of foods, 1494*e,* P 8576*c.*
foods for, 8571*c.*
of fruit after vacuum treatment and shrinkage, 8571*e.*
fruit-juice concn. by, P 331*b,* 3944*f.*
of fruits, 3535*e.*
gangrene following, 5858*a.*
of ice-cube trays to supporting surface, etc., prevention of, P 5238*a.*
of infusorians, death by, 8564*h.*
of meat, water sepn. in, 4928*h.*
of milk (homogenized), effect of agitation during, on keeping quality, 9281*a.*
of peaches, effect on carotenoids and vitamin C, 3535*h.*
prevention of, materials for—see *Antifreeze substances.*
of silicic acid (colloidal), 8800*i.*
strawberry firming before, 3535*c.*
vanilla flavor (synthetic) for, P 332*b.*
of water, 2061*a.*
of water (supercooled), 6025*e.*
of yeast, death in, 8437*c.*
**Freezing points,** concn. and, of fruit and berry juices, 6752*b.*
curves or diagrams—see also *Melting points.*
curves or diagrams, for alc.-aldehyde systems, 5740*c.*
curves or diagrams, in isomorphism of org. halides, 5754*f.*
eutectic—see *Eutectics.*
lowering of, by CsCl, KCl and RbCl in formamide, 470*h.*
in detection of added water in milk, 9278*h.*
in detg. water addns. to milk, 3114*g,* 9279*c.*
in ice-urea eutectic, 469*e.*
mol. wt. detn. by—see *Molecular weights.*
by KCl and NaCl in concd. solns., 6892*e.*
in solubilized systems, 466*f.*
by $SO_3$ in dioxane, 2490*h.*
measurement of, 8429*f.*
$C_6H_6$ purity detn. by, 8978*a.*
in detn. of purity of hydrocarbons, 2924*f,* 4399*f.*
of milk, standardization of Hortvet thermometer for, 8752*c.*
**French Rubber Institute,** 3883*f.*
**Freon,** lead detector using, 7271*b.*
**Freon 11.** See *Methane, trichlorofluoro-.*
**Freon 12.** See *Methane, dichlorodifluoro-.*
**Freon 13.** See *Methane, chlorotrifluoro-.*
**Freon 14.** See *Carbon tetrafluoride.*
**Freon 21.** See *Methane, dichlorofluoro-.*
**Freon 22.** See *Methane, chlorodifluoro-.*
**Freon 23.** See *Fluoroform.*
**Freon 113.** See *Ethane, trichlorotrifluoro-.*
**Freon 142.** See *Ethane, 1-chloro-1,1-difluoro-.*
**Frequency distribution,** double integral relative to, 5105*i.*
**Fresenius, Remigius,** biography, 3251*d.*
**Frictiographs,** 8799*e.*
in lubricating-oil characterization, 4001*f.*
in spindle-oil fraction characterization, 4001*h.*
**Friction,** 4066*d.*
of bitumens, 9425*f.*
coeffs. of static, of lubricants on phenol resins, 8125*f.*
coeffs. under nonseizing boundary lubricants, 5933*c.*
detonation by—see *Detonation.*
effect on cast Fe, Cr plate and steel, 9009*c.*
electrostatic component of force of, extreme-pressure additives and, 6400*f.*
energy and theory of, 6879*d.*
in flow of suspensions of granular solids in gases through pipes, 912*a.*
German fundamental work on, 2416*b.*
in helium II, 1232*d.*
inner, of Cu-Zn alloys, 2562*a.*
inner, of liquids, 4541*a.*
interface-active agents in lubricants in decreasing, 7675*h.*
internal, of alloys and metals, elastic anisotropy and, 4108*h.*
of cords, filaments and yarns at sonic frequencies, 4016*e.*
of fluids—see *Viscosity.*
in gases and liquids, sound absorption and, 6878*f.*
measurement of, of gases, 6903*a.*
in metals, 2144*g.*
in metal systems, 3258*d.*
in plastic material under alternating flection, 1226*e.*
of plastics, 1601*h.*
of solids, 5251*i.*
in Ta contg. N, 458*f.*
of Zn single crystals, 2482*h.*
of iron (cast), 5716*d.*
lubricated, 4001*f.*
measurement of, app. for evaluating lubricants by, 2410*f.*

*measurement of*, of lubricating greases, 5935*h*.
in lubrication with S-contg. extreme-pressure lubricants, P 1953*c*.
between single fibers, 4857*i*.
specifications for lubricants and, 8658*c*.
metallic solid soly. and, 5273*a*.
of metal powders, adsorption and, 8790*a*.
of metals, surface reactions and, 7769*c*.
org.-substance effect on interfacial, 2059*i*.
review on, 6816*f*.
of rubber tread compds. on ice and its measurement, 2012*d*.
of silicone films on metals, 7219*e*.
**Frictional surfaces**. See *Bearings*.
**Friction materials**. (See also *Brakes; Clutches*.)
from allyl ether of anacardic materials, P 3240*i*.
from asbestos, etc., P 334*b*, P 1126*e*.
bonding agents for, from sulfurized drying-oil fatty acids, P 3948*i*.
from cashew-nutshell-liquid polymers, P 2715*b*.
from copper shot, P 3949*b*.
from diene polymers with drying oils, P 7754*c*.
from furfural ketone resins, P 3655*d*.
from metal powder and phenol-HCHO resin, P 7163*e*.
from metal powders, graphite and oxides, P 5518*i*.
silicon carbide-contg., lapping bronze, Fe and steel with, 3766*h*.
from sintered metal-nonmetal mixts., 80*b*.
**Friedel, Chas.**, biography, 2049*d*.
**Friedel-Crafts reaction**, acetylation of diacetamidonaphthalenes, 9058*b*.
in acylation of naphthalene, 8371*b*.
in acylation of *N*-1(and 2)-naphthylacetamides, 6606*c*.
in alkylation of PhAc and PhCN, 8367*c*.
with aromatic hydrocarbons and alkenyl nitriles, P 7968*d*.
of bibenzyl with succinic anhydride, 7004*b*.
catalysts, in alkylation of thiophene, 1395*b*.
in alkyl halide reaction with olefins, P 7035*c*.
in CO reaction with polyhalo ethanes, P 1434*d*.
in copolymerization of styrene and its derivs., 1733*a*.
in cross-linking vinyl polymers, 7406*h*.
in dehydration of glycols, P 3834*c*.
from halides, on $Al_2O_3$, etc., P 3161*b*.
in ketene reaction with carbonyl compds., P 1056*a*, P 5795*e*.
in polymerization, 6140*f*, 6462*d*, 6991*b*.
in $C_2F_4$ reaction with polyhalo methanes, P 3834*f*.
chlorinated olefins in, 5736*e*.
cyclization of aryl aliphatic acids by, 4250*h*.
of 1,1-dichloroethylene with $C_6H_6$, 2193*c*.
effect of solvents on, 209*g*.
with fluoranthene, 7473*c*.
keto acids by, 1378*c*.
ketone prepn. by, 2601*a*, 2930*h*.
with ketones (unsatd.), 3373*c*.
mechanism of, 2851*f*, 2930*d*.
with 1-naphthol-8-sulfonic acid sultone, P 5047*e*.
with nitro olefins, 6993*d*.
reactivity of halogen compds. in, 4638*d*.
review on, 7759*b*.
with thiophene, P 3850*i*.
of triethylphenylsilane with acid chlorides, 2177*i*.
**Friedelin**, degradation reactions of, 7925*i*.
**Fries rearrangement**. See *Rearrangements*.
**Frigorimeters**. See *Cryometers*.
**Frits**, flow-button test for enamel, 1544*b*.
for graphite crucibles, P 6803*f*.
lead bisilicate, structure of, 3577*i*.
**Fritting**, in powder metallurgy—see *Powder metallurgy*.
**Fritzsche Award**, to Simonsen, John Lionel, 8760*g*.
**Frogs**. (See also *Tadpoles; Toads*.)
adrenaline effect on male, 8566*a*.
chromatophore in skin of, effect of $Me_3N$ on, 788*g*.
development of larvae of, effect of DDT on, 5507*b*.
——, *Eggs*.
hemopoiesis in, effect of endocrine factors on, 3530*e*.
——, development of, effect of testosterone propionate on, 1492*c*.
metamorphosis of—see *Metamorphosis*.
oxygen consumption by skin of, 3529*i*.
respiration of, seasonal differences in reaction to thermal influences, 2332*h*.
sodium azide effect on development of, 8563*e*.
ventricle of, effect of acetylcholine on, 1117*b*.
**Frost**. (See also *Freezing*.)
on glass and windshields, agents for preventing formation of, P 1221*d*.
removal from chilled surfaces, compn. for, P 3949*f*.
**Frostbite**. See *Freezing*.
**Froth**. See *Flotation; Foam*.
**Frothing**. See *Foaming*.
**Frozen desserts**. No entries this year. See *Ice cream; Sherbets*.
**Frozen foods**, blanching and storage effect on corn, 1495*e*.
cytological and microchem. characteristics of asparagus, cauliflower and spinach, 5878*hi*.
discoloration preventing in fruit, on thawing, P 7605*f*.
discoloration prevention in fruit, vitamin C and, 3535*e*.
egg-yolk and milk-fat changes during storage, 6775*a*.
egg yolk, milk and shrimp, 6775*a*.
*Escherichia coli* detection in orange-juice, boric acid in, 8571*h*.
firmness retention in sliced apples, Ca salts in, 782*g*.
gluten sulfate as protective colloid in fruit purees, P 6332*e*.
industry of, 5878*g*.
manuf. of—see also *Freezing*.
microflora and, 9329*d*.
milk, oxidation-reduction potential, oxidized-flavor prevention and vitamin C retention in, 778*i*.
nitrates in, effect on health of infants and adults, 2337*i*.
pectinate films for, 6747*g*.
rancidity in bakery products, effect of baking powder on, 9278*g*.
rancidity prevention in fish, antioxidants and, 1498*b*.
research in industry of, 1494*e*, 8571*cd*.
thiourea in peaches, enzymic oxidation of, 7155*f*.
vitamin C in preservation of fish and fruit, 9275*b*.
vitamins $B_1$ and C in Lima beans and soybeans, 1121*f*.
vitamins in peas, effect of maturity, fertilizers and variety on, 9289*f*.
water content of fruit-juice, 8069*g*.
**Fructofuranose**, fermentability of, 1145*g*.
6-phosphate, acid hydrolysis of, 147*i*.
**Fructofuranosidase**, in *Drosophila*, 322*i*.
**Fructofuranoside, methyl 1,3,4,6-tetramethyl-**, 1331*f*.
——, **methyl 1,3,4-trimethyl-**, 1331*f*.
**Fructosanilide**, D-, prepn. of, 7906*c*.
**Fructosans**. (See also *Fructose anhydrides*.)
in *Campanula*, 8014*h*.
in grass, 4347*h*.
**Fructose**. (See also *Sugars, analysis*.)
in bean rust, 1463*f*.
in cacao-bean covering, 8010*i*.
as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278*e*.
crystn. of, P 3639*f*.
D-, compd. with $Et_2O$, 7409*a*.
effect on vitamin C oxidation, 1016*i*.
reducing power of, 7861*c*.
effect on methemoglobin reduction in erythrocytes, 3048*g*.
effect on O uptake by larval cells of *Gastrophilus intestinalis*, 1872*c*.
glycolysis of, in rat and mouse tumor homogenates, 7576*b*.
in grape juice, glucose and, 8070*h*.
in grass, 4347*h*.
in guava during growth, 3889*c*.
hexokinase affinity for, 8484*b*.
hydrogen-ion-effect on, 9040*g*.
*Lactobacillus bulgaricus* adaptation to, 2669*i*.
from levan hydrolysis, 1331*e*.
manuf. of, 6439*f*.
mixts. with alcs., osmosis of, 7300*g*.
nutritive value for rats and effect of vitamin $B_1$ thereon, 1846*i*.
osazones—see D-*Glucose*.
oxime, Cu complex, rotproofing effectiveness in duck, 5958*b*.
phosphates—see *Fructose phosphates*.
in *Pinus sylvestris* root nutrition, 3494*c*.
plant-tissue growth on, 4349*e*.
purification of solns. of, with ion-exchange resins, P 9506*e*.
reaction (color) with orcinol and $H_2SO_4$, 3795*i*.
reaction with HCN in fumigation of fruits, 2338*b*.
with stearic acid hydrazide, P 2452*i*, P 9497*i*.
with 2,5,6-triamino-4-pyrimidol, 7028*h*, 7489*a*.
in reproductive-gland secretions as indicator of male sex hormone activity, 5843*b*.
in sap of birch, 2678*e*.
in semen, 6718*f*.
in semen, vol. and, 4752*h*.
sirup of, manuf. from Brussels chicory and Jerusalem artichoke, 888*ac*.
tetraacetate, detection of, 66*g*.
in tobacco leaf, effect of position on plant on, 819*b*.
tolerance to sucrose and, 4744*f*.
utilization by chick embryo, 5465*d*.
by *Drosophila*, 322*h*.
by erythrocytes, 8509*f*.
by spermatozoa and seminal vesicles, 2689*h*.
**Fructose, dimethyl-**, 5749*i*.
——, **3,4-dimethyl-**, chromatographic sepn. and detn. in tetra- and trimethylfructoses, 6947*d*.
——, **3,6-dimethyl-**, 5750*i*.
——, **1,3,4,6-tetramethyl-**, 5749*i*, 5750*g*.
chromatographic sepn. and detn. in di- and trimethylfructoses, 6947*d*.
——, **trimethyl-**, 5750*g*.
——, **1,3,4-trimethyl-**, 5749*i*.
chromatographic sepn. and detn. in di- and tetramethylfructoses, 6947*d*.
**Fructose anhydrides**. (See also *Fructosans*.) 5749*a*, 5750*b*.
**Fructose phosphates** or **Fructosephosphoric acids**, calcium salt—see *Valoconin*.
glycolysis by neoplasms, 1857*f*.
phosphate bonds in, equil. values for, 6266*c*.
precipitation with conamandin, effect of pH on, 6268*f*.
**Fructoside, methyl dimethyl-**, dibenzoate, 5749*i*, 5750*f*.
——, **methyl tetramethyl-**, 5750*f*.
——, **methyl trimethyl-**, benzoate, 5749*h*, 5750*f*.
**Fructosone**. See *Glucosone*.
**Fruit**. (See also *Berries;* and the specific kinds of fruit, as *Apples*.)
acids of, Ca-salts of, P 1880*h*.
bacteria inhibition in, P 7606*f*.
bacterial spot of stone, 4345*h*.
beverages from—see *Beverages*.
blanched, detn. of nutritive value and quality of, 9329*e*.
blanched, enzyme effect on, 9329*b*.
brown rot of stone, control of, 9329*c*.
candied, wrapping materials for, 6747*g*.
canned—see *Canned goods; Canning*.
cans (tin-free) for, 7602*i*.
carotenoid pigments of Indian, 5830*g*.
chem. compn. and vitamin C in Czechoslovakian semi-, 3536*f*.
citrus—see *Citrus*.
coatings (antisticking) for, P 7605*e*.
color stabilization of red, P 9294*j*.
conserves—see *Conserves*.
decompn. detection in fruit products and, 9286*f*.
decompn. detection in products from, 7155*e*.
dehydroacetic acid as disinfectant for, P 6758*c*.
discoloration prevention in, P 5882*c*.
dried, deterioration of, 1120*f*, 5128*i*.
detn. of purity of, 7602*g*.
fumigation with MeBr, 8603*e*, 9346*i*.
microbiol. examn. of, 6747*c*.
trace elements in Spanish, 4395*c*.
vitamin C in preservation of, 9275*b*.
drying by freezing, P 4785*c*.
enzymes in Japanese, 7603*b*.
fermentation of, P 7638*e*.
flavoring materials—see *Flavoring materials*.
frozen—see *Freezing; Frozen foods*.
fungicides for—see *Fungicides*.
in fleshy, extn. and analysis of, 4350*b*.
cyanide fumigation effect on
Indian, 3822*i*.
insecticides for—see *Insecticides*.
liqueurs from stone, 7635*d*.
Mikrobin in preservation of, 5130*a*.
minerals in, 5878*d*.
mixt. with cannery wastes and vegetables,

food by fermentation and drying of, P 330e.
nutrition of plants bearing, with urea foliage sprays, 9329f.
nutritive value of products from, 4395c.
oils of—see *Oils*.
parthenocarpy artificial or setting of—see *Parthenocarpy*.
pectic changes in, 9329e.
pectins from—see *Pectins*.
preservation in concd. fruit juices or musts, P 1502g.
preservation of prepns. and pulps of, with $SO_2$, 9286i.
production and storage of, abnormal color and flavor in, 9329b.
quality of, production practices and, 2726a.
respiration of, during development, 8014i.
respiration rate of, app. for detg., 4345f.
ripening of—see *Ripening*.
scald development on, growth substances in reduction of, P 330g.
sirups—see *Sirups*.
sprays for—see *Sprays*.
storage and preservation of, 8572f.
storage of, 5892b.
storage of, diseases of cold, 782f.
storage of, effect of controlled atms. on cold, 4779g.
sulfite-carbonate preservative wash for, P 5882d.
surface moisture removal from, P 6758i.
tropical, storage and transport of, 3535g.
vitamin $B_1$ in Italian, 6753g.
vitamin $B_1$ in Punjab, and effect of cooking thereon, 8565f.
vitamin C in, effect of cans on, 3944i.
vitamin C in Queensland, 3944f
as vitamin C source in Netherlands, 1846e.
vitamin retention during processing and storage of, 9329a.
vitamins in, 5878g.
wastes (fermented), alc. in milk after feeding, 5876i.
water-insol. solid detn. in fruit products and, 8572a.
wax coating for, fungicidal, P 5900e.

**Fruit flies.** (*Entries referring to specific kinds of fruit flies have been put under the common and scientific names.*)
control of, 9314b.

**Fruit juices.** (See also *Apple juice; Beverages; Cider; Grapefruit juice; Grape juice; Lemon juice; Musts; Orange juice; Prune juice.*)
acid removal from, P 4397a, P 4398a.
calcium compd. removal from, P 3972a.
carbon dioxide (solid) utilization in industry of, 8069g.
citric acid, malic acid and tartaric acid in French, 3944e.
citrus—see "juices" under *Citrus*.
clarification of, enzymes in, 261f, 8069h.
clarifying and purifying, P 6334b.
concentration of, P 330i.
and app. therefor, P 331a.
by freezing, 3944f.
*n* and f. p. in relation to, 6752b.
decolorizing agents for, P 5982b.
dehydroacetic acid and its derivs. for disinfection of, P 6758a.
detection of decompn. in, 7155e.
detn. of concn. of, 5880d.
effect on acidity of stomach in peptic ulcers, 8516g.
of Europe (central), 8069f.
frozen, of U.S., 8069g.
fruit preservation with concd., P 1502g.
full-flavored concentrates of, P 3541c.
Great Britain industry of, 5510c.
improving clarity and filterability of, P 4398c.
iron detn. in, 3860e.
manuf. of, 8571g.
manuf. of, pectins and, 8571f.
paint resistance to, testing, 4489f.
preservation of, Na benzoate in, 7155h.
purification of, P 8576f.
purification of, anion-exchange resins for, P 5517i.
reducing sugar detn. in, 7153b.
removal of fatty acids and peel oils from, P 331c.
stabilization with $SO_2$ or $H_2SO_3$, P 4397d.
storage of, in Switzerland, 5510c.
sugar detn. in, 1294d.
sulfur dioxide-free, 338e.
sulfur dioxide removal from, 6329e.
sweetening agents of, extn. of, P 6333h.
Switzerland industry of,
technology of,
vitamin C in, detn. of, 2548c.
effect of salts of heavy metals on autoxidation of, 9286f.
preservation of, 9275b.
as reducing agent, 783g.
volatile flavor recovery from, P 3541b.

**Fruit salt,** compn. and prepn. of, 5533a.

**Fruit setting,** artificial—see *Parthenocarpy*.

**Fruit trees.** (See also *Apples; Peaches;* etc.)
blossoming of, near gas-producing boreholes, 5830a.
chlorosis of, from CaO, 6773f.
fertilizers for—see *Fertilizers*.
fungicides for—see *Fungicides*.
insecticides for—see *Insecticides*.
mineral deficiencies in, 2722g.
nitrogen status of, leaf color and N in relation to, 9319d.
sprays for—see *Sprays*.
weed control in, 9320f.
white springtail control in mulch under, 7185a.

**Frying.** See *Cooking*.

**Fuadin.** See *Fouadin*.

**Fuchsin,** adsorption in presence of salts, 1624i.
basic, as nuclear stain, 263b.
basic, retardation of growth of transplantable carcinoma in mice by, 1856i.
biol. effects of, 1488f.
convulsant response to acid, effect of eserine, prostigmine and mecholyl on, 9260i.
derivs., P 3627a, P 3848b.
spectrum of, in Na silicate soln., 2093g.

**Fuchsone** (*4-benzhydrylidene-2,5-cyclohexadien-1-one*). (For derivs. see also under *2,5-Cyclohexadien-1-one.*)
derivs., 5770h, 5771eh, 5772b, 8683dg, 9451b, P 9470c.
hydroxy derivs., dyes from, 5771eh, 5772b.
prepn. of, and its derivs. and hydrates, 8683g.
spectra and structure of, and its derivs., 9451c.

——, **hydroxy-***, and triacetate, 5772f.

**Fucose,** of blood group A substances, pptn. by anti-A, 2314d.
detn. in blood group substances, 4724a.
in egg jelly coat of various sea urchin species, 4389e.
L-, detn. and reducing power of, 7861c.
growth inhibition of *Eberthella typhosa* by, and its release by mutation, 8005i.
osazone (?), 1430d.

——, **2-desoxy-3-methyl-***, D-, identity of D-diginose and, 1727a.

**Fucoside, methyl 2,4-diacetyl-6-iodo-3-methyl-*,** α-D-, 4636d.

**Fucoxanthin,** in diatoms, 2281d.
in gametes of Fucaceae, 2677f.
from *Navicula* cultures, 3878g.
-protein complex, energy conversion by, 1834g.

**Fucus,** *evanescens,* utilization of fermentation products of, 1145i.
*serratus,* lignins in, 2283a.
*serratus, spiralis* and *vesiculosus,* fertilization of eggs of, 1081h.
*serratus, spiralis* and *vesiculosus,* seasonal variation in compn. of, 8457a.

**Fuel cells** (*containers*). See *Fuels*.

**Fuel cells** (*voltaic*). See *Cells, voltaic*.

**Fuels.** (See also *Ash(es); Briquets, fuel; Burners; Calorific value; Calorimetry; Carbonization; Cetane number; Coal; Coke; Combustion; Firing; Gas, fuel (manufactured); Gasoline; Hydrocarbon oils; Kerosene; Kindling; Kogasin; Lignite; Mazut; Naphtha; Octane number or value; Peat; Petroleum; Sapropel.*)
agglomeration of, P 1170e, P 3994a.
Alberta reserves of, 3989e.
aldehyde solid, P 7668i.
analysis and testing of solid, 3989h, 4827i.
analysis of solid, 2753h.
analysis (spectrometric) of, 3715f.
from asphodel tubers, etc., P 5616i.
atomization of liquid, for combustion, 4443g.
bauxite sludge treatment of solid, P 5928d.
books: 5928b; Les méthodes actuelles de l'industrie des, de synthèse, 1170d; Untersuchungsverfahren für feste, 1551g; Conversion of Petroleum—Production of Motor, 2421d; Diesel, Oils, 2703a; Brennstoffe-Kraftstoffe, 5173i; Für Verbrennungskraftmaschinen, 9419e.
from breeze, dust and waste of coal, P 9419c.
canned, from EtOH and peat, P 6810g.
cells, fitting compn. for, from butadiene-acrylonitrile elastomer and phenolic resins, P 2807c.
cells, interliners for, P 6466e.
cells (voltaic)—see *Cells, voltaic*.
ceramic-industry alternate, 2389a.
coking test for solid, 1947e.
combustibility and ignitability of solid, 5921h.
combustibility of solid, 1939g.
combustion calcns. for, nomograph for, 8751h.
combustion properties of liquid, app. for detn. of, P 8760a.
compn. and combustion tests of fossilized Triassic, 4984g.
consumption in glass-melting furnaces, 6379d.
-control valve of furnaces, 6469e.
cracking by Thermofor process in increasing yield of furnace-oil, 4839b.
decompn. of solid, by heat, P 3598i.
Diesel, 833g, P 6810e.
additives for improving cold starting of, 384f.
aromatic content reduction by $SO_2$ extn., 7674h.
auto-ignition temps. of, 2402d.
chem. compn. and inflammability of, 5569b.
colloidal, 5921c.
from cycloparaffinic hydrocarbons, P 5173i.
2,2-dinitropropane in improving cetane no. and reducing exhaust smoke from, 5930i.
by distn. of Chilean oil distn. residues, 3995f.
evaluation of, 2753e.
by extn. of brown coal tar distillates with HF, 6816e.
ignition quality of, test for, 4399f.
manuf. by Fischer-Tropsch process and hydrogenolysis, P 4834i.
pretreatment for addn. of peroxides or hydroperoxides, P 6810f.
for railroad locomotives, 6805e.
retarding ignition of, 6805d.
from shale oil of Fushun, 2419a.
S content and effect on engine deposits and wear, 6400i.
in tree control on southern upland, 6352i.
from wood tar oil, 6396a.
Diesel and heating oil, from high-pressure distn. of coal, 5570d.
distn. (low-temp.) of solid, P 838h.
distn. (low-temp.) of solid, plant for, 375a.
distn. of, retorts for, 2403c.
economy of, in cement manuf., 4825f.
in derived industries of org. chemistry, 3541g.
in dyeing of wool, 6828f.
efficiency in blast furnace, 4613d.
elec. resistance of combustion mixts. of liquid, 3591i.
elementary compn. of solid, in relation to calorific value, 2753h.
evaluation of, 6389h.
for flame throwers, rheological properties of incendiary gel, 4015a.
future and, 8637f.
gasification of, size effect in, 3596h.
gasification (pressure) of solid, with catalysts, P 6397c.
gasification (underground) of solid, P 1170g.
for gas producers (automotive), 1547gh.
for gas producers, peat charcoal as, 2407e.
gelation of incendiary, 3991f.
gel, from gasoline thickened by soaps, fats in preventing oil sepn. from, P 1960g.
gels (Al soap) for solid, P 2452f.
hydrogenation of—see *Hydrogenation*.
by hydrogenation of coal, 1549i, 1942i, P 6810f.
of coal and CO, 915d, 5921b.
of coal and C oxides, 5570i.
hydrogen detn. in solid, 5921i.
internal-combustion, 1951d, P 4835d.
airplane tanks for, coated or lined with polyamide mixts. with rubberlike polymers, P 6457b.
alc.-contg., with antioxidant and corrosion-inhibiting stabilizers, P 4446f.
alc. manuf. for use as—see *alcohol*.

*internal-combustion*, alc. mixt. with hydrocarbons as, P 6396*g*.
aldehyde and peroxide formation and proknock effects in combustion of isoöctane, 2411*c*.
by alkylation and isomerization of paraffins with HF-$BF_3$ catalyst, P 5583*i*.
by alkylation and isomerization with halide-ether complex catalyst, P 8666*b*.
by alkylation, halogen and HF removal from, P 4006*de*.
by alkylation of $C_4H_{10}$ with butenes and defluorination, P 1175*b*.
by alkylation of 2-methylpropane with butene, $C_2H_6$ elimination in making, P 2422*i*.
by alkylation of 2-methylpropane with butenes with HF catalyst, P 1175*k*, P 5583*g*.
by alkylation of 2-methylpropane with $C_3$-$C_5$ mixed olefins, P 1956*e*.
by alkylation of 2-methylpropane with cyclopropane, P 5583*d*.
by alkylation of 2-methylpropane with $C_2H_4$ in making 100-octane, P 5180*i*.
by alkylation of 2-methylpropane with $C_2H_4$ with HF-$BF_3$ catalyst, P 2422*h*.
by alkylation of paraffins, $AlCl_3$ complex catalyst for making, P 7677*e*.
by alkylation of paraffins with HF complex catalyst, P 389*h*.
by alkylation of paraffins with olefins, P 390*a*, P 3189*f*, P 5174*f*, P 5181*g*, P 7677*e*.
by alkylation with reduced contact time with catalysts, P 7223*b*.
from $NH_4NO_3$, urea and f.-p. depressant, P 1552*a*.
analysis by infrared spectroscopy, 2759*a*.
antiknock agents for, P 1558*d*.
antiknock agents for, from waste liquor from soda washing of petroleum, P 5939*h*.
antiknock agents for, olefins as intermediates for, P 1432*e*.
antiknock agents in, HCHO and $NO_2$ as, 5579*e*.
antiknock, by vapor-phase contact decompn. of naphtha and $C_3$-$C_4$ hydrocarbons, P 3605*d*.
antiknock-limited performance in supercharged CFR engine with aq. coolants, 839*i*.
antiknock no. and French industry of, 8654*h*.
antiknock no. of olefinic, improvement of, P 7677*i*.
with antiknock nos. above 100, classification of, 6813*i*.
antiknock nos., road-octane nos. and requirements of French cars for, 8655*d*.
antiknock properties, ignition and oxidation of vaporized rich-mixt., 7674*d*.
antiknock requirements of engines and base, 8655*b*.
antiknock value of, 3600*f*, 7673*i*, 8656*i*.
antiknock value of, hydrocarbon structure and, 7217*d*.
antiknock value of S-contg. leaded, improvement with esters, P 9431*d*.
antioxidants for, aldehyde-hydroxy aromatic compd.-N compd. condensation products, P 2766*b*.
antioxidants from bacterial action for, P 3193*e*.
aromatic, 2761*c*.
with aromatic amines as antiknock agents, trialkyl amine discoloration inhibitors in, P 4003*d*.
aviation, P 4835*a*.
aviation, from rubber, 5169*i*.
butane use in manuf. of, vapor pressure and, 375*c*.
catalyst for manuf. of, P 1931*d*.
from coal, P 4844*f*.
or constituent therefor, P 6818*g*.
consumption as, mean effective pressure of, 9422*g*.
by conversion of hydrocarbon oils, $NH_4$ ion-activated Mg silicate catalysts for, P 7224*e*.
by conversion of hydrocarbons, P 4448*a*.
corrosion by, 986*d*, 8128*a*.
test on Cu for, and corrosion inhibition by peroxide of cyclopentadiene or its dimer, 9426*c*.
cracked and reformed aviation, P 843*f*.
by cracking, and refining with regenerated powd. cracking catalyst, P 9429*b*.
by cracking of fluid-catalytic-cycle gas oil, 7218*e*.
cycloalkyl nitrites as ignition promoters for, P 4694*f*.
by dehydrogenation-isomerization of paraffins and alkylation of olefins, P 1955*i*.
dehydrogenation of hydrocarbon oils and hydrogenation of unsatd. hydrocarbons to 100-octane, P 5181*c*.
detonation of—see *Detonation*.
Diesel—see "Diesel" above.
distn. app. for, 4001*f*.
by distn. of synthetic hydrocarbons and catalytic treatment in vapor phase, P 2421*g*.
gas as—see *Gas, fuel (manufactured)*.
for gas turbines, 7662*g*.
gum and Pb-pptn. inhibition in leaded aviation, by salicylic acid, its esters and salts, P 4457*g*.
gum inhibitors from alkyl monoamines and fatty acid amides for, P 3193*e*.
heptane and isoöctane as reference fuels in knock testing, 383*f*.
by hydrogenation of CO, P 3174*g*, 3591*d*, P 5573*c*, P 5574*a*.
by hydrogenation of hydrocarbons, P 4843*i*.
hydrogenation of triisobutylene to 109-octane, P 4007*f*.
ignition and oxidation of, 2411*ei*.
injection of water or alc. with gasoline as, 2753*c*.
by isomerization of $C_4$ and $C_5$ paraffins, P 5182*g*.
isomerization of cracked benzene in making high-octane, P 3604*e*.
isononane aviation, P 1957*b*.
for jet propulsion, 4828*g*.
for jets, mixing of, 8123*a*.
knocking of—see *Detonation*.
leaded aviation, stabilized by hydroxy benzoic acid, esters or salts, P 8667*d*.
Mg corrosion by, prevention of, 4622*e*.
$CH_4$ (liquid) as, 2402*f*.
in 1949, 2753*b*.
optimum antiknock value of, 8655*g*.
paraldehyde blends stabilized with org. bases, antioxidants, etc., as, P 8130*bc*.
paraldehyde mixts. as noncorrosive additives for, P 8130*c*.
by polymerization of $C_2H_4$, P 1218*c*.
by polymerization of olefins, P 5939*c*.
polymerization of olefins for processing to, P 1218*f*.
polysulfide sealing compds. for tanks for, P 4508*gh*.
ram-jet performance and, 9411*d*.
refined with aluminate catalysts, P 3191*b*.
safety, butene-isobutene-cut polymerization with $H_2SO_4$ and hydrogenation of polymer for use in, P 7222*c*.
safety, by alkylation at low temps. with $H_2SO_4$-aliphatic catalysts, P 5181*e*.
safety, by alkylation with $H_2SO_4$ catalyst dild. with $C_2H_4$, $Et_2SO_4$ or di-Me ether, P 6404*b*.
safety, by polymerization and hydrogenation of $C_4$ hydrocarbon mixt., P 5174*c*.
safety, from S-free triisobutylene, P 5584*e*.
safety, ignition by secondary injection of ignition fuels, 2420*c*.
safety, Perbunan swelling in, aromatic content and, 2801*g*.
from shale oils of Australia, 3996*d*.
S-$Et_4Pb$ interaction in, effect on octane no. and Pb efficiency, 5579*b*.
Synthol, chromatography of, 1169*e*.
testing rich-mixt. performance and blending with synthetic isoparaffins in making 100-octane, 2415*d*.
$PbEt_4$-contg., history of, 6814*b*.
$PbEt_4$ detn. in, 4604*c*.
tetrahydrofurfuryl alc. for use in, 1719*c*.
turpentine oil for use in, 7663*b*.
vaporization in engines, 2756*k*.
*internal-combustion*, vegetable oils as, 4827*f*.
journal: Z. für Kohle, Gas Treibstoff und Elektrizität, 8120*e*.
liquid, in British economy, 2402*f*.
from coal, lignite, natural gas and oil shale, bibliography on, 9414*f*.
in Fe and steel works, 3591*c*.
metallurgical, use of O with low-grade, 8998*e*.
metering liquid, 8214*f*, 8756*g*.
methane as, 9415*g*.
molasses pyrolysis in prepg. liquid, 9422*e*.
in nonferrous metal industry, 8637*e*.
oil, as activator for coal, P 8651*a*.
antioxidants and surface-active substances for, salts of alkyl phenol sulfides, P 4458*i*.
in black-fly-larva control in Alaskan streams, 6354*c*.
calcn. of combustion vols. for, 2419*e*.
carbureting blue water gas by, 836*e*.
condensation products of hydroxy arylalkyl amines for stabilizing, P 1176*b*.
corrosion and oxidation inhibitors for, P 4008*b*.
emulsions and their breaking, 2419*e*, *f*, 5929*h*.
emulsions of sea water and, breaking with detergents, 3178*g*.
from fat acids, P 4835*a*.
firing with—see *Firing*.
gas from—see "oil gas" under *Gas, fuel (manufactured)*
heat exchange between water and, 5*f*
for oil-gas manuf., 1550*e*.
in open-hearth-furnace practice, 4613*c*, 5713*a*
resinous products from, P 4008*h*.
standards for, 4787*b*.
in the steel industry, and their replacement, 9818, 4193*h*.
supply in Britain, 3755*c*
tar from, in fouling heat exchangers, 8755*h*.
testing compatibility with creosote, 2731*c*
in weed control, 343*d*.
in weed control in guayule seedbed, 5145*d*.
in white-fringed-beetle control, 9317*c*
oxidants for—see *Oxidising agents*.
oxygen detn. in solid, 7661*c*
packaged, industry in 1946, 2127*c*
particles of, effect of sorption swelling on movement of, 1238*g*.
from petroleum-refinery sludge acids, P 3608*a*.
plastic materials and, 3229*i*.
powd., burners for—see *Burners*
powd., firing with—see *Firing*.
pumps for, Pb-plating of bronze bearings for, 4147*h*.
reactivity measurement of solid, 6805*f*
refractory manuf. and, 2392*a*.
review on, 4788*d*, 4789*a*.
for rockets, 833*c*, P 6811*d*, 9449*h*.
by blowing lubricating oil and $KClO_4$, P 8669*c*.
calcn. of impulse with various oxidizer ratios, 7229*g*.
combining chem. and at. energy, 5664*f*.
$H_2O_2$ as, 833*d*.
liquid H and O as, 833*f*.
manuf. of, 4466*i*.
shale clinker as, for shale-oil recovery, 3177*h*.
standards for, 4399*c*, 4786*i*.
statistical methods in technology of, 6389*i*.
stoking app. for—see *Stokers*.
strawboard-manuf. wastes as, 4796*g*.
for sugar factories, 6845*f*.
from sulfite waste liquors, P 1188*b*.
sulfur content of, effect on corrosion of boiler heating surfaces, 6808*e*.
sulfur detn. in solid, 3593*c*, 8117*e*.
supply in Great Britain, 7662*i*.
synthetic, 7209*e*.
synthetic, chemical manuf. from, 8646*f*
synthetic liquid, 2397*c*, 5921*b*.
manuf. from coal, 3989*g*, 6390*h*.
reformed natural gas for making, 3596*f*.
tanks (self-sealing) for liquid, P 7068*g*.
tar, testing of standards for, 1551*b*.
technology in U.S. and Great Britain, 8637*f*.
fly of, from 1750 to 1850, 4827*f*.
[illegible] for—see *Thermostats*.

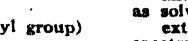
use of solid, soln. of thermal problems in, 8637*g*.
water content of, effect on boiler performance, 5921*d*.
from wood waste, P 6416*e*.
**Fugacity.** (See also *Vapor pressure.*)
of associating gases, 3268*h*.
of benzene, 476*f*.
of detonation products, 407*e*.
diffusion (interstitial) and, 7879*d*.
of gaseous solns., 8241*i*.
of gas mixts., 2057*a*.
of hydrocarbon oils, effect of reduced pressure and temp. on, 8658*c*.
of hydrocarbon vapor and liquid, 8653*i*.
use of, 3541*g*.
**Fulex,** in carnation-disease control, 9338*g*.
**Fuller's earth** (*floridin*). (See also *Gum brin.*)
activation of, 9305*e*.
adsorption by, color reactions in, 6035*e*.
of Australia, 6546*h*.
catalysis by activated floridin and, in aromatization of cracked distillates, 3998*g*.
catalysts, in acetal manuf., P 2222*c*.
in dimerization of *p*,α-dialkylstyrenes, P 1059*c*.
in polymerization of *p*,α-dimethylstyrene, P 5799*d*.
in polymerization of styrene, P 1605*f*.
in thiol removal from hydrocarbon-oil cracked vapors, P 1174*e*.
clays for, 7651*d*.
as DDT diluent, 2728*c*.
fermentation in presence of, P 8094*b*.
improving adsorbent and decolorizing properties of, P 7609*a*.
minerals in, 3580*g*.
nitrogen adsorption by, 2840*b*.
regeneration of, P 7609*b*.
trypsin adsorption by, 3804*d*.
weathered, from Karmöy, Norway, 8320*f*.
**Fulminic acid,** derivs., 6983*b*.
mercury salt—see *Mercury fulminate.*
silver salt—see *Silver fulminate.*
**Fülöppite,** from Nagybánya, Rumania, 3986*i*.
synthesis of, 8936*i*.
**Fulvene** (*5-methylenecyclopentadiene*),



derivs., 3796*c*
elec. moments of, and its derivs., 5246*c*.
electronic structure of, 10*e*.
manuf. of, P 6644*a*.
– – –, **6,6-bis(*p*-chlorophenyl)-,** elec. moment of, 5246*d*.
– – –, **6,6-diethyl-,** elec. moment of, 5246*d*.
– – –, **6,6-dimethyl-,** elec. moment of, 5246*c*.
– – –, **6,6-diphenyl-,** elec. moment of, 5246*d*.
– – –, **6,6-dipropyl-,** 5370*h*.
– – –, **6-isopropyl-6-methyl-,** 5370*g*.
**Fumaraldehyde,** and derivs., 4219*g*.
**Fumaraldehydic acid,** ethyl ester and its 2,4-dinitrophenylhydrazone, 6981*b*.
**Fumaramic acid,** *N*-(**2-cyano-1-ethoxyethylidene**)-(?), ethyl ester, 3360*a*.
**Fumaramide, amino-**(?), fungistatic activity of, 9334*g*.
**Fumaranilic acid,** *p*-[(**4-methyl-2-thiazolyl**)**sulfamyl**]-(?), P 3846*f*.
**Fumaranilide,** α**-chloro-,** fungistatic activity of, 9334*h*.
– – –, *o,o'*-**diamino-,** P 4303*c*.
**Fumaria,** growth cycle metabolism of, in relation to flowering, 9175*h*.
**Fumaric acid,** alkyd resin from, polymerization with styrene, etc., P 5638*gi*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
as antioxidant in fats, 3633*f*.
bis(2-methylallyl) ester, polymer from chloroprene and, P 4891*b*.
as carbon dioxide replacement in heterotropic metabolism, 8435*b*.
catalase activation by, 4309*b*.
chromatographic sepn. from org. acids, 6947*a*.
complexes with CuCl, 1677*i*, 8940*b*.
derivs., polymerization of, P 4896*a*.
detn. in tissue, 9127*f*.
diallyl ester, polymers with allyl alc. and styrene, P 905*e*.
diallyl ester, polymers with allyl alc. and styrene, removal of allyl alc. from, P 3660*h*.
diethyl ester, heat of polymerization with vinyl acetate, 6355*b*.
*diethyl ester*, polymers of, adhesion to cellulose, 8133*e*.
polymers with vinyl chloride, emulsions of, P 5635*e*.
polymers with vinyl chloride, $H_2O$ permeability of laminates with polyvinyl alc., 6862*d*.
polymer with ethylene and vinyl acetate, P 9531*h*.
spongy polymers with vinyl chloride, P 3239*g*.
diisopropyl ester, polymerization with malonic acid derivs., P 4897*d*.
dimethyl ester, polymers with $C_2H_4$, P 6001*a*.
dimethyl ester, reaction with $BrCCl_3$, P 6226*d*.
effect on growth of plant tissue, 4349*c*.
on heart metabolism, 9267*i*.
on indoleacetic acid action on growth of *Avena* coleoptile, 5831*c*.
on O uptake by larva cells of *Gastrophilus intestinalis*, 1872*c*.
on urea formation by liver, 6250*h*.
esters, in cellulose ester stabilization, P 7685*e*.
fungistatic activity of, 9334*f*.
as heat stabilizers for polyvinyl chloride compns., P 2037*i*.
lubricants from polymerization of, P 2764*i*.
phys. consts. of, 2591*f*
polymers with *N*-(2-acetamidoethyl)-acrylamide, P 9531*e*.
polymers with fluoromethacrylate esters, P 6465*g*.
and their polymers with isopropenyl acetate, P 903*g*.
polymers with vinyl chloride, coatings for black or Sn plate from, P 9535*e*.
polymers with vinyl chloride, stabilization of, P 9530*i*.
esters, polymers with vinylidene compds. and mixed ester drying oils, P 1995*f*.
ethyl and Me esters, azeotropes of, 5247*b*
and ethyl and Me esters, fungistatic activity of, 9334*b*.
formation of, in dehydration of maleic acid, P 2226*d*.
by *Rhizopus nigricans*, 272*f*.
by *Rhizopus nigricans*, effect of $CO_2$ on, 9146*e*.
in glutathione formation by liver from glycine and glutamic acid, 8503*d*.
hydrogenation with D, 4727*a*.
ionization and resonance of, 7790*c*.
manuf. of, P 1436*d*, P 1798*d*.
manuf. of, by fermentation, P 6362*e*.
metabolism by *Colpidium campylum*, 8560*e*.
metabolism by liver and kidney autolyzates, 2260*g*.
oxidation by kidney, effect of fluoroacetate on, 7985*i*.
oxidation in liver, effect of Cu and nicotinamide on, 3894*e*.
polyester, as adhesive for compd. optical elements, P 1221*f*.
reaction of, and its esters with $Na_2SO_3$ and detn. in presence of acids and aldehydes, 3316*i*.
resins from polyactylic acid, drying oils and, P 2813*f*.
salt with piperazine, 235*e*.
sodium salt, activity and osmotic coeffs. of, 22*d*.
sodium salt, effect on methemoglobin reduction in erythrocyte, 3048*g*.
soly. of, 8803*g*.
in succinate formation in plants, 8451*h*.
utilization by erythrocytes, 8509*e*.
utilization by heart, 9210*g*.
**Fumaric acid, bis(β-hydroxystyryl)-,** di-γ-lactone, 7192*h*.
– – –, **bromo-,** dimethyl ester, 8824*g*.
and esters, fungistatic activity of, 9334*f*.
———, **chloro-,** esters, fungistatic activity of, 9334*g*.
———, **dibromo-,** diethyl ester, fungistatic activity of, 9334*g*.
———, **diphenacyl-,** 7192*h*.
———, **(hydroxymethyl)methoxy-**(?),γ-lactone ethyl ester, 6980*i*.
———, **methyl-.** See *Mesaconic acid.*
———, **thiocyano-,** esters, fungistatic activity of, 9334*g*.
**Fumarine.** See *Protopine.*
**Fumaroles,** of Iwo Jima, 75*g*.
thermal changes of Etna, from lava eruption of 1947, 7385*e*.
**Fumaronitrile,** manuf. of, P 7498*h*.
polymers with styrene, P 4516*f*.
**Fumaryl chloride,** reaction with *o*-phenylenediamine, P 4303*c*.
**Fume hoods.** See *Hoods.*
**Fumes.** (See also *Clouds; Flue gases; Fog; Mists; Smoke.*)
air pollution from industrial, public health and, 7614*c*.
colorimeter for, P 6012*b*.
control of, in varnish manuf., 1993*c*.
effect on green plants and soil, 9313*cd*.
hoods for—see *Hoods.*
in lead metallurgy, scrubbing app. for removal of, 4405*g*.
metal-cutting, 9017*e*.
metallurgical, Pb and Zn recovery from, 3753*g*.
from oil and varnish, disposal by combustion, 1617*c*.
respirators for—see *Respirators.*
welding—see *Welding.*
**Fumigants.** (See also *Disinfectants; Fungicides; Insecticides; Parasiticides.*)
alkyl thiocyanates as, 2729*d*.
for cheese mite, bis(2-chloroethyl) ether as, 7186*h*.
detn. of, 3962*g*.
from dibromoethane and petroleum naphtha, P 6357*b*.
1,2-dichloropropene and 2,2-dichloropropane as, 5898*e*.
effect on food, 2338*a*.
for fire ants, 1897*f*.
for grain, 9336*a*.
for grain, detn. and recovery of methyl allyl chloride, 2123*b*.
halo nitro olefins, P 6646*i*.
for moths—see *Moths.*
pyrethrin dry-distn. product as, 812*d*.
for root-knot nematode on gardenias, ethylene chlorobromide as, 1139*e*.
for San José scale, 1144*g*.
for ships and warehouses, 9346*i*.
soil, chlorinated paraffin wax amines, P 349*h*.
chloropicrin as, 3960*f*.
for cotton nematodes and wilt, Dowfume W-10 as, 3134*f*.
$C_2H_4Br_2$ as, P 349*e*.
for nematodes, 9313*f*, 9329*h*.
tetrachloroethyl ethers of phenols, P 7633*a*.
toxicity to honeybees, detn. of, 9349*h*.
**Fumigation.** (See also *Disinfection.*)
chloropicrin, of corn and peanuts, effect on germination, 1900*g*.
of citrus, nylon tents for, 1524*h*.
for durra stem borer with MeBr, 2728*a*.
of fruit (dried) with MeBr, 9346*i*.
of lemons for post-harvest decay, 3133*i*.
methyl bromide, for carpet beetle, flour beetle and pink bollworm, 1900*f*.
mushroom-disease control by chloropicrin, 7180*d*.
of onion seeds, chamber for, 3139*i*.
of potato storage bins with S, 6329*g*.
for rice weevil with $CS_2$, 8603*e*.
of ships and warehouses, 8603*e*.
of soils—see *Soils.*
of tamarind seed for *Lasioderma serricorne* and *Colandra linearis*, 4018*g*.
tests on, 6351*e*.
**Fumitories.** See *Fumaria.*
**Funaria hygrometrica,** calcium oxalate in, 280*f*.
naphthalene acetic acid effect on germination in growth of leaf stalk of, 3493*f*.
**Functional group absorption coefficient,** the term, 1687*g*.
**Functional groups,** active to Grignard reagent, app. for detn. of, 1226*h*.
analytical chemistry and, 8947*g*.
characterization of, in steroids, 3018*i*.
detn. of, 1280*f*.
polarity of, 4059*e*.
reaction of, in amino acids with oleoyl chloride, 5368*g*.
**Functionality,** detn. of, in methylsilicone systems, 438*f*.
the term, 4048*f*.
**Fundulus heteroclitus,** effect of DDT on development of larvae of, 5507*a*.
effect of growth hormone on, 8563*f*.
**Fungi.** (See also *Aspergillus; Basidiomycetes; Botrytis; Dermatophytes; Lichens; Microörganisms; Mildew; Molds (II); Mushrooms; Neurospora; Oidium; Ophiobolus; Rhizopus; Smut; Verticillium.*)
acid-producing, detection and occurrence of, 7077*f*.
action on trees, indoleacetic acid and, 9177*b*.
amylase from, effect of pH on, 8414*e*.
antibiotics from, 275*f*, 8004*d*.

in apples, N content and, 9176*b*.
books: Mycotic Infections of Man, 1483*b*; Biology of Pathogenic, 4727*g*; Technische Mykologie, Hefen und Schimmelpilze, 5449*f*; Chem. Activities of, 5820*d*; Mycoses and Practical Mycology, 6701*i*; Elements of Medical Mycology, 8008*g*.
cellulose-decompg., effect of antibiotics in sawdust on, 9158*i*.
cellulose fiber-decompg. (ref. should be vol. 19), 9456*f*.
cellulose-splitting, of Palestine, 8444*e*.
chemistry of, 7459*h*.
control of—see *Anticryptogams; Fungicides*.
copper leaching rate from antifouling compns. to prevent settlement of, 3632*a*.
decompn. products of, prepn. by fermentation, P 816*a*.
2,4-D effect on, 3133*c*.
detn. in sugar, substrate for, 6446*c*.
diseases of seedlings and transplants from, 9176*g*.
exts. from, in fruit-juice clarification, 8069*i*.
fiber-deteriorating, 5953*g*.
germination of conidia of, effect of DDT, hexachlorocyclohexane, α-chlorotoluene and α,α-dichlorotoluene on, 8089*g*.
griseofulvin effect on, 3066*e*.
growth in acid media and concd. Cu sulfate, 720*g*.
growth substances and, 6704*h*.
of *Hevea*, 5891*i*.
infections by, classes of, and substances for their treatment, 9386*i*.
inhibition by humulone and lupulone, 9361*f*.
on leather, growing of, 9510*e*.
lipase from, P 8417*g*.
with lytic action against *Mycobacterium tuberculosis*, 5085*a*.
mutations in, from methylxanthines, 3881*e*.
oxygen action on, 5076*i*.
in paper pulp, 7227*h*.
pectin metabolism by, 276*g*.
pyrocatecholases of litter-decomposing and parasitic, 3886*a*.
pyrophosphate accumulation in, 2259*i*.
radioactive isotope effect on, 273*f*.
resistance of paper and paperboard to, measurement of, 1187*b*.
rubidium in, 4343*c*, 9166*a*.
sensitivity to thiourea and thiouracil, 4337*c*.
sexual reproduction of, $H_2O$-sol. vitamins and, 9313*g*.
snake venom effect on, 1455*g*.
in soils, effect of fertilizers on, 6350*c*.
effect of insecticides on, 1897*a*.
season and, 1512*i*.
straw decompn. by, 8001*a*.
sporulation of, *in vitro*, 9314*d*.
steeping agent from, 1571*h*.
streptomycin action on, 5079*d*.
sulfate metabolism by, 2670*i*.
textile proofing against, P 418*a*.
thiourea effect on, effect of protein fractions of blood, amino acids and thiol compds. on, 9152*c*.
tolerating low pH, 7548*b*.
trace elements and, 4339*b*, 9161*e*.
tropical deterioration of coatings and, 873*c*.
vitamin effect on pathogenic, 9147*b*.
wood, control of—see "preservation of" under *Wood*.
wood decay by, effect of submersion in water on, 1565*i*.
wool-rayon and -Tiolan blend damage by, 413*d*.
yeast-like, immersion in solid culture media, 5827*b*.
**Fungicides or Fungistats.** (See also *Anticryptogams; Disinfectants; Fumigants; Lime-sulfur; Molds (II); Parasiticides; Pests; Sprays.*) 5540*c*.
ylenic and ethylenic compds. as,
actidione as, 804*f*.
from actinomycetes, activation of, 9147*i*.
action of,
alc.-sol., 4425*b*, 8615*f*.
alkoxychlorobutene, P 3968*f*.
alkylidene-2-naphthalenesulfonic acid salts, P 5047*d*.
*N*-(alkylmercury) sulfonamides, P 1805*d*.
for *Alternaria* blight of petunias, 2725*e*.
from aluminum hydroxide and xanthone, P 852*e*.
aluminum sulfate as, 9341*e*.
amides of α,β-unsatd. acids, P 5413*e*, P 7634*b*, P 7954*f*.
amine compds. with phenol derivs. as, P 4298*e*.
amine salts, P 6357*g*.
*p*-aminobenzoic acid and related compds. as, 8443*g*.
*N*-(2-aminoethyl)formamide derivs. for manuf. of, P 3028*g*.
6-amino-3-picoline for prepn. of, P 7051*a*.
aminoplasts modified with nitro compds., P 4894*f*.
for anthracnose on dwarf beans, 7180*e*.
for anthracnose on tomatoes, 2356*e*, 3960*e*.
antimycin as, 7180*g*.
apomorphine, P 7198*a*.
for apple mildew and scab, mercurated Pb arsenate as, 2356*g*.
for apples, 804*c*, 2362*e*.
for apple scab, 4413*e*, 9347*b*.
for apple scab, effect on oystershell-scale populations, 7630*e*.
aromatic compns. as, chem. constitution and, 4803*g*.
from aromatic unsatd. carbonyl compds., P 4420*g*.
β-aroylacrylic acids, 607*g*.
from arylidene-alicyclic ketones, P 4420*i*.
for azalea petal blight, 802*g*, 1891*i*.
from *Bacillus subtilis*, 9141*e*.
for beech-bark disease and beech scale, 5895*b*.
bis(2-hydroxy-3-nitro-5-chlorophenyl) sulfide, P 1901*e*.
bis(tetrachloropropoxy)methane and tetrachloropropanol, P 3835*i*.
for blight of wax beans, 9273*e*.
books: Copper Compds. in Agriculture and Industrial Microbiology, 1146*b*; Chemistry of, 4804*e*.
from boric acid, DDT, paraformaldehyde, etc., P 5529*g*.
bromoacetamides as, 5081*g*.
bromo thiazoles, P 3042*c*.
for brown rot on lemons, 3553*h*.
for bulbs, 9338*a*.
2-butoxyethyl fluoroacetate, P 3140*i*.
butyl gallate as, 2253*g*.
for cabbage clubroot, $HgCl_2$ and trichlorodinitrobenzene as, 801*h*.
from calcium carbonate and $CuSO_4$, 1138*h*.
for cantaloupe decay, 3133*h*.
for canvas coverings on life-floats, 5143*i*.
castor oil and peanut oil distillates as, 8436*e*.
for cellulosic materials, P 1146*d*, P 7632*f*.
for *Cercospora beticola*, 3134*b*.
chloralimine-contg., P 5154*b*.
chlorinated paraffin wax amines, P 349*h*.
from chlorinated trimethylacetonitrile and paraformaldehyde, P 1525*d*.
chloro olefin ethers, P 4419*d*.
chlorophenyl camphorates, P 1901*i*.
chloropicrin as, 3960*h*.
for citrus canker, 5143*f*.
for citrus decay, P 4419*g*.
for citrus in storage, 2,4-D and 2,4,5-T as, 1517*b*.
colloidal Cu and S as, 803*h*.
from conifer-heartwood exts., 7679*e*.
copper, P 3140*g*.
from copper-Al salts and fatty acids or protein, P 1901*g*, P 3558*e*.
copper, oil and S as, 8597*b*.
from copper or Hg salt and peat ext., P 6778*g*.
copper 8-quinolinolate as, in coatings, 1993*d*.
from copper salts and thioureas, P 5529*e*.
from copper sulfate and molasses or sugar, P 5899*e*.
copper, use on vegetables, 4411*i*.
copper-Zn-soap, P 5151*g*.
for cork gaskets, 4803*i*.
for cotton fabric, 8085*f*.
for cottonseed, phenol esters as, 3133*g*.
for cranberry-fruit rot, 804*d*.
cresolic, melamine lacquers contg., P 6434*b*.
for cucumbers, lilies and sweet potatoes, 6775*d*.
for cucurbit downy mildew, potato and tomato late blight and tobacco blue mold, 2725*d*.
cuprammoniacal petroleum mahogany sulfonates, P 2424*i*.
cuprioxychloride, P 9355*e*.
cycloalkyl nitrites, P 4694*f*.
for dates, 4417*g*.
detn. of, 5083*h*.
detn. of, in varnishes and wood sealers, 9331*e*.
α,α-dibromoacetamides, 6975*g*.
5,5′-dibromosalicil, 5540*f*.
α,α-dichloroacetamide derivs., 1719*i*.
2,β-dichlorosuccinic acid dialkyl esters, P 8606*c*.
1,4-dicyano-2-butanesulfonate salts, P 3840*c*.
3,5-dihalosalicylamide derivs., P 7513*d*.
from dithiocarbamates, CaO and Zn salts, P 4418*g*.
dithiocarbamates of β-hydroxy acids and their derivs., P 7506*g*.
dithiocarbamic acid derivs. as, chem. constitution and, 3883*e*.
dithiocarbamic acid salts, P 5224*e*.
for downy mildew on Lima beans, 3959*h*.
dusts, detn. of particle-size distribution of, 2357*c*.
dust, with uniform particle size, 2357*a*.
effect on DDT in control of aphids on celery, 346*d*.
on DDT toxicity, 2728*e*.
on solids content of cantaloupes, 1515*i*.
for egg mold rot, 8597*d*.
emulsifiable oils for, P 2733*b*.
for ergot, 3959*g*.
from esters of ether-dicarboxylic acids, etc., P 5152*e*.
esters of unsatd. tricarboxylic acids, P 7634*d*.
expansin as, 8003*i*.
expt. station reports on, 2725*c*.
fats and oils as, 4413*cd*.
fluorohydracrylic acid salts as, P 2224*c*.
for food products from complex acetates, P 7606*f*.
for gladiolus, 3961*df*.
glycosides of 5-styrylresorcinol and its mono-Me ether, 5017*g*.
grape court-noué from Cu, 803*b*.
for grape mildew, 8596*i*.
for grape mildew, Na isopropylxanthate use in, P 4807*a*.
for grape root rot in soln. culture, Fermate as, 9351*b*.
for grapes, Al compds. as, 8596*h*.
for grease spot on passion vine, 7179*i*.
for halo-blight of beans, 8595*i*.
halophenyl acetals, P 3968*c*.
for hard fibers, Cu compds. and pentachlorophenol and its Na salt as, 6831*f*, 7693*b*.
for *Hevea*, 5891*i*.
hexylresorcinol as, 1827*a*.
hop-resin constituents as, 1525*f*.
hydroxyaryl amines as, P 1062*a*.
*p*-hydroxybenzoic acid esters as, 7193*d*.
imidodicarboxylic acid esters, 4228*g*.
impregnants, 5801*i*.
1-(4-isopropylbenzyl)piperazine as, P 3558*f*.
kojic acid heavy metal complexes, P 4419*a*.
from lactic acid and phenyl Hg salt, P 9355*g*.
for leather in tropical areas, 7734*b*.
for leather, *p*-nitrophenol-pentachlorophenol, 7733*i*.
for leather, paint and textiles, 2446*e*.
for lemon post-harvest decay, 3134*b*.
for lemons in storage, growth regulators as, 1516*h*.
lime-S as, 8085*a*.
manuf. of, pH control and measurement in, 1881*g*.
in medicine and pharmacy, 9386*i*.
for melanose on grapefruit, 3553*g*.
mercury compd., P 9355*h*.
metallic alkyl bis(dithiocarbamates) as, 9335*c*.
metallo derg., P 363*i*, P 690*ac*, P 7953*d*.
2,2′-methylenebis(4-chlorophenol) as, glucose effect on, 1515*f*.
2-methylmercapto-1,4-naphthoquinone, 4248*f*.
for mildew and mold, 9295*g*.
for mildew on leather, 6853*b*.
for mildew on leather and textiles, 9349*d*.
mixts. with alkyd resin and cellulose derivs., coating textiles with, P 3208*h*.
mixts. with hormones and insecticides, effect on tomatoes, 9337*e*.
for mummy berry on cultivated blueberries, 5143*g*.
nation-wide report on, 7176*h*.
New Jersey expt. station reports on, 9313*b*.
New York expt. station reports on, 9339*cf*.
nicotine double salts, P 8605*b*.
nicotine-heavy-metal silicates, P 7634*b*.
from nicotine sulfate and polyethylene polysulfide, P 5530*b*.

nicotinium salt compns., P 5151*h*.
nitrofuran derivs. as, 2669*d*.
nitrophenolic, detn. in felt, 1194*b*.
octachlorobiphenylquinone, P 814*b*.
Oklahoma expt. station reports on, 9330*d*.
for orange diplodia stem-end rot and molds, $NCl_3$ as, 9339*a*.
for orchard fruits, potatoes and turf, 6775*e*.
org. compds. as, 6351*e*.
org. thiomercury compds., P 6648*b*.
for paper and textiles, P 856*g*.
for paper, pentachlorophenol as, 8678*g*.
for peaches, lime-S as, 1515*h*.
for pear sooty-blotch disease, 9348*b*.
for pecan scab, 1139*a*.
in pectinate films for foods, 6747*g*.
phenolic invert soaps as, 7923*g*.
phenyl thionothiocarbonate salts, P 8604*h*.
from plants, 3885*b*.
polarography of, 5896*b*, 8602*a*.
for potatoes, Cu and Zn chromates as, 801*e*.
for powdery mildew of oriental magnolias, 7179*g*.
for powdery mildew on oranges, 2356*i*.
for Pythium root rot on aroids and Easter lilies, 3133*e*.
quaternary ammonium phenoxides as, P 5801*a*.
quaternary compds. as, in carbonated beverages, 4783*i*.
from 8-quinolinol halogen deriv., P 1902*a*.
quinone-resorcinol polymers, P 6452*e*.
reviews on, 804*g*, 1891*a*
rosin amine and acetate as, 9378*i*.
for rubber-HCl food wrappers, P 3227*e*.
salts of halogenated-polyphenol sulfides, P 2739*h*, P 6357*d*.
for *Sclerotinia* on apricots, 7179*h*.
on beans, 2355*g*.
on cabbage, 7179*h*.
silicon compds., P 8211*f*
for soil-cement mixts., Cu compds. as, P 5568*g*.
sulfones (monochlorocyclic), P 5185*g*.
sulfur as, particle size and soly. in relation to, 9333*h*.
sulfur as, reactivity and, 5143*e*.
surface tension in relation to action of, 5823*h*.
tar-oil components as, 4417*h*.
testing of, 3140*d*, 6351*d*, 7176*g*, 8095*f*, 9327*c*.
testing of, spiral plots for, 5891*h*
1*a*,5,8,8*a*-tetrahydro-1,4-naphthalenediones and 5,8-dihydro-1,4-naphthalenediols, P 7632*d*.
tetrahydrothiazoles, P 9356*f*.
tetrahydrothiophene-3-ol 1,1-dioxide esters, P 1441*e*.
for textiles, P 5528*g*.
Cu naphthenate-G-4 mixts. as, P 5200*f*.
Cu 8-quinolinolate as, 4018*h*.
phenyl mercurials as, 5523*f*.
for textiles and related materials, 413*i*.
ω-thiocyanoalkyl ester intermediates for, P 5153*c*.
thiones, P 350*a*.
thiourea and thiouracil as, 4337*c*.
thiourea as, 3880*b*, 7077*e*.
α-, β- and γ-thujaplicin as, 3554*e*.
for tobacco blue mold, 4412*h*.
tomatin as, 2280*e*.
for tomatoes, 4413*a*, 9338*i*.
for tomato late blight, 4412*i*.
for *Tilletia* on wheat, 3553*e*, 8085*e*.
toxicity to bees, 344*h*.
from 2,4,5-trichlorophenol, effect on cattle, 8071*c*.
2,4,5-trichlorophenyl esters, P 3459*f*.
trichothecin as, 4328*h*, 6277*h*.
for tropical use on army equipment, 873*d*.
wax coatings contg., for fruits and vegetables, P 5900*e*.
for wood—see *Wood*.
wrapping paper impregnated with, for citrus fruit 5591*d*.
zinc acetate (basic)-contg., P 1525*b*.
zinc caprylate-contg., P 7647*c*.
**Funnels**, dropping, without stopcock, 4053*g*.
insert for filter, P 4057*a*.
for liquids contg. noxious gases, P 4907*c*.
for low-temp. filtration, 3665*h*.
separatory, for microanalytical work, 8213*g*.
support for filtering and separatory, 1*e*.
**Furacin**. See "semicarbasone" under *2-Furaldehyde, 5-nitro-*.
**Fural**. See *2-Furaldehyde*.
**2-Furaldehyde** (*fural, 2-furancarboxaldehyde, furfural, furole*), acylhydrazones†, 6972*bei*, 6973*bfh*.
adsorption by lignin, 5254*i*.
amide polymer (contg. hydroxyl group) from, P 6866*h*.
in anthracene purification, P 2641*i*.
in apricots, effect on discoloration, 1120*f*.
bactericidal action of, 5446*e*.
1,3-butadiene manuf. from, P 5048*b*.
cathode ray (supervoltage) effect on, 5878*g*.
complex with $CdCl_2$, 7000*h*.
complex with Hg, anticryptogamic Granovit, 8595*h*.
compd. (addn.) with morpholine, 7030*b*.
compns. with ethylene glycol and PhOH-cresolformaldehyde condensation products, P 8740*b*.
corrosiveness and polymerization of, in hydrocarbon treatment, inhibition by mercaptobenzothiazole, P 9430*i*.
decompn., polymerization and systems with salts and $H_2O$, 6900*d*.
and derivs., in deterioration of dried fruits, 1121*b*.
derivs., spectra of, 1654*h*.
detn. of, 1688*b*, 7377*f*
in cellulosic material, 1975*g*.
in saccharification of agricultural residues, 6412*b*.
2,4-dinitrophenylhydrazone, detection of, 1121*a*.
dismutation by yeast, 4726*a*.
effect on heart, 1110*d*, 7138*h*
in ethylene chlorohydrin recovery from aq. solns , P 2633*b*.
formation from amino acids and sugars, 4501*i*.
furan manuf. from, P 5047*g*.
hydrazones and their derivs., 6591*h*.
hydrocarbon extractive distn. with, foam prevention in, P 914*b*.
hydrogenation of, 1718*i*, 1719*ac*, P 2219*a*, P 4301*i*, P 4700*f*, P 7049*a*.
on Pt, kinetics of 5657*d*
to sylvan in synthetic-rubber manuf., P 2805*b*.
in vapor phase, 7474*b*.
identification in dried fruit as 2,4-dinitrophenylhydrazone, 1120*h*.
as indicator in analysis of acetone, methanol and methyl acetate binary mixts , 6946*c*.
manuf. and uses of, 8669*g*.
manuf. of, P 3464*g*
from corncobs, oat hulls, wheat bran and wheat straw, 2171*c*.
from paper pulp-manuf. liquors, 4848*a*.
from plants or wood, P 3040*f*.
from sulfite liquor, P 4424*b*, P 4854*i*.
from wood waste, P 3618*a*.
octane value of, 3998*b*.
oxidation of, 3792*i*.
catalysts for, P 4700*h*.
electrolytic, 1271*e*.
phenylhydrazone, as polymerization stopping agent, 8727*i*.
phenylhydrazone, *p*-bromophenylhydrazone and α-naphthylhydrazone as softeners for Buna S, 2014*f*.
in pine-stump processing, fire-extinguishing system for plants using, 8681*h*.
plastic materials from, 6861*i*.
polymeric residue of high-boiling constituents in used, detn. of, 4184*b*.
polymerization with butadiene, inhibition of, P 7969*i*.
polymer of, with butadiene, formed in extractive distn. in sepg. butene and butadiene, 1597*f*.
prepn. of, 629*b*.
prepn. of, from bagasse, 628*h*.
Raman spectra of, 8888*ai*.
raw materials from, for prepn. of polyurethan resins, P 4511*g*.
reaction product with formamide and polyvinyl alc., P 6864*e*.
reaction with ketene, P 5037*g*, P 5415*a*.
with ketones, P 3234*c*.
with 2,4-thiazolidinedione and with pseudothiohydantoin, 3820*b*.
recovery from corn-starch manuf. and use, 5218*h*.
reduction of, P 3465*f*.
reduction of, to furfuryl alc., P 1065*a*.
removal from tetrahydrofurfuryl alc., P 1526*f*.
resins—see *Phenol condensation products; Resinous products; Urea, thio.*
soly. in Na xylenesulfonate solns., 1242*e*.
soly. of $C_{31}$ aromatic hydrocarbons and of lubricating oils in, aniline points and, 3602*g*.
as solvent in soybean-oil countercurrent extn., 4496*c*.
spectrum of, 2865*a*.
*p*-sulfamylphenylhydrazone†, 601*c*.
sulfate dye from nitrosophenol and, P 1988*e*.
system: butane–$H_2O$–, 475*g*.
toxicology of, 5514*f*.
and its use in nylon prepn., 9457*i*.
in wood-saccharification liquor, 2425*h*.
**2-Furaldehyde, (hydroxymethyl)-**, in cellulosic material and its detn., 1975*h*, 1976*eg*.
derivs., x-ray diffraction data for, 3795*b*.
detn. in wine, 3559*i*.
formation from sugars, 7730*i*.
growth and tumor inhibition by, in relation to substance from wheat middlings, 3479*d*.
hydrogenation of, P 4301*i*.
——, **5-(hydroxymethyl)-**, anthrone reaction with, 66*g*.
cathode ray (supervoltage) effect on, 5878*f*.
and derivs., formation in discoloration of apricots, 1120*h*.
2,4-dinitrophenylhydrazone, detection of, 1121*a*.
——, **5-methyl-**, identification in dried fruit as 2,4-dinitrophenylhydrazone, 1120*h*.
——, **5-nitro-**, derivs., in dental caries inhibition, 6735*g*.
2-hydroxyethylsemicarbazone, diacetate†, semicarbazone and semioxamazone, effect on viruses of psittacosis-lymphogranuloma group, 9249*h*.
2-hydroxyethylsemicarbazone or methylsemicarbazone, effect on acid production in saliva, 5497*b*.
oxime and hydrazone with hydrazide of (carboxymethyl)trimethylammonium chloride, fungistatic action of, 2669*e*.
semicarbazone, antibacterial action of, 9147*d*.
cardiotoxic effects of, 1110*d*.
in coccidiosis treatment, 5869*c*.
effect in appendicitis, 5869*i*.
effect on bacterial metabolism, 8000*i*.
effect on fibrosarcoma growth, 2322*b*.
effect on heart, 7138*h*.
in peritonitis control, 7143*a*.
reviews on, 315*g*, 5533*c*.
tuberculostatic effect of, 5445*a*.
——, **tetrahydro-**, and derivs., 9060*i*.
methacrylate, polymerization with butadiene, P 9519*d*.
**2-Furaldehyde, 5-nitro-**, derivs., 7015*b*.
**Furamide**, derivs., P 4301*d*.
**2-Furamide**, *N*-**5-acenaphthenyl-**, 4665*c*.
——, **5-*tert*-butyl-*N*-(*p*-nitrophenylsulfonyl)-**, P 7962*c*.
——, **5-*tert*-butyl-*N*-sulfanilyl-**, P 7962*d*.
——, *N*-**1(and 2)-naphthyl-**, 4665*c*.
——, *N*, *N'*-**2,4-tolylenebis-**, 4665*d*.
**Furan** (*furfuran*),




acylation of, 214*b*, 6203*i*.
acylation of, and its derivs., P 3464*i*, P 3465*ad*.
2-acyl derivs., 8367*f*.
alkylation of, with olefins with anhyd. HF catalysts, P 1174*g*.
and alkyl derivs., distn. (azeotropic) with, in drying org. compds., P 3835*i*.
2-anthryl derivs., 2198*h*.
chlorination of, P 3041*c*.
complex with $Ni(CN)_2.NH_3$, 5753*f*.
compressibility and ultrasonic velocity in, 4532*b*.
condensation with rosin with $BF_3$ catalyst and esterification of condensate to varnish resin, P 9486*f*.
derivs., P 1065*b*, 2987*g*, 4253*g*, 5022*f*, 7929*h*.
2-alkoxy derivs. of 1,4-butanediol and 2-butene-1,4-diol for, P 5414*d*.
bacteriostatic action of, 720*a*.
as base-exchange compds., P 2344*e*.
fungistatic activity of, 9334*b*.
manuf. of, P 5805*c*.
octane values of, butadiene bond and sensitivity to $PbEt_4$ in relation to, 3997*i*.
prepn. of, 1391*e*.
resinous products from, P 1605*c*, 8197*a*.
as solvents, 3118*f*.
and derivs., hydrogenation on Pt, kinetics of, 5657*d*.

and derivs., manuf. and hydrogenation of, P 4301*i*.
*p*-dioxin and, 3827*e*.
elec. moment and polarization of, 4913*d*.
formation of, from 2-alkoxy-3-halotetrahydrofurans, 5774*g*.
free energy of, 477*h*.
manuf. of, from 2-furaldehyde, P 5047*g*.
mol. diagrams of mesomerism and reactivity of, 5731*g*.
nitro derivs., in dental-caries inhibition, 6735*g*.
nitro derivs., pharmacology and clinical uses of, 315*g*.
oscillations of nucleus of, in 2-furaldehyde, Raman spectrum and, 8888*i*.
pyrimidyl derivs., 7929*i*.
reaction of, CO and H, P 4685*f*.
reaction with alcs. in presence of Br or Cl, P 7970*b*.
ring, effect on dehydration of polyhydric alcs., 4664*e*, 5391*i*.
lyoparachor of, 2834*e*.
substitution in, 5020*f*.
stabilization of, P 5805*b*
sulfanilamide derivs., therapeutic activity of, 3097*e*.
sulfonation of, 214*d*.
sulfonation of homologs of, 7015*d*.
**Furan, acetyl-.** See *Ketone, furyl methyl.*
——, **3-allyltetrahydro-**, 3818*e*.
——, **2-(*p*-aminostyryl)-†**, 3428*c*.
——, **2,2'-[azoxybis(*p*-phenylenevinylene)]di-†**, 3428*c*.
——, **(2-benzoylvinyl)-**. See *Acrylophenone, β-furyl-.*
——, **2-(4-biphenylylcarbonyl)-†**, 7007*e*.
——, **2-(α-4-biphenylylstyryl)-**, 7007*e*.
estrogenic action of, 4746*g*.
——, **2,5-bis(1-benzyl-2-benzimidazolyl)-**, and sulfonation of, P 8174*b*.
——, **3,4-bis(carbethoxyamino)-**. See "diethyl ester" under *3,4-Furandicarbamic acid.*
——, **2-[3,4-bis(chloromethyl)tetrahydro-2-thienylsulfonylmethyl]-tetrahydro-**, 1,1-dioxide, P 2238*b*.
——, **2-[*p,p'*-bis(dimethylamino)benshydryl]-†**, for lubricant improvement, P 9432*h*.
——, **2-[1,1-bis(ethylmercapto)ethyl]-†**, 7015*b*.
——, **3,4-bis(4-morpholinylmethyl)-2,5-diphenyl-**, 3406*h*.
——, **2,5-bis(*ar*-sulfo-2-benzimidazolyl)-**, disodium salt, P 8174*b*.
——, **2(and 3)-bromo-**, elec. moment and polarization of, 4913*c*.
——, **2-(bromomethyl)-5-*tert*-butyltetrahydro-**, 5735*g*.
——, **5-(bromomethyl)-2-*tert*-butyltetrahydro-2-methyl-**, 5735*h*.
——, **5-(bromomethyl)-3-ethyltetrahydro-2-methyl-**, 5735*g*.
——, **3-(bromomethyl)-4-methyl-2,5-diphenyl-**, 3406*d*.
——, **5-(bromomethyl)tetrahydro-2,2-dimethyl-**, 5735*g*.
——, **2-(bromomethyl)tetrahydro-5-methyl-**, 5735*f*.
——, **2-[2-(5-bromosalicyloyl)vinyl]-†**, bactericidal action of, 5446*d*.
——, **3-bromotetrahydro-**, reaction with Mg, 3818*d*.
——, **3-bromotetrahydro-2-methyl-**, 3818*f*.
——, **2-(3-buten-1-ynyl)tetrahydro-2-methyl-**, 2163*a*.
——, **2-butoxy-3-chlorotetrahydro-**, 3816*d*.
——, **2-butoxytetrahydro-**, 3816*d*.
——, **2-*tert*-butyl-5-(chloromethyl)tetrahydro-**, 5735*i*.
——, **3-butyltetrahydro-**, 3819*a*.
——, **2-butyltetrahydro-2-methyl-**, 2163*b*.
——, **2-*tert*-butyltetrahydro-5-methyl-**, 5735*e*.
——, **butyryl-**. See *1-Butanone, 1-(furyl)-.*
——, **caproyl-**. See *1-Hexanone, 1-(furyl)-.*
——, **2-chloro-**, P 3041*d*.
——, **4-chloro-2,3-dihydro-5-methyl-(?)**, P 3573*d*.
——, **3-chloro-2-ethoxytetrahydro-**, hydrolysis of, 5774*g*.
——, **2-(3-chloropropyl)-**, 5022*g*.
——, **3-chlorotetrahydro-**, 3816*e*.
——, **2-chlorotetrahydro-2-methylene-**, P 3573*d*, P 9085*i*.
——, **2-chloro-5-(triphenylmethoxymethyl)-**, 7015*a*.
——, **2-[2-(4,6-diamino-*s*-triazin-2-yl)vinyl]-†**, P 3854*i*.
——, **2,5-di-2-benzimidazolyl-**, P 5426*e*.
sulfonation product of and Na salt, P 5426*c*.
——, **2,3(and 2,5)-dibromo-**, elec. moment and polarization of, 4913*d*.
——, **2,5-dichloro-**, P 3041*d*.
——, **3,4-dichlorotetrahydro-**, P 5425*a*.
——, **2,3-dichlorotetrahydro-2-methyl-**, P 9085*h*.
——, **2,4-diethylidenetetrahydro-2,2,5,5-tetraphenyl-**, 3405*b*.
——, **2,5-diethynyltetrahydro-2,5-dimethyl-**, 3359*e*.
——, **2,3-dihydro-**, and derivs., 3816*c*.
derivs., hydrogenation of, P 2643*b*.
——, **2,3(and 2,5)-dihydro-**, and derivs., 214*d*.
——, **2,5-dihydro-**, 2578*h*.
chlorination of, P 5425*a*.
derivs., hydrolysis of, P 1808*h*.
2,5-dialkoxy derivs., P 7970*b*.
——, **2-(9,10-dihydro-9,10-dihydroxy-10-phenyl-9-anthryl)-†**, reaction with HCl, 2198*i*.
——, **2,5-dihydro-2,5-dimethoxy-**, P 7970*b*.
——, **2,5-dihydro-2,5-dimethoxy-2,5-dimethyl-**, P 7970*c*.
——, **2,5-dihydro-2,5-dimethoxy-2-methyl-**, P 7970*b*.
——, **2-(9,10-dihydro-9-hydroxy-10-phenyl-9-anthryl)-†**, reaction with HCl, 2199*a*.
——, **2,3-dihydro-5-methyl-**, 4-halo derivs., P 3573*b*.
——, **2,3-dihydro-3-methyl-2-phenyl-**, 4255*b*.
——, **2,3-dihydro-3-methyl-2-propenyl-**, 4254*h*.
——, **2,3-dihydro-3-methyl-2-propyl-**, 4254*i*.
——, **2,5-dihydro-2,2,5,5-tetramethyl-**, 6103*a*.
——, **dimethyl-**, hydrogenation of, P 4301*i*.
——, **2,4-dimethyl-**, 1391*g*.
——, **2,5-dimethyl-**, acylation of, 6204*c*
hydrogenation on Pt, kinetics of, 5657*d*.
manuf. of, P 4700*c*, P 5805*i*.
and sulfonation of, 7015*f*.
——, **2-di-4-morpholinylmethyl-†**, 7030*a*.
——, **2,5-dinitro-**, elec. moment and polarization of, 4913*b*.
——, **2,5-diphenyl-3-propoxy-**, 622*g*.
——, **2-ethoxy-2,5-dihydro-**, 5774*h*.
——, **5-ethoxy-2,3-dihydro-**, 5774*h*.
——, **3-ethoxy-2,5-diphenyl-**, 622*i*.
——, **2-ethoxytetrahydro-**, 3810*d*.
——, **2-ethyl-**, distn. (azeotropic) with, in drying org. compds., P 3836*a*.
——, **2-ethyl-2,5-dihydro-**, 5774*h*.
——, **2,2'-ethylenebis[5-*tert*-butyl-5-methyl-**, 5736*b*.
——, **2-ethylidenetetrahydro-5-methyl-3,3-diphenyl-**, 2202*b*.
——, **2-(α-ethylpiperonylmethyl)tetrahydro-**, P 2639*d*.
——, **2-ethyltetrahydro-**, 4254*c*.
——, **3-ethyltetrahydro-**, 3818*i*.
——, **3-ethyltetrahydro-2,5-dimethyl-**, 5735*e*.
——, **furyl-**. See *Bifuran.*
——, **hexachloro-2,5-dihydro-**, P 3041*d*.
——, **2-(2-imino-4-oxo-5-thiazolidylidenemethyl)-†**, 3820*c*.
——, **2-iodo-**, elec. moment and polarization of, 4913*c*.
——, **3-isobutoxy-2,5-diphenyl-**, 622*h*.
——, **2-isopropenyl-5-isopropyl-**, 7018*e*.
——, **3-methoxy-2,5-diphenyl-**, 622*i*.
——, **2-(methoxymethyl)-5-nitro-**, fungistatic action of, 2669*f*.
——, **methyl-**, and mixt. with furfuryl alc., P 4301*i*.
——, **2-methyl-**, 1719*b*, P 2219*a*, P 3465*e*.
distn. (azeotropic) with, in drying org. compds., P 3836*a*.
elec. moment and polarization of, 4913*b*.
hydrogenation on Pt, kinetics of, 5657*d*.
manuf. from furfuraldehyde, and rubber synthesis from piperylene from, P 2805*b*.
and sulfonation of, 7015*d*.
——, **2-methyl-5-nitro-**, elec. moment and polarization of, 4913*b*.
fungistatic action of, 2669*f*.
——, **nitro-**, derivs., fungistatic action of, 2669*d*.
——, **2-nitro-**, elec. moment and polarization of, 4913*b*.
——, **2-(2-nitro-1-butenyl)-**, fungistatic activity of, 9334*e*.
——, **2-nitro-5-(5-oxo-1-butenyl)-†**, semicarbazone, in dental caries inhibition, 6735*g*.
——, **2-(*p*-nitrostyryl)-**, 3428*b*.
——, **2-(2-nitrovinyl)-**, elec. moment of, 4913*b*.
fungistatic activity of, 9334*e*.
——, **2-(2-oxo-3-indolinylacetyl)-†**, 1411*f*.
——, **2-(2-oxo-3-indolinylideneacetyl)-†**, 1411*f*.
——, **2-(10-phenyl-9-anthryl)-**, 2199*b*
**propionyl-**. See *1-Propanone, (furyl)-.*
——, **2-(2-salicyloylvinyl)-†**, bactericidal action of, 5446*d*.
——, **tetrachloro-**, P 3041*d*.
——, **2-(2,2,3,3-tetrafluorocyclobutyl)-**, 3370*i*.
——, **tetrahydro-**, 2573*c*.
3-alkyl derivs., 3818*i*.
1,3-butadiene from, P 5410*c*.
cleavage of, to form 1,4-dihalobutanes, P 4284*a*.
compressibility and ultrasonic velocity in, 4532*b*.
derivs., P 2643*a*, 2987*g*, P 4302*b*, 5022*e*, 5735*d*, P 5805*i*, P 9085*h*.
derivs., related to amidone, 2201*i*.
2,5 dialkoxy derivs., 7512*d*
formation from 1,4-butanediol, catalyst for, 2533*i*.
free energy of, 477*h*.
hydrogenation of, in dihalobutane manuf P 5047*i*.
oxidation of, P 2224*e*, P 3029*f*, 7912*i*
oxidation of, and its 2-alkyl derivs., P 4687*f*.
phys. consts. of, 5387*a*
ring cleavage by H halides, P 1433*d*
sepn. of 2 butanone from, P 9079*i*
as solvent in hydrogenolysis of alkyl halides by $LiAlH_4$, 1311*i*.
systems. $CCl_4$-, $SiCl_4$-, and $SnCl_4$-, 2535*a*
——, **tetrahydro-2,5-bis(4-hydroxy-3-methoxyphenyl)-3,4-bis(hydroxymethyl)-**. See *Olivil*
——, **tetrahydro-2,5-dimethoxy-**, P 2643*c*, P 7512*d*.
——, **tetrahydro-2,5-dimethoxy-2,5-dimethyl-**, P 7512*d*
——, **tetrahydro-2,5-dimethyl-**, 573*a*
——, **tetrahydro-2-(β-methoxybutyryl-2-methyl-†**, 2163*c*
——, **tetrahydro-2-methoxy-2-methyl-**, 6190*f*.
——, **tetrahydro-2-methyl-**, 3818*g*.
manuf. of, and dehydration to 1,3- and 1,4 pentadiene, P 2805*b*.
sepn. of 2-butanone from, P 9079*i*
——, **tetrahydro-3-methyl-**, 3819*a*
——, **tetrahydro-3-methyl-2-phenyl-**, 4255*c*.
——, **tetrahydro-3-methyl-2-propenyl-**, 4254*h*.
——, **tetrahydro-3-methyl-2-propyl-**, isomers, 4254*f*.
——, **tetrahydro-2-phenoxy-**, 3816*d*.
——, **tetrahydro-2-propyl-**, 3819*a*.
——, **thio-**. See *Thiophene.*
——, **2,2'-[thiobis(*p*-phenylenenitrilomethylidyne)]di-†**, 4427*a*.
——, **2,3,4-tribromo-2,5-dihydro-5,5-dimethyl-2-(1,1,2,3-tetrabromoisobutyl)-**, 130*c*.
——, **2,3,5-trichloro-**, P 3041*d*
——, **2-(2,4,6-trinitrostyryl)-**, reduction (partial) of, 592*h*.
——, **valeryl-**. See *1-Pentanone, 1-(furyl)-.*
——, **vinyl-**, polymers with chloroprene, P 9532*h*.
polymers with vinylidene chloride, P 9532*f*.
reaction with $C_2F_4$, P 4294*d*.
——, **2-vinyl-**, P 5037*g*, P 5415*a*.
manuf. and polymerization of, 6861*i*
prepn. and properties of, 2615*c*.
reaction with $C_2F_4$, 3370*i*.
——, **2,2'-vinylenedi-**, fungistatic activity of, 9334*e*.
**2-Furanacetamide,** *N,N*-diallyl-4-(di-[illegible]methyl-, P 4301*f*.
——, [illegible]
**ethyl-5-methyl-**, P 4301*f*.
——, **4-(dipropylcarbamyl)-5-methyl-*N,N*-dipropyl-**, P 4301*f*.
——, ***N*-2-hydroxyethyl-**, 3364*b*.
**Δ[5(6)]-2-Furanacetic acid, 3-hydroxy-5-**

**oxo-α,4-diphenyl-.** See *Pulvinic acid.*

**2-Furanacetic acid, 4-carboxy-5-methyl-,** dipiperidide, P 4301*e*.

——, **2-carboxy-5-(1,2,3,4-tetrahydroxybutyl)-,** and derivs., 5392*ab*.

**3-Furanacetic acid, α-ethoxyacetyltetrahydro-5-oxo-†,** ethyl ester, 2625*f*.

**2-Furanacrolein** (*β-2-furylacrolein*), fungistatic activity of, 9334*b*.

**Furanacrylic acid** (*β-furylacrylic acid*), esters, polymerization of, P 3232*d*.

**2-Furanacrylic acid,** decarboxylation of, 2615*c*.

and esters, fungistatic activity of, 9334*c*.

esters (mixed) with glycerol and linseed oil for use as drying oil, and polymer with Me methacrylate, P 1995*f*.

——, **α-acetyl-,** ethyl ester, fungistatic activity of, 9334*c*.

——, **α-phenyl-,** fungistatic activity of, 9334*c*.

**2-Furanalanine** (*β-2-furylalanine*), effect on respiration of *Escherichia coli*, 6274*i*.

effect on tubercle bacilli, 8440*b*.

**2-Furanaldehyde.** See *2-Furaldehyde.*

**2-Furanbutanol** (*4-(2-furyl)-1-butanol*), and 1-naphthalenecarbamate, 5022*h*.

**2-Furanbutyranilide,** 5022*h*.

**2-Furanbutyric acid** (*γ-2-furylbutyric acid*), and ethyl ester, 5022*h*.

——, **α,γ-dioxo-,** ethyl ester, 1764*h*.

——, **γ-oxo-,** P 7848*d*.

**2-Furanbutyronitrile** (*γ-2-furylbutyronitrile*).

——, **γ-oxo-,** P 7848*d*.

**2-Furancaproic acid, 3,4-diaminotetrahydro-,** sulfate, as antagonists of biotin and oxybiotin, 9149*b*

**2-Furancarbamic acid,** 3-(1-piperidyl)propylene ester, and its HCl, 6204*e*.

**3-Furancarbamic acid, tetrahydro-4,4-dimethyl-2-oxo-†,** *dl*, benzyl ester, 4224*h*.

**Furancarbinol.** See *Furfuryl alcohol.*

**2-Furancarboxaldehyde.** See *2-Furaldehyde.*

**Furancarboxylic acid.** See *Furoic acid.*

**3,4-Furandiamine,** *N,N'*-**dicarboxy-.** See *3,4-Furandicarbamic acid.*

**3,4-Furandicarbamic acid,** derivs., P 1441*g*.

——, **2-(4-carboxybutyl)-,** 3,4-diethyl ester, P 5805*g*.

**2-(4-carboxybutyl)tetrahydro-,** 3,4-diethyl ester, P 1442*d*.

diethyl ester, isomers, 2987*i*.

——, **2-(5-hydroxyamyl)-,** diethyl ester, P 1442*a*, P 5805*g*.

——, **2-(4-hydroxybutyl)-,** diethyl ester, 5022*s*.

dimethyl ester, P 1442*b*.

——, **2-methyl-,** diesters, P 1442*a*, P 5805*h*.

——, **2-[4-(1-piperidylcarbonyl)butyl]-,** diethyl ester, P 1442*c*.

——, **tetrahydro-2-(5-hydroxyamyl)-,** *cis-*, diethyl ester, P 1442*c*.

diethyl ester, isomers, 2987*h*.

——, **tetrahydro-2-(4-hydroxybutyl)-,** *cis-*, dimethyl ester, P 1442*c*.

——, **tetrahydro-2-methyl-,** *cis-*, diethyl ester, P 1442*c*.

*cis-*, diphenyl ester, P 1442*c*.

**3,4-Furandicarbonyl chloride, 2-(5-hydroxyamyl)-,** P 5805*f*.

**2,4-Furandicarboxamide, 5-methyl-,** P 2043*a*.

——, *N,N,N',N'*-**tetraethyl-,** P 4301*f*.

**3,4-Furandicarboxamide,** *N,N,N',N'*-**tetraethyl-2,5-dimethyl-,** P 4301*f*.

**2,5-Furandicarboxanilide, 3,4-dihydroxy-4',4''-disulfamyl-,** m. 260° (incorrectly given in abstr. as 322°), 2598*b*.

——, **4',4''-disulfamyl-,** m. 255° (incorrectly given in abstr. as 285°), 2598*b*.

**2,3-Furandicarboxylic acid, 5-bromo-4-methyl-,** and dimethyl ester, 5020*g*.

——, **4-methyl-,** 3-methyl ester, 5020*h*.

——, **4-methyl-5-nitro-,** 5021*a*.

——, **5-nitro-,** and dimethyl ester, 5021*a*.

**2,5-Furandicarboxylic acid, tetrahydro-3,4-dioxo-,** diethyl ester, color reactions with $FeCl_3$, 1008*f*.

**3,4-Furandicarboxylic acid,** derivs., P 1441*g*, P 5805*h*.

——, **2-**——, acetate, P 1441*h*.

and derivs., P 5805*e*.

——, **2-(4-hydroxybutyl)-,** and derivs., 5022*h*.

——, **tetrahydro-2-(5-hydroxyamyl)-,** diethyl ester and dihydrazide, 2987*g*.

**2,4-Furandiol, 3,4-diethyltetrahydro-2,2,5,5-tetraphenyl-,** 3405*b*.

**2,3-Furandione, 4,5-dihydro-.** See *α-Tetronic acid.*

**2,4(3*H*,5*H*)-Furandione.** See *Tetronic acid.*

**2,5-Furandione.** See *Maleic anhydride.*

——, **dihydro-.** See *Succinic anhydride.*

——, **3-methyl-.** See *Citraconic anhydride.*

**3,4(2*H*,5*H*)-Furandione, 2,2,5,5-tetramethyl-,** 1392*i*.

——, **2,2,5,5-tetraphenyl-,** 3405*a*.

**2,4-Furandisulfonic acid, 5-methyl-,** and salts, 7015*e*.

**2-Furanethanol** (*2-(2-furyl)ethanol*).

——, **5-isopropyl-β-methyl-,** 7018*d*.

**2-Furanglycidic acid, β-methyl-,** ethyl ester, 1764*i*.

**2-Furanglycolonitrile** (*2-furylglycolonitrile*), acetate, P 2631*i*.

**2-Furanglyoxylaldehyde,** and monosemicarbazone, 1393*c*.

——, **5-(trimethylsilyl)-,** 9065*e*.

**2-Furanhydracrylic acid** (*β-2-furylhydracrylic acid*), β-lactone, P 5037*g*, P 5415*a*.

β-lactone (compd. omitted from abstr.), P 1055*i*, P 1056*c*.

——, **5-chloro-,** β-lactone, P 5037*h*

——, **5-methyl-,** β-lactone, P 5037*h*.

**Furanidine.** See *Furan, tetrahydro-*

**2-Furanilide,** 1654*g*.

——, **4'-acetamido-,** 4665*d*.

——, **3'(and 4')-chloro-,** 4665*b*.

——, ***p*-(2,3-dihydroxypropoxy)-,** surface tension of aq. soln. of, 5655*e*.

——, **2'(and 4')-phenyl-,** 4665*c*.

——, ***p*-sulfamyl-,** 1028*r*.

**2(3*H*)-Furanimine,** *N*-**acetyl-4,5-dihydro-5-methyl-3,3-diphenyl-†** 2202*a*.

——, **dihydro-,** and salts, 2579*f*.

——, **4,5-dihydro-5-methyl-3,3-diphenyl-†,** 2202*a*.

hydrochloride, 9054*g*.

**2-Furanmethanediol, 5-nitro-,** diacetate, effect on viruses of psittacosis-lymphogranuloma group, 9249*h*.

**3-Furanmethanediol, 5-nitro-,** diacetate and its compd. with AcOH, 7015*c*.

**2-Furanmethanethiol, 5-methyl-,** 7014*h*.

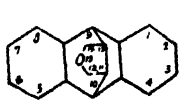
**2-Furanmethanol.** See *Furfuryl alcohol.*

**3-Furanmethanol, 2,5-diphenyl-4-(1-piperidylmethyl)-,** 3406*e*.

——, **4-(4-morpholinylmethyl)-2,5-diphenyl-,** 3406*c*.

**2-Furanmethylamine.** See *Furfurylamine.*

**Furanoanthracene,**



*9,10[3',4']* *1,4[3',4']-*

**1,4[3',4']-Furanoanthracene-12,14-dione, 1,4,11,15-tetrahydro-9,10-diphenyl-†,** 2983*g*.

**9,10[3',4'] - Furanoanthracene-12,14-dione, 9,10-dibromo-9,10,11,15-tetrahydro-†,** 1758*h*.

——, **9,10-dichloro-9,10,11,15-tetrahydro-†,** 1758*h*.

——, **9,10,11,15-tetrahydro-†,** P 2819*d*.

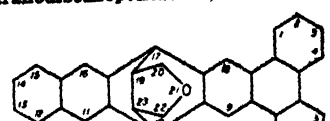
——, **9,10,11,15-tetrahydro-9,10-dinitro-†,** 1759*a*.

——, **9,10,11,15-tetrahydro-9,10-diphenyl-†,** 2983*g*.

——, **9,10,11,15-tetrahydro-9-nitro-†,** 1758*h*.

——, **9,10,11,15-tetrahydro-9-phenyl-†,** 2983*g*.

**Furanodibenzopentacene,**



*10,17[3',4']—[a,c]*

**10,17[3',4'] - Furanodibenzo[*a,c*]pentacene-20,22-dione, 10,17,19,23-tetrahydro-†,** 1364*d*.

**2-Furanol, 2-ethyltetrahydro-** stereoisomers, and acetate, 4254*b*.

——, **2-ethyltetrahydro-5-methyl-3,3-diphenyl-,** and acetate, 2202*b*.

——, **5-[10-(2-furyl)-9-anthryl]-,** 4252*g*.

——, **5-(10-phenyl-9-anthryl)-,** 2198*i*.

——, **tetrahydro-,** acetate, 3816*e*.

——, **tetrahydro-2-methyl-,** derivs., P 9085*h*.

——, **tetrahydro-4-methyl-5-phenyl-,** isomers, and acetates, 4255*b*.

——, **tetrahydro-4-methyl-5-propenyl-,** stereoisomers, and acetates, 4254*d*.

——, **tetrahydro-4-methyl-5-propyl-,** stereoisomers, and acetates, 4254*e*.

——, **tetrahydro-5-vinyl-,** stereoisomers, and acetates, 4254*a*.

**3-Furanol, 4-chlorotetrahydro-,** acetate, P 5425*a*.

——, **3-ethyltetrahydro-2,2,5,5-tetramethyl-,** 1392*i*.

——, **tetrahydro-2,2,5,5-tetramethyl-,** 1393*b*.

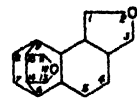
**Furanonaphthacene,**



*5,12[3',4']-*

**5,12[3',4'] - Furanonaphthacene-14,16-dione, 13,17-dihydro-,** spectrum of, 7341*d*.

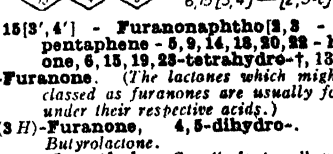
**Furanonaphthofuran,**



*6,9[3,4']—[2-c]*

**6,9[3',4'] - Furanonaphtho[1,2-*c*]furan-1,3,11,13-tetrone, 10,14-dihydro-.** See *1,4-Ethanonaphthalene-5,6,9,10-tetracarboxylic dianhydride.*

**Furanonaphthopentaphene,**



*6,15[3',4']—[2,3-c]*

**6,15[3',4'] - Furanonaphtho[2,3-*c*]-pentaphene-5,9,14,18,20,22-hexone, 6,15,19,23-tetrahydro-†,** 1365*a*.

**2-Furanone.** (*The lactones which might be classed as furanones are usually found under their respective acids.*)

**2(3*H*)-Furanone, 4,5-dihydro-.** See *Butyrolactone.*

——, **5-methyl-.** See "γ-lactone" under *3-Pentenoic acid, 4-hydroxy-.*

**3(2*H*)-Furanone, 4-aminodihydro-2,2,-5,5-tetramethyl-,** 1392*i*.

——, **4-bromodihydro-2,2,5,5-tetramethyl-,** and derivs., 1392*f*.

——, **4-bromo-4-ethyldihydro-2,2,5,5-tetramethyl-,** 1392*h*.

——, **4-chlorodihydro-2,2,5,5-tetramethyl-** and *p*-nitrophenylhydrazone, 1393*a*.

——, **4,4-dibromodihydro-2,2,5,5-tetramethyl-,** and derivs., 1392*f*.

——, **4,5-dihydro-,** and 2,4-dinitrophenylhydrazone, P 5424*h*.

——, **dihydro-2,2,5,5-tetramethyl-,** and halogen derivs., 1392*d*.

——, **4,5-dihydro-2,2,5-trimethyl-,** and semicarbazone, 2161*f*.

——, **4-ethyldihydro-2,2,5,5-tetramethyl-,** 1392*h*.

**Furanoses.** See *Sugars.*

**2-Furanpentanol** (*5-(2-furyl)-1-pentanol*), P 5805*e*.

**2-Furanpropionanilide** (*β-2-furylpropionanilide*).

——, **tetrahydro-5-methyl-,** 5736*a*.

**2-Furanpropionic acid** (*β-2-furylpropionic acid*).

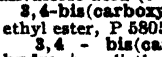
——, **α-cyano-,** 2933*d*.

——, **α,α-(2-cyanoethyl)-β-oxo-,** ethyl ester, 2582*h*.

——, **4-methyl-5-phenyl-,** 3429*g*.

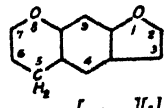
——, **β-oxo-,** ethyl ester, cyanoethylation of, 2582*h*.

—, tetrahydro-5-methyl-, 5736*a*.
**2-Furanpropionitrile** (*β-2-furylpropionitrile*), (compd. omitted from abstr.), 2988*d*.
**2-Furanpropylamine** (*3-(2-furyl)propylamine*), 2988*c*.
——, α-methyl-, 1349*f*.
——, tetrahydro-, 2988*d*.
**2-Furanpyruvic acid** (*(2-furyl)pyruvic acid*).
——, α-thio-, 3820*b*.
**Furan series**, 3412*b*, 3413*d*, 7480*f*.
in wood oil, 8648*d*.
**Furansulfonic acid**, and salts, 214*f*.
**2-Furansulfonic acid, 5-methyl-**, and barium salt, 7015*f*.
**3-Furansulfonic acid, 2,5-dimethyl-**, and salts, 7015*g*.
**2-Furanvaleric acid** (*δ-2-furylvaleric acid*).
——, **3,4-bis(carboxyamino)-**†, 3,4-diethyl ester, P 5805*g*.
——, **3,4-bis(carboxyamino)tetrahydro-**†, diethyl ester, isomers, 2987*i*.
——, **3,4-diaminotetrahydro-**, and sulfate, 2988*a*.
——, **3,4-dibenzamidotetrahydro-**, and methyl ester, isomers, 2988*a*.
——, **γ-hydroxy-β-(*p*-nitrophenyl)-α-oxo-**, γ-lactone, 5786*i*.
**2-Furanvaleronitrile, γ,γ-bis(2-cyanoethyl)-δ-oxo-**†, 2582*g*.
**Furazan** (*1,2,5-oxadiasole*),

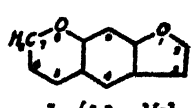


——, **3-acetonyl-4-phenyl-**†, and oxime, 2991*e*.
——, **4-benzyl-5-phenyl-**, 2992*c*.
——, **4-desyl-5-phenyl-***, 2992*b*.
——, **3,4-dimethyl-**, magnetic susceptibility of, 8767*h*.
——, **2,3-epoxy-2,3-dihydro-**. See *Furoxan*.
——, **3-methyl-4-phenyl-**, 2991*f*.
**Furazone, nitro-***, cardiotoxic effects of, 1110*d*.
effect on heart, 7138*h*.
in peritonitis control, 7143*a*.
**Furfural**. See *2-Furaldehyde*.
**Furfuraldehyde**. See *2-Furaldehyde*.
**Furfuran**. See *Furan*.
**Furfurole**. See *2-Furaldehyde*.
**Furfuryl alcohol** (*2-furanmethanol*), 7474*b*
acrylate, polymerization with Me acrylate, P 2034*i*.
acrylate, polymers with Et acrylate, 5988*i*.
*p*-amino- and *p*-nitrocarbanilates, 6176*b*
in 2-butanone drying, 8753*d*.
cathode ray (supervoltage) effect on, 5878*g*.
in chromatography (paper) of amino acids, 8299*a*.
condensation products of, with aldehydes and resorcinol, as diamond-abrasive binder, P 6868*g*.
with phenols, P 1605*i*.
with resorcinol, P 3655*b*.
effects on heart, 1110*d*, 7138*h*.
elec. moment and polarization of, 4913*b*.
esters, 4252*g*.
10-hendecenoate, 8352*f*.
and its hydrogenation, P 2219*a*.
hydrogenation of, 1718*i*, 1719*bc*, P 4700*f*.
by-products of, 9061*b*.
on Pt, kinetics of, 5657*d*.
manuf. of, P 1064*i*, P 3464*h*, P 7049*a*.
mixts. with urea-HCHO resins, for binding abrasives, P 5631*h*.
mixt. with methylfuran, P 4302*a*.
potassium deriv.—see *Potassium furfuryloxide*.
prepn. of, 1719*a*.
removal from tetrahydrofurfuryl alc., P 1526*f*.
resinous products from, P 3232*f*, P 6463*i*, P 7751*i*.
condensation with hydroxybenzene derivs., P 2037*a*.
molding materials from, P 6863*i*.
resinous products with PhOH-aldehyde resins, P 6464*a*.
vulcanized, P 5630*i*.
**Furfuryl alcohol, 5-chloro-**, 7014*i*.
——, **methyl-**, hydrogenation of, P 4301*i*.
——, **5-nitro-**, propionate, fungistatic action of, 2669*e*.
——, **5-(2-nitrovinyl)-**, fungistatic activity of, 9334*e*.
——, **tetrahydro-**, acetate and other esters, as solvents for cosmetics, 9365*c*.
benzoate, 5150*a*.
α-chloroacrylate, P 3040*g*.
in chromatography (paper) of amino acids, 8299*a*.
diester with γ-acetylazelaic acid, P 6226*c*.
esters, P 3465*i*, P 3466*a*.
as dielecs. in condensers, P 9302*b*.
with diglycolic acid, 9032*f*.
with nicotinic acid, pharmacology of, 9254*d*.
α-haloacrylates, P 3027*c*.
hydrogenolysis of, 4640*h*.
lactate and its esters, P 676*c*.
manuf. of, 1719*c*, P 4700*f*.
oleate, reaction product with $H_3P_3O_{10}$, P 4877*h*.
oleate, vapor pressure of, 3678*a*.
piperonylate, as synergist for pyrethrin, 3555*c*.
purification of, P 1526*f*, P 4700*g*.
sebacate, as plasticizer for polyvinyl chloride, 6462*d*.
**Furfurylamine** (*2-furanmethylamine*), derivs. 3406*h*.
——, ***N*-acetimido-**. See *Acetamidine, N-furfuryl-*.
——, ***N*-amyl-α-methyl-**, 3407*a*.
——, **α-amyl-*N*-methyl-**, 3407*b*.
——, ***N,N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
——, ***N,N*-bis(2-chloroethyl)tetrahydro-**, in cancer therapy, 5505*c*.
——, ***N*-butyl-α-ethyl-**, 3407*a*.
——, **α-butyl-*N*-ethyl-**, 3407*a*.
——, **5-chloro-**, and chloroplatinate, 7015*a*.
——, ***N*-*p*-cumyl-*N*-(2-dimethylaminoethyl)-**†, 6587*h*.
——, ***N*-cyclohexyl-*N*-2-nitroisobutyl-**, P 5424*h*.
——, ***N*-(2-dimethylaminoethyl)-*N*-(*p*-methoxyphenyl)-**†, and disuccinate, 6587*i*.
——, ***N*-(2-dimethylaminoethyl)-*N*-phenyl-**†, 6587*h*.
and dihydrochloride, P 822*e*.
——, ***N*-(2-dimethylaminoethyl)-*N*-2-pyridyl-**†, and monohydrochloride, 4274*c*.
——, ***N*-(2-dimethylaminoethyl)tetrahydro-*N*-phenyl-**†, and dihydrochloride, P 822*e*.
——, ***N*,α-dipropyl-**, 3407*a*.
——, **α-ethyl-**, 3407*b*.
——, **4-ethyltetrahydro-5-methyl-*N*-phenyl-**, 5736*a*.
——, **α-isoamyl-*N*-methyl-**, 3407*b*.
——, ***N*-2-nitroisobutyl-**, P 5424*h*.
——, **tetrahydro-*N*-isopropyl-*N*-2-nitroisobutyl-**, P 5424*h*.
——, **tetrahydro-5-methyl-*N*-phenyl-**, 5735*i*.
——, **tetrahydro-*N*-2-nitroisobutyl-**, P 5424*h*.
**2-Furfurylidenimine**, ***N*-[*p*-(*p*-nitrophenylsulfonyl)phenyl]-**†, 2592*i*.
——, ***N*-*p*-sulfanilylphenyl-**†, 2592*i*.
**Furil** (*bipyromucyl, di-2-furylglyoxal*), dioxime, Pd deriv., 8956*a*.
elec. moment and polarization of, 4913*b*.
from furoin, 1368*b*.
manuf. of, P 690*f*.
**Furnaces.** (See also *Carbonisation; Incinerators; Ovens; Pyrite burners; Retorts; Sulfur burners.*)
for aluminum melting and tile glazing, gas use in, 5571*c*.
annealing, P 7760*g*.
for continuous strips, sheets, wires, etc., P 3340*a*.
for metal strip in coils, P 9018*g*.
for steel strip in coils, P 9018*f*.
for tool steels, 2146*i*.
for ash-fusibility detn., 1942*b*.
atm. control in—see *Gases*.
atm. in, O indicator for reducing, 7393*c*.
atm. (protective or inert) for—see "protective or inert" under *Gases*.
boiler, slagged high-$Al_2O_3$ firebrick from, 7655*d*.
book: Forni industriali a combustione, 6009*f*.
bricks for walls of, P 3588*c*.
burners for—see *Burners*.
for carbonization, P 4837*de*, 4838*a*.
carburizing, P 2566*g*, 7393*e*.
charging app. for—see *Charging apparatus*.
chimneys for—see *Chimneys*.
for combustion-gas production at high pressure, P 4449*g*.
for combustion study, 5921*g*.
contact-synthesis, heat transmission in, 2475*g*.
continuous reheating, P 6014*a*.
of Cornelis Drebbel, 5649*i*.
cupola—see *Cupolas*.
design of, effect of ashes and slagging on, 5170*b*.
for destructive distn., P 6398*d*, P 7214*f*, P 8122*e*.
for dolomite firing, P 3164*g*, 5911*ef*.
down-jet, 3592*e*.
for drying—see *Drying apparatus; Ovens*
dust from, C detn. in, 1285*d*.
efficiency increase in gas use in industrial, 836*a*.
for electron-diffraction studies of thin films at high temps., 7323*h*.
enameling, instrumentation for measuring temp. in, 6802*c*.
enameling, operation of gas-fired, 3585*h*.
explosions in, app. for prevention of, 3617*g*.
feeding apparatus for—see *Charging apparatus; Feeding apparatus; Stokers*
for firing coal and wood waste combined, 3591*f*.
firing of—see *Firing*.
forging, energy consumption of, 7392*a*.
gas-fired industrial, 3248*f*.
for gas manuf.—see *Gas, fuel (manufactured)*.
glass—see *Glass*.
gypsum-calcining shaft, P 3592*a*.
for ingot (light metal) foundries, 9811*f*.
ingot-molding, P 7892*b*
lab. gas, 6519*a*.
lead-making short drum, 5281.
lead-refining, heated by wood, 8999*f*
linings for, P 832*d*, P 3340*a*.
Polish quartzites for, 6385*f*.
steel quality and, 3755*i*
for magnesium refining, P 7402*a*
Mars, for CO detn. in air, 9701.
melting, for bituminous materials, immersion-heater, P 4460*d*
with inclined rotary chamber, P 2152*f*.
for light-metal scrap, P 4209*a*.
metallurgical, bottoms for, P 7658*c*.
for controlled atm., P 2152*h*.
management of, 8999*a*.
Radex bricks in, 3755*f*.
for sulfide ores, P 9018*j*.
muffle—see also *Muffles*.
muffle, for production of Zn and ZnO, 2554*g*.
multiple-hearth, roasting low-grade Zn concentrate in, 8999*c*.
for nickel metallurgy, P 6562*f*, 8999*c*
open-hearth, $Al_2O_3$ effect on $SiO_2$ bricks in, 6801*g*.
automatic control of, 8324*c*.
basic brick in, 8296.
bottom destruction in, 6134*f*
charge and feed oxides for, 980*g*.
charging of, 3327*c*.
chrome-magnesite brick for, 6891*b*.
cinematography of flames of, 2142*a*.
combustion and radiation in, 1227*c*.
development of Maerz type, 8324*f*.
Dinas brick for arch of, 6382*d*.
Dinas brick in roofs of, 6800*i*.
dolomite-brick use in, 3581*d*.
dolomite for patching, 5554*f*.
drops from roofs of, 3163*e*.
effect of heat-transfer on charging rate of, 3327*d*.
effect of O on refractories in, 8115*a*.
exptl., of Brit. Iron and Steel Research Assocn., 530*a*.
firing with oil, 4613*e*.
flow in, 7878*abc*.
furnace for combustion research on, 2908*d*.
gaseous mixing in models of, 7878*g*.
grog nozzles in, 5916*a*.
heat-balance calcn. for, 781.
heat transfer in, radiation properties of bricks and slags in relation to, 9404*i*.
instrumentation of, 2908*c*.
oil-fired, 5713*a*.
O use in, 6133*c*, 7389*b*.
powder for repairs in, 2555*b*.
pressure meter for use in, 3327*e*.
production reserves of Russian, 4194*d*.
running schedule for automatic, 2555*d*.
sampling app. for slags in, 980*i*.
$SiO_2$ brick use in roof of, 829*c*.
$SiO_2$ brick with MgO binder for, 4437*a*.
testing $SiO_2$ brick for, 2389*a*.
tridymite Dinas brick for, 5346*h*.
wear of Dinas brick in, 6382*g*.
paper pulp-digesting Wagner, 5947*c*.
pyrite burners—see *Pyrite burners*
radiation from, 1817*d*.

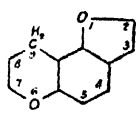
refractories in, damage by salts in sea water-fuel oil emulsions, 2419f.
refractory materials for—see *Refractory materials*.
regenerative, with Carborundum-brick regenerator, P 7357d.
regenerators for—see *Recuperators; Regenerators*.
reverberatory, P 6965g.
at Balkash smelter, Russia, 2142c.
for Cu, increasing output of, 2142b.
history of, for copper metallurgy, 1296h.
scrubbing app. for removal of Pb fumes from, 4405g.
salt-bath, P 4058b.
Pyrobar heaters for, 4613e.
radiant-heated, P 7274g.
tiltable, P 7357h.
sintering, 3327f.
sintering, with magnetized grate bars, P 2152g.
slags—see *Slags*.
soaking, P 8760f.
soaking-pit, P 7402e.
solar, $Al_2O_3$ fusion in, 6025h.
for steel hardening, P 6144c.
steel-hardening, gas generator for, P 7402f.
steel-manuf., stopper tubes for, 6383b.
for steel (stainless) cold forming, 4199i.
Stouff, for intensive combustion in aerodynamic suspension, 3991d.
stoves—see *Stoves*.
super-refractory use in gas-fired, 5563d.
tank, increasing output by thermal insulation, 6381f.
for tempering glass—see *Glass*.
thermoregulators for controlling—see *Thermoregulators*.
tuyères for—see *Tuyères*.
vacuum, for high-temp. microscopy, 2908c.
vacuum, tubes, 29g, 6053f.
zinc-bath, corrosion of, 9017b.
**Furnaces, blast.** (See also *Blast; Cupolas.*)
blowing in, P 6965.
bricks, detn. of disintegration of, 7655e.
charging (compensated) of, 8324d.
chem. and thermal processes in, 1227d.
coke for—see "metallurgical" under *Coke*.
controlled-atm., of nichrome resistor type, 45c.
design for, 4195d.
detn. of contour, gas compn. and movement in, 7878d.
dust from, Fe detn. in, 965i.
dust from, nodulization in rotary kilns, 7878h.
exptl., of Brit. Iron and Steel Research Assocn., 529h.
fuel efficiency in, 4613d.
gas from, detn. of excess air used in combustion of, 4445i.
gas-washing app. for, 4405g.
hearths for—see *Hearths*.
invertion of bosh of, 5713b.
linings of, C for, 7878d.
Fe and Mg cordierites in, 5705cf.
kalsilite, $KAlSiO_4$ and alkali metal aluminosilicates in, 5705f.
Zn damage in, 2907c.
operation of, charge-segregation effect on, 8999f.
coke ash and coke S in, 3598e.
coke permeability and efficiency in, 4195h.
coke quality and, 79a.
with O-enriched blast, oxidizing-zone change during, 2907i.
sinter properties and, 4196a.
operation of large, 4195d.
ore (Mesabi) prepn. for, 980g.
oxidization zone of, coke d. and, 4195d.
oxygen use in, 3755b, P 7891g.
in phosphoric acid manuf., 1533e, 9392f.
pyrite cinder for, 3992d.
refractories for, 9405g.
scaffolds in, 4613b.
stoves—see *Stoves*.
tapping hole of, 7389h.
top diam. of, dust behavior and, 7393a.
**Furnaces, electric.** (See also *Cells, electrolytic; Iron, metallurgy of; Kilns; Metallurgy; Steel.*)
alloy manuf. in, P 6094f.
alumina-melting, P 6925h.
for aluminum, P 4963a.
Soderberg system in, 45e.
of world, 7877i.
for aluminum refining, P 4963be.
for analysis (semimicro-) of C and H, 1267i.
atm. control in—see *Gases*.
atm. (protective or inert) for—see "protective or inert" under *Gases*.
barium-compd. manuf. in, 6519a, 7351d.
books: Nagrevatel'nye pribory v laboratornoĭ praktike, 2476c; 25 Jahre Heraeus-Vacuumschmelze, 6964d.
bottoms of, compn. for, P 3988d.
for brass founding, 2141e.
for calcium carbide manuf., P 7838a.
for calcium Mg phosphate manuf., 45d.
carbide, 8898i.
carbon monoxide manuf. in, for Fe reduction, P 2879e.
for ceramic research, 9402a.
for cermet fabrication, 4438e.
chromium-Ni steel manuf. in Demag, 5016.
chromomagnesite in arches of, wear of, 6383g.
for coking test, 1947g.
crucibles for high-frequency, 2391h
crucibles for melting metals, P 2878d.
crusts of carbides and ferroalloy charges in, app. for breaking, P 7357g.
Dinas brick for arches of, 6382e.
dolomite refractory for hearths of, 5554f.
electrodes for—see *Electrodes*.
flux for, from metallurgical slags, P 6144d.
glass-melting, P 4824b, 5163b, P 6386c, P 8632hi, 9399f, P 3587e
electrode system for, P 6386c.
with submerged C elements, P 8633a.
for glass-viscosity measurement at annealing temp., 7654d.
for heat-treatment of electroplate, P 4210i.
induction, 1268f, P 3732h.
intermittent-discharge induction, P 4151c.
for iron alloy manuf., P 2878c.
for iron and S recovery from sulfide ores, P 9018e.
in iron foundry, 4145a.
for iron manuf. from sand or powd. ore, P 6925h.
iron melting in, P 5680b.
for iron metallurgy, P 2524d, 8283g.
lab., 6519a.
lab. high-frequency induction, 4581e.
lab. Kryptol, 6089b.
for light-metal ingot foundries, 981d.
for magnesium thermal manuf., P 4587f.
for manuf. of $CaC_2$ and ferro alloys, P 3299e.
material- and heat-balance in ferrosilicon-smelting-arc, 3296i.
melting, arc, 45b.
for glass, etc., P 7357f.
for light alloys, 2097c.
for metal, P 7357d.
for refractory metal, 4581f.
metallurgical, P 7837i.
control of, 3297a.
heating elements for, P 3732i.
metal melting in, 8998i
with molybdenum heating elements, 6517i.
oxidizing smelting of sulfide ores of nonferrous metals in, P 6094f.
for oxygen removal from gases, 7758d.
Pechiney-Cartoux arc, 4959e.
for physicochem. measurements, 4901c.
recovery of V and other alloys in acid, 1661f.
reduction, hazards of, 6519b.
regulation of arc, P 6094e.
resistors for—see *Electric resistors*.
reviews on, 3725f, 4145d.
salt-bath, P 1665a.
silica-brick handling for, silicosis prevention in, 6921i.
for slag heating, P 3732i.
with Soderberg electrode, 4959e.
steel (Cr) manuf. in acid arc, 8283f.
for steel manuf., 4959e.
linings for basic, 9405c.
roof life in, 4989c
steel manuf. in, slag vol. in, 1267ghi.
in steel manuf., S removal in basic, 4581k.
for steel-melting, dolomite brick in, 3581d.
linings of high frequency, 6381h.
tridymite Dinas brick for, 5346h.
temp. measurement in basic arc, 8756i.
temp. of, control of, 4959f.
thermoregulators for—see *Thermoregulators*.
for volatile-metal reduction, P 2878e.
for zirconium casting, 8899a.
**Furniture.** (See also *Tables.*)
adhesive for, P 2458b.
finishing office, 875b.
kapok (second-hand) detection in upholstered, 5193f.
lacquers for, formulation and testing of, 8703e.
upholstery for—see *Upholstery*.
**Furniture polish.** See *Polishing materials*.
**Furosamide.** See *Furamide*.
**Furobenzopyran,**



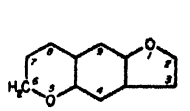
5—[3,2-g][1]



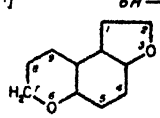
7—[3,2-g][1]



9—[2,3-f][1]

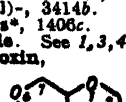


6H—[2,3-g][1]



7H—[3,2-f][1]

**7H-Furo[3,2-g][1]benzopyran,** derivs., 3412b.
**7H-Furo[3,2-g][1]benzopyran-6-carboxylic acid, 2,3-dihydro-7-oxo-†,** ethyl ester, 1406f.
**5H-Furo[3,2-g][1]benzopyran-5-one, 6,7-dihydro-4,9-dimethoxy-7-(p-methoxyphenyl)-,** 7481c.
——, **6,7-dihydro-4,9-dimethoxy-7-(3,4-methylenedioxyphenyl)-,** 7481d.
——, **4,9-dimethoxy-7-(p-methoxyphenyl)-,** 7481f.
——, **4,9-dimethoxy-7-methyl-.** See *Khellin*.
——, **4,9-dimethoxy-7-phenyl-,** 7481d.
——, **7-(3,4-dimethoxyphenyl)-4,9-dimethoxy-,** 7481f.
——, **7-(hydroxymethyl)-4-methoxy-.** See *Khellol*.
——, **4-methoxy-7-methyl-.** See *Visnagin*.
——, **4-methoxy-7-(3,4-methylenedioxystyryl)-,** 3413f.
**6H-Furo[2,3-g][1]benzopyran-6-one, 2,3,8-triphenyl-†,** 7017b.
**7H-Furo[3,2-f][1]benzopyran-7-one, 1,2,9-triphenyl-†,** 7017e.
**7H-Furo[3,2-g][1]benzopyran-7-one,** See "δ-lactone" under *5-Benzofuranacrylic acid, 6-hydroxy-*.
——, **2,3-dihydro-†,** 1406c.
——, **2,3-dihydro-2-(1-hydroxyisopropyl)-.** See *Nodakenetin*.
**9H-Furo[2,3-f][1]benzopyran-9-one, 2,3-dihydro-4-methoxy-7-methyl-,** 3413i.
——, **4-hydroxy-7-methyl-,** 3414b.
——, **4-methoxy-7-methyl-,** 3413e.
——, **4-methoxy-7-(3,4-methylenedioxystyryl)-,** 3414b.
**Furocoumarins*,** 1406c.
**Furo[bb1]diazole.** See *1,3,4-Oxadiazole*.
**Furo[3,4]-p-dioxin,**



[3,4]-p-

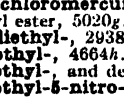
**Furo[3,4]-p-dioxin-5,7-(——————) lide, 2,3-dihydro-4',4''-disulfamyl-,** m. 275° (incorrectly given in abstr. as 255°), 2598b.
**1H,3H-Furo[3,4-c]furan,**



(3—[3,4-c]

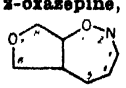
—, **1,4-bis(3,4-dimethoxyphenyl)-tetrahydro-.** See *Epiendesamin*.
—, **tetrahydro-1,4-bis(4-hydroxy-3-methoxyphenyl)-.** See *Epipinoresinol*.
—, **tetrahydro-1,4-bis(3,4-methylenedioxyphenyl)-.** See *Sesamin*.

**2-Furoic acid, Furoic acid** (*2-furancarboxylic acid, pyromucic acid*), cathode ray (supervoltage) effect on, 5878*g*.
2-chloroallyl ester, polymers with butadiene, P 432*i*.
derivs., 4665*d*.
elec. moment and polarization of, 4913*c*.
electrolytic oxidation of, 1271*e*.
esters, 4252*g*.
ethyl ester, reaction with ketones, 4253*g*.
2-furoylmethyl ester semicarbazone, 1392*e*.
hydrogenation on Pt, kinetics of, 5657*d*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 505*h*.
from penicillin (clinical), 2184*g*.
piperazine salt, 235*e*.
prepn. of, 5016*a*.
*p*-quinone dioxime deriv., as vulcanizing agent, 5623*c*.
as stabilizer in paper chromatography of amino acids, 8299*b*.
sulfonation of, 7015*h*.
2-thenoylmethyl ester, 2614*i*.
**2-Furoic acid, 5-(*N*-acetylsulfanilylcarbamyl)-**, 2597*f*.
——, **4(and 5)-bromo-**, elec. moment and polarization of, 4913*c*.
——, **5-chloro-**, 7014*i*.
——, **5-(2-chloroethyl)-**, methyl ester, P 1065*d*.
——, **5-(chloromethyl)-**, esters, P 1065*d*.
——, **dithio-**, amine salts, for rubber vulcanization acceleration, P 434*a*.
hydroxymethyl ester, P 6667*b*.
——, **5-(mercaptomethyl)-**, 7014*h*.
——, **5,5'-methylenedi-**, methyl ester (compd. omitted from abstr.), P 1065*d*.
——, **5-nitro-**, elec. moment and polarization of, 4913*c*.
ethyl ester, fungistatic action of, 2669*e*.
——, **5,5'-(oxydimethylene)di-**, methyl ester (compd. omitted from abstr.), P 1065*d*.
——, **5-sulfo-**(?), barium salt, 7015*h*.
——, **tetrahydro-**, ester (di-) with dianhydrosorbitol, P 4301*h*.
——, **tetrahydro-2,5-dimethyl-**, and derivs., 5736*d*.
——, **tetrahydro-2-methyl-**, 2163*b*.
——, **5-(2-thioureidomethyl)-**, methyl ester, hydrochloride, P 1065*d*.
**3-Furoic acid, 5-bromo-4-methyl-**, 5020*g*.
——, **2-(chloromercuri)-4-methyl-**, methyl ester, 5020*i*.
——, **5-(chloromercuri)-4-methyl-**, methyl ester, 5020*g*.
——, **2,5-diethyl-**, 2938*c*.
——, **2-methyl-**, 4664*h*.
——, **4-methyl-** and derivs., 5020*f*.
——, **4-methyl-5-nitro-**, and ethyl ester, 5020*i*.
——, **2-methyl-5-(1,2,3,4-tetrahydroxybutyl)-**, and derivs., 4664*e*.
——, **5-nitro-**, 5021*a*.
——, **tetrahydro-5-oxo-**. See *Paraconic acid*.
**2-Furoic anhydride**, prepn. of, 8353*b*.
**1*H*-Furo[3,4]imidazole,**



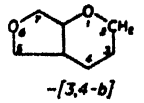
*1—[3,4]*

derivs., P 8401*a*.
——, **hexahydro-4-methyl-2-oxo-**, P 8401*c*.
**1*H*-Furo[3,4]imidazole-4-butanesulfonic acid** (*4-(1H-furo[3,4]imidazol-4-yl-1-butanesulfonic acid*).
——, **hexahydro-2-oxo-**, as antagonists of biotin and oxybiotin, 9149*b*.
biol. action of, 2244*h*.
*dl-*, barium salt, 5023*c*.
**1*H*-Furo[3,4]imidazole-4-butyric acid** (*γ-(1H-furo[3,4]imidazole-4-yl)-butyric acid*).
——, **hexahydro-2-oxo-**, P 8401*d*.
as antagonists of biotin and oxybiotin, 9149*b*.
**1*H*-Furo[3,4]imidazole-4-caproic acid** (*γ-(1H-furo[3,4]imidazol-4-yl)-caproic acid*).
——, **hexahydro-2-oxo-**, as antagonists of biotin and oxybiotin, 9149*b*.
biol. action of, 2244*h*.
sulfonic acid analogs of, 5022*f*.
**1*H*-Furo[3,4]imidazole-4-enanthic acid** (*δ-(1H-furo[3,4]imidazol-4-yl)-enanthic acid*).
——, **hexahydro-2-oxo-**, as antagonists of biotin and oxybiotin, 9149*b*.
**1*H*-Furo[3,4]imidazole-4-pentanesulfonic acid** (*5-(1H-furo[3,4]imidazol-4-yl)-1-pentanesulfonic acid*).
——, **hexahydro-2-oxo-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, barium salt, 5023*c*.
**1*H*-Furo[3,4]imidazole-4-pentanol** (*5-(1H-furo[3,4]imidazol-4-yl-1-pentanol*).
——, **hexahydro-2-oxo-**, P 8401*c*.
**1*H*-Furo[3,4]imidazole-4-propionic acid** (*β-(1H-furo[3,4]imidazol-4-yl)-propionic acid*).
——, **hexahydro-2-oxo-**, as antagonists of biotin and oxybiotin, 9149*b*.
**1*H*-Furo[3,4]imidazole-4-valeric acid** (*δ-(1H-furo[3,4]imidazol-4-yl)valeric acid*).
——, **hexahydro-2-oxo-**, P 8401*c*.
balance studies on biotin and, 3073*e*.
biol. action of, 2244*h*.
deposition in tissues, 3073*d*.
derivs., as biotin and oxybiotin antagonists, 9149*b*.
*dl-*, and sulfonic acid analog of, 5022*f*.
and methyl ester, and *epi*-isomers, 2988*b*.
**1*H*-Furo[3,4]imidazol-2(3*H*)-one, 4-[5-(benzylmercapto)amyl]tetrahydro-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, 5023*c*.
——, **4-[4-(benzylmercapto)butyl]tetrahydro-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, 5023*b*.
——, **4-[5-(benzylsulfonyl)amyl]tetrahydro-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, 5023*c*.
——, **4-[4-(benzylsulfonyl)butyl]tetrahydro-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, 5023*b*.
——, **4-(4-chlorobutyl)tetrahydro-**, *dl-*, 5023*a*.
——, **4-(4,4-dicarboxybutyl)tetrahydro-†**, as antagonists of biotin and oxybiotin, 9149*b*.
——, **4-(6,6-dicarboxyhexyl)tetrahydro-†**, as antagonists of biotin and oxybiotin, 9149*b*.
——, **tetrahydro-4-(5-hydroxyamyl)-**, 2988*b*.
——, **tetrahydro-4-(4-hydroxybutyl)-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, 5023*a*.
——, **tetrahydro-4-(5-mercaptoamyl)-**, *dl-*, 5023*c*.
——, **tetrahydro-5-(5-mercaptoamyl)-**, as antagonists of biotin and oxybiotin, 9149*b*.
——, **tetrahydro-4-(4-mercaptobutyl)-**, as antagonists of biotin and oxybiotin, 9149*b*.
*dl-*, 5023*b*.
**Furoin** (*1,2-di(2-furyl)-2-hydroxyethanone*), oxidation of, P 690*f*, 1368*b*.
**α-Furole**. See *2-Furaldehyde*.
**Furo[*a*]monazole**. See *Isoxazole*.
**Furo[*b*]monazole**. See *Oxazole*.
**3-Furonitrile, 2,5-dipropyl-**, 2938*f*.
**Furo[3,4-*f*]-1,2-oxazepine,**

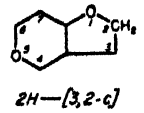


*[3,4-f]-1,2-*

spiro deriv., 1407*a*.
**Furopyran,**

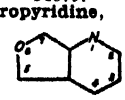


*-[3,4-b]*



*2H—[3,2-c]*

**2*H*-Furo[3,4-*b*]pyran-4,7(3*H*,5*H*)-dione**. See *Isoclavacin*.
——, **2,2-dimethyl-**, cardiotoxic effects of, 1110*d*.
effect on heart, 7138*h*.
**2*H*-Furo[3,4-*b*]pyran-4,7(2*H*,7a*H*)-dione**. See *Clavacin; Claviformin; Expansin; Patulin*.
**2*H*-Furo[3,2-*c*]pyran-3-one, 4,6-dihydro-†, identity with desoxypatulin, 2993*d***.
——, **4,6-dihydro-4-hydroxy-†, identity with patulin, 2993*d***.
——, **4,6,7,7a-tetrahydro-7a-hydroxy-†**, and acetate, 2993*e*.
**2*H*-Furo[3,4-*b*]pyran-7(5*H*)-one, 3,4-dihydro-4-hydroxy-†**, 1407*d*.
——, **3,4,5,6-tetrahydro-4-hydroxy-†**, 1407*e*.
**Furopyridine,**



*[3,4-b]*



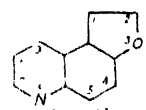
*[3,4-c]*

**Furo[3,4-*b*]pyridine**, derivs., 7483*g*.
**Furo[3,4-*b*]pyridine-5,7-dione**. See *Quinolinic anhydride*.
**Furo[3,4-*c*]pyridin-7-ol, 1-ethoxy-1,3-dihydro-6-methyl-**, and 7-dihydrogen phosphate, P 6672*b*.
7-dihydrogen phosphate, codecarboxylase and, 6080*c*.
hydrochloride, P 4702*i*.
**Furo[3,4-*c*]pyridin-1(3*H*)-one**. See "γ-lactone" under *Isonicotinic acid*, 3(or 5)-(*hydroxymethyl*)-.
**Furopyrimidine**



*[2,3-d]*

**Furo[2,3-*d*]pyrimidine-4,7a(1*H*)-diol, 4-ethoxy-2,3,4,4a,5,6-hexahydro-2-imino-4a-isoamyl-**(?), disodium deriv., 6173*f*.
**Furoquinoline,**



*[3,2-f]*

**Furo[3,2-*f*]quinoline-2-carboxylic** acid 7-methyl-, ethyl ester and its derivs 7028*f*.
**Furo[3,2-*f*]quinolinium compounds**, 2-carboxy-7-(*p*-dimethylaminostyryl)-6 methyl- halides, Et esters, 7028*f*.
2-carboxy-6,7-dimethyl- halides, Et esters, 7028*f*.
**2-Furo-*p*-toluidide**, 1654*g*.
**Furoxan** (*2,3-epoxy-2,3-dihydrofurazan*).
——, **3-methyl-4-nitro-**(?), P 5111*f*.
**2-Furo-2,3-xylidide**, 4665*c*.
**2-Furo-2,4-xylidide**, 4665*c*.
**2-Furo-2,5-xylidide**, 4665*b*.
**2-Furo-2,6-xylidide**, 4665*c*.
**2-Furo-3,4-xylidide**, 4665*c*.
**2-Furoyl chloride**, compds. with pyridine and with $Et_3N$, 8353*b*.
**Furs**, anthrax control in manuf. of, 7990*i*.
bleaching and dyeing pelts in single bath, 7689*g*.
carroting of, with synthetic resin pieces coated with carroting soln., P 5969*a*.
cleaning and filling, montmorillonite clays in, 977*c*.
cutting of, for hat manuf., Hg-contg. dust in plants for, 8688*h*.
detergent uses in wetting, scouring, killing, dyeing, fat-liquoring and oiling of, 5213*e*.
dressing rabbit, Semigan I.G for, 851*f*.
dyeing, in acid bath, P 5982*h*.
dyeing rabbit pelts, 7689*f*.
fiber recovery by peptic digestion of hides, P 8722*d*.
grease removal from, 6424*a*.
insecticides for, adiponitriles, P 8601*i*.
oil compns. for processing, P 3224*d*.
pest control in, P 4422*e*.
pickling, soaking and tanning, 1205*g*.
rubberizing pelts, P 6452*a*.
from sheepskins (woolled), manuf. of, 7692*a*.
for textile uses—see *Camel hair; Rabbit hair*.
**Furunculosis, miners'**, 5513*d*.
**Furyl alcohol**. See *Furfuryl alcohol*.
**Fusain**. (See also *Clarain; Durain; Vitrain*.)
formation of, 8319*f*.
low-pressure carbonization of, 1948*b*.
structure of, 8638*i*.
swelling properties of, 377*f*.
waste powder, carbonization of, 1948*c*.
**Fusanin A, the name**, 5822*c*.
**Fusanin B, the name**, 5822*b*.

**Fusarium**, antibiotic production by, 5821*i*.
*caeruleum* and *fructigenum*, effect of lactones on, 7542*d*.
control of, 7178*d*.
control on gladiolus corms, 9327*h*, 9338*ac*.
effect of B, Mn and Zn on, 9161*e*.
enniatines from, 3788*i*.
*eumartii* and *oxysporum*, O and $CO_2$ relations of, 1455*b*.
fat from—see *Fats*.
fats formed in, effect of solanione on, 9162*b*.
*fructigenum*, exts. from, in fruit-juice clarification, 8069*i*.
*graminearum*—see *Gibberella saubinetii*.
*lini*, fat formation in, effect of naphthoquinones on, 9161*a*.
food contg. vitamins and, P 329*h*.
*lycopersici*, lycopersin from, 7544*f*.
nitrogen compd. decompn. by, 7546*g*.
*oxysporum*, control in soil, 7186*e*.
pea attack by, N nutrition and, 800*g*.
in soils, 1513*a*.
*solani* $D_2$ purple, pigment from, 9160*i*.
*solani*, pyridine utilization by, 5449*b*.
wilt-inducing polysaccharide from, 7090*i*.
*sporotrichioides*, toxico-biol. properties of, 2670*d*.
**Fuscin**, antibacterial activity of, 4335*f*.
and compd. with thioglycolic acid, 4335*e*.
**, dihydro-***, 4335*e*.
**Fused materials**, constitution of, 7285*d*.
reactions in, 5323*e*.
**Fused rings**. See *Ring*.
**Fusel oil**, autoclaved protein in production of, 354*i*.
compn. of, 814*g*.
formation by yeasts, 9160*g*.
**Fuses**. (See also *Electric fuses*.)
delayed-action, alloy powder compns for gasless, P 4856*b*.
with core insensitive to moisture, compn. for gasless, P 2438*e*.
fast-burning, contg. powd. Zr and red Pb, P 9450*i*.
Pb 2,4-dinitroresorcinolate powder for, P 5190*c*.
red P powder compns. for gasless, P 5189*f*.
powder compns. for, for powder trains with definite burning-time interval, P 408*e*, P 3620*b*.
safety, black blasting powder for, 4467*c*.
safety, manuf. and uses of, 4467*c*.
water insensitive core of detonating, hexogen or pentaerythritol tetranitrate-coated, P 2438*d*.
**Fusibility**, measurement of—see *Melting points*.
**Fusicladium**, *dendriticum*—see *Apple scab*.
**Fusion**. (See also *Fluxes; Heat of fusion, Melting, Thawing*.)
alkali, of chlorinated fatty acids, 2164*d*.
curves or diagrams—see *Melting points*.
micro capsules for, 1613*h*.
**Fusite**. See *Fusain*.

**G**. See *Phenol, 2,2'-methylenebis[4-chloro-*.
**G 11**. See *Phenol, 2,2'-methylenebis[3,4,6-trichloro-*.
**G 410**. See *Phenol, pentachloro-*.
**Gabbros**, amphibolitic, in argillaceous formation near Zebedassi, Italy, 5709*f*.
of Annam, 2135*c*.
anorthositic and olivine, of mid-Atlantic ridge, 6548*c*.
anorthositic metamorphosed, in serpentinite at Harper's, N. Z., 4610*d*.
of California, 2904*h*.
of Celebes (eastern), 8320*a*.
of chromite vein in Itaú, Brazil, 2132*i*.
delimitation of, and related rocks, 4610*b*.
-diorites in Terska-Alatau Ridge, origin and transformations of, 7386*b*.
hornblende, from Mutotolwa, Katanga, 2136*a*.
hornblende-gabbro and, of Gosaisho-Takanuki dist., Japan, 6127*i*.
of Minnesota (Duluth area), 6548*e*.
norms of average analyses of, 2552*a*.
of Oregon (Kerby Quadrangle), 4984*h*.
-volcanic complex of Njombe dist., Tanganyika Terr., 5347*e*.
xenolithic, in groundmass of camptonites of Tyan-Shan, U.S.S.R., changes of, 6128*i*.
**G acid**. See *2-Naphthol-6,8-disulfonic acid*.
**Gadolinite**, of Italy (Baveno), 2129*f*.
recrystn. of metamict, 8983*i*.
**Gadolinium**. (See also *Rare earth metals*.)
bombarded by deuterons, neutrons and protons, Gd and Tb isotopes from, 4949*h*.
electrons and γ-rays from, from $Eu^{152,154}$, 486*i*.
isotopes of, 937*d*
magnetic susceptibility and purification of, 6479*i*.
neutron absorption by, 8854*i*.
neutron binding energy of, and energy of γ-rays emitted on neutron capture by, 8861*d*.
spectrum of, persistent lines in, 5337*g*.
**Gadolinium, analysis**, detection, 8948*h*.
detn. in rare earth oxide mixts., 2889*a*.
sepn from rare earths, 8301*a*.
**Gadolinium bromate**, $Gd(BrO_3)_3$, spectrum of, 2093*a*
**Gadolinium compounds**, nitriloacetate complex stability as function of pH and prepn. and decompn. by heat of ammoniate of $GdCl_3$, 8301*a*.
**Gadolinium hydroxide**, $Gd(OH)_3$, 2108*d*.
**Gadolinium nitride**, GdN, crystal structure of, 5252*i*.
**Gadolinium salts**, with 3,5-diiodo-4-oxo-1(4*H*)-pyridineacetic acid, 5780*g*.
**Gadolinium vanadate(V)**, $GdVO_4$, crystal structure of, 6033*b*
**Gadus**. See *Cod*.
**Gaffkya tetragena**, proteolytic effects of, 9152*e*
**Gahnite**, in granite pegmatite from Rosendal, Finland, 4605*d*.
origin of, in quartz sillimanite veins in Nigeria, 6117*i*
**Galactal <1,5>**, D-, and 3,4,6-triacetate, 1727*b*.
**Galactan**. (See also *Gelose, Mannogalactan*.)
in sprucewood, 395.
in vegetable foods and their alteration during digestion, 6753*e*.
**Galactemia**, therapy of, 2290*i*.
**Galactin** See "hormones of anterior lobe of, lactogenic" under *Pituitary gland*.
**Galactokinase**, 1070*f*.
differentiation from hexokinase, 6283*c*.
in galactose fermentation by yeast, 9154*b*.
**Galactolipides**, in phosphatide-cerebroside fraction of nervous tissue, 703*h*.
**Galactomannan**, of carob gum, 581*c*.
carboxyethyl and cyanoethyl ethers, P 4504*d*.
**Galactomutase**, glucose phosphate function as coenzyme of, 2258*i*.
**Galactonamide**, DL-, 8358*f*.
DL-, (?-pentaacetate, 8358*g*.
**Galactonic acid**, DL- and L-, γ-lactone tetraacetates, 8358*d*.
L-, pentaacetate, 8358*d*.
—, **2,3,6-trimethyl-**, derivs., 583*b*.
D-, lactone, 586*a*
**Galactonyl chloride**, pentaacetate, 8358*e*.
**Galactopyranoside, ethyl thio-**, α-D- and β-D-, and tetraacetates, 3367*i*.
—, **methyl 4(and 6)-β-glucuronoside-***, D-, 583*a*.
—, **methyl hexamethyl-6-β-glucuronoside-***, β-D-, amide, 582*i*.
—, **phenyl**, β,D-, and derivs., 1327*b*.
—, **phenyl 4,6-benzylidene-**, β-D-, and 2,3-diesters, 1327*b*.
—, **phenyl 4,6-benzylidene-2,3-dimethyl-**, β-D-, 1327*c*.
—, **phenyl 2,3-dibenzyl-**, β-D-, 1327*f*.
—, **phenyl 2,3-dibenzyl-4,6-dibenzylidene-**, β-D-, 1327*f*.
—, **phenyl 2,3-dimethyl-**, β D-, 1327*c*.
**Galactose**, absorption from intestines of normal and thyrotoxic subjects, 2684*a*.
*aldehydo*-D-, heptaacetate, 5009*d*.
from almond-tree gum, 1323*i*.
in bean rust, 1463*f*.
in blood, dietary fat effect on, 7557*h*.
as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278*f*.
from carob gum, 581*ac*.
complex with borax, 6986*d*.
dehydration of D-, thermodynamics of, 2082*f*.
derivs., x-ray diffraction data for, 3795*b*.
detection of, 5704*b*.
detn. and reducing power of D-, 7861*c*.
detn. of, 4342*c*, 7378*d*.
detn. of, in sulfite waste liquor, 2434*g*.
distribution in eviscerated-nephrectomized dogs, insulin effect on, 8053*a*.
effect of D-, on vitamin C oxidation, 1016*f*.
effect on erythrocytes of turtle, 3939*c*.
on growth of plant tissue, 4349*a*.
on methemoglobin reduction in erythrocytes, 3048*g*.
on Takata-Ara reaction, 3480*h*.
*effect* on utilization of fat, 737*b*.
on wheat roots, 3493*i*.
in egg jelly coat of various sea urchin species, 4389*e*.
fermentation by yeast, pathway of, 9154*a*.
fermentation by yeasts, effect of arsenates on, 2275*c*.
glucose derivs. formed from, 6680*f*.
hemin compds. with, in liquid $NH_3$, 702*g*.
hepatic clearance of, 296*d*.
methylphenylhydrazone, in carbohydrates of pseudomucin, 3480*b*.
in mucoid of stomach, 3480*d*.
oxidation of D-, with $HNO_3$, $HNO_2$ and N oxides, 6823*d*.
pentanicotinate of D-, 1469*i*.
phenylosazone, detection of, anthrone reaction in, 66*g*.
phosphate—see *Galactose phosphate*.
reaction (color) with orcinol and $H_2SO_4$, 3795*i*.
in *Sterculia setigera* gum, 4881*c*.
tolerance to, citric acid and blood serum after tests for, 9226*e*.
tolerance to, in kala-azar, 3515*i*.
utilization by chick embryo, 5465*d*.
by *Drosophila*, 322*h*.
by erythrocytes, 8509*f*.
by *Lactobacillus bulgaricus*, 2669*h*.
by yeasts, 275*c*.
**Galactose, 2-desoxy-***, D-, 1727*b*.
**6-desoxy-6-iodo-***, D-, and derivs., 150*g*.
—, **6-desoxy-6-iodo-1,2,3,4-diisopropylidene-***, D-, 150*g*.
—, **2-desoxy-3-methyl-***, D-, 1727*f*.
—, **1,2,3,4-diisopropylidene-**, D-, and 6-*p*-toluenesulfonate, 150*e*.
—, **2,3(2,4 and 3,4)-dimethyl-**, oxidation of, with $HIO_4$, 1330*f*.
—, **4(and 6)-glucuronoside-***, and derivs., 582*g*.
—, **3-methyl-**, D-, 4636*e*.
—, **2,3,4,6-tetramethyl-**, D-, 586*a*.
—, **2,3,4-trimethyl-**, 1324*b*.
—, **2,3,4(and 2,3,6)-trimethyl-**, 583*b*.
—, **2,3,6-trimethyl-**, D-, 586*a*.
**Galactose anilide***, D-, prepn. of, 7906*c*.
—, **2,4-dimethyl-***, 583*f*.
—, **2,3,4,6-tetramethyl-***, 581*bf*, 5009*g*.
D-, 586*a*.
**Galactose phosphate**, phosphate bonds in, equil. values for, 6266*c*.
**Galactosidases**. (See also *Lactases*.)
in *Drosophila*, 322*i*.
**Galactoside, benzyl 2,3,4,6-tetramethyl-**, D-, 2954*c*.
—, **8-hydroxy-1-anthraquinonyl**, and tetraacetate, 5019*h*.
—, **methyl**, α-D- and β-D-, affinities of, for cuprammonium, 3368*e*.
—, **methyl 4,6-benzylidene-**, α-D-, *p*-toluenesulfonates, 1727*i*.
—, **methyl 4,6-benzylidene-3-methyl-**, α-D-, 4636*b*.
—, **methyl 4,6-benzylidene-3-methyl-2-*p*-tolylsulfonyl-**, α-D-, 4636*b*.
—, **methyl 4,6-benzylidene-2-*p*-tolylsulfonyl-**, α-D-, 4636*a*.
—, **methyl 4,6-(cyclohexylmethylene)-3-methyl-**, α-D-, 4636*b*.
—, **methyl 2-desoxy-***, α-D- and β-D-, 1727*c*.
—, **methyl 2-desoxy-4,6-benzal-***, α-D- and β-D-, 1727*c*.
—, **methyl 2-desoxy-4,6-benzal-3-methyl-***, α-D-, 1727*e*.
—, **methyl 2-desoxy-4,6-ditosyl-3-methyl-***, α-D-, 1727*f*.
—, **methyl 2-desoxy-4,6-hexahydrobenzal-***, α-D-, 1727*d*.
—, **methyl 2-desoxy-4,6-hexahydrobenzal-3-methyl-***, α-D-, 1727*e*.
—, **methyl 2-desoxy-6-iodo-3-methyl-***, α-D-, 1727*g*.
—, **methyl 2-desoxy-3-methyl-***, α-D-, 1727*e*.
—, **methyl 2-desoxy-3-tosyl-4,6-benzal-***, α-D-, 1727*c*.
—, **methyl 2-desoxy-4-tosyl-6-iodo-3-methyl-***, α-D-, 1727*f*.
—, **methyl 2-desoxy-6-tosyl-3-methyl-***, α-D-, 1727*g*.
—, **methyl 2,4-diacetyl-3-methyl-**, α-D-, 4636*c*.
—, **methyl 2,4-diacetyl-3-methyl-6-*p*-tolylsulfonyl-**, α-D-, 4636*d*.
—, **methyl 2,4-diacetyl-3-(1-triphenylmethyl-**, α-D-,
—, **methyl dimethyl-**, 583*f*.

——, **methyl 2,4-dimethyl-**, β-D-, 583*f*.
——, **methyl 3-methyl-**, α-D-, 4636*b*.
——, **methyl 2,3,4,6-tetramethyl-**, 5009*g*.
D-, 581*bf*.
——, **methyl 2,3,4(and 2,3,6)-trimethyl-**, 583*a*.
——, **methyl 2,3,6-trimethyl-**, D-, 585*i*.
——, **methyl 6-(2,3,4-trimethyl-D-glucuronosido)-2,3,4-trimethyl-***, D-, methyl ester, 1324*a*.
——, **(*p*-phenylazophenyl)-**, β-D, spectra of, and tetraacetate and tetrapropionate, 6919*f*.
——, **sphingosine***, 6267*d*.
**Galactosides**, of *p,p'*-sulfonyldianiline—see under *Aniline, p,p'-sulfonyldi-*.
utilization of β-D-, by *Lactobacillus bulgaricus*, 2669*i*.
**Galactosuria**, therapy in, 2291*a*.
**Galacturonamide**, α-D- and β-D-, 4642*b*.
——, **1-acetamido-***, D-, 4642*c*.
——, **1-amino-***, D-, 4642*b*.
**Galacturonic acid**. (See also *Pectic acid*)
detn. in pectin prepns., and app. therefor, 9290*c*.
detn. of, 7870*d*.
D-, prepn. by enzymic pectin degradation, 5432*h*.
fermentation by *Escherichia coli*, fermentation of glucuronic acid and pentoses in relation to, 4333*i*.
liberation of, from fruit products, detection of decompn. by, 7155*e*.
poly-, esters, 140*f*.
poly-, Me ester, effect on adrenaline action, 4378*b*.
poly-, reaction with HCHO, 140*g*.
**Galacturonide, methyl-***, detn. of, 2126*b*.
**Galaheptulose**, *keto*-DL-, hexaacetate, 8358*f*.
——, **1-diazo-1-desoxy-***, *keto*-L-, pentaacetate, 8358*e*.
L-**Galaheptulose**. See *Perseulose*.
**Galangin** (*3,5,7 trihydroxyflavone*).
——, **8-hydroxy-**. See *Flavone, 3,5,7,8-tetrahydroxy-*.
**Galaxies**, age of, 38*h*.
spectra of double, 938*b*.
**Galena**. (See also *Lead sulfide*.)
analysis of, 5338*h*.
analysis of, for Cu, FePb and Ag, 6934*c*.
of Colombia (Santander), 525*f*.
copper electrodeposition on, 4145*i*.
in cotunnite formation, 975*d*.
of England (northern Pennines), 4188*d*.
in fluorite deposits of Ky., 2551*de*.
gold and Ag in, from Southern White Bay, Newfoundland, 1692*b*.
Hall effect, photoelec. effect and thermal e.m.f. of, 4101*i*.
of Idaho (Boise Basin), 4981*c*.
of Illinois (Douglas property), 4190*e*.
of Italy, 2128*a*, 3318*i*, 5708*f*.
metal films on, crystal structure and diffusion of, 6483*eh*.
of New Mex. (Taos Co.), 1692*a*.
petrofabric study of, 8315*g*.
reaction with Ag-salt solns., 6090*f*.
"steel," 2128*b*.
in tungsten deposit at Hyder, Alaska, 2131*h*.
**Galenicals**. See *Pharmaceuticals*.
**Galenite**. See *Galena*.
**Galenobismutite**, 6543*f*.
**Galeocordo**, oils of—see "shark-liver" under *Oils*.
**Galeorhinus**, oils of—see "shark" under *Oils*.
**Galerucella xanthomelaena** and(or) **Elm leaf beetle**, control of, 1897*g*.
**Galeus**, oils of—see "shark-liver" under *Oils*.
**Galgal oil**. See *Oils*.
**Galinsoga cilita**, control in vegetables, 2359*b*.
**Galipine**, spasmolytic effect of, 3527*i*.
**Galium verum**, wax constituents of, 424*h*.
**Gall**. See *Bile; Galls*.
**Gallacetonin***, packaging materials impregnated with, and resistance to rancidity in fats, 3531*g*.
**Gallacetophenone** (*2,3,4-trihydroxyacetophenone*), bactericidal action of, 5446*e*.
**Gallamide**, from chebulinic acid derivs., 1341*i*.
**Gallanilide**, **4'-(2-thiazolylsulfamyl)-**, antimalarial activity of, 5860*h*.
**Gall bladder**. (See also *Cholagogs*.)
book: **Diseases** of, 4762*g*.
of chicks receiving pteroylglutamic acid, liver wt. in relation to, 2297*f*.
diffusion factor in normal and pathological, 1480*g*.
diseases of, bilirubin in blood in, 7126*i*.
function, detn. of, 9231*f*.
pancreatic-juice effect on, 8507*b*.
in tryptophan deficiency in chick, 289*d*.
vitamin effect on motion of, 8468*d*.
**Gallein** (*3',4',5',6'-tetrahydroxyfluoran*), laxative activity of, 2319*e*.
**Galleria mellonella** and(or) **Wax moth**, insecticide toxicity to larvae, route of administration and, 9340*i*.
lipidolytic enzyme of larvae of, 8411*i*.
**Gallic acid** (*3,4,5-trihydroxybenzoic acid*), antimony complex, 4972*f*.
bismuth derivs. of—see also *Airol; Dermatol*.
bismuth derivs. of, rodenticide from, P 7636*a*.
book: Production of, 6643*a*.
buffered tanning solns. of, half-wave reduction potential of, 4038*i*.
butyl ester, as antioxidant for soupfin-shark-liver oil, 3568*a*.
butyl ester, biol. action of, 2253*g*.
and derivs., 3304*a*.
detection in quebracho tannin, 3641*c*.
effect on growth of *Marasmius foetidus*, 8460*f*.
on shrinkage temp. of collagen, 7113*i*.
on thiol oxidation in Na cresylate solns, P 6235*b*.
esters, P 6665*d*.
esters, lowering of vapor pressure by, 5387*a*.
ethyl ester, in rancidity control in fish, 1498*c*.
ethyl ester, in storage quality improvement in peanut oil, 8178*i*
formation from mango blossom exts., 3071*a*.
propyl ester, as antioxidant for vitamin A, 7195*h*.
in rhubarb varieties, 9383*h*.
salt with piperazine, 235*e*.
and triacetate, 7936*b*.
**Gallium**, anisotropic properties of, 8781*a*.
in cassiterites of Far Eastern U.S.S.R., 6124*a*.
crystallochem. electronegativity of ion of, 8231*b*.
deuteron-bombarded, Mn from, 8266*h*.
electron orbits in, number of movements corresponding to, 4916*b*.
equil. with $PhNH_2$, heptane, $H_2O$, perfluorokerosene, white P and Hg, 7285*d*.
evapn. of, 4065*i*.
isotope of mass 67, from Zn by α-ray action, 9366*b*.
isotope of mass 72, β- and γ-rays from, 1647*a*.
isotope of mass 72, metabolism of, 7580*g*.
isotopes of masses 68 and 73, from Ge bombardment with γ-rays, 4116*b*.
liquid, subcooling of, 8776*h*.
magnetic moments and gyromagnetic ratios of, 5303*f*.
melting point of pure, 8953*h*.
neutron-bombarded, decay curves for, 6538*b*.
neutron capture cross section of, 6506*a*.
occurrence and uses of, 3324*f*.
prepn. from germanite, 7854*b*.
production of, 77*c*.
reaction with NOCl, 3305*h*.
recovery from wastes of Fe smelter, 5454*d*.
recovery in Zn metallurgy, 9004*a*.
in rocks (igneous), 2906*c*.
solid solns. with elements, lattice spacings of, 3685*b*.
system: Pr-, 8339*c*.
systems: Ge-, Si-, and Tl-, 4059*a*.
toxic action of, 6320*e*.
**Gallium, analysis**, detn., 959*h*, 8952*d*.
detn. in Al, 8953*d*.
in bauxite, 3743*h*.
in biol. materials, 6686*e*.
in Fe meteorites with neutron pile, 6538*a*.
sepn., detection and detn., 2888*g*.
sepn. from Fe and detn., 7307*i*.
**Gallium alloys**. (See also "system" under *Gallium*.)
aluminum-, 90*i*, 8953*e*.
aluminum-, behavior of stressed, 4197*d*.
copper-Mn-, 3705*g*, 9012*d*.
**Gallium chloride** ($GaCl_3$), as catalyst for polymerization of alkyl vinyl ethers, P 2469*i*.
prepn. and compd. with NOCl, 3305*i*.
reaction with NaOH, 4172*d*.
**Gallium compounds**, complex (fluo and oxalato), 4172*e*.
with 5,7-dibromo-8-quinolinol, 8952*e*.
with lactic acid, 1909*b*.
with porphyrin in feldspar, 2138*a*.
with praseodymium, 8339*d*.
**Gallium hydroxide**, $Ga(OH)_3$, formation of, min. temps. for, 8952*e*.
**Gallium lactate**, 1909*b*.
antimalarial activity of, 5860*i*.
**Gallium lithium nitride**, $Li_5GaN_2$, 4170*i*.
**Gallium oxide** ($Ga_2O_3$), formation of, min. temps. for, 8952*e*.
manuf. from aluminous substances, P 7652*a*.
reaction with $SOCl_2$, 2886*a*.
**Gallium vanadate(V)**, $GaVO_4$, crystal structure of, 6033*a*.
**Gallocatechol**, and gallate, 3394*b*.
**Gallotannins**. See *Tannins*.
**Gall pigments**. See *Bile pigments*.
triacetate, reaction with $CH_2N_2$, 2974*e*.
**Galls**, of *Aylax glechomae*, initiation and development on *Nepeta hederacea*, 5094*g*
crown—see also *Agrobacterium tumefaciens*.
crown, effect of C compds. on growth of, 4348*i*.
of salsify, effect of 3-indoleacetic acid on growth of, 1461*h*.
of sunflowers, effect of growth substances on, 8597*g*.
formation in sugar cane by growth regulating substances, 7090*h*.
oak, produced by *Neuroterus lenticularis*, starch accumulation in, 6289*c*.
**Gallstones**. See *Calculi*.
**Gallyl chloride**, P 6665*d*.
**Galvanization**. (See also *Coating(s), Zinc*.)
continuous, 9014*c*.
drosses from, Zn distn. from, 9011*f*.
fluxes (foaming) for, P 6565*b*, P 6967*a*
flux for, P 6150*b*.
furnaces in, corrosion of, 9017*b*.
hot-dip, 95*g*.
hot-dip, control of pickle for, 5356*e*.
nitrogen and Ti effect on Fe sheets for, 3336*c*.
nitrogen importance in Fe in, 6957*a*.
pickling (electrolytic) for, 6138*c*.
of small objects, P 9022*c*.
titanium effect on Fe for hot, 6956*i*.
waste waters from, $Fe(OH)_3$, $ZnSO_4$ and $ZnCl_2$ recovery from, 9309*g*.
zinc-pot construction and firing, formation of Fe-Zn alloy and, 3336*a*
**Galvanized iron** or **steel**. (See also *Coating(s)*)
adhesive for, P 6004*b*
as catalyst in oxidation of vitamin A in soupfin-shark liver oil, 9379*i*.
coating on, with metals, P 7895*f*.
corrosion in hot-water system by Cu, 8334*a*.
corrosion of, 5721*b*, 5723*h*.
corrosion of pipes of, 6962*c*.
corrosion products of, removal of, P 6149*c*.
finishing, prepn. for org. coatings and phosphatizing of, 873*g*.
painting pretreatment of, 544*e*.
pickling of, 94*c*.
rust removal from, 546*c*.
standards for, 4614*i*.
uniting, to butadiene-acrylonitrile polymer or Neoprene with chlorinated adhesives, P 2807*f*.
zinc coatings on, detn. of wt. of, 3893*h*
**Galvanomagnetic properties**. See *Magnetic properties*.
**Galvanometer**, photoelec.-control, 6871*i*.
**Galvanophoresis**, P 4963*f*.
**Galvanoplastics, Galvanoplasty**. See *Electrodeposition*.
**Galvanotechnics**. See *Electrodeposition; Electroplating*.
**Gambier**, tannins from, detection of, 4503*i*.
**Gamboge**, clearing of suspensions of, by $NaHCO_3$ and NaCl, 256*h*.
fluocculation by $H_2SO_4$, 2070*i*.
refractive index of suspensions of, 4078*c*.
**Gambusia affinis**, insecticide testing on, 7627*e*.
**Gametes** (*malarial*). See *Plasmodium (protozoans.)*
**Gamma acid**. See *1-Naphthol-3-sulfonic acid, 7-amino-*.
**Gamma benzene hexachloride**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Gamma-rays**. (See also *Radioactivity; X-rays.*)
absorption by phosphate glass, 5163*h*.
absorption coeffs. for, of sedimentary rocks, 7931*h*.
absorption of, 1646*i*.

from aluminum, Cu, Au, Na, Th C'' and V, 935*a*.
from annihilation of positrons from $Cu^{64}$, 4948*b*.
from anticathode of electron accelerator, neutrons from Be produced by, 7811*f*.
from antimony ($Sb^{124}$), 4121*a*.
from antimony ($Sb^{125}$), $Cr^{51}$, $I^{131}$ and $Te^{132}$, 6913*c*.
from antimony ($Sb^{128}$), $Pr^{142}$ and $Rh^{106}$, 8267*i*.
from argon by proton bombardment, 2506*e*.
from arsenic ($As^{71}$), 936*e*.
from arsenic ($As^{76}$), 6910*h*.
from astatine ($At^{210}$), 4123*i*.
from barium ($Ba^{140}$), 1261*a*.
from barium by neutron bombardment, 4120*f*.
from beryllium ($Be^{8}$), 484*d*.
beryllium bombarded by, angular distribution of neutrons from, 8855*bc*.
$Li^{8}$ and protons from, 4093*g*.
theory of, 4117*e*.
from beryllium by deuteron action, 4093*fg*, 4561*h*, 8876*ab*.
from betatrons, and their use, 8850*b*.
bombardment with, 936*f*.
of Be and D, energy of neutrons from, 6506*d*.
of Be and D, energy release in, 8864*d*.
resonance in neutron emission in, 1645*i*.
thresholds for neutron emission in, 8864*d*.
thresholds for photonuclear reactions in, 4115*c*.
yield of neutrons in, 1260*e*.
yields from, 4116*a*.
from boron by neutron bombardment, 3283*h*.
from bromine ($Br^{77}$), 485*i*.
from bromine ($Br^{80}$), 5295*g*.
from cadmium by neutron bombardment, energy of, 6910*i*.
from cadmium ($Cd^{114}$), 6911*b*.
from cadmium ($Cd^{115}$), $Hf^{181}$ and $In^{115}$, 4122*b*.
from carbon by deuteron action, 4093*h*, 5294*d*.
from carbon ($C^{10}$) and $O^{14}$, 3284*d*.
from cerium ($Ce^{141}$), 6913*i*.
from cerium ($Ce^{137}$ and $Ce^{139}$) and $La^{138}$, 486*f*.
from cerium ($Ce^{141}$), $Se^{80}$ and $Tb^{146}$, 4094*d*.
from cesium ($Cs^{129}$), 4949*g*, 8266*i*.
from cesium ($Cs^{134}$), $Au^{199}$ and $I^{124}$, 8268*d*.
from cobalt ($Co^{60}$) and $Na^{22}$, 8872*d*.
from cobalt ($Co^{60}$) and $Zn^{65}$, 8867*e*.
from cobalt ($Co^{60}$) decay to $Ni^{60}$, 2506*g*.
collision with nucleons, cross section for single production of mesotrons by, 8260*d*.
collision with nucleons, polarization of mesotrons produced by, 8260*c*.
from columbium ($Cb^{95}$), 4120*h*.
from columbium ($Cb^{96}$), 6507*h*.
from columbium ($Cb^{96}$), $Mo^{98}$, $Os^{191}$, $Os^{193}$ and $Re^{180}$, 487*c*.
Compton scattering of— *Compton effect*.
from copper, 7329*i*.
counter irradiated with, aftereffect of discharge in, 5290*d*.
counter irradiated with, discharge in, 5289*h*.
counters for—see *Counters*.
counting of collimated and uncollimated, effect of absorber position on, 3282*a*.
counting, with crystal fluorescence counter, 2861*c*.
[illegible] with scintillation counters, 7812
"cross-over transitions" in emission of, from $Cl^{38}$, $Co^{60}$, $Br^{82}$ and $Sb^{124}$, 4119*b*.
cross section for neutron emission by action of, structure of light nuclei and, 7326*d*.
cross section for, of C, 484*h*.
cross sections for, 3283*e*, 8267*a*.
in defect detection, 8215*i*.
detection of, instruments for, for health protection, 7326*e*.
detection of, with Tl-activated NaI crystals, 4111*cb*.
deuterium disintegration by, angular distribution of neutrons from, [illegible]
deuteron [illegible]ng energy from, 8862*c*.
neutron-proton scattering and, 8862*e*.
neutrons and protons from, 9284.
from $Na^{24}$, 4601*h*.
from deuteron bombardments, 4113*a*.
Doppler broadening of lines of, from deuteron bombardment of Be, 4117*b*.
effect on sulfhydryl enzymes, 6682*e*.
effect on water, 3709*c*.
from *K*-electron capture in heavy nuclei, 6911*g*.
emission of, in absorption of mesotrons, 6908*g*.
angular correlation between emission of $\alpha$-particles and, 7810*h*.
angular correlation between successive emission of $\beta$-rays and, 4093*i*
angular correlation in successive, 1642*i*.
angular correlation in successive emission of $\beta$- and $\gamma$-rays and, 933*f*.
breaking of chem. bond of atom in, by neutron action, 7332*h*.
correlation between polarization and direction of, emitted successively, 1643*a*.
during $\beta$-decay, 3280*c*, 4094*e*, 8860*h*.
following $\alpha$-rays, angular correlations in, in $B^{10}(n,\alpha)Li^{7}$ reaction, 5294*a*.
following $\beta$-decay, 3280*e*.
-emitting radioelement, integral dose received from uniformly distributed, 3282*e*.
energy of, from bombardment of $CaF_2$ by protons, 4091*a*.
from $Co^{60}$ and $Zn^{65}$, measurement with magnetic-lens spectrometer, 4119*f*.
emitted on neutron capture, 8861*a*.
emitted per $\beta$-particle by radioelements, 4091*b*.
instrument for detg., 6505*c*.
ionization chamber for measurement of, P 44*i*, 4092*f*.
measurement of, 35*a*, 5282*a*, 7329*g*.
from erbium and ytterbium by neutron action, 4948*f*.
exposure to, max. for, and protection therefrom, 4129*a*.
from fission products, bombardment of $D_2O$ and Be with, 4090*i*.
from fluorine by proton action, 36*c*, 1260*a*.
from fluorine ($F^{19}$) and $He^{4}$, 484*c*.
from gadolinium and Tb, 4949*i*.
from gallium ($Ga^{72}$), $Au^{198}$, $Rb^{86}$ and $Sc^{46}$, 1647*a*.
from germanium ($Ge^{69}$), 936*b*.
from germanium ($Ge^{77}$), 5295*e*.
from gold and Pt isotopes, 4125*b*.
from gold ($Au^{198}$), 4122*i*, 4124*g*, 4950*d*.
from gold ($Au^{199}$) and $Pt^{193}$, 37*a*.
from granite, 4128*e*.
from hafnium, 4124*ac*.
from hydrogen by neutron action, 1259*h*.
internal conversion of, 479*d*, 6075*i*.
in $Br^{80}$, efficiency of, 4563*g*.
in heavy elements, fluorescence excitation by, 3285*i*.
in $In^{111}$, 4949*d*.
magnetic, 4100*b*.
in *K*-shell, 4565*a*, 6073*e*.
in $Te^{125}$, 4123*i*.
in Th C and Ra D, *L* radiation following, 3286*b*.
internal conversion of magnetic multipole radiation, 3703*f*, 4108*e*.
internally-converted, from heavy elements, 4091*g*.
internal pair conversion coeffs. of, for Po, 487*b*.
from iodine, 8872*g*.
from iodine ($I^{131}$), 2089*f*, 3285*d*, 4948*e*, 5296*d*.
iodine liberation from org. iodides by, 8871*i*.
from ionium, 3287*g*.
ionization by, of A, 2861*d*.
ions produced in air by, after ultraviolet irradiation, 8258*h*.
from krypton ($Kr^{88}$), 8267*e*.
from lead ($Pb^{202}$) and $Hg^{203}$, 4125*e*.
from lithium from decay of $Be^{7}$, 8866*c*.
by proton action, 4093*h*.
resonance voltage for production of, by proton action, 4947*c*.
from lithium ($Li^{7}$), angular distribution of, 8869*e*.
from lutetium ($Lu^{177}$), 7330*b*.
from magnesium by $\alpha$-ray bombardment, 1646*i*.
from manganese ($Mn^{56}$) and $V^{52}$, 6507*e*.
from mercury ($Hg^{203}$), 7330*f*.
from mesotron production by bombardment of C and protons with, threshold energy for, 4561*c*.
from molybdenum, 8873*a*.
from molybdenum by proton bombardment, 1647*c*, 2089*d*.
from molybdenum, W and V, 8872*c*.
from neodymium ($Nd^{141}$), 6507*i*.
neutron detection in presence of, app. for, 4089*i*.
from nickel ($Ni^{65}$), 7812*g*, 8867*e*.
from nucleon-nucleon collisions, 6905*g*, 8853*f*.
oxidation by, of $Fe^{++}$ in aq. soln., 2508*a*.
from palladium ($Pd^{106}$), angular correlation between successive, 8867*h*.
petroleum-well-bore logging by, P 3603*h*.
from polonium, 3707*g*.
from potassium ($K^{40}$), 485*dg*.
from praseodymium ($Pr^{142}$), 4122*b*.
production of, microwave accelerator for, 4095*i*.
from proton bombardment of $Al^{27}$ and $F^{19}$, resonance voltages for, 3283*d*.
from proton bombardment of nuclei, 4115*b*, 8860*g*.
from radium (B + C), 8269*f*.
from radium C, absorption in Pb, 2505*d*.
from radium C', 4565*a*.
from radium, concrete as protective barrier for, 8871*d*.
from radium D, measurement of, 4131*c*.
from rhenium ($Re^{186}$) and $Tm^{170}$, 8269*a*.
from rubidium, 4122*f*.
from scandium ($Sc^{46}$), 3285*b*.
from scandium ($Sc^{47}$) and $V^{47}$, 6507*f*.
scattering of, by C and Cu, 8266*a*.
scattering of, recording app. for measuring, 4091*c*.
scintillating sensitivity of org. compds. to, 4111*e*.
secondary—see also "Bremsstrahlung" under *Radiation*.
from selenium by $\alpha$-ray action, 936*i*.
from selenium ($Se^{75}$), 4120*e*.
-sensitive fluorescent materials, P 500*g*.
from silver ($Ag^{110}$), 4949*f*.
from sodium ($Na^{24}$), 8853*g*.
from sodium ($Na^{24}$) and $V^{48}$, 4563*c*.
from sodium ($Na^{24}$), scattering of, 484*i*.
spectra, positron analysis of, 4091*a*.
spectrometers for—see *Spectrometers*.
spectroscopy of, 4096*g*.
from tantalum ($Ta^{182}$), 6913*i*.
from tellurium ($Te^{121}$), 3285*e*.
from thallium, 4564*e*.
from thorium C and ThC', 1648*c*.
from thorium C'', angular distribution of pairs produced by, 5297*h*.
from thorium C'' decay, 3286*e*.
from thulium isotopes, 5297*a*.
tin bombarded by, In from, 8267*h*.
from tin ($Sn^{123}$), 8869*c*.
transition effects of, and their influence on ionization current, 5282*d*.
from tungsten ($W^{187}$), 4124*e*.
uranium bombarded by, ternary fission of, 8269*d*.
from uranium ($U^{235}$), 8872*f*.
from uranium Y, 3286*i*.
from xenon ($Xe^{131}$), 5296*d*.
zinc sulfide excited by, luminescence of, 7826*d*.

**Gammarus**, compn. of, of Black Sea, 6746*b*.
*pulex*, respiratory exchange of, compared with *Niphargus virei*, 5873*b*.
**Gammexane**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Gamones**, review on, 2300*i*.
**Ganglions**, nerve center—see *Nerve centers*.
**Gangrene**. (See also *Thromboangiitis obliterans*.)
from cold injury, 5858*a*.
diabetic, arteries in, 8047*d*.
gas, and its treatment, 9164*d*.
therapy of gas, 757*d*.
**Ganidan**. See *Sulfaguanidine*.
**Ganister**, British resources of, 2391*d*.
catalyst pellets from, P 8578*h*.
**Ganja**. See *Hemp*.
**Ganophyllite**, from Benallt Mine, Rhiw, Wales, 4606*d*.
**Gansil**. See *Chloramine-T*.
**Garbage**. (See also *Refuse; Sewage*.)
composting of, 3960*a*.
composts from, P 9327*b*.
disposal of, at Richland, Wash., 9302*e*.
feeding value of, 6770*a*.
for cattle, P 8576*g*.
for swine, 9292*hi*.
incinerators for—see *Incinerators*.
odors from fermentation of, scrubbing app. for removal of, 4405*g*.
**Garcia nutans**, oil of—see *Oils*.
**Gardenal**. See *Phenobarbital*.
**Gardenias**, pest control on, with parathion, 9089*l*.
root-knot-nematode control on, 1129*e*.

**Gardenin**, alk. fission of, 5779*f*.
constitution of, 3828*g*.
**Gardens** (*colloidal*), in sodium metasilicate solns., 4538*i*.
**Gardinol**, 6436*c*.
**Gardinol LS Paste**, effect on penetrating power and stability of $Ca(OCl)_2$ and bleaching powder solns., 7234*b*.
**Gargles**. See *Mouthwashes*.
**Garlic**, alliinase from, 3482*d*.
allyl disulfide in, 7061*d*.
bromine and Cl in, 3537*g*, 8572*d*.
carminative action of, 5114*g*.
drugs contg. glycosides of, stabilization of, 5902*h*.
therapeutic properties, active principles, toxicity, etc., of 3975*e*.
vitamin C production in germinating, effect of light on, 3887*g*.
**Garnets**. (See also *Almandite; Andradite; Grossularite; Spessartite*.)
of Alaska, 2130*e*.
at andesitic lava contact with schists in Carpathians, 8093*f*.
asterism on sphere of, 8311*i*.
chrome green, in chromite deposits of Carbon Co., Mont., 2132*e*.
compression of, 4917*a*.
in Germany (Bavaria) and statistical methods in their analysis, 4986*c*.
in granite pegmatite dikes near Mt. Legnoncino, Italy, 4610*a*.
of Greenland (Holsteinborg dist.), 8313*d*.
grossularite, of W. Australia, 6115*b*.
in magnetite ores of Mont Chemin, Switzerland, 6124*g*.
origin of, in quartz-sillimanite veins in Nigeria, 6117*i*.
petrography of, of eastern Himalaya, India, 1692*i*.
of sand of rivers of West Ethiopia, 2129*e*.
in sands of Ticino River, Italy, 2130*f*.
of South Dakota, 76*d*.
**Garnierite**, magnesium salt manuf. from, P 2380*e*.
**Garrya Fremonti**, proteins in, 1501*f*.
**Garvan Medal**, to Morgan, Agnes, 3669*i*.
**Gas, fuel** (*manufactured*). (See also *Acetylene; Butane; Gas, natural; Propane*.)
absorption app. for $C_6H_6$ recovery from coal, P 6812*a*.
absorption oils for—see *Absorption oils*.
ammoniacal liquor from—see *Ammoniacal liquor*.
ammonia recovery from—see *Ammonia, manufacture of; Ammonium sulfate*.
analyses of, interpretation of, 3171*f*.
analysis and testing of, 6393*i*.
analysis (micro-) of, 5172*c*.
analysis of, 2755*h*, 8971*a*.
from anthracite-charcoal briquets, P 4835*c*.
bacteria in industry of, 8645*g*.
in Bavaria, 835*i*.
blast-furnace and coking, in steel manuf., 4612*g*.
blast-furnace, from ferromanganese smelting, 2555*h*.
H control in, 6552*g*.
Fe-ore reduction by, 527*h*.
blue gas—see "water gas" below.
**books**: Nagrevatel'nye pribory v laboratornoi praktike, 2476*c*; Die Gasenergie, 2756*b*; Saratovskiĭ prirodnyĭ, 2756*b*; Gaswärme, 8120*g*.
from brown coal, O-pressure process for, 3595*c*.
burners for—see *Burners*.
burning velocity of coal, measurement of, 2406*c*.
by-products from, disposal of, 837*h*.
calorific value of, control of, 9414*c*.
detn. of, 3596*h*, 4445*f*, 6808*a*.
detn. of optimum, 8120*b*.
calorimeters—see *Calorimeters*.
by carbon dioxide reaction with fluidized C, 6807*h*.
carbonization plant for manuf. of, 1944*f*.
carbon monoxide recovery from, 8119*d*, 8644*g*.
carbon monoxide removal from, P 1537*i*.
carburetion or enrichment of, hydrocarbon oils for, 8657*a*.
catalysis in American industry of, first applications of, 5924*g*.
chart for calcg. heating value, d. and Aeration Test Burner No., 3993*a*.
chemical manuf. from, 8118*i*.
at Clacton-on-sea, 1550*f*.
from coal, 5923*d*, 8641*fgi*, 8642*ae*.
coal evaluation for, 7661*e*.
coal for—see also *Coal*.
coal for, in English Midlands, 1944*s*.
from coal wastes, 1945*h*.
coke from manuf. of—see *Coke*.
coke-oven—see also *Coking*.
coke-oven, $C_2H_2$ removal from, P 5175*b*, P 7670*h*.
app. for analysis of, 5234*g*.
$C_2H_2$ recovery from, 6808*h*.
chem. processing of, 5571*h*.
diene detn. in, 8645*d*.
$C_2H_4$ sepn. from, P 7670*d*.
HCN recovery from, 7666*f*.
in hydrogenation of coal, 5171*d*.
H manuf. from, 7651*a*.
hydrogen sepn. from, 7211*d*.
interchangeability with supplemental fuel gases, 6393*g*.
naphthalene and water removal from, 6808*g*.
pressure effect on yield of, 5570*b*.
producer-gas dilution of, 6808*f*.
production increase of, 2755*a*.
production in Western Germany, 8119*h*.
purification of, P 380*ef*, P 2408*d*, P 4450*c*.
removal of olefins and $C_2H_2$ from, P 5928*f*.
in Ruhr, 1169*c*.
steam injection in retorts in making, 5925*e*.
S recovery from, 5923*i*.
coke-oven heating with, P 2408*h*.
by coking petroleum tarry cracking residues, P 380*d*, 9425*i*.
combustion of, characteristics of, 3170*h*, 3596*e*, 6394*b*.
control of, 8119*e*.
detn. of excess air used in, 4446*a*.
rate of, 2056*e*.
by combustion (partial) of oil for peak-load consumption, 3171*f*.
complete gasification, 7665*cd*.
condensing plant for, 5172*c*.
control to meet variations in supply and demand for, 835*i*.
conversion of acidic or phenolic components in, to ketones and hydrocarbons, P 5574*a*.
by cracking liquefied petroleum gases for peak loads, 5932*a*.
by cracking of hydrocarbons, for peak loads, 6814*b*.
cyanide detection in, 8956*b*.
density of, measurement of, 1946*a*.
from destructive distn.—see also *Destructive distillation*.
detn. in coal carbonization, 1947*d*.
detonation, explosion and combustion wave propagation and velocities in mixts. of O and, 5576*e*.
by devolatilization of coal, 835*c*.
distribution over long distance in Netherlands and Belgium, 4445*e*.
drying of, 4831*f*.
dust in works for making, and its prevention, 4445*e*.
economics of, 7666*d*.
education (tech.) in British industry of, 8118*h*.
effect of lowering heating value on utilization in works for making, 4831*i*.
effluent, treatment of, 7666*e*.
elec. resistance of combustion mixt. of, 3591*i*.
from fermentation of org. material, P 6781*d*.
by fermentation of org. waste, app. for manufg., P 3143*e*.
filter for centrifugal scrubber for, P 6009*h*.
firing with—see *Firing*.
flameless combustion of, in industrial plant heating, 7665*i*.
flames (flat) of, 8645*i*.
fluidization of brown coal in making, 9414*g*.
furnaces using—see *Furnaces*.
gas value no. in relation to yield of coal, 2404*i*.
generator, calcn. of compn. of, 5571*c*.
generator, filter for, P 2476*f*.
generators for, for caking tar-contg. coal, P 6997*l*.
for carburizing atms., 7884*c*.
cyclones for, P 7273*e*.
slag removal in, 4446*a*.
for steel-hardening furnaces, P 7402*f*.
German supply of, contribution of Fischer-Tropsch plants to, 7212*b*.
grid, in Czechoslovakian glass industry, 6397*i*.
growth of thermophilic bacteria in effluents from, 276*f*.
gum formation in, 5925*a*.
high B.t.u., 7665*g*.
history of British industry of, 9414*d*, 9415*a*.
hydrogen cyanide recovery from, P 2756*g*.
hydrogen sulfide removal from, P 2756*c*.
by catalytic oxidation, P 7212*h*.
to prevent air contamination and smog, 7672*i*.
ignition and flame propagation in, effect of combustion promoters and inhibitors on, 3617*h*.
ignition by elec. sparks, 407*c*.
inflammability and flame-extinction limits for mixts. of MeBr and, 3619*b*.
instrumentation in making, 8645*f*.
iron cementation with, near Curie point, 6018*f*.
journal: Zeitschrift für Kohle, Gas, Treibstoff und Elektrizität, 8120*e*.
by Koppers-Totzek process from coal, coke and lignite, 5923*g*.
from lignite in Czechoslovakia, 8118*f*
liquefied petroleum gas—see *Petroleum*
liquor from—see *Gas liquor*.
manuf., purification, storage and utilization of, 7665*b*.
for metal carburization, 1698*h*.
meters—see *Meters*.
methane from water gas, 2405*g*.
mineral-constituent effect on making coal, 5169*i*, 7663*c*.
mixing natural gas with coal, 4831*c*.
from mixt. of peat and coal in AVG gas generator, 5594*h*.
mixts. with natural gas, interchangeability of, 836*i*.
motor-fuel, compn., flame propagation, preignition prevention, thermal efficiency and power output of engines using, 2411*f*.
naphthalene extn. from, 3597*a*
as natural-gas substitute for peak load demands, 4832*b*.
odorization of, 5925*b*
oil-gas and water-gas manuf 1946*f*, P 8129*f*.
petroleum pyrolysis in, and chemicals recovered therefrom, 2760*h*
in retorts during coal shortage, 8117*i*
oil-gas, carbureted water-gas set conversion to twin-generator set for, 378*e*, 837*b*.
Dayton-Faber process for making, 8643*g*.
fluid MgO $SiO_2$ catalysts in making, 8656*d*.
generator for, for tunnel kilns, 2391*g*
interchangeability with natural gas, 3992*h*, 4831*h*.
manuf. of, P 4449*g*, 6392*i*, 6394*c*
as natural-gas supplement, 1550*d*
by reforming and cracking, 9415*b*
reforming of, 6393*e*.
from org. decompn., app. for collecting P 4836*i*.
ovens using—see *Ovens*.
oxidation of, contg. $CH_4$ and H, 2403*d*
oxygen and high pressure in manuf. of, 3170*fi*, 4832*c*.
oxygen in manuf. of, 3595*a*.
from peat, 5927*a*, 8118*e*.
from petroleum by oxidative reforming, 8125*a*.
from petroleum electropyrolysis, for cutting and welding steel, 4838*f*.
phase equilibria of coal, at high pressures and low temps., 3700*a*.
phenol-splitting microörganisms from, 8432*h*.
plant operation in relation to utilization, 3171*e*.
in potato preservation, 6329*g*.
pressure and vol. control of, governors for, 8645*g*.
problems in making, 6807*e*.
producer gas, $NH_3$, cyanogen and HCN in, and their detn., 4833*d*.
producer gas, manuf. of, P 7669*h*.
metering in horizontal main, 6395*c*.
particle-size distribution of dust in, 8644*c*.
peat charcoal as fuel for making, 2407*e*.
from run-of-mine coal, 6393*e*.
as source of fuel supply, 2406*e*.
water detn. in, 3171*h*, 8119*h*.
producers for, 1168*h*, P 7669*a*.
for automotive use, 1547*fh*.
combustion in, 3592*c*.
producer (slagging) for, for melting foundry Fe, 4611*h*.
propane-air mixt., 2405*f*.
purification of—see also *Iron oxides*, 8644*i*.
purification of, 3595*hi*, P 7669*as*,
app. for, P 6997*c*.
by catalysis, 2172*ad*.

*purification of*, effect of sawdust size and moisture on flow resistant in oxide-sawdust mixts. for, 5173*e*.
with fluidized solids, 3172*d*.
hardening of oxide in, 3173*f*.
by liquids, 3172*b*, 7211*e*.
oxide manuf. for, 3596*b*.
prepn. and use of pelleted oxides for, 4832*i*, 4833*b*.
with water spray, 8119*g*.
purification of brown-coal-generator, with gas liquor, 9416*e*.
quality and output from generators, effect of moisture and fuel size on, 3590*h*.
quality control of, 7666*a*.
quality indicator for, 8120*a*.
refractories in industry of, 1543*b*, 2392*b*, 3582*f*, 3583*e*.
removal of $C_2H_6$ and S from, 4833*g*.
research on, 4909*b*, 5172*b*, 8118*gh*.
research on, in French industry, 8119*a*.
retorts, air-borne sealing of, 3594*i*.
maintenance of, 6807*f*.
output from, 1946*d*.
selection of, 8118*b*.
review on, 4788*di*.
from rubber by pyrolysis at high pressure, 5169*c*.
scrubbing or washing, economics of, 3993*b*.
with oil-water dispersion, P 1552*f*.
in plate and bell-jar washers, 1945*i*.
from sewage or sewage sludge, design and operation of plant for production of, 8586*c*.
in production of dried grass, 3131*a*.
utilization of, 6767*c*.
from shale distn., 3177*i*, 7671*g*.
from shale, O detn. in, 3744*g*.
from shales of Baltic area, 9421*g*.
from solid fuel, 4831*f*.
from solid fuels at high pressure with catalysts, P 6397*c*.
in steel industry, 4193*h*.
from strawboard-waste decompn., 848*f*.
sulfur in, 3170*g*.
sulfur org. compd. removal and detn. in, 6112*f*.
sulfur recovery from, 4833*e*.
sulfur removal from, P 3791*i*, 836*g*, P 8396*b*, 3169*i*, P 3599*b*, 5571*e*, P 8122*a*, 9414*b*.
sulfur removal from, porosity of C catalysts for, 2080*c*.
for synthesis, P 4835*h*, 4836*b*.
Bur. of Mines report on, 2397*c*.
from coking gas, 3595*b*.
compn. effect on catalysts in hydrogenation of CO, 2398*g*, 2400*eg*.
from hydrocarbon gases, P 7213*b*.
hydrocarbons in, effect on hydrogenation of CO, 2406*e*.
manuf. of, 378*e*, P 8120*h*.
from $CH_4$, P 3174*h*.
from $CH_4$ or natural gas, P 4446*h*.
from $CH_4$, thermodynamics of, 7200*a*.
from oil shale, P 1170*c*.
from O and steam gasification of powd. coal, 378*a*, 6393*d*.
by O gasification of anthracite, 378*e*.
S removal from, P 7214*c*.
tar detn. in, app. for, 5926*h*.
tar emulsions from, breaking of, P 4451*f*.
from tar oils, P 1952*a*.
tar removal from, elec. app. for, 1551*b*.
tar removal from, heating of insulators of electrostatic precipitators for, 7211*h*.
temp. of, measurement of, 6394*c*.
turbines—see *Turbines*.
by underground gasification of coal, 3169*bc*, 3993*d*, P 3994*d*, 4831*c*, 5172*a*, 7210*g*, 9414*h*.
of lignite, 7210*f*.
of peat-lignite, 3594*g*.
of solid fuels, P 1170*g*.
use of, characteristics of, 3989*f*.
in foundries, 6808*a*.
by Liverpool industry, 5924*g*.
viscosity corrections in flow formulas, 5172*c*.
viscosity detn. of, 3596*g*.
wash oils—see *Absorption oils*.
wastes (cyanide-contg.) from, treatment of, P 3126*h*.
water gas, P 3176*f*, P 4837*a*, 5571*bg*, 5924*h*, P 7212*f*.
carbureted, from hydrocarbon oil, 378*f*, 836*e*.
catalyst for making, P 3599*a*.
chemical manuf. from, 8646*f*.
clinkering in generators for, ash fusibility and, 6394*e*.
conversion at high pressure, 1944*i*, 1945*abda*.
*water gas*, cracking oil to make higher B.t.u., 5571*a*.
fluidized-solid technique in making, P 1552*c*.
generator for, P 6397*d*.
heat transfer in app. for catalytic synthesis of, 2343*a*.
II synthesis by conversion of, plant design for, 5571*a*.
manuf. in reducing Fe ores with lignite, P 5727*g*.
by $CH_4$ reaction with $CO_2$, 1944*fg*, 4445*g*.
$CH_4$ synthesis from, 2402*a*.
methanol synthesis from—see *Methanol*.
mixt. with retort gas, 2405*c*.
from powd. coal, P 5928*d*.
preventing ignition of blow gases from plant for, P 9419*g*.
SiC linings in generators for, 378*g*.
S detn. in, 1169*b*.
S removal from, 1946*b*, 2401*e*.
temps. in generators for, 1550*h*.
water-gas reaction, 1945*fg*.
water-gas reaction, mechanism of, 378*g*.
from wood, 4832*h*, 6392*e*.
from wood, methanol extn. from, 7665*h*.
yield calcn. of, 7665*f*.
**Gas, natural**, absorption of $C_2H_6$ and $C_3H_8$ from, and dehydration of, at Dubach, La., 7217*b*.
absorption of 2-methylpropane and $C_3H_8$ from, and dehydration of, 4453*a*.
absorption plant for, and compn. and recovery of, 2412*d*.
of Alberta, 3989*f*, 5924*b*, 8319*h*.
argon, He and N ratios in, 528*e*.
book: Engineering, 1170*d*.
burners for—see *Burners*.
of California (Kern Co.), 4607*e*.
carbon black from—see *Carbon*.
carbon dioxide recovery from, 1169*a*, 1882*d*, 2343*b*.
chemicals from, 3993*e*, 6336*g*, 8643*e*.
chemicals from, economics of plant location and, 5175*h*.
compressibility of, 8643*e*.
condensate reservoirs, phase behavior of fluids, cycling and estg. hydrocarbon recoveries in, and review on gas hydrates, 7672*e*.
condensate wells, corrosion control by alkalies and $Na_2CrO_4$ in, 6813*a*, 8651*d*.
corrosion control by NaOH and $Na_2CrO_4$ or $Na_2Cr_2O_7$ in (reference should be No. 5), 7216*i*.
corrosion in, $CO_2$ and pH of well waters in relation to, 3599*e*.
corrosion prevention in, 551*f*.
kinetics of corrosion in, 8250*i*.
polar constituent adsorption from liquid-hydrocarbon phase of, 1951*i*.
recovering liquefiable hydrocarbons from fluids from high-pressure, P 8662*h*.
cycling plant for, 1550*g*.
cycling plant for, and absorption of hydrocarbons from, 2412*e*.
density of, measurement of, 1946*a*.
drying and purification of, 836*f*, 5571*d*.
drying of, 836*h*, 3171*i*, 5924*i*, P 9419*h*.
effect on fruit trees, 5830*b*.
entrained-material removal from, 5571*g*.
entropy and heat content of, effect of pressure on, 5576*b*.
ethane recovery from, 7210*i*.
extn. of $CO_2$ and $H_2S$ from, 2711*g*, 5516*c*.
extn. of $H_2S$ and absorption of hydrocarbons from, 8119*b*.
firing with—see *Firing*.
flame characteristics and utilization of, 3989*f*.
flow of, in limestone oil reservoirs, 8651*h*.
of France (Pechelbronn), 8319*g*.
fuel gas as substitute for, for peak load demands, 4832*b*.
gasoline—see *Gasoline*.
in Hungary, 8073*b*.
hydrates of, humidity and, 8643*d*.
pipe-line operation and, 3172*b*.
prevention of formation in high-pressure gas lines, 4832*f*.
hydrocarbon absorption from, 7216*h*, 7220*f*.
hydrogen manuf. from steam and, 5171*a*, P 6398*a*.
hydrogen sulfide detn. in, 835*e*.
hydrogen sulfide removal from, and sepn. of gasoline and liquefied petroleum gas from, 3180*a*.
industry in 1946, 2127*e*.
leakage tracer for, $C_2H_2$ as, 7211*b*, 8646*a*.
liquefied petroleum gas as supplement for, 836*c*.
liquid fuels from, bibliography on, 9414*f*.
liquid hydrocarbon recovery from, at Silsbee, Tex., 7220*g*.
in lubricant deterioration and deposit formation in motored engines, 4454*b*.
of Manitoba (southern), 5347*c*.
in metal cutting, 7394*b*.
meters—see *Meters*.
mixing coal gas with, 4831*e*.
mixts. with black oil or well condensate, volumetric and viscosity studies of, 2760*a*.
with manufd. gases, interchangeability of, 836*i*.
with propane and air, storage and utilization of, 5926*c*.
with propane as fuel, 4831*c*.
in New York and Penna. Oriskany sandstone, 4190*h*.
nitrogen removal from, 5924*f*, 6393*f*, P 7670*b*.
odor and its removal from, 7666*b*.
oil-gas interchangeability with, 3992*h*, 4831*h*.
oil gas supplement for, 1550*e*.
origin of, cosmic or inorg., 839*f*.
in petroleum recovery from gas-injections and reservoirs, 8651*i*.
phase equil. in, at low temp., 2833*g*.
pipes for—see *Gas pipes*.
producing formations, measuring permeability and porosity of, 3599*g*.
prospecting for, in Fla., 6126*i*.
by geophys. means, P 4456*e*.
by geothermal gradient in Trans-Terek plain, 1951*e*.
by waxlike substance, P 5581*h*.
purification of, P 7669*ce*.
pyrolysis of, aromatic hydrocarbons by, P 5928*i*.
recovery (secondary) of, acidization by $NH_4NO_3$-activated HF or HCl in, P 5179*dg*.
reforming of, by O oil gas process, 8643*g*.
with steam and coke, 3594*f*.
in water-gas sets, 1947*a*, 6393*e*, 7666*c*.
reinjection into petroleum reservoirs, oil displacement by, and oil vaporization into, 8121*ghi*.
removal from coal seams, 5923*e*.
reviews on, 1952*e*, 6398*ef*.
in Sarmatian strata of Azov Sea region, genesis of, 5710*i*.
in sedimentary complex of Ufa, Tataria, 6954*e*.
storage of, as hydrate, 1946*c*.
storage of, in depleted fields, 3169*c*.
sweetening and hydrocarbon recovery from, at Slaughter plant, Texas, 8657*d*.
synthesis-gas manuf. from, 1944*i*, P 4446*h*, P 4836*e*.
synthesis-gas manuf. from, thermodynamics of, 7200*a*.
of Texas (Sheridan field), 4451*i*.
thiol detn. in, 5924*c*.
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
United States reserves of, 3992*g*.
volcanic—see *Volcanoes*.
vol. correction for compressibility and temp., 8645*e*.
waters (underground) in fields of, of Saratov, U.S.S.R., 4192*b*.
wells, alk. earth salts in waters from, 6371*h*.
calcns. of operation of, 1550*i*.
corrosion inhibition by $H_2S$ in, P 3185*i*.
corrosion inhibitors for, P 5002*c*.
drilling fluids or muds for—see *Drilling fluids or muds*.
galvanic corrosion in fluids of, 2918*h*.
hydrocarbon detn. in strata of deep, app. for, P 1955*a*.
sealing porous strata in, phenol-HCHO resin dispersions for, P 2421*e*.
wells and flow lines, corrosion by $CO_2$ in, prevention with S compds., P 7221*g*.
**Gas appliances**, corrosion resistance of, measurement of, 6963*a*.
for petroleum liquefied gas, pressure regulation in, 3600*g*.
**Gas black.** See "black" under *Carbon*.
**Gas constant**, 4058*i*.
**Gases.** (See also *Fluids; Fumes; Smoke; Vapors*.)
absorbents for—see *Absorbents*.
absorption app. for—see *Absorption apparatus*.
absorption of—see *Absorption; Absorption (biological)*.

acetylene removal from—see *Acetylene*.
adiabatic exponent for, 3677*f*.
adsorbed—see *Adsorbed substances*.
adsorbents for—see *Adsorbents*.
adsorption of—see *Adsorption*.
air pollution from industrial, public health and, 7614*c*.
analysis for dust and water and test metering of, 972*b*.
analysis (magnetic) of, 4836*i*.
analysis of, 6104*i*, 8962*b*, 8970*i*.
absorption app. for, P 3249*g*.
app. for—see also *Orsat apparatus*.
app. for, P 380*i*, P 3249*g*, P 4907*d*, 5234*g*, P 6010*fg*, 8215*f*, P 8758*cd*.
app. for, in automatic control systems, 8213*c*.
app. for raising and lowering Hg in, 9111*i*.
Blacet-Leighton app. for micro, 6006*f*.
infrared app. for, 4054*g*, 5666*f*, 6869*i*, 8297*h*.
with infrared rays, 2759*e*, P 6873*d*.
in liquid food products, app. for, 4779*d*.
mass spectrometer for continuous, 7270*f*.
with mass spectrometer, glass diaphragm leaks for, 2822*d*.
Hg sealing bulb closures for app. for, 4054*h*.
from metals, 5646*e*.
micro app. for, 445*g*, 8749*g*.
Orsat app. of petroleum industry in, 7673*d*.
oxidizing bacterial cultures in, P 6114*f*.
pneumatic autodetector for infrared, 8216*g*.
semimicro app. for, 910*c*.
in $H_2SO_4$ manuf., 8621*g*.
by thermal cond., P 6543*a*.
analysis of O compd.-free, for O and water vapor, 971*i*.
atomic functions and viscosities of, 8774*f*.
banana storage in, 3535*g*.
benzene detn. in, contg. butadiene and higher olefins, 5343*d*.
blast-furnace—see *Gas, fuel (manufactured)*.
blood—see *Blood*.
blowers for—see *Blowers*.
bombardment of, with deuterons and $\alpha$-rays in cyclotron, 4090*i*.
books: Tables, 478*g*; Die Behandlung und Reindarstellung von, 2856*e*; Collisions of Electrons and Ions with Gaseous Atoms, 8283*d*; Over de physische gasanalyse volgens de warmtegeleidingsmethode, 8312*f*.
Bose-Einstein, 4913*h*.
bubbler for, 4903*a*.
bubbles—see *Bubbles*.
burets—see *Burets*.
butadiene detn. in, 7758*b*.
carbon dioxide detn. in, 6109*h*.
carbon dioxide removal from mixt. of, P 4450*d*.
carbon monoxide detn. in, with thermoelec. analyzer, P 7870*h*.
centrifuge for—see *Centrifuges*.
in chromium electroplates deposited from sulfate baths, 8901*i*.
circulators for—see *Circulators*.
coke-oven—see *Gas, fuel (manufactured)*; for gas travel in coke ovens see *Coke ovens*.
collection from anaerobic fermentation, app. for, 1077*c*.
combustibles in, detection or detn. of—see *Combustibles*.
combustion—see also *Flue gases*.
combustion, centrifuge for catalyst in, P 914*e*.
from coal beds of Mongolian S.S.R., $NH_4Cl$ sublimed crystals from, 6117*a*.
contg. S oxides, silica-smoke effect on dewpoint of, 2403*h*.
equil. compn. and thermodynamic properties of, 8119*e*.
furnace for producing high-pressure, P 4449*g*.
heat-exchange app. using, P 6874*f*.
inert, in synthetic resin and paint plants, 8177*a*.
of kerosene, enthalpies, entropies and heat capacities of, and their mixts. with air, 3671*d*.
from paraffins, 3618*e*.
removal without catalyst entrainment in hydrocarbon conversion, P 2452*b*.
thermodynamic properties of, 894*d*.
combustion of, mechanism of, 7663*d*.
combustion wave development in flowing, 4467*b*.
compn. of, app. for indicating changes in, P 3176*c*.
compressed—see also *Compressors; Cylinders*.
compressed, balloons or tires for, P 5224*c*.
compressed, theory of thermal conductance and viscosity of, 4004*g*.
compressibility of—see *Compressibility*.
compression of—see *Compression*.
compressors for—see *Compressors*.
condensed permanent, quantum theory of, 3678*e*.
contact with liquids, P 7760*d*.
contact with liquids, app. for effecting, P 1228*h*, P 2048*de*, P 5237*cf*, P 5650*a*, P 7676*h*, P 8218*e*, P 8759*b*.
contact with solids, P 387*g*, P 389*d*, P 6476*h*.
contact with solids, app. for effecting, P 6010*gh*.
containers for—see *Containers; Cylinders*.
cooling—see *Cooling*.
cooling app. for—see *Cooling apparatus*.
dehumidification of—see *Drying*.
density of—see *Density*.
desorption of—see *Desorption*.
detection in liquids, 7070*a*.
detection in pipe line, app. for, 7757*g*.
detection or detn. in air—see *Air*.
detn. of, 6943*h*.
in Al, 2120*de*.
in blood in heart disease, 9136*e*.
in steel (liquid), 4600*i*.
in steels, 8964*h*.
in water, 8961*i*.
detonation in—see *Detonation*.
dielec. properties of—see *Dielectric constants; Dielectric strength*; etc.
diffusion of—see *Diffusion*.
dispersion of—see *Dispersion*.
displacement from fibers and fabrics, measuring rate of, 854*e*.
drying—see *Drying*.
drying apparatus for—see *Drying apparatus*.
for drying citrus products, P 9295*b*.
dust removal from—see *Dust; Precipitation, electric*.
effect on activation of C from rice husks, 4834*f*.
on Sb evapn. and outgassing rates, 4066*h*.
on bronze, 532*h*.
on decompn. rate of $CaCO_3$, 2078*c*.
on Ni corrosion from steam condensate, 4996*e*.
on welds, 4996*h*.
effusion of—see *Effusion*.
elec. breakdown in, or discharge through—see *Electric discharge*.
elec. cond. of—see *Conductivity, electric*.
electrons in—see *Electrons; Electron tubes; Ions, gaseous*; etc.
energy (internal) of nonpolar, 7764*d*.
equation of state for—see *Equation of state*.
equil. with liquids under pressure, 8832*b*.
equil. with metals, 4917*d*.
equil. with metals, thermal-diffusion error in, 4932*i*.
evolution of, dismutation equil. for, 58*f*.
from powders in foam-rubber manuf., formula for, 6854*g*.
from supersatd. liquids, 6890*d*.
exhaust, from aircraft engines, water purification and recovery from, P 9310*i*.
from Diesel engine, sampling and aldehyde detn. in, 8646*c*.
effect on deposition and lubricant deterioration in motored engines, 4454*d*.
effect on lacquer and sludge deposition in engines, 5580*f*.
flame quenching in, P 1984*c*.
from internal-combustion engines, filter for HCHO removal from, 1547*i*.
expansion of—see *Expansion*.
from explosions—see *Explosions*.
explosions of—see *Explosions*.
extn. from plant sap or tissue, app. for, 8454*e*.
Faraday effect in—see "magnetic" under *Optical rotation*.
feeding apparatus for—see *Feeding apparatus*.
filters for—see *Filters*.
fire extinguishing in liquids with noncombustible, 6417*f*.
flame—see *Flames*.
flow of—see *Flow*.
flue—see *Flue gases*.
formation of, in doughs, effect of metals and salts on, 4781*e*.
endothermic reactions with, 6060*g*.
during org. reactions, app. for measurement of, 8749*h*.
in ruminal ingesta, effect of antifermentatives on, 2693*i*.
friction (internal) in, sound absorption and, 6878*f*.
in fruits, extn. and analysis of, 4350*b*.
fugacities in mixts. of, 2057*a*.
fugacity of associating, 3268*h*.
general ideal relativistic, 916*e*.
-generating substances, hydrophosphite-contg. flameless nitrate or nitro compd., P 5190*d*.
-generating substances, nondetonating compns., P 852*d*.
generators for—see *Generators*.
heat capacity of—see *Heat capacity*.
heat cond. of—see *Conductivity, thermal*.
heaters for—see *Furnaces; Heaters*.
heat exchange or transfer in—see *Heat*.
heating of—see *Heating*.
for heat-treatment of metals, manuf. of, P 6811*f*.
humidification of—see *Humidification*.
humidity of—see *Humidity*.
hydrofluoric acid removal from, agents for, P 9300*f*.
hydrogen cyanide removal from—see *Hydrocyanic acid*.
hydrogen sulfide detn. in, 7375*b*.
hydrogen sulfide removal from—see *Hydrogen sulfide*.
ignition of—see *Ignition*.
imperfect, after Fermi's model, 4530*d*.
inert—see *Helium group gases* and "protective" below.
inflammability of—see *Inflammability*.
interfaces of, reflection of shock wave at, 3677*e*.
in intestinal flatus, effect of gaseous transfer between colon and blood stream on, 298*b*.
ionization of—see *Ionization, gaseous*.
ionized—see also *Ions, gaseous*.
ions of—see *Ions, gaseous*.
kinetic theory of—see *Kinetic theory*.
law of, derivation from Boyle's and Charles' law, 6015*g*.
laws of, lab. expt. to illustrate deviation from ideal, 6021*c*.
light scattered by, depolarization of, 7281*i*.
liquefaction of—see *Liquefaction*.
liquefied, measurement of viscosity of, 6024*b*.
liquefied, transferring measured quantities of, P 1229*a*.
magna, thermodynamics of, 8224*f*.
measuring app. for—see *Meters*.
measurement in creams and pastes, 2734*i*.
in metals—see *Metals*.
metals and, review on, 1638*a*.
meters—see *Meters*.
microwave spectroscopy of, 4559*i*.
mine—see *Mines*.
mixing app. for—see *Mixing apparatus*.
mixing of, in open-hearth furnace models, 7878*g*.
mixts. of inert, sepn. by flow through capillary networks, 6488*i*.
mixts. of, interpretation of states of, by semilogarithmic entropy-vol. diagrams, 4914*b*.
mixts. of, velocity of flames in, 8248*h*.
models for instruction, 4062*i*.
mol. wts. of, detn. of, 2055*i*.
neutron diffraction by, 5285*d*.
of nonspherical mols., 2nd virial coeff. of, 3677*c*.
noxious—see *Chemical warfare agents; Noxious substances*.
occlusion of—see *Occlusion*.
oil displacement from limestone cores and porous media by, 2757*c*.
in oil tankers, removal after discharge and detn. of explosibility, 8127*e*.
oxidation-inhibiting, for treatment of milk, P 4396*h*.
oxygen detn. in, 1286*a*, 3744*f*, 8963*d*.
for, P 7760*a*.
[illegible] as absorbent in, 4599*gi*.
oxygen removal from—see *Oxygen*.
partial pressure of—see *Partial pressure*.
partition between liquid hydrocarbons and $H_2O$, 7397*f*.
permeability of various substances to—see *Permeability*

from petroleum refining—see *Petroleum refining.*
poison—see *Chemical warfare agents; Poisons.*
polymerization of—see *Polymerization.*
precipitation of particles from—see *Precipitation, electric.*
pressure—see *Pressure.*
protective or inert, for annealing, 3327*g.*
annealing in, 3757*c.*
for bright annealing, producer for, P 2153*d.*
for bright heating of metals, P 4209*h.*
for casting Pd or Pd alloys, P 8289*g.*
for cementation of Fe and steel, P 5729*c.*
in chemical, paint and varnish industries, 7607*d.*
detn. in coal gas, 8971*a.*
for elec. furnaces, 45*c.*
indicator for O in furnace, 7303*c.*
in industry, 3117*g*, 7607*cd.*
manostatic valve for, 7270*e.*
manuf. of N for use as, P 104*f.*
for metals, 9001*d.*
review on, 332*f.*
for steel heat-treatment, 4992*a.*
pumps for—see *Pumps.*
purification of—see also *Centrifuges; Dust; Precipitation, electric; Scrubbers; Washing; Washing apparatus.*
purification of, P 7669*ce.*
by activated charcoal, 2744*b.*
from As, P and S, P 2382*a.*
from $AsH_3$, $H_2S$ and $PH_3$, P 2381*i.*
with fluidized materials, P 8218*h.*
in metallurgical plants, 1293*e.*
radiation scattering by inhomogeneous regions in, 6040*e.*
Raman spectra of—see *Raman effect.*
rare—see *Helium group gases.*
reaction kinetics of—see *Reaction kinetics.*
reactions of—see *Reactions.*
reactions of, catalysts for—see *Catalysts.*
real, Nernst theorem and theory of, 8773*d.*
recovery of acidic, P 308*h.*
release from liquids by solid surfaces, 2068*h.*
removal from Al alloys, 1702*a.*
from benzene, 8978*b.*
from brasses and bronzes, 1703*g.*
from fluids, cation-exchange resins for, P 5238*f.*
from low-boiling liquids, 8622*g.*
from molten Mg, P 3340*e.*
from nonferrous metals, N in, 5715*d.*
from oils, P 3186*c.*
from petroleum tanks, 3179*i.*
from transformer oil, app. for, P 394*b.*
removal of dissolved, from soil water, and app. therefor, 3951*e.*
requirements of molds for, 4332*i.*
residual—see *Electron tubes; Getters; Lamps, electric;* etc.
respirators for—see *Respirators.*
respiratory—see also *Air.*
respiratory, analysis of, 2268*b.*
respiratory, O detn. in, with syringe Pt cathode, 8963*i.*
sampling—see *Sampling.*
sampling app. for—see *Sampling apparatus.*
scrubbers—see *Scrubbers.*
sepn. of—see *Precipitation, electric; Separation;* and "thermal" under *Diffusion.*
separators for—see *Centrifuges; Separators.*
sewage—see *Sewage.*
from silage, effect of NaCl on, 1123*c.*
in soils—see *Soils.*
solid treatment with, P 8*d.*
solns. of—see *Solutions.*
sorbents for—see *Sorbents.*
sorption of—see *Sorption.*
sound in—see *Sound.*
spectrum of—see *Spectra.*
steady motion in perfect, equations for, 2055*h.*
in steel—see *Steel.*
sulfur dioxide recovery from—see *Sulfur dioxide.*
sulfur recovery or removal from *Sulfur.*
synthesis, manuf. of, 15366.
synthesis of—see *Synthesis.*
systems with elastomers, and transport phenomena in,
systems with fluidized solids, transfer in, 8646*i.*
systems with liquids, 4681.
systems with solids, thermal condv. in, 8634*h.*
temp.—see *Temperature.*
temp. regulators for—see *Thermoregulators.*
theory of, 8772*fh.*
thermal cond. of—see *Conductivity, thermal.*
thermal diffusion of—see *Diffusion.*
thermodynamics of—see *Thermodynamics.*
thermoösmosis of, through membranes, 4002*f.*
toxic—see *Chemical warfare agents; Poisons.*
transport properties of, and their mixts., 4531*a.*
transport properties of, calcn. of, 2832*i.*
transport properties of multicomponent mixts. of, 8774*c.*
transport properties of nonpolar, 2833*a.*
traps for—see *Traps.*
valves—see *Valves.*
viscosity of—see *Viscosity.*
volcanic—see *Volcanoes.*
vol. properties of, calcn. from crit. data, 2832*d.*
war—see *Chemical warfare agents.*
washing apparatus for—see *Scrubbers; Washing apparatus.*
washing of—see *Washing.*
waste, heat recovery from—see *Heat.*
from paper-pulp digestion, purification of, 8135*i.*
use of industrial, in CO-H manuf., 1994*i.*
waves in—see *Sound; Ultrasonic waves.*
work functions of surface coated with, 4093*d.*

**Gas exchange.** See *Respiration, animal; Respiration, plant.*

**Gasification.** See *Carbon dioxide; Carbonization; Coal; Gases; Peat.*

**Gaskets,** acrylonitrile-butadiene rubber compns. for, P 7260*d.*
from chlorinated polythene, P 9534*be.*
cork, P 2039*f.*
cork substitutes for, P 6466*i.*
from dimethyl silicone gums, P 2036*g.*
from factice and polyisobutylene, P 2040*b.*
fungicides for cork, 4803*i.*
leather waste-vinyl acetate plastic for, P 4506*b.*
methyl silicone elastomers contg. vinyl groups for, P 5625*c.*
polysulfide polymers for, P 5636*h.*
polytetramethylethylene oxide materials for, P 2038*f.*
from silicon rubbers, 9516*f.*
siloxane (methyl-) elastomers for, P 2808*d.*
from vinyl chloride polymers with vinylidene chloride, P 5638*b.*

**Gas liquor.** (See also *Ammonia, manufacture of; Ammoniacal liquor.*)
disposal of, 837*h.*
effluents from, treatment of, 6344*g.*
hydrogen-ion concn. of, carbonization temp. and, 8642*c.*
utilization in brown-coal-generator-gas purification, 9416*e.*
from wood-fed generators, 5925*g.*

**Gas masks.** See *Respirators.*

**Gas oil.** See *Hydrocarbon oils* and "solar oil" under *Petroleum.*

**Gasol,** by hydrogenation of CO, 2398*cfhi*, 2399*abcde.*

**Gasoline.** (See also *Hydrocarbon oils; Kogasin; Octane number; Petroleum refining.*)
acetal as blending agent in, P 2222*b.*
in air, max. allowable concn. of, 4401*a.*
by alkylation and isomerization with halide-ether complex catalyst, P 8666*c.*
by alkylation and polymerization of olefins, economics of making, 8654*c.*
alkylation of, alkyl benzenes by, P 1175*d.*
by alkylation of 2-methylpropane with amylenes, P 9430*e.*
of 2-methylpropane with butenes, P 4004*i.*
of paraffins with olefins, P 4458*d.*
amine (aromatic) blending agents for aviation, P 1561*g.*
amines (stabilized aromatic) for use in, P 251*f.*
anabasine distribution between water and, 6789*b.*
analysis of, for Br and Cl, burner for, 6474*d.*
for hydrocarbon types, 2413*gi*, 3998*d.*
for $H_2S$ and mercaptans, 6043*i.*
for naphthenes and paraffins, nomographs for, 5931*f.*
by Raman effect, 8124*s.*
antiknock-value improvement, mid-boiling point increases and tail-end volatility of, 9423*a.*
antiknock value of, effect of $C_6H_6$, $C_6H_6$ derivs. and alcs. on, 7674*b.*
effects of hydrocarbons, $PbEt_4$ and S compds. on, 7674*a.*
improvement of, and agents therefor, 5578*h.*
increasing by alc.-water-$PbEt_4$ injections, 383*h.*
Pb compd. mixts. with bromo- or chlorohydrocarbon scavengers for improvement of, P 8667*e.*
from superfractionation of naphtha, 1555*a.*
antioxidant concn. and stability of cracked, 5579*f.*
antioxidants for, *o*-alkyl-*p*-alkoxyphenols, P 3187*e.*
*p*-aminophenols as, P 3604*f.*
2,6-di-*tert*-butylphenol as, P 3459*f.*
halogen-contg. org. P compds., P 2765*c.*
by reductive alkylation of *p*-phenylenediamine with ketones, P 4005*f.*
antioxidants for cracked, and oxidation induction period in, 2414*ce.*
aromatic-hydrocarbon detn. in aromatized shale-oil, 5931*c.*
aromatic-hydrocarbon detn. in Puertollano-shale, and its fractions, and control of its aromatization, 5577*c.*
aromatic-hydrocarbon extn. from cracked, P 8670*d*
aromatic hydrocarbon recovery from, P 4002*i.*
by aromatization of hydrocarbons with heavy metal oxide-Zn spinal catalysts, P 6818*h.*
aromatization of paraffinic, with $Cr_2O_3$-$SiO_2$ catalyst and desulfurization with Cu wire, 3997*d.*
aromatization of Puertollano-shale, 5577*g.*
aviation, compounding uniform, 3998*i.*
aviation, or cyclopentane blending agent therefor, P 6818*g.*
brown-coal, recovery from gas liquor, 9416*g.*
butane permissible vols. in, 382*h.*
catalytic treatment and reforming of, silica-gel catalysts for, P 3604*c.*
from Chile (Manantiales) oil distn., d. and yield of, 3995*h.*
from coal-distn. products, 8641*f.*
from coking petroleum heavy residuum oil and tars, 9425*i.*
by coking petroleum tarry cracking residues on coke, P 389*d.*
combustion products from cracked and mercaptan-doped, effect on deposition and lubricant deterioration in motored engines, 4454*d.*
cracked, formic acid pretreatment and 2-methylpropane alkylation with, to antiknock gasoline, P 3189*b.*
olefin and S content reduction by $SiO_2$-$Al_2O_3$ catalytic heat-treatment, aviation blending stock by, P 4003*a.*
by Thermofor process, hydrocarbons in $C_6$ fraction of, 4453*b.*
by cracking and conversion, aviation satd., P 386*i.*
by cracking, by catalytic processes, 6814*c.*
with fluid MgO-$SiO_2$ catalysts, 8656*d.*
of gas oil, highly aromatic, P 386*i.*
of gas oil, testing $H_2SO_4$-activated clay catalyst for, P 8663*b.*
by Houdriflow process, 8124*d*, 8656*g.*
of hydrocarbon oils, clay catalysts for, P 6403*g.*
of hydrocarbon oils, increasing efficiency of catalyst in, P 8665*d.*
of hydrocarbon oils with Th phosphate catalysts, P 9428*g.*
of hydrocarbons in vapor phase, P 8663*c.*
of sour gas oil in Thermofor unit, 841*a*, 3180*c.*
by Thermofor process, increasing yield of, 4839*b.*
cracking of gas oil and reforming to highly aromatic aviation, P 389*f.*
by cracking of hydrocarbon oils and olefin content reduction with solid cracking catalysts, P 4003*i.*
by cracking with fluidized catalyst and reforming to aromatic oil, P 387*e.*
cycloölefin extn. from cracked olefinic, P 4003*g.*
cycloparaffin extractive distn. from naphthenic, P 3605*g.*

detection of water, etc., in, app. for, P 8760*b*.
2,3-dimethylbutane blending stock for aviation, P 5181*a*.
diphenylamine detection in, 2760*e*.
in disinfection of skin, 3525*c*.
from distn. (high-pressure) of coal, 5570*e*.
by distn. of cracked residuum distillate, P 4003*h*.
distn. of straight-run, and maintaining yields in cracking by solar-oil addns., 3601*g*.
ethyl and Me group removal from higher-boiling aromatics of, P 5584*b*.
from ethylene and $C_2H_6$ by polymerization, isomerization and alkylation, P 2763*g*.
evapn. losses of, 5931*g*.
fire-extinguishing system for plants using, in pine-stump processing, 8681*h*.
fires on $H_2O$, extinguishing, P 3949*e*.
of Formosa (Kinsui), phys. properties of fractions and structural analysis of, 2413*g*.
fuel cells for—see also *Fuels*.
fuel gas enriched with, in coke-oven heating, P 2408*i*.
fuels contg.—see *Fuels*.
by gas oil conversion with $Al_2O_3$-$SiO_2$ catalysts, P 844*a*.
gelation of, 3991*f*.
gum and peroxide formation and improving gum stability of cracked, 8656*a*.
gum-formation inhibition in, by org. sulfides or polysulfides, P 7223*h*.
gum-formation prevention in, from shale oil, 5576*h*.
heat capacity of, and of its gels with Napalm, 8140*b*.
hydroaromatic hydrocarbons in 95–122° fraction of Mirzaan, 4838*i*.
by hydrocarbon-oil conversion in vapor phase, P 6403*i*.
by hydroforming of naphtha, 841*c*.
by hydroforming of naphthas with $MoO_3$-$Al_2O_3$ catalyst, with high $PbEt_4$ susceptibility, 2761*a*.
by hydrogenation-cracking of raw rubber, 3648*g*.
by hydrogenation of CO, 2399*g*, P 3174*g*, P 3994*bc*, P 5574*d*, 7664*c*, 7211*h*.
of coal, 1942*i*, 2754*f*, 5170*f*, 6391*c*, 8641*e*.
of coal or CO, 3591*e*.
of hydrocarbon oils with $MoO_3$.2HCl catalyst, P 9431*d*.
of Kogasin fractions, 2415*g*.
by hydrogenation of CO and hydrogenolysis, P 4834*i*.
hydrogen sulfide partition between $H_2O$ and, 7297*h*.
ignition, detonation and oxidation of vaporized Fuel S, 7674*d*.
ignition pressure and temp. relations of, 7209*h*.
isooctyl alc. manuf. from, 3180*a*.
lead mercaptide decompn. by heat in, and sweetening thereby, 4839*g*.
lead poisoning by leaded, 2416*a*.
lead pptn. in leaded aviation, inhibition by hydroquinone and phenolic gum inhibitors, P 4003*f*.
lead pptn. in leaded, inhibition by dialkyl sulfates, P 2423*d*.
lead scavenger in aviation, $C_2H_4Br_2$ as, 1173*a*.
mixing of, 1614*f*.
natural-gas, absorption and analyses of, 2412*e*.
absorption and recovery at Dubach, La., 7217*b*.
absorption plant at Newhall, Calif., 9422*h*.
absorption plant at Silsbee, Tex., 7220*f*.
absorption plants using direct-fired heaters for, 3179*i*.
cycling plant for, 1550*h*, 2412*f*.
extn. at Burrel plant, 4453*a*, 7218*d*.
extn. plant at Hastings field, Texas, for, 5931*f*.
fractionator instrumentation for control of plants for, 7673*e*.
industry in 1946, 2127*e*.
propane recovery in plants for, 7220*d*, 7673*cfg*, 8654*c*.
recovery and sweetening at Slaughter plant, Tex., 8657*e*.
recovery with $C_3H_8$ refrigeration unit, 382*f*.
U.S. reserves of, 7213*i*.
neutralizer effect on, 97*a*.
olefin detn. in cracked and reformed, 285*e*.
olefins (di-) in Puertollano-shale, identification of conjugated, 5578*c*.
oxidation (auto-) inhibition in cracked, by amine or phenolic antioxidants and metal deactivators, 5932*a*.
oxidation in, by metal catalysts, inhibition with amino aldehyde-amine condensation products, P 4460*a*.
oxidation products in oxidized, detn. of, 1952*eg*.
oxidation stability of aviation, and effect of $Et_4Pb$ and halide-contg. $Et_4Pb$ thereon, 5578*i*.
oxidation stability of cracked, purification effect on, 2414*f*.
from oxidative reforming of Tulmazin Devonian petroleum, 8124*i*.
phenol detn. in, 9422*i*.
poisoning by, 4789*e*.
polyform, 3600*i*.
by polyforming of naphtha, 384*b*.
from polyforming of refinery gases, 2759*i*.
polymer from cracked, corrosion-preventing compn. from, P 8349*d*.
polymer from re-running of sour cracked, linseed-oil extender from Edeleanu ext. and, 4025*c*.
by polymerization of butenes and $C_2H_4$ with Cu pyrophosphate catalyst, 4839*c*.
of olefins ($C_4$) and $C_2$-$C_3$-$C_4$ olefin mixts., P 1559*d*.
of olefins with imino compd. or nitrohydrocarbon catalyst, P 8666*g*.
polymerization unit making antiknock, and analyses of polymer gasoline, 383*f*.
by pyrolysis of molasses, 9422*e*.
by pyrolysis of rubber waste with petroleum heavy oil, 5984*c*.
refining 65–95° fraction of, with $H_2SO_4$, ligroin by, 4839*i*.
reformed, from Arkansas City refinery, 9423*e*.
reforming of Fischer-Tropsch, and S removal from cracked gasoline, catalysts for, P 6763*b*.
reforming of, with $Al_2O_3$-halogen-Pt catalyst, P 8664*g*.
catalyst for, P 8579*c*.
economics of, 8654*c*.
at McCarthy Chem. Co., 8124*e*.
yields *vs.* operating conditions in, 2757*h*.
removal of halogen and S from, with active C complexes, P 390*c*.
removal of $H_2S$ and phenol from cracked, treatment of spent NaOH from, 4839*c*.
-resistant nylon impregnated with polyamide interpolymer, P 3208*i*.
as rocket fuel, 9449*i*.
rocket propellant from $HNO_3$ and, 833*c*.
from rubber cracking, 5169*g*, 5984*bd*.
from rubber cracking, refining by hydrogenation and value as fuel, 5984*de*.
rubber soln. in, as hydraulic fluid, P 4791*f*.
from shale oil, control in making, 7215*c*.
from shales of Baltic area, 9421*h*.
in sludge and varnish deposition in engines, effect of additives and compn. of, 5579*h*.
solid mixt. prepn. with, 6398*h*.
stabilization of cracked, with substituted dihydroxybiphenyls, P 9428*a*.
stabilizers for, condensation products of hydroxyarylalkyl amines, P 1176*b*.
standards or specifications for, 4399*d*, 4787*b*, 4838*h*.
sulfide and thiol extn. from, regenerating NaOH solns. from, P 8664*g*.
sulfur compds. in, effects on octane no., Pb susceptibility and engine wear, 383*i*.
sulfur removal from reformed, with catalysts, 8125*d*.
synthesis of, physiochem. research on, 2412*hi*, 2413*abd*.
tanks (self-sealing) for, coatings for rubber linings of, P 6003*e*.
tar-acid detection in, 7216*f*.
from tar distillates, 7207*h*, 7664*h*.
testing corrosiveness and sludge- and varnish-forming properties of, 839*i*.
tetraethyllead detn. in, 4787*d*, 5693*e*, 6006*h*, 7216*d*, 9423*e*.
tetraethyllead mixing with, 8655*c*.
thiol detn. in, 7216*g*.
thiol extn. from acid, regenerating NaOH from, P 5182*i*.
thiol formation in cracked, 3601*c*.
thiol removal from acid, P 4844*b*.
of United States, 2412*f*, 8613*g*.
United States aviation, 1553*h*, 5578*f*.
from vegetable-waste digestion and elec. arc treatment, P 8662*h*.
viscosity of, polyesters and superpolyesters in increasing, 8699*d*.
Wyoming crude oils as source of, 839*g*.

**Gas pipes**, carbon monoxide-resistant, 3330*e*.
copper tubes as main and service, 5925*f*.
corrosion of, 1706*b*, 5724*a*, 6140*i*.
by bacteria, 8645*h*.
by $H_2S$, 1169*d*.
for natural gas, prevention of, 98*i*.
prevention by cathodic means, 1305*a*, 2150*i*, 3336*e*, 7400*h*.
deposit removal from, 3597*c*.
dust in mains, 8119*f*.
flow in long, 7272*b*.
gas hydrates in relation to operation of lines, 3172*b*.
gas-impurity detection in, app. for, 7757*g*.
leakage in, $C_2H_2$ as tracer for, 8646*b*.
leak detection in underground, 1551*a*
long-distance lines in Netherlands and Belgium, 4445*e*.
naphthalene removal from inlet piping of gasholders, 5926*d*.
transmission of $CH_4$ in lines, 4832*b*.
water mech. removal from high-pressure lines, 4832*e*.

**Gastaldi reaction**, pyrazinol derivs. by, 3006*b*.

**Gasterophilus intestinalis** and(or) **Horse botfly**, disturbances in blood-sugar regulation after, 5108*e*.
hemoglobin metabolism in, 5506*h*.
iron metabolism after, 3893*g*.
succinic acid in blood of larva of, 1872*i*
sugar metabolism after subtotal, 3514*e*
for ulcer, Fe in blood after, 748*d*.

**Gastric contents**. See *Stomach contents*.

**Gastric juice**, action on pteroylheptaglutamic acid, 3895*f*.
alk. reserve and secretion of, 1099*e*.
anesthesia and, 5871*i*.
anoxic suppression of secretion of, 4744*i* of aphid, 322*i*.
[2-(benzhydryloxy)ethyl] quaternary ammonium compds. as inhibitors of secretion of, P 3463*a*.
carbohydrate metabolism and secretion of, 9229*c*.
catalase activity of, 6257*c*.
chlorine in, in gastric diseases, 5853*i*
chloroform detn. in, 7191*g*.
curare effect on secretion of, 7143*b*.
digestive capacity of stomach and, 739*a*
effect of benzhydryloxy derivs. of heterocyclic amines on secretion of, P 2235*d*.
effect of histamine and neoantergan on secretion of, 1868*g*.
effect of quinine and atebrin on secretion of, 5491*h*.
effect of urine ext. from oophorectomized and thyroidectomized dogs on secretion of, 3502*de*.
enterogastrone effect on secretion of, 5497*d*.
folic acid effect on secretion of, 8051*i*.
histaminase inhibition of secretion of, 321*a*.
histamine-induced secretion of, effect of thephorin on, 4385*i*.
hydrogen ions in, source of, 3500*i*.
insulin effect on secretion of, 8538*h*.
mercury salts and, 4763*e*.
mucin detn. in, 2264*e*.
mucin of, 6252*h*.
nocturnal secretion of, by normal, ulcer and carcinoma patients, 303*a*.
paludrine effect on secretion of, 2704*def*
peptic synergist in, 747*g*.
pregnancy-urine effect on secretion of, 749*f*.
pressure effect on secretion of, 8506*c*.
secretion of, in ulcer patients, 6302*b*.
stimulation of secretion of, by theophylline-ethylenediamine, 7583*c*.
sulfonamide effect on secretion of, 3527*b*.
*Tanacetum vulgare* exts. and, 8537*h*.
tubercle bacillus culture from, 7546*e*.
Tween 20 stimulation of secretion of, and its inhibition by benadryl, 760*e*.
uric acid in, effect of histamine on, 5846*c*.

**Gastroenteric alliohalon**, the name, 5114*g*.

**Gastroenteritis**, hemorrhagic, in mink as nutritional deficiency, 8022*c*.

**Gastroenterology**, book: An Introduction to, 1104*c*, 3091*d*.

**Gastrointestinal tract**. See *Digestive tract; Intestines; Stomach*.

**Gastropods.** (See also *Mollusks; Snails.*)
effect of choline and acetylcholine on heart of, 3528*h*.
**Gattermann-Koch reaction,** 6182*f*.
**Gattermann synthesis,** with 2(and 4)-nitroresorcinol, 7925*b*.
**Gaultheria shallon,** Cu and Zn in twigs and wood of, in geochemistry, 3321*f*.
**Gauze.** See *Surgical dressings.*
**GBH.** See *Cyclohexane, 1,2,3,4,5,6-hexachloro-.*
**Gearksutite,** crystal structure of, 8984*c*.
**Gears,** carburization of, furnaces for gas, 7393*f*.
forgings for main reduction, standards of A.S.T.M. for, 4202*e*.
lubricants for—see *Lubricants.*
surface hardening and mech. strength of, 983*f*.
**Gee-Thaysen disease.** See *Celiac disease.*
**Gehlenite,** crystal structure of, 5253*c*.
solid solns. of melilite and, and as of glasses and crystals of gehlenite–soda-melilite systems, and soly. of $Na_2O$ in gehlenite-akermanite mix crystals, 73*c*.
**Geiger counter, Geiger-Müller counter.** See *Counters.*
**Geigy 33.** See *Ethane, 1,1,1-trichloro 2,2-bis(p-chlorophenyl)-.*
**Gelkielite,** stability of, in rocks, thermal properties and, 4187*g*.
**Gelsosepermum laeve,** curarizing substance from, 9380*h*.
**Gelatin,** betaine in, effect on photographic properties, 51*g*.
as bonding material for fiberglass fabric to phenolic resins, P 8208*i*.
cathepsin action on, 9089*c*.
coacervate with gum arabic, effect of pH and salts on diam. of drops of, 3691*a*.
coagulation by, in V detn. in steels, 4179*d*.
coating contg., for food and food packages, P 8576*c*.
coating with, on Al and Al alloys, P 5001*e*.
coating with, on stringed instruments, P 4494*f*.
collagen degradation into parent, 6888*g*.
complexes with Na alkyl sulfates, 8801*g*.
compns. with acrylic acid polymers, 8076*e*.
with aldonic acids for Zn electroplating baths, P 2102*h*.
with polyvinylurea, P 5231*h*
congealing of sols of, 6491*i*.
in copper electrodepositions, 1269*a*.
cross-linking process in gels of, 3690*i*.
decompn. by *Fusarium,* 7546*g*.
deformation of gels of, 5261*d*.
deformation of mols. of, in soln. on varying elec. charge, 7787*f*
detection of, 4324*h*.
detn. in electroplating baths, 961*h*.
detn. of Cu, Pb and Zn in, 5510*g*.
digestion by chymotrypsin and trypsin, effect of pH and buffers on vol. during, 6263*f*.
from ears, feet and lips of cattle and hogs, 5220*g*.
effect on adhesion of particles, 4503*b*.
on Al soln. in NaOH, 5264*e*.
on autodisplacement of Pb, 2846*e*.
on corrosion of wrought steel, 6141*i*.
on growth rate of electrolytic single crystal of Ag, 4584*c*.
in polarographic analysis of brass, 4181*h*.
on polarographic diffusion currents, 4930*a*, 5698*bc*.
on polarographic drop time, 1270*i*.
on polarography of metals, 5310*a*.
on polarography of methyl orange, 6043*i*.
on soly. of $Cu_2O$ in soil solns., 7542*b*.
on stability of supersatd. solns. of $KNO_3$, 8805*i*.
on Sn electrodeposition, 1269*d*.
on tryptophan transformation to niacin on low-casein diet, 3500*a*.
elec. cond. of, effect of adsorbed salts, HCOOH and temp. on, 3698*b*.
electrophoretic homogeneity and isoelec. point of, 2247*f*.
emulsions for screen printing, improving resistance to alkalies and water, 9455*a*.
films of, on water, 2487*b*, 8798*f*.
films of, solubilization of insol., 8087*e*.
films (unimol.) of, HCOOH soln., 6039*i*.
foaminess of solns. of, 3794*f*.
foaming of solns. of, agents for, P 7610*e*.
gelation and interaction with org. substances, 7787*f*.
gelation and viscosity of solns. of, effect of salts on, 4540*f*.
gelation of, effect of Na dodecylsulfonate or acacia gum on, 2488*f*.
gels of, m.ps., optical activities and rigidities of, 4066*g*.
hardeners for, dialkylaminomethylol, alkyloxazolidene and tetraalkylaminomethylenediamine as, 7246*e*.
heat of wetting of, 6042*f*, 7781*f*.
heptane emulsion in, crit. dispersity of, 7776*d*.
hydrochloric acid adsorbed by, titration of, 6883*c*.
hydrolysis at high pressures, 705*b*.
hydrolysis (enzymic) of, 3790*i*.
hydrolyzates of, glycine detection in, 4978*b*.
hydrolyzates of, optical specificity of, 6265*b*.
insecticide films on, 9330*f*
interfacial tension between $C_6H_6$ solns. of cholesterol-lecithin and aq., 8800*b*.
iron passivation with, 8246*c*.
isoelec. point of, dyes in detn. of, 6884*d*.
liesegang rings in—see *Liesegang rings.*
manuf. of, P 1592*i*.
from bones, 6854*a*.
from bones and hides, P 3224*e*.
melt with glycerol, ethylene glycol, etc., porous spongy product from, P 5618*i*.
methylation of, and its derivs. to raise isoelec. point, P 9512*d*.
molded articles from wood or cork waste and, P 4517*f*.
mol. form of, 3477*g*.
mol. wt. of, 3266*e*.
pancreatic juice action on, and products therefrom, 9089*e*.
photographic, 1667*g*, 3301*a*.
characterizing, 8923*i*.
S detn. in, 8923*i*.
photographically active ingredients in, removal of, P 958*e*.
in photographic emulsions, 6927*c*.
photographic films from—see *Photographic films.*
plastic emulsion contg., P 6000*e*.
precipitation in films of, 7296*h*.
preservation of, esters of unsatd. tricarboxylic acids for, P 7634*d*.
reaction with basic Cr salts, 1592*a*.
relaxation in gels of, 6888*f*.
rigidity of gels of, 467*e*.
silver nitrate electrolysis in presence of, 7356*gi*.
sponge, P 4434*g*.
stabilizer for icings, P 6759*b*.
standard solns. of, for tannin detn., 7732*f*.
substitutes for, in photographic emulsions, polymers of acrylates of hydroxy amides as, P 3446*i*.
as suppository bases, 3563*f*
surface-active-agent adsorption by fibers of, 1193*i*.
surface areas and heats of absorption of, 2248*b*.
swelling of, in mixts. of dioxane, EtOH and $H_2O$, 7788*b*.
system: $(NH_4)_2SO_4$–$H_2O$–, 3691*a*.
thermal analysis of, 9137*b*.
thermal cond. of gels of, 6888*i*.
thermodynamic properties of solns. of fractions of, 8837*f*.
water bound by, 4553*e*.
water (combined) detn. in, 5701*b*.
water-vapor sorption by, 7294*d*.
from whale skin (blue), prepn. and physiochem. properties of, 1206*e*.
whipping properties of, improvement with negatively charged acid-inositol condensation products, P 8186*i*.
xanthurenic and kynurenic acids in urine on diet of, 6294*a*.
**Gelatinase,** in *Clostridium histolyticum* and *perfringens,* 6260*b*.
**Gelatinous materials,** emulsions, 7775*i*.
**Gelation,** of acrylonitrile polymers with vinylidene chloride in 2-butanone, prevention of, P 7755*b*.
of alk. earth sulfonates in mineral oil solns., prevention by phthalic acid esters, P 1959*h*.
of aluminum soap-hydrocarbon systems by additives, 3638*i*.
of aluminum soaps, 3688*f*.
amine bentonites in, of paints, etc., 8704*d*.
of apple pomace, 5516*e*.
of blood serum with fibrinogen, 4780*g*.
Buna-rubber structure detn. by, 7253*g*.
of carbon black in cold rubber reënforcement, 9515*d*.
of cellulose derivs., inorg.-salt effect on, 8134*f*.
of ethylcellulose aq. solns. on heating, 3611*d*.
in ethylene glycol- and water-solubilized systems, 466*c*.
of gasoline, 3991*f*.
of gelatin, 7787*f*.
effect of acacia gum or Na dodecylsulfonate on, 2488*f*.
effect of salts on, 4540*f*.
of Igelites, 6454*h*.
light scattering during, 7785*b*.
of methyl siloxanes, improving resistance to, P 5420*f*.
of nitrocellulose, 8673*d*.
nitroglycerin combustion improvement by, 1981*c*.
of paints (zinc-white enamel), 5202*i*.
of phenolic resins, catalyst for, P 2033*b*.
of phenolic resin-tung oil varnishes, effect of time and temp. of cooking on, 7238*g*.
in polymerization of butadiene with styrene in diazo thio ether and Fe pyrophosphate recipes, prevention of, 5987*g*.
of polymers, 4927*i*, 7294*a*.
of polyvinyl alc. coatings, P 1670*e*.
of proteins, 3857*f*, 7983*c*.
of rosin and rosin-deriv. solns., 8176*i*.
of rubber by alkoxides, 429*h*.
of rubber latex by $Na_2SiF_6$, pH values in, 5983*c*.
of rubber with $(p\text{-}BrC_6H_4CO)_2O_2$, 6453*f*.
of silicate solns., 6801*c*.
of soaps, effect of bivalent-metal palmitate or stearate on, 4080*b*.
of starch, 8715*f*.
of tung oil, by anhyd. $FeCl_3$, 5605*f*.
with $H_3BO_3$-$(CO_2H)_2$ catalyst, P 9484*e*.
effect of glycerol, maleic anhydride and sardine oils on, 5204*bc*.
ultrasonic treatment during, P 1884*c*.
**G-eleven.** See *Phenol, 2,2'-methylenebis-[3,4,6-trichloro-.*
**Gelose,** extn. from Irish moss, P 3542*a*.
**Gels.** See *Colloids.*
**Gems,** book: Handbook of Fluorescent, 7876*d*.
of California (Siskiyou Co.), 2901*g*.
identification and testing of, 5703*f*.
industry in 1946, 2127*c*.
references on, 8981*c*.
of Washington, and their origin, 8981*g*.
**Genalkaloids.** See "*N*-oxides" under *Alkaloids.*
**Genaspidospermine.** See "*N*-oxide" under *Aspidospermine.*
**Generators** (*Generators for specific gases, as hydrogen sulfide, are indexed only under the names of the gases.*)
for acetylene, etc., P 4908*f*.
for fuel gas—see *Gas, fuel (manufactured).*
spark, electrolytic rectifier for, 6525*g*.
**Generators, electric** See *Electric generators.*
**Genes,** carbohydrate fermentations in yeast hybrids controlled by, 4330*a*.
in cellular biochemistry detn., 2960*d*.
mutation of, 3925*e*.
in *Neurospora* synthesis of pantothenic acid, 715*d*.
review on, 4309*b*, 7989*d*.
**Genetics,** auxanographic techniques in biochem., 4329*d*.
biochem., 3050*f*, 4309*a*.
nitrogen mustard and neutrons in [illegible] to, 3048*b*.
physiol. aspects of, 1447*f*.
yeast in, 4339*c*.
**Genicide acids*,** as termite repellent, 6356*f*.
**Genicop,** as potato spray, 4413*h*.
**Genins.** See *Aglycons.*
**Genista tinctoria,** cytisine in, 5543*e*.
**Genistein,** 7-glucoside—see *Genistin.*
**Genistin,** adrenaline protection by, 5542*b*.
**Genistra scoparia.** See *Cytisus scoparius.*
**Genitourinary tract.** (See also *Reproductive tract.*)
infections of, hexamethylenetetramine-HCl-vitamin B prepn. for use in, P 5157*b*.
**Gentian,** bitter-principle diasolysis from roots of, 4077*g*.
compd. tincture of, folic acid prepn. ——, 355*i*.
**Gentianine, and derivs.,** 2212*e*.
——, dihydro-, 2213*e*.
**Gentian violet,** as vermicide, 3999*g*.

**Gentiopicrin**, detection and detn. of, 9371*g*.
**Gentisaldehyde** (*2,5-dihydroxybenzaldehyde*), and derivs., 6598*b*.
prepn. of, 3386*i*.
**Gentisamide**, effect on antitrypanosomal activity of arsenoso compds. and acridines, 319*i*.
*N*-hydroxyalkyl derivs., P 5045*c*.
——, *N*-**hydroxy**-*tert*-**butyl**-, P 5045*e*.
——, *N*-**2-hydroxyethyl**-, P 5045*d*.
prepn. and soln. of vitamin $B_1$ in, P 3979*c*.
——, *N*-**(2-hydroxypropyl)**-, P 5045*e*.
prepn. and soln. of vitamin $B_1$ in, P 3979*c*.
——, *N* - **2,2',2"** - **trihydroxy** - *tert*-**butyl**-, P 5045*e*.
**Gentisic acid** (*2,5-dihydroxybenzoic acid*), 2204*c*.
and esters, 7003*f*.
esters, inhibition of antitrypanosomal activity of arsenoso compds. and acridines by, 319*i*.
prepn. of, 3393*g*.
**Gentisil** (*2,2',5,5'-tetrahydroxybensil*).
——, **4,4'-dibromo**-, 1036*i*.
**Gentisyl alcohol** (*2,5-dihydroxybenzyl alcohol*), antibacterial action of, 1456*b*.
——, **4-heptyl-α-isobutyl-3-methyl**-, 7913*d*.
**Geochemistry**, analysis (spectral) in, 5345*g*.
apatite iron ores and, 8317*ef*.
balance during cycle of weathering, transportation and redeposition on earth, 5350*c*.
bio-, in British Columbia, 3321*bh*.
book: of Petroleum [in Russian], 8996*f*.
of boron, 7875*c*.
of carbon, 2906*a*.
of copper sulfide minerals, 6543*d*.
of earth, 2137*d*.
of helium group gases, 527*e*.
of iron ores and assocd. rocks in Sweden, 5710*b*.
of isostatic adjustment, 6127*b*.
mineralogical and lithospheric, 5350*c*.
oxidation and reduction in, 6550*f*, 8996*d*.
review on, 6552*c*.
of sediments of Tyrrhenian Sea, 4610*f*.
significance of radioelement content of mineral springs in, 7814*e*.
**Geochemists**, obituaries of, 4525*f*.
**Geodes**, liquid hydrocarbon-contg., in limestone of Aniche, 2903*e*.
**Geologic time**. See *Time*.
**Geologists**, obituaries of, 4525*f*.
**Geology**. (See also *Mineralogy; Minerals; Ore deposits; Rocks; Tectonics;* etc.)
of Annam, French Indo China, 2135*c*.
at Bayard, N. M., 78*b*.
of Belgian Congo, 6550*d*.
book: Principles of Petroleum, 7221*f*.
of Czechoslovak Republic, 8981*d*.
diffusion distances in, 8253*f*.
filtration effect in solns. in, 6124*a*.
geochronology of deep ocean bed, 8761*i*.
of Gerona, Spain 8322*c*.
history of, and use in agriculture, 5707*i*.
hydro-, of Brie and Champagne, France, 8320*i*.
of Idaho (Borah Peak quadrangle), 6953*g*.
isotope sepn. in processes in, 4192*g*.
journals: Geološki Vjesnik, 4192*h*; Tellus, 7876*c*.
of Luxemburg, 2550*e*.
mining, review on, 6550*i*.
oxygen isotopic ratios in, 2507*a*.
plants of the Coal Measure period, 4347*b*.
radioactive-tracer technique in, 4553*h*.
references on engineering geology and, 8981*c*.
reviews on, 978*d*, 6126*i*.
sulfide-melt fluidity and, 3257*b*.
Swedish literature on, 6543*c*.
thermometer for decrepitation of minerals, 8981*h*.
thermometry in, liquid inclusions in, 8981*i*.
thermometry, liquid inclusions in halite and, 8981*i*.
transformations in, theory of, 7298*c*.
**Ge magnetic effects**, meson formation and, 4943*e*.
**morphology**, references on, 8981*c*.
**Geon, 31X** latex, cellulose derivs. and other polymers in thickening of, 6411*b*.
**31X latex**, effect on 2,4-D action, 343*f*.
**101**, plasticization of, 5629*a*.
**plasticized**, 5628*i*.
**plasticized compns.** from, creep in, 6402*d*.
**journal: Annali di geofisica,**
of lead and U isotopes, 8322*a*.
mining, review on, 6550*i*.
**Geotropism**, in *Thuja orientalis*, inversion by heteroauxin, 280*g*.
**Geranamide**, spectrum and structure of, 1657*a*.
**Geranial**. See *Citral*.
**Geranic acid**, 997*a*.
mixts. of, dielec. relaxation of, 6020*c*.
**Geraniol**, and acetate, spectra and structure of, 1657*a*.
acrylate, and polymers, P 4686*d*.
acrylate, polymers with Et acrylate, 5988*i*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
butyrate, 9375*e*.
*l*-citronellate, 4633*g*.
esterification of, 1319*f*.
manuf. of, P 6219*e*.
mixts. of, dielec. relaxation of, 6020*c*.
from palmarosa oil, 4427*e*.
propionate, phys. properties, soly. and application to flavors and perfumery, 2372*g*.
**Geraniol, dimethyl-(?)***, 3778*d*.
——, **perhydro-**. See *1-Octanol, 3,7-dimethyl-*.
——, **tetrahydro-**. See *1-Octanol, 3,7-dimethyl-*.
**Geraniolene** (*2,6-dimethyl 1,5-heptadiene*), reaction with $H_2S$, 1000*e*.
reaction with $H_2S$, infrared analysis of, 3743*b*.
and sulfur derivs., 996*h*.
——, **methyl-***, bromination of, 6601*a*.
**Geraniums**, plastids of, cytochrome oxidase in, 8454*c*.
stomatal frequency and distribution in, photosynthesis in relation to, 284*a*.
**Geranoyl chloride, dihydro-***, 4813*e*.
**Gerber test**. See *Milk, analysis*.
**Geriatrics**. See *Senility*.
**Gerison**. See *Sulfanilamide*.
**Germanates**, ions in soln., 2112*f*.
**Germane**. See *Germanium compounds*.
——, **chloro-**, microwave rotational spectrum and structure of, 8275*d*.
——, **tetraphenyl-**, 6990*c*.
**trichloro-**, prepn., structure and Raman effect of, 5321*e*.
**tricyclohexyl-**, 6990*c*.
**tricyclohexylphenyl-**, 6990*a*.
**triphenyl-**, 6990*d*.
**Germanic acids**, 22*f*.
structure of, 7789*h*.
**$H_4GeO_4$**, free energy of ionization of, 2075*b*.
**Germanicol**, and derivs., 5385*b*.
——, **oxy-***, 5385*d*.
**Germanides**, review on, 3329*b*.
**Germanin**. See *Bayer 205*.
**Germanite**, prepn. of Ga and Ge from, 7854*b*.
**Germanium**, alpha-ray-bombarded, As from, 936*d*.
in ash of Indian coal, 8118*c*.
bonds with Cl and H, in $GeH_3Cl$, 8275*f*.
bond with Cl, molar sound-velocity increment of, 6025*b*.
in coal, 1941*d*.
distribution of, 2754*h*.
of Ostrava-Karvina Basin, Czechoslavakia, 2138*h*.
coating with, P 3340*b*.
compression of, 4917*a*.
deuteron-bombarded, Mn from, 8266*h*.
elec. contact potential and photoelec. emission of, 1256*i*.
elec. oscillations in crystals of, 4092*a*.
elec. resistance of, at low temps., 8288*i*.
elec. resistivity and Hall const. of, at low temps., 4066*c*.
electrodeposition of, 2876*a*.
field effects and spreading-resistance discrepancies in, 4066*d*.
films of, optical consts. of, 6513*e*.
n of, 4066*a*.
structure and properties of, 4066*a*.
gamma-ray bombardment of, yields from, 4116*b*.
isotope of mass 72, half-life of metastable state of, 4094*d*, 6914*e*.
isotopes, abundance of, 4130*b*.
isotopes of masses 71 and 73, isomerism, shell structure and spin of, 4129*f*.
isotopes of masses 71 and 77, radioactivity of, 5295*e*.
isotopes (radioactive) of, 9368.
neutron-irradiated semiconductors of, 8858*b*.
nonrectifying, 453*e*.
uses and uses of, 3324*f*.
from germanite, 7854*b*.
quadrupole moments and spin of, 8871*a*.
reaction with MeCl, P 2631*e*.
recovery in Zn metallurgy, 9004*a*.
rectification between metal and, 3731*g*.
as semiconductor, 2877*f*.
solid solns. with elements, lattice spacings of, 3684*h*.
spectrum of, 7858*h*.
structural units of, 1234*f*.
system: Pb–, 3759*b*.
systems: Ga–, and In–, 4059*a*.
work function of, temp. dependence of, 4555*d*.
**Germanium, analysis**, detection, 2119*f*, 8948*f*.
detection and detn., 7858*h*.
detn., 62*i*, 959*h*, 6106*f*.
detn. in $Al_2O_3$, 2541*f*.
in coal ash, 2138*i*.
in ores, 4602*b*.
in silicates, 3311*e*.
**Germanium, metallurgy of**, electrolytic recovery, 2876*a*.
**Germanium acetate**, $Ge(OAc)_4$, in acetic anhydride, behavior of, 2110*e*.
**Germanium bromide** ($GeBr_4$), force field of, 2051*h*.
reaction with $GeCl_4$, 2885*g*.
vibration frequencies of, calcd. from valency force fields, 4571*e*.
**Germanium bromide chlorides**, 2885*g*.
**Germanium chlorides** ($GeCl_4$), force field of, 2051*h*.
Raman effect in, 1657*g*.
reaction with $GeBr_4$, 2885*g*.
system: $AsCl_3$–, 2534*i*.
system: $Et_2O$–, 2535*a*.
systems: aromatic ethers–, 2535*b*.
thermodynamic properties and ultrasonic velocity in, 6024*i*.
vibration frequencies of, calcd. from valency force fields, 4571*e*.
**Germanium compounds**, bis(triphenyl—) oxide, 6990*d*.
with copper, electrodeposition of $Cu_3Ge$, 2876*b*.
diethyl— diisocyanate, 6536*h*.
dimethyl— dichloride, P 2631*d*.
ethyl— triisocyanate, 6536*h*.
for heat exchange and pressure transmission, P 6222*h*.
with magnesium, corrosion of $Mg_2Ge$, 8342*a*.
methyl— trichloride, P 2631*f*.
org., in silvering org. surfaces, P 4520*e*.
prepn. of, 6989*h*.
review on, 2106*f*.
tricyclohexyl— derivs., 6989*i*.
triethyl— isocyanate, 6536*h*.
trimethyl— chloride, P 2631*f*.
triphenyl— bromide, 6990*d*
**Germanium isocyanate**, $Ge(NCO)_4$, 6536*h*.
**Germanium oxides**.
**GeO**, spectrum, etc. of, 2510*h*
**$GeO_2$**, heat of formation of, 2828*g*.
reaction with $SOCl_2$, 2886*a*.
**Germanium selenide**, GeSe, spectrum, etc. of, 2510*h*.
**Germanium sulfide**, GeS, spectrum, etc. of, 2510*h*.
**Germanium telluride**, GeTe, spectrum, etc. of, 2510*h*.
**Germanochloroform**. See *Germane, trichloro-*.
**German silver**. See *Nickel silver*.
**Germer, Lester H.**, biography of, 4939*g*.
**Germicides**. See *Disinfectants*.
**Germination**. (See also "formation of" under *Roots*.)
of *Alternaria tenuis*, effect of cysteine and Hg compds. on, 9335*h*.
antibiotic effect on, 7094*i*.
of barley—see *Barley*.
capacity for, detn. of, 3494*d*, 8018*b*.
of celery seed, 2288*h*.
of celery, stimulation by chloropicrin, 3184*g*.
of corn and peanuts, effect of chloropicrin on, 1900*g*.
of corn, effect of 2,4-D on, 2727*f*.
of cottonseed, catalase and peroxidase in, 1090*d*.
effect of disinfectants on, 803*g*.
effect of treatment on, 1900*e*.
relation of storage molds and moisture to, 4875*e*.
seeds, effect of thiouracil and uracil on, 8453*b*.
drug effect on, 2257*e*.
effect of DDT and hexachlorocyclohexane in soils on, 9044*e*.
effect of photosensitivity of coumarin on, in light and darkness, 8010*c*.

of endive, effect of *Digitalis* ext. on, 5829*e*.
enzymic activity during, 8451*i*.
ethylene oxide effect on, 2338*b*.
fats in seeds during, changes in, 8457*d*.
of *Funaria hygrometrica*, effect of naphthaleneacetic acid on, 3493*f*.
of fungus conidia, effect of DDT, hexachlorocyclohexane, α-chlorotoluene and α,α-dichlorotoluene on, 8089*g*.
of garlic, vitamin C production during, effect of light on, 3887*g*.
of grass seed, effect of 2,4-D on, 2727*g*.
of *Helminthosporium oryzae* spores, effect of Hg compds. on, 1138*f*.
inhibitors, 2679*a*, 4348*a*.
evaluation of, 8009*b*.
of pulpy fruits, 8459*c*.
leaf sap effect on, 8459*d*.
of leguminous seeds, transformation of reserve substances during, 1081*e*.
in malting—see *Malting*.
4-methyl-5-thiazole-acetamide effect on, 5102*c*.
nicotinic acid formation in, and role of tryptophan therein, 5092*e*.
of oats, effect of temp. of, on helminthosporium blights, 1891*i*.
of orchids, effect of thiamine constituents on, 1834*b*.
of orchids, nutrient medium for, 6705*a*.
of peanuts, vitamin $B_1$ content and, 6284*b*, 6330*a*.
of peas and wheat, vitamins $B_2$ and C and nicotinic and pantothenic acids during, 5830*e*.
of peas, effect of hexachlorocyclohexane on, 1522*g*.
enzymic activity during, 8462*f*.
vitamin C during, 3888*d*.
phenylboric acid effect on, of *Apetalae*, 5831*h*.
phosphorus (radioactive) effect on, 4732*g*.
phosphorylase activity and starch formation in seeds during, 2289*a*.
physiology of, 9329*cf*.
of *Pinus maritima*, stimulation of, 5451*d*.
of potatoes—see *Potatoes*.
prevention of, apomorphine for use in, P 7198*a*.
-promoting and -inhibiting agents, 9169*f*.
-promoting substances, 5828*f*.
-promoting substances from pollen and stigmas, 5089*f*.
respiration during, effect of surface microflora on, 802*e*.
of rice, effect of alkyl mercuric chlorides on, 1138*d*.
of *Ricinus communis*, effect of sulfonamides on, 2077*c*.
of *Striga hermonthica*, stimulant for, 6285*e*.
substances formed during, in growth of plants, 5827*f*.
of sugar beets, effect of loosening of seed caps on, 6290*h*.
sulfhydryl compd. effect on, 3133*c*.
tetrazolium salt as indicator of, 9174*i*.
of *Tilletia tritici* spores, stimulation by humus, 8085*c*.
of wheat, effect of $CaCN_2$ on, 1137*g*.
effect of hexachlorocyclohexane on, 5896*e*.
effect of trimethylamine on, 738*f*.
of *Zoysia*, effect of strain differences, seed treatment and planting depth on, 1079*c*.
Germine, sensitization to K by, 4380*g*.
Germisan, effect on honey bee, 344*h*.
Germs. See *Bacteria; Wheat;* etc.
Geronic acid, formation from vitamin A derivs., 1337*h*, 1339*f*.
Gersdorffite, of Idaho (St. Joe Mts.), 4608*c*.
of U.S.S.R. (Akol, Minusinsk region), 5707*g*.
Gesapon. See *Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-*.
Gesarol. See *Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-*.
Geserol. See *Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-*.
Getters, 2877*b*.
barium, coating vacuum tubes with, P 8284*c*.
titanium as, 9006*i*.
Geysers, geochem. investigations of, 7388*c*.
Hokoligoku, of Aso, Japan, 7388*d*.
mechanism of action of, in Iceland, 9302*f*.
of Yellowstone, 6181*d*.
g-factor. See *Gyromagnetic ratio*.
Ghatti gum. See *Gum ghatti*.
Ghee, acidity of, curd storage and, 9283*e*.
analyses, adulteration, mol. wt. and effect of aging and oxidation on, 6840*b*.
aroma-producing constituent of, in butter, 3943*h*.
from buffaloes fed mixt. of cottonseed and dry or green fodder, 6330*c*.
compn. of, effect of heat on, 1496*h*.
compn. of, variations in, 7600*d*.
fatty acids of high-acid, 1579*h*.
keeping quality of, effect of acidity and method of prepn. on, 8500*f*.
manuf. from cream, direct heating method for, 9283*d*.
nutritive value of, 4394*g*.
oils in feeding stuffs and compn. of, 3943*g*.
rancidity of, 9283*a*.
stabilizers for, 5127*g*.
storage of, in containers, 6327*f*.
Giannetite, from Pocos de Caldas, Brazil, 6127*f*.
Gibberella, *saubinetii*, control of, 9334*a*.
*zeae*, 2,4-D effect on, 3133*c*.
Gibbs, Josiah Willard, biography, 4057*f*.
Gibbs adsorption law. See *Laws*.
Gibbs function (*free energy*). See "free" under *Energy*.
Gibbsite, γ-alumina phase of, fine or inner structure of, and its mixt. with Eu ions, and their transition temps., 3319*c*.
in alunites of Hungary, 8091*e*.
conversion of γ-$Al_2O_3$, 3981*i*.
dehydration and tensimetry of artificial, 975*g*.
hydroxylic surfaces of, 1131*h*.
from nepheline pegmatites of Vishnevye Mts., Mid Ural, 2897*c*.
precipitation from $NaAlO_2$ solns., 55*f*.
soils, 3127*d*.
Gibbs Medal, to Debye, Peter J. W., 4057*f*, 5237*i*.
Gierke's disease (*glycogenosis*), anterior pituitary exts., folliculin and vitamin E in treatment of, 3923*e*.
glycogen storage in, 1823*c*.
Gigartina chamissoi, polysaccharides in, 4728*i*.
Gill-over-the-ground. See *Nepeta glechoma*.
Gills, artificial, in membrane permeability studies, 4361*a*.
plastron as phys., 6043*c*.
Gilsonite, copper basic carbonate particles in, 5178*f*.
Gin, flavorings for, 2365*b*.
Gingelly oil. See "sesame" under *Oils*.
Ginger and(or) Zingiber, oleoresin manuf. from, 8573*f*.
Gingilley. See *Sesame*.
Gingiva, oxygen consumption in normal and inflamed, 6299*h*.
Gingivitis, from sodium diphenylhydantoinate, 5861*g*.
Ginkgetin, 3414*b*.
Ginkgo biloba, lignins in, 2283*b*.
shoot development in, auxin production during, 5093*c*.
Gipsy moth. See *Porthetria dispar*.
Girard P reagent, effect on neuromuscular transmission, 2330*f*.
Girard T reagent. See "(carboxymethyl)-trimethyl— chloride, hydrazide" under *Ammonium compounds, substituted*.
Gitalin, evaluation of, 3106*a*.
Gitoxigenin, 3567*a*.
16-monoacetate, 7034*d*.
Gitoxin, 3566*i*.
Giúdice, Carlos R., obituary, 1229*f*.
Gix. See *Ethane, 1,1,1-trichloro-2,2-bis(p fluorophenyl)-*.
Gizzard, nucleic acids and phosphatases in, during growth stimulated by prolactin, 2686*a*.
Gladiolic acid, sepn. and antibiotic action of, 3058*g*.
Gladiolus, corm diseases of, control of, 9338*a*.
corm treatment, 9327*h*, 9338*c*.
2,4-D effect on, 9338*d*.
fungicide for, 3961*cdfh*.
fungus control on, 7178*d*.
weed control in, 3962*e*, 5145*ei*.
Gladiolus thrips. See *Taeniothrips simplex*.
Gladstone and Dale constant. See *Refraction*.
Glaga. See *Grasses*.
Glands. (See also *Endocrinology; Organs; Reproductive organs*.)
*p*-aminobenzoic acid effect on endocrine, 7578*i*.
beaver scent—see *Castoreum*.
books: The Endocrines in Diabetes, 756*a*; Major Endocrine Disorders, 756*a*; Glandes endocrines et syphilis, 4371*e*.
cobalt in, of sheep fed Co-contg. feeds, 8071*b*.
communication between central nervous system and endocrine, in psychotic subjects, 3924*g*.
cytology of endocrine, 6716*i*.
effect of amino acids, vitamins $B_1$ and E and folic acid on endocrine, 4787*h*.
hemopoiesis in relation to endocrine, 5850*b*.
histopathological changes in endocrine, and variation in vitamin C contents under diphtheria toxin intoxication, 1104*a*.
hormones of—see *Hormones*.
insulin effect on endocrine, 2328*a*.
metabolic functions of endocrine, 5467*e*.
methylthiouracil effect on endocrine, 8531*h*.
nicotine effect on, 757*d*.
pharmaceutical products from, 4425*g*.
reticulocyte ripening and, 8032*h*.
senility and, 3505*h*.
stilbene compd. effect on endocrine, 742*e*.
Glare. See *Light*.
Glaserite. See *Aphthitalite*.
Glass. (See also *Vitreous materials*.)
adhesion between fused salts, metals and, 2062*h*.
adhesion of molten, to heated metals, 9399*i*.
adhesion of particles of, effect of gelatin, molasses, starch and sucrose on, 4503*b*.
adhesive for, P 2471*h*.
adhesive for, Araldite as, 7259*f*.
adhesives and coatings for, P 4899*a*.
albumin films on, 2842*c*.
alkali-free and weakly alk., 6380*c*.
alkali removal from surface of, 5163*e*.
aluminate, 5163*g*.
aluminum coating on, increasing mech. strength of, P 7657*ef*.
amber, from waste slate, 1939*a*.
ampuls—see *Ampuls*.
analysis of, 5558*b*, 8111*c*.
annealing borosilicate thermometer, expansion effects of, 5558*h*.
annealing of, 1161*e*.
apparatus—see *Apparatus*.
app. for handling and heating, P 3163*i*.
beads of, P 4440*cd*, P 5166*d*.
beta-particle scattering in, 8867*c*.
black, P 6802*g*.
blackening of, by Hg vapor, prevention of, P 4440*i*.
black, on meteorite particles in Mike, Hungary, 8989*a*.
bleaching clays contg., in upper Bavarian Molasse formation, 4985*g*.
blowing of, closed-circuit seals in, 5558*g*.
books: Scientific and Industrial, Blowing and Lab. Techniques, 913*d*; Glasfabrikation, 5165*f*; Glazer's Book, 5564*i*; Modern, Working and Lab. Tech., 7759*g*; Glarmesterhåndbogen, 9407*c*.
boric oxide in manuf. of, 2747*d*.
bottles—see *Bottles*.
as building material for industry and labs., 2041*i*.
butane adsorption by, 1639*a*.
of cadmium sulfide type, striking of, 8782*f*.
calcium fluoride films on, crystal structure of, 4071*b*.
casting of, centrifuge for, P 6386*f*.
cellular, foam or porous, P 5565*a*, P 7657*a*.
catalysts from, P 7102*b*.
humidity indicators from colored hygroscopic salts and, P 2713*e*.
hysteresis of water-vapor adsorption by, 8790*h*.
in insulation of low-temp. app., 371*h*.
structure of adsorbent, 461*i*.
charge prepn. for sheet, 9400*c*.
charge quality and, improvement of, 9400*d*.
chem. durability or resistance of, and glass containers, 6797*e*.
chem. durability or resistance of barium and Pb-high, 2384*i*, 2385*acefhi*, 2386*abc*.
chem. durability or resistance of, detn. and improvement of, 7203*f*.
detn. of, 3579*a*, 6797*e*.
effect of rinsing on, 3578*i*.
in electrodes, 3728*a*.
chromium K, magnetic thermometry and thermal cond. of, 7816*a*.

clay treatment of surface of, P 1934*f*.
coating of, with metals, P 104*d*, P 1274*b*.
coating of, with quartz, P 1935*e*.
coatings for, P 6004*a*, P 9412*b*.
from allyl halosilanes, P 5999*g*.
from butadiene deriv.-maleic ester-vinyl compd. interpolymer, P 3230*e*.
from 4,4'-divinylbiphenyl polymers with styrene, P 4517*a*.
from HCHO, hydroxyethylcellulose and urea, P 5640*c*.
from glycerol α-allyl ether phthalate and succinate, 9480*h*.
of miner's lamps, 5914*i*.
from $Cl_3SiH$ and rubber, P 8194*d*.
from vinyl polymers, P 2470*i*.
coating with metal-contg., on refractories, etc., P 3587*f*.
cobalt, colors of, 2092*g*.
cobalt reduction in, 3161*f*, 3985*e*.
coloring of, pink-violet with Au selenate, 6931*c*.
coloring of, with Cu, Au and Ag, 8111*f*.
for containers, 2748*b*.
containers of, bacterial growth in water stored in, 4328*f*.
detn. of acid attack on, 6797*f*.
ghee storage in, 6327*f*.
removal of $CaSO_4$ and $Cr_2O_3$ from, 6876*c*.
for containers (vacuum) from dolomite, 9401*b*.
cooling app. for sheet, P 5166*e*, P 6386*f*.
cordierite crystn. in, 1540*h*.
corundum bonded with, as refractory material, 6383*f*.
crushing of, 8751*f*.
cryolite use in, 6381*a*.
DDT-residual toxicity on, 3461*i*, 9344*h*.
debiteuse for, P 3588*c*, P 6386*e*.
defect in, detection with dichroic film, 3579*e*.
definition of, 4398*f*.
diaphragms of, decompn. potentials of fused salts in presence of, 8909*g*.
effect on diffusion rate of electrolytes, 8773*g*.
leaks in, for gas analysis with mass spectrometer, 2822*d*.
dielec. properties of, 4529*i*, 7204*e*.
differentiation from corundum, 3315*a*.
discoloration in cathode-ray tube, prevention of, P 8290*g*.
disintegration and soln. of, in contact with aq. solns. and $H_2O$, 6379*g*.
double refraction of, in region of transformation, 458*g*.
drawing sheet, app. for, P 9407*de*.
effect on flavor of apple juice, 2708*e*.
elastic after-effects in, 8772*a*.
elastic consts. of, 2482*h*.
electrets, 6798*h*.
elec. insulating bushings from, P 8633*c*.
elec. resistance of, 4534*d*.
electrode—see *Electrodes*.
for electrodes, 827*d*, P 4441*b*.
for electrodes sensitive to $Ag^+$ for titration of halides, 4961*a*.
electrolysis in, 6379*e*.
as electrolyte in e. m. f. measurements on alloys, 6092*a*.
as electron-microscopic supporting film, 371*b*.
electron microscopy of surface of, 4436*f*.
electroplating on, 8286*a*.
expansion coeff. and fusibility of, 371*b*.
with expansion coeff. low, P 5917*g*.
expansion of, calcn. of, 5915*a*.
expansion of decorative, by heat, 1541*c*.
fibers—see also *Glass wool*.
fibers or filaments of, P 6386*e*.
adhesive emulsions for, 4435*g*.
air-retaining power of, 854*e*.
Al-coating thread of, P 3988*b*.
app. for drawing, P 9407*f*.
articles of leached, P 3987*c*.
break-twisting angle of, 6421*g*.
coatings and lubricants for, P 3987*a*.
constitution and delayed elastic effect in, 2387*a*.
diffusion of liquids through mat of, 2490*h*.
dust control in manuf. of, 1161*g*.
dye baths and printing pastes for fabrics from, P 415*b*.
dyeing of, 2775*i*, P 4440*g*.
dynamic properties at sonic frequencies, 4016*e*.
elasticity of, 7654*g*.
elec. insulator from textiles of, P 9536*g*.
fabrics and tapes of, standards for, 4400*e*.
fabrics of, 4399*d*.
finishing or sizing textiles from, P 5603*c*.
flocking with org. coatings, 1199*e*.
lab. for, 8112*b*.
laminates from, P 1220*fh*, 2028*e*, 5378*f*.
methylsiloxane-polymer coatings for textiles from, P 6867*d*.
molding laminate with polyesters, 2029*g*.
nonmetallic armor from, P 4402*g*.
paper from, P 9448*h*.
phenolic laminates from textiles from, P 8208*h*.
Pt coatings on app. for manuf. of, P 4440*g*.
reviews on, 2778*c*, 3201*g*.
rigid body from resinous products and, P 4824*b*.
in salt removal from petroleums, 4837*g*.
siloxanes for coating tape from, P 442*e*.
sound-insulating pad from, P 5518*i*.
spinning of, 5164*bc*.
spotting materials for textiles from, P 1935*a*.
storage-battery separator from, P 8920*i*.
swelling in water, 7690*f*.
textile from, transparent material from plastic material and, P 9534*i*.
textiles from, 6798*e*.
translucent sheet from polyvinylidene chloride and, P 908*d*.
films of cerotic acid and octadecylamine on, evapn. of, 7767*d*.
films of, electron-bombardment cond. of, 8847*h*.
films of, flow phenomena on contact of 2 glasses, 4531*h*.
films on, from receding meniscus, thickness of, 2059*c*.
filters—see *Filters*.
fining of, melted in shaft furnaces, P 6386*d*.
flasks—see *Flasks*.
flint, electron diffraction by film of, 2837*b*.
flow of, 8625*e*.
fluorite in manuf. of, 1540*c*.
flux from Ag and, P 3587*b*.
food heating rates in, 1491*i*.
on Fourcault machines, increasing rate of pick-up of, 9401*e*.
Fourcault sheet, contg. $Al_2O_3$ and MgO, 9401*h*.
fracture (delayed) of, 4048*i*.
fracture of, 3578*e*.
friction between glass and, effect of org. substances on, 2060*b*.
friction (internal) of, 5252*a*.
furnaces or tanks for, P 4439*i*.
$Al_2O_3$ brick for regenerators of, 5915*c*.
basic regenerator materials for, 5161*i*.
charging app. for, P 6386*d*.
convection in, 3577*e*.
cooling and heating of Dinas in, 9399*f*.
cooling of, by air, 9399*c*.
corundum refractories for, 9405*h*.
detn. of size of cooling section of, 1161*f*.
effect of $H_2O$ in wood on performance of, 6778*i*.
elec., P 3587*e*, P 4824*b*, P 6386*c*, P 7357*f*, P 8632*hi*.
elec., with submerged C elements, P 8633*a*.
electrode system for elec., P 6380*c*.
feeding app. for, P 9407*e*.
fuel consumption in, 6379*d*.
gas-fired, 7653*d*.
heat utilization in, 9399*d*.
with high output, 5913*g*.
increasing output by thermal insulation, 6381*f*.
medium-temp. repair of, 9399*a*.
multigrog bricks for, 1163*e*, 8113*e*.
O-enriched blast in, 4436*f*, 8998*d*.
refractories for, 5562*b*, 9406*b*.
refractory soln. in, 8625*i*.
regenerative, P 3587*a*.
of SKP type, 1539*g*, 6379*cd*.
steel-furnace trials and, 2747*h*.
thin-layer feeding of charge into, 1539*i*.
furnaces or tanks for plate, 8109*i*.
gas release from liquids by, 2068*c*.
in gehlenite–soda–melilite systems, *ns* of, 73*d*.
grease sliding along surface of, 7779*b*.
grid gas in Czechoslovakian industry of, 9397*i*.
ground, effect on linseed-oil absorption by pigments, 3630*h*, 6837*a*.
ground surface of, detn. of microgeometry of, 3578*g*.
gutta-percha adhesion to, 2842*d*.
heat-flow in industry of, 828*e*, 2476*a*.
heating (elec.) in manuf. of sheet, 7653*h*.
heating (elec.) of, in Fourcault channel, 1540*f*, 7653*d*.
heat transfer by radiation in, 4939*c*, 8626*e*.
history of, 4435*e*.
for hydrogen-ion-concn. measurement, 4083*ef*.
hygroscopicity of, effect of heavy-metal ions on, 2069*f*.
hygroscopicity of, for containers, 4435*i*.
for illumination, 1541*h*.
industry of, in Soviet Zone of Germany, 9397*h*.
industry of, reviews on, 1539*c*, 8109*i*.
infrared-transmitting, P 5917*i*, P 6802*fg*.
infrared transmission by binary, 1541*g*, 2747*f*.
insulators—see *Insulators, electric*.
ionic structure of, 5163*f*.
iron detn. in, 3161*g*.
iron-particle adhesion to, 4077*i*.
kinetic theory of dil. $SiO_2$, 5251*b*.
lab. (early) for, 3251*g*.
laminated or safety, P 9407*g*.
from alcoholysis products of polyvinyl esters, P 6867*f*.
interlayers for, P 3658*g*, P 4898*i*.
isopropenyl acetate polymer with vinyl chloride for, P 3661*d*.
manuf. of, 1214*d*, P 6386*f*, 7745*g*.
mirrors of, P 5565*g*.
plasticized polyvinyl acetal interlayers for, P 1606*d*.
with polymethyl methacrylate interlayer, P 3235*e*.
polyvinyl butyral for, P 7262*i*.
polyvinyl ketals interlayers for, P 7752*d*.
prepn. of, P 4893*i*.
triplex protection against moisture, 1164*f*.
lamps—see *Lamps; Lamps, electric*.
lead, P 830*i*.
decolorization of, 6380*h*
manuf. of, 6380*g*.
measurement of refractive index of, in quality control, 8625*g*.
lehr conveyors for, lubricants for, 5177*i*.
lenses—see *Lenses*.
light scattering by, 6040*f*.
lining of, with luminescent screens, 8910*i*.
lithium oxide-$SiO_2$ and Corning 015, for electrodes, 6051*f*.
with low power factor, P 372*i*.
luminescence of, activated by Ce, Cu, Mn and Sn, 3723*c*.
luminescence of, contg. Cu, Pb and Sm, 5671*h*.
manuf. in Esthonia S.S.R., 9398*h*.
manuf. in U.S.S.R., history of, 5913*a*.
marking on, with Ag salts for ultraviolet visibility, P 5565*e*.
melting of, 7203*d*.
accelerators for, 5914*e*.
admixt. for intensifying, 3577*f*.
continuous, P 4439*f*.
differential, 9399*h*.
elec., 2384*h*, 5163*b*, 9399*e*.
by erosion process, 3578*a*.
grain size of batch in relation to rate of, 1539*d*.
radioactive tracing in, 5913*d*.
refractories from diaspore ore for, 3584*b*.
Na compds. of S from, 7653*f*
theory of, 2383*f*.
Mendeleev, D. I., and manuf. of, 5913*c*.
methylene blue orientation on rubbed, 5666*a*.
methylsiloxane films on, photobromination of, 2096*f*.
mirrors—see *Mirrors*.
moisture accumulation on, prevention of—see *Antifogging agents*.
molding of, app. for, P 3587*a*.
molding of, burners for, 3578*b*.
molds of, for acidic thermosetting resins, release agent for, P 8633*b*.
multilayer of blocks of, measurement of dullness of, 3579*c*.
nitrogen dioxide reaction with $SO_2$ on, kinetics of, 7808*d*.
nonfrosting and nonmisting materials for, P 1221*d*.
opal, optical properties of, 7783*d*.
optical, beryllo-aluminate, P 5166*a*.
for bifocal lenses, P 1164*i*.

*optical*, borate, P 5166*bc*, P 8633*e*.
cellular structures in Ti-rich fluosilicate, 8548*a*.
chem. durability, specular gloss and transmittance of, 3985*h*.
effect of convection currents on distribution of striae in pots of, 5558*e*.
expansion and *n* of, 7204*f*.
fluoborate, P 4440*b*, P 5165*i*.
fluoride, P 5165*f*.
light scattering in, 9455*b*.
luminescent analysis of, 6797*g*.
manuf. of, 1539*c*, 8111*e*, P 8633*d*.
plastic deformation of, 5558*d*.
ultrasonic wave absorption and velocity in, 458*e*.
oxygen-atom recombination on, 1635*c*
paint test panel of, prepn. of, 2443*h*
peat briquets for, 9400*g*.
perforated or reticulated articles of, 5565*c*.
permeability to He, cations and, 9401*c*
phosphate, 2747*a*, 5163*h*, 6381*a*
photosensitive, 4905*g*.
pigments (blue) for, P 7712*i*.
Poisson series in industry of, 6797*d*
polarizing, P 4824*d*.
polish cleaners for, 425*h*.
polishes for, 8180*d*.
polishing of, sticking of baize in, 1162*g*
polyvinyl lacquer removal from, compn for, P 6340*i*.
powd., ceramic bodies from corundum or mullite and, P 9408*c*
concrete manuf. from, P 6801*i*
effect on oxidation of hydrocarbon oils, 3602*d*.
gas nucleation by, 3682*g*
for pressed goods, 6361*h*.
prism, spectrophotometer employing Perv 5310*e*.
prisms, protection against alkali spotting, 1162*f*.
properties and structure of, 9398*i*
properties (chem.) of, 2745*h*, 5913*d*
properties (phys.) of, review on, 9397*h*
protection against alkali, P 374*a*
protection of surfaces of stacked, P 7657*b*.
purity and rate of production of, relation to method of feeding furnace, 6377*i*
Pyrex, effect on at. H reaction with $O_2$, 2080*b*.
Pyrex, sp. heat of, below 20° K., 6018.
quality control and viscosity, 2383*g*
quality of, control by refractive index, 8625*f*.
quartz—see "fused" under *Silica*.
quartz transformation into cristobalite in, 371*g*.
rapid-fusion, P 5564*i*.
rare earth, 3577*g*.
raw materials for, use of carnallite and pyrolusite in, P 9407*d*.
reactions in melts of, 3578*b*
reaction with alk. solns., 5914*g*.
with fluobromite, 3739*f*.
with fluoride, 3579*e*.
with ions, 2066*e*, 8233*g*.
with NaF solns., 6363*c*.
reflection by, films for modifying, P 4900*f*.
films for reducing, P 1164*i*, P 2394*a*, P 6803*a*.
increasing by metal oxide films, 3161*g*.
reduction of, P 0802*i*.
reflectors—see *Reflectors*.
reflector stability and, 1161*i*.
refractories from fused cast $Al_2O_3$ in industry of, 5563*e*.
resistance of window, to temp. variations, 2748*a*.
reviews on, 4525*i*, 4788*e*, 4789*a*.
rings of, for Fenske column, 2822*e*.
sand—see *Sand*.
scratching of, by metals, 3682*e*.
for sealing ceramic insulators of spark plugs to metal shell, P 5166*h*.
sealing elec. vacuum app. parts of, P 4590*d*.
sealing electrode in capillary tubing of, 3665*g*.
sealing or uniting of, to metals, P 1935*c*, 4823*c*, P 5918*b*, P 6386*g*.
to metals, alloy for, P 6145*h*.
to metals, A.S.T.M. standards for, 4203*e*.
to metals, conductors for, P 1274*f*.
to wire, wire coating for, P 8918*f*.
for sealing to metals, P 1934*i*.
seals with metals, flaw detection in, 5359*e*.
selenium ruby, 6380*f*.
shock-resistant, P 3164*e*.
silica—see "fused" under *Silica*.
silver atoms in, fluorescence of, 3294*h*.
silvering—see *Silvering*.
sodium carbonate in manuf. of, 1539*c*.
sodium penetration into, 2747*f*.
sodium sulfate for, from astrakhanite, 1920*e*.
sodium sulfate reduction in manuf. of, 7203*d*
soft, and its elec. use, 3161*i*.
soft, for elec. app., 3985*g*.
spectral transmission of, cerium oxide effect of, 827*h*
spheres of, flow of fluidized, 6474*h*.
stone in, cristobalite inversion in, 2390*e*.
stones in, identification of, 2387*e*.
stopcocks—see *Stopcocks*.
strains in sheet, control of, 1540*g*.
strength of, review on, 3578*d*.
structure and, 5163*e*.
theory of, 3162*h*, 9398*i*.
structure changes in, d. and, 5163*i*.
structure of, 2383*i*, 2837*e*.
structure of mixed alkali-silicate, 5555*h*
from sulfate charge, 3577*d*, 5913*h*.
sulfate charges for, combination reducing mixts. for, 9400*e*.
as supercooled liquid, 2063*a*.
surface-active substance spread on, rate of, 1625*f*.
surface properties of, effect of heavy-metal ions on, 2386*e*.
surface tension of, 2800*g*, 3255*i*.
surface tension of, furnace atm. and, 6379*a*
technology of, physics in, 4823*a*.
technology of, review on, 6377*h*.
testing (nondestructive) of, 4540*h*
test tubes—see *Test tubes*.
theories of, 5163*a*.
thermal after effects in, mechanism of reversible, 4823*b*
thermal cond. of, 3579*a*, 4070*g*, 8786*i*.
transformation range in, 2383*h*
tubes of, bending app. for, P 5565*b*.
tubes of, marking of, 3665*f*.
uranium, depolarization during extinction of fluorescence of, 7824*f*.
fluorescence spectra and U content of, 2119*f*.
luminescence of, 197*d*, 5671*d*.
vapor adsorption by, 7288*d*.
varnish adhesion to, 8702*i*.
viscosity of, 4435*f*, 7654*b*.
at annealing temps., 1161*e*.
at annealing temp., app. for measurement of, 7654*c*.
at annealing temps., effect of oxides on, 7654*e*
calcn. of, 3578*c*, 4435*f*.
temp. and, 7299*f*
voids (structural) in, filling of, 6380*e*.
volcanic, basaltic hornblende overgrown with weathered, in bentonite of Poland, 6954*f*
-ware industry of Germany, 2383*e*.
waterproofing of, compn. for, P 1505*b*.
waterproofing of, halosilanes for, P 8744*a*.
water vapor adsorption by, 1623*d*.
windows—see *Windows*.
xenoliths in pillow basalt of British Columbia, 2903*i*.
x-ray absorbing and -transmitting, 2091*d*.

**Glass silk**. See *Glass wool*; and "fibers" under *Glass*.

**Glass substitutes**. (See also *Plexiglas; Transparent materials, Vitreous materials*.)
coating with, P 5952*a*
from trichloroethyl methacrylate polymers, P 4898*g*.

**Glass wool**. (See also *Mineral wool*; and "fibers" under *Glass*.)
adhesive emulsion for spinning of, 4435*h*.
storage battery separators from, P 2882*e*.

**Glauber salt**. See *Mirabilite; Sodium sulfates*.

**Glaucium**. See *Horn poppy*

**Glaucoma** (*the disease*), calcium and K in blood in, effect of irritants on, 6310*i*.
diisopropyl fluophosphate in treatment of, 3974*e*.
ocular tension in, and effect of substances thereon, 753*e*.
pilocarpine effect on eye in, effect of pH on, 7646.

**Glaucoma piriformis**. See *Tetrahymena geleii*.

**Glauconite**, as cementing substance for sands, 6550*e*.
in sands, 7331*h*.
of U.S.S.R. (eastern Ural sediments), 3322*g*.

**Glaucophane**, of Giant Mts., 8987*d*.

**Glaucorigenin**, and derivs., 4679*i*.

**Glazes**. (See also *Enamels*.)
ammonium chloride effect on, 3986*i*.
books: Chinese Ceramic, 8632*g*; Ceramic, 8632*h*.
for brickwork in boiler plants, 5564*f*.
cerium oxide in opaque, P 1166*d*.
chrome-Sn reds and pinks in, 8632*f*.
colored, 9403*f*.
defect in, detection with dichroic film, 3579*e*.
lead soly. from, detection of, 1543*e*.
lithium minerals and, 3320*a*.
microscopy of, 2392*e*.
nonfritted, for faience, 3585*d*.
prevention of hairlining or tearing of, P 5168*a*.
for refractory materials, 6385*i*.
terra sigillata, 2392*c*.
viscosity of, measurement of, 3585*e*.
zirconia opacifiers in monoclinic form, P 1580*b*.
zirconium compds. in, P 1166*d*.
for zircon porcelains, 9406*e*.

**Glazing**, electrostatic, 7205*d*.
kiln, firing for, P 7657*c*.
kilns for, stoker for, 2391*f*.

**Glechoma hederacea**. See *Nepeta glechoma*.

**Gliadin**. (See also *Gluten; Prolamins*.)
in doughs, effect of yeast on metabolism of, 4392*d*.
manuf. of, P 6466*f*.
monolayers of, mol. structure and viscosity of, 3689*h*.

**Glide bands**, in silver chloride sheets, plastic deformation and, 7772*f*.

**Gliocladium fimbriatum**, control of, P 1526*a*, P 3968*h*, P 4419*g*.

**Gliotoxin**, identity of antibiotic from *Aspergillus fumigatus* with, 7076*g*.
sulfur-contgn. degradation product of, synthesis of, 6204*i*.

**Gliricidia**, decompn. of, effect of tannin on, 9325*c*.

**Globar**, light (infrared) emission by, 944*d*.

**Globefish**, food poisoning from raw or cooked, 327*g*.

**Globins**. (See also *Hemoglobin; Myoglobin*.)
modified, for human injection, P 2739*d*.
origin of, 8497*h*.

**Globucid**. See *Sulfanilamide, N¹-(5-ethyl-1,3,4-thiadiazol-2-yl)-*.

**Globularia alypum**, blackening of leaves of, 6704*c*.

**Globularoside**, the name, 6704*c*.

**Globulinemia**, in pregnancy, 2687*f*.

**Globulins**. (See also *Arachin; Cryoglobulins; Edestin; Euglobulin; Myosin; Pseudoglobulins; Thyroglobulin*.)
Ac-, in blood-clotting mechanism, 3867*e*.
Ac-, in blood plasma, effect of aminophylline on, 5117*g*.
of blood serum, stability of, 1815*e*.
effect of dicumarol on, 2321*i*.
species differences in, 746*a*.
stability in stored blood plasma, 706*f*.
-albumin equilibrium in schizophrenia, 2305*e*.
-albumin ratio of blood in anaphylatic shock, 3510*h*.
in blood serum, detn. of, 264*c*.
of blood serum, effect of delipidation on, 8420*d*.
in blood serum in protein deficiency, 3076*i*.
of potato protein, 5429*g*.
α- and β-, in blood serum, reaction with thymol, 9093*c*.
α- and β-, in lymphoid tissue and calf thymus gland, 3049*a*.
α-, β- and γ-, in synovial fluid, 9202*c*.
α-, β- and γ-, precipitation from blood serum, 4316*f*.
α, in blood after parathyroidectomy, 295*c*.
α-, in blood plasma, albumin content and, 6726*h*.
α-2-, —see *Hypertensinogen*.
β- and γ-, sepn. from blood serum, 3486*c*.
$\beta_1$-, radioactive ferric, transcapillary exchange of Fe from, 298*d*.
binding of org. ions by plasma, 7062*c*.
blood coagulation and, 5811*i*.
in blood in hemolytic disease, effect of cold on, 2697*d*.
of normal and diseased patients and their detn., 1453*i*.
in pregnancy, 8480*i*.
in Recklinghausen disease, 8523*g*.
in tuberculosis of children, 2813*b*.
in blood plasma and serum, equil. of bound albumin and globulin with free, 1813*f*.

in blood plasma and serum of sheep, 9204*i*.
blood-plasma, blood-clotting accelerator from, P 5909*a*.
after castration and testosterone-propionate treatment, 23036.
effect of adrenal cortex hormones on, 3909*h*.
hypotensive and smooth-muscle stimulating factor release from, by snake venom and trypsin, 5814*b*.
in multiple lymphoma, 5109*h*.
in pneumococcic infections, 2305*h*.
pptn. by $Na_2SO_3$ and their detn., 4745*d*.
in various diseases, 5857*a*.
blood-serum, Ca-formol gel reaction and, 4321*a*.
Cu bound by, in biuret reaction, 4305*i*.
detn. of, 4719*f*.
effect of gum on d. of boric acid ppts. of, 3874*a*.
effect of nonelectrolytes on isoionic point of, 6888*e*.
effect on van den Bergh reaction, 6684*d*.
globin formation from, 8497*i*.
in hepatitis, 2308*h*, 2696*g*.
humoral immune functions and, 1101*b*, 2305*f*.
immunity and, 6722*h*.
in insanity, 9232*h*.
of normal, tumor-bearing and immunized chickens, 1477*e*.
origin of, 8523*b*.
pneumococcus agglutinin in, 8049*g*.
pptn. by boric acid, 6692*g*.
reaction with bilirubin, 5433*h*.
in rheumatoid arthritis, 5487*i*.
in senility, 8513*h*.
serological test for, 6269*c*.
in typhoid, antiendotoxin action of, 1100*i*.
after vaccination against hoof-and-mouth disease, 3513*a*.
in bone marrow in various conditions, 4359*i*.
in cerebrospinal fluid, 2311*e*.
in cryptogenic epilepsy, 2667*b*.
in inflammatory diseases of nervous system, 9235*b*.
ultraviolet absorption and, 5468*b*.
in colostrum of cow, effect of prepartal rations on, 740*i*.
of Cucurbitaceae seeds, 5450*i*.
detn. in blood, 265*f*, 2666*c*.
in blood plasma, 4314*g*.
in cerebrospinal fluid, 6696*h*.
digestion by trypsin, products of, 1816*b*.
effect on biochem. decompn. of cellulose, 3609*d*.
fibers from, 3201*g*.
formation in hepatectomized animals, 2252*b*.
$\gamma_1$- and $\gamma_2$-, isoelec. point and electrophoretic homogeneity, 2247*d*.
$\gamma_1$- and $\gamma_2$-, isoelec. points and ionic strength, 3860*g*.
$\gamma$-, in blood, disappearance of transfused, in hypoproteinemia, 9102*a*.
in blood plasma, 3054*h*.
in blood serum, P 9390*f*.
in blood serum, cardiac lesions from, 5859*c*.
in blood serum, electrophoretic heterogeneity of, 1071*i*.
in blood serum, fractionation of, 7998*c*.
in blood serum, glomerulonephritis from, 5859*a*.
in blood serum, immunological and electrophoretic studies of, 5107*g*.
in cerebrospinal fluid and their immunochem. estn., 9232*c*.
gelation of, 3857*f*.
hexone bases and dicarboxylic acids in, 7062*h*.
from immune blood serum, 1855*i*.
immune, in precolostrum, 9226*g*.
immune, sepn. and properties of, 5065*b*.
influenza virus effect on, 1854*h*.
iodinated antiserum, reaction with bacteria, 3923*h*.
β-lacto-, amino acid compn. of, 5812*i*.
comparison of different, 4717*g*.
crystal structure and mol. wt. of, 1623*b*.
electrophoretic study of binding of salt ions by, 3860*h*.
light scattering by, and mol. wt. of, 7787*e*.
mol. wt. of, 3264*h*.
trypsin splitting and denaturation of, 7064*h*.
lacto-, nutritive value of, 8568*a*.
lacto-, sedimentation const., diffusion const. and mol. wt. of, 6258*a*.
in liver after treatment with carcinogenic azo dyes, 2314*c*.
in normal and hypoproteinemic swine, 2293*h*.
peanut, P 1884*e*.
peanut, spectra of, 7341*a*.
precipitation by tannic acid, 261*d*.
in protection of Au sol, 7540*c*.
resynthesis at high pressures, 705*d*.
seed, of Gramineae and Leguminosae, 8456*d*.
seed, properties of, 2071*i*.
solns. of vegetable, viscous spinnable, P 4021*g*.
of soybean, cottonseed, etc., purification of, 5136*g*.
soybean, effect of browning on essential amino acids of, 3482*i*.
in tomato juice, 9167*i*.
vegetable, alk. solns. of, P 5950*f*.
X, mol. form of, 3477*g*.
X, of muscle, amylose isomerase assocn. with, 6264*b*.
**Gloeodes pomigena**, control on pears, 9348*b*.
**Glomerella cingulata**, org.-compd. toxicity to, 6351*e*.
**Glomerulitis, Glomerulonephritis.** See *Nephritis*.
**Glomerulosclerosis.** See *Nephrosclerosis*.
**Glomerulus.** See *Kidneys*.
**Gloss.** (See also *Luster*.)
control and improvement of, of paraffin-wax emulsions and polishes, 9491*f*.
of linseed oil stand oil paints, viscosity and, 869*c*.
measurement of, of paper, 4851*i*.
measurement of, standards for, 4786*f*.
of paint—see *Paint*.
of paper—see *Paper*.
**Glossaries.** See *Dictionaries*.
**Glossina pallidipes**, control of, 316*i*.
**Glossina palpalis fuscipes.** See *Tsetse fly*.
**Glossitis**, from vitamin deficiency, 6295*c*.
**Gloves**, dusting powder for surgeon's, P 5910*c*.
waterproofed leather, testing of, 8185*g*.
**Glow discharge.** See *Electric discharge*.
**Glucal**, *Aspergillus oryzae* action on, 8007*d*
——, **tetraacetylhydroxy-***, *Aspergillus oryzae* action on, 8007*d*.
**Glucamine, methyl-***, compd. with rutin, P 1800*g*.
**β-Glucanases**, specificity of, 6681*g*.
**Glucans**, in *Amorphophallus oncophyllus*, 9381*c*.
from wood by mild hydrolysis, 5945*i*
in wood polyoses, 395*h*.
**Glucemia.** See *Glycemia*.
**Glucides.** (See also *Carbohydrates, Glycosides*.)
in *Agrostis* and *Apera*, 8014*e*.
cytochem. reactions in study of, 3870*b*.
in grains, review on, 7153*f*.
lipide antigens—see *Antigens*.
metabolism of—see *Metabolism, animal* and *Metabolism, plant*.
in nutrition of *Tenebrio molitor* larva, 3114*d*.
of *Paulownia imperialis*, 4729*d*.
phosphatase activation and lack of, 3856*c*.
in *Sinapis alba*, effect of vernalization on, 3491*f*.
of wheat embryo, effect of temp. on, 6280*a*.
**Glucinimidasole, mercapto-***, and derivs., 2988*i*.
**Glucinum.** See *Beryllium*.
**Glucitol**, D-, derivs., P 7507*d*.
——, **1,4-anhydro-***, D-, tetraacetate, 1321*i*.
——, **1-desoxy-1-nitro-***, D-, labeled with $C^{14}$ in 1-position, 3795*c*.
——, **1,1-diphenyl-1-desoxy-***, and pentaacetate, P 3448*b*.
——, **1-phenyl-1-*p*-tolyl-1-desoxy-***, isomers, P 3448*c*.
**Gluc(o)-.** *(For terms which may correctly begin with either gluc(o)- (to signify glucose) or with glyc(o)- (to signify sugars in general) the forms with the latter more inclusive prefix are given preference in the headings in this index. The two forms are given together, as* Glycemia or Glucemia.)
**Glucoascorbic acid**, effect on Co polycythemia, 8478*e*.
nutritive value of, 4742*g*.
**Glucochloralose.** See *Chloralose*.
**Glucofructosans**, glucose of, 5828*e*.
hydrolysis with diastase, 7526*i*.
**Glucofuranoside, methyl 2,6-anhydro-β-D-, 2,5-bis(*p*-toluenesulfonate)**, 7905*i*.
**Glucolysis.** See *Glycolysis*.
**Glucomannan**, carboxyethyl and cyanoethyl ethers, P 4504*d*.
**Glucomethylose, 1,2 - acetone - 3-methyl-***, L-, 1728*h*.
——, **3-methyl-***, L-, identity of, and thevetose, 1728*f*.
, **β-triacetyl-3-methyl-***, L-, 1728*i*
**Gluconamide**, pentanitrate, P 1796*i*
*N*-**allyl-2,4,3,5-dimethylene-**, D-, 5007*a*.
——, *N*-**butyl-2,4,3,5-dimethylene-**, D-, 5007*a*.
——, *N* - **cyclohexyl - 2,4,3,5 - dimethylene-** D-, 5007*a*.
——, **2,4,3,5-dimethylene-**, D-, *N*-derivs., 5006*i*.
——, *N* - **ethyl - 2,4,3,5 - dimethylene-**, D-, 5007*a*.
——, *N*-**2-hydroxyethyl-**, hexanitrate, P 1796*i*.
——, *N* - **2 - hydroxyethyl - 2,4,3,5 - dimethylene-**, D-, 5007*a*.
——, *N* - **isobutyl - 2,4,3,5 - dimethylene-**, D-, 5007*a*.
——, *N*-**methyl-**, pentanitrate, P 1796*i*
——, *N* - **methyl - 2,4,3,5 - dimethylene-**, D-, 5007*a*.
**Gluconic acid**, antimony deriv. (*Pentostam*), filaricidal action of, 2702*i*
boron derivs., salts, for injection, 1907*c*
calcium salt—see *Calcium gluconate*
compd. with quinidine, intramuscular prepn. of, 9365*b*.
D-, metal derivs., 5743*h*.
effect on body wt. and food, water and salt-soln. consumption, 9182*e*
effect on organ wt., fat, protein, glycogen and vitamin C contents, 9182*h*.
iron salt—see *Iron gluconate*.
δ-lactone, in dough (packaged preleavened), P 9294*a*.
manuf. by fermentation, P 6362*f*
mixed glycerides, P 9494*b*.
procaine salt, interfacial tension at water olive oil boundary, 7290*d*.
sensitization of muscle to acetylcholine by, 1107*g*.
sensitization of ventricle to acetylcholine by, 1107*f*
production by *Aspergillus niger*, 9165*h*
reaction product with piperonal for improvement of Zn electroplating, P 6096*a*.
reaction with SbCl₃, P 7500*h*
reaction with $HIO_4$, 5339*i*
salts, color reaction with orcinol and $H_2SO_4$, 3795*i*.
sodium salt, in foaming control in lubricating oils, 6815*c*.
**Gluconic acid, 2,4,3,5-dimethylene-**, D-, 5006*i*.
polymeric esters of D-, P 2816*h*.
——, **2-keto-***, D- and L-, and their methyl esters and $NH_4$, Ca, K and Na salts, detection and detn. of, 1690*c*.
——, **5-keto-***, D-, detection and detn. of, and its Ca and Pb salts, 1690*c*
**Gluconic dehydrogenase**, in plastids, 8454*b*.
**Glucoproteins.** See *Glycoproteins*
**Glucopyranose**, α-D- and β-D-, pentanitrates, 5007*f*.
α-D-, pentaacetate, from cellulose, 3609*b*.
——, **3,6-anhydro-***, β-D-, 1,4-diacetate 2-*p*-toluenesulfonate, 7905*i*
——, **6-α-D-glucopyranosyl-***, α D-, octa acetate, 2583*d*.
**Glucopyranoside, methyl**, α D- and β-D-, tetranitrates, 5007*f*.
α-D-, tetranicotinate, 1469*i*.
β-D-, and compd. with KOAc, 151*b*
——, **1 3,6-anhydro-***, β-D-, tetraacetate 2-*p*-toluenesulfonate, 7905*h*.
**methyl 4,6-benzylidene-3-desoxy-***, α-D-, 1327*g*.
——, **methyl 6-desoxy-6-iodo-***, α- and β-D-, and 2,3,4-triacetates, 150*i*.
——, **methyl 6-α-D-glucopyranosyl-***, α-D-, 2585*c*.
——, **methyl 2,3,4-triacetyl-**, saccharin deriv., 7906*a*.
**Glucopyranosyl bromide**, D-, tetraacetate, glucosides from, 7430*g*.
——, **6-α-D-glucopyranosyl-***, α-D-, heptaacetate, 2583*e*.
**Glucoreductone**, and *p*-aminobenzoate, 8002*a*.
7506*c*.

—, 2,3,4,6-tetramethyl-, D-, dimethyl ester, reaction with Na, 8357f.
—, 2,3,4-trimethyl-, δ-methyl ester lactone, 583a.
Glucosamine (*chitosamine*), in blood-group substances, 8479g.
chromatography on starch columns, 5818f.
D-, detn. and reducing power of, 7861c.
hydrochloride, phthalocyanine dye from, P 8168d.
oxidation of, 578d.
reaction (color) with orcinol and $H_2SO_4$, 3795d.
structure of, 5747i.
N-thiazolyl derivs., 7931e.
—, acetyl-, from mucoss-mucoid of bull stomach, 3480d.
—, N-methyl-*, hydrochloride, 1328g.
L-, from pentaacetyldihydrostreptobiosamine, 1330a.
—, octaacetylmannosido - N-methyl-*, L-, 3367f.
—, N-phenylacetyl-*, 2271b.
Glucosaminide, N-acetyl-3,4,6-trimethyl-α-methyl-*, D-, 586b.
—, dimethylmethyl-*, D-, 585i.
Glucosan. (See also *Levoglucosan*.)
α-, 9060h.
in wood, 5587b.
—, dimethyl-, 5926c.
—, trimethyl-, 5926b.
Glucosan<1,5>α<1,4>, 3,6-anhydro-*, D-, 1726e.
—, 3,6-anhydromethyl-*, 1726g.
β-Glucosan<1,5>β<1,6>. See *Levoglucosan*.
Glucosanilide, D-, prepn. of, 7906c.
Glucosazone. See "phenylosazone" under D-*Glucose*.
Glucose (*the sirup and its dried products*). (See also *Starch*.)
as corrosion inhibitor for light metals, 4622d.
decolorization of, with synthetic resins, 5980d, P 9506b.
decompn. of, by $SO_2$, 4461c.
in glucose detn. in, 1290f.
manuf. of, 1589c, P 2006g, P 2456d.
Cu corrosion in, 8896.
ion-exchange system in, 4882c.
plant for, 8716d.
from potato, tapioca, wheat and waxy cereal starches, 888i.
from sorghum grains, 7243i.
purification of, ion exchange in, 6441g.
specific rotations of, 4602b.
α-Glucose (*dextrose*). (See also *Glucose (the sirup); Glycolysis; Saccharification; Sugars*.)
absorption of, in alloxan diabetes, effect of insulin on, 317d.
from blood by mammary glands, 8040b.
from intestines, effect of $CaCl_2$ on, 5466i.
from intestines, effect of thiamine on, 5838e.
in stomach after extirpation of vegetative nervous-system section, 295i.
in traumatic shock, 1100g.
adsorption by plants, plant respiration and, 1084c.
α-, pentaacetate, 1326g.
in ammonium chloride acidosis therapy, 1869i.
analysis for—see *Sugars, analysis*.
as antioxidant in alkyl benzenesulfonates, P 6840b.
in aqueous humor, 5485f.
assimilation of, during anesthesia and surgery, 5850c.
by chick embryo, 5465d.
in diabetic sheep, 753c.
by diaphragm with and without insulin, effect of adrenal cortical ext., adrenocorticotropic hormone and hypophysectomy on, 9255g.
by *Drosophila*, 3228.
effect of adrenaline on, 7980b.
by erythrocytes, 8509f.
by heart, 9210h.
by *Tenebrio molitor*, 4387i.
by *Trypanosoma hippicum*, effect of Zn insulin on, 2276b.
by yeasts, 275c.
in *Azotobacter* nutrition, 5821c.
in bean rust, 1463f.
β-, pentaacetate, Grignard reaction with, 1326d.
β-, pentaacetate, reaction with phenols in presence of $BF_3$, 7922i.
biochem. and hemodynamic changes after subcutaneous injection of, 7110b.
in birch sap, 2678e.
in blood—see *Blood sugar; Glycemia; Hypoglycemia*.
boric acid complexes, amine salts derived from, P 1800f.
in brain, blood gases and, 5848g.
in cacao-bean covering, 8010i.
caramelization products of, bactericidal substance from, 3147d.
as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278f.
carotene mixt. with, 3971i.
casein nutritive value after heating with, 8478a.
in cerebrospinal fluid, blood content and, 7102d.
in chloroform and uranyl nitrate intoxications, 2699c.
in citric acid production by submerged fermentation, 813i.
in colostrum and milk, 1496a.
compds. with NaCl and NaI, compression of single crystals of, 2063c.
compd. with acetone, 7409a.
condensation products (hydrogenated) with aminoöleanilide or aminostearanilide, surface-active, P 4409d.
condensation with hydrazides of coconut-oil fatty acids, wetting agents by, P 4499e.
crystn. of anhyd., 8716g, 9499i.
cyclization of, 4229c.
in cystine oxidation by $HNO_2$, 4224f.
decolorization with synthetic resins in manuf. of, 5980e.
degranulation of beta cells of pancreas by, correlated with alterations in glucose tolerance, 4760d
dehydration of, 9060h.
dehydrogenase—see *Glucose dehydrogenase*.
derivs., 1726g.
with benzenearsonous acid derivs., 599a.
galactose transformation to, 6680f.
microorganism attack on, 7692g.
x-ray diffraction data for, 3795b.
diabetes from administration of, 7569d.
diet contg., caries producing capacity of, 8474h.
diethyl mercaptal and dimethyl acetal, oxidation by *Acetobacter suboxydans*, 1828e.
diffusion of, 21h.
diffusion (thermal) in aq. solns. of, 2481a, 2491a.
diffusion (tubular) of, 9226f.
di-2-thenyl mercaptal, 6986b.
effect on Addison's disease, 1480b.
on alanine in blood, 1846c.
on Arakawa reaction and lactation after injection into mammary gland, 9215b.
on autodisplacement of Pb, 8811g.
on blood flow, glucose retention and O utilization by tissue, compared with adrenaline, 7145d.
on blood sugar, and effect of nicotinamide thereon, 7366, 1472b.
on blood sugar arteriovenous differences, and effect of insulin thereon, 9204e.
on blood sugar obtained from scarification of skin, 9201b.
on Ca and K in glaucoma, 6310i.
on cholinesterase in blood serum, blood sugar in relation to, 2311c.
on color of strawberry anthocyanin, 5087e.
on DDT-paralyzed blowfly larvae, 4416f.
on deamination of casein hydrolyzates by *Bacterium fluorescens liquefaciens* and *Proteus vulgaris*, 5448e.
on drying rate and water content of leather, 427h.
on erythrocytes of turtle, 3939c.
on exchangeable Mn in soils, 3129e.
on food intake, 2298g, 5465f.
on formation of $H_2S$, 1672h.
on gastric acid secretion and emptying time, 9229d.
on growth of plant tissue, 4349a.
on hypoglycemic shock from synthalin, 8527g.
on lactic and pyruvic acids in blood, 5111b, 5832h.
on methemoglobin reduction in erythrocytes, 3048g.
on oxidation of vitamin C, 1016i.
on O uptake by larva cells of *Gastrophilus intestinalis*, 1872c.
on pancreatic secretion, pharmacology of, 9209c.
on paradiabetes, 1856b.
*effect* on periodic paralysis, effect of previous diet on, 3919g.
on phosphatase activity of blood serum and liver, 9098a.
on phosphatase activity of kidneys, 9245g.
on phosphates in blood, 1849h.
on phosphorylated lactoflavin in urine, 6707h.
on phys. properties of leather, 1206d.
on procaine action, 758e.
on prothrombin formation by liver, 5463i.
on reagents for detn. of vitamin C, 5879b.
on skin and stomach lining, 3106c.
on soly. of $Cu(OH)_2$ in $NH_4OH$, 2489e.
on soly. of $CuO$ in soil solns., 7542b.
on sporulation of *Bacillus cereus*, 7082h.
on stability of supersatd. solns. of $KNO_3$, 8805i.
on survival time of eviscerated rats, 2306a.
on Takata-Ara reaction, 3480g.
on tubular function of kidney, 9218f.
on work performance after adrenalectomy, 8024i.
in egg-jelly coat of various sea urchin species, 4389f.
esters, 3368a.
esters (penta-) with 3-carboxy-1-methylpyridinium bromide and with nicotinic acid, 2623a.
esters with nicotinic acid, 1469i.
fermentation of, by *Aerobacter aerogenes*, 2,3-butanediol formation in, 1320h.
contg. $C^{14}$, 3969e.
by *Escherichia coli*, 5080i.
in soil, 7172d.
by yeast enzymes, trehalose from, 7544d.
in foaming control in lubricating oils, 6815c.
formation of, from enzymic hydrolysis o glucofructosans, 5828e.
from protein in phlorhizin diabetes during vitamin deficiencies, 5484b.
by thermophilic cellulose fermenting bacteria, 720d, 721d.
freezing-point depressions by, 5903c.
in gas liquor from wood-fed generator, 5925i.
gastric passage and intestinal absorption of, effect of anesthetics and barbiturates on, 4767g.
glycemia from, effect of Zn on, 2327i.
glycogen synthesis from, in liver, effect of morphine, phenobarbital and urethan on, 7134b.
glycolysis of, in tumor homogenates, 7576b.
in grape juice, fructose and, 8070h.
as growth factor for *Bacteroides*, 9154i.
in guava during growth, and its utilization in synthesis of ascorbic acid, 3889c.
*Hemophilus parainfluenzae* requirements for, 9156b.
hexokinase affinity for, 8484b.
hydrogenation of, P 5794h.
hydroxyalkyl ether esters, P 886e.
hypertonic soln. of, cardiac effects of, 1490e.
inositol formation from, in tea leaves, 3070e.
isotonic, diuretic action of, 4373g.
isotonic, effect on acetylcholine and K sensitivity of muscles, 1853b.
labeled, with $C^{14}$ in aldehyde group, 3795c.
*Lactobacillus bulgaricus* adaptation to, 2669i.
lipogenesis from, normally and after hepatectomy, 8509g.
loading in diabetic and normal boys, urinary flow, excretion of solutes and osmosis during diuresis of, 1858h.
manuf. of, P 427d, 1589d.
from cellulose, P 6825gh.
from corn, plant for, 8716d.
from cornstarch, 8716d.
from cotton husks, 7225d.
by saccharification, P 406a.
melanoids from amino acids and, colloidal properties of, 5255e.
mercaptals, preservation of butadiene polymers with, P 5625b.
metabolism of, in diaphragm, 8029e.
in diaphragm, effect of adrenal cortical compds. and insulin on, 6714e.
effect of vagus on, 2693a.
Lundsgaard effect and, 3056g.
by malaria-infected red blood cells, 5107b.

*metabolism of*, in *Plasmodium gallinaceum*, and effect of antimalarial agents thereon, 3099*a*.
in *Trypanosoma evansi*, and action of trypanocides thereon, 3099*d*.
in yeast, effect of U on, and relation of cell surface thereto, 5434*f*.
methionine destruction by autoclaving with, amino N change, browning and fluorescence in relation to, 9276*i*.
methylated derivs. of, detection of, 66*g*.
2,2′-methylenebis(4-chlorophenol) fungicidal action and, 1515*f*.
mixts. with alcs., osmosis of, 7300*g*.
with amino acids, HCl or $H_2SO_4$, dialysis of, 2486*h*.
with aminobutyric acid, maple-sirup substitute from, 5880*b*.
with citrate, erythrocytes of blood preserved in, 6690*ade*.
with citrate for blood preservation, 6690*i*.
with glycine, fluorescent development in, 7154*f*.
α-monohydrate, 5748*f*.
nitrogen metabolism by diphtheria bacteria in presence of, 8000*a*.
nutritive value of, 1847*a*.
optical crystallographic data for, 6105*e*.
oxidase—see *Glucose oxidase*.
oxidation of, 1729*i*, P 7506*c*.
by alloxan-diabetic and normal rats, 2310*a*.
in brain, diethylstilbestrol and steroids effect on, 7579*e*.
by Br, kinetics of, 6895*i*.
electrolytic, to Ca gluconate, 8904*e*.
by kidney homogenates, effect of fluoroacetic and fluorobutyric acids on, 4709*f*.
and its metabolites in cell suspensions, effect of snake venoms on, 2260*a*.
with $HNO_3$, 4644*b*.
with $HIO_4$, detn. of acids from, 2006*e*
by Na periodate, 8820*f*.
by yeast, 1460*c*.
oxidation of, by HgO, and prepn. of Ca gluconate, 3147*f*.
in oxidation-reduction activation of polymerization of butadiene with styrene in systems with cumene and Fe salts hydroperoxide, 8723*f*.
oxime, Cu complex, rotproofing value in duck, 5958*b*.
in peach-X-disease control, 9347*g*.
in penicillin production, 3060*d*.
pentaacetate, *Aspergillus oryzae* action on, 8007*e*.
in perspiration, 8481*h*.
phenylosazone and phenylosotriazole, anthrone reaction with, 66*g*.
phenylosazone, homogeneity of, prepd. from D-fructose, 580*g*.
phosphates—see *Glucose phosphates*.
phosphorylation (enzymic) of, 152*f*.
in pigment production by *Pseudomonas aeruginosa*, 1827*f*.
in *Pinus sylvestris* root nutrition, 3494*c*.
in plants, effect of growth substances on transport of, 804*h*.
plasmaphoresis with, restoration of blood protein and colloid-osmotic pressure after, 4310*f*.
polymerization in yeast, phosphate uptake and polymerization in relation to, 9145*e*.
prepn. from cellulose hydrolysis, yield of, 8678*a*.
from coniferous fiber hydrolysis, chromatography of, 9433*g*.
from pear cellulose, 7679*h*.
protective action against bacteriophage x-ray inactivation, 2275*g*.
protein deposition in liver following injection of amino acid mixt. and, 766*g*.
purification of solns. of, with ion-exchange resins, P 9506*a*.
radioactive, with $C^{14}$ from liver glycogen after feeding radioactive Na bicarbonate, 3476*g*.
radioactive, with $C^{14}$ in position 1, 9040*i*.
in rayon waste liquor, 395*i*.
reaction (color) of, with orcinol and $H_2SO_4$, 3795*i*.
reaction products with mercaptoacetic acid and stearamide, surface-active, P 7242*e*.
reaction with amino acids, effect on growth of lactic acid bacteria, 8445*e*.
with hydrazides of coconut fatty acids, stearic acid or *p*-stearylaminobenzoic acid, textile assistant by, P 9497*h*.
*reaction* with 2-naphthalenesulfonic acid and PhHgOAc, P 690*e*.
with $K_2S_2O_8$, kinetics of, 471*g*.
with 2,5,6 - triamino - 4 - pyrimidol, 7028*h*, 7489*a*.
in red clover and timothy at various stages of growth, 727*h*.
as reducing agent in GR-S rubber polymerization in cumene hydroperoxide systems with org. compds. forming complexes with Fe, 8727*f*.
as reducing agent in polymerization of unsatd. compds., 2811*a*.
reducing power of, 7861*c*.
reduction (electrolytic) of, P 2104*d*.
renal tubular transport of, effect of mercurial diuretics and xanthine on, 6734*a*.
rotation of, detn. in sirup, 4502*b*.
sodium bisulfite addn. compd., reaction product with *p*-phenylenediamine, P 7958*b*.
soly. in aq. alc., effect of $C_6H_6$ or $CHCl_3$ on, 6889*h*.
specific dynamic action of, 5836*i*.
sterilization of solns. of, 2367*b*.
*p*-sulfamylphenylosazone†, 601*c*.
sulfanilamide deriv., P 4817*c*.
surface-active agent from *p*-stearoylaminobenzoic acid hydrazide and, P 3039*a*.
systems: acetamide–$H_2O$–, and urea–$H_2O$–, 2854*c*.
in tobacco leaf, effect of position on plant on, 819*b*.
tolerance to, in anoxia, 2302*i*.
blood serum and citric acid after test for, 9226*e*.
effect of alloxan on, 8544*c*.
effect of emotions on, 5846*e*.
effect of hormones of posterior pituitary on, 7116*d*.
in endocrine disorders, diagnostic value of, 8424*g*.
after evisceration, effect of adrenaline on, 6319*e*.
after evisceration, effect of isuprel on, 7583*d*.
after evisceration, effect of work on, 2691*h*.
at high altitudes, 3504*a*.
after nephrectomy in eviscerated rat, 297*a*.
in senility, 8558*f*.
tests for, 4320*d*.
in urine—see also *Glycosuria*.
in urine, in diabetes, effect of adrenocorticotropic hormones and pituitary growth on, 2691*i*.
diet in relation to adrenocorticotropic hormone effect on, 7098*f*.
of hypophysectomized diabetic rats, effect of adrenocorticotropic hormones and pituitary growth on, 2692*b*.
of partially depancreatized rats, effect of 11-desoxycorticosterone acetate on, 1474*g*.
xylose detn. in mixt. with, 1976*a*

**D-Glucose, acetoamino-***, β-, 7430*f*.
——, **acetoazido-***, β, 7430*f*.
——, **acetobromo-***, 1326*h*.
reaction with Li salts, 5748*a*.
——, **anhydro-***, resistance to microörganisms and substituents in, 7692*g*.
——, **3,6-anhydro-***, derivs., 7905*h*.
and derivs., 1726*f*.
——, **1 - bromo - 2 - tosyl - 3,4 - diacetyl-6-iodo-***, α-, 1727*a*.
——, **2-desoxy-***, *Aspergillus oryzae* action on, 8007*d*.
——, **digalloyl-***, 1341*f*.
——, **diisopropylidene-**, photographic antistatic subbing compn. contg., P 3739*c*.
——, **2,3-dimethyl-**, from trimethyldextran, 1331*d*.
——, **2,3(2,6 and 3,6)-dimethyl-**, oxidation of, with $HIO_4$, 1330*f*.
——, **2,6-ditosylacetobromo-***, α-, 1726*i*.
——, **6-α-D-glucopyranosyl-***, 2583*d*.
——, **1,2-isopropylidene-**, tricarbanilate and tris(1-naphthalenecarbamate), 1331*g*.
——, **methyl-**, tetranitrate, vapor pressure of acetone over solns. of, 4928*c*.
——, **2(and 3)-methyl-**, oxidation of, with $HIO_4$, 1330*f*.
——, **3-methyl-**, absorption from small intestine, 3911*g*.
——, **6-methyl-**, *Aspergillus oryzae* action on, 8007*d*.
——, **2,3,4,6-tetramethyl-**, from trimethyldextran, 1331*d*.
——, **thio-***, *S*-gold deriv., effect on liver function, 5118*a*.
*S*-gold deriv., obesity from, 5117*f*.
sodium deriv., effect on O consumption by tissues after gold treatment, 2328*g*.
**2-tosylacetobromo-***, α- and β-, 1726*i*.
**-, 1,3,4-triacetyl-2-tosyl-6-iodo-*** 1726*h*.
**2,3,4-trimethyl-**, oxidation of, $HIO_4$, 1330*f*.
from trimethyldextran, 1331*d*.
——, **2,3,6-trimethyl-**, 1330*h*.

**L-Glucose**, and derivs., 1728*f*.
——, **1,2-acetone-5,6-anhydro-***, 1728*h*
——, **1, 2 -acetone - 5,6 - anhydro - 3-methyl-†**, 1728*h*.
——, **1,2,5,6-diisopropylidene-**, 1728*g*.
——, **1,2-isopropylidene-**, and 6-*p*-toluenesulfonate, 1728*g*.

**Glucose dehydrogenase**. (See also *Glucose oxidase*.)
in *Calliphora erythrocephala* larvae, 6321*f*.
and its carrier systems, 4712*g*.
in clover-leaf plastids, 8454*b*.
Furacin effect on, of bacteria, 8000*i*
purification of, 3047*c*.

**D-Glucose 6-iodohydrin***, derivs., 7905*h*
**Glucose oxidase**. (See also *Glucose dehydrogenase*; *Notatin*.)
antibacterial and enzymic activities of, relation between, 3857*i*.
sedimentation and diffusion of, 6261*d*

**Glucose 1-phosphate kinase**, prepn. and properties of, 9119*e*.

**Glucose phosphates** or **Glucosephosphoric acids**. (See also *Hexose phosphates*.)
and barium salt of the 6 phosphate, 600*d*
as coenzyme of phosphoglucomutase, 3478*a*, 7528*h*.
coenzymic action of, 2258*h*.
conversion of 1-phosphate to 6 phosphate by phosphoglucomutase, glucose 1,6 diphosphate in, 6680*h*.
formation of, by enzymes, 152*g*
hydrolysis (acid) of 2-phosphate, 147*h*.
mixts. with phosphorylases and amylopectin or glycogen, 8815*a*.
prepn. of, 4725*e*.
prepn. of glucose 1,6-diphosphate by enzymes, 9119*e*.
salts, cyclization of, 4229*c*.
starch synthesized from, by diphtheria bacilli, 3062*g*.
in sugar manuf., 9500*h*.
in tumors, 1857*cf*.
uranyl complexes, 8270*d*.

**Glucose-reductone**. See *Reductone*.

**Glucosesulfonic acid, 4,4′-diaminodiphenylsulfone- *N*, *N*′-di-**, disodium salt—see *Promin*

**Glucose tetraphosphate***, as scale inhibitor in sugar manuf., 6445*i*

**D-Glucose xanthate, diacetone-*** 9439*f*

**D-Glucose xanthogen disulfide, diacetone-***, 1181*g*, 9439*f*

**Glucosidases**. See *Glycosidases*.

**Glucoside, allyl**, α-, tetraacetate, 3795*e*
——, ***p*-aminobenzoic acid- *N*-***, assimilation by yeast, 8002*a*.
——, **4′-aminochalcone-***, adrenaline potentiation by, 5117*a*.
——, **androsterone-***, β-D-, P 5428*b*
——, **benzyl**, α-, tetraacetate, 3795*e*.
β-D-, tetraacetate, 7430*i*.
——, **benzyl 2,3,4,6-tetramethyl-**, D-, 2954*f*.
——, **benzyl 2,3,4(2,3,6 and 2,4,6)-trimethyl-**, D-, 2954*e*.
——, ***tert*-butyl**, α-, tetraacetate, 3795*f*.
——, **cholestanol-***, α-, tetraacetate, P 5428*b*.
——, **cholesterol-***, β-D-, P 5428*b*.
——, **chrysazin - 6 - cellobioside -** and decaacetate, 5019*h*.
——, **(2-cyanoethyl)**, D-, tetraacetate, 7430*i*.
——, **desoxycorticosterone-D**, β-D-, tetraacetate, P 5428*b*.
——, **[(1,2 - diethylethylene)di - *p*-phenylene]di-**, and octaacetate, P 7048*b*.
——, **[*p* - (α,β - diethyl - *p* - hydroxyphenethyl)phenyl]**, β-D-, and *p*-benzoate tetraacetate, P 7048*a*.
——, **[*p* - (α,β - diethyl - *p* - hydroxystyryl)phenyl]**, β-D-, and tetraacetate *p*-propionate, P 7047*i*.
——, **[(diethylvinylene)di - *p* - phenylene]di-**, and octaacetate, P 3039*h*
——, **9,10 - dihydro - 9,10 - dioxo - 2,6-(and 2,7)-anthrylene di-**, and octaacetates, 5019*i*.
——, **3,4′ - dihydroxy - 4 - methoxychal-**

**cone-4'-***, adrenaline potentiation by, 5116*i*.
—, **(2,3-dimercaptopropyl)**, α- and β-, hexaacetates, 7423*f*.
antidotal activity in oxophenarsine poisoning, 9250*i*.
chem. and biol. observations on, 4376*h*.
hexaacetate, antidotal activity in oxophenarsine poisoning, 9251*a*.
—, **2,3 - dimercaptopropyl 2,3,4,6-tetramethyl-**, antidotal activity in oxophenarsine poisoning, 9261*a*.
—, **ethyl**, α-, tetraacetate, 3795*e*.
—, **7-hydroxy-2-anthraquinonyl**, and tetraacetate, 5019*i*.
—, **8-hydroxy-1-anthraquinonyl**, and tetraacetate, 5019*g*.
, **o-hydroxyphenyl**, β-D-, tetraacetate, 7923*c*.
, **[β - (p - hydroxyphenyl) - $\Delta^{\alpha,\beta}$-butenolide]**, and tetraacetate, 4654*i*.
—, **3 - hydroxy - 5 - styrylcyclohexadienyl**, β-, 5017*g*.
—, **3-hydroxy-5-styrylphenyl**, β-, and 2,3,4,6-tetraacetate benzoate, 5017*f*
, **isoborneol-***, tetraacetate, P 5428*b*.
, **isopropyl**, α-, tetraacetate, 3795*e*.
, **o-methoxyphenyl**, β-D-, tetraacetate, 7923*b*.
, **[p-(p-methoxyphenylazo)phenyl]**, β D , tetraacetate, spectrum of, 6919*f*.
, **3-methoxy-5-styrylphenyl**, β , and tetraacetate, 5017*e*.
, **4-methoxy - 2',3,4',6' - tetrahydroxychalcone-***, adrenaline potentiation by, 5117*a*.
, **methyl**, α-D- and β-D-, affinities of, for cuprammonium, 3368*e*.
α , fermentation by *Escherichia* and *Aerobacter* species, 5082*f*.
α , tetraacetate, 3795*e*.
α inhibition by *Drosophila*, 322*h*.
β , 3,1-diacetate 2,6-di-*p*-toluenesulfonate, 1726*i*.
β D , 2,3 dicarbanilate, 3368*h*.
β D , esters, 3368*b*.
β D , tetraacetate, 7430*h*.
, **methyl 4,6-benzylidene-**, α-D- and β-D , affinities of, for cuprammonium, 3368*e*.
, **methyl 3,4 - diacetyl - 2 - tosyl-6-iodo-***, β-D , 3368*c*.
, **methyl 4,6-dimethyl-**, β-D , and 2,3-dicarbanilate, 3368*h*.
, **methyl 2,4-ditosyl-3,6-anhydro-***, β , 1727*a*.
, **methyl tetraallyl-**, α-, copolymer with bt acrylate, 5989*a*.
, **methyl 2-tosyl-3,6-anhydro-***, β , 1726*i*.
, **morphine-3-decaacetyl-6-β-cellobiosido-***, β-D , 3004*i*.
, **1-naphthyl**, β-D-, tetraacetate, 7923*c*.
, **o**-and **p**-**nitrophenyl**, tetraacetate, 5007*h*.
, **[p-(m-nitrophenylazo)phenyl]**, β D , tetraacetate, spectrum of, 6919*g*
, **phenyl**, α-D- and β D-, affinities of, for cuprammonium, 3368*e*.
β D , tetraacetate, 7923*a*.
β , tetraacetate, nitration of, 5007*h*.
β D , tetraacetate, 7430*f*.
, **(p-phenylazophenyl)**, β-D-, spectra of, and tetraacetate and tetrapropionate, 6919*e*.
, **o-phenylene di-**, β-D-, octaacetate, 7923*c*.
, **phenyl tetraacetylthio-**, β-D , cleavage of, with Br, 1326*g*.
, **procaine-N-***, hydrochloride hydrate, 758*e*
, **5-styryl-m-phenylene di-**, and octaacetate, 5017*e*.
, **testosterone-***, β-D-, tetraacetate, P 5428*b*.
, **thymyl**, β-D-, tetraacetate, 7923*b*.
**Glucoside<1,5>, 3(β)-cholestanyl***, β D-, reaction with chromic acid, 243*e*.
, **17-keto-3(β)-androstanyl***, D-, 243*e*.
**Glucosides**. See *Glycosides*.
**3 - [b - Glucosido - L - rhamnosido]strophanthidin***, 818*d*.
**Glucosone**, D-, structure of, 5007*i*.
**Glucosonic acid**. See *Gluconic acid, 2-keto-*.
**Glucosucrase**. See *Invertase*.
**Glucosuria**. See *Glycosuria*.
**Glucosyl bromide**, α-D-, esters, 3368*b*.
tetraacetate, reaction with phenolphthalein, P 689*i*.
**Glucuronamide**, α-D-, 4642*d*.
——, **1-amino-***, D-, 4642*d*.
**Glucuronanilide, 2,3,4-trimethyl-**, 1324*b*.
**Glucuronic acid**, ammonium salt, *p*-toluidine complex, 6314*h*.
benzoic acid detoxification by, in normal conditions and in liver disease, 6300*g*.
compd. with cinchonidine, 5008*hi*.
conjugation of morphine, effect of methylbis(β-chloroethyl)amine on, 7139*c*.
conjugation with estrogen in liver, 5479*h*.
detn. in glycoproteins, 5071*c*.
detoxication by, produced in liver, effect of vitamin $B_1$ on, 4372*h*.
D-, from almond tree gum, 1323*i*.
esters with hexesterol and stilbestrol, detn. in urine, 2662*i*.
ester with pyrocatechol, 2325*b*.
excretion of, after ingestion of benzoic or cinnamic acids, liver function and, 2322*h*.
fermentation by *Escherichia coli*, fermentation of galacturonic acid and pentoses in relation to, 4333*i*.
poly, in wood, 5587*b*.
reaction with naphthoresorcinol, 141*f*.
urinary excretion of, after benzene and phenol administration, 6312*h*.
from viscotoxin, 2943*c*, 7940*g*.
**Glucuronic acid, formyl-***, compd. with cinchonidine, 5008*i*.
——, **2,3,4-trimethyl-**, 1324*b*.
**Glucuronidase**, β-, extrinsic agent effect on, sex and organ specificity in response to, 704*f*.
β-, in genital cancer, 8048*i*.
as growth index in uterus and other organisms, 9207*c*.
inhibition by saccharic acid and role in glucuronide synthesis, 9106*c*
in spleen, and assay of prepn. of, 2255*h*.
in tissues in cancer, menopause, etc., 303*e*
inhibition by vitamin C and heparin, 7529*a*
**Glucuronide**, *p*-**acetamidophenyl-***, benzylamine salt, 6314*g*.
**Glucuronides**. (See also *Glucuronic acid*.)
in estrogen excretion, 8506*a*.
of products of conjugation and deamination of *p*-hydroxybenzylamine, etc., 2702*d*.
synthesis by tissue prepns., measurement of, 9103*h*.
synthesis of, β-glucuronidase in, 9106*c*
**Glucuronoside, methyl 2,3,4-trimethyl-***, derivs., 583*ag*.
**Glue**. (See also *Adhesives*.)
alginate-contg bone, P 8212*i*.
book: Traité général de la fabrication de, et matières d'apprêts, 6463*i*.
coating with, on soap particles to reduce dusting and lumping, P 1587*a*.
as corrosion inhibitor for light metals, 4622*d*.
from ears, feet and lips of cattle and hogs, 5220*g*
effect in polarographic analysis of brass, 4181*k*.
fat removal from bone liquors in prepn. of, 4501*g*
fish, adhesive from urea-HCHO resin and, P 4899*d*.
constitution and use in photoengraving, 7737*c*.
plastic emulsion contg., P 6000*c*.
from fish residues on fishing ships, P 6437*d*.
manuf. of, P 1592*i*.
molded articles from wood or cork waste and, P 4517*c*.
in paint industry, 4489*c*.
paints, consistency and $TiO_2$ content of, 5201*c*.
for paper pulp and paper industry, 5948*h*.
plaster of Paris contg., P 4444*a*.
preservation of, esters of unsatd tricarboxylic acids for, P 7634*d*.
reducing sugar-plasticized, with $NH_4$ salts repressing resinification, P 6453*a*.
review on, 8717*a*.
and its testing, 2457*a*.
wallpaper, contg. insecticide, P 4808*f*.
**Glutacon-α-aldehydic acid** (*4-formyl-3-butenoic acid*),
$HOCCH{:}CHCH_2COOH$.
α β γ
——, **δ-oxo-**, derivs., P 1808*i*.
**Glutacon-γ-aldehydic acid** (*γ-formylcrotonic acid*),
$HOOCCH{:}CHCH_2CHO$.
α β γ
——, **γ-oxo-**, methyl ester aldoxime, polarography of, 1724*a*.
**Glutaconic acid**,
$HO_2CCH{:}CHCH_2CO_2H$.
α β γ
diethyl ester, reaction with nitro paraffins, 5745*d*.
——, **γ-amino-α-(o-aminophenyl)-**. See *Kynurenine*.
——, **β-carboxy-**. See *Aconitic acid*.
——, **β-(2,4-dihydroxyphenyl)-**, *trans*-and ethyl ester, 1408*b*.
——, **β-(2,4-dimethoxyphenyl)-**, 1408*d*.
**Glutaconic anhydride**, β-aryl derivs., reaction with ethers of phenols, 4639*i*.
——, **β-(2,4-dihydroxyphenyl)-**, diacetate, 1408*c*.
——, **β-(p-methoxyphenyl)-**, reaction with ethers of phenols, 4640*a*.
**Glutamic acid** (*α-aminoglutaric acid*), absorption (biol.) of, 766*d*.
*Achromobacter fischeri* requirements for, 2276*g*.
in actin, 9095*h*.
*N*-acyl derivs., P 3841*g*.
adsorption by $BaSO_4$, 3687*b*.
alanine formation from, by liver enzyme, 2253*a*.
aluminum salt, P 8020*a*.
antagonist to, 9205*h*.
antibacterial activity of, 3879*h*.
antibiotic effect of D-, 9145*h*, 9146*c*.
antimetabolites, 3499*g*.
aspartic acid transamination to, in plants, 9172*e*.
assay of, 4333*h*.
assimilation, by *Escherichia coli* for growth, 7084*h*.
by heart, 9210*g*
by *Staphylococcus aureus*, and effect of penicillin thereon, 4329*e*, 4340*a*.
bacterial requirement for, penicillin sensitivity and, 9245*i*.
in blood, carcass, heart, kidney, liver, muscle and skin, 7061*e*.
in blood plasma, 8429*c*.
in brain tissue, 9206*i*.
in cacao bean covering, 8011*a*.
as carbon dioxide replacement in heterotrophic metabolism, 8435*c*.
in cauliflower, Mn and Mo in relation to, 7552*e*.
in cell nuclei, 2652*h*.
in *Chlorella*, 8456*i*.
chromatography of, 138*a*.
chromatography of, on starch columns, 5818*e*.
in clinical therapy, 5861*e*.
cobalt complexes with, 5432*e*.
in collagen and hide protein, and its detn. in collagen, 7734*e*.
copper salt, effect on sarcoma, 8538*b*.
deamination by $NaClO_2$ and NaClO, and detn. thereof, 2891*g*.
deficiency, body wt. and growth in, 6296*c*.
in dentine of normal and carious teeth, 5486*b*, 8500*c*.
detection of D-, and m.p. and optical crystallographic properties of its nitro indandionate, 691*i*.
detn., 2662*e*, 3057*d*, 3875*g*, 9138*a*.
in collagen and hide layers and its uniformity through hides, 7734*i*.
in tissue, 6685*c*.
diethyl ester, reduction of, 2582*b*.
DL-, prepn. of, 137*g*.
DL-, resolution of, 6694*h*.
effect on alanine and pyruvate in blood, 1860*i*, 4354*e*.
on biochem. decompn. of cellulose, 3609*d*.
on citrulline formation, 1848*i*.
on glycine concn. by diaphragm, 9120*d*.
on growth of lactic acid bacteria, 4331*h*.
on heart metabolism, 9267*i*.
on hypoglycemia, 6313*e*.
on indoleacetic acid action on growth of *Avena* coleoptile, 5831*b*.
on intelligence in mongolism, 9266*a*.
on lag period in growth of *Aerobacter aerogenes*, 5080*e*.
on malignancy, 2307*d*.
on respiration of aorta, 7114*f*.
on schizophrenia, 8518*e*.
esters and their hydrochlorides, 7425*h*.
in fatty acid oxidation by kidneys, 2248*f*.
fermentation of, 7541*g*.
formation of, from acetate and bicarbonate, 8027*g*.
from $NH_3$ and keto acids by bacteria, 7547*a*.
from $(NH_4)_2SO_4$ in tomatoes, 1841*b*.
in animal tissue, 3911*a*.

*ormation of*, from α-ketoglutaric acid by bacteria, 5084*e*.
from proteins by pancreatic juice, 9089*e*.
glutathione synthesis from, in liver, 8503*c*.
in green plants, 1463*a*.
growth and, 1843*e*.
hydrazide, and related derivs., prepn. and antibacterial action of, 2674*g*.
hydrochloride, monograph for, 4809*f*, 8103*b*.
hydrochloride, optical crystallographic data for, 6105*f*.
identification of, 2651*b*.
inactivation by autoclaving, 6676*f*.
in influenza A and B viruses, 4370*h*.
γ-lactam—see *Pyroglutamic acid*.
*Lactobacillus casei* growth and, 4334*i*.
*Lactobacillus casei* requirement for, 4338*a*.
in lactogenic hormone of pituitary, 5474*f*.
liberation from heated and raw casein after acid and enzyme hydrolysis, 1819*e*.
in liver, effect of diet on, 5095*h*.
in liver exts., 710*f*.
L-, polariscopic study of, 143*f*.
in lupine and soybean seeds and sprouts, 1080*e*.
in lysozyme, 5063*d*.
in metabolism of *Aerobacter aerogenes* and *Escherichia coli*, 5445*c*.
metabolism of, in gluconeogenesis, effect of adrenal cortical steroids on, 9212*e*.
metabolism of, in psychotic states, 5486*h*.
γ-methyl ester, copolymer with β-phenylalanine, 9033*h*.
in myoglobin of whale, 7537*b*.
nitrogen fixation by *Azotobacter* in presence of, 5523*a*.
as nitrogen source for *Bacillus subtilis*, 722*e*.
in organs of swine, 7061*h*.
oxidation of, P 3451*h*.
by lipoxidase, 6263*h*.
by plant tissues, 2283*f*.
in pollen collected by bees, 732*e*.
in procollagen of ox, 8411*d*.
in proteins of microörganisms and of neoplastic and normal tissue, characterization and detn. of D-, 9126*i*.
in *Proteus vulgaris* flagella, 3061*f*.
psychological effects of, in diet, 8467*h*.
rare earth complexes, 4969*g*.
recovery from sugar-beet juice, 6442*i*.
in royal jelly, 7149*f*.
salt (acid) with choline, 7420*b*.
salt with choline, 5742*f*.
sepn. by anion-exchange resins, 8807*a*.
sepn. from hydrolyzed egg albumin, 8807*c*.
in sericin hydrolyzate, 4715*f*.
sodium salt, antianaphylactic action of irradiated, and its effect with nerve toxins, 308*egh*, 309*b*.
from corn-refining wastes, 5507*i*.
manuf. of, 4642*f*.
in seasoning foods, 8572*g*.
use and effects of, 9182*d*.
from wheat, 8566*e*.
and sodium salt, from hydrolysis of cereal glutens, P 3947*a*.
and sodium salt, review on, 3531*h*.
in soybean meals, 3499*e*.
specific dynamic action of, and effect of vitamins and hormones thereon, 4353*e*.
in sugar-manuf. Steffens filtrate, 6446*b*.
in tissue, 6719*c*.
in tissue, and its detn., 8427*d*.
in tissue (neoplastic), 9217*i*.
in tobacco-mosaic virus, 7092*b*.
as tumor protein constituent, 3924*a*.
urea formation in aspartate and citrulline systems with, 6250*h*.
vomiting from, effect of mode of administration on, 3104*b*.
in yeast nutrition, 1825*i*.
from yeast pigments, 2258*d*.

**Glutamic acid**, *N*-acetyl-γ-cyano-, γ-ethyl ester, 137*h*.
——, *N*-(*N*-acetyl-3,5-diiodotyrosyl)-, DL-, 2256*c*.
——, *N*-(*N*-acetyl-β-[4-(4-hydroxy-3,5-diiodophenoxy) - 3,5 - diiodophenyl]alanyl)-, DL-, 2256*c*.
——, *N*-(*N*-acetylsulfanilyl)-, L(+)-, diethyl ester, 7029*d*.
——, *N*-acetylthyroxyl-*, DL-, 2256*c*.
See *Glutaric acid, diamino-*.
minobenzoyl)-, effect on
ity of *Streptococcus aronson*,
L-, effect on folic acid antagonists, 3066*a*.
——, 4-amino-9,10-dimethylpteroyl-*, effect on growth of chick embryos, 9186*h*.
in leukemia therapy, 9249*e*.
——, *N*{*p*-[(2-amino-4-hydroxy-7-methyl-6-pteridylmethyl)amino]benzoyl}-(*7-methylfolic acid*), in anemia prevention, 8471*b*.
metabolism in anemia, 1094*f*.
——, *N*-{*p*-[1-(2-amino-4-hydroxy-6-pteridyl)ethylamino]benzoyl}-, and cyclohexylamine salt, 3424*a*.
——, *N*-{*p*-[1-(2-amino-4-hydroxy-6-pteridyl)ethyl]methylamino}benzoyl}-, 3424*b*.
——, *N*-{*p*-[(2-amino-4-hydroxy-6-pteridylmethyl)amino]benzoyl}-. See *Folic acid*.
——, *N*-{*p*-[*N*-(2-amino-4-hydroxy-6-pteridylmethyl)formamido]benzoyl}- (*N*$^{10}$-*formylfolic acid*), as growth substance for bacteria, 8441*h*.
——, *N*-[*N*-(2-amino-4-hydroxypteridylmethyl)sulfanilyl]-, L(+)-, 7029*b*.
——, *N*-{*p*-[(2-amino-4-hydroxypyrimido[4,5-*b*]pyrazin-6-yl)-methyl]amino}benzoyl}-. See *Folic acid*.
——, 4-amino-*N*-methylpteroyl-*, effect on sarcoma, 7637*f*.
——, 4-amino-9-methylpteroyl-*, in leukemia therapy, 9249*e*.
——, *N*-{*p*-[(2-amino-6-pteridylmethyl)amino]benzoyl}-(4-*desoxypteroylglutamic acid*), effect on estrogen-induced tissue growth, 8491*d*.
hematologic effect of, 8555*f*.
——, 4-aminopteroyl-*, D(−)-, effect on sarcoma, 7637*f*.
——, *N*-carbamyl-, in citrulline synthesis, 1848*h*, 7113*i*.
——, *N*-carboxy-, *N*-benzyl ester γ-hydrazide and its hydrazone with benzaldehyde, 6978*i*.
——, *N*-{*p*-[1-(2,4-diamino-6-pteridyl)ethyl]methylamino}benzoyl}-, 3424*c*.
——, *N*-{*p*-[(2,4-diamino-6-pteridylmethyl)amino]benzoyl} - (*4-aminofolic acid, aminopterin, 4-aminopteroylglutamic acid*), action in rats and mice, 4768*b*.
D(−)-, effect on sarcoma, 7637*f*.
effect on *Drosophila melanogaster*, 2331*i*.
on embryonated eggs, 7097*c*, 9186*g*.
on estradiol action on oviducts, 9202*h*.
on frog response to estradiol, 1474*f*.
on hormonally induced changes in prostate, 8508*f*.
on leukemia, 5505*f*.
on leukemia, effect of folic acid on, 9186*i*.
on sarcoma 180, 5505*b*.
hematologic effect of, 8555*f*, 8556*f*.
lesions in weanling rats from, 7097*f*.
in leukemia therapy, 9249*e*.
megaloblastosis, etc., from, 8057*e*.
——, *N*-{*p*-[(2,4-diamino-6-pteridylmethyl)methylamino]benzoyl}-(*amethopterin, 4-amino-N*$^{10}$*-methylpteroylglutamic acid*), 7637*f*.
effect on embryonated eggs, 7097*c*, 9186*h*.
on estrogen-induced tissue growth, 8491*d*.
on leukemia, 5505*f*, 9249*d*.
on sarcoma development, 5106*a*.
prepn. of and biol. studies with, 3895*g*.
——, *N*-[3,5-dibromo-4-[(2,4-diamino-6-pteridylmethyl)amino]benzoyl]-, in leukemia therapy, 9249*e*.
——, *N*-[*p*-(2,3-dihydroxyallylideneamino)benzoyl]-, and diethyl ester, P 6236*b*.
——, *N*-(*N*-2,3-dihydroxyallylidenesulfanilyl)-, diethyl ester, 7029*c*.
——, *N*-{*p*-[(2,4-dihydroxy-6-pteridylmethyl)amino]benzoyl}- (*4-hydroxyfolic acid*), P 9389*a*.
——, β-hydroxy-, antimetabolite activity of, 3499*g*.
——, *N*-[3-hydroxy-5-(hydroxymethyl) - 2 - methyl - 4 - pyridylmethyl]-, DL- and L-, and diethyl ester dihydrochloride of the DL-isomer, 644*f*.
DL- and L-, microbiol. activity of, 7235*b*.
——, *N*-lauroyl-, P 3841*h*.
——, *N*-leucyl-, L-, 2245*fg*.
——, 9-methylpteroyl-*, effect on growth of chick embryos, 9186*i*.
——, *N*-myristoyl-, P 3841*h*.
——, *N*-oleoyl-, P 3841*h*.
——, *N*-palmitoyl-, P 3841*h*.
——, pteroyl-. See *Folic acid*.
——, pteroyldi-γ-glutamyl-* (*pteroyltriglutamic acid, teropterin*), cell-proliferating action of, enzyme action on, 9196*c*.
effect on growth of chick embryo, 9186*h*.
on tissue cell proliferation, 262*a*.
on tyrosine metabolism in scurvy, 5835*f*.
as growth substance for *Staphylococcus* and *Streptococcus*, 8441*h*.
metabolism in anemia, 1094*e*.
metabolism of, 4340*f*.
in *Tetrahymena* growth, 9157*d*.
——, pteroyl-α-glutamyl-* (*dipteroin, pteroyldiglutamic acid*), effect on growth of chick embryo, 9186*h*.
metabolism in anemia, 1094*e*.
——, pteroylhexaglutamyl-*, (*pteroylheptaglutamic acid*), in anemia prevention, 8471*b*.
gastric juice action on, 3895*a*.
metabolism in anemia, 1094*f*.
in *Tetrahymena* growth, 9157*d*.
——, *N*-(*p*-4-quinazolylaminobenzoyl)-, P 1914*b*.
*N*-stearoyl-, P 3841*h*.
——, *N*-sul[illegible] diethyl ester and its [illegible], 7029*c*.
γ-Glutamic acid carboxypeptidase, conjugase from chicken pancreas as, 9111*c*.
Glutamic acid decarboxylase, from *Clostridium welchii*, 3065*f*.
Glutamic acid oxidase, in decarboxylating bacteria, 6281*e*.
Glutamic-aspartic transaminase, activation by vitamin B$_6$ group, 2297*d*.
Glutamic dehydrogenase, in plastids, 8454*b*.
Glutaminases, kidney, 1819*a*
liver, 5057*h*.
I, in kidney and other tissues, 5057*i*.
II, α-keto acid activated, 6266*e*.
Glutamine (α-*aminoglutaramic acid*), $HO_2CCH(NH_2)CH_2CH_2CONH_2$
α Nα β γ N
absorption (biol.) of, 7664*d*
in blood, effect of diet on, 5834*f*
in blood plasma, 8429*c*.
in brain, 2302*e*.
in cauliflower, Mn and Mo in relation to, 7552*e*.
in cerebrospinal fluid, 9235*g*
citrulline synthesis and, 1848*h*, 7113*i*
deamination by enzymes, effect of α-ketoisocaproic acid on, 3857*b*
detn. of, 2662*e*, 2674*g*.
effect on glycine concn. by diaphragm, 9126*d*.
on hydantoic acid formation in surviving tissues, 741*i*.
on *Lactobacillus casei* growth, 4334*g*.
on *Staphylococcus aureus* growth, 2278*d*.
on tobacco seedlings, 7551*g*.
in green plants, 1463*a*.
in nutrition of tissue cells, 9190*i*
oxidation by plant tissues, 2283*g*.
in pollen collected by bees, 732*e*.
recovery from sugar-beet juice, 6442*i*.
in royal jelly, 7140*f*.
strepogenin activity and, 4338*a*.
in sugar beets, 7553*g*.
synthesis of, 4725*e*, 7020*a*.
by liver, 7103*c*.
in plants, 7092*b*.
in tissue, 6719*c*.
tissue-cell requirement for, 3862*g*
Glutamine, Nα-(*p*-aminobenzoyl)-*N*-[(carboxymethyl)carbamylmethyl]-*N*-(mercaptomethyl)-, effect on folic acid antagonists, 3066*a*.
——, Nα-carboxy-*N*-(carboxymethyl)-, Nα-benzyl ester and its *N*-Et ester, 6978*i*.
——, *N*-(carboxymethyl)-, 6978*i*.
——, *N*-[1-[(carboxymethyl)carbamyl]-2-(1,2-dicarboxyethylmercapto)-ethyl]-†, antimitotic action of, 2704*a*.
*N*-[1-[(carboxymethyl)carbamyl]-2-(1,4-dihydro-1,4-dioxo-2-naphthylmercapto)ethyl]-, prepn. and antimitotic action of, 2704*a*.
*N*-[1-[(carboxymethyl)carbamyl]-2-(1,4-dihydro-3-methyl-1,4-2-naphthylmercapto)-
limitotic action of, 2704*a*.
[illegible], prepn. and antibac-
action of, 2674*h*.
Glutamine decarboxylase, in peas, 6700*i*.

**Glutaminic acid.** See *Glutamic acid.*
**Glutaraldehydic acid** (*γ-formylbutyric acid*), methyl ester, P 1809*f*, P 3468*f*.
——, **α-acetamido-α-cyano-**, ethyl ester, and 2,4-dinitrophenylhydrazone, 143*d*
——, **α-acetamido-α-cyano-β**(and γ)-**methyl-**, ethyl esters and their 2,4-dinitrophenylhydrazones, 6980*d*.
——, **α-acetyl-γ-ethyl-β-propyl-**(?), ethyl ester, P 6665*c*.
——, **α-amino-γ-caproylamino-β-oxo-**, diethyl mercaptal, 2990*d*.
——, **α-cyano-**, derivs., 577*h*.
——, **γ-oxo-**, dioxime, toxicity to and utilization by *Asolobacter*, 2276*d*.
**Glutaramic acid** (*γ-carbamylbutyric acid*).
——, *N*-(*N*-**acetylsulfanilyl**)-, 2597*f*.
——, **α-amino-.** See *Glutamine.*
——, **γ-amino-***N*-**(1-carbamylisoamyl)-**, L-, 2245*f*.
——, **α-amino-***N*-**{1-[(carboxymethyl)-carbamyl]-2-mercaptoethyl}-.** See *Glutathione.*
——, **β-[2-hydroxy-2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl]-**, silver salt, 2998*h*.
——, *N*-**phenyl-.** See *Glutaranilic acid.*
——, *N*-**sulfanilyl-**, 2597*f*.
**Glutaramide,** *N*-**benzyl-β-[2-(benzylimino)ethyl]-**, 2998*i*.
——, *N,N'*-**bis(4-amino-2-methyl-6-quinolyl)-**, dihydrochloride, 1778*c*.
——, *meso-xylo*-**dihydroxymethoxy-***, 5589*c*.
——, *N,N,N',N',β,β*-**hexaethyl-**, P 3842*i*.
——, *xylo*-**hydroxydimethoxy-***, 5589*c*.
——, **β-[2-hydroxy-2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl]-**, identity with dehydroactidione acid diamide, 2998*h*.
*N,N,N',N'*-**tetraallyl-β,β-dimethyl-**, P 1797*h*, P 3842*i*.
*N,N,N',N'*-**tetraethyl-β,β-dimethyl-**, P 1797*h*, P 3842*i*, P 6227*c*.
——, *N,N,N',N'*-**tetraethyl-α,β,β-trimethyl-**, P 1797*h*, P 3842*i*.
**Glutaranilic acid** (*γ-phenylcarbamylbutyric acid.*)
——, **α-acetyl-γ-cyano-β-2-furyl-**, ethyl ester, P 4818*e*.
——, **α-ethyl-α-(2-hydroxy-3-methoxyphenyl)-**, γ-lactone, 625*f*.
**Glutaric acid,**
HOOCCH$_2$CH$_2$CH$_2$COOH
α β γ
chromatographic sepn. from org. acids, 6947*a*.
diethyl ester, hydrogenation of, 572*d*.
dimethyl ester, phys. consts. of, 2590*e*.
effect on growth of plant tissue, 4349*c*.
on succinic acid in urine, 5469*b*.
on toxicity of diphtheria toxin, 3879*d*.
formation during nitration of cyclohexane, 1019*a*.
formation from α-aminoadipic acid by liver, 3083*a*.
manuf. of, and its derivs., P 4689*g*.
manuf. of, from cyclopentane, P 2226*b*.
methyl (mono-) ester, P 3468*f*.
prepn. of, 6987*c*.
rare earth complexes, 4969*f*.
soly. of, 8803*f*.
structure of, properties and, 2838*e*.
**Glutaric acid, β-acetyl-,** reduction of, 3792*b*.
——, **α-acetyl-γ-cyano-β-(3,4-dimethoxyphenyl)-**, diethyl ester, P 689*d*.
——, **α-amino-.** See *Glutamic acid.*
——, **α-amyl-**, P 4689*h*.
——, **β,β-bis(2,4-dihydroxyphenyl)-**, di-δ-lactone†, 1408*c*.
——, **α,γ-bis[hydroxy(1-hydroxy-2-naphthyl)methylene]-**, di-δ-lactone, 3415*e*.
——, **α-bromo-**, diethyl ester, 1325*c*.
——, **α-butyl-**, P 4689*i*.
——, **α-(2-carboxyethylmercapto)-**, and trimethyl ester, P 7504*i*.
——, **β-(carboxymethyl)-**, tris(*p*-bromophenacyl) ester and salt with 2-benzyl-2-thiopseudourea, 2998*i*.
——, **α,γ-diamino-**, and derivs., 5005*d*.
——, **α,γ-dibenzamido-**, and diesters, 5006*e*.
——, **α-(α-dic[illegible]-β-phenyl-, di-[illegible]***xh*.
——, ***meso-xylo*-dihyd[illegible]thoxy-***, dimethyl ester, 5589*c*.
——, **α,γ-di-2-piperidyl-**, diethyl ester, 7490*d*.
——, **α,γ-[illegible]** diethyl ester and its dipicrate,
dimethyl ester, 3828*b*.
——, **α-ethoxyacetyl-β-(hydroxymethyl)-**, γ-lactone Et ester, 2625*f*.
——, **α-ethyl-α-(2-hydroxy-3-methoxyphenyl)-**, γ-lactone, 625*e*.
——, **α-hydroxy-**, lactone (omitted from abstr.), P 3841*a*.
——, **β-hydroxy-**, diethyl ester, 572*d*.
——, *xylo*-**hydroxydimethoxy-***, dimethyl ester, 5589*c*.
——, **β-[2-hydroxy-2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl]-**, bis-(*p*-bromophenacyl) ester, 2998*g*.
——, **β-hydroxy-β-methyl-**, β-lactone, ethyl ester, P 1055*h*, P 2635*g*.
β-lactone, ethyl ester (compd. omitted from abstr.), P 1056*ac*.
β-lactone, Me ester, P 1055*i*.
——, **β-isopropyl-**, 6601*c*.
——, **α-methyl-**, 2173*f*.
——, **β-methyl-**, 2172*c*.
monomethyl ester, 3781*f*.
——, **β-nitromethyl-**, diethyl ester, 5745*e*.
——, **α-oxo-**, amino acid synthesis from NH$_3$ and, by bacteria, 5084*d*.
in blood in dementia praecox, effect of nicotinic acid and nicotinamide thereon, 2311*h*.
carbon dioxide fixation by, 2249*c*, 3912*e*.
as carbon dioxide replacement in heterotrophe metabolism, 8435*c*.
chromatographic sepn. from org. acids, 6947*a*.
detn. of, 2254*c*.
detn. of, and its 2,4-dinitrophenylhydrazone, 5342*h*.
effect on formation of acetate and acyl phosphate in brain tissue, 8417*b*.
on indoleacetic acid action on growth of *Avena* coleoptile, 5831*c*.
on respiration of aorta, 7114*f*.
on teratogenic action of insulin, 4776*g*.
formation of, from oxalosuccinic acid, 1013*h*.
glutamic acid synthesis from NH$_3$ and, by bacteria, 7547*a*.
glutamic acid synthesis from NH$_3$ and, in tissue, 3911*c*
metabolism by *Colpidium campylum*, 8560*e*.
in metabolism of *Aerobacter aerogenes* and *Escherichia coli*, 5445*c*.
oxidation of, 9122*h*.
oxidation of, by liver mitochondria, 7520*h*.
in oxidation of fatty acids by kidneys, 2248*f*.
oxidation-reduction between oxalacetic acid and, phosphorylation from, 4306*h*.
oxime, 2276*e*.
oxime, utilization by oat plants, 1082*d*.
urea formation with aspartate, citrulline and, 6251*a*.
——, **β-oxo-**, diethyl ester, as catalyst in polymerization of chloroprene, P 1601*e*.
diethyl ester, hydrogenation of, 572*d*.
reaction with phenols, 6206*d*.
reaction with resorcinol, 1408*c*.
——, **α-phthalimido-**, and diethyl ester, 2943*c*.
——, **α,β,γ-trihydroxy-**, and calcium salt, from xylose, 6982*h*.
detn. of, in mixts. with nitric and oxalic acids, 5343*c*.
sodium salt, in blood stabilization, 5128*c*.
——, **α-ureido-.** See *Glutamic acid, N-carbamyl-.*
**Glutaric anhydride, β-methyl-**, 3781*f*.
**Glutarimide,** brominated pyridines from, 641*g*.
——, **α-(2-cyanoethyl)-α-isopropenyl-**, 6579*b*.
——, **β-[(3,5-dimethyl-2-oxocyclohexylcarbonyl)methyl]-**, identity with dehydroactidione, 2998*i*.
——, **β-[2-(3,5-dimethyl-2-oxocyclohexyl)-2-hydroxyethyl]-**, identity with actidione, and derivs., 2998*c*.
——, **β-[2-(3,5-dimethyl-2-oxocyclohexylidene)ethyl]-**, identity with anhydroactidione, 2999*a*.
——, *N*-**ethyl-**, 2999*a*.
——, *N,N,N',N',β,β*-**hexaethyl-**, P 1797*h*.
——, **β-[2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl]-**, 2999*a*.
——, **β-[2-hydroxy-2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl]-**, identity with dihydroactidione, and derivs., 2998*e*.
——, **β-[2-hydroxy-2-(2-hydroxy-3,5-dimethylcyclohexyl)ethyl] - *N*-methyl-**, 2998*g*.
——, **β-methyl-**, 2172*c*.
**Glutarodiamide.** See *Glutaramide.*
**Glutaronitrile,** phys. consts. of, 2592*b*.
——, **α-(2,3-dimethoxyphenyl)-α-(2-ethoxyethyl)-**, 6636*c*.
——, **α-(2,3-dimethoxyphenyl)-α-ethyl-**, 625*d*.
——, **α-phenyl-**, P 3446*h*.
**Glutaryl chloride,** quaternary compds. from amines, aliphatic nitriles, CH$_2$O and, as softening agents, P 2786*a*.
**Glutathione,** addn. to fig latex, effect on milk clotting activity and vitamin C, 9288*a*.
addn. to flour, effect on phys. properties of dough and gluten, 8067*c*.
adrenaline potentiation by, 3104*f*, 5116*h*.
as antagonist to bacteriostatic activity of *p*-sulfamylthiophenol, 9246*e*.
behavior toward biol. fluids, 4308*c*.
in blood and tissue, antidotal activity of hydrocyanic acid and Na tetrathionate intoxication in relation to, 7578*f*.
in blood cells (red) in pernicious anemia, 2313*h*.
in blood, in hyper- and hypothyroidism, 5119*f*.
in insulin-shock therapy, 2330*b*.
after penicillin administration, 8547*i*.
during penicillin treatment, and its role in penicillin action, 9245*h*.
in rheumatic ailments, 3093*h*.
in syphilis, and its effect on complement fixation, 7569*a*.
in thyroid insufficiency, relation to basal metabolism, 3096*f*.
blood-plasma oxytocinase activity and, 2330*i*.
in cornea and lens, 1849*i*.
in cornea, effect of mustard gas on, 767*c*.
detn. in biol. material, 7531*g*.
detn. in presence of cysteine, 713*b*.
diabetes alleviation by, 6299*c*.
in diabetes production, 6302*a*.
effect on alloxan and its action, 9242*bc*.
on antigen production and tissue-culture growth, 296*h*.
on chymotrypsin, chymotrypsinogen and trypsin, 2254*f*.
on fertilization in *Pomatoceros triqueter*, 776*i*.
on germination of old seeds, 5828*g*.
on glycogen phosphorylation by liver and muscle after adrenalectomy, 1098*g*.
on glycolysis in brain, 7520*f*.
on heart, 9245*e*.
on oxidation rate of ferrous ions, 1246*c*.
on pepsin activity, 7983*f*.
on psittacosis virus, 305*i*.
on selenate inhibition in *Escherichia coli*, 9157*g*.
in gastric secretion of aphids, 323*a*.
metabolism of, during diabetes induction with pituitary adrenocorticotropic hormone, 4366*h*.
oxidized, in animal tissues, 739*d*, 5103*c*.
physiopathology of, 3509*g*.
of potatoes during dormant and rest periods, 7096*b*.
protective action against bacteriophage x-ray inactivation, 2275*g*.
reaction with alloxan and dialuric acid, 4306*g*.
reaction with ovalbumin, 3857*d*.
synthesis in liver, 8480*e*, 8503*c*.
synthesis in liver, 5-oxo-2-pyrrolidinecarboxylic acid in, 5061*g*.
in yeast, 6700*i*.
**Glutathione, (*p*-aminobenzoyl)-***, effect on folic acid antagonists, 3066*a*.
——, ***S*-(2-methyl-1,4-naphthoquinonyl-3)-***, antimitotic action of, 2704*a*.
——, ***S*-(1,4-naphthoquinonyl-2)-***, prepn. and antimitotic action of, 2704*a*.
**Glutelin,** hexone bases and dicarboxylic acids of, 7062*h*.
soybean, extd. with urea solns., viscosity of, 4861*b*.
**Gluten.** (See also *Gliadin.*)
chewing-gum base from, P 6004*g*.
compn. for medicinal capsules, etc., from, P 3241*h*.
denatured, isocyanate deriv., P 3241*f*.
heat of hydration of, 4391*h*.
hydrolysis of cereal, in manuf. of glutamic acid and Na glutamate, P 3947*b*.
manuf. of, P 6466*f*, 9505*c*.
nutritive value of, 1469*c*, 3900*d*

nutritive value of, enhancement with lysine, 8023*d*.
phys. and chem. properties of, 7065*g*.
phys. properties of, effect of $NaHSO_3$, AcH, etc., on, 8067*b*.
plastic material from, P 2033*g*.
sepn. from starch, app. for, P 1204*c*.
sulfate, prepn. of, P 6332*d*.
thermal analysis of, 9137*b*.
viscosity of, 6885*f*.
washing app. for, P 9294*d*.
wheat, modulus of elasticity and period of relaxation of, 7595*g*.

**Glutimic acid.** See *Pyroglutamic acid*.

**Glutiminic acid.** See *Pyroglutamic acid*.

**Glutin** (*gelatin*). See *Gelatin*.

**Glutin** (*gliadin*). See *Gliadin*.

**——, thio-.** See *Thioglutin*.

**Glutose**, chem. nature of, 3795*a*.

**Glycemia** or **Glucemia**. (See also *Blood sugar; Diabetes; Hypoglycemia*.)
from adrenaline as liver function index, 6727*b*.
bile flow in, 304*h*.
from caffeine, 8542*h*.
effect of liver antitoxic principle on, 1860*c*.
in encephalomyelitis (equine), 7122*e*.
after frontal-lobe lesions, 3925*b*.
insulin prepn. for control of, 8618*d*.
neoplasms in, 1857*c*.
nicotine effect on, 757*d*.
-producing action of adrenaline analogs, 8057*a*.
-producing factor from gastric mucosa and insulin, purification of, 9212*g*.
-producing factor, secretion by pancreas, 7145*a*.
review on, 6300*a*.
in suppurative processes, 2312*f*.
zinc effect on, from glucose injection, 2327*i*.

**Glyceraldehyde**, effect on glycolysis, 9119*h*.
and hydrogenation of, P 3026*d*.
in insulin hypoglycemia prevention, 6306*i*.
oxidation by plants, 728*h*.
β-phosphate of DL-, prepn. of, 4725*e*.
reaction with 2,5,6-triamino-4-pyrimidol, 5404*i*.

**D-Glyceraldehyde phosphate dehydrogenase**, inhibition by specific antiserum, 1482*e*.

**Glyceric acid** (*α,β-dihydroxypropionic acid*), L-, calcium salt, 1330*d*.
3-phosphate conversion to 2-phosphate by mutase, 2,3-diphosphoglyceric acid in, 6680*h*.
phosphate, effect on urea formation in liver, 6251*a*.
phosphate, fermentation by yeast juice, K and $NH_4$ ions in, 6281*g*.
——, β,β-**diphenyl-**, and esters (compds. omitted from abstr.), 1041*c*.

**Glycerides**. (See also *Fats; Oils;* and such specific glycerides as *Acetin, Olein, Palmitin* and *Stearin*.)
adhesive from, P 7756*c*.
alfalfa-leaf-meal tri-, 1999*i*.
animal body fat mono-, di- and triunsatd. and trisatd., and mixed glycerides synthesized by enzymes in living cells, 2790*g*.
of bacury-seed fat, 7720*g*.
carbamates of trihydroxy tri-, P 5968*c*.
chilling and solvent sepn. of liquid and solid tri-, P 7726*a*.
chromatography of mono-, di- and tri-, of perilla oil, 4032*b*.
of citrus-seed oils, 880*g*.
of corn oil, low-temp. solvent fractionation of, and calcn. of glyceride structure, 1581*e*.
crystal structure and thermal examn. of, 7425*f*.
detn. of α- and α-mono-, in oils, 8709*d*.
detn. of, in butterfat, 1874*h*.
digestibility of, effect of dietary Ca and Mg on, 5460*g*.
of *Dodonaea viscosa*-seed oil, 2451*a*.
emulsifying agents contg. mono- and di-, effect on ice manuf., 9281*h*.
esterification of di- and mono-, with hydroxy acids, mixed triglyceride emulsifiers by, P 9493*i*.
esterification (re-) of, directed to satd. mono- and diglycerides and to sep. high- and low-melting fatty acids into sep. ester fractions, 5207*f*.
esterification (re-) of, of castor and sardine oils, monoglycerides by, 5210*a*.
with glycerol, monoglycerides by, P 6843*f*.
esterification (re-) of, with polyhydric alcs., monoglycerides by, P 5794*d*, P 9494*e*.
satd. mono- and diglycerides by, P 4877*b*.
esterification (re-) of, of peanut oil with EtOH, glyceryl ester linkage random breaking and distribution during, and amts. of mono-, di- and triglycerides in, 3635*g*.
extn. of unsatd., from linseed, polymerized and semidrying oils, and their drying properties, 3212*f*.
fatty acid radical rearrangement in tri-, and crystn. of solid glycerides, P 883*i*.
formation of, 137*d*.
hydrogenation of, P 5977*ef*.
hydrogenation of, app. for, P 5977*e*.
hydrogenation of tri-, distn. of hydrogenation-resistant substances before, P 4032*h*.
hydrolysis by enzymes and differentiation among mono-, di- and tri-, 3874*h*.
hydrolysis of, 2579*i*.
hydroxylation, hydroxyalkylation and oxidation of, demulsifiers obtained by, P 7222*a*.
of linseed oil, 4026*c*.
lipase action on tri-, formation of partial glycerides during, 9120*i*.
of liver lipides and seal-blubber oil, 6839*e*.
as lubricant additives, P 6821*c*.
manuf. of mixed, P 1796*b*.
manuf. of mono-, for alkyd resins, 1213*f*, 2463*h*.
melting points and polymorphism of, 4495*c*.
metabolism of, from acids with odd nos. of C atoms, 9487*f*.
oxidation inhibitor for, 5-pentadecylresorcinol as, P 884*d*.
oxidation of, of hydroxy fatty acids, P 676*i*.
oxidation of unsatd. in relation to spectra, 9091*g*.
of palm oil, fat acid compn. of, 4031*g*.
polymorphism of, 570*cf*.
prepn. and metabolism of, 6164*g*, 6165*g*.
prepn. of di-, of higher fatty acids, 5207*ab*.
prepn. of mono-, 6842*h*.
reaction products of mono- or di-, of linseed oil with $(BuO)_4Ti$ as drying oils, 7239*c*.
reaction with lactones, 1199*a*.
reduction (Bouveault-Blanc) of, P 5216*a*.
sapon. of—see *Saponification*.
of sheep body fat, 1997*b*.
sodium sulfoacetates of mono- and di-, as stabilizers for icings, P 6759*c*.
for suppositories, 2367*i*.
synthesis of, review on, 6576*c*.
of *Valeria indica*-seed fat, 4873*h*.
of whale oil, sepn. by crystn. from acetone and prepn. of Me esters, 2451*c*.
x-ray diffraction analyses of tri-, 134*d*.

**Glycerin.** See *Glycerol*.

**Glycerol.** (See also *Saponification*.)
acetates—see *Acetin*.
aerosols of, effect on *Staphylococcus aureus* in air, 3953*h*.
alkyd resins from nitrophthalic acids or tetrachlorophthalic acid and, 8733*d*.
aluminum-powder suspensions in, fall of drops of, in pure dispersion medium, 7291*b*.
analysis by frontal adsorption of glycerols, glycerol distn. residues and mixts. of ethylene glycol and, 5325*gh*.
analysis of, comm. report on, 5212*d*.
as antifreeze agent in butadiene polymerization with styrene at low temps., 8729*d*.
benzoic acid soln. rate in aq., 1630*i*.
book: and Some Glycerine Derivs., 9493*g*.
carbon dioxide absorption by aq., in wetted-wall columns, 6053*i*.
in castor oil (dehydrated), tackiness in oil films from, 872*i*.
in cellulose prepn. from vegetable material, 7227*a*.
in coatings, 2446*f*.
coating with, of soap powder particles to inhibit dust formation, P 6438*a*.
color of, measurement by spectrophotometer, 5974*i*.
compds. (mol.) of, 7409*a*.
concn. of, P 5612*h*.
condensation products—for this year see *Resinous products*.
crit. mixing temps. in identifying and detg. aldehydes and ketones, 8309*a*.
cyanoacetate, methine dye from, P 8691*d*.
1,2-cyclic carbonate 3-carbamate and 3-haloformates, P 6652*h*.
cyclohexyl maleate, polymer with diallyl tetrachlorophthalate, P 3233*b*.
decolorizing and refining, $Al_2O_3$-$SiO_2$ compn. for, P 4792*c*.
density and viscosity of, 8700*i*.
derivs., P 675*e*.
and derivs., bacterial metabolism of, 5076*a*.
derivs., prepn. and pharmacology of, 4773*h*.
detection of, 68*c*.
detection of, and laws regulating its use, 818*b*.
detection of, in cosmetics and pharmaceuticals, 3145*h*.
detn. of, 2895*a*.
in com. glycerol, 1290*g*.
in eggs and egg products, 9284*g*.
in glycero-phthalic resins mixts. with polyvinyl acetate, 5226*g*.
in lotions, 9369*f*.
in pharmaceuticals, 6783*g*.
in presence of glycerides, 3874*i*.
in wine, 7635*i*.
detn. of free, in soap, 6842*i*.
detn. of polyglycerol and, in com. di glycerol, 880*a*.
in diabetic prepns., 7638*h*.
1,3 diaryl ethers, 6174*b*.
differentiation from ethylene glycol 6113*b*.
distn. app. for, 2449*b*, 7758*c*.
drugs contg., glycol detn. in, 1911*e*
drying agent from, P 1126*d*
effect of, and its mixt. with maleic anhydride on gelation of tung oil, 5201
effect on ammonolysis of MeOAc, 649*e*
on autodisplacement of Pb, 8811*g*
on coagulation of $As_2S_3$ by BaCl, 8794*a*.
on gelling and viscosity of solns. of gelatin, 4540*f*.
on growth of plant tissue, 4349*d*
on HCl loss from DDT spray deposits, 5148*f*.
on Fe dispersions in rotating magnetic field, 7291*e*.
on ketogenesis, 8559*d*.
on penicillin decompn. in aq. solns., 2373*g*.
on polarographic analysis of brass, 4181*h*.
on reduction of $Na_2WO_4$, 925*h*.
on rubber formation in guayule, 9177*a*.
on telluric acid dissocn. const., 2534
on tobacco-mosaic virus infectivity, 7550*h*.
on tubercle bacillus, 3882*g*.
on viscosity of solns., 8794*f*.
emulsions of oil and vitamins with, P 3572*g*.
in enameling, 9482*c*.
esterification with, of barley-germ and rice oil, 5609*g*.
of castor oil and diglycolic acid, P 843*d*.
of cinnamic acid-dehydrated castor oil-styrene polymer, P 5972*c*.
of fatty acids, drying oil by, 6432*b*, 6830*h*.
of fatty acids, fluoride catalysis of, 4030*g*.
of linseed oil, 3213*a*.
of maleic anhydride polymers with Me methacrylate, 8202*c*.
of rosin-coumarone condensate, P 9486*h*.
of rosin-unsatd. cyclic hydrocarbon condensates, P 9486*c*.
of tall oil and varnishes from esters, 3212*h*.
ester (mono-) with coconut oil and $H_2SO_4$ and Na salt, P 9495*e*.
esters—see also *Ester gums; Glycerides*.
esters (mixed) of, P 4290*e*.
as coating compns. and drying oils, P 877*a*.
as plasticizers, P 4895*c*.
with 1,2-propanediol and tall-oil fatty acids, for cutting-oil base, P 4845*g*.
esters (mixed) of, from 2-furanacrylic acid and linseed oil for use as drying oil, and polymer with Me methacrylate, P 1995*f*.
esters of, P 5036*d*.
detection in alkyd resins, 6459*c*.
with diene monocarboxylic acids, for drying to hard films, P 3634*b*.

*esters of*, with linseed-oil fatty acids, drying oil by heating with monoallyl maleate, P 4029*e*.
from maleic acid and rosin, P 6464*d*.
as ointment-base constituent, hydrophilic properties of, 8610*a*.
from *l*-pimaric acid-maleic anhydride adduct, polymerization of, P 2469*f*.
as softeners in artificial leather manuf., 6451*f*.
esters (tri-) with λ-hydroxyoleic and λ-hydroxystearic acid carbamates, P 5968*d*.
ethers of, manuf. of, P 5794*f*.
ethers of, naturally-occurring, 1997*a*.
ethers (α-substituted), chemical structure and central depressant action of, 311*g*.
explosives from $H_3O_3$ and, P 1190*f*.
fermentation by acetone-EtOH bacteria, 8446*h*.
fermentation stillage contg., plastic substances from dicarboxylic acids or anhydrides and, P 5229*e*.
in foaming control in lubricating oils, 6815*d*.
formation of, from hydrogenation of diethyl mesoxalate, 573*e*.
in interesterification of peanut oil with EtOH, effect of concn. of alc., NaOH catalysts and time on, 3635*g*.
by thermophilic cellulose-fermenting bacteria, 720*d*.
heat of wetting of activated charcoal by, 8835*f*.
hertzian-wave absorption and dispersion in, 3717*b*.
hydrogen peroxide soln. in, bacteriotoxic effect in, 5533*i*.
hydroxyalkyl ether esters, P 886*e*.
lubricating greases from, P 5183*i*.
magnesium corrosion by, inhibitors for, 4622*e*.
manuf. of, 128*e*, P 673*e*, 1584*i*, P 3026*e*, P 3562*a*, P 4290*f*, P 5612*g*, P 6437*b*, 9488*g*.
from petroleum, 2758*e*.
from sugar, P 1148*b*.
from vegetable wastes, P 3561*e*.
manuf. of, by splitting of coconut oil and tallow, and glycerol in unsplit fats, 9487*e*.
melt with gelatin, porous spongy product from, P 5618*s*.
metabolism of, continuous enteral diffusion in studies on, 4359*f*.
metal films on, 2481*g*.
mixts. of, with Aerosol OT, or Aerosol OT and triethanolamine oleate, effects on foaming vol. of oils, 6814*h*.
with alc., distn. by heating liquid-vapor interface, 7297*i*.
with borax, soly. of resins in aq. solns. of, 1584*c*.
with coconut oil, polyester with mercaptosuccinic acid, and coatings therefrom, P 3633*d*.
dielec. relaxation of, 6020*b*.
with other humectants, hygroscopicity of, 3542*e*.
naphthoquinoneimide dye from, P 8167*b*.
nicotinates—see *Nicotinin*.
nitric and sulfuric acid esters of, and their salts, 5368*b*.
9,11-octadecadienoate, esterification with phthalic anhydride and heating with abietic acid, drying oil by, P 4873*b*.
ointment base (oil-in-water) contg., 5534*i*.
oxidation of, by *Acetobacter suboxydans*, 1828*e*.
oxidation of, with dichromate and light, kinetics of, 3695*g*.
for paper and pulp manuf., 5948*h*.
in paper manuf., 3615*d*.
phthalate, as insectifuge, P 8605*a*.
pigment-caking inhibition in nitrocellulose by, 7719*b*.
poly-, ester, antidimming material from, P 1884*a*.
from glycerol pitch, P 4033*b*.
unsatd. ethers of, P 903*i*.
prepn. of, 128*f*.
prepn. of, and related compds., 5367*c*.
purifying alc. solns. of, contg. esters and soaps, P 3636*e*.
as quenching liquid, 5355*b*.
rancidity of, detn. of, 1147*g*.
reaction products (resinous) with sulfates, for textile softening, etc., P 4870*b*.
reaction product with oil and rosin, thermoplastic wax from candelilla wax and, P 5232*g*.
reaction with aliphatic or aromatic amido acids or haloalkyl acid, surface-active agents by, P 8712*d*.
with esters from oxidation of kerosene, coatings from rosin esters and products from, 3182*h*.
with linseed oil, dielec. properties and functionality during, 9481*b*.
with $Ti(OH)_4$, P 6223*c*.
recovery, from aq. solns. and phases therein, P 9081*d*.
from fermentation concentrates, 8608*f*.
from ink-roll paste, P 4498*e*.
reducing-sugar removal from, P 4037*b*.
in rubber industry, 9512*h*.
sepn. from mixts. of polyhydric alcs., P 3839*g*.
solid, phys. properties in softening interval, 6029*c*.
solubilities of $H_3BO_3$ and succinic acid in, 1241*h*.
in soly. expts. with esters, 137*d*.
specifications for, 9492*d*.
substitute for, P 5416*a*.
adulterated butylene glycol as, 5540*f*.
glycols as, in enemas, 3147*h*.
1,2-propanediol as, in ointments, 5534*h*.
toxicity of, 818*d*.
suppositories contg., 1528*h*, 8093*i*.
in suppositories contg. Postonal, 8093*i*.
as suppository bases, 3563*f*.
system: AcOH–$C_6H_6$–, 8833*b*.
system: EtOH–$H_2O$–, foaminess and foam stability of, 7775*h*.
system: Na palmitate–x-ray diffraction by, 2793*b*.
thermal cond. of aq., 6499*f*.
thermal diffusion in aq., 2481*a*, 2491*a*.
toxicity of, 1867*f*.
trinitrate—see *Nitroglycerin*.
utilization by *Drosophila*, 322*h*.
utilization by plant tissues, 2281*b*.
vacuum pump using, 911*g*.
viscosity of, 2044*f*, 4915*g*.
viscosity of aq., 2058*i*.
viscosity of, pressure and, 5249*a*.
vitreous, transformation range of, 2383*h*.
in wine, 6779*h*, 6780*a*.
wood plasticization with, 5920*i*.

**Glycerol, 1,2-dithio-**. See *1 Propanol, 2,3-dimercapto-*.

——, **1-methyl-**. See *1,2,3-Butanetriol*.

**Glycerolacetone**. See *1,3 - Dioxolane - 4-methanol, 2,2-dimethyl-*.

**Glycerol-α-chlorohydrin**. See *1,2-Propanediol, 3-chloro-*.

**Glyceroldichlorohydrin***, reaction product with tetraethylenepentamine as anion-exchange resin, P 6339*b*.

**Glycerol pitch**, di- and polyglycerol from, P 4033*b*.

**Glycerophosphatase**, zymogen, extn., purification and properties of, 3478*a*.

**Glycerophosphates** or **Glycerophosphoric acids**, calcium salt—see *Calcium glycerophosphate*.
choline ester and salt, 4709*c*.
detection of, 1289*c*, 5704*b*.
detn. in foods in presence of inorg. phosphates, 785*d*.
1,3-dimyristate and 1-erucate 3-stearate of 2-, derivs., 570*h*.
1,3-dipalmitates of 2-, esters, P 1052*f*.
hydrolysis of α-, and β-, α,β-substrate specificity in, 4550*i*.
isomers, and their choline esters, 6166*c*.
in lipides of tissue, phosphatide content and, 4355*c*.
phosphate bonds in, equil. values for, 6266*c*.
prepn. of labeled, and its role in egg yolk phospholipides, 8483*c*.
salts, 4549*gi*, 4550*ac*.
and their salts, 7902*b*.
stability of, effect of salt formation on, 4549*i*.
uranyl complexes, 8270*d*.

**Glycerose**, removal from glycerol, P 4037*c*.

**Glyceryl nitrate**. See *Nitroglycerin*.

**Glyceryl sulfate**, $HO_3SCH(CH_2SO_4H)_2$, 5862*f*.

**Glycidaldehyde**, in fat autoxidation, 422*i*.
formation in autoxidation of peanut oil, 5972*i*.
rancidity and, 3217*c*.

**Glycidamide, 2-ethyl-3-propyl-***, pharmacology of, 7139*d*.

**Glycide** (*epihydrin alcohol*). See *Glycidol*.

**Glycide** (*rubber substitute*). See *Rubber, substitute and synthetic*.

**Glycidic acid** (*α,β-epoxypropionic acid*), derivs., 7420*g*.

——, **β,β-dimethyl-**. See *Isovaleric acid, α,β-epoxy-*.

——, **β,β-diphenyl-**, and esters, aldehydes from, 1041*a*.

——, **β-furyl-**. See *Furanglycidic acid*.

—, **β-methyl-β-phenyl-**. See *Hydrocinnamic acid, α,β-epoxy-β-methyl-*.

——, **β-phenyl-**, ethyl ester, reaction with S compds., 7420*g*.

——, **β-pyridyl-**. See *Pyridineglycidic acid*.

——, **β-thienyl-**. See *Thiopheneglycidic acid*.

**Glycidol** (*epihydrin alcohol, 2,3-epoxy-1-propanol, glycide*), acetate, 7419*d*.
esters, P 907*h*.
esters, polymers of, P 6866*d*, P 8740*c*.
ethers, 2180*h*, 2181*bc*, P 5794*f*.
ethers (unsatd.) of, condensation polymers of, P 903*i*.
formation in oxidation of allyl alc., 1717*i*.
prepn. and reaction with allyl alc., 5741*h*.
reaction product with coconut oil acid, cyanoguanidine, and ethanolamine sulfuric acid ester, as textile aid, P 7727*c*.
with 6-heptadecyl-1,2,3,4-tetrahydro-2,4-diimino-*s*-triazine, sulfuric acid ester, P 7727*f*.
with methyl-1-phenyl-5-stearoylbiguanide, sulfuric acid ester, P 7727*d*.
reaction with 1,2-bis(2-hydroxyethyl)-hydrazine, foaming agent by, P 2796*c*.
reaction with stearic acid and then ethylene oxide, textile assistant by, P 2796*d*.
sorbate, and dimers, P 3240*h*.
surface-active substances from, P 4499*b*.

**Glycidol, dithio-**. See *2-Thiiranemethanethiol*.

**Glycidonitrile**, derivs., 2936*f*.

——, **α-*tert*-butyl-**, 2939*a*.

——, **α,β-dimethyl-†**, 2937*b*.

——, **α-ethyl-**, 2938*a*.

——, **α-ethyl-β-methyl-†**, *cis-* and *trans-*, 2937*d*.

——, **β-ethyl-α-methyl-†**, *cis-* and *trans-*, 2937*c*.

——, **β-ethyl-α-propyl-†**, 2937*f*.

——, **α-isopropyl-**, 2938*h*.

——, **α-isopropyl-β,β-dimethyl-†**, 2937*g*.

——, **α-propyl-**, 2938*e*.

——, **α,β,β-trimethyl-†**, 2937*e*.

**Glycin**, photographic—see *Glycine, N-(p-hydroxyphenyl)-*.

**Glycinamide** (*α-aminoacetamide.*) (For derivs. see under *Acetamide.*)
aralkyl derivs., P 677*f*.
derivs., P 3046*i*, P 4694*h*, 9032*i*.
hydrochloride, 3781*i*.

——, ***N*-acetyltyrosyl-***, hydrolysis of L- and DL-, by chymotrypsin, 5055*g*.

——, **β-alanyl-***, acetate, 1448*h*.

——, ***N*-benzoyltyrosyl-***, DL-, hydrolysis by chymotrypsin, 5055*g*.

——, **carbobenzoxy-β-alanyl-***, 1448*h*.

**Glycinamidine** (*α-aminoacetamidine.*) (For derivs. see under *Acetamidine.*)

**Glycinanilide** (*α-aminoacetanilide.*) For derivs. see under *Acetanilide.*)
and derivs., 8356*f*.

**Glycine** (*aminoacetic acid*), acetic and aspartic acid formation from, α-C atom in, 5482*h*.
in actin, 9005*h*.
adsorption by plants, plant respiration and, 1084*c*.
alkyl (higher) esters, 4641*b*.
aluminum salt, P 8620*a*.
analysis of, for C and H, 6108*b*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308*egh*, 309*b*.
antibacterial activity of, 3879*g*.
as antioxidant in powd. eggs, 2449*f*.
assay of, 4333*h*.
in blood, carcass, heart, kidney, liver, muscle and skin, 7061*e*.
in blood, effect of diet on, 5834*f*.
in blood plasma, 8429*c*.
chromatography of, 138*a*.
chromatography of, on starch columns, 5818*e*.
in clupeine and salmine, 5431*i*.
compd. with Cr sulfate, spectrum of, 8883*c*.
concn. by diaphragm, and effect of amino acids and related substances thereon, 9120*bd*.
condensation products of, with HCHO and melamine for bleaching leather, P 5618*f*.

conjugation with *p*-aminobenzoic acid, effect of methylbis(β-chloroethyl) amine on, 7139*c*.
copper complex, 8222*e*.
electrolysis of, 6250*d*.
polarography of, 6933*a*.
in cross fertilization, 766*d*.
crystal habit of NaCl and, mutual modification of, 7772*d*.
deamination by green algae, 3494*b*.
by $NaClO_2$ and NaClO in presence of ketoglutarates, 2891*h*.
by x-rays, 4133*b*.
derivs., antibacterial action of, 2737*d*.
derivs., imidazole derivs from, 3411*a*.
detection of, and m. p. and optical crystallographic properties of its nitroindandionate, 69*i*.
detection, prepn. and use in paper chromatography, 4978*a*.
detn. of, 3057*e*, 3875*g*, 9138*a*.
in blood, urine or protein hydrolyzates, 3873*f*.
in tissue, 6685*c*.
diffusion in soln., 3692*i*.
effect on bacterial lysis by amino acids and bacterial exts., 715*h*.
on chem. decompn. of cellulose, 3609*f*.
on eyeballs of chicks, 2293*d*.
on free alanine and pyruvate in blood, 1860*i*, 4354*e*.
on glycogen formation in liver, 9212*e*.
on hydantoic acid formation in surviving tissues, 741*i*.
in hypoglycemia, 6313*f*.
on insulin action, 4770*g*.
on malignancy, 2307*d*.
on N balance during casein diet, 4739*a*.
on phosphatase activity of sheep milk, 9279*i*.
on thrombin action on blood coagulation, 8538*a*.
on urea formation by liver, 6257*a*.
*Escherichia coli* variant induced by growth in, 4337*a*.
ethyl ester, and -HCl, 7425*h*.
ethyl ester, effect on glycolysis in brain, 7520*f*.
ethyl ester-HCl, formation of, from 1-(*m*-hydroxyphenyl) - 2,5 - piperazinedione, 2973*i*.
in fibrosarcoma and its normal homologous tissue, 5856*f*.
folic acid prepn. contg., 355*i*.
formation from serine, threonine and other hydroxyamino acids in tissue, 7986*f*.
hemoglobin synthesis from, labeled with radioactive C, 2243*f*.
in hemolymph of dragon-fly nymph, 3114*d*.
hydrazide, and ionization const., 5741*b*.
hydrogen-ion-concn. reduction in synthetic-elastomer latex by, P 2463*d*.
identification of, 2651*b*.
incorporation of labeled, into protein and lipide fractions of homogenates, 7538*c*.
labeled with $C^{13}$, and Et ester, 211*g*.
in lactogenic hormone of pituitary, 5474*e*.
liberation from raw and heated casein after acid and enzyme hydrolysis, 1819*f*.
in liver, diet and, 7562*g*.
in liver exts., 710*f*.
in lupine and soybean seeds and sprouts, 1080*e*.
from lycomarasmine hydrolysis, 4643*b*.
metabolism of, 6712*f*.
effect of pteroylglutamic acid on, 5835*c*.
isotopes in study of, 5482*c*.
methylene C atom of, incorporation into bone-marrow fats, 5054*b*.
mixts. with glucose, fluorescent development in, 7154*f*.
in myoglobin of whale, 7537*b*.
1,8-naphthalimidedisulfonic acid dye from, P 7710*g*.
nitrogen-labeled, as indicator in N turnover in purines from polynucleotides, 8030*b*.
as nitrogen source for *Polytoma*, 1835*e*.
for streptomycin production by *Streptomyces griseus*, 272*c*.
for *Ulva lactuca*, 6289*f*.
for yeast, 8447*b*.
in nutrition, of *Aedes aegypti* larva, 3940*i*.
of tissue cells, 9190*i*.
of yeasts, 1826*a*.
in organs of swine, 7061*h*.
oxalic acid formation from, in animal organism, 9198*i*.
oxidation of, 6570*b*.
by lipoxidase system, 6263*h*.
by plant tissues, 2283*f*.
oxidation (secondary) by catechol oxidase of belladonna, 3863*f*.
peptides from, absorption of water vapor by, 467*c*.
from pigments of yeast, 2258*d*.
in pollen collected by bees, 732*e*.
poly-, Curtius reaction in prepn. of, 5743*c*.
polymerization of, 3787*c*.
poly-, structure of, 6486*e*.
in porphyrin synthesis, 4718*d*.
poult requirements for, 1088*f*.
prepn. of, 6695*e*.
prepn. of carboxyl-labeled, and glutathione synthesis in liver, 8503*c*.
prepn. of, from $ClCH_2COOH$, kinetics of, 5656*e*.
in procollagen of ox, 8411*d*.
in protein (basic) from sperm nuclei of different invertebrates, 4388*b*.
in *Proteus vulgaris* flagella, 3061*f*.
reaction with $CO_2$ in the presence of $Ca(OH)_2$, P 5415*d*.
with $CS_2$, 1398*e*, 2247*g*.
with mixed anhydrides of benzoic and phosphoric acids, 2188*f*.
with $PhBzPO_4H$, 6996*f*.
with resorcinol, 2973*g*.
with sugars, 4501*h*.
in royal jelly, 7149*f*.
salicylate—see *Salicyluric acid*.
sepn. from hydrolyzed egg albumin, 8807*c*.
serine and glycogen formation from formate and, 3859*f*.
serine formation from, in animal organism, 4747*i*.
serine formation from, in liver, 9124*f*.
silk synthesis by silk worm from $C^{14}$-labeled, 7149*b*.
and sodium salt, spectra of, 4574*b*.
soly. in liquid $NH_3$ and in water, 4081*i*.
specific dynamic action of, and effect of vitamins and hormones thereon, 4353*e*.
specific dynamic action of, compared with yeast, 8471*h*.
in stabilization of solns. of polythionates and polythionic acids, P 7651*h*.
in thyroglobulin, 9121*i*.
in tissue after administration, 9120*g*.
in tissue and its detn., 8427*e*.
in tobacco-mosaic virus, 7092*b*.
trimethyl betaine—see *Betaine*.
uptake of carboxyl-labeled, into protein of *Torula utilis*, 8439*a*.
uptake of radioactive, by amphibian embryo, 4389*c*.
uric acid synthesis from, 3501*g*.
utilization of, by *Chlorella vulgaris*, 3494*a*.
by *Drosophila*, 322*i*.
in hemoglobin synthesis, 8480*d*.
for pyrrole synthesis for protoporphyrin, 4356*a*.
-vitamin C-Ca in treatment of hemorrhage, 3933*f*.
water-vapor adsorption by, 2066*h*.

**Glycine, N-acetyl-**. See *Aceturic acid*.
——, **N-acetyl-α-cyano-**, ethyl ester, 652*c*.
ethyl ester, reaction with acrolein, 143*d*.
——, **N-acetyl-N-phenyl-**, 650*e*, 5403*i*.
——, **N-alanyl-**, enzymic hydrolysis of, 9113*i*.
——, **N-β-alanyl-**, prepn. of, and hydrolysis by peptidases, 1448*e*.
——, **N-{-N[{N-(N-alanylalanyl)glycyl]glycyl}glycyl]-**, and biuret complex, 6249*f*.
——, **N-(N-alanylglycyl)-**, methyl ester, dry-heating of, 2943*g*.
——, **N-(N-β-alanylglycyl)-**, prepn. of, and hydrolysis by tripeptidase, 1448*e*.
——, **N-{N-[(N-alanyl-glycyl)glycyl]glycyl}-**, and biuret complex, 6249*h*.
——, **N-allyl-**, effect on respiration of *Escherichia coli*, 6274*i*.
——, **N-(2-amino-6-methyl-5-nitro-4-pyrimidyl)-**, ethyl ester, P 9087*f*.
——, **N-(6-amino-2-methyl-5-nitro-4-pyrimidyl)-**, methyl ester, P 9087*e*.
——, **N-(2-amino-5-nitro-4-pyrimidyl)-**, methyl ester, P 9087*d*.
——, **N-(p-arsonobenzyl)-**, P 5041*d*.
——, **α-(benzhydryloxy)-N,N-dimethyl-**, hydrochloride, spasmolytic activity of, 8546*c*.
——, **N-benzoyl-**. See *Hippuric acid*.
——, **N-(N-benzoylglycyl)-**, hydrolysis by pancreatic exts., 9089*c*.
——, **N-benzyl-**, ethyl ester, and its picrate, 4229*c*.
hydrochloride, 7479*i*.
——, **N-benzyl-N-formyl-**, methyl ester, 3411*b*.
——, **N-benzyl-N-nitroso-**, 3417*h*, 7479*i*.
——, **N-(m-bromophenyl)-**, and ethyl ester, 3417*h*.
——, **N-[m(and p)-bromophenyl]-N-nitroso-**, 8417*i*.
——, **N-butyryl-**, methyl ester, P 3030*b*.
——, **N-caproyl-**, barium salt, x-ray study of, 4920*f*.
methyl ester, P 3030*b*.
——, **N-[α-caproylamino-β-(ethylmercapto)acrylyl]-**, 2990*g*.
——, **N-carbamyl-**. See *Hydantoic acid*.
——, **N-carboxy-**, benzyl ester, in penicillin production, 2273*g*.
*p*-chlorobenzyl ester, in penicillin production, 2273*f*.
——, **N-(N-carboxy-β-alanyl)-**, benzyl ester, 1448*f*.
——, **N-[N-(N-carboxy-β-alanyl)glycyl]-**, benzyl ester and benzyl ester, 1448*g*.
——, **N-[N-(N-carboxyglycyl)-β-alanyl]-**, benzyl ester, 1448*g*.
——, **N-[(carboxyimino)methylmercaptomethyl]-α-cyano-**, diethyl ester, 1403*f*.
——, **N-[4-(carboxymethylamino-6-methyl-5-nitro-2-pyrimidyl]-**, dimethyl ester, P 9088*a*.
——, **N-[4-(carboxymethylamino)-6-nitro-2-pyrimidyl]-**, dimethyl ester, P 9087*f*.
——, **N-(o-carboxyphenyl)-**. See *Anthranilic acid, N-(carboxymethyl)-*.
——, **N-(2-carboxysulfanilyl)-**, dye from, P 7710*b*.
——, **N-(N-carboxytryptophyl)-**, benzyl ester, 4712*d*.
——, **N-chloroacetyl-**, hydrolysis by enzymes, 258*e*.
——, **chloroacetyldehydrophenylalanyl-***, enzymic hydrolysis of, 9113*i*.
——, **N-(N-chloroacetylglycyl)-**, prepn. and enzymic hydrolysis of, 9113*e*.
——, **N-(N-chloroacetylleucyl)-**, prepn. and enzymic hydrolysis of, 9113*g*.
——, **N-(N-chloroacetylphenylalanyl)-**, prepn. and enzymic hydrolysis of, 9113*g*.
——, **N-(2-chloroethyl)-**, ethyl ester and its -HCl, 7422*f*.
——, **N-(2-chloro-6-methyl-5-nitro-4-pyrimidyl)-**, P 9087*e*.
——, **N-(6-chloro-2-methyl-5-nitro-4-pyrimidyl)-**, methyl ester, P 9087*e*.
——, **N-(2-chloro-6-nitro-4-pyrimidyl)-**, methyl ester, P 9087*d*.
——, **N-(p-chlorophenyl)-**, and ethyl ester, 7480*c*.
——, **N-(p-chlorophenyl)-N-nitroso-**, 7480*c*.
——, **N-(p-chlorophenyl)-α-phenyl-**, 7480*d*.
——, **α-cyano-**, ethyl ester thiocyanate, 1403*h*.
——, **N-(2-cyanopropyl)-N-ethyl-**, ethyl ester, 6207*a*.
——, **N-cyclohexyl-N-formyl-**, methyl ester, 3411*b*.
——, **N-cyclohexyl-N-nitroso-**, 7480*a*.
——, **N-(1,4-diacetyl-5-oxo-2-piperazylidene)-**, ethyl ester, 3789*d*.
——, **N-(2,5-diamino-6-hydroxy-4-pyrimidyl)-**, and methyl ester, 3426*b*.
——, **N-[(4,6-diamino-s-triazin-2-yl)phenyl]-**, 238*f*.
——, **N-[6-(2-diethylaminoethylamino)-2-methyl-5-nitro-4-pyrimidyl]-**, methyl ester, P 9087*e*.
——, **N-[2-(2-diethylaminoethylamino)-5-nitro-4-pyrimidyl]-**, methyl ester, P 9087*e*.
——, **N-(2-diethylamino-6-methyl-5-nitro-4-pyrimidyl)-**, methyl ester, P 9087*e*.
——, **N-(7,8-dihydro-6-hydroxy-2-pteridyl)-**, methyl ester, P 9087*f*.
——, **N-(α,γ-dihydroxy-β,β-dimethylbutyryl)-**, sodium salt, effect on lactic acid bacteria, 722*h*.
——, **α-[2,5-ditodo-4-(p-methoxyphenoxy)phenyl]-**, DL-, 593*a*.

, *N*,*N*-**dimethyl-**, hydrochloride, 7422*d*.
*N* - (*N*,*N* - **dimethylglycyl**)-, 2250*c*.
——, *N*-(*N*,*N*-**dimethylleucyl**)-, as buffer, 2247*i*.
——, **α,α-diphenyl-**, 2981*b*.
——, *N*-**dithiocarboxy-**, *S*-benzyl ester and anhydrosulfide with *O*-Et thiolcarbonate, 1398*e*, 1399*c*.
——, *N* - [**3** - (*N* - **ethylphenylsulfonamido**)**mesityl**] - *N* - (**phenylsulfonyl**)-, isomers, and Bt esters, 1736*a*.
——, *N*-**2-fluorenyl-**, 5770*a*.
——, *N*-**formyl-**, esters, 3411*b*.
——, *N*-**formyl**-*N*-**isopropyl-**, methyl ester, 3411*b*.
——, *N*-**formyl**-*N*-**phenyl-**, methyl ester, 3411*b*.
——, **γ-glutamylcysteinyl-**. See *Glutathione*.
——, *N*-**glycyl-**, as buffer, 8419*e*.
crystal structure of β-, 7773*g*.
ethyl ester, effect on glycolysis in brain, 7520*f*.
and hydrochloride monohydrate, 8356*h*.
hydrolysis by enzymes, 258*e*.
——, *N*-(*N*-**glycylalanyl**)-, prepn. and enzymic hydrolysis of, 9113*h*.
——, *N*-(*N*-**glycyl**-**β-alanyl**)-, prepn. of, and hydrolysis by tripeptidase, 1448*e*.
——, **glycyldehydrophenylalanyl-***, enzymic hydrolysis of, 9113*i*.
——, *N*-(*N*-**glycylglycyl**)-, adsorption of, 7066*b*.
adsorption of water vapor on, 2066*h*.
hydrazide di-HCl, 5743*c*.
hydrolysis by tripeptidase, 1448*e*.
——, *N* - [*N* - (*N* - **glycylglycyl**)**leucyl**]-, DL-, 2245*g*.
——, *N*-**glycyl**-*N*-(*m*-**hydroxyphenyl**)-, 2973*i*.
——, *N*-(*N*-**glycylleucyl**)-, prepn. and enzymic hydrolysis of, 9113*h*.
——, *N* - (*N* - **glycylphenylalanyl**)-, prepn. and enzymic hydrolysis of, 9113*h*.
——, *N*-**guanyl-**. See *Glycocyamine*.
——, *N*-**guanyl**-*N*-**methyl-**. See *Creatine*.
——, *N*,*N*′-**hexamethylenedi-**, and polyamide, P 4519*f*.
——, *N*-**hydrosorboyl-**, and barium salt, x ray study of, 4920*f*.
——, *N* - [**4** - (**4** - **hydroxy** - **3,5** - **diiodophenoxy**) - **3,5** - **diiodophenyl**]-, thyroxine-like activity of, 2327*b*.
——, **α** - [**4** - (**4** - **hydroxy** - **3,5** - **diiodophenoxy**) - **3,5** - **diiodophenyl**]-, antagonists of, 7585*c*.
DL, 593*b*.
——, *N* - [**3** - **hydroxy** - **5** - (**hydroxymethyl**) - **2** - **methyl** - **4** - **pyridyl-methyl**]-, 644*f*.
microbiol. activity of, 723*b*.
——, *N*-(**hydroxymethylene**)-, lactone—see *5(4H)-Oxazolone*.
——, *N* - (**4** - **hydroxy** - **1** - **naphthylsulfonyl**)-, azo dye from, P 1987*b*.
——, *N* - (**6** - **hydroxy** - **2** - **naphthylsulfonyl**)-*N*-**phenyl-**, azo dye from, P 1987*a*.
——, **α** - [**4** - (**p** - **hydroxyphenoxy**) - **3,5**-**diiodophenyl**]-, DL-, 593*a*.
——, *N*-(*p*-**hydroxyphenyl**)-, for photographic use, Am. standard specifications for, 6930*b*.
——, *N*,*N*′ - (**iminodi** - *p* - **phenylene**)-di-, 169*d*.
——, *N*-**isovaleryl-**, methyl ester, P 3030*b*.
——, *N*-**leucyl-**, adsorption of, 7066*b*.
hydrolysis of L-, by leucine amino peptidase, 1448*c*.
L-, 2245*g*.
x-ray action on, 4133*d*.
——, *N*-(*N*-**leucylglycyl**)-, L-, 2245*g*.
——, *N*-(**1-methoxyhexylidene**)-, ethyl ester, 2989*i*.
——, *N* - (**p** - **methoxy** - **α** - **methylcinnamoyl**)-, 7021*e*.
——, *N* - (**m** - **methoxyphenyl**)-, azo stilbene dyes from, P 8151*g*.
——, *N*-**methyl-**. See *Sarcosine*.
——, *N*-(*N*-**methylglycyl**)-, hydrolysis of, 2250*b*.
——, *N* - **methyl** - *N* - (**2,6** - **xylylcarbamylmethyl**)-, ethyl ester, 1025*a*.
——, *N*-(**1-naphthylacetyl**)-, potassium salt, effect on *Salvinia natans*, 8010*h*.
——, *N*-**nitroso**-*N*-**phenyl-**, dipole moment of, and its benzyl ester, 3418*b*.
——, *N*-(**2-nitro-o-tolyl**)-, 3384*h*.
——, *N*-(**6-nitro-m-tolyl**)-, 1436*g*.
——, *N*-(**5-oxo-2-piperazylidene**)-, in protein mols., 3789*c*.
——, **pantoyl-***, sodium salt, effect on lactic acid bacteria, 722*h*.
——, **phenyl-**, copper deriv., 8222*d*.
——, *N*-**phenyl-**, antibacterial activity of, 3879*h*.
degradation with *peri*-naphthindan-2,3,4-trione hydrate and detn., 7378*h*.
ethyl ester, effect on glycolysis in brain, 7520*f*.
ethyl ester, hydrogenation of, 572*i*.
potassium salt, as antioxidant and odor inhibitor in alkyl benzene sulfonates, P 6845*c*.
——, **α-phenyl-**, and derivs., 572*g*.
detn. in blood and urine, 265*b*.
detn. of, 9138*a*.
DL-, 4223*c*.
DL-, polymerization of, 3787*c*.
formation of, from $Ph_2CHN{:}CHPh$ and $KNH_2$ in liquid $NH_3$, 2981*d*.
——, *N*-**phenylacetyl-**. See *Phenaceturic acid*.
——, *N*-(*N*-**β-phenylalanylglycyl**)-, and hydrochloride, 8357*c*.
——, *N*-(**phthalimidoacetyl**)-, and derivs., 8356*g*.
——, *N* - [*N* - (**α** - **phthalimidohydrocinnamoyl**)**glycyl**]-, DL-, 8357*b*.
——, *N*-**3-pyridylcarbonyl-**, metabolism of, 6718*e*.
——, *N*-**salicyloyl-**. See *Salicyluric acid*.
——, *N*-**thiolcarboxy-**, *S*-benzyl ester and its anhydrides, 1398*g*.
——, *N*-**α-toluyl-** See *Phenaceturic acid*.
——, *N*,*N*′ - (**2,4,6** - **trimethyl** - **5-nitro** - *m* - **phenylene**)**bis**[*N*-(**phenylsulfonyl**)-, 1735*i*.
diethyl ester, 1736*c*.
——, *N*,*N*′ - (**2,4,6** - **trimethyl** - *m*-**phenylene**)**bis**[*N* - (**phenylsulfonyl**)-, stereoisomers, and derivs., 1735*g*.
**Glycine anhydride**. See *2,5-Piperazinedione*.
**Glycine dehydrogenase**, in plastids, 8454*b*.
**Glycinin**, soybean, mol. vol. and shape and viscosity of, 4470*a*, 4859*h*, 4860*a*, 4861*b*.
**Glycinogenase**, the name, 7986*i*.
**Glycinonitrile** (*aminoacetonitrile*), thiocyanate, 1403*h*.
*N*-**benzyl-**, hydrochloride, 7479*h*.
*N*,*N*-**diamyl-**, P 4703*i*.
*N*,*N*-**dibutyl-**, P 4703*i*.
*N*,*N*-**dicyclohexyl-**, P 4703*g*.
*N*,*N*-**diethyl-α-phenyl-**, as insecticide, 4415*i*.
*N*,*N*-**diisoamyl-**, P 4703*h*.
*N*,*N*-**diisobutyl-**, P 4703*i*.
*N*-(**1-ethoxyhexylidene**)-†, 2203*a*.
*N*,*N*′-**hexamethylenedi-**, P 4519*g*.
*N*-**2-hydroxyethyl-**, and picrate, 7422*f*.
——, *N*-**2-hydroxyethyl-α-phenyl-**, as insecticide, 4415*e*.
——, *N*-(*o*-**methoxyphenyl**)-, as fungicide, 6351*g*.
——, **α-phenyl-**, *N*-acyl derivs., 6176*d*.
thiocyanate, 1403*h*.
**Glycocholic acid**. (See also *Bile acids*.)
in bile of cattle, 2264*c*.
biliary excretion of, after choledochostomy, 7572*c*.
effect on gram-positive protein complexes of *Micrococcus aureus*, 269*d*.
sodium salt, effect on blood serum cholinesterase, 2258*g*.
**Glycocoll**. See *Glycine*.
**Glycocyamidine** (*2-imino-4-imidazolidone*), detn. in urine, 1451*g*.
——, **1-methyl-**. See *Creatinine*.
**Glycocyaminase**, in *Pseudomonas ovalis*, 3061*g*.
in *Pseudomonas*, *ovalis*, and its properties, 2275*h*.
**Glycocyamine** (*guanidoacetic acid*), in blood plasma and urine, effect of testosterone and methyltestosterone on, 2301*f*.
creatine synthesis from, in animal tissue, methionine and choline as Me donors in, 6681*de*.
creatinuria from, and its relation to site of action of methyltestosterone, 7117*e*.
degradation by *Pseudomonas ovalis*, 3061*g*.
detn. in urine, 1451*g*.
effect on glycine concn. by diaphragm, 9120*d*.
methylation of, to creatine in cryst. lens, 7059*e*.
reabsorption by renal tubules, 7115*g*.
transmethylation of, in liver autolyzates, 8481*a*.
in urine of nephrotic and normal children, 8501*de*.
**Glycogen**. (See also *Metabolism, animal*.)
in adipose tissue, deposition of, insulin and, 8036*f*.
in adipose tissue, synthesis of, 2690*e*.
α-amylase (malt) adsorption by, 9504*h*.
in blood corpuscles and hemopoietic tissue, 2683*g*.
in blood in scarlet fever, 2697*g*.
in brain, blood gases and, 5848*g*.
breakdown or hydrolysis of—see *Glycogenolysis*.
in cartilage in rickets, and its relation to healing, 8038*a*.
complex with myosin, spectrum of, 8885*h*.
constitution of, 5431*b*.
consumption by cornea, effect of mustard gas on, 769*h*.
of corn, 6849*b*.
deposits in alloxan diabetes, effect of thiouracil on, 2304*f*.
detection and detn. in tissue, 4355*a*.
detection of, 5704*a*.
detection of, in tissue, 1823*c*, 2657*h*.
deuterium incorporation into, in animal, thyroid effect on, 8030*f*.
in diaphragm, formation of, effect of insulin on, 8029*f*.
formation of, opposing action of insulin and adrenaline or adrenochrome on, 5470*b*.
formation of, with and without insulin, effect of hypophysectomy, adrenocorticotropic hormone and adrenal cortical ext. on, 9255*g*.
effect on histoplasmin formation, 719*h*.
equil. state of mols. of, 8815*a*.
fibrinolysin release in blood serum by, 7125*h*.
formation of, 6251*h*.
after adrenal enucleation, 8031*f*.
effect of bacterial endotoxins on, 269*h*, 7542*h*.
from formate and glycine, 3859*f*.
after thymectomy, 2690*i*.
in hair and skin, 6710*f*.
in hair of rabbit, 7105*f*.
in heart, effect of adrenaline on, and effect of adrenal cortical hormone thereon, 1851*g*.
in heart, liver and muscles, effect of alloxan on, 8537*f*.
hydrolyzability of, by enzymes, 2252*b*.
in kidneys, formation of, effect of blood-sugar levels and insulin lack on, 6305*b*.
in kidneys in diabetes, 8518*d*.
in liver and muscles, after death, 9219*e*.
formation of, after adrenalectomy, effect of desoxycorticosterone, 17-hydroxy - 11 - dehydrocorticosterone and adrenal cortex ext. on, 9202*a*.
in hereditary osteopetrosis, 1482*h*.
oxidation of, with $HIO_4$, 1330*g*.
after thymectomy and thymus implantation, 2307*i*.
in liver, blood sugar regulation and, 3085*b*.
deposition of, effect of high-protein and high-carbohydrate diets on, 1847*b*.
in diabetes, 751*h*.
after dimethylaminoazobenzene poisoning, 6316*d*.
distribution of, 3910*d*.
distribution of fixed radioactive C in glucose from, 3476*g*.
effect of body substances of typhoid bacilli on, 5851*e*.
effect of folliculin on, 3937*a*.
effect of vitamin C on, 1113*g*.
of embryo, effect of decapitation on, 7104*d*.
formation and storage of, 1850*g*.
formation of, 7995*g*.
formation of, and effect of desoxycorticosterone acetate thereon, 3519*i*.
formation of, as indicator of intermediary metabolism, 5482*g*.
formation of, effect of adrenal cortical steroids and amino acids on, 9212*e*.
formation of, effect of digitoxin on, 2321*h*.
formation of, from glucose, effect of morphine, phenobarbital and urethan on, 7134*b*.
formation of, from pyruvic acid, 3073*i*.
after hypophysectomy, daily rhythm in, 6302*g*.

*in liver*, incorporation of acetate and butyrate C into, 5099*h*.
incorporation of isotopic $CO_2$ in, 3905*h*.
in infectious hepatitis, 3922*f*.
phosphorolysis of, in traumatic shock, 1100*h*.
during pregnancy, 6717*d*.
during protein depletion, 8478*c*.
storage of, 6727*b*.
storage of, amino acids in relation to, as influenced by adrenalectomy and adrenal replacement, 8544*b*.
in thyroxine intoxication, effect of pancreatic exts. on, 9200*a*.
loss during pregnancy, 8495*h*.
metabolism of, during work in diaphragms of normal and adrenalectomized rats, effect of desoxycorticosterone on, 3904*h*.
metabolism of, in psychotic states, 5486*h*.
methyl deriv., mol. wt. of, 3687*i*.
mol. assocn. in, 2584*a*.
in mucus glands of *Anodonta cygnea*, 3529*e*.
in muscles, black quarter development and, 3072*e*.
of cockroach in relation to O consumption, 2333*b*.
deposition of, effect of hypophysectomy on, 3506*a*.
effect of training on, 5480*b*.
formation and storage of, after castration, 2693*a*.
formation of, effect of insulin on, 9202*d*.
lactic acid formation from, 6255*e*.
natural, 3052*f*.
in nerve tissue of *Anodonta cygnea*, 3529*f*.
in organs, effect of vitamin C and glucomc acid on, 9182*h*.
phosphorylase action on, 7068*h*.
phosphorylation by muscle and liver of adrenalectomized cats and rats, 1098*f*.
in placenta, during O starvation, 4359*c*.
of rodents, 5466*h*.
of shrews, 7057*f*.
reaction with I, 9109*b*.
terminal groups in, detn. of, 2006*e*.
in tissue, deposition of, effect of α-hydroxybenzylphosphinic acid and its Na salt on, 1486*h*.
in tissue, diastase content and, 3505*c*.
triacetate, concn. and viscosity of, 6885*f*.
tricarbanilate from, 154*b*.
in tubercle bacilli, 9104*e*.
in tumors, 1857*b*.
in uterus and vagina, effect of progesterone, stilbestrol and testosterone on, 3503*i*.
in uterus, effect of corticosuprarenal hormone on, 7113*a*.
utilization by *Drosophila*, 322*h*.
utilization by *Tenebrio molitor*, 4387*i*.

**Glycogenase**, in intestines of *Oedemagena tarandi*, 1116*d*.
in liver, effect of folliculin on, 3937*b*.

**Glycogen disease**. See *Gierke's disease*.

**Glycogenolysis**, cyanide effect on, by phosphorolysis and by hydrolysis with amylase, 5804*i*
2,4-dinitrophenol effect on, 9268*e*.
enzymic, 4307*e*.
factor from insulin and gastric mucosa, purification of, 9212*g*.
by hydrochloric acid, 4307*c*.
in liver, effect of adrenaline and glycogenotropic hormone on, 8063*a*.
pancreatic factor for, origin and distribution of, 744*e*.
vitamin C effect on, 3501*i*.
by vitamin K, 8479*f*.

**Glycogenosis**. See *Gierke's disease*.

**Glycogenotropic hormones**. See "hormones of anterior lobe of" under *Pituitary gland*.

**Glycogen storage disease**. See *Gierke's disease*.

**Glycohyodesoxycholic acid***, in bile of patients with choledochostomy drainage, 7572*d*.

**Glycol**. See *Ethylene glycol*.

**Glycolaldehyde** (*hydroxyacetaldehyde*), diethyl acetal, preservation of butadiene polymers with, P 5625*h*.
dihydrogen phosphate, and its Ba salt, 147*f*.
2,4-dinitrophenylosazone—see "bis(2,4-dinitrophenylhydrazone)" under *Glyoxal*.

**Glycolamide**, benzenesulfonate, methanesulfonate, and *p*-toluenesulfonate, 2942*c*.
derivs., P 3853*a*.
—, *N*-(**6-amino-2-pyridyl**)-, P 3853*g*.
—, *N*-(**6-bromo-2-pyridyl**)-, P 3853*g*.
—, *N*-*tert*-**butyl**-, P 3028*h*.
—, *N*-**2-hydroxyethyl**-, 3364*f*.
dinitrate, P 1796*i*.
*N*-**methyl**-*N*-**nitro**-, nitrate, P 1796*i*, P 1797*b*.

**Glycolanilide**, benzenesulfonate, 2942*h*.

**Glycolic acid** (*hydroxyacetic acid*), acetate, P 676*h*, P 6224*c*.
acetate, Ca salt, metabolism of, 310*f*.
allyl ester, P 1055*a*.
allyl ester, ester with monoallyl diglycolate, and polymers, P 7754*d*.
allyl ester, polymerization of, P 4896*d*.
as antioxidant in alkyl benzenesulfonates, P 6845*d*.
benzenesulfonate and *p*-toluenesulfonate and their esters, 2941*h*.
butyl ester, ester with mono-Bu phthalate, plasticizer from, P 2034*b*.
butyl ester, pigment powder wetting by, 8697*h*.
cellulose ether—see "carboxymethyl ether" under *Cellulose*.
compd. with Cr sulfate, spectrum of, 8883*c*.
with MeOH, 7409*c*.
with titanic acids, P 1796*e*.
condensation with *N*,*N*′-methylenebis[*N*-(chloromethyl)stearamide], water repellent for textiles by, P 6430*f*.
derivs., 3364*d*.
effect on growth of plant tissue, 4349*c*.
esters, P 5036*i*.
with phthalic acid esters, as stabilizers for vinyl polymers, P 8731*c*
as plasticizers for poly(vinyl acetal) of butyraldehyde, P 2468*c*.
surface tension of, 8779*g*.
esters (mixed), as plasticizers for polyvinyl acetal resins, P 1606*d*.
ethers of, P 678*f*.
ethyl ester acetate, reaction with ketene, P 1436*c*.
ethyl ester, ester with monoethyl phthalate, as plasticizer, P 8209*a*.
glyoxylic acid formation from, in chloroplasts, 6286*i*.
ion of, as catalyst in bromination of Et cyclopentanone-2-carboxylate, 3698*e*.
methyl ester methacrylate, polymers of, P 9531*e*.
mixed glycerides, P 9494*b*.
optical crystallographic data for, 6105*f*.
oxidation by enzymes from plants, 6267*b*
polyvinyl ester hydrogen sulfate Na salt, 3610*i*.
reaction product with *N*-(chloromethyl) deriv. of urea condensation product with *N*-(hydroxymethyl)stearamide and HCHO, as textile aid, P 7727*i*.
reaction product with *N*-(hydroxymethyl)stearamide, P 5218*a*.
sodium deriv. sodium salt, reaction with $ClCH_2CN(OEt)_2$, 2577*g*.
sodium salt, Cr sulfate complexes with, 8184*a*.
sodium salt, textile agent from, P 8691*d*.
starch ether, polysulfates of, P 3978*i*.

**Glycolic acid, carvacryl-**. See *3-p-Cymeneglycolic acid*.
——, **diphenyl-**. See *Benzilic acid*.
——, **di-2-thienyl-**, 1763*b*.
——, **ditolyl-**. See *Tolylic acid*.
——, **naphthyl-**. See *Naphthaleneglycolic acid*.
——, **phenyl-**. See *Mandelic acid*.
——, (*p*-**2-thiazolylsulfamylanilino**)-, P 7962*g*.
——, **thienyl-**. See *Thiopheneglycolic acid*.
——, **thio-**. See *Acetic acid, mercapto-*.
——, **thymyl-**. See *3-p-Cymeneglycolic acid*.

**Glycolonaphthone**. See *Acetophenone, α-hydroxy-*.

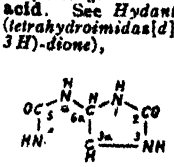
**Glycolonitrile**, acetate, P 2631*i*.
benzenesulfonate, methanesulfonate and *p*-toluenesulfonate, 2941*i*.
hydrogenation of, in presence of $CH_2O$, P 3839*e*.
reaction with ethylenediamine, 9032*b*.

——, **antipyryl-**. See *Antipyrinylglycolonitrile*.
——, **furyl-**. See *Furanglycolonitrile*.
——, **phenyl-**. See *Mandelonitrile*.

**2,6-Glycoloxylidide**, 1025*f*.

**Glycols**. (*Individual glycols except those having common names* (*e.g.*, Ethylene glycol), *are indexed under their Geneva names* (*e.g.*, Propanediol).)
acetylenic, 569*f*.
*acetylenic*, hydrogenation of, 1368*c*, 3783*a*.
hydrogenation of ethers of, 3782*d*.
oxidation of, 7415*c*.
reaction with Br and with Cl, 130*a*.
and their reaction with ketones, 3359*b*.
acetylenic γ-, 6573*g*.
acetyl peroxide decompn. in, 3776*a*.
as adulterants in drugs, 1911*e*.
alginates, as emulsifiers, P 1557*g*.
alicyclic, 7434*h*.
α-, and their hydrated compd., from rubber, 1595*i*.
amino derivs., P 2224*f*.
azeotropes of, and ethers, 5247*b*.
carbamates of, P 4090*g*.
*cis*-, oxidation and titration with $Pb(OAc)_4$, 6946*f*.
condensation of β-, with phenols, rubber antioxidants by, P 5626*e*.
condensation products of—for this year see "alkyd," etc., under *Resinous products*.
condensation with dicarboxylic acids and esters, P 2228*h*.
in cosmetics and enemas, 3147*g*.
from cycloalkenes, 2173*b*.
dehydration of, P 3834*c*.
and derivs. as solvents, 3118*f*.
detection of, and laws regulating their use, 8188.
dialkylcyclohexyl derivs., P 1058.
dielec. properties of γ-, and their derivs, 11*c*.
dimethacrylates, casting compns. from Me methacrylate and, P 6467*b*.
disinfection of air with vapors of, 9387*b*
ester ammonolysis in, 6495*c*.
esters—see also *Esters*.
esters, 5399*e*, P 7503*g*.
with *p*,*p*′-alkylenedioxy derivs of benzoic acid, P 4897*h*
with fatty acids, granular polymers from vinyl halides and, P 6002.
with fatty acids, phys. properties and solubilities of, 2002*g*.
polymeric, P 1608*gh*, P 1609*d*, 5380*i*
with polymeric fat acids, prepn. of hydrogenated rubberlike, 8699*i*
polymeric, with dicarboxylic acids, $Fe_2O_3$ - reinforced peroxide - cured rubbers from, P 432*d*.
polymeric, with maleic acid, surface active bisulfited, P 1588*b*.
esters (mixed) of, P 7504*a*.
and their ethers and ether esters in azeotropic sepn. of xylene isomer 1007*c*
ethers of, esters of, P 3030*f*.
pigment powder wetting by 8698*a*.
of polyoxypropylene, P 391*a*.
reaction with halonitrophenols, P 1062*d*.
ethers or ether esters of, as azeotropic agents in styrene recovery from hydrocarbon oils, P 5582*h*.
ethylene γ-, 6162*i*.
hydrogen (active) detn. in, 3316*f*
identification of solid derivs. of, 6105*g*.
lubricants from reaction products with ales, unsatd acids, maleic acid or anhydride, and aliphatic amines, P 7679*a*.
lubricating greases stabilized by, P 5185*d*, P 5186*e*.
magnetic susceptibilities of γ-, and halogen derivs., 4911*d*.
manuf. of, P 673*c*, P 2223*h*, P 6652*a*, P 9080*f*.
from methylcyclopentenes, 2172*d*.
oxidation of, 7418*h*.
oxidation of α-, with ammoniacal Ag soln. and detection, 2548*c*.
pectates, 141*c*.
poisoning by glysantin, 1863*h*.
polyalkylene, esters with fatty acids, P 5792*f*.
lubricating greases from, 8660*b*.
mixts. of mixed, P 4289*e*.
polymeric allyl carbonates, for molding dentures, P 9538*g*.
sorbitan derivs.—see *Sorbitan, Tweens*.
surface-active esters with fatty acid polymers, P 6440*a*.
poly-, esters with fatty acids, emulsions from, P 4878*i*.
in heat-stabilization of vinylidene chloride polymers, P 3233*f*.
lubricating greases from, service life of, 5936*d*.
mono (alkylaryl) ethers, as lubricant additives, P 1177*f*.

polyethylene, absorption and penetration of therapeutic agents from vehicle of, 8609*f*.
acrylates and methacrylates of, purification of, P 7503*a*.
alkyl ethers of, P 3839*d*.
alkyl monoethers, hydrogen sulfates and sulfo carboxylic acid esters, for improvement in electroreduction of metals, P 4152*ce*.
as base for ointment contg. hexadecyltrimethylammonium bromide, 8609*e*.
cleaning compns. from, 883*e*.
crystallinity of, effect of surface-active agents on, 8609*e*.
derivs. of, 3784*b*.
detn. of detergent, 8710*e*.
dimethacrylates, emulsions of, P 9533*h*.
effect on antiseptic ointments, 3562*i*.
esters, P 7726*i*.
esters with tall oil, P 1557*c*.
esters with tall oil or rosin acids, as detergents, P 6438*f*.
fluorescent and penetration studies on carcinogens dissolved in, 8525*e*.
hygroscopicity of mixts. with other humectants, 3542*e*.
maleate, cellular polymers with styrene, P 3656*a*.
monoethers, for addn. to gelatin dynamite, P 3620*a*.
oil-in-water ointment base contg., 5534*g*.
in pharmacy, 4812*i*.
as pill base, 6365*g*.
reaction with octadecyl stearate, P 9080*e*.
stearate, as ointment levigating agent, 5534*g*.
stearate, effect on crumb softness of bread, 3113*g*.
stearic acid esters, P 6652*f*.
as suppository base, 8093*i*.
suppository bases contg., 9365*h*.
toxicity to tomato cuttings, 3072*a*.
tumor production with, as carriers for carcinogenic hydrocarbons, 5108*g*.
vulcanized esters of, plasticizers from, P 3242*g*.
polyethylene and polypropylene, Verdet const. of, 8240*b*.
polymers of, hydraulic fluids from, P 6341*a*.
polypropylene, Bu ethers, as fly repellents, 8603*i*.
polypropylene, esters of monoalkyl ethers of, as lubricants, P 1562*e*.
polythio, aldehyde condensation products of, P 6001*e*.
in polyvinyl alc., 8240*g*.
properties, toxicities and uses of, 1320*g*
solutizers of amino glycols and, for thiol extn. from hydrocarbon oils, P 4844*c*.
as solvents for extn. of aromatic hydrocarbons, P 8670*c*.
steroidal, 16,17-, 3434*e*.
stimulation by, and their polymers on tarsal receptors of blowflies, 2358*e*.
terephthalic esters, degradation of, P 4519*a*.
for melt-spinning, P 4052*f*.
polymers of, P 4896*g*.
recovery of terephthalic acid from, P 4052*c*.
sizing yarns of, with hydrolyzed polyvinyl acetate and $H_3BO_4$, P 3628*a*.
stabilization of, P 4052*d*.
tetrahydro-2-furanol synthesis through intermediate, 4253*i*.
thermal cond. of, 6499*f*.
thio-, esters of, P 3662*b*.
vaporizers for, with app. for control of concn. in air, P 6370*g*.
vinylacetylene, dehydration and isomerization of, 2162*g*.
**Glycoluric acid.** See *Hydantoic acid.*
**Glycoluril** (*tetrahydroimidaz[4,5-d]imidazole-2,5-(1H,3H)-dione*),



**3a,6a-dimethyl-**, toxicity to rats, 348*h*.
**3a,6a-diphenyl-**, toxicity to rats, 348*g*.
——, **1,3,4,6-tetrakis(hydroxymethyl)-**, 5996*b*.
**Glycolysis** or **Glucolysis.** (See also *Fermentation; D-Glucose.*)
of blood in cancer, P release during, 2310*c*.
of brain, effect of antipyrine on, 7147*b*.
effect of Mg on, 7588*d*.
in epilepsy, 9230*h*.
of febrile and normal rabbits, 7146*i*.
protection by amides and esters of amino acids, 7520*d*.
of brain prepns., 8484*b*.
cold effect on, 5052*i*.
by cornea, 769*g*.
dissociation of synthesis from, in yeast in presence of Na azide, 1826*c*.
enzymes of, in fractions of tissue homogenates, 2652*b*.
by *Escherichia coli*, effect of fatty acids on, 717*i*.
glyceraldehyde effect on, 9119*h*.
inhibition by NaF, ketolysis after, 1863*g*.
inhibitors of, in cancer treatment, 5856*g*.
keto acids and, 6680*i*.
in liver, 4358*c*.
in liver homogenates, 8508*b*.
malignant tissue formation and, 303*g*.
in muscle, effect of adrenaline on, 7986*c*.
in muscle, effect of isopropyl fluophosphate on, 5478*b*.
in muscle exts., effect of amidines and related compds. on, 7581*e*.
in muscle exts., effect of naphthoquinones on, 7581*c*.
oxalacetate metabolism in tumor homogenates during, 4369*h*.
in parasitic nematodes, 9270*d*.
permeability of erythrocytes in relation to, 4764*a*.
in *Plasmodium gallinaceum*, 5445*g*.
respiration ratio to, in bone marrow or lymphosarcoma, effect of pH on, 4752*c*.
of retina after section of optic nerve, 7105*e*.
in retina during dark adaptation, 3503*g*.
review on, 9122*h*.
in skin, effect of mustard gas on, and its relation to cancer growth, 8548*g*.
in skin prepared for Shwartzman phenomenon, 5858*h*.
in tissue, effect of $CS_2$ on, 7577*d*.
in tissue homogenates, adenosinetriphosphatase and, 9090*d*.
tumor, enzymic system in, 7575*h*.
in tumor homogenates, 2697*e*.
by tumor, phosphorylated intermediates in, 1857*b*.
**Glycoproteins.** (See also *Mucins; Mucoids; Proteins.*)
acetyl attached to hexosamine in, form of, 3480*e*.
in blood, sugar components of, 6259*b*.
glucuronic acid detn. in, 5071*c*.
proteins which make up natural, 7062*g*.
**Glycosidase**, in *Drosophila*, 322*i*.
**Glycosides** or **Glucosides.** (See also *Aglucons; Glucides; Saponins;* and specific glycosides, such as *Convallatoxin*) 243*d*, 1429*i*, 1790*h*, 1791*c*, 2583*b*, 7034*b*, 9380*e*.
acid-sensitive, review on, 8616*a*.
from *Adonis amurensis*, 2371*b*.
aglucons and, 714*i*.
alkaloidal, from wild-tomato leaves, 5551*a*.
anthraquinone, 2984*g*.
anthraquinone, effect on intestines, 6308*h*.
of apigeninidin chloride, 7935*h*.
in *Apium dissectum*, 2280*a*.
carboxyl group in compds. of the type of, 4641*g*.
cardiac, P 823*d*, P 2739*e*, 4679*e*.
assay of, 4810*i*.
carriers for, P 2375*c*.
compds. related to, 4654*i*, 4655*a*.
detn. of, 2735*b*.
effect of atropine and papaverine on intestinal contractions from, 5872*f*.
effect on cholinesterases of myocardium, erythrocytes and brain, 4380*f*.
effect on electrocardiogram and myocardium, 4380*h*.
effect on respiration of cardiac muscle, 1110*g*.
effect on smooth muscles, 1485*h*.
evaluation of, 3106*a*.
isolation from digitalis leaves, P 5909*e*.
prepn. from squill, 3977*d*.
*cardiac*, from *Urginea*, 3150*a*.
cardioactive, from *Euonymus europaeus* seeds, 2371*h*.
cardioactive, in medicine, 7193*g*.
in *Cestrum hediondinum*, 2279*i*.
of *Citrus trifoliata*, 4669*h*, 6582*g*.
from *Convallaria majalis*, 3976*f*.
coumarin, as growth substances, 5893*b*.
cuprammonium complexes, 3368*d*.
of cyclopenta[*a*]phenanthrene derivs., P 2376*h*.
detection in squill, 2372*e*.
detn. of, 8004*g*.
detn. of cardiotonic, 1152*a*.
digitalis—see *Digitalis;* and the specific digitalis glycosides, as *Digitoxin.*
of digotoxin group formed from purpurea glycoside A in digitalis prepns., 7644*b*.
of dihydroxyanthraquinone, 5019*gi*.
drugs contg., stabilization against fermentation, 5902*h*.
enzymic synthesis of, 4710*e*.
flavanone, 7935*e*.
of hibiscetin, 1408*a*.
manuf. of, P 2243*c*, P 5428*a*.
methoxy detn. in, 8975*i*.
nitrates of, 5007*f*.
*N*-, of aminobenzoic acids, and derivs., 3805*h*.
of *Oleander*, 5548*b*.
of phenolphthalein, P 689*i*.
of phenols, 7922*i*.
*p*-phenylazophenyl, spectra of, 6919*e*.
of polyhydrocyclopentaphenanthrene dihydroxy derivs., P 1532*i*.
in *Potentilla anserina*, muscle-relaxant effects of, 9383*g*.
prepn. of, 1770*d*, 3393*g*, 7430*g*.
of 1,2-propanediol derivs., 312*c*.
of purine and pyrimidine derivs., 144*f*, 1406*bh*, 1726*c*.
purine, synthesis of, 2649*i*.
from rice bran, 1117*g*.
of *Salix purpurea*, 7924*b*.
from *Senna* leaves and pods, P 2376*a*.
solvent for flavone, P 2789*e*.
steroid, P 5811*c*.
strophanthus, assay of, 4811*a*.
of 5-styrylresorcinol and its mono-Me ether, 5017*e*.
sulfur-contg., in seeds of crucifers, 3888*b*.
tetraacetyl-β-D-, cleavage of, with Br, 1326*g*.
toxic, removal from rapeseed press cake, 6757*b*.
from *Urginea maritima* seeds, 5550*g*, 7195*e*.
**Glycostatic factor.** See "anterior lobe of" under *Pituitary gland.*
**Glycosuria** or **Glucosuria**, in Addison's disease, 1480*b*.
adrenochrome effect on, 3517*i*.
from aminobenzoic acid and its derivs., 9245*g*.
mechanism of, 2308*f*.
after pancreatectomy, effect of high-protein and high-carbohydrate diets on, 3498*h*.
in pregnancy, 4753*c*.
in pregnancy, incidence and causation of, 745*e*.
review on, 6300*a*.
**Glycosylation**, of hydrocarbons, P 7507*cd*.
**Glycosyl halide**, acetyl derivs., mol. structure of, 2964*h*.
**Glycotropic hormones.** See *Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland.*
**Glycuronic acid.** See *Glucuronic acid.*
*N*-**Glycylglycine dipeptidase**, cobalt in hydrolysis by, 2250*b*.
peptide splitting by, 1448*e*.
*N*-**Glycylleucine dipeptidase**, of animal tissues, 2249*i*.
peptide hydrolysis by, 1448*d*.
sarcosyl-L-leucine hydrolysis by, 2250*b*.
**Glycyrrhiza**, oils of—see *Oils.*
**Glyketal***, pharmacology of, 7582*a*.
**Glykresin.** See *1,2-Propanediol, 3-o-toloxy-.*
**Glyoxal** (*biformyl, diformyl, oxalaldehyde*), aldehydic function and, 6159*g*.
bis(dibutyl acetal), toxicity of, 4401*g*.
bis(2,4-dinitrophenylhydrazone), 2575*f*, 6980*f*.
in corrosion prevention by acid cleaning compns., P 6439*a*.
dioxime—see *Glyoxime.*
disemicarbazone and polymer, 123*f*.
in Doebner reaction with $2\text{-}C_{10}H_7NH_2$, 5025*g*.
effect on stiffness, stress-strain properties and wrinkle resistance of rayon and wool fabrics, 5193*a*.

formation of, in oxidation of $C_4$ hydrocarbons, 1309c.
manuf. of, and purification of its polymers, P 4688i.
sulfate, as catalyst in partial hydration of myrcene, P 6219g.
**Glyoxal, [3,4-bis(benzyloxy)phenyl]-**, 4240d.
——, **bromo-**. See *Glyoxylyl bromide*.
——, **(5 - bromo - 2 - thienyl)phenyl-**; 4666b.
——, **chloro-**. See *Glyoxylyl chloride*.
——, **chloromethyl-**. See *Pyruvyl chloride*.
——, **di-4-biphenylyl-**. See *Benzil, 4,4'-diphenyl-*.
——, **di-2-furyl-**. See *Furil*.
——, **(3,4-dihydroxyphenyl)-**, 4240e.
——, **dimethyl-**. See *2,3-Butanedione*.
——, **diphenyl-**. See *Benzil*.
——, **dithienyl-**. See *Bithenoyl*.
——, **furyl-**. See *Furanglyoxylaldehyde*.
——, **(4' - hydroxy - 4 - biphenylyl)-**, benzoate bis(phenylhydrazone), 1034g.
——, **[m(o and p)-hydroxyphenyl]-**, 4240c.
——, **indolyl-**. See *Indoleglyoxylaldehyde*.
——, **(p-methoxyphenyl)-**, 603f, 4240c.
——, **methyl-**. See *Pyruvaldehyde*.
——, **methylphenyl-**. See *1,2-Propanedione, 1-phenyl-*.
——, **phenyl-**, rearrangement of, contg. $C^{14}$, 608b.
——, **pyrryl-**. See *Pyrroleglyoxaldehyde*.
——, **thienyl-**. See *Thiopheneglyoxylaldehyde*.
**Glyoxalase**, review on, 9122h.
**Glyoxaldiureine**. See *Glycoluril*.
**Glyoxalic acid**. See *Glyoxylic acid*.
**Glyoxalidine**. See *Imidazoline*.
**Glyoxaline**. See *Imidazole*.
**Glyoxime, dimethyl-**, as antioxidant in alkyl benzenesulfonates, P 6845d.
copper complexes, 8222c.
copper complex, rotproofing value in duck, 5958d.
effect on polymerization of allyl methacrylate, 8199f.
nickel and Na complexes with, 3740gi.
palladium deriv., 8956a.
platinum complexes, 1675h.
reaction with Ni ion in presence of oxidizers, 8935c.
as stabilizer for solns. of polythionates and polythionic acids, P 7651i.
toxicity to *Azotobacter* and its utilization, 2276d.
——, **diphenyl-, α-**, effect on polymerization of allyl methacrylate, 8199f.
as catalyst in polymerization of olefins, P 4515b.
palladium deriv., 8956a.
——, **methyl-**, toxicity to *Azotobacter* and its utilization, 2276d.
**Glyoxylamide**, 128c.
hydrazones, in color photography, P 511h.
**Glyoxylanilide, p-chloro-**, α-oxime, as fungicide, 6351f.
**Glyoxylic acid** (*formylformic acid*), butyl ester, reaction with $o$-$C_6H_4(NH_2)_2$ and its derivs., 3383g.
in chlorophyll oxidation, 6286i.
detn. of, 1290h.
detn. of, and its 2,4-dinitrophenylhydrazone, 5342h.
ethylene cyclic acetal—see *1,3-Dioxolane-2-carboxylic acid*.
p-nitrophenylhydrazone, 1324d.
reaction product of, or its derivs. with sulfathiazole, P 4695e.
semicarbazone, reaction with $N_2H_4 \cdot H_2O$ and with NaOH, 123a.
sodium salt, reaction product with sulfathiazole, P 6233g.
**Glyoxylic acid, (2-acetamido-4-methoxyphenyl)-**, 1416h.
——, **acetyl-**. See *Butyric acid, α,β-dioxo-*.
——, **amino-**. See *Oxamic acid*.
——, **benzoyl-**. See *Hydrocinnamic acid, α,β-dioxo-*.
——, **bromo-**, ethyl ester p-nitrophenylhydrazone, 4247i.
——, **chloro-**, esters, 8380b.
hydrazones, and their derivs., 4259g.
——, **[o-(α-chloropropionyl)phenyl]-**, ring closure of, 7009i.
and silver salt, 7009d.
——, **cyano-**, ethyl ester *O*-acetyloxime, 6525b.
——, **cyclohexanyl-**. See *Cyclohexeneglyoxylic acid*.
——, **cyclohexyl-**. See *Cyclohexaneglyoxylic acid*.
——, **indanyl-**. See *Indanglyoxylic acid*.
——, **indenyl-**. See *Indeneglyoxylic acid*.
——, **(o-lactylphenyl)-**, 7009di.
cyclic aldol form †, and its derivs., 1384c.
and derivs., 6191c.
——, **methyl-**. See *Pyruvic acid*.
——, **naphthyl-**. See *Naphthaleneglyoxylic acid*.
**phenyl-**, ethyl ester, oxidation of, [illegible]
in penicillin production, 2273d.
polarography of, 48i.
semicarbazone Na salt, hydrogenation of, 2604e.
——, **phenylazo-**, phenylhydrazone, in analysis, 5696f.
——, **piperidyl-**. See *Piperidineglyoxylic acid*.
——, **o-propionylphenyl-**, 4661a, 7009f.
——, **o-pyruvylphenyl-**, 7008f.
——, **α-thio-**, derivs., 3819h.
**Glyoxylonitrile, phenyl-**, and dimer*, 2974g.
**Glyoxylyl bromide, phenyl-**, p-nitrophenylhydrazone, 4247i.
**Glyoxylyl chloride**, bis(p-nitrophenylhydrazone), 1324c.
**Glyphenarsines**. See *Tryparsamide*.
**Glyptal**. See *Resinous products*.
**Glysantin**, glycol poisoning by, 1863h.
**Gmelina**, oils of—see *Oils*.
**Gmelinite**, formula calcn. for, 1291d.
**Gnathocerus cornutus** and(or) **Broad-horned flour beetle**, control of, P 7188d.
control of, halogen compds. for, P 9358c.
control of, tetrachloroethyl ethers of phenols for, P 7633b.
**Gneisses**, amphibolic, of Peloritani Mts., Sicily, 978e.
of Annam (French Indo China), 2135c.
cordierite- and fibrolite-contg., of Lyons, France, 8992d.
from D'Entrecasteaux Is., 2135i.
feldspathization and granitization of, in Black Forest, 7874c.
formation of, 8253c.
of France, 2552h, 8320b
granitic, origin of, of Nauga Parbat massif, India, 4985b.
of India (Pachipenta Zamindari), 5709c
of Manitoba (Sherritt Gordon orebody), 4188a.
mica, of Co fahlband mineralization of Modum dist., Norway, 8316f.
petrogenesis of complex, of West Greenland, 8320c.
of Poland (Volhynia), 1293b.
porphyroid, sericite-rich and tourmaline-rich of Pianasca, Italy, 4985e.
rubidium, $Rb^{87}$, Sr and radiogenic Sr in, from Finland, 6132d.
skarn minerals in, of Holsteinborg, Greenland, 8313c.
of Spain (Tarragona), 6548g.
of U.S.S.R. (about river Izh), 5709g.
**Gnomograms**, transformation of, and its use in microchem. identification of crystals, 6029i, 6487a.
**Gnorimoschema operculella** and(or) **Potato tuber worm**, control of, 3965a, 6776f, 8599e.
**Goddard, Robt. H.**, biography, 449i.
**Goethite**, -hematite relations in alk. and neutral solns. under pressure, 8983d.
sepn. by air current, 7200c.
in sulfur removal from water gas, 1946c.
**Goiter**. (See also *Hyperthyroidism; Thyroid gland; Thyroloxicosis*.)
from aminothiazole and relation to reactions of thymus and lymphoid tissue, 5808g.
antithyroid compds. normally occurring as cause of, 7571h.
in chicks from thyroprotein-fed hens, 8036d.
endemic, iodine content in water and food products from regions of, 8044i.
iodine deficiency in relation to, 9238d.
iodized salt in prevention of, 2295c.
water sterilization with iodine in regions of, 5889i.
etiology of, 3511i.
exophthalmic, anomalous action of Lugol soln. in, 7580a.
basal metabolism and I in blood after surgery for, 5852b.
Cu in blood in, 7571c.
propylthiourea in, 1112g.
thyrotropic hormone in, 7119e.
peroxidase reaction in, 8044f.
-producing substances, effect on growth of newborn, 8051c.
effect on I absorption and utilization, 3918a.
retention in blood and tissue, 5502c
**Gold**, adsorbed, color change of, 2485g.
adsorption by, and $H_2O_2$ decompn. on, 6028f.
alpha ray bombarded, Tl isotopes from, 4564e.
annealing of, in protective gas, 3757d.
atomic wt. of, 8764h.
beads of, for calibration of ocular micrometers, 4521e.
black, infrared absorption and transmission by, 944b.
books: Electro-plating and Anodising, 956d; Rezept- und Werstattbuch für den, -schmied, 3768a; Geschichte des, 4554e.
buffing and polishing of, 8905i.
as cathode in electrolytic reduction of 2-methyl - 3 - buten - 2 - ol and 2-methyl-3-butyn-2-ol, 994g.
cathodes, hydrogenation and reduction on, 5677i.
cladding with, on Be-Cu alloy, P 6966c.
cleaning antique, 3335i.
coatings of, on electron-tube cathodes, P 2104g.
coating with, on piezoelec. crystals, P 3735a.
on refractories, etc., P 3587f.
by vacuum evapn., P 104d.
coins, 3335h.
colloidal—see also *Lange's colloidal gold test*.
colloidal, 5654c.
adsorption by kaolinite and mica, 6489e.
adsorption on bacteria, 274g, 4726d
autocoagulation of, 7292b.
color and constitution of, 6885g
effect of ultraviolet light on, 4538h
effect on reticuloendothelial cell 4766b.
elec. charge and size of particles of 6490e.
electron microscopy of, 6040g.
compression of, 4917a.
corrosion resistance of, in red fumi $HNO_3$ and in mixed acid, 986g.
cosmic-ray showers in, 5285a.
deuteron bombardment of, angular di tribution of neutrons from, 8866d
distribution in animal body in relation t arthritis, 763d.
effect on liver function, 5118a.
on *Mycobacterium smegmatis*, 5444c.
on oxidation of Ni, 4619f
on polarographic drop time, 1270h.
on *Proteus vulgaris* and *P. X19*, 1455f
elastic and structural properties of, 9001g
elec. resistance and heat of soln. in Ag 3683g.
elec. resistance of, at low temps., 8784a
electrodeposition of, polarography and 3297e.
electrodes of, in potentiometric titration of thiosulfate, 6934e.
electron scattering by, 8269h.
electroplating with, 6924g.
on bearings, P 7896a.
on Be-Cu alloy, 3727h.
in combination with Cr, 1268g.
detn. of Au in cyanide baths for 8904d.
on fabrics, P 6529a.
with reversing current, P 956e.
energy loss by deuterons and protons in 4123f.
energy loss by $H^1$, $H^2$, $He^4$ and $Li^6$ nuclei in, 1646c.
erosion (bridge) of contacts of, 1235c.
exchange between $AuCl_3$ and, 6890h
films of, crystal structure of, 4071c.
effect of heat on structure of, 4923b.
elec. resistance and optical properties of, 2836c.
spreading of oils over, 8799a.
on ZnS, crystal growth in, 7286a.
fineness of, calcn. from sp. gr. measurements, 6112b.
gamma-ray bombardment of, threshold for neutron emission in, 8864d.
glass coloration with, 8111f.
heat transfer by radiation to surface of, 4939b.
hydrogen overvoltage on, in MeOH solns., 4585c.
industry in 1946, 2127c.
isotope of mass 198, autoradiography of, 1258e.

*isotope of mass 198*, β-rays from, 8879*h*.
coincidence expts. on, 4094*d*.
decay by *K*-capture, 4564*bc*.
γ-rays from, 9355, 4122*i*, 4124*g*, 6075*i*.
and γ-rays from, 1647*a*, 4950*c*.
half-life of state following β-decay of, measurement of, 6914*e*.
sepn. from stable isotope, 5297*f*.
in therapeutics, 3524*c*.
isotope of mass 199, β- and γ-rays from,
isotope of mass 199, radiations from, 36*i*.
isotopes (radioactive) of, 4124*i*.
isotopes (radioactive) of, decay of, 6911*h*.
light absorption by, 4957*f*.
magnetic susceptibility of, in borax glass, 2053*b*.
melting point of, 5274*c*.
metabolism inhibition by, mechanism of, 8003*g*.
metal-ion adsorption by, 5254*g*.
minerals, of Kern Co., Calif., 4607*e*.
in Precambrian rocks of Midlothian Twp., Ontario, 8315*a*.
of Siskiyou Co., Calif., 2901*f*.
in mineral springs at Beppu, Japan, 5703*h*.
native—see *Gold ores*.
neutron binding energy of, and energy of γ-rays emitted on neutron-capture by, 8861*d*.
neutron cross sections of, 6506*b*, 6909*d*.
neutron fission cross section for, 4127*d*.
oxidation (anodic) of, in alkali, 4583*i*.
oxide film on anode of, 47*d*.
particle size measurement by x-ray scattering, 2863*d*.
-peptone-agar complex, P 8619*i*.
in photographic development, 51*d*.
photographic images of, in glass, 4965*g*.
poisoning by, BAL in treatment of, 3523*h*, 6739*f*.
potentials in solns. of foreign ions, 2875*b*.
powder metallurgy of, P 7403*a*.
powder metallurgy with powders of other metals, 7879*a*.
proton-stopping power of, 8868*b*
in pyrite, quartz and rock in Paleozoic of Belgium, 7382*f*.
radioactive, from gold mechanically bound to radioelements, P 3296*g*.
reaction with $H_2SeO_4$, 6931*b*.
recovery from sea water, P 5238*e*.
scattering of electrons and positrons in, 6911*i*.
solid solns. with Cu-AuCu, order-disorder in, 3260*e*.
with Cu, neutron studies of order-disorder in, 4130*i*.
with elements, lattice spacings of, 3684*h*.
soln. in aqua regia, active centers and, 6028*c*.
spectrum (x-ray) of, 6079*f*.
surface energy and tension of, 5653*a*.
surface tension of, 8255*e*.
system: Cu–, 7771*a*.
internal friction in, 3258*f*.
transitions in, 8254*e*.
system: Cu–Ag–, 2562*c*, 9014*a*.
system: Pb–Zn–, 6067*a*.
system: Pt–, 2853*f*.
system: Ag–, 4074*c*.
in tissue after $AuCl_3$ administration, 2698*i*.
toxicity and excretion of, effect of 2,3-dimercapto-1-propanol on, 4765*c*.
toxicity to mycomycetes, 8448*f*.
uses of, in industry, 532*i*.
wettability of, effect of gases on, 2485*i*.
x-ray excitation of, 4131*g*.
x-rays from, 1262*c*.

**Gold, analysis, assaying,** use of slag from, 7390*c*.
chromatographic, 4595*g*.
chromatographic sepn. from other noble metals and detection, 3743*d*.
detection, 963*d*, 4599*d*, 8299*h*, 8300*g*, P 8080*g*.
detn., 2542*e*, 3743*i*, 4597*i*, 6106*f*, 8303*e*.
detn. in cyanide baths, 8904*d*.
in electroplating baths, 961*h*.
in ores, 4602*b*.
in precious alloys, 5334*b*.
in tissues, 711*a*.
sepn. from metals with colored ions and detn., 1283*b*.

**Gold, metallurgy of.** (See also *Cyanide process.*)
amalgamation, elec. app. for, P 9021*h*.
by ammine formation and sorption, P 8344*e*.
from antimony ores and slags, 78*h*.
from arsenic ores, 1695*g*.
book: Refining, 2566*c*.
cyanide-process, adsorption by activated C in, P 6562*c*.
adsorption by charcoal in, P 5357*b*.
for arsenical ores, P 7891*b*.
Ca detn. and control in thickened feed pulp in, 3311*a*.
countercurrent decantation in, 6133*a*.
pH control in, 78*c*.
ion-exchange resins in, 3753*d*.
in treatment of sulfide ore of Southern Rhodesia, 7875*h*.
for U ores of Katanga, 1292*b*.
Zn dust for, P 7891*d*.
history of, 2477*e*.
in Minas Gerais, 2905*i*.
refining, 5711*i*.
review on, 77*c*.
roasting arsenical ores, 6131*i*.
roasting arsenopyrite concentrates, 6132*h*.
from sand, P 7891*c*.
from sea water, ion-exchanging resin for, P 2344*j*.
from seleniferous ores, P 4998*f*.
sintering pyritic ores, $SO_2$ recovery in, 3753*h*.

**Gold alloys.** (See also *Electrum; Gold compounds;* and "system" under *Gold.*)
aluminum-Cu-Pd-, P 8349*a*.
amalgams, in dentistry, 9014*b*.
annealing of, in protective gas, 3757*d*.
bismuth-, and Tl-, eutectics in, 4935*f*.
bismuth-, elec. supercond. of, 4532*h*.
cobalt-Ru-, for elec. contacts, P 5357*e*.
copper-, and Cu-Ag-, order in, lattice parameter and, 4205*d*.
copper-, and Ag-, crack formation in stress corrosion of, 7879*e*.
copper-, and Ag-, elec. resistance of, 3684*a*.
copper-, effect of neutron bombardment on order in, 6915*a*.
elasticity of, temp. and, 5715*d*.
expansion by heat, 542*i*.
order of, 7770*i*.
superlattices of, 542*f*, 8788*a*.
superstructure formation in, 9001*i*.
copper-Mn-Ni-Zn-, for dental use, P 6563*h*.
copper-Ni-Pd-Pt-Ag-Zn-, for dental work, P 2922*d*.
copper-Pd-Pt-Ag-, chromatography of, 3745*c*.
copper-Ag-, structure of, 2562*c*.
copper-Ag-Sn-, P 4626*d*.
copper-Ag-, transformations in, 4618*d*.
elec. resistance of, effect of pressure and temp. on, 5679*d*.
fineness or Au content detn. by sp. gr. method, 6112*c*.
for jewelry, 9014*b*.
platinum-, Ag-, and Pt-Ag-, electrodeposition of, 2097*i*, 2098*c*.
silver-, and Pt-Ag-, electrodeposition of, 4148*c*.
silver-, diffusion in, 1622*f*.
silver-, potential of, in fused glass, 6092*a*.
solid solns. in, lattice spacings of, 8782*a*.

**Gold bronze.** See *Bronzing.*

**Gold chlorides,** stability in soln., 6494*i*.

**$AuCl_3$,** effect on O consumption of tissues, effect of thiol compds. on, 2328*g*.
exchange between Au and, 6890*h*.
gold in tissue after administration of, 2698*i*.
reaction with org. sulfides, 1313*c*.
reaction with org. sulfides and formation of compds. $R_2S.AuCl_3$, 5323*b*.

**Gold-Chrome,** elec. resistance of, effect of pressure and temp. on, 5679*d*.

**Gold compounds.** (See also *Chloroaursc acid.*)
ammines, P 3158*a*.
ammines, in Au recovery, P 8344*f*.
in arthritis treatment, metabolism, toxicity and manner of action of, 2328*f*.
with copper and Zn, compressions of, 4917*a*.
with copper, effect of neutron bombardment on order in $CuAu$, 6915*a*.
with copper AuCu, solid solns. with Cu and Au, order-disorder in, 3260*e*.
cyanide, complexes, polarography of, 3297*e*.
diethyl— derivs., 7421*e*.
diethyl— thiocyanate and related compds., 9034*i*.
effect on sensitivity of photographic emulsions, 5682*i*, 7842*e*.
org., 7421*e*.
with parafuchsin, 7856*a*.
photographic emulsion contg., P 4592*e*.
with sulfanilamide and derivs., 1347*g*.
with thioglucose, effect on liver function, 5118*a*.
with thioglucose, obesity from, 5117*f*.

**Goldenrod,** copper, Fe and Mn in, and its rubber, 2799*e*.
cultivation, fertilization, compn., etc., of, 2372*a*.
oils of—see *Oils.*
rayless—see *Rayless goldenrod.*
rubber production from leaves of, P 1211*e*.
as rutin source, 8102*a*.

**Golden seal.** See *Hydrastis.*

**Golden Yellow.** See *Dyes.*

**Goldfish,** benzene-deriv. toxicity to, inhibition of autoxidative reactions and, 9271*a*.
chloride balance of, physiol. adjustments in, 1116*f*.
insecticide toxicity to, 9345*f*.

**Gold hydroxides,** polarography of, 3297*e*.

**$Au(OH)_3$,** Au passivity and soly. of, 4584*b*.

**Gold ores,** of Alaska, as basis of industry, 2130*e*.
antimony-, of Blue Spec Mine, W. Australia, 6122*i*.
arsenic-, of eastern Alps, 8314*i*.
of Australia, 525*a*, 4980*h*, 6122*h*.
of Belgian Congo, 2135*d*, 2136*a*.
of British Columbia (Stanley area), 4607*i*.
of California, 3750*b*, 5707*de*.
concn. of, 77*h*, 6955*a*.
concn. of, by calcining and cyanide treatment, P 2151*i*.
copper-Fe-Ag-, of Mt. Andrew, Alaska, 7384*e*.
copper-Pb-Ag-Zn-, from Cascade Co., Mont., 5711*f*.
copper-, of Natagaima, Colombia, 525*h*.
of Prince of Wales Is., Alaska, 2131*b*.
of Virgilina Copper dist., Va. and N. Car., 2131*e*.
copper-Pt-Ag-, of Salt Chuck Mine, Alaska, 74*c*.
copper-Ag-Zn-, of Sherritt Gordon Mines, Manitoba, 4188*a*.
copper-Zn-, of Blue Ledge Mine, Calif., 7382*h*.
crystals from southern Appalachians, 8982*c*.
deformation of vein quartz of native Au and sulfide, of Beresov, 2900*a*.
of Egypt (Barramiya Mining Dist.), 1692*d*.
flotation of Co-Cu-Ag-S-, 1693*d*.
flotation of, effect of O absorption and oxide films on Au in, 7875*f*.
fossil placer, under basalt of Kivu, Belgian Congo, 1291*h*.
of Idaho, 4980*i*, 6954*b*.
of India (Mysore), 2130*f*.
of Itay (Ticino River sands), 2130*f*.
lead-Ag-, near Velhartic, Bohemia, 4187*i*.
lead-Ag-Zn-, of Akoz Mine, Calif., 7383*d*.
mercury in sulfide, of northern Sweden, 6544*i*.
mercury-Ag-Sn-, placer, near Guadalcazar, Mex., 4983*b*.
of Montana, 2900*d*, 8315*d*.
native and sulfide, of Colombia, 525*e*.
native, from Belgian Congo, 523*bc*.
native, in W deposits at Hyder, Alaska, 2131*h*.
of New Mexico, 1692*a*, 4607*f*.
of Newfoundland (Southern White Bay), 1692*b*.
of New Zealand (Reefton), and relation of lode to synclines and anticlines and history of mining, 6544*h*.
of Nova Scotia (Gays River), 5347*d*.
Ontario (eastern) Precambrian, 8315*ac*.
of Oregon (Grant Co.), 524*h*.
origin of hypogene quartz veins of, 4980*h*.
of Peru (Arequipa Quadrangle), 73*h*.
placer, of Kerby Quadrangle, Ore., 4984*i*.
recovery from antimony ore, 2139*f*.
sands, concn. of, P 7891*c*.
silver-, of Custer Co., Idaho, 4607*f*.
sulfide, of Southern Rhodesia, 7875*h*.
of Sweden (Adak Area), 3321*a*.
of Tanganyika Terr. (Njombe district), 5347*f*.
variance of replacement, 8322*c*.

**Gold oxides,** formation on Au anodes, 4583*i*.

**Gold preparations,** with gum arabic and peptone, P 8104*h*.

**Gold salts,** photographic emulsion sensitization with, 8292*g*.

**Goldschmidt, V. M.,** biography, 2963*d*, 6875*a*.

obituary, 4525e.
**Goldschmidtine.** See *Stephanite.*
**Goldschmidt reaction.** See *Thermite process.*
**Gold selenate,** 6931c.
**Gold selenides,** in gold-Ag deposits of Custer Co., Idaho, 4607h.
**Gold sodium thiosulfate,** antibodies against, 3525h.
effect on O consumption of tissue, effect of thiol compds. on, 2328g.
toxicity and excretion of, effect of 2,3-dimercapto-1-propanol on, 4765c.
**Gold sol reaction.** See *Lange's colloidal gold test.*
**Gold sulfides,** colloidal, P 826h.
**$Au_2S_3$,** soly. of, 7363a.
**Gold thioantimonites,** in gold-Ag deposits of Custer Co., Idaho, 4607h.
**Gold thiocyanate,** AuSCN, complexes, 9035d.
**Golgi apparatus,** protein component of, 7102h.
**Gomberg reaction,** mechanism of, 1032e, 7895i.
**Gonadectomy.** See *Castration; Ovariectomy;* and "extirpation of" under *Reproductive organs.*
**Gonadotropic hormones** or **principles.** (See also *Adrenal extracts; Pituitary extracts;* "antigonadotropic" under *Antihormones;* and "hormones of anterior lobe of" under *Pituitary gland.*)
adsorption from urine, 7995e.
allergy to, 3919h.
antibodies against, demonstration of, 304d.
antibodies against, detn. of, 5479a.
antiserums against, 7125b
assay of, 7993h, 7994c.
assay of chorionic, 8421a.
assay of, from pregnant mares' serum, 4721d.
blood-serum, enzymic inactivation of, 5060d.
chorionic, effect on 17-keto steroids in urine, 7099e.
effect on toads, 1098a.
in urine in toxemia of pregnancy and its relation to fetal death, 9233e.
cytochemistry of, 2299i.
differentiation of follicle-stimulating and luteinizing, 8488c.
effect on adrenal gland, 8508i.
on cholesterol in ovaries, 8486e.
on cholesterol in testes, 7566b.
on embryonic reproductive system and comb of chick, 5478g.
on lipides in ovary in pregnancy, 3910f
on N balance, 8488b
on x-rayed ovaries, 4743g.
in estrogen-precursor storage 5479e
follicle stimulating, diagnostic significance of urinary, 4322d.
inactivation of, 1102b, 5474h
luteinizing, cholinergic and adrenergic components in neutrohumoral control of release of, 7579c.
luteinizing, effect on cholesterol and vitamin C deposition in corpus luteum, 8033c.
ovarian hyperemia and, 8487e.
ovulation from, effect of procaine on, 5864f.
progesterone effect on fertility after treatment with, 8032j.
protection against inactivation, 7566a
in urine during ovarian cycle and pregnancy, 3508b.
in urine of normal and impotent males, polyarthritics and prostatics, 2687h.
**Gonadotropin.** See *Gonadotropic hormones*
**Gonads.** See *Hypogonadism; Reproductive organs.*
**Goniometers,** two circle, 8748i.
**Goniometry,** electron-microscope, 3260c.
**Gonipterus scutellatus,** control of, 3461
**Gonococcus,** catalase in, effect of sulfonamides thereon, 724b.
isolation of, 4329c.
lactate oxidation in, phosphate effect on U inhibition of, 2257b.
penicillin action on, 5446a.
serological studies on, 5083b.
**Gonorrhea,** sulfanilamide-resistant, effect of urea on sulfanilamide treatment of, 8549e.
**Gonyaulax catenella,** as shellfish poison source, 3053d.
**Goodrite P.E.P.S.** See "polyethylene poly-" under *Sulfides.*
**Goodrite Z.A.C.,** as fungicide, 7177a.
**Goodyear, Charles, Medal,** to Fisher, Harry Linn, 5237i.
**Goongarrite,** identity with cosalite and discredit as species, 8983a.
**Gooseberries,** carotene and vitamin C in, 3536a.
pectins of Indian, 7150b.
vitamin C in preserved, 2709d.
**Gooseberry fruitworm.** See *Zophodia convolutella.*
**Goose grass.** See *Grasses.*
**Gorgoic acid, diiodo-.** See *Tyrosine, 3,5-diiodo-.*
**Gorgonic acid, diiodo-.** See *Tyrosine, 3,5-diiodo-.*
**Gorgonidae.** See *Corals.*
**Gorgonin,** iodine and I contg. amino acid content of, 7983d.
iodine in, 1871a.
iodine, tyrosine and I-contg. amino acid of, 6253i.
iodotyrosine in, 1871c.
**Gosseletite.** See *Viridine*
**Gossypetin** (*3,3',4',5,7,8-hexahydroxyflavone*), adrenaline potentiation by, 3104f, 5116g.
derivs., 3823g
hexamethyl ether—see *Flavone, 3,3',4',5,7,8-hexamethoxy-.*
synthesis of, 636a.
**Gossypetone*,** and tetramethyl ether, methylation of, 182d.
**Gossypin,** adrenaline potentiation by, 3104f, 5116h.
structure of, 3823i.
**Gossypitrin,** adrenaline potentiation by, 5116h.
adrenaline potentiation effects by, 3104f.
**Gossypium.** See *Cotton.*
**Gossypol,** acetate, adrenaline potentiation by, 5117a.
in cotton-root bark, 5208g.
in cottonseed cake, effect on human, 1471e.
in cottonseed meat, meals and oils, effect of cooking meats on, 1999f.
cottonseed oil content of, and discoloration by products from oxidation, condensation or decompn. of, 5208g.
in cottonseed varieties and effect of storage thereon, 1998i.
detn. of free, 5975b.
detn. of, in cottonseed and cottonseed products, 1581a.
spectrum of, 1408e.
toxicity of, 1105e.
**Gossypurpurin*,** in cottonseed varieties and effect of storage thereon, 1998i.
**Gough-Joule coefficients,** definitions and measurement of, of rubbers, 6858c.
**Gourd oil.** See *Oils.*
**Gourds.** (See also *Cucurbita; Squash.*)
Malabar, globulin of seeds of, 5450i.
pulp of, sweetening agents from, P 5881e.
vitamin B changes in, during growth, 8461jh.
**Gout,** liver function and protein content of blood serum in, 4761e.
**GP factor-1.** See *Folic acid.*
**GR-A.** See *Nitrile rubbers.*
**Gracilaria lemaeniformis** (*algae*), polysaccharide of, 4729a.
**Graftonite,** in granite pegmatite dikes near Mt. Legnoncino, Italy, 4610a.
**Grain.** See *Metals; Particles; Photography; Steel.*
**Grain moth,** control of, tetrahydrothiazoles for, P 9350f.
**Grains** (See also *Cereals; Grits; Meals; Rust* (*of plants*); *Seeds; Smut.*)
antitoxic exts. from, P 3571c.
book: Scientific Principles of, Storage, 786d.
in brewing—see *Brewing.*
2,3-butanediol prepn. from, 9358i.
chem. and nutritive changes in stored, 323i.
3-chloro-2-methylpropene detn. and recovery from fumigated, 2123b.
compn. of, review on, 7153f.
copper and, 4410h.
disinfectants for—see *Disinfectants.*
disinfection of, 4411h, 6775g.
effect of clipping small, on compn. and yield of forage and grain, 5450d.
egg production and quality in relation to, in rations of laying hens, 9192i.
ergot control and production on, 3959f.
fats of—see *Fats.*
feeding value of press liquor from spent, 4423e.
feeds from brewers and distillers, 3539a.
fertilizer expts. with, with P and K, 1511b.
fortification of products of, P 8071e.
fumigated, retention of methallyl chloride and MeBr by, 5876e.
germination of—see *Germination.*
hemolysins in, 1119h.
magnetic-material sepn. from, app. for, P 3249c.
malt from—see *Malt.*
malting of—see *Malting.*
mashes of—see *Mashes.*
mashing of—see *Mashing.*
milling of, rheological methods in, 8750c
molds in stored, deterioration process and, 324c.
movement of heat and water in stored, 324d.
nutrition of, and relation of dry-spot disease thereto, 3070g.
nutritive value of, effect of processing on, 7154a.
nutritive value of, to Indian fowls, 6292h
oils of—see *Oils.*
*Oscinosoma frit* control on, 8088c.
pest control in stored, 9336a.
repellents for, P 3967i.
spraying of, with nutrient elements, 7093a.
starch product from, P 5512a.
steeping and sprouting of, for malt, app. for, P 9362e.
storage of, molds in moist, 4875e.
toxic principles in overwintered, fermentation test for detn. of, 1117d
toxic properties of, *Fusarium* and, 2670e, 7546g.
vitamin enrichment of endosperm of cereal, P 6332f.
water detn. in, 3941c, 8565g.
weed control in, with 2,4-D, 9273e, 9351e
weevil control in, 1900b.
white-tip disease of, Cu deficiency and, 7616c.
wireworm control in soils under, 348d
worts from—see *Worts.*
**Gramicidin** (See also *Tyrothricin.*)
derivs., 1105c.
diffusion of, 6043c.
effect on *Escherichia coli*, 5444i.
effect on spirochetes, 5446a.
reviews on, 3066d, 3884c, 5551c
sepn. from tyrocidine in com. tyrothricin P 1531a
spectra of, 7062e, 8892h.
**Gramicidin, methylol-*,** spectrum of 8892h
**Gramicidin S,** amino acids in, 2663g
diffusion of, 6043c.
dipeptides related to, 1641c
effect on bacterial morphology and physiology, 1831h, 5448a.
spectrum of, 9380g.
**Gramine** (*donaxine*). For derivs. see under *Indole, 3 (dimethylaminomethyl)-.*
labeled with $C^{14}$, 8379i
reaction with triethyl methanetricarboxylate, 3405g.
**Gramineae.** See *Grasses.*
**Graminic acid.** See "hydrochloride" under *Tyrocidine.*
**Graminin,** in *Apera spicaventi* stems, 8011f
**Granadilla.** See *Passion vine.*
**Granary weevil.** See *Sitophilus granarius*
**Granite.** (See also *Alaskite; Gneisses; Pegmatites; Rapakivi.*)
alkali, of Kola Peninsula, 3749e.
amphibole- and biotite-high, in Geremeas territory, Sardinia, 978c.
of Annam, 2135c.
of Belgian Congo (Kibara Mts.), 2135c
biotite, spheroidal weathering of, 6550a
or California, 2901i, 2904h.
of Colombia (Anserma), 526a
diorite altered by intrusive, of Rastenberg, Austria, 8320c.
drusy, of Drăganului Valley, Rumania, 5709a.
of Egypt, 1692d, 6548e.
formation of, 8253e.
thermodynamic stability of minerals and, 6548h.
in Västervik quartzite, 7386e.
of France (Margeride and Mt. Lozère), 8320b.
gallium and Ga/Al ratio in, 2906e.
gamma-rays from, 4128e.
gneissose, formation in Nanga Parbat massif, India, 4985c.
of Italy, 5708fi.
of Japan (Gosaisho-Takanuki dist.), 6127i.
magmatic and metasomatic processes in, 7874d.
melting of, magma rise and isostasy from, 6127a.

microflora of, 9160*e*.
of Minnesota (Duluth area), 6548*e*.
of New Hampshire (White Mt. series), 6129*b*.
of New Jersey (Highlands cryst. belt), 74*g*.
norms of average analyses of, 2552*a*.
of Poland (Volhynia), 1293*b*, 3752*a*.
porphyriticbiotite, of Terska-Alatau Ridge of Tyan-Shan, 7386*a*.
radioactive Th and U in, from Brittany, 6127*c*.
radioactivity of, photographic study of, 4128*e*.
radioactivity of Vosges, 37*d*.
radioelements in, detn. by photographic method, 4565*g*.
radium in, of Egypt, 7874*a*.
relations among diorites, schists and, in western Odenwald, 8320*b*.
review on, 978*d*.
rubidium, $Rb^{87}$, Sr and radiogenic Sr in, from Finland, 6132*d*.
of the Sahara, 6127*c*.
schistose terrane intrusion by, in Minn., 6129*a*.
sillimanite, of Co fahlband mineralization of Modum dist., Norway, 8316*f*.
of Spain (Tarragona), 6548g.
of Sweden, 373*g*, 7382*f*.
of Tanganyika Territory, 75*i*.
thorite in Brittany, 8996*c*.
thorium- and U-bearing, in Hungary, 8996*b*.
with tin mineralization in China, 1291*f*.
xenoliths in pillow basalt of British Columbia, 2903*i*.
**Granitites**, from Italy, 4980*c*.
of Sardinia, 978*c*.
**Granitization**, of gneisses and volcanic rocks in Black Forest, 7871*c*
of infra- and supercrustal rocks of Finland, 3323*g*.
metasomatic, of batholithic dimensions, 4985*a*, 6548*i*.
in New Zealand, 8314*d*.
progressive, effect on age detns. of quartz and pegmatites, 8231*d*.
**Granitoids**, potassium metasomatism in formation of Caledonian, of Terska Alatau Ridge, 7385*i*.
**Granodiorites**, of Balkans between Botevgrad and Zlatitza Passes, 4191*b*
batholith intrusions of Caucasus, effect of microclinization on, 8993*b*
batholiths of Arequipa quadrangle, Peru, 73*i*.
of California, 2904*h*.
in chromite veins in Itaú, Brazil, 2132*h*.
norms of average analyses of, 2552*a*.
of Oregon (Kerby Quadrangle), 4984*h*.
origin and transformations of, in Terska-Alatau Ridge of Tyan Shan, 7386*b*.
of Poland (Volhynia), 1293*b*.
porphyrites in red beds of Sheku area, China, metasomatic origin of, 6548*i*.
in serpentinite at Harper's, N. Z., 4610*d*.
of Sweden (Ingelsby), 7382*f*.
**Granophyre**, of Union of S. Africa, 6128*f*.
**Granovit Rumianca**, in smut control, 8595*h*.
**Granularity**, of solids—see "size of" under *Particles*.
**Granular substances**. (See also *Particles; Powders*.)
acetylene storage in porous mass of, 7212*d*.
book: Fiziko-Khimicheskie Svoĭstva Zernistykh i Poroshkoobraznykh Khimicheskikh Produktov, 7808*e*.
briquets from—see *Briquets; Briquets, fuel; Briquets, ore*.
centrifuges for—see *Centrifuges*.
distributing app. for—see *Distributing apparatus*.
drying—see *Drying*.
drying app. for—see *Drying apparatus*.
feeding app. for—see *Feeding apparatus*.
flotation of—see *Flotation*.
flow (liquid) through, mass transfer in, 8751*i*.
flow through, sorption in, 6872*g*.
fluidization of—see *Fluidisation*.
gas occlusion from air current by layer of, 5255*b*.
hard, waterproof, for surface-covering materials, P 2390*g*.
heaters for—see *Heaters*.
hydraulic resistance and packing d. of layer of, 5645*h*.
mixing app. for—see *Mixing apparatus*.
pulverizing app. for—see *Pulverising apparatus*.
for roofing—see *Roofing*.
sampling—see *Sampling apparatus*.
screening app. for—see *Screening apparatus*.
separators for—see *Separators*.
vol. of, app. for measurement of, P 3668*i*.
washing app. for—see *Washing apparatus*.
**Granulating apparatus**. (See also *Crystallisation apparatus; Pulverising apparatus*.)
for slag, P 6905*h*.
**Granulation**. (See also *Crystallisation; Pulverisation*.)
of fertilizers, 3958*bc*.
**Granulites**, formation of, of Bluff, N. Z., 8314*f*.
petrogenesis of, of Münchberg massif, 7874*e*.
**Granulocytes**. See *Leucocytes*.
**Granulocytopenia**. See *Agranulocytosis*.
**Granuloma**. (See also *Hodgkin's disease; Leprosy*.)
*inguinale*, streptomycin in treatment of, 7079*c*.
**Granulomatosis**, of beryllium workers, 3118*i*.
**Granulometric analysis**. See *Particles*.
**Granulometry**. See "size of, measurement of" under *Particles*.
**Granulopenia**. See *Agranulocytosis*.
**Grape berry moth**. See *Polychrosis viteana*.
**Grapefruit**. (See also *Citrus*.)
carotene and vitamin C in, 3536*a*.
compn. and growth in Southern France, 8157*e*.
drop of, sprays reducing, 1518*b*.
melanose control on, 3553*g*.
peel (dried) of, as feed for dairy cows, 785*i*.
peel of, pectin manuf from, 3668*d*.
size of, increase by 2,4-D, 8597*i*.
vitamin C in, 5511*b*.
**Grapefruit juice**, fertilizer effect on compn. of, 2726*a*.
frozen concd., sirups in prepn. of, 8571*h*.
vitamin C in, and effect of storage thereon, 3944*h*.
**Grapefruit oil**. See *Oils*.
**Grape juice**. (See also *Musts*.)
DDT residues in, 6328*h*.
fermentation of, alc. losses during, 8090*h*.
fermentation of, pH and, 8606*e*.
Fiehe reaction in relation to, 785*e*.
glucose ratio to fructose in, 8070*h*.
glycerol formation from, by yeasts, 6780*a*.
iron detn. in, 3560*b*.
manuf. of, in U. S., 8069*d*.
odors of, organoleptic properties and, 784*c*.
from scarlet grapes, 6328*g*.
stabilization with $SO_2$ and $H_2SO_3$, P 4397*d*.
sulfur dioxide removal from, 6329*c*.
**Grapes**, amylase and invertase action in, coördination of, 8453*h*
anticryptogram for, Cu-$NH_4$ salt complex, P 5152*d*.
argol crystn. in products from, prevention of, P 9294*i*.
arsenic poisoning in raising, 8533*i*.
arsenite-spray injury to leaves, 3135*a*.
bleeding of vines of, 3889*e*.
bromine and Cl in, 3537*g*, 8572*d*.
carbohydrate metabolism in vines of, 3069*a*.
carotene and vitamin C in, 3536*a*.
carotenoids and vitamin A in, 5830*i*
cellulose from vine branches, P 8680*f*.
chlorosis of, Mg and, 9329*h*.
chlorosis prevention in muscadine, magnesium injection for, 5091*e*.
court-noué of, 803*b*.
DDT residues in, 6328*h*.
disease control on, with Dithane, 3133*i*.
exts. from vines of wild, detergent from $Na_2CO_3.2NaHCO_3$ and, P 6844*i*.
fertilizer expts. with, 9329*cf*.
fumigant sorption by sultana, 3962*h*.
fungicide for, cuprioxychloride as, P 9355*f*.
fungicides for, Al compds. as, 8596*h*.
fungus control on, 7177*g*.
hybrid, for juice and jellies, 6328g.
insect control on, 9329*a*.
marc, tartaric acid and its salts from, P 2226*e*.
melanin-forming oxidases in, 277*i*.
mildew—see also *Uncinula necator*.
mildew control on, 3959*e*, P 4807*a*, 8596*hi*.
muscatel, cultivation, wines, etc., of, 8605*h*.
nutrient deficiency symptoms of muscadine, 9173*h*.
nutrition with N and P, effect of climate and soil on, 6349*ef*.
pekmez prepn. from, 784*c*.
pest control on, compn. for, P 5528*f*.
pigments of, spectra of, 7093*i*.
plastids of, cytochrome oxidase in, 8454*c*.
pomace, alc. detn. in, 5531*c*.
potassium supply of, effect of climate and soil on, 7174*d*.
ripening of, 728*c*.
root-rot of, control in soln. culture, 9351*a*.
rubidium in, and in wine therefrom, 9350*e*.
ruby cabernet and emerald riesling, 3560*f*.
seedless, early maturing, 6328*f*.
seeds, activated C from, 9295*i*.
soils, assimilable and presumably assimilable $H_3PO_4$ in, 5141*i*.
stakes for, keeping qualities of, 6351*i*.
starch synthesis and hydrolysis in, 5091*h*.
sucrose in, 280*e*.
tartaric acid recovery from wastes of, 3969*i*.
vine shoots, utilization of, 6360*i*.
vitamin $B_1$ in, 6753*i*.
vitamin C in, 5511*b*, 7603*f*.
weed-control-agent effect on, 9351*g*.
**Grape-seed oil**. See *Oils*.
**Grape sugar**. See *D-Glucose*.
**Graphite**. (See also *Carbon; Graphitisation*.)
adhesion of particles of, effect of gelatin, molasses, starch and sucrose on, 4503*b*.
adsorption (multimol.) by, 7289*a*.
adsorption of $NH_3$, EtCl and $H_2O$ by, 1638*h*.
adsorption of $NO_2$ $N_2O_4$ by, 6035*b*.
of Alabama, and its beneficiation, 1694*f*.
of Alaska (northwestern), 8314*i*.
anodes in electrolytic prepn. of F, 2871*h*.
Australian industry of, 6546*f*.
bearing compn. from, P 3233*i*.
bearings of, for mech stirrers, 2821*b*.
bromine sorption by, 6038*e*.
brushes of, P 4403*c*.
as building material for industry and labs., 2041*c*.
of California (Skiskiyou Co.), 2901*f*.
capillarity and surface area of, 6036*g*.
in carbazole manuf. from o-$PhC_6H_4NH_2$, P 9086*a*.
in cementation and hardening of Fe and steel parts, P 9019*h*.
in chem engineering, 8745*b*.
chlorination of, 5572*d*.
coatings for containers for bituminous substances from, P 907*g*.
coating with, on nonconductors for electroplating, 8286*b*.
colloidal, detn. of, 5159*e*.
light polarization by, in rotating magnetic field, 7291*d*.
in $H_2O$, 5159*d*.
compds. with HF, 2534*a*.
crucibles, borax substitute for, P 6803*f*.
crucibles, repair of, P 6804*a*.
crystals and crystallites of, binding energies in, 2484*bd*.
detn. in malleable cast Fe, 970*b*.
effect on fireclay, 8112*a*.
of Egypt (Barramiya Mining Dist.), 1692*e*.
electrodes, analysis of purified, 5337*b*.
electrodes for electron tubes from, P 1274*e*.
electron secondary emission of, 4101*g*.
expansion by heat, 8253*h*.
flotation of, 2379*a*, 6373*e*, P 7204*b*.
formation from petroleum coke, rate of, 1230*f*.
formation of, 4545*i*.
formation of spherulitic, in cast Fe, 2558*i*.
friction material from, P 5519*a*.
heat capacity of, 1638*b*.
heat of sublimation and vapor pressure of, 457*c*.
heat of sublimation, melting point and vapor pressure of, 1638*e*.
heat of sublimation of, 8254*g*, 8754*e*.
heat transfer by radiation to surface of, 4939*b*.
heptane films on, heat of transition of, 6034*b*.
identification of types of, 4180*f*.
of India (Pachipenta Zamindari), 5709*d*.
in iron (cast), conversion of eutectic, into flake, 7395*c*.
in iron (cast), effect of elements on form of, 7395*a*.
lubricants contg.—see *Lubricants*.
in metal finishing, 3336*c*.

microcryst., in asphaltenes, 1954*c*.
mining and dressing of, in South Bohemia, 1924*d*.
molds of, for plates of $B_4C$, P 7658*d*.
of Montana, 4984*d*, 8318*h*.
neutron cross section of, 4558*h*.
neutron-filter power of, 6077*f*.
of New York (Rockland Co.), 4609*a*.
from nitrocellulose irradiated with electrons, 7324*b*.
nodular, formation in cast Fe, 535*e*.
nodular, in cast Fe, production with Mg, 9005*c*.
overvoltage (anodic) on, in molten mixts. of cryolite and $Al_2O_3$, 6519*e*.
oxidation of, 5007*c*.
oxidation of, kinetics of, 7798*c*.
petrographic and x-ray study of, 7661*fi*, 7662*d*.
polishing of, effect on hardness and surface structure, 4071*i*.
in powder metallurgy, 80*c*, 7879*c*.
prospecting for, near Mavinahalli, Mysore, India, 2134*b*.
of Quebec, 525*d*.
reaction with F and use of anodes of, in electrolysis of KF-HF melts, 2107*de*.
with F mixts. with HF, 2107*f*.
with O and steam, 2076*g*.
with S, 8838*b*.
sealing compn. from chlorinated biphenyl and, P 5520*a*.
somatoidal, in gray-Fe casting, 9004*h*.
for spectrographic electrodes, 8276*b*.
spectrum (x-ray) of, 4131*f*.
in stove polishes, 3632*c*.
system: Fe–, 6068*a*.
thermocouple from W and, 6474*a*.
on tungsten carbide surface, 6483*d*.
of Washington, 6547*d*.
water evapn. in tubes of, heat transfer in, 448*i*.
of Western Australia (Donnelly River and Munglinup) and their grinding and flotation, 6125*gh*.

**Graphite compounds**, review on, 2105*h*.

**Graphitic acid & oxide**, biol. decompn. of, 6283*f*.
crystal structure of, 1949*h*.
formation and viscosity of, and prepn. and peptization of its salts, 4539*f*.
formation by O adsorption by graphites, 5572*h*.
formula of, 5007*c*.
gels (anisotropic) of, 922*e*.
ionotropy of, 4539*e*.

**Graphitization**, of carbon, structure and, 4072*e*.
of iron (cast), 7877*h*, 8907*g*.
of iron (white), 6134*f*.
in malleable-Fe process, 6554*e*.
nodular, alloy for forming, 8336*c*.
of steel, aging, flaking and temper brittleness in relation to, 2911*d*.
contg. Mo, 3759*i*.
near welded joints, 6556*b*.
of steel piping, effect of addns. on, 534*fg*.
of steel steam pipes, 2144*d*.

**Graphium ulmi**. See *Ceratostomella ulmi*.

**Grapholitha molesta** and(or) **Oriental fruit moth**, control of, 5527*e*, 7630*h*, 9328*g*.
control of, on apples, 804*c*.
control of, on peaches, 4417*b*, 7630*g*, 9328*i*.
parasitization of, effect of insecticides for plum curculio in, 1144*a*.

**Grapholitha pomonella**. See *Codling moth*.

**Graphs**. See *Curves*.

**Grasses**. (See also *Bamboo; Cereals; Millet; Pasture; Sorghum; Timothy; Turf*.)
arctic and reed, feeding stuffs for cattle from, 7604*f*.
arrow, lung injury of cattle or sheep from, 9278*e*, 9313*e*.
ashes in, 4347*i*.
beach and dune, for erosion control, fertilizers for *Ammophila arenaria*, 1135*e*.
bent and Kentucky blue, effect of soil acidity and P on mixed, 1130*e*.
bent, pH and P of soils under, 339*h*.
Bermuda, 3552*d*.
Bermuda and Johnson, control of, 6352*g*, 9330*c*.
Bermuda and Johnson, control of *Cynodon dactylon* and *Sorghum halepense*, 9338*g*.
Bermuda and *Koeleria phleoides*, 2-methyl-4-chlorophenoxyacetic acid effect on, 1137*e*.
Bermuda, control of, 3967*c*, 5145*a*.
bleaching of, P 3219*d*.
blue, effect on N and org. matter in soils, 9319*e*.
blue, perennial rye and ensiled, as poultry feed, 3946*a*.
brome and Sudan, silage from, 3539*a*.
brome, fertilizer expts. with, 9313*a*.
N and mineral content of, effect of K on, 7087*i*.
sugar detn. in, 6752*i*.
broom and reed, polyhydric alcs. in cellulose prepn. from, 7227*a*.
buffalo, herbicides in production of seed of, 5525*c*.
canary, effect of Cu, phosphate and Zn on *Phalaris tuberosa*, 8591*a*.
canary, P metabolism and P and N uptake by *Phalaris tuberosa*, effect of P supply on, 5090*e*.
chinch-bug control in lawns, 5896*i*.
citronella and lemon, effect of harvesting at different heights on yield and oil content, 8448*i*.
Colonial bent, redtop and silky bent, glucides in *Agrostis tenuis*, *A. alba* and *Apera spica-venti*, 8014*e*.
control of, 9351*e*.
in barley and oats, 6775*i*.
with isopropyl carbanilate, 3961*b*.
control of *Agrostis*, *Avena bulbosa* and couch, in grain, 9351*f*.
control of arrow, Bermuda and coarse, in sugar cane, 805*f*.
control of crab and other, in gladiolus, 5145*f*.
control of fall armyworm and green June beetle in lawns, 1899*a*.
cord, ergot parasite of pharmacology of, 3933*d*.
couch and Kentucky blue, control in greenhouses, 4413*f*.
couch, control of, 1893*ab*, 5145*h*, 9354*d*.
crab and foxtail, control in vegetables, 2359*b*.
crab and perennial rye, effect of 2,4-D on, 8085*i*.
crab, control of *Digitaria*, 5145*i*, 9337*h*.
Dallis, proteins in *Paspalum dilatatum*, 9329*g*.
2,4-D effect on Gramineae, 8598*a*.
dollar-spot control in golf greens, 6775*f*.
effect on K in soil, 1131*i*.
elephant, as soiling crop for milking cows, 9314*a*.
ergot control and production on, 3959*f*.
ergothioneine in *Agropyron*, brome, *Calamagrostis* and *Elymus*, 9379*b*.
esparto, beating of paper pulp from, 6410*e*.
paper-pulp manuf. from, 1183*c*.
reductic acid from hydrolyzates of, 6823*a*.
falsebrome (Japanese) and tall oat, soil under *Brachpodium pinnatum* and *Arrhenatherum elatius*, 9320*d*.
fertilizer expts. with N on *Cynodon dactylon*, *Paspalum dilatatum* and Rhodes, 340*i*.
fertilizer expts. with, on peat soils, 7621*f*.
fertilizer expts. with, with digested sewage sludge, 3131*a*.
fescue, compn. of *Festuca kingii*, 9273*e*.
fluorine in contaminated, 5884*e*.
foxtail and witch, control in vegetables, 1893*g*.
foxtail, symbiotic bacteria on *Alopecurus pratensis*, 6701*a*.
fungus control on, 7178*d*.
glaga or kans, pulp and paper manuf. from *Saccharum spontaneum*, 2768*i*.
globulins of seeds of, 8456*d*.
goose, clarification of protein-contg. solns. by juices of, 6749*a*.
hay from—see *Hay*.
irrigation effect on compn. of *Holcus lanatus*, *Lolium multiflorum* and *Poa annua*, 4408*g*.
Johnson, control of, 343*c*, 9351*d*.
Kentucky blue, effect of photoperiodism and temp. on growth and flowering of, 2287*h*.
fertilizer expts. with, 1516*a*.
stimulation of *Poa pratensis*, 9313*i*.
knot—see *Polygonum*.
Korean lawn and Manila, germination of *Zoysia japonica* and *Z. matrella*, effect of strain differences, seed treatment and plating depth on, 1079*d*.
kudzu grown with Guinea, Pará and Napier-millet hybrid, 3553*a*.
lignin in, structure detn. by hydrogenation, 2427*hi*, 2428*c*.
lignins of, methoxy group in, 2285*a*.
maleic hydrazide Cu or Zn deriv. effect on bent, blue or crab, 6776*b*.
manienie—see "Bermuda" above.
Methoxone effect on, 806*b*.
mixts. with alfalfa, effect of clipping on, 1515*c*.
Napier—see "elephant" above.
nitric acid pulping of, nitrophenols from lignin in, 1974*c*.
oat, sapogenin from *Arrhenatherum bulbosum*, 4729*d*.
oils from—see *Oils*.
palm, fodder value of *Setaria palmifolia*, 7159*b*.
perennial, in increasing productivity of subtropical soils, 8082*c*.
phosphorus (org.) in, 1510*d*.
protein concentrates from, P 3947*a*.
quack—see "couch" above.
range-forage, of Southern Great Plains area, 1501*d*.
reed, paper from *Phragmites communis trinuis*, 398*h*.
paper-pulp manuf. from, in sugar factories, 6409*d*.
rayon manuf. from, 2768*g*.
use of *Phragmites communis*, 9501*h*.
respiration of endosperms of, 1834*i*.
respiratory systems in, 728*g*.
rye, carbohydrates in *Lolium perenne*, 4347*g*, 6284*h*.
compn. and yield of, clipped at grazing heights, 9291*f*.
feed value for cattle of annual, 6331*e*.
fertilizer expts. with, 9321*a*.
germination and seed development of, effect of 2,4-D on, 1517*g*.
N distribution in *Lolium perenne*, 1835*h*.
N fractions in annual, 7595*e*.
phosphate fertilizer utilization by, 1135*a*.
phosphate migration and, 2723*g*.
vitamins in annual, 8574*c*.
selenium in *Agropyron*, rice and *Sitanion hystrix*, 3890*f*.
shave—see *Equisetum*.
soil losses under, 6772*a*.
soil microflora and, 6350*d*.
sour, control of *Trichachne insularis*, in sugar cane, 805*f*.
South Carolina Expt. Sta. reports on, 9328*f*.
Sudan, As toxicity to, 6350*e*.
decompn. in soils, 1891*f*.
effect of K silicate, etc., on, 2722*b*
fertilizer expts. with org. phosphates, etc., 3131*d*.
green manure as P source for, 6774*d*
taste of water-sol constituents of, improvement of, P 6334*g*.
teosinte, tillering in chaleo, control by auxin, 7555*f*.
weed control in lawns and effect of 2,4-D on germination of seed of, 2727*g*.

**Grasshoppers**, control of, 3135*h*, 6353*e*, 7185*dfh*.
control of, in alfalfa, 1521*e*.
control of, in citrus groves, 3136*a*.
control of *Melanoplus occidentalis* and *dentalis*, 3136*b*.
control of *Nomadacris septemfasciata* by aircraft, 3557*d*.
control of *Schistocerca cancellata*, 4805*i*, 4806*e*.
control of *Schistocerca gregaria*, 3558*a*.
copper in eggs and embryos during development of, 3531*c*.
copper in embryos of *Melanoplus differentialis*, complex formation with Na diethyldithiocarbamate, 8562*a*.
eggs of *Melanoplus differentialis*, development of resistance to toxic substances, 8087*d*.
esterases and lipases of, 6677*c*.
lipolytic enzyme systems of, effect of Na taurocholate on, 6676*i*.
respiration by embryonic cells of, effect of diethyldithiocarbamate on, 2331*f*.
respiration by embryonic cells of, effect of urethan on, 774*f*.
toxicity to *Locusta migratoria* of S compds., 4415*a*.
toxicity to red-legged, of Cevadine and veratridine, 2363*c*.
waxlike material isolation from eggs of, 6323*c*.
waxy-covering development on eggs of, 5124*e*.

**Grassland**. See *Hay; Pasture*.

**Grass pea**. See *Lathyrus sativus*.

**Gratonite**, hatchite identity with, 2128*f*.

**Gravel**. (See also *Calculi*.)
of Alaska, 2130*e*.
from emulsion breaking, regeneration of, P 7676*g*.
industry in 1946, 2127*f*.

of Newfoundland (Southern White Bay), 1692c.
in sediments of Black Sea, 5709i.
standards for, 4398f.
of Trinity River Tributary area in Okla. and Tex., 4607i.
of Washington, 6547d.
**Graves' disease.** See "exophthalmic" under *Goiter.*
**Gravitation,** book: and At. Bomb, 947g.
effect on radial diffusion, 74i.
**Gravitole** (*2-(2-allyl-6-methoxyphenoxy)triethylamine*), effect on muscle contraction, 8543d.
**Gravity meters,** in iron-ore prospecting, 8990h.
in ore-deposit tracing, 8989c.
**Graywacke,** of Spain (Tarragona), 6548g.
**Grease.** (See also *Fats; Lubricants.*)
adsorbent for, P 9298h.
analysis of, 4399c, 6842b.
antioxidants for, P 4008c.
antioxidants for, *p*-phenylenediamine alkylated derivs., P 4005f.
detn. in sewage sludge, 7169b.
effect on penetration of leather by water and water vapor, 3639i.
effect on surface area of Ag, 6893i.
electron microscopy of, 32d.
from fermentation, P 4810c.
flow of, 5259e.
on glace kid, effect of curing methods on extractable, 7736f.
of hides and skins, and its removal from pelts and leather, 1203fg.
mech. properties of synthetic, at low temps., 842e.
methylpentadiene-aralkenyl copolymers, P 6458e.
paint resistance to, testing, 4480f.
-proof adhesive, P 3240b.
-proof coatings for foods, etc., P 8576d.
-proofing cardboard, glass, paper, textiles, wood, etc., P 6004a.
recovery of, in sewage, Cl in, 2718e.
removal of—see also *Cleaning compositions; Fats; Soap, Solvents.*
removal of, from Al, 8325g.
from Al, spontaneous decompn. of $C_2HCl_3$ in, 6515f.
from furs, 6424a.
from hides, 7736i.
from hides, effect of electrolytes on naphthenic emulsions for, 6447i.
insecticidal compns. for, P 1146c.
from leather, mildew control by, 7733i.
from metals, 2143c, 7399f.
from metals, app. for, 1304f, 6961i, P 6966i.
from sheepskins, 4042b, 7233c.
ventilation of plants for, 7220c.
silicone, for cooking utensils, 3544e.
structure-mech. properties and thixotropy of, 7779c.
viscosity of, measurement of, P 2766i.
**Greenfish,** food poisoning from raw or cooked, 327g.
**Green gram.** See "mung" under *Beans.*
**Greenhead fly,** control of, DDT in, 9344e.
**Greenhouse leaf tier.** See *Phylctaenia rubigalis.*
**Greenhouse thrips.** See *Heliothrips haemorrhoidalis.*
**Green June beetle.** See *Cotinis nitida.*
**Greenockite,** alpha-conduction pulses in, 8263h.
of Pennines, England, 4188d.
**Green oil,** 1-methylnaphthalene recovery from, P 6404d.
**Green peach aphid.** See *Myzus persicae.*
**Greenstone,** of Alaska (Mt. Andrew), 7384d.
of Ontario (Algoma dist.), 8315h.
of Oregon (Grant Co.), 524h.
**Grewia,** oils of—see *Oils.*
**GR-I.** See *Butyl rubber.*
**Grids.** See *Electrodes.*
**Griffithsia setacea,** sodium mannoglycerate in, 8014g.
**Grignard reaction,** 5004f.
in acyclic hydrocarbon synthesis, 5003c.
with aldehydes and dialkylaminoalkyl halides, P 5043b.
with allylic esters, 1851d, 9051d.
with amino ketones, P 5417d.
app. for, 1226f, P 4287a.
with aromatic aldehydes, 9049h.
with 3-benzylidenephthalide, 6193c.
with carbon black, 2068f.
with carbonyl compds., 1718c.
with cinnamic acid derivs., 7002e.
with cyclic ethers, 3776d, 6155b.
with α,β-diamino ketones, 7025c.
with dichloropropenes, 5734h.
with γ-diethylaminobutyronitrile, 2211a.
with diethyl 1-ethyl-4-oxo-2,6-diphenyl-3,5-piperidinedicarboxylate, 4674d.
with 2,8-dimethyldibenzo[1,5,2,6]dioxadithiocin tetraoxide, 1-naphthol-8-sulfonic acid sultone and 6,12(5*H*,-11*H*)-phenhomazinedione, 7006d.
with esters of 9-carbazolemethanol, 3819b.
with esters (ortho), 5365g.
with 3-ethoxy-2-cyclohexen-1-one, 9045a.
with furfurylidene and thenylidene amines, 3406i.
with β-D-glucose pentaacetate, 1326d.
hydrocarbon prepn. by, 3773g.
with ketone alkylation, 8369i.
with 17-keto steroids, 1428g.
at low temp., 565d.
with lupanine, 1047h.
with *m*-methoxybenzonitrile derivs., 205b.
with methoxybenzophenones, 186e.
with 2-methoxy-1-naphthonitrile, 1040d.
with 2-methyl-3-phenyl-4(3*H*)-quinazolone, 4675i.
with nitriles, 185c, 7439a.
with 7-oxabicyclo[4.1.0]heptane, 7431i.
with 4-piperidones, 1410f.
with polyhalo paraffins, 2925f.
with Schiff bases, 1340g.
with semicarbazones, 3801g.
in silicon org. compd. manuf., P 1795a, P 8208d.
steric hindrance in, 188a, 5004d.
with tetra-Et ethylenetetracarboxylate, 4227i.
**Grignard reagents.** (See also *Magnesium compounds.*)
from 3-bromotetrahydrofurans, 3818d.
as catalysts in polymerization of $C_2H_4$, P 9537c.
from chlorinated petroleum wax, P 4008g.
in coupling of *p*-(1-bromopropyl)anisole, 3812f.
effect of solvent impurities on induction periods and rate of formation of, 3780d.
groups active to, app. for detn. of, 1226h.
prepn. of, effect of purity of Mg on, 1717f.
stability of, 5740b.
thiazole, prepn. (attempted), 2615f.
**Grimm's law.** See *Laws.*
**Grindelia squarrosa,** selenium in, 3890f.
**Grinding.** (See also *Comminution; Crushing; Pulverization.*)
of beryllium, pneumonitis from, 7606i.
book: der Metalle, 3768b.
calcg. efficiency of, 4193b.
of cement—see *Cement, hydraulic or structural.*
of clays in drilling-mud prepn., P 2409f.
of copper ores for flotation, 7387g
of copper pyrites and Fe pyrite in ball mills, 4987d.
effect on bentonite and muscovite, 3957f.
of ferrosilicon, gas evolution during, 2913h.
of glass sand, 7653b.
with intensifiers, 1166g.
liquefaction of salt hydrates by, 7767c.
materials for, of India, 525c.
of metal pins, P 5357i.
of minerals in wet drum mills, 4193a.
nutritive value of flour and bread in relation to, 6325d.
oil compns. for, P 3600cd.
of ores—see *Ores, treatment of.*
of refractory materials, acceleration of wet, 5562b.
review on, 1227g.
of rice, effect on nutritive value, 7595b.
with straw oil-bright stock blends, P 3006c.
**Grinding apparatus.** (See also *Abrasives; Crushing apparatus; Mills; Pulverizing apparatus.*)
ball hammer, for avocados, 9285h.
balls for, manuf. of cast Fe, P 3342d.
for cacao nibs, P 4398d.
for ores—see *Ores, treatment of.*
for paper pulp—see *Paper pulp.*
for use in vacuum, 4056b.
**Grippe.** See *Influenza.*
**Grisein,** P 4434c.
**Griseofulvin,** activity of, 3066d.
identity with curling factor from *Penicillium jancsewskii,* 7543i.
identity with curling factor of *Penicillium jancsewskii,* and its biol. action, 9164c.
**Grits** (*grain*), corn, improving yield of, P 2710f.
corn, mixt. for fortifying, P 8071e.
by dry-milling process, P 6332c.
recovery in corn-starch manuf., 5218h.
soybean, effect of cooking on, 1495b.
**GR-M.** See *Neoprene.*
**GR-N.** See *Nitrile rubbers.*
**Grog,** blocks for glass furnaces, 8113e.
as catalyst in dehydrochlorination of $(CH_2Cl)_2$, P 7951b.
and its compns. with Si carbide, for recuperators, 5915i.
firing of, in rotary kiln, 5560h.
firing of, in shaft kilns, briquets for, 8113d.
nozzles of, in open-hearth furnaces, 5916a.
shrinkage of mixes of, 8630c.
**Groggins, Philip H.,** biography, 7275e.
**Gros reaction,** urea effect on, serum proteins and, 3480h.
**Grossularia.** See *Gooseberries; Grossularite.*
**Grossularite,** of China (Kumush, Sinkiang), 3323h.
garnet from W. Australia, 6115b.
**Groundnut cake,** as manganese source in poultry feeding stuffs, 6331c.
proteins in, 5876e.
**Groundnut oil.** See *Peanut oil.*
**Groundnuts.** (See also *Peanuts.*)
nicotinic acid and vitamins $B_1$ and $B_2$ in Africa, 8070c.
vitamin $B_1$ in Punjab, and effect of cooking thereon, 8565f.
**Groups.** See *Functional groups; Radicals;* and such specific groups as *Methoxy group and Methyl group.*
**Group-specific substances.** See *Blood;* etc.
**Group theory,** and its application to vibrational problems in theoretical chemistry, 3672e.
**Groutite,** crystal structure of, 6484b.
**Growth.** (See also *Body weight; Cancer; Carcinoma; Development; Differentiation; Dwarfism; Neoplasms; Nutrition, animal; Nutrition, plant.*)
adrenaline effect on, of mammals, 8467f.
adrenal size and, 9182g.
amino acid content of diet and, 8143e.
amino acid effect on, 7558f.
amino acid effect on, during low-casein diet, 3075d.
amino acid efficiency in, with or without casein, 1468f.
amino acids essential for, effect on body wt., 6295i.
amino acids in skin during, 3514e.
ammonium N utilization during, 6712i.
antipernicious anemia prepns. and, 3895i.
of bacteria—see *Bacteria.*
of beef cattle, 4353b.
book: Chemistry and Physiology of, 3867i.
butter effect on, 8474b.
calcium and vegetable proteins in, 7556d.
caloric intake during, of rat, 1467f.
caloric restriction and protein metabolism in, 1468i.
carotenoid pigments and, in chicks, 4353g.
of cells—see *Cells, animal; Cells, plant.*
choline and glycine betaine in, 1470b.
choline requirements for, effect of vitamin $B_{12}$ on, 6708i.
citrate and lactate in bones during, 5841a.
colchicine effect on, 296f.
corn effect on, in nicotinic acid-low rations and effect of tryptophan thereon, 2680c.
corn steep-liquor effect on, of rats, 1091d.
crystal—see *Crystals.*
deuterium oxide effect on, 3481b.
diet and, 3078b.
dietary K and Mg in relation to, 294b.
on diet contg. heated proteins, 5458g.
differential, 4710g.
diketopiperazines of cystathionine, homolanthionine and methionine in relation to, 8477f.
distillery feedstuffs and, of chickens, 285g.
effect of butter and soybean oils on, of dairy calves, 8473c.
effect of colchicine alone or with hormones on, of tadpoles, 5112e.
effect of diethylcholine and ethionine on rat, 1470g.
effect of protein concentrates and vitamin A on, of lambs, 291b.
effect of sulfonamides and thiouracil on, 5870c.
environment effect on, in chickens, 5459d.
from estradiol and prolactin, nucleic acids and phosphatases in tissue during, 2686a.
ethionine effect on, and its alleviation by

S-contg. amino acids and choline, 8477*d*.
fat content of diet and, 7559*i*.
fat effect on, Ca and P metabolism during, 7558*c*.
feeding expts. on, of pigs, 9193*a*.
folic acid effect on, during balanced or protein-poor rations, 4352*d*.
food supplements and, 5096*i*.
β-glucuronidase as index of, in uterus and other organs, 9207*c*.
goitrogenic drugs and, in newborn, 8051*c*.
hexahomoserine effect on, of swine, 2293*f*.
hormones—see *Growth substances; Hormones; Pituitary extracts;* "hormones of anterior lobe of" under *Pituitary gland;* and "hormones of" under *Thymus gland*.)
3-indoleacetic acid effect on rat, 7556*g*.
-inhibiting substances—see *Growth substances*.
inhibition of, S metabolism and, after 1,2,5,6 - dibenzanthracene treatment of rats, 320*d*.
inhibition of, toxicity and protein metabolism in rats treated with 1,2,5,6-dibenzanthracene in relation to, 306*b*.
lanthionine availability for, of rats, 2295*c*.
lipotropism and, 2681*g*.
liver action on, in hyperthyroidism, 4308*i*.
methyltestosterone effect on, of chickens, 1097*e*.
methylthiouracil effect on, 8531*i*.
of microbiganisms—see *Microörganisms*.
milk-diet effect on, of rabbit, 1090*f*.
mol. morphology and, 4710*f*.
in morphine poisoning, 5867*e*.
nicotinamide effect on, effect of methionine on, 6296*e*.
nutritional requirements for adult, 7562*e*.
$\Delta^{13}$-octadecenoic acid effect on, 8023*h*.
phosphorus content of blood and, in range beef cattle, 6711*e*.
plant—see *Plants*.
-promoting substances—see *Growth substances*.
protein requirement for, 8024*d*.
sex-hormone effect on, 3507*h*.
sodium chloride-deprivation effect on, 4355*g*.
sodium chloride effect on, in chicks, 286*e*.
soybean meal (untoasted) effect on, of chicks, 287*c*.
stages of, and their physiology, 6704*g*.
sulfaquinoxaline effect on, of chicks, 287*c*.
of *Tetrahymena gelrii*, 7593*d*.
thiouracil effect on, of pigs, 8466*h*.
thiouracil effect on, of turkeys, 8466*b*.
thyroprotein effect on, of chickens, 285*i*, 287*a*.
tissue—see *Tissue, animal; Tissue, plant*.
tri- and tetrazolium salts as reduction indicators in, of marine animals, 7593*b*.
trypsin-inhibitor effect on, 288*g*, 2680*i*.
tryptophan availability for, of chicks, 2292*i*.
vitamin A effect on, of heifers, 2293*h*.
vitamin B complex in, 1468*e*.
in vitamin $B_1$ deficiency, effect of exercise and fat content of diet on, 9184*a*.
vitamin $B_2$ in, 1096*e*.
vitamin $B_{12}$ compared with antianemia liver ext. in, 6291*f*.
vitamin $B_{12}$ effect on, of chick, 3074*h*.
during corn-soybean diets, 8027*d*.
of rats receiving thyroid, 4739*c*.
vitamin D requirements for, of ducks, 285*e*.
vitamin E-deficiency in, of cattle, 8472*d*.
vitamins and, 8028*b*.
vitamin T complex in treating disturbances of, 8025*i*.
wood-sugar molasses effect on, of chickens, 320*e*.
xanthopterin effect on, 1470*h*.
of yeast—see *Yeasts*.
yeast as protein source for, 3897*c*.

**Growth substances.** (See also *Auxins; Bios; Biotin; Carcinogenic substances; Estrogenic hormones; Flavins; Flowers; Hormones; 3-Indoleacetic acid; 3-Indolebutyric acid; Inositol; Metabolism, animal; Metabolism, plant; Naphthaleneacetamide; Naphthaleneacetic acid; Pituitary extracts; Plants; Rhizocalin; Roots; Vitamins;* "hormones of anterior lobe of" under *Pituitary gland;* etc.) P 3152*g*.
from acid-fast bacteria for *Mycobacterium johnei*, 6273*f*.
adenine as, for peas, 9178*c*.
in agriculture, 343*d*.
in agriculture and physiology, 4748*f*.
β-alanine as, 8004*c*.
α-amino acids as inhibiting, 1322*h*.
*p*-aminobenzoic acid as, for pathogenic microörganisms, 5075*g*.
for *Vorticella nebulifera*, 5874*g*.
for yeast, 3488*i*.
animal-protein factor, assay of, 7098*d*.
animal-protein factor, multiple nature of, 9181*a*.
antagonism of, 6289*a*.
antianemic liver exts., liver substance and vitamin $B_{12}$ as, for hyperthyroid animals, 5833*h*.
for apple-crop regulation, 7181*f*.
arsonic acid derivs. as, for chickens, 5460*c*.
*N*-arylphthalamic acid compds. as, 5524*h*.
for *Bacteroides*, 9154*i*.
4 - benzamidotetrahydro - 3 - oxo - 2-thiophenecarboxylic acid as intermediate for, P 7049*d*.
benzothiazolyl ethers as, for plants, P 5154*d*.
in bran exts. (enzyme-free moldy), 1146*i*.
in carbohydrate metabolism in pea, inhibitory, 2290*d*.
in cell elongation, 1871*d*.
chem. structure in relation to action of, 2676*d*.
CH factor as, 733*i*.
for chicks, 284*h*.
distribution of an unidentified, 284*f*.
protein supplements and, 285*a*.
(chlorophenoxy) fatty acids as, P 2234*a*.
(4-chloro-*o*-toloxy)acetic acids as, in apple-preharvest-drop control, 8086*a*.
*cis*-cinnamic acid type, ultraviolet spectra and stereochem. structure of, 7093*e*.
coenzyme A as, for *Acetobacter suboxydans*, 6699*e*.
in cottonseed meal, 9179*i*.
coumarin glycosides and hydrated parasorbic acid as, 5893*b*.
9 - (1 - cyclohexen - 1 - yl) - 3 - methyl-2,4,6 - nonatrien - 8 - ynoic acid as, 8361*f*.
in 2,4-D activation, 805*i*.
DDT and other synthetic compds. as, for kalanchoes, 1898*a*.
DDT as, for plants, 1520*h*.
deficiency of, in all-vegetable protein chick starter rations, 286*d*.
desoxyribonucleoside as, for *Lactobacillus lactis*, 6276*e*.
detn. of activity of, 1081*a*, 8447*g*.
2,4 - dichlorophenoxyacetohydrazide derivs. as, 7554*f*.
β - (2,4 - dichlorophenoxy)propionic acid as, for plants, P 1054*b*.
effect on alkaloid formation in *Datura stramonium*, 8597*f*.
on *Calimyrna* fig, 5893*c*.
on cells of sunflower crown gall, 8597*g*.
on cork spot and hard end of pears, 9348*a*.
on crop plants, 1838*k*.
on fungi, 6704*h*.
on incompatibilities in *Lilium*, 1838*f*.
on ion absorption by roots, 804*g*.
on lipoid monolayers, 7554*d*.
on plant cells, 9351*i*.
on plants, 3889*a*.
on plants grown for production of alc., 1839*d*.
on rabbit on milk diet, 1000*g*.
on size of grapefruit and oranges, 8597*i*.
on snap-bean yield, 5144*h*.
on tomatoes 1518*a*, 2725*i*, 9337*f*.
on transplanted plants, 804*i*.
in emulsifiable oils, P 2733*b*.
evaluation of plant, 1833*i*.
extn. from plant tissue, 3491*e*.
factor II, for *Tetrahymena*, 9156*e*.
in fig maturation, 2726*f*.
fig parthenocarpy from, 2287*i*.
in fish products, 5462*a*.
floor litter as source of, for chicken, 285*d*.
folic acid as, for bacteria, 8441*d*.
in *Fraxinus* buds, inhibitory, 8460*b*.
in fruit setting, 1139*c*.
gall formation in sugar cane in response to, 7090*h*.
hematins as, 5444*d*.
heterotropic-alga requirements for, 1835*c*.
hexachlorocyclohexane as, for *Lupinus albus*, 7626*b*.
hexaethyl tetraphosphate as, on roses, 1523*g*.
histamine and other imidazole compds. as, for bacteria, 8436*g*.
homopantothenic acids and related compds. as, 4226*g*.
in humus for germination of spores of *Tilletia tritici*, 8085*c*.
indoleacetic acid and 1-naphthaleneacetamide as, synergists for, P 5151*e*.
indolebutyric acid as, for carnation cuttings, 9338*e*.
inhibiting, 2679*b*.
*meso*-inositol as, for *Neurospora crassa*, 1457*h*.
for *Lactobacillus bulgaricus* and *L. helveticus*, 4334*b*.
for *Lactobacillus casei*—see *Lactobacillus casei*.
for *Lactobacillus leichmannii* and *Leuconostoc citrovorum*, sepn. by electrolysis, 5084*f*.
in *Laminaria agardhii*, 9167*a*.
in leaf saps, inhibitory, 8459*d*.
lemon preservation by, 1516*h*.
in lettuce bolting and seed production, 1893*d*.
for *Leuconostoc citrovorum*, 1828*i*, 9148*h*.
in Lima beans, inhibitory, 8477*h*, 9195*e*.
in liver exts., assay of, 3499*e*.
in liver exts., for bacteria, 5082*g*.
maleic hydrazide Cu or Zn deriv. as, for plants, 6776*a*.
in manure (cow), vitamin $B_{12}$ in relation to, 2298*b*.
manure (liquid) and urine as, 3131*i*.
manures as, 3131*f*.
methionine derivs. and homologs as inhibiting, 3499*h*.
2 - methyl - 4 - amino - 5 - aminomethyl pyrimidine as, for *Mycobacterium*, 269*c*, 716*a*, 4331*e*.
7 - methylbenz[*a*]anthracene derivs. as inhibiting, for tumors, 621*f*.
microörganism requirements for, detn. of, 4329*d*.
for microörganisms, 1460*i*, 9157*c*.
in milk, for hamsters, 3901*e*.
in milk from animals fed silage and non silage rations, 3893*h*.
mixts. with fungicides and insecticides, effect on tomatoes, 9337*e*.
monoarylhydroxyacetic compds. as, for plants, P 3967*i*.
for *Mycobacterium paratuberculosis*, 1457*a*.
1 - naphthaleneacetic acid as, in rasp berry-rest prolongation, 9351*c*.
nicotinic acid as, for orchid embryo, 6285*d*.
nicotinium compds as, 9123*d*.
nucleosides as, for bacteria, 716*f*.
oat-coleoptile sensitivity to, hereditary variations in, 3493*h*.
orange small size and, 1135*e*.
in *Orobanche aegyptiaca* control, 3134*h*.
in pancreas, for *Trichomonas vaginalis*, 9158*a*.
pantothenic acid analogs as inhibiting, 2680*i*.
pantothenic acids as, 4223*i*.
pantothenol as, 3071*f*.
in peach-cutting treatment and peach thinning, 9330*a*.
penicillin (destroyed com.) as, for *Staphylococcus aureus*, 9161*h*.
phosphorus as, for animals, humans and plants, 9273*f*.
physiol. activity and structure of, 6707*h*.
plant, 1083*g*, 2286*d*, 3493*h*, 3554*f*, 4710*h*, 5144*g*, 8451*h*, 9178*c*.
activated C in contratoxification of, 2355*h*.
effect on soil microörganisms, 1514*c*.
properties of, 8452*d*.
in plants (host) for germination of *Striga hermonthica*, 6285*e*.
in pollen, 7553*d*.
in *Polygonum*, for yeast, 7085*b*.
in potatoes, 3493*e*.
for potato-germination speeding, P 3491.
potato rest-period in relation to inhibitory, 8460*a*.
in potato-sprouting control, 1499*i*, 1500*a*, 7181*e*, 8597*d*.
for poults, 1088*e*.
production by Jerusalem artichokes, tryptophan and, 7094*b*.
pteridine derivs. as, P 7518*f*.
putrescine as, for *Hemophilus parainfluenzae*, 4332*a*.
pyridoxine derivs. as, P 725*d*, P 7648*e*.
pyridoxylamino acid and related substances as, 723*a*.
reviews on, 5452*c*, 6704*d*, 8460*a*.
from *Rhisopus nigricans*, P 8448*f*.
in root elongation in germinating barley, 8015*f*.
in scald reduction on fruits, P 330*h*.

seed hormonization by, properties of water and, 1837*b*.
in seeds, inhibitory, 3492*i*.
in seeds, in relation to endosperm development and fruit drop in apples, 1081*b*.
from sheep cardiac muscles inhibitory, 1849*d*.
from staphylococcus inducing satellitism in corynebacterium, 6278*i*.
sulfonic acid analogs of oxybiotin and homooxybiotin as, 5023*d*.
for *Tetrahymena geleii*, 6274*e*.
3-thienylalanine inhibiting effect on, 6613*h*.
thymidine as, for lactic acid bacteria, 4334*d*.
thymidine as vitamin $B_{12}$ substitute for, for *Lactobacillus*, 270*c*.
thymine desoxyribose as, for lactic acid bacteria, 270*b*.
in tobacco-suckering elimination, 5145*c*, 9329*h*.
tomato treatment with, 9329*b*.
unidentified, 4710*f*.
vaccenic acid as, 1468*h*.
vitamins as, for lactobacilli and their interrelationships, 7542*e*.
in weed control, 8598*a*, 9313*f*, 9351*h*, 9354*c*.
wheat-middling inhibitory, 3479*d*.

**GR-P**. See *Thiokol*.

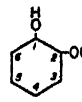
**GR-S rubber** (*Buna S*). (See also *Rubber, substitute and synthetic*.)
adhesion to brass, 5985*e*.
in adhesive-plaster compns., 6369*e*.
adhesives for, from Neoprene-AC and phenolic resins, 7743*i*.
adhesives from, P 3229*c*, P 3240*f*.
aging, compdg., mech. properties and swelling of, 2802*b*.
aging of, creep and stress relaxation and relation to cross linking and oxidation in, 2013*e*.
aging of, in air, effect of temp. on, 9517*i*.
aging or oxidative degeneration of solns. of, 5620*i*.
allyl esters in improving millability and plasticity of, P 9519*g*.
analyzer for butadiene recycle impurity in manuf. of, 1616*c*.
branching degree, size and shape of mols. of $S_1$ and $S_2$, 7253*g*.
carbon black-contg. latex manuf., P 8732*a*
carbon black pH and structure in compounding, 802*e*.
carbon black mixing with latex, 894*d*.
carbon black reinforcement and swelling of, 2014*a*.
carbon black reinforcing properties in, 8723*a*.
chlorination of, P 6457*h*
coagulation of latex and manuf. of dry films of, 891*f*.
coagulation of ZnO-loaded latexes with $MgSO_4$, P 7744*h*.
concn. of latex of Type III, with NaCl, 2007*i*.
continuous polymerization in making, 1209*f*, 5986*h*.
control of mol. wt., polymer-chain proportions and viscosity of, 8729*a*.
copper, Fe and Mn in, 2709*d*.
creep, recovery and permanent set of, 8724*c*.
cross-linking of, 5227*cd*.
decompn. by heat, and products therefrom, 2015*a*.
deterioration prevention or retardation in, by trialkylphenols and tin salts, P 8195*b*.
deterioration prevention or retardation in, with triphenyl arsenite, P 4891*c*.
*o,o'* - dibenzamidodiphenyl disulfide in improving processing qualities of, 7252*f*.
dielec. study of, and relations among heat resistance, mol. structure, mech. properties and oil resistance, 5221*h*.
drying of, porous-sheet process of, 2801*i*.
effect on crystn. of rubber at low temps., 6853*g*.
effect on Zn reaction with $CuCl_2$ in nonaq. solvents, 6886*b*.
elasticity of S and $S_8$, fillers and, 4045*c*.
elastic properties and force of retraction of disazodicarboxylate-vulcanized, and their measurement and relation to degree of cross-linking, and detn. of swelling ratios, 8731*d*.
elastic S-3, 7253*e*.
elec. charges produced during mastication on roll mill, 7255*g*.
elec. insulators from, on cables, attack by soil microorganisms, 9517*f*.
electrophoretic mobility of rosin soap-stabilized latex of Type III, 2013*g*.
expanded, elec. and mech. properties of, 429*d*.
friction coeffs. on ice of, and its blends with Neoprene GN or rubber, 2012*f*.
Gough-Joule coeffs. at const. stress and strain and modulus of, 6858*e*.
hard (*ebonite*), 1,3-bis(biphenylyl)triazene-blown gas-expanded sponge and stiff board, P 897*f*.
elec. properties of, 5986*c*.
reclaimed rubber-contg. elec., 7256*g*.
heat capacity and thermal cond. of lattices of, 3644*h*.
heat deterioration of, effect of chemicals on, 8188*f*.
heat embrittlement of, measurement of, and effect of aging and overcure on, 3647*b*.
improving abrasion resistance and tensile strength of, without reinforcing C black, P 3228*i*.
improving processing and stress-strain properties of, 3644*e*.
iodine no. of, and its detn., 5985*h*.
in leather (black sole) substitute manuf., reducing amt. of, 6853*e*.
lignin in stabilization of, 3644*a*.
lignin (oxidized alkali) as reinforcing agent in, 1599*b*.
low-temp. polymerization in making, 1210*d*, 8724*h*.
with anti-freeze agents, 8728*c*.
at Baton Rouge plant, 9515*a*.
in continuous unit with reduction-oxidation systems, 8723*e*.
history and reduction-oxidation formulas for, 9515*b*.
with Fe pyrophosphate activators, alkyl aromatic sulfonates as emulsifiers in, 8725*c*.
with Fe pyrophosphate-alternative activators, 8727*e*.
with $FeSO_4$ as polymerization activator and dodecyl mercaptan as modifier, P 6458*a*.
refrigeration requirements in, 9515*c*.
from low-temp. polymerizations, 2460*c*.
improving scorching and processing characteristics by furnace blacks, 3644*c*.
peptization and mastication of, 8723*i*
phys. and processing characteristics of C black-reinforced, 2461*a*, 8724*c*.
manuf. in Canada, 1207*c*.
manuf. in jacketed steel tubular reactor, P 4507*b*.
microgel in, and its relation to sol and gel structures in, 4506*d*.
milling or working agents for, by butadiene-styrene copolymer heating with *p*-nitrosodimethylaniline, P 4046*c*.
mixing or compounding of standard and X-435, power consumption in, 5984*h*.
mixing or compounding with PbO accelerator and softening agents for transparent vulcanizates, 5985*c*.
mixts. with phenolic resins, resinography of, 6459*h*.
mol. wt.-viscosity relations for, 3646*g*.
monomer recovery in manuf. of, and definition of GR-S latex, 5986*h*.
oil resistance and polarity of, 1594*e*.
oxygen absorption by, effect of antioxidants and of coagulants on rate of, 2460*c*.
peat as filler in, and ammoniated peat in sponge rubber prepn., 2801*f*.
Philprene A, prepd. at 41°F., 1209*b*.
phys. properties of fractions of, and their vulcanizates, 8724*b*.
pigment (reinforcing) behavior in, 1593*e*.
pigments in, adsorption and reinforcing action of, 8188*h*.
plasticity and softness of, effects of plasticizers on, 2010*i*.
plasticity and soly. of, effect of oxidation on, and resinification in sunlight, 2801*i*.
plasticization of, 9513*b*.
plasticizers or softeners for, Cl unsatd. compds., P 8732*f*.
diagrams showing performance of, 3648*e*.
furfural phenylhydrazones as, 2014*f*.
sulfurized tall oil or rosin-drying fatty acid mixts., P 8732*h*.
by polymerization at 50° with salts of esters of *l*-pimaric acid-maleic anhydride addn. product as emulsifying agents, P 4504*b*, 7252*h*.
by polymerization in S-3 system with diisopropylxanthogen disulfide modifier, 8189*a*.
polymerization modifier effects on manuf. and properties of S, $S_1$, $S_2$ and $S_8$, 7253*d*.
polymerization modifiers in making, 2-thiazolethiol derivs. as, 633*f*.
polymerization promoter in making, ethylene glycol monophenyl ether as, P 6457*h*.
polymerization temp. effects on, in tire-tread recipes, 8726*a*.
by polymerization with emulsifying soap in presence of salts of *l*-pimaric acid-maleic anhydride addn. products, P 4508*d*.
prepn. of S-3, with diisopropylxanthic disulfide and thiol regulators in lab. and pilot plant, 6454*i*, 6455*c*.
processing and tire-service characteristics of low-temp. and standard, 8726*dg*.
processing behavior of, immiscible polymeric plasticizers in improving, 8190*h*.
processing shrinkage and scorching of, effects of reinforcing furnace blacks on, 4887*a*.
pyrolysis of, and mass spectrometry and mol. wt. detn. of fractions, 7742*e*.
pyrolysis to butadiene, 2010*b*.
rayon cord treatment with, effect on cord-rubber adhesion and flex life of tires, 2012*g*.
reclaimed, effect on accelerated aging of rubber and GR-S, 3647*f*.
reclaiming, P 8734*b*.
reclaiming, in Banbury mixer with N compds. and cationic surface-active agents, P 8196*g*.
reclaiming mixts. of rubber and, with resin oil-abietic acid mixts., P 6458*g*.
relaxation and stress-strain curve of, 2459*f*.
resin acid soaps as emulsifying agents in prepg., 8724*h*.
review on, 7252*f*.
rubber *vs.*, 3646*h*.
sound velocity and attenuation in, and dynamic viscoelastic consts. of, 6855*h*.
stopping agents in prepn. of, 8727*i*.
tackifiers for, 2808*i*, P 3229*d*, P 8194*h*, P 8195*g*.
tackiness of, improvement of, P 3229*f*.
tear initiation, propagation and testing in, 7256*d*.
tensile properties of, from −20 to 120°, 9513*g*.
tensile strengths of films of Type III, 2009*b*.
tensile strength of, measurement of, 2011*i*.
testing and controlling uniformity of, 429*e*.
testing discoloring, pigmenting and staining properties of, 1209*h*.
thickening latexes of, cellulose derivs. and other polymers in, 6411*b*.
tire tread from, compounding with fine furnace black and processing of, 5984*e*.
trichlorothiolacetates as polymerization modifiers and vulcanization accelerators in, P 4046*c*.
Ultipara, tensile properties from −20 to 120°, 9513*g*.
ultrasonic-wave propagation velocity and attenuation and elastic consts. of, 6856*c*.
uniting, to isobutene rubbers, tie-gum compns. for, P 5224*a*.
viscosity of concd. solns. in $C_6H_6$ and energy of activation of flow of, 1210*a*.
vulcanization accelerators for, alkyl derivs. of tetraalkylthiuram sulfides and salts of dialkyldithiocarbamates as ultra-, 5987*a*.
vulcanization activators for stearic acid-contg., dodecylamine as, P 8194*f*.
vulcanization of, adiabatic reaction kinetics of, 8731*h*.
effect of water on rate of, 2014*d*.
variation of modulus of two-dimensional extension from, 8192*h*.
vulcanizing cylinders of, at high pressures, 4888*f*.
water (low-)-absorption nonstaining X-392 and X-393, 2017*b*.
zinc oxide (active) effects in, and Zn salts as vulcanization activators, 2462*b*.
zinc salt of aromatic mercaptans in improving milling and processing characteristics of, P 5224*b*.

**Guaethol**. See *Phenol, o-ethoxy-*.

**Guaiac**. See *Guaiacum*.

**Guaiac alcohol**. See *Guaiol*.

**Guaiacol** (*o-methoxyphenol*),



as antioxidant for Et linoleate, 5271*f*.
as antioxidant in transformer oil, 3855*b*.
butyrate, 9375*e*.
chelation of, in naphthalene, 1243*c*.
derivs., manuf. from lignin, P 9447*b*.
effect on polarography of metals, 5316*a*.
esters with phosphoric acids, 6178*e*.
formation from Ca lignosulfonate by oxidation, 6823*h*.
formation from lignin by hydrogenation, 8675*b*.
hydracrylate, 3393*d*.
identification of, 7447*d*, 7448*d*
in lignins (plant and fecal), 2285*b*.
phenylacetate, P 5802*h*.
spectrum of, 2512*h*, 5665*i*.
vanillate, 7455*h*.
from vanillin, 7005*f*.
**Guaiacol, 4-allyl-**. See *Eugenol*.
——, **5-allyl-**. See *Chavibetol*.
——, **4 - amino - 6 - diethylaminomethyl-**, P 1062*e*.
——, **6 - [*p,p'* - bis(dimethylamino)benzhydryl]-**, for lubricant improvement, P 9432*g*.
——, **4-bromo-**, acetate, 2177*i*.
——, **4-butyl-**, 2185*f*.
——, **4-(2,4-dinitrostyryl)-†**, 9055*e*.
——, **4-hendecyl-**, 2185*h*.
——, **4,4' - (*p* - hydroxybenzylidene)di-**, and triacetate, 5772*d*.
——, **4-methyl-**. See *Creosol*.
——, **4,4'-methylenedi-**, P 6664*g*.
——, **4-nitro-**, formation from $AgNO_3$ oxidation of Ca lignosulfonate 6823*h*.
——, **4(and 5)-nitro-**, isocyanates, 169*a*.
——, **5-nitro-**, pharmacology of, 8553*i*.
——, **4 - nitro - 5 - (2 - nitrovinyl)-**, acetate, 3406*b*.
——, **5 - nitro - 4 - (2 - nitrovinyl)-**, acetate, 3406*b*.
——, **4 - (2 - nitrovinyl)-**, fungistatic activity of, 9334*e*.
——, **4-propenyl-**. See *Isoeugenol*.
——, **5-propenyl-**. See *Isochavibetol*.
——, **4-propyl-**, 3,5-dinitrobenzoate, from lignin, 8675*b*.
and esters, 5589*i*.
from hydrogenated lignin, 2427*i*.
in lignin, 8675*e*.
——, **4,4'-sulfonyldi-**, tanning prepns. from, P 4883*c*.
——, **4,4' - (2,2,2 - trichloroethylidene)di-**, 2359*h*.
**Guaiacolsulfonic acid**, potassium salt, P 6660*a*.
potassium salt, detn. of, 3747*a*.
potassium salt, folic acid prepn. contg., 355*i*.
**Guaiac resin**. See *Guaiacum*.
**Guaiacum** (*the resin*), saponin detn. in prepn. from, 5905*a*.
wrapping material for lard impregnated with, 3531*g*.
**Guaiazulene**, *S-*, partition between mineral acids and org. solvents, 5768*f*.
spectrum of, 4139*b*.
**Guaiol** (*guaiac alcohol*), from *Callitris glauca* wood oil, 7238*e*.
**Guanábana**, oils of—see *Oils*.
**Guanajuatite**, 4979*c*.
**Guanamine**. See *s-Triazine, 2,4-diamino-*.
**Guanase**, xanthine formation from guanine by, 1816*i*.
**Guanides**, arylazoaryl, P 7710*h*.
manuf. of, P 4292*f*.
**Guanidine**,

$$H_2N.C(:NH).NH_2$$
1 2 3

*p*-acylaminophenylsulfonyl derivs., P 1060*g*.
(arylsulfonyl) derivs., rearrangement of, 600*i*.
in blood and cerebrospinal fluid in epilepsy, 9238*b*.
**carbonate**, anion-exchange resin from acrylonitrile, polyamine and, P 7162*h*.
**carbonate**, as catalyst in hydrolysis of polyvinyl esters, P 5418*c*.
**metal ammine salts from**, P 1928*h*.
**prepn. of**, 1278*h*.
**compds.**, P 5796*d*, P 7506*i*.
**with ethylidenedi - 2 - naphthalenesulfonic acid**, P 5047*c*.
**with methemoglobin**, 1074*d*.
*compds.*, reaction with propiolaldehyde acetals, P 1813*f*.
recovery from dispersions, P 1436*e*.
condensation products of, or its derivs. with HCHO for improving nylon dye affinity, P 2442*i*.
condensation products with HCHO and polyamides or polyamide-forming salts, P 9525*b*.
with HCHO, emulsions from, P 6000*e*.
with HCHO for pretreatment of artificial fibers for dyeing, P 4440*h*.
with phthalic acid diesters, 6170*e*.
with α,β-unsatd. acids and aldehydes, 5995*i*.
derivs., P 4292*g*, P 4298*a*, P 5046*e*, 7485*d*, P 7507*a*.
condensation products with HCHO, textile-assistant salts from, P 7726*f*.
in diabetes treatment, 6314*i*.
I in development in chromatographic identification of, 5336*e*.
for ore treatment, P 5726*g*.
reaction with cyanamide derivs., 9035*i*.
reaction with diamines, P 6670*d*.
reaction with oleoyl chloride, 5368*h*.
reaction with pseudoureas, P 1059*f*.
washfastness of dyeings improved by, P 5604*f*
waterproofing agents from, P 7714*g*.
and derivs., P 3843*i*.
diaryl derivs, resinous reaction products with benzothiazolyl disulfide as rubber vulcanization accelerators and activators, P 8194*e*.
effect on cathepsins of kidney, 9101*d*.
effect on glycolysis in muscle exts., 7581*f*.
formation from 1-amino-3-nitroguanidine, 6981*a*.
formation from reaction of aminopyrimidines with aq. HCl, 8395*g*
hydrochloride, as antioxidant in alkyl benzenesulfonates, P 6845*d*.
hydroxyalkyl derivs., condensation products with aldehydes, for dye fastness improvement, P 3206*c*.
manuf. of, P 868*e*, P 3132*i*.
nitrate, P 5416*b*.
flameless gas producing charges from hypophosphites and, P 5190*d*.
labeled with $C^{14}$, 5007*b*.
mixt. with biguanide nitrate, reaction product with *N*-(hydroxymethyl)-stearamide, P 7728*d*.
mixt with biguanide nitrate, reaction with *N*-(hydroxymethyl)oleamide, P 7728*c*.
purification by fusion with $NH_4NO_3$, P 2227*b*.
reaction with *N* - (hydroxymethyl) stearamide, softening agent by, P 5218*b*, P 5978*e*.
phosphates, P 5796*e*.
poly-, review on, 5996*e*.
reaction with α-carbethoxy-γ-butyrolactones, 6172*i*.
reaction with mixts. of aldehydes and $NH_3$ or amines, 1782*f*.
as rubber vulcanization accelerator, 3648*a*.
rubber vulcanization accelerators of, and its derivs., effect of high mixing temps. on, 1210*f*.
silicomolybdate, decompn. of, 6803*e*.
stearate, soap flakes improved by, P 4033*d*.
sulfates, P 4292*f*.
tellurate, 518*f*.
thiocyanate, 7666*g*.
**Guanidine, (*N* - acetylsulfanilyl)-**. See *Acetanilide, p-(guanylsulfamyl)-*.
——, **1 - allyl - 2 - cyano - 3 - (*p*-methoxyphenyl)-**, P 1799*e*.
——, **1-allyl-3-nitro-**, 9035*f*.
——, **amino-**, 6984*a*.
diazotization of, 1760*h*.
nickel derivs., 7856*h*.
prepn. from nitroguanidine, 4150*b*.
reaction product with cyanoguanidine, P 3843*d*.
salt, P 6096*g*.
——, **(*p*-aminobenzyl)-**, and dipicrate, 5014*f*.
——, **(4-aminobutyl)-**. See *Agmatine*.
——, **aminonitro-**, lead deriv., P 3200*e*.
**reaction products with oximino ketones and salicylaldehyde as reagents for Cu or Fe**, 2115*d*.
——, **1-amino-3-nitro-**, dearrangement of, 6983*i*.
——, **(α-amino-*p*-tolyl)-**, dihydrochloride, in tryanosomiasis therapy, 8545*h*.
and salts, 5014*e*.
——, **1-amyl-3-cyano-**, (compd. omitted from abstr.), 2947*c*.
——, **1 - (*p* - *tert* - amylphenyl)-3-nitro-**, 9035*h*.
——, **(2-benzimidazolyl)-**, and derivs., 1404*i*.
——, **1 - (2 - benzimidazolyl) - 3-isopropyl-**, and derivs., 1404*i*.
——, **2 - benzyl - 1 - (*p* - chlorophenyl)-3-cyano-**, P 6658*h*.
——, **1-benzyl-3-cyano-**, P 2636*c*.
——, **1-benzyl-3-nitro-**, 9035*f*.
——, **1,3 - bis(*p* - acetamidophenyl)-†**, and dihydrochloride, 5014*b*.
——, **1,3 - bis(*p* - aminophenyl)-**, and hydrochloride, 5014*b*.
trihydrochloride, in tryanosomiasis therapy, 8545*h*.
——, **1,3-bis(*p*-chlorophenyl)-**, 9038*h*.
——, **1,3 - bis(*p* - guanidinophenyl)-**, trihydrochloride, 5014*d*.
trihydrochloride, in tryanosomiasis therapy, 8545*g*.
——, **bis(2 - hydroxyethyl)-**, P 868*f*
——, **1,3 - bis(*o* - nitrophenylsulfonyl)-**, 600*i*
——, **1,3 - bis(*p* - ureidophenyl)-†**, hydrochloride, in trypanosomiasis therapy, 8545*i*.
and monohydrochloride, 5014*e*.
——, **1 - (*m* - bromophenyl) - 3 - cyano-**, 169*f*.
——, **1 - (*p* - bromophenyl) - 3-cyano-**, 2179*d*, 9036*b*.
——, **1 - (*p* - bromophenyl) - 3 - cyano-2-methyl-**, 2948*c*, P 6658*g*.
——, **1 - [*m*(and *p*) - bromophenyl]-3-nitro-**, 9035*h*.
——, **1-butyl-3-cyano-**, 2947*c*.
——, **2 - butyl - 1 - cyano - 3 - isopropyl-**, 2949*g*.
——, **2 - butyl - 1 - cyano - 3 - methyl-**, 2949*g*.
——, **1 - butyl - 3 - (5,6 - dimethoxy-2-benzimidazolyl)-**, and salts, 1405*i*.
——, **1 - butyl - 3 - nitro - 1 - nitroso-**, 9035*e*.
——, **carbamyl-**. See *Urea, guanyl-*.
——, **1-carvacryl-3-nitro-**, 9035*h*.
——, **(5 - chloro - 2 - benzimidazolyl)-**, and salts, 1405*a*.
——, **1 - (5 - chloro - 2 - benzimidazolyl)-3-isopropyl-**, and derivs., 1405*f*.
——, ***p*-chlorobenzyl-**, nitrate and sulfate, 2946*g*.
——, **(*p*-chlorophenyl)-**, and derivs., 9036*a*.
spectrum of, 9037*b*.
——, **1 - (*p* - chlorophenylazo) - 3-cyano-**, 3793*i*.
——, **1 - [*m*(and *o*) - chlorophenyl]-3-cyano-**, 169*f*.
——, **1 - (*p* - chlorophenyl) - 3-cyano-**, P 1799*e*, 2179*d*, 2947*d*, 2950*h*.
and copper complex, 3794*a*.
reaction with amines, P 6659*d*.
**1 - (*p* - chlorophenyl) - 3 - cyano-2-ethyl-**, 2948*c*, P 6658*g*.
——, **1 - (*p* - chlorophenyl) - 2 - cyano-3-isopropyl-**, P 1799*e*.
——, **1 - (*p* - chlorophenyl) - 3 - cyano-2-isopropyl-**, 5749*h*.
——, **1 - (*p* - chlorophenyl) - 3 - cyano-1-methyl-**, P 6659*i*.
——, **1 - (*p* - chlorophenyl) - 3 - cyano-2-methyl-**, 2948*c*, P 6658*g*.
——, **1 - (*p* - chlorophenyl) - 3 - [4-(2-diethylaminoethylamino) - 6-methyl-2-pyrimidyl]-**, ionization and spectrum of, 9038*d*.
——, **(chloro - *p* - phenylene)di-**, and dihydrochloride, 5014*c*.
dihydrochloride, in tryanosomiasis therapy, 8545*g*.
——, **1 - (*p* - chlorophenyl) - 3-ethyl-**, and picrate, 9039*e*.
——, **1 - (*p* - chlorophenyl) - 3 - (4-hydroxy - 6 - methyl - 2 - pyrimidyl)-**, ionization and spectrum of, 9038*d*.
——, **1 - (*p* - chlorophenyl) - 1-methyl-**, and hydrochloride, 9037*b*.
——, **1 - (*p* - chlorophenyl) - 3-methyl-**, and picrate, 9039*b*.
spectrum of, 9037*b*.
——, **1 - [*m*(*o* and *p*) - chlorophenyl]-3-nitro-**, 9035*g*.
——, **1 - (*p* - chlorophenyl) - 3-phenyl-**, 9039*f*.
——, **1 - (*p* - chlorophenyl) - 3-*p*-tolyl-**, **cuminyl-**, salts, 2946*f*.
**cyano-** (*dicyanodiamide*), acetate,

Cu deriv. of acetate and condensation product with HCHO and Cr acetate, as dye-fixing agents, 3620*g*.
acyl derivs., P 1057*d*, P 4292*d*.
adhesive from starch, plasticizer and, P 3223*a*.
aldehyde condensation products, stable sirups from, P 9534*i*.
alkyl (halophenyl) derivs., P 6658*e*.
anion-exchange resin from acrylonitrile, polyamine and, P 7162*h*.
aryl-2-alkyl derivs., reaction with mono- or dialkylamines, 2948*a*.
aryl derivs., 169*e*, 2179*d*.
biguanides from, for textile printing, P 7713*a*.
as catalyst in reaction of hydroxy compds. with $H_2NSO_3H$, P 3024*h*.
condensation products of, with cetyl chloromethyl ether for softening and waterproofing textiles, P 6440*d*.
with dicyanodiamide and HCHO for dyeing aftertreatment, P 2786*h*.
with HCHO and $NH_3$, amines or urea for aftertreatment of dyed textiles, P 2786*h*.
with HCHO and melamine, paper laminate from, 433*g*.
with HCHO, condensation with $NH_4Cl$ and HCHO, P 4880*c*.
with HCHO, emulsions from, P 6000*e*.
with HCHO, for improving dye affinity and wet fastness of dyes on cellulose, P 7238*a*.
with HCHO, for improving dye affinity of nylon, P 2442*i*.
with HCHO, for pretreatment of artificial fibers for dyeing, P 4440*h*.
with phenols, P 2469*g*.
condensation with acetamide, textile assistant by, P 1991*a*.
with dichlorodimethyl ether-rosin reaction product, textile slipproofing agent by, P 2796*b*.
with HCHO, phenol and HCl, textile assistant by, P 9497*g*.
derivs., P 1799*c*, P 2635*i*, P 3843*c*.
derivs., reaction with amines, P 2229*g*.
dialkyl derivs., reaction with *p*-$ClC_6H_4NH_2$, 2949*d*.
formation in soil from $CaCN_2$, 797*f*.
hydrochlorides, P 9082*b*.
infrared Christiansen filter effect in, 1657*f*.
labeled with $C^{14}$, 5007*b*.
lacquer from phenol-ethylene oxide condensation products and, P 2448*d*.
melamine from, P 699*ae*
nitrate, in flameless, gas-producing charges, P 5190*d*.
reaction product with $NH_4NO_3$, condensation with *N* - (hydroxymethyl)-oleamide or -stearamide, P 5978*f*.
with coconut oil acid, ethanolamine, and glycidol or ethylene-oxide, sulfuric acid esters, as textile aids, P 7727*ce*.
with ketones, P 1069*a*.
with semicarbazide, condensation product with HCHO, P 9526*b*.
reaction product with benzidine and its subsequent reaction product with 1-chloro-2,4-dinitrobenzene, P 3968*e*.
reaction with $NH_4$ sulfonates, P 4292*g*.
vanadium complex, 8959*a*.
——, **1-cyano-3-(*p*-cyanophenyl)-**, 169*f*.
——, **1-cyano-3-cyclohexyl-**, P 2636*a*, 2947*c*.
——, **1 - cyano - 2 - cyclohexyl - 3 - isopropyl-**, 2949*g*.
——, **1 - cyano - 3 - (2,4 - dichlorophenyl)-**, 169*f*.
——, **1 - cyano - 2,3 - dicyclohexyl-**, P 1799*e*.
——, **3-cyano-1,1-diethyl-**, 2947*c*.
——, **1-cyano-2,3-diisopropyl-**, 2949*f*.
——, **1-cyano-2,3-dimethyl-**, 2949*g*.
——, **3-cyano-1,1-dimethyl-**, 2947*c*.
——, **3-cyano-1,1-diphenyl-**, 2947*e*.
——, **1-cyano-3-dodecyl-**, P 2636*c*.
——, **1 - cyano - 2 - dodecyl - 3-phenyl-**, P 1799*e*.
——, **1-cyano-3-ethyl-**, 2947*b*.
——, **1 - cyano - 2 - ethyl - 3 - (*p* - iodophenyl)-**, 2948*d*.
——, **1 - cyano - 3 - ethyl - 2 - isopropyl-**, 2949*f*.
——, **1-cyano-3-ethyl-3-methyl-**, 2949*g*.
——, **1 - cyano - 3 - (*p* - fluorophenyl)-**, 169*f*, 2947*f*, 5757*f*.
——, **1 - cyano - 3 - (*p* - fluorophenylazo)-**, 5757*f*.
——, **1 - cyano - 3 - [*m*(and *o*) - hydroxyphenyl]-**, P 2636*c*.
——, **1 - cyano - 3 - (*p* - iodophenyl)-**, 169*f*, 2947*e*.
——, **1 - cyano - 3 - (*p* - iodophenyl)-2-methyl-**, 2948*d*, P 6658*h*.
——, **1-cyano-3-isobutyl-**, 2947*c*.
——, **1 - cyano - 3 - isopropyl-**, 1405*d*, P 1799*e*, 2947*b*.
——, **3 - cyano - 1 - isopropyl - 1-methyl-**, hemihydrate, 2947*c*.
——, **1 - cyano - 2 - isopropyl - 3-propyl-**, 2949*g*.
——, **1 - cyano - 3 - (*p* - methoxyphenyl)-**, 2179*d*.
——, **1 - cyano - 2 - (3 - methoxypropyl)-3-(1-naphthyl)-**, P 1799*e*.
——, **1-cyano-3-methyl-**, hemihydrate, 2947*b*.
——, **cyano(methylmercuri)-**, for cereal and seed treatment, 7180*b*.
as fungicide, 7179*c*.
sorghum seed treatment with, 2355*f*.
——, **3 - cyano - 1 - methyl - 1-phenyl-**, P 2636*c*, 2947*e*.
——, **1 - cyano - 3 - (1 - naphthyl)-**, P 2636*c*.
——, **1 - cyano - 3 - [1(and 2) - naphthyl]-**, 2947*e*.
——, **1 - cyano - 3 - (2 - naphthyl)-**, 169*f*.
——, **cyanonitro-**, in flameless, gas-producing charges, P 5190*d*.
——, **1 - cyano - 3 - (*m* - nitrophenyl)-**, 169*f*.
——, **1 - cyano - 3 - (*p* - nitrophenyl)-**, 2179*d*.
——, **1-cyano-3-octadecyl-**, P 2636*c*.
——, **1-cyano-3-octyl-**, P 2636*c*.
——, **1-cyano-3-phenyl-**, P 1799*e*, 2179*d*, P 2636*a*.
——, **1-cyano-3-propyl-**, 2947*b*.
——, **1 - cyano - 3 - (3 - pyridylcarbonyl)-†**, 5025*e*.
——, **cyanostearoyl-†**, surface-active substances from, P 4499*b*.
——, **cyano(stearoylaminomethyl)-†**, sulfonated arylamine reaction product from, P 2452*f*.
——, **1-cyano-3-*m*(and *o*)-tolyl-**, 169*f*.
——, **1-cyano-3-*o*-tolyl-**, 2947*e*.
——, **1-cyano-3-*p*-tolyl-**, 2179*d*.
——, **1-cyano-3-(2,3-xylyl)-**, 2179*d*.
——, **1-cyclohexyl-3-nitro-**, 9035*f*.
——, **1,1′ - decamethylenebis[3-cyano-**, P 2636*c*.
reaction product (polymeric) with *p*,*p*′-methylenedianiline and its -HCl, P 2230*a*.
**decamethylenedi-**. See *Synthalin*.
**1,2-diallyl-3-cyano-**, P 1799*d*.
**diamino-**, nickel derivs., 7856*h*.
**1,3-diamino-**, 6984*a*.
**dibenzoyl-**, from heptabenzoyl streptidine, 1329*e*.
——, **1,3-dibutyl-**, and picrate, 2203*d*.
——, **1,1-dibutyl-3-cyano-**, P 2636*c*.
——, **(5,6 - dichloro - 2 - benzimidazolyl)-**, and salts, 1405*c*.
——, **1 - (5,6 - dichloro - 2 - benzimidazolyl) - 3 - isopropyl-**, and salts, 1405*g*.
——, **(2,3-didodecyl-*p*-phenylene)di-**, dihydrochloride, in tryanosomiasis therapy, 8545*h*.
——, **1-(3-diethylaminopropyl)-3-nitro-**, 9035*f*.
——, **(2,3-diisopropyl-*p*-phenylene)-di-**, dihydrochloride, in tryanosomiasis therapy, 8545*g*.
——, **(5,6 - dimethoxy - 2 - benzimidazolyl)-**, and salts, 1405*c*.
——, **1 - (5,6 - dimethoxy - 2 - benzimidazolyl)-3-isopropyl-**, and derivs., 1405*g*.
——, **1,1-dimethyl-**, picrate, 2950*c*.
——, **1,3-dimethyl-**, P 868*f*.
——, **1 - (*p* - dimethylaminophenyl)-3-nitro-**, 9035*h*.
——, **(5,6 - dimethyl - 2 - benzimidazolyl)-**, and salts, 1405*d*.
——, **1 - (5,6 - dimethyl - 2 - benzimidazolyl)-3-isopropyl-**, salts, 1405*h*.
——, **(3,3′ - dimethyl - 4,4′ - biphenylene)di-**, and salts, 5014*e*.
in tryanosomiasis therapy, 8545*h*.
——, **diphenyl-**, P 868*g*.
as antioxidant and odor inhibitor in alkyl benzene sulfonates, P 6845*c*.
compds. with 2-hexyl-4,6-dinitrophenol and 2,4-dinitro-6-octylphenol, for prevention of As injury to plants, P 5151*g*.
detection in rubber, 893*bg*.
effect on aging properties and discoloration of rubber, 7740*d*.
effect on yield of cyclic and polysulfides in dehydromyrcene reaction with S, 4886*d*.
identification of, 6856*i*.
mixt. with di(benzothiazolyl) monosulfide as vulcanization accelerator in rubber, 2022*d*.
mixt. with Zn oxide, effect on rubber excess vulcanization coeff., 2011*ek*.
resinous reaction product with benzothiazolyl disulfide as rubber vulcanization accelerator and activator, P 8194*e*.
as rubber antioxidant and vulcanization accelerator, 9516*g*.
as vulcanization accelerator, 430*g*, 3648*a*, 7744*b*, 8729*g*.
amounts of ZnO in activation of, 8192*df*.
effects on kinetics of vulcanization and properties of vulcanized rubber, 8193*b*.
as vulcanization accelerator and activator, 6857*h*.
——, **(2,3 - diphenyl - *p* - phenylene)di-**, dihydrochloride, in tryanosomiasis therapy, 8545*h*.
——, **di-*o*-tolyl-**, P 868*g*.
——, **dodecamethylenedi-**. See *Synthalin B*.
——, **dodecyl-**, acetate, as molluscacide, 8086*e*.
——, **ethyl-**, sulfate, 2948*h*.
——, **ethylenedi-**, P 3844*a*.
——, **1-ethyl-3-nitro-**, 9035*e*.
——, **1 - ethyl - 3 - nitro - 1 - nitroso-**, 9035*e*.
——, ***p* - guanidinobenzyl-**, dipicrate, 5014*f*.
——, **guanyl-**. See *Biguanide*.
——, **(2-hydroxyethyl)-**, P 868*f*.
——, **1 - (4 - hydroxy - 6 - methyl - 2-pyrimidyl) - 3 - (*p* - nitrophenyl)-**, ionization and spectrum of, 9038*d*.
——, **(4 - isoamylaminobutyl)-**, picrate, 238*h*.
——, **isopropyl-**, sulfate, 2948*f*, 5746*b*.
——, **1 - isopropyl - 3 - (5 - methoxy-2-benzimidazolyl)-**, and salts, 1405*f*.
——, **1-isopropyl-3-methyl-**, salts, 9039*c*.
——, **1 - isopropyl - 3 - (5 - methyl-2-benzimidazolyl)-**, salts, 1405*g*.
——, **lauroyl-**. See *Lauramide, N-guanyl-*.
——, **malonyl-**. See *4,6(1H,5H)-Pyrimidinedione, 2,3-dihydro-2-imino-*.
——, **(5 - methoxy - 2 - benzimidazolyl)-**, and salts, 1405*b*.
——, **1 - [*m*(o and *p*) - methoxyphenyl]-3-nitro-**, 9035*g*.
——, **[5 - (6 - methoxy - 8 - quinolylamino)amyl]-**, dinitrate, 7485*e*.
——, **[4 - (6 - methoxy - 8 - quinolylamino)butyl]-**, dinitrate, 7485*e*.
——, **[2 - (6 - methoxy - 8 - quinolylamino)ethyl]-**, salts, 7485*e*.
——, **[3 - (6 - methoxy - 8 - quinolylamino)propyl]-**, dinitrate, 7485*e*.
——, **methyl-**, effect on glycolysis in muscle exts., 7581*f*.
——, **(5 - methyl - 2 - benzimidazolyl)-**, salts, 1405*b*.
**1 - α - methylbenzyl - 3 - nitro-**, 9035*f*.
**3,3′ - (methylenedi - *p* - phenylene)bis[1-cyano-**, P 2636*d*.
**1-methyl-3-nitro-**, 9035*i*.
——, **1 - methyl - 3 - nitro - 1 - nitroso-**, 9035*e*.
——, **nitro-**, 6984*a*.
combustion velocity, explosion temp. and heat of explosion of, 8681*f*.
derivs., 9035*d*.
gas-producing flameless charges from hypophosphites and, P 5190*d*.
manuf. and solvents for, of controlled particle size, 6415*h*.
nitro N detn. in, 1568*g*.
reduction (electrolytic) of, 4150*b*, P 6096*g*.
——, **1-nitro-3-nitroso-**, derivs., reaction with amines, 9035*d*.
——, **1-nitro-3-phenethyl-**, 9035*f*.
——, **1 - nitro - 3 - *m*(o and *p*) - phenetyl-**, 9035*g*.
——, **1-nitro-3-phenyl-**, 9035*g*.
——, **(*p* - nitrophenylmercapto)-†**, P 1438*b*.
——, **1 - (*m* - nitrophenylsulfonyl) - 3-(*o*-nitrophenylsulfonyl)-**, 600*i*.
——, **nitroso-**, in analysis of metals, 2541*b*.
formation in electrolytic reduction of nitroguanidine, 4150*f*.

**stability in aq. pastes and solns.**, 5745*i*.
——, **1 - nitro - 3 - *m*(*o* and *p*) - tolyl-**, 9035*g*.
——, **1 - nitro - 3 - (2,5 - xylyl)-**, 9035*h*.
——, **nonyl-**, effect on glycolysis in muscle exts., 7581*f*.
——, **phenenyltri-**, in tryanosomiasis therapy, 8545*h*.
——, **1,1' - phenylenebis[3-cyano-**, P 2630*c*.
——, **1,1'-*p*-phenylenebis[3-dodecyl-**, dihydrochloride, 5014*c*.
——, **1,1' - *p* - phenylenebis[3 - isopropyl-**, and dihydrochloride, 5014*c*.
——, **1,1' - *p* - phenylenebis[3 - phenyl-**, and dihydrochloride, 5014*c*.
——, ***m*-phenylenedi-**, carbonate, 5014*c*.
——, ***m*(*o* and *p*)-phenylenedi-**, in tryanosomiasis therapy, 8545*f*.
——, ***p*-phenylenedi-**, derivs., 5014*a*.
——, **(phenylsulfonyl)-**. See *Benzenesulfonamide, N-guanyl-*.
——, **propyl-**, nitrate, 2946*f*.
——, **salicylideneamino-**, as stabilizer of aerosols, 9330*e*.
——, **sulfamylphenyl-**. See *Sulfanilamide, N⁴-guanyl-*.
——, **sulfanilyl-**. See *Sulfaguanidine*.
——, **(sulfinyldi - *p* - phenylene)di-**, dihydrochloride, in tryanosomiasis therapy, 8545*g*.
in protozoa infection therapy, 1485*f*, 8528*b*.
——, **(sulfonyldi - *p* - phenylene)di-**, dihydrochloride, in tryanosomiasis therapy, 8545*h*.
**salts**, 5014*d*.
——, **tetradecyl-**, effect on glycolysis in muscle exts., 7581*f*.
——, **tetramethylenedi-**. See *Arcaine*.
——, **(thiodi-*p*-phenylene)di-**, carbonate, 5014*d*.
carbonate, in tryanosomiasis therapy, 8545*g*.
——, **(3-*m*-tolylene)di-**, identification of, 6857*a*.
——, **(3 - *p* - tolylene)di-**, and dihydrochloride, 5014*c*.
dihydrochloride, in tryanosomiasis therapy, 8545*g*.
——, **1,2,3-triamino-**, nickel derivs., 7856*h*.
——, **1,2,3-triethyl-**, nitration (attempted) of, 2203*d*.
——, **1,2,3-trimethyl-**, P 868*f*.
——, **triphenyl-**, P 868*g*, 1352*b*.
——, **1,1,3-triphenyl-**, as rubber vulcanization accelerator, 3648*a*.
——, **1,2,3-triphenyl-**, 4-*o*-terphenylsulfonate, 4655*d*.
——, **tris(2-hydroxyethyl)-**, P 868*f*.
——, **(vinylenedi - *p* - phenylene)di-**, in protozoa infection therapy, 1485*h*, 8528*b*.
**Guanidineacetic acid**. See *Glycocyamine*.
**Guanidinecarboxylic acid**. See *Carbamic acid, guanyl-*.
**Guanidinelike substances**, in blood, etc.—see "derivs." under *Guanidine*.
**Guanidinephosphoric acids**. See *Creatininephosphoric acid; Phosphagens*.
**Guanidino group**, of arginine, reactivity of, 256*f*.
formaldehyde fixed by, failure to stabilize collagen, 4040*g*.
in insulin, 2650*e*.
**Guanine** (*2 - aminohypoxanthine*), body temps. and, 5867*c*.
in carbon tetrachloride poisoning prevention, 2292*g*.
detn. in presence of adenine, 4722*d*.
2,6-diaminopurine as precursor of nucleic acid, 2259*f*.
effect on sulfonamide action on pea roots, 7091*i*.
glucoside, 1726*c*.
as growth substance for purine-deficient *Neurospora*, 3063*f*.
metabolism of, 5838*b*.
metabolism of, effect of folic acid on, 6676*d*.
nitrogen¹⁵ in, from nuclei and cytoplasm of normal and regenerating liver, 4718*e*.
nitrogen turnover in, from polynucleotides, 8030*b*.
*Ophiostoma* deficient in, effect of purine compds. on, 8460*e*.
in ribonucleic acids from pancreas and yeast, 2655*i*.
sepn. by ion exchange, 5440*d*.
sepn. from xanthine, 1326*b*.
spectrum of, 4714*b*.
sulfate, spectrum of, 1425*a*.
*Tetrahymena geleii* requirements for, purines as substitutes for, 9148*h*.
as *Tetrahymena* growth substance, 3882*c*.
xanthine formation from, by guanase, 1816*i*.
**Guanine, $N^2$,1-dimethyl-**, salts, 4635*a*.
——, **1,7-dimethyl-**, guanine sparing action of, 9148*h*.
——, **$N^2$(and 1)-methyl-**, salts, 4635*a*.
——, **1(7 and 8)-methyl-**, biol. activity of, 9148*h*.
**Guanine desoxyriboside***, 5058*d*.
**Guano**, of China (Paracel Is.), 3323*b*.
of Philippine Is. (Bohol), 71*e*.
**Guanopterin**. See *Isoguanine*.
**Guanosine**, chromatographic sepn. from mixts., 3795*a*.
detection of, 2649*i*.
as growth substance for guanine-deficient *Ophiostoma*, 8460*e*.
as growth substance for purine-deficient *Neurospora*, 3063*f*.
methylation of, 4635*a*.
from ribosenucleic acid (yeast) hydrolysis, 144*e*.
spectrum of, 4707*d*.
synthesis of, 1726*c*.
——, **2'-acetyl-***, 1326*a*.
——, **2' - acetyl - 3',5' - benzylidene-***, 1326*a*.
——, **3',5' - benzylidene-***, 1325*h*.
——, **$N^2$,1-dimethyl-***, hydrochloride, 4635*a*.
——, **$N^2$(and 1)-methyl-***, 4635*a*.
**Guanylic acid**, cancer development and, 9251*f*.
as growth substance for purine-deficient *Neurospora*, 3063*f*.
sarcoma inhibition by, 4367*e*.
spectrum of, 4707*d*.
**Guar**, mannogalactan mucilage from, for paper-sizing adhesive, 9442*a*.
polysaccharides of, methylation of, 5009*f*.
**Guaran**, constitution of, 580*i*.
triacetate, acetolysis of, 5009*d*.
triacetate, stress-strain characteristics of, 7750*a*.
**Guava**, carotene and vitamin C in pink and white, 3536*a*.
carotenoids and vitamin A in, 5830*i*.
insect control on, 3135*b*.
oxidizing enzymes of, 4729*f*.
pectins of Indian, 7156*b*.
vitamin C synthesis in, 3889*b*.
**Guayule**, carbohydrate and nitrogenous constituents in, effect of K deficiency and excess on, 281*i*.
copper, Fe and Mn in, 2799*e*.
potassium deficiency and excess in, 281*e*.
retting (microbiol.) of, 3041*h*.
rubber formation in, 9176*i*.
rubber from—see *Rubber*.
rubber-mill wastes, effect on crops, 1515*a*.
seedbeds for, weed control in, 5145*d*.
**Guignardia**, control of, 7177*h*.
**Guignet's green**. See *Pigments*.
**Guillelma**, oils of—see *Oils*.
**Guillelma speciosa** (*Guilielma gasipäes*), compn. and nutritive value of fruits of, 3116*c*.
**Guinea grass**. See *Grasses*.
**Guizotia abyssinica**, oil from—see "niger-seed" under *Oils*.
**Gulland, John Masson**, obituary, 915*h*.
**Gulonic acid**, lactone, compressibility of crystals of, 4917*b*.
——, **diketo-***, in foods (fresh and processed), and its formation from vitamin C and dehydroascorbic acid oxidation, 6327*i*.
——, **isopropylidene-2-keto-***, L-, esters, P 6054*f*.
——, **keto-***, P 6225*b*.
esters, P 5415*g*.
——, **2-keto-***, manuf. of L-, P 8919*f*.
**Gulose, 3-desoxy-***, D-, 1727*i*.
**Guloside, methyl 2,3 - anhydro - 4,6-benzal-***, α-D-, 1728*a*, 4635*h*.
——, **methyl 3-desoxy-***, α-D-, 1728*e*.
——, **methyl 2-desoxy - 4,6 - benzal -***, α-D-, 4635*h*.
——, **methyl 3 - desoxy - 4,6 - benzal-***, α-D-, 1728*e*.
——, **methyl 3 - desoxy - 4,6 - benzal-2-methyl-***, α-D-, 1728*e*.
——, **methyl 3 - desoxy - 4,6 - hexahydrobenzal-***, α-D-, 1728*d*.
**Gum acacia**. See *Gum arabic*.
**Gum arabic**, in carrier for medicinal substances, P 2375*d*.
coacervate with gelatin, effect of pH and salts on diam. of drop of, 3691*a*.
complex with borax, 6986*d*.
as corrosion inhibitor for light metals, 4622*d*.
detection of, 5704*b*.
effect of Senegal, on optical d. of ppts., 3873*i*.
effect of Senegal, on optical d. of serum globulin ppts. from boric acid, 3874*a*.
effect on flow birefringence of gelatin during gelation, 2488*g*.
on soln. rate of NaCl monocrystals, 6054*g*.
on stability of supersatd. solns. of $KNO_3$, 8805*i*.
-gold-peptone complex, P 8104*h*.
guinea-pig growth and, 6293*i*.
heat effect on, 6849*a*.
ionization of, mol. structure and, 2073*b*.
plasmaphoresis with, restoration of blood protein and colloid-osmotic pressure after, 4310*f*.
reductic acid in hydrolyzates of, 6823*b*.
Soviet, 5541*h*.
**Gumbrin**, activation with $H_2SO_4$ and petroleum decolorization with activated, 3996*i*.
as catalyst in dehydration and isomerization, 6153*a*.
as catalyst in dehydration of cyclohexanol, 5010*e*.
coating of, with sesquioxides, 7620*h*.
in oil filtration, effect on deparaffination of residue oil and on oil evapn. and I no. of distillate, 4001*b*.
**Gum ghatti**, effect on diffusion current of Cu and Pb in polarography, 5698*b*.
**Gum guaiac**. See *Guaiacum*.
**Gum levan**. See *Levans*.
**Gummosis**, brown-rot—see *Phytophthora citrophthora*.
**Gums**. (See also *Chewing gum; Cholla gum; Gingiva*.)
almond and cherry, chromatography of sugars in hydrolyzates of, 1290*c*.
of almond tree, structure of, 1323*h*.
binding material from, P 9538*d*.
bleaching, P 1580*e*.
carboxyethyl and cyanoethyl ethers of galactomannan and glucomannan, P 4504*d*.
carob-bean, 581*ac*, 8717*a*.
in *Cestrum hediondinum*, 2279*i*.
coating with, on soap particles to reduce dusting and lumping, P 1587*a*.
from desert plants, 6337*g*.
detection in mayonnaise and French dressing, 9290*d*.
as detergent protective colloids of soil carriers, 6436*d*.
diabetic sirups contg., 3144*i*.
flavoring of, 8573*g*.
formation in aviation gasoline, effects of $Et_4Pb$ on, 5579*a*.
in cracked gasolines and hydrocarbons, 8656*a*.
in fuel gas, 5925*a*.
formation in tar distillates, 7664*g*
-forming properties of gasolines of U.S., 6813*i*.
from hydrocarbon-oil vapor cracking on coke in steam, P 8129*g*.
identification of polysaccharide, 3639*d*
inhibition or prevention of formation in, or removal from, gas, gasoline, hydrocarbon oils, etc., alkyl monoamines and fatty acid amides for, P 3193*e*.
by dialkyl selenides or tellurides, P 6820*e*.
with hydroxybenzoic acids, esters or salts, P 8667*d*.
with org. sulfides or polysulfides, P 7223*g*.
with phenols, P 4003*f*.
by salicylic acid, its esters and salts, P 4457*h*.
by $H_2SO_4$ treatment and distn., 5576*h*.
jeol, 1589*d*, 8717*e*.
jeol, electrochem. and viscous properties of, 2797*ef*.
karaya—see *Karaya gum*.
from lubricant refinement with $H_2SO_4$, 2417*e*.
melting point and *n* at m.p. of pharmaceutical, 9363*g*.
mesquite, constitution of, 582*g*.
from oil refinement, electronic drying of, P 6438*b*.
oxidation of, prevention of, P 5990*h*.
from oxidized transformer oil and white mineral oil, 4841*i*.
polysaccharide, reviews on, 2005*gh*.
quince, effect on soil aggregation, 2349*b*.
removal from hemp bast fibers, effect on degradation of cellulose, 4858*f*.

removal from hydrogenated soybean oil, effect on flavor reversion, 7723b.
from plant fibers, P 4868h.
from vegetable oils with halogenated acids to render nonbreak, P 885a.
seeds contg., prepn. for dehusking, P 8717h.
sterculia—see *Karaya gum*.
turpentine—see *Turpentine*.
water absorption by jaggery and, 2454b.
wood—see *Xylan*.
from yeasts, prepn. of, and their Cu compds., 5509e.
**Gum Senegal**. See *Gum arabic*.
**Gum tragacanth**, in carrier for medicinal substances, P 2375d.
detection of, 5704b.
diabetic sirups contg., 3145a.
evaluation by viscosity, 5218d.
evaluation of flake, 4881d.
incompatibility with Bi subnitrate, 355d.
**Gum tragacanth substitutes**, silica gel as, in alkaloid detns., 6364b.
**Gum verek**. See *Gum arabic*.
**Guncotton**. See *Explosives; Nitrocellulose; Pyroxylin*.
**Gunite**. See *Concrete*.
**Gunpowder**. See *Explosives*.
**Gur**. See *Jaggery*.
**Gurvich rays**. See *Milogenetic radiation*.
**Gustavson's hydrocarbon**, structure of, 991d.
**Gut**. No entries this year. See *Intestines*.
**Gutierresia**, selenium in, 3890f.
**Gutta-percha**, adhesives from, bond strength of rubber united to leather and textiles by, 6854f.
cyclized rubber, oxidized AcOH rubber and rubber-HCl prepn. from, and use in varnish, 3224h.
distn. of, and cracking of distillate gases, isoprene by, P 1211g.
elec. insulators from, on cables, attack by soil microorganisms, 9517g.
from *Euonymus* spp. in Spain, 4886h.
extn. of, P 6456f.
film of, adhesion to solids, 2842d.
lyogels of, 4510e.
mech. properties and swelling in hexane and ketones and cryst. nature of gutta-percha-HCl and -HBr, 7739b, 8728h.
pyrolysis of, to isoprene, 2010b.
thermal stability of, rosin and milkweed, saghyz and Soviprene rubbers in improving, 6855d.
water-vapor permeability of, 8738d.
**Gutta-percha substitutes**, from polyvinyl acetate, P 4895d.
**Guvacine** (*1,2,5,6 - tetrahydronicotinic acid*). (For derivatives see under *Nicotinic acid*.)
ethyl ester, reduction of, 2582b.
**Gymnite**. See *Deweylite*.
**Gynecology**, book: Essentials of Gynecologic Endocrinology, 3915b.
**Gynecomastia**, from benzedrine, 5501g.
**Gynergen** (*ergotamine tartrate*), effect on intracranial circulation in chronic headache, 9232g.
effect on pulmonary circulation, 9248b.
effect on vasoconstriction from O lack, 1110a.
**Gynocardic acid**, sulfanilamide derivs., therapeutic activity of, 3097e.
**Gypsum** (*gypsite*). (See also *Calcium sulfate; Plaster of Paris*.)
of Alaska, 2130e.
alum mixt. with calcined, P 9410h.
ammonium sulfate manuf. from, P 2380i.
in antimony deposits of Soyatal, Mex., 4982g.
application with Se compds. in pest control, 1141e.
in barley and lettuce growth stimulation, 7622h.
binding properties of, effect of TETs cement on, 9409d.
bioradiation by, 9093e.
building plates from filings and, P 6390c.
calcination of, catalytic effect through gas phases in, 8621i.
calcination of, shaft furnace for, P 3592a.
of California (Kern Co.), 4607e.
catalyst of $Fe_2O_3$ and, in disproportionation of carene, 5012g.
cement—see *Cement, hydraulic or structural*.
cement defects from, 373e.
in cement expansion reduction, 5566i.
cements (slag) contg., 2394h.
clay, waterproofing materials from, 7205g.
dehydration of, P 3166i.
detn. in amorphous substances, 5252b.
elec. cond. of split face of, 6026c.
electrokinetic potential of, 4924e.
fabric of parallel-fibrous, 4980a.
and its formation, 76h.
formation during deterioration of stones, 4727b.
industry in 1946, 2127c.
iron sulfide detn. in, 6937d.
of Italy (Tuscany), 2128b.
journal: Zement-Kalk-Gips, 3989d.
manuf. of high-strength, app. for, P 3591a, P 6389d.
in mercury ores of Huahuaxtla dist., Mex., 4981h.
in mineral springs at Beppu, Japan, 5703h.
peanut-soil treatment with, 1514a, 9322f.
phosphate fixation in sugar-cane soils limed with, 8591i.
as pigment extender, 8704a.
plaster from—see *Plaster*.
of Poland (Nowy Ladek), 5348e.
polishing of, effect on hardness and surface structure, 4071i.
in porcelain-mix stabilization, 3582a.
reaction with $NH_4NO_3$, P 3575e.
removal from glass vessels, 6876c.
in sherry production, 1904i.
soils, 3127d.
below solonchak soil of Georgian S.S R., 7386f.
sulfur dioxide manuf. from, 2377i.
sulfuric acid manuf. from, 2377d, 7650g, 8905f.
sulfur isotopes in, 6508d.
sulfur trioxide detn. in, 58d.
systems: liparite–, and limestone–liparite–, 1920i, 1921b.
terms relating to, 4785e.
of Trinity River Tributary area in Okla. and Tex., 4607i.
in Union of South Africa, 8115g.
in volcanic deposits at Nyamuragira and Tshambene, Belgian Congo, 5349a, 8902e.
water infiltration into soils treated with, 794a.
water of hydration of, Raman effect in study of, 2513f.
waterproofing of, P 6389d.
**Gypsy moth**. See *Porthetria dispar*.
**Gyromagnetic ratio**, 5303c.
of beryllium, Cs and Rb, 4137a.
detn. of, 8262e.
electronic, in $CuSO_4.5H_2O$ single crystals, 5244c.
of electron orbital momentum, 2856i.
*g*, values and, 5303c.
nuclear, 8865a.
**Gyttja**. See *Muds*.

*h*, 4948c.
**de Haas-van Alphen effect**. See *Magnetic susceptibility*.
**Habinol**, as wood preservative, 9339e.
**Habituation**, to morphine—see *Morphine*
**H acid**. See *1-Naphthol-3,6-disulfonic acid, 8-amino-*.
**Hackberry**, oils of—see *Oils*.
**Haddock**, vitamins $B_1$ and $B_2$ in, effect of radar energy on, 1493a.
**Haemagglutination, Haematin, etc**. See *Hemagglutination; Hematins*.
**Haematobia irritans**. See *Siphona irritans*.
**Haematopinus suis**, control of, chlorinated hydrocarbons in, 9332c.
**Haematopinus tuberculatus**, control of, 8598i.
**Haemobartonella muris**, infection with, cellular reactions in, during anemia produced by anti-blood immune serum, 9221h.
**Haemonchus contortus**, respiratory metabolism of, 5874e.
**Haemophilus**. See *Hemophilus*.
**Haffkinine**. See *Quinacrine*.
**Hafnium**, electrodes from, for high-pressure-discharge app., P 7840e.
heat capacity of, 3671d.
isotope of mass 175, from Lu bombarded by deuterons and protons, 4124a.
isotope of mass 181, $\beta$- and $\gamma$-rays from, 4121i, 4124b.
energy of $\gamma$-rays of, 6075i.
radioactivity of, 487a.
from lutecium, 7330c.
nuclear isomerism of, 3280b.
partition between $HClO_4$ and theonyltrifluoroacetone, 8959d.
sepn. from Zr by distribution, 2883c.
sepn. from Zr, ion exchange in, 4169b.
system: C–, 2914a, 6958b.
**Hafnium, analysis**, sepn. from Zr, 8959d.
**Hafnium borohydride***, $Hf(BH_4)_4$, 8937g.
**Hafnium chloride**, $HfCl_4$, heat of formation of, 2828b.
**Hafnium compounds**, purification by distribution, 2883d.
**Hafnium oxide** ($HfO_2$), catalyst of $SiO_2$ and, for acylation of thiophene, P 2643g.
detn. in mixt. with $ZrO_2$, 5693e.
purification of, 2883e.
**Hafnium silicates**, as catalyst in decompn. (mol.) of diaryl paraffins, P 2228f.
**Hafnium sulfates**, sepn. from Zr sulfates, 2883c.
**Hagemannite**, as geothite-ralstonite-thomsenolite mixt., 8984c.
**Hagemann's ester**. See "ethyl ester" under *2-Cyclohexene-1-carboxylic acid, 2-methyl-4-oxo-*.
**Hahn, Otto**, biography, 4907h.
**Hair**. (See also *Alpaca*.)
adsorption and swelling isotherms of, in water vapor, 4305d.
alginates in prepns. for, 1905i.
amino acid content of hog, 4708h.
camel—see *Camel hair*.
cleanser, P 5554c.
color, biotin effect on, 6292f.
color of rat, hormone factor A and, 3074e.
copper in colored and white, 3084c.
cycles of, effect of removing endocrine glands on, 8036c.
damage by acids, alkalies and heat, detection of, 414d.
dead space and shrinkage control in human, 9457c.
dyeing of, 2737g, 4423h.
dyes for, 9386h.
dyes for, and dangers of these dyes, 2373h.
dyes for, pyrogallol detn. in, 9368d.
felt—see *Felt*.
glycogen in, 6719f.
gray—see *Achromotrichia*.
green-colored human and animal, 6255h.
horse—see *Horsehair*.
inflammations of hair bulb, drug for use against, P 1532c.
keratin compn of, 2089g.
keratin orientation and hardening in follicle of, 7113d.
improvement with resorcinol-HCHO resins, P 5200a.
mech. properties of, structure and, 2810c.
melanin detn. in, of guinea-pig genotypes, 6721i.
pantothenic acid deriv. prepns. for, P 4434f, P 6793b, P 8108c.
pentoses in, 7106g.
pest control in, P 4422e.
plastic from, P 8744d.
prepn. for, contg. *p*-hydroxybenzoic acid esters, butyramide deriv., etc., P 7646a.
rabbit—see *Rabbit hair*.
recovery of, by peptic digestion of hides, P 8722d.
recrystn. of relaxed, 8416g.
removal from ears, feet and lips of cattle and hogs, 5220f.
removal of—see also *Depilatories; Hides*.
-rubber upholstery pads, P 8176c.
shampoos for—see *Shampoos*.
soly. of human, in alkali, detn. of, 5192h.
sulfur distribution and analysis of cattle, 7736i.
water detn. in, 1824c.
waving of, 8103c.
compns. for, P 3574e, P 5554b, 8093g, P 8621e.
mercapto acids in solns. for cold, 3144h.
thioglycolates in cold, 2374c.
**Hairy root**. See *Agrobacterium tumefaciens;* and "crown" under *Galls*.
**Hairy spider beetle**. See *Ptinus villiger*.
**Hake-liver oil**. See *Oils*.
**Haleite**. See *Ethylenediamine, N,N'-dinitro-*.
**Halibut**, oil from—see *Oils*.
**Halicystis ovalis**, tertiary membranes of cell wall of, 5092h.
**Halides**. (See also *Alkali metal halides; Alkaline earth halides; Alkyl halides; Aryl halides; Bromides; Chlorides; Fluorides; Halogen compounds; Iodides; Sulfonyl halides;* and "halogenated," etc., under *Hydrocarbons*.)
acetylenic, condensation with $\alpha,\beta$-unsatd. ketones, P 5798b.
acid, condensation of aromatic, with fatty

acid halid[e] pour depressors for lubricants by, P 5586*b*.
condensation with tertiary amines, mechanism of, 4240*h*.
of β-halo acids, P 3444*e*.
manuf. of, P 7954*b*.
polyhalo straight-chain, P 1434*c*.
reaction with aromatic arsines in the presence of $AlCl_3$, 6178*a*.
reaction with $BrCH_2CO_2Et$ and Mg, 2973*e*.
reaction with β-lactones, P 1056*h*.
resinous products from castor oil, olefinic α,β-dicarboxylic acids, vinyl compds. and, P 3656*d*.
catalyst complexes of ethers and metallic, in alkylation and isomerization of hydrocarbons, P 8666*c*.
catalysts for Friedel-Crafts reaction from, P 3161*b*.
as catalysts in condensation of $C_2H_2$ with $NH_3$, 3778*f*.
in polymerization of olefins, P 3188*b*.
in polymerization of unsatd. hydrocarbons, 7313*a*.
in soln. of Cu, 6496*f*.
catalysts of $AlBr_3$ or $AlCl_3$ and molten metallic, in conversion of hydrocarbons, P 4843*c*.
catalysts of, in alkylation of aromatic hydrocarbons, P 4005*b*.
in hydrocarbon conversion, removal from products, P 7222*h*.
in isomerization of $C_6$–$C_8$ paraffins, P 3190*d*.
in polymerization of drying oils, P 9484*a*.
chromatographic sepn. of, 6883*b*.
condensation of satd., with unsatd. compds., 3371*h*, 3372*df*.
detn. of, 8972*d*.
detn. of, series titration with Ag ion in, 6942*a*.
elec. cond. in different solvents, 7301*f*.
fluorescence of, quenching of, 7829*c*.
of Group IV elements, force field of, 2051*h*.
heats of dissocn. of org., 6479*d*.
heats of formation of, thermochem. logarithmicity and, 2827*f*.
isomorphism of org., 5754*e*.
mercury equil. with ions of, 4545*g*, 7857*a*.
metal extractive distn. with, P 5728*e*.
microwave absorption by org., 4912*ace*.
organo metal, in silvering org. surfaces, P 4520*e*.
poly-, calcn. of formulas of, 3306*f*.
polymethylene di-, use in synthesis, 3792*d*.
reaction of acyl, with phosphorus thio esters, 560*g*.
reaction of metal, with org. Al compds., P 7935*d*.
reaction of org., with Bu di, 2188*g*.
reaction products of org. di-, with metal polysulfides, P 6457*c*.
reactions of $Mg_2Pb$ and $Mg_2Sn$, 7364*a*.
reactions of org., with Na vapor, 3694*a*.
reactions with at. Na, 3694*c*.
reaction with $BrF_3$, 3739*e*.
reducibilities of metallurgical, 4931*c*.
reduction of org., with $LiAlH_4$, 1312*c*.
refractive indexes of crystals of, 3259*h*.
reviews on, 3739*g*, 3780*d*.
selenium contg., P 5162*h*.
solid solns. with Ag halides, 8789*b*.
soly. in water, heteroatom polarizability and, 3671*i*.
substitution by OH ions in basic salts and OH ions substitution by halide ions, 5266*d*.
systems (binary) of, 2107*b*.
thermodynamic properties and ultrasonic velocity in inorg., 6024*h*.
thermodynamics of bivalent, in aq. soln., 22*c*.
titration of, glass sensitive to Ag ion for, 4961*b*.
ultrasonic velocity in org., 1232 .

**Halite.** See *Sodium chloride* (esp. "rock salt").

**Hall effect,** of bismuth-Te alloys, 7763*e*.
corrosion measurement by, 8340*c*.
equation for, 8221*g*.
of galena, photoelec. effect, thermal e.m.f. and, 4101*i*.
in germanium at low temps., 4066*c*.
in iron-Ni alloys, effect of stress on, 3765*e*.
of lead sulfide contg. Pb, 4533*a*.
of magnesium compd. with Sn, $Mg_2Sn$, 4558*g*.
measurement of, electromagnet for, 912*c*.
in rubidium (liquid), 1619*g*.
of semiconductors, variation with vapor pressure, 4555*c*.
in silicon, 9002*c*.
of silicon and Si alloys with B and P, 4068*f*.

**Haller, Albin,** biography, 915*e*.

**Halloysite.** (See also *Metahalloysite.*)
adsorption (interlamellar) by, 5254*i*.
chromium-contg. blue, from Aidyrlinsk, Urals, 6121*i*.
in clays, 3580*f*.
complexes with org. liquids, 463*c*.
dehydration of, 6121*i*.
formation of, 6347*f*.
hydrated—see *Endellite*.
hydroxylic surfaces of, 1131*h*.
from Italy (Capalbio, Toscana), 7871*i*.
from nepheline pegmatites of Vishnevye Mts., Mid Ural, 2897*d*.
nomenclature of hydrated halloysite and, 2130*b*.
sedimentation in hydrothermal stratum of clays of Capalbio, Italy, 5706*e*.
suspensions of, properties of, 4436*h*.
thermal analysis curves for, 8987*h*.
transition to metahalloysite, effect of R. H., pressure and temp. on, 4607*ac*.
of U.S.S.R. (Caucasus), 977*e*, 4187*d*.
x-ray studies of, 4606*h*.

**Hallwachs effect.** See *Photoelectric effect*.

**Haloalkylation,** of aromatic hydrocarbons, P 5583*e*.

**Halochromism,** of diazaphenanthrenes and quinoline derivs., 8391*c*, 8392*ag*, 8393*b*.
of ketonic compds., 7910*h*.

**Halocrine.** See *Acridine, 6,9-dichloro-2-methoxy-*.

**Halogen acids.** See *Hydrogen halides*.

**Halogenation.** (See also "reaction" under *Halogens.*)
of acrylonitrile, 7411*d*.
of alkyl derivs. of acrylonitrile, P 7498*g*
of aromatic hydrocarbons, P 5799*a*
of bicyclic hydrocarbons, P 689*f*.
of 1,6-dihydro-5-hydroxycinchomeronic acid derivs., P 697*f*.
of ethers (unsatd.), P 4682*g*.
of hydrocarbons (unsatd.), 109*h*, P 3436*h*.
kinetics of, 7408*f*.
of naphthoquinone imines, P 1440*e*.
of nitrogen compds., P 7517*c*.
of olefins (di-), P 2218*b*.
of olefins, kinetics of, 7310*a*.
of polymers, P 1608*c*.
review on, 7759*b*.
of shellac, P 6838*g*.
of silver salts of carboxylic acids, mechanism of, 1719*d*.
of sulfanilamides, 174*i*.
of sulfosalicylic acid, 2972*e*.
of unsatd. ketones and quinones, kinetics of, 1633*a*.

**Halogen compounds.** (See also *Halides.*)
active, P 7517*d*.
aldehydes or ketones from vinyl-type, P 9078*g*.
azeotropes of, 2835*a*.
azeotropes with ethers, 2835*c*.
aminoplasts modified with nitroaliphatic, P 4894*g*.
books: Les dérivés org. halogénés doués d'activité insecticide, 2364*a*; Naphthalene compds. Pt 1—contg. one Naphthalene ring, 2027*h*.
cleaning, corrosion-loosening and penetration compns. from, P 6147*h*.
detection of gaseous, 4602*d*.
as elec. insulators (gaseous), 6337*f*.
fireproofing paper with org., P 9448*d*.
heats of reaction in vapor phase, 6070*i*.
insecticidal, 1518*d*.
insecticidal action of, 9332*b*.
inter-, 3739*e*.
interfacial friction and, 2060*a*.
miscibility with asphaltic bitumens, 6817*c*.
mixts. with DDT or its analogs, P 6358*f*.
nitro unsatd., P 6646*h*.
phosphorus-, as insecticides, 9353*f*.
polarography of org., 8916*g*.
polymers from aromatic, 1603*c*.
reaction of org. di-, with inorg. polysulfide-org. dihalogen compd. reaction mixts., P 4877*a*.
reactions of, 557*g*.
reactivity of halogen in org., 4638*d*.
review on, 2105*h*.
sound velocity in, structure and, 3256*d*.
sulfur (insol.) stabilization with, P 3160*i*.

**Halogen hydrides.** See *Hydrogen halides*.

**Halogens.** (See also *Halogenation; Pseudohalogens.*)
atoms, effect on dissocn. of pentaarylethanes, 2607*e*.
parachors and refractivities of, 2590*g*.
reactivity in olefins, 5362*c*.
reactivity in org. compds., 4638*d*.
bactericidal action of, 5540*a*.
catalysts of $Al_2O_3$, Pt and, P 8578*h*.
catalysts of $Al_2O_3$, Pt and, in reforming of gasoline, P 8664*h*.
detection in org. compds., 8974*b*.
detn. of, 3307*h*.
in org. compds., 968*gh*, 4179*e*, 6105*d*, 7860*d*.
in quinoline compds., 6113*b*.
detn. of two, 7866*a*, 8306*g*.
disintegration of, products of, 2861*d*.
effect on acetate rayon, 2777*f*.
effect on fungistatic activity of $C_5H_5$ derivs., 4803*h*.
electrodeposition from $Ac_2O$ solns., 2876*h*.
exchange of, in benzoic acid derivs., 187*g*.
in inorg. compds., 2495*h*.
with Li in iodothiophenes, 1393*f*.
nucleophilic substitution and, 6876*e*
in ring closure of diazotized *o*-amino α-haloacetophenones, 652*g*.
heats of hydration of ions of, 7318*b*.
methyl halide reactions with ions of, effect of solvents on, 5270*a*.
photoreactions sensitized by, 3725*c*.
radioactive, in exchange reactions, 7809*g*
reactions in aq. solns., 6496*g*, 7799*e*
reaction with H, kinetics of, 5266*e*
with metals at high temps., 90*i*
with 1-(2-nitrovinyl)piperidine, 1004*c*
removal of, from coumarone-indene polymers, P 904*g*.
from 2-[(2-dimethylaminoethyl)(5-halo-2-thenyl)amino]pyridines 5781*i*.
from gasoline, etc., P 390*c*.
from halogenated benzenes by electrolysis, 8908*f*.
from halogenated hydrocarbon-aromatic compd. condensation products, P 2124*b*.
from hydrocarbons, P 4006*c*.
with Raney Ni, 646*c*.
sulfur (insol.) stabilization with, P 3160*i*
in sulfur viscosity reduction, 8839*d*.

**Halohydrins,** reaction kinetics with hydroxyl ion, 2848*e*.
reaction with alkyl vinyl ethers, 6150*b*.
reaction with vinyl esters, P 6649*i*.
sulfolene, P 3851*e*.

**Halomethylation,** of 1,8-naphthosultone, 203*d*.

**Haloprenes.** See "halo derivs." under *1,3-Butadiene*.

**Halothenes.** See "halo derivs., polymers" under *Ethylene*.

**Halotrichite,** in mineral springs at Beppu, Japan, 5703*h*.

**Halovis,** metabolism and, 3912*h*.

**Haltica.** See *Altica*.

**Halva,** compn. and nutritive value of, 782*c*.

**Hamamelis,** identification of fluidexts of, 1908*c*.

**Hammond's Weed Killer,** effect on action of 2,4-D, 805*h*.

**Hamsters,** oxygen consumption and temp. regulation in, during hibernation, 8563*a*.

**Handkerchiefs,** in transfer of respiratory infections, 6278*f*.

**Handling of materials.** (*For handling of specific materials see headings for those materials.*) 1227*i*, 9297*d*.
book: Khranenie i perevozka zhidkikh kislot i shchelochei, 2744*h*.
conveyors for—see *Conveyors*.

**Hanger's test.** See *Flocculation reactions*

**Hanksite,** compression of, 4917*b*.

**Hansa Dyes.** See *Dyes*.

**Hansenula anomala,** metabolism of, 7550*a*.

**Haplopappus.** See *Aplopappus*.

**Haptens.** (See also *Antigens.*)
interaction with antibodies 3925*e*.
Rh, 753*h*.

**Hardboard.** See *Building materials*.

**Hardening.** (For hardening of specific materials see such headings as *Alloys; Cement, hydraulic or structural; Glass; Metals.*)
of oils—see *Hydrogenation*.
by plastic deformation, 8787*d*.

**Hard materials.** No entries this year. See *Carbides;* and "hard" under *Alloys*.

**Hardness,** crystal structure and, of psilomelane and pyrolusite, 1663*i*.

of crystal surfaces, effect of working on, 4071*i*.
expression of, of rubber, 2462*d*.
indentation, of rubber and synthetic materials, 7742*c*.
of interstitial phases, 918*d*.
measurement and theory of, 5351*h*.
measurement of, of alloys, app. for, 6136*e*.
app. for, 2559*g*.
of cosmetic products, 2369*c*.
of elec. insulators and plastics, 4400*c*, 4787*i*.
of glass, plastic deformation in, 5558*d*.
of org. coatings, 2788*d*, 3632*b*, 7239*c*.
of paints, app. for, 3211*b*.
of polymers, 8202*g*.
of quartz crystals, 976*f*.
of rubber, 429*b*, 1210*i*, 2462*ef*, 3643*g*.
of rubbers, and calibration of testers therefor, 1207*e*.
by scratch resistance, 4056*a*.
of viscoplastic bodies, 4928*i*.
of metals—see *Metals;* and the specific metals.
of minerals—see *Minerals;* and the specific minerals.
rebound, of rubber, 7741*a*.
of steel—see *Steel*.
of water—see *Water, potable and industrial*.
of water, measurement of—see *Water, analysis*.
**Harkins, Wm. Draper**, biography, 4057*f*.
**Harlequin bug**. See *Murgantia histrionica*.
**Harmine** (*7-methoxy-1-methyl-9 H-pyrid-[3,4-b]indole*), effect on growth of wheat seedlings, 4350*h*.
synergism with antihistamines on intestines, 3102*d*.
**Harmony**, 7781*d*.
**Harmotome**, compn. and origin of, 1291*e*.
**Harpodon nehereus**, compn. and nutritive value of, 782*c*.
**Harzburgite**, norms of average analyses of, 2552*b*.
in serpentinite of Wairere, N. Z., 1692*h*.
**Hasethrol**. See "tetranitrate" under *Pentaerythritol*.
**Hashish**. No entries this year. See *Hemp*.
**Hastelloy**, B, ceramic coatings on, 541*e*.
B, minor phases in, 540*i*.
C, corrosion resistance of, in paper-pulp manuf., 4010*i*.
C, corrosion resistance to $NaClO_2$ and NaOCl bleaching solns, 855*a*.
corrosion of, by sulfates, 1706*f*.
oxide coatings on A, B, C and D, 1299*e*.
as sulfation and sulfonation app. alloy, 97*e*.
**Hatchettolite**, neptunium and Pu in, 1649*a*.
**Hatchite**, identity with gratonite, 2128*f*.
**Hats**, from braids of cellulose derivs. plasticized with bis(methoxyethyl) phthalate, etc., 2785*h*.
from felts from nonfelting fibers and resin fibers, P 3208*f*.
hyperthyroidism and Hg poisoning in factories for making felt, 8689*a*.
mercury exposure in making fur-felt, 8688*g*.
mercury poisoning and urinary excretion of Hg by workers on felt, 4019*a*.
mercury poisoning in manuf. of felt, 333*a*, 8688*i*.
**Haworthia coarctata**, carotenoids in leaves of, 1836*i*.
**Hawthorn**, bud exts., stabilization by $HPO_3$ of vitamin C in, 8475*e*.
cardioactive substance of, 5906*f*.
control of *Crataegus*, 4414*a*.
identification of fluidexts. of, 3145*h*.
pharmacology of, 8558*c*.
vitamin C-contg. prepns. from, 8070*a*.
**Hay**, alfalfa—see *Alfalfa*.
from Bermuda grass, 3552*d*.
carbohydrates in, 6755*g*.
carotene detn. in, 2895*e*, 9276*d*.
cereal, carotene losses on curing and storing, 4783*i*.
compn. and digestible energy of, 6755*e*.
curing, in arid and forest-meadow zones, 329*f*.
fertilizer expts. with, 1129*f*, 9329*i*.
fertilizer expts. with, with P, 1892*c*.
legume, soil and, 2723*b*.
from *Lespedeza sericea*, as mulch, 3129*i*.
milk production and, 3041*d*.
nutritive value of, 329*e*, 1091*e*.
nutritive value of timothy and clover, 7604*c*.
nutritive value of wild meadow, effect of time of cutting on, 3946*c*.
peanut, effect of Cu residue of, on livestock, 9329*g*.
sewage-digester gas in making, 3131*a*.
soybean, in correction of K deficiency of peaches, 9319*a*.
**Haydite**, manuf. of, 5560*a*.
**Hay fever**. (See also *Allergy*.)
antihistamines in treatment of, 3938*f*.
aspasan in prophylaxis of, 4426*e*.
blood in, during acute shock, 7125*f*.
**Hazel**, control of brush in forests, 3134*i*.
control of *Corylus cornuta*, 4414*a*.
nuts, vitamin $B_1$ in, 6753*i*.
nuts, weevil control on, 6777*d*.
**HCC**. See *Cyclohexane 1,2,3,4,5,6-hexachloro-*.
**HCH**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Ho 176**. See *Carbamic acid, ethylenebis[dithio-*.
**Ho 178E**. See "zinc salt" under *Carbamic acid, ethylenebis[dithio-*.
**Healing**. See *Wounds*.
**Health**. (See also *Diseases; Hygiene; Poisoning; Public health*.)
agricultural chemicals and, 5142*a*.
book: Avoidance of Toxic Hazards in Some German Chem. Factories, 3948*g*.
in brickworks, 3581*c*.
hazards, in asbestos-cement industry, 4826*h*.
of Be, 8577*de*.
of Be, control in industry, 5883*f*.
of Co and dust in cemented-W carbide industry, 4614*d*.
of cyclotron workers, 6505*b*.
in electroplating, 2099*b*.
of F contamination in Fort William area, 5883*g*.
industrial, 3947*i*.
of insecticides and rodenticides, 0352*i*.
in Fe and metal-pickling industries, 7888*f*.
from Pb arsenate in apple orchards, 8086*b*.
in Pb bronze pouring and smelting, 6559*b*.
of metal-cleaning compds, 787*e*
of MeBr, 2341*f*.
of MeOH vapors from duplicating machines, 7159*i*.
of neutrons, 4562*a*.
of neutrons and x-rays, 4128*i*.
of pest-control agents, 8600*e*.
from radiations from at.-bomb explosion, 6505*a*.
of radiations in industry, 5885*d*.
of U compds., 8270*b*.
from $U^{235}$ fission products, 4951*d*.
of welding with Mn electrodes, 6561*e*
journals. Revista de sanidad de aeronáutica, 2262*a*; Industrial, Review, 6761*k*.
Organization of League of Nations, 3561*f*.
protection of, from radiation exposure, 4129*a*.
protection of, radiation-detection instruments for, 7326*e*.
soil nutrients and animal, 7171*c*.
and working conditions of operators with radioactive materials, 8876*e*.
**Hearing**, vitamin $B_1$ intake and, 5096*g*.
**Heart**. (See also *Circulation; Endocarditis; Tachycardia*.)
acetate and pyruvate utilization by, in diabetes, 8513*d*.
acetylcholine and cholinesterase in, 2686*i*.
acetylcholine effect on, in relation to its synthesis, 4383*b*.
acetylcholine effect on, thiaminase action on, 4767*h*.
acetylcholine in, of *Helix pomatia*, effect of physostigmine and prostigmine on, 3530*d*.
acetylcholine sensitivity of, effect of NU 683 on, 7134*f*.
acetylcholine sensitization by morphine and its derivs., 3102*c*.
acetylcholine sensitization of ventricle of *Helix pomatia* by local anesthetics, 1107*e*.
acetylcholine-vitamin $B_1$ antagonism in, 1093*i*.
action current of, effect of Ca on, 6742*e*.
action current of, effect of K ions on, 6742*f*.
actomyosin and myosin in, 7109*e*.
adenosinetriphosphatase in, effect of various substances on, 8058*a*.
adenosinetriphosphate effect on, 2693*e*, 8527*i*.
adrenaline action on, effect of veratramine on, 5866*h*.
adrenaline effect on, of cold-blooded animals, 6744*h*.
adrenaline effect on rhythm of, in dogs anesthetized with cyclopropane, 760*d*.
adrenochrome effect on, 5864*e*.
aglucons of glycosides acting on—see *Aglucons*.
amino acids in, 3534*f*, 7061*dh*.
6-amino-2-methyl-2-heptanol effect on, 6732*i*.
*Ammi visnaga* action on, 5542*i*.
antifibrillatory action of dilator drugs, 758*h*.
antifibrillatory action of thiamine triphosphate, 1880*g*.
antifibrillatory and coronary dilator action of diethylaminoethoxy-2-diphenyl hydrochloride on, 3109*a*.
antimony compd. effect on, 2316*g*.
antisclerotic prepn. contg. vitamin $B_1$ and $MgSO_4$ or NaI, 1157*b*.
antithyrotoxic factor in, 3912*i*.
arrhythmia of, effect of dibenamine on cyclopropane - adrenaline - induced, 2700*d*.
effect of diethylaminoethanol on, 2700*e*.
quinidine gluconate in treatment of, 9356*b*.
tetraethylammonium chloride effect on adrenaline-induced, 321*i*.
in arsenic poisoning (chronic), 8533*i*.
autolysis of, effect of acetylcholine on, 1074*g*.
automaticity of, effect of cyclic and noncyclic hydrocarbons on, 1111*d*.
autonomic innervation of, in blood sugar regulation, 9199*g*.
barium chloride effect on, 758*f*.
beat vol. of, measurement of, 8421*e*.
beef, in diet, effect on hemoglobin and plasma-protein production, 3500*e*.
benzene poisoning effect on, 3947*h*.
bis(2-chloroethyl)sulfide effect on, 5493*i*.
blood flow in, effect of acetylcholine, adrenaline and noradrenaline on, 8539*a*.
blood flow in, effect of pituitary exts. on, in relation to action of nicotine and to smoking, 4385*a*.
-blood vessel reflexes, tetraethylammonium as aid in study of, 6744*e*.
book: Coronary Disease, 1859*g*.
caffeine-digitalis antagonism in, 8051*g*.
calcium effect on, 297*c*.
calcium ethyl sulfate effect on, 4426*h*.
calcium-K ion antagonism on, 6742*g*.
carbon disulfide effect on, 7577*g*.
cholinesterases in, effect of cardiotonic glycosides on, 4380*f*.
cold effect on, 4754*f*, 5053*b*.
conduction and elec. systole of, effect of quinidine and strophanthidin on, 314*i*.
congenital disease of, 7571*h*.
congestive failure of, biologic decay periods of Na in, 3476*i*.
effect of sulfanilamide on salt and water excretion in, 3526*c*.
effect of tetraethylammonium chloride on venous and arterial pressure in, 3103*h*.
renal excretion of $Na^{24}$ in, 4744*c*.
Na elimination in, 5491*b*.
contractures of, from K and $CaCl_2$ and their mixts., 5867*i*.
contractures of, from salts, 5867*g*.
convallotoxin effect on, 5116*e*.
coronary arteriosclerosis, cholesterol in, 749*h*.
coronary infarct, effect of theophylline on, 819*a*.
*Crataegus* ext. active on, 5906*f*.
cysteine action on, 9252*b*.
cytochrome oxidase activity of prepn. of, 9104*b*.
decompensation, electrolytes of urine in, 4758*c*.
deficiency, O deficiency in blood in, 3093*e*.
digitalis effect on papillary muscles of, 2318*g*.
digitalis-glycoside retention by, 1106*h*, 5493*c*.
dihydroergocornine effect on, 7583*f*.
disease of blood vessels and, vitamin E in treatment of, 6296*d*.
diseases of, gas analysis of blood from heart and arteries in, 9136*e*.
kidney tubular function and, 9218*e*.
polypeptides in blood in, 8049*b*.
porphyrin in, 7570*g*.
tocopherol and blood plasma in, 7122*a*.
vitamin $B_2$ effect on O debt in, 4738*c*.
water balance in, 3095*e*.

dysfunction of, *Adonis vernalis* in treatment of, 5861*d*.
effect of acetylcholine and adrenaline on, 1489*c*.
effect of acetylcholine and choline on, of cephalopods, gastropods and molluscs, 3528*h*.
effect of acetylcholine and intermediate products of carbohydrate metabolism on, 5865*c*.
effect of 3-acetylpyridine and nicotinamide on, 2681*b*.
effect of adrenaline and noradrenaline on, 3525*e*.
effect of antibiotic lactones and analogs on, 1116*c*, 7138*g*.
effect of aranthol, ephedrine and octin on, 8546*c*.
effect of arsenic compds. and narcotics on, protective role of methemoglobin in, 316*h*.
effect of cardiac drugs on tissue explanted from, 4372*g*.
effect of chloro derivs. of diethanolamine and triethanolamine on, 2700*b*.
effect of choline and related compds. on, of *Venus mercenaria*, 8058*g*.
effect of citral and β-ionone on, 1488*g*.
effect of *Clostridium oedematiens* toxins on, effect of antitoxin on, 6740*f*.
effect of drugs on, in hypotension, 7147*i*.
effect of α-fagarine related compds. on, 2320*d*.
effect of gluconic acid and vitamin C on, 9182*i*.
effect of glycosides on electrocardiogram and myocardium, 4380*h*.
effect of β-halogenated ethylamine derivs. on, 7131*f*.
effect of heptanols and chloroheptanes on, 9248*e*.
effect of isomeric heptylamines on, 1110*b*.
effect of khellinin and visammin on, 7584*b*.
effect of mercurial diuretics on, effect of ascorbic acid on, 4373*c*.
effect of 2-methyl-1,4-naphthoquinone, 2-methyl-1,4-naphthohydroquinone and its esters on, 9246*g*.
effect of optical isomers of quinacrine, org. acids and alkaloids on, in molluscs with shells with left- and right-handed spirals, 3932*e*.
effect of ouabain and strophanthidin-3-acetate on, 313*e*.
effect of phenobarbital and sulfathiazole on, 7134*f*.
effect of strophanthin and vitamin D on, 8536*h*.
effect of substances which interrupt glucose metabolism of, 8550*b*.
effect of synthetic compds. with vitamin K activity on, 8059*g*.
effect of tetramethyl and tetraethyl ammonium hydroxide on, 6731*c*.
electrical stimulation of, liberation of active substance during, 7118*d*.
electrode jelly for electrocardiogram, 356*d*.
emetine in, 1862*e*.
ergot alkaloids and, 7128*a*.
evolution in vertebrates, 8509*d*.
failure of, from central nervous system depressants and local anesthetics, 1862*ef*.
failure of, salt and water retention in, 4366*d*.
fatigability and metabolism of, effect of adrenal cortical hormone on, 1851*f*.
fibrillation from adrenaline and chloroform, protective action of various agents against, 4768*c*.
fibrillation of, effect of adenosinetriphosphoric acid on electrically induced, 2319*b*.
fibrillation (ventricular) of, hydrocarbon-adrenaline induced, 313*a*.
flavoprotein and cytochrome complex from, as glucose dehydrogenase carrier systems, 4712*g*.
folic acid in normal and diseased, 7568*h*.
function of, oxyhemoglobin reduction in diagnosis of, 3093*f*.
glutamic acid and glutamine in, 6719*d*.
glycogen of, 3052*g*.
glycogen of, effect of alloxan on, 8537*f*.
glycosides acting on—see *Glycosides*.
growth-inhibitory fraction from sheep, 1849*d*.
growth of embryonic, effect of hormones on, 1099*f*.
growth of tissue culture of, effect of glutathione on, 296*i*.
hyaluronic acid in, effect of nervous excitation on, 741*f*.
hydrastinine effect on, 3102*f*.
hypertonic soln. effect on, 1490*de*.
idioventricular rhythms of, under cyclopropane anesthesia, arterial pressure and, 1111*e*.
infarction of myocardium, fibrinogen in blood in, 4772*g*.
inotropism in, 315*c*.
iron in, 9133*h*.
irregularities during cyclopropane anesthesia, dihydroergotamine and dihydroergocornine in prevention of, 4381*h*, 4763*g*.
ischemia, nucleotides in, 4756*g*.
isopropyladrenaline effect on rhythmic action of, 5866*i*.
in lead poisoning, 9297*f*
lesions of, effect of salicylates and benadryl on anaphylactic hypersensitive, 3523*b*.
from endocrine kidney, effect of diet on, 8043*d*.
from γ-globulins of blood serum, 5859*c*.
liver and, 7118*e*.
lyxoflavine isolation from, 7532*h*.
meperidine effect on, 8552*h*.
metabolism by, 8513*a*.
in avitaminosis, 292*i*.
drug action and, 9267*i*.
and effect of metabolic inhibitors thereon, 9210*fgh*.
of triacetic acid and its Et ester and lactone, 2261*c*.
minute vol. of, effect of quinine and quinidine on, and effect of Ca thereon, 3108*b*.
myoglobin in, 6301*c*.
nicotine effect on, 757*d*.
nicotine effect on, and its reproduction by other autonomic drugs, 4385*c*.
nicotinic acid effect on, 3076*c*, 3519*e*.
nicotinic acid in, during corn diet, and effect of tryptophan and $N^1$ methylnicotinamide thereon, 3075*g*.
nicotinic esters and, 6317*a*.
ouabain effect on papillary muscle of fetal, 2318*h*.
output, effect of dibenamine on, 6309*g*.
output, effect of Na thiocyanate on, 4374*f*.
in oxygen breathing, and effect of vagus thereon, 9200*i*.
paludrine effect on, effect of choline derivs. on, 2704*b*.
penicillin effect on, 9245*d*
phenobarbital effect on, 7133*g*.
phosphate synthesis by, at low O tension, effect of succinic acid on, 756*e*
phosphatides of, 3483*f*.
poisons—see *Poisons*.
potassium effect on, 6742*c*.
potassium inhibition of, effect of methylxanthines on, 1108*d*.
pressor-depressor antagonism in, 8056*e*.
protein fractions of normal and hyper trophied, 9199*f*.
pyrophosphate decompn. by, 8484*e*.
quinine dihydrochloride effect on, in malaria infection, 9256*e*.
rate of, effect of chloro- and bromothyronine derivs. on, 1109*d*.
rate of, in hyperthyroidism from thyroprotein, effect of energy intakes on, 293*h*.
refractory period and elec. excitability of ventricle of turtle and frog, effect of acetylcholine on, 1117*b*.
respiration of, effect of cardiac glycosides on, 1110*g*.
review on, 5838*h*.
rhythm (bigeminal) of, digitalis and, 5121*c*.
rhythm of, in digitoxin therapy, 1112*a*.
stimulation of, adrenotropic receptors and, 298*g*.
substances acting on, 5862*i*.
effect on phosphorylated intermediates of rat, 2321*g*.
standardization of, 1907*i*.
sulfathiazole effect on, 7133*e*.
sulfonamide effect on, 4371*h*.
sulfonamide toxicity for toad, 6307*d*.
sympathomimetic amines and, 9250*d*.
tetraethylammonium compd. effect on, 9266*b*.
thiamine triphosphoric acid effect on, 8557*g*.
thiamine triphosphoric ester effect on, 1860*f*.
thiobarbiturate toxicity to, 4768*f*.
toad venoms effective toward, constitution of, 2626*i*.
tobacco smoking and, 6738*d*.
uranin effect on, 309*g*.
urethan effect on, 5493*e*.
vagal stimulation of, adrenergic mechanism of, 8511*g*.
water (extracellular) of, in hemorrhagic shock, 7125*d*.

**Heart extracts**, effect of cardinon on tissue growth, 1099*g*.
fatty acid oxidation by, 2248*i*.

**Hearths.** (See also "bottoms" under *Furnaces*.)
blast-furnace, 7389*gh*.
cooling of blast-furnace, 4612*def*.
cordierite-type minerals from blast-furnace, 5705*f*.

**Heat.** (See also *Body temperature; Heat of activation*, etc.; *Joule Thomson effect, Light, infrared; Metabolism, animal, Metabolism, plant; Peltier effect; Temperature; Thermodynamics.*)
acclimatization to, 8408*b*.
anomaly in Cr-Ni alloy, 4619*e*.
anomaly in Isabellin, 2149*a*.
balance, calcn. of, 1548*hi*.
in cement rotary kiln, 1937*b*.
in distn. columns fed superheated petroleum vapors, 3178*f*.
in distillery, 6361*a*.
in ferrosilicon-smelting arc furnace, 3295*i*.
open-hearth furnace, calcn. of, 781*i*.
reverberatory furnaces for Cu 2142*c*.
books: Intermediate, 4940*e*; Teploobmennye Apparty, 5236*f*; Transmisson de la, 6476*g*; Transfer, 6873*i*; Physique générale, 6904*d*; Diffuziya i Teploperedacha v Khimicheskoĭ Kinetike, 7808*c*.
capacity—see *Heat capacity*.
cellulose-acetate softening by, plasticizers in, 5944*d*.
conduction of—see *Conduction, thermal, Conductivity, thermal*.
conservation of, in tanneries, 1589*g*
consumption in drying drums, calcn. of, 1164*f*.
content, of air, of combustion products of kerosene and of their mixts., 3671*d*.
of alkali metal halides, 457*e*.
of amino acid aq. solns., 6070*c*.
of $NH_3$, 1231*g*.
of ammonium vanadate, 3276*a*.
of $C_6H_6$, 476*f*.
of $C_6H_6$, cumene, PhEt, styrene and toluene, 8654*i*.
of $B_4C$, 6500*a*.
of butane, 476*e*.
of $C_4H_{10}$-$C_2H_6$, $C_4H_{10}$-$C_3H_8$, plant $C_2H_6$ and $C_3H_8$-$C_3H_6$ mixts., 7216*a*
calcn of changes in, in gas-compressor design, 6471*c*.
calcn. of, of org. compds., 5658.
of Cannizzaro reaction, 2848*e*.
chart of entropy and, for turbojet power output calcn., 373*f*
curves of, in distn. of binary mixts., 3255*g*.
of cyclobutane and quartic oscillator, 2501*b*.
of cyclohexane, cyclopentane, methylcyclohexane and methylcyclopentane, 7215*i*.
of diiodoacetylene and symmetrical-top acetylenes, 8838*f*.
of diolefins, Me styrenes and styrene, 5275*e*.
of elec. double layer at ideal polarized electrode, 1625*i*.
of electrode processes, temp. and, 7836*g*.
entropy diagram for air and its use in thermodynamic study of turbo reactors, 2753*f*, 4089*e*.
equations for, and tables of, 6903*e*
of EtOH system with methylcyclohexane, 8813*h*.
of exchange adsorption of $NH_4$ and K ions by soils, 7621*c*.
extrapolation of, of strong electrolytes, 7299*a*.
of gases and vapors, 3179*a*.
of hydrocarbons, 6903*f*.
of hydrocarbons, and effects of pressure thereon, 5570*ab*.
of hydrocarbons, chem. constitution and, 6068*i*.
of HCl-absorption app. and cooler 9391*f*.
of HF, 7790*f*.
of HF system with $H_2O$, 2043*c*.

*content*, of hydroxides, metals and oxides, 5250*g*.
of iodide reaction with persulfate, 8236*f*.
of iso-PrOH, 476*g*.
of ketene, 1657*d*.
of $Mg_3N_2$, 8836*g*.
of MeSH and $Me_2S$, 7804*g*.
of MeOH and $H_2O$ in solns. contg. NaBr, 6902*g*.
of olefins, 7215*h*.
of paraffins, 5575*e*.
of perlite and its dehydration products, 1294*a*.
of petroleum vapor, effect of pressure on, 381*i*.
of polythene, 5250*a*.
of $KHF_2$ and KF, 8763*e*.
of products of hydrocarbon flames, calcn. of, 1231*h*.
of NaBr, NaCl and their solid solns., 2854*i*.
of solids, 1638*d*.
of S in Ag system, 8834*d*.
of thiophene, 6070*a*.
of VC and VN, 3275*i*.
of vinyl halides, 4553*c*.
in copper mines, 1569*b*.
destruction of ascorbic acid oxidase and peroxidase in canned acid foods by, 9275*h*.
diffusion and, 8805*i*.
diffusion by—see "thermal" under *Diffusion*.
diffusion thermics, thermal diffusion and, 1638*b*.
diffusion thermoeffect, 4082*e*.
dissipation test for refractory materials, 3582*e*.
distortion test for plastics, app. for, 4524*b*.
effect on alunite and alunitic clays, 9404*c*
on asphalt powder, 6817*d*.
on baking properties of nonfat dry milk solids, 6326*e*.
on clay minerals, 3583*g*.
on compn. of pptd. rosin sizes, 6432*g*
on gum-arabic compn. and phys. properties, 6849*a*.
on pH of soils, 3128*i*.
on leather, 1203*i*.
on lipides of plasma and plasma fractions, 4753*d*.
on metal films, 2482*b*.
on nutrients in infant formula, 4779*f*.
on optics of feldspars, 3749*b*.
on phosphatase inactivation in milk, 8567*e*.
on phosphates, 8822*f*.
on polybutadiene in presence of Na sand, 4214*b*.
on protoplasmic colloids, 3932*i*.
on rice-oil extn. from polishings, 5610*c*.
on structure of highly dispersed solids, 4923*b*.
on surface tension of oils and lubricating greases, 8659*h*.
on wear of cast Fe and steel, 5721*a*.
elec. and mech. equivs. of, 8835*b*.
elec. conduction by electrons and, 5250*d*.
elec.-current variations from, in solns., 5676*a*.
exchange app.—see also *Cooling apparatus; Refrigerating apparatus; Regenerators*.
exchange app., P 8*g*.
chem. cleaning of, 913*a*.
cleaning tubular, in petroleum refinery, 3179*h*.
cooling-water treatment for, 8217*h*.
for electromagnetic app., P 6874*d*.
fouling and cleaning of, 8755*bcdefgh*.
for gas fractionation, P 3176*e*.
for O manuf. from air, 2044*i*.
for pilot plant, 5645*d*.
for preheating air by combustion gases from boiler, P 6874*e*.
quality rating of, 4905*e*.
for refrigeration, P 4058*e*.
selection of, 5236*b*.
for sewage-sludge digestion, 3123*i*.
stabilizing carbonate hardness of water in, P 6346*f*.
standards of A.S.T.M. for steel tubes of, 4202*c*.
tube arrangements in, 4905*f*.
tubing, P 8347*a*.
for vapor-compression-type still, P 6874*e*.
fluid treatment with, P 6010*i*.
hair damage by, detection of, 414*f*.
hyperpotassemia from excessive, 7109*f*.
in Igelite gelation, 6454*i*.
inertia of, in temp. control, 5648*d*.
injury from, and its toxic factor, 8049*d*.
insulation—see *Insulation, thermal*.
losses from electroplating tanks, 4583*c*.
losses from glass-melting furnaces, 6379*e*.
losses in sugar manuf., 6845*h*.
in lubricant and antioxidant deterioration in watches, 4455*c*.
magnetic-field effect on, 8221*g*.
measurement of—see *Calorimeters; Calorimetry*.
-pressure coeff. of $CCl_4$ and inorg. halides, 6024*i*.
production of, by cottonseed in storage, relation of molds and moisture to, 4875*e*.
in deformation of Na-butadiene rubber mixts. with channel black, 8188*e*.
by leather in storage, 5220*i*.
in Neoprene GN and rubber under stress, 7255*a*.
properties of electrolytes, Debye-Huckel theory and, 7317*h*.
of MnSe, 8840*d*.
of solids, 8784*i*.
radiant, effect of temp. on sensitivity of detectors for, 7272*h*.
radiation of, by furnaces, 1617*d*.
by open-hearth furnace, 1227*c*.
by refractory bricks and slags, and its effect on heat transfer, 9404*i*.
rate of radiation—see *Emissivity*.
recovery of, in burning paper-pulp black liquors, 3612*i*
in extractive distn. of petroleum cracked vapors, P 4844*a*
in hydrogenation of fatty acids and glycerides, P 5977*g*.
in paper-pulp manuf., 2771*f*.
in stripping and rectifying unit for wash oil, P 6403*d*.
in utilization of sulfite waste liquors, 7682*c*.
reflection by Al finishes, 871*f*.
resistance to, of $C_2H_2$-filled bottles, 7212*d*.
of bacterial spore, 719*i*.
of cellulose acetate and ethylcellulose, 5943*ag*.
of light-wt. refractories, measurement of, 8631*c*.
of $MgNH_4PO_4$ and its improvement, 7796*d*.
of phenolic resins, measurement of, 3229*h*
of plasticizer, testing of, 2465*e*.
of polyethylene polyisobutylene blends, 9522*h*
of refractory materials, measurement of, 6385*f*.
of vinyl chloride-vinylidene chloride polymer, increasing, P 8741*fgh*.
of vinyl halide resins, increasing, P 8742*h*.
of vinyl resins, agents for increasing, P 2032*c*, P 4520*h*.
of vitrified industrial compns., 9403*h*
-resistant insulating materials, P 4518*b*.
-resistant insulating materials from silicones, P 4894*g*.
in sugar factories, lab. for control of, 6845*e*.
transfer or transmission of—see also *Conduction, thermal; Conductivity, thermal*.
transfer or transmission of, and heat-transfer app., 1616*i*.
transfer or transmission of, from adsorbent beds, 1253*g*.
through absorbents and textiles, 3623*e*.
between air and water in packed tower, 4524*c*.
alkenyl aryl ether derivs. as media for, P 9084*h*.
by alundum in butadiene manuf., P 6819*g*.
analogy between mass transfer and, 8772*i*.
in app. for catalytic synthesis of hydrocarbons and water gas, 2343*a*.
in boiling $CO_2$ in tubes under pressure, 5*c*.
in brick walls of coke ovens, 5926*g*.
in catalyst beds, 6007*d*.
catalyst pellets for, P 8578*g*.
in ceramic industry, calcn. of, 828*e*.
coal-particle size and rate of, 6805*g*.
between coke-oven walls and charge, 1169*f*.
in condensing gases on finned tubes, 446*d*.
in contact synthesis furnaces, 2475*g*.
by convection, 6009*d*.
by convection, effect on localization of
*transfer or transmission of*, by convection, in geyser wells, 6131*e*.
decafluorocyclopentane as media for, P 3844*c*.
detn. with elec. model, 2475*i*.
disiloxane derivs. as media for, P 667*g*.
effect of rate on crystal shape of explosives, 6415*i*.
effect on open-hearth-charging rate, 3327*d*.
effect on rate of contact reactions, 3698*g*.
elec.-analog-computer application to, 8217*i*.
in evapn. with graphite and porcelain tubes, 448*i*.
from flames, 7805*a*.
in fluidized beds, 4834*c*, 6474*i*, 6475*i*, 8753*g*
in gases between coaxial cylinders, 6902*i*.
in gases, effect of elec. field on, 6068*f*.
to gases in packed and contact tubes, 6009*b*
from gases to metal in cupola furnace, 4989*g*.
by gas film in tower packings, 3248*d*.
in gas turbines, 1167*f*.
with granular solids coated with fuels in conversion of hydrocarbons, P 388*g*.
halogenated hydrocarbon mixts. with N heterocycles as media for, P 2217*e*.
halo toluenes for media for, P 3033*e*.
in heat exchangers, balancing of pressure drop and, 2047*e*.
in He II, 8226*f*.
1,2,3,4,5,6 - hexachloro - 1 - (trifluoromethyl)cyclohexane for, P 4693*g*.
in hydrocarbon conversion by stationary catalyst bed, P 8130*a*.
hydrogenation product of dimeric *p*,α-dimethylstyrene for, P 4518*f*.
between immiscible liquids, 5*f*.
in liquid He I by internal convection, 1620*c*.
to liquid metals flowing in asymmetrically heated channels, 8754*b*.
to liquid surface, combustibility and, 4532*e*.
measurement of, of film of $CO_2$, 2476*a*.
media for, P 6222*g*.
in multicomponent structure, 1617*a*.
with octafluorocyclobutane, P 8219*a*.
org. silicon compds. as media for, P 7500*f*.
in packed solids, 912*h*.
with particles in hydrocarbon-oil conversion, P 8665*a*.
polymeric dimethyl silicones for, P 2813*e*.
by radiation in glass, 8626*e*.
by radiation to surfaces at low temps., 4939*a*.
ratio to mass-transfer coeff.—see *Lewis coefficient*.
in refractory-insulating materials, 3582*d*, 3583*a*.
to refrigerant boiling in horizontal-tube evaporators, 2475*g*.
in regenerators with cylindrical and spherical packings, 1227*f*.
reviews on, 5*c*, 1227*h*.
in rotary driers, 8752*g*.
in rotary kiln, 1545*a*.
satd. perfluoro polycyclic hydrocarbons as media for, P 4300*g*.
by silicone-coated condensing surfaces, P 6467*a*.
silicone oils for, P 8208*e*.
in sugar evaporators, 9490*c*.
surface film in, 4939*a*.
through textiles, measurement of, 8141*h*.
in tube filled with pellets and gas, 8835*a*.
in Votator in paint and varnish industry, 4869*h*, 6432*d*.
to water in stainless steel tubes, 8753*i*.
with Wood's metal, etc., in lamination, P 5232*f*.
-treatment of hydrocarbons, etc., P 4908*a*.
units of, elec. measurements concordant with, 4526*g*.
utilization of, in glass-melting furnaces, 9399*d*.
vinyl chloride polymer compns. stable to, P 2037*i*.

vinyl-film stabilization against, testing of, 5227a.
waste—see also *Boilers*.
waste, saving in dyeing and impregnating textiles, etc., P 9472h, P 9473a.
**Heat capacity**, of acetaldehyde, 7804k.
of adsorbent beds, detn. of, 1253h.
of air, combustion products of kerosene and of mixts. of these gases, 3671d.
of ammonia ionization, 7303d.
of ammonia-metal solid solns., 2500d.
of ammonium compounds (substituted), effect of ionization on, 6904c.
of ammonium vanadate, 3275i.
of antimony iodide, 8891e.
of barium titanate, 4917i.
of benzene, 476f.
of benzene and $H_2O$ from deviation from perfect-gas behavior, 7280h.
of benzene and naphthalene, 2866f.
of benzene, cumene, PhEt, styrene and toluene, 8654i.
of binary compds., distance between ions and, 6499i.
of bismuth and Mn at liquid-H temps., 6069c.
of boron carbide, 6500b.
of butyric acid in aq. iso-PrOH, change on ionization, 1244h.
calcn. of, of metals, 8780h.
calcn. of, of org. compds., 7316h.
of carbon tetrachloride and inorg. halides, 6024i.
chem. constitution and, 4089c.
of chromium(VI) compds., 8785b.
of Chlorex systems with cyclohexane and methylcyclohexane, 1251g.
of citric acid, change on ionization, 6051f.
of cobalt sulfate, 8766g.
of copper potassium sulfate at low temp., 7336h.
-corrections for efficiency of basic internal-combustion thermodynamic cycle and their application to const.-vol., const.-pressure Diesel and Humphrey pump cycles, 4089b.
of cumene and isopropylcyclohexane, 8246i.
of cyclobutane and quartic oscillator, 2501b.
of cyclohexane and cyclopentene, 1254c.
of cyclohexane, cyclopentane, methylcyclohexane and methylcyclopentane, 7215i.
of cyclooctatetraene, 6500b.
of deuterium, HD and $H_2$, 2057c.
of 1,2-dichloroethane systems with hydrocarbons, 4937i.
of diiodoacetylene and symmetrical-top acetylenes, 8838f.
of diolefins, methylstyrenes and styrene, 5275d.
of electrons in Zn, 4061a.
of elements, 3671c.
of ethyl acetate, EtOH and H, 8247c.
of ethylcyclohexane and dimethylcyclohexane isomers, 5275i.
of ethylene oxide, 2500i, 8837b.
in flame propagation in hydrocarbons, H and $CH_4$ mixts. with air, 3618f.
of flours and starches, 4391i.
of foods, 8571e.
of 2-furaldehyde condensation products with phenol, 5226a.
of gases, 1619i, 8773e.
of gases and graphite, 1638b.
of gases and vapors, 3179a.
of gases, ratio during rapid compression, 8836d.
of gasoline, Napalm and Napalm-gasoline gels, 8140b.
of GR-S rubber latexes, 3644i.
of halogen derivs. of acyclic hydrocarbons, 30a.
of helium (liquid), 28i.
of hydrocarbons, chem. constitution and, 6068i.
of hydrocarbons, correlation factor for, 8775d.
of hydrocarbon vapors, detn. of $C_p/C_v$, 6068h.
of hydrocarbon vapors, reduced pressure and temp. in relation to, 2758f.
of hydrofluoric acid, 7790f.
of iron of high purity, 2559b.
of iron(II) sulfate heptahydrate and of Pyrex glass, 6017g.
of isopropyl alc., 476h.
of ketene, 1657d.
of linear ionic lattice, 3700e.
of liquids and solns., 7298f.
of liquids, theory of, 6879c.
of lithium aluminum hydride, $LiBH_4$ and $NaBH_4$, 7805d.
of magnesium nitride, 8836i.
of manganese selenide, 8840e.
measurement of, app. for—see also *Calorimeters*.
calorimeter for, 4523g.
of gases, 6903a.
of synthetic materials, 4047f.
measurement of, of liquids and solids and heat-capacity relations of gases, 3275e.
measurement of ratio of, of gas, 7280d.
of mercury, Pd and Na at low temps., 3700f.
of methanethiol and $Me_2S$, 7804g.
of methanol and MeOD, 5276b.
of methanol vapor, 3275g.
of molten metals, 7880e.
of nitrates and N, 7310i.
of olefins, 7215h.
of org. acids, change on ionization, 477i.
of paraffins, 5575e.
of perlite and its dehydration products, 1294a.
of platinum diammine stereoisomers, 29i.
of polymers and vitreous materials, 6029c.
of potassium fluorides, 8763d.
of refractory brick (light-wt.), 5563i.
of rubber, elongation and, 3642f.
of silica glass, thermal cond. and, 8787a.
of silicon monoxide, 7794b.
of solids, 1638d.
in solid solns in binary alloys, 7770g.
of solids, relation to coördination no. and no. of particles in sp. vol., 6499h.
of solutes, 8243h.
of stellar material, 6916d.
of sulfur vapor, 8838a.
of superconductors, 6069f.
of superfluid atoms, 7283c.
surface condensation of, of electron gas, Eötvös rule and, 457e.
symbols and terminology for, 4058i.
of thiophene, 6069g.
of tritium and TH, 476c.
of vanadium carbide and VN, 3275hi.
of vinyl halides, 4553c.
of vitreous materials in transformation range, 2383h.
of water (bound), 6069d.
of water of crystn., 3255e.
**Heat conductivity**. See *Conductivity, thermal*.
**Heat content**. See *Heat*.
**Heaters**. (See also *Furnaces;* and "exchange app." under *Heat*.)
for air, P 6874e.
Aroclor, for unit operations, 6869g.
cleanliness of, control by elec. cond., 6009a.
for *N, N'*-dinitroethylenediamine and tetryl, 2775c.
elec.—see also *Electric resistors; Furnaces, electric*.
elec., P 7276a.
for dehydrogenation-catalyst chamber, P 4151b.
induction, 4581g.
laminated panel contg. C black, P 2526g.
metal-ceramic elements for, P 5565h.
Pyrobar, 3725g, 4613e.
for sand or water bath, 5236a.
elec. and internal cartridge, for pilot plant, 5645d.
gasoline recovery from natural gas with direct-fired, 3179i.
for glass, P 3163i.
for granular materials, P 7274f.
incrustations on, theory of, 7298c.
infrared, in drying sulfide minerals, 8322e.
oil, fouling of, 8755h
scale removal from coils of, 4905e
solar, for dehumidifying $SiO_2$ gel, P 4403a.
sugar-beet-juice, scale in, 9500g.
thermoregulators for—see *Thermoregulators*.
for water, cleaning of, 7399g.
corrosion by flue gases, 4622a.
corrosion prevention in, 1306i, P 4628a.
with corrosion-protective anode, P 2923b.
effect of colloids on corrosion in, 6141k.
testing draft diverters of, 448i.
**Heather**, lignins in, 2283b.
**Heaths**. See *Ericaceae*.
**Heating**, by adiabatic compression in syntheses, 6022d.
aerodynamic, 6009d.
of airport pavements with jets and sun, 1547c.
of anode flame in C arc, 4145d.
book: Gaswärme, 8120f.
of cathodes for electrooptical app., P 7359f.
control of, app. for—see *Thermoregulators*.
of descaling baths, 8999b.
by dielectric loss in rubber industry, 2462c.
elec. and dielec., 5673b.
in binding felt, fabric or yarn from adhesive thermoplastic fibers and fibrous materials, P 8175ab.
cheese pasteurization by, 9284e.
of dielectrics, P 2524e.
drying by, 8752i.
of food, 5880c.
of glass in Fourcault channel, 1540f, 7653d.
in glass-sheet manuf., 7653h.
in industry, 2871d.
in liquid dielecs. at low frequencies, 3731b.
in rubber industry, 2462c.
in rubber vulcanization, 5989c.
of $SiO_2$, 5316h.
of steel by high-frequency currents, 4616h.
in surface-hardening cylindrical parts, P 8290a.
temp. regulation in, 7272h.
electric resistors for—see *Electric resistors*
of electroplating tanks, 4583c.
in emulsion breaking, P 8758g.
flameless combustion in gas, 7665i.
of food in glass and other containers, 1491i.
of gases or liquids at high pressures, app for, 2473c.
of gasoline recovery and sweetening plant by circulating-oil system, 8657e.
of granular heat transfer agent coated with fuels in hydrocarbon conversion, P 388g.
infrared or radiant, 3170c, 8756g.
of metals—see *Metals*.
of milk, effect on amino acids and absorption spectra, 5876g.
in nylon finishing, 852i.
pre-, with steam in molding plastics, 7747b.
of reactors, 2823g.
of slag, P 3732i.
super-, of water, 3682c.
of textiles with steam, etc., app. for, P 856c.
by thermite process—see *Thermite process*.
water treatment for, 3121f.
**Heating value**. See *Calorific value*
**Heat of absorption**, surface areas of proteins and, 2248a.
of water by cellulose, 1180h.
**Heat of acetylation**, of cellulose, 1963d.
**Heat of activation**, of acetylene reaction with HCl, 6969h.
of acrylonitrile polymerization in aq solns., 899i.
of actomyosin contraction, 9095c.
of adsorption of CO and H by Co, 3686g
after-effect phenomena and, 8771i.
of alc. reactions with CO, 3698a.
of alkali metal bicarbonate decompn., 2851d.
of alkyl halide reaction with amines, 3422g.
of alkyl vinyl ether hydrolysis in aq dioxane, 3272d.
of alumina reaction with $BaSO_4$, 6894h
of ammonia decompn. on Cu and Pt, 8827h.
of arsenic trichloride reaction with $Ph_3As$, 23b.
of austenite-martensite transformation, 87b.
of azo compd. (aliphatic) decompn., 3354g.
of bromide reaction with hypochlorites, 7799c.
of bromine exchange with $CCl_3Br$, 4548eh
of bromotrichloromethane reaction with olefins, 4636g.
of 2-butanone decompn. by heat, 2849a.
of butyl alc. trans-esterification with EtOAc, 8827f.
of calcium aluminate formation, 8827c.
of carbon-adsorbent reaction with O, 8839h.
of carbon combustion and diffusion-controlled step in regeneration of clay cracking catalysts, 3181f.

of carbon dioxide adsorption by Mn oxides, 1624a:
of carbon monoxide formation from O adsorbed by charcoal, 3694h.
of carbon monoxide hydrogenation to $CH_4$, 7667a.
of carbon monoxide oxidation on NiO catalysts, 2499a.
of carbon monoxide reaction with water vapor, 7309a.
of carbon reaction with $CO_2$, 3695c.
of castor-oil bromination, 7722g.
of catalytic reactions, 2852f.
of chloral decompn. by NaOH, 25i.
of chlorinated hydrocarbon dehydrochlorination, 7407f, 7408a.
of chlorine reactions with primary, secondary and tertiary H atoms in hydrocarbons, 5270d.
of cobalt carbide decompn. in Fischer-Tropsch catalyst, 6064e.
of collagen degradation, 6888h.
of combustion of C from phenol-aldehyde resins and sucrose, 838d.
of condensation (poly) of aleuritic acid and its Me ester, 2941c.
of cond. electrons in $Mg_2Sn$, 4533g.
of copolymerization, 8203c.
of copper oxidation, 2851c.
of copper phthalocyanine, 3731i.
of cracking on $Al_2O_3$ catalysts, 1250i.
of cyclohexene oxidation, 8825d.
of cyclopentene decompn. by heat, 3271f.
of decahydronaphthalene oxidation, 5389c.
of decarboxylation of isoquinaldinic, picolinic and quinaldinic acids, 7310d.
of decompn. of microcosmic salt and Na and K phosphates, 6535a.
of dehydration and dehydrogenation of EtOH and HCOOH vapors on catalysts, 6497h.
of dehydrogenation of cyclohexane and decahydronaphthalene on metal and oxide catalysts, 4551e.
dendrite growth and, 6027c.
of desorption, 4921h.
of deuterium exchange, isomerization and hydrogenation of butenes, 24g.
of diffusion of C and N in Fe and of strain aging of Fe, 7881d.
of θ,ι-dihydroxystearic acid polyesterification, 2941d.
of diketohexanoic acid-hydrolyzing enzyme, 6267a.
of disilane decompn., 2078f.
of dissocn. of $NH_4$ phosphates and $H_4P_2O_7$, 7307i.
of $N_2H_4$ and $PhCH_2NH_2$, 7708a
of pentaphenylethane type of hydrocarbons, 5387e.
distribution function of, in activated adsorption, 3264a.
in elimination reactions of alkyl halides and sulfonium compds., 3346i, 3347c.
of ester hydrolysis, 6064i.
ester relaxation in polyisobutene or polythene and, 6020a.
of ethane oxidation, 474b.
of ethyl acetate hydrolysis, 8827e.
of ethylbenzene pyrolysis, 8250f.
of ethylene chloride decompn. by heat, 7307d.
of ethylene halohydrins with hydroxyl ion, 2848f.
of ethylene oxide hydration, 4549b.
of ethyl nitrate decompn., 6901i.
of exchange between two oxidation states of Ce in $HNO_3$, 6532h.
in fluorescence development in egg powder and glucose-glycine mixts., 7154f.
of formaldehyde condensation with PhOH, 8737b.
of formaldehyde oxidation, 4085e.
free energy of surface formation and viscosity of liquids in relation to, 8778g.
of free-radical reactions in gas phase, 5270e.
of free-radical reaction with double bonds, 5733b.
frequency exponents in chem. kinetics and, 5266h.
of fuel mixts., internal-combustion-engine knock and, 1167d.
of 2-furaldehyde reaction with phenol, 5226e.
of germanium rod, 8289e.
of GR-S rubber flow, 1210c.
of GR-S rubber polymerization with resin acid soap emulsifiers, 8725b.
of GR-S rubber reaction with $K_2S_2O_8$, 5227e,
of gum formation in cracked gasoline,
of halides (org.), 4912c.
of halogen-ion reaction with Me halides, effect of solvents on, 5270b.
of hexachlorocyclohexane-isomer dehydrochlorination, 7311d.
of hexamethylenediamine reaction with sebacic acid, 4547g.
of hexane decompn. by heat, 6056b.
of hydroaromatic compd. dehydrogenation, 1732b.
of hydrocarbon oxidation on catalysts, 927f.
of hydrogenation of $C_6H_6$ derivs. and furan and its derivs. on Pt, 5657e.
of hydrogen bromide oxidation, 1634g, 7800d.
of hydrogen combustion with O, 1246f.
of hydrogen-ion discharge on electrode, 954a.
of hydrogen (para-) conversion by metal catalysts, 26i.
of hydrogen peroxide decompn. by heat, 7305i.
of hydrogen transfer in styrene polymerization in hydrocarbons, 5731i.
of hydroxyl (free radical) reaction with $C_2H_4$, $C_2H_4$ and $C_2H_2$, 8820h.
of γ-hydroxystearic acid lactonization in monolayers, 6883h.
of λ-hydroxystearic acid polyesterification, 2166c.
of hypophosphorous acid reaction with iodate ion, 5268a.
of iodide reaction with persulfate, 8236f.
of ion (foreign) motion in NaCl crystals, 5245c.
of ions in $TiO_2$ systems with oxides, 5561c.
of ion sorption by glass and metals, 8233i.
of iron bipyridyl-complex formation, 3695g.
of iron-α,α′-bipyridyl decompn., 6056d.
of iron corrosion, 7401d.
of iron(III) oxide modifications, 8933i.
of iron-Si alloys, 4994i.
of iron sulfate oxidation in soln. by O, 1632g.
of isopropyl alc. dehydration and dehydrogenation over $Cr_2O_3$, 4087f.
of isopropyl chlorocarbonate decompn. by heat, 6057b.
of isopropyl ether oxidation, 4085c.
of lactic acid oxidation by enzymes from plants, 6267b.
of laminated-plastic creep, 7259i.
of lead oxalate decompn. by heat, 2837i.
of low-frequency dispersion in ionic crystals, 7769b.
of lubricant thickening by Ca soaps, 1556b.
of lubricating-oil oxidation, 5932i.
of magnesium hydroxide decompn. by heat, 8816c.
of malonic acid decompn., 7797g.
of metal exchange with its cations, 6891b.
of metal intercryst. slip, 3329c.
of methane-$d_4$ reaction on Ni catalyst, 7802g.
of methyl methacrylate polymerization, 3231c, 4934g.
of 2-methylpropene decompn. by heat, 5270i.
of mol. decompn. by heat, 3697d.
of monolayer evapn. from glass, 7767f.
of naphthalene bromination, 2851h.
of nitrogen dioxide reaction with $O_3$, 7308h.
of nitrogen evolution from ε-Fe nitride, 4933e.
of nitrosoguanidine decompn., 5746a.
of novolac-resin flow, 6861a.
of oxidation of $C_2H_4$ and HCHO, 6567e.
of oxidation of $Mg_2Pb$ and $Mg_2Sn$, 7363i.
of oxygen absorption by Ag catalyst and of iso-PrOH oxidation, 5272g.
of paraffin reactions with H and $CH_3$, 5270f.
of paraldehyde depolymerization in gas phase, 7801g.
of peptidases from tumor and normal tissue, 5105f.
of phenol alkylation with *tert*-alkyl halides, 2850f.
of phenyl isocyanate reaction with alcs., 7441h, 7442d.
of phosphine adsorption and oxidation, 6898a.
of polyisobutylene flow, 7295e.
of polymer degradation by heat, 8206d.
of polymerization, 2497d.
of polymerization of Me methacrylate, styrene and vinyl acetate, 6460g.
of polystyrene depolymerization, 8204g.
of polyvinyl-alc. addn. reactions, 8241c.
of potassium chloride diffusion through $Cu_2Fe(CN)_6$, 5257a.
of propene decompn. by heat, 5270g.
of propylene oxide addn. to $NH_3$ and amines, 926d.
in protein monolayers of elementary functional groups, 3690a.
of pyrite decompn., 3696c.
of radical-dissocn. reaction of hydrocarbons in o-dichlorobenzene, 6496c.
reaction const. for heterogeneous reactions and, 2850i.
of recombination of H and O atoms on solids, 1635h.
of re-orientation in $D_2O$ and $H_2O$, 3676d.
of respiratory enzymes in stenothermophilic bacteria, 2671f.
of rubber flow, 1207h, 2010g, 8721f.
of self-diffusion in metals, 4917c.
of semicarbazone formation with acetophenone and p-derivs., 2850d.
of silver oxalate decompn. by heat, 26b.
of silver oxide dissocn. and reduction, 4086b.
of sodium-butadiene polymer oxidation, 925d.
of sodium sulfite autoxidation, 8824a.
of soln. of Cu and Ag in solns. of $(NH_4)_2S_2O_8$, 1245d.
spectra and, 6894i.
of stibosobenzene disproportionation, 3696f.
of styrene polymerization, 1634d, 3273a, 7312g.
of sulfochloride-group hydrolysis in aromatic compds., 926i.
of tendon-collagen shrinkage in water, 7247e.
of thallium(I) in exchange with Tl(III), 8817h.
of thiosulfate-ion reaction with EtBr, iso-PrBr and PrBr, 1632i.
of tin (supercooled) nucleation with water drops, 2061d.
of titanium oxidation, 9007a.
of tobacco mosaic virus, 1461g.
of θ,ι,λ-trihydroxystearic acid polyesterification, 2941e.
of trinitrotoluene decompn. by heat, 7687a.
of uranium(V) disproportionation, 5269b.
of urease action on urea, and effect of sulfite thereon, 7066h.
of vinyl-radical reaction with H, 3694d.
of viscosity in system: $CdCl_2$-$CdBr_2$, 4036g.
of water-gas reaction, catalyst effect on, 1945f.
of wool dyeing, 7687i.
of zinc carbonate decompn. by heat, 7306g.
of zirconium reaction with O, 8817c.

**Heat of adhesion**, adsorbed-film effect on solid-liquid, 8234e.

**Heat of adsorption**, 1638h.
of acetylene and $H_2S$ by active C, 7317c.
of adsorption complexes in heterogeneous catalysis, 1635a.
of ammonia and $C_2H_4$ by active charcoal, 4939d.
by bauxite contg. Fe, 6497e.
calcn. of, 1237e, 8791e.
of carbon dioxide by Mn oxides, 1623i.
of carbon monoxide and O by films of Cu and Cu oxide, 6532f.
of gaseous hydrocarbons by C black and $SiO_2$ gel, 8254h.
of gases and liquids, calorimeter for, 6871d.
of gases and vapors by active C, 6903g.
of helium by C black, 6037b.
of hydrogen and fragments of $CH_4$ and $CD_4$ on Ni catalyst, 7802g.
by membranes, 2069g.
of methane by Fischer Ni catalyst, 6064c.
of methanol by $BaSO_4$, 461h.
of methyl ether by activated charcoal, 8835e.
of mixts. by catalyst, 2498e.
monolayer vol. and, 4075f.
of nitrogen dioxide-$N_2O_4$ mixt., 6035a.
of oxygen by Mn oxides, 1624b.
theory of, 3263f.
of tritolyl phosphate by calcite, Cu and quartz, 8234f.
of water vapor by casein, 7787c.
of water vapor by langbeinite, 8836e.

**Heat of association**, of alcs., 8765i.

**Heat of atomization**. See *Heat of sublimation*.

**Heat of chelation**, 1243a.

**Heat of chlorination**, of fluoroölefins, 6071b.
of tetrafluoroethylene, 6070h.

**Heat of cohesion**, structure of liquids and, 5248c.

of sucrose solns., 2845*d*.
**Heat of coking**, in high-temp. carbonization, 4834*a*.
**Heat of combustion**. (See also *Calorific value*.)
app. for measurement of, in automatic control systems, 8213*c*.
atomic no., effective nuclear charge and, 8844*h*.
of benzene, cumene, PhEt, styrene and toluene, 8654*i*.
of 2,2′-bis-(4-hydroxyphenyl)propane, 1639*b*.
of boron, 8835*g*.
of butadienes, 5274*f*.
of carbon disulfide, 4089*c*.
of carbonyl cyanide, 3682*i*.
of catalyst carbonaceous deposit, 3180*d*.
of cellulose, 7225*e*.
in *Chlorella pyrenoidosa*, 2289*f*.
of compds. contg. —N=N- and >C=N-, 931*a*.
of cumene and isopropylcyclohexane, 8247*a*.
of cyclohexane, cyclopentane, methylcyclohexane and methylcyclopentane, 7215*i*.
of cyclooctatetraene, 6194*h*.
of dicarboxylic acids, 2838*h*.
of dimethylcyclopentanes and ethylcyclopentane, 5275*f*.
in flame propagation in hydrocarbon, H and $CH_4$ mixts. with air, 3618*f*.
of gas from shale distn., 3178*f*.
of lanthanum cyanamide, 4169*d*.
measurement of, of org. substances, 7374*e*.
of metal alkyls, 5242*b*.
of nitrogen compds., 7318*c*.
of thiophene, 6069*i*.
**Heat of condensation**, concentrator using, P 7760*a*.
of ethylene oxide, explosions and, 8138*h*.
of formaldehyde with cresol, PhOH or xylenol, 1603*e*.
of hydrocarbon vapors for polymerization of olefins, P 8666*d*.
recovery for vaporization, P 3670*b*.
**Heat of decomposition**. (See also *Heat of dissociation*.)
of nickel carbonate to NiO catalyst, 2498*i*.
of zinc carbonate, 7306*g*.
**Heat of dehydration**, of org. hydrates, 2082*f*.
**Heat of depolymerization**, of water, 7283*e*.
**Heat of desorption**, of helium from jeweler's rouge, 8778*a*.
**Heat of dilution**, of amino acid aq. solns., 6070*b*.
of electrolytes, 7318*a*
of polymer solns., 6044*g*, 6491*e*.
of polystyrene solns., 4541*g*.
**Heat of dimerization**. See *Heat of polymerization*.
**Heat of disproportionation**, of methylchlorosilanes, 4931*g*.
**Heat of dissociation**. (See also *Heat of decomposition; Heat of ionization*.)
of ammonium selenide, 6053*a*.
of antimony, As, Bi, N and P, and their oxides, 5240*e*.
of π-bond, relation to bond order and π-electron energy loss on satg. a bond in conjugated system, 5240*d*.
of bonds in $MX_n$-type mols., 5242*h*.
of carbon bonds, 6479*c*.
of carbon ($C_2$), 8877*f*.
of carbon monoxide, 452*i*, 2830*c*, 8254*f*.
of chlorine trifluoride, 8887*e*.
of complexes (imperfect), 7317*d*.
of copper-$C_5H_5N$ perchlorates, 3699*g*
of diat. mols., 2510*i*.
of dimers into free radicals, 1230*g*.
of diphenylselenium dibromide unsymmetrical derivs., 8810*b*.
energies of vaporization and viscosity in relation to, 5248*d*.
of hydrogen from $CH_4$, 1250*a*.
of hydrogen-N bond in $NH_3$, 7797*i*.
of iodine with MeMgI, 991*h*.
of mercury iodide radical and Hg iodides, 6895*e*.
of methyl-group bonds with Cd and I, 4939*e*.
of oxygen, 939*i*.
of trimethylborine compd. with quinuclidine, 3422*d*.
**Heat of enolization**. See *Heat of isomerization*.
**Heat of evaporation**. See *Heat of vaporization*.
**Heat of expansion**, of perlite, 1293*b*.
**Heat of explosion**, of colloidal powders, 8681*e*.
energies of mols. and, 5266*c*.
of explosives proofed against firedamp by NaCl, 3200*a*.
**Heat of extraction**, of iron chloride by (iso-Pr)$_2$O, 2489*h*.
**Heat of formation**, of alk. earth binary compds., 5275*b*.
of alkyl radicals, 6479*c*.
of aluminum chloride (AlCl) and AlF, 4932*c*.
of benzene, cumene, PhEt, styrene and toluene, 8654*i*.
of binary inorg. compds., stability and, 6531*h*.
of 2,2′-bis-(4-hydroxyphenyl)propane, 1639*c*.
of boron trioxide and $B_2H_6$, 8835*g*.
of bromine or I compds. with polyvinyl borate or starch, 4542*d*.
of butadienes, 5274*g*.
of cadmium complexes, 3277*b*.
calcn. of, of hydrocarbons, 5658*d*.
of calcium carbide, 2081*f*.
of carbon tetrafluoride, 8255*h*.
of carbonyl cyanide, 3682*i*.
of carbonyl fluoride, 6500*f*.
of chlorine fluoride (ClF), 6500*e*.
of cobalt ammines, 2855*d*.
of cobalt complexes, 7805*i*, 7806*h*.
of π-complexes, 5275*a*.
of cyclohexane, cyclopentane, methyl cyclohexane and methylcyclopentane, 7215*i*.
of cyclohexene and cyclopentene, 8254*i*.
detn. of, of intermetallic compds., 8245*f*.
of dimethylcyclopentanes and ethylcyclopentane, 5275*h*.
of diolefins, methylstyrenes and styrene, 5275*c*.
of ethyl acetate from EtOH, 8247*c*.
of ethylene oxide, 2500*i*.
of ethyl germanium isocyanates, 6536*h*.
of ferric oxide in molten basalt in O atm., 526*g*.
of ferrous-α,α′-bipyridyl, 6056*f*.
galvanic piles with solid electrolytes and, 7351*d*.
of halides, hydrides and oxides, thermochem. logarithmicity and, 2827*f*, 2828*e*.
of hydrocarbon vapors, 6069*b*.
of hydrochloric acid, 6071*a*
of hydrogen bond in $H_2O$, 4527*c*
of hydrogen polysulfides, 3305*f*.
of iron complexes with hydroxyl, 5690*h*
of isopropylcyclohexane, 8247*a*.
of lanthanum cyanamide, 4169*d*.
of lithium Al hydride, $LiBH_4$, $NaBH_4$ and $H_3BO_3$, 7805*d*.
of lithium bicarbonate, 2851*e*.
of magnesium carbides, 1671*b*.
of magnesium nitride, 8836*g*.
of metal alkyls, 5242*c*.
of nitric-sulfuric compds., 931*c*.
of nitrogen double bonds with N or C, 931*a*.
of olivines and orthopyroxenes, 3700*i*.
of oxygen complex with charcoal, 2840*g*.
of salts, periodic system and, 2829*i*.
of silica and Na silicates, 2082*e*.
of silicon monoxide, 7794*e*.
of silver nitride and $Ag_2SO_4$, 5691*a*.
of silver sulfide, 8834*d*.
of sodium hydroxide, $Na_2O$ and $Na_2O_2$, 2082*i*.
of sodium oxides, 3276*f*.
of solid solns. of NaBr and NaCl, 2854*i*.
of substances in Fe and steelmaking, 9006*h*.
of thiophene, 6069*i*.
of tungsten carbide and $WO_2$, 1639*a*.
of uranium deuteride and $UH_3$, 7853*c*.
of uranium(IV) fluoride, 8246*h*.
**Heat of fusion**, of benzotrifluoride, 1620*c*.
of calcium carbonate, 6053*d*.
of carbon tetrachloride, MeOH and MeOD, 5276*b*.
of crystallites in increasing sp. heats of rubbers in elongation, 3642*h*.
of cyclohexene and cyclopentene, 1254*c*.
of cyclooctatetraene, 6500*b*.
of 1,3-dinitropropane, 3352*d*.
of ethylcyclohexane and dimethylcyclohexane isomers, 5275*i*.
of ethylene oxide, 8837*b*.
of hexachloro-2(and 3)-cyclopenten-1-one, 4552*f*.
of iron carbide ($Fe_3C$)$_n$, (FeSi)$_n$ and Si, 477*c*.
of potassium acid fluoride, 8763*e*.
of silver sulfide, 8834*d*.
of tantalum(V) bromide, 8225*a*.
of thiophene, 6069*h*.
of trichlorobenzene isomers, 8225*c*.
**Heat of hydration**, of cations, heat of wetting of soils in relation to, 7619*d*.
of cements, etc., 2395*g*.
of cobalt complexes, 7806*d*.
of flours and glutens, 4391*h*.
of formaldehyde, 5702*i*.
of ions, 7318*b*, 8244*a*.
of langbeinite, 8836*e*.
of lime-slag cement, 831*g*.
of 1-naphthalenesulfonic acid, 1368*f*.
**Heat of hydrogenation**, of acetylene and allylene, 3276*e*.
of benzene, cyclohexadienes and cyclohexene, 5752*f*.
of cyclohexene, 6071*a*.
of oils, 5610*e*.
of silver-S alloys, 8834*c*.
**Heat of hydrolysis**, of dimethylcadmium, 4939*e*.
**Heat of immersion**, of starch, starch monoacetate and starch diacetate in $H_2O$ 8715*f*.
**Heat of inversion**, of silica, 2390*d*.
**Heat of ionization**, of ammonia, 7303*d*.
of ammonium (substituted) ions, 6904*a*
of butyric acid in aq. iso-PrOH, 1244*h*
of citric acid, 6051*f*.
differences in, of pairs of org. acids, 470*d*.
of ferrous ions, 5658*c*.
of hydrogen peroxide, 5651*c*.
of org. acids, 477*h*.
of rare earth metals, 1254*f*.
**Heat of isomerization**, of 1-bromonaphthalene to 2-$C_{10}H_7Br$, 2851*h*.
of butadienes, 5274*f*.
enolization, of Et acetoacetate in gaseous state, 139*g*.
of ethylcyclopentane to dimethylcyclopentanes, 5275*f*.
**Heat of magnetization**, of nickel-Si alloys, effect of temp. on, 3335*e*.
**Heat of mixing**, of acetic anhydride with $HClO_4$, 1982*i*.
of binary alloys, 7314*h*.
of cadmium amalgam with Na, 8253*b*
of Chlorex with hydrocarbons, 1251*d*, 4937*h*.
of citric, oxalic and picric acids with amines, camphor and cinnamic acid in acetone and $H_2O$, 6070*f*.
of 1,2-dichloroethane with hydrocarbons, 4937*i*.
of *m*-dinitrobenzene with naphthalene in acetone, 6070*e*.
of ethyl alc. with toluene, 6022*j*
of heptane with hexadecane, 6070*e*
of rubber solns., 8826*c*.
of silica with CaO and MgO, 6067*h*
**Heat of nuclear disintegration**, of alpha rays from nuclei, nuclear structure and, 4125*h*.
of light nuclei, 2857*c*.
**Heat of oxidation**, of methane, 2923*h*
of silicon and SiO, 7794*f*.
**Heat of polarization**, in ionic crystals, 4536*d*.
**Heat of polymerization**, 2407*c*.
of acids to dimers in $C_6H_6$, 7793*c*
heat of copolymerization, 8255*b*
of propene, 2497*a*.
of styrene and its derivs., 8735*f*
theory of copolymerization, 7748*h*.
**Heat of precipitation**, in lead-Sn alloys, 5446*b*.
**Heat of racemization**, of tartaric acid, 4543*f*.
**Heat of reaction**, of alumina with NaOH, 2077*d*.
of aluminum alkoxides with fatty acids, 3088*g*.
of aluminum bromide with $CHCl_3$ and $C_2H_4Cl_2$, 2851*f*.
of ammonia with $B_2H_6$, 8241*i*.
of arsenic trichloride with $PhAs$, 23*b*
of calcium carbide with MgO, 5685*h*.
of calcium carbide with $H_2O$, 4940*a*.
of carbonyl fluoride with KOH, 6500*f*.
of catalytic reactions, 2852*e*
of 2-chloroethanol with NaCN, 4629*i*
of cobalt complexes with $Na_2S$, 2855*a*, 7805*g*, 7806*e*.
of cobalt with histidine and of their complex with O, 7856*c*.
control of, in exothermic reactions, P 4908*c*.
of cracking of gas oil, 3180*e*.
of dimethylcadmium with I, 4939*e*
effect of additive varying, on equil. and kinetics, 2077*b*.
of ferrous ions with $H_2O_2$, 5658*c*.
of films of Cu and Cu oxide with O, H and CO, 6532*f*.
of fluorine compds., 6070*h*.
furnace design and, 2475*h*.

of hydrocarbons on $Al_2O_3$ catalyst, 1250*e*.
of hydrochloric acid with $Co(HCO_3)_2$ and $Ni(HCO_3)_2$, 2830*b*.
of hydrochloric acid with $LiAlH_4$, $LiBH_4$ and $NaBH_4$, 7805*d*.
of hydrogen polysulfides to form $H_2S$ and S, 3305*e*.
of iodine with MeMgI, 991*g*.
of oxygen atoms with O on solids, 1635*f*.
for reactions of C, O and steam, 2076*g*.
of silicon with S, 2884*e*.
of sodium with $H_2O$, 2082*h*.
of sulfur trioxide with $HNO_3$ and $H_2SO_4$, 931*d*.
of uranium fluoride with water vapor, 8240*h*.
of urease inhibition by sulfites, 5437*e*.
**Heat of reduction**, of halides, oxides and sulfides of metallurgical importance, 4931*d*.
of magnesia by ferrosilicon, 4932*e*.
of silica with C and Si, 4582*h*.
of silicon monoxide with C, CO and SiC, 7794*g*.
**Heat of solution**, of acetone in nitrocellulose, 4928*g*.
of alumina in NaOH, 2077*d*.
of aluminum bromide in $CHBr_3$, 1,2-dibromoethane, MeI, EtBr and EtI, 2851*f*.
of ammonia (liquid) and $Mg_3N_2$ in HCl, 8836*i*.
of cadmium ferricyanide, 3277*b*.
of cadmium nitrate and $Cd(CNS)_2$, 2830*b*.
of cobalt complexes, 2855*c*, 7805*i*, 7806*g*.
of fayalite, forsterite, geikielite and ilmenite in HCl-HF mixt., 4187*h*.
of gelatin fractions, 8837*i*.
of glycine, leucine and tyrosine in water, 4082*a*.
of gold in Ag, 3683*g*.
of hydrogen in liquid Fe and Fe alloys with Cb, Ti and Ta, 2490*c*.
of hydrogen in Ti, 7770*i*.
limits of, 6047*g*.
of macromol. compds., 5262*f*.
of magnesium carbides in HCl contg. NaCl, 1671*a*.
of magnesium iron silicates in HF, 3700*i*.
of 1-naphthalenesulfonic acid, 1368*f*.
of perlite and its dehydration products, 1294*a*.
of potassium acid fluoride and KF, 8763*f*.
of potassium chloride in KI solns., 7795*i*.
of silver in Au, 6092*b*.
of sodium oxides, 2082*h*, 3276*e*.
of sulfur trioxide in $HNO_3$ and $H_2SO_4$ and of $HNO_3$ in $H_2SO_4$, 931*d*.
**Heat of solvation**, in elimination reactions of alkyl halides and sulfonium compds., 3346*i*, 3347*d*.
of oxygen, OH, $O_2H$ and $O_3^-$, 5651*d*.
**Heat of sorption**, of argon, Hg and N by chabazite, 7288*h*.
of methanol by coal, 8835*i*.
of water by cellulose and viscose, 9433*i*.
**Heat of sublimation**, of carbon, 452*gi*.
of graphite, 157*c*, 1638*e*, 8254*g*.
measurement of, of slightly volatile substances, 8754*c*.
of quinuclidine, 3422*d*.
of silicon monoxide, 11*i*, 7794*a*.
of tantalum(V) bromide, 8225*a*.
of uranium hexafluoride, 4530*f*.
**Heat of sulfonation**, of naphthalene, 1368*f*.
**Heat of swelling**, of charcoal by MeOH, 6882*a*.
theory of, 4553*d*.
**Heat of tautomerization**. See *Heat of isomerization*.
**Heat of transfer**, in thermoösmosis, 3265*h*.
**Heat of transformation**. See *Heat of transition*.
**Heat of transition**, 4058*i*.
calcn. from differential heating curves, 6903*c*
of carbon tetrachloride, MeOH and MeOD, 5276*b*.
of cyclohexene and cyclopentene, 1254*c*.
of ethylcyclohexane and dimethylcyclohexane isomers, 5276*a*.
of iron and Fe alloys, 1636*d*.
of phases of ethyl palmitate, α-monopalmitin and pentadecylic acid films on liquids, and of heptane on graphite, 6034*b*.
of potassium acid fluoride, 8763*f*.
of thiophene, 6069*h*.
of tin (white to gray), 6500*d*.
**Heat of transport**, in condensed phases, 8835*c*.
of surface and volume in thermodynamics, 7317*h*.
**Heat of vaporization**. (See also *Clapeyron equation; Heat of desorption; Trouton's constant*.)
of acetaldehyde, 7804*i*.
of benzene and cyclooctatetraene, 2479*f*.
of benzotrifluoride, 1620*c*.
of beryllium, 2061*g*.
of binary mixts., 476*h*, 1253*i*.
boiling point and parachor in relation to, 3276*b*.
calcn. of, 8775*i*.
from equation of state, 3700*h*.
of hydrocarbons, 2758*g*.
of carbonyl cyanide, 3682*i*.
of cationic soaps, 7293*i*.
compn. and structure in relation to, 2833*h*.
of cyclooctatetraene, 6500*b*.
drying and, 8753*c*.
of ethyl acetoacetate, in detn. of keto enol ratio of its vapor, 139*h*.
of ethyl chloro- and fluorothiophosphates, 1313*i*.
of ethylene oxide, 8837*b*.
of ethylene, O and propene, 8254*b*.
of halo methanes, 3775*a*.
of halomethylsilanes, 5739*c*.
of helium (He)$^3$, 4915*c*.
of 1,3,5-hexatriene, 558*a*.
inner, relation to surface energy, assocn. of liquids and, 3255*d*.
of lewisite isomers, 917*a*.
liquid and vapor compn. in rectifying columns with different molal, of individual components, 8839*f*.
of metals, surface energy and, 5653*a*.
of methanol and MeOD, 5276*b*.
of nickel carbonyl, 2057*e*.
of perfluorocyclopentane, 8814*f*
recovery of, concentrator and distn. app. for, P 8218*d*.
of selenium carbonyl, 1673*d*.
structure of liquids and, 5248*c*.
of tantalum(V) bromide, 8224*i*.
of thiophene, 6069*h*.
of thorium from $ThO_2$-W cathode, 7323*g*.
of titanium, 6070*b*.
of trichlorobenzene isomers, 8225*c*.
of trifluoromethyl hypofluorite, 2833*d*.
of trinitrotoluene, 7687*b*.
of triphenyl compds. of group V*B* elements, 8786*f*.
Trouton's const. and, 3255*c*.
viscosity and, 5266*g*.
**Heat of vulcanization**, of hard rubbers, 2011*adfh*, 7250*i*.
**Heat of wetting**, of activated charcoal, 8835*c*.
of agar, gelatin, $SiO_2$ and starch with alc. and $H_2O$, 7781*f*.
of casein by HCl and NaOH, effect of HCHO on, 7787*c*.
of cellulose, 1180*h*.
of cellulose by org. liquids and water, 1638*f*
of coal by MeOH, 8835*i*.
of coal, coal quality and, 3593*b*.
of coke, structure and, 4834*e*.
of disperse systems, 6042*h*.
measurement of, of gases and liquids, colorimeter for, 6871*e*.
of soils, 7619*c*.
of soils, work of wetting in relation to, 7619*e*.
specific surface measurement of carbonaceous powder by, 7208*hi*.
theory of, 4553*d*.
**Heat pumps**, in paper manuf., 4465*f*.
review on, 3248*c*.
in sugar refineries, 9499*bc*, 9503*i*.
**Heat-resistant materials**. See *Refractory materials*.
**Heat-treatment**. See *Iron; Metals; Steel;* etc.
**Heaviside layer**. See *Ionosphere*.
**Heavy spar**. See *Barite*.
**Heavy water**. See "heavy" under *Water*.
**Hedenbergite**. (See also *Pyroxenes*.)
of New Hampshire (Percy Quadrangle), 6129*c*.
**Hederagenin**, identity with sapogenin from *Sapindus laurifolius*, 1156*f*.
**Hedera helix**. See *Ivy*.
**Hedolite-O**. See *o-Cresol, 4,6-dinitro-*.
**Hedophyllum sessile**, phytochem. study of, 8616*e*.
**Heels**. See *Shoes*.
**Hegari**. See *Sorghum*.
**Heine-Medin disease**. See *Poliomyelitis*.
**Heinz bodies**. See *Blood corpuscles, red*.
**Helenium tenuifolium**, bitter principle of, 1389*f*.
**Helianthin, Helianthine**. See *Methyl orange*.
**Helianthrone**, and derivs., 5391*b*.
**Helianthus**. See *Jerusalem artichoke; Sunflowers*.
**Helichrysum**, *angustifolium*, α-pinene in, 362*d*.
*italicum*, caffeic acid from, and its antibacterial properties, 4327*g*.
oils of—see *Oils*.
**Heliogravure**. See "photo-" under *Engraving*.
**Helions**. See *Alpha-rays*.
**Heliothis armigera, Bollworm, Corn earworm**, and(or) **Tomato fruitworm**, control of, on corn, 3136*d*.
control of, on corn and tomatoes, 9328*g*.
on corn with DDT, 808*a*, 8598*d*.
on cotton, 1143*a*, 3137*b*, 9329*g*.
on cotton, diluents in, 1142*h*.
on sweet corn, 3136*f*.
on sweet corn with DDT, 7183*f*.
cotton-boll attack by, 9350*h*.
**Heliothis ononis** and(or) **Flax bollworm**, control of, 2726*e*.
**Heliothrips haemorrhoidalis** and(or) **Greenhouse thrips**, control of, 9344*f*.
control of, compds. related to DDT in, 3137*e*.
**Heliotridane** (*hexahydro-1 methyl-3 H-pyrrolo[1,2-a]pyrrole*), and salts, 5775*h*.
**Heliotropic acid**. See *Piperonylic acid*.
**Heliotropin**. See *Piperonal*.
**Helium**. (See also *Alpha-rays; Helium group gases; Rays, positive*.)
absorption by carbonaceous solids, 5653*f*.
adsorption (anomalous) of, 8778*d*.
adsorption by C black, 6037*a*.
allotropy of, 3257*g*.
condenser discharge through, light from, 1664*e*.
cryostat and liquefier, 911*c*.
crystals of, interat. distances in, 3671*f*.
in density detn. of carbonized coal, 9412*d*.
deuteron scattering by, 6506*f*.
diffusion of electrons and He ions in, 8774*g*.
diffusion of electrons and pos. ions in, measurement of, 6504*h*.
diffusion through Al tubes, 6021*f*.
effect on decompn. rate of $CaCO_3$, 2078*d*.
on elec. resistance of Ni films, 8771*f*.
on elec. resistance of Pt foil, 6481*h*.
on flame propagation limits in H and $CH_4$ mixts., 3618*d*.
on nitroglycerin susceptibility to explosion by impact, 4468*a*.
on phosphorescence of $N_2$, 496*f*.
on spectrum of H, 8880*i*.
elec. discharge in, breakdown of high-frequency, 4101*e*.
current growth and cathode spot in, 3704*d*.
effect of magnetic field on, 4060*d*.
element synthesis from, 7809*b*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*.
equation of state for, 8773*d*.
excitation of, in upper atm., 3289*h*.
flow in zeolites, 6489*a*.
friction (internal) in, sound absorption and, 6878*g*.
glass permeability to, effect of cations on, 9401*c*.
ions of, thorium bombarded by, Pa series from, 37*b*.
isotope of mass 3, abundance of, 5293*f*.
concn. of, 489*d*.
condensation, crit. point and vapor pressures of, 3679*d*.
ds. and heats of vaporization of liquid, 4915*b*.
detn. of neutron-H mass difference from threshold for production of, by $T^3(p,n)He^3$ reaction, 8264*h*.
from D by deuteron action, 7329*a*, 8264*e*.
from D by deuteron action, differential cross section for reaction yielding, 4093*g*, 4112*i*.
energy of, 935*h*.
from $Li^6$ bombarded by protons, 8864*c*.
magnetic exchange moment of, 941*c*, 4561*h*.
magnetic moment of, 1256*b*.
neutron bombardment of, 5293*g*.
neutron cross section of, 5293*h*.
phase transition in, 4530*e*.
properties of liquid, 3679*c*.
protons from deuteron bombardment of, 8865*g*.
thermodynamic equil. in, freezing-in of, 3708*i*.

*isotope of mass 3*, from T by proton action, 5293*e*.
from T by proton action, threshold of production of, 4947*b*.
isotope of mass 3, liquid-He II properties and, 6878*i*.
isotope of mass 4, adsorption by jeweler's rouge, 8777*i*.
isotope of mass 6, from Be by neutron action, 4947*a*.
electron-neutrino angular correlation in $\beta$-decay of, 4112*c*.
$\gamma$-rays from, 484*c*.
max. energy of $\beta$-rays from, 5293*d*.
threshold for production of, from $Li^7$ by $\gamma$-ray action, 4115*f*.
isotopes of masses 3 and 4, equil. below $\lambda$-point, 3679*e*.
flow of liquid, 4130*a*.
mass defects of, 8271*i*.
mass difference between, detn. of, 7329*g*.
mixts. of, thermal cond. and viscosity of, 8224*h*.
second-order transformation in 2-component systems of liquid, 22*h*.
sepn. of, 7283*b*.
spectra of, 1652*e*.
statistics of, 5246*h*.
transitions to ordered liquid state, 8776*f*.
vapor-liquid equil. of $He^3$ solns. in $He^4$, 8775*a*.
viscosity of mixts. of, 4062*b*.
isotopic compn. of, of atm., radioactive, subterranean and uraninite origin, 528*e*.
isotopic ratio in, from natural sources, 2090*e*.
liquefaction of, 3247*e*.
liquefier for, 3668*a*.
liquefier for, with transfer siphon, 2044*g*.
liquid—see also "low" under *Temperature*.
liquid, cryostat using, 4055*f*.
cryostat using, thermoregulator for, 4056*e*.
films of, 8225*g*.
heat capacity of, 28*i*.
ionization by $\alpha$-rays in, 1257*i*.
properties of, 2058*h*.
properties of film of, 3254*e*.
review on, 2481*d*.
transfer rates in films of, 12*a*.
magnetic moment and gyromagnetic ratio of, 5303*f*.
metallurgical uses of, 980*g*.
in metal treatment, P 104*g*.
in minerals (Be, B and Li), $He^3$-$He^4$ ratio of, 7875*b*.
mixts. of, with $NH_3$, inversion spectrum of, 3716*h*.
with $N_2H_4$, inflammability of, 5188*f*.
with $C_1$-$C_7$ normal hydrocarbons, starting potential of discharge in Geiger-Muller tube contg., 1646*b*.
with O, combustion rate of 1,3-butadiene in, 5268*c*.
neutron bombardment of, neutron-H mass difference and ionization produced in proton emission in, 8865*f*.
neutron capture by, 4562*b*.
neutron scattering by, 8261*g*.
parachor and thermochor of, 2923*f*.
phosphorescence of, effect of pressure on, 8277*d*.
in planetary nebulae, optical interaction with N and O, 5303*i*.
in planetary nebula stars, 2509*b*, 4133*d*.
pressure-vol. relations of, 8772*d*.
proton double scattering in, 8864*h*.
protons scattered by, angular distribution of, 5293*i*.
pumps (diffusion) for, speeds of, 2043*b*.
in solor flares, 7334*a*.
sound attenuation in rarefied, 4062*a*.
spectrum of, 2508*d*, 7338*b*.
isotopic shift in, 6917*e*.
wave-length shifts in, 8272*h*.
in star AR Pavonis, 7335*e*.
in star 27 Canis Majoris, 2509*d*.
in star $\gamma$ Cassiopeiae, 2092*d*.
in star HD 45910, 2509*d*.
in stard HD 187399, 8382*b*.
in stár L726-8, 6510*d*.
in star Nova Persei 1901, 8877*d*.
in star Nova Serpentis 1948, 490*c*.
in star $\lambda$ Pavonis, 5300*e*.
in star $\gamma$ Pegasi, 938*f*, 2500*f*, 5301*e*.
in stars BD + 40° 4220, HD 177230 and HD 197406, 1651*h*.
in stars, displacement of spectral lines of, 490*h*.
in stars (novae), 5302*b*.
in stars of O class, 938*g*.
in stars of Wolf-Rayet class, 8877*a*.
in star Wolf-Rayet HD 50896, 1651*g*.
in stratosphere, 8761*f*.
in sun, 1263*d*.
surface tension relation to sound velocity in, 3256*c*.
thermal conductivity and viscosity of, 2832*h*.
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
II, density and viscosity of, 3679*f*.
film transfer rate in, 8779*a*.
heat transfer in, by internal convection, 1620*c*.
irreversible processes in, 1232*d*, 8226*f*.
melting pressure of, 1232*d*.
nonequil. states in, 8780*b*.
pulsed second sound in, 4915*d*.
quantum theory of, 3678*b*.
second sound in, theory of propagation of, 3681*a*.
second sound in, under higher pressures, 3680*g*.
superfluid, 455*c*.
superfluidity of, 8780*a*.
surface transport of, 7765*c*.
theory of, 4063*h*.
theory of fountain effect in, 2069*e*.
viscosity of a normal component of, 3680*a*.
van der Waals' mols. in compressed, spectra of, 2510*c*.
virial coeff. (2nd) of, 6480*g*.
in water of Bormio in Valtellina, 4505*d*.
**Helium-group gases**, crystals of, interat. distances in, 3671*e*.
in elec. lamps—see *Lamps, electric*.
geochemistry of, 527*e*.
manuf. of, P 1618*e*.
in metal treatment, P 104*g*.
mixts. with $N_2$, spectra of, 7338*i*.
**Helix**. See *Snails*.
**Hell, Carl Magnus von**, biography, 915*f*.
**Hellebore**. See *Veratrum*.
**Hellebrigenin**, A and B, 715*a*.
**Hellebrin**, and oxime, 714*i*.
——, **desgluco-***, 714*i*.
**Helmholtz double layer**. See *Electric double layer*.
**Helminthiasis**, chemotherapy of, 8558*d*.
**Helminthology**. See *Worms*.
**Helminthosporium**, of oats, effect of germination temp. on, 1892*i*.
*oryzae*, germination of spores of, effect of Hg compds. on, 1138*f*.
*victoriae*, 2,4-D effect on, 3133*d*.
susceptibility to, in Victoria oats, 7090*f*.
**Helmitol**, detection of, 5535*d*.
**Helvetium**. See *Astatine*.
**Helvite**, from Grandview Mine, New Mex., 8986*h*.
**Hem**, biosynthesis of, 4718*d*.
biosynthesis of, in normal subjects and in polycythemia vera, sickle cell anemia and pernicious anemia, 6723*g*.
review on, 704*d*.
**Hemagglutination**, by botulinus toxin, 1826*h*.
demonstration of iso-, 1859*c*.
by influenza virus, egg-white inhibitor of, 9149*h*.
factor in allantoic fluid inhibiting, 4756*e*.
inhibiting effect of apple pectin on, and effect of erythrocyte substance thereon, 2314*e*.
inhibition by blood serum, 1854*g*.
O, 303*b*.
by polysaccharide of tubercle bacilli in serums of normal or tuberculous patients, 1103*h*.
by vaccinia, inhibition by protamine and histones, 1101*i*.
virus, egg-white inhibitor of, reaction with swine influenza virus, 7509*f*.
by viruses of influenza and Newcastle disease, inactivation by heat and formalin, 1856*e*.
**Hemagglutinins**, absorption by substance from *Trichinella spiralis* and *Schistosoma mansoni*, 9222*g*.
for chicken red cells in old hepatitis serum, 8524*c*.
demonstration of iso-, 1859*c*.
effect on elec. charge of erythrocytes, 5485*a*.
*Hemophilus pertussis*, inhibition by erythrocyte exts., 4362*i*.
heterogenetic hepten reacting with, in serum sickness, 3092*g*.
in legumes, 5547*g*.
liver-ext. action on, 5105*g*.
from Papilionaceae and from influenza virus, 8001*d*.
sepn. into subfractions of plasma, 3925*f*.
in stromata of erythrocytes, 2309*h*.
**Hematins**, in catalase, 5058*g*.
derivs., in plants, 4710*e*.
effect on cathodic reduction of $H_2O_2$, 3052*h*.
as growth factors, 5444*d*.
isolation from erythrocytes, 5818*h*.
in malaria-infected red blood cells, 5107*c*.
peroxidations catalyzed by, formation of H carriers by, 6259*d*, 9104*g*.
reactions of, 8497*f*.
**Hematite**, of Brazil (Minas Gerais), 1694*c*.
brown—see *Limonite*.
crystal structure of, 72*g*.
dust of, sampling of, 910*f*.
feldspar coloring by, and spectral absorption curves for, 523*f*.
formation from $Fe_3O_4$ in solid soln., free energy of, 9006*h*.
of Germany (Lahn-Dill region and Upper Hessia), 8991*b*.
-goethite relations in alk. and neutral solns. under pressure, 8983*d*.
in iron-O-Si system, 85*a*.
of Italy (Mt. Pelqritani), 3318*i*.
-limonite-Mn oxide deposits and hematite-quartz sedimentary deposits in Portugal, 5708*d*.
in lungs of hematite miner, 5850*g*.
in mercury deposits in the Urals, 2130*h*
-milling plant, 4611*a*.
in mineral springs at Beppu, Japan, 5703*h*.
Missouri filled-sink, 5708*a*.
of New Mex. (Taos Co.), 1692*a*.
ochreous and specular, of Ophthalmia Range, W. Australia, 6121*i*
oölitic, of Weser-Wiehen Mts., Germany, 2550*i*.
of Peru (Huitor region), 6545*c*.
in sands of Ticino River, Italy, 2130*f*
soils, 3127*d*.
of Wyoming (Good Fortune iron mine), 7384*a*.
**Hematite quartzite**. See *Quartzites*.
**Hematochrome**, effect on glucide metabolism of yeast, 4330*f*.
**Hemato-encephalic barrier**. (See also *Meninges*.) 3110*b*.
mechanism of action of, 9235*c*.
permeability of, to allantoin and urate in Dalmatian and non-Dalmatian dog, 7117*c*.
effect of acetylcholine and physostigmine on, 9203*f*.
to org. As compds., 318*e*.
to penicillin, 5114*b*.
to penicillin G and biosynthetic penicillin, 2670*b*.
to sucrose, 4357*g*.
to sulfonamides, effect of hexamethylenetetramine on, 2328*c*
to sulfonamides in mental diseases, 750*e*.
to sulfones, 5119*d*.
**Hematolite**, x-ray study of, 8986*b*
**Hematology**. See *Blood*.
**Hematopoiesis, Hematopoietics**. See *Hemopoiesis*.
**Hematoporphyria**. See *Porphyria*.
**Hematoporphyrin**, affinity of neoplastic, embryonic and traumatized tissue for, 749*c*.
effect on convulsant drugs, 7137*a*.
porphyrin in blood after administration of, 3412*b*.
**Hematoxylin**, effect on benzidine-peroxidase color, 7521*d*.
**Hematuria**, in nephrosis in children, 6724*b*.
**Heme**. See *Hem*.
**Hemellitic acid** (*2,3-dimethylbenzoic acid, 2,3-xylic acid*), hydrogenation of, 2964*b*.
from ketoyobyrine, 234*g*, 1422*h*
——, **5 - (5 - carboxy - 3 - methyl - 2-pentenyl) - $\alpha^2$,6 - dihydroxy - 4-methoxy-(?)†**, $\gamma$-lactone, 6184*g*.
——, **$\alpha^2$-9 H-pyrid[3,4-*b*]indol-1-yl-**, 1422*g*.
**Hemellitonitrile**, prepn. and phys. consts. of, 7439*f*.
**Hemiacetals**. See *Acetals*.
**Hemicellulose nitrate**, 1967*adf*.
**Hemicelluloses**. (See also *Araban; Galactan; Hexosans; Mannans; Pentosans;* etc.) 3809*f*.
[illegible] of, 2432*g*.
[illegible] of, 9435*b*.
[illegible]es with borax, 6986*d*.

detn. in wheat bran, 3532*f*.
in fiberboard, effect on swelling and its reduction by heat-treatment, 8679*c*.
hydrolysis of, P 6415*b*.
hydrolysis of, from cotton husks, 7225*c*.
kraft-pulp properties in relation to, 9440*i*.
nitration of, 1966*i*, 1967*a*e.
papermaking properties of, 4011*c*.
of *Phormium tenax*, 5589*a*.
in plant membranes, effect of stage of development, temp., light and humidity on, 5454*g*.
polyuronide carboxyl detn. in, 3614*c*.
removal from aspen holocellulose, effect on pulp quality, 399*i*.
review on, 4848*i*.
sodium hydroxide recovery by dialysis from liquor contg., 9440*i*.
soln. in NaOH, as emulsifier for bituminous materials, etc., P 4846*b*.
soybean, manuf. of, P 3663*b*.
uses of, 8674*e*.
in viscose manuf., behavior of, 1564*i*.
from wood pulp, 5946*di*.
**Hemideina thoracica**, fatty acid compn. of, 8562*b*.
**Hemiglobin**. See *Methemoglobin*.
**Hemimellitene** (*1,2,3-trimethylbenzene*), the name, 2923*g*.
synthesis of, 164*e*.
vapor pressure of, 2481*b*.
*a,a',a''*-**Hemimellitenetriol, hydroxy-**(?), P 6235*d*.
**3,4,5-Hemimellitenol** (*3,4,5-trimethylphenol*), and acetate, 9043*i*.
**Hemimellitic acid** (*1,2,3-benzenetricarboxylic acid*), ester with triethyl(2 hydroxymethyl)ammonium iodide, curarelike action of, 1486*i*.
formation by anodic oxidation of vitrain, and tri-Me ester, 376*h*.
prepn. of, and esters with trialkyl-2 hydroxyethylammonium compds., 2190*e*.
, **4,5-dichloro-**, 4230*f*.
-, **4-hydroxy-**, and trimethyl ester, 2974*i*.
, **4-methoxy-**, and trimethyl ester, 2975*h*.
**Hemimellityl chloride**, 2190*f*.
**Hemimorphite**, of China (Yunnan), 1291*h*
of Tennessee (Bumpus Cove), 3322*b*.
zinc detn. in, 5336*b*.
**Hemins**, from chlorophyll, effect on oxidation-reduction systems, 4713*e*.
deriv. of liq. $NH_3$ and, 702*d*
enzyme in N fixation by *Azotobacter*, 7172*h*.
hydrogen peroxide decompn. by, 2653*i*.
isolation from erythrocytes, 5818*i*.
reactions of, 8497*f*.
synthesis in bone-marrow homogenates, 5051*a*.
**imipic acid** (*3,4-dimethoxyphthalic acid*).
--, **6-hydroxy-**, 7459*h*.
**imipic anhydride**, formation from Cu opianate pyrolysis, 125*c*.
**Hemipimide** (*3,5-dimethoxyphthalimide*).
-, **N-methyl-**, 5545*a*.
**imipinic acid**. See *Hemipic acid*.
**Hemisarcoptes malus**, in oystershell-scale control on apples, effect of fungicides on, 7630*e*.
**emlock** (*poison*), pharmacology, toxicology, etc., of, 3976*c*.
thromboplastic action of, 5533*h*.
**emlock** (*the tree*), bark from, tannin from, 4847*f*
copper and Zn in bark, twigs and wood of, in geochemistry, 3321*c*.
sawdust, pH of, and its mixts. with soil, 3130*e*.
**lemoagglutinins**. See *Hemagglutinins*.
**lemochromatosis**, diagnosis of, 751*h*.
lipemia in, 1858*e*.
**lemochromogens**, in ammonia (liquid), 702*d*.
prepn. of permanent crystals of, 9133*b*.
**Hemoclasis**. See *Hemolysis*.
**Hemocyanins**, electrophoretic homogeneity and isoelec. point of, 2247*e*.
*Helix pomatia* individual variation in, 1871*d*.
size and structure of mols. of, 7986*e*.
x-ray scattering by, 9112*f*.
**Hemoglobin**. (See also *Carbonylhemoglobin; Cyanohemoglobin; Erythrocruorins; Erythropoiesis; Methemoglobin; Oxyhemoglobin; Pseudohemoglobin; Sulfhemoglobinemia; Verdoglobins*.)
adsorption in presence of salts, 1624*g*.
in blood after central nervous system stimulation, 1851*i*.
in blood corpuscles in pregnancy, 8480*i*.
in blood in mammary cancer, effect of androgen and estrogen on, 8521*h*.
book: 5850*a*.
in Canadian population groups, 9215*g*.
carotene-bleaching and peroxidizing activity of solns. of, on bacon adipose tissue, 3633*g*.
chem. properties of, in relation to mol. structure, 4745*c*.
chlorate action on, 5864*b*.
cobalt effect on, 765*c*, 8534*f*.
compd. with Co, 8497*g*.
in cows, specificity of, 1850*c*.
crystn. and isomorphous transformations of, 7538*f*.
crystn. from blood, 6695*i*.
in decarboxylation systems in blood, 3903*h*.
denaturation by alkali, 9092*h*.
detn. of, 1076*g*, 2666*c*, 5074*c*, 5441*a*, 6269*a*, 7998*d*, 9138*d*.
in blood, 5442*h*.
in body, 4320*h*.
in muscle simultaneously with myoglobin, 4324*f*.
in plasma, 6691*a*.
in presence of myoglobin, 3486*d*, 4719*e*.
standardization of, 6262*b*.
effect of adrenaline, elec. shock and insulin shock on, in mental disorders, 3924*d*.
effect of age and sex on, 3894*d*.
effect on blood coagulation, 5811*i*.
effect on cathodic reduction of $H_2O_2$, 3052*h*.
in erythrocytes, O consumption and, 9271*e*.
excretion in rats, effect of parenteral bovine albumin injections on, 1870*e*.
fate in blood-sucking insects, 1850*e*.
of fetal and adult sheep, 4360*h*.
in fetus, 3904*g*.
fluorine and, 5885*b*.
formation of, 2309*e*
after bleeding, 7112*h*.
cellular growth during normal and pathological conditions in relation to, 750*h*.
from glycine, 2243*f*, 8480*d*.
forms of, 6254*b*.
inactivation and reactivation in red blood cells, 5467*e*.
iron of, re-utilization of, 7110*a*
mapharsen in, 1863*a*.
mercury exposure and, 9265*d*.
metabolism of, 8497*f*
in children, 2691*d*.
effect of sulfanilamide on, 6313*f*.
in *Gastrophilus intestinalis*, 5506*h*
in healthy children from malarial countries, 3516*b*.
in leishmaniasis, 2312*c*.
pentdyopent in, 8558*g*.
in porphyria, 7568*h*.
radioactive isotopes in studies of, 4710*d*.
relation to cytochrome c metabolism, 5475*i*.
-methemoglobin mixts., 261*h*.
monolayers of beef, mol. structure and viscosity of, 3689*h*.
muscle—see *Myoglobin*.
during nutritional reconditioning of children, 3498*b*.
oxidation of, effect of *p*-aminobenzoic acid on, 8527*c*.
oxygen transport through thin layers of, 255*c*.
passage from blood into eggs of *Daphnia*, 1872*f*.
Pasteur effect and, 7567*c*.
peroxide bleaching soln. activation by, 854*f*.
precipitation with lipide antigen in normal and malarial blood specimens, 1855*c*.
prepn. contg. penicillin, stroma, electrolyte and, P 8106*f*.
pressor substance from, 5547*h*.
protein in diet and, 737*h*, 3500*ce*.
pteridine derivs. that stimulate formation of, P 7518*g*.
regeneration in chicks, effect of folic acid, liver ext. and vitamin $B_{12}$ on, 5835*a*.
in reproduction of geese, 9212*b*.
resynthesis at high pressures, 705*c*.
species reactivity of, to CO, 7537*h*.
after transfusion of heterogeneous blood, 3927*h*.
utilization for plasma protein maintenance, 9223*g*.
**Hemoglobinemia**. (See also *Sulfhemoglobinemia*.)
in infants, nitrates in foods and, 2337*i*.
**Hemoglobinuria**, from alloxan, effect of dietary factors on, 2682*f*.
in hemolytic anemia, 302*h*.
paroxysmal nocturnal, 7573*c*.
**Hemolymph**. See *Blood*.
**Hemolysins**. (See also *Antihemolysins*.)
differentiation of β-staphylolysin, 751*d*.
in fats (animal and plant), 1119*g*.
in jaundice (congenital hemolytic), 8519*e*.
from mumps virus infection, 1103*e*.
release from tissue, effect of mode of immunization on, 7575*a*.
streptolysins O and S, 271*d*.
**Hemolysis**. (See also *Complement*.)
in alkali halide solns., 5839*b*.
in anemia (pernicious), 3919*i*.
by arsine, 748*f*.
by blood serum, effect of vitamins on, 6294*c*.
book: and Related Phenomena, 4361*g*.
in blood films, 296*e*.
by complement in presence of tannic acid, 5490*h*.
by detergents, leucotaxine and sperm lysin, 3112*g*.
in diseases, 7569*c*.
diseases involving, cholesterol metabolism in, 9237*a*.
of erythrocytes in NaCl soln. and Na phosphate buffers, 1473*b*.
by gramicidin derivs., effect of proteins on, 1105*c*.
inhibition by variants of hemolytic streptococci, 1450*f*.
kinetics of immune, 754*d*.
methemoglobin formation after, effect of blood plasma, blood serum and thrombin on, 8484*h*.
by monocarboxylic acids, 8502*b*.
in new-born infants in relation to jaundice of new-born mule, 5483*i*.
osmotic, cell membrane of erythrocytes during, 8497*g*.
resistance to, relation to age and methemoglobin content of erythrocytes, 8497*h*.
toxin effect on, 9144*e*.
**Hemophilia**. (See also *Hemorrhage*.)
blood-serum compn. in, 4357*a*.
canine, and effect of blood transfusion thereon, 8524*h*.
glycine-ascorbic acid-Ca treatment of, 3933*f*.
histamine effect on blood in, 5869*b*.
proteolytic activity of blood plasma in, 5106*d*.
**Hemophilus**, *ducreyi*, biochem. reactions of, 5080*g*.
*ducreyi*, sensitivity to penicillin, streptomycin and sulfathiazole, 5080*f*.
*parainfluensae*, cozymase decompn. and synthesis by, 2670*f*.
nutritional requirements of, 9156*a*.
putrescine as growth factor for, 4332*a*.
*pertussis*, hemagglutinin of, inhibition by erythrocyte exts., 4362*i*.
mutation to streptomycin resistance in, 6280*i*.
*N*1-quinoxalylsulfanilamide derivs. with action against, P 6661*e*.
**Hemopoiesis**. (See also *Erythropoiesis*.)
in alimentary deficiencies, 1471*h*.
in *Ambystoma* embryos, effect of sulfonamides on, 4388*i*.
antagonism in, 5462*f*.
book: Les cahiers d'hématologie—Le sang et les organes hematopoïetiques, 9215*i*.
by cobalt, 765*b*, 3524*g*, 6311*c*.
diet in relation to, 1467*a*.
effect of liver ext. and folic acid on, in chick embryo, 3869*a*, 9131*e*.
in frogs, effect of endocrine factors on, 3530*e*.
hexahomoserine effect on, in swine, 2293*f*.
leukemia-urine fractions influencing, 3095*b*.
methylthiouracil effect on, 9247*h*.
methylthiouracil effect on, action of riboflavin on, 4351*e*.
organs of, chem. cytology of, 2683*f*.
oxygen effect on, of umbilical-cord blood, 6719*i*.
in pantothenic acid deficiency, 7556*e*.
after phlebotomy, hematologic and electrophoretic study of, 7112*g*.
pteroylglutamic acid antagonists and, 8556*f*.
review on, 5850*b*.
xanthopterin effect on, 1470*h*.
**Hemoprotein**, nitrogen fixation by rhizobia in presence of, 716*i*.
in root nodule of leguminous plants, 1461*b*.
**Hemorrhage**. (See also *Bleeding; Hemostatics; Prothrombin;* and "K" under *Avitaminosis* and *Vitamins*.)

antihemorrhagic agents, methylnaphthoquinone and bisulfite derivs., P 3153*a*.
cholinesterase in blood serum after, 8042*i*.
coumarin-deriv. effect on, 8539*i*.
diseases with, protamine titration and platelet level in, 5850*h*.
disorders involving, blood-platelet adhesiveness in, 9228*a*.
effect on adrenaline secretion, 7104*h*.
erythropoiesis after, O satn. in bone marrow and blood during, 307*i*.
from estradiol benzoate and modification thereof, 1854*c*.
gastro-intestinal, after lesions to frontal lobe, 3925*b*.
glucose metabolism after, in nondiabetic, alloxan-diabetic and depancreatized dogs, 753*d*.
glycine-ascorbic acid-Ca treatment of, 3933*f*.
histamine in blood in, 3510*a*.
hypotension from, hypertensinogen in blood in, 6305*f*.
hypotension from, vasodepressor responses to morphine after, 7146*f*.
in Japanese beetle larvae, physiol. effects of, 8562*f*.
kidney syndrome with, effect of vitamin $B_{12}$ and choline on, 6708*h*.
from 2-methoxy-1,4-naphthoquinone and related compds., 4379*i*.
protective action of dibenamine after, 761*g*.
quinine toxicity in, antagonists for, 4768*i*.
radiation-induced, in chickens, 256*i*.
retinal, in avitaminosis K of newborn, 1466*h*.
from Röntgen irradiation, effect of vitamin P on, 1846*h*.
shock from, carbohydrate metabolism in, 6726*a*.
extracellular water content of heart in, 7125*d*.
standardization of, 5819*g*.
transfusion therapy in, 5857*f*.
in skin from X-rays, effect of adrenoxyl on, 7129*h*.
sympathin E in splenic blood during, 3519*d*.

**Hemorrhagic diathesis**. See *Hemophilia*.

**Hemosiderin**, deposits in diabetes, hpemia and, 1858*e*.

**Hemostasis**, in peripheral vessels, 754*i*.

**Hemostatics**. (See also *Blood; Hemorrhage*.)
pectin from *Opuntia vulgaris* for use as, 6368*c*.
yarrow as, 5541*i*.

**Hemotoxins**. (See also *Hemolysins*.)
of *Ascaris lumbricoides*, 5873*g*.
production by clostridia cultures, effect of penicillin on, 4340*c*.

**Hemp**. (See also *Hibiscus cannabinus*.)
encrustant removal from dew-retted, 4858*e*.
fermentative refining of, bacteria in, 724*i*.
fiber and yarn prepn. from retted, P 6833*c*.
flocking of, with org. coatings, 1199*e*.
fungi causing deterioration of, 5953*i*.
Indian—see *Indian hemp*.
Manila—see *Manila hemp*.
mixed yarns from, 4469*c*.
paper pulp from chaff-contg., 398*e*.
resin content and physiol. activity of, 9377*i*.
resin of, detection of, 3564*c*.
retting of Korean, by *Bacillus mesentericus*, 1985*a*.
Roselle—see *Roselle*.
sisal—see *Sisal*.
x-ray scattering by, 2091*f*, 4460*i*.

**Hempseed oil**. See *Oils*.

**Henbane** (*Hyoscyamus niger*). (See also *Hyoscyamus*.)
alkaloids in Indian, 9379*g*.
alkaloid isolation from, 3975*d*.

**1,4-Hendecadiene**, and derivs., 3774*c*.

**Hendecanamide, *N*-2-hydroxyethyl-9-iodo-**, in penicillin production, 2274*a*.

——, ***N*-2-hydroxyethyl-3-phenyl-**, in penicillin production, 2274*b*.

——, **3-methyl-**, *d*(+)- and *l*(−)-, 6160*f*.

**Hendecane**, crit. consts. of, 3254*g*.
mixts. with $C_6H_6$ and 2,4-dimethylpentane, viscosities of, 8777*h*.
mixts. with heptane, distn. and heat-content curves of, 3255*g*.
in paraffin cracking distillate, 8124*h*.
in petroleum (Ponca) fraction, 5176*c*.
prepn. of, 2156*g*.
spectrum of, 3715*h*.

——, **1-bromo-**, phys. consts. of, 2591*a*.
**5-bromo-2-methyl-**, 107*f*.
**1-chloro-**, phys. consts. of, 2590*i*.
**4-methyl-6-propyl-**, 9023*d*.
**1-[1(and 2)-naphthyl]-**, 4454*h*.
**6-phenyl-**, P 6232*g*.
**1,2,4,5-tetrabromo-**, stereoisomers, 3774*c*.
**6-[2,4(and 3,4)-xylyl]-**, P 6232*f*.
**6-(3,4-xylyl)-**, P 6232*f*.

**1-Hendecanecarboxylic acid**. See *Lauric acid*.

**1,1-Hendecanedicarboxylic acid**. See *Malonic acid, decyl-*.

**1,11-Hendecanedicarboxylic acid**. See *Brassylic acid*.

**Hendecanedioic acid**, ethyl ester, formation from ethyl oleate oxidation, 3612*a*.

**1,4-Hendecanediol**, and dicaproate, P 6652*b*.

**2,5-Hendecanedione, 6,10-dimethyl-**, 2586*d*.

**2,10-Hendecanedione, 1,11-dichloro-**, and reaction products with dithioadipamide and with dithioazelaamide, P 6465*ab*.

**1,1,1-Hendecanetricarboxylic acid**, tribenzyl ester Na deriv., 6161*d*.

**1,1,11-Hendecanetricarboxylic acid, 3-oxo-**, triethyl ester, 7905*b*.

**Hendecanoic acid**, bactericidal and bacteriostatic action of, 5906*c*.
chromatographic sepn. from $C_{11}$-$C_{18}$ satd. fatty acids and detn., 69*e*.
from $\alpha,\epsilon$-dichlorolauric acid, 2164*e*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*h*.
potassium salt, solubilities of alcs. in, 6041*d*.
sodium salt, solubilization with, 4666*b*.
surface tension and potential of aq., 8797*fh*.

——, **2-amino-**, 1322*i*.

——, **11-amino-**, P 5037*i*.

——, **2-amino-2-methyl-**, 1323*a*.

——, **10(and 11)-biphenylyl-**, ethyl esters, 566*c*.

——, **10(and 11)-(*p*-bromophenyl)-**, and ethyl esters, 566*c*.

——, **3-carboxy-**. See *Succinic acid, octyl-*.

——, **11-chloro-10-oxo-**, ethyl ester, 7905*a*.

——, **10(and 11)-(*p*-chlorophenyl)-**, and ethyl esters, 566*c*.

——, **cyclohexyl-***, 2175*g*.

——, **11-cyclohexyl-**. See *Cyclohexanehendecanoic acid*.

——, **11-cyclopentenyl-**. See *Cyclopentenehendecanoic acid*.

——, **11-(2-cyclopentenyl)-**. See *Hydnocarpic acid*.

——, **11-cyclopentyl-**. See *Cyclopentanehendecanoic acid*.

——, **10(and 11)-(3,4-dimethoxyphenyl)-**, ethyl esters, 566*c*.

——, **4-ethyl-5-methyl-**, 1374*b*.

——, **11-fluorenyl-**. See *Fluorenehendecanoic acid*.

——, **4-hydroxy-**, γ-lactone, hydrogenation of, P 6652*a*.

——, **2-hydroxy-4-oxo-**, 3785*b*.

——, **(iodophenyl)-**, ethyl ester, in radiography of subarachnoid space, 5534*b*.

——, **11-mercapto-**, ethyl ester acetate, for improvement of synthetic rubber, P 2805*e*.

——, **2-methyl-**, *dl*-, 6161*a*.

——, **3-methyl-**, *d*(+)- and *l*(−)-, and ethyl ester, 6160*f*.

——, **10-methyl-**, and methyl ester, 1373*h*.

——, **3-methyl-5-oxo-**, *d*(−)- and *l*(+)-, 6160*e*.

——, **10-methyl-5-oxo-**, and methyl ester, 1373*h*.

——, **11-naphthyl-**. See *Naphthalenehendecanoic acid*.

——, **6-oxo-**, and semicarbazone, 3366*g*.

——, **phenyl-**, and hydrogenation of, 2175*g*.

——, **11-thienyl-**. See *Thiophenehendecanoic acid*.

——, **10(and 11)-*p*-tolyl-**, and ethyl esters, 566*b*.

**Hendecanoin**, crystal structure and thermal analysis of tri-, 134*h*.

**1-Hendecanol**. See *Hendecyl alcohol*.

**5-Hendecanol**, hydrogen sulfate Na salt, solubilization of org. liquids with, 4668*h*.

**4-Hendecanol, 7-ethyl-2-methyl-**, P 3438*c*.

**5-Hendecanol, 2-methyl-**, 107*f*.

**1-Hendecanone, 1-(2-thienyl)-**, reaction with 5-methylisatin, 228*e*.

**2-Hendecanone**, in *Boronia ledifolia* oil, 3148*e*.
phys. consts. of, 2589*h*.
semicarbazone, 6161*c*.
spectrum of, 3715*g*.

——, **3-phenyl-**, and derivs., 2932*d*.

**3-Hendecanone, 1-(4-hydroxy-3-methylphenyl)-**, 2185*h*.

**4-Hendecanone, 1,1,1-trichloro-2-hydroxy-**, 3785*c*.

**6-Hendecanone**, phys. consts. of, 2589*h*.

**2,4,6,8,10-Hendecapentaenal, 11-phenyl-**, as antioxidant for butter, etc., P 9294*e*.

**Hendecasiloxane, 1,21-diethoxydocosamethyl-**, P 6221*c*.

——, **tetracosamethyl-**, P 4402*f*.

**1,3,5,7-Hendecatetraene, 3,7-dimethyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, biol. activity of, 6297*b*.

**4,6,8,10-Hendecatetraene-2,3-dione, 11-phenyl-**, 187*d*.

**2,5,9-Hendecatrienal, 2,6,10-trimethyl-**, and phenylsemicarbazone P 1801*a*.

**3,5,9-Hendecatrien-2-one, 3,6,10-trimethyl-**, spectrum of, 8893*c*.

**2-Hendecenal**, and derivs., 5736*h*.

**Hendecenamide, *N*-isobutyl-**, in mosquito control, 2730*g*, 3965*i*.

**9-Hendecenamide, *N*-sulfanilyl-**, compd with ephedrine, P 9388*h*.

**10-Hendecenamide, *N*-2-hydroxyethyl-** in penicillin production, 2273*i*.

——, ***N*-isobutyl-**, as insecticide, 9333*h*.

**Hendecene**, isomers, 4213*a*.
prepn. of, 2156*i*.
spectrum of, 3715*h*.

——, **1(or 11)-(3,4-methylenedioxyphenyl)-†**, in *Piper longum* fruit 1085*g*.

**1-Hendecene**, in paraffin cracking distillate, 8124*i*.

**Hendecenedioic acid, 6-acetyl-**, P 6230*c*

**Hendecenoic acid**, bactericidal and bacteriostatic action of, 5906*c*.
as fungicides for cotton fabric, 8085*i*
in protection of Fe and Cu, P 1710*g*
sodium salt, effect on trichophytin production and growth of *Trichophyton gypseum*, 5083*i*.
and zinc salt, monograph for, 8103*i*

**2-Hendecenoic acid, 4-oxo-**, 3785*d*

**9-Hendecenoic acid**, therapeutic use of, 6368*h*.

**10-Hendecenoic acid**, 7414*d*.
esters, phys. consts. of, 2591*e*.
esters (polymerizable), 8352*e*.
ethyl ester, addn. reactions of, 5566*a*.

**2-Hendecen-1-ol**, and esters, 5730*h*

**4-Hendecen-1-ol**, and acetate, 3774*c*

**6-Hendecen-4-ol, 7-ethyl-2-methyl-**, P 3438*c*.

***n*-Hendecoic acid**. See *Hendecanoic acid*

**Hendecyl alcohol** (*1-hendecanol*), nicotinate, detn. of, 6542*e*.
phys. constants of, 2956*b*.
sebacate, lubricant, P 5184*a*.
soly. in aq. K soaps, 6041*d*.

**Hendecylamine**, hydrochloride, solubilization of org. liquids with, 4666*b*.

**10-Hendecynoic acid**, esters, phys. consts of, 2491*i*.

**Heneicosanamide, 18-propyl-**, 3781*b*.

**Heneicosananilide, tribromo-18-propyl-**, 3781*b*.

**Heneicosane**, formation from hydrogenation of Et erucate, 5363*e*.
systems: hentriacontane-, and tricosane-, 4841*c*.

——, **11-cyclohexyl-**, Verdet const. ratio to refractive dispersion for, 4911*b*.

——, **1-iodo-**, 7900*h*.

**Heneicosanoic acid, 9-oxo-18-propyl-**, ethyl ester, 3781*a*.

——, **18-propyl-**, 3780*h*.

**11-Heneicosanone**, 2185*i*.

**2,6,10,14,18-Heneicosapentaene, 3,7,11,15,19-pentamethyl-21-phenyl-**, 1714*d*.

**Henequen**, cellulose detn. in, 6411*i*.

**Hentriacontane**, prepn. contg., as substitute for petrolatum, P 3153*f*.
system: heneicosane-, 4841*c*.

**16-Hentriacontanethiol**, manuf. of, P 2630*c*.

**16-Hentriacontanone**, formation of, from Me palmitate, 2940*h*.

**Heparin**, in adhesion prevention after operations, 8541*e*.

anticoagulant action of, effect of digitalization on, 9255*e*.
effect of platelet concn. and prothrombin deficiency on, 5850*i*.
effect of toluidine blue on, 5865*b*.
antithrombin of blood plasma in relation to, 5477*h*.
assay of, 2369*f*, 9372*df*.
in blood, 7121*h*.
in blood in liver and bile-duct diseases, 3513*h*.
blood platelet concn. and, 1487*e*.
bone-marrow equil. and, 3528*d*.
choline antagonism to, 7583*g*.
detn. in blood, 8428*a*, 9136*d*.
effect of penicillin and, on thrombophlebitis, 3108*f*.
effect on activation in frog eggs, 5873*i*.
on blood coagulation compared with sea-urchin fertilizin action, 4391*a*.
on cell division, 3529*f*.
on complement, prothrombin and anaphylaxis, 8543*g*.
on fibrinolysis, 6735*i*, 9251*g*.
on glucuronidase, 7529*a*.
on histaminase, 5863*c*.
on hyaluronidase and staphylocoagulase, 3855*h*.
on lysozyme, 3855*g*.
on oxidation of thrombin, 9199*e*.
on thrombin inactivation by blood serum, 3081*b*.
on thrombin inactivation by heat, 8495*d*.
in elephantiasis scroti, 3915*h*.
fibrinogen fractions and, 6268*c*.
fibrinolysin release in blood serum by, 7125*h*.
-histamine-thrombin chain mechanism, 296*g*.
inhomogeneity of, 5506*a*.
neutralization by toluidine blue, plasma coagulation and, 7109*d*.
periodate oxidation of, 2246*i*.
polyvinylpyrrolidone effect on elimination of, 4380*f*.
purification of, P 4817*b*, 6684*h*.
reaction with thrombokinase, 7130*g*.
release from liver of sensitized dog, 7574*h*.
reviews on, 6365*f*, 6678*e*.
standards for, 3561*h*.
synthetic, thrombostatic and thrombolytic effect of, 8533*f*.
**eparinocytes**, effect of vitamin K and thromboplastin on, 3928*f*.
in elephantiasis scroti, 3915*h*.
**eparinsulfuric acid**, 2246*h*.
chondroitinsulfuric acid and, 2247*a*.
**epatectomy**, albumin and globulin formation after, 2252*b*.
burn resistance after, 9224*h*.
cholesterol in adrenals and blood plasma after, effect of tris(β-chloroethyl)-amine on, 7580*f*.
lipides in plasma and plasma fractions after partial, 4753*d*.
lipogenesis from glucose after, 8509*g*.
liver compn. after partial, 7116*i*.
liver regeneration after, diet and, 7100*f*.
phosphatase in blood plasma after partial, 3091*f*.
phosphatase in blood serum after, 4750*i*.
regeneration after, nucleic acids in liver during, 5490*c*.
triphenylchloroethylene activation after partial, 8036*h*.
**epatica triloba**, saponin from, 2736*d*.
**epatigenin**, 2736*g*.
**epatisaponin**, 2736*g*.
**epatitis**, bile flow in, 8522*g*.
bilirubin in blood in, 7126*i*.
blood serum in, factor agglutinating chicken red cells in old, 8524*c*.
blood-serum proteins in, 2308*h*.
diagnosis of, 3515*d*.
diagnosis of, Gros' test, Takata-Ara reaction and thymol turbidity test in, 9226*b*.
histamine in blood and tissue in epidemic, 4759*e*.
infectious, thymol turbidity test in, 4760*c*.
iron (nonhemoglobin) in blood plasma in parenchymatous, 3076*f*.
liver biopsies in infectious, 3922*e*.
nicotinic acid effect on blood sugar during, 7126*c*.
protein balance in, 1102*h*.
protein fractions in blood in, 1454*a*.
proteins in blood serum in, 2696*g*.
pyruvic acid in blood and vitamin $B_1$ in urine in, 3093*d*.
viral, complement fixation with fecal antigens in, 9223*b*.
water storage and movements of body fluids and chlorides during, 5855*e*.
**Hepatoflavin**. See "$B_2$" under *Vitamins*.
**Hepatoma**, activators of proteolytic enzymes and peptidases in, 3921*g*.
from dimethylaminoazobenzene, nucleic acids in, 5490*b*.
enzymic hydrolysis of peptides in, 258*c*.
rice diets and, 2310*e*.
**Hepatomegalia** (*hepatomegaly*), glycogenica—see *Gierke's disease*.
from parathion, 3130*g*.
therapy of, 2290*i*.
**Hepatopancreas**, of *Helix pomatia*, phosphomonoesterases of, 1071*h*.
pyrophosphatase in, of *Helix pomatia*, 1071*h*.
**Hepatopathy**. See "diseases of" under *Liver*.
**Heptachlor**. See *1,7-Methanoindene, 1(or 3a),4,5,6,7,8,8 - heptachloro - 3a-4,7,7a-tetrahydro-*.
**Heptacosanamide, 3-methyl-**, D(+)-, 7900*i*.
**Heptacosane**, in *Nerita peloronta*, 1049*a*.
**Heptacosanoic acid, 3-methyl-**, D(+)-, and degradation of, 7900*g*.
——, **3-methyl-5-oxo-**, D(−)-, 7900*g*.
**Heptadecamethylenimine**. See *Aza-cycloöctadecane*.
**Heptadecane**, crit. consts. of, 3254*h*.
mixts. with $C_6H_6$ and 2,4-dimethylpentane, viscosities of, 8777*h*.
mixt. with heptadecene, from stearic acid pyrolysis, P 7035*a*.
mixt. with 7-octadecanone, coöperative transition and dielec const. of, 6020*d*.
——, **9-bromo-**, 108*a*
**1-Heptadecanecarboxylic acid** See *Stearic acid*.
**1,1-Heptadecanedicarboxylic acid**. See *Malonic acid, hexadecyl-*.
**7-Heptadecanethiol**, manuf. of, P 2630*c*.
**9-Heptadecanethiol**, manuf. of P 2630*c*.
**Heptadecanoic acid** See *Margaric acid*.
**9-Heptadecanol**, 107*i*.
**2-Heptadecanone**, 3781*e*.
——, **1-chloro-**, 633*g*.
**2,6,10,14-Heptadecatetraene, 3,7,11,15-tetramethyl-17-phenyl-**, 1714*d*.
**Heptadecene**, mixt. with heptadecane, from stearic acid pyrolysis, P 7035*a*.
***n*-Heptadecoic acid**. See *Margaric acid*.
***n*-Heptadecylic acid**. See *Margaric acid*.
**7-Heptadecyne, 17-chloro-**, 566*i*.
**1,4-Heptadiene**, prepn. of, 2994*d*.
**1,5-Heptadiene, 2,6-dimethyl-**. See *Geraniolene*.
**2,4-Heptadiene, 3-ethyl-5-methyl-**, bromination of, 110*d*.
——, **2 - methyl - 6 - (4 - methyl - 3-cyclohexen-1-yl)-**. See *Zingiberene*.
**1,6 - Heptadiene - 3,5 - dione, 4 - benzoyl-1,7-diphenyl-**, (omitted from abstr.), 7002*f*.
**1,4 - Heptadien - 3 - one, 5 - methyl-**, 2576*a*.
hydrogenation of, 2161*b*.
**1,5 - Heptadien - 4 - one, 2,5 - dimethyl-**, 1332*i*.
——, **5-ethyl-**, isomers, 116*d*, 2161*c*.
——, **5-phenyl-**, 119*c*.
**2,5-Heptadien-4-one, 2,6-dimethyl-**. See *Phorone*.
**3,4-Heptadien-2-one, 3,6-dimethyl-**, and semicarbazone, 3355*e*.
**1,5-Heptadien-3-yne, 2,5-dimethyl-**, and cyclization and hydration of, 1332*g*.
——, **5-ethyl-**, 115*f*.
——, **5-methyl-**, 155*i*.
——, **5-phenyl-**, 119*a*.
**2,4-Heptadien-6-ynoic acid, 7-(1-cyclohexen-1-yl)-3-methyl-**, 8361*c*.
——, **7-(1-cyclohexen-1-yl)-5-methyl-**, 7438*a*.
**Heptalene**,
——, **dodecahydro-**, derivs., 5375*a*.
——, **1,2,3,4,8,9,10,10a - octahydro - 6-methyl-**, 5375*h*.
**1(2*H*)-Heptalenone, decahydro-**, and derivs., 5375*g*.
——, **3,4,5,6,7,8,9,10-octahydro-**, and derivs., 5375*g*.
**Heptamethinecyanine iodide, 2-[3-ethylbenzthiazole] - 4' - [1 - ethylquinoline]-α-cyano-***, P 7843*c*.
**Heptamethylenimine**, and picrate, 5400*c*.
——, **2-oxo-**, 5400*c*.
**Heptamidine***, effect on influenza virus, 8536*c*.
**Heptanal**. See *Enanthaldehyde*.
**Heptanamide**. See *Enanthamide*.
**Heptane**, adsorption by $SiO_2$ gel, 462*f*.
alkylation (destructive) of, 1713*a*.
antimony(III) fluoride soly. in, 6890*b*.
aromatization of methylcyclopentane and, P 3453*h*.
aromatization of, on Cr catalysts, 6062*e*.
$MoO_3$-$ZnAl_2O_4$ catalyst in, P 6818*i*.
to toluene with $Cr_2O_3$- or $MoO_3$ $ZnAl_2O_4$ catalyst, P 3605*e*.
aromatization products of, spectra of, 3715*e*.
chain-transfer coeffs. for styrene in, 5731*h*.
chlorination (photochem.) of, P 6644*h*.
compds. with desoxycholic acid, 3429*d*.
compression and freezing under pressure, 4067*e*.
cracking of, 1250*h*.
detn. in hydrocarbon cuts and infrared spectra of, 2759*c*.
dielec. const. and loss of, 8770*a*.
dotriacontane soly. in, 6890*c*.
effect of, on cryoscopic behavior of 1,1-dimethylcyclohexane, 2964*f*.
emulsions in $NH_4$ caseinate and gelatin, crit. dispersity of, 7770*d*.
entropy and heat content of, effect of pressure on, 5576*b*.
equil. with $PhNH_2$, $H_2O$, perfluorokerosene, white P, Ga and Hg, 7285*d*.
films on graphite, heat of transition of, 6034*b*.
flame propagation limits for, 3618*e*.
flames of, velocity of, 8248*i*
formation of, in isomerization of $C_8H_{12}$, P 3833*d*.
formation of, in reaction of $AlCl_3$ with iso-AmOH, 164*e*.
as fuel (reference) for motors in knock testing, 383*f*.
heat capacity of, reduced pressure and temp. in relation to, 2758*g*.
heat of wetting of activated charcoal by, 8835*f*.
ignition pressure and temp. relations of, 7209*f*.
isomers, control of distn. from naphtha, P 3191*f*.
free energy of formation and knock resistance of, 3600*h*.
isomerization with HCl-promoted $Al_2Cl_6$-paraffin complex catalysts with cracking inhibited by $C_4H_{10}$, P 1560*h*.
knocking tendencies and crit. compression ratios of, contg. $Et_2Hg$, $Fe(CO)_5$ and $Et_4Pb$, 5576*g*.
lyoparachor of, 2834*a*.
magnetic susceptibility of, 8767*g*.
mass spectrum of, 3288*g*.
mixt. with $C_6H_6$ and cyclohexane, alkylated benzenes and pure cyclohexane by isomerization and alkylation of, P 1958*e*.
with $C_6H_6$ and 2,4-dimethylpentane, viscosities of, 8777*h*.
with caproic and caprylic acids, interfacial tension between $H_2O$ and, 8250*h*.
with cetane, activity coeffs., vapor pressures and statistical thermodynamics of, 5247*a*.
with cyclohexane, dehydrogenation of, 2499*b*.
with hendecane, distn. and heat-content curves of, 3255*g*.
with isoöctane and 2,2,4-trimethylpentane, isoöctane sepn. from, P 2216*c*.
with MeOH, column capacity for, 3*b*.
with N and O, explosion of, study with orthicon spectrograph, 5313*a*.
with org. vapors, adsorption by active carbons, 16*g*.
mobility of ions of, 4559*a*.
in naphtha of shale oil, 4453*f*.
oxidation of, 2402*h*.
on catalysts, kinetics of, 927*g*.
by $CH_4$-oxidizing microbacteria, 9160*d*.
by *Pseudomonas aeruginosa*, 4327*c*.
in paraffin cracking distillate, 8124*h*.
phenol adsorption by $SiO_2$ gel from, 4536*e*.
phosphorus soly. in, 2073*g*.

prepn. by polymerization of $C_3H_8$ with 2-methylpropene, 8657*c*.
prepn. from AmMeCHBr, 1312*b*.
Raman spectrum and rotational isomerism of, 2866*i*.
reaction of, under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7664*a*.
reaction with $NH_3$, P 3439*d*.
removal from Skellysolve C distn. bottoms, 3603*d*.
sepn. from methylcyclohexane, with activated C, P 9431*f*.
by adsorption, P 6011*g*.
with liquid $NH_3$ solns., P 3192*d*.
soly. in aq. long-chain electrolytes, 6041*c*.
soly. in Na xylenesulfonate solns., 1242*e*.
as solvent in cottonseed-oil extn., 423*h*.
sound velocity in, and isomers, 3256*d*.
styrene transfer consts. in, 5271*b*.
system: hexadecane–, entropy, free energy and heat of mixing in, 6070*e*.
system: methylcyclohexane–, 2474*b*.
systems: EtOH–, and MeOH–, 6023*a*.
ultrasonic velocity in, 1232*f*, 1620*e*, 8239*e*.
ultraviolet transmission by, 1653*h*.
viscosity of, 8839*e*.

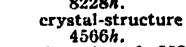
**Heptane, 3,5-bis(*p*-hydroxyphenyl)-.** See *Phenol, p,p'-(1,3-diethyltrimethylene)di-*.
——, **3,5-bis(*p*-methoxyphenyl)-**, P 4700*a*.
——, **1-bromo-**, dielec. properties and structure of, 4912*b*.
phys. consts. of, 2590*i*.
——, **2-bromo-**, hydrogenolysis of, with $LiAlH_4$, 1312*b*.
——, **3-bromo-**, *dl*-, formation from reaction of Br with Ag salts of *d*- and *l*-α-ethylcaproic acids, 1719*e*.
——, **4-bromo-**, 6165*a*.
——, **2-bromo-1,1-diethoxy-†**, 3791*a*.
——, **4-(2-bromoethyl)-**, 1374*d*, 6165*d*.
——, **3-(bromomethyl)-**, hydrogenolysis of, with $LiAlH_4$, 1312*b*.
——, **1-chloro-**, phys. consts. of, 2590*i*.
——, **3-(chloromethyl)-**, hydrogenolysis of, with $LiAlH_4$, 1312*b*.
——, **4-cyclopentyl-**, 5370*h*.
——, **2,6-dibromo-4,4-dichloro-**, 3345*d*.
——, **2,6-dibromo-4,4-dichloro-2,6-dimethyl-**, 3345*e*.
——, **1,2-dichloro-**, dehydrochlorination of, P 5788*h*.
——, **2,6-dichloro-2,6-dimethyl-**, 5736*f*.
——, **1,1-dicyclohexyl-**, Verdet const. ratio to refractive dispersion for, 4911*h*.
——, **2,3-diethyl-**, 9023*e*.
——, **2,2-difluoro-**, 2157*b*.
——, **2-(3,5-dimethoxyphenyl)-3,5-dimethyl-†**, 8384*e*.
——, **2-(3,5-dimethoxyphenyl)-3-methyl-†**, 8384*f*.
——, **dimethyl-**, isomers, magnetic susceptibility of, 8767*h*.
in naphtha of shale oil, 4453*f*.
——, **2,3-dimethyl-**, formation from isopentane, 3773*e*.
——, **2,5-dimethyl-**, 1332*i*.
——, **2,6-dimethyl-**, compds. with desoxycholic acid, 3429*e*.
——, **4-ethyl-3,5-bis(*p*-methoxyphenyl)-**, P 4700*b*.
——, **3-ethyl-3-methyl-**, 9023*e*.
——, **1-fluoro-**, phys. consts. of, 2591*a*.
——, **hexadecafluoro-**, 2157*b*.
iodine soly. in, 2844*c*.
mass spectrum of, 3288*g*.
nitrogen soly. in, 8803*h*.
soly. and solvent action of, 3266*i*.
spectrum of, 1656*i*.
ultrasonic velocity in, 1232*f*.
ultraviolet transmission by, 1653*h*.
Verdet constant of, 2924*h*.
——, **1-iodo-**, phys. consts. of, 2591*a*.
——, **1-(4-isoamyl-2-methylcyclohexyl)-**, 7913*f*.
——, **1-(4-isoamyl-*o*-tolyl)-**, 7913*g*.
——, **4-isobutyl-2,6-dimethyl-**, 6967*h*.
——, **methyl-**, in naphtha of shale oil, 4453*f*.
——, **2-methyl-**, azeotrope with toluene, 7916*e*.
compd. with desoxycholic acid, 3429*d*.
mixts. with cetene and decahydronaphthalene, oxidation and ignition of, 7210*a*.
sepn. from its mixts. with heptane and 2,2,4-trimethylpentane, P 2216*c*.
——, **3(and 3)-methyl-**, 6151*a*.
**sulfuric acid action on and D exchange with $D_2SO_4$, 1247*g*.**
——, **3-methyl-**, 1312*b*, P 2219*a*.
——, **2,2,4,6,6-pentamethyl-**, 5176*f*.
——, **1-phenyl-**, prepn. and spectrum of, 2174*h*.
prepn. of, 6990*i*.
——, **3-phenyl-**, 119*b*.
——, **1,1,1,7-tetrachloro-**, 109*g*.
——, **2,2,4,6-tetramethyl-**, 4212*h*.
——, **2,2,3-trimethyl-**, mixts. with cyclohexane, dehydrogenation rates of, 2499*c*.
——, **2,2,4-trimethyl-**, 4212*h*.
——, **2,4,5-trimethyl-**, 6967*g*.
——, **2,4,6-trimethyl-**, 9023*d*.
——, **3,3,5-trimethyl-**, compds. with desoxycholic acid, 3429*e*.
**1,6-Heptanediamine, 6-methyl-**, polyamides of, P 6866*i*.
**1,7-Heptanediamine, *N,N'*-bis(3,4-dimethoxyphenethyl)-**, and dihydrochloride, 3378*f*.
salts, P 3455*e*.
——, ***N,N'*-diheptyl-**, salts, 3379*g*, P 3455*d*.
——, ***N,N'*-diphenethyl-**, salts, 3379*c*, P 3455*e*.
**1,1-Heptanedicarboxylic acid.** See *Malonic acid, hexyl-*.
**1,7-Heptanedicarboxylic acid.** See *Azelaic acid*.
**3,3-Heptanedicarboxylic acid.** See *Malonic acid, butylethyl-*.
**Heptanedioic acid.** See *Pimelic acid*.
**1,4-Heptanediol, 3-methyl-**, isomers, and dicarbanilates, 4254*f*.
**2,5-Heptanediol, 1-chloro-6,6-dimethyl-**, 5735*i*.
**1,7-Heptanedione, 4-benzoyl-1,3,5,7-tetraphenyl-2-(α-2-pyridylmethylbenzyl)-(?)**, 7022*h*.
——, **4-benzoyl-1,3,5,7-tetraphenyl-2-(α-2-quinolylmethylbenzyl)-(?)**, 7022*h*.
**2,6-Heptanedione (?)**, 2173*f*.
**3,4-Heptanedione**, P 677*i*, P 4689*d*.
**1-Heptanephosphonic acid**, 1315*d*.
**1-Heptanephosphonyl chloride†**, 1315*d*
**Heptanesulfonic acid**, potassium salt, hydrolyzing power for oils, 8707*g*.
**4-Heptanesulfonic acid, 3-nitro-**, potassium salt, P 9079*d*.
**1,1,5,5-Heptanetetracarboxylic acid**, P 7505*i*.
**1-Heptanethiol**, phys. constants of, 2956*d*.
**1,1,7-Heptanetricarboxylic acid, 3-oxo-**, triethyl ester, 7905*a*.
**1,3,5-Heptanetricarboxylic acid, 2,6-dimethyl-**, triethyl ester, 3807*f*.
**1,5,5-Heptanetricarboxylic acid, 1-cyano-**, triethyl ester, P 7505*i*.
**2,3,6-Heptanetricarboxylic acid**, and triethyl ester, 2192*i*.
**3,4,5-Heptanetriol, 3,5-dimethyl-4-propyl-**, 2944*f*.
——, **4-propyl-**, 2944*f*.
**1,3,7-Heptanetrione, 1,5,7-triphenyl-**, (omitted from abstr.), 7002*f*.
**2,4,6-Heptanetrione**, reaction with tri-Et orthoformate, 2585*e*.
**Heptanoic acid.** See *Enanthic acid*.
**1-Heptanol.** See *Heptyl alcohol*.
——, **1-(2,5-xylyl)-**, 6990*h*.
**2-Heptanol**, acrylate, P 6651*b*.
chromic acid oxidation of, 2926*a*.
prepn. of, 6155*b*.
——, **6-(allylamino)-2-methyl-**, P 3029*d*.
——, **6-amino-2-methyl-**, and derivs., P 3029*c*.
hydrochloride, cardiac action of, 6732*i*.
——, **6-benzylamino-2-methyl-**, P 3029*e*.
hydrochloride, cardiac action of, 9248*f*.
——, **6-cyclohexylamino-2-methyl-**, P 3029*e*.
——, **6-[(1-cyclohexyl-1*H*-tetrasol-5-ylmethyl)amino]-2,6-dimethyl-**, P 7972*c*.
——, **6-[(1-cyclohexyl-1*H*-tetrasol-5-yl)methylmethylamino]-2-methyl-**, pharmacology of, 1864*h*.
——, **6-(2-diethylaminoethylamino)-2-methyl-**, hydrochloride, cardiac action of, 9248*f*.
——, **2,3-dimethyl-**, 2162*i*.
——, **6-(2-dimethylaminoethylamino)-2-methyl-**, hydrochloride, cardiac action of, 9248*f*.
——, **6-ethylamino-2-methyl-**, P 3029*e*.
hydrochloride, cardiac action of, 9248*e*.
——, **6-isoamylamino-2-methyl-**, P 3029*e*.
——, **6-isopropylamino-2-methyl-**, P 3029*e*.
**hydrochloride, cardiac action of, 9248*f*.**
——, **2-methyl-6-methylamino-**, P 3029*d*.
cardiovascular effect of, 7148*a*, 8546*c*.
hydrochloride, cardiac action of, 9248*e*.
pharmacology of, 8546*e*.
——, **1,1,1-trichloro-3-ethyl-**, P 664*f*, P 4284*h*.
**3-Heptanol, 2-amino-**, 131*g*.
——, **6,7-dibromo-2,2-dimethyl-**, 5735*g*.
——, **1-diethylamino-6-methyl-3-phenyl-**, hydrochloride, 9071*d*.
——, **2,2-dimethyl-**, and carbanilate, 5735*c*.
compd. with $H_3PO_4$, 5735*e*.
——, **6-dimethylamino-4,4-diphenyl-**, and acetate, and its -HCl, 4244*g*.
and derivs., 191*i*, 3391*c*.
*d*- and *dl*-, and *l*-, hydrochlorides and their acetates (esters), 3390*g*.
——, **7-dimethylamino-4,4-diphenyl-**, derivs., 3391*d*.
——, **2,6-dimethyl-2,6-dinitro-**, P 7952*i*.
——, **2-methyl-**, and carbanilate, 3776*d*.
——, **2-methylamino-**, 131*g*.
——, **3-methyl-6-methylamino-**, hydrochloride, cardiac action of, 9248*e*.
——, **2-nitro-**, 131*g*.
——, **2,4,6(and 2,5,6)-trimethyl-2,6-dinitro-**, P 7952*i*.
**4-Heptanol**, formation from decompn. of PrCHO, 1715*d*.
——, **2-amino-**, 131*g*.
——, **2,6-dimethyl-**, toxicology of, 4401*g*, 7140*c*.
——, **4-isobutyl-2,6-dimethyl-**, 6967*g*.
——, **4-isopropyl-2,6-dimethyl-**, 6967*g*.
——, **2-methyl-**, 1718*g*.
——, **2-methylamino-**, 131*g*.
——, **3-nitro-**, P 3438*i*.
——, **2,2,4,6-tetramethyl-**, 4213*a*.
——, **2,2,4-trimethyl-**, 4212*i*.
——, **2,4,5-trimethyl-**, 6967*f*.
**1-Heptanone, 1-cyclohexyl-**, 4637*d*.
——, **1-(2-thienyl)-**, reaction with methylisatin, 228*a*.
**2-Heptanone**, as azeotrope former in concd. of aq. solns. of HCHO, P 2221*d*
formation of, from $CrO_3$ oxidation of AmMeCHOH, 2926*a*.
Grignard reaction with, 5004*f*.
lyoparachor of, 2834*b*.
oxime, rearrangement of, 5740*e*.
phys. consts. of, 2589*h*
spectrum of, 1656*c*, 3715*g*.
trimer, manuf. of and plasticization of rubbers and polymers with, P 4507*f*
**2-Heptanone, 1-amino-**, hydrochloride, 635*a*.
——, **3-*sec*-butyl-**, and semicarbazone 1317*c*.
——, **1-chloro-**, 633*g*.
——, **3,4-dihydroxy-3-methyl-** 132*b*
——, **3,3-dimethyl-**, and semicarbazone 2162*h*.
——, **4-ethyl-**, and oxime, 131*h*
——, **3-ethyl-4-hydroxy-**, and oxime 131*i*.
——, **3-hydroxy-**, and dimer, 3791*b*.
——, **4-hydroxy-**, and oxime, 131*g*
——, **7-hydroxy-**, and derivs., 6190*f*
——, **4-hydroxy-3-methyl-**, 131*i*.
——, **3-isobutyl-**, and semicarbazone 1317*b*.
——, **6-methyl-**, formation from tetrahydrochlorophorin, 5388*c*.
——, **3-methylene-**, P 6458*c*.
——, **4,4,5,5-tetramethyl-**, and oxime 131*h*.
**3-Heptanone**, phys. consts. of, 2589*h*
prepn. of, 565*e*.
reaction with $HCO_2Et$, 643*g*.
toxicity of, 4401*g*.
——, **7-diethylamino-4,4-diphenyl-**, 9053*h*.
——, **1-(3,4-dimethoxyphenyl)-6-methyl-**, and *p*-nitrophenylhydrazone, 2185*g*.
——, **2-(3,5-dimethoxyphenyl)-5-methyl-**, 8384*d*.
——, **6-dimethylamino-4,4-diphenyl-**, addiction of monkeys to, 2321*f*.
as analgesic, 9250*h*.
analgesic effect of, compared with morphine, 5863*c*.
analgiphoric group in, 9268*b*.
cholinesterase inhibition in brain by, 1108*e*.
compds. related to, 611*d*.
*d*- and *l*-, and related compds., 7466*a*
*d*-, *dl*- and *l*-, and related compds., 3390*a*.
*d*-, *dl*- and *l*-, and salts and related compds., 2193*e*.

distribution in animal organism as detd. by $C^{14}$ labeling, 5865*i*.
effect on pyruvate and succinate oxidation by brain and effect of yeast ext. thereon, 8053*f*.
on succinic oxidase system, 3521*c*.
on uterus, 8551*g*.
fluorene analog of, 5770*b*.
hydrochloride, 8614*f*.
identification of, 4424*h*, 9366*b*.
isomers, pharmacology of, 1487*c*, 7591*a*.
ketimines related to, 3391*f*.
labeled with $C^{14}$, 9031*f*.
*l*- and *dl*-, effect on ganglionic transmission compared with morphine, 6311*b*.
*l*-, tolerance to, 6733*f*.
pharmacol. action and toxicity of, 7131*e*.
pharmacol. action of, 8537*h*.
pharmacol. action of, compared with demerol, 3519*f*.
pharmacology of, and related compds., 1869*d*, 8099*d*.
reactions of, 191*h*.
reduction of, and related compds., 3391*b*.
and related compds., 9053*i*.
review on, 1909*f*.
stereoisomers, and salts, 4244*c*.
tetrahydrofurans related to, 2201*i*.
thiobarbiturate anesthesia and, 1483*d*.
——, **6-dimethylamino-2-methyl-4,4-diphenyl-**, and nitrate, 7466*f*
——, **4,4-diphenyl-6-(1-piperidyl)-**, hydrochloride, 4244*d*.
——, **4,4-diphenyl-6-(1-pyrrolidyl)-**, hydrochloride, 4244*d*.
——, **5-ethoxy-5-methyl-**, 2576*c*.
——, **1-(4-hydroxy-3-methoxyphenyl)-6-methyl-**, 2185*g*.
——, **5-hydroxy-5-methyl-**, acetate, 2576*b*.
——, **1-(*p*-hydroxyphenyl)-6-methyl-**, and *p*-nitrophenylhydrazone, 7001*h*.
——, **5-mercapto-1-methoxy-5-methyl-**, 2163*f*.
——, **5-methyl-**, and semicarbazone, 2161*b*.
——, **6-methyl-1-methylmercapto-6-nitro-**, and 4-phenylsemicarbazone, 7433*h*.
——, **6-(4-morpholinyl)-4,4-diphenyl-**, analgesic action of, 9250*h*.
hydrochloride, 4244*d*.
salts, 3390*i*.
and salts, 9054*e*.
——, **7-(4-morpholinyl)-4,4-diphenyl-**, and hydrochloride, 9053*h*.
**Heptanone**. See *Butyrone*.
——, **3-chloro-**, 2936*g*.
——, **2,5-dimethyl-**, and semicarbazone, 1333*a*.
——, **2,6-dimethyl-**. See *Isovalerone*.
——, **1-dimethylamino-3,3-diphenyl-**, 4244*e*, 9053*f*.
hydriodide, 7467*d*.
——, **1-dimethylamino-2-methyl-3,3-diphenyl-**, and hydrochloride, 7467*b*.
——, **3,3-diphenyl-1-(1-piperidyl)-**, salts, 7467*d*.
——, **3-ethyl-4-methoxy-**, and semicarbazone, 6974*h*.
——, **3-hydroxy-3-methyl-**, and semicarbazone, 2944*f*.
——, **3-methoxy-**, and semicarbazone, 6974*g*.
——, **6-methoxy-2,2-dimethyl-3-methylene-**, 118*a*.
——, **3-methoxy-5-methyl-**, and semicarbazone, 6974*h*.
——, **5-methoxy-2-methyl-**, and semicarbazone, 6974*h*.
——, **3-methyl-**, and semicarbazone, 2161*c*.
——, **1-(4-morpholinyl)-3,3-diphenyl-**, hydrochloride, 9053*h*.
——, **3-phenyl-**, and semicarbazone, 119*d*.
——, **1,1,1-trichloro-2-hydroxy-**, 3785*c*.
——, **1,1,1-trichloro-2-hydroxy-6-methyl-**, 3785*c*.
——, **2,2,3-trimethyl-**, 1185.
**Heptasiloxane, 1,13-diethoxy-1,1,3,3,5,5,7,7,9,9,11,11,13,13-tetradecamethyl-**, P 6221*c*.
——, **hexadecamethyl-**, P 4402*f*.
compression of, 4067*f*.
**3,33-Heptatriacontadien-19-one**, reaction products with P acids, P 4877*h*.
**1,4,6-Heptatriene, 5-methyl-**, 1018*b*.
**1,4,6-Heptatrienoic acid, 5-methyl-7-(2,6,6-trimethyl-2-cyclohexen-1-yl)-**, 6989*f*.
and isomer, 2687*i*.
**1,4,6-Heptatrienyl** (*free radical*), 5732*f*, *g*.
**1,3,5-Heptatrienylamine, *N*-phenyl-7-phenylimino-**, hydrobromide, prepn. and reaction with 3-ethyl-2-methylbenzothiazolium iodide, 2617*a*.
**Heptene**, isomers, 6151*h*.
isomers, in shale-oil naphtha, 4453*h*.
isomers, polymerization with butadienes and acrylonitriles or styrenes, P 2806*e*.
from olefin polymerization, P 5640*h*.
——, **methyl-**, 1311*d*.
——, **2-methyl-**, formation in hydrogenation of isopropylcyclopentane, 5010*c*.
——, **2(3 and 4)-methyl-**, 6152*c*.
**1-Heptene**, freezing point, purification, and purity of, 2924*g*.
in paraffin cracking distillate, 8124*i*.
——, **1-chloro-**, 9024*h*.
——, **5,6-epoxy-2-ethyl-6-methyl-(?)**, 4629*a*.
——, **2,4,4,6,6-pentamethyl-**, depolymerization of, 6151*b*.
**2-Heptene, 3,5-bis(*p*-methoxyphenyl)-**, P 4700*a*.
——, **6-chloro-2,6-dimethyl-**, 5736*f*.
——, **5-chloro-5,6,6-trimethyl-**, 5736*f*.
——, **1,2-dibromo-**, 6572*b*
——, **2-(3,5-dimethoxyphenyl)-3,5-dimethyl-†**, 8384*e*.
——, **2-(3,5-dimethoxyphenyl)-3-methyl-†**, 8384*f*.
——, **2,6-dimethyl-**, elec. moment of, 4061*g*.
——, **4-ethyl-3,5-bis(*p*-methoxyphenyl)-**, P 4700*a*.
——, **3-methyl-**, elec. moment of, 4061*g*.
——, **2,4,4,6,6-pentamethyl-**, depolymerization of, 6151*c*.
——, **1,2,3-tribromo-**, 6572*e*.
**3-Heptene, 3,6-dimethyl-**, elec. moment of, 4061*g*
——, **4-ethyl-**, elec. moment of, 4061*g*.
——, **2,2,4,6,6-pentamethyl-**, 5176*f*.
depolymerization of, 6151*b*.
——, **4-phenyl-**, reaction with S, 5392*g*.
——, **2,4,6,6-tetramethyl-**, mixt. with 2-isobutyl-4,4-dimethyl-1-pentene, 4213*b*.
——, **2,4,6-trimethyl-**, 9023*g*.
elec. moment of, 4061*g*.
**5-Heptenenitrile, 2-hydroxy-2,6-dimethyl-**, 5736*c*.
——, **6-methyl-4-oxo-**, and semicarbazone, 6625*b*.
**5-Heptene-2-thiol, 2,6-dimethyl-**, 1001*a*.
**6-Heptene-2-thiol, 2,6-dimethyl-**, 1001*a*.
**2-Heptenoic acid, 2,4-dihydroxy-**, γ-lactone, and esters, 4221*h*.
——, **4-hydroxy-**, lactone, effect on microorganism growth, 7542*c*.
——, **6-methyl-4-oxo-**, 3785*d*.
——, **4-oxo-**, 3785*d*.
**5-Heptenoic acid, 2-acetamido-2-cyano-**, ethyl ester, 574*f*.
——, **2-amino-**, 574*e*.
——, **2-benzamido-**, 574*g*.
——, **2-hydroxy-2,6-dimethyl-**, and butyl ester, 5736*c*.
——, **3-(hydroxymethyl)-6-methyl-2,4-dioxo-**, γ-lactone, effect on heart, 7138*g*.
——, **6-methyl-4-oxo-**, and semicarbazone, 6625*c*.
**1-Hepten-3-ol, 1-phenyl-**, 1718*h*.
**2-Hepten-1-ol, 2,3-dibromo-**, and 3,5-dinitrobenzoate, 6572*d*.
**3-Hepten-4-ol, 2,6-dimethyl-**, acetate, P 3838*i*.
**5-Hepten-2-ol, 2,6-dimethyl-**, 5735*d*.
**6-Hepten-3-ol, 2,2-dimethyl-**, compd. with $H_3PO_4$, 5735*d*.
and esters, 5735*c*.
——, **2,2,3-trimethyl-**, and allophanate, 5735*d*.
compd. with $H_3PO_4$, 5735*d*.
**Heptenone, methyl-**, P 2222*h*, P 2632*d*.
**1-Hepten-3-one**, polymers with 2-vinylpyridine, P 5231*b*.
——, **5-chloro-5-methyl-**, 2576*a*.
——, **1-(4-hydroxy-3-methoxyphenyl)-6-methyl-**, 2185*g*.
——, **1-hydroxy-2-methyl-**, sodium deriv., 643*g*.
——, **5-hydroxy-5-methyl-**, acetate, 2576*b*.
——, **1-(*p*-hydroxyphenyl)-6-methyl-**, 7001*h*.
**1-Hepten-4-one, 6,6-dimethyl-5-methylene-**, 1185.
——, **5,5-dimethyl-7-(1-piperidyl)-**, hydrochloride, 4244*f*.
**2-Hepten-4-one, 6-methoxy-3-phenyl-**, 119*c*.
——, **3-methyl-**, and semicarbasone, 2161*c*.
——, **3-methyl-6-(4-methyl-3-cyclohexen-1-yl)-**, 2605*g*.
——, **7,7,7-trichloro-6-hydroxy-2-methyl-**, 3785*c*.
**3-Hepten-2-one**, reaction with ketene, 6166*d*.
——, **3-*tert*-butyl-6,6-dimethyl-**, and derivs., 1718*d*.
——, **3-ethyl-**, and derivs., 131*i*.
——, **4,6,6-trimethyl-**, P 4686*a*.
**4-Hepten-2-one, 4,6,6-trimethyl-**, P 4686*a*.
**4-Hepten-3-one, 1-methoxy-5-methyl-**, 2576*c*.
——, **5-methyl-**, P 4287*h*.
and semicarbazone, 2161*c*.
——, **2,2,5,6,6-pentamethyl-**, 111*e*.
**5-Hepten-2-one, 6-methyl-**, and semicarbazone, 7413*i*.
**6-Hepten-3-one, 4-allyl-2,2-dimethyl-**, 5735*a*.
——, **4-(2-diethylaminoethyl)-4,7-diphenyl-**, hydrochloride, 4244*f*.
——, **2,2-dimethyl-**, and derivs., 5735*a*.
——, **4-phenyl-4-[2-(1-piperidyl)ethyl]-**, hydrochloride, 4244*f*.
**6-Hepten-4-yne-2,3-diol**, dehydration and isomerization of, 2162*g*.
**4-Hepten-2-yn-4-ol, 6-imino-**, 2999*c*.
——, **6-methylimino-**, 2999*d*.
**6-Hepten-4-yn-2-ol, 2-methyl-3-methylene-**, and isovalerate, 2162*h*.
**6-Hepten-4-yn-3-ol, 3-ethyl-**, 115*g*.
——, **3-methyl-**, 155*i*.
——, **3-phenyl-**, 119*a*.
——, **2,2,3-trimethyl-**, 117*i*.
**6-Hepten-4-yn-2-one, 3,3-dimethyl-**, 2162*h*.
***n*-Heptoic acid**. See *Enanthic acid*.
**1,5,9,13,17,21,25-Heptoxacycloöctacosane-3,3,7,7,11,11,15,15,19,19,23,23,27,27-tetradecamethanol**, and nitrate, 6223*h*.
**Heptyl alcohol** (*1-heptanol*). (For derivs see under *1-Heptanol*.)
azeotrope with ethylene glycol, 2834*e*.
effect on drilling of Al, 8227*i*.
on drilling of metals, 7889*h*.
on sp. work of cutting annealed Al in paraffin oil, 2001*i*.
esters, surface tension of, 8779*g*.
flow birefringence and relaxation time of, 7284*h*.
manuf. of, P 3445*i*.
mixts. with $C_6H_6$, elec. birefringence of, 469*g*.
nicotinate, 2622*h*.
nicotinate, effect on muscle, 6316*h*.
phys. constants of, 2956*b*.
propionate, as flavoring component, 2370*i*.
Raman effect and H bond formation in, 7345*g*.
silver nitrate electrolysis in presence of, 7356*g*.
soly. in aq. long-chain electrolytes. 6041*c*.
soly. in Na xylenesulfonate solns., 1242*e*.
system: $C_6H_{13}CHO$–, f.p.-compn. of, 5740*c*.
system: Na palmitate–, x-ray diffraction by, 2793*b*.
**Heptylamine**, bisulfite, compds. with aldehydes or ketones, 3356*b*.
compd. with *N*¹-(5-methyl-1,3,4-thiadiazol-2-yl)sulfanilamide, P 6661*c*.
pharmacology of, 1110*a*.
——, ***N*,*N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
——, **4,7-dibromo-**, hydrobromide, 215*a*.
——, ***N*,*N*-diethyl-**, salts, 131*d*.
——, ***N*,*N*′-[ethylenebis(*p*-phenylenemethylene)]bis-**, and dihydrochloride, 3382*e*.
——, **1-methyl-**, in adsorption studies, 8797*a*.
——, ***N*,*N*′-(methylenedi-*p*-phenylene)bis-**, and dihydrochloride, 3381*h*.
——, **6-methyl-*N*-phenethyl-†**, effect on blood pressure, 7585*g*.
**Heptyl bromide**. See *Heptane, 1-bromo-*.
**Heptylene**. See *Heptene*.
**Heptyl ether**, phys. consts. of, 2590*a*.
**Heptylic acid**. See *Enanthic acid*.
**Heptyl mercaptan**. See *1-Heptanethiol*.
**Heptyl silicate**, $(C_7H_{15})_4SiO_4$, 9028*c*.
**Heptyl sulfide**, phys. constants of, 2956*e*.
**Heptyl thiophosphate**, $(C_7H_{15}O)_2PS_2H$, in Mo detection, 7859*b*.
**1-Heptyne**, manuf. of, P 5788*h*.
——, **7-bromo-**, 6572*d*.
——, **7-chloro-**, 6571*h*.
**2-Heptyne, 1-bromo-**, 6572*b*.
——, **1-chloro-**, 6572*a*.

-, 7-chloro-, 6571*h*.
**3-Heptyne, 1-bromo-**, 6572*b*.
——, **1-chloro-**, 6571*i*.
——, **7-chloro-**, 6571*h*.
——, **5,6-epoxy-2,5-dimethyl-**, 3355*d*.
**3-Heptyne-2,5-diol, 2,5-dimethyl-**, 1332*h*.
**4-Heptyne-2,3-diol, 3,5-dimethyl-**, 3355*d*.
**2-Heptyn-1-ol**, and 3,5-dinitrobenzoate, 6571*f*.
**2-Heptyn-4-ol, 1-diethylamino-**, acetate and benzoate (esters), hydrogenation of, 131*d*.
**3-Heptyn-1-ol**, and 3,5-dinitrobenzoate, 6571*f*.
**4-Heptyn-1-ol**, and 3,5-dinitrobenzoate, 6571*g*.
**4-Heptyn-3-ol, 2-chloro-3,6-dimethyl-**, 3355*c*.
**5-Heptyn-1-ol**, and 3,5-dinitrobenzoate, 6571*g*.
**6-Heptyn-1-ol**, and 3,5-dinitrobenzoate, 6571*g*.
**Heracleum nepalense**, cryst. compds. from seeds of, 641*c*.
**Herbacetin** (*3,4',5,7,8-pentahydroxyflavone*), 638*c*, 1772*h*.
derivs., 227*a*.
pentamethyl ether—see *Flavone, 3,4',5,7,8-pentamethoxy-*.
**Herbicide PB**, 4413*e*.
**Herbicides**. See *Weed control*.
**Herbs**. See *Plants*.
**Hercothrips femoralis**, control of, DDT mixts. with methylated naphthalene for, P 1902*g*.
**Hercules Synthetic 3956**. See *Toxaphene*.
**Hercules Toxicant 3956**. See *Toxaphene*.
**Herculin***, from *Zanthoxylum clavaherculis* bark, *N*-isobutyl-2,4-dodecadienamide identity with, 1719*f*.
**Hercynite**, formation in Fe-cordierite synthesis, 5705*d*.
**Heredity**, alcoholism and, 9217*b*.
of amyloidosis and renal disease in mice, 4362*f*.
in carotene, carotenoid and vitamin A contents of milk of uniovular calf twins, 1098*i*.
cytochrome oxidase in plastids in relation to, 8454*d*.
in metabolism by *Neurospora crassa*, 2278*b*.
of methemoglobinemia, 3092*b*.
methionine uptake by liver and, 7108*a*.
of mosaicism in *Drosophila*, effect of heterochromatin on, 8564*e*.
of nicotinic acid content of sorghum, 8456*h*.
in nucleic acid content of bacteria, 721*i*.
in oat sensitivity to growth substances, 3493*h*.
of oil in corn kernel, 2675*b*.
in osteopetrosis of rabbit, 1482*g*.
of protein and its components in maize, 7088*d*.
reproductive inefficiency and, 3907*d*.
in tumor causation, 299*b*.
of vitamin C content in peaches, 5091*d*.
vitamin C in milk of monozygous cattle twins, 1849*f*.
**d'Hérelle phenomenon**. See *Bacteriophages*.
**Hermaphrodism**, from adrenal cortical tumor, β-17-keto steroids in urine in, 2696*d*.
**Hernlarin** (*7-methoxycoumarin*).
——, **6-bromo-3-ethyl-4-methyl-**, 5024*c*.
——, **6-bromo-4-methyl-3-propyl-**, 5024*c*.
——, **3-ethyl-4-methyl-**, bromination of, 5024*c*.
——, **6-hydroxy-4-methyl-**, and acetate, 3823*e*.
——, **8-(3-methyl-2-butenyl)-**, 3416*d*.
——, **4-methyl-6-nitro-**, 1045*c*, 2621*g*.
——, **4-methyl-3-propyl-**, bromination of, 5024*c*.
——, **4-methyl-3,6,8-trinitro-**, 2621*i*.
**Heroine**, detection in foods, 9273*h*.
effect on protoplasmic colloids, 3932*e*.
enzymic hydrolysis of, 702*c*.
sensitization of heart and muscle to acetylcholine by, 3102*d*.
**Herpes**, hyaluronidase inhibitor in blood serum in, effect of anaphylaxis on, 3094*i*.
**Herring**. (See also *Sardines*.)
canned, fat in Norwegian, 8069*c*.
dried roe of, compn. during putrefaction, 327*g*.
meal, effect of methods of processing on nutritive value of, 8465*g*.
**Herring fats**. See *Fats*.
**Herring oils**. See *Oils*.
**Herschel effect**, on alpha-particle tracks, 8922*i*.
photographic latent image and, 6097*i*.
**Herschelite**, of Palagonia, Sicily, 3320*d*.
**Herty Medal**, to Quayle, Osborne Robinson, 4907*i*.
**Hertzian waves**, absorption by electrolytes, 6081*c*.
absorption by solids, 4094*g*.
blanching of corn and peaches with, 783*h*.
cheese pasteurization by, 9284*e*.
detector for, $UO_3$ thermistor as, 7346*h*.
dispersion and absorption of, in glycerol, 3717*b*.
drying of tablet granulations by, 8607*i*.
drying oil foots or gums with, P 6438*b*.
effect on properties of CbN, 4957*c*.
from elec. discharges in $H_2$ and $O_2$, 1640*g*.
matter disintegration by, P 2518*a*.
micro-, —see *Microwaves*.
solar-flare investigation with, 7334*b*.
**Hesperetin** (*3',5,7-trihydroxy-4'-methoxyflavanone*), adrenaline potentiation by, 5116*i*.
solvent for, P 2739*f*.
**Hesperidin**. (See also *Citrin; Neohesperidin;* and "P" under *Vitamins*.)
adrenaline protection by, 5542*a*.
effect on anticoagulant action of dicoumarol, 3931*e*.
and esters, adrenaline potentiation by, 5117*a*.
in mandarin-orange peel, vitamin C and, 7603*c*.
in orange flowers and unripe oranges, 6328*b*.
and phosphate and sulfate, effect on histidine decarboxylase, 8404*b*.
prepn. from orange peelings, P 6791*g*.
**Hesperidin chalcone***, methylated and acetylated, adrenaline potentiation by, 5117*a*.
methylated, effect on histidine decarboxylase, 8404*c*.
**Hesperidoside**. See *Hesperidin*.
**Hessite**, in Canada (western), 8983*a*.
density and x ray data on, 8982*g*.
**Heteraxones**. See *Growth substances; 3-Indoleacetic acid*.
**Heteroascorbic acid, 1-methyl-***, antiscorbutic effect of, 9179*h*.
**Heteroauxin**. See *3-Indoleacetic acid*.
**Heterochromatin**, effect on mosaicism, 8564*e*.
nucleic acids and, 259*c*.
**Heterocyclic compounds**. (See also *Cyclic compounds; Ring*.) 2958*h*, P 4301*g*.
acetylene derivs., 6622*g*.
acetyl, syntheses from, 1764*g*.
acyl derivs., 8367*f*.
acylmethylene derivs., 4262*e*.
amino, P 5808*f*.
anticonvulsant action and mol. structure of pentagonal, 7585*i*.
aryl isocyanates in identification of, 8365*b*.
azo derivs., P 6662*f*.
bond distances in aromatic poly-, naphthalenoid character and, 3814*a*.
chlorinolysis of aromatic, P 4296*d*.
chloro derivs., reaction with hydroxy- and methoxy-*N*-methylbenzylamines, 2212*d*.
condensation of unsatd., with rosin with $BF_3$ catalyst and esterification of condensate to varnish resins, P 9486*f*.
(ω-dimethylaminoalkylamino) derivs. of, P 3471*h*.
effect of hetero atom on chem. properties of, 5019*e*.
fluoro derivs., 5783*d*.
*N*-(guanylalkyl) carboxamides as intermediates for, P 673*c*.
hydrazino, 3410*b*.
methyl-group reactivity in N, 6206*g*.
mol. diagrams of, construction of, 4528*a*.
multimembered, 5399*i*.
nitrogen, P 1810*e*, P 2642*d*, P 5049*e*, P 6670*d*, P 7050*d*.
amino derivs., histamine activity of, 3520*g*.
β-arylaminovinyl derivs., for use as intermediates for photographic sensitizers, P 4164*b*.
of azole series, 1398*d*, 1399*e*, 1400*f*, 1401*h*, 1402*d*, 3408*h*, 3409*e*.
charges on atoms in, 4670*e*, 6582*f*.
contg. more than one N atom, electronic structure of, 2094*i*.
as fixative for insulating material contg. halogenated hydrocarbons, P 4402*d*.
Hofmann reaction in prepn. of, 6984*f*.
*nitrogen*, ionization consts. of, 3416*d*.
in lubricants, P 4459*g*.
mixts. with halogenated hydrocarbons for insulating and dielectric purposes, P 2217*e*.
nitramino derivs., 9065*g*.
nitramino derivs., nitration of, 2203*d*.
nitramino derivs., reaction with primary amines, 4273*a*.
oxidation of, P 697*c*.
oxidation of aromatic, P 8402*d*.
phenacyl derivs. of, P 7050*g*.
photographic subbing compn. contg., P 3739*b*.
purification of, P 1810*i*.
reaction of diazo ketones with salts of, 1775*h*.
sulfonic acid compds. of, for prepn. of asphaltic or bituminous materials, P 6822*c*.
nitrogen-S, 2573*c*.
nitrogen-S, intermediates for, P 7506*i*.
nomenclature of, history of, 7405*g*.
oxygen, 4253*a*.
hydrogenolysis of, 4640*d*.
from plants, 8616*a*.
polyamides, P 4519*d*.
reactions of, contg. an active methylene group, 4211*h*.
from Schiff bases, 9065*f*.
spectra of, 1655*b*, 2094*g*, 2865*c*, 8274*e*, 8886*a*.
effect of substitution on, 7818*c*.
structure and, 4570*d*.
stilbene-like, 3426*g*.
structure of, representation of, 2853*e*.
sulfanilyl derivs., 1028*d*.
sulfonamides, 176*g*.
synthesis of, 1778*g*, 4252*i*.
vinyl derivs. of five-atom, 7018*d*.
**Heterodera marioni, Heterodera radicola, Heterodera schachtii** and/or **Root knot nematode**, control of, 717*e*, 9329*h*, 9354*b*.
control of, on gardenias, 1139*e*.
in sand cultures, 4804*e*.
in soil, 3960*e*, P 6357*b*, 7186*e/g*, 9328*e*.
in sugar beets, 3134*d*.
in vegetables by weed control, 5117*b*.
**Heterodera rostochiensis**, control in potatoes, 3963*b*.
control in soil, 9337*a*.
**Heterogenization**, of aluminum-Mg alloys in improving stress corrosion resistance, 8340*h*.
**Heterolupanediol**, 1751*b*.
**Heterolupenal**, and derivs., 1750*i*.
**Heterolupene**, 1750*h*.
**Heterolupenic acid**, and methyl ester, 1751*a*.
**Heterolupenonitrile**, 1750*i*.
**Heterolupeol**, 1750*f*.
**Heteronychus sanctae-helenae**, control of, 7185*b*.
**Heterosides**. See *Glucides; Glycosides*.
**Heterovitamin $B_{11}$**. See "$B_{11}$, pyridin analog" under *Vitamins*.
**HETP**. See "$Et_6P_4O_{11}$" under *Ethyl tetra phosphate*.
**Hetramine** See *Pyrimidine, 2 [benzal dimethylaminoethyl]amino-*]
**Hetrazan***, action on filariasis and onchocerciasis, 8540*e*.
antimalarial activity of, 5860*h*.
in filariasis treatment, 1490*f*.
in loiasis, 8540*g*.
**Heulandite**. (See also *Stilbite*.)
anthigenic, in sandstone of San Cruz Co., Calif., 2129*h*.
in druses in granite and rhyolite of Dragannlui Valley, Rumania, 5709*b*
of Italy (Baveno) 3320*h*.
**Heusler alloys**, crystal structure and magnetizability of, 4074*d*.
magnetic resonance absorption in, 3763*g*
replacement of Al and Sn by In in, 4618*e*
**Hevea**. (See also *Rubber*.)
*brasiliensis*, full-spiral tapping of, 5983*b*.
*brasiliensis*, latex of, as adjuvant and stimulant in antitoxic immunity, 3916*e*.
cultivation of tissue from, *in vitro*, 9167*a*
parasitic fungi of, 5891*i*.
rubber formation in, 3052*e*.
seeds, lipolytic enzyme destruction in, 4025*i*.
**Hexachloran**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Hexachlorophene**. See *Phenol, 2,2'-methylenebis[3,4,6-trichloro-*.
**Hexacosadienoic acid**, in muskrat scent glands, 1590*i*.
**Hexacosanamide, 2-methyl-**, D-, 7901*e*.
**Hexacosane**, dielec. strength of, 2480*d*.
from Douglas fir lignin residue, 1182*i*.

solid solns. of esters or ketones in, dielec. relaxation times of, 3676*g*.
spectrum of, 4140*e*.
——, **1-bromo-2-methyl-**, D(+)-, 7901*c*.
**Hexacosanedioic acid**, mol. area of, 4537*e*.
**Hexacosanoic acid**. See *Cerotic acid*.
——, **2-methyl-**, D(—)- and L(+)-, 7900*g*.
——, **2-methyl-7-oxo-**, L(+)-, 7901*f*.
**1-Hexacosanol**, mixts. with $C_6H_6$, elec. birefringence of, 469*h*.
as ointment-base constituent, hydrophilic properties of, 8609*i*.
**Hexacosyl hyponitrite**, as catalyst for polymerization, P 5641*c*.
**2,4,6,8,10,12,14-Hexadecaheptaenal**, and derivs., 5363*g*.
**Hexadecamethylenimine**. See *Asacyclohepladecane*.
**Hexadecanamide**. See *Palmitamide*.
**Hexadecane**, as antioxidant in paraffin oil, 2411*b*.
carbon dioxide partition between aq. NaCl and, 7297*g*.
chromatography of, transport factor on $SiO_2$ gel for, 7868*e*.
compression and freezing under pressure, 4067*e*.
crit. consts. of, 3254*h*.
effect on carcinogenic agents, 1857*i*.
on crit. shear stress of Sn single crystals, 6029*a*.
on metabolism of tubercle bacilli, 9141*d*.
herbicidal action of, 1895*e*.
isomerization of, Diesel fuels by, P 5174*b*.
lubricating value at high sliding velocity of, and solns. of S or benzyl disulfide in, 1953*c*.
mixts. with $C_6H_6$ and 2,4-dimethylpentane, viscosities of, 8777*h*.
with heptane or hexane, activity coeffs., vapor pressures and statistical thermodynamics of, 5247*a*.
with pentadecane and tetradecane, mol. distn. of, and vapor pressure of *n*-$C_{16}H_{34}$, 7764*i*.
prepn. of, from $C_{15}H_{31}I$, 1312*d*.
pyrolysis of, kinetics of, 3343*e*.
Raman spectrum of, 5309*c*.
resonance energies of, 10*c*.
spreading of, on metals, effect of fatty acids on, 4655*b*.
system: Ca stearate–, 4081*d*, 9425*a*.
system: heptane–, entropy, free energy and heat of mixing in, 6070*e*.
systems: hydrocarbons–, countercurrent extn. with aniline, 4840*i*.
system: Na palmitate–, x-ray diffraction by, 2793*b*.
Verdet const. ratio to refractive dispersion for, 4911*b*.
**Hexadecane, 1-bromo-**, dielec. properties and structure of, 4912*b*.
phys. consts. of, 2591*a*.
– –, **1-cyclohexyl-**, resonance energies of, 10*c*.
– –, **1-iodo-**, reduction of, 1312*d*.
– –, **1-(1-naphthyl)-**, Raman spectrum of, 8888*f*.
——, **1-[1(and 2)-naphthyl]-**, 4454*h*.
——, **1-(2-naphthyl)-**, 9424*e*.
——, **1-phenyl-**, resonance energies of, 10*c*.
——, **1,7,8,16-tetrabromo-**, 5369*f*.
**1,2-Hexadecanedicarboxylic acid**. See *Succinic acid, tetradecyl-*.
**1,16-Hexadecanedicarboxylic acid**. See *Octadecanedioic acid*.
**8,9-Hexadecanedione, 7,10-dimethyl-**, 4227*h*.
**Hexadecanesulfonic acid**, potassium salt, hydrolyzing power of oils, 8707*g*.
**1,7,8,16-Hexadecanetetrol**, 5369*f*.
**1-Hexadecanethiol**, as ointment-base constituent, hydrophilic properties of, 8610*a*.
prepn. and spectrum of, 6511*i*.
**Hexadecanoic acid**. See *Palmitic acid*.
**Hexadecanol**, as catalyst in oxidation of paraffin oil, 2411*b*.
**1-Hexadecanol**, acrylate, alkyl side chain crystn. in polymers of, 2064*h*.
acrylate, polymer, 7747*i*.
adsorption by steel, 6559*h*.
crystn. and nuclei in melt of, 8278*a*.
dehydration and polymerization in lubricant prepn. from, 8125*h*.
effect on antiseptic ointments, 3562*i*.
on drilling of Al, 8227*i*.
on drilling of metals, 7889*h*.
on sp. work of cutting annealed Al in paraffin oil, 2001*h*.
on velocity of hydrolysis of sardine oil, 8706*i*.
*effect* on Zn suspensions in $C_6H_6$, 7777*e*.
emulsifier contg., for use with drugs, 6363*a*.
esters, 4641*a*, 7003*h*.
flow birefringence and relaxation time of, 7284*h*.
mixts. with $C_6H_6$, elec. birefringence of, 469*h*.
mixts. with palmitic acid, crystal structure of, 5253*e*.
nicotinate, 2622*h*.
prepn. of, 2570*g*, 5363*h*.
propionate, as flavoring component, 2370*i*.
in seborrhea oil, 8027*a*.
sorption by MgO, 17*b*.
succinate (acid), kinetics of hydrolysis of ion of, 4086*f*.
succinate (acid), properties of monolayers of, 8797*i*.
system: Na palmitate–, x-ray diffraction by, 2793*b*.
thixotropic mixts. with Na oleate in $C_6H_6$ emulsification, 4923*d*.
**1-Hexadecanone, 1-phenyl-**. See *Palmitophenone*
**2-Hexadecenal, 3,7,11,15-tetramethyl-**, P 2221*h*.
**Hexadecene**, chromatography of, transport factor on $SiO_2$ gel for, 7868*e*.
phys. consts. of, 2591*g*.
reaction with naphthalene, P 3606*b*.
**1-Hexadecene** (*cetene*), herbicidal action of, 1895*e*.
ignition and oxidation of, and its mixts., 7210*a*.
**2-Hexadecene, 1-bromo-3,7,11,15-tetramethyl-**, reaction with 2,3-xylohydroquinone, P 1806*f*.
**7-Hexadecene, 1,16-dibromo-**, 5369*f*.
**Hexadecene-1,16-dicarboxylic acid**. See *Octadecenedioic acid*.
**Hexadecenoic acid**. (See also *Palmitoleic acid*.)
in bacury-seed fat, 7720*i*.
in fat of humans, 8494*e*.
in horse bone and kidney fats, 6839*c*.
in muskrat scent glands, 1580*i*.
in rape-seed oil, 1201*b*.
of sheep body fat, 1997*b*.
——, **16-hydroxy-**, lactone, P 2376*d*.
**7-Hexadecenoic acid, 16-hydroxy-**. See *Ambrettolic acid*.
**9-Hexadecenoic acid**. See *Palmitoleic acid*.
**Hexadecenoin**, dipalmito- and oleopalmito-, in bacury-seed fat, 7720*h*.
**2-Hexadecen-1-ol, 3,7,11,15-tetramethyl-**. See *Phytol*.
**Hexadecenylamine**, *N,N*-**dimethyl-**, as lubricant additive, P 8668*c*.
***n*-Hexadecoic acid**. See *Palmitic acid*.
**Hexadecyl alcohol**. See *1-Hexadecanol*.
**Hexadecylamine**, as corrosion inhibitor for pipe lines, P 2568*d*.
——, **1-(2-ethyl-4,5-dimethoxyphenyl)-*N,N*-dimethyl-**, 2624*g*.
**Hexadecyl disulfide**, prepn. and spectrum of, 6511*i*.
**Hexadecyl ether**, 5003*d*, 6156*e*.
as synergist for nicotine, 5893*g*.
**Hexadecyl hyponitrite**, as catalyst for polymerization, P 5641*c*.
***tert*-Hexadecyl mercaptan***, 1716*a*.
effect on emulsion copolymerization of isoprene and styrene, 2019*b*.
as polymerization modifier, 8728*i*.
**Hexadecyl phosphate**, $(C_{16}H_{33})_2HPO_4$, in polythene, effect on fibrous tissue, 1483*h*.
**Hexadecyl selenide**, 6400*a*.
**Hexadecyl sodium sulfate**, detn. of residues of, on skin, 2263*e*.
surface films of, 7776*i*.
titration with cetyltrimethylammonium bromide, with pinacyanol bromide indicator, 5976*f*.
**Hexadecyl sulfide**, as lubricant additive, P 6820*i*.
prepn. and spectrum of, 6511*h*.
**Hexadecyl telluride**, as lubricant additive, P 6820*b*.
**Hexadecyl tetrasulfide**, prepn. and spectrum of, 6511*i*.
**Hexadecyl trisulfide**, prepn. and spectrum of, 6511*i*.
**Hexadiene**, cyclic polymers of, addn. products with unsatd. acids, P 5637*b*.
**1,2-Hexadiene**, 6907*i*.
**1,3-Hexadiene, 5-chloro-**, 112*i*.
——, **5-chloro-5-methyl-**, 112*e*.
——, **3-methyl-**, 115*e*.
——, **2,3,4-trimethyl-**, bromination of, 110*e*.
**1,4-Hexadiene**, and derivs., 3774*c*.
prepn. of, 2994*d*.
——, **6-bromo-**, 9024*e*.
**1,5-Hexadiene**, electronic structure and hyperconjugation of, 41*e*.
polymers of, P 3236*a*.
Raman spectrum of, 7346*a*.
reaction with *N*-bromosuccinimide, 9024*e*.
——, **3-bromo-**, 9024*e*.
——, **2,5-dimethyl-**, P 1056*b*.
polymers with acrylic esters, P 2035*f*.
Raman spectrum of, 7346*b*.
——, **1,4(and 1,6)-diphenyl-**, 612*d*.
spectrum of, 493*b*.
——, **3,4-diphenyl-**, *meso*-, 612*c*.
*meso*-, configuration and isomorphism of, and related compds., 611*i*.
——, **2-methyl-**, 5735*f*.
——, **1,1,2,3,4,5,6,6-octachloro-**, 3346*d*.
——, **1,1,3,3,4,4,6,6-octachloro-**, 3346*d*.
**2,4-Hexadiene**, formation from 2-butanone and EtOH, 993*c*.
octane value and sensitivity to $PbEt_4$ of, 3997*i*.
prepn. of, 6153*i*.
Raman spectrum of, 7346*b*.
reaction with diphenoquinone, 5018*f*.
——, **3,4-bis[4-(allyloxy)-*m*-tolyl]-**, 4247*d*.
——, **3,4-bis(*p*-hydroxyphenyl)-**. See *Phenol, p,p'-(diethylidenedihylene)di-*.
——, **3,4-bis(*p*-methoxyphenyl)-**, in tissue of birds after administration, and effect on testicles, comb and epidermis, 8032*a*.
——, **1-chloro-**, 112*i*.
——, **1-chloro-5-methyl-**, 112*b*.
——, **2,4-dimethyl-**, bromination of, 110*d*.
——, **2,5-dimethyl-**, Raman spectrum of 7346*b*.
——, **3,4-diphenyl-**, *trans-trans*-, 612*a*.
**2,4-Hexadienedioic acid**. See *Muconic acid*.
——, **3,4-dihydroxy-2,5-diphenyl-**, mono-γ-lactone—see *Pulvinic acid*.
**1,5-Hexadiene-3,4-diol**, D-, and dibenzoate, 1721*h*.
**1,5-Hexadiene-3,4-dione, 1,6-di-2-furyl-**, 187*c*.
——, **1,6-diphenyl-**, 3812*e*.
**2,4-Hexadiene-1,6-dione, 1,6-diphenyl-**, 607*g*.
and dimer, 7452*i*.
**2,4-Hexadienoic acid**. See *Sorbic acid*.
**2,5-Hexadienoic acid, 4,4-dihydroxy-3-methoxy-5-methyl-**, γ-lactone, 5745*b*.
——, **3-methoxy-5-methyl-4-oxo-**. See *Penicillic acid*.
**3,5-Hexadienoic acid, 4-hydroxy-2-oxo-6-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, methyl ester, 2587*f*.
**2,4-Hexadien-1-ol**, and acetate, 112*f*.
——, **5-methyl-**, and acetate, 112*a*.
**3,5-Hexadien-2-ol**, 557*i*.
and acetate, 112*f*.
——, **2-methyl-**, and acetate, 112*a*.
**1,4-Hexadien-3-one, 2,4-dibromo-5-methyl-**, 2164*a*.
——, **2,4-dihydroxy-5-methyl-**, diacetate, 2164*b*.
——, **5-methyl-**, 2161*b*.
bromination of, 2163*g*.
reaction with HCN, 6625*a*.
reaction with $H_2S$, 2944*h*.
——, **5-phenyl-**, 118*i*.
**1,5-Hexadien-3-one**, derivs., hydrogenation of, 2161*a*.
and derivs., reaction with $NH_2$ and $MeNH_2$, 2958*h*.
——, **1,2-diphenyl-**, and ring closure of, 6624*h*.
——, **2-methyl-**, 1333*i*.
**3,5-Hexadien-2-one**, 2159*b*.
——, **1-(2-furyl)-**, fungistatic activity of, 9334*b*.
——, **4-methyl-6-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, and semicarbazone, 2587*h*.
——, **6-phenyl-**, oxime, reaction with PhNCS, 1039*c*.
**2,4-Hexadienophenone, 2',4'-dihydroxy-3',5'-dimethyl-**, and derivs., 2184*h*.
——, **2'(or 4')-hydroxy-4'(or 2')-methoxy-3',5'-dimethyl-**, 2184*h*.
**1,3-Hexadien-5-yne**, reaction products with dithiols, as drying oils, P 422*b*.
——, **3-methyl-1-(2,6,6-trimethyl-1-cyclohexen-1-yl)-**, 1338*b*.
**1,5-Hexadien-3-yne**, reaction products with dithiols, as drying oils, P 422*a*.

——, **2-*tert*-butyl-**, 117*h*.
——, **1,2-diphenyl-**, hydration and cyclization of, 6624*f*.
——, **2-phenyl-**, 118*e*.
**1,5-Hexadiyne-3,4-diol, 3,4-dimethyl-**, 3359*d*.
**Hexaethylene glycol**, dioleate, plasticizers from, P 3242*h*.
maleic acid polyesters, polymers with vinyl compds., 7264*g*.
**Hexahedrite**. See *Meteorites*.
**Hexahomoserine**†, effect on growth and hematopoiesis in swine, 2293*f*.
**Hexalin**. See *Cyclohexanol*.
**Hexametaphosphoric acid**. See *Metaphosphoric acid*.
**Hexamethylenamine**. See *Hexamethylenetetramine*.
**Hexamethylene**. See *Cyclohexane*.
**Hexamethylenediamine**. See *1,6-Hexanediamine*.
**Hexamethylene diisocyanide**, polymerization with adipic acid, P 4515*f*.
**Hexamethylene glycol**. See *1,6-Hexanediol*.
**Hexamethylene oxide, 2-oxo-**. See "lactone" under *Caproic acid, ε-hydroxy-*.
**Hexamethylenetetramine** (*aminoform, hexamethylenamine, hexamine, methenamine, urotropine*), in analysis of cations of $H_2S$ group, 962*b*.
anhydromethylenecitrate—see *Helmitol*.
betaine complex with propionic acid, 2943*f*.
camphorsulfonate, 7642*c*.
as catalyst in condensation of HCHO with PhOH, 8737*f*.
complexes with heteropoly acids and metallic cations, 1672*a*.
complex with iodoacetamide, bactericidal action of, 5824*a*.
compns. from PhOH-aldehyde resins, staple regenerated cellulose and, P 8739*i*.
compds. with esters of iodoacetic and α-iodopropionic acids, 4641*a*.
with α-haloacetanilides, reaction with $SO_2$, 6586*g*.
with 2-halo-3-(bromomethyl)thiophenes, 2986*i*.
with nitrates of *N*-(hydroxymethyl) amides, 9075*g*.
with [*p*-(2-pyridylsulfamyl)anilino]-methanesulfonic acid, P 4431*i*.
with uranyl acetate, 1717*h*.
condensation products with AcH and phenol, P 2039*c*.
condensation products with phenol-phenol ether reaction products, P 4513*b*.
corrosion inhibitor from $Na_2CrO_4$ and, P 8349*c*.
crystals of, disintegration and growth of, 8228*h*.
crystal-structure powder diagram of, 4566*h*.
detection of, 5535*d*.
and dinitrate, 8354*c*.
effect on blood elements after transfusion with heterogeneous blood, 3927*h*.
on ebonite, 430*g*.
on glass disintegration and soln., 6380*a*.
on org. films adsorbed on metals, 28*h*.
on permeability of hematoencephalic barrier to sulfonamides, 2328*c*.
folic acid prepn. contg., 355*h*.
hydrochloride, prepn. contg. vitamin B and, P 5157*b*.
infrared Christiansen filter effect in, 1657*f*.
manuf. of, P 2223*i*, 2435*h*.
nitration of, 4633*b*, P 9079*h*.
nitrolysis of, 8137*d*.
nitrolysis of, and related compds., 9072*h*, 9073*eh*, 9074*d*, 9075*a*.
phenolic resins hardened rapidly by, P 8207*i*.
prepn. of, intermediates in, 1316*e*.
reaction products with anacardic condensation products, P 904*f*.
reaction products with phenols, 5993*g*, 5994*i*.
reaction with methylenediphenols, P 4698*g*.
reaction with sulfathiazole, P 6234*c*, P 8401*a*.
silicomolybdate, decompn. of, 6893*e*.
in tobacco-black-root-rot control, 3133*d*.
as vulcanization accelerator, 8729*g*.
**Hexamethylenimine** (*hexahydroazepine*),

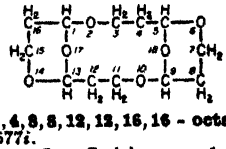



3400*c*.
manuf. of, P 1793*h*.
——, **1-(*p*-chlorophenethyl)-**, picrate, P 3455*g*.
salts, 3379*a*.
——, **1-ethyl-**, penicillin salt with, P 3982*b*.
——, **1-(hydroxymethyl)-2-oxo-**, polymerization of, 2176*d*.
——, **2-imino-**, and salts, 2594*d*.
——, **2-isopropyl-5-methyl-7-oxo-**, 4232*f*.
——, **1-(*p*-methoxyphenethyl)-**, and derivs., 3378*h*.
salts, P 3455*f*.
——, **1-methyl-2-oxo-**, polymerization of, 2176*d*.
——, **2-methyl-7-oxo-**, polymerization of, 2176*d*.
——, **5-methyl-2-oxo-**, 2593*i*.
——, **1-methyl-2-thioxo-**, 8735*i*.
——, **2-oxo-**, 4232*g*.
and derivs., polymerization of, 2176*c*.
hydrolysis of, P 2225*b*.
identification of, and reaction products with aryl isocyanates, 8365*g*.
optical crystallographic data for, 6105*f*.
polymerization and polycondensation of, 8736*a*.
polymers with polyamides, P 7263*i*.
regeneration from polyamide waste in textile manuf., 1571*a*.
spectrum of, 8274*g*.
textile printing with dye pastes contg. thiourea and, P 5199*f*.
——, **2-phenylimino-**, and salts, 2594*d*, 2595*f*.
——, **2-thioxo-**, 8735*i*.
polymerization of, 2176*d*.
——, **4,4,6(and 4,6,6)-trimethyl-2-oxo-**, P 3450*i*.
**Hexamethylenimine-*N*-*d*, 2-oxo-**, spectrum of, 8274*g*.
**Hexamidine**. See *Bensamidine, p,p'-(hexamethylendioxy)di-*.
**Hexamine**. See *Diphenylamine, 2,2',4,4',6,6'-hexanitro-; Hexamethylenetetramine*.
**Hexanal**. See *Caproaldehyde*.
**Hexane**, absorption by carbonaceous solids, 5653*f*.
adsorption by macromols. in binary solvent mixts., 2066*h*.
aromatization of, in azeotropic mixt. with $C_6H_6$, P 7034*h*.
azeotrope with $MeNO_2$, P 5791*a*.
benzene manuf from, 8661*d*.
as bitumen flocculant, 6817*c*.
camphor optical activity in, 8813*c*.
compds. with desoxycholic acid, 3429*d*.
crit. consts. of, 3254*h*.
decompn. by heat, rate of, 5269*d*, 6056*a*.
in density detn. of carbonized coal, 9412*e*.
dimethyl acetylenedicarboxylate addn. to HBr in, 8824*g*.
equil. with isomers, 5656*f*.
fires in, extinguishing of, 6417*g*.
flame-propagation limits for, 3618*e*.
in gasoline (Thermofor cracked), 4453*c*.
gutta-percha swelling and rubber soln. in, 8728*h*.
heat capacity of, reduced pressure and temp. in relation to, 2758*g*.
hexene-isomer extn. from, with liquid $NH_3$ solns., P 3192*c*.
inflammability limits for mixts. of $CF_3Cl_3$ or MeBr and, 3619*b*.
inflammability limits of, effect of $COCl_2$ on, 8248*i*.
inflammability of mixt. of difluorodichloromethane and, 6395*g*.
interfacial tension between $H_2O$ and solns. of lauric, palmitic and stearic acids in, 8819*f*.
ionization of, by electron impact, 6503*c*.
isomerization of, P 3833*bd*, P 4006*i*.
and its isomers, P 5182*f*.
Raman effect and, 2078*b*.
isomers, control of distn. from naphtha, P 3191*f*.
effect on isomerization of pentane, P 1560*h*, 1712*e*.
manuf. from naphtha and other hydrocarbons, P 1958*i*.
manuf. of, P 2628*h*.
mixts. with $C_6H_6$ and methylcyclopentane, alkylated benzenes and cyclohexane by isomerization and alkylation of, P 1958*d*.
lyoparachor of, 2834*a*.
magnetic susceptibility of, 2479*g*, 8767*g*.
mixts. with cetane or dodecane, activity coeffs., vapor pressures and statistical thermodynamics of, 5247*a*.
mixts. with org. vapors, adsorption by active carbons, 16*g*.
mobility of ions of, 4559*a*.
in naphtha of shale oil, 4453*f*.
nitrogen soly. in, 8803*h*.
octane value of, double-bond positions and sensitivity to $PbEt_4$ in relation to, 3997*i*.
oxidation of, 7897*b*.
oxidation of, rate of, 5269*f*.
parachor and mesochor of, 2923*f*.
in paraffin cracking distillate, 8124*h*.
purification of, for spectroscopic use, 7817*g*.
Raman spectrum and rotational isomerism of, 2866*i*.
reaction of, under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7664*a*.
reaction with S to form $H_2S$, 2847*b*.
removal from cyclohexane-contg. petroleum fraction, P 5938*g*.
resonance energies of, 10*e*.
in sepn. of MeCN from $CCl_3CN$ by azeotropic distn., P 4285*e*.
soly. in Na xylenesulfonate solns., 1242*e*.
soln. or swelling in, of gutta-percha, rubber and rubber-HCl, 7730*c*.
as solvent in cottonseed oil extn., 123*h*.
sorption by activated charcoal, measurement of, 4536*d*.
sorption by porous substances, 1240*e*.
system: $AlBr_3$-$HBr$-, 1253*f*.
system: MeOH-, 6023*a*.
systems: oleic acid–palmitic acid, and predicting degree of sepn., 6839*b*
ultrasonic velocity in, 1620*e*.
vapor pressure of, temp. and, 8775*a*
viscosity of, 8839*k*.
**Hexane, 1,6-bis(4-bromo-o-toloxy)-**, 9048*i*.
——, **1,6-bis(2-chloroethoxy)-**, in pest control, P 9358*c*.
——, **3,4-bis(4-hydroxycyclohexyl)-**. See *Cyclohexanol, 4,4'-(1,2-diethylethylene)di-*.
——, **1,5-bis(*p*-hydroxyphenyl)-**. See *Phenol, p,p'-(1-propyltrimethylene)di-*.
——, **3,4-bis(*p*-hydroxyphenyl)-**. See *Phenol, p,p'-(1,2-diethylethylene)di-*.
——, **3,4-bis(*p*-methoxyphenyl)-**. See *Bibenzyl, α,α'-diethyl-4,4'-dimethoxy-*.
——, **1-bromo-**, dielec. properties and structure of, 4912*b*.
phys. consts. of, 2590*i*.
——, **1-bromo-4-ethyl-**, 3780*g*.
——, **1-chloro-**, hydrolysis velocity of, 129*c*.
phys. consts. of, 2590*i*.
sulfochlorination of, 6569*i*.
——, **2-chloro-2-methyl-**, hydrolysis of, 6968*g*.
——, **1-cyclohexyl-**, 8360*i*.
resonance energies of, 10*e*.
——, **2,5-dibromo-**, *meso-*, 6969*c*
——, **2,5-dibutoxy-2,5-dimethyl-**, 3782*i*.
——, **1,2-dichloro-**, dehydrochlorination of, P 5788*g*.
——, **2,4-dichloro-**, dehydrochlorination of, P 6634*d*.
——, **2,4-dichloro-2,3-dimethyl-**, dehydrochlorination of, P 6634*d*.
——, **1,6-dicyclohexyl-**, 1375*f*.
——, **1,2,5,6-diepoxy-**, treatment of alginate fibers with, P 7237*a*.
——, **3,3-diethyl-**, 9023*e*.
——, **1,6-difluoro-**, 3774*h*.
——, **2,2-difluoro-**, P 6645*d*.
——, **2,5-dimethoxy-2,5-dimethyl-**, 3782*g*.
——, **1-(2,4-dimethoxyphenyl)-**†, 1033*d*.
——, **dimethyl-**, isomers, magnetic susceptibility of, 8767*h*.
in naphtha of shale oil, 4453*f*.
——, **2,2(2,3 and 3,4)-dimethyl-**, prepn. by polymerization of 1-butene and mixed butenes with 2-methylpropene, 8657*d*.
——, **2,3(and 2,5)-dimethyl-**, formation from isopentane, 3773*e*.
——, **2,5-dimethyl-**, formation in hydrogenation of isopropylcyclopentane, 5010*b*.
——, **2,3(2,4 and 2,5)-dimethyl-**, 1711*i*.
**2,3(2,5 and 3,4)-dimethyl-**, compds. with desoxycholic acid, 3429*d*.
**2,5-dimethyl-** azeotrope with toluene, 7916*e*.

lyoparachor of, 2834a.
——, 3,3-dimethyl-, spectra of, 1311c.
——, 3,4-diphenyl-. See *Bibenzyl, α,α'-diethyl-*.
——, 1-fluoro-, phys. consts. of, 2591a.
——, 1-iodo-, phys. consts. of, 2591a.
——, 3 - (*p* - methoxybenzyl) - 4 - (*p*-methoxyphenyl)-, P 4700a.
——, methyl-, in naphtha of shale oil, 4453f.
——, 2-methyl-, formation from isopentane, 3773e.
oxidation of, P 7950b.
——, 2(and 3)-methyl-, assocn. with $Me_2SiCl_2$, 1716e.
compds. with desoxycholic acid, 3429d.
ultrasonic velocity in, 8239e.
——, 3 - methyl-, 1,3,5,6 - tetrahalo derivs., P 7496i.
——, 2,2,3,5,5-pentamethyl-, 4212h.
——, 1-phenyl-, phys. consts. of, 2589f.
prepn. and spectrum of, 2174h.
prepn. of, 6990i.
resonance energies of, 10e.
——, tetradecafluoro-, soly. and solvent action of, 3266i.
——, 2,2,5,5 - tetrakis(butylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(carboxymethylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(decylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(dodecylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(ethylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(hexylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(methylmercapto)-†, 564f.
——, 2,2,5,5 - tetrakis(octylmercapto)-†, 564g.
——, 2,2,5,5 - tetrakis(propylmercapto)-†, 564g.
——, 2,2,3,4-tetramethyl-, compds. with desoxycholic acid, 3429e.
——, 2,2,5,5-tetramethyl-, 6516g.
——, 2,3,3,5-tetramethyl-, 3344i.
——, 2,3,4,5-tetramethyl-, from isoamyl alc., P 3833e.
——, 2,2,3(2,3,3-, 2,3,5- and 3,3,4)-trimethyl-, freezing points, purification, and purity of, 2924g.
——, 2,3,3-trimethyl-, spectra of, 1311c.
——, 1-(xylyl)-. See *Xylene, ar-hexyl-*.
**1 - Hexanecarboxylic acid.** See *Enanthic acid*.
**Hexanediamide.** See *Adipamide*.
**1,6-Hexanediamine,** blood picture of workers handling, 1985g.
condensation with adipic acid, 142c.
dihydrobromide and dihydrochloride, structure of, 7773c.
dihydrobromide, structure of, 6486c.
hydrochloride, from nylon hydrolyzed products, Cl detn. and m.p. measurement on, 6947i.
manuf of, P 5796c, P 9476a.
picrate, optical crystallographic data for, 6105c.
polyamides from—see also *Nylon*.
polyamides from, P 7263i.
prepn. of, 5367c.
reaction products with $CO_2$, P 5639i.
reaction product with 4-(2-furyl)-3-buten-2-one, P 1605c.
reaction with sebacic acid, kinetics of, 4547e.
resin from $CS_2$, HCHO and, P 2466c.
x-ray reflection from, effect of H atoms on, 2507f.
**1,6 - Hexanediamine,** *N* - (6 - aminohexyl)-†, polymers with dibasic acids, P 4052g.
——, *N,N'* - bis(3 - aminopropyl)-, P 5414g.
——, *N,N'* - bis(*p* - chlorophenethyl)-, dihydrobromide, P 3455g.
salts, 3379a.
——, *N,N'* - bis(3,4 - dimethoxyphenethyl)-, salts, 3378f, P 3455e.
——, *N,N'* - bis(*p* - methoxyphenethyl)-, dihydrobromide, P 3455f.
salts, 3378g.
——, *N,N'* - dicarbamyl-. See *Urea, 1,1'-hexamethylenedi-*.
——, *N,N'*-diheptyl-, salts, 3379g.
and salts, P 3455d.
——, *N,N'*-diphenethyl-, salts, 3379c, P 3455d.
——, *N*-ethyl-, P 5791e.
——, *N,N'* - ethylenedi-, polyamides from, P 4320a.
and polymers, P 4082g.
**1,2 - Hexanedicarboxylic acid.** See *Succinic acid, butyl-*.
**1,6 - Hexanedicarboxylic acid.** See *Suberic acid*.
**3,3 - Hexanedicarboxylic acid.** See *Malonic acid, ethylpropyl-*.
**Hexanedioic acid.** See *Adipic acid*.
**1,3-Hexanediol, 2-ethyl-,** 5150f.
in black-fly-larva control in Alaskan streams, 6354c.
cyclic sulfite, P 4853c.
ester, as plasticizer for amide-aldehyde condensation products, P 2814a.
as insect repellent and toxicant, 7181d.
as insect repellent in cosmetics, 9335g.
insect-repellent stick from, P 4421a.
mixts. with di-Me phthalate and indalone, stability of, 2362i.
as mosquito repellent, 3140b.
**1,4-Hexanediol,** and esters, 4254c.
**1,6-Hexanediol,** 572d.
dicarbamate, P 4690h.
diisocyanate, as resin tanning agent, 1206b.
diisocyanate, polymerization with acrylic acid and its derivs., P 4516e.
effect on fibrinogen clotting time and clot opacity, 9102g.
esters (poly-) of, with mercaptosuccinic acid, and coatings therefrom, P 3633d.
ester with mono-Et azodiformate, P 5626h.
hydrogen (active) detn. in, 3316g.
manuf. of, P 3445d.
prepn. of, 4640i.
**2,3-Hexanediol, 2-methyl-,** 2944d.
**2,5-Hexanediol,** *p*-nitroperoxybenzoate and peroxybenzoate, 6190a.
prepn. of, 2570e.
**3,4-Hexanediol,** D-, 1721h.
——, 3,4 - bis(hydroxyphenyl)-. See *Hydrobenzoin, α,α' - diethyl-ar,ar'-dihydroxy-*.
——, 2,5-dimethyl-, 2944e.
——, 3,4-diphenyl-. See *Hydrobenzoin, α,α'-diethyl-*.
——, 3-(*p*-methoxyphenyl)-, and acetate, 603f.
**1,3 - Hexanedione,** 1 - (2 - furyl) - 5-methyl-, and copper deriv., 4253g.
——, 1-(2-thienyl)-, 629h.
**1,6-Hexanedione, 1,6-diphenyl-,** 7453a.
**2,4-Hexanedione,** spectrum and H bond formation in, 7343d.
——, 5-methyl-, spectrum and H bond formation in, 7343d.
**2,5-Hexanedione,** cyanoethylation of, 2582i.
as diolefin absorbent, P 2775b.
manuf. of, P 4700c, P 5805i.
mercaptoles, 564f.
reaction with $HNO_3$, 2991a.
reduction of, to 2,5-hexanediol, 2570e.
system: cresol-, 4063f.
——, 3,4-dibromo-, 2202h.
——, 3,4-dimethyl-, P 9081i.
——, 3,4-diphenyl-, P 9081i.
**3,4-Hexanedione,** and bis(*p*-nitrophenylhydrazone), 5369b.
——, 2,5-dibromo-, 2202f.
——, 2,5 - dimethoxy - 2,5 - dimethyl-, and monosemicarbazone, 3782g.
**1,6-Hexanedisulfonyl chloride,** 4857a.
**1,2-Hexanedithiol,** and diacetate, 7417e.
**1,3-Hexanedithiol, 2-ethyl-,** P 2630b.
**1,6-Hexanedithiol,** disodium deriv., reaction with $SiCl_2F_2$, P 6220b.
**1,2,3,4-Hexanetetrol,** D-*arabo*-, 1721g.
——, 5,6-dimercapto-, antidotal activity in oxophenarsine poisoning, 9250i.
**2,3,4,5 - Hexanetetrol, 1,6 - dibromo-,** tetraacetate, isomers, 7425b.
——, 1,6-dimercapto-, and hexaacetate, 7425b.
**1-Hexanethiol,** in petroleum of Ishimbaevsk, 2759h.
phys. constants of, 2956d.
——, 2-ethyl-, P 2630b.
**2-Hexanethiol,** manuf. of, P 2630a.
**1,2,6-Hexanetricarboxylic acid,** and triethyl ester, 2614a.
**1,3,5 - Hexanetricarboxylic acid, 3,5-dimethyl-,** and triethyl ester, 7462b.
**Hexanetriol,** condensation of, with phthalic anhydride to catalyze dehydroxylation of ricinus oil, P 4873a.
**1,2,6-Hexanetriol,** compds. (mol.) of, 7409a.
**1,2,6-Hexanetriol,** and triacetate, P 1435f.
**2,3,4-Hexanetrione,** for flour improvement, P 5130k.
——, acid. See *Caproic acid*.
——, amino-, oleate, x-ray study of, 3688d.
——, 2-ethyl-, adipate, diester, 5944h.
**1-Hexanol.** See *Hexyl alcohol*.
——, 5-butoxy-, and adipate, 9026a.
——, 2-butyl-, P 3438e.
——, 6-chloro-, prepn. of, 1720d.
——, 5-ethoxy-, and phthalate, 9026a.
——, 2-ethyl-, P 3438b, P 3442d.
aconitate, as disinfectant, fungicide and insecticide, P 7634e.
chloro- and dichlorophthalates, P 2817f.
diesters with γ-acyl dicarboxylic acids, P 6226b.
diester with (2-hydroxyethylmercapto)-succinic acid, P 7957d.
ester (mono-) with thiodiacetic acid, P 6224f.
esters, 6168d.
with dibasic acids, lubricants, P 5184a.
with diglycolic acid, 9032e.
with 2 - ethylbutyl 4 - sulfophthalate, Na salt, pharmaceutical carrier for, P 2375d.
with lactone of 5-hydroxy-2,3-norcamphanedicarboxylic acid, P 3033a.
as lubricants, P 393b.
with $PhH_4P_2O_{10}$, P 9356h.
with 4-sulfophthalic acid ester, P 4878c.
esters (mixed) of, and 1-octadecanol with 4-sulfophthalic acid, and its $NH_4$ salt, P 5423d.
esters (mixed) with aromatic sulfo dicarboxylic acids, P 6230i.
in ethylene chlorohydrin recovery from aq. solns., P 2633c.
fumarate, P 903h.
maleate, toxicity of, 4401f.
methacrylate, fungistatic activity of, 9334c.
mixts. with ethylene glycol or iso-PrOH as foam suppressers, P 7010c.
phosphate (compd. omitted from abstr.), 3677i.
phosphate, as plasticizer, 5628b.
phthalate—see *Octoil*.
pyrophosphate, P 9357a.
reaction with Et phenylacetate, kinetics of, 7418f.
ricinoleate, P 6222c.
sebacate, polyvinyl chloride resin plasticized with, 5629a.
sebacate, vapor pressure of, 3678a.
β-styrenephosphonate, P 7499i.
sulfate, compd. with vitamin $B_1$, P 4433f.
sulfate Na salt, effect on penetrating power and stability of $Ca(OCl)_2$ and bleaching power solns., 7234b.
tetrachlorophthalate, as plasticizer and light-stabilizer, P 4513g.
——, 4-ethyl-, 3780f.
——, 5-isobutoxy-, and esters, 9026a.
——, 3-methyl-, acetate, 115f.
——, 5-methyl-, 112d.
——, 6-(4-morpholinyl)-. See *4-Morpholinehexanol*.
——, 1-phenyl-. See *Benzyl alcohol, α-amyl-*.
——, 3-propyl-, 1374d, 6165c.
——, 3,5,5-trimethyl-, esters, vapor pressures of, 3678a.
ester with diglycolic acid, 9032f.
phosphate (compd. omitted from abstr.), 3677i.
**2-Hexanol, 6-bromo-,** P 4684b.
——, 5 - butoxy - 2,5 - dimethyl-, 3782i.
——, 5,6-dibromo-, 5735f.
——, 1,2-diphenyl-, 6624g.
——, 6-isopropylamino-, P 4684c.
——, 2-methyl-, 112c, 6155b.
——, 2-phenyl-. See *Benzyl alcohol, α-butyl-α-methyl-*.
**3-Hexanol, 5-butoxy-,** 9026a.
——, 3-*tert*-butyl-2,2-dimethyl-, 111d.
——, 5,6 - dibromo - 1 - chloro - 3-methyl-, P 7497g.
——, 2,2-dimethyl-, 111c.
chromic acid oxidation of, 2926a.
——, 2,5-dimethyl-, 3776d.
——, 3,5-dimethyl-, resolution of, and derivs., 1312g.
——, 6-dimethylamino-4,4-diphenyl-, nitrate, 3391d.
——, 6 - dimethylamino - 5 - methyl-4,4-diphenyl-, and derivs., 3391bc.
——, 2,4 - dimethyl - 4 - nitro-, P 3439a.
——, 5-ethoxy-, 9026a.
——, 4 - (4 - hydroxycyclohexyl)-3-(*p*-methoxyphenyl)-, 2195g.
——, 5-isobutoxy-, 9026a.

——, **3 - isopropyl - 2,5 - dimethyl-**, 111*d*.
——, **3 - isopropyl - 2 - methyl-**, 111*c*.
——, **2-methyl-**, and carbanilate, 3776*d*.
——, **3-methyl-**, acetate, 115*e*.
1,5,6-trihalo derivs., P 7497*f*.
——, **4-methyl-**, chromic acid oxidation of, 2925*i*.
——, **2-methyl-2-nitro-**, P 3438*i*.
——, **2,2,3,5,5 - pentamethyl-**, 4213*b*.
**Hexanolamine***, oleate, viscosity of, 6885*f*.
**1 - Hexanone**, **1 - (5 - bromo - 2 - thienyl)-**, 4666*b*.
——, **1 - (2 - chloro - 1 - cyclohexen-1-yl)-2-ethyl-**, P 6230*c*.
——, **1 - (4 - methoxy - 3 - cyclohexen-1-yl)-3-methyl-**, 2958*g*.
——, **3 - methyl - 1 - (4 - oxocyclohexyl)-**, and bis(2,4-dinitrophenylhydrazone), 2958*g*.
——, **1-(naphthyl)-**. See *Capronaphthone*.
——, **1 - (5 - nitro - 2 - furyl)-**, in dental caries inhibition, 6735*g*.
——, **1-phenyl-**. See *Caprophenone*.
——, **1-(2-thienyl)-**, reaction with 5-methylisatin, 228*a*.
**2-Hexanone**, formation in reaction of $Et_3CCO_3H$, $H_2SO_4$ and $HN_3$, 9027*h*.
oxime, rearrangement of, 5740*e*.
phys. consts. of, 2589*h*.
prepn. of, 565*d*.
spectrum of, 3715*g*.
toxicology of, 7140*c*.
——, **6-bromo-**, P 4684*b*.
——, **1-chloro-**, 565*e*, 4263*f*.
——, **6-cyclohexyl-**, and semicarbazone, 8361*b*.
——, **5 - dimethylamino - 3,3-diphenyl-**, hydrobromide, 3391*b*.
and salts, 7466*e*.
——, **5 - dimethylamino - 1,3,3 - triphenyl-**, salts, 7466*g*.
——, **3 - ethyl - 3 - methyl-**, and 2,4-dinitrophenylhydrazone, 0974*i*.
——, **3-hydroxy-**, *p*-nitrobenzoate, 1744*b*.
——, **6-hydroxy-**, and derivs., 6190*f*.
**3-Hexanone**, condensation with butyraldehyde, 1317*f*.
oxime, rearrangement of, 5740*e*.
phys. consts. of, 2589*h*.
——, **6 - (benzylmethylamino) - 4,4-diphenyl-**, 9053*f*.
hydrochloride, 4244*e*.
——, **4 - benzyl - 4 - phenyl - 6 - (1-piperidyl)-**, and hydrochloride, 4244*f*.
——, **1,4 - bis(diethylamino) - 5-methyl-**, and monopicrate, 2164*c*.
——, **1-cyclohexyl-**, and semicarbazone, 8360*i*.
——, **6-cyclohexyl-4-methyl-**, 1337*b*.
——, **6 - dibenzylamino - 4,4 - diphenyl-**, and hydrochloride, 9053*f*.
——, **6 - dibutylamino - 4,4 - diphenyl-**, 9053*f*.
——, **6 - diethylamino - 4,4 - diphenyl-**, and hydrochloride, 9053*f*.
——, **2,2-dimethyl-**, 111*e*.
formation of, from $CrO_3$ oxidation of *tert*-BuPrCHOH, 2926*a*.
——, **6 - dimethylamino - 2,5 - dimethyl-4,4-diphenyl-**, and hydrobromide, 7467*b*.
——, **6 - dimethylamino - 4,4-diphenyl-**, hydrochloride, 7467*c*.
and hydrochloride, 4244*c*, 9053*f*.
——, **6 - dimethylamino - 2 - methyl-4,4-diphenyl-**, hydrobromide, 7467*d*.
——, **6 - dimethylamino - 5 - methyl-4,4-diphenyl-**, anesthetic action of, 1487*c*.
effect of *d*- and *l*-, on permeability of erythrocytes, 7583*c*.
hydrochloride, 4244*d*.
prepn. of, 3391*f*.
reduction of, 3391*b*.
and salts, 2193*g*, 7467*b*.
tolerance to *l*-, 6733*f*.
——, **6 - (2,6 - dimethyl - 4 - morpholinyl) - 4,4 - diphenyl-**, and hydrochloride, 9053*g*.
——, **6 - (2,6 - dimethyl - 1 - piperidyl)-4,4-diphenyl-**, 9053*g*.
——, **1,2-diphenyl-**, and semicarbazone, 6624*i*.
——, **4,4 - diphenyl - 6 - (1 - piperidyl)-**, hydrobromide, 7467*d*.
hydrochloride, 4244*d*.
nitrate, 3391*a*.
salts, 9053*g*.
——, **4,4 - diphenyl - 6 - (1 - pyrrolidyl)-**, and hydrochloride, 9053*f*.
phosphate, 4244*s*.
——, **6 - dipropylamino - 4,4-diphenyl-**, 9053*f*.
——, **6 - (4 - ethoxy - 5,6,7,8 - tetrahydro-1-naphthyl)-**, and oxime, 2196*a*.
——, **4 - hydroxy - 2,5 - dimethyl-**, 2944*e*.
——, **2-hydroxy-2-methyl-**, and semicarbazone, 2944*dg*.
——, **4 - (*m* - hydroxyphenyl) - 6 - (4-morpholinyl) - 4 - phenyl-**, hydrochloride, 4245*a*.
——, **4 - hydroxy - 2,2,5,5 - tetramethyl-**, 111*f*.
——, **5 - mercapto - 1 - methoxy - 5-methyl-**, 2163*e*.
——, **4-methoxy-**, and semicarbazone, 6974*g*.
——, **4 - methoxy - 2 - methyl-**, and semicarbazone, 6974*g*.
——, **1-methoxy-5-phenyl-**, 118*i*.
——, **4-(*p*-methoxyphenyl)-**, 603*h*.
——, **4 - (*m* - methoxyphenyl) - 6 - (4-morpholinyl)-4-phenyl-**, hydrochloride, 4245*a*.
——, **2-methyl-**, and semicarbazone, 2944*h*.
——, **4-methyl-**, formation of, from $CrO_3$ oxidation of *sec*-BuEtCHOH, 2926*a*.
——, **5-methyl-**, 2163*i*.
——, **2 - methyl - 4,4 - diphenyl-6-(1-piperidyl)-**, and hydrochloride, 4244*e*.
——, **5 - methyl - 4,4 - diphenyl - 6 - (1-piperidyl)-**, 5860*d*.
——, **5 - methyl - 6 - (4 - morpholinyl)-4,4-diphenyl-**, hydrochloride, 4244*d*.
and hydrochloride, 3391*a*, 9054*e*.
——, **6 - (2 - methyl - 4 - morpholinyl)-4,4-diphenyl-**, and hydrochloride, 9053*g*.
——, **6 - [2(3 and 4) - methyl - 1-piperidyl]-4,4-diphenyl-**, 9053*g*.
——, **6 - (4 - morpholinyl) - 4,4-diphenyl-**, hydrochloride, 4244*d*.
and hydrochloride, 3391*a*, 9053*g*.
——, **6 - (4 - morpholinyl) - 4,4 - di-*o*-tolyl-**, hydrochloride, 9053*h*.
——, **6 - (4 - morpholinyl) - 4 - phenyl-4-*p*-tolyl-**, 9053*h*.
——, **1-phenyl-**, phys. consts. of, 2590*a*.
——, **5-phenyl-**, 118*i*.
——, **1,2,4,5 - tetrabromo - 5 - methyl-**, and semicarbazone, 2163*g*.
——, **6,6,6-trichloro-5-hydroxy-**, 3785*b*.
**Hexasiloxane, 1,11 - bis(chloromethyl)-1,1,3,3,5,5,7,7,9,9,11,11 - dodecamethyl-**, 2930*b*.
——, **1,11 - diethoxy-1,1,3,3,5,5,7,7,9,9,11,11 - dodecamethyl-**, P 6221*c*.
——, **tetradecamethyl-**, P 4402*f*, P 6220*h*.
compression of, 4067*f*.
viscosity of, effect of pressure on, 4067*d*.
——, **3,5,7,9 - tetrakis(chloromethyl)-1,1,1,3,5,7,9,11,11,11 - decamethyl-**, 2930*c*.
**Hexasulfide, cyclohexenyl cyclohexyl**, 996*d*.
**Hexatriacontane**, 3781*g*.
system: $C_2H_4$-, 4937*e*.
**18,19 - Hexatriacontanedione**, 3791*i*.
**18 - Hexatricontanone, 19 - hydroxy-**, and 2,4 - dinitrophenylhydrazone, 3791*h*.
**1,3,5-Hexatriene**, 557*i*, 3780*a*.
bond orders in, 6512*e*.
energy levels of, and its isomers, 2863*i*.
mobile orders of conjugated single bonds for, 8224*a*.
orbital mol. diagrams and, 6479*e*.
——, **1,1,3,4,6,6 - hexachloro-**, 3346*d*.
——, **1,2,3,4,5,6 - hexachloro-**, 3346*d*.
**octachloro-**, stereoisomers, 3346*c*.
**- Hexatriene - 1,6 - dicarboxylic acid**. See *2,4,6-Octatrienedioic acid*.
**- Hexatriene - 3,4 - dicarboxylic acid, 1,6 - diphenyl-†**, di-γ-lactone, 7192*h*.
**1,3,5 - Hexatrienylamine**, orbital mol. diagrams and, 6479*e*.
**1,3,5 - Hexatrienyl group**, conjugating power of, 8224*b*.
**2-Hexenal**, formation of, from 2,4-dihydroxy - 2 - heptenoic acid γ-lactone pyrolysis, 4222*d*.
——, **2-ethyl-**, P 5415*i*.
condensation (attempted) with 4-heptanone, 1317*f*.
hydrogenation of, P 2219*a*, P 3442*d*.
oxidation of, P 677*i*, P 4689*d*.
**5-Hexenal, 2,6-epoxy-**. See *1,2 H-Pyran-2-carboxaldehyde, 3,4-dihydro-*.
**2-Hexenamide**, 2187*c*.
**Hexene**, from isobutene polymerization with $C_2H_4$, P 5640*i*.
isomers, extn. from hexane with liquid $NH_3$ solns., P 3192*c*.
phys. consts. of, 2591*f*.
——, **2,4-dimethyl-**, 6152*c*.
——, **2,5(and 3,4)-dimethyl-**, 1311*b*.
**1-Hexene**, freezing point, purification, and purity of, 2924*g*.
in gasoline (Thermofor cracked), 4453*d*.
isomerization of, with $Al_2O_3$-HF catalyst, P 5939*d*.
in paraffin cracking distillate, 8124*h*.
reaction with PrCHO, 4637*d*.
——, **2-chloro-**, dehydrochlorination of, P 5788*g*.
——, **3-chloro-3-methyl-**, 114*i*.
——, **5-chloro-5-methyl-**, 5736*c*.
——, **4,6-dichloro-4-methyl-**, P 7496*i*.
——, **2-ethyl-**, hydrogen redistribution in transformation of, 6150*i*.
toxicity of, 4401*g*.
——, **6-fluoro-**, 3774*h*.
——, **4-methyl-**, 4,6-dihalo derivs., P 7496*i*.
——, **1,2,3,4,5,5,6,6 - octachloro-**, 5361*i*.
——, **2,3,3,5,5 - pentamethyl-**, 4213*c*.
**2-Hexene**, *cis*- and *trans*-, in Thermofor gasoline, 4453*d*.
formation of, during reaction of 2-butanone and EtOH, 993*f*.
freezing point, purification, and purity of, 2924*g*.
manuf. and isomerization of, with $Al_2O_3$-HF catalyst, P 5939*d*.
——, **1 - butoxy - 6 - chloro - 5 - ethoxy-**, 2159*a*.
——, **5 - chloro - 1,5 - diethoxy-**, 2159*a*.
——, **6-chloro-5-ethoxy-1-methoxy-**, 2159*a*.
——, **1-chloro-3-methyl-**, 114*i*.
——, **1,3-dibromo-**, 6572*b*.
——, **5,6-dibromo-2-methyl-**, 5735*h*.
——, **2,5(and 3,5) - dimethyl-**, elec. moment of, 4061*g*.
——, **2-methyl-**, aromatization on Cr catalysts, kinetics of, 6062*f*.
elec. moment of, 4061*g*.
——, **5-methyl-2-phenyl-**, reaction with S, 5392*h*.
——, **2-phenyl-**, 118*g*.
——, **2,4,4,5-tetramethyl-**, 3344*i*.
**3-Hexene**, *cis*- and *trans*-, in Thermofor gasoline, 4453*d*.
freezing point, purification, and purity of, 2924*g*.
prepn. of, 6152*h*.
——, **3,4 - bis(*p* - hydroxyphenyl)-** See *4,4'-Stilbenediol, α,α'-diethyl-*.
——, **3,4 - bis(*p* - methoxyphenyl)-** See *Stilbene, α,α' - diethyl 4,4'-dimethoxy-*.
——, **dianisyl-**. See *Stilbene, α,α' - diethyl 4,4'-dimethoxy-*.
——, **2,5 - dibutoxy - 2,5 - dimethyl-**, 3782*i*.
——, **2,5 - dimethoxy - 2,5 - dimethyl-**, 3782*g*.
——, **2,2-dimethyl-**, 6152*c*.
——, **3,4 - diphenyl-**. See *Stilbene, α,α' diethyl-*.
——, **2,2,3,5,5 - pentamethyl-**, mixt. with 2-*tert*-butyl-4,4 dimethyl 1-pentene, 4213*c*.
——, **2(and 3)-phenyl-**, 9051*c*.
**2-Hexenedioic acid**. See *α Hydromuconic acid*.
**3-Hexenedioic acid**. See *β-Hydromuconic acid*.
**3-Hexene-2,5-diol**, *cis*-, prepn. and dehydration of, 6162*i*.
——, **3 - chloro - 4 - (chloromercuri)-2,5-dimethyl-**, 7413*b*.
——, **2,5-dimethyl-**, *cis*-, α- and β-, 6162*i*.
**3 - Hexene - 1,6 - dione, 1,6 - diphenyl-**, 7453*a*.
**5-Hexene-2,4-dione, 6-phenyl-**, 7002*g*.
**5-Hexenenitrile**, 1334*g*.
——, **2-hydroxy-2-methyl-**, 5736*b*.
**5-Hexene-1,2,3,4-tetrol**, D-*arabo*-, and tetraacetate, 1721*f*.
**1-Hexene-1-thiol**, acetate, 7417*e*.
**Hexenic acid**. See *Hexenoic acid*.
**2-Hexenoic acid**, and esters, 2187*c*.
——, **2-acetamido-**, spectrum and deamination of, 3857*a*.
——, **6-amino-3,5,5-trimethyl-**, and hydrochloride, P 3451*b*.
——, **6 - chloro - 2 - hydroxy - 3 - (hydroxymethyl)-4-oxo-**, γ-lactone acetate, 1407*a*.

——, **2,4-dihydroxy-**, γ-lactone, pyrolysis of, 4222*c*.
——, **2,4-dihydroxy-5-methyl-**, γ-lactone, pyrolysis of, 4222*d*.
——, **2-ethyl-**, P 677*i*, P 4689*d*.
——, **4-ethyl-**, 1374*a*.
——, **5-hydroxy-**, lactone, effect on heart, 1110*d*, 7138*h*.
lactone, effect on microörganism growth, 7542*c*.
lactone, fungistatic activity of, 9334*e*.
——, **5 - hydroxy - 3 - methoxy - 5-methyl-4-oxo-**, δ-lactone, 1722*c*.
——, **5-hydroxy-3-methyl-**, δ-lactone, 6166*b*.
——, **4-oxo-**, 3785*d*.
——, **4,4,5 - trihydroxy - 3 - methoxy-5-methyl-**, γ-lactone, and its derivs., 1722*b*.
**3-Hexenoic acid**. See *Hydrosorbic acid*.
**4 - Hexenoic acid, 2 - acetamido - 2-cyano-**, ethyl ester, 574*d*.
——, **2-amino-**, 574*d*.
——, **2-benzamido-**, 574*d*.
——, **5 - chloro - 2 - (3 - chloro - 2-butenyl)-**, 1726*a*.
——, **6 - chloro - 5 - hydroxy - 3,3 - dimethyl-**, lactone, 7905*c*.
——, **5 - chloro - 2 - (*m* - methylphenethyl)-**, 6609*d*.
——, **5 - chloro - 2 - [2 - (1 - naphthyl)-ethyl]-†**, 6609*h*.
——, **6 - (1,3 - dihydro - 7 - hydroxy - 5-methoxy - 4 - methyl - 1 - oxo - 6-isobenzofuryl) - 4 - methyl - (?)†**, 6184*g*.
——, **2,2-diphenyl-**, 5769*d*.
——, **3-hydroxy-**, lactone, P 5415*a*.
lactone (compd. omitted from abstr.), P 1055*i*, P 1056*c*.
——, **5-hydroxy-3-oxo-**, lactone, 1724*c*.
lactone, enzymic degradation of, 9211*a*.
lactone, metabolism of, 2261*a*, 5842*i*.
**5-Hexenoic acid**, 1334*g*.
——, **6 - amino - 3,3,5 - trimethyl-**, and hydrochloride, P 3451*b*.
——, **2,4 - dioxo - 6 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-**, methyl ester, 2587*g*.
——, **3 - furfurylidene - 6 - (2 - furyl)-**, fungistatic activity of, 9334*d*.
——, **2-hydroxy-2-methyl-**, and butyl ester, 5736*c*.
——, **4 - hydroxy - 4 - methyl - 2 - oxo-3,6-diphenyl-**, γ-lactone, 157*c*.
——, **4 - hydroxy - 3 - (*p* - nitrophenyl)-2-oxo-6-phenyl-**, γ-lactone, 5766*i*.
**1-Hexen-1-ol, 2-ethyl-**, acetate, P 5795*i*, P 7038*a*.
**1-Hexen-3-ol, 5-ethoxy-**, 9025*i*.
——, **3-methyl-**, 6970*c*.
and acetate, 114*h*.
**2-Hexen-1-ol**, mixt. with *trans*-3-hexen-1-ol, 5364*c*.
——, **5-ethoxy-**, 9025*i*.
——, **2-ethyl-**, P 3438*d*
——, **5-isobutoxy-**, and acetate, 9026*a*.
——, **3-methyl-**, and acetate, 114*h*.
**3-Hexen-1-ol**, in peppermint oil, 4427*f*.
synthesis of, and derivs. and related compds., 9375*h*.
*trans*-, mixt. with 2-hexen-1-ol, 5364*c*.
**3-Hexen-2-ol, 5-butoxy-2,5-dimethyl-**, 3782*i*.
**4-Hexen-3-ol**, β-isodurylate, 9051*d*.
——, **6 - dimethylamino - 3 - methyl-**, benzoate (ester)-HCl, 6977*i*.
**5-Hexen-2-ol**, and esters, 5735*b*.
——, **3-ethyl-**, and H phthalate, 5735*b*.
——, **2-methyl-**, 5735*c*.
**5 - Hexen - 3 - ol, 1 - chloro - 3 - methyl-**, P 7497*i*.
——, **3-methyl-**, 1-halo derivs., P 7497*h*.
——, **4 - methyl - 6 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-**, 1337*h*.
**Hexenolactone**. See "lactone" under *Hexenoic acid, hydroxy-*
**Hexenolide**. See "lactone" under *Hexenoic acid, hydroxy-*.
**Hexen-1-one, 1-phenyl-**. See *Hexenophenone*.
**1-Hexen-3-one**, ... with 2-vinylpyridine, P 5231*b*.
——, **5-chloro-5-methyl-**, 6625*c*.
——, **4,5-dibromo-5-methyl-**, mixt. with 1,2 - dibromo - 5 - methyl - 4 - hexen-3-one, 2164*b*.
——, **5-mercapto-5-methyl-**, 2944*i*.
——, **5-methyl-**, polymers with 2-vinylpyridine, P 5231*b*.
——, **5 - methyl - 1 - (3,4 - methylenedioxyphenyl)-**, as insecticide and pyrethrin synergist, P 1536*e*.
**2 - Hexen - 1 - one, 1 - (4 - chloro - 3 - cyclohexen-1-yl)-3-methyl-**, 2958*g*.
——, **1 - (4 - hydroxy - 3 - cyclohexen-1-yl)-3-methyl-**, formate, 2958*f*.
——, **1 - (4 - methoxy - 3 - cyclohexen-1-yl)-3-methyl-**, 2958*g*.
——, **3-methyl-1-(4-oxocyclohexyl)-**, and monosemicarbazone, 2958*f*.
**3-Hexen-2-one**, formation of, from dehydration of 3-hexene-2,5-diol, 6163*a*.
——, **3,4-dimethyl-**, in ethylene chlorohydrin recovery from aq. solns., P 2633*b*.
**4 - Hexen - 3 - one, 1,4 - bis(diethylamino)-5-methyl-(?)**, 2164*c*.
——, **4-bromo-5-methyl-**, semicarbazone, 2163*i*.
——, **2,4 - dibromo - 1 - ethoxy - 5-methyl-**, 2163*h*.
——, **1,2-dibromo-5-methyl-**, mixt. with 4,5 - dibromo - 5 - methyl - 1 - hexen-3-one, 2164*b*.
——, **2,4-dibromo-5-methyl-**, 2163*i*.
——, **1-methoxy-**, 5-alkyl derivs., reaction with $H_2S$, 2163*d*.
——, **1-methoxy-5-methyl-**, 6625*d*.
——, **1-methoxy-5-phenyl-**, 118*g*.
——, **5-methyl-**, semicarbazone, 2163*i*.
and semicarbazone, 2161*b*.
**5-Hexen-2-one**, prepn. of, 5734*i*.
——, **3-ethyl-**, and semicarbazone, 5735*a*.
——, **5-methyl-**, P 1056*b*.
**5 - Hexen - 3 - one, 4 - methyl - 6 - (2,6,6-trimethyl - 1 - cyclohexen - 1 - yl)-**, and semicarbazone, 1337*i*.
**2 - Hexenophenone, 4′ - ethoxy - 2′-hydroxy-**, and 2,4-dinitrophenylhydrazone, 2187*e*.
——, **2′-hydroxy-**, and 2,4-dinitrophenylhydrazone, 2187*d*.
——, **2′ - hydroxy - 3′ - methoxy-**, and 2,4 dinitrophenylhydrazone, 2187*e*.
——, **2′-hydroxy-3′(4′ and 6′)-methyl-**, and 2,4 · dinitrophenylhydrazone, 2187*e*.
**4 - Hexenophenone, 2′,4′ - dihydroxy-3′,5′-dimethyl-**, 2184*i*.
——, **2′,3,4′ - trihydroxy - 3′,5′ - dimethyl**, 2184*i*, 2185*a*
**2-Hexenoyl chloride**, 2187*c*.
**5-Hexenoyl chloride**, 1331*g*.
**2 - Hexenylamine, 2 - ethyl - 1 - methyl-**, 1315*i*.
**4 - Hexenylamine**, *N*,1,5 - trimethyl-, effect on heart, 8546*d*, 9250*g*.
——, *N*,*N*,1 - trimethyl - 3,3 - diphenyl-, and salts, 192*c*.
**2-Hexen-4-yne, 3-methyl-**, 6153*f*.
**2-Hexen-4-ynedioic acid**, and dimethyl ester, 7415*c*.
**2-Hexen-4-yne-1,6-diol**, 7415*e*.
**1-Hexen-5-yn-3-ol, 3-methyl-**, P 5798*c*, P 7952*e*, P 9083*d*.
——, **3 - methyl - 1 - (2,6,6 - trimethyl-1-cyclohexen-1-yl)-**, P 5798*f*.
**2-Hexen-5-yn-1-ol, 3-methyl-**, and acetate, P 9083*e*.
**3-Hexen-5-yn-2-ol**, 2,5-dimethylfuran and 2,5-hexanedione from, P 4700*d*.
——, **6-(1-cyclohexen-1-yl)-**, and 3,5-dinitrobenzoate, 8361*a*.
**4-Hexen-1-yn-3-ol**, 2,5-hexanedione from, P 4700*e*.
rearrangement of, 2183*f*.
——, **1 - (1 - cyclohexen - 1 - yl)-**, and 3,5-dinitrobenzoate, 8360*h*.
**5 - Hexen - 1 - yn - 3 - ol, 4 - methyl - 6-(2,6,6 - trimethyl - 1 - cyclohexen-1-yl)-**, 1339*c*.
and derivs., 1338*a*.
**5-Hexen-3-yn-2-ol, 1,2-diphenyl-**, 6624*g*.
——, **2-methyl-**, copolymer of, and $C_2F_4$, P 5410*g*.
hydration of, 2161*d*.
polymerization with fluoroprene, 1598*h*.
——, **2-phenyl-**, and polymer, 118*d*.
**3 - Hexen - 5 - yn - 2 - one, 6 - (1 - cyclohexen-1-yl)-**, and semicarbazone, 8361*b*.
**Hexestrol**. See *Phenol, p,p′-(1,2-diethylethylene)di-*, for dimethyl ether, see *Bibenzyl, α,α′-diethyl-4,4′-dimethoxy-*.
**Hexitol, bis(methanesulfonyl)dianhydro-***, 2940*b*.
——, **chlorobenzylideneanhydro-***, 2940*c*.
——, **dianhydro-***, 2940*b*.
——, **dichloroanhydro-***, 2940*c*.
**Hexitols**, anhydrides, partial esters of, and of their polyoxyalkylene derivs., lubricants contg., P 5938*e*.
ester ethers, for conditioning cellulose ester filaments, P 3207*e*.
photographic antistatic subbing compn. contg., P 3739*c*.
**Hexobarbital**. See *Evipal*.
**Hexobarbitone**. See *Evipal*.
**Hexogen** (*hexahydro-1,3,5-trinitro-s-triazine*), 9072*i*.
cobalt, Pb and Mn derivs., as driers, 4024*f*, 5969*i*.
decompn. by heat in dicyclohexylphthalate and TNT solns., 5187*g*.
detonating fuse coated with, P 2438*d*.
detonation of, fugacity and thermodynamic equil. consts. for products from, 407*f*.
homolog of, 9073*i*, P 9079*h*.
manuf. of, 2435*h*.
nitro N detn. in, 1568*g*.
plastic explosive from, P 7688*d*.
poisoning by, 8682*c*, 9449*d*.
prepn. and purification of, 9073*e*.
prepn of, 4633*b*, 8137*d*, 8354*c*.
sensitiveness to explosion by impact and crit. hot spot temps. of, 4856*ab*.
toxicity of, 4467*f*.
waste acid from making, AcOH recovery from, P 8682*i*.
***n*-Hexoic acid**. See *Caproic acid*.
**Hexokinase**, affinity for glucose and fructose, 8484*b*.
differentiation from galactokinase, 6283*e*.
2,4-dinitrophenol effect on, 9268*c*.
effect of alloxan and ninhydrin on, 9124*d*.
insulin effect on, 8555*d*.
phosphorylation of hexoses by brain, 7980*g*.
in sarcoma glycolysis, 7575*i*.
in tissue from diabetic and normal rats, 4369*i*.
**Hexolysis**. See *Glycolysis*.
**Hexone bases**, in glycoproteins, 7062*g*.
**Hexonic acids**, 2- and 5-keto-, detection and detn. of, and their salts and esters and unsatd. derivs., 1689*g*.
**Hexosamines**, in blood-group substances, 3479*f*.
detn. of, 6269*g*.
in sea-urchin egg jelly coat, 9271*h*.
**Hexosans**. (See also *Galactan; Mannans*.)
from lignocellulose by high-pressure hydrolysis, P 5593*a*.
in vegetable foods and their alteration during digestion, 6753*c*.
**Hexose isomerase**, in rat tissue, 6265*d*.
**Hexose phosphates** or **Hexosephosphoric acids**. (See also *Fructose phosphates; Galactose phosphates; Glucose phosphates*.)
effect on heart, 5865*d*.
effect on yeast inhibition by U, 2257*a*.
in glycolysis by neoplasms, 1857*e*.
insulin effect on action of, 6742*b*.
in metabolism of 4-dimethylaminoazobenzene by liver homogenates, 2306*g*.
in plants, effect of fertilizer on, 7622*d*.
respiration of *Escherichia coli* in presence of, permeability in, 8002*h*.
ribose conversion to, by enzyme from liver, 9123*f*.
as sucrose intermediates in photosynthesis, 6287*g*.
**Hexoses**, analysis for—see *Sugars, analysis*.
3,6-anhydro-, 7431*f*.
color reactions of, 9139*c*.
D-*xylo*-2-desoxy-, derivs., 4635*h*.
fermentation of—see *Fermentation*.
manuf. from cellulose, P 6825*h*.
mol. structure of, 2964*h*.
mucic and saccharic acids from aldo-, 6982*h*.
phosphorylation by brain hexokinase, 7980*g*.
photographic antistatic subbing compn. contg., P 3739*c*.
reaction with anthrone, 66*h*.
relation to pentoses, 5828*c*.
utilization by *Oöspora lactis*, 7541*h*.
**Hexoside, methyl 6-methyl-***, DL-, 5370*f*.
——, **methyl tetramethyl-***, DL-, 5370*f*.
**2,6,10,14,17,18 - Hexoxatricyclo[11.3.-1.1$^{5,9}$]octadecane**,



——, **4,4,8,8,12,12,16,16 - octamethyl-**, 6577*i*.
**Hexyclan**. See *Cyclohexane, 1,2,3,4,5,6-hexachloro-*.
**Hexyl alcohol**. (For derivs. see under *1-Hexanol*.)
effect on bubble rise in $H_2O$, 4082*c*.
effect on work of cutting annealed Al in paraffin oil, 2001*i*.

electrodeposition in presence of, elec. oscillations from, 2874g.
esters, surface tension of, 8779g.
flow birefringence and relaxation time of, 7284h.
mercury-electrode polarization capacity in, 6522i.
monoester of maleic acid, polyvinyl chloride compns. contg., P 2038a.
in peppermint oil, 4427g.
phys. constants of, 2956b.
Raman effect and H bond formation in, 7345g.
rare earth nitrate partition between $H_2O$ and, 8807h.
**Hexylamine**, hydrochloride, elec. conductivity in presence of dodecylammonium chloride, 1243h.
pharmacology of, 1110a.
——, **1-amyl-**, hydrochloride, (incorrectly given in abstr. as (iso-Am)$_2$NMe.HCl), 2166i.
——, *N*-[**2-(2-biphenylyloxy)ethyl**]-*N*-(**2-chloroethyl**)-, hydrochloride, antagonism of adrenaline and histamine with, 6309b.
——, **5-bromo-***N*-**isopropyl-**, hydrobromide, P 4684d.
——, **5-chloro-1,5-dimethyl-**, cardiac action of, 9248e.
——, **5-chloro-***N*,**1,5-trimethyl-**, cardiac action of, 9248e.
——, **4-chloro-***N*, *N*,**1-trimethyl-3,3-diphenyl-**, and derivs., 192b.
——, *N*, *N*-**dimethyl-**, hydrochloride, effect on nerve centers, 9260g.
——, *N*,**1-dimethyl-**, effect on heart, 7148a, 9250f.
——, **2-ethyl-**, toxicity of, 4401g.
——, **2**(and **3**)-**ethyl-***N*,**1-dimethyl-**, and hydrochlorides, 131h.
——, **2**(and **3**)-**ethyl-1-methyl-**, and hydrochlorides, 131h.
——, *N*,**1,3,3,4,4-hexamethyl-**, and hydrochloride, 131h.
——, **4-imino-***N*, *N*,**1-trimethyl-3,3-diphenyl-**, 3391h.
——, **4-imino-***N*, *N*,**2-trimethyl-3,3-diphenyl-**, 4244b, 7467a.
hydrochlorides, 3391g.
——, **1-methyl-**, effect on heart, 9250g.
identification of, 3504a.
sulfate, crystallography of, 8611f.
vasoconstrictor prepn. contg. salts of, P 4429d.
——, **1**(and **3**)-**methyl-**, pharmacology of, 1110a.
——, **1,3,3,4,4-pentamethyl-**, and hydrochloride, 131h.
——, *N*,**1,2-trimethyl-**, and hydrochloride, 131i.
***iso*-Hexylamine**. See *Isohexylamine*.
**Hexyl bromide**. See *Hexane, 1-bromo-*.
**Hexyl chloride**. See *Hexane, 1-chloro-*.
**Hexylene**. See *Hexene*.
**Hexyl ether**, phys. consts. of, 2590a.
**Hexyl fluoride**. See *Hexane, 1-fluoro-*.
***n*-Hexylic acid**. See *Caproic acid*.
**Hexyl iodide**. See *Hexane, 1-iodo-*.
**Hexyl mercaptan**. See *1-Hexanethiol*.
***tert*-Hexyl mercaptan**, for corrosion inhibition, P 7221h.
**Hexyl phosphate** ($(C_6H_{13})_3PO_4$), in mercerizing solns., P 9478b.
viscosity of, 4915g.
**Hexyl pyrophosphate**, $(C_6H_{13})_4P_2O_7$, P 9357a.
**Hexylresorcinol**. See *Resorcinol, hexyl-*.
**Hexyl selenide**, as lubricant additive, P 6820g.
**Hexyl silicate**, $(C_6H_{13})_4SiO_4$, 9028c.
**Hexyl sulfide**, phys. constants of, 2956e.
**Hexyl thiophosphate**, $(C_6H_{13}O)_3PS_2H$, in Mo detection, 7859b.
**1-Hexyne**, formation from cyclohexene, 8255b.
isomerization of, 6153h.
manuf. of, P 5788g.
reaction with HF, P 6645d.
reaction with AcSH, 7417e.
**3-chloro-**, 6968d.
**5-chloro-**, 6571g.
**6-iodo-**, 6572e.
**2-Hexyne**, mixt. with 3-hexyne, 6153i.
——, **1-bromo-**, 6572b.
**4-chloro-4-methyl-**, reaction with AgOAc, 6153c.
**3-[illegible]ne**, mixt. with 2-hexyne, 6153i.
**2,5-dibutoxy-2,5-dimethyl-**, and [illegible]ion of, 3782e.
**2,5-dimethoxy-2,5-dimethyl-**, and hydrogenation of, 3782a.
**3-Hexyne-2,5-diol**, 2161g.
——, **2,5-dimethyl-**, 1292e.
reaction with $HgCl_2$, 7413b.
**1-Hexyn-3-ol**, 6967i.
——, **1-(1-cyclohexen-1-yl)-3-methyl-**, 1337b.
——, **6-ethoxy-3-methyl-**, 1338d.
——, **3-methyl-**, 1333d.
**2-Hexyn-1-ol**, and 3,5-dinitrobenzoate, 6571f.
**3-Hexyn-1-ol**, and 3,5-dinitrobenzoate, 6571f.
**3-Hexyn-2-ol**, **5-butoxy-2,5-dimethyl-**, 3782h.
**4-Hexyn-3-ol**, **3-methyl-**, and acetate, 6153f.
**5-Hexyn-3-ol**, **6-(1-cyclohexen-1-yl)-4-methyl-**, and 1-naphthalenecarbamate, 1337b.
**Hibernation**, oxygen consumption and temp. regulation of hamsters during, 8563a.
**Hibiscetin**, 638c.
3-monoglucoside, hibiscitrin and, 1408a.
——, **hexamethyl-***, 1408b.
**Hibiscic acid**, 764Ac.
**Hibiscitrin**, constitution of, 1408a.
——, **hexamethyl-***, 1408a.
**Hibiscus**, mannihot, root ext. of, in paper manuf., 1974h, 1975ac.
oils of—see *Oils*.
**Hibiscus acid** See *Hibiscic acid*.
**Hibiscus cannabinus, Ambary** and(or) **Kenaf**, cellulose detn. in, 6411i.
pectin in rind of, 6287d.
retting of, 1570e.
**Hibiscus esculentus**. See *Okra*.
**Hibiscus rosa-sinensis**, catalase activity of petals and leaves of, 9174i.
**Hibiscus sabdariffa**. See *Roselle*.
**Hide beetle**. See *Dermestes maculatus*
**Hide powder**. (See also *Tanning materials, analysis; Tannins, analysis*.)
combination with cyclohexanesulfonyl chloride, 4039g.
drying wattle-tanned, effect on reaction with chromic salts and acids, 7731f.
prechromed readily wetted, 7731i.
valonia sorption by, 9505i.
**Hides**. (See also *Furs; Skin*.)
amino acids (basic and dicarboxylic) in, and their detn. and effect of depilation on acids, 7734d.
amino acids in goat, kangaroo, rabbit and steer, layerwise basic and dicarboxylic, 7734h.
bacteria (proteolytic) in, during leather manuf., 5617a.
bacteriology in treatment of, 7731c, 8181g.
bating agents for, from pyloric ceca of fish, 1815g.
bating of, and proteinase action on collagen in detg. bate strength, 7735g.
bating of, measuring permanence of deformation, smoothness of grain and elasticity and porosity to det. effectiveness of, 7735e.
chromium compd. bonds with albumin in, effect on final vegetable tanning, 6450f.
collagen of—see *Collagen*.
collagen quality in wet-salted normal and putrid, 6447g.
compn. and quality of, 5617c.
compns. and shrinkage temps. of, during tanning, 4040a.
curing and soaking, 1203f.
curing of, with alk. salts contg. $Na_2CO_3$, mechanism of hard, 8184g.
deamination of, effect on leather resistance to trypsin, 8183g.
defatting of, effect of electrolytes on naphthenic emulsions for, 6447i.
degreasing of, in drums for light leathers, 7736i.
degreasing pickled sheepskins, 4042b.
deliming and bating, 1203g.
effect of brines and smoking on color of stamps applied to, 8068i.
epidermis sepn. from fresh, analysis and S distribution of epidermis and unhairing of hides, 7737a.
fiber recovery from, by peptic enzymes, P 8722c.
gelatin from—see *Gelatin*.
glue from—see *Glue*.
grease and its removal from, 1203fg.
hide-beetle control on goat, 2725h.
histology of, 1203e.
leather from—see *Leather*.
liming and unhairing of, 6488h.
liming of, 1203g.
liming of, with Ca(OH)$_2$-$Na_2S$ soln. for Russian leather prepn., 6448g.
linear changes of fibers of, during tanning, 6450g.
maceration of, enzymic product from fish entrails for, P 4881i.
mildew control on, salts of halogenated-polyphenol sulfides for, P 6857d.
mold control on, nicotinium-salt compns for, P 5152c.
pickling and neutralizing, 6851c.
pickling of, with fatty acids from paraffin oxidation, 6852e.
liquors for, corrosion resistance of Inconel, Monel, Ni and stainless steels to, 9506g.
with metaphosphate, 6449b.
in phthalic anhydride, effect of pH on, 4042a.
water content reduction for chamoising by, 1592d.
preservation of, by halogenated fatty acids or their salts, P 1592g.
protein chemistry of, 1203f.
protein (globular) extn. rate and structural differences of steer, 7735c.
protein (globular) removal from steer, by NaCl solns., 4038i.
proteins of, effects of glycoldialdehydes on, 7736a.
rubber impregnation of, to prevent shedding of hairs or peeling of scales, P 6452a.
shrinkage temp. of, app. for measurement of, 9505f.
shrinkage temp. of sheep, 8720c.
shrinkage temps. of deaminated, fixed HCHO and, 4040h.
soaking of, detn. of activity of wetting agents for, 9505f.
soaking of dry-salted goat, effect of curing methods on, 7736f.
soaking of, sulfonated PhOH-HCHO condensates and inorg. polymeric acids for, P 6451i.
tanning of—see *Tanning*.
tanning pretreatment for, protein chemistry of, 6828e.
treatment of, 7733g.
treatment or processing of woolled sheep skins, 1204g, 7233c, 7692a.
unhairing, Ca(HS)$_2$, Ca thioglycolate, NaCN, NaHS and $Na_2S$ in, 6449f.
(mercaptoethyl) biguanides for, P 1799b.
urea in, 6447h.
washing and pickling, in tanning drum, 6450f.
waste, purification and bleaching of, and gelatin manuf. from, P 1593a.
water consumption in industry of, 6447h.
**Hide substance**, leather quality and, 2456h.
**Hiduminium RR59**, heating effect on hardness and structure of, 5352a.
**Hildebrand, Joel Henry**, biography, 4525f.
**Hill, Henry Barker**, biography, 915e
**Hillebrand, W. F.**, biography, 6014f.
**Hillebrand Prize**, to Smith, Edgar Reynolds, 2825g.
**Hing**. See *Asafetida*.
**Hinokitiol**, bactericidal and bacteriostatic action of, 5906b.
**Hipberries**, marmalade from *Hippophae rhamnoides* and, vitamin C in, 5510e.
vitamin C in, 3536f.
**Hippophae rhamnoides**, berries, prepn. of Fe malate from, 3143g.
vitamin C in, 5510d.
vitamin C in fruit of, factors protecting, 3887h.
vitamin C in mixts. of hipberries and, 5510e.
**Hippuramidine†**, hydrochloride, P 672i.
**Hippuric acid** (*N-benzoylglycine*), α-amino-*p*-toluenesulfonamide salt, P 686c.
-benzoic acid system, phase diagram of, 1148g.
α-carboxyphenethyl ester, activity of carboxypeptidase toward, 4712b.
detn. in urine in Quick's test, 7993d.
effect on biochem. decompn. of cellulose, 3609d.
ethyl ester, hydrogenation of, 573a.
formation from benzoic acid in liver damage, 3093a.
from glycine and $PhBz_2PO_4H$, 6996f.
by liver, effect of serine or threonine on, 7986h.
in liver, precursors in, 2188c.
from polyglycine, 8743d.
formation *in vivo*, effect of *p*-aminobenzoic acid on, 2329e.
liver-function test using—see *Liver*.
methyl ester, 1323g.
nitrogen fixation by *Azotobacter* in presence of, [illegible]

reaction with ketones, 7427*b*.
salt with piperazine, 235*e*.
urinary excretion of, in lipophile dystrophy, 3055*d*.
urinary excretion of, in schizophrenia, 2698*g*.
in urine, penicillin excretion and, 9244*e*.
**Hippuric acid, amino-**, sodium salt, loading in normal and diabetic boys, urinary flow, excretion of solutes and osmosis during diuresis of, 1858*i*.
——, ***p*-amino-**, in blood serum, effect on inulin clearance, 3090*h*.
detn. in blood and urine and clearance, 6271*i*.
effect on phosphatase activity of kidneys, 9245*g*.
effect on reabsorption and excretory maxima in renal tubules, 7102*c*.
renal tubular secretion of, effect of salyrgan on and effect of 2,3-dimercapto-1-propanol thereon, 1870*f*.
renal tubular transport of, effect of xanthine and mercurial diuretics on, 6734*a*.
renin action on clearance of, 321*c*.
sodium salt, effect on phosphate excretion in urine, 6734*i*.
——, ***α*-benzylidene-**. See *Cinnamic acid, α-benzamido-*.
——, ***N*-(carbamylmethyl)-**, 3782*a*.
——, ***α*-cyclohexyl-**, 7427*b*.
——, ***α*-cyclohexylidene-**, 7427*b*.
——, ***p*-(2,3-dihydroxyallylidene-amino)-**, and ethyl ester, P 6236*a*.
——, ***p*-hydroxy-**, formation from *p*-hydroxybenzoic acid in rabbit, 2702*e*.
**Hippurimidic acid**, ethyl ester, HCl, P 672*h*.
**Hippuronitrile**, 1403*h*.
——, ***N*-ethyl-α-phenyl-†**, 6176*d*.
——, ***N*-methyl-α-phenyl-†**, 6176*d*.
——, **α-phenyl-†**, 6176*d*.
**Histadyl**. See *Pyridine, 2-[(2 dimethylaminoethyl)-2-thenylamino]-*.
**Histaminase**. (See also *Diamine oxidase; Torantil*.) 6258*d*.
action on gastric secretion, 321*a*.
action on pulmonary edema from phosgene, 2700*a*.
in blood in anaphylactic shock, 1100*e*
in blood in pregnancy, source of, 2688*f*.
in blood plasma in pregnancy, 7109*b*.
detn. in blood plasma in pregnancy, 6689*e*.
heparin effect on, 5863*c*.
thermostability and ultrafilterability of, 5811*f*.
**Histamine** (*4(or 5)-imidazoleëthylamine*) (For derivs. see also under *Imidazole*.)
acetylhistamine formation from, 8413*b*.
-adrenaline counter-regulation, 758*h*.
adsorption of granular material by vascular epithelium and, 5854*b*.
aerosol contg. vitamin K and, lesions from, 9181*h*.
aerosols, guinea-pig resistance to, 1108*d*.
allergy and, 4756*c*.
antigen contg., synthesis, properties and effect of, 9254*e*.
in antihistamine action of blood serum, 5495*a*.
antihistamine effect, 3102*e*, 3931*i*, 5500*f*, 7131*i*.
of amino ethers, 4265*h*.
of anthisan and phenergan, 7580*e*.
of 2-(2-biphenylyloxy)-2′-chlorodiethylamine derivs., 6309*a*.
chem. constitution and, 604*i*.
of citral and *β*-ionone, 1488*g*.
of 2-[(2-dialkylaminoethyl)(2,2-dibutylhexyl)amino]pyridines, 4265*h*.
of *N*,*N*-dimethyl-*N*′-2-thiazolyl-*N*′-*p*-methoxybenzylethylenediamine hydrochloride, 8557*a*.
of diphenylmethane derivs., 7134*h*.
of *N*-(2-haloalkyl)-1-naphthylmethylamine derivs., 2319*f*.
of *N*-methyl-*N*′-(4-chlorobenzhydryl)piperazine dihydrochloride, 9252*i*.
of nicotinamide, 1863*i*.
of *N*-(α-pyridyl)-*N*-(α-thenyl)-*N*¹,*N*¹-dimethylethylenediamine hydrochloride, 2324*d*.
of quaternary derivs. of tertiary amines, 7921*d*.
of RP 3277, 3525*a*.
of sympathin, 3510*b*.
of sympathin E, 3519*c*.
time factor in quant. comparison of, 2323*h*.
of various substances on intestine, 3934*d*.
*antihistamine effect* of vitamin $B_1$, 4352*g*.
of vitamin $B_6$ on intestine, 4351*e*.
antihistamine substances—see also *Ethylamine, 2-(benzhydryloxy)-N,N-dimethyl-; Ethylenediamine, N-benzyl-N′,N′-dimethyl-N-phenyl-; Pyridine, 2-[benzyl(2-dimethylaminoethyl)amino]-*.
antihistamine substances, 1104*fg*, 1112*i*, 1865*g*, 1909*f*, P 2235*c*, 2735*i*, 3810*h*, 3974*e*, 4812*f*, 5019*a*, 5781*c*, 5782*ag*, 7140*h*, 8551*e*.
and antihistamine substances, 1104*f*, 8099*d*.
antihistamine substances, alkyl (dialkylaminoalkoxy)phenylacetates, 2189*g*
aminoalkyl 9,10-dihydroanthryl ketones, P 365*h*.
aminoalkyl esters of (aminoalkoxy) acids, P 3462*f*.
4-aminopiperidine derivs., 2207*a*.
antibacterial activity of, 9147*c*.
antidiffusion activity of, 3927*h*.
(arylalkoxy) amines, 4657*e*.
benzhydryl amino ethers, P 3463*e*, P 5803*h*.
2-(benzhydryloxy)ethyl quaternary N compds., P 2640*g*, P 2641*b*, P 3463*a*.
2-(benzhydryloxymethyl)-2-imidazoline, 4669*g*.
2-[benzyl(2-dimethylaminoethyl)-amino]pyrimidine and derivs., P 6244*f*.
2-[benzyl(2-dimethylaminoethyl)-amino]thiazole, P 1914*d*.
2-(*o*-benzylphenoxy)-*N*,*N*-dimethylethylamine, 3386*f*.
carbazole and indole derivs., 4257*e*.
circulation in brain and, 3520*c*.
comparative study of, 3937*f*.
compds. acting as, 8546*a*.
detn. of, 6686*c*.
10-(dialkylaminoalkyl)phenothiazines, P 2648*c*.
dibenzylpiperazine and derivs., 310*h*.
(ω-dimethylaminoalkylamino) derivs. of heterocyclic compds., P 3471*h*.
*N*-(dimethylaminoalkyl)anilines, P 822*ce*.
1-(2-dimethylaminoethyl)benzimidazole derivs., 7021*g*.
2-[(2-dimethylaminoethyl)(2-ethoxyethyl)amino]pyridine, P 3471*d*.
2-[(2-dimethylaminoethyl)(*p*-methoxybenzyl)amino]pyridine, P 3470*f*.
*N*,*N*-dimethyl-3-cyclopentylidene-3-phenylpropylamine, 8359*f*.
of α-fagarine related compds., 2320*e*.
eczema and, 5500*e*.
effect on adrenaline liberation from adrenals, 6738*g*.
effect on capillary bed, 4381*i*.
effect on chemosis of rabbit eye from mustard oil, 2315*d*
effect on hyaluronidase, 4383*c*.
effect on imbibition of striated muscle, 6318*f*.
effect on loss of adhesiveness of corneal epithelium after injection of histamine, 2700*g*.
effect on permeability of capillaries of hematoocular barrier, 1107*i*.
elimination through kidneys, 4771*f*.
ethers of amino alcs., 630*h*.
ethylenediamine derivs., 6587*a*.
evaluation of, 8424*d*.
in founders treatment, 1104*h*.
identification and differentiation of, 9366*cd*.
imidazoline and pyrimidine derivs., 7023*b*.
2-imidazoline derivs., 6619*h*, 6620*a*.
2-lepidyl substituted diamines, 8389*e*.
muscle inhibition by, 311*c*.
pharmacology of, 8558*a*.
phenothiazine derivs., 7938*f*.
piperazine derivs., 1484*g*.
potentiation of sedative action of barbiturates by, 312*i*.
pruritis and, 1486*a*.
2-pyridinemethanol ethers, 2204*d*.
10-[2-(1-pyrrolidine)ethyl]phenothiazine monohydrochloride, 759*e*.
10-[(1-pyrrolidyl)alkyl]phenothiazines, 631*d*.
respiration and, 9258*b*.
response of sensitized tracheal chains to, 1862*b*.
reviews on, 3934*c*, 7144*c*.
RP3277 effect on edema of lungs, 320*b*.
synergism with harmine on intestine, 3102*d*.
of thenyl series, 2986*h*, 8611*g*.
*antihistamine substances*, traumatic shock and, 9219*g*.
*s*-triazine derivs., 4269*g*.
and antihistamine substances, effect on chronaxia and anaphylactic shock, 7130*a*.
and antihistamine substances in allergy, 7585*g*.
antihistamine therapy, 3099*a*.
in aqueous humor during injection o histamine, 1473*f*.
as bacterial-growth stimulator, 8436*g*.
biol. action of digitoxin and, 313*i*.
in blood and tissue, 4759*d*.
in blood, asthma and, 5869*g*.
effect of atropine on, 9248*f*.
effect of local freezing on, 8484*i*.
effect of synephrine and adrenaline on, 8545*a*.
in erythremia and leukemia, 6725*b*.
in hemorrhage, 3510*a*.
in pulmonary emphysema of horses, 748*i*.
in blood plasma and lymph and its relation to histaminolytic activity of lymph, 7108*h*.
in blood plasma, correlation with blood pressure after x ray irradiation, 4308*h*.
bronchiole response to, in lung distention, 759*c*.
in celomic fluid of *Ascaris suum*, 2319*a*.
in cerebrospinal fluid, 4359*g*.
in cerebrospinal fluid of normal and mentally deranged patients, 2308*b*.
chromatography of, deposition and concn. in paper, 4183*a*.
chromatography on starch columns, 5818*f*.
combination with proteins of blood plasma, 7521*b*.
conjugated, formed in organism after his tamine ingestion, nature and origin of, 3478*d*.
cornea tolerance to, 3110*g*.
in *Cucumis melo* and tomato juice, 328*a*.
deamination by legumes, 6706*d*.
derivs., 8381*f*.
detn. in blood and tissue, 2658*b*.
detn. in presence of antihistamines, 1911*f*.
effect of, and antihistamines on permeability of capillaries of the hematoocular barrier, 3526*a*.
effect of, and related substances on cohesion of corneal epithelium, 769*b*.
effect on action potential of inferior right cardiac nerve, 4763*c*.
on adenosinetriphosphatase, 2250*e*.
on aortic pressure, 4776*a*.
on blood coagulation and its relation to stomach function, 3106*i*.
on blood in hemophilia, 5869*a*.
on blood pressure, before and after pretreatment with histamine, 9243*e*.
on blood sugar of sensitized and normal mice, 8518*g*.
on bone calcification in ducks, folliculin action and, 5471*a*.
on cholinesterase in blood serum in labor and child bed, 9201*e*.
on circulation, 4386*b*.
on collagen swelling, 4373*g*.
on collateral respiration, 1483*g*.
on conjunctiva, 756*c*.
on denervated and normal uterus, 8064*b*.
on epithelium and endothelium, 3108*e*.
on exchange between blood and aqueous humor, 1113*i*.
on gastric-mucin secretion, 8512*e*.
on heart, 1489*e*.
on hyaluronidase activity, 5119*c*.
on ileum in relation to survival time, 761*i*.
on intestines, 7128*i*, 7565*a*.
on intestines, effect of tetraethylammonium ion on, 1110*g*.
on intracranial circulation in chronic headache, 9232*g*.
on Fe in blood, 6730*g*.
on nerves and anaphylactic shock, vitamins antagonizing, 3901*b*.
on osmotic resistance of blood cells, 5121*e*.
on pulmonary circulation, 5105*a*, 9248*b*.
on stomach lining and skin, 3106*b*.
on stomach muscle, 4771*b*.
on uric acid in gastric juice, 5846*c*.
ergot alkaloids and, 3928*i*.
fixation by tissues of guinea pig and its liberation by diamine, 1108*a*.
formation in the body, histidine decarboxylase inhibition and, 8464*b*.

in gastric juice and gastric mucus of normal and ulcer subjects, 4385*e*.
gastric lesions from, effect of tagathen on, 6309*h*.
gastric secretion induced by, effect of neoantergan on, 1868*g*.
gastric secretion induced by, effect of thephorin on, 4385*i*, 4766*e*.
granulopexy of endothelium and, 3916*g*.
-heparin-thrombin chain mechanism, 296*g*.
identification of, 5904*g*.
identification of, in blood, 264*b*.
intracranial hypertension from, 765*e*.
liberation of, immunological significance of, 1482*b*.
by intestine during anaphylactic reaction, effect of antistine on, 3512*e*.
from liver of sensitized dog, 7574*h*.
from muscle by $NH_3$, 8495*f*.
by splenic nerves after stimulation, 2688*h*.
from tissue during shock from transfusion of incompatible blood, 3510*e*.
by tubocurarine and synthetic curariform drugs, 8558*i*.
linoleic acid effect on action of, 2327*h*.
in liver exts. and its effect on blood pressure, 5537*b*.
as nerve active factor, 7140*g*.
in nervous system (central) exts., 6713*g*.
in nettle plants, 8455*a*.
oxygen deficiency and, 4756*c*.
in pain production in skin, 3111*f*.
penicillin toxic action and, 4375*h*.
in placental metabolism, 8509*b*.
in plants, 3070*a*.
poisoning by, activity of antihistamine substances against, 3937*h*.
poisoning by, and ulcers from, thyroid activity in relation to, 7145*f*.
in pregnancy, 7109*b*.
pulmonary edema and, 2699*i*, 4380*e*, 7582*i*.
quaternary ions from, effect on nerves, 8502*h*.
reactions to, effect of sulfurated mineral waters on, 6731*h*.
resistance to, after pretreatment, mechanism of, 9243*h*.
reticulo-endothelial system and, 4356*i*.
review on, 2616*h*.
secretory response to, in subjects with normal and abnormal gastric mucosa, 6302*e*.
sensitivity of smooth muscles to, in pregnancy, 8504*b*.
sensitivity to, in normal and histamine-pretreated animals, 9243*f*.
shock from, antihistamines in protection against, 6722*c*.
effect of methylthiouracil on, before and after thyroidectomy, 4376*g*.
effect of vitamin C on, 2305*c*.
rutin in, 315*b*.
yohimbine and, 1107*i*.
shock development and, 9243*c*.
skin reaction to vitamin K and, 9181*f*.
-sympathin balance, 9221*d*.
thephorin effect on action of, 4764*a*.
toxic action of, effect of vitamin B complex on, 8058*h*.
toxicity for guinea pig, 4374*a*.
toxicity for rabbits, 1105*h*.
triazole analogs of, 6620*d*.
ulcer and gastric-perforation production with, 4761*a*.
uropepsin output in cats treated with, 297*g*.
uterus sensitivity to, effect of estradiol and progesterone on, 1848*f*.
vitamin $B_1$ effect on, 2290*g*.

**Histamine**, *N*-**acetyl-**†, biol. formation of, 3478*d*.
in urine, 8413*b*.

——, *N*-**isopropyl-**, dihydrochloride, 6621*c*.

——, **1-methyl-**, and dihydrochloride, 8382*e*.

——, **2-methyl-**, histamine activity of, 3520*h*.

——, **2-(*p*-nitrophenylaso)-**, 5058*f*.

——, **phenylaso-**, azoprotein complex, 9254*e*.

——, **2-phenylaso-**, 5058*f*.

**Histaminelike substances**, 2-aminoethyl heterocyclic N compds. as, 3529*g*.
liberation after penicillin administration, 4375*i*.

**Histidine** (*α-amino-4(or 5)-imidazolepropionic acid*), in actin, 9095*g*.
in *Aedes aegypti*-larva nutrition, 3940*i*.
alanine formation from pyruvic acid and by liver ext., 5054*e*.
antiallergic action of, 6730*e*.
antianaphylactic action of irradiated, and its effect with nerve toxins, 308*eh*, 309*b*.
antibacterial activity of, 3879*h*.
as bacterial-growth stimulator, 8436*g*.
in barley, oats and wheat, 5450*g*.
in blood and urine after administration in normal and pregnant subjects, 8525*b*.
in blood, carcass, heart, kidney, liver, muscle and skin of eight animals, 7061*e*.
in blood, effect of diet on, 5834*e*.
in blood plasma, 4361*d*, 8429*d*.
in blood plasma, effect of fasting and N deprivation on, 4740*h*.
carboxypeptidase inhibition by, 701*f*.
in cell nuclei, 2652*h*.
chromatography on starch columns, 5818*e*.
cobalt complexes, 4968*i*, 5432*e*.
in cockroach nutrition, 8565*a*.
in collagen and hide layers and uniformity through hides, detn. of, 7735*a*.
in collagen and hide protein, and its detn. in collagen, 7734*f*.
complexes with Co, Cu, Fe and Ni, 7856*cd*.
copper complex, absorption spectra of, 6250*c*.
creatine formation from, and related substances by animal tissue, 9102*h*.
creatine formation from stereoisomers of, 2254*b*, 3861*g*.
derivs., 8381*f*.
detection of, 4978*b*.
detn. of, 3875*h*.
enzymes with action on, 722*b*.
effect on alanine (free) and pyruvate in blood, 1860*i*, 4354*e*.
on blood coagulation and its relation to stomach function, 3107*a*.
on flavor of Cheddar cheese, 9284*d*.
on glycolysis in muscle exts., 7581*f*.
on nutritive value of wheat, 9186*d*.
on polycythemia production by Co, 1843*h*.
on *Tetrahymena geleii*, 7593*d*.
in erythrocytes of chickens, 744*c*.
*Escherichia coli* adaptation to absence of, 2671*i*.
*Escherichia coli* independent from, inhibition by histidineless bacteria, 8439*efg*.
in fibrosarcoma and its normal homologous tissue, 5856*f*.
in foods (Mexican), 7602*b*.
in gastric juice and gastric mucus of normal and ulcer subjects, 4385*e*.
hemin compds. with, in liq $NH_3$, 702*g*.
hydrochloride, monograph for, 8103*b*.
hydrochloride, x-ray action on, 4133*d*.
inactivation by autoclaving, 6676*f*.
isomers as C and N sources for bacteria, 7080*g*.
in lactogenic hormone of pituitary, 5474*e*.
l-, detection of, and m.p. and optical crystallographic properties of its nitroindandionate, 69*f*.
in liver, diet and, 7562*i*.
in lupine and soybean seeds and sprouts, 1080*e*.
in lysozyme, 5063*d*.
in meats and foods, 3534*e*.
in milk albumin, 7597*c*.
in myoglobin of whale, 7537*b*.
as nitrogen source for streptomycin production by *Streptomyces griseus*, 272*c*.
in organs of swine, 7061*h*.
oxidation by plant tissues, 2283*g*.
in pollen collected by bees, 732*e*.
in procollagen of ox, 8411*d*.
in protective action against bacteriophage x-ray inactivation, 2275*h*.
in protective action against $CCl_4$ poisoning, 2292*g*.
in protein (basic) from sperm nuclei of different invertebrates, 4388*a*.
in proteins of epidermis and dermis, 744*a*.
reaction with $CS_2$, 2247*h*.
reaction with oleoyl chloride, 5368*h*.
in reticulin, 6263*c*.
review on, 2616*h*.
in rumen contents, 8041*d*.
sepn. from amino acids, P 3029*i*.
from hydrolyzed egg albumin, 8807*c*.
from protein hydrolyzates, P 2740*c*.
solns. of, isoösmotic with blood, 5903*f*.
in soybean meals, 3499*e*.
in teeth (carious and sound), 8500*d*.
in thyroglobulin, 9121*k*.
triazole analogs of, 6620*d*.
in urine of mental patients, 2312*i*, 6714*b*.
in yeast nutrition, 1826*a*.

**Histidine**, *N*-*β*-**alanyl-**. See *Carnosine*.

——, *N*-*β*-**aminopropionyl-**. See *Carnosine*.

——, **1-benzyl-**, 8382*d*.

——, **1-cyclohexyl-**, 8382*d*.

——, **1-isopropyl-**, 8382*d*.

——, **2-mercapto-*N*,*N*-dimethyl-**, methyl ester, betaine—see *Thioneine*

——, **1-methyl-**, 8382*d*.

——, **1-phenyl-**, 8382*d*.

**Histidine carboxylase**, and its action mechanism, 9106*i*.
from *Clostridium welchii*, 3065*f*.
metabolite antagonists and, 8553*d*.
in spinach and *Chenopodium bonus*, 3070*b*
vitamin P compds. and, 8464*b*.

**Histidine dehydrogenase**, in plastids, 8454*b*.

**Histiocytosis**, lipide—see *Niemann Pick disease*.

**Histochemistry**. (See also *Tissue, animal*, *Tissue, plant*.)
book: Techniques of, and Cytochemistry, 714*c*.

**Histology**. (See also *Tissue, animal*; *Tissue, plant*.)
book: Pathologisch-histologischer Kurs, 6728*e*.
of hides and skins, 1203*ef*.

**Histones**. (See also *Globins*; etc.)
compds. with nucleic acids, 8416*f*.
effect on vaccinia hemagglutination, 1101*i*

**Histoplasma**, *capsulatum*, cysteine and related compds. in growth of, 9152*a*
*capsulatum*, histoplasmin formation by, 719*g*

**Histoplasmin**, antibodies to, in blood serum, demonstration of, 300*e*
collodion agglutination technique with, 4365*e*.
formation of, 719*g*
sensitivity to, in critical illness, 300*h*
sensitivity to, pulmonary calcification and, 3513*g*.

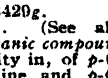
**Histoplasmosis**, diagnosis of, 3916*d*
precipitin reactions in, 752*e*.

**History**. (See also *Alchemy*; *Archaeology*; *Biographies*; *Obituaries*.)
of acid concepts, 1618*h*.
of affinity concept, 5239*c*.
of agricultural economic poisons, 3956*e*
of agricultural science, 2347*f*.
of agrochem. research, 3551*f*
of alchemy and early chemistry, 2010
Alkimia minor ascribed to Albertus Magnus, 8761*d*.
of American Physical Society, 4909*a*
of analgesics, 8099*c*
of arrow poisons, 8616*a*
of atomic and mol. theory before Boyle, 8759*h*.
of atomic nos., 7762*a*.
of atoms, 4057*g*.
of bauxite, 7876*f*.
of bitter orange and oil of neroli, 4815
of bleaching, 6830*i*.
of bleaching of cotton, 4018*e*.
of blowpipe analysis, 3251*e*.
books: Crucibles, 913*d*; A Hundred Years of Chemistry, 9328; der Chemie, 1256*a*; The Chem. Arts of Old China, 2084*a*; der Physik, 2856*e*; Fifty Years of, of Chemists' Club, 3701*b*, de l'atome, 4090*e*; des Goldes, 4554*e*; Short, of Art of Distn., 5648*g*, of Dyes and Dyeing in Bombay Presidency, 7694*a*; Theory of Acids and Bases (in Russian), 8256*h*, of Chemistry in Canada, 8256*i*; Earliest Chem Industry, 8578*b*; Zarys historii chemii w Polsce, 8842*d*.
of butadiene and synthetic rubber prepn from alc., 3644*a*.
of catalysis, 8759*h*.
of Calgon, 4058*g*.
of calomel (the term), 9*d*.
of chem. lab. in Russia, 3251*f*.
of chem. publications in Puerto Rico, 915*g*.
of chem. research labs. U.S.S.R., 6477*h*.
of chemistry, in Britain, 2827*b*.
in Calif., 6875*d*.
centers for research in, 1618*h*.
Leonardo da Vinci and, 5649*h*.
in teaching, 2049*f*.
in U.S.S.R., 7761*h*.
of colloid chemistry of Si, 2884*d*.
of coloring materials in works of Roman authors, 1229*h*.
of copper (arsenical) in Aegean region, 2825*h*.

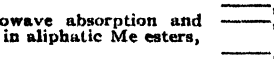
of crystal form of tartrates, 7287*f*.
of curare, 9378*c*.
of diffusion thermoeffect, 6875*g*.
of discoveries of protons, neutrons and mesons, 1639*e*.
Doebereiner, Johann Wolfgang, and, 4057*g*.
of dye industry, 6418*i*.
of dyeing in classical Greece, 6419*h*.
of dyeing with direct, S and vat dyes, 5951*i*.
of dyes and dyeing, 6477*h*.
of dyes and pigments in Mex., 4469*b*.
of dyes (immedial), 851*f*.
of dyes in Czechoslovakia, 4469*a*.
of electron investigations, 1255*b*.
of element-abundance theories, 8761*d*.
of enamels, 9406*g*.
of energy doctrines, 7809*d*.
of fat detn. in milk, 9280*b*.
of fat industry, 3215*h*.
of filtration, 1619*d*.
of fire-making and match production, 8081*g*.
of fluidized catalysts, 8074*d*.
of fluorescence, luminescence and phosphorescence, 2084*e*.
of foams (fire-extinguishing), 5952*e*.
of food hygiene, in U.S.S.R., 8565*d*.
of furnaces and thermometers of Cornelis Drebbel, 5649*i*.
of galvanic circuits, 7761*f*.
of geology, 5707*i*.
of glass, 4435*e*.
of glass manuf. in U.S.S.R., 5913*cd*.
of Greek atomistic ideas, 8761*d*.
of hardness tests based on scratch resistance measurements, 4056*b*.
of Indian drugs of vegetable origin, 8616*a*.
of indigo synthesis at Badische Anilin and Soda Fabrik, 407*h*, 9451*d*.
of insulin, 8618*c*.
of international organization of chemists, 6478*d*.
of ion exchange, 6441*g*.
of ionic reactions in org. chemistry and of trivalent C, 6014*f*.
of iron (sponge) manuf., 3754*h*.
of iron working near Ticehurst in Sussex, 2477*d*.
of Journal of Russian Chemical Society, 6177*i*.
of lab. instruction in chemistry in U.S.A., 8759*g*.
of lactose, 9280*i*.
of laundering, 414*a*.
of laws of radiation, 5659*b*.
of lead tetraethyl as antiknock agent, 6814*b*.
of leather research, 8719*b*.
of L. V. Pisarzhevskii Institute of Phys. Chemistry of Academy of Sciences, U.S.S.R., 5650*d*.
of Mendeleev's periodic law, 6876*d*.
of metal and wood articles in tomb of Tut-Ankh-Amen, 451*d*.
of metallurgy, 6131*f*.
of metallurgy of Au and Ag, 2477*e*.
of morphine, 7275*f*.
of nickel furnaces and Ni metallurgy in Hungary, 8990*e*.
of nitrocellulose and nitroglycerin, 2435*i*.
of nitroglycerin, 4855*a*.
of oceanography, 4526*f*.
of ore dressing in the Harz Mts., 527*g*.
of oxygen, 2049*g*.
of paint and pictorial art materials, 3209*e*.
of papaverine, 7195*b*.
of parsley, and its uses as a condiment and medicine, 8573*d*.
of periodic system, 8220*f*.
of petroleum industry in Hungary, 8122*i*.
of pharmacopeias, 9303*d*.
of pharmacy, 8093*c*.
of pharmacy in Germany and foreign countries, 8093*d*.
of phenol, 5996*f*.
of phenol condensation products, 2049*e*.
of phosphorescent calcium sulfide use by bachantes, 2477*e*.
of photography, amateur's contribution in, 4589*g*.
of plasticizers, 5628*d*.
of poisonous trades, 6759*h*.
of polymerization regulators, 7253*d*.
of potash manuf. in Russia, 8621*h*.
of potassium dichromate as volumetric reagent, 5327*i*.
of powder metallurgy, 7391*e*.
of Puiggari, Miguel, and his doctoral thesis, 1229*g*.
of pyrotechnics in China, 9449*c*.
of radium, 1639*e*.
of rayon, 2778*b*.
of Rensselaer Polytechnic Institute chemistry, 6014*h*.
of reverberatory furnace for Cu metallurgy, 1206*h*.
Robertus Vallensis' De Veritate et Antiquitate Artis Chimicae, 5649*h*.
of Royal Canadian Institute, 2827*a*.
of rubber, 6453*b*.
of rubber latex foam industry, 5983*h*.
of saffron, 8681*i*.
of salt industry of China, 450*i*.
of soda ash manuf., 1535*e*.
of sodium silicate, 1157*i*.
of soln.-kinetics law, 8819*e*.
of spectrochemistry, 1639*h*, 4096*e*.
of spiritus ammoniae aromaticus, 4809*h*.
of steel (alloy), 89*g*, 6556*a*.
of steel, chemists and, 8327*g*.
of sugar-beet-juice defecation, 9501*a*.
of synthetic materials, 1211*h*.
of tanning material analysis, 2455*i*.
of tanning with Zr, 8720*e*.
of tartar emetic, 451*e*.
of textile aids, 4875*i*.
of theory of capillary liquid forms and their boundary lines, 8777*b*.
of thermochemistry, 4909*a*.
of thiocarbanilide manuf. and use as vulcanization accelerator, 5987*e*.
of tin plate, 6923*a*.
of uranium deposits in U.S.S.R., 3322*e*.
of valency, 8761*f*.
of vanillin, 2736*a*.
of vitamins, 8760*i*.
of voltaic cells, 6524*h*.
of waterworks in Britain, 1885*a*.
of Wellcome Research Institution, 916*c*.
of wool research, 5955*c*.
of zinc, 6875*d*.
of zinc from ancient Athens, 2825*i*.

**Hitakol**, 2015*e*.
**Hivolin**, boiler cleaning with, 9307*a*.
**HMX**. See *1,3,5,7-Tetrazocine, octahydro-1,3,5,7-tetranitro-*.
**HN2**. See *Diethylamine, 2,2'-dichloro-N-methyl-*.
**Hoarhound**, marrubiin from, 5011*b*.
**Höchst Yellow**. See *Dyes*.
**Hodgkin's disease** (See also *Granuloma; Lymphogranuloma*.)
cholinesterase in blood in, 4366*h*.
energy mechanisms in, 303*i*
lymph nodes in, cytoplasmic inclusions and characteristics of, 4368*i*.
lymphokentric acid and myelokentric acid in, 9233*a*.
nitrogen mustard in treatment of, 7143*e*
review on, 3515*a*.
**Hoffmann-La Roche, F., & Co., A.-G.**, book: Compendium Roche, 820*h*.
**Hofmann degradation**. See *Degradation*.
**Hofmann reaction**, α-amino acids by, with cyanoacetic esters, 2166*i*.
with dialkylacetamides, 2166*g*.
in heterocyclic compd. prepn., 6984*f*.
with malonamic acids and esters, 2166*e*.
**Holarrhena antidysenterica**, (*conessi, kurchi*), assay of bark of, 3564*d*.
assay of prepn. of bismuth iodide and, 3564*e*.
prepn. of $BiI_3$ and alkaloids of, 8094*f*.
**Holcus**. See *Grasses*.
**Holders**, for electrodes—see *Electrodes*.
for light app., 7269*b*.
for melting-point tubes, 6470*c*.
for test tubes, etc., for weighing, 3665*e*.
**Hollanders**. See *Paper pulp*.
**Hollow articles**. (See also *Molded products*.)
of glass—see *Glass*.
lining for—see *Lining(s)*.
manuf. of cast, P 4624*e*.
molding of—see *Molding*.
molds for—see *Molds (I)*.
refinishing of, 5675*i*.
**Holmium**. (See also *Rare earth metals*.)
alpha-ray-bombarded, Tm isotopes from, 5297*b*.
isotope of mass 166, 6911*e*.
isotope of mass 166, β-decay of, 5297*c*.
radioactive isotopes of, 1647*f*.
spectrum of, persistent lines in, 5337*g*.
**Holmium, analysis**, detn., 6917*i*.
**Holmium ethyl sulfate**, spectrum of, 6917*h*.
**Holmium salts**, spectra of, 6917*h*.
**Holmium sulfate**, spectrum of, 6917*h*.
**Holocaine**. See *Phenacaine*.
**Holocellulose**, aspen, paper pulp from, 399*i*.
from beechwood, Cl effect on yield of, 6407*a*.
from *Betula papyrifera*, isolation and fractionation of, 3609*g*.
from cereal straw, 7226*h*.
color of pulp from, and bleaching thereof, 1185*a*.
from corncobs, 4009*g*.
pulp from, beating of, 8676*h*.
swelling of, lignin effect on, 6407*f*.
from wood chips or sawdust, P 9446*i*.
**Holosides**. See *Disaccharides; Glucides; Glycosides; Polysaccharides; Sugars*; etc.
**Holothuria**, carotenoid content of, 2334*a*.
**Homarine**, in liver of poison mussels, 3053*d*.
**Homarus**. See *Lobsters*.
**Homatropine**, dielec. potential and surface tension of, at different H-ion concns., 7196*bg*.
effect on adrenaline action, 4770*i*.
effect on osmotic pressure of aq. humor, 4775*a*
therapeutic action of, in ointment, soln. or emulsion, 8093*e*.
**Homeopathic preparations**. See *Pharmaceuticals*.
***D*-Homoandrostane, 3,17a-diketo-***, P 7055*c*.
———, **17a-hydroxy-3-keto-***, and 17-benzoate, P 7055*c*.
**Δ⁴-*D*-Homoandrostene, 17a-acetyl-3-keto-***, P 7055*h*.
———, **3,17a-diketo-***, P 7055*f*.
———, **17a-ethynyl-17a-hydroxy-3-keto-***, P 7055*g*.
———, **17a-hydroxy-3-keto-***, P 7978*a*.
and 17-acetate, P 7055*e*.
———, **17(α)-hydroxy-17(α)-methyl-3-keto-***, P 5428*c*, P 5810*g*.
**Homoanisaldehyde**, and derivs., 7417*i*.
**Homoanisamide**, ***N*-(2-aminoethyl)-**, hydrochloride, 3362*e*.
———, ***N*-2-hydroxyethyl-**, 3362*d*.
———, ***N*-2-hydroxyethyl-3-nitro-**, 3362*d*.
———, **α-methyl-**, 1743*i*.
**Homoanisanilide, α-methyl-**, 6992*e*.
———, **4'-phenyl-**, P 2647*a*.
**Homoanisic acid** (*(p-methoxyphenyl)acetic acid*), prepn. of, 1741*d*, 1757*h*, 4654*f*.
———, **α-ethyl-**, 4654*g*.
———, **3-nitro-**, 3361*d*.
———, **α-phenacyl-**, 1039*i*.
**Homoanisonitrile**, 2607*a*.
prepn. of, 606*a*.
**Homoanisoyl chloride**, reaction with diazo paraffins, 1744*a*.
**Homocysteine** (*α-amino-γ-mercaptobutyric acid*), methionine formation from, choline, betaine, dimethyl-β-propiothetin and dimethylthetin in, 2261*g*.
———, ***S*-(2-amino-2-carboxyethyl)-**. See *Cystathionine*.
———, ***S*-benzyl-**. See *Butyric acid, α-amino-γ-(benzylmercapto)-*.
———, ***S*-ethyl-**. See *Butyric acid, α-amino-γ-(ethylmercapto)-*.
**Homocystine** (*γ,γ'-dithiobis[α-aminobutyric acid]*), in diet, effect on toxicity of dichloroethane and dichloropropane, 3077*e*.
methylation of, in animal organism, utilization of Me groups of methionine sulfone and oxidized casein for, 3895*b*.
**Homoeriodictyol**, effect on histidine decarboxylase, 8464*c*.
**Δ⁵,⁶-Homoetiobilienic acid, 3-hydroxy-***, 2214*a*.
**Δ⁵,⁶-Homoetiobilienic acid 16-amide, 3-acetoxy-***, 17-methyl ester, 2214*a*.
**Homogenization**. (See also *Mixing*.)
in aluminum alloys, effect of oscillating temp. on, 2915*a*.
app. for, P 6012*c*.
app. for high-speed, of tissue, 7073*e*.
of concd. emulsions, 7775*h*.
**Homogentisic acid** (*2,5-dihydroxyphenyl)-acetic acid*), 6590*d*.
antibacterial action of, 1456*b*.
formation in body, 8061*c*.
formation in metabolism of tyrosine, 6598*a*.
and lactone, 7002*i*.
**Homolanthionine** (*γ,γ'-thiobis[α-aminobutyric acid]*), cystine formation from, in animal organism, 6712*c*.
diketopiperazine*, availability for growth, 8477*f*.
in sulfur metabolism, 4739*d*.
**Homolevulinic acid** (*γ-oxocaproic acid*.)
———, **ε-(4-biphenylylcarbonyl)-**, 3429*g*.
———, **ε-cumoyl-**, 3429*g*.

——, ε-*p*-cyclohexylbenzoyl-, 3429*g*.
——, ε-*p*-ethylbenzoyl-, 3429*g*.
——, β-methyl-, and 2,4-dinitrophenylhydrazone, 6623*h*.
——, β-methyl-β-propyl-, and derivs., 1333*g*.
——, ε-*p*-toluyl-, 3429*g*.
**Homologous series.** (See also *Chains (chemical); Organic compounds.*)
antibacterial activity in, of *p*-(methylsulfonyl)benzamidine and *p*-(methylsulfonyl)benzylamine derivs., 1739*c*.
binary eutectics formed by two, 8833*d*.
density, refraction and structure of, of hydrocarbons, 6023*e*.
density relation to viscosity of hydrocarbon, 8776*a*.
dielec. loss, microwave absorption and relaxation time in aliphatic Me esters, 6018*h*.
extinction coeffs. of, of alcs., effect of no. of C atoms and branching structure on, 59*d*.
fragmentation of C chains in, by electron impact, 5280*f*.
free energy of formation and octane nos. of, of hydrocarbons, 3600*g*.
friction (interfacial) and, 2060*d*.
functionality and polarizability in relation to, of linseed oil resins, 9481*e*.
gel strength, setting time and syneresis of soap gels in, of solvents, 9492*g*.
ionization potential of, Geiger-Müller-tube discharge and, 1646*c*.
olefin elimination reactions in, kinetics of, 3348*d*, 3349*g*.
phys. properties and chem. constitution of, 2589*fg*, 2590*adg*, 2591*beh*, 2955*dg*, 2956*adg*, 2957*a*.
phys. properties in, of fatty acid esters, 2164*i*.
phys. properties of alkyl β-ethoxypropionates and, 1322*g*.
phys. properties of, of hydracrylic acid esters, 4639*h*.
phys. properties of, relations among, 2057*i*.
rayon penetration, solvation and sp.-gr. modification by, of alcs., 2777*f*.
reaction rate in, 5271*c*.
reaction rate of, elec. moments and, 6895*a*.
solid solns. (binary) of, with one component, 8812*i*.
solubilities in water, 6889*s*.
thermodynamics of mixts. of, of hydrocarbons, 6053*a*.
viscosity-temp. characteristics of, of hydrocarbons, 3602*a*.
**Homomeroquinene.** See *4-Piperidinepropionic acid, 3-vinyl-*.
**Homomesityl oxide.** See *4-Hepten-3-one, 5-methyl-*.
**Homomyristicylamine,** *m*-**methoxybenzyl-*,** cardiac inhibitory effects of, 2320*d*.
——, *N*-**methyl-***m*-**methoxybenzyl-*,** cardiac inhibitory effects of, 2320*d*.
**Homoöxybiotin.** See *1H-Furo[3,4]imidasole-1-caproic acid, hexahydro-2-oxo-*.
**Homopanthenol.** See *Butyramide, α,α-dihydroxy-N-(3-hydroxy-1-methylpropyl)-β,β-dimethyl-*.
**Homopantothenic acid*,** diastereoisomers, cinchonidine salts, 4226*f*.
**Homopenicillioic acid, benzyl-*,** γ-lactam and other derivs., 7932*a*.
——, **phenyl-*,** β-methyl ester -HCl, 7933*a*.
**Homopentamethylenetetramine sulfone*,** 2573*f*.
**Homophthal-1-amic acid,** *N*-[**2-(3-indolyl)ethyl**]-, lactam—see *Benz[g]indolo[2,3-a]quinolizin-5(7H)-one, 8,13-dihydro-*.
and methyl ester, 7490*g*, 7491*h*.
——, *N*-[**2-(3-indolyl)ethyl**]-**6-methyl-,** methyl ester, 7490*i*.
and methyl ester, 234*g*.
**Homophthal-2-amic acid,** *N*-[**2-(3-indolyl)ethyl**]-**6-methyl-,** methyl ester and picrate, 1423*a*.
**Homophthalic acid** ((*o-carboxyphenyl*)*acetic acid*),



ethyl ester, 1046*f*.
polyesters from, P 1057*b*.
——, α-**acetyl-4,5-dinitro-,** α-ethyl ester, 1742*c*.
——, **6-carboxy-3-isopropyl-,** 1747*i*.
——, **6-hydroxy-α-phenyl-,** lactone, rate of transformation to Na salt, 2496*f*.
——, **3-isopropyl-6-methyl-,** 1747*f*.
**Homophthalic anhydride.** See *1,3-Isochromandione*.
**Homophthalimide.** See *1,3(2H,4H)-Isoquinolinedione*.
**Homopilosinic acid,** α-**ethoxyacetyl-*,** ethyl ester, 2625*f*.
**Homopiperazine** (*hexahydro-1,4-diazepine*),




**2-Homopiperazinone, 1,3-dinitro-,** 2203*f*.
**5-Homopiperazinone,** and derivs., 9067*e*.
——, **1-methyl-,** and hydrochloride, 9067*h*.
——, **2,2,7,7-tetramethyl-,** and hydrochloride, 9067*f*.
——, **2,2,7,7-tetramethyl-1-nitroso-,** 9067*g*.
**Homopiperidine.** See *Hexamethylenimine*.
**Homopiperonylamide** (α-(*3,4-methylenedioxyphenyl*)*acetamide*), P 3452*c*.
——, *N*-**2-hydroxyethyl-,** 3362*d*, 3364*b*.
——, *N*-[**2-(5-indanyl)ethyl**]-, 8390*d*.
**Homopiperonylamine** (*3,4-methylenedioxyphenethylamine*), derivs., 3378*d*.
derivs, ring closure of, 1412*h*.
——, **5-methoxy-,** 602*f*, 9046*f*.
and hydrochloride, 2212*b*.
——, *N*-*m*-**methoxybenzyl-,** hydrochloride, 602*h*.
——, *N*-*m*-**methoxybenzyl-***N*-**methyl-,** hydrochloride, 602*h*.
——, **5-methoxy-***N*-*m*-**methoxybenzyl-,** cardiac inhibitory effects of, 2320*d*.
hydrochloride, 2212*b*.
and salts, 9046*g*.
——, **5-methoxy-***N*-*m*-**methoxybenzylidene-,** 9046*f*.
and hydrochloride, 602*f*.
——, **5-methoxy-***N*-*m*-**methoxybenzyl-***N*-**methyl-,** cardiac inhibitory effects of, 2320*d*.
and derivs., 602*c*.
hydrochloride, 2212*c*.
and hydrochloride, 9046*d*.
——, β-**methoxy-α-methyl-,** amine oxidase inhibition by, 9118*e*.
——, α-**methyl-,** amine oxidase inhibition by, 9118*e*.
effect on heart, 9250*e*.
——, α-**phenyl-,** and derivs., 5027*c*.
Δ¹-*D*-**Homopregnene, 3,20-diketo-*,** P 7055*h*.
**Homoprotocatechuic acid** ((*3,4-dihydroxyphenyl*)*acetic acid*), in insects, 3940*c*.
**4-Homopyrocatechol**(*4-methylpyrocatechol*), 3386*i*.
oxidation by tyrosinase in presence of amino acids, 9105*f*.
——, α-[**1,2,3,4-tetrahydro-1**(and **2**)-**isoquinolyl**]-, P 2241*g*.
*p*-**Homosalicylaldehyde.** See *2,5-Cresotaldehyde*.
*p*-**Homosalicylic acid.** See *2,5-Cresotic acid*.
**Homosantenic acid*,** 3796*i*.
**4-Homosulfanilamide.** See *p-Toluenesulfonamide, α-amino-*.
**Homoterephthalamide,** *N*, *N'*-**bis(2-hydroxyethyl)-,** 3362*c*.
**Homoterephthalic acid** ((*p-carboxyphenyl*)*acetic acid*).
——, α,α-**dimethyl-,** 5762*f*, 6093*f*.
——, α-**ethyl-,** 9055*g*.
——, **2-nitro-,** 216*d*.
*o*-**Homoveratraldehyde** ((*2,3-dimethoxyphenyl*)*acetaldehyde*), oxime, 4277*f*.
**Homoveratramide** (α-(*3,4-dimethoxyphenyl*)*acetamide*).
——, *N*-(**2,3-dimethoxyphenethyl**)-, 4277*h*.
——, *N*-**2-hydroxyethyl-,** 3362*c*.
*o*-**Homoveratramide** ((*2,3-dimethoxyphenyl*)*acetamide*), prepn. of, 4277*g*.
——, *N*-**2-hydroxyethyl-,** 3362*c*.
**Homoveratric acid** ((*3,4-dimethoxyphenyl*)*acetic acid*), ethyl ester, reduction of, 7451*c*.
**Homoveratrole** (*4-methylveratrole*), P 7509*h*.
from gas liquor from wood-fed generators, 5926*b*.
——, α-**chloro-,** 2970*d*.
——, **5-nitro-,** 5926*b*.
*o*-**Homoveratrole** (*3-methylveratrole*).
——, **4-nitro-,** 8675*b*.
*o*-**Homoveratronitrile** ((*2,3-dimethoxyphenyl*)*acetonitrile*).
——, α-(**2-ethoxyethyl**)-, 6636*b*.
**Homoveratrylamine.** See *Phenethylamine, 3,4-dimethoxy-*.
*o*-**Homoveratryl chloride,** 4277*g*.
**Homovitamin A*,** ethyl ether, 1338*c*.
——, **5-dehydro-*,** ethyl ether, 1338*f*.
**Honey,** boron in, 3538*b*.
caramelized, in diet in diabetes, 3515*e*.
diastase in, 9106*g*.
D-glucose detn. in, 1290*f*.
measurement of solids in, with hand refractometer, 5879*f*.
mech. properties of, measurement of, 2810*b*.
**Honeybees.** See *Bees*.
**Honeycombs,** resin-treated paper for cores for, 1186*f*.
**Honey locust,** polyphenols and polyphenolases in seed coats of *Gleditsia triacanthos*, 8452*d*.
**Honeysuckle,** control of Japanese, with 2,4-D, 1895*c*.
**Hönigschmid, Otto,** obituary, 5649*f*.
**Hoods,** for radioactive research, 3706*d*.
**Hoof-and-mouth disease.** See *Foot-and-mouth disease*.
**Hoofs,** keratin bleached from ground, for plastics, P 8186*d*.
keratin from, adhesive from, P 9512*d*.
powder from cattle, isocyanate derivs. of, P 3241*e*.
**Hooker oxidation.** See "Hooker" under *Oxidation*.
**Hoplocampa brevis,** control of, 6355*d*.
control on pear trees, 8600*c*.
**Hoplocampa flava,** control of, 3964*f*.
**Hoplocampa testudinea** and(or) **European apple sawfly,** control of, 810*c*.
**Hops,** antibiotic from, 5444*i*.
antifungal resins of, 1525*f*.
bitter acid formation during maturation of, 6780*i*.
α-bitter acid of—see *Humulone*.
β-bitter acid of—see *Lupulone*.
bitter acids in, detn. of, 3142*c*, 3559*a*.
brewing value and flavor conservation in, P 6782*i*.
disease control on, 9329*e*.
feeding value of spent, 4423*e*.
insecticide (systemic) for, 6776*d*.
mildew (downy) of, control of, 9329*f*.
mildew (downy) of, control with colloidal Cu, 804*b*.
red spider control on, 811*e*.
resins from, effect on foam formation in beer, 9359*g*.
sampling, 9357*h*.
weather in relation to development and structure of heads in, 8455*i*.
**Horcius nobilellus,** control of, R.B. 1018 in, 4805*i*.
**Hordein,** manuf. of, P 6466*f*.
**Hordenine** (*p-(2-dimethylaminoethyl)phenol*), effect on heart, 9250*d*.
pharmacology of, 1489*c*.
reaction with HCHO, 6594*b*.
**Horistonotus uhlerii** and(or) **Sand wireworm,** control of, 6775*c*.
**Hormonal factor A,** 1092*h*.
in animal organism, pigmentation of coat and, 3074*e*.
**Hormonelike substances.** No entries this year. See *Auxins; Estrogenic hormones; Growth substances; 3-Indoleacetic acid; Naphthaleneacetic acid;* etc.
**Hormones.** (*Entries are made here for general studies of hormones and for studies of sex and other hormones not sufficiently characterized as to source or activity to be entered at the headings indicated in the cross references below. See also* Antihormones; Cyclopenta[*a*]phenanthrene.)
absorption from gastrointestinal tract, bile and, 8035*i*.
absorption of fat-sol., by skin, 3928*d*.
of adrenal glands—see *Adrenal extracts, Adrenal glands; Adrenaline; Corticosterone*.
adrenotropic—see "hormones of anterior lobe of" under *Pituitary gland*.
androgenic—see *Androgenic hormones; Androsterone; Androsterone, dehydro-; Testicular extracts; Testosterone*.
anterior-pituitarylike—see also *Gonadotropic hormones*.
assay of, statistical analysis in, 7541*e*.
autonomous system, metabolism-directive effect of, and its importance in pharmacology, 1851*f*.
blood-pressure-increasing—this year see *Pituitary extracts; Vasopressin*.
in blood-sugar regulation in ontogenesis, 5868*d*.
in body temp. regulation, 8507*f*.
books: 5849*i*; Physiology, Chemistry and Applications, 1099*i*; La chimie des

**vitamines et des, 4718*h*; Methodik der Hormonsforchung, 5105*c*; Lehrbuch der inneren Sekretion, 5483*b*; Die weiblichen Sexualhormone in der Pharmakotherapie, 6745*g*; Vitamine, e fermenti, 7197*g*; Fermente, Vitamine und die Beziehungen dieser Wirkstoffe zueinander, 7581*c*; Les, dans la reproduction sexuelle, 8515*c*; Wirkstoffe, Fermente, Vitamine, 9125*h*.**

in bovine nymphomania, 6303*b*.
in British pharmacopeia (1948), 4428*g*.
in carbohydrate metabolism, 8523*h*.
in carbohydrate metabolism in lipodystrophy, 8515*i*.
cardiovascular - system - affecting—see *Blood pressure; Blood vessels; Histaminelike substances; Liver extracts; Pituitary extracts; Pituitrin; Sympathin; Sympathomimetic substances; Vagomimetic substances; Vasopressin;* etc.
chromatophorotropic—see "hormones of intermediate lobe of" under *Pituitary gland*.
concn. or drying of, P 4784*c*.
of corpus luteum—see *Corpus luteum extracts; Progesterone*.
corticotropic—see "hormones of anterior lobe of, adrenotropic" under *Pituitary gland*.
detn. or assay of, 3056*f*, 7993*g*.
diabetogenic—see "hormones of anterior lobe of" under *Pituitary gland* this year.
effect on embryonic sex differentiation, 5478*e*.
on nervous system of crab, 5506*g*.
on specific dynamic action of nutrients, 4353*c*.
on tissue growth, 1099*f*.
estrogenic—see *Equilenin; Equilin; Estradiol; Estriol; Estrogenic hormones; Estrone; Ovarian extracts;* and "sex" below.
estrus-affecting, 1098*e*.
fat metabolism—see *Pituitary gland*.
fat mobilization and, 9198*c*.
female sex—see *Corpus luteum extracts; Equilenin; Equilin; Estradiol; Estriol; Estrogenic hormones; Estrone; Ovarian extracts; Progestational hormones; Progesterone;* and "sex" below.
follicle-stimulating—see *Gonadotropic hormones; Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland*.
follicular—see *Estradiol; Estriol; Estrogenic hormones; Estrone; Ovarian extracts*.
gastrointestinal—see *Intestinal extracts; Secretin*.
glucotropic, glycogenotropic and glycotropic—see *Insulin; Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland*.
gonadotropic—see *Adrenal extracts; Gonadotropic hormones; Pituitary extracts;* and "hormones of anterior lobe of" under *Pituitary gland*.
growth—see also *Growth substances; Pituitary extracts;* "hormones of anterior lobe of" under *Pituitary gland;* and "hormones of" under *Thymus gland*.
growth and reproduction, insects as medium for study of, 1850*e*.
of heart—see *Heart extracts*.
-hereditary idioplasmatic factor, genital and mammary tumors in relation to, 299*c*.
imbalance in tumorigenesis, 2311*b*.
imbalance, leiomyoma development in, 5856*c*.
insect, 8066*f*.
insulin secretion and, 5840*a*.
interactions of, 743*c*.
interaction with trace elements, 3903*c*.
intermediates for, P 6237*f*.
intestinal—see *Intestinal extracts; Secretin*.
in intestinal villi movement regulation, 1850*i*.
of kidneys—see *Kidney extracts; Kidneys; Renin*.
in lactation control, 5830*i*.
lactogenic—see "hormones of anterior lobe of" under *Pituitary gland*.
lipide oxidation in presence of lipide sol., 4753*a*.
of liver—see *Liver; Liver extracts*.
luteinizing—see *Gonadotropic hormones;* and "hormones of anterior lobe of" under *Pituitary gland*.
male sex—see *Androgenic hormones; Androsterone; Androsterone, dehydro-; Testicular extracts; Testosterone;* and "sex" below.
mammary cancer and, 8042*g*.
mammogenic—see "hormones of anterior lobe of" under *Pituitary gland*.
melanophore-affecting—see "hormones of intermediate lobe of" under *Pituitary gland*.
metabolism of, linoleic acid in, 5973*b*.
from muscles—see *Heart extracts; Muscle extracts*.
neuro—see *Nerves; Sympathins; Sympathomimetic substances; Vagomimetic substances;* etc.
of ovaries—see *Corpus luteum extracts; Equilenin; Equilin; Estradiol; Estriol; Estrogenic hormones; Estrone; Ovarian extracts; Ovaries; Progesterone;* and "sex" below.
of pancreas—see *Insulin; Pancreas; Pancreatic extracts; Pancreatin; Vagotonin*.
pancreas-affecting—see *Secretin;* and "hormones of anterior lobe of" under *Pituitary gland*.
of parathyroid—see *Parathyroid extracts; Parathyroid gland*.
pigment—see "hormones of intermediate lobe of" under *Pituitary gland*.
of pineal gland—see *Pineal extracts*.
of pituitary gland—see *Gonadotropic hormones; Oxytocin; Pituitary extracts; Pituitary gland; Pituitrin; Vasopressin*.
in placental metabolism, 8509*b*.
plant—see *Growth substances; Plants;* and "-forming substances" under *Flowers*.
radioactive, and their receptors, 9214*f*.
in reproduction, enzyme systems and, 5467*c*.
in reproduction of geese, 9212*b*.
reviews on, 1475*a*, 6783*e*, 9205*f*.
sex—see also *Androgenic hormones; Estrogenic hormones; Gonadotropic hormones; Progestational hormones;* the specific hormones as *Androsterone, Estrone* and *Progesterone;* and the various derivatives under *Cyclopenta[a]-phenanthrene*.
sex, 244*b*, 1784*a*, 1785*b*, 1786*f*, 1787*b*, 3830*d*, 5408*e*, 6640*h*, 8064*d*, 8498*h*, 9077*g*.
analyses of, 3508*b*.
antitumorigenic action of, 8532*f*.
chem. constitution relation to activity of, 6716*h*.
detection and detn. of, 5815*i*.
differentiation and, 5467*b*.
effect in hypophysectomized rats, 7565*f*.
effect on adrenal gland, 7591*f*, 8508*g*.
effect on embryonic reproductive organs and comb of chicks, 5478*f*.
effect on fatty liver, 7560*c*.
effect on gonads of eels, 8481*g*.
effect on granulation tissue, 8491*i*.
effect on growth, 3507*h*.
effect on mammary tumors from *N*-fluorenylacetamide, 2698*d*.
effect on metabolism in osteoporosis, 5487*i*.
effect on phosphatases in blood serum, 8500*e*
effect on prolapse in chickens, 1097*c*.
effect on prostate and 4-aminopteroylglutamic acid action thereon, 8508*e*.
metabolism of, 8033*f*, 8034*fg*, 8036*i*, 8043*c*.
in placenta of shrews, 7057*f*.
secretion by tumors of adrenal cortex, 5855*h*.
in symphysis pubis relaxation, 8034*i*.
synergism of, 5525*h*.
in urine in schizophrenia, 5853*b*.
in urine of normal and impotent males, polyarthritics and prostatics, 2687*g*.
of spleen—see *Spleen extracts*.
standards for, 3561*h*.
sterility treatment and, in dairy cattle, 3907*d*.
steroid—see *Steroids;* and "sex" above.
steroids in synthesis of, 3568*d*.
synthetic, 6786*g*.
testicular—see *Androgenic hormones; Testicular extracts; Testosterone*.
of thymus—see *Thymus extracts; Thymus gland*.
of thyroid—see *Thyroid extracts; Thyroid gland; Thyroidin; Thyroxine*.
thyrotropic—see "hormones of anterior lobe of, thyrotropic" under *Pituitary gland*.
in urine, diagnostic significance of, 4322*d*.
vagotonic—see *Vagotonin*.
in veterinary medicine, 3505*i*.

**Horn**, amino acid content of cattle, 4708*g*.
buffalo, compn., structure and physiochem. properties of, 8413*g*.
keratin bleached from ground, for plastics, P 8186*d*.
keratin from, adhesive from, P 9512*d*.
keratin of, anisotropic swelling and water absorption by, 2073*c*.
meal of, plastic from, P 6744*d*.

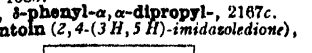
**Hornblende**. (See also *Lamprobolite*.)
-augite trachyandesites of Iwo Jima, 75*h*.
basaltic, in bentonite of Podole and Wolyń, Poland, 6954*f*.
compns. and optical properties of, 6119*i*.
conversion to biotites in Västervik quartzite, 7380*f*.
formation from pyroxene and transformation to mica, 6899*f*.
in Germany (Bavaria) and statistical methods in its analysis, 4986*c*.
of Greenland (Sukkertoppen), 4191*f*.
in magnetite mines of Hunterdon Co., N.J., 71*c*.
in mineral springs at Beppu, Japan, 5703*h*.
of New Hampshire (Percy Quadrangle), 6129*c*.
optical characteristics of, in convergent light, 4979*c*.
optical data and zoning in, from Haruna, Japan, 6127*h*.
prisms in spessartite from Bellville, N. Africa, 8993*h*.
of sand of rivers of West Ethiopia, 2129*e*.
schists of Bluff, New Zealand, origin of, 8314*f*.
soils, 3127*d*.
from volcanic rocks from Haruna, Japan, 6119*d*.
xenoliths in camptonite groundmass of Tyan-Shan, U.S.S.R., disintegration of, 6128*i*.

**Hornblende andesite**. See *Andesites*.
**Hornblende gabbro**. See *Gabbros*.
**Hornblendite**, of California, 2904*h*.
of Italy (Delianova), 3323*f*.
**Hornets**, barium metabolism in, 5124*b*.
**Hornfels**, formation of, of Bluff, New Zealand, 8314*f*.
of Japan (Suyama-Mura), 6549*d*.
**Horn fly**. See *Siphona irritans*.
**Horn poppy**, carotenoids in *Glaucium flavum*, 4731*a*.
**Horn substitutes**, from synthetic rubber, P 3241*g*.
**Horse biting-louse**. See *Bovicola equi*.
**Horse botfly**. See *Gasterophilus intestinalis*.
**Horse chestnut oil**. See *Oils*.
**Horse chestnuts**, compn. of meal and starch of, 1498*h*.
starch of *Aesculus hippocastanum*, 4036*e*.
**Horsehair**, soly. in alkali, detn. of, 5192*g*.
**Horse nettle**. See *Solanum carolinense*.
**Horse-radish**, carotene and vitamin C in, 3536*b*.
mosaic infested, effect of air temp. on virus concn. and leaf morphology of, 5088*d*.
peroxidase—see *Peroxidases*.
vitamin C in, and effect of storage on, 1498*g*.
**Horses**, insectifuges for, P 5899*d*.
**Horsetails**. See *Equisetum*.
**Horseweed**, control of, in buffalo-grass-seed production, 5525*d*.
**Horticulture**, reviews on, 4788*h*, 4789*c*.
**Hose**, cotton textiles of increased swelling capacity for water-pressure, P 4186.
fire, Fortisan rayon in manuf. of, 6408*g*.
flexible metal, P 4626*g*.
rubber, rayon in, 7692*f*.
testing of, 4788*a*.
**Hosiery**, dyeing app. for—see *Dyeing apparatus*.
dyeing of—see *Dyeing*.
perlon, manuf. of, 4469*e*.
rubber impregnation of feet of, to increase wear, 7252*b*.
**Hotbeds**, substitutes for manure and straw in, 4411*c*.
**Houdry, Eugene J.**, biography, 7*i*.
**Hounds-tongue oil**. See *Oils*.
**Houssay, Bernardo A.**, biography, 8237*i*.
**Howardite**. See *Meteorites*.
**H-rays**. See *Deuterons; Protons;* and "ions(gaseous)" under *Hydrogen*.

**Hübl index.** See *Iodine number.*
**Huckleberries.** (See also *Blueberries; Whortleberries.*)
carotene and vitamin C in, 3536*a.*
juice of garden, as pH indicator, P 6114*g.*
**Hudson, C. S.,** book: Collected Papers of, 932*c.*
**Huebnerite,** of New Mex. (Taos Co.), 1692*a.*
of North Carolina and Va. (Hamme Dist.), 1202*d.*
**Huggins, Maurice L.,** biography of, 4939*g.*
**Hughes, William,** obituary, 8210*d.*
**Hullite,** chem. constitution of, 2899*e.*
**Hulls** or **Husks.** (For hulls or husks of specific seeds, etc., see such headings as *Bran, Cottonseed, Oats, Peanuts; Rice* and *Sunflowers.*)
removal from gum-contg. seeds, pretreatment for, P 8718*h.*
**Human flea.** See *Fleas.*
**Human organism.** See *Animal organism.*
**Humates.** (See also *Humic acids; Humins; Humus; Peat.*)
fungicides from Cu or Mg salt and, P 6778*g.*
in soil org. matter, 4800*e.*
**Humectants,** 3541*i.*
**Humic acids.** (See also *Humates; Humins; Humus; Peat; Soils.*)
adsorption by, 7617*h.*
cation absorption by, 7618*b.*
coal and properties of, 1168*g.*
colloidal properties of, 5255*e.*
detn. of cryst. substances in, 5252*b.*
effect on drilling muds, 8652*g.*
effect on plants, 3888*g.*
formation of, 7085*e.*
in medicine, 362*f.*
of peat and soil, 3127*f.*
potassium salts, availability of, 2725*a.*
in soil org. matter, 4800*f.*
in soils of subtropics, 7617*c.*
soly. of, from marshy soils, 6771*a.*
sources of, differentiation of, 7617*d.*
x-ray study of, 6395*e.*
**Humic substances.** See *Humus.*
**Humidification,** review on, 1227*g.*
**Humidistats.** See "control of, app. for" under *Humidity.*
**Humidity.** (See also *Dew point; Hygrometers; Water; Water vapor.*)
absorption of water vapor by $Al_2O_3$ and $SiO_2$ gel in relation to, 6881*i.*
adsorption of water vapor by corn starch and, 9504*h.*
cement-mixt. contraction and expansion in relation to, 4825*c.*
control of, in preservation of ship interiors, 96*c.*
control of, solns. for, 8839*i.*
control of, solns. for, and relative humidities of satd. solns. of salts, 8812*h.*
corrosion rate and, 5721*i*, 5722*f.*
effect on adhesion of polymers to Al and cellulose, 8206*g.*
on alkaloids in *Hyoscyamus muticus,* 9381*a.*
on bactericidal action of disinfectants for air, 4708*f.*
on corrosion of steel, 2565*a.*
on d., moisture absorption and swelling of nylon, 5191*d.*
on dielec. const. and piezoelec. modulus of Rochelle salt, 8840*e.*
on dielec. loss angle and surface resistance of insulators at high frequencies, 2054*a.*
on dispersion of dielec. const. in Rochelle salt crystal, 4062*a.*
on drying rate and water content of leather immersed in $MgSO_4$ and sugar solns., 427*h.*
on elec. properties of cellulose plastics, 5250*e.*
on elec. resistance of rubber, 1207*i*, 8722*i.*
on growth and feed and water consumption of chickens, 5459*e.*
on halloysite transition to metahalloysite, 4607*b.*
on leafing of paint from Al flake powder, 8176*g.*
on leather, 1203*h.*
on membrane substances in higher plants, 5454*i.*
on mold-decay control on citrus fruits, 3536*e.*
on photochem. degradation of nylon, rayon and silk undyed and dyed with vat dyes, 412*d*, 1192*c.*
on photographic paper dimensions, *effect* on respiration of black blowfly poisoned with DDT, 9354*f.*
in testing furniture lacquers, measurement of, 8703*g.*
on water-resistance tests on textiles, 1193*d.*
elec. resistance and relative, of mixed yarns, 5954*i.*
ham molding and, 9330*a.*
increasing, in Fade-Ometer, 8685*d.*
indicators for, P 2713*e.*
measurement of, 8119*i.*
app for, P 3249*f.*
in paper mill, app. for, 7228*d.*
of rubber, instrument for, 429*c.*
measurement of crit., in drying, 3246*c.*
mold growth on stored feeding stuffs and, 9275*f.*
paper manuf. and, 5949*f.*
protein decompn. in relation to, 9108*h.*
removal from air—see *Air.*
of soils—see *Soils; Soils, analysis.*
toxicity of chlorinated camphene and DDT in relation to, 1897*c.*
undergrowth effect on, 8084*a.*
**Humification.** See *Humic acids; Humus.*
**Humins.** (See also *Humates; Humic acids; Humus; Nitrogen, analysis; Peat.*)
condensation products of, for drilling-fluid degelling and viscosity reduction, P 8662*b.*
**Humors.** See *Body fluids; Eyes.*
**Humulone** (*α-bitter acid, α-lupulic acid*), 1525*g.*
detn. of, 3142*c.*
detn. of, in hops, 3559*b.*
formation during maturation of hops, 6780*i.*
inhibition of bacteria, fungi and yeast by, 9361*f.*
**Humulus lupulus.** See *Hops.*
**Humus** or **Humic substances.** (See also *Humates; Humic acids; Humins; Organic matter; Peat.*)
in agriculture, 9322*i.*
analysis of, for carboxyl and hydroxyl groups, 66*c.*
arsenate fixation by, 795*g.*
in composts, 2724*c*, 9326*e.*
from composts, etc., 8595*c.*
detn in sand, 9318*f.*
fertilizers contg —see *Fertilizers.*
formation of, 4800*g*, 7617*d.*
detn. of degree of, 5143*c.*
by liquid manure and urine, 3131*i.*
from oat straw, microorganisms in, 8002*e.*
from plant residues, cellulosolytic myxobacteria in, 6700*h.*
formation of, in plant material during drying, and effect on vitamin C detn., 5879*a.*
soil—see *Soils.*
stimulation by, of germination of spores of *Tilletia tritici,* 8085*c.*
**Hura,** oils of—see *Oils.*
**Husks.** See *Hulls.*
**Hyacinth bean.** See *Dolichos lablab.*
**Hyalite,** uranium detn. in, 2119*e.*
**Hyalophane,** of Italy (Aosta Valley), 2128*a.*
**Hyalopterus arundinis** and(or) **Mealy plum aphid,** control of, 5897*i.*
**Hyaluronic acid,** fibrinolysin release in blood serum by, 7125*g.*
in heart, effect of nervous excitation on, 741*f.*
-hyaluronidase system in physiology and pathology of animal organism, 5846*e.*
occurrence and properties of, 8404*g.*
potassium salt, detection of, 5704*a.*
reviews on, 7524*h*, 7989*c.*
in sarcoma (Rous chicken), 9100*h.*
sodium salt, prepn. of highly viscous, 3859*d.*
in synovial fluid, in joint disorders and in normal subjects, 6727*h.*
from umbilical cord, 2301*b.*
viscosity of, effect of electrolytes on, 1073*i.*
**Hyaluronidases, Diffusing factors** and **Spreading factors.** (See also *Antihyaluronidase; Mucopolysucrase; Testicles; Testicular extracts.*)
action on absorption and spread of radio-opaque substances, 8418*f.*
action on absorption of subcutaneously deposited radio-opaque substance, 3477*d.*
on absorption of penicillin in normal and inflamed mucous membrane, 3104*d.*
on capsule of *Torula histolytica,* 4726*c.*
on diffusion of India ink in alloxan diabetes, 5483*d.*
*action* on encephalitis induction by corneal inoculation, 5857*i.*
on erythrocyte sedimentation rate, Pb, and, 6266*h.*
on local anesthetic action in dentistry, 7139*h.*
on passage of fluid and of T-1824 through capillary wall, 6721*e.*
adrenochrome effect on, 6742*i.*
antibodies to, in antiperfringens serum, 7087*a.*
anticoagulants and, 3855*g.*
antihistamine effect on, 4383*c.*
of *Clostridium perfringens,* production and properties of, 7985*d.*
detn. of, 2658*a*, 3486*e*, 5813*a*, 7535*a*
in semen, 4721*b*, 8423*a.*
in spermatozoa, 7534*i.*
in fertilization, 5467*a.*
from gall bladders (normal and pathological), 1480*g.*
in heart, 741*g.*
histamine effect on, 5119*c.*
inhibition of, by blood serum, 4745*i.*
by blood-serum fractions, 6680*c.*
by blood serum in infectious diseases, 9222*h.*
by blood serum in rheumatic disease, 9234*h.*
by blood serum, Mg and, 4711*a.*
by blood serum, mammary cancer and, 2696*i.*
by blood serum, mucoproteins and, 9238*c.*
by blood serum of normal and herpetic rabbits, effect of anaphylaxis on, 3094*i.*
by body fluids of normal and diseased subjects, 1478*d.*
by cancer serum, 3094*g.*
effect on fertilization, 8483*h*
occurrence and properties of, 8401*g*
plague bacteria and, 7126*c.*
prepn. from testicles, 9137*e*
reviews on, 1447*d*, 5054*i*, 7524*h*
rutin effect on, 5867*c.*
salyrgan as, 9257*h.*
in semen, spermatozoa count and, 3905*h*, 8409*i.*
in skin, 2298*i.*
in spermatozoa, 8031*c.*
in sperm in normal and pathological cases, 5061*a.*
in streptococcal infection, 9150*g.*
streptococcic, effect on rheumatic subjects and others, 6724*f.*
from streptococci, inhibitor in blood serum for, 9151*h.*
system: hyaluronic acid–, in physiology and pathology of animal organism, 5846*e.*
testicular, in alloxan diabetes, 1479*a*
effect of 1,2-propanediol and rutin on, 740*a.*
effect on hematocrit and blood plasma proteins, 7529*d.*
functional status and, 7567*i.*
liberation of, 7521*f.*
origin of, 8041*e.*
in relation to age, hypophysectomy and cryptorchidism, 8035*c*
spermogenesis and, 8507*g*
stability and stabilization of, 8408*h*
tripelennamine effect on, 8056*i.*
in tumors, 1478*b*, 3921*b*
unit for, 711*i.*
**Hyamine 10X.** See "benzyldimethyl[2 - (1,1,3,3 - tetramethylbutyltol oxy)ethoxy]ethyl]— chloride" under *Ammonium compounds, substituted.*
**Hyamine 1622.** See *Phemerol.*
**Hyatt Award,** to Felbeck, George Theodore, 6013*f.*
**Hybridization,** of bonds—see *Bonds.*
**Hycar.** See *Nitrile rubbers.*
**Hydantoamide,** *N,δ*-dibenzyl-γ-thio-, 1398*f.*
**Hydantoic acid** (*N-carbamylglycine, glycol uric acid*),
$H_2N.CO.NH.CH_2.CO_2H$.
*δ γ β α*
and compd. with guanylurea, diuretic action of, 6308*f.*
ethyl ester, labeled with $C^{14}$, 211*g.*
formation in surviving tissues, 741*g.*
——, ***δ*-benzoyl-γ-thio-,** ethyl ester, 1401*b.*
***α*-butyl-α-isopropyl-δ-phenyl-,** 2167*e.*
**, *δ*-carboxy-α-cyano-γ-thio-,** esters and their derivs., 1403*d.*
, α, ——-l-, 2167*c.*
–, α, α-———nyl-, 2167*d.*
–, α, α-dibutyl-δ-p——nyl-, 2167*c.*

, α,α-diisopropyl-δ-phenyl-, 2167*b*.
α,α-dipropyl-, 2167*b*.
α-ethyl-α-isopropyl-δ-phenyl-, 2167*c*.
α-ethyl-α-propyl-, 2167*d*.
α-isopropyl-δ-phenyl-α-propyl-, 2167*d*.
——, α-(mercaptomethyl)-, and lead salt, 1015*b*.
——, β - methyl - δ - (*p* - nitrophenyl)-, 168*g*.
——, δ-(*p*-nitrophenyl)-, and ethyl ester, 168*g*.
——, δ - (*p* - nitrophenyl) - γ - thio-, 168*h*.
——, δ-phenyl-α,α-dipropyl-, 2167*c*.

**Hydantoin** (*2,4-(3H,5H)-imidazoledione*),



derivs., 6171*d*, 7429*f*.
amino acids from, 7903*e*.
prepn. and hydrolysis of, 6978*d*.
5,5-dialkyl derivs., 1322*i*.
diuretic action of, 6308*f*.
effect on electroencephalogram in epilepsy, 9262*d*.
labeled with $C^{13}$, tryptophan labeled in $CO_2H$ group from, 211*f*.
3,3′-tetramethylenepoly-, 8356*c*.

**Hydantoin, 5-acetyl-2-thio-**, goitrogenic action of, 7144*e*.
——, 1-allyl-5-phenyl-, P 4818*b*.
——, 1-allyl-5-(2-thienyl)-, 3426*f*.
——, 5 - (amoxymethyl) - 5 - cyclohexyl-, and salts, P 3452*i*.
——, 3-amyl-5-isobutyl-5-methyl-, P 4422*c*.
——, 5-amyl-5-(1-methoxypropyl)-, 6985*a*.
——, 5-amyl-2-thio-, 634*i*.
——, 5-benzoyl-2-thio-, goitrogenic action of, 7144*e*.
——, 5-benzyl-, and hydrolysis of, 3786*g*.
——, 1 - benzyl - 4 - benzylidene - 2-thio-, 1400*b*.
——, 3-benzyl-5,5-dimethyl-, 6984*h*.
——, 5-benzylidene-, spectrum of, 6984*c*.
——, 5 - benzylidene - 1,3 - dimethyl-, spectrum, 6984*c*.
——, 5 - benzylidene - 1,3 - dimethyl-2-thio-, spectrum of, 6984*c*.
——, 5 - benzylidene - 1(and 3) - methyl-, spectra of, 6984*c*.
——, 5-benzylidene-3-methyl-2-thio-, 3408*h*.
spectrum of, 6984*c*.
——, 5-benzylidene-2-thio-, 1402*b*.
spectrum of, 6984*c*.
——, 5 - [(benzylmercapto)methyl]-, 7903*g*.
——, 1-benzyl-3-phenyl-2-thio-, 4229*b*.
——, 1-benzyl-5-(2-thienyl)-, 3426*f*.
——, 5-benzyl-2-thio-, 634*i*.
——, 5-(bromomethyl)-, 7903*f*.
——, 5-(butoxymethyl)-5-cyclohexyl-, and salts, P 3452*i*.
——, 5 - (*sec* - butoxymethyl) - 5 - cyclohexyl-, and salts, P 3452*i*.
——, 1 - (*p* - butoxyphenyl) - 5 - methyl-, diuretic action of, 6308*f*.
——, 5-butyl-5-(1-methoxypropyl)-, 6985*a*.
——, 5 - *sec* - butyl - 5 - (1 - methoxypropyl)-, 6985*a*.
——, 1-butyl-5-(2-thienyl)-, 3426*f*.
——, 1-*sec*-butyl-5-(2-thienyl)-, 3426*f*.
——, 5-butyl-2-thio-, 634*i*.
——, 5-*sec*-butyl-2-thio-, 634*i*.
——, 5-carbamido-. See *Allantoin*.
——, 5-(carboxymethylene)-. See $\Delta^{4,\alpha}$-*Imidazolidineacetic acid, 2,5-dioxo-*.
——, 5-(4-chlorobutyl)-, and derivs., 8356*a*.
——, 5-(chloromethyl)-, 7903*f*.
——, 5 - [*p* - (*p* - chlorophenylsulfonyl)-benzyl]-, 6978*f*.
——, 5-cyclohexyl-, 5-(alkoxyalkyl) derivs., P 3452*f*.
——, 5 - cyclohexyl - 5 - [(cyclohexyloxy)methyl]-, and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - (1,2 - dimethylpropoxymethyl)-, and salts, P 3452*i*.
——, 5-cyclohexyl-2,4-dithio-, anticonvulsant action of, 7586*a*.
——, 5-cyclohexyl-5-(ethoxymethyl)-, and salts, P 3452*g*.
——, 5 - cyclohexyl - 5 - (1 - ethylpropoxymethyl)-, and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - [(hexyloxy)-methyl]-, and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - (isoamoxy- and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - (isobutoxymethyl)-, and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - (isopropoxymethyl), and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - (methoxymethyl)-, and salts, P 3452*i*.
——, 5 - cyclohexyl - 5 - (1 - methoxypropyl)-, 6985*a*.
——, 5 - cyclohexyl - 5 - (1 - methylbutoxymethyl)-, and salts, P 3452*i*.
——, 5-(cyclohexylmethyl)-2-thio-, 634*i*.
——, 5 - cyclohexyl - 5 - propoxymethyl-, and salts, P 3452*i*.
——, 1-cyclohexyl-5-(2-thienyl)-, 3426*f*.
——, 5,5-diamyl-, 1322*i*.
——, 5 - (α,β - dibromophenethyl) - 5-methyl-, P 7198*f*.
——, 1,3-dichloro-5,5-dimethyl-, as germicide, 1573*b*.
——, 5,5-diethyl-, (omitted from abstr.), 1322*i*.
——, 5,5-diethyl-2,4-dithio-, anticonvulsant action of, 7586*a*.
——, 5,5-diheptyl-, 1322*i*.
——, 5-(2,5-dihydroxybenzyl)-, *l*-, 6599*c*.
——, 5 - (3,4 - dihydroxybenzylidene)-1-methyl-, cyclic carbonate, 7456*b*.
——, 5,5-dimethyl-, 6171*f*.
anticonvulsant action of, 7586*a*.
——, 5,5-dimethyl-2,4-dithio-, anticonvulsive action of, 7586*a*, 5500*c*.
and derivs., 6171*e*.
prepn. and anticonvulsant action of, and salts, 2324*a*.
——, 5,5-dimethyl-2-thio-, and derivs., 6171*g*.
——, 5,5-dimethyl-2(and 4)-thio-, anticonvulsant action of, 7586*a*.
——, 5,5-dimethyl-4-thio-, 6171*f*.
——, 5,5-diphenyl-, 3016*c*.
anticonvulsant action of, 7586*a*.
sodium deriv., anticonvulsant action of, 3101*b*, 9262*b*.
anticonvulsant actions of 5-phenyl-5-thienylhydantoin and, 760*g*.
antiepileptic activity of, 8611*i*.
convulsant threshold after administration of, effect of vasomotor drugs on, 4765*e*.
effect on audiogenic spasms, 2699*i*.
effect on convulsive threshold in epileptics, 9231*g*.
effect on electroencephalogram in epilepsy, 9262*c*.
gingivitis after treatment with, 5861*g*.
heart failure from, 1862*f*.
in labile diabetes therapy, 1102*g*.
solubility in iso-PrOH, 3148*a*.
prepn. of, 1045*a*.
——, 5,5-diphenyl-2,4-dithio-, 6172*a*.
anticonvulsant action of, 7586*a*.
——, 5,5-diphenyl-2-thio-, anticonvulsant action of, 7580*a*.
——, 5,5-di-2-thienyl-, P 5805*i*.
——, 2,4-dithio-, derivs., 3409*e*.
derivs , anticonvulsant action of, 7585*i*.
——, 5-(ethoxymethyl)-, 7903*f*.
——, 5-(ethoxymethyl)-5-phenyl-, P 3452*h*.
——, 1 - (*p* - ethoxyphenyl) - 5 - ethyl-, diuretic action of, 6308*f*.
——, 1 - (*p* - ethoxyphenyl) - 5 - methyl-, diuretic action of, 6308*f*.
——, 5-(1-ethylamyl)-, 3410*a*.
——, 5-(1-ethylamyl)-2,4-dithio-, 3409*i*.
——, 5-(1-ethylamyl)-5-propyl-, 1317*g*.
——, 5-ethyl-5-isopropyl-, 2167*c*.
——, 5 - ethyl - 5 - (1 - methoxypropyl)-, 6985*a*.
——, 5-ethyl-5-methyl-, diuretic action of, 6308*f*.
——, 5-ethyl-5-methyl-2,4-dithio-, anticonvulsant action of, 7586*a*.
——, 5-ethyl-5-methyl-5-phenyl-, anticonvulsant action of 5-phenyl-5-thienylhydantoin and, 760*g*.
anticonvulsant activity of, 9262*b*.
antiepileptic activity of, 8611*i*.
in labile diabetes therapy, 1102*g*.
——, 5-ethyl-5-methyl-2-thio-, anticonvulsant action of, 7586*a*.
——, 5-ethyl-5-phenethyl-, 7429*h*.
——, 5-ethyl-5-phenyl-2,4-dithio-, anticonvulsant action of, 7586*a*.
——, 5-ethyl-5-propyl-, 2167*d*.
——, 5 - (1 - ethylpropyl) - 5 - (1 - methoxypropyl)-, 6985*a*.
——, 5-ethyl-5-styryl-, 7429*g*.
——, 1-ethyl-5-(2-thienyl)-, 3426*f*.
——, 5-ethyl-2-thio-, 634*h*.
——, 5-hendecyl-5-methyl-, 1322*i*.
——, 5-hexyl-, 3409*h*.
——, 5-hexyl-2,4-dithio-, and monoacetyl deriv., 3409*h*.
——, 5-hexyl-5-(1-methoxypropyl)-, 6985*a*.
——, 5-hexyl-5-octyl-, 4637*c*.
——, 5-hexyl-5-propyl-, 4637*d*.
——, 5-hexyl-2-thio-, 634*i*.
——, 5-(4-hydroxybutyl)-, 8356*a*.
——, 5-(3-indolylmethyl)-, labeled with $C^{13}$, 211*i*.
——, 5-(3-indolylmethylene)-, labeled with $C^{13}$, 211*h*.
——, 5-isoamyl-5-(1-methoxypropyl)-, 6985*a*.
——, 5-isobutyl-5-(1-methoxypropyl)-, 6985*a*.
——, 5-isobutyl-5-methyl-, 572*f*.
——, 5-isobutyl-5-phenethyl-, 7429*h*.
——, 5-isobutyl-5-styryl-, 7429*h*.
——, 5-isobutyl-2-thio-, 634*i*.
——, 5-isopropyl-5-(1-methoxypropyl)-, 6985*a*.
——, 5-isopropyl-5-phenethyl-, 7429*h*.
——, 5-isopropyl-5-styryl-, 7429*h*.
——, 1-isopropyl-5-(2-thienyl)-, 3426*f*.
——, 5-isopropyl-2-thio-, 634*i*.
——, 5-(mercaptomethyl)-, formation in the hydrolyses of β-thiocyanoalanine, 1015*b*.
——, 5-(methoxymethyl)-, 7903*e*.
——, 5-(1-methoxypropyl)-, 5-derivs., 6984*i*.
——, 5-(1-methoxypropyl)-5-methyl-, 6985*a*.
——, 5 - (1 - methoxypropyl) - 5 - [1(and 2)-methylbutyl]-, 6985*a*.
——, 5-(1-methoxypropyl)-5-phenyl-, 6985*a*.
——, 5 - (1 - methoxypropyl) - 5 - propyl-, 6985*a*.
——, 1-methyl-, diuretic action of, 6308*e*.
——, 5-methyl-, and hydrolysis of, 3786*e*.
——, 1 - (1 - methylbutyl) - 5 - (2-thienyl)-, 8426*f*.
——, 1-methyl-5,5-diphenyl-, 3016*c*.
——, 5-methyl-2,4-dithio-, anticonvulsive action of, 7586*a*.[3]
——, 5-(methylmercaptoethyl)-2-thio-, 634*i*.
——, 5 - (methylmercaptomethyl)-, 7903*f*.
——, 5-methyl-5-nonyl-, 1322*i*.
——, 5-methyl-5-phenyl-2,4-dithio-, anticonvulsant action of, 7586*a*.
——, 5-methyl-5-styryl-, 7429*g*.
——, 5 - [*p* - (methylsulfonyl)benzyl]-, 6978*e*.
——, 1-methyl-5-(2-thienyl)-, 3426*f*.
——, 3-methyl-2-thio-, 3408*h*.
——, 5-methyl-2-thio-, 634*h*.
——, 5-octyl-5-propyl-, 4637*d*.
——, 5-oxo-. See *Parabanic acid*.
——, 5,5-pentamethylene-. See *1,3-Diazaspiro[4.5]decane-2,4-dione*.
——, 1 - phenethyl - 5 - (2 - thienyl)-, 3426*f*.
——, 5-phenyl-, diuretic action of, 6308*f*.
——, 5 - [*p* - (phenylsulfonyl)benzyl]-, 6978*e*.
——, 5-phenyl-5-(thienyl)-, anticonvulsant properties of, 760*g*.
sodium deriv., antiepileptic activity of, 8611*i*.
——, 5-propyl-5-styryl-, 7429*g*.
——, 1-propyl-5-(2-thienyl)-, 3426*f*.
——, 5-propyl-2-thio-, 634*h*.
——, 5-(2-quinolylmethyl)-, 1323*b*.
——, 5-(2-quinolylmethylene)-, (omitted from abstr.), 1323*b*.
——, 5-*p*-sulfamylbenzyl-†, 6978*e*.
——, 5,5-tetramethylene-. See *1,3-Diazaspiro[4.4]nonane-2,4-dione*.
——, 5-(2-thienyl)-, derivs., 3426*d*.
——, 2-thio-, 1401*c*, 1403*d*.
derivs., 634*h*.
derivs., and relation to 3-mercapto-5(2*H*)-*as*-triazone derivs., 3015*i*.
effect on thyroid gland, 7144*e*, 9242*b*.
——, 1,5,5-trimethyl-2,4-dithio-, 1766*f*.
——, 5-ureido-. See *Allantoin*.

**5-Hydantoinacetamide, 1-acetyl-*N*-benzyl-2-thio-**, 1353*b*.
——, *N*-benzyl-2-phenyl-, 1353*b*.
——, *N*-2-hydroxyethyl-, 3364*c*.

**5-Hydantoinacetic acid, 2-phenyl-**, 1353*b*.
——, 5-propyl-, ethyl ester, 1323*b*.

**Hydergin***, effect in ischemia of renal cortex, 9249*a*.

**Hydnocarpamide**, *d*- and *dl*-, 1731*e*.

**Hydnocarpic acid** (*11-(2-cyclopenten-1-yl)-hendecanoic acid*), derivs., 566*d*, *dl*-, synthesis of, and its derivs., 1730*f*.
sulfanilamide derivs., therapeutic activity of, 3007*e*.

——, **dihydro-**. See *Cyclopentanehendecanoic acid.*
——, **ι-oxo-**, and semicarbazone, 1730*i*.
**Hydracrylaldehyde**, acetate and oxidation of, P 3026*i*.
——, **α-chloro-**, P 3026*d*.
——, **α,α-dimethyl-**. See *Pivalaldehyde, hydroxy-.*
**Hydracrylamide**, *N-tert-***amyl-**, acetate, 2165*d*.
——, ***N*-2-hydroxyethyl-**, in penicillin production, 2273*a*.
——, ***N* - 1,1,3,3 - tetramethylbutyl-**, 2165*g*.
**Hydracrylamidine**, hydrochloride and derivs., 5785*b*.
**Hydracrylic acid** (*β-hydroxypropionic acid*), acetate, P 6223*i*.
acetate and its pyrolysis, P 3027*a*.
alkali metal salts, P 2634*f*.
alkyl esters, and their esters, 4639*c*.
butyl ester, ammonolysis rates of, 6495*g*.
*p* - chloro - α - (trichloromethyl)benzyl ester acetate, as insecticide, 2359*h*.
dehydration of, P 6221*h*.
derivs., *P* 7506*f*.
esters, P 1053*e*.
ethers with phenol-formaldehyde polymers, as detergents, P 1588*b*.
extn. of, P 3029*g*.
fluoro derivs. and their esters, P 2224*b*.
formation from alanine by fermentation, 7541*g*.
lactone, condensation products with polyhydric alcs., P 2032*g*.
condensation with phenols, P 1053*i*.
manuf. of, P 1055*h*, P 5414*i*, P 5795*a*.
reaction with AcCl, P 1056*i*.
reaction with alcs., P 5035*i*.
reaction with dialkyl sulfates, P 1055*d*.
reaction with hydrogen halides, P 1054*c*.
reaction with $H_2S$, P 1054*d*.
reaction with *β*-mercaptopropionic acid, P 1054*i*.
reaction with NaCN, P 1053*c*.
reaction with $SO_2Cl_2$, P 3444*e*.
reaction with thiols, P 1054*f*.
reaction with thiourea, P 7506*i*.
lactone (compd. omitted from abstr.), P 1056*ac*.
lactone and other derivs., 3393*a*.
manuf. of, P 2634*e*, P 7038*h*.
reaction with alcs. in the presence of a dehydrating agent, P 4288*f*.
surface tension of, 8779*g*.
**Hydracrylic acid, α-amino-**. See *Serine.*
——, **α - (*o* - aminophenylmercapto)-β-phenyl-**, potassium salt, 7421*d*.
——, **β - benzoyl - α - (hydroxymercuri)-**, diacetate, 7192*h*.
——, **β-benzoyl-β-phenyl-**, lactone, P 1056*c*.
——, **β,β-bis(*p*-chlorophenyl)-**, ethyl ester, 2272*h*.
——, **α - (*m* - chlorophenyl) - β,β - diphenyl-**, dehydration of, 208*b*.
——, **α - *p* - cumyl - β,β - diphenyl-**, dehydration of, 208*b*.
——, **β-cyclohexadienyl-**. See *Cyclohexadienehydracrylic acid.*
——, **α,α-difluoro-**, and ethyl ester, P 2224*c*.
——, **α,α-dimethyl-**. See *Pivalic acid, hydroxy-.*
——, **α,β-dimethyl-β-phenyl-**. See *Butyric acid, β-hydroxy-α-methyl-β-phenyl-.*
——, **α,α-diphenyl-**, lactone, detn. of, 1280*g*.
**β,β-diphenyl-**, 3777*c*.
**α-ethyl-**. See *Butyric acid, α-(hydroxymethyl)-.*
**α-fluoro-**, P 2224*c*.
**β-furyl-**. See *Furanhydracrylic acid.*
**β-naphthyl-**. See *Naphthalenehydracrylic acid.*
——, **β-(*m*-nitrophenyl)-**, β-lactone, P 5037*h*.
——, **α-phenyl-**. See *Tropic acid.*
——, **β-phenyl-**, ethyl ester, 5150*f*.
**β-lactone**, P 5037*h*.
——, **α-phenyl-β,β-di-*p*-tolyl-**, dehydration of, 208*b*.
——, **β-*p*-propylphenyl-**, β-lactone, P 5037*h*.
——, **thio-**. See *Propionic acid, β-mercapto-.*
——, **α,β,β-triphenyl-**, dehydration of, 208*b*.
**ethyl ester**, 1394*e*.
**Hydracrylonitrile**, acetate, acrylonitrile from, P 2220*f*, P 6220*b*.
α-chloroacrylate and α,β-dichloropropionate, P 3027*c*.
α-chloroacrylate and propiolate, polymerization of, P 4514*i*.
dehydration of, P 2220*i*, P 3439*i*, P 8398*a*, P 3836*i*.
effect on seeds, 4733*i*.
ether with 2,5-thiophenedimethanol, 630*c*.
fumarate, P 903*h*.
and glucoside†, tetraacetate, 7430*i*.
hydrolysis of, catalysis by $HgSO_4$, 1248*i*.
manuf. of, P 1435*c*, P 3029*b*, P 3440*f*.
as polymerization inhibitor for unsatd. nitriles, P 2220*e*.
prepn. and dehydration, 4629*g*.
purification of, P 1794*e*.
pyrolysis of, to form MeCN, P 666*i*.
reaction with alcs., 4639*c*.
**Hydracrylonitrile, α-chloro-**, purification of, P 1794*e*.
**Hydramines**. See "amino" under *Alcohols.*
**Hydrangea**, red-spider control on, 807*b*.
rutin detn. in flowers of, 9373*g*.
**Hydrargillite**. See *Gibbsite.*
**Hydrases**, and their physiol. action, 7058*c*.
**Hydrastinine**, effect on adrenaline and acetylcholine actions on heart, and effect on refractory period of heart, 3102*f*.
**Hydrastis**, effect on uterus, berberine content and, 9246*c*.
identification of exts of, 361*c*.
**Hydrates**. (See also *Dehydration (chemical).*) 8244*i*.
additivity of magnetic susceptibilities in, 4528*e*.
of aluminum selenate and $Al_2(SO_4)_3$, 5687*b*.
analysis of, infrared spectra in, 7859*c*.
binding energies of, 3255*f*.
book: Krystallinske Salthydrater, 7366*g*.
of carbon dioxide-$CH_4$ mixts., 4832*f*.
dehydration of, effect on stability, 4930*e*.
dissocn. of org., 2082*f*.
equil. with salt and satd. soln., 5266*i*.
of ions, in aq. soln., 6493*a*.
liquefaction of salt, by trituration, 7767*c*.
magnetic susceptibility of Pt-compd., 7278*b*.
natural-gas, 8643*d*.
natural-gas, prevention of formation in high-pressure gas lines, 4832*e*.
solv. of, vapor pressure and, 5267*a*.
structure of salt mono-, 3301*fg*.
**Hydration**. (See also *Heat of hydration; Solvation; Water; Water of hydration.*)
of acetylene, P 3837*i*.
of acrylonitrile, 7411*d*.
of *p* - bis(2,3 - epoxypropoxy)benzene, 2181*c*.
of butenes, 9028*a*.
of 2-butyne-1,4-diol, 2577*h*, 5003*c*.
catalysts for, 8251*e*.
of cellulose and its derivs., 845*h*.
of cellulose (mercerized), 397*d*.
of cement—see *Cement, hydraulic or structural.*
copper oxide character and, 8295*h*.
of cupric ion, cathodic polarization and, 8014*a*.
in Debye-Hückel theory, 7301*h*.
of dienynes, 115*f*, 116*h*, 117*dh*, 119*a*, 1332*g*, 1333*b*, 6623*ch*, 6624*f*.
of epoxides, 1310*e*.
of ethylene, P 6645*e*, P 7306*a*.
of ethylene oxide, P 6652*f*
of ethylene oxide, kinetics of, 4549*a*.
of 17-ethynylestradiol, P 7054*e*.
of 17-ethynyltestosterone, P 7058*a*.
of exchangeable cations of clay minerals and synthetic resins, 921*h*.
of formaldehyde, spectral study of, 940*e*.
furnaces for, 2475*h*.
of 5-hexen-3-yn-2-ol, 2161*d*.
of ions, 2074*f*, 4930*d*, 6493*a*, 8243*h*.
effect on chromatography, 8295*a*.
electroösmosis and, 22*b*.
of isobutene, acids in, 7302*i*.
of isoölefins to tertiary alcs., ion-exchange substances as catalysts in, P 8397*f*.
of lime—see *Lime.*
of magnesia and magnesite, effect of admixts. on, 5919*h*.
of magnesites, app. for detn. of expansion in, 2391*b*.
of metaphosphoric acids, 4088*g*.
of methylene, 7412*g*.
of minerals, effect of pressure and temp. on, 5349*e*.
mol. assocn. and, of carbohydrates, 2583*h*.
of myrcene, P 6219*d*.
of nicotinonitrile, 1411*e*, P 1811*d*, P 7513*i*.
of nitriles, 568*d*.
of olefins, P 4682*f*, P 4692*i*, P 5032*f*, P 5410*g*, P 6645*g*, P 8307*h*.
HF as catalyst with a promoter in, P 3438*f*.
pilot plant for, 4522*c*.
purification of alcs. produced by, P 5790*e*.
of paper pulp—see *Paper pulp.*
re-, of colloids in chill haze of beer and cold turbidity of wort, 9360*c*.
re-, of dehydrated vermiculite, 6949*e*.
of silicate minerals, spheroidal weathering by, 6550*b*.
of silicates of laminar structure, 8233*a*.
of soils, effect on mech. properties, 7171*c*.
**Hydratropaldehyde**, isomerization of, and of its semicarbazone, 4632*h*.
——, ***p*,α-dimethyl-**, and semicarbazone, 7917*b*.
**Hydratropamide**, manuf. of, P 2233*d*.
——, ***p*,α-dimethyl-**, 6993*g*.
——, **α-methyl-*N*-*p*-tolylsulfonyl-**, P 686*b*.
**Hydratropanilide**, 6992*e*.
——, **α-methyl-**, oxime, 6993*i*.
——, **4-nitro-**, 6992*e*.
**Hydratropic acid** (*α-phenylpropionic acid*), oxidation by kidney and liver, 2248*g*
(+)-, silver salt, reaction with Br, 4241*d*.
——, **β-benzoyl-**, 1039*h*.
——, **β-benzoyl-*p*-methoxy-†**, 1039*i*.
——, **α-benzyl-β-phenyl-**. See *Isobutyric acid, α,β,β'-triphenyl-.*
——, **α-cyano-3,5-dimethoxy-**, ethyl ester, 8384*b*.
——, **3,5-dimethoxy-**, 8384*c*.
——, ***p*,α-dimethyl-**, 6993*g*, 7917*b*.
——, **β,β'-(pentamethylenedioxy)di-**, ester with tropine-MeI, 3929*c*.
——, **β-*p*-toluyl-**, 1039*h*.
**Hydratropohydroxamic acid** *p*,α-**dimethyl-**, 6993*f*.
**Hydratropohydroxamyl chloride**, α-**methyl-**, 6993*i*.
**Hydratroponitrile**, **3,5 - dimethoxy-**, 8384*b*.
——, ***p*,α-dimethyl-**, 6993*h*.
——, **α-methyl-**, P 3439*i*.
**Hydratropyl chloride**, **α-methyl-**, oxime, 6993*i*.
**Hydraulic cement**. See *Cement, hydraulic or structural.*
**Hydraulic systems**. (See also *Brakes.*)
fluids for, P 1504*dh*, P 4791*f*.
fluids for breaking, 4790*g*.
fluids for, from alkyl phosphates and di isobutyl ketone, P 5519*b*
from C black and acrylonitrile-diolefin copolymers, P 5184*c*.
disiloxane derivs., P 667*g*.
esters of fatty acids with 1,2-polyoxypropylene monoalkyl ethers, P 1562*e*.
halo acetals, P 6650*b*.
hexachlorobutadiene, 5362*b*.
from isobutylene polymer in hydrocarbon solvent, P 9302*a*.
mixed polyalkylene glycols, P 4289*g*
noncombustible, K methacrylate contg., P 1960*g*.
nonflammable, P 3949*i*.
org. Si compds., P 7500*fg*.
organosiloxanes, P 4402*e*.
pentamethylphenyldisiloxane, P 1803*d*.
polyhydric alc. esters, P 5794*e*.
polymeric dimethyl silicones, P 2813*e*
silicones, 3541*i*, P 8208*e*.
siloxanes, P 3237*f*, P 5420*h*.
testing rust-inhibiting properties of polar compds. in oil, 2420*i*.
from tritolyl phosphate, polymerized glycol, etc., P 6340*i*.
for lowering and raising Hg in gas analyzers, 911*h*.
α,α'-thiodifatty acids as addends in oil for, P 3840*e*.
**Hydrazides**, in aldehyde and ketone identification, 6971*i*, 6972*cfi*, 6973*dg*.
of coconut-oil fatty acids, condensation with glucose, wetting agents by, P 4499*e*.
of dicarboxylic acids, aminotriazole polymers from, P 8740*b*.
phenyl-, as insecticides, 5525*i*.
phenyl-, toxicity to corn borer, 7182*g*.
poly-, review on, 5006*e*.
reaction products .h oximino ketones o

salicylaldehyde as reagents for Cu or Fe, 2115*d*.
reaction products with paraformaldehyde and $NH_4$ salts or salts of primary amines, P 1434*f*.
reaction with cyanoguanidine, P 3843*c*.
sulfoaryl, of fatty acids, P 251*f*, P 6660*c*, P 7954*i*, P 7955*b*.
surface-active sugar derivs. of, P 9497*g*.

**Hydrazine.** (*Monoacyl derivatives of hydrazine are ordinarily entered as hydrazides under the corresponding acids. Alkylidene derivatives are entered as hydrazones or azines under the corresponding aldehydes and ketones.*)
aryl derivs., prepn. and detn. of aldehyde and keto groups with, 2777*c*.
as catalyst in reaction of $C_2H_4$ with carboxylic acids, P 670*d*.
compd. with cellulose, prepn. and conversion to cellulose III, 8131*i*.
compd. with hexahydro-2,2-dimethyl-5-oxopyrrolo[2,1 - *b*]thiazole - 3,6 - dicarboxylic acid hydrazide, 7933*e*.
condensation with acetonesulfonic acid and coconut-oil fatty acid, wetting agent by, P 5216*i*.
derivs., P 3846*e*.
insecticides contg., P 9356*c*.
reaction with bisulfite derivs. of quinones, 615*h*.
for use as textile assistants, P 2796*c*.
and its derivs., review on, 1278*h*.
detn. of, 2125*c*.
1,2-diacyl derivs., α-diketones from, 5368*i*.
effect on cathepsins of kidney, 9101*d*.
effect on peptic hydrolysis, 4709*i*.
explosive and ignition properties of, and its hydrate, 5187*i*.
formation from 1-amino-3-nitroguanidine, 6984*a*.
heterocyclic derivs., 3410*b*.
hydrate, in hydrogenation of fats and oils, P 6436*i*.
prepn. of, 6930*i*.
reaction with $(Cl_3CH)_2S$, 5396*a*.
reaction with thieno[3,4-*d*]pyrimidine-2,4(1 *H*, 3 *H*)-dione derivs., P 1065*g*.
indium complexes, 6932*h*.
as insecticide, 2727*c*.
iron complexes with nioximes, 6932*c*.
manuf. of, P 7202*ab*.
elec.-discharge app. for, P 6096*g*.
soln. of seaweed in, P 7652*b*.
perchlorate, 8934*b*.
prepn. of anhyd., P 6798*a*.
prepn. of anhyd., and compd. with 1,4-phthalazinedione, 1672*f*.
prepn. of, by Raschig's method, 9395*a*.
pyrazole derivs. from, 4271*i*.
pyrolysis in toluene vapor, 7797*i*.
reaction product with chlorogenone and with 3,6-cholestanedione, 1788*i*.
reaction with alkyl carbamates, P 9088*c*.
with indigoid compds., 6614*e*.
with 5(4 *H*)-oxazolone derivs., 4668*i*.
with oxidants, kinetics of, 7229*f*.
with 4(3 *H*)-quinazolone, 3424*i*.
sulfate, detn. of, 8970*a*.
sulfate, reaction with K or Na thiocyanate, P 1057*e*.
systems: $K_2CO_3$–$H_2O$–, KOH–$H_2O$–, $NaCO_3$–$H_2O$–, NaOH–$H_2O$–, $Na_3PO_4$–$H_2O$–, and $Na_2SO_4$–$H_2O$–, 6498*i*.
system: $H_2O$–, 6900*b*.
tetraaryl derivs., dissocn. of, 1230*i*.

**Hydrazine, acetyl-.** See "hydrazide" under *Acetic acid*.
——, 1-acetyl-2-[α-(1-benzyl-3-phenyl-2 - aziridyl)benzylidene] - 1-phenyl-†, 3389*f*.
——, 1-acetyl-2-[α-(1-benzyl-3-phenyl-2 - aziridyl)benzylidene] - 1-phenyl-†, 3389*f*.
——, 1 - acetyl - 2 - α - carboxyacetonylidene - 1 - (*p* - nitrophenyl)-†, ethyl ester, 4248*a*.
——, 1 - acetyl - 2 - (o - carboxybenzylidene)-1-(*p*-[illegible]phenyl)-†, [illegible]nyl ester, 4248*a*.
——, 1-acetyl-2-cyclohexylcarbonyl-(?), 4233*b*.
——, 1-acetyl-2-(dibenzoylmethylene)-1-(*p*-nitrophenyl)-†, 4248*d*.
——, 2 - acetyl - 1 - (1 - naphthyl) - 1 - *p*-nitrobenzoyl-, 1246*d*.
——, 1 - acetyl - 2 - (5 - nitrofurfuryl-idene)-†, in dental caries inhibition, 6735*g*.
——, acridyl-. See *Acridine, hydrazino-*.
——, 1-(α-aminobenzylidene)-2-(*p*-nitrophenyl)-†, as indicator, 3747*d*.
——, 1-(γ-amino-γ-carboxybutyryl)-2-benzylidene-†, prepn. and antibacterial action of, 2674*h*.
——, 1-(γ-amino-γ-carboxybutyryl)-2-isopropylidene-†, prepn. and antibacterial action of, 2674*h*.
——, 1 - (α - amino - o - methylbenzylidene) - 2 - (*p* - nitrophenyl)-†, as indicator, 3747*d*.
——, 1-amylidene-2-(anilinoöxyamyl)-†, 6972*b*.
——, 1-amylidene-2-(3,5-dinitro-*p*-toluyl)-†, 6972*e*.
——, 1 - (anilinoöxamyl) - 2 - benzylidene-†, 6972*b*.
——, 1 - (anilinoöxamyl) - 2 - butylidene-†, 6972*b*.
——, 1-(anilinoöxamyl)-2-*sec*-butylidene-†, 6972*c*.
——, 1-(anilinoöxamyl)-2-(2-carboxyisopropylidene)-†, ethyl ester, 6972*c*.
——, 1-(anilinoöxamyl)-2-(3-carboxy-1-methylpropylidene)-†, esters, 6972*c*.
——, 1-(anilinoöxamyl)-2-cyclopentylidene-†, 6972*c*.
——, 1-(anilinoöxamyl)-2-ethylidene-†, 6972*b*.
——, 1 - (anilinoöxamyl) - 2 - furfurylidene-†, 6972*b*.
——, 1 - (anilinoöxamyl) - 2 - heptylidene-†, 6972*b*.
——, 1-(anilinoöxamyl)-2-hexylidene-†, 6972*b*.
——, 1-(anilinoöxamyl)-2-*o*(and *p*)-hydroxybenzylidene-†, 6972*b*.
——, 1 - (anilinoöxamyl) - 2 - isobutylidene-†, 6972*b*.
——, 1-(anilinoöxamyl)-2-isopropylidene-†, 6972*c*.
——, 1-(anilinoöxamyl)-2-α-methylbenzylidene-†, 6972*c*.
——, 1-(anilinoöxamyl)-2-α-methylcinnamylidene-†, 6972*c*.
——, 1-(anilinoöxamyl)-2-(1-methylheptylidene)-†, 6972*c*.
——, 1-(anilinoöxamyl)-2-octylidene-†, 6972*b*.
——, 1 - (anilinoöxamyl) - 2 - propylidene-†, 6972*b*.
——, 1-anisylidene-2-cyclohexylcarbonyl-†, 4233*c*.
——, 1-(α-benzamido-β-isopropylidenehydrazinohydrocinnamoyl) - 2-isopropylidene-†, 4669*d*.
——, 1-benzhydrylidene-2-(3,5-dinitro-*p*-toluyl)-†, 6972*f*.
——, 1-benzhydrylidene-2-(4-nitromesitylenoyl)-†, 6972*i*.
——, 1 - benzhydrylidene - 2 - (3 - nitro-*p*-toluyl)-†, 6973*c*.
——, benzothiazolyl-. See *Benzothiazole, hydrazino-*.
——, benzoyl-. See "hydrazide" under *Benzoic acid*.
——, 1-benzoyl-2-cyclohexylcarbonyl-(?), 4233*b*.
——, 1 - benzoyl - 2 - ethylidene - 1 - *p*-tolyl-†, 1344*a*.
——, 1-benzylidene-2-(δ-bromo-α-cyanovaleryl)-†, 4223*a*.
——, 1-benzylidene-2-[*N*-caproyl-β,β-bis(ethylmercapto)alanyl]-†, 2990*d*.
——, 1-benzylidene-2-(*N*-caproyl-β,β-diethoxyalanyl)-†, 2990*b*.
——, 1-benzylidene-2-(γ-carboxy-γ-carboxyaminobutyryl)-†, *N*-benzyl ester, 6978*i*.
——, 1-benzylidene-2-(1-carboxyisopropyl)-†, reaction with NaOH, 1027*a*.
——, 1 - benzylidene - 2 - (α - cyanobutyryl)-†, 4223*a*.
——, 1 - benzylidene - 2 - (α - cyanoenanthyl)-†, 4223*a*.
——, 1 - benzylidene - 2 - (2 - cyano - 2-indanylcarbonyl)-†, 4223*a*.
——, 1-benzylidene-2-(α-cyano-γ-phenoxybutyryl)-†, 4223*a*.
——, 1-benzylidene-2-(cyanophenylacetyl)-†, 4223*a*.
——, 1 - benzylidene - 2 - (α - cyanopropionyl)-†, 4223*a*.
——, 1 - benzylidene - 2 - cyclohexylcarbonyl-†, 4233*b*.
——, 1 - benzylidene - 2 - (3,5 - dinitro-*p*-toluyl)-†, 6972*e*.
——, 1 - benzylidene - 2 - *m* - iodobenzoyl-†, 6973*f*.
——, 1-benzylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973*h*.
——, 2-benzylidene-1-*m*(*o* and *p*)-nitrobenzoyl-1-phenyl-†, 1345*c*.
——, 1-benzylidene-2-(4-nitromesitylenoyl)-†, 6972*i*.
——, 1 - benzylidene - 2 - (3 - nitro - *p*-toluyl)-†, 6973*b*.
——, 1,2 - bis(2 - anthraquinonylcarbonyl)-, amino and nitro derivs., ring closure of, P 4484*a*.
——, 1,2-bis(5-chloro-*o*-phenetyl)-, 4150*g*.
——, 1,2-bis(cyclohexylcarbonyl)-(?), 4233*a*.
——, 1,2-bis(2-hydroxyethyl)-†, reaction with glycidol or stearic acid, textile assistants by, P 2796*c*.
——, 1,2-bis(1-nitro-2-anthraquinonylcarbonyl)-, (omitted from abstr.), P 4484*a*
——, 1,2-bis(4,4',5,6-tetramethoxy-2-biphenylylcarbonyl)-, 190*e*.
——, 1 - (*p* - bromo - α - methylbenzylidene) - 2 - (3,5 - dinitro - *p*-toluyl)-†, 6972*e*.
——, 1 - (*p* - bromo - α - methylbenzylidene) - 2 - *m* - iodobenzoyl-†, 6973*f*.
——, 1 - (*p* - bromo - α - methylbenzylidene) - 2 - (4 - nitromesitylenoyl)-†, 6972*i*.
——, 1 - (*p* - bromo - α - methylbenzylidene) - 2 - (3 - nitro - *p* - toluyl)-†, 6973*c*.
——, 1 - (*p* - bromophenyl) - 2 - (1-nitropropylidene)-, 4646*i*.
——, 1-(2-butenylidene)-2-cyclohexylcarbonyl-†, 4233*b*.
——, 1-butylidene-2-(3,5-dinitro-*p*-toluyl)-†, 6972*e*.
——, 1-*sec*-butylidene-2-(3,5-dinitro-*p*-toluyl)-†, 6972*e*.
——, 1-butylidene-2-*m*-iodobenzoyl-†, 6973*e*.
——, 1 - *sec* - butylidene - 2 - *m* - iodobenzoyl-†, 6973*f*.
——, 1-butylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973*i*.
——, 1-*sec*-butylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973*i*.
——, 1-butylidene-2-(4-nitromesitylenoyl)-†, 6972*h*.
——, 1 - *sec* - butylidene - 2 - (4 - nitromesitylenoyl)-†, 6972*h*.
——, 1 - butylidene - 2 - (3 - nitro - *p*-toluyl)-†, 6973*b*.
——, 1 - *sec* - butylidene - 2 - (3 - nitro-*p*-toluyl)-†, 6973*c*.
——, 1 - (2 - camphanylidene) - 2 - (3,5-dinitro-*p*-toluyl)-†, 6972*f*.
——, 1 - (2 - camphanylidene) - 2 - *m*-iodobenzoyl-†, 6973*f*.
——, 1-(2-camphanylidene)-2-(4-nitromesitylenoyl)-†, 6972*i*.
——, 1-(2-camphanylidene)-2-(3-nitro-*p*-toluyl)-†, 6973*c*.
——, carbonyldi-. See *Carbohydrazide*.
——, 1-(2-carboxyisopropylidene)-2-(3,5-dinitro-*p*-toluyl)-†, 6972*f*.
——, 1-(2-carboxyisopropylidene)-2-[(1 and 2)-naphthyloxamyl]-†, ethyl ester, 6974*a*.
——, 1-(2-carboxyisopropylidene)-2-(4-nitromesitylenoyl)-†, 6972*i*.
——, 1 - (3 - carboxy - 1 - methylpropylidene) - 2 - (3,5 - dinitro - *p*-toluyl)-†, and esters, 6972*f*.
——, 1 - (3 - carboxy - 1 - methylpropylidene) - 2 - *m* - iodobenzoyl-†, and Me ester, 6973*f*.
——, 1 - (3 - carboxy - 1 - methylpropylidene) - 2 - [1(and 2) - naphthyloxamyl]-†, and esters, 6974*a*.
——, 1 - (3 - carboxy - 1 - methylpropylidene) - 2 - (4 - nitromesitylenoyl)-†, and ethyl ester, 6972*i*.
——, 1 - (3 - carboxy - 1 - methylpropylidene) - 2 - (3 - nitro - *p* - toluyl)-†, 6973*c*.
——, 1 - *o* - chlorobenzoyl - 2 - (phenylsulfonyl)-, 7486*f*.
——, 1-[chloro(*o*-chlorophenylhydrazono)acetyl]-1-(*o*-chlorophenyl)-2-formyl-†, 4260*d*.
——, 1 - (*o* - chlorophenyl) - 2 - formyl-, 4260*c*.
——, 1-(*p*-chlorophenyl)-2-(1-nitropropylidene)-, 4646*f*.
——, 1,1' - (α - cyanoadipyl)bis[2,2'-benzylidene-†, 4223*a*.
——, 1,1' - (α - cyanopimelyl)bis[2,2'-benzylidene-†, 4223*a*.
——, cyclohexyl-, hydrochloride 7480*a*,

——, 1-cyclohexylcarbonyl-2-cyclohexylidene-†, 4233c.
——, 1-cyclohexylcarbonyl-2-ethylidene-†, 4233b.
——, 1-cyclohexylcarbonyl-2-o (and p)-hydroxybenzylidene-†, 4233b.
——, 1-cyclohexylcarbonyl-2-isopropylidene-†, 4233b.
——, 1-cyclohexylcarbonyl-2-α-methylbenzylidene-†, 4233b.
——, 1-cyclohexylcarbonyl-2-piperonylidene-†, 4233c.
——, 1-cyclohexylidene-2-(3,5-dinitro-p-toluyl)-†, 6972f.
——, 1-cyclohexylidene-2-(4-nitromesitylenoyl)-†, 6972i.
——, 1-cyclohexylidene-2-(3-nitro-p-toluyl)-†, 6973c.
——, 1-[1-cyclohexyl-5-imidazolylcarbonyl]-2-(phenylsulfonyl)-, 8381i.
——, 1-cyclopentylidene-2-(3,5-dinitro-p-toluyl)-†, 6972f.
——, 1-decylidene-2-(3,5-dinitro-p-toluyl)-†, 6972e.
——, 1-decylidene-2-(3-nitro-p-toluyl)-†, 6973b.
——, 1,2-diacetyl-, diacetylimide from, 5368i.
methylation of, 579c.
——, 1,2-dibenzoyl-, 579b, 5760h.
as catalyst in reaction of $C_2H_4$ with carboxylic acids, P 670c.
——, 1,2-dibutyryl-, and derivs., 5369b.
——, 1-(2,4-dichlorobenzylidene)-2-(2,4-dichlorophenoxyacetyl)-†, as growth substance, 7554g.
——, 1-(2,4-dichlorophenoxyacetyl)-2-(p-dimethylaminobenzylidene)-†, as growth substance, 7554g.
——, 1-(2,4-dichlorophenoxyacetyl)-2-salicylidene-†, as growth substance, 7554g.
——, [2,4(2,5-, 2,6- and 3,5)-dichlorophenyl]-, 622c.
——, 1-(2,5-dichlorophenyl)-2-(1-nitroethylidene)-, 4646i.
——, 1,2-dicrotonyl-, 5369c.
——, 1,1(and 1,2)-dimethyl-, molecular structure of, 1314b.
——, 1-p,α-dimethylbenzylidene-2-(3,5-dinitro-p-toluyl)-†, 6972e.
——, 1-p,α-dimethylbenzylidene-2-m-iodobenzoyl-†, 6973f.
——, 1-p,α-dimethylbenzylidene-2-(3-nitro-p-toluyl)-†, 6973c.
——, 1-(2,7-dimethyl-2,6-octadienylidene)-2-(3,5-dinitro-p-toluyl)-†, 6972f.
——, 1-(2,7-dimethyl-2,6-octadienylidene)-2-[1(and 2)-naphthyloxamyl]-†, 6973i.
——, 1-(2,7-dimethyl-2,6-octadienylidene)-2-(4-nitromesitylenoyl)-†, 6972i.
——, 1,2-di-1(and 2)-naphthyl-, and rearrangement of, 5774bc.
——, (2,4-dinitrophenyl)-, effect on polymerization of allyl and methacrylate compds., 8199f.
effect on polymerization of allyl methacrylate, 8199h.
hydrochloride, optical crystallographic data for, 6105f.
reaction with acetone in the presence of alkali, 6175b.
reaction with steroidal bromo ketones, scope and mechanism of, 4282c.
salt with 1,2,3,4-tetrahydro-1-oxo-2-phenanthrenesulfonic acid, 2214d.
steroid derivs. of, spectra of, 4570c.
——, 1-(3,5-dinitro-p-toluyl)-2-ethylidene-†, 6972d.
——, 1-(3,5-dinitro-p-toluyl)-2-(p-ethyl-α-methylbenzylidene)-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-fenchylidene-†, 6972f.
——, 1-(3,5-dinitro-p-toluyl)-2-furfurylidene-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-heptylidene-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-hexylidene-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-p-hydroxybenzylidene-†, 6972f.
——, 1-(3,5-dinitro-p-toluyl)-2-isoamylidene-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-isobutylidene-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-isohexylidene-†, 6972e.
——, 1-(3,5-dinitro-p-toluyl)-2-isopropylidene-†, 6972e.
–, 1-(3,5-dinitro-p-toluyl)-2-α-methylbenzylidene-†, 6972e.
–, 1-(3,5-dinitro-p-toluyl)-2-α-methylcinnamylidene-†, 6972e.
–, 1-(3,5-dinitro-p-toluyl)-2-(1-methylheptylidene)-†, 6972e.
–, 1-(3,5-dinitro-p-toluyl)-2-[1-[1(and 2)-naphthyl]ethylidene]-†, 6972f.
–, 1-(3,5-dinitro-p-toluyl)-2-(2-naphthylmethylene)-†, 6972f.
–, 1-(3,5-dinitro-p-toluyl)-2-nonylidene-†, 6972e.
–, 1-(3,5-dinitro-p-toluyl)-2-octylidene-†, 6972e.
–, 1-(3,5-dinitro-p-toluyl)-2-α-phenylcinnamylidene-†, 6972d.
–, 1-(3,5-dinitro-p-toluyl)-2-propylidene-†, 6972d.
–, 1-(3,5-dinitro-p-toluyl)-2-salicylidene-, 6972f.
–, 1,2-diphenyl-. See *Hydrazobenzene*.
–, 1,2-dipropionyl-, dipropionyldiimide from, 5369a.
–, 1-(2-ethyl-3-hydroxybenzoyl)-2-(phenylsulfonyl)-, acetate, 197d.
–, 1-ethylidene-2-m-iodobenzoyl-†, 6973e.
–, 2-ethylidene-1-(1-naphthyl)-1-p-nitrobenzoyl-†, 1346a.
–, 1-ethylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973i.
–, 2-ethylidene-1-p-nitrobenzoyl-1-p-tolyl-†, 1344b.
–, 1-ethylidene-2-(4-nitromesitylenoyl)-†, 6972b.
–, 1-ethylidene-2-(3-nitro-p-toluyl)-†, 6973b.
–, 1-(2-ethyl-3-methoxybenzoyl)-2-(phenylsulfonyl)-, 196h.
–, 1-(p-ethyl-α-methylbenzylidene)-2-m-iodobenzoyl-†, 6973f.
–, 1-(p-ethyl-α-methylbenzylidene)-2-(3-nitro-p-toluyl)-†, 6973c.
–, 1-fenchylidene-2-(4-nitromesitylenoyl)-†, 6972i.
–, 1-fenchylidene-2-(3-nitro-p-toluyl)-†, 6973c.
–, 1-formyl-2-phenyl-, as insecticide, 5526a.
–, 1-furfurylidene-2-m-iodobenzoyl-†, 6973f.
–, 1-furfurylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973h.
–, 1-furfurylidene-2-(4-nitromesitylenoyl)-†, 6972i.
–, 1-furfurylidene-2-(3-nitro-p-toluyl)-†, 6973b.
–, 1-heptylidene-2-m-iodobenzoyl-†, 6973e.
–, 1-heptylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973i.
–, 1-heptylidene-2-(4-nitromesitylenoyl)-†, 6972h.
–, 1-heptylidene-2-(3-nitro-p-toluyl)-†, 6973b.
–, 1-p-hydroxybenzylidene-2-(2-naphthyloxamyl)-†, 6974a.
–, 1-(5-imidazolylcarbonyl)-2-(phenylsulfonyl)-, 8381h.
–, 1-m-iodobenzoyl-2-isoamylidene-†, 6973e.
–, 1-m-iodobenzoyl-2-isobutylidene-†, 6973e.
–, 1-m-iodobenzoyl-2-isohexylidene-†, 6973e.
–, 1-m-iodobenzoyl-2-isopropylidene-†, 6973f.
–, 1-m-iodobenzoyl-2-α-methylbenzylidene-†, 6973f.
–, 1-m-iodobenzoyl-2-salicylidene-†, 6973f.
–, 1-isoamylidene-2-(3-nitro-p-toluyl)-†, 6973b.
–, 1-isopropylidene-2-[1(and 2)-naphthyloxamyl]-†, 6973i.
–, 1-isopropylidene-2-(4-nitromesitylenoyl)-†, 6972h.
–, 1-isopropylidene-2-(3-nitro-p-toluyl)-†, 6973c.
–, 1-(1-isopropyl-5-imidazolylcarbonyl)-2-(phenylsulfonyl)-, 8381h.
–, methyl-, pyrazole derivs. from, 4271i.
–, 1-α-methylbenzylidene-2-(4-nitromesitylenoyl)-†, 6972i.
–, 1-α-methylbenzylidene-2-(3-nitro-p-toluyl)-†, 6973c.
–, 1-α-methylcinnamylidene-2-[1-(and 2)-naphthyloxamyl]-†, 6973i.
–, 1-α-methylcinnamylidene-2-(3-nitro-p-toluyl)-†, 6973c.
——, 1-methylene-2-(3-nitro-p-toluyl)-†, 6973b.
——, 1-(1-methylheptylidene)-2-[1(and 2)-naphthyloxamyl]-†, 6973i.
——, 1-(1-methylheptylidene)-2-(4-nitromesitylenoyl)-†, 6972h.
——, 1-(1-methyl-5-imidazolylcarbonyl)-2-(phenylsulfonyl)-, 8381h.
——, naphthyl-, nitrobenzoyl derivs., reduction of, 1346a.
——, 1-[1-(2-naphthyl)ethylidene]-2-(4-nitromesitylenoyl)-†, 6972h.
——, 1-[1(and 2)-naphthyloxamyl]-2-salicylidene-†, 6973h.
——, 1-o-nitrobenzoyl-1-phenyl-†, and hydrochloride, 1345d.
——, 1-(4-nitromesitylenoyl)-2-propylidene-†, 6972h.
——, 1-(4-nitromesitylenoyl)-2-salicylidene-†, 6972i.
——, (p-nitrophenyl)-, reaction product with 1,2-cyclohexanedicarboxaldehyde, 6196i.
reaction with 2-ethoxy-2-butene-1,4-diol, P 5414d.
——, 1-(4-nitro-N-phenylanthranoyl)-2-p-tolylsulfonyl-, 648e.
——, 1-(3-nitro-p-toluyl)-2-octylidene-†, 6973b.
——, 1-(3-nitro-p-toluyl)-2-propylidene-†, 6973b.
——, 1-(3-nitro-p-toluyl)-2-salicylidene-†, 6973b.
——, phenyl-, 2570h.
derivs., reaction with chloral, 1324c
effect on cathepsins of kidney, 9101d
on heart and muscle glucose metabolism, 8550c.
on heat deterioration of GR S rubber, 8188f.
on pain, pepsin and trypsin, 4709i
on tuberculosis, 3518f.
Heinz-body formation by, 3930b
and hydrochloride, as insecticides, 2727i
insecticides contg., P 9356c.
processing agent for butadiene copolymers, P 4046c.
reaction with arsenic compds., 4647i
with benzenearsonic acid, 2592d
with ethylenimine ketones, 3389e
with lignin from aspen, 5589g.
and salts, reaction with 2,2,2-trichloro-2'-nitro-isopropyl acetate and related compds., 2926f.
salts with pentanesulfonic acids, 3353a
system: formic acid-, 6066c.
——, 1-N-phenylanthranoyl-2-p-tolylsulfonyl-, 648c.
——, (2'-phenyl-4-biphenylyl)-, 4b.
——, 1-(1-phenyl-5-imidazolylcarbonyl)-2-(phenylsulfonyl)-, 8381i
——, 1-phenyl-2-(2,2,2-trichloro-2'-nitroisopropyl)-, 2926f
——, (1-piperidylglyoxylyl)-, 5369h
——, pyridyl-. See *Pyridine, hydrazino-*
——, 1-[tetrahydro-4-(3-phenylureido)-3-thiophenecarbonyl]-†, P 1065i.
——, tolyl-, nitrobenzoyl derivs., reduction of, 1343i.

**Hydrazinecarboxamide.** See *Semicarbazide*.
**Hydrazinecarboxylic acid.** See *Carbazic acid*.
**1,2-Hydrazinedicarboxamidine.** See *1,1'-Biguanidine*.
**1,2-Hydrazinedicarboxylic acid.** See *Bicarbamic acid*.
**Hydrazinesulfonic acid, 2-phenyl-,** toxicity to corn borer, 7182h.
**Hydrazoates.** See *Azides*.
**Hydrazobenzene** (*1,2-diphenylhydrazine*), effect on oxidation of isopropyl ether, 6157a.
as insecticide, 2727c.
as polymerization inhibitor and initiator in isoprene, 5621f.
rearrangement of, 3809i.
**Hydrazobenzene, ar,ar'-bis(triethylsilyl)-,** 1737e.
——, 2,2'-dibromo-, 2970d.
——, 5,5'-dichloro-2,2'-diethoxy-†, 4150g.
——, 2-ethoxy-2'-methyl-, labeled with $C^{14}$ in Me group, rearrangement of, 7927c.
**Hydrazo compounds,** manuf. of, P 4293b.
rearrangements of naphthalene, 5774a.
**Hydrazoic acid.** (For derivs. see also *Azides; Triazo compounds.*)
detn. of, 1285e.
reaction of, fatty acids and $H_2SO_5$, 9027bg.

reaction with naphthyl and phenanthryl ketones, 4663*h*.
**Hydrazomethane.** See *Hydrazine, 1,2-dimethyl-*.
**Hydrazones.** (*Individual hydrazones are indexed in lightface type under the names of the corresponding aldehydes and ketones.*)
*N*-alkyl- and *N*,*N*-dialkyl-, 6592*f*.
*p*-carboxyphenyl-, of hydroxy aldehydes and ketones, 5764*e*.
as catalysts in polymerization of olefins, P 8666*h*.
as catalysts in reaction of $C_2H_4$ with carboxylic acids, P 670*f*.
decompn. of, 122*e*.
(dichlorophenyl)-, dichloroindole derivs. from, 622*b*.
2,4 - dinitrophenyl-, chromatographic sepn. of, 1289*i*.
phenyl-, cleavage by Br, mechanism of, 4247*h*.
decompn. of, 1026*h*.
deformation of electronic orbits of N in, 7340*g*.
as softeners for Buna S, 2014*g*.
rearrangement of, 5769*e*.
**Hydrazonium(I),** the term, 8927*i*.
**Hydrazonium(II),** the term, 8927*i*.
**Hydrides.** (See also *Alkali metal hydrides; Alkaline earth hydrides.*)
formation of, thermodynamics of, 1638*b*.
manuf. of, 2342*f*.
reviews on, 959*b*, 3780*c*.
in titanium-halide purification, P 3158*c*.
**Hydrindan.** See *Indan, hexahydro-*.
**Hydrindanol.** See *Indanol, hexahydro-*.
**1-Hydrindanone.** See *1-Indanone, hexahydro-*.
**Hydrindantin*,** 7012*e*.
**Hydrindene.** See *Indan*.
***a*-Hydrindone.** See *1-Indanone*.
**Hydriodic acid.** (See also *Hydrogen halides.*)
in alkylnaphthalene synthesis, 2606*e*.
bond moment of, 5240*i*.
compression of single crystals of, 2063*c*.
detn. in I-iodide solns., 6112*a*.
iodopyrrole reduction with, rates of, 2850*a*.
phase transitions in, 4136*i*.
reaction with fulminic acid, 6983*c*.
reciprocal action of $HIO_3$ and, 8095*i*.
**Hydrion.** See *Hydrogen ion*.
**Hydroabietyl alcohol*,** acrylate, P 7754*i*.
**Hydroanisoin.** See *Hydrobenzoin, 4,4'-dimethoxy-*.
**Hydroaromatic compounds.** (See also *Cycloalkanes.*)
dehydrogenation of, kinetics of, 1731*e*, 1732*a*.
prepn. of, 6202*a*.
**Hydrobenzoin** (*1,2 - diphenyl - 1,2 - ethanediol*), acetyl peroxide decompn. in, 3776*b*.
dibenzoate, 612*i*.
isomers, 2570*f*.
*meso*-, reduction of, to bibenzyl, 191*f*.
prepn. of, 2570*f*.
——, **5,5'-dibromo-2,2'-dihydroxy-,** *dl*- and *meso*-, 4246*e*.
——, **α,α'-diethyl-4,4'-dihydroxy-,** P 7510*e*.
4,4'-diacetate, isomers, P 5804*h*, P 7968*i*, P 6237*e*.
——, **α,α'-diethyl-4,4'-dihydroxy-2,2'-diisopropyl - 5,5' - dimethyl-,** 4,4'-diacetate, 614*a*.
——, **α,α'-diethyl-4,4'-dihydroxy-5,5'-diisopropyl - 2,2' - dimethyl-,** 4,4'-diacetate, 613*i*.
——, **α,α'-diethyl-4,4'-dihydroxy-2,2',-5,5' - tetramethyl-,** 4,4' - diacetate, 613*i*.
**2,2' - dihydroxy - α,α',4,4' - tetramethyl-, α-** and **β-,** 8370*g*.
—, **4,4'-dimethoxy-,** 7927*g*.
—, **4,4' - dimethoxy - α,α',2,2'**(and **α,α',3,3')-tetramethyl-,** 8370*i*.
—, **α,α'-diphenyl-.** See *Benzopinacol*.
—, **α-ethynyl-,** 1754*c*.
**,α',2,2' - tetraethyl - 3,3' - dimethoxy-,** 197*f*.
**Hydroboranes.** See *Boron hydrides*.
**Hydrobromic acid.** (See also *Hydrogen halides.*)
bond moment of, 5240*i*.
as catalyst in isomerization of olefins, P 3604*i*.
in oxidation of alicyclic hydrocarbons, P 5423*b*.
in oxidation of aromatic hydrocarbons, P 5422*a*.
*as catalyst* in oxidation of hydrocarbons, P 669*a*, P 2219*c*.
in oxidation of olefins, P 5409*h*.
catalyst with $AlBr_3$, kinetics of polymerization of propene on, 2496*h*.
complex with $NiBr_2$ and $Bu_3P$, as catalyst for trimerization of $C_2H_2$ and its derivs., 6202*f*.
exchange with Br, effect of neutron capture on, 2078*a*.
hydration of, activity and, 7302*b*.
oxidation by chromic acid in presence of $MnSO_4$, kinetics of, 1634*e*.
oxidation of, kinetics of, 7800*d*.
paraldehyde depolymerization in, 7801*f*.
phase transitions in, 4136*i*.
polarization of iridized and platinized Pt in, 2522*a*.
as promoter for $CoBr_2$ or $CoCl_2$ catalyst in polymerization of rosin, P 1996*g*.
reaction (addn.) with $MeO_2CC{:}CCO_2Me$, spatial orientation and, 8824*f*.
reaction (addn.) with fluoro olefins, 7407*b*.
reaction products with high-mol. polyunsatd compds., P 2804*d*.
reaction with *tert* butyl peroxide, 3345*e*.
with cyclopropyl mesityl ketone, 3390*b*.
with 1,2(1,3 and 1,6)-dibromonaphthalene in presence of $FeCl_3$, 2852*a*.
with fulminic acid, 6983*c*.
with mannitol and sorbitol hexaacetates, 7425*a*.
with unsatd. compds. in $SO_2$, P 3024*a*.
removal from Br derivs. of *dl*- and *meso*-4,4' - (1,2 - diethylethylene)dicyclohexanone, 6187*d*.
from Br derivs. of 3-keto steroids, 4282*c*.
from 7-bromo steroid esters derived from cholesterol esters, P 5428*d*.
from bromo terpenes, 6600*i*.
from 2,6-dibromocyclohexanone with $C_5H_5N$, 7912*c*.
from halogenated hydrocarbon solvents, P 5940*h*.
from 1,2,4,5-tetrabromo-5-methyl-3-hexanone, 2164*a*.
system: $AlBr_3$-paraffins-, 1253*e*.
system: $B_2H_6$-, 5247*b*.
**Hydrocaffeic acid, α-amino-** See *Alanine, β-(3,4-dihydroxyphenyl)-*.
**Hydrocarbon oils.** (See also *Absorption oils; Fuels; Gasoline; Kogasin; Lubricants; Olefins; Paraffin oils; Paraffins; Petroleum; Petroleum refining; Quenching oils; Solvents; Tar oils; Transformer oils;* and "oils" under *Insulators, electric.*)
as activator for coal, P 8651*a*.
adsorption and bleaching properties of montmorillonite clays on, 977*c*.
aerosols of, 7290*a*.
analysis of, for double bonds, OH groups and branchings in C chains, 1173*f*.
for groups, double-bond position and substituents, 6398*i*.
Raman effect in, 4456*b*.
thermal diffusion in, 8123*c*.
aniline point of, detn. of—see *Aniline point*.
antioxidants for, from bacterial action, P 3193*d*.
antioxidants for, polyalkylbenzyl phenols, P 4457*f*.
aromatization of, aluminosilicate catalysts in, 3998*g*.
aromatization of Fischer-Tropsch, with hydrogenation-dehydrogenation catalysts, P 1955*f*.
from benzaldehyde reaction with metals, 4238*i*.
catalytic treatment and gasification of, by $H_3PO_4$-kieselguhr catalyst, P 3605*a*.
from Chile (Mantantiales) oil distn., d. and yield of, 3995*h*.
from coal, 2307*c*.
coating glass fibers with, P 3987*c*.
coking of, P 1052*b*.
colors and purity of, 6935*a*.
combustion (partial) of, in peak-load gas manuf., 3171*f*.
conversion of, $NH_4$ ion-activated Mg silicate catalyst for, P 7224*e*.
with catalysts evolving const. amt. of heat during continuous regeneration, P 8664*b*.
with fluidized catalysts, P 387*e*, P 9429*d*.
heating vapors with heat carriers in, P 8665*a*.
*conversion of,* heat transfer by granular solids coated with fuels in, P 388*h*.
and pelleted $Al_2O_3$-$SiO_2$ catalysts therefor, P 843*i*.
in presence of fluidized coke, and temp. maintenance by burning coke in reactor, P 8663*h*.
$SiO_2$-gel beads for, P 4004*c*.
in vapor phase, measuring rate of flow of powd. catalyst in, P 9429*a*.
in vapor phase with regeneration of powd. catalysts, 844*b*, P 6403*i*.
conversion or distn. of, with heat-carrying gas and powd. catalyst in zones of different ds., P 9420*f*.
conversion or refining of, $Al_2O_3$-$SiO_2$ catalysts for, P 8664*h*.
copper corrosion by S in, prevention by *tert*-butyl hydroperoxide, P 5582*f*.
corrosion and discoloration prevention in pipe lines by sodamide inhibitor and $Na_2SO_3$, P 6402*i*.
corrosion-inhibiting action of polar-type agents in, 1954*b*.
corrosion-preventing and foam-reducing compds. for, P 665*g*.
corrosion-preventing compds. for, P 666*e*.
cracking and reforming of, P 843*e*.
cracking and reforming of, app. for, P 9428*b*.
cracking of, P 5938*h*.
$Al_2O_3$-$SiO_2$ catalyst for, P 5181*a*, P 5583*b*.
as atomized emulsions, P 3187*h*.
clay catalysts activated by mineral acids for, P 4004*f*, P 6403*g*, P 8662*i*.
compression of powd. catalysts in, app. for, P 6403*f*.
cyclic process for, P 386*f*.
drying hydrogel catalysts for, P 1558*f*.
to high- and low-olefin gasolines, P 4003*i*.
increasing gasoline-producing efficiency of catalysts in, P 8665*d*.
kiln for regenerating granular catalysts from, P 8129*i*.
mercaptan removal from vapors from, P 1174*e*.
metal sulfide catalysts for, P 844*e*.
preventing loss of fluidized catalyst in exit gases, and preventing bumping and afterburning in regenerating catalysts in, P 8665*g*.
$SiO_2$-$Al_2O_3$-$SiO_2$-MgO mixed catalyst for, P 3188*h*.
silica-oxide gel catalysts for, P 3604*c*, P 7162*e*.
in 2-stage process to satd. aviation gasoline, P 386*i*.
in vapor phase on coke in steam, olefins by, P 8129*f*.
in vapor phase to gasoline with Th phosphate catalyst, P 9428*g*.
in vapor phase with fluidized catalysts, P 1956*a*.
from cracking of distn. oil from rubber, 5619*i*.
cracking of, regenerating catalyst and refining lower-boiling fuel with regenerated catalyst, P 9429*a*.
decolorization of, regeneration of Mg silicate adsorbents from, P 5134*h*.
dehydrogenation of, in vapor phase with mixed oxide catalysts in 100-octane-fuel manuf., P 5181*b*.
density and viscosity of, 8700*i*.
deterioration and oxidation inhibitors for, P- or S-contg. compds. and esters of wax - substituted hydroxyaromatic compds., P 1561*i*.
detn. in fatty oils, 9489*c*, 5974*a*.
in paraffin waxes, 1954*b*, 4399*c*.
in waxy oils, 4032*c*.
distn. app. for, feeding app. for, P 6403*d*.
distn. from $C_4H_{10}$, P 2423*b*.
for drilling fluids, P 8128*i*.
drops on asbestos, contact angles of vacuum, 17*g*.
duplex films of, rate of evapn. of water through, 6884*f*.
effect on plasticity of stored rubber, 7737*i*.
effect on tumor formation of alimentary tract after feeding carcinogenic hydrocarbons, 8046*d*.
emulsification of, sulfonic acids for, P 3966*b*.
emulsification of, with peat alk. ext., cleaning compn. by, P 3220*h*.
emulsions of, 2072*b*.

from ethyl alc., colorless satd., P 1955*e*.
extn. with furfural, 3602*h*.
fat acids in manuf. of, P 4835*a*.
fire fighting in, 6417*e*.
foaming tendency of, polymers of chlorofluorinated org. compds. for reducing, P 846*c*.
fog of, app. for manuf. of, P 450*g*.
galvanophoresis with, P 4963*f*.
for gas enrichment or thermal cracking, 8657*a*.
gas oil, chlorination, in synthesis of lubricants, 1952*i*.
by coking petroleum heavy residuum oils and tars, 9425*i*.
cracking in fluidized-bed pilot unit, statistics in, 8217*a*.
cracking in gas phase and distn., textile industry chemicals by, 1172*h*.
cracking of fluid-catalytic cycle, 7218*e*.
cracking to $C_2H_4$, P 8663*d*.
cracking with $Al_2O_3$-$SiO_2$ gel catalyst, P 389*g*.
by distn. of cracked residuum distillate, P 4003*h*.
heat of cracking and regeneration in catalytic cracking of, 3180*d*.
reforming of, 6393*e*.
resinous products from, P 4008*h*.
from wool-grease distn., 2449*d*.
gelled by soaps, fats in preventing oil sepn. in solidified, P 1960*f*.
halogenated foots, reaction with sulfides or $S_2Cl_2$, antioxidants and corrosion inhibitors for lubricants by, P 5184*i*.
in hydrofluoric acid storage, P 6373*i*.
hydroforming of, $Al_2O_3$-$MoO_3$ catalysts for, P 4004*g*, P 8579*f*.
catalyst reactivation in, P 9397*a*.
to naphthalenes, P 7676*f*.
hydrogenation (destructive) of, with $MoO_2.2HCl$, P 9431*a*.
by hydrogenation of CO, P 4835*g*.
by hydrogenation of CO, pressure effect on yield of, 2399*a*.
interface with water, adsorption at, 921*d*.
from laundry waste liquids by distn., 2420*e*.
in *Lecanium* control on blueberries, 1524*h*.
lubricant (aviation) manuf. from low-grade, 5580*i*.
1-methylnaphthalene recovery from green, P 6404*d*.
mixts. with coumarone or coumarone-indene resins in reclaiming rubbers, P 5626*i*.
mixts. with creosote, detn. of sludging properties of, 2731*e*.
nitrobenzene detn. in, 4837*i*.
nitrogen (basic) detn. in, 2891*b*.
oiliness of, effect of additives on, 1555*d*.
oxidation of heavy alkylate, with per compds., P 5584*c*.
for paving or roads, asphalt detn. in, 7207*b*, 7659*h*.
from peat, thermal cond. of, 8653*g*.
in pest control, 8597*b*.
petroleumlike, in Tkvibulsk coal deposits, 8122*g*.
plasticizers and tackifiers for elastomers from coumarone-indene resin and aromatic, P 896*g*.
as plasticizers (covulcanizable) in rubber, 1208*f*, 6455*i*.
plasticizers from biphenyl bibenzyl compd.-contg. aromatic, for rubbers, P 896*e*.
polishing compns. from ratfish-liver oil and, P 8714*c*.
by polymerization of olefin gases with $H_3PO_4$-diatomite-$H_3BO_3$ catalysts, P 3190*f*.
by polymerization of olefins and condensation of olefin polymers with aromatic hydrocarbons, P 3190*f*.
by polymerization of olefins with vinyl aromatic compds., P 8130*d*.
pour-point depressants for, $C_2H_5$-phenol condensation products, P 6821*d*.
prepn. of, 2418*i*.
by pyrolysis of bituminous limestones, S- and thiophene-rich, 4841*g*, 8126*f*, 8127*b*.
reaction with Cl and $SO_2$, app. for effecting, P 3726*e*.
recovery from waste liquor from soda washing of petroleum, P 5938*hi*.
refining, with $C_4H_6SO_2$ mixts., chlorex- mixts. and liquid $SO_2$,
formation of $H_2S$, S and thiols during, 8938*a*.
refining, regenerating active earths from, P 4844*d*.
regenerating bauxite from, P 5180*i*.
with $H_2SO_4$, P 4842*i*.
with $SO_2$, 7220*d*, 7674*g*.
removal from worsted piecegoods, 7692*d*.
removal of halogen and S from, in vapor phase with active C complexes, P 390*c*.
review on, 4788*e*, 4789*a*.
rubber (ebonite) proofing against swelling in, 431*g*, 8729*h*.
from rubber pyrolysis, 5169*c*, 5619*h*.
in *Sclerotinia laxa* control on apricots, 7179*g*.
sepn. of constituents of, with $NH_3$-contg. solvents, P 3191*i*, P 3192*bcde*.
sepn. of naphthenic and paraffinic hydrocarbons of, P 7678*a*.
skin cleaners and protective creams for workmen exposed to, 3543*d*.
sludge inhibitors for, ethers of hydrogenated cardanol as, 8129*d*.
soap (Ca) dispersion in, flow properties of, 8710*c*.
solubilities of, and wax removal from, 8126*c*.
sprays contg.—see *Sprays*.
stripping of, in hydrogenation of coal, 5171*f*.
styrene-polymer plastic compn. with viscous ext. of, P 2467*b*.
styrene recovery from, or concn. in, by azeotropic distn. with glycol ethers or ether esters, P 5582*g*.
sulfonate (alk. earth petroleum) solns. in, gelling prevention in, P 1959*h*.
sulfuration of, with aniline-deriv. catalysts, P 1178*b*.
sulfur dioxide removal from $H_2SO_4$-treated aromatic, P 8668*a*.
sulfuric acid treatment of, sulfonic acid extn. from sludge from, P 9434*b*.
sulfur removal from, 7220*h*.
sweetening, diglycolic acid esters for break induction in, P 843*d*.
systems: metallic soaps–, 9424*g*.
for textile treatment, org. polyphosphate-contg., P 4845*a*.
thiol extn. from, P 2423*e*, P 4844*a*.
oxidation of thiols and sulfides to disulfides and S in regenerating alkali solns. used in, P 7223*gh*, P 8604*d*.
regenerating alkali from, P 5182*h*.
thiol recovery from alk. solns. from, P 1557*h*.
with two caustic solns. and regeneration of alkalies, P 8667*g*.
in tomato-disease control, 9339*a*.
vapor-liquid equil. consts. for, 8658*a*.
vapor pressure of, temp. and, 3179*e*.
as vinyl chloride polymer filler and plasticizer, P 2817*i*.
as vinyl compd. plasticizer extender, P 1218*a*.
vinyl halide polymer plasticizers and fillers of air-blown exts. of, P 4895*a*, P 5998*e*.
vinyl halide polymers plasticized with S-treated ext. of fractions of, P 5998*h*.
viscosity of, and of polyisobutylene solns. in, 6891*f*, 8241*d*.
viscosity-temp. characteristics of homologous series of, 3601*h*.
wax sepn. from, by liquid-liquid countercurrent extn., and deoiling of wax, 4840*i*.
in weed control in carrots and related crops, 1895*e*, 9352*a*.
white, sepn. and detn. in petroleum, 4044*h*.
wood preservatives contg., sludge control in, 2731*h*.
as wood preservatives, properties and, 2731*c*.

**Hydrocarbon residues.** See *Radicals*.

**Hydrocarbons.** (See also *Fuels; Kogasin; Olefins; Paraffins; Petroleum; Petroleum refining; Solvents;* etc.)
absorption and fractionation of, 385*d*, 4001*i*.
absorption from natural gas, 7220*f*.
acetone detn. in, 4183*h*.
acetone recovery from, P 3023*a*.
in acetonitrile azeotropic distn. from $CCl_3CN$, P 4285*e*.
from acetylene, 5376*abc*, P 7959*f*.
acetylene manuf. from, P 5174*i*, P 7670*h*.
acetylenic—see also *Acetylene compounds;* and "derivs." under *Acetylene*.
acetylenic, condensation with alkyl phenols for pour-point depressants, P 6821*e*.
*acetylenic*, dehydrogenation of di- and mono-olefins to, 5275*f*.
from dehydrohalogenation of halo olefins and paraffins, P 5788*g*.
free energy of formation and knock resistance of, 3600*g*.
halo derivs., 6571*g*.
hydrogenation of, Ti hydride in, P 1793*g*.
reaction with HF, P 6645*b*, P 7035*e*.
reaction with thiolacetic acid, 7417*d*.
removal from diolefins, P 662*f*, P 3436*e*, P 6218*a*.
sepn. of, and 2-butene by azeotropic distn., P 4682*a*.
acetylenic ethylenic, cyclization and hydration of, 1332*g*, 1333*b*, 6623*ch*, 6624*f*.
acrylonitrile polymerization in aq. emulsions of $K_2S_2O_8$, soaps and, P 7257*e*.
acyclic high-mol.-wt., prepn. of, 5003*b*.
adsorption by Fischer-Tropsch catalysts, 3273*h*.
adsorption of aromatic, in catalytic dehydrogenation of cycloparaffins, 1731*e*.
adsorption of gaseous, by C black and $SiO_2$ gel, 8254*h*.
adsorption of gaseous, by charcoal, 6488*e*.
aldehyde removal from, P 3435*h*.
alkenyl and alkyl derivs. of aromatic, P 7507*f*.
alkylation and conversion of, catalyst absorption from products from, P 2704*b*.
alkylation and dealkylation of aromatic, silica-gel catalysts for, P 3001*c*.
alkylation and isomerization of, HF and a fluoride as catalysts in, P 3435*g*.
alkylation and isomerization of, with halide-ether complex catalyst to anti knock hydrocarbons, P 8666*b*.
alkylation, isomerization and polymerization in manuf. of branched-chain, with boric acid-Friedel-Crafts catalysts, P 6217*d*.
alkylation, isomerization or polymerization of, alk. earth metals in reducing corrosiveness of Al halide-hydrocarbon complex catalysts in, P 5582*i*.
alkylation (long-chain) of aromatic, with $C_2H_4$, P 6657*f*.
alkylation of aliphatic and aromatic mixed, P 5040*b*.
alkylation of aromatic, 164*a*, 1019*b*, 1369*g*, 2960*d*, P 5039*i*, P 5409*i*
with alkyl halides and olefins, P 4004*i*, P 5181*i*.
$AlCl_3$-nitro paraffin solns. as catalysts in, 108*e*.
with aromatic sulfonic acid catalysts with recovery of catalysts and prevention of corrosion, P 4458*i*
with HF catalyst, P 1174*g*.
with hydrous Al silicate catalysts, P 3606*a*.
Fe phosphate catalysts for, and in, P 5419*b*.
mixt. of $Al_2O_3$, $SiO_2$ and $ThO_2$ as catalyst in, P 680*a*.
olefin sepn. from cracked hydrocarbon products in, P 4005*c*.
with P acid catalysts, removing corrosive acid vapors from products from, P 9430*h*.
alkylation of aromatic cyclic unsatd., with Na as catalyst, P 1057*f*.
alkylation of aromatic polycyclic, with toluenesulfonic acid catalyst, P 4458*a*.
alkylation of, in chamber with permeable walls, P 1559*b*.
mixing $AlCl_3$ catalyst by kinetic energy of pumping reactants in, P 1175*e*.
with reduced contact time with catalysts, P 7223*a*.
alkyl group removal from alkylated aromatic, in presence of H, P 5584*a*.
alpha-ray stopping power of isomers of, 4094*a*.
amine detn. in refined, 973*a*.
ammonia recovery from mixt. with, 5160*h*.
analysis and properties of, 6398*f*.
analysis, fractionation and purification of, 4972*e*.
analysis of $C_5$ petroleum, 8123*d*.
analysis of, for alcs., esters and ketones, 8948*c*.
burner for, 6474*e*.
infrared, for impurities 3715*h*, 8973*g*.
low-temp. fractional, 8652*h*.
mass spectrometer for, P 6873*e*.

*analysis of*, for $CH_3$, $CH_2$ and aromatic CH groups by infrared absorption, 5702*d*.
for $C_{10}H_8$ and methylnaphthalenes, 6542*h*.
by Raman spectroscopy, 2083*i*.
research instrumentation for, 7220*i*.
spectrochem. methods for, 2759*b*, 7346*e*.
analysis of gaseous, at Hydrier-Werken Pölitz, A.-G., 8652*i*.
by infrared and mass spectra, 6105*a*.
mech. calculators in infrared, 382*e*.
oxidizing bacterial cultures in, P 6114*f*.
vacuum evapn. in micro-, 2122*b*.
analysis of mixts. with wool fat, 7380*c*.
analysis of petroleum, mass spectrometer in, 7673*a*.
analysis (structural) of petroleum, 8653*i*.
aniline point and miscibility with furfural of $C_{12}$ aromatic, 3602*g*.
antiknock characteristics of, and their relations to mol. structure, $PbEt_4$ susceptibility, etc., 1554*h*.
antiknock characteristics of gaseous, 382*i*.
antiknock tendency and fragmentation by electrons, 6503*d*.
antioxidants for, metal salts as promoters for, P 386*e*.
aromatic, 5389*i*.
by dehydrogenation of gasoline hydrocarbons, P 5039*h*.
effect of substituents and hetero atoms on chem. properties of, 5019*f*.
by electrolysis of salt of aromatic carboxylic acid, P 6926*h*.
manuf. of mixts. of, P 5708*h*.
nonbenzenoid, 3796*c*.
by oxidation of $CH_4$, P 7959*g*.
prepn. of, 6185*d*.
prepn. of $C_{10}$ monocyclic, 7438*g*.
production at Volta Redonda, 6582*g*.
aromatic and unsatd., by dehydrogenation of hydrocarbon oils and hydrogenation of unsaturates in 100-octane fuel manuf., P 5181*c*.
aromatization of—see *Aromatisation; Ring closure*.
aryl aliphatic, and halogenated derivs., as insecticides, P 5529*d*.
as azeotrope formers in concn. of aq. solns. of HCHO, P 2221*d*.
azeotropes of, and halogenated derivs., 2835*a*, 5247*c*.
azeotropes of, with ethers, 2835*c*.
homofunctional, 4063*d*.
with toluene, 7916*d*.
azeotropic distn. of, P 7*e*, P 3435*e*, P 7274*h*.
azeotropic distn. of pure, from naphtha, P 1958*ac*.
bacteria oxidizing, in lakes, 8437*b*.
benzene removal from, P 3844*g*.
bond energies of, 452*f*, 2052*g*, 6016*b*.
bond orders in unsatd., 6512*c*.
books: Encyclopedia of, Compds. Vol. VI. $C_nH_{2n}$, 1432*a*; Khimiia nefti, 3185*b*.
brominated, P 6644*h*.
brominated or chlorinated $C_2$-$C_8$, antiknock mixts. with Pb compds. for addn. to gasoline, P 8667*f*.
brominated, reaction with NaI, rate of, 4628*e*.
butadiene detn. in isobutene-contg. gaseous, 6399*c*.
butadiene extn. from other $C_4$, P 1793*b*, P 3023*e*.
butadiene recovery from mixts. of, P 2217*d*.
from butane effluent, dehydration of HCl-contg., P 4007*f*.
calcn. of aromatic, in petroleum fractions, 8653*f*.
calcn. of free energy and heat of formation of, 5658*d*.
carbon-black manuf. from gaseous, P 5574*f*, P 5930*a*.
carbon disulfide recovery from, P 6797*b*, P 7041*d*.
carcinogenic—see *Carcinogenic substances*.
catalyst centrifugation from, P 914*e*.
catalysts for treatment of, P 4004*f*.
catalytic treatment of, app. for stripping contaminated catalysts in, P 388*i*, P 2764*c*.
with arylsulfonic acid-As catalyst soln., P 2636*e*.
HF and HF-$BF_3$ mixed catalysts for, P 844*c*.
in vapor phase, app. for, P 7676*h*.
chlorinated—see also *Alkyl chlorides; Carbon chlorides*.
chlorinated, chlorinolysis and pyrolysis of unsatd., 4231*h*.
condensation products with anacardic material, P 904*d*.
as cumulative poisons, 8087*c*.
dehydrochlorination of, P 3023*b*, 7407*ch*, 7408*c*.
detection and detn. in air and organs, 973*i*.
effect on urease, 5060*h*.
in grasshopper control, 6353*e*.
in horn-fly control, 3135*g*, 5805*g*.
in milk from cattle sprayed for horn flies, 6355*f*.
mixts. with resins, explosive thickening by, P 2437*d*.
neutralization of decompn. products of, P 2714*h*.
residual toxicity of insecticidal, 5146*h*, 6354*g*.
in sheep-tick control, 8598*i*.
soil toxicity from, 9328*h*.
toxicity to thrips on cotton, 1143*e*.
chlorinated, dehydrochlorination of, and distn. of resulting compds., P 7759*h*.
chlorination of, P 1437*b*, 5361*b*, P 7950*h*.
chlorination (photochem.) of, P 6641*e*, P 7497*a*
chlorination (photochem.) of, app. for, P 2518*b*.
chlorine reaction with primary, secondary and tertiary H atoms in, rates of, 5270*c*.
chlorofluoro derivs., P 2217*i*, P 4284*g*
catalysts for treatment with HF, P 9300*f*.
polymers of, as foam depressants, P 846*c*.
chromatography of, transport factors and developer in elution methods of adsorptive percolation in, 7868*d*.
cineole azeotropic distn. from, with phenols, P 2476*g*.
from coal carbonization, P 9421*a*.
color and chem. constitution of, 942*c*.
color and electronic structure of conjugated, contg. a triple bond, 4569*i*.
combustion of, 3724*e*.
effect of light on, 7825*e*.
formation and decompn. of $H_2O_2$ in slow, 3696*h*.
knocking characteristics and, 5576*e*.
complexes with halloysite and montmorillonite, 463*e*
complex with Al halides, Al halide recovery from, P 4005*f*.
compds. of asym. aromatic, with polynitro diphenic acids, 1388*h*.
compression and freezing under pressure, 4067*g*.
condensation of acyclic unsatd., with rosin with $BF_3$ catalyst and esterification of condensate, P 9486*a*.
condensation of aralkyl, with ketones, P 2036*h*.
condensation of aromatic, or their amino of hydroxy derivs., with nitriles, lubricant antioxidants and pour-point depressants by, P 2424*b*.
condensation of polynuclear, with olefin polymers with $AlCl_3$ catalysts to oils, P 3190*g*.
condensation of vapors of, to furnish heat for polymerization of olefins, P 8666*d*.
conversion and refining of, regeneration of adsorbents from, P 2422*be*.
conversion of acidic or phenolic components in gaseous, to ketones and hydrocarbons, P 5573*g*.
conversion of, app. for, P 2422*ab*, P 2763*i*.
app. for effecting contact of catalysts in cyclic, P 843*h*.
app. with stationary catalyst bed for heat exchange in, P 7760*h*, P 8130*a*.
catalysts for, from activated $Al_2O_3$ impregnated with metal compds., P 5181*c*.
in closed cycle with powd. catalysts, app. for, P 388*e*, P 1174*f*.
elevator for catalyst in, P 9429*c*.
in fluid state with particle-form and normal-sized sepd. catalysts, P 387*i*.
with F-contg. catalysts, prevention of siliceous deposits in, P 1558*h*.
with fused $Al_2O_3$ pellets, P 387*g*.
halide-catalyst removal from effluent in, P 7222*h*.
*conversion of*, heat-treatment of catalysts for, P 7608*i*.
Fe removal from clay catalysts for, P 4843*b*.
with molten metallic halides contg. $AlBr_3$ or $AlCl_3$ catalysts, P 4843*c*.
porous-glass catalysts for, P 7162*b*.
regeneration of fluid catalysts in, prevention of after-burning in, P 1956*cd*.
$SiO_2$-gel catalysts for, P 3604*a*.
stripping carbonaceous matter and recovering hydrocarbons from used fluid catalysts in, P 388*c*.
stripping gases or vapors from fluidized catalysts in, app. for, P 7677*d*.
with sublimed $AlCl_3$ catalysts, P 1174*e*.
temp. control in, P 6819*c*.
vaporization in recovering products from continuous, P 3604*d*.
in vapor phase and regeneration of catalysts, P 4457*i*, P 4843*e*.
in vapor phase with fluidized catalysts, P 389*d*, P 1956*a*.
in vapor phase with regeneration of catalyst, app. for, P 4457*i*, P 7222*e*.
in vapor phase, $ZnAl_2O_4$ catalyst for, P 7222*g*.
conversion or cracking of hydrocarbon gases at high temps. with refractory powders to unsatd., P 8603*e*.
corrosion of Airal Mg 104, Al, Cu, Pb and Zn by, and effect of water thereon, 8128*d*.
cracking of, P 1049*g*.
on $Al_2O_3$ catalysts, 1250*d*.
C black manuf. by, 2407*c*.
catalyst chambers for, P 843*g*.
catalyst regenerator for, P 3604*d*.
with hertzian waves, P 2518*b*.
for peak-load gas-generating application, 6814*b*.
regeneration of catalysts from, P 2764*c*, P 6012*a*.
Na amt., detn. and effect on $Al_2O_3$-$SiO_2$ catalysts in, 2414*h*.
in vapor phase, app. for catalytic, P 3187*i*, P 3188*a*.
in vapor phase, app. for stripping fluid catalyst in, P 6403*h*.
in vapor phase passed alternately through heating and free zones at controlled velocities, P 9427*f*.
in vapor phase to aviation gasoline and $C_4$ fractions, P 8663*c*.
$ZrO_2$-gel catalyst for, P 5134*a*.
cracking or dehydrogenation of, app. for catalytic, P 6873*g*.
cyclic—see also *Cycloalkanes; Cycloölefins; Hydroaromatic compounds; Naphthenes*.
cyclization of—see *Aromatisation; Ring closure*.
cyclohexane distn from, P 4460*h*.
decompn. by heat of mixts. of heavy and $C_3$-$C_4$, in vapor phase with active clay to antiknock oils, P 3605*e*.
decompn. (catalytic and pyrolytic) of, 7759*c*.
decompn. of gaseous, by heating by adiabatic compression, 6022*f*.
decompn. products of, blocking of platinized C catalysts by, 7802*a*.
dehydrogenation and disproportionation on activated C, 5656*h*.
dehydrogenation, hydrogenation and reforming of, $Al_2O_3$-$MoO_3$-$TiO_2$ catalysts for, P 1561*d*.
dehydrogenation (intermol.) of alkyl derivs. of aromatic, P 1440*b*.
dehydrogenation of, P 5039*g*.
with $Al_2O_3$-BeO, P 6404*c*.
catalysts for, P 1538*h*, P 3162*a*, P 4791*g*, P 6763*b*, 9290*f*.
in gas phase, prevention of secondary reactions in, P 3191*d*.
in presence of gaseous diluent, P 4682*e*.
regenerating S-contg. oxide catalysts from, P 3188*i*.
by selective oxidation, 7898*a*.
stripping catalyst used in, with $CO_2$, P 9078*e*.
dehydrogenation of alkaryl or alkyl, P 5788*e*.
dehydrogenation of $C_3$-$C_8$, P 5080*e*.
density, refraction and structure of homologous, 6028*e*.
density of, relation to viscosity, 8775*i*.
destruction of chlorinated and low-boiling, on clothing, leather, etc., P 4022*h*.

detn. and effect of aromatic, on viscosity index of lubricating oils, 2419*ce*.
detn. in air, 4972*d*.
in cadavers, 3316*e*.
in deep-well strata, app. for, P 1954*i*.
in gas mixts., 5930*g*.
in $C_3H_8$ and $C_4H_{10}$, 6813*f*.
in subterranean air, etc., app. for, P 8759*a*.
detn. in coal gas and detn. of C density of unsatd., 8971*a*.
detn. of acetylenic, alkyl acetylenic and $CH_4$, in gases of petroleum industry, 8962*c*.
detn. of aliphatic and cyclic, in lubricating oils, 2417*e*.
detn. of aliphatic, in solvent naphtha, 4489*h*.
detn. of aromatic, in aromatized shale-oil gasoline, 5931*c*.
in petroleum products, 3179*d*.
in Puertollano-shale gasoline, 5577*c*.
detn. of $C_4$, $C_5$ and higher, in recycle styrene, 7216*e*.
detn. of classes of, in benzine, 2415*b*.
detn. of cyclic, in liquid $SO_2$ ext. of Baicoi lubricants, 8659*d*.
detn. of types of, in gasoline, 2413*gi*, 3998*d*.
deuteriated, mass spectroscopy of, 4096*c*.
1-diazo derivs. of higher, in Arndt-Eistert synthesis, 4652*g*.
dielec. loss in, 6018*i*.
in Diesel-fuels, increasing inflammability by removal of aromatic, 5569*d*.
dissocn. of gaseous, by elec. glow discharge, P 3994*e*.
dissocn. reactions of, in *o*-dichlorobenzene, 5387*f*, 6496*c*.
distn. (azeotropic and extractive) of, from petroleum fractions, tar, etc., P 3187*a*.
distn. (azeotropic, extractive and fractional) in sepn. of $C_5$, P 2824*a*.
distn., deoxygenation and conversion of, from hydrogenation of CO to anti-knock fuels, P 2421*g*.
distn., extn. and azeotropic and extractive distn. in sepn. of, 7758*h*.
distn., extn. and sepn. of unsatd., inhibiting corrosiveness and polymerization of 2-furaldehyde in, P 9430*i*.
distn. for analysis and purification, 3178*h*.
distn. of alkylated aromatic, contg. neutral org. sulfates in presence of anhyd. solid basic compd., P 3187*d*.
distn. of aromatic, from petroleum hydrocarbons and of butadiene from cracked hydrocarbons, P 4524*i*.
distn. of light, to precise fractions, 2414*a*.
in Douglas-fir-lignin-residue ext., 1182*f*.
effect of aromatic, on furnace black-reinforced rubbers, 1208*d*.
effect of aromatic, on urease, 4310*h*.
effect on acetate rayon, 2777*f*.
effect on knocking characteristics of gasolines, 7674*a*.
as elec.-condenser stabilizers, 7837*f*.
elec. moments of unsatd., 7279*f*.
electron-cloud distribution and reactivity of, 6905*h*.
electronic structure of conjugated, and their hetero derivs., 5302*i*.
electronic structure of derivs. of aromatic, 7809*f*.
electron residual affinity of conjugated and resonating, 6512*b*.
emulsification app. for, P 3588*c*.
entropy and heat of formation of vapor of, 6069*b*.
ethylene recovery from gaseous, P 6403*b*.
evapn. losses from petroleum, calcn. of, 2759*i*.
explosive vapor mixt. formation and equation for flash points of mixts. of, 5187*f*.
extn. of aromatic, from hydrocarbon mixts., P 3844*i*, P 8669*e*, P 8670*b*.
from more satd. hydrocarbons with liquid-$NH_3$ solns., P 3192*e*.
from petroleum distillates, light stabilizers by, P 398*i*.
with $SO_2$, 2761*c*, 7674*h*.
extn. of phenolic and S impurities from, P 7949*g*.
extn. (selective) of, P 5409*g*, 7758*i*.
extractive distn. with furfural, foam prevention in, P 914*b*.
flames (cool) of, periodic reactions in, [illegible].
flames (flat) of gaseous, 8645*i*.
flames of, thermodynamics of, 1231*g*.
flash points of mixts. of chlorinated and petroleum, 7160*g*.
fluorescence of aromatic, with condensed rings, 7829*a*.
fluoride recovery from, P 1159*g*.
fluorinated—see also *Fluorocarbons*.
fluorinated, P 3834*e*, P 6645*d*, P 7035*e*.
as dispersing agents in polymerization of isobutene and its mixts. with diolefins, 2019*f*.
in lubricants, P 5183*h*.
removal of F impurities from, P 6218*d*.
spectra of, 1656*g*.
unsatd., P 2218*e*.
fluorination of, 2157*a*.
fluorine compd. and HF removal from, P 661*a*, P 2764*e*.
fluorine compd. (org.) removal from, P 1557*g*, P 6643*c*.
fluorocarbon sepn. from, P 7035*d*.
force consts. and interaction consts. in unsatd., 6512*f*.
forces between mols of, 3677*e*.
formation of, in cyclooctatetraene prepn., 6201*c*.
from diene synthesis with tetraphenyl cyclopentadienones, 2585*d*.
in geol. formations, 2409*e*.
in reaction of MeCl with Si, 1716*e*
fragmentation by electron impact, 5280*g*.
friction at m.p. and reaction with metals of satd., in lubrication tests, 2417*g*.
friction (interfacial) of, chem. constitution and, 2060*a*.
of gas and oil condensate reservoirs, analysis and mol. compn of, 7672*e*
by gasification of solid fuels, P 6397*c*.
from gasoline (Thermofor) $C_5$ fraction, 4453*b*.
gas partition between water and liquid, 7297*f*.
for gas turbine fuels, 7662*g*.
gelation inhibition of acrylonitrile vinylidene chloride polymer solns in 2-butanone by aromatic or chlorinated, P 7755*h*
geodes contg. liquids, in limestone of Aniche, 2903*e*.
glycosylation of, P 7507*cd*
Grignard reaction in prepn of, 3773*g*.
Grignard reagent reaction with 1,4-dibromo-2-butenes in prepg. unsatd., 2579*b*.
gum and peroxide formation and improving gum stability of, 8656*a*
haloalkyl aromatic, reaction products with halomethane derivs., for lubricant improvement, P 5586*a*.
haloalkylation of aromatic, with $Al_2O_3$-$SiO_2$ gel or coconut charcoal catalyst, P 5583*e*.
halogenated, 9353*a*
aliphatic, as vulcanizing agents for butadiene elastomers, P 8196*e*.
amination of, P 3440*i*.
app. for collecting, 6869*e*.
condensation products with aromatic compds., lubricant additives by solvent refining of, P 2424*b*.
condensation with polyalkylated benzenes, lubricating oils by, P 1176*c*.
detection in air, 974*e*, 4602*c*.
effect on bacteria and yeast, 3885*d*.
flame quenching in exhaust gases by, 1984*c*.
fluorination of aliphatic, P 2628*e*.
heat capacities of, 30*a*.
H halide removal from, P 2216*e*, P 5424*a*.
insecticides contg., 9331*g*.
mixts. with N heterocycles for insulating and dielec. purposes, P 2217*e*.
nutritional factors affecting toxicity of, 733*h*.
paraffin-wax soly. in aromatic, 8126*d*.
prevention of H halide formation in elec. insulators contg., P 4402*c*.
reaction with CO, P 6650*f*.
reaction with Si alloys, P 4685*ac*.
reaction with Si, catalyst for, P 5517*b*.
rotenone sprays contg., P 9357*b*.
stabilization of, P 4682*e*, P 5887*g*.
halogenated and unsatd., polarography of, 8916*f*.
halogenation of aromatic, P 5799*a*.
halogenation of unsatd., 109*h*, P 1433*d*, P 3436*h*.
halogen compd. (org.) and HF removal from, P 4006*cd*.
health hazards of, and of halogen derivs., 787*f*.
heat capacities and contents of vapors of, chem. constitution and, 6068*i*.
heat-capacity-correlation factor for, 8775*e*.
heat capacity ratio of vapors of, 6068*h*.
heat contents of light, 6903*f*.
heat of dissocn. into free radicals, 1230*g*.
heats of vaporization of, calcn. of, 2758*g*.
heat-treatment of, P 4908*a*, P 6010*i*.
herbicidal properties of petroleum, 1895*c*.
high-mol.-wt. unsatd., by oxidation of paraffins, P 1433*a*.
hydrofluoric acid removal from alkylated, P 4002*c*.
hydrogenation and mol. structure of, 3775*c*.
by hydrogenation and polymerization of CO and $C_2H_4$, 108*a*, 4829*f*.
hydrogenation of aromatic, in liquid paraffins, P 6819*i*.
by hydrogenation of $CO_2$, P 4447*ac*, 4448*fi*.
of CO, P 839*c*, P 1170*i*, P 1171*b*, P 1551*h*, 2397*ehi*, 2398*bdeghi*, 2399*ace*, P 3175*bdf*, P 4446*g*, P 1836*h*, P 5573*bd*, 5574*a*, P 6810*hi*, P 6811*b*, P 7213*ac*, P 8120*gi*, P 8121*a*, 9416*c*, P 9420*f*.
of CO and formation from $Fe_2C$ there in, 1636*b*.
of CO, catalysts for making, P 827*a*, P 1448*e*, P 5928*b*, P 6397*a*, P 9419*i*.
of CO, heat control in making, P 4908*c*.
of CO, heat transfer in app. for synthesis of, 2313*a*.
of CO, FeO catalysts in manuf. of, P 6762*h*.
of CO, mechanism of formation of, 2081*a*, 6003*i*, 9415*h*.
of CO, regeneration of catalysts from, P 9420*bdh*.
of CO with Ni-$ThO_2$-kieselguhr catalyst, 3167*gh*.
of coal, 2404*f*, 8641*ac*
of thiol esters, P 3445*c*.
by hydrogenation of CO, and recovery of oxygenated compds. from products, P 8650*h*.
by hydrogenation of CO and synthesis gas manuf from hydrocarbons, P 7253*a*.
by hydrogenation of CO and their conversion, P 4447*h*
hydrogenation of, in vapor phase with Group VI metal or sulfide catalyst to high-octane fuels, P 4843*i*
hydrogenation of monocyclic aromatics, Co as catalyst in, 6172*c*.
hydrogenation of pentamethylenic, 6560*e*
hydrogenation (partial) of aromatic, P 7510*g*.
hydrogenation (selective) of, and detn. of aromatic hydrocarbons, 7673*g*
identification and detn. of aliphatic, and their halogen derivs., crit. mixing temps. of aniline, benzyl alc., in cresyl phosphate and HCOOH as, 8309*a*.
identification in gasolines from Dutch East Indies, 8124*bc*.
identification in organosilicon compds. and polymers, 3317*d*.
identification of groups of, 3743*e*, 6308*i*
ignition and oxidation of, in gas-oil range and their mixts., 7209*i*.
ignition pressure and temp. relations of 7209*e*.
ignition temps. of, 5658*b*.
as insecticides, 9329*e*.
ions (neg.) of, 8848*a*.
isomerization of, 3343*g*, 3371*g*, P 3833*e*, P 5174*e*, 6153*h*.
isomerization of $C_4$, regeneration of $AlCl_3$ catalyst from, P 3733*e*.
isomerization of, with HCl-activated $AlCl_3$ catalyst and $AlCl_3$-contg. charcoal bed, P 844*e*.
isoprene sepn. from, by extractive distn., P 3453*c*.
from ketones, P 7496*g*.
Lebedev's, 5621*g*.
liquid, by explosion of gaseous hydrocarbons with elec. discharge, P 9429*i*.
in lubricating oils, 1172*g*, 6400*h*.
lubricating properties of solid, 8799*i*.
magnesium-dust sepn. from, electrophoretic separator for, P 7*h*.
magnetooptic rotation and refractive dispersion of, 4911*a*.
magnetooptic rotation of, 8838*h*.
manuf. of, evolution of org. chem. industry in relation to, 2155*f*.
manuf. of pure, from naphtha and other hydrocarbons, P 1958*i*.
mass spectra of, doubly charged ion spectra in, 8259*b*.
mass spectra of, metastable transitions in, 8896*h*.

mass spectrometer in identification and detn. of gaseous, 4971*h*.
mast cell (skin) reaction to aromatic, 3109*d*.
metal colloids in, 4926*a*.
methanol purification by azeotropic distn. with aromatic, P 7274*i*.
methylated, mol. diagrams of, 5733*e*.
methylation of aromatic, P 679*h*, P 1058*h*.
from methyl ether, P 3435*f*.
methyl group removal from, in prepn. of branched-chain paraffins, P 1049*f*.
2-methylpropene distn. from, foaming prevention in, P 5582*g*.
mixts. with A and He, starting potential of discharge in Geiger-Müller tube contg., 1646*b*.
mixts. with H, thermal diffusion in, 7281*d*.
mol. structure, sensitivity and PbEt$_4$ response of, engine knock and, 839*h*.
mol. structures of petroleum, effect on cracking, octane ratings and petroleum products, 7217*c*.
as Newtonian liquids, 842*e*.
nitration of, P 1561*g*, 3352*e*, 5012*h*.
nitration of satd., and their derivs., 4216*c*, 6584*d*.
nitro, as catalysts in polymerization of olefins, P 8666*h*.
reaction with aldehydes, P 3438*h*.
as solvents for crystn. of anhyd. crystal violet, P 3206*b*.
nomenclature of cis and trans isomers of, contg. olefin double bonds, 107*c*, 4909*d*.
nomenclature of, history of, 2923*g*, 7405*g*
olefin recovery from, P 385*i*, P 386*b*, P 1432*h*, P 1557*i*, P 1955*gh*, P 2216*f*, P 7275*a*.
olefin removal from aromatic, P 1558*c*, P 2421*e*.
of olive and teaseed oils, 1582*g*.
optically active, effect of $H_2SO_4$ on, 1247*g*.
optical rotation of, 4680*e*.
oxidation (aut-) of, 2196*f*.
oxidation (aut-) of, in gasoline deterioration, prevention by amine or phenolic antioxidants and metal deactivators, 5932*b*.
oxidation (explosive) of satd., 7896*i*.
oxidation of, P 1433*b*, 1711*c*, P 2236*f*, 7798*ef*, P 7949*h*.
with air, catalysis of, 5133*e*.
by bacteria, enzyme mechanism of, 6281*h*.
deactivators for Cu catalysts in, 6063*d*.
in fat-product prepn., 7241*d*.
fractional sepn. of fatty acids from mixts. obtained by, P 884*h*.
HBr as catalyst in controlled, P 669*a*.
initiated by atomic H, 1309*c*.
kinetics of, 927*d*, 6565*h*.
at low temp., 7807*b*.
with N compd.-activated HBr catalysts, P 2219*c*.
soap manuf. from products from, 3218*c*.
in $H_2SO_4$, 5275*b*.
oxidation of cyclic, and lubricant additives from oxidation products, P 1959*b*.
oxidation of natural-gas, chemical manuf. by, 8643*e*.
oxidation of polycyclic aromatic, 4211*i*, 9060*g*.
oxidation (partial) of alicyclic, and their halo derivs., P 5422*b*.
oxidation (partial) of alkyl derivs. of aromatic, P 5421*g*.
oxidation (partial) of aromatic, or their derivs., P 5421*i*.
oxygenated and sulfonated, mixts. with sulfonated beeswax, leather and textile processing agents from, P 1989*i*.
oxygenated org. compd. sepn. from, P 6643*b*, P 7213*f*.
oxygen detn. in gaseous, 3314*g*.
in ozocerite mines, toxicity of, 9297*h*.
from ozocerite production and treatment, effect on nervous system, 9297*g*.
in paraffin-cracking distillate, 8124*e*.
Perbunan swelling by aromatic, in safety fuel, 2801*g*.
in petroleum as indication of catalytic action, 5929*h*.
petroleum as source of pure, 3603*c*.
in petroleum of Ponca field, Okla., 9422*f*.
petroleum (Ponca-) 177–200°-fraction aromatic, 5176*c*.
piperylene sepn. from, P 3023*g*.
polar constituent adsorption by silica gel from solns. of, 1951*h*.
polar derivs. of, evapn. of monolayers of, 7767*d*.
polycyclic, 5389*d*.
polycyclic aromatic, 2610*d*.
polycyclic, in tar oils from fir stumps, 3182*f*.
polymerization of, alkyd-resin manuf. from catalysts from, P 5997*c*.
polymerization of monoalkenyl-aromatic, with drying oils and divinylbenzene, P 5608*a*.
by polymerization of olefins with TiO$_2$-contg. silica catalysts, P 2764*d*.
polymerization of unsatd., resinous products by, P 903*ab*, P 5630*g*.
polymers of, C blacks coated with, 1196*f*.
compns. with cyclic diolefin polymers, P 8742*i*.
decolorization of, P 3233*g*.
pyrolysis of, and mass spectrometry and mol. wt. detn. of fractions, 7742*e*.
polymers of unsatd.—see also *Rubber, substitute and synthetic*.
polymers of unsatd., mixts. with resinous products, P 5228*h*.
prepn. of, 2156*g*, 3357*c*, 6151*c*.
purification of aromatic, P 1802*f*, P 5798*i*.
purification of petroleum, with aluminate catalyst, P 3191*a*.
pyrolysis of cracked residual, P 9428*f*.
pyrolysis of satd., 7895*hi*.
Raman spectra and rotational isomerism of, 2866*g*.
Raman spectra of aromatic, 8888*h*.
reaction of alkylated aromatic, with aliphatic carboxylic acids, P 7967*f*.
reaction of aromatic, with acid chlorides in presence of $HgCl_2$, 183*b*.
with ales. in presence of $AlCl_3$, 5759*g*.
with alkenyl nitriles in Friedel Crafts reaction, P 7968*d*.
with allylamines, P 3455*i*.
with $NH_3$ to give nitriles, P 3439*be*.
with ethylene oxide, 2182*d*.
with I, 7824*h*.
with mixed anhydrides of silicic and org. acids, 1742*i*.
with oxalyl chloride, 2603*b*.
with phthalic anhydride in presence of $HgCl_2$, 183*g*.
with 1-substituted 1-desoxy sugars in presence of $AlCl_3$, P 3448*a*.
with $\alpha,\beta$-unsatd. ketones in presence of $AlCl_3$, 5761*i*.
reaction of $C_4$, with S, P 1066*g*.
reaction of $C_3$ and $C_4$, with S, P 1067*a*
reaction of polycyclic, with maleic anhydride, 2190*c*.
reactions (catalyzed gas-phase) of aromatic, 2197*a*, 3377*b*.
reactions of, app. for effecting catalytic, P 2048*c*.
catalysts for, P 6013*e*.
equil. in, 8246*h*.
under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7663*i*.
labile mols. in kinetics of, 5269*c*.
reactions of unsatd., with acrylonitrile, 7411*d*
with $NH_3$ and air in HCN manuf., P 9396*h*.
with $H_2NCOCl$, 6183*c*.
with $H_2S$, S and thiols, 5932*c*
with HF in formation of polyolefins, P 5788*h*.
with hydroxyl (free radical), kinetics of, 8820*g*.
with methylene (free radical), 5732*i*.
with O and $PCl_3$, 8366*b*.
with S, 2847*b*, P 7201*i*
reactivities of, toward styrene radical, 5731*g*.
recovery and analysis of gaseous, adsorbed in geochem. prospecting for petroleum, P 385*i*.
recovery of aromatic, by adsorption, P 386*d*.
recovery of aromatic, from liquid hydrocarbons, P 4002*g*.
recovery of aromatic unsatd., from satd. aromatic hydrocarbon mixt., P 5929*c*.
recovery of, from bituminous sandstones, hot-water process in, 381*f*.
from oil shale, P 4457*b*.
from petroleum-refinery acid sludge, P 5183*a*.
from petroleum tarry cracked residues, P 389*b*.
from phytosterols from sulfate soap, P 9447*g*.
*recovery of*, in sulfuration of hydrocarbons, P 4792*i*.
recovery of gaseous, at Arkansas City refinery, 9428*e*.
recovery of liquefiable, from high-pressure distillate or condensate well fluids, P 8662*g*.
recovery of liquid, from natural gas at Silsbee, Tex., 7220*g*.
reduction potentials of, on dropping-Hg electrode, 5328*d*.
reforming mixts. of, Co, Cu or Ni complex catalysts for, P 9430*a*.
resonance energies in radicals of, dissocn. energies of C bonds and, 6479*c*.
resonance energy of polycyclic aromatic, 8221*c*.
from rosin catalytic and thermal treatments, P 4873*e*.
rubber cracked low-distillate aromatic, 5983*i*.
from rubber pyrolysis at high pressure, 5169*d*.
rubber swelling in, 4554*b*.
sampling and measuring gaseous, app. for, 8749*i*.
sepn. and identification of petroleum, 2409*i*.
sepn. for testing, identification of groups and plasticization of rubber with petroleum, 4044*g*.
sepn. of aromatic, by selective adsorption on silica gel, P 679*a*.
sepn. of, by adsorption, 2839*i*, P 6011*f*.
sepn. of gaseous, P 379*h*.
sepn. of gaseous, by expansion, liquefaction and fractionation, P 3176*f*.
sepn. of straight-chain from branched, by diffusion through synthetic-rubber diaphragm, P 7223*c*.
sepn. of unsatd., P 2763*d*.
sepn. of unsatd., from oils from pyrolysis of bituminous limestones, 4841*g*.
shale-oil-naphtha aromatic, 4453*g*.
silicon tetrafluoride removal from alkylated, P 4006*b*.
soly. of, 1241*g*.
solubilization by soaps, 7780*g*, 9491*i*.
solubilization of, and chlorinated derivs. with Na alkyl secondary sulfates, 465*i*.
sound velocity in, chem. constitution and, 6879*a*.
sources (future) of aromatic, 4637*i*.
spectra of, and detn. in gasoline and mixts. with ketones, 3715*f*.
spectra of aromatic, 4569*g*.
spectra of cata-condensed, 7818*e*, 7819*a*.
spectra of cyclic, 8890*a*.
in spindle-oil-fractions, identification, phys. properties and lubricating value of aromatic, 4001*g*.
standards for, 4399*c*, 4786*i*.
strained, properties of, 4059*i*.
structure of aromatic, condensation principle of, 1359*h*.
sulfochlorination of, P 5033*c*.
sulfochlorination of, in detergent manuf., 3636*c*.
sulfonated, manuf. of, and cleaning compns. from satd. hydrocarbons, oxalic acid and, P 3640*b*.
sulfonation of alkylated aromatic, P 394*f*, P 685*a*.
sulfonation of aromatic, in acetonitrile solns., P 394*c*.
sulfuration of, P 4792*gh*.
sulfur detn. in aromatic, lamp method for, 1685*f*.
sulfur extn. with aromatic, P 2382*b*.
sulfur (free) detn. in aromatic, 1685*d*.
sulfur removal from aromatic, HF in, P 4295*i*.
as suppository bases, 3563*f*.
synthesis-gas manuf. from gaseous, P 4836*b*.
synthesis of, control of particle size of Fe catalysts in, P 3832*i*.
in elec. arc, P 4589*a*.
in fluidized beds, heat removal in, P 6478*c*.
fluidized catalyst in, 9414*g*.
at high pressure, 3170*g*.
systems: Al soap–, effect of additives on, and metathesis of, 3633*i*.
systems: hexadecane–, countercurrent extn. with aniline, 4840*i*.
systems: metallic soaps–, thixotropy of, 2002*f*.
systems of, 3274*ac*, 6052*i*, 6498*e*.
above atm. pressure, vapor-liquid equil. of, 8775*b*.
with Chlorex, 4937*g*.
at low temps., x-ray study of, 2410*g*.
terpenic—see *Terpenes*.

tertiary hydrocarbon sepn. from non-tertiary, P 7223*d*.
theory of nonbenzenoid, 5650*i*.
thermochemistry of aromatic, 8654*i*.
thermodynamics in processing of, 2758*f*, 5576*ac*, 7215*i*, 7216*b*, 8653*h*.
thermodynamics in processing of, and Joule-Thomson coeffs. of pure and mixed hydrocarbons, 3178*h*.
thiol extn. from, regeneration of aq. alk. soln. used in, P 1793*i*.
thiophene removal from aromatic, P 3605*c*.
tubercle-bacillus metabolism and, 9141*c*.
in tufa of Casale, 2552*f*.
ultrasonic velocity in, 7782*i*, 8780*e*.
vaporization of mixts. of, 2758*g*.
vapor pressure at crit. point, 4063*c*.
vapor pressure data on aliphatic, 3255*c*.
vapor pressure of petroleum, temp. and, 3179*e*.
viscosities of mixts. of, 8777*h*.
viscosity of solns. of polynuclear aromatic, 1629*g*.
viscosity-temp. characteristics and relative viscosity-temp. no. of, 3602*c*.
volumetric behavior of solns. of gaseous, 4531*c*.
water detn. in gaseous, 8119*i*.
water dew point in, detn. of, 6398*f*, 9422*h*.
in wood preservation, 3962*a*.
xylene sepn. from, by azeotropic distn., P 3454*b*, P 4007*b*.

**Hydrocardiolipin***, sodium deriv., 1321*i*.

**Hydrocardol**, and dimethyl ether*, 1348*f*.

**Hydrocellulose**, detection of, 2777*c*.
volatile matter from distn. of, 1976*d*.

**Hydrocephalus**, folic acid and vitamin A in incidence of, 1471*a*.

**Hydrochalcone**. See *Propiophenone, β-phenyl-*.

**Hydrochloric acid**. (See also *Aqua regia; Hydrogen halides*.)
absorption by water and detn. in air, 8971*d*.
absorption by water, rate of, 3270*e*.
acetic acid sepn. from, 8948*i*.
activity coeffs. of, 6049*b*.
adsorbed, titration of, 6883*c*.
adsorption by charcoal, 8796*h*.
by charcoal, effect of O on, 2840*e*.
by mica, 462*h*.
in air, max. allowable concn. of, 4401*a*.
anhyd. liquid, P 3983*e*.
azeotrope, water-activity correlation in, 2058*g*.
azeotrope with $B_2H_6$ and systems: $BCl_3$–, and $BCl_3$–$B_2H_6$–, 5247*b*.
bond moment of, 5240*i*.
buffer systems with $Na_4P_2O_7$, 6895*i*.
casein heat of wetting by, effect of HCHO on, 7787*c*.
as catalyst in acetal formation from butyl vinyl ether and phenols, 3783*e*.
in acylation of olefins, P 2634*d*.
in condensation of coconut fatty acid anilide with *N*-methylol chloroacetamide Na sulfonate, P 886*h*.
in condensation of 2-furaldehyde with phenols, 5225*bceh*.
in ether formation from acetals, P 1050*a*.
in HCHO reaction with PhOH, 5223*h*, 8737*df*.
in isomerization of olefins, P 3604*i*.
catalyst of $AlCl_3$ and, in isomerization of pentane, 1712*d*.
catalyst of $AlCl_3$ and, in reactions of alkanes, effect of H on, 1712*h*.
catalyst of CuCl and, in partial hydration of myrcene, P 6219*g*.
catalysts of $NH_4Cl$, $Cu_2Cl_2$ and, in vinylacetylene manuf., 3225*d*.
cell, $H_2$|HCl|AgCl|Ag, and soly. of AgCl in HCl, 6061*h*.
cement resistant to, 5132*i*.
for cleaning heating coils, 4905*e*.
compds. with $NH_3$, 8807*g*.
copper anodic behavior in, 7792*f*.
copper(I) chloride soly. in solns. of,
corrosion by, of alloys, 2151*b*.
of Al, prevention of, 4622*d*.
of Al, products of, 7309*i*.
of boiler steel, 1305*h*.
of Cu, 550*a*.
of Cu and Ni foils, 8327*f*.
in petroleum refineries Monel in prevention of, 8128*c*.
of steel, wetting agents and, 986*c*.
dehydration of, and sepn. from gases of Deacon process, P 4525*a*.
detn. of, in electroplating baths, 961*g*.
in mixts. with $SO_2$, 8970*c*.
detn. of, with NaOH and elec. oscillator, 8944*a*.
diffusion through glass diaphragms, 8773*g*.
through polyvinylbutyral resin contg. $SiO_2$, 6490*a*.
through porous membranes, 7778*f*.
dropping-Hg electrode in, polarization of, 2875*d*.
dropping-Hg electrode in, tube formation on, 48*g*.
effect on activation of C from rice husks, 4834*f*.
on antioxidant power of gasoline, 2414*g*.
on bentonite, 7607*f*.
on bile flow, 304*i*.
on color of $Co(NO_3)_2$ solns. in EtOH, 4970*g*.
on $CuCl_2$ solns., 3278*c*.
on cornea, 771*c*.
on decarboxylation of isoquinaldinic acid in quinoline, 7310*d*.
on desoxyribonucleic acid, 8415*b*.
on dialysis of $Cb^{95}$, $La^{140}$ and $Zn^{65}$ in $VO_2(NO_3)_2$ soln., 7814*c*.
on elec. cond. of aq. dodecylammonium chloride, 8810*d*.
on electrolysis of slightly sol. salts, 8905*e*.
on $HCO_3H$ oxidation by Cl, 2406*b*.
on 3-β-hydroxy-17-keto steroids, 7059*a*.
on Hg catalysts in sulfonation of anthraquinone, 617*i*.
on photolysis of aq. solns. of Cl, 6515*h*.
on polymerization of styrene with $SnCl_4$ catalyst, 7295*h*.
on Ag mirrors, 2388*a*.
on stomach lining and skin, 3106*c*.
surface tension of $HNO_3$, NaCl solns. and water, 7299*i*.
on wool digestibility by pancreatin and x-ray pattern, 2778*i*.
elec. cond. in $H_2O$, 4544*d*.
electrolysis of, Cl recovery in, P 4964*h*.
electroösmosis of, 8245*b*.
force consts. of bonds in, effect of solvation on, 6876*i*.
formation in chlorinated paraffin wax, inhibition by triethanolamine, P 1179*d*.
gaseous, in hydrolysis of cellulosic material, P 6414*i*, P 6415*b*.
generator for, 2043*b*.
glass attack by, 2385*cf*.
halochromic reactions with ketones, 7911*b*.
heat of formation of, 6071*a*.
heat of reaction with $Co(HCO_3)_2$ and $Ni(HCO_3)_2$, 2830*b*.
heats of soln. of liquid $NH_3$ and $Mg_3N_2$ in, 8836*i*.
hydration of, activity and, 7302*b*.
in hydration of isobutene and hydrolysis of EtOAc, 7302*i*.
hydrogen overvoltage in, 503*e*, 8285*a*.
on Hg cathode, 6494*b*.
on metals, 4585*d*.
in inhibition of oxidation of CO, 3592*f*.
as inhibitor of C combustion, 9417*b*.
injection into make-up water, app. for, P 3250*g*.
interatomic distances and moments of inertia of, 8838*h*.
iron electrolytic soln. in, 6519*i*.
iron oxide films on Fe in, 6931*c*.
iron passivation against, 8246*d*.
in isomerization of abietic, *l*-pimaric and *d*-sapinic acids, 3809*e*.
isomerization of PrCl in presence of, 5734*c*.
magnesium carbides heat of soln. in, contg. NaCl, 1671*a*.
manuf. of, 2743*c*.
app. for, P 8623*b*.
furnaces for, 8631*b*.
from $FeCl_3$, P 6375*i*.
in Karbate falling-film-type absorber, 9391*e*.
from NaCl and $H_2SO_4$, P 9396*c*.
mixts. with $CuCl_2$ solns., refractive index of, 6049*f*.
with glucose, dialysis of, 2486*h*.
with hydrocarbon from isomerization, dehydration of, P 4007*f*.
with KCNS, pH of, 2074*h*.
with propene, distn. of, P 6010*c*.
with $Na_2S_2O_3$, pH of solns. of, 2074*g*.
nickel soln. in, active centers and, 6028*c*.
in paraldehyde depolymerization, 7801*f*.
penicillin G inactivation by, effect of NaCl on rate of, 3697*g*.
phase transitions in, 4136*i*.
for photographic use, Am. standard specifications for, 6930*b*.
for pickling steel, 8329*g*.
pigment-caking inhibition in nitrocellulose lacquers by, 7719*a*.
platinum polarization in, 2100*e*.
poisoning by, 5514*f*.
polarization of iridized and platinized Pt in, 2522*a*.
potassium chloride soly. in solns. of, 6889*d*.
potential functions and, 7276*g*.
potential of antimonous-antimonic half cell in, 8286*c*.
in precipitating org. substances from sulfite waste liquor, 7227*e*.
as promoter, for $CoBr_2$ or $CoCl_2$ catalyst in polymerization of rosin, P 1906*g*.
for CuCl-$NH_4Cl$ catalysts, in mono vinylacetylene prepn., 1598*d*.
in isomerization of paraffins, P 1559*i*, P 4006*f*.
in isomerization of paraffins, recovery of, P 7077*h*.
purification with $UCl_3$, 7853*f*.
reaction (addn.) with $C_2H_2$ and removal from 1,2-dichloroethane, P 664*a*.
reaction products with high-mol. poly unsatd. compds., P 2804*d*.
reaction with acetylene, P 1433*c*, P 3024*ef*, P 6044*i*, 6969*g*, P 7951*bd*.
with $C_2H_2$ and HCHO, P 4685*g*, P 5035*b*.
with $C_2H_2$ in presence of $HgCl_2$ and $Al(OH)_3$, P 3437*h*.
with $C_2H_2$, Hg compds. as catalysts in, P 5790*a*.
with alcs., 3776*i*.
with $NH_3$, periodic ppts. from, 7788*g*.
with $NH_4OH$, catalysis by water, 1634*h*.
with 2-(9-anthryl)furan derivs., 2198*i*.
with benzyl fluoride derivs., rates of, 2079*a*.
with *p*-bis(2,3-epoxypropoxy)benzene, 2181*c*.
with 1-buten-3-yne, 7899*a*.
with $CH_2$:CHCl to give $CH_2ClCH_3$, P 5410*e*.
with dialkylethynylcarbinols, 3352*f*.
with 5,5-dichloro-6-hydroxy-6-methylhydrouracil, 2170*b*.
with ethylenimine ketones, 3388*i*, 3389*a*.
with ethyl (trimethylsilyl)acetate, 562*g*.
with hide powder and wattle tanned hide powder, effect of drying on, 7731*h*.
with isoprene, 5362*c*.
with 17-ketosteroid II, 1048*f*.
with mannitol, 2940*a*.
with $Me_2O$ and Si, P 3025*e*.
with 5-methyl-1,4-heptadien-3-one, 2576*a*.
with $Ni(OH)_2$, 8809*h*.
with organosilanes, 8366*d*.
with paraffins, P 660*h*.
with rubber, 1594*h*, 7739*d*, 8728*k*.
with styrene, $SnCl_4$ as catalyst in, 2966*h*.
with γ-trimethylene cyanohydrin, 2579*d*.
with unsatd. alcs., 113*i*, 114*h*.
with unsatd. compds. in $SO_2$, P 3024*a*.
recovery from chlorosulfonic acid, 8075*d*.
in regeneration of Dowex 30, 6872*f*.
removal from air, 6760*h*.
from 2-alkyl-3-chlorotetrahydropyran, 2994*b*.
from chlorinated fatty acids or their esters, P 7502*e*.
from chlorinated hydrocarbons, P 3023*b*, 7407*ch*, 7408*c*, P 7759*h*.
from chlorinated soybean oil and chlorinated Me esters of soybean fatty acids, 5204*g*.
from chloromethylcyclopentanes, 2172*a*.
from 2-(chloromethyl)-*p*-dithiane, 7030*d*.
from 1-chloro-3-pentanone, 564*i*.
from cyclohexylalkanoyl chloride, 2964*e*.
from DDT spray deposits, and its control, 5148*f*.
from α,α′-dichlorobibenzyl, 1755*d*.
from $ClCH_2CH_2Cl$, P 1793*e*, P 3024*f*, P 3335*b*, 4628*k*.
from α,β-dichloroisobutyronitrile, P 3357*b*.
from dichloro paraffins, P 662*c*.

*removal* from halogenated-hydrocarbon solvents, P 5940*k*.
from hexachlorocyclohexane isomers, rates of, 7311*b*.
from methyl α,β-dichloropropionate, P 7502*d*.
from olefinic alcs., P 5410*h*.
from tetrahydrofurfuryl α,β-dichloropropionate, P 3466*a*.
from 1,1,1-trichloro-2,2-bis(*p*-chlorophenyl)ethane, P 5424*a*.
from 1,1,2 - trichloro - 2,2 - difluoroethane, 2465*c*.
salt soly. in aq., calcn. of, 2844*i*.
secretion by stomach or gastric mucosa, 2688*i*, 4360*c*, 4753*g*.
degenerative gastritis of fundus in relation to, 2309*g*.
effect of chem. and phys. agents on, 9101*b*.
effect of chronic fear on, 5852*f*.
effect of elec. current on, 3507*d*.
effect of thiocyanates on, 8506*e*.
effect of vitamin E on, 5457*e*.
elec. phenomena and, 3506*h*.
ulcer production and, 6726*c*.
sepn. from aq. soln., P 3157*c*.
from $CHClF_2$, $CHCl_2F$ and HF, P 661*h*.
from $CCl_2F_2$, $CCl_3F$ and HF, P 662*b*.
soly. of CoS and NiS in, 2074*a*.
solns. of $PhNMe_2$.HCl, CuCl and, in extn. of $C_2H_4$ from hydrocarbon mixts., P 1432*h*.
sorption by anionites, 1238*d*.
spectrum of, broadening of lines of, 8884*c*.
system: $CuCl_2$–$H_2O$–, 5324*d*.
system: dioxane–$H_2O$–, 1637*g*.
tantalum potential in, 2101*e*.
thorium oxide soln. in, rate of, 6494*c*.
titration of, pH changes at equivalence point in, 2542*d*.
uranium-ion potentials in, 8913*g*.
in vinyl-chloride-polymer stabilization to heat, P 9530*fg*.
wood damage by, and coatings resistant to, 3632*e*.

**Hydrochloric acid**-*d*, effect on spectrum of carboxylic acid salt, 4574*a*.
elec. cond. in $D_2O$, 4544*d*.
isomerization of PrCl in presence of, 5734*c*.

**Hydrochlorination**. See *Hydrochloric acid*.

**Hydrocinchene**, and acid tartrate, 4676*e*

**Hydrocinchonidine**, and derivs., 4676*g*.
—, **desoxy-***, 4676*i*.

**Hydrocinchonidine**, derivs., 4676*g*.
—, **desoxy-***, 4676*h*, 4678*a*.

**Hydrocinchonine**, compd. with benzyl chloride, 5028*a*.
and derivs., 4676*d*.
—, **5-amino-***, 6635*a*.
—, **benzoyl-***, and hydrochloride, 4677*d*
—, **benzyl-***, 5028*b*.
—, **desoxy-***, 4676*i*.
—, **5-nitro-***, 6635*a*.

**Hydrocinchonine**, and derivs., 4676*e*
—, **benzoyl-***, 4678*b*.
—, **desoxy-***, and hydriodide, 4677*g*.

**Hydrocinchotoxine**, *N* - **benzyl-***, and derivs., 5028*a*.

**Hydrocinnamaldehyde**, reaction with amides, 2600*h*.
—, **β - hydroxy - β - methyl-**, and semicarbazone, 2571*b*.
—, **β-methyl-**, *d*-, *dl*- and *l*-, and derivs., 3356*e*.

**Hydrocinnamamide**, P 2233*d*, P 3028*a*.
—, **β-acetamido-**, 236*e*.
—, **β-benzamido-**, 236*d*, 3821*h*.
—, **o-carbamyl-**(?), 6172*h*.
—, *N*-**(carvacrylsulfonyl)-**, P 8622*c*
—, **p-chloro-**, 3378*i*.
—, **o-cyano-**, 2189*c*.
—, **o-(o-cyanophenyl)-**, 8378*d*.
—, **α,α-dimethyl-*N*-sulfanilyl-**, P 6662*c*.
—, **α-ethyl-**, 1744*b*.
—, **p-hydroxy-**. See *Phloretamide*.
—, *N*-**2 - hydroxyethyl - β - methyl-**, in penicillin production, 2273*g*.
—, **5-isopropyl-2-methyl-**, 1747*f*.
—, **p - methoxy - α,α - dimethyl-**, P 5800*f*.
—, **p - methoxy - α - methyl-**, 1744*a*, 1745*g*.
—, **3 - methoxy - 4,5 - methylenedioxy-**, 602*f*.
—, **α-methyl-**, 1744*c*, P 3028*d*.
—, **α(and β)-methyl-**, 5026*g*.
—, **p - (methylsulfonyl)-**, 1738*h*.
—, **α - phenethyl - α - phenyl-**, 1350*i*.
—, **α-propyl-**, 1744*b*.
—, *N*-**sulfanilyl-**, P 7961*d*.
—, **m-(trifluoromethyl)-**, 1378*h*.

**Hydrocinnamamidine**, **β - benzamido-*N*,*N'*-diphenyl-**†, and hydrochloride, 3821*i*.
—, **p-(methylsulfonyl)-**, salts, 1739*h*.

**Hydrocinnamanilide**, **α-amino-**, P 5422*d*.
—, **β-benzamido-**, 3821*h*
—, **α - benzamido - p - methoxy-**, 7457*d*.
—, **p - methoxy - *N* - methyl - α-p-tolylsulfonamido-**, 7458*g*.

**Hydrocinnamic acid** (*β-phenylpropionic acid*), o-acetylphenyl ester, 2621*b*.
α - amino - p - toluenesulfonamide salt, P 686*c*.
in arsenous sulfide hydrosol stabilization, 7779*i*.
assocn. and elec. polarization in $C_6H_6$, 6493*h*.
2-bromoethyl ester, 1404*d*.
as carboxypeptidase inhibitor, 6265*i*.
chymotrypsin inhibition by, 7531*a*.
esters, phys. consts. of, 2591*d*.
ester with methyl salicylate, P 4702*a*
formation from reaction of $C_6H_6$ with $ClCH_2CH_2CO_2Et$ in the presence of $AlCl_3$, 4638*f*.
oxidation by kidney and liver, 2248*g*.
procaine and sodium salts, surface activity of, 6891*d*.
procaine salt, interfacial tension at water-olive oil boundary, 7290*d*.
from propiophenone in Willgerodt reaction, 2187*h*.
spectrum of, 8886*g*.
from 2 - thianaphthenecarboxylic acid, 1396*c*.

**Hydrocinnamic acid**, **β-acetamido-**, 3822*a*.
—, **β-acetonyl-**, P 6665*h*.
—, **α - acetyl - p - carboxy-**, diethyl ester, 1769*e*.
—, **α - acetyl - β - (dicyanomethyl)-**, ethyl ester, ring closure of, P 3472*d*
—, **p - (*N* - acetylsulfanilyl)-**, 7450*d*
—, **α-amino-**. See *Alanine, β-phenyl*
—, **β-amino-**, *N*-acyl derivs., ring closure of, 3821*g*.
and derivs., reaction with hypobromite, 3821*d*.
ethyl ester, -HCl, 9034*a*.
—, **α - amino - β - (aminomethyl)-**, and hydrochloride, 5005*d*.
, **p-amino-β,β-dimethyl-**, in penicillin production, 2273*i*.
, **α-amino-p-hydroxy-**. See *Tyrosine*.
, **α - amino - p - (p - hydroxyphenoxy)-**. See *Thyronine*.
, **α-benzamido-**†, hydrazide, 4669*d*.
, **β-benzamido-**, and ethyl ester, 3821*g*.
, **α - benzamido - β - hydrazino-**, derivs., 4669*c*.
, **α - benzamido - β - isopropylidenehydrazino-**, isopropylidenehydrazide, 4669*d*.
, **β-benzhydrylamino-**, ethyl ester, and -HCl, 9034*b*.
, **β - (2 - benzoylethyl) - β - hydroxy-**, β-lactone, P 1056*c*.
, **α-benzyl-**. See *Isobutyric acid, β,β'-diphenyl-*.
, **β-benzylamino-**, ethyl ester, and -HCl, 9034*a*.
, **α - benzyl - α - phenyl-**. See *Isobutyric acid, α,β,β'-triphenyl-*.
, **β-bromo-**, P 3024*c*.
, **2 - bromo - 6 - iodo - 3,4,5 - trimethoxy-**, 190*i*.
, **β - bromo - α - (trichloromethyl)-**, ethyl ester, 9024*c*.
, **2 - bromo - 3,4,5 - trimethoxy-**, 190*i*.
, **2 - bromo - 3,4,5 - trimethoxy-6-(p - methoxyphenyl)-**, cyclization of, 2197*i*.
and methyl ester, 190*h*.
, **β - (α - carbethoxyformamido)-**†, 8380*c*.
, **β - [*N* - (carbomethoxyformyl)-anilino]-**†, 8380*c*.
, **o-carboxy-**, 2189*b*, 6172*h*.
, **β - *N* - carboxyacetamido-**(?), *N*-ethyl ester, 3822*d*.
, **β-carboxyamino-**, esters, 3822*c*.
, **o - (o - carboxyphenyl)-**†, and dimethyl ester, 8378*b*.
, **p - chloro - β,β - dimethyl-**, in penicillin production, 2273*h*.
, **o-cyano-**, 2189*b*.
—, **α-cyano-**, esters, 3356*h*.
and ethyl ester, 2167*f*.
—, **o - (o - cyanophenyl)-**, and *p*-nitrobenzyl ester, 8378*a*.
—, **β - cyclohexyl-**. See *Cyclohexanepropionic acid, β-phenyl-*.
—, **α,β-dibromo-**, and ethyl ester, 5754*c*.
—, **2,6 - dibromo - 3,4,5 - trimethoxy-**, 190*i*.
—, **2,4 - dicarboxy - β,β - dimethyl-**†, and 1,2-anhydride, 2589*c*.
—, **α,β-dicyano-**, ethyl ester, 3398*f*.
—, **β,β-diethoxy-**†, ethyl ester, 6168*g*.
—, **α - (diethylaminomethyl) - α-ethyl-β-hydroxy-**, ethyl ester-HCl and its esters and their hydrochlorides, 7643*h*.
—, **α - (diethylaminomethyl) - β-hydroxy-α-methyl-**, ethyl ester and its esters, and hydrochlorides, 7643*f*.
—, **p - (2,5 - dihydroxyphenylsulfonyl)-**, 7450*c*.
—, **β,β-dimethoxy-**†, methyl ester, 6168*h*.
—, **2,5-dimethoxy-**, and derivs., 6600*a*.
—, **3,5 - dimethoxy - α,β-dimethyl-**, and ethyl ester, 8384*i*.
—, **α,β-dimethyl-**, 7485*i*.
—, **α,β**(and **β,β**)**- dimethyl-**, 5762*bc*.
—, **α - (dimethylaminomethyl)-α-ethyl-β-hydroxy-**, ethyl ester-HCl and its esters and their hydrochlorides, 7643*h*.
—, **α - (dimethylaminomethyl) - β-hydroxy-α-methyl-**, ethyl ester-HCl and its esters, and their hydrochlorides, 7643*f*.
—, **α,α - dimethyl - β - oxo-**. See *Isobutyric acid, α-benzoyl-*.
—, **β - (3,3 - dimethyl - 2 - oxobutyl)-**, ethyl ester, 7002*f*.
—, **α,β-dioxo-**, ethyl ester, and its α-hydrazones, reactions with Br, 4247*i*.
—, **α,β-epoxy-**. See *Glycidic acid, β-phenyl-*.
, **α,β - epoxy - β - methyl-**, 5150*f*.
, **β-*N*-ethoxalylanillino-**†, 8380*c*.
, **2 - ethoxy - 4,5 - dimethoxy-**, 7460*a*.
, **5 - ethoxy - 2,4 - dimethoxy-**, 7460*c*.
, **β-ethyl** and benzylamine salt, 3351*g*.
—, **α-ethyl-β-oxo-**. See *Butyric acid, α-benzoyl-*.
, **α-ethyl-β-phenyl-** See *Butyric acid, α-benzhydryl-*.
, **α - ethyl - 2,4,5 - trimethoxy-**, 2609*d*.
, **p-fluoro-β,β-dimethyl-**, in penicillin production, 2273*h*.
—, **β-guanidino-**†, and picrate, 3793*c*.
—, **hexahydro-**. See *Cyclohexanepropionic acid*.
—, **o-hydroxy-**. See *Melilotic acid*.
—, **p-hydroxy-**. See *Phloretic acid*.
—, **α-hydroxy-**. See *Lactic acid, β-phenyl-*.
—, **β-hydroxy-**. See *Hydracrylic acid, β-phenyl-*.
—, **4 - hydroxy - 3 - methoxy-**. See *Hydroferulic acid*.
—, **β - hydroxy - α - methyl-**, ethyl ester, derivs., 7643*a*.
—, **β - hydroxy - β - methyl-**, ethyl ester, 5026*f*.
β-lactone, P 5415*a*.
β-lactone (compd. omitted from abstr.), P 1055*i*, P 1056*c*.
—, **β - (hydroxymethylene)-**, lactone, effect on heart, 7138*h*.
, **p - iodo - β,β - dimethyl-**, in penicillin production, 2273*h*.
, **2 - iodo - 3,4,5 - trimethoxy-**, and methyl ester, 190*h*.
, **p - methoxy - α,α - dimethyl-**, and butyl ester, 5762*h*.
, **p - methoxy - β - (p - methoxyphenacyl)-**, and derivs., 4640*b*.
, **3 - methoxy - 4,5 - methylenedioxy-**, 602*f*.
, **p - (p - methoxyphenylsulfonyl)-**, 7450*c*.
—, **o-methyl-**, and ethyl ester, 5377*c*.
—, **β-methyl-**, 5026*f*.
as carboxypeptidase inhibitor, 6265*i*.
from 3-thianaphtheneacetic acid, 1396*d*.
—, **β - (2 - methyl - 3,5 - dinitrophenacyl)-**, 4239*d*.
—, **α-methyl-β-oxo-**. See *Propionic acid, α-benzoyl-*.
—, **α-methyl-β-vinyl-**, and benzylamine salt, 3351*h*.

——, *o*-**nitro-**, 9047*b*.
——, *α*-**oxo-**. See *Pyruvic acid, phenyl-*.
——, *β*-**oxo-**. See *Acetic acid, benzoyl-*.
——, *β,β'*-**oxybis-**, P 5037*e*.
——, *β,β'* - **oxybis**[*p*-**methyl-**, P 5037*f*.
——, *β*-**phenacyl-**, and ethyl ester, 7002*e*.
——, *α*-**phenethyl**-*α*-**phenyl-**, 1350*i*.
——, *α*-**phenyl-**. See *Propionic acid, α,β-diphenyl-*.
——, *β*-**phenyl-**. See *Propionic acid, β,β-diphenyl-*.
——, *p*-(**phenylsulfonyl**)-, 7450*c*.
——, *p*-**sulfamyl-**, 7450*d*.
——, *p*-**sulfanilyl-**, hydrochloride, 7450*d*.
——, *p,p'* - (**2,2,2** - **trichloroethylidene**)-**bis-**, P 2364*f*.
——, *m*-(**trifluoromethyl**)-, 1378*h*.
——, **3,4,5-trimethoxy-**, 190*g*.
——, **3,4,5** - **trimethoxy** - **2** - (*p*-**methoxyphenyl**)-, 190*h*, 2198*a*.
——, *p,β,β*-**trimethyl-**, 7917*c*.
and butyl ester, 5762*f*.
——, *β*-**ureido-**, 6597*h*.
——, *β*-**vinyl-**, and benzylamine salt, 3351*g*.

**Hydrocinnamic**-*α*-*d* **acid**, 3392*e*.
**Hydrocinnamic**-*β*-*d* **acid**, 604*c*.
**Hydrocinnamic alcohol**. See *1-Propanol, 3-phenyl-*.
**Hydrocinnamohydroxamic acid**, *α*-**benzamido** - *β* - **hydroxamino-**, 8382*h*.
——, **2** - **bromo** - **3,4,5** - **trimethoxy-6-**(*p* - **methoxyphenyl**)-, 190*i*.
**Hydrocinnamonitrile**, 3356*i*.
hydrolysis of, 3697*a*.
*β*-**acetonyl-**, P 6665*c*.
*o*-**cyano-**, and derivs., 6172*g*.
*o* - (*o* - **cyanophenyl**)-†, 8378*d*.
**3,4** - **methylenedioxy-**, as synergist for pyrethrin, 3555*d*.
*p*-(**methylsulfonyl**)-, 1739*h*
*β*-**oxo-**. See *Acetonitrile, benzoyl-*
*α* - **phenethyl** - *α* - **phenyl-**, 1350*i*.
**Hydrocinnamophenone**. See *Propiophenone, β-phenyl-*.
*p* - **Hydrocinnamotoluidide**, *p,β,β*-**trimethyl-**, 7917*c*.
**Hydrocinnamoyl azide**, **2,5-dimethoxy-**, 6600*b*.
**Hydrocinnamoyl chloride**, *o* - (**chloroformyl**)-, 2189*b*.
——, *o*-**cyano-**, 2189*c*
——, **5** - **isopropyl** - **2** - **methyl-**, 1747*f*.
——, *p*-**methoxy-**, reaction with diazo paraffins, 1744*a*.
——, *m*-(**trifluoromethyl**)-, 1378*h*.
**Hydrocinnamylamine**. See *Propylamine, 3-phenyl-*.
**Hydrocondensation**, the term, 4829*f*.
**Hydrocotarnine**, quaternary derivs. and related compds., 2212*i*.
sulfate, P 4965*e*.
**Hydrocoumarin** (*3,4-dihydrocoumarin*).
——, **6,7-dimethoxy-**, 7460*i*.
——, **5,6,7,8** - **tetrahydro-**. See *Coumarin, 3,4,5,6,7,8 - hexahydro-*.
**Hydroculture**. See *Hydroponics*.
**Hydrocupreine, ethyl-**. See *Optochine*.
——, **isoamyl-**. See *Eucupine*.
**Hydrocyanic acid**, absorbent for, P 8578*c*.
in air, max. allowable concn. of, 4401*a*.
amphoterism in liquid, 517*c*.
in cigaret smoke, 7645*f*.
as clover-juice factor causing paralysis of smooth muscle and its relation to bloat, 6306*e*.
detection of, 5701*c*.
detection of, in *Cystopteris montana*, 3148*g*.
detn. of, 2759*f*.
detn. of, for forensic uses, 1288*f*.
distn. app. for, P 3342*h*.
effect on heart and intestines, effect of methemoglobin on, 316*h*.
elec. moment of, and dimer, and polymerization of HCN, 5244*h*.
European-corn borer mortality and, 7183*h*.
in flax, factors affecting, 8015*g*.
formation in mushrooms, 3494*f*.
in nitric acid-pulp manuf., 1974*b*.
in vetch seeds, 1448*i*.
formation in products from detonation and equil. with gases from detonation of trinitrotoluene, 4014*f*.
free energy of ionization of, 2075*b*.
fumigation with, effect on foods, 2338*b*.
in grain-pest control, 9336*a*.
halide cond. in, 7301*f*.
hydrolysis of, effect of $HgSO_4$ on, 1248*i*.
inflammability limits of, effect of $CO_2$ on, 8248*g*.
as insecticide, 2728*e*, 2729*d*.
in liqueurs, 7635*e*.
manuf. of, P 825*df*.
from air, $NH_3$ and hydrocarbon gases, P 3189*h*.
from air, $NH_3$ and $CH_4$, 9391*g*.
from $NH_3$ and CO, P 1926*b*.
from ammonium alum and coal, 6983*a*.
methylation of, 7412*e*.
microwave spectroscopy of, 4141*b*.
nicotine salt, P 8605*b*.
in plum kernels, 3538*f*.
poisoning by, eyes in, 3522*g*.
poisoning by, Na tetrathionate in treatment of, 7578*f*.
potential function of, calcn. of interaction terms in, 8765*c*.
in producer gas and its detn., 4833*c*.
in rabbit burrows, persistence of, 9353*c*.
reactions (neutralization) in liquid, 515*f*.
reaction with $C_2H_2$, P 1794*f*, P 7037*c*.
with $C_2H_3$, acrylonitrile from, P 1051*ab*.
with $C_2H_3$, catalysts in, P 3439*a*.
with acrolein and MeSH, P 677*a*.
with acrylonitrile, 7411*d*.
with alkylene oxides, P 1435*b*, P 6647*g*.
with $C_6H_6$ and biphenyl, P 1064*c*.
with conjugated diolefins, P 4286*c*.
with cycloalkanones, 7906*h*.
with esters of unsatd. alcs., P 3027*f*.
with ethylene oxide, P 3029*b*, P 3439*f*
with ketazines, P 6652*e*.
with ketene, 5366*i*
with 5 - methyl - 1,4 hexadien - 3-one, 6625*a*
with olefins, P 3439*h*
recovery from coal carbonization, 5923*i*.
from coke-oven gas, 7666*f*.
from fuel gas, P 2756*g*.
removal from fuel gas, P 380*g*, P 2408*f*, P 4450*c*.
in Rosaceae-Spiraea, 3493*g*
salt with triethylamine, 517*d*.
in San José scale control, 1144*g*
solvolysis in salts in liquid, 516*d*
sorption by fruit and seeds, 3962*h*.
spectrum of, 491*a*, 8884*c*
stabilization of, P 1536*h*.
steel resistance to, 1304*b*.
structure of, 11*c*
thermodynamic properties of, 2830*d*.

**Hydrodynamics**. See *Flow*.
**Hydroferulic acid**, ethylcarbonate, 7001*e*.
in urine of pregnant mares, 2685*i*.
**Hydrofluoric acid**. (See also *Hydrogen halides*.)
in alkylation —see *Alkylation*.
anhyd., 6371*g*.
asbestos-paper treatment with, P 6340*e*.
bond in, 8763*a*.
force const. of, effect of solvation on, 6876*i*.
length of, 2479*a*.
moment of, 5240*i*.
brown coal-tar-distillate extn. with, in Diesel-fuel and lubricant manuf., 6816*e*.
catalyst contg., in hydrogenation of coal, 5171*b*.
as catalyst in condensation of terpenes with phenols, P 6237*a*.
in F reaction with graphite, 2107*df*.
in hydration of olefins, promoters for, P 3438*f*.
in $H_2S$ reaction with olefins, P 665*a*, P 5790*i*.
in isomerization of olefins, P 1175*g*.
in ketone manuf. from olefins and anhydrides or ketenes, P 4686*a*.
in partial hydration of myrcene, P 6219*g*.
in polymerization of diolefins at low temps., P 3228*a*.
in reaction of olefins with $H_2S$ or thiols, P 2219*i*.
catalyst of $BF_3$ and, in isomerization of hexane, P 4007*a*.
in isomerization of paraffins, P 4006*h*, P 5583*i*.
recovery of, P 3949*b*.
catalysts of, and its mixts. with $BF_3$ for hydrocarbon treatment, P 844*d*.
catalysts of P acid, anhydride or ester and, in polymerization of olefins, P 5939*d*.
catalyst with fluoride in alkylation of hydrocarbons, P 3435*g*.
catalyst with Hg fluoride in $C_2H_2$ reaction with $C_6H_6$, $C_{10}H_8$, xylene, etc., P 5636*f*.
compds. with graphite, 2584*a*.
corrosion by, in petroleum refineries, Monel in prevention of, 8128*c*.
corrosive action on skin, 3096*h*.
in cryolite purification, 2379*d*.
crystn. from azeotropic mixts. with water, P 3189*h*.
effect on ceramic bodies, 5164*f*.
on glass attack by acids, 2385*h*.
on yeast-cell protoplasma, 268*a*.
elec. moment of, and structure of dimer, 2054*c*.
enthalpy of aq., 2043*c*.
fluorination with, in absence of catalyst, 2924*i*.
formation of, 518*g*.
in glass-reflection reduction, P 6802*i*.
handling and discharge of containers of, 367*c*.
handling of, in petroleum refinery, 5175*h*.
heat of soln. of Mg Fe silicates in, 3700*i*.
hydrocarbon (aromatic) desulfurization with liquid, P 4295*i*.
manuf. of, P 2744*i*, P 3157*c*, P 5555*i*.
from phosphate rock, P 7652*i*.
purification of fluorite for, P 5913*b*
mixts. with $H_3BO_3$, $HBF_4$ formation in, 2494*b*.
mixts. with $HClO_4$, as analytical solvent and volatilization of elements from, 6106*c*.
partial pressure of, 7315*c*.
petroleum-well-flow increase by, and NH salt mixts. forming HF, P 5179*d*.
reaction with $C_2H_2$, P 660*h*.
with $C_4H_2$ and with acetylenic hydrocarbons, P 3645*b*.
with acetylenic hydrocarbons, P 7035*c*.
with C halides, P 3437*a*.
with $CCl_4$ and with $CCl_2F$, P 660*b*
with cyclic ethers, 6163*b*
with fiber-glass fabric for bonding with phenolic resins, P 8208*i*
with hexachloropropene in the presence of $SbCl_5$, P 8397*i*
with olefins in presence of FSO$_3$H, P 3834*i*.
with satd. hydrocarbons in formation of polyolefins, P 5788*s*.
recovery of, P 914*b*, P 1159*j*, P 5182*a*
removal from alkylated hydrocarbons, P 4006*de*, P 6218*d*.
from 1,1-difluoroethane, P 6645*a*
from hydrocarbons, P 661*a*, P 2764*b*, P 4002*c*.
from org. compds., regeneration catalysts for, P 5518*c*.
from polyfluoro paraffins, P 3437*b*
removal from gases and chlorofluorocarbon treatment with, agents for, P 9300*f*.
safety with, 367.
sepn. from $CHClF_2$, $CHCl_2F$ and HCl, P 661*h*.
sepn. from $CCl_2F_2$, $CCl_3F$ and HCl, P 662*b*.
silicon detn. in, 967*a*
silver resistance to, 4991*i*
storage of, P 6373*i*.
system: $KHF_2$–KF–, thermodynamics of, 8763*d*.
tantalum potential in, 2101*f*.
thermodynamics of, 7790*e*
toxicity of inhaled, 8530*i*.
water detn. in liquid, 971*g*.

**Hydrofluorination**. See *Hydrofluoric acid*.
**Hydroforming**. See *Aromatization; Dehydrogenation; Petroleum refining, Ring closure;* for hydrocarbon oil studies see *Hydrocarbon oils*.
**Hydrogels**. See *Colloids*.
**Hydrogen**. (See also *Dehydrogenation; Deuterium; Deuterons; Hydrogenation; Protons; Tritium*.)
absorption by steel during and after acid pickling, 1301*h*.
absorption by steel in cathodic polarization in $H_2SO_4$, effect of Te on, 952*b*.
absorption by steels during electrolytic pickling, fragility from, 6962*a*.
accelerator for, and its target current, 2087*b*.
adsorption of, by Co, 3688*e*.
by Cu oxides in films, effect on elec resistance, 474*h*.
effect on floatability of minerals, 3325*c*.
by Fe and Fe-kieselguhr catalysts in gasoline synthesis, 2412*i*, 2413*ab*.
by metals, 6028*e*.
by Ni catalysts, effect of sintering on, 2079*f*.
by powd. W, 3263*g*.
alloys and elements with, crystal structure of, 7885*e*.

alpha-ray-bombarded, ultraviolet light from, 4580*h*.
in aluminum and Al alloys, 982*i*.
as antioxidant in butter, 2337*d*.
atomic function and viscosity of, 8774*f*.
atomic, in electrodeposition of Ni, 2519*g*.
in hydrocarbon oxidation, 1309*c*.
measurement of fast reactions of, 6053*e*.
reaction with $C_2H_2$, 472*i*.
reaction with $C_6H_6$ and $CH_4$, 3725*e*.
reaction with $O_2$ at low pressures, 2079*i*.
reaction with paraffins, 5270*e*.
recombination of, 8819*h*.
recombination on catalysts, 8251*c*.
recombination on solids, 1635*i*.
reduction by, anionic intermediates in, 6058*b*.
thermal conduction in flame of, 8253*f*.
in blast-furnace gas, control of, 6552*g*.
bonds, 3671*g*, 8220*h*.
in acetone mixts. with nitrocellulose, 4928*g*.
in adsorption by bauxite, 6497*g*.
in aminopyrimidines, 6487*f*.
between $PhNH_2$ or PhNHMe and *p*-dioxane, 7438*c*.
with Sb, energy of, 8764*c*.
with C and H, 8764*a*.
with C and N, in dimethylhydrazines, 1314*c*.
with C, dipole moment of, in $C_6H_6$ derivs., 3714*h*.
with C, force const. of, 6895*a*.
with C, force const. of, relation to HCH angle for CH radical, $C_2H_6$, $C_2H_4$ and $C_2H_2$, 4059*i*.
with C, free energy of, 3276*g*.
with C, Ge and Si, in $CH_3Cl$, $GeH_3Cl$ and $SiH_3Cl$, 8275*f*.
with C in hydrocarbons, energies of, 452*g*, 2052*h*
with C in hydrocarbons, reaction rates with Cl and, 5270*c*.
with C in $CH_2$ radical, 5241*h*.
with C, length of, 2478*f*.
with C, polarity of, 3252*h*.
with C, sound velocity increment of, 3256*g*.
in carboxylic and sulfinic acids, 7451*d*.
catalytic activity and formation of, 8251*f*.
in cellulose chains in amorphous regions of rayon, 3202*g*.
in contraction and permanent set of wool, 5955*h*.
in crystals, 8783*c*.
in cyclic compds., molar sound velocity and molar refraction increments for, 4532*c*.
in *o* derivs. of PhOH, 7300*h*.
dielec. consts. of substances with, 4529*i*.
effect on spectrum of carboxyl group, 3713*h*.
effect on stability of flavanones, 5396*b*.
in Et *p*-cymenecarboxylates, 1351*e*.
formation of, at peptide links in tanning, modified lignosulfonates in, 7732*h*.
formation of, between dihydric phenols and collagen, 7736*h*.
formation of, by benzene derivs. adsorbed on vitreous $SiO_2$ gel, 7344*a*.
formation of, effect on spectra of hydroxyl group-contg. quinones, 2094*c*.
formation of, with OH groups of silicic acid-Celite mixts. in adsorption of centralite and 4-nitro triphenylamine, 8946*b*.
in 4-glycosidamino derivs. of pyrimidines, 3422*i*.
in hardening of polycondensation resins, 4509*e*.
with H, energy of, 8763*b*.
intermol. reactions and, 1243*a*.
in keratin, 2810*e*.
in methylenediphenols, P 4698*h*.
in methyl salicylate, 2868*f*.
mol. assocn. and viscosity in relation to, 2059*f*.
mol. interactions in solns. and, 2490*g*.
mol. refraction and, 604*g*.
with N in $NH_3$, dissocn. energy of, 7797*i*.
in *o*-nitrophenol and salicylic acid, 8766*a*.
in org. compds., elec. moments and, [illegible].
org.-liquid penetration and solvation of rayon in relation to, 2777*f*.
*bonds*, overpotential and, 48*a*.
with O, elec. moment of, 5240*i*.
of 2,4-pentanedione and its derivs., 7343*c*.
in peonol, 1350*d*.
in polymers, 9455*h*.
in $KHF_2$, 8763*d*.
properties of solns. and, 7298*h*.
in quinhydrone, 452*a*.
Raman spectra of higher alcs. and, 7345*f*.
review on, 107*a*.
in salicylaldehyde and derivs., 943*d*.
spectra of mols. assocd. with, 7340*d*.
in 4-substituted cyclohexanols, 6174*b*.
with S in sulfinic acids, 5245*g*.
swelling of wood in org. liquids and, 8763*c*.
thermodynamics of, 8765*h*.
in $H_2O$, strength of, 4527*c*.
bonds (bifurcated) in $\alpha$-$HIO_3$, 6479*b*.
books: in Metals, 988*b*; Mekhanizm Okislemiya i Goreniya Vodoroda, 8256*f*.
carbon ratios of coal and petroleum, 2109*d*.
carriers of, formation by hematin-catalyzed peroxidations, 6259*d*, 9104*g*.
as catalyst in calcination of limestone, 8621*i*.
cathodic, excited state of, 2874*h*.
cathodic, passage through metal films, 4913*i*.
cell, $H_2$|HCl|AgCl|Ag, and H electrode, 6051*h*.
cell with O, 4146*f*.
in chromium plate (hard), effect of heat-treatment on, 9014*e*
in chromium plates from sulfate baths, 8901*h*.
combustion of, in gaseous mixts., 7063*d*.
combustion on Pd plate, 4087*c*.
complex-ion reduction with mol and at., 2854*g*
[illegible]d, oly fo
studies, 41*i*.
correlated mol. orbitals for, 2827*c*.
covalent and packing radii of, relation between, 9*h*.
crystals of, interat. distances in, 3671*f*.
cylinders of, charts of compressibility factors and quantities delivered by, 3156*g*.
designation of "extra," in naming cyclic compds., 4909*c*.
desorption of, from Pt plate by impact of slow electrons, 5279*e*.
detonation of, effect of tube width on, 5188*i*.
diffusion and soln. in polystyrene at high pressures, 2811*d*.
diffusion of para- into ortho-, 3253*b*.
diffusion of, through Al tubes, 6021*c*.
in Fe during annealing, 1701*c*.
into metals, effect of metallic and org. films on, 6139*i*.
with N, thermoeffect in, 6875*g*.
in steel, 2559*f*.
dissocn. of, kinetics of, 7797*c*.
Doppler effect of, in canal rays, 4135*b*.
effect on acidity and elec. cond. of $As_2S_3$ sols, 5321*a*.
on action of $AlCl_3$ catalysts on alkanes, 1712*f*.
on adsorption of $CH_4$ by Ni Fischer catalysts, 6064*a*.
on cathodic polarization, 8285*c*.
on cohesion of steel, 8331*g*.
on color formation by org. reagents, 4174*f*.
on decompn. of $CaCO_3$, 2078*d*.
on deformation and ductility of steel at subzero temps., 5717*a*.
on elec. cond. of oxides and spinels at high temps., 4534*a*.
on elec. resistance of Ni films, 8771*f*.
on mech. properties of steel, 4200*h*.
on N fixation by *Azotobacter*, 8591*h*.
on nitroglycerin susceptibility to explosion by impact, 4468*a*.
on Si reaction with Cl, 8931*b*.
on Ti, 7882*c*.
on x-ray diffractions, 2507*e*.
on welds, 4996*h*.
effusion of, 4531*a*.
effusion of, at crit. velocities, mol. wt. and, 2056*a*.
elec. discharge in, effect of magnetic field on, 4060*d*.
elec. fields in cathode dark space in, 4095*d*.
hertzian waves from, 1640*g*.
initiation of, 4902*e*.
secondary electron production in, 4941*i*.
electrode—see *Electrodes*.
electrodeposition of, catalyst poisons and inhibitors in, 8907*d*.
electron scattering by, 8849*g*.
electron tube contg., electronic intensity regulator for, 942*a*.
embrittlement of steel—see *Steel*.
energy absorption in ionized, 480*f*.
energy level (ground state) of, 7338*e*.
energy level (ground state) of, hyperfine structure of, 5302*h*.
energy levels in, 4953*d*.
energy levels of, displacement of, 4953*a*.
energy levels, spectrum, ionization potentials and magnetic splitting factors of, 8883*f*.
equation of state for, 8773*d*, 8774*b*.
equil. with metals, 4917*e*.
equil. with TH and dissocn. of $T_2$ and TH, 476*b*.
-evolution potentials, cathodes with lowered, 504*e*.
-exchange catalysis by oxygenic contact, 6497*e*.
exchange of, of butanes in $H_2SO_4$, 7897*c*.
of octenes, 6150*g*.
of paraffins in presence of $AlCl_3$-$Al_2O_3$, 7897*f*.
with Na on carbonaceous exchangers in chlorides, 2848*b*.
exchangers—see *Base-exchanging compounds*.
exchange with D—see *Deuterium*; and "heavy" under *Water*.
excitation of, in upper atm., 3289*h*.
explosion of mixts. with Br, 4084*e*, *g*.
explosions in O-balanced, prevention with combustibles with low upper limit of flame propagation, 7231*a*.
flame propagation limits of, and its mixts. with N and $N_2O$, effect of promoters, inhibitors and phys. properties on, 3617*h*, 3618*d*.
flames of, 7282*a*.
heat transfer from, 7805*c*.
with O, spectrum of, 4141*i*.
with O, structure of rising, 3254*c*.
temp. of, 1231*i*.
flow in zeolites, 6489*a*.
flow through porous $SiO_2$, 6883*d*.
formation of, from catalytic decompn. of coal light oil, 7664*f*.
by electrolysis of salts in $Ac_2O$, 2876*h*.
from graphite, O and steam, 2076*h*.
in hexane oxidation, 7897*c*.
in Hg-photosensitized reactions of $Me_4C$, 6516*h*.
in $CH_4$-filled Geiger-Müller counters, 484*b*.
from MeOH on ZnO catalyst, 7314*a*.
from methylcyclopentane, 6567*c*.
from $HNO_3$ and Cd or Zn, 6101*i*, 6102*b*.
in petroleum cracking and distn., steel attack by, 6401*g*.
by *Rhodospirillum rubrum*, 6698*e*, 8440*c*.
in sugar manuf., 9502*h*.
by tartrate-fermenting *Clostridium*, 274*a*.
by thermophilic cellulose-fermenting bacteria, 720*c*.
gamma-ray bombardment of, threshold for reaction in, 4115*e*.
generator (electrolytic) for, for gas analyzer, P 8758*c*.
generator for, 6869*d*, 8214*h*.
heat of adsorption by active C, 6903*g*.
heat of dissocn. from $CH_4$, 1250*a*.
heat of soln. in Ti, 7770*i*.
hexane isomerization in presence of, or its mixts. with methylcyclopentane, P 4007*a*.
in hydrogen sulfide from FeS, 5319*i*.
ignition by elec. sparks, 407*c*.
ignition of mixts. of O and, 1246*d*.
by elec. sparks, effect of org. vapors on, P 406*i*.
by shock wave, 5951*e*.
in ignition retarding of Diesel fuels, 6805*d*.
inflammability limits for mixts. of $CF_2Cl_2$ or MeBr and, 3619*b*.
inflammability of, effect of dilg. gas on, 8249*c*.
inflammability of mixts. of air with, effect of solid particles on, 6806*d*.
ionization by electrons in, 34*d*.
ionization chamber filled with, under high pressure, 5292*i*.
ionization cross sections of D and, 2862*h*.
ionization in, 4095*a*.
ions (electrolytic)—see *Hydrogen ion*.
and ions (gaseous) ($H_3^+$) in interstellar

space, continuous absorption by, 5662e.
ions (gaseous neg.), in sun's atm., 4134b.
ions (gaseous neg.) of, mass-charge ratio of, 8848a.
ions (gaseous) of, effect on passivity of Mg, 2076f.
ions (gaseous) of, in catalytic hydrogenation, 7802k.
iron brittleness and, 7395g.
iron embrittlement by, fractography of, 8326e.
in irrigation water, 3951d.
isotope of mass 2, water contg.—see "heavy" under *Water*.
isotopes of, electrophilic substitution and exchange of, in heterocyclic systems, 6876d.
exchange reactions of, 7809f.
in fossil ice, 2050f.
in spring waters of Japan, 5889e.
in study of pathol. processes, 8519c.
Joshi effect in, 2858c.
Joshi effect in, and its mixt. with Br, 7322k.
liberation at Hg cathode from buffer solns., kinetics of, 6055c.
in lightning spectrum, 7334k.
light scattered by, depolarization of, 7281i.
liquid, ionization by α-rays in, 1257h.
liquid, sound velocity in, 6024g.
lyoparachor of, 2834c.
in magnetic field, ratio of resonance frequency to proton frequency of, 8262g.
magnetic moment and gyromagnetic ratio of, 5303f.
magnetic susceptibility and polarizability of, 3252g.
manuf. of, 378e.
from CO and steam, P 840b.
from coke-oven gas, 7650i.
by electrolysis, 4146e.
electrolytic cell for, P 4587i.
from hydrocarbon gases, P 8063f.
from Fe and steam, P 9398f.
from low-grade fuels, P 4836f.
from $CH_4$, 9415g.
from $CH_4$ and CuO in fluidized bed, 7199i.
from natural gas and steam, 5171a.
from peat, P 6796b.
reformed natural gas for, 3594f, P 6398a.
from sea water, P 6926b.
by water-gas conversion, plant design for, 5571b.
manuf. of, and oxide reduction by, in fluidized bed, app. for, P 6873g.
manuf. of high-pressure, P 369g.
mass difference between neutrons and, 4947a, 7328i.
detn of, 8264k.
ionization produced by $He^3(n,p)$ and $N^{14}(n,p)$ nuclear reactions and, 8865f.
mass photoelec. absorption coeff. of, 843c.
media contg., neutron diffusion in, 4096a.
in mercaptobenzothiazole activity as rubber vulcanization accelerator, 2022i.
metabolism by bacteria, N fixation and, 9155c.
metabolism of mol., by microörganisms, 5445i.
in metal heat-treatment, 9001d.
in metals, 6553b.
mixing with A, $CO_2$ or N, temp. effects in, 8773c.
mixts. with air and O, elec. resistance of, 3591i.
with $NH_3$, inversion spectrum of, 3716k.
with CO and O, conjugated oxidation in, 4548a.
with CO, manuf. by $CO_2$ reaction with $CH_4$, 1944i.
with CO, manuf. from coke oven, 3595b.
with CO, manuf. from $CH_4$, 7200b.
with CO, $CH_4$ and N, sepn. in reflux condenser, 6022g.
with hydrocarbons, thermal diffusion in, 7281d.
with $CH_4$, oxidation of, 2403d.
with N, compressibility of, 6021d.
with N, thermal diffusion of, 8224e.
mobile, in cleavage of Schiff bases, 2209d.
mobility in methylene group of 1,4-hendecadiene and 1,4-hexadiene, 3774c.
mol. beam, production and measurement of intense, 8259e.
mol. stopping power of, 4004a.
mol. with D, prepn. and mass spectra of, 4967b.
mol. with D (HD), mass spectrum of, 8889b.
naphthalene vaporization into, from fixed and fluidized beds, 5647a.
in nebulae, 938c, 1651i, 2509b, 4133d, 5302g, 8877e.
neutron-bombarded, γ-rays and deuterium from, 1259h.
neutron cross section of, 3282k.
ortho-para conversion of, on Cu-Pt mixed crystals, 4088b.
by metallic catalysts, rate of, 26g.
on Ni catalyst, 7313i.
overvoltage—see *Overvoltage*.
oxidation of, on Pt catalysts, 6062c.
parachor and thermochor of, 2923f.
partition functions of, 8838k.
penetration into Fe, 7304k.
photon scattering on, 4796b.
polarity of, in $C_6H_5$ ring in hydroxybenzoic acids, 8809c.
polarizability of, internuclear distance and, 1264h.
potassium-atom-ray scattering by, 2478d.
potassium chloroplatinate-soln. reduction by, 6038k.
pressure of, effect of hydrogenation on sulfide-coated Ni catalyst, 7802k.
pressure-vol. relations of, 8772d.
proper functions for, in Dirac theory, 4554i.
proton scattering by, 4106i.
pumps (diffusion) for, speeds of, 2043b.
purification of, 7853a.
quiescent filaments of incandescent, assocd. with sunspots, 7334a.
radius of bonded atoms of, 3252c.
rays—see *Deuterons; Protons;* and "ions" above.
reaction of, with aldehydes or ketones and $NH_3$ or amines, P 5412a.
with $BeCl_2$, 4967e.
with Br, kinetics of, 8816h.
with $CO_2$, in MeOH manuf., P 7036d.
with C in metals in vacuum, 29f, 6053f.
with CO and HCHO, P 673d.
with CO and olefins, P 4685d, P 5031i.
with CO, formals and alcs., P 675a.
with Ce and La, 4122d.
with Cl, surface in, 474b.
with films of Cu and Cu oxide, 6531i.
with free radicals, 5270e.
with halogens, kinetics of, 5266e.
with $Fe_2N$, 4169c.
with FeS, MnS and $Cu_2S$, equil. in, 2558g.
with methylene free radical, 5732i.
with $MoO_3$, kinetics of, 8820b.
with Ni catalyst, 7802g.
with Ni Fischer catalysts, rate of, 26i.
with O, $H_2O_2$ in, 7305h.
with O in liquid Fe, 8822e.
with O, review on, 6894c.
with Ag-S alloys, 8834b.
with S on bauxite catalyst, P 7201k.
with Ti, kinetics of, 9006h.
with vinyl radicals, 3694d.
with zirconium, kinetics of, 8817b.
recovery from coke-oven gas, 7211d, 8118i.
in reduction of oxide coating on Si steel, P 7893g.
removal from Cl, P 4822g.
from cyclohexane under hydrogenating conditions over Fischer-Tropsch-Co catalyst, 7864b.
from liquid metals, 980g, 7877b
from reversible gas reactions, P 5031c.
from steel ingots and castings, P 104i.
as sintering atm., effect on soft Fe, 2142e.
soly. and retention in Mg and Mg alloys, 5355i.
soln. in liquid Fe and its alloys with Cb, Ti and Ta, 2490a.
sorption by, 6489c.
in space (interstellar), 1263i.
spectra of, and of its mol. with T, 8884d.
spectrum of, 3290a, 3712i, 4135a, 4567d, 7338e, 8880h.
afterglow of Balmer, 491b.
Balmer lines in, from spark channels, 4135b.
calcn. of transition probabilities in, 480d.
effect of nuclear motion on the fine structure of, 1653a.
fine structure of, 4135c.
observed by means of electronic projection system, 8272g.
from oxide cathode, 7324k.
wave-length shifts in, 8272k.
in star AR Pavonis, 7335e.
in star ζ Aurigae, 1263k.
in star γ Cassiopeiae, 2092d.
in star ρ Cassiopeiae, 1262gk.
in star CY Aquarii, 5663a.
in star 1 Delphini, 3711f.
in star HD 45910, 2509c.
in star HD 187399, 8882b.
Stark effect of, 6920f.
in star L726-8, 6510c.
in star Nova Cygni 1948, 39d, 5302b.
in star Nova Persei 1901, 8877d.
in star Nova Serpentis 1948, 490c.
in star λ Pavonis, 5300e.
in star γ Pegasi, 938f, 2509f, 5301e.
in star RR Lyrae, 5662e.
in stars HD 168607 and HD 168625, 8882c.
in stars in region of clouds of Ophiuchus and Scorpius, 939c, 4134k.
in stars Nova Persei 1901 and Nova Geminorum 1912, 938d.
in stars of class A, 8882a.
in stars of classes A and B, Stark effect in, 7335c.
in stars of classes A, B and F, 6917bc.
in stars of late type, 6916b.
in stars of O class, 938g.
in stars of Wolf-Rayet class, 8877b.
in stars with shell spectra, 3711k.
in steel and its control during casting, 1301i.
in steel deoxidation, 7397a.
in steelmaking, 871i.
steel resistance to, 1304c.
in steels, 8331k.
steel-slag distribution of, 4196f
structure of, at crit. point, 7764k
structure of, wave function theory and, 4926.
styrene polymerization in the presence of, 3377d.
in sugar industry, explosion of, 8714i
in sulfur removal from coke or coal, 9414
in sun, 39a, 939f, 1263d, 3711a.
in sun's chromosphere, 8877b.
in sun's corona, 1263a.
in sun's flare, 5301hi.
as sun's particles exciting spectrum of aurora, 6916g.
system: $CaH_2$-, at high pressure, 4600
system: C-$CO_2$-CO-$CH_4$-water-, at high temp. and pressure, 3170i.
system: decane-, 6052i.
system: misch metal-, 2840h.
system: Pd-, 4070k.
textiles yielding, improvement with polymeric vinyl isocyanates, P 6429b.
theory of, 451f
thermal cond. and viscosity of, 2832h
thermal cond. of, 7316k.
thermal properties of, and its mol. with D, 2057b.
thermochor of, 8226e.
thermoösmosis through membranes, 4062g.
transfer of, from ascorbic acid to codehydrogenase I by chlorophyll, 8410
in reactions of 2-cyclohexyl-*p* cymene and 2,4-diisopropyltoluene with 4-methylcyclohexene, 1330f
in styrene polymerization in hydrocarbons, 5731k.
triat., in discharge tubes, 480h.
ultrasonic absorption and velocities in, 5652a.
utilization in synthesis by *Escherichia coli*, 8431f.
van der Waals' forces between proton and, 2501i.
in volcanic gases, Fe oxide ratio of rock melts and, 527a.
in welding-electrode coating, effect of, 4208a.
from welds, 8342i.
x-ray absorption by, 5299g.

**Hydrogen, analysis.** (See also "combustion" or "org." under *Analysis*.)
detection in organosilicon compds. and polymers, 8317f.
detection of at. H, 472i.
detn., 8964f.
absorption app. for micro-, 2f.
with microcombustion tube, 6108a.
by neutron slowing down, P 4456g.
detn. in Al, 2120d.
in Al and Al alloys, 982i.
in Al wrought alloys, 7373g.
in benzylisothiourea-HCl nicotinic acid, 8962f.
in cellulose, 7225a.
in coal gas, 8971a.
in flowing gaseous mixts., a for, P 2047k.

*detn.* in gases, app. for, P 3249*g*.
in gases of petroleum industry, 8962*c*.
in Fe, 4199*f*.
in Mg, etc., 2119*g*.
in nylon and related polymers, 6948*a*.
in org. compds., 969*a*, 6105*d*, 6936*eg*, 7374*e*.
in org. compds., lamp for, 1687*d*.
in petroleum hydrocarbons, burner for, 6474*e*.
in solid fuels, 3989*h*, 5921*h*.
in steel, 2907*g*, 8964*h*.
in steel, app. for, 64*d*.
in water for irrigation, 3951*d*.
in welds, 8343*a*.
detn. of active H, app. for, 8749*i*.
in alcs., amines, glycols, phenols and water, 3316*f*.
in $CO_2$ atm. by Grignard reagent, 8964*d*.
in org. compds., 1280*g*.
detn. of exchangeable H in soils, 3127*i*, 7171*c*.
detn. of hydrogenous materials in soils by neutrons, P 4456*f*.
elec. furnace for semimicro-, 1267*i*.
**Hydrogen arsenides.** See *Arsenic hydrides; Arsine; Biarsine.*
**Hydrogenases,** in bacteria, N fixation and, 9155*c*.
chloroplast, product of reduction of $CO_2$ by, 5452*f*.
**Hydrogenation.** (See also *Heat of hydrogenation; Hydrogenolysis; Reduction.*)
of acetonaphthone, P 5804*i*.
of acetylene, 108*h*.
to $C_2H_4$, P 3833*i*, P 5030*b*.
on NiS catalysts, 7802*i*.
of acetylene derivs., 571*e*, 1368*e*, 3782*d*.
of acetylenic alcs. (stepwise), 6969*h*.
of acetylenic γ-glycols, 6162*i*.
of acetylenic glycols, chem. constitution and, 3783*a*.
of acetylenic hydrocarbons, nitriles, nitro compds., etc., Ti hydride in, P 1793*g*.
of aldehydes, P 5032*b*, P 7035*h*, 9049*h*.
of aldehydes (unsatd.), P 1063*c*, 5363*g*.
of 2-alkoxy derivs. of 2-butene-1,4-diol, P 5414*d*.
in alkylation of $NH_3$ or amines with aldehydes and ketones, 2155*g*.
in alkylation of *p*-$C_6H_4(NH_2)_2$ with unsatd. ketones, P 4005*e*.
of alkylcyclohexanones, 6989*e*.
of 2-alkyl-*N*, *N'*-diaryl-2-nitro-1,3-propanediamines, P 2230*c*.
of β,β'-(alkylenediimino)dipropionitriles, P 5414*f*.
of 1-alkylidene-1,2,3,4-tetrahydro-2-phenanthrenecarboxylic acids, P 3848*f*.
of *O*-alkyloximes of α-oxo acyl chlorides, P 5422*c*.
of ally alc., catalyst for, 2536*b*.
on alumina catalysts, 1250*e*.
of amino alc. (acetylenic) esters to amine salts, 131*c*, 6977*g*.
of amino aldehydes, P 9080*g*.
of 8-amino-4,7-dichloroquinoline, 7027*c*.
of α-amino-*p*-hydroxyacetophenone derivs., P 3460*c*.
of amino nitriles to form piperidine and pyrrolidine derivs., P 695*f*.
of *p*-aminoöleanilide- and *p*-aminostearanilide-α-glucose condensation products with Ni catalyst, P 4499*cd*.
with ammonia at high temp., P 3032*e*.
of ammonium salts (quaternary cyclic) with $LiAlH_4$, 6631*a*.
during ammonolysis of aliphatic ketones, 2178*i*.
of amylene-isobutene interpolymers, isononanes by, P 1957*b*.
of anhydrides of unsatd. aliphatic acids, P 3839*c*.
app. and process for high-pressure, P 6811*e*.
app. for, P 4058*b*.
of argemone oil, 841*e*.
of aromatic hydrocarbons and olefins in liquid paraffins, P 6819*i*.
of aryl substituted aliphatic acids, 2175*e*.
of benzaldehyde, cinnamic aldehyde and o-, *p*- and *m*-hydroxybenzaldehyde, catalysis of, 8832*a*.
of benzene, P 5798*g*, P 7950*a*.
blocking of catalysts in, 7802*b*.
on Ni catalysts, 8831*g*.
in petroleum fraction to cyclohexane, P 5938*g*.
on platinized C, 1249*g*.
of benzene-chlorinated paraffin wax condensation products, naphthenic lubricating oils, 2416*g*, 2417*a*.
of benzenediacetonitriles, 6591*b*.
of benzene fore-runnings, 1550*b*.
of benzene nucleus, 2964*b*, 5752*e*.
of biphenylcarboxylic acid and its homologs, 1375*f*.
of bis(alkenyl-2-alkoxyphenyl) carbonates, P 4299*b*.
books: The Technology of Fisher-Tropsch Process, 2756*b*; Theoretical Bases of, of Fats [in Russian], 3219*c*.
of 1,3-butanediol, P 2223*i*.
of butenes, kinetics of, 24*f*.
of *tert*-butyl styryl ketone oxide, 139*c*.
of carbon monoxide, 1550*c*, 2397*ehi*, 2398*bdeghi*, 2399*acegi*, 2400*acegh*, 2401*bcefgh*, 3167*cdfh*, P 3175*bdf*.
app. for, P 8218*e*.
to benzine, 2406*eg*.
catalysts for, P 827*a*, P 4448*de*, P 4836*g*, P 5928*b*, 6063*g*, 7313*c*.
changes in Ni catalysts for, during prepn., 2853*b*.
on Co catalysts, 3273*h*.
conversion of hydrocarbons from, P 4447*h*.
detn. of Co and Th in catalysts for, 60*a*.
effect of preheating Ni catalysts on, 8831*c*.
effect of $H_2O$ on Co catalyst in, 6497*a*.
effect on German economy of Fischer-Tropsch, 7212*b*.
gas manuf. from oil shale for, P 1170*f*.
to gasoline, P 3994*bc*, 7211*h*, 7664*c*.
heat control in, P 4908*e*.
heat transfer in app. for, 2348*a*, 8753*h*.
to hydrocarbon oils, P 4835*g*.
to hydrocarbons, P 839*c*, P 1170*i*, P 1171*bd*, P 1172*a*, P 1551*h*, P 4446*g*, P 4447*acf*, 4448*gs*, 4638*a*, P 5573*bd*, 5574*a*, P 6810*h*, P 6811*ab*, P 7213*acd*, P 8120*gi*, P 8121*a*, 9415*h*, P 9420*f*.
to hydrocarbons, catalysts for, P 9419*i*.
to hydrocarbons, chemicals from, 9416*d*.
to hydrocarbons, recovery of oxygenated products from, P 8650*h*.
to hydrocarbons, temp. control in, P 8650*h*.
$Fe_5C$ in Fischer-Tropsch, 1636*a*.
Fe catalyst for, P 6397*a*.
Fe catalysts in, 8117*a*.
iron oxide-alkali metal ferrate catalyst for, P 1950*f*.
iron oxide-alkali metal pyroantimonate catalyst for, P 1950*f*.
kieselguhr as support for catalysts for, 8830*i*.
mechanism of Fischer-Tropsch, 2080*i*, 4828*h*.
to $CH_4$, 2402*b*, 2405*g*, 3169*e*, 4832*b*, 7666*h*.
to motor fuels, P 3174*g*, 3591*d*, P 4834*i*.
Ni-thoria-kieselguhr catalyst for, 5921*f*.
prepn. of alcs. by, 994*e*.
regeneration of catalysts for, P 3994*e*, P 9420*bdh*.
sepn. of reaction products from, P 7213*e*.
in silent discharge, 1272*c*.
S removal from synthesis gas for, P 7214*c*.
wax removal from catalysts for, P 3994*gi*.
x-ray diffraction by catalyst for, 2853*d*.
of carbon monoxide or coal, 3591*e*, 5921*c*, 8646*f*.
of carbon oxides, catalyst for, 8076*g*.
of carbonyl compds. during reaction with an amine or $NH_3$, P 2633*d*.
of carboxylic acid salts, P 4284*i*.
of cashew-nutshell liquid and its derivs. with Raney Ni catalyst, P 4497*i*.
of castor and olive oils with Ni catalyst, 7722*g*.
catalysis of, 8251*d*.
catalysis of, by Rh in liquid phase, 27*e*.
catalysts for, P 2382*d*, P 2746*g*, P 6762*g*, P 8579*f*.
fuel-gas desulfurization with, P 380*a*.
Pt as, 6362*b*.
from V oxides, 2853*b*.
catalysts in, detoxification of poisons of, 3407*e*.
of α-chloro nitro compds., 156*h*.
of cinnamic and crotonic acids, effect of amt. of catalysts on rate of, 8819*b*.
of citronellal, 2160*i*.
of coal, 1942*h*, 1943*aeh*, 1944*a*, 5170*e*, 5171*df*, 6391*b*, 8540*cdfgh*, 8641*abcef*, 8642*g*.
coal-to-vehicle-ratio effect on, 6806*h*.
fuel oil by, 1549*i*.
at high temp., 4444*h*.
instrumentation in, 6806*i*, 7664*e*.
liquid fuels from, P 6810*f*.
materials for app. for, 8646*c*.
temp. effect on, 2404*d*.
of coal and C oxides, liquid fuels by, 5570*i*.
condensation and, of CO with $C_2H_4$, 4829*f*.
in condensation of ketones, P 2222*h*.
of condensation products of $NCCH_2CO_2Et$ with 2-formylethylmalonic acid derivs., P 7505*f*.
cracking and, of rubber, manuf. of gasoline and lubricating oil by, 3648*g*.
of cresols, cleaning metal catalysts from, P 6763*e*.
of cumene and *m*-xylene, equil. in, 8246*h*.
of cyanoacetic acid, P 2225*g*.
of *p*-cyanobenzenesulfonamide, P 7508*c*.
of o-cyanocinnamic acid, 2189*a*.
of *N*-(1-cyanopropyl)acetamide and derivs., 8381*c*.
of cycloalkan-2-ol-1-ones, P 6229*i*.
of 4-(3-cyclohexen-1-yl)-3-buten-2-one, P 679*d*.
of cyclopentane, 589*c*.
of cyclopentane derivs., review, 7906*g*.
of cyclopentane with ring opening, 155*c*.
of dehydro-α-ergostenyl acetate and β-ergostenol, 7492*i*.
dehydrogenation and, of hydrocarbon oils, P 1955*f*.
depolymerization and, in pyrolysis of rubber waste with petroleum heavy oil, 5984*b*.
destructive, of hydrocarbon oil with $MoO_3$.2HCl, P 9431*a*.
destructive, of paraffins, 1712*i*.
of 2-diethylaminoethyl diphenylacetate, P 2234*g*.
of *p*,*p'*-(1,2-diethylethylene)diphenol, 2194*fi*.
of 1,3-di-2-furyl-2-propen-1-one, 3407*c*.
of 2,3-dihydrofuran derivs., P 2643*b*.
of 3,4-dihydro-1(2*H*)-naphthalenone, P 1808*e*.
of 3,6-dihydro-2-phenyl-1,2,2*H*-oxazine, 650*d*.
of 3,4-dihydro-2*H*-pyran-2-carboxaldehyde, P 1435*g*.
of 3,4-dihydro-2*H*-pyran-5-carboxylic acid salts, P 3409*i*.
of 2,5-dihydrothiophene 1,1-dioxide and derivs., P 1065*e*.
of (1,2-dimethylpropenyl)benzene, 6583*h*.
of *p*,α-dimethylstyrene dimer, P 4518*e*.
of 3,7-dimethyl-9-(2,6,6-trimethyl-1-cyclohexen-1-yl)-2,7-nonadien-4-yne-1,6-diol, P 679*c*.
of dinitriles to form piperidine and pyrrolidine derivs., P 695*c*.
of 1,5-diphenyl-2,4-pentadien-1-one, 5015*e*.
effect of amines and H pressure on, with sulfide-coated Ni catalyst, 7802*h*.
effect on caking property of coal, 1941*b*.
electrolytic, of hydroxyquinolines and quinoline, 7355*a*.
electrolytic, of $C_5H_5N$ to piperidine and energy differences between electrolytic hydrogenation and reduction, 5677*h*.
of 6,7-epoxy-3,7-dimethyl-1-octen-3-ol, 4628*i*.
of ergocristine, P 3474*d*.
of ergosine, P 3474*d*.
of ergosterone and isoergosterone, 7493*e*.
of esters and indoles, equilibria in, 2164*i*.
of esters of 1,1,3-alkanetriols, P 7503*g*.
of esters to alcs., 572*b*.
of esters to alcs., velocity of, 573*f*.
of 5-(ethoxymethyl)-5-phenylhydantoin, P 3452*h*.
of ethyl alc. condensation products with Ni catalyst, P 1955*d*.
of ethyl alcohol to form BuOH, 5363*c*.
of ethylene on Cu-Pt alloys, 4088*b*.
of ethylene on $TiO_2$, 8828*b*.
of 2-ethyl-2-hexenal, P 3442*d*.
of eucarvone, 4637*g*.
of fat acid (unsatd.) autoxidation products, 125*i*.
of fats and oils, P 3838*a*.
in autoclave with Ni oxide, 5809*d*.
with $N_2H_4.H_2O$, P 6436*i*.
of fats, catalyst for, 7607*h*.
of fatty acids, 7239*h*.
of fatty acids and glycerides, P 5977*fg*.
app. for, P 5977*e*.

*of fatty acids and glycerides*, distn. of hydrogenation-resistant substances before, P 4032*i*.
in fluidized beds, heat removal in, P 6478*c*.
of formaldehyde condensation products, P 3839*g*.
of fumaric acid with D, 4727*a*.
of 2-furaldehyde, 1719*a*, P 7049*a*.
of 2-furaldehyde and furfuryl alc., 1718*i*, P 4700*f*.
of 2-furaldehyde in vapor phase, 7474*b*.
of 2-furaldehyde with Cu catalyst and of sylvan with Raney-Ni catalyst, P 2805*b*.
of furan and derivs., P 4301*i*.
of furan and its derivs. and $C_6H_6$ derivs. on Pt, catalysis of, 5657*d*.
of furfuryl alc., 1719*b*.
of furfuryl alc., by-products of, 9061*b*.
of gasoline cracked from rubber, 5984*d*.
of glucose, P 5794*h*.
of glyceraldehyde, P 3026*d*.
of glycolonitrile in presence of $CH_2O$, P 3839*e*.
of 1,5-hexadien-3-one and 1,4-pentadien-3-one derivs., 2160*i*.
of hexafluoro-2-butyne, 2925*g*.
of hydantoins and unsatd. ketones, 1317*g*.
of hydrocarbon oils (sulfonated), P 5939*a*.
of hydrocarbons, $Al_2O_3$-$MoO_3$-$TiO_2$ catalysts for, P 1561*d*.
in antiknock fuel manuf., P 5181*c*.
chem. constitution and, 3775*c*.
Cu Mg catalyst for, P 9430*c*.
over Fischer-Tropsch Co catalyst, 7663*i*.
with Group VI metal or sulfide catalyst to high-octane fuels, P 4843*i*.
with regeneration of fluidized catalyst, P 4457*i*.
of hydrocarbons (monocyclic aromatic), Co as catalyst in, 6172*c*.
of hydrocarbons (pentamethylenic), 6566*i*.
hydrogen absorption in, app. for measurement of, 8749*i*.
of 4-hydroxy-4-methyl-2-pentanone, P 5794*a*.
of imines, 2176*i*.
of β-ionone and of β-irone, 4637*e*.
of isanic acid to stearic acid, 3630*b*.
of isodehydrocholesterol acetate, 7493*b*.
of isopropylcyclopentane, 5009*i*.
of julolidine, 5784*d*.
of ketones (α,β-ethylenic), 4651*i*.
of ketones, on Pt catalyst, 475*c*.
in presence of $NH_3$, 1349*f*.
on Raney Ni activated with $PtCl_4$ and $Et_3N$, 6498*b*.
of ketone-urea mixts., P 9082*c*.
kinetics of, 2079*e*.
catalyst mass and, 4551*c*.
in prepn. of cyclohexyl- and phenylalkylamines, 1025*g*.
of Kogasin (synthetic) fractions to gasoline, 2415*f*.
of lactones, P 6652*a*.
of lanosterol derivs., 242*c*.
of lauryl ester of coconut-oil fatty acids, catalyst for, 6063*a*.
of lignin and wood, 8674*i*, 8675*acdh*.
of lignin, structure detn. by, 2427*hi*, 2428*bc*.
of linolenic acid Me ester, 8707*b*.
liquid fuel manuf. by, 6390*i*.
of lubricant fractions, with Ni and Raney Ni catalysts, aniline point and, 8659*f*
of maleic acid on Rh, S effect on, 28*a*
of mesoxalic acid oxime esters and nitrosomalonic acid esters, P 3445*e*.
of methyl 4,6-benzal-2,3-anhydro-α-D-guloside, 4635*h*.
of methyl esters of coconut oil acids in higher alc. manuf., 5208*e*.
of methyl esters of dimeric fat acids to esters and glycols, 8699*c*.
of methyl 3(α)-hydroxy-12-keto-$\Delta^{9,11}$-cholenate and related compds., 3433*f*.
of 1-methylnaphthalene, 3813*i*.
of 2- or 4-methyl-1,3-pentadiene polymers, P 2038*g*.
of 2-methyl-8-phenyl-5,7-octadien-4-one, 4651*g*.
of 2-methylpropene polymers, 4627*i*.
of mixts. contg. higher alcs. as purification, P 5032*e*.
of naphthalene derivs., P 7510*i*.
of 2-naphthol, 2197*c*.
of nitriles, P 682*e*, P 4286*f*, 4629*f*, P 5033*c*.
of nitriles in liquid $NH_3$, P 6652*h*.
of nitrobenzene, 6007*d*.
of nitrobenzene, rate of, 913*c*.
of nitro compds. (aromatic), P 681*i*, P 3454*e*.
of nitrogen compds., 5738*i*.
of γ-nitroisocaproamide derivs., P 3450*b*.
of β-nitropropionic acid derivs., P 3449*i*.
nitroxylene continuous, to xylidine, 2415*d*.
of norcamphane, 2191*i*.
of octadecadienenitrile dimer, P 3447*d*.
of oils, contg. γ-tocopherol in presence of $H_2O_2$ or org. hydroperoxides for white soaps, P 6437*g*.
distn. of hydrogenation-resistant substances before, P 4032*i*.
effect of pptn. with NaOH and $Na_2CO_3$ on Ni catalysts for, 5211*b*.
H pressure and time in, 5610*e*.
life and recovery of Ni catalysts in, 5211*a*.
with Raney Ni to convert polyolefins to monoolefins, P 5214*d*.
of oils (sulfurated vegetable) with Ni catalyst contg. S, solid fat by, P 5613*b*.
of olefin-polymer lubricating oils with $MoS_2$ catalysts, 2418*g*.
of olefins, 2156*i*.
of 2-olefins and 2-olefin polymers, P 1561*a*.
of olefins (di-) to monoölefins with NiS catalysts, 1554*h*.
of org. compds., mol. diagrams of mesomerism and, 5731*f*.
review on, 6967*d*.
using Cu catalysts, P 2218*h*.
of 2(α),3(α)-oxidocholestane*, 3831*f*.
of oximes in presence of $HCO_2Et$, 1336*c*.
of oxygen heterocyclic compds., 4640*d*.
partial, of aromatic hydrocarbons, P 7510*g*.
of petroleum and tars, P 1558*e*.
of petroleum fractions, desulfurization and $H_2S$ manuf. by, P 2423*h*.
of petroleum fractions, desulfurization and $SO_2$ manuf. by, P 2423*h*.
of phenols (polyhydric), 587*i*.
of phthalic anhydride to o-xylene, P 7507*e*.
of 4-piperidones, 1410*e*.
of polyacrylonitrile, P 2468*h*.
of polymerized Me esters of bonito-oil unsatd. acids in lubricant prepn., 2416*f*.
of propene by atomic H, 6053*e*.
of propene on NiS catalysts, 7802*i*.
of 2-pyrazoline-3-carboxylates, 5005*e*.
of pyridine, poisoning of catalysts in, 1536*f*.
quant., app. for, 1226*f*.
of quinoline with simultaneous alkylation, P 2241*c*.
of resinenes, 3598*a*.
of rhombinine, 649*h*.
of rice-bran oil, 6842*c*.
of rice oil and unsatd. oils with Ni oxide as catalyst, 5610*e*.
of rice oil foot in fat acid and soap prepn., 5611*h*.
of rice wax, alcs. and high melting products from, 8709*g*.
of seal fats with $Al_2O_3$-Ni and $Cr_2O_3$-Ni catalysts, 877*f*.
selective, of anthracene, $C_{10}H_8$ and oils, 6841*h*.
selective, of hydrocarbons, 7673*g*.
of semicarbazones of oxo acids, 2604*d*.
sludge from, thermal decompn. of, P 3598*i*.
of sodium bicarbonate to $NaO_2CH$, 3304*c*.
of soybean oil with Ni catalysts, 5209*h*.
of sulfur in fuel-gas purification, 3172*i*.
in synthetic-fuel manuf., 7209*e*.
of tall oil, P 1980*g*.
temp. control in, P 2763*g*.
of tetrahydrofuran, P 5047*i*.
of thiocarbonyl compds., P 2629*h*.
of thiol esters, P 3445*c*.
of thiophene 1,1-dioxide derivs., P 7512*e*.
of triisobutylene with $Al_2O_3$-Pd or -Pt catalysts, 100-octane fuels by, P 4007*e*.
of triisobutylene with Ni-kieselguhr catalyst to isododecane, 5176*f*.
of 1,3,3-trimethylcyclohexene derivs., 2588*g*.
of 1,2,3-trimethylcyclopentanes with ring opening, 1332*b*.
of 1,2,3-trimethylcyclopentene and 2,3,4-trimethyl-2-cyclopenten-1-one, 156*a*.
of 2,2,6-trimethyl-4-piperidone, P 9080*g*.
of vomicine and derivs., 7943*g*.
of xylidene compds., P 1561*g*.

**Hydrogen azide.** See *Hydrazoic acid*.
**Hydrogen bromide.** See *Hydrobromic acid*.
**Hydrogen chloride.** See *Hydrochloric acid*.

**Hydrogen compounds.** (See also *Hydrides*; etc.)
book: Bibliography of Research on Heavy, Compounds, 7351*b*.
with carbon (CH)—see *Methylidyne* (*free radical*); *Methylidyne group*.
with carbon ($CH_2$)—see *Methylene* (*free radical*); *Methylene group*.
with nitrogen, formation by adiabatic compression, 6022*f*.
with nitrogen (NH)—see *Imidogen*.
with nitrogen ($NH_2$)—see *Amidogen*.
with oxygen, electron affinities and solvation energies of $HO_2$, 5651*c*.
with oxygen (OH)—see *Hydroxyl* (*free radical*).
with oxygen ($O_2H$) in gas phase, 5246*g*.
review on, 2105*i*.
**Hydrogen cyanide.** See *Hydrocyanic acid*.
**Hydrogen deuteride.** See "mol. with D" under *Hydrogen*, or the reverse.
**Hydrogen dioxide.** See *Hydrogen peroxide*.
**Hydrogen disulfide.** See *Hydrogen sulfides*.
**Hydrogen fluoride.** See *Hydrofluoric acid*.
**Hydrogen halides.** (See also *Hydrochloric acid*; etc.)
addn. to acetylene compds. and to olefins, P 2629*a*.
bond energy and ionic character of, 8761*a*
bond lengths in, 2478*i*, 6876*h*.
as catalysts in alkylation of aromatic hydrocarbons with olefins, P 4005*a*.
in halogenation of unsatd. ether, P 4682*a*
in oxidation of alicyclic hydrocarbons, P 5422*b*.
in oxidation of aromatic hydrocarbons, P 5422*a*.
catalysts of Al halides, metal halides and, in isomerization of $C_4$-$C_9$ paraffins, P 3190*d*.
formation in elec. insulators contg. halogenated hydrocarbons, prevention of, P 2217*e*, P 4402*d*.
ionic character of, 8762*i*.
mixts. with olefins, distn. of, P 6010*b*
phase transition in, 4065*i*.
potential functions and, 7276*g*
as promoters in polymerization of olefins, P 5991*c*.
reaction with aldehydes and thiols, 7409*d*.
with alkyl ethers and Si, P 3025*d*.
with cyclohexenes and hydrogenated naphthalenes, 2173*g*.
with $CH_2O$ and olefins or halogenated olefins, P 3835*h*.
with β-lactone of hydracrylic acid, P 1054*c*.
with 1-(2-nitrovinyl)piperidine, 1004*c*
with paraffins, P 660*g*.
with rubber, P 5223*f*.
with tetrahydrofuran in presence of $Ac_2O$ or $H_2SO_4$, P 1433*d*
with unsatd. esters, P 7954*h*
removal from alkyl halides, kinetics of, 3346*h*, 3347*be*, 3348*d*, 3350*d*
from alkyl 1-haloalkyl ethers, P 4683*c*
from aromatic halogen compds. to form polymers, 1603*d*.
from dihalo paraffins and monohalo olefins, P 5788*f*.
from halo alkyl aryl ethers, P 9084*e*.
from halogenated hydrocarbons, P 2216*e*, P 5424*a*.
from halo sterol esters, P 6674*f*.
from olefin polymerizates contg. Friedel-Crafts catalysts, P 3605*i*.
from reaction products of halo olefins with satd. hydrocarbons, P 4681*b*
from α,α,β-trihalo derivs. of $EtCO_2H$ esters, P 3027*b*.
**Hydrogen iodide.** See *Hydriodic acid*
**Hydrogen ion** (*electrolytic*). (See also *Hydrogen-ion concentration*; *Protons*.)
activity of, relation to basicity and dielec. const. of medium, 7304*g*.
adsorption of, 8796*h*.
affinities of O-contg. solvents, 4544*g*.
crystallochem. electronegativity of, 8231*a*.
detn. of, in bleaching earths, 7607*e*.
diffusion and limiting discharge current of, 6052*b*.
discharge on electrode, heat of activation of, 954*a*.
discharge rate of, overpotential and, 48*a*.
effect on arrangement and double refraction of soap sols, 8793*h*.
on electrocapillary properties of physiologically active substances, 6887*e*
on *Mycobacterium smegmatis*, 5444*c*
on *Proteus vulgaris* and *P. X*$_{19}$, 1455*f*.
exchange of, 464*h*.

exchange with phenolsulfonate resin, 8792*b*.
formation from clay minerals by acids and salts, 3726.
in gastric juice, source of, 3500*i*.
hydration of, activity and, 7302*a*.
interactions in dibasic acids, 7780*h*.
metal ions and, 4096*f*.
reaction products with maleic anhydride polymers with Me methacrylate, 8202*d*.
removal of hydronium and, from montmorillonite, catalytic activity and, 1554*f*.
in soils, effect of $(NH_4)_2SO_4$ on, 8593*f*.

**Hydrogen-ion concentration.** (See also *Acidity; Alkalinity; Isoelectric point.*)
adsorption of acids and bases in relation to, 6035*c*.
adsorption of Fast Red and methylene blue by burnt pholerite prepns. in relation to, 6035*i*.
alkali hexametaphosphate detergent solns. of controlled, P 6438*e*.
amine reaction with heteropoly acids and metallic cations in relation to, 1671*g*
amino acid synthesis from $NH_3$ and keto acids by bacteria in relation to, 5084*e*
of *p*-aminobenzoic acid concd. and analytical solns., 4977*g*.
of amniotic fluid, 7985*a*.
amphoteric-substance adsorption and, 6035*d*.
of arabic acid solns., 8809*f*.
of arsenic trioxide $H_2S$ reaction solns., 5320*i*.
barium-ion absorption by $SiO_2$ gel and, 2498*h*.
barium-ion adsorption by hydrous $Fe_2O_3$ and, 6036*a*.
in barium sulfate formation, 6882*h*.
in bauxite formation, 2133*f*.
in beer, foam and, 6781*b*
of beverages, effect on decalcification of teeth, 9220*h*.
of blood—see *Blood*
of bone-char-filtered liquors, 8650*e*.
book. Die Wasserstoffionen-Messung, 8842*d*.
of bromine solns., 7799*d*.
buffer systems—see *Buffer systems*
of butter serum, and effect of washing thereon, 8568*i*.
of calcium hydrogen carbonate solns., 9306*f*.
calcn. from pH, app. for, 6471*e*
of carbon blacks in rubber compounding, 802*d*.
of carbon dioxide, $Na_2CrO_4$, etc., in flow string of gas-condensate wells (journal reference should be no. 5), 7216*i*
cerium purification and sepn. in relation to, 4168*f*.
of chestnut natural and sweetened tanning exts., 9507*a*.
of chromium basic sulfate solns., effect of Na salts of weak org. acids on, 8184*a*
of chromium chloride solns with increasing basicity, 1591*e*
of chromium(VI) compds., 8785*b*.
of Chrysophenine G dye bath, absorption by viscose and, 4015*i*.
of clays, colloid content and, 2070*b*.
clay suspensions and, 4538*e*.
colors of anthocyanins and, 7860*i*.
control and measurement of, in industry, 1881*f*.
control of, 4904*d*.
during analysis, pyridine in, 9026.
app. for, 6091*c*.
in bleaching with chlorite, P 4022*a*
of cooling water by S burner, 3184*g*.
in cyanide solns., 78*c*.
in dyeing, 411*a*.
in hypochlorite wool shrink-proofing solns., P 4022*d*.
of petroleum in decreasing still corrosion, 5178*i*.
during tanning, 5617*g*.
in control of scale deposition in cooling towers, 1128*g*.
corrosion (bacterial) and, 547*a*, 5356*g*.
of cotton fiber exts., 853*g*.
of cream, effect of increasing, on butter, 327*b*.
cytochrome c stability and, 7522*a*.
of dental plaques, lactobacillus count and, 1101*f*.
of detergent and soap solns., effect of concn. on, 6435*d*.
of detergent-electrolyte builder-soap systems, 3635*i*.
detn. of, and ionization consts. of malonates, 8809*a*.
detn. of, on adsorbents, 4070*d*.
app. for, P 5682*e*.
with As electrode, 8904*h*.
with Bi electrodes, 8900*c*.
of blood—see *Blood, analysis*.
cause of protein error in, 8411*i*.
color standards for, 2075*e*.
by Congo red, effect of org. surface-active agents on, 8949*a*.
d.-c. amplifier with resistance electrodes for, 6525*f*.
direct-reading pH meter, 4904*c*.
elec. app. for, 954*d*.
electrodes for—see *Electrodes*.
of electroplating baths, 961*g*
feedback potentiometer for, 2044*i*.
of fused salt baths, 2546*i*.
glasses for, 4083*f*.
glass for electrodes for, 827*d*.
indicators for—see *Indicators*.
of $Pb(NO_3)_2$-NaOH reaction products, 2892*g*.
of meat, 8068*h*.
microbeaker for, 415*h*.
of milk—see *Milk, analysis*.
in paper exts., 2773*c*.
in paper mill, app. for, 7228*d*.
in pharmaceutical lab. and in the field, 1905*g*.
in range 10 to 15, 5339*e*.
of rubber, instrument for, 429*c*.
salt bridge for, P 2047*h*.
of skin lesions, 4183*d*.
of soils—see *Soils, analysis*.
by spectrophotometric means, 6933*c*.
in sweat, 7537*e*
in systems with nonaq. solvents, 8814*a*.
of urine—see *Urine, analysis*.
of water—see *Water, analysis*.
of weak acids and their salts, 3639*i*
of dextrin-borax alkali adhesives, 9500*b*.
of digestive tract of hen and its effect on material in alimentary tract, 2291*e*.
dilu. effect on, of solns. contg. complex ions, 5685*d*.
drugs at different, dielec. potential and surface tension of, 7196*b*.
dye adsorption by $Al_2O_3$ and, 6035*c*.
dye-bath exhaustion and, 5593*i*, 5595*a*
of dye baths, effect on susceptibility to wool textile raising, 6828*h*.
dye binding by fibrin and, 411*f*.
dyeing and, 4015*g*.
dyeing rate of wool and, 7687*i*.
of earths, effect on oil stability and color removal in vacuum bleaching, 5208*a*.
effect on *cis*-aconitic acid stability, 127*a*.
on action potential of sympathetic ganglion, 9208*g*.
on $NH_3$ and nitrate assimilation by *Azotobacter*, 8008*d*.
on amylase activity in fungi and malt, 8414*e*.
on analysis of nitration acids, 5346*c*
on anionotropic rearrangements, 2183*e*.
on arginase activity of liver and mammary homogenates, 4321*h*.
on bacterial adaptation to acridine derivs., 718*b*, 3058*b*.
on bactericidal action of quaternary ammonium compds., 3884*g*.
on bacteriostatic activity of nitrophenols, 271*f*.
on carotene-bleaching activity of bacon fat exts. and hemoglobin solns., 3633*h*.
on cellulose oxidation, 8671*g*.
on Cl reaction with wool, 1572*d*.
on colored complexes, 3306*h*.
on color reaction of 2,6-dibromoquinone chloroimide with phenols, 4185*a*.
on combined alkali, N and regenerative protein index of soybean proteins, 4861*g*.
on Cu detn. by electrolysis with Zn amalgam, 7863*h*.
on decarboxylase formation by bacteria, 8440*f*.
on diam. of coacervate drops from gelatin and gum arabic, 3691*b*.
on dielec. potential and surface tension of aq. amphoteric substances, 3267*f*.
on elastic properties of rennet curd, 4394*b*.
on ferrous ion reaction with $H_2O_2$, 6895*b*.
on filler retention in paper, 401*c*.
on flotability of fibers, 6421*a*.
on HCHO condensation with urea, 1247*a*.
on fructose solns., 9040*g*.
*effect* on gelatin films on $H_2O$, 8798*h*.
on hydrogenation on Pd and Rh catalysts, 27*h*.
on hydrolysis of $Et_4P_2O_7$, 2077*i*.
on hydrolysis rate of phosphoric acid esters and of $H_4P_2O_7$, 147*f*.
on inactivation rate of staphylococcus antitoxin in urea solns., 2304*i*.
on invertase, 1817*b*.
on iodoacetic acid toxicity to yeast cells, 1828*i*.
on ion transport through frog skin, 4715*a*.
on Fe and Fe alloy soln. rate, 1703*d*.
on Fe anodes and cathodes, 4620*h*.
on lead chloride fluoride pptn., 5332*c*.
on metabolism of bone marrow, 4752*a*.
on optical rotation of Cu tartrate, 8243*a*.
on oxidation and potential of skin, 4707*b*.
on oxidation velocity of *p*-phenylenediamines, 595*a*.
on oxyhemoglobin dissocn. curves, 5814*h*.
on penicillin action, 3060*c*.
on photolysis of peroxydisulfate, 4144*i*.
on photometric analysis for cations, 8298*e*.
on photosynthesis in aquatic plants, 5453*a*.
on phthalic anhydride pickling of hides, 4042*a*.
on polymerization of butadiene with Me isopropenyl ketone, 5987*i*.
on potential of Pt in cyanide soln., 2076*c*.
on potential of semiwave of reduction of nitrobenzene in buffer soln., 4977*a*.
on preservation of feeding stuffs and butter, 2709*g*.
on protein vol. during hydrolysis, 6263*e*.
on quality and vitamin $B_1$ retention in baking powder biscuits, 2336*g*.
on reaction of amines with $HNO_2$, 9046*h*.
on respiration of brain tissue, 3084*e*.
on respiratory inhibitors, 6251*e*.
on shrinkage rate of wool shirting, 6423*j*.
on sorption of radio-Na ions by glass and metals, 8233*h*.
on soybean protein soly. in acid, alkali and salts and on viscosity of solns., 4469*m*, 4859*h*, 4860*d*.
on stability of nitriloacetate complexes of rare earths, 8301*a*.
on steel-corrosion rate, 550*c*.
on surface potential and surface tension of solns. of acridine, phenanthroline and piperidine, 2845*g*.
on surface tension of oils and lubricating greases, 8650*h*.
on swelling of collagen in liming hides, 6448*i*.
on ultraviolet light inactivation of pepsin, 7982*f*.
on urea absorption by plant cells, 5829*f*.
on vegetable tan fixation and on leather resistance to tryptic hydrolysis, 8183*f*.
on virus-host cell combinations, 1482*i*.
on vitamin C oxidation, 1016*i*, 1118*f*.
of eggs (white and yolk), 5509*i*.
elec. cond. of Amberlite IR-100 and, 7785*g*.
electrocapillarity and surface tension of alkaloids in relation to, 6887*f*.
electrocapillarity of $C_9H_7N$, quinoline and their derivs. in relation to, 2845*e*.
at equivalence point in titration of AcOH, HCl and KH phthalate, 2542*d*.
fibrinogen clotting time and clot opacity in relation to, 9102*d*.
of fish eggs, effect of putrefaction on, 327*h*.
of fish muscle, effect on bacteria and $Me_3N$, 5128*e*.
flotation and, 1227*i*.
fluorescence and, of org. compds., 8282*c*.
fungus tolerating high, 7548*b*.
glasses responsive to, 4083*e*.
of gum-jeol solns., effect of salts on, 8717*f*.
hemolysis of erythrocytes and, 1473*c*.
of hydrogen-activating enzyme systems during insect metamorphosis, 2333*d*.
hydrogen liberation at Hg cathode and, 6055*d*.
hypolodous acid decompn. and, 8240*g*, 8250*a*.

in identification of phase compn. of com. Ca arsenate preps., 5324c.
intercellular cohesion in corneal epithelium in relation to, 8514e.
in ionization extn. of org. acids, 8214c.
of lacrimal fluid, 9211f.
lipoxidase activity and, 4709f.
of malignant tissue, 5109g.
malonic acid decompn. and, 7797f.
of mangrove cell sap, sea water and soil solns., 1086a.
of meat (whale), effect on decrease in freshness, 9285b.
metavanadate pptn. and, 8247f.
of milk—see *Milk*.
in muscle at subsidence of rigor mortis, 7124i.
nickel potential in Ni-plating solns. and, 8902e.
of nodules and tissues of leguminous plants, 2279b.
in orchid culture, 6704i.
oxidizing power and, 8245d.
phosphomonoesterase I optimum, dependence on substrate concn. and on inhibitors and activators, 5063h.
of photographic developers, air oxidation and, 4591a.
course of development and, 3735e.
oxidation by AgBr emulsion and, 4589h.
photographic-emulsion treatment for nuclear research and, 7841a.
photographic-latent-image fading and, 8921i.
of pilocarpine solns., effect on glaucomatous eye, 764b.
of plant juices from anthocyanin-yielding plants and its relation to color of flowers, 8450a.
plant nutrition and, 2722d.
of plant parts, effect of K on, 5451e.
of plant press juices, photoperiodic change of, 5454e.
polarography of periodate and, 1661i.
polymer compatibility and, 6863a.
of 2,6-polymethylene-4-nitrophenols, effect of ring size on, 161d.
of potassium chloride soln., effect of chemisorption by rare earth hydroxides on, 8244h.
potassium permanganate reaction with wool and, 6896i.
of potassium silicate solns., soap solns. and their mixts., 2002c.
of potassium thiocyanate solns. contg. HCl, 2074h.
potentials of ferricyanide ion, I and $KMnO_4$ in relation to, 4586fg.
of precious-metal sulfide solns., 7362h.
precipitation of Cb and Ti in relation to, 4083c.
producing and maintaining high, in synthetic rubber latexes, P 1600i.
quinone action against urease and catalase in relation to, 8413d.
rare earth acetylacetonate pptn. and, 2106h.
reduction of, of synthetic-elastomer latexes by amino acids, P 2463c.
in retting of kenaf, 1570f.
root growth and, and its relation to inhibition by 2,4-dichlorophenoxyacetic acid and coumarin, 8454h.
of rubber latex gelation by $Na_2SiF_6$, effect of $NH_3$, surface-active substances and ZnO on, 5983c.
of saliva—see *Saliva*.
of salivary gland cells of *Chironomus thummi*, 3532c.
of sawdusts and sawdust-soil mixts., 3130d.
scale for solns. contg. low concns. of $H_2O$, 8244h.
in *Scenedesmus quadricauda* growth, 6706a.
of sericin sols, 853f.
of soap solns., 7724f.
of soap solns., foam formation and, 1584h.
of sodium thiosulfate solns. contg. HCl, 2074g.
in sorghum during growth, and its relation to chinch bug injury, 4346d.
spectra of pyrimidines and, 5307c.
spectra of sulfosalicylic acid complexes and, 5325b, 5326a.
standards for, acid salts of monocarboxylic acids as, 8812g.
of sulfate systems with oxides and water, 2492h.
of sulfur solns. in aq. $Na_2S$, 2493g.
of tallow, 8177g.
of tanning liquors during storage, 6849g.
tartrate complexes and, 5324f.
in textile setting, 8685h.
of tissue during activity and inflammation, 9237d.
of trinitrotoluene, effect of sunlight on, 8682f.
uranium (sexivalent) hydrolysis and, 8941a.
of urine—see *Urine*.
of vagina associated with ectropion of cervix, 3511f.
of water—see also *Waters, natural*.
of water from low-temp. carbonization of coal, 8642b.
of waters (alk.), effect of temp. on, 7611i.
of water (sea) effect on detergent efficiency, 2003c.
of waters (natural), calcd. and experimentally detd., 3121d.
in wine making, 3560e, 8606e.
in wool during combination with acids, 3202d, 6820c.
ytterbium polarography and, 6523h.

**Hydrogen nuclei.** See *Deuterons; Hydrogen ion; Protons*.

**Hydrogenolysis.** (See also *Hydrogenation.*)
of alkyl halides by $LiAlH_4$, 1311h.
of amino alc. (acetylenic) esters to amine salts, 131c, 6977g.
of bibenzyl to toluene, P 3454a.
catalyst for, P 6762g.
of esters, 572b.
of esters, velocity of, 573f.
of methylcyclopentane, 6567a.
motor fuel manuf. by Fischer-Tropsch process and, P 4834i.
of nitriles (aromatic), 7916f.
of oxygen heterocycles, 4640d.
of thiol esters, P 3445c.
of 2,2,3-trimethyl-1-butanol, 1312i.

**Hydrogen peroxide.** (*Simple hydrogen peroxides are indexed under their own headings, as* Ethyl hydroperoxide. *Complex hydrogen peroxides are indexed as inverted entries at* Hydroperoxide. *See also* Bleaching agents; Hydroperoxides.)
alc. oxidation with, 5269h.
as antibacterial principle produced by *Micrococcus X*, 4327e.
in bacterial inhibition by saliva, 5079i.
bactericidal action and effect on enzymes in milk, 3115a.
bactericidal action on oral spirochetes, 9159e.
bactericidal efficiency of, 9159h.
biol. effect of ionizing radiations and, 3058b.
bleaching with—see *Bleaching*.
as catalyst in prepn. of β-thiocyanoalanine from cystine and KCN, 1014h.
cellulose oxidation by, 8672b.
in chlorine (excess) destruction in water, 3121f.
coconut fiber damage by, 5595g.
compds. with catalase, 260g.
with peroxidases, 3859i, 9121b.
with $Na_2CO_3$ ($2Na_2CO_3.3H_2O_2$), P 369d.
cornea tolerance to, 771c, 3110h.
corrosion by, of Al-alloy sheets, 98d.
in dairy industry, 778h.
in dairy-product preservation for phosphatase test, 3942c.
decompn. by heat and explosion ignition in, in vapor phase, 8139e.
decompn. of, at anodes, 5677c.
by catalase, effect of peroxide concn. and other factors on, 6260b.
by catalase, ferrous and ferric ion, hemin and ferrous phthalocyanine, 2753i.
catalytic structure for, P 6096f.
by colloidal Pt, effect of $D_2O$ on, 8829a.
by Fe salts, 4087a.
by light, 5313c.
$MnO_2$ as catalyst in, 7313e.
on Hg, 927a.
on metals, 6028e.
on Pt catalysts, 6062c.
by $K_4Fe(CN)_6$, photochem. aftereffect in, 6087i.
by $KMnO_4$, rate of, 8250c.
in presence of $Fe(NO_3)_3$, kinetics of, 25b.
detection of, 8307i.
detection of, in fats, spoilage detection by, 5205i.
detection of residual, in catalase test on meat, 1120a.
detn. of, 2121h, 3315f.
detn. of, and reaction with I, 2121i, 8307i.
detn. of concn. of, in drugs, 7639b.
detn. of, in per acid solns., 2124f.
diffusion of vapor of, into air, 2056i.
in *N, N*-dimethyl-*p*-phenylazoaniline demethylation, 5756f.
disinfectants contg., 9364i.
distn. of, after removal of org. peroxides, P 3159i.
effect on amino acids in milk, 3115c.
on autodisplacement of Pb, 2846e.
on desoxyribonucleic acid, 8415b.
on electrodes of Cu and Fe, 47f.
on enzymes in fig latex prepn., 6327d
on exchange between cobaltous ion and $Co(OH)_3$, 8820i.
on N fixation by *Azotobacter*, 8591h.
on respiration of sea-urchin eggs and sperm, 9272eg.
on wool digestibility by pancreatin and x-ray pattern, 2778i.
explosives from glycerol and, P 1190f.
in ferrous-metal passivation, P 6144a.
as fertilizer, 5142d.
formation and decompn. during slow combustion of hydrocarbons, 3696h
formation of, from air and $H_2O$ with ultrasonic waves, 8779i.
from at. H and $O_2$, rate of, 2079i.
during corrosion of Al and Zn, 6140a
from F and $H_2O$, 6793f.
from H ion and O, limiting current of, 6052c.
by O adsorbed by C, 4075i.
photochem. activity of Zn oxide pigment in aq. soln. in, 5604i.
in reaction between I, AgOAc and HOAc, 8249i.
from reaction of hydroxyl radical with hydrocarbons, 6149i.
*in vivo*, folic acid deficiency and anemia syndrome in relation to flavine-contg. enzymes in, 2207e
glycerite of, effect on bacteria in mouth, 6698i
in glycerol, bacteriotoxic effect of, 4533i
heat of ionization, ionization and pH of, 5651c.
heat of reaction with ferrous ions, 5658
hydrogenation of oils in presence of, to inhibit oxidation of contained γ-tocopherol in white soaps, P 6437g
manuf. from alkali metal amalgams, P 2380g.
from alkylated anthraquinone, P 1929e
from $NH_4HSO_4$, refining electrolyte for, P 6528d.
as milk preservative, 9279g.
mixt. with $NH_4OH$ in Cu-oxide rectifier treatment, P 4590b.
org.-compd oxidation by, 7311d
in oxidation of α-oxo carboxylic acids, 6979i.
in photochem. degradation of cotton sensitized by oxides and vat dyes, 412b
in photochem. degradation of dyed nylon, rayon and silk, 1102cd.
in photography, 1668b, 6097h.
in photography of α-rays, 4109i.
photoreaction with $I_2$, 499g.
polymerization by, kinetics of, 7310f.
pyrrole oxidation by, 4257b.
reaction with $Ac_2O$, P 3444f.
with 2-chloro- and 2-ethoxypyrazine derivs., 3005g.
with cycloalkenes in presence of $HCO_2H$, 2173d.
with α-diketones and α-keto acids, 6061f.
with ferrous and ferric ions, 6895c.
with Fe salts, 6895b.
with methylcyclopentenes in presence of $HCO_2H$, 2172d.
with $KMnO_4$, 4594i
with $Na_2[Fe(CN)_5NO]$ activated by light, 2495d.
with tertiary alcs., 6180d.
with urea-HCHO resins, 7745i.
reduction at cathode, effect of catalase, peroxidase, cytochrome c, hematin and hemoglobin on, 3052h.
reduction at Hg electrode, 8912h.
refractive index of aq., and detn. of $H_2O_2$, 6049d.
in rice-oil decolorization, 5611b.
as rocket fuel, 9449i.
scission of C-C bonds by, 7434c.
spectrum of, 3724f, 8884f.
stability of concd., 5558g.
in stabilization of solns. of polythionates and polythionic acids, P 7651h.
system: $HIO_3$-I⁻, 7799b.
in thermal H-O reaction and its decompn. by heat, 7305h.

vitamin C oxidation in milk by, 3941*h*.
whey preservation with, 6326*i*.
**Hydrogen persulfide.** See *Hydrogen sulfides*.
**Hydrogen phosphide.** See *Phosphine*.
**Hydrogen selenide,** oxidation of, kinetics of photochem., 8895*e*.
phase transitions in, 4136*i*.
reaction with $NH_3$, equil. in, 6053*a*.
**Hydrogen sulfide.** (See also *Hydrogen sulfides*.)
absorbent for, P 8623*g*.
absorption of, nomograph for NaOH solns. for, 3157*a*.
addn. to 2-phenyl-2-oxazoline and to benzoylaziridine, 3014*c*.
addn. to vinyl ketones, 2944*h*.
adsorption by solids, 7288*d*.
in air, max. allowable concns. of, 4400*i*.
binding energy of, 6895*f*.
in Black Sea, 8761*g*.
in Black Sea, origin and upper limit of, 3324*d*.
carbonyl compd. hydrogenation in the presence of, P 2629*h*.
in cigaret smoke, 7645*f*.
citronella oil treated with, flotation by, P 6964*e*.
corrosion by, in petroleum cracking and distg. unit, prevention by $NH_3$, 6401*h*.
as corrosion inhibitor for $H_2CO_3$, P 5730*f*.
corrosion of gas pipes by, 1169*d*.
detn. of, 64*i*, 3745*g*.
in air, 971*e*.
and Brit. standards for, 1527*e*.
in $CS_2$, 6944*c*.
in fuel gas, 6394*a*.
in gases, methylene blue method for, 7375*b*.
in gasoline, 6943*i*.
in natural gas, 835*e*.
diacylation of, 8353*a*.
effect of, and oxidation products on succinic dehydrogenase, 256*e*.
effect on aerosols, 7290*a*.
on combustion of cyanogen, 6053*i*.
on concrete, 2346*g*.
on corrosion resistance of Cr-Ni alloys, 2918*d*.
on N fixation by *Azotobacter*, 8591*h*.
on oxidation rate of ferrous ions, 1246*c*.
on Ag mirrors, 2387*i*.
on water-gas reaction, 1945*g*.
formation of, from hydrolysis of $CS_2$, 7429*e*.
in hard-rubber vulcanization and deterioration, 2011*d*.
in lubricants contg. org. S compds., inhibition by $\alpha,\beta$-unsatd. ketones, P 8132*b*.
in manufd. gas by bacterial action, 8045*h*.
in rubber, effect of compounding with CuO on, 5620*g*.
formation of hexahydrate of, antifreeze-agent effect on, 1672*g*.
in fuel gas, S recovery from, 4833*e*.
in fuels for motors, testing corrosiveness to Cu, 9426*b*.
generator for, 6869*d*.
heat of adsorption by active C, 7317*c*.
hydrogen (free) in, from FeS, 5319*i*.
manuf. from CaS, P 4822*g*.
from hydrocarbons and S, P 7201*i*.
from H and S, P 7201*h*.
oxidation (partial) of, P 4822*i*.
partition between liquid hydrocarbons and $H_2O$, 7297*g*.
from petroleum refining, health hazard of, 5931*a*.
phase transitions in, 4136*i*.
prepn. by hydrogenation of org. S compds. and detn. in gases, 6112*f*.
prepn. of, thermodynamics of, 2847*a*.
purification of, P 9396*i*.
reaction (addn.) with double bonds, 1722*f*.
reaction products with adiponitrile and 1,8-dichloro-2,7-octanedione for rubbery fibers, P 7745*f*.
with cellulose acetate *p*-toluenesulfonate, 3610*h*.
with high-mol. polyunsatd. compds., P 2804*d*.
with 1,3,5-triacrylylhexahydro-*s*-triazine, 5405*g*.
reaction with 5-alkyl derivs. of 1-methoxy-4-hexen-3-one, 2163*d*.
with alkyl halides, P 6646*e*.
with 9-aminoacridine derivs. and with 9-chloroacridine, 6495*b*.
with $As_2O_3$ in aq. solns., 5319*i*.
*reaction* with $Cl_2$, 7799*a*.
with $Cl_2$ and $SO_2$, periodic ppts. from, 7788*g*.
with *N*-(cyanoguanyl) amides, P 4292*d*.
with 2-cyclohexen-1-ones, P 1062*i*.
with diesters of 1,1-alkanediols, P 5418*e*.
with ethylene, P 7052*f*.
with ethylene oxide, 2624*g*.
with ethylene oxide in presence of $AlCl_3$, 1391*c*.
with ketones, 4633*c*.
with $\beta$-lactones, P 1054*d*.
with lignin-model substances, 9438*b*.
with olefin polymers, P 4683*c*.
with olefins, P 664*h*, P 691*g*, P 5790*i*.
with olefins, catalyst for, P 6763*b*.
with olefins, infrared analysis of, 3743*b*.
with olefins in presence of HF, P 2219*i*.
with olefins, isoprene dimer and rubber, 999*d*.
with oxides, rate of, 8817*i*.
with unsatd. hydrocarbons, 5932*d*.
and reaction with olefins, 1715*h*.
recovery from gas liquor, 9416*h*.
from petroleum waste waters, 2718*b*.
from viscose baths, P 849*d*.
from viscose-industry wastes, 6408*h*.
removal and detn. of, in coal carbonization, 9414*b*.
removal of, from coal and synthesis gas, 3170*a*.
from coal gas, 3172*d*, 8644*i*.
from cracked gasoline, treatment of spent NaOH from, 4839*c*.
from fuel gas, 1945*i*, P 2756*c*, 3172*c*, 3173*b*, 3595*g*, P 7212*h*, 7672*i*.
from gases, P 2381*i*, P 4450*c*, P 7669*c*
in HCN recovery from fuel gas, P 2756*g*.
from natural gas, 2711*g*, 3180*a*, 8119*b*.
from paper-pulp-digester gases, 8136*a*.
from petroleum, corrosion prevention by, 5178*h*.
in ventilation of viscose-rayon-spinning plant, 8134*i*.
removal of, from well waters, and detn. of $H_2S$ in water, 1127*d*.
in sewage, active C in prevention of evolution of, 1887*f*.
effect on concrete, 3547*e*.
reduction of, 8079*e*.
in sewage, effect of chlorinated hydrocarbons on production of, and app. for detn. of, 8585*c*.
in shock and collapse therapy, 8062*c*.
soly. in S, 8839*c*.
spectrum of, 491*b*, 5308*g*.
spring waters contg., heavy metal detn. in, 7611*g*.
steel resistance to, 1303*h*.
sulfur isotopes in, 6508*c*.
sulfur manuf. from, P 7652*f*.
system: $NH_3$-$CO_2$-$H_2O$-, 6048*d*.
toxicology of, 5514*g*.
vapor d. over boiling $NH_3$ liquor, 2480*g*.
**Hydrogen sulfide group,** precipitation of, indicator changing at pH 0.5 for control of, 7368*i*.
**Hydrogen sulfides,** polysulfides, thermochemistry of, 3305*d*.
prepn. and properties of $H_2S_3$ and $H_2S_4$, 2884*b*.
prepn. of $H_2S_2$ and $H_2S_3$, 3150*f*.
**$H_2S_2$,** detn. of, 3745*a*.
**Hydrohalides.** See *Hydrogen halides*.
**Hydrohalite.** See *Sodium chloride*.
**Hydrohalogenation.** See *Hydrogen halides*.
**Hydrohematite.** See *Turgite*.
**Hydrojuglone.** See *1,4,5-Naphthalenetriol*.
**Hydrolagus colliei,** oil of—see "ratfish" under *Oils*.
**Hydrolapachol** (*2-hydroxy-3-isoamyl-1,4-naphthoquinone*), 1382*e*.
antimalarial action and respiration inhibition in plasmodia by, 2610*b*.
and derivs., 1373*c*.
and derivs., chem. constitution and antimalarial action of, 1370*h*.
metabolism of, 1108*g*.
oxidation of, 1384*c*.
——, **hydroxy-***, 1387*b*.
sulfate (ester), 1386*d*.
**Hydrolignin,** 8675*fgh*.
**Hydrology,** book: *Lezioni di idrologia generale e crenologia*, 9310*c*.
**Hydrols.** See *Water*.
**Hydrolysis.** (*Hydrolyses stated to be by enzymes are not entered here, but at* Enzymes *or at the specific enzymes or classes of enzymes, such as* Amylases. *See also* Deamination; Heat of hydrolysis; Lipolysis; Saccharification; Saponification; Solvolysis; *and* "reaction" *under* Water.)
of acetic anhydride, 472*f*, 6495*b*.
of acetic, butyric and propionic anhydrides, rates of, 5271*c*.
of acetobromoglucose, 5748*a*.
of acetylcholine, rate of, 3271*h*.
of *N*-acetyl derivs. of 3,5-dichlorosulfanilamide, 601*i*.
of acetyl dihydrogen phosphate and its dibenzyl ester, 8351*c*.
of actidione, 576*h*.
adsorption, 6882*g*.
adsorption of cations on $Al_2O_3$ as, 8293*i*.
of aldols and compds. related to lignosulfonic acids, 5763*b*.
of 2-alkoxy-3-halotetrahydrofurans, 5774*h*.
of alkyl chloromethyl ethers, 6568*e*.
of alkyl iodides, theory of, 3694*a*.
of alkyl (tertiary) chlorides, 6968*e*.
of alkyltrihalosilanes, P 6221*d*.
of alkyl vinyl ethers, 3272*a*, P 7501*b*.
of allyl chloride derivs., rates of, 2849*d*.
of allyl halides, kinetics of, 8249*d*.
of aluminum and U nitrates, condensation of basic ions in, 7308*a*.
of amides, 3781*h*.
of amino groups in pyrimidine derivs., 8395*f*.
of amylose, effect on retrogradation, 2455*d*.
of anion-exchange resin and its regeneration, 2067*a*.
of anthraquinonedisulfonic acids, 3400*g*.
of 2-azetidinone, 8357*e*.
of bis(dichloromethyl) sulfide, 4629*b*.
of $\alpha,\alpha$-bis(glycylamino)propionic acid derivs. by rat-tissue extracts, 138*h*.
of bismuth chloride to BiOCl, 7836*i*.
of bromine, 7799*d*.
of calcium chloride by steam, Berthelot-Thomsen principle of max. work and, 2847*c*.
of 3-carbazolesulfonic acid, 6205*b*.
of carbon disulfide, 7429*e*.
of carbon-halogen bonds in halo org. compds. contg. O and S atoms, velocity of, 128*i*.
of casein, 260*f*.
of casein, amino acid liberation by, 1819*b*.
of cellulose, P 3616*g*, 4461*b*, 5941*di*, P 6414*i*, P 6415*b*, 8677*i*.
app. for, P 3197*f*.
in its detn., 8677*i*.
of cellulose acetate films and rayons, effect of phys. pretreatment on, 854*d*.
of cellulose mixed esters, 1962*i*.
of cellulose sulfoacetate, 2432*d*.
of cellulosic material, P 5187*d*.
of cereal straw, 7226*g*.
in cerium purification and sepn., 4168*e*.
chem. constitution of amides and, 3781*d*.
of *N*-chloroacetanilide, 6992*h*.
of chlorobenzene on $SiO_2$-gel catalyst, porosity and, 7313*e*.
of $\beta$-chloro-$\beta$-hydroxydiethyl sulfide and $(ClCH_2CH_2)_2S$, 6057*e*.
of chloromethyl group in siloxanes, P 3238*b*.
of 3-chloro-3-methyl-1,2,4(3*H*)-naphthalenetrione, 7009*b*.
of (chloromethyl) polysiloxanes, P 3837*d*.
of cholestanol acetates, 3832*e*.
of chromic ion, polarography of, 5676*c*.
of copper chloride, nitrate and sulfate, 4086*g*.
of cotton plant husks, 7225*b*.
of cyanogen halides, kinetics of, 6496*h*.
of 2-cyano-1-methylcyclohexanol, 6172*b*.
of dehydropeptides, 257*d*.
of $\beta$-dextrins, 7906*e*.
of dialkoxysilanes, P 6221*a*.
of dialkyl chlorophosphates and tetraalkyl pyrophosphates, 1314*i*.
of 5,5-dialkylhydantoins, 1322*i*.
of diazo compds., 1736*f*.
of 1,3-dichloro-2-butene isomers, CuCl-catalyzed, 4214*h*.
of 1,4-dichloro-2-(1-chloroethyl)benzene, P 688*e*.
of diethyl acetal and EtOAc, acids in, 7303*a*.
of 2,5-dihydrofuran derivs., P 1808*h*.
of 3,4-dihydro-5-(hydroxymethyl)-4-oxo-1,2*H*-pyran-6-carboxylic acid $\gamma$-lactone, 1407*d*.
of drugs in detn. of their dielec. potential and surface tension, 7196*b*.

of egg lecithin, 3478*b*.
of E 605 insecticide, 1139*h*.
of esters with cation-exchange resin catalyst, 6064*h*.
of ethyl acetate, kinetics of, 8827*d*.
of ethyl acetate, transient intermediates in, 5267*c*.
of ethyl benzoates, 2174*f*.
of ethylene glycol maleate polymer with vinyl formate, 439*d*.
of ethyl sulfate, P 7497*i*, P 7498*c*.
of ethyl sulfoxylate, $S(NEt_2)_2$, rongalite, and $K_2S_2O_5$, 2886*bde*.
fat degradation by, with naphthalenesulfonate-terpene condensation products, P 3219*d*.
of fats and oils in autoclave with Ni oxide, 5609*d*.
of fats in autoclaves, Zn in, 3215*h*.
of ferric ion, salt effects on, 5265*h*.
of fish meal, protein state and, 4790*c*.
of fluorotriphenylsilane and of fluorotriphenylmethane, mechanism of, 5377*e*.
of gluconic acid metal derivs., 5743*h*.
of glycerides (tri-), mechanism of, 2793*b*.
of glycerides with alkylaryl sulfonic acids, 2579*i*.
of glycerol-α- and -β-phosphoric acids, α,β-substrate specificity and, 4550*i*.
of glycerol phosphoric acid esters, 4549*i*.
of glycogen, starch, etc., with HCl, 4307*c*.
of gold chlorides, 6494*i*.
of (haloalkyl) sulfides, kinetics of, 7410*c*.
of 3-halo-1,2 cyclopentanedione, P 2227*f*.
of 2-halo derivs. of pyridine, 9069*b*
of *N*-(2-haloethyl) aromatic amines, kinetics of, 7443*e*.
of haloölefins to unsatd. alcs., P 7952*c*.
of hexaethyl tetraphosphate, 4417*g*.
of hydantoins, 3786*f*, 6978*d*.
of 3-hydroxy-3-methyl-1,2,4(3*H*)-naphthalenetrione and its acetate, 7009*f*.
of ion exchangers, 1881*f*.
of keratin, P 6764*f*.
of lactams, P 2225*a*.
of β-lactams, velocity of, 9034*d*.
of lactones of *o*-hydroxy diphenylacetic acids, effect of chloro group on, 2496*c*.
of lead salts, condensation of basic ions in, 472*e*.
of leather under mildew-growing conditions, 7734*a*.
of lignin and its derivs. and lignosulfonic acids, 5763*i*, 5764*b*.
of lignocellulose, P 4056*b*.
of lignocellulose, pentosans and hexosans by high-pressure, P 5593*b*.
of lupan-2-ol esters and their isomers, 3808*h*.
of lycomarasmine, 4643*b*.
of magnesium nitrate, 2885*e*.
of maleic acid polymers with vinyl acetate and vinyl chloride, P 2470*e*.
of 2-mercaptobenzothiazole and derivs., P 1438*c*.
of meta- and pyrophosphates, rate of, 4549*c*.
of metaphosphoric acids, rate of, 4088*g*.
of 4-(2-methyl-4-oxo-2,5-cyclohexadien-1-ylideneamino)antipyrine in the presence of $HNO_2$, 1044*f*.
of monocetyl succinate in monolayers, rate of, 4086*f*, 8798*a*.
of naphthalenedisulfonyl chlorides, 1369*e*.
of 2-naphthalenesulfonic acid, 471*d*.
of nitriles, catalysis by $HgSO_4$, 1248*h*.
of nitriles, kinetics of, 3696*i*.
of *o*-nitrobenzenesulfenyl selenocyanate, 8366*h*.
of org. compds., 4660*a*, 6191*b*, 7008*c*.
of org. matter in natural waters, 789*e*.
oxidation-reduction, 4632*f*.
of oxycellulose, 581*i*.
of pentaerythritol tetranitrate, 2580*b*.
of pentosans, 2171*c*.
of peptides, effect of β-hydroxyl group on, 2943*h*.
of 3-phenylphthalide and its Me derivs., velocity of, 7463*h*.
of phosphoric acid esters and $H_4P_2O_7$, 147*f*.
of 2,5-piperazinedione, 5403*i*.
of polyallyl alc. esters, P 6219*a*.
of polymers of ketene cyclic acetals, 1404*h*.
of polyose from tamarind seed, 785*i*.
of polyoses in sprucewood, 395*f*.
of polysaccharides in acids, rates of, 5980*c*.
of polyvinyl esters, P 5413*b*.
of proteins—see "decompn." under *Proteins*.
of reaction product of chloral and 5,5-dimethyl-1,3-cyclohexanedione by alkalies, 2964*i*.
of resinenes, 3597*i*.
of Scharinger dextrin, 6986*h*.
of selenium hexafluoride, 6793*f*.
of silanes (di- and trichloro-) and their mixts. in waterproofing of leather, 8185*h*.
of silicon halides, 561*g*.
of silicon (org.) compds., 562*i*.
of soap solns., 8179*e*.
of sodium aluminate, 2077*c*, 5274*h*.
of sodium carbonate, effect on elec. cond., 6050*h*.
of sodium chloride, effect of $SiO_2$, its mixt. with $Al_2O_3$ and $2SiO_2.Al_2O_3$ on, 2077*b*.
of sodium cyanide, 8821*c*.
of starch—see *Glucose* (*the sirup and its dried products*); *Starch*.
of steroid esters, 1428*g*.
of sucrose—see "inversion" under *Sucrose*.
of sulfides and of thiol acid esters, 1753*h*.
of sulfochloride group in aromatic compds., kinetics of, 926*f*.
of sulfurized olefins, P 7501*c*.
of sydnones, 7479*i*.
of tetraethyl pyrophosphate, rate of, 2077*f*.
of 6,7,8,9-tetrahydronaphth[1,2]oxazol-2(1*H*)-one derivs., P 3040*b*.
of thio amides, 5027*g*.
of titanium salt solns., P 1579*c*.
of triarylmethanephosphonates, 1347*c*.
of 1,2,3-trichlorobutane in the presence of $K_2CO_3$, 6567*h*.
of uranium (sexivalent), 8940*i*.
of vesicant treated insulin, 707*h*.
of vinyl ester polymers, P 1609*i*, P 5230*g*
of vitamin A esters, kinetics of, 5372*a*.
of wood, app. for continuous, P 1187*i*
reaction products of partial, 5945*b*.
reductic acid from, 6821*h*.
resinous material from lignin from, P 1980*b*.
of wool, acidic peptides formed by partial, 9105*i*.
wool damage by, 7092*b*.
zinc-HCl, of urine, 8430*d*.

**Hydrolysis number**, of cement, 3588*g*.
**Hydrolytic adsorption**. See *Adsorption*.
**Hydrometers**, calibration of standard, 4522*g*.
Casagrande, in detn. of particle size, 4923*h*.
**Hydromica**, montmorillonite change into, 2549*e*.
reaction with K salt solns. in salt clay, polyhalite formation by, 8995*d*.
in Utah ancient soil, 5708*g*.
**α-Hydromuconic acid** (*2-hexenedioic acid*).
——, **2-butyryl-3,4-dihydroxy-**, γ-lactone—see *Carlosic acid*.
——, **α-cyano-β,γ-dimethyl-**, diethyl ester, 3796*h*.
——, **β-hydroxy-**(?), γ-lactone Et ester, 7909*d*, 7910*a*.
——, **γ-hydroxy-β-methyl-**, γ-lactone, effect on heart, 7138*h*.
**β-Hydromuconic acid** (*3-hexenedioic acid*).
——, **β,γ-bis(*p*-methoxyphenyl)-**, 3402*g*.
——, **β,γ-diphenyl-**, *cis-* and *trans-*, 3402*f*
——, **γ-hydroxy-α-methoxy-**, methyl esters, 6981*i*.
**α-Hydromuconononitrile**, P 5796*a*.
*cis-* and *trans-*, P 6647*e*.
**β-Hydromuconononitrile**, P 4280*d*, P 5796*a*.
α-hydromuconononitrile from, P 6647*e*.
reaction with α,β-unsatd. aldehydes, P 3847*h*.
——, **α,δ-bis(*p*-dimethylaminobenzylidene)-**, P 3848*a*.
——, **α,δ-bis(*o*-methoxybenzylidene)-**, P 3848*a*.
——, **α,δ-bis(*p*-methylbenzylidene)-**, P 3847*i*.
——, **α,δ-bis(*m*-nitrobenzylidene)-**, P 3848*a*.
——, **α,δ-dibenzylidene-**, P 3847*i*.
——, **α,δ-di-2-butenylidene-**, P 3848*a*.
——, **α,δ-dicinnamylidene-**, P 3848*a*.
——, **α,δ-difurfurylidene-**, P 3848*a*.
**Hydronephelite**. (See also *Ranite*.)
apoanalcite relationship to, 8314*b*.
**Hydronephrosis**. See *Kidneys*.
**Hydronitric acid**. See *Hydrazoic acid*.
**Hydronium ion**. See *Hydrogen ion*.
**Hydronopic acid***, P 1807*g*.
**Hydronopol***, and derivs., P 1807*h*.
**Hydroörotic acid** (*hexahydro-2,6-dioxo-4-pyrimidinecarboxylic acid*), 5995*i*.
**2-thio-**, 5996*a*.
**Hydroperoxide, acetyl**. See *Peroxyacetic acid*.
——, ***tert*-butyl**. See *tert-Butyl hydroperoxide*.
**1-(7-carboxyheptyl)-2-decenyl**, methyl ester, 3357*d*.
——, **10-carboxy-1-heptyl-2-decenyl**, methyl ester, 3357*d*.
——, **1-(6-carboxyhexyl)-2-hendecenyl**, methyl ester, 3357*d*.
——, **9-carboxy-1-octyl-2-nonenyl**, methyl ester, 3357*d*.
——, **cyclohexenyl**. See *Cyclohexenyl hydroperoxide*.
——, **decahydronaphthyl**, effect on polymerization of styrene, 8736*d*.
——, **1,1-diethylpropyl**, 6189*f*.
**(9,10-dihydro-10-oxo-9-phenyl-9-anthryl)**, 620*ad*.
——, **α,α-dimethylbenzyl**, P 3459*e*.
as initiator and modifier in oxidation reduction polymerization of butadiene and styrene, 5987*g*.
as oxidizer in GR-S rubber polymerization in org. compds. forming complexes with Fe, 8727*f*.
as oxidizing agent in polymerization of butadiene with styrene in reduction oxidation systems with Fe salts, 8723*f*.
——, **1-ethylcyclohexyl**, and derivs., 6189*g*.
——, **2(and 3)-methyl-2-butenyl**, P 5033*a*.
——, **1-methylcyclohexyl**, and derivs., 6189*f*.
——, **octahydro-4a(2*H*)-naphthyl**, and derivs., rearrangement of, 6188*e*
*trans-*, 6189*g*, P 6437*g*.
——, **tetrahydronaphthyl**, detn. in oxidized gasoline, 1952*h*.
——, **1,2,3,4-tetrahydro-1-naphthyl**, P 3848*c*.
as activator in polymerization of rubber, P 5625*f*.
decompn. of, 2196*g*.
effect on polymerization of isoprene, 5621*f*.
——, **(1,1,6,6-tetramethylhextramethylene)di-**, 6190*a*.
——, **1,1,2,2-tetramethylpropyl**, and sodium deriv., 6189*f*.
——, **(1,1,4,4-tetramethyltetramethylene)di-**, 6190*a*.
——, **1,1,2-trimethylpropyl**, and derivs., 6189*f*.
——, **triphenylmethyl**, compd with pyridine HCl, 6190*a*.
**Hydroperoxides**. (See also *Peroxides*.)
as activators in polymerization of rubber, P 5625*f*.
alkenyl, manuf. of, P 5032*i*.
in autoxidation, 4574*c*.
decompn. of, of linoleic acid by naphthenates, 9488*f*.
detn. of org., 8829*g*.
effect on vitamin A utilization in chicks, 290*h*.
formation of 9- and 13-conjugated and unconjugated, in autoxidation of Me linoleate, 3634*h*.
formation of, in oxidation of Me linoleate, 5365*i*.
in oxidation of methyl linoleate and oleate, 3358*b*.
in oxidation of unsatd. oils, 6840*e*
hydrogenation of oils in presence of, to inhibit oxidation of contained γ-tocopherol in white soaps, P 6437*g*.
manuf. of, P 669*c*.
in polybutadiene seed, popcorn growth by butadiene reaction with free radicals formed by decompn. of, 1598*c*
prepn. and esterification of tertiary, 6189*d*.
**Hydroperthiocyanic acid**, detection of, 971*a*.
**Hydrophilus piceus**, inorg. compn. of blood plasma of, 4388*e*.
**Hydrophobing**. (See also *Swelling*; *Waterproofing*.)
of cotton, 6829*h*.
of fibers, flotability and, 6421*e*.
**Hydropolymerization**. See *Polymerization*.
**Hydroponics**, grape-root-rot control in, 9351*a*.
nematode control in, 4804*i*.
**Hydropseudothiocyanic acid***, 2100*h*.
**Hydroquinine**, bromide*, 4677*d*.
**Hydroquinine**, and derivs., 4678*g*.
——, **benzoyl-***, 4678*g*.
**Hydroquinol**. See *Hydroquinone*.

**Hydroquinone** (*hydroquinol, p-dihydroxybenzene*). (See also *Photographic developers.*)
adrenaline potentiation by, 5117*a*.
aerosols of, effect on *Staphylococcus aureus* in air, 3953*h*.
alkoxy derivs., inhibition of polymerization of vinyl aromatic compds. by, P 3454*d*.
alkylation of, P 687*e*.
antibacterial action of, mechanism of, 4327*h*.
as antioxidant for Et linoleate, 1249*c*, 5271*f*.
for soupfin-shark-liver oil, 3568*a*.
in transformer oil, 385*b*.
bis(allyl carbonate), P 4298*i*.
bis(benzyl azodiformate), P 4293*i*
bis(benzyl bicarbamate), P 4293*d*
compds. with antipyrine, infrared and Raman spectra of, 107*a*.
condensation, with benzoin, 2202*c*, 7016*f*.
condensation with 2-methyl-2,4-pentanediol, rubber antioxidants by, P 5626*f*.
in cotton-textile-weathering prevention, 5524*g*.
crystn. on $CaCO_3$, 1237*c*.
derivs., inhibition of cellulose degradation by, 5943*d*.
detn. in photographic materials, 7359*i*.
detn. in styrene, 6113*c*.
detn. of total metol and, in photographic developers, 8921*g*.
diacetate, 1741*h*.
dibenzoate, 182*c*.
dimethyl ether—see *Benzene, p-dimethoxy-*.
effect on blood pressure, 757*f*.
on Buna S cross-linking, 5227*c*.
on cornea, 771*d*.
on fluorescence of Mg phthalocyanine and chlorophyll, 43*g*.
on growth of *Lepidium sativum* seedlings, 8413*f*.
on 2-methyl-2-pentene oxidation, 108*d*.
on N fixation by Azotobacter, 8591*h*.
on oxidation of isopropyl ether and amylene fraction, 6157*a*.
on polymerization of allyl and meth acrylate compds., 8199*g*.
on psittacosis virus, 3051*i*.
on thiol oxidation in Na cresylate solns., P 6235*b*.
on vitamin A destruction in shark liver oil, 9385*c*.
esters, Fries rearrangement of, 2187*i*.
fluorescence of, structure and, 7829*c*.
formation (photochem.) from quinone, 6515*e*.
in furan stabilization, P 5805*c*.
heat of ionization of, 477*i*.
histidine decarboxylase inhibition by, 9107*a*.
hydrogen (active) detn. in, 3316*g*
identification of, and distinguishing from pyrocatechol and resorcinol, 6944*f*
as isoprene-polymerization inhibitor and mutuator, 5621*e*.
lead-alkyl-pptn. inhibition in stored gasoline by, P 4003*e*.
manuf. by electrolysis, P 6528*a*.
manuf. of, and inhibition of polymerization of vinyl aromatic compds. with, and its alkoxy derivs., P 2806*c*.
in methemoglobin formation, 757*e*.
methylation of, 7412*d*.
monoalkyl ethers of, 3386*g*.
orange rhodulin phosphorescence-quenching by, 7828*c*.
and its oxidation products, effect on intestines, 5863*d*.
oxidation-reduction potential of, 3301*b*, 7355*h*.
oxidation-reduction potentials and resonance of, and derivs., 6893*g*.
in peach-X-disease control, 9347*g*.
phosphorescence of, 4957*h*.
for photographic use, specifications for, 6930*b*.
polymeric polyhydric alcs. from, and chloro alcs., P 1996*d*.
as polymerization inhibitor in reaction of anethole, isoeugenol or isosafrole with maleic anhydride, 1757*e*.
as polymerization stopping agent, 8727*i*.
prepn. of, 3386*i*.
prepn. of, from *p*-quinone, 1312*d*.
quantum-mech. energy of electrons in, 6824*g*.
reaction with 5-chloro-3-methyl-4-pentyn-2-ol, $H_3PO_4$ and $P_2O_5$, P 4284*f*.
with collagen, H bonding in, and effect on shrinkage temp., 7736*b*.
with $(PhCH_2)_2Hg$, 1740*h*.
with epichlorohydrin, P 5421*h*.
*reaction* with $SeO_2$, 7539*a*.
resonance energy of, 8221*c*.
spectrum and mol. diagrams of, 2512*e*.
spectrum of, 2512*h*, 5665*i*.
as styrene-polymerization inhibitor, 8736*e*.
surface tension of, 8797*f*.
thromboplastic lipide stabilization by, 5431*f*.
titration (potentiometric) of, 5263*h*.

**Hydroquinone, amino-**, azo dyes from, P 9463*i*.
——, **(2-aminoethyl)-**, and derivs., 6599*d*.
enzymic formation of, 8061*b*.
——, **[*p*-(2-aminoethyl)phenylsulfonyl]-**, hydrochloride, 7450*e*.
——, **(α-amino-*p*-tolylsulfonyl)-**, bacteriostatic action of, 9376*e*.
——, **benzyl-**, as polymerization stopping agent, 8727*i*.
——, **2,5-bis(2-aminoethyl)-**, and derivs., 3387*i*.
——, **2,5-bis(2-dimethylaminoethyl)-**, and dihydrochloride, 3388*c*.
——, **chloro-**, 3386*i*.
——, **chloronitro-**, as catalyst for conversion of hydrosulfides to S compds., P 8064*f*.
——, **cyclohexyl-**, diacetate, 1372*c*.
——, **(decahydro-2-naphthyl)-**, *trans*-, 1376*g*.
——, **2,3(and 2,5)-diallyl-**, 2181*c*.
——, **di-*tert*-amyl-**, as polymerization inhibitor and initiator in isoprene, 5621*e*.
——, **2,3(and 2,5)-dibenzoyl-**, and esters, 7016*h*.
——, **di-*tert*-butyl-**, as polymerization stopping agent, 8727*i*.
——, **2,5-di-*tert*-butyl-**, effect on polymerization of allyl and methacrylate compds., 8199*g*.
——, **2,3-dichloro-**, bis(allyl carbonate), P 2234*e*, P 4298*h*.
——, **dicyclohexyl-**, and diacetate, 1376*i*
——, **2,5-diethoxy-**, in inhibition of polymerization of vinyl aromatic compds., P 3454*d*.
——, **2,6-dimethoxy-**, diacetate, 1773*a*.
——, **dimethyl-** See *Xylohydroquinone*.
——, **dithiodi-(?)**, sodium deriv., bacteriostatic effect of, 8434*g*.
——, **ethyl-**, titration (potentiometric) of, 5263*h*.
of *Tribolium* species, 3940*c*.
——, **hexahydro-** See *1,4-Cyclohexanediol*.
——, **hydroxy-**. See *1,2,4-Benzenetriol*.
——, **2-isopropyl-5-methyl-**. See *Thymohydroquinone*.
——, **methyl-**. See *p-Toluhydroquinone*.
——, **octyl-**, 7914*f*
——, **phenyl-**, bis(allyl carbonate), P 4298*i*.
and derivs., 2182*a*.
——, **sulfanilyl-**, 2593*f*.
bacteriostatic action of, 9376*e*.
——, **tetrachloro-**, 6515*e*.
——, ***m*(and *o*)-toloxy-**, P 2232*f*.
——, **trimethyl-**. See *Pseudocumohydroquinone*.
——, **vinyl-**, polymerized, 5263*c*.
prepn., properties and polymerization of, 5263*e*.

**Hydroquinonecarboxylic acid**. See *Gentisic acid*.
**Hydroquinonephthalein***, prepn. of, 184*a*.
**Hydros**. See *Sodium dithionite*.
**Hydroseneciphyllic acid**,* 1427*i*.
**Hydrosols**. See *Colloids*.
**Hydrosorbamide**, *N*-[**2,2-bis(4,4-dimethyl-2,6-dioxocyclohexyl)ethyl**]-, x-ray study of, 4920*e*.
——, ***N*-(formylmethyl)-**, 2,4-dinitrophenylhydrazone, x-ray study of, 4920*f*.
**Hydrosorbic acid** (*3-hexenoic acid*).
——, **δ-hydroxy-β,δ-dimethyl-**, δ-lactone, 6166*c*.
——, **δ-hydroxy-β-methyl-**, δ-lactone, 6165*i*.
**Hydrosphere**. See *Earth*.
**Hydrosulfides**. See "acid" under *Sulfides*; for org. hydrosulfides see *Thiols*.
**Hydrosulfites**. See *Dithionites*.
**Hydrotalcite**, formation by volcanoes at Nyamuragira and Tshambene, Belgian Congo, 5349*a*, 8992*e*.
**Hydrotenorite**. See *Tenorite*.
**Hydrotropic acid**, **α-benzyl-β-phenyl-**. See *Isobutyric acid, α,β,β'-triphenyl-*.
**Hydrotropic alcohol**. See *Phenethyl alcohol, β-methyl-*.
**Hydrotropy**, 465*g*.

NH.CO.NH.CO.$CH_2$.$CH_2$.
1 2 3 4 5 6
in diabetes prevention and cure, 5118*d*.
——, **5-allyl-5-(1-ethylpropyl)-6-imino-2-thio-**, P 4692*g*.
——, **5-allyl-6-imino-5-(1-methylbutyl)-2-thio-**, P 4692*e*.
——, **5-allyl-6-imino-5-(1-methylisobutyl)-2-thio-**, P 4692*h*.
——, **1,3-bis(hydroxymethyl)-6-methyl-**, 5996*b*.
——, **5,5-dichloro-6-hydroxy-6-methyl-**, reaction with HCl, 2170*c*.
——, **6-methyl-**, 5996*a*.
——, **2-thio-**, antithyroid activity of, 9241*i*.

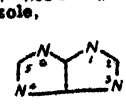
**6-Hydrouracilcarboxylic acid**. See *Hydroorotic acid*.
**Hydrourushiol**. See *Pyrocatechol, 3-pentadecyl-*.
**Hydroxamic acids**, cyclic, from pyridine and quinoline, 2997*a*.
heterocyclic, 2997*g*.
iron binding by, 9211*d*.
as lubricant additives to prevent rust and wear, P 4459*d*.
potassium salts, in chromatography of org. acids, 5695*i*.
prepn. and cyclization of, 8382*g*.
salts of, and their analytical uses, 2116*b*.
**Hydroxides**. (See also *Alkalies; Alkaline earth hydroxides; Amphoteric substances.*)
adhesives from pectins and, P 9535*h*.
affinities, heat contents and x-ray data on, 5250*h*.
as catalysts in oxidation and reduction, 2079*i*.
colloidal, formation during electrolysis, 5675*h*.
color reaction of metallic, with molten 8-quinolinol, 8300*a*.
diacetone alc. decompn. in solns. of, ionization and, 6055*g*.
double, 8929*ef*.
with ionic crystal structures, 8231*c*.
manuf. of concd., cell for, P 3986*a*.
oxidation of, 5266*d*.
review on, 3739*g*.
semipermeable membranes from, P 9298*d*.
**Hydroxonium ion**. See *Hydrogen ion*.
**Hydroxy acids**. See *Acids*.
**Hydroxyalkylation**, of oxidized cashewnutshell liquids, P 1557*e*.
**Hydroxyapatite**, prepn. and x-ray diffraction studies of, 7381*h*.
prepn. of, by solid phase reactions, 6949*c*.
synthetic, in sugar manuf., 8649*e*.
**Hydroxy compounds**. (See also *Alcohols; Alkalies; Phenols.*)
as catalysts in conversion of hydrosulfides to S compds., P 8664*e*.
condensation products of poly-, with hydracrylic acid lactone, P 2032*g*.
condensation products of, with aminotriazine and $CH_2O$, printing-ink emulsions from, P 7239*f*.
detn. of, 5819*b*.
di-, polymers with diisocyanates or diurethans, P 6867*a*.
effect on fibrinogen clotting time and clot opacity, 9102*d*.
of heterocyclic amines, in lubricants, P 4459*g*.
hydrogen (active) detn. in, by Grignard reagent, 8964*f*.
for lubricant improvement, P 4007*h*.
manuf. of poly-, P 673*d*.
oxidation by *Acetobacter suboxydans*, steric configurations and, 1828*d*.
as plasticizers for linear polycondensates, 1212*h*.
poly-, in dairy-equipment construction, 5877*e*.
polymers of, elec. properties of films from Desmophen and Desmodur, 1605*a*.
in photographic elements, P 53*i*.
wet-spun fibers from, P 8174*g*.
reaction of aromatic, with fatty oils, drying oils by, P 9484*h*.
reaction of poly-, with cyclic ethers and esterification with palmitic or stearic acid, wax like compds. by, P 886*e*.
reaction products with *N*-substituted polyamides, P 1610*e*.
reaction with $ClCH_2CO_2H$ in the presence of NaF, P 678*f*.
sepn. from inorg. compds., P 8743*a*.
spectra of, in autoxidizing linseed oil, 4574*b*.

**Hydroxyethylation**, P 673*f*.
**Hydroxyl** (*free radical*). (See also *Hydroxyl group; Hydroxyl ion.*)
in comet Bester (1947 k), 938*e*.
in comets, 490*i*.
electron affinity and solvation energy of, 5651*d*.
reactions with hydrocarbons, kinetics of, 8820*g*.
reaction with org. compds., 6149*h*.
**Hydroxylamine**, *N*-alkyl derivs., 156*h*.
alumlike compds. with sulfates, 8785*i*.
aryl derivs., oxidative nitration of, 5013*a*.
complexes with Pd and Pt, 4953*i*.
detn. of bound, in biol. materials, 7071*b*.
disproportionation of, 3303*h*.
effect on acid production, growth and proteolytic properties of lactic acid bacteria, 4340*i*.
on cathepsins of kidney, 9101*d*.
on heart and muscle glucose metabolism, 8550*c*.
on papain, pepsin and trypsin, 4709*i*.
hydrochloride, bacteriostatic action of, 3974*g*.
as catalyst in ethanolysis of palm oil, 7723*i*.
effect on autodisplacement of Pb, 2846*e*.
as stabilizer for solns. of polythionates and polythionic acids, P 7651*i*.
iron binding by, 9211*d*.
manuf. of, P 3025*c*.
in nitrogen fixation, 6273*i*.
nitrogen-O bond in, 6016*c*.
as nitrogen source for *Azotobacter vinelandii*, 4336*c*.
oat growth in solns. contg. α-oximinocarboxylic acids and, 1082*d*.
reaction with 1-$C_{10}H_7NO_2$, 1755*h*.
thienylalkyl derivs., oxidation of, P 4302*c*.
toxicity to *Azotobacter* and its utilization, 2276*d*.
**Hydroxylamine, O-acetyl-*N*,*N*-bis(dodecylsulfonyl)-†**, 2573*b*.
——, *N*,*N*-**bis(dodecylsulfonyl)-†**, 2572*i*.
——, *O*-**(carboxymethyl)-†**, P 3887*e*.
——, *N*-**cyclohexyl-**, 157*b*.
——, *N*-**(2,5-dinitro-*p*-tolyl)-**, in methemoglobin formation, 5863*i*.
——, *N*-**(4-hydroxy-*as*-pseudocumyl)-†**, 180*c*.
——, *N*-**methyl-**, 8915*i*.
——, *O*-**methyl-**. See *Methoxyamine*.
——, *N*-**nitroso-*N*-phenyl-**, ammonium salt—see *Cupferron*.
copper deriv., effect on rotting and weather resistance of cotton duck, 5957*h*.
salts of, soly. of, 2488*g*.
*N*-**nitroso-*N*-2,2′,2″-trihydroxy-*tert*-butyl-†**, spectrum of, 5307*e*.
——, *N*-**phenyl-**, formation in polarography of $PhNO_2$, 4586*a*.
oxidative nitration of, 5013*d*.
——, *N*-**2-pyridyl-†**, 8386*e*.
——, *N*-*p*-**tolyl-**, oxidative nitration of, 5013*e*.
**Hydroxylamine-*N*,*N*-disulfonic acid**, sodium salt, P 3440*i*.
**Hydroxylamine-*N*-sulfonic acid**, sodium salt, P 3440*i*.
**Hydroxylation**, of 3-alkenyl-2-hydroxy-1,4-naphthoquinones, 1381*i*.
of cyclohexene, 1730*c*.
of 17-ethylene steroids, 1428*h*.
of 3-halo derivs. of 2-methylpropene, P 5421*a*.
of methylcyclopentenes, 2172*d*.
of org. compds., 5731*f*.
of tall oil, P 805*g*.
**Hydroxyl group**, in beech and spruce lignin, 6408*i*.
bond (intramol.) formation by, 4627*e*.
bond with carbon, free energy of, 3276*g*.
calcn. of free energy function, heat content, heat and free energy of formation of, 5658*e*.
in carbon black, 2068*g*.
cuprammonium complex formation and position of, 3368*e*.
detection in lubricating oils, etc., 1173*f*.
detn. in alcs., fats and oils, 66*i*.
in fatty materials, 8177*h*.
in fatty materials and Me oleate hydroperoxide, 6841*b*.
in humic prepns., 66*c*.
detn. of phenolic, in tan liquors, 1205*e*.
effect of β-, on hydrolysis of peptides, 2943*h*.
effect on color of aurins, benzaurins, and fuchsones, 9451*c*.
on fungistatic activity of $C_6H_5$ derivs., 4803*h*.
on ionization consts., 2074*i*.
on miscibility of org. liquids with asphaltic bitumens, 6817*c*.
on reduction of nitro compounds, 2520*f*.
foaming-inhibiting action in lubricants and, 6815*e*.
formation of, and dehydration of compds. contg., in conjugated double bond production in drying oils and fatty acids, 4025*h*.
of imino-carbonyl linkage reaction with OH group of tannin, 9510*c*.
isomorphous replaceability with Cl in $C_6Cl_5$ group, 7803*h*.
mineralizer action of, 8936*a*.
mol. assocn. and, 5246*e*.
optical rotation due to, 4680*e*.
protection of, in reactions in basic media, 2203*h*.
reaction with oleoyl chloride, 5368*h*.
rotation temp. of, in $C_2H_2$ flames, 4958*c*.
on soil minerals, 1131*h*.
soybean oil-stabilizing and proöxidant metal-scavenging activity relation to no. of, in polycarboxylic acids and polyhydric alcs., 882*e*.
spectrum of, in flames, 5312*g*.
stereochemistry of, in cholesterol, 245*h*.
in thiolignin, 7225*i*.
**Hydroxyl ion**, detn. in industrial waters, 4399*d*.
effect on arrangement and double refraction of soap sols, 8793*h*.
on oxide films on Fe, 9005*a*.
on photolysis of peroxydisulfate, 4144*i*.
exchange on Amberlite IRA-400, 6489*f*.
halide-ion substitution by, in basic salts, and OH ion substitution by halide ions, 5266*d*.
labilization of trans-group in complex by, 2854*g*.
pos. ($OH^+$), in comets, 2510*b*.
reaction with ethylene halohydrins in water and mixed solvents, kinetics of, 2848*c*.
**Hydroxyl number**, detn. of, of alkyd resins, 6459*g*.
detn. of, of fats, 423*a*.
detn. of, of unsatd. fat acid autoxidation products, 126*e*.
**Hydroxyl radical**. See *Hydroxyl group*.
**Hydroxymethyl group**, parachor of, 2057*g*.
**8-Hydroxyquinoline**. See *8-Quinolinol*.
**Hydrozincite**, from Japan (Nakatatsu Mine), 6543*h*.
tungsten-contg. fluorescent, in Darwin, Calif., 6124*c*.
**Hydryllin**, pharmacology of, 3938*c*.
**Hygiene**. (See also *Public health; Sanitation.*)
books: Industrial, 789*b*; Industrial, and Toxicology, 1882*h*; Trattato di chimica applicata all'igiene, 3548*g*; Gewerbehygiene, 8074*i*.
in chill casting, 981*f*.
in ferrous foundries, 8997*i*.
industrial, 6759*h*.
detection of noxious gases and volatile vapors in relation to, 4602*c*.
max. allowable concn. of toxic substances in, 6759*i*.
journal: Industrial Health Review, 6761*h*.
in petroleum (high-S) recovery and refining, 5931*a*.
in phosphate industry, 1534*h*.
in pickling of metals, 8326*g*.
of swimming pools—see *Swimming pools*.
**Hygric acid** (*1-methyl-2-pyrrolidinecarboxylic acid, 1-methylproline*), methyl ester, betaine—see *Stachydrine*.
**Hygrine** (*2-acetonyl-1-methylpyrrolidine*), synthesis of, 4256*h*.
**Hygrometers**, cobalt chloride as, 5516*c*.
for drying systems, 7272*d*.
elec., for shelled yellow corn, 4783*g*.
for hair swelling study, 414*e*.
from invar strip coated with gelatin compn., P 5237*b*.
**Hygroscopicity**. (See also "of water" under *Absorption.*)
of cellulose ethyl ether, 876*a*.
of fibers (synthetic) for tires, 1209*d*.
of glass, for containers, 4435*i*.
effect of heavy-metal ions on, 2069*e*.
for electrodes, 827*e*.
of humectant mixts., 3542*e*.
of monolayers, 8798*e*.
of peanuts and attaining hygroscopic equil., 2000*c*.
of soils, effect of $(NH_4)_2SO_4$ on, 8503*f*.
of viscose, effect of stretching on, 9434*g*.
of wood, 8638*b*.
**Hygroscopic substances**, aerosols, 4076*e*.
coating soap powder particles with, to inhibit dust formation, P 6438*a*.
dry box for handling, 8216*c*.
water detn. in, P 6114*h*, P 8760*c*.
**Hygrostats**. See *Humidity*.
**Hylastinus obscurus** and(or) **Clover root borer**, control of, 8599*d*.
**Hylemya brassicae** and(or) **Cabbage maggot**, control of, 3136*i*.
**Hylemya cilicrura** and(or) **Seed-corn maggot**, control on beans, 5806*h*.
**Hylotrupes bajulus** and(or) **Old house borer**, control in wood, 4418*b*, 8603*g*.
**Hylurgopinus rufipes** and(or) **Native elm bark beetle**, control in elm wood, 4417*c*.
**Hymenia fascialis**. See *Hymenia recurvalis*.
**Hymenia recurvalis** and(or) **Hawaiian beet webworm**, control of, nicotine synergists for, 5894*a*.
**Hymenoxys floribunda**. See *Actinea rychardsoni*.
**Hyodesoxycholic acid**, biliary excretion of, after administration of hog bile, 7572*d*.
**Hyoscine**. See *Scopolamine*.
**Hyoscyamine**, detection of, 713*d*.
detn. in solanaceous drugs and prepns., 1908*d*.
in henbane (Indian), 9379*g*.
localization in *Hyoscyamus muticus*, 9381*a*.
oleate, permeability of skin to, 2699*e*.
**Hyoscyamus**, identification of fluidexts of, 1908*c*.
*muticus*, botanical and phytochem studies on, 9380*i*.
*niger*—see *Henbane*.
thromboplastic action of, 5533*h*.
tincture, folic acid prepn. contg., 356*e*.
**Hyperazotemia**. See *Azotemia*.
**Hyperbilirubinemia**. See *Bilirubinemia*.
**Hyperchloremia**. See *Chloremia*.
**Hypercholesterolemia**. See *Cholesterolemia*.
**Hyperconjugation**. See *Conjugation*.
**Hyperemesis**. See *Vomiting*.
**Hyperemia**, compds. causing, effect on estrus, 1098*f*.
intestine contracting substance in lymph during, 7108*i*.
ovarian, gonadotropic and lactogenic hormones and, 8487*e*.
trafuril in production of, 9254*e*.
**Hyperglycemia**. See *Glycemia*.
**Hypericum**. See *St.-John's-wort*.
**Hyperleucocytosis**. See *Leucocytosis*.
**Hyperlipemia**. See *Lipemia*.
**Hyperparathyroidism**, of alimentary origin, 6708*g*.
with nephrolithiasis, 9231*a*.
**Hyperpeptidemia**. See *Peptidemia*.
**Hyperplasia**. See specific organs such as *Thyroid gland*.
**Hyperpnea**. See *Respiration, animal*.
**Hyperpyrexia**. See *Fever*.
**Hypersalemia**, and azotemia therefrom, 4776*b*.
**Hypersensitiveness**. See *Allergy; Anaphylaxis*.
**Hypersorption**, of propane from natural gas, 8654*c*.
**Hypersthene**. (See also *Pyroxenes.*)
from volcanic rocks from Haruna, Japan, 6119*d*.
**Hypersusceptibility**. See *Allergy; Anaphylaxis*.
**Hypertensin**, blood constrictins and, 302*e*.
in blood of animals with renal hypertension, 754*a*.
effect on oxytocin inactivation by serum of pregnancy, 3482*h*.
inactivation by fibrinolytic enzyme from blood plasma, 2260*i*.
intestinal response to, effect of tetraethylammonium ion on, 1110*f*.
**Hypertensinase**, from kidneys, effect of amino acids on inactivation of vasopressin by, 2260*h*.
oxytocin inactivation by kidney, effect of amino acids on, 2260*g*.
**Hypertensinogen**, in blood in hemorrhage hypotension, 6305*f*.
fibrinolysin effect on, 2321*c*.
-renin reaction, effect of acetone and ether on, 1860*h*.
**Hypertension**. See "high" under *Blood pressure*.

**Hyperthermia.** See *Fever.*
**Hyperthyreosis.** See *Hyperthyroidism.*
**Hyperthyroidism.** (See also *Goiter.*)
adrenal cortex in, 8043*a*.
antithyroid compds. in treatment of, [illegible]
basal and N metabolism in, 5484*e*.
chemotherapeutic agents and, 2704*i*.
chick coccidiosis and, 9330*a*.
cholinesterase in blood serum in, 6722*i*, 9244*i*.
effect on response to pregnant mare's serum, 8492*b*.
egg production in, 294*g*.
in felt-hat factory, 8689*a*.
glutathione in blood and basal metabolism in, 5119*g*.
growth and survival in, effect of liver on, 4308*i*.
growth-promoting materials in, vitamin $B_{12}$, liver and antianemic liver exts. as, 5833*h*.
hypovitaminosis from, 9217*g*.
iodine and thiourea in remission of, 6740*g*.
iodine excretion in urine in, 8039*g*.
iodine in saliva in, following administration of KI and effect of 2-thiouracil and 4-methylthiouracil thereon, 317*e*.
iodine involution in, 8047*c*.
iodine (radioactive) in treatment of, 8533*d*.
metabolic rate in, effect of dietary cholesterol on, 6709*b*.
protein-bound radioactive I in blood serum in diagnosis of, 1477*c*, 5851*a*.
protein fractions of bone marrow in, 4359*h*.
therapy of, 1864*b*.
from thyroprotein, effect of energy intake on heart rate in, 293*h*.
**Hypertonic solns.**, cardiac effects of, 1490*ef*.
effect on O consumption by frog skin, 3530*a*.
**Hyperventilation.** See *Respiration, animal.*
**Hypervitaminosis.**
A, 9180*c*.
iodine distribution in animal organism and, 8486*c*.
$D_2$, in children, 5836*f*.
$D_3$, effect on tuberculosis, 5097*f*.
effects of, 5097*e*.
E, thyroid gland in, 737*c*.
F, from Me linoleate and sunflower oil, 7561*h*.
**Hypholoma capnoides**, carbohydrates of, 5827*g*.
**Hypnone** See *Acetophenone.*
**Hypnosis**, from pentobarbital sodium in normal, castrated and fasting rats, effect of vitamin $B_1$ on, 2315*f*.
**Hypnotics.** (See also *Anesthetics; Narcotics; Soporifics;* and *Barbituric acid* and its various derivs.)
biuret derivs. and related compds., 5369*i*.
effect on blood sugar and insulin action, 8055*h*.
2 (2-naphthoxy)ethanol, P 8105*b*.
solubilities in isopropyl alc., 3147*h*.
surital Na, 1483*c*.
urea derivs. as, P 2229*a*.
**Hypo.** See *Sodium thiosulfate;* and "fixing material" under *Photography.*
**Hypobromites**, reaction with sulfanilamide, 7450*g*.
**Hypobromous acid**, esters, bromination with, 4658*f*.
free energy of ionization of, 2075*b*.
**Hypocalcemia**, in cows, 4736*h*.
tetany of, neuronal changes associated with, 5489*e*.
**Hypochloremia**, with anuria, 7127*h*.
in carbon tetrachloride poisoning, 5500*a*.
in fish, downstream migration and, 7565*c*.
renal function in, 7127*g*.
uremia with, during pregnancy and puerperium, 5110*d*.
**Hypochlorhydria.** (See also *Achlorhydria.*)
in hypothyroidism, 9233*c*.
**Hypochlorites.** (See also *Bleaching agents; Carrel-Daikin solution; Disinfectants.*)
for air disinfection, 4797*f*.
bleaching with—see *Bleaching.*
detection of, in presence of other oxidizing agents, 5700*d*.
detn. of, 3316*d*, 8907*a*.
in presence of chlorites, chlorates, chlorides, NaOH and $Na_2CO_3$, 2892*d*.
Quinoline Yellow as internal indicator in, 7861*d*.
disinfectant, 8099*a*, 9364*i*.
disinfecting action of quaternary $NH_4$ compds. and, 724*c*.
effect on albumin of blood serum, 7568*d*.
for food-utensil sanitation, evaluating, 323*e*.
formation of, solid mixts. for, P 8110*cd*.
hydrogen-ion-concn. control in solns. of, for shrink-proofing, P 4022*d*.
manuf. from starch, P 428*d*.
in oxidation of methylene groups (in fluorene compds.), 1367*h*.
reaction with $NH_3$, seaweed soln. in, P 7652*b*.
reaction with bromides, kinetics of, 7799*b*.
treatment of fruits and vegetables with, prior to nonrefrigerated storage, 9288*g*.
wool damage by, detection of, 7690*h*.
**Hypochlorous acid**, aerosol, P 1532*h*.
in air disinfection, 4797*g*.
chlorine dioxide exchange with, 8821*a*.
decompn. of aq. solns. of, by light, 6515*g*.
detn. in air, 4798*i*.
formation from *N*-chloroacetanilide in chlorinations, 6992*h*.
formation of, solid mixts. for, P 8110*cd*.
free energy of ionization of, 2075*b*.
manuf. of, for waterworks operation, 7612*i*.
reaction of, with $NH_3$, $Me_2NH$ and $MeNH_2$, kinetics of, 6896*e*.
with chlorobutenols, 6976*b*.
with olefins, P 4687*c*.
**Hypochloruria**, in kidney disturbances in pregnancy, cause of, 8517*b*.
**Hypocrita jacobaeae**, toxicity of S compds. to, 4415*c*.
**Hypoderma bovis** and(or) **Northern cattle grub**, control of, 1520*dg*.
transplantation and control of larvae of, 1867*g*.
**Hypoderma lineatum** and(or) **Common cattle grub**, control of, 1520*dg*.
transplantation and control of larvae of, 1867*g*.
**Hypoepistephanine**, in protozoa-infection therapy, 1485*c*, 8528*b*.
**Hypofluorous acid**, trifluoromethyl ester, 2833*c*.
**Hypoglycemia** or **Hypoglucemia.** (See also *Blood sugar.*)
alloxan, 301*e*, 1864*c*.
from copper, 3515*g*.
effect of glutamic acid and other amino acids in, 6313*e*.
effect of liver antitoxic principle on, 1860*e*.
encephalogram of epileptics in, 9224*e*.
encephalopathy after, in Sakel's insulin treatment, 3937*e*.
gastric secretory impulses induced by, origin in central nervous system, 8514*h*.
insulin, kinetic study of, 6741*i*.
in insulin micromelia in chick embryos, 3872*b*.
insulin, prevention by glyceraldehyde, 6306*i*.
shock in, from synthalin, effect of dextrose on, 8527*g*.
spontaneous, 6725*i*.
**Hypogonadism**, testicles in, 6716*i*.
**Hypolodites**, polarography of, 64*h*.
**Hypoiodous acid**, decompn. of, kinetics of, 8249*g*.
formation and decompn. of, kinetics of, 8249*h*, 8250*a*.
free energy of ionization of, 2075*b*.
**Hypomagnesemia**, in cows, 4736*i*.
**Hypomycin.** See *Vitamin T.*
**Hyponitrous acid**, esters, as polymerization catalysts, P 5041*c*.
**α-Hypophamine.** See *Oxytocin.*
**β-Hypophamine.** See *Vasopressin.*
**Hypophorin.** See *Pituitary extracts.*
**Hypophosphatasia**, 5853*c*.
**Hypophosphites**, detn. of, 5339*d*.
mixts. with nitrates or nitro compds., flameless gas-producing, P 5190*d*.
**Hypophosphorous acid**, exchange of $P^{32}$ among $H_3PO_3$, $H_3PO_4$ and, 7815*a*.
oxidation by iodate ion, kinetics of, 5267*i*.
potassium chlorate reduction by, 1672*h*.
reaction of, aldehydes or ketones and amines, 5377*h*.
reaction with diazo compds., 9046*i*.
**Hypophysectomy**, adrenal cortex after castration and, effect of testosterone on, 8492*f*.
alloxan diabetes after, 5851*d*.
androgen effect on growth of os penis after, 740*g*.
body compn. after, effect of adrenocorticotropic and growth hormones on, 8489*c*.
body wt. and compn. and survival after, diet and, 8468*h*.
dentition of monkeys after, 6715*f*.
effect of growth hormone and proteins after, 1092*i*.
fat content of liver after, and effect of choline thereon, 7580*cd*.
glucose and N in urine in, in diabetes, effect of pituitary growth and adrenocorticotropic hormones on, 2692*b*.
glucose uptake and glycogen synthesis by diaphragm after, effect of insulin on, 9255*g*.
glycogen deposition in muscle after, 3506*a*.
glycogen in liver after, daily rhythm in, 6302*g*.
hair cycles after, 8036*d*.
hyaluronidase in testicles after, 8035*c*.
phosphatases in tissue after, and after replacement therapy, 8489*f*.
prolactin effect on ovary after, 5470*i*.
renal function after, 5480*g*.
serum and tissue iron after, 8032*g*.
sex hormone effect after, 7565*f*.
sulfamethazine effect on testes and accessory glands after, 759*i*.
thyrotropic hormone effect on thyroid gland after, 5438*b*, 8563*c*.
**Hypophysin.** See "of posterior lobe" under *Pituitary extracts.*
**Hypophysis.** See *Pituitary gland.*
**Hypoproteinemia**, in anaphylactic shock, 3510*h*.
antibody response in diabetes in relation to, 4759*h*.
blood-sugar regulation in, 7563*f*.
dietary effects on anemia plus, 3500*c*.
electrophoresis of blood serums in, 2293*g*.
extracellular- and intracellular-fluid phases of tissue during water diuresis in, 3919*c*.
after fractures, 3511*h*.
γ-globulin disappearance from blood after transfusion in, 9102*a*.
nephrogenic, blood-plasma transfusions in, 9225*h*.
nutritional, effect on extracellular fluid phase and plasma colloid osmotic pressure, 3899*g*.
proteins in blood serum and, 7570*c*.
uric acid in blood in, 3511*h*.
**Hypoprothrombinemia.** See "deficiency" under *Prothrombin.*
**Hyposulfites.** See *Dithionites.*
**Hypotension.** See "low" under *Blood pressure.*
**Hypothalamus.** See *Brain.*
**Hypothermia.** See *Body temperature.*
**Hypothyreosis.** See *Hypothyroidism.*
**Hypothyroidism.** (See also *Myxedema.*)
acidosis effect in, 6303*g*.
adrenal cortex in, 8043*a*.
chick coccidiosis and, 9330*a*.
cholesterol and glutathione in blood in relation to basal metabolism in, 3096*f*.
effect on response to pregnant mare's serum, 8492*b*.
gastrointestinal disturbances in, 9233*c*.
glutathione in blood and basal metabolism in, 5119*g*, 8059*g*.
iodine excretion in urine in, 8039*g*.
muscle compn. in, 8518*b*.
procaine hydrolysis by blood in, 7997*b*.
proteins in blood plasma and liver in, 8518*c*.
proteins in blood plasma and liver in, effect of testosterone propionate on, 5475*a*.
**Hypotonic solutions**, effect on O consumption by frog skin, 3530*a*.
**Hypovitaminosis.** See *Avitaminosis.*
**Hypoxanthine** (*6(1 H)-purinone, sarcine*), as adenine precursor, 5838*c*.
effect on growth of adenine-deficient *Neurospora* strain, 3063*g*.
formation from adenine by *Bacillus coli*, 1816*i*.
formation from $CO_2$ and formic acid in liver homogenates, 3869*c*.
guanine sparing action of, 9148*h*.
metabolism of, 3895*d*.
oxidation by plants, 728*h*.
prepn. and biol. formation of, 8030*b*.
spectrum of, 1425*a*.
——, **2-amino-.** See *Guanine.*
**Hypoxanthine desoxyriboside***, 5058*e*.
vitamin $B_{12}$ activity of, for lactic acid bacteria, 4334*e*.
**Hypoxemia.** See *Anoxemia.*
**Hyssop oil.** See *Oils.*

**Hyssopus officinalis.** See *Hyssop.*
**Hysteresis.** (See also *Relaxation.*)
of adsorption, 6034*a.*
in adsorption of MeOH by coal, 8836*a.*
of MeOH vapor by $SiO_2$ gel, effect of firing on, 1628*f.*
of N by cracking catalysts, pore size-surface area distribution in, 3180*h.*
of water vapor by porous glass and $SiO_2$ gel, 8790*h.*
of contact angles, 1239*f*, 1240*a.*
of copper-In-Mn alloys, 4618*f.*
of cords, filaments and yarns at sonic frequencies, 4016*e.*
elastic, of plastics, 1601*i*, 1603*b.*
in elec. cond. of Br vapor under silent elec. discharge, 3730*i.*
of elec. cond. of silicate melts, 4937*b.*
load-elongation, in yarns, app. for depicting, 6422*g.*
magnetic—see *Magnetic hysteresis.*
measurement of, of cords and yarns, 2439*d.*
in plastic material under alternating flection, 1226*e.*
in Raman effect and thermal properties of 2-methylbutane, 2083*a.*
of rubber, 3649*f*, 8726*c*, 9513*h.*
of rubbers, frictional properties on ice and, 2012*d.*
of rubber (Na-butadiene), effect of oxidation on, 7742*b.*
stress-strain, of clay bars, 2389*e.*
of viscosity, 5249*b.*
viscous elastic, 4540*g.*
of water sorption-desorption on $SiO_2$ gel and freezing-melting hysteresis, 1237*f*
of wool, effect of methylated melamine HCHO resin on, 2779*d.*
in x-ray reflections by stressed Rochelle salt crystals, 6880*c.*
**Hysteria,** calcium and K in blood during, 7124*h.*
canine, from N trichloride, 5495*i*, 7096*h*
**HY-Tuf,** 536*h.*

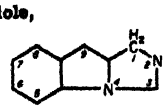
**I.B. 946.** See *Phenol, 2,4-dinitro-.*
**Iboga.** See *Tabernanthe iboga.*
**Ibogaine,** effect on muscle chronaxia, 4772*e.*
**Ice,** adhesion to rubbers, reduction by polymeric silicones, P 6860*e.*
bond energies in, 4527*c.*
in chem. processing, 1882*c.*
clover (ladino and white) encased in, differential survival of, 7088*f.*
crystal structure of, 4074*d*
crystal structure of, structure of water and, 1621*a.*
Dry—see "solid" under *Carbon dioxide.*
eutectic with urea, cryoscopy in, 469*e.*
formation of, by adiabatic expansion of gas, 1231*f.*
in lab. and atm., 6039*b.*
on AgI smokes, 6039*a.*
formation of monocrystal of blue, 8229*b*
free energy of crystal surface of, 3260*a.*
heavy and light, structure of, 5252*d.*
heavy (contg. $D_2O$, etc.)—see "heavy" under *Water.*
isotopes in fossil, 2050*f.*
nuclei, effect in clouds, 8761*g.*
prevention on surfaces, fluid for, P 5135*i.*
relaxation time for, at −180°, 496*b.*
removal of, compn. for, P 2712*g.*
**Ice colors.** See *Dyeing; Dyes.*
**Ice cream,** butterfat detn. in, 780*e.*
emulsifying agents in manuf. of, 9281*g*, P 9494*b.*
gluten sulfate use in, P 6332*e.*
melting rate of, compn. and, 9329*i.*
mix, colored casings for, P 7605*d.*
mixes, effect of heat on inactivation of phosphatases of, 779*c.*
nutritive value of, 8568*a.*
in quality testing of vanilla, 7157*g.*
refractive index of, in detn. of dry solids, 7599*i.*
staphylococcus-toxin formation in products from, 7601*f.*
vitamin-enriched, 7599*i.*
**Iceland spar.** See *Calcite.*
**Ice point.** See *Freezing points.*
**Icerya purchasi** and(or) **Cottony-cushion scale,** control on citrus, 9349*f.*
**Ichthammol,** bactericidal activity of, 3488*d.*
ointments contg., prepn. of, 5534*g.*
**Ichthyocol, Ichthyocolla.** See *Isinglass.*
**Ichthyol.** See *Ichthammol.*
**Ichthyolsulfonic acid,** ammonium salt—see *Ichthammol.*
**Icterus.** See *Jaundice.*
**Idiocy.** See *Mental disorders.*
**Idocrase** (*vesuvianite*), from serpentine region of Logane, Serbia, 8986*i.*
in tilleyite deposits of Carlingford, Ireland, 5347*b.*
of U.S.S.R. (Keiba, Kola Peninsula), 3749*d.*
**Idose, 3-desoxy-*,** D-, 1727*i.*
——, **3-desoxy-2-methyl-*,** D-, 1728*c.*
**Idoside, methyl 3-desoxy-*,** α-D-, 1728*b.*
——, **methyl 3-desoxy-4,6-benzal-*,** α-D-, 1728*b.*
——, **methyl 3-desoxy-4,6-benzal-2-methyl-*,** α-D-, 1728*c.*
——, **methyl 3-desoxy-4,6-hexahydrobenzal-*,** α-D-, 1728*a.*
——, **methyl 3-desoxy-2-methyl-*,** α-D-, 1728*c.*
**Igamides,** A—see *Nylon.*
B—see *Nylon.*
break-twisting angle of perlon, 6421*g.*
hosiery manuf. from perlon, 4469*e.*
perlon and its manuf., 4469*d*
U—see "polymers of" under *Urethans.*
**Igedur,** stress corrosion of, 6961*f.*
**Igelites.** (See also *Rubber, substitute and synthetic.*)
gelation of types of, 6454*h.*
PC, in dairy-equipment construction, 5877*e.*
toxicity of, tritolyl phosphate and, 4893*b.*
**Igenal dyes.** See *Dyes.*
**Igepal,** 6436*d.*
and prepn. of Igepal W, 883*e.*
**Igepons,** 6436*d.*
effect on wettability of pigments, 8698*f.*
I and II, as standard in saponin detn., 5905*e.*
T, effect in pH detn. by Congo red, 8949*a.*
T, effect on influenza virus, 3051*i*
**Igetex.** See *GR-S rubber; Nitrile rubbers.*
**Igevins.** See "vinyl" under *Ethers.*
**Igneous rock.** See *Rocks.*
**Igniters** and **Lighters.** (See also *Matches.*)
P 9450*i.*
for elec. fuseheads, etc., lead salts of 2,4-dinitroresorcinol for use in, P 5190*b.*
fuel briquets, P 8122*b.*
lead- and Se-contg. elec. squibs, etc., P 8083*a.*
**Ignition.** (See also *Cetene number, Combustion; Inflammability; Inflammation.*)
of bromine-H mixts., 4081*eg.*
of carbon disulfide, H and illuminating gas by elec. sparks, 407*b.*
of cellulose, coal dust and charcoal, effect of chemicals on, 4468*b.*
of chromium trioxide with $Ac_2O$, 3199*d*
of cordite by hot gases, 5188*g.*
-delay meter for cetane no. detn. on fuels, 8660*d.*
detection by elec. conductivity, 3591*h*
of dichloromethylsilane with elec. spark, 7230*e*
of Diesel fuels, test for, 4399*e.*
of explosive gas mixts. in shock waves, 5951*b.*
of explosive vapor bubbles in liquid explosives, 8139*d.*
of fuel gases and vapors, 7674*d.*
of gases, 1981*i.*
of gases, heat-release rate in flames in, 3617*h.*
of gas mixts. by sparks, 406*gi*, 9450*g.*
of high-boiling or safety fuels by secondary injection of ignition fuel, 2420*c.*
of hydrocarbons of gas-oil range and their mixts., 7209*i.*
of hydrocarbons, pressure-temp. relations of, 7209*e.*
of hydrogen-O mixts., effect of dimensions of vessel and water addns. on second limit of, 1246*d.*
induction period, O-concn. effect on, 8638*e.*
loss in Fe-ore analysis, 520*g.*
magnesia losses by, detn. of, 1287*c.*
of methanol-air mixts. at low pressures, 5169*b.*
of paraffin hydrocarbons, kinetics of, 2420*b.*
prevention of pre-, in gas engines, and theory of nuclear iguition, 2411*e.*
quality of Diesel fuels, measurement of, 4787*b.*
spontaneous, of coal, 9411*e.*
of coal, measurement of tendency for, 2754*f.*
in Cu mines, 1569*a.*
in fiberboards, 4088*b.*
of gelatinized nitroglycerin, 1980*i.*
of metal powders and starch dust, 7230*h.*
*spontaneous,* of pyroxylin triangles, 7687*b.*
of tetraalkyl Pb compds. absorbed on sludges, inhibition of, P 7676*i.*
of wiping rags used with flammable finishes, 870*a.*
temp.—see also *Flash point.*
temp., of active charcoal, 7668*c.*
of CO mixts. with O, effect of $H_2$ or $PH_3$ on, 4548*a.*
of cellulose nitrate, 1905*ef*/*hi.*
detn. of, app. for, 5921*h.*
of $H_2O_2$ in vapor phase, 8139*e*
limits for, of Tl deriv. analytical ppts., 63*g.*
of org. compds., 5657*i.*
for ppts. in Cr detn., 2543*c.*
of ppts. in gravimetric analysis, 8305*abc.*
of starch dust, and app. for their detn., 8681*f.*
for tannin analytical ppts., 1681*d*
temps. and min. pressures for spark ignition of $N_2H_4$ and $N_2H_4$ hydrate, 5188*ef.*
velocity of flames, 3173*c.*
**Ignitron.** See *Rectifiers.*
**I-Gummi.** See *Rubber, substitute and synthetic.*
**Iles mannane.** See *Amorphophallus oncophyllus.*
**Ileum.** See *Intestines.*
**Ilex** See *Maté.*
**Illidromica,** from Capalbio, Italy, 7872*a*
**Illinium.** See *Promethium.*
**Illinois pisi.** See *Macrosiphum pisi.*
**Illipé butter.** See "mowrah" under *Fats.*
**Illipe latifolia.** See *Mahua.*
**Illite,** in bentonite beds of Bornholm Is., 8320*f.*
calcium and K in suspensions of, 1132*a*
in clays, 3580*f.*
-hydromica series, new member of, and classification of illites, 7871*i*
micaceous, in Casale tuffs, 2552*e.*
microscopy (electron) of, 1129*e*
potassium fixation by, 1132*a*
reaction with Ca or Mg chloride, 7900*d*
in red banded deposits in Rocky Mt. region, 2137*d.*
soils, 3127*d.*
transformation into montmorillonite, 6121*g.*
**Illumination.** (See also *Lamps, Lamps, electric.*)
cloud chamber with rear, 8756*e.*
elec., review on, 1881*c*, 8288*e.*
glasses for, 1541*h.*
**Ilmenite,** in anatase deposits in Italy, 4979*g.*
apatite flotation from, P 5727*d.*
of Canada (Allard Lake), 6516*d*
concn. from Fe ore, 6133*b.*
flotation of, P 4621*h.*
magnetite-, of Tuscany, Italy, 2128*b*
-magnetite seams in gabbro of Nyombi district, Tanganyika Terr., 5347*e*
perovskite replacement by, and intergrowths with titanomagnetite at Buorijarvi, Karelia, 7379*i.*
in phosphates (pebble) of Fla., 1292*g*
prepn. of, 2108*f.*
recovery from beach sands, app. for, 3218*g.*
reduction in stages, 1295*a.*
in sands of Ticino River, Italy, 2130*f*
stability of, in rocks, thermal properties and, 4187*g.*
suspension by K silicate solns., soap solns. and their mixts., 2002*d.*
titanium dioxide manuf. from, P 3576*f.*
of Virginia (Bush-Hutchins), 6952*c.*
**Images,** dichroic carriers for, plastic sheet of film convertible to, P 6804*i.*
film with light-polarizing and -nonpolarizing, P 2820*b.*
light-polarizing two-tone, P 2472*hi.*
**Imbedding materials.** See *Embedding materials.*
**Imbibition.** (See also *Absorption.*)
by muscle, effect of antihistamine agents on, 6318*f.*
**Imesatins,** the term, 1306*d.*
**Imhoff tanks.** See *Sewage.*
**Imidazimidazole,**



*[d]*

**Imidaz[*d*]imidazole-2,5(1*H*,3*H*)-dione, tetrahydro-.** See *Glycoluril.*

**Imidazoindole,**



*1H—[3,4-c]*

**1*H* - Imidazo[3,4 - *a*]indole - 1,3(2*H*)-dione, 2-methyl-3-thio-,** 6205*a*.

**Imidazole** (*1,3-diazole, glyoxaline*),

NH.CH:N.CH:CH.
1 2 3 4 5

as bacterial growth stimulator, 8436*g*.
derivs., 2988*i*, 2989*d*, 3411*a*, 7478*e*, 8381*f*.
with functional groups in the 2-position, 3410*d*.
reaction of imino group of, with oleoyl chloride, 5368*h*.
homologs and related compds., review on, 2616*h*.
identification of, 8365*g*.
pressor and vasoconstrictor effects of, 1868*d*.
x-ray action on, 4133*d*.

**Imidazole, 2-(2-aminoethyl)-,** histamine activity of, 3520*h*.
salts, 3410*h*.
——, **4**(or **5**)**-(2-aminoethyl)-.** See *Histamine*.
—, **2-(2-aminoethyl)-1-benzyl-,** histamine activity of, 3520*h*.
and salts, 3410*h*.
——, **2-(2-aminoethyl)-4**(or **5**)**-methyl-,** salts, 7478*h*.
——, **4**(and **5**)**-(2-aminoethyl)-1-methyl-,** histamine activity of, 3520*h*.
——, **5-amino-1-methyl-,** and picrate, 3408*i*, 3409*a*.
——, **2-(aminomethyl)-4**(or **5**)**-methyl-,** salts, 7478*g*.
——, **4**(or **5**)**-benzamido-,** 1401*c*.
—, **1-benzyl-,** and picrate, 3410*e*.
—, **1-benzyl-2-(chloromethyl)-,** hydrochloride, 3410*g*.
—, **1-benzyl-5-(chloromethyl)-,** hydrochloride, 8382*c*.
—, **1-benzyl-2-methyl-,** and picrate, 3410*e*.
—, **4,5 - bis(5 - bromo - 2 - hydroxyphenyl)-,** 4247*b*.
—, **(carboxymethylmercapto)-.** See *Acetic acid, (imidazolylmercapto)-*.
—, **2-[2-(6-chloro-2-methoxy-9-acridylamino)ethyl] - 4 - methyl-†,** 7478*h*.
—, **2-(6-chloro-2-methoxy-9-acridylaminomethyl)-4**(or **5**)**-methyl-†,** 7478*g*.
**5-(chloromethyl)-1-cyclohexyl-,** hydrochloride, 8382*b*.
—, **5-(chloromethyl)-1-isopropyl-,** hydrochloride, 8382*b*.
—, **5-(chloromethyl)-1-methyl-,** hydrochloride, 8382*b*.
—, **5-(chloromethyl)-1-phenyl-,** hydrochloride, 8382*b*.
—, **4**(or **5**)**-(diethylaminomethyl)-,** hydrochloride, 634*a*.
—, **dihydro-.** See *Imidazoline*.
—, **4,5-diphenyl-,** identification of, 8365*i*.
—, **4**(or **5**)**-[2-[3-hydroxy-5-(hydroxymethyl) - 2 - methyl - 4 - pyridylmethylamino]ethyl]-†,** dihydrochloride, 1411*b*.
—, **4**(or **5**)**-[2-[3-hydroxy-5-(hydroxymethyl) - 2 - methyl - 4 - pyridylmethyleneamino]ethyl]-†,** 1411*a*
—, **methyl-,** review on, 2616*h*.
—, **2-methyl-,** 3410*f*.
—, **4**(or **5**)**-methyl-,** 7478*e*.
derivs., 634*a*.
——, **4**(or **5**)**-methyl-2-phenyl-,** 2989*e*.
——, **4**(or **5**)**-(4-morpholinylmethyl)-†,** dihydrochloride, 634*a*.
—, **nitro-,** as antioxidant for rubber, 2022*c*.
——, **4**(or **5**)**-(1-piperidylmethyl)-†,** dihydrochloride, 634*a*.
——, **4**(or **5**)**-(2-salicyloylaminoethyl)-†,** P 6239*b*.
——, **tetrahydro-.** See *Imidazolidine*.

**1-Imidazoleacetamide** (*α-1-imidazolylacetamide*).
——, **2 - benzyl - *N* - 2 - hydroxyethyl-,** 3364*b*.

**4-Imidazoleacetamide, tetrahydro-2,5-dioxo-.** See *Hydantoinacetamide*.

**Imidazoleacetic acid,** creatine formation from, by animal tissue, 9102*h*.

**1-Imidazoleacetic acid, 2-amyl-α-(1-mercaptoisopropyl)-,** hydrochloride, x-ray study of, 4920*g*.
——, **2-benzyl-,** and ethyl ester, 3363*i*.
——, **2-benzyl-α-(1-mercaptoisopropyl)-,** hydrochloride, x-ray study of, 4920*g*.
——, **α-(1-mercaptoisopropyl)-2-(2-pentenyl)-,** and hydrochloride, x-ray study of, 4920*f*.
——, **2-mercapto-4-(1,2,3,4-tetrahydroxybutyl)-,** and ethyl ester, 2989*c*.

**4-Imidazoleacetic acid, tetrahydro-2,5-dioxo-.** See *5-Hydantoinacetic acid*.

**2-Imidazoleacetonitrile, 1-benzyl-,** and picrate, 3410*g*.

**5-Imidazoleacetonitrile, 1-methyl-,** picrate, 8382*e*.

**4**(or **5**)**-Imidazoleacrylic acid.** See *Urocanic acid*.

**2-Imidazolealanine** (*β-2 imidazolylalanine*), 3410*i*.
——, **1-benzyl-,** 3410*i*.

**4**(or **5**)**-Imidazolealanine.** See *Histidine*.

**Imidazoleaminomethylsulfonic acid***, *Pseudomonas aeruginosa* inhibition by, 8001*c*.

**4**(or **5**)**-Imidazolebutyric acid, α-ethyl-β-(hydroxymethyl)-1-methyl-,** lactone—see *Pilocarpine*.
— —, **β-(hydroxymethyl)-1-methyl-,** lactone—see *Pilosinine*.

**Imidazolecaproic acid, dihydro-.** See *Imidazolinecaproic acid*.

**4**(or **5**)**-Imidazolecarbamic acid,** ethyl ester, 1402*f*.
——, **2-mercapto-,** ethyl ester and its acetate (ester), 1402*e*.
— —, **2-mercapto-5**(or **4**)**-methyl-,** ethyl ester, 1402*h*.
— —, **2-mercapto-5**(or **4**)**-phenyl-,** ethyl ester, 1403*a*.
——, **5**(or **4**)**-methyl-,** ethyl ester, 1402*h*
— —, **5**(or **4**)**-phenyl-,** ethyl ester, 1403*b*.

**5-Imidazolecarboxaldehyde, 1-cyclohexyl-,** and phenylhydrazone, 8381*i*
——, **1-isopropyl-,** and phenylhydrazone, 8381*i*.
——, **1-methyl-,** 8381*i*.
— —, **1-phenyl-,** and phenylhydrazone, 8381*i*.

**1-Imidazolecarboxamide,** *N*-1-naphthyl-, 8365*g*.

**4-Imidazolecarboxamide, 5-amino-2-mercapto-1-methyl-,** 3409*c*.
— —, **5-amino-1-methyl-,** and hydrochloride, 3409*d*.

**4**(or **5**)**-Imidazolecarboxamide, 5**(or **4**)**-amino-,** as bacterial growth stimulator, 8436*h*.

**5-Imidazolecarboxamide,** *N*,**1-dimethyl-4-methylaminothio-,** and salts, 3794*d*.

**1-Imidazolecarboxanilide,** 8365*g*.
——, **4,5-diphenyl-,** 8365*i*.

**Imidazolecarboxylic acid, nitro-,** review on, 2616*h*.

**2-Imidazolecarboxylic acid,** 3410*g*.
——, **1-benzyl-,** 3410*f*.

**4-Imidazolecarboxylic acid, 5-amino-2-mercapto-1-methyl-,** ethyl ester, 3409*b*.
——, **5-amino-1-methyl-,** ethyl ester, and its HCl, 3409*c*.

**4**(or **5**)**-Imidazolecarboxylic acid,** and derivs., 3411*a*.
hydrazides, 8381*e*.
— —, **2-amyl-5**(or **4**)**-methyl-,** ethyl ester, 2989*f*
——, **2-hydroxy-,** ethyl ester, 3411*f*.
——, **2-mercapto-,** esters, 3411*c*.
——, **5**(or **4**)**-methyl-2-phenyl-,** and ethyl ester, 2989*e*.

**5-Imidazolecarboxylic acid, 1-benzyl-,** methyl ester, and nitrate, 3411*e*.
——, **1-benzyl-2-hydroxy-,** methyl ester, 3411*f*
——, **1-benzyl-2-mercapto-,** methyl ester, 3411*c*.
——, **1-cyclohexyl-,** hydrazides, 8381*h*.
methyl ester, 3411*d*.
——, **1-cyclohexyl-2-hydroxy-,** methyl ester, 3411*f*.
——, **1-cyclohexyl-2-mercapto-,** methyl ester, 3411*c*.
——, **2-hydroxy-1-isopropyl-,** methyl ester, 3411*f*.
——, **1-isopropyl-,** hydrazides, 8381*g*.
methyl ester, 3411*d*.
——, **1-isopropyl-2-mercapto-,** methyl ester, 3411*c*.
——, **2-mercapto-1-methyl-,** and methyl ester, 3411*c*.
——, **2-mercapto-1-phenyl-,** and esters, 3411*d*.
——, **1-methyl-,** hydrazides, 8381*g*.
methyl ester, 3411*d*.
——, **1-phenyl-,** ethyl ester, 3411*d*.
hydrazides, 8381*g*.

**4,5-Imidazoledicarboxamide, 1-ribofuranosyl-,** D-, 6984*g*.

**4,5-Imidazoledicarboxylic acid,** as bacterial growth stimulator, 8436*g*.

**2,4(3*H*,5*H*)-Imidazoledione.** See *Hydantoin*.

**Imidazoleëthylamine.** See *Histamine; Imidazole, (2-aminoethyl)-*.

**Imidazolelactic acid,** biol. formation from creatine, 9102*h*.

**2-Imidazolemethanol,** and salts, 3410*f*.
——, **1-benzyl-,** and salts, 3410*e*.

**4**(or **5**)**-Imidazolemethanol,** 8382*a*.

**5 - Imidazolemethanol, 1 - benzyl-,** 8382*b*.
——, **1-cyclohexyl-,** 8382*b*.
——, **1-isopropyl-,** 8382*a*.
——, **1-methyl-,** 8382*a*.
——, **1-phenyl-,** 8382*b*.

**Imidazolepropionic acid** (*β-imidazolylpropionic acid*).
— —, **α - hydroxy-.** See *Imidazolelactic acid*.

**2-Imidazolepropionic acid,** ethyl ester, 3411*a*.
— —, **1-benzyl-,** ethyl ester, 3410*i*.

**4**(or **5**)**-Imidazolepropionic acid, α-amino-.** See *Histidine*.

**Imidazole series,** derivs. (fluorescent), P 9474*e*.

**2-Imidazolethiol,** antithyroid activity of, 8544*g*, 9242*a*.
——, **1-acetyl-4**(or **5**)**-benzamido-(?),** and acetate, 1400*i*, 1401*a*.
— —, **5-amino-1-methyl-,** and hydrochloride, 3408*i*.
——, **4**(or **5**)**-benzamido-,** and acetate, 1401*c*.
——, **1-benzyl-,** 3410*d*.
— —, **1-methyl-,** antithyroid activity of, 8056*c*.
— —, **4**(or **5**)**-methyl-,** effect on formation of acetylthyroxine from acetyldiiodotyrosine, 6298*e*.
——, **4**(or **5**)**-propyl-,** antithyroid activity of, 9242*a*.

**2(3*H*)-Imidazolethione,** derivs., 634*h*.
——, **4-amyl-,** 634*i*.
——, **4-benzyl-,** 635*a*.
— —, **4 - [4,4 - bis(2 - benzoxazolyl) - 1,3-butadienyl] - 1 - ethyl - 5 - hydroxy-3-phenyl-,** P 4159*c*, P 8927*c*.
— —, **4-*tert*-butyl-,** 635*c*.
— —, **4-(cyclohexylmethyl)-,** 635*a*.
——, **4-cyclopentyl-,** 635*a*.
——, **4-hexyl-,** 634*i*.
——, **4-isobutyl-,** 634*i*.
——, **4-isopropyl-,** 634*i*.
——, **4-propyl-,** 634*i*.

**2(5*H*) - Imidazolethione, 4 - (benzylmercapto) - 5,5 - dimethyl-,** 6171*e*.
——, **5,5 - dimethyl - 4 - methylmercapto-,** 6171*e*.
——, **5-imino-4,4-dimethyl-,** 6171*g*.

**4(5*H*)**(or **5**(**4*H***)) **- Imidazolethione, 5,5-**(or **4,4**) **- dimethyl - 2 - methylmercapto-,** 6171*f*.
——, **2 - mercapto - 5,5**(or **4,4**) **- dimethyl-,** derivs., 6171*e*.

**Imidazolethrione.** See *Parabanic acid*.

**Imidazolevaleric acid, tetrahydro-.** See *Imidazolidinevaleric acid*.

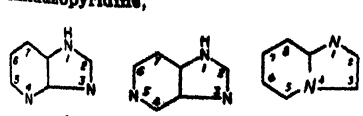
**Imidazolidine,** derivs., vinyl chloride resins contg., P 8738*g*.
— —, **2 - amino - 2 - nitramino - 1-nitro-,** 2203*g*.
——, **1,3-diallyl-2-phenyl-,** polymers with vinyl compds., P 8738*h*.
——, **2 - dibutylamino - 2 - nitramino-1-nitro-,** 2203*g*.
——, **1,3 - dicyclohexyl - 2 - phenyl-,** polymers with vinyl compds., P 8738*h*.
**1,3-diisopropyl-2-phenyl-,** mers with vinyl compds., P 8738*h*.
, **2 - ethoxy - 2 - nitramino - 1-nitro-,** 2203*g*.
——, **2 - nitramino - 1 - nitro - 2 - propoxy-,** 2203*g*.
——, **2 - nitramino - 1 - nitro - 2 - propylamino-,** 2203*g*.
——, **triazolyl-.** See *Triazole, imidazolidyl-*.

**$\Delta^{4,\alpha}$ - Imidazolidineacetic acid, α-methyl-2,5-dioxo-, ethyl ester,** 4634*d*.

**4 - Imidazolidineacetic acid, 2,5 - dioxo-,** See *5-Hydantoinacetic acid*.

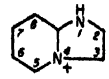
**4 - Imidazolidinecaproic acid** (*α - 4 - imidazolidylcaproic acid*).
——, **5-methyl-2-oxo-**, P 692*b*, P 5808*b*.
and related compds., 1769*b*.
——, **δ,2,5-trioxo-**, P 5426*g*.
**1 - Imidazolidinecarboxylic acid, 2 - oxo-5-phenyl-**, ethyl ester, 3821*e*.
**2,4-Imidazolidinedione**. See *Hydantoin*.
**2,4-Imidazolidinedithione**. See *Hydantoin, 2,4-dithio-*.
**Imidazolidinetrione**. See *Parabanic acid*.
**4 - Imidazolidinevaleric acid** (*δ - 4 - imidazolidylvaleric acid*).
——, **2,5-dithioxo-**, ethyl ester, 3410*a*.
**2-Imidazolidone**, P 691*h*, P 7513*e*.
derivs., P 5808*b*.
manuf. of, and its derivs., P 692*a*.
——, **1-acetyl-5-phenyl-**, 3821*e*.
——, **1,3-dinitro-**, 2203*e*.
——, **3 - ethyl - 4 - (*p* - methoxyphenyl)-**, 6176*i*.
——, **4-methyl-1,3-dinitro-**, 9065*g*.
——, **4-phenyl-**, 3821*d*.
**4 - Imidazolidone, 2 - [(*N* - acetylsulfanilyl)imino]-†**, P 6234*e*.
——, **5-benzyl-2-phenyl-**, 8383*a*.
——, **5 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 3 - (3 - ethyl - 4 - oxo - 2 - thioxo - 5 - thiazolidylidene) - 1,3 - diphenyl-†**, P 4162*i*.
——, **2-imino-**. See *Glycocyamidine*.
——, **2-imino-1-methyl-**. See *Creatine*.
——, **2-sulfanilylimino-†**, P 6234*e*.
**Imidazoline, (phenylsulfonamido)-**. See *Benzenesulfonamide, N-imidazolinyl-*.
——, **sulfanilamido-**. See *Sulfanilamide, N¹-imidazolinyl-*.
——, **triazolyl-**. See *Triazole, imidazolinyl-*.
**2-Imidazoline**, derivs., P 692*cd*, P 5048*g*, P 5049*ace*, P 6240*bfi*, 6619*h*, 6620*a*, 7023*a*.
derivs., for breaking petroleum emulsions, P 5180*c*.
as corrosion inhibitors, P 5002*a*, P 6406*g*.
as demulsifiers, P 9427*a*.
as fungicides, 6775*f*, 7177*e*.
——, **1 - acetyl - 4 - ethyl - 2,4 - dimethyl-**, 8381*c*.
——, **2-amino-**, salts, P 6670*e*.
*p*-toluenesulfonate, P 7050*e*.
——, **2-(2-aminoethylamino)-**, and dipicrate, 4273*d*.
——, **1 - [2 - [2 - (2 - aminoethylamino)ethylamino]ethyl] - 2 - (8-heptadecenyl)-**, P 5180*e*.
——, **1 - [2 - (2 - aminoethylamino)ethyl] - 2 - (8 - heptadecenyl)-**, P 5180*e*.
——, **2 - (2 - aminoethylamino) - 4(or 5)-methyl-**, and dipicrate, 4273*e*.
——, **1 - (2 - aminoethyl) - 2 - heptadecenyl-**, P 9427*b*.
——, **1-(2-aminoethyl)-2-heptadecyl-**, as corrosion inhibitor, P 6406*g*.
——, **1 - (2 - aminoethyl) - 2 - (8 - heptadecenyl)-**, P 5180*d*.
——, **1 - (2 - aminoethyl) - 2 - methyl-**, histamine activity of, 3520*i*.
——, **2-amyl-**, P 5048*i*.
——, **2-amylamino-**, and picrate, 4273*b*.
——, **2 - amylamino - 4(or 5) - methyl-**, picrate, 4273*c*.
——, **2-(anilinomethyl)-**, P 4430*a*.
circulatory action of, 9249*c*.
hydrochloride, P 5049*a*.
and hydrochloride, P 4303*a*.
——, **2-(3-anilinopropyl)-**, and hydrochloride, P 6240*e*.
——, **2 - (benzhydryloxymethyl)-**, effect in adrenaline pulmonary edema, 6729*c*.
identification and differentiation of, 9366*e*.
in otolaryngology, 7585*h*.
in protection against histamine shock, 6722*d*.
and salts, 4669*g*.
——, **2-benzyl-**, effect on adrenaline action on blood vessels as affected by acetylcholine antagonists, 2704*h*.
effect on adrenaline toxicity, 311*a*.
on chloroform-adrenaline ventricular fibrillation, 4768*d*.
on circulation, 5866*h*.
on heart, 9250*h*.
on response to depressor substance of urine, 4754*e*.
on retinal arterial pressure, 3522*h*.
hydrochloride, P 2238*e*, P 5048*i*, P 5049*g*.
and hydrochlorides, P 3467*b*.
pharmacology of, 1869*b*.
——, **2-benzylamino-**, and picrate, 4273*b*.
——, **2 - [2 - (*N* - benzylanilino)ethyl]-**, hydrochloride, P 683*e*.
——, **2 - (*N* - benzylanilinomethyl)-**, P 3979*a*.
antibacterial action of, 9147*c*.
antidiffusion activity of, 3927*h*.
antihistamine action of, 1104*g*, 6722*c*.
detn. in biol. materials, 8422*c*.
effect on adsorptive capacity of gastric mucus for histamine, histidine, etc., 4385*f*.
on anaphylactic and normal lungs, 7131*a*.
on chemosis of rabbit eye by mustard oil, 2315*e*.
on histamine action on adhesiveness of corneal epithelium, 2700*h*.
on histamine liberation from intestine during anaphylactic reaction, 3512*e*.
on intestine, effect of lysolecithin on, 311*e*.
on $H_2O$ excretion, 9268*d*.
histamine-antagonizing and antispasmodic effects of, 3934*e*.
hydrochloride, P 683*c*, P 692*e*, P 5049*b*.
identification and differentiation of, 9366*e*.
pharmacol. action of, 4756*c*.
pharmacol. and therapeutic action of, 3937*f*, 3938*be*.
——, **2-(*N*-benzylanilinopropyl)-**, P 5049*c*.
——, **2 - (3 - *N* - benzylanilinopropyl)-**, hydrochloride, P 683*d*, P 692*e*.
——, **2 - (*N* - benzyl - *p* - chloroanilinomethyl)-**, hydrochloride, P 683*f*, P 5049*cd*.
——, **2 - (*N* - benzyl - *m* - hydroxyanilinomethyl)-†**, hydrochloride, P 5049*bd*.
——, **2 - [2 - (*N* - benzyl - *o* - methoxyanilino)ethyl]-**, hydrochloride, P 692*e*.
——, **2 - [*N* - benzyl - *o*(and *p*) - methoxyanilinomethyl]-**, hydrochlorides, P 683*d*, P 5049*b*.
——, **2 - (*N* - benzyl - *p* - methoxyanilinomethyl)-**, hydrochloride, P 692*e*.
——, **2-benzyl-1-methyl-**, pharmacology of, 1869*b*.
——, **2 - [(benzyl - 1 - naphthylamino)methyl]-**, hydrochloride, P 683*d*, P 692*e*.
——, **2 - [(benzyl - 1(and 2) - naphthylamino)methyl]-**, hydrochlorides, P 5049*bd*.
——, **2 - [(*N* - benzyl - *o*(and *p*) - phenetidino)methyl]-**, hydrochloride, P 683*d*, P 692*e*, P 5049*b*.
——, **2 - [(*N* - benzyl - *p* - phenoxyanilino)methyl]-**, hydrochloride, P 5049*bd*.
——, **2,2′ - (4,4′ - biphenylene)bis[4,5-dimethyl-**, and dihydrochloride, P 3853*a*, P 6240*f*.
——, **2,2′ - (4,4′ - biphenylene)bis[4(or 5)-methyl-**, and dihydrochloride, P 3853*a*, P 6240*f*.
——, **2,2′-(4,4′-biphenylene)di-**, derivs., P 6240*f*.
and derivs., P 3852*h*.
——, **2 - (2 - biphenylylaminomethyl)-**, and hydrochloride, P 6240*e*.
——, **1 - [2 - [bis[2 - (2 - hydroxyethoxy)ethyl]amino]ethyl] - 2 - (8 - heptadecenyl)-†**, P 5180*e*.
——, **1 - [2 - [bis(2 - hydroxyethyl)amino]ethyl] - 2 - (8 - heptadecenyl)-†**, P 5180*e*.
——, **2-(bromomethyl)-**, hydrobromide, P 5048*f*.
——, **2-butyl-**, *p*-toluenesulfonate, P 5049*f*.
——, **2-butylamino-**, and picrate, 4273*b*.
——, **2 - butylamino - 4(or 5) - methyl-**, and picrate, 4273*c*.
——, **1 - butyl - 2 - (2,2 - diphenylethyl)-**, P 1810*i*.
——, **2 - (*N* - *p* - chlorobenzylanilinomethyl)-**, hydrochloride, P 5049*cd*.
——, **2 - [(*p* - chloro - *N* - *p* - chlorobenzylanilino)methyl]-**, hydrochloride, P 5049*ce*.
——, **2-(chloromethyl)-**, P 4430*b*.
hydrochloride, P 3042*d*.
——, **2 - (chloromethyl) - 1 - methyl-**, hydrochloride, P 7050*c*.
——, **2-(*o*-chlorophenyl)-**, *p*-toluenesulfonate, P 5049*h*.
——, **2-(3-chloropropyl)-**, hydrochloride, P 7050*c*.
——, **2-cyclohexyl-**, *p*-toluenesulfonate, P 5049*g*.
——, **2 - [(α - cyclohexylbenzyloxy)methyl]-**, and salts, 6620*a*.
——, **2-(cyclohexylmethyl)-**, P 5048*i*.
——, **1,5 - diethyl - 2,5 - dimethyl-**, and picrate, 8381*f*.
——, **2-(3,4-dimethoxyphenyl)-**, benzenesulfonate, P 5049*g*.
——, **2 - [α - (2 - dimethylaminoethoxy)benzyl]-**, and dihydrochloride, 7023*c*.
——, **2 - (2,4 - di[illegible])-**, hydrochloride, P [illegible].
——, **2 - (diphenylaminomethyl)-**, hydrochloride, P 6240*e*.
——, **1 - [2 - (2 - dodecylaminoethyl)aminoethyl] - 2 - methyl-**, as corrosion inhibitor, P 6406*g*.
——, **4(or 5)-ethyl-2,4(or 2,5)-dimethyl-**, and picrate, 8381*c*.
——, **2,2′ - (ethylenedilimino)bis[4(or 5)-methyl-**, and dipicrate, 4273*e*.
——, **4(or 5)-ethyl-2-methyl-**, and picrate, 8381*f*.
——, **5-ethyl-1,2,5-trimethyl-**, and picrate, 8381*e*.
——, **2-heptadecyl-**, in apple scab control, 9327*e*.
as corrosion inhibitor, P 5002*e*.
as fungicide, 7176*i*.
for tomatoes, 4413*c*.
for turf, fruit and potatoes, 6775*f*.
melanose control on grapefruit, 3553*g*.
——, **2 - (m - [illegible]roxyanilinomethyl)-†**, hydrochloride, P 6240*f*.
——, **2 - [*N* - (*m* - hydroxyphenyl) - *p*-toluidinomethyl]-†**, adrenolytic properties of, 6309*f*.
——, **4 - imino - 5,5 - dimethyl - 2-methylmercapto-**, 6171*g*.
——, **2-isobutylamino-**, and picrate, 4273*b*.
——, **2-isobutylamino-4(or 5)-methyl-**, and picrate, 4273*c*.
——, **2 - (*o* - methoxyanilinomethyl)-**, hydrochloride, P 6240*d*.
and hydrochloride, P 4303*b*.
——, **2 - (4 - methoxybenzhydryloxymethyl)-**, salts, 6620*a*.
——, **2 - (*N* - *p* - methoxybenzylanilinomethyl)-**, hydrochloride, P 5049*d*.
——, **2 - (2 - methoxy - 1 - naphthyl)-**, hydrochloride, P 5048*i*.
——, **2 - (4 - methoxy - 1 - naphthylmethyl)-**, circulatory action of, 9249*c*.
hydrochloride, P 5048*i*.
——, **2 - (*p* - methoxyphenyl)-**, and *p*-toluenesulfonate, P 5049*f*.
——, **2 - [(5 - methoxy - 8 - quinolylamino)methyl]-†**, and hydrochloride, P 6240*e*.
——, **2-methyl-**. See *Lysidine*.
——, **2 - (*N* - methylanilinomethyl)-**, and hydrochloride, P 6240*d*.
——, **2 - (4 - methylbenzhydryloxymethyl)-**, and hydrochloride, 6620*a*.
——, **1 - methyl - 2 - (*N* - methylanilinomethyl)-**, hydrochloride, P 6240*e*.
——, **2-(2-methyl-1-naphthylmethyl)-**, hydrochloride, P 2238*f*.
——, **4(or 5)-methyl-2-nitramino-**, 9065*g*.
reaction with primary amines, 4273*b*
——, **methyl-1-nitro-2-nitramino-**, 9065*g*.
——, **2 - [(α - methyl - α - 2 - pyridylbenzyloxy)methyl]-†**, and salts, 6620*c*.
——, **2-(5-methyl-2-thenyl)-**, P 3042*f*.
——, **2-(2-naphthyl)-**, benzenesulfonate, P 5049*g*.
——, **2 - [2 - (1 - naphthylamino)ethylamino]-**, and picrate, 4273*b*.
——, **2 - (1 - naphthylaminomethyl)-**, hydrochloride, P 6240*d*.
——, **2 - [(α - 1 - naphthylbenzyloxy)methyl]-**, salts, 6620*a*.
——, **2-(1-naphthylmethyl)-**, P 5808*f*.
compd. with *N*¹-(5-methyl-1,3,4-thiadiazol-2-yl)sulfanilamide, P 6661*c*.
effect on blood pressure, 9249*c*.
effect on circulation, 9242*e*.
hydrochloride, P 2238*e*, P 5048*i*.
and hydrochloride, P 692*c*, P 3467*b*.
——, **2-(2-naphthylmethyl)-**, penicillin prepns. contg., P 9390*c*.
——, **2-nitramino-**, reaction with primary amines, 4273*a*.
——, **2-nitramino-1-nitro-**, 2203*e*.
——, **2-(*o*-nitroanilinomethyl)-**, hydrochloride, P 6240*e*.
——, **2-phenethyl-**, P 5048*i*.
——, **2-phenethylamino-**, and picrate, 4273*b*.
——, **2 - (*N* - phenethylanilinomethyl)-**,

hydrochloride, P 692*e*, P 5049*c*, P 6241*a*.
——, **2-phenyl-**, salts, P 5049*f*.
——, **2 - [(*a* - phenyl - 2 - thenyloxy)-methyl]-**, and salts, 6620*b*.
——, **2-(3-pyridyl)-†**, P 5048*i*.
——, **2-(8-quinolylmethyl)-†**, P 5048*i*.
——, **2-(2-thenyl)-**, and derivs., P 3042*e*.
——, **2 - [2(and 3) - thianaphthenylmethyl]-**, hydrochlorides, 1395*i*, 1396*ac*.
——, **1 - triethylenetriamino - 2 - abietyl-***, as corrosion inhibitor, P 6406*g*.
——, **2 - (3,4,5 - trimethoxybenzyl)-**, circulatory action of, 9249*c*.
hydrochloride, P 5048*i*.
**4 - Imidazoline - 4 - caproic acid** (*a - 4-imidazolin - 4 - ylcaproic acid*).
——, **5-methyl-2-oxo-**, 1769*d*, P 5808*d*.
——, **5-methyl-2-thioxo-**, 1769*e*.
**2 - Imidazoline - 1 - carboxamide**, *N* - **1-naphthyl - 2,4,5 - triphenyl-**, 8365*h*.
**2 - Imidazoline - 1 - carboxanilide, 2,4,5-triphenyl-**, 8365*h*.
**2 - Imidazoline - 1 - ethanol** (*2 - (2-imidazolin-1-yl)ethanol*).
——, **2-(heptadecenyl)-**, in lubricants, P 4459*g*.
——, **2-(8-heptadecenyl)-**, carbonate, ester with diethylene glycol, di-HCl, P 5180*e*.
——, **2-heptadecyl-**, carbonate, ester with diethylene glycol, di-HCl, P 5180*f*.
——, **2 - (11 - hydroxy - 8 - heptadecenyl)-**, carbonate, ester with diethylene glycol, di-HCl, P 5180*f*.
**Imidazoline-2-methanol**, derivs., reaction with $PhCH_2CH_2NHPh$, P 6240*i*.
——, *a*-**phenyl-**, and hydrochloride, 7023*c*.
**2-Imidazoline-2-thiol**, antithyroid activity of, 8544*g*, 9242*b*.
**Imidazolinium compounds**, 5-(3-ethyl-2-benzothiazolinylidene) - 2 - methylmercapto - 4 - oxo - 1,3 - diphenyl - 2— perchlorate, P 4160*g*.
5 - [2 - (3 - ethyl - 2 - benzoxazolinylidene)ethylidene] - 2 - methylmercapto-4-oxo-1,3-diphenyl-2— iodide, P 4160*h*.
**Imidazolone, dihydro-**. See *Imidazolidone*.
**2(3 *H*)-Imidazolone**, 4-alkyl derivs., P 5808*a*.
——, **4-ethyl-**, P 5808*b*.
——, **4-methyl-**, P 5808*b*.
**2(5 *H*) - Imidazolone, 4,5 - bis(5 - bromo-2-hydroxyphenyl)-**, 4247*b*.
——, **5,5 - dimethyl - 4 - methylmercapto-**, 6171*g*.
——, **5 - imino - 4,4 - dimethyl-**, 6171*g*.
**4(5 *H*)(or 5(4 *H*))-Imidazolone, 5(or 4)-benzylidene - 2 - methylmercapto-**, spectrum of, 6984*d*.
——, **5(or 4)-benzylidene-2-phenyl-**, 8382*g*.
in scintillation counters, 4111*f*.
——, **2 - (carboxymethylmercapto)-5,5(or 4,4)-diphenyl-†**, 3016*b*.
——, **5,5(or 4,4) - dimethyl - 2 - methylmercapto-**, 6171*h*.
**5(4 *H*) - Imidazolone, 4 - benzylidene - 1-(benzyloxy)-2-phenyl-**, 8383*c*.
——, **4 - benzylidene - 1 - hydroxy - 2-phenyl-**, 8382*i*.
——, **4 - benzylidene - 1 - methyl - 2-methylmercapto-**, spectrum of, 6984*d*.
——, **2 - (carboxymethylmercapto) - 1-methyl - 5,5 - diphenyl-†**, 3016*c*.
——, **4 - *p* - ethoxybenzylidene - 1 - hydroxy-2-phenyl-**, 8383*b*.
**Imidazopyridine**,



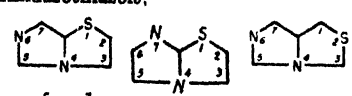
*1H—[b]* *1—[c]* *[1,2-a]*

**Imidazo[*b*]pyridine**, and derivs., 7023*h*.
——, **6-amino-**, dihydrochloride, 7023*i*.
——, **6-chloro-**, 7023*g*.
——, **6-formamido-†**, 7023*i*.
**1 *H* - Imidazo[*b*]pyridine**, and derivs., 1425*c*.
——, **6-bromo-2-methyl-**, 1425*g*.
**1 *H* - Imidazo[*c*]pyridine, 4,5,6,7 - tetrahydro - 4 - [2 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4-pyridyl]-†**, 1411*b*.
**1 *H* - Imidazo[*c*]pyridine - 6 - carboxylic acid, 4,5,6,7 - tetrahydro - 4 - [2-hydroxy - 5 - (hydroxymethyl) - 2-methyl-4-pyridyl]-**, 645*b*.
**1 *H*-Imidazo[*b*]pyridine-2-thiol**, 1425*h*.
——, **6-bromo-**, 1425*h*.
**Imidazo[*b*]pyridine - 2 - thiol, 6 - chloro-**, 7023*h*.
**Imidazopyridinium**,



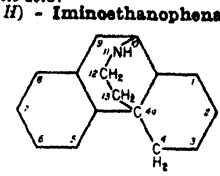
*1H—[1,2-a]*

**1 *H* - Imidazo[1,2 - *a*]pyridinium compounds**, 2,3-dihydro-1-methyl-2-oxo— salts, 643*a*.
3 - (*p* - dimethylaminophenylimino) - 2,3-dihydro - 1 - methyl - 2 - oxo— salts, 643*a*.
**Imidazo[*b*]pyridin-2-ol**, 7023*h*.
——, **6-chloro-**, 7023*g*.
**1 *H*-Imidazo[*b*]pyridin-2-ol**, 1425*h*.
——, **6-bromo-**, compd. with AcOH, 1425*h*.
**Imidazo[1,2 - *a*]pyridin - 2(3 *H*) - one**, and azomethine derivs., 642*i*.
——, **3 - (*p* - dimethylaminophenylimino)-**, and derivs., 643*a*.
**Imidazothiazole**,



*[5,1-b]* *]2, 1-b]* *[1, 5-c]*

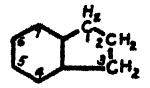
**Imidazo[1,5 - *c*]thiazole**, spiro derivs., 659*d*.
**Imidazo[2,1 - *b*]thiazole - 3 - carboxylic acid, 2,3,5,6,7,7a - hexahydro-2,2 - dimethyl - 5 - oxo - 7 - phenylacetyl-**, derivs., spectra of, 8892*g*.
**Imidazo[5,1 - *b*]thiazole - 3,7 - dicarboxylic acid, 5 - amyl - 2,3,7,7a - tetrahydro-2,2-dimethyl-**, 5908*c*.
x-ray study of, 4920*g*.
——, **5 - benzyl - 2,3,7,7a - tetrahydro-2,2-dimethyl-**, 1768*f*.
*dl-*, 221*e*.
dimethyl ester, spectrum of, 8892*g*.
identification and crystallography of, 4921*d*.
x-ray study of, 4920*h*.
——, **2,3,7,7a - tetrahydro - 2,2 - dimethyl - 5 - (3 - methyl - 2 - butenyl)-**, x-ray study of, 4920*h*.
——, **2,3,7,7a - tetrahydro - 2,2 - dimethyl - 5 - (2 - pentenyl)-**, identification and crystallography of, 4921*d*.
x-ray study of, 4920*g*.
——, **2,3,7,7a - tetrahydro - 5 - (*p* - hydroxybenzyl) - 2,2 - dimethyl-**, identification and crystallography of, 4921*d*.
x-ray study of, 4920*h*.
**Imides**. (See also *Sulfimide*.)
cyclic, addn. to *a*,*β*-unsatd. aldehydes, 6169*f*.
diacyl-, sepn. and assay of, 7075*f*.
*N*-(dialkylaminoalkyl) derivs. of, 617*a*.
*N*-(guanylalkyl), hydrohalides, P 672*g*.
*N*-halo, P 7517*d*
as insecticides, P 4421*c*.
manuf. of, P 3452*b*, P 4686*h*.
metallic, for concn. of nonsulfide ores, P 5725*d*.
*N*-vinyl, and polymers, P 5035*f*.
**Imidic acids**, (acylamino), esters, hydrohalides, P 672*g*.
esters, hydrochlorides, 3359*h*.
reaction with *a*-amino carbonyl compds., 2989*d*.
for thiol removal from hydrocarbon distillates, P 4844*c*.
**Imidocarbonic acid**, $HN{:}C(OH)_2$.
dihydrazide—see *Guanidine, 1,3-diamino-*.
esters (cyclic), 5393*h*.
——, **phenyldithio-**, monoamyl ester, in flotation of sulfide ores, P 4998*h*.
**Imidodicarbonitrile**. See *Dicyanamide*.
**Imidodicarboxylic acid**, $NH(COOH)_2$.
esters, 4228*f*.
——, **1-naphthyl-**. See *1-Naphthalene-imidodicarboxylic acid*.
**Imidogen**, in astronomical growth curve studies, 39*g*.
in comet Bester (1947 k), 938*a*.
in sun, 39*a*.
**Imine** (*free radical*), in comets, 490*i*.
**Imines**. (*Cyclic imines, in which the carbon of the group C—N H is a ring member, are entered under names analogous to the corresponding ketones; e.g.*, Quinoneimine. *Other imines are treated as derivatives of the most suitable imine, as* Methylenimine. *See also* Anils; Azomethine compounds; Schiff bases; *and* "nitrogen" *under* Heterocyclic compounds.)
bond length in, 7277*a*.
as catalysts for polymerization of olefins, P 8666*h*.
from chloral, as insecticides, P 5153*f*.
halo, stereochemistry of, 7464*e*.
hydrogenation of, 2176*i*.
*N*-hydroxyalkyl derivs., P 7955*c*.
identification in pharmaceuticals, 3145*e*.
ket-, related to 6-dimethylamino-4,4-diphenyl-3-heptanone, 3391*f*.
polymethylene, 5399*i*.
**Iminodiformic acid**. See *Imidodicarboxylic acid*.
**10,4a(4 *H*) - Iminoethanophenanthrene**,



*10,4a (4H)-*

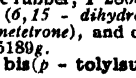
derivs., P 7517*h*.
——, **5(or 7)-acetamido-1,2,3,9,10,10a-hexahydro-11-methyl-**, 6635*h*.
——, **6 - amino - 1,2,3,9,10,10a - hexahydro-11-methyl-**, and hydrobromide, 6635*g*.
——, **1,2,3,9,10,10a-hexahydro-**, 4279*a*.
——, **1,2,3,9,10,10a - hexahydro - 6 - methoxy-11-methyl-**, hydrobromide, 6635*g*.
and hydrobromide, P 7518*d*.
——, **1,2,3,9,10,10a - hexahydro - 11-methyl-**, derivs., 6635*c*.
and derivs., 4279*f*.
——, **1,2,3,9,10,10a - hexahydro - 11-methyl-5(or 7)-nitro-**, hydrochloride, 6635*g*.
——, **1,2,3,9,10,10a - hexahydro - 11-methyl-6-nitro-**, salts, 6635*g*.
——, **1,2,3,9,10,10a - hexahydro - 6,7,11-trimethyl-**, and salts, P 7518*c*.
**10,4a(4 *H*) - Iminoethanophenanthrene-11 - carbonitrile, 1,2,3,9,10,10a-hexahydro-**, 4279*i*.
**10,4a(4 *H*) - Iminoethanophenanthrenol, 11 - ethyl - 1,2,3,9,10,10a - hexahydro-**, hydrobromide, 6635*h*.
**10,4a(4 *H*) - Iminoethanophenanthrenol - 5 - ol, 1,2,3,9,10,10a - hexahydro-11-methyl-(?)**, and hydrobromide, 6635*f*.
**10,4a(4 *H*) - Iminoethanophenanthrenol - 6 - ol, 1,2,3,9,10,10a - hexahydro-11-methyl-**, and derivs., 6635*f*, P 7518*c*.
**10,4a(4 *H*) - Iminoethanophenanthrenol - 7 - ol, 1,2,3,9,10,10a - hexahydro-11-methyl-**, and hydrobromide, 6635*f*, P 7518*d*.
**Imino group**, detn. in higher amines, 5341*f*.
reaction of, in imidazole derivs. with oleoyl chloride, 5368*h*.
spectrum of, in flames, 5312*g*.
**Immersion liquid**. See *Microscopy*.
**Immune body**. See *Haptens*.
**Immunity**. (See also *Antibodies; Vaccines;* the various specific bacteria, as *Vibrio comma;* and the various specific diseases, as *Diphtheria*.)
book: Experimental Immunochemistry, 1483*a*.
enzyme theory of, in treatment of diseases, 1855*a*.
globulin systems of blood serums and, 6722*h*.
immune proteins of bovine milk and colostrum in, 3004*h*.
loss of, from alc., 8516*e*.
review on, 1100*a*, 3513*b*, 6723*e*.
**Immunization**. (See also the various specific bacteria, as *Corynebacterium;* and the various diseases as *Diphtheria, Typhoid fever* and *Whooping cough*.)
alumina gel in, 7120*h*.
auto-, 1481*c*.

blood serum after, 1477*e*.
latex of *Hevea brasiliensis* as adjuvant and stimulant in, 3916*i*.
**Immunochemistry**. See *Immunity; Immunology*.
**Immunology**, books: Nozioni di, 755*f*, Bakteriologie und Immunitätsforschung, 2675*a*.
chemistry of, 3918*a*.
long-range forces in, 1479*f*.
radioactive isotopes in investigations on, 3919*e*.
**Impact strength**. (See also *Steel;* etc.)
of adhesives, 4892*i*.
measurement of, of adhesives, 4400*d*.
app. for, 3653*e*.
A.S.T.M. standards for, 4202*g*.
of incendiary gels, 4015*a*.
of phenolic resins, 3229*h*.
of plastic materials, 1603*c*.
of plastic sheeting, 2464*i*, 4509*g*.
of polystyrene, 3230*h*.
of Zn alloys, 7886*g*.
**Impatiens**, *balsamina*, photoperiodic changes of pH of press juices of, 5454*f*.
*balsamina*, water metabolism by, in N deficiency, 281*b*.
*biflora*, antibacterial and antifungal substances from, 3885*c*.
*hortensis, nolitangere, parviflora* and *roylei*, conjugate-unsatd. acids in, 134*i*.
*parviflora*, cuticular transpiration in, and its relation to membrane swelling capacity, 730*e*.
**Imperatorin**, 1910*e*.
**Impermeability**. See *Permeability*
**Impingers**, for halogenated-hydrocarbon collection, 6869*f*.
midget, P 6469*f*.
**Imported cabbage worm**. See *Pieris rapae*.
**Imported willow leaf beetle** See *Plagiodera versicolora*.
**Impregnating materials**. (See also *Penetrating agents*)
from acyl halides, castor oil, olefinic α,β-dicarboxylic acids and vinyl compds., P 3656*e*.
aryl ethers as polar dielec., P 6234*h*.
from butadiene deriv.-maleic ester-vinyl compd. interpolymers, P 3230*e*
for cable from 2-vinylfluorene polymers, P 8740*h*.
for cables, coils, joints, etc., phenoxa thiin vinyl compd. polymers with vinylidene compds, P 1223*j*.
for castings, P 2469*h*.
from cetyl acetamide, coumarone indene resin and ethylcellulose, P 2033*d*.
for condensers from chlorinated fluorenone, P 2344*g*.
from diallyl phthalates and methacrylates, P 5641*e*.
for elec. condensers, hydrogenation product of dimeric *p*,α-dimethylstyrene as, P 4518*f*.
for elec. insulation from siloxanes, P 5635*a*.
emulsions, P 6000*e*.
emulsions of unsatd. polyesters with vinyl monomers for, P 7264*h*.
ethylene glycol tetrachlorophthalate resins, P 3655*a*.
for fireproofing—see *Fireproofing*.
fungicidal, 5891*i*.
glycol diester emulsions, P 9533*h*.
from orthosilicic acid ester and polyallyl ether, P 9538*c*.
for paper—see *Paper*.
polymerization in fibrous base, P 3238*c*.
from polymers of chloroformates of unsatd. alcs., P 5230*g*.
from rubbers (acrylonitrile-diene) mixed with phenolic resins, P 2807*b*.
silicon compds., P 8211*f*.
from silicones, P 5999*h*.
siloxane-polymer, P 440*f*.
from tetraallylsilane polymers, P 5637*f*.
for textiles—see *Textiles*
from vinyl-halide polymers with vinylidene halides, P 7265*f*.
from vinylphenoxathiin polymers, P 905*b*.
vinylpyrrole polymers, P 907*d*.
from 2-vinylthiazole polymers, P 2805*h*.
for waterproofing—see *Waterproofing*.
for wood—see *Wood*.
**Impregnation**, of carbonaceous bodies for improved primary cells, P 6530*e*.
of fibrous materials—see *Fibrous materials*.
of porous materials with polymers, P 902*c*.
of refractory insulator resinous dielec. by electrophoresis, P 9537*a*.
of textiles—see *Textiles*.
of wood—see *Wood*.
of wrapping materials—see *Wrapping materials*.
**Impression materials**, dental—see *Dental materials*.
**IN 5446**. See "zinc salt" under *Carbamic acid, ethylenebis[dithio-*.
**Inanition**, adrenal gland of rodent in, 288*i*.
adrenocortical-anterior pituitary relation in, 8485*g*.
alloxan diabetes in, 753*b*.
amino acids in blood in, 5834*f*.
calcium and Mg balance in, 8471*e*.
calcium and Mg metabolism in, 8497*i*.
calcium and K in blood during, 8471*e*.
cathepsin II activity of kidney and liver in, 4752*d*.
cytoplasm from liver in, 3512*g*.
edema from, 1479*e*.
edema from, liver in, 3898*d*.
effect of slow, 292*e*.
effect on amino acids in blood plasma, 4740*g*.
on enzymic activity of pancreas of dogs killed by bleeding, 4746*c*.
on methionine excretion, 6307*b*.
effects of vitamins $B_1$, $B_2$ and $B_6$ in, 8022*b*.
estrogen inactivation by liver in, 8024*h*.
gonadotropic content of pituitary gland in, 5835*g*.
insulinase content of liver and, 6252*h*.
17-keto steroids in urine during, 7099*e*.
metabolism during, and after feeding, 8477*b*.
metabolism during, effect of previous diet on, 8028*g*.
muscle extracellular and intracellular fluid phases during, 9190*i*.
muscular atrophy from, Fe content of muscle in, 4357*a*.
nitrogen metabolism during recovery from, in normal and splenectomized animals, 2684*i*.
nitrogen mobilization from tissue in, adrenal cortex and thyroid in, 8031*g*.
phosphorylase in muscle in, 3079*i*, 6710*c*.
recovery from, and metabolic rate in, 1472*f*.
recovery from, effect of testosterone propionate on N and chloride excretion and body wt. of castrated rats during, 3090*d*.
recovery from, organ wts. of rats receiving hormone supplements during, 8035*h*.
science *vs.* starvation, 4525*g*.
in thiamine deficiency, 294*b*.
work capacity in, effect of previous diet on, 1091*g*.
xylidine toxicity in, 3930*g*
**Incendiary bombs**. See *Bombs*.
**Incendiary devices** or **materials** (See also "incendiary" under *Bombs*)
explosive compn. for, P 1190*c*
from explosive comps., P 8082*h*.
gels, rheological properties of, 4014*i*.
history of, in China, 9449*c*.
phosphorus content and dangers of, 2437*a*.
of Thermite type, P 1190*f*.
**Incense**, for mosquito control from pyrethrum and benzophenone or hexachlorocyclohexane, 8602*gh*.
**Incineration**. (*For the incineration of various materials see such headings as* Sewage. *See also* Ashing.)
mechanization of process of, 6767*h*.
**Incinerators**, refractories for, standards for, 4397*i*, 4785*f*.
**Inconel**, corrosion of, by sulfates, 1706*f*.
in corrosion prevention in petroleum refineries, 8128*b*.
corrosion resistance of, in paper-pulp manuf., 4010*i*.
corrosion resistance of, to tanning solns., 9506*f*.
minor phases in W, X and plain, 540*h*.
octafluorocyclobutane decompn. in presence of, P 8220*a*.
as sulfation and sulfonation app. alloy, 97*e*.
in wine prepn., 7188*i*.
X, properties at high temps., 9013*h*.
**Incretions**. See *Hormones*.
**Incrustations**. (See also *Boiler scale; Scale.*)
analysis of $H_2O$-formed, 4399*h*.
on evaporators—see *Evaporators*.
on heated surfaces, theory of, 7298*c*.
prevention of—see also *Water, purification of*.
removal of sol. and insol., from turbines, 2717*e*.
in sugar manuf.—see *Sugar manufacture*
on well screens (water), and its prevention 2346*b*.
**Indalone**. See "butyl ester" under *2H-Pyran-6-carboxylic acid, 3,4-dihydro-2,2-dimethyl-4-oxo-*.
**Indan** (*2,3-dihydroindene, hydrindene*),



alkylation of, 2197*e*.
dehydrogenation of, 6608*h*.
derivs., 8390*a*.
formation from $C_2H_2$, 5376*d*.
as Newtonian liquid, 842*f*.
Raman spectrum of, 8888*g*.
reaction with $N_2ClHCO_2Et$, 6203*e*.
—, **acetamido-**. See *Acetamide, N-indanyl-*.
—, **acetyl-**. See *Ketone, indanyl methyl*.
—, **1-bromo-2-(trichloromethyl)-**, 4637*a*.
—, **1-butyl-5-methoxy-2-(*p*-methoxyphenyl)-3-methyl-**, 1758*d*
—, **1-chloro-**, P 3024*d*.
—, **5-cyclohexyl-1-(3-cyclohexyl-*p*-tolyl)-1,3,3,6-tetramethyl-**, 1340*a*.
—, **1-(3-cyclohexyl-5-nitro-*p*-tolyl)-1,3,3,6-tetramethyl-5-nitro-**, 1340*a*.
—, **1-(*p*-cyclohexylphenyl)-**, sulfo deriv., P 1562*h*.
—, **1-(4-*o*-cymyl)-5-isopropyl-1,3,3,6-tetramethyl-**, 1339*a*.
—, **1,5(and 1,6)-dimethyl-**, 117*ch*
—, **5,6-dimethyl-**, 208*f*.
—, **3-(3,5-dinitro-*p*-tolyl)-1,1,3,5-tetramethyl-4,6-dinitro-**, 1340*a*
—, **4(and 5)-ethyl-**, 2197*g*.
—, **1-ethyl-5-methoxy-2-(*p*-methoxyphenyl)-3-methyl-**, 1758*d*.
—, **1-ethyl-5-methoxy-3-(*p*-methoxyphenyl)-2-methyl-**, 2180*d*, 6608*e*.
identity with metanethole, 1740*f*
—, **hexadecafluorohexahydro-**, P 4301*d*.
—, **4(and 5)-isopropyl-**, 2197*g*
—, **1-isopropyl-5-methoxy-2-(*p*-methoxyphenyl)-**, 1758*a*.
—, **5-methoxy-2-(*p*-methoxyphenyl)-**, derivs., 1758*a*.
—, **5-methoxy-2-(*p*-methoxyphenyl)-1,3-dimethyl-**, 1758*d*
—, **5-methoxy-2-(*p*-methoxyphenyl)-3-methyl-1-propyl-**, 1758*d*.
—, **1-methyl-1,3,3-triphenyl-**, 2193*c*, 2569*d*.
—, **oxo-**. See *Indanone*.
—, **2-phenyl-**, derivs., 1757*h*
—, **1,1,4,7-tetramethyl-**, 2182*h*
—, **1,1,3,5-tetramethyl-6-nitro-3-(3-nitro-*p*-tolyl)-**, 1339*a*, 1340*a*
—, **1,1,3,5-tetramethyl-3-*p*-tolyl-**, 7917*a*.
**5-Indanacetamide** (*α-5-indanylacetamide*).
—, *N*-**homopiperonyl-**, 8390*e*
—, *N*-**[2-(5-indanyl)ethyl]-**, 8390*e*
**5-Indanacetanilide** (*α-5-indanylacetanilide*), 8390*b*.
**Δ1,α-Indanacetic acid, 2-allyl-α-cyano-**, ethyl ester, 8374*e*.
—, **α-cyano-**, ethyl ester, 8373*d*.
**1-Indanacetic acid, α-cyano-**, and ethyl ester, 8373*h*.
—, **α-cyano-α-propyl-**, diastereomers and Et esters, 8373*i*.
—, **α-propyl-**, 8374*d*.
**2-Indanacetic acid, 2-methyl-1,3-dioxo-**, alkyl esters, P 7048*e*.
**4-Indanacetic acid, 5-(2,4-dihydroxy-1-methyl-2-cyclohexen-1-yl)-1-(1,5-dimethylhexyl)hexahydro-7a-methyl-**, ε-lactone, acetate, 1789*d*.
**1-(1,5-dimethylhexyl)hexahydro-5-(4-hydroxy-1-methyl-2-oxocyclohexyl)-7a-methyl-**, acetate, 3018*c*.
derivs., 1789*a*.
**5-Indanacetic acid**, ethyl ester, 8390*b*.
**5-Indanacetonitrile**, 8390*a*.
**1-Indanamine, 5,6,7-trimethoxy-4-(*p*-methoxyphenyl)-**, salts, 2108*b*.

**4 - Indanamine**, *N, N* - **dimethyl - 7-nitro-**, 616*i*.
——, **5(6 and 7)-nitro-**, 616*h*.
**5 - Indanbutyric acid** (*γ - 5 - indanylbutyric acid*).
——, **hexahydro-**, and ethyl ester, 1375*e*.
**N - Indancarbamic acid, 2 - ethyl-**, esters, 1390*b*.
**4 - Indancarbonitrile, 7 - methyl-**, 2625*i*.
**Indancarboxaldehyde, dioxo-**, merocyanine dye from, P 1988*d*.
**1-Indancarboxamide, 3-oxo-**, 3399*d*.
**1 - Indancarboxylic acid, 2 - acetyl - 3-oxo-**(?), ethyl ester, 3399*d*.
——, **2 - benzhydryl - 2 - chloro - 1 - hydroxy-3-oxo-**, compd. with $Et_2O$ and Me ester, 1384*f*.
——, **2 - chloro - 2 - (3 - cyclohexylpropyl) - 1 - hydroxy - 3 - oxo-**, and derivs., 1384*e*.
——, **2 - chloro - 1 - hydroxy - 2 - isoamyl-3-oxo-**, and derivs., 1384*e*.
——, **2 - (4 - cyclohexylbutyl) - 1,2 - dihydroxy-3-oxo-**, 1384*d*.
——, **2 - cyclohexyl - 1,2 - dihydroxy-3-oxo-**, 1384*d*.
——, **2 - (3 - cyclohexylpropyl) - 1,2 - dihydroxy-3-oxo-**, and derivs., 1384*d*.
——, **1,2 - dihydroxy - 2 - isoamyl - 3-oxo-**, and derivs., 1384*c*.
——, **1,2 - dihydroxy - 2 - (3 - methyl - 2-butenyl)-3-oxo-**, and derivs., 1384*a*.
——, **1,2 - dihydroxy - 2 - methyl - 3-oxo-**, and derivs., 1384*c*.
——, **1,2 - dihydroxy - 2 - (2 - naphthyl)-3-oxo-**, 1384*d*.
——, **1,2 - dihydroxy - 3 - oxo - 2 - [3-(*p* - phenoxyphenyl)propyl]-**, 1384*e*.
——, **2 - (3,7 - dimethyloctyl) - 1,2 - dihydroxy-3-oxo-**, 1384*d*.
——, **3-oxo-**, and derivs., 3399*c*.
**2 - Indancarboxylic acid, 2 - amino-**, 4223*c*.
——, **2-cyano-**, hydrazides and other derivs., 4222*h*.
——, **1,3-dioxo-**, ethyl ester, and its complex salts, 3397*h*.
——, **1-oxo-**, 7456*h*.
**4 - Indancarboxylic acid, 5,6 - dimethyl-**, 208*f*.
**4,5-Indandiamine**, 616*i*.
**1,2 - Indandiol, 2,3 - dimethyl - 1,3-diphenyl-**, 1041*f*, 3397*e*.
——, **2-methyl-1,3-diphenyl-**, 1041*e*, 3397*e*.
**1,2 - Indandione, 3,3 - diphenyl-**, 2-oxime, as stabilizer for Cl-contg. resins, P 8739*f*.
——, **4-ethoxy-6,7-dimethoxy-**, 2-oxime, 7460*b*.
——, **7-ethoxy-4,6-dimethoxy-**, 7460*c*.
——, **3-methyl-**, anil oxide*, 7472*a*.
——, **3-phenyl-**, synthesis and reactions, 1041*a*.
**1,3-Indandione, 2-acetonyl-**, 3399*c*.
——, **2,2-dichloro-**, 7012*d*.
——, **2,2-dihydroxy-**. See *Ninhydrin*.
——, **2 - hydroxy - 2 - *p* - hydroxyanilino-**, 7013*a*.
——, **2-isovaleryl-**, as parasiticide, 4414*h*.
——, **2-methyl-**, 2074*a*.
and monosemicarbazone, 7010*a*.
——, **2-nitro-**, and compds. with amino acids, 69*g*.
——, **2-phenyl-**, antivitamin P action of, 5834*g*.
——, **2-pivalyl-**, as parasiticide, 4414*h*.
——, **2-valeryl-**, as parasiticide, 4414*h*.
**5 - Indanethylamine** (*2 - (5 - indanyl)ethylamine*), 8390*b*.
**2 - Indanglyoxylic acid, 7 - isopropyl - 4-methyl-1-oxo-**, and ethyl ester, 1747*g*.
**1-Indanol, 2-(aminomethyl)-**, derivs., dehydration of, P 1440*g*.
——, **2-[(benzylmethylamino)methyl]-**, P 1441*b*.
——, **2 - (dimethylaminomethyl)-**, P 1440*h*.
——, **hexahydro-3,5-dimethyl-**, 117*a*.
——, **2-(methylaminomethyl)-**, P 1441*b*.
——, **1 - methyl - 2 - (1 - piperidylmethyl)-**, P 1440*i*.
——, **2 - (4 - morpholinylmethyl)-**, hydrochloride, P 1440*h*.
——, **2 - (1 - piperidylmethyl)-**, hydrochloride, P 1440*h*.
——, **1-(2-pyridyl)-**, and hydrochloride, 2205*f*.
**5 - Indanol, 1 - butyl - 2 - (*p* - hydroxyphenyl)-**, 1758*a*.
——, **1 - butyl - 2 - (*p* - hydroxyphenyl)-3- methyl-**, 1758*d*.
——, **1 - ethyl - 2 - (*p* - hydroxyphenyl)-**, 1758*a*.
——, **1 - ethyl - 2 - (*p* - hydroxyphenyl)-3-methyl-**, 1758*d*.
——, **2-(*p*-hydroxyphenyl)-**, and derivs., 1758*b*.
——, **2 - (*p* - hydroxyphenyl) - 1,3 - dimethyl-**, 1758*d*.
——, **2 - (*p* - hydroxyphenyl) - 1 - isobutyl-**, 1758*a*.
——, **2 - (*p* - hydroxyphenyl) - 1 - isopropyl-**, 1758*a*.
——, **2 - (*p* - hydroxyphenyl) - 1 - isopropyl-3-methyl-**, and diacetate, 1758*d*.
——, **2-(*p*-hydroxyphenyl)-1-methyl-**, 1758*a*.
——, **2-(*p*-hydroxyphenyl)-3-methyl-1-propyl-**, 1758*d*.
——, **2 - (*p* - hydroxyphenyl) - 1 - propyl-**, and esters, 1758*a*.
**1-Indanone**, 7456*f*.
2-alkyl derivs., 1757*e*.
derivs., 1389*i*.
prepn. of, 4250*i*.
——, **2-allyl-**, and 2,4 dinitrophenylhydrazone, 8374*e*.
——, **3 - (*p* - aminophenyl) - 2 - chloro-2-ethyl-3-phenyl-**, 2611*c*.
——, **2(or 3)-anilino-2(or 3)-hydroxy-3(or 2)-phenylimino-**, 7012*i*.
——, **2-[(benzylmethylamino)methyl]-**, hydrobromide, P 1441*a*.
——, **4-(3-bromo-4-methoxyphenyl)-5,6,7-trimethoxy-**, and oxime, 2198*a*.
——, **6-chloro-3-(*p*-chlorophenyl)-**, and oxime, 7471*g*.
——, **6 - chloro - 3 - (*p* - chlorophenyl) - 2-(*p* - dimethylaminophenylimino)-**, 7471*h*.
——, **2 - chloro - 3 - ethoxy - 2 - ethyl - 3-phenyl-**, isomers, 2611*a*.
——, **2 - chloro - 2 - ethyl - 3 - hydroxy-3-phenyl-**, acetate, 2610*i*.
isomers, 2610*e*.
——, **2 - chloro - 2 - ethyl - 3 - methoxy-3-phenyl-**, 2611*a*.
——, **2,3 - dichloro - 2 - ethyl - 3-phenyl-**, isomers, 2610*e*.
——, **5,6-dimethoxy-**, and semicarbazone, 4251*b*.
——, **2,2-dimethyl-**, 1757*f*.
——, **5,6-dimethyl-**, and oxime, 208*f*.
——, **2-(dimethylaminomethyl)-**, hydrochloride, P 1440*h*.
——, **2,3 - epoxy - 2 - ethyl - 3 - phenyl-**, 2610*g*.
——, **4 - ethoxy - 6,7 - dimethoxy-**, and 2,4-dinitrophenylhydrazone, 7460*b*.
——, **7-ethoxy-4,6-dimethoxy-**, and derivs., 7460*c*.
——, **2-ethyl-**, 1390*b*, 1757*f*.
——, **hexahydro-3,5**(and **3,6**)**-dimethyl-**, and semicarbazone, 116*i*, 117*f*.
——, **2 - (hydroxymethylene) - 7 - isopropyl-4-methyl-**, 1747*h*.
——, **7-isopropyl-4-methyl-**, and derivs, 1747*f*.
——, **5(6 and 7)-methoxy-**, 4250*i*.
——, **5(and 7)-methoxy-2-(*p*-methoxyphenyl)-**, and 2,4-dinitrophenylhydrazones, 1757*i*.
——, **2-methyl-**, 1757*g*.
——, **3-methyl-**, and derivs., 7472*a*.
——, **2 - (4 - morpholinylmethyl)-**, hydrochloride, P 1440*h*.
——, **2-(1-piperidylmethyl)-**, hydrochloride, P 1440*h*.
——, **2-propyl-**, and semicarbazone, 1757*f*.
——, **4,5,6,7-tetrahydro-**, and 2,4-dinitrophenylhydrazone, 590*g*.
——, **4,5,6,7 - tetrahydro - 3,5**(and **3,6**)**-dimethyl-**, and semicarbazone, 116*i*, 117*e*.
——, **5,6,7 - trimethoxy - 4 - (*p* - methoxyphenyl)-**, and oxime, 191*a*.
and oxime, 2198*b*.
——, **3,3,6-trimethyl-**, and semicarbazone, 7917*d*.
**2-Indanone, 1,3-diphenyl-**, 1041*d*, 3397*d*.
——, **1-hydroxy-1,3-diphenyl-**, 1041*d*, 3397*c*.
——, **1-hydroxy - 3 - methyl - 1, 3 - diphenyl-**, 1041*f*, 3397*e*.
——, **1-methoxy-1,3-diphenyl-**, 1041*e*, 3397*d*.
**5(6*H*) - Indanone, 4 - (dimethylaminomethyl) - 7,7a - dihydro-**, acid oxalate, 7432*f*.
**2-Indanphosphonic acid**, dibutyl ester, P 7969*e*.
**1 - Indanpropionic acid** (*β - 1 - indanylpropionic acid*).
——, *β*, **3-dioxo-**(?), ethyl ester, 3399*d*.
**2 - Indansulfonic acid, 1,3 - dioxo-**, and potassium salts, 2596*f*.
**2-Indanthiol**, acetate, for improvement of synthetic rubber, P 2805*d*.
**Indanthrene** (*6,15 - dihydro - 5,9,14,18-anthrazinetetrone*), and derivs., 3399*e*.
prepn. of, 5189*g*.
——, **8,17 - bis(*p* - tolylsulfonamido)-**, 3399*f*.
——, **(chloromethyl)-**, dye from tetramethylthiourea and, P 8163*f*.
——, **(chloromethyl) - 8,17 - di - *p*-toluidino-**, dyes from, P 8163*g*, P 8164*a*.
——, **8,17-diamino-**, 3400*e*.
——, **7,16-dibromo-**, 3399*g*.
——, **7,16**(and **8,17**)**-dichloro-**, 3399*f*.
**Indanthrene dyes**. See *Dyes*.
**Indanthrone**. See *Indanthrene*.
**Indanthrone dyes**. See *Dyes*.
**1,2,3-Indantrione**, hydrate—see *Ninhydrin*.
**5-Indanvaleramide**, 2965*h*.
**Indanvaleric acid** (*δ-indanylvaleric acid*).
**5-Indanvaleric acid**, 2965*h*.
——, **δ-oxo-**, and derivs., 2965*g*.
**Indanylamine**. See *Indanamine*.
**Indazole** (*1,2,2 H-benzodiazole, benzopyrazole*),

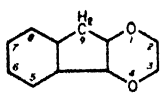


derivs., from Schiff bases, 7934*a*.
ionization of, 3416*e*.
——, **5 - (*N*⁴ - acetylsulfanilamido)-†**, P 7966*a*.
——, **4**(and **5**)**-nitro-**, identification of, 8365*h*.
——, **5-sulfanilamido-†**, P 7966*a*.
**3 - Indazolecarbonitrile, 2 - (*m* - bromophenyl)-**, 1-oxide, 6934*b*.
——, **2 - [*m*(and *p*) - chlorophenyl]-**, 1-oxides, 7934*a*.
——, **2-(*m*-nitrophenyl)-**, 1-oxide, 7934*a*.
**2 - Indazolecarboxamide**, *N* - **1 - naphthyl - 4**(and **5**) **- nitro-**, 8365*h*.
**2 - Indazolecarboxanilide, 4**(and **5**)**-nitro-** 8365*h*.
**Indene**,



(See also *Resinous products*.)
cation-exchange resin from cyclopentadiene dicyclopentadiene or furfural and, P 5517*c*.
condensation with aniline and acetone, P 6242*b*.
derivs., 7012*c*.
derivs., magnetic susceptibilities of, 8767*e*.
Diels-Alder adduct with hexachlorocyclopentadiene, P 4693*e*.
formation from $C_7H_8$, 5376*d*.
formation from indan, 6608*h*.
manuf. of, P 6644*a*.
polymerization and vulcanization of, kinetics of, 8818*eghi*, 8819*a*.
polymerization with monoölefins, viscous oils by, P 8130*d*.
polymers of, with methacrylic acid, sulfonated, for leather modification, P 1592*h*.
polymers with 2-vinylfluorene, P 8740*h*.
Raman spectrum of, 8888*g*.
reaction with HCl, P 3024*d*.
spectrum of, in characterizing solvents, 420*a*.
**Indene, 3 - butyl - 6 - methoxy - 2 - (*p*-methoxyphenyl)-**, 1758*a*.
——, **2,3-dihydro-**. See *Indan*.
——, **3 - ethyl - 6 - methoxy - 2 - (*p*-methoxyphenyl)-**, 1758*a*.
——, **3 - isobutyl - 6 - methoxy - 2 - (*p*-methoxyphenyl)-**, 1758*a*.
——, **3 - isopropyl - 6 - methoxy - 2 - (*p*-methoxyphenyl)-**, 1758*a*.
——, **1-keto-**. See *Indone*.
——, **6 - methoxy - 2 - (*p* - methoxyphenyl)-**, and derivs., 1758*b*.
——, **6 - methoxy - 2 - (*p* - methoxyphenyl)-3-methyl-**, 1758*a*.
——, **6 - methoxy - 2 - (*p* - methoxyphenyl)-3-propyl-**, 1758*a*.
——, **1-methylene-**. See *Benzofulvene*.
——, **octahydro-**. See *Indan, hexahydro-*.
——, **1-oxo-**. See *Indone*.

——, 2-phenyl-, 9042*g*.
mol. structure of, 4569*c*.
——, 1,1,2,3-tetramethyl-, 5762*c*.
**Indene-1-*d***, magnetochemistry of, 8767*f*.
**Indeneacetic acid, 2,3-dihydro-**. See *Indanacetic acid*.
——, α-oxo-. See *Indeneglyoxylic acid*.
**3-Indeneacetic acid**, α-allyl-α-cyano-, ethyl ester, 8373*c*.
**Indenebutyric acid, 2,3-dihydro-**. See *Indanbutyric acid*.
**1-Indenecarbamic acid, 2-ethyl-**, esters, 1390*b*.
**2-Indenecarboxamide, 3-methyl-N-sulfanilyl-**, P 7961*d*, P 7962*c*.
**1-Indenecarboxylic acid**, 4236*e*.
——, 3-sulfo-, 4236*e*.
**2-Indenecarboxylic acid**, 4637*a*.
**3-Indenecarboxylic acid, 2-methyl-1-oxo-**, and derivs., 4661*a*.
semicarbazone, 7009*f*.
**Indene glycol**. See *1,2-Indandiol*.
**1-Indeneglyoxylic acid** (*1-indenylglyoxylic acid*).
——, 6-methoxy-2-(*p*-methoxyphenyl)-3-propyl-, ethyl ester, 1758*c*.
**2-Indenemethylamine** (*α-2-indenylmethylamine*), derivs., P 1440*g*.
——, *N,N*-dimethyl-, and hydrochloride, P 1440*i*.
——, *N*-methyl-, and hydrochloride, P 1441*b*.
**2-Indenephosphonic acid**, esters, P 7969*e*.
**Indenodioxin,**



*9H—[1,2-b]-p-*

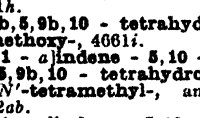
**9*H*-Indeno[1,2-*b*]-*p*-dioxin-9-one, 2,3-dihydro-2,3-diphenyl-**, 2985*a*.
**Indeno[1,2]imidasole,**

*[1,2]*

**Indeno[1,2]imidasol-8(3*H*)-one, 2-*o*-carboxybenzoyl-†**, and methyl ester, 7012*h*.
**Indeno[2,1-*a*]indene,**

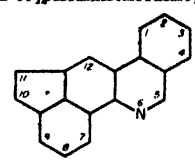
*[2,1-a]*

derivs., 4661*e*, 4662*c*.
5-butoxy-10-chloro-, 4662*d*.
5,10-dichloro-, 4662*c*.
5,10-dichloro-4b,5,9b,10-tetrahydro-, 4661*h*.
5,10-dihydro-, 4662*d*.
5-ethoxy-, 4662*e*.
5-methoxy-, 4662*d*.
5,5′-oxybis[4b,5-dihydro-(?)-, 4661*h*.
——, 4b,5,9b,10-tetrahydro-5,10-dimethoxy-, 4661*i*.
**Indeno[2,1-*a*]indene-5,10-diamine, 4b,5,9b,10-tetrahydro-*N,N,N′,N′*-tetramethyl-**, and derivs., 4662*ab*.
**Indeno[2,1-*a*]indene-5,10-diol, 4b,5,9b,10-tetrahydro-**, and derivs., 4661*f*.
**Indeno[2,1-*a*]indene-5,10-dione, 4b,9b-dihydro-**, and derivs., 4661*e*.
**Indeno[2,1-*a*]inden-5(4b-*H*)-one, 9b,10-dihydro-**, and oxime, 4662*e*.
**Indenoindole,**



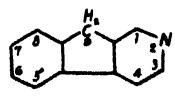
*[2,1-e]*

**Indeno[2,1-*e*]indole-1-carboxylic acid, 1,2,3,10-tetrahydro-1-hydroxy-2-oxo-**, ethyl ester, 193*d*.
**Indeno[2,1-*e*]indole-1,2-dione, 3,10-dihydro-**, and oxime, 193*e*.
**2′,3′,4,5-Indeneisatin**. See *Indeno[2,1-e]indole-1,2-dione, 3,10-dihydro-*.
**6-Indenol, 2-(*p*-hydroxyphenyl)-3-methyl-**, diacetate, 1758*d*.
**1-Indenone**. See *Indone*.
**Indeno[3,4-*bc*]phenanthridine,**

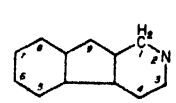


*[3,4-bc]*

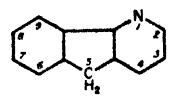
——, 1,2,3,4,10,11-hexahydro-, and picrate, 1779*b*.
**Indenopyridine,**



*9—[2,1-c]*

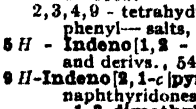


*1H—[2,1-c]*

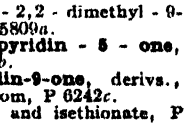


*5H—[1,2-b]*

**1*H*-Indeno[2,1-*c*]pyridine, 2-butyl-2,3-dihydro-9-phenyl-**, hydrobromide, P 5808*h*.
——, **2,3-dihydro-2,7-dimethyl-9-*p*-tolyl-**, hydrobromide, P 5808*h*.
——, **2,3-dihydro-2-isopropyl-9-phenyl-**, hydrobromide, P 5808*h*.
——, **2,3-dihydro-6(or 8)-methoxy-9-(*m*-methoxyphenyl)-2-methyl-**, P 5808*h*.
——, **2,3-dihydro-2-methyl-9-phenyl-**, hydrobromide, P 5808*g*.
——, **2-ethyl-2,3,4,4a,9,9a-hexahydro-9-phenyl-**, hydrobromide, P 5808*i*, P 5809*a*.
——, **2-ethyl-2,3,4,9-tetrahydro-9-phenyl-**, thiocyanate, P 5808*i*.
——, **2,3,4,4a,9,9a-hexahydro-2-methyl-9-phenyl-**, salts, P 5808*i*.
——, **2,3,4,9-tetrahydro-2,7-dimethyl-9-*p*-tolyl-**, oxalate, P 5809*a*.
——, **2,3,4,9-tetrahydro-2-isopropyl-9-phenyl-**, oxalate, P 5809*a*.
——, **2,3,4,9-tetrahydro-2-methyl-9-phenyl-**, crystal structures of, and of its thiocyanate, and nitrate of isomer, 6487*h*.
effect on histamine induced gastric secretion and on gastric ulcer formation, 4385*i*.
identification of, 9366*d*.
pharmacology of, 4764*a*.
salts, P 5808*i*.
**5*H*-Indeno[1,2-*b*]pyridine**, and salts, 5403*a*.
**9*H*-Indeno[2,1-*c*]pyridine-4-carboxylic acid, 9-oxo-**, 1,3-dialkyl derivs., decarboxylation of, P 5809*a*.
**1*H*-Indeno[2,1-*c*]pyridine-4a,9a-diol, 2,3,4,9-tetrahydro-2-methyl-9-phenyl-**, crystal structure of, 6488*a*.
**1*H*-Indeno[2,1-*c*]pyridinium compounds**, 2,3,4,4a,9,9a-hexahydro-2,2-dimethyl-9-phenyl— iodide, P 5809*a*.
2,3,4,9-tetrahydro-2,2-dimethyl-9-phenyl— salts, P 5809*a*.
**5*H*-Indeno[1,2-*b*]pyridin-5-one**, and derivs., 5403*b*.
**9*H*-Indeno[2,1-*c*]pyridin-9-one**, derivs., naphthyridones from, P 6242*c*.
——, **1,3-dimethyl-**, and isethionate, P 5809*c*.
**Indenoquinoline,**



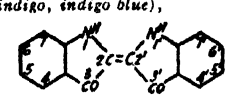
*11—[2,1-f]*



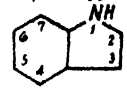
*[1,7-gh]*

**Indeno[1,7-*gh*]quinoline, 4,5-dihydro-9-methyl-**, 193*h*.
**11*H*-Indeno[2,1-*f*]quinoline, 3-methyl-**, 193*c*.
**Indeno[1,7-*gh*]quinoline-7-carboxylic acid, 4,5-dihydro-9-methyl-**, 193*g*.
**11*H*-Indeno[2,1-*f*]quinoline-1-carboxylic acid, 3-methyl-**, 193*b*.
**Indentation**, measurement of, of rubber, 4788*d*.
**Inderborite**, prepn. of, and *ns* of synthetic, 2128*g*.
**Indexing**, 3343*d*, 4057*i*.
at Aluminium Labs. Ltd., 8762*d*.
coding and punched cards in, 5551*h*.
of photography and related fields by the decimal system, 6529*i*.
of reports by punched cards, 4058*f*.
of rubber compds., punched cards in, 9513*c*.
scientific, services, 6875*i*.
UNESCO conferences on, 6876*a*.
**Index of refraction**. See *Refractive index*.
**Indian cress**. See *Nasturtium*.
**Indian hemp**. (See also *Hemp*.)
dye and pigments in textile from, of pre-Columbian Mex., 4469*b*.
pharmacologic activity of alc. and ether exts. of, 6730*f*.
**Indian-meal moth**. See *Plodia interpunctella*.
**India rubber**. See *Rubber*.
**Indican** (*indoxylsulfuric acid*), in blood in alcoholism, 2330*d*.
**Indicators**. (See also *Carminic acid*, and the common indicators, as *Methylene blue* and *Phenolphthalein*.) 3307*i*.
acid alkali, filter paper dyed with *Perilla nankinensis* leaf ext. as, P 3318*e*.
acid-base, (α-aminobenzal)-4-nitrophenylhydrazine and its 2-Me deriv., 3747*d*.
adsorption, in argentometric titrations, resorcinol aconitein, resorcinol citraconein, resorcinol itaconein, resorcinol malein and tricarballylein as, 7369*b*.
in argentometric titrations, orcein, succinein and its bromide, 7369*c*.
bromophenol blue as, and theory of, 8300*c*.
in thiocyanate detn., bromocresol purple, bromophenol blue and bromothymol blue as, 8300*b*.
amperometric titrations using, reacting with reagent at equivalence point, 7861*e*.
for antiseptics, P 363*g*.
azo dyes as acid-base, argentometric and oxidation-reduction, 3309*a*.
behavior in liquid HCN, 515*h*.
for carbonate alky. detn. in water, 5519*i*.
with color changes at pH 0.5 to control sulfide pptn., 7368*h*.
diphenylaminesulfonic acid and Ba salt as, in $K_2Cr_2O_7$ titrate, 9636.
equil. in two-component systems, selection of indicators and, 8813*h*.
in halogen and Ag-ion titrations, mercurochrome as, 3307*h*.
for hydrogen-ion-concn. detn., absorption curves and extinction coeffs. of, 5701*e*.
in boiler waters, 335*c*.
Carbazole Yellow W, Chloramine Light Blue GLN, Chrome Fast Orange R, Coelestine Blue, Lanacyl Violet, Neutral Blue B and Neutral Blue R dyes as, 5339*e*.
effect of org. surface-active agents on, 8949*a*.
garden huckleberry juice as, P 6114*g*.
papers having series of, P 8980*e*.
of U.S.P., 6533*d*.
isotopes as—see *Isotopes*; and the various elements.
for metal ions, 7369*a*.
in metal prospecting, compn. of plants and soils as, 3549*e*.
mixed, in alkalimetric titration, 4175*a*.
mixed, in sugar-factory lab., 6439*i*.
in neutralization, tincture of *Auchusa tinctorium* root as, 4596*g*.
oxidation-reduction, 2117*b*.
nioxime complexes as, 6932*d*.
Rhodamine 6G and Xylene Cyanol FF as, 4175*b*.
tri- and tetrazolium salts as, in growth studies of marine animals, 7593*b*.
pomegranate juice as, 2541*h*.
Quinoline Yellow as internal, in arsenite-hypochlorite titration, 7861*d*.
radioactive, in phosphate detn., 2547*f*.

review on analytical, 2113*g*.
in silicate melts, $Cr^{III}/Cr^{VI}$ as, 5322*g*.
for soil reaction, 1130*d*.
stop-bath acidity, P 4186*f*.
strength of basic, 470*g*.
tautomeric equil. of, in indirect colorimetry, 58*g*.
temp.—see *Temperature*.
3-thianaphthenol derivs. as, 6204*i*.
**Indigo** (*the dye*). (See also *Dyeing; Dyes; Indigotin*.)
of Mexico (pre-Columbian), 4469*b*.
as oxidimetric indicator, 8949*b*.
synthesis of, at Badische Anilin and Soda Fabrik, history of, 407*h*, 9451*d*.
**Indigo blue**. See *Indigotin*.
**Indigo carmine** (*disodium 5,5'-indigotindisulfonate*), biol. action of, 1488*f*.
effect on hyaluronidase and staphylococcus-ulase, 3855*h*.
**Indigodisulfonic acid***, fungistatic action of, 8435*f*.
**Indigofera endecaphylla**, in Hawaii, 9292*f*.
**Indigoid compounds**, reactions of, 6614*d*.
sulfonated, as accelerators for phosphate coating, P 3772*c*.
**Indigosols**. (See also *Dyeing; Dyes; Textile printing*.)
dyeing with Anthrasols, 6831*e*.
pastes with mixed naphtholsulfonic acids and sulfate ester of leuco tetrabromoindigo, and printing therewith, P 8692*b*.
**Indigotin** (*Δ²'·²-bipseudoindoxyl, diindogen, indigo, indigo blue*),



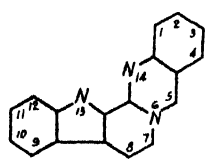
(See also *Indigo*.)
derivs., 7930*c*.
reaction with $PhNMe_2$, 6614*e*.
sulfonic acids and derivs., as catalysts for conversion of thiols in hydrocarbon oils, P 7223*i*.
——, **5,5',6,6'-tetrahydroxy-**, and tetraacetate, 627*g*.
——, **5,5',6,6'-tetrakis(methoxymethoxy)-**, and acetate, 627*i*.
**5,5'-Indigotindisulfonic acid**, disodium salt—see *Indigo carmine*.
**Indigo Yellow dyes**. See *Dyes*.
**Indium**, alpha-ray-bombarded, excitation functions for nuclear reactions of, 8867*i*.
atomic wt. of, 5239*h*.
boiling point of, 3254*h*.
in cassiterites of Far Eastern U.S.S.R., 6124*a*.
chemistry of, 2883*e*.
in coal, 1941*d*.
coating with, by vacuum evapn., P 104*d*.
crystallochem. electronegativity of ion of, 8231*b*.
elec. supercond. of, effect of pressure on, 4069*f*.
electrodeposition of, P 49*h*, P 6526*c*, P 7838*g*.
electrodeposition of, by internal electrolysis, 8285*f*.
-electroplated Cu-clad steel bearings, P 4211*e*.
electroplating with, bath for, P 4588*e*.
with reversing current, P 956*d*.
wastes from, treatment of, 3125*g*.
friction between Cu and Ag and, 5273*c*.
isotope of mass 111, internal conversion of γ-rays in *K* and *L* shells, 4949*d*.
isotope of mass 113, quadrupole moment of, 8262*a*.
isotope of mass 114, decay of, 6911*a*.
isotope of mass 114, energy of γ-rays from, 6075*i*.
isotope of mass 115, β-rays from, 8873*f*.
decay of, 4121*i*.
stability of isoboric pair $Sn^{115}$-, 4121*i*.
from $Sn^{115}$ by electron capture, geol. age and, 1691*g*.
isotopes of, isomerism, shell structure and spin of, 4129*f*.
isotopes of masses 118 and 119, from Sn by γ-ray action, 8267*h*.
isotopes of, natural abundance of, 1650*a*.
isotopes (radio-) of, 2089*e*.
liquid, compressibility and ultrasonic velocity in, 8776*b*.
magnetic moment of, 5303*d*.
neutron cross sections of, 6506*b*, 6909*d*, 8260*h*.
nuclear isomerism of, study of Bremsstrahlung by means of, 4121*f*.
occurrence and uses of, 3324*f*.
reaction with NOCl, 3305*i*.
recovery in Zn metallurgy, 9004*a*.
sepn. of radioactive, from Cd, 4949*c*.
in soldering and brazing, P 4211*f*.
solid solns. with elements, lattice spacings of, 3685*b*.
systems with elements of groups III and IV, 4058*i*.
thermoelectricity of, electronic sp. heat, Fermi energy and no. of conduction electrons per atom in relation to, 8846*f*.
x-ray-bombarded, isomeric transitions in, 36*d*.
**Indium, analysis**, detn., 959*h*, 8952*f*.
detn. in electroplating baths, 961*h*.
in Pb bearings, 965*g*.
in minerals, 5330*h*.
in ores, 1281*i*.
in presence of Zn, 1679*h*.
sepn., detection and detn., 2888*g*
**Indium, metallurgy of**, from iron smelter wastes, 5554*d*.
from lead sulfate residues from Zn refining, P 8345*b*.
from Rammelsberg ore, 4193*c*.
refining, 1695*i*.
review on, 77*c*.
from zinc-production waste, P 6143*f*.
**Indium alkaline earth halides**, 2883*fg*.
**Indium alloys**, aluminum-, 90*i*.
aluminum-Cu-Mn-, Cu-Mn-Sn-, and Cu-Mn-, 4618*e*.
cadmium-Cu-Ag Zn-, for brazing, P 2156*b*.
copper-Mn-, 4205*f*, 9012*d*.
electrodeposition of, P 49*i*, P 6526*c*.
as solders and brazing alloys, P 4211*f*.
**Indium bromides**, prepn. of InBr and $InBr_3$, and reaction product with NOCl, 3305*i*.
**$InBr_3$**, soly. in org. solvents, 2109*g*.
soly. of, and ds. of satd. solns., 2883*e*.
**Indium chlorides**, prepn. of, and compd. with NOCl, 3305*i*.
**$InCl_3$**, reaction with NaOH, 4172*d*.
soly. in org. solvents, 2109*g*.
soly. of, and ds. of satd. solns., 2883*e*.
**Indium compounds**, complexes with N compds., 6932*h*.
complex (fluo and oxalato), 4172*e*.
with ethylenediamine, 6932*g*.
formation of $[Co(NH_3)_5][InCl_6]$ and its use in detn. of In, 8952*h*.
**Indium fluoride**, $InF_3$, soly. in org. solvents, 2109*g*.
**Indium hydroxide** ($In(OH)_3$), 2532*i*.
crystal structure of, 4072*i*.
formation and temp. limits for weighing of, 8952*g*.
**Indium hypophosphite**, $In(H_2PO_2)_3$, 2883*i*.
**Indium iodide** ($InI_3$), soly. in org. solvents, 2109*g*.
soly. of, and ds. of satd. solns., 2883*e*.
**Indium lithium halides**, 2883*g*.
**Indium metaphosphate**, $In(PO_3)_3$, 2883*i*.
**Indium oxide** ($In_2O_3$), heat of formation of, 2828*g*.
hydrate of, $2In_2O_3 \cdot H_2O$, 8952*g*.
reaction with $SOCl_2$, 2886*a*.
system: $SO_3$-$H_2O$-, 2109*e*.
**Indium periodates**, and basic periodates, 2883*h*.
**Indium phosphate** ($InPO_4$), 2883*i*.
formation and temp. limits for weighing of, 8952*h*.
**Indium pyrophosphate**, $In_4(P_2O_7)_3$, 2883*i*.
**Indium salts**, 2109*e*.
**Indium selenide**, in photoconductive cells, 2858*g*.
as photocurrent carrier, sign of, 483*b*, 8896*a*.
photoelec. effect (external) in, 482*g*.
**Indium sodium phosphate**, $Na_3PO_4 \cdot 2InPO_4$, 2883*i*.
**Indium sodium pyrophosphates**, 2884*a*.
**Indium sulfate**, acid, basic and neutral, 2109*e*.
**Indium sulfides**, in photoconductive cells, 2858*g*.
thermobehavior and temp. limits for weighing of InS and $In_2S_3$, 8952*g*.
**InS**, as photocurrent carrier, sign of, 8896*a*.
**$In_2S_3$**, compd. with LiCl, $3LiCl \cdot In_2S_3$, 2883*h*.
**Indium telluride**, in photoconductive cells, 2858*g*.
**Indium thallium halides**, 2883*g*.
**Indium vanadate(V)** ($InVO_4$), 4079*a*.
crystal structure of, 6033*a*
**Indium zinc halides**, 2883*g*.
**Indoaniline** (*N-(p-aminophenyl)quinone imine*).
——, **2-[(*m*-1,3-dioxolan-2-ylphenyl)carbamyl]-*N,N*-diethyl-†**, P 8168*d*.
——, **2-[(*m*-1,3-dioxolan-2-ylphenyl)carbamyl]-*N,N*-diethyl-6-methyl-†**, P 8168*d*.
**3-Indolalhydantoin**. See *Hydantoin, 5-(3-indolylmethylene)-*.
**Indole** (*1-benzazole, benzopyrrole*),



*N*-alkyl derivs., P 4302*d*.
anemia induced by, in niacin deficiency, 8470*h*.
derivs., 1764*i*.
antihistamine activity of, 4257*e*.
caffein prepns. contg., P 5909*d*.
Fischer synthesis of, 6226.
from phenacylarylamines, 217*i*.
and derivs., hydrogenation of, equilibria in, 2164*i*.
and derivs., spectra of, 8892*h*.
detection and detn. of, and its derivs., 72*b*.
detection of, 5704*b*.
detn. in essential oils, 3146*b*.
effect on vitamin $K_1$ action on *Phycomyces blakesleeanus*, 9186*e*.
histidine decarboxylase inhibition by, 9107*a*.
identification of, 8365*f*.
α-keto aldonitrones of, 4256*a*.
melanin formation from, by vegetable tissues, 277*i*.
in neroli oil, 4815*d*.
as oxidimetric indicator, 8949*a*.
photooxidation of, sensitization by riboflavin, 3888*b*.
prepn. by Fischer method, mechanism of, 4256*i*.
production by *Escherichia coli*, 721*e*.
spectrum of, in characterizing solvents, 420*a*.
**Indole, 3-(2-aminoethyl)-**, photooxidation of, sensitization by riboflavin, 3888*b*.
——, **3-(2-aminoethyl)-1-methyl-**, 1397*g*.
——, **3-(aminomethyl)-**, derivs., 3407*g*.
——, **1-benzoyl-4-chloro-**, 4255*f*.
——, **2,2'-benzylidenebis[3-methoxy-**, 629*e*.
——, **3-benzyl-1-methyl-**, 7931*a*.
——, **2-(4-biphenylyl)-**, 218*b*.
——, **2-(4-biphenylyl)-5,7-dichloro-**, 622*f*.
——, **2(and 3)-(4-biphenylyl)-1-ethyl-**, 218*d*.
——, **2-(4-biphenylyl)-1-ethyl-3-nitroso-**, 218*e*.
——, **2-(4-biphenylyl)-1(and 5)-methyl-**, 218*d*.
——, **3-(4-biphenylyl)-1-methyl-**, and dipicrate, 218*f*.
——, **2-(4-biphenylyl)-1-methyl-3-nitroso-**, 218*d*.
——, **2-(4-biphenylyl)-5-methyl-1-nitroso-**, 218*e*.
——, **2-(4-biphenylyl)-1-nitroso-**, 218*b*.
——, **3-[2-carboxyamino-2-(2-carboxy-1-pyrrolidylcarbonyl)-ethyl]-†**, benzyl ester, 4712*d*.
——, **3-[2-[α-(6-carboxy-o-tolyl)-acetamido]ethyl]-†**, and methyl ester, 234*g*.
——, **4-chloro-**, and picrate, 4255*e*.
——, **2-(*p*-chlorophenyl)-**, 219*d*.
——, **5-chloro-2-phenyl-**, 221*a*.
——, **3-(*p*-chlorophenyl)-1-ethyl-**, 218*f*.
——, **2(and 3)-(*p*-chlorophenyl)-1-methyl-**, 218*d*.
——, **2-(*p*-chlorophenyl)-1-methyl-3-nitroso-**, 218*d*.
——, **(2,2-dicarboxyethyl)-**. See *Malonic acid, indolylmethyl-*.
——, **5,7-dichloro-2-(*p*-chlorophenyl)-**, 622*f*.
——, **5,7-dichloro-2-methyl-**, 622*f*.
——, **4,6(4,7 and 5,7)-dichloro-2-phenyl-**, 622*e*.
——, **dihydro-**, derivs., aspidospermine and, 1427*c*.
——, **2,3-dihydro-**. See *Indoline*.
——, **3-[2-(3,4-dihydro-5-methyl-1,3-dioxo-2(1*H*)-isoquinolyl)-ethyl]-†**, 234*h*.
——, **5,6-dimethoxy-**, 3406*a*.
——, **1,3(and 2,3)-dimethyl-**, spectra of, 8892*h*.
——, **2,3-dimethyl-**, formation from isoquinamine, 7490*b*.

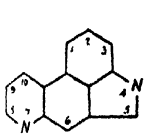
hydrogenation of, 2165*b*.
——, **3-(dimethylaminomethyl)-**. See *Gramine*.
——, **3 - (dimethylaminomethyl) - 1-methyl-**, reactions of, 3405*b*.
reaction with piperidine, 1763*c*.
——, **3 - (dimethylaminomethyl) - 6-methyl-**, 1397*h*.
——, **4,5**(or **5,6**)**-dimethyl-2-phenyl-**, 221*a*.
——, **2,2′ - ethylidenebis[3 - methoxy-**, 629*c*.
——, **5 - ethyl - 1 - phenacyl - 2**(or **3**)**-phenyl-**†, 221*a*.
——, **1 - ethyl - 2**(and **3**) **- phenyl - 3**(and **2**)**-*p*-tolyl-**, 220*a*.
——, **1-ethyl-2**(and **3**)**-*p*-tolyl-**, 218*c*.
——, **3-hydroxy-**. See *Indoxyl*.
——, **3 - [2 - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethylamino]ethyl]-**†, hydrochloride, 1410*i*.
——, **3 - [2 - [3 - hydroxy - 5 - (hydroxymethyl) - 2 - methyl - 4 - pyridylmethyleneamino]ethyl]-**†, 1410*i*.
——, **isoquinolyl-**. See *Isoquinoline, indolyl-*.
——, **3-methoxy-**, reaction with aldehydes, 629*c*.
——, **methyl-**, compds. with sulfonamides, tuberculostatic action of, 5085*c*.
——, **1-methyl-**, hydrogenation of, 2165*a*.
——, **2-methyl-**, effect on tubercle bacilli, 7545*h*.
formation of, from reaction of PhNHN:CMe$_2$ with NaOH, 1027*c*.
——, **3-methyl-**. See *Skatole*.
——, **6-methyl-**, and picrate, 1397*g*.
——, **1-methyl-2,3-diphenyl-**, amino deriv., dioxazine dye from chloranil and, P 5965*d*.
——, **2,2′-methylenebis[1,3-dimethyl-**, spectrum of, 8892*h*.
——, **3,3′-methylenebis[1-methyl-**, and dipicrate, 3405*f*.
——, **2,2′-methylenedi-**, derivs., 620*c*.
——, **5,6-methylenedioxy-**. See *5 H-[1,3]Dioxolo[f]indole*.
——, **5 - methyl - 1 - nitroso - 2 - *p*-tolyl-**, 218*d*.
——, **5 - methyl - 1 - phenacyl - 2**(or **3**)**-phenyl-**†, 220*i*.
——, **1 - methyl - 2**(and **3**) **- phenyl - 3-**(and **2**)**-*p*-tolyl-**, 220*a*.
——, **1 - methyl - 3 - (1 - piperidylmethyl)-**, and salts, 1763*c*.
——, **1-methyl-3-*p*-tolyl-**, 218*f*.
——, **1**(and **5**)**-methyl-2-*p*-tolyl-**, 218*c*.
——, **2,2′ - [*m*(and *p*) - nitrobenzylidene]bis[3-methoxy-**, 629*e*.
——, **1-nitroso-2-*p*-tolyl-**, 218*b*.
——, **2-phenyl-**, mixt. with dibutyldiphenyltin as stabilizer for halogen-contg. vinyl resins, P 8739*d*.
——, **2 - phenyl - 1 - [2 - (1 - pyrrolidyl)-ethyl]-**, 4257*f*.
——, **2**(and **3**)**-phenyl-3**(and **2**)**-*p*-tolyl-**, and picrates, 220*a*.
——, **3-(1-piperidylmethyl)-**, 3407*h*.
——, **1 - [2 - (1 - pyrrolidyl)ethyl]-**, 4257*e*.
——, **2-*p*-tolyl-**, 218*b*.
——, **3,4-trimethylene-**. See *Benz[cd]indole, 1,3,4,5-tetrahydro-*.
——, **1-vinyl-**, polymer, P 2035*c*.
**ψ-Indole**. See *Pseudoindole*.
**3-Indoleacetaldehyde**, conversion to indoleacetic acid in coleoptile, enzyme system for, 3071*c*, 4348*d*.
synthesis by pineapples, 7096*e*.
**3-Indoleacetamide**, 1397*d*.
**3-Indoleacetic acid** (*heteroauxin*). (See also *Auxins;* and "-forming substances" and "growth substances" under *Roots*.)
caffein prepn. contg., P 5909*d*.
detection and detn. of, 72*b*.
effect on *Avena* coleoptile, effect of various substances on, 5831*b*.
on bud development on sugar cane stems after hot water treatment, 725*h*.
on callus formation in plants, 2286*b*.
on cress root, 5893*a*.
on flowering, 2357*i*, 5456*c*.
on fungi, 6704*h*.
on geotropism of *Thuja orientalis*, 280*g*.
on germination of *Bacillus subtilis* spores, 1460*i*.
on germination of *Pinus maritima*, 5451*e*.
on germination of seeds, 7095*a*.
on growth and respiration in pea, 2290*e*.
*effect* on growth, effect of 2,3,5-triiodobenzoic acid on, 2678*f*.
on ion absorption by roots, 804*h*.
on *Lactobacillus arabinosus* response to nicotinamide, 6697*g*.
on laminar nodes of *Phaseolus coccineus*, 5828*e*.
on malting and compn. of malt, 3142*h*.
on N fixation by *Azotobacter*, 7173*a*.
on plants grown for production of alc., 1839*f*.
on potato growth and size of starch granules, 4734*h*.
on rat growth, 7556*g*.
on respiration in *Avena* coleoptile, 7555*c*.
on respiration of plant tissue, 5456*i*.
on root elongation in germinating barley, 8015*g*.
on root growth, effect of Na 3-indolemethanesulfonate on, 3817*h*.
on salsify root tissue (normal, crown gall and heteroauxin accustomed), 1461*h*.
on sprouting of potatoes, 8460*b*.
on sunflower crown gall, 8597*g*.
on vegetables, 1839*a*.
on water absorption by potatoes, 282*i*.
effects in man, 2203*e*.
formation by pineapples, 7096*e*.
formation during respiration and auxin activation, 5089*d*.
formation from indoleacetaldehyde in coleoptile, 3071*c*, 4348*d*.
in fungi parasitic to trees in relation to their action, 9177*c*.
gall formation in sugar cane in response to, 7090*h*.
as growth substance, 8017*f*.
inactivation by enzymes, 1465*c*.
labeled with C$^{14}$, 8379*h*.
melanin formation from, by vegetable tissues, 278*a*.
pellagragenic activity of, 2292*b*.
from penicillin (clinical), 2184*g*.
photooxidation of, sensitization by vitamin B$_2$, 3887*i*.
plant-growth material, synergists for, P 5151*e*.
in potatoes, 3194*f*.
prepn. of, 1397*c*.
sodium salt, soil retention of, 3958*f*.
synergism of, 5525*g*.
**3-Indoleacetic acid, 2-methyl-**, as growth substance, 8017*f*.
**3-Indoleacetonitrile** (*3-indolylacetonitrile*), 3818*a*.
manuf. of, P 2236*g*.
**3-Indolebutyramide**, *N*-**2-hydroxyethyl-**, in penicillin production, 2273*i*.
**3 - Indolebutyric acid** (*γ - 3 - indolylbutyric acid*), P 5424*f*.
as carnation-rooting agent, 9338*e*.
effect on potato growth and size of starch granules, 4734*h*.
on respiration of plant tissue, 5456*i*.
on sunflower crown gall, 8597*g*.
on transplanted plants, 804*i*.
on wound healing in trees, 9173*g*.
fig maturation by, 2726*g*.
in lettuce-seed production, 1893*e*.
parthenocarpy in figs from, 2288*a*.
photooxidation of, sensitization by riboflavin, 3888*b*.
in scald reduction on fruits, P 330*h*.
**4-Indolecarbonitrile**, and picrate, 4255*f*.
——, **3 - (dimethylaminomethyl)-**, 4255*g*.
**1-Indolecarboxaldehyde**, P 5806*e*.
**3-Indolecarboxaldehyde**, manuf. of, P 5806*e*.
photooxidation of, sensitization by riboflavin, 3888*b*.
**1 - Indolecarboxamide, 3 - methyl - *N* - 1-naphthyl-**, 8365*g*.
——, *N*-**1-naphthyl-**, 8365*f*.
**1-Indolecarboxanilide**, 8365*f*.
——, **3-methyl-**, 8365*g*.
**2 - Indolecarboxylic acid, 3 - (2 - acetamido - 2,2 - dicarboxyethyl)-**†, ethyl esters, P 6238*e*.
——, **1 - acetyl - 3 - (2,4 - dihydroxyphenyl)-**, *δ*-lactone, acetate, 1772*b*.
——, **6**(and **7**)**-(benzyloxy)-**, 1765*cd*.
——, **4-chloro-**, and methyl ester, 4255*e*.
——, **3 - (diethylaminomethyl)-**, ethyl ester, P 6238*e*.
——, **3 - (2,4 - dihydroxyphenyl)-**, *δ*-lactone, 1772*b*.
——, **3-hydroxy-**, methyl ester, reaction with resorcinol, 1772*a*.
——, **5**(and **7**)**-hydroxy-**, 1765*bd*.
——, **6-methyl-**, 1397*g*.
——, **3,3′ - methylenebis[1 - methyl-**, 3405*h*.
——, **5 - methyl(*p* - sulfamylphenylazo)-**, P 6662*g*.
**3 - Indolecarboxylic acid, 4 - amino - 6-chloro - 2 - methyl-**, ethyl ester, 7452*h*.
——, **6-amino-4-chloro-2-methyl-**, ethyl ester, 2184*e*.
——, **6 - amino - 4 - iodo - 2 - methyl-**, ethyl ester, 2184*d*.
**4-Indolecarboxylic acid**, and methyl ester, 4255*g*.
**5,6-Indolediol**, derivs., 7020*b*.
and diacetate (ester), 3405*h*.
——, **1-methyl-**, 3404*h*.
——, **2-methyl-**, and diacetate (ester), 3406*a*.
**3-Indoleëthanol**. See *Tryptophol*.
***β*-Indoleëthylamine**. See *Indole, 3 (2-aminoethyl)-*.
**3 - Indoleglyoxaldehyde** (*3 - indolylglyoxaldehyde*).
——, **2-methyl-**, hydrate, 4256*d*.
**3-Indolemethanesulfonic acid**, silver and Na salts, 3817*h*.
——, **1-nitroso-**, sodium salt, 3818*c*.
**1-Indolemethanol, 2,3-dimethyl-**, spectrum of, 8892*h*.
——, **3-methyl-**, spectrum of, 8892*h*.
**Indolenine**. See *Pseudoindole*.
**3 - Indolepropanol** (*3 - (3 - indolyl) - 1 - propanol*).
——, ***β*-amino-** L-, and oxalate (salt), 7020*b*.
**3 - Indolepropionamide, α - acetamido-** L-, 1398*a*.
——, **α - carboxyamino - *N* - (1 - carboxyethyl)-**†, benzyl ester, 1712*f*.
**- carboxyamino - *N* - (α - carboxy - *p* - hydroxyphenethyl -**†, benzyl ester, 4712*d*.
**- carboxyamino - *N* - (carboxymethyl)-**†, benzyl ester, 1712*d*.
——, **α - [(*N* - carboxyglycyl)amino]-**†, benzyl ester, 4712*c*.
**Indolepropionic acid, α-hydroxy-** See *Indolelactic acid*.
**3 - Indolepropionic acid** (*β - 3 - propionic acid*), P 1442*i*, 5807*a*.
detection and detn. of, 2*b*.
effect on respiration of plant tissues, 5456*i*.
in penicillin production, 2273*h*.
—, **α - acetamido - 2 - carboxy-**, 2-ethyl ester, P 6238*i*.
—, **α-acetyl-**, ethyl ester, P 1442*i*.
——, **α-amino-**. See *Tryptophan*.
——, **4-cyano-**, and esters, 4255*h*.
——, **1-methyl-**, and derivs., 3405*h*.
**4 - Indolepropionic acid, 4 - carboxy-**, and dimethyl ester, 4255*h*.
**3 - Indolepropionyl chloride, α - carboxyamino-**†, benzyl ester, 4712*c*.
**Indole series**, 628*b*.
nitro derivs. of, chem. structure, prepn. and accelerating, antioxidant and coloring properties in rubber, 2021*i*, 2022*a*.
**3,5,6-Indoletriol, 1-methyl-**, triacetate, 3404*i*.
**Indoline** (*2,3-dihydroindole*), and derivs., 2165*a*.
dye derivs., P 7845*i*.
——, **2 - [4 - (1,3 - diethyltetrahydro-4,6 - dioxo - 2 - thioxo - 5*H*-pyrimidylidene) - 2 - butenylidene] - 1 - ethyl - 3,3 - dimethyl-**†, 4910*h*.
——, **2,3-dimethyl-**, 2165*b*.
——, **1 - (2 - dimethylaminoethyl) - 2-phenyl-**, and hydrochloride, 1257*f*.
——, **1 - ethyl - 2 - [4 - (3 - ethyl - 4 - oxo-2 - thioxo - 5 - thiazolidylidene)-2 - butenylidene] - 3,3 - dimethyl-**†, 4910*h*.
——, **1-methyl-**, 2165*a*.
——, **2**(and **3**)**-methyl-**, *dl-*, identification of, 8365*e*.
——, **2 - phenyl - 1 - [2 - (1 - pyrrolidyl)-ethyl]-**, and hydrochloride, 4257*f*.
——, **1 - [2 - (1 - pyrrolidyl)ethyl]-**, 4257*f*.
——, **1,3,3-trimethyl-2-methylene-**, reactions of, 4211*h*.
**1 - Indolinecarboxamide, 2 - methyl - *N*-1-naphthyl-**, 8365*e*.
**1 - Indolinecarboxanilide, 2**(and **3**) **-methyl-**, 8365*e*.
**5 - Indolinecarboxylic acid, 2,3-dioxo-**, 216*d*.
**6 - Indolinecarboxylic acid, 3 - amino-2-oxo-**, 216*e*.
——, **2,3-dioxo-**, and derivs., 216*d*.

——, **2-oxo-**, 216*d*.
**5,6 - Indolinedione, 3 - hydroxy - 1-methyl-**. See *Adrenochrome*.
**5 - Indolinesulfonic acid, 2,3 - dioxo-**, 3-guanylhydrazone, 3428*f*.
**2,3,5,6 - Indolinetetrol, 1 - methyl-**, 3404*i*.
**Indolinium compounds**. See *Pseudoindolinium compounds*.
**2 - Indolinol, 2 - (dimethylaminophenyl)-3 - (3 - hydroxy - 2(3 *H*) - thianaphthenylidene)-**, and diacetate, 6615*a*.
**Indolo[1′,2′,3,4]hydantoin**. See *1 *H*-Imidazo[3,4-a]indole-1,3(2 *H*)-dione*.
**3-Indolol**. See *Indoxyl*.
**4-Indolol**, and derivs., 1765*ef*.
**5-Indolol**, and acetate, 1765*f*.
and picrate, 1765*b*.
——, **6-methoxy-**, and acetate (ester), 3406*b*.
——, **2-methyl-**, and derivs., 1765*g*.
**6-Indolol**, and picrate, 1765*c*.
——, **5-methoxy-**, and acetate (ester), 3406*b*.
**7-Indolol**, 1765*d*.
**2(3 *H*)-Indolone**. See *Oxindole*.
**Indoloquinazopyridine**,

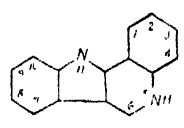


[2,3-c]—[3,2-a]

**Indolo[2,3 - c]quinazo[3,2 - a]pyridin-5(7 *H*) - one, 8,13 - dihydro-**. See *Rutecarpine*.
**Indoloquinoline**,



[4,3-fg]



5—[3,2-c]

**Indolo[4,3 - *fg*]quinoline, 9 - amino-4,6,6a,7,8,9,10,10a - octahydro-7-methyl-**, isomers, P 6246*e*.
**5*H* - Indolo[3,2 - *c*]quinoline, 5 - phenyl-**, and salts, 8351*h*.
**Indolo[4,3 - *fg*]quinoline - 9 - carboxylic acid, 4,6,6a,7,8,9,10,10a - octahydro-7-methyl-**. See *Isolysergic acid, dihydro-; Lysergic acid, dihydro-*.
**Indolo[4,3 - *fg*]quinolin - 8(6 *H*) - one, 4,6a,7,9,10,10a - hexahydro - 7-methyl-9-methylene-**, stereoisomers, 7032*a*.
——, **4,6a,7,9 - tetrahydro - 7 - methyl-9-methylene**, stereoisomers, 7031*h*.
**Indone** (*1-indenone*), derivs., 208*a*, 1393*g*, 2610*d*.
——, **3-benzyl-2-phenyl-**, 6193*c*.
——, **3 - (*p* - bromophenyl) - 2 - phenyl-**, 6193*c*.
——, **2-chloro-**, P 7048*d*.
——, **2 - (*m* - chlorophenyl) - 3 - phenyl-**, 208*c*.
——, **1-*p*-cumyl-2-phenyl-**, 208*c*.
——, **3-cyclohexyl-2-phenyl-**, 6193*c*.
——, **2,3-diphenyl-**, 208*c*, 6193*c*.
——, **2-ethyl-3-phenyl-**, 1393*i*.
and derivs., 2610*d*.
——, **3-ethyl-2-phenyl-**, 6193*f*.
——, **hexachloro-**, 4230*g*.
——, **3-isoamyl-2-phenyl-**, 6193*f*.
——, **3-isopropyl-2-phenyl-**, 6193*c*.
——, **2-methoxy-3-phenyl-**, 1041*d*.
——, **2 - methyl - 3 - (*p* - nitrobenzyloxy)-**, 7010*a*.
——, **6 - methyl - 2 - phenyl - 3 - *p*-tolyl-**, 208*c*.
——, **2 - phenyl - 3 - [1(and 2) - naphthyl]-**, 6193*c*.
——, **2 - phenyl - 3 - *m*(*o* and *p*) - tolyl-**, 6193*c*.
**Indophenol** (*N-(p-hydroxyphenyl)-p-quinone imine*),

derivs., in grasshopper control, 4806*c*.

effect on O production by illuminated chloroplasts, 8009*d*.
formation from antioxidants and phenol in petroleum stocks and its prevention by $Na_2SO_3$, 1553*f*.
oxidation in *Triturus* development, 3530*g*.
reduction (photochem.) by chloroplasts, effect of photosynthesis inhibitors on, 8019*f*.
——, **2,6(or 3′,5′)-dichloro-**, effect of ultrasonic waves on, 4085*a*.
photochem. decolorization by chloroplasts, 8009*e*.
reducing substances for, from *Aspergillus niger*, 1457*e*.
reduction of, with $Na_2S$, Se as catalyst in, 8061*e*.
reduction (photochem.) by chloroplasts, effect of photosynthesis inhibitors on, 8019*f*.
——, **2,6(or 3′,5′)-dimethyl-**, 6595*c*.
——, **2(or 3′)-methyl-**, effect on O production by illuminated chloroplasts, 8009*d*.
**Indophenol dyes**. See *Dyes*.
**Indophenols**, 6595*c*.
**Indosect**. See *Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-*.
**Indoxyl** (*3-hydroxyindole, 3-indolol*), in urine after adrenochrome administration, 8062*h*.
**Indoxylsulfuric acid**. See *Indican*.
**Induction furnaces** See *Furnaces, electric*
**Industry** (See also *Chemical industry*.)
aerosols in, 9297*c*.
American *vs.* German, 5650*d*.
books: Alphabetisches polytechnisches Vademecum fur die, 1503*h*; Analiz Vozdukha Promyshlennuykh Predpriyatii, 8074*h*.
diamonds in, 9295*i*.
diseases of—see *Diseases; Poisoning*.
dust control in, 7607*b*.
electronics in, 8745*e*.
electron microscope in, 4553*g*.
journal: Industrial Health Review, 6761*h*.
medicine in, 3947*i*.
radiation hazards in, 5885*d*.
radioactivity in, 6501*d*, 7319.
radioisotopes in, 5277*c*, 5513*c*, 6908*d*, 7325*h*.
research in—see *Research*.
rheology in, 8750*c*.
wastes of—see *Wastes*.
**Inertia**, moment of, of $ClF_3$, 8887*e*.
moments of, of chlorofluoromethanes, 1656*j*.
effect on dielec. absorption, 3676*f*
of ethylene oxide, 944*b*.
of ethylene oxide and its deuterated compd., 4576*c*.
of fluoroform, $CH_2F$ and $PF_3$, 4141*g*.
of paraffin $\alpha,\omega$-disubstituted derivs., 7763*a*.
of $CF_3CH_3$, 43*b*.
**Infant feeding**. See *Diet; Feeding; Metabolism, animal*.
**Infantile paralysis**. See *Poliomyelitis*.
**Infantilism**, intestinal—see *Celiac disease*.
**Infections**. (See also *Diseases; Immunity; Therapeutics;* and "A" under *Vitamins*.)
allergy from, fat acids and, 5857*d*.
anemia of, 2095*g*.
books: Bacterial and Mycotic, of Man, 1483*b*, Die biologische Infektionsabwehr des menschlichen, 6305*g*.
iron in liver and spleen in, 5106*i*.
iron metabolism in, 3893*f*.
in nephrosis in children, 6724*c*.
nutrition and, 8027*i*.
oxidation-reduction potential of blood serum in, 5483*c*.
penicillin in—see *Penicillin*.
polysaccharides in blood serum in, 9230*e*.
protein nutrition and, 7099*a*.
resistance to, wheat substance providing, 3900*c*.
review on, 1100*a*.
sulfanilamide in—see *Sulfanilamide*.
sulfonamide in—see *Sulfonamides*.
**Infiltration, fatty**—see *Liver*; etc.
**Inflammability**. (See also *Combustibility; Explosibility; Explosions; Ignition*.)
of ammonia-$N_2O$-air mixts., 3618*g*.
of azodiisobutyronitrile, 8682*b*.
of carbon disulfide, H and illuminating gas, 407*c*.
of chlorosilanes and MeCl, 7229*h*.
of coal dusts, 6806*e*.
of Diesel fuel, chem. compn. and, 5569*b*.
of fuel-air mixts., effect of solid particles on, 6806*c*.
of gases and vapors, 6827*a*.
of gases and vapors, effect of incombustible vapors on, 3619*a*.
of gases, limits of, 407*g*, 7230*i*, 7663*f*.
of hexane, effect of $COCl_2$ on, 8248*i*.
of hydrazine, in air, He and N, 5188*f*.
of hydrogen cyanide, effect of $CO_2$ on, 8248*g*.
of hydrogen, effect of dilg. gas on, 8249*a*.
of hydrogen-O mixts., effect of org. vapors on, 407*a*.
of liquids, 6395*f*.
measurement of, 2404*a*.
of building materials, 4398*g*.
of plasticized polyvinyl chloride, 2465*e*.
of methanol-air mixts. at low pressures, 5167*i*.
of oil mists, 1568*h*.
of org. compds., 5657*i*.
resistance to, of $C_2H_2$-filled bottles, 7212*d*.
of textiles, and its measurement, 3624*d*.
**Inflammable substances**. See *Combustibles*
**Inflammation**. (See also *Ignition*.)
azulenes for treatment of, 8064*e*.
blood sugar in, 2312*b*.
cathepsin proteinase in urine in, 1479*g*.
diseases of, protein reactions in, 7569*i*.
globulins of blood plasma in, 5857*a*.
glycemia in, 2312*g*.
hydrogen-ion concn. of tissue and, 9237*d*.
iron uptake in Fe- and vitamin $B_6$-deficient pigs after, 2095*g*.
leucopenia with, mechanisms of, 4756*d*.
lipases in blood and exudates in, 2697*i*.
phenergan effect on, of bacterial origin, 9248*g*.
protein fractions of blood serum in, 8517*e*.
**Influenza**, air chemistry and, 9233*g*.
benzedrine compd. with *N*-sulfanilylacetamide for therapy of, P 4297*d*.
inhibition and interference in, 9236*i*.
sulfanilamide and vitamin C in treatment of, 7148*f*.
virus A, effect of HCHO on, 9216*h*.
effect of ultrasonic waves on, 5081*e*.
inactivation by $HgCl_2$, reversal by BAL, 1113*d*, 8551*c*.
viruses A and B, compn. of, 4370*g*.
virus of, adsorption on Ca phosphate, 3925*c*.
complexes with org. bases and cationic detergents, 3051*b*.
effect of amidines and other compds. on embryonated egg, 8536*b*.
effect of dyes on, 7589*c*.
effect of pH and electrolytes on host cell combinations with, 1482*i*.
effect of La or ultraviolet irradiation on, 754*j*.
effect of tea exts. on, 6298*h*.
elution from red cells, effect of Na periodate on, 3090*d*.
gonadotropin inactivation by, 1102*c*, 5474*h*.
hemagglutination and infectivity of, inactivation by heat and formalin, 1856*e*.
hemagglutination by, egg-white inhibitor of, 9149*h*.
hemagglutination by, factor in allantoic fluid inhibiting, 4756*e*.
hemagglutination by, factors in, 7119*f*.
hemagglutination by, inhibition by blood serum, 1854*g*.
hemagglutinins from, 8001*d*.
mechanism of infection with, and its application in prophylaxis and therapy, 3511*c*.
mucins and mucoids in relation to action of, 7120*h*.
neutral mixt. with antiserum, reactivation by virus inactivated by heat, 4757*c*.
reaction with allantoic fluid, 754*h*.
review on, 2072*a*.
uptake of radioactive P by, 9148*f*.
virus of swine, interaction with egg-white inhibitor of virus hemagglutination, 7569*f*.
virus substrate, purification and demonstration of its competitive antagonism to apple pectin, 2314*d*.
**Infrared light**. See *Light, infrared*.
**Infusions**, alc. detn. in, 9370*h*.
of digitalis—see *Digitalis*.
**Infusoria**, cold resistance of, effect of salts on, and causes of death by freezing, 8564*b*.
**Infusorial earth**. See *Kieselguhr*.

**Inga punctata**, weed control in, 5525*c*.
**Ingots.** See *Casting process; Castings; Molds (I); Steel.*
**Inheritance.** See *Heredity.*
**Injection**, molding by—see *Molding.*
**Injectors**, electrolytic, as compensating device in electrophoresis, 3265*f*.
for hydrochloric acid into make-up water, P 3250*g*.
for powders, 6472*a*.
**Injury**, amino N retention in blood plasma after, 4366*a*.
bodily reactions to, 4756*g*.
to bones—see *Bones.*
cholesterol and vitamin C in adrenal gland after, 7138*a*.
cholinesterase in blood after, 299*e*.
to kidneys in battle casualties, pigments and, 751*g*.
to muscle, protective action of dibenamine after, 761*g*.
nucleotide metabolites and pentoses in blood plasma after, 9229*b*.
protein metabolism in, 3915*c*.
shock from—see *Shock.*
thermal, 7109*f*.
tissues after, affinity for porphyrins and metalloporphyrins, 749*b*.
**Ink**, for ball pens, P 1995*d*.
book: Printing and Litho, 8705*a*.
carbon black coated with polymerized hydrocarbons for, 1196*e*.
carbon black granule dispersion for, P 1200*e*.
for chloroethylene polymer sheets, P 4872*i*.
duplicating black, P 1995*d*
dye for green writing, P 4487*e*.
dyes for, P 8155*f*.
dyes for, phthalocyanine sulfonamide salts, P 8692*i*.
from erucic acid oils, 7241*a*.
fluorescent, P 2517*e*.
indelible, poisoning from methyl violet 2RR in, 7595*b*.
India, diffusion in tissue in alloxan diabetes, effect of hyaluronidase on, 5483*d*.
India, effect on reticuloendothelial cells, 4766*b*.
intaglio or rotogravure, lakes of basic dyes for high-speed, P 4494*b*.
intaglio, water-based, 2445*b*.
lithographic developing, water-repellent, P 8706*c*.
for mimeographing, P 7239*f*.
nontoxic colors, vehicles, etc., for, 3629*d*.
oil adsorption by slurries of pigments for, 4490*f*.
Pigment Green for, Fe complexes of nitroso-2-naphthol for use as, P 3650*g*.
for plastics, 2027*d*.
printing, absorbency of paper for, measurement of, 402*d*.
from acidic resins, polyamine-stabilized, P 3215*d*.
from aminotriazine HCHO reaction product emulsions, P 1580*c*, P 7239*e*.
Ba lake azo pigment of blue-red shade for, P 2790*a*.
colloidal-graphite detn. in, 5159*f*.
cyclohexyl and norcamphanyl derivs. of butanediols in, P 1058*g*.
cyclorubber in, 1208*d*.
detg. mileage characteristics of, P
driers (Co feeder) in controlling drying time of, 7717*a*.
driers for, and their effect on drying, 4025*a*.
drying by infrared light, 1975*d*.
drying of, 1577*h*.
dryograph for testing drying time of, 5202*d*.
effect on rollers, blankets and plates, 1196*i*.
elec. properties and flow characteristics of, 8175*g*.
emulsified by amines, P 878*c*.
fast-drying, lignin compd.-contg., water-resistant, P 878*a*.
formulation and identification of, 1196*h*.
hydrocarbon solvent for, P 1883*f*.
letterpress water-based, 4491*h*.
light-fast, and bleaching behavior and light fastness of colors therefor, 1196*f*.
maintaining phys. equil. of soap-pigment-gelatin in, P 4972*i*.
mottling of, 4491*g*.
paper-moisture effect on, 1186*h*.
*printing*, from petroleum polymer-contg. mineral-oil vehicle, P 1995*c*.
from PhOH-HCHO resins modified with rosin, P 9526*g*.
phthalocyanine colors for, 7715*g*.
pigment functions in, 1196*e*.
raw materials for, in Belgium, 8701*d*.
and its removal from paper, 5948*acd*.
requirements of newspapers for, 5605*d*.
rheology of typographic, 3029*f*.
solvents for, spectra of components in characterizing, 420*a*
spent lubricating-oil treatments in making, 3999*c*.
tetrahydrothiophene-3-ol 1,1-dioxide esters for, P 1441*e*.
triphenylmethane toning or coloring agent for, P 4485*b*.
from used absorption oils, P 5607*g*.
for vinyl plastics, 1197*d*.
water-base, P 9483*c*.
water-setting, diene-glycol, 4870*h*.
water-setting typographic, P 6433*e*.
water-setting, with glycerol ester of endomethylenetetrahydrophthalic acid as binder, P 5205*f*.
wood-tar-oil use in, 6396*a*.
printing (high-speed) and, 1186*i*.
receptivity of paper for, starch-adhesive penetration and, 1185*g*.
removal from paper, P 1188*i*, P 5951*a*.
from paper, bark in, 4847*d*.
in paper-pulp manuf., 847*d*.
from paper, treatment of wastes from, 8587*g*.
from paper with $Na_2O_2$, 1187*a*, 3613*d*.
resins (alkyd) modified by drying oil-fatty acids for, P 3216*d*
rotogravure, solvent recovery in using, 3629*g*.
for silk screen printing, quick-drying water-dispersable, P 878*b*.
stamping, 1992*c*.
from terpene polymers, P 3236*a*.
water deionization for manuf. of, 336*a*.
white writing, P 3215*c*.
zinc resinates for improving drying, loss and hardness of, P 5206*g*.
**Inking pads**, poisoning from Methyl Violet 2RR in, 7595*b*.
**Ink ribbons.** (See also *Typewriter ribbons.*)
shrunken distortion- and wear resistant rayon, P 5607*i*.
**Inoloma traganum**, antibacterial substance from, 5443*i*.
**Inolomin**, the name, 5444*a*.
**Inorganic chemistry.** (See also *Education.*)
books: 520*c*, 960*f*, 2540*a*, 3742*h*; Nozioni di, 478*g*; Ephraim's, 520*c*; Inorg. Prepn., 960*f*; Lehrbuch der, 1280*c*; Grundriss fur das, Praktikum, 1680*b*; Laboratornye Raboty po Neorganicheskoĭ khimii, 2540*a*; Anorganische Struckturchemie, 3308*g*; Inorg. and Org. Theoretical Chemistry, 4090*e*; Chimie minérale, 4596*e*; Molecules and Crystals and, 5692*f*; Cours de chimie minérale, 5692*g*; Chimica generale e inorganica, 6072*c*; Fundamentals of, 6072*e*; Anorganische und Allgemeine Chemie in Einzeldarstellungen, 6904*e*; Allgemeine und, 7319*a*; in Frage und Autwort, 7366*f*; Selected Chapters from Modern, 7366*f*; Appunti di, per gli studenti di medicina e veterinaria, 7858*d*; Text Book of Theoretical and, 8956*g*; Chemia nieorganiczna lacznie z zasadami chemii ogólnej, 8842*f*; Kurzes Lehrbuch der, 8942*h*.
condensation in, 1669*h*, 5685*d*.
nomenclature of—see *Nomenclature.*
review on, 4593*f*.
structural, 3672*d*.
**Inorganic compounds.** See *Chemical compounds.*
**Inosamine***, stereoisomers and derivs., 149*b*.
**Inosine**, phosphorolysis and resynthesis of, 5064*a*.
**Inosite.** See *Inositol.*
**Inositol** (*cyclohexanehexol, inosite*), adrenaline potentiation by, 5117*a*.
amino analogs of, 149*b*.
in α-amylase, 3477*h*, 7980*f*.
chronaximetric antagonism with other vitamins, 284*d*.
condensation products of, with acids in improving whipping properties of gelatin, P 8186*i*.
in cucurbit and tomato fruits during growth, and relation to size of, 8461*f*.
in cucurbit and tomato leaves during development, 5456*g*.
detection of, 5704*b*.
detn. of, 2666*d*, 7993*g*.
*dextro-* and *levo*, effect on *Clostridium saccharobutyricum* inhibition by malonate, 716*b*.
*dextro-* and *meso-*, 153*a*.
effect on acid-base balance, 1092*g*.
on biol. value of casein and on economy of food utilization, 1468*d*.
on chronaxia effects of oleic acid and cholesterol, 1092*e*.
on cirrhosis of liver, 2696*f*.
on liver lipides, 3104*a*.
on nervous effects of acetylcholine, adrenaline, adrenochrome and choline, 6293*c*.
on streptomycin action on *Mycobacterium avium*, 6275*e*.
on toxicity of γ-hexachlorocyclohexane to rats, 8602*d*.
folic acid prepn. contg., 355*i*.
formation of, from glucose, 4229*h*
inactive, and derivs., isoinositol of Muller and, 2175*cd*.
isomers, and acetates, 587*i*.
*meso-*, antagonism to γ hexachlorocyclohexane, 5402*e*.
effect on gammexane-induced c-mitosis, 9170*h*.
inhibition of mitotic poisoning by, 1865*h*.
oxidation by *Acetobacter suboxydans*, 1828*e*.
prepn. of, 4315*e*.
specificity for *Neurospora crassa*, 1457*h*.
oxidation with $HIO_4$ in phytic acid detn., 2896*c*.
phosphatide, from brain, 4318*b*
purification of aq. solns. of, P 7043.
in rat nutrition, 1091*d*, 2295*f*
streptamine isomers from, 6581*h*
in sugar transformation into polyphenols, 3070*d*.
swine requirements for, 1089*b*.
utilization by *Drosophila*, 322*h*.
vitamin E and, 737*d*.
**Inositol, aminodesoxy-***, hydrochloride, 1336*g*.
——, **nitrodesoxy-***, derivs., 1336*f*
**Inositolphosphoric acids** or **Inositol phosphates.** (See also *Phytic acid; Phytin.*)
from brain diphosphoinositide, 4318*f*
precipitation with conamandiu, effect of pH on, 6268*f*.
in seeds, 4709*a*.
structure of inositoltriphosphoric and inositoltetraphosphoric acids obtained by partial hydrolysis of inositolhexaphosphoric acid, 4308*d*.
**Inosose**, D- and *meso-*, and derivs., 153*b*
**Insanity.** See *Mental disorders.*
**Insecticides.** (See also *Baits; Calcium arsenates; Cubé; Derris; Dipping fluids; Disinfectants; Ethane, 1,1,1-trichloro-2,2-bis(p-chlorophenyl)-, Fumigants; Fungicides; Larvicides, Lead arsenates; Lime-sulfur; Nicotine, Parasiticides; Paris green; Pests, Poisons; Pyrethrum; Rotenone; Sprays;* etc.)
for acarids, citrus red mite and greenhouse thrips, compds. related to DDT as, 3137*e*.
for acarids, DDT and hexachlorocyclohexane as, 346*f*.
action of, 806*i*, 1139*f*.
acylated arylsulfonamides, P 2231*e*, P 2364*e*.
addn. agents for natural and synthetic, P 4419*hi*, P 4420*ab*.
aerosols, 6353*g*, 8087*b*.
contg. DDT and pyrethrum, stability of, 9330*d*.
of DDT, $Et_4P_4O_{11}$ and parathion, effect on plants, 1523*e*.
effect of particle size on efficiency of, 6777*e*.
for greenhouse pests, 1523*g*.
in industry, 9297*d*.
liquefied-gas, 7181*g*.
low and moderate pressure liquefied-gas, 7625*c*.
toxicity of residues from $CO_2$-propelled, 6353*g*.
aerosols and sprays, measurement of particle size of, 6883*f*.
for *Agriotes*, 811*h*.
for *Agrotis* and wireworms on plants, 8599*a*.
for alfalfa insects, 1521*e*.

for alfalfa snout beetle, 8599*d*.
alkenyl 3-sulfolanyl sulfides, P 3851*h*.
from alkoxy and unsatd. alkyl aromatic compds., P 5529*d*.
alkyl- and arylsulfonyl derivs. of tetrahydrothiophene 1,1-dioxide, P 2237*d*.
alkyldinitriles, P 8604*e*.
alkylhalonaphthalenes, P 7633*i*.
[(alkylmercapto)alkyl] esters, P 3447*f*.
alkylnicotinium arylsulfonates, P 1903*e*.
alkyl thiocyanates, DDT, hexachlorocyclohexane, HCN, etc., as, 2729*c*.
from aluminum hydroxide and xanthone, P 352*e*.
aluminum sulfate as, 9341*c*.
amides of $\alpha,\beta$-unsatd. acids, P 7954*f*
amides ($\alpha,\beta$-unsatd.), P 7634*b*.
amine compds. with phenol derivs., P 4298*e*.
amines, P 4807*e*.
$\beta$-amino-$\alpha$-chloroacrylonitriles, P 3440*c*.
*N*-(2-aminoethyl)formamide derivs. for manuf. of, P 3028*g*.
6-amino-3-picoline for manuf. of, P 7051*a*.
anacardic condensation products, P 904*f*.
analysis of, 8086*h*.
analysis of, for Br, Cl and I, 4179*e*.
for Angoumois grain moth and Indianmeal moth, 9352*b*.
for Angoumois grain moth and rice weevil on corn, DDT as, 1898*f*.
anhydrohexitols, P 4301*i*.
for *Anomala vitis*, 7184*b*.
for ants, 5895*a*.
for ants, testing of residues of, 811*f*.
for apache wasp, 3556*b*.
for aphids, 346*c*, P 9358*b*.
for *Aphodius howitti*, DDT as, and its persistance in soil, 1898*h*.
app. for testing, 9331*i*.
for apples, 804*c*.
DDT as, 2362*e*.
hazards from lead arsenate, 8086*b*.
and application app., review on, 3135*b*.
for arachnids, P 4419*h*.
aralkyl hydrocarbon condensation products with ketones, P 2037*a*.
for Argentine ant, 7185*d*.
aromatic unsatd. carbonyl compds., P 4420*e*.
arsenic and arsenicals as, 6353*a*.
arsenic poisoning from, in wine industry, 8533*i*.
arylidene-alicyclic ketones, P 4420*g*.
aryl sulfides or sulfur-contg. compds., P 7633*c*.
for asuki-bean weevil, 1142*e*.
azobenzene and DDT as, 807*a*.
azobenzene and related compds. as, 2727*b*.
for bamboo and bean insects, 3967*cde*.
for banana-root borer, 5147*b*.
for bark beetle in elm logs, 4417*c*.
for beet insects, 9346*h*.
benzene mixt. with chlorobenzene, P 5900*e*.
biochemistry of, review on, 2725*g*.
bis(alkoxyphenyl)chloroethanes, P 8401*a*.
1,1 - bis(carboxyalkylaryl) - 2,2,2 - trihaloethanes, P 2364*c*.
bis(2-chlorocyclohexyl) sulfide, P 6358*b*.
bis(2-chloroethyl)ether mixt. with nicotine, P 2732*f*.
1,1 - bis(*p* - chlorophenyl) - 2 - nitroethane, P 5040*d*.
1,5 - bis(hydroxymethyl) - 2,4 - dithiobiuret for manuf. of, P 3032*b*.
bis(2 - hydroxy - 3 - nitro - 5 - chlorophenyl) sulfide, P 1901*e*.
2,2 - bis(*p* - methylthiophenyl) - 1,1,1-trichloroethane, P 7187*d*.
bis(tetrachloropropoxy)methane and tetrachloropropanol, P 3835*i*.
for black fly, effect on salmon and trout, 9352*g*.
for black-fly larva in Alaskan streams, 6354*a*.
for blowflies, dispersion of DDT sprays from aircraft in, 3139*d*.
for blowfly (black), DDT as, 9354*e*.
for body strike in sheep, hexachlorocyclohexane as, 7184*h*.
for boll weevil and cotton aphid, 2729*i*.
books: Chemistry and Uses of, 1146*b*, 2363*g*; Recientes adquisiciones y técnicas del empleo del DDT, 2363*g*; Les dérivés organiques halogénés doués d'activité, 2364*a*; Biological Control of Insects, 3558*d*; directory of insect and plant pest control, 3558*d*; New, 3558*d*; Chemistry of, 4804*g*; Kartoffelkäfer-Forschung und -Bekämpfung, 5898*i*.
from borax, soapbark, Na dibutylnaphthalenesulfonate, yellow ocher, etc., P 5899*f*.
from boric acid, DDT, paraformaldehyde, etc., P 5529*g*.
for *Brassica* seed crops, 9336*b*.
for breech strike, 7184*h*.
for bud moth on apple trees, 5897*d*.
for budworm and corn earworm in sweetcorn, DDT as, 7183*f*.
for buffalo fly, 4416*f*.
for buffalo treehopper, DDT as, 1144*a*.
Bureau of Entomology and Plant Quarantine work on, 9349*a*.
2-butoxyethyl fluoroacetate, P 3140*i*.
$\alpha$-butylbenzyl benzoate, P 7908*b*.
for cabbage aphid, $Et_4P_2O_7$ as, 5526*d*.
for cabbage caterpillars, 3136*i*.
for cabbage maggot, 3136*h*.
for cabbage pests, 5147*g*.
calcium arsenate as, 3966*b*.
for cantaloupe, 2725*g*.
*Capnodis tenebrionis*, 3555*f*.
from carbon disulfide, chloroacetaldehyde and hexachlorocyclohexane, P 8604*e*.
for caterpillars on tomatoes, 3556*f*.
for cattle grub, 1520*cf*.
for cereal insects, DDT as, 347*c*.
chalcones and flavones as, 772*a*.
chem. constitution and action as, 1895*h*, 4414*i*, 6991*c*.
chem. constitution and properties of contact, 8086*g*.
for chiggers, 1518*e*, 8599*g*.
for chiggers, punkies and red bugs, 7181*c*.
for chinch bug in lawns, 5896*i*.
from chloraltmines, P 5153*f*.
chlordan detection in oil sprays, 347*g*.
chlordan emulsions as, 1899*g*.
chlorinated acetals, P 5035*b*.
chlorinated $C_6H_8$ derivs., P 7632*i*.
chlorinated compds. as, 6353*b*.
chlorinated, effect on livestock, 1520*a*.
chlorinated-hydrocarbon, 6583*i*.
as cumulative poisons, 8087*c*.
residual toxicity of, 5146*h*.
chlorine detn. in, 9331*b*.
chloroethyl chlorobenzoates, 5764*h*.
chloro formals, P 4685*i*.
2-chloroindone, P 7018*e*.
*p*-chlorophenol, P 6063*b*.
*p*-chlorophenyl dichlorovinyl ether, P 7066*b*.
for cinchona, 9340*e*.
cinerins and pyrethrins as, 1335*b*.
for citrus aphids, mites and thrips, 1518*c*.
for citrus blackfly, 3555*g*.
for citrus, DDT as, 1522*c*.
for citrus, parathion as, 9349*e*.
for citrus snout beetle, 5149*e*.
for citrus thrips, citricola scale and yellow scale, 4805*a*.
on citrus trees, 5117*d*.
for clover mite and codling moth on apples, 7630*b*.
for clover root borer, 8599*c*.
coal-tar-oil components as, 4417*h*.
for cockroaches, chlorinated org. compds. as, 1518*g*.
for cockroach (German), 1519*h*.
for cockroach (oriental), DDT as, 6355*c*.
for coconut rhinoceros beetle, 9350*d*.
for codling moth, 810*i*, 3965*b*, 6354*f*, 9347*a*.
*N*-derivs. of *m*-nitrobenzamide as, 1144*i*.
*p*-nitrobenzamide *N* aliphatic derivs. for, 5897*g*.
testing in lab., 7181*h*.
for coleopterous larvae on peanuts, 1897*d*.
for Colorado-potato beetle, 5146*f*, 5897*e*.
Cu arsenates as, 9340*a*.
effect of temp. on, 9333*f*.
for confused flour beetle, 2361*c*.
constitution and effect of, 345*c*.
copper compds. as, for soil-cement mixts., P 5568*g*
from copper salts and thiourea, P 5529*e*.
for corn borer, 6354*d*.
for corn earworm and fall armyworm on corn, 3136*cf*.
for corn flea beetle, 4416*h*.
for cotton bags for control of flour beetle, etc., 7180*c*.
for cotton fleahopper, 1143*f*.
for cotton insects, 1142*i*, 1143*bd*, 3137*b*, 7183*d*.
for cotton insects, diluents for, 1142*h*.
crystn. of DDT or analogs from aq. emulsion, P 6358*e*.
for culture mite, DDT and hexachlorocyclohexane as, 2361*h*.
cuprammoniacal petroleum mahogany sulfonates, P 2424*i*.
for cutworms on apricots and peaches, 1522*b*.
cycloalkyl nitrites, P 4694*f*.
cyclohexane chloro derivs., P 2732*b*, P 8090*e*.
from cyclohexane chloro derivs. and thiocyanate, P 8604*i*.
cyclohexyl and norcamphanyl derivs. of butanediols, P 1058*g*.
from cyclohexylphenol, dinitrocresol, dinitrophenol, etc., P 9356*e*.
*N*-cyclohexyltetrahydrothiophenine 1,1-dioxides, P 3851*c*.
1 - cyclopropyl - 3 - (2 - furyl) - 2 - propen-1-one, P 5530*d*.
for darkling ground beetles, DDT as, 3139*e*.
for dates, 4417*d*.
from DDT and amides or imides, P 350*b*.
DDT and analogs as, speed of action of, and effect on respiration of insects, 9342*g*.
DDT and hexachlorocyclohexane as, 2729*e*, 4805*b*.
DDT and hexachlorocyclohexane as, persistence in soils, 9343*f*.
from DDT and methylated naphthalene, P 1902*e*.
DDT and other contact, review on, 6353*a*.
DDT and related compds. as, 2359*g*, 2360*f*, 7628*f*.
DDT as, 807*g*, 5146*b*, 9344*f*.
anticholinesterase action and, 2359*e*, 3964*h*.
for apples, red-banded leafroller increase and, 809*i*.
cyclohexyldiphenyl ether as synergist for, P 812*h*.
droplet size of oil sprays and, 3138*i*.
effect of moisture and temp. on residual effectiveness on, 7628*h*.
effect on citrus, 7631*a*.
effect on honeybees, 8361*a*, 2729*b*.
effect on Lima beans, 4805*g*.
effect on rats, 7185*i*.
inactivation by light, 7183*f*.
in mists, 807*i*.
review on, 2727*i*.
toxicity of, 9344*a*.
DDT-contg., chlorine detn. in, 9331*c*.
DDT detn. in, 9354*d*.
detection on sprayed surface, 2359*f*.
stabilization of, P 7634*a*.
storage of conditioned and wettable powders of, 807*d*.
toxicity to birds and mice, 7628*g*.
toxicology of, for warm-blooded animals, 3556*c*.
translocation in plants, 1521*b*.
in wettable powders, particle size and, 7628*e*.
DDT deposits or residues as, 808*f*, 2728*a*.
DDT deposits or residues as, effect of sun on, 5895*e*.
DDT, E-605 and hexachlorocyclohexane as, 6776*g*.
DDT for, purification of, P 3970*a*.
DDT, its analogs and isomers of hexachlorocyclohexane as, 9343*a*.
from DDT or its analogs with polyhalogenated hydroaromatic compds., P 6358*f*.
DDT related compds. as, 199*c*.
DDT residues from, on alfalfa hay and seed chaff, 1898*d*.
in milk from pea-vine silage, 6356*a*.
removal from apples, 5895*i*.
on strawberries and vegetables, 1898*c*.
DDT-sabadilla mixts. as, synergistic action of, 7628*i*.
DDT soap, P 4808*c*.
DDT spray powders as, effect of dispersing and spreading agents on, 8087*h*.
DDT-xanthone, P 350*f*.
for dermestids in insect boxes, DDT as, 7631*b*.
*Derris* and *Lonchocarpus* as, 5150*c*.
*Derris* and *Lonchocarpus* roots as, testing with guppies, 2730*i*.
derris as, effect of drying on, 7631*f*.
from derris, pyrethrum and cyclohexanol, P 6778*d*.
derris root as, detn. of toxicity of, 1522*d*.
from *tert*-diacylamines, P 4421*b*.
for diamond-back moth and imported cabbage worm on cabbages, 2358*d*.
1,1 - dibromo - 1 - chloro - 2,2 - bis(*p*-chlorophenyl)ethane for, or their intermediates, P 3970*a*.
from *o*-dichlorobenzene, P 6778*e*.

*p*-dichlorobenzene and $C_{10}H_8$ as, 1142*b*.
from dichlorophthalic anhydride-deriv. esterification, P 5529*f*.
1,2-dichloropropene and 2,2-dichloropropane as, 5898*e*.
1,2 - dichloro - 4 - (1,2,2,2 - tetrachloroethyl)benzene as, P 7960*a*.
for dicky-rice weevil, leafroller and mealy bug on citrus, 7185*b*.
from dinitro-*o*-cresol, P 9356*d*.
dinitro *o* cresol as, 2728*f*.
dinitro-*o*-cresol Na deriv. as, for *Aphelenchus olesiscus*, *Heterodera schachtii* and *Melolontha vulgaris*, 9354*b*.
dithiobis[thionoformic acid] esters as, 6983*g*.
dithiocarbamates of *β*-hydroxy acids and their derivs., P 7506*g*.
dithiocarbamic acid salts, P 5224*e*.
for durra stem borer, 2727*i*.
dusts, detn. of particle size of, 2357*c*.
in Dutch-elm-disease control, 9350*a*.
E-605 as, alkali stability of, 1139*h*.
for eastern tent caterpillar, effect on egg masses, 2730*d*.
effect on fish and wildlife, 1523*i*.
on orchard-biol. balance, 5893*e*.
on peach scab, 2356*f*.
on soil microörganisms, 1139*d*, 1896*h*.
for elm-bark beetle for Dutch-elm-blight control, 7629*h*.
for elm-leaf beetle, 1897*g*.
emulsifiable oils for, P 2733*a*.
from esters of bicyclo dicarboxylic acids, P 7633*d*.
from esters of ether-dicarboxylic acids, etc., P 5152*e*.
esters of (hydroxyalkoxy) compds., P 6663*g*.
esters of unsatd. tricarboxylic acids, P 7634*d*.
2 - ethylhexyl *N* - octadecyltetrachloro phthalamate, P 3558*h*.
ethyl phenethyl sulfone derivs., P 5801*f*
α-ethylpiperonyl ethers, P 2639*d*.
for European apple sawfly, 8106*e*.
for European corn borer, 1896*d*, 6354*e*.
org. compds. as, 7182*f*.
phenylhydrazides as, 7182*g*.
for soil treatment and absorption by corn, 9336*d*.
for European fruit lecanium on peaches, DDT as, 5895*i*.
for European red mite, 5898*a*.
for European red mite and Pacific mite in orchards, 1523*a*.
of European red mite on apple trees, 8600*b*.
evaporator for liquid, P 7273*i*.
expt. station reports on, 2725*c*, 6775*b*, 9313*b*, 9314*b*, 9328*fi*, 9329*dg*, 9330*c*.
from exts. of pyrethrin and rotenone, P 5529*c*.
for fall armyworm and green June beetle, 1899*a*.
for fall armyworm on corn, 3136*e*.
for fibers, etc., P 9478*h*.
films of, on building materials, gelatin and size, 9330*f*.
for filter fly, 5894*i*.
for fire ant, 1897*e*.
for flea beetles, DDT as, 9313*e*.
for fleas and ticks in clothing, 9349*c*.
for fleas, etc., 6356*h*.
for flesh-fly larvae, As as, 806*h*.
for flies— see *Flies*.
for flowering and ornamental plants, parathion as, 8088*h*.
fluorine compds., P 6357*i*.
fluoroacetamide, P 351*c*.
for food crops, DDT as, 8598*d*.
for forests, DDT as, 810*a*.
for fruit trees, triethanolamine salt of dinitro-*o*-*sec*-butylphenol as, 5897*h*.
for gladiolus thrips, 5418*gi*.
for gladiolus thrips, DDT as, 3961*h*.
goldenrod oil as, 2372*d*.
for grains, 9336*a*.
for grain weevil, 1900*c*.
for granary weevil on wheat, 6777*b*.
for grape berry moth, 9340*c*.
for grape mealy bug on yew, 5526*e*.
for grasshoppers or locusts, 3135*h*, 3136*b*, 3557*d*, 4806*c*, 6353*e*, 7185*efh*.
in citrus groves, 3136*a*.
use in aircraft, 3558*a*.
grease- and stain-removers, P 1146*c*.
in Greece, 9340*g*.
for greenhead fly, DDT as, 9344*e*.
for greenhouse pests, Se and Se compds. as, 1141*b*.
for greenhouse vegetables, 1141*a*.
for guava insects, 3135*b*.
for gypsy moth, DDT as, 347*b*.
halogenated-aromatic compds. as, chem. constitution and, 5894*c*.
halogenated derivs. of 1,2-dinitroethane, P 3025*b*.
halogenated ethane derivs., P 2236*d*, P 5899*b*.
halogenated-hydrocarbon, 9331*g*.
halogenated org. derivs. as, 1518*d*.
halogenated-unsatd. compds., P 5899*a*.
halogen compds., P 9358*c*.
halogen-P compds. as, 9353*f*.
halo-*sec*-octylphenoxyacetic acids, P 350*c*.
for harlequin bug, 1897*c*.
for hazelnut weevil, 6777*d*.
and their health aspects, 9352*i*.
heavy-metal-nicotine silicate, P 5900*ab*.
from hexachlorocyclohexane and acyloxy halo ethane derivs., P 7634*g*.
hexachlorocyclohexane as, 810*d*, 810*e*, P 1525*c*, P 4295*g*.
hexachlorocyclohexane-contg., P 2732*e*, P 6778*g*, P 7187*c*.
hexachlorocyclohexane detn. in, 2896*e*, 8601*i*, 9330*h*.
hexachlorocyclohexane isomers as, 1140*c*, 1898*i*.
1,2,3,4,5,6 - hexachloro - 1 - (trifluoromethyl)cyclohexane, P 4693*g*.
for hide beetles, 2725*h*
for *Hoplocampa brevis*, 6355*d*, 8600*c*.
for *Hoplocampa flava*, 3964*f*.
for horn fly, 9342*d*.
chlorinated hydrocarbons as, 3135*g*, 5895*g*.
chlorinated hydrocarbons in milk from, 6355*f*.
for horse louse, chlordan and DDT as, 1520*c*.
hydrazine-deriv. contg., P 9356*c*.
hydroxyaryl amines as, P 1062*a*.
2-hydroxyethyl thiocyanate as, for bed bugs and corn beetles, 2945*g*.
2-iminoöxazolidines as, P 252*d*.
1,3-indandione derivs., P 2732*c*.
inert materials as, 1139*g*, 1142*f*.
insect-cuticle permeability to, 6323*a*.
insect resistance to, 7181*g*.
*N*-isobutyl-2,4-dodecadienamide, 1719*f*.
for Japanese and oriental beetles in turf, 9345*i*.
for Japanese beetle, 2730*b*.
on plant balls, ethylene dibromide-chlordan dip as, 2361*i*.
in soils, arsenates as, 795*g*.
for Japanese weevil, 7628*d*.
for kalanchoes, 1898*a*.
ketonic, P 3442*a*.
for leaf miner on asters, 1522*g*.
for *Lecanium* on blueberries, 1524*h*.
legume-seed increase by, 346*a*.
for lepidopterous larvae, 2726*d*.
for lice, 1518*e*.
lime-S as, 8085*a*.
for *Lipoptena mazamae*, 6355*e*.
for little-fire ant, parathion as, 7627*g*.
for livestock, 5525*h*.
for long-tailed mealy bug on citrus, 4805*d*.
for *Loxagrotis albicosta*, 1142*g*.
for *Lymantria monacha*, 7626*c*.
magnesium cyanide, P 1537*f*.
for malaria control, DDT as, 9345*b*.
manganese arsenate, P 6358*a*.
manuf. in western U. S., 8577*c*.
for mealy bugs on pineapples, 4417*a*.
for *Melolontha melolontha*, 5526*e*, 8088*f*.
mercaptides, P 4807*d*.
(mercaptoethyl) biguanides, P 1799*c*.
mercury compd., P 9355*h*.
4,7-methanoindene hexahalo derivs. as, P 5797*c*.
α - methylbenzylidenemalononitrile, P 3461*a*.
3,4 - methylenedioxyphenyl - 1 - butylglycol mixts. with pyrethrins, P 4420*d*.
methylenedioxyphenyl compds. as, and pyrethrin synergist, P 1526*b*.
(3,4 - methylenedioxyphenyl)propylene compd. as, or insecticide synergist, P 1902*h*.
for Mexican bean beetle, 810*e*.
for mites, P 4808*b*.
on berry bushes and fruit trees, 1897*f*.
*p* - chloro - *N*, *N* - dimethylbenzenesulfonamide, P 6234*b*.
in DDT expts., 809*h*.
in lab. insect rearings, 1899*f*.
in orchard, 7630*a*.
in uniforms, 3554*i*.
in wool, 812*f*.
mixts. of, toxicity of, 3135*c*.
mixts. with fungicides and hormones, effect on tomatoes, 9337*e*.
mode of action of org., review on, 5146*d*.
for mosquitoes—see *Mosquitoes*.
for moths—see *Moths*.
for muck crops, 3964*e*.
for mushroom pests, hexachlorocyclohexane as, 7184*f*.
1-naphthylmethyl tetradecyl ether and PhCOBu, P 2732*c*.
from nicotine, P 7632*i*.
nicotine as, 757*d*, 6789*d*.
nicotine detection and detn. in, 4418*d*.
nicotine double salts, P 8005*b*.
nicotine-heavy-metal silicates, P 7634*b*
nicotine synergists, phthalonitrile as, P 351*d*.
nicotinium salts, P 3969*b*.
nitroalkylcyclic amines, P 813*a*.
*p*-nitrobenzamide *N*-derivs. as, 2357*f*, 7181*h*.
2-nitro-1,1-di-*p*-tolylethane, P 5803*e*.
2-nitro-1,1-di-3,4-xylylethane, P 5803*g*
from nitropolyhydroxy alc. polymers with polyamines, P 8209*e*.
octachlorobiphenylquinone, P 814*b*.
octyl - Ph - $OCH_2CO_2C_nH_{2n}(OC_nH_{2n})_mX$, where X is Cl, Br, I, SCN, or CN, P 350*a*.
for olive fruit fly, 9349*f*.
for olive moth, 4416*a*.
for onion thrips, 5896*i*.
on cotton, 1143*e*.
DDT as, 1897*i*.
on tomatoes, DDT as, 7184*b*.
orange small size and, 1135*e*.
for orange tortrix, 5148*b*
for orange tortrix and Willamette mite on raspberries, 3137*c*.
for orange tortrix on raspberries, 1521*i*
org., P 7187*f*.
org. compds as, 1896*b*, 7625*h*, 8086*c*
from org. polyphosphate, P 4845*a*
org. thiomercury compds., P 6648*b*
for Oriental beetle, hexachlorocyclohexane as, 1522*f*.
for oriental fruit moth, 7630*h*.
for oriental-fruit moth and plum curculio on peaches, 7630*g*.
for oriental fruit moth, DDT as, 5527*e*
for *Ornithodoros erraticus*, DDT as, 7629*c*.
for *Oscinosoma frit* on grain, 8088*c*
ovicide action, 5527*i*
for oystershell scale, DDT as, 3139*c*
for oystershell scale on apples, 7630*d*
paint or whitewash contg. dichloropropane-dichloropropenyl thiocyanate or other, P 5607*e*.
paints contg., 9345*h*
for paper, effect of hexachlorocyclohexane smoke on paper durability, 5896*c*
for *Paratetigena segrata*, 4,6-dinitro-*o*-cresol as, 3488*d*.
for greenhouses, parathion as, 810*g*
for pea aphid, 1897*b*.
for peach borer, 8088*e*.
for peach-cat-facing control, 8088*d*
for peach-deforming sucking bugs, 1143*i*
for peaches, 4417*a*.
for peach silver mite, 1523*d*.
for peach-twig borer, 5149*b*.
for pear midge, 9348*c*.
for pear psylla, 9348*e*.
for pea weevil, DDT as, 1521*g*.
for pecan-nut casebearer, 7630*i*.
for pecan weevil, 9330*a*.
pellitorine as, 2934*a*.
*sym* - (pentachloroisopropyl) - *p* chlorobenzene for, P 6231*c*.
for periodical cicada, 1899*b*, 7629*i*
for pest control in water-distribution systems, 2717*c*.
from petroleum oil and lecithin, P 4420*e*
pharmacy and, 6353*a*.
phenyl esters of octylphenoxyacetic acid, P 350*d*.
phenylhydrazides as, 5525*i*.
phenylmercury complexes, P 690*a*.
phenylsemioxamazide, P 5530*a*.
phenyl thionothiocarbonate salts, P 8604*g*.
phosphatic, nutritive value for plants, 1899*d*.
phosphorus-compd. and systemic, 5897*b*
phosphorus-contg., 3965*d*.
phosphorus-org. compds., 6776*e*.
from phthalic acid esters, tritolyl phosphate, etc., P 5529*f*.
phthalimide *N*-derivs. as, 7182*b*.
piperonyl butoxide in, irritation and toxicity to animals, 9266*h*.
piperonyl chrysanthemumate, P 2732*h*.
for plants, 6775*g*, 9339*h*.
from plants, 1140*h*, 3556*i*.
for plum curculio, 3139*h*, 6777*c*.

*for plum curculio*, effect on parasitization of oriental fruit moth, 1143*i*.
on peaches, 1143*g*, 5527*a*, 9348*g*.
polarography of, 5896*b*, 8602*a*.
for poll strike in rams, hexachlorocyclohexane as, 7184*g*.
polyhalo derivs. of alkyl sulfides, P 6645*i*.
for potato flea beetle, 8599*f*.
for potato leafhopper on apple nursery stock, DDT as, 1522*a*.
for potato-root eelworm, DD as, 9337*a*.
for potato tuberworm, 3964*i*, 6776*e*, 8599*e*.
propellants for, fluoro hydrocarbons, P 6645*d*.
pyrethrin concentrate for, P 5151*a*.
pyrethrin, concn. and purification of sesamin exts. for, P 5151*a*.
pyrethrins as, deterioration of, 2362*i*.
pyrethrin suspensions in Freon, spraying app. for, 5527*f*.
pyrethrin synergist, P 9356*b*.
pyrethrin synergist and solvent for DDT, P 9356*a*.
from pyrethrum, 5527*f*.
pyrethrum aerosols, P 351*e*.
pyrethrum synergists, 8604*a*.
pyrethrum synergists, amides as, P 351*e*.
for Queensland fruit fly, 7181*c*.
quinone-resorcinol polymers, P 6452*e*.
R. B. 1018 as, 4805*h*.
for red-banded leaf roller, 2729*eg*, 5527*c*, 7628*b*, 9347*d*.
for red-harvester ant, 7627*e*
for red spider, dinitrophenols as, 811*b*.
for red spider, testing of, 2730*e*.
as repellents, 2363*e*.
research on, coördination of, 1139*e*.
residual films of hexachlorocyclohexane mixts. with phenyl isocyanide, microscopic structure and, 7184*e*.
residues, testing of, 3554*h*, 9345*c*
reviews on, 344*i*, 1891*a*, 3964*e*, 6352*i*, 8086*h*, 9353*g*.
for root-knot in soil, 809*e*.
for root-knot nematode in soil, chloropicrin as, 3960*i*.
rotenoid, solvent for, P 350*e*.
rotenone detn. in, 7631*d*.
for rust mites, 8597*c*.
ryanodine as, 812*d*.
sabadilla as, 2363*b*.
for scorpions, 4416*c*.
screening of chem. compds. for use as, 5551*h*.
for seed-corn maggot on beans, 5896*h*.
selenium as, 2357*f*.
from selenium or S compds., P 6778*e*.
sesame-ext. synergized, P 3969*b*.
for sheep ectoparasites, 7631*g*.
for sheep tick, 6776*i*.
for sheep tick, chlorinated hydrocarbons as, 8598*i*.
silicon compds., P 8211*f*.
for sludge flies, 7629*g*.
for slugs, 9339*h*.
smokes for indoor use, 9342*a*.
smokes, generation of, 5146*e*.
sodium selenate as, for greenhouse soil, 1141*i*.
for soil, 7178*i*, P 9357*c*.
solvent or carrier for, from wood-tar oil, 6396*a*.
solvents (hydrocarbon) for, P 1883*f*.
South African tests on, 346*g*.
for southern corn rootworm in peanuts, 7182*i*.
species-specificity of, route of administration and, 9340*h*.
for spider beetles in cereal warehouses, 2729*a*.
for spiders on carnations, 9338*f*.
for spittle bugs, 1521*f*.
stability of hexaethyl tetraphosphate and $Et_4P_2O_7$, 5526*b*.
for sugar-beet nematode, 3134*d*.
for sugar beets in prevention of curly top, DDT as, 1897*i*.
for sugarcane borer and yellow sugarcane aphid, 3136*g*.
sulfones, 2593*a*.
sulfones (monochlorocyclic), P 5185*g*.
sulfonic acids for addn. to oil, P 396*b*.
sulfur formation on plants as, P 5899*e*.
sulfur nitride, P 4807*d*.
sulfur (stabilized insol.) for, P 3576*a*.
for sweet-clover weevil, 8599*c*.
for sweet-potato weevil, 1142*d*, 7183*b*.
synergism of pyrethrins and rotenone, 5525*h*,
synergists for pyrethrum and rotenone, benzenesulfonic acid amides as, P 351*d*.
synthetic, 6777*a*.
systemic, for plants, 6776*e*.
for tail louse and ticks on livestock, 8598*h*.
for termites in bamboo, 3553*i*.
for termites in soil, pentachlorophenol as, 4806*h*.
testing of, 1140*f*, 5893*e*, 7626*d*, 8602*d*.
by blood-stream injection, 1139*i*.
spray chamber for, 3554*h*.
as stomach poisons against leaf eating insects, 5893*e*.
tetra-alkyl phenyl triphosphates, P 9356*h*.
tetra-alkyl pyrophosphates, P 9357*a*.
tetrachloroethyl ethers of phenols as, P 7633*a*.
1,1,4,4-tetra(*p*-chlorophenyl)-2,2,3,3-tetrachlorobutane as, 7184*d*.
tetrachlorophthalic diesters, P 4513*g*.
tetraethyl pyrophosphate as, 3556*b*.
detn. in ethyl phosphate mixts., 2125*a*
poisoning by, 9330*f*.
tetrahydrothiazoles, P 9356*f*.
tetrahydro-3-thiophenecarbamic acid 1,1-dioxide derivs., P 6668*e*
tetrahydrothiophene-3-ol 1,1-dioxide esters, P 1441*e*.
from ω-thiocyanoalkyl esters, P 5152*h*.
6-(thiocyanomethyl)dehydroabietic acid, P 6665*g*.
thiones, P 350*a*.
thiourea derivs. as, toxicity to *Drosophila melanogaster*, 8089*a*.
for thrips on nectarines, 7184*c*.
for ticks and tsetse flies, DDT and hexachlorocyclohexane fed to cattle as, 5526*g*.
for tobacco, 2729*a*.
for tobacco flea beetle, 5895*d*, 9346*a*.
for tobacco stalk borer, 5147*f*.
for tomatoes, 4414*f*.
toxaphene, 5897*d*.
toxaphene residues on alfalfa and in cattle and sheep, 8600*f*.
toxicity of, 2728*e*.
to bees, 344*c*.
to fish and mosquitoes, 9345*g*.
toxicology of contact, 7627*g*.
*p,p'*-(2,2,2-trichloroethylidene)dibenzenethiol dicarbamate, 4657*i*.
trichloromethyldiarylmethanes, P 4420*d*.
*N*-(trihaloalkylidene) amines, P 7499*e*.
trihaloethane aryl derivs., P 350*h*.
trihaloethyl compds., P 6358*g*, P 6360*a*.
for tsetse fly, DDT as, 7629*h*.
for tsetse fly on cattle, 1140*i*.
for turf insects, residual activity of, 9346*f*.
for turnip aphid, 5897*a*.
for turnip aphid and foliage-feeding larvae on Chinese cabbage, 7628*a*.
for two-spotted spider mite, 1522*h*, 1523*c*.
for two-spotted spider mite, effect of dusts on parathion and $Et_4P_2O_7$ as, 2730*a*.
for vegetable weevil on potatoes, 5146*h*.
for velvetbean caterpillar, 1521*h*.
vinyl ethers for, P 9080*b*.
wax, P 4807*b*.
waxes contg., for floors, etc., P 5614*a*.
for western raspberry worm, 9341*f*.
for white-fringed beetle, 9347*i*.
adhesives for cryolite, 806*h*.
DDT as, 809*d*.
for white spring tail in mulch under fruit trees, 7184*i*.
for willows, $Et_4P_2O_7$ as, 1899*b*.
for wireworms, 347*h*.
hexachlorocyclohexane as, 348*c*.
in irrigated lands, DDT as, 2362*b*.
on potatoes, 8086, 2726*g*.
in soil, 3139*i*, 9346*d*.
on sugar beets, 8088*g*.
in sugar cane, 2726*i*.
in wheat, 5896*g*.
for wood—see *Wood*.
for wool, 9348*i*.
for wool, DDT and Mitin FF as, 8089*d*.
xanthic acid anhydrosulfides as, 144*d*.

**Insectifuges**. (See also *Sprays*.)
amides of α,β-unsatd. acids, P 5413*e*.
for bark beetles in elm logs, 4417*d*.
for bees, use with insecticide, 3455*b*.
from benzyl ether, P 5153*d*.
from benzyl ethers of $C_3H_4$ glycol, P 5153*e*.
for chiggers, 8599*g*.
for chiggers, punkies and red bugs, 7181*c*.
from conifer-heartwood exts., 7679*e*.
as cosmetics, 9335*g*.
dermatitis from pyrethrum-contg., 3557*b*.
detn. of Dimalone on clothing, etc., 1900*i*.
for European-corn borer for soil treatment and absorption by corn, 9336*d*.
fatty acid esters of the reaction products of 1,2-propanediol and ethylene oxide as, for cloth, P 3446*e*.
for fleas and ticks in clothing, 9349*c*.
for flies—see *Flies*.
from glycerol phthalate, Me phthalate and propanediol Me phthalate, P 8605*a*.
hydrogenated naphthols and hydroxydiphenyls and their derivs. as, 2363*c*.
ketonic, P 3442*a*.
lactic acid as intermediate for, 787*i*.
from methyl cellulose and pyridine, P 5899*d*.
for Mexican bean beetle, (3,4-methylenedioxyphenyl)propylene compds., P 1903*d*.
for mosquitoes—see *Mosquitoes*.
for moths—see *Moths*.
org. compds. as, 8086*g*.
paint or whitewash contg. dichloropropane-dichloropropenyl, thiocyanate or other, P 5607*e*.
phys. properties of, 5150*d*.
for plum curculio on peaches, 9348*h*.
for potato leafhoppers, Cu and Zn chromates as, 801*f*.
review on, 8086*h*.
stick for rubbing on skin, P 4420*i*.
storage effect on, 2362*h*.
for termites, 6356*d*, 9341*e*.
for tsetse fly, 1900*i*
wax, P 4807*b*.
for wood, 8603*f*.

**Insectine**. See *Vitamin T*.

**Insects**. (See also *Caterpillars; Entomology; Flies; Moths; Scale insects; Worms*; etc.)
bait for—see *Baits*.
balance of, in orchards, effect of nonspecific insecticides on, 5893*e*.
books: Biological Control of, 3558*d*; Directory of, control, 3558*d*.
boxes, dermestid control with DDT in, 7631*b*.
boxes, *p*-dichlorobenzene use in, 4806*i*.
cholinesterase system of, effect of DDT on, 5495*a*.
in corn-processing plants, 1518*d*.
cuticle, eggshell and pigment metabolism of, 9273*a*.
cuticle of, 3529*g*.
as living system, 6322*d*.
permeability to water, 6323*i*.
cuticles and egg shell of, wax layers in waterproofing of, 6322*g*.
3,4-dihydroxyphenylacetic and 3,4-dihydroxybenzoic acids in, and their relation to hardening of cuticle, 3940*c*.
effect of sublethal doses of poisonous gases on, 8603*d*.
egg shells of, penetration of, 5527*g*, 7594*d*.
embryos of, effects of cold on, 6748*a*.
enemies of flowers and shrubs, 3554*h*.
esterases and lipases of, 6677*c*.
hairs of, water-protecting properties of, 6324*f*.
hormones of, 8066*f*.
injection (blood-stream) of, 1139*h*.
leather industry and, 1204*e*.
lipases of, specificity of action of, 6677*d*.
as medium for physiology studies, 1850*e*.
metabolic rate in pupae of, P compds. and, 8561*a*.
metamorphosis of, free amino acids during, 9270*h*.
metamorphosis of, pH, buffer action and pH dependence of H-activating enzyme systems during, 2333*d*.
morphology and physiology of, 1139*f*.
in peanuts (stored), effect of refrigeration on, 3534*i*.
phosphatase (alk.) in, 8560*i*.
preservation of, P 3952*a*.
proteolytic enzymes of, 2332*a*.
rearing in lab., mite control in, 1899*f*.
resistance to benzene hexachloride and DDT, 8561*f*.
resistance to insecticides, 7181*g*.
respirometer for, 5124*d*.
rice infestation with, 9314*c*.
soil fertility and, 9322*i*.
veratrin effect on, 1490*b*.
vitamin C distributions in tissues of, 8561*d*.
vitamins in, 6321*i*.
wood preservation from—see "preservation" under *Wood*.

**Insect waxes**. See *Waxes*.

**Inspection**, quality control and amt. of,

**Instability constant** (of *ionisable complexes*). See *Ionisation, electrolytic*.

**Instabilometer**, for ceramic mixes, 3581*g*.
**Instrumentation**, in analysis, 2113*g*, 5645*c*.
of continuous chem. processes, 445*b*.
in dielectric industry, 2342*h*.
of distn., 2041*h*.
of distn. plant for butadiene manuf., 6873*b*.
education in, 2050*e*.
in fuel-gas manuf., 8645*f*.
in hydrogenation of coal, 6806*i*, 7664*e*.
of lime kilns, 1535*d*.
of natural gas gasoline plant fractionators, 7673*e*.
of open-hearth furnaces, 2908*c*.
in paper-drier control, 5949*g*.
in paper pulp and paper mills, 848*g*, 1184*efg*, 4465*c*.
in paper-pulp-liquor treatment to recover chemicals, 2773*i*, 4465*e*, 8677*b*.
in paper pulp manuf., 848*h*, 2773*h*,
in petroleum-hydrocarbon analysis and research, 7220*i*.
in phys. chemistry, 1619*d*.
in research lab., 5645*b*.
for superphosphate manuf., 7175*b*.
theory of, 6469*e*.
**Instruments**, for analysis, 3741*i*.
analytical, in automatic control systems, 8213*b*.
books: Scientific, 2047*g*, 3668*h*; Manual, 3248*i*.
in chem. industry, 6469*b*.
electronic, in pulp and paper industry, 7228*d*.
geomagnetic, magnets for, 541*h*.
metals for, 6958*i*.
metals in, 5233*c*.
in petroleum research, 6469*d*.
in waste treatment, 5890*d*.
**Insula**, the term, 920*h*.
**Insulation, electric**, of copper wire with resinous products, P 7611*a*.
of elec. resistors, P 6098*f*.
of magnetic sheets, P 4402*d*.
of polyethylene-insulated cable joint with polyethylene scarfing, P 4046*a*.
with tetrafluoroethylene polymers, P 2715*a*.
of wires with silicone compd. and polytetrafluoroethylene tape, P 2040*e*.
**Insulation, thermal**. (See also *Conductivity, thermal*.)
with asbestos by spraying, 7608*a*.
of electroplating tanks, 4583*c*.
of glass tank furnaces, 5913*h*.
of process vessels, expansion and, 5236*a*.
of tank furnaces in increasing output, 6381*f*.
**Insulators**. (See also *Sound*.)
leather waste-vinyl acetate plastic, P 4506*b*.
resinous products as, 8197*h*.
**Insulators, electric**. (See also *Dielectrics; Dielectric strength*; and insulating materials such as *Bakelite, Phenol condensation products, Porcelain, Resinous products, Sulfur, Varnish*.) P 2343*h*.
from acyl halides, castor oil, olefinic $\alpha,\beta$-dicarboxylic acids and vinyl compds., P 3656*c*.
alumina films as, 5250*h*.
on aluminum—see *Aluminum*.
from aryl polyoxy polycarboxylic acid and ethylene glycol, P 5998*a*.
from asbestos cloth or glass fiber and mica flakes with resinous binder, P 9536*g*.
from bamboo, P 6927*a*.
from bentonite and cement, P 1940*a*.
from benzylated PhOH condensation with HCHO, P 5229*a*.
boron sintered, P 3734*f*.
building materials, P 6390*d*.
Buna S X-392 and X-393 as cable and wire, 2017*d*.
from 1,3-butadiene mixed polymers with styrene, etc., P 2816*g*.
from butylene (poly-)-polyethylene blends, 9522*i*.
from Butyl rubber, for wires, P 3228*e*.
for cable and wires, 434*h*.
for cables carrying high frequency, P 1126*b*.
cable, thermoplastic, P 3657*d*.
from cellophane, P 5518*f*.
cellulose acetate tubing for, 8751*b*.
from cellulosic sheet impregnated with vinyl polymer, P 3242*a*.
ceramic compn. for, P 7658*c*.
ceramic, oil, paper, plastic and rubber,
from china clay, PhOH-HCHO condensation product and starch, 8075*e*.
chlorinated hydrocarbons as, neutralization of decompn. products of, P 2714*h*.
from chlorinated polythene, P 5642*h*, P 9534*be*.
coatings, 1993*f*.
for coating wires, etc., P 2344*a*.
for copper wire, 1993*a*.
for copper wire, Neoprene compds., 894*f*.
couplings for underground cable and pipe lines, 6090*d*.
from diallyl tetrachlorophthalate and unsatd. alkyd resin, P 3233*c*.
dielec.-loss angle and surface resistivity of, effect of humidity on, 2054*b*.
from $p,\alpha$-dimethylstyrene trimer, P 1224*h*.
from 4,4'-divinylbiphenyl polymers with styrene, P 4516*i*.
elec. conduction in, 2083*e*.
elec. properties of, app. for detn. of, 1125*e*.
electrodes from metal laminated with, P 5357*g*.
energy levels and work function in, 933*h*.
from esters of Diels-Alder adduct of maleic anhydride and poly-unsatd. nonconjugated compd. with allyl alc. or methallyl alc., P 2819*b*.
from ethylene polymers, P 906*d*, P 4515*c*.
failure of, 954*c*.
from fumaronitrile polymers with styrenes, P 4516*g*.
fungicidal corrosion-inhibiting lacquer for, P 6434*c*.
glass bushings, P 8633*c*.
glass, with low power factor, P 373*a*.
halogenated diphenylethylene polymers for, P 6866*a*.
halogenated gases for, 6337*f*.
halogenated-hydrocarbon mixts. with N heterocycles for, P 2217*e*.
halogenated-hydrocarbon, prevention of H halide formation in, P 4402*c*.
halogenated-hydrocarbon, stabilization of, P 5887*h*.
with heat cond. improved, P 3948*h*.
heating of, in electrostatic tar precipitators, 7211*g*.
hydrogenation product of dimeric $p,\alpha$-dimethylstyrene, P 4518*f*.
impregnating compn., P 2033*d*.
impregnation of porous refractory, with resinous dielec., P 9537*a*.
measurement of dielec. const. and loss factor of, 7763*h*
from melamine-HCHO resin and fatty acid ester alkyd resin, of high dielec. strengths and resistance to solvents and water, P 4873*f*.
methacrylate compns. contg. colloidal $SiO_2$ for, P 5634*h*.
from methyl methacrylate and methylvinylpolysiloxane, P 7262*g*.
mica, binder for, P 3232*a*.
from mica (bonded), P 1612*c*.
from mica (bonded) with styrene, etc., 8075*d*.
oils—see also *Transformer oils*.
oils, breakdown voltage of, and its testing, 8661*f*.
chem. and phys. refining of, 385*a*.
corrosion and oxidation inhibitors for, P 4008*b*.
costs of refining, 385*a*.
from naphthalene reaction with octenes, oxidation-resistant, P 3194*b*.
by polymerization of $C_4H_8$ in cycloparaffin solns., P 7223*c*.
sampling and testing, 4399*e*.
S detection in, 4787*d*.
panel (laminated), P 5644*h*.
paper for, impregnating oil and aging of, 4464*f*.
paper for, manuf. of, 3198*e*.
from paraffin wax and Zn salt of higher fat acid, P 6763*f*.
from phenol condensation products, P 4517*h*.
from pine tar, pitch and mica flakes on backing, 3544*a*.
plastic materials for, P 902*d*.
plastic waterproof, P 3235*a*.
polymers of unsatd. 1,1,2,2-tetrafluorocyclobutane derivs., P 4295*f*.
porcelain, Al powder use in clay mix for, P 3587*a*.
porcelain, casting of, 4437*b*.
properties at ultrahigh frequency, effect of water on, 2480*b*.
removal from elec. conductors, P 790*b*.
resin (alkyd) BuOH extn. residues, 8702*h*.
review on, 4525*i*.
rubber (cyclized) in, 1208*d*.
rubber, on cables and wires, continuous vulcanization of, 3649*f*.
on cables and wires, flame and mech. tests on, 3225*e*.
on cables, soil microörganism attack on, 9517*d*.
rubber (reclaimed) as, on telephone wires, 2021*b*.
rust protection of caps of, of temper castings, 6139*b*.
shales for manuf. of, 9404*g*.
silicone as, for magnet coils, 4048*g*.
from silicone (methyl) elastomers contg vinyl groups, P 5625*d*.
from silicone rubbers, 9516*f*.
silicon monoxide as, 6101*d*.
silicon org. compds. (silicones, siloxanes, etc.), 1211*h*, P 1607*i*, P 2036*g*, P 3237*f*, 3541*i*, P 4517*c*, P 4518*b*, P 4894*g*, P 5635*a*, P 5639*e*, P 6000*a*, P 6220*i*, P 6867*b*, P 8211*f*.
sintered, P 6388*b*.
spark-plug, sealing to metal shell, P 5166*h*.
standards for, 4399*i*, 4787*f*.
for steel, oxide coating as, 4201*c*.
for steel sheet and strip, P 6145*b*.
styrene-polymer plasticized compn., P 4518*d*.
from styrene polymers with 2,2',5,5'-tetrachloro-4,4'-divinylbiphenyl, P 6002*a*.
sulfur hexafluoride as, effect of elec. discharge on, 7354*i*.
synthetic-org., 1604*h*.
tank-lining, 6761*e*.
tetrafluoroethylene polymers, P 2714*i*
tube, for connecting cells with circulating electrolytes, P 2525*f*.
for ultra-short waves, 3118*h*.
united to metal, P 3164*g*.
urea-HCHO-polyester alkyd resin wire-coating, P 3216*f*.
vinyl chloride polymers (plasticized) as, testing of, 2465*e*.
from vinyl chloride polymers for cables, P 5231*a*.
from vinyl chloride polymers with vinylidene chloride, P 5638*b*.
vinyl chloride-polymer tape, P 3234*g*
vinylpyrrole polymers, P 907*d*.
**Insulators, thermal**. (See also specific thermal insulators such as *Brick, Fiberboard; Glass wool; Mineral wool; Paperboard; Refractory materials; Vermiculite*.)
aluminum finishes as, 874*g*.
from asbestos, cellulose, CaO and $SiO_2$, P 5918*e*.
from asbestos, rock fibers, Kieselguhr, etc., and peat, P 7163*f*.
from bentonite, fibers and saponin, P 8580*c*.
boards, from cedar bark, 6409*e*.
impact and load strength of, measurement of, 403*c*, 1187*d*.
preservation with chlorinated phenols, 1516*i*.
water absorption by, 9443*f*.
from wheat straw, 2769*b*
of boilers for sugar factories, 6815*f*
from boric acid and disintegrated newsprint, P 5518*g*.
from cellular glass, for low-temp. app., 371*h*.
from cement and cork, P 1126*c*.
cork substitute for, P 6004*e*.
cover for solidifying ingots, P 3769*f*.
from cracking catalysts (spent), P 370*c*.
definitions of terms, standards and tests for, 4397*i*, 4785*fi*, 8786*h*.
from ethylene polymers, P 906*d*, P 4515*c*
from fibrous materials, P 7163*g*
from fibrous materials, cement, etc., P 374*h*.
lignocellulose product for, P 2436*c*.
from melamine-HCHO condensation product, P 4518*a*.
from monoxystearyl urea and HCHO, P 5135*f*.
lithium minerals as shock, 3319*i*.
plaster, P 4828*e*.
plastic, 436*g*, 2464*h*, P 3235*b*.
prefabricated building units from, P 4444*c*.
refractory, 8631*cag*, 8632*c*, 9405*h*.
from coal ash, 5562*f*.
detn. of reheat shrinkage and thermal stability of, 8631*c*.
heat transfer in, 3582*e*, 3583*a*.
refractory, testing properties of, 3582*e*, 8631*f*, 8563*h*.
review on, 6761*d*.
from silica aerogel, P 1506*a*.

from slurries, app. for, P 790*a*.
temp. control and, 2476*b*.
textiles as, 1193*b*.
from vinyl polymers, P 9535*c*.
from volcanic ash, P 6339*i*.
from wood by heat-treatment, P 6340*d*.
**Insulin.** (See also *Pancreatic extracts; Synthalin;* and "hormones of" under *Pancreas.*)
acetoacetate effect on, 3928*c*.
in adipose tissue regulation, 2690*f*.
adsorption in presence of salt, 1624*g*.
in amino acid metabolism, 6712*d*.
amino acids and peptides of, chromatographic sepn. of, 2659*f*.
antagonist to, in blood-serum, measurement of, 5487*g*.
antigenic action of, 6315*a*.
assay of, 6304*d*, 7641*a*.
bile flow after injection of, 304*h*.
carbohydrate metabolism and, 8026*c*, 8519*c*.
carbohydrate metabolism in scurvy and, 1471*b*.
chemistry of, 8414*f*.
coma from, effect on adrenaline secretion, 7104*h*.
coma from, effect of water-sol. cortical prepns. on, 8550*d*.
compds. with benzoyl chloride and acetone, P 4434*b*.
convulsions from, 9247*b*.
deficiency, effect on gluconeogenesis by kidney, 6305*a*.
detection of, 1821*f*.
2,3 - dimercapto - 1 - propanol disulfide effect on action of, 4377*b*.
dinitrophenyl deriv., isolation of yellow peptides from enzymic digests of, 7067*d*.
effect of, 8555*d*.
effect of, liver glycogen and, 3085*b*.
effect on acetylation and phosphorylation and on pyruvic acid utilization, 9220*h*.
on amino N in plasma after evisceration, 8055*e*.
on arteriovenous blood sugar differences during glucose feeding, 9204*d*.
on arteriovenous blood sugar difference in postabsorptive state, 8038*f*.
on bleb resorption time and intraocular pressure, 1106*i*.
on blood sugar after splanchnicectomy and adrenalectomy, 1853*f*.
on chick embryos, effect of adrenal cortical exts. on, 8033*h*.
on cholinesterase in blood serum, 3520*d*.
on citric acid in seminal glands, 5843*d*.
on congenital deformities in chick, 8466*d*.
on endocrine glands, 2328*a*.
on galactose distribution in eviscerated-nephrectomized dogs, 8053*a*.
on gastric acid secretion and emptying time, 9229*d*.
on gastric secretion, 8538*h*.
on glucose tolerance in nephrectomized-eviscerated rats, 297*b*.
on glucose uptake and glycogen synthesis by diaphragm, effect of hypophysectomy, adrenocorticotropic hormone and adrenal cortical ext. on, 9255*g*.
on intestinal glucose absorption in alloxan diabetes, 317*d*.
on lactic acid and sugar in blood after liver passage, 4360*a*.
on pancreatic secretion, 4357*f*, 9209*c*.
on phosphatase in intestine and kidneys in alloxan diabetes, 2318*c*.
on phosphates in blood, 1849*h*.
on resistance to uranyl nitrate, 764*e*.
on survival time of eviscerated rats, 2306*a*.
on work after evisceration, glucose and, 2691*i*.
ethyl alc. metabolism and, 2321*b*.
extn. from pancreas, P 4434*a*.
fat metabolism and, 2324*i*.
films (unimol.) and mol. wt. of, 3264*h*.
from fish, 3150*c*.
glucose metabolism in diaphragm and, 9714*e*, 8029*e*.
glycine effect on action of, 4770*g*.
glycogen deposition in adipose tissue and, 8030*e*.
glycogen formation in diaphragm and, effect of adrenaline or adrenochrome on, 5470*b*.
glycogen formation in muscle and, 9202*d*.
guandino groups of, 2650*e*.
hemin compds. with, in liquid $NH_3$, 702*f*.
history of, 8618*c*.
hypnotic effect on action of, 8055*h*.
hypoglycemia from, kinetic study on, 6741*i*.
hypoglycemia from, prevention by glyceraldehyde, 6306*i*.
hypoglycemic action of, effect of kidneys on, 1097*i*.
hyperglycemic-glycogenolytic factor from, purification of, 9212*g*.
implantation of, in diabetes, 5121*a*.
inactivation by tissue exts., 6252*e*.
iodinated, thyroxine content and biol. activity of, 9185*f*.
ketone metabolism and, 6727*i*.
-lactoflavin complex, effect on purine metabolism, 1472*c*.
micromelia from, in chick embryos, hypoglycemia in, 3872*b*.
oxidation products of, detn. of sedimentation const. of, 6259*f*.
oxidized, fractionation of, 6259*c*.
in pancreas and alloxan treatment, 5111*d*.
peptides from, 1074*b*.
phenobarbital effect on action of, 7137*i*.
phenylurea deriv. of, in diabetes treatment, 8533*g*.
potentiation by sulfones, 5491*f*.
prepns., 8618*c*.
for diabetes treatment, 6314*i*.
with polyvinylpyrrolidone, P 6791*g*
and protamine Zn insulin, polyvinylpyrrolidone as delaying substance for, 1863*f*.
protein detn. in, 8096*b*.
reaction with mustard-type vesicants, 707*b*.
requirement after pancreatoduodenectomy, 1470*h*.
residues from, carotene and vitamin A in, 9285*e*.
Sakel's treatment with, post-hypoglycemic encephalopathy after, 3937*e*.
secretion of, hormonal influences on, 5840*a*.
secretion of, in alloxan diabetes, 4362*d*.
sensitivity to, in alloxan diabetes, and effect of methylthiouracil thereon, 4377*fg*.
after desoxycorticosterone acetate administration, 8492*d*.
effect of diet on, 734*i*.
effect of thyroidectomy and thiouracil on, 4377*h*.
effect of vitamin $B_1$ on, 9183*h*.
after stasis of lymph in head, 5840*a*.
shock from, buffering capacity of brain tissue after, 9212*b*.
effect on blood glutathione, 2330*b*.
effect on protein metabolism and chloride elimination in schizophrenia, 2312*h*.
lymphocytic and biochem. responses to, in schizophrenia and affective disorders, 3924*d*.
in tuberculosis, effect of ascorbic acid on, 7101*d*.
standards for, 3561*h*.
and its substitutes, 5907*i*.
structure of, 16*d*, 2652*h*, 8843*f*.
teratogenic action of, effect of nicotinamide and $\alpha$-ketoglutaric acid on, 4776*h*.
-thiocyanate complex, 706*c*.
tolerance of normal and partially depancreatized rats for, 6734*h*.
trace element effect on, 742*e*.
trypsin action on, 6261*c*.
vesicant-treated, 707*e*.
vesicant-treated, hydrolysis of, 707*h*.
zinc, effect on *Trypanosoma hippicum*, 2270*a*.
**Insulinase**, and effect of fasting on liver content, 6252*fh*.
**Intarvin**, crystal structure and thermal analysis of, 134*g*.
**Integrals**, app. for calcn. of, 38*e*.
**Interatomic distances.** See *Ions, electrolytic; Molecules.*
**Interface-active substances.** See *Surface-active substances.*
**Interfaces.** (See also *Contact angles; Phases; Surface.*)
adsorption at, of paraffin oil activated by oleic acid, 16*h*.
adsorption at, of two liquids, 8250*g*, 8819*e*.
compn. and structure of, 5247*f*.
detergent adsorption at oil-water, 8796*h*.
electrolytic double layers at, of soln. and metal, 8814*b*.
energies in Al and Cu alloys, 9011*a*.
equil. at, thermodynamics of, 6887*g*.
films at oil-water, 2068*gh*.
forces at, 6040*h*, 8794*e*.
ion distribution at, 18*a*, 8411*h*.
liquid-vapor, distn. of mixts. by heating, 7297*i*.
phase rule for, 8795*i*, 8796*a*.
potential at—see *Potential, electric.*
radius of curvature of, surface tension and, 6040*a*.
reactions at, 8795*a*.
thermodynamics of, 8789*d*.
**Interfacial tension.** (See also *Surface activity; Surface tension.*)
adsorption effect on, 921*c*.
of blood serum in relation to flocculation and to compn. of lipoprotein complexes, 1823*c*.
calcn. of, 8794*e*.
between cholesterol-lecithin solns. in $C_6H_6$ and aq. solns. of gelatin, 8800*b*.
cohesive work and, in homologous series, 2060*d*.
in detergency and emulsification, 5976*a*.
of films at oil-water interfaces, 2068*g*.
of films of octanol mixed with Na dodecyl sulfate at $C_6H_6$-$H_2O$ interfaces, 2068*i*.
between foaming systems and foam inhibitors, 7161*b*.
between fuel oil-sea water emulsion phases, 2419*g*.
of insectifuges, 5150*d*.
of iron sulfide (fused FeS), 3257*b*.
in iron sulfide system with silicate, effect of C on, 7795*a*.
and its measurement, 1620*f*.
measurement of, between org. liquids heavier than water and water, 8255*i*.
measurement of, of oil against $H_2O$, 4787*b*.
between mercury and salt solns. or $H_2O$, 4922*i*.
between oil and water, lowering for chamoising, 1592*e*.
between olive oil and solns. of salts of *p*-aminobenzoate of diethylaminoethanol, 7290*c*.
of paraffin oil activated by oleic acid, 16*i*.
of paraffin oil against water contg. $\alpha$-monostearin and Na stearate, 7725*c*.
between paraffin oil and soda soln., effect of oxidation on, 2410*i*.
between paraffin oil solns. and $H_2O$, 8250*g*.
of petroleum deposits and theories of interfacial forces, 7671*d*.
review on, 1625*d*.
between rosin oil and water, 6431*h*.
of sodium dodecyl sulfonate solns. against $C_6H_6$, effect of impurities on, 3267*d*.
of sucrose solns. in org. solvents, 2845*b*.
between water and solns. of lauric, palmitic and stearic acids in hexane, 8819*f*.
of water-mineral oil mixts., lowering by alkyl naphthalenesulfonates, 4862*b*.
**Interferometers**, ultrasonic, 7283*h*.
**Intermediate phases**, the expression, 8029*e*.
**Intermediates.** (*Most entries are for dye intermediates.*)
acedianthrone bromomethyl and chloromethyl derivs., P 7709*d*.
acridine derivs., P 4703*d*.
from acrolein acetal polymers, P 5636*a*.
acrylic ester addn. products with unsatd. fat acids, for dicarboxylic acids, P 2034*d*.
4' - alkenyloxy - 4 - aminodiphenylamines, P 856*d*.
1 - alkyl - 5 - arylbiguanides, P 2229*f*.
amines (stabilized aromatic), P 251*f*.
2-(aminoalkyl)pyrimidines, P 3473*d*.
amino and nitro derivs. of satd. aliphatic sulfonic acids, P 5411*f*.
2 - amino - 4 - butylamino - *s* - triazine, for pharmaceuticals, P 6246*e*.
8-amino-6-methylergoline, for pharmaceuticals, P 6246*f*.
4-aminoquinolines, for medicinals, 8386*h*.
anilinomethylene and aryliminomethyl derivs. of cyclic compds., P 8692*g*.
anionic, in reduction by nascent H, 6058*b*.
aralkyl diamines, P 3455*i*.
aralkyl hydrocarbon condensation products with ketones, P 2037*a*.
from aromatic amines and CO, P 5639*g*.
for barbiturates, P 4201*i*.
benzanthrone 3-acyl derivs., P 868*b*.
7 *H* - benzo[*jk*]thiophanthren - 7 - one, P 9467*g*.
biphenyldiamine isomers, P 8174*c*.
biphenylsulfonanilide derivs., P 4297*f*.
4,4' - bis(acylamino)bis(carboxyalkoxy)-biphenyl derivs., P 2442*f*.

1,4 - bis(aroylamino) - 5 - (1 - nitro - 2-anthraquinonylcarbonylamino)anthraquinone, P 1576*d*.
3,4 - bis(*p* - hydroxyphenyl) - 3,4 - hexanediol, for hormones, P 6237*f*.
book: Tech. Analysis in Production of, 5597*a*.
bromo thiazoles, P 3042*c*.
4 - *tert* - butylphthalic acid and anhydride and 2 - benzoyl - 5(or 4)-*tert*-butylbenzoic acid, 8139*g*.
*p*-chlorophenyl dichlorovinyl ether, P 7966*b*.
chloro pyrenes, P 6812*d*.
2 - chloropyrimidines, for pharmaceuticals, P 8105*f*.
from coal extn., P 5602*b*.
for cyanine dyes, P 5602*e*, P 7844*g*.
1 - (1 - cyclohexen - 1 - yl) - 2 - oxocyclohexanepropionic acid, for pharmaceuticals, P 6230*g*.
cyclopentaphenanthrene derivs.—see *Cyclopenta[a]phenanthrene; Steroids*.
dialkyl mercaptals of dicyanoketene, P 6650*d*.
1,4 - diamino - 5 - nitroanthraquinone *N*-aryl derivs., P 1808*f*.
2,4 - diamino - *s* - triazine derivs., P 1814*c*.
5,7 - diamino - *s* - triazolo[4,3-*a*]-*s*-triazine derivs., P 7975*a*.
dianthrimideacridones, P 866*i*, P 7708*g*.
dianthrimides, P 5601*g*, P 7707*h*, P 7708*abc*.
dianthrimides and trianthrimides, P 1576*d*.
1,2-di-2-benzimidazolylethylene, for textile assistants, P 5217*b*.
1,1 - dibromo - 1 - chloro - 2,2 - bis(*p*-chlorophenyl)ethane for insecticides, P 3970*a*.
dicyanamide alkali metal salts, for dyes, pharmaceuticals, etc., P 1532*d*.
dienophilic adduct resin, P 5997*c*.
4,5-dihydro-3(2*H*)-furanone, P 5424*i*.
1,3-diketones, P 2634*c*.
ethers of hydrolyzed olefin-vinyl ester polymers, P 9471*c*.
fluoroacetamide, P 351*c*.
guanidine sulfate, P 4292*g*.
hydroxy aromatic acids, P 3040*f*.
hydroxyaryl amines, P 1062*a*
3-hydroxy-2-naphthamides, P 8151*h*.
hydroxynaphthoylaminobenzaldehydes and lower acetals, P 8169*d*.
2-iminoöxazolidines, P 252*d*.
ketones, from cyclammonium salts contg. reactive thio ethers, P 8167*b*.
lactic acid as, 787*h*.
leucoanthraquinone derivs., P 3205*i*, P 6832*e*.
for mercapto carbocyanine dyes, P 4160*b*.
mercaptocyclohexenones, P 6230*i*.
*N* - (1 - methyl - 4 - oxo - 2 - imidazolidylidene)salicylamide monohydrate, for pharmaceuticals, P 4431*g*.
2 - naphthol - 4 - sulfonic acid 7- and 8-amino derivs., P 5967*d*.
naphthoquinone imine, P 8166*i*.
naphthosultone derivs., P 2641*f*, P 4020*cde*, P 4488*b*.
from natural gas and petroleum, for chemicals, 6336*g*.
nitroalkyl sulfites, for amines, P 0223*a*.
*p*-nitroaniline, detn. in D&C Black No. 1, 7231*i*.
nitrophenyl ethers, P 688*a*.
octachlorodiphenoquinone, P 814*b*.
olefin cyclized polymer reaction products with P halides, P 8668*h*.
for organogermanium compds., P 2631*g*.
oxalic acid esters with 2,2′-(phenylimino)diethanol and its derivs., P 2634*g*.
oxalic acid ester with 2,2′-tolyliminodiethanol, P 1988*i*.
for penicillin manuf., P 9389*a*.
petroleum as source of, 1173*a*.
phenol condensation product with *N*-(chloromethyl) - *N*-methylstearamide, for textile assistants, P 1588*d*.
phenol condensation product with stearamide-$(ClCH_2)_2O$ reaction product, P 886*a*.
5 - phenylazo - 3 - sulfosalicylic acid derivs., P 7699*ef*.
for photographic sensitizers, P 4164*b*, 4262*e*.
phthalocyanine sulfonated aryl thio ethers, for pigments, P 4487*f*.
piperidine derivs., for pharmaceuticals, P 6241*e*.
polyhydric alc. surface-active reaction products with acids for, P 8712*d*.
prolamines, P 6466*g*
1,2,3 - propanetriamine derivs., P 2230*e*.
quinizarin, P 8692*e*.
resin, and their aldehyde condensation products, P 7751*h*.
review on, 4788*ei*.
silicone-resin, P 9533*b*.
from silk waste, for cosmetics, P 6793*b*.
siloxanes, P 6220*i*.
5 sulfoanthranilic acid, P 8692*a*.
*p*,*p*′-sulfonyldianilines, for pharmaceuticals, P 2637*g*.
*N*,*N*′ - sulfonyldi - *p* - phenylene)bis[amidophosphoryl chloride], for disinfectants, P 5156*g*.
terpene derivs. of phenols, for resinous products, P 6237*c*.
1,1,3,3-tetraalkoxypropanes, P 4291*c*.
5,6,7,8 - tetrahydro - 2 - naphthanilides, P 7512*c*.
tetramethine, for pentamethinecyanine dyes, 6928*e*.
1,2,4,2*H* - thiadiazine - 3,5(4*H*,6*H*)-dione *S*,*S*-dioxide and its derivs., P 4868*c*.
ω-thiocyanoalkyl esters, for bactericides, fungicides and insecticides, P 5153*c*.
thiones, for methine dyes, P 514*c*.
thiones, for org. syntheses, P 350*a*.
4,9 - thiophanthrenedione derivs., P 6668*i*.
thiophene derivs., for condensation polymers and photographic sensitizers, P 6238*d*.
*p* - toluenesulfonic acid esters of heterocyclic derivs. of ales , P 3466*f*
transient, study by chem kinetics, 5267*b*.
trianthrimide, P 7708*de*
tumors in industry of org., 8073*g*.
for vitamins, P 2237*c*.
xylyl trichlorothiolacetate, P 6664*e*.

**Intermedin**. See "hormones of intermediate lobe of," under *Pituitary gland*.
**Intermetallic compounds**. See *Chemical compounds*
**International Trade Organization**, industrial view of, 6759*g*.
**Interstellar space**. See *Space*.
**Interstitial compounds**. See *Chemical compounds*.
**Intestinal contents**, adsorption by activated charcoal in presence of, 4767*c*.
**Intestinal extracts**. (See also *Erepsin; Secretin*.)
effect on tissue growth, 1099*g*.
**Intestinal intoxication**. See *Poisoning*.
**Intestinal juice**. (See also *Erepsin*.)
amidine hydrolysis by, 3790*f*.
secretion during hypercalcemia, 8050*e*.
secretion from duodenum, effect of sugar, fat and meat meals on, 8028*h*.
**Intestines**. (See also *Celsae disease; Digestive tract*.)
absorption by—see *Absorption (biological)*.
acidity of cecum and colon of rats, effect of apples and apple products on, 9313*g*.
adenosine triphosphate effect on, 2693*e*.
adrenaline effect on, concn. and, 3101*f*.
adrenaline effect on, effect of thyroxine on, 2318*ab*, 5115*g*, 5494*e*.
adrenaline effect on muscles of, 7106*i*.
adrenochrome effect on, 5864*e*.
amino acids in swine, 7061*h*.
anaphylactic reaction of, effect of antistine on histamine liberation in, 3512*e*.
antiseptics or disinfectants for—see *Disinfectants*.
antithyrotoxic factor in duodenum, 3913*a*.
arginine synthesis in, 2684*h*.
autolysis of, effect of acetylcholine on, 1074*g*.
bacterial action in relation to activity of, 1832*a*.
bacteria of—see *Bacteria*.
barium-K antagonism on, 2326*i*.
benzedrine effect on, 758*a*.
bile salt effect on motility of, 1865*e*.
bilirubin reduction in, 3082*b*, 6721*a*, 8497*f*.
biotin synthesis in, effect of oats, oat products and fat on, 5461*a*.
blood-group substance from mucosa of, 4315*b*.
cancer of, β-glucuronidase in tissues in, 303*f*.
carbon dioxide effect on motility of, 8041*f*.
carcinoma of, energy mechanisms in, 303*i*.
cellulose-decompg. bacteria from porcupine, 4336*f*.
chlorophyll degradation in, 5832*d*.
cholesterol esterase systems in, 3047*gi*.
coal-tar dye effect on, 1488*f*.
-contracting substance in lymph during hyperemia, 7108*i*.
cornification of mucous membrane of, in avitaminosis A, 3079*e*.
cupric ion effect on, 310*h*.
digitalis glycosides and, 5872*d*.
3,4-dimethoxybenzedrine effect on, 758*b*
effect of acetylcholine and Ba on phlorizin treated, 5872*e*.
effect of adrenaline and sulfonamides on, 1486*c*.
effect of adrenaline, arterenol and epinine on, 8542*c*.
effect of angiotonin, $BaCl_2$ and other compds. on, effect of tetraethylammonium ion on, 1110*f*.
effect of arsenic compds. and narcotics on, protective role of methemoglobin in, 316*h*.
effect of Ba and papaverine on, 5863*i*
effect of cardiac glycosides on, effect of atropine and papaverine on, 5872*f*
effect of citral and β-ionone on, 1488*g*
effect of compds. like α-fagarine on, 2320*e*
effect of $CuCl_2$ plus vitamin C on, 3903*e*
effect of glycosides of senna and their hydrolysis products on, 6308*i*.
effect of hydroquinone and its oxidation products on, 5863*d*.
effect of isomeric heptylamines on, 1110*b*
effect of local anesthetics and tubocurarine on, 7589*i*.
effect of Mg and Na sulfates on, 5120*b*
effect of substance P in blood on, 1071*e*
enzymes from pyloric ceca of fish, 1815*e*
ext of upper, P 8621*b*.
flora, nicotinamide synthesis by, 9191*e*
flora of hen, effect of carbohydrates and biotin-deficient ration on, 736*d*
garlic action on, 5114*g*.
gas compn. in, effect of gaseous transfer between colon and blood stream on, 298*b*
histamine-antagonizing and antispasmodic effect of various substances on, 3934*d*.
histamine effect on, 7128*i*.
hormone effect on, 7564*i*.
hydroxyphenyl compds. in, after consumption of tyrosine, effect of bactericidal agents and avitaminosis C on, 3989*h*.
hyperglycemic-glycogenolytic factor in, 744*e*.
interaction of autonomic drugs on, 3097*h*
intoxication—see "alimentary or intestinal" under *Poisoning* and *Intoxication*
incubation studies of small, 2684*a*
intussusception, fecal impaction and volvulus from pilocarpine, 7119*a*
lipogenesis from glucose in, 8509*h*
lymph from, phosphatase in, 4712*h*
magnesium effect on contractions of, 3102*e*.
mitosis in, effect of spleen ext. on, 5107*d*
morphine effect on duodenum, 761*f*.
motility of, substance stimulating, and effect of vagal stimulation on, 5470*a*
movement of villi of, and its hormonal regulation, 1850*i*.
muscle-nerve transmission in, 7564*d*.
neoplasm of, from motor lubricating oil, 8046*b*.
nicotine effect on, 757*d*.
nucleic acid in, after radiation, 1817*i*.
nucleic acids in, after neutron radiation, 5489*c*.
of *Oedemagena tarandi*, glycogenase and protease in, 1116*d*.
oxygen consumption by, 747*f*.
papaverine effect on, 7131*i*.
pervitin effect on, 2327*f*.
phosphatase activity of, effect of KCN on, 2649*d*.
phosphatase in, of adrenalectomized rat, effect of vitamin $B_2$ on, 3083*i*
after adrenalectomy, effect of steroid sex hormones on, 9201*f*
in alloxan diabetes, and effect of insulin thereon, 2318*c*.
effect of Mg and Co on amino acid inhibition of, 6743*d*.
effect of x-rays on, 9121*i*.
phosphatase secretion by, in frog, 7593*e*.
phosphate flow into, and absorption of glucose therefrom, effect of thiamine on, 5838*e*.
phosphomonoesterases and pyrophosphatases in, after adrenalectomy, and effect of desoxycorticosterone thereon, 1818*d*.

proteolytic activity of mucosa of, effect of albumin on, 4705*i*.
putrefaction in, in achlorhydria, 2687*c*.
relaxation of, adrenotropic receptors and, 298*g*.
removal of, effect on nicotinic acid deriv. formation, 3084*b*.
metabolism after pancreatectomy and, 1476*h*.
phosphatase in blood serum after, 4750*h*.
spasmogenic agent effect on, effect of lysolecithin on, 311*d*.
staining of duodenal mucosa following injection of tannic acid, 4764*f*.
survival of ileum, effect of acetylcholine, histamine and cholinesterase inhibitors on, 761*i*.
synergistic action of antihistamines and harmine on, 3102*d*.
thyroid feeding and, 6736*c*.
thyroxine effect on, effect of adrenochrome and cocarboxylase on, 7578*g*.
urecholine effect on, 8540*a*.
vitamin A formation from carotene in, 2682*b*, 3899*e*.
vitamin $A_1$ aldehyde conversion to vitamin $A_1$ in, 2294*g*.
vitamin B synthesis in, of horse, 8467*c*.
vitamin $B_1$ effect on, 9185*i*.
vitamin $B_1$ inactivation by ext. from carp, 9186*e*.
vitamin $B_6$ antihistamine effect on, 4351*f*
vitamin K synthesis in, effect of sulfonamides on, 8061*d*.
xanthine oxidase activity of, 8037*g*.

**Intocostrin.** See *Curare*.

**Intoxication.** See *Poisoning*

**Intramine***, effect on guinea pig, 7136*g*.
effect on lupine, 7136*d*.
effect on metamorphosis of tadpoles, 7136*f*.

**Intraocular fluids.** See *Eyes*.

**Intravan N**, for fireproofing, 5895*a*.

**Intrinsic factor.** (See also "antianemic factor" under *Anemia*.)
enzyme systems as, 9196*d*.
inhibition of, 5462*j*.

**Introductor.** See *Feeding apparatus*.

**Inulase**, production by *Sterigmatocystis nigra*, 5449*a*.

**Inulin**, in blood serum, effect on *p*-aminohippuric acid clearance, 3090*h*.
as carbon source for *Bacillus subtilis* and its action in amylase formation, 2278*f*
detection of, 5704*a*.
detn. in blood and urine, 6686*a*.
distribution between 2 body-water compartments, kinetics of 5841*d*.
effect on growth of plant tissue, 4349*a*
fructose manuf. from sources of, 888*ac*
in Jerusalem artichoke-*Helianthus doronicoides* hybrids, 8460*f*
in Jerusalem artichokes, 1080*i*
renal clearance of, 1490*d*.
renal clearance of, detn of, 8418*e*.
in starch synthesis by plant, sucrose and, 278*i*.
suspensions (colored) of, 8801*b*.
tubers or roots contg., candy from, P 6334*d*.

**Invadine ME**, as wetting agent in mercerization liquors, 8141*g*.

**Invar**, elec. resistance of, effect of pressure and temp. on, 5679*a*.
magnetization of, temp. changes from, 3673*d*.

**Inventions**, protection (initial) of, 4790*h*.

**Inversion.** See *Heat of inversion; Isomerization; Sucrose; Walden inversion*

**Invertase**, 1817*b*.
action in grape vine, coördination with amylase activity, 8453*h*.
adsorption of, by plants, plant respiration and, 1084*c*.
by tissues of withering plants, 728*d*.
by yeast, 8003*d*.
in apple varieties, 278*g*.
in cabbage in relation to *Botrytis cinerea* action, 1840*b*.
in cells, protein content and, 7066*d*.
in *Cladosporium herbarum* and *Mucor* species grown in cold, 5825*g*.
in clover, winter hardiness and, 1084*b*.
in crop juice of *Helix pomatia*, 4778*b*.
in grape vine, 8069*b*.
inactivation by tyrosinase, 704*d*.
of plastids, 5061*i*.
specificity of, 4712*i*.
from sugar cane, 1466*b*.

**Invertebrates.** See *Animal organisms*.

**Invertin.** See *Invertase*.

**Invert sirups.** See *Sirups*.

**Invert soaps.** See *Soaps*.

**Invert sugar.** See *Sugar, invert*.

**Iodan**, tincture, bactericidal action of, 6363*g*.

**Iodates**, effect on acid production, growth and proteolytic properties of lactic acid bacteria, 4340*i*.
electric conductivity of, 1630*d*.
hypophosphorous acid oxidation by, kinetics of, 5267*i*.
reaction with thiocyanates in HCl soln., 8309*g*.
sepn. from nitrites, 6883*b*.

**Iodic acid**, α-, bifurcated H bonds in, 6479*c*.
constitution, mol. refraction, parachor and rheochor of, 4082*c*.
free energy of ionization of, 2075*b*.
reciprocal action of hydriodic acid and, 8095*i*
system: $H_2O_2$–I–, 7799*b*.

**Iodides.** (See also *Alkali metal iodides; Alkyl iodides; Halides; Iodine, analysis; Iodine compounds*.)
binding by lactoglobulin and serum albumin, electrophoretic study of, 3860*i*.
in blood plasma as thyroid-function regulator, 8036*g*.
bonding strengths of, in Co ammines, 2856*b*.
crystallochem. electronegativity of, 8231*b*
decompn by deuterons, γ-rays and neutrons, 8871*h*.
decompn. potentials in fused $AlI_3$, 6519*f*.
decompn. potentials in molten NaI, 4582*g*.
decompn. potentials of molten, 4581*i*
detn. of, 65*c*, 8961*c*.
alone and in mixts. with chlorides, 8967*e*
in I-iodide solns., 6111*h*.
effect on adhesion of alkali metal chloride melt to Pt and porcelain, 2062*i*.
on crystn. of $NH_4Cl$, 2483*c*.
on gelling and viscosity of solns. of gelatin, 4540*f*.
on isoelec. and isoionic points of serum albumins, 3690*c*.
on thyroid glands at low temp., 5497*c*.
on thyrotropic hormone, 9199*a*.
elec. cond. in various solvents, 7301*f*.
electrolysis in $Ac_2O$, 2876*h*.
electrolysis with high-frequency current, 6520*e*.
equil. consts. of mono- and tri-, during oxidation of cyanide by I, 2121*b*.
equil. with Hg, 7857*a*.
exchange on Amberlite IRA-400, 6489*f*.
heat of transport of, 8835*d*.
hydration of, activity and, 7302*a*.
hydration of ions of, 8244*b*.
lattice energies of, 8230*g*.
in mistura nervina, 816*j*.
reaction with persulfates, entropies and heats of activation of, 8236*f*.
skin eruptions caused by, 5492*b*.

**Iodination.** (See also *Halogenation;* and "reaction" under *Iodine*.)
of acetylene, 6568*a*.
catalysis of, by electrolytes in AcOH, 7408*h*.
of 4,5-dimethylfluorescein, 1984*f*.
of 2,4-dinitrophenol, 2184*a*.
of diphenylacetylene, 1755*c*.
of pituitary growth hormone, 2245*i*.
of proteins, thyroxine formation by, 1070*c*.
of pyrrole, kinetics of, 2849*i*.
of sodium acetate and propionate, 2932*h*.
of terpenes, 7190*i*.
of tissue proteins *in vitro*, 2647*h*.
of *p*-toluenesulfonates of monoethyl ethers of polyethylene glycols, 3784*c*.

**Iodine.** (See also *Halogens; Iodine number*.)
absorption and utilization under influence of goitrogens, 3918*a*.
absorption, excretion and physiol. effect of, 5846*i*.
accumulation by thyroid, 5471*f*.
adsorption by cellulose and viscose rayon, 9438*g*.
adsorption of ions of, on $Al_2O_3$ chromatographic columns, 8271*d*.
in algae (marine), 5450*e*, 8021*d*.
antibacterial efficiency in dil. solns., 9159*f*.
atomic wt. of, 5239*h*, 8764*h*.
atom, phys. consts. of, 2590*h*.
bactericidal efficiency in alkali, 360*g*.
bacteriotoxic action of tincture of, and other prepns., 5533*i*.
in blood, effect of sulfonamides and methylthiouracil on, 3527*g*.
post-operative Basedow reaction in relation to, 5852*b*.
during sexual stages in *Torpedo marmorata*, 8560*g*.
thyroid function and, 6300*h*.
in thyrotoxicosis, effect of thiosulfate on, 6312*e*.
in blood serum in psychiatric patients in relation to psychologic tension, 5852*g*.
bonds with Sb, As, C or P, elec. moments of, 5241*a*.
with I, energy of, 8763*b*.
with $CH_3$ group, dissocn. energy of, 4039*e*.
with N, energy of, 8764*c*.
book. Bibliography of the Literature on Na and, in Relation to Plant and Animal Nutrition, 3868*a*.
in brines from Krościenko oil field, Poland, 3995*c*.
bromine replacement by, rate of, 4628*e*.
butadiene (poly-) popcorn seed growth inhibition by, 1598*d*.
as catalyst in acylation of furans, P 3465*b*.
in acylation of thiophene, P 3465*g*.
in chlorination of (1-chloroethyl)benzene, P 680*f*.
in condensation of 2-furaldehyde with phenol, 5224*h*.
in polymerization of 2-ethylhexyl vinyl ether, 6896*c*.
in toluene manuf. from bibenzyl and H, P 3454*a*.
in chromatographic development, 5336*e*.
compn. for water decontamination from, P 9310*d*.
compds. with polyvinyl borate and starch, 4542*d*.
in cyanide oxidation, 2121*a*.
deficiency, endemic goiter and, 9238*d*.
diffusion from ointment, 8609*g*.
in disinfection of skin, 3525*c*.
dissocn. of, kinetics of, 5707*e*.
effect on adrenaline and insulin, 742*c*.
on cornea, 771*c*.
on deamination of amino acids by $HNO_2$, 6269*a*.
on enzymes in fig latex prepn., 6327*d*.
on goitrogenic properties of soybeans, 7557*h*.
on grasshopper eggs, 8087*d*.
on milk-coagulating enzyme of *Ficus carica*, 1119*c*.
on mitosis in root meristems, 9171*c*.
in photometric detn. of Ni, 8298*f*.
on recrystn. of black Se, 4198*a*.
on thyrotropic hormone potency, 3909*a*.
on trichophytin production and growth of *Trichophyton gypseum*, 5083*h*.
electrodeposition from iodides in $Ac_2O$, 2876*h*.
in enzyme activity, 1820*b*.
exchange of, between KI and $KIO_3$ in aq. soln., 4565*i*.
fluorescence of vapor of, 1265*i*.
in food products and water from endemic goiter regions, 8044*i*.
formation of, by ultrasonic waves in KI solns. contg. $CCl_4$, 1660*h*, 8779*i*.
gamma-ray-bombarded $I^{127}$, 936*g*.
neutrons from, 4116*b*.
threshold for reaction in, 4115*h*.
in gorgonins, 6253*i*, 7983*d*.
in hyperthyroidism remission, 6740*g*.
hypoiodous acid decompn. in solns. of, 8249*h*, 8250*a*.
in iodinated proteins and thyroid, 702*i*.
ion ($I_3^-$) of, 8285*c*.
isomerization of $C_2H_2Cl_2$ in light sensitized by, 5672*a*.
as isoprene-polymerization inhibitor and initiator, 5621*e*.
isotope of mass 124, positrons and γ-rays from, 8268*d*.
isotope of mass 125, $Te^{125}$ from, 486*d*.
isotope of mass 126, energy of γ-rays of, 6075*i*.
isotope of mass 129, quadrupole moment and spin of, 8879*d*.
isotope of mass 131, accumulation in thyroid gland in normal and thyrotoxic subjects, and effect of thiocyanate on its discharge, 7579*g*.
β-rays from, 5296*a*.
calibrating monitor films for checking exposure of personnel to ionizing radiations with β-rays from, 4118*f*.
complex disintegration of, 3285*c*.

*isotope of mass 131*, decay of, 2089*f*.
decay to $Xe^{131}$, 5296*d*.
in diagnosis and treatment of thyroid disorders, 1484*d*.
in estradiol metabolism studies, 3081*g*.
fixation by thyroid of fetus, 7060*b*.
γ-rays from, 4948*e*, 5296*d*.
as indicator of estrogen effect on thyroid function, 295*c*.
as indicator of immunologic reactivity of serum albumin, 9233*f*.
as indicator of its uptake by pineal gland, 8505*c*.
as indicator of monoiodotyrosine in thyroid gland, 6714*c*.
as indicator of thyrotropin action on thyroid gland, 8055*c*.
in localization of brain tumors, 1856*g*.
metabolism of, 6318*e*.
metabolism of, in anoxic anoxia, 8042*d*.
nuclear spectra of, 6913*b*.
protein-bound, in blood serum in hyperthyroidism, 5851*a*.
standardization of, 6694*f*, 7813*d*.
from Th by α-ray action, 4127*b*.
thyroid formation of iodotyrosine from, 709*b*.
tumorous growth in pituitary and trachea following radiotoxic doses of, 7120*d*.
uptake by thyroid after adrenaline administration, adrenals in, 7566*g*
urinary excretion of, in diagnosis of thyroid disorders, 9227*fg*.
isotope of mass 132, β-rays from, 8271*a*.
isotope of mass 136, 86 sec. I isotope from U fission as probable, 8872*f*.
isotopes of masses 127 and 129, magnetic moments of, 8879*e*.
isotopes of masses 128 and 131, β-rays from, 3707*g*.
isotopes of masses 136, 137, 138 and 139, disintegration of, 2861*e*.
isotopes (radioactive) of, 8261*c*.
in antiserum, 3923*g*.
casein treated with, action, fate and distribution of, 9255*b*.
in detn. of antithyroid effect of foods, 7602*h*.
effect on fungi, 273*f*.
in hormone and receptor studies, 9214*g*.
in hyperthyroidism treatment, 8533*d*.
as indicator of thyroglobulin formation in thyroid gland, 8487*f*.
in measurement of circulating red cells, blood-plasma vol. and distribution of blood in large and minute vessels in shock, 5855*a*.
in measurement of its urinary excretion, 8039*f*.
in plant nutrition studies, 1079*f*.
in study of antithyroid compds., 8544*f*, 9241*i*.
in therapeutics, 3524*c*.
in thyroid disease, 8533*d*.
in thyroid-function studies in vitamin A deficiency, 7560*h*.
in thyroid hormone studies, 3908*b*.
in thyroid (normal and neoplastic), 5490*f*.
in tissue after administration, 6716*i*.
in tissue of animals with and without Walker tumor after injection of radioactive NaI, 9229*h*.
in tissues of tumor-bearing mice after injection of radioactive iodinated trypan blue, 4308*b*.
tumor-necrotizing polysaccharide from *Serratia marcescens* tagged with, and its action, 6736*g*.
uptake and excretion curves of, 5839*c*.
Joshi effect in, light absorption and, 8882*i*.
Joshi effect in, production of, 8857*a*.
labilization of trans-group in complex by, 2854*g*.
in *Laminaria flexicaulis*, 4342*i*.
loss of, on bubbling, as through solns., 5234*e*.
lyoparachor of, 2834*d*.
in magnetic field, ratio of resonance frequency to proton frequency of, 8262*g*.
magnetic moment and gyromagnetic ratio of, 5303*f*.
magnetic susceptibility of at., 2831*f*.
manuf. of, P 8626*c*.
from oil-well brines, 8622*i*.
from seaweeds, P 4792*e*.
mercury-drop motion in presence of, 2942*e*.
metabolic circuit of, 3907*i*.
metabolism of, 4710*d*.
metabolism of, in thyroid gland, effect of I, thyroid hormone, thiocyanates, thiocarbonamide and aminobenzene on, 3932*a*.
neutron binding energy of, and energy of γ-rays emitted on neutron capture by I, 8861*c*.
neutron capture cross section of, 6506*b*.
neutron cross section of, 6909*d*, 8260*h*.
nutritional value of, 2295*c*, 8473*h*.
photocathodes sensitized by vapor of, 1641*i*.
potential of, 4586*f*.
prepn. from $HgI_2$, 2378*g*.
protein-bound, in animal organism in hypervitaminosis A, 8486*c*.
in blood in hyperthyroidism, 1477*c*.
in blood serum, age and, 8514*c*.
formation *in vitro*, 2647*i*.
in thyroid and pituitary glands, effect of Lugol soln. on, 7580*b*.
radii of, relation between covalent and packing, 9*i*.
radius of bonded atoms of, 3252*c*.
reactions—see also *Iodination*.
reaction with $(NH_4)_2C_2O_4$, kinetics of, 7309*i*.
with aromatic hydrocarbons, 7824*h*.
with azide ion and thiosulfate or tetra thionate ion, 7799*e*.
with glycogens and apoglycogens, 9109*b*.
with $H_2O_2$, 499*g*, 2122*a*, 8307*i*.
with methylmagnesium iodide, 991*g*.
with polysaccharides, 7870*d*.
with KCNS and $NaN_3$ or $NaHCO_3$, 6931*i*
with Ag salts and tertiary amines, 5683*h*.
with $Ag_2SO_4$, 5689*c*, 8249*i*.
with $Na_2S_2O_3$ in presence of $NaNO_2$, 6496*g*.
removal from iodobenzene, 8908*g*.
retention in normal and cancerous tissue, 8518*i*.
in saliva in hyperthyroidism after administration of KI and effect of 2-thiouracil and 4-methylthiouracil thereon, 317*e*.
in scleroproteins of horny stems of Gorgonidae, 1871*a*.
in sediments and sea water, 5350*e*.
in sodium chloride, prevention of loss of, P 1926*e*.
soly. in halogenated hydrocarbons, 2844*c*.
solns. of, 2490*g*
sorption by MgO, 17*a*.
spectra of solns. of, 6511*d*, 8884*f*.
spectra of solns. of, elec. moments of solvents and, 7817*g*.
spectrum of, 3712*i*, 4136*e*.
stabilization of cyanohydrins with, P 2223*i*.
stains, removal from paper, 3542*i*.
standard solns. of $Na_2CO_3$ and, 2893*e*.
sterilization of water with, in regions of endemic goiter, 5889*h*.
system: $CCl_4$–$H_2O$–, mass transfer in, 5647*b*.
system: $H_2O_2$–$HIO_3$–, 7799*b*.
system: S–, 2535*f*.
from tellurium by β-decay, valence of, 7332*f*.
terpene polymer stabilization with, P 3236*a*.
therapeutic activity of, thyroid and, 3907*f*.
thermochor of, 8226*e*.
in thyroid gland, fractionation of, 8417*i*.
in thyroid gland, thyroxine and, 8032*c*.
thyroid involution from, 8047*c*.
thyroxine formation by action of, on peptides contg. tyrosine, 1069*h*, 6253*h*.
thyroxine formation in proteins treated with, 3908*h*.
thyroxine-like action of elemental, 2705*b*, 8032*g*.
tincture of, and its substitutes, 6363*f*.
tincture of, iodide detn. in, 6111*h*.
permanence of stabilized and unstabilized, 356*i*.
properties and use of, 5533*c*.
in tissues, after administration, 3083*h*.
transition points, detn. in $C_6H_6$ soln. from surface tension, 7766*c*.
in *Trichomonas foetus* infection treatment, 4382*d*.
in urine after ingestion of I prepns., 8551*h*.
in urine, thyroid function and, 2308*e*.
in waters of Norio, Ga., oil deposit, 3995*b*.
yeast fermentation and respiration stimulation by, 5444*b*.

**Iodine, analysis.** (See also *Iodides*.)
chromatographic sepn. from Br, Cl and CNS on paper and detection, 8072*h*.
detection, 4542*f*.
detn., 3870*a*, 6934*d*, 8096*a*, 8300*f*, 8960*h*, 8961*a*.
coulometric titration with electrolytic Br and amperometric end point in, 8301*e*.
preventing iodate formation in, 7373*f*
detn. in animal or plant tissues and minerals, 1685*b*.
in antifermentatives and insecticides, 4179*e*.
in biol. solns., 8419*d*.
in blood, 8419*h*.
in drugs, 7640*b*.
in feeding stuffs, 9291*c*.
in I solns. in iodide, 8961*b*.
in iodotannic sirup, 8096*c*.
in org. compds., 67*a*, 522*b*, 1684*i*, 6539*h*.
in org. materials, 8960*i*.
in plant tissue, 4343*a*.
in presence of Br and Cl, 6943*b*, 7369*i*, 8972*f*.
in water, 9308*g*.
**Iodine amalgam.** See *Amalgams*
**Iodine benzoate**, compds. with 2- and 3 picoline, 5690*a*.
**Iodine bromides.**
**BrI**, bond moment of, 5240*i*.
**$BrI_3$**, electrolysis in $Ac_2O$, 2876*h*.
**Iodine *m*-bromobenzoate**, compd with pyridine, 5689*i*.
**Iodine *p*-bromobenzoate**, compds. with pyridine and 3-picoline, 5689*i*.
**Iodine chloride** (ICl), bond moment of, 5240*i*.
partition function of, 8838*h*.
reaction with double bonds, 5362*i*.
system: $C_5H_5N$–, 6901*a*.
systems. $AcNH_2$–, and $AcNH_2$–$PhNO_2$–, 6900*i*.
**Iodine *p*-chlorobenzoate**, compds. with pyridine and 2- and 3 picoline, 5689*i*.
**Iodine compounds.** (See also *Iodides*)
of β-amylose, relation to thyroid function, 3521*i*
formation in thyroid gland and appearance in plasma, 3908*b*.
iodine detn. in org., 67*b*
photolysis and photooxidation of org., 5313*e*.
polarography of org., 8916*g*
with pyridine or picoline and benzoates, etc., 5689*i*.
radioactive, distribution in tissue, 8060*i*
in thyroid gland of fetus, 8493*i*.
**Iodine 2,4-dichlorobenzoate**, compd. with pyridine, 5689*i*.
**Iodine 3,5-dinitrobenzoate**, compds. with pyridine and 2- and 3-picoline, 5689*i*.
**Iodine fluoride** ($IF_5$), formation of, 518*e*
reaction with $CCl_4$, $CBr_4$, $CI_4$ and $C_6I_6$, 3774*i*.
**Iodine *m*-fluorobenzoate**, compd. with pyridine, 5689*i*.
**Iodine *o*-fluorobenzoate**, compd. with pyridine, 5689*i*.
**Iodine *p*-fluorobenzoate**, compd. with pyridine, 5689*i*.
**Iodine *m*-iodobenzoate**, compd. with pyridine, 5689*i*.
**Iodine *p*-iodobenzoate**, compds with pyridine and 2- and 3-picoline, 5689*i*
**Iodine 1-naphthoate**, compd. with pyridine, 5689*i*.
**Iodine *m*-nitrobenzoate**, compds. with pyridine and 2- and 3-picoline, 5689*i*.
**Iodine *o*-nitrobenzoate**, compds. with pyridine and 2- and 3-picoline, 5689*i*
**Iodine *p*-nitrobenzoate**, compds. with 2- and 3-picoline, 5690*a*.
**Iodine number**, detn. of, 2547*g*, 3636*d*, 6784*g*, 8103*d*.
detn. of, of bone grease, 1581*d*.
of Buna-S, 5985*h*.
of drying oils, 1992*h*, 7718*a*.
of fats, 423*a*.
of fats and oils, 879*b*.
of liver fat acids, 9131*g*.
of milk fat, 8567*f*.
of oils, 1582*i*.
of poppy-seed oils, 423*a*.
of shale oils, 4452*h*.
of tallow, 1581*c*.
of unsatd. fat acids, 125*g*.
**Iodine phthalate**, compd. with pyridine, 5689*i*.
**Iodine preparations.** (See also *Lipiodol; Lugol solution*.)
iodine in urine after ingestion of, 8551*h*.

for radiography of subarachnoid space, 5534b.
tannin-contg., 5540e.
**Iodine stearate**, compd. with pyridine, 5689i.
**Iodine p-toluate**, compd. with pyridine, 5689i.
**Iodized salt.** See *Sodium chloride.*
**Iodoacetic acid.** See *Acetic acid, iodo-.*
**Iodoalphionic acid.** See *Propionic acid, β - (4 - hydroxy - 3,5 - diiodophenyl)-α-phenyl-.*
**Iodoaluminates**, structures of, 960c.
**Iodocadmates**, 5692b.
formation of, 8939h.
instability const. of $CdI_4^{--}$, 924a.
**Iodocobaltates(II)**, in ethyl alc. solns., 4970i.
spectra of, 520a, 7818b, 8273i.
**Iodocuprates(I)**, properties of, 3308a.
**Iodoeosin.** See *Erythrosin.*
**Iodoform** (*triiodomethane*), antibacterial action against aerobes and anaerobes, 6276a.
infrared Christiansen filter effect in, 1657f.
as polymerization inhibitor and initiator in isoprene, 5621e.
as polymerization modifier with butadiene with chloroprene, P 4051f.
in rosin (polymerized) color improvement, P 1996e.
soly. in Na xylenesulfonate solns , 1242e.
**Iodoform reaction**, 8974b.
**Iodogorgoic acid.** See *Tyrosine, 3,5-diiodo-.*
**Iodogorgonic acid.** See *Tyrosine, 3,5-diiodo-.*
**Iodomercurates(II)**, formation of, 8939h.
**Iodomethyl group**, parachor of, 2057f.
**Iodometry**, air displacement by Dry Ice in, 7368d.
fluorescent light for, 4054e.
teaching of, vitamin C detn. in, 2548e.
**Iodonium compounds**, bacteriostatic action of, 268eh.
bis(*p*-bromophenyl)— iodide, bacteriostatic action of, 268fi.
bis(*p*-chlorophenyl)— halides, bacteriostatic action of, 269a.
bis(*p* chlorophenyl)— iodide, bacteriostatic action of, 268f.
bis(*p*-chlorophenyl)— sulfate, bacteriostatic action of, 268fi.
bis(*p*-iodophenyl)— iodide, bacteriostatic action of, 268fi.
diphenyl— halides, bacteriostatic action of, 268fi.
**Iodopalladates(II)**, formation of, 8943e
**Iodophthalein.** See *Phenolphthalein, tetraiodo-.*
**Iodoso compounds**, diacylates, as catalysts for polymerization, P 5231c.
**Iodotannic acid.** See *Iodotannins.*
**Iodotannins**, iodine detn. in, 8096c.
sirup contg., 1528c.
**Iolite.** See *Cordierite.*
**Ional, methyl-***, 2173a.
**Ionene, Δ³-dehydro-***, 2589b.
**Ionic mobility.** See *Ions, electrolytic; Ions, gaseous.*
**Ionic theory.** See *Ionization, electrolytic.*
**Ionium.** (See also *Thorium.*)
alpha-rays from, 3287f.
electron secondary emission from, 2859d.
gamma-rays from, 3287g.
**Ionization, electrolytic.** (See also *Conductivity, electric; Electric resistance; Heat of ionization.*)
of acetamide compd. with ICl, 6901a.
of acetic acid and MeOH, 6053c.
of acetophenone derivs., 1350e.
of acids as catalysts in bromination of Et cyclopentanone-2-carboxylate, catalytic consts. and, 3698e.
of acids during combination with wool, 3202s, 6829c.
of acids, effect on cleavage of 1,2-hydramines, 2315b.
of acids (org.) and esters in $H_2SO_4$, 568i.
of alkanephosphonic acids, 1315d.
of aluminum complex with salicylic acid, 2536e.
of amines (aromatic), 1247e.
of amines, catalytic activity in decompn. of nitramide and, 8828e.
of aminomethanephosphonic acid, 124d.
of ammonium hydroxide, 8220i.
of ammonium ion as acid and $NH_4OH$ as base, 7303b.
of ammonium (substituted) ions, 6904b.
of arsonic acids and their salts, 57b.
bactericidal power and mutual polarizability in relation to, 8243e.
of barium and Ca citrates, 7790g.
of bases, DDT decompn. and, 3697e.
of benzenephosphinic and benzenephosphonic acids and derivs., 6051a.
of benzeneseleninic acid and derivs , 6050i.
of benzoic acid, effect of substituents on, 8811d.
of beryllium ($Be^7$), effect on period of decay, 4117e, 4555b, 8866b.
of beryllium fluoride, 6049h.
of bromophenol blue, methyl orange and thymol blue, 58h.
of bromothymol blue and neutral red in alkali chloride solns., color changes and, 3307i.
of butyric acid in aq. iso-PrOH, 1244c.
of cacodylic acid, 7790d.
of cadmium complexes, 5692a.
of caffeine, theophylline and theobromine, 8615g.
of chloral hydrate as acid, 25i.
of chloroacetic acids, 4083a.
of chlorocadmate(II) ion and $CdI_4^{--}$, instability const. of, 923h.
of *N*-chloro dialkylamines and monochloramine, 8822a.
of citric acid, 6051d.
of colored complexes, 3306h.
of complexes, 4543a.
constitution and structure in relation to, 2074h.
of copper complexes with amines or glycine, 6934a.
of copper-ethylenediamine complex ion, complexity const. and formation const. of, 7858a.
of cyclic imines, 5400f.
Debye-Hückel equation for, and thermal properties of electrolytes, 7317h.
Debye Hückel theory and its application in teaching quant. analysis, 6014i.
Debye-Hückel theory of, hydration in, 7301h.
definition for instability const., 5344e.
of diacids and their monoesters, 7303a.
of diazo compds., 1736f, 2491i.
of dibasic and germanic acids, 7789i.
of 2-dibenzofuransulfonic acid, 6203h.
of diketene and related compds., 1320d.
of 1,3-dimethyl-1,2,3-cyclohexanetricarboxylic acid and its esters, in study of structure of abietic acid, 1042e.
in dipole mols , color formation in reagent and, 4174e.
of dithizone, 5344e.
of dyes (azo) from 5-amino-1-naphthol derivs., 4469a.
of dyes, spectra and, 3714c.
effect on analysis of mixts. of org. acids by extn. with immiscible solvents, 8976i.
on contraction and expansion of multivalent filamentous mols., 8812e.
on spectrum of benzene derivs., 7340d.
electrolyte properties and, 4544f.
of esters in $H_2SO_4$, 623a, 8808d.
extn of org. acids and, 8214c.
of α fagarine, 4280h.
of fatty acids and their derivs., pK value of, 3269h.
of fatty acids, effect of H and OH ions on, 8793h.
of fatty acids formed by hydrolysis of soap solns., soap concn. and, 8179g.
of ferriin and ferroin, 1630h.
of ferrous-α,α′-bipyridyl complex, 6056d.
of formaldehyde as acid, 25f.
of formaldehyde-pectic acid reaction products, 141c.
of germanic acids ($H_3GeO_3$ and $H_4Ge_3O_{11}$), 22g.
of heterocyclic bases, 3416d.
of hydrazides of acetic acid and glycine, 5741b.
of hydrochloric acid in acetone, dioxane, EtOH and $H_2O$, 4544g.
of hydrogen peroxide, 5651c.
of iodine chloride compd. with $C_5H_5N$, 6901c.
of iron-bipyridyl complex, 3695e.
of iron oxides in molten basalt, 526h.
of iron-slag systems, 2908h.
of iron tetracarbonyl hydride, 8809g.
of iron-thiosulfate complex ion, instability const. of, 6536c.
of lead chloride in aq. solns., 4544e.
of magnesium hydroxide, 4544f.
of malonates, 8809a.
of manganese sulfate in aq. EtOH, 8792g.
measurement of, of acids in solvents, 7793b.
of colorless acids with indicators, 6105h.
*measurement of*, light absorption in, 2868i.
of salts, 6054f.
of weak electrolytes in salt solns., 7302h.
of metals of Fe family in compds. contg. single magnetic constituent, 6018c.
of narceine and papaverine, 6887e.
of nickel hydroxide, 8809i.
of nicotinic acid, 5306d.
of nitric acid, 6053b.
in nonaq. solvents, 6055b.
of oxalosuccinic acid decarboxylase, 1014e.
of oxygen org. compds. in acid media, 4215d.
of phenols in EtOH solns. contg. NaOH, 8881c.
of phenols, partition between cyclohexane and phosphate buffer or $H_2O$ in relation to, 7788i.
of phenylalanine derivs , 8810b.
of platinum ammino and amino complexes, 1673e.
of polybasic acids, 2073a.
of polymeric acids, contraction and swelling by, 8803c.
of polymers (water-sol.), compatibility and, 6460f.
of polymethacrylic acid solns., 2487h, 6494a.
potential of, mol. structure and, 2479d.
of pyridine, 5306c.
of pyrimidine derivs., 9038c.
of pyrophosphoric acid, 6534g.
of resins, 7302e.
of salts, catalytic action in condensation of 2-furaldehyde with phenol and, 5224h.
in liquid $NH_3$, 6892b.
of oxyacids, 1630c.
in pyridine, 8811c.
of silica systems with $Al_2O_3$, CaO and MnO, 4937a.
of silver chloroacetate in aq. alc., 7793e.
of silyl derivs. of carboxylic acids, chem. constitution and, 5068f.
of sodium fluoberyllate, 6899g.
of solid solns , 5252i.
of strontium complexes contg. radioactive Sr tracer, 2113i.
of sulfosalicylic acid complexes, 5325b
of sulfuric acid solns., 7299h.
of tartaric acid, 8940e.
teaching of, 2826d.
of telluric acid, 2534f.
of tertiary alkylamines, 7303h.
of thallium complex bromide and chloride, instability consts. of, 8940a.
theories of, 8701e.
of thiocyanatobismuthates, complexity consts. of, 8939g.
of thiocyanic acid, 2074g.
of thiosulfuric acid, 2074f.
of thiouracil derivs , spectra and, 6081d.
of tris(2,2′-bipyridyl)ferrous ion, instability const. of, 8814h.
of uranium complex ions, 8941b.
**Ionization, gaseous.** (See also *Electrons;* and "sputtering" under *Cathodes.*)
of air, effect on denervated muscle, 5499e.
by alpha particles in liquids at low temp., 1257h.
by alpha-rays in air and A, 4558i.
app. for, P 6097a.
of argon by α-rays, 2861d.
balance of, in atm., 4128e.
of benzene, cyclohexane and hexane by electron impact, 6503c.
cosmic-ray—see *Cosmic rays.*
during detonation, app. for recording, 4453e.
by electrons, 34c, 4092g.
by electrons in cosmic rays, 4092f.
equil. in atm. air, 2505a.
in flame (transient), 481a.
of gases and hydrocarbons by β-rays from $C^{14}$, 4093d.
of hydrocarbons, 8259b.
of hydrogen, 4095a.
of ionosphere, 3701c.
of long-chain mols. by electron impact, 5280g.
measurement of, produced by $He^3(n,p)$ and $N^{14}(n,p)$ nuclear reactions, neutron-H mass difference and, 8865f.
measurement of, with gas-flow ion chamber, 5292h.
of mercury vapor by electrons, 7824f.
of metal vapors in flames, 5303g.
by meteors in atm., 4560a.
in molded ionization chambers with walls of various effective at. nos., 5064d.

at oxide-coated cathodes, 8847*i*.
by particles of high speed, 4099*f*.
potential, of *K*- and *L*-electrons, 4131*d*.
of first 23 at. nos., 8883*g*.
of gases in photoelec. cells, measurement of, 4089*h*.
of homologous series of normal hydrocarbons, Geiger-Müller-tube discharge and, 1646*c*.
of lanthanides, 1254*f*.
of metal ion chelates of sodium 2-formyl - 1 - phenol - 4 - sulfonate and, 1678*e*.
radiation producing, from neutral particles, 7320*b*.
of stellar material, 938*h*, 6916*c*.
thermal, 5659*d*.
of C, 5278*i*.
cell for, 5279*c*.
consts. of polycryst. metals, 4101*a*.
of Ni, 6907*b*.
of zirconium carbide, 8856*i*.
Townsend coeffs. in, of cyclohexane vapor, 6906*c*.
Townsend coeff. in, of mercury vapor, 6906*eh*.

**Ionization chambers**, P 44*i*.
boron fluoride in, properties of, 2505*g*.
at Chalk River, Canada, 4091*i*.
coated with B, prepn. of, 4560*g*.
coincidence bursts in small, 4110*b*.
counting vol. of cylindrical, 8851*f*.
current fluctuations in, 2087*g*.
current in, effect of γ-rays on, after passage through various materials, 5282*d*.
for detection of radiation in health protection, 7326*f*.
electrodes for, P 5357*f*.
for gamma-ray differential measurements, 4092*f*.
high-pressure γ-, -and gas ionization chamber for $C^{14}O_2$ or $H^3$, 5288*a*.
hydrogen filled high-pressure, 5292*i*.
measurement with, of impulses produced by cosmic rays in stratosphere, 5661*g*.
in measuring continuous and intermittent radiations, 2860*i*.
molded, with walls of various effective at. nos., ionization in, 5664*d*.
in x-ray measurements, 8844*c*.

**Ion microscopes.** See *Microscopes*.

**Ionol, 4-hydroxytetrahydro-***, 4813*g*.

——, **tetrahydro-**. See *Cyclohexanepropanol, α,2,2,6-tetramethyl-*.

**α-Ionol** (*4-(2,6,6-trimethyl 2-cyclohexen-1-yl)-3-buten-2-ol.*)

——, **dihydro-***, Raman spectrum of, 5549*b*.

**Ionone**, derivs., from urine of pregnant mares, 3798*f*.
derivs., in castoreum, 8499*a*

——, **dihydro-***, analogs of, 8361*h*.
*cis*-, in costus oil, 5550*e*.

——, **methyl-***, isomers, spectrum of, 8893*c*.

——, **4(α′ and β′)-oxotetrahydro-***, and derivs., 4813*d*.

——, **5-oxotetrahydro-***, *cis*-, 3798*g*.
*cis*-, and derivs., 8499*b*

**α-Ionone** (*4-(2,6,6-trimethyl-2-cyclohexen-1-yl)-3-buten-2-one*), bromine no. of, detn. of, 6540*f*.
dehydration of, 3798*d*.
dehydrogenation of, 2589*a*.
derivs., spectra of, 1909*i*.
*d*-, in costus oil, 5550*e*.
2,4-dinitrophenylhydrazone, spectrum of, 3374*e*.
epoxides*, 4813*f*.
4-phenylsemicarbazone, 5753*a*.
Raman spectrum of, 5549*a*.
reaction with ethyl chloroacetate, P 1801*a*.
spectrum of, 3375*i*, 4637*f*.

**α-Ionone, dihydro-***, 3,4-epoxide, and phenylsemicarbazone, 4813*f*.
Raman spectra of stereoisomers of, 5549*a*.

——, **α′(and β′)-hydroxydihydro-***, and derivs., 4813*i*.

——, **3²-methyl-***, 2,4-dinitrophenylhydrazone, spectrum of, 7644*e*.

**β-Ionone** (*4-(2,6,6-trimethyl-1-cyclohexen-1-yl)-3-buten-2-one*), aminative hydrogenation of, 1349*f*.
analogs of, 8359*g*.
biol. action of, 1488*g*.
in costus oil, 5550*e*.
Darzens reaction with, 1337*e*.
dehydration of, 3798*d*.
dehydrogenation of, 2589*a*.
derivs., spectra of, 1909*i*.
2,4-dinitrophenylhydrazone, spectrum of, 3374*e*.
hydrogenation of, 4637*e*.
phenylsemicarbazone, 5010*g*.
purification of, P 6657*a*.
Raman spectrum of, 5549*a*.
reaction with ethyl chloroacetate, P 1800*i*.
reaction with oxalic acid esters, 2587*d*.
spectrum of, 3375*i*.

**β-Ionone, dehydro-***, 3798*e*.

**Ionosphere**, abnormalities in, 4560*a*.
basic reactions in, 4944*b*.
nitrogen dissocn. in, infrared emission of nocturnal sky and, 7809*h*.
oxygen and Na in, 5302*c*.
reflection by, in absence of absorption, 4097*b*.
review on, 3701*c*.

**Ionotrophy**. See *Ions, electrolytic*.

**Ions, electrolytic.** (See also *Anions; Cations; Electrolytes; Hydrogen ion; Hydroxyl ion; Iontophoresis; Reaction kinetics; Salts; Solutions;* etc. For specific anions see such headings as *Sulfates*.)
absorption by barley seedlings, effect of salt solns. on, 7554*i*.
by clays and soils, 7618*b*.
by plants, 1841*h*.
by plants in relation to their growth, 1836*b*.
by roots, 1404*h*.
by roots, effect of growth substances on, 804*g*.
activity of—see *Activity; Activity coefficient*.
in alkali metal and H halides, 8762*i*, 8763*a*.
aquo, adsorption in chromatography, 8234*e*.
binding by lactoglobulin and serum albumin, electrophoretic study of, 3860*h*.
binding of org., by proteins, 1241*d*, 5433*a*, 7062*a*.
binding of org., by proteins and effect of buffers thereon, 3860*e*
in blood plasma, renal function and, 7127*i*.
bond lengths in complex, 4910*e*.
book: Ion Exchange, 3278*h*.
in catalysis (heterogeneous) in region of unimol. adsorption, 7801*e*.
cavitation and, 3682*h*.
chem. properties and toxicity of, 8448*d*
chromatographic analysis of, 8071*f*.
chromatographic exchange of, 4654*a*.
complex between electrode and unsolvated, energy-distance curve of, 5315*c*.
concn. at interfaces, 8411*h*.
crystal deformation by motion of single, 3259*d*.
in crystals, 8762*i*
crystals contg. foreign, low-frequency dispersion in, 5245*a*.
in crystal surfaces, selection rules for, 7769*b*.
detn. in $Et_2O$, 2075*h*.
detn. of ionic wts by dialysis, 2074*e*
diffuse layer of, in relation to lamella micelles in aq. colloidal electrolytes, 6886*i*.
diffusion in clays and sands, 1542*e*.
dipolar, mutual habit modification of NaCl and, 7772*e*.
distance between, in binary compds., relation to d. and heat capacity, 6499*i*.
distances between, of $NH_4$ and alkali metal halides, 8787*d*.
distribution fluctuation of, electrification of spray drops and, 6039*g*.
effect on adsorption of dye ions by crystd. $PbSO_4$ and AgBr, 8790*g*.
on anisotropic colloids, 4530*e*.
on constitution of $H_2O$, 8243*g*.
on dielec. properties of polar solvents, 7763*i*.
on Fe adhesion to glass and films, 4078*a*.
on mech. properties of soils, 7171*c*.
on plants and soil, 8453*a*.
on shrinkage temp. of collagen, 7113*g*.
on $H_2O$ absorption by bentonite, 3580*i*.
electrocapillary curves of Hg in presence of multivalent, 4545*c*.
electrode-, complexes in the electrode process, energy *vs.* distance for, 4149*c*.
electrodeposition of simple, 2875*i*.
entropy in crystals, soly. of salts and, 1241*i*.
enzyme interaction with small, 4311*a*.
equilibria of, salt effects on, 5265*h*.
equil. with simple and condensed mols., 22*f*, 3693*g*.
equitransferent solns. of, 4082*h*.
exchange of—see also *Bases*.
exchange of, 1227*h*, 1881*c*, 2475*d*, 3264*e*, P 5238*c*.
in acetone purification, P 7953*f*.
in aldol manuf., P 3451*d*.
in alkaloid detn., 4809*i*.
on $Al_2O_3$, 4076*c*, 6035*b*.
in analysis, 2113*g*.
in $As_2S_3$ hydrosols, 5258*f*.
carbide-C analysis by, 4829*c*.
by cellulose sulfoacetate gel, 2432*c*.
in Cr compd. analysis, 7863*a*.
in crystals, 4534*g*.
between crystal surfaces and solns., 6047*e*.
dynamics of, 2067*b*.
equations for, 464*g*.
fiber contraction and, 8237*g*.
fiber shrinking and swelling in relation to, 468*g*.
in flow systems, elution equations for, 464*i*.
in glass surface, 2746*i*.
in glass surface with clay, P 1931*g*.
history of, 6441*g*.
in lab., 3264*e*.
by montmorillonite, surface area and, 6036*b*.
in nitrile purification, P 1794*e*.
in pharmacy, 4423*g*.
in prepn. of milk products, 3942*g*
prepn. of $V_2O_5$ sols by, 8840*a*.
in purification of metal-plating wastes, 4797*a*.
by resins in studying Cr complex formation, 6851*b*.
in salt removal from drilling fluids, P 9426*h*.
in sepn. of Ce (III) and Nd, 6535*e*
in sepn. of Hf and Zr, 4169*b*.
sepn. of pyrimidine nucleosides by, 3423*h*.
in sirup manuf. from raw cane sugar, 6442*a*.
in soils—see *Soils; Soils, analysis*
in solid salts, 4534*g*.
by spodia, 4504*b*.
in sugar manuf.—see *Sugar manufacture*.
in sugar manuf., etc., P 6448*c*
triple-pass countercurrent app. for, 4882*b*.
in waste treatment, 3668*c*
in water purification—see *Water purification of*.
exchange of, and removal from solns., 331*f*.
exchange spots of silicate minerals, reactivity of, 5885*g*.
exchanging substances—see also *Base exchanging compounds, Zeolites*
exchanging substances, P 1618*d*, 7757*c*, 8577*i*.
adsorption of Ca and Mg by resinous, 4176*e*.
adsorption of Cu, Fe and other cations by, in P detn., 5336*g*
aminized and phosphorylated cotton fabric as, in prepn. of oil-seed proteins, 5072*h*.
in analysis, 57*i*.
in analysis of Al or Cr complex tanning liquors, 9507*g*, 9508*d*.
backwashing of, 5139*g*.
catalyst prepn. with, P 4791*i*
as catalysts in tertiary aliphatic alc. manuf., P 8397*g*.
for detn. of cations in natural waters, 791*f*.
detn. of efficiency of, 1881*d*
in detn. of structure of basic Cr complexes with salts of org. acids, 8183*i*.
in food industry, 6747*b*
granular resinous, P 5517*f*.
in identification of compds. involved in discoloration of dried fruits, 5128*i*.
neutralization of, 8237*c*.
from nitropolyhydroxy alc. polymers with polyamine, P 8209*e*.
phenol-HCHO condensation products as, P 5888*b*.
phenolsulfonic acid-HCHO as, P 3376*b*.
plant roots and, 6525*d*.
in preservation of cane sirup and molasses on storage, 7153*d*.
regeneration of, P 3119*f*.
from resinous products and porous materials, P 3119*d*.

*-exchanging substances*, sepn., concn. and purification of fission products with, 4129*c*.
NaCl recovery from sea water by resinous, P 5317*g*.
in $Na_2SO_4$ recovery from sea water (patent no. should be 175,043), P 5317*h*, P 6926*c*.
sulfonate-aldehyde resins, P 2344*f*.
from $H_2SO_4$ sludge from petroleum refining, P 5890*f*.
in textile processing, 6420*e*.
uses of, 8946*c*.
from vinyl ketone polymers with 2-vinylpyridine, P 5231*a*.
whey treatment with, P 4784*g*.
flow of, in metals, 6955*a*.
forces between metals and, 2485*f*.
in glass, 5163*f*, 5251*b*, 5556*i*, 6379*e*.
heat of hydration of, 7318*b*.
heat of transport and mobilities of, 8835*d*.
hydration of, 4930*d*, 6493*a*, 8243*h*.
hydration of, size and, 7301*i*.
interaction in electrolytes, 7301*e*.
at interfaces, 18*a*.
kinetic energy of, nonstationary phenomena in electrolytic solns. and, 4544*b*.
leaching from sandy soils, effect of anion balance on, 1509*d*.
linear lattice of, heat capacity of, 3700*e*.
mesomeric, mol.-orbital theory and, 5241*e*.
metal potential in solns. of foreign, 2874*i*.
in method of spin states, 3672*a*.
migration in counterflowing electrolyte as basis for electrochem. exchange process, 6091*f*.
mobility and size of, viscosity of solns. and, 7299*f*.
movement in soln. by concn. gradient, temp. gradient and elec. field, 8806*b*.
oscillations of, in a crystal lattice, 7339*g*.
parachor of, 8241*g*.
permeability of red blood cells to, effect of narcotics on, 7143*g*.
phosphate replacement by org. and inorg., 3957*d*.
polarization of, soly. of inorg. compds and, 4542*h*.
protein attraction for, 7519*c*.
radii of, in Mg halide systems with alkali metal halides, 2107*c*.
reactions of—see *Reactions*.
redistribution of, in thermal dissocn. of double salts, 7306*g*.
reduction of complex, 925*d*.
refraction increments of, in field of crystal structure, 3683*f*.
removal from fruit and plant juices, P 4398*a*.
from fruit juices, P 4397*a*.
from water—see *Water, purification of*.
in semiconducting liquids, 8780*d*.
silver-halide disorder from, 7772*e*.
in slags, 2556*c*.
in soil, flax ash content and fiber quality in relation to, 9457*a*.
solids contg., dielec. properties of, 6877*f*.
solvation of, 7301*e*.
in titanium dioxide systems with oxides, activation energies of, 5561*d*.
transference nos. of, detn. of, 3728*d*.
transference nos. of, in borax glass, 5656*a*.
transference of, by micelles in nonaq. media, 7780*i*.
transport across animal membranes, tracers in study of, 5482*f*.
transport through frog skin, 4714*i*.
with variable valency as catalysts, 8251*e*.
velocity of, 4544*c*.
in water in heterogeneous terrain, effect of season on, 8581*a*.

**Ions, gaseous.** (See also *Alpha-rays; Cyclotrons; Deuterons; Electric discharge; Electrons; Electron tubes; Hydrogen; Protons; Rays, positive.*)
acceleration of, app. for—see *Accelerators*.
air contg., P 4154*g*.
in air irradiated with ultraviolet light, 4090*h*.
alkali-metal (neg.), in low-pressure discharge in alkali-halide vapors, 1256*c*.
beams of, electrostatic analysis of, 4556*b*.
generation in high-frequency discharge, 2857*i*.
speed gage for, 4091*i*.
bombardment of $B_2O_3$ by $K^+$, electron emission in, 1256*f*.
book: Collisions of, with Gaseous Atoms, 8283*d*.
cloud chambers for—see *Cloud chambers*.
clustering and mobilities of, 8224*b*.
counters for—see *Counters*.
diffusion (ambipolar) of electrons and, 4091*g*.
diffusion of pos., in He, measurement of, 6504*i*, 8774*g*.
distribution across track of ionizing particle, 8854*c*.
effect of pos., on electron mobility, 5660*d*.
effect on living matter, $H_2O_2$ production and, 3058*c*.
electron capture by, 4094*b*.
energy levels of, calcn. of sums of, 39*i*.
focusing (magnetic) of, 3281*a*.
focusing of, in cross fields at relativistic energies, 1641*b*.
of hydrocarbons, potential of, 3288*d*.
large, production in air, 8258*c*.
liberation of, from anodes by electron bombardment, 4941*g*.
of medium velocity, P 2881*a*
of min. ionizing power, photography of, 3706*g*.
mobilities of polyat., mol. wts. and, 4559*a*.
mobility analyzer for, 8848*h*.
neg., of Cs and Rb in CsCl and RbCl vapors, 8868*i*.
of nitrogen ($N_2^+$), in spectrum of elec. arc between Pt electrodes, 40*b*.
orbit control for, in proton synchrotron, 4095*h*.
pairs of, distribution of no. of, in clusters along track $\beta$-particle in air and Ne, 8262*b*.
photographic action of, 2527*a*.
recombination of, in upper atm., 4944*b*.
scattering of, energy loss in, 1255*d*.
of sodium ($Na^-$) in gaseous discharge, 4942*a*.
source of, 3704*e*, 4109*e*.
for Berkeley electrostatic generator, 4093*a*.
for isotopic mass comparisons, 4094*e*
for particle accelerators, 5660*i*.
of Penning type, 4945*j*.
speed gage for, radio-frequency, 8850*e*.
in sun's corona, 1651*b*.
transient from pos., in Townsend discharge tubes, 4091*g*.
of xenon, effect on chem. reactions, 6921*g*.

**Iontophoresis.** (See also *Electrophoresis.*)
of tubocurarine, 3522*e*.

**Iowa Award**, to Spedding, Frank H., 915*f*.

**IPC.** See "isopropyl ester" under *Carbanilic acid*.

**Ipecac**, alkaloid detn. in tincture of, 4810*f*.
alkaloid isolation from, 3975*d*.
effect on stomach lining, 3106*c*.
false—see *Heteropterys pragua* this year.
identification of exts. of, 361*c*.
origin of Johore, 3506*f*
sirup, folic acid prepn. contg., 355*i*.

**IPF 82**, as wood preservative, 5895*a*.

**Ipomoea, Ipomea** (See also *Morning glory; Sweet potatoes.*)
control in bamboo plantations, 5525*c*.
*hederacea*, resins in, 3565*g*.
oils of—see *Oils*.

**Ipomoeamarone***, and semicarbazone, 8453*d*.

**IPPC.** See "isopropyl ester" under *Carbanilic acid*.

**Ipral** (*5-ethyl-5-isopropylbarbituric acid*). (See also *Ipral calcium; Ipral sodium.*)
detection in urine, 1077*b*.
identification of, 8612*c*.

**Ipral calcium**, solubility in iso-PrOH, 3147*i*.

**Ipral sodium**, solubility in iso-PrOH, 3147*i*.

**Ips**, nitrogen fixation by, 3531*e*.

**Ips pini** and(or) **Pine engraver**, host selection by, 1145*d*.

**Iranolin 2241**, as paint material, 3209*g*.

**Irene** (*1,2,3,4-tetrahydro-1,1,2,6-tetramethylnaphthalene*), 5549*f*.

**Irgafen.** See *3,4-Xylamide, N-sulfanilyl-*.

**Irgamide** (*N-senecioylsulfanilamide, N-sulfanilylseneciamide*), calcium deriv., P 7043*b*.
detn. and species specific effects of, 2665*d*.
detn. of, 1908*f*.
effect on pea root growth, 7091*i*.
identification of, 1154*b*, 3974*a*.
manuf. of, P 1060*h*, P 7960*i*, P 7961*ch*.
penetration into eyes, effect of wetting agents on, 3563*g*.
sodium deriv., P 3457*e*.
therapeutic activity of, 3097*g*.

**Iridium.** (See also *Platinum metals.*)
bivalent and trivalent, 6535*g*.
bombardment with $\alpha$-rays and deuterons, Au and Pt isotopes from, 4125*a*.
as catalyst in cracking of $CH_4$, 3773*f*.
as catalyst in HCN synthesis, 9391*i*.
compression of, 4917*a*.
electrodes coated with black, polarization of, 2521*i*.
electroplating with, with reversing current, P 956*d*.
gamma-rays of, energy of, 6075*i*.
isotope of mass 192, from $\alpha$-ray-bombarded U, 4123*e*.
neutron binding energy of, and energy of $\gamma$-rays emitted on neutron capture by, 8861*d*.
neutron fission cross section for, 4127*d*.
nuclear isomerism of, 3280*b*.
solid solns. in Fe, 1300*h*.
sound velocity in, 3256*c*.
system: Sn–, 15*a*, 6137*i*.
thermocouples from, 8217*d*.
uses of, in industry, 532*i*.

**Iridium, analysis**, detection, 8300*g*, 8955*i*.
detn., 2542*e*.
detn. in precious alloys, 5334*b*.
sepn. and detection, 8304*e*.
sepn. from Au, Pd and Pt, 4595*g*.
sepn. from Rh at controlled cathode potential, 8956*c*.

**Iridium alloys**, platinum-, anodic potential, in electrolysis of alk. NaOCl, 6519*i*.
thermocouples from, 8217*d*.

**Iridium compounds**, complexes, induced dissymmetry and optical activity of, 2538*f*.
sulfitoammoniacal, 1676*a*.

**Iridium sulfide**, $Ir_2S_3$, soly. of, 7363*a*.

**Iridocyclitis**, anaphylactic, 5109*a*.

**Iridomyrmex humilis** and(or) **Argentine ant**, control of, 7185*d*.

**Iridophycus flaccidum**, as beverage suspension stabilizer, P 331*e*.

**Iris**, flowering of, delay by 3-indoleacetic acid, 2358*a*.
gaseous losses of N from leaves of, 282*h*.
*graminea, pseudacorus* and *sibirica*, conjugate-unsatd. acids in, 137*a*.
neo-$\alpha$-irone in, 3374*d*.

**Irish moss.** See *Carrageen*.

**Iris oil.** See *Oils*.

**Irmitol**, 4427*c*.

**Iroko**, chlorophorin of, 5388*b*.

**$\alpha$-Irol, dihydro-***, *cis-* and *trans-*, 5549*b*.

**$\gamma$-Irol, dihydro-***, *cis-*, 5549*b*.

**Iron** (See also *Cementite; Ferrite (stee constituent); Magnetic substances; Martensite; Mechanite; Pearlite.*)
absorption of, effect of diet and P on, 8478*i*.
effect of vitamin C on, 8468*b*.
effect of vitamin PP on, 9185*b*.
in pyridoxine deficiency, 6291*e*.
absorption of, and serum content after administration, 6737*i*, 6738*b*.
acicular cast, 2559*a*.
adhesion of particles of, to glass and films, 4077*i*.
adhesion to molten glass, 9400*b*.
adsorption by rubber-latex particles, 7249*d*.
agglomeration of materials bearing, P 1708*fg*.
in alfalfa and red clover, effect of $MnSO_4$ on, 1513*c*.
allotropy of, 3257*g*.
alloy cast, structural diagrams for, 5718*h*.
alpha, pptn. in solid solns. of N and C in, 3758*a*.
alumina wetting with, 4438*c*.
aluminum-alloy cast, 7395*a*.
in aluminum detn., thioglycolic acid as inhibitor for, 2889*b*.
in aluminum ingots, cracking and rolling in relation to, 7880*i*.
anodes, for corrosion prevention, 6560*h*.
Armco, as anode material for water electrolysis, 1704*i*.
corrodibility by electrolytes, 551*c*.
H annealing of, effect on pickle brittleness of, 1701*c*.
H diffusion in, 2560*a*.
thermoelec.-force studies with, 2912*c*.
atomic wt. of, 8764*k*.
austenitic cast, P 5728*g*.
austenitic cast, fatigue and static load strength of, 6554*a*.
bacteria—see *Bacteria; Leptothrix*.
balls for grinding mills from cast, P 3342*d*.
in barley, effect of K on, 9175*d*.
in beer, 1147*d*.
bending test, C equiv., correlation be-

tween mech. test and chem. compn. and practical results in gray cast, 9004*i*.
binding by aspergillic acid, conalbumin, hydroxylamine, siderophilin and other hydroxamic acids, 9211*d*.
binding by blood proteins, 9209*b*.
-binding substances, effect on N fixation by *Azotobacter*, 7173*a*.
blasting shot from, 90*d*.
in blood, effect of CO on readily dissociable, 318*f*, 5864*c*.
effect of drugs on easily split, 8051*e*.
effect of histamine on, 6730*g*.
effect of vitamin $B_1$ on, 4738*d*.
after gastric resection for ulcers, 748*d*.
in normal and pathological conditions, 2312*d*.
in pregnancy, 3086*c*.
in progressive paralysis, 2311*i*.
in typhoid fever, 9224*f*.
in blood plasma in blood diseases, 3076*e*.
in blood plasma of protein-deficient and Fe-deficient swine, 2292*c*.
in blood serum, in allergy process, 5483*h*.
in $C_6H_6$ poisoning, 6730*h*.
in *Brucella* immunity, 9228*e*.
of children, 5475*g*.
after hypophysectomy, 8032*g*.
in kala-azar, 3923*f*.
in pregnancy, parturition and puerperium, 3913*g*.
in trachea stenoses, 3506*f*.
bonderization of—see *Bonderization*.
books: 9886; Molybdenum, 554*a*; Sintereisen und Sinterstahl, 554*a*, 9871, Sintereisen, 2019*f*, 6964*e*; La sidere mia e il ricambio del ferro in condizioni normali e patologiche, 8041*h*; Ausgewählte chem. untersuchungsmethoden für die Stahl- und Eisenindustrie, 9018*a*.
boron effect on cast, 6957*b*.
brazing of, effect of temp. on, 7890*a*.
brittleness (acid) of single crystals of, 7395*f*.
in brookite, color and, 71*h*, 72*f*.
in butter, and effect of washing thereon, 8568*i*.
in calcium gluconate prepn., 8614*g*.
cannon ball, 9005*i*.
cans from lacquered black, 7603*a*.
carbon diffusion and solv. in, 9004*c*.
carbon effect on mech. properties of, 2912*a*.
in carboxypeptidase from pancreas, 3859*h*.
carburization of, P 9019*g*.
gases for, 1698*h*.
mixer and grader for powd. compds. for, P 9019*d*.
carburizing compacts of powd., 2141*e*.
casting of—see *Casting process*.
castings from—see *Castings*.
as catalyst, 8251*e*.
in alc. prepn. from CO and H, 994*e*.
in CO reaction with olefins and H, P 5032*a*.
in chlorination of aromatic hydrocarbons, P 1437*c*.
in chlorination of bis(perfluoroalkyl)-benzenes, 6174*i*.
in chlorination of $CH_2$:CHCl, P 7035*f*.
in chlorite manuf., P 3159*i*.
in decarboxylation of org. acids, 7801*b*.
in decompn. of $NH_3$, 7312*h*.
in decompn. of $H_2O_2$, 5553*h*.
in decompn. of oxalacetic acid, 6497*b*.
in HCl formation in chlorinated paraffin wax, triethanolamine in inhibition of, P 1179*d*.
in hydrogenation of CO, P 840*b*, 2081*a*, 2397*ehi*, 2398*bdghi*, 2400*acegh*, 2401*bdg*, P 3174*i*, P 3175*cdf*, P 4446*h*, 4828*i*, P 5574*b*, 6063*g*, 8117*a*, 9415*h*.
in hydrogenation of CO, regeneration of, P 3994*e*, P 4448*i*, P 8120*i*, P 9420*ah*.
in hydrogenation of CO, S removal and regeneration of, P 1551*h*.
in hydrogenation of CO to gasoline, P 3994*b*.
in hydrogenation of CO to hydrocarbons, P 4447*df*, P 5573*b*, P 6810*i*, P 9420*f*.
in H-atom recombination, 8251*d*.
in isomerization of β-hydromuconononitrile, P 6647*f*.
in oxidation of alc. by $H_2O_2$ and $Na_2S_2O_8$, 5269*h*.
in oxidation of gasoline, deactivation of, 5932*c*.
*as catalyst*, in oxidation of lubricating oil, phenylenediamines in inhibition of, P 1179*f*.
in oxidation of org. compds., deactivators for, P 3840*a*.
in oxidation of org. substances, deactivation by amino aldehyde-amine condensation products, P 4460*a*.
in oxidation of paraffin oil, 2411*b*.
in oxidation of soybean oil, inhibition of, 7723*f*.
in oxidation of styrene by $H_2O_2$, 7311*f*.
in oxidation of vitamin C, 1016*i*.
in polymerization of butadiene, 1598*c*.
in purification of fuel gas, 3172*i*.
in synthesis-gas manuf., P 4836*a*.
catalyst of Al, Cu and, in nitration of paraffins, P 4285*c*.
catalyst of boric acid, Cu, Mn and, in hydrogenation of CO, alkali and temp. effect on, 2397*h*.
catalysts, P 5135*a*.
adsorption of N by promoted, 6036*f*.
adsorption of vapors by, 7288*e*.
for hydrocarbon synthesis, acid treatment of siliceous diluent for, P 7214*e*.
for hydrocarbon synthesis, control of particle size of, P 3832*h*
for hydrogenation of CO, P 4836*h*, P 9420*a*.
for manuf. of liquid hydrocarbons and oxygenated compds., P 6702*g*. pelleted, P 8578*h*.
catalysts of, and its mixts. with kieselguhr in gasoline synthesis, H adsorption by, 2412*i*, 2413*ab*.
catalysts of, and its mixts. with kieselguhr or with kieselguhr, Cu and Mn in gasoline synthesis, CO adsorption by, 2413*e*.
as cathode in electrolytic reduction of 2-methyl-3-buten-2-ol and 2-methyl-3-butyn-2-ol, 994*g*.
as cathode in oxalic acid reduction, 49*f*.
cementation and hardening of, P 9019*h*.
cementation and nitridization of, rate near Curie point, 6018*e*.
cementation of, atms. for, P 5729*c*.
rate of, 472*d*.
with Si, P 4625*d*.
cemented with pure Fe and Cu powders, 2146*f*.
in ceramic industry, 2748*i*.
ceramic-molded-bodies contg., P 5566*a*.
in cerebrospinal fluid, 9201*c*.
in cheese, whey as source of, 3534*c*.
in chem. engineering, 8745*c*.
as chem.-engineering construction material, 1*c*.
chromatography on $Al_2O_3$, 8293*i*.
in citric acid production by fermentation, 814*f*, 9165*h*.
cladding of, with Cu or Cu alloys, P 2154*b*.
classification and strength of cast, 84*e*.
cleaning, 2917*b*.
electrolytic, P 5680*d*.
from heavy-metal compds., P 7405*c*.
cleaning, penetrating and corrosion-loosening compn. for, P 6147*h*.
cleavage and deformation of ingot, fractographic study of, 8320*d*.
cleavage of, 4991*h*.
in coal, 8639*e*.
coatings of, coatings for or coatings on—see *Coating(s)*.
coating pretreatment for, P 5730*i*.
coatings from, by spraying, 986*a*.
coating with, on Al, P 8917*h*.
coating with, on Al or Al alloys for soldering, P 5002*h*.
-cobalt-Ni ratio in meteorites and rocks, 5710*f*.
coke dry quenching in works for, 2555*i*.
colloidal, light polarization by, in rotating magnetic field, 7291*e*.
colloids in toluene, coagulation in contact with immiscible phases, 4926*g*.
coloring of, 5352*h*.
as coloring principle in amazonite, microcline and orthoclase, 6118*i*.
color in green fluorite from, 6116*h*.
color reaction of ions of, with azo dyes, 597*g*.
complex with siderophilin, $CO_2$ and O in formation of, 9211*c*.
compn. of edges and center of cast, 9004*g*.
compression of, 4917*a*.
in concn. cells, 8286*i*.
controlled cast, P 4625*g*.
copper-coated, cladding Be-Cu alloys with precious metals and, P 6966*b*.
copper effect on malleable, 1296*e*.
corrosion-inhibitor adsorption by, 6559*g*.
corrosion of—see *Corrosion*.
corrosion products of, effect on Ni corrosion by steam condensate, 4996*f*.
corrosion protection of, by thermoxyd method, 95*h*.
cosmic-ray-primary absorption by, 4103*a*.
couples with Zn, behavior underground, 6093*g*.
crystn. of castings of, 6135*c*.
crystallochem. electronegativity of ion of, 8231*b*.
crystals of, and oxide film thereon, 84*f*.
crystals of, slip of, 8329*f*.
crystals (single) of, homogeneous yielding of carburized and nitrided, 2558*h*
magnetic resonance absorption in, 4066*h*.
magnetostriction in, 5243*c*.
from recrystn., small isolated crystals in, 4072*c*.
strain-aging and yielding of carburized and nitrided, 7881*e*.
crystal structure of, 4535*g*, 6482*g*.
cutting cast, W carbide in, 3757*h*
for cyclotron electromagnet, 4199*c*.
deficiency in apples, 2722*g*.
in cherries, 2353*b*
in fruit tree, 6773*f*.
in ornamental plants, 2722*g*.
in plants, soil condition and, 7618*i*
in tuberculosis and its treatment, 3509*f*.
deformation and stress of, 82*e*.
deuteron-bombarded, Mn from, 8266*h*
diffusion of Cu and Ti in, and solid solv of Ti in, 8334*f*.
diseases and hazards in industry of, 7888*c*
displacement of, in austenite martensite transformation, 918*h*.
ductile cast, 3328*f*.
in dye bath, $Na_2H_2P_2O_7$ and phosphates in inactivation of, 4856*g*.
effect on adsorption of Cu and Ni by $Fe(OH)_3$, 2544*b*.
on Al and Mg, and its removal, 2143*c*
on Al-Mg-Zn alloys, 3333*h*
on Al soln. in NaOH, 8936*a*
on bactericidal properties of quaternary $NH_4$ compds., 8588*f*.
on brass α/β equil., 3258*g*.
on cathodes for electrolysis of NaCl, 505*a*.
on Cr-Ni alloys, 2918*d*.
on Cu absorption *in vivo*, 3038*g*
on Cu resistance to HCl, 5509*b*
on decompn. of oxalosuccinic acid, 10144*b*.
on dyeing of wool with chrome dyes, 5953*c*.
on grain growth in Al, 5715*f*
on grain size of Al-Cu alloys, 8537*f*
on lespedeza tolerance to Mn, 3067*f*
on magnetic properties of Ce and Mg, 9012*b*.
on metabolism of Ca and P by milking cows, 9313*a*.
on *Mycobacterium smegmatis*, 5441*c*
on oxidation of vitamin C in fruit juices, 9286*f*.
on oxidation-reduction reactions, 4713*e*.
on photometric analysis for cations, 8298*f*.
on polarography of As, 3297*g*.
on polymerization of $C_2H_4$ to lubricants, 384*d*.
on protein fraction of bone marrow, 6262*f*.
on *Proteus vulgaris* and *P. X19*, 1455*f*.
on spectrum of Al, 7338*d*
on stress-corrosion resistance of Al-Mg-Zn alloys, 92*c*.
on tuberculosis, 3509*f*.
on U phase in Mn-bearing Al alloys, 542*e*.
elastic aftereffect in, 6017*g*.
elastic and structural properties of, 9001*g*.
elasticity of, temp. and, 5715*c*.
elec. resistance of, effect of strain aging on, 7881*c*.
elec. resistivity and sp. heat of high-purity, 2559*b*.
elec. skin effect for, 5079*g*.
electrodeposited, cathodic polarization, hydroxide content, hardness and internal stress of, 7353*c*.
electrodeposition of, in vacuum, P 4151*b*.
electrodeposition with Mo, 6923*c*.
electrode potential of, effect of $K_2CrO_4$ on, 8340*e*.
electrodes, detn. of Townsend coeff. in

discharge tube with both Hg and, 6006*h*.
effect of pH, O, and $K_2CrO_4$ on reactions at, 4620*h*.
getters for, 2877*b*.
electron absorption in, 7811*e*.
electron diffraction by, ground in air and in vacuum, 4056*c*.
electroplating on—see *Electroplating;* and the specific materials electroplated.
electroplating with, pitting prevention in, P 4152*bd*.
electroplating with, with reversing current, P 956*d*.
emissivity of liquid, optical temp. scale and, 9004*e*.
emissivity-temp. curves for, 83*a*.
enameled ware—see *Enameled ware*
enameling—see *Enameling*.
for enameling, 7205*e*.
for enameling, detn. of Ni on, 9406*i*.
energy levels of, 6507*c*.
in enzyme activity, 1820*b*.
in epithelium of mammary gland, 738*b*.
equation of state for, 4916*c*.
equil. with $SiO_2$, 23*c*.
equil. with slag, effect of silicic acid on, 2908*h*.
explosive-incendiary mixt. contg. powd., P 8682*i*.
ferric ion effect on $H_2O_2$ reaction with $Fe^{++}$, 6895*b*.
ferrous ion-adrenaline antagonism, 3931*f*.
filamentous bacteria in relation to, 7080*d*.
films on galena, crystal structure of, 6483*e*.
in fluorescin production by *Pseudomonas aeruginosa*, 5078*h*.
fluorite coloration by, 7381*c*.
formation of ions of, from clay minerals by acids and salts, 372*b*.
foundry, manuf. from steel scrap, 8323*f*.
friction of cast, and its use as bearing material, 5716*d*.
in fruits (Italian), 5878*d*.
furnaces—see *Furnaces, blast; Furnaces, electric*.
galvanization of—see *Galvanization*.
galvanized—see *Galvanized iron*.
galvanizing properties of, effect of Ti and N on, 3336*c*.
gamma-alpha transformation in, 4615*i*.
gamma, nitrogen absorption by, 7314*i*.
gamma-ray action on ionization current after passage through, 5282*g*.
gamma-ray-bombarded, neutrons from, 4116*b*.
gamma-ray bombardment of, threshold for reaction in, 4115*g*.
gamma-rays from, after neutron capture, 5282*b*.
gases in cast, 3329*a*, 4199*f*.
grain boundaries of, electron microscopy of, 6553*g*.
in grapevine sap, 3889*f*.
in graphite, 8276*c*.
graphite in cast, conversion of eutectic, into flake, 7395*c*.
graphite in cast, effect of elements on form of, 7395*a*.
graphite nodulizing alloy for, 8336*c*.
graphite (somatoidal) in gray cast, 9004*h*
graphite (spherulitic) formation in cast, 2558*i*.
graphitization of cast, 7877*h*.
graphitization of white, 6134*f*.
in grasses and herbs of hay plots, 4347*i*.
in hair, 3084*d*.
hardening (age-) of ingot, 3757*e*.
hardening cast, P 4999*e*.
hardening (surface) of gray, Te in, 6957*i*.
heat of reaction of ferrous ions with $H_2O_2$ and ionization potential of ferrous ions, 5658*c*.
heat-treatment (isothermal) of cast, 1699*e*.
hot strength of $\alpha$- and $\gamma$-, 1298*d*.
hydraulic fluid for use with, P 5519*c*.
hydrogen penetration into, 7304*h*.
hydrogen peroxide decompn. by ferrous and ferric ions, 2653*i*.
hygiene and first aid in industry of, 8326*g*.
industry in 1946, 2127*cd*.
interaction of ferric ions with silicic acid, 8237*d*.
interfacial tension with fused FeS, 3257*c*.
ions of, as catalyst in the decompn. of DDT by bases, 3697*e*.
ions of, reactions with $H_2O_2$, 6895*c*.
in irrigation water, 3951*d*.
isothermal diagrams, accuracy of, 9001*e*.
isotope of mass 55, cytochrome c labeled with, 1818*g*.
isotope of mass 55, from decay of $Co^{55}$, 5294*h*.
isotope of mass 57, spin of, 8879*b*.
isotope of mass 59, in blood-vol. detn., 8037*h*.
isotope of mass 59, prepn. of, 1260*f*.
isotopes of, biochem. applications of, 7069*d*.
isotopes of masses 55 and 59, erythrocytes tagged with, for measuring post transfusion survival, 7540*a*.
isotopes of, natural abundance of, 1640*f*.
isotopic wt., packing fraction and binding energy of, 4129*h*.
lacquering pretreatment for, 9015*b*.
in leaves and roots of normal and Mn-deficient plants, 1836*h*.
in leaves of forest vegetation, 725*f*.
literature on, review of, 4615*h*.
in liver and spleen, 5106*f*.
in liver and spleen in infections, 5106*i*.
in liver, Co-deficiency ailment and, 8463*c*.
effect of age and sex on, 3894*d*.
of fetal and newborn lambs, 4361*c*.
in infectious hepatitis, 3922*f*.
luminescent substances activated by, 5670*i*.
macrographs of, 8288*h*.
-magnesia ratio in graphic representation of rock analyses, 8992*g*.
magnetic, magnetic properties of, 7394*b*.
magnetization of Armco and Hilger, adiabatic temp. changes accompanying, 3328*e*.
malleabilization of cast, P 988*i*, 8997*f*.
malleable, P 7892*g*.
malleable cast, P 1709*d*, P 7403*h*.
malleable cast, dark spots in, 4618*a*.
malleable, process, graphitization in, 6554*e*.
manganese extn. from, with Be, P 5727*f*.
-manganese ratio in pineapple nutrition, 8018*g*.
martensitic white cast, 93*a*.
mass of, binding energy and, 3702*f*.
mech. properties of cast, 5352*i*.
melted, H reaction with O in, 8822*e*.
H soln. in, 2490*a*.
S activity in, effect of C on, 4930*f*.
melting foundry, slagging-gas producer for, 4611*h*.
melting of, in elec. furnaces, P 5680*b*.
mesotron absorption by, 7325*d*.
mesotron-bombarded, electrons from, 6504*g*.
mesotron-pair production in, 5285*c*.
in metabolism and therapy, 3507*i*.
metabolism inhibition by, mechanism of, 8063*g*.
metabolism of, 287*g*, 202*f*, 5850*b*.
during childhood and its relation to schizophrenia, 9237*c*.
effect of vitamin $B_{12}$ on, 9184*i*.
in infancy, 8520*f*.
in infections and after resection of stomach, 3893*fg*.
radioactive isotopes in studies of, 4710*d*
vitamin C and, 8475*a*.
meteorites—see *Meteorites*.
microsections of, passivation of, 9004*g*.
in milk, and its distribution, 326*a*.
mixt. with $CaSO_4$, x-ray spectrum of, 8326*c*.
molded cryst., electron microscopy of, 5281*e*.
in muscles, in atrophy produced by fasting and by nerve section, 4357*a*.
of cockroach in relation to O consumption, 2333*c*.
in hypothyroidism, 8518*c*.
in ischemic necrosis, 8518*a*.
in myoglobin, 2264*h*.
neutron absorption by, 8854*i*.
neutron binding energy of, and energy of $\gamma$-rays emitted on neutron capture by, 8861*c*.
neutron scattering by, 4944*g*.
nitrogen in, hot galvanizing and, 6957*a*.
nitrogen in pig, 979*i*.
nitrogen in pig, effect on steel, 980*c*.
nodular cast, 535*b*, 4990*a*, 6957*deg*.
alloy for manuf. of, 7885*b*.
manuf. by Mg treatment, 7395*e*.
in orange (Valencia) leaves, effect of rootstock on, 3491*g*.
oxalacetate decarboxylation by, 5839*d*.
oxidation of, 4546*a*.
by air, rate of, 8916*c*.
in aq. soln. by x- and $\gamma$-rays, 2508*a*.
effect of cyanogen and S compds. on rate of, 1246*c*.
kinetic and structural factors in, 7309*d*.
pigments by, 8697*d*.
in spent pickling acids to oxide pigments, 8201*e*.
*oxidation of*, in weathering on Flagstaff Mt., Colo., 2905*f*.
oxide films on, breakdown and repair of, 9005*a*.
oxide films on, in HCl, 6931*c*.
oxygen in industry of, 3755*b*.
oxygen removal from white cast, 7877*d*.
paints for—see *Paint*.
passivation of, P 6143*i*.
passivation of, by adsorption of protein layers, 8246*c*.
passivity, polarization and periodic reactions in $HNO_3$, 7792*ade*.
peroxide reaction with ferrous, 8829*c*.
in perspiration, 4739*e*.
in petroleum, 2139*a*.
in petroleum, age and, 8654*h*.
pharmaceutical prepn. contg. beef, wine and, 6783*c*.
phosphate fixation by, 3957*d*.
pickling—see *Pickling*.
pipes—see *Gas pipes; Pipes; Water pipes*.
in placenta of rodents, 5466*h*.
in placenta of shrews, 7057*f*.
in plant nutrition in relation to P, 8015*i*.
plant requirements for, Mn and, 9313*d*.
poisoning by, effect of dimercaprol on, 763*b*.
polarization in sulfate solns. contg. oxidants, 47*e*.
polishing (electrolytic) of, 2101*c*, 5673*d*.
polishing of sheet, P 2153*b*.
polymorphism of, effect of elements on, 1636*c*.
potential in aerated AcOH, 6520*b*.
potential of electrodes of, in NaCl soln., effect of aeration on, 8906*d*.
powd., P 2879*ac*.
adhesion of nascent, 8322*i*.
adsorption of BuOH, PhOH and $BuCO_2H$ by, 28*c*.
articles from, P 4624*i*.
coating with Cu, P 9022*d*.
crystal hardness and manuf. of, 5714*e*.
crystallite dimensions in, 5252*d*.
decarburization of, P 8566*g*.
as dechlorination agent for org. chlorides, 2194*d*.
decolorization of rice oil with activated, 5611*b*.
electrolytic, P 3733*c*.
expansion and shrinkage in sintering of, 7391*c*.
magnetic properties of sintered, 536*a*, 7390*g*.
manuf. by electrolysis, 2522*c*, 5313*h*.
manuf. by electrolysis and properties of, 7833*a*.
manuf. of, 4611*f*, 4613*h*, 7879*c*, 8324*i*.
manuf. of friction materials contg., 80*c*.
O treatment of articles from, 9000*h*.
permanent magnets from, 2556*f*.
sintered compacts from Si and, elec. resistance of, 9001*b*.
and sintering course for, 2556*h*.
sintering of, 7390*c*.
powd. and sponge, lab. for, 8112*b*.
powder-metallurgy bodies from, recovering surface permeability of, P 8345*f*.
powder metallurgy of, 7879*c*.
with Ag powders, 7879*b*.
sintered steel by, 4990*f*.
precipitation in $ZnSO_4$ soln. with ZnO, 2493*c*.
in preputial gland, 2649*b*.
protactinium deposition on, 7791*g*.
radioactive, absorption and distribution of, 4354*c*.
in measurement of circulating red cells, blood-plasma vol. and distribution of blood in large and minute vessels in shock, 5855*a*.
re-utilization of hemoglobin derived, 7110*a*.
utilization in Fe-deficient and pyridoxine-deficient animals before and after inflammation, 2695*g*.
reaction products with maleic anhydride polymers with Me methacrylate,
reaction products with Me methacrylate polymers with $\alpha,\beta$-unsatd. carboxylic acids, 8202*g*.
reaction of ferric and ferrous, with 1,10-phenanthroline, 2078*g*.
reaction of ferric ion with acetic, hydrazoic and thiocyanic ions, 8935*b*.
reaction of ferric ion with $H_2O$, salt effects on, 5265*h*.
reaction with $NH_3$, 2744*d*.
with $B_2H$, 4238*i*.
with enamels, 2749*b*.

*reaction* with gases, 29*f*, 6053*f*.
with molten Al-Zn alloys, 2148*e*.
with pyrophosphates, 8935*f*.
with $Na_2CO_3$, $Na_2O$, $Na_2O_2$, $Na_2SO_4$ and $Na_2S$, 2109*b*.
with steam in fluidized bed, app. for, P 6873*g*.
with $TiO_2$-contg. slags, 5351*b*.
reduction in stomach, 5473*d*.
reduction potential for, half wave of, 5327*c*.
refractories for malleable-, furnaces, standards for, 4397*i*.
removal from Al, P 6964*g*.
from Al alloys, P 9020*c*.
from Al and Al alloys, P 4998*i*.
from $Al_2O_3$ with Cl, 1922*i*, 1923*b*.
from Al scrap, 6552*f*.
from Al-Si alloys, P 3771*e*, P 6966*h*.
from Al sulfate, P 9397*c*.
from Cr ores, P 103*f*, P 6143*d*.
from cider and wine, 5532*b*.
from clays, 8318*i*.
from clays for catalysts, P 4843*b*.
from cryolite in $Al_2O_3$ manuf., P 1273*f*.
from glass sand, 7653*c*.
from molten Sn, P 554*d*.
from phosphates in analysis, 4182*i*.
from sands, P 4624*h*.
from $Na_2CO_3$, P 6376*h*.
from water—see *Water, purification of*.
from water glass, 1659*e*.
from wine, 2734*c*.
from Zn, P 2921*g*, P 3768*i*.
from Zn and Zn alloys, 6552*a*.
requirement for, menstrual losses and, 5097*a*.
of phytoplankton, 4343*i*.
of *Streptomyces griseus*, 1456*i*.
in respiratory enzymes and pigments, 1816*g*.
review on, 4788*fi*.
in rice in K deficiency, 9176*h*.
in rocks, water content and, 5349*d*.
in rubbers and rubber-bearing plants, 2799*d*.
rubber union to, compounding with P sulfide in, P 6858*g*.
rubbing effect on cast, 9009*c*.
scale removal from, P 3772*d*.
scarfing cast, P 4210*c*.
scrap, in Canada, 1296*h*.
scrap, recovery of plated metal from, 6090*c*.
scratches in, magnetic location of, 7395*h*
in sediments of Black Sea, 5709*i*.
sepn. from Al, 3740*f*.
from Al alloy scrap, P 6965*a*.
from fission fragments, 487*c*.
in silica removal from water, 1127*g*.
silicon-contg. cast, 535*h*.
silicon-contg., for elec. app., 536*d*.
sintered soft, effect of small contents of elements on, 2142*d*.
-slag systems, distribution of O in, 2908*h*.
as soda-ash-manuf. construction material, 99*h*.
in soil, 338*f*.
effect of free Fe oxide and pH on soly. of, 1133*c*.
frenching of tobacco from unavailability of, 338*h*.
solubilization by fermenting org. matter, 7172*d*.
soldering—see *Soldering*.
solid solns. (limited) in, 1300*g*.
solid soln. with Co, neutron studies of order-disorder in, 4130*i*.
soly. in Hg, 7880*f*.
soln. of, in acids, 506*g*.
in acids, effect of Sb salts on rate of, 6140*h*.
in acids, pH and, 1703*d*.
electrolytic, in HCl, 6519*i*.
in fatty acids, 540*d*.
in $H_2SO_4$, rate of, 3336*g*.
in water for flooding oil wells, O removal in reducing, 1954*f*.
in soybean milk and curd, 8476*a*.
spathic—see *Siderite*.
spectral intensity of, concn. and, 8272*f*.
spectrum of, 7858*h*.
from Duralumin and steel electrodes during heat-treatment, 5694*f*.
intermediate coupling in, 1263*d*.
specular—see *Hematite*.
in speiss formation, 1696*d*.
in spinels, 6032*g*.
sponge—see also *Iron, metallurgy of*.
sponge, in steel manuf., 9007*a*.
sponge, manuf. of, P 5818*b*.
standards for, 4614*h*.
standards for malleable, 4202*c*.
in star AR Pavonis, 7335*e*.
in star e Aurigae, 939*a*.
in star ζ Aurigae, 1263*h*.
in star ρ Cassiopeiae, 1262*gh*.
in star γ-Equulei, 1263*g*.
in star HD 45910, 2509*d*.
in star HD 187399, 8882*b*.
in star Nova Cygni 1948, 39*d*, 5302*b*.
in star Nova Herculis 1934, 2092*c*.
in star Nova Persei 1901, 8877*d*.
in star Nova Serpentis 1948, 39*e*, 490*c*.
in star γ Pegasi, 2509*f*, 5301*e*.
in stars α Canis Minoris and α Persei, 5301*f*.
in stars HD 168607 and HD 168625, 8882*c*.
in stars of classes *B* and *O*, 7335*b*.
in stars of late type, 6916*b*.
in stars of *K*-type, 8877*b*.
in stars (novae), 5302*a*.
in steel, 9009*b*.
in stem-end blackening pigment of potatoes, 2677*d*.
strength of, crystallite theory of, 4198*d*.
structure of, 1234*c*, 5353*b*, 7394*g*.
sulfur activity in liquid, effect of Si on, 4991*i*.
sulfur affinity for, temp. effect on, 2558*f*.
sulfur in, 2565*e*.
sulfur in, at equil. with slag, 3755*f*.
sulfur in basic, S in steel and, 8908*g*.
sulfur inclusions in cast, 3757*g*.
in sun, 39*a*, 939*f*, 1651*i*, 3711*ab*, 5300*h*, 6916*a*.
in sun's corona, 1263*a*.
surface energy and tension of, 5653*a*.
surface tension of, 8255*e*.
surface-treatment effect on, 7391*h*.
Swedish industry for, 79*e*.
system: Al-Co-, 3763*g*.
system: Al-Ni-, 8338*h*.
system: Be-, 3763*h*.
system: C-N-, 3765*abc*.
system: Cu-S-, 1637*f*.
system: FeO-$Fe_2O_3$-, 6901*hi*.
system: Mo-, 7881*i*.
system: Ni-, 9006*d*.
system: O-Si-, phase equilibria in, 84*h*.
systems: C-Cr-Mo-, C-Cr-W-, C-Co-, C-Cb-, C-Mn-, C-Ni-, C-Ta-, C-Ti-, C-V-, and C-Zr-, 2914*b*, 6958*b*.
systems: cementite-, and graphite-, 6067*i*.
systems: Cr-, and Ni-, 4074*d*.
systems: Cr-P-, Cu-P-, Mn-P-, and Ni-P-, 5719*a*.
system: Si-S-, 4612*b*.
systems: Mn-, and Ni-, free energy and metastable states in, 9006*d*
systems of ferrous and ferric ions, oxidizing power of, 8245*d*.
system: Sn-, 6136*h*, 6498*b*.
system: S-Ti-, 1252*g*.
systems with C, FeS, metals and S, activities in liquid, 4931*a*.
in tanning—see *Tanning*.
target, *d* value of, 4567*d*.
tensile strength of cast, chem. compn. and, 5353*a*.
therapy with, Blaud's pills and, 1150*f*.
thermally stabilized cast, 6553*h*.
tin displacement by, 8912*i*.
tinned, ghee storage in containers of, 6327*f*.
titanium effect on, for hot galvanizing, 6956*i*.
transcapillary exchange of, 298*d*.
transformation (α-γ) in, 7881*c*.
transmission to fetus, 5466*b*.
uniting of, with B carbide, 9402*b*.
urinary excretion of, effect of acid and alk. salts on, 8556*i*.
in waterproofing resins from aniline, HCHO and di-, tri-, tetra or pentaglycol dichloride, P 2033*b*.
wear of cast, 5721*a*.
welding—see *Welding*.
wire—see *Wire*.
x-ray absorption in, 2088*b*.
x-ray investigation of thin sections of, 4198*c*.
in yeast growth, 5081*c*.
-zinc couple in KCl soln., effect of paint films and time on elec. current intensity in, 6431*a*.
zinc sulfide reduction by, 4936*e*.
zirconium effect on cast, 8325*h*.

**Iron, analysis**, Brit. Standards Inst. methods for, 1283*g*, 1685*h*.
for carbon and Mn steel sorting, 1279*f*.
chromatographic, and detn. of Co and Ni in steels, 4595*g*.
chromatographic (surface), 2115*a*.
for chromium and W steels, 970*g*.
detection, 1680*h*, 2116*f*, 4599*d*, 6932*a*, 7375*i*, 7860*e*, 8299*h*, 8948*f*, 8966*c*, 8972*d*, 8979*h*.
hydrazide reaction products for, 2115*d*.
reagents for, 2541*b*.
detection and detn., 7858*h*.
detection in alloys, 7866*b*.
in Al alloys, 2120*f*.
in blue halite, 6116*i*.
in cells, 5850*f*.
in Cu, 2540*f*.
in corundum powder, 3315*b*.
in tissue, 5437*g*.
detection of carbides in Cr-Mn steels, 1685*h*.
of Fe and Mn sulfides in steels, 4181*a*
of Mn inclusions, 3311*g*.
of volatilized Fe in condensed steam, 3314*a*.
detection of Cr, Co, Mn, Mo and Ni and identification of alloy, highspeed and stainless steels, 8965*e*.
detection of Mn and Si and detn. of C, 3314*h*.
detection on stainless steel, 4178*b*.
detn., 57*c*, 959*h*, 1283*ef*, 1681*d*, 2117*b*, 3309*eh*, 4175*c*, 4597*f*, 4602*e*, 5331*b*, 5698*ac*, 6107*g*, 6113*g*, 6537*d*, 6935*c*, 6938*i*, 7369*g*, 7376*i*, 8298*g*, 8303*a*, 8310*g*, 8947*e*, 8949*e*, 8953*h*, 8979*d*
detn. (omitted from abstract by mistake), 6106*f*.
detn. in alcs., saline solns., etc., solvents in chromatographic, 6537*c*
in alloys and minerals, 5331*c*.
in Al, 2544*f*, 6538*h*.
in Al alloys, 5700*c*.
in Al-Cu-Si alloys, 8307*c*.
in $Al_2O_3$ and Al-Ni$I_3$ alums, 5331*b*
in Al silicate refractories, 9105*a*
in barite, 8970*h*.
in beer, 8607*g*.
in Be and Be compds., 8919*f*.
in biol. materials, 7071*h*, 7998*a*
in biol. materials and paper, 6104*b*.
in blood plasma and urine, 7071*i*
in blood serum, 7535*b*.
in blood serum and tissue, 9133*e*.
in boiler scales and deposits conte phosphate, 7866*f*.
in brass and bronze, 2889*e*, 6539*a*
in brasses, 8307*e*.
in chrome tanning liquors, 5981*f*
in chromite, 7866*i*, 7867*b*.
in clays, 8628*e*.
in cokes and quartz sand, 1971*i* 4972*c*.
in cracking catalysts, 8655*i*.
in culture media prepd. by enzyme digestion of muscle protein, 4321*e*
in electroplating baths, 961*h*, 1150*b*, 8904*a*.
in fats and oils, 8953*i*.
in fats, oils, etc., 879*a*.
in galena, 6934*d*.
in gas-purifying material, 6394*a*.
in glass, 3161*g*.
in grape juice and wine, 3560*a*
in Fe ores and associd. rocks, 5710*b*.
in Fe ores, sinter cake and blast-furnace dust, 965*i*.
in irrigation water, 3951*d*.
in liver and spleen, 5106*h*
in lubricating oils, 4399*f*.
in Mg alloys contg. Sb and Pb, 7360*g*
in MgO, 1287*c*.
in milk, 325*i*.
in minerals, 2544*d*.
in minerals and rocks, 6106*g*.
in Ni, 2118*a*.
in nonmetallic inclusions in steel, 6110*g*.
in oil filters, 6039*a*.
in ores, 4602*b*, 5331*d*.
in ores with kojic acid, 8303*f*
in phosphate rock, 1288*b*.
in plant tissue, 2677*i*, 3314*c*.
in presence of Fe oxide in bloom and sponge Fe, 6106*i*.
in presence of phenols, 7376*b*.
in presence of tartrates 966*a*.
in presence of Ti, 6107*e*.
in rocks and silicates, 6110*b*.
in rubber latex, 5619*e*.
in sediments from Tyrrhenian Sea, 4610*g*.
in $SiO_2$ bricks, 829*d*.
in $SiO_2$ refractories, 7656*c*.
in silicates, 6111*g*.
in Silumin 967*c*.
in soil, 338*g*.
in steam-turbine components, steeloscope in, 6473*d*.

*detn.* in Sn alloys, 7864*g*.
in Ti ores, 7865*a*.
in V slag, 4178*b*.
in Vitallium, 4181*g*.
in vitamin-enrichment mixts., 8066*g*.
in vitamin prepns., 9368*b*.
in water, 790*h*, P 4800*c*, 5139*b*, 5325*i*.
in Zn blende, 8303*g*.
detn. in excess of other metals and detn. of Co, 8303*a*.
detn., liquid Zn amalgam and $CrCl_2$ as reductors in, 5698*d*.
detn. of $Al_2O_3$, 7374*i*.
of $Al_2O_3$ and O, 2546*g*.
of Al, 4175*c*, 5328*de*, 5696*i*, 6938*b*.
of Al, B, Ti and V, 964*f*.
of As, 7865*f*.
of B, 2546*a*, 8302*g*.
of carbide C, 4974*g*.
of carbides, 4181*bd*.
of carbides and slag occlusions, 6111*a*.
of carbides, Cr, Mo and W, 6110*c*.
of carbides in high-speed steel, 7884*a*.
of C, 539*i*, 1285*d*, 6540*c*, 6936*c*.
of C, electronic app. for, 7390*b*.
of C (combined), 8962*e*.
of C, Cr, Mn, Si, P, S and Ni, 501*c*.
of CO, H, N and O, 4199*e*.
of C state in steel, 4993*a*.
of Ce, 1282*d*.
of Cr, 1682*f*, 2117*g*, 8972*b*
of Cr and Fe carbides, 965*d*.
of Cr and Ni, 6938*g*.
of Cr and V, 4176*i*.
of Cr, Mn and Ni, 4598*e*.
of Cr, Mn and V, 4176*i*.
of Cb, 4177*e*.
of Cb and Ta, 2119*b*, 4597*h*.
of Cb and W, 5335*e*.
of Cb carbide in stainless steel, P 522*h*.
of Cu, 965*f*, 4177*h*.
of Cu and Ni, 2544*a*.
of Cu in Ni bearing irons and steels, 5330*g*.
of ferric and ferrous ions in presence of thiocyanates, 4601*i*.
of gases in liquid steel, 4600*i*.
of graphite, 970*b*.
of H, 2907*g*.
of H and other gases, 8964*h*.
of H, app. for, 64*d*.
of H in welds, 8343*a*.
of $Fe^{59}$ in biol. material, 9132*j*.
of FeS and MnS in welded joint, 970*c*.
of Pb, 6930*c*.
of Mn, 2545*d*, 3318*a*.
of Mn and P, 966*f*.
of Mn and Si, 967*d*.
of metallic Fe in powd. minerals, 8303*e*.
of Mo, 1283*i*, 5332*i*.
of Mo and Ti, 5333*b*.
of Mo in Cr steel, 4598*b*
of Ni, 966*a*, P 990*c*, 6939*f*.
of Ni in Cr or Cu steels, 1284*c*.
of N, 1286*a*, 6108*c*, 6557*d*.
of nonmetallic inclusions, 970*d*, 4600*d*, 6111*c*.
of org. Fe, 2042*g*.
of O, 2907*f*, 6108*f*, 8215*h*, 8962*i*.
of O and oxidic inclusions, 6108*h*.
of O, Gotta process for, 8963*b*.
of P, 969*b*, 4180*e*, 6100*c*, 7374*c*.
of P and Si, 911*b*.
of Se, 969*d*.
of Si, 967*g*, 4180*h*, 5337*c*, 5700*b*.
of Si in C steels, 1286*f*.
of Si in Si spring steel, 4974*h*.
of S, 1286*f*, 2546*b*, 6937*b*, 7374*f*, 8961*i*.
of Sn, 1672*e*, 7864*d*.
of Sn in W steel, 6940*e*.
of TiC, P 7870*g*.
of Ti in Cr- and Ni-contg. steel, 5334*i*.
of W, 4178*i*, 5335*a*, 7371*i*.
of unoxidized Fe in Fischer-Tropsch catalyst, 4829*b*.
of V, 4179*c*, 5335*h*, 8306*f*.
fluorescence, 961*d*.
micro, by electron diffraction, 7397*b*.
precision and nature of errors in, 519*e*.
reviews on, 1686*a*, 2888*h*.
sampling during blast-furnace tapping, 4193*f*.
sepn., detection and detn., 2888*h*.
sepn. from Al, 7862*a*.
from Be, 1681*h*, 6538*g*, 7862*b*.
from Co, Cu or Ni, 8973*c*.
from Ga, 7367*i*, 8952*f*.
from Mg, 4698*a*.
from Ni, 5333*g*, 7371*d*.
from Zn, 7372*g*.
sepn. from Al, Ti and V and detn., 7859*g*.
sepn. in Fe-alloy analysis, amyl acetate as solvent in, 2541*d*.
sepn. of carbides from steel for, 4992*d*.
spectrochem., 2546*d*, 5695*c*.
accuracy in, 2546*c*.
with auxiliary electrodes, 2546*d*.
of Cr and Mo steels by spark test, 8965*d*.
of Cr-Ni steels, 8965*b*.
effect of dimensions and mass of samples in quant., 6540*i*.
for gray Fe, 966*b*.
for heterogeneity and inclusions, 2541*a*.
with Spekker absorptiometer, 6941*a*.
variations of lines emitted during, 5694*g*.
of very small samples of steel, 6541*c*.
time study of, 959*g*.

**Iron, metallurgy of.** (See also *Casting process; Converters; Cupolas; Furnaces, blast; Furnaces, electric; Iron alloys; Iron ores; Steel.*) P 1708*h*, P 2152*f*.
from alumina-manuf. residue, P 4435*c*.
from alumina-manuf. residue and pyrite, 4997*a*.
analysis in, 2888*h*.
app. for, P 2524*d*, P 5727*f*.
from bauxite ores, 8997*d*, 9000*d*.
blast-furnace gas in reduction of Lorraine ore, 527*h*.
blast-furnace (large) operation, 4195*d*.
blast-furnace process, P 7891*h*
coke d. and, 4195*e*.
coke quality and, 79*a*, 9417*d*.
compensated charging and segregation in, 8324*d*.
contour, gas compn. and movement detn. in furnace in, 7878*d*.
effect of sized and sintered ores on, 7388*hi*, 7389*a*.
effect of segregation of charge on, 8999*f*.
effect of sinter on, 4196*a*.
gas permeability of coke and efficiency of, 4195*h*.
H control in, 6552*g*.
Fe-ore compn. and oxidation state in detg., 6951*g*.
lime savings in, P 2919*i*.
oxidizing zone with O-enriched blow, 2907*i*.
O-enriched blast in, 79*e*, P 7891*g*, 8323*h*.
for phosphoalloys, 1296*i*
rapid analysis for, 4193*f*.
starting furnace in, P 6965*f*.
S behavior during, 2565*e*, 3755*g*, 7389*a*.
S removal in, 79*b*, 2555*g*, 5713*h*.
S removal in, as SiS, P 7893*f*.
V in, 4986*i*.
blast-furnace process, S in, and desulfurization of pig Fe over SiS, 4612*b*.
books: 1708*a*; Manuf. of Iron and Steel, 4997*i*; Sintereisen, 6964*e*.
from briquets, 2517*h*.
carbon dioxide and O in, P 9019*d*
carbon monoxide reduction in, P 2879*c*.
cast Cu-Fe alloy from ore and scrap, P 2922*a*.
cement manuf. and, 4825*i*.
with coke ore formed from ore fines and noncoking coal, P 6562*d*.
coke saving in, 6552*h*.
cristobalite formation during, 2910*h*.
direct reduction in, Krupp plant for, 8997*c*.
in elec. furnace, 4959*e*, P 4963*d*, P 5318*a*, 7833*a*, 8283*g*.
in elec.-gas furnace combustion, P 5318*b*.
electrolytic recovery, P 2879*d*.
from $Fe_4B_2$, P 6562*c*.
from $FeCl_2$ liquors, P 7358*b*.
from Fe sands, P 6526*d*, P 7838*b*
from oxide suspension in lye, P 6526*e*.
from scrap, P 4153*c*.
equil. in reduction in, 8323*e*.
in fluidized bed, app. for, P 6873*g*.
in gaseous medium, P 2566*d*.
from grinding dust and slime, P 4153*d*.
from hematitic ore, as diffusion-controlled reaction, 4932*f*.
lead removal from cast Fe, P 5358*a*.
from lean ores, 5711*g*.
lignite in, P 5727*f*.
liquid fuels in, 3591*c*.
magnetite prepn. for, 529*c*.
magnetization roast of ores, 3326*e*.
with manuf. of $Al_2O_3$, hydraulic cement, etc., 2395*e*, P 6143*d*.
nickel-Fe alloy manuf. from ore, P 5726*h*.
nodulizing flue dust and Fe fines in rotary kiln, 7891*g*.
ore prepn. for, 79*f*.
by oxide-ore reduction with gases high in H and methane, P 4208*i*.
oxygen distribution between Fe and slag in, and effect of silicic acid on equil. between Fe and slag, 2908*h*.
oxygen removal, P 3768*i*.
oxygen use in, 3755*b*, 8998*c*.
phosphate process, 4988*i*.
phosphorus removal with $Na_2CO_3$, 7878*h*.
from phosphorus-rich, Si-rich, S-rich or Ti-rich ores, P 554*g*.
from powd. ore or sand, elec. furnace for, P 6925*h*.
powd.-ore reduction in gas stream, P 9019*c*.
pyrite-cinder treatment by the Henderson process for recovery of Pb and Sn before, 2141*g*.
recuperators in, 979*h*.
reduction of Al-Fe ores for magnetic sepn. 8995*h*.
refining (electrolytic), 5313*h*.
review on, 8997*c*.
rotatable furnace process for, 2152*c*.
salt-type lattice ore working, 528*i*.
from scrap, P 6562*d*.
slag in, theory of, 2556*c*.
sponge Fe production, 3754*h*, 5353*e*, P 7403*fg*, 7881*f*.
from Apache iron ores, Arizona, 7383*h*.
reduction accelerator for, P 3769*a*.
from sulfide ores, P 9018*d*.
sulfur removal, P 3440*c*, P 7891*f*, 8326*b*.
with $CaC_2$, P 6143*c*, P 7404*b*.
in ladle, 531*d*, 4989*i*.
Mg addns. and, 9005*c*.
from ore, P 5574*d*.
from pig Fe, P 1306*e*, 2555*i*.
from Si-contg. cast Fe, P 3770*a*.
sulfur removal with production of wrought-Fe sponge ball, P 2566*h*.
from Surigao Fe ores, 1291*i*.
from taconite, 4987*f*.
temp. in measurement and control in, 6552*c*.
thermodynamics of substances in, 2907*e*, 9006*g*.
near Ticehurst in Sussex, history of, 2477*d*.
from titaniferous ores, P 554*c*, P 1306*d*, 5351*b*, P 6142*h*.
in U.S.S.R., 4611*f*.
from wastes, P 8345*a*.
wastes from, recovery of Ga, In and Tl from, 5554*e*.
waste waters from, publications on, 7170*b*.
zinc in ore used in, combating effect of, 2907*c*.

**Iron alloys.** (See also *Alloy 121; Bronze; Corrosion; Deltamax; Discaloy; Durviron; Elinvar; Fernico; Hastelloy; Inconel; Invar; Magnetic substances; Mechanite; Nichrome; Ni-Resist; Peramalloy; Refractaloy; Refractaloy 26; Silichrome; Steel; Supermalloy; Worthite;* and "system" under *Iron*.)
aluminum-, Al-Cr-, Cr-, Cr-Ni-, Cr-Si-, and Si-, oxidation resistance of, 2150*a*
aluminum-, Al extractive distn. from, with halides, P 5728*f*.
Al production from, P 5728*d*.
crystal boundaries in, during melting, 8336*e*.
superstructure formation in, 9001*i*.
aluminum-C-Cr-Mn-Si-Ti-, cold-rolled strip of, 4206*a*.
aluminum-Cr-Co-Cu-Mn-Ni-Si-Ti-, P 7404*e*.
aluminum-Cr-Mn-Mo-Si-Sn-Ti-V-, P 6563*g*.
aluminum-Cr-Mn-Si-W-, and Cr-Mn-Si-Ti-W-, magnetic, P 6966*g*.
aluminum-Cr-Ni-, elec. resistors of, P 2878*g*.
aluminum-Cu-Mg-Mn-Ni-Si-, heat-treatment of, P 6563*h*.
aluminum-V-, for thermocouples, P 6966*i*.
analysis of, 970*f*, 1686*a*.
for Cr and V, 4176*g*.
for Mo and Ti, 5333*b*.
for trace constituents, amyl acetate as solvent in, 2541*d*.
antimony-Mn-, magnetic interactions and magnetic susceptibility of, 4911*g*.
austenitic white cast, heat-treatment of, P 1709*f*.
beryllium-C-, 543*d*.
book: Metalli nonferrosi e ferroleghe, 3339*a*.
boron-, B extractive distn. from, with $BCl_3$, P 5728*f*.

boron carbide-contg., P 8347*g*.
carbon-, age-hardening of, 4205*h*.
effect of B on hardenability of, 3333*a*.
lattice spacing of retained austenite in, 4205*g*.
viscometry of, 531*d*.
cerium detn. in pyrophoric, 8950*c*.
as chem.-engineering construction material, 1*d*.
chromium-, and Cr-Ni-, color metallography of, 79*i*.
chromium-, and Cr-Ni-, in ceramic industry, 2748*i*.
chromium-, and Cr-Si-, compns. for manuf. of, P 5729*h*.
chromium-, and Cr-Si-, low in C, 2553*h*.
chromium-, and manganese-, from oxide ores, P 2152*d*.
chromium-, and Ni-, high-temp. strength and melting temp. of, 90*f*.
chromium-, anodic oxidation in NaOH, 8912*a*.
C detn. in, 1283*h*, 1285*d*.
$(Cr,Fe,Mn)_7C_3$ trigonal crystals in, 1686*a*.
flux for welding of, P 3344*b*.
magnetization of elastically distorted, 9013*b*.
occlusions in, 8331*f*.
purification of, P 6146*b*.
reactions in vacuum, 29*g*.
reactions with gases, 6053*f*.
for turbine buckets and wheels, P 5729*g*.
wire from, for sealing to glass, P 8918*f*.
chromium-Co-, as mirror support, P 4441*e*.
chromium-Co-Cb-Mn-Mo-Ni-W-, for gas-turbine rotor disks, 3331*c*.
chromium-Co-Cu-Mn-Ni-, age-hardenable, P 9020*g*.
chromium-Co-Mn-Mo-Ni-W-, for turbosupercharger buckets, P 3341*b*.
chromium-Co-Mo-Ni-Si-, as weld-rod material, P 3771*f*.
chromium-Cu-Mo-Sn-, magnet from, P 5000*i*.
chromium-Co-Ni-W-, for hard-facing valves, P 9021*b*.
chromium detn. in, 965*bc*.
chromium-Mn-, P 7894*d*.
chromium-Ni-, 7887*h*.
cast, heat-resistant, 8337*a*.
compn. and mech. properties of bars, rods and sections of, 5718*i*.
corrosion resistance at high temp. in controlled atm., 2918*b*.
creep-resistant, P 990*h*.
for gas turbines, minor phases in, 540*g*.
heat resistance of, 4206*c*, 8332*f*.
heat-resistant, P 4210*h*.
for heat-treating equipment, 2150*b*.
standards for wire of, 5719*a*.
chromium-Ni-W-, resistant to Pb compds, P 2154*e*.
cladding of, with Cu or Cu alloys, P 2154*b*.
cleaning, penetrating and corrosion-loosening compn. for, P 6147*h*.
coating of, with black oxide glaze, P 8346*b*.
with phosphates, P 8345*h*.
with Zn or Zn alloys, P 3342*e*.
coatings (primer) for, deterioration in atm., 3212*a*.
cobalt-, and W-, spectral emissivity of, 941*d*.
cobalt-, effect of magnetic field on recrystn. of, 8768*b*.
emissivity-temp. curve of, 83*a*.
order-disorder transformation in, magnetostriction and, 4060*b*.
W-carbide binding with, P 4822*d*.
cobalt-, Ni-, and Co-Ni-, magnetic properties of, 7394*b*.
cobalt-, Ni-, and Si-, magnetic properties of sintered, 536*a*.
cobalt-V-, magnetic and mech. properties of, 8338*a*.
columbium-, and Ta-, analysis for Cb and Ta, 2119*b*.
columbium-, and Ti-, mech. properties of, diagram of state and, 1299*g*.
columbium-Ni-, for glass sealing, P 6145*i*.
columbium-, Ti-, and Ta-, H soln. in liquid, 2490*a*.
constitution of, 8337*i*.
copper-, P 2922*a*.
corrosion of, control of, 2564*e*.
forgings from, 3329*f*.
copper-Ni-, diffusion in, 3761*i*.
copper-Ni-P-, abrasion- and corrosion-resistant, P 3342*i*.
copper-Zn-, as bearing metals, 80*h*.
crusts in elec. furnaces, app. for breaking, P 7357*g*.
diffusion coeffs. in, 3334*b*.
elec. resistance and magnetic properties of, 6961*d*.
emissivity of liquid, 9004*e*.
forgeable, 4203*i*.
for gas turbines, P 556*b*.
hardening and softening of binary, 4618*h*.
industry in 1946, 2127*b*.
industry in U.S.S.R., 4614*c*.
iron detn. in, 5331*c*.
magnesium-Si-, for graphite nodulizing, 8336*d*.
magnesium-Si-, for manuf. of nodular cast Fe, 7885*b*.
magnetic, P 6966*gh*.
manganese-, and Mn-Ni-, 8338*e*.
manganese-, blast-furnace gas from smelting of, 2555*h*.
N losses by HCl in N detn. in, 1285*i*.
prepn. of Mn-Cu alloys from, 9013*f*.
properties of, 8338*c*.
for welding electrode, P 3344*c*.
x-ray spectrum of, 7333*h*.
manganese-, Cr-Ni-, and W-, powd., P 2879*b*.
manuf. of, in cupola, P 8347*f*.
in elec. furnace, P 2878*c*.
elec. furnace for, P 3299*e*.
thermodynamics of, 4546*c*.
molybdenum-, and Ni-, crystn. of castings of, 6135*d*.
molybdenum-, and W-, analysis for Mo and W, 8958*e*.
molybdenum detn. in, 4601*g*.
molybdenum-, magnetic, P 9020*h*.
molybdenum-Ni-, cooling after hypertempering of, 6961*b*.
molybdenum-, prepn. of $NH_4$ molybdate from, 4819*c*.
nickel-, and Ni Cu-, electrolytic polishing of, 2101*c*.
nickel-, and Pt-, effect of elastic deformation on magnetization of, 4529*d*.
nickel-Be-, for thermally compensated recording pen, P 2922*b*.
nickel-, crystal structure of foil of, 8858*h*.
effect of magnetization on temp. on, 3673*e*.
effect of stress on Hall e.m.f. in, 3765*e*.
elasticity of, temp. and, 5715*c*.
manuf. from ores, P 5726*h*.
neutron scattering by, 5287*a*.
order-disorder reactions in, properties and, 6959*d*.
for springs in thermocompensated oscillating systems, P 4626*e*.
Widmanstätten structure in, 9005*g*.
nitrogen-, kinetics of N evolution from, 4933*d*.
oxide films on, 985*h*.
phosphorus-, animal-feed supplement from, 7158*h*, 7159*a*.
blast-furnace process for, 1296*i*.
Si removal from, P 7893*d*.
phosphorus detn. in, 5336*g*.
platinum-, ordering rate in, 3260*f*.
polymorphism in, 1636*c*.
silicon-, acid-resistant, 9005*e*.
balances in arc-furnace smelting, 3295*i*.
as catalyst in the prepn. of chlorophenylsilanes, 1027*h*.
compds. in, 7885*f*.
in corrosion prevention by $H_2SO_4$ in petroleum refineries, 8128*c*.
effect of orientation difference on grain boundary energies in, 2557*e*.
electrodes for manuf. of, 8899*f*.
grinding of, 2913*f*.
in Mg manuf., P 5728*i*, P 6146*e*.
manuf. from quartzite, reactions in, 4195*a*.
phase changes in, 4994*h*.
by powder metallurgy, 2562*d*.
quartz about Mysore for manuf. of, 2134*e*.
rate of $SiO_2$ reduction with, 5687*h*.
reaction with MgO, vapor pressure of Mg in, 4932*c*.
resistance to $HNO_3$ of coatings from, on steel, 545*h*.
rotors, etc., of, by powder metallurgy, 1308*e*.
$SiO_2$ reduction in manuf. of, 4582*h*.
sorting by thermoelec. method, 543*c*.
thermomagnetic Nernst effect in crystals of, 5221*f*.
silicon detn. in, 967*i*.
soln. in acids, pH and, 1708*e*.
strategic, 6550*i*.
tin detn. in, 2889*h*.
tin-, Sn extn. from, P 6965*c*.
titanium-, in deoxidation of white cast Fe, 7877*g*.
titanium-V-, manuf. from Fe sand, P 7838*b*.
tungsten-, cast, 6555*b*.
electrodeposited, 7834*b*.
electrodeposition from citrate bath, 45*h*.
refining by electrolysis, 5313*h*.
soln. in solvents requiring no Pt ware, 8957*d*.
vanadium-, 1297*f*.
vanadium-, formation of merwinite or its solid solns. with Ca silicate or forsterite in slag from making, 1691*c*.
zinc-, attack in galvanizing, 3336*a*.

**Iron alum.** See *Alums*.

**Iron ammonium alum.** See *Alums*.

**Iron ammonium citrate.** See *Iron preparations*.

**Iron ammonium sulfates.** (See also *Alums*.) 4172*i*.
$Fe(NH_4)_2(SO_4)_2$, absorption of heat and light by solns. of, 7821*i*.
as initiator in polymerization of methacrylates in wool, 8142*d*.
magnetic pp. from solns. of, 7763*b*.
mixt. with $I$, $Cl_2$, liquefaction by trituration, 7767
oxidation of $^{++}$ in, by x- and $\gamma$-rays, 2508*b*.
$Fe(NH_4)(SO_4)$ and its tanning value, 7245*e*.

**Iron antimonide**, $FeSb_2$, bonds and interat distances in, 2052*c*.

**Iron arsenates**, compn. of, 8296*b*.

**Iron arsenites**, compn. of, 8296*b*

**Iron blue.** See *Prussian blue*.

**Iron boride**, $Fe_4B_2$, manuf. and use in manuf. of borates and Fe, P 6562*b*

**Iron boroferrate(III)**, 4968*f*.

**Iron bromides.**
**FeBr₂**, lattice energy of, 2829*f*.
**FeBr₃**, as catalyst in bromination of $C_6H_6$, 2851*h*.
manuf. from sea water, and its use in purification of Br, etc., 4819*d*

**Iron carbides.** (See also *Cementite*.)
detn. in steels, 965*d*, 6111*b*.
formation and properties of, 3765*d*.
formation in Fischer-Tropsch Fe catalyst, 8117*d*.
heat and entropy of fusion of, 477*c*
identification of $Fe_7C_3$ and $Fe_3C$ in steels, 1685*i*.
review on, 7361*g*.
sepn. from steel, 4992*c*.
in steel, 3764*b*.
**FeC₂**, in dark spots of malleable cast Fe, 4618*a*.
**Fe₇C**, in Fischer-Tropsch synthesis, 1636*a*
modifications of, properties and identification of, 3699*h*.
**Fe₃C**, crystal structure of, 2914*b*, 6958*b*.
in molybdenum steel, 7397*h*.
in steel, 6134*i*.
**Fe₂C₃**, 3765*d*.

**Iron carbonitrides**, review on, 7361*g*.
**$Fe_3C_2N$**, 3765*c*.

**Iron carbonyls**, complexes, as catalysts for trimerization of $C_2H_2$ and its derivs., 6202*d*.
effect of detonation, ignition and oxidation of vaporized gasoline and pentane, and increased antiknock effect therefrom, 7674*f*.
effect on oxidation velocity of pentane, 2411*i*.
manuf. of, P 1162*a*, P 7652*c*.
toxicity of, 1867*f*.
**$Fe(CO)_5$**, bonds in, 8764*a*.
as catalyst in furan manuf from 2-furaldehyde, P 5047*h*.
effect on crit. compression ratios for knock of hydrocarbons, 5576*g*.
flame of $C_2H_2$ and, 4958*c*.
toxicology of, 5514*g*.

**Iron chlorides**, as catalysts for condensation of 2-furaldehyde with pheuol, 5224*h*, 5225*i*.
as catalysts in tetrahydrofuran cleavage, P 4284*d*.
effect on acetylcholine action, 3903*b*.
**FeCl₂**, activity and osmotic coeffs. of, 22*d*.
antiferromagnetism of, 11*a*.
formation on Fe electrodes aerated in NaCl soln., 8906*e*.
formation on steel by Cl-contg. lubricants and frictional properties at extreme temps. and pressures, 2417*i*.
hydration of, activity and, 7302*b*.
lattice energy of, 2829*f*.

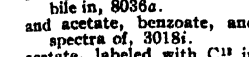
manuf. of $Fe_2O_3$ and HCl from, P 6375*i*.
recovery of Cl and Fe by electrolysis of, P 7358*b*.
soly. and vapor pressure of hydrates of, 6066*f*.
system: $NH_4Cl$-$H_2O$-, 6002*d*.
$FeCl_3$, anionic ferric ion liberation from, by $Na_2SO_3$, 7245*d*.
arylamine reaction with alkyl vinyl ketones in presence of $ZnCl_2$ and, P 1443*e*.
arylamine reaction with 4-methoxy-2-butanone and its di-Me acetal in presence of $ZnCl_2$ and, P 1443*h*.
catalyst alone and with active C in chlorination of bis(perfluoroalkyl)benzenes, 6174*f*.
catalyst contg., for combustion, P 4835*f*.
as catalyst in acetal formation from butyl vinyl ether and phenols, 3783*e*.
in $C_2H_2$ reaction with HCHO and HCl, P 5035*b*.
in $C_2H_2$ reaction with HCl, 6969*h*.
in bromination of $C_{10}H_8$, 2851*h*.
in chlorination of methyl silanes, P 3441*e*.
in chlorination of phthalic anhydride, P 3463*i*.
in chlorination of $C_2F_4$, 6071*a*.
catalysts contg., in olefin reaction with H halides, P 6218*e*.
catalysts of $AlCl_3$ and, in isomerization of paraffins, P 8667*b*.
chlorinated-polythene treatment with, P 9534*b*.
color reactions with β-dicarbonyl compds., 1007*g*.
complexes with isoxazolium compds., 7020*i*.
compd. with NOCl, 3305*h*.
corrosion of Cu-Au and Au-Ag alloys in solns. of, 7879*e*.
crystal structure of, 8782*i*.
decompn. potential in molten $AlCl_3$-NaCl, 8915*e*.
dehydration of tetra- and hexahydrates of, with $COCl_2$ or $SOCl_2$, 2533*c*.
in hydrogen halide removal from halogenated hydrocarbons, P 5424*b*.
in $H_2S$ reaction with olefins, P 5790*i*.
in isomerization of methoxychloropentenes, 131*a*.
in manuf. of chloro formals, P 4685*g*.
in reaction of alkyl halides with thiols, P 6646*d*.
diffusion of solns. of, in photogravure, 5684*a*.
effect on cornea, 771*c*, 3110*h*.
electrolysis of, colloidal soln. formation in, 5675*i*.
extn. with ether, app. for, 2042*g*.
extn. with $(iso\text{-}Pr)_2O$, 2489*g*.
in halogenation of unsatd. hydrocarbons, P 3436*h*.
in hardening of tung oil, 5605*e*.
interaction with silicic acid sols, 8237*d*.
iron(II)-ion diffusion through semipermeable membrane into, potentials of, 6893*f*.
magnetic ppts. from solns. of, 7763*b*.
mixt. (molten) of KCl, NaCl and, condensation of $C_2H_2$ with $NH_3$ in presence of, 3778*g*.
mixt. with $Fe(NH_4)_2(SO_4)_2$, liquefaction by trituration, 7767*c*.
as promoter in $HgCl_2$ catalyzed manuf. of Lewisite, P 5412*c*.
reaction product with $NaAsO_2$, 8296*c*.
reaction with $BrF_3$, 3739*e*.
reaction with Hg and potential with Hg and Pt, 2875*c*.
in stabilization of solns. of polythionates and polythionic acids, P 7651*h*.
temp. control of soln. of, in still etching in photoengraving, 5684*a*.
as termite repellent, 9341*e*.
volatility of, 4068*b*.
**Iron cholesteryl sulfate***, 6641*g*.
**Iron chromium tungsten carbide**, $(Cr,Fe,W)_3C_2$, crystal structure of, 2914*b*, 6958*b*.
**Iron citrate, formation of**, 1660*c*.
**Iron compounds.** (See also *Ferricyanides; Ferritin; Ferrocyanides; Iron carbonyls; Iron preparations; Pigments.*)
acetato, formation of, 8935*c*.
with antimony, As, N, O, P, Se, Si, S and Te, magnetic properties of, 6018*d*.
with azo pyrazolone dyes, P 857*g*.
bipyridyl complex, formation of, 3895*d*.
-yl hydride ($H_2Fe(CO)_4$), acid properties, ionization and K salts, 8809*g*.
carbonyl hydrides, reactions with organolead bases and $Me_3TlOH$, 4896*b*.
as catalysts in oxidation of cyclic ethers, P 2224*e*.
cement contg., P 6388*h*.
coloring of amethyst, halite and fluorite by colloidal, 8313*b*.
complexes, as catalysts for trimerization of $C_2H_2$ and its derivs 6202*d*.
crystal structure of $K_3FeCl_5.H_2O$, 8301*g*.
effect of pH on color and ionization of, 3306*h*.
$[Fe(OH)]^{+2}$ and $[Fe(O_2H)]^{+2}$, 5690*g*.
$[Fe(S_2O_3)]^+$, 6536*b*.
formation with $NH_3$+ citrate, 7863*c*.
$(NH_4)_3[FeF_5H_2O]$, mixed crystals with erythrosiderite, 3748*i*.
stability of, 4969*c*.
structure of $(NH_4)_2FeCl_5.H_2O$, 3301*f*.
structure of $K_3[FeCl_5OH_2]$ and $(NH_4)_2[FeF_5OH_2]$, 3747*i*, 3748*i*.
complex org., as polymerization activators, 8727*f*.
cyano, 1676*f*.
with α,γ-dihydroxy-β,β-dimethylbutyric acid, P 4816*h*.
with α,γ-dihydroxy-β,β-dimethylbutyric acid and Na salt, P 8619*f*.
with 3,5-diiodo-4-oxo-1(4 *H*)pyridineacetic acid, 5780*f*.
exchange reactions between Fe(II) and Fe(III) in, 8272*a*.
ferrides in Fe ores, Fe-bearing rocks and rocks assocd. with Fe ores in Sweden, and their geochemistry, 5710*be*.
ferrides in sediments from Tyrrhenian Sea, 4610*f*.
fluoride complexes, 7857*b*.
gels of $Fe(CNCH_3)_6Cl_2$, 922*g*.
with gluconic acid, 5743*h*.
histidine complexes, 7856*d*.
intermetallic, formation in Fe-alloy manuf., 4540*c*.
in isopropyl ether during extn. of $FeCl_3$, 2489*i*.
with lecithin and phytic acid, P 5156*d*.
with molybdenum (FeMo and $Fe_3Mo_2$), 7881*i*.
with molybdenum ($Fe_3Mo_2$) in steel, 7397*i*.
of nicotine salts, P 8605*b*.
nioxime complexes, 6932*d*.
of nitroso-2-naphthol, P 3650*f*.
*N*-nitroso-*N*-phenylhydroxylamine deriv., soly. of, 2488*g*.
nitrosyl complexes, 3303*i*.
organo lead carbonyls, 2111*e*.
phenanthroline ferrous, kinetics of formation and dissocn. of, 1630*h*, 2078*h*.
phosphate fertilizers and, 2724*f*.
photochem. after-effect in decompn. of $H_2O_2$ by $K_4Fe(CN)_6$ caused by $K_3Fe(CN)_5H_2O$ and $Na_3Fe(CN)_5H_2O$, 6088*a*.
with porphyrins—see *Hematins;* and the various porphyrins, such as *Mesoporphyrin*.
reaction of ferric, with thiocyanates, effects of $[NH_4]_2S_2O_8$, $BeSO_4$, light, $H_2SO_4$ and temp. on, 8310*f*.
reduction with Jones reductor, 5688*d*.
removal of, from steam in butene dehydrogenation, P 7950*g*.
removal of insol., from rubber dispersions, P 4326.
with salicylic acid, reaction with Al salts, 2536*e*.
in soil, 1133*e*.
in stabilization of vinyl halide resins to heat and light, P 8742*h*.
tanning by—see *Tanning; Tanning materials*.
with tartaric acid and its salts, 5745*f*.
as termite repellents, 9341*e*.
with tin ($FeSn_2$) in Sn plate, 8284*f*.
α,α′,α″-triaminotriethylamine complexes, stability of, 8812*e*.
tris(2,2′-bipyridyl)ferrous ion, instability const. of, 8814*h*.
**Iron cyanide**, $Fe(CN)_2$, heat of formation and lattice energy of, 2830*a*.
**Iron cyanoplatinate(II)**, $FePt(CN)_4$, prepn. and reduction to PtFe, 3260*f*.
**Irone**, isomers, 3376*c*.
isomers, nomenclature of, 5550*c*.
in perfumery, 1909*i*.
structure and synthesis of, 6365*g*.
——, **tetrahydro-**. See *2-Butanone, 4-(2,2,3,6-tetramethylcyclohexyl)-*.
**α-Irone**, *p*-bromophenylhydrazones of stereoisomers of, 5550*a*.
*cis*(2,6)-, and derivs., 5549*d*.
*cis*- and *trans*-, spectra of, 3375*h*.
*cis*(2,6), *trans*(2¹,2¹)-, in iris, 3374*d*.
4-phenylsemicarbazone, 3375*d*.
spectrum of, 3375*h*.
constitution of, and synthesis of derivs., 2371*i*.
derivs., 1909*i*.
derivs. of stereoisomers of, spectra of, 7644*g*.
2,4-dinitrophenylhydrazones of stereoisomers of, spectra of, 7644*f*.
isomerization of, in iris oil production, 5550*d*.
Raman spectra and structure of stereoisomers of, 5549*a*.
thiosemicarbazones of stereoisomers of, 5549*c*
**α-Irone, dihydro-***, *cis*- and *trans*-, Raman spectra of, 5549*b*.
**β-Irone**, derivs., 1909*i*.
2,4-dinitrophenylhydrazone, spectrum of, 7644*f*.
hydrogenation of, 4637*f*.
Raman spectrum and structure of, 5549*a*.
spectrum of, 3375*i*.
thiosemicarbazone of *d*- and *dl*-, 5549*c*.
——, **dihydro-***, and derivs., 3374*c*.
**γ-Irone**, *cis*(2,6)-, *p*-bromophenylhydrazone, 5550*a*.
*cis*(2,6)-*d*-, and derivs., 3375*c*.
*cis*-, spectrum of, 3375*h*.
derivs. of neo-, spectra of, 7644*h*.
detn. of neo-, and phenylsemicarbazone, 5550*f*.
isomerization of, in iris oil production, 5550*d*.
Raman spectra and structure of stereoisomers of, 5549*a*.
thiosemicarbazone of *cis*(2,6)-, 5549*d*.
**γ-Irone, dihydro-***, *cis*-, Raman spectrum of, 5549*b*.
and derivs., 3375*f*.
semicarbazone, detn. of, 5550*g*.
**Iron ferricyanide**, formation and compn. of, 1676*g*.
**Iron ferrites.** See *Iron oxides; Magnetite*.
**Iron fluorides**, as catalysts in fluorination of C, P 3834*g*.
**$FeF_2$**, antiferromagnetism of, 11*a*.
heat of formation and lattice energy of, 2829*i*.
magnetism of, 6877*d*.
**$FeF_3$**, as catalyst in $CF_4$ manuf. from C halides and HF, P 3437*a*.
**Iron formate**, $Fe(HCO_2)_2$, heat of formation and lattice energy of, 2830*a*.
**Iron gluconate**, effect on easily-split Fe of blood, 8051*f*.
vitamin $B_{12}$ hydrochloride and mononitrate stability in soln. of, 8610*i*.
**Iron glycerophosphate**, hydrolysis of, 4550*g*.
**Iron halides**, Curie point, pressure and, 8784*a*.
**Iron hydroxides.** (See also *Ferric(III) acid*.)
catalysts of kieselguhr and, in gasoline synthesis, H adsorption by, 2413*a*.
chem. properties and classification of natural ferric, 1291*c*.
colloidal—see also *Iron oxides*.
colloidal, 5654*c*.
manuf. from spent pickling acids and dehydration and oxidation to oxide pigments, 5200*i*, 8697*d*.
mixt. with kieselguhr, in S removal from water gas, 2401*f*.
precipitation of, pH for, 2493*c*.
**$Fe(OH)_2$**, formation on Fe aerated in NaCl soln., 8906*e*.
in iron (electrodeposited), 7353*c*.
lattice energy of, 2829*f*.
manuf. by electrolysis, 2522*f*.
reduction (electrolytic) of, passivation of Fe and, 1270*a*
**$Fe(OH)_3$**, adsorption of Cu and Ni by, 2544*b*.
electron microscopy of colloidal, 6040*g*.
flocculation by KOH, 2070*i*.
flow of suspension of colloidal, 7291*g*.
formation in Cu ores of Calabona, Italy, 6949*b*.
manuf. from pickle liquor, 4989*i*.
O absorption by, 81*b*.
recovery from pickling liquor and galvanizing wastes, 9309*g*.
silver and sulfate ion adsorption by, from $Ag_2SO_4$ solns., 6885*i*.
soly. product of, 7789*d*.
viscosity of colloidal, 5259*a*.
**Iron iodide** ($FeI_2$), folic acid prepn. contg., 355*i*.
lattice energy of, 2829*f*.
mixt. with molten NaI, decompn. potential of, 4582*g*.
**Iron lactate**, effect on flavor and keeping quality of butter, 6760*ac*.
**Iron lithium sulfate**, 4172*i*.

**Iron magnesium chlorides**, 6104*d*.
**Iron magnesium sulfate**, 4172*i*.
**Iron manganese phosphates**, in ferrous-part coating, 7892*b*.
**Iron manganese sulfate**, 4172*i*.
**Iron molybdates**, manuf. of, P 5160*b*.
**Iron molybdenum carbides**, crystal structure of, 2914*b*, 6958*b*.
in steel, 7397*g*.
**Iron nitrates**, as catalyst in condensation of 2-furaldehyde with phenol, 5226*b*.
**Fe(NO$_3$)$_3$**, heat of formation and lattice energy of, 2830*a*.
**Fe(NO$_3$)$_3$**, catalyst for hydrogenation of CO from, P 827*b*.
as catalyst in hydrolysis of cellulose by nitric acid, 1979*a*.
in coatings of polyvinyl alc., P 1670*e*.
electrolysis of, current thermal variations in, 5676*b*.
hydrogen peroxide decompn. in presence of, kinetics of, 25*b*.
polymerization of styrene in presence of, 5754*e*.
reaction with citric acid, 1660*c*.
**Iron nitrides**, decompn. of, S effect on, 2534*h*.
e-, rate of N evolution from, 4933*e*.
iron ionization in, 6018*d*.
magnetic properties of, 6018*d*.
prepn. and transformation of, 2744*d*.
pyrolysis of Fe$_2$N, and formation of Fe$_2$N and Fe$_4$N, 4169*c*.
review on, 7361*g*.
structure of, 3765*ac*.
**Fe$_2$N**, discontinuities in at. distances in crystals of, electronic interactions and, 6030*h*.
**Iron ores.** (See also *Hematite; Ilmenite; Limonite; Magnetite; Ochers; Oölites, Pyrite; Siderite.*)
agglomeration of, P 1708*f*.
of Alaska, as basis of industry, 2130*e*.
of Alaska (northwestern), 8314*i*
of Alaska (Prince of Wales Island), 1694*d*.
aluminum-, magnetic sepn. of reduced, 8995*h*.
analysis of—see also *Iron, analysis*.
analysis of, for Ca and Mg, 4176*c*.
analysis of, loss on ignition in, 520*g*.
apatite, formation and geochemistry of, 8317*abf*.
of Arizona (Apache, Navajo Co.), 7383*g*
arsenic and P in, formation conditions and, 2138*a*.
arsenic elimination from, 8323*f*.
arsenic-P-, of Blyav, Southern Ural, 2898*e*.
benefication or prepn. of, 8995*g*.
for blast-furnace treatment, 79*f*
of Mesabi, for blast furnace, 980*g*.
in Russia, 1293*d*.
of Brazil (Mato Grosso), 3750*i*, 3751*f*.
British lean, 5711*g*.
of California (Bessemer project) and their concentration, 7384*b*.
of Colombia, 8994*b*.
concg. titaniferous, 6133*b*.
concn. of, 1293*g*, 1294*d*, 2554*c*, 2566*e*, P 3339*a*, P 5726*i*.
preroast for magnetic, 1294*h*.
in spiral concentrator, 6131*h*.
concn. of auriferous, 6955*b*.
concn. of Pb-Zn-, 77*i*.
concn. of oxide, P 988*e*.
concn. of titano-magnetites, 3325*i*.
concn. of Zn-, 5711*g*.
copper-Ni-, of Stillwater Complex, Mont., 4982*a*.
copper-Ag-Au-, of Mt. Andrew, Prince of Wales Is., Alaska, and their concn., 7384*c*.
crushing, dressing and magnetic sepn. of, 4611*d*.
diagrams showing stages of crystn. and effect of strong fractionation on, 8092*g*.
drying of, 969*g*.
dust sampling in hematite mines, 910*f*.
electromagnetic separator for, P 6964*f*.
exploration for sedimentary, paleogeography in, 3320*i*.
ferromagnesiferric, of Capalbio, Italy, 5706*f*.
ferrous-Fe detn. in sinter cake and, 965*i*.
filled-sink, of Mo., 5708*a*.
flotation of, P 3768*ab*, P 4624*c*, P 4998*g*, P 5724*i*, P 7403*b*.
flotation of low-grade, and washery wastes, P 3339*b*.
flotation of siliceous magnetic, P 103*e*.
formation and transformation of, in Fensfelt, Norway, 4191*e*.
formation, geochemistry and analyses of Swedish, 5710*b*.
formation of, 2133*f*.
formation of quartzite, Na metasomatosis in, 6129*h*.
of France (Langres narrows), 6951*e*.
of France (Lorraine) and their oxidation state in detg. blast-furnace operation, 6951*g*.
fused, for open-hearth use, 4194*b*.
of Germany (Lahn), genesis of, 8990*i*.
of Germany (Thuringia), 3750*f*.
of Germany (Waser-Wiehen Mts.), 2550*i*.
gray, of Talladega Co., Ala., and their roasting and magnetic concn., 4608*g*.
hematite-milling plant at Marampa, Sierra Leone, 4611*a*.
hydraulic classification and refining of Fe$_2$O$_3$-contg. clay from João Pessoa, Brazil, 7716*i*.
industry in 1946, 2127*c*.
of Iowa (Waukon), 6125*a*.
iron detn. in, 8303*f*.
iron recovery from—see *Iron, metallurgy of*.
of Karelian Finnish S.S.R., 2550*e*.
of Labrador and New Quebec, 526*c*.
of Luxembourg minette formation, 2133*b*.
of Luxemburg, 2550*e*.
magnetizing roast of, 3326*e*.
manganese detn. in, 966*e*.
manganese-, of Boiling Springs, Pa., 5348*c*.
of Mesabi Range, 979*a*.
of Montana (Running Wolf deposits), 5348*a*.
of Montana (Sheep Creek deposits), 3322*f*.
of Nevada (Buena Vista), 7383*h*.
of Newfoundland (Southern White Bay), 1692*c*.
of New Mexico (Capitan) and their magnetic concentration, 8990*f*.
of New York (Redford-Clayburg magnetite district), 5348*b*.
nodulization in rotary kilns, 7878*h*.
of Norway (Rana Mines), 6546*b*.
of Ontario (Algoma dist.) assocd. with banded silica rocks and interbedded lavas, 8318*c*.
oölitic, of Anjou and Normandy, France, 7872*g*.
of Bell Isle, Newfoundland, 4189*i*.
Devonian Sedimentary, of Eastern Tataria and Western Bashkiria, 6951*h*.
of Sauvage, Longwy Basin, 8318*a*.
supraliassic, of upper Saône and upper Marne, 6124*i*.
of Wabana, Newfoundland, 8990*i*.
of Oregon (Grant Co.), 524*h*.
of Philippines (Surigao), 1291*i*.
of Portugal, 5708*c*, 7872*h*.
prospecting for, by compn. of plants and soils, 3549*f*.
reduction of, dilatation during, 527*i*.
review on, 6550*i*.
Rhine Valley oölitic Fe ores and, 8318*b*.
rubidium, Rb$^{87}$, Sr and radiogenic Sr in Grangesberg, of Sweden, 6132*d*.
of Rumania, 6125*c*.
salt-type lattice ore, decompn. and working, 528*i*.
sand and titanic, wet-processing of, 1924*d*.
sands of Italy, 2133*b*.
sands, Ti and V recovery from, P 7838*b*.
separator for, P 5726*b*.
sintering of, 4611*e*.
sintering of, with anthracite coal, 9411*h*.
sinters, effect on blast-furnace performance, 4196*a*.
sizing and sintering of, 7388*hi*, 7389*a*.
of Switzerland, 6124*f*.
taconite as, 4987*e*.
tailings from, SiO$_2$-gel manuf. from, 1925*h*.
of Tanganyika Territory, 75*i*, 5347*f*.
Texas (Llano) magnetic, 8990*g*.
of Trinity River Tributary area in Okla. and Tex., 4607*i*.
of Turkey, 1291*g*.
of U.S.S.R. (Kerch basin), 3751*b*.
of U.S.S.R. (Middle Urals), 527*e*.
of U.S.S.R. (Motmos-Doschatoe, Gorkov Dist.), 4189*d*.
of U.S.S.R. (Sarmatian strata of Asov Sea region), 5711*b*.
use in U.S.S.R., 4611*c*.
use of low-grade, 6551*a*.
of Utah (Iron Co.), 1293*f*, 7872*i*.
vanadium concn. in, 6551*h*.
vanadium in British, 4985*h*.
washing of, P 6142*g*.
of Wyoming (Platte Co.), 7883*i*, 7384*a*
yellow oxide, from Kettara, Morocco, as paint pigment, 3629*c*.
zinc detn. in, 963*e*.
zinc-, of Alice Mine, Mo., 6951*b*.
zinc-, of Winskell-Andrews-Lyne deposits, Wis., 6950*e*.
**Iron oxalate**, FeC$_2$O$_4$, catalyst in pyrolysis of resin acid, 9442*i*.
**Iron oxides.** (See also *Goethite; Hematite; Iron hydroxides; Magnetite; Martite; Pigments; Rust.*)
amorphous hydrated, detn. of cryst. substances in, 5252*b*.
catalysts for hydrogenation of CO, P 827*b*, P 4448*d*, P 5928*c*.
catalysts from alkali metal ferrate and, P 6338*g*.
catalysts from alkali metal ferrate and, for hydrogenation of CO, P 1950*f*.
catalysts from alkali metal pyroantimonate and, for hydrogenation of CO, P 1950*e*.
catalysts from Al$_2$O$_3$ and, P 370*e*.
catalysts from Al$_2$O$_3$ and, in dehydrogenation of 1,1-diaryl paraffins, P 2235*i*
catalysts from extruded, P 3162*d*.
catalysts from SiO$_2$ and, in acylation of thiophene, P 2643*g*.
catalysts from supported, 8831*g*.
as catalysts in CO reaction with water vapor, 7308*i*.
in hydrogenation of coal, 5171*a*, 6391*d*.
in H manuf. from low-grade fuel, P 4836*g*.
in purification of fuel gas, 3172*i*
in toluene manuf. from bibenzyl and H, P 3454*b*.
colloidal—see also *Iron hydroxides*
colloidal, catalyst from, P 3161*d*.
in coloring of ceramic materials, P 5166*g*
coloring of multicolored sediment beds of Don Basin by FeO and Fe$_2$O$_3$, 6130*f*
decompn. of FeO and system FeO-Fe$_2$O$_4$-Fe, 6901*h*.
deposits in boilers, effect on corrosion, 4995*g*.
detn. of inclusions in steel, 6108*i*
dust contg., in gas mains, 8119*f*.
effect on cellulose degradation by light, 8133*i*.
on flame propagation, 6806*d*
on Fe soln. rate in HCl, 6520*a*
elec. resistors from, P 8920*b*.
films on glass for increasing reflection, 3161*h*.
films on Fe in HCl, 6931*c*.
formation from FeS and pyrite, 3696*c*
formation of, thermodynamics of, 2907*i*
gas desorption from, by wetting, 7289*h*
glass-surface treatment with, P 1931*h*
identification of black, red and yellow, 4023*i*.
in iron films on galena, 6483*g*
on iron in chromate solns., 9015*d*
in magnesite burning, 6955*c*.
magnetic permeabilities of, 453*d*.
magnets contg., P 3770*d*.
in mercury ores of Huahuaxtla district, Mex., 4981*h*.
pigments of, manuf. by electrolysis, 2522*f*.
reactions in fluidized beds, app. for, 6873*g*.
reduction of, as diffusion-controlled reaction, 4932*f*.
reduction of Fe$_2$O$_3$ to Fe$_3$O$_4$, P 8108*g*
removal from BaSO$_4$, 367*i*.
in rocks (igneous), equil. between volatiles and, 526*f*.
saccharated, prepn. and standardization of, 5534*d*.
of sand of rivers of West Ethiopia, 2129*e*.
in scale of steel, 8326*f*.
on silica, m.ps. of, 84*h*.
solid solns. with TiO$_2$, 8296*i*.
standards for pigments of, 4786*e*.
suspensions in lye, Fe recovery from, 6526*e*.
system Fe–FeO–Fe$_2$O$_3$, 6901*g*.
system FeSO$_4$–FeO–H$_2$O, pH in, and formation of Fe$_3$O$_4$.2FeO.SO$_3$, 2493*b*.
systems Al$_2$O$_3$–Fe$_2$O$_3$–CaO–SiO$_2$–Na$_2$O and Al$_2$O$_3$–FeO–CaO–SiO$_2$–Na$_2$O, 1923*i*.
systems contg., constitution of liquid open-hearth slags and, 4936*e*.
systems FeO–Fe$_2$O$_3$ and FeO–SiO$_2$, 4935*i*.
systems FeO–SiO$_2$ and Fe$_2$O$_3$–SiO$_2$, crystn. and immiscibility in, 6899*d*.
thermal analysis curves of hydrous, 8987*h*.
**FeO.** (See also *Wüstite.*)

——— of, and its solid solns. with MgO, 11*a*.
calcn. in silicate inclusions in steel, 6111*a*.
catalyst from $MoO_3$ and, in H liberation from $NH_3$, P 3032*e*.
detn. in steels, 4600*f*.
diffusion in acid open-hearth process, 8327*e*.
effect on aluminosilicate refractories, 3582*d*, 3583*a*.
on m.p. of FeS, 3257*f*.
on quartz transformation into cristobalite, 371*e*.
free energy and heat of formation of, 9006*h*.
in iron-$SiO_2$ slags, 23*d*.
magnetism of, 6877*d*.
mixt. with CaO, effect on aluminosilicate refractories, 3582*i*.
refractory-material corrosion by, and system: $Al_2O_3$-$SiO_2$-, 5915*i*.
slags with $SiO_2$, viscosity of, and compds in, 6553*a*.
spectrum of, 3712*d*.
in steel desulfurization, 4936*b*.
system: $CaF_2$-CaO-MgO-, 8630*a*.
system: CaO-MgO-MnO-$SiO_2$-, 6067*h*.
system: $SiO_2$-, 2909*h*.
systems: Fe-, FeS-, and slags-, activities in liquid, 4931*a*.
$Fe_3O_4$, catalyst contg., for combustion, P 4835*f*.
in ceramics, 2388*c*.
formation on Fe cathode, in NaCl soln, 8906*f*.
on Hastelloy, 1299*f*.
magnetic properties and solns. of, 6017*a*.
magnetic resonance and permeability of, 4061*c*.
$Fe_2O_3$, adsorption of BuOH, PhOH and $BuCO_3H$ by, 28*c*.
α-, radioactivity of, effect of desorption of $H_2O$ and Tammann-exchange temp. on, 8822*c*.
anisotropic gels of, 922*d*.
as antioxidant in paraffin oil, 2411*b*
catalyst for hydrogenation of CO to hydrocarbons, P 6397*a*.
catalyst from alkali metal compd., $Cr_2O_3$ and, for dehydrogenation, P 5410*a*.
catalyst from $Al_2O_3$ and, in dehydrogenation of cyclohexane, 7912*b*.
in reaction of $H_2S$ with olefins, P 691*g*.
in reduction of esters, 5363*d*.
relaxation time for, 8832*a*.
catalyst from CuO, MgO, $K_2O$ and, in dehydrogenation of butene, P 663*a*.
catalyst from CuO, MgO, $K_2O$ and, in dehydrogenation of cumene, P 680*f*.
catalyst from gypsum and, in disproportionation of carene, 5012*g*.
as catalyst in aldehyde and ketone manuf. from mixts. of carboxylic acids, P 5791*h*.
in combustion of black rocket gunpowder, 9449*f*.
in decarboxylation, 7801*d*.
in dehydration of hydracrylonitrile, 4629*i*.
in hydrogenation of coal, 8640*f*.
in oxidation of mercaptans in natural gas, 7660*b*.
in oxidation of $SO_2$, 8325*e*.
in water gas reaction, 1945*e*.
catalysts, P 5135*b*.
catalysts for dehydrogenation, P 7610*b*.
catalysts from kaolin, KOH and, in dehydration of 1,3-butylene glycol, 2015*ghi*, 5360*dfg*, 5361*b*.
catalysts from kaolin, KOH and, stability of butadiene in, 4045*e*.
catalysts from $Mg(OH)_2$, $K_2CO_3$ and, in H manuf. from CO and steam, P 840*c*.
catalysts from $MnO_2$ and, in oxidation of H-$CH_4$ mixt., 2403*e*.
coagulates of, sediment vol. and rate of d. increase of, 7780*a*.
coating with, on clay minerals, 7620*h*.
colloidal, P 3161*c*.
detection in presence of other metal oxides, 8300*a*.
detn. in black sands, 8318*g*.
detn. in cosmetics, 9369*a*.
drying of, 3246*d*.
effect on $C_2H_2$ formation from $CaC_2$, 2082*a*.
on $Al_2O_3$ reaction with $BaSO_4$, 6894*i*.
on hydration of MgO and magnesite, 5919*h*.
on NaF yield from $CaF_2$, 1835*g*.
elec. cond. at high temps., 4533*i*.
gamma-, crystals from Fe corrosion, 101*h*.
gas-purification, disposal of, 837*h*.
manuf. of, 3596*b*.
revivification *in situ*, 6395*a*.
helium($He^4$) adsorption by, 8778*a*.
heptahydrate of, 7363*d*.
on iron, 84*g*.
in limestones of São Paulo, origin of, 3324*c*.
magnetic permittivity of mixts. of γ-, with paraffin wax, 3328*d*.
magnetic properties of rhombohedral, 5685*f*, 8221*d*.
manuf. from $FeCl_2$, P 6375*i*.
pharmaceutical use of, 9363*e*.
phosphor contg. $Al_2O_3$, $Li_2O$ and, 6084*d*.
rate of adsorption of Ba ions by hydrous, 6035*i*.
reaction with $Al_2O_3$ and CaO, 3587*h*.
with CoO and NiO, 3304*h*.
with NiO, 6018*e*, 8930*f*.
with oxides of Pb, Mg and Ni, 6059*i*.
with ZnO, temp. of prepn. and, 8933*h*.
reduction of, 4988*f*.
reduction of, kinetics of dissocn. of CO in, 4933*b*.
in rhubarb varieties, 9383*g*.
in sediments, 5523*c*.
solid solns. with $Al_2O_3$, 8934*d*.
solid solns. with Zn Fe spinel, 4171*e*.
sorption by, 1240*e*.
system: $Al_2O_3$-CaO-MgO $SiO_2$-, 3986*h*, 8832*f*.
system: $CaC_2$-CaO-, 2081*h*.
system: $CaCl_2$-NaCl-$H_2O$-, 7316*b*.
system: CoO-, and dissocn. of $Fe_2O_3$, 7314*i*.
system: $Fe_2(SO_4)_3$-$H_2O$-, pH in, 2493*b*.
system: NiO-, 4552*b*.
systems: $Al_2O_3$-CaO-$Na_2O$-, and CaO-$Na_2O$-$SiO_2$-, 930*i*.
systems: CoO-, NiO-, 5355*a*.
systems with MgO or NiO and ZnO, 8335*g*.
in viridine coloration, 6119*g*.
**Iron perchlorate**, $Fe(ClO_4)_3$, spectrum of, in EtOH and $H_2O$, 499*e*.
**Iron perrhenates**, 5688*e*.
**Iron phosphates**. (See also *Iron pyrophosphate*.)
catalysts of, for and in reactions of olefins, P 5419*b*.
detn. in phosphating baths, 7375*f*.
$FePO_4$, catalyst of kaolin, $H_3PO_4$ and, in dehydration of 1,3-butanediol, 5360*i*.
as fertilizer, 798*e*, 799*a*.
precipitation of, 6931*d*.
thermal stability of analytical ppts. of, 8971*h*.
**Iron phosphide**, $Fe_3P$, systems: $Cr_3P$-, $Cu_3P$-, $Mn_3P$-, and $Ni_3P$-, 5719*b*.
**Iron potassium sulfates**, 4172*i*.
mixt. with $MgK_2(SO_4)_2$, magnetic relaxation time of proton in $H_2O$ of crystn. of, 8878*g*.
**Iron preparations**, ammonium and Fe citrate, folic acid prepn. contg., 355*i*.
ammonium and Fe citrate, in beef, iron and wine, 6783*c*.
ammonium and Fe citrate, vitamin $B_1$ hydrochloride and mononitrate stability in soln. of, 8610*i*.
**Iron pyrites**. See *Pyrite*.
**Iron pyrophosphates**, as catalysts in polymerization of butadiene with styrene, 5987*f*.
polymerization activation by ferrous, in GR-S rubber prepn. in cumene hydroperoxide-sugar systems, 8727*f*.
polymerization activation by ferrous, of butadiene with styrene, 8725*c*.
**Iron rubidium sulfate**, 4172*i*.
**Iron salts**, as activators of cumene hydroperoxide in reduction-oxidation polymerization of butadiene with styrene, 8723*f*.
analysis of, 5331*c*.
as catalysts in hydrogenation of CO to hydrocarbons, P 5573*b*.
in oxidation of benzoin to benzil, 1368*b*.
in polymerization of butadiene hydrocarbons, P 2025*i*.
chlorinated-polythene treatment with, P 9534*a*.
of colloidal anion, diffusion through semipermeable membrane into $FeCl_3$ soln., potentials in, 6893*f*.
effect on flavor and keeping quality of butter, 6750*c*.
effect on foam formation in beer, 9359*g*.
ferrous, effect on vitamin C detn., 1076*d*.
of grapeseed-oil acid, effect on drying of linseed oil, 8699*f*.
hydrogen peroxide decompn. by, 4087*a*.
magnetic resonance absorption for, 4065*i*, 4568*cd*.
mixt. with Mg silicate, as decolorizing adsorbent for oils, P 884*i*.
in oxidation acceleration of acids in soap stocks, 5212*h*.
phosphate fixation by, 3957*e*.
platinum passivation by 2100*g*.
reaction with $H_2O_2$, 6895*b*.
removal from bituminous sandstones, 381*f*.
in tanning—see *Tanning*.
titer of solns. of ferrous, changes and maintenance of, 4601*h*.
vinyl-aromatic-compd. polymerization in emulsions in presence of, P 5641*f*.
**Iron sand**. See *Iron ores*.
**Iron selenide**, $FeSe_2$, bonds and interat. distances in, 2052*c*.
**Iron silicates**, crystal structure of, optical properties and, 8784*d*.
$Fe_2SiO_4$, effect on fluorescence of $Zn_2SiO_4$ activated by Mn, 8282*a*.
fluorescence of, and its decay, 2869*g*.
solid solns. with $Mg_2SiO_4$, heats of formation of, 3701*a*.
**Iron silicides**, ferromagnetic properties of FeSi and $Fe_3Si_2$, 7885*f*.
**FeSi**, bonds in, 918*i*.
in Fe-alloy manuf., 4546*d*.
$(FeSi)_4$, heat and entropy of fusion of, 477*c*.
**Iron sodium sulfates**, 4172*i*.
**Iron sodium sulfide**, $3Na_2S.2FeS$, 2109*b*.
**Iron stannides**. See *Iron compounds*.
**Iron stearate**, citric acid and sorbitol in counteracting proöxidant action of, 882*f*.
gels, softening point of, 8801*e*.
**Ironstone**, argillaceous nodulous, in Weser-Wiehen Mts., 2551*a*.
calcining of, fluorosis of farm animals from, 3508*h*.
of England (Northampton Sand), 5347*f*.
of Tanganyika Territory, 75*i*.
**Iron sulfates**, in asphaltic bitumens, 5178*f*.
in Indian and Turkey Reds, effect on rubber, 4870*g*.
recovery of waste solns. of, P 1927*b*.
$FeSO_4$, analysis for Cu, Pb and Zn, 2890*e*.
as catalyst in polymerization of unsatd. compds., 2811*a*.
catalysts of Te and, in Kjeldahl digestion, 8961*g*.
compds. with pyridinecarboxamides, P 253*a*.
effect on spinning viscose, 5588*b*.
effect on stomach lining and skin, 3106*c*.
ferric alum manuf. from, P 826*c*.
folic acid prepn. contg., 355*i*.
heat capacity and magnetic properties of heptahydrate, 6017*g*.
as initiator and modifier in butadiene-styrene polymerization catalyzed by Fe pyrophosphates, 5987*g*.
magnetic ppts. from solns. of, 7763*b*.
oxidation in soln. by free O, 1632*d*.
pharmaceutical use of, 9363*e*.
in phosphatic fertilizers, 2724*g*.
from pickling wastes, disposal of, 94*h*.
in pine-root-disease control, 7179*e*.
poisoning by, 2326*b*.
as polymerization activator in GR-S rubber manuf., P 6457*i*.
reaction product with $Na_2HAsO_4$, 8296*d*.
stable therapeutic prepn. of vitamin C and, P 5910*b*.
system: FeO-$H_2O$-, pH in, 2493*b*.
toxicity to bees, 344*e*.
in wood preservation against house borer, 8598*f*.
$Fe_2(SO_4)_3$, anionic ferric ion liberation from, by $Na_2SO_4$, 7245*c*.
as catalyst in condensation of 2-furaldehyde with phenol, 5224*h*.
corrosion of Cu-Au and Au-Ag alloys in solns. of, 7879*e*.
effect on protein synthesis by *Saccharomyces cerevisiae*, 9150*e*.
resinous reaction products with polyhydric alcs., P 4870*b*.
sepn. from $CoSO_4$ and $CuSO_4$ by chromatography, 2070*i*.
system: $Fe_2O_3$-$H_2O$-, pH in, 2493*b*.
**Iron sulfides**, as catalysts in aromatization of hydrocarbons, P 5039*i*.
as catalysts in hydrogenation of org. S compds. to thiols, P 2630*c*.

as catalysts in toluene manuf. from bibenzyl and H, P 3454*b*.
formation on wool, 924*d*.
oxidizability of pptd. FeS or $Fe_2S_3$, 5700*i*.
in steels, 4180*h*.
**FeS**, as catalyst in dehydration and dehydrogenation of EtOH and HCOOH, 6497*i*.
detn. in welded steel joint, 970*c*.
effect on decompn. of Fe nitrides, 2534*h*.
formation on steel in $SO_2$, 8325*e*.
fused, fluidity and interfacial tension of, 3257*b*.
in iron films on galena, 6483*g*.
oxidation by O, 7854*g*.
reaction with H, equil. in, 2558*g*.
reaction with CaO, 8326*b*.
roasting to FeO and $FeSO_4$, 3696*d*.
system: silicates–, effect of C on interfacial tension in, 7795*a*.
systems: Fe–, and FeO–, activities in liquid, 4931*a*.
system: ZnS–, 4936*e*.
**$FeS_2$**, bonds and interat. distances in, 2052*c*.
in coal cementing basin in Sardinia, 3323*d*.
detn. in gypsum and in presence of other sulfides, 6937*d*.
prepn. from $S^{35}$, 9418*e*.
reaction with water to form $H_2S$, 2847*b*.
**Iron tannates**, ink contg.—see *Ink*.
**Iron tartrate**, tanning with, 7245*c*.
**Iron telluride**, FeTe, bonds and interat. distances in, 2052*c*.
**Iron thiocyanates**, formation and color of complex ion $Fe(CNS)^{+2}$ and of higher complexes, 8310*g*.
**$Fe(CNS)_2$**, heat of formation and lattice energy of, 2829*i*.
**Iron titanates**, 8296*i*.
manuf. from Fe sand, P 7838*c*.
**$FeTiO_3$**, prepn. of, 2108*f*.
**Iron tungsten carbides**, crystal structure of, 2914*b*, 6958*b*.
**Iron vanadate (III)**, $FeV_3O_4$, 6519*d*.
**Iron vanadate(V)**, prepn. and soly. of, 8247*f*.
**Iron vanadates**, manuf. from Fe sand, P 7838*c*.
**Irradiation**. (See also *Hertzian waves; Light, infrared; Light, ultraviolet; Radiation; Radiotherapy; X-rays;* etc.)
ergosterol subjected to—see *Ergosterol*.
lamps for—see *Lamps, electric*.
milk subjected to—see *Milk*.
of proteins, proteolytic cleavage after, 9099*h*.
of 4,4′-stilbenedicarboxamidine diisethionate, 2982*g*.
**Irreversible processes**, in helium II, 8220*f*.
thermodynamics of, domain of validity of, 8246*e*.
**Irrigation**. (See also *Water, analysis; Waters, natural*.)
of citrus, 9317*e*.
effect on Hawaiian foliage crops, 9292*e*.
on rapeseed, 2286*g*.
on snap-bean compn., 1514*i*.
of flax, 2280*f*.
grass compn. and, 4408*g*.
manganese deficiency of leek from, 3129*b*.
moisture distribution in, 1889*e*.
of rice on saline soils, 1891*g*.
sediments, 7620*f*.
with sewage—see *Sewage*.
of South Carolina soils, 9328*f*.
**Irritants**, 8-quinolyl *N*-phenylbenzimidate as, to the nose, 1777*g*.
**Isabellin**, thermal anomaly in, 2149*a*.
**Isacen**, laxative activity of, 2319*f*.
**Isanic acid**, recovery from isano oil, properties, hydrogenation and ozonization and pptn. of Ba or Pb salts, 3630*bc*.
**Isano oil**. See *Oils*.
**Isatin** (*2,3-indoledione*), anthranilamide from, 1765*i*.
as antioxidant in alkyl benzenesulfonates, P 6846*a*.
azine and 3-hydrazone, 123*c*.
crystn. on sucrose, 8238*g*.
derivs., 215*c*, 1416*c*, 3428*d*.
and derivs., effect of carbonyl group reactivity on dehydrogenase activity of, 215*b*.
dyes from, P 7707*c*, P 9470*i*.
3-hydrazone, 6614*g*.
reaction with acetophenone derivs., 3825*d*, 7924*e*.
with cyclohexyl methyl ketone, 1411*d*.
with ketones, 227*g*.
3-semicarbazones of, and its derivs., and their use in analysis, 8979*g*.
**Isatin, 6-acetamido-**, 215*i*.
——, **6-acetamido-1-hydroxy-**, 215*i*.
——, **1-acetyl-**, derivs., 3428*e*.
——, **5-amino-**, derivs., 215*g*.
——, **1-benzyl-**, 3-semicarbazone, and its analytical uses, 8979*i*.
——, **5-bromo-**, dyes from, P 7707*a*, P 9470*i*.
reaction with acetophenone derivs., 3825*d*, 7924*e*.
——, **4-chloro-**, 2-amino-6-chlorobenzamide from, 1766*a*.
——, **6-chloro-**, 2-amino-4-chlorobenzamide from, 1765*i*, 1766*a*.
——, **1-chloroacetyl-**, 3002*d*.
——, **5-chloro-7-methoxy-4-methyl-**, dyes from, P 7707*a*.
——, **6-chloro-7-methyl-**, dyes from, P 7707*a*, P 9470*i*.
——, **5,7-dibromo-**, dyes from, P 7707*a*, P 9470*h*.
——, **5,7-dinitro-**, effect on (*p*-hydroxyphenyl)pyruvic acid-consuming enzymes, liver injury and, 4360*g*.
——, **6-hydroxy-**, and monoöxime, 216*b*.
——, **1-hydroxy-6-methoxy-**, 216*c*.
——, **5(and 6)-methoxy-**, 216*c*.
——, **6-methoxy-**, 1416*h*.
——, **1-methyl-**, derivs., 3428*f*.
3-semicarbazone of, and its analytical uses, 8979*i*.
——, **5-methyl-**, reaction with alkyl 2-thienyl ketones, 228*a*.
——, **5(and 6)-nitro-**, and oximes, 215*d*.
——, **1-phenyl-**, 3-hydrazone, 6614*i*.
——, **6-*p*-tolylsulfonamido-†**, and monoxime, 215*h*.
**Isatincarboxylic acid**. See *Indolinecarboxylic acid, 2,3-dioxo-*.
**Isatinecine**, and picrate, 7475*e*.
**Isatoic anhydride**, gelatin reaction product, 9512*e*.
**Ischemia**, cardiac, nucleotides in, 4756*g*.
magnesium in blood plasma in, 9208*a*.
muscle, effect of creatinine on pain of, 5846*h*.
muscle in, iron of, 8518*a*.
renal cortical, effect of hydergin on, 9249*a*.
renal cortical, tetraethylammonium bromide in treatment of, 1111*i*.
renal, renin content of kidneys in, 8503*ab*.
**Isco AA**, in weed control in bamboo, 5525*c*.
**Iscobrom D**. See *Ethane, 1,2 dibromo-*.
**Isethionic acid** (*2-hydroxyethanesulfonic acid*), cellulose ether of, P 9446*d*.
cellulose ether of, neutralization curve of, 4083*b*.
myristate, as standard in saponin detn., 5905*c*.
oleate, P 9498*g*.
oleate Na salt, as modifier for polyamides, P 7266*a*.
oleate Na salt, identification by x-ray diffraction patterns, 6915*i*.
potassium salt, 7421*a*.
reaction product with *N*-(hydroxymethyl)-stearamide, P 5217*c*.
salts with amidines, 9049*c*.
with 9-aminoacridines, P 698*e*.
with 1,3-dimethyl-9*H*-indeno[2,1-*c*]-pyrid-9-one, P 5809*d*.
with 4,4′-stilbenedicarboxamidine, irradiation of, 2982*g*.
with 4,4′-(trimethylenedioxy)bis[3-bromobenzamidine], P 688*g*.
——, **2-phenyl-**, sodium salt, 172*b*.
**Isinglass**. (See also *Mica*.)
degradation of, viscosity and, 6888*h*.
**Islands of Langerhans**. See *Pancreas*.
**Isoacorone**, 3808*a*.
**Isoagglutination**. See *Hemagglutination*.
**Isoagglutinins**. See *Hemagglutinins*.
**Isoagglutinogens**. See *Agglutinogens*.
**Isoagnostadiene**, oxidation of, 3830*b*.
**Isoaleprolic acid**. See *1-Cyclopentene-1-carboxylic acid*.
**Isoalkanes**. See *Paraffins*.
**17 - Isoallopregnane - 3,21 - diol - 11,20-dione***, diacetate, P 7978*g*.
**17 - Iso - 5 - allopregnane - 3(β),17(β),-20,21-tetrol***, configurational study of, 6210*h*.
**17 - Iso - 5 - allopregnane - 3(β),17(β),20-triol***, configuration study of, 6210*h*.
**17 - Isoallopregnane - 3,11,21 - triol - 20-one***, 3,21-diacetate, P 7978*g*.
**17 - Isoallopregnan - 3(β) - ol - 20 - one***, acetate, 5028*d*.
**Isoalloxazine** (*pyrimido[4,5-*b*]quinoxaline-2,4 (3 H, 10 H)-dione*). (See also *Alloxazine*.)
derivs., P 7053*e*.
——, **8-amino-**, derivs., 3007*h*.
——, **8 - amino - 10 - (3 - [illegible] ethyl)-**, and violurate,
——, **8 - chloro - 10 - (2 - di[illegible] ethyl)-**, and salts, 3009*a*.
——, **8 - chloro - 10 - (3 - diethylaminopropyl)-**, and picrate, 3009*a*.
——, **7,8-dichloro-10-ribityl-***, antivitamin action of, 1457*g*.
——, **10-(2-diethylaminoethyl)-8-dimethylamino-**, and salts, 3008*b*.
——, **10-(4-diethylamino-1-methylbutyl) - 7 - (hexahydro - 5 - hydroxy-2,4,6 - trioxo - 5 - pyrimidyl) - 8-methoxy-**, 1781*b*.
——, **dihydro-7,8-dimethyl-10-(2,3,-4,5 - tetrahydroxyamyl)-**, system: lactoflavin–, oxidation-reduction potential of, 7355*h*.
——, **8-dimethylamino-10-methyl-**, 3008*d*.
——, **7,8-dimethyl-10-(2,3,4,5-tetrahydroxyamyl)-**. See "$B_2$" under *Vitamins*.
——, **10-lyxityl-7,8-dimethyl-**, and tetraacetate, 7532*h*.
——, **7,8,10-trimethyl-**. See *Lumiflavin*.
**Isoamidone***, effect of *d*- and *l*-, on permeability of erythrocytes, 7583*c*.
and salts, 7467*b*.
**Isoamyl alcohol**. (See also *Amyl alcohol*.) (For derivs. see under *1-Butanol, 3-methyl-*.)
acetate and formate, spectra of, 1656*a*.
acetate, prepn. of, 127*g*.
adipate, low-temp. lubricating grease from Li stearate and, P 1178*h*.
adsorption by $Ph_2NH$, 464*e*.
adsorption on water-quartz interface, 462*e*.
alkylation with, of 1,2,3,4-tetrahydronaphthalene, 1369*g*.
analysis of, for cations, solvents in chromatographic, 6537*c*.
in chloride argentometric detn., 8947*f*.
dehydration and isomerization of product from, P 3834*a*.
dehydration of, 3355*a*.
dehydration of, 2,3,4,5-tetramethylhexane from, P 3833*c*.
effect on N fixation by *Azotobacter*, 9160*b*.
on polymerization of BuOCH.$CH_2$, 995*c*.
on stability of supersatd. solns. of $KNO_3$, 8805*h*.
mixts. with EtOH, MeOH, iso-BuOH or PrOH, heats of vaporization and vapor pressure of, 476*i*.
mixt. with acetone, dielec. polarization in, 454*c*.
muscle contraction by, 3861*d*.
nicotinate, 2622*h*.
nitramide decompn. in, catalyzed by amines, 8828*f*.
oxygen absorption by aq. solns. of, 2494*h*.
in peppermint oil, 4427*f*.
phys. constants of, 2956*b*.
propionate, as flavoring component, 2370*i*.
reaction with benzene and with toluene, 164*a*.
solubilities of $H_3BO_3$ and succinic acid in, 1241*h*.
soly. in Na xylenesulfonate solns., 1242*d*.
spectra of mixts. contg., 2095*c*.
surface tension of aq., 8790*f*.
system: dichloroethane–, 1254*a*.
system: K palmitate–$H_2O$–, 4938*c*.
**Isoamylamine**, effect on diuresis, 6308*c*.
effect on heart, 9250*f*.
——, ***N*-amyl-**. See *Amylamine, N-isoamyl*.
——, ***N*-sec-butyl-**, P 255*a*, P 1068*a*.
**Isoamyl bromide**. See *Butane, 1-bromo-3-methyl-*.
**Isoamyl chloride**. See *Butane, 1-chloro-3-methyl-*.
**Isoamyl disulfide**, phys. constants of, 2956*f*.
spectrum and structure of, 7410*g*.
**β-Isoamylene**. See *2-Butene, 2-methyl-*.
**Isoamyl ether**, phys. consts. of, 2590*a*.
soly. in Na xylenesulfonate solns., 1242*c*.
**Isoamyl fluophosphate**, $(iso\text{-}AmO)_2PFO$, 8351*e*.
**Isoamyl iodide**. See *Butane, 1-iodo-3-methyl-*.
**Isoamyl mercaptan**. See *1-Butanethiol, 3-methyl-*.
**Isoamyl nitrate**, azeotropes of, 2835*c*.
**Isoamyl nitrite**, antifibrillatory action of, 7581*i*.

azeotropes of, 2834*i*.
**Isoamyl phosphate**, (iso-Am)$_2$PO$_4$, in mercerizing soins., P 9478*b*.
**Isoamyl sulfide**, phys. constants of, 2956*e*.
**Isoamyl tetrasulfide**, 1002*c*.
**Isoamyl thiophosphate**, (iso-AmO)$_2$PS$_2$H, in Mo detection, 7859*b*.
**Isoamyl titanate**, $(C_5H_{11})_4TiO_4$, 9026*i*.
**Isoandrosterone**, and acetate, spectra of, 3018*i*.
and benzoate, 5068*d*.
conversion to androsterone, 8034*h*.
as metabolic product of androsterone, 295*h*.
regeneration of, from its semicarbazone, 1048*g*.
——, **dehydro-***, 1048*g*.
absorption from gastrointestinal tract, bile in, 8036*a*.
and acetate, benzoate, and propionate, spectra of, 3018*i*.
acetate, labeled with $C^{13}$ in 16-position, 2213*i*.
acetate, regeneration of, from its dioxime by AcCOOH, 1048*f*.
and derivs., 658*g*, P 4706*d*.
detn. of, 2266*a*, 8420*i*.
effect on adrenal cortical tumor formation, 7124*h*.
on gonado-mammary relations, 743*b*.
on lactation, 8032*d*.
and esters, 5068*d*.
metabolism of, 6727*d*.
oral effectiveness of, in fowls, 1097*e*.
reaction product with $SbCl_3$, spectrum of, 5307*g*.
——, **16 - (diethylaminoethyl)dehydro-***, 1429*e*.
——, **16 - (dimethylaminomethyl)dehydro-***, and derivs., 1429*d*.
——, **16-methyldehydro-***, and semicarbazone, 1429*e*.
——, **16-methylenedehydro-***, acetate, 1429*e*.
——, **16-(1-piperidylmethyl)dehydro-***, 1429*e*.
**Isoandrosterone - 16 - sulfonic acid***, acetate and its derivs., 2214*f*.
**Isoanethole***, *cis-* and *trans-*, 2180*b*.
**Isoanthrafiavic acid** (*2,7-dihydroxyanthraquinone*), glucosides of, 5019*i*.
**Isoantibodies**. See *Antibodies*.
**Isoapo-β-erythroidine**, 6729*g*.
**Isoascorbic acid**. See "D-" under *Araboascorbic acid*.
**Isoatisine**, and derivs., 210*e*.
**Isoazerophthene** (*3,7-dimethyl-1-1-(2,6,6-trimethyl - 2 - cyclohexen - 1 - yl) - 1,3,-5,7-nonatetraene*), 5370*i*.
——, **desmethyl-***, 6989*f*.
**1***H*-**Isoazepine**,




**2 - Isoazepinone, 1,5,6,7 - tetrahydro-4,6,6-trimethyl-**, P 3451*b*.
**Isobarbituric acid** (*5-hydroxy-2,4(1H,3H)-pyrimidinedione*), spectrum of, 5307*c*.
**Isobars**, abundance of, in universe, 8856*b*.
beta-ray decay of, α-binding energy and, 3703*a*.
-correlations of, new arrangement of elements and, 7809*c*.
shielded, formation by nuclear photoeffect, 3703*b*.
**1-Isobenzazole**. See *Pseudoindole*.
**Isobenzedrine**. See *Phenethylamine, β-methyl-*.
**Isobenzofuran**,

——, **1,3-dihydro-**. See *Phthalan*.
——, **1,3 - dihydro - 1,3 - dioxo-**. See *Phthalic anhydride*.
——, **1,3-dihydro-1-oxo-**. See *Phthalide*.
——, **1,3-diphenyl-**, photochemistry of, 2985*d*.
and photooxide, 1041*g*.
reaction with aromatic nitroso compds., 7017*i*.
——, **1 - (m - nitrophenyl) - 3 - phenyl-**, 1942*c*.
$\Delta^{1(3H),\alpha}$-**Isobenzofuranacetamide, 3-oxo-†**, derivs., P 7850*a*.
$\Delta^{1(3H),\alpha}$-**Isobenzofuranacetic acid, 3-oxo-†**, esters, 2974*d*.
**5-Isobenzofuranecarboxylic acid, 4-benzoyl-1,3-dihydro-1,3-dioxo-**. See "1,3-anhydride" under *Trimellitic acid, 5-benzoyl-*.
**1,3-Isobenzofurandione**. See *Phthalic anhydride*.
——, **3a,4,7,7a-tetrahydro-**. See *4-Cyclohexene-1,2-dicarboxylic anhydride*.
**1(3*H*)-Isobenzofuranone**. See *Phthalide*.
**1-Isobenzofuransulfonic acid, 1,3-dihydro-3-oxo-**, sodium salt, reaction with $NH_3$, 3806*b*.
**Isobiuret, 1-(*p*-chlorophenyl)-S$^4$-methyldithio-***, 2950*e*.
**Isobornsol**, 6601*b*.
dehydrogenation of, 5382*e*.
4-derivs., dehydration of, 1354*f*.
ethers, 1354*i*.
glucoside, tetraacetate, P 5428*b*.
——, **4-propyl-**, 1748*a*.
dehydration of, 1354*f*.
**Isobutane**. See *Propane, 2-methyl-*.
**Isobutenal**. See *Methacrylaldehyde*.
**Isobutene**. See *Propene, 2-methyl-*.
**Isobutyl alcohol**, adsorption by $Ph_2NH$, 464*e*.
alkylation with, of $C_6H_6$, 7916*c*.
amination of, 1005*c*.
*l*-citronellate, 4633*g*.
effect on N fixation by *Azotobacter*, 9160*b*.
effect on polymerization of BuOCH:$CH_2$, 995*e*.
esters, spectra of, 1656*d*.
fibrinogen conversion to fibrin by, 9107*h*.
flow of aq., through granular solids, mass transfer in, 8752*a*.
formation in reaction of *tert*-AmMgCl with $Me_2CHCOCl$, 5004*g*.
manuf. of, P 3835*d*.
methacrylate, polymers of, mounting medium for fibers from Aroclor 1242 and, 1570*i*.
mixts. with EtOH, MeOH, iso-AmOH or PrOH, heats of vaporization and vapor pressures of, 476*i*.
nicotinate, 2622*h*.
phys. constants of, 2956*b*.
pyrolysis of, 7899*d*.
Raman effect and H bond formation in, 7345*h*.
reaction with CO, kinetics of, 3698*a*.
soly. in Na xylenesulfonate solns., 1242*e*.
spectra of mixts. contg., 2005*c*.
system: dichloroethane–, 1254*a*.
**Isobutylamine**, formation in reaction of $Et_2CCO_3H$, $H_2SO_4$ and $NH_3$, 9027*h*.
identification of, 4630*d*.
manuf. of, P 2033*e*.
——, **2-(benzhydryloxy)-*N*, *N*-dimethyl-**, hydrochloride, spasmolytic activity of, 8546*b*.
——, **2,2′-(biphenylene)bis-†**, P 3456*a*, P 4296*g*.
polyamides from, P 7263*h*.
polyamide with sebacic acid, P 4519*c*.
——, ***N* - [2 - (2 - biphenylyloxy)ethyl]-*N*-(2-chloroethyl)-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*.
——, ***N*, *N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
——, ***N*-butyl-**. See *Butylamine, N-isobutyl-*.
——, ***N*-sec-butyl-**, P 253*h*.
——, **3 - (3 - chlorobenzhydryloxy)-*N*, *N*-diisopropyl-**, P 3463*d*.
——, ***N*,1 - diethyl - 3 - [4 - methoxy - 3-(*o* - methoxyphenoxy)phenyl]-**, P 365*e*.
——, ***N*,1-diethyl - 3 - [*p* - (*p* - methoxyphenoxy)phenyl]-**, P 365*d*.
——, ***N*,1 - diethyl - 3 - (4 - methoxy-3-phenoxyphenyl)-**, P 365*d*.
——, ***N*,1 - diethyl - 3 - (4 - methoxy-3-*p*-toloxyphenyl)-**, P 365*d*.
——, ***N*,1 - diethyl - 3 - (*p* - phenoxyphenyl)-**, P 365*c*.
——, ***N*, *N* - dimethyl - 3,3 - diphenyl-**, hydrobromide, 4243*g*.
and salts, 611*h*.
——, **1 - ethyl - 3 - [4 - methoxy - 3 - (*o*-methoxyphenoxy)phenyl] - *N*-methyl-**, P 365*e*.
——, **1 - ethyl - 3 - *p* - (*p* - methoxyphenoxy)phenyl]-**, P 365*d*.
——, **1 - ethyl - 3 - *p* - (*p* - methoxyphenoxy)phenyl - *N* - methyl-**, P 365*d*.
——, **1 - ethyl - 3 - (4 - methoxy - 3-phenoxyphenyl) - *N* - methyl-**, P 365*d*.
——, **1 - ethyl - 3 - [4 - (*p* - methoxyphenoxy) - *m* - tolyl] - *N* - methyl-**, P 365*d*.
——, **1 - ethyl - 3 - (*p* - methoxyphenyl)-*N*-methyl-**, P 3231*g*.
——, **1 - ethyl - 3 - (4 - methoxy - 3 - *o*-toloxyphenyl) - *N* - methyl-**, P 365*d*.
——, **1 - ethyl - 3 - (4 - methoxy - 3-*p* - toloxyphenyl) - *N* - methyl-**, P 365*d*.
——, **1 - ethyl - *N* - methyl - 3 - (*p*-phenoxyphenyl)-**, P 365*c*.
——, ***N*-isopropyl-**, P 253*h*.
——, ***N*-1-methylbutyl-†**, P 253*h*.
——, **2,2′-phenylenebis-†**, P 3456*a*, P 4296*f*.
polyamides from, P 7263*h*.
——, **1-propyl-†**, hydrochloride, 2166*h*.
**Isobutyl bromide**. See *Propane, 1-bromo-2-methyl-*.
**Isobutyl chloride**. See *Propane, 1-chloro-2-methyl-*.
**Isobutylene**. See *Propene, 2-methyl-*.
**Isobutylene chlorohydrin**. See *2-Propanol, 1-chloro-2-methyl-*.
**Isobutylene glycol**. See *1,2-Propanediol, 2-methyl-*.
**Isobutylene oxide**. See *Propane, 1,2-epoxy-2-methyl-*.
**Isobutylglycerol, nitro-**. See *1,3-Propanediol, 2-(hydroxymethyl)-2-nitro-*.
**Isobutyl group**, in spruce and birch lignin, 8674*h*.
**Isobutylidenimine, *N*-butyl-**. See *Butylamine, N-isobutylidene-*.
**Isobutyl iodide**. See *Propane, 1-iodo-2-methyl-*.
**Isobutyl ketone**. See *Isovalerone*.
**Isobutyl nitrate**, azeotropes of, 2835*c*.
**Isobutyl nitrite**, azeotropes of, 2834*i*.
in naphthene sepn. by distn., P 3670*d*.
**Isobutyl phosphate**, (iso-Bu)$_2$PO$_4$, in mercerizing solns., P 9478*b*.
**Isobutyl sulfide**, phys. constants of, 2956*e*.
**Isobutyraldehyde**, acylhydrazones†, 6972*be*, 6973*e*.
azine, 1654*d*.
benzylphenylhydrazone, 1654*i*.
2,4-dinitrophenylhydrazone, 3788*b*.
formation in reaction of *tert*-AmMgCl with $Me_2CHCOCl$, 5004*g*.
manuf. of, P 4685*e*.
reaction with $CHCl_3$, P 664*f*, P 4284*h*.
reaction with ketene, P 5415*a*.
spectra of mixts. contg., 2095*c*.
——, **α-amino-**, *N*, *N*-dialkyl derivs., oximes, pyrolysis of, P 6647*h*.
——, **α-(benzylmercapto)-**, and derivs., P 4688*d*.
——, **α-dimethylamino-**, oxime, pyrolysis of, P 6647*i*.
——, **β-phthalimido-**. See *2-Isoindolinepropionaldehyde, α-methyl-1,3-dioxo-*.
——, **β-succinimido-**. See *1-Pyrrolidinepropionaldehyde, α-methyl-2,5-dioxo-*.
**Isobutyramide**, P 3028*c*.
——, ***N*-tert-amyl-α-chloro-**, 2165*d*.
——, **α-anilino-**, 9032*i*.
——, **α - benzamido - *N* - (benzyloxy)-**, 8383*e*.
——, ***N*-benzyl-**, 6596*a*.
——, ***N*-benzylthio-**, 6596*c*.
——, ***N* - (1 - diethylcarbamylethyl)-*N*-ethyl-**, P 249*c*.
——, ***N*, *N* - diethyl - α - ethylamino-**, P 251*b*.
——, **α-dimethylamino-**, 9032*i*.
——, ***N* - (1 - dimethylcarbamylethyl)-*N* - ethyl - α - propylmercapto-**, P 249*b*.
——, **α-ethoxy-*N*-sulfanilyl-**, P 3035*g*.
——, **α-hydroxy-**, derivs., acetates, pyrolysis of, 3358*d*.
——, **α-hydroxy-*N*, *N*-dimethyl-**, acetate, 3358*f*.
——, ***N* - 2 - hydroxyethyl - β,β′ - diphenyl-**, in penicillin production, 2274*a*.
——, **α-hydroxy-*N*-methyl-**, and acetate, 3358*e*.
——, **α-methoxy-*N*-sulfanilyl-**, P 3035*f*.
——, **α-phenoxy-*N*-sulfanilyl-**, P 3036*a*.
——, **α-phenyl-**. See *Hydratropamide, α-methyl-*.
——, **α-propoxy-*N*-sulfanilyl-**, P 3035*g*, P 7961*d*.
——, **α,β,β′-triphenyl-**, 1351*a*.
**Isobutyramlide**, 4654*g*, 6902*e*.
——, **4 - amino - 2,3 - bis(benzyloxy)-**, P 4165*g*.
**Isobutyric acid**, 1-butoxyethyl ester, 3786*b*.
butyl ester, in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
cobalt salt, as catalyst in ketene reaction with aldehydes, P 5037*g*.
esters of, with androstanediol and androstenediol, P 1916*a*.
phys. consts. of, 2890*d*.
spectra of, 1656*d*.

ethyl and Me esters, lyoparachors of, 2834*b*.
ethyl ester, formation in Reformatskiĭ reaction with $Me_2CBrCO_2Et$, 613*c*.
mixt. with acetone, reduction of, 2944*e*.
solubilization with Na secondary alkyl sulfates, 466*a*.
formation, from reaction of PhCH:NNHC(Me$_2$)COOH with NaOH, 1027*b*.
heat of ionization of, 477*i*.
isobutyl ester, 5004*g*.
manuf. of, P 670*a*.
methyl ester, ammonolysis rate of, 6495*g*.
and methyl ester, parachors and thermochors of, 2923*f*.
methyl ester, reaction with *tert*-BuCl, 111*e*.
oxidation by kidney and liver, 2248*g*.
phenethyl ester, 5150*f*.
phenylhydrazide, as insecticide, 1896*e*, 5520*a*, 7182*h*, 7183*c*.
and *p*-phenylphenacyl ester, 2580*g*.
phys. constants of, 2956*b*.
potassium salt, as solutizer for thiols in acid hydrocarbon distillates, P 4844*c*.
procaine salt, interfacial tension at water-olive oil boundary, 7290*d*.
reaction of, $H_2SO_4$ and $HN_3$, 9027*c*.
reaction with $C_2H_4$ to form long-chain acids, P 670*e*.
sodium salt, solubilization with, 466*c*.
as solvent for chromatograms of dicarboxylic acids, 5696*a*.
strength of, 470*d*.

**Isobutyric acid, α-acetyl-**. See *Acetoacetic acid, α,α-dimethyl-*.
——, **β-(allyloxy)-**, allyl ester, P 5037*d*.
——, **α-amino-**, effect on glycine concn. by diaphragm, 9120*d*.
ethyl ester, hydrogenation of, 572*i*.
heat content and structure of, 6070*d*.
methyl ester, 3015*d*.
——, **azodi-**, esters, in butadiene polymerization, 4505*f*.
——, **α,α′-azodi-**, dimethyl ester, kinetics of decompn. of, 3354*h*.
——, **α-benzamido-**, 8383*f*.
——, **β-benzoyl-**, P 8402*a*.
——, **β-benzoyl-β-bromo-**, P 8402*a*.
——, **α-benzoyl-β-diethylamino-**, ethyl ester, 7643*f*.
——, **α-benzoyl-β-dimethylamino-**, ethyl ester-HCl, 7643*f*.
——, **α-(benzylidenehydrazino)-**, reaction with NaOH, 1027*a*.
——, **α(and β)-(benzylmercapto)-**, oxidation of, 8816*a*.
——, **β,β′-bis(methylmercapto)-**, 2580*h*.
——, **α-bromo-**, ethyl ester, Reformatskiĭ reaction with, 613*a*.
Raman spectrum of, 6082*h*.
reaction with Na deriv. of allylbenzene, 3351*h*.
——, **α-cyano-β,β′-diphenyl-**, esters, 3356*h*.
——, **α - (α,γ - dihydroxy - β,β - dimethylbutyrylamino)-**, DL-, sodium salt, effect on lactic acid bacteria, 722*h*.
——, **β,β′-diiodo-**, 2580*i*.
——, **β,β′-dimercapto-**, from asparagus, 2580*c*.
——, **β,β′-di-9-phenanthryl-**, and methyl ester, 7013*d*.
——, **β,β′-diphenyl-**, esters, 3395*d*.
ethyl ester, [illegible].
——, **β-(diphenylarsino)-**, and oxide, 8352*c*.
——, **α(and β)-(ethylmercapto)-**, oxidation of, 8816*a*.
——, **α-fluoro-**, methyl ester, 2933*b*.
——, **α-hydroxy-**, 112*c*, 2162*i*.
ethyl ester, hydrogenation of, 572*d*, 573*f*.
from flavoglaucin, 7914*i*.
metabolism of, 3905*c*.
2-nitroisobutyl ester, and polymerization of, P 2815*g*.
——, **α-methoxy-**, 3782*g*.
and silver salt, 113*e*.
——, **α-methyl-**. See *Pivalic acid*.
——, **β-2-naphthoyl-**, ethyl ester, 3814*d*.
——, **β-9-phenanthryl-α-amino-***, DL-, sodium salt, effect on lactic acid bacteria, [illegible].
——, **α-phenyl-**. See *Hydratropic acid, α-methyl-*.
——, **β-phenyl-**. See *Hydrocinnamic acid, α-methyl-*.
——, **α(and β)-phenylmercapto-**, oxidation of, 8816*a*.
——, **α,β,β′-triphenyl-**, 1351*a*.

**Isobutyrohydroxamic acid, α-benzamido-**, 8383*e*.
——, **α-benzamido-O-benzyl-**†, 8383*e*.
**Isobutyrohydroxamyl chloride, α-chloro-**, 6993*i*.
**Isobutyroin**. See *3-Hexanone, 4-hydroxy-2,5-dimethyl-*.
**Isobutyrone**. See *3-Pentanone, 2,4-dimethyl-*.
**Isobutyronitrile**, drying of, by azeotropic distn. with $CH_2Cl_2$, P 2630*e*.
——, **α,α′-azodi-**, 8681*i*, 8736*i*.
decompn. kinetics of, 3354*g*.
——, **α-chloro-**, P 4285*c*.
——, **α-cyclohexylamino-**, as insecticide, 4415*g*.
——, **α,β-dichloro-**, dehydrochlorination of, P 3837*b*.
reaction with EtONa and with MeONa, P 3027*e*.
——, **α,β-dihydroxy-**, diacetate, P 2630*f*.
——, **α,β-dimethoxy-**, P 3027*f*.
——, **α-dimethylamino-**, and sulfate, P 6647*i*.
——, **β,β′-diphenyl-**, 3356*i*.
——, **α-hydroxy-**, and acetate, 564*b*.
hydrogenation of, in presence of $CH_2O$, P 3839*f*.
manuf. of, P 7955*b*.
methacrylamide from, P 672*b*.
——, **β-hydroxy-**, purification of, P 1794*e*.
——, **α - (2 - hydroxyethylamino)-**, as insecticide, 4415*g*.
——, **α-methylamino-**, reaction with $CS_2$, 1766*b*.
——, **α-phenyl-**. See *Hydratroponitrile, α-methyl-*.

**Isobutyrophenone**, and oxime, 6178*c*.
Raman spectrum of, 3716*e*.
from reaction of β dimethylaminopivalophenone with HCl and with NaCN, 4239*a*.
refraction by, 4651*g*.
spectrum of, 4955*d*.
——, **β-dimethylamino-**, hydrochloride, 1757*f*.
——, **α-hydroxy-**, 6181*i*.
——, **p-methyl-**, and oxime, 2601*b*.
——, **α-methyl-**. See *Pivalophenone*.
——, **5 - methyl - 2 - methylmercapto-**, 7474*i*.
——, **o-methyl-α-phenyl-**, 4247*f*.

**Isobutyryl chloride, α-chloro-**, oxime†, 6993*i*.
**Isocadinene**, 1389*d*.
**Isocamphane** (*2,2,3-trimethylnorcamphane*), 2605*a*.
**α-Isocamphenilone**. See *β-Fenchocamphorone*.
**Isocapric acid**. See *Pelargonic acid, η-methyl-*.
**Isocaproaldehyde**, acylhydrazones†, 6972*e*, 6973*e*.

**Isocaproamide**, P 3028*a*.
**α-amino-**. See *Leucinamide*.
**γ-amino-**, derivs., P 3450*a*.
**γ-amino-N, N-dibutyl-**, P 3450*b*.
**γ-amino-N, N-diethyl-**, P 3450*b*.
**γ-amino-N-ethyl-**, P 3450*b*.
**γ-amino-N-octadecyl-**, P 3450*b*.
**γ-amino-N-octyl-**, P 3450*b*.
**α-(α-chloroacetamido)-**, 9114*i*.
**α-glycylamino-**, L-, 2245*f*.
**-, γ-nitro-**, *N*-alkyl derivs., hydrogenation of, P 3450*b*.
——, **α-phenoxy-N-sulfanilyl-**, P 3036*b*.

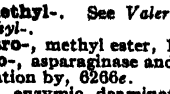
**Isocaproanilide, α-isobutyl-**, 1317*c*.
**Isocaproic acid**, identification of, as its 2-(1 - naphthylmethyl) - 2 - thiopseudourea salt, 585*g*.
oxidation by kidney and liver, 2248*g*, 2249*a*.
2 - (α - phenylacetamido)ethyl ester, 2269*i*.
phenylhydrazide, as insecticide, 5526*a*.
phenylhydrazide, toxicity to corn borer, 7182*h*.
sorption by $Ph_2NH$ and effect on surface tension, 1239*a*.
2,4,5-trichlorophenyl ester, P 3460*a*.
——, **α-amino-**. See *Leucine*.
——, **γ-benzoyl-**, and semicarbazone, 2931*g*.
——, **α-butyl-**. See *Caproic acid, α-isobutyl-*.
——, **β-ethoxy-**, ethyl ester, 6169*a*.
——, **α-hydroxy-**. See *Leucic acid*.
——, **β-hydroxy-**, β-lactone, P 5415*a*.
——, **α-isobutyl-**, and ethyl ester, 1317*e*.
——, **α-methyl-**. See *Valeric acid, α,γ-dimethyl-*.
——, **β-methyl-**. See *Valeric acid, β,γ-dimethyl-*.
——, **γ-nitro-**, methyl ester, 1319*g*.
——, **α-oxo-**, asparaginase and glutaminase activation by, 6266*e*.
effect on enzymic deamination of glutamine, 3857*b*.
——, **β-oxo-**, ethyl ester di-Et acetal, 6169*b*.
ethyl ester, reaction with thiourea, P 674*i*.

**2 - Isocapronaphthone, 6 - methoxy-**, 1382*i*.

**Isocapronitrile**, manuf. of, P 3440*b*.
phys. consts. of, 2592*b*.
——, **α-anilino-α-methyl-**, as insecticide, 4415*g*.
——, **γ-benzoyl-**, 2931*g*.
——, **β-oxo-**, and *p*-nitrophenylhydrazone, 2938*h*.

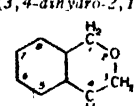
**Isocaprylic acid**. See *Enanthic acid, ε-methyl-*.
——, **γ-methyl-**. See *Enanthic acid, γ,ε-dimethyl-*.

**4a *H*-Isocarbazole**,

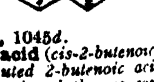


*4a-*
—, **1,2,3,4 - tetrahydro - 4a,8 - dimethyl-**, 4257*a*.
——, **1,2,3,4 - tetrahydro - 4a - methyl-**, 4257*a*.

**Isocarboline**. See *2 H-Pyrid[3,4-b]indole*.
**Isocarbostyril, 3,4-dihydro-6,7-dimethoxy-**. See *Corydaldine*.
**Isochavibetol** (*2-methoxy-5-propenylphenol, 5-propenylguaiacol*), and carbonate, P 4299*b*.
**Isochondrodendrine**, and derivs., 2626*b* and dimethyl ether, 2626*b*.
**Isochroman** (*3,4-dihydro-2,1 H-benzopyran*)



**Isochroman - 3 - carboxylic acid, 4 - hydroxy-1-oxo-**, 1045*c*.
**1,3 - Isochromandione, 4 - (2 - methyl-4(1 *H*) - quinolylidene)-**, 2290.
**Isocinchomeronic acid** (*2,5 pyridinedicarboxylic acid*), and dimethyl ester, 3825*c*.
**Isocitric acid** (*α hydroxytricarballylic acid*), conversion to α oxoglutaric acid, 1013*h*.
effect on acid metabolism in tobacco, 9177*d*.
oxidation of, 9122*h*.
in plant sap, soil pH tolerance and, 2288*e*.
**Isoclavacin**, cardiotoxic effects of, 1110*d*.
and derivs., 1407*a*.
effect on heart, 7138*h*.
——, **dimethyl-***, effect on heart, 1110*d*, 7138*h*.
**Isoconessine**, irritant action of, compared with conessine and neoconessine, 2327*d*.
pharmacology of, 1868*h*.
**17-Isocorticosterone, desoxy-***, acetate, P 7978*f*.
**Isocoumaran**. See *Phthalan*.
**Isocoumarin** (*2,1-benzopyrone*),



prepn. of, 1045*d*.
**Isocrotonic acid** (*cis-2-butenoic acid*). (*Unsubstituted 2-butenoic acids which have been assigned the cis configuration are entered here; undesignated and trans acids are entered at* Crotonic acid. *All derivatives of these acids are entered as inverted entries under* Crotonic acid *with "cis-" in the modification when they have been so designated.*)
**Isocyanates**, compns. with polyesters or polyester amides, increasing soly. in org. liquids, P 7753*a*.
di-, polyesters or polyester amides modified with, mixts. with polyvinyl acetal, P 3661*a*.
polymers from amino acids, amino alcs. or dihydroxy compds. and, P 6867*e*.

*di-*, polymers from, with acrylic acids, P 4516*e*.
in precuring superpolyester rubbers, P [illegible].
reaction products of org., with unsatd. polyesters or polyester amides, vulcanization with S, P 4046*g*.
as resin tanning agents, 1206*a*.
of hydrolyzed $C_5H_4$-vinyl ester interpolymers, P 1219*e*.
ions (neg.) of, 8848*a*.
org., chem. of, 1014*e*.
poly-, in dairy-equipment construction, 5877*e*.
polymers from, for coatings, 1604*i*.
reactions of inorg., with drying oils, factices, rubbers, varnishes, etc., P 908*a*.
protein derivs., P 3241*d*.
stabilizing solns. of aromatic, P 8732*c*.
in textile finishing, 7689*i*.

**Isocyanic acid.** (See also *Cyanic acid.*)
aralkyl esters and derivs., P 5800*e*.
aryl esters, in identification of heterocyclic compds., 8365*b*.
aryl esters, mechanism of reactions of, with amines and hydroxy compds., 7440*b*, 7441*ae*, 7442*ac*.
cyclohexyl ester, 4233*a*.
difluoromethyl, fluoromethyl and trifluoromethyl esters, 6793*e*.
α,α-dimethylbenzyl ester, 6993*i*.
esters, 169*a*, 3378*b*, P 6227*f*.
detn. of, 2125*f*.
with 3-hydroxy-4-(*p*-methoxyphenylazo) - 1 - methyl - 5 - pyrazolone, 4272*d*.
reaction with amides, 6162*e*.
reaction with wool, to improve wear resistance, P 9476*d*.
hexamethylene and tetramethylene esters, as resin tanning agents, 1206*b*.
hexamethylene ester, polymerization with acrylic acid and its derivs., P 4516*e*.
1-isoamylisohexyl ester, 2166*h*.
methyl ester, behavior in $Ac_2O$, 2110*f*.
1-naphthyl ester, Raman spectrum of, 8888*g*.
1- and 2-naphthyl esters, gelatin reaction products, 9512*e*.
*p*-nitrophenyl ester, condensation product with bis(4-biguanidinophenyl)urea, P 4880*b*.
octamethylene ester, 1563*d*.
phenyl ester, reaction with benzoin oxime, 1038*f*.
reaction with benzylpenicilloic acid and related compds., 6618*b*.
reaction with phenols, 1351*h*.
urease inactivation by, 5062*g*.
tetramethylene ester, 1564*i*.
triphenylmethyl ester, 4645*i*.
vinylaryl esters, and polymers, P 5422*f*.
vinyl ester, polymeric reaction products with N compds., gelatin compns. contg., P 5231*i*.
vinyl ester, polymers or copolymers with vinylidene compds. for textile treatment, P 6428*c*.

**Isocyanides.** (*The individual isocyanides (isonitriles) have their own index headings, e.g.*, Methyl isocyanide.)
calcn. of free energy function, heat content, heat and free energy of formation of, 5658*e*.
parachors of, 2057*h*.
polymers with carboxylic acid, P 4515*f*.

**Isocyano group,** bonds in, 8764*a*.

**Isocysteine** (*α-mercapto-β-alanine*), metabolism of, radio-S in study of, 5117*e*.

**Isocytosine** (*2-amino-4(3 H)-pyrimidone*), 2-amino-4-chloropyrimidine from, P 9082*f*.
spectrum of, 5307*c*.

**Isocytosine-4-acetic acid*,** spectrum of, 5307*c*.

**Isodecane.** See *Hendecane, 2-methyl-*.

**Isodextropimaric acid.** (See also *Dextropimaric acid.*)
sodium salt, chem. structure and emulsifying activity in GR-S rubber polymerization, 8724*i*.

**Isodienestrol*,** color and fluorescence tests for, 3870*h*.

**Isodistillene*,** 2983*e*.

**Isododecane*,** 5176*d*.

**Isodunniol*,** 2-(1,2-dimethylallyl)-3-hydroxy-1,4-naphthoquinone and, 3408*f*.

**β-Isodunniene,** 3408*e*.

**Isodurene** (*1,2,3,5-tetramethylbenzene*), formation of, 3377*d*.
prepn. and phys. consts. of, 7489*c*.

**Isoduренol** (*2,3,4,6 - tetramethylphenol*), 7465*e*.

**β - Isodurylaldehyde** (*2,4,6-trimethylbenzaldehyde*), derivs., spectra of, 3388*g*.

**β - Isodurylic acid** (*2,4,6 - trimethylbenzoic acid*), esters, reaction with PhMgBr, 9051*bd*.
hydrogenation of, 2964*b*.

**Isoelectric,** the term, 4082*h*.

**Isoelectric points,** of γ-alumina and Al(OH)₃ modifications, 6040*i*.
of blood-serum globulins, effect of nonelectrolytes on, 6888*f*.
of collagen, 8184*b*.
of collagen (deaminized and tanned), leather and nylon, 8184*e*.
detn. of, of gelatin, dyes in, 6884*d*.
of gelatin and gelatin derivs., increasing by methylation, P 9512*d*.
of phenylalanine and its derivs., 8810*c*.
of $[Pt(NH_3)_4(NH_3Cl)]Cl_2$, 1674*b*.
of proteins, effect of salts on, 3690*a*.
of proteins of blood plasma, variation with ionic strength, 3860*f*.
of sericin sols, 853*f*.
of tomato-juice globulin, 9167*i*.

**Isoenanthamide,** *N, N*-diethyl-α-isopropyl-, 1144*e*.
——, α-isoamyl-, in Hofmann reaction, 2166*h*.
——, α-isopropyl-, 1144*e*.
——, α-isopropyl-*N, N*-dimethyl-, 1144*e*.

**Isoenanthic acid** (*δ - methylcaproic acid*).
——, α-amino-α-isoamyl-, and hydrochloride, 2167*d*.
——, α,α - bis(2 - cyanoethyl) - β - oxo-, ethyl ester, 2582*g*.
——, δ-bromo-γ-oxo-, methyl ester, 3792*a*.
——, α - (α - chloroacetamido) - α - isoamyl-, 2167*d*.
——, β-ethyl-, 1374*b*.
——, β-ethyl-β-hydroxy-, methyl ester, 1374*a*.
——, δ-hydroxy-γ-oxo-, methyl ester, 3792*a*.
——, α-isoamyl-α-(3-phenylureido)-†, 2167*d*.
——, α-isopropyl-β-oxo-, ethyl ester, 6170*i*.
——, β-oxo-, ethyl ester, cyanoethylation of, 2582*g*.
——, γ-oxo-, methyl ester, 3792*a*.
——, γ,γ,δ - trihydroxy - α,β - dimethoxy-, γ-lactone, 1722*d*.

**Isoenanthyl chloride,** β-ethyl-, 1374*b*.

**Isoephedrine.** See *Pseudoephedrine*.

**Isoergoline,** 6-methyl-8-amino-*, P 6246*f*.

**Isoergosterone,** hydrogenation of, 7493*f*.

**Isoestriol A*,** and acetonide, 3435*a*.

**Isoetes echinospora,** lignins in, 2283*b*.

**14-Isoetiocholanic acid,** 3(β)-acetoxy-14-hydroxy-*, methyl ester, 2627*a*.
——, 3(β) - (thevetopyranosyloxy)-14-hydroxy-*, methyl ester diacetate, 1792*a*.

**Isoeugenitin,** 5-hydroxy-7 methoxy-2,8-dimethylchromone and, 6622*bc*.

**Isoeugenol** (*2-methoxy-4-propenylphenol*), condensation with *p*-quinone, 2181*g*.
dimer, as antioxidant, P 1586*d*.
reaction with $H_2S$ and NaHS, 9438*g*.
reaction with maleic anhydride, 1757*b*.
——, dihydrodehydrodi-*, 2427*i*.

**Isoeuphorol*,** 9512*f*.

**Isofebrifugine,** and derivs., 5406*a*.
identity with α-dichroine, 1530*a*.
——, dihydro-*, 5406*e*.
——, nitroso-*, 5406*d*.

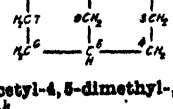
**Isofenchocamphoric acid** (*1,4,4-trimethyl-1,3 - cyclopentanedicarboxylic acid*), *cis-* and *trans-*, 7462*a*.

**Isofenchone** (*1,5,5-trimethylnorcamphor*), and semicarbazone, 7462*h*.

**Isoflavone, 4',5,7-trihydroxy-,** 7-*d*-glucoside—see *Genistin*.

**Isoglucosamine,** *p*-tolyl-*, D-, and derivs., 5404*c*.

**1-Isogranatanine** (*1-azabicyclo[3.3.1]nonane*),



——, 3-acetyl-4,5-dimethyl-, and picrate, 3004*h*.

**Isoguanine** (*6 - amino - 2 - hydroxypurine*), labeled with $N^{15}$, 579*h*.
sulfate, spectrum of, 1425*a*.

**Isohemagglutination.** See *Hemagglutination*.

**Isohemagglutinins.** See *Hemagglutinins*.

**Isoheptyl alcohol.** See *1-Hexanol, 5-methyl-*.

**Isohexaphene.** See *Benso[a]pentacene*.

**Isohexestrol.** See "isomers" under *Phenol, p,p'-(1,2-diethylethylene)di-*.

**Isohexylamine,** platinum complexes with, 1670*c*.
——, 1-methyl-†, vasoconstrictor prepn. contg. salts of, P 4429*d*.

**Isohydric point,** 22*f*, 6049*f*.
of aqueous borates and polyborates, 3693*g*.

**Isohydrobenzoin.** See *Hydrobenzoin*.

**Isohydrocinchene,** 4677*b*.

**Iso - *h* - hydrocinchonine, desoxy-*,** and hydriodide, 4677*f*.

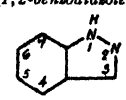
**Isohydrogen oxide.** See "heavy" under *Water*.

**4 *H*-Isoimidazole,**



——, 4,4 - dimethyl - 2,5 - bis(methylmercapto)-, 6171*f*.

**Isoindazole** (*1,2-benzodiazole, benzopyrazole*),

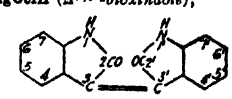


(See also *Indazole*.)
——, 6-nitro-, as antioxidant in alkyl benzenesulfonates, P 6846*b*.

**1 - Isoindazolecarboxamide, 3a,4,5,6,7,-7a-hexahydro-3-methyl-,** 1017*d*.

**β-Isoindigo*,** 7930*b*.

**Isoindigotin** (*$\Delta^{3,3'}$-bioxindole*),



derivs., 6614*e*.
1,1'-bis(phenylacetyl)-, 6614*f*.
1,1'-dibenzoyl-, 6614*f*.
1,1'-dimethyl-, 3428*g*.
1,1'-diphenyl-, 6614*i*.
1-phenyl-, 6614*f*.

**Isoindole** (*2-benzazole*),



(See also *Pseudoindole*.)
——, 1,3-dihydro-. See *Isoindoline*.

**1,3-Isoindoledione.** See *Phthalimide*.

**Isoindoline** (*1,3-dihydroisoindole*), compds. related to, derived from aniline, 237*g*.
and picrate, 121*h*.
——, hexahydro-. See *Isoindole, octahydro-*.
——, 1-oxo-. See *Phthalimidine*.

**2-Isoindolineacetamide, α-benzyl-*N*-[(carboxymethyl)carbamyl-methyl]-†,** DL-, 8357*b*.
——, *N*-(carboxymethyl)-1,3-dioxo-†, 8356*g*.
——, *N*-(α-carboxyphenethyl)-1,3-dioxo-†, DL-, 8356*i*.

**2-Isoindolineacetanilide, α-benzyl-1,3-dioxo-,** DL-, 8357*b*.

**2-Isoindolineacetic acid, α-benzyl-1,3-dioxo-,** DL-, 8357*a*.
——, α - 4 - hydroxybutyl - 2,3 - dioxo-, 4223*e*.
——, α-isopropyl-1,3-dioxo-, 5743*e*.

**2-Isoindolineacetyl chloride, α-benzyl-1,3-dioxo-,** DL-, 8357*a*.
——, 1,3-dioxo-, 8356*f*.

**2-Isoindolinemalonic acid, 1,3-dioxo-,** diethyl ester, reaction with acrolein, 143*c*.
——, α-2-formylethyl-1,3-dioxo-, diethyl ester, and derivs., 143*d*.
——, α-(3-indolylmethyl)-1,3-dioxo-, tryptophan from, P 2643*f*.

**2-Isoindolinepropionaldehyde, 2,3-dioxo-,** and hydrazones, 6169*h*.
——, α(and β)-methyl-1,3-dioxo-, and hydrazones, 6169*h*.

**2-Isoindolinepropionic acid, 1,3-dioxo-,** 6170*d*.
as pantothenic acid precursor for yeast, 9166*d*.

**1-Isoindolinone.** See *Phthalimidine*.

**Isoinositol,** of Müller, DL-inositol and, 2175*cd*.

**Isoionic points,** of proteins, effect of nonelectrolytes on, 6888*e*.
of proteins, effect of salts on, 3690*a*.

**Isoirone*,** isomers, 8375*i*.

——, dihydro-*, and derivs., 3376*d*.
——, tetrahydro-*, isomers, and derivs., 3376*e*.
**Iso-α-irone**. See *α-Irone*. For the term see 5550*c*.
**Isokaurene**, 2978*b*.
**14-Iso-20-ketopregnane-21-acid, 3(β)-acetoxy-14-hydroxy-***, lactone (21-14), 2627*a*.
**Isokhellin**, 7481*b*.
**Isolanostadiene**, oxidation of, 3830*c*.
**Isolauric acid**. See *Hendecanoic acid, 10-methyl-*.
**Isoleucine** (*α-amino-β-methylvaleric acid*), amino acid mixts. low in, N balance index and sp. dynamic action in rats receiving, 1468*b*.
antibacterial activity of, 3879*h*.
as antioxidant in alkyl benzenesulfonates, P 6845*d*.
from aspergillic acid, 3014*a*.
in barley, oats and wheat, 5450*g*.
in blood, carcass, heart, kidney, liver, muscle and skin of animals, 7061*e*.
in blood, effect of diet on, 5834*d*.
in blood plasma, 8429*d*.
in blood plasma, effect of fasting and N deprivation on, 4740*h*.
carboxypeptidase inhibition by, 701*g*.
chromatographic sepn. from other amino acids, 2266*g*.
chromatography on starch columns, 5818*e*.
in clupeine and salmine, 5431*i*.
cobalt complexes with, 5432*e*.
D- and L-, effect on tobacco seedlings, 7551*g*.
D-, detection of, and m.p. and optical crystallographic properties of its nitroindandionate, 69*i*.
D-, DL- and L-, polymerization of, 3787*c*.
detn. of, 3875*h*, 5341*g*.
in blood and urine, 265*b*.
in food and proteins, 9138*a*.
DL-, sepn. of isomers of, P 3029*h*.
effect on alanine (free) and pyruvate in blood, 4860*i*, 4354*e*.
on body wt. during growth, 6295*i*.
on growth of lactic acid bacteria, 4331*h*.
on sporulation of *Bacillus cereus*, 7082*i*.
on *Tetrahymena geleii*, 7593*c*.
in erythrocytes of chickens, 744*c*.
in hemolymph of dragon-fly nymph, 3114*d*.
inheritance of, in maize, 7088*e*.
in lactogenic hormone of pituitary, 5474*f*.
in *Lathyrus sativus* seeds, 1449*f*.
in liver, diet and, 7562*i*.
in lupine and soybean seeds and sprouts, 1080*e*.
in meats and foods, 3534*e*.
in nutrition of *Aedes aegypti* larva, 3940*i*.
optical antipodes of, as N sources for bacteria, 3063*i*.
in organs of swine, 7061*h*.
in pollen collected by bees, 732*e*.
in protein (basic) from sperm nuclei of different invertebrates, 4388*b*.
in royal jelly, 7149*f*.
sepn. from hydrolyzed egg albumin, 8807*c*.
in soybean meals, 3499*e*.
in thyroglobulin, 9121*i*.
in tobacco mosaic virus, 7092*b*.
urinary excretion of, 6714*b*.
in yeast nutrition, 1826*a*.
**Isoleucine, *N*-(2,4-dinitrophenyl)-*N*-methyl-, L-**, 3788*c*.
——, *N*-[3-hydroxy-5-(hydroxymethyl)-2-methyl-4-pyridylmethyl]-, DL-, 644*f*.
DL-, microbiol. activity of, 723*b*.
——, *N*-(α-hydroxyisovaleryl)-*N*-methyl-, and δ-lactone and Me ester, 3788*e*.
——, β-mercapto-, reaction with 2-benzyl-4-(methoxymethylene)-5(4*H*)-oxazolone, 1768*h*.
——, *N*-methyl-, L-, 3788*c*.
L-, detn. by chromatography, 3788*h*.
——, *N*-phenylacetyl-, and methyl ester, P 3574*b*, P 4698*b*.
——, *N*-phenylthioacetyl-, DL-, 3362*f*.
**Isoleucine anhydride, leucyl-***, 3014*a*.
**Isolinolenic acid**, chromatographic sepn. of, and its Me esters from linseed oil, 8707*e*.
methyl ester, spectrum of, 8275*b*.
**Isolinolenic acid**, in blood serum in infections, 5357*e*.
**Isolongifolic acid**, methyl ester, 2978*g*.
**Isolysergamide**, *N*-(2,2'-dihydroxyisopropyl)-, *d*-, P 2242*e*.
——, *N*-(2-hydroxyisopropyl)-, P 2741*b*.
——, *N*-[1-(hydroxymethyl)propyl]-, *d*-, P 2242*i*.
**Isolysergic acid**, derivs., and salts with tartaric acid esters, P 2740*g*.
isomerism of, and lysergic acid, 7031*g*.
structure of, 9384*i*.
——, dihydro-*, 7031*i*.
hydrazide, P 5427*h*.
**Isomalic acid**. See *Tartronic acid, methyl-*.
**Isomalonitrile**. See *Tartrononitrile, methyl-*.
**Isomaltose**, derivs., 2583*b*.
and derivs., from starch, 5748*d*.
**Isomaltoside, methyl**, β-D-, 2583*e*.
**Isomenthone**. See *Menthone*.
**Isomerism**. (See also *Chemical constitution; Optical rotation; Rearrangements; Stereochemistry*.)
atrop-, of octachlorohexatriene, 3346*c*.
of 4-(benzylmercapto)-4-methyl-2-pentanone, 7904*b*.
in biol. methylation, 2254*b*.
book: tautomérie et mésomérie, 7034*g*.
of diaryldihydropteridines, 3010*a*.
in diazoarylsulfonates, -sulfinates and sulfones, 5756*d*.
of diazocyanides, 7455*d*.
of α,α-diphenylcycloalkanemethanols, 3797*a*.
electronic, of β-dicarbonyl compds., 1010*i*.
electron tautomerism, theory of, 1633*f*.
of ethylenimine ketones, 3388*g*.
of formazyl compds., 4260*i*.
of 2-furaldehyde, 2865*b*.
geometric, cis-trans, compds. related to ethylenic, 2577*i*.
cis-trans, effect of chem. constitution of, 2961*e*.
cis-trans, of cinnamic acid, spectra and, 8886*g*.
cis-trans, of cyclohexane and derivs., 6988*h*.
cis-trans, of enol forms of β-dicarbonyl compds., 1009*h*.
cis-trans, of Me isolinoleate, 8275*d*.
cis-trans, of olefins, detn. of, 2479*e*.
cis-trans, of Pt complexes, 1674*c*, 1675*c*, 1678*i*.
cis-trans, of $[Pt(NH_3)_4(NH_3Cl)]Cl_3$, 1674*b*.
cis-trans, of sparteine, 3829*a*.
cis-trans, phys. properties and, 2591*h*.
cis-trans, reactions and, of steroids, 1428*h*.
cis-trans, thermodynamics of trans-influence principle in, 2854*g*.
hydrolysis (enzymic) and, of peptides, 258*e*.
of lysergic and isolysergic acids, 7031*g*.
nuclear—see *Atomic nuclei*.
of peroxides, 620*d*.
rotational, spectroscopic studies of, 2866*i*.
spectra and, of aromatic hydrocarbons, 4569*i*.
spectra and, of nitroso phenols, 5378*g*.
stereo, of growth substances of *cis*-cinnamic acid type and of stilbestrol and relation to ultraviolet spectra, 7093*e*.
in metabolites of naphthalene, 8506*a*.
morphological inversion of organism in relation to, 3861*f*.
physiol. activity of thyroxine in relation to its, 8492*i*.
in pinane series, 188*i*.
antimalarial action and, of naphthoquinones, 1871*a*.
provitamin A activity and, 9180*d*.
review on, of six-atom rings, 4232*g*.
tryptophan oxidation by *Pseudomonas* and, 8005*e*.
tautomerism—see also *Enols*.
tautomerism, 5359*d*.
of (α-aminobenzal)-4-nitrophenylhydrazine and its 2-Me deriv., 3747*e*.
of anthracene derivs., 9059*h*.
of azo dyes, 597*i*.
of dihydroiminomethylpyridines, 3292*d*.
enol-keto in formation of intramol. bonds, 4627*e*.
enol-keto, in gas phase, 6979*f*.
of α-(2-hydroxyethylamino) ketones, 4239*g*.
of hydroxypyridine 1-oxide, 2997*d*.
of indicators in indirect colorimetry, [illegible]
of 2-methylbenzothiazole, 2511*i*, 2853*d*.
of *N*-derivs. of α-(2-hydroxyethylamino)acetophenone, 4239*d*.
of oxaloacetic acid, 6579*f*.
of penicillic acid, 5745*b*.
of phenols, 2598*d*.
of pyrazolones, 7478*e*.
ring-chain, of 2-alkyl-1,4-naphthoquinone oxidation products, 1383*h*.
spectra and, of β-amino-α,β-unsatd. ketones, 7820*b*.
spectra and, of org. N compds., 6984*d*.
in 3-C systems, 8373*b*.
of vinyl and related polymers, 9523*f*.
**Isomerization**. (See also *Elaidinization; Heat of isomerization; Mutarotation; Racemization; Rearrangements*.) 5359*f*.
of acetylenic aldehydes and ketones, 3355*a*.
of acetylmethoxybenzotriazole, 2618*f*
of acetyltetrahydrophenanthrenecarboxylic acids, 8376*g*.
acids, causing, in resinous rubber transformation products, neutralization of, P 7745*a*.
in alcoholate reaction with α-bromosenecioic acid, 6975*a*.
of alcs., 4215*a*.
of aldehydes into ketones, 4632*f*.
of aliphatic hydrocarbons and petroleum, HF and $HF-BF_3$ catalysts for, P 844*e*.
and alkylation of paraffins with olefins with $HF-BF_3$ catalyst, P 5583*h*.
in alkylation of 1,2,3,4-tetrahydronaphthalene with iso-AmOH, 1369*i*.
of alkyl chloropentenyl ethers, 6568*e*.
of ally benzyl sulfone, 6995*d*.
of 1-ally-2-ethoxy-3,4-dimethoxybenzene, 7451*i*.
of 2-allyl-6-ethoxyphenol, P 3037*e*.
of amidophosphoric acid hydrate to $NH_4H_2PO_4$, 2110*e*.
of amino cyclic alcs., 3372*g*.
of 5-amino-2-thiazolethiol derivs., 3409*f*
of ammonium compds., 6177*c*.
of *cis*-antheraxanthin, 4233*f*.
of benzene (cracked), high-octane fuel by, P 3604*f*.
of benzylpenicillenic acid, 1768*f*
of butadienes, methylstyrenes and pentadienes, 5275*f*.
of butane, P 660*e*, P 4283*d*.
with $AlCl_3$ catalyst in 2-step process, P 1561*b*.
with $AlCl_3$-HCl catalyst, dehydration of hydrocarbons from, P 4007*f*.
corrosion protection of app. for, P 103*a*.
regeneration of molten $SbCl_3$-$AlCl_3$ catalyst from, P 4843*d*.
temp. control in, P 4007*d*.
butane purification for, P 2423*c*.
of 1-butene, bentonite and gumbrin as catalysts in, 6153*a*.
of butenes, kinetics of, 24*f*.
of butene to 2-methylpropene, P 2216*d*
of butyl alc., 7899*b*.
in butyl alc. dehydration, P 3833*h*, P 7035*b*.
of *p*-butylphenol, P 5042*i*.
of camphene, 2975*d*.
of carbonyl compds., 1753*c*.
catalysts for, P 7102*f*, 8251*e*, P 8579*f*.
of 3-chloro-2-buten-1-ol and 1,3-dichloro-2-butene, 4214*g*.
of 1-chloropropane, mass spectroscopy in, 5734*c*.
of cod-liver oil, 9380*g*.
cracking, on $Al_2O_3$ catalysts, 1250*e*.
of cycloalkanone oximes, 5400*a*.
of cyclohexane, 7911*i*, 7912*b*.
of cyclohexane and methylcyclopentane, 587*b*.
of cyclohexanecarboxylic acid derivs. and in peroxide alkylation of 2-hydroxy-1,4-naphthoquinone, 1376*d*.
of cyclohexene and cyclopentene, 8255*a*
of cyclohexenes to cyclopentenes, 2173*b*.
of 4-cyclohexylcyclohexanol and 4-phenylcyclohexanol, 159*i*.
of cycloparaffins from naphthenic gasoline to hydroaromatic cycloparaffins, P 3605*f*.
dehydrogenation and, of $C_4H_{10}$ and paraffins, P 1955*i*.
of 2,5-diaminothiazole derivs., 3408*k*.
of diazo compds., kinetics of, 169*g*.
of 1,4-dibromo-2-butene, 2578*g*.
of 3,4-dichloro-1-butene, 6152*i*.
of dichlorobutenes, P 663*e*.
of *N*-(2,2'-dihydroxyisopropyl)lysergamide, P 2243*a*.
of 3(α),12(β)-dihydroxy-11-ketocholanic [illegible] y of, 4679*e*.
[illegible]-1,10-bis(2,6,6-trimethyl-[illegible]n-1-yl)-2,8-decadiene-5-yne-4,7-diol, 2588*f*.
2,2(and 2,4)-dimethylpentanes

methylcyclopentane in sepn. from $C_6H_6$ and cyclohexane mixts., P 1957*i*.
of 3,4-diphenyl-1,5-hexadiene, 612*e*.
of diphenylphosphinous acid esters, 3801*i*.
effect on ultraviolet absorption curves of unhydrogenated fish oils, 879*i*.
of 11-eicosenoic acid, 4220*c*.
of enol acetates to 1,3-diketones, P 7954*a*.
of ethylene oxide, 2624*h*.
of fats and oils, P 2341*a*.
geometric, cis-trans, of benzylideneacetone and cinnamonitrile, 182*i*.
cis-trans, of β-(2,4-dihydroxyphenyl)-glutaconic acid, 1408*e*.
cis-trans, kinetics of, 5240*e*.
cis-trans, of naphthenes in sepn. from paraffins, P 7678*b*.
cis-trans, of 1,2,3-trimethylcyclopentanes in hydrogenation, 1332*d*.
of α-D-glucose pentaacetate, 7923*d*.
of β-glucosides, 3795*d*.
of hexachlorocyclohexane isomers, 6878*a*.
of hexane, 2078*b*.
of hexanes, heptane and methylcyclopentane, P 1958*f*.
of hexanes on Al halide catalysts, 5656*f*.
of hexane to 2-methylpentane and of 2-methylpentane to 2,2- and 2,3-dimethylbutane with HF-$BF_3$ catalyst in presence of modifiers, P 4006*i*.
of hydrocarbons, 3343*g*, 3371*g*, P 3833*ce*, P 5174*e*.
alk. earth metals reducing corrosiveness of Al halide-hydrocarbon complex catalysts in, P 5582*i*.
with Friedel-Crafts catalysts modified with $H_3BO_3$, P 6217*e*.
with halide-ether complex catalyst, P 8666*c*.
under hydrogenating conditions over Fischer-Tropsch Co catalyst, 7664*a*.
with HCl-activated $AlCl_3$ catalysts and $AlCl_3$-contg. charcoal bed, P 844*e*.
regeneration of $AlCl_3$ catalyst from, P 3733*e*.
with sublimed $AlCl_3$ catalysts, P 1174*f*.
of hydrocarbons (polymethylene) in the presence of $AlCl_3$, 157*e*.
of β-hydromuconononitrile to α-hydromucononitrile, P 6647*e*.
of hydroxy aldehydes, 3790*i*.
of indoles, 217*i*, 219*g*.
of irones in production of iris oil, 5550*d*.
of isoamyl alc. dehydration product, P 3834*a*.
of ketoxime sulfonates, 2593*h*.
of linolenic and linoleic acids and vegetable oils by alkali, formation of conjugated tetraenoic and trienoic fatty acids in, 5974*c*.
of linseed oil in presence of metals, 4027*f*.
of *l*-menthanone, 6875*e*.
of methoxychloropentenes, 130*f*.
of 2-methyl-1-butene, P 4283*f*.
of morphine, 5786*d*.
of *trans*-1-naphthaleneacrylic acid, 3816*c*.
of naphthenes and paraffins, effect o $AlCl_3$-nitro paraffin solns. on, 108*h*.
of naphthionic acid, P 6666*i*.
of nopinene and pinene, P 5423*f*.
of nopol, P 1807*f*.
of *cis*-11-octadecenoic acid, 567*a*.
of 1-octene, 6152*c*.
of oils (drying), 2787*g*.
of oils (drying) and drying-oil fatty acids in conjugation production, 4025*g*.
of oils (drying), free-radical concepts of, 4025*d*.
of oils with Ni-active C catalysts, 2791*i*.
of olefins, 1713*g*.
with $Al_2O_3$-HF catalyst, P 5939*c*.
catalysts for, P 6783*b*.
in high-octane-fuel manuf., P 2421*i*.
with HCl or HBr as catalysts, P 3604*i*.
shift of α-double bonds in, 383*c*.
in vapor phase with HF catalysts, P 1175*g*.
of 1-olefins and olefin polymers with brucite catalysts in paraffin manuf., P 1561*a*.
of olefins and paraffins, review on mechanism of, 6149*g*.
of α-olefins ($C_4$ and $C_5$) to β-olefins in gasoline manuf., P 2763*h*.
of paraffins, P 3833*c*, P 6819*a*, 7897*f*.
with $AlCl_3$ catalyst in presence of H and HCl, P 5182*d*.
with $AlCl_3$-hydrocarbon complex as catalyst, Diesel fuels by, P 5174*e*.
with $AlCl_3$-$FeCl_3$ catalyst, P 8667*b*.
with Al halide-S compd. catalysts, P 3188*d*.
catalysts for, P 660*f*, P 1931*d*, P
of *paraffins*, with halide-promoted $AlCl_3$ catalysts, P 1957*ef*.
with HCl-activated $AlCl_3$ and then $NaHSO_4$-activated $AlCl_3$ catalysts, P 4006*e*.
with HCl-promoted $AlCl_3$-hydrocarbon complex catalysts in 6-stage process, P 1559*h*.
with HF-$BF_3$ catalysts in presence of aromatic hydrocarbons, P 4006*h*.
with H halide-promoted Al halide, catalyst removal from products from, P 7222*h*.
with liquid halide catalysts, P 3190*c*.
with metal halide catalysts, P 6819*i*.
in the presence of catalysts contg. $AlCl_3$, 1712*h*.
recovery of HCl promoter from gaseous reaction products from, P 7677*h*.
in vapor phase, maintaining activity of Al halide catalyst in, P 4006*f*.
of paraffin wax to liquids of same mol. wt. with $AlCl_3$ catalyst complexes with *tert*-butyl chloride or toluene, P 7677*c*.
of pentane, 1712*c*.
of 2-phenylcyclohexanecarboxylic acid, 2-phenyl-3-cyclohexene-1-carboxylic acid and its Et ester, 8364*a*.
of 5-phenyl-1,3-pentadien-5-ol, 2576*d*.
of α-phenylpropiophenone, 1754*a*.
photochem., of $C_2H_2Cl_2$ sensitized by I, 5672*a*.
pilot plant for, 4522*c*.
of pinene, 188*f*, 7003*i*
to camphene, P 2234*f*.
to camphene, clays as catalysts for, 6799*a*.
of α-pinene, 609*g*.
of α-pinene into alloöcimene, 5657*a*.
of platinum complexes, 1674*g*.
of pseudoionone, Br no. detn. during, 6540*f*.
of pyramidone, P 3467*b*.
of quinamine, 7489*h*.
review on, 7759*c*.
of tar lubricating oil with Pd-C catalyst, 3182*g*.
tautomerization, of cyclic amides, 579*a*.
in deuterium exchange in org. compds., 5011*i*.
enolization, of anthraquinone dye derivs., 3190*g*.
enolization, of Et acetoacetate in gaseous state, 139*g*.
enolization, solvation in relation to, 2944*i*.
of peroxides into dienol and hydroxy ketones in spoilage of fats and oils, 3217*a*.
temp. control in, P 2763*g*.
of 4a,5,8,8a-tetrahydro-6,7-dimethyl-1,4-naphthoquinone, 1756*h*.
of 5,6,7,8-tetrahydro-β-methyl-2-naphthaleneacrylic acid, 4659*d*.
of 1,1,3,3-tetraphenyl-1-butene, 2569*g*.
of 2,2,4-trimethylpentenes, 1311*b*.
of *cis*-α,β-unsatd. acids, P 1798*d*.
of unsatd. alcs. and their derivs., 112*af*, 113*bi*, 114*h*.
of unsatd. hydrocarbons, 6153*h*.
of urea to $NH_4CNO$, 143*g*.
of vinylacetylene glycols, 2162*g*.

**Isomers.** (See also *Enols*.)
of cyclotetrasiloxane systems, 2513*c*.
distinguishing, by spot tests, 6944*d*.
geometric, cis-trans, configuration of radicals from, 4214*i*.
cis-trans, nomenclature of, 107*c*.
cis-trans, of (2-chlorovinyl)dichloroarsines, 916*h*.
cis-trans, of Co complexes, heats of formation of, 7807*e*.
cis-trans, of complex compds. of bivalent Pd and Pt, spectra of, 4953*h*.
cis-trans, of Pt complexes, magnetic susceptibilities of, 7278*b*.
cis-trans, product rule for planar vibrations of, 5308*d*.
magnetic, quantum mechanics and existence of, 8274*e*.
magnetooptic rotation of hydrocarbon, 8838*i*.
polymer, 9523*f*.
resolution of—see *Resolution*.
spen. by diasolysis, 4077*h*.
skew and trans, of 1,1,2,2-tetrachloroethane, 8770*i*.
stereo-, of *N*,*N'*-bis(arylsulfonyl) derivs. of *N*,*N'*-dimethyl-2,4-mesitylenediamine, 7919*a*.
of *N*,*N'*-dialkyl-*N*,*N'*-bis(phenylsulfonyl) derivs. of 2,4-mesitylenediamine, 1735*d*.
stereo-, dielec. polarization and elec. moments of, 2054*g*.
heat capacity of, of $Pt(NH_3)_2Cl_2$, 29*i*.
odor of, 8100*c*.
phys. identity of, 8768*d*.
sepn. of, of amino alcs., 6999*d*.
transmethylation (enzymic) and, 6573*i*.
thermochor of, 8226*e*.
of unsatd. compds., 111*g*.

**Isomesityl oxide.** See *4-Penten-2-one, 4-methyl-*.

**Isomethadone.** See *3-Hexanone, 6-dimethylamino-5-methyl-4,4-diphenyl-*.

**Isomorphism.** (See also *Solutions, solid.*)
of alkali metal perchlorates, 7286*d*.
of basic $Mg(ClO_3)_2$ and $Mg(NO_3)_2.4Mg(OH)_2$, 7286*c*.
of beidellite and montmorillonite, 6348*a*.
of benzoic acid derivs., 187*g*.
of cesium and Rb salts, 4596*a*.
of diborides of Cb, Ta, Ti, V and Zr, 8933*a*.
mol. configuration and, in the 3,4-diphenyl-1,5-hexadiene series, 611*i*.
of org. halides, 5754*e*.
partially isomorphous systems, 8238*f*.
of potassium and K $NH_4$ tartrates, 7287*f*.
replaceability of H, OH, $NH_2$, $CH_3$ and Cl in *m*-dinitrobenzene series, 3277*d*.
replaceability of H, OH and Cl in *s*-trinitrobenzene series, 3277*g*.
viscosity coeff. of isomorphous substances, 4064*h*.

**Isomyn.** See *Phenethylamine, α-methyl-*.

**Isomyristicin,** 602*e*, 2212*a*.
oxidation of, 9040*e*.

**Isonal.** See *Prominal*.

**Isonaphthazarin.** See *1,4-Naphthoquinone, 2,3-dihydroxy-*.

**1,2-α,β-Isonaphthofurandione.** See *1,2-Naphthalenedicarboxylic anhydride*.

**1,2-β,β-Isonaphthofurandione.** See *2,3-Naphthalenedicarboxylic anhydride*.

**Isonicotinaldehyde, 3,5-dihydroxy-2-methyl-,** and phenylhydrazone, P 725*e*.

———, 3-hydroxy-5-(hydroxymethyl)-2-methyl-, derivs., 644*bd*.
and derivs., P 4702*h*.
detection in presence of codecarboxylase, 9135*d*.
detn. of, 291*a*.
as growth factor for *Tetrahymena geleii*, 9156*i*.
in natural products, 3075*h*.
phosphate—see also *Codecarboxylase*.
phosphate, codecarboxylase and, 6680*c*.
in histidine decarboxylase, 9106*i*.
as kynureninase coenzyme, 6264*e*.
synthesis by yeast, 9158*h*.
in transamination, 2297*d*.
3- and 5-phosphates, 9107*c*.
urinary excretion of, 4352*a*.

**Isonicotinamide, 3-cyano-1,2-dihydro-6-methyl-2-oxo-,** 4673*d*.

———, 3-hydroxy-5-(hydroxymethyl)-2-methyl-, hydrochloride, 644*d*.

**Isonicotinic acid** (*4-pyridinecarboxylic acid*), detn. of, 6542*e*.
manuf. of, P 697*s*, P 8402*e*.
prepn. of, 3825*c*.
reduction (electrolytic) of, 4266*f*.
solubility of, 6207*e*.

———, 3-[*p*-(acetylsulfamyl)phenylazo]-2,6-dihydroxy-, P 3571*i*.

———, 2-amino-, 3827*b*.

———, 2-amino-5-(aminomethyl)-2-methyl-, ethyl ester, -HCl, P 3045*c*.

———, 2-(aminomethyl)-, lactam—see *1H-Pyrrolo[3,4-c]pyridin-1-one, 2,3-dihydro-*.

———, 2-anilino-, 3827*c*.

———, 3-[bis(*p*-methoxyphenyl)amino]-, and compd. with 2-benzyl-2-thiopseudourea, 3827*b*.

———, 3-(2-carboxy-4-methoxyanilino)-, 3827*c*.

———, 2,6-dihydroxy-, derivs., P 3571*i*.

———, 2,6-dihydroxy-3-[*p*-(6-methyl-2-pyridylsulfamyl)phenylazo]-, P 3572*a*.

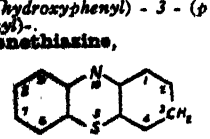
———, 2,6-dihydroxy-3-[*p*-(2-pyridylsulfamyl)phenylazo]-, P 3571*i*.

———, 2,6-dihydroxy-3-[*p*-(2-thiazolylsulfamyl)phenylazo]-, P 3572*a*.

———, hexahydro-. See *Isonipecotic acid*.

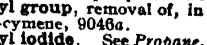
———, 3-hydroxy-5-(hydroxymethyl)-2-methyl-, γ-lactone, P 3045*b*, P 6671*g*.
lactone and its hydrochloride, P 1067*a*.

and γ-lactone and related compds., 644a.
γ-lactone, fluorescence and pH of, 8282d.
urinary excretion of, 4352a.
——, 5 - (hydroxymethyl) - 3 - methoxy-2-methyl-, lactone, P 1067e.
——, 3-iodo-, 3827c
——, 3-p-methoxyanilino-, 3827c.
——, 3-sulfo-, 7024h.
——, 1,2,3,6 - tetrahydro - 2,6 - dioxo-, azo dye from, P 7711c.
Isonicotinonitrile, 5 - (chloromethyl)-3-hydroxy-2-methyl-, 644d.
——, 3 - hydroxy - 5 - (hydroxymethyl)-2-methyl-, derivs., 644b.
Isonipecaine. See "ethyl ester" under *Isonipecotic acid, 1-methyl-4-phenyl-*.
Isonipecotic acid (*4-piperidinecarboxylic acid*).
——, 4-(m-hydroxyphenyl)-1-methyl-, P 2240h.
ethyl ester, 1909f.
——, 1-methyl-3-oxo-, ethyl ester, 4274g.
——, 1-methyl-4-phenyl-, effect on cardiovascular, gastroenteric and extrahepatic biliary activity, 8552i.
ethyl ester, 1909f, P 3471h.
analgesic action of, 9250h.
analgiphoric group in, 9268b.
anesthetic action of, 1487d.
detection in biol. material, 8421i.
effect on blood sugar and insulin action, 8056a.
effect on blood vessels, 2704g.
effect on body temp. before and after adrenalectomy, 1868i.
effect on ganglionic transmission compared with morphine, 6311b.
effect on succinic oxidase system, 3521c.
in ophthalmology, 4771f.
pharmacological action of, compared with methadon, 3519f.
solns. of, isoösmotic with blood, 5903g.
ethyl ester, analgesic action of, and related compds., 6399d.
ethyl ester, pharmacology of, and its analogs, 1869d.
diethylaminoethyl ester, anesthetic action of, 4426f.
Isonipecotyl chloride, 4-(m-methoxyphenyl)-1-methyl-, P 2240g.
Isonitriles. See *Isocyanides*.
Isonitro compounds, reaction with aldehydes, P 3438h.
salts, in vinyl chloride resin stabilization, P 4049i.
Isoöctane. See *Heptane, 2-methyl-; Pentane, 2,2,4-trimethyl-*.
Isoöctyl alcohol. See *1-Heptanol, 6-methyl-*.
Isoöctyl alcohol*, manuf. from gasoline, 3180a.
Isoöctylamine, N-phenethyl-†, effect on blood pressure, 7585g.
Isooleanonelactonedicarboxylic acid*, dimethyl ester, 1748g.
Isoöleic acid. (See also *Octadecenoic acid, Vaccenic acid.*)
in fats (Indian hydrogenated), 2449c.
formation in soybean oil in hydrogenation, 5209h.
2,3-Isoöleic acid*, formation in elaidinization of palm oil with Raney Ni catalysts, 1582c.
Isoparaffins. See *Paraffins*.
Isopedicin (*6-hydroxy-5,7,8-trimethoxyflavanone*), 4264e, 5396b
Isopelargonic acid. See *Caprylic acid, γ-methyl-*.
Isopelletierine (*1 - (2 - piperidyl) - 2 - propanone*). (For derivs. see under *2-Propanone.*)
derivs., 6625d.
Isopentane. See *Butane, 2-methyl-*.
Isopentane sultone*, 6569h.
Isopentaquine. See *Quinoline, 8-(4-isopropylamino - 1 - methylbutylamino)-6-methoxy-*.
Isopeonol (*4-hydroxy-2-methoxyacetophenone*), polarographic and potentiometric investigation of, 1349i.
Isoperthiocyanic acid, detection of, 971a.
Isophenolphthalein. See *Phthalide, 3-(o - hydroxyphenyl) - 3 - (p - hydroxyphenyl)-*.
*H*-Isophenothiazine,

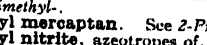


3-
——, 7-amino-3-imino-. See *Thionine*.
——, 7 - dimethylamino - 3 - methylimino-, 3-methochloride—see *Methylene blue*.
Isopherophysine, acetyl-*, identity with smirnonovine, and picrate, 238g.
Isophorol, dihydro-. See *Cyclohexanol, 3,3,5-trimethyl-*.
Isophorone (*3,5,5-trimethyl-2-cyclohexen-1-one*), condensation product, incorrectly given as isoprene, 3965h.
manuf. of, and related compds., P 5419a, P 7507e.
oxime, enlargement of ring of, P 3451b.
reaction with fuming $H_2SO_4$, 9043h.
reaction with $H_2S$, P 1063ab.
sepn. of, from its mixts. with mesityl oxide and phorone, P 5039d.
spectrum of, 4575c.
wetting effectiveness improvement of Na di-*tert*-butylnaphthalenesulfonate by, P 3638h.
——, 6-benzylidene-, as insecticide, P 4420i.
——, dihydro-. See *Cyclohexanone, 3,3,5-trimethyl-*.
Isophosphorylase, 6247d.
in amylopectin and glycogen synthesis, 6251i.
in formation of branched chain polysaccharides, 3861a.
polysaccharide branching and, 7979c.
Isophthalaldehydic acid (*m-formylbenzoic acid*).
——, 2,6 - dihydroxy - 4 - (2 - hydroxy - 1-methylpropyl) - 5 - methyl-, and methyl ester, 6206b.
——, 2,6 - dihydroxy - 4 - methoxy-, methyl ester and its semicarbazone, 3414a.
Isophthalamide, 5 - (N⁴ - acetylsulfanilamido)-, 4648h.
——, 5 - (N⁴ - acetylsulfanilamido)-N,N,N',N'-tetraethyl-, 4648h.
——, 5-chloro-, 609f.
Isophthalic acid (*m-benzenedicarboxylic acid*), esters with quaternary ammonium iodides, curarelike action of, 1486i.
formation by anodic oxidation of vitrain, and di-Me ester, 376h.
ionization and resonance of, 7790c.
prepn. of, and 2-dialkylaminoethyl esters and their derivs., 2190e.
salt with piperazine, 235f.
spectrum of, 8890i.
——, 4-amino-, azo dye from, P 3204h, P 4478h, P 8144g.
——, 4-bromo-, 9332g.
——, 4 - (carboxy - *tert* - butyl)-, and 3,4-anhydride†, 2589c
——, 5-chloro-, and dimethyl ester, 609e.
——, hexahydro-. See *1,3-Cyclohexanedicarboxylic acid*.
——, 5 - (1 - hydroxy - 2 - naphthoylamino)-, dye from, light absorption by, 7232b.
——, 4-methoxy-2-methyl-, 2075c.
——, 5-methyl-. See *Uvitic acid*.
——, 1,2,3,6-tetrahydro-. See *4-Cyclohexene - 1,3 - dicarboxylic acid*.
Isophthaloyl chloride, chlorination of, 609e.
——, 5-chloro-, 609e.
——, 2-nitro-, 1780a.
Isopilocarpine, review on, 2616h.
Isopimaric acid, *d*-, from *d*-isopimarinal, 1390i.
*d*-, from pine oleoresin, 1390d.
*d*-, from proabietic acid of Kraft, 1390e.
Isopimarinal*, *d*-, and derivs., 1390e.
Isopinocampheol. See *Pinocampheol*.
Isopinocamphone. See *Pinocamphone*.
Isopods, control in concrete reservoirs, 2717d.
17 - Isopregnan - 3(α) - ol - 20 - one*, 5067g.
and acetate, spectra of, 3018i.
14 - Isopregnan - 20 - one, 3(β) - (thevetopyranosyloxy) - 14,21 - dihydroxy-*, and triacetate, 1791i, 1792a.
17 - Iso - Δ⁵ - pregnene - 3(β),17(β),20,21-tetrol*, configurational study of, 6210i.
17 - Iso - Δ⁵ - pregnene - 3(β),17(β),20-triol*, configurational study of, 6210h.
17 - Iso - Δ⁵ - pregnene - 3(β),17(β),20(β)-triol*, 3,20-diacetate, 8396c.
17 - Iso - Δ⁴ - pregnene - 17(β),20,21-triol-3-one*, configurational study of, 6210i.
17 - Iso - Δ⁵ - pregnen - 3 - ol - 20 - one*, acetate, P 7978f.
17 - Iso - Δ⁵ - pregnen - 3(β) - ol - 20-one*, 3-acetate, 8396d.
Isoprene (*2 - methyl - 1,3 - butadiene*). (See also *Rubber, substitute and synthetic.*)
chloro derivs., polymers of, coatings for rubber protection against sun from (*C. A.* has polychloroprene by mistake), P 5224e.
complex with $AlBr_3$, as catalyst dehydration of glycols, P 3834d.
condensation with *p*-quinone, 2181f.
condensation with rosin with $BF_3$ catalyst and esterification of condensate, P 9486a.
and derivs., 5362b.
detn. in petroleum-refinery $C_5$ fractions, 8123e.
Diels-Alder adduct with hexachlorocyclopentadiene, P 4693e.
dimer, reaction with $H_2S$, 999d.
by distn. of rubbers and polymeric olefins, P 1211f.
effect on gum formation in fuel gas, 5925a
from ethyl alc., 558d.
extn. with liquid $NH_3$ solns., P 3192b.
formation of, by dehydration of alcs., 111g.
in gasoline from Puertollano shale, 5578f
halogenation of, P 2218d.
manuf. of, P 3023c.
from 2-methyl-2-butene, 5733f
polymerization and dimerization of, 5621b.
polymerization (mixed) with styrene, P 2816f.
polymerization of, alone and with butadiene, effects of temps. on, 8725
with dodecanethiol modifier and peroxide catalysts to low-mol.-wt. liquid polymers, 8193e.
electronic structure and, 1631a.
with Et acrylate, 5988i
with isobutene at low temps. with fluorinated hydrocarbon dispersing agents, 2019g.
with 2-methylpropene and chlorostyrenes at very low temps., P 9519
with 2 methylpropene, temp. control to −120° in, P 7257f.
in the presence of Na and PhMe, 1714b.
Na catalyst for, P 1932c.
with styrene with $Bz_2O_2$ and $K_2S_2O_8$ as catalysts and thiols as modifiers, 2018h.
polymerization of, alone and with styrene in solns. with *tert*-Bu peroxide catalysts, and viscosities, etc., of polymers, 8190i.
polymerization of, by bleaching earths, and dimer, 109a.
polymers of, with acrylonitrile, balloon for compressed gas from, P 5224f
alone and with styrene, 2459g
alone and with styrene or chlorostyrenes prepd. in Buna S 3 and GR-S systems, 8189b.
alone or with butadiene, friction coeffs. on ice, 2012f.
with anilides of acrylic acid or methacrylic acid, rubberlike, P 2803g
breaking cationic emulsions of, P 5232c.
with 1,1-dichloro-2,2-difluoroethylene, 2465d.
intramol. statistics, elasticity, double refraction and partition function of chain mols. in stressed, 6855g
mechanism of chain propagation in oxidation of, 5271f.
with 2-methylpropene, polyalkylated phenol-stabilized, P 5992b.
oxidized, as tackifier in butadiene-styrene rubber, P 2804a.
with 2-pentene prepd. at very low temps., P 8195b.
pyrolysis products of, and formation in pyrolysis of other polymers, 2810h
reaction products with inorg. acids or anhydrides, P 2804c.
reaction with S, formation of cyclic and polysulfides in, 4886b.
by pyrolysis of rubber and polyisoprene, 2009g.
by pyrolysis of rubber, etc., P 3228c.
reaction with $BrCCl_3$, P 5789g.
with $H_2S$, P 691g.
with $CaF_4$, 3370d, P 4294c.
recovery from hydrocarbon mixts., with methylamine-CuOAc complex solvents, P 1955g.
from rubber, P 5281f.

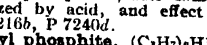
sepn. from acetylenes, P 6218*a*.
from hydrocarbon mixts. by reaction with $SO_3$, P 2216*g*.
from $C_8$ hydrocarbons, P 2824*b*.
from hydrocarbons by extractive distn., P 3453*c*.
sulfone—see "1,1-dioxide" under *Thiophene, 2,5-dihydro-3-methyl-*.
terpene alcs. from, P 3039*g*.
thermodynamic functions of, 5275*e*.
ultraviolet absorption by, in vapor and in *n*-$C_7H_{16}$ soln., 3291*g*.
**Isoprenecarboxylic acid**. See *2,4-Pentadienoic acid, 4-methyl-*.
**1,4-Isoprenedicarboxylic acid**. See *Muconic acid, β-methyl-*.
**Isopropanolamine**. See *2-Propanol, 1-amino-*.
**Isopropenyl chloride**. See *Propene, 2-chloro-*.
**Isopropenyl group**, rearrangement of, 6578*f*.
**Isopropyl** (*free radical*), electronic structure of, 2512*a*.
heat of formation of, 6479*c*.
**Isopropylal**. See *Methane, diisopropoxy-*.
**Isopropyl alcohol**. (For derivs. see under *2-Propanol*.)
acrylate, P 6651*a*.
adsorption by bauxite contg. Fe, 6497*f*.
adsorption by $Ph_2NH$, 464*e*.
alkylation with, of $C_6H_6$, 7916*a*.
ammonia elec. conductivity in, 5655*h*
analysis of, for cations, solvents in chromatographic, 6537*c*.
assocn. of, and elec. conduction by, 8772*c*.
-butanol fermentation, 1145*e*.
butyric acid ionization in aq., 1244*c*.
in cellulose carboxyalkyl ether manuf., P 7685*h*.
*l* citronellate, 4633*g*.
cornea tolerance to, 3110*h*.
decompn. on NiS catalysts, 7802*i*.
dehydration and dehydrogenation on $Cr_2O_3$ catalysts, 4087*d*.
dehydrogenation of, 1249*e*, P 4287*f*.
on colloidal Rh, effect of S on, 27*i*.
by *Merulius lacrymans*, 9160*h*.
detection and detn. in denatured alc., 7377*g*.
detn. of, in presence of diacetone alc. and 2-methyl-2,4-pentanediol, 6112*h*.
drying of, P 7275*c*.
drying of, by azeotropic distn., P 3836*a*.
effect on coagulation of $As_2S_3$ by $BaCl_2$, 8794*a*.
on elec. conductivity of aq. dodecylammonium chloride, 3268*i*.
on interfacial friction, 2060*c*.
on long-chain electrolytes in aq. soln., 7303*f*.
on N fixation by *Azotobacter*, 9160*b*.
on oxidation of isopropyl ether, 6157*a*.
and esters, ionization in $H_2SO_4$, 8808*e*.
esters, spectra of, 1656*c*.
formation by hydrocondensation of CO with $C_2H_4$, 4829*i*.
formation in hydrogenation of diacetone alc., P 5794*b*.
manuf. and use as antifreeze, 3117*i*.
manuf. of, P 2218*i*, P 4682*g*, P 4693*a*, P 6645*g*, P 8397*i*.
from propene, P 5032*g*.
removal of water-insol. impurities in, P 5790*f*.
mixts. with acids and sugars, osmosis of, 7300*g*.
with *p*-*tert*-amylphenol or 2-ethylhexanol as foam suppressers, P 7610*c*.
with toluene, intrinsic vistex viscosities of butadiene-styrene polymers in, 9516*c*.
molasses extn. with, 6445*c*.
oxidation of, P 3025*i*.
to acetone on Ag catalyst, kinetics of, 5272*e*.
with chromic acid, kinetics of, 2847*g*.
rate of, 7798*e*.
in pharmaceuticals, 3147*h*.
phys. constants of, 2956*b*.
pyrolysis of, 7899*d*.
reactions with formaldehyde and with MeOH, 993*i*.
with olive oil, 1715*g*.
with PhNCO, kinetics of, 7441*bf*.
soly. in Na xylenesulfonate solns., 1242*f*.
soln. time of Na in, 5741*h*.
spectra of mixts. contg., 2095*c*.
systems: $NH_3$—, 5557*h*.
system: Na palmitate—, x-ray diffraction by, 2793*b*.
system: $CCl_3CHO$—, mol. wt. in $C_6H_6$, 1252*f*.
thermodynamic properties of, 476*g*.
viscosity (dilatational) of, 5249*g*, 8780*a*.
viscosity of, pressure and, 4067*d*.
**Isopropylamine**, derivs., 4263*a*, P 6231*e*.
formation in reaction of $Et_4CCO_2H$, $H_2SO_4$ and $HN_3$, 9027*h*.
identification of, 4630*d*.
prepn. of, 9027*c*.
thiocyanate, 578*g*.
——, **2 - (benshydryloxy) - *N*, *N* - dimethyl-**, hydrochloride, spasmolytic activity of, 8546*b*.
——, ***N* - [2 - (benshydryloxy)ethyl]-**, hydrochloride, P 3462*i*.
——, ***N*-benzylidene-**, 1776*c*.
——, **2 - (*o* - benzylphenoxy) - *N*, *N* - dimethyl-**, and hydrochloride, 3386*c*.
——, ***N* - [2 - (*o* - benzylphenoxy)ethyl]-**, hydrochloride, 3386*d*.
——, ***N* - [2 - (2 - biphenylyloxy)ethyl]-*N*-(2-chloroethyl)-**, hydrochloride, antagonism of adrenaline and histamine with, 6309*b*.
——, ***N*, *N*-bis(2-chloroethyl)-**, in cancer therapy, 5505*c*.
——, **2-chloro-*N*, *N*-dimethyl-**, 4243*f*, 9053*i*.
hydrochloride, 7466*c*.
——, ***N*-(2-chloroethyl)-**, hydrochloride, 3419*c*.
——, ***N* - (2 - chloroethyl) - *N* - methyl-**, 6587*d*.
——, ***N*, *N* - dimethyl - 2 - (α - phenyl-*o*-toloxy)-**, antihistamine activity of, 7134*h*.
——, **2,2'-diphenyl-**. See *Phenethylamine, α-benzyl-*.
——, ***N*-ethyl-**, P 253*h*.
——, **2-(*p*-hydroxyphenyl)-**. See *Pareduine*.
——, **2-hydroxy-2-phenyl-**. See *Norephedrine*.
——, **2-phenyl-**. See *Phenethylamine, α-methyl*.
**Isopropylation**, of benzene, 1732*e*.
**Isopropyl bromide**. See *Propane, 2-bromo-*.
**Isopropyl chloride**. See *Propane, 2-chloro-*.
**Isopropyl chlorophosphate** ((iso-PrO)$_2$POCl), 599*h*.
cholinesterase-inhibiting activity and toxicity of, 1109*h*.
**Isopropyl disulfide**, phys. constants of, 2956*f*.
**Isopropyl ether**, acetic acid extn. from water with, 2042*e*.
in ethylene chlorohydrin recovery from aq. solns., P 2633*c*.
iron chloride extn. by, 2489*g*.
oxidation of, effect of org. compds. on, 6157*a*.
oxidation of, in liquid phase, 4085*b*.
phys. consts. of, 2590*a*.
solubilization of, with Na secondary alkyl sulfates, 405*i*.
spectrum of, 3715*f*.
titration (electrometric) of, in nitrobenzene, 5346*b*.
**Isopropyl fluophosphate** ((*iso-PrO*)$_2$*POF*), 121*d*.
acetyl esterase inhibition by, 258*g*.
cholinesterase inhibition by, 9103*b*.
kinetics of, 7528*f*.
in relation to function in neuroeffector system, 5866*e*.
toxicity and, 1109*h*.
detn. of, 8613*b*.
effect on acid phosphatases of brain, 7060*e*.
on action potential and cholinesterase of nerve, 9259*e*.
on axonal conduction and synaptic transmission, 9261*h*.
on blood pressure, muscular function and respiration, 4775*c*.
on brain function and metabolism, 7147*g*.
on central nervous system and acetylcholine liberation, 8535*e*.
on chymotrypsin, 6680*a*.
on chymotrypsin and trypsin, 6679*i*.
on dehydrogenases of brain, 7066*f*.
on endplate potential of muscle, 9261*b*.
on glycolysis in muscle, 5478*b*.
on O quotient of rabbit cerebral cortex, 1446*b*.
on pseudocholinesterase and tributyrinase in blood serum, 5116*b*.
on synaptic transmission in crayfish, 5123*h*.
elec. major convulsive patterns from, 5122*e*.
electrical pattern in brain produced by, biochem. analysis of, 9262*f*.
in glaucoma treatment, 3974*e*.
injection site and variation in response to, 5122*g*.
labeled with $P^{32}$, prepn. of, 6508*e*.
pharmacol. comparison with other anticholinesterases, 3930*f*.
pharmacology of, 7129*b*.
poisoning by, cholinesterase in blood and brain in relation to signs of toxicity during recovery from, 6743*i*.
radioactive, prepn. from radioactive $KH_2PO_4$, 2507*e*.
volatility and vapor pressure of, 8841*a*.
**Isopropyl group**, removal of, in nitration of *p*-cymene, 9046*a*.
**Isopropyl iodide**. See *Propane, 2-iodo-*.
**Isopropyl ketone**. See *3-Pentanone, 2,4-dimethyl-*.
**Isopropyl mercaptan**. See *2-Propanethiol*.
**Isopropyl nitrite**, azeotropes of, 2834*i*.
**Isopropyl phosphate**, salt compns. stabilized by acid, and effect on oils, P 3216*b*, P 7240*d*.
**Isopropyl phosphite**, $(C_3H_7)_2HPO_3$, 599*h*.
**Isopropyl pyrophosphate** ((iso-Pr)$_4$P$_2$O$_7$), P 9357*a*.
prepn. and hydrolysis of, 1315*b*.
**Isopropyl sulfate**, (iso-Pr)$_2$SO$_4$, as catalyst in ether formation from acetals, P 1050*a*.
**Isopropyl sulfide**, phys. constants of, 2956*e*.
**Isopropylxanthic acid**. See *Xanthic acid, isopropyl-*.
**Isopseudocumenol** (*2,3,5-trimethylphenol*), 9044*a*.
**Isopurpurin**. See *Flavopurpurin*.
**3 *H*-Isopyrazole**,



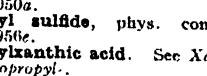
——, **4,5-dihydro-**. See *Isopyrazoline*.
**4 *H*-Isopyrazole**,



, **3,5-dihydro-**. See *Isopyrazoline*.
**Isopyrazoline**,



**4 - Isopyrazolinecarboxylic acid, 3 - carbamyl-**, methyl ester, 579*d*.
**Isopyridindole**. See *Pyridindole*.
**Isoquercitrin**, adrenaline protection by, 5542*a*.
**Isoquinaldic acid** (*1-isoquinolinecarboxylic acid*), decarboxylation of, 7310*b*.
ester with benzoin, 9072*f*.
**Isoquinaldonitrile, 2-benzoyl-1,2-dihydro-**, 9072*f*.
**Isoquinamine**, and derivs., 7489*h*.
**anhydro-***, and salts, 7489*i*, 7490*a*.
**dihydro-**, 7489*i*.
**dihydroanhydro-***, sulfate, 7490*b*.
***p*-nitrobenzoylnitroso-**, 7489*i*.
**, nitroso-**, 7489*i*.
**5 *H*-Isoquindoline**,

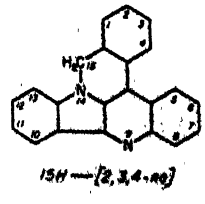


*5H-*

——, **5-methyl-7-nitro-**, 220*e*.
**Isoquinindoline**. See *5 H-Quinindoline*.
**Isoquinoline** (*2-benzazine, leucoline*),
4672*g*.
in analysis, 8947*i*.
derivs., 1421*d*, 2212*i*, P 2241*e*, 4267*b*, 5025*i*, 5783*g*, 7485*h*.
and derivs., compds. with sulfonic acids for prepn. of asphaltic or bituminous materials, P 6822*c*.
diazo ketone rearrangement in the presence of, 4654*b*.
mol. diagrams of, 4528*d*.
mol. diagrams of mesomerism and reactivity of, 5731*f*.
oxidation of, P 8402*e*.
phys. properties of, 5784*c*.
reaction with $CrO_3$, 2834*c*.
sepn. of quinoline from its mixts. with N bases contg., P 2241*d*.
surface potential and surface tension of, pH and, 2945*f*.

surface potential and surface tension of solns. of, 2845*g*.
thiazole and, 3820*f*.
toxic effects of, effects of choline, cystine and methionine on, 2321*i*.
in wood preservation, 4418*a*.
**Isoquinoline, 7-acetamido-**, and hydrate, 5783*h*.
——, **7-acetamido-8-chloro-**, 5784*b*.
——, **8-acetamido-8-nitro-**, 5784*a*.
——, **acetyl-**. See *Ketone, isoquinolyl methyl*.
——, **2 - [(10 - acetylacridanylcarbonyl)-methyl]tetrahydro-†**, 2345.
——, **1(4 and 5)-amino-**, spectra of, 1655*c*.
——, **7-amino-**, 5783*h*.
——, **8 - amino - 1 - (*p* - aminophenyl)-**, 7486*g*.
——, **5(and 7) - amino - 1 - (*p* - aminophenyl)-**, methiodides, 7486*i*.
——, **7 - amino - 1 - (*m* - aminophenyl)-**, methiodide, 7486*i*.
——, **7 - amino - 1 - (*p* - aminophenyl)-3,4-dimethyl-**, methiodide, 7486*i*.
——, **1 - (*p* - aminobenzyl) - 1,2,3,4,5,6,7,8 - octahydro - 2 - methyl-**, hydrobromide, 6635*i*.
——, **7-amino-8-chloro-**, 5784*b*.
——, **8-amino-5(and 7)-chloro-**, 5783*i*, 5784*a*.
——, **5(and 7)-amino-8-nitro-**, 5784*a*.
——, **benzoyl-**. See *Ketone, isoquinolyl phenyl*.
——, **2 - benzoyl - 1,2,3,4 - tetrahydro-1-methyl-4-phenyl-**, 5026*e*.
——, **1-benzyl-**, 4671*e*.
——, **1 - (2 - benzylaminoethoxy) - 3-ethyl-**, hydrochloride, anesthetic action of, 4267*d*.
——, **1 - benzyl - 6,7 - diethoxy - 3-methyl-**, and hydrochloride, 1423*i*.
——, **1 - benzyl - 3,4 - dihydro-**, 4672*e*, 5026*a*.
——, **1 - benzyl - 3,4 - dihydro - 3(and 4)-methyl-**, and salts, 5026*a*.
——, **3-benzyl-3,4-dihydro-1-methyl-**, and picrate, 5026*b*.
——, **1-benzyl-3,4-dihydro-3-phenyl-**, 5026*a*.
——, **1-benzyl-3,4-dihydro-4-phenyl-**, and picrate, 5026*b*.
——, **3-benzyl-3,4-dihydro-1-phenyl-**, and salts, 5026*b*.
——, **1-benzyl-1,2,5,6,7,8-hexahydro-2-methyl-**, 4279*f*.
——, **1-benzyl-3-methyl-**, and picrate, 3821*c*.
——, **1 - benzyl - 1,2,3,4,5,6,7,8 - octahydro-2-methyl-**, and picrate, 4279*f*.
——, **3 - benzyl - 1,2,3,4 - tetrahydro-1-methyl-**, salts, 5027*b*.
——, **3-(bromomethyl)-**, 3820*i*.
——, **1 - (α - bromoveratryl) - 5,6 - dimethoxy-**, and salts, 4277*i*.
——, **3-butyl-1-chloro-**, 4267*c*.
——, **2-butyl-1,2-dihydro-**, 6631*c*.
——, **3 - butyl - 1 - (2 - dimethylaminoethoxy)-**, anesthetic action of, 4267*d*.
——, **5(and 7)-chloro-**, and derivs., 5783*g*.
——, **8-chloro-**, 5784*a*.
——, **5 - chloro - 1 - (*p* - chlorophenyl)-**, 7486*g*.
——, **5 - chloro - 1 - (*p* - chlorophenyl)-3,4-dihydro-**, 7486*d*.
——, **5(and 8) - chloro - 8(and 7) - hydrazino-**, 5784*a*.
——, **5(and 7)-chloro-8-nitro-**, 5783*i*.
——, **3 - chloro - 5,6,7,8 - tetrahydro-**, 4279*e*, P 6672*e*.
——, **1,3-dibenzyl-3,4-dihydro-**, and picrate, 5026*b*.
——, **1-(2-dibutylaminoethoxy)-**, anesthetic action of, 4267*d*.
——, **1,3 - dichloro - 5,6,7,8 - tetrahydro-**, 4279*d*, P 7518*a*.
——, **1 - (3,4 - diethoxybenzyl) - 6,7-diethoxy-**. See *Perparine*.
——, **1 - (3,4 - diethoxybenzyl) - 6,7 - diethoxy - 3,4 - dihydro-**, 7027*i*.
——, **1 - (3,4 - diethoxybenzyl) - 6,7-diethoxy-3-methyl-**, and hydrochloride, 1423*i*.
——, **6,7 - diethoxy - 1,3 - dimethyl-**, 1423*h*.
——, **6,7-diethoxy-3-methyl-**, derivs., 1423*b*.
——, **6,7 - diethoxy - 3 - methyl - 1-phenyl-**, and hydrochloride, 1423*i*.
——, **1 - (3,4 - diethoxyphenyl) - 6,7-diethoxy-3-methyl-**, and hydrochloride, 1423*i*.
——, **1 - (3 - diethylaminoethoxy) - 3-ethyl-**, anesthetic action of, 4267*d*.
——, **1 - (2 - diethylaminoethoxy) - 3-methyl-**, anesthetic action of, 4267*d*.
——, **dihydro-**, derivs., spectra of, 1412*f*.
——, **3,4-dihydro-**, 4672*f*.
——, **3,4 - dihydro - 6,7 - dimethoxy - 1-methyl-**, 656*f*.
——, **3,4 - dihydro - 5,6 - dimethoxy - 1-veratryl-**, picrate, 4277*h*.
——, **3,4 - dihydro - 1,3(and 1,4) - dimethyl-**, and picrates, 5026*a*.
——, **3,4 - dihydro - 3,4 - dimethyl - 7-nitro-1-(*p*-nitrophenyl)-**, 7486*e*.
——, **3,4 - dihydro - 3,4 - dimethyl - 1-(*p*-nitrophenyl)-**, and picrate, 7486*d*.
——, **3,4-dihydro-1,3-diphenyl-**, 5026*a*.
——, **3,4 - dihydro - 1,4 - diphenyl-**, and salts, 5026*b*.
——, **1,2-dihydro-2-methyl-**, 6631*c*.
——, **3,4-dihydro-1-methyl-**, 5026*a*.
——, **1,2-dihydro-2-methyl-1-phenyl-**, 6631*b*.
——, **3,4 - dihydro - 1 - methyl - 3(and 4)-phenyl-**, and picrates, 5026*a*.
——, **3,4 - dihydro - 3(and 4) - methyl - 1-phenyl-**, and salts, 5026*a*.
——, **3,4 - dihydro - 7 - nitro - 1 - (*m*-nitrophenyl)-**, 7486*c*.
——, **3,4 - dihydro - 7 - nitro - 1 - (*p*-nitrophenyl)-**, 7486*b*.
——, **3,4-dihydro-1-(*m*-nitrophenyl)-**, and picrate, 7486*d*.
——, **3,4-dihydro-1-(*p*-nitrophenyl)-**, 7486*c*.
——, **3,4-dihydro-7-nitro-1-phenyl-**, 7486*c*.
——, **3,4-dihydro-1-phenyl-**, 5026*a*.
——, **1(and 2)-(3,4-dihydroxybenzyl)-1,2,3,4-tetrahydro-†**, P 2241*g*.
——, **2 - (3,4 - dihydroxy - α - methylphenethyl) - 1,2,3,4 - tetrahydro-†**, P 2241*g*.
——, **1 - (3,4 - dihydroxyphenethyl)-†**, P 2241*f*.
——, **1 - (3,4 - dimethoxyphenyl) - 6,7-diethoxy-3-methyl-**, and hydrochloride, 1423*i*.
——, **5,6 - dimethoxy - 1 - veratryl-**, and picrate, 4277*c*.
——, **6,7 - dimethoxy - 1 - veratryl-**. See *Papaverine*.
——, **1 - (2 - dimethylaminoethoxy)-**, anesthetic action of, 4267*d*.
——, **1 - (2 - dimethylaminoethoxy) - 3-propyl-**, and hydrochlorides, 4267*c*.
——, **3 - (*p* - dimethylaminostyryl)-**, and picrate, 3821*a*.
——, **1 - (3,4 - dimethylbenzyl) - 1,2,5,6,7,8 - hexahydro - 2 - methyl-**, P 7518*b*.
——, **1 - (3,4 - dimethylbenzyl) - 1,2,3,4,5,6,7,8 - octahydro - 2 - methyl-**, and salts, P 7518*b*.
——, **1-(2,4-dinitrobenzyl)-**, 4672*h*.
——, **1 - (ethoxymethyl) - 3,4 - dihydro-**, and salts, 3408*a*.
——, **1 - (ethoxymethyl)-1,2,3,4- tetrahydro-**, and salts, 3408*b*.
——, **1 - (ethoxymethyl) - 1,2,3,4 - tetrahydro - 2 - (3 - indolylmethyl)-**, 3408*b*.
——, **1-ethyldecahydro-**, and hydrochloride, 121*i*.
——, **3 - (3 - ethyl - 2 - indolyl)decahydro-2-methyl-**, and hydriodide, 5407*e*.
——, **3 - (3 - ethyl - 2 - indolyl) - 5,6,7,8-tetrahydro-**, and derivs., 5406*f*.
——, **3 - ethyl - 1 - [2 - (1 - piperidyl)-ethoxy]-**, b$_1$ 175–8°, anesthetic action of, 4267*d*.
——, **3 - ethyl - 1,2,3,4 - tetrahydro-6,7 - dimethoxy - 1 - phenethyl-**, P 2241*f*.
——, **1,2,5,6,7,8 - hexahydro - 1 - *m*(and *p*) - methoxybenzyl - 2 - methyl-**, P 7518*cd*.
——, **1,2,5,6,7,8 - hexahydro - 1 - *p*-methoxybenzyl-2-methyl-**, 6635*e*.
——, **1,1′ - hexamethylenebis[1,2,3,4-tetrahydro - 6,7 - dimethoxy-**, degradation of, 2624*d*.
and dimethiodide, 2624*e*.
——, **5(and 7)-hydrazino-**, 5783*i*.
——, **1-(6-methoxy-4-quinolyl)-**, derivs., 1421*d*.
——, **1-methyl-**, methyl group reactivity of, 6206*h*.
——, **3-methyl-**, compd. with $ZnCl_2$, 3820*h*.
——, **2,2′(1*H*,1′*H*) - methylenebis[3,4-dihydro-**, 3407*h*.
——, **6,7 - methylenedioxy-**. See *1,3-Dioxolo[g]isoquinoline*.
——, **7,8-methylenedioxy-**. See *1,3-Dioxolo[h]isoquinoline*.
——, **3 - methyl - 1 - [2 - (1 - piperidyl)-ethoxy]-**, b$_1$ 175–8°, anesthetic action of, 4267*d*.
——, **1-*p*-nitrobenzyl-**, 4672*g*.
——, **5 - nitro - 1 - [*m*(and *p*) - nitrophenyl]-**, 7486*e*.
——, **7 - nitro - 1 - [*m*(and *p*) - nitrophenyl]-**, 7486*f*.
——, **1-(*p*-nitrophenyl)-**, 7486*e*.
——, **1,2,3,4,5,6,7,8 - octahydro - 1-*m*(and *p*) - methoxybenzyl - 2-methyl-**, and hydrochlorides, P 7518*cd*.
——, **1,2,3,4,5,6,7,8 - octahydro - 1 - *p*-methoxybenzyl - 2 - methyl-**, and derivs., 6635*e*.
——, **1,2,3,4,5,6,7,8 - octahydro - 2-methyl - 1 - *p* - nitrobenzyl-**, salts, 6635*h*.
——, **1-phenyl-**, and derivs., 7485*h*.
——, **1-(4-quinolyl)-**, derivs., 1421*d*.
——, **1-[5(and 8)-quinolyl]-**, derivs., 1421*i*, 1422*a*.
——, **3-styryl-**, isomers and derivs., 3820*f*.
——, **1,2,3,4-tetrahydro-**, derivs., 646*b*, P 2241*g*.
identification of, 8365*f*.
picrate, 3407*i*.
——, **5,6,7,8-tetrahydro-**, P 6672*d*, P 7518*a*.
and picrate, 4279*d*.
——, **1,2,3,4 - tetrahydro - 6,7 - dimethoxy - 1 - pentadecyl-**, degradation of, 2624*g*.
——, **1,2,3,4 - tetrahydro - 1,3 - dimethyl-**, and hydrochloride, 5026*b*.
——, **1,2,3,4 - tetrahydro - 2 - (3 - indolylmethyl)-**, and derivs., 3407*i*.
——, **1,2,3,4 - tetrahydro - 1 - methyl-4-phenyl-**, and hydrochloride, 5026*a*.
——, **1,2,3,4 - tetrahydro - 3 - methyl-1-phenyl-**, and salts, 5026*i*.
——, **1,2,3,4 - tetrahydro - 4 - methyl-1-phenyl-**, and salts, 5026*g*.
——, **1,2,3,4 - tetrahydro - 2 - phenacyl-**. See *Acetophenone, α-(3,4-dihydro - 2(1H) - isoquinolyl)-*.
——, **veratroyl-**. See *Ketone, 3,4-dimethoxyphenyl isoquinolyl*.
**3-Isoquinolineacetonitrile**, 3820*i*.
——, **α-benzylidene-**, 3820*i*.
**Isoquinoline alkaloids**. See *Alkaloids*.
**2(1*H*) - Isoquinolinecarboxamide, 3,4-dihydro - *N* - 1 - naphthyl-**, 8365*f*.
**1-Isoquinolinecarboxylic acid** See *Isoquinaldic acid*.
**3 - Isoquinolinecarboxylic acid, 3,4-dihydro - 6,7 - dimethoxy - 1-veratryl-**, and sodium salt and Et ester, spasmolytic action of, 6733*a*.
——, **6,7-dimethoxy-1-veratryl-**, and sodium salt and Et ester, spasmolytic action of, 6733*a*.
**4 - Isoquinolinecarboxylic acid, 5,6,7,8-tetrahydro-3-hydroxy-**, ethyl ester, P 6672*d*.
**1,3 - Isoquinolinediol, 5,6,7,8 - tetrahydro-**, 4279*c*.
**6,7 - Isoquinolinediol, 3,4 - dihydro - 3-methyl-1-styryl-**, hydrochloride, P 2241*i*.
——, **3,4 - dihydro - 1 - phenethyl-**, hydrobromide, P 2241*f*, P 2241*h*.
——, **3,4 - dihydro - 1 - styryl-**, hydrochloride, P 2241*i*.
——, **2 - ethyl - 1,2,3,4 - tetrahydro - 1-phenethyl-**, hydrobromide, P 2241*f*.
——, **1-phenethyl-**, P 2241*f*.
——, **1,2,3,4 - tetrahydro - 1,3 - dimethyl - 2 - (3 - phenylpropyl)-**, hydrochloride, P 2241*i*.
——, **1,2,3,4 - tetrahydro - 3 - methyl-1-phenethyl-**, hydrochloride, P 2241*i*.
——, **1,2,3,4 - tetrahydro - 1 - phenethyl-**, salts, P 2241*h*.
**1,3(2*H*,4*H*)-Isoquinolinedione, 2-amyl-**, P 4422*b*.
——, **hexahydro - 2 - [2 - (3 - indolyl)-ethyl]-**, 7402*c*.
——, **2 - [2 - (3 - indolyl)ethyl] - 4-methyl-**, 234*h*, 1423*a*.
——, **2 - methyl - 4 - (2 - methyl - 4(1*H*)-quinolylidene)-**, 229*c*.
——, **4 - (2 - methyl - 4(1*H*) - quinolylidene)-**, 229*c*.
——, **4 - (2 - methyl - 4(1*H*) - quinolylidene)-2-phenyl-**, 229*c*.
——, **4 - (2 - methyl - 4(1*H*) - quinolylidene) - 2 - *p* - tolyl-**, and hydrochloride, 229*c*.
——, **2-(2-naphthyl)-**, reaction with 4-chloroquinaldine (attempted), 229*c*.

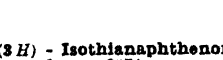
**3,4 - Isoquinolinediones, 6 - chloro - 1-(*p* - chlorophenyl) - 2 - (*p* - dimethylaminophenyl) - 1,2 - dihydro-1-hydroxy-**, 7471*h*.
**2(1*H*) - Isoquinolineethanol, α - (10-acetylacridanyl)dihydro-†**, hydrochloride, 234*c*.
——, **α - 2 - fluorenyl - 3,4 - dihydro-**, hydrochloride, 194*c*.
**1 - Isoquinolinemethanol, α - methyl-α-phenyl-**, 7310*d*.
**3-Isoquinolinemethanol**, and acetate, 3821*c*.
**2(1*H*) - Isoquinolinepropanol** (*3 - (1,2-dihydro - 2 - isoquinolyl) - 1 - propanol*), α - **cyclohexyl - 3,4 - dihydro - α-phenyl-**, and hydrochloride, 9071*f*.
——, **3,4 - dihydro - α,α - dimethyl-γ-phenyl-β-1-piperidyl-**, 7025*c*.
——, **3,4 - dihydro - α - isoamyl - α-phenyl-**, hydrochloride, 9071*f*.
——, **3,4 - dihydro - α - methyl - α,γ-diphenyl - β - 1 - piperidyl-**, isomers, 7025*c*.
——, **α-ethyl-3,4-dihydro-α-phenyl-**, and hydrochloride, 9071*e*.
**Isoquinoline series**, 1421*d*, 8390*a*.
**6,7,8 - Isoquinolinetriol, 1,2,3,4 - tetrahydro - 1 - methyl - 2 - (3 - phenylpropyl)-**, hydriodide, P 2241*g*.
**Isoquinolinium compounds**, 1-benzyl-2,3-dimethyl— iodide, 3821*c*.
1-benzyl-2-methyl— iodide, 4672*g*.
3,4 - dihydro - 2 - methyl - 1,4 - diphenyl — iodide, 5026*e*.
2 - (2,5 - dihydroxyphenyl)— chloride, 5683*c*.
2 - (2,5 - dihydroxy - 3,4 - xylyl)— chloride, 5683*c*.
3 - [(*p* - dimethylaminophenylimino)-methyl]-2-methyl— iodide, 3821*b*.
3 - (*p* - dimethylaminostyryl) - 2 - methyl— iodide, 3821*a*.
2,3-dimethyl— iodide, 3821*a*.
2-dodecyl— bromide, bactericidal action of, 3885*b*.
toxicity of, 7591*i*.
in virus X control in peach, 9347*h*.
3 - (3 - ethyl - 2 - indolyl)decahydro - 2,2-dimethyl— halides, 5407*f*.
3 (3 - ethyl - 2 - indolyl) - 5,6,7,8 - tetrahydro-2-methyl— 5407*e*.
1,1′ hexamethylenebis[1,2,3,4 - tetrahydro - 6,7 - dimethoxy - 1,1 - dimethyl— iodide], prepn. and degradation of, 2624*e*.
Hofmann degradation of, 2024*c*.
2 - methyl - 5(and 7) - nitro - 1 - (*p* - nitrophenyl)— iodide, 7486*h*.
2 - methyl - 7 - nitro - 1 - (*m* - nitrophenyl)— iodide, 7486*h*.
3-methyl-2 phenacyl— iodide, 1776*a*.
2-methyl-1-phenyl— iodide, reaction with $LiAlH_4$, 6631*b*.
2-methyl-3-styryl — iodide, 3821*a*.
2-phenacyl— bromide, 1421*c*.
2-phenacyl— iodide, 1776*a*.
reaction with $LiAlH_4$, 6631*a*.
1,2,3,4 - tetrahydro - 2,2 - dimethyl— iodide, 3407*i*.
1,2,3,4 - tetrahydro - 2 - (3 - indolylmethyl) - 2 - methyl— iodide, 3408*a*.
2,3,4 - trimethyl - 7 - nitro - 1 - (*p* - nitrophenyl)— iodide, 7486*h*.
**3-Isoquinolinol, 5,6,7,8-tetrahydro-**, P 6672*e*.
**7-Isoquinolinol**, reaction of, HCHO and primary or secondary amines, P 9086*e*.
——, **2 - acetyl - 1,2,3,4 - tetrahydro-**, 6632*f*.
——, **8-chloro-**, 5784*c*.
——, **8-methyl-**, P 9086*f*.
——, **8-(1-piperidylmethyl)-**, P 9086*f*.
**1(2*H*) - Isoquinolone, 3,4 - dihydro - 6,7-dimethoxy-**. See *Corydaldine*.
——, **2,3-dimethyl-**, 3821*b*.
**7(1*H*)-Isoquinolone, 2-acetyloctahydro-**, phenylhydrazone, 6632*f*.
——, **7 - acetyloctahydro - 3 - methyl-**, phenylhydrazone, 6632*f*.
**Isoquinoquindoline**,



*15H — [2,3,4-ng]*

**15*H* - Isoquino[2,3,4 - no]quindolin - 15-one, 6-chloro-**, 7930*f*.
——, **6-chloro-4b,9-dihydro-**, 7930*i*.
——, **4b, 9-dihydro-6-methyl-**, 7930*i*.
——, **6(and 8)-methyl-**, 7930*i*.
**Isoretronecanol**, *d-*, and derivs., 3828*a*.
**Isorhamnetin**, and acetate, 4233*h*.
isolation from gametes of *Chlamydomonas* mutants, 4727*i*.
**Isorottlerin**, 8101*f*.
**Isosafrole** (*1,2 - methylenedioxy - 4 - propenylbenzene*), dimerization of, 7924*a*.
in α-ethylpiperonyl ether manuf., P 2639*c*.
reaction with maleic anhydride, 1757*b*.
——, **β,5-dinitro-**, 7020*d*.
——, **β-nitro-**, 7020*d*.
**Isoseneciphyllic acid***, and derivs., 1427*h*.
**Isosparteine**, synthesis of, and derivs., 3828*a*.
**Isostasy**, geochemistry of, 6127*a*.
**Isosteric compounds**, and their chem. resemblance, 5431*e*.
**Isostilbene**. See "*cis-*" under *Stilbene*.
**Isostrychnine**, and its conversion to strychnine, 1783*b*.
**Isosuccinic acid**. See *Malonic acid, methyl-*.
**Isosyst**, the term, 1251*f*.
**Isotenulin**, 1389*g*.
**Isotetrandine**, in protozoa infection therapy, 1485*c*, 8628*b*.
**Isothan OX**. See "[2-(2-chloroethoxy)-ethyl]dodecyldimethyl—chloride" under *Ammonium compounds, substituted*.
**Isothan Q4**. See "1-dodecyl— bromide" under *Pyridinium compounds*.
**Isothan Q15**. See "2-dodecyl— bromide" under *Isoquinolinium compounds*.
**Isothebaine**, and derivs., 6207*h*.
structure of, 7194*d*.
——, **des-*N*-methyl-***, and derivs., 6208*g*.
——, **des-*N*-methyl-*O*-methyl-***, 6208*c*.
**Isotherms**, adsorption—see *Adsorption*.
sorption—see *Sorption*.
**Isothianaphthene**,

**1(3*H*) - Isothianaphthenone, 3 - ethylidene-**, 2974*c*.
**Isothiazole, tetrahydro-**. See *Isothiazolidine*.
**Isothiazolidine**,



——, **3-methyl-**(?), 1,1-dioxide, 6569*g*.
**Isothiocyanates**, identification of, 8013*f*.
polymers with acrylic acids, P 4516*e*.
poly-, reactions of inorg., with drying oils, factices, rubbers, varnishes, etc., P 908*a*.
**Isothiocyanic acid**, alkyl esters, phys. constants of, 2957*d*.
alkyl esters, reaction with α-amino nitriles, 3408*h*.
allyl and Ph esters, systems with amines, 6176*i*.
allyl and Ph esters, systems with org. compds., 6900*a*.
allyl ester—see also "mustard" under *Oils*.
allyl ester, antifouling properties of, 3964*a*.
cytologic activity of, 9170*c*.
detn. of, 4184*g*.
effect on mitosis in root meristems, 9171*c*.
effect on onions and onion roots, 9171*e*.
as insecticide, 2728*e*.
muscle contracture by, 1861*b*.
mutagenic action of, in *Ophiostoma*, 3885*i*.
anhydride with monoethyl carbonate, 1402*d*.
2 - (benzylmercapto)propyl ester and its $2HgCl_2$ deriv., 1321*d*.
2-bromoallyl ester, 1016*c*.
5 - chloro - α - thiocyanomethyl - 2-thenyl ester, 5393*h*.
detn. of, formed from isothiocyano derivs. of silane, 6571*b*.
esters, P 3843*d*, 5746*f*, P 5038*b*, 7410*b*, 9028*g*.
anticorrosive power of, 548*c*.
in crucifer seeds, 3888*b*.
detn. of, 2125*f*.
as food disinfectants, 9278*i*.
esters, reaction with amino nitriles, 1400*f*.
reaction with oximes, 3806*g*.
1-methylcyclopentyl ester, 2171*g*, 2172*f*.
methyl ester, microwave absorption by, 5310*g*.
4-methylmercaptobutyl ester, 1725*d*.
4-(methylsulfinyl)butyl ester—see *Sulforaphane*.
1-naphthyl ester, effect on guinea pig, 7136*g*.
1-naphthyl ester, effect on metamorphosis of tadpoles, 7136*f*.
1-naphthylmethyl ester, in chigger control, 8600*b*.
phenyl ester, as catalyst in polymerization of butadiene, 1597*b*.
as insecticide, P 2733*a*.
mixts. with Et$_3$N, refractive indexes of, 6024*a*.
in mothproofing liquid, P 4808*d*.
reaction with acetamide and benzamide, 6162*h*.
reaction with benzoin oximes, 1038*f*.
reaction with camphor oxime and with menthone oxime, 4232*d*.
reaction with chloral, 4657*h*.
reaction with ethylene oxides, 7421*c*.
in sugar-beet-nematode control, 3134*e*.
**Isothiuronium compounds**, benzyl— salts*, 7411*e*.
2-thenyl— chloride*, 7030*g*.
**Isothymol**. See *Carvacrol*.
**Isotones**, correlations of, new arrangement of elements and, 7809*c*.
**Isotonic solutions**. (See also *Physiological saline solutions*.)
diuresis and injection of glucose or NaCl, 4373*f*.
of glucose, effect on K and acetylcholine sensitivity of muscle, 1853*b*.
isoösmotic with blood, tears and tissue, 5903*f*.
as pharmaceutical dilg. solns., 8093*h*.
**Isotopes**. (*More or less general entries only are made here. For the isotopes of individual elements see under the names of the various elements. For hydrogen isotopes see* Deuterium, Hydrogen and Tritium. *See also* Elements; Radioactivity.)
abundance of, 1649*b*, 4553*g*, 6071*i*.
frequency of α-β-β-α decay process and, 8261*e*.
rule for, 3708*i*.
rule for, origin of nuclei and, 3708*f*.
in universe, 4945*a*.
abundance of stable, freezing-in of thermodynamic equil. and, 3708*h*.
abundance ratios of stable, measurement of, 2861*gh*.
analysis and utilization of, 7319*d*.
analysis with, 2113*g*.
in biochem. system with microwave spectrometers, 6104*g*.
of tissue, 9140*a*.
applications of, 7319*d*.
in biochem. research, 3864*f*.
in biochemistry, 3864*f*, 7524*d*, 9097*f*.
biol. application of, 4718*c*, 7069*c*.
biol. significance of, 3856*f*.
biologic decay rates of, 3477*b*.
in biology and medicine, 5812*h*.
books: Prepn. and Measurement of Isotopic Isomers, 500*c*; Rapports et discussions sur les, 3726*d*; Radioactive Tracer Techniques, 5672*g*; Isotopic Report. Tabular survey of the properties of atomic nuclei, 6922*g*; Isotopic Tracers and Nuclear Radiations, 8898*c*.
correlations of, new arrangement of elements and, 7809*c*.
cytogenetical effects of, 4732*i*.
density of gaseous, measurement of, 2056*b*.
designation of, in formulas, 8927*e*.
designation of, in formulas and names of inorg. compds., 2105*f*.
detn. in biol. material, 1454*bf*.
detn. in $H_2O$, purification for, 4531*d*.
dilution of, resolution of radioactive racemates by, 7902*h*.
distribution of, detn. of, 37*i*.
distribution program for, 5131*g*.
effect on fungi, 273*f*.
exchange of, equil. in, 1639*f*, 6077*i*.
in investigation of chem. reaction mechanisms, 5011*c*.
kinetics of, 6894*d*.
mechanisms of heterocyclic substitution and, 6876*d*.
ferride, in Fe ores, meteorites, rocks, sediments and the universe, 5710*a*.
in geol.-age detn., 3324*g*.
of heavy elements, table of, 4096*b*.

as indicators—see also *Deuterium; Nitrogen; Phosphorus.*
as indicators, 1445*cd*, 3279*b*, 4565*i*, 3860*c*, 4553*h*, 5287*d*, 6071*f*, 8841*i*.
of acetic acid and $CO_2$ function in fermentation of lactate by *Clostridium lacto-acetophilum*, 2276*h*.
of action, fate and distribution of iodocasein, 9255*b*.
of activator distribution in infrared phosphors, 4579*c*, 6508*g*.
of adsorption of eosin and erythrosin by AgBr, 4536*i*.
in adsorption of surface-active agents at soln. surfaces, 6882*e*.
in agricultural research, 1134*g*.
in alkali removal from glass surface, 5163*e*.
with alanine, 5004*h*.
of americium metabolism, 744*g*.
of amino acid incorporation into animal tissue proteins in amino acid deficiencies, 734*h*.
in analysis, 2541*h*, 5692*i*, 7858*i*.
of anesthetic distribution in tissue, 8058*b*.
in animal expts., 6692*b*.
in antiserums, 3923*g*.
of antithyroid-compd. activity, 8544*f*, 9241*i*.
of antitubercular activity, 7544*i*.
autoradiographs in detn. of dosages in use of, 4951*i*.
in benzidine rearrangements, 7927*c*.
in β-ray assaying of rocks and minerals, 6112*e*.
in biol. research, 1650*d*, 2861*h*.
in biology, chemistry and medicine, 3701*g*.
in Br reaction with $CCl_3Br$, 4548*dg*.
of Ca-ion exchange in normal tissues and in epidermal carcinogenesis, 1859*e*.
in capillary-permeability studies, 4754*i*.
of catabolism of urethan in normal and neoplastic mice, 9251*c*.
in cation exchange with metals, 6890*f*, 6891*b*.
of chem. reactions, 7332*i*.
of cholesterol synthesis from acetate by adrenal cortical tissue *in vitro*, 2245*d*.
in chromatographic analysis, 8271*d*.
in corrosion, 2564*f*, 4620*e*.
in cyanamide, urea and related compds., 5007*b*.
in cystine, 7902*e*.
in cytosine-metabolism studies, 3893*c*.
in decompn. of org. matter in soils, 1891*e*.
in degradation of malic and succinic acids, 1324*g*.
demountable Geiger-Muller counter for assay of β-emitter, 8853*d*.
in detn. of surface area of $SrSO_4$ ppt., 6490*c*.
in detg. AgBr soly. in $HNO_3$, 6492*e*.
of diffusion in liquids, 2490*h*.
of distribution of urethan in animal tissues, 9258*c*.
of enzymic fixation of $CO_2$ in α-oxoglutaric acid, 2249*c*.
of estrogen effect on thyroid function, 295*c*.
in $Et_2O$ formation, 3778*e*.
in exchange between a formamido group and formamide, 6984*a*.
of exchange between cobaltous ion and $Co(OH)_3$, 8820*i*.
of exchange between two oxidation states of Ce in $HNO_3$, 6532*g*.
of exchange between uranyl ion and $H_2O$, 8764*c*.
of exchange of $ClO_3$ with chlorite ion and with Cl in other oxidation states, 8821*a*.
expressions used in literature of, 1258*h*.
filtration app. for expts. with, 8746*c*.
in Fischer-Tropsch synthesis, 2080*i*.
in flotation, etc., 8321*h*.
in glass-batch melting, 5913*d*.
in D-glucose and D-mannose, 3795*c*.
of D-glucose oxidation by normal and alloxan-diabetic rats, 2310*a*.
of D-glucose oxidation by yeast, 1460*c*.
in glycine-metabolism study, 5482*c*.
of Au distribution in animal body in arthritis, 768*d*.
of hemoglobin synthesis from glycine, 2248*f*.
as *indicators*, in hormone and receptor studies, 9214*g*.
of H-exchange reactions of butanes in $H_2SO_4$, 7897*c*.
of H-exchange reactions of paraffins, 7897*f*.
in hydrolysis mechanism of $(CH_3CO)$-$H_2PO_4$ and its dibenzyl ester, 8351*d*.
of hydrolysis of vesicant-treated insulin, 707*h*.
in immunological investigations, 3919*e*.
in immunologic reactivity of bovine serum albumin, 9238*f*.
in industry and research, 7325*h*.
of I distributions in rats with and without Walker tumor 256, 9229*h*
of I excretion in relation to thyroid function, 2308*e*, 9227*fg*.
of iodotyrosine formation in thyroid, 709*b*.
in ion transport across animal membranes, 5482*f*.
in Fe and hemoglobin metabolism studies, 4710*d*.
of Fe exchange through capillary vessels, 298*e*.
of isocysteine metabolism, 5117*e*.
in isomerization of PrCl, 5734*c*.
in isomorphism of alkali metal perchlorates, 7286*d*.
in lipide-synthesis studies in molds, 5821*a*.
in localization of brain tumors, 1856*g*
in logging geol. struta, measuring level of petroleum in tanks, etc., 1172*f*.
in lysine metabolism, 8029*h*.
in metabolism studies, 3481*g*.
in metal cleaning, 5720*f*.
in $CH_4$ formation by fermentation, 7187*g*.
in methionine-metabolism studies, 3896*c*.
in 17-methyltestosterone and 21 progesterone, 5029*a*.
in microsynthesis, 7814*g*.
of Mo value in plant nutrition, 2286*h*
in nervous-system study, 9208*h*.
of nicotinamide and nicotinic acid metabolism, 2295*e*.
in nitration of toluene, 5754*h*.
in N fertilization, 9330*b*.
in N fixation studies, 716*h*.
of N translocation in tomatoes, 1465*c*.
in nutritional studies, 37*g*, 733*e*, 1841*i*.
of oil-pipe-line flow, 5175*i*.
of oxidation of trilaurin, *in vivo*, 2298*a*.
of O diffusion in KCl, 8863*e*.
in O exchange between liquid $SO_2$ and alkali metal sulfites, 5689*g*.
in penicillin absorption and excretion studies, 1111*h*.
in pharmacy and related fields, 3569*f*.
in phenylalanine metabolism, 8550*g*.
in phosphate fertilizers, 7175*d*.
in phosphate reaction with soils, 1131*g*.
in phosphatic fertilizer utilization, 1134*g*.
of P in fertilizers and soil, 793*b*.
of P uptake by teeth, 8551*i*.
in P utilization from green-manure crops, 6774*d*.
in plant-nutrition studies, 1079*e*.
in plant physiology, soil science and fertilizing practice, 4554*f*.
of protein formation, 2252*a*.
in purine-metabolism studies, 5838*b*.
in reactions involving solids, 4553*i*.
in rearrangement of phenylglyoxal, 6088*b*.
in rearrangements of tertiary alkyl chlorides, 6969*b*.
of residues of phospholipides and Na alkyl sulfates on skin, 2263*c*.
in rheumatoid arthritis and erythremia, 1258*h*.
in scale formation in metals, 7880*a*.
sensitivity of, 2113*i*.
in Ag electrodepositions from dil. solns., 2875*f*.
in Ag ion exchange between solns. and Ag, 7791*b*.
of Na penetration into glass, 2747*f*.
in sorption of ions by glass and metals, 2066*f*, 8233*g*.
for steroid metabolism, 2213*i*.
in substitution in benzene ring, 4644*d*.
of succinic acid metabolism by heart in biotin deficiency, 293*b*.
*as indicators*, in sulfate-metabolism studies 3905*d*.
in S burn of citrus, 9336*c*.
for S in coking, 837*h*, 9418*e*.
theory of use of, 4092*b*.
in thermal exchange in Zn complexes in soln., 4967*c*.
in thermal exchange of Cr in solns. contg. complexes, 4967*c*.
in thyroxine-metabolism studies, 3908*h*
of U deposition in bone, 1114*g*.
of urea metabolism, 2302*h*.
of urinary excretion of S, 2322*e*.
in vascular-disease studies, 6723*b*.
in vesicant-treated protein studies, 707*f*.
industrial materials and, 5885*e*.
in industry, 5277*c*, 5513*c*, 6908*d*.
in integral-equation description of metabolizing systems, 5436*b*.
mass-action law and, 471*e*.
masses of, ion source for comparison of, 4094*e*.
mass isotope diln. method in detn. of γ isomer of hexachlorocyclohexane, 4805*b*.
mass of, effect on rate of rupture of C—C bond, 2862*d*.
in medicine, 3483*f*, 4710*b*, 7637*g*, 9110*d*
neutron cross sections of, 4096*b*.
in nucleic acid synthesis, 6262*b*.
periodicity of neutron and proton content in, of odd and even at. nos., 1648*d*.
in pharmacodynamics, 5505*i*.
in protein research, 3050*f*.
radio—see also *Radioelements*.
rare stable, search for, 5297*d*.
recovery and estimation of radioactive from biologic tissues, 711*a*.
in rubber science and technology and rubber in handling of radioisotopes, 7740*i*.
sepn. and utilization of inactive, 1639
sepn. of, 2083*hi*, 7319*d*.
calcns. in, 6507*i*.
electrical carrier free method of, 8876*e*.
by galvanophoresis, P 4963*e*
in geol processes, 4192*g*.
by internal convection process, 7285
by ion migration in counterflowing electrolyte, 6091*f*.
by mol. distn., P 500*e*.
table of, 3279*b*.
teaching of, 5650*f*.
and use in biology and medicine, 5812*h*
uses of, 8261*c*.
in veterinary science, 7992*f*.
**Isotopic number**, nuclear photoeffect and, 4107*g*.
periodic arrangement of the elements based on, 3701*i*.
properties of existing and missing isotopes and, 4554*h*.
**Isourea**. See *Pseudourea*.
**Isovaleraldehyde**, acylhydrazones†, 6972*e*, 6973*be*.
compds. with amine bisulfites, 3356*i*.
identification of, 3003*b*.
manuf. of, P 5791*h*.
reaction with Grignard reagents, 1718*g*.
spectra of mixts. contg., 2095*b*.
——, **α-bromo-**, 2158*g*.
diethyl acetal, 2575*h*.
ethyl Me acetal, 2158*d*.
——, **γ,γ′-dibromo-**, 3775*i*.
——, **α-ethoxy-**, 2,4-dinitrophenylhydrazone, 2158*g*.
——, **β-hydroxy-**, and dinitrophenylhydrazone, 2571*a*.
**Isovaleramide**, ***N*-allyl-*N*-(1-diethylcarbamylethyl)-**, P 249*f*
——, ***N*-allyl-*N*-(1-dimethylcarbamylethyl)-**, P 249*f*.
——, ***N*-allyl-*N*-(2-dimethylcarbamylethyl)-**, P 251*d*.
——, ***N*-allyl-*N*-(1-dimethylcarbamylpropyl)-**, P 250*g*.
——, **β-amino-*N*,*N*-dimethyl-**, P 251*e*
——, ***N*-sec-butyl-*N*-(1-dimethylcarbamylethyl)-**, P 249*g*.
, ***α*-(crotonylethylamino)-*N*,*N*-diethyl-**, P 248*f*, P 251*a*, P 4080*g*.
, ***α*-(crotonylpropylamino)-*N*,*N*-dimethyl-**, P 248*f*, P 251*a*, P 6654*a*.
, ***N*-(1-diethylcarbamylpropyl)-*N*-ethyl-**, P 250*b*.
, ***N*-(1-diethylcarbamylpropyl)-*N*-isopropyl-**, P 250*g*.
, ***N*,*N*-diethyl-α-ethylamino-**, P 251*a*.
–, ***N*-(1-dimethylcarbamylethyl)-*N*-methyl-(?)**, P 249*a*.

——, *N*-(1-dimethylcarbamylethyl)-*N*-propyl-, P 249*e*.
——, *N*-(1-dimethylcarbamylpropyl)-*N*-ethyl-, P 249*i*.
——, *N*-(1-dimethylcarbamylpropyl)-*N*-methyl-, P 249*h*.
——, *N*,*N*-dimethyl-α-(propionylpropylamino)-, P 248*f*, P 251*a*, P 6654*a*.
——, *N*,*N*-dimethyl-α-*N*-propylacetamido-, P 248*f*, P 251*a*, P 6654*b*.
——, α-ethyl-, P 662*i*.
——, α-(*N*-ethylacetamido)-*N*,*N*-dimethyl-, P 251*a*.
——, α-ethylamino-*N*,*N*-dimethyl-, P 4686*g*.
——, *N*-ethyl-*N*-[1-(ethylmethylcarbamyl)propyl]-, P 250*b*.
——, *N*-[1-(ethylmethylcarbamyl)propyl]-*N*-methyl-, P 249*h*.
——, *N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)ethyl]-, P 249*e*.
——, *N*-ethyl-*N*-[1-(4-morpholinylcarbonyl)propyl]-, P 250*d*.
——, *N*-2-hydroxyethyl-α-(α-phenylacetamido)-, 2271*b*.
——, α-phenoxy-*N*-sulfanilyl-, P 3035*i*.
——, α-(α-phenylacetamido)-, 2270*g*.
——, α-propyl-†, in Hofmann reaction, 2166*h*.
——, *N*-sulfanilyl-α-3,4-xylyloxy-, P 3036*b*.

**Isovaleranilide**, β-benzamido-, 7427*g*.
**Isovaleric acid**, 1-butoxyethyl ester, 3786*b*.
capillary osmosis of, 7765*g*.
1,1-dimethyl-2-methylene-5-hexen-3-ynyl ester, 2162*h*.
in dolphin and porpoise oils, 8179*d*.
esters of, lyoparachors of, 2834*b*.
with methyl salicylate, P 4701*i*.
phys. consts. of, 2590*d*.
ethyl ester, spectrum of, 1656*d*.
heat of ionization of, 477*i*.
identification of, as its 2-(1-naphthylmethyl)-2-thiopseudourea salt, 565*g*.
isobutyl ester, azeotrope with $Et_4SiO_4$, 2834*f*.
lead salt, for waterproofing films from inorg. silicate or hydrous oxide, P 3244*a*.
phenylhydrazide, as insecticide, 5526*a*.
phenylhydrazide, toxicity to corn borer, 7182*h*.
phys. constants of, 2950*b*.
sorption by $Ph_2NH$ and effect on surface tension, 1239*a*.
strength of, 470*d*.
system: $PhNO_2$–, 6066*h*.

**Isovaleric acid**, α-acetyl-, ethyl ester, enol content of, 1009*i*.
——, α-acetyl-γ,γ-dicyano-γ'-phenoxy-, ethyl ester, P 680*b*.
ethyl ester, ring closure of, P 3472*f*.
——, α-amino-. See *Valine*.
——, α-3-azabicyclo[3.2.0]hept-3-yl-†, D-, DL- and L-, 5743*e*.
——, β-benzamido-, and ethyl ester, 7427*f*.
——, β-(benzylmercapto)-α-nitro-, esters, P 1796*g*.
ethyl ester, 1723*a*.
——, α-bromo-, ephedrine salt, P 7647*f*.
ester (di-) with 2-methyl-1,4-naphthalenediol, P 4300*f*.
Raman spectrum of, 6082*h*.
——, β-bromo-γ-hydroxy-α,α-dimethoxy-, γ-lactone, 6980*h*.
——, β-bromo-γ-hydroxy-α-oxo-, γ-lactone, 6980*e*.
, α-bromo-β-methoxy-, P 3030*c*.
, γ-(chloroformyl)-, methyl ester, 3781*f*.
, α,γ-diamino-, and hydrochlorides, 5005*d*.
, α,β-dibromo-γ-hydroxy-α-methoxy-, γ-lactone, 6980*g*.
, γ-dimethylamino-α,α-diphenyl-, and derivs., 611*g*.
, γ-dimethylamino-γ'-hydroxy-α-oxo-, γ-lactone, effect on heart, 7138*g*.
, α,β-epoxy-, ethyl ester, reaction with S compds., 7421*c*.
, α-ethoxy-, and *p*-phenylphenacyl ester, 6975*d*.
, β-ethoxy-γ-hydroxy-α-oxo-, γ-lactone, 2,4-dinitrophenylhydrazone, [illegible]
, α-ethyl-, P 662*i*.
, α-hydroxy-, D-, and *p*-phenylphenacyl ester, 3788*b*.
, β-hydroxy-, 2162*d*.
ethyl ester, 2570*i*.
β-lactone, P 1055*h*, P 5414*i*.
β-lactone (compd. omitted from abstr.), P 1056*ac*.
——, α-hydroxy-α-(1-hydroxyethyl)-, 2625*c*, 3827*i*.
——, γ-hydroxy-β-methoxy-α-oxo-, γ-lactone, 2,4-dinitrophenylhydrazone, 6980*f*.
——, γ-hydroxy-γ-phenyl-, γ-lactone, 4255*c*.
——, γ-hydroxy-α,α,β-trimethoxy-, γ-lactone, 6980*h*.
——, α-isovaleryl-. See *Isoenanthic acid*, α-*isopropyl*-β-*oxo*-.
——, β-mercapto-, 1722*i*.
——, α-methoxy-, and *p*-phenylphenacyl ester, 6975*b*.
——, β-methyl-α-oxo-. See *Butyric acid*, β,β-*dimethyl*-α-*oxo*-.
——, γ-nitro-, ethyl ester, 5775*i*.
——, α-oxo-, and 2,4-dinitrophenylhydrazone, 6975*c*.
——, β,β'-oxydi-, P 5037*f*.
——, β-phenyl-. See *Hydrocinnamic acid*, β,β-*dimethyl*-.
——, α-phthalimido-. See *2-Isoindolineacetic acid*, α-*isopropyl*-1, 3-*dioxo*-.
——, γ-(2,4,6-trimethylbenzoyl)-, 3390*d*.

**2-Isovaleronaphthone**, 1382*d*.
——, 1,2,3,4-tetrahydro-, and 2,4-dinitrophenylhydrazone, 1382*d*.

**Isovalerone** (*2,6-dimethyl-4-heptanone*), 6170*i*.
compd. with phenol, infrared and Raman spectra of, 107*b*.
hydraulic fluid from triethyl phosphate and, P 5519*b*.
phys. consts. of, 2589*h*.
solubilization of, with Na secondary alkyl sulfates, 466*a*.
toxicology of, 4401*g*, 7140*c*.

**Isovaleronitrile**, α-amino-β-(benzylmercapto)-, hydrochloride, P 4688*f*.
——, β-(benzylmercapto)-α-hydroxy-, P 4688*e*.
——, β-(benzylmercapto)-α-methylamino-, hydrochloride, P 4688*g*.
——, γ-chloro-α,α-diphenyl-, 9054*d*.
——, γ-dimethylamino-α,α-diphenyl-, 3391*f*.
and derivs., 7466*d*.
*d*-, *dl*- and *l*-, and their salts, 2193*i*.
and hydrochloride, 4243*d*.
hydrochloride, antispasmodic action of, 7138*e*.
——, α,β-epoxy-α-isopropyl-, 2937*g*.

**Isovalerophenone**, and oxime, 6178*c*.
——, 5-(1-chloroisopropyl)-2-methyl-, and semicarbazone, 6595*h*.
——, 5-isopropyl-2-methyl-, reaction with $PCl_5$, 6595*g*.
——, *p*-methyl-, and oxime, 2601*b*.
——, *p*-methyl-β-*p*-tolyl-, and oxime, 7917*b*.

**Isovaline** (*α-amino-α-methylbutyric acid*), effect on glycine concn. by diaphragm, 9120*d*.

**Isovanillin** (*3-hydroxy-4-methoxybenzaldehyde*), formation of, from Cu opianate pyrolysis, 125*c*.
formation of, in pyrolysis of Ca opianate, 1318*c*.
prepn. of, from veratraldehyde, 7005*f*.

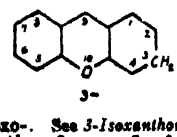
**Isoviolanthrone** (*dinaphtho[1,2,3-cd,1',2',3'-lm]perylene-9,18-dione*), manuf. of, P 6237*g*.
——, bis(chloromethyl)-, dye from tetramethylthiourea and, P 8163*f*.
——, bis(methylmercaptomethyl)-, sulfonium dyes from, P 8164*b*.

**Isovisnagin***, 3413*e*.

**Isovisnaginone**. See *Ketone*, *6-hydroxy-4-methoxy-7-benzofuryl methyl*.

**Isowogonin** (*5,8-dihydroxy-7-methoxyflavone*), and acetate, 636*i*.

**3*H*-Isoxanthene**,



3-

——, 3-oxo-. See *3-Isoxanthone*.

**3*H*-Isoxanthen-3-one**. See *3-Isoxanthone*.

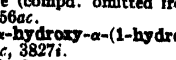
**3-Isoxanthone**, 9-(*o*-carboxyphenyl)-6-hydroxy-. See *Fluorescein*; for sodium deriv. Na salt, see *Uranin*.
——, 2,4,5,7-tetrabromo-9-[o-(4,6-diamino-*s*-triazin-2-yl)-phenyl]-6-hydroxy-, P 5051*g*.

**Isoxanthopterincarboxylic acid**, 9-deoxy-*, sodium salt, P 7052*i*.

**o-Isoxazine**. See *1,2,2H-Oxazine*.

**p-Isoxazine**. See *1,4,4H-Oxazine*.
——, tetrahydro-. See *Morpholine*.

**Isoxazole** (*furo[a]monazole*),



derivs., 5393*i*, 7020*h*.
, acetyl-. See *Ketone*, *isoxazolyl methyl*.
, acetylphenyl-. See *Ketone*, *methyl phenylisoxazolyl*.
, benzoyl-. See *Ketone*, *isoxazolyl phenyl*.
, sulfanilamido-. See *Sulfanilamide*, *N*1-*isoxazolyl*-.

**4-Isoxazolecarboxamide**, 3,5-dimethyl-*N*,*N*-dipropyl-, P 822*f*.

**4-Isoxazolecarboxanilide**, *N*,3,5-trimethyl-, P 822*h*.

**3-Isoxazolecarboxylic acid**, derivs., decarboxylation of, 7020*i*.
——, 4,5-dimethyl-, 5394*b*.
——, 5-methyl-, 2091*c*, 5394*b*.
——, 5-phenyl-, 5394*c*.
and derivs., 2091*i*.
and sodium salt, 2991*g*.

**4-Isoxazolecarboxylic acid**, 3,5-dimethyl-, 2-pipecolide†, P 822*i*.

**2-Isoxazoline**, 5-oxo-. See *5(4H)-Isoxazolone*.

**Isoxazolium compounds**, 3(and 5)-(*p*-bromophenyl)-2-methyl-5(and 3)-phenyl— chloride, compd. with $FeCl_3$, 7020*i*.

**4-Isoxazolol**, 3,5-diphenyl-, polarography of, 1724*b*.

**5(4*H*)-Isoxazolone**, 4,4-dibenzyl-3-methyl-, 1723*i*.
——, 4,4-diethyl-3-methyl-, 1723*i*.
——, 4-(2-methyl-4(1*H*)-quinolylidene)-3-phenyl-, 229*b*.

**1,4,3-Isoxdiazin-5(6*H*)-one**. See *1,3,4-6H-Oxadiazin-5(4H)-one*.

**Isoximes**, reduction of, 5309*i*.

**Isoxylic acid** (*2,5-xylic acid*), hydrogenation of, 2964*b*.
——, $\alpha^2$,$\alpha^5$-dihydroxy-$\alpha^2$-(2-naphthyl)-(?), γ-lactone acetate, 8375*g*.
——, 6-hydroxy-, and acetate, 2972*g*.

**Isoxylonitrile**, prepn. and phys. properties of, 7439*e*.

**Istizin**. See *Chrysasin*.

**Isuprel**. See *Protocatechuyl alcohol*, α-(*isopropylaminomethyl*)-.

**Itabirite**, of Belgian Congo (Luembe-Lubilash), 2133*c*.

**Itaconic acid** (*methylenesuccinic acid*). (For derivs. see under *Succinic acid*.)
copper(I) chloride complexes with, 8940*h*.
diethyl ester, reaction with nitro paraffins, 5745*d*.
esters, 1320*c*.
fungistatic activity of, 9334*c*.
manuf. of, P 678*b*, P 1057*b*, P 2366*g*, P 4424*c*.
prepn. from sugar cane, 2366*c*.
from sulfite liquor fermentation, 8091*b*.

**Itaconic anhydride**, resinous products from acyl halides, castor oil, vinyl compds. and, P 3656*d*.

**Italchine**. See *Quinacrine*.

**Italian**. (See also *Dictionaries*.)
book: Short, Dictionary, 5658*g*.

**Italian rye grass**. See *Grasses*.

**Itch mite**. See *Sarcoptes scabiei*.

**Itin**, combination with protein, 5103*i*.

**Itinsulfuric acid**, combination with protein, 5103*i*.

**Itols**. See "sugar" under *Alcohols*.

**Ivory nuts**, mannan A from, 2954*h*.

**Ivy**, fruit of, respiration during development, 8015*a*.
ground—see also *Nepeta hederacea*.
poison—see *Poison ivy*.

**Jacaranda decurrens**, exts. of, effect on *Endamoeba histolytica*, 8550*f*.

**J acid**. See *1-Naphthol-3-sulfonic acid*, *6-amino-*.

**Jack bean**. See *Canavalia*.

**Jack tree, Jak tree**. See *Artocarpus integra*.

**Jacutin**, in fox scabies treatment, 4418*d*.

**Jade**, of Alaska, 2130*e*, 8318*g*.

**Jaggery** (*gur*). (See also *Massecuites*.)
aconitic acid and, 6846*g*.
deodorization of sirup from, 4879*h*.
water absorption by, 2453*i*.

**Jam**. See *Conserves*; *Marmalades*.

**Jamesonite**, in Canada (western), of Italy (Mt. Peloritani), 3318*i*.

**Janus Blue**, germicidal action of, effect of ultrasonic waves on, 1461*b*.
**Janus Blue G**, effect on influenza virus infection, 7589*c*.
**Janus Green**, oxidation in *Triturus* development, 3530*g*.
**Janus Green B**, effect on influenza virus infection, 7589*c*.
**Janus Purple**, effect on influenza virus infection, 7589*c*.
**Japan driers**. See *Driers*.
**Japanese acid clay** (*Kambara earth*). (See also *Fuller's earth*.)
adsorbent from C and, P 6762*e*.
as catalyst in ethanolysis of palm oil, 7723*i*.
catalysts from Ni oxide and, in hydrogenation of oils, 5610*fgh*.
as insecticide for *Callosobruchus chinensis*, 1139*g*.
oil decolorization by, effect of acids on, 8709*b*.
vitamin $B_1$ adsorption by, and elution from, 7774*d*.
**Japanese beetle** and(or) **Popillia japonica**, baits for, phenethyl acetate in, 5898*f*.
control of, 2730*b*, 9328*i*.
on plant balls, 2301*i*.
in soil with arsenates, 795*g*.
in soil with DDT, 9329*d*.
in turf, 9345*i*, 9346*g*.
hemorrhage in larvae of, physiol. effects of, 8562*g*.
insecticide toxicity to larvae of, route of administration and, 9340*i*.
nitrogen in, during metamorphosis, 774*a*.
**Japanese weevil**. See *Pseudocneorrhinus bifasciatus*.
**Japanning**, of kieselguhr, P 7240*c*.
of wooden mold, P 6838*e*.
**Japans**. (See also *Lacquers; Varnish*.)
bituminous, 870*e*.
**Japan wax**, bleaching, chilling fractionation and compn. of, 5211*f*.
glyceride of dibasic acid of, fiber-softening power of, 8206*i*
hydrogenated, satd. fatty acids of, 5207*c*.
**Jarlite**, 8984*b*.
**Jarosite**, thermal analysis curves for, 8987*h*
**Jasmine**, esterification (inter-) of, in perfumery, 8179*e*.
perfume of, 1531*e*.
zinc deficiency in orange, 2722*g*.
**Jassids**. See *Leafhoppers*.
**Jatropha**, oils of—see *Oils*
**Jaundice**. (See also *Weil's disease*.)
bilirubinemia and bilirubinuria in, 3923*a*.
bilirubinemia during hepatocellular and mech., 3922*h*.
bilirubin in blood in hemolytic, 7126*i*
bilirubin in blood serum during, 3918*g*.
biliviolin-type spectra in feces in hemolytic, 3094*b*.
blood-plasma tocopherol in obstructive, 7122*a*.
cholesterol metabolism in, 9237*a*.
diagnosis of, 8522*i*, 9136*b*.
diagnosis of, Gros' test, Takata-Ara test and thymol turbidity test in, 9226*a*.
diagnosis of obstructive and parenchymatous, 2661*e*.
diazo reaction of serum in, 8516*d*.
emulsification of fat in intestines in, bile salt and lipase in, 9198*a*.
erythrocyte resistance in, 9218*a*.
globulin influencing van der Bergh reaction in obstructive, 6684*d*.
hemolysins in congenital hemolytic, 8519*e*.
iodophthalein elimination in, 8521*c*.
iron (nonhemoglobin) in blood plasma in, 3076*f*.
lipides in blood in, 2296*e*.
in new-born mule in relation to hemolysis in new-born infants, 5483*i*.
nuclear inclusions in silkworm, action of protease on, 9110*e*.
pentdyopent reaction of urine in, 3050*g*.
phosphatase in blood serum from, nonexcretion of, 297*f*.
surface tension of blood serum in, 712*g*.
vitamin A in adrenals and liver in, 7570*h*.
in xanthomatous biliary cirrhosis, 3095*f*.
**Jefferisite**, decompn. and resynthesis of, 6120*d*.
**Jeffersonia diphylla**, vitamin C in arillus of, 8015*c*.
**Jellification**. See *Gelation*.
**Jelly**. (See also *Colloids; Gelatin*.) 3945*g*.
bacteria and mold inhibition in, P 7606*f*.
hyl cellulose in forming sugar, cold-processing, P 2710*h*.
detection of decompn. in, 7155*e*.
flavoring of, 8573*g*.
from grapes (Scarlet), 6328*g*.
pharmaceuticals—see *Pharmaceuticals*.
reducing sugar detn. in, 7153*b*.
from steam condensate from apple blancher, 9287*i*.
**Jelly strength**, control of, of drilling fluids, 8652*f*.
of fruits (Indian), 7156*a*.
grading, of pectins, 3945*gi*.
of polyose from tamarind seeds, 785*h*.
of soap gels in solvents, 9492*e*.
of sunflower pectin, 1498*f*.
**Jenner, Edward**, biography, 915*e*.
**Jeolic acid**, 2707*e*.
**Jerusalem artichoke** (*Helianthus tuberosus*), fructose-sirup manuf. from, 888*a*.
glucide content of tubers and seeds of, 1080*i*.
glycerol utilization by, 2281*b*.
hybridization with *Helianthus doronicoides*, and its effect on compn., 8460*g*.
as rutin source, 8102*a*.
structure of tubers of, 6704*a*.
tryptophan effect on, 7094*b*.
vitamin $B_1$ in, and effect of cooking thereon, 6753*h*.
**Jervine**, and derivs., 658*d*.
sensitization to K by, 4380*g*.
——, *N*-**acetyl-***, and benzoate, 658*f*.
——, **dihydro-***, and hydrochloride, 658*e*.
**Jervinol**, *N*-**acetyl-**$\beta$**-dihydro-***, diacetate, 658*f*.
——, $\beta$**-dihydro-***, 658*e*.
——, $\Delta^4$-$\beta$**-dihydro-***, and hydrochloride, 658*e*.
**Jervone**, $\Delta^4$**-dihydro-***, and oxime, 658*f*.
**Jervonol**, $\Delta^4$-$\beta$**-dihydro-***, and oxime, 658*e*.
**Jet propulsion**, 4828*g*.
book: Rocket Propulsion Elements, 1984*b*.
fuels for—see *Fuels*.
thermodynamic properties of gas mixts. in, 446*i*.
**Jets**, disperser and mixer, P 3588*b*.
mixing of liquids in, 1614*e*.
**Jewelry, Jewels**. (See also *Gems*; and such headings as *Gold alloys*.)
settings for, P 8740*a*
**JL 37**. See *Salicylanilide, 4′ sulfamyl-*.
**JL 916**. See *Triethylamine, 2-thymyloxy-*.
**JL 920**. See *Trasentin*.
**JL 996**. See "2-diethylaminoethyl ester, -HCl," under *Cyclohexaneacetic acid, α-phenyl-*.
**JL 998**. See "2-diethylaminoethyl ester, -HCl" under *Acetic acid, dicyclohexyl-*.
**John Scott Award**, to Kharasch, Morris S., 2825*d*.
**Johnson grass**. See *Grasses*.
**Joints**. (See also *Expansion joints*.)
cement, 8635*e*.
filler for, in concrete masonry, P 5633*d*.
fillers for, from rubber-contg. bitumen, 4443*e*.
pipe—see *Pipe joints*.
plywood—see *Wood*.
sealing—see *Sealing; Sealing compositions*.
welded—see *Welds*.
**Joints** (*physiological*), absorption of colloids and fluid from, 8504*g*.
antistiffness factor—see *Antistiffness factor*.
fluid in cavities of—see *Synovial fluid*.
gold in, in arthritis, 763*e*.
mandibular, in pantothenic acid deficiency, 7098*i*.
physiology and pathology of, 6727*h*.
**Jojoba oil**. See *Waxes*.
**Jones, Grinnell**, biography, 6875*a*.
**Jones, Wm.**, biography, 915*e*.
**Jones-Ray effect**, imaginary contact angles and, 8234*f*.
**Joseite**, density and x-ray data on, 8982*g*.
**Joshi effect**. See "light action on," under *Electric discharge*.
**Joshua tree**, lignin and vanillin from, 819*e*.
**Joule-Thomson effect**. (See also *Thomson effect*.)
of hydrocarbons (pure and mixed), 3178*h*.
**Journal of Russian Chemical Society**, history of, 6477*i*.
**Journals** (*magazines*). See *Literature*.
**Journals** (*mechanical*), corrosion of turbine, by sea water, prevention of, 9017*a*.
lubrication *Lubricants; Lubrication*.
**Jucundal**. See *Caproamide, α,α-dibutyl-*.
**Juglone** (*5-hydroxy-1,4-naphthoquinone*), and derivs., 9057*c*.
effect on urease, 6675*d*.
spectrum of, 7341*e*.
——, **6-acetyl-**, bactericidal action of, 7019*f*.
——, **2(and 3)-anilino-**, and acetates, 201*i*.
——, **2-anilino-3-bromo-**, and acetate, 201*i*.
——, **3-anilino-2-bromo-**, acetate, 201*i*.
——, **2-anilino-6-bromo-3-chloro-**, 9058*a*.
**2(and 3)-anilino-3(and 2)-chloro-**, acetates, 201*h*.
—, **3-anilino-2-chloro-**, acetate, 201*a*.
—, **2-anilino-3,6-dibromo-**, 9058*a*.
—, **2(and 3)-bromo-**, and acetates, 201*e*.
—, **6-bromo-2-chloro-2-***p***-toluidino-**, 9058*a*.
—, **6-bromo-2,3-dichloro-**, and acetate, 9057*i*.
—, **2-chloro-**, acetate, 200*h*.
—, **2(and 3)-chloro-**, and acetates, 201*e*.
—, **2,3-dibromo-**, 201*h*.
—, **2,6-dibromo-**, 615*c*.
—, **3,6-dibromo-2-ethoxy-**, 9058*b*
—, **3,6-dibromo-2-methoxy-**, 9058*a*.
—, **3,6-dibromo-2-***p***-toluidino-**, 9058*a*.
**2,3-dichloro-**, 201*g*.
and acetate, 201*a*.
——, **hydroxy-**. See *1,4-Naphthoquinone, dihydroxy-*.
—, **2,3,6-tribromo-**, 9058*a*.
and acetate, 201*f*.
**Juglone series**, 201*e*, 9057*c*.
**Juices**. (For specific juices see such headings as *Fruit juices; Orange juice; Plants; Sap; Vegetables*.)
concentrator for, P 7760*a*.
drying sugar-contg., P 1503*a*.
spray-drying of, P 8218*d*.
**Jujube**. See *Zizyphus*.
**Julolidine** (*1,2,3,5,6,7-hexahydrobenzo[ij]-quinolizine*), hydrogenation of, 5784*d*
——, **hexahydro-**, and derivs., 5784*d*
**Junipers**, berries, compn. and vitamin C in, 3536*f*.
oil from—see *Oils*.
**Juniperus**. See *Junipers*.
**Jupiter**. See *Planets*.
**Jute** and(or) **Corchorus**, bags for sugar storage, 2797*b*.
book: Handbook of Textile Technology, 4019*d*.
cellulose detn in, 6411*i*.
cellulose from, structure of hydrated, 4009*e*.
crystal structure of pulp from, 2429*c*.
dyes for, P 9404*a*.
fungi causing deterioration of, 5953*i*
pentachlorophenol detn. in, 1565*b*.
retting of, microörganisms active in, 9456*b*.
root tips of, effect of gammexane on, 7094*h*.
size for, P 2471*h*.
standards for, 4787*ag*.
surface (internal) of, 1241*a*
x-ray scattering by, 2091*f*, 4460*i*.
yellowing of delignified, 6422*ab*.
**Jute substitutes**, roselle as, 4469*c*.

**K 18***, effect on hyaluronidase and staphylo coagulase, 3855*h*.
**K 1875**. See *Methane, bis(p-chlorophenoxy)*
**Kaempferol** (*3,4′,5,7-tetrahydroxyflavone*), adrenaline protection by, 5542*b*.
and derivs., 638*d*.
——, **dihydro-***, adrenaline protection by, 5542*b*.
**Kaffir, Kaffir corn, Kafir**. See *Sorghum*.
**Kahlenberg, Louis**, biography, 8761*a*.
**Kainite**, paragenesis with polyhalite, 8995*d*.
**Kaki, Kaki-sibu**. See *Persimmons*.
**Kala-azar**. (See also *Leishmania; Leishmaniasis*.)
antimonials in treatment of, 5540*d*.
cholinesterase in blood serum in, 3923*b*.
copper in blood serum in, 3923*f*.
iron in blood serum in, 3923*f*.
liver function and carbohydrate metabolism in, 3515*g*.
magnesium in blood in, 3923*d*.
**Kalanchoe**. (See also *Bryophyllum*.)
effect of aerosols of DDT, $Et_4P_2O_7$ and parathion on, 1523*f*.
growth response to DDT and other synthetic compds., 1898*a*.
**A. A.**, obituary, 7275*g*.

**Kale.** (See also *Collards.*)
germination of seeds of, effect of drugs on, 2357*e*.
hexachlorocyclohexane toxicity to, 5148*a*.
oxalic acid and vitamin C in Wyo., 9273*f*.
vitamin A availability from, 5459*c*.
vitamin C in, effect of N fertilization on, 3552*f*.
**Kaliborite**, resorption by polyhalite, 8995*d*.
from Spain (Sallent, Barcelona), 8984*g*.
**Kalinite**, in volcanic deposits at Nyamuragira and Tshambene, Belgian Congo, 5349*a*, 8992*e*.
**Kalliophilite**, formation by hydrothermal alteration of feldspars in KOH and $K_2S$ solns., 8313*g*.
synthesis of, 8804*g*.
system: $Al_2O_3$–nephelite–$SiO_2$–, 6798*g*.
**Kalsilite**, in blast-furnace linings, 5705*f*.
**Kamacite**, in meteorite of Linwood, Nebr., ——
in meteorite of Pima Co., Ariz., 8988*g*.
in meteorite of Soper, Okla., 8988*i*.
**Kamala**, anthelmintic activity of, and its constituents, 8101*e*.
dye from, effect on vitamin A destruction in shark-liver oil, 9385*c*.
in ghee, effect on oxidation induction period, 8569*g*.
as stabilizer for ghee and vegetable oil shortening, 5127*g*.
seeds and seed cake from, 4027*a*.
**Kamala-seed oil.** See *Oils*.
**Kanaktara.** See "straw" under *Rice*.
**Kankar.** See *Limestone*.
**Kans.** See *Grasses*.
**Kaoliang.** See *Sorghum*.
**Kaolin.** (See also *Clays; Dickite; Kaolinite Metakaolin; Nacrite; Pholerite.*)
activation for cement, P 3106*g*.
adsorption by, color reactions in, 6035*f*.
aluminum sulfate manuf. from, P 8107*h*.
in alunites of Hungary, 8991*e*.
of Australia, 6546*g*.
in blue-green or red clays of Don Basin, 6130*gi*.
of Brazil (Paraná), 2136*d*.
as catalyst in BuOH prepn. from EtOH, 5363*c*.
catalyst manuf. from, activation by acids and water in, P 8129*gh*.
catalysts contg., in dehydration of 1,3-butanediol, 2015*ghi*, 2016*abc*, 4045*ef*, 5360*dfgi*, 5361*a*.
catalysts of bentonite and, P 8578*h*.
cation absorption by, 7618*f*.
ceramic materials contg.—see *Ceramic materials*.
in clays, 3580*f*.
in coal seam (Rhaetic) of Scania, Sweden, 7382*d*.
coating of, with sesquioxides, 7620*h*.
dehydration, hydration and imbibition of, 8233*ad*.
from Dutch Guiana (Paramam), 5349*g*.
effect on lungs, 3935*i*.
Egyptian, 6121*c*.
elec. insulator from PhOH-HCHO condensation product, starch and, 8075*e*.
electrodeposition of electrodialyzed, effect of NaOH on, 6091*c*.
fermentation in presence of, P 8094*b*.
of Florida, 6126*e*.
formation from igneous rocks or pegmatites, 2133*g*.
formation from tuffs on Eastern Alps, 527*c*.
formation of Al, H and Fe ions from, by acids and salts, 872*c*.
formation of nucleus of, 1291*c*.
glass-surface treatment with, P 1934*h*.
halloysitic, of Capalbio, Italy, deposition of, 5706*e*.
as insecticide for *Callosobruchus chinensis*, 1139*g*.
of Kansas, 2134*g*.
ladle bricks from, 6381*e*.
in mineral springs at Beppu, Japan, 5703*h*.
mineral wool from, P 5566*d*.
nontannin sorption by, during filtration, 8182*i*.
as paper filler, 400*i*.
as pigment extender, 8704*a*.
plastic material from, P 7262*h*.
refractories from U.S.S.R., 6382*i*, 8114*a*.
for rubber filling, treatment with Si org. compds., P 6457*f*.
as rubber-reinforcing agent, 1209*b*.
sedimentary, of Ga., anatase in, and $TiO_2$ contents of fractions of, 6117*g*.
silvering of, P 8712*i*.
Spanish, 6381*c*, 8590*c*.
surface area of, calcn. of, 6799*c*.
suspensions of, effect of pH on, 4538*d*.
swelling reduction by carboxymethylcellulose salt-alkali or alk. earth halide solns., P 5582*e*.
of Turkey, 1291*g*.
of U.S.S.R. (Vladimirovka), 6126*e*.
**Kaolinite.** (See also *Kaolin.*)
analyses and x-ray examn. of, 840*i*.
of Belgium (Mezzel Creek), 2901*e*.
calcium and K in suspensions of, 1133*a*.
cation chromatography on, 3549*h*.
cation-exchange power of, 8232*i*.
as cementing substance for sands, 6550*d*.
crystal structure of, 481*i*.
detection of, 1287*i*, 2130*a*.
detn. in amorphous substances, 5252*b*.
formation and structure of, and its $NH_4$, K, Ag and Na derivs., 1291*d*.
formation of, 6347*d*.
formation of, in Cu ores of Calabona, Italy, 6949*b*.
gold sol adsorption by, 6489*e*.
hydroxylic surfaces of, 1131*h*.
ion-exchange capacity of, surface area and, 6036*b*.
in limestone of Northampton Sand, England, 5347*g*.
reaction with phosphates, 1511*i*.
in red banded deposits in Rocky Mt. region, 2137*d*.
in red ocher deposits of Ophthalmia Range, W. Australia, 6124*i*.
soils, 3127*d*.
suspensions of, properties of, 4436*h*.
thermal-analysis curves for, 8987*h*.
ultrasonic dispersion in suspensions of, 4538*b*.
**Kapok**, detection of second-hand, in bedding and upholstered furniture, 5193*f*.
internal wetting of, in detergency, 8687*h*.
**Kapok substitutes**, milkweed floss, 9296*i*.
silica aerogels, 4789*h*.
**Karaya gum** (*Sterculia gum*), 21*f*.
as hydrophilic laxatives, 8609*c*.
mol. wt. of, 1626*g*.
mucilage from, 888*e*.
from *Sterculia setigera*, 4881*b*.
**Karbam black.** See "iron salt" under *Carbamic acid, dimethyldithio-*.
**Karbam white.** See "zinc salt" under *Carbamic acid, dimethyldithio-*.
**Karite butter.** See "shea" under *Fats*.
**Karkade.** See *Roselle*.
**Karpov Physicochemical Institute**, 3670*h*.
**Karsan**, in potato preservation, 6329*g*.
**Karyokinesis.** See *Mitogenetic radiations;* and "division" under *Cells, animal* and *Cells, plant*.
**Kasimid.** See *2-Imidasoline, 2-benzyl-*.
**Katabolism.** See *Metabolism, animal; Metabolism, plant*.
**Katadyn process.** See *Oligodynamic action*.
**Kathopeptonase**, sepn. from kathoproteinase in liver slices, 9089*gh*.
**Kathoproteinase**, sepn. from kathopeptonase in liver slices, 9089*gh*.
**Katsuranin**, adrenaline protection by, 5542*b*.
**Katuny**, compn., formation and role in petroleum origin, 978*e*.
**Kaurene**, identity with podocarprene, 2978*a*.
**Kauri**, acid nos., ester nos., formation and varnishes of, 1198*h*.
**Kawahone**, alkaloids, 7939*d*.
**Kefir**, vitamin $B_1$ in, 4393*d*.
**Kellin.** See *Khellin*.
**Kelp.** (See also *Laminaria;* etc.)
**Kempferol.** See *Kaempferol*.
**Kenaf.** See *Hibiscus cannabinus*.
**Kentucky blue grass.** See *Grasses*.
**Keotized Mercury E**, as fungicide for gladiolus, 3961*c*.
**Kephrine.** See *Adrenalone*.
**Keratins.** (See also *Gorgonin.*)
adhesives from, P 9512*d*.
anisotropic swelling and water absorption by horn, 2073*c*.
bleached meal from horns and hoofs for plastics, P 8186*d*.
chain folding in, 6248*e*.
coloring of, by Cu, 6256*a*.
cystine in, 7062*h*.
decompn. products of, foam from, 6*d*.
degradation by hide liming and unhairing agents, 6448*h*.
elec. cond. of, effect of adsorbed salts and temp. on, 3689*b*.
electrolysis of water system with, 3689*a*.
fibers, 4857*g*.
hardening and orientation of, in hair follicle, 7113*d*.
hydrolysis products from, P 6764*f*.
manuf. and use in urea-HCHO condensation products, P 2039*f*.
mech. properties of, structure and, 2810*c*.
medullated, 2689*g*.
modifications and structure, 3621*i*.
pancreatin-digested wool, 2779*a*.
in papillomas, compn. of, and of carcinoma deriving from papillomas, 3921*h*.
plaster of Paris contg. retarding, P 4444*a*.
proteins of, dispersion of, P 6465*c*.
regeneration of wool, and fibers from regenerated β-keratin, 2777*i*.
structure of α- and β-, 7529*f*, 8843*i*.
structure of β-, 6486*g*.
wool, structure of, 3691*d*, 7233*e*.
**Kermes**, pigments from berries of, detection in wine, 8091*g*.
**Kermesite**, of Italy (Mt. Peloritani), 3310*a*.
symmetry and triclinic structure of, 8983*a*.
**Kernite**, of California (Kern Co.), 4607*e*.
crystal structure and (011) twinning of, 8984*e*.
crystal structure of, 8933*d*.
**Kerogen**, soly. of, effect of shale particle size and sp. gr. and of solvent on, 7215*d*.
**Kerosene**, absorption by aggregates, measurement of, 7207*e*.
anabasine distribution between water and, 6789*b*.
analysis of, for $C_{10}H_8$ and methylnaphthalenes, 6542*h*.
aromatic-content reduction of, by $SO_2$ extn., 7674*h*.
in bamboo-powder-post-beetle control, 3967*e*.
in black-fly-larva control in Alaskan streams, 6354*c*.
burning quality of, test for, 4399*e*.
from Chile (Manantiales) oil, d. and yield of, 3995*h*.
combustion products of, enthalpies and heat capacities of, 3671*d*.
corrosion and discoloration prevention in pipe lines for, P 6403*a*.
effect on crit. shear stress of Sn single crystals, 6029*a*.
effect on drilling of Al, 8227*i*.
emulsions of, effect of wetting container on type of, 7776*c*.
emulsions with glues, gums or starches for coating soap particles, P 1587*b*.
evapn. in burning spray of, 4840*a*.
flow of air and, through pipes, 2046*b*.
hardening of Al during drilling and specific work of cutting in, and its mixts. with palmitic acid, 2001*fg*.
heat exchange between water and, 5*f*.
hydrogen sulfide partition between $H_2O$ and, 7297*h*.
ignition of, O-concn. effect on, 8638*e*.
mixts. with machine oil, Chitin montmorillonites in bleaching of, 2899*i*.
from molasses pyrolysis, 9422*f*.
as mosquito repellent, 2728*h*.
neutralizer effect on, 97*a*.
orange peel control in baking lacquers by, P 6838*f*.
oxidation of, 8657*f*.
oxidation of, internal esters and carboxylic acids from, and film-forming ester mixts. therefrom, 3181*i*.
perfluoro deriv., equil. with $PhNH_2$, heptane, $H_2O$, white P, Ga and Hg, 7285*d*.
solid mixt. prepn. with, 6398*h*.
from tar distillates, 7207*h*, 7664*h*.
tetraethyllead detn. in ethylated, 9423*e*.
toxicity of, 1867*f*.
toxicity to ants, 5895*a*.
and its toxicology, 5514*h*.
**Kerr effect** (*electrooptical*), of alc. solns., 469*g*.
of diisopropyl ketone and $Pr_2O$, 6016*d*.
light valve of $NH_4H_2PO_4$ crystal using, P 5682*g*.
of liquid-crystal solns., 3675*c*.
in liquids, relaxation time of optical anisotropy and, 7767*c*.
**Kersantite**, dikes contg. sedimentary xenoliths, cutting diabases of Schäre Halsaren, Sweden, 4985*a*.
**Ketals.** See *Acetals*.
**Ketazines.** See *Azines*.
**Ketchup.** See *Catsup*.
**Ketene**, acetals, 1403*i*, 3356*f*.
acetylation of cotton cellulose with, 3698*b*.

increased anaerobic splitting of the hexosephosphate. The overproduction of the coenzyme is suggested as the primary cause of the hypertrophy of the adrenal gland, especially of the cortex. The beneficial effect of adrenal cortex feeding in preventing B-avitaminosis is also attributed to the supplying of coenzyme. S. MORGULIS

**The role of the bile acids in carbohydrate metabolism. XXIII. Influence of bile acids and of adrenaline on experimental excretion of sugar in the bile.** TOSHIYUKI TANAKA. *J. Biochem.* (Japan) **16**, 407–16(1932); cf. *C. A.* **26**, 5638.—Expts. were made on dogs with bile fistulas. The glucose excretion in the bile increases after intravenous injection of sugar, but on administering cholic acid this excretion is decreased. Furthermore, the administration of adrenaline increases the sugar excretion in bile associated with sugar feeding. Sectioning of the left splanchnic nerve still further increases the depressing effect of cholic acid upon the sugar excretion in the bile, as it also diminishes the effect of adrenaline upon the excretion. S. MORGULIS

**Adsorption experiments with vitamins B($B_1$) and G($B_2$).** H. C. SHERMAN AND NELLIE HALLIDAY. *J. Am. Chem. Soc.* **55**, 332–5(1933).—Protein-free milk can be prepd. from skim milk powder without appreciable loss of vitamin B($B_1$) or vitamin G($B_2$) potency. Vitamin $B_1$ is relatively more efficiently adsorbed from protein-free milk on Lloyd's reagent than is vitamin $B_2$. Varying the amt. of Lloyd's reagent used from 5 to 40 g. per l. of protein-free milk (initially adjusted to $p_H$ 3 or 4) did not result in appreciable differences in the amts. of vitamin $B_1$ or $B_2$ adsorbed. Under the conditions of the expts. reported approx. 0.5 of the vitamin $B_1$ potency and 0.33 of the vitamin $B_2$ potency of the original protein-free milk were adsorbed on Lloyd's reagent; but no appreciable amt. of the original vitamin $B_1$ potency and only about 0.16 of the vitamin $B_2$ potency were shown by the filtrates after removal of the activated solids. When the adsorption processes were carried out in a N atm. rather than in air and under otherwise comparable conditions, the activated solids were somewhat more potent in both vitamins and the filtrates were more potent in vitamin $B_2$. The apparent losses are being studied in other ways and in the light of the newer evidence as to probable multiple nature of the 2 vitamins. C. J. WEST

**Comparative studies on the adsorption behavior of crude vitamin A, carotene and cholesterol** HARRY N. HOLMES, VINCENTE G. LAVA, ELEANOR DELFS AND HAROLD G. CASSIDY. *J. Biol. Chem.* **99**, 417–27(1933).—A new technic is described by which material is adsorbed from a solvent which permits good adsorption and recovered or liberated by use of a better solvent from which there is poor adsorption. (A combination of petr. ether and $CHCl_3$, in general, was the most effective in these expts.) The adsorbents used were various types of $Al_2O_3$, Patrick's com. $SiO_2$ gel, Holmes' vitreous and chalky $SiO_2$ gels and norite. Cholesterol was found to be much like vitamin A in its adsorption behavior so that the sepn. of these 2 substances by selective adsorption is a problem of great difficulty. Attention is directed to a new type of porous $Al_2O_3$ of low cost (prepd. commercially by slow crystn. from dil. NaOH soln. followed by heating to drive off most of the water of crystn.) which is of great value in adsorption studies. Adsorption *per se* does not necessarily destroy vitamin A, as a high percentage has been recovered from porous solids (particularly the new type of $Al_2O_3$) upon which it has been adsorbed. A. P. LOTHROP

Cerevisterol (HONEYWELL, BILLS) **10.** An oxide of carotene (v. EULER, *et al.*) **10.**

BOGERT, L. J.: **Nutrition and Physical Fitness.** Philadelphia: W. B. Saunders Co. 554 pp. $3.

DREYFUS-SÉE, G.: **Les stérols irradiés en thérapeutique.** Paris: J.-B. Baillière et fils. 48 pp. F. 6

PLIMMER, R. H. A., AND PLIMMER, VIOLET G.: **Food, Health, Vitamins.** 5th ed. New York: Longmans, Green & Co., Ltd. 143 pp. 3s. 6d.

THESES

BOCK, FRANZ: **Über die Ultraviolettbestrahlungsprodukte des Ergosterins.** Göttingen, 1930. 22 pp.

BRODIE, JESSIE B.: **Quantitative Experiments on the Occurrence of Vitamin B($B_1$) in the Body.** Columbia Univ., 1931. 28 pp.

DERBIGNY, I. A.: **Studies on Vitamin G with Special Reference to Protein Intake.** Columbia Univ., 1932. 20 pp.

ELLIS, LILLIAN N.: **A Quantitative Study of the Nutritional Significance of Varied Proportions of Vitamin G.** Columbia Univ., 1932. 24 pp.

GNOIŃSKI, HENRYK: **Przemiana Weglowodanowa a uklad siateczkowosrôdblonkowy [Carbohydrate metabolism and the reticulo-endothelial system].** Warsaw, 1931

GRÜBER, EDITH: **Über die Änderung der chemischen Blutzusammensetzung nach Ölfrühstück.** Bonn, 1931. 14 pp.

GRÜNDAHL, HEINRICH: **Provendeine, ein vitamin- und mineralstoffhaltiges Beifutter für Schweine. Beitrage zur Bekämpfung der Aufzucht- und Mangelkrankheiten des Schweines.** Berlin, 1931. 46 pp.

HARTLEY, JANE G.: **Factors Concerned in the Quantitative Determination of Vitamins B and G.** Columbia Univ., 1931. 32 pp.

KAINER, HERBERT: **Der Einfluss lipoidhaltiger Nährmittel auf Säurebasengleichgewicht und Mineralhaushalt.** Berlin, 1931. 10 pp.

KUNG, LAN-CHÊN: **The Influence of Some Nutrients on Hemoglobin Production and the Iron Content of the Body.** Columbia Univ., 1932. 59 pp.

LENSHOEK, C. H.: **Geneeskundige chemie in de heelkunde. Heelkundige behandeling en reactie van bloed en weefselvochten.** Utrecht, 1931. 369 pp.

LOTTRUP, M. C.: **Om Saltmangel.** Copenhagen, 1932. 88 pp. Reviewed in *Nutrition Abstracts & Revs.* **2**, 203(1932)

ROSENBAUM, ERNA: **Unsere Kenntnisse über die spezifischdynamische Eiweisswirkung auf Grund neuerer Arbeiten.** Berlin, 1931. 36 pp

SCHMIDT, WALTER: **Der Mineral- und Stickstoff-Stoffwechsel des Haushuhns bei verschiedener Fütterung.** Berlin, 1932. 29 pp.

SCHNEIDER, GÜNTHER: **Die Quellung einiger Vegetabilien und ihre Salzsäureabsorption im Magensaft.** Berlin, 1932. 15 pp.

STOCKÉ, WALTER: **Die Wirkungen der mit ultravioletten Strahlen bestrahlten Milch beziehungsweise des bestrahlten Ergosterins [Vigantol].** Munster, 1930. 29 pp

WHALEN, F. B.: **The Nutritional Significance of Vitamin G.** Columbia Univ., 1931 26 pp

WINDOLPH, ALOYS: **Die Beeinflussung der Vigantolvergiftung durch Glukonsäure.** Erlangen, 1931, 23 pp.

**Production of vitamin D from ergosterol.** ALADÁR JENDRASSIK. Hung. 104,227, Apr. 14, 1931. Solid ergosterol in contact with a soln. contg. vitamin D or ergosterol is irradiated. The soln formed is led away by dialysis and fresh solvent is continuously added. Mech. details are given

**Fat containing vitamins.** AAGE W. OWE. Norw 44,019, Dec 29, 1930. Edible fat is mixed with a vitamin-bearing substance. The mixt. is refined in known ways to eliminate unpleasant taste or odor originating from the vitamin-bearing substance, under such conditions that the vitamins are not destroyed.

## F—PHYSIOLOGY

HOMER W. SMITH

**Studies on blood catalase. I. The effect of electric current on blood catalase.** SUTETARO KONDO. *Acta Schol. Med. Univ. Imp. Kioto* **15**, 225-8(1932).—A. c. causes a decrease in blood catalase in rabbits, followed by gradual recovery when the current is turned off. *In vitro* at $p_H$ 8.0-8.5 the activity is gradually diminished; at $p_H$ 6.0-7.5 the activity is enhanced at the beginning followed by weakening. **II. The effect of infra-red rays on the catalase activity of the blood.** *Ibid* 229-32.—The activity is increased in the first period of radiation, and then is diminished. The action of the rays is not markedly influenced by $p_H$ variations from 6.0 to 8.5. **III. The effect of alkaloids on the catalase activity of the blood.** *Ibid* 233-38.—Concd. solns. of the alkaloids diminish, dil. solns. increase, catalase activity. The max. activation is at $p_H$ 7.5 to 8.0. At $p_H$ 7.5 and 0.000001 *M* the order of activation is strychnine nitrate > atropine sulfate > cocaine > pilocarpine > morphine > papaverine and emetine > quinine. (Cocaine to quinine inclusive as hydrochlorides.) **IV. The influence of metallic salts on the activity of blood catalase.** *Ibid* 239–44.—Concd. solns. of the sulfates of Zn, Cu, Pb, Cd, Ni and nitrates of Ag and Co diminish, dil. solns. promote, catalase activity. Activation rises to a max and then diminishes. PHILIP D. ADAMS

**Blood coagulation. III. Blood-coagulation curves of healthy and diseased persons.** SHIGERU TAKENAKA. *Acta Schol. Med. Univ. Imp Kioto* **15**, 245-60(1932); cf. *C. A.* **26**, 3813.—By use of the coaguloviscometer devised by Takenaka coagulation curves of healthy persons are classified into 3 types. The curves of several diseases are given. **IV. The prohibitory action of cold on the blood coagulation and recovery from this restraint.** *Ibid* 261–4.—When blood restrained from coagulating by cooling to zero or by freezing was warmed to 20° in about 1 hr the viscosity remained const. for

about 20 min. Stirring with a glass rod caused rapid coagulation. Spontaneous clotting in the normal time occurs in cooled blood warmed rapidly to 20°. **V. Mathematical analysis of the blood-coagulation curve.** *Ibid* 265–76.—The coagulation curves of normal and diseased persons are of 3 types: exponential, parabolic and an intermediate too irregular for math. analysis. No relation is shown between disease and type of curve. PHILIP D. ADAMS

**The relation between oxygen tension and protein synthesis in certain tissue extracts.** CARL VOEGTLIN, MARY E. MAVER AND J. M. JOHNSON. *Science* **77**, 92–3 (1933); cf. *C. A.* **26**, 2774.—A preliminary report. PHILIP D. ADAMS

**Critical temperature of serum. Ionic equilibrium of serum as a function of its temperature. V.** P. LECOMTE DU NOÜY. *Ann. inst. Pasteur* **48**, 187–207(1932); cf. *C. A.* **25**, 4033; **26**, 4857.—When horse serum is heated at 58° for 10 min. and then dild with distd. $H_2O$, the globulin which is pptd. seps. in a dispersed form which tends to remain in suspension, whereas if the serum is unheated or heated for 10 min. at <57°, the pptd. globulin tends to fall rapidly out of suspension. The crit. temp. is remarkably sharply defined within the limits of about 1° and is lower for longer periods of heating, being 58° for 5 min. and 53° for 2 hrs. A similar phenomenon is observed with the sera of other animals, the crit. temp. varying according to the animal from 55° to 59° for a period of heating of 10 min. The relation of this phenomenon to the state of the globulin and the modification induced in the latter by heat is discussed. B. C. A

**Respiratory changes in the rabbit uterus and their relation to endocrine activity. III.** J. M. ROBSON. *Quart. J. Exptl. Physiol.* **22**, 209–19(1932); cf. *C. A.* **26**, 4841. Daily injections of anterior pituitary-lobe substance in mature nonpregnant rabbits is followed by luteinization of the ovaries and proliferation of the endometrium of the uterus, but there is no inhibition of the reaction to pituitrin. Injection of standard corpus luteum exts. into the same animals generally fails to bring about this inhibition. Combined daily injections of anterior lobe and estrin usually bring about inhibition. Animals receiving $\alpha$-free gonadotropic prepns. from pregnancy urine do not show dissocn. of the uterine responses. $\alpha$-Hormone is evidently necessary for the development of the inhibitory reaction. RACHEL BROWN

**Physiology of pregnancy in the rat. I. The prolongation and interruption of pregnancy.** ANNIE M. HAIN. *Quart. J. Exptl. Physiol.* **22**, 249–67(1932).—The gestation period in the rat can be prolonged 4–10 days by the administration of anterior pituitary tissue, of ext. of human pregnancy urine, of alk. ext. of pituitary or of ext. contg. purified growth hormone. Pregnancy is apt to be interrupted when injection of the urine ext. is made in the early stages. The evidence suggests that the pregnant condition is not maintained solely by the corpus luteum and that parturition is not due merely to degeneration of that body. RACHEL BROWN

**Red cell density in certain common animals.** JOHN MACLEOD. *Quart. J. Exptl. Physiol.* **22**, 275–80(1932).—The mean d. of the plasma, the mean d. of red cells and the mean content of $H_2O$ are, resp., for man 1.0284, 1.0989, 66.09; rabbit 1.0246, 1.0980, 66.8; ox 1.0294, 1.0844, 71.2; and sheep 1.0275, 1.0837, 70.95. RACHEL BROWN

**The occurrence of acetylcholine in beef blood.** I. VOGELFANGER. *Z. physiol. Chem.* **214**, 109–10(1933).—The controversy between Kapfhammer (*C. A.* **26**, 3827) and Dale (*C. A.* **25**, 4592) and Wrede (*C. A.* **25**, 2175) regarding the occurrence of acetylcholine in beef blood is decided in favor of K. by the isolation, from 5 l. of blood, of 0.3862 g. of acetylcholine reineckate and the conversion of this into 0.1593 g. of chloroaurate m. 166°. Precautions observed were the withdrawal of blood from living animals, rapid evapn. of the EtOH ext. *in vacuo* and continual control with litmus and bromothymol blue to avoid alk. reaction. A. W. DOX

**The circulatory action of fresh defibrinated blood.** KARL ZIPF. *Arch. exptl. Path. Pharmakol.* **167**, 621–37(1932). HARRY EAGLE

**The specificity of the absorption of cholesterol and its biological significance.** RUDOLF SCHOENHEIMER. *Klin. Wochschr.* **11**, 1793–6(1932).—Despite their chem. similarity to sterols of animal origin, plant sterols are not absorbed from the intestinal tract, being treated as foreign matter. HARRY EAGLE

**The role of electrophoresis in the absorption of sugar.** R. KELLER. *Klin. Wochschr.* **11**, 2106–8(1932).—A preliminary review. HARRY EAGLE

**Gastric lipase.** H. LICHTENBERG. *Klin. Wochschr.* **11**, 2117(1932).—The optimum $p_H$ for the gastric lipase in infants is not 5, as reported by Davidsohn for adults, but varies from 5 to 7 according to the fluid used in the preliminary drink. In gastric fluids obtained during fasting or after drinking sugar solns., there is an optimum zone at 5–7; but "plasmon" or peptic products of casein digestion added to the fluid inhibit its action at $p_H$ 7. HARRY EAGLE

**Thyroid glands, iodine and the anterior pituitary lobe.** LEO LOEB. *Klin. Wochschr.* **11**, 2121–5(1932).—A review. HARRY EAGLE

**Thyroid, iodine and anterior pituitary lobe.** LEO LOEB. *Klin. Wochschr.* **11**, 2156–60(1932).—A review. HARRY EAGLE

**Functions of the pancreas in fat absorption.** M. NOTHMANN AND H. WENDT. *Klin. Wochschr.* **11**, 2137–9(1932); cf. *C. A.* **26**, 3286.—A review. H. E.

**The determination of basal metabolism before and after goiter operation and its clinical significance.** MASASHI KAWATA. *Tôhoku J. Exptl. Med.* **19**, 513–47(1932). HARRY EAGLE

**The effect of bilateral adrenalectomy on the basal metabolism in cats.** TOSIMITU KAIWA. *Tôhoku J. Exptl. Med.* **19**, 577–83(1932).—Unilateral adrenalectomy has no effect on the basal metabolism; but a 30–50% decrease was noted after removal of the other gland, beginning within 2 days. HARRY EAGLE

**Comparison of the hyperglucemic action of an adrenal extract with the adrenaline content as determined by colorimetric and physiologic methods.** HIROSHI SATO AND TATSUSABURO INABA. *Tôhoku J. Exptl. Med.* **19**, 603–8(1932).—Medullary exts (Folin's method) were tested for their adrenaline content by their hyperglucemic action, the Folin test, the Suto test, the paradoxical pupil reaction, and by the concn. of segments of rabbit intestine. The first gave somewhat lower results than the last, but 1.5 times as high as the other 3 methods. In each case solns. of known adrenaline content were used for the comparison. HARRY EAGLE

**The maternal and fetal distribution of parathyroid and thyroid hormones.** SHUNKAI UJIIE. *Tôhoku J. Exptl. Med.* **20**, 34–64(1932).—U. concludes that the placenta is permeable for the thyroid and parathyroid hormone of the fetus, on the basis of maternal extirpation expts. There is a large bibliography. HARRY EAGLE

**Physiology of normal and frizzle fowl, with special reference to basal metabolism.** FRANCIS G. BENEDICT, WALTER LANDAUER AND EDWARD L. FOX. Conn. Agr. Expt. Sta., *Bull.* **177**, 13–100(1932).—The frizzle fowl because of its scanty covering of feathers has a much higher heat production than normal fowls. The output of water vapor per kg. of body wt. per 24 hrs. was between 50 and 60 g. with normal fowl and between 30 and 35 g with homozygous frizzles. Adult frizzles show a series of abnormalities as lack of fat deposits, enlarged thyroid, increased heart rate, hypertrophy of the heart, decrease of hemoglobin content of the blood, frequent sterility and low hatchability of the eggs. C. R. FELLERS

**Metabolism in pregnancy. IX. Fetal influence on the basal rate.** ALLAN W. ROWE AND WM C. BOYD. *J. Nutrition* **5**, 551–79(1932); cf. *C. A.* **25**, 2761.—The heat production of a series of 77 women showed that during the 3rd to 4th month of gestation there is a rapid decline in the energy requirement from a normal to a subnormal level, the latter reached in about 4 weeks From this time on there is a steady increase in the metabolic rate amounting to 13% or more in excess of that conditioned by the gross increase in body wt. It is not believed that this excess is contributed primarily by the fetus but rather to a complicated and unknown mechanism engendered by the state of pregnancy. C. R. FELLERS

**Heat production of unusually large rats during prolonged fasting.** FRANCIS G. BENEDICT, KATHRYN HORST AND LAFAYETTE B. MENDEL. *J. Nutrition* **5**, 581–97 (1932).—In studying the basal metabolism of rats, the larger the rat the lower was the metabolic rate per unit of wt. and per unit of surface area. Two very large male rats before fasting produced 603 and 621 cal. per unit area of surface; during fasting the heat production fell off markedly for the first few days but after 30–40 days it increased definitely. The rectal temps. did not appreciably change. In 1 of the rats after fasting for 29 days, the low heat-production value of 377 cal. per sq. m. of body surface per 24 hrs. was reached. C. R. FELLERS

**Chemical differences in male and female hair [Kosjakoff].** J. PIEPENBORN. *Z. ges. exptl. Med.* **76**, 587(1931); *Physiol. Abstracts* **17**, 94.—One-tenth g. of male or female hair is dissolved in 1 cc. of boiling 10% KOH. One cc. of distd. water is added and it is again boiled. The soln. is dild. with 15 cc. distd. water. Two cc. of final soln. and 1 drop of 1% alc. methylene blue are taken, and 4% HCl is added drop by drop until the blue color disappears. This decolorization occurs much more quickly with male than with female hair. During pregnancy, however, this difference disappears. This reaction depends on the sulfur content of the soln. In general gray and white hair contain more S than colored hair. In diseases involving considerable tissue catabolism the S content of organs is also raised. P. considers that the increased S content is an expression of higher degrees of protein catabolism. G. G.

**Hormone of the anterior hypophysis in the serum of women during normal and**

**pathological pregnancy.** A. BRINDEAU, H. HINGLAIS AND M. HINGLAIS. *Compt. rend soc. biol.* **111,** 988–92(1932); cf. *C. A.* **27,** 529.—Assayed by the method previously described the serum during normal pregnancy contained 1000–4000 rabbit units per l. In cases of hydatiform mole the value was increased to 50,000–100,000 rabbit units (333,000–1,000,000 mouse units by Zondek's method). In cases of dead fetus the values were less than 500 rabbit units. L. E. GILSON

**Presence of a melanophore-dilating principle in the tuber cinereum of the guinea pig.** R. COLLIN AND P. L. DROUET. *Compt. rend. soc. biol.* **112,** 63–5(1933). L. E. GILSON

**Demonstration of the true hormone character and properties of vagotonin.** D SANTENOISE, Y. PORCHER AND M. VIDACOVITCH. *Compt. rend. soc. biol.* **112,** 67–70 (1933); cf. *C. A.* **27,** 338.— Summary and discussion of several previous papers. L. E. GILSON

**Differences in the prolan A produced by pregnant and castrated women.** CHRISTIAN HAMBURGER. *Compt. rend. soc. biol.* **112,** 99–102(1933).—Slight differences in the effect upon rats of the 2 kinds of prolan prepns. are described. L. E. GILSON

**Metabolism of the glucides in the central nervous system.** MICHELE MILOLO *Arch. ital. biol.* **87,** 185–93(1932).—A summary is given of the literature and M.'s published work. HELEN LEE GRIFFITH

**Comparative studies on the physiology of the iris. I. Selachians.** JOHN Z YOUNG. *Proc. Roy. Soc.* (London) **B112,** 228–41(1933).—In the genera *Scyllium*, *Mustelus* and *Trygon*, dilatation of the pupil was caused by adrenaline, acetylcholine, pilocarpine and eserine Atropine inhibited this action of pilocarpine and acetyl choline, ergotoxine that of adrenaline. Neither inhibitor influenced the response of the sphincter to illumination. **II. Uranoscopus and Lophius.** *Ibid* 242–9.—The exptl animals were *Uranoscopus* and *Lophius piscatorius*. The pupil was constricted by pilocarpine-$HNO_3$, eserine-$H_2SO_4$ in concns >1:10,000, adrenaline-HCl, and acetyl choline bromide in concd soln., and, usually, by arecoline-HBr, and was dilated by acetylcholine bromide in dil. soln. Addn. of ergotoxine-$H_3PO_4$ reversed the action of adrenaline. The constrictive action of pilocarpine, acetylcholine and the stimulated sympathetic nerves was inhibited by atropine-$H_2SO_4$, but not by ergotoxine $H_3PO_4$ Atropine did not influence the action of adrenaline. JOSEPH S. HEPBURN

**Group-specific substance of horse saliva.** K. LANDSTEINER. *Science* **76,** 351–2 (1932).—An active substance was obtained from horse saliva by treatment with acid and acetone and fractionation with alc., which gave only a weak biuret reaction and on hydrolysis yielded 48.5% reducing sugar (calcd. as glucose). Another prepn. made in a different way from saliva adsorbed with kaolin and charcoal, reacting strongly with anti A immune sera, had the compn C 44.65%; H 6.76%; N 7.43% (calcd. for ash free substance; ash 3.37%). J. A. KENNEDY

**The effect of temperature on the carbon dioxide absorption curve of human blood.** ANNA J. EISENMAN. *J Biol. Chem.* **99,** 359–81(1933); cf. *C. A* **18,** 2195.—An increase in $H_2CO_3$ and $BHCO_3$ occurs when the temp. is decreased at const. $CO_2$ tension but this increase is not uniform for each degree and is greater around 23° than around 38°. The increase in $BHCO_3$ for the temp fall from 38° to 23° is directly proportional to the hemoglobin content of the blood and the relationship is expressed by the equation, $\Delta[BHCO_3]_{23-38°}$ = (0.32 $O_2$ capacity + 6.7) vols. per cent. The effect of temp. on the $CO_2$ capacity of true serum is 1.1 times that on whole blood. The effect of temp. on *p*H of whole blood depends also on the hemoglobin content, very anemic bloods showing a decrease and normal bloods an increase. Tension and temp. effects are dissimilar. A 30 mm. tension increase has about the same effect on $H_2CO_3$ as a temp. decrease from 38° to 23°. This increment of $H_2CO_3$ from temp change has about twice as great an effect on $BHCO_3$ as does the same increment of $H_2CO_3$ resulting from an increase of $CO_2$ tension at const. temp. A bibliography of 29 references is included. A. P. LOTHROP

**The effects of yeast ingestion on the composition of the urine and feces.** H B PIERCE. *J. Biol Chem.* **98,** 509–35(1932).— Live yeast has a laxative effect which is more marked on a carbohydrate-rich than on a protein-rich diet. It causes a diminution in putrefaction which is indicated by the phenol content of the urine and feces The indole and indican excretion rose during the periods of yeast ingestion but not to the extent expected if the yeast tryptophan were subjected to the same degree of putrefaction as that in the protein of the control diet. Total sulfate-S excretion usually decreased after addn. of yeast to the diet. The elimination of inorg. sulfates decreased and of ethereal sulfates increased during yeast periods. Yeast has a favorable effect on the acid-base balance which was indicated by a fall in the titratable acidity of the urine. Extra $NH_3$ was formed for the purpose of neutralizing extra acid and conserving the

fixed base in the body. On the yeast diet there was greater formation of org. acids which may very likely have been responsible for the laxative effect. The production of volatile acids was much higher on the carbohydrate than on the protein diet. The yeast N was readily retained and was not lost during the control periods following yeast ingestion. In fact the amt. of N retained was often greater than that contained in the ingested yeast protein. The excretion of uric acid fell or showed no change on adding yeast in 7 of the 16 averaged 6-day trials and, while it was evident that individual subjects possessed varying capacities in metabolizing nucleoproteins, the results indicate that up to 6 cakes of yeast daily cannot cause an increase in uric acid production sufficiently great to exert a harmful effect on the organism. A bibliography of approx. 75 references is included. A. P. LOTHROP

**The metabolism of sulfur. XIX. The distribution of urinary sulfur in the dog after oral administration of monobromobenzene as influenced by the character of the dietary protein and by the feeding of *l*-cystine and *dl*-methionine.** ABRAHAM WHITE AND HOWARD B. LEWIS. *J. Biol. Chem.* **98,** 607–24(1932); cf. *C. A.* **26,** 1325.—If abundant cystine is available, the major portion of any $C_6H_5Br$ ingested is conjugated with the amino acid and excreted as the bromophenylmercapturic acid but if the supply of cystine is limited, oxidation, conjugation and elimination of the $C_6H_5Br$ as ethereal sulfates occur. After $C_6H_5Br$ feeding greater increases in the org. S fraction of the urine occur if the protein of the diet is lactalbumin, a protein rich in cystine, than when the protein element is furnished by casein or peas, both low in cystine. With the latter substances there is a greater excretion of extra ethereal sulfate S than when lactalbumin is fed. If the peas are supplemented by either *l*-cystine or *dl*-methionine, results similar to those with lactalbumin are obtained and they also prevent the increased N excretion which occurs when the basal diet was fed without supplement. These effects are specific for the S-contg. amino acids as similar results are not obtained when glycine is fed with $C_6H_5Br$. The suggestion is made that methionine may function as does cystine in the detoxication of $C_6H_5Br$ but as yet no direct exptl. evidence has been obtained. A. P. LOTHROP

**The tryptophan content of blood serum and other organic fluids in normal and pathological conditions.** VITTORIO G. BARONE. *Boll soc. ital. biol. sper.* **7,** 1077–9; *Sperimentale* **86,** 343–55(1932).—Fürth's colorimetric method was used. The results obtained with blood serums, exudates, transudates and spinal fluid indicate that the tryptophan content varies with the protein content and increases with an increase in globulins. There is, however, no certain parallelism between them. The hypothesis that a detn. of tryptophan may constitute an exact and reliable index of the protein quotient and may have a particular diagnostic value in hepatic diseases cannot be confirmed PETER MASUCCI

**The lipides in the blood serum of cattle.** NIKOLA PLATIKANOFF. *Z. Züchl. Riehe B. Tierzucht. u. Zuchtungsbiol.* **26,** 1–36(1932).—Total lipides, total cholesterol and combined cholesterol were detd for 8 cows at 9 different times during a period of 4 months Single detns were made on 39 cows. All values were higher and more variable when the animals were on pasture than under conditions of winter feeding. There was a high correlation between total and combined cholesterol and between total cholesterol and total lipides. There was no correlation between the percentage of fat in milk and the amt. of any blood lipide. L. A. MAYNARD

**The influence of the time of year on the adrenaline content of the adrenal gland and the glycogen content of the liver and muscle of the toad.** YUTAKA IINO. *Mitt. Med. Akad. Kioto* **3,** 249–78(1930) **The influence of the splanchnic nerves on the adrenaline content of the adrenal gland and the glycogen content of the liver and muscle of the toad.** *Ibid* **4,** 11–30. **The influence of the thyroid gland on the adrenaline content of the adrenal gland and the glycogen content of the liver and muscle of the toad.** *Ibid* **4,** 73–92. J. D. S

**The effect of liver injury on the conjugation of benzoic acid in the dog.** ARMAND J. QUICK AND MARY A. COOPER. *J. Biol. Chem.* **99,** 119–24(1932); cf. *C. A.* **26,** 2772, 3568, 5638.—Neither ligation of the common duct nor introduction of the Eck fistula in dogs changed significantly the rate at which BzOH was conjugated, either with glycine or with glucuronic acid. After light $CHCl_3$ anesthesia the rate of synthesis of glucuronic acid monobenzoate was diminished for the first 12 hrs. and then returned to normal; the synthesis of hippuric acid, however, was apparently unaffected. K. V. THIMANN

**The relationship between muscle creatine and creatinine coefficient.** ALFRED CHANUTIN AND F. W. KINARD. *J. Biol. Chem.* **99,** 125–34(1932).—The muscle was dried, freed from visible fat and the ash, fat and total creatine were detd. In the muscle of dogs the creatine was 2.06%, of rabbits 2.28%, of rats 2.18% and of guinea pigs

2.77%. The proportion in guinea pigs is thus significantly higher than in the other animals. Statistical comparison of the muscle creatine concns. with the creatinine excretion in the urine showed no correlation whatever. K. V. THIMANN

**Chemical studies on the parathyroid hormone.** WILBUR R. TWEEDY AND MASAMICHI TORIGOE. *J. Biol. Chem.* **99**, 155–64(1932).—By treating parathyroid hormone with 40% HCHO at $p_H$ 4.6, and then pptg. it with alc. and $Et_2O$, the potency was entirely lost. Subsequent boiling with 0.001 *N* HCl for 15 min. restored about half the original potency. The hormone was completely inactivated by standing 24 hrs. at room temp. with 0.75 *N* HCl in 75% EtOH, and could not be reactivated. However, similar inactivation by 0.1 *N* HCl in MeOH could be partly reactivated by contact with 0.08 *N* NaOH at 0° for 3 hrs. Deamination of the hormone by $HNO_2$ produced complete inactivation. An $NH_2$ or NH group is probably responsible for the activity of the hormone. K. V. THIMANN

**Ketosis during fasting in Eskimos.** PETER HEINBECKER. *J. Biol. Chem.* 99, 279–82(1932).—The acetone bodies in the urine of 3 Eskimos during a 7-day fast were much lower than the corresponding figures for white people. This small degree of fasting ketosis, together with the previous results (*C. A.* **23**, 1160; **26**, 1028), indicates the power of the Eskimo to burn large amts. of fat to completion. K. V. THIMANN

EGE, RICHARD, and PORTMAN, KAI: **Om sexualhormoner og deres betydning.** Copenhagen: Koppel. 132 pp. Kr. 6.

LANIEZ, G.: **Les fondements physiques et physiologiques du métabolisme de base.** Paris: J.-B. Baillière & fils 184 pp. Bound, F. 40.

MEYERHOF, OTTO: **Chimie de la contraction musculaire.** Translated and annotated by L. Genevois. Paris: Hermann & Cie. 402 pp.

THESES

BERGHOLTER, DIETRICH: **Über einen seltenen Farbstoff im Harn.** Giessen, 1931. 16 pp.

BOEMINGHAUS, AMALIE: **Verschiebungen im Säure-Basen-Haushalt und Eosinophilie.** Marburg, 1930. 26 pp.

BRESLAW, WOLF: **Über den Einfluss des Lichtes auf dem Zucker und Chlorgehalt des Blutes.** Basel, 1932. 16 pp.

CHARLES, GEORGETTE: **Du phosphore sanguin appliquée à la physiologie et à la pathologie.** Univ. of Paris, 1932. Reviewed in *J. pharm. chim.* **16**, 93(1932)

EUSLEN, WALTER: **Über Ammoniakbildung bei der Muskeltätigkeit.** Munich, 1931. 30 pp.

FEHR, MARCEL: **De l'influence de la parotide sur le métabolisme du potassium et du sodium.** Basel, 1932. 19 pp.

GRÜBEL, ERICH: **Beitrag zur Frage der Regulierung der Insulinproduktion durch Traubenzucker. [Versuche mit überlebendem Rattenpankreas.]** Leipzig, 1930. 26 pp.

HAAS, WALTER: **Die Rolle des Kochsalzes im Organismus unter besonderer Berücksichtigungen seiner Beziehungen zum Hautorgan.** Giessen, 1931. 15 pp.

HARTNER, LINDA: **Über die Ausscheidung von Ammoniak und Aminosäuren nach Operationen.** Freiburg, 1930. 33 pp.

JENKE, MARTIN: **Über den Stoffwechsel der Gallensäuren.** Freiburg i. B., 1931. 44 pp.

KARLSTRÖM, SAM: **Physical, Physiological and Pathological Studies of Dental Enamel with Special References to the Question of Its Vitality.** Uppsala, 1931. 182 pp.

KIRCHBACH, IRMGARD: **Energiestoffwechsel und Säurebasenregulation. III. Der Einfluss der Magensaftsekretion auf dem Energiestoffwechsel.** Munich, 1931. 16 pp.

KROTO, GERTHA: **Über die Einwirkung des Mundspeichels auf die Histaminreaktion des Meerschweinschendarmes.** Berlin, 1930. 18 pp.

KÜTER, KURT: **Über das menschliche Fett.** Jena, 1931. 51 pp.

LIPPMANN, KONRAD: **Enthält Frauenmilchstuhl Vitamin C?** Leipzig, 1930. 22 pp.

MARTIN, HEINRICH: **Der Gehalt der Scheidewand an Wasser, Stickstoff und Chlor.** Halle, 1932. 16 pp.

NEUBAUR, ERNST: **Über Cholin im Tierkörper.** Leipzig, 1931. 30 pp.

PFEIFER, ERNST: **Einfluss der Diurese auf den Alkoholgehalt des Blutes.** Jena, 1931. 44 pp.

REID, ALBERT: **Über die Reduktion von Farbstoffen im Lebendigen und ein chemischer Modell der Farbstoffreduktion.** Berlin, 1932. 28 pp.

RICHTER, FRIEDR. K. R.: **Das Vorkommen von Glykogen im Fettgewebe.** Leipzig, 1931. Pp. 65–82.

SCHMALENBACH, H.: **Über die Resorption von alloplast. Material im Knochen, speziell Elfenbein und Magnesium.** Würzburg, 1931. 16 pp.

SCHNEIDER, HEINZ: **Über das Vorkommen von Adenylsäure im Tierkörper.** Münster, 1931. 15 pp.

SCHÜRER, RUTH: **Versuche über die Wirkung intravenöser Injektionen von arteigenem, erwärmtem und bestrahltem Blut auf den Ca- und P-Spiegel im Kaninchen-Serum.** Leipzig, 1931. 21 pp.

SILBER, WALTER: **Der Cholingehalt der Frauenmilch und seines Verhalten während der Menstruation.** Munich, 1930. Pp. 210–17.

STADLER, JOSEF: **Die Aufklärung der chemischen Zusammensetzung der Knochenstützsubstanz sowie Versuche über ihre experimentelle Beeinflussbarkeit.** Munich, 1931. 112 pp.

ZINDEL, JEFIM-CHAIM: **Über die Menge des Pekelharingschen Eiweisskörpers im Blutserum von Gesunden und Kranken.** Würzburg, 1931. 17 pp.

## G—PATHOLOGY

H. GIDEON WELLS

**Hyoscine amnesia in labor.** C. H. G. MACAFEE. *J. Obstet Gynaecol. Brit. Empire* **39**, 804–10(1932).—Review of 80 cases. RACHEL BROWN

**Effect of trypan blue, thionine and pyronine on the agglutination titer of cows infected with Bang's disease.** E. E. SLATTER AND ROBERT GRAHAM. *J. Am. Vet. Med Assoc.* **35**, 76–8(1933).—No evidence was obtained to suggest that trypan blue, thionine or pyronine altered the agglutination titer of the blood or milk sera of the treated animals. RACHEL BROWN

**Experimental production of hepatoma through feeding *o*-aminoazotoluene.** TOMIZO YOSHIDA. *Proc. Imp. Acad.* (Tokyo) **8**, 464–7(1932).—Dosages of 5–10 mg. daily over a period of 9 or more months resulted without exception in typical hepatoma. Aminoazobenzene caused degenerative changes without sign of proliferation. A. W. D.

**Disturbances in the osmotic regulation of the tissues during water intoxication.** PAUL GÖMÖRI AND STEPHEN MOLNÁR. *Arch. exptl. Path. Pharmakol.* **167**, 459–68 (1932).—The min. osmotic concn. in the brain, liver and muscle of rabbits which is compatible with life is that corresponding to a f.-p. lowering of 0.6°. The toxic action of excessive $H_2O$ intake is due, not to the increased intracranial pressure, but to the excessive lowering of the tissue osmotic pressure. Muscle binds most of the water, the liver binds moderate quantities, and the nervous system least, presumably a protective mechanism to guard the latter from the toxic effect of the water. HARRY EAGLE

**The "pituitrin-reaction" in spinal-cord disease.** MAXIMILIAN SILBERMANN. *Arch. exptl. Path. Pharmakol.* **167**, 573–89(1932).—In 9 cases with complete pathol. section of the spinal cord at or above the fourth cervical the subcutaneous injection of 1 cc. pituitrin ("pituisan") failed to inhibit diuresis. In one case with a transverse lesion at the fifth cervical, the normal inhibition was obtained. These results suggest that the antidiuretic action of pituitrin is of central rather than renal origin, and that the fibers leave the spinal cord somewhere near the fourth cervical. HARRY EAGLE

**The problem of gastritis in the light of modern gastric function tests. III. The determination of enzymes and its relationship to gastric acidity, particularly in complete achylia.** W. SCHEMENSKY AND J. GELING. *Arch. Verdauungskrankh.* **52**, 427–34 (1932).—In complete achylia, with neg. reaction to histamine and neutral red, rennin and pepsin are usually decreased or absent. HARRY EAGLE

**Artificial and spontaneous hyperinsulinism.** MAX ROSENBERG. *Klin. Wochschr.* 11, 2097–103(1932).—A review. There is an extensive bibliography. H. E.

**The problem of achylia gastrica and achlorhydria.** R. SCHMIDT. *Klin. Wochschr.* 11, 2117–21(1932).—A review. HARRY EAGLE

**Experimental production of a status lymphaticus by artificial hyperthyroidism produced with thyroxine [Roche].** A. v. ALBERTINI. *Klin. Wochschr.* **11**, 2154–5(1932).—After daily subcutaneous injections of thyroxine (up to 4 mg.) over a period of 5 months, a dog developed massive hyperplasia and hypertrophy of the lymphoid tissue. Similar changes in Basedow's disease may therefore be due to the hyperthyroidism as such. HARRY EAGLE

**The urea, uric acid and cholesterol contents of the blood in meningeal and cerebral disease.** L. RICCITELLI. *Klin. Wochschr.* **11**, 2155–6(1932).—The blood content of all 3 substances is frequently changed in meningeal and cerebral disease. HARRY EAGLE

**The colloid-osmotic pressure of the blood in normal and pathological conditions.**

**VI. Comparative studies of the colloid-osmotic pressure of the blood and lymph and the effect of lymphagogs of the first and second order.** HIROSHI SAITO AND FUSAKICHI NAKAZAWA. *Tôhoku J. Exptl. Med.* **19**, 233–51(1932); cf. *C. A.* **26**, 2235.—The colloid-osmotic pressure of the thoracic lymph of normal dogs average 172 mm. $H_2O$, and 35.2 mm. for 1% lymph protein; per unit protein it is approx. the same as that of blood. Peptone increases the colloid pressure of lymph per unit protein, while NaCl and glucose cause a decrease; all 3 lower the colloid pressure of blood per unit protein. **VII. Comparative study of the colloid-osmotic pressure of the blood and lymph in experimental kidney damage.** *Ibid* 252–61.—Exptl. kidney damage (ureteral ligation, cantharidin and U) generally causes a decrease in the colloid-osmotic pressure of lymph and blood per unit protein. HARRY EAGLE

**Studies in anemia. IV. Colloid-osmotic pressure of the blood in anemia.** HIROSHI SAITO. *Tôhoku J. Exptl. Med.* **19**, 445–61(1932); cf. *C. A.* **26**, 770.—The total blood protein content is slightly decreased in anemia, as is also the colloid-osmotic pressure per unit protein. After a large venesection (20 cc./kg.) the hemoglobin, serum protein and colloid-osmotic pressure of the blood all decrease, the degree of decrease being in the order named. During the recuperative period the total protein concn. recovers faster than its osmotic pressure, while the regeneration of hemoglobin is even slower. As could be predicted from the foregoing, after repeated small venesections the hemoglobin falls, the total serum protein remains more or less const. but the osmotic pressure per unit protein falls considerably. In anemia induced by the repeated injections of phenyl hydrazine, the hemoglobin falls promptly, the serum protein increases somewhat and the colloid osmotic pressure per unit protein falls sharply. **V. The colloid osmotic pressure of the thoracic lymph in experimental anemia.** *Ibid* 462–78.—After a single large venesection in dogs, the colloid-osmotic pressure of the thoracic lymph decreases, despite an increase in total protein. Repeated small venesections and repeated injections of phenylhydrazine cause a decrease in both the lymph protein content and its colloid-osmotic pressure per unit protein. HARRY EAGLE

**Functional tests with urea or creatinine in surgical kidney disease.** KOJI YAGO. *Tôhoku J. Exptl. Med* **20**, 14–33(1932). HARRY EAGLE

**Experimental studies in the intermediary metabolism of muscle in fever. I. Gas and carbohydrate metabolism in muscle during experimental fever.** KESAK ADACHI. *Tôhoku J. Exptl. Med.* **20**, 93–106(1932).—Fever induced by the injection of tetrahydro β-naphthylamine into dogs causes a temporarily increased $O_2$ consumption by muscle which quickly falls to normal. The blood flow generally parallels the $O_2$ consumption. The blood sugar falls temporarily, and the sugar utilization by muscle (arterial glucose concn.—venous) usually increases. In very high fever the blood lactic acid first rises, and then falls precipitously to normal values despite continuing fever. The blood CO is considerably decreased, and $CO_2$ formation in muscle accelerated. **II. Phosphoric acid and uric acid metabolism in muscle during experimental fever.** *Ibid* 107–22.—Dogs' arterial blood normally contains 3.81 mg. % inorg. P; venous blood (M. gastrocnemius), 3.92 mg. % (the difference representing that liberated in the muscle). In fever the blood inorg. P usually increases; the amt. formed in the muscle decreases. The arterial uric acid content in dogs normally averages 0.76 mg. %; the venous, 0.79 mg. %. In fever the blood uric acid increases considerably, and the formation in the muscle is also increased. The leucocytosis observed during fever is partially responsible for this increased blood uric acid, as shown by inducing leucocytosis with morphine or physical restraint. HARRY EAGLE

**Experimental studies on the nitrogen metabolism after blood transfusion.** WATARU KI. *Tôhoku J. Exptl. Med.* **20**, 123–47(1932). HARRY EAGLE

**The intermediary carbohydrate metabolism during experimental fever.** KESAI ADACHI AND SHINTARO KASAI. *Tôhoku J. Exptl. Med.* **20**, 191–210(1932).—Prolonged tying down of rabbits causes a fall in body temp., a prolonged (7 hrs.) hypoglucemia and a temporary increase in blood lactic acid. During naphthylamine fever, the blood sugar shows inconst. variation, and the blood lactic acid begins to rise after the max. temp. has been attained. During fever induced by medullary puncture, the blood glucose and lactic acid both rise after the max. temp. has been attained. HARRY EAGLE

**Resorcinol reaction in tuberculosis.** L. NÈGRE. *Rev. hyg. méd. prév.* **54**, 646 (1932).—Resorcinol flocculates all sera, but in the sera from tuberculous cases the optical density is greater. Results are read by means of a photometer. With a photometric index of 15 for normal sera, tuberculous sera were usually above 30. C. R. FELLERS

**Chemical and physicochemical modifications of serum during the development of cancer.** J. LOISELEUR. *Paris Médical* **21**, 343(1931); *Rev. hyg. méd prév.* **54**, 640–1.—Definite and significant changes in the blood serum in cancer were not found. The

investigation included detn. of $p_H$, alk. reserve, isoelec. point, adsorption power, reducing power, anti-diastatic power, protein decompn. products, lactic acid and minerals.
C. R. FELLERS

**Purification and concentration of diphtheria anatoxin by ultrafiltration.** R. ZAJDEL. *Compt. rend. soc. biol.* **111,** 1029-30(1932).—Two specially prepd. collodion filters were used. The first retained protein mols. but allowed the anatoxin to pass through and the second retained the anatoxin but allowed salts and amino acids to pass through.
L. E. GILSON

**Production of diphtheria toxin having an intrinsically higher antigenic value.** G. RAMON. *Compt. rend. soc. biol.* **112,** 8-10(1933); cf. *C. A.* **26,** 5116.—Toxin titrating 30-40 antigenic units or even higher is readily prepd. by means of the special culture medium described.
L. E. GILSON

**Importance of the $p_H$ in the formation of diphtheria anatoxin.** S. SCHMIDT AND I. FJORD NIELSON. *Compt. rend. soc. biol.* **112,** 106-7(1933).—The formation of anatoxin from diphtheria toxin and HCHO occurs most readily at $p_H$ 8-8.5 At $p_H$ 6 no union takes place. At $p_H$ 9-9.5 the prepn. is partly destroyed
L. E. GILSON

**Presence of specific receptors M and N in tumor tissue.** ALFRED ZACHO. *Compt. rend soc. biol* **112,** 108-12(1933).
L. E. GILSON

**Antigenic activity in vivo of B. anthracis and its fractions. I. Fixation antibodies.** A. SORDELLI, V. DEULOFEU AND J. FERRARI. *Folia biol* **1,** 45-6(1932).—Discussion. **II. Coagulation antibodies.** *Ibid* 93-4.—*In vivo* the formation of coagulation antibodies, *i. e.*, agglutinins for *B. anthracis* or precipitins for its exts., are caused by suspensions of the bacilli, washed or not, or the filtered aq. ext., or a derived fraction of nucleoprotein nature, but not by the carbohydrate fraction.
L. E. GILSON

**Formolized antigens. I. Pneumococcus antigen in vitro.** C. E. PICO AND J. NEGRETE. *Folia biol.* **1,** 57-8(1932).—After treatment of *D. pneumoniae* antigen with HCHO (5% for types I and II and 10% for type III) the precipitinogen is no longer sepd. by simple water extn. but requires heating to 100° at $p_H$ 4.7 for its liberation. The complement-fixation fraction of non-formolized antigen is inactivated by $p_H$ 4.7 but the formolized prepn. is unaffected. The insol. fraction (agglutinogen) of the antigen is unaffected by the HCHO.
L. E. GILSON

**Complexity of the precipitinogen antigen of B. anthracis.** A. SORDELLI, V. DEULOFEU AND J. FERRARI. *Folia biol.* **1,** 94-6(1932).—*B. anthracis* contains 2 precipitinogen antigens, one having the character of a nucleoprotein and the other carbohydrate in nature. The first is antigenic *in vivo*, but the second is not unless the bacilli bodies are present. The 2 can be sepd. by selective absorption by the proper antigens. Both are partly pptd. by dilg. the serum with $CO_2$-satd. water.
L. E. GILSON

**Precipitins for agar. IV.** A. SORDELLI, V. DEULOFEU AND J. FERRARI. *Folia biol* **1,** 97-9(1932), cf. *C. A.* **27,** 131.—For the formation of the precipitin previously described the presence of both agar and the bacterial bodies is necessary. *B. anthracis* grown on agar but washed before injecting does not cause the formation of precipitin, nor does the agar medium after dilu. and removal of the bacteria by centrifuging.
L. E. GILSON

**Free amino nitrogen of the blood in various liver diseases and its diagnostic importance compared with other tests of hepatic function.** G. USSEGLIO AND T. OLIARO. *Minerva med.* **1932,** II, 825-33.—The free amino N of the blood was studied in 31 cases by the Van Slyke micromethod after fasting for at least 12 hrs. and the results were compared with the bilirubinemia, bilirubinuria, urobilinuria, stercobilin and alimentary levulosuria tests for hepatic function. The amts. of free amino N varied from 16 to 56 mg. % (normal controls 7-12 mg. %) and paralleled the other tests, increasing in proportion to the severity of the disease. This is an easy and reliable test for hepatic function.
HELEN LEE GRUEHL

**Free and protein sugar in pulmonary tuberculosis.** G. NANNINI AND B. DAVOLIO-MARANI. *Minerva med.* **1932,** II, 833-7.—Free and total sugar of the plasma were studied by the Bierry-Voskressensky method, protein sugar being the difference of these values. From 28 cases in various stages of tuberculosis it was shown that the free sugar values were inconstant and irregular; protein sugar was about normal in the inactive stages of the disease but increased as the disease became more advanced and active.
HELEN LEE GRUEHL

**Relation between the time curves of uremic and uricemic retention.** PIETRO STEFFANUTTI. *Minerva med.* **1932,** II, 838-40.—Tests for urea N (Melli and Tasso method, cf. *C. A.* **26,** 5318) and uric acid (Benedict, cf. *C. A.* **25,** 4296) of the blood were made at various times of day and night on normal individuals, those with hypertension,

or with kidney lesions. The uric acid of plasma was always higher than that of whole blood, but there was no parallelism between the curves of uric acid and urea N.
HELEN LEE GRUEHL

**Calcium metabolism and some bone diseases and their relation to parathyroid hyperfunction.** MARIO MASSA. *Minerva med.* **1932**, II, 873–7.—A review is given of the clinical and exptl. literature preparatory for a clinical article to appear soon.
HELEN LEE GRUEHL

**Metabolism in tetany.** ISIDOR GREENWALD. *Biochem. J.* **26**, 954–6(1932).—A criticism of the paper by Morris, Watson and Morris (*C. A.* **26**, 199). B. H.

**Differences in the growth of transplantable tumors in plasma and serum culture media.** R. J. LUDFORD. *Proc. Roy. Soc.* (London) **B112**, 250–63(1933).—Malignant cells behave differently in plasma (migrating from the explant) and in serum (carcinomata becoming rounded, sarcomata tending to disintegrate). "The results render invalid conclusions drawn concerning the specific destructive action of immune sera on cancer cells in serum cultures." JOSEPH S. HEPBURN

**Role of lipoids in Forssman antigens.** M. ARMANGUE, P. GONZALEZ AND SARA ROMERO. *Am. J. Hyg.* **17**, 277–86(1933).—In sheep cells, horse and guinea-pig kidneys the common antigenic factor appears to be the alc.-sol. lipoid. The proteins in the Forssman antigen appear to act as carriers. The fixation of lipoids to kaolin according to the method described gives better results than those secured by the use of protein lipoid complexes. The role of the protein is not dependent upon its own antigenic properties. The lipoids manifest better antigenic qualities when united with adsorbents. The sheep erythrocytes contain various antigens capable of the stimulation of hemolysins as shown by Landsteiner and van der Scheer. Proteins present in Forssman antigens produce strictly specific antibodies. Specific antisera acting upon the proteins of the kidney of the guinea pig prove toxic for this animal. The same is true for sera produced against the heterophile lipoids. J. A. KENNEDY

**Bile salts in the urine in obstructive jaundice.** SHUNZOO OKAMURA. *Arb Med Univ. Okayama* **3**, 219–21(1932).—Glycodesoxycholic acid is found in the urine in obstructive jaundice. B. S. LEVINE

**Studies in the combining and inhibition zones in immunoreactions and colloidal reactions.** KAZUYOSHI OHTAHARA. *Arb. Med. Univ. Okayama* **3**, 255–78(1932).—The immunoreactions, particularly the pptn. reaction, behave with regard to optimal flocculation and inhibition of flocculation much as do oppositely charged dyes. The optimal flocculation of oppositely charged dyes occurs only when definite quant. relationships are maintained. Deviation from this relationship in one direction or the other leads to a soln. of the dye flocculation. Electrolytes markedly change this quant. balance. Highly colloidal dyes have a narrow zone of optimal flocculation, while in the less colloidal dyes the flocculation zone is broader and not so well defined. Complement is adsorbed by the ppt. resulting from the interreaction between the oppositely charged dyes. (To prove this O. had to allow the complement to stand mixed with the test dyes for 24 hrs. at room temp., a procedure which tends to impair the effectiveness of the complement.) B. S. LEVINE

**Fractional specificity of serum albumin.** T. ASABA. *Arb. Med. Univ. Okayama* 3, 314–46(1932).—The different fractions of bovine serum manifest a definite fractional specificity. Anti-albumin 3-serum reacts the strongest with its corresponding antigen, moderately with albumin 2 and 1, only slightly with euglobulin and weakly with the other globulins. Anti-albumin 2-serum reacts the strongest with its corresponding antigen, moderately with albumin 3 and 1, with pseudoglobulin, globulin and globulin E, and only weakly with euglobulin. Albumin-antiserum reacts the strongest with its corresponding antigen, moderately with albumin 3 and 2, with pseudoglobulin, globulin and globulin E, and only very weakly with euglobulin. Pseudoglobulin antiserum reacts the strongest with the homologous antigen, as well as with globulin and globulin E, moderately with euglobulin, weakly with albumin 1, very weakly with albumin 2, and not at all with albumin E. Globulin E antiserum reacts the strongest with the homologous antigen, very strongly with globulin, moderately with euglobulin and pseudoglobulin, and very weakly with the 3 albumins. Euglobulin antiserum reacts the strongest with its corresponding antigen, but not with the fractions it contains, such as globulin and globulin E; it reacts moderately with pseudoglobulin, weakly with albumin 2 and 1, and not at all with albumin 3. Globulin antiserum reacts the strongest with the homologous antigen, very strongly with globulin E, moderately with euglobulin and pseudoglobulin, weakly with albumin 1, very weakly with albumin 2, and not at all with albumin 3. It appears that globulin E obtained by electrodialysis contains mostly eu- and pseudoglobulins and but little albumin. After ordinary immunization with

bovine serum the antibodies react stronger with globulin than with albumin. After intensive immunization the antiserum reacts equally strongly with globulin and albumin; however, the combination zone of the albumins is higher than that of the globulins. In the process of immunization with bovine serum the globulin antibody appears prior to the albumin antibody. B. S. LEVINE

**Antilipoid antibodies and tumors. I. The preventive value of the various fractions.** BRUNO BOTTA. *Boll. soc. ital. biol. sper.* **7**, 1341–5(1932).—Neoplastic masses were removed from mice with adenocarcinoma and extd. with various solvents (acetone, EtOH, MeOH, $Et_2O$). The various fractions were injected into normal mice. Later, adenocarcinoma was implanted in the treated mice. The anti-lipoid antibodies produced by the EtOH or MeOH fractions of the tumor showed a marked inhibiting action on the development of the tumor. PETER MASUCCI

**Calcemia in dermatoses.** JOSE LUIS CARRERA. *Rev. sudamericana endocrinol. inmunol. quimioterap.* **15**, 893–928(1932).—The method of Clark and Collip (cf. *C. A.* **19**, 2217) is sufficiently reliable for the detn. of calcemia. Figures of calcemia in dermatoses, which differ much from normal, must be explained by defective methods, as C. found in 167 cases only slight deviations. A. E. MEYER

**Obesity and constitution.** DONATO BOCCIA AND VICENTE A. FRANCO. *Rev. sudamericana endocrinol. inmunol. quimioterap.* **15**, 929–45(1932).—Obesity, its relation to metabolism, constitution and endocrine system is discussed. A. E. MEYER

**Residual albuminurias.** MANUEL YANOVSKY. *Semana méd.* (Buenos Aires) **1933**, 1, 167–72.—The methods of testing and differentiation of the types of protein in albuminuria of less than 1% are described and the clinical significance is discussed. A. E. MEYER

**The lactic acid content and alkali reserve of the blood in experimental trypanosome infections.** TH. V. BRAND, P. REGENDANZ AND W. WEISE. *Zentr. Bakt. Parasitenk.* I Abt. **125**, 461–8(1932).—In the blood of rats and rabbits, the lactic acid is increased in trypanosome infections. The rise in lactic acid is only agonal or preagonal. This agonal rise of lactic acid also occurs in *Bartonella* infections in splenectomized rats. In spite of this increase in acid there is no agonal decrease in alk. reserve. J. T. M.

RUBINSTEIN, M.: **Traité pratique de sérologie et de sérodiagnostic.** 2nd ed. Paris: N. Maloine. 428 pp.

THESES

ACKER, WILHELM: **Die Kahnsche Flockungsreaktion im Vergleich mit der Reaktion von Wassermann, der Flockungsreaktion von Sachs-Georgi und der Trübungsreaktion von Meinicke.** Bonn, 1930. 41 pp.

AUERBACH, THEODOR: **Über Reagenzglasversuche bei anaphylaktischer Tieren.** Berlin, 1931. 12 pp.

BANZHAF, FRITZ: **Über das Vorkommen von Eiweiss im Harn der Diabetiker.** Cologne, 1931. 24 pp.

BARTH, ERICH: **Die Citocholreaktion nach Sachs-Witebsky für die Serodiagnose der Syphilis unter besonderen Berücksichtigungen der Erfordernisse für interne Klinik.** Freiburg i. B., 1931. 16 pp.

BELINSSON, NOA: **Die Beziehungen zwischen Herzkrankheiten und Harnfarbstoffen.** Jena, 1930. 27 pp.

BESSER, FELIX: **Über den Gehalt des Blutes an "histaminähnlicher" Substanz während des Pepton- und anaphylaktisches Schockes.** Freiburg i. B., 1931.

BOWMANN, POTTER: **Zur Frage der Brauchbarkeit der Klärungsreaktion von Meinicke.** Munich, 1931. 16 pp.

BÜHLER, FRITZ: **Vergleich zwischen der Müller-Ballungsreaktion I und II mit der Wassermann- und Sachs-Georgi-Reaktion.** Tübingen, 1931. 15 pp.

CRANE, MARY MAGDALEN (SISTER): **Changes in the Respiratory Quotient of White Mice When Injected with the Blood of Normal and Psychopathic Individuals.** Catholic Univ. of America, 1931. 38 pp.

FANZI, H. M.: **Die Komplementbindungsreaktion mittels Antigen aus fasciola hepatica bei Bilharziose.** Greifswald, 1932. 15 pp.

FELS, HUGO: **Studien zur Hämolysinbildung.** Bonn, 1931. 45 pp.

GEYER, ERNST: **Der Kreatin-Kreatininstoffwechsel bei der Basedowschen Krankheit und seine Beziehung zum Gesamtstickstoff und Grundumsatz.** Marburg, 1930. 25 pp.

GORETZKI, HELMUT: **Über die Bildung humoraler Antikörper durch perorale Immunisierung mit Typhus- und Cholera-L-Impfstoff der I. G. Farbenindustrie.** Breslau, 1931. 24 pp.

HAUSDÖRFER, HERBERT: **Vergleichende Acetonkorper- und Bilirubinbestimmungen im Blut bei Icterus-Kranken.** Breslau, 1930. 21 pp.

HEINS, ERICH: **Allergische Hauterkrankungen in Beziehung zur Einwirkung organischer Chemikalien.** Berlin, 1931. 39 pp.

HOFFMANN, HANS W.: **Über die Phlorrhizinglykosurie und klinischexperimentelle Untersuchungen mit Phlorrhizin bei Nierenkranken [Nephrosen].** Leipzig, 1930. 27 pp.

HOHFELD, EDGAR: **Die Bedeutung der Citocholreaktion nach Sachs-Witebsky für die Serodiagnose für die Serodiagnose der Syphilis.** Freiburg, 1930. 16 pp.

KLEIN, HANS: **Die Brauchbarkeit der Mikroreaktion nach Meinicke [M. K. R.] zur serologischen Luesdiagnostik.** Bonn, 1930. 26 pp.

KOLB, KARL: **Über die durch das Lagern der Sera bedingten Reaktionsschwankungen bei der Citochol- und Lentocholreaktion.** Giessen, 1931. 21 pp.

KOBLITZ, JOACHIM: **Über neuere Akiomethoden zum serologischen Luesnachweis unter besonderer Berücksichtigung der Bruckschen Reaktion und der hämolytischen Schnellreaktion nach Kadisch.** Bonn, 1930. 28 pp.

KROHN, ADALBERT: **Über die chemischen Vorgänge im Karzinom.** Munich, 1931. 28 pp.

LANGE, FRITZ: **Der NaCl-Gehalt der Lymphknoten gesunder und tuberkulöser Rinder.** Leipzig, 1931. 29 pp.

LÖWENSTEIN, TRUDE: **Die Qualitätsdiagnose der Lungentuberkulose mit Kongorot.** Cologne, 1931. 17 pp.

MEYEROWITZ, KLARA: **Stand der Blut- und Gewebsharnsäure bei der Gicht.** Berlin, 1931. 51 pp.

MOINE, G.: **Sur le rachitisme des carnivores.** Univ. of Paris, 1931. 206 pp. Reviewed in *Bull. soc. sci hyg. aliment.* **20**, 198(1932).

NIERMEYER, HERM.: **Die Mikro-Schellmethode der Meinicke Klärungsreaktion im Vergleich zur Makro-Methode der Wassermann-Reaktion und Kahn'schen Reaktion.** Bonn, 1931. 43 pp.

PATERNA, M.-F.: **Die Xanthoproteinreaktion und die Bestimmung der Alkalireserve bei malignen Tumoren.** Freiburg i. B., 1931. 20 pp.

PUTKONEN, TAUNO: **Über die gruppenspezifischen Eigenschaften verschiedener Körperflüssigkeiten.** Helsingfors, 1931. 107 pp.

REHLING, HEINRICH: **Vergleiche Liquoruntersuchungen über die diagnostische Brauchbarkeit der Takata-Ara-Reaktion.** Bonn, 1931. 31 pp.

SCHEEL, A. H.: **Prüfung der praktischen Verwertbarkeit des mit Elektrolyten konservierten Komplements.** Giessen, 1932, 28 pp.

SCHLOTHÖLTER, WILHELM: **Die Serodiagnose des Abortus Bang, eine Nachprüfung der von Menck modifizierten Lipoidbindungsreaktion nach Meinicke.** Leipzig, 1931. 41 pp.

SCHMIDT, ROLF: **Die Einwirkung der Acidose und Alkalose auf das weisse Blutbild bei Lungentuberkulösen.** Jena, 1932. 15 pp.

SCHULZE, KARL: **Erfahrungen über die Komplement-Bindungsreaktion bei der Gonorrhoe.** Tübingen, 1930. 19 pp.

SEYDEL, KARL: **Die Beziehungen zwischen Speichelbeschaffenheit und Zahnkaries.** Tübingen, 1931. 23 pp.

STURSBERG, JOH.: **Der heutige Stand der Lehre von der Zahnsteinbildung.** Wurzburg, 1931. 21 pp.

WEIL, LOUISE: **Des anémies d'origine alimentaire de l'enfant: étude clinique et expérimentale.** Lyon, 1930. 388 pp. Reviewed in *Bull. soc. sci. hyg. aliment.* **20**, 193 (1932).

## H—PHARMACOLOGY

A. N. RICHARDS

**The time course of the action of adrenaline on the blood vessels.** KENJI FUJIMORI *Acta Schol. Med. Univ. Imp. Kioto* **15**, 277–80(1932); cf. *C. A.* **27**, 343.—The action of adrenaline on the mesenteric arteries and veins of cattle was investigated. P. D. A.

**Neutralization of toxic properties of strychnine sulfate.** A. C. MARIE. *Ann. inst Pasteur* **48**, 449–56(1932); cf. *C. A.* **26**, 3038.—$KMnO_4$ will neutralize the toxicity of about an equal wt. of strychnine sulfate. Neither adrenaline nor blood alone shows any effect but together they detoxicate strychnine sulfate; the blood may be replaced by bile. The alkaloid is nontoxic even when extd. from the mixt. by $Et_2O$, but regains its toxicity on reduction by $Na_2S_2O_4$. The effect is due to a preferential oxidation of strychnine in presence of adrenaline. B. C. A.

**Joint action of quinine and ethyl urethan in relation to their use in treating malaria.**

**I. Cause of death in subacute poisoning by ethyl urethan.** A. SPANIO. *Arch. farmacol. sper.* **53**, 53–65(1931).—The min. fatal intravenous dose of Et urethan is 2 g. per kg. of body wt. Death ensues mainly by paralysis of the respiratory center. B. C. A.

**Experimental catatonia by means of synthetic derivatives of mescaline and adrenaline.** L. NOTEBOOM. *Nederland. Tijdschr. Geneeskunde* **76**, I, 517–18, II, 2860–2 (1932).—Mescaline, trimethoxyethylamine, and some other similar synthetic substances were tested on cats for their effect on the central nervous system. R. BEUTNER

**Is it advisable in carbon monoxide poisoning and similar conditions to use oxygen alone or oxygen and carbonic acid combined?** C. J. MIJNLIEFF. *Nederland. Tijdschr. Geneeskunde* **76**, IV, 5745–59(1932).—The inhalation of a $CO_2$ mixt. is considered preferable. R. BEUTNER

**Toxic action of lysocithin and of snake venom.** E. CUBONI. *Boll. ist. sieroterap. milan.* **11**, 264–70(1932); cf. *C. A.* **26**, 4861. G. A. BRAVO

**Intravenous injection of sclerosing substances. Experimental comparative studies of changes in the vessels.** ALTON OCHSNER AND EARL GARSIDE. *Ann. Surgery* **96**, 691–716(1932). RACHEL BROWN

**Treatment for mastitis with ultra-violet light, formalin, colloidal carbon and autogenous bacterins.** E. M. GILDOW, H. C. HANSEN AND V. A. CHERRINGTON. *J. Am. Vet. Med. Assoc.* **35**, 55–64(1933).—No consistent reduction in the no. of bacteria or of the leucocytes in the middle milk of cows affected with subacute or chronic mastitis was obtained after treatment with formalin, colloidal carbon, autogenous bacterins or ultraviolet light. RACHEL BROWN

**Infectious enteritis of swine. VII. The use of colloidal iodine in swine coccidiosis.** H. E. BIESTER AND CHAS. MURRAY. *J. Am. Vet. Med. Assoc.* **35**, 79–83(1933).—Colloidal I in large repeated doses did not influence the course of controlled coccidial infections in swine. RACHEL BROWN

**The intensive antimonial treatment of kala-azar: urea stibamine.** UPENDRANATH BRAHMACHARI, AKHIL RANJAN MAJUMDER AND RASH BEHARI DE. *J. Trop. Med. Hyg.* **36**, 1–5(1933); cf. *C. A.* **26**, 4313.—By intensive treatment 29 out of 31 cases of kala-azar were cured with 1.5 g. or less of urea stibamine. RACHEL BROWN

**Mode of action of respiratory stimulants. I. Mode of action of oxygen lack.** S. SELLADURAI AND SAMAON WRIGHT. *Quart. J. Exptl. Physiol.* **22**, 233–48(1932).—In decerebrate or chloralosed cats O lack acts as a depressant to the isolated respiratory center. **II. Mode of action of carbon dioxide.** *Ibid* 285–93.—The response of the intact animal to $CO_2$ is greater than that of the same animal with sinuses denervated and vagi divided. The chem. compn. of the blood stimulates the sinus nerve-endings in the resting animal to discharge tonic excitor impulses to the respiratory center. Increased $CO_2$ concn. stimulates respiration in part reflexly from the carotid sinuses. $CO_2$ may act differently on the various sensory components of the vagus nerve. R. BROWN

**The hyperglucemic action of kallikrein.** HERBERT HERBIG. *Arch. exptl. Path. Pharmakol.* **167**, 555–72(1932).—Kallikrein injected into pancreatectomized diabetic dogs causes a pronounced fall in blood sugar toward normal values, lasting for hrs. It does not affect the blood-sugar level in normal dogs or the normal alimentary hyperglucemia. HARRY EAGLE

**The effect of narcotics upon the decomposition of histamine during autolysis.** Å. BERGWALL AND FRITZ TECHNER. *Arch. exptl. Path. Pharmakol.* **167**, 609–20(1932).—The addn. of $CHCl_3$, EtOH or ether to autolyzing beef lung inhibits the disappearance of the lung vasodepressor substance, or of added histamine. Avertin and somnifen proved ineffective in this regard. As little as 0.0025 *M* KCN also prevented the decompn. of histamine. These results suggest the presence of a specific enzyme for histamine which catalyzes oxidative processes. HARRY EAGLE

**The pharmacology of salamander alkaloids.** OTTO GESSNER AND PAUL MÖLLENHOFF. *Arch. exptl. Path. Pharmakol.* **167**, 638–53(1932).—The toxic concn. of salamandarin-HCl for salamander larvae is approx. $10^{-5}$, and decreases with increasing temp. and $p_H$. The lethal dose for frogs is 0.019 mg./g., as compared with 0.026 mg. for the sulfate. The hydrochloride causes reptiles to die in convulsions, but does not affect the heart; injected into white mice or rabbits it causes tonic and clonic convulsions, and death from respiratory failure, cardiac action continuing in the mice for 12 min. after death. The lethal dose for mice is 0.0034 mg./g. subcutaneously, and 0.0019 mg./g. intravenously. The drug is not hemolytic, causes no contraction of isolated skeletal muscle, and causes a reversible vasodilatation. In concns. of 1:500–1:2500 it produces local anesthesia of rabbits' cornea. Salamander-alkaloid II behaves like salamandarin-HCl, but is less active. HARRY EAGLE

**The diuretic action of the digitalis glucosides of the first order, and some of the**

second order, in isolated frog kidneys. BASILIOS C. COSTOPANAGIOTIS. *Arch. exptl Path. Pharmakol.* **167**, 660–80(1932). HARRY EAGLE

Histological findings in rabbits poisoned with furfural. GEORGES GANDER. *Arch exptl. Path. Pharmakol.* **167**, 681–6(1932).—Doses >0.3 cc. may cause convulsive seizures and paralysis. In animals dying immediately thereafter no changes in the ganglion cells could be demonstrated; but in one animal dying 3 hrs. after the injection of 0.6 cc., there were extensive ganglion cell degenerations. Similar less extensive changes were observed in an animal treated with 0.2 cc. furfural repeatedly over a period of 11 days HARRY EAGLE

The behavior of pectins in metabolism. KURT IMHÄUSER. *Arch. exptl. Path Pharmakol.* **167**, 702–7(1932).—The blood sugar shows slight and inconst. variations after the ingestion of pectin prepns. of low galactose content; nor does pectin prevent fatty changes in the liver of fasting dogs treated with phlorhizin. On the other hand, pectin does have a definite antiketogenic action in these animals, decreasing the excretion of acetone bodies in the urine. HARRY EAGLE

The effect of chloralose on the electrocardiogram. GEORG V. LUDÁNY. *Arch exptl. Path. Pharmakol.* **167**, 717–24(1932).—The observed changes could all be explained on the basis of the sympathicotonic action of chloralose. HARRY EAGLE

Experimental studies of nephritis. Mechanism of the urinary changes during nephritis. LUCIEN BRULL AND GEORGES FANIELLE. *Arch. intern. pharmacodynamie* **42**, 1–35(1932).—From 4 to 6 mg. of U nitrate injected into dogs causes acute nephritis. An initial stage of polyuria, albuminuria, cylindruria, glucosuria and moderate N retention is followed by a stage of oliguria, with less albuminuria, cessation of glucosuria, and increasing N retention terminating with death. As shown by double circulation expts. through the kidneys of a normal animal, both the albuminuria and glucosuria are renal in origin, neither protein nor sugar appearing in the urine secreted by normal kidneys from nephritic blood. The polyuria, on the other hand, is detd. by the properties of the blood, is observed even with normal kidneys, and is due both to the absence of normal vasoconstrictors and to the presence of diuretic by-products in the nephritic blood. The blood of the uremic dogs never develops toxic properties for normal kidneys, even in the terminal uremia; in fact, it even stimulates secretion. The terminal uremia and oliguria are therefore also renal in origin. HARRY EAGLE

Comparative actions of sympathomimetic compounds: the circulatory responses to isomeric propanolamines, *m*-synephrine, hordenine, etc. M. L. TAINTER. *Arch. intern. pharmacodynamie* **42**, 128–39(1932).—Of the isomeric hydroxyphenylpropanolamines, $m > p > o$ in pressor activity in cats. Similarly, *m*-synephrine is more active than the *p*-isomer, being the most active sympathomimetic yet studied. It is only $\frac{1}{4}$ as toxic as adrenaline, and $\frac{1}{16}$ as active. Previous administration of cocaine has no effect on these compds., but ergotamine inhibits their action. Hordenine has a variable effect while "*m*-hydroxyphenylpropanolamine ketone," *p*-hydroxyphenylethane and *p*-hydroxyphenylacetic acid do not have consistent pressor effects. HARRY EAGLE

Pharmacological study of embelin, with reference to its use as an anthelmintic. A. S. PARANJPÉ AND G. K. GOKHALÉ. *Arch. intern. pharmacodynamie* **42**, 212–32 (1932).—The galenic prepn. from the dried fruit of *Embelia ribes* Burm. and *Embelia robusta* Roxb. contains along with other constituents about 2.5–2.7% of embelin (embelic acid, 2,5-dihydroxy-3-lauryl-*p*-benzoquinone), which is probably the active anthelmintic principle. The drug is effective against tapeworms, but not round worms or hookworms. Doses of 0.66–0.8 g. are non-toxic for dogs or men. It is excreted in the urine, giving it a red-brown color. Pharmacological effects are discussed in detail HARRY EAGLE

The effect of small quantities of adrenaline upon the oxygen consumption of artificially perfused dog bone. U. S. v. EULER. *Arch. intern. pharmacodynamie* **42**, 259–77(1932).—Adrenaline added to the arterial perfusion fluid (defibrinated dog blood) in concns. of $10^{-9}$–$10^{-10}$ causes a 23% increase in $O_2$ consumption of dog bone, with concns. of $10^{-8}$–$10^{-9}$ an initial increase is followed by a decrease. Ergotamine (0.5 g./kg.) prevents this metabolic effect of adrenaline, as does sectioning the ischial nerve from 3 days to 3 weeks previously. Tetrahydro-β-naphthylamine in blood concns. of $10^{-6.2}$–$10^{-6.1}$ slightly increases the $O_2$ consumption; higher concns. ($10^{-4.6}$) inhibit it. HARRY EAGLE

Insulin and phosphagen. A. MOSCHINI. *Arch. intern. pharmacodynamie* **42**, 328–33(1932).—In frogs dying as a result of massive doses of insulin (50 units into animals of 30–40 g.) with profound hypoglucemia and convulsions, there is no regular increase in the muscle phosphagen. The inorg. P which disappears from the circulating

blood after the administration of insulin is therefore not fixed in the muscles as phosphagen. HARRY EAGLE

**Mechanism of chemotherapeutic action. VI. The binding of arsenicals by trypanosomes in vitro.** L. REINER, C. S. LEONARD AND S. S. CHAO. *Arch. intern. pharmacodynamie* **43**, 186–98(1932).—Dead organisms (*T. equiperdum*) absorb more As from solns. than the living organisms. The amt. of As taken up from solns. of various trivalent As compds. is proportional to their *in vitro* toxicity, the order of increasing absorption being Na arsanilate ($As^{+++++}$), sulfarsphenamine, stabilarsen, neoarsphenamine, 3 amino-4-hydroxyphenylarsenious oxide. The amt. of As so combined corresponds to a monomol. surface layer, loosely packed, and suggests that certain definite chem groups are responsible for the binding. Na thioglycollate inhibits the binding of all the trivalent arsenic compds. studied; but previous treatment with Bayer 205 does not interfere with the binding of neoarsphenamine. **VII. The binding of arsenicals by arsenic-resistant trypanosomes in vitro.** *Ibid* 199–208.—An arsenic-resistant strain of *Trypanosoma equiperdum* was found to bind approx. as much As from solns. of neoarsphenamine and 3-amino-4-hydroxyphenylarsenious acid as normal organisms (10γ per $10^{10}$ trypanosomes). Sulfarsphenamine was bound loosely, but in larger quantity. A five fold variation in neoarsphenamine concn did not affect the degree of adsorption. These results indicate a real increase in tolerance for the drug rather than a decreased affinity for As in the As-resistant strain. Its reduction capacity (rate of reduction of methylene blue) was found to be normal. **VIII. Variations in the size of the spleen of albino rats, following treatment with arsenicals, blockade with India ink, and infection with Trypanosome equiperdum.** L. REINER AND S. S. CHAO. *Ibid* 209–15. HARRY EAGLE

**The role of the liver in the passage of polypeptides.** NOËL FIESSINGER, MAURICE HERBAIN, AND RENÉ LANÇON. *Arch. intern. pharmacodynamie* **43**, 216–36(1932).—After the ingestion of peptone by dogs there is a brief but definite increase in polypeptides in the portal vein, also observed to a less degree in the peripheral circulation, where it is roughly paralleled by an increase in the non-protein N. As shown by hepatectomy, the liver keeps the circulating polypeptides at a low level, presumably by weeding out part of the polypeptides brought to it by the portal vein. Polypeptides may be formed in the tissues, as after traumatic autolysis of the spleen, but this peripheral formation does not become evident so long as the liver is intact. HARRY EAGLE

**Experimental thyrotoxicosis.** J. H. DRAIZE AND A. L. TATUM. *Arch. intern. pharmacodynamie* **43**, 237–45(1932).—Correcting the acidosis is the most efficient therapeutic measure in animals poisoned with otherwise fatal doses of desiccated thyroid (50 mg./kg.). Stimulants, viosterol and Ca gluconate, also proved beneficial. HARRY EAGLE

**The reflex hypertensive action of amyl nitrite.** LUCIEN DAUTREBANDE. *Arch. intern. pharmacodynamie* **43**, 246–67(1932). HARRY EAGLE

**Is the action of barium chloride on dog intestine in situ similar to that of the digitalis group?** RAYMOND-HAMET. *Arch. intern. pharmacodynamie* **43**, 386–412(1932). HARRY EAGLE

**Chemical studies of pathological liver biles and the effect of Karlsbad mineral water.** W. NONNENBRUCH AND P. MAHLER. *Arch. Verdauungskrankh.* **52**, 337–61(1932).—The mineral water caused an increased biliary secretion, contg. more Ca, K, S and Na. The biliary $HCO_3$, Fe, lecithin, fatty acids, cholesterol and non-protein N were not affected; and the concns. of mucus and total N were decreased. There is a complete bibliography. HARRY EAGLE

**The effect of Anticoman upon the carbohydrate metabolism.** KURT FRÖHLICH. *Arch. Verdauungskrankh.* **52**, 434–40(1932).—In non-toxic doses "Anticoman" has no effect on the fasting blood-sugar level, increases the glucose tolerance of normal dogs and rabbits for hrs., and partially reduces the insulin requirement of pancreatectomized dogs. HARRY EAGLE

**Therapeutic attempt with thyreotropic hormone.** A. SCHITTENHELM AND B. EISLER. *Klin. Wochschr.* **11**, 1783–5(1932).—The administration of thyreotropic hormone (cf. *C. A.* **26**, 3571, 5136) to a case of myxedema caused an increase in the blood I level (from 6.5γ% up to 16.5γ%) without affecting the basal metabolism or the clinical picture. In cases of adiposity, although less effective than thyroxine, it does have some effect. HARRY EAGLE

**Peroral or intravenous administration of glucose for the testing of the glucemic response?** ERICH URBACH. *Klin. Wochschr.* **11**, 1789–91(1932).—Results with the peroral and intravenous administration of glucose agreed in 75% of the cases; in the remainder, the peroral method gave better results. Fewer blood samples are necessary

with the peroral method; and it is to be preferred because it is a physiol. test of pancreatic function. HARRY EAGLE

**Detoxication of the thyroid hormone.** ERICH HESSE AND K. R. JACOBI. *Klin. Wochschr.* **11**, 2117(1932).—A preliminary report. Small amts. of Cu (0.4 mg./kg daily) given as the acetate, glycocoll or chlorophyll compd. protect dogs from otherwise fatal doses of dried powd. thyroid gland (3 g./kg. daily). HARRY EAGLE

**The effect of thyroxine upon tissue oxidation.** GUSTAF MYHRMAN. *Klin. Wochschr.* **11**, 2139–40(1932).—A preliminary report. Thyroxine has no effect upon the $O_2$ consumption of tissue *in vitro*. No definite results were obtained upon attempting to det. whether the tissues of thyroxine-treated animals had an abnormally high $O_2$ consumption *in vitro*. Also in *Acta Med. Scand.*, **79**, 323–30(1932). HARRY EAGLE

**The behavior of the alkali reserve during salyrgan diuresis.** A. BÖGER AND M. NOTHMANN. *Klin. Wochschr.* **11**, 2146–8(1932).—There is a significant increase in the $CO_2$-binding power of blood 8–12 hrs. after an injection of salyrgan. The simultaneous administration of $NH_4Cl$ inhibits the alkalotic action, and promotes diuresis. H. E.

**The effect of diiodotyrosine upon the thyroid activity.** I. ABELIN AND C. WEGELIN. *Klin. Wochschr.* **11**, 2103–6(1932).—The injection of anterior pituitary exts. into guinea pigs causes histological changes of hyperactivity in the thyroid gland, inhibited or prevented by the simultaneous ingestion of diiodotyrosine. HARRY EAGLE

**Histological studies on the effect of intravenous injection of thorium dioxide sol.** PAOLO RAVENNA. *Klin. Wochschr.* **11**, 2151–2(1932).—$ThO_2$ is stored in all organs contg. reticulo-endothelial cells, as well as in the endothelial cells of the renal glomeruli. The function of the Th-loaded cells is probably not impaired. No immediate histological changes in the organs could be demonstrated, but the possibility of later changes is not excluded. HARRY EAGLE

**The effect of convulsive toxins upon the respiration of rabbits.** TAMON HOSHI. *Tôhoku J. Exptl. Med.* **19**, 548–65(1932).—$NH_4$ salts and lobeline in sub-convulsive doses cause acceleration and deepening of respiration by direct action on the medullary respiratory center. Picrotoxin, caffeine and atropine accelerate respiration without increasing its amplitude. Strychnine affects respiration only in convulsive doses. H. E.

**The effect of morphine upon the respiration of rabbits.** TAMON HOSHI. *Tôhoku J. Exptl. Med.* **19**, 566–76(1932); cf. *C. A.* **26**, 5657.—Morphine first retards and then accelerates respiration by direct action on a pontine and medullary center, resp. HARRY EAGLE

**The effect of guanidine hydrochloride and synthalin upon the blood-sugar content of bilaterally suprarenalectomized or splanchnicotomized rabbits.** HYOZO TADA. *Tôhoku J. Exptl. Med.* **19**, 584–602(1932).—Subcutaneous injections of 0.25–0.4 g. guanidine-HCl into rabbits usually cause hyperglucemia, inhibited by bilateral splanchnicotomy and completely prevented by bilateral adrenalectomy. The latter procedure also prevents synthalin hyperglucemia. HARRY EAGLE

**The relationship of the increased adrenaline secretion in dogs treated with guanidine to the simultaneous change in the blood-sugar concentration.** HYOZO TADA. *Tôhoku J. Exptl. Med.* **20**, 1–13(1932). After splanchnicotomy in dogs, the injection of guanidine causes hypoglucemia instead of hyperglucemia; the effects of adrenaline and guanidine in such animals are algebraically additive. The guanidine hyperglucemia in normal dogs is due to the increased secretion of adrenaline. HARRY EAGLE

**The significance of highly unsaturated fatty acids in organs.** SEINOSUKE HOTTA. *Tôhoku J. Exptl. Med.* **20**, 65–78(1932).—During the increased metabolism caused by the injection of thyroxine, adrenaline and phlorhizin into rabbits, the total unsatd. fatty acids in the tissues increase, but there is no appearance of very highly unsatd. acids. Those which occur normally, or which appear upon the administration of oils with a high I no. to dogs, are not simply unsatd. normal acids, but represent stored fat which resists decompn. Unlike slightly unsatd. fatty acids, the highly unsatd. acids are not to be classed as readily metabolized reserve fat. There is an extensive bibliography. HARRY EAGLE

**The state of the fat in the pancreatic-diabetic dog and its change upon insulin and sugar administration.** SEINOSUKE HOTTA. *Tôhoku J. Exptl. Med.* **20**, 79–92(1932).—The tissues of pancreatectomized dogs contain a large quantity of fat, particularly rich in satd. fatty acids. This change does not appear after partial resection of the pancreas, quickly disappears after the administration of insulin or intravenous glucose, and is responsible for the delayed fat catabolism in the untreated diabetic organism. HARRY EAGLE

**Hyperglucemic action of β-dimethyltelluronium dichloride.** TOSIMITU KAIWA. *Tôkohu J. Exptl. Med.* **20**, 163–77(1932). HARRY EAGLE

**Changes in the carbohydrate and gas metabolism of muscle during acidosis.** KONGO KODERA AND KESAR ADACHI. *Tôhoku J. Exptl. Med.* **20**, 178–90(1932).—Acids (0.4 *N* HCl) injected into dogs caused decreased $CO_2$-binding power in blood and muscle, hyperglucemia, decreased consumption of sugar and $O_2$ by muscle, decreased lactic acid in blood and muscle, decreased blood flow and increased blood pressure. All these changes persist at least an hr. after the injection. HARRY EAGLE

**Autopsy findings in hydrocyanic acid poisoning.** M. STAEMMLER. *Klin Wochschr.* **11**, 2113–16(1932).—In spite of the fact that death had occurred 4 days previously there was no evidence of post-mortem autolysis in the gastric mucosa; and the oxidase reaction of the leucocytes in the gastric wall was almost completely neg. In one spot where the HCN had only penetrated half of the mucosa, the leucocytes in the unaffected area gave a normal oxidase reaction. HARRY EAGLE

**Immediate effects of toxic gases on the [human] organism.** J. IZARD, J. DES CILLEULS AND R. KERMARREC. *Rev. hyg. méd. prév.* **54**, 569–94(1932).—Chem. warfare agents are classified on the basis of their physiol. and pathol. actions on the body. Each agent is discussed separately. Seventy-five references are appended. C. R. F.

**Action of procaine. Relations between hydrogen-ion concentration, potassium content and headaches in spinal anesthesia.** B. BRANDI *Z. ges. exptl. Med* **76**, 760–79(1931); *Physiol. Abstracts* **17**, 145.—For avoidance of headaches and unpleasant after-effects of spinal anesthesia with procaine it is essential that (1) the soln. should be neutral or very slightly alk.; (2) the K content should not exceed 10 mg. %; (3) the soln should be freshly prepd every time. Vasomotor collapse and fall in blood pressure can partly be prevented by intramuscular injection of adrenaline or ephedrine. Trial of a large no. of mixts. led B. to prefer a procaine-adrenaline-phosphate buffer combination of the appropriate $p_H$, with which no evil effects were obtained. G. G.

**[Toxicity of] cadmium vapor.** L. SCHWARZ AND W. DECKERT. *Zentr. Gewerbehyg. Unfallverhüt* **18**, 66(1931). G. G.

**Fate of chloral hydrate in the animal and its fixation in different organs.** B. OLSZEWSKI AND N. P. RENESCU. *Bull. soc. chim. biol.* **14**, 1510–30(1932).—See *C. A.* **27**, 340. L. E. GILSON

**Histamine and asthmatic dyspnea.** J. STAHL AND J. MASSON. *Compt. rend. soc. biol.* **111**, 1003–4(1932).—Histamine given intramuscularly aggravates asthmatic dyspnea, but 0.1–0.3 mg. given intradermally or applied to the scarified skin gives relief and permits free breathing in 10–15 min. At the same time a marked skin reaction is produced. L. E. GILSON

**Action of acetylcholine on the acidity of the gastric juice.** P. MERKLEN, J. WARTER AND J. KABAKER. *Compt. rend. soc. biol.* **111**, 1013–15(1932).—The effect of subcutaneous injections of 0.2 g. acetylcholine on normal and on dyspeptic persons was studied. Where the free acidity was less than 2 g. per l. (Toeppfer method) the treatment caused an increase in acidity and in cases of acidity above 2 g. a decrease was produced. L. E. GILSON

**Therapeutic treatment of experimental hypertension.** LUCIEN DAUTREBANDE. *Compt. rend. soc. biol.* **111**, 1038–41(1932).—None of the common hypotensive drugs had any appreciable effect on dogs in which a chronic hypertension had been induced by section of the nerves of Hering and Cyon 6–10 months previously. L. E. GILSON

**The insulin-adrenaline equilibrium.** P. P. DE NAYER. *Compt. rend. soc. biol.* **111**, 1049–51(1932).—Because of their antagonistic action fatal doses of insulin and adrenaline can be administered together with little effect on the animal; *e. g.*, 80 units insulin and 17.12 mg. adrenaline given together caused practically no change in the blood sugar of a rabbit. L. E. GILSON

**Influence of excitation of the reticuloendothelial system on alimentary hypercholesterolemia.** P. LAMBIN AND J. STEENHOUDT. *Compt. rend. soc. biol.* **111**, 1088–9(1932).—In rabbits hyperactivity of the reticuloendothelial system caused by injections of small doses of India ink or caseosan Heyden prevented the usual increase in blood cholesterol after ingestion of cholesterol emulsion. Possibly the absence of hypercholesterolemia in jaundice is the result of a persistent reticuloendothelial hyperactivity. L. E. GILSON

**Action of intravenous injections of sodium bicarbonate on the fats of the kidneys of the dog.** C. ACHARD, J. VERNE, M. BARIÉTY AND E. HADJIGEORGES. *Compt. rend. soc. biol.* **112**, 30–1(1933); cf. *C. A.* **26**, 5135.—Marked alkalosis produced by large doses of $NaHCO_3$ had no noticeable effect on the fatty constituents of the kidneys. L. E. GILSON

**The antagonism of chelidonine and adrenaline.** RAYMOND-HAMET. *Compt. rend. soc. biol.* **112**, 31–4(1933); cf. *C. A.* **26**, 3299.—In dogs anesthetized with chloralose the

hypertensive effect of 0.05 mg. adrenaline was counteracted by 45 mg. chelidonine sulfate. L. E. GILSON

**Action of heliotropin on the isolated intestine. Its atropine-like effect.** H. BUSQUET. *Compt. rend. soc. biol.* 112, 51–2(1933); cf. *C. A.* 25, 3079.—Heliotropin (piperonal) is an intestinal paralysant of the atropine type acting on the parasympathetic system. Pilocarpine has an antagonistic action. L. E. GILSON

**Histamine and histamine-like substances in the therapy of rheumatic diseases.** PAOLO JACCHIA. *Minerva med.* 1932, II, 865–73.—Beneficial effects previously reported are corroborated and the literature is discussed. HELEN LEE GRUEHL

**Adonis poisoning.** A. v. DEGEN. *Fortschr. Landw.* 7, 556–8(1932).—The death of 4 horses was traced to ingestion of lucerne hay contg. 8.5% of *Adonis phoenicea*, which, in turn, contained an av. of 0.216% glucoside and also an undetd. amt. of a saponin. K. D. JACOB

**The effect of bile acids on carbohydrate metabolism. XX. Glycogen synthesis by bile salts upon the administration of different amino acids.** SEI FUZITA. *Arb. Med. Univ. Okayama* 3, 192–200(1932); cf. *C. A.* 26, 4873.—Glycogen synthesis in starving dogs is augmented by the administration of bile salts. F. regards this as an indication of the effect bile salts have upon the liver glycogen synthesis from *d*-alanine, *l*-leucine and glycocoll. *d*-Alanine and *l*-leucine augment, while glycocoll reduces, the above synthesis after the administration of bile salts. B. S. LEVINE

**The influence of bile salts on salt excretion in liver bile. II. Elimination of phosphoric acid through bile acids after the administration of glucose.** YUTAKA KAWADA. *Arb. Med. Univ. Okayama* 3, 163–71(1932); cf. *C. A.* 25, 4601.—The ash and total solid content of fistula bile from dogs is lowered after the administration of glucose. It remains unaltered or only slightly lowered after the administration of bile salts. The elimination of phosphoric acid is lowered after oral administration of glucose, but remains unchanged or only slightly lowered when the glucose is administered in conjunction with bile salts. K. believes that the lowered phosphoric acid elimination is in some way connected with the glycogen synthesis by the liver. B. S. LEVINE

**The action of *p*-hydroxybenzylguanidine.** AKIO KURODA. *Arb. Med. Univ. Okayama* 3, 279–304(1932).—The pharmacol. action of *p*-hydroxybenzylguanidine is qualitatively similar, but quantitatively different from that of benzylguanidine B. S. LEVINE

**Pharmacological investigation on in vitro cultures from the pigmented epithelial cells of the iris. IV. The influence of emetine, cephaline, sinomenine and parasinomenine on the growth of in vitro cultures from iris epithelium and the histological changes in the culture through these poisons.** KANO SANJO. *Folia Pharmacol. Japon* 15, No. 2, 147–58, Breviaria 10(1932); cf. *C. A.* 26, 4101.—The above poisons decrease the growth of cultures of iris epithelium in low concn.; with higher concns. degeneration sets in and death follows. In weak concn. sinomenine and parasinomenine produce some stimulation, but the others never do. Histological changes are discussed. The intensity of the poisonous action decreases in the order: emetine, cephaline, parasinomenine and sinomenine. G. H. W. LUCAS

**Studies on the in vivo action of lysocythin on the blood.** V. GRONCHI. *Boll. soc. ital. biol. sper.* 7, 1297–1301(1932).—Lysocythin exerts a hemolytic action *in vivo*. Injected intravenously into rabbits in doses of 5–10 cg. per kg. it causes destruction of the red blood corpuscles followed by the liberation of hemoglobin in the plasma and its elimination in the urine. The hemoglobinemia generally disappears in 24 hrs. although ocasionally it may reappear a few days later. PETER MASUCCI

**The influence of intraperitoneal injections of hydrogen peroxide on the catalase of the blood.** LUIGI CASTALDI. *Boll. soc. ital. biol. sper.* 7, 1303–5(1932).—Repeated intraperitoneal injections of $H_2O_2$ into rabbits in doses of 0.08–0.10 g. per kg. produce a marked diminution of the catalase activity of the blood. This diminution is accompanied by a simultaneous diminution in the red blood corpuscles. These facts do not favor the hypothesis that catalase is an enzyme of defense against the toxic action of $H_2O_2$ formed as an intermediate product furing the oxidation of tissues. P. M.

**The lesions caused in the nervous system by the intravenous injections of hypertonic salt solutions.** CAMILLO COLOMBI AND ULRICO SACCHI. *Boll. soc. ital. sper.* 7, 1315–18(1932). PETER MASUCCI

**Changes in the development of experimental tuberculosis after treatment with substances lowering the surface tension.** BRUNO BOTTA. *Boll. soc. ital. biol. sper.* 7, 1345–9(1932).—In the initial stages, exptl. tuberculosis is favorably influenced by treating the animal with Na sulforicinate or Na sulfooleate. PETER MASUCCI

**The action of chemical substances on mycetes causing dermatomycosis.** G

FALCHI. *Boll. soc. ital. biol. sper.* **7**, 1352–7(1932).—The actions of methyl violet, crystal violet, gentian violet, malachite green, methylene violet and saffranine on the cultural development of *Trichophyton*, *Achorion* and *Microsporon* were studied. Gentian violet and malachite green were the most effective in inhibiting the cultural development followed closely by methylene violet and crystal violet. The organisms most sensitive to these substances were *Achorion schonleini* and *T. violaceum*. PETER MASUCCI

**The relation between arterial blood and diuresis as manifested in normal and hypertensive individuals. I. The water test.** PAOLO LEVI AND ERCOLE BUCCIANTI. *Boll. ital. biol. sper.* **7**, 1305–8(1932). **II. The adrenaline test.** *Ibid* 1309–12. P. M.

**The action of some expectorants on mucin.** M. DEGANELLO. *Biochim. terap. sper.* **19**, 321–9(1932).—The changes of viscosity of mucin solns. under the influence of expectorants have been investigated. The decrease of viscosity was most remarkable with $NaHCO_3$, less with NaCl and $CaCl_2$, small with $PhCO_2Na$. The effect of expectorants of the saponin group, emetics and balsamic is insignificant. A. E. MEYER

**Hypericism.** W. HAUSMANN. *Biochim. terap. sper.* **19**, 330–2(1932).—An historical study about the effect of *Hypericum crispum* on white animals, which renders them sensitive to light. A. E. MEYER

**The influence of some chemical substances on the defensive power of the peritoneum.** MARIO TABANELLI. *Biochim. terap. sper.* **19**, 362–417(1932).—The introduction of colloidal Ag, of arsenobenzene or $MgCl_2$ into the peritoneal cavity produces vasodilation, congestion and exudation and attracts white blood elements, all factors apt to increase the natural defense of the serosa. A. E. MEYER

**Pepsinotherapy in gastric ulcer.** RAÚL NOVARO AND DOMINGO R. PESCUMA. *Semana méd.* (Buenos Aires) **1932**, II, 1947–51.—Parenteral pepsin treatment is successful in hyperchlorohydria and gastroduodenal ulcers. It must be applied for a long time and must be supplemented by a suitable diet. A. E. MEYER

**The diuretic action of ammonium bromide.** FRANCISCO C. ARRILLAGA AND ALBERTO C. TAQUINI. *Semana méd.* (Buenos Aires) **1932**, II, 1951–6.—The diuretic action of $NH_4Br$ was established in patients with edema. Doses of 5 to 10 g. are well tolerated. The combination with mercurials is extremely effective. A. E. MEYER

The chemical behavior of Millon base (BERNARDI, SCHWARZ) **10.** Catalytic synthesis of phenylpyridines (MUSAJO, COLONNA) **10.** Ethylene oxide (ZERNIK) **17.** Local anesthetics derived from dialkylaminopropanediols (SCOTT, RIDER) **10.** Piperidine derivatives. XII. Local anesthetics derived from reduction products of β-acetylpyridine (STRONG, MCELVAIN) **10.**

DIXON, W. E.: **Practical Pharmacology.** London: Cambridge Univ. Press. 88 pp. 5s.

JACOBSON, J.: **Le traitement du trachome par l'éther benzyl-cinnamique.** Paris: J B Baillière & fils. 72 pp. F. 24.

KÜHN, W.: **Neue Wege zur Jodbehandlung der Arteriosklerose und des Bluthochdruckes.** Munich: Verlag. d. Ärztl. Rundschau 29 pp. M. 1.

MARFORI, PIO: **Tratado de farmacologia y terapeutica.** 4th ed., translated by F. Bascompte. Barcelona: Manuel Marin. 888 pp. Ptas. 35.

THESES

ABEGG, WALTER: **Die Indikationen für Sulfur.** Berlin, 1932. 46 pp.

ABRT, OTTO: **Die kombinierte Morphium-Pernocton-Narkose beim Hunde.** Leipzig, 1931 51 pp.

ATHANASIOU, ATHANASIOS: **Über die biologische Wertigkeit der in Obst und Gemüse enthaltenen Kohlehydrate für die Ernährung der Diabetiker.** Würzburg, 1931. 12 pp.

BABROWSKI, SIGRID: **Die Behandlung der Aktinomykose mit Jodoformglycerin.** Berlin, 1931. 40 pp.

BEEKER, HELMUT: **Die Behandlung der Lungentuberkulose mit Kohleinjektionen.** Bonn, 1931. 43 pp.

BERGER, FRITZ: **Über die unbeabsichtigte Resorption von Arsen.** Freiburg i. B., 1931. 24 pp.

BERGWALL, A.: **Über Beeinflussung der Wasserregulation und der Diurese durch Narkotica.** Freiburg, 1931. 15 pp.

BLOSS, FRIEDR.: **Vergleiche pharmakologisch-klinische Untersuchungen über "Endokal-Merck" und Morphium hydrochloricum.** Giessen, 1932. 121 pp.

BOCK, HARALD: **Zur Pharmakologie ungesättigter Alkohole.** Breslau, 1930. 12 pp.

BOELTZIG, EWALD.: **Die Wirkung der Ester [Aethylacetat].** Würzburg, 1931. 19 pp.

BONETTI, GIOCONDO: **Über histologische Veränderungen bei Strychninvergiftung.** Basel, 1932. 15 pp.

BONZANIGO, CURZIO: **Die Ephetonin-Wirkung im Kindesalter.** Basel, 1931. 33 pp.

BRINKMEIER, MARTIN: **Die Verwendung des Trypaflavin in der Behandlung infektiöser Prozesse.** Bonn, 1931. 83 pp.

BUNCK, HANS-GÜNTHER: **Über Luesbehandlung mit Solganal B.** Halle, 1931. 31 pp.

BURCKHARDT, WALTER: **Versuche zum histologisch-chemischen Nachweis intravenös injizierter Substanzen [speziell 1,3,4-Dioxyphenylalanin] innerhalb der Epithelzellen.** Anhang: Histologisch-chemischer Nachweis reduzierender, wahrscheinlich zuckerartiger Substanzen in der Haut von Menschen und Tieren mit Silbernitrat. Zürich, 1932. 17 pp.

DAHLEM, OTTO: **Die Chemotherapie der Gonorrhoe.** Giessen, 1931. 9 pp.

DESGREZ, C.: **De l'influence de certaines eaux minérales sur la localisation et l'élimination de substances toxiques déterminées.** Univ. of Paris, 1930. Reviewed in *J. pharm. chim.* **14**, 231(1931).

DUTTENHOFER, GERTRUD: **Über die Verwendbarkeit des Sionon in der Diabetes-Diätetik.** Würzburg, 1931. 14 pp.

EDLER, HUBERT: **Die allgemeine Protoplasmawirkung einiger neuer Lokalanästhetica** (Perkain, Pantocain, Panthesien T. S. 222). Munich, 1931. 19 pp.

EHMANN, OTTO: **Die Rolle der Phosphagene bei Muskeltätigkeit.** Munich, 1931. 20 pp.

ELZNER, WALDEMAR: **Die Brauchbarkeit des Perkains in der Zahnheilkunde.** Bonn, 1931. 26 pp.

EVERSMANN, JOSEF: **Das blutdrucksenkende Mittel.** Freiburg i. B., 1931. 10 pp.

FORCHHEIMER, LUDWIG: **Über die Wirkung verschiedener Gifte auf Vögel. Ein Beiträg zur vergleichen Pharmakologie.** Würzburg, 1931. 49 pp.

FRANKE, KARL: **Über die Choreabehandlung mit Nirvanol.** Göttingen, 1931. 21 pp.

FREEK, ERICH: **Der heutige Stand der Behandlung des Schleimhautlupus unter besonderer Berücksichtigung der neueren biologisch-chemotherapeutischen Methoden.** Munich, 1931. 25 pp.

FREUND, WERNER: **Die Basisnarkose, unter besonderer Berücksichtigung des Pernocton.** Würzburg, 1931. 22 pp.

FROHMANN, HARTMUT: **Über die Behandlung der Eklampsie mit Pernocton.** Berlin, 1931. 39 pp.

GALLWAS, REINHOLD: **Verwendung von Panthesin im Vergleich zu Kokain bei der Druckanästhesie in der konservierten Zahnheilkunde.** Breslau, 1930. 17 pp.

GEBERT, KARL: **Die Atmung nach therapeutischen Salicylgaben.** Berlin, 1931. 11 pp.

GEMMER, C. H.: **Die kombinierte Trypaflavin-Silbersalzbehandlung der Gonorrhoe.** Giessen, 1931. 8 pp.

GESSLER, SEBASTIAN: **Resorption und Ausscheidung von Istizin.** Munich, 1931. 18 pp.

GRAVE, E.: **Versuche zur Verschiebung der Cholesterinspeicherung in verschiedenen Organen des Kaninchens durch Insulin.** Cologne, 1931. 16 pp.

GRUHL, HANS: **Über Nitritvergiftung.** Leipzig, 1930. 26 pp.

HAAG, HILMAR: **Ergebnisse der Avertin-Narkose.** Munich, 1932. 40 pp.

HAGGENMILLER, CURT: **Über die Wirkung der Dämpfe des Amylacetats.** Würzburg, 1932. 23 pp.

HAHN, KURT: **Die Avertin-Todesfälle.** Breslau, 1930. 47 pp.

HEIER, HANS: **Zwei Fälle von Thalliumvergiftung.** Bonn, 1931. 19 pp.

HELLMUT, ANTON: **Zur Frage nach dem Vorhandensein einer Beziehung zwischen Giftresistenz und Fettgehalt weisser Mäuse.** Munich, 1931. 12 pp.

HERFORTH, TILLA: **Die Magenbewegungen und ihre Beeinflussung durch Darreichung von Medikamenten.** Tübingen, 1931. 16 pp.

HERTZER, WALDEMAR: **Über eine neue Behandlungsart des Ulcus ventriculi und duodeni durch Pepsininjektionen [nach K. Glaessner].** Berlin, 1931. 27 pp.

HESSE, HANS: **Über die Wirkung von Methylglykolacetat bei der Einatmung.** Würzburg, 1932. 20 pp.

HÖH, KARL: **Vergiftungen durch Brandgase.** Würzburg, 1931. 29 pp.

HÜBNER, HELMUT: **Die Blutmilchdrüse des Menschen und ihre Beeinflussung durch Aethernarkose.** Bonn, 1931. 14 pp.

HÜSCHELRATH, JULIANE: **Über die Anwendung und die Wirkungsweise der arsenigen Säure in der Zahnheilkunde, zugleich ein Beiträg über die Frage der Bedeutung des Zusatzes von desinfizierenden Mitteln zu Arsenpasten.** Bonn, 1931. 72 pp.

HUSLER, LEO: **Die Verwendung höher dosierter Arsenikpräparate, insbesondere über die Verwendung des kolloidalen Arseniks zur Devitalisation der Pulpa.** Bonn, 1931. 31 pp.

IRMLER, EMIL: **Über die Wirkung der Monobromessigsäure auf dem Blutzucker.** Münster, 1931 10 pp.

JUCKER, ERNST: **Die Cryptotoxine. Versuche am Meerschweinchen.** Zurich, 1931. 20 pp.

KAMPHENKEL, OTTO: **Die antagonist. Wirkung des Strychnins bei der Chloralhydratvergiftung.** Leipzig, 1931. 22 pp.

KLIMAK, ERNST: **Die Salzsäureverätzung des Magens mit Berücksichtigung der übrigen Mineralsäureverätzungen.** Munster, 1931. 64 pp.

KRAFT, K. T.: **Der Einfluss von Adrenalin, Pilokarpin und Atropin auf das weisse Blutbild des Menschen.** Marburg, 1930 19 pp.

KRAUSE, FRITZ: **Die Schwefelkohlenstoffvergiftung.** Tübingen, 1931 15 pp.

LAGARCE, F.: **La toxicologie des dérivés barbituriques.** Univ. of Paris, 1930 Reviewed in *J. pharm. chim* **14**, 367(1931).

LANGE, MARGARETE: **Über den Einfluss von Narkosen auf die Harnfarbstoffe.** Hamburg, 1931. 8 pp

LEUBE, FRITZ: **Narkoseversuche mit höheren Alkoholen und Stickstoffderivaten.** Tubingen, 1931. 13 pp.

LIEBMANN, GERH.: **Erfahrungen mit der Pyrifer-Behandlung der Gonorrhoe.** Halle, 1932. 25 pp.

MATTE, HANS: **Die pathologisch-anatomische Veränderungen bei der Kohlenoxydgas-Vergiftung.** Giessen, 1931 31 pp.

MÜLLER, RUDOLF: **Die Veränderungen der Mundschleimhaut unter der Einwirkung von Tintenstift-Farbstoffen.** Tübingen, 1931. 22 pp

NAU, F. A.: **Über Dilaudid im Vergleich zu Morphin und Heroin.** Marburg, 1930 36 pp

NAUHEIMER, JOSEF: **Pharmakologische Untersuchungen über das Lokalanästhetikum Perkain [Ciba].** Marburg, 1930. 36 pp

NEHMEYER, KURT: **Über Entgiftung bei Intoxikationen des Körpers unter besonderen Berücksichtigungen der derzeitigen wirksamen Entgiftungsmethode bei Schwermetallintoxikationen.** Munich, 1931. 26 pp.

NIELSEN, N. A.: **Om Insulinets Virkemaade.** Copenhagen, 1932. 120 pp. Reviewed in *Nutrition Abstracts & Revs* **2**, 203(1932)

OHM, C. H.: **Über die klinische Anwendung der complexen Quecksilberpräparate.** Cologne, 1931. 30 pp.

ORTH, HEINZ: **Einfluss des Jodions auf die Gefässe des Warmblüters.** Halle, 1932. 13 pp.

OTTO, K. H.: **Über die Silberreduktionsmethode zum Zwecke von Wurzelfüllungen gangränöser Zähne.** Wurzburg, 1931 19 pp.

PAUL, HERBERT: **Der Einfluss des Thyroxins auf die Kohlehydratverwertung im nichtdiabetischen Organismus.** Breslau, 1931. 24 pp.

PENEFF, DIMITER: **Quecksilberschädigungen durch Amalgamfüllungen.** Munich, 1932 15 pp.

PFEIFFER, L. K.: **Paraformaldehyd als Devitalisationsmittel der Pulpa.** Erlangen, 1931 32 pp.

PRÖMMEL, WERNER: **Die Wirkung von Ephedrin- und Novocainlösungen in Verbindung mit Suprarenin auf die Schmerzempfindlichkeit der Zahnpulpa.** Halle, 1931. 23 pp.

REINHARDT, WERNER: **Die Wirkung von Sympatol- und Novokain-Gemischen in Verbindung mit Adrenalin auf die Schmerzempfindlichkeit der Zähne.** Halle, 1931. 35 pp.

REMUSS, KARL: **Zur Frage der Wismutstomatitis.** Berlin, 1931. 20 pp.

REUSS, AUGUST: **Die Giftigkeit des Tetrachlorkohlenstoffs.** Würzburg, 1931. 12 pp.

RIEBE, MAX: **Über die motorische Wirkung der Hydrastis-Alkaloide am isolierten Uterus des Rindes.** Berlin, 1931. 14 pp.

RUNCK, K. H.: **Über die Zuverlässigkeit der Provokationen mit $H_2O_2$ und Lugol'-**

**scher Lösung zur Feststellung der Heilung der männlichen Gonorrhoe.** Münster, 1930. 18 pp.

SCHAEFER, KÄTHE: **Erfahrungen mit der Proteinkörpertherapie bei Diabetes mellitus.** Breslau, 1931. 21 pp.

SCHLEGEL, K. H.: **Die lokalanästhetischen Eigenschaften des salzsauren *p*-Butylamino-benzoyl-dimethyl-amino-aethanol (Pantocain).** Halle, 1931. 23 pp.

SCHLÜTER, HERM.: **Über die Exzitationswirkung des Äthers.** Münster, 1930. 21 pp.

SCHROEDL, GEORG: **Natriumthiosulfat und Schwermetallintoxikationen unter besonderen Berücksichtigungen ihrer Lokalisation in der Mundhöhle.** Munich, 1931 15 pp.

SCHULTZE, DIETRICH: **Die Wirkung des Acetons.** Würzburg, 1932. 18 pp.

SCHULZE, MARTIN: **Über langdauernde Ephetoningaben und dadurch bedingte Organveränderungen beim Meerschweinchen.** Leipzig, 1931. 18 pp.

SCHWALM, ERNST: **Über die vasotonische Wirkung des Uzarons.** Marburg, 1930 36 pp.

SCHWARZE, WILHELM: **Über die erregbarkeitssteigernde Wirkung von Metallsalzen an der Blutegelmuskulatur.** Bonn, 1930. 20 pp.

SIEMSEN, JOHANNA: **Vergiftungen durch pflanzliche Nahrungsmittel in der Nachkriegszeit.** Würzburg, 1931. 26 pp.

SODTKE, SIEGFRIED: **Über Tierversuche mit Avertin und seine Kombination mit Magnesiumsulfat und Narkophin.** Berlin, 1931. 27 pp.

STOVE, HEINZ: **Die Auswirkungen von Stoffwechselstörungen auf die Giftempfindlichkeit des überlebenden Herzens.** Münster, 1930. 20 pp.

TABATZNIK, LEO: **Der Einfluss des Cholesterins auf den Blutdruck.** Berlin, 1930 18 pp.

WILKOEWITZ, KURT: **Über Vergiftungen mit Wurmfarnpräparaten.** Königsberg, 1930. 12 pp.

[illegible] **Wirkung von Methylalkohol.** Würzburg, 1931. 19 pp.

WITTE, RICHARD: [illegible] Chore[illegible]

## ZOOLOGY

### I—ZOOLOGICAL Behavior

[illegible]visch-che[illegible]

R. A. GORTNER [illegible]

**The role of the vitelline sac in the metabolism of the embryo of Syngnathus acus** M. KONOPACKI AND K. BRECIŃSKI. *Bull. intern. acad. pol[illegible]* [illegible]*andere[illegible]lonaise. Classe sci. math* [illegible] 'telline sac are only parti[illegible] 1932, No. 5–6B, II, 141–51.—The reserve materials of the v[illegible] lamps tributed among the va used by the young organism. These reserve materials are dis[illegible] olism until quite late in rious organs and are not utilized in the various processes of metab[illegible]ch zu PHILIP D. ADAMS the development of the embryo. [illegible]0. MAYER. *Jena* [illegible]

**Röntgenographic investigation of gastropod shells.** FRITZ K. [illegible]en. [illegible]s of regenerating *Naturw.* 65, 487–512(1931); cf. *C. A.* 26, 5151, 5583.—X-ray studi[illegible]der[illegible] first formed shells of *Helix nemoralis* show, at the outset, formation of mixts. of vat[illegible]es, finally into nite. M. postulates that in the formation of gastropod shells, vaterite [illegible]. DUNLAP which goes over more or less completely into aragonite and, in certain cas[illegible] of train oil calcite.

**Lipochromes in the fat of marine animals. I. The coloring matters** F. [illegible] TRUMPY from Regaleous glesne. S. SCHMIDT-NIELSEN, NILS A. SØRENSEN AND B[illegible] ar-colored *Kgl. Norske Videnskab. Selskab Forh.* 5, 114–17(1932).—The strongly cinnab[illegible] es of the liver of *R. glesne* yields a deep-red oil. This contains 2 benzine-sol. substan[illegible] carotenes same max. light absorption at 505 mμ ± 5 mμ in $CS_2$. These belong neither to the [illegible] r times nor the xanthophylls, but rather are similar to a coloring matter which in ol[illegible] *Ibu* was described under the name of zoonerythrin. II. **A red-colored whale o[illegible]** [illegible] whale 118–21.—Two coloring matters have been isolated from a light reddish colore[illegible] so been oil. These have a broad absorption band with a max. at 505 mμ. These have al[illegible] *glesne.* found in salmon oil and in the train oil of *Cyclopterus lumpus* and *Regalecus* [illegible] LAP urchin

**Stimulating action of minute doses of thyroxine on the development of sea eggs.** G. UNGAR AND M. R. ZERLING. *Compt. rend. soc. biol.* 112, 25–7(1933). F. L. DUN[illegible]

**Mechanism of adaptation to varying salinity in the common eel and the ge[illegible] problem of osmotic regulation in fishes.** ANGEL B. KEYS. *Proc. Roy. Soc.* (Lon[illegible] B112, 184–99(1933).—The changes in $H_2O$ content of the eel during adaptatio[illegible] changed salinity are not paralleled by changes in $H_2O$- or osmotic-concn. of the bl[illegible] Two primary mechanisms are involved in the active regulation of osmotic con[illegible] L. E. GILG[illegible]

(*a*) the kidney concn. of salt and elimination of large amts. of $H_2O$, and (*b*) the gill conservation of $H_2O$ and elimination of excess salt. JOSEPH S. HEPBURN

**Chemistry of coccids produced in Japan. I. Waxy substances of Ceroplastes rubens Mask.** MICHIO KONO. *J. Agr. Chem. Soc. Japan* **8**, 1150–60(1932)—The insects were collected and extd. with $C_6H_6$. The wax is sol. in $C_6H_6$, $CHCl_3$ and $CCl_4$, difficultly sol. in ether, petr. ether, glacial AcOH and EtOAc. The properties were: $d_{15}$ 1.03, m. p. 55–8°, acid value 63.4, sapon. value 139.0, ester value 75.5, I value 90.3, Ac value 23.8, neutral fat 36.5% and unsapon. matter 19.98%. The wax was sepd. into cold alc.-sol. and -insol. parts. The cold alc.-insol. part was recrystd. from hot alc., and melissic acid, ceryl alc., an unknown cyclic alc., $C_{11}H_{18}O$, b. about 120°, $((\alpha)^{?}_{D}$ +47.3°, mol. wt. 165.45), ceryl melissiate, m. 86°, and melissic ester of $C_{11}H_{18}O$, m. 68°, were isolated. From the alc.-sol. part a red colloidal mass was obtained, and abietic acid, m. 163° $((\alpha)^{20}_{D}$ +69.2°), and an unknown unsapon. matter, $C_{16}H_{26}O$, $b_2$ 190° $((\alpha)^{?}_{D}$ −27.75°), were isolated. $C_{16}H_{26}O$ may be a resinol. Y. KIHARA

**Biochemical investigations on fish muscle. III. Changes in the amount of "press-juice" from the muscle of the haddock.** S. SCHMIDT-NIELSEN AND JÖRGINE STENE. *Kgl. Norske Videnskab. Selskabs Forh.* **4**, 198–201(1932); cf. *C. A.* **26**, 2248.—The amt. of press juice to be obtained from the minced muscle of the haddock varies with the period of keeping of the fish after killing. From a very low value immediately after death the amt. rises to 20 g. per 100 g. muscle in 3–4 hrs. at 5–10°, and falls again after 1–2 days. Finally it rises again to about 20 g. per 100 g. muscle. The amt. is not affected by freezing, but on subsequent keeping, the vol. of juice increases and the content of coagulable protein decreases. The highest value reached, after 3 weeks of freezing, was 44 g. per 100 g. muscle. K. V. THIMANN

**Effects of inorganic salts on photic orientation in Allolobophora foetida (Sav.). VII. Effects of sodium chloride and magnesium chloride of different concentrations.** JUKITARO NOMURA AND SHINRYO OHFUCHI. *Science Repts. Tohoku Imp. Univ.* [4], 7, 457–97(1932); cf. *C. A* **25**, 2489.—The angle of orientation of *A. foetida* to light and their forward and backward movements were measured with the worms in different salt solns. The 4 types of effects are ascribed to a combination of strengthening or weakening of the positively phototropic center in the ventral nerve cord with similar effects on the negatively phototropic center in the brain. K. V. THIMANN

**Glomerular function.** H. L. WHITE. *Am. J. Physiol.* **102**, 222–6(1932).—Mol. concn. of the glomerular fluid of Necturus was the same as that of the serum. Conclusion Glomerular function is very probably a passive filtration process J. F. L.

CULEMANN, H. W.: **Das Verhalten der Pyrenoide bei vegetativer und geschlechtliche Fortpflanzung, eine Untersuchung an Eudorina elegans.** Thesis, Berlin, 1931. 28 pp.

## 12—FOODS

F. C. BLANCK AND H. A. LEPPER

**Chemical composition of Spanish foods. I. Foods of vegetable origin.** J. PUYAL AND ISABEL TORRES. *Anales soc. españ. fís. quím.* **31**, 74–80(1933)—Twenty-one Spanish foods of vegetable origin were analyzed for carbohydrates, protein, fat, water and ash, and the ash for Ca and K. Spanish peas (*garbanzo*) are as high in protein as meat (21.8%), and have a higher food value than lentils. Results of analyses are tabulated in comparison with similar results obtained by others. A table shows the standing of foods in the order of carbohydrate content. **II. Cantabrian fish.** *Ibid* 81–6.—Twenty-five kinds of fish from the Cantabrian sea, used widely in Spain, were analyzed for protein, fat, water and ash, and the ash for Ca and K. Protein varied from 26.7% in *Germa alalonga* to 15.6% in *Conger conger;* fat from 6.2% in *Cuplea pilchardus* to only 0.14% in *Gadus luscus.* Food value varied from 147 cal. in *Germa alalonga* to 70 cal. in *Merlucius merlucius.* In general, the fish contained less protein (av. 18.7%) and less fat (av. 1.8%) than many meats tested (av. 20.9 and 3.5% resp.), with the exception of pork. However, some kinds of fish, *e. g., Germa alalonga* and *Cuplea pilchardus,* show the same or even higher protein and fat contents as meat, which makes them valuable meat substitutes. **III. Meat from the mountains.** *Ibid* 87–90.—Twelve meats used most widely in Spain were analyzed for albumin, fat, water and ash, and Ca and K in the ash. With the exception of pork, the albumin content is inversely proportional to fat, *e. g.,* veal (leg) contains more albumin (23%) and less fat (1%), while beef (loin) has less albumin (17.2%) and more fat (6.8%). The food value of beef varies from 92 cal. in leg to 141 cal. in kidney. Wide differences

from the results of other analysts were found. **IV. Milk and cheese.** *Ibid* 91–6.—For a period of a year milk was analyzed daily. The albumin content (0.75%) was higher, and fat and lactose (3.15 and 4.29%) were lower, than those of foreign analysts. Ten kinds of cheese were analyzed and gave albumin 17.3–35.6%, and 36.1–14.9%. Cheese from sheep milk contained much less albumin (14.3%) and fat (25.4%) than that from cow milk. Foods analyzed here have been arranged in the Lawrence dietetic system for Spain. E. M. SYMMES

**A new method for the preservation of foodstuffs.** JOHAN SEVÓN. *Teknillinen Aikakauslehti* **23**, 1–7(1933).—HCl has a preservative effect on foodstuffs, but it attacks colloidal org. matter even in low concn. This effect can be eliminated by the use of HCl-NaCl mixts. in proportions detd. by expt. for each foodstuff. An almost unlimited durability is obtained both for animal and vegetable foods. Temp., air, light and desired preserving time are necessary considerations. In general the $p_H$ is about 4–5. The acid quantities are small, and the salt is removed by washing before consumption of the food. Meat and fish can be kept fresh for 2 weeks by painting the surface with the preservative. Replacement of air by an indifferent gas increases the time of preservation. Fermentation processes, such as pickled cucumbers and fermented cabbage, can be stopped or shifted in any desired direction by the addn. of proper proportions of HCl and NaCl. S. A. KARJALA

**Chemical research in the canning industry.** GULBRAND LUNDE. *Teknisk Ukeblad* **79**, 311–13, 322–3(1932).—A review. C. A. ROBAK

**Influence of variety and environment on various properties of rye.** FR. SCHNEIDER AND FR. HEISER. *Mühlenlab.* **3**, 3–14(1933).—Thirteen varieties of rye were grown under different environmental conditions in various parts of Saxony. The properties investigated were: test wt., wt. per 1000 kernels, protein (N. × 6.25), maltose (by Bach and Oparin's method), and test no. (by Pelshenke's doughball method, cf. *C. A.* **26**, 3306). Environment had the greatest influence on all properties. For each property, the differences between the max. and min. values for variety and for environment, resp., were expressed as percentages of the corresponding mean values, and the ratios between these percentages calcd. These ratios, showing the relative influences of variety and environment, were: test wt. 1:1.8; wt. per 1000 kernels 1:1.5, protein 1:5; maltose 1:3.6, test no. 1:2.8. Practical applications are suggested. CLINTON L. BROOKE

**A new apparatus for determining the milling value of wheat.** CARL SCHMORL. *Mühlenlab.* **1932**, 63–4.—From 5 to 6 g. of wheat kernels are halved and placed in a lactic acid soln. for 48 hrs. at 40–50°. The swollen kernels are then washed for 10 min. in a mech. gluten washer, returned to the lactic acid soln. for 6–8 hrs. at 40–50°, washed for 20 min., and dried at 105° for 15 hrs. or at 130° for 1 hr. The residue represents the branny coatings and the aleurone layer, and the material is removed by washing the flour. The ratio between actual milling yields and yields obtained by this method may be established by a few parallel tests. CLINTON L. BROOKE

**A short method for the determination of gluten quality of wheat.** P. PELSHENKE. *Cereal Chemistry* **10**, 90–6(1933).—See *C. A.* **26**, 3306. L. H. BAILEY

**Determination of particle size and distribution in wheat and rye flours.** W. GRÜNDER. *Mühlenlab.* **1932**, 85–90.—A sedimentation method with the pipet method of Andreasen (cf. *C. A.* **26**, 5357) is used to det. the degree of fineness of flour. "Palatinol A" is used as dispersion medium. CLINTON L. BROOKE

**The effect of diastatic malt upon the loaf volumes of commercial flours.** R. H. HARRIS. *Can. J. Research* **7**, 571–7(1932); cf. *C. A.* **26**, 2249, 5349.—A series of 10 com. flours of different protein contents and baking strengths was baked by a variety of methods to det. the effect of adding to the dough progressively increasing quantities of diastatic malt. The 2 lower malt concns., 2 and 4% resp., increased the resulting loaf vols. in every case, but the highest percentage of malt, 6%, only increased the loaf vol. over the values obtained with 2 and 4% of malt when the highest protein flours were used. Flours which yielded unsatisfactory loaves when baked with the simple formula gave much better results when malt was added. The inclusion of 0.002% of $KBrO_3$ increased the loaf vols. except in the cases of 2 flours evidently of low diastatic power, where little improvement was shown on the results with the simple formula. The further addn. of 2% of malt reacted very favorably with the higher protein members of the series, but had no effect upon these 2 flours. The addn. of 2 and 4% of sucrose to the simple formula did not prove as beneficial as the addn. of like quantities of diastatic malt. No significant relation was found between protein content and loaf vol. in the absence of malt and bromate. J. W. SHIPLEY

**The formation of volatile fatty acids during storage of rye and wheat fat under**

**access of air.** S. C. L. GERRITZEN AND M. KAUFFMAN. *Chem. Weekblad* **29**, 742–5 (1932).—Rye and wheat fats stored in thin layers under access of air are oxidized and relatively large quantities of volatile fatty acids are formed, which are partly sol. in water and have water-sol. Ag salts. After storage for 8 weeks, the R. M W. no. increased from 0.6 to 16, the Kirschner no. from 0.2 to 12. This change does not take place in absence of air. Sterilization and storage in the dark do not prevent the oxidation; light may, however, have an accelerating influence. The Kottstorfer no. increases more than corresponds with the increase in free acid; this indicates other intramol. changes besides the acid formation. F. DE LEEUW

**Determination of benzoyl peroxide in flour.** JOHN R. NICHOLLS. *Analyst* **58**, 4–7(1933).—Benzoyl peroxide is sometimes used to bleach flour and the usual methods for its detection depend upon the oxidizing power of the unchanged peroxide. As a result of its bleaching effect, however, the peroxide is changed to benzoic acid and the method here described (cf. *C. A.* **22**, 930) provides for the colorimetric detn. of the benzoic acid formed. A mixt. of 40 g. $CaCl_2$, 50 g. flour and 10 ml of concd. HCl is distd. with steam until 300 ml. of distillate has been obtained. This is satd. with NaCl and extd. with two 50-ml portions of ether. To the residue obtained after the removal of the ether, 5 ml of acetone and an equal vol of 2 *N* NaOH are added and after dilg. to twice the vol., the acetone is removed by boiling. After cooling to 50–60°, $KMnO_4$ is added in excess, 10 ml. of 2 *N* $H_2SO_4$ is added and the excess $MnO_4^-$ reduced by oxalic acid. After filtering off any insol. fatty acids, the benzoic acid is extd. with two 20-ml. portions of a mixt. of ether and gasoline. The ext. is evapd. to dryness, dissolved in 15 ml. of water, treated with 1 ml of $FeCl_3$ soln. (2.7 g. $FeCl_3$ and 13 ml. of *N* $H_2SO_4$ dild to 100 ml.) and with 1 ml of 0.1% $H_2O_2$. After heating to 100°, 0.5 ml. of *N* NaOH is added and the soln. filtered. To the cold filtrate 1 drop of Fe soln. is added and the resulting color is matched by adding 0.01% salicylic acid to a soln. obtained by adding the reagents to 15 ml. of water and completing the test as above. The salicylic acid soln. is standardized against the color produced when the test is carried out with a known quantity of benzoic acid. W. T. H.

**Testing dog-biscuit flours.** A. S. CARLOS *Food Tech* **2**, 95–6(1932).—An app. is described suitable for detg the breaking point of dog biscuits It consists essentially of a rectangular iron bar pivoted at one end, and provided on its under side, at a point near the pivoted end, with a short projecting stud which applies pressure to the biscuit, the latter being placed on 2 iron supports at a definite distance apart. Pressure is exerted by means of a series of wts. which can be displaced along the iron bar. Within limits, the higher the N content of the flour, the stronger the biscuit. A. P.-C.

**Fermentation of dough.** A. DANGOUMAU. *Bull. soc. chim. biol* **14**, 1552–4 (1932) —Discussion L. E. GILSON

**Testing the quality of flour by the recording dough mixer.** C. O. SWANSON AND EARL B WORKING. *Cereal Chemistry* **10**, 1–29(1933). L. H. BAILEY

**Some aspects of the bromate baking test.** W. F. GEDDES AND R. K. LARMOUR. *Cereal Chemistry* **10**, 30–72(1933).—Results of baking tests conducted on flours experimentally milled from Western Canadian hard spring wheats lead to the conclusion that the bromate formula gives a much better measure of the relative strength of such flours than the basic formula. L. H. BAILEY

**Measuring and recording some characteristics of test-sponge cakes.** WASHINGTON PLATT AND PHILIP D. KRATZ. *Cereal Chemistry* **10**, 73–90(1933).—The authors describe and illustrate methods of measuring and recording many of the characteristics of test-sponge cakes. L. H BAILEY

**Investigations on milk.** GIUSEPPE BRAGAGNOLO. *Chim. ind. agr. biol.* **8**, 412–14 (1932).—Milk from several cows fed fodder and beets was examd. The $p_H$ was 6.39–6.51, and after 20 days, 4.15–4.79. The reductase test (Barthel and Orla-Jensen method) decreased from 7 hrs. to 20 min. in this time period. G. A. BRAVO

**The distribution of nitrogen in milk with reference to the solids-not-fat content.** WM. L. DAVIES. *J Dairy Research* **4**, 142–6(1932).—The N distribution in 62 samples of whole morning milk covering a range of solids-not-fat from 6.5 to 9.0% was discussed. Samples high in solids-not-fat showed greater constancy in N distribution over a consecutive range of samples than those low in solids-not-fat and were characterized by high total N, low non-protein N and high casein N. Samples low in solids-not-fat were characterized by low total N, high and variable non-protein N, low casein and high and variable albumin and globulin N. The casein to albumin to globulin ratio was roughly 14:2.5:1 for samples high in solids-not-fat but the casein dropped in its proportion to albumin and globulin as the solids-not-fat decreased. It was suggested that

samples low in solids-not-fat were abnormal secretions as such samples showed increased albumin, globulin and chloride contents. A. H. JOHNSON

**Freezing point of pasteurized and sterilized milks.** G D ELSDON AND J. R. STUBBS. *Analyst* **58**, 7–10(1933).—Numerous expts. show that there is a slight tendency for the f.-p. depression to be decreased when milk is heated but the change is so small that it does not in any way interfere with the value of the f.-p. test. W. T. H.

**York's experience with tuberculous milk.** F. FISHBURN. *J. Royal Sanit. Inst* **52**, 539–50(1932); *U. S. Pub. Health Eng. Abstracts* **12**, Mi, 32(Nov. 12, 1932).—Results of examns. of 535 milk samples taken between 1912 and 1931 show 65–82% contained less than 200,000 bacteria per cc. Pos. tests for the tubercle bacillus were obtained in 5.5–21.4% of the samples examd. The British Royal Commission is quoted as stating "A considerable proportion of the tuberculosis affecting children is of bovine origin." C. R. FELLERS

**The Hortvet cryoscope.** G. D. ELSDON AND J. R STUBBS. *Analyst* **58**, 27 8 (1933).—Comments on the use of the instrument in the *analysis of milk*. W. T. H

**Short cuts in actual technic of the Babcock test.** A. C. DAHLBERG AND A. J. POWERS. *Proc. Intern. Assoc. Milk Dealers, Lab. Sect.* **25**, 171–6(1932). PHILIP D. ADAMS

**Accuracy of sampling for fat tests at the weigh can.** A J. POWERS, *Proc. Intern Assoc. Milk Dealers, Lab. Sect.* **25**, 150–7(1932).—A comm. rept. Extensive data are given and the variations under various conditions of sampling milk. P. D A

**Weigh-vat test variations.** D. H. BAILEY, F. M. TWINING, J. W. MITTEN AND W. D. SWOPE. *Proc. Intern. Assoc. Milk Dealers, Lab. Sect.* **25**, 157–70(1932).—The variations within the milk-weighing vat may be as much as 2.0%. A device and the method of mixing are described. PHILIP D. ADAMS

**Determination of fat in dried milk.** ANTONIO CERIOTTI. *Rev. centro estud farm. bioquím.* **22**, 148–51(1932).—A review of methods. L. E. GILSON

**Factors affecting the solubility of milk powders. I. The effect of heat on the solubility of milk proteins.** NORMAN C. WRIGHT. *J. Dairy Research* **4**, 122 1 (1932).—Soly. of roller-dried skim-milk powder varied with the temp. at which it was reconstituted, the powder showing higher soly. at high temp. of reconstitution. The heating of milks of high solids concn. tended to make the protein of such milks insol Also as the solids content of the milk increased (to 86.66%) the more rapidly did the protein become insol. at any temp. Thus it was interpolated that on heating at 100°, 50% of the protein was made insol. in 33 min. when the milk solids concn. was 28%, in 2 sec. when the milk solids concn. was 48%, and in 0.4 sec. when the milk solids concn was 88%. The heating of dry skim-milk powders also made the protein insol Thus on heating the dry skim-milk powder at 100° the casein was made 50% insol in 10 hrs., at 117°, 123°, 129° and at 139°, 35 min., 10 min., 3 min. and 40 sec., resp., were required to make 50% of the protein insol. Heating the dry powders also made small proportions of the non-nitrogenous constituents of skim-milk powder insol A. H. JOHNSON

**Increase in non-lactic acidity in raw cream and its control.** P. F SHARP AND J. A. DE TOMASI. *Proc. Intern. Assoc. Milk Dealers, Lab. Sect.* **25**, 3–20(1932).—Lipase activity is evident as low as —10°. Non-lactic acidity develops only in the presence of fat and is greater in cream than in whole milk. Practically no increase occurred in skim milk in 3 weeks although it contains lipase. A high concn. of sucrose partially protects lipase against heat destruction. Heated homogenized cream is a better substrate for the detection of lipase than unhomogenized cream. Raw whole milk shows greater increase in acidity the higher the homogenization pressure. Lipase acted fastest at 48°. High chloride content and lipase activity are assocd. to some extent. To prevent the increase in non-lactic acidity and the development of the rancid bitter flavor in held raw cream it is recommended to warm the milk to 100–115°F. before sepn. and to eliminate cream of milk high in chlorides. PHILIP D. ADAMS

**Determination of butter fat in fat mixtures.** BIRGER PLATON AND N. BENGTSSON *Medd. Centralanstalt. försöksväsendet jordbruks. Mejeriförsök No.* **42**, *Bakt. avdel. No* **54**, 38 pp.; *Kgl. Landtbruks-Akad. Handl. Tid.* **70**, 222–57(1931); cf. *C. A.* **24**, 2500.—The method for analyzing butter and its mixts., proposed by Bertram, Bos and Verhagen (*C. A.* **18**, 556), has been applied to many butter and margarine samples; and the *A* and *B* nos. which they introduced have been critically examd. for reliability, with particular reference to "mixed butter," a product which under Swedish law must contain at least 18% butter fat. The Klostermann-Quast procedure (*C. A.* **22**, 1697) for determining the *A* and *B* nos. has been further improved and brought to a degree of accuracy such that 2 out of 22 analyses were in error by 6 to 7%, the error being less

than 5% in the other 20. The new method is much more rapid than the original Bertram-Bos-Verhagen method and requires less material and app. The procedure is: Saponify 5.0 g. of filtered fat with 2.3 cc. KOH (1:1) and 8 g. glycerol in a 200-cc. Erlenmeyer flask, dissolve the soap in hot water and transfer quantitatively to a 100-cc. volumetric flask having a bulb of about 100-cc. capacity in its neck above the vol. mark. Fill this flask to the mark at room temp. and introduce a glass rod ending in a ball just small enough to pass through the neck of the flask. The rod passes loosely through the cork closing the upper neck of the flask. Heat 15 min. in a water bath at 80–85° and add from a pipet 25 cc. of cold $MgSO_4$ soln. (150 g. per l.), stir by moving the rod up and down. After 10 more min. in the water bath, with repeated stirring, cool rapidly to 20° and after 5 min. remove the Mg soap by suction filtration (in blank tests, filter without suction). Measure 100 cc. of filtrate into a like volumetric flask, add just enough $H_2SO_4$ (20 cc. of concd. acid per 100 cc.) to decolorize phenolphthalein, then 25 cc. of 0.1 *N* $AgNO_3$, and shake violently for 1 min. After 5 min. filter through a dry filter, add 5 cc. of *N* $HNO_3$ and 3 cc. of ferric $NH_4$ alum soln. satd. in the cold, and titrate with 0.1 *N* $NH_4SCN$; the result, after subtracting the result for a blank titration without fat, gives half the *A* no. of the sample. Then transfer the flask contents quantitatively to a 400-cc. flask by rinsing with water to a total vol. of 200–225 cc., add a little pumice and distil in a Polenske app. down to 30–40 cc. Titrate the distillate against phenolphthalein with 0.1 *N* NaOH; the result, minus the NaOH used in a blank test, gives half the *B* no. JULIAN F. SMITH

**Correlation between the organisms found microscopically and the bacteriological deterioration of butter.** J. A. NELSON Mont. Agr Expt. Sta. *Bull.* **267**, 2–27(1932).—The keeping qualities of 449 samples of com. salted and unsalted butter were detd. and correlated with the microörganisms present The types and nos. of rod-shaped bacilli seemed to be an index of keeping quality. The presence of clumps of well-stained thin rods was a strong presumption of deterioration. Protein decompn., cheesiness and putridness were the most common defects encountered in connection with the rod-shaped bacteria. These produced deterioration at a temp. of 21°. NaCl had a decided inhibiting effect on the bacteria in butter. There was little correlation between nos. of bacteria and keeping quality. In general, direct microscopic counts were higher than plate counts. C. R. FELLERS

**Triacetin in the adulteration of butter.** ALDO NEMBROT AND MARCELL CEOLA. *Giorn. chim. ind. applicata* **14**, 497–8(1932).—Triacetin is often added to butter to bring the values of the Reichert value, and *n* to permissible limits. Finke's method of detg. these values, both before and after extg. with 50% EtOH, will detect addn. of more than 1% triacetin in butter. For smaller amts., N and C recommend detg. AcOH in the EtOH ext., after sapon. with KOH In this way 0.4% or less of triacetin can be detected. A. W. CONTIERI

**Design of equipment and method for preparing starter for Oregon creameries and cheese factories.** F. E. PRICE, G. H. WILSTER AND C. J. HURD. Ore. Agr. Expt. Sta., *Bull.* **301**, 5–28(1932).—Starter is defined as a product obtained by inoculating pasteurized skim milk or whole milk at about 21° with a mixed culture of bacteria producing lactic acid and bacteria fermenting citric acid and holding it at this temp. until a certain acidity and desirable flavor and aroma are developed. *Acetoin* and *diacetyl* have odors similar to butter made from starter-ripened cream of good quality, and are responsible in part for fresh butter flavor. Acetoin is formed in the starter through the activity of the organisms fermenting citric acid and is subsequently oxidized to $CH_3COCOCH_3$. Starter manuf. is described. C. R. FELLERS

**Storage studies of Louisiana eggs.** CHARLES W. UPP. La. Agr. Expt. Sta. *Bull.* **229**, 5–46(1932).—Approx. 60% of the total loss in grade of stored eggs occurred between the beginning of the storage season and mid-season. The av. loss in gross wt per case in storage was 2.49%. There was no significant relationship between av. grade per case of in-going eggs and percentage of eggs which graded as loss at the end of the storage season. The av. percentage of olive yolks was directly proportional to the amt. of cottonseed meal in the ration. Olive yolks did not constitute a serious source of loss except when cottonseed meal was fed. Olive yolks were not caused by bacterial or mold infection, though a large percentage of the abnormal eggs discarded at the end of the storage season was infected with bacteria or molds or both. Upon cooking the color of olive-yolked eggs became bright yellow. Olive-yolked eggs are discarded by the trade. Sixty references are appended. C. R. FELLERS

**The determination of nitrate in meat products.** F. TH. VAN VOORST. *Chem. Weekblad* **30**, 101–3(1932).—The method of Grandval and Lajoux is recommended. The chlorides must be removed; $Ag_2SO_4$ is used for this purpose. E. SCHOTTE

**Influence of sex on the quality and palatability of beef.** M. D. Helser, P. Mabel Nelson, Belle Howe, B. H. Thomas and J. W. Woodrow. Iowa Agr. Expt. Sta *Leaflet* **29**, 6 pp.(1932).—There was little difference between steer and heifer carcasses in percentage of lean, fat and bone at the start and at the end of 90 days of feeding As the feeding period progressed the animals became fatter and the difference wider The percentage of lean to fat was less in both sexes as the feeding progressed, but the difference increased faster in the heifers. There was little or no difference in palatability, and amt. or distribution of elastic tissue in heifers or steers during feeding or after finishing. C. R. Fellers

**Composition of the canned meat of crab [Chionectes phalangium Fabr.].** Mrs Yasu Hatakoshi. *J. Chem. Soc. Japan* **53**, 1026–30(1932).—The meat contained water 77.65, protein 19.35, fat 0.85, glycogen 0.23 and ash 1.95%. The dry matter contained 13.57% N, of which 0.11% was insol. in hot 20% HCl. The N distribution of the hydrolytic products was ammonia N 8.57, humin N 1.38, arginine N 11.89, histidine N 5.13, lysine N 10.92 and cystine N 0.97%. K. Kitsuta

**Investigations on the fermentation of mincemeat.** Lloyd A. Hall. *Fruit Products J.* **12**, 107, 124(1932).—Fermentation troubles with mincemeat were prevented by eliminating most of the vinegar previously used, by decreasing the amt. of sugar and by boiling the liquid ingredients with the sugar for 10 min. before mixing with the other solids. J. R. Neller

**Effect of temperature on speed of drying of Corinthian grapes.** N. Ch. Roussopoulos. *Praktika (Akad. Athenon)* **6**, 465–8(1931); cf. *C. A.* **23**, 3992.—The value of $A$ in the formula $\log (K_2/K_1 = A[(T_2 - T_1)/(T_1 T_2)]$, giving the increase in reaction velocity with the temp., is equal, in the case of the velocity of drying of Corinthian grapes in a confined atm. in the presence of dehydrating agents ($CaCl_2$, $H_2SO_4$), to 2182 for the interval 37.5–47.5°. This comes within the accepted limits of 2000–4000. The result is, that for an increase of 10° the drying speed of Corinthian varieties increases 1.66 for the temp. interval 37.5–47.5°, and slightly more (1.8) for lower temps. (above 10°). Results are plotted graphically. Lucien Y. Dyrenforth

**Blueberries.** James M. Bartlett. Maine Agr. Expt Sta *Official Inspection Bull.* **143**, 3(1932).—Because many blueberry growers dusted their fields with Ca arsenate to control the blueberry maggot, chem. examn. of 52 samples of fresh berries was made for As. Thirteen samples contained in excess of 0.01 grain per lb. of As. All the samples contg. much above the tolerance of As had been picked soon after dusting and before any rain had fallen. C. R. Fellers

**Determining the color of tomato concentrates.** F. Emanuelle and C. Mauri *Ind. ital. conserve alimenti.* **7**, 178–80(1932); *Chemie & Industrie* **28**, 1447.—A circle is built up of 4 colored disks, yellow, gray, black and red, variable sectors of which are uncovered and rapid rotation of which gives a color impression which is used for comparison. Numerical values are obtained from the angles of the 4 sectors. E. and M. have modified the method by rotating on the same support the above disk and a sample of the concentrate which spreads out, by centrifugal force, in a thin film on the inside wall of a glass cylinder. As in the preceding case the resp. lengths of the arcs of the colored sectors permit of a numerical evaluation of the color. A. Papineau-Couture

**Composition of Golden Delicious and Boston Marrow squashes.** E. M. Bailey Conn. Agr. Expt. Sta *Bull.* **341** (*36th Annual Rept. on Food Products*) 718 (1932).—The seed-free flesh contained 7.68–15.42% of solids. The samples represented various crosses between these varieties. C. R. Fellers

**Peppers.** A. T. Erwin. Iowa Agr. Expt Sta *Bull.* **293**, 121–52(1932).—Botanical discussion, nomenclature, diseases, yields, uses and compn. of peppers of various sorts are given. There are 42 references. C. R. Fellers

**Maple sirup.** James M. Bartlett. Maine Agr Expt. Sta. *Official Inspection Bull.* **143**, 4–5(1932); cf. *C. A.* **26**, 1149.—Of the 18 samples examd., 6 contained slightly more than 35% of water, the legal max. Only 1 sample had a low Pb no., and none was low in ash content. The standards require not less than 0.45% ash and a Pb no. of not less than 1.19. C. R. Fellers

**Coffee-bean fat and wax.** F. Munk. *Allgem. Oel- u. Fett-Ztg.* **29**, 13–15(1932).—In decaffeinating coffee by solvent extn., crude coffee-berry wax (about 1.25–1.5 times the wt. of caffeine removed) contg. 50% of coffee-bean fat, caffeine, etc., is obtained as a by-product. Coffee oil ("HAG") prepd. from extn. residues is identical with ordinary coffee-bean oil and contains ergosterol of high vitamin-D activity. The vitamin-D content of the bean is stated to be increased by roasting. B. C. A.

**Losses in the effluent of pilchard reduction plants in British Columbia.** Desmond Beall. Biol. Board of Can., *Bull.* No. **35**, 11 pp.(1933).—The effluent of a pilchard

reduction plant contained 0.57% oil, 1.91% suspended solids and 2.96% dissolved protein. Since the quantity of effluent is large, these losses are considerable. Some types of equipment materially reduce these losses. The effluent is now run into the sea.
C. R. FELLERS

**Nitrogenous constituents of a variety of Rhaphanus sativus, "Sakurajima-daikon."** KIYONAO YOSHIMURA, TADAMI EFUJI AND TAKESHI IWATA. *J. Agr. Chem. Soc. Japan.* **8**, 1060-3(1932).— Fresh radish, "Sakurajima-daikon" (66.09 kg.), was crushed and pressed, and the residue was boiled with $H_2O$. From the juice and $H_2O$ ext. adenine (HCl salt) 0.6 g., arginine ($HNO_3$ salt) 1.2 g., choline (Au salt) 0.6 g., and trigonelline (HCl salt) 0.1 g. were isolated. The results were compared with those for other varieties of radish.
Y. KIHARA

**Botulism poisoning.** WALTER G. SACKETT. Colo. Agr. Expt. Sta. *Circ* **73-A**, 4 pp.(1932).— *Cl. botulinum* occurs naturally in Colo. soils and thus is present on many vegetables and other foods which come in contact with soil or dust. The organism is destroyed at a 10 min. exposure at temps. of 58–60° in a pressure cooker. The toxin is inactivated by boiling for 8-10 min. In canned foods, *Cl. botulinum* usually produces gas accompanied by a peculiar rancid spoiled odor.
C. R. FELLERS

**Van Slyke method for protein analysis is affected by the presence of fats.** SIGRED M. HAGUE. Purdue (Indiana) Agr. Expt. Sta., *Rept. of the Director* for Year Ending June 30, 1931, 50.— Fats materially affect the distribution of N as detd. by this method. The reactive constituent of the fat mol. is glycerol, the fatty acids being without effect. The significant effects produced by the presence of fats or glycerol are: increase in the acid-sol. humin, in the phosphotungstic acid humin, and in the nonamino N and arginine value. Carnauba wax, which is not a glyceride, had little if any effect on results obtained by the Van Slyke method.
C. R. FELLERS

**Ensilage of raw potatoes by embedding in potato mash.** G. RUSCHMANN AND G. GRAF. *Landw. Jahrb.* **74**, 447–56(1931). - Potatoes are steamed, mashed and used as an embedding medium for raw potatoes for ensilage. The extent of the subsequent fermentation is largely controlled by the sugar content of the potatoes. Lactic fermentation predominates, and smaller proportions of acetic and other acids occur.
B. C. A.

**Drying of legume hay plants. A study to determine the role of the leaves in drying the stems and the relation of method of drying to loss of leaves and chemical composition.** FLOYD L. HIGGINS. Minn. Agr. Expt. Sta. *Tech. Bull.* **83**, 3-42(1932).—Red clover or alfalfa leaves did not function to any appreciable extent in withdrawing moisture from the stems during the drying period. Sweet clover and soy-bean leaves aid in the drying of the stems. In ordinary sun- or shade-drying of hay fermentation does not occur. Alfalfa dried in the shade was slightly lower in N-free ext. and fat than oven-dried. Sun-dried alfalfa was lower in fat than either the oven- or shade-dried. The red clover dried in the sun was slightly lower in N-free ext. and in crude protein than that dried in the oven. Shade-dried red clover was slightly lower in fat than either sun- or oven-dried. In general, oven-dried and sun-dried samples of legumes were of similar chem. compn.
C. R. FELLERS

Report of the entomology department [*Leucopholis* as food] (LOPEZ) **15.** Two new reactions for caffeic acid and chlorogenic acid (HOEPFNER) **7.** Physical and chemical changes in the ripening of deciduous fruits (ALLEN) **11D.** Relationship between viscosity, elasticity and plastic strength of soft materials as illustrated by some mechanical properties of flour doughs (SCHOFIELD, BLAIR) **2.** Straw utilization [as a feeding material] (LEMAY) **15.** Drying apparatus, especially for drying fish, whale flesh, etc. (Brit. pat. 362,680) **1.** Oils and fats (Fr. pat. 736,984) **27.** Sucrose extraction from materials such as sugar-beet slices [and caffeine extraction from coffee] (U. S. pat. 1,887,050) **28.** Apparatus for withering tea (Brit. pat. 351,976) **1.**

BURN, J. H.: **Aluminium and Food.** A Critical Examination of the Evidence Available as to the Toxicity of Aluminium. London: Brit. Non-Ferrous Metals Research Assoc. 29 pp. Reviewed in *J. State Med.* **41**, 58(1933).

**Jahresbericht über die Fortschritte in der Untersuchung der Nahrungs- und Genussmittel, 1931.** Edited by C. A. ROJAHN AND S. M. v. BRUCHHAUSEN. 41st yr. Gottingen: Vandenhoeck & Ruprecht. 75 pp. M. 8.

KLIMMER, M.: **Milchkunde** mit besonderer Berücksichtigung der Milchhygiene und der hygienischen Milchkontrolle. 2nd ed., rev. Berlin: R. Schoetz. 212 pp. M. 10.60; bound, M. 12.

LAWALL, C. H.: **The History and Romance of Bread.** Philadelphia: Am. J. Pharm. 33 pp. 25 cents. Reviewed in *Siebel Tech. Rev.* **7**, 110(1933).

LEITCH, R. H.: **Cheddar Cheesemaking and Faults in Cheese.** Glasgow: Scottish Agr. Pub. Co. 77 pp. 2s.

THESES

BAILEY, MARY I.: **The Gelation of Frozen Egg Magma.** Columbia Univ., 1932. 34 pp.

BEITTER, HELMUT: **Zur Kenntnis und Beurteilung der Rösterzeugnisse aus Zerealien mit verschiedenem hohem Mälzungsgrad unter besonderen Berücksichtigungen des Malzkaffees.** Munich, 1931. 42 pp.

BÜCHNER, HERM: **Die sächs. Milchkontrollvereine, ihre Entstehung Ausbreitung und Tätigkeit.** Leipzig, 1931. 77 pp.

EPPINGER, HERMANN: **Angebliche Schädlichkeit des Aluminiumgeschirrs.** Tubingen, 1931. 35 pp.

FISCHER, GERH: **Die Veränderungen des Mineralstoffgehaltes und des Mineralstoffverhältnisses in Gemüsearten unter besonderen Berücksichtigungen des Jodes.** Jena, 1931. 35 pp.

HAUSAM, WILLI: **Bakterium coli. Die Milch-Colibakterien und die Erforschung ihres Lebenszyklus.** Kiel, 1930. 78 pp.

HERGESELL, WERNER: **Die in der Milch vorkommenden Streptokokken einschliesslich des Streptococcus epidemicus [Davis].** Berlin, 1931. 18 pp

HOFFMANN, WILLY: **Der Jodnachweis und die Jodspeicherung in Fischen.** Stuttgart, 1930. 28 pp.

HÜLSEMANN, H. H: **Fluoreszenz-Untersuchungen an Wintergersten.** Halle 1931. 46 pp.

HUGHES, D. C.: **Progressive Changes in $p_H$, Acidity and Alcohol Concentration Produced by Prolonged Yeast Fermentation in Bread Doughs of Varying Initial Sugar Concentration.** Univ of Nebr., 1931. 34 pp.

JÄGER, ADELHEID: **Über die Sterilisation von Nahrungsmitteln.** Tubingen, 1931. 52 pp.

KAISER, ELLI: **Vergiftungen durch tierische Nahrungsmittel in der Nachkriegszeit.** Wurzburg, 1931. 39 pp.

SCHLENZ, GERH: **Über den Tyndalleffekt der Milch.** Halle, 1931. 23 pp

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**Vitamin-containing foods.** SOC. ANON. DES USINES RÉMY. Belg. 386,419, Mar 31, 1932. Food products, stirred mechanically or by means of an inert gas, are exposed in a non-oxidizing atm. to the action of ultra-violet rays of wave length greater than 250 A. U.

**Preventing fermentation.** LABORATORIES DE CHIMIE APPLIQUÉE. Fr. 737,267, May 18, 1932. An aq. soln. of $ZnCl_2$ or $ZnSO_4$ is used to prevent fermentation in fermentable materials. In larger proportion the soln. is used to coagulate albuminoids and other substances in food.

**Apparatus for sterilizing viscous food products such as malt extracts by the action of actinic rays.** HUGO W. ROHDE (to Jos. Schlitz Beverage Co.). U. S. 1,888,172, Nov. 22.

**Preserving milk.** WALTER PFUNDT. Ger. 567,188, April 30, 1929. Skim milk for use as fodder is evapd. *in vacuo* to about $^1/_6$ of its vol. and then treated with about 0.8% of powd. CaO, which may be mashed with water shortly before use. About 1% of com. lactic acid may be added to the milk at the same time as or after the CaO.

**Artificial cream or milk.** AXEL BENZON and KJELD KRUSEBEK JENSEN. Brit 362,744, Jan. 22, 1931. Liquefied butter, without addnl. oil or fat, is injected into heated skimmed or sweet milk by means of a high-pressure atomizer.

**Apparatus for homogenizing milk, etc.** HENRI CORBLIN. Ger. 567,112, Dec 17, 1930.

**Apparatus for margarine manufacture.** V. FAURSKOV. Norw. 50,857, May 18, 1932. A rotary drum roller with device for the application of a cooling or heating fluid is described.

**Preserving cheese.** ROLF H. J. GAARDER. Norw. 50,578, Dec. 5, 1932. The pieces are coated with an alcoholic soln. of Na benzoate by dipping or by application.

**Composition containing dextrose and calcium lactate for use in making bakery products.** EINAR WOXVOLD (to American Maize Products Co.). U. S. 1,887,175, Nov. 8. Thin shell-like particles are prepd. contg. dextrose and Ca lactate in pro-

portions such that a 5% soln. has a $p_H$ of between 6.1 and 3.1. When used in making dough the compn. serves to accelerate yeast propagation.

**Preserving fruit, etc.** ALFONCE W. BOHTE. Australia 26,890, May 24, 1930. Fruit and vegetables are preserved by a "sweating" or drying of the moisture from the skin and immediately beneath the skin, by a gradual heating to 120–150°F. The fruit, etc., is stored in hermetically sealed dry containers.

**Dehydrating fruit juices, etc.** OCTAVE BURÉ. Fr. 736,342, April 18, 1932. Fruit juices and worts, after fermentation or not, are dehydrated by forming a hydrogel in the liquid, the colloid used being a metal oxide, preferably $SiO_2$. The coagulum obtained dries at ordinary temp. when exposed to dry air, or the org. constituents may be extd. by suitable solvents.

**Apparatus for testing the hardness and toughness of fruits and vegetables.** VICTOR B. BONNEY and PAUL A. CLIFFORD (dedicated to the Government and people of the U. S.). U. S. 1,887,850, Nov. 15.

**Food product from cocoa, sugar and water.** HANS-ADALBERT SCHWEIGART. U. S. 1,887,905, Nov. 15. A partially de-oiled cocoa powder is mixed with a sugar-contg. liquid and with an acidified aq. liquid contg. milk constituents and the mixt. is heated under pressure at boiling temp. to effect solubilization of starch and proteins and swelling of non-sol. constituents of the cocoa powder.

**Removing skins from nut meats.** CAREY K. BIZZELL and JAMES E. BIZZELL. U. S. 1,887,256, Nov. 8. Nut kernels such as those of Brazil nuts are immersed in a hot dil. alkali carbonate or hydroxide soln. for about 1–7 min. to permit reaction with the fatty materials of the skin but without permitting reaction upon the meat of the kernel, the skins and reaction products are removed, and the treated kernels are then neutralized with acetic, citric, malic, tartaric, phosphoric or hydrochloric acid.

**Tea.** THEODOR GRETHE. Fr. 737,303, May 19, 1932. Tea is obtained free from theine by moistening it with water, extg. with an org. solvent such as $CH_2Cl_2$, $CHCl_3$, or benzene, removing the solvent and drying with a warm current of air at reduced pressure, the temp. of the tea not rising above 65°.

**Apparatus for drying tea, etc.** M. J. BALDWIN. Brit. 356,385, July 16, 1930. Structural and mech. details.

**Drying or cooling fresh tea by air currents before withering.** J. A. MAIN. Brit. 354,791, May 14, 1930. App. and various details of operation are described.

**Tea-withering apparatus.** L. N. LLOYD and BROOKE BOND & CO., LTD. Brit. 352,641, May 19, 1930. Structural details of an app. with wire mesh racks.

**Roasting coffee.** DANIEL J. KENNEDY. U. S. 1,887,686, Nov. 15. Coffee is roasted substantially to the point of max. expansion and subjected to a burning flame for a few min. This treatment is for the purpose of checking development of rancidity and is followed by cooling and spraying of the coffee with alc.

**Oil cakes.** ANDRÉ PHILIPPOU. Brit. 367,751, Aug. 19, 1930. Void. See Fr. 702,132 (*C. A.* **25**, 4070).

**Preserving grain.** YA. M. VAINSHTEIN. Russ. 25,005, June 1, 1931. Enzymic processes and heating of grain are prevented by treatment with gaseous $CO_2$.

**Nutritive salt for cattle and poultry, containing iodine.** ARNBJÖRN LAERDAL. Norw. 48,753, Dec. 8, 1930. Small amts. of I in the form of incinerated sea-weed are added to a mixt. of NaCl, bone meal, powdered limestone, sulfur, $Fe_2O_3$, phosphates, and like substances.

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## 13—GENERAL INDUSTRIAL CHEMISTRY

HARLAN S. MINER

**The role of scientific research institutes in different Soviet chemical industries.** D. A. EGIZ. *J. Chem. Ind.* (Moscow) **1932**, No. 10, 42–5. H. M. LEICESTER

**Depreciation of chemical plant: Financial accounting.** S. HOWARD WITHEY. *Chem. Age* **28**, 72–4(1933). E. H.

**The functions and training of a chemical engineer.** W. E. GIBBS. *Chem. Age* **28**, 67–9(1933). E. H.

**United States imports of chemicals and allied products.** ANON. *Ind. Eng. Chem., News Ed.* **11**, 36–8(1933). E. J. C.

**Solvent recovery.** W. L. BROGAN. *Chem. Eng. Mining Rev.* **25**, 88–91(1932).—Solvent-recovery processes are classfied as: direct condensation, condensation after compression, processes of absorption in liquid media, and processes of adsorption in solid media. Each is briefly outlined. Recovery at Deer Park factory of Leathercloth

Ptg., Ltd., is described. The solvent is a mixt. of $Me_2CO$, $C_6H_6$ and EtOH. The solvent/air mixt. is drawn by a fan from the coating dept. and recovery effected by the adsorption of the solvent vapors in activated C, with the adsorbed solvent discharged by means of low-pressure steam. W. H. BOYNTON

**Recovery of volatile solvents.** THORMANN. *Zentr. Gewerbehyg. Unfallverhut* **18,** 67–75(1931).—Dangers and precautions are discussed. B. C. A.

**Extractions from solutions by means of solvents.** A. F. HOLLEMAN. *Chem Weekblad* **29,** 762(1932).—H. gives an algebraic demonstration of the proposition that when a given amt of solvent is used, the max. efficacy of ext. corresponds to an infinite no. of successive extns. with an infinitely small amt. of solvent. G. CALINGAERT

**A demonstration experiment on the problem of gas liquefaction.** H. KEEFER *Physik. Z.* **33,** 967–8(1932). C. E P. JEFFREYS

**American Society for Testing Materials, 1932 Supplement to Book of Standards,** 102 pp.; cf. *C. A.* **26,** 4391.—*Standard specifications* are given for Cu and bronze trolley wires. *Standard methods* are given for: sampling and testing portland cement; test for distn. of natural gasoline; and chem analysis and phys. testing of rubber products. *Standard definitions* are given of terms relating to materials for roads and pavements. G. G.

**American Society for Testing Materials, Tentative Standards, 1932,** 1236 pp. The subjects treated are similar to those listed in *C. A.* **26,** 4391. A few subjects not included in the 1932 Tentative Standards are covered in the preceding abstr. The following addnl. topics are covered: Tentative specifications are given for: structural medium and rivet steels; elec.-fusion-welded steel pipe (sizes 8 in. to but not including 30 in., and 30 in. and over); cast-Fe culvert pipe; ferro-W; low-C ferro-Mo, Mo salts and compds.; hard-drawn Cu transmission cable; Cu water tube; Al-Cu-Mg-Mn alloy bars, rods and shapes; Mg-base alloy sheet and wrought shapes, specifications and tests for masonry cement; pure linseed oil putty for glazing, ethylene glycol monobutyl (and monoethyl) ethers, acetate ester of ethylene glycol monoethyl ether (90–1 and 95–6% grades); insulated wire and cable (performance rubber compd.) friction tape for elec. purposes; and tolerances and test methods for tubular sleeving and braids. *Tentative methods* are given for: tests for magnetic properties of Fe and steel, for gypsum and its products, for particle size of ground refractory materials, and for comparative hiding power of paints; viscosity-temp. chart for liquid petroleum products; chem. analysis of $CaCl_2$; sampling coke; sampling coal by ball mill method, vol. and sp. gr. correction tables for creosote, creosote coal-tar soln. (to 50% tar) and coal tar (coke-oven tars); sampling and tension-testing natural building stone and sample for testing; testing laminated tubes and round rods, flexible varnished tubing, and pasted mica used in elec. insulation; test for grading natural mica according to size, com. quality and thickness; and Rockwell hardness testing of metallic materials. *Tentative recommended practice* is given for safeguarding against embrittlement of hot galvanized structural steel products and procedure for detecting embrittlement. *Tentative revisions of standard specifications* are given for: low-C-steel splice bars and track bolts; steel screw spikes; quenched C-steel and alloy-steel track bolts; structural steel for buildings; cold-drawn steel wire for concrete reënforcement; com. quality hot-rolled bar steels; com. cold-finished bar steels and shafting; welding and seamless steel pipe; lap-welded and seamless steel and lap-welded Fe boiler tubes; gray Fe, high-test gray-Fe and malleable castings; Zn coated (galvanized) Fe or steel telephone and telegraph line wire, tie wires, farm-field and railroad right-of-way wire fencing, barb wire, wire strand and chain-link fence fabric galvanized after weaving, Cu plates for locomotive fireboxes; Cu bars for locomotive staybolts; seamless Cu boiler tubes; Cu and brass pipes of standard sizes; sheet high brass; clay sewer pipe; gypsum partition tile or block; basic carbonate white lead; tolerances and test methods for cotton sewing threads and asbestos yarns. *Tentative revisions of standard methods* are given for: chem. analysis of ferro alloys; making and storing compression test specimens of concrete in the field; making compression tests of concrete; test for org. impurities in sands for concrete; test for sieve analysis of aggregates for concrete; routine analysis of white pigments, of white linseed oil paints, of dry red lead, of yellow, orange, red and brown pigments contg. Fe and Mn, of yellow and orange pigments contg. Cr compds., blue pigments and chrome green, of Ti pigments, of dry $Cu_2O$ and of dry HgO; tests for hygroscopic moisture (and other matter volatile under the test conditions) in pigments, for flash and fire points by means of open cup and for cloud and pour points; lab. sampling and analysis of coal and coke; and testing molded materials and oils used for elec. insulation. *Tentative revisions of standard definitions*

are given for terms relating to heat-treatment operations (esp. as related to ferrous alloys). G. G.

**Studies in agitation. Suspension of sand in water.** A. McLaren White, S. D. Sumerford, E. O. Bryant and B. E. Lukens. *Ind. Eng. Chem* **24**, 1160-2(1932).—The performance of a stirrer in suspending sand in water has been studied in semi-plant scale expts. L. W. T. Cummings

**Accident prevention in the chemical industry.** Rheinfels *Chem. Fabrik* **6**, 51 5(1933); cf. *C. A.* **24**, 1910. J. H Moore

**Destruction of toxics in industrial establishments.** Heinr. Dräger. *Dräger-Hefte* **1932**, 2210 13.—The toxics concerned are *chemical warfare agents* of which *mustard gas* is the only one that presents a serious problem. The destruction of mustard gas under various conditions and on various materials is described. The principal agents of destruction recommended are water and chloride of lime. Carefully trained personnel is necessary. A. L. Kibler

**The regeneration of respiratory air in gas-protection apparatus with alkali superoxides.** A. Hloch. *Angew. Chem.* **46**, 45–7(1933) $Na_2O_2$ is not suited for complete regeneration. $KNO_3(Na_2O_2 + K_2O_4)$ and $K_2O_4$ will serve the purpose theoretically but practical difficulties exist. 10 references. Karl Kammermeyer

**Experiments in chambers protected from air raids [breathing experiments in closed spaces].** Karl Quasebart. *Gasschutz u. Luftschutz* **3**, 13 20(1933). —Expts were carried out with 10 men in a gas tight cylindrical tank of 10 cu. m. capacity, with 53 adults in a cellar of 53 cu. m. made as gas tight as possible by means of oil paint and with 2 men in a lab. gas chamber. Some expts. were made without ventilation and some with ventilation with known vols of fresh air. Observations were made for pressure, relative humidity, temp and percentage of $O_2$ and $CO_2$ and the results are shown by curves. Conclusion: The $O_2$ content of the air could sink to 12–10% without injuring a healthy, resting person. At 5% $CO_2$ causes distinct effects and at 6% may cause considerable annoyance. A. L. Kibler

**Recognition of poison gases and chemical warfare agents by the sense of smell.** Münsch. *Gasschutz u Luftschutz* **2**, 273-5(1932).—A system of classification of odors is given, the odors of the most important chem warfare agents are described and the difficulties of recognition by means of odor are emphasized. A L Kibler

**Systematic classification of heat-insulating material.** Kh. A. Kaplanov *Izvestiya Teplotech. Inst.* **1932**, 951-68.- A bibliography of a great no. of org. and mineral heat-insulating material in tabular form giving the vol./wt. (kg./m.), av. temp. during the expt. and the heat cond. factor. 27 literature references are given. A. A. B.

**Aluminum oxide as a highly refractory material.** H. Gerdien. *Z. Elektrochem* 39, 13 20(1933).—A highly refractory insulating material which was developed for spark plugs (D. R. P. 274,039 and 326,841) is now on a production basis and has been applied to other uses. It consists of nearly pure alumina, highly sintered and has been named "Sinterkorund." The structure consists of closely packed corundum grains embedded in a glass. The sp. gr. is 3.78, slightly lower than natural corundum; sp. heat 0.2; m. 2050°; water absorption nil; porosity in fuchsin soln. under 600 atm. nil; Moh's hardness 9. The mech. properties are crushing strength 6190 kg./sq. cm.; tensile strength 350 kg./sq. cm.; modulus of elasticity 2,350,000 kg./sq. cm.; softening temp. under load 1730°; and deformation temp. under load undeterminable. Thermal cond. is 18 times that of tech. porcelain. Coeff. of thermal expansion is $46 \times 10^{-7}$ at 20–100° and $80 \times 10^{-7}$ at 20–800°. The corresponding figures for Berlin porcelain are 30.3 and 38.8. "Sinterkorund" has a good resistance against melted $Na_2O_2$, NaOH, $Na_2CO_3$, Al and many alloys. It is attacked by F at high temp., by the halogens in the presence of C, by melted Li, Zr and by Cr, Mn and Fe in an oxidizing atm. The resistance to a large no. of molten salts and minerals is also given. A large variety of lab. crucibles, tubes, boats and dishes have been made from this material. R. F. F.

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Process heat by Krantz enclosed hot-water circulation (Netz) **25.** Exchange between vapor and liquid of binary mixtures (Bošnjaković) **2.** Mixtures of air and saturated water vapor (Bulkeley) **2.** Protecting rubber and other insulating materials (Brit. pat. 362,481) **26.** Filters, especially for cooling water conduits of refrigerating machines (Brit. pat. 363,228) **1.** Rubber poor in albumin [for insulation of submarine cables] (Brit. pat. 363,193) **30.**

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Altpeter, Julius: **Die Patentliteratur der Eiweissstoffe. Lfgn. 1, 2.** Berlin: Allgem. Industrie-Verlag. 80 pp. Bound, M. 8.50.

**Beiträge zur Geschichte der Technik und Industrie. Bd. XXI.** Edited by KONRAD MATSCHOSS. Berlin: VDI-Verlag. 188 pp. M. 10.80. Cf. *C. A.* **25**, 1009.

BOUTARIC: **La production et les applications du froid.** Paris: J.-B. Baillière et fils. 120 pp. F. 15.

**British Chemicals and Their Manufacturers, 1933.** London: Assoc. of Brit Chem. Manufrs. 429 pp. Reviewed in *Gas J.* **201**, 260(1933).

**Der Chemie-Ingenieur.** Ein Handbuch der physikalischen Arbeitsmethoden in chemischen und verwandten Industriebetrieben. Edited by ARNOLD EUCKEN AND MAX JAKOB. **Bd. II. Physikalische Kontrolle und Regulierung des Betriebes. Tl. 2. Mengenmessungen im Betriebe.** Edited by M. JAKOB, R. WITTE AND E. PADELT. 274 pp. M. 26; cloth, M. 27.60. Leipzig: Akad. Verlags. Cf. *C. A.* **27**, 1064.

**Draeger-Gasschutz im Luftschutz.** Individual-Gasschutz. Kollektiv-Gasschutz Charakter der chemischen Krieges. Chemische Kampfstoffe. Organisation d Luftschutzes. Städtebau und Luftschutz. Lübeck: H. G. Rahtgens. 240 pp Bound, M. 3.60.

**I progressi dell'industria chimica italiana nel 1° decennio di regime fascista.** Edited by D. MAROTTA. Issued by Associazione Italiana di Chimica. The chapter and their authors are: **L'industria dell'alluminio** (N. PARRAVANO); **La metallurgia dello zinco e del piombo** (L. CAMBI); **Il processo e l'impianto per zinco elettrolitico di Monteponi** (L. CAMBI); **La fonderia di piombo di San Gavino Monreale** (Cagliari) (G. ROLANDI); **L'industria dell'ammoniaca sintetica** (G. FAUSER); **L'industria degli esplosivi** (F. GROTTANELLI); **Le vernici alla nitrocellulosa** (F. GROTTANELLI); **I progressi dell'industria fotografica** (P. CASSINIS); **L'industria della seta artificiale** (M. BIROLI); **Olio minerale della distillazione della rocce asfaltiche** (A. LA PORTA); **L'industria del cracking** (C. MAZZETTI); **L'industria delle materie coloranti e dei prodotti intermedi** (F. BOVINI); **Colori minerali, bianco di titanio, pigmenti** (G. SACCENTI); **L'industria del cemento** (Q. SESTINI); **I cementi d'altoforno** (V. SEVIERI); **L'industria del cloro e derivati** (A. CHILESOTTI); **L'industria del bromo e dei suoi derivati** (C. MONCADA); **L'industria dello iodio** (G. VELARDI); **L'industria boracifera** (G. GIUSEPPE CONTI); **L'industria del fosforo** (F. TORELLI); **L'industria dell'alcool metilico e della formaldeide** (G. NATTA); **L'industria dell'alcool etilico** (A. CROCCOLO); **Alcool butilico ed acetone di fermentazioni** (C. BARILI); **L'industria dell'acido citrico** (M. PICCINELLI); **L'industria tartarica** (A. DEL BONO); **Acido acetico, acido formico e derivati** (F. GARELLI); **La fabbricazione prodotti opoterapici e biologici** (C. SERONO); **L'industria chimico-farmaceutica** (P. SOLARO); **L'industria degli alcaloidi** (D. MIGLIACCI); **Solfuro di carbonio** (F. GARELLI); **L'industria della Bakelite** (H. MOLINARI); **Dieci annidi sviluppo nell'industria chimica** (R. BONINI). Rome: Tipografia editrice d'Italia 550 pp.

MANDEL, ROBERTO: **I gas di guerra.** Come si deve adoperare la maschera la difesa personale; la difesa della città. Milan: G. Gorlini. 171 pp. L. 6

MÜLLER, EMIL, AKERMAN, T. AND ANDERSON, A. W.: **Chemie und kontinentales Patentrecht.** Berlin: Verlag Chemie. 156 pp. M. 8. Reviewed in *Ind. Eng. Chem.* **25**, 358(1933).

**Official Directory of the British Chemical Plant Manufacturers' Association. 1933.** London: Brit. Chem. Plant Manufrs.' Assoc. 173 pp.

OST, HERMANN: **Lehrbuch der chemischen Technologie.** 18th ed. revised by B. Rassow. Leipzig: Jänecke. 912 pp. M. 19; cloth, M. 19.80.

RICHTERS, C. E.: **Die Tiere im chemischen Kriege.** Berlin: R. Schoetz 141 pp. M. 9.60

SCHWARZ, O.: **Die technischen Werkstoffe.** Leipzig: J. A. Barth 222 pp. M. 23; bound, M. 24.50. Reviewed in *Chimie & industrie* **28**, 1102(1932).

**Silver Anniversary of Chemical Engineering in America.** Issued by Am. Inst. of Chem. Engineers. New York: D. Van Nostrand & Co. 76 pp. 50 cents. Reviewed in *Chem. Met. Eng.* **39**, 678(1932).

WIRTH, FRITZ AND MUNTSCH, OTTO: **Die Gefahren der Luft und ihre Bekämpfung im täglichen Leben, in der Technik und im Krieg.** Berlin: Stilke. 204 pp. M. 5.50

ZANGGER, HEINRICH: **Die Gasschutzfrage.** Bern: Huber. 132 pp. F. 6

MÜLLER, KONRAD: **Qualitative und quantitative chemische Untersuchungen bei Pneumokoniiosen aus verschiedenen Industriebezirken.** Thesis, Cologne, 1931 18 pp.

STIETZ, ERICH: **Die Soja in der Weltwirtschaft.** Ein Beitrag zur Ernährungs- und Rohstoffwirtschaft der Erde. Thesis, Giessen, 1931. 46 pp.

**Process and apparatus for effecting exothermic reactions [sulfuric esters].** RICHARD M. DEANESLY (to N. V. de Bataafsche Petroleum Maatschappij). Brit. 363,028, Oct. 9, 1930. See Can. 310,439 (*C. A.* **25**, 3014).

**Temperature control of exothermic catalytic reactions such as oxidations of organic compounds.** HARLAN A. BOND (to Roessler & Hasslacher Chemical Co.). U. S. 1,888,066, Nov. 15. In connection with a reaction such as the production of formaldehyde from MeOH and air with a Ag catalyst, heat is removed uniformly through and from planes perpendicular to the gas flow in the reaction zone by uniformly cooling the exit end of the catalyst body throughout its whole extent while preventing removal of heat from the reaction zone in a direction reverse to the gas flow. In a described app., a water-cooled base plate in contact with the exit side of the catalyst body is used for cooling.

**Carrying out chemical syntheses.** INSTITUT FÜR PHYSIKALISCHE GRUNDLAGEN DER MEDEZIN. Brit. 362,869, June 2, 1930. Addn. to 340,862 (*C. A.* **25**, 4092). Syntheses involving surface reactions are carried out with the aid of dark a. c. discharges at above the crit. temp. of the gas produced, the speed of flow of the reactants being sufficiently high to prevent decompn. of substances decomposing under the action of the discharge. In an example the production of $C_2H_2$ from $CH_4$ or a mixt. of $CH_4$ and H is cited. Void.

**Rapid drying.** USINES CHIMIQUES DES LABORATOIRES FRANÇAIS (UCLAF) (Pierre Huchet, inventor). Fr. 736,235, Aug. 11, 1931. A rapid drying at a const. temp. is obtained by submitting the substance to be dried to a vacuum while it receives heat liberated by a liquid or soln. maintained in the solidification or crystn. phase.

**Purification and decolorization.** M. ERNOTTE. Belg. 387,742, May 31, 1932. The material to be purified or decolorized is intimately mixed with carbonation sludge or with dried and powd. sugar-house scums, and the decolorizing agent is sepd. by filtration. The process is applicable to the refining of sugar; decolorizing juices, sirups, molasses; purification of crude petroleum solns. and other petroleum products; treatment of waste waters; wine, cider, etc.

**Digesting or extracting.** JENS W. A. ELLING. Fr. 41,008, Nov. 23, 1931. Addn. to 697,406 (*C. A.* **25**, 2883). Modification of app. are given.

**Compressing gases.** N. V. PAVLOV. Russ. 26,767, Dec. 1, 1928. In compressing the gas by means of a statically or a dynamically acting liquid flow which carries the gas off in an undissolved state, the flow of liquid which moves under the influence of gravity only is periodically retarded to compress the gas above the static pressure. The compressor is equipped with valves and receiver for the gas.

**Separating gases by liquefaction and rectification.** SOC. L'AIR LIQUIDE (SOC. ANON. POUR L'ÉTUDE ET L'EXPLOITATION DES PROCÉDÉS GEORGES CLAUDE). Fr. 737,295, May 19, 1932.

**Apparatus for liquefying and separating gases containing carbon dioxide.** SOCIÉTÉ L'AIR LIQUIDS (SOC. ANON. POUR L'ÉTUDE ET L'EXPLOITATION DES PROCÉDÉS GEORGES CLAUDE). Fr. 40,755, Mar. 19, 1931. Addn. to 709,448 (*C. A.* **26**, 1160).

**Separating dust from gases.** WM. ALEXANDER. Fr. 736,458, April 30, 1932.

**Removing dust from gases by water.** SOC. D'ÉLECTRICITÉ DE LA RÉGION DE VALENCIENNES-ANZIN. Fr. 40,789, Sept. 14, 1931. Addn. to 711,127 (*C. A.* **26**, 1682).

**Evaporating liquids.** SOC. ANON. "LE CARBONE." Fr. 40,579, Jan. 17, 1931. Addn. to 707,749 (*C. A.* **26**, 788). Woven carbonized fibers, preferably activated, are used instead of the activated charcoal.

**Atomizing liquid and semi-liquid masses.** ERIK ROTHEIM. Norw. 50,567, April 11, 1932. The gas serving as a pressure medium, *e. g.*, $Me_2O$, hydrocarbons or halohydrocarbons, which in condensed state is dissolved in the substance to be atomized, is brought to partial or total expansion during the flowing of the mass before it leaves the spraying device. App. is described.

**Separating solid materials; feeding granular materials.** SIMON-CARVES, LTD. Brit. 380,196, July 11, 1931. Removal of dust from coal is specified.

**Drying solids.** HENRIK NIELSEN. Norw. 51,641, Oct. 17, 1932. The wet material, *e. g.*, *clay*, is carried on a belt conveyor through the app. countercurrent-wise to hot gases. The belt permits the passage of the gases through as well as along the material. App. described.

**Emulsions.** WILLIAM SELTZER. Ger. 559,222, May 13, 1931. See Brit. 361,262 (*C. A.* **27**, 1065).

**Drying animal and vegetable products.** ADAM MEIRO. Fr. 736,570, May 3, 1932. Solid animal and vegetable products are sepd. from liquids and juices by evapn.

to dehydration in a petroliferous oil at a temp. not destructive to the solids treated The products are preserved by remaining impregnated with the oil.

**Operating rapid filters.** K. V. ROZENTAL. Russ. 24,388, June 27, 1929 and addn. to Russ. 26,977, Dec. 11, 1930.

**Gas-filter absorbent, especially for respiratory apparatus.** GERHARD K E. H STAMPE. Brit. 362,552, Sept. 22, 1930. An absorbent for use against $H_2S$, $NH_3$, etc., consists of $Cu_2Cl_2$ on a solid carrier which may itself be absorptive, *e. g.*, active charcoal The efficiency may be increased by satg. the carrier with a soln., preferably other than $Cu_2Cl_2$, *e. g.*, $Pb(NO_3)_2$, reacting with the gas.

**Control devices for oxygen respirators.** EDMUND KOCH. Brit. 362,573, Sept 30, 1930.

**Canister for respirators containing chemical purifying agents.** ROBERT H. DAVIS U. S. 1,889,015, Nov. 29, Structural features.

**Composition for producing smoke and irritating and disabling gases.** BYRON C. Goss (to Lake Erie Chemical Co.). U. S. 1,886,394, Nov. 8. A compn comprising chloroacetophenone 12.5-30, hexachloroethane 27.3-52.5% and also contg $NH_4ClO_4$, Zn dust and ZnO is suitable for disabling bandits.

**Cleaning wall surfaces in storage tanks.** AKTIESELSKAPET FREDRIKSSTAD SAAPEFABRIK. Norw. 49,390. Dec. 5, 1932 Addn. to Norw. 46,791 (see Brit 349,536, *C. A.* **26,** 2047). The coating of water glass is applied on the unclean surfaces and after a partial hardening is washed off with water with or without the use of steam

**Treating wall surfaces in storage tanks for oils and similar fluids.** AKTIESELSKAPET FREDRIKSSTAD SAAPEFABRIK Norw. 51,792, Nov. 14, 1932. The interior surfaces of the tanks are provided with a coating of water glass produced from solns of alkali silicate contg. 2.5-4.9 parts of $SiO_2$ for each part of $Na_2O$ (or $K_2O$). The coating is afterward converted into water-sol. form by heating.

**Removing coatings of paint, etc.** ALEXANDER ARNESEN Norw 50,744, April 25 1932. Coatings of paint, fat or similar substances are removed by spraying the surface with a hot soln. of caustic alkali under pressure and of such a high concn that on cooling the alkali soln. solidifies to a compact film, after which the surface is treated with steam or water under pressure.

**Refrigerating agents.** SIEMENS-SCHUCKERTWERKE A.-G. Brit 351,713, June 5 1929. In an absorption system, a refrigerant is used b. near 100° and freezing below 0 Ethyl isoamyl ether and toluene may be used as refrigerants with paraffin and quinoline as corresponding absorbents

**Refrigerating agents.** LIGHTFOOT REFRIGERATION CO., LTD. and W G NORCKS Brit. 352,528, April 7, 1930. In a system with a flooded evaporator and employing a refrigerant such as MeCl or EtCl in which the lubricant is sol., the refrigerant is evapd in successive stages at progressively increasing temps in order to sep. the lubricant App. is described in which a "cold accumulator" contg. a low-freezing soln. such as Na chromate may be placed over the evaporator.

**Refrigerating agents.** T MIDGLEY, A. L. HENNE and R. R. MCNARY (to Frigidaire Corp.). Brit. 357,263, Feb. 8, 1930. In a condensation and evapn system, F derivs. of aliphatic hydrocarbons are used such as difluorodichloromethane, tetrafluorochloroethane, tetrafluorodichloroethane or 1,2-chlorofluoroethylene. Cf. *C. A.* **26,** 1047.

**Refrigerating agents.** COMPAGNIE FRANÇAISE POUR L'EXPLOITATION DES PROCÉDÉS THOMSON-HOUSTON. Fr. 40,710, Sept. 2, 1931. Addn. to 695,866 (*C. A.* **25,** 2787). HCOOMe stabilized by the addn. of less than 10% of an anhyd. alc., such as MeOH or EtOH, is used.

**Refrigerating materials.** H. FREDHOLM (to Electrolux, Ltd.). Brit 358,844, Feb. 18, 1930. $NH_3$ used as a refrigerant is absorbed in and regenerated from the liquid formed by absorption of $NH_3$ in $LiNO_3$ (the absorption medium being always in the liquid state). Some mention is also made of the possible use of $NH_4NO_3$, $NH_4$ thiocyanate, $CaCl_2$ and NaI.

**Use of toluene as a refrigerant.** SIEMENS-SCHUCKERTWERKE A.-G. Brit 353,806, Dec. 6, 1929. Toluene is used as a refrigerant with paraffin oil as an absorption medium, and a neutral gas (preferably argon) may be used to counterbalance in part the difference between condenser and evaporator pressures.

**Absorption refrigerating systems.** SIEMENS-SCHUCKERTWERKE A.-G Brit 356,597, Dec. 7, 1929. A system is described suitable for use in air-cooled app. employing refrigerants of low-vapor pressure such as water, with $H_2SO_4$ or alkali soln. as absorbent, and toluene, with quinoline or paraffin oil as absorbent.

**Warning odorant for use with refrigerating systems.** ALEXANDER D. MACALLUM (to Roessler & Hasslacher Chemical Co.). U. S. 1,886,034, Nov. 1. A lachrymatory alkyl bromoacetate such as ethyl, isopropyl or butyl bromoacetate is added to a relatively inodorous refrigerant such as MeCl to serve as a warning agent in case of leakage.

**Use of dichloromethane or the like as an indirect cooling medium in continuous cycle absorption refrigerating apparatus, etc.** D. B. KNIGHT (to Electrolux, Ltd.). Brit. 356,928, Aug 28, 1929. Various details of app. and operation are described.

**Cooling medium for refrigerating apparatus.** EINAR KOLLE Norw. 50,834, May 18, 1932. Hydrocarbons of high b. p. such as paraffins or high fractions of tar oil are used as absorbents for the organic cooling substance.

**Apparatus for compacting carbon dioxide snow.** JAMES W. MARTIN, JR. (to Dryice Corp. of America). U. S. 1,887,692, Nov. 15. Mech. features.

**Apparatus and procedure for transferring liquid carbon dioxide from one container to another under its own vapor pressure.** WALTER H. FREYGANG (to Walter Kidde & Co.). U. S. 1,886,175, Nov. 1.

**Treating fibrous materials with sulfur.** FREDERICK V. D. CRUSER (to Diamond Match Co.). U. S. 1,886,170, Nov. 1. Material such as paperboard is satd. with molten S and subsequently tumbled (in a described app.) and heated to a temp. sufficient to effect the absorption of the S by and into the body of the material, leaving the exposed surfaces of the material free from S film or scale.

**Use of biphenyl and other liquids for heat transfer.** I. G. FARBENIND. A.-G. Brit. 354,886, May 26, 1930. For heat transfer at high temps., 2 or more polynuclear aromatic compds. are used which are stable at the temps. involved and which in mixt. have a m. p. below 60°. Biphenyl, diphenylmethane or diphenyl ether may be used together with naphthalene, phenanthrene, fluorene, diphenylene oxide or *o*- or *m*-diphenyl benzene.

**Utilizing solar heat.** M. M. K. JUSCHENKO. Brit. 354,338, Dec. 20, 1929. A liquid of relatively high b. p. such as amyl alc. is vaporized by solar heat and the vapor is employed to heat water or generate steam.

**Heating brine.** GEORGE B. BURNHAM (to Burnham Chemical Co.). U. S. 1,886,868, Nov. 8. Brine such as Searles Lake brine is exposed to the action of the sun's rays beneath a sheet of material such as glass arranged to exclude the atm., for a time sufficient to cause crystn. of a salt from the brine.

**Cooling air by direct contact with a spray of brine.** AKT.-GES. BROWN, BOVERI, ET CIE. Brit. 353,620, June 24, 1929. The dild. brine is cooled and concd. by the direct action of a water vapor refrigerating app. Various details of operation are described.

**Insulating composition.** B. S. AVTZEN. Russ. 25,207, April 23, 1930. An insulating compn. consists of a mixt. of casein about 100, disintegrated mica 20, powd. anhyd. lime 5–6, and coloring material 1–2 parts.

**Heat insulation.** SAMUEL T. SHERRICK (49% to Charles Diehl). U. S. 1,888,437, Nov. 22. Material suitable for insulating refrigerators is formed of rubber 40, water-absorbent clay 60 and resinous material such as shellac or rosin gum 1 lb., sufficient non-drying solvent such as triethanolamine to dissolve the resinous material, and water 1 gal.

**Heat-insulating compositions.** BALTHASAR PESCHMANN. Ger. 567,007, Sept. 6, 1929. Blast-furnace dust having hydraulic properties is used as a binding agent for other powd. or granular heat-insulating materials, *e. g.*, kieselguhr, artificial pumice or nonhydraulic blast-furnace dust.

**Heat-insulating paper.** LOUIS WEBER. U. S. 1,887,726, Nov. 15. Slag wool and asbestos fibers are used together with a binder such as a colloidal clay.

**Electric conductors covered with fibrous insulation.** ANTHONY P. HINSKY (to E. T. Trotter & Co.). U. S. 1,887,851, Nov. 15. Fibrous insulation such as cotton insulation on wire is first treated with a black, flame-retarding saturant and is then treated with another flame-retarding substance such as $NaHCO_3$ or Na tungstate and with a coloring compn. contg. a wax base. App. is described.

**Incorporating fibrous materials in aqueous dispersions such as those of asphalt or rubber.** EDWIN O. GROSKOPF (to Flintkote Corp.). U. S. 1,889,473, Nov. 29. Fibrous material such as wool, cotton, etc., is disintegrated to render it "substantially individualized" and the fibers are introduced into a dispersion in a stream while in their individualized condition. App. is described.

# 14—WATER, SEWAGE AND SANITATION

EDWARD BARTOW

**Enlarging the Detroit water works.** ANON. *Gas- u. Wasserfach* **75**, 930-2(1932).—An illustrated description of improvements at the Detroit water works. R. W. R.

**Biology of the Colombo water supply.** L. FABIAN HIRST. *Ceylon J. Sci.* **2**, 203–43(1932); *U. S. Pub. Health Eng. Abstracts* **12**, W, 129(Oct. 29, 1932).—The raw water is very soft but contains an objectionable amt. of air-reducible Fe. The fauna and flora of the supply are carefully described. In the tropics, H. believes the presence of *B. aerogenes* has little significance C. R. FELLERS

**The water problem at Fort-de-France [Martinique].** JEAN TOULOUSE. *Eau* **25**, 133–4, 155–6(1932).—The source is the Dumauzé Branch of the Case-Navire River After storage, filtration and chlorination it supplies nearly 50,000 people. Filtration is necessary because of the high amt. of org. sediments. C. R. FELLERS

**Water supply and German geology.** W. v. SEIDLITZ. *Gas- u. Wasserfach* **75**, 1013-16(1932).—A general discussion. R. W. RYAN

**Study of the water of the port of Montreal for the production of steam.** GUY LANCTOT. *Rev. trimestr. can.* **19**, No. 71, 317-38(1932).—For the purification of Montreal water for steaming purposes 3 systems were compared by phys. and chem. means Evapn. produced the best water but cost 33.13 cents per 1000 gallons per day; coagulation and filtration gave satisfactory water for 13.58 cents; while softening with permutite was generally most satisfactory although at the higher cost of 20.00 cents, and this method was recommended. R. M. BOARTS, JR

**Water for industrial purposes.** A. S. BEHRMAN. *J. Penna. Water Works Operators Assoc.* **4**, 102-8(1932). G. L. KELSO

**Directory of important water-works systems of Canada.** ANON. *Contract Record Eng. Rev.* **46**, 276–84(1932); *U. S. Pub. Health Eng. Abstracts* **12**, W, 123(Oct. 1, 1932) —Authoritative and full statistics are given relative to the important Canadian water supply systems. C. R. FELLERS

**Medicinal springs of South Africa. Supplement IV.** M. RINDL. *S. African J. Sci.* **29**, 278-80(1932).—Analyses of the waters of 3 mineral springs in S. Africa are given. K. V. THIMANN

**Unsuspected, unusual and little known factors in water-supply quality.** PAUL HANSEN. *J. Am. Water Works Assoc.* **24**, 1780-91(1932).—Cross connections, leaky conduits, corroded casings, siphonage and back flow, unsterilized newly laid mains and many other factors are suggested as hidden and overlooked dangers to perfect sanitation. D. K. FRENCH

**Evaluation of the constituents of potable and other waters.** HARTWIG KLUT *Arch. Pharm.* **270**, 554-70(1932).—The more common constituents of potable and other waters are enumerated in connection with the usual methods of estn A bibliography is appended. W. O. K.

**The sterilizing effect of acid waters.** LEWIS V. CARPENTER AND EDMOND F. ROETMAN. *J. Penna. Water Works Operators Assoc.* **4**, 83-90(1932).—Drainage from bituminous-coal operations produces acidity in streams which is very costly to water works in chemicals required for treatment. Both the technic and indicator for the detn of this acidity in water should be standardized. A 10% mixt. of acid mine water and sewage will remove 95% of the bacteria from the sewage, in a 2-hr. contact period Bacterial count decreases with the $p_H$ value. A new strain of bacteria was found to grow at an optimum $p_H$ of 3.0. G. L. KELSO

**The use of bleaching clays in water purification.** EDWARD M. SLOCUM. *J. Penna. Water Works Operators Assoc.* **4**, 53-64(1932).—Bleaching clay shows advantage in water treatment by reason of its low price and its great capacity to remove tastes, odors and color. Bleaching clay will remove phenol, Cl and $H_2SO_4$ from water. It will form a heavy floc with $Al_2(SO_4)_3$ which settles rapidly. Its use with prechlorination will reduce putrefaction in basins and filters. Economies are possible by decrease in amts. of lime, alum and other chemicals required when bleaching clay is used. Also in *Public Works* **63**, No. 9, 11(1932). G. L. KELSO

**Action of iodine in sea waters.** GEORGES DENIGÈS. *Compt. rend.* **195**, 669-71 (1932).—Analytical work was done on superiodine marine waters and waters from oyster beds of the same character. Two main forms of I are represented, that ionized as iodide (*IM*) and that ionized as iodic iodine ($IO_3$). Marine waters in contact with I dissolve a part and ionize the rest as $IO_3$ and I, as in the action of alkalies. Alk. earth bicarbonates in sea water are agents of this ionization. Where I remains simply dis-

solved in sea water contg. algae or mollusks, I is ionized in part in the form *IM* and in part is fixed on the vegetable or animal, whether living or dead. Since amts. of iodic and iodide ions are functions of various factors, such as time and temp., variations of detns. of these ions, especially in the higher porportions, may be explained. NaCl is not always the most active element in these marine waters, as alk. earths influence ionization. An aq. soln. of salt is not to be considered the equiv. of sea water in comparative expts., even if the titer is the same as in ocean waters. A. W. E.

**Estimation of the turbidity of waters by means of the filter paper disk process.** F. Sierp. *Wasser* **6,** 3–11(1932).—The quantity of suspended matter in waters may be roughly compared by filtering samples through filter papers of the same size and quality on Büchner funnels and then comparing the appearance of the deposits on the dried papers. M. G. Moore

**How St. Cloud combined use of activated carbon with the ammonia-chlorine process.** C. L. Ehrhart. *Water Works Eng* **86,** 16–18(1933) W. A. Moore

**Is germ chlorination fatal?** David W. Horn. *Am. J. Pharm.* **104,** 651–5(1932).—See *C. A.* **26,** 6040. W. G. Gaessler

**Laboratory control of filter-plant operation.** Geo F Gilkison. Mo. Water and Sewerage Conference, *6th Annual Rept* 60–3; *U. S. Pub. Health Eng. Abstracts* **12,** W, 122(Oct 1, 1932). —General. C. R. Fellers

**Filter sand and gravel.** R F Abel. *J. Penna. Water Works Operators Assoc.* **4,** 68–73(1932). G L. Kelso

**Hydraulics of rapid filter sand.** Roberts Hulbert and Douglas Feben. *J. Am Water Works Assoc.* **25,** 19–65, *Water Works Eng* **86,** 62–4, 102–4(1933). E. H.

**The cause, prevention and elimination of mud-ball formation in rapid sand filters.** Edward S. Hopkins. *J. Penna. Water Works Operators Assoc.* **4,** 74–82(1932).—Mud-deposit formation is caused by compacting of dirty sand grains due to improper washing of filters. Fine sand promotes this condition. Sand of at least 0.5 mm. diam. with high velocity wash to give 40–50% expansion will maintain clean beds free from mud deposits. G. L. Kelso

**Sterilization of sand filters [in waterworks].** F. Meyer. *Gas- u. Wasserfach* 75, 29–30(1932).—Complete removal of *B. coli* from sand filters requires prolonged treatment with a high concn of $Cl_2$. In an example quoted, the sand became sterile after treatment with 1500 g. $Cl_2$ per hr. (35 g. per cu. m. of wash water or 100 g. $Cl_2$ per cu. m. of sand). Such severe treatment destroys the layer of algae on the walls of the container, which layer, according to some authorities, serves to protect these walls from attack by the water B. C. A.

**Use of floc detector to determine filter runs.** E. E. Wolfe *Water Works Eng.* 85, 40–3(1932); *U. S. Pub. Health Eng. Abstracts* **12,** W, 136–7(Nov. 5, 1932).—The floc detector consists of a 2 l. round-bottomed flask, connected by tubes to the filtered water, mounted in front of a flood light, and all contained in a galvanized Fe box. The detector will detect as little as 0.01 p. p. m. of floc, in terms of turbidity and is particularly valuable in cold weather when floc tends to penetrate the filter beds very rapidly. Its weakness is that it will not detect uncoagulated turbidity in amts. less than 1 p. p. m. The detector should be used in conjunction with bacteriol. methods and loss of head data to det when the filter beds should be washed C. R. Fellers

**The filchlorator.** H. A. Ickes. *Can. Engr.* **62,** 13(1932); *U. S. Pub. Health Eng. Abstracts* **12,** W, 123(Oct. 1, 1932) – This app. removes phys. and chem. impurities from Cl gas for treating water supplies The equipment is simple, efficient and requires practically no attention after installing C. R. Fellers

**Report of committee on control of tastes and odors.** Martin E. Flentje. *J. Am. Water Works Assoc.* **24,** 1738–49(1932).—After an outline of the various methods of treatment practiced to reduce or eliminate taste and odor, 3 analytical methods are outlined for the recording of odor. The detn. of phenol is also referred to, special attention being called to the modified Gibbs method for accuracy, and Scott's procedure for coke-oven plant effluents. D. K. French

**Taste and odor control with activated carbon.** B. F. Johnson. *J. Penna. Water Works Operators Assoc.* **4,** 43–52(1932).—New Castle, Penna., takes its water supply from the Shenango River. The stream rises in swampy ground and flows through an industrial section before reaching the city. The raw water carries a color of 10 to 260 p. p. m., an alky. of 100 to neg. 115, and a turbidity of 25. The first taste complaints came from the far ends of the distribution system. Tests for taste and odor were made by distg. a 500 ml. portion of the water and collecting the first 100 ml. of distillate which will contain most of the odor. This test indicates formation of after-tastes and odors. Powd. activated C in *doses of 0.5–1.0 grains per gal.* gave potable water. When C treat-

ment was stopped a 30% increase in $Cl_2$ demand was noted. Max. cost of the C treatment was $1.90 per million gallons with a min. of $0.20 and an av. cost of $0.70. Also in *Am. City* **47**, No. 4, 53–5(1932). G. L. KELSO

**Eliminating tastes and odors from the New Jersey water supplies.** LEROY FORMAN. *N. J. Pub. Health News* **17**, Nos. 3–4, 35–43(1932); *U. S. Pub. Health Eng Abstracts* **12**, W, 132(Oct. 29, 1932).—Tastes and odors from the following sources are discussed: $H_2S$, algae, phenols, chem. and dye wastes, excessive org. matter, excess Cl, Fe, Fe algae, $CO_2$ and low $p_H$. The best remedies are aeration, chlorination, lime treatment, $NH_3$-Cl and sedimentation. C. R. FELLERS

**Trouble papers.** *J. Penna. Water Works Operators Assoc.* **4**, 10–31(1932) **Chlorinating a gravity water supply at Scottdale, Pa.** F. W. BUCK. **Clarification by coagulation without filtration.** C. E. BURLINGAME. **Chlorine-ammonia treatment.** J. C. DEGROOT. **Chlorine-ammonia treatment.** J. G. DELL. **Continuous use of activated carbon in taste prevention.** EMERSON FOSTER. **Coagulation troubles.** THOMAS JONES. **Correction of acidity.** E. O. HORNER **The cause and cure of red water at Eagles Mere.** R. D. KEHRER. **Copper sulfate and fish.** WALTER STOCKBINE. **Displacement of filter gravel.** E. B. WAGNER. **Ammonia-chlorine process of water sterilization.** R. W. WOODRING. G. L. KELSO

**Biological problems in relation to water storage.** W. RUSHTON. *Water and Water Eng.* **34**, 665–74(1932); cf. *C. A.* **26**, 1368.—A discussion of the seasonal appearance of different groups of algae and their treatment. W. A. MOORE

**Biological control as affecting plant operation.** CARL WILSON. *J. Am. Water Works Assoc.* **24**, 1792–9(1932).—$H_2S$ is the result of active sulfate-reducing bacteria which cannot grow unless sufficient org. food is present. Bacterial growth can increase or decrease O and $CO_2$. In the latter case exhaustion of $CO_2$ may bring about natural softening, while decay can increase $CO_2$ to such an extent as greatly to increase the cost of softening. "Biological Control" as recommended is defined to include both immediate and consequential effects of org. growth. D. K. FRENCH

**The elements of water bacteriology and the reasons for their application.** JOHN J. SHANK. *J. Penna. Water Works Operators Assoc.* **4**, 32–42(1932). G. L. KELSO

**Tuberculation of mains as affected by bacteria.** H. G. REDDICK AND S. E. LINDERMAN. *J. New England Water Works Assoc.* **46**, 146–59(1932); *U. S. Pub. Health Eng Abstracts* **12**, W, 135(Nov. 5, 1932).—A tubercle is defined as a limpet-like structure arising from the surface of Fe. Data are presented which indicate that tubercles formed within a water pipe are of bacterial origin. These bacteria do not need the Fe to live. Fe-gathering bacteria may get their Fe from the water. They require a min. bare spot of Fe to secure a footing on the pipe. C. R. FELLERS

**Preliminary report on Escherichia coli in the Calcutta filtered water supply.** J. DAS-GUPTA. *Indian Med. Gaz.* **67**, 380–6(1932); *U. S. Pub. Health Eng. Abstracts* **12**, W, 129(Oct. 29, 1932).—Though many members of the colon group were isolated, *E. coli* could not be identified by use of the Voges-Proskauer or Koser-Smith tests. In the tropics it is necessary to distinguish between *E. coli* and closely related bacilli because the latter are of no significance in water supplies. C. R. FELLERS

**Aeration. III. Present practice of aeration.** JOHN R. BAYLIS. *Water Works and Sewerage* **79**, 275–81(1932); *U. S. Pub. Health Eng. Abstracts* **12**, W, 132(Oct. 29, 1932); cf. *C. A.* **27**, 152.—Aerating systems for the removal of objectionable odors, $CO_2$, Fe, Mn and $H_2S$ are discussed. For effectiveness there is probably little difference whether the aerating surface is formed by spraying the water into the air, or by forcing fine bubbles of air into the water. C. R. FELLERS

**Iron and lime in removal of manganese.** E. C. CRAIG, E. L. BEAN AND R. W. SAWYER. *J. Am. Water Works Assoc.* **24**, 1762–79(1932).—Copperas is added first and aeration follows; the lime is added later to bring the $p_H$ to approx. 10. After mixing there is a retention period of about 2 days. No difficulty is experienced with the filter. Better coagulation follows the use of ferric than ferrous coagulants. D. K. FRENCH

**Preparation of a soap solution for the determination of water hardness.** K. SCHERINGA. *Chem. Weekblad* **29**, 606–7(1932).—Ordinary stearin (candle material) is satisfactory to prep. the soap soln. needed in water-hardness detn. Dissolve about 10 g. of stearin in 200 cc. of strong wood alc.; titrate with 0.5 *N* alc. potash in the presence of phenolphthalein; add 400 g. $H_2O$, and fill to 1000 cc. with wood alc. ALBERT L. HENNE

**Behavior of calcium salts at boiler temperatures.** FREDERICK G. STRAUB *Ind Eng. Chem.* **24**, 1174–8(1932); cf. *C. A.* **26**, 5245.—The reaction $CaSO_4 + Na_2CO_3 \rightleftharpoons CaCO_3 + Na_2SO_4$ has been investigated at temps. between 182° and 282° in a study to det. the mechanism of boiler-scale formation. The presence of a low concn. of carbonate

forces the reaction to the right. The addn. of NaOH and NaCl reduces the amt. of carbonate necessary to produce the same effect. The carbonate-sulfate ratio does not remain const., probably because of bicarbonate formation at elevated temps.
L. W. T. CUMMINGS

**Water softening and boiler practice.** DAVID GARDNER. *Gas J.* **201,** 52(1933); *Gas World* **98,** 13-14(1933).—Water with a hardness of 16 degrees is softened to 2 for boiler use by means of a permutite plant. P. J. WILSON, JR.

**Continuous lime slakers feature small water-softening plant.** H. F. WIEDEMAN *Am. City* **46,** No. 6, 63-4(1932); *U. S. Pub. Health Eng. Abstracts* **12,** W, 131(Oct. 29, 1932).—Because of lower cost, CaO was used in preference to $Ca(OH)_2$ in the lime-soda process of water softening at Thomasville, Ga. A continuous slaker was successfully installed and operated. The plant includes, besides the slakers, mechanically agitated mixing tanks where CaO and soda ash are added, a clarifier providing mech. removal of sludge, a carbonating chamber, plain sedimentation basin and filters. C. R. FELLERS

**Control tests for the treatment of feed and boiler water.** J. K. RUMMEL. *J. Am. Water Works Assoc.* **24,** 2004-24(1932).—Proper collection of samples at the outset is of prime importance. A universal indicator, in place of methyl orange and phenolphthalein, is recommended for alky. Volumetric and colorimetric methods are suggested for phosphates, special attention being given the aminonaphthosulfonic acid method which is described. A colorimetric method is also recommended and described for the detn. of silica. D. K. FRENCH

**The after-softening of feed water with phosphate during water purification.** W. WESLY. *Beiheft Z. Ver. deut. Chem.*, No. 1; *Angew. Chem.* **46,** No. 1, 19-20(1933); cf. *C. A.* **27,** 545.—Lab. test with stagnant and running water and large-scale tests indicated that phosphate should not be added on completion of the softening process after purification, but right after the pptn. of most of the hardening compds. by means of the usual softening agents. KARL KAMMERMEYER

**Boiler feed-water treatment with special reference to corrosion.** J. H. PYBUS *Gas World* **98,** No. 2527, Coking Sect. 9-12(1933).—A review of the com. water-treatment methods. P. J. WILSON, JR.

**Incrustations and corrosion in the Schwenningen water-distribution system.** K. HERRMANN. *Gas u. Wasserfach* **75,** 890-3(1932).—Photographs and photomicrographs are given of incrustations in the water pipes. These deposits are attributed to iron algae and are greatest in pipes having low velocities. To prevent such deposits and corrosion, internal coatings must be very homogeneous. R. W. RYAN

**Prevention of health injuries by powdered hydrated lime.** HANS LEHMANN AND ARNOLD HELLER. *Gas u. Wasserfach* **75,** 967-70(1932).—The possibility of injuring the health of employees handling hydrated lime at water-deacidifying plants is reviewed. Sacks of lime may be emptied by the use of suitable appliances without causing appreciable dust. Lime dust was detd. chemically and also microscopically. The latter method differentiated the particles likely to cause lung injury by filtering the air first through a glass filter having an av. pore diam. of 20-30 μ. The air then impinged on a glass plate, depositing the remaining lime particles. It was found that the majority of the lime particles passed this filter. An upper limit of 4000 lime particles per l. of air was tentatively set as the upper limit of safety. R. W. RYAN

**Use of copper and lead water pipes.** G. NACHTIGALL. *Gas u. Wasserfach* **75,** 941-9(1932).—Soft water, high in $CO_2$, may dissolve enough Pb on standing (overnight, etc.) in Pb pipes to cause Pb poisoning. Remedies are aeration to remove $CO_2$ and deacidification with marble, magnesite or lime water, so that a protective coating will be formed in the pipe. This treatment also decreases the amt. of Cu dissolved from Cu pipes, although toxic amts. of Cu are not dissolved under any conditions.
R. W. RYAN

**Sewage disposal at Todmorden.** J. H. LUMB. *Surveyor* **81,** 515-16(1932); *U. S. Pub. Health Eng. Abstracts* **12,** S, 100(Sept. 17, 1932).—Equipment and operation are detailed. C. E. FELLERS

**Sewage-disposal trends in the New York City region.** GEO. W. FULLER. *Sewage Works J.* **4,** 637-46(1932). E. HURWITZ

**A quarter century of progress in sewage treatment.** LANGDON PEARSE. *Sewage Works J.* **4,** 647-54(1932). E. HURWITZ

**The Rockford, Illinois, sewage-treatment works.** FRED E. CARPENTER. *Sewage Works J.* **4,** 1041-5(1932).—Dedicatory address. E. HURWITZ

**Allentown sewage-treatment works.** HARRY KRUM. *Sewage Works J.* **3,** 647-55(1931).—The plant includes a rack chamber, detritus tanks, screens, incinerator, Imhoff tanks, sludge ejector, chlorinator and sludge-drying beds. Coarse and fine screen-

ings are pressed and buried with all skimmings. Foaming which occurred at the start of plant operation was eliminated by removing the tanks from service and hosing. Sludge drys in 14–20 days. Final effluent before chlorination has a biochem. O demand reduction of 54.1% and after the addn. of 4.86 p. p. m. of Cl the reduction is 59.9%. Heavy chlorination of the final effluent is made necessary by the fact that the water-works of the adjacent city are located 3 miles down stream. E. HURWITZ

**Operation of New Castle sewage plant.** F. J. NUGENT. *Sewage Works J.* 3, 404–10(1931).—An av. daily flow of 4,800,000 gals. is treated in Imhoff tanks fitted with gas collectors. About 0.5 cu. ft. of gas (17% $CO_2$) is obtained per capita per day, but the thermal value of most of it is wasted by burning the gas as a means of odor prevention only. B. C. A.

**Folsom State Prison sewage-treatment works.** L. E. RUSITON. *Sewage Works J.* **4**, 674–9(1932).—This plant which is designed for a 12-hr. day flow of 730,000 gallons includes screens, grit chambers, primary clarifiers, mech. aeration with provision for reaeration, heated digestor, final settling tank and chlorinating equipment. Operation for the first 4 months showed an 87% removal of solids by the primary clarifier and the production of a final effluent with a biochem. O demand of 10.5 p. p. m. and a turbidity varying from 7 to 15 p. p. m. E. HURWITZ

**Requirements for satisfactory results from sewage-treatment plants.** H. D. PETERS AND H. M. BOSCH. Mo. Water and Sewage Conference, *6th Ann. Rept.* 90 pp.; *U. S. Pub. Health Eng. Abstracts* **12**, S, 110(Oct. 8, 1932). C. R. FELLERS

**Significance of laboratory tests at sewage-treatment plants.** CHARLES C. AGAR. *Sewage Works J.* **4**, 1060–8(1932). E. HURWITZ

**Operation of sewage-treatment works.** W. DONALDSON. *Sewage Works J.* 4, 48–59(1932); cf. *C. A.* **26**, 2261.—At a spiral-flow activated-sludge tank in operation at Tenafly, N. J., dealing with approx. 450,000 gals. per day, "bulking" of the sludge is always accompanied by a profuse growth of *Sphaerotilus*. It has been controlled by raising the $p_H$ of the effluent to 8.6–8.8 by means of $Ca(OH)_2$ fed at the inlet to the aeration tank and by reducing short-circuiting by means of transverse baffles. The excess sludge is conditioned by the addn. of 5–7 lb. of alum per 1000 gals. and is dried on covered beds in 18–30 hrs. when applied at a rate of 2.1–2.7 gals. per sq. ft. Putrefactive changes in the semi-dried sludge have been avoided by adding 1–2 lb. of $CuSO_4$ per 1000 gal. of wet sludge. B. C. A.

**Routine tests for operation of sewage-treatment works.** C. F. WERTZ. *Sewage Works J.* **3**, 669–75(1931).—A discussion of routine tests which can be made by the non-tech. operator of a small treatment plant E. HURWITZ

**The practical operation of sewage-disposal plant units.** F. E. DANIELS. *Sewage Works J.* **3**, 662–8(1931). E. HURWITZ

**Practices of industrial waste-disposal at Milwaukee, Wis.** H. M. HEISER AND JAMES BROWNLEE. *Sewage Works J.* **4**, 680–5(1932).—Wastes with high sp. gr. must receive settling treatment. Pickle liquor and similar materials must be neutralized or kept out of the sewers. Oil, grease and tarry wastes must not be allowed to enter the treatment plant. All service-station drain-pit sewer connections were closed and the city collects waste crank-case oil to use in garbage incineration. Wet grains and spent hops must be hauled to dumps. E. HURWITZ

**Industrial wastes in relation to sewage treatment.** STUART E. COBURN. *Sewage Works J.* **4**, 686–94(1932).—Industrial wastes may be grouped as org. wastes, inorg. wastes and a combination of the 2. The effects of industrial wastes upon the character of sewage may be classified as phys., chem., biol. and relative quantities of sewage and waste. C. cites numerous examples of plant difficulties arising from industrial wastes and the laws and regulations adopted to eliminate these nuisances. E. HURWITZ

**Effect of hydrogen-ion concentration on the distillation of free ammonia nitrogen from sewage and trade wastes.** M. E. FOOTE AND M. S. NICHOLS. *Sewage Works J.* **4**, 37–43(1932).—A const. $p_H$ of 7.4 is recommended for avoidance of incomplete recovery of ammonia N at $p_H$ values < 6.0 and hydrolysis of org. N compds. at $p_H$ > 10.6. $Na_2CO_3$ and other usual buffering agents are unsuitable. Addn. of 25 cc. of a 0.5 *M* phosphate soln. contg. $KH_2PO_4$ 14 and $K_2HPO_4.3H_2O$ 90 g. per l. is suggested. B. C. A.

**Excreta-disposal plant of Kyoto, Japan.** S. NISHIHARA. *Sewage Works J.* 3, 656–61(1931).—Excreta are dumped into a biolysis tank where they are diluted 1 to 10 with sewage. The effluent is diluted with 28 parts of sewage and mixed with the return sludge from the final settling tank before entering the spiral flow aeration tank. Sludge from the biolysis tank is mixed with the excess activated sludge and pumped

to the digestion tank. Scum formation in the biolysis tank is prevented by the use of water jets and an auto siphon. Final effluent is treated with 2.0 p. p. m. Cl. E. H.

**Institutional sewage and sewage-flow characteristics.** G. M. RIDENOUR AND I. O. LACY. *Sewage Works J.* **4**, 1046–53(1932).—Data from 7 state institutions indicate the distinctive characteristics of this type of sewage. The ratio of the max. to the av. rate of flow was found to be influenced by sewer-line grades and the arrangement of the collecting system with respect to the treatment plant. Analysis of raw sewages indicated their strength to be 2–3 times stronger than strictly domestic sewage. The av. 5-day biochem. O demand on the basis of 100 gal. per capita flow was 472 p. p. m. Per capita O demand (20 day) varied from 208 to 286 g. per day E. HURWITZ

**Operation of the pre-aeration plant at Decatur, Ill.** WM. D. HATFIELD. *Sewage Works J.* **3**, 621–35(1931).—The system is a short-period activated-sludge plant interposed between the Imhoff tank and the dosing tank. The unit includes 6 tanks of the spiral-flow type having a detention period of 2.5 hrs. with a sewage flow of 10 million gal. daily. Sludge is returned to the influent conduit without provision for re-aeration and thence to the Imhoff tanks where it is digested with the primary sludge. Three methods of operation were tried: normal aeration, re-aeration, and no sludge return. Results indicated a reduction of biochem. O demand of 30–40% by all 3 methods. Odor hazard is greatest with no sludge return and least with re-aeration. Absence of protozoa had no appreciable effect. The presence of large nos. of ciliates was coincident with complete removal of turbidity. E. HURWITZ

**The anaerobic stabilization of sewage screenings.** C. S. BORUFF AND A. M. BUSWELL. *Sewage Works J.* **4**, 973–81(1932).—With a special drum-type digestor which is described, it was found possible to feed sewage screenings at the rate of 1530–2100 wet weight per day per 1000 cu. ft. of digestion capacity. The resulting gas production amounted to 5.45 cu. ft. per lb. of dry screenings added or an av. production of 1.00 vols. of gas per tank vol per day. The residue which contains approx. the same amt. of moisture as the screenings added is inoffensive and non-putrescible. It may be disposed of in the usual manner. E. HURWITZ

**Digestion of bar screenings.** A. M. RAWN. *Sewage Works J.* **4**, 982–5(1932).—Bar screenings and skimmings were successfully digested in the following manner: An unlined open pit with a capacity of about 1500 cu. ft. was dug in tight clay soil. Sixty % of the pit capacity was filled with well-digested sludge. A daily addn. of 25 cu. ft. of bar screenings and 80 cu. ft. of skimmings was made until the pit was filled after which digestion was allowed to proceed for 45 days. The material was then pumped to the sand beds where it dryed without nuisance. The temp. of digestion averaged 65° F. E. HURWITZ

**Sedimentation of sewage.** CHESTER A. SMITH. *Sewage Works J.* **4**, 601–8; *Western Construction News* **7**, 453–6(1932) – At one plant the efficiency of sedimentation was increased 33% by changing from a longitudinal flow to a cross-over flow and thus providing an outlet weir 38 ft long. Another test of a similar nature indicated the necessity of low overflow rates The use of chlorinated clay as a settling agent has given improved clarification. E. HURWITZ

**Sedimentation and chlorination of excess flow.** A. L. THOLIN. *Sewage Works J.* **4**, 655–64(1932).—A small Imhoff tank and trickling filter with a capacity about half that of the tributary population was supplemented as follows: Coarse bar screens, an Imhoff tank, drying beds and chlorinating app. were installed to treat all sewage above the capacity of the old plant. Provision is made to by pass to the creek any flow in excess of 16 million gal. daily. Final effluent is chlorinated to control odors and to retard the O demand until natural purification processes become effective. E. H.

**Pathogenic bacteria in sewage. Bacterolysis.** H. GOLDIE. *Rev. hyg. méd. prév.* **55**, 5–23(1933).—Lysis, together with the destructive action of saprophytic organisms, greatly reduces the no. of pathogens in sewage. Domestic sewage possesses a powerful bacteriophage which is active against nearly all types of intestinal bacteria. Lack of proper nutritive substances and low temp. are also limiting factors for the bacterial population of sewage. The activated sludge method of sewage purification is a particularly effective method of destroying pathogens by bacteriolysis. Forty-eight references. C. R. FELLERS

**Effect of some constituents of coke-oven effluents on the rate of decomposition of sewage.** B. A. SOUTHGATE. *J. Soc. Chem. Ind.* **52**, 1–4T(1933).—PhOH, *p*-cresol and the tar acid constituents of spent $NH_3$-still liquors are decompd. when dild. with water contg. sewage. The rate of decompn. of cyanides is not increased by the presence of sewage; cyanides in concns. of the order of 0.01–0.1 g. per 100 l. partly inhibit the

biol. oxidation of dild. sewage, but the no. of bacteria capable of growing in agar at 20° is greater in the solns. contg. cyanide than in solns. of sewage alone. A. P.-C.

**Sewage works cross connections.** LEWIS S. FINCH. *Sewage Works J.* **4**, 669–71 (1932).—Cross connections may occur between the water supply and the Imhoff tank flushing ring, on hose lines used for flushing sludge pipes, and by using the water supply as a priming source for sewage pumps. E. HURWITZ

**Heat and energy relations in the digestion of sewage solids. II. Mathematical formulation of the course of digestion.** GORDON M. FAIR AND EDWARD W. MOORE. *Sewage Works J.* **4**, 428–43(1932); *U. S. Pub. Health Eng. Abstracts* **12**, S, 116(Oct 15, 1932).—Gas production is a satisfactory yardstick of mass activity in sludge digestion. The course of cumulative gas production is an S-shaped curve which may be formulated mathematically. Two formulations are presented: (1) an autocatalytic equation, or equation of a unimol. reaction accelerated by the catalytic action of the products of reaction and (2) a 2-stage formulation or equation of a discontinuous unimol. reaction preceded by a discontinuous equation of const. rate of increase. C. R. FELLERS

**Heat and energy relations in the digestion of sewage solids. III. Effect of temperature of incubation upon the course of digestion.** GORDON M. FAIR AND EDWARD W. MOORE. *Sewage Works J.* **4**, 589–600(1932).—A math. development of the course of sludge digestion indicates that the process may be formulated by use of the Arrhenius equation. Seven series of expts. were performed with plain sedimentation sludge and activated sludge in conjunction with different seeding materials. The temp. of digestion ranged from 77° to 140°F. It was found that the observed magnitude of the temp. characteristic ($m\mu$) between temps. of 77° and 104° F. was 10,000 for activated sludge and 5000 for plain sludge. These values dropped at 122° F. for plain sludge and at 140°F. for activated sludge. The ultimate gas yield is increased with the rise of the temp. of incubation. In seeding, the best results were obtained by using material from the same sewage solids and also from the same temp. of incubation. **IV. Measurement of heat and energy interchange.** *Ibid* 755–70.—Seven mixts. of plain sedimentation solids and activated sludge were digested; various seeding materials were used. Temp. of digestion ranged from 25° to 60°. The change in heat of combustion when expressed as a percentage of the fuel value of the original charge varied from a 21.7% loss of that fuel value to a 28.3% gain. The higher values of the heat of combustion generally prevailed at the higher temps. of incubation. An increased heat of combustion occurred more frequently when the seeding conditions of the mixt. were ideal. Theoretical consideration of sludge digestion from a thermodynamic standpoint admits the possibility of an increase of the heat of combustion. E. HURWITZ

**Starting and operation of the Collingswood, N. J., activated-sludge plant.** I. O. LACY. *Sewage Works J.* **3**, 636–46(1931).—The plant is designed to treat a domestic flow of 1.33 million gal. daily. The raw sewage is treated with 5.5 p. p. m. Cl to control odors, settled for 1.5 hrs. in a mechanically cleaned tank and aerated with mech. agitators. The final effluent is chlorinated and sludge is separately digested. By returning 20% activated sludge it was found difficult to maintain a good floc so the return was reduced to approx. 10%. Considerable operating difficulties were eliminated by increasing the speed of the agitators from 44 to 54 r. p. m. Supernatant liquid in the digestion tanks is filtered through sand and returned to the influent. Daily addns. of fresh solids varied from 570 to 1400 cu. ft. The first sludge withdrawal of 1900 cu. ft. had a solids content of 5%. Samples from the clarifier showed an av. removal of 72%. Results for operation for 1 month showed an overall biochem. O demand reduction of 95%. E. HURWITZ

**Sludge operations at the Baltimore sewage works.** EDWARD C. CROMWELL. *Sewage Works J.* **4**, 1054–9(1932).—The plant serves a population of 750,000 and includes plain sedimentation, trickling filters, sep. sludge digestion and sand drying beds. The raw sewage averages 225 p. p. m. suspended matter of which 75–80% is removed by sedimentation. From 10 to 25% ripe sludge is added to each digestion tank to keep them in a gassing state. The digested sludge which averages 4.4 cu. yd. (90% moisture) per million gallons of sewage has a volatile matter content of 60% and a $p_H$ of 6.9. Sludge is applied to the drying beds 12 in. deep and the moisture content has been reduced to 70% in as short a period as 10 days. Demand for the sludge as a *fertilizer* is greater than the yearly production. E. HURWITZ

**Certain environmental conditions affecting the value of thermophilic seed sludge.** H. HEUKELEKIAN. *Sewage Works J.* **4**, 986–92(1932).—Large quantities of fresh solids and thermophilic sludge were mixed 2:1 on the basis of volatile matter. The original and subsequent mixts. were incubated at 50°. The degree of digestion of seed sludge had a marked effect on the digestion time of mixts. made from it. The best seed sludge

is produced when gas production has reached 90-95% of the total. Thermophilic seed sludge is little affected by storage up to 3 months, either at a temp. of 20° or 50°. Storage of low-temp. sludge at 50° increased its seeding value for thermophilic digestion. When low-temp. sludge was stored for 40 days at 50°, the time of digestion of fresh solids at the same temp. was decreased from 37 to 20 days. E. HURWITZ

**Digestion of activated and primary sludge at Salinas, California.** T. R. HASELTINE. *Sewage Works J.* **3**, 599–614(1931); cf. *C. A.* **26**, 231.—Descriptions of the plant used and of the 1st year's experience in the collection, digestion and disposal of fresh and activated sludge solids are given in detail. A digestion tank of 34,100-cu. ft. capacity is provided for a population of 10,000 with an average daily flow of 620,000 gal. of sewage. Without temp. control an av. of 0.5–0.8 cu. ft. of gas per head per day was obtained when activated sludge was not being digested and 0.8–1.3 cu. ft. when this was the case. The high gas production may be due to the high grease content of the sewage (340 p. p. m ). The final sludge is run on to open drying beds and is ready for removal in 10–20 days. The addn. of surplus activated sludge to the incoming sewage is recommended as an effective means of reducing the total vol. of sludge to be passed to the digestion tank. B. C. A.

**Sludge digestion and sludge disposal.** R. F. GOUDEY. *Sewage Works J.* **4**, 604-13(1932).—Acceleration of digestion is not as important as the production of sludge with good dewatering characteristics. Expts. indicate the importance of enzymes, catalysts and filamentous bacteria. Reduction of alky. points to the need of a distinction between normal inorg. alky. and the org. alky. changed by bacterial action. Properly conditioned, digested sludge can be filtered to 65% moisture at a chem. cost of $3.50 per million gallons of sewage treated. Preliminary studies are being made with spray-drying equipment and indications are that digested sludge can be dried to 10% moisture without the addn. of chemicals. E. HURWITZ

**Effect of coagulants on sludge digestion.** WILLEM RUDOLFS, W H. BAUMGARTNER AND L. R. SETTER. *Sewage Works J.* **4**, 628-36(1932).—Dry Na aluminate, Na aluminate soln. contg. free NaOH, Feralum, Feralum sulfate, alum and $FeCl_3$ were tested with properly and improperly seeded digestion mixts. A mixt. of Na aluminate and $FeCl_3$ applied to raw sewage produced a better flocculation with less chemicals than by the use of $FeCl_3$ alone. Alum compds. retarded digestion and increased the production of $H_2S$. Dry Na aluminate stimulates digestion, produces more gas and is better than lime as a means of reaction control. E. HURWITZ

**The thermophilic digestion of municipal garbage and sewage sludge, with analogies.** CHARLES G. HYDE. *Sewage Works J.* **4**, 993-1001(1932).—A description of the digestion of garbage by the Beccari method which utilizes thermophilic microörganisms. It compares this process with the thermophilic digestion of sewage sludge in an effort to arrive at a general method for the digestion of org. matter. E. HURWITZ

**Destruction of organic solids in sewage by separate sludge digestion.** WM. R. COPELAND. *Sewage Works J* **4**, 672-3(1932).—The daily addn. of small vols. of fresh sludge to a large vol of ripe sludge is necessary to prevent foaming and to maintain an optimum $p_H$. When $NH_3$ and other alk. substances are lacking the use of lime is indicated Sludge storage space may be kept to a min. by the careful regulation of temp. and $p_H$. E. HURWITZ

**The dewatering of sludge by vacuum filtration.** C. E KEEFER AND E. C. CROMWELL. *Sewage Works J* **4**, 929-59(1932).—Two vacuum filters, an Oliver and a Genter, were set up at the Baltimore Sewage Works and expts. conducted to det. the characteristics of each type. It was found that by increasing the amt. of coagulant the capacities of both filters could be increased. With the Genter filter a max. output of 20 lb. dry solids per sq. ft. of filter area per hr. was obtained when the separately digested sludge was conditioned with 10.5 lb. of $FeCl_3$ per 100 lb. of dry solids. The Oliver filter produced a max. of 18 lb. dry solids with 12 lb. of $FeCl_3$ per 100 lb. of dry solids. Expts. conducted on the dewatering of raw sludge and semi-digested sludge produced effluents contg. 1359 p. p. m. and 1002 p. p. m. suspended solids, resp. Cost ests. based on conditions at Baltimore indicate that digested sludge can be dewatered at a cost of $4.22 per ton of dry solids with $FeCl_3$ as a conditioner. The use of chlorinated copperas increases this cost to $4.66. The av. cost of air-drying sludge at Baltimore is estd. at $6.23 per ton of dry solids. E. HURWITZ

**A study of conditions favoring "bulking" of activated sludge.** JAN SMIT. *Sewage Works J* **4**, 960–72(1932).—In an effort to det. the effect of carbohydrates on bulking, glucose, sucrose, lactose and starch were added to sewage in a small exptl. plant. Results indicated that although sugars do impair the settling qualities of sludge, this effect occurs only after the addn. of much larger amts. than would be found in domestic

sewage. In all cases, decompn. of the carbohydrates occurred rapidly after their addn. was stopped. Conclusion: Carbohydrates are not the cause of bulking. E. H.

**Gas yield from sewage sludge.** WILLEM RUDOLFS. *Sewage Works J.* **4**, 444–53 (1932); *U. S. Pub. Health Eng. Abstracts* **12**, S, 100–1(Sept. 17, 1932).—The gas yields from the digestion processes are 0.21–1.32 cu. ft. per capita, with an av. of about 0.7 Larger yields may be due to excessive digestion capacity and the presence of org. trade wastes. It is unlikely that gas production from settled sewage sludge will be greater than 0.9–1.1 cu. ft. per capita even under conditions of prolonged digestion. On the basis of lb. of volatile matter retained, max. gas yields to be expected are 8–11.5 cu. ft In lab. expts. about $^3/_4$ of the gas yield can be accounted for by the fat ($Et_2O$ ext.) Nearly all cellulose substances capable of decompn. were destroyed. The portion of the sludge which is lost on ignition was very resistant to anaerobic decompn. C. R. FELLERS

**Gas collection and [sewage] sludge heating.** J. R. DOWNES. *Sewage Works J* **4**, 72–82(1932); cf. *C. A.* **26**, 3318.—Expts. made with a simply constructed earth tank with a floating wooden cover having shown that sludge heating is a practicable method of accelerating digestion, concrete tanks were constructed 40 ft. in diam. and 20 ft. deep. The bottom of the tank was made of dense material and was placed above the ground-water level, and the heating arrangement consisted of one coil of 2-in. pipe placed 18 in. from the wall, which provided 64 sq. ft. of heating surface for a tank of 20,000 cu. ft. effective capacity. Incrustation of the coils at a temp. > 43° was not serious after 3.5 yrs. The floor was given a slope of only 1 in 12, as the entrained gas made the sludge "lively" and capable of bearing a reasonable proportion of grit. The vol. of gas collected proved more than sufficient for the requirements of the plant B. C. A

**Development of power from sewage-sludge gas.** W. B. WALRAVEN. *Sewage Works J.* **4**, 614–27(1932). E. HURWITZ

**Nitrogen fixation in activated sludge.** PAUL J BEARD AND LAURA MUNSON *Sewage Works J.* **4**, 1002–5(1932).—A 2% milk waste made from skim milk powder was digested for 21 days in a small tank so constructed as to eliminate absorption of atm. $NH_3$. Results showed no evidence of N gain. The expt. was repeated with domestic sewage seeded with crenothrix and these results were also neg. E. HURWITZ

**Sewage sludge as fertilizer.** HORACE J. HARPER. *Sewage Works J* **3**, 683–7 (1931).—The availability of the N in sewage-plant sludge is low, but the effect on the soil is prolonged. The rate of application is very high when used in general farming Mixts. of sludge and com. fertilizer give very good results. Liquid sludge is more valuable than dried sludge. E. HURWITZ

**The effects of sewage discharge on streams.** H. W. STREETER. *Sewage Works J.* **3**, 713–23(1931).—Accumulating data serve to emphasize the limitation and extreme variability of the forces involved in natural stream purification. Oxidation of sewage proceeds in 2 stages, the primary or carbonaceous and the secondary or nitrogenous oxidation. It has been found that the time to complete either phase varies from 6 days at 30° to 20 days at 9°. By the discharge of large amts. of sewage the rate of deoxygenation is increased over that of reaeration and a slow recovery of the stream results. Recent unexplained outbreaks of gastro-intestinal disorders may have come from toxic substances derived from industrial wastes or from septic sludge deposits on the river bottom. E. HURWITZ

**Effect of pulp manufacture on mountain streams.** A. W. SILFVERSBARRE *Papers Trävarutid. Finland* **2**, 104–12(1932); *Chimie & industrie* **28**, 1426.—Waste liquor from mills making sulfite alc. was found not to deplete the O content of streams into which it is discharged and to have no deleterious effect on fish life. Tests carried out with the sulfite waste liquor itself showed that the liquor and the fibers which it contains absorb the O present in the water and are fatal to fish life. The investigation was of particular interest owing to the fact that phys., chem., biol., botanical, microscopical and elec. methods were used and their results coördinated. A. P.-C

**Pollution and recovery of the Mississippi River at and below Minneapolis and St. Paul.** G. J. SCHROEPFER AND J. A. CHILDS. *Sewage Works J.* **3**, 693–712(1931). Such factors as oxidation, diln., sedimentation and reaeration are interpreted with allowance for differences between calcd. and observed results. Oxidation of sludge in dam-created pools during the winter has little effect on O balance, but during the summer this process requires an av. of 1.35 lb. of O per 1000 sq. ft. of pool area per day. Sedimentation was responsible for a reduction of the O demand varying from 10 to 40% during the summer months. It was found that in a section of the river having an O

satn. of 40% that 0.50 lb. of O per 1000 sq. ft. surface area per day was supplied by reaeration. On a section having a satn. of 60% the figure was reduced to 0.35 lb.
E. HURWITZ

**Study of bacteriological methods of testing and means of disinfecting water with chlorine with particular reference to swimming-pool water.** W. L. MALLMANN AND WM. CAREY, JR. *Am. J. Pub. Health* **23**, 35–44(1933).—Samples of swimming-pool $H_2O$ collected during periods of use and tested immediately showed more pollution than duplicate samples handled in the usual manner by storing and testing later. During periods of use, swimming-pool $H_2O$ showed marked pollution as measured by colon bacilli and streptococci indices in the presence of residual $Cl_2$ contents of 0.2–0.5 p. p.m. During periods of rest, the pollution evidenced during use disappeared. The rate of disappearance depended upon the type of treatment used. With chloramine treatment, a delayed germicidal action occurred. This was also true of $Cl_2$ treatment in alk. $H_2O$ but to a lesser extent. The colon bacilli and streptococci indices roughly parallel each other. The preponderance of the colon bacilli and streptococci incidences varies. A $Na_2S_2O_3$-treated sample bottle is recommended for collecting pool samples.
J. A. KENNEDY

**Fumigation for plague prevention with special reference to Colombo Port.** L. FABIAN HIRST. *Ceylon J. Sci.* **2**, 277–327(1932); *U. S. Pub Health Eng. Abstracts* **12**, P, 8(Oct. 15, 1932).—Of the various agents used in fumigation, the cyanide products, zyklon B and discoids, are considered best for tropical conditions. Liquid HCN in cylinders is unsafe in the tropics because it decomposes into explosive products. The direct generation of HCN by means of KCN and $H_2SO_4$ by either the dumping method or the use of the Liston cyanide fumigator is also considered feasible. The penetration of HCN gas in foodstuffs is discussed. Provided the gas surrounds grain which is either loosely boxed or sacked, it will penetrate if given sufficient time. C. R. F.

**Atmospheric dust- and air-cleaning devices. Modern practice in the control of dust.** HOWARD C. MURPHY. *Aerologist* **8**, No 6, 5–8(1932); *U. S. Pub Health Eng. Abstracts* **12**, AC, 17(Sept. 24, 1932).—Results of dust detn. in 24 cities are given. Persons suffering from various allergic disorders often obtain definite relief when occupying quarters equipped with air-cleaning devices. Various types of equipment are described.
C. R. FELLERS

**Determination of fine soot inhaled by man.** A. I. BURSTEIN. *J. Ind. Hyg.* **14**, 339–44(1932). A known amt. of air contg. soot is drawn through filter paper and the color of the deposit compared against standards. According to the detns. it is calcd. that firemen and smiths inhale 0.05–0.35 mg. of fine soot per hr.
R. P. WALTON

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Losses in the effluent of pilchard reduction plants in British Columbia (BEALL) **12.** Alternating-current precipitators for sanitary air analysis (DRINKER) **4.** Apparatus and method for distilling liquids, e. g., fresh water from sea water (Brit. pat. 362,729) **1.** Purification and decolorization [treatment of waste waters] (Belg. pat. 387,742) **13.**

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**Hygienische Leitsätze für die Trinkwasserversorgung.** Beratungen im Preussischen Landesgesundheitsrat. Berlin: R. Schoetz. 495 pp. M. 18.

VEAL, T. H. P.: **Supply of Water.** London: Chapman & Hall, Ltd. 242 pp. 15s. Reviewed in *Chemistry & Industry* **1933**, 16.

GILGES, WILHELM: **Die Fehlerquellen der Clark'schen Methode zur Bestimmung der Härte eines Trinkwassers und ihre Brauchbarkeit** im Vergleich zu einigen anderen Härtebestimmungsmethoden nebst eines Bericht über die derzeitigen Auffassungen von der Bedeutung der Härte für den Gesundheitszustand des Menschen. Thesis, Bonn, 1931. 44 pp.

HENNIG, THEODOR: **Über die Reinigung von Oberflächenwasser mit $Al_2(SO_4)_3$ für technische Zwecke.** Thesis, Dresden, 1931.

LANG, KARL: **Über den Keimgehalt von Mineralwässern.** Thesis, Giessen, 1932. 8 pp.

PREHN, BRUNHILDE: **Chemische und geologische Untersuchungen von Wässern des Freistaates Danzig.** Thesis, Danzig, 1931. 23 pp.

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**Apparatus for supplying chlorine in regulated quantity as required for water sterilization in emergency water supplies.** GERALD D. PEET (to Wallace & Tiernan Co.) U. S. 1,888,959, Nov. 22. Various details of an automatic control app. are described.

**Apparatus for softening water by use of base-exchange material.** STANLEY G.

HARWOOD and DONALD GRISWOLD (to Permutit Co.). U. S. 1,888,531, Nov. 22 Structural features.

**Apparatus for softening water by use of zeolitic material.** ERNEST T. WAHLBOM, LEROY C. LIND and PHILIP C. WAHLBOM. U. S. 1,889,231, Nov. 29. Structural features of a valve-control system, etc.

**Method and apparatus for purifying boiler water.** ROY O. HENSZEY. Brit 362,626, Nov. 12, 1930. See U. S. 1,786,113 (*C. A.* **25**, 551).

**Boiler disincrustant.** JOHN H. HUNTER. Australia 29,175, Sept. 23, 1930. A disincrustant contains $Na_2CO_3$, soda ash and tannic acid, with or without Zn flakes The tannic acid may be replaced by the residue from the distn. of eucalyptus oil.

**Water-filtering apparatus.** LARS ALF ÖDEGÅRD. Norw. 49,462, Oct. 19, 1931 The water is passed through a coarse filter and then through a fine filter, the latter being arranged in the form of a rotary drum surrounding the former.

**Cleaning filters.** WABAG WASSERREINIGUNGSBAU G. M. B H. Fr. 736,453, April 30, 1932. The granulated filtering material is cleaned by a mixt. of water and compressed air. An app. is described.

**Sewage distributors for rectangular filter beds.** JOSEPH A. HARTLEY and CYRIL J. HARTLEY. Brit. 363,079, Nov. 10, 1930

**Sewage treatment.** GEORGE H GLEASON and ALFRED C. LOONAM (to Guggenheim Bros.). U. S. 1,886,267, Nov. 1. Putrescible matter suspended in sewage is removed by pptg. a metal hydroxide such as $Fe(OH)_3$ in a body of the sewage and the ppt is sepd.; putrescible matter in soln. is then removed by a material such as a base exchange zeolite. An arrangement of app. is described.

**Tank and agitator apparatus for treatment of sewage, sludge, etc.** KARL IMHOFF U. S. 1,887,490, Nov. 15. Structural and mech. details.

**Sedimentation tank and sludge rake, etc.** CHARLES H. SCOTT (to Dorr Co.) U. S. 1,888,743, Nov. 22. Mech. features.

## 15—SOILS, FERTILIZERS AND AGRICULTURAL POISONS

M. S. ANDERSON AND K. D. JACOB

**To the memory of K. K. Gedroiz.** *Uspekhi Khimii* **1**, 665–8(1932).
F. H. RATHMANN

**A quarter century progress in soil science.** JACOB G LIPMAN *J. Am. Soc Agron.* **25**, 9–25(1933).—A review of work on the origin, formation and classification of soils, soil chemistry and microbiology, plant nutrition, soil erosion, lysimeter investigations and field plats. J. R. ADAMS

**The mystery of the soil.** P. E. BROWN. *J. Am. Soc. Agron* **24**, 935–50(1932) An address. J. R ADAMS

**Chemistry and modern questions of agriculture.** G. TOMMASI *Chim. ind agr. biol.* **8**, 438–44(1932).—Some questions relating to the Italian agriculture and soils are discussed: fertilization, oxidation-reduction potentials of the soils, N balance and $H_2O$ consumption, overproduction, etc. G. A. BRAVO

**Soils of Texas.** W. T. CARTER. Tex. Agr. Expt. Sta., *Bull.* **431**, 50 pp.(1932).—About 21% of the land area of Texas has been covered by soil surveys. About 100 of the most important soil types are described as to compn., phys. properties and suitability for crop production. C. R. FELLERS

**Natural and artificial classification of soil components.** V. G. GLUSHKOV. *Proc 2nd Intern. Congr. Soil Sci., Leningrad 1930*, **I**, 44–5(1932)(in German).—A system of nomenclature and designation by nos. for describing particle size distribution in soil is outlined. C. J. SCHOLLENBERGER

**An experiment in the classification of the colorings of soils based on the doctrine of Wilhelm Ostwald.** N. A. ARKHANGELSKAYA. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, **I**, 76–81(1932)(in English).—Definition of soil color by O.'s system is proposed as a practical method. The connection between soil color and factors operative in soil development is discussed. C. J. SCHOLLENBERGER

**The problem of soil structure.** A. N. SOKOLOVSKII. *Proc. 2nd Intern. Congr Soil Sci., Leningrad 1930*, **I**, 94–8(1932)(in English). C. J. SCHOLLENBERGER

**Water-holding capacity as related to soil structure and drying.** A. I. AKHROMEIKO. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, **I**, 71–5(1932)(in German) C. J. SCHOLLENBERGER

**The microscopic estimation of size of soil particles.** D. J. HISSINK AND S. B.

HOOGHOUDT. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 46–7(1932)(in German).—Errors and means for avoiding them are discussed. C. J. S.

**Size distribution of soil particles in several Ohio soil profiles.** G. W. CONREY & E. E. BARNES. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 19*

[illegible] particles 0.05–.002 mm. diam.; hence it is of special value with silt and silty clay loams. C. J. SCHOLLENBERGER

**Profile characteristics of New England forest soils.** HERBERT A. LUNT. Conn. Agr. Expt. Sta., *Bull.* **342,** 743–836(1932).—Soil types and profiles are described. C. R. FELLERS

**New methods for studying some physical properties of soil.** N. A. KACHINSKII. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 129–60(1932)(in German).—Means is described for taking samples with undisturbed structure and for detg. porosity, permeability to $H_2O$, compactness, viscosity or resistance to tearing, swelling, etc. Most of the methods are applicable either to soil in the field or to monoliths in the lab. These characteristics of a loamy podzol profile are discussed. There are 48 references. C. J. SCHOLLENBERGER

**The significance of the composition of the clay fraction in profile studies.** C. W. ROBINSON. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 194–5(1932)(in English).—R. suggests that the $SiO_2:R_2O_3$ ratio of the clay fraction, assumed to be identical with the weathering complex, may be the best index to eluviation processes active in soil development. In prepn. of the clay fraction, acid pretreatment should be avoided. C. J. SCHOLLENBERGER

**Preliminary report on "single value" coöperative work.** B. A. KEEN. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 1–7(1932)(in English).—Detns. of "sticky point," *i. e.*, $H_2O$ content at which kneaded soil just ceases to adhere to external objects, on soils in a no. of cooperating labs. indicated that the detn. presents difficulties, the more so because Keen and Coutt's (cf. *C. A.* **23,** 5261) original description of the procedure is inadequate. It is believed that this or some other "single value" detn. may serve to indicate probable behavior of the soil under cultivation, and further study is recommended. C. J. SCHOLLENBERGER

**Aggregate analysis and aggregate composition of soils.** G. I. PAVLOV. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 179–93(1932)(in German).—By special technic the nature of soil particles resulting from degradation of dry soil structure on moistening, characteristic of gray soils, was investigated. Study of a no. of soils of this type indicated that fertilization with org. fertilizers andgro wing legumes was effective in preserving a granular soil structure even under irrigation. C. J. S.

**Mechanical analysis in the British Empire.** A. F. JOSEPH. *Proc. 2nd Intern Congr. Soil Sci., Leningrad 1930,* I, 52(1932). C. J. SCHOLLENBERGER

**Preparatory treatment of soil samples for mechanical analysis.** V. NOVÁK. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 14–39(1932)(in German).—Data obtained in a coöperative study of various methods are reported. No conclusions are drawn, but in view of the surprising lack of uniformity in results obtained by different workers, further study is recommended. **Reports on the paper of V. Novák "Preparation of soil samples for mechanical soil analysis."** *Ibid* 196–261.—The comments of individual coöperators in the above study are published. C. J. SCHOLLENBERGER

**Oxidation of organic matter in the pretreatment of soils for mechanical analysis.** E. M. CROWTHER AND K. E. TROELL. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 48–51(1932)(in English).—Various treatments preliminary to mech. analysis and the necessity for oxidation with many soils are discussed. If the ratio of total to inorg. colloids, as indicated by ignition loss:$H_2O$ in air-dry soil, exceeds 2.5, oxidation is probably necessary. A method of cold oxidation by NaBrO is described and its advantages over hot $H_2O_2$ treatment pointed out. Ten g. soil is treated overnight in a 400-ml. beaker with 200 ml. *N* NaOH and 5 ml. Br. Excess Br is destroyed by addn. of a little $NH_4OH$ and the soil washed on a filter with *N* and 0.1 *N* NaCl, and finally $H_2O$, until the filtrate becomes slightly turbid. C. J. SCHOLLENBERGER

**The use of the electrodialysis for the pretreatment of soil samples for the mechanical analysis.** L. F. SMOLIK. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 70(1932)(in English).—Electrodialysis to absence of Ca from dialyzate is satisfactory, but the percentage of clay found in samples so treated is always lower than in duplicates prepd. by the usual method. C. J. SCHOLLENBERGER

**Method for measuring albedo of soils.** N. N. KALITIN. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930,* I, 40–3(1932)(in French).—Albedo designates the percentage

of radiant energy reflected. Besides being important with respect to soil temp., reflection of ultra-violet is of interest for possible biol. effects. A photoelec. app. for the detn. is described. Quartz sand reflects about $^1/_3$ of the incident energy, humus $^1/_4$, blue clay soil dry $^1/_4$, same wet $^1/_8$. Reflection of short waves is much less than the above. C. J. SCHOLLENBERGER

**The existence of two equilibrium series in soil-capillarity phenomena.** WM. B. HAINES. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, I, 8–13(1932)(in English).—Soil $H_2O$-capillarity studies have been conducted in 2 ways by: (I) starting with soil dry, and (II) starting with soil wet. It has not been recognized that the equilibria are distinct and that there is no single reversible series. A theory of capillarity is developed and app. for detn. by II described. C. J. SCHOLLENBERGER

**Method of investigation of soil moisture.** N. A. KACHINSKII. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, I, 167(1932)(in English). C. J. SCHOLLENBERGER

**Heat of wetting of soil.** H JANERT. *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, I, 99–123(1932)(in German); cf. *C. A.* **25**, 4957. App. and method for the detn. are described, and a no. of relations between heat of wetting and other soil properties are discussed. C. J. SCHOLLENBERGER

**A new calorimeter for measuring heat of wetting of soils.** P. I. ANDRIANOV *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, I, 53–8(1932)(in German).—Construction and operation are described. C. J. SCHOLLENBERGER

**Preservation of soil monoliths.** F. F. MORWICK *Sci. Agr.* **13**, 1–6(1932).—A method for mounting soil monoliths by use of water glass and asphalt tar is described. C. R. FELLERS

**Leaching of mineral matter in some Alberta soils.** ALFRED LEAHEY *Sci. Agr.* **13**, 7–15(1932).—The various horizons representing soils of the brown, black and gray wooded soil belts were examd. for Si, Al, Fe, Ca, Mg and P. Little leaching of the elements occurred in the brown soils. The black soils had been leached of Ca but showed little movement of Al or Fe. The gray wooded soils showed leaching of Ca to a considerable depth, while Fe and Al were also translocated to some extent. Alberta soil can be fairly closely correlated with the Russian system of soil classification. C. R. FELLERS

**Comparison of the soil-plaque method with the Neubauer and Hoffer corn-stalk methods for determining mineral soil deficiencies.** LAURA C. STEWART, WALTER G. SACKETT, D. W. ROBERTSON AND ALVIN KEZER. Colo. Agr. Expt. Sta., *Bull.* 300, 59 pp.(1932); cf. *C. A.* **26**, 390.—The soil-plaque and Neubauer methods are equally applicable and reliable for the detn. of mineral soil deficiencies. The Hoffer corn-stalk method is satisfactory in most cases for the detn. of the K and N needs of corn where marked deficiencies or abundant supplies exist, but is not so dependable for border line cases. Close correlations were obtained between the different methods where comparisons were possible. The soil-plaque method is well adapted to the detn. of P deficiencies and may prove equally valuable in relation to K. All points considered the soil-plaque method is most satisfactory. C. R. FELLERS

**Root systems of plants in soils of the podzol type.** N. A. KACHINSKII *Proc. 2nd Intern. Congr. Soil Sci., Leningrad 1930*, I, 165–6(1932)(in English). Studies indicate that plant roots have been the principal source of humus. Soln. and pptn. of org. matter are minor factors. Roots do not penetrate heavy podzol readily, and those which enter deeper horizons generally follow cracks. C. J. SCHOLLENBERGER

**[Report of the] soil chemistry department. Fertility value of soil at different depths to a total depth of four feet.** M. M ALICANTE. Philippine Sugar Assoc., *Ann. Repts.* **1930**, 128–34(1931).—A study was made of cane soils from 10 Philippine districts. The $p_H$ values ranged from 5.40 to 8.06, and, with 1 exception, the values decreased with increase in depth of sampling. With all soils, the N content progressively decreased with increase in depth, but the results for $P_2O_5$ and $K_2O$ showed no definite trends. The soils varied considerably in nitrifying power, but in all cases the best nitrification of $(NH_4)_2SO_4$ was obtained in the 1st and 2nd 8-in. layer. **A survey of the chemistry of soils in the Sara-Ajuy district.** *Ibid* 134–7.—Chem. analyses and $p_H$ values are tabulated. **Chemical analysis and $p_H$ value of soils from fertilizer-constituent experiments at Concepcion experimental field, Central Luzon Milling Company.** *Ibid* 137–40.—$(NH_4)_2SO_4$ increased and $K_2SO_4$ decreased soil acidity, superphosphate having no effect. **Phosphoric acid and potash requirements of soils.** *Ibid* 140–3.—Data are given on the total $P_2O_5$ and $K_2O$ contents of cane soils from 11 districts. No definite relation existed between these figures and those obtained for $P_2O_5$ and $K_2O$ sol. in 22.9% HCl and in 2% citric acid, resp. There was no correlation between the $p_H$ values of the soils and their contents of citric acid-sol. $P_2O_5$. K. D. JACOB

**An attempt to control the reaction of a soil.** HENRY C. HARRIS. *J. Am. Soc. Agron.* **24**, 981–3(1932).—After a wide range in the reaction of Sassafras silt loam was established by the application of CaO and S at different rates an attempt was made to maintain the soil reaction as nearly as possible under crop conditions. This was found very difficult to do, with any great degree of exactness, by the methods and treatments used and under the field conditions. It seems that there are seasonal factors which cause the reaction of this soil to change in one direction one summer while the next summer it may change in the opposite direction. J. R. ADAMS

**The applicability of the quinhydrone method to determinations of the degree of acidity in soil suspensions.** JOHS. LINDEMAN, VIGGO NÆSVOLD AND F. LØSCHBRANDT. *Meldinger Norges Landbruks.* **12**, 727–910(1932)(in English).—A detailed description is given of an app. especially designed for rapid mass detns. of $p_H$ in soils by means of the quinhydrone electrode. The factors affecting the accuracy of the method are discussed in great detail. Detns. in soil pastes so highly concd. that no sedimentation can take place may lead to considerable error with soils of high exchange acidity, because of the comparatively high diffusion potential set up at the point of contact between the KCl bridge and the soil suspension. This source of error may be avoided by interposing the particle-free soil soln between the suspension and the KCl soln., this permitting measurements to be made while the suspension is stirred continuously. With most soils, however, the $p_H$ values obtained when the electrodes are placed directly in the sedimented paste do not differ greatly from those obtained when the electrodes are placed in the particle-free liquid. The causes of temporary variations in $p_H$ and of systematic errors in the method are pointed out. With proper precautions, the quinhydrone electrode gives accurate results on all soils, except those where for obvious theoretical reasons the presence of certain substances interferes with the functioning of the hydroquinone–quinone system. Bibliography. INGEBERG

**The base economy of arable soil with special reference to leaching.** A. JACOB. *J. Landw.* **80**, 241–69(1932).—The washing out of the soil of Ca, Mg and K has been known to be influenced by the method of cultivation, but for K the loss previously has been underestd. The loss of K by exchange except in sandy and moorland soils is not increased by the addn. of K salts A review is made of previous literature. J. R. H.

**"Kuhlerde" and its action on marsh soil.** E BLANCK AND F. KLANDER. *J. Landw.* **80**, 293–316(1932); cf *C. A.* **24**, 5409.—The favorable effect of certain lower soil strata ("Kuhlerde") on marsh soils is due to the presence of compds. capable of base exchange as well as sand and lime. Analyses are given. JOHN R. HILL

**New apparatus for colorimetric investigation.** M. WALLOOH. *Phosphorsäure* **2**, 765–7(1932).—A turntable carrying 12 glass tubes for standard solns., all enclosed in a metal case provided with side door, metal support stand and optical system permitting observation through a horizontal tube, enables any one of the standard solns. to be brought into position for comparison with the unknown. The app. was developed for the *detn. of easily sol.* $P_2O_5$ *in soils* according to Gericke (*C. A.* **25**, 5947). W. L. H.

**Soil-corrosion survey gives valuable data as aid in selecting proper type of coating.** WAYNE DENMAN. *Oil and Gas J.* **31**, No. 31, 12(1932).—The ideal noncorrosive soil has a high elec. resistance, no acidity, is coarse in texture, and well-drained. To test resistance a potential is impressed across 2 electrodes in contact with the soil, and the current is measured in ohm-cm. Acidity or alky. is usually expressed in terms of the $p_H$ value. Beyond a $p_H$ value of 9 corrosion practically ceases. J. R. STRONG

**Solubility of phosphorites and leucites in soils.** C. ANTONIANI AND M. NICCOLINI *Giorn. chim. ind. applicata* **14**, 490–1(1932).—Phosphorite and leucite were added to soils kept impregnated with water to the extent of 30% of satn., and the amt. of $P_2O_5$ and $K_2O$ taken up was measured according to Neubauer (cf. *C. A.* **26**, 3520.) Soil with $p_H$ 7.5–7.0 after 5–6 months had taken up 0.002 g. $P_2O_5$ per 100 g. soil At $p_H$ 6.5, almost twice as much $P_2O_5$ is absorbed. Leucite is taken up more readily, as 0.005 g. $K_2O$/100 g. soil is taken up in 2 months. The reaction of the soil, however, has no effect on the rate of absorption of $K_2O$. A. W. CONTIERI

**Microbiology of the soil. V.** S. VINOGRADSKII. *Ann. inst. Pasteur* **48**, 89–134 (1932).—The technic of a method of studying the bacterial content of soil is described. The method consists essentially in the examn. of the cultures of single species of bacteria obtained by the use of media infected with all the species in the soil, but contg. only one substrate of a type on which that species exercises its natural function. The cultures are made on disks of $SiO_2$ gel impregnated with mineral salts and the chosen substrate. If a source of N is required, $NH_4Cl$ or $NH_4NO_3$ is included. To study the fixation of N, no combined N is introduced, and in the case of the nitrifying bacteria, $NH_4Cl$ or $NH_4NO_3$ is used as substrate. The media thus prepd. are treated with definite

quantities of soil, varying according to the bacterial content, and incubated for definite periods, after which a morphological and, if necessary, a chem examn. is carried out

**VI. Synthesis of ammonia by Azotobacter.** *Ibid* 269–300.—The primary product of N fixation by *Azotobacter* is $NH_3$, which is subsequently assimilated by the organism. In certain circumstances assimilation may be arrested, but $NH_3$ production continues and $NH_3$ appears in the media. Liberation of $NH_3$ from *Azotobacter* cells continues after their death, and may be entirely a post-mortem process. *Azotobacter* utilizes the decompn. products of vegetable tissues as a source of energy. B. C. A

**Decomposition of pentosans by soil bacteria.** J. Ziemiecka. *Polish Agr. Forestal Ann.* **25**, 313–32(1931).—*B. xylanophagus*, which decomps. xylan in nonacid medium, but not cellulose, was isolated from soil, straw and stable manure. B. C. A.

**The effect of Colpidium on ammonia production by soil bacteria.** Jane Meiklejohn. *Ann. Appl. Biol.* **15**, 584–608(1932).—Expts. were performed with a mixed culture of 2 species of soil bacteria with and without a *Colpidium* resembling *C. colpoda*, one series on a soln. of peptone in soil ext., the other on a synthetic medium contg. alanine. Cultures contg. *Colpidium* showed a reduction in no. of bacteria. On the peptone medium, *Colpidium* produced slightly more $NH_3$ than the controls; on the alanine medium this organism produced the same amt. of $NH_3$ and $CO_2$ as the controls An inverse linear relation exists between the no. of bacteria and the efficiency of $NH_3$ production in both series of cultures. The same relation was found for $CO_2$ in the 2nd series. The stimulating effect of the presence of *Colpidium* is not due solely to the reduction of bacteria to an optimum value. In the cultures contg. *Colpidium* the bacteria are probably kept in a state of youth for a longer period. C. H. Richardson

**Agricultural lime; its effects on the soil.** W. R. Jewell. *J. Dept. Agr. Victoria* **31**, 22–4(1933). K. D Jacob

**The changes of cyanamide in the soil. II. The decomposition of dicyanodiamide and guanylurea in paddy soil.** H Murata. *Bull Kagoshima Imp. Coll Agr* 10, 115–32(1932), (abstract in English); *Bull. Agr. Chem. Soc. Japan* **8**, 83–7(1932) It was shown previously (*C. A.* **25**, 762) that the formation of $NH_3$ from cyanamide, mainly through urea, is almost the same in normal and water-logged soil. However there is a marked difference in the water-logged soil when cyanamide is transformed into dicyanodiamide. In water-logged soil dicyanodiamide is comparatively easily ammonified, especially at the usual summer temp., and this is the main reason for the special fertilizing value of dicyanodiamide on paddy rice, in contrast to its harmful effect on ordinary farm crops. Further studies showed that: (1) In the majority of water-logged soils, dicyanodiamide is ammonified at the incubation temp. of 30–36° (2) The optimum temp. for the ammonification of dicyanodiamide in water-logged soil is 35–45°. (3) Air-drying of the soil markedly increases the ammonifying power of the soil in the water-logged state, both for the soil org. N and the added dicyanodiamide a putrid smell is always emitted when the air-dried soils are incubated in the water logged condition. (4) In the water-logged soil, the formation of guanylurea from dicyanodiamide is noticed when the soil is partially sterilized. (5) The environmental conditions to which the soil is subjected before incubation in the water-logged state greatly affect the ammonification of dicyanodiamide and guanylurea; the prolongation of a liberal aerobic condition in the normal soil state is detrimental to the agencies which ammonify dicyanodiamide and guanylurea in the water-logged condition; the weakened ammonifying power of dicyanodiamide and guanylurea is gradually restored by the addn. of $CaCO_3$ when the soil is water-soaked, the decreased $p_H$ value of the soil being thereby increased; the same effect is also obtained by simply inoculating the soil with the paddy soil, without increasing the decreased $p_H$ value.
H. Murata

**Changes of cyanamide in the soil.** H. Murata. *J. Sci. Soil Manure* **6**, No 1, 121–5(1932); cf. preceding abstr.—The effects were investigated of (1) time of soil sampling and (2) kinds of treatment of soil, on the decompn. of dicyanodiamide and guanylurea in the soil under flooded conditions. Y. Kamoshita

**Easily soluble phosphorus in Oklahoma soils.** Horace J. Harper. Okla Agr Expt. Sta., *Bull.* **205**, 3–24(1932); cf. *C. A.* **27**, 795.—About 6200 soils were collected and analyzed for sol. P by extn. with 0.2 *N* $H_2SO_4$. More than 50% of the soils of eastern Okla. contained less than 50 lb. per acre of sol. P. In the central and western soils, the P was less deficient but was still a limiting factor in crop production. The bottom lands along rivers were normally rich in sol. P. The early growth of plants is particularly susceptible to lack of P. This is because P is necessary for cell division. Grain sorghums can grow in soils contg. very little sol. P. With the exception of alfalfa,

the legumes commonly grown in Okla. are more vigorous feeders on the insol. P compds. of the soil than crops like corn, wheat, oats or barley. C. R. FELLERS

**The mobility of phosphoric acid in the soil.** K. C. W. VENEMA. *Landbouwk. Tijdschr.* **43**, 364(1931); *Phosphorsäure* **3**, 127.—Characteristic graphs are obtained by plotting the amts. of $P_2O_5$ fixed by soils against the $p_H$ values of the soils. The graph for the fixation of $P_2O_5$ below $p_H$ 6 takes the form of a curve, whereas that for the soln. of the $P_2O_5$ above $p_H$ 6 is a straight line, which shows that the soln. of the $P_2O_5$ is caused by chem. reaction. When the amt. of $P_2O_5$ added to a clay soil is plotted against the amt. fixed by the soil, the graph takes the form of a hyperbola K. D. JACOB

**Mobilization of the phosphoric acid of phosphorites and of soils by the roots of the lupine and certain other plants.** M. DOMONTOVICH AND V. POLOSSIN. *Result. Vegetationsvers. u. Labor. Arb.* **15**, 103(1931); *Phosphorsäure* **3**, 124.—When $P_2O_5$ was supplied in the form of phosphorite, the development of oats, in pot expts., was increased by growing the plants together with lupine, lentil or sainfoin. This effect is attributed to the increased solubilization of the $P_2O_5$ of the phosphorite resulting from the comparatively high acidity developed in the neighborhood of the roots of these plants. K. D. JACOB

**Determination of easily assimilable potash and phosphoric acid in the soil.** K. BAMBERG *Lauks. Fakultates Serija* II, **4**, 119(1931); *Phosphorsaure* **3**, 126.—Expts on the action of acids on soils showed that the soil has a higher buffer capacity toward $H_2SO_4$ than toward the monobasic mineral acids. Consequently, a greater portion of the soil $P_2O_5$ is dissolved by treating the soil with $H_2SO_4$ to a predetd $p_H$ value than by treating it with HCl or $HNO_3$ to the same $p_H$ value. B. outlines a titration method for quickly obtaining predetd $p_H$ values in acid exts. of soils, and compares the results for easily assimilable $K_2O$ and $P_2O_5$ obtained by this method with those obtained by other methods of detg. the fertilizer requirements of soils. The method is particularly suitable for investigations requiring detns. on numerous samples. K. D. J.

**The phosphoric acid nutrition of pines in permanent enclosures.** ANTONIN NĚMEC. *Forstwiss. Centr.* **54**, 57, 88(1932); *Phosphorsaure* **3**, 121.—Applications of superphosphate increased 7 26% the height of pines grown on soils not excessively acid and showing a decided deficiency in available $P_2O_5$ in comparison with a sufficient supply of exchangeable Ca. No response to phosphate fertilizers was obtained on P-deficient soils in which the exchangeable acidity was less than $p_H$ 4 0 and the CaO content less than 100–150 mg. per 100 g. soil. In soils contg more than 250 mg. citrate-sol. $P_2O_5$ and more than 5 mg. $H_2O$-sol. $P_2O_5$ per kg no visible response to applications of superphosphate was obtained in 1 year. The amt. of reabsorbed $P_2O_5$ in the needles of unfertilized pine trees paralleled the content of citrate- and $H_2O$-sol. $P_2O_5$ in the soil but bore no relation to the effect of phosphate fertilizers on the growth of the trees. K. D. JACOB

**Influence of phosphoric acid fertilization on the yield and quality of malting barleys.** C. KRÜGEL, C. DREYSPRING AND H. KURTH *Superphosphate* **5**, 229–43(1932).—In pot expts. with malting barley on a sandy soil of approx. neutral reaction, increasing the rate of application of $P_2O_5$ in the form of superphosphate from 30 to 134 lb. per acre caused a progressive increase in the yields of grain and straw (particularly the former), in the size and wt. of the individual grains, in the starch content of the grain and in the yield of malt ext. obtained therefrom. The albumin content of the grain decreased with increase in the $P_2O_5$ application Also in *Z. Pflanzenernähr. Düngung u Bodenk.* **12B**, 12–32(1933). K. D. JACOB

**Phosphate rock statistics, 1931.** A. N GRAY. *Superphosphate* **6**, 6–13(1933).—Data on the world production and trade are tabulated K. D. JACOB

**The fertilizer value of ammoniated superphosphate.** H. KAPPEN, TH. AYMANS AND W. HILLKOWITZ. *Arch. Pflanzenbau* **7A**, 272(1931); *Phosphorsaure* **3**, 120.—As detd. by the Neubauer method, the root-soly. of the $P_2O_5$ in (I) superphosphate, (II) ammoniated superphosphate and (III) basic slag was in the order I > II > III, when the expts. were made in pure sand cultures. In acid soils the root-soly. of I was considerably depressed and that of II and III was increased, the 3 materials giving approx. the same results. In alk. soils the soly. of the $P_2O_5$ in II and III was greater than in acid soils and that of I was approx. the same as in pure sand, the relative order being I > III > II. In vegetation expts. on different types of soil, the $P_2O_5$ in II was, in general, as effective as that in I and III in promoting plant growth, and approx. the same amts. of $P_2O_5$ were taken up by the plants from the 3 materials. I tended to increase the acidity of the soil, but to a much smaller extent than an equiv. mixt. of $(NH_4)_2SO_4$ and ordinary superphosphate. K. D. JACOB

**Rate and degree of fixation of superphosphate by Black Belt soils.** G. D. SCAR-

SETH. Ala. Agr. Expt. Sta., *42nd Ann. Rept.*, 20(1931); cf. *C. A.* **26**, 6043.—Greenhouse expts. showed that on Black soils an application of 250 lb. of superphosphate per acre without liming 1 yr. before planting was practically lost to the crop. $CaCO_3$ greatly aided fixation of P. C. R. FELLERS

**Basic slag versus superphosphate for cotton.** J. T. WILLIAMSON. Ala. Agr. Expt. Sta., *42nd Ann. Rept.*, 16–17(1931).—The av. results from 109 expts. covering several soil types and a 5-yr. period show that 400 lb. of 16% superphosphate produced an av. increase in seed cotton of 167 lb. as compared with an increase of 99 lb. for 10.5% basic slag (600 lb. per acre). Only on unlimed soils was the basic slag as effective as the superphosphate. C. R. FELLERS

**Plant-buffer systems in relation to the absorption of bases by plants.** T. C DUNNE. *Hilgardia* **7**, 207–34(1932).—The principal types of substances responsible for the buffering of plant saps are org. acids, amides, amino acids, phosphates and sugars. In studies on plant metabolism, titration curves are a useful means of detg. large changes in some of the org. sap constituents. A low phosphate supply resulted in an increase of H-ion concn. and buffer in the sap. This probably indicates an increase in org. acids, amides, amino acids and possibly sugars. Similar changes may occur as a result of low K supply. Ca is not an indispensable part of the buffer system of the plants studied, *e. g.*, wheat and buckwheat. When grown with a small Ca supply these plants do not necessarily show an increase of H-ion concn. in the sap, nor are they always injured. Under these conditions, the base necessary for the buffer system is supplied by an increased absorption of K. $CaCO_3$ treatment may produce an alky. which is distinctly injurious to some plants. $CaCO_3$ had no tendency to decrease the oxalate content of the plant sap in buckwheat. The theory that $CaCO_3$ or $Ca(HCO_3)_2$ is necessary for the neutralization of org. acids in such plants is not substantiated. The high Ca content indispensable for good growth of certain plants requires some other explanation. Twenty-one references are appended. C. R. FELLERS

**Special and methodological investigations in the laboratory of analytical and colloid chemistry.** I. N. ANTIPOV-KARATAEV. Lenin Agr. Sci Acad., Inst. Fertilizers Agro-Soil Sci., Leningrad Branch (U. S. S. R.), *Bull.* **15**, 148–59(1932).—A check-up on the Schollenberger method for detg. org. matter showed that a lower concn. of $H_2SO_4$ (1:1 of $H_2O$ and $H_2SO_4$, or even less $H_2SO_4$) was more efficient in a 0.4 *N* chromic acid soln. A modification was also made of the Szebellidy (*Z. anorg. Chem.* **81**, 1–4(1913)) method for detg. $Fe^{++}$. For the formation of the complex salt, which takes out the Fe, $NH_4F$ and $K_2C_2O_4$ in the ratio of 5:1 by wt. were used. To avoid the difficulty in recognizing the I color methylene blue was used, which is colorless in a reduced condition. The titration with a standard I soln. was carried out as follows: to the test soln. add 12 cc. of 1:3 HCl and a few drops of methylene blue. Then add 5 g. of $KHCO_3$, when the soln. is satd. with $CO_2$ add the oxalate and fluoride. As the oxalate and fluoride dissolve, the blue color disappears and a yellowish color appears. Add the I soln. until an intense blue color appears, which, if it remains for 0.5 min., shows that the titration has been completed. J. S JOFFE

**Special and methodological investigations in the agrochemical laboratory.** K V FLEROV, N. I. ALIAMOVSKII AND I. E. KINZERSKII. Lenin Agr. Sci. Acad., Inst. Fertilizers Agro-Soil Sci., Leningrad Branch (U. S. S. R.), *Bull.* **15**, 137–43(1932). A check-up on the volumetric method of Scheffer for the detn. of $P_2O_5$ showed it to be just as accurate as the Lorenz or Woy methods. J. S. JOFFE

**Artificial fertilizers registered for 1933; analyses and unit values.** WILL C ROBERTSON. *J. Dept. Agr. Victoria* **31**, 27–36(1933).—Data on the compns. of com fertilizers in Victoria are tabulated. K. D. JACOB

**Effect of commercial fertilizers on the quality of wheat.** GYULA SURÁNYI *Mezo gazdasági Kozlöny* **4**, 440(1931); *Phosphorsäure* **3**, 122.—In general, the quality of wheat was improved by the use of com. fertilizers. $NaNO_3$ gave better results than $CaCN_2$. $P_2O_5$ fertilizers were harmful only when used in too large excesses as compared with the applications of N and potash, poor results being obtained under these conditions more often with superphosphate than with Rhenania phosphate. The effect of $K_2O$ fertilizers, used alone, on the quality of wheat was indeterminate. K. D. JACOB

**A review of researches on nitrogen fertilization in relation to economic crop production with special reference to future investigations.** W. P. KELLEY. *J. Am. Soc. Agron.* **25**, 51–64(1933).—A review covering the effect of N on the yield and quality of crops, effect of different N fertilizers, relation of N to other elements, chem. and phys. effects of N fertilizers, and N gains and losses from soils. Suggestions are given for future work on N fertilization. J. R. ADAMS

**Hygroscopicity of fertilizer salts.** ALBERT R. MERZ, WILLIAM H. FRY, JOHN O.

HARDESTY AND J. RICHARD ADAMS. *Ind. Eng. Chem.* **25**, 136–8(1933); cf. *C. A.* **23**, 2236.—The vapor pressures of satd. solns. of mixts. of fertilizer salts not having common ions were detd. at 30°, and calcns. were made of the relative humidities prevailing over the solns. Comparisons of the values obtained show that the hygroscopicity of such mixts. is, in general, greater than that of the most hygroscopic salt present in the solid phase. A system is suggested for expressing hygroscopicities by nos. directly proportional to this property. J. R. ADAMS

**The importance of sulfates as fertilizer.** GABRIEL BERTRAND AND L. SILBERSTEIN. *Compt. rend.* **195**, 1349–52(1932).—Carefully controlled expts. show that plants require S and that all fertilizer mixts. should contain a certain proportion of sulfate. Treating the soil in which rape was cultivated with $Na_2SO_4$ increased the seed yield 83.3% and gave a yield that was 207% above that obtained when the small amt. of sulfate native to the soil was rendered inactive with $Ba(NO_3)_2$. The relatively small amt. of assimilable S in the soil very markedly limited the action of other growth factors, notably, N, $P_2O_5$ and $K_2O$ added as fertilizer. Also in *Compt. rend. acad. agr. France* **19**, 50–4(1933). J. R. ADAMS

**Comparison of nitrate of soda and ammonium sulfate for cotton.** R. Y. BAILEY. Ala. Agr. Expt. Sta., *42nd Ann. Rept.* 15(1931).—Both fertilizers gave equally good results on limed soils, but the $NaNO_3$ was superior on unlimed soils. C. R. FELLERS

**Decomposition of organic fertilizers. IV. Decomposition of straws.** SHIGERU OSUGI AND TARO GOTO. *J. Agr. Chem Soc. Japan.* **8**, 640–51(1932); cf. *C. A.* **25**, 3114.—The straws of corn, rice, pampas grass, rye and wheat and rice hulls were decompd. in soil. The amts. of the decompn. products were estd. from the amt. of $CO_2$ produced. The decompn. of the straws depends on the C:N ratio of the materials. When the ratio C:N is small, the decompn. is more rapid. Making the ratio 20:1 or 10:1 by the addn. of $(NH_4)_2SO_4$ generally accelerated the decompn. except with rice hulls. Y. KIHARA

**Hot- and cold-fermented manure.** W ZIELSTORFF AND A. KELLER. *Landw Jahrb.* **75**, 449–65(1932).—Differences in the compn. and efficiency of the 2 forms of manure were small. B. C. A.

**Compositions of soy-bean plants at various stages of growth as related to their rate of decomposition and use as green manure.** LLOYD M. TURK Mo. Agr. Expt. Sta., *Research Bull.* **173**, 3–40(1932).—Decreased wheat yields following soy beans were probably due to microbiological assimilation of nitrate. A study was made of the variations in the amt. of decomposable material in soy-bean plants at different stages of maturity. Soy-bean tissue was successively treated with $Et_2O$, cold $H_2O$, hot $H_2O$, dil. NaOH and dil. HCl, and detns. were made of the org. constituents in the various exts. and residues, as well as in the original material. The rate of decompn. was studied by various methods including the evolution of $CO_2$, $NH_3$ production, nitrate accumulation and humus production. The percentage of total N decreased with the age of the plants. The roots were below 1.7% N except in the early part of the season The $H_2O$-sol. constituents decreased in both roots and tops as the plants became older. The alkali-sol. material, considered slowly decomposable, increased markedly toward plant maturity, and the N content of this portion increased, especially in the alkali-sol. lignin. The carbonaceous materials, including reducing sugars, cellulose and pentosans, are all decomposable by soil microörganisms in the presence of sol. N, and all increased with plant maturity. With advancing maturity there was a widening in the C:N ratio. The percentage of total lignin increased enormously during the season's growth. The pentosan-lignin ratio was narrow, which might indicate slow decompn., especially in the roots. In general, the rate of decompn. of the different plant parts decreased with advancing maturity, as indicated by evolution of $CO_2$. The rate of decompn of plant parts was in the order: tops, complete plants and roots. The cold $H_2O$-sol. fraction is largely responsible for the immediate and rapid evolution of $CO_2$. There was a distinct narrowing of the C:N ratio in the soil during the 30-day decompn. period. Soy-bean tops were transformed more rapidly into humus than were the roots. $NH_3$ and nitrate accumulation following the incorporation of the plant materials in soil were less with the successive or more mature growth stages. A pos. accumulation of nitrate occurred following the incorporation of the total soy-bean plants and the tops in soil A neg. accumulation occurred with the soy-bean roots. The later the stage of growth, the more pronounced was the depressive effect. The addn. of a sol. N fertilizer to a wheat crop following soy beans effectively eliminates the depressive effect. Sixty-six references are appended. C. R. FELLERS

**The relation between decomposition of green manures at different temperatures and their chemical constituents.** H. MISU. *J. Sci. Soil Manure* **6**, No. 1, 1–21(1932).—

In the case of decompn. of grasses at different temps., the relations between their chem. constituents and the development of $NH_3$, $HNO_3$ and acidity were investigated. Y. KAMOSHITA

**The physiological reaction of fertilizers.** S. OOSUGI AND T. ENDO. *J. Sci. Soil Manure* **6**, No. 1, 22–34(1932).—The physiol. reaction of several chem. nitrogenous fertilizers was ascertained by Neubauer's seedling method. Y. KAMOSHITA

**Microbiology of organic manures. 1. (b) Decomposition of rape cake by various stock cultures.** A. ITANO AND S. ARAKAWA *J. Sci. Soil Manure* **6**, No 1, 35 52 (1932); cf. *C. A.* **27**, 1079.—Effects of (1) kind of microörganism, (2) length of culture of organism, (3) $p_H$ and (4) addn. of glucose on the decompn. of rape cake were investigated. Y. KAMOSHITA

**Fertilizing value of Peruvian nitrogenous guanos.** Y. HAYASHI AND H. YAGI *J. Sci. Soil Manure* **6**, No. 1, 76–82(1932).—Pot expts. were conducted with paddy rice and barley to det. the availability of N in Peruvian nitrogenous guanos. Y. KAMOSHITA

**[Report of the] agronomy department. Fertilizer requirements of Philippine sugar districts.** MARIANO MEDALLA AND ANTONIO DE LUZURIAGA Philippine Sugar Assoc., *Ann. Repts.* **1931**, 48 73(1932). **Most efficient sources of nitrogen for fertilizer use.** *Ibid* 73–9.—As measured by the total yield of sugar, $(NH_4)_2SO_4$ was a more efficient source of N for cane than urea, $NaNO_3$, Leuna saltpeter, $NH_4Cl$, or Kalkammon, the next best results being obtained with $NH_4Cl$. In water cultures, $(NH_4)_2SO_4$ gave better growth of cane than $NaNO_3$. **Optimum fertilizer sources for phosphoric acid.** *Ibid* 85–9.—As sources of $P_2O_5$ for the growth of cane and production of sugar, the efficiencies of phosphate fertilizers were in the order: Leunaphos > superphosphate > Rhenania phosphate. Phosphate fertilizers increased the total yield of sugar but decreased the yield per ton of cane. K. D. JACOB

**Sugar-beet trials in 1931.** T. REMY, E. OHLY AND A. DHEIN *Landw. Jahrb.* **75**, 241–309(1932).—The effects of various fertilizer treatments on the yield and compn. of roots and tops are recorded. B. C. A

**Experiments in 1929 at the pond-cultivation experiment station, Wielenbach.** E. WALTER. *Fischerei-Ztg.* **33**, 11, 129(1930); *Allgem. Fischerei Ztg.* **55**, 7, 98(1930); *Phosphorsaure* **3**, 122.—Treatment of ponds with various fertilizers resulted, in some instances, in increased yields of fish, the increases being due to the effect of N and $K_2O$ on the growth of vegetation in the ponds. When used alone, $P_2O_5$ fertilizers had little, if any, effect. The best results were obtained with guano. K. D. JACOB

**The close-grazing scheme of pasture management.** FRANK T. SHUTT AND S. N. HAMILTON. *Can. Chem. Met.* **17**, 5–6(1933) The influence of successive applications of N on the compn. and yield of the herbage is indicated. With fertile soil, suitable fertilization, and favorable seasonal conditions, a highly digestible, high-protein herbage is obtainable throughout the whole season. W. H. BOYNTON

**Straw utilization and a study of its constituents.** LIONEL LEMAY *Sci. Agr.* **12**, 749–54; **13**, 58–67(1932)(in French) A review of investigations on the use of straw as a fertilizer, as a feeding material and as a source of furaldehyde, gas, tar, and pulp, and on the constituents of straw. Seventy-five references are appended C. R. FELLERS

**The woody diagnosis of the vine and future production.** E. VINET *Compt. rend. acad. agr. France* **18**, 1061–9(1932); cf. *C. A.* **26**, 2214, 3278, 5604.—The ratio of the $P_2O_5$/N ratio in the base of the branches of fertilized grapevines to the corresponding ratio of unfertilized vines is the same as the ratio of the sum of the saccharifiable materials in the base of the branches of the treated to the sum of those in the untreated vines. This $P_2O_5$/N ratio can be used to predict future grape production, as it varies directly with the no. of bunches formed. Continuous fertilizing increases the $P_2O_5$:N ratio in the base of the branches, this indicating that it aids in increasing future grape production. J. R. ADAMS

**Report of the entomology department.** A. W. LOPEZ. Philippine Sugar Assoc., *Ann. Repts.* **1930**, 145–72(1931).—*P*-dichlorobenzene was repellent but not toxic to the grubs of *Leucopholis irrorata*. Analyses of the adult beetles of this species and of an unnamed species of *Leucopholis* gave N 8.67 and 11.72, $P_2O_5$ 1.835 and 2.017 and $K_2O$ 1.55 and 1.375%, resp. The use of the insects as *fertilizer* is suggested. In certain sections of the Philippines they are used as *food* by the natives. K. D. JACOB

**Wetting, spreading and emulsifying agents for use with spray fluids. III. Emulsifiers, and soaps containing spraying oils.** R. M. WOODMAN *J. Soc. Chem. Ind.* **51**, 358–60T(1932); cf. *C. A.* **24**, 3311.—*Linseed products* are unsuitable spray emulsifiers. *Formulas* are given for moderately stable *soaps contg. insecticidal and ovicidal*

*oils.*—Although these soaps yield oil-in-water emulsions when soaked in water and shaken, their content of toxic oil is probably too low for general use. W. L. HILL

**Spray residues on fruit; methods of removal.** A. G. STRICKLAND. *J. Dept. Agr. Victoria* **31**, 18–21(1933).—Removal of arsenical spray residues from apples by means of HCl is discussed. K. D. JACOB

**Pyrethrum insecticides.** W. E. EDMONTON. *Am. J. Pharm.* **104**, 793–8(1932). W. G GAESSLER

**The rotenone content of Malayan tuba root.** C. D. V. GEORGI AND G. L. TEIK *Malayan Agr. J.* **20**, 498–507(1932).—The rotenone contents of com. tuba root consignments varied widely. A similar variation exists between different varieties of *Derris* from which the roots are obtained. *D. elliptica* is the best source of rotenone, while *D. malaccensis* is the poorest. J. R. NELLER

**A gummosis of citrus caused by Dothiorella.** GIULIO SAVASTANO. *Boll. staz. patol. vegetale* **12**, 245–74(1932). **Experimental investigations on citrus fruit diseases.** *Ibid* 306–42.—Several diseases caused by *Dothiorella* sp., *Phytomonas citriputeale*, *Phytophthora* sp., *Sclerotinia* sp., *Penicillium* sp., etc., are described, and the methods of controlling and combating them are discussed. G. A. BRAVO

**Treating cotton seed by the dusting method.** NAOMI C. WOODROOF. Ga. Agr Expt. Sta., *Bull.* **170**, 16 pp.(1931).—Tests were made on 94 dusts. The av. percentage increase in germination of the highest-yielding dust treatment for each year was 8.28% over the untreated check. The increase over the delinted seed was 10.13%. Yield increase of the best dust treatment over untreated check was 47 lb. of seed cotton. A Hg compd., called Ceresan, is recommended above all others and gave excellent results when applied to cotton seed at the rate of 4 oz. per bu. C. R. FELLERS

**Control of the cabbage root maggot.** L. G. SCHERMERHORN AND C. H. NISSLEY N. J. Agr. Expt. Sta., *Extension Bull.* **74**, 4 pp (1930).—$HgCl_2$, 1:1300, applied at the rate of ½ cupful per plant gave full protection from the cabbage maggot. C. R. F.

**Biology and control of the blueberry maggot in Washington County, Maine.** F. H. LATHROP AND C. B. NICKELS. U. S. Dept. Agr., *Tech. Bull.* **275**, 1–76(1932). $Ca_3(AsO_4)_2$ when sprayed on the blueberry bushes twice a year at the rate of 6–8 lb. per acre served as a fairly good control for the blueberry maggot, *Rhogoletis pomonella* The maggot causes great economic loss to the blueberry industry. C. R. FELLERS

**Mushroom insects, their biology and control.** C. A. THOMAS. Pa. Agr. Expt Sta., *Bull.* **270**, 42 pp.(1931); cf. *C. A.* **26**, 5691.—For fumigating mushroom houses the use of $Ca(CN)_2$ at the rate of 1 lb. per 1000 cu. ft. of space, or flowers of S at the rate of 1½–2 lb. is advocated to destroy insects. $CS_2$ for fumigation purposes is not recommended until further work has been done on this chemical. Growing mushrooms are easily injured by HCN and not more than 1½–2 oz. of $Ca(CN)_2$ per 1000 cu. ft. of air space should be used at any one time. C. R. FELLERS

**The use of a modified McIndoo olfactometer for the European earwig, Forficula auricularia [Dermap.].** GEOFFREY BEALL. *Entomol. News* **44**, 6–10(1933).—The chemotropic responses of this insect to common foods and chem. compds. were tested in a special app. which is described. An aq. soln. of Na arsenite was neutral; naphthalene, EtOH, fresh apple and fresh liver tissue were repellent. The reactions to the last two foods are inexplicable, since they are readily eaten by this insect. C. H. R.

**Experiments in the treatment of stomach worms in sheep.** F. H. S. ROBERTS. *Queensland Agr. J.* **38**, 493–507(1932).—Expts. on the control of stomach worms (*Haemonchus contortus*) in sheep were carried out with (I) $CCl_4$, (II) tetrachloroethylene, (III) Cu sulfate, (IV) Cu sulfate and mustard, (V) $As_2O_3$ and $MgSO_4$, (VI) Na arsenite and Cu sulfate, and (VII) $Na_2SiF_6$. I was the best anthelmintic for both lambs and adult sheep, good results also being obtained with III, IV, V and VI. Erratic results were obtained with II, and those with VII, were inconclusive. K. D. JACOB

**Control of weeds in lawns with calcium cyanamide.** D. G. STURKIE. *J. Am. Soc. Agron.* **25**, 82–5(1933).—Applications of 800 lb. or more of $CaCN_2$ per acre on dormant Bermuda grass infested with weeds killed the weeds, and the added N stimulated the later growth of the grass. Applications of 1000 lb. or more per acre on lawns of various perennial grasses killed the weeds, and while the grass leaves were seriously burnt, new ones were soon put out and grew vigorously. J. R. ADAMS

**The use of kainite for the control of poison ivy.** O. BUTLER. *J. Am. Soc. Agron.* 24, 979–81(1932).—Kainite, broadcast when the foliage is wet, is effective in killing poison ivy. The amt. required varies with the size and density of the plants, 0.1 lb./sq. ft. usually being sufficient. Two or more applications may be necessary. J. R. A.

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The rotenone content of derris root, cube root, etc. (JONES) **11D.** Sludge opera-

tions at the Baltimore sewage works [sludge as fertilizer] (CROMWELL) **14.** Sewage sludge as fertilizer (HARPER) **14.** Coating inert materials such as slags (Brit. pat 363,151) **20.** Oil-soluble heavy-metal salts of sulfonic acids [insecticides] (Dutch pat 28,002) **10.** Treating raw phosphate (Norw. pat. 48,644) **18.** Pb arsenate (Japan pat. 93,352) **18.**

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ALDRICH-BLAKE, R. N.: **On the Fixation of Atmospheric Nitrogen by Bacteria Living Symbiotically in Root Nodules of Casuaria equisetifolia.** London: Oxford Univ. Press. 3s. 6d.

HARREVELD-LAKO, C. H. VAN: **The Properties of Sugar Cane Soils of Java.** Translated from the Dutch by R. L. Pendleton. Manila: Sugar News Press. 112 pp. Reviewed in *Facts about Sugar* **28,** 103(1933).

**Jahresbericht für Agrikultur-Chemie.** Edited by F. MACH. Berlin: Parey. 586 pp. M. 84.

SCHEFFER, F. A.: **Leitfaden der Chemie für Landwirte.** 5th ed., revised by Gustav Stenkhoff. Hannover: Schaper. 133 pp. M. 2.80.

STUTZER, OTTO, AND WETZEL, WALTER: **Phosphat-Nitrat.** Berlin: Borntraeger. 390 pp. M. 32; bound, M. 34.

VAN SLYKE, L. L.: **Fertilizers and Crop Production.** New York: Orange Judd Pub. Co., Inc. 493 pp. Reviewed in *Soil Sci.* **35,** 171(1933).

WILEY, H. W.: **Principles and Practice of Agricultural Analysis. Vol. II. Fertilisers and Insecticides.** 3rd ed. Edited by C. A. Browne and W. W. Skinner. Easton, Pa.: Chem. Pub. Co., Inc. 646 pp. Reviewed in *Analyst* **58,** 57(1933). Cf. *C. A.* **20,** 1128.

HEISER, FRANZ: **Beziehungen des verschiedenen Aufschlussgrades der Bodensilicate zur Höhe und Sicherheit der Ernteerträge untersucht an 5 typischen Bodenarten.** Thesis, Halle, 1931. 50 pp.

JOHL, H.: **Relationship between Development of Azotobacter and Buffer Power of Soils.** Thesis, Göttingen, 1930.

SCHLESIER, WOLFGANG: **Die Nährstoffaufnahme bei Sommerfrüchten.** Thesis, Halle, 1931. 20 pp.

SCHÜTZ, WOLFGANG: **Über die Einwirkung von Beizmitteln auf Keimung und Wachstum von Weizen.** Thesis, Hohenheim, 1931. 58 pp.

SIEVERS, WERNER: **Einwirkung verschiedener Krümmerzinken auf die Struktur, Wasserführung und Durchlüftung des Bodens.** Thesis, Halle, 1930. 44 pp.

VELTMANN, GERH.: **Über den Wert agrikulturchemischer Arbeiten für die Steigerung der Bodenerträge, erläutert am Versuchsgut Sprakel bei Münster i. W.** Thesis, Munster, 1931. 66 pp.

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**Fertilizer.** HERMAN L. HARTENSTEIN. U. S. 1,888,921, Nov. 22. Finely divided Fe is added to material such as natural muck or peat, and the mixt. is digested with $SO_2$ and finely divided iron. Lime may be added. U. S. 1,888,922 relates to a process in which material such as muck or peat is admixed with $NaNO_3$, phosphate rock, Al nitrate, digested with $SO_2$ and then aged for at least 10 days.

**Fertilizers.** KALI-FORSCHUNGS-ANSTALT G. M. B. H. Brit. 362,069, Sept. 30, 1930. A fertilizer is produced by mixing 3.5 parts $KNO_3$ with 1.5 parts $MgNH_4PO_4 \cdot H_2O$. Other suitable compds. contg. N, P and K, *e. g.*, the double Ca-, Na- or K- Mg phosphates, may be added to the mixt.

**Fertilizers.** HENRI VANDERPUTTEN. Brit. 371,556, Mar. 18, 1931. Siliceous nitrogenous fertilizers are prepd. by mixing $NH_4NO_3$ and non-phosphatic blast furnace slags after treating the slag with $H_2SO_4$ to render inactive the compds. which would give rise to liberation of $NH_3$. The $H_2S$ liberated by the $H_2SO_4$ action may be recovered. Cf. Fr. 709,529 (*C. A.* **26,** 1380).

**Fertilizer.** GEWERKSCHAFT VICTOR (Hans Schmalfeldt, inventor). Ger. 507,857, May 7, 1929. A soln. contg. $(NH_4)_2SO_4$ $Na_2SO_4$, and $(NH_4)_2CO_3$ or $NH_4HCO_3$, obtained by conducting the Solvay process with $Na_2SO_4$ instead of NaCl, is neutralized with $HNO_3$ and treated so as approximately to equalize the concns. of $(NH_4)_2SO_4$ and $NH_4NO_3$. The soln. is then evapd. until about 80% of the $(NH_4)_2SO_4$ has crystd., and the sepd. mother liquor is treated with $NH_3$ at 30–35° to ppt. $Na_2SO_4$ and residual $(NH_4)_2SO_4$. The sepd. mother liquor is evapd., and the dry residue is mixed with the first $(NH_4)_2SO_4$ ppt. to produce a fertilizer of the approx. compn. $(NH_4)_2SO_4$ 55, $NH_4NO_3$ 35, and $NaNO_3$ 7%. Cf. *C. A.* **26,** 3065.

**Fertilizers.** SOC. D'ÉTUDES POUR LA FABRICATION ET L'EMPLOI DES ENGRAIS CHIMIQUES (Louis Hackspill and Louis Andrès, inventors). Fr. 40,948, Oct. 23, 1931.

Addn. to 720,356 (*C. A.* **26**, 3866). The mother liquors of Fr. 720,356 are concd. and cooled to ppt. only $NH_4Cl$, and the rest is returned to the cycle. Before pptn. $NH_3$ may be added to convert the monophosphates to more sol. biphosphates.

**Fertilizers.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Fr. 736,127, Apr. 29, 1932. Finely ground dolomite or magnesite is mixed with molten $NH_4NO_3$ and the mass is granulated, *e. g.*, by pptn. in a tower in which the drops coagulate.

**Fertilizers.** SOC. INDUSTRIELLE ET FINANCIÈRE DE LENS. Fr. 736,283, Aug. 20, 1931. A fertilizer is composed of a mixt. of $NH_4NO_3$, KCl and superphosphate, the acidity of which has been neutralized by a base.

**Fertilizer.** KOTA NAGATA and ZYOHU HUKUSIMA (to Nippon Kali Kogyo K. K.). Japan 93,209, Oct. 9, 1931. A mixt. of soy bean or soy-bean cake, KCl, $H_2SO_4$, Ca phosphate, alkali carbonates, etc., is specified.

**Fertilizer.** KOTA NAGATA AND ZYOHU HUKUSIMA (to Nippon Kali Kogyo K. K.). Japan. 93,405, Oct. 26, 1931. Addn. to 89,664. Ores contg. Fe phosphates and $Al_2O_3$ are mixed with $Ca(CN)_2$ and $H_2SO_4$; then KCl, org. compds. contg. N and $Ca(CN)_2$ are added, and the mixt. is left until the reaction is completed. Cf. *C. A.* **26**, 1702.

**Fertilizer.** AKIYOSI GODA. Japan 93,458, Nov. 4, 1931. The fertilizer is prepd. by heating a mixt. of cement dust, waste from salt-mfg. industry from sea water (mainly $MgSO_4$), and artificial carnalite (mainly KCl and $MgCl_2$) at 300–600°.

**Fertilizer.** TIYOKITI SUZUKI (to Dai Nippon Tokyo Hiryô K. K.). Japan 93,605, Nov. 16, 1931. A mixt. of the residue obtained by extg. $H_3PO_4$ from insol. phosphate with $H_2SO_4$ and $CaCN_2$ is treated with steam under pressure of 15–35 lbs.

**Fertilizer.** MASAZI HURUKAWA and KEN'ITI ODA. Japan 93,672, Nov. 21, 1931. A mixt. of P ore, $K_2SO_4$ and $HNO_3$ (or a mixt. of $HNO_3$ and $H_2SO_4$ or $HNO_3$ and $H_3PO_4$) is heated under pressure. The product is then treated with $NH_3$.

**Fertilizer.** YAITI WATANABE (to Dai Nippon Tokyo Hiryô K. K.). Japan 94,023, Dec. 21, 1931. By introducing steam into a closed vessel contg. $CaCN_2$ and $K_2SO_4$, $NH_3$, $CO_2$, KOH and $CaSO_4$ are produced. $NH_3$ and $CO_2$ thus produced are introduced into a mixt. of $H_2SO_4$, $H_3PO_4$ and KOH, producing the fertilizer contg. N 15, $H_3PO_4$ 25 and K 15%.

**Fertilizer.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,189, Feb. 8, 1932. The mother liquor obtained by decompn. of raw phosphate with $HNO_3$ and crystn. of $Ca(NO_3)_2$ is treated with raw phosphate in such proportions that after elimination of the $H_2O$ a product is obtained contg. all the $P_2O_5$ in sol., preferably water-sol., form.

**Fertilizers.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,600, Dec. 5, 1932. The $H_3PO_4$-contg. mother liquor obtained by decompn. of raw phosphate with $HNO_3$ and crystn. and sepn. of part of the formed $Ca(NO_3)_2$ is neutralized and brought to dryness. The dried product is crushed or granulated and then sieved. The too fine or too coarse material is sorted out and mixed with such an amt. of mother liquor as to obtain by the subsequent neutralization of the mixt. a relatively stiff, plastic mass which is again granulated, dried, sifted, etc.

**Fertilizers.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 51,651, Oct. 24, 1932. Raw phosphate is decompd. with excess $HNO_3$, and a large part of the $Ca(NO_3)_2$ formed is crystd. out and sepd. To the mother liquor is added a K salt, preferably chloride or sulfate, in an amt. at least equiv. to the quantity of $NH_4NO_3$ which is formed by the subsequent neutralization with $NH_3$. The soln. is then neutralized with $NH_3$ and brought to dryness.

**Fertilizer.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 51,652, Oct. 24, 1932. Raw phosphate is decompd. with an excess of $HNO_3$, and part of the formed $Ca(NO_3)_2$ is sepd. by crystn. as described in the preceding abstract. To the mother liquor is added $(NH_4)_2SO_4$ or $H_2SO_4$ in such amt. that by subsequent neutralization with $NH_3$ and evapn. to dryness a product is obtained contg. between 1 and 2 mol. $(NH_4)_2SO_4$ for every 2 mol. $NH_4NO_3$.

**Fertilizer ingredient.** CHARLES H. MACDOWELL (to Armour Fertilizer Works). U. S. 1,889,125, Nov. 29. The vapor pressure of an ammoniacal liquid having a vapor pressure substantially above atm. pressure is reduced by dissolving in it a N-contg. fertilizer material such as $NH_4NO_3$, and the soln. is stored under its own normal vapor pressure in a sealed container of sufficient strength to withstand such reduced pressure.

**Damp-proof phosphoric acid fertilizer.** YOSIZO TOMAYONEZI (to Dai Nippon Zinzôhiryô K. K.). Japan. 93,317, Oct. 22, 1931. The cryst. solid produced from $(NH_4)_2SO_4$ or a mixt. of $(NH_4)_2SO_4$ and $K_2SO_4$ with $H_3PO_4$ (50° Bé.) is treated with a limited amt. of $NH_3$ in a closed vessel to produce a damp-proof fertilizer, the main component of which is $(NH_4)_2SO_4.(NH_4)H_2PO_4$.

**Mixed fertilizer.** EMIL COLLETT. Norw. 48,573, Oct. 20, 1930. Substances contg. $NH_4H_2PO_4$, $(NH_4)_2HPO_4$ or both as chief constituents are mixed with $CaCO_3$ in amts. of 20% of the finished product.

**Mixed fertilizer.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 48,701, Nov. 24, 1930. A soln. of $Ca(NO_3)_2$ is treated with $NH_3$ and $CO_2$ in suitable proportions, with agitation, until $NH_4NO_3$ and $CaCO_3$ are formed. The resulting soln. is evapd. to granule form.

**Manufacture of ammonium sulfate nitrate or of fertilizers containing it.** AMMONIAQUE SYNTHÉTIQUE ET DÉRIVÉS, SOC. ANON. Belg. 388,046, May 31, 1932. $NH_4NO_3$ in the liquid state is mixed with $(NH_4)_2SO_4$ in the solid state, the 2 compds. having been previously heated to a temp. such that their sensible heat, increased by the heat of crystn. of the double salt, is sufficient to evap. the $H_2O$ present.

**Calcium nitrate.** ČESKOSLOVENSKÉ TOVÁRNY NA DUSÍKATÉ LÁTKY AKC. SPOL. (USINES TCHECOSLOVAQUES DE PRODUITS AZOTES S. A.). Fr. 736,017, Apr. 27, 1932. Granular $Ca(NO_3)_2$ for chem. fertilizers is made by eliminating the heat of crystn. and the sp. heat in 2 periods. Almost all the heat of crystn. is eliminated in the first period, preferably with rapidity, and the rest of the heat of crystn. and all the sp. heat are eliminated slowly in the 2nd period (granulation period) in an uninterrupted movement of the mass until complete hardening.

**Superphosphates.** SOC. VILAIN FRÈRES. Fr. 40,745, Mar. 10, 1931. Addn. to 697,068 (*C. A.* **25**, 2803). Natural Ca phosphates are treated with an acid such as $H_2SO_4$, and a powd. Mg rock such as giobertite is added, whereby a fertilizer is obtained contg. $MgHPO_4$ or $Mg_3(PO_4)_2$.

**Fertilizer and fungicide.** GOTTHARDWERKE A.-G. FÜR ELEKTROCHEM. INDUSTRIE and ARTURO PAOLONI. Swiss 152,765, June 14, 1930. Addn. to 146,847. Ground crude $Ca_3P_2$ is mixed with S and heated till the S fuses and forms a skin around the $Ca_3P_2$ particles. Other fertilizers and fungicides may be admixed.

**Fungicides.** UNION CHIMIQUE BELGE (SOC. ANON.). Fr. 40,728, Dec. 21, 1930. Addn. to 723,754 (*C. A.* **26**, 4906). Alkali fluosilicates alone or with salts of Hg, As or other metals except Cu are used as fungicides.

**Anticryptogamic agents.** SOC. DE L'INSTITUT DE RECHERCHES SCIENTIFIQUES ET INDUSTRIELLES (FONDATION GEORGES JACQUEMIN). Fr. 736,165, Aug. 1, 1931. A mixt. of $CuSO_4$ and an alk. earth acetate is dissolved at the moment of use in water, preferably alk., and the reaction furnishes sol. $(AcO)_2Cu$ in the nascent state and insol. colloidal Cu. Colloidal S, arsenates, etc., may also be added.

**Anticryptogamic product.** ACHILLE CARUGHI, CARLO PAOLONI and SOCIETÀ ELETTRICA ED ELETTROCHIMICA DEL CAFFARO. Fr. 736,040, May 4, 1932. The compd. $3CuO.CaCl_2.xH_2O$ is obtained mixed with $CaSO_4$ by treating milk of lime with a mixt. in aq. soln. of $CuSO_4$ and NaCl. The $CaSO_4$ may be removed by repeated washings with water.

**Insecticide and fungicide.** MARTIN HOVDE. Norw. 50,486, April 4, 1932. A S compd., preferably an alkali sulfide, is dissolved in a saponified resin soln. obtained from sulfite cellulose waste liquor.

**Insecticide.** ERIC T. HESSLE (to Mid-West Chemical Co.). U. S. 1,887,156, Nov. 8. An oil mixt. suitable for spraying plants and contg. cyclic hydrocarbons having S in the ring and open-chain hydrocarbon sulfides is prepd. by adding 5–10% mol. S to oil contg. cyclic hydrocarbon-S compds., heating the mixt. to 200–250° with indirect heat, cooling to crystallize out the dissolved S and recovering the liquid mixt. substantially free from mol. S but relatively high in combined S.

**Insecticide.** FORREST B. MCLANE. U. S. 1,888,097, Nov. 29. An insecticide suitable for use on plants comprises nicotine sulfate and sugar in soln. with a much larger quantity of a fluid carrier such as water. Cf. *C. A.* **26**, 3866.

**Insecticides.** SOC. NOUVELLE DES MINES DE SAINT CHAMP. Fr. 40,881, Mar. 25, 1931. Addn. to 724,848 (*C. A.* **26**, 4905). The presence of CaS in the product is assured by adding $CaSO_4$ to the bituminous limestone. If necessary coal is added for the reduction.

**Process and product for destroying harmful insects.** G. DE VUYST. Belg. 386,740, March 31, 1932. The product consists of a mixt. of benzine, paraffin, *p*-$C_6H_4Cl_2$, *o*-$C_6H_4Cl_2$ and $CCl_4$.

**Preparation for combating caterpillars.** D. S. VELIKOVSKII. Russ. 21,286, Aug. 10, 1929. Pb naphthenate, obtained by double decompn., and a small amt. of Al naphthenate are melted with a small amt. of ceresin, naphthenic acid glycerides and castor or mineral oil.

**Preparation for combating caterpillars.** D. S. VELIKOVSKII. Russ. 25,224,

Feb. 5, 1931. Addn. to Russ. 21,286 (preceding abstract). Pb naphthenate is replaced by Zn and Sn naphthenates.

**Destroying weeds.** CHEM. FAB. LUDWIG MEYER (Fritz Wolff, inventor). Ger. 567,305, June 27, 1929. For the selective destruction of weeds in cereals, use is made of solns. contg. $SO_3$ at a concn. below 3%.

## 16—THE FERMENTATION INDUSTRIES

C. N. FREY

**Production of industrial alcohol from grain by amylo process.** W. L. OWEN. *Ind. Eng. Chem.* **25**, 87–9(1933).—This process involves the saccharification of grain mashes by molds of the *Mucor* group, and either simultaneous or subsequent fermentation by pure cultures of yeast. Operating details of the process as well as its advantages are described. C. N. FREY

**The action of ultra-violet rays on alcoholic fermentation by Saccharomyces cerevisiae. I.** V. GRONCHI. *Boll soc. ital biol sper.* **7**, 957–60(1932).—The systems were irradiated during the process of fermentation for 45 min. at a distance of 40 cm. from the source of radiation. The amt. of $CO_2$ developed was taken as the index of activity. The results show: (1) that irradiation with Wood's light influences favorably the fermentative action of *S. cerevisiae* and this influence is manifested for some time after irradiation ceases; (2) that irradiation with the short ultra-violet rays excites the fermentative action of *S. cerevisiae* but the influence is of short duration and ceases after irradiation is interrupted. From this point, the fermentative action is markedly diminished. **II.** *Ibid* 960–3.—The short ultra-violet rays exert an inhibiting action on the fermentative power of *S. cerevisiae*. With short exposures the inhibition is merely functional and transitory but with long exposures marked changes are produced in the cellular elements of the organism which are not transitory. PETER MASUCCI

**Effect of ash and glutose upon the alcohol yield of cane molasses.** W. KILP. *Z. Spiritusind.* **55**, 188–9(1932).—Seventeen samples were examd. with ash contents ranging from 5.19 to 10.35. Samples with high ash content gave lower alc. yield. It is believed that the lower yield of alc. is also due to the presence of glutose, which is nonfermentable, however, there is no accurate method for the estn. of glutose formed in sugar juices through the action of alkalies. S. JÓZSA

**Consumption of fuel in the distillation of alcohol from molasses.** RICCARDO MOLARI. *Chim. ind. agr. biol.* **8**, 414–16(1932).—A review with calcns. of the costs. G. A. BRAVO

**Methods and processes for obtaining acetone and butyl alcohol.** I. S. GORBUNOV AND I. S. LOGOTKIN. *J. Chem. Ind.* (Moscow) **1932**, No. 10, 53–66.—A discussion and description of the fermentation process. H. M. LEICESTER

**The principles of Pasteur applied to the distillation of grapes.** N. J. M. BRELAZ. *Chem. Eng. Mining Rev.* **25**, 95–8(1932).—Sources of contamination of the grapes during delivery and fermentation are pointed out. Yeasts must be acclimated to resist doses of antiseptics, which molds, wild yeast, bacteria, etc., cannot tolerate. Certain compds. of F prepd. in a special manner are the most desirable. Doses up to 10–12 oz. (284–340 g.) have secured this effect. Present yields of converting grape sugar into EtOH is not more than 10.3 proof gal. per cwt. of sugar fermented. With a nutrient antiseptic fluoride a 10% greater yield is effected. W. H. BOYNTON

**Tables for the determination of the Plato extract of malts.** F. HELIN. *Bull. assoc. élèves inst. sup. fermentations Gand* **33**, 287–309(1932).—Tables are given showing directly the degree of extn. of malt, both on the dry basis and on the moist material, for $d_{17}^{17}$ of 1.0305 to 1.0350 and moisture contents of 1.5 to 10.0%. A. P.-C.

**The diastatic power of malts.** WANAVERBECQ. *Bull. assoc. élèves inst. sup. fermentations Gand* **33**, 279–81(1932); **34**, 14–22(1933).—Diastatic power (D. P.) was detd. by the Windisch-Kolbach method, which W. considers to be the most accurate. With wheat the D. P. increases with the time of soaking, reaches a max. at a normal soaking period (56 hrs.) and then remains practically const. (up to at least 66 hrs. of soaking); with barley max. D. P. is obtained by soaking for about 52 hrs., longer or shorter periods resulting in lower D. P. The D. P. increases with time of germination of wheat at least up to 12 days, the increase being particularly rapid from the 5th to the 6th day and slowing down thereafter; with barley, the most rapid increase takes place from the 5th to the 8th day. Germination carried out at lower temp. results in a smaller numerical increase in D. P., but again the greatest increase occurs at about the

5th to 7th day. These facts, in conjunction with the fact that raw barley has an appreciable D. P., confirms Ohlson's hypothesis as to the existence of β-amylase (which pre-exists in barley and increases regularly during germination) and XX-amylase (which appears toward the 5th day of germination, but disappears soon after). With both wheat and barley malts, the D. P. decreases rapidly with increase in the drying temp. Barleys of 8 different origins had D. P. values varying from 158 to 605. With both barley and wheat malts max. D. P. is developed at $p_H$ 4.4; it is destroyed above about 9.0 and below about 2–2.5, the limits varying somewhat with the origin of the grain. A. PAPINEAU-COUTURE

**Albuminoid matter in white wines.** J. RIBÉREAU-GAYON. *Ann. fals.* **25**, 518-24, 602–9(1932).—A discussion of the state in which albuminoid matters are present in white wines, of the action of temp., acids, tannin, aldehydes and fermentation on their elimination, and of their removal by ultrafiltration, by heating, or by adsorption by mineral substances. The most satisfactory and practical method is considered to be a treatment with 2.5–10 g. per l. of kaolin previously washed with dil. HCl to prevent eventual deacidification of the wine and to remove the earthy odor of wet kaolin to which is added a small amt. (0.1 g. per l. of wine) of bone black. A. P. C.

**Distinguishing between raisin wines and natural wines prepared from fresh grapes.** JOSEPH KHOURI. *Ann. fals.* **25**, 583-91(1932); cf. Chauveau and Vasseur, C. A. **23**, 4767; **25**, 5502; Moredod, C. A. **24**, 1461.—An exptl. study of the various tests which have been proposed. Conclusions: (1) Detn. of the principal natural constituents of wines and their usual consts. (more particularly reducing matter and α), and special color reactions (nitromolybdic, resorcinol HCl, $Me_2CO$-HCl (for white wines)) generally give useful information, but are not conclusive by themselves. (2) A strong blue fluorescence (type V or over on Werder's scale) under ultra-violet light filtered through a Wood screen and a pos. Gayon test are specific and identify raisin wines with certainty. (3) A weak fluorescence (type O-II) is often obtained with wines from Greece and from the Mediterranean Coast, and probably also from other regions which have not yet been studied; or it may indicate blending of natural wine with raisin wine. (4) An intermediate fluorescence (above type II) gives suspicion of the presence of raisin wine, and the results of the chem. analysis should also be taken into account in drawing final conclusions. A. PAPINEAU-COUTURE

**The skimming of light beers.** P. PETIT. *Brasserie & malterie* **22**, 322-6(1932). A brief discussion of the merits and disadvantages of the skimming during fermentation of top and bottom fermentation beers. A. PAPINEAU-COUTURE

**The measurement of beer foam.** F. M. WEININGER. *Hochschr. Brau.* **49**, 273–8(1932).—The modified Luers method was used to det. foam capacity and head retention of normal and decarbonated beer. The Berkefeld filter was replaced in this new method by a porous glass plate of definite porosity. The instrument and its operation are described. Various methods are compared and criticized. Foam formation was greater with lager beers than with export beers and pale beer gave more foam than the dark. The head retention was greatest on dark export, followed by pale lager, dark lager and pale export. S. JOZSA

**The white casse.** J. RIBÉREAU-GAYON AND E. PEYNAUD. *Rev. vit.* **76**, 309-14, 341–7, 379–83(1932).—The power of casse, the influence of quantity and chem. form of Fe present and methods of detn. of iron complex (I) are discussed. O is essential to the formation of I. The amt. of I is linked to the ferric Fe, which is itself related to the total amt. of Fe. The amt. of I is unchanged by sunlight but rises with temp. The Cu content of wine is important in the power of casse. $H_2SO_3$ diminishes the casse intensity and may check it. Deacidification favors the formation of I but has the opposite effects on casse. The action of acid is often masked by its nature. The results of the study of I are given and methods of elimination of Fe discussed. F. W. MARSH

**Potato flakes for yeast manufacturing.** KILP. *Z. Spiritusind.* **55**, 201(1932). The advantage of potato flakes is emphasized in respect to its value as yeast food.

Influence of $P_2O_5$ fertilization on the yield and quality of malting barleys (KRUGER, *et al.*) **15.** Effect of temperature on speed of drying of Corinthian grapes (ROUSSOPOULOS) **12.** Dehydrating fruit juices, etc. (Fr. pat. 736,342) **12.** Purification and decolorization [treatment of wine, cider, etc.] (Belg. pat. 387,742) **13.**

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HADJI PARASKIS, ALEX.: **Die Gehalt der Zwischen- und End-produkte der Bierbereitung an Vitamin-C.** Thesis, Dresden, 1931. 45 pp.

NEUMANN, GEORG: **Die quantitative Bestimmung der Weinsäuren im Wein.** Thesis, Dresden, 1931. 67 pp.

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**Alcohol from cellulose.** ADOLPH PLACEK. U. S. 1,888,935, Nov. 22. Cellulosic material is saccharified with an excess of inorg. acid such as $H_2SO_4$ capable of hydrolyzing the material and liberating org. acids from their salts and the resulting liquor is mixed with material such as cane molasses to neutralize excess acidity and the mixt. is fermented with yeast.

**Bacteriological oxidation of alcohols to sugars.** THOMAS H. VERHAVE, SR. Dutch 27,804, Sept. 15, 1932. Bacteriol. oxidation of alcs. (*e. g.*, glycerol to dihydroxyacetone) is accelerated by the presence of a large no. of bacteria and vigorous aeration. The first mixt. in which sufficient bacteria have developed during slow aeration (20 hl. of a 2% glycerol soln. + malt ext., 20 kg. diatomaceous earth, sterilized, cooled to 30°, inoculated with *Acetobacter suboxidans*, and treated with 10 cu. m. air per hr. for 36 hrs.) is provided with an absorbent material (diatomaceous earth, silica gel, etc.) so that the clear resultant soln. after rapid aeration (growth inhibiting) (240 cu. m. air per hr. for 24 hrs.), with 95% dihydroxyacetone yield, can be decanted from the solid with all the bacteria. Fresh sterilized amts. of 2% glycerol soln. can then repeatedly be added to the solid and immediately treated with rapid aeration to give 92 to 97% yield in 20 to 24 hrs.

**Obtaining alkali metal compounds from fermentation residues, etc.** GUSTAVE T. REICH. U. S. 1,886,045, Nov. 1. $(NH_4)_2SO_4$ is added to an aq. soln. of the residues and the soln. is concd. to about 1.25–1.35 sp. gr. whereby alkali metal sulfate and $NH_4Cl$ are pptd.; the ppt. is sepd. from the soln., and the alkali metal sulfate is sepd. from the $NH_4Cl$ by use of EtOH as a selective solvent.

**Process and apparatus for purifying air for breweries.** EDMUND H. TETLEY. Brit. 363,124, Dec. 9, 1930.

**Beverages.** FRIEDRICH SCHICK. Ger. 567,194, Aug. 1, 1928. In the manuf. of alc. beverages with the aid of yeast, the fermentation is accelerated by generating in the fermenting liquid an elec. current at less than 1 v. When a metallic vat is used, the wall of the vat may serve as one electrode, and the heating or cooling coil as the other electrode.

**Apparatus for distilling low wines.** SOC. DES ÉTABLISSEMENTS BARBET. Fr. 40,880, Mar. 23, 1931. Addn. to 664,585 (C. A. **24**, 915).

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## 17—PHARMACEUTICAL CHEMISTRY

W. O. EMERY

**Synthesis, chemical and pharmacological properties of the phenylurethan morphine.** MARIO AIAZZI MANCINI. *Chim. ind. agr. biol.* **8**, 411–12(1932)(abstr.).—From the reaction of PhNCO and anhyd. morphine in the presence of benzene a compd., $C_{24}H_{24}O_4N_2$, m. 127–130°, mol. wt. 404, was obtained and identified as the phenylurethan of morphine. Some pharmacol. and physiol. researches on this new product are described. G. A. BRAVO

**Belladonna of Avio, Trento [Italy].** VITTORIO ZANOTTI. *Officina* **5**, 142–6(1932).—Wild and cultivated belladonna grows in this zone. The former contains 0.32% alkaloids, the latter 0.35% (detd. by the U. S. P. method). G. A. BRAVO

**Chlorine as a disinfectant.** WALLACE L. CHANDLER. *J. Am. Vet. Med. Assoc.* **35**, 95–9(1933).—The use of freshly acidified hypochlorite solns. for destroying coccidial oöcysts and bacteria in the presence of org. matter is discussed. RACHEL BROWN

**The identification of adulterated lemon extract prepared by adding pressed extract to the sponge-extracted oil.** GIOVANNI ROMEO, N. GALLETTI AND J. AMOROSO. *Giorn. chim. ind. applicata* **14**, 397–400(1932).—Expressed lemon oil differs in compn. from sponge-extd. oil in that its citral content is lower, the residue on evapn. is higher, and the content of stearoptene is also higher. Frequently, the expressed oil is steam-distd. and the citral and stearoptene collected as by-products are utilized in prepg. a false or adulterated sponge-extd. oil. The adulteration may be detected by measuring the index of refraction of the stearoptene, the index of the press-extd. essence being much lower than the sponge-extd. essence. A 10% soln. in terpene is used, the index for the soln. ranges from 80.1–82.8 for sponge-extd., and 76.3–79.6 for the pressed essence (Wollny refractometer). A. W. CONTIERI

**A synthetic estrus-exciting compound.** J. W. COOK, E. C. DODDS AND C. L. HEWETT. *Nature* **131**, 56–7(1933).—Expts. show that 50–100 mg. of 1-keto-1,2,3,4-

tetrahydrophenanthrene (I) is capable of inducing estrus of an exactly similar type to that obtained by the injection of estrin. Sesame oil is found to be a much better vehicle than olive oil. Since I is of known constitution, these studies help to define the mol. conditions necessary for this type of physiol. activity and from I compds. of greater activity may be synthesized. 4-Keto-1,2,3,4-tetrahydrophenanthrene and 3-hydroxyphenanthrene gave no estrus response in 50-mg. doses. A. W. DEXTER

**Examination of perfumes by ultra-violet light by a method which is simple and inexpensive.** PIERRE MULLER. *Ann. chim. anal. chim. appl.* **15**, 11–12(1933).—The sun's rays are utilized after reflection by a metallic mirror through a Wood's glass into a box painted black on the inside. W. T. H.

**Ethylene oxide.** F. ZERNIK. *Gasmaske* **5**, 3–6(1933).—A brief review of the chem. and phys. properties of ethylene oxide, its physiol. effects and its use as a disinfectant. A. L. KIBLER

**Pharmacognostic study of liver oil of Japanese cod. XIII.** K. KAWAI. *J. Pharm. Soc. Japan* **52**, 949–60(1932); cf. *C. A.* **25**, 5736.—The cholesterol content of the non-saponifiable constituent of the cod-liver oil and its color intensity are detd. F. I. NAKAMURA

**Pharmacognostic study of the bark of an Acanthopanax specie.** T. MUNESADA AND S. YAMAMOTO. *J. Pharm. Soc Japan* **52**, 979–86(1932). F. I. NAKAMURA

**Alkaloids of Chinese drug, "Chin-Shih-Hu." I.** HIDEKI SUZUKI, ICHIRO KITAMATSU AND MIKIZO ITO. *J. Pharm. Soc. Japan* **52**, 996–1009(1932) (in German 162–5). A preliminary report. F. I. NAKAMURA

**A so-called Guinea oil of geranium.** ÉTABLISSEMENTS ANTOINE CHIRIS. *Parfums de France* **10**, 349(1932).—Attention is drawn to a product recently marketed as Guinea oil of geranium, which is an artificial product of poor quality, and which has the following analytical characteristics: $d_{15}$ 0.9085, $[\alpha]_{18}$ —2° 20′, $n_{20}$ 1.4730, acid no. 2.38, ester no. 81.2, esters (as geranyl tiglate) 34.2%, ester no. after hot formylation 136.5, apparent rhodinol-citronellol 40.8%, menthone (via hydroxylamine) 12.4%, insol. in 68% alc., sol. in 0.8 vol. of 80% alc. with turbidity above 4 vol., sol. in 0.1 vol. of 90% alc. with slight opalescence above 8 vol., sol. in 0.1 vol. or more of 95% alc. A. P.-C.

**Chemical investigation of Indian medicinal plants. I. Preliminary chemical examination of the root bark of Capparis horrida.** SATYENDRANATH CHAKRAVARTI AND A. VENKATASUBBAN. *J. Annamalai Univ.* **1**, 176–80(1932).—These studies have been undertaken as a systematic investigation of the chem. structure of the active principles of these plants for the purpose of correlating chem. constitution with physiol and chemotherapeutic action. The root bark of *Capparis horrida* has been used as a cure for cholera, sedative, stomachic and anti-idriotic. Extns. with ligroin, $Et_2O$, $CHCl_3$, abs. EtOH, 70% EtOH, $H_2O$ and 1% HCl showed the presence of a phytosterol, a K salt, a water-sol. acid, a mucilaginous substance, an alkaloid and a hexose which gives glucosazone. The alkaloid was best extd. by cold percolation of the root bark (100 g.) with 1.6% HCl, followed by addn. of $KI_3$ to the ext. to obtain the periodide (2 g.), m. above 300°. The periodide, treated with $SO_2$, formed the iodide which with $NH_4OH$ gave the alkaloid, m. above 260°. It forms a picrate which decomposes at 225°. **II. Preliminary chemical examination of the leaves of Pithecolobium bigeminum.** SATYENDRANATH CHAKRAVARTI AND KRISHNAMURTI GANAPATI. *Ibid* 181–5.—The leaves of the tree, *Pithecolobium bigeminum*, have been used as a cure for leprosy and as a stimulant of hair growth. Preliminary tests of the leaves showed the presence of acids, saponins, enzymes and traces of an essential oil, but alkaloids, glucosides and tannins were absent. Extns. were made with ligroin, $Et_2O$, $CHCl_3$, abs. EtOH, 70% EtOH, $H_2O$ and 1% HCl. The active principle is a mixt. of 2 acids, one of which was water-sol. and was obtained by extn. of the leaves with hot water and pptn. as the Pb salt. The free acid was unsatd. and contained N. It darkened on exposure and could not be crystd. The second acid was obtained by extn. of the residue from the $H_2O$ extn with hot alc. and concn. of the alc. Repptn. of the acid from alk. soln. gave a product which decompd. at 272°. It was unsatd. and decompd. readily on exposure. E. W. SCOTT

**Catalytic properties and aging of mineral waters of Vinjacka Banja, Arachelovac and Mladenovac.** GUSTAV SCHILDER. *Lijecnicki Vjesnik* (*Croatian Med. J.*) **54**, 243–61(1932).—The phenomenon of lowering of the therapeutic effect of some mineral waters with age was investigated by subjecting the water to Glénard's reaction for catalytic action, to the acid and basic benzidine reaction for peroxide action and to the measurement of $p_H$ value. The results do not justify the conclusion that those characteristics are responsible for aging and decline of therapeutic action. Other factors must be sought. J. G. TOLPIN

Determination of $CHCl_3$ (MOFFITT) **7.** Sucrose extraction from materials [and nicotine, saponin extraction from tobacco, quillaja bark] (U. S. pat. 1,887,050) **28.** Complex metal derivatives of aromatic polyhydroxy acids (U. S. pat. 1,889,383) **10.** Depilatories (Fr. pat. 736,019) **29.** Unilaterally acylated diamines (U. S. pat. 1,886,481) **10.**

BENTLEY, A. O.: **A Text-book of Pharmaceutics.** London: Bailliere. 912 pp. 3s.

**The Chemists' and Druggists' Year Book and Directory for Scotland, 1932.** Edited y J. B. MCVITAE. Glasgow: Monro & Co. 2s. 6d. Reviewed in *Pharm. J.* **130,** (1933).

DAM, E., AND SCHAEFFER, A.: **De danske apotekers historie.** Copenhagen: evin & Munksgard. 40 pp. Kr. 3.50.

**Formulary of the Peiping Union Medical College Hospital.** 4th ed. Peiping: eiping Union Medical College Press 69 pp.

**Fortschritte der Heilstoffchemie.** Edited by JOSEF HOUBEN. **Abt. 2. Die rgebnisse der wissenschaftlichen Literatur. Bd. II. Die aromatische Verbindungen.** erlin: de Gruyter. 1056 pp. M. 175; bound, M. 185. Cf. *C. A.* **26,** 2013.

**Guide to the British Pharmacopoeia, 1932.** Compiled by E. W. MANN. Bir ingham, Eng.: Southall Bros. 32 pp.

MANN, H.: **Die moderne Parfumerie.** Eine Anleitung und Sammlung von orschriften zur Herstellung sämtlicher Parfumerien und Kosmetika unter besondere erücksichtigung der künstlichen Riechstoffe einschl. die Parfumierung der Toiletteifen. 4th ed. Vienna: Springer. 522 pp. Linen, M. 24.

MARTINDALE, W. H., AND WESTCOTT, W. W.: **The Extra Pharmacopoeia of Martindale and Westcott.** 20th ed., revised by W. H. Martindale. **Vol. I.** London: . K. Lewis & Co., Ltd. 1216 pp. 27s. 6d. Reviewed in *Nature* **131,** 6; *J. Am. Med. Assoc.* **100,** 362(1933).

**Medizinal-Index und Therapeutisches Vademecum.** Edited by M. T. SCHNIRER. 5th ed. In 2 parts. Leipzig: Deuticke. 240 pp. Cloth, M. 4.60.

MINGOIA, QUINTINO: **Tecnica farmaceutica e medicamenti galenici.** Milan: . Principerto. 583 pp.

SISTER ALMA: **Textbook of Materia Medica and Therapeutics.** New York: he Macmillan Co. 329 pp. $2.50.

SPITZEN, H. J., JR.: **De bereiding der galenische praeparaten van de Nederndsche pharmacopee.** 5th ed. Amsterdam: D. B. Centen. 44 pp. Fl. 1.

TSCHIRCH, A.: **Handbuch der Pharmakognosie.** 2nd ed., revised. **Lfg. 11.** I. 11. Lfg. 12. M. 8. Reviewed in *J. Am. Pharm. Assoc.*, **22,** 174(1933). Leipzig: . Tauchnitz. Cf. *C. A.* **26,** 2826.

WASICKY, RICHARD: **Lehrbuch der Physiopharmakognosie für Pharmazeuten. l. 2.** Vienna: Carl Fromme. Pp. 333-915. M 40. Reviewed in *Pharm. J.* **130,** 1(1933).

THESES

AWE, WALTER: **Die Alkaloide der Columbowurzel und des Berberins.** Göttin-, 1931. 65 pp.

BLAISE, HENRI: **Les Crossopteryx africains.** Univ. of Paris, 1932. Reviewed *J. pharm. chim.* **16,** 413(1932)

BLOT, E.: **Protéinate d'argent.** Univ. of Paris, 1930. Reviewed in *J. pharm. n.* **16,** 228(1932).

BÖHME, WERNER: **Über den Wert von Jodzusätzen zu Zahnpasten.** Halle. 1. 17 pp.

COUTIÈRE, JEAN: **De la détermination des constantes de toxicité et d'activité quelques dérivés de la série barbiturique.** Univ. of Paris. Reviewed in *J. pharm. n.* **16,** 142(1932).

DILLMANN, HEINRICH: **Pharmakologische Gehaltsbestimmungen in dem standisierten Ergotin Merck.** Giessen, 1931. 21 pp.

DROIT, SIMONE: **La graine et l'huile de Purghère ou Pignon d'Inde [Jatropha cas L.].** Univ. of Paris, 1932. Reviewed in *J. pharm. chim.* **16,** 229(1932).

FILITZ, GERHARD: **Über Anwendung des Pulpasolvins in der Zahnheilkunde.** ngen, 1931. 30 pp.

GROSS, WALTER: **Versuche über Thymolpräparate mit besonderen Berücksichtigen von Dentisteril und Argentosteril.** Munich, 1931. 43 pp.

HIEN, HEINRICH: **Veränderungen in Eosin- und Methylenblaulösungen bzw. ihren Gemengen durch Coffeinzusatz.** Munich, 1931. 22 pp.

KÜGLER, HERBERT: **Die biologische Wertbestimmung der Analgetica und ihrer Kombinationen.** Breslau, 1931. 16 pp.

MCDONOUGH, E. G.: **Autoxidation of Aldehydes Used in Perfumery.** Columbia Univ., 1932. 49 pp.

MOUTON, R.: **Dosages chimiques et rapides essais pharmacodynamiques du semen-contra.** Univ. of Paris, 1930. Reviewed in *J. pharm. chim.* **16**, 270(1932).

MÜLLER, RUDOLF: **Die Geschichte der offizinellen Drogen. Bulbus Scillae, Herba Absinthii und Flos Cinae.** Basel, 1931. 164 pp.

REBER, KARL: **Das Vorkommen von Catechinen in Gerbstoffdrogen unter besonderen Berücksichtigungen der Catechine aus Semen Colae.** Basel, 1931. 55 pp

ROTZSCH, WERNER: **Über Penetrin.** Leipzig, 1931. 12 pp.

**Synthetic drugs.** SOC. ANON. POUR L'IND. CHIM. À BÂLE. Swiss 154,433 to 154,436, Aug. 28, 1930. Addns. to 152,087. A reactive ester of diethylaminoethanol is treated with 2-hydroxy-4-methoxyacetophenone in the presence of an acid-binding agent The product *2-diethylaminoethoxy-4-methoxyacetophenone*, $b_3$ 186–7° (154,433). The prepn. is also described of (*2-diethylaminoethoxy-4-methoxyphenyl*) *benzyl ketone*, $b_{0.1}$ 210–11° (154,434), *p-dicyclohexylaminoethoxybenzophenone*, whose picrate m. 157–8° (154,435), and *2-diethylaminoethoxy-4-benzyloxyacetophenone*, $b_{0.2}$ 206.5–7° (154,436) These products are used in therapy.

**Magnesium hydrate tablets.** WM. C. MCGOWAN (to Milnesia Laboratories, Inc.) U. S. 1,889,366, Nov. 29. MgO is hydrated to form a moist hydrate and the latter is then granulated after admixt. with a diluent and a binder such as $CaCO_3$ and gum acacia and the granulated mixt. may be formed into tablets.

**Soluble preparations of cinchona alkaloids.** I. G. FARBENINDUSTRIE A.-G. Brit 363,001, Sept. 17, 1930. Addn. to 327,428 (*C. A.* **24**, 5112). Compressed tablets contg cinchona alkaloid salts are rendered rapidly sol. in water by incorporating sarcosine anhydride, or a homolog, with the salt before compression. Among examples a mixt contains quinine-HCl 30, $H_3BO_3$ 4, sorbitol 2, sarcosine anhydride 70 and amylose 14 parts.

**Acetylsalicylic acid.** KEIKO ISHIHARA (to Sankyo K. K.) Japan. 93,490, Nov 6, 1931. Acetylsalicylic acid is prepd. by heating a mixt. of salicylic acid and $Ac_2O$ in the presence of AcCl in a closed vessel or under pressure at low temp.

**Purification of acetylsalicylic acid.** KEIKO ISHIHARA (to Sankyo K. K.). Japan. 93,486, Nov. 6, 1931. On crystg. from a soln. in non-hygroscopic solvent (such as $C_6H_6$ or toluene) contg. 20–60% $Ac_2O$, acetylsalicylic acid is obtained in a pure and stable state.

**Acetylsalicylic acid composition.** AKTIESELSKAPET APOTHEKERNES LABORATORIUM FOR SPESIALPREPARATER. Norw 51,210, July 25, 1932. Acetylsalicylic acid is mixed with small amts. of basic Bi salicylate.

**Compound of hexamethylenetetramine and diphosphoric acid.** ERICH FREUND (to Heyl & Co., Chemischpharmazeutische Fabrik, A.-G.). U. S. 1,889,090, Nov. 29 Equimol. proportions of $(CH_2)_6N_4$ and methylenediphosphoric acid are combined in an inert solvent such as alc. and the pptd. compd. is sepd. It is suitable for treating affections of the uropoietic system.

**Mono-4-chlorothymyl phosphates.** BUITIRO AYUKAWA. Japan. 93,182, Oct. 9, 1931. 4-Chlorothymol is heated with $POCl_3$, and the product is then heated with alkali carbonates, producing alkali mono-4-chlorothymyl phosphates, tasteless and odorless, white needles, sol. in $H_2O$ and hot alc. They have therapeutic properties

**γ-Dialkylamino-α-methylisoamyl *p*-aminobenzoates.** KATUZAEMON KEIMATU Japan. 93,404, Oct. 26, 1931. Addn. to 89,838. Diacetone alkamine is converted by heating with EtI to 4-diethylamino-4-methyl-2-pentanol, b. 204–6°. This is made to react with $p$-$O_2NC_6H_4COCl$ in $CHCl_3$ soln. producing γ-diethylamino-α-methylisoamyl *p*-nitrobenzoate (hydrochloride, m. 216°). By reducing with $H_2$ in the presence of Pt catalyst, γ-diethylamino-α-methylisoamyl *p*-aminobenzoate, plates, m. 143°, is produced. It is used as a *local anesthetic*.

**Monoethers of resorcinol.** EMIL KLARMANN and LOUIS W. GATES (to Lehn & Fink). U. S. 1,888,827, Nov. 22. Ethers are formed which are of high bactericidal efficiency, such as the amyl ether ($b_5$ 140°), the benzyl ether ($b_5$ 200°), the cyclohexyl ether ($b_5$ 160°), and phenylethyl ether ($b_5$ 205°).

**Butylphenol composition.** ROLAND R. READ (to Sharp & Dohme). U. S. 1,887,

662, Nov. 15. A compn. contg. a substantial amount of *o-sec*-butylphenol and b. 220–265° and *having antiseptic properties* is formed by condensing BuOH and PhOH in the presence of $ZnCl_2$ and HCl.

**Organometallic compounds.** CHEMISCHE FABRIK VORM. SANDOZ. Fr. 736,715, Nov. 9, 1931. Complex salts of glucosaminic acid and heavy metals or their neutral derivs., with the exception of salts of Cu, Zn and Ag, are prepd. by the reaction of glucosaminic acid with heavy metal salts of weak acids and treating the products with inorg. or org. bases. Thus, the compd. $(C_6H_{12}O_6N)_2Ni$ is obtained from $NiCO_3$ and glucosaminic acid, and gives a compd. $[(C_6H_{12}O_6N)_2Ni]Na$ when treated with NaOH. Ni may be replaced by Co, Fe, SbOH, $Sb(OH)_3$ and the Na by Ca, Mg, pyridino, anilino, piperazino, etc. The products have *therapeutic application* and are also useful in *dyeing, printing, mordanting*, etc.

**Insoluble bismuth compositions.** V. A. IZMAILSKII Russ. 24,881, Jan. 14, 1926. A freshly prepd paste or suspension of complex bismuth acids with hydroxy acids of the fatty series, such as tartaric or citric acids, is treated in cold or with the application of heat with freshly prepd bismuth hydroxide in an amount that corresponds to the number of carboxyl groups of the complex acid

**Organic compounds containing arsenic and antimony.** I. G. FARBENIND. A.-G. (Hans Schmidt, inventor). Ger. 567,274, Aug 2, 1931 Water-sol. *products of therapeutic value* are prepd. by the action of formaldehydesulfoxylate on compds. of the formula $(H_2NArAs)_nSb_m$, where Ar is an aryl residue and $n$ and $m$ are generally 3 and 2, resp. Examples are given. Cf *C. A.* **27**, 810.

**Organic compounds containing arsenic and bismuth.** I. G. FARBENIND. A.-G. (Hans Schmidt, inventor). Ger. 567,275, Aug. 7, 1931. Water-sol. *compds. of therapeutic value* are prepd by treating aminoaryl compds. contg As and Bi with formaldehydesulfoxylate or bisulfite. Suitable starting materials may be prepd. by treating aminoarylarsines with Bi compds in alk soln. or with $BiCl_3$ in acetone soln, in each case with exclusion of O. Examples are given.

**Caffeine sodium camphorate.** YOSIHIDE SIMADA. Japan 93,482, Nov. 6, 1931. Camphoric acid is neutralized with 0.1 *N* $Na_2CO_3$ and the salt is warmed with a slight excess of an equiv. amt. of caffeine at about 80°, producing the white amorphous product.

**Spinal anesthetic.** GEORGE P. PITKIN and CHARLES W. HOOPER (to H. A. Metz Laboratories, Inc.). U. S. 1,888,934, Nov. 22. A spinal anesthetic such as procaine is used with a glue-like adhesive such as wheat-flour mucilage which is insol. in the spinal fluid and serves to regulate the time, extent and intensity of anesthesia.

**Concentrating vitamins.** BARNETT SURE. U. S. 1,889,427, Nov. 29. A crude vitamin-B ext such as may be obtained from rice polishings or yeast or wheat embryo is treated with glacial HOAc, acetone is added as a diluent to form a mixed solvent capable of dissolving the vitamin and incapable of dissolving some impurities in the crude ext., the vitamin soln. is sepd. from the solid impurities, acetic acid and acetone are volatilized at a temp. not destructive to the vitamin, the residue is suspended in water, the $p_H$ is adjusted to permit selective adsorption of the vitamin by adsorbent C and the material is treated with adsorbent C, the C-contg. vitamin is sepd. from assocd. liquid, and the vitamin is washed from the C by successive use of HCl and alc., the washing liquids are combined, and the liquid is volatilized from the vitamin-contg. material.

**Concentrated vitamin extract from fruits, etc.** ELLIOT R. ALEXANDER (to Vitamin Co. of America). U. S. 1,886,931, Nov. 8. A concd. vitamin ext. is incorporated into a vitamin-preserving acidic fruit mass and the product may be chocolate coated.

**Vitamin-C-like preparation.** NYEGAARD & CO. A/S. Norw. 51,347, Aug. 22, 1932. Narcotine is demethylated in the meconin component of narcotine, and, if desired, in the cotarnine component also, *e. g.*, by treatment with acids or enzymes, or by irradiation with ultra-violet light.

**Vitamin D.** N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Fr. 737,234, May 17, 1932. Vitamin D is preserved against change by exposing a soln. of ergosterol to ultraviolet light and adding oil or fat to the soln. before, during or immediately after irradiation. The process is carried out in the absence of O. Cf. *C. A.* **26**, 1715.

**Hormones.** SOC. ANON. POUR L'IND. CHIM. À BÂLE. Ger. 567,365, Oct. 30, 1930. The growth-promoting hormone, obtained in water-sol. form by extn. of the thymus gland in known manner, is purified by pptg. it from an aq. albumin-free soln. with an org. solvent, *e. g.*, MeOH or EtOH. The ppt. may be repeatedly dissolved in water and repptd. Cf. *C. A.* **27**, 1096, 1097.

**Separating hormones.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,860, Sept. 8, 1930. Solns. of the active substances from the posterior lobe of the hypophysis are

subjected to a limited or fractionated treatment with an adsorbent, *e. g.*, silicic acid or bentonite, at a feebly acid reaction and, after sepn. of the solid matter from the soln. contg. the uterus-affecting hormone, the blood-pressure-affecting hormone is extd. at feebly alk. reaction.

**Disinfectants.** WALTER B. GARNER and EDWIN L. TYLER. Australia 30,735, Dec. 16, 1930. Disinfectants of high carbolic coeff. are prepd. by treating tar acids (preferably from bituminous coal) with halogens (Cl or Br) and removing free acids produced by washing. The products are mixed with sulfonated oils, etc.

**Disinfectants.** WALTER WEIGERT. Ger. 567,178, Dec. 25, 1929. Disinfectant solns. comprising a hypochlorite, with or without caustic alkali, are improved by addn. of waterglass soln. Cf. *C. A.* **26**, 258.

**Vermicidal iodine composition.** WM. H. ENGELS (to Merck & Co.). U. S. 1,889,195, Nov. 29. A compn. suitable for use in veterinary practice is prepd. from a protein material such as that from eggs contg. chemically combined Cl and adsorbed I. Cf. *C. A.* **27**, 375.

**Vermifuge for roundworm.** KATUTA TAGUTI. Japan. 93,328, Oct. 22, 1931. *Melia japonica*, Don. or *Melia toosendan* S. et Z. is extd. with 90% MeOH or alc. and the solvent is distd. off. The residue is treated with $H_2O$ and 1% NaOH. The insol part is used as the vermifuge.

**Vermifuge and insecticide containing ground "cubé" root with the fibrous portion removed.** WM. J. DENNIS. U. S. reissue 18,667, Nov. 22. A reissue of original pat. No. 1,621,240 (*C. A.* **21**, 1517).

**Dentifrices.** HENKEL & CIE G. M. B. H. Fr. 737,220, May 17, 1932. Sulfuric esters of higher aliphatic alcs. such as lauric or myristic alc. are added to dentifrices as froth-forming agents.

**Tooth paste.** MITUO IYODA (to K. K. Siseido). Japan. 93,325, Oct. 22, 1931. A partially sapond. stearin or stearic acid is mixed with $CaCO_3$, MgO, talc, etc.

**Emulsion suitable for use as a shaving cream.** EDWARD L. MACK and CHARLES W. BENNETT (to Bennett-Mack Corp.). U. S. 1,888,601, Nov. 22. Ingredients are used such as stearic acid 9–12, coconut oil 6–8, paraffin 6–8, Zn stearate 0.15–0.20, ethyl *p*-aminobenzoate 0.80–3.0, glycerol 5.5–7.5, borax 0.8–1.1, ammonia 0.3–0.4, and water 56–75 parts.

**Soap powder.** A. J. M. VAN DEUREN. Belg. 387,723, May 31, 1932. An antiseptic soap consists of $Na_2CO_3$ 75–85, powd. soap 14–18, $Na_2O_2$ or $BaO_2$ 1.6–2, trioxymethylene 0.1–0.35%.

**Treating tobacco.** AKTIESELSKAPET SI-KO. Norw. 51,160, July 11, 1932. The tobacco is treated with colloidal solns. of $SiO_2$, $Fe_2O_3$, $Al_2O_3$ or similar substances which coagulate when mixed with the tobacco, or during the drying of the latter, by which an adsorbent substance for the burning and distn. products of the tobacco is produced

**Treating tobacco leaves for improving pliability and combustion properties, etc.** STROUD JORDAN (to Applied Sugar Laboratories, Inc.). U. S. 1,888,173, Nov. 15. The leaves are sprayed with a mixt. such as may be formed from invert sugar sirup 260, cryst. $Ca(NO_3)_2$ 100 and water 260 parts.

**Composition for improving tobacco.** GYULA VÁNGEL. Hung. 104,458, April 14, 1931. Invert sugar or honey (100–500), $K_2C_2O_4$ 3–6, $ZnSO_4$ 2–6, NaCl 4–8, glycerol 30–60 and saffron 1–2 parts are dissolved in 1000 parts $H_2O$.

## 18—ACIDS, ALKALIES, SALTS AND SUNDRIES

E. M. SYMMES

**Innovations in inorganic chemical industry in 1927–31. III.** A. BRÄUER, J. REITSTÖTTER AND H. SIEBENREICHER. *Angew. Chem.* **46**, No. 1, 7–15(1933); cf. *C. A.* **27**, 812.—*Ammonia synthesis* and *cyanogen* compds. are reviewed, and 202 literature references given. KARL KAMMERMEYER

**Industrial hydrogenation.** J. B. PHILLIPS. *Chemistry and Industry* **52**, 51–3 (1933). E. H.

**The theory of obtaining nitric acid from oxides of nitrogen and its application to the intensification of the process. I. M. LIBINSON.** *J. Chem. Ind.* (Moscow) 1932, No. 10, 66–73.—By making several corrections in the math. theory of the process, L. concludes that very high pressures in the oxidation of NO are not economical. When pressure is used, and in oxidations at atm. pressure on a small scale, a sep. tower for oxidation of NO, as opposed to absorption of $NO_2$ by $H_2O$, is unnecessary. If acid or

alkali is used to absorb $NO_2$, such a tower is essential. The optimum diln. of the gases by air is that which supplies 5.2% excess $O_2$. In practice, this figure becomes 3% at atm. pressure and 1.5–2% when higher pressures are used. H. M. LEICESTER

**Making strong phosphoric acid at Trail.** WM. C. WEBER. *Chem. Met. Eng.* **39**, 659–62(1932).—Montana phosphate rock is ground in weak phosphoric acid, then $H_2SO_4$ acid is added. The phosphoric acid filtrate from the pptd. gypsum contains 30–32% $P_2O_5$. The gypsum is first washed with weak acid, then with water. The equipment is acid-proof throughout. H. E. MESSMORE

**Esters derived from tetrathioorthosilicic acid.** H. J. BACKER AND F. STIENSTRA. *Rec. trav. chim.* **51**, 1197–9(1932).—Na mercaptide is caused to react with $SiCl_4$ in benzene. The method of prepn. is described. Phys. properties and analytical data found for Me, Et, Pr and iso-Pr esters are given. They are fairly stable to heat in aq. soln. and to concd. HCl. RAYMOND H. LAMBERT

**The lead-chamber process. II. The violet acid A.** E. BERL AND H. H. SAENGER. *Z. anorg. allgem. Chem.* **208**, 113–23(1932); cf. *C. A.* **26**, 2014.—A description of the prepn. of $SO_5NH_2$ (violet acid) by (*1*) electrolyzing $SO_5NH$, (*2*) causing $N_2O_4$ and ice to react with an excess of liquid $SO_2$, (*3*) causing NO to react with $H_2SO_4$ under pressure; this requires high pressures and concd. $H_2SO_4$. $SO_5NH$ is not reduced by $SO_2$ in the absence of $H_2O$. $SO_5NH_2$ is proved an important intermediate compd. in the $H_2SO_4$ process. **III, B.** E. BERL AND K. WINNACKER. *Ibid* **208**, 124–33.—The formation of $SO_5NH_2$ from NO and $H_2SO_4$ has been confirmed and more carefully studied. The claim of Manchot (*C. A.* **21**, 477) that $SO_5NH_2$ is only an incidental compd. is refuted. **III. The synthesis of nitrosylsulfuric acid from silver acid sulfate and nitrosyl bromide.** E. BERL, F. BECKER AND W. BEGEROW. *Ibid* **209**, 264–6.—The nitroso character of $SO_2NH$ is confirmed. J. V. VAUGHEN

**Dehydration of magnesium chloride.** I. G. SHCHERBAKOV AND A. K. RASPOPINA. *Kalii* (U. S. S. R.) **1932**, No. 8, 25–9; No. 9, 23–5.—A low-temp. method (300–400°) for dehydration of $MgCl_2 \cdot 6H_2O$ is shown. $MgCl_2 \cdot 6H_2O$ was fused to convert the salt to $MgCl_2 \cdot 2H_2O$ and intimately mixed with charcoal before it solidified. Then $Cl_2$ gas was passed through the mixt., which was first heated to 300° to complete dehydration. The salt at this stage contained 10–15% MgO. Then the temp. was raised to 400° to convert MgO to $MgCl_2$: $2HCl + MgO = MgCl_2 + H_2O$, $2MgO + C + 2Cl_2 = 2MgCl_2 + CO_2$. The final dehydrated product contained 0.5–1.00% MgO, with no loss of $Cl_2$ in outgoing gases. The quantity of $Cl_2$ required for the chlorination of MgO in dehydrated $MgCl_2$ in the presence of charcoal is detd. Dehydration with $Cl_2$-air mixt. is studied. JAMES SORREL

**Manufacture of cuprous oxide.** TOSHIO WATANABE AND SABURO AWAZU. *Suiyokai-shi* **7**, 278–85(1932).—Cement Cu and $CuCl_2$ contg. Cu, both intermediate products in the Ramenia plant, are mixed and CuCl is pptd. CuCl is sepd. from the excess of the impure cement Cu by decantation, or more completely by application of the difference between the soly. of CuCl in hot concd. soln. and the cold dil. soln. of $CuCl_2$. CuCl thus obtained is digested in slightly acid water and kept near the boiling point. By adding a finely powdered salt of weak basicity, such as $CaCO_3$, NaOAc, etc., slowly to this soln. while hot, $Cu_2O$ is obtained. HIDEO NISHIMURA

**Manufacture of bromine.** LUCIEN MANGÉ. *Rev. ind.* **62**, 574–6, 610–11(1932).—The compn. is given of brines from Alsace and elsewhere, used for the com. production of Br. General principles and the app. employed are described. A. W. FURBANK

**Active charcoal.** ERHARD LANDT. *Kolloid-Beihefte* **37**, 1–55(1932).—A review of the prepn. and properties of various forms of activated charcoal, with more than 200 literature references. K. V. THIMANN

**Preparation of activated carbon from spent olive pulp.** L. BERMEJO AND L. BLAS. *Anales soc. espaň. fis. quím.* **31**, 65–7(1933).—Activated C was prepd. by various methods from spent olive pulp. The C treated by $ZnCl_2$ absorbed 12.3% phenol, that treated by $CaCl_2$ 8.7% and the untreated C absorbed 0.78%. E. M. SYMMES

**The purification of red phosphorus from yellow.** G. I. VILESOV AND S. F. PROTASOV. *J. Chem. Ind.* (Moscow) **1932**, No. 10, 73–6.—The mixt. of red and yellow P is heated to 250° in a current of inert gas. The yellow P volatilizes and is completely removed. H. M. LEICESTER

**World production, sources and consumption of sulfur.** FRITHIOF H. STENHAGEN. *Tek. Tid. Uppl. A* **61**, 457–60, 503–4(1931); cf. *C. A.* **25**, 5236.—A review. D. T.

**Chromite in 1931.** L. A. SMITH. Bur. Mines, *Mineral Resources of the U. S. 1931*, Pt. I, 103–16(preprint No. 8, published December 19, 1932). E. H.

**Gypsum.** C. L. HADDON. *Chemistry & Industry* **52**, 24–7(1933).—An outline

of the development and present status of the use of gypsum and other Ca sulfates for the production of plaster cements. A. PAPINEAU-COUTURE

**Gypsum in 1931.** R. M. SANTMYERS AND JEFFERSON MIDDLETON. Bur. Mines, *Mineral Resources of the U. S. 1931*, Pt. II, 191–203(preprint No. 13, published December 15, 1932). E. H.

**Asbestos in 1931.** OLIVER BOWLES AND B. H. STODDARD. Bur. Mines, *Mineral Resources of the U. S. 1931*, Pt. II, 205–13(preprint No. 14, published December 15, 1932). E. H.

**Tests on carbonate formation in glycerol-litharge cements.** TYPKE. *Angew. Chem.* **46**, 20–1(1933).—Carbonate formation is favored by an increase in the proportion of glycerol to litharge and increasing water content of the glycerol. Temp. also influences it KARL KAMMERMEYER

**Water content of certain fire-protective media.** M. G. MELLON AND J. R. HECK. *Ind. Eng. Chem.* **25**, 94–5(1933).—Various fireproof cements or fillers used in safes lost from 30 to 72% of their weight upon standing for 2.5 years. Ignition losses 3 yr. after prepn. varied from 25.9 to 42%. H. E. MESSMORE

**Chemical fireproofing agents.** HERMANN STADLINGER. *Synthetic and Applied Finishes* **3**, 91–4, 102(1933). E. H.

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Pb and Zn pigments and salts in 1931 (PEHRSON) **26.** Zn metallurgy and $NH_4$ sulfate manufacture (Belg. pat. 386,314) **9.** Roasting pyrite (Norw. pat. 48,606) **9.** Separating barite and fluorspar from sulfidic ores (Norw. pat. 48,353) **9.** Utilizing coal deposits (Norw pat. 49,960) **21.**

BAUER, R.: **Magnesit und seine Verarbeitung.** Dresden: T. Steinkopff. M. 5 80.

**Cyanides and Salts.** Wilmington, Del.: E. I. Du Pont de Nemours & Co. 80 pp

EDELL, G. M.: **Phenol-Formaldehyde Condensation.** Thesis, Columbia Univ., 1932. 32 pp.

FRIEDRICH, HEINER: **Das Volumverhalten, die Löslichkeit und Färbbarkeit von Zink- und Aluminium-Phosphatzementen.** Thesis, Tübingen, 1930. 30 pp.

FRÖHLICH, EDUARD: **Die konservierende Zahnheilkunde gebräuchlichsten Zahnzemente auf Druck- und Bruchfestigkeit.** Thesis, Würzburg, 1931. 15 pp.

GOLDER, PAUL: **Die Grundlagen der methodischen Prüfung von Zink- und Aluminiumphosphatzementen.** Thesis, Tübingen, 1931. 29 pp.

HEINZE, KARL: **Über die Darstellung von Nickel-Katalysatoren zur Kernhydrierung.** Thesis, Kiel, 1930. 30 pp.

HOFEN, RICHARD VON: **Die Abbindungszeiten, Druckfestigkeit und Stofffestigkeit von Zink- und Aluminiumphosphatzementen.** Thesis, Tübingen, 1931. 23 pp.

POST, F. K.: **Die bayrische Kalkindustrie.** Thesis, Erlangen, 1931. 131 pp.

ZAIS, FRIEDRICH: **Die Bestimmung freier Phosphorsäure und saurer Salze in verschiedenen Zink- und Aluminiumphosphatzementen.** Thesis, Tübingen, 1931. 32 pp.

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**Boric acid.** ALFRED NEWMAN (to Pacific Coast Borax Co.). U. S. 1,888,391, Nov. 22 $H_2SO_4$ is added to solid borax suspended in water, the quantity of water present being insufficient to dissolve the borax or the boric acid formed but sufficient to dissolve the Na sulfate formed by the reaction.

**Arsenic acid or arsenate.** TAKISABURÔ IKEBE and TAITÛ OTANI (to Mitui Kôzan K. K.). Japan. 94,024, Dec. 21, 1931. $As_2O_3$ is introduced into a mass of $Fe_2O_3$ or $Al_2O_3$, etc., at above 218° with air or $O_2$, by which arsenic acid is formed and fixed in the mass, which is extd. with dil. acid or alkali.

**Reducing chromic acid or its salts.** S. P. LANGOVOI and A. R. REIZNEK. Russ. 7, Apr. 8, 1921. $KCr(SO_4)_2.12H_2O$ is prepd. by reducing $CrO_3$ in $H_2SO_4$ soln. and at a suitable temp. by disintegrated fiber, the latter being applied in the form of sawdust, wood wool, etc.

**Hydrocyanic acid.** WALTER WETTSTEIN (to Soc. pour l'ind. chim. à Bâle). U. S. 1,887,608, Nov. 15. See Fr. 717,999 (*C. A.* **26**, 2829).

**Hydrocyanic acid and cyanogen chloride.** HANS LEHRECKE (to Deutsche Gold & Silber Scheideanstalt vorm. Roessler). U. S. 1,886,487, Nov. 8. In the manuf. of a liquid mixt. of these compds. contg. less than 6% water, Cl is passed into liquid concd. HCN contg. less than 6% water at a rate above 60 g. Cl per kg. of HCN per hr., while the soln. is cooled and the HCl formed by the reaction is removed by bringing the reaction mixt. into contact with weakly alk. substances such as $CaCO_3$.

**Prussic acid.** I. G. FARBENIND. A.-G. Fr. 40,993, Nov. 19, 1931. Addn. to 715,052 (*C. A.* **26**, 1719). Corrosion of the catalysts and deposition of soot thereon is avoided by sweeping the places where the catalysts come in contact with the container by gases contg. no component capable of forming soot. The sweeping gases may contain a small amt. of O.

**Apparatus for making hydrofluoric acid from fluorides and mineral acids.** FRIEDRICH SCHUCH. Ger. 567,328, Oct. 4, 1927.

**Phosphoric acid.** BAYERISCHE STICKSTOFF-WERKE A.-G. Fr. 737,080, May 13, 1932. P is caused to react with aq. solns. or suspensions of alkali or alk. earth hydroxides at 100–300° (preferably 140–220°) and under pressures of up to 600 atm. Insol phosphites are pptd. from the soln. of phosphites obtained by the addn. of an appropriate metal compd., and the phosphites are decomposed to $H_3PO_4$ by a mineral acid.

**Recovering sulfuric acid from acid sludge.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,205, Jan. 31, 1931. Acid sludges obtained in the refining of liquid hydrocarbons are dild. with water and then centrifuged or filtered, the operations being preferably conducted with cooling to 15–30°.

**Duplex sulfuric acid chamber.** RICHARD T. MAUDSLEY. U. S. 1,887,816, Nov. 15.

**Titanic acid and titanium pigment.** TITAN CO. A/S. Norw. 51,236, Aug. 1, 1932. $TiO_2$ or Ti pigments are produced by hydrolytic pptn. by heating purified, reduced, concd. Ti solns. of low acid content. The hydrolysis is initiated or promoted by addn. of acid-binding substances. The ppt. is afterward washed and dried or ignited. Cf. *C. A.* **26**, 4969.

**Ammonia synthesis.** WALTER WETTSTEIN (to Soc. anon. pour l'ind chim. à Bâle). U. S. 1,887,475, Nov. 8. See Brit. 359,378 (*C. A.* **26**, 4918).

**Apparatus for the synthesis of ammonia under very high pressure.** PATENTVERWERTUNGS-A.-G. "ALPINA." Ger. 567,329, Aug. 15, 1924.

**Oxidation of ammonia.** DENGORO MORI (to Dai Nippon Zinzôhiryô K. K.). Japan. 93,556, Nov. 11, 1931. In the oxidation of $NH_3$, the catalyst is preheated by burning near it a solid condensation product of $NH_3$ with HCHO or of HCHO.

**Apparatus for oxidation of ammonia.** ZENZO HIRAKAWA and YÛKITI TOBA (to Dai Nippon Zinzo Hiryo K. K.). Japan. 93,671, Nov. 21, 1931.

**Drying alkali hydroxides by treatment with alkali oxides.** DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT VORM. ROESSLER. Ger. 567,445, Aug. 22, 1930.

**Alkali nitrates.** KALI-FORSCHUNGS-ANSTALT G. M. B. H. Fr. 40,815, Sep. 24, 1931. Addn. to 708,006 (*C. A.* **26**, 1401). Alkali nitrates are prepd. by treating alkali chlorides with nitrous gases in the presence of nitrates of Mg, Fe or Al.

**Alkali nitrates.** PAUL KUBELKA and WILHELM SCHNEIDER. Fr. 736,815, May 7, 1932. Alkali nitrates are made by treating $Ca(NO_3)_2$ in aq. soln. with an alkali chloride and sepg. a part of the alkali nitrate by cooling the reaction mixt. The $CaCl_2$ formed is pptd. and sepd. from the mother liquor by the addn. of $Ca(OH)_2$, after which further amts. of alkali nitrate are extd. by cooling.

**Alkali sulfates.** CHEMIEVERFAHREN G. M. B. H. Ger. 567,088, Nov. 19, 1927. An alkali chloride is treated with $MgSO_4$ in an aq. ammoniacal soln. to which sufficient $NH_4Cl$ has been added to prevent pptn. of $Mg(OH)_2$.

**Trialkali phosphates.** CONWAY VON GIRSEWALD, HANS WEIDMANN and GERHARD ROESNER (to American Lurgi Corp.). U. S. 1,887,445, Nov. 8. See Ger. 535,950 (*C. A.* **26**, 1399).

**Carbonates.** ÉDOUARD URBAIN. Fr. 40,612, Feb. 20, 1931. Addn. to 725,818 (*C. A.* **26**, 4919). Engel salt is pptd. by treating sylvinite with hydrated MgO and $NaHCO_3$; the supernatant liquors should contain at least 15% of their wt. of NaCl.

**Fine powder of metals and their oxides.** TUTOMU SIOMI (to Furukawa Denki Kogyo K. K.). Japan. 93,875, Dec. 10, 1931. Fused Al, Mg, Cu, Zn, Sn, Bi, Sb or Cd or their alloys are mixed with corresponding oxides or the fused metals are agitated in contact with air. The fine grains thus obtained are easily ground by ordinary methods to fine powder.

**Oxides of fourth-group metals such as titanium oxide.** MAX MAYER (to Krebs Pigment & Color Corp.). U. S. 1,885,934, Nov. 1. A fluid halogen compd. of a fourth-group metal such as $TiCl_4$ is incorporated in solid salt material such as $K_2SO_4$ which is nonreactive on the oxides to be produced and decompn. is then effected by treating the mass with steam.

**Apparatus for refining volatile oxides obtained by roasting ores.** PAUL SUTTER. Fr. 736,196, Aug. 6, 1931.

**Soluble titanium compounds.** WILLIS F. WASHBURN (to Titanium Pigment Co.).

U. S. 1,889,027, Nov. 29. In forming sol. products from a mixt. of titaniferous materials such as ilmenite and strong $H_2SO_4$, water is added to the mixed charge to initiate reaction.

**Halogen compounds of phosphorus.** EDGAR C. BRITTON and HAROLD R. SLAGH (to Dow Chemical Co.). U. S. 1,888,713, Nov. 22. In forming a compd. such as $POCl_3$, reaction is effected between P and a halogen in a liquid medium including at least one halogen P compd. such as $PCl_3$ or $POCl_3$.

**Alumina.** LONZA-WERKE ELEKTROCHEMISCHE FABRIKEN. G. M. B. H. Ger. 563,831, Dec. 23, 1930. Addn. to 561,981. The method of 561,981 (*C. A.* **27**, 1104) for producing $Al_2O_3$ by decompg. alk earth aluminates by Al salts is improved by treating the aluminates first with acid to form an Al salt and then treating further aluminate with the Al salt so formed. Alternatively the amt. of acid may be regulated so that a basic Al salt is formed, the $Al_2O_3$ being then worked up from this. Thus, Ca aluminate is treated with $HNO_3$ to give (*a*) $Al(NO_3)_3$ and $Ca(NO_3)_2$, or (*b*) $Al(OH)_2NO_3$, according to the amt. of acid present. In the first case, the $Al(NO_3)_3$ is added to further aluminate to give $Al(OH)_2NO_3$. In both cases, the $Al(OH)_2NO_3$ is worked up into $Al_2O_3$.

**Alumina.** JEAN C. SÉAILLES. Ger. 567,114, July 6, 1928. Addn. to 564,059 (*C. A.* **27**, 1104). The method of Ger. 564,059 is modified by using a small amt. of an alkali or alk. earth hydroxide forming a sol. aluminate, in assocn. with the alk earth hydroxide forming an insol. aluminate.

**Alumina.** HISASI HUKAMI and TAKESI ARIMORI (to South Manchurian Railway Co.). Japan. 94,049, Jan. 6, 1932. Ores contg. $Al_2O_3$ are heated with F compds. and $H_2SO_3$ to form a mixt. of $Al_2(SO_3)_3$ and $Al_2(SO_4)_3$. Alkali sulfite corresponding to $Al_2(SO_4)_3$ in the product is mixed with the product and the whole is heated, by which basic Al salts are obtained, which are easily changed into $Al_2O_3$ in good yield.

**Aluminum chloride.** WM. H. SHIFFLER and WARD P. ANDERSON (to Standard Oil Co. of Calif.). U. S. 1,887,566, Nov. 15. A coke contg. alumina is introduced into a reaction chamber in which a bed of such coke is maintained, with continuous introduction of gases contg. Cl and O sufficient to maintain reaction temp. in the reaction chamber, the gases are passed through the bed of coke and gases and vaporized reaction products are continuously discharged from the upper portion of the chamber, and ash and spent coke are discharged from the bottom portion of the reaction chamber, condensible products being recovered from the vapors and gases. App. is described.

**Aluminum hydroxide.** SVEND S. SVENDSEN (to Clay Reduction Corp.). U. S. 1,889,080, Nov. 29. Alumina- and silica-contg. material such as clay is treated with $NH_4F$ in a substantially dry state, the Si is removed by volatilization from the material in the form of $NH_4$-Si-F compds., alumina of the material is converted into $Al_2(SO_4)_3$ and the latter is converted into $Al(OH)_3$ in the presence of the residual fluoride compds. (suitably by $NH_3$).

**Ammonium chloride.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 363,687, June 20, 1929. Impurities, *e. g.*, Fe and Al salts, are removed from $NH_4Cl$ solns., preferably contg. free $NH_3$, by adding a Pb oxide, *e. g.*, PbO, $PbO_2$, and sepg. the clear liquor from the ppt.

**Ammonium phosphate and calcium nitrate.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Norw. 50,720, April 25, 1932. Raw phosphate is dissolved in $HNO_3$ and the $H_3PO_4$ obtained is pptd. as $CaHPO_4$, which is partly converted into $NH_4$ phosphate by treatment with $(NH_4)_2CO_3$. A part of the residue, consisting of $CaCO_3$ and unchanged $CaHPO_4$, is used to ppt. $CaHPO_4$, while the remaining part is treated repeatedly with $(NH_4)_2CO_3$, by which practically all of the $H_3PO_4$ can be obtained in the form of ammonium phosphate.

**Ammonium sulfate or salts containing it.** SHOICHIRO HORI. U. S. 1,888,633, Nov. 22. $(NH_4)_2SO_3$ is dissolved in a satd. soln. of $(NH_4)_2SO_4$, the proportion of $SO_2$ to $NH_3$ is kept slightly in excess of that corresponding to normal sulfite, and the soln is subjected to the action of O under pressure in the presence of catalysts such as salts of Cu, Ni or Fe.

**Refining crude antimony sulfide.** JAMES E. BURNS and WATSON H. WOODFORD (to Remington Arms Co.). U. S. 1,887,920, Nov. 15. The material is melted in the presence of S in a crucible and the molten product is drawn off as it is melted. App. is described.

**Barium sulfate.** SACHTLEBEN A.-G. FÜR BERGBAU UND CHEM. IND. (Manfred Müller, inventor). Ger. 567,348, Apr. 29, 1930. See Fr. 715,740 (*C. A.* **26**, 2021).

**Beryllium fluoride.** I. G. FARBENIND. A.-G. (Rudolf Schulze and Walter Brause, inventors). Ger. 567,270, Aug. 14, 1931. In a continuous process for the manuf. of $BeF_2$ from beryl, the latter is treated at 350–600° in a rotary tube furnace with va-

porized $NH_4F$ or $NH_4F.HF$. $SiF_4$ and $NH_3$ are evolved, and a residue of $BeF_2$ and $AlF_3$ is obtained. The evolved gases are cooled to 150° and treated with an excess of $NH_3$, whereby a solid compd. $SiF_4.2NH_3$ and excess of $NH_4F$ are pptd. $NH_4F$ and almost pure $SiO_2$ are then recovered by treating $SiF_4.2NH_3$ with excess of $NH_3$ in the presence of water. The furnace residue ($BeF_2$ and $AlF_3$) is worked up in known manner. to recover $NH_4F$ from the sepd. $AlF_3$, the latter is treated with concd. $H_2SO_4$ and $SiO_2$, and the $SiF_4$ so obtained is added to the gases evolved from the furnace.

**Bismuth oxide.** YOSISATO TAWARA (to Mitui Kozan K. K.). Japan. 93,504, Nov. 6, 1931. $Bi_2O_3$ (3.32 parts) is manufd. from Bi (3) by the action of $NaNO_3$ (1, less than the theoretically required amt.) in the presence of NaOH (12) and alkali chromate (0.2). $NaNO_3$ is added intermittently to a melted mixt. of NaOH, Bi and $K_2CrO_4$ at 350°. Cf. *C. A.* **26**, 1723.

**Calcium chlorate.** SHELDON B. HEATH (to Dow Chemical Co.). U. S. 1,887,809, Nov. 15. For sepg. $Ca(ClO_3)_2$ from a soln. also contg. $CaCl_2$, the chlorate is crystd. as a dihydrate from a soln. in which the mol. ratio of chloride to chlorate is between 2:1 and 1:1.

**Calcium molybdate.** I. YA. BASHILOV and P. S. KINDYAKOV. Russ. 26,701, May 16, 1931. Ca molybdate is prepd. from a soln. of $NH_4$ molybdate by the action of CaO or $Ca(OH)_2$ at a temp. at which the $NH_3$ that seps. during the reaction is continuously expelled from the soln.

**Granular calcium nitrate.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Norw. 51,527, Sept. 5, 1932. The hot concd. soln. of $Ca(NO_3)_2$ contg. some $NH_4NO_3$ and having a total content of 15.5–16% of N is subjected to a preliminary solidification on a cooled surface and is then conveyed through a heated homogenizing app. Here, under const. temp., it is converted into a homogeneous pulp, which is finally converted into granules by the falling-drop method.

**Granular calcium nitrate.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Norw. 51,683, Sept. 26, 1932. Addn. to Norw. 51,527 (preceding abstract). The pulp from the homogenizing app. is conveyed down upon a rotary disk where it takes the form of drops that spread down through the falling chamber. The disk is heated and kept at a temp. equal to, or a little higher than, the solidification temp. of the mixt.

**Calcium sulfate.** SYDNEY F. W. CRUNDALL, IVAN P. LLEWELLYN and PETER SPENCE & SONS, LTD. Brit. 363,347, July 12, 1930. See Fr. 719,903 (*C. A.* **26**, 3883).

**Calcium sulfate.** PETER SPENCE & SONS, LTD. Ger. 562,385, July 9, 1931. See Brit. 363,347 (preceding abstr.).

**Dibasic calcium magnesium phosphate.** MME. P. VAN DEN ABEELE. Belg. 386,670, March 31, 1932. Solns. of $H_3PO_4$ obtained by treating phosphates with a mineral acid (HCl or $HNO_3$) are treated with a quantity of natural Ca and Mg carbonates, preferably converted into oxides or hydroxides, sufficient to ppt. a dibasic Ca-Mg phosphate. The remaining free $H_3PO_3$ is pptd. by means of an excess of pptg. reagent, and the ppt. is added to a fresh portion of soln. to be neutralized.

**Treatment of tricalcium phosphates.** F. CHAFFETTE. Belg. 387,625, May 31, 1932. The phosphatic material is treated with an acid such as $HNO_3$; the soln. is treated with $NH_4OH$ so as to recover by filtration $^2/_3$ of the $P_2O_5$ as $CaHPO_4$; the filtrate is neutralized with $NH_4OH$ so as to obtain a white $CaHPO_4$ suitable for use in stock feed.

**Preventing oxidation of cuprous oxide.** YUZURU KARASIMA (to Mitubishi Kogyo K. K.). Japan. 93,349, Oct. 22, 1931. Addn. to 88,178. The oxidation of $Cu_2O$ by air is prevented by addn. of less than 1% of one or more of the following: phenols, alcs., mono- and di-saccharides, glycerol esters, solid or liquid paraffins, petrolatum, glycocoll, tannin and alkali salts of formic, acetic, citric, tartaric or sulfurous acid.

**Lead arsenate.** TATURO ADATI (to K. K. Okada Kagaku Kozyo). Japan. 93,352, Oct. 24, 1931. Lead arsenate is manufactured by passing steam into a chamber in which a mixt. of $As_2O_3$ and PbO is heated.

**Lead oxide powder.** CLARENCE A. HALL. U. S. 1,888,823, Nov. 22. A Pb oxide powder of olive-gray color and amorphous structure is obtained by subjecting balls or lumps of metallic Pb to mutual attrition by rumbling them while confined in a closed vessel through which a stream of air is passed (cooling fluid being applied to the exterior of the vessel to control the temp.). App. is described.

**Manganous carbonate.** KENNETH A. KOBE (to Bradley-Fitch Co.). U. S. 1,889,021, Nov. 29. Material contg. manganous oxide is digested with an $NH_4$ salt soln. such as $(NH_4)_2SO_4$ and gaseous $NH_3$ is simultaneously removed; the resulting soln. is sepd. from residue and is treated with $CO_2$ and $NH_3$ for simultaneous pptn. of $MnCO_3$ and regeneration of the $NH_4$ salt.

**Potassium phosphate.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Norw. 49,160, March 30, 1931. KCl is heated with an excess of $H_3PO_4$ to 200°. After HCl has been driven off, $H_2O$ is added to the mass and the phosphate is sepd. by crystn. The mother liquor contg. undecomposed KCl after addn. of new amts. of KCl and $H_3PO_4$ is heated again to drive off HCl, thus constantly circulating in the process.

**Silica.** KOITI KAZI and SEITA MORIVASU (to the Minister of Communications). Japan. 93,543, Nov. 11, 1931. Materials contg. silicates are fused and quickly put into water. The product is crushed and warmed in 10–30% $H_2SO_4$ at 90–110°. $SiO_2$ is pptd. as white mass.

**Sodium carbonate.** ÉDOUARD URBAIN. Fr. 40,563, Jan. 3, 1931. Addn. to 724,539 (*C. A.* **26**, 4921). The double carbonate $(MgCO_3)_3.NH_4HCO_3.4H_2O$ is formed from $NH_4HCO_3$ and hydrated MgO and treated with NaCl in the presence of enough water to dissolve the $NH_4Cl$ formed. The Na is transformed entirely to the double carbonate which is afterward decomposed by hot water.

**Caustic soda.** DAVID A. PRITCHARD (to Pennsylvania Salt Mfg. Co.). U. S. 1,888,886, Nov. 22. For producing NaOH solns. and solid NaOH therefrom of a high degree of purity, concd. NaOH liquors or solns. are treated with $Na_2SO_4$ or a reagent such as $H_2SO_4$ which will increase the amount of $Na_2SO_4$ in the liquors or solns. to such an extent that the major portion of the NaCl originally present is pptd.

**Sodium hyposulfite.** I. G. FARBENIND. A.-G. Fr. 737,328, May 19, 1932. The stability of anhyd. $Na_2S_2O_4$ is increased by mixing it with alkali metal compds. of alk reaction such as hydroxides, carbonates, phosphates or silicates in amt. of at least 2 mols. for each mol. of $Na_2S_2O_4$.

**Sodium nitrate and ammonium chloride.** BAMAG-MEGUIN A.-G. Ger. 567,363, Mar. 5, 1930. A wet mixt. of $NaNO_3$ and $NH_4Cl$, obtained from NaCl and $NH_4NO_3$, is sepd. into its components by sifting. $NH_4Cl$ passes through the sieve.

**Apparatus for production of volatile chlorides such as titanium tetrachloride.** RALPH J. MCINERNY, EUGENE F. WILLIAMS and HERBERT L. GLAZE (to Minerals Increment Co.). U. S. 1,888,996, Nov. 29. Various details are described of an app comprising a retort connected with an expansion chamber, filter and condenser construction suitable for use in forming $TiCl_4$ from Cl and $TiO_2$ mixed with carbon.

**Tungsten carbide.** ORRIN F. MARVIN (to Mills Alloys, Inc.). U. S. 1,887,729, Nov. 15. A molten mass of W carbide is cast into a massive mold made of substantially pure Cu, in forming articles such as bars for use in manuf. of cutting tools, etc.

**Purification of fluorspar.** HARALD SKAPPEL. Norw. 48,166, July 21, 1930. The raw material is ground to a suitable max. grain size and sieved to eliminate the fines and is then classified and sepd. into several classes of grain size. Each class is heated separately to decrepitation and after cooling is again classified by sieving or in other ways, by which treatment the material is sepd. into a coarse-grained product contg. most of the impurities and a fine product or a number of different fine classes contg. the fluorspar in concd. purified state.

**Apparatus for hydrating lime.** P. N. BORISENKO. Russ. 26,954, Oct. 27 and 28, 1931.

**Apparatus for manufacturing slaked lime.** DENTA AKIZUKI. Japan. 93,914, Dec. 12, 1931. Powd. $Ca(OH)_2$ and steam are collected by filter app. and slaking water is preheated by the steam.

**Dehydrating Glauber salt.** JAMES B. PIERCE, JR. (to Barium Reduction Corp.). U. S. 1,886,580, Nov. 8. There is mixed with $Na_2SO_4.10H_2O$, while in liquid phase, a sufficient quantity of dehydrated $Na_2SO_4$ to convert the mass into a substantially solid phase condition (corresponding substantially to that of damp sand) so that liquefaction of the mass when heated above 32° is substantially prevented and the mixt. is then continuously fed into a furnace heated to about 600° while the dehydrated salt is continuously removed from the furnace.

**Treatment of crude phosphate.** ODDA SMELTEVERK A/S and ERLING JOHNSON Ger. 559,073, Oct. 25, 1930. See Brit. 357,814 (*C. A.* **26**, 4926).

**Treating raw phosphate.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 48,644, Nov. 10, 1930. Raw phosphate is dissolved by treating with 35–75% $HNO_3$, preferably 45–65%, in amts. nearly corresponding to the CaO content of the raw material. The soln. is cooled until the major part of the $Ca(NO_3)_2$ is crystd. out, while the mother liquor is filtered off and worked up for P and N products.

**Treating raw phosphate.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,186, Feb. 8, 1932. The Ca and $P_2O_5$ are sepd. by treating the raw phosphate with $HNO_3$ according to Norw. 48,644 (preceding abstr.). Mother liquor obtained by the crystn. and sepn. of $Ca(NO_3)_2$ is added in suitable amts., the amt. added being pref-

erably divided into 2 parts, one part being added before or during the decompn. of raw phosphate with $HNO_3$, the other immediately before or during the crystn. of $Ca(NO_3)_2$.

**Dicalcium phosphate and nitrogen products, or mixed fertilizer.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,205, Feb. 15, 1932. The $P_2O_5$-contg. mother liquor obtained by decompn. of raw phosphate and crystn. of the formed $Ca(NO_3)_2$ is neutralized with $NH_3$, $(NH_4)_2CO_3$, or alkali carbonates in such amts. that the Ca present is pptd. as $CaHPO_4$, which is filtered off and worked separately. The filtrate is evapd. and worked up for N-contg. products, or for N and $P_2O_5$ products. Norw. 50,207, Feb. 15, 1932. The Ca phosphates obtained according to the process described above are returned to the process, and again decomposed with $HNO_3$.

**Preventing froth formation in the treatment of raw phosphate with nitric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,466, April 4, 1932. Before the decompn. with $HNO_3$ the raw phosphate is heated to 180–300°.

**Purification of the products obtained by decomposition of raw phosphates with nitric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,560, April 11, 1932 The $Ca(NO_3)_2$ obtained by decompn. of raw phosphates with $HNO_3$ and subsequent crystn is sepd. from the mother liquor by centrifuging or filtration through a coarse filter cloth permitting a substantial part of the finely divided insol. impurities to escape together with the $P_2O_5$-contg mother liquor while the coarser impurities are retained. The resulting products, $Ca(NO_3)_2$ (in liquefied or dissolved state) and soln. contg. $P_2O_5$, are separately freed from their content of insol impurities by filtering, centrifuging, or sedimentation. Cf. *C. A.* **26**, 4926.

**Decomposition of raw phosphates with nitric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,666, April 18, 1932. The acid is added to the raw phosphate in 2 or more portions, the first of which is by far insufficient for complete decompn. but exceeds the amt required for decompn. of the gas-forming impurities, in order that the gas formation can take place chiefly in a mass of plastic or highly viscous consistency. By this means the undesirable formation of froth is prevented.

**Phosphoric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,754, May 2, 1932. Raw phosphate is decompd. with $HNO_3$ and $Ca(NO_3)_2$ is crystd. out by freezing. The $Ca(NO_3)_2$ crystals with or without a preliminary washing are melted in their water of crystn with or without addn. of extra amts. of water or dil. washing soln. The $P_2O_5$ of the soln. is then pptd. by treating with $NH_4OH$ or $Ca(OH)_2$ preferably at a temp. of 50–60°, after which the ppt. of di- or tri-calcium phosphate is filtered off.

**Treating calcium phosphates with nitric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,924, Dec. 5, 1932. $HNO_3$ is used for the decompn., etc., of raw phosphate in which have been dissolved nitrates of alkali, $NH_4$, or alk. earth metals, or such nitrates are dissolved in the soln. obtained after the decompn. of raw phosphate with $HNO_3$.

**Cooling solutions of raw phosphate in nitric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 51,032, June 20, 1932. Raw phosphate is decompd. with $HNO_3$ and $Ca(NO_3)_2$ is crystd. out from the soln. The soln. is cooled in absorption towers by means of a countercurrent of cold air or cooled gases. The $HNO_3$ vapor and N oxides escaping with the cooling gases are utilized in the manuf. of $HNO_3$, either by absorption in $H_2O$ or an alk liquid to produce absorption liquid for $HNO_3$ absorption towers, or, if oxygen-contg. gases have been used, by using the escaping gas for the oxidation of $NH_3$.

**Treating raw phosphates with nitric acid.** ODDA SMELTEVERK A/S and ERLING JOHNSON. Norw. 50,514, April 4, 1932. The lasting "secondary" froth formed during the decompn. which contains a substantial part of the insol. impurities is withdrawn from further reaction with the acid by being skimmed off immediately after the main decompn. process has been finished. The sepd. froth is subjected to a sep. treatment, preferably a continuous washing or decantation after first having been dild. with $H_2O$ or other suitable washing liquid.

**Drying moist phosphatic material such as phosphate rock.** STAPLETON D. GOOCH (to Coronet Phosphate Co.). U. S. 1,888,919, Nov. 22. P is mixed with the material and then burned in contact with it at a temp. below that at which P in the phosphate rock is reduced and volatilized.

**Crystallizing salt solutions.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Norw. 48,958, Feb. 9, 1931. Mech. features are described of an app. with rotary cooling bodies keeping the mass in const. motion. The cooling bodies are sur-

rounded by a dense suspension of crystals, so the crystn. will take place not on the cooling surfaces but chiefly upon already existing crystals.

**Utilizing titaniferous raw materials containing iron.** TITAN CO. A/S. Norw. 47,333, Jan. 6, 1930. The raw materials are subjected to a reducing heating without fusion. The product, contg. metallic Fe, is heated with acid, for instance $H_2SO_4$ of such concn. and at such a temp. that practically only Ti is dissolved and converted into a water-sol. form while the Fe remains undissolved and can be sepd. by magnetic or mech. processes.

**Removing silica from brine solutions, etc.** ARSEN H. AVAKIAN. U. S. 1,888,484, Nov. 22. For removing $SiO_2$ from materials such as alkali brines, the $HCO_3$ radical is produced in the soln. (suitably by adding $NaHCO_3$) and the pptd. $SiO_2$ is then mechanically sepd. (as by filtration).

**Conversion of ferrophosphorus.** NILS C. LINDBERG (to Victor Chemical Works). U. S. 1,888,003, Nov. 15. For producing sol. compds. such as phosphates, briquets are formed of comminuted ferro-P, alkali metal carbonate and caustic alkali and are heated to a reacting temp. below the fusion point.

**Kaolin earths.** ÉMILE SOYEZ and MARCEL CHÉROUVRIER. Fr. 736,198, Aug. 6, 1931. Kaolin earths are dried, disintegrated, screened and driven by a current of air through centrifugal separators, the fine kaolin escaping at the top.

**Activation of Japanese acid clay.** MASAKITI MIZUTA and SIGERU HAYASI (to Nippon Sekiyû K. K.). Japan. 93,654, Nov. 19, 1931. New or waste Japanese acid clay is activated by treatment with acetone or a mixt. of acetone and a solvent such as naphtha.

**Fluorine.** KARL FREDENHAGEN. U. S. 1,888,118, Nov. 15. F is produced by electrolysis of a substantially anhyd. soln. of K bifluoride in HF which contains more than 1 but not more than 1.8 mol. proportions of HF to each mol. proportion of KF. Cf. *C. A.* **26**, 4544.

**Amorphous carbon and hydrogen.** JOSEPH V. G. VAN DEN DRIESSCHE. U. S. 1,887,792, Nov. 15. Water gas and steam are caused to react upon $CaC_2$ heated to about 250° in an air-tight retort and the lime, C and H formed are sepd.

**Carbon black suitable for use in ink, rubber compositions, etc.** WM. B. WIEGAND and LOUIS J. VENUTO. U. S. 1,889,429, Nov. 29. Carbon black is agitated with two immiscible liquids such as water and gasoline one at least of which may contain dissolved accelerators, softeners, antioxidants or the like, so that the carbon black forms pellets in or with one of the liquids with adsorption of such added ingredients from the liquid.

**Purification of hydrogen.** ALBERT A. FREY (to The Canadian Westinghouse Co., Ltd.). Can. 329,232, Jan. 10, 1933. Com. H is passed over granular Mg or suitable Mg alloys at 100–120°. Impurities such as moisture, O, N, C compds. and gases contg. S are removed.

**Apparatus for producing hydrogen.** P. A. MOLCHANOV. Russ. 26,699, April 11, 1931. In the production of H by interaction of alumino-ferrosilicon with NaOH the material is charged into the reaction chamber through a horizontal tube connected on one end with a funnel for the raw material, which after entering the tube is moved by a worm drive toward the inner end of the tube placed in the reaction vessel.

**Installation for producing hydrogen by the contact method.** A. P. LOSHKAREV and E. M. PETROV. Russ. 26,698, Mar. 30, 1931. An app. for prepg. H from water gas consists of 3 units, *i. e.*, a contact furnace, a gas preheater and a steam superheater. The catalysts can be removed from the furnace through an opening in the bottom. Heat exchange is effected by a connection of the lower part of the furnace with the upper part of the preheater while combustion gases from the furnace are passed to the steam superheater and the superheated steam is passed from the upper part of the superheater into the upper part of the the contact furnace.

**Utilizing the hydrogen and chlorine obtained by electrolysis of alkali chloride for the production of ammonium phosphate.** NORSK HYDRO-ELEKTRISK KVAELSTOFAKTIESELSKAB. Norw. 47,380, Jan. 20, 1930. (*a*) Alkali chloride is electrolyzed to produce alkali hydroxide, Cl and $H_2$. (*b*) The $H_2$ is used in the synthesis of $NH_3$. (*c*) The Cl is used for the production of $POCl_3$, by treatment of raw phosphate with CO in the presence of Cl; the $POCl_3$ is converted into $H_3PO_4$ and HCl. (*d*) CO is regenerated from the $CO_2$ obtained under (*c*). (*e*) $NH_4$ phosphate is produced from the $NH_3$ and the $H_3PO_4$ obtained under (*b*) and (*c*).

**Separation of iron from solutions of nickel salts.** FALCONBRIDGE NIKKELVERK A/S. Norw. 51,736, Nov. 7, 1932. The Ni salt soln. is neutralized with strongly reactive metallic Ni produced by gaseous reduction of Ni compds. at low temp., preferably between 350° and 450°. The neutralization of the free acid of the soln. by means

of the said Ni material is carried so far that the Fe is pptd. by the subsequent blowing with air.

**Removing iron from aluminum sulfate.** B. I. ZBARSKII. Russ. 47. Mar. 23, 1920. The impure soln. is first treated with $Al(OH)_3$ or $Ca(OH)_2$ to neutralize the excess of $H_2SO_4$, followed by a treatment with $Cl_2$. The product is then boiled together with the product obtained by the action of $Cl_2$ on a soln. of a Mg salt; the ppt. is sepd. The soln. is again treated with $Al(OH)_3$ or $Ca(OH)_2$, and then with $Cl_2$; $SO_2$ gas is passed through the liquid after the sepn. of the ppt. The soln. is finally evapd. to dryness.

**System for preparing compressed oxygen or other gases under high pressure form liquefied gases.** CHRISTIAN W. P. HEYLANDT (to Fluga A.-G.). U. S. reissue 18,646, Nov. 1. A reissue of original pat. No. 1,773,140 (*C. A.* **24**, 4964).

**Phosphorus and phosphoric acid.** WM. H. WAGGAMAN and STAPLETON D. GOOCH (to Coronet Phosphate Co.). U. S. 1,888,896, Nov. 22. A sintered mass of phosphate and siliceous material together with fuel is charged into a furnace zone, and the charge is built up until its height is over 7.5 times the width of the charge; the charge is ignited, and generated gases and vapors are passed upwardly through the elongated columnar charge, under a high velocity of flow and with a prolonged heat-exchange period with the upper section of the charge. App. is described.

**Separating free sulfur from gases.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Ger. 552,148, May 31, 1931. See Brit. 355,832 (*C. A.* **26**, 4425).

**Apparatus for continuous sublimation of sulfur.** K. D. SABANEEV and A. I. CHERTOK. Russ. 26,700, Oct. 19, 1929. In an app. comprising a bunker for the raw material, a distg. column heated by combustion gases, a chamber for the sublimed S and a receiver for the S-free residues the distn. column is equipped with a number of conical inverted plates attached to a rotating shaft and a corresponding number of stationary plates placed in an upright position.

**Carbon monoxide detection.** JOANNY VERGNAIS. Fr. 736,243, Aug. 12, 1931. An app. is described for denoting at a distance the presence of CO in a gas by the heating of a Pt wire.

**Carbon dioxide.** MAURICE CHAFFETTE. Fr. 737,210, May 17, 1932; Belg. 388,493, June 30, 1932. $CO_2$ is sepd. from $H_2S$ by burning the $H_2S$ with O at 600–800° in the presence of contact materials. The $SO_2$ is dissolved in water under pressure or sepd. as sulfite or bisulfite.

**Gas mixtures rich in hydrogen, carbon monoxide and carbon dioxide.** M. CHAFFETTE. Belg. 287,296, April 30, 1932. $CH_4$, or gases contg. it, are decompd. at a temp. of at least 500° in presence of a catalyst consisting of a mixts. of salts of Ni and of rare earth metals, particularly those belonging to the Ce group.

**Production of gas mixtures suitable for various syntheses.** M. CHAFFETTE. Belg. 387,055, April 30, 1932. A mixt. of H, CO and $CO_2$ is obtained from $CH_4$, $H_2O$ and $O_2$ by effecting incomplete combustion of $CH_4$ at high temp. and passing the resultant gas mixt., after addn. of $H_2O$ vapor, over a catalyzer at a temp. not less than 500°.

**Recovering sulfur dioxide.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 736,074, Apr. 28, 1932. $SO_2$ is recovered from gases contg. it by an aq. soln. of an alkali hydroxide and (or) an alkali sulfite contg. a substance such as $AlCl_3$ which gives rise to an acidity increasing with the temp. and which does not give rise to a permanent ppt. under the conditions of working.

**Catalyst carrier.** MONSANTO CHEMICAL WORKS (Lloyd F. Nickel, inventor). Russ. 25,111, Mar. 6, 1930. A carrier is prepd. from porous silicic material such as kieselguhr, which is mixed with a soln. of water glass, formed into globules and dried. The water glass is then decomposed by acidic gases or acid and the silicic material calcined at about 400°, whereby a base of silica is obtained.

**Catalyst suitable for oxidation of ammonia.** IVAR W. CEDERBERG (to Oxyammon A.-G.). U. S. 1,889,463, Nov. 29. See Fr. 716,344 (*C. A.* **26**, 2286).

**Vanadium catalyst suitable for sulfur trioxide production, etc.** HENRY JOSEPH (to General Chemical Co.). U. S. 1,887,978, Nov. 15. A V catalyst is prepd. contg. Na and K in such quantities that the ratio of Na to K, calcd. as sulfates, is not substantially greater than 0.5 and not substantially less than 0.25. The catalyst may be used on a finely divided carrier such as kieselguhr. The catalysts are suitable also for org. oxidation reactions.

**Active molybdenum trioxide catalyst.** GARLAND H. B. DAVIS (to Standard-I. G. Co.). U. S. 1,888,978, Nov. 29. $MoO_3$ is dissolved in an alkali such as $NH_3$ soln. and molybdic acid is pptd. from the alk. soln. by adding an excess of acidic material

such as HCl and the ppt. is sepd. and heated for a prolonged period (suitably about 2–10 hrs.) at about 400–800°. The resulting material is suitable for use as a catalyst in reactions such as hydrogenation of carbonaceous materials.

**Silica gel.** "SALVIS" A.-G. FÜR NÄHRMITTEL UND CHEMISCHE INDUSTRIE. Fr. 737,316, May 19, 1932. The activity of $SiO_2$-gel is increased by adding to the reaction constituents or to the reaction mass during manuf. but before drying of the gel, about 5% of a fibrous material, *e. g.*, hair.

**Condensation products from urea, etc., and aldehydes.** WILFRED S. ROTHERA, STANLEY BLYTHEN and HENRY R. GILLESPIE. Ger. 567,271, Feb. 3, 1925. See Brit. 238,904 (*C. A.* **20**, 2052).

**Phenolic condensation products.** LAWRENCE BYCK (to Bakelite Corp.). U. S. 1,887,833, Nov. 15. A reaction is effected between a phenol such as PhOH and a fatty oil such as tung oil in the presence of a small proportion of an agent such as $AlCl_3$ which promotes the reaction, and a methylene-contg. hardening agent such as formaldehyde is added to the resulting compn. The resulting product may be used for molded articles, etc.

**Phenol-formaldehyde condensation products.** AUG. NOWACK A.-G. and KARL A. SCHUCH. Ger. 567,072, Apr. 20, 1930. Fusible condensation products from PhOH and $CH_2O$ are mixed with a hydrogenated cyclic ketone, *e. g.*, cyclohexanone, in an amt sufficient to combine with free PhOH and $CH_2O$. The mixt. is then molded and hardened, preferably at a gradually rising temp.

**Plasticizing urea-formaldehyde condensation products.** LEONARD SMIDTH and RAY H. CRIST (to Luco Products Co.). U. S. 1,886,600, Nov 8 A previously cast product is dried and aged for removing strains, then heated to a high temp. (suitably about 165°) for a short time and shaped while in plastic condition.

**Plastic materials.** DEUTSCHE GASGLÜHLICHT-AUER-GES. M. B. H. Fr. 40,924, Oct. 14, 1931. Addn. to 688,962 (*C. A.* **25**, 1046). Azelaic acid is replaced by other homologous polybasic acids having a longer C chain, the suppleness of the product increasing with the development of the C chain.

**Plastic materials.** ALEXANDER WACKER GESELLSCHAFT FÜR ELEKTROCHEMISCH INDUSTRIE G. M. B. H. Fr. 737,005, May 12, 1932. C obtained by the thermal decompn. of graphitic oxides is used in the manuf. of plastic materials.

**Adhesive** REINHOLD LEIBFARTH. Brit. 362,011, Sept. 10, 1930. An adhesive especially for sealing paper bottles, consists of 1 kg. acid-free casein, 30 g. crystd borax, 55 g. $NH_4Cl$, together with albumin, white sugar and water.

**Adhesive for index tabs, etc.** MORLAND & IMPEY, LTD. and A. G. RENDALL. Brit. 345,066, Feb. 27, 1930. A non-drying detachable adhesive is used such as may comprise unvulcanized rubber together with oil and zinc white and is covered or omitted from portions of the surface to facilitate detachment and reuse of the label, etc., when desired.

**Casein adhesive.** GEORGE M. SHISLER (to Casein Mfg. Co. of America). U. S. 1,886,750, Nov. 8. A glue which has good fluidity comprises casein 100 and an amide dispersing agent such as urea 15–100 parts, with sufficient water to serve as a solvent

**Casein adhesive.** ZINTARO KONISI (to Katuzi Utumi). Japan. 93,523, Nov. 10, 1931. A mixt. of casein 75, $Ca(OH)_2$ 15, and kieselguhr 5 parts, contg. 7 parts of NaF or the like, is used by merely mixing with water.

**Increasing the waterproofing power of casein paste.** TURUO ARAKI (to Aiti Tokei Denki K. K.). Japan. 93,988, Dec. 18, 1931. The waterproofing power of casein paste is increased by adding basic Cu carbonate. *E. g.*, the following mixt. is strongly waterproofing: $Na_2CO_3$ 15, Na acetate 6, NaF 5, $Ca(OH)_2$ 45, casein 140 and basic Cu carbonate 3 parts.

**Treating vegetable casein from soy bean.** P. F. D'YACHENKO. Russ. 26,702, Aug. 12, 1931. Vegetable casein prepd. from soy bean is freed of tanning resinous substances by treatment with alkali peroxides or peroxides of alkaline earth metals

**Impregnating or binding product.** J. VISCHOFF and G. ROPPENECKER. Belg. 388,636, June 30, 1932. Shellac is dissolved in a mixt. of alc. and $C_7H_8$ with addn. of ammonia; wax and rosin are dissolved in gasoline with addn. of NaOH soln.; the 2 solns. are mixed with a 3rd soln. obtained by dissolving glue in water and adding sulforicinate. Linseed oil and drier are added to the mixt. The product is suitable as an insulator as a binder, as impregnating mixt. for filling the pores of wood, etc.

**Washing preparations.** G. S. PETROV. Russ. 1448, Sept. 7, 1923. Polymerized drying or semidrying oils are mixed with petroleum, or aromatic, or fatty aromatic sulfonic acids.

**Washing and cleaning composition.** KARL L. ANDERSEN. Norw. 47,504, Feb.

10, 1930. To a comparatively dil. soln. of soap and $NH_3$ is added a small quantity of turpentine and ethanol.

**Wetting, cleansing and dispersing agents.** I. G. FARBENIND. A.-G. Fr. 40,985, Nov. 16, 1931. Addn. to 682,227 (*C. A.* **24**, 4364). Mixts. of amides of fatty acids or their *N*-alkyl, *N*-aralkyl or *N*-aryl derivs., with the sulfonation products of aliphatic hydrocarbons of high mol. wt., satd. or not, or of oleic acid amide, or its *N*-alkyl, *N*-aralkyl or *N*-aryl derivs., are used as wetting, etc., agents.

**Wetting, emulsifying, dispersing, etc., agents.** DEUTSCHE HYDRIERWERKE A.-G. Fr. 736,771, May 6, 1932. The products obtained by esterifying unsatd. aliphatic alcs. having at least 8 C atoms with $H_2SO_4$, and afterward halogenating, or by halogenating before esterification, are used as wetting, etc., agents.

**Wetting, purifying and peptonizing agents.** DEUTSCHE HYDRIERWERKE A.-G. Fr. 736,655, May 4, 1932. Acid esters from higher alkylene glycols and polybasic acids, particularly $H_2SO_4$, as well as salts of these compds., are used as wetting, etc., agents. Alkylene glycols include the products of fixation of water on unsatd. alcs. of high mol. wt. which are obtained from spermaceti and other oils.

**Detergent composition.** OSCAR TEXTOR and BERT CRITES. U. S. 1,888,334, Nov. 22. A compn. suitable for cleaning stone, marble, porcelain, etc., comprises $H_2SO_4$ 9, diatomaceous earth 3 and $Na_2SO_4$ 88%.

**Lime kiln.** JÁNOS SZABON. Hung. 104,432, Mar 30, 1931. The kiln consists of several units connected by channels. Boilers are located above the kiln. Structural details are given.

**Rotary kiln for lime, cement, etc.** ALBIN NILSSON. Norw. 49,973, Dec. 28, 1931.

**Rotary furnace suitable for use in calcining gypsum.** A. BOURDET. Brit. 359,900, Dec. 19, 1929. Various details are described of a furnace with 2 tubular chambers through which the material is passed in series in direct contact with heating gases. The first chamber is heated to a higher temp. than the second, and the material and the heating gases move in the same direction through the first and in opposite directions through the second chamber.

**Synthetic piezoelectric crystal.** ALEXANDER MEISSNER (to Telefunken Ges. für drahtlose Telegraphie m. b. H.). U. S. 1,886,234, Nov. 1. A synthetic crystal is formed of powder-like dielectric particles such as quartz the elec. axes of which are oriented in similar sense. U. S. 1,886,235 relates to a piezoelec. element including materials such as a resin, wax, asphaltum or "electret" and powd. quartz.

**Material for molded valve disks.** CLARENCE A. NASH (to Bakelite Corp.). U. S. 1,888,179, Nov. 15. Valve disks are molded from resinoid-impregnated asbestos fabric in sheet form cut to size for the exterior surfaces and a filler between of asbestos fibers also impregnated with resinoid.

**Sheet material suitable for gaskets or seals.** ELMER C. SCHACHT (to Behr-Manning Corp.). U. S. 1,888,409, Nov. 22. Resilient and flexible sheet material is formed with a body comprising comminuted cork and interlaced fibers assocd. with a binder such as a glue, glycerol and formaldehyde product which is resistant to water and mineral oils. U. S. 1,888,410 relates to similar material with a united surface layer of a paper-like material.

**Brake-lining material.** ADOLPH ROSNER (to Bendix Brake Co.). U. S. 1,887,981, Nov. 15. A woven fabric matrix is impregnated with a cyanide salt such as Cu ferrocyanide, castor oil, synthetic resin and lead.

**Magnetic cores.** TELEFONAKTIEBOLAGET L. M. ERICSSON. Fr. 736,964, May 11, 1932. An alloy contg. Mn 17 and Ni 83% is used in powd. form as cores particularly for loading coils for telephone cables.

**Standardizing magnetic cores.** WLADIMIR J. POLYDOROFF (to Johnson Laboratories, Inc.). U. S. 1,887,380, Nov. 8. A magnetic core contg. insulated finely divided particles is standardized by passing an elec. discharge through a path within the core.

**Cores of magnetic material.** STANDARD ELECTRIC A/S. Norw. 48,178, July 21, 1930. A finely divided magnetic material is mixed with an acid and an alkali in such proportions that the acid and the alkali together with another insulating material acting as a carrier for these substances form an insulating substance in amts. sufficient to obtain an efficient insulation of the magnetic particles from each other. The acid should be of the Cr or the As group, for instance molybdic, tungstic, antimonic, phosphoric, antimonious, arsenious or chromic acid.

**Packing material.** AUGUST NIELSEN. Norw 51,497, Sept. 26, 1932. Cords, strings or ribbons of wool, linen, hemp, coconut fibers, cotton, paper or cellulose are impregnated first with linseed oil or a mixt. of linseed oil and tar and afterward with a putty substance, *e. g.*, ordinary window putty or red-lead putty.

**Loose packing material for pistons, etc.** CLARENCE D. MCPHERSON (in part to Eugene S. Heiberger). U. S. 1,889,287, Nov. 29. Molten Pb is dropped upon the surface of a body of liquid such as water to cause the molten Pb to spread out to an attenuated and porous form having irregular and ragged edges. . Highly heated heavy lubricating oil is poured upon shredded asbestos mildly heated so that the asbestos takes up a large quantity of the oil, and graphite and the attenuated Pb pieces are mixed with the oil-satd. asbestos.

**Rod and shaft packing.** HERBERT S. WALKER (to Allpax Co.). U. S. 1,886,993, Nov. 8. Packing is formed contg. 98% of soft metal fragments, yieldable fiber and lubricant such as graphite and oil and about 2% of an unvulcanized rubber binder.

**Shoe stiffener material.** JOSEPH M. LURIE (to Arden Box Toe Co.). U. S 1,886,345, Nov. 1. A stiffener material comprises a fibrous foundation carrying pulverized celluloid bonded to it by rosin size and dried, water-dispersed rubber (the material being quickly permeable throughout by celluloid solvents).

**Attachment for removing eternite from the forming drum.** S. A. BARANNIKOV. Russ. 25,474, May 7, 1930.

**Fibrolite.** P. V. LAPSHIN and K. V. BARSUK. Russ. 25,473, Feb. 23, 1930. Fibrolite mass, prepd. by known methods, is heated in a special oven to 300° to 900° immediately after pressing. The mass is then finally dried in a special drier.

**Apparatus for mixing fibrolite.** A. YA. UNGER and G. YA. UNGER. Russ. 25,085, May 29, 1931.

**Transparent mass from potatoes.** I. L. DRIGO and A. S. GULYAEV. Russ. 24,963, Dec. 26, 1930. Potato flour is treated with an aq. soln. of $Al_2(SO_4)_3$, tannin and $K_2Cr_2O_7$ or aq. $H_2O_2$ soln., $Ca(NO_3)_2$, urotropine or aq. $NH_3$, hyposulfite, MeOH and triphenyl phosphate.

**Polishing composition for varnished and other smooth surfaces.** JACQUES A. J COLLARD. Brit. 363,036, Oct. 15, 1930. See Belg. 374,148 (*C. A.* **26**, 1459).

**Cleaning composition for glass, etc.** MARGIT LIE Norw. 48,119, July 7, 1930 A compn. suitable for cleaning glass and other materials, contains an aq. soln. of $NH_3$ together with turpentine, benzine or other fat solvent, and albumin.

**Cleansing composition for tapestry, ceiling, and wall surfaces, paintings, etc.** HANS EKJORD and G. HORSTMANN. Norw. 50,662, April 18, 1932. A basic mass of flour and water contains admixtures of NaCl and small amts. of HCl and phenol, heavy petroleum and methyl orange dye.

**Coating for writing tablets or boards, etc.** J. B. E. LAMBRECHT and SOC. ANON. CHEMIFAX. Brit. 344,489, Dec. 2, 1929. A coating permitting removal of matter written in ink contg. only water-sol. ingredients consists of a mixt. of solns. (preferably in different org. volatile solvents) comprising a material such as a cellulose compd forming an elastic surface and a substance such as resin resistant to chemicals. Instead of the cellulose compd. there can be used rubber and softening and modifying agents and the resin may be replaced by, or admixed with, paraffin and solid inert fillers or pigments. Paper is coated with the compn and attached to cardboard.

**Renewing ink-repelling surfaces on mercury printing plates.** HEINRICH RENCK. U. S. 1,889,374–5–6, Nov. 29. Various details of app. and operation are described, involving use of either atomized Hg or Hg salts.

**Waterproof coating material suitable for use on wall board, sheet metal, etc.** CHARLES F. MAUER. U. S. 1,888,560, Nov. 22. Clay and a carbohydrate binder such as cooked starch, glucose or dextrin are used with a waterproofing compn. formed from dissolved Na phosphate, vegetable wax such as Japan wax, glue and alum.

**Transfers for decorating pottery or other smooth surfaces.** LEONARD ALLEN and ERNEST C. DEERING. U. S. 1,888,154, Nov. 15. Transfer paper is printed with finely divided metals in admixt. with essential oils.

**Mixed solution of colloidal mercury and silver.** HUKUYASU HARASAWA. Japan. 93,608, Nov. 16, 1931. The soln. is prepd. by mixing dil. $HNO_3$ solns. of $HgNO_3$, $AgNO_3$ and $Sn(NO_3)_2$.

**Reflector for ultra-violet ray.** KITUZO FUWA (to Tokyo Denki K. K.). Japan. 93,961, Dec. 17, 1931. The reflector surface is coated with a mixt. (the main constituent of which is MgO), by using an artificial resin (prepd. from urea and HCHO), waterglass, borax or their mixt. as the adhesive.

**Carbon remover.** THOMAS A. BOYD (to The General Motors Research Corp.) and EARL BARTHOLOMEW (to The Ethyl Gasoline Corp.). Can. 329,139, Jan. 3, 1933. A C-removing compn. contains furfuryl alc. together with xylene, ethylbenzene or toluene. Cf. *C. A.* **26**, 1101.

**Clarifying agent for liquids.** M. JADOUL. Belg. 387,937, May 31, 1932. A

coagulating gel is produced by treating a concd. soln. of amylaceous material with alk. products; a small amt. of a decolorizing agent is added. An app. is specified.

**Capsule composition for sealing bottles and other glassware.** B. STRÖM and W. OBERMANN. Norw. 49,447, Oct. 19, 1931. Gelatin and glue are dissolved in hot water to a sticky soln. to which is added raw rubber dissolved in benzene or a similar solvent. At a temp. of 70–80° under const. stirring are added in succession metal oxides, glycerol, paraffin wax, more glycerol, linseed oil, copal, formaldehyde soln., and turpentine, after which the stirring is continued for several hrs. at a temp. of 50–60°.

**Anticorrosion and antifreeze liquid, especially for wet gas meters.** JÓZSEF BECZKÓY and GYULA KERTÉSZ. Hung. 104,241, March 26, 1931. Dry chlorides of alk. earth metals are added to dry chromates or dichromates of alkali metals and the mixt. is moistened with an emulsion of heavy hydrocarbons.

**Imitation earthenware.** L. BERTINCHAMPS. Belg. 386,910, April 30, 1932. The product consists of cement, marble dust, asbestos, talcum, casein, color and distd. $H_2O$.

**Inflating plugs for tennis balls, etc.** L. E. WILLIAMS and G. E. JAMES. Brit. 341,550, Oct. 19, 1929. Inflating plugs are formed with superposed layers of rubber of different degrees of vulcanization (an intermediate layer being less highly vulcanized or unvulcanized). Various structural details are described. Brit. 341,551 relates to generally similar devices.

**Composition for golf-ball cores.** DUNLOP RUBBER CO., LTD., S. G. BALL and E. W. ALLEN. Brit. 341,163, Nov. 5, 1929. A soln. of $CaCl_2$ is used with or without addn. of glycerol, dyes or protective colloid stabilizers such as gelatin, gum acacia, gum tragacanth, Iceland moss, carrageen, algin or agar agar (the soln. having a sp. gr. of about 1.4).

**Thermophoric mixture.** THOMAS P. BELL (to Thermophor Mfg. Co.). U. S. 1,887,618, Nov. 15. A mixt. of $Na_2SO_4$ and $Na_2SO_4.10H_2O$ (suitably in the proportions of 2 and 3 parts, resp.) is used with NaOAc 92 and glycerol 3 parts. Cf. *C. A.* **26**, 2833.

**Chewing-gum base.** GEORGE A. HATHERELL (to Frank A. Garbutt). U. S. 1,887,930, Nov. 15. A chewing gum-material is formed comprising rubber, a protein material such as an alc.-sol. cereal protein material and a resin such as coumuarone resin.

**Composition for use on rubber printing blankets.** GEORGE W. BENNETT. U. S. 1,888,109, Nov. 15. A compn. which serves to facilitate "making ready" in offset printing contains as a vehicle a mineral-oil product such as kerosene less volatile than gasoline but more volatile than spindle oil, spirits of turpentine, a "penetrating oil" consisting largely of hydrocarbons, oil of sassafras and oil of cloves (a small proportion of powd. S and powd. orris root being also carried by the vehicle).

**Dental cement.** OTTO SIMON. U. S. 1,886,982, Nov. 8. A usual silica or phosphate dental cement is combined with a sulforicinate or sulfonated castor oil.

**Vermin-destroying compositions.** CHEM. FAB. IN BILLWÄRDER VORM. HELL & STHAMER A.-G. (Hanno Geller, inventor). Ger. 567,402, June 20, 1931. Pastes contg. $CS_2$ or $CCl_4$ are prepd. by adding $CS_2$ or $CCl_4$ to a mixt. of a fatty acid salt, *e. g.*, K oleate, with pyridine or a homolog or deriv. thereof.

**Compositions such as those of cellulose acetate.** GEORGES E. ZELGER (to DuPont Film Mfg. Corp.). U. S. 1,886,775, Nov. 8. An ester such as diethyl ester of the acid $C_6H_5PO(OH)_2$ is used as a *plasticizer* and *fireproofing agent.*

**Foam distribution for extinguishing fires in tanks.** BENJAMIN A. MOELLER. U. S. 1,889,101, Nov. 29. A partially confined foam stream is flowed horizontally onto the surface of liquid such as oil in a tank. App. is described.

**Acid cylinder for a foam fire extinguisher.** G. A. SHTEKER. Russ. 25,047, Dec. 20, 1930.

**Fire-extinguishing apparatus using pressure fluid for ejecting extinguishing fluid or foam.** ROLAND MORTON. Brit. 363,235, Feb. 27, 1931.

**Fire extinguisher.** KARL ANDVIG. Norw. 45,749, Dec. 29, 1930. Structural features.

## 19—GLASS, CLAY PRODUCTS, REFRACTORIES AND ENAMELED METALS

G. E. BARTON, C. H. KERR

**Progress of the glass industry in 1931.** OSCAR KNAPP. *Glashütte* **62**, 897–8 (1932); cf. *C. A.* **27**, 388. M. V. KONDOIDY

**Relation between the shape and size of a glass-melting pot and its durability.** MASANOBU NAKATSUJI. *J. Japan. Ceram. Assoc.* **40**, 511–15(1932). S. KONDO

**Factors affecting the life of glass pots.** JOHN M. NEFF. *Ceram. Ind.* **19**, 270–2 (1932).—Glass-pot compns. and methods of prepn. are discussed. E. E. L.

**Technic of glass-pot arching and melting practice.** JOHN M. NEFF. *Ceram. Ind.* **20**, 13–15(1933). ELTON E. LENT

**Avoiding defects in glassware by correct batch mixing.** F. GELSTHARP. *Ceram. Ind.* **19**, 231–4(1932).—Suggestions are given for mixing materials to avoid stones in glass, reaming, stringing and other defects. ELTON E. LENT

**Working glass with Widia tools.** A. FEHSE AND B. KINDT. *Glastech. Ber.* **10**, 193–200(1932).—A description of the difficulties which occur in working glass, the difference between the working of metal and that of glass, and the use of "Widia," a hard metal, for tools for working glass, glass boring and glass cutting. Illustrated. ELTON E. LENT

**Austenitic alloy irons and their application in the glass industry.** GERALD S BELL. *Glass* **9**, 474–7(1932). ELTON E. LENT

**Decrease in the iron content of glasses decolorized by means of selenium.** EMILIO DAMOUR AND ALEXANDRE NADEL. *Chimie & industrie* **28**, 1283–8(1932).—See *C. A.* **26**, 5184. A. PAPINEAU-COUTURE

**The influence of cerium and arsenic on the photochemical behavior of silica glasses.** F. ECKERT AND K. SCHMIDT. *Glastech. Ber.* **10**, 80–5(1932).—(1) The intensity and velocity of discoloration of Ce glasses in ultra-violet light depend on the Ce content These values vary between a max. with 2.56% $Ce_2O_3$ and almost no effect with 0.005% $Ce_2O_3$. Discoloration is from yellow to yellow-brown. (2) To obtain the same discoloration glasses prepd. from ordinary raw materials melted in a blast furnace require shorter exposure than those from pure raw materials melted in an elec. kiln. (3) In an alkali-lime glass contg. Ce, $NaNO_3$ does not discolor in ultra-violet light, but As does $NaNO_3$ used in the presence of As accelerates discoloration. $Na_2SO_4$, $Na_2SO_4$ + $NaNO_3$, NaCl and $B_2O_3$ do not discolor without As. (4) $Sb_2O_3$, $Bi_2O_3$ and $V_2O_5$ produce a discoloration equal to that of As in the presence of Ce. These elements belong to the same group of the periodic system but the velocity and intensity of discoloration decrease with increased at. wt. (5) $As_2O_3$ and $Bi_2O_3$ without addns. of Ce affect the discoloration in ultra-violet light also. Its velocity and intensity, however, are lower than with Ce. Discoloration occurs with use of C. P. as well as tech. raw materials (6) Glasses with $Pr_2O_3$ or $Nd_2O_3$, without Ce but with an As content, discolor in ultra-violet light somewhat more slowly than the corresponding Ce glasses. No discoloration appears in the presence of $As_2O_3$. (7) Addn. of $TiO_2$ to $As_2O_3$-$Ce_2O_3$ glasses doubles the velocity of discoloration. No discoloration occurs in $TiO_2$-$Ce_2O_3$ glasses in the absence of $As_2O_3$. (8) A glass melted in a reducing atm. does not discolor in ultra-violet light but its blue-green coloration changes to colorless. (9) A glass melted in an oxidizing atm. discolors toward yellow and its velocity is increased five-fold. (10) By reduction in an atm. of H at the softening temp. glasses contg. As color into brown, those contg. Sb into gray-brown, while the proper green and blue-green color tones of all other glasses, whether contg. Ce or not, change to yellow-green and light green-yellow. The Ce content does not influence this change in color. All these glasses do not change on exposure to ultra-violet light. (11) Oxidation in an atm. of O at softening temp. of these glasses changes the green color to yellow and light yellow. They discolor in ultra-violet light. (12) The intensity of fluorescence of Ce glasses depends on the Ce content Phosphorescence could be detd. only in glasses which contain As. Thermoluminescence was observed in all glasses. ELTON E. LENT

**Ultra-violet radiation and U-glass.** HARALD LUNELUND. *Teknillinen Aikakauslehti* **22**, 414–18(1932).—A summary of the phys. and biol. properties of rays is given Ordinary window glass does not begin to transmit ultra-violet light until the region of 310 $\mu\mu$ is reached, while the new U-glass transmits at 260 $\mu\mu$. In the region of the Dorno interval (320–290 $\mu\mu$) the new U-glass transmits from 40 to 80% of the ultra-violet light The importance of the Dorno interval in biol. work is stressed. S. A. KARJALA

**Spectacle glasses.** TORU TAKAMATSU. *J. Japan. Ceram. Assoc.* **40**, 642–5 (1932).—Spectacle glasses are optically anisotropic and consist of parallel layers. Consequently, they are made of sheet glass composed of silica 70–75, soda 12–14 and lime 10–12%. Most of the glasses have $n_D$ 1.519. Their durability was examd. as follows: The glass was powdered to particles of 0.25–0.4 mm. and a wt. in g. equal to the sp. gr. of the glass was heated with 50 cc. of water on a water bath for 1 hr. The dissolved alkali was titrated. The amts. of dissolved alkali in mg. were: 7 imported glasses 0.50–0.77, Japanese P 0.60, Japanese C.O.T. 0.51, 6 Japanese glasses 1.52–3.57. S. K.

**The replacement of window glass in vehicles by other materials.** O. KAUSCH. *Kunststoffe* **23**, 10–12(1933).—Certain artificial materials, *e. g.*, cellite or Pollopas, are recommended as giving a pane having the advantages over glass of being somewhat more elastic and of not forming sharp splitters on breaking. The cost is also said to permit competition with glass. J. W. PERRY

**Character, importance and requirements of safety glass. I.** C. H. ZEFER. *Glashütte* **62**, 590–3, 678–9, 694–6(1932).—The development, manuf. and testing of safety glass are discussed. **II.** *Ibid* 836–8.—German and foreign patents for safety glass are reviewed and discussed. M. V. KONDOIDY

**Should safety glass have one or more layers?** HERZOGENRATHER GLASWERKE BICHEROUX UND CIE., G. M. B. H. AND M. VOGT. *Kunststoffe* **22**, 271–2(1932).—A polemical discussion of Vogt's article (*C. A.* **27**, 171). J. W. PERRY

**Utilization of waste heat in the clay industry.** C. HÜTTER. *Tonind. Ztg.* **56**, 1074–6, 1098–9(1932). H. F. K.

**Cleaning low-grade clays.** M. C. SHAW. *Ceram Age* **20**, 220–1(1932). ELTON E. LENT

**Clay flow.** E. H. FISCHER. *Ceram. Age* **20**, 136–9(1932).—A photographic study of some common flow phenomena in hot-pressing elec. porcelain. E. E. LENT

**Developing of high-fired terra-cotta.** W. F. STEARNS *Ceram. Age* **20**, 177–8, 204(1932). ELTON E. LENT

**Ceramic bodies of low absorption maturing below 1000°.** R. F. GELLER AND D. N. EVANS. *Ceram. Ind.* **20**, 32–35, 48(1933). A study of whiteware bodies contg. synthetic flux. ELTON E. LENT

**The effect of evacuation of jigger bodies.** G. A. LOOMIS. *Ceram. Ind.* **19**, 236–9 (1932). ELTON E. LENT

**Foundry practice in sanitary ware.** LOUIS WOLFF. *Ceram. Ind.* **20**, 22–5(1933). ELTON E. LENT

**Soldered porcelain and glass in the electrical industry.** E. H. FRITZ. *Ceram. Ind.* **19**, 279 83(1932). ELTON E. LENT

**Alumina as a highly refractory substance.** H. GERDIEU. *Z. tech. Physik* **13**, 586–90(1932).—App. made of "Sinterkorund," a highly sintered pure $Al_2O_3$, is resistant to reducing and oxidizing atm. and is gas tight to 1800°. ARTHUR FLEISCHER

**Monolithic refractory concretes.** H. T. COSS AND N. J. KENT. *Ceram. Age* **20**, 212–14, 241(1932). ELTON E. LENT

**Refractory service with particular reference to boiler furnaces.** JOHN WALKER. *Sprechsaal* **64**, 976(1931); *Engineering* **135**, 4–7, 34–7(1933). R. F. FERGUSON

**Dry-process enamels for signs.** LUDWIG STUCKERT. *Ceramic Age* **20**, 140–2, 160–2(1932). ELTON E. LENT

**Production and firing of enameled products.** [**Bricks and sanitary products.**] ALBERT GRANGER. *Ceram. et verrerie* **1932**, No. 845, 597–602; cf. *C. A.* **27**, 173.—Formulas are given for various engobes or slip paints, including red, pink, salmon, blue, green, chocolate, gray, pale green and black. In relation to glazes, various types of frits, such as alkaline and boric acid frits, are used, either as fluxes or as constituents of the glaze. Glazes for white products are colorless or opaque and white, placed on a colored mass or on a white engobe covering a colored mass. Formulas are given. ALICE W. EPPERSON

**The adhesion of glue and fused alumina abrasives.** HENRY R. POWER. *Metal Cleaning and Finishing* **4**, 611–12(1932); cf. *C. A.* **26**, 642.—Adhesion is improved by exposing abrasives to oil fumes. D. THUESEN

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Varnish [and lacquer] as adhesives [for manufacture of safety glass] (HUTH) **26.** Gas generators in glass plants (TORLÉE) **21.** Transfers for decorating pottery (U. S. pat. 1,888,154) **18.** Building material (Norw. pat. 47,407) **20.** Drying solids [clay] (Norw. pat. 51,641) **13.**

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**10 Jahre Keramik, 1920–1930.** Issued by Keramische Fachgruppe im Deutschen Hauptverbande der Industrie in Aussig an der Elbe. Reichenberg: G. Stiepel. 284 pp. Reviewed in *Chemistry & Industry* **1932**, 1067.

KARMAUS, H. J.: **Prüfungsmethoden für emaillierte Gegenstände.** Duisburg: L. Vielhaber. 24 pp. M. 1.65.

ANDRESEN, CHRISTEL: **Physikalische Untersuchungen an FeO- und $Fe_2O_3$-haltigen Natronsilikatgläsern.** Thesis, Hanover, 1931. 23 pp.

BAGS, ULRICH: **Zur Chemie des Tones.** Thesis, Berlin, 1931. 61 pp.

NEUMANN, WALTER: **Über die Tonsubstanz. Ein Beitrag zur Beurteilung der rationellen Analyse.** Thesis, Dresden, 1931. 37 pp.

SIMON, GERH.: **Der spezielle Widerstand einiger hochfeuerfester Erdoxyde bei hohen Temperaturen unter besondere Berücksichtigungen ihrer Verwendbarkeit im elektrischen Ofen.** Thesis, Freiberg, 1930. 32 pp.

WEHNER, JOH.: **Die sächsische Emaillierindustrie.** Thesis, Dresden, 1931. 111 pp.

WILMS, HELMUT: **Die Ziegelindustrie im Wettbewerb mit den Konkurrenzbaustoffen.** Thesis, Cologne, 1931. 81 pp.

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**Glass.** JOSHUA MARK WILSKER. Brit. 362,938, Sept. 8, 1930. See Australian 29,080 (*C. A.* **26**, 5189).

**Glass-making or metallurgical furnace.** HANS M. ESCHENBACHER. Ger. 567,386, Oct. 7, 1930. A hood for collecting hot air from the furnace is described.

**Glass-furnace forehearth.** K. E. PEILER (to Hartford-Empire Co.). Brit 359,489, Aug. 21, 1929. Various structural features are described, suitable for use with a suction-gathering machine.

**Floater for use in glass tank furnaces.** ENOCH T. FERNGREN (to Libbey-Owens Ford Glass Co.). U. S. 1,888,496, Nov. 22. A refractory clay float has an interior chamber lined with SiC through which a cooling fluid may be passed.

**Replaceable floating abutment bodies for the floaters in glass furnaces.** FIN MAGNE. Norw. 49,555, Nov. 2, 1931.

**Continuous heating and cooling furnace for glass.** F. BINON. Belg. 387,734, May 31, 1932. Structural features.

**Melting pots.** O. KRÖGER and O. OSWALD. Brit. 380,290, Sept. 4, 1931. Glass melting pots of chamotte are protected from action of molten glass or combustion products by rubbing dry powd. talc into the surface or by applying a thin coating of talc mixed with $H_2O$ or water glass.

**Apparatus for feeding mold charges of molten glass.** KARL E. PEILER (to Hartford-Empire Co.). U. S. 1,888,963, Nov. 22. Mech. features.

**Apparatus for manufacture of glassware.** ALGY J. SMITH (to Hartford-Empire Co.). U. S. 1,888,438, Nov. 22. Mech. features.

**Apparatus for forming molded glassware.** EDWARD H. LORENZ (to Hartford-Empire Co.). U. S. 1,888,199, Nov. 15. Mech. features

**Apparatus for forming hollow glass articles such as bottles and jars.** VICTOR E. HOFMANN (to Owens-Ill. Glass Co.). U. S. 1,888,318, Nov. 22. Mech. features.

**Sheets of glass.** FORGES ET ATELIERS DE CONSTRUCTIONS ÉLECTRIQUES DE JEUMONT. Fr. 736,368, Aug. 26, 1931. Means are described for pouring the molten glass.

**Take-off apparatus for sheet-glass-forming machines.** EUGENE GENTIL (to American Bicheroux Co.). U. S. 1,889,065, Nov. 29. Mech. features.

**Apparatus for rolling glass sheets.** LEANDER N. POND (to Blue Ridge Glass Corp.). U. S. 1,886,302, Nov. 1. Details of a hollow roll cooling system are described.

**Sheet-glass-drawing apparatus.** EDMOND L. LEROY. U. S. 1,887,414, Nov. 8 Mech. features of an app. in which wooden blocks are held against the glass to coat it with soot which is polished off by rollers.

**Apparatus for annealing sheets of glass.** FORGES ET ATELIERS DE CONSTRUCTIONS ELECTRIQUES DE JEUMONT. Fr. 736,726, Sept. 4, 1931.

**Continuous apparatus for rolling glass strip.** PILKINGTON BROS., LTD. Ger 562,331, Dec. 20, 1930. See Brit. 347,585 (*C. A.* **27**, 1127).

**Refractory glass.** MASAHIDE KAMIYAMA (to K. K. Simazu Seisakuzyo). Japan 94,042, Dec. 26, 1931. The glass is made of $SiO_2$ 65–75, $B_2O_3$ 10–15, $Al_2O_3$ 2–5, alkali oxide 4–10 and ZnO 3–10%. The linear expansion coeff. is $4 \times 10^{-6}$. It is resistant to acids and alkalies.

**Barium glass for electric insulation.** KÔZÔ TABATA and KENSUKE EGAMI (to the Minister of Communications). Japan. 93,969, Dec. 18, 1931. The glass contains $K_2O$ 0.2–0.9, $Na_2O$ 0.1–0.8, BaO 1.5–3.0 and $SiO_2$ 5.0–10.0 mol.

**Glass transmitting ultra-violet rays.** FRED M. LOCKE and FRED J. LOCKE (to Corning Glass Works). U. S. 1,886,280, Nov. 1. A colorless glass having high ultraviolet transmission is formed by melting a F-contg. batch in a carboniferous container. The batch may comprise $SiO_2$ 35.5–40, $H_3BO_3$ 16.5–32.5, $Al_2O_3$ 21–27 and CaO 11–17% together with $CaF_2$. Cf. *C. A.* **26**, 821.

**Revivifying ultra-violet-transmitting glass.** HARRISON P. HOOD (to Corning Glass Works). U. S. 1,889,067, Nov. 29. The transmitting properties of the glass are restored by heating to approx. the annealing temp.

**Apparatus for pressing graduated containers.** S. I. KOROLEV and S. S. OTREBELEV. Russ. 26,778, May 27, 1929. Construction details.

**Ornamenting glassware.** E. A. HAILWOOD. Brit. 344,157, Jan. 29, 1930. The surface is covered with paper, foil or the like and a design is marked out by a hot needle or wire and paint is sprayed into the spaces formed. The covering material may be impregnated with $KNO_3$ or the like to facilitate burning out the design.

**Glass tiles.** JOHN H. KNAUER (to Rene G. Le Brosi). U. S. 1,887,135, Nov. 8. Various mech. details of manuf. of reënforced cast glass tile are described.

**Composite silicate articles such as astronomical telescope mirrors.** GUNNAR A. F. WINCKLER (to General Elec. Co.). U. S. 1,888,341, Nov. 22. Angular pieces of vitreous silica are united with one another by use of a H-O flame at isolated regions of contact only so that spaces constitute a large fraction of the total vol. of the material and a support of such material carries a layer of cavity-free silica united with the support.

**Apparatus for air-tempering glass.** COMPAGNIES RÉUNIES DES GLACES ET VERRES SPÉCIAUX DU NORD DE LA FRANCE. Fr. 736,421, Sept. 2, 1931.

**Non-shatterable glass.** C. M. I. WINTER. Belg. 388,148, May 31, 1932. Glass is rendered non-shatterable by applying a sheet of cellulose acetate in a bath contg. a fatty solvent of high b. p.

**Safety glass.** LOUIS C. F. PECHIN. Fr. 40,684, Aug. 20, 1931. Addn. to 721,095 (*C. A.* **26**, 4147). More than 3 sheets of glass are joined together by a synthetic balsam having an $n$ near that of glass. Fluorescein or halogenated fluoresceins are incorporated with the balsam to intercept the chemically active rays.

**Safety glass.** SOCIETÀ ANONIMA V. I. S. (VETRO ITALIANO DI SICUREZZA). Fr. 736,028, Apr. 27, 1932. A safety glass resistant to pressure and shocks is composed of a plate of tempered glass covered on each face by a sheet of ordinary thin glass, with the interposition of plates of celluloid or like material, the various plates being assembled by known processes.

**Safety glass.** MIROITERIE "LE LION," SOC. ANON. Belg. 387,943, May 31, 1932. A sheet of celluloid is interposed between two sheets of glass and the assembly is immersed in a chem. bath and subjected to high pressure and temp.

**Transparent sheets for making safety glass.** FRIEDRICH MEYER. Fr. 737,042, May 13, 1932. Sheets for use alone or in making safety glass are made by mixing or dissolving hard substances such as celluloid, acetylcellulose, viscose, gelatin or hardened resin, in a solvent of high b. p. with soft or viscous substances such as rubber, soft resins or balsams, artificial gum-lac or vinyl acetate. As solvents butyl stearate, dibutyl phthalate, tricresyl phosphate, glycol, glycerol and castor oil may be used.

**Uniting sheets of glass with reënforcing material such as celluloid.** EARL L. FIX and MAURICE L. MACHT (to Duplate Corp.). U. S. 1,887,550, Nov. 15. Sheets of glass with an intervening sheet such as celluloid are pressed together with the edges of the intervening sheet exposed, and the assembly is submerged in a liquid and the liquid is subjected to heat and pressure while the mech. pressure on the sheets is also maintained. App. is described.

**Purifying and decolorizing clay.** GEORGE SIMCOE (to Edgar Bros. Co.). U. S. 1,888,701, Nov. 22. The clay is subjected to at least partial deflocculation in the presence of water and some insol. impurities are removed by gravity settling to produce a partially purified slip; the slip is treated with $SO_2$ to solubilize insol. Fe compds. present, remove org. coloring substances and effect strong flocculation, and the slip is subsequently treated partially to re-deflocculate it and eliminate sulfurous odors, as by use of $Na_3PO_4$.

**Porous clay products.** AAGE NIELSEN. Fr. 735,954, April 26, 1932. The clay mass, before being made porous in known manner, is rendered liquid by the addn. of alkali hydroxides or salts of alk. products and weak acids. The mass after being made porous is brought to a consistency suitable for molding by the addn. of chem. products such as NaCl, $Na_2SO_4$, $CaSO_4$, $CaCl_2$ or $MgCl_2$, or by chem. transformations.

**Resistance devices.** VEGA LABORATORIES CORP. Brit. 363,017, Sept. 24, 1930. In prepg. an insulated conductor element for a resistance device the conductor base is coated with a layer of refractory oxide, *e. g.*, $Al_2O_3$, mixed with a soln. of a halogen compd., *e. g.*, 25% aq. $AlCl_3$ soln., and a chem. change is caused therein whereby the halogen compd. is convered into refractory oxide, *e. g.*, by baking.

**Metals on porcelain.** LA PORCELAINERIE DE LESQUIN. Fr. 737,035, May 13, 1932. Ag is pptd. from an acid soln. of $AgNO_3$, washed, mixed with Bi subnitrate and applied as a paint to porcelain. The whole is calcined at about 800°.

**Gas-fired tunnel kiln for manufacture of tiles, pottery, etc.** H. STEELE. Brit. 358,292, Oct. 15, 1930.

**Heating gas-supply system for tunnel kilns.** HARROP CERAMIC SERVICE CO. Brit. 359,428, April 10, 1930.

**Down-draft brick kiln.** C. R. IVORY. Brit. 358,053, July 2, 1930.

**Muffle kiln suitable for burning ceramic products.** LEO W. MANION. U. S. 1,886,491, Nov 8.

**Apparatus and process for the continuous baking of ceramic and other products.** FOURMENT & LADUREE. Brit. 362,896, June 7, 1930. Void.

**Kiln for firing abrasive articles.** M. D. KAMENSKII. Russ. 25,477, Sept. 28, 1930. Construction details.

**Rotating kiln for firing alabaster.** M. B. POPLAVSKII Russ. 25,479, Nov. 16, 1927.

**Crate for firing porcelain goods in a muffle furnace.** I. A. MELNIKOV. Russ 25,480, June 27, 1930.

**Refractory material.** BORGESTAD FABRIKKER Norw. 47,286, Dec. 28, 1931 The material is characterized by a content of chrome-free and titanium-free oxidic Fe compds. in amts. of 5–50% together with $Mg_2SiO_4$ in amts. of 30–95%.

**Refractory material.** BORGESTAD FABRIKKER Norw. 49,682, Nov. 16, 1931 Addn. to Norw. 47,407 (*C. A.* **27**, 1478). More or less finely divided chrysolite rock is mixed with a binder, formed and burned.

**Refractory materials.** BORGESTAD FABRIKKER Norw. 50,149, Feb. 1, 1932 Iron-contg. Mg silicates, particularly natural rocks rich in $Mg_2SiO_4$ and contg substantial amts. of Fe, such as certain chrysolites, with or without other Mg silicates such as serpentine, are mixed with adequate amts. of Mg compds. such as MgO, $MgCO_3$ and similar substances and hardened by heating to high temps. without fusion in order to convert Fe into Mg ferrite and the free or liberated $SiO_2$ into $Mg_2SiO_4$

**Refractory brick.** RUSSELL P. HEUER (to General Refractories Co.). U. S. 1,886,185, Nov. 1. In making refractory brick from hydrous alumina-silica mineral contg. less than 60% of silica, the mineral such as flint clay is calcined at a temp. above 1400° and at least 85% of the calcined material is used (suitably with an admixt. of raw hydrous material) for molding under a pressure of 1000 lb. per sq. in. or higher

**Refractory blocks, plates, etc.** ARTHUR SPRENGER. U. S. 1,886,268, Nov. 1 Molten material from a smelting process contg magnesia and alumina as the main constituents is granulated and mixed with Cr-Fe-Mg compds such as a chromite and magnesite mixt. in small proportion and the mixt is molded and burned Cf. C. A. **27**, 391.

## 20—CEMENT AND OTHER BUILDING MATERIALS

J. C. WITT

**Finely ground cement.** ANTONI EIGER. *Tonind.-Ztg.* **56**, 1158–9(1932); cf *C. A.* **26**, 6091. H. F. K.

**Properties of natural and artificial cements as shown by long-date tests.** C. VIGLIANI. *Assoc. intern. essai matériaux congr. Zurich* I, 687–98(1931).—Tests which were carried out with standard 1:3 mortars of numerous Italian and foreign cements are reported. Addns. of pozzuolana, slow-setting cement or metallurgical slags appear to increase the long-date strength and raise the resistance of mortar and concrete to the attack of aggressive solns KARL KAMMERMEYER

**Cement containing added hydraulic materials.** R. GRÜN. *Assoc. intern. essai matériaux congr. Zurich* I, 778–845(1931).—A very extensive report on the effects of various addns. of hydraulic materials called "*hydraulites*" upon the strength, hardness and resistance to corrosion of cement. KARL KAMMERMEYER

**Gaize cement.** G. BAIRE. *Assoc. intern. essai matériaux congr. Zurich* I, 908–18 (1931).—Test results with gaize, a siliceous argillaceous rock, as raw material for cement, are reported and compared with those of a high-class portland cement. Gaize cement does not contain any free lime, and is superior to portland cement in corrosive resistance to vegetables and mineral oils, gasoline, weak acids, various chlorides, sulfates and nitrates. KARL KAMMERMEYER

**Attempts to standardize the setting temperatures of cements.** S. HERZ. *Tonind.-Ztg.* **56**, 1204(1932).—Since the mineral compn. of the cement affects its setting temp., a calorimetric detn. of the setting cement roughly indicates the quantities of its constituents. H. F. K.

**Is the use of standard sand still helpful?** FRANZ BENDEL. *Tonind.-Ztg.* **56**, 1252 (1932).—B. suggests the variations induced by the use of sand in the comparative tests

of cements as reason for its omission. KARL A. GOSLICH. *Ibid.* G. states that these conditions should be met in the test procedures since they occur in practice. H. F. K.

**Improvement of the strength of cements. III.** TOSAKU YOSHIOKA AND HIROO IIJIMA. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding 563(1932); cf. *C. A.* **27**, 1130.—Twenty % by vol. of inert mineral materials contg. a large percentage of grains finer than 15 $\mu$ are effective in improving the strength of portland cement mortars.

H. C. PARISH

**Effect of variations of temperature during mold-hammering and seasoning, on the strength of cements.** A. PERFETTI AND E. PALUMBO. *Assoc. intern. essai matériaux congr. Zurich* **I**, 699–705(1931).—Exptl. results obtained from different types of cements show that while the temp. of seasoning has a great effect on the mech. strength of mortars, the temp. of mold-hammering has practically none. KARL KAMMERMEYER

**Reaction between aluminous cement and water. Theory of hardening.** HANS KÜHL AND HANS BERCHEM. *Zement* **21**, 547–53, 561–7(1932); cf. *C. A.* **26**, 1743.—Suspensions of $Al_2O_3$ cements which were shaken for periods from 1 hr. to 77 days were examd. for their sol., gel and crystal constituents The mono-Ca aluminate dissolves readily, hydrates and forms di-Ca hydroaluminate and $Al(OH)_3$ which are colloidal at first but later become cryst Hydrolysis yields free $Ca(OH)_2$ in soln., the concn. remaining slight with a $p_H$ value of 11.6. The di-Ca aluminate is much more sol. than the hydration products of portland cement in lime water. The silicates hydrate to form gel masses surrounding the cement particles and delaying complete hydration.

H. F. K.

**Using cement in pickling installations.** A. JAESCHKE. *Glashütte* **62**, 901–2 (1932).—The disintegration of concrete or cement in pickling installations is due to the attack of acids, moisture, etc. The sulfate ions are especially destructive because of the action of $CaSO_4$ and Ca aluminate, known as the "cement bacillus," which crystallizes, absorbing large quantities of water of crystn. and expanding so as to destroy concrete. This can be partly prevented by: (1) converting the free lime into carbonate by exposure to air, (2) addns. of trass, (3) use of cements poor in lime, as blast-furnace cement, (4) treating walls with water glass solns.

M. V. KONDOIDY

**Determination of sulfur present as sulfide in portland cement.** D. I. WATSON. *Cement and Cement Manuf.* **5**, 49–51(1932).—The usual evolution method is modified by adding a considerable excess of $SnCl_2$ to the cement before liberation of $H_2S$ by the addn. of acid; this prevents oxidation of sulfides by any $Fe^{+++}$ salts present. More highly concd. HCl is used to ensure the decompn. of SnS, together with a larger vol. of liquor to prevent trouble with gelatinous $SiO_2$.

B. C. A.

**Determination of the content of basic slag in portland cement.** P. N. GRIGOR'EV AND S. E. CHAIKINA. *Tonind.-Ztg.* **56**, 1206–7(1932).—The sepn. is accomplished by dissolving the cement from the slag by alc. AcOH soln. as proposed by F. Hart (*Tonind.-Ztg.* No. **65**(1904)) except that the liberated $SiO_2$ which remains on the filter is dissolved in 0.1 *N* NaOH. The results show less than $\pm 1\%$ variation in the slag contents which ranged from 9 to 15%.

H. F. K.

**High-lime portland cements. I. Preliminary experiments.** SEIJI KONDO AND HIROSHI YOSHIDA. *J. Japan. Ceram. Assoc.* **40**, 500–6(1932).—Six ordinary high-lime portland cements and 2 high-lime portland cements contg. $Cr_2O_3$ were prepd. They were examd. for content of free lime and small-piece compressive strength. In those cements with hydraulic modulus (H. M.) 2.4, the influences of silica modulus (S. M.) and iron modulus (I. M.) upon the amt. of free lime were remarkable, and those raw mixts. showing the min. contents of free lime for a given firing temp. decreased their I. M. with an increase of S. M. The replacing of some $Al_2O_3$ or $Fe_2O_3$ by $Cr_2O_3$ seemed rather to retard the combination of lime. In the cements with H. M. 2.4, the relation between the strength and the chem. compn. varied with the age of the test pieces and the method of curing. $Cr_2O_3$ in place of some of the $Al_2O_3$ seems to improve the strength on both water and combined curing.

S. KONDO

**The effect of small amounts of magnesia on the color of portland cement clinker and on the formation of alite. II.** MITSUZO FUJII AND KATSUNIKO ASAOKA. *J. Japan. Ceram. Assoc.* **40**, 291–8(1932); *C. A.* **26**, 2841.—In clinkers contg. no MgO, the development of alite was very poor and that of belite was very good, while the celite was colored yellow; in clinkers contg. 0.56 and 6.47% MgO, however, alite crystals were abundant and developed well and the amt. of belite was small, while the celite was black or blackish brown. Mn oxide or alkali did not act like MgO with respect to the formation of alite and the color of celite. The strength agreed with the hydraulic moduli regardless of the content of MgO or the development of alite. The resistance of clinker to abrasion and grinding was not influenced by MgO. The colors of clinker M 1

($SiO_2$ 23.40, $Al_2O_3$ 6.96, $Fe_2O_3$ 3.38, CaO 65.68 and MgO 0.56) fired at 1000°, 1150°, 1300° and 1500° were light yellow, slightly grayish green, green and grayish green, resp. According to C. Hansen, no solid soln. or liquid is formed up to 1300° in the system: $SiO_2$–$Al_2O_3$–$Fe_2O_3$–CaO; therefore the production of green shades must be due to the chem. reaction of MgO with $Fe_2O_3$ to form Mg ferrite. A study of the effect of MgO on the color of $2CaO.Fe_2O_3$ showed that very probably the MgO combines at first with $Fe_2O_3$, coloring it blackish, and then changes the color of $2CaO.Fe_2O_3$ from yellowish brown to blackish brown. Balls contg. $SiO_2$ 23.04, $Al_2O_3$ 6.31, $Fe_2O_3$ 3.58 and CaO 67.08 heated in $MgCO_3$ powder were black on the surface and yellow in the interior.

S. Kondo

**The magnesia content of portland cement.** Seiji Kondo and Sadatsugu Wada. *J. Japan. Ceram. Assoc.* **40**, 769–79(1932).—Portland cements with varying compns were prepd. The ratio $SiO_2$:$Al_2O_3$:$Fe_2O_3$ remained the same for all clinkers. In Group 1, MgO contents varied from 1.25 to 12.00%, hydraulic modulus (H. M.) being 2.00 for all clinkers. In Group 2, H. M. was changed from 1.77 to 2.10, the MgO content being kept const. at 8.00%. The clinkers and the cements were examd. for their qualities prescribed in the specification, strength and expansion on heating in autoclaves and microstructures. MgO seems rather to promote the chem. combination of CaO. In Group 1, the cement contg. 8% MgO was as strong as those having less MgO, and as a com. cement. In Group 2, the strength varied with H. M., the cement with 2.10 H. M. showing the highest strength among all those prepd. Briquets cured in water for 4 weeks were heated for 6 or 16 hrs. at 139–40° in autoclaves, and then were tested for strength. In Group 1, the cement contg. 12% MgO disintegrated. In Group 2, that with 1.77 H. M. deteriorated. However, all the others showed marked increase in strength, the cement with 2.10 H. M. and 8% MgO still being strongest. Expansion tests were made with neat cement bars cured 1 day in molds and 1 day in air. They were heated for 20–1290 minutes at 139–40° in an autoclave. In Group 1, the expansion increased with the MgO content; the cement with 12% MgO expanded over 3%, while the linear expansions of the others were under 0.4%. In Group 2, the expansion was rapidly reduced with increase of H. M. No new crystals or periclase was observed. Conclusions: Up to 8% MgO can safely be allowed. Part of the MgO probably reacts with $Fe_2O_3$ at first, the remainder forming a solid soln. with tri-Ca silicate up to a certain limit.

S. Kondo

**Hydration of alumina cement. I.** Katsuzo Koyanagi. *J. Japan. Ceram Assoc.* **40**, 489–99(1932).—Hitherto 2 equations have been proposed on the hydration of alumina cement: (*a*) Le Chatelier and Duhameaux (1927) $2(5CaO.3Al_2O_3) + 38H_2O = 5(2CaO.Al_2O_3.7H_2O) + 2Al(OH)_3$; (*b*) K. (1930) $2(CaO.Al_2O_3) + 11H_2O = 2CaO.Al_2O_3.8H_2O + Al_2O_3.3H_2O$. In a further study ciment fondu contg. $SiO_2$ 8.80, $Al_2O_3$ 39.64, $Fe_2O_3$ 8.84, CaO 42.30, MgO 0.56 and $SO_3$ 0.09 was used. The soly. of the cement in water, the compn. and optical properties of the crystals pptd. from the soln. at first, the ratio of CaO to $Al_2O_3$ in the soln. at the later stages and the compn. of crystals and Al hydroxide pptd. at the later stages were detd. Results: (1) On the hydration of the cement, a little $Ca(OH)_2$ produced by the decompn. of Ca silicates contained in small amt. in the cement reacts with $CaO.Al_2O_3$ in the soln. as follows: $CaO.Al_2O_3 + Ca(OH)_2 + 6.5H_2O = 2CaO.Al_2O_3.7.5H_2O$. This reaction proceeds very quickly when enough $Ca(OH)_2$ is in the soln. However, since the content of silica is small in the cement and not much $Ca(OH)_2$ is produced in the hydration, the concn. of lime is small; therefore the above reaction occurs comparatively gradually and ends soon. (2) After all the $Ca(OH)_2$ in the soln. has been exhausted, the main hydration begins: $2(CaO.Al_2O_3) + 10.5H_2O = 2CaO.Al_2O_3.7.5H_2O + Al_2O_3.3H_2O$. The hardening is due chiefly to this reaction. (3) The hydrated di-Ca aluminate dissolves in water, though very slightly, and changes to tri-Ca aluminate: $3(2CaO.Al_2O_3) + 3H_2O \longrightarrow 2(3CaO.Al_2O_3) + Al_2O_3.3H_2O$. The tri-Ca aluminate remains in the soln. and is perhaps decompd. to hydroxides of Ca and Al: $3CaO.Al_2O_3 + 3H_2O \longrightarrow 3Ca(OH)_2 + Al_2O_3.3H_2O$. The last 2 reactions take place to a very small extent; hence their effects on the hardening of the cement are practically negligible. Also in *Concrete* (Mill Section) **40**, No. 8, 40–6(1932).

S. Kondo

**Calcium aluminates. III. Microscopic investigation of their hydration.** Seiji Kondo and Toshiyoshi Yamauchi. *J. Japan. Ceram. Assoc.* **40**, 212–33(1932); *cf. C. A.* **26**, 2666–7.—The processes which take place in the hydration of 4 Ca aluminates with varying amts. of water were followed carefully for a month. Those of samples fired insufficiently were also roughly observed. Three different crystal forms of hydrated Ca aluminates were found: (*A*) needles, columns or hexagonal plates; $n_D$, $\omega$ = 1.498, $\epsilon$ = 1.507, optically uniaxial and pos.; (*B*) needles, columns, hexagonal plates

or spherulites; $n_D$, $\omega$ = 1.524, $\epsilon$ = 1.506; optically uniaxial and neg.; (*C*) needles or hexagonal plates; $n_D$, $\omega$ = 1.535; $\epsilon$ = 1.511; optically uniaxial and neg. In pure samples, the hydration proceeded as follows: (1) $3CaO.Al_2O_3$. At first, crystals *A*, then crystals *B* and a small amt. of $Al(OH)_3$, and finally crystals *C* were produced. (2) $5CaO.3Al_2O_3$. First a trace of *A*, then *B*, lastly $Al(OH)_3$ and *C*; sometimes slender needles were observed. (3) $CaO.Al_2O_3$. Slender needles and *B*, then much $Al(OH)_3$ and *C*. (4) $3CaO.5Al_2O_3$. *B*, much $Al(OH)_3$ and *C*. Insufficiently fired samples hydrated like $3CaO.Al_2O_3$ at early stages, producing crystals *A*, and then like each corresponding pure aluminate, though much more slowly. The crystals *A*, *B* and *C* may be considered as $3CaO.Al_2O_3.xH_2O$, although indications are that the crystals *A* produced in the hydration of $3CaO.Al_2O_3$ and all samples contg. free lime over certain amts. are probably $4CaO.Al_2O_3.xH_2O$ or solid solns. of $3CaO.Al_2O_3.xH_2O$ and $Ca(OH)_2$. Photomicrographs (51) are given. IV. Time of setting and compressive strength. *Ibid* 349–58.—The time of setting, the rise of temp. in the setting, and the small-piece compressive strength of the samples obtained by heating 4 mixts., $3CaCO_3.Al_2O_3$, $5CaCO_3.3Al_2O_3$, $CaCO_3.Al_2O_3$ and $3CaCO_3.5Al_2O_3$, at temps. ranging from 1200° to 1500° were measured. The relation between the strength and the microstructure is also discussed. All of the 3:1 and 5:3 samples began to set rapidly, regardless of the content of free lime, although the final setting suddenly became slow when the free lime exceeded certain amts. The 1:1 and 3:5 samples set rapidly as long as they contained free lime, but their final setting was retarded by an excess of free lime. The strength of the 5:3 samples increased almost in direct proportion to the degree of chem. combination, while that of the 1:1 and 3:5 samples increased rapidly when the combination surpassed certain degrees. In general, curing in air was more favorable than that in water. Probably those samples which produce needle-shaped crystals in the early stage of hydration are apt to set in an instant. Weak test pieces contained many needle-shaped crystals and small amts. of gel. Strong test pieces contained many spherulites consisting of radiating fibrous crystals and gel. The gel is produced by the hydration and also by the reaction between the hydrated aluminates and $CO_2$, and acts to increase the strength. S. KONDO

**The influence of chromic oxide and alumina upon the formation of tricalcium silicate.** SEIJI KONDO AND KESAKICHI MOTEKI. *J. Japan. Ceram. Assoc.* **40**, 559–64 (1932).—Raw mixts. composed of C. P. materials were heated at 1530° for 2 hrs., and the products were examd. for chem. compn., small-piece compressive strength and microstructure. Addn. of $Al_2O_3$ in amts. over 0.5% caused rapid decrease in the contents of free lime and rapid increase in the formation of $3CaO.SiO_2$. The formation of the silicate was markedly raised by the addn. of 0.5% $Cr_2O_3$ and was markedly lowered by 3%. $Al_2O_3$ increased the 28-day strength slightly, while $Cr_2O_3$ increased the 3- to 28-day strengths greatly. With 3% addn. of the latter, the 3-day strength was great, but the rate of the increase of the strength was small in comparison with 0.5% addn. The results do not agree well with the theory that $3CaO.SiO_2$ controls the early strength of portland cement. Microscopic observation indicates that $Cr_2O_3$ forms a solid soln. with tri-Ca silicate. This may be a cause of the high strength of the products. S. KONDO

**Practical lime burning.** GERHARD SEEGER. *Tonind.-Ztg.* **56**, 1077–8(1932). H. F. K.

**Natural gas for cement kilns.** ALBERT HEISER. *Tonind.-Ztg.* **56**, 1180–1(1932). H. F. K.

**Cement and well cementing. Effect of chlorides on the setting and hardening of cement.** A. REID AND J. T. EVANS. *J Inst. Petroleum Techn.* **18**, 992–1006(1932).—The effect of a 0.6% NaCl soln. upon the tensile strength and setting time of fluid cement used in wells shows that such a soln. increases the strength slightly in the early stages of setting but decreases it during the hardening period. This retrogression is more marked if salt water is used in the mixing operations. The max. strength is usually reached within 7 days, irrespective of conditions; hence, prolonged shut-down periods are not necessary. Salt solns. cause a small decrease in the initial and final setting time, but this setting time is about the same for any given salt concn. for various gagings. It was also detd. that an increase in setting temp. of 5.5° results in a shortening of the initial setting time by about 15–20 min. for the various grouts used in the field. A max. temp. of 60° was found to be satisfactory, thus permitting a 40% gage grout to be used. J. L. E.

**Physical properties of mixtures of bitumen and finely divided mineral matter.** A. EVANS. *J. Inst. Petroleum Techn.* **18**, 957–91(1932).—The relationship between the properties of various mixt. of bitumens and fillers such as ordinary and fine portland

cement, ground chalk and limestone, slate dust, colloidal silica, epure filler, micro-asbestos and china clay and the properties of the fillers themselves shows that the m. p., hardness and tensile strength are raised and that the ductility is decreased by the following factors of which 2 or more may operate simultaneously: increase in the proportion of the filler, hardness of the bitumen, fineness of the filler, fibrous or lamellar structure of the filler, and increase in the bitumen-adsorption power of the filler. The chem. compn. of filler has practically no relationship to the strength of the asphaltic cement. The ductility decreases so rapidly with addn. of the filler that the ductility of the original bitumen is no criterion of what the ductility of the asphaltic cement will be. When mfg. an asphaltic cement, it is best to use as hard a bitumen as possible and as low a proportion of filler as possible to obtain the required strength and hardness and high m. p. of the finished asphaltic cement. This ratio of filler to bitumen should be held to very narrow limits to prevent the usual service defects such as marking under heavy loads. The china clay (Stockolite), micro-asbestos and epure fillers are the 3 most efficient from the standpoint of increasing m. p. and tensile strength and decreasing penetration and ductility. J. L. E.

**Cement testing using mortar having a high water content.** G. HAEGERMANN *Assoc. intern. essai matériaux congr. Zurich* I, 669–72(1931).—As sand for a mortar, which can hold large amts. of water, a mixt. of 2 sizes of grains is proposed. Choice of grain size depends on the quantities of water to be used. KARL KAMMERMEYER

**Test on the controllability of Roumanian trass in trass-lime mortars and trass-cement mortars.** A. STEOPOE. *Assoc intern. essai matériaux congr. Zurich* I, 918–24 (1931); cf. *C. A.* **26**, 5398.—The controllability of Roumanian and probably of all other trass is not const. It depends on the type of the mortar, its trass content and the manner of storage. KARL KAMMERMEYER

**Chemical actions detrimental to cement and concrete in the ground.** G WIEGNER *Assoc. intern. essai matériaux congr. Zurich* I, 620–43(1931).—Chem. attack is due mainly to $H^+$, $Mg^{++}$ and $SO_4^{--}$, acting either alone or, more strongly, combined Data obtained in Switzerland are reported with the limit figures of noxious concns. The connection between resistance to chem. action and phys. properties was investigated 16 literature references. KARL KAMMERMEYER

**Corrosion of different cements and concretes.** C. TH. KAWASSIADIS. *Praktika (Akad. Athenon)* **6**, 468–73(1931)(in French).—Comparative lab. studies were made on the action of $Al_2(SO_4)_3$ on portland cement, foundation cement, slag cement and quick-setting portland cement. LUCIEN Y. DYRENFORTH

**Influence of quantity of mixing water on the crushing strength of concrete.** D TOMITCH AND P. VASSITCH. *Assoc. intern. essai matériaux congr. Zurich* I, 1022–6 (1931).—The granular compn. of the sand and gravel dets. the best quantity of mixing water. The crushing strength of plastic concrete never attains, with age, that of earth-moist concrete. KARL KAMMERMEYER

**Properties of concrete.** A. KAECH. *Assoc. intern. essai matériaux congr. Zurich* I, 1063–8(1931).—A discussion. KARL KAMMERMEYER

**Strength, elasticity and shrinkage of ferro-concrete.** W. GEHLER. *Assoc. intern essai matériaux congr. Zurich* I, 1074–120(1931).—The effects of the properties of the reënforcement and of the concrete are discussed in their effects upon the properties of ferro-concrete with frequent use of math. and graphical interpretations. 80 literature references. KARL KAMMERMEYER

**The behavior of mortar and concrete in corrosive liquids.** O. GRAF. *Assoc intern. essai matériaux congr. Zurich* I, 656–8(1931).—A general discussion with 13 literature references. KARL KAMMERMEYER

**The design and testing of asphalt paving mixtures.** NORMAN H. TAYLOR. *J Soc. Chem. Ind.* **51**, 415–33T(1932).—A method for designing asphalt paving mixts is outlined and a new type of stability app. is described. KARL KAMMERMEYER

**The use of coal tar for street surfacing.** FRANCO AUTELLI. *Chim. ind. agr. biol* **8**, 444–6(1932).—The Italian Public Works Dept. gives the following specifications for coal tar for street surfacing: $d_{15}$ 1.12–1.14, $H_2O$ max. 0.5%, max. distillate at 200° 1%, phenol and homologs, max. 5%, naphthalene max. 6%, free C 20%, Hutchinson consistence test at 25° 5–20 sec. G. A. BRAVO

**Some properties and applications of timber.** A. H. LOVELESS. *Chemistry & Industry* **1932**, 1052–4; cf. *C. A.* **26**, 3145.—L. outlines briefly the resistance of wood to chemicals, the requirements and phys. defects of timber used in plant construction and the fireproofing of wood. No references or new data are given. L. E. W.

**Change in composition of wood during decay. I. Pinewood.** J. KAWAMURA AND M. TANIGUCHI. *Cellulose Ind.* (Tokyo) **8**, 25–6(1932); (*Abstracts*) (in German

5–6).—The compn. of the wood of *Pinus thunbergii* that had been attacked by *Teredo* sp. was compared with that of sound wood. In general, very little change was observed, the most notable being an increase in the hot-water ext. from 2.5 to 5.2%. There was some indication of decompn. of carbohydrates and of demethylation. **II. Decay of [wood of] Cryptomeria by dry-rot.** J. KAWAMURA AND M. SCHOJINO. *Ibid* 27–9; (*Abstracts*) (in German 6–7).—The wood of *Cryptomeria japonica* decayed in varying degrees by dry-rot was compared with the unattacked material. The outstanding change in compn. was the fall in polysaccharide content. With progressive decay the hot-water, EtOH-$C_6H_6$, and alkali exts. rose rapidly, while the lignin content also showed slight increase. B. C. A.

Monolithic refractory concretes (Coss, KENT) **19.** Cases of Pb poisoning observed in the chemical pulp industry from cement (MANSFELD) **23.** Deterioration of coal for firing cement on drying and grinding (KOYANAGI, ARAI) **21.** Ornamenting wood, etc. (Brit. pat. 347,888) **26.** Products from shale or coal; cement (Australian pat. 27,599) **22.** Producing effects on floor-coverings, etc. (Ger. pat. 567,238) **23.** Rotary kiln for lime, cement, etc (Norw. pat. 49,973) **18.** Porous products from blast-furnace slag (Russ. pat. 26,956) **9.**

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POIRSON: **Chaux, ciments, plâtre, bitumes et asphaltes.** Paris: E. Malfère. 312 pp. F. 20.

BÜRGLEN, ERHARD: **Die Kartelle und Konzerne in der deutschen Portlandzementindustrie.** Thesis, Cologne, 1931. 95 pp.

KLEIN, WALTHER: **Petrographische Untersuchungen über die Eignung von Basalten als Pflastermaterial.** Thesis, Cologne, 1931. 54 pp.

LELLEP, OTTO: **Wärmetechnische Untersuchungen über den Wärmeaufwand beim Zementbrennen im Verbund-Rost-Drehofen.** Thesis, Brunswick, 1930. 49 pp.

STAMATIU, M. J.: **Die Verfestigung und Abdichtung von Gesteinen und Beton auf chemischem Wege.** Thesis, Freiberg, 1931. 70 pp.

**Cement.** METALLGESELLSCHAFT A.-G. Fr. 737,345, May 20, 1932. An aluminous cement is obtained by agglutination, by heating the charge mixed with 5–14% of carbonaceous material, in a furnace such as a Dwight-Lloyd app. and afterward burning it by a current of air passed through the charge. An indifferent material such as blast-furnace slag may be added to increase the porosity and a fine sulfidic material such as pyrites may be used with the carbonaceous material.

**Cements, etc.** "STRABA" STRASSENBAUBEDARFS-A.-G. Fr. 736,103, Apr. 29, 1932. A bituminous substance (pitch, tar, asphalt, etc.) is made liquid, transformed into a mist and powd. cement is blown in An intermediate support such as CaO or blast-furnace slag in powd. form may be brought into contact with the mist before introducing the cement.

**Cement, etc.** "STRABA" STRASSENBAUBEDARFS-A.-G. Fr. 736,461, Apr. 30, 1932. Mortar or concrete which is absolutely resistant to variations of temp. is made by adding less than 6% of bitumen (pitch, tar, asphalt, etc.) to the lime, cement, etc., used.

**Cement.** AKTIESELSKAPET DALEN PORTLAND-CEMENTFABRIK. Norw. 47,408, Jan. 20, 1930. Hematite is added as a coloring agent during the fine grinding of the clinker.

**Glassy drying product from cement.** HENRI M. DE LANGE (to John F. Barr and Dirk de Lange). U. S. 1,886,379, Nov. 8. An addn. for cement is prepd. by slaking lime with a soap soln. and mixing the dry material thus obtained with a soln. formed of $CaCl_2$, HCl, Al and water.

**Rotary furnace for calcining cement, etc.** F. KRUPP GRUSONWERK A.-G. Brit. 359,277, Dec. 6, 1929. A damper is described for control of the outflow of gases from the furnace.

**Apparatus [and process] for burning materials such as raw materials for cement.** ARNO ANDREAS. Brit. 362,517, Sept. 1, 1930. Divided out of 360,547 (*C. A.* **27**, 453).

**System for firing crude cement mixture and like slurries.** G. POLYSIUS A.-G Ger. 567,101, May 11, 1930.

**Means for treating crude cement mixture with furnace gases.** FRIED. KRUPP GRUSONWERK A.-G. (Arno Andreas, inventor). Ger. 567,060, Aug. 30, 1931.

**Apparatus for producing highly porous cellular material from liquid blast-furnace**

**slag.** CARL H. SCHOL. U. S. 1,888,394, Nov. 22. Various details of liquid and mech. treatment are described.

**Bituminous cement mortar.** ALLERT J. DE LANGE (to Flintkote Corp.). U. S. 1,889,437, Nov. 29. Water is mixed with the dry constituents of the mortar such as sand and cement and after the mixt. is partly bound there is added a suitable quantity of an aq. asphalt dispersion.

**Cement, mortar and concrete.** CHEM. FAB. GRÜNAU LANDSHOFF & MEYER A.-G. (Walter Kirchner, inventor). Ger. 567,099, May 14, 1930. The known method of improving cement, etc., by addn. of albumins or their degradation products, may lead to the formation of foam. This is avoided by adding a small amt. of salts of higher fatty acids or their sulfonation products.

**Mortar and concrete.** JOHN ECKERT GREENAWALT. Ger. 562,485, May 25, 1930. See Brit. 351,690 (*C. A.* **27**, 394).

**Cellular concrete.** ROLF K. O. SAHLBERG (to Aerocrete Corp. of America). U. S. 1,886,232, Nov. 1. A substantial proportion of the sand used in making cellular concrete is pulverized to pass a 200-mesh screen, in order to improve plasticity and other properties.

**Concrete resistant to sea water.** PAUL ASKENASY. U. S. 1,886,933, Nov. 8. Coal-dust ash from the combustion of pulverulent coal is added to an otherwise usual cement mixt.

**Concrete resistant to sea water.** LUDWIG HEYNEMANN. Ger. 528,235, Nov. 29, 1928. About 8% of finely divided ash from coal-dust burners is added to ordinary or high-grade cement or to a cement mixt. of normal compn.

**Road-making materials.** CHEM. FAB. FLÖRSHEIM H. NOERDLINGER A.-G. Ger. 567,100, Mar. 9, 1930. Tar for use in making roads is liquefied by gentle heat or by a solvent and chlorinated for a short time, or treated with corresponding amts. of reagents yielding Cl. The treatment increases the adhesiveness of the tar without thickening it.

**Apparatus for mixing bituminous road-making materials with liquid hydrocarbons.** PAUL FRIEDRICH. Ger. 567,252, Sept. 11, 1931.

**Bituminous paving material.** SAMUEL S. SADTLER (to Amiesite Asphalt Co. of America). U. S. 1,887,518, Nov. 15. A stone aggregate is coated with a bituminous liquefier contg. an oil-sol. fatty acid such as crude oleic acid capable of combining with hydrated lime to form a water-insol. soap, and a heated normally solid bitumen binder and lime are then added.

**Coating inert materials such as slags.** SOC. ANON. POUR LE TRAITEMENT DES MINERAIS ALUMINO-POTASSIQUES. Brit. 363,151, Dec. 31, 1930. The inert material is run in molten form into an aq. soln. of the coating material, such quantities being employed that substantially all the water is evapd. Among examples slag from any metallurgical process is run into $CaCl_2$ soln. (*for roads*), slag from a $H_3PO_4$ furnace into mono-Ca phosphate soln. (*for fertilizer*).

**Material for expansion joints.** JOHN S. HIPPLE. U. S. 1,888,270, Nov. 20. Vulcanizable oils such as linseed and cottonseed oils 16 are mixed with rosin 4 and "Hydrolene" 1 part and the mixt. is liquefied by heat, followed by addn. of S 8 and pulverized silica 4 parts and further heating until vulcanization is effected; the material is then permitted to cool for pouring.

**Waterproof expansion joints.** ALBERT C. FISCHER (to Philip Carey Mfg. Co.). U. S. reissue 18,642, Nov. 1. A reissue of original pat. No. 1,807,905 (*C. A.* **25**, 4379).

**Artificial stone.** MELLE A. EISENBERG. Belg. 386,348, March 31, 1932. The stone consists of cement to which are added: NaCl, alum, and pulverized French imitation stone.

**Steaming sand-lime goods.** A. V. VOLZHENSKII. Russ. 25,090, June 11, 1930. In steaming sand-lime goods with the addn. of alkalies or salts or alk. earth metals excess of condensate and washing out of alkalies are avoided by steaming intermittently with superheated and satd. steam while toward the end of the operation air or steam superheated to 180° to 300° is admitted to effect drying.

**Building material.** BERTHOLD REDLICH. Ger. 563,271, Sept. 8, 1929. Addn to 554,995 (*C. A.* **27**, 1133). The method of 554,995 for waterproofing building material is modified by treating the impregnated material with a volatile wax solvent.

**Building material, particularly for thermic and chemical purposes.** BORGESTAD FABRIKKER. Norw. 47,407, Dec. 28, 1931. The material described consists of natural olivine rock (peridotite, dunite).

**Finely porous building materials.** CASPAR HANSEN. Norw. 48,617, Oct. 27, 1930. Gas-forming substances, such as $CaC_2$, $CaH_2$, etc., are coated with fused, water-

free substances previous to their application, in order to delay the development of gas in the mortar.

**Building bricks, paving tiles, etc.** G. A. M. GROETAERS. Belg. 386,130, March 31, 1932. The brick is formed by agglomeration in the cold of a ground mixt. of cement, Rhine sand, clinker, clay and rock alum.

**Sound-insulating fire bricks.** TORLEIF STEN. Norw. 49,339, Sept. 28, 1931. For increasing the resistivity to moisture $K_2Cr_2O_7$ is added to a mortar composed of known materials such as clay, sawdust, straw, water glass, water and size, from which bricks are made.

**Stucco compositions.** CEMENT MORTARS, LTD. Australia 28,190, Aug. 2, 1930. The compn. consists of portland cement 28, fine siliceous material 28, $CaCO_3$ 10, flour asbestos 6 and $TiO_2$ 4 lb. in an oily vehicle consisting of oxidizable vegetable oil and spirits 7.5 l. and terebine 1 l.

**Decorating marble slabs.** O. LEJOUR. Belg. 386,579, March 31, 1932. Adhesive suitable for fixing coloring matter on marble consists of Na silicate, K silicate, $BaSO_4$, chalk, CaO and Rhine sand.

**Plaster for brick or concrete surfaces.** P. A. BECH. Norw. 48,765, Dec. 15, 1930. To an ordinary lime, cement or plaster mortar is added a vegetable material which has been treated with a cold or hot soln. of a strong alkali, for instance NaOH.

**Treated fabric for imbedding in wall plaster.** ERNO PICK (to Picklin Baustoff m. b. H.). U. S. 1,887,464, Nov. 8. Truncated widenings of the fabric meshes are provided from both sides and in the entire length of the fabric, to increase the strength, and such widened meshes are filled with a compn. formed from glue, black carbolic acid, $K_2Cr_2O_7$, water glass, rubber and rock lime.

**Floor-covering material.** HAROLD L. LEVIN (to Flintkote Corp.). U. S. 1,887,979, Nov. 15. A loose or open-mesh fabric has loosely felted fibers formed with one face of the fabric and extending through the interstices of the foundation and secured by a continuous film of waterproofing material such as a bitumen, clay and pigment mixt. derived from a thickened emulsion.

**Oxidizing asphaltic oils.** TOM H. DOWLEN (to Richfield Oil Co. of Calif.). U. S. 1,886,380, Nov. 8. Various details of app. and operation are described for treating asphaltic oils while heated with air and steam, for producing oxidized products *for roofing, sealing batteries*, etc. Cf. *C. A.* **26**, 4466.

**Highly absorptive water-laid cellulose sheets.** GEORGE A. RICHTER and HENRY A. CHASE (to Brown Co.). U. S. 1,888,771, Nov. 22. Sheet material which may be impregnated with rubber, etc., is formed of loosely felted, substantially uncompacted and unbeaten wood pulp having an $\alpha$-cellulose content of at least about 93% and has an absorptivity of at least about 6 in. in terms of water crawl up a strip in 5 min. App. for manuf. is described.

**Bituminized fibrous webs for roofing, flooring, etc.** GEORGE A. RICHTER and HENRY A. CHASE (to Brown Co.). U. S. 1,888,772, Nov. 22. A material of the general character described in U. S. 1,888,771 (preceding abstr.), having a compactness within the range of about 30 to 55 as detd. by dividing its basis wt. in lbs. by its thickness in in. and multiplying by the factor $10^{-2}$, carries an impregnation of asphalt in continuous phase in a quantity at least about 2.5 times the dry wt. of the fiber.

**Paper board.** CHARLES L. KELLER (to Richardson Co.). U. S. 1,889,177, Nov. 29. In uniting outer and inner sheets of paper board, the inner sheet is coated with a heat-plastic binder such as asphalt while the latter is hot and non-solid, the coated sheet is cooled, the coating is softened by a solvent such as benzine and the outer sheets are then applied.

**Drying materials such as lumber.** HENRY W. COWAN. U. S. 1,887,581, Nov. 15. Various details of app., air circulation and temp. regulation are described.

**Artificial wood.** L. BERTINCHAMPS. Belg. 386,911, April 30, 1932. The product consists of sawdust, $MgCl_2$, $SiO_2$, a silicate, asbestos and coloring matters.

**Impregnating agent for wood, canvas, etc.** WILLIAM NAGEL. Norw. 50,481, April 4, 1932. The agent contains Cu soaps in an org. solvent, consisting of heavy benzines with an addn. of at least 15% of $CCl_4$.

**Impregnating wood.** HERMAN C. NIELSEN (to National Wood Products Co.). U. S. 1,886,716, Nov. 8. Dry wood is immersed in a liquid comprising neutral mineral oil, "mineral spirits," "Mn drying oil," turpentine, rosin, dichlorobenzene, formaldehyde and alum, in specified proportions, at a temp. of about 50° or somewhat higher.

**Impregnating wood, fabric, or paper.** I. G. FARBENIND. A.-G. (Rudolf Engelhardt, inventor). Ger. 567,261, June 4, 1931. The material is treated with an emulsion of a

chlorinated hydrocarbon of waxy character, *e. g.*, polychloro-naphthalene or -biphenyl. Fireproofing compds. may be added to the emulsion.

**Wood-veneer impregnation to render the material resistant to denting and to scorching from contact with matches or cigarets.** EMIL C. LOETSCHER. U. S. 1,887,691, Nov. 15. Substantially all the cells of a veneer are filled with a phenolic condensation product and the material is heated under pressure while in contact with a heat-dispersing backing such as a metal plate.

**Wood preservative.** WM. NAGEL and HANS LANDMARK. Norw. 50,377, March 21, 1932. The preservative is a soln. of disinfectant org. metal salts, preferably metal soaps, in org. volatile solvents, contg. substances insol. in $H_2O$ which after the evapn. of the solvent will remain in the pores of the wood together with the metal salts and reduce the hygroscopicity of the wood.

**Preserving wood.** KARL BUBLA. Brit. 363,760, Oct. 21, 1930. See Austrian 128,864 (*C. A.* **26**, 5192).

**Preserving wood.** S. B. GUTIN. Russ. 25,259, Mar. 2, 1931. The wood is first impregnated with a soln. of $CuSO_4$ and then treated with an aq. suspension of spent gas-purifying mass.

**Printing and graining wood.** LOGAN A. MIZENER (to Chicago Mill and Lumber Corp.). U. S. 1,888,864, Nov. 22. Graining is effected by printing directly upon the surface of wet wood with a water-resistant compn. comprising a starch, coloring matter, glycerol and HOAc, contg. at least 3 times as much glycerol as HOAc.

**Treating wood to improve it for violin manufacture, etc.** CHESTER D. AINSWORTH. U. S. 1,888,419, Nov. 22. There is established about the wood a high potential arc stream in a substantially inert atm. App. is described.

**Fireproof insulating material.** ANDREAS B. HANSEN. Norw. 49,044, Feb. 23, 1931. A vegetable fibrous material, such as wood pulp, cellulose, wood waste, sugar-cane fibers, or the like, is impregnated with a soln. of alkali silicate, treated with HCl to ppt. $SiO_2$, and then cast or formed into sheets.

## 21—FUELS, GAS, TAR AND COKE

A. C. FIELDNER AND ALDEN H. EMERY

**Motor-fuel quality--a complex problem. I.** GEO. G. BROWN. *Natl. Petroleum News* **24**, No. 50, 43–7, 51(1932).—About 10% of motor fuel should be vaporized to insure satisfactory starting, and the mixt. temp. in the manifold should be ½ the temp of the 75% point in the distn. The 10% point is the guiding factor in the control of vapor lock. **II.** *Ibid* No. 51, 37–8, 40.—Reduction of S to 0.1% sometimes causes a treating loss of 10–20%, but fuels of high S content cannot be used with confidence in cold climates. R. W. KELLY

**Britain agitates for home-produced motor fuels.** C. H. S. TUPHOLME. *Ind. Eng. Chem., News Ed.* **11**, 15–16(1933).—Expts. of the Gas Light and Coke Co. and at the British Govt. Fuel Research Sta. indicate that a motor spirit of a value intermediate between gasoline and benzene can be produced by hydrogenation of coal tar and coal tar oils, the yield amounting to as much as 97% by weight of the original creosote. The spirit contains 17–40% of satd. hydrocarbons. Molybdic acid with S was found to be the best general catalyst. It was found in a continuous-operation app. that 11 6 Imp gal. motor spirit up to 200° and 8.6 gal. of Diesel oil could be produced by hydrogenation-cracking of the low-temp. tar from 1 ton of coal. D. F. BROWN

**Unburnt fuel particles in stack gases, and stoking tests.** L. H. DE LANGEN *Arch. Suikerind.* **40**, III, 1341–448(1932).—In normal installations, with proper stoking, not more than 1% of the total fuel value is lost through unburnt particles. The latter are high in ash and have a small fuel value. Air preheaters were thought to be responsible for losses through incomplete combustion, but tests have shown that the difficulties can be overcome by changes in furnace construction and by proper methods of stoking. F. W. ZERBAN

**Properties of Russian fuels.** A. I. KORELIN AND A. V. KOLLEGAEV. *Izvestiya Teplotekh. Inst.* **1932**, 923–32.—Complete chem. analyses and combustion data of 12 Russian coals, burning wood, peat, shale, fuel oil, husks from sun flowers, etc., are given. A. A. BOEHTLINGK

**Various methods for determining the moisture content in Russian coal. I.** N. V. MIKULINA, A. I. KORELIN AND A. P. SHAKHNO. *Izvestiya Teplotekh. Inst.* **1932**, 933–50 —An attempt to define the most reliable method for the detn. of $H_2O$ in various types

of coal did not produce satisfactory results, and it was decided to use the method of distg. with gasoline, which appeared to give the best results. A. A. BOEHTLINGK

**Branding and standardizing coal.** YU. A. ZHEMCHUZHNIKOV. *Khim. Tverdogo Topliva* **2**, No. 11–12, 53–5(1931).—The necessity of branding and standardizing coal on the basis of its chem. nature and its microscopical structure as well as its prepn. is emphasized. A. A. BOEHTLINGK

**A short review of foreign coal classifications.** A. P. SHAKHNO. *Khim. Tverdogo Topliva* **2**, No. 11–12, 57–70(1931).—The following classifications are discussed: Regnault-Grüner, LeChatelier, Brookman, Seiler, Ralston, Dreklay, Aufheiser, Flack, Wight, Campbell, the 12th Geological Congress, the American Government, Ashley, Fraser, Parr and Blacher. The different classifications are compared and their advantages and disadvantages as well as the conception of Fieldner are discussed. A. A. BOEHTLINGK

**Coals from Cheremkhovo.** D. I. YAKOVLEV. *J. Applied Chem.* (U. S. S. R.) **5**, 998–1024(1932).—Exptl. work showed that the coals are of bituminous type, though in certain districts they resemble lignite. A complete description of deposits and their characteristics is given. V. KALICHEVSKY

**Coal varieties from the Kizelovskii basin.** A. M. GLADSHTEIN. *Khim Tverdogo Topliva* **2**, No. 11–12, 33–52(1931).—The following operations are reported: detn. of the physicochem. properties (complete analysis), flotation tests, properties of the concentrates, oxidation tests and spontaneous combustion detns., coking tests, analyses of the ash, coking tests of mixts. of Kizelovskii and Kuznetzkii coal, low-temp. carbonization tests, analyses of products, low-temp. carbonization tar, its fractional distn., analyses of low-temperature carbonization gases. A. A. BOEHTLINGK

**The relationship between the specific gravities and the ash content in hard coal.** V. A. GUSKOV. *Khim. Tverdogo Topliva* **2**, No. 11–12, 71–9(1931).—The following conclusions are derived on the basis of expts., reported in detail: There is no direct relationship between the sp. gr. and the amt. of mineral in the admixts.; coal contg. more than 50% ash has varying sp. gr. depending upon the nature of mineral admixts. which are present as mech. admixts.; the presence of basic ingredients such as vitrain, clarain and durain causes the formation of physicochem. combinations, while the presence of mineral ingredients produces mech. mixts. A. A. BOEHTLINGK

**Present-day effects of salt in coal.** C. CAMPBELL. *Colliery Guardian* **145**, 1247–8 (1932).—Small quantities of salt present in coal corrode fire-brick and acid furnace linings. Basic linings are not corroded. Salty coal, if properly burned, will cause little effect on water-tube boilers. In pulverized coal salt tends to draw moisture, clogging pipes and burners. Cl-contg. coal must not be used in direct-firing processes for sulfate manuf., particularly for sulfates that are to be used in dyeing and calico printing. H. E. MESSMORE

**Coal hydrogenation.** IMPERIAL CHEM. INDUSTRIES, LTD. *Fuel* **10**, 481–4(1931).—A review. B. C. A.

**Softening of coal on heating.** H. A. J. PIETERS AND H. KOOPMANS. *Het Gas* **52**, 478–82(1932).—A new method for microscopic study of the softening and carbonization stages of coal is described with many series of photomicrographs. About 3 g. of coal, size 0.5–1 mm., is heated in a $CO_2$ stream for 45 min. to a certain temp. and held there until no more tar fog develops. The tube with the coal is rotated continuously, 30 revolutions per min., to prevent caking together of the grains. The reaction product is enclosed in resin, the surface ground, polished and observed. At a certain temp. the bituminous (lustrous) coal grains become rounded off, and large pieces fall apart; on raising of the temp. gas is evolved and thin-walled hollow spheres are formed; at still higher temp. several of these spheres flow together to give hollow conglomerates, and finally the walls become hard and porous. In coal particles which have visible plant residues in the homogeneous basic mass only the latter melts; they give coal spherules with internal division walls. Older, more carbonized coals, on melting, first become porous, then harden with gas evolution and finally soften; the older the coal the higher the m. p. Rapid heating will increase the fluidity and lower the temp. of its appearance. Sufficiently carbonized coal gives only gas evolution, no melting. By heating a well-coking coal to an oxidation temp. (from 150° up) for $^1/_2$ hr. in an air stream artifically oxidized coal was made and treated in the above manner. The higher the treatment temp. the more the softening point rises and the more the gas evolution is accelerated, *i. e.*, the more the character of old coal appears. The volatile products escaping from the coal sample during the $CO_2$ treatment could be used for detn. of the low-temp. tar yield and agree satisfactorily with the results by the Fischer Al retort method. B. J. C. VAN DER HOEVEN

**Continuous carbonization of finely crushed coal by radiant heat. II. Combustion characteristics of carbonized residue as pulverized fuel.** RALPH A. SHERMAN. Am. Gas Assoc., *Proc.* **13**, 1016–26(1931).—This report presents the results of an investigation to det. the relative combustion characteristics of the carbonized residues or semicokes in comparison with the coal from which they were produced in the carbonization tests described in Part I (Hobart, Demorest, *C. A.* **26**, 2035, 3645). The fuels used were powdered and burned in a furnace 18 ft. long by 3.5 ft. in diam. with a burner designed to promote max. turbulence. In general the semicokes burned less rapidly and suffered higher losses of unburned C than the coals from which they were made, but this C loss decreased with increasing distance of flame travel. With the given conditions of 10.5-ft. flame travel and a time of 0.3 sec. a given coal lost 0.7% unburned C while the corresponding semicoke lost from 1.3% to 3.0%. H. L. OLIN

**Methods for investigating the distillation properties of coals.** P. SCHLÄPFER *Assoc. intern. essai matériaux congr. Zurich* II, 389–403(1931).—Chem. compn. and structure of the original sample, preheating and manner of heating are important factors in carbonization. Test methods are cited and explained and their relative advantages are discussed. 34 literature references. KARL KAMMERMEYER

**Deterioration of coal for firing cement on drying and grinding.** KATSUZO KOYANAGI AND TAKASHI ARAI. *J. Japan. Ceram Assoc.* **40**, 234–41(1932).—An exhaustive study was made. The calorific power was detd. by a Berthelot-Mahler bomb calorimeter. Conclusions: (1) Thompson's calorimeter is unsuitable for detg. such small changes in calorific power of coal. (2) There is practically no loss in the calorific power of slack coal during drying and grinding, unless the coal is heated at a temp. like 150° which is far higher than is necessary for driving off the mechanically held water. S. K.

**Tendency of coal to spontaneous combustion. X.** D. J. W. KREULEN. *Chem. Weekblad* **30**, 103–8(1933); cf. *C. A.* **27**, 827.—A wire model shows the relation between the humic acid curves and the percentage of volatile matter. To obtain a good coke the humic nucleus must not be too little and not too far carbonized. The most probable relation between the degree of carbonization of the humic nucleus and that of the bitumen is worked out in a plaster model. With the aid of the factor *A B C* predictions can be made regarding the coking qualities of a coal. *A* is humic acid formed at 240° and *B* humic acid formed at the max. temp. *C*. The analyses of 34 samples of coal are given. E. SCHOTTE

**The tendency of coal to spontaneous combustion.** B. P. PENTEGOV AND R. N. NYANKOVSKAYA. *Khim. Tverdogo Topliva* **2**, No. 11–12, 3–12(1931).—The relative temp. of the spontaneous combustion as well as fluctuations of temp. depends upon the decrease in the adsorption ability of the coal, its oxidizability and its content of humic acids. The activity and the spontaneous combustion ability depend upon its high adsorption properties. The former depends also upon the oxidizability and the content of humic acids. A lowering of the content of humic acids as well as an increase in the relative spontaneous combustion temp. of coal is observed when a coal contg. over 18% of $O_2$ in the combustible mass is oxidized. As a rule the adsorption and oxidation abilities of coal are lowered with the progress of oxidation. A great variety of Russian coals is investigated and the results are tabulated. The expts. were carried out in an app. constructed by the authors. A. A. BOEHTLINGK

**Development of Dakota lignite. VIII. Oil-steam atmosphere for dehydrating Dakota lignite.** A. M. COOLEY, JR., AND IRVIN LAVINE. *Ind. Eng. Chem.* **25**, 221–4 (1933); cf. *C. A.* **26**, 5400.—Many expts. were carried out with different brands of motor oil, fuel oil, kerosene, linseed oil or emulsified asphalts with steam in dehydrating Dakota lignite. Modifications in the app. and procedure used (*C. A.* **25**, 578) are described and tables of exptl. data given. Some improvements were observed with certain motor oils, but the best results were obtained with a mixt. of 9.25 lb. asphalt plus 50% of its wt. of hot water and 60 lb. of lignite; this was dried from 35.2% to 18% moisture content with a min. of checking in 80% of the charge. Lumps under 3 in. in diam. dried better than larger pieces. The nature and quantity of the oil influenced markedly the character of the dried fuel. Results of drop, slacking, and stove burning tests showed the superiority of the steam-oil drying over dehydrating lignite with steam alone. The crit. oxidation temp. of the asphalt-steam-dried Velva lignite was 190°, which is very little lower than that of the nonprocessed lignite of the same moisture content; hence the addn. of oil did not increase materially the tendency of the coal toward spontaneous combustion. W. W. HODGE

**Hydrogenation of lignite.** J. M. PERTIERRA. *Anales soc. espan. fis. quim.* **31**, 53–8(1933).—Spanish lignite was hydrogenated by the Bergius method, and the effects

of variations of temp. and time of heating were detd. The yields were 40.4–53.2%.
E. M. SYMMES

**Calorific values of some Indian woods.** S. KRISHNA AND S. RAMASWAMI. *Forest Bull.* (India), No. 79, 1–27(1932).—K. and R. give the calorific values of 150 Indian woods (calcd. on the ash- and moisture-free basis). Detns. were made on wood powder passing a 100-mesh screen, in a Parr standard calorimeter. Whenever feasible, the heat values of heartwood and sapwood of a species were used in sep. detns. In general, especially in woods contg. resins, gums and tannins, the heat value of the heartwood was the higher. In 9 species, the sapwood showed a somewhat higher (unexplained) calorific value. Vacuum drying (as with *Cedrus deodara*) or extn. with org. solvents (as with *Tectona grandis*) markedly lowered the heat values of the heartwood. Marked differences, while infrequent, may occur within the same species (*e. g.*, *Pinus longifolia* samples varied from 4967 cals. for an individual sapwood to 6125 cals. in one sample of "torchwood," the latter being the highest value recorded in any species). The av. heat value for all Indian woods is 5016 cals. (9030 B. t. u.). For conifers, the av. value is 5120 cals. (9215 B. t. u.). Ash detns., made on all samples, showed variations from 0.25 to 11.0%.
LOUIS E. WISE

**Precautions needed in thermal calculations for cement rotary kilns and waste-heat boilers.** EIJI TAKAHASHI. *J. Japan. Ceram. Assoc.* 40, 285–90(1932).—Thermal studies of cement rotary kilns and waste-heat boilers based on gas analyses sometimes lead to erroneous conclusions. The chief cause lies probably in the difficulties in getting fair samples and correct temps. for the gases in question. Three examples are given.
S. KONDO

**Modern gas-heated equipment for industrial drying processes.** W. HIND. *Gas J.* 201, 47–51(1933).— See *C. A.* 27, 587.
P. J. WILSON, JR.

**Gas generators in glass plants.** A. TORLÉR. *Glashütte* 62, 786–9(1932).—Important for proper operation of generators are: (1) generator resistance, (2) generator charge, (3) steam addn., (4) gas temp., (5) gas pressure, (6) gas compn.
M. V. K.

**The production of water gas in coke ovens.** GERHARD LORENZEN. *Stahl u. Eisen* 53, 33–40(1933).—The advantages of producing water gas in coke ovens are the possibility of producing a gas rich in H, an increase in the yield of the gas and regulation of its heating value. The installation of steam pipes in new coke ovens is simple. To permit the manuf. of water gas in existing coke ovens 3 different systems are in use. Collin connects 2 adjoining chambers by a pipe so that the steam is introduced in one of the chambers and the water gas is drawn off from the other chamber. According to the Vereinigte Stahlwerke A.-G. the steam is introduced through pipes perforated at the bottom reaching into the coking material. C. Otto & Co. blows in steam by means of nozzles through the charging doors in the direction away from the ascension pipe. This last method permits the carburetion of the gas to meet the demand of peak loads, by blowing in tar oils together with the steam.
J. A. SZILARD

**Condensation of olefins from coke-oven and cracked petroleum gases.** A. D. PETROV. *Khim. Tverdogo Topliva* 2, No. 11–12, 108–20(1931).— A bibliography with 22 Russian and foreign references. The article deals with the prepn. of synthetic fuels and lubricants.
A. A. BOEHTLINGK

**Experiments on the pyrolysis of gaseous paraffins, with special reference to the production of ethylene.** ADRIEN CAMBRON. *Can. J. Research* 7, 646–61(1932).—On passing natural gas, contg. 4.8% ethane, through an electrically heated W spiral, the formation of liquid products was observed at 1050°. On passing the same gas over an electrically heated 4 mm. C rod enclosed in an uninsulated silica tube 2.0 cm. wide, 7.7% of the gas was converted to liquid and solid hydrocarbons at a rod temp. of 1050–1100°. No liquids or solids except C were formed when the silica tube was insulated. By replacing the 2.0 cm. silica tube by a water-cooled Pyrex tube, 3.2 cm. wide, no liquid or solid hydrocarbons were obtained, but 17% of the gas was converted to gaseous, unsatd. hydrocarbons at 993°. On passing ethane through the 3.2 cm. water-cooled reaction tube at a rod temp. of 989°, 50.5% of the entering gas was converted to $C_2H_4$, and 90.0% of the $C_2H_6$ decompd. did so according to the equation $C_2H_4 \longrightarrow C_2H_4 + H_2$. The dehydrogenation of $C_2H_4$ was greatly accelerated by the presence of reduced Cu in the tube, the metal being used in the form of a cylindrical wire gauze and placed around the C rod. Cu bronze coated with $MoO_3$ was also found to be active under the same conditions. The results conformed in general to those expected from the Nernst-Langmuir equil. Propane and butane when pyrolyzed in contact with a glowing C rod decompd. largely into olefins.
J. W. SHIPLEY

**Purification of anthracene with simultaneous separation of highly concentrated carbazole.** G. T. PILYUGIN. *J. Applied Chem.* (U. S. S. R.) 5, 1059–65(1932).—

Anthracene cannot be refined sufficiently by means of crude pyridine bases. The use of the fraction b. 160–70° gives a yield of at least 82–5% anthracene with simultaneous sepn. of highly concd. carbazole. Best results are obtained at low temps. of extn. Com. possibilities for the process are emphasized. V. KALICHEVSKY

**The action of catalysts in the high-pressure hydrogenation of phenols and hydrocarbons.** HANS TROPSCH AND OTTO WEINSTEIN. *Mitt. Kohlenforschungsinst. Prag.* No. **4**, 171–97(1932).—In continuation of earlier work (*C. A.* **25**, 396) it was found that in the catalytic reduction and hydrogenation of cresols under pressure, $WS_2$ was far superior to $WO_3$ as a catalyst. With $MoO_3$, $MoS_2$ and CoS the optimum temp. range was 330–400°. The residue, particularly at the lower temps., contained no alkali-sol. acid products. In the hydrogenation of gas oils the sulfides of Mo and W showed good catalytic properties; NiS had only moderate catalytic properties and $MoO_3$ and ZnS had none. In similar treatment of solid paraffins $MoS_2$ gave promising results. H. L. OLIN

**Extractions of phenols from phenolic oils.** JÓZEF DANKOWSKI *Przemysl Chem* **16**, 151–5(1932).—Phenols are extd. from phenolic oils with 10–15% aq. NaOH. The $NaOC_6H_5$ formed is often contaminated by dissolved oil, free $C_6H_5OH$ and cresol. A series of detns. is given to show the conditions under which extn. is most complete and contamination least. No contamination is noticed when aq. NaOH is used in excess FELIX P. LEE

**The phenols crystallizable from lignite tar.** FERDINAND SCHULZ AND JEAN PRUNET *Collection Czechoslov. Chem. Communications* **4**, 531–7(1932).— The authors attempted to isolate and identify higher phenols as well as pyrocatechol from the tar from low temp. distn. of lignite. Oil from a tar distillery at Teplice was redistd. and the 200–300° fraction was extd. with distd. water slightly acidified with AcOH; then the aq. ext. was treated with Pb acetate. The yield of pyrocatechol was 0.9% of the oil treated. The unknown recrystd. phenols (about 3%) gave the color reactions of pyrocatechol and its homologs: emerald green with Fe chloride, blue with ferric oxalate, red with $NH_4$ molybdate, voluminous ppt. with Pb acetate and with ammoniacal $CaCl_2$. For fractional crystn. no solvent was satisfactory, but water, ethyl acetate, ether, benzene, MeOH and methylcyclohexane were used. Several fractions were obtained which melted about 62° and these were tested for purity. They were subjected to distn. at 740 mm. pressure. Analysis of the intermediate fraction of the distillate, b. 254–7° at 740 mm., m. 59–59.5°, failed to give data corresponding to a definite compd. but indicated a mixt. of dihydroxybenzene with homologs. ANNE E. WHITE

**The composition of peat gas-producer and low-temperature carbonization tars.** V. E. RAKOVSKII AND P. M. IOFFE. *Khim. Tverdogo Topliva* **2**, No. 11–12, 93–107 (1931).—Distn. procedures for both tars, their chem. properties and the properties of products obtained are given. A spontaneous combustion of the gas-producer tar which formed 2 layers, because of the presence of a high percentage of carboxylic acids and pyridine bases, is described. The layers, namely the "asphaltene" and the "paraffin" layers, are distinguished by their chem. compn. The low-temp. tar has no spontaneous combustion properties. The "asphaltene" layer contains 80% of acidic substances which are sol. in NaOH. This layer can only be distd. under a high vacuum. A. A. BOEHTLINGK

**Modern trends in the British by-product coking industry.** G. E. FOXWELL *Chemistry and Industry* **52**, 49–51(1933); cf. *C. A.* **27**, 182. E. H

**The removal of sulfur from metallurgical coke. II. Chlorination of coke burned with the addition of inorganic substances.** E. V. BRITZKE, I. V. SHMANENKOV AND A. N. BLAZHENKOVA. *J. Chem. Ind.* (Moscow) No. **10**, 50–3(1932); cf. *C. A.* **26**, 3651.—Coal is mixed with amts. of $Na_2CO_3$, $CaCO_3$, $MgCO_3$ and Fe ore equiv. to the amt. of S present and coked at 1100°. $MgCO_3$ lowers the S content slightly in this step, but the others have no effect. The coke is then chlorinated as previously described at 700°. That which contains $Na_2CO_3$ loses the most S and that which contains $MgCO_3$ loses the least. H. M. LEICESTER

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Natural gas for cement kilns (HEISER) **20.** Adjusting the coke plant to changed working conditions (SKROCH) **9.** The Aachen "chalky" coal (FUCHS) **8.** Gas yield from sewage sludge (RUDOLFS) **14.** Straw utilization [as a source of gas and tar] (LEMAY) **15.** Products from shale or coal (Australian pat. 27,599) **22.** Hydrocarbons (Ger. pat. 567,069) **22.** Apparatus for determining the combustible components of a gas mixture (U. S. pat. 1,888,984) **1.** Float-controlled apparatus for separation of oil and gas (U. S. pat. 1,887,111) **1.** Refining oils (Fr. pat. 737,255) **22.** Oils from coal (Australian pat. 30,910) **22.** Cracking hydrocarbons (Fr. pat. 737,177) **22.** Hydro-

genation of oils, etc. (Fr. pat. 737,103) **22.** Cracking and hydrogenation of hydrocarbons (Brit. pat. 363,360) **22.** Active $MoO_3$ catalyst [in hydrogenation of carbonaceous materials] (U. S. pat. 1,888,978) **18.** Washing and (or) separating apparatus for coal (Brit. pat. 362,935) **1.** O-containing compounds from tars, etc. (Japan. pat. 93,365) **10.** Anticorrosion and antifreeze liquid, especially for wet gas meters (Hung. pat. 104,-241) **18.** Separating solid materials [removal of dust from coal] (Brit. pat. 380,196) **13.** Gasometers (Brit. pat. 362,771) **1.**

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BAUER, JULIUS: **Die Kohlen- und Ölhydrierung in ihrer heutigen Form und die hier gegebenen Zusammenhänge technischer und wirtschaftlicher Natur.** Teplitz-Schönau: Verlag Techn. Zeitschriften. 19 pp. M. 1.50.

BODMER, A., AND NISOLLE, L.: **Le chauffage au charbon pulvérisé.** Paris: Dunod. 279 pp. F. 79; bound, F. 88.

DUCHÈNE, R.: **Etude de la combustion des mélanges gazeux.** Paris: Gauthier-Villars & Cie. 70 pp. F. 20.

**The Handbook of Butane-Propane Gases.** Edited by G. H. FINLEY. Los Angeles: Western Gas Co. 279 pp. Reviewed in *Ind. Eng. Chem.* **25**, 357(1933).

BÜCHE, KARL: **Zur Kennzeichnung der japanischen Kohlen nach ihrer Verwertungsmöglichkeit.** Thesis, Halle, 1931. 23 pp.

MÖSSNER, A. P.: **Der heutige Stand der pneumatischen Aufbereitung der Kohle.** Thesis, Breslau, 1930. 95 pp.

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**Liquid fuels.** TCHÉDOMIR VELITCHKOVITCH. Fr. 731,941, Apr. 22, 1931. Animal-flesh waste is added to gasoline to increase the calorific power. The waste may be dissolved in a heavy oil, and sepd. again from the oil by adding EtOH, acetone, ether, benzene, etc., and distg. off all but the oil.

**Motor fuel from crude light oil obtained from coal.** FRED W. WAGNER and FOREST L. MCINTIRE. U. S. 1,886,612, Nov. 8. The light oil is washed with about 0.4% by vol. of 66° Bé. $H_2SO_4$, sludge is removed, the oil is neutralized, treated with the equiv. of about 0.4% by vol. of NaOH soln. contg. 140 g. per l. and distd. under reduced pressure while its temp. is maintained below the decompn. temp. of gum-forming constituents and S-contg. hydrocarbons.

**Fuel for internal-combustion engines.** NILS H. GULLANDER (to the firm C. & S. Clementson). U. S. 1,889,474, Nov. 29. An otherwise usual fuel is treated with about 0.25% of a mixt. formed from lubricating oil 30, hydrogenated naphthalene 35–40 and hydrogenated phenol 25–30 parts, in order to lubricate valves and upper piston rings, etc.

**Fuels for internal-combustion engines.** JEAN F. P. DE LA RIBOISIÈRE. Brit. 362,673, Dec. 11, 1930. See Fr. 710,402 (*C. A.* **26**, 1769).

**High temperatures by combustion of liquid, gaseous or pulverulent fuel.** DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT VORM. ROESSLER. Brit. 358,507, July 8, 1929. A furnace is described in which a combustible mixt., prepd. in the combustion chamber itself, is passed through the combustion chamber in layers, bands or strips of small thickness, at least 20 sq. decimeters of contact surface being provided per l. of combustion chamber vol. A slightly superatm. pressure is maintained, and the gases do not remain in the combustion chamber longer than about 0.03 sec. The contact surface may be formed of or coated with electron-emitting materials such as the oxides of Th, Mg, Ca, Zr, Ba and Be. Cf. *C. A.* **27**, 1140.

**Solid fuels.** ALOIS J. HANKE. Fr. 736,723, Sept. 2, 1931. Fuels such as lignite are dried and improved by bringing them into direct contact with the distn. products from mineral oils, used in the liquid or vapor state. Heat under reduced pressure may be applied.

**Fuel briquets.** TRENT PROCESS CORP. Brit. 357,423, Nov. 26, 1929. Powd. coal is "amalgamated" with a light oil such as naphtha, kerosene or benzene, the "amalgam" is distd. to leave hot dry coal dust, which is then mixed with fuel oil, so that the oil is distd. and an oil residue remains as a binder, the material then being briquetted and carbonized. Various details of operation are described. Cf. *C. A.* **26**, 2038.

**Heat treatment of fuel briquets.** W. W. WHITE and H. D. PONTET. Brit. 359,476, July 23, 1930. Various details of app. and operation are described involving the placement of briquets upon a tray which is run into an oven or chamber where heating is effected mainly by radiation from the hot walls of the oven or chamber. Cf. *C. A.* **27**, 1140.

**Gasification of fuels.** FRANK C. GREENE. Ger. 559,454, Oct. 24, 1929. See Brit. 347,575(*C. A.* **27**, 1146).

**Gasification of carbonaceous fuels in situ.** HENRIK HEINRICH and BÉLA FORGÁCS. Hung. 104,289, March 26, 1930. Tunnels are filled with refractory rocks and air is led to the solid fuel layers by means of such tunnels. The gases formed are led away by similar channels.

**Combustible mixture containing magnesium stearate and alcohol.** ALBERT A. EPSTEIN (to Consolidated Patentees Corp.). U. S. 1,888,820, Nov. 22. A pasty mixt. suitable for use as a fuel comprises Mg stearate 1 and alc. 2 parts with a flame-modifying ingredient such as other combustible materials.

**Agglomerating and coking fuel.** H. HARDY. Brit. 357,330, Feb. 8, 1930. The process described in Brit. 356,236 (*C. A.* **26**, 3632) for heating coal or mixts. of coal and coke or the like to produce globular particles is modified by compressing the globular coal while still warm as it issues from the oven. App. and various details of operation are described for production of semi-coke or other products of desired characteristics.

**Fire lighters.** FERDINAND BLANKE. Ger. 567,326, Mar. 12, 1929. Peaty soil 30 and paraffin wax 16 parts are mixed in the warm, and a mixture of equal parts of sawdust and fibrous material such as peat is then added, together with sufficient crude brown coal to thicken the mixt., which is finally cooled and molded by pressure.

**Hydrogenation of carbon or carbonaceous material.** N. V. DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ. Dutch 26,313, Nov. 15, 1932. The Lux mass catalyzer for pressure hydrogenation is mixed with Mo compds. Cf. *C. A.* **26**, 2040.

**Hydrogenating coal, etc.** I. G. FARBENIND. A.-G. Fr. 736,863, May 9, 1932. Coal, etc., is freed from ash-forming substances before hydrogenation and agglutination, and swelling during hydrogenation is prevented by adding thinning agents such as poor coal or active charcoal or by removing the substance which causes agglutination or swelling. The treated coal may be impregnated with a soln. of a metal salt having a catalytic action.

**Apparatus for hydrogenating coal or heavy oils.** JOHANNES MARUHN and LUDWIG TÜBBEN. Ger. 564,677, Mar. 23, 1932. Addn. to 562,629 (*C. A.* **27**, 876).

**Introducing semi-liquid materials into high-pressure vessels as in destructive hydrogenation.** HERBERT A. HUMPHREY (to Imperial Chemical Industries, Ltd.). U. S. 1,888,953, Nov. 22. Semi-liquid material such as coal and oil is run into an auxiliary high-pressure reservoir, into which liquid such as oil under a pressure of at least about 100 atm. is forced from a liquid storage tank, the semi-liquid material is injected into the high-pressure vessel, and when the auxiliary reservoir is empty of semi-liquid material, the displacing liquid is run back, by a different path, to the storage tank. App. is described.

**Destructive hydrogenation.** PHILIP J. ASKEY, RONALD HOLROYD, CHARLES COCKRAM and IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 363,445, Oct. 11, 1930. See Fr. 723,862 (*C. A.* **26**, 4939).

**Destructive hydrogenation of carbonaceous materials.** N. V. DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ. Brit. 362,354, Aug. 25, 1930. Coal, lignite, cellulose, petroleum oils, tars, etc., are treated at elevated temps. and pressures in the presence of H or gases contg. or yielding free H and in the presence of catalysts contg. Re or compds. thereof brought in colloidal form onto suitable carriers together with other metals or their compds. brought in known manner in colloidal form onto suitable carriers.

**Destructive hydrogenation of coal.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,040, Oct. 16, 1930. Caking or non-caking coals, mixed with caking carbonaceous materials, *e. g.*, bitumen or pitch, are heated rapidly in finely divided state at substantially atm. pressure to temps. at which the particles are distended by evolution of volatile substances. The particles are then treated with H under pressure in the absence of a liquid vehicle. Substances evolving gases when heated, *e. g.*, $NH_4HCO_3$, may be added to the original mixt. when non-caking coals are used.

**Destructive hydrogenation of coals.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,105, Nov. 26, 1930. Comminuted coal to be destructively hydrogenated without the addn. of liquids is mixed with residues, *e. g.*, coke or ashes, obtained in the destructive hydrogenation, extn. under pressure, low- or high-temp. carbonization or gasification of solid carbonaceous [illegible]rials in such amt. that [illegible] of the coal is prevented. Preferably 10–30% of residues is added and the coal is hydrogenated in layers not exceeding 5 cm. in depth.

**Distillation of solid carbonaceous materials with superheated steam.** H. NIELSEN and B. LAING. Brit. 357,975, June 28, 1930. In effecting distn. of solid carbonaceous material by contact with superheated steam, the latent heat of the steam is recovered from the mixt. of steam and distillates by injecting the effluent liquor obtained from

the process into the mixt. and passing it through evaporators which use the heat from the spent distg. medium. App. is described.

**Distilling coal or similar materials.** E. KROPIWNICKI. Brit. 359,818, Jan. 14, 1931. The material is distd. during its upward passage through externally heated retorts and the coke formed is passed into shafts where it is used for water-gas generation and the water gas mixes with the distillates. Various details of app. and operation are described.

**Apparatus for distilling coal, schists, peat, wood, etc.** SAMUEL MOORE. Fr. 736,459, Apr. 30, 1932.

**Distilling carbonizable materials such as coal, lignite, peat or wood.** HARALD NIELSEN. U. S. 1,886,350, Nov. 1. The raw material to be distd. is passed continuously through a retort (of a described app.) to which a controlled vol. of a non-oxidizing gas such as producer gas is admitted at a temp. of about 1200° and passed countercurrent to the material treated so that the sensible heat of the heating gas is used to expel, at low temp., vapors of oil-yielding constituents which are carried into cooler zones, and also to expel, at higher temp., gaseous hydrocarbon products, leaving a coke contg. 1.5–2.0% of volatile matter.

**Retorts for destructive distillation of carbonaceous materials.** I. G. FARBENIND. A.-G. Brit. 359,507, May 19, 1930. Primary tar is obtained by the destructive distn. of brown coal, wood, peat or the like in iron retorts coated internally with Zn, Sn or Pb The retort may be of the rotary type with a plurality of tubes extending through it.

**Plant and process for low-temperature distillation of coal, cannel coal and like fuels.** HENRI STEVEN. Brit. 362,581, Oct. 6, 1930. See Fr. 703,293 (*C. A.* **25**, 4387).

**Coal.** ÉMILE MAUBEUGE. Fr. 737,151, May 2, 1932. Coal is mixed with a powder contg. equal parts of $K_2CO_3$ and $KNO_3$, whereby an economy of coal is effected.

**Utilizing coal deposits.** ALBERTH HIORTH. Norw. 49,960, Dec. 28, 1931. The coal is burned incompletely *in situ* and the gases are conducted from the mine and burned completely to produce heat for the evapn. of sea water which first has been concd. by freezing.

**Carbonizing coal.** TRENT PROCESS CORP. Brit. 357,425, Nov. 26, 1929. Hot carbonized coal is added to raw pulverized coal to retard agglomeration of the coking coal, and the mixt. is heated to a carbonizing temp. and then cooled with water, the steam, from which is passed through the charge. App. and various details of operation are described.

**Carbonization of coal.** PIERRE EUGÈNE HENRI FORSANS. Fr. 736,302, Aug. 21, 1931. Fine coal is carbonized at a low temp. (400–700°) to produce a hard semi-coke, by using the heat from a hot coke previously made. Fr. 736,303 describes the construction of a coke-oven door. Fr. 736,306, Aug. 22, 1931. Means is described for drying, preheating and carbonizing. Fr. 736,307. Means is described for suppressing smoke and recovering gases liberated during the charging of coke ovens.

**Vertical carbonizing retorts.** WOODALL-DUCKHAM (1920), LTD., and A. M. DUCKHAM. Brit. 357,146, June 16, 1930. An intermittent 2-stage vertical carbonizing retort is divided into 2 or more superposed portions the upper of which forms a coal-carbonizing zone and is externally heated while the lower portion or portions form a zone in which water gas is formed and the coke partially cooled. Various structural and operative details are described.

**Continuous carbonization and distillation furnace.** M. LAMBOT. Belg. 387,601, May 31, 1932. At least one retort is placed in a heating chamber connected directly with the combustion chamber; the retorts are designed so that the fuel is treated continuously in thin layers.

**Apparatus for low-temperature carbonization of coal.** C. FRANÇOIS. Belg. 387,850 and 387,851, May 31, 1932. Structural features.

**Retorts for low-temperature carbonization.** INTERNATIONAL HOLDING DE DISTILLATION ET DE COKÉFACTION À BASSE TEMPÉRATURE ET MINIÈRE (HOLCOBAMI) (SOC. ANON.). Belg. 387,309, April 30, 1932. Various features are provided for the utilization of the gases for cooling and heating.

**Discharging low-temperature carbonization retorts having movable bottoms.** INTERNATIONAL HOLDING DE DISTILLATION ET COKÉFACTION A BASSE TEMPERATURE ET MINIÈRE (HOLCOBAMI) (to Intertrust compagnie générale de distillation et cokéfaction a basse température et minière, Soc. anon.). Brit. 358,385, Jan. 24, 1930. Mech. features.

**Apparatus for charging fuel-briquet carbonizing retorts.** CORBAN MINTNER (to St. Louis & O'Fallon Coal Co.). U. S. 1,887,034, Nov. 8. Mech. features.

**Briquetting coal, etc.** JOHN ROGERS. Brit. 362,570, Sept. 29, 1930. In briquet-

ting coal, etc., a froth produced by causing molten bituminous material and water to issue from sep. nozzles, either concentric or at angles to each other, so that the jets intermingle, is incorporated with the coal.

**Binder for coal briquets.** JOHN A. ERICKSON (to Viking Mfg. Co.). U. S. 1,887,183, Nov. 8. Fuel fines are moistened with a soln. of a hygroscopic salt such as $CaCl_2$, and sufficient hydraulic cement is added to serve as a binder (the soln. being applied in sufficient quantity to hydrolyze the cement and in salt concn. merely sufficient to accelerate the setting of the cement binder).

**Apparatus for continuous production and drying of briquets such as those of coal dust.** NILS FLODIN and GASTON CORNELIUS. U. S. 1,887,149, Nov. 8. Structural and mech. features.

**Treating coal or coke with oil.** FRANK C. BROEMAN. U. S. 1,886,632, Nov. 8. A light mineral oil of about "32 gravity" and having a flash point of about 175° is atomized onto agitated coal or coke so as to deposit a film on the pieces amounting to about 1 gal. of oil per ton of material, which serves to suppress dust. U. S. 1,886,633 relates to a similar product.

**Coal products.** HAROLD J. ROSE and WM. H. HILL (to The Koppers Co.). Brit. 362,934, Sept. 5, 1930. See U. S. 1,875,502 (*C. A.* **27**, 187).

**Extracting soluble products from coal.** I. G. FARBENIND. A.-G. (Josef Jannek and Otto Göhre, inventors). Ger. 567,330, Mar. 19, 1927. Brown coal or like bituminous coal is heated under pressure in the absence of a solvent and then treated with a solvent at a raised temp. and pressure. The conditions during the preliminary heating should be such that caking is avoided. The treatment of brown coal of high water content is excluded.

**Apparatus and method for compressing the charge of coal in chamber ovens.** CARL STILL (trading as Firma Carl Still). Brit. 362,783, Feb. 28, 1931.

**Apparatus [with matrices of desired size and shape carried by an endless chain] for heating coal to produce agglomerate pieces.** ARMAND CHABOT U. S. 1,887,834, Nov. 15. Structural and mech features.

**Inclined multitubular furnace for hydrogenating comminuted carbonaceous materials under pressure.** I. G. FARBENIND. A.-G. (Eduard Linckh, inventor). Ger 565,410, Jan. 27, 1929. Addn. to 562,495 (*C. A.* **27**, 829).

**Combustion regulation in furnaces.** JUNKERS-THERMO-TECHNIK GES. and C. A. HARTUNG. Brit. 358,578, July 11, 1930. Excess or deficiency of air for combustion in furnaces is instantaneously indicated by measuring the temp. in the flue or in the combustion chamber where combustion is complete and additionally influencing the temp. measuring instrument in accord with the speed of combustion, supply of fuel or flow of gases through the furnace. Various details of elec. app., etc., are described.

**Fuel from peat or the like.** DAVID W. BERLIN. U. S. 1,887,671, Nov. 15. After heating to effect wet carbonization, a large proportion of water is removed by centrifuging in an app. having drum walls impervious to water, and the material is then further centrifuged in an app. having water-pervious drum walls, and is further heated. App is described.

**Apparatus for cooling dried brown coal.** MASCHINENFABRIK BUCKAU R. WOLF A.-G. Ger. 567,172, Apr. 14, 1929.

**Gas production from light hydrocarbons.** ROSSWELL W. THOMAS (to Phillips Petroleum Co.). U. S. 1,889,161, Nov. 29. Pumped streams of gas such as air and of liquefied normally gaseous hydrocarbon material such as butane are supplied by app. such that the flow of one stream serves to vary the pumping of the other; the streams are directly contacted in such manner that the hydrocarbon fluid in vaporizing serves to dehydrate and refrigerate the gas stream, moisture is sepd. from the combined streams (suitably by freezing out) and the combined material is discharged for use. App. is described. U. S. 1,889,162 (ROSSWELL W. THOMAS and GEORGE G. OBERFELL, to Phillips Petroleum Co.) relates to a similar process involving dehydration of air and admixt. with vaporized hydrocarbon material for production of a combustible mixt., and also describes app.

**Gas from liquid or powdered fuels.** JOHN HANSFORD (to H. H. Gas Plant Syndicate, Ltd.). U. S. 1,888,123, Nov. 15. Liquid or powd. fuel is injected together with air into a partial combustion or gasifying chamber where it is subjected, in the presence of finely divided metallic iron, to partial combustion through the action of a rotary flame at 700–900°, the temp. at the center of the combustion zone being considerably higher and the proportion of air and fuel such as oil being such that a residue of magnetic oxide is formed. App. is described.

**Carbureting apparatus for making "air gas" from "petrol" or the like.** W. G.

HARROLD. Brit. 357,846, Nov. 14, 1930. Various structural, mech. and operative details are described.

**Carbureted air gas.** CARL O. WANNACK (to S. H. G. Inc.). U. S. 1,888,059, Nov. 15. Various details of app. and operation are described.

**Producer gas from anthracite coal.** TRENT PROCESS CORP. Brit. 357,424, Nov. 26, 1929. Before supplying the charge to the gas-making zone, it is heated to effect substantially complete devolatilization (the need of scrubbing or cleaning the gas being thus avoided). A water-gas generator or other suitable heating app. may be used.

**Carbureter construction and operation for enriching gases such as producer or water gas with oil.** HORACE T. DYER. U. S. 1,888,074, Nov. 15.

**Filter for house gas, etc.** WOODS S. WALKER (to Consolidated Gas Co. of N. Y.). U. S. 1,888,150, Nov. 15. Structural details.

**Washing flue gases.** G. H. C. CORNER and IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 358,101, July 4, 1930. In washing flue gases for removal of dust and $SO_2$, by passage of the gas over films of water flowing down plates or tubes, the velocity of the gas is 12 ft. per sec. or less. Various details of app. and operation are described. Brit. 358,102–3 also relate to details of app. for washing flue gases.

**Gas-washing process.** HEINRICH KOPPERS A.-G. and KOPPERS COKE OVEN CO., LTD. Brit. 357,801, Oct. 9, 1930. The process described in Brit. 336,484 (*C. A.* 25, 1975), of finally cooling coal gas or the like by circulating cooling water, in which the water before being recooled is washed with tar to remove naphthalene from the water, is modified by the substitution for tar of an oil insol. in water and serving as a solvent for naphthalene. Tar oils or paraffin oil may be used.

**Washing flue gases.** G. H. C. CORNER and IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 358,487, July 7, 1930. An app. is described in which water used for washing flue gases is treated for removal of part of the pptd. dust, further treated for removal or neutralization of impurities such as $SO_2$, and then recirculated. Cf. *C. A.* **27**, 1144.

**Removing sulfur dioxide from flue gases.** BRAUNSCHWEIGISCHE KOHLEN-BERGWERKE. Ger. 567,135, Mar 14 1931. The gases are brought into contact with cooled metallic tubes, whereby $SO_2$ is dissolved in the condensed water vapor and neutralized by the layer of alk. flue ash deposited on the tubes.

**Gas generator with a rotary grate and combined stepped ashpan containing water.** M. ORB. Brit. 357,768, Sept. 20. 1930. Various structural and mech. details are described.

**Gas producer.** JACQUES G. SCHULZ. Fr. 735,961, Apr. 26, 1932.

**Twin gas producer with a thermostatically controlled oxygen supply.** M. FRANKL (to Soc. oxythermique). Brit. 357,853, Dec. 2, 1929. Various structural and operative details are described.

**Method of operating slagging gas producers.** LOUIS CHAVANNE. Ger. 567,082, June 1, 1924. Conditions are adjusted so that (1) the fusion zone extends above the tuyères for about one-eighth of the height of the fuel column, and (2) the gas leaves the top of the fuel column at a temp. not above 350°.

**Stirrer for gas producer.** THEODOR DE FONTAINE, JR. Ger. 567,293, Mar. 25, 1930.

**Gas-producer grate.** C. WHITFIELD. Brit. 359,336, Jan. 27, 1931.

**Ash-discharge device for gas producer.** ARTHUR O. HUBER. Ger. 567,376, June 19, 1931.

**Scraper for cleaning tuben of a gas producer.** S. D. ASOKIN. Russ. 26,762, Apr. 3, 1931.

**System for making water gas.** JENS RUDE. Ger. 567,375, Apr. 22, 1931. Means is described for utilizing the blow gases from a water-gas producer assocd. with a pulverulent-fuel gasifier.

**Water-gas producers.** BAMAG-MEGUIN A.-G. Fr. 736,621, May 4, 1932.

**Water-gas producers.** HUMPHREYS & GLASGOW, LTD. Fr. 736,943, May 11, 1932.

**Valve-operating system for water-gas generating plants.** T. W. STONE (to Western Gas Construction Co.) Brit. 357,001, Feb. 14, 1930. Mech. features.

**Automatic valve-control system for water-gas generators.** J. PINTSCH A.-G. Brit. 359,100, Aug. 22, 1929. Various mechanical and operative details are described.

**Control device for gravity-lift gears for waterless gas holders.** WM. WADSWORTH & SONS, LTD., and FRANK EATOCK RYDER. Brit. 362,553, Sept. 23, 1930.

**Sealing fluids for gas holders of the disk closure type.** F. W. SPERR, JR., and K. E. E. LAUE (to Koppers Co.). Brit. 359,053, Oct. 2, 1929. A viscous soln. is used which has a low f. p. and is stable at low temps such as a soln. contg. $CaCl_2$ and Mg-

$(NO_3)_2$, Na thiocyanate and thiosulfate, Na thiocyanate and $Ca(NO_3)_2$, waste sulfite cellulose liquors or products from them. Sugar, glycerol, formaldehyde, $Na_2Cr_2O_7$, NaCl, lime, etc., also may be added.

**Desulfurization plant for purifying gas.** MAX KLÖNNE and MONTZ KLÖNNE (trading as the firm Aug. Klönne). Brit. 362,805, Mar. 19, 1931. See Ger. 534,938 (*C. A.* **26**, 1100) and Fr. 713,668 (*C. A.* **26**, 1480).

**Removing nitrogen oxides from gas mixtures such as coke-oven gas.** FRANKLIN A. BENT (to Shell Development Co.). U. S. 1,888,547, Nov. 22. See Can. 323,540 (*C. A.* **26**, 4424).

**Removing naphthalene from coal gas.** F. J. COLLIN A.-G. (to Gas Chambers & Coke Ovens, Ltd.). Brit. 357,847, Nov. 15, 1930. For sepg. $C_{10}H_8$ prior to $C_6H_6$ recovery, the hot gas is treated with a solvent and then cooled by contact with water to deposit the $C_{10}H_8$-laden solvent. App. is described.

**System for rectifying crude benzene.** SOC. DES ÉTABLISSEMENTS BARBET. Ger 567,334, Dec. 5, 1925. See Brit. 244,130 (*C. A.* **21**, 315).

**Tar distillation.** STUART P. MILLER (to Barrett Co.). U. S. 1,888,235, Nov. 22. Hot coke-oven gases are passed through successive sprays of coal tar immediately after the gases leave the ovens, to effect distn. of the tar, the first spray being subjected to the max. temp. of the gases and each of the succeeding sprays being subjected to gases of progressively decreasing temp., and the residue from the distn. of each of the sep. tar sprays is separately collected. An arrangement of app. is described. U. S. 1,888,236 relates to a process in which tar is sprayed into hot gases which have just come from a coke oven, to distil the tar and produce pitch, the gases being thereafter subjected to intimate contact with tar in vol. sufficient to effect substantial cooling of the gases with only a limited distn. of the tar, after which the gases and vapors which they carry are further cooled to recover condensable constituents. App. is described. Cf. *C. A.* **27**, 1142.

**Creosoting compositions.** STUART P. MILLER (to Barrett Co.). U. S. 1,886,967, Nov. 8. For producing tarry oils yielding not more than 5% distillate on distn. up to 210° in the by-product recovery system of a coal-distn. plant, the coal-distn. gases are cooled to a temp. not lower than 200° and at this temp. are passed through an elec. pptn. app. in which only partial sepn. of suspended matter is effected, and the gases are subsequently cooled to sep. a tarry oil from them of the desired specified character. App. is described.

**Coke.** G. HILGER. Brit. 353,139, May 16, 1930. See Fr. 39,841 (*C. A.* **27**, 832).

**Mineral coke.** METALLGESELLSCHAFT A.-G. Brit. 362,796, Mar. 9, 1931. See Fr. 712,480 (*C. A.* **26**, 2042).

**Coke from mixed tar and coal.** S. P. MILLER (to Barrett Co.). Brit. 358,233, Sept. 13, 1929. Independently regulated amts. of tar and coal are introduced separately and simultaneously into a coke oven, various details of construction and operation of which are described. The tar may comprise 2–4% (or in some cases up to 10%) of the charge.

**Coking apparatus.** FRANZ PUENING. Brit. 362,522, Sept. 10, 1930.

**Coke oven.** EVENCE COPPÉE & CIE. Belg. 388,196, May 31, 1932. Structural features.

**Coke oven.** G. P. PANIOTOV and V. G. SAMOPALOV. Russ. 26,690, Oct. 1, 1930.

**Coke ovens.** SOC. ANON. DE CARBONISATION ET DE DISTILLATION DES COMBUSTIBLES. Fr. 736,762, May 6, 1932. Part of the burnt gases are taken off at the upper part of the heating flues and reintroduced at the base of the flues.

**Vertical coke ovens.** STETTINER CHAMOTTE-FABRIK A.-G. VORMALS DIDIER Fr. 735,989, Apr. 26, 1932. The retort has a zig-zag form so as to form a series of inclined portions. Various ways of obtaining this form are described.

**Intermittently operable horizontal coke oven.** GUSTAV LAMBERTZ (to Carl Still) U. S. 1,888,926, Nov. 22.

**Coke oven with transverse regenerators.** H. KOPPERS A.-G. Brit. 359,482, Sept. 27, 1929.

**Combined regenerative coke oven.** V. I. ZHUPKO. Russ. 25,157, Mar. 29, 1931. Construction details.

**By-product coke oven.** PAUL M. PINCKARD. U. S. 1,888,012, Nov. 15.

**By-product coke-oven plant operation.** STUART P. MILLER (to Barrett Co.). U. S. 1,888,465, Nov. 22. For producing coke and clean oils, coal is coked in a coke oven, entrained solid particles and entrained liquid particles of high b. p. are removed from the resulting hot fresh distn. gases at a temp. at which the constituents of the gas are sepd. into gases and vapors which pass off and a pitch residue which is left behind;

at least part of the pitch residue is returned in admixt. with the coal, to the oven, and coked, and oils of lower b. p. range are recovered from the gases and vapors. App. is described.

**Coke-oven battery.** FRIEDRICH TOTZEK (to Koppers Co. of Del.). U. S. 1,887,222, Nov. 8.

**Regenerative coke-oven battery.** CARL OTTO. U. S. 1,887,214, Nov. 8.

**Coke-oven operation.** C. STILL. Brit. 357,057, Feb. 11, 1930. In operation of coke ovens in which the distillates are withdrawn separately from a gas-collecting space over the charge and from ducts in the charge, the pressure in the said space is maintained const. at atm. pressure while the pressure in the said ducts is reduced as the coking process proceeds and finally again raised to atm. pressure. Various details of app. and operation are described. Cf. *C. A.* **27**, 1150.

**Apparatus [with endless conveyers] for low-temperature coking of coal, etc.** C. HONNAY. Brit. 358,450, Jan. 7, 1930. Structural and mech. features.

**Apparatus for charging coke ovens.** C. STILL. Brit. 358,330, Nov. 16, 1929. Mech. features.

**Charging hot coke ovens with pulverized coal.** ROBERT M. FOLSOM (to New England Fuel and Transportation Co.). U. S. 1,886,948, Nov. 8. App. and various details of operation are described. U. S. 1,886,949 relates to coke-oven construction.

**Anchoring devices for coke and chamber ovens.** CARL STILL (trading as the Firma Carl Still). Brit. 362,544, Sept. 17, 1930.

**Method for heating coke ovens with alternately ignited top and bottom burners.** COLLIN & Co. (to Gas Chambers & Coke Ovens, Ltd.). Brit. 363,243, Mar. 7, 1931.

**Withdrawing distillates from coke ovens.** C. STILL. Brit. 359,869, April 3, 1930. In a process such as described in Brit. 356,079 (*C. A.* **27**, 1150), a hard metallurgical coke is obtained by charging coal of high volatile content (over 30%) loosely into the oven the walls of which are maintained at temps. which do not substantially exceed 850–900°. Various details of app. and operation are described.

**Coking pitch.** M. L. HAMLIN (to Barrett Co.). Brit. 358,375, Dec. 28, 1929. See Ger. 542,513 (*C. A.* **26**, 3365).

**Container for cooling coke.** C. OTTO & Co. G. M. B. H. Ger. 567,067, May 7, 1930.

## 22—PETROLEUM, LUBRICANTS, ASPHALT AND WOOD PRODUCTS

W. F. FARAGHER

**Recent investigations concerning the constituents of petroleum.** J. V. BRAUN. *Petroleum Z.* **28**, No. 50, 1–6(1932); cf. *C. A.* **26**, 1102.—Lecture. I. M. LEVINE

**Crude petroleum and its refining.** G. F. MCKILLOP. *Chem. Eng. Mining Rev.* 25, 75–8(1932).—A historical sketch, classifying petroleum, discussing detn., methods, stills and chem. treatments. W. H. BOYNTON

**Isolation of the three xylenes from an Oklahoma petroleum.** JOSEPH D. WHITE AND F. W. ROSE, JR. *Bur. Standards J. Research* **9**, 711–20(1932).—The 3 xylenes were isolated from an Oklahoma crude oil by concg. them into the 127–41° cut, extg. them with liquid $SO_2$ and alternately crystg. and distg. the ext. About 22.5% of the cut dissolved in the $SO_2$. The 3 isomers were further sepd. and their properties compared with known products. The isomers were found to exist in the ratio of 3 ortho, 3 meta and 1 para. The total content of xylenes in the crude oil amounted to 0.3%. J. L. E.

**The removal of sulfur compounds from petroleum distillates.** HARRY N. HOLMES, A. L. ELDER AND NORVIL BEEMAN. *J. Phys. Chem.* **36**, 2981–93(1932).—The gels obtained by mixing dil. solns. of $FeCl_3$ and Na silicate (*"red gels"*) were aged, treated with hot 9 *N* $H_2SO_4$ and dried at 150–200°. A white porous silica (*"white gel"*) with pores with a diam. of 8 to 10 mμ was made. This white gel was soaked in 45% $CuSO_4$ at 60°, drained, dried in N or $CO_2$, cooled to 0°, satd. with $H_2S$ gas, washed and dried in N or $CO_2$ up to 200°. To activate the CuS-silica gel it was heated at various temps. from about 200° to 500°. Free S coming from the decompn. of CuS into $Cu_2S$ + S was evapd. This white gel and red gels variously treated and activated removed S compds. from petroleum distillates. CuS is superior to other sulfides for this work, and supporting the CuS on the gel increases its efficiency. The activation temp. is an important factor. The gels may be repeatedly regenerated and reused. The loss of valuable

antiknock constituents is avoided by adsorption methods An improved form of S lamp is described. JEROME ALEXANDER

**Aerial nuisances from the refining and burning of petroleum oils.** STEPHEN DEM. GAGE. *Am. J. Pub. Health* **23**, 97–104(1933). J. A. KENNEDY

**Recovery of ceresins from petrolatum at the Max Miller plant in Baku.** D. GOLDBERG AND I. ABEZGAUZ. *Azerbaĭdzhanskoe Neftyanoe Khozyaĭstvo* **1932**, No. 11, 39–45.—Cold settling is unsatisfactory for sepg. ceresins from petrolatum because of excessive time, large vol. of naphtha and low temps. required by this process. Centrifuges must be imported, which precludes their use. The Weir method is the most promising. The work on petrolatum ($d_{15}$ 0.9177, viscosity 2.69 Engler, m. 60° (Ubbelohde); paraffin content m. 60–9° 73% (Holde); penetration 160 at 25° and 100 g. load) showed that the quality of kieselguhr is important. Filtration is faster with the finer-mesh earth. The earth must be added before the crystals are formed, preferably 10° above the crystn temp. The rate of cooling in cold settling should be 2–3°/hr. while with the Weir process it can be 10°/hr. The quality of ceresin depends on temp. and quantity of diluent. More earth should be used as diln. is increased. With a diln. 1:2, 20% earth is needed; with 1:2½, 15%. The earth can be regenerated without imparing its efficiency. V. KALICHEVSKY

**The Hannover oil deposits.** ALFRED KRAISS. *Z. deut. geol. Ges.* **84**, 395–429 (1932).—Analytical data on the petroleum and brine. R. H. EWELL

**Refining machine and cylinder oils from heavy Balakhanui crude oil by caustic wash preceding the acid treatment.** N. NOVIKOV-VAKULENKO. *Azerbaĭdzhanskoe Neftyanoe Khozyaĭstvo* **1932**, No. 11, 58–60.—A preliminary caustic wash improves the ash content and decreases the amt. of naphthenic acids in the refined product. For the max. recovery of naphthenic acids, the successive washings should be utilized for washing fresh portions of oil and for prepg. the caustic soln. Addn. of the NaOH ext. from kerosene prevents the formation of emulsions and increases the efficiency of the process. V. KALICHEVSKY

**Naphthenic acids from Groznui crude oil.** P. SMIRNOV AND Z. BUKS. *Azerbaĭdzhanskoe Neftyanoe Khozyaĭstvo* **1932**, No. 11, 60–7.—Crude acids were refined by repeated extn., with petr. ether, of their soln. in alc. contg. 30% NaOH; distg. the alc treating with weak $H_2SO_4$; dissolving in petr. ether; washing with $Na_2SO_4$ soln. and water; drying with anhyd. $Na_2SO_4$ and $P_2O_5$; and distg. under 3 mm. Hg. The product was esterified with MeOH and $H_2SO_4$ and refractionated 8 times at 3 mm. Hg, yielding 39 fractions. After converting the esters into acids they were again refractionated 3 times, yielding 114 fractions, probably contg. 46 different compds. Analysis of the largest fractions showed that 6 naphthenic acids were sepd. V. KALICHEVSKY

**Total heats of gas oils at elevated temperatures and pressures.** W. W. GARY, L. C. RUBIN AND J. T. WARD. *Ind. Eng. Chem.* **25**, 178–83(1933).—Total heats of 4 cracking-plant gas oils have been detd. at elevated temps. and pressures in both the liquid and vapor states by a continuous-flow calorimeter. The equation, $H = (215 - 87d) + (0.415 - 0.104d)t + (0.000310 - 0.000078d)t^2$ [$H$ = total heat above 0° in B. t. u./lb., $d$ = sp. gr. at 15.5° and $t$ = Fahrenheit temp.] set up by Weir and Eaton (cf. *C. A.* **26**, 1760) for virgin stocks, was found to be in accord with the present results. It holds for cracking stocks also. A new equation for liquid gas-oil cracking stocks was developed along the same general lines: $H = (15d - 27) + (0.7615 - 0.400d)t + (0.000625 - 0.000440d)t^2$. This equation was satisfactory for stocks with gravities ranging from 40° to 15° A. P. I. An equation for total heats involving temp. and gravity must be restricted to stocks of certain similar characteristics. J. L. E.

**The production of gasoline from Hodonin crude oil by hydrogenation under pressure.** S. LANDA AND MARIE LANDOVÁ. *Petroleum Z.* **28**, No. 51, 10–2(1932).—By hydrogenating the oil at 465–70° in the presence of $(NH_4)_2MoS_4$ in a rotating autoclave, 55% of gasoline, end point 230°, was obtained. An overhead product from the residue also gave 54% of product, end point 200°, under the same conditions. The gasoline consisted mainly of naphthenes and aromatic hydrocarbons. I. M. LEVINE

**Preparation of the mononitrotoluene or dinitrotoluenes from the aromatic gasoline of the Shukkōkō crude oils by the direct nitration.** MASAKICHI MIZUTA. *J. Soc. Chem. Ind. Japan*, **35**, Suppl. binding 519(1932).—Compds. of superior quality are prepd. in good yield by direct nitration of fractions contg. over 30% PhMe. A. F. SHEPARD

**The separation of toluene from the toluene fraction of gasoline by the formation of the azeotropic mixture with methanol.** MASAKICHI MIZUTA. *J. Soc. Chem. Ind. Japan* **35**, Suppl. binding 470(1932). L. W. T. CUMMINGS

**Cracking of crude oil yields more gasoline of higher octane number.** E. F. NELSON AND G. EGLOFF. *Petroleum Z.* **28**, No. 51, 6–10(1932). I. M. LEVINE

**Effect of tetraethyllead on octane number.** L. E. HEBL, T. B. RENDEL AND F. L. GARTON. *Ind. Eng. Chem.* **25**, 187–91(1933).—Empirical curves for the relationship between the concn. of tetraethyllead and the octane no. of a gasoline have been set up and checked by the operation of a C. F. R. engine under 2 sets of conditions and a Ricardo E-35 engine. The results compare very favorably with the curve and from the data the lead susceptibility of a gasoline can be detd. when the octane no. is known. The factors affecting this relationship are the effectiveness of isoöctane at different concns. in raising the anti-knock value of isoöctane-heptane mixts.; the effectiveness of tetraethyllead at different concns.; the octane no. of the base gasoline before ethylizing; the lead susceptibility of the gasoline; and the no. of cc. of tetraethyllead added per gal. of gasoline. Treating seemed to cause a lag in the effectiveness of tetraethyllead, although this lag could be minimized by the addn. of small amts. of dimethyl sulfate. J. L. E.

**The separation of aromatic hydrocarbons from gasoline by extraction with liquid sulfur dioxide.** MASAKICHI MIZUTA. *J. Soc. Chem. Ind. Japan* **35**, Suppl. binding 469(1932).—Crude aromatic hydrocarbons may be extd. with liquid $SO_2$ at —18° [from gasoline] if the aromatic content is less than 35%. L. W. T. CUMMINGS

**Refining process with liquid sulfur dioxide.** L. EDELEANU. *J. Inst. Petroleum Tech.* **18**, 900–20(1932).—With the aid of flow charts, an outline is given of the method of continuous operation in refining both light and heavy distillates with liquid $SO_2$, and of making the $SO_2$. A bibliography of 42 references is added. $SO_2$ refining is as applicable in the making of high-grade lubricating oils, transformer, insulating and medicinal oils, and high antiknock motor fuel as it is for producing good kerosene. EMMA E. CRANDAL

**Motor fuels.** WALTER GIESMANN. *Petroleum Z.* **28**, No. 49, 1–10(1932).—The properties of motor fuels are discussed in relationship to their usefulness, particularly the antiknock value and end point of fuels for internal-combustion engines and the cetene or heptane no. for Diesel fuels The effect of the boiling range and H/C ratio has as yet not been settled. I. M. LEVINE

**The oxidation mechanism of mineral oils. IV. Effect of some alcohols, esters and other compounds.** TEIKICHI YAMADA. *J. Soc. Chem. Ind. Japan* **35**, Suppl. binding 467–8(1932); cf. *C. A.* **26**, 4703.—The effect on the oxidation of white oil and switch oil of the higher alcs., esters and ketones at 100° was measured by noting the decrease in O pressure. The higher alcs. and ketones accelerated the oxidation. Conclusion: Alcs. are the primary oxidation product, but they do not act directly as active centers. L. W. T. CUMMINGS

**The decomposition of mineral oil by heating under pressure.** STEFAN PHILIPPIDE. *Petroleum Z.* **28**, No. 51, 1–6(1932).—Kerosene was cracked in an electrically heated tube at 600° and the effects of pressure and rate of feed and the presence of $Al_2O_3$ and fuller's earth were investigated. In general, increase in gage pressure to 20 atm. caused an increase in yield and a drop in the sp. gr. and percentage of unsatd compds. in the product; this was attributed to the increase in reaction time. The yield was increased by the presence of the catalysts. I. M. LEVINE

**Role of dissolved gases in determining the behavior of mineral insulating oils.** F. M. CLARK. *J. Franklin Inst.* **215**, 39–67(1933).—The dielec. strength of mineral oil went through a min. at a certain low pressure of dissolved gas, either air, $CO_2$ or $H_2$. The fact that the dielec. strength of gases is similarly a function of the pressure suggests that the real dielec. strength of the oil was not tested and could not be except in the entire absence of dissolved gases. EMMA E. CRANDAL

**Improvement in the odor of unsaturated light oils.** HENRY VON WINKLER. *Chem.-Ztg.* **56**, 991–2(1932).—Benzine from Esthonian oil shales cannot be freed from an onion-like odor by the usual treatment with alkali, acid or Pb compds. A yellow color persists in the unsatd. fractions, and resins are deposited, even after distn. These properties militate against the general use of this benzine. The objectionable impurities can be converted into $H_2O$-sol. compds. that can be easily removed by treatment of the oil with 70% $H_2SO_4$ contg. 0.4% formalin. LOUIS E. WISE

**New methods of investigation for the determination of residue formation in motor oils.** A. V. PHILIPPOVICH. *Petroleum Z.* **28**, No. 49, *I. P. K.*, 10–11(1932).—Of the several methods suggested and used for the detn. of the value of a lubricating oil, the Conradson and Brit. Air Ministry ageing tests were found to agree best with the behavior of the oil in the motor. I. M. LEVINE

**The development of combustion equations for fuel oils in terms of specific gravity.**

J. K. FIGLMÜLLER. *Petroleum Z.* **28**, No. 47, 1–4(1932).—Equations are derived for the percentage of $CO_2$ and CO in stack gases for complete and incomplete combustion, resp., and the percentage of $O_2$ in each case, in terms of the sp. gr. and the quotient, theoretical/actual quantity of $O_2$. Directions for constructing diagrams based upon the equations are given. I. M. LEVINE

**Oil for technical heating plants.** H. v. SCHROETER. *Petroleum Z.* **28**, No. 47, *Praxis der Ölfeuerung* 5, 1–2(1932). I. M. LEVINE

**Production of sulfo acids by sulfonating the kerosene distillate.** K. P. LIKHUSHIN AND A. N. DEĬ-KARKHANOVA. *Azerbaĭdzhanskoe Neftyanoe Khozyaĭstvo* **1932**, No. 11, 67–74.—Highly satisfactory sulfo acids contg. min. amts. of free oil and $H_2SO_4$ can be obtained from kerosene distillates by treating them with gaseous $SO_3$. The presence of higher-boiling fractions in kerosene increases the yield of sulfo acids. The color of the acids is improved by treating kerosene with clay before the acids are extd. with water. The burning qualities of kerosene treated with $SO_3$ are also superior to the ordinary product. Sulfo acids may be utilized for mfg. soap. V. KALICHEVSKY

**A naturally active bleaching earth.** E. BELANI. *Petroleum Z.* **28**, No. 50, 11–12 (1932).—Methods of treating heavy oils are described wherein the more active chemically treated clays are replaced in part by a naturally active earth, "Carlonit," found in Karlsbad. I. M. LEVINE

**The effect of Paraflow on wax crystal structure.** G. H. B. DAVIS. *Natl. Petroleum News* **24**, No. 52, 32, 34(1932).—Small amts. of Paraflow inhibit excessive growth of crystals and change the shape from the needle type to small equiaxial grains of uniform size. R. W. KELLY

**Preparation of paraffin from carnauba wax by means of catalytic hydrogenation.** H. I. WATERMAN, P. DE KOK AND A. J. TULLENERS. *J. Inst. Petroleum Tech.* **18**, 1007–9(1932).—It is possible to cause a 70% (by weight) conversion of carnauba wax into paraffin by expelling the O by means of high-pressure hydrogenation in the presence of catalysts such as Mo-C and Ni-guhr and at a temp. of 400°. The paraffin produced has substantially the setting point, sp. gr., *n*, sp. refraction, mol.-wt. and ratio of C/H of com. Rangoon paraffin. J. L. E.

**New developments widen the field for treating lubricating oil with sulfur dioxide.** O. P. COTTRELL. *Oil and Gas J.* **31**, No. 28, 10, 12(1932).—The addn. of benzene to liquid $SO_2$ increases its solvent power sufficiently to improve the viscosity index on all types of distillates. J. R. STRONG

**Analysis of mineral lubricating oils by fractionation with acetone.** MILLICENT NOTTAGE. *J. Inst. Petroleum Tech.* **18**, 943–52(1932).—*Extg. lubricating oils* with successive portions of acetone takes out the constituents having high surface activity and reactivity, leaving a "*diluent*" whose coeff. of friction is independent of temp. and of overlying atm. This coeff. varies considerably with the source of the oil. It was, *e. g.*, 0.200 for a Burma oil and 0.139 for a Pa. oil. EMMA E. CRANDAL

**Synthetic lubricating oils.** JACQUES WOUDHEYSEN. *Petroleum Z.* **28**, No. 49, *Motorenbetrieb und Maschinen-Schmierung* 5, No. 12, 2–3(1932).—The W. lubricating oils, prepd. wholly from vegetable products, are shown to have a low coeff. of friction, greater stability against high pressure and to produce a lower bearing temp. than mineral oils and yet cost little to produce. I. M. LEVINE

**Stability of lubricating oils.** G. R. VAĬNSHTEĬN. *Azerbaĭdzhanskoe Neftyanoe Khozyaĭstvo* **1932**, No. 11, 45–57.—Exported oils are made from better crude oils than domestic oils. Stability to oxidation was tested by using the methods of Sligh, Michie and Hackford (*C. A.* **20**, 3561). The Sligh method is preferred. The most stable oils are made from Surakhanui crude oil. Other crude oils are classified as follows: light Bibi-Eĭbat, heavy Bibi-Eĭbat, heavy Balakhanui, Binagadin (poorest). This shows that paraffin-base oils are the best, but asphalt-base oils can be improved considerably by proper chem. treatment. Oils from pipe stills are better than those from shell stills because of better fractionation. The use of $H_2SO_4$ and NaOH only yields poor products. $H_2SO_4$ and clay (contacting) give satisfactory oils but the acidity is high. $H_2SO_4$, NaOH and clay give the best oils. Clay alone yields unstable products of high acidity. A bibliography of 40 references on stability of oils is appended. V. KALICHEVSKY

**Lubricating oils with colloidal admixtures.** O. STEINITZ. *Allgem. Oel- u. Fett.-Ztg.* **29**, 35–7(1932).—At high speeds the effect of adding, *e. g.*, 2% of colloidal graphite is not very noticeable; but at low speeds, and especially in conditions of imperfect lubrication, improved lubricating power is shown in reduced friction, lower bearing temp and better adhesion of the oil film. Practical machine tests confirm these results. B. C. A.

**Viscosity and lubricating value of oils.** E. LEDERER. *Petroleum Z.* **28**, No. 49,

*I. P. K.*, 1–10(1932).—The value of L.'s equation for dynamic viscosity $\eta$, in terms of the heat of assocn. $q_0$ and abs. temp. $T$, *viz.* $\log \eta = q_0/(2.303\,RT - 2.75 \log T + ET + C)$, derived from thermodynamical considerations, was tested on the data obtained by Tausz and Staab (*C. A.* **25**, 1371). The agreement was satisfactory. The observation that $q_0$ and $E$ are much larger for mixts. than for pure substances, and that $C$ assumes large neg. values was confirmed; this indicates that not only $q_0$ but also the viscosity-temp. differential becomes larger for mixts Characteristic differences between vegetable and mineral oils in this respect were not found. In discussing the effect of diln. upon viscosity there was introduced the term, degree of solvation, $S$, *i. e.*, the quantity of solvent adsorbed by the solute (lubricant), and defined by the equation $n_1 = (p_1/M_1)/[(p_1/M_1) + (p_2/M_2S)]$, where $n_1$ is the mol. fraction, and $p_1/M_1$ and $p_2/M_2$ are the mols. solvent and solute, resp. This equation was also found to agree with the data of T. and S. with a few exceptions. For vegetable oils S is 3–5 times as large as for mineral oils. For the latter of mol. wt. to 330, $S$ is unity; it then rises with increase in wt. It varies with the structure of the diluent but in each homologous series it becomes smaller with increase in mol. wt., tending toward a limiting value. Hydrogenation of a ring increases the value of $S$ Since $S$ is some measure of the strength of the field around a mol. it becomes important in the consideration of semi-fluid lubrication. I. M. Levine

**Aging tendency of [compound] fatty lubricating oils.** G. Meyerheim. *Allgem. Oel- u. Fett-Ztg.* **29**, 31–4(1932).—The presence of fatty oils interferes with the detns. of tar no. and "Verteerungszahl"; normal figures are obtained by testing the mineral oil itself (unsaponifiable matter) after it has been sepd. from fatty matter (Spitz-Hönig method). B. C. A.

**Evaluation of extreme-pressure lubricants by use of Timken laboratory apparatus.** A. P. Frame and A. K. Graham. *Oil and Gas J.* **31**, No. 33, 14, 16(1933). J. R. S.

**Chemistry of the constituents of the wood-oil of the "callitris" pines. I. Constitution of "callitrol."** V. M. Trikojus and D. E. White. *J. Proc. Roy. Soc. N. S. Wales* **66**, 284–99(1932)(reprint).—By distg. with steam 33.95 kg. of *Callitris glauca* wood shavings and extg. the distillate with $C_6H_6$, 339 g. of crude oil was obtained, 118 g. of which dissolved in 5% NaOH. On acidification and distn., 77 g. of "callitrol," $b_{0.6}$ 116–8°, was isolated. This fraction, which is responsible for the resistance of *C. glauca* to termite and fungal attack, was believed by Baker and Smith (*C. A.* **5**, 351) to be a phenol. T. and W. show that "callitrol" is identical with *l-citronellic acid* (I), $Me_2C{:}CHCH_2CH_2CHMeCH_2CO_2H$. It is completely sol. in $NaHCO_3$ soln. and is assocd. in $C_6H_6$ (mol. wt. 292–317, depending on concn.). It $b_{0.6}$ 117.9°, $n_D^{25}$ 1.4563, $d_{25}^{25}$ 0.9274, $[\alpha]_D^{25}$ —6.60; *methyl ester*, $b_{1.1}$ 86°, mol. wt. in $C_6H_6$ 184; *silver salt*, prisms; *anilide*, needles from petroleum ether, m. 76°; *amide*, leaflets from petroleum ether, m. 84–5°; *p-toluide*, prisms from MeOH, m. 93–4°. On reduction with 1 g. Pt oxide and H, 15 g. I in 75 cc. AcOEt yielded 13.5 g. *l-dihydrocitronellic acid*, II, $b_{0.7}$ 114–5°, $n_D^{23}$ 1.4370, $\alpha_D^{23}$ —1.91 (in a 5-cm. tube). II was less satisfactorily prepd. from I by hydrogenation in AcOH or abs. alc. The *anilide* of II, needles from aq. MeOH, m. 90–1°, *amide*, leaflets from petroleum ether, m. 108–9°. By the interaction of 2.5 g. AcCl and 5 g. II during 0.5 hr. at 120–80°, 2.5 g. *anhydride* of II, $b_{0.9}$ 154–6° was formed. By evapg. to dryness 17 g. I in alc., 2.8 g. CaO and 6.5 g. $(HCO_2)_2Ca$, and distg. the mixt. with $SiO_2$, 1 g. *l-citronellal*, III, $b_{27}$ 103–8° was obtained. III forms no cryst. semicarbazone nor 2,4-dinitrophenylhydrazone, but gives an *atophan*, m. 249°. This is probably the first record of the natural occurrence of I. Color reactions supposedly characterizing "callitrol" are due to a higher-boiling impurity accompanying I. In a comparative study, T. and W. prepd. *d*-citronellic acid (IV), by the following steps (cf. Semmler, *Ber.* **24**, 208 (1891); **26**, 2255 (1893)): *d*-citronellal ⟶ oxime ($b_{22}$ 143–8) ⟶ nitrile ($b_{22}$ 115–20) ⟶ IV, $b_{0.33}$ 118–8.5°, $n_D^{19.5}$ 1.4561, *anilide*, needles, m. 75–6°, *p-toluide*, m. 93–4°. A mixt. of equal amts. of the anilides of I and IV m. 51–2°. The toxicity of II toward *Fomes annosus* is practically identical with that of I, which is somewhat more toxic than IV. Louis E. Wise

**Effect of geographical factors and of the type of forests on the turpentines from Pinus silvestris.** V. Krestinskiĭ, S. Malevskaya and F. Solodkiĭ. *J. Applied Chem.* (U. S. S. R.) **5**, 950–7(1932).—Turpentines were obtained from *Pineta hylocomiosa*, *Pineta sphagnosa*, *Pineta herbosa*, *Pineta composita* and *Pineta cladinosa*, the 5 types of forests. Their compns. were practically identical, proving that the variety of the tree and not the local conditions governs the type of the product. V. Kalichevsky

**The considerable variation which appears from one tree to another in the rotatory power of the oil of turpentine from the maritime pine [Pinus pinaster Sol.] and the relative stability of this rotatory power for a given tree.** A. Oudin. *Compt. rend.* **195**, 185–6

(1932).—A study of the rotatory power of samples of oil of turpentine taken from trees which were apparently in the same condition of vegetation showed differences varying from +11° to —41°. However, samples from a given tree remained const. over a period of several years. G. C. CROOKS

**Component distribution trend in commercial turpentine still operation.** S. PALKIN. *Ind. Eng. Chem.* **25**, 95–7(1933); cf. *C. A.* **26**, 3099.—The proportion of β-pinene was greater by 6 to 8% and the tailings were slightly concd. in the last 15% (18 gal.) of the com. run. The first fraction of 51 gallons (42.5%) was 2–6% higher in α-pinene. H. E. MESSMORE

**Processing pine pitch with caustic solutions.** E. TITOV, A. PREOBRAZHENSKIĬ AND V. PANOV. *J. Applied Chem.* (U. S. S. R.) **5**, 958–80(1932).—The mechanism of the caustic treatment consists mainly in formation of solns. of certain components of turpentine in the aq. solns. of rosin soaps which rapidly dissolve the rosin acids and saponify them afterward. Steam and caustic processes give identical products provided all of the turpentine is removed from the chips. Rosin acids have reducing properties in an alk. medium. At the plant it is best to ext. chips countercurrently at temps not above 90° and without preliminary removal of turpentine by distn. $Na_2CO_3$ is added (6–7%) to the alk. ext. and the mixt. distd. After removing the turpentine the remaining soln. is settled, the rosin soaps are sepd. and the caustic is returned to the process. For quicker sepn. of rosin acids from the pitch it is recommended to add turpentine or some of its components to caustic solns. used for extn. V. KALICHEVSKY

Condensation of olefins from coke-oven and cracked petroleum gases (PETROV) **21**. Cement and well cementing (REID, EVANS) **20**. The action of catalysts in the high-pressure hydrogenation of phenols and hydrocarbons (TROPSCH, WEINSTEIN) **21**. Geochemistry of oil formation (ZUBER) **8**. Physical properties of mixtures of bitumen and finely divided mineral matter (EVANS) **20**. Float-controlled apparatus for separation of oil and gas (U. S. pat. 1,887,111) **1**. Treating wall surfaces in storage tanks for oils, etc. (Norw. pat. 51,792) **13**. Cleaning well surfaces in storage tanks (Norw. pat 49,390) **13**. Incorporating fibrous materials in aqueous dispersions such as those of asphalt (U. S. pat. 1,889,473) **13**. Apparatus for hydrogenating coal or heavy oils (Ger. pat. 564,677) **21**. Apparatus for cleaning oil with water (Australian pat. 29,612) **1**. Apparatus for distilling schists, wood, etc. (Fr. pat. 736,459) **21**. Purification [of crude petroleum solutions] and decolorization (Belg. pat. 387,742) **13**. Resin-like products from cracked hydrocarbon distillates (U. S. pat. 1,888,044) **26**. Boundary lubrication by soap solutions (WILLIAMS) **2**.

SAKHANOV, A. N., AND TILICHEEV, M. D.: **Chemistry and Technology of Cracking.** Translated from Russian by A. A. Boehtlingk, *et al.* New York: Chem. Catalog Co., Inc. 389 pp. $8. Reviewed in *Ind. Eng. Chem.* **25**, 356 (1933).

SEVERIN, E.: **Petrolul. Studiu fizic, chimic, geologic, technologic si economic.** Bucharest: Imprimerie Nationale. 642 pp. Reviewed in *Chimie & industrie* 27, 1500 (1932).

PECHMANN, ELSA: **Über die Ursachen der Veränderungen von Isolieröl beim Kochprozess des Transformators.** Thesis, Dresden, 1932. 17 pp.

REINHARD, JOACHIM: **Die Erdöle der Provinz Hannover.** Thesis, Hanover, 1931. 64 pp.

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**Treating petroleum and petroleum products and elimination of bloom.** B. G. TUICHININ. Russ. 31, Oct. 31, 1921. Petroleum and its products are treated with $S_2Cl_2$ or other S and Cl compds. either directly or in the presence of an inert solvent.

**Treating petroleum oils to modify or remove heavy paraffinic materials, etc.** FRANK F. GORMAN. U. S. 1,886,008, Nov. 1. A compn. formed of gas oil 1 gal., soda ash 5 oz., $NaHCO_3$ 5 oz., NaOH 5 oz. and naphthalene 1 oz. is used for treating oils either in wells or in storage tanks, etc.

**Attachment for sampling petroleum from hermetically sealed containers.** S. I. BRONYAKOV. Russ. 24,989, Feb. 11, 1928.

**Electrical apparatus for petroleum dehydration.** JOHN M. CAGE (to Elec. Sepn. Co., Ltd.). U. S. 1,887,010, Nov. 8. Structural features.

**Hydrogenating hydrocarbon oils by electric treatment.** HAROLD C. WEBBER (to Universal Oil Products Co.). U. S. 1,887,061, Nov. 8. An elec. current is passed through a mixt. of hydrocarbon material such as pitchy or asphaltic material and a conducting material such as NaCl soln. or caustic alkali which is reactive with the electrodes

used (which may be formed of Fe, Cr or W) to form finely divided solid secondary reaction products insol. in the hydrocarbons which act as hydrogenation catalysts.

**Apparatus and procedure for continuous distillation and fractionation of petroleum oils.** WALTER G. WILLIAMS (to Byrnes, Townsend & Potter). U. S. 1,886,142, Nov. 1. The material is delivered upon the inner surface of a revolvable horizontal cylinder, which is externally heated, and undistd. liquid is passed to a zone of higher temp. for further treatment. Various details of app. and operation are described.

**Refining petroleum distillates.** FRANK W. HEATH (to Shell Development Co.). U. S. 1,888,382, Nov. 22. See Can. 327,496 (*C. A.* **27**, 1154).

**Recovering naphthenic compounds from petroleum oil.** STEWART P. COLEMAN (to Standard Oil Development Co.). U. S. 1,886,647, Nov. 8. The oil is distd. without alkali and a lubricating fraction contg. naphthenic compds. is taken off, alkali is added to the lubricating fraction and it is oxidized (as by air while hot) only to an extent sufficient to ensure the formation of alkali naphthenic compds. and the latter are sepd. from the oil.

**Apparatus for refining oils and petroleum products by treatment with acids.** RUBIN LIPSZYC. Fr. 737,008, May 12, 1932.

**Extracting petroleum or other sulfonic acids.** G. S. PETROV. Russ. 1449, Sept. 7, 1923. Sulfonic acids formed on treating hydrocarbon oils with $H_2SO_4$ or $SO_3$ are treated with NaOH soln. and the aq. soln. is treated with gasoline, etc., for the removal of hydrocarbons, while the dissolved sulfonates are salted out with sulfate, NaCl or other easily sol. salts followed by treatment with acid. The free sulfonic acids so obtained are extd. with gasoline, etc., and the solvents are removed by distn.

**Sulfonic acids from petroleum distillates, mineral oils, paraffin and ceresin.** G. S. PETROV. Russ. 460, Sept 12, 1912. The substances mentioned above are treated with $H_2SO_4$ and the acid sludge is settled and sepd. The oil, etc., is washed with water and the aq. ext. of sulfonic acids is treated with gasoline, $CS_2$ or with a similar water-insol. volatile solvent to remove the oils or the hydrocarbons.

**Sulfonic acids from acid sludge from petroleum or from other substances.** G. S. PETROV. Russ 1447, Sept. 7, 1923. The oil layer, which seps. from the acid sludge after diln. with $H_2O$ and treatment with steam under pressure in autoclaves, is distd. to sep. the hydrocarbon oils from resins and the fractions obtained are then sulfonated in the usual manner.

**Refining hydrocarbon oils.** MARVIN SMITH (to Universal Oil Products Co.). U. S. 1,889,388, Nov. 29. Vaporized oil such as straight-run gasoline is subjected to the action of H while in contact with a metal chromite such as Cd or Cu chromite to effect desulfurizing of the oil.

**Hydrocarbon oil conversion.** CARBON P. DUBBS (to Universal Oil Products Co.). U. S. 1,888,028, Nov. 15. Oil is heated by indirect contact with gases of combustion and the heated oil and gases are then passed into direct contact with each other with vaporization of the oil, and regulated portions of the material in the treating zones are recirculated in each zone. App. is described.

**Catalytic conversion of hydrocarbon oils into products of lower boiling point.** CLYDE L. SMITH and CORNELIUS B. WATSON (to Pure Oil Co.). U. S. 1,887,047, Nov. 8. A continuously flowing stream of oil of relatively high b. p. is subjected to temps. sufficiently high to effect vaporization without substantial cracking and there is introduced into the vapors a finely divided solid catalytic material such as Ni, Pd, Th oxide, ZnO or Fe and the vapors and assocd. catalytic material are passed together at high velocity in a stream of restricted cross-sectional area through an elongated cracking zone in which the vapors are heated to above 540°; conversion reactions in the oil vapors discharged from the cracking zone are arrested by bringing the vapors into direct contact with a body of cooling oil, a portion of the vapors being thus condensed; the mixt. of condensed vapors and cooling oil is sepd. from the catalyst and may be separately returned to the system for continuation of the treatment. App. is described.

**Apparatus for hydrocarbon oil distillation and conversion.** ROBERT T. POLLOCK (to Universal Oil Co.). U. S. 1,887,039, Nov. 8. In an app. comprising a still and reflux condenser, a charging pump delivers oil into the upper portion of the reflux condenser. Connections are provided between the vapor spaces of the still and the lower portion of the reflux condenser, and a tank receives condensate and charging oil from the reflux condenser and regulated quantities of material are pumped from the tank to the reflux condenser.

**Liquid and gas or vapor contact system suitable for effecting fractional distillation of hydrocarbon oils.** EDWIN F. NELSON (to Universal Oil Products Co.). U. S. 1,888,048, Nov. 15. In the operation of an app. of the bubble-tower type, the passage

of liquid from one zone to a next lower zone is facilitated by passing a stream of vapors at relatively high velocity from a zone of relatively high pressure into the liquid passing between the said zones. App. is described.

**Steam- and vacuum-distillation system for high-boiling hydrocarbon oils.** STANDARD OIL CO. Ger. 567,288, Nov. 11, 1926.

**Hydrocarbon-oil-cracking apparatus.** AUDLEY E. HARNSBERGER and CLYDE L. SMITH (to Gyro Process Co.). U. S. 1,889,199, Nov. 29. Various details of a heating-tube system and furnace setting are described.

**Coil and expansion chamber apparatus, etc., for cracking hydrocarbon oils.** CARBON P. DUBBS (to Universal Oil Products Co.). U. S. 1,886,946, Nov. 8. Various structural and operative details are described in this pat. (which is based upon an application filed in 1919).

**Cracking hydrocarbon oils.** CHARLES J. GREENSTREET (to Raymond F. Adams). U. S. 1,886,093, Nov. 1. A heavy hydrocarbon oil is forced rapidly through a long heating conduit in which it is heated to about 600° or higher to effect cracking, and the cracked products are immediately cooled to a temp. at which cracking ceases by direct contact with hydrocarbon oil contg. light hydrocarbons to effect vaporization thereof simultaneously with the cooling of the cracked oil, and the vapors of light hydrocarbons formed by the cracking reaction are further cooled as are also the vapors of the light hydrocarbons liberated from the cooling medium, to condense them. App. is described

**Cracking hydrocarbon oils.** GUSTAV EGLOFF and HARRY P. BENNER (to Universal Oil Products Co.). U. S. 1,888,029, Nov. 15. Oil is distd. at a cracking temp. under pressure and the generated vapors are passed to a combined scrubbing and cracking vessel in which a predetd. supply of a second oil is maintained and the vapors from the cracking still are passed first downwardly and thence upwardly through this second oil body to scrub the vapors and crack some fractions of the oil in the vessel, scrubbed vapors are discharged, and, commingled with vapors released from the second oil, are passed to a dephlegmator, reflux condensate from which is united with charging oil for further treatment, and the dephlegmated vapors are condensed to recover a distillate App. is described.

**Cracking hydrocarbon oils.** HAROLD SYDNOR (to Standard Oil Development Co.). Brit. 362,666, Dec. 6, 1930. See Fr. 706,577 (*C. A.* **26**, 291).

**Cracking oils.** GUSTAV EGLOFF (to Universal Oil Products Co.). U. S. 1,887,083, Nov. 8. A gas oil and a fuel oil are simultaneously subjected to independent cracking operations under relatively higher and lower conditions of temp. and pressure, resp., without commingling of any liquid constituents of the different oils; vapors from the oils are commingled while at high temp. and the united vapors are subjected to dephlegmation and condensation and reflux condensate thus obtained is united with the gas oil undergoing treatment. App. is described.

**Cracking oil.** JEAN D. SEGUY (to Universal Oil Products Co.). U. S. 1,888,051, Nov. 15. Oil is heated to a cracking temp. under pressure in a coil and the heated oil is transferred to an enlarged chamber; vapors from the chamber are dephlegmated and the dephlegmated vapors are condensed; unvaporized residual oil is continuously discharged from the chamber to a settling zone for settling of free C, and substantial portions of the pressure distillate produced are distd. under a lower pressure than that maintained in the coil by passage through a zone of heat interchange with uncondensed vapors; regulated quantities of the unvaporized distillate from the zone just mentioned and C-free residual oil from the settling zone are returned to the coil for further treatment. App. is described.

**Cracking oils.** COMPAGNIE INTERNATIONALE POUR LA FABRICATION DES ESSENCES ET PÉTROLES. Fr. 40,528, Dec. 1, 1930. Addn. to 712,512 (*C. A.* **26**, 1765). The treatments are carried out in a no. of elements arranged in common chambers so that the treatment (vaporization or cracking) takes place in elements alternating in the same chamber, with elements in which regeneration of the catalyst or absorbent takes place. An economical heat exchange takes place.

**Still for cracking oil.** WM. L. BAGWILL. U. S. 1,886,621, Nov. 8. Various structural details.

**Dephlegmation system for use in an oil-cracking process.** LYMAN C. HUFF (to Universal Oil Products Co.). U. S. 1,886,957, Nov. 8. Various details of app. and operation are described.

**Vapor-phase oil cracking and vapor-phase refining of hydrocarbon materials by means of adsorptive catalyst.** EUGENE C. HERTHEL (to Gray Processes Corp.). U. S. 1,887,128, Nov. 8. Numerous details of app. and operation are described.

**Distillation of oils.** I. G. FARBENIND. A.-G. Fr. 736,557, May 3, 1932. In the

distn. of oils of different constitutions and sources such as tar oils, mineral oils, products from cracking and hydrogenation under pressure, etc., the oils are first freed from fractions, such as lubricating oils, which lose their value during the common distn. at atm. pressure and fractions, such as very volatile components, which cause disturbances during the common distn. under vacuum. An app. is described.

**Refining oils.** UNIVERSAL OIL PRODUCTS CO. Fr. 736,834, May 9, 1932. Hydrocarbon oils are freed from color, gum-forming substances and harmful S compds. by submitting the heated vapor thereof to the action of HCl in the presence of a substance contg. a metal in the free or the combined state, *e. g.*, Cu, Zn or brass.

**Refining oils.** I. G. FARBENIND. A.-G. Fr. 737,255, May 18, 1932. Residues from the distn. or cracking of mineral oils, tars, etc.. or products from the hydrogenation under pressure of coal, tars, mineral oils, etc., are refined for the production of lubricating oils, by a treatment with liquefied hydrocarbons of the $CH_4$ series, contg. principally the first 3 members of the series. The treatment may be at a high temp. and under pressure at first, and then after sepn. of asphalts and resins at a lower temp. and pressure. The products may be submitted to hydrogenation under pressure, cracking or treatment with solvents.

**Hydrogenation of oils, etc.** I. G. FARBENIND. A.-G. Fr. 737,103, May 14, 1932. Materials such as tars, mineral oils, conversion and distn. products, which contain polymerizable components such as diolefins or which give rise to such components during heating, are first passed through a heating app., preferably in the liquid state and with or without H, at a temp. and speed such that the polymerizable components are polymerized but not deposited in the heating app. The polymerization products are afterward removed and the remainder is hydrogenated under pressure at a high temp.

**Hydrogenation of heavy hydrocarbon material.** ROBERT P. RUSSELL (to International Hydrogenation Patents Co., Ltd.). Can. 329,076, Jan. 3, 1933. Heavy hydrocarbon material is subjected to the action of H in a primary reaction zone at 750–900°F. and under 20–200 atm. in the presence of catalysts. Vapors formed are removed and cooled at reaction pressure and fractions boiling above 400–600°F. are condensed. The remaining uncondensed vapors are subjected to the action of H in a secondary reaction zone at 850–970°F. and under 20–100 atms. in the presence of catalysts. The vapors are removed and cooled. *Naphtha* suited for motor fuel is recovered.

**Hydrocarbons.** GEORGE F. FORWOOD. Fr. 736,853, May 9, 1932. Hydrocarbons are converted to lighter hydrocarbons by heating them in the presence of steam and a catalyst composed of an alloy of Fe and Sn. Ni, Cr and Co may also be present in the alloy. A combined cracking and hydrogenation takes place.

**Hydrocarbons.** FRANZ FISCHER and HANS TROPSCH. Ger. 567,069, Sept. 15, 1926. Hydrocarbons are treated in known manner with steam and (or) $CO_2$ to produce a gas mixt. of the water-gas type, and this mixt. is led over a catalyst at atm. pressure to produce other hydrocarbons. An example is given in which natural $CH_4$ is led with $CO_2$ over spongy iron at 950°, and the resulting gas is led at 270° and atm. pressure over a mixt. of Co and ZnO, giving liquid hydrocarbons of the benzine type. The residual gases are returned to the process.

**Purifying hydrocarbons.** MARC D'HERCOURT. Fr. 736,378, Aug. 27, 1931. Org. or mineral impurities are eliminated from crude benzene, hydrocarbons, etc., by bringing these liquids into contact with Al previously activated by traces of Hg or salts of Hg acting as catalysts, in the presence of steam. An app. is described.

**Cracking hydrocarbons.** ULYSSES A. R. DUDLEY. Brit. 363,051, Oct. 23, 1930. See Fr. 720,290 (*C. A.* **26**, 3911).

**Cracking hydrocarbons.** LOUIS M. J. TALLON. Fr. 736,253, Aug. 13, 1931. The catalytic power of Cu in a non-reduced form at a relatively low temp. (250–350°) is used in the cracking and refining of hydrocarbons, without an increase of pressure. The activity of the Cu may be increased by a layer of platinized asbestos.

**Cracking hydrocarbons.** THE TEXACO DEVELOPMENT CORP. Fr. 737,071, May 13, 1932. Hydrocarbons of high b. p. are heated to a moderate decompn. temp. and introduced into a reaction chamber from which the vapor is directed to other reaction chambers and is easily dephlegmated to give a motor fuel and a pure condensate of gas oil. The gas oil is heated to a higher temp. than the hydrocarbons and introduced into the reaction chamber where it comes in contact with the hydrocarbons to be treated and with a residue which has been deposited in a subsequent reaction chamber and returned to this chamber. The vapors which result are combined and passed through reaction chambers and a dephlegmator. An app. is described. Cf. *C. A.* **26**, 5749.

**Cracking hydrocarbons.** CARBUROL A. G. Fr. 737,177, May 14, 1932. Petro-

leums or petroleum products are treated individually at the same time as coal oils, tars from dry distn. and other products, in one or more sep. cracking zones, and the products from all the cracking zones are fractionated together. An app. is described.

**Cracking hydrocarbons.** The Texaco Development Corp. Fr. 737,232, May 17, 1932. A hydrocarbon condensate is submitted to decompn. temp. while passing through a heated worm and the heated hydrocarbons are passed to a larger reaction zone in which decompn. temp. is maintained at increased pressure and in which a sepn. of liquid and vapors takes place. Part of the liquid is drawn off in amt. sufficient to prevent accumulation and the vapors are heated in a restricted current at a decompn. temp. higher than that to which the condensate is heated. The vapors pass to a 2nd reaction zone heated to decompn. temp. under pressure, to which the liquid withdrawn from the 1st zone is also led and in which a sepn. of liquid and vapors takes place. The heat in this zone is reduced by introducing hydrocarbons to be treated, at a relatively low temp. The liquid from the 2nd zone is withdrawn in amt. sufficient to prevent accumulation and the vapors are submitted to a fractionation to sep. a light final distillate and a condensate which is led to the heated worm. An app. is described.

**Cracking and hydrogenation of hydrocarbons.** Arthur G. L. Try and Murray Stuart. Brit. 363,360, Sept. 11, 1930. The proportion of low-boiling oil obtained by the destructive distn. of coal, lignite, peat, etc., is increased by subjecting the distillate in the vapor phase to a silent elec. discharge. Hydrogenating gases may be mixed with the vapors.

**Cracking and gasifying hydrocarbons.** John H. Anderson. U. S. 1,887,112, Nov. 8. For obtaining gaseous products from heavier hydrocarbons such as those of coal tar the material is continuously fed into the larger end of a hollow conical retort tilted upon its side with the lowermost line of its side wall in horizontal position and contg. a loose mass of metal bodies such as iron or steel and the retort is externally heated and rotated so as to tumble the metal bodies transversely while restraining them from longitudinal travel; gases generated are drawn off and the residue is automatically discharged from the opposite end of the retort. Details of app. are described.

**Treating vapors formed in cracking hydrocarbons.** Norman H. Moore (to Texas Co.). U. S. 1,887,941, Nov. 15. Vapors formed by pressure cracking are subjected to dephlegmation under superatm. pressure to form a reflux condensate and an overhead vapor fraction having an end point higher than that desired for the final product; the vapor fraction is condensed to form a distillate and the latter is partially purified by preliminary chem. treatment, rectified under a lower superatm. pressure to form a condensate of desired vapor tension, the rectified condensate is further purified, vaporized and fractionated to obtain a product of desired final end b. p. and the vapor is treated with solid adsorbent catalytic material such as fuller's earth to polymerize undesired unsatd. constituents and the remaining vapors are utilized for obtainment of the desired final product.

**Purifying cracked hydrocarbon products.** Audley E. Harnsberger (to Pure Oil Co.). U. S. 1,887,018, Nov. 8. For removing gum-forming and color-imparting compds. from vapor-phase-cracked, unsatd., low-boiling hydrocarbon oils, a stream of such oil is subjected to a low vaporizing temp. without cracking; oils and vapors are passed into a sepg. zone to sep. unvaporized higher boiling oils, and vapors are then passed to a superheating zone and contacted with a polymerizing adsorbent such as fuller's earth. The treated material is then fractionated under reduced pressure. An arrangement of app. is described.

**Refining hydrocarbons.** Compagnie des mines de Vicoigne Noeux & Drocourt. Fr. 40,543, Dec. 13, 1930. Addn. to 691,118 (*C. A.* 25, 1068). The oils, etc., are treated with hydrated halides (particularly $FeCl_3$) to remove oxygenated compds. before the treatment of Fr. 691,118.

**Refining hydrocarbons.** Edeleanu G. m. b. H. Fr. 736,344, Apr. 20, 1932. Water contained in $SO_2$ in circulation in an Edeleanu app. is eliminated by passing the vapors of $SO_2$, which escape from the evaporators (working at the pressure of the condenser and evapg. the product of extn.), through a drying app. or rectification column.

**Refining liquid hydrocarbon distillates.** Ernest B. Miller (to Silica Gel Corp.). U. S. 1,886,260, Nov. 1. The material is treated with a hard porous gel such as silica gel impregnated with a small proportion of acid such as $H_2SO_4$, $H_3PO_4$ or $HNO_3$.

**Refining benzene.** Soc. du gaz de Paris. Fr. 40,826, Nov. 29, 1928. Addn. to 678,949 (*C. A.* 24, 3639). The white benzene obtained by Fr. 678,949 is rectified to remove the more volatile portions which contain the greater part of the ethylenic hydrocarbons. Fr. 40,827. Addn. to 665,302 (*C. A.* 24, 955). The white benzene obtained by Fr. 665,302 is rectified as in Fr. 40,826.

**Solidifying hydrocarbons.** PETRO-SOL CORP. Fr. 737,178, May 14, 1932. See U. S. 1,880,211 (*C. A.* **27**, 589).

**Oil-treating composition.** ELLIOTT MORRILL. U. S. 1,886,293, Nov. 1. A compn. for breaking hydrocarbon-oil emulsions and for treating fuel oils, etc., comprises solid caustic alkali, a solid hydrocarbon such as naphthalene, anthracene or phenanthrene, and an oil-sol. metal soap such as Al oleate or Zn stearate.

**Heat-exchange apparatus suitable for use in oil refining.** RUSSELL C. JONES (to Griscom-Russell Co.). U. S. 1,886,403, Nov. 8. Structural features.

**Filter suitable for refining oil with fuller's earth.** OLIVER B. WENDELN (to Pure Oil Co.). U. S. 1,887,052, Nov. 8. Structural features.

**Fractionating tower [with spaced rotating vapor-centrifuging disks] suitable for use in oil distillation.** EDWARD C. D'YARMETT (to Fractionator Co.). U. S. 1,888,872, Nov. 22. Structural and mech. features.

**Recovering material such as solid oils from wells.** KIRKLAND KELLEY and SAMUEL J. PERKINS. U. S. 1,886,886, Nov. 8. For recovery of material such as solid oils a fluid heavier than the material, such as heated water, is passed through the material, but out of direct contact with it, and is then forced into contact with the lower portion of the material to be recovered, and the material is skimmed off while in the well. App. is described.

**Apparatus for extracting oil from shale, etc.** WM. S. CRIPPS. Australia 29,012, Sept. 15, 1930.

**Products from shale or coal; cement.** HENRY E. WHITE. Australia 27,599, July 2, 1930. In recovering oil products, etc., from shale or coal, the gases from the retorts are used as fuel in making CaO and this is used in making a clinkering mixt. with ash from furnaces fired with powd. coal. The $CO_2$ is also recovered. Australia 27,600. Portland cements are made by clinkering a mixt. of calcareous material and ash from furnaces burning powd. coal, and grinding the clinker.

**Oils from coal, shale, etc.** ARNOLD STOCKHAUSEN. Australia 30,910, Dec. 29, 1930. The coal, etc., is heated in a retort of truncated-cone shape, having means for securing progressive movement of the coal. Volatile products are withdrawn at various points.

**Sulfonic acids from mineral oils.** G. S. PETROV. Russ. 428, Feb. 22, 1911. Petroleum oils are agitated with aq. soln. of EtOH, MeOH or $Me_2CO$ after $H_2SO_4$ treatment to ext. the sulfonic acids. Cf. *C. A.* **26**, 3519.

**Sulfonic acids from mineral oils.** G. S. PETROV. Russ. 508, June 7, 1913. Addn. to Russ. 428 (preceding abstr.) Petroleum oils are agitated with a small amt. of $H_2O$ after $H_2SO_4$ treatment and MeOH, EtOH or $Me_2CO$ is added to the aq. ext. of sulfonic acids to sep. the dissolved hydrocarbons.

**Device for testing the dilution of oil in internal-combustion engines.** GEORGE W. COPLAND. U. S. 1,886,085, Nov. 1 Testing is effected between compression disks connected with an elec. indicator.

**Motor fuel.** WM. M. STRATFORD (to Texaco Development Corp.). Can. 329,302, Jan. 10, 1933. Hydrocarbon oil is cracked under pressure and the evolved vapors are fractionated to form a major fraction comprising a condensate adapted for returning to the cracking zone and a minor vapor fraction comprising essentially constituents within the boiling range desired for the gasoline product. The vapor fraction is heated under pressure to a temp. inducing polymerization and transformation of hydrocarbons into components of increased anti-detonating properties to form a product possessing a higher end point than that of the vapor fraction before said heating without increase in vol. of constituents within the boiling range of the desired gasoline product. The polymerized and transformed vapor fraction is fractionated to sep. out higher-boiling products of polymerization and form the desired gasoline distillate of high anti-knock quality.

**Straining or screening apparatus suitable for treating fuel oil.** RALPH S. WHALEY (to Petroleum Heat and Power Co.). U. S. 1,889,325, Nov. 29. Structural details.

**Catalytic hydrogenation.** CLARENCE J. FRANKFORTER. Brit. 362,967, Sept. 9, 1930. See U. S. 1,780,873 (*C. A.* **25**, 200).

**Gum inhibitor.** CARLOS L. GUTZEIT (to The Standard Oil Development Co.). Can. 328,898, Dec. 27, 1932. Gum formation is retarded in low-boiling hydrocarbon oils by the addn. of a small quantity of an inhibiting agent selected from the following types of compds.: indophenols and oxazine, indamine, eurhodine, safranine, aposafranine and aminoazo bases, bearing no sulfonic acid or thiobenzyl groups.

**Paraffin.** I. G. FARBENIND. A.-G. Fr. 737,256, May 18, 1932. Paraffin is sepd. from products contg. it by treating the products with a mixt. of chlorinated hydro-

carbons, such as $CCl_4$, with methyl ethyl ketone or alcs. such as BuOH, or a mixt. of methyl ethyl ketone with alcs.

**"Sweetening" reagent for treating gasoline.** HUGH H. CANNON (to Cannon-Prutzman Treating Processes, Ltd.). U. S. 1,888,219, Nov. 22. PbO, an alk. earth hydroxide such as $Ca(OH)_2$ and an absorbent earth are mixed in comminuted form with an aq. constituent such as dil. NaOH soln. and the resulting reagent is suspended in a small proportion of oil preliminary to the treatment of a larger body of oil with the prepd. reagent.

**Pressure-control device for tanks such as gasoline-storage tanks.** CHARLES J. SOYSTER and GORDON W. LAWN (Lawn to Soyster). U. S. 1,887,824, Nov. 15. Structural, mech. and elec. features are described.

**Refining light hydrocarbons such as gasoline or benzene.** ERNEST B. MILLER and GERALD C. CONNOLLY (to Silica Gel Corp.). U. S. 1,886,261, Nov. 1. The material is treated with 0.1–0.5% of strong $H_2SO_4$, resulting sludge is removed, and the material is further treated with a hard porous gel such as silica gel in a proportion of less than 4% to polymerize gum-forming constituents at a temp. of about 65° or higher and the material is then distd. App is described

**Breaking oil-and-water emulsions.** GOTTHOLD H. MEINZER (to L. Blake-Smith) U. S. 1,887,774, Nov. 15. A pulsating stream of the emulsion is passed through a mass of granular solid material such as silica or pyrite in a described app. and the assocd materials are sepd. U. S. 1,887,775 describes a method comprising continuously passing the oil-and-water emulsion between oppositely disposed surfaces of concrete coated with a material such as quartz which is preferentially wetted by water and a material such as pyrite which is preferentially wetted by oil, the surfaces being maintained in relative movement to each other (as by the use of closely spaced rotating plates mounted between stationary plates, in a described app ).

**Lubricating oils.** STANDARD OIL DEVELOPMENT CO Fr. 736,983, May 11, 1932 A lubricant is made by adding hydrocarbons contg paraffin to a hydrocarbon oil in a proportion to increase the coeff. of viscosity, as well as a small amt. of an antisolidifying agent

**Purifying lubricating oils.** REGINALD K. STRATFORD (to Standard Oil Development Co.). Brit. 362,600, Oct. 21, 1930. See Can. 308,405 (*C. A* 25, 1376).

**Lubricating oils from coal-tar oils.** HARALD NIELSEN and BRYAN LAING U. S. 1,886,262, Nov 1. An oil of 0.95 to 1.08 sp. gr. at 12° to 18° and having a static coefficient of friction of from 0.1 to 0.85 is obtained by a procedure involving various features of temp. regulation, etc.

**Hydrocarbon lubricating oil.** HOMER T. DARLINGTON (to Oil Corp of America) U. S. 1,888,346, Nov. 22. Oil is heated under pressure in admixt. with adsorptive material, lighter products are sepd from the heated oil, addnl. adsorptive material is added to the residual oil, and it is heated, distd. and condensed while subjected to a vacuum and to agitation with the adsorptive agent. App. is described. Cf. *C. A* 27, 1160.

**Stabilizing the color of lubricating oils.** CHESTER E. ADAMS (to Standard Oil Co of Ind.). U. S. 1,888,023, Nov. 15. A hydrocarbon lubricating oil is treated with a small proportion (suitably about 0.05–1.0%) of an aliphatic amine having an alkyl group contg. not less than 4 C atoms, such as butyldiethanolamine.

**Apparatus for continuously indicating the viscosity of lubricating oils, etc.** WALTER J. ALBERSHEIM and HARVEY S. KONHEIM. Ger. 567,309, Dec. 4, 1926. This corresponds to Brit. 263,781 (*C. A*. 22, 163).

**Dewaxing petroleum lubricating oil distillates.** HUGH LOWERY (to Standard Oil Co. of Ill.). U. S. 1,886,344, Nov. 1. A distillate having a viscosity of between 75 and 120 sec. Saybolt at 99° and contg. wax of the slop wax type is dild. with 65–80% of a naphtha of end point not over about 205°, petrolatum 1–5% is added, followed by chilling to about —12°, settling at such temp. for 60–80 hrs and removal of the supernatant layer of oil.

**Lubricant.** HARRY T. BENNETT. U. S. 1,889,168, Nov. 29. A "flange oil" comprises a high-viscosity residuum resulting from the fractional distn. under approx atm pressure mixed with a low-viscosity residuum resulting from a cracking operation

**Lubricants.** I. G. FARBENIND. A.-G. (Wilhelm Pungs and Erich Frese, inventors) Ger. 567,350, May 10, 1928. Lubricating greases are prepd. by dissolving bleached montan wax or its esterification products in a mineral, animal, vegetable or tar oil, and treating the mixt. with sufficient alkali hydroxide or carbonate to sapon. the wax acids or esters.

**Lubricant.** TUOUYOSI MITUI (to Nippon Hatudokiyu K. K.). Japan. 93,301,

Oct. 19, 1931. An animal or vegetable oil is heated at 150-310° under reduced pressure. The pressure is gradually decreased still further and the sepd. fatty acids are distd. off during the heating.

**Greases.** V. V. KARETNIKOV. Russ. 350, Apr. 18, 1912. Greases are prepd. by mixing Na soap of castor oil with mineral oil under agitation, and heating at atm. pressure, until the soap is dissolved in the oil. The amount of soap incorporated should be not less than 20% of the oil.

**Asphalt.** SAIKITI MIZUSIMA and TEIKITI YAMADA (to the Minister of Communications). Japan. 93,247, Oct. 13, 1931. Asphalt is manufd. by blowing air into a mixt. of distn. residue of crude petroleum and soaps of Cu, Fe, Mn or Co.

**Asphalt from crude asphaltic oil or residuum.** ALBERT LOEBEL (to N.-V. de Bataafsche Petroleum Maatschappij). U. S. 1,889,365, Nov. 29. A hydrocarbon oil material having an initial b. p. of at least 250° is extd. with liquid $SO_2$ and that portion of the material thus treated which is insol. in the $SO_2$ is then added to asphaltic oil or residuum and the mixt. is blown to form an oxidized asphalt. Cf. *C. A.* **26**, 3916.

**Asphaltic bitumen.** BURMAH OIL CO., LTD. Brit. 362,580, Oct. 6, 1930. See Fr. 772,882 (*C. A.* **26**, 4170).

**Asphaltic bitumen.** BURMAH OIL CO., LTD. Brit. 364,666, Oct. 6, 1930. See Fr. 722,881 (*C. A.* **26**, 4170).

**Bituminous emulsion.** PRESTON R. SMITH (to Barber Asphalt Co.). U. S. 1,888,295, Nov. 22. Bitumen is dispersed in an aq. dispersing medium including an alk. salt of a sulfonated oil and having an alky. within the $p_H$ range of 11.5 to 13.2.

**Bituminous emulsion containing rubber.** LEONARD G. GABRIEL and JOHN F. BLOTT (to Colas Roads, Inc.). U. S. 1,886,334, Nov. 1. An aq. emulsion is prepd. by agitating, in a colloid mill, a mixt. of molten bituminous material and rubber latex, without addn. of soap or other usual dispersing agent.

**Bituminous dispersions.** COLAS PRODUCTS, LTD., AUGUSTUS G. TERRY, LEONARD G. GABRIEL and JOHN F. BLOTT. Brit. 362,577, Oct. 2, 1930. Concd. aq. bituminous dispersions of low viscosity are made by forming a bituminous dispersion of normal characteristics (particle dimensions 2 $\mu$) and dispersing therein a further quantity of the same or other bituminous material, the particles of the second dispersion being 20–30 $\mu$.

**Fenchyl alcohol.** LEE T. SMITH (to Hercules Powder Co.). U. S. 1,887,171, Nov. 8. For sepg. fenchyl alc. from pine oil, the pine oil is fractionated to obtain a cut rich in fenchyl alc., tertiary alcs. present in the cut are dehydrated to effect their conversion to hydrocarbons and water without substantial dehydration of fenchyl alc., the hydrocarbons and water are fractionated off, and the residue is refrigerated to effect crystn. of fenchyl alc.

**Purifying sulfate turpentine.** V. E. TISHCHENKO and A. G. EVDOKIMOV. Russ. 25,226, Dec. 17, 1929. The crude turpentine is first exposed to the action of $H_2$ in the nascent state obtained through the action of acids on metals. The basic fraction, after washing and steam distg. is infused with a mixt. of anhyd. $CaCl_2$ and activated carbon.

**Rosin recovery from rosin-containing soap formed in pulp manufacture from resinous woods.** LEAVITT N. BENT (to Hercules Powder Co.). U. S. 1,888,581, Nov. 22. The rosin is pptd. by $CO_2$ and sepd.

**Extracting rosin from resinous wood.** LEAVITT N. BENT (to Hercules Powder Co.). U. S. 1,888,025, Nov. 15. The wood is treated with an org. aliphatic solvent for the rosin which is miscible with water such as acetone and a petroleum hydrocarbon material of low b. p. is added, such as butane which has a selective solvent action on the rosin and which is immiscible and non-reactive with the first-mentioned solvent; the low-boiling hydrocarbon solvent and dissolved rosin are sepd. from the other material and the solvent is distd. off to recover the rosin.

**Refining rosin.** IRVIN W. HUMPHREY (to Hercules Powder Co.). U. S. 1,887,007, Nov. 8. A soln. of the rosin in a solvent such as gasoline is mixed with an anhyd. metal chloride such as $ZnCl_2$ or $SnCl_4$ capable of removing coloring substances and the mixt. is heated at a temp. below that at which any substantial amount of rosin oil would be formed, the soln. is sepd. from the ppt. formed, and the solvent is sepd. from the purified rosin.

**Refining rosin.** IRVIN W. HUMPHREY (to Hercules Powder Co.). U. S. 1,887,167, Nov. 8. The rosin is subjected to the action of $CH_2O$ and $NH_3$ and then distd.

# 23—CELLULOSE AND PAPER

CARLETON E. CURRAN

**Röntgenographic introduction to the cellulose symposium.** J. R. KATZ. *Chem. Weekblad* **30**, 26–44(1933).—A critical review. O. W. WILLCOX

**Biological introduction to the cellulose symposium.** G. VAN ITERSON, JR. *Chem. Weekblad* **30**, 2–19(1933).—A review (79 references) of present knowledge and theory of the mol. structure, röntgenography and phys. properties of cellulose fibers. O. W. WILLCOX

**Old and new viewpoints as to the structure of cellulose and their experimental bases.** KURT HESS. *Uspekhi Khimii* **1**, 669–91(1932).—A review. Cf. *C. A.* **25**, 202. F. H. RATHMANN

**Ethyl- and benzylcellulose—Production in Soviet Russia.** A. JAE. *Kunststoffe* **23**, 3(1933).—A brief description of Russian production methods given in "*Novosti Techniki Moscow*," No. 152, 5.8–8–32. J. W. PERRY

**Lignin and cellulose. XX. Acetolysis of cellulose.** KARL FREUDENBERG AND KARL SOFF. *Ber.* **66A**, 19–27(1933); cf. *C. A.* **26**, 3238.—On the assumption that in long chain-mols., like cellulose (I), a single kind of union between the glucose units, the velocity consts of the degradation of I fall within 2 limiting values: $k_n$ the av. const. at the beginning, when the $n$-membered chain is still intact, and $k_2$, the cleavage const. of the disaccharide, cellobiose. Of the many fragments of widely varying lengths into which the chain first breaks down and which then further breaks down into still smaller fragments, each has an av. cleavage-velocity const. intermediate between $k_n$ and $k_2$. Many possible ways in which these consts can be attained are conceivable. Two limiting cases are of special significance: (1) All the unions in a chain of a given length (*i. e.*, the 2 unions in the trisaccharide, the 3 in the tetrasaccharide, etc.) are ruptured with the same velocity, which, however, varies with the length of the chain; or (2) the individual unions in an oligosaccharide break down with different velocities; *e. g.*, (an exaggerated assumption, of course); 1 of the end unions breaks down with a velocity $k_3$ all, the others with a velocity $k_n$. If these assumptions are made, the course of the degradation of I can be calcd. quite satisfactorily. The measurement and calcn. of the kinetics of the degradation of homogeneous chains are decisively complemented by the detn. and calcn of the yields of individual fragments. It had been found that in the acetolysis of cellulose at least 61%, probably a little more but by no means 100%, of the amt. of II calcd from the equation $(C_6H_{10}O_5)_{n-1}C_6H_{12}O_6 + [(n-2)/2]H_2O = (n/2)\,C_{12}H_{22}O_{11}$ is formed throughout all the stages of the degradation. To interpret these results the above limiting case (1) was assumed; under such conditions 67% of the glucose finally obtained would have to pass through the biose stage. In limiting case (2), it is necessary, in order to calc. the biose formed throughout the course of the degradation, to know the ratio $k_n:k_2$ (cf. *C. A.* **26**, 3237; Kuhn, *C. A.* **26**, 3719). To det. this ratio, the acetolytic degradation of I and cellobiose (and the change in rotation of glucose and levoglucosan under the same conditions) were followed polarimetrically and $k_n:k_2$ was found to be 2.3, which gives 70.2% as the amt. of biose formed during the degradation (cf. the original for the method of calcn.). On the even more probable assumption that the 2 end unions of a chain break down with the velocity $k_3$ (the av. const. for the trisaccharide) and all the unions in between with the velocity $k_n$, the calcd. amt. of biose formed is very much the same as that calcd. for limiting case (2). C. A. R.

**The recovery of acetic acid in the manufacture of cellulose acetate.** FRITZ OHL. *Kunststoffe* **23**, 6–8(1933).—A review of the German patents. J. W. PERRY

**Highly polymerized compounds. LXXII. Temperature relations of the viscosity of cellulose solutions.** H. STAUDINGER. *Ber.* **65B**, 1754–6(1932); cf. *C. A.* **26**, 5906.—Reply to Hess and Rabinovitsch (*C. A.* **27**, 837). C. J. WEST

**The colloid chemistry of the viscose-spinning process.** H. L. BREDEE. *Chem Weekblad* **30**, 51–4(1932).—A general description of the phenomena involved. O. W. WILLCOX

**Colloid chemistry of the preparation of viscose.** J. G. WEELDENBURG. *Chem Weekblad* **30**, 47–51(1933).—A review. O. W. WILLCOX

**Cohesion in the rayon fiber as a function of its laminated structure.** L. A. VAN BERGEN. *Chem. Weekblad* **30**, 55–8(1933).—A theoretical discussion. O. W. W.

**The partition of the constituents of the cornstalk by the action of alkali.** C. J PETERSON, E. H. C. FANG AND R. M. HIXON. *Iowa State Coll. J. Sci.* **7**, No. 1, 17–24 (1932).—Original data are presented in diagrams and tables. The cornstalk can be mechanically sepd. into a pith tissue and a fibrous tissue, yielding 63% fibrous con-

stituents and 26% pith based on the weight of the original stalk. In the de Vains process, when applied to the pulping of cornstalks, the initial caustic treatment is the only variable which has any appreciable effect on the chem. compn. of the pulp. The concn. of the caustic soln. used makes very little difference so long as there is caustic enough present for pulping. The fibrous tissue of the stalk requires 12.5% NaOH, based on the dry weight of the fibers, for pulping while the pith tissue requires only 7.5% NaOH based on the dry weight of the pith. Isolated pentosan material is destroyed by pulping processes, the destruction being greater the greater the caustic concn. of the cook. The percentage of $\alpha$-cellulose as well as lignin in the pulp tends to approach a const. min. value. However, the removal of lignin is in no case complete. F. E. BROWN

**The use of ammonium hydroxide as a pulping agent for the grasses.** C. J. PETERSON AND R. M. HIXON. *Iowa State Coll. J. Sci.* 7, No. 1, 25–8(1932).—Cornstalks and oat straw were digested in closed bombs under 90–110 lb. pressure with $NH_4OH$ instead of NaOH as a pulping agent. When the bomb was opened the blow-off removed nearly all of the liquor. The remainder was washed out of the pulp. The yield of pulp was larger than with an NaOH cook and the paper stronger and less hydrated. When the liquors were evapd. and aerated nearly all of the $NH_3$ was recovered. The residue was 25% pentosans and 75% lignin. The pentosan can be sepd. from the lignin by any of the usual procedures but the thermophilic organisms which ferment isolated pentosans grew successfully in the pentosan-lignin mixture. F. E. BROWN

**Fiber fractionation as an analytical method for pulp.** CHR. ANKER AND KAARE HAUG. *Papir-J.* 20, 225–8, 269–72(1932).—Tests on the diff. fractions sepd. on Hurum's app. show that the strength of paper is detd. by the available surface in the fiber suspension. Tensile strength is dependent on the percentage of fine fiber passing through a No. 325 sieve, while the tearing factor follows the values for percentage retained on a No. 25 sieve. CLINTON L. BROOKE

**Cases of lead poisoning observed in the chemical pulp industry.** MANSFELD. *Arbeitschutz* **1932**, 142–3; *Chimie & industrie* **28**, 1332.—Pb poisoning can occur in workmen employed in lining sulfite digesters on account of the litharge-glycerol cement used. Contamination may occur either from the litharge dust or through carelessness in handling the cement before setting Attempts have been made to overcome this hazard by using special Pb-free cements, a no. of which are on the market. A. PAPINEAU-COUTURE

**Sources and limits of error in the gravimetric determination of pulp and cellulose in paper.** CHR. ANKER, KAARE HAUG AND ERIK STEPHANSEN. *Papir-J.* 20, 252–4 (1932).—When the compn. of paper is detd by the Halse method, the percentage of lignin in the chem. and mech. pulp should be detd. separately. When detns. of lignin in raw materials cannot be made, satisfactory working averages for Norwegian conditions are 2.4% in ordinary unbleached sulfite, and 25.5% in mech. spruce pulp. C. L. B.

**The reaction kinetics of sulfite-cellulose cooking.** E. STANGELAND. *Papir-J.* 20, 170–3, 193–7, 214–17, 272–4(1932); cf. *C. A.* 26, 4711.—A résumé of S.'s recent work (*Kgl. Norske Videnskab. Selskabs Skrifter* No. 1(1932)). Fourteen tables and 9 graphs are included. CLINTON L. BROOKE

**Wet charring of timber refuses and spent caustic liquors from the sulfite process of manufacturing cellulose.** N. I. NIKITIN AND N. P. NEMTZOVA. *J. Applied Chem.* (U. S. S. R.) 5, 981–90(1932).—Heating timber refuses with concd. $MgCl_2$ soln. (Schwalbe process) yields charcoal in the form of dust suitable for firing purposes. The best heating time is 6 hrs. at 180° with a 30% $MgCl_2$ soln. Resulting charcoal contains 69% C and 4.5% H and has a heating value of 5300 cal. The yield (dry basis) is 58% by wt. The yield of acids is 2.4% (calcd. as AcOH). Addn. of sulfite liquor (or the liquor alone) yields a charcoal of lower C content but with about 3% S. The yield of AcOH is slightly decreased and that of MeOH increased (from 0.4% to about 0.86%). The resulting charcoal has 34% activity ($C_6H_6$ adsorption) as compared with the best known active C. V. KALICHEVSKY

**Alterations of cellulose during grinding in the paper factory.** E. L. SELLEGER. *Chem. Weekblad* 30, 44–6(1933).—A description of the phenomena which occur in beating paper pulp and in forming the sheets. The ease with which fibers can be sepd. into fibrillae is in proportion to the degree of polarization or of dichroism in certain colors when examd. under the microscope. O. W. WILLCOX

**Present problems of importance in the paper industry.** J. O. MURTO. *Acta Chem. Fennica* 6, 1–6(1933).—A review of waste-wood utilization, with particular reference to the formation of hemi-cellulose. S. A. KARJALA

**Moisture determinations on paper during manufacture.** G. E. KROGH. *Papir-J.* 20, 234–5(1932).—Description of the Siemens & Halske "Siccometre," a device for

recording the moisture of the paper at any desired point while passing through the machines. The dielec.-const. principle is employed. CLINTON L. BROOKS

**Orientation of fibers in a sheet of paper.** L. DE WEERD. *Chem. Weekblad* **30**, 46–7(1930).—In certain cases an approx. idea of the orientation of the fibers may be had by slowly placing ink or oil on one spot and observing the form of the blot, which will be ellipsoidal. The röntgenogram of a paper which has markedly unequal breaking strengths in the long and cross-wise directions shows strong darkening in sectors on opposite sides, but when the breaking strengths are about equal the diagram is a uniformly colored circle. A no. of papers were split and the wire side and the felt side examd. röntgenographically; the Röntgen diagram shows a marked orientation of the fibers next the wire in the direction of the machine; the upper or felt layer shows very little difference in orientation. O. W. WILLCOX

**Use of latex in paper and in cardboard.** T. L. GARNER. *Caoutchouc & gutta-percha* **30**, 16260–1(1933).—A review and discussion. C. C. DAVIS

**Action of ultra-violet light on gelatin in paper.** H. A. BROMLEY. *Analyst* **58**, 29(1933).—When a tub-sized paper of good quality free from resin is irradiated by the light of a quartz Hg lamp, it rapidly loses its property of ink resistance with degradation of the surface color of the paper to a brown shade. The browning appears to be a function of the gelatin present. Tests made on the exposed paper indicate that the gelatin undergoes degradation to simple compds. W. T. H.

**Analysis of lime.** ANON. *Paper Trade J.* **95**, No. 18, 35 (1932).—A description of the tentative standard method of the Tech. Assoc. of the Pulp and Paper Ind. A. PAPINEAU-COUTURE

**Analysis of limestone.** ANON. *Paper Trade J.* **95**, No. 18, 37–8(1932).—A description of the tentative standard method of the Tech. Assoc. of the Pulp and Paper Ind. A. PAPINEAU-COUTURE

**Analysis of sulfur.** ANON. *Paper Trade J.* **95**, No. 18, 38–9(1932).—A description of the tentative standard method of the Tech. Assoc. of the Pulp and Paper Ind A. PAPINEAU-COUTURE

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The design, construction and costs of arc-welded pebble mills (PELLETT) **1.** The economic production of sugar from wood (CLAASSEN) **28.** Sorption of vapors on wood and cellulose (GRACE, MAASS) **2.** The sorption of NaOH on cellulose and wood (RICHARDSON, MAASS) **2.** Cellulose from the colloid chemistry standpoint (KRUYT) 2. Volumetric determination of Zn (HECQUET) **7.** Effect of pulp manufacture on mountain streams (SILFVERSBARRE) **14.** Cellulose from an organic chemistry standpoint (BÖESEKEN) **10.** The hydrolysis of pentosans from corn cobs (BROWN, LEWIS) **10.** Straw utilization [as a source of furaldehyde and pulp] (LEMAY) **15.** Ornamenting paper, etc (Brit. pat. 347,888) **26.** Insecticide and fungicide from sulfite liquor (Norw. pat 50,486) **15.** Water-soluble resinate from rosin (U. S. pat. 1,889,405) **26.** Acetone [from acetylation of cellulose] (Ger. pat. 567,013) **10.** Dyeing paper, etc. (Fr. pat 736,192) **25.** Synthetic resins (Brit. pat. 363,029) **26.** Rosin recovery in pulp manufacture (U. S. pat. 1,888,581) **22.**

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BONWITT, GUSTAV: **Das Celluloid und seine Ersatzstoffe.** Berlin: Union Deutsche Verlagsges. 813 pp. M. 85.

DORÉE, CHAS.: **The Methods of Cellulose Chemistry.** London: Chapman & Hall. 488 pp. 21s. net. Reviewed in *Chem. Trade J.* **92**, 119(1933).

GANSEL, LEOPOLD: **Elektroösmotische Untersuchungen an Baumwollzellulose und Baumwollzelluloseestern und deren Färbungen.** Thesis, Dresden, 1931. 15 pp

KÖNIG, MAX: **Der Viskoseprozess.** Thesis, Karlsruhe, 1930. 49 pp.

STOPP, ROBERT: **Die Ausbeute beim Papierfüllen mit Füllstoffen verschiedener Dispersität.** Thesis, Dresden, 1931. 55 pp.

WEISSENFELS, KARL: **Die Standorte der papierverarbeitenden Industrie Deutschlands.** Thesis, Cologne, 1931. 46 pp.

Cellulose. DEUTSCHE GOLD- UND SILBER-SCHEIDEANSTALT VORM. ROESSLER (Roland Runkel, inventor). Ger. 567,237, May 9, 1930. Cellulosic material is worked up under such conditions that only subordinate amts. of hemicellulose are extd. The process may comprise treatment with a mild reagent, *e. g.*, 4% NaOH soln. at 100°, followed by comminution under relatively mild conditions, *e. g.*, in a rod mill, and treatment with a chlorinating or oxidizing agent, *e. g.*, with Cl and NaOCl in turn.

Cellulose. EINAR MORTERUD. Norw. 49,240, April 13, 1931. The raw material is treated with a reaction liquid which is kept in circulation by means of a pump outside

the reaction vessels. The system has one or more reaction vessels and one or more storage containers for the reaction liquid, the latter being placed in the liquid circuit between the reaction vessels and the pump.

**Cellulosic compositions.** KODAK-PATHÉ. Fr. 736,211, Aug. 7, 1931. The compns. contain cellulose acetate and resins, waxes, etc., the cellulose acetate having an acetylation value (content of AcOH) of 53–62%.

**Purified alkali cellulose.** SYÔZÔ TATIKAWA and KIHU UEI (to Asahi Kinuori K. K.). Japan. 93,832, Dec. 8, 1931. Crushed pulp is heated with 16% NaOH at about 150° under pressure. It is then treated with 7–13% NaOH at 0–15°, to remove noncellulose materials. Finally it is treated with 18% NaOH at 0–20°, to produce purified alkali cellulose.

**Strips of regenerated cellulose or cellulose derivatives.** I. G. FARBENIND. A.-G. Ger. 567,482, Mar. 5, 1931. For the manuf. of strips carrying uniform designs, a soln. of cellulose or a cellulose deriv. is spun through a long narrow slit which is curved at the ends or intersected obliquely or at a right angle by shorter slits.

**Cellulose derivatives.** LÉON LILIENFELD. Ger. 567,364, Mar. 17, 1931. See Brit. 357,080 (*C. A.* **26**, 5753).

**Cellulose derivatives.** KODAK-PATHÉ. Fr. 736,241, Aug. 11, 1931. Cellulose acetate, nitrate, etc., in waste films are sepd. in the form of gels by immersing the derivs. in a non-solvent liquid having a d. between that of the derivs. An app. is described.

**Grinding cellulose derivatives.** BRITISH CELANESE, LTD. Brit. 380,214, July 31, 1930. Thermoplastic materials are ground in the presence of a liquefied or solidified gas at a temp. below 10°.

**Treatment of filaments, films, etc., of cellulose, cellulose hydrate or cellulose ethers.** WOLFF & CO. KOMM.-GES. AUF AKTIEN and RICHARD WEINGAND. Ger. 567,087, Oct. 13, 1927. To increase their resistance to water, the materials are treated with a water-sol. org. swelling agent, *e. g.*, AcOH, before coating with a cellulose ester soln. A water-insol. softening agent may be dissolved in the swelling agent.

**Cellulose esters of organic acids.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,489, Sept. 1, 1930. See Fr. 720,027 (*C. A.* **26**, 3918).

**Purifying cellulose solutions.** JOHANN J. STOECKLY and ERHARD WITTE (to American Glanzstoff Corp.). U. S. 1,886,504, Nov. 8. A soln. such as viscose from resinous pulp is first filtered and then a relatively small portion of the soln. is treated with an org. liquid (such as liquid paraffin) insol. in the soln. and with enough Turkey-red oil to emulsify sufficiently the entire soln. and after emulsification the treated portion is mixed with the remainder of the soln.

**Drying cellulosic or starchy materials.** W. B. CAMPBELL. Brit. 359,641, Sept. 8, 1930. Paper pulp, starchy foods or the like, which form mucilaginous surface layers when dried by direct evapn., are dried by displacing the water by one or more washings with a non-aq. liquid such as alc. or acetone (which may in turn be displaced by ether) and then drying by evapn.

**Uniting cellulose foils.** RICHARD WEINGAND. U. S. 1,888,402, Nov. 22. Cellulose foils capable of swelling in water and which have a lacquer coating are united with their lacquered surfaces juxtaposed by means of an adhesive such as a mixt. of gelatin with HOAc or lactic acid, or a similar mixt.

**Forming tubes of celluloid or like material.** SAMUEL A. NEIDICH. U. S. 1,888,045, Nov. 15. Mech. features.

**Artificial threads, films, bands, etc., from regenerated cellulose.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,785, Mar. 2, 1931. See Fr. 712,260 (*C. A.* **26**, 2055).

**Artificial products.** LÉON LILIENFELD. Fr. 41,045, Oct. 15, 1931. Addn. to 719,339 (*C. A.* **26**, 3377). In all the processes which, without the use of baths having a plastifying effect on the freshly coagulated products, give threads having a resistance in the dry state of more than 2 g. per denier, there are used, instead of viscose, the substances outlined in Fr. 719,339.

**Viscose.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,786, Mar. 2, 1931. See Fr. 712,361 (*C. A.* **26**, 2054).

**Classification of viscose.** ALGEMEENE KUNSTZIJDE UNIE N. V. Dutch 28,550, Dec. 15, 1932. Small amts. (less than 2% of the viscose) of sulfonated fatty acids or fats are used for peptization of resinous turbidities of viscose solns. The sulfonated fatty acids are prepd. by sulfonation with excess $H_2SO_4$ in the presence of acid chlorides or anhydrides; their "100%" sulfonation corresponds to 93 degrees according to Landolt (*C. A.* **22**, 4830); all fatty acid radicals are bound to $H_2SO_4$.

**Forming seamless tubular bodies from viscose or the like.** JULIUS VOSS (to Visking Corp.). U. S. 1,887,446, Nov. 8. Mech. features.

**Rayon.** HERMANN HILLRINGHAUS. Brit. 362,865, May 30, 1930. Void. In the manuf. of rayon from ammoniacal-Cu solns. of cellulose the thread from a funnel is drawn out by passing it round a drum rotating about a vertical axis and is hardened by means of hardening liquid contained inside the drum and fed to the thread through aperatures.

**Rayon.** CUPRUM (Soc. ANON.). Fr. 40,957, Oct. 27, 1931. Addn. to 721,116 (*C. A.* **26**, 4175). Construction of a centrifuge is given.

**Rayon, etc.** HENRY DREYFUS. Fr. 736,798, May 7, 1932. Threads, filaments, etc., of low denier are made by dry spinning solns. of org. derivs. of cellulose, the solns. being of relatively low concn. and high viscosity, preferably obtained by dissolving the deriv. in a solvent or solvent medium, the solvent power of which has been reduced. The viscosity is increased by the addn. of a non-solvent such as an ester, an alc. or an aromatic hydrocarbon.

**Acetate rayon by the "dry" spinning process.** N. V. DRYA, MAATSCHAPPIJ TOT EXPLOITATIE VAN KUNSTZIJDEFABRIEKEN. Dutch 28,073, Oct. 15, 1932. A spinning soln. is used with 3–5% water, at 55–65°, cellulose acetate content 23–27%, viscosity not more than 1000 (Stokes) at 20°.

**Apparatus and process for stretching filaments of rayon.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit. 363,238, Feb. 28, 1931.

**Spinning pot for rayon.** ALGEMEENE KUNSTZIJDE UNIE N. V. Ger. 567,383, Aug. 30, 1931.

**Rayon-spinning machine [pot type].** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. (Rudolf Etzkorn, inventor). Ger 567,295, Mar. 21, 1931.

**Apparatus for treating freshly spun rayon with liquids.** J. P. BEMBERG A.-G Ger. 567,481, Apr. 23, 1931.

**Machine for the wet treatment of rayon cakes.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. (Ferdinand Rathgeber and Adolf Rüsch, inventors). Ger. 567,352, Jan. 12, 1930.

**Drying cakes of rayon with forced air currents.** GLANZSTOFF-COURTAULDS GES Brit. 357,972, June 20, 1930. Various details of app. and operation are described.

**Lacquered spinning bobbins for the rayon industry.** BERLIN-KARLSRUHER INDUSTRIE-WERKE A.-G. Brit. 363,134, Dec. 17, 1930

**Drum for wet barking of pulp-wood logs.** GLOMMENS MEK. VERKSTED A/S. Norw 50,571, April 11, 1932.

**Rotary barking drum for pulp-wood logs.** AKTIESELSKAPET THUNES MEKANISKE VERKSTED. Norw. 50,649, April 18, 1932.

**Fiber production by mechanical disintegration of vegetable materials such as wood, bamboo, cotton stalks, etc.** FRITZ HOYER (to Akt.-Ges. für Halbzellstoff Industrie). U. S. 1,886,020, Nov. 1. The material is mixed with water having a temp not exceeding 80° and the mixt. is carried at high velocity and with the aid of centrifugal force (in a described app.) against cutting devices, a temp. not above 80° being produced in the mixt. by friction; hot steam is supplied, but not to raise the temp. above 80°, and the mech. treatment is continued until desired fiber disintegration has been effected.

**Rasping wood.** A N. RUSSELL and J. D. ROBB. Brit. 380,906, Aug. 11, 1931. Mech. construction.

**Screw press for dewatering fibrous masses.** JOHN STRINDLUND. Norw. 48,135, July 7, 1930.

**Digestion of cellulosic material for the production of paper pulp, etc.** EDMONDSON SPENCER (one half to Edward C. Benthall). U. S. 1,889,158, Nov. 29. Various details of app. and operation are described.

**Digesting materials such as wood chips.** THOMAS L. DUNBAR and ALBERT D MERRILL. U. S. 1,888,632, Nov. 22. A preheated cooking liquor of high acid content such as bisulfite liquor is prepd. and introduced into a digester contg. fibrous material such as wood chips and the liquor is pumped into the digester until the pressure in the latter rises to at least 50 lb. App. is described.

**Cellulose digester.** EINAR MORTERUD. Norw. 50,158, Feb. 1, 1932. Heating steam is introduced into a container placed in the interior of the digester; this container forms a part of an interior circulation conduit for the boiling liquid.

**Cellulose digester.** DANIEL WESTAD. Norw. 50,490, April 4, 1932. The digester is asymmetric in shape. One part of the bottom has the form of a saucer in the center of which the discharge opening is placed.

**Cellulose digester with forced circulation.** EINAR MORTERUD. Norw. 50,938, May 30, 1932.

**Cellulose digester with forced circulation.** EINAR MORTERUD. Norw. 51,189, July 18, 1932. Mech. features regarding the bottom strainer.

**Apparatus for circulating the liquid in cellulose digesters.** EINAR MORTERUD. Norw. 49,050, Dec. 28, 1931.

**Top strainer for cellulose digesters.** EINAR MORTERUD. Norw. 50,107, Jan. 25, 1932. The strainer is provided with a number of reserve overflow openings with inlets at a suitable height above the surface of the strainer.

**Bottom strainer for cellulose digesters.** EINAR MORTERUD. Norw. 48,129, July 7, 1930. Structural features.

**Bottom strainer for cellulose digesters.** KNUT M. STRAND. Norw. 48,130, July 7, 1930. Structural features.

**Treating the contents of cellulose digesters by spraying.** EINAR MORTERUD. Norw. 48,813, Dec. 29, 1930. Washing or reaction liquid is introduced into the top of the digester and sprayed over the boiled or fresh chips in portions with interruptions, so that the surfaces of the sep. particles shall be alternatingly in and out of contact with liquid.

**Washing the charge in cellulose digesters after boiling.** EINAR MORTERUD. Norw. 48,754, Dec. 8, 1930. Washing liquid at a temp. lower than that prevailing in the digester is introduced into the top part of the vessel which at the same time is put in connection with a source of an indifferent gas of desired pressure in order to maintain a const. or nearly const. pressure in the digester during the washing.

**Cooking cellulose.** ALBERT ELIAS NIELSEN. Norw. 50,044, Jan. 11, 1932. A modification of Norw. 46,601 (*C. A.* **25**, 1673). Part of the liquor circulating in the digester and the evapg. or concg. app. is taken out during cooking or evapn. and is concd. further in other app.

**Bleaching cellulose in webs.** OLAF QVILLER. Norw. 51,221, July 25, 1932. A web produced exclusively for the bleaching process is impregnated with the bleaching liquid and immediately afterward rolled up, so that the bleaching chiefly takes place while the web is in the roll form, after which the web is again torn up, distributed in water and treated further in known ways as bleached pulp.

**Bleaching wood cellulose, etc.** ERICH KAYSER (to I. G. Farbenind. A.-G.). U. S. 1,887,412, Nov. 8. The raw material is treated in the form of a paste-board sheet and in countercurrent, with bleaching solns. of successively increasing concn. of available Cl at temps. varying inversely to the Cl content of the bleaching solns.

**Cellulose pulp.** ROGER W. RICHARDSON and CLARENCE S. SHERMAN (to Canadian Industries, Ltd.). Can. 328,828, Dec. 27, 1932. Vegetable fiber material is cooked with a liquor contg. $NH_4HSO_3$, $Ca(HSO_3)_2$ and $H_2SO_3$, 5–20% of the combined $SO_2$ in the liquor being combined with $NH_3$. The pulp has high strength and is readily bleachable. Cf. *C. A.* **26**, 3112.

**Mixing tank for cellulose pulp.** AKTIESELSKAPET THUNES MEK. VERKSTED. Norw. 51,881 and 51,882, Dec. 19, 1932. Mech. features. In order to obtain a uniform consistency the pulp is kept in const. circulation in the container and is made to pass over an over-flow screen.

**Dewatering of cellulose pulp and similar fibrous masses.** JOHN STRINDLUND. Norw. 48,290, Aug. 11, 1930. The dewatering process is carried out in two steps, the sepn. of the fibers taking place before the last step of the process. App. is described.

**Apparatus for dewatering cellulose, paper and wood pulp.** SVERRE DIESEN. Norw. 48,243, Aug. 4, 1930.

**Sorting and concentrating apparatus for cellulose and wood pulp.** ARNE BLAKSTAD and WESSEL WAAL. Norw. 49,899, Dec. 14, 1931. Mech. details are given.

**Pulp.** CARL LEYST-KÜCHENMEISTER. Ger. 564,553, Apr. 4, 1929. Addn. to 562,770 (*C. A.* **27**, 1175). In working up pulp from wood, bamboo, cotton, esparto grass, straw, etc., by the app. of 562,770, the half pulp is converted to pulp by acid, neutral or alk. agents during the mech. disintegration process, mineral oil being added if necessary. The pulp is also bleached at this stage.

**Apparatus for preparing pulp from bamboo.** WM. MACKIE and A & W. SMITH & Co., LTD. Brit. 362,757, Feb. 4, 1931.

**Pulp from hard wood.** EARL P. STEVENSON (to Arthur D. Little Industrial Corp.) U. S. 1,887,863, Nov. 15. Hard wood such as oak, birch, maple or beech is digested under heat and pressure in the presence of water and an insol. carbonate such as $CaCO_3$ so that a substantially neutral condition of the liquor is maintained.

**Fiber or pulp from wood chips.** HENRY S. HOOPER (to Penobscot Chemical Fibre Co.). U. S. 1,887,241, Nov. 8. Wood chips are cooked in a $Na_2CO_3$ soln. at a temp.

of about 165° for about 0.5–1.0 hr. while permitting escape of $CO_2$ formed; a stronger soln. contg. NaOH is then added and the charge is heated at about 170° for 2–4 hrs.

**Pulping wood.** LINN BRADLEY and EDWARD P. MCKEEFE (to Bradley-McKeefe Corp.). U. S. 1,887,899, Nov. 15. Wood chips are subjected to a vacuum, gaseous $SO_2$ is introduced into the chips, and they are further supplied with an alk. cooking liquor such as NaOH to combine with the $SO_2$.

**Treating mechanical pulp from resinous wood.** HARALD JENSEN and BJÖRN RAEDER. Norw. 51,852, Dec. 12, 1932. After grinding, the pulp is extd. with a volatile solvent for resins. App. is described.

**Pressing out the water from wood pulp or cellulose.** NICOLAI ALFSEN. Norw. 50,676, April 18, 1932. The pulp is subjected to a pressure increasing automatically as the web is carried over or between the rollers in succession. Mech. features of the app. are described.

**Grinding apparatus for wood pulp.** TRYGVE KITTELSEN. Norw. 50,652, April 18, 1932.

**Grinding apparatus for wood pulp.** CHR. HURUM. Norw. 51,084, June 27, 1932. Compressed air is blown against the surface of the stone to remove the coating of fibers.

**Sorting apparatus for wood pulp.** WESSEL WAAL. Norw. 48,132, July 7, 1930.

**Vacuum sorting apparatus for wood pulp.** M. J. MAGNUSSEN. Norw. 50,320, March 7, 1932.

**Sheet-forming device for the testing of wood pulp.** PER KLEM. Norw. 49,828, Dec. 7, 1931. Details of app. are given.

**Determining the ability of wood and paper pulp to be dewatered on wire-cloth.** BRYNJULV ABRAHAMSEN. Norw. 51,695, Oct. 31, 1932. A homogeneous aq. suspension of the material is filtered under const. pressure through a small area of wire-cloth, where the pulp layer settles proportionally to the amt. of water running through the cloth. The coeff. of resistance to water through-flow of the mass can be detd. analogously to the detn. of the friction coeff. of substances. App. is described.

**Disintegrating apparatus for paper pulp.** EINAR CARLSEN. Norw. 51,394, Aug 29, 1932.

**Rotary vacuum strainer for paper pulp.** MAURITZ J. MAGNUSSEN. Norw. 47,645, March 10, 1930.

**Rotary vacuum strainer for paper pulp.** AKTIESELSKAPET MYRENS VERKSTED Norw. 47,646, March 10, 1930.

**Determining foreign substances in paper pulp.** BIRGER HURUM. Norw. 50,616, April 11, 1932. An app. is described for sepn. of substances such as sand, pulverulent matter, etc., from a sample of pulp.

**Apparatus for mixing paper pulp, etc.** AKTIESELSKAPET THUNES MEK. VERKSTED. Ger. 567,407, Oct. 25, 1931.

**Bleaching fibrous materials such as paper pulp.** EMIL EKEBERG. U. S. 1,887,587, Nov. 15. A continuous stream of pulp is mixed with a continuous stream of bleaching liquor and the mixt. is continuously discharged onto a support such as a turntable or belt which is continuously passed to deliver the mixt. of pulp and bleaching liquor to a point of discharge. App. is described.

**Suction roll for pulp.** ANFINN M. PEDERSEN. Norw. 48,244, Aug. 4, 1930.

**Suction roll for pulp.** AKTIESELSKAPET MYRENS VERKSTED. Norw. 47,836, April 28, 1930. Two or more sep. webs are produced from different points on the circumference of the roll.

**Production of thicker webs from wood pulp, cellulose, etc.** AKTIESELSKAPET MYRENS VERKSTED. Norw. 47,837, April 28, 1930. Two or more continuous webs obtained from one (cf. preceding abstract) or more suction rolls are subjected separately to a first pressing and are then joined in a common press to a thick continuous web.

**Rotary vacuum pulp strainer.** JOHN STRINDLUND. Norw. 49,538, Oct. 26, 1931.

**Treating waste liquors from soda or sulfate pulp manufacture.** ERIK LUDWIG RINMAN. Ger. 557,446, June 5, 1930. Addn. to 541,256 (*C. A.* **26**, 2056). See Brit. 354,951 (*C. A.* **26**, 4175).

**Purification of waste sodium hydroxide solution.** SEISUKE KODAMA. Japan. 93,768, Dec. 1, 1931. The waste NaOH soln. used for treatment of cellulose and contg. β- and γ-celluloses is purified by treatment with Pb, its oxide or hydroxide.

**Paper.** HAROLD R. RAFTON (to Raffold Process Corp.). U. S. 1,886,120, Nov. 1. A paper mix contg. fibrous material and alk. filler is used and is treated with a size contg saponifiable material such as rosin, a substantially preponderating amount of which is added in unsaponified form. Numerous details of procedure are described.

**Paper.** AMOS L. ALLEN (to The British Thomson-Houston Co.). Brit. 363,191, Jan. 26, 1931. See U. S. 1,850,702 (*C. A.* **26**, 2866).

**Paper.** ERIK L. RINMAN. Ger. 567,095, Apr. 23, 1926. See Brit. 269,154 (*C. A.* **22**, 1474).

**Beater or pulper for half-stuffs, etc., of the paper industry.** ANTON D. J. KUHN. Brit. 362,844, Aug. 5, 1930.

**Draw-off plugs for beaters, breakers and other paper-making machinery.** BERTRAMS, LTD., and EDWARD T. SMART. Brit. 362,822, Apr. 23, 1931.

**Paper-making apparatus.** WM. A. N. SPENCER and WILBERT A. SPENCER. U. S. 1,887,143, Nov. 8. Mech. features.

**Rolls for paper-making machinery.** FREDERICK R. WOODWARD. Brit. 363,025, Oct. 6, 1930. See U. S. 1,787,890 (*C. A.* **25**, 817).

**Breast boxes for Fourdrinier and similar paper-making machines.** HARVEY T. THORP. Brit. 362,535, Sept. 13, 1930.

**Doctor for paper-making machine.** VICKERYS, LTD. Ger. 561,239, June 10, 1931. This corresponds to Brit. 360,028 (*C. A.* **27**, 1174).

**Electrical apparatus for indicating and controlling variations of moisture content of paper webs.** FREDERICK WIERK (to Johnson & Wierk, Inc.). U. S. 1,886,508, Nov. 8.

**Apparatus for impregnating paper webs in paper machines.** JOHAN LANGUM. Norw. 49,970, Dec. 28, 1931.

**Device for preventing tearing of the web in paper machines.** ANDOR JACOBSEN. Norw. 50,493, April 4, 1932. Mech. features.

**Apparatus and process for washing paper web.** HEINRICH NICOLAUS & Co., G. M. B. H. Brit. 362,557, Sept. 24, 1930. Residual liquid used for converting the paper into parchment is removed by washing the web with friction over the whole width thereof, lengthwise of the web and in opposite directions alternately.

**Systems for removing condensed water from batteries of steam-heated drying cylinders for paper, cloth, etc.** DOUGLAS T. MACIVOR and GEORGE W. SHAW. Brit. 363,030, Oct. 13, 1930.

**Composite sheet material for playing cards, etc.** MARSHALL R. HOWARD. U. S. 1,888,672, Nov. 22. Paper stock is impregnated with a potentially reactive resin, sheeted, and the sheeted stock is coated with a pigment of white or light color and then calendered to form a printing surface; the calendered sheets are printed, a finishing coat such as a resin varnish is applied to the printed surface, followed by application of heat and pressure.

**Impregnated paper.** MARC DARRIN (to F. N. Burt Co.). U. S. 1,889,088, Nov. 29. A material such as pulp or paper is impregnated with a mixt. contg. S and chlorobiphenyl.

**Decorating paper.** WM. H. GROGAN and FRANK C. LADD (to Keith Paper Co.). U. S. 1,889,020, Nov. 29. Bubbles of colored liquid such as colored soap soln. are introduced into the paper stuff. App. is described.

**Markings and designs on paper.** OTTO KRESS. U. S. 1,887,934, Nov. 15. For marking paper in a predetd. design, a bleaching compd. such as $NaHSO_3$ is applied to predetd. areas of a damp sheet web of paper so that they will be bleached to a lighter color than the body of the sheet.

**Coloring paper on one side in the paper machine.** KRISTOFFER MÖRCH. Norw. 49,073, March 2, 1931. The paper web, still contg. 30–40% $H_2O$, is passed between a coloring roll on the under side of the web and a pressing roll on the opposite side. The color roll has an elastic, nonporous lining. The pressure between the two rolls is kept so high that any inequalities in the web are pressed down into the elastic lining of the color roll.

**Producing effects on paper, cardboard, floor-coverings, etc.** I. G. FARBENIND. A.-G. (Carl Dankert, inventor). Ger. 567,238, Oct. 30, 1930. A soln. of a cellulose ester or ether in an org. solvent is stirred into a precipitant, and the gelatinous ppt., which may be produced in the form of filaments or fibers, is added to paper pulp, preferably without drying, or to plastic masses for the manuf. of floor coverings, etc. A dye or pigment may be included in the cellulose deriv. soln. Examples are given.

**Sensitive paper.** V. ANTOINE. Belg. 388,669, June 30, 1932. Gelatin or casein is added to the stock in the beater in order to give the paper the required impermeability; a soln. of sensitizing metallic salts is applied to the sheet of paper as it is being formed; the surface of the rolls coming in contact with the impregnated face of the paper is jacketed with Ni, Al or stainless steel.

**Carbon paper.** KURT HOINKIS. Ger. 567,411, Mar. 25, 1931. The paper is

treated locally with a soln. contg. a cellulose ester, with or without a resin and a pigment whereby the paper is rendered nontranscribing at the treated parts.

**Multigraph paper.** Yu. F. Kryuger and M. P. Sviridov. Russ 25,167, Nov. 13, 1929. In the prepn. of multigraph paper with the application of Japanese silk paper and an aniline dye compn. contg. a mixt. of collodion with a vegetable oil the vegetable oil is triturated with a filler (*e. g.*, $BaSO_4$), the mixt. being dild. before use to the required consistency with a mixt of alc. and ether.

## 24—EXPLOSIVES AND EXPLOSIONS

CHARLES E. MUNROE AND C. G. STORM

**Recent developments in coal-mining explosives.** W. Payman. *Colliery Guardian* **146**, 153–5(1933). E. H

**Quick practical method for determining the moisture content of smokeless powder.** T. Smisniewicz and W. Wykowski *Chimie & industrie* **28**, 1289–96(1932).—The moisture content of smokeless powder depends on the relative humidity of the atm., for a given powder in a given condition of subdivision, the moisture content is const. for a given relative humidity. Conversely, in an enclosed space the relative humidity depends on the moisture content of the powder. The proposed method consists in filling a regulation-size 60-kg. powder box with the sample, inserting a Fuesse perforating hygrometer, the stem of which is provided with a stopper to close the box practically hermetically (the hygrometer is checked daily against a Lamprecht psychrometer), and reading the relative humidity at the end of 1 hr. The moisture content is then read off directly on a curve which must be established for each powder. The method is suitable for mfg. control only. A Papineau Couture

**Mechanism of the upper limit.** A. Kovalskii and P. Sadovnikov. *J. Phys. Chem.* (U. S. S. R.) **3**, 272–3(1932).—See *C. A.* **26**, 5481. E. H Rathmann

**Rise in temperature in the 110° test.** M. Desmaroux. *Mem. poudres* **25**, 100–3 (1932–33).—To establish a relationship in the stability life of powders which are heated continuously and those which are heated intermittently, the rate in rise of temp. of thermocouples in glass tubes was noted. It was found that the relation could be expressed by subtracting from the total hrs. of heating a no. of hrs. equal to one half the no. of heatings A. J. Phillips

**The question of the mechanism of the inflammation of mixtures of $H_2 + O_2$.** F. Dubovitskii. *J. Phys. Chem.* (U. S. S. R.) **3**, 270–1(1932).—See *C. A.* **26**, 5759. E. H Rathmann

**Rate of burning of colloidal propellants.** A. D. Crow and W. E Grimshaw *Nature* **131**, 60–1(1933).—Using phys data previously quoted by C. and G. (*C. A.* **26**, 2057) Hunt and Hinds (*C. A.* **27**, 1176) draw conclusions directly at variance to those of the authors with 3 of the 4 propellant compns. considered. The formula suggested by C. and G. for assigning numerical values to the energy losses at the end of the combustion cannot be used for assessing varying temp. values during the burning. Moreover, the H. and H. method of calcg. the value of the correction at each stage is open to objection. Incomplete analyses seem to indicate that the rate of burning is governed by a temp.-density and not by a pressure law. A. W. Dexter

**Explosion temperature of nitroguanidine.** H. Muraour and G. Aunis. *Mem. poudres* **25**, 91–6(1932–33).—By the use of manometric-pressure tables with corrections, the explosion temp. of nitroguanidine is calcd. to be 1990°. A. J. Phillips

**Device to isolate explosions occurring in chemical plants.** T. J. Dixon. *J. Soc. Chem. Ind.* **51**, 433T(1932).—The construction of explosion boxes is described. The portion of the gas system in which the explosion may occur must be connected to the top branch of the box. Karl Kammermeyer

Izzo, A.: **Gli esplosivi da mina per i lavori del Genio di ca[illegible]a.** Rome: E. Genio. 217 pp. L. 12. Reviewed in *Chimie & industrie* **27**, 1506(1932).

Stettbacher, Alfred: **Die Schiess- und Sprengstoffe.** 2nd ed. Leipzig: J. A. Barth. About 450 pp.

Roth, J. F.: **Über die Prüfung der Initialwirkung von Sprengkapseln und die Messung der Brisanz von Sprengstoffen mittels ihrer Initialempfindlichkeit.** Thesis, Darmstadt, 1930. 54 pp.

Wenzelberg, Otto: **Über die Schlagempfindlichkeit der Explosivstoffe.** Thesis, Darmstadt, 1930. 41 pp.

**Explosives.** LUIS E. D'A. CALLERY. Fr. 736,962, May 11, 1932. A safe explosive is prepd. by passing $NH_3$ into an aq. $CH_2O$ soln. (40–55%) at below 10°, and oxidizing the soln. with $HNO_3$ at below 5°.

**Explosive priming compositions.** EDMUND VON HERZ and HANS RATHSBURG (to Remington Arms Co.). U. S. 1,889,116, Nov. 29. Guanylnitrosaminoguanyltetracene in a proportion of about 0.5–15% is used with other ingredients such as Pb trinitroresorcinate, $Ba(NO_3)_2$, Sb sulfide, Ca silicide and glass. Cf. *C. A.* **26**, 4177.

**Explosive priming composition containing a lead salt of 3,5-dinitrobenzoic acid.** WILLI BRÜN (to Remington Arms Co.). U. S. 1,887,919, Nov. 15.

**Blasting-cap charge comprising crystallized nitromaltose.** WILLARD DE C. CRATER (to Hercules Powder Co.). U. S. 1,887,290, Nov. 8.

**Smokeless practice and sporting gunpowder.** EUGENIUSZ BAZYLEWICZ-KNIAZYKOWSKI and KAZIMIERZ PARTYKA. U. S. 1,889,462, Nov. 29. Explosive material such as a nitrocellulose mixt. is gelatinized with solvents such as alc. and ether and the gelatinized material is extruded as cylindrical threads; the threads are plunged in a fluid bath having a temp. above the b. p. of at least one of the ingredients in the thread so that such ingredient evaps. and ejects the explosive material contained in the cylindrical-shaped hardened exterior, leaving a tubular-shaped thread; the product thus formed is partially dried, cut to form thin-walled tubular grains, dried, soaked, polished and coated.

**Nitration of glycerol, etc.** NORSK SPRAENGSTOFINDUSTRI A/S. Norw. 48,252, Aug. 4, 1930. Glycerol, glycol or similar alcs. and nitration acid are introduced continuously into a reaction container contg. a mixt. of the reaction products. The liquid in the container is kept in forced circulation in closed circuit, and the finished product is discharged continuously from a point of the circuit. Mech features of the app. are described.

## 25— DYES AND TEXTILE CHEMISTRY

L. A. OLNEY

**Constitution and systematic classification of sulfur dyes.** HANS ED. FIERZ-DAVID. *Naturwissenschaften* **20**, 945–7(1932).—A classification with structural formulas is given for S dyes. The first group, thiazoles with a "vat" group, also analogous thiophenes, has anthrayellow GC, indanthrene yellow, cibanone blue 3 GF, immedial yellow G (cf. Diss., J. Koch, Zürich, 1933). The second group, thiazine dyes (Bernasconi, *C. A.* **26**, 2981), has pure blue (Cassella), pyrogene indigo (CIBA), hydron blue R (I. G.) (*C. A.* **26**, 2981), pyrogene green CIBA. The third group consists of the black S dyes and is little known as to structure. This also holds for the fourth group, the indanthrene olives.

B. J. C. VAN DER HOEVEN

**Preservation of white and colored indanthrene dyes on colored indanthrene backgrounds.** J. S. TURSKI AND R. SZPECHT. *Przemysl Chem.* **16**, 86–8(1932).—A method is shown for preserving colored indanthrene backgrounds when designs of white and colored indanthrene dyes are made by means of Na dinitrophenate. The action depends on the oxidation of some of the leuco compds. of the dyes by Na dinitrophenate before it penetrates the wool.

FELIX P. LEE

**The dyeing of rayon skeins with direct dyestuffs.** ROSS M. STRIBLING. *Rayon* **13**, No. 10, 34–9, 47(1932).—The advantages and disadvantages of dyeing skeins on tubs, revolving wheel machine, revolving spindle machines and the perforated spindle machine are discussed. To test the leveling properties of a dye on rayon, test pieces are dyed at 60–5° for 5, 10, 20, 40 and 60 min., and at 27°, 49°, 71°, 82° and 100° for 45 min. One % dye, 2% olive-oil soap, 5% Glauber salts are used in a 20 to 1 dye bath. Dyes which dye as deeply in a short time as in a longer time and as deeply at 71° or under as at a higher temp. give the best results. The large-scale dyeing should be 5–10 min. at 54°, 5–10 min. at 65°, 10–15 min. at 79–82° for light shade. For medium shades 5–10% Glauber salt is added and the material is dyed an addnl. 5–10 min. at 79–82°. For dark shades 10–20% more Glauber salt is added and the dyeing continued an addnl. 10–15 min. at 82°.

A. R. MACORMAC

**Dyeing of Bemberg silk. I.** UICHIRO MIYAOKA AND TAKASHI TSUBOTA. *Shikisen (Dyeing)* **3**, 285–9(1932); *Complete Abstrs. Japan. Chem. Literature* **6**, 324(1932); cf. *C. A.* **27**, 1179.—The absorptive powers of Bemberg silk for dyes were measured with varying concns. of dyes and assistants at different temps. and times. Prolonged dyeing with heating of the silk, which has absorbed the max. amt. of dye, causes the silk to throw off the dye once absorbed, facilitates the uniform distribution of the dye and gives the silk a stronger color-absorptive power than other fibers. Hence such silk is

superior to others in the amt. of dye required to obtain the same shade, the efficiency of dyeing and the consumption of fuel. K. KONDA

**The behavior in chemicking of materials dyed with some vat and insoluble azo dyes.** D. A. DERRETT-SMITH AND C. R. NODDER. *J. Textile Inst.* **23**, 293–308T, 398T(1932).—To det. the lower limit of $p_H$ at which goods woven with colored borders can be bleached without undue degradation of the dyed yarn, cotton yarns dyed with different vat and insol. azo (Naphthol AS) dyes were treated with a range of bleaching solns. buffered at various $p_H$ values ranging between 4.5 and 11.5. Comparative tests in the daylight and in the dark indicated that the excessive tendering effect shown in daylight by the majority of the red, orange and yellow vat dyes examd. is a photocatalytic phenomenon, the dyestuff behaving in a manner analogous to that of a photographic sensitizer. The tendering in the dark was similar in amt. to that obtained with undyed yarns. Of these dyestuffs tests, Caledon Red BNS, Indanthrene Golden Orange 3G and Caledon Yellow 3GS produced the least tendering. The effect with Caledon Jade Green XS was similar to that obtained with the undyed yarn. Caledon Blue RCS and GCDS showed a protective effect. In general the tendering obtained with the naphthol combinations was not appreciably greater than that obtained with the undyed yarns, and in some instances the dyestuff exerted a protective effect. Yarn dyed with Chrysophenine, a direct dyestuff, included for comparison, showed no greater tendering than did the undyed yarn. The explanation of the difference in behavior between the vat dyestuffs and naphthol combinations is not apparent. The region of max. tendering, both in the light and in the dark, is in the neighborhood of the neutral point. With most of the red, orange and yellow vat dyes, the tendering in the light at $p_H$ values on the acid side of neutrality was excessive, but always less than at the neutral point, while comparatively little degradation occurred at $p_H$ 11.5. Indanthrene Rubine R produced increased tendering at $p_H$ 7 as the depth of dyeing was increased. Red or yellow glass screens reduced the tendering effect of this dyestuff only slightly in a 15% shade at $p_H$ 7. However, these screens reduced the tendering effect of Caledon Yellow GS considerably, the tendering under the red glass being similar to that shown in the dark by this dyestuff. Some yellowing at $p_H$ 7.0 was shown by all the green mixts. tested both in the dark and in the daylight. Anthraflavone GC-Caledon Blue GCDS was the only mixt. tested that did not tender in the daylight. As a result of this study, a hypochlorite bleach liquor not less alk. than $p_H$ 10 is recommended for the whole treatment for the safe bleaching of colored border goods. The use of certain vat dyes, such as Indanthrene Rubine R and Cibanone Yellow R, with which great tendering occurred in the presence of light at $p_H$ values above 10, should be avoided for goods which have to be bleached. RUBY K. WORNER

**Inspection in its relation to printing.** MYRON W. ALLING. *Silk Digest Weekly* **24**, No. 4, 9–12(1933); *Am. Dyestuff Reptr.* **21**, 469–76(1932).—Some causes of defects are given. H. H. MOSHER

**An elliptical wince dyeing machine for delicate fabrics.** MATHER AND PLATT. *Textile Mfr.* **57**, 444–5(1931). CHAS. E. MULLIN

**Some mistakes in the use of non-oxidizable steels in dyeing and suggestions for avoiding them.** C. M. LERICI. *Tinctoria* **31**, 445–7(1932).—To avoid intergranular corrosion of the steels in the soldered zones, it is convenient to use steels with very low C content (< 0.08–0.1%). Some other suggestions for the construction of app. are given. G. A. BRAVO

**Wetting-out rayon crepes for dyeing.** JESSE S. BROHEL. *Silk Digest Weekly* **24**, No. 4, 13–14, 16(1933).—Benefits conferred by preliminary wetting-out are listed. H. H. MOSHER

**Atmospheric control in the textile industry.** R. H. BROWN. *Proc. Am. Soc. Testing Materials* **32**, Pt. II, 733–42 (1932). E. H.

**Process heat by Krantz enclosed hot-water circulation.** H. NETZ. *Textile Mfr.* **57**, 446–7(1931).—Some applications of this system in the textile industry are described. CHAS. E. MULLIN

**Cystine and wool production.** H. E. WOODMAN AND R. E. EVANS. *Nature* 130, 1001(1932).—The 0.1% cystine content of herbage, on the basis of dry matter, is adequate to account for wool production in sheep subsisting only on pasturage. MARY E. LEAR

**A method of measuring length of wool and other fibers.** W. SEYER. *Textile Mfr.* **57**, 434–5(1931); cf. *C. A.* **26**, 5211.—A new device for measuring the length of single fibers, at the rate of about 100 per min., is described. CHAS. E. MULLIN

**Wool drying.** S. KERSHAW. *Textile Mfr.* **58**, 11(1932). CHAS. E. MULLIN

**of natural silk.** ARTHUR JONES. *Silk Digest Weekly* **24**, No. 4, 16, 18, 20, 24(1933); *Dyer* **69**, 43, 45, 49.—General. H. H. MOSHER

**The quantitative estimation of silk fibroin in weighted silk.** ELEANOR FISHER AND RACHEL EDGAR. *Iowa State Coll. J. Sci.* **7**, No. 1, 1–12(1932).—A review of the literature including 68 references and tables showing ash content and N content of various silks is included. Four tables of data based on expts. show that, under standard tests, weighted silks lose an appreciable amt. of N when treated with $H_2O$ but lose no N when treated with acid or alkali. F. E. BROWN

**Sericulture in new fields.** NORTON BRETON. *Textile Mfr.* **58**, 49–50(1932). CHAS. E. MULLIN

**Spun rayon. Its history and future.** ERICH SCHUELKE. *Silk Digest Weekly* **24**, No. 5, 12–13(1933). H. H. MOSHER

**Overcoming defects in rayon goods.** HERBERT R. MAUERBERGER. *Silk Digest Weekly* **24**, No. 5, 15–16(1933).—Defects are generally due to broken crepe filling, mineral oils or excessive bleaching. H. H. MOSHER

**Warp sizing of acetate yarns.** J. S. BROWNSON. *Silk Digest Weekly* **24**, No. 5, 9–11(1933).—Descriptive. H. H. MOSHER

**The Sanforizing process for preshrinking cotton goods, etc.** JAMES FARMER NORTON & Co. *Textile Mfr.* **58**, 22–4(1932). CHAS. E. MULLIN

**Helpful chemistry for use in wet finishing. II.** ANDREW J. KELLY. *Cotton* **97**, 27–9(1933); cf. *C. A.* **27**, 848.—Elementary tests for acids, oils, soaps, etc., are described. H. H. MOSHER

**Comparative tests for wetting-out reagents.** W. F. A. ERMEN. *Textile Mfr.* **58**, 30–1(1932).—A comparison of 5 wetting-out agents in $H_2O$ (distd. and of 30° hardness), 2° Tw. $H_2SO_4$ and 2.5 Tw. NaOH solns. CHAS. E. MULLIN

**Soaps, oils, solvents, scouring and penetrating agents.** MYNHART O. BRUECKNER. *Cotton* **97**, 87, 89, 91(1933).—B. contends that an estn. of the merits of a chemical for a given purpose can be most accurately secured by semi-mill size expts. H. H. M.

The combination of collagen with dyes (BRAVO, BALDRINO) **29**. Method of determining I in organic compounds containing Se [cyanine dyes] (HAMER) **7**. Impregnating agent for canvas, etc. (Norw. pat. 50,481) **20**. Organometallic compounds (Fr. pat. 736,715) **17**. Systems for removing condensed water from batteries of steam-heated drying cylinders for cloth, etc. (Brit. pat. 363,030) **23**. Tanning agents [for loading silk] (Brit. pat. 362,797) **29**. Aromatic halomethyl compounds [as dye intermediates] (U. S. pat. 1,887,396) **10**.

BARCHFELD, GUSTAV: **Die Küpenfarbstoffe aus Isonitrosoacetylarylaminen mit Oxythionaphten und über Kondensationsversuche mit ähnlichen Komponenten.** Thesis, Darmstadt, 1931. 36 pp.

BOEDDINGHAUS, P. H.: **Die Konzentration in der Kunstseidenindustrie unter besonderer Berücksichtigungen des Zusammenschlusses von "Glanzstoff" und Enka zur Aku.** Thesis, Cologne, 1931. 90 pp.

KNIPP, ROBERT: **Der Tetraphenylaethanfarbstoffe.** Thesis, Bonn, 1931. 55 pp.

POTHEN, WILLIAM: **Die Polymethinfarbstoffe unter besonderen Berücksichtigungen optisch-aktiver Verbindungen.** Thesis, Dresden, 1932. 58 pp.

RÖNISCH, HORST: **Das Organisationsproblem der deutschen Textilveredelungsindustrie.** Thesis, Tübingen, 1931. 80 pp.

SCHNEIDER, KURT: **Natürliche und künstliche Färbungen von Bastfasern.** Thesis, Dresden, 1931. 47 pp.

VORREYER, F. J.: **Die Farbnormung für Textilwaren.** Thesis, Cologne, 1931. 56 pp.

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**Dye.** WILHELM ECKERT and HEINRICH GREUNE (to General Aniline Works). U. S. reissue 18,643, Nov. 1. A reissue of original pat. No. 1,588,451 (*C. A.* **20**, 2587).

**Dyes.** DAVID A. W. FAIRWEATHER, JOHN THOMAS and SCOTTISH DYES, LTD. Brit. 363,668, June 13, 1930. Monosulfuric esters of anthraquinoneanthranoldihydroazine and its substitution products are prepd. by treating the disulfuric esters of anthraquinoneanthrahydroquinonedihydroazine or its substitution products with reducing agents or the trisulfuric esters of anthrahydroquinoneanthranolazine or its substitution products with acids.

**Dyes.** SOC. ANON. POUR L'IND. CHIM. A BÂLE. Fr. 40,844, Oct. 5, 1931. Addn. to 702,388 (*C. A.* **25**, 4413). Mixts. of chromatable azo dyes contg. at least one of the

dyes described in Fr. 702,388, are chromed by the processes of Fr. 702,388. A chromed dye may be used as chroming agent.

**Dyes.** DURAND & HUGUENIN S. A. Fr. 737,081, May 13, 1932. Yellow mordant dyes are prepd. by condensing 3- or 4-aminonaphthalene-1,8-dicarboxylic acid or a substitution product, preferably a sulfonic deriv., thereof, or a corresponding anhydride, with an aminosalicylic acid or a homolog or substitution product thereof. Examples are given. Cf. *C. A.* **27**, 848.

**Dyes; dyeing cotton.** DAVID A. W. FAIRWEATHER, JOHN THOMAS and SCOTTISH DYES, LTD. Brit. 363,669, June 13, 1930. To obtain other than the Na and K salts of the tetrasulfuric esters of tetrahydroanthraquinonazine and its substitution products the Na and K salts are treated with reagents causing replacement of the Na or K by the desired basic radical, *e. g.*, with $MgCl_2$, $LiCl_2$, $NH_4OAc$, methylpyridinium chloride, etc. Cotton is dyed with a soln. of these salts in a bath contg. $CuSO_4$ and HCl.

**Stable dye solutions.** IMPERIAL CHEMICAL INDUSTRIES, LTD., RICHARD F. GOLDSTEIN and ALEXANDER Y. LIVINGSTONE. Brit. 362,548, Sept. 19, 1930. Stable solns of 2,3-hydroxynaphthoic arylamides are prepd. by adding gum arabic to a freshly prepd. or dild. alk. soln. of the arylamide or by dissolving the arylamide in aq. alkali in the presence of the gum.

**Azo dyes.** ERNST BODMER and FRANZ NEITZEL (to Durand & Huguenin S. A.) U. S. 1,888,903, Nov. 22. Mordant dyes are formed by the action of a suitable oxidizing agent (preferably Ca hypochlorite in an alk. medium) on compds. such as 4-amino-2-sulfobenzeneazosalicylic acid, 4-amino-3-sulfobenzeneazosalicylic acid, 4-amino-2-sulfobenzeneazo-*o*-cresotic acid, 4-amino-2-sulfobenzeneazo-*m*-cresotic acid and 4-amino-2-sulfobenzeneazo-*p*-cresotic acid. Dyes, described in examples given, dye Cr mordanted material brown or brownish yellow shades, and may be used in the form of their sol. Cr or Cu compds. if desired.

**Azo dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,513, Sept. 6, 1930. A benzidine-disulfonic or -dicarboxylic acid, or deriv. thereof, is tetrazotized, coupled with 2 mols. of a middle component (or 1 mol. of 2 middle components) capable of diazotization, again tetrazotized and coupled with 2 mols. of a similar or dissimilar *N*-alkylated or aralkylated 2,8-aminonaphthols substituted by 1 or 2 sulfonic acid groups, or derivs thereof, or alternatively by 1 mol. of such component and 1 mol. of a 2,8-aminonaphthol-disulfonic acid or deriv. thereof.

**Azo dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,987, Sept. 12, 1930. Azo dyes are formed in substance or on fiber by coupling a diazo compd. of an amino-2-alkoxycarbazole with a 2-naphthol-3-carboxylic acid arylide. Blue shades are obtained. Among examples diazotized amino-2-methoxycarbazole is coupled on cotton with 2-naphthol-3-carboxylic acid anilide.

**Azo dyes.** SOC. POUR L'IND. CHIM. À BÂLE. Fr. 735,958, April 26, 1932. Dyestuffs dyeing cotton, etc., in fast shades are obtained by diazotizing naphthalene compds. of the formula $1,8\text{-}(R^1O)C_{10}H_6(N:N.R^2\ NH_2)$ ($R^1$ is H or an acyl group, $R^2$ is a benzene or a naphthalene ring and the $NH_2$ is in the 4-position with respect to the azo chromophore) and coupling in alk. or neutral medium with azo dyes of the formula $R^4—N=N—R^3$ ($R^4$ is any diazotization component and may already contain an azo chromophore and $R^3$ is a naphthalene ring contg. $NH_2$ and OH, which has been combined in acid medium with the $R^4$ component). A large no. of examples is given.

**Azo dyes.** I. G. FARBENIND. A.-G. Fr. 736,848, May 9, 1932. 2-Amido-4,6-dinitro-1-hydroxybenzene is coupled with *m*-diamines of the $C_6H_6$ series which contain hydroxyalkyl or dihydroxyalkyl groups in one or both of the amino groups, *e. g.*, 1-amino-3-hydroxyethylamino- or 1-amino-3-($\beta,\gamma$-dihydroxypropyl)-aminobenzene.

**Azo dyes.** RINZO MINODA and YOSIMI YAMAGUTI (to Nihon Senryo Seizo K. K.). Japan. 93,357, Oct. 24, 1931. The dyes are prepd. by combining intermediates having one or more sulfonic or carboxylic groups with diazotized alkylaminodiphenylamines or alkoxydiaminodiphenylamines or their derivs., *e. g.*, methoxy- or ethoxy-aminodiphenylamine is coupled with 1,8-aminonaphthol-3,6-disulfonic acid or the like.

**Azo dyes; dyeing.** I. G. FARBENIND. A.-G. (August Modersohn and Friedrich Muth, inventors). Ger. 567,286, July 23, 1931. Diazotized 3-aminodiphenyl sulfone is coupled in substance or on the fiber with *o*-alkyl- or *o*-alkyl-*p*-chloro-anilides of 2,3-hydroxynaphthoic acid. Orange dyes are obtained.

**Strongly basic azo dyes.** ACHILLE CONZETTI (to J. R. Geigy, S. A.). U. S. 1,887,289, Nov. 8. Aminated sulfo-free monoazo dyes produced from a diazotized benzene compd. coupled with $\beta$-naphthol, $\alpha$-naphthylamine or phenylmethylpyrazolone are treated successively with chloroacetyl chloride and pyridine to convert them into

basic dyes which are suitable for dyeing tannin-mordanted cotton, weighted silk, leather, etc.

**Strongly basic azo dyes.** ACHILLE CONZETTI (to J. R. Geigy, S. A.). U. S. 1,887,995, Nov. 15. Strongly basic monoazo dyes are formed by converting nitrated primary and secondary amines of the benzene series by successive treatment with chloroacetyl chloride and a compd. of the pyridine group, into a basic compd. contg. the group $(R—NA—COCH_2)ClNC_5H_5$ where R represents an aryl radical of the benzene and naphthalene series and A represents H, alkyl or aryl radical of the benzene series, reducing the nitro group of the compd. thus obtained, diazotizing and coupling same with azo components of the benzene and naphthalene series and phenylmethylpyrazolone. Pyridine may be the preferable base to be used in this process, but also quinoline or a deriv. of pyridine is usable. The new dyes in the form of their hydrochlorides are sol. in cold water and dye cotton with a tannin mordant intense and fast tints. Numerous examples are given of the production of dyes generally giving yellow to orange or red shades. U. S. 1,887,996 relates to the manuf. of strongly basic disazo dyes by starting from a diazotized aromatic amine of the benzene series, coupling with a *m*-phenylenediamine deriv. transformed by successive treatment with chloroacetyl chloride and pyridine, into a basic compd. contg. the group $(R—NA—COCH_2)ClNC_5H_5$ where R represents an aryl radical of the benzene and naphthalene series and A represents H, alkyl or aryl of the benzene series, diazotizing the monoazo compd. thus obtained and further coupling the diazo compd. with azo components of the benzene and naphthalene series and phenylmethylpyrazolone. The dye from pyridoacetyl-*p*-phenylenediamine plus pyridoacetyl-*m*-phenylenediamine plus pyridoacetyl-2,7-aminonaphthol constitutes a dark red-violet powder and yields a deep red on tannin-mordanted cotton. The dye from pyridoacetyl-*p*-phenylenediamine plus pyridoacetyl-*m*-phenylenediamine plus phenylmethylpyrazolone constitutes a yellow-brown powder and yields an orange-yellow on tannin-mordanted cotton.

**Metal compounds of azo dyes.** FRITZ STRAUB, HERMANN SCHNEIDER and HEINRICH BERNHARD (to Soc. pour l'ind. chim. à Bâle). U. S. 1,887,602, Nov. 15. Numerous examples are given of the production of products suitable *for dyeing wool, cotton, silk or leather* or for *use in varnishes* (generally blue-black or violet shades) by treating a mixt. of different azo dyes, each contg. lake-forming groups, with compds. of metals which are at least bivalent such as Cr compds. U. S. 1,887,603 relates to dyeing animal fibers such as wool by reaction, in the presence of the fiber, between *o*-hydroxyazo dyes and metal compds. (of which compds. of Cr, Fe, Mn, Ni, Co, V, U, Ti, Sn and Al are mentioned) of *o*-hydroxyazo dyes, and gives numerous details of procedure and examples. Cf. *C. A.* **26**, 3119.

**Azo dyes containing chromium.** FRITZ STRAUB, WALTER ANDERAU and HANS MAYER (to Soc. pour l'ind. chim. à Bâle). U. S. 1,888,516, Nov. 22. Dyes of various blue shades are obtained by treating with Cr-yielding agents such as *o*-hydroxyazo dyes which are obtained by uniting diazotized 2-amino-1-hydroxybenzene of the general formula $HO\overline{C:C(NH_2)\ CX:CX.C(NO_2):CX}$ where X means H or its substituents, such as halogen, or sulfo groups, with naphthalene compds. of the general formula $2,5,7\text{-}(HO)(HO_3S)(RHN)C_{10}H_5$ where R means H, alkyl, aralkyl, aryl, alkylene, arylene or acyl, such as the *N*-methyl, *N*-ethyl, *N*-phenyl, *N*-benzyl, *N*-anisyl, *N*-phenetyl, *N*-cresyl, *N*-salicylic acid derivs. of 2-amino-5-hydroxynaphthalene-7-sulfonic acid, 2,2′-dinaphthylamine-5,5′-dihydroxy-7,7′-disulfonic acid, and the products which are obtained by condensing primary diamines with one or two mol. proportions of 2-amino-5-hydroxynaphthalene-7-sulfonic acid. Numerous examples are given.

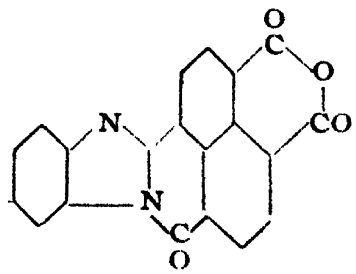
**Black trisazo dyes.** ACHILLE CONZETTI (to J. R. Geigy, S. A.). U. S. 1,888,757, Nov. 22. See Fr. 729,323 (*C. A.* **26**, 6152).

**Azophthalein dyes.** ADOLF KREBSER (to J. R. Geigy, S. A.). U. S. 1,888,002, Nov. 15. New dyes of this series also contg. the resorcinol residue are formed by condensing an aminohydroxybenzoylbenzoic acid alkylated or arylated at the N, in equimol. proportions with an azo dye which contains resorcinol or a deriv. such that there is still a free *p*-position to one of the OH groups. In lactone form these dyes are presumed to have the general formula 2-(ArN:N)-3-(HO)-6-($RR^1N$)-fluoran in which R = alkyl, $R^1$ = alkyl or H and Ar = any aromatic residue. While the condensation products from simple resorcinol monoazo dyes are of themselves of little value as dyes, they serve as intermediate products. On the other hand, the azophthaleins obtained by means of azo dyes from resorcinol and *o*-hydroxyamino compds. are genuine mordant dyes which, when after-treated on the fiber with metal salts, yield fast dyeings of blue to greenish blue tints. Other mordant dyeing groups may be contained in the resorcinol

monoazo dyes, such as carboxyl groups or one or more carboxyl groups with a hydroxyl group in *o*-position. In the latter case the after-chromed dyeings are of reddish to brown-red tints. The condensation process may consist in heating the components with $H_2SO_4$ 66° Bé. or strongly concd. $H_2SO_4$ for some hours. Several examples are given.

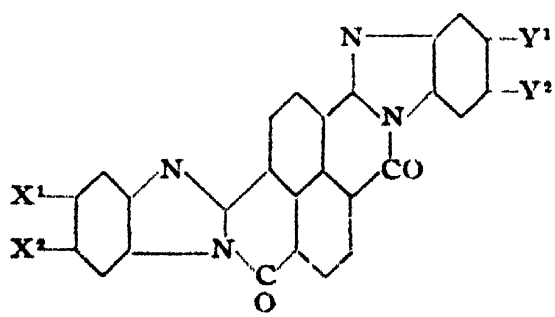
**Vat dyes.** MAX A. KUNZ, GEORG KRAENZLEIN, KARL KOEBERLE, ERICH BERTHOLD, MARTIN CORELL and HEINRICH VOLLMANN (to General Aniline Works). U. S. 1,887,812, Nov. 15. By treating 3,4,8,9-dibenzopyrene-5,10-quinone in chlorosulfuric acid successively with chlorinating and brominating agents or by similar methods vat dyes of the dibenzopyrenequinone series are formed contg. at least 2 of the halogens Cl, Br and I, which dye cotton from red to violet-red vats strong yellow to orange shades with a reddish tinge. Numerous examples are given.

**Vat dyes.** WILHELM ECKERT and OTTO BRAUNSDORF (to General Aniline Works). U. S. 1,889,279, Nov. 29. Fast dyes of various colors are obtained by condensing naphthoylenebenzimidazole-*peri*-dicarboxylic anhydride with 1,2-diaminonaphthalene and by similar condensations of a compd. of the general formula:



where X stands for H or Me, with an aromatic *o*-diamine of the benzene, naphthalene or acenaphthene series while heating in the presence of an inert diluent. Numerous examples are given. Cf. *C. A.* **26**, 3676.

**Vat dyes.** I. G. FARBENIND. A.-G. Fr. 40,505, July 17, 1931. Addn. to 693,997 (*C. A.* **25**, 2003). The isomeric mixts. of 1,4,5,8-naphthoylenediarylimidazoles prepd by Fr. 600,843 and its addns. are sepd. into their 2 constituents by transforming the mixts. in the presence of an org. diluent, into salts of org. acids such as *p*-toluenesulfonic, naphthalenesulfonic or alkylnaphthalenesulfonic acid and sepg. the salts by the difference of soly. As diluents PhCl, $PhNO_2$ or AcOH may be used. The dyes have the probable formula:



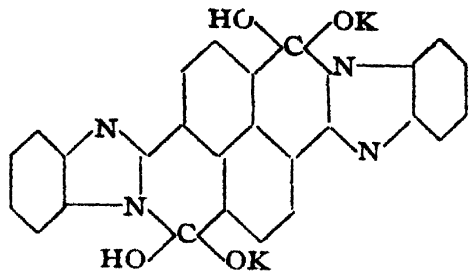
(one X and one Y are H and the other X and the other Y represent —$COCH_3$ or —$C_6H_5$, $X^1$ being identical with $Y^1$ and $X^2$ with $Y^2$) and dye vegetable fiber yellowish brown to deep brown from the vat.

**Vat dyes.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 718,154, June 4, 1931. See Brit. 358,078 (*C. A.* **26**, 5969).

**Vat dye isomers.** WILHELM ECKERT and OTTO BRAUNSDORF (to General Aniline Works). U. S. 1,888,625, Nov. 22. Isomeric dyes such as those formed together as described in U. S. 1,588,451 (*C. A.* **20**, 2587) may be sepd. into their components by use of chloroacetic acid as a selective solvent. Numerous details of procedure and examples are given for the sepn. of similar isomeric dyes. U. S. 1,888,626 also relates to generally similar dye separations.

**Vat dyes.** I. G. FARBENIND. A.-G. Fr. 41,044, Oct. 12, 1931. Addn. to 693,997 (*C. A.* **25**, 2003). Mixts. of isomeric 1,4,5,8-naphthoylenediarylimidazoles obtained by Fr. 600,843 and its addns. are sepd. into their constituents by treating the mixts. with caustic alkalies in the presence or not of a solvent or diluent, sepg. the compds. thus

formed by the differences of soly. and transforming them by hydrolysis into the corresponding dyes. The products obtained by the action of KOH are of the type below, or of the type in which the OK and OH groups are all on one side.



**Vat dye isomers of the 1,4,5,8-naphthoylenedibenzimidazole series.** WILHELM ECKERT, HEINRICH GREUNE and WILLY EICHHOLZ (to General Aniline Works). U. S. 1,888,624, Nov. 22. A dye mixt. such as is obtainable by condensing a 1,4,5,8-naphthalenetetracarboxylic acid compd. with an *o*-diamine compd. is dissolved in concd. $H_2SO_4$ and the soln. is subjected to fractional crystn. to sep. isomers.

**Derivatives of vat dyes.** SCOTTISH DYES, LTD. Ger. 567,081, Oct. 28, 1925. See Brit. 251,491 (*C. A.* **21**, 1360).

**Esters of leuco compounds of vat dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 360,958, Aug. 12, 1930. $H_2SO_4$ esters of leuco compds. of indigoid vat dyes contg. nitro groups are prepd. without reduction of the nitro groups by (*a*) the processes of Brit. 360,907 (*C. A.* **27**, 1193), (*b*) that of Ger. 556,486 (*C. A.* **26**, 5767) or (*c*) by reduction of the vat dye with a mixt. of $SO_2$ and HCOOH in the presence of a tertiary base and treatment of the product with $SO_3$ or an agent yielding $SO_3$. Among numerous examples 7,7'-dinitrothioindigo (I) is reduced with $H_2S$ in dry pyridine and the soln. esterified with chlorosulfonic acid, I is treated with chlorosulfonic methyl ester and pyridine in chlorobenzene with the addn. of powd. Cu, and the dye from 5-nitroisatin chloride and 6,7-benzo(benzyl-4-chloro)hydroxythionaphthene is reduced with $SO_2$ and HCOOH in pyridine and esterified with chlorosulfonic acid.

**Naphthalimide dyes.** WILHELM ECKERT (to General Aniline Works). U. S 1,886,797, Nov. 8. A halosulfonaphthalic acid anhydride compd. such as 4-bromosulfonaphthalic acid anhydride is caused to react with a compd. of the general formula $RNH_2$ in which R stands for H, aryl or alkyl, such as $NH_3$ or *p*-toluidine to form dyes which dye yellow or orange shades.

**Sulfur dyes.** OTTO BAYER, WILHELM HOHENEMSER and KARL LARBIG (to General Aniline Works). U. S. 1,886,365, Nov. 8. An org. compd. such as 2-methyl-3-amino-7-hydroxy-5-ethylphenazine or the like is melted with an alkali metal polysulfide in the presence of molybdic acid or other compd. of Mo, W, V, U or Sb serving to give dyes of great color intensity. Numerous examples are given.

**Dyes containing cellulose residues.** ROBERT HALLER and ALPHONSE HECKENDORN (to Soc. pour l'ind. chim. à Bâle). U. S. 1,886,480, Nov. 8. Various examples are given of the production of dyes suitable for use with mixed fabrics by causing to react compds. of the general formula: cellulose—O—C . . . . . C—halogen, where both of the C atoms belong to a 6-membered C- and N-contg. heterocyclic ring which contains at least 2 and at most 3 N atoms, on compds. of the benzene and naphthalene series which contain besides one primary amino group at least one OH group or one amino group capable of forming azo dyes, and then in converting the condensation products thus obtained into azo dyes by diazotizing and coupling with coupling components. The products thus formed may be subjected to various after-treatments such as with compds. of Cr, Cu, Fe, Mn, Ni, Co, Ti, Mo, etc., and various details and modifications of procedure are described.

**Basic dyes.** I. G. FARBENIND. A.-G. Fr. 736,079, April 28, 1932. Very sol. basic dyes are obtained by treating salts of basic dyes or the dye bases themselves with $H_3PO_4$, in the presence or not of an alkali phosphate.

**Blue basic dyes.** MORIZO YOSINO (to the Head of the Tokyo Kogyo Sikenzyo). Japan. 93,406, Oct. 27, 1931. $PhNMe_2$ is oxidized by means of a persulfate (*e. g.*, $(NH_4)_2S_2O_8$ or $K_2S_2O_8$) in a weakly acidic or neutral aq. medium, with or without catalysts (*e. g.*, $Me_2CO$, AcOH or PhOH). The product is sol. in $H_2O$ and the aq. soln. absorbs the lines ranging from 5890 to 5440 A. U.

**Dye pastes.** I. G. FARBENIND. A.-G. (Max Paquin, inventor). Ger. 567,454,

Oct. 21, 1930. Condensation products of urea or its derivs. with ammonia compds. of aliphatic aldehydes are included in pastes of anthraquinone vat dyes.

**Arylguanidines.** MARTIN BATTEGAY. Fr. 736,174, Aug. 3, 1931. Arylguanidines and their substitution products are prepd. by the reaction of $CN_2H_2.2HCl$, at high temps. in an anhyd. medium, with an arylamine or its hydrochloride, if necessary while passing a current of dry HCl gas. $CN_2H_2.2HCl$ may be replaced by substitution products of $CN_2H_2$. The products are *dyes* or intermediates. Examples are given of the prepn. of the HCl compd. of α-anthraquinonylguanidine (m. 275–280° with decompn.) and its cyclization compd., amino-*C*-1,9-pyrimidinoanthrone (m. 290–295°), the HCl compd. of β-anthraquinonylguanidine (m. 285–290° with decompn.) and amino-*C*-9,10-pyrimidino-4-nitroanthrone (blackens at 283°).

**Arylated safranines.** FRITZ HESS (to General Aniline Works). U. S. 1,886,809 Nov. 8. A reducing agent such as Fe or Zn is caused to act, while heating, upon a phenosafranine in the presence of an arylamine such as aniline, α-naphthylamine or *p*-phenylenediamine and a HCl salt of the same amine, and the mixt. thus obtained is heated to 180–260° to obtain a product which dyes silk or tanned cotton blue or violet Cf. *C. A.* **26**, 4828.

**Solid diazoazo metal halide double salts.** KARL SCHNITZSPAHN (to General Aniline Works). U. S. 1,889,298, Nov. 29. Compds. suitable for producing azo dyes on the fiber and having the general formula $[R_1N:NR(O\text{-alkyl})_nN_2]_2M(\text{halogen})_{x+2}$ where R and $R_1$ mean aryl residues, not contg. a sulfonic or carboxylic group, *n* a no. being at least 1 and *x* a no. corresponding to the valence of the metal, signified by M may be obtained by diazotizing aminoazo compds. derived from diazo compds. not contg a sulfonic or carboxylic group and amino derivs. of uni- or multi-valent aryloxyalkyl ethers, such as *o*-aminophenol ether, aminocresol ether, aminohydroquinone ethers, 1,2-aminonaphthol ethers and derivs. capable of forming *p*-aminoazo compds., and sepg the diazo salts in form of metallic double salts by adding a metallic halide salt and preferably an alkali metal halide salt, such as NaCl to the diazo solns. As such metallic halide salts those of heavy metals, such as $ZnCl_2$ or $SnCl_4$, mercury, auric and platinic chloride may be used. Several examples with details of procedure are given.

**Derivatives of the 1,2-benzanthraquinone series.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,965, Sept. 8, 1930. A *Bz*-4-halo-1,2-benzanthraquinone is treated with Cl or Br, or agents furnishing these halogens, in the presence of inorg. strongly acid agents, *e. g.*, $H_2SO_4$, halosulfonic acids and Al halides The products are *dye intermediates* Their halogen content may be increased by chlorination in an org. diluent and splitting off HCl. By heating these chlorinated products with Hg or Cu, halo-1,2-dibenzanthraquinonyls are produced which are converted into vat dyes by treatment with acid condensing agents, *e. g.*, $H_2SO_4$ and $AlCl_3$. Numerous examples are given.

**Mordants.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,501, Sept. 5, 1930. See Fr. 701,405 (*C. A.* **25**, 4135).

**Zinc mordant.** I. N. SAPGIR and N. S. RASSUDOVA. Russ. 25,225, Jan. 20, 1931 A zinc mordant is prepd. from $Na_2Cr_2O_7$, ZnO and $H_2SO_4$ or HCl characterized by a 6–8-fold excess (by wt.) of all the ingredients mentioned in comparison to ZnO.

**Colored reserves.** DURAND & HUGUENIN S. A. Fr. 40,862, Oct. 8, 1931 Addn to 721,214 (*C. A.* **26**, 4183). Fast colored reserves are obtained by prepg. the cloth with an arylide of 2,3-hydroxynaphthoic acid, printing it with a reserve contg. a salt of acid reaction, an ester of a leuco deriv. of a vat dye and Al chlorate which increases the action of the salt, developing the colored reserves, preferably with the use of an oxidation catalyst, and finally producing the color of the base by "foulardage" in a soln. of a diazo compd. Cf. *C. A.* **26**, 5216.

**Dyes and intermediates.** IMPERIAL CHEMICAL INDUSTRIES, LTD., WM. SMITH and ROBERT FRASER THOMSON. Brit. 365,165, Oct. 16, 1930. See U. S. 1,875,272 (*C. A.* **26**, 6156).

**Anthraquinone derivatives; dyes.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 735,212, Apr. 14, 1932. The disulfuric ester of 2-amino-3-fluoroanthraquinone (Brit. 365,165, cf. preceding abstr.) is made by acetylating 2-amino-3-fluoroanthraquinone, treating the resulting product with pyridine, pyridinesulfuric anhydride and Cu, steam distg. with $Na_2CO_3$ in aq. soln., filtering, treating the filtrate with CaO and NaOH at b. temp., acidifying the resulting liquid with HCl and $NaNO_2$ and sepg. the ester by crystn. Particularly sol. esters of vat dyes are prepd. by converting 2-amino-3-fluoroanthraquinone and certain of its derivs. into the corresponding disulfuric ester of the 2-amino-3-fluoroanthrahydroquinone, oxidizing with an alk. oxidizing agent in an alk. medium, and isolating the ester thus produced.

**Dyes and intermediates of the 1,2-benzanthrone series.** I. G. FARBENINDUSTRIE. A.-G. Brit. 362,482, Aug. 28, 1930. See Ger. 544,916 (*C. A.* **26**, 3678).

**Dyeing with indanthrene and similar vat dyes.** JOHN WATTERS. U. S. 1,886,857, Nov. 8. In dyeing with indanthrene and similar vat dyes developed by oxidation, the goods are subjected to loose continuous motion (in a described app.) including repeated submergence in the following baths with intermediate elevation into the air for inspection: water, a bath contg. NaOH and hydrosulfite (in excess of the amounts required to keep the dye in soln.) with addn. to this bath of the dye in dissolved form, and subsequent addn. to this bath of an oxidizing agent such as $Na_2Cr_2O_7$ to effect final development.

**Dyeing textiles.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 736,143, April 29, 1932. Good dyeings are obtained on textile fibers by applying to the fiber an *o*-aminoanthraquinonylthioglycolic acid and lactamizing this by treatment with a dil. mineral acid at a high temp. Thus the Na salt of 1-amino-4-anilinoanthraquinonyl-2-thioglycolic acid (by treating 2-bromo-1-amino-4-anilinoanthraquinone with $Na_2S$ and condensing the mercapto compd. with $ClCH_2COOH$) is applied to wool and then heated with 7% aq. HCl. The fiber is dyed grayish blue.

**Dyeing cloth, paper, etc.** ÉTABLISSEMENTS SCHAEFFER & CO. (Antoine Cassal, inventor). Fr. 736,192, Aug. 5, 1931. Cloth, paper, etc., is treated with an indigosol dye which is developed by simple exposure of all or part of its surface to solar radiations particularly ultra-violet rays. A development accelerator such as $NH_4$ molybdate, $MnCl_2$ or Na tungstate may be added.

**Dyeing cellulose derivatives.** I. G. FARBENIND. A.-G. Fr. 737,272, May 18, 1932. Cellulose acetate and other cellulose derivs. are treated with tetrahydronaphthalene-β-sulfonic acid or a salt thereof before dyeing or printing, or the acid or salt is used along with the dye.

**Dyeing cellulose derivatives.** SOC. POUR L'IND. CHIM. À BÂLE. Fr. 737,337, May 20, 1932. The products obtained by the reaction of compds. contg. active CH, or $CH_2$ groups, such as pyrazolones, dihydroxyquinolines, barbituric acids, sulfazones, methylindoles, diketohydrindenes, quinaldines, methylimidazoles, acetylacetones, benzoylacetone, dihydroresorcinols, benzyl cyanide, cyanoacetic acid, cyanoacetophenone and rhodamines, with aromatic aldehydes, nitroso derivs. or ketones are used to dye cellulose esters and ethers. A large no. of examples are given.

**Dyeing cellulose esters.** LONZA ELEKTRIZITÄTSWERKE UND CHEMISCHE FABRIKEN A.-G. Fr. 40,945, Oct. 21, 1931. Addn. to 713,908 (*C. A.* **26**, 1802). The affinity of cellulose esters for dyes is increased by incorporating therewith products resulting from the esterification of cellulose by means of anhydrides of org. acids contg. N, or anhydrides of dicarboxylic acids, or mixts. of such anhydrides with AcOH. The incorporated esters may be made simultaneously with the other esters. A subsequent treatment with oxidizing or sapong. agents may be given.

**Dyeing cellulose esters and ethers.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,846, Aug. 6, 1930. See Ger. 557,103 (*C. A.* **27**, 428).

**Dyeing cellulose esters and ethers.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,921, Aug. 6, 1930. Addn. to 272,482 (*C. A.* **22**, 1859). Cellulose esters and ethers are dyed with 1,4-diamino-2,3-dihydroxyanthraquinone etherified in both OH groups by monohydric aliphatic alcs., *e. g.*, 1,4-diamino-2,3-dimethoxyanthraquinone.

**Dyeing cellulose esters and ethers.** SOC. POUR L'IND. CHIM. À BÂLE. Brit. 363,678, June 18, 1930. Void. See Fr. 697,541 (*C. A.* **25**, 3176).

**Dyeing cellulose acetate.** JAMES S. WILSON and JOHN THOMAS (to Scottish Dyes, Ltd.). U. S. 1,886,441, Nov. 8. Cellulose acetate is impregnated with a vat dye enolic ethereal salt by heating in an aq. soln., and the vat dye is developed.

**Dyeing and printing.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,061, Sept. 24, 1930. Processes for dyeing and printing textiles free from silk and dye prepns. therefor are improved by the use of morpholines free from chromophorous groups. Cf. Brit. 362,060 (*C. A.* **27**, 1208).

**Dyeing and printing textiles.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 736,463 April 30, 1932. Dry compns. for use in making azo dyes when mixed with water, comprise a *N*-sulfonic acid obtained by the action of a sulfite sol. in water on a diazonium compd., *e. g.*, diazotized chlorotoluidine, with or without subsequent reduction, and a compd. or mixt. which in acidified aq. soln. has oxidizing properties, *e. g.*, a sol. bromate or bromide.

**Dyeing and printing wool or other materials.** JULES MARTIN (DIT GAUDIT). U. S. 1,886,412, Nov. 8. A mixt. for dyeing or printing comprises acid blue, acid red or other dye usable in an acid bath, together with 10–50% by vol. of com. formic acid.

**Dyeing and printing mixed fabrics containing cotton and a cellulose ester.** HEINRICH WERDENBERG (to Durand & Huguenin S. A.). U. S. 1,886,995, Nov. 8. See Fr. 713,255 (*C. A.* **26**, 1802).

**Coloring textiles.** HENRY DREYFUS. Fr. 736,023, April 27, 1932. Aldehyde (or ketone) sulfoxylates of metals having more than one valency, *e. g.*, Sn, Ti, Cu and Fe, are used as discharge agents in the production of designs on textiles, particularly of or contg. cellulose acetate. The compds. are made by reacting an aldehyde (or ketone) sulfoxylate of an alkali metal with a chloride or other salt of Sn, Ti, Cu or Fe. Cf. *C. A.* **27**, 429.

**Discharging dyeings.** GUSTAV REDDELIEN, HANS LANGE, ALFRED FISCHRSSER and HERMANN FREUND (to General Aniline Works). U. S. 1,889,154, Nov. 29. The dyeings are treated with a quaternary dialkylphenyl-1′-methylnaphthylammonium compd. such as sulfonated dimethylphenyl-1′-methylnaphthylammonium hydroxide.

**Dye jig.** RICHARD E. RUSDEN (to Textile-Finishing Machinery Co.). U. S. 1,887,381, Nov. 8. Mech. features.

**Dye jigger.** WM. J. NORTON (to James Farmer Norton & Co., Ltd.). U. S. 1,887,462, Nov. 8. Mech. features.

**Dyeing machines.** JUAN RABASSA. Fr. 736,552, May 3, 1932. Articles are dyed in a no. of small vessels mounted so as to oscillate about an axis. The vessels may be caused to rotate rapidly about this axis for centrifugal drying of the dyed articles.

**Apparatus for dyeing fabrics.** HENRY A. WOODHEAD and MADISON R. KELLY (to Gregg Dyeing Co.). U. S. 1,889,009, Nov. 29. Structural features.

**Apparatus for dyeing furs.** ANTOINE GUINOT. Fr. 41,034, Aug. 14, 1931. Addn to 673,478 (*C. A.* **24**, 2616).

**Obtaining fibers from flax, etc.** THE ABBEY SYNDICATE, LTD., and DINSHAW RATTONJI NANJI. Ger. 567,296, June 8, 1928. See Brit. 296,333 (*C. A.* **23**, 2581–2).

**Treating vegetable fibers such as jute to resemble wool.** GINO M. ROSSATI U. S. 1,889,377, Nov. 29. The cut fibers are treated with an alkali soln. such as NaOH until binding and encrusting substances are dissolved and the individual fibers become sepd.; the fibers are then dried until they begin to crinkle, bleached, the alkali in them is neutralized and the fibers are then impregnated with a fatty acid derived from wool grease and again dried in a heated tumbler.

**Textiles.** HENRY DREYFUS. Fr. 736,073, April 28, 1932. Textiles are made from filaments and threads which have been shrunk at certain intervals of their length or which are capable of being shrunk in a differential manner at various points of their length. The shrinking agent may be $CH_2Cl_2$ or another halogenated hydrocarbon.

**Textiles.** HENRY DREYFUS. Fr. 736,860, May 9, 1932. Crepe effects are obtained on textiles made from threads of high torsion composed of filaments of cellulose acetate or other org. deriv. of cellulose, by pptg. or forming a solid or semi-solid substance on or in the threads. Fr. 736,861. Crepe effects are obtained by applying a part of the high torsion to the threads which are then treated with aq. solns. contg. acid radicals, *e. g.*, citric acid, Na citrate, dihydroxytartaric acid or $Na_2S_2O_3$, having a high coagulation of pptn. effect on the gels or solns. of cellulose ester or ether, after which the rest of the necessary torsion is applied.

**Bleaching textiles.** BLEACHING PATENT PROCESSES, LTD. Fr. 736,761, May 6, 1932. Textiles are passed into and out of a bleaching liquid over which is an inclosed atm. contg. ozonized air.

**Shrinking textiles.** HENRY DREYFUS. Fr. 736,142, April 29, 1932. Shrinkage effects are obtained on materials composed of or contg. org. derivs. of cellulose by the application of latent solvents for the derivs. The latent solvent may be $CH_2Cl_2$, $C_6H_6$ or $CCl_4$ with or without a diluent.

**Treating textiles.** CAMILLE DREYFUS. Fr. 736,670, May 4, 1932. Threads, etc., made from cellulose acetate or other org. deriv. of cellulose are conditioned by the application of an agent which is a real or latent solvent for the cellulose deriv., *e. g.*, ethyl hydroxybutyrate, to which a diluent such as a glycol and water may be added. Other solvents which may be used are benzyl alc., diacetone alc., monoacetin, diacetin, acetol, cyclohexanone, cyclopentanone, ethyl lactate and dimethyl tartrate and less advantageously triaryl phosphates and triacetin.

**Treatment of fabrics.** TYUZO SUGIMOTO. Japan. 93,485, Nov. 6, 1931. Fabrics are passed through a dil. soln. of halides of Ca, Sr or Li, passed over a hot printing roll, and then passed through anhydrous alc.

**Ornamenting fabrics containing cellulose derivatives such as ethers, acetate, etc.** WM. A. DICKIE and HAROLD HALKYARD (to Celanese Corp. of Am.). U. S. 1,889,061, Nov. 29. Fabrics contg. thermoplastic filaments such as cellulose acetate are wetted

with a volatile swelling liquid contg. a volatile liquid such as $C_6H_6$ or toluene which is a non-solvent for the cellulose deriv. and a volatile liquid such as acetone which is capable of forming a soln. with the cellulose deriv., and a design is produced by local application of heat and pressure to the fabric.

**"Frosting" articles such as textile fabrics.** MARIA L. MESA. U. S. 1,888,969, Nov. 22. An article to be treated is first dipped in a hot aq. soln. formed of gum arabic and $NH_4$ alum so that the alum crystallizes upon the article and the gum arabic seps. and hardens to serve as a binder firmly holding the crystals together; the article is then again dipped in the hot soln. and dried, to form larger crystals, and is then dipped in a coloring soln. such as an alc. soln. of aniline dye and camphor and finally again dried.

**Embossing fabrics comprising organic derivatives of cellulose.** CAMILLE DREYFUS. U. S. 1,889,045, Nov. 29. Materials such as those formed of cellulose acetate are treated with a dil. aq. soln. of acetone and then subjected to embossing under heat and pressure.

**Embossing circular knitted fabrics of thermoplastic cellulose derivatives.** CAMILLE DREYFUS. U. S. 1,889,062, Nov. 29. The material is treated with a softening agent such as aq. acetone soln. (in the treatment of cellulose acetate) and is then subjected to an embossing operation while in double thickness.

**Mercerizing composition.** CHEMISCHE FABRIK VORM. SANDOZ. Fr. 40,615, July 24, 1931. Addn. to 624,174. The wetting power of mercerizing lyes is improved by the addn. of phenols or halogenated phenols and alicyclic acids such as naphthenic acids, and, if desired, compds. not contg. $SO_3H$ or COOH but which acquire wetting properties in combination with the phenols, such as mono- or poly-hydric alcs., ketones, org. bases contg. N or hydrogenated org. compds. Cf. *C. A.* **27**, 855.

**Charging silk.** RENÉ CLAVEL. Fr. 40,791, Sept. 15, 1931. Addn. to 634,641 (*C. A.* **22**, 3997). Natural silk is charged by passing it through a bath contg. an inorg. acid, *e. g.*, 26% HCl, washing it, passing it through a bath contg. $SnCl_4$ and then through a bath contg. an alkali phosphate. Cf. *C. A.* **26**, 2605.

**Apparatus for liquid treatments of fiber hanks, etc.** AUGUST HAGGENMACHER. U. S. 1,889,048, Nov. 29. Mech. features.

**Vat, circulating pump and associated apparatus for bleaching yarn and the like.** WM. P. HORNBUCKLE and ROBERT F. CRAIG. U. S. 1,889,442, Nov. 29. Structural and mech. features.

**Drying apparatus for finishing textile materials.** EMIL J. BERGER, HOWARD W. MATTHEWS and WM. BLOCK. Brit. 362,708, Dec. 30, 1930.

**Machines for drying textile goods.** ISAAC BRAITHWAITE & SON ENGINEERS, LTD. and FRANK A. DIXON. Brit. 362,601, Oct. 22, 1930.

**Treating artificial threads, films, etc.** BRITISH CELANESE, LTD., and WM. I. TAYLOR. Brit. 362,939, Sept. 8, 1930. Threads, etc., made of or contg. cellulose acetate or other cellulose esters or ethers are improved by treatment at relatively high temps. with substances not exerting a solvent or swelling action at ordinary temp. but swelling, plasticizing or dissolving at higher temps., *e. g.*, glycerol, glycols such as ethylene glycol, diethylene glycol, etc., and ethers of glycerol and other polyhydric alcs.

**Threads or fabrics of cellulose esters.** BRITISH CELANESE, LTD., WM. A. DICKIE and ROBERT W. MONCRIEFF. Brit. 362,523, Sept. 10, 1930. Crepe threads are formed of filaments of an org. cellulose ester highly twisted together and sapond. at intervals along their length.

**Sizing textile threads.** BIANCHINI FERIER (SOC. EN NOM COLLECTIF). Fr. 40,532, Dec. 3, 1930. Addn. to 615,134. Stable aq. emulsions of drying oils for sizing threads are made by using as emulsifying agents, oleates, stearates, palmitates or linoleates of ethanolamine, and by extension, salts of fatty acids and amines in which one or more H atoms have been replaced by OH.

**Sizing textile threads.** BIANCHINI FERIER (SOC. EN NOM COLLECTIF). Fr. 40,766, Jan. 28, 1931. Addn. to 615,134. Emulsions of drying oils contg. fatty substances such as tallow, Japan wax, vegetable waxes, paraffin, non-drying oils and mineral oils are used for sizing textiles.

**Sizing textile fibers.** I. G. FARBENIND. A.-G. Fr. 41,010, Nov. 23, 1931. Addn. to 687,155 (*C. A.* **25**, 828). Polyvinyl alcs. of very high viscosity (prepd. by polymerizing a vinyl ester in the presence of a perborate and $Ac_2O$ and sapong., or by adding a small amt. of a B compd. to a polyvinyl alc. of medium or low viscosity, with or without the addn. of alkali), are used for sizing fibers. Cf. *C. A.* **27**, 854.

**Sizing artificial threads and fibers.** SOC. POUR LA FABRICATION DE LA SOIE "RHODIASETA." Fr. 736,216, Aug. 8, 1931 Threads and fibers of cellulose acetate or other org. derivs. of cellulose are sized with compns. having a basis of linseed oil, the oil having

been blown and deprived of all its drying properties. An antioxygen agent which does not afterward modify the properties of the fibers, such as hydroquinone, is added.

**Sizing rayon.** STEIN, HALL & CO., INC. Fr. 40,832, Sept. 30, 1931. Addn. to 708,249 (*C. A.* **26**, 1136). Casein alone or mixed with a hygroscopic substance such as cane sugar, glucose or glycerol and a preservative such as NaF is used instead of the compn. of Fr. 708,249, or this compn. is modified by replacing all or part of the dextrin or dextrinized starch by an animal or vegetable glue. Cf. *C. A.* **27**, 430.

**Rayon, etc.** HENRY DREYFUS. Fr. 737,226, May 17, 1932. The stretching power of rayon, ribbons, etc., made of or contg. org. derivs. of cellulose is increased by treating the threads, etc., with shrinking agents, having a swelling or latent solvent action on the cellulose deriv., *e. g.*, $CH_2Cl_2$, $C_2H_4Cl_2$, $CHCl_3$, $CCl_4$, AcOEt, etc. An org. diluent such as EtOH may be added to the shrinking agent. Cf. *C. A.* **27**, 842.

**Treatment of rayon, etc., threads.** COURTAULDS, LTD., and ERIC A. MORTON Brit. 363,064, Nov. 1, 1930. For the washing, desulfurizing, bleaching, etc., of rayon, etc., the cakes or bobbins are supported between 2 endless flexible bands by means of which they are conveyed to a source of liquid or gas under pressure, the liquid or gas being supplied to the interior of the cake or bobbin.

**Apparatus for treating wound rayon or rayon cakes with liquids.** FELDMÜHLE A.-G. VORM. LOEB, SCHORNFELD & CO. Ger. 567,380, Mar. 18, 1930, and 567,381, Apr. 8, 1930.

**Apparatus for treating wound rayon, etc., with liquids or gases in stages.** PARCOFIL A.-G. Ger. 567,379, Feb. 28, 1931.

**Apparatus for washing and after-treating spun cakes of rayon.** VEREINIGTE GLANZSTOFF FABRIKEN A.-G. Brit. 362,831, May 27, 1931.

**Apparatus for drying and treating rayon cakes.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit. 362,727, Jan. 13, 1931.

**Mothproofing wool, etc.** SOC. POUR L'IND. CHIM. À BÂLE. Fr. 735,959, April 26, 1932. Org. esters of sulfocarboxylic acids or their substitution products or salts, *e. g.*, those of Fr. 713,082, are used to protect wool, furs, etc., against moths, etc.

**Rubberized cloth.** E. I. DU PONT DE NEMOURS & CO. Fr. 41,067, Nov. 24, 1931. Addn. to 693,890 (*C. A.* **25**, 1687). The asphaltic varnish used contains an org. Fe compd. such as Fe laurate, resinate, oleate, linoleate, naphthenate, butyl phthalate or basic acetate, to aid the mixing or soln. and to act as a siccative. Natural or artificial resins may be added and a petroleum asphalt refined by steam may be used

**Silicification of fibrous materials.** OTTO STINER and LIGNAT WERKE A.-G. Brit. 362,955, Aug. 6, 1929. See Fr. 699,501 (*C. A.* **25**, 3498).

**Preservative for thread, cordage and textiles.** HANS LANDMARK and WILLIAM NAGEL. Norw. 49,855, Dec. 14, 1931. The articles are impregnated with a mixt of naphthenic acid metal salts and oil, *e. g.*, mineral or vegetable oils dissolved in a suitable solvent.

**Cleaning, emulsifying and wetting agents.** ORANIENBURGER CHEM. FAB. A.-G. (Kurt Lindner and Arno Russe, inventors). Ger. 567,361, July 29, 1926. Use is made of sulfonic acids or sulfonates derived from higher aromatic, hydroaromatic or aliphatic-aromatic ketones. Suitable agents are prepd. by sulfonating the condensation products from higher fatty acid chlorides and aromatic or hydroaromatic hydrocarbons. Examples are given of the use of the products in the *treatment of textiles and leather*.

**Wetting agents.** I. G. FARBENIND. A.-G. Fr. 40,987, Nov. 17, 1931. Addn. to 703,466 (*C. A.* **25**, 4414). Sulfonic acids or sulfuric esters of aliphatic compds. of high mol. wt. free from COOH groups, with which are incorporated a considerable amt. of compds. of polyvalent metals, *e. g.*, $MgSO_4$, $BaCl_2$, $Al_2(SO_4)_3$ or $ZnSO_4$, are used as wetting, etc., agents in the treatment of textiles.

**Treating furs, etc.** H. TH. BÖHME A.-G. Fr. 736,920, May 10, 1932. Furs are improved so as to maintain their luster when wet by impregnation with an emulsion of paraffin, wax, etc., preferably contg. a protective colloid such as gelatin, glue, tragacanth, etc. Compds. of Al sol. in water, Cl compds. such as $CCl_4$, org. acids such as AcOH and buffer salts such as AcONa are preferably added also.

**Cleaning animal fibers.** HERMANN HAAKH. Brit. 363,026, Oct. 6, 1930. See Fr. 703,379 (*C. A.* **25**, 4415).

**Weighting animal hairs.** GUSTAV SCHWEN and HANS KRZIKALLA (to I. G. Farbenind. A.-G.). U. S. 1,887,958, Nov. 15. The material is treated with an aq. prepn. contg. a water-sol. org. non-dyeing halogenated compd. of high mol. wt. such as a polyhalogenated phthalic acid which has affinity for animal fibers. Numerous examples are given.

**Fireproofing textiles.** ÉDOUARD COURBON. Fr. 736,292, Aug. 21, 1931. Textiles are rendered fireproof by treatment with a soln. contg. $(NH_4)_2SO_4$ and $(NH_4)_2HPO_4$.

## 26—PAINTS, VARNISHES AND RESINS

A. H. SABIN

**Marine slime and paint chemistry.** JOHANNES B. CARPZOW. *Farben-Chem.* **3**, 453–5(1932).—Marine slime found in the North Sea is a colloidally dispersed material low in O content formed by the action of microörganisms on both org. and inorg. matter. It is highly active chemically, capable of forming complexes with metallic oxides and org. dyes. Used as a rust-preventive pigment, it combines with rust already on metal and also with the metal itself to form a protective layer of Fe silicide. Its cost is extremely low and it should develop into an important painting material. G. G. S.

**The influence of the base material on the behavior of coats of paints.** E. K. O SCHMIDT. *Oberflächentech.* **9**, 220(1932) —Surface protection by painting on wood and metal is investigated; in general, increasing the corrosion resistance of the base improves the behavior of the coat of protective paint. Anodic coatings increase the adhesive properties, as the penetration of humidity through the coating is reduced.
M. HARTENHEIM

**Developments in wood priming.** JUNIUS D. EDWARDS AND ROBERT I. WRAY. *Am. Paint J.* **17**, No. 16, 43–6, No. 17, 16–18, 42(1933).—Compared with metal, wood presents a very heterogeneous surface for painting. Moisture is a normal constituent of wood and one of the functions of paint is to reduce the rapidity of moisture changes so that checking and cracking will not take place. From a review of exposure tests of Al paint it is concluded that its sustained high-moisture impermeability is an important factor in its durability. G. G. SWARD

**Testing of waterproofing qualities of protective paints.** RICHARD GRÜN. *Tonind.-Ztg* **56**, 1087–8(1932).—A permeable disk covered with the protective coat is subjected to water at desired pressures. H. F. K.

**The influence of temperature on pigments.** GEORG ZERR. *Farbe u. Lack* **1933**, 5–6.—The adverse and favorable influences of heat treatment on pigments during both manuf. and use are briefly described. G. G. SWARD

**Dry colors.** CARL A. HENLEIN *Am. Paint J.* **17**, No. 15, 18, *et seq.; Official Digest Fed. Paint Varnish Production Clubs* No. **122**, 26–31(Jan. 1933) —The importance of testing dry colors in vehicles and in the manner in which they are to be used is illustrated by examples. The following topics relating to dry colors are considered: mixing of pigments, hiding power, light fastness, texture, flooding and identification.
G. G. SWARD

**The tinting strength of Berlin [Prussian] blue.** GEORG ZERR. *Farbe u. Lack* **1932**, 640.—Neither dry mixing of Berlin blue with the white pigment nor mixing the pastes of the blue and white pigments gives concordant tinting strength results. A recommended method is: The Berlin blue is dissolved in a dil. soln. of $(COOH)_2$ with gentle heat. To the soln is added the white pigment upon which the Berlin blue is pptd and adsorbed. The pigment is then filtered off, dried and ground in oil in the usual manner. G. G. SWARD

**Water-soluble salts in red iron oxide.** FRITZ-JÜRGEN PETERS. *Farbe u. Lack* **1933**, 3–4.—The adverse influence on rust prevention of $H_2O$-sol salts in red Fe-oxide pigments is illustrated. G. G. SWARD

**Titanium oxide.** J. GREENFIELD. *Paint Manuf.* **2**, 307–10(1932).—A brief history is given of the element Ti and of the development of Ti pigments. G. G. SWARD

**Bideford black—a new mineral black.** H. M. LANGTON. *Paint & Varnish Prod. Mgr.* **9**, No. 2, 6, 8(1933); cf. *C. A.* **25**, 423 —The pigment known as Bideford black, although known for 100 years, has only recently been produced in com. quantities. It is found near Bideford, Eng. The refined pigment contains 65% C and is classed as anthracitic rather than graphitic. Its tinting strength is twice that of ivory black, its oil absorption about 40% by wt. A no. of special uses are described, *e. g.*, printing inks, coloring concrete and rubber. G. G. SWARD

**Lead and zinc pigments and salts in 1931.** E. W. PEHRSON. *Bur. Mines, Mineral Resources of the U. S. 1931*, Pt. I, 211–25(preprint No 13, published December 19, 1932). E. H.

**Relationships of technical importance between the physical structures and the colors of lead chromate and of lead sulfate chromate.** I. SAPGIR, N. RASSUDOVA AND

F. KVITNER. *Lakokrasochnuyu Ind.* 1932, No. 1–2, 56–63.—$PbCrO_4$ can exist either in the rhombic modification having a color tone O2 or in the monoclinic modification having a color tone of 13. $PbCrO_4$ having a citron-yellow color can be prepd. from $Pb(OAc)_2$ soln. of av. concn. or from $Pb(OAc)_2.2PbO$. The best citron-yellow color is obtained when $PbO:Na_2Cr_2O_7 = 1:0.5$. If more of the basic Pb acetate is added the ppt. is brighter. The brighter-colored modification of $PbCrO_4$ can be prepd. by pptg. $Pb(OAc)_2$ of av. concn. (1:10) at room temp. The ppt. must be washed with distd. water and must be dried *in vacuo* at not more than 25°. It is stable for months, and paint made from it by incorporation with glue is not very changeable; the oil paint, however, is changeable, but can be stabilized by naphthenic acid salts. X-ray patterns indicate that the bright-colored modification of $PbCrO_4$ is rhombic and the dark yellow modification monoclinic. $nPbCrO_4.mPbSO_4$ having a bright yellow color may be either rhombic or monoclinic depending on the ratio of $m:n$. It is monoclinic if $PbCrO_4.PbSO_4$ contains 50% or more $PbCrO_4$. The color of the rhombic modification is less stable. Under the microscope the rhombic modification of $PbCrO_4$ appears as small grains, the monoclinic modification as small needles of rather irregular shape. This could be utilized as a qual. criterion of the value of $PbCrO_4$ paints from the technical standpoint. Exptl. results on lead chromate paints indicate that the rhombic modification is very much less stable than the monoclinic modification. G. S. STAMATOFF

**Some problems of the oxidation of drying oils.** R. S. MORRELL AND S. MARKS. *Paint Manuf.* 3, 10–13, 21–2(1933).—Review. G. G. SWARD

**Color measurement of oils and resins.** E. FONROBERT. *Paint Manuf.* 3, 14–17 (1933); cf. *C. A.* 26, 4724. G. G. SWARD

**Colored printing inks.** HANS HADERT. *Paint Manuf.* 3, 5–9(1933).—Litho varnish for colored inks is prepd. exactly as for black inks, the preferred method being cooking of the oil in open pots. The great variety of inks requires individual treatment for each purpose. The principal pigments in use are enumerated and their properties in inks briefly described. G. G. SWARD

**Experiments in the development of frost-finish varnishes.** KÖHLER AND B. REICH *Farbe u. Lack* 1933, 7.—To obtain a uniform frost-like finish with tung-oil varnishes, the atm. of the oven should be in motion, be devoid of $O_2$, and the temp. should not exceed 35–40. G. G. SWARD

**Varnish [and lacquer] as adhesives.** WILHELM HUTH. *Farben-Chem.* 3, 427–8, 465–6(1932).—The fundamental properties of matter related to adhesiveness, *viz.*, high mol. wt., solvation in solvents, and elasticity are possessed by numerous synthetic resins, especially the polyvinyl type. This resin is especially suitable for the manuf. of safety glass. G. G. SWARD

**The influence of orpiment in shellac on the protective properties of the varnish.** M. RANGASWAMI. *Indian Lac Research Inst. Bull.* No. 10, 7 pp.(1932); cf. *C. A.* 26, 5439.—The influence of large quantities of orpiment in shellac on some of the properties of the resulting varnish was studied by means of comparative tests made with and without the addn. of orpiment in the manuf. of shellac. Tests on the color of filtered varnishes indicate that the lighter color or orpimented shellac is only an optical effect, resulting from the suspension of fine orpiment. Varnishes contg. orpiment give films of satisfactory color and appearance, provided too much orpiment has not been used No distinct difference was noticed in the behavior of films toward water (blushing, water absorption and chalking) on either glass or wood. An excess of orpiment tends to reduce the scratch-hardness and the resistance to abrasion of the film and shortens to a small extent the life of the film on exposure to weather conditions. A fair amt. present in a fine form may not, however, adversely affect the resistance of the film The use of orpiment appears to be of no useful purpose in regard to the protective properties of the varnish film. Cf. *C. A.* 22, 3538; H. A. Nelson and F. C. Schmutz, *Proc. Am. Soc. Test. Mat.* 24, II, 920(1924). D. THUESEN

**Testing the light proofness of nitrocellulose in lacquer.** W. TOBLDTE. *Farben-Chem.* 4, 5–7(1933).—A BuOAc soln. of the nitrocellulose film is shaken with $H_2O$ and the latter submitted to Erdmann's diazo test for $HNO_2$. Brief tests are described showing the influence of dibutyl phthalate, damar and ZnO in preventing the decompn. of the nitrocellulose by light. G. G. SWARD

**Comparative tests of nitrocellulose lacquer coats on duraluminum and wood.** TICHONOV. *Malyarnoe Delo* 1932, No. 1, 36.—Nitrocellulose lacquers were tested thoroughly on duraluminum and wood parts of airplanes, and found satisfactory. Also in *Nitrocellulose* 3, 227. E. M. SYMMES

**Photogravure by means of the wet collodion process.** ANON. *British and Colonial*

*Printer* **3**, New Series No. 207, 344(1932); No. 208, 372(1932); *Nitrocellulose* **3**, 228.—Historical and descriptive. E. M. Symmes

**Airplane lacquers abroad.** H. Keyring. *Ind. Lack. Betr.* No. **11**, 136(1932); *Nitrocellulose* **3**, 206.—The degree of protection was in the order (*a*) Zn chromate-synthetic resin, (*b*) Fe oxide-synthetic resin, (*c*) oxide-oil base coat baked 2 hrs. at 107°, (*d*) synthetic resin pigmented with Al, (*e*) air-dried lampblack-synthetic resin, (*f*) air-dried oxide-oil base coat. Aniline dyes in nitrocellulose lacquer gave surprisingly good results. E. M. Symmes

**How long have nitrocellulose lacquers been known?** Anon. *Ind. Lack. Betr.* No. **17**, 201(1932); *Nitrocellulose* **3**, 205.—Historical. E. M. Symmes

**Selection of thinners [for nitrocellulose lacquers].** E. E. Halls. *Paint Manuf.* **2**, 311–15(1932).—In the selection of thinners for nitrocellulose lacquers, the following properties should be considered by the user: miscibility, evapn. rate, effect on film, effect on coated surface. Some practical notes on testing are given. G. G. Sward

**Essential requirements for quick finish.** A. W. C. Harrison. *Paint & Varnish Prod. Mgr.* **9**, No. 1, 26-8(1933).—Instances are cited showing the necessity for following exact finishing procedure in lab. testing. G. G. Sward

**Types of stoving finishes.** A. W. C. Harrison. *Synthetic and Applied Finishes* **3**, 96–8(1933). E. H.

**The solubility of rosin in benzine.** F. Sander. *Farbe u. Lack* **1932**, 643–4.—A review of the literature reveals inconsistent data on the soly. of rosin in benzine. The cause is probably assocd. with the varying colloidal states of the samples examd. **Note.** J. Scheiber. *Ibid* 644.—The colloidal state of rosin is not necessarily a source of its varying soly. It often contains oxidation products, which are less sol. than the original rosin. G. G. Sward

**Phenolphthalein as basis of a new type resin.** Walther Herzog. *Farben-Chem.* **4**, 8–9(1933).—Fused phenolphthalein, although contg. the resinophoric group -C=C—CO—, reverts to the cryst. form when used in films. On the other hand, the substitution of heavy groups for H to produce ethers and esters of phenolphthalein reduces the crystg. forces below the colloid state producing forces so that stable resins with valuable properties are obtained. G. G. Sward

**Artificial resins.** A. Salmony-Karsten. *Kunststoffe* **23**, 1–3(1933).—Baekeland's theory, that the mols. in Bakelite consist of Ph residues linked together by formaldehyde residues into a ring with a relatively small no. of members, is rejected in favor of Koebner's structural formula according to which the Bakelite mols. are built up by phenol and formaldehyde reacting together to form either long chains or complicated net-works. J. W. Perry

**Xanthorrhoea and its resins.** Helen T. Cooke. *Chem. Eng. Mining Rev.* **25**, 92–5 (1932).—These resins belong to the class of high priced aromatic resins. Xanthorrhoea resin has little body, is stained by water, is sol. in NaOH, and to a small extent in $Na_2CO_3$, borax and CaO. The soly. varies with the $p_H$ of the soln., increasing with increase in concn. of hydroxyl ion. W. H. Boynton

The structure of commercial Zn dust (Wassermann) **2**. Titanic acid and Ti pigment (Norw. pat. 51,236) **18**. Polishing composition for varnished surfaces (Brit. pat. 363,036) **18**. Metal compounds of azo dyes [for use in varnishes] (U. S. pat. 1,887,602) **25**. Oil-soluble heavy-metal salts of sulfonic acids [paint driers] (Dutch pat. 28,002) **10**. Aromatic halomethyl compounds [as initial materials for making artificial resins] (U. S. pat. 1,887,396) **10**. C black for use in ink, etc. (U. S. pat. 1,889,429) **18**.

Wolff, Hans: **Über Kombination von Nitrozellulose mit Ölen.** Ein Beitrag zur Kenntnis der Kombinationslacke. Berlin: VDI-Verlag G. m. b. H. 35 pp. M. 3.70.

Böttcher, Martin: **Die Öllackbereitung. Über die Eignung des Glycerids der Oktadekadien-(9,11)-säure. (1) als Holzölersatz.** Thesis, Leipzig, 1931. 70 pp.

Herbig, Wolfgang: **Die Quellungsprozesse bei Öl- und Öllackfilmen.** Thesis, Hanover, 1931. 109 pp.

Naltsas, Alexander: **Die Trockenprozesse fetter Öle.** Thesis, Leipzig, 1930. 54 pp.

**Heavy metal salts of ketonic benzoates.** Herman A. Bruson (to Röhm & Haas Co.). U. S. 1,880,759, Oct. 4. Salts such as the Co, Mn or Pb salts of *p*-cymoyl-*o*-benzoic acid, etc., are *driers for oils, paints and varnishes.* Numerous details of manuf. are given.

**Paint.** ITITARO SYÔZI (Gen Matumoto, inventor). Japan. 93,213, Oct. 12, 1931. A mixt. of paulownia oil and rosin ester is heated until the polymerization is completed. Another mixt. of paulownia oil, rosin ester and fatty acids of the oil is treated as above, the two heated products are mixed and litharge and pigments are added.

**Paint.** ITITARO SYÔZI (Gen Matumoto, inventor). Japan. 93,818, Dec. 4, 1931 Addn. to 93,213 (preceding abstract). The paint is made by mixing a paulownia paint, a nitrocellulose paint, a slowly evapg. solvent (such as white spirit), and a rapidly evapg. solvent (such as benzene, toluene or xylene).

**Fireproof paint.** SAKAZIRO OSIMA and SIZUO YONEDA. Japan. 93,236, Oct. 13, 1931. The paint is a mixt. of Zn dust, chalk, $Na_2CO_3$, Na silicate and Turkey-red oil.

**Hardening of silicic acid ester paint.** TUNETARO SAKAMI (to Kansai Paint K. K.). Japan. 93,484, Nov. 6, 1931. Paint film prepd. from silicate sol, pigment, oils, etc., is heated by a flame or electrically to convert the ester to $SiO_2$.

**Painting on aluminum.** ERNST MATHIEU. Fr. 736,151, Jan. 9, 1931. A mixt contg. BuOH, natural or synthetic resin and AcOMe is applied to Al before painting it.

**Antifouling composition for ship bottoms, etc.** ABRAM J. N. GRAAFLAND and FREDERIK J. NELLENSTEIN. Brit. 362,526, Sept. 10, 1930. The compn. comprises a hydraulic binder, *e. g.*, portland cement, mixed with a poisonous substance, either org or inorg., *e. g.*, $CdCO_3$, that does not act upon Fe. Fillers, *e. g*, sand, may be added.

**Base for paints, varnishes and lacquers.** EDWARD C. HOLTON (to Sherwin-Williams Co.). U. S. 1,888,595, Nov. 22. A mixt. of castor oil and a vegetable drying oil such as linseed oil having an I value above 100 is subjected to destructive distn. until the residue is 70–90% the original wt. of the mixt. and the residue is then heated with a polyhydric alc. such as glycerol.

**Ball mill for grinding paints.** DENNIS A. MCKINNEY (to Ford Motor Co.). U. S 1,888,735, Nov. 22.

**Mixing and grinding apparatus for paints, etc.** D. ANDERSON & SONS, LTD. Ger 560,303, June 19, 1929. See Brit. 302,561.

**Reactive pigment components.** TITAN CO. A/S. Norw. 51,237, Aug. 1, 1932 An alk. earth metal sulfate incorporated with oxides, hydroxides or basic carbonates of Zn and (or) Mg is produced by mixing an alk. earth metal carbonate (which may be in aq. suspension) with an aq. soln. of Zn and (or) Mg sulfate, after which the suspension is evapd. to dryness, washed if desired and ignited.

**Ferric oxide pigment.** EMIL M. LOFLAND. U. S. 1,888,464, Nov. 22. Metallic Fe is subjected to oxidation to produce hydrous FeO which is sepd. from the metallic Fe, alkalized in a body of liquid and oxidized to $Fe_2O_3$. An arrangement of app. is described.

**Titanium white.** SIMON J. LUBOWSKY (to Metal & Thermit Corp.). U. S 1,888,993, Nov. 29. A product produced by heating together oxides of Ti and Mg is dissolved with acid such as $H_2SO_4$ and the resulting Ti-Mg salt soln. is heated to above 100° and the resulting pptd. Ti compd. is digested with its mother liquor for an extended time (suitably about 4–5 hrs.) under superatm pressure and at a corresponding temp to increase the opacity and improve the pigmentary covering power of the material.

**Apparatus and process for producing zinc white.** VIKTOR SZIDON. Brit. 362,812, April 1, 1931. See Fr. 724,222 (*C. A.* **26**, 4969).

**Zinc sulfide precipitation and pigment manufacture.** NIELS C. CHRISTENSEN U. S. 1,886,165, Nov. 1. In pptg. Zn from a chloride soln., finely divided $CaCO_3$ is mixed with the soln. and Ca sulfohydrate is added in substantially equimol. proportion to the added $CaCO_3$, thus pptg. ZnS and forming $CaCl_2$ in soln.

**Colloidally dispersed white lead from lead oxide.** ERNST STELZER (to Th. Goldschmidt A.-G.). U. S. 1,886,915, Nov. 8. $CO_2$ is passed into an aq. suspension of Pb oxide contg. a small proportion of $NH_3$.

**Sunfast and inert lithopone.** KENNETH S. MOWLDS and WM. SEGUINE, JR. (to Krebs Pigment & Color Corp.). U. S. 1,885,940, Nov. 1. ZnO is removed from heat-treated lithopone by suspending the lithopone in an aq. $NH_3$ soln., passing $CO_2$ through the suspension and sepg. the ZnO-contg. soln. from the lithopone.

**Drying oil suitable for use in paints and varnishes.** LANNING P. RANKIN (to Hercules Powder Co.). U. S. 1,886,586, Nov. 8. A pine deriv. such as turpentine or pine oil is subjected to polymerization and the polymerized product is ozonized.

**Apparatus and process for the production of thickened [stand] oil by addition of wood oil.** JOSEF SOMMER and SYDNEY J. RALPH. Brit. 362,545, Sept. 17, 1930. Wood oil, heated to near the polymerization point but safely below the gelatinization point is introduced into hot polymerized linseed or like oil in such proportions and dispersion

as to be instantly heated to the polymerization point without opportunity for gelatinization, and thoroughly incorporated.

**Boiled oil.** TH. GOLDSCHMIDT A.-G. Fr. 737,275, May 18, 1932. The oils are improved by reducing the content of acids by distn. under reduced pressure, with or without the passage of inert vapors.

**Printing ink.** A. F. WARE. Brit. 346,311, Dec. 1, 1928. An ink suitable for use in color printing comprises a mucilaginous base such as a starch or modified starch produced by action of perborates, honey, dextrin, molasses, or the like which may be mixed with glycerol and coloring substances.

**Printing ink.** M. BAER. Brit. 346,313, Aug. 8, 1929. An ink suitable for label printing comprises chrome yellow and gold bronze mixed with materials such as cresylic acid, $H_2SO_4$, borax, flour, varnish and water.

**Printing ink.** E. FRENKEL. Brit. 351,824, Sept. 10, 1929. An ink, suitable for use in multicolor printing, is prepd. with blown linseed oil having an acetyl value of at least 100, so as to produce quick drying. The oil may be prepd. by heating to 60–200° and blowing with air or other O-contg. gas, and addnl. driers may be added to the ink.

**Writing ink.** R. A. BELMONT. Brit. 351,611, April 9, 1930. A freely flowing ink of non-spreading, quick drying and indelible character is formed of an aq. soln. of a coloring substance and a penetrating agent such as $Na_2S$, or other sulfide or hydrate of Na, K or Ca. Cf. *C. A.* **26**, 1459.

**Ink for printing on fruits.** MATABEI SINOZAKI. Japan. 93,651, Nov. 18, 1931. The ink is manufd. from phenolic soln. of spirit color, Bakelite A, amyl acetate, alc. or MeOH and a color lake.

**Ink for gravure printing.** TAKIZIRO MORIYASU, SYUKU YOSIDA and TAMOTU YOSINO. Japan. 93,260, Oct. 15, 1931. The ink is prepd. from cellulose esters, casein, gelatin, linseed oil, HCHO, etc.

**Waterproof ink.** KITIHEI OGAWA. Japan. 94,021, Dec. 21, 1931. The ink is prepd. by mixing hematin ext., Fe acetate or formate, sulfites or hyposulfites, acidic dye and a viscous reagent.

**Washable ink.** MATABEI SINOZAKI. Japan. 93,381, Oct. 26, 1931. The ink is prepd. by mixing spirit-sol. nigrosine, phenol, MeOH, alc. AcOH, C black, castor oil and cinnamaldehyde.

**Frosting ink.** TIYOKITI MOROBOSI. Japan. 93,295, Oct. 16, 1931. The ink is prepd. by adding a mixt. of an aq. soln. of pure white starch and Turkey-red oil to an ordinary printing ink.

**Varnish.** TURUZÔ YAGI. Japan. 93,944, Dec. 15, 1931. Varnish is prepd. by mixing benzene, PhOH, alc., shellac, collodion, amyl acetate, ether, camphor oil, etc.

**Varnishes, etc.** HENRY A. GARDNER. Ger. 563,080, April 8, 1930. See Brit. 351,637 (*C. A.* **26**, 3125).

**Varnishes, paints and plastic masses.** FIRMA THEODOR KOTTHOFF (Alexander Eibner, inventor). Ger. 567,133, Sept. 8, 1929. Solns. of stand-oil exts., prepd. as described in Ger. 546,679 (*C. A.* **26**, 3685), are used as varnishes or paint vehicles or as constituents of nitrocellulose lacquers or plastic masses.

**Varnishes, plastics, etc.** SOC. POUR L'IND. CHIM. À BÂLE. Fr. 737,338, May 20, 1932. Amides of org. acids, difficultly sol. or insol. in water but easily sol. in alc. are used for mixing coloring materials used for varnishes, plastics, etc. Compds. which may be used include *o*- or *p*-toluenesulfamide, chlorobenzenesulfamide, acetanilide, stearic acid amide, palmitic acid anilide, benzanilide, etc.

**Varnishes, lacquers, etc.** "HEROLD" A.-G. Brit. 362,728, Jan. 13, 1931. See Fr. 709,510 (*C. A.* **26**, 1459).

**The paulownia-oil varnish.** TEIZO HAGIYA (to Teikoku Toryô K. K.). Japan. 93,602, Nov. 16, 1931. A mixt. of synthetic resin and the paulownia oil is heated at high temp. with the addn. of naphthols or naphthylamines and then mixed with driers (Pb, Mn and Co resinates).

**Plant for producing printing varnishes of low acid content.** WILHELM SCHMIDDING (trading as the firm Wilhelm Schmidding) and ANDREAS SCHAEFER. Brit. 363,190, Jan. 26, 1931.

**Coating composition.** GORDON D. PATTERSON (to E. I. du Pont de Nemours & Co.). U. S. 1,889,130, Nov. 29. A compn. which is of stable character comprises a heat-sensitive polyhydric alc.-"polybasic" acid resin and a stabilized ZnS type of pigment contg. less than 0.1% HOAc-sol. substances (calcd. as ZnO). Cf. *C. A.* **27**, 1215.

**Coating composition.** WALTER NEBEL (to Canadian Industries, Ltd.). Can.

327,818, Nov. 22, 1932. A sanding sealer comprises a cellulose deriv., a sanding promoter and a resin contg. in combined form the reaction product of glycerol, phthalic anhydride, rosin and stearic acid. The resin contains glyceryl phthalate not more than 65, stearic glyceride not more than 40 and rosin glyceride not more than 60% by wt. of the resin. Cf. *C. A.* **27**, 1215.

**Coating composition.** ADOLF HECK (to Cook Paint and Varnish Co.). Can. 329,051, Jan. 3, 1933. An oxidized drying oil 80–120, a phenol 100, a natural resin 15–50 and an aldehyde 25–100 parts by wt are made to react in the presence of alk. catalysts. The product is sol. in light hydrocarbon oils and in drying oils.

**Coating compositions containing a synthetic resin.** CARLETON ELLIS (to Ellis-Foster Co.). U. S. 1,886,242, Nov. 1. Coating compns. or lacquers are formed, which contain a benzoic polyhydric alc. resin complex having an acid number below 30.

**Coating or impregnating compositions containing cellulose derivatives.** BRITISH CELANESE, LTD. and WM. H. MOSS. Brit. 362,480, Aug. 28, 1930. The compns. comprise a substantial proportion of volatile solvent with (1) a cellulose ether and more than an equal quantity of a tartrate ester plasticizer, or (2) a cellulose deriv. with more than an equal quantity of an aromatic sulfonamide or a deriv. thereof, *e. g.*, an *N*-alkylated sulfonamide. Among examples is the following compn.: cellulose acetate 100, dibutyl tartrate 150, triphenyl phosphate 15, acetone 500 and methyl acetone 500 parts.

**Protecting rubber and other insulating materials.** BRITISH CELANESE, LTD., and WM. H. MOSS. Brit. 362,481, Aug. 28, 1930. The insulation of elec. app. is coated with a compn. of the character described in Brit. 362,480 (preceding abstr.).

**Protective coatings on iron, wood or other materials.** VICTORIA VEGYESZETI MÜVEK, R. T. Brit. 348,091, June 8, 1929. Coatings are formed of oxides or hydroxides of Al or Si which are coagulated, in some cases with oxides or hydroxides of Fe or Ti, by heating and are dehydrated as required. The ground material may be applied over a coating of varnish.

**Ornamenting paper, wood, leather or other materials.** F. K. WICKEL. Brit. 347,888, May 3, 1930. The material is coated with a foundation coating such as a mixt. of powd. mica in an adhesive vehicle, then treated with a transparent coating such as one comprising a synthetic or natural resin, casein or egg albumin or a cellulose deriv., and the coating is finally rubbed with Bi or Sb oxychloride to produce a metallic luster. Various details and modifications of operation are described.

**Antioxidants for coating compositions.** JAMES K. HUNT and GEORGE H. LATHAM (to Canadian Industries, Ltd.). Can. 329,223, Jan. 10, 1933. A drier is added to an oil-type coating compn. in an amt. to induce the desired rate of drying in thin films and then creosol is added in an amt. to bring about the required degree of retardation of oxidation in bulk.

**Writing tablets.** W. THOMAS. Brit. 343,742, Feb. 19, 1930. A front transparent sheet such as celluloid or cellulose acetate is used with a back sheet of impervious material such as metal or linoleum and an intermediate paste-like compn. of contrasting color which is displaced to expose the back sheet by passing a stylus over the front sheet The intermediate material may be formed of greasy material mixed with a pigment such as zinc white, lampblack or red ocher. The markings can be erased by rubbing or rolling.

**Water-soluble resinate from rosin.** EDWARD H. FRENCH. U. S. 1,889,405, Nov. 29. Rosin such as that from "black liquor" is dissolved in a water-insol. volatile solvent such as gasoline and sufficient alk. alkali metal compd. such as $Na_2CO_3$ is added to neutralize at least the major portion of the rosin in the presence of water in insufficient quantity to cause the formation of an emulsion; the water present is distd. off while replacing any solvent also distg. and the pptd. resinate is sepd. from the remaining liquid.

**Resinous compositions suitable for coatings or molded articles.** EDWARD S. DAWSON, JR. (to General Elec. Co.). U. S. 1,888,849, Nov. 22. A drying oil such as linseed oil is dissolved in a "polybasic" org. acid such as phthalic anhydride and the soln. is reacted upon with a polyhydric alc. such as glycerol at a temp. sufficiently high (suitably about 250°) to produce resinification.

**Resin composition suitable for the production of quick-drying varnish films.** HENRY A. GARDNER. U. S. 1,887,678, Nov. 15. See Brit. 351,637 (*C. A.* **26**, 3125).

**Resin-like products from cracked hydrocarbon distillates.** JACQUE C. MORRELL (to Universal Oil Products Co.). U. S. 1,888,044, Nov. 15. Resinous substances are first removed from the distillates with an adsorbing material such as fuller's earth and are sepd. from the adsorbing material and then simultaneously treated with an oxidizing agent such as air, O or $O_3$ and with ultra-violet light.

**Resinous material.** ARTHUR M. HOWALD (to Toledo Synthetic Products, Inc.). Can. 328,910, Dec. 27, 1932. A molding powder is made by condensing $NH_4CNO$ with $CH_2O$ and a plasticizer is added. The condensate is dried, pulverized and urea added to fix formaldehyde liberated during a subsequent operation of molding under heat and pressure. Cf. *C. A.* **27**, 1219.

**Resinous product.** SOC. ANON. DE TRAVAIL INDUSTRIEL. Belg. 386,929, April 30, 1932. Copal, or similar resin, reduced to an extremely fine powder can be used as a binder in the manuf. of building materials, agglomerated fuels or elec. insulating masses.

**Molded inlaid linoleum.** EDWARD C. DEARDEN (to Sloane-Blabon Corp.). U. S. 1,888,492, Nov. 22. Various details of manuf. are described.

**Synthetic resin.** EMIL E. NOVOTNY and CHARLES J. Romieux (to John S. Stokes). U. S. 1,886,353, Nov. 1. Reaction is effected between a phenol such as PhOH and a carbohydrate such as cellulose under superatm. pressure and at a temp. above the b. p of the material. The products may be used for coating or molding.

**Synthetic resins.** ARTHUR M. HOWALD (to Toledo Synthetic Products, Inc.). Can. 328,912, Dec. 27, 1932. Synthetic resins are manufd. by forming an initial condensation product in aq. soln. from an aldehyde and $NH_4CNO$. The product is dried and powd. and admixed with a filler and a plasticizer and molded under heat and pressure. Cf. *C. A.* **27**, 1219.

**Synthetic resins.** IMPERIAL CHEMICAL INDUSTRIES, LTD., WM. BAIRD and ROWLAND HILL. Brit. 362,972, Sept. 10, 1930. Substances consisting of or contg. polyhydric alc.-polybasic acid condensation products possessing acidic functions, preferably those from glycerol and phthalic anhydride with an acid value not less than 100, are caused to react with alkyl or aralkyl halides to give resinous products that are compatible with cellulose derivs. Among examples PrI is added to a K deriv. of a glycerol-phthalate resin described in Brit. 358,095 (*C. A.* **26**, 6165) dissolved in glycol monoethyl ether and the mixt., after heating, is filtered and evapd. to give a resin which is washed with water and dried.

**Synthetic resins.** SCHERING-KAHLBAUM A.-G. Brit. 363,029, Oct. 9, 1930. Polybasic acids or their anhydrides, *e. g.*, phthalic anhydride, and polyhydric alcs., *e. g.*, glycol, are condensed in the presence of high-boiling indifferent liquids, *e. g.*, tetra- or deca-hydronaphthalene or cymene (fatty oils being excluded), the water split off passing off by distn. together with the liquid. The product may be used for gramophone records and spools for the rayon industry.

**Cutting synthetic resin.** HEROLD A.-G. Brit. 363,166, Jan. 12, 1931. Blocks of the resin are cast in molds of Pb or other soft metal and the block and mold together are then sliced into sheets on a cutting machine such as used for cutting celluloid.

**Synthetic resins.** POLLOPAS, LTD. Fr. 718,093, June 3, 1931. See Brit. 358,470. Fr. 718,094. See Brit. 358,075 (*C. A.* **27**, 436).

**Synthetic resins.** SOC. NOBEL FRANÇAISE. Fr. 736,744, Sept. 8, 1931. Condensation products of urea and $CH_2O$ having no internal tensions are made by totally or almost totally eliminating the water. This is done by the addn. of a substance of low-vapor tension, miscible with water and the colloid, *e. g.*, glycol, before the concn. by evapn. The $p_H$ value of the colloidal soln. is brought to about 7.4 before the evapn.

**Synthetic resins.** COMPAGNIE FRANÇAISE POUR L'EXPLOITATION DES PROCÉDÉS THOMSON-HOUSTON. Fr. 737,301, May 19, 1932. A translucent resin is obtained by the reaction of a phenol and aldehyde in the presence of a catalyst, *e. g.*, $NH_3$, $H_2SO_4$, or triethanolamine and $CaBr_2$, the product is brought to the fusible, sol. state, the resin dissolved in a water-miscible solvent, *e. g.*, alc. or alc. and NaOH soln., and the resin pptd. from soln. by a dil. acid or salt soln. The resin is washed and dried. By redissolving in a suitable solvent an odorless *varnish* may be obtained. Examples are given. Cf. *C. A.* **27**, 1221.

## 27—FATS, FATTY OILS, WAXES AND SOAPS

E. SCHERUBEL

**Evaluation of crude fats for soap manufacture.** E. I. BETTER. *Allgem. Oel- u. Fett-Ztg.* **28**, 379–80(1931).—The term "saponifiability" is open to misconstructions. Discriminatory analyses should return neutral fat, Ca soaps, etc., in detail. (Cf. Wizöff Standard Methods, ed. I.) B. C. A.

**Acidimetric determination of glycerol in fatty oils.** HENRIK BULL. *Tids. Kjemi Bergvesen* **12**, 78–84(1932).—The method consists in treating the sample, which must be

absolutely neutral, with an excess of EtONa, pptg. the Na glyceride formed with a large excess of petroleum ether, washing with petroleum ether, dissolving in water and alc. and titrating. (*a*) *Pretreatment of sample to remove free fatty acids.*—Weigh off exactly 4 g. of oil in a 100-cc. glass centrifuge tube, add 70 cc. of petroleum ether, then 10 cc. of an alk. soln. of glycerol (glycerol 240 cc., water 240 cc., 50% KOH 20 cc.), mix thoroughly without shaking, and centrifuge. Remove the heavy soap lye left at the bottom by means of a pipet, transfer the fat soln. quantitatively to a 100-cc. volumetric flask and fill to the mark with petroleum ether. The filling and the subsequent withdrawal of aliquot parts must be carried out at the same temp. (*b*) *Prepn. of the EtONa soln.*—Dissolve 2.3 g. metallic Na in 50 cc. abs. alc. (under reflux), and dil. the still hot soln. with 150 cc. petroleum ether, add a little $CaC_2$ and boil the soln. for 2 hrs., using a reflux condenser, to remove every trace of water. (*c*) *Pptn. of Na glyceride.*—Use an ordinary test tube, 15 cm. long, 16 mm. in diam. Measure 3 cc. of the alcoholate soln. into the thoroughly dried tube and add in about 1 min. 15 cc. of the acid-free fat soln. from a pipet clamped to a support above the test tube and having a 3-way stopcock connected to its upper end. Bubble H from a capillary tube through the soln. during the pptn. and for 1 min after the pptn. is ended, to produce the necessary stirring. Close the test tube with a good, dry wood stopper. (*d*) *Centrifuging.*— This operation may be carried out 5 min. after the pptn. Use an ordinary Gerber centrifuge, with 1000 r. p. m. Decant the supernatant liquid completely from the ppt., add 15 cc. of petroleum ether, shake the mixt. thoroughly, centrifuge again and decant the clear liquid. (*e*) *Titration.*—Dissolve the ppt. in 0.5 cc. of water and add 5 cc. of neutral alc. contg. phenolphthalein. Use a microburet for the titration with 0.1 *N* acid, and bubble H through to obtain a good mixing. It is essential to avoid every trace of moisture in the pptn. of the glyceride. To recover the petroleum ether, shake the residues 3 times with water, then dist. on the water bath. Shake the distillate with a small quantity of concd. $H_2SO_4$ and decant. From the content of glycerol, *M*, and the sapon. no., *S*, for a certain fat, its content of diglyceride may be calcd. as follows: From *S*, the glycerol content ($G_3$) of the fat is calcd. on the assumption that it is a triglyceride, and the glycerol content ($G_2$) on the assumption that it is a diglyceride. Its actual content of diglyceride is then $100(M/G_3)/(G_2/G_3)\%$. INGEBERG

**The acido-iodometric index of oils.** J. M. CLAVERA AND M. ORO LÓPEZ. *Anales soc. españ. fís. quím.* **30**, 971–4(1932).—The Ruziczka method (*Z. anal. Chem.* **81**, 252(1930)) of detg. the acido-iodometric index of solid fats is applied to oils, with the modification of the use of a reaction time of 24 hrs. with oils whose fatty acid contains 18 or more C atoms. Olive oil gives 9 8–10.2; peanut oil 8.0–8.5. The detn. is of no value with rancid oils. E. M. SYMMES

**Oil production.** E. I. BETTER AND F. MUNK. *Allgem. Ocl- u. Fett-Ztg.* **29**, 79–87 (1932).—The physicochem. aspects of the processes involved in oil expression are considered; coagulation of emulsifying agents and displacement of adsorbed oil from the cell tissues by, *e. g.*, steaming, are especially discussed in relation to the expts. of Talanzev (*Masloboino Zhirovoe Delo*, Jan., **1931**) on the treatment of preheated meal with dry steam. B. C. A.

**Oil-mill practice. Linseed industry in the East [Palestine].** E. I. BETTER. *Allgem. Oel- u. Fett-Ztg.* **29**, 6–9(1932).—Palestine linseed averages 7.5% of impurities (dirt, etc., and occasionally foreign bitter seeds). The oil (40%), $H_2O$ (6.15%) and protein (22.6%) contents are characteristic. The high protein content is also evidenced in the large proportion of mucilage (foots) in the expressed oil; this, however, seps. readily on keeping for a few days. The analytical figures for the oil resemble those for Indian oils. B. C. A.

**Kinetics of drying vegetable oils.** N. FUKS. *J. Applied Chem.* (U. S. S. R.) **5**, 1046–58(1932).—The rate of O absorption is, within certain limits, independent of the thickness of the layer of the linseed oil. The depth of the gelatinized layer does not increase if the depth of the oil is increased beyond the above limit, and the amt. of O absorbed also remains unchanged. If the rate of oxidation is *W*, the concn. of O is *C* and *b* and *d* are consts., $W = dC/(b + C)$. The const. *b* is small and the rate of oxidation in pure O is only 3% higher than in air. The equation has theoretical foundation if the oxidation of the oil is assumed to proceed in 2 phases: addn. of O to the catalyst and its transfer in an activated state to the triglycerides of the oil. The second assumption does not contradict the chain theory of the reaction. Practical applications of the equation are discussed. The theory of Blom (*C. A.* **21**, 1720) on the mechanism of drying is unacceptable. Also in *Kolloid Z.* **61**, 365–70(1932). V. KALICHEVSKY

**Formosan plant-seed oils. V.** KINZO KAFUKU, CHIUTA HATA AND MASAICHI FUJIKAWA. *J. Chem. Soc. Japan* **53**, 1115–19(1932); *cf. C. A.* **27**, 202.—Consts. (d.,

$n_D$, acid value, I no., sapon. no. and percentage of unsaponifiable substance) and properties of seed oils of the following species are given: *Thea chinensis* L., *Gordonia anomala* Spreng, *Camellia oleifera* Abel., *Hernandia ovigera* Linn., *Cinnamonium zeylanicum* Blume, *Erythrina indica* Lam., *Poinciana regia* Boj., *Urena lobota* L. *var. tomentosa* Miq., *Passiflora edulis* Sims. and *Thevetia neriifolia* Juss. **VI. Curcas oil.** KINZO KAFUKU AND CHIUTA HATA. *Ibid* 1120–3.—The seeds contain crude fat 31.2, water 6.9 and ash 3.52%. Consts. of hot press oil are: $d_4^{23}$ 0.9152, $n_D^{23}$ 1.4695, acid value 2.86, sapon. no. 195.22, I no. 102.31 and percentage of unsaponifiable substance 1.25. The oil contains 24% satd (I) and 76% unsatd. fatty acid (II). I consists of 60% palmitic acid and 40% stearic acid. II consists of 70% oleic acid and 30% linoleic acid. The oil is a suitable raw material for soaps and hydrogenation. K. KITSUTA

**The fractionation of the glycerides of castor oil by selective solution.** EMILE ANDRÉ. *Bull. sci. pharmacol.* **39**, 437–41(1932).—A. claims the priority of using the method reported by François (*C. A.* **26**, 3947). A. E. MEYER

**Constitution and possibility of utilizing "Dum" nuts from palm trees.** I. UBALDINI AND L. BISSI. *Giorn. chim. ind. applicata* **14**, 555–62(1932).—The seeds of "Dum" nuts contain about 50% mannitol, which when hydrolyzed with dil. acid furnishes reducing sugars of which 80% is mannose. The best conditions for the hydrolysis are heating to 160° in an autoclave with $H_2SO_4$ (1% soln.); ratio, wt. of seeds : wt. of acid soln. = 1:4; time of heating, 5–10 hrs. Under these conditions, a yield of 56–58% of sugars of which $^4/_5$ is mannose is obtained. The pods furnish an active charcoal which has high decolorizing and absorbing power. A. W. CONTIERI

**Edible oil from Pistacia palaestina Bois. from the island of Chios.** EMM. EMMANOUEL. *Praktika (Akad. Athenon)* **6**, 490–5(1931).—A historical survey together with a discussion of yields and properties. Color, greenish olive, in time becoming yellowish, transparent when hot, cloudy when cold. Odor, pleasantly grapelike, taste characteristic, not unpleasant; $d_{15}$ 0.9162; solidifying point (oil) —19°, (fatty acids) 29°; m. p (fatty acids) 32°; $n_D^{40}$ 1.4585; butyrorefractometer value 48.8; [α] 0; viscosity (Engler) 10 61; index (Crismer) 75.3; moisture 0.137%. Chem. reactions: Heydenreich greenish color; Allen, Hauchecorne, Halphen, Bechi, Milliau-Armani, Baudouin, Villavecchia-Fabris, Soltsien, Bellier, all neg ; Blarez, *HCN*, yellowish red ppt. I no. 87.5, sapon. no. 195.06, R.-M. no. 2.2, Polenske no. 0.75, Hehner no. 96.59, ester no. 177.3, Ac no. 6.17, acid no. 7.65 (increasing to 16.9 in a year), elaidin test pos. (solid white mass). LUCIEN Y. DYRENFORTH

**Compounds produced during the hydrogenation of fish oils. IV. Fatty acids.** SEIICHI UENO AND RIICHIRO YAMASAKI. *J. Soc. Chem. Ind. Japan* **35**, Suppl. binding 492–5(1932); cf. *C. A.* **25**, 4140.—The fatty acid of the volatile substance causing the bad odor produced during hydrogenation of fish oils is composed of $C_6$–$C_7$ and $C_{14}$–$C_{18}$ groups of satd. acids. No acid of $C_8$–$C_{12}$ was found. The odor of the fatty acids is due to the lower acid group which is produced by decompn. of the unsatd. acids. In the higher acid group, palmitic, myristic and stearic acids and a small amt of behenic acid were isolated E. SCHERUBEL

**Conjugated hydrogenation.** E. I. LYUBARSKIĬ. *J. Applied Chem.* (U. S. S. R.) **5**, 1025–45(1932).—The term applies to catalytic dehydrogenation and simultaneous hydrogenation of another substance present in the mixt. at the expense of the liberated $H_2$ but without its appearance in the vapor phase The temp. at which the 2 reactions are balanced is defined as the crit. hydrogenation temp. Cottonseed oil, cooled to 6° and decanted from sepd. solids (neutralization no. 0.87, I no 116.62) and EtOH (98.7% by wt.) were used in the presence of a catalyst from "Salolin" plant (Ni with admixt. of Fe 10.4%, infusorial earth 26.2%, cottonseed oil 63.4%). Practically identical results were obtained by hydrogenating 3 hrs. at 200° or 1 hr. at 220°, or 6 hrs. at 200° and 15 min. at 250°, etc. At the optimum temp. the degree of hydrogenation depends on time. Thus at 250–5° the same product was obtained by extending the time from 15 min. to 3 hrs. The time is greatly shortened in comparison with that required by gaseous $H_2$. The I no. could not be lowered below 64–67.6, notwithstanding the presence of excess EtOH. Increasing the amt. of catalyst up to 0.9% Ni increases the degree of hydrogenation, but further addns. have practically no effect. In the absence of catalyst the I no. was lowered to 110.8, which might be explained as caused by partial polymerization of the oil or by the catalytic effect of the glass. EtOH in excess of that required by the theory to obtain a certain degree of hydrogenation has no effect. In the absence of EtOH but in the presence of catalyst the I no. was lowered to 87.38. Repeating the expts. at 300° lowered the I no. to 66.97 which corresponds to the max. obtainable in presence of EtOH. This is due to polymerization of the oil in the presence of catalyst, as similar expts. in the absence of EtOH and catalyst did not lower the I no. In the

presence of moisture infusorial earth, and not Ni, catalyzes hydrolysis. MeOH does not hydrogenate the oil, but higher alcs. act more readily the larger are their mols. Secondary alcs. appear more promising, but it is doubtful whether hydrogenation of cottonseed oil will go to completion. V. KALICHEVSKY

**Estimation of gossypol in cottonseed meal.** J. O. HALVERSON AND F. H. SMITH. *Ind Eng. Chem., Anal. Ed.* **5**, 29–33(1933).—The ether-extd. gossypol is pptd. in a petroleum ether-ethylene glycol soln. by the addn. of aniline. The dianiline gossypol is filtered off, and wt. of ppt. × 0.775 = gossypol. A quantity of purified gossypol was prepd. for soly. tests in the reagents used in the detn. H. E. MESSMORE

**Soap-stock analysis and neutral-oil loss.** F. WITTKA. *Allgem. Oel- u. Fett-Ztg.* **29**, 9–13(1932).—In the usual com. detn. the apparent free fatty acid content of the sepd. fatty matter is too high by 0.6–6%, because of secondary hydrolysis of the neutral fat during the boiling with acid; consequently the calcd. neutral-fat loss is too low. Acidification in the cold and ether extn. is accurate but too tedious. Figures for free fatty acid only 0.2–0.7% too high are obtained by dilg. the soap stock with luke-warm $H_2O$, adding excess of dil. $H_2SO_4$, and stirring until the stiff emulsion becomes non-viscous; then the mixt. is gently heated while being stirred and is boiled until the fat layer is clear (2–5 min.). The fat is sepd., stirred twice with fresh anhyd. $Na_2SO_4$ (which also removes any free $H_2SO_4$), and filtered before detn. of the acid value. B. C. A.

**Soap-stock and detergents.** B. MENES. *Allgem. Oel- u. Fett-Ztg.* **29**, 69–72 (1932).—In suitable conditions, *e. g.*, hot-water washing, tallow-base soaps display superior colloidal properties and surpass vegetable (coconut, etc.) oil soaps; a 50% tallow soap produced much more, and more stable, lather (Stiepel test) in oily (soiled) water than a vegetable oil soap, although the 2 behaved alike in clean water at the same temp. B. C. A

**Preparation of cheap toilet soaps.** R. KRINGS. *Allgem. Oel- u. Fett-Ztg.* **29**, 72–4 (1932).—Satisfactory soaps can be made by the cheap cold process if good-quality (refined) fats are used; the stability may be increased by use of antioxidants (cf. *Allgem Oel- u. Fett-Ztg.* **29**, 40–2(1932)). B. C. A.

**Detergency of alkaline salt solutions. III. Deflocculating and emulsifying power.** FOSTER DEE SNELL. *Ind. Eng. Chem.* **25**, 162–5(1933); cf. *C. A.* **26**, 5441–2.—A new method of detn. of deflocculating and emulsifying power is suggested. The size of the suspended oil droplets is fixed by using an inert powder with a superficial coating of oil, on the assumption that this coating will not be displaced by the soln. being tested In blends of soap and alk. salts the deflocculating and emulsifying value is the sum of the values of ingredients when used singly. Of the series studied, Na oleate had the greatest value, with $Na_2SiO_3$ a close second and $Na_3PO_4$ third. Data on $Na_2HPO_4$, which is too low in $C_{OH}$ to be a true soap builder, show that it has protective colloidal properties but it is advantageous only in the absence of soap. FOSTER DEE SNELL

Soaps, oils, etc. (BRUECKNER) **25.** The formation of volatile fatty acids during storage of rye and wheat fat under access of air (GERRITZEN, KAUFFMAN) **12.** Lipochromes in the fat of marine animals (SCHMIDT-NIELSEN, *et al.*) **111.** [Detergent action of] sulfonated higher alcohols (KILLEFFER) **10.** Apparatus for cleaning oil with water (Australian pat. 29,612) **1.** Boundary lubrication by soap solutions (WILLIAMS) **2.**

BETTER, E. J., DAVIDSOHN, ISSER, AND LÜDECKE, CARL: **Taschenbuch für die Wachs-Industrie.** Stuttgart: Wissenschaftl. Verlagsges. 385 pp. Cloth, M. 12.50.

AZIZ, MOHAMED A.: **Über das Verhalten von Holzoel und Elaeostearinsäure gegen Brom und Jodbromlösungen.** Thesis, Berlin, 1930. 49 pp.

EGER, HANS: **Die Fetthärtung mit Nickelformiat als Katalysator.** Thesis, Dresden, 1931. 58 pp.

HILDEBRANDT, HERMANN: **Der Trockenprozess fetter Öle.** Thesis, Liepzig, 1931. 82 pp.

RAMADAN, A. M.: **Die Fettanalyse.** Thesis, Jena, 1931. 52 pp.

**Extraction of fat from animal raw materials.** JOHAN HJORT. Norw. 47,731, March 31, 1930. The finely divided raw material is heated to evapn. of a substantial part of its water content, after which the cellular tissues are sepd. from the oil. The heating is carried out in the presence of less than 5% of a water-binding salt.

**Apparatus for the extraction of fat from animal or vegetable raw materials by boiling.** AKTIESELSKAPET KAMPENS MEK. VERKSTED. Norw. 50,927, May 30, 1932.

**Treating fatty materials.** MASKIN-AKTIESELSKAPET ZETA. Norw. 49,367, Oct. 5, 1931. The mixt. of oil and water, etc., obtained by the boiling or pressing of whale speck, whale flesh, liver, herrings, etc., before being clarified by sedimentation or centrifugalization is treated with a small amt. of NaOCl or other hypochlorite to repress the bacterial action and at the same time stabilize the colloidal character of the glue components of the mixt.

**Washing fats which have been refined with alkali.** TH. ARENTZ. Norw. 48,084, June 30, 1930. Animal or vegetable fats are treated in known ways with alkali and afterward sepd. by gravity into oil and soap-stock. The oil is then introduced together with water into a centrifugal app. where water and oil are mixed intimately and taken off separately.

**Coloring fatty acids, etc.** I. G. FARBENIND. A.-G. Fr. 40,969, Oct. 30, 1931. Addn. to 660,035 (*C. A.* 24, 255). Lecithin alone or with amines which are miscible therewith is used as solvent for dyes which are not sufficiently sol. in fatty acids, fats or other org. compds. to be dyed. The colors may be changed by the addn. of lake-forming substances.

**Saponifying fats and oils.** G. S. PETROV. Russ. 500, Oct. 14, 1911. The sapon. is effected by water-sol., sulfonic acids extd. from petroleum and mineral oils with or without the addn. of mineral acids.

**Saponifying fats and oils.** G. S. PETROV. Russ. 1521, July 4, 1914. Addn. to Russ. 500 (preceding abstract). The sapon. is carried out with water-sol. sulfonic acids obtained in the sulfonation of paraffin or heavy hydrocarbon oils derived from coal tar or shale or peat tar.

**Oils and fats.** SWIFT & Co. Fr. 736,984, May 11, 1932. Edible and other oils and fats are stabilized by the addn. of a small amt. of one of the following: (1) adrenaline, (2) a non-toxic ester of a polyphenol, sol. in oil or fat but insol. in water, *e. g.*, a stearin ester of pyrogallol, (3) a non-toxic phenolic ether sol. in oil or fat but insol. in water, *e. g.*, dimethyl ether of pyrogallol, (4) a dihydroxynaphthalene, (5) a non-toxic condensation product of a ketone or aldehyde with a phenol deriv., *e. g.*, the condensation product of quinol-anisaldehyde or of pyrogallol-acetone.

**Purifying oils and fats.** I. G. FARBENIND. A.-G. Fr. 41,028, May 18, 1931. Addn. to 688,370 (*C. A.* 25, 837). Oils and fats are freed from colloidal impurities by emulsifying with aq. $H_3PO_4$ at 15–40° and coagulating at a higher temp., *e. g.*, 60–100°.

**Desulfurizing oils and fats.** I. G. FARBENIND. A.-G. Brit. 362,964, Sept. 8, 1930. Vegetable oils and fats are desulfurized by heating in the absence of oxidizing agents with compds. or aq soins of compds. of Pb, Cu or Ni, sol. in water or in the oil. Oleates, resinates, naphthenates, benzoates, enolates, *e. g.*, acetylacetonates, sulfates of Cu and Ni, and $Pb(NO_3)_2$ may be employed. The reaction may be accelerated by pptg. oxides or hydroxides from the salts within the oil or by adding reducing agents.

**Polymerization products from oils and fats.** I. G. FARBENIND. A.-G. Brit. 362,845, Aug. 6, 1930. Emulsions, *e. g.*, aq. emulsions of vegetable oils and fats or their derivs. are polymerized with unsatd. hydrocarbons, in the presence of O or O-splitting compds., if desired while heating. Thus linseed oil, butadiene and oleic acid, emulsified in water with the aid of Turkey-red oil, is polymerized in the presence of Bz peroxide at 60° in a closed vessel. The products are employed directly or after coagulation for *rubber latex mixts.*

**Derivatives of oxidized oils or fatty acids.** IMPERIAL CHEMICAL INDUSTRIES, LTD., ANTHONY J. HAILWOOD and RICHARD P. MCGLYNN. Brit. 362,971, Sept. 10, 1930. Oils, *e. g.*, tung, fish, linseed, derived from fatty acids contg. at least 2 olefinic bonds, or the acids themselves, *e. g.*, clupadonic and eleosteric, are treated with a regulated proportion of $H_2O_2$ in the presence of glacial AcOH so as to sat. a fraction of the double linkage by OH groups and to acetylate a fraction of these OH groups. The products may be treated with sulfonating agents with or without previous acylation by an acid anhydride or halide.

**Hydraulic press for vegetable oil.** K. A. DIANISHKO. Russ. 26,909, May 11, 1929.

**Apparatus for extracting oil from animal materials by steam-boiling.** HARALD W. HENRIKSEN. Norw. 49,391, Oct. 12, 1931. A device for charging and preheating the materials is described.

**Rotary boiling apparatus for fish, whale and other animal materials.** AKTIESELSKAPET KVAERNER BRUG. Norw. 50,103, Jan. 25, 1932.

**Plant for the boiling and working of herrings, whale speck and similar materials.** STAAL- & JERNINDUSTRI A/S SJIA and CARL STERNER. Norw. 51,830, Nov. 28, 1932. Mech. features of app.

**Oil-separating container for boiling apparatus for whale, fish and other animal materials.** AKTIESELSKAPET KVAERNER BRUG. Norw. 50,138, Feb. 1, 1932

**Extracting oil from marine animals.** DORTHEUS A. HANSEN. Norw. 43,420, 43,934 and 43,935, Sept. 28, 1931. Cod liver and similar materials are kept at a temp. between 30° and 50° for a period not exceeding 10 hrs. The oil is then sepd. from the tissues by mech. means. The oil thus produced is heated to a temp. not exceeding 50° to eliminate malodorous decompn. products. The fatty material to be extd. may be quickly raised to the desired temp. by means of heating surfaces or liquid or gaseous heating media with a temp. substantially higher than the extn. temp. with const agitation of the material in relation to the heating media, so that the individual particles of the material will be in contact with the heating media only for very short periods.

**Plant for extracting oil from whale speck.** EDVARD OLSEN Norw. 51,415, Sept. 5, 1932. A number of pressure boilers communicate with a common clarifying container of sufficient vol. to take up the whole quantity of liquid escaping from all the boilers in operation. The water layer is not tapped off before a complete sepn. and clarification has taken place in the container.

**Marine oils.** AKTIESELSKAPET FANGSTAPPARATUR. Norw. 49,478, Oct. 19, 1931. The aq. mixt. contg oil which is obtained by steaming of the raw materials without pressure and subsequent pressing is clarified in closed containers under increased pressure and temp. to sep. the oil.

**Apparatus for the extraction of liver oil by boiling.** OSVALD WALDERHOUG. Norw. 48,120, July 6, 1930.

**Cold clarification of liver oil.** ALFRED ANDRESEN. Norw. 48,227, Aug. 4, 1930. An app. is described, the main feature of which is a rotary vacuum filter.

**Composition for the purification of liver oil.** ALBERT A. WILLE. Norw. 51,072, June 27, 1932. An aq. suspension of $Na_2CO_3$, clay and unslaked lime is particularly suited for purifying liver oil from cod, haddock or coalfish which have fed upon red copepods.

**Treatment of waste nickel catalyst.** SABURO URANO (to Asahi Denka Kôgyô K. K.). Japan. 93,604, Nov. 16, 1931. Waste Ni catalyst used for hardening oils is dissolved in $H_2SO_4$ or HCl contg. $HNO_3$ with or without the adhering oil. NaOH or $Na_2CO_3$ is added to the soln. in amt. insufficient to ppt. Ni, for the purpose of removing Fe and other impurities. The soln. is then used for mfg. Ni catalyst.

**Candles.** IKKI HATIYA (to Gôdô Yusi Glycerin K. K.). Japan. 93,856, Dec 9, 1931. Higher fatty acids obtained from hardened oil are boiled in water or are passed through a colloid mill with water. The product, contg. 1–2.5% water, is used for making candles.

**Distilling liquids such as glycerol under vacuum with steam.** OSCAR H. WURSTER. U. S. 1,886,256, Nov. 1. Superheated steam is injected into the liquid to be distd., the mixt. of steam and vapor formed is condensed, a fraction of the condensate is evapd. *in vacuo* and the vapors thus formed are preheated by vapors from the distg liquid and then superheated by high-temp. and high-pressure steam to form the superheated steam to be injected into the liquid to be distd. (the condensate being evapd. by the high-pressure steam after being used to superheat the preheated vapors). App. is described.

**Refining and "discoloring" raw sulfate soft soap.** EVALD PYHÄLÄ (to O. Y. Methods, Ltd.). U. S. 1,887,246, Nov. 8. A soln. of the raw soap is treated with a dil. peroxide soln. while hot, the reaction soln. is salted, bottom water is tapped off, the soap is washed with a small quantity of water and is salted, and washing water is tapped from the refined and "discolored" soap.

**Soap.** I. G. FARBENIND. A.-G. Fr. 40,647, Aug. 5, 1931. Addn. to 717,976 (*C. A.* **26**, 2884). Soap is combined with products which have moth-proofing properties, other than products specified in Fr. 717,976.

**Soap.** ÉMILE NEUSY. Fr. 40,708, Sept 2, 1931. Addn. to 710,183 (*C. A.* **26**, 1147). KOCl is added to the soap of Fr. 710,183.

**Buoyant soaps.** KARL JUNGMANN. Brit. 362,754, Feb. 3, 1931. See Ger. 549,155 (*C. A.* **26**, 3949).

**Toilet soap.** PAUL VILLAIN. U. S. 1,887,743, Nov. 15. In the manuf. of solid perfumed toilet soap, during sapon. of the fat constituent with alkali, there is incorporated a compn. of aromatic odor comprising terpenes, resins and floral wax homogeneously emulsified with a suitable emulsifying agent, such as $NH_4$ sulforicinoleate. Various examples are given.

**Soap threads.** ADOLF WELTER. U. S. 1,887,474, Nov. 8. Molten soap from liquid olive oil of 60–62% fatty acid content is atomized, the resulting dry soap

particles are directly pressed and extruded through nozzles of 0.4–1.5 mm. diam., and air is passed over the threads to make them brittle.

**Soap powders.** LEVER BROTHERS, LTD. Fr. 736,024, April 27, 1932. A small amt. of a Mg compd., *e. g.*, MgO 0.1–0.3 or $MgSO_4.7H_2O$ 0.6–1.8%, is incorporated with soap powders having a basis of perborate.

## 28—SUGAR, STARCH AND GUMS

J. K DALE

**Sugar production in the 1931 campaign, and the utilization of the molasses produced [Java].** C. SIJLMANS. *Arch. Suikerind.* **40**, III, 1057–77(1932).—Statistical data are given on the total production of the various types of sugar, for each of the 178 factories and for each district; production of cane and sugar per hectare; similar data for the entire island and for each yr. since 1912; the total quantity of molasses produced by each factory, and the portions exported, used for distg. in Java, as fuel, for prepn. of caramel, as fertilizer, stored, or discharged into streams. F. W. ZERBAN

**Experiments of the 200 days sugar manufacture during the campaign of 1931-32.** I. B. MINTZ, I. Z. KHELEMSKII, I. I. SHOIKHET AND V. F. OREL. *Nauk. Zapiski Tzukrovoi Prom.* **23**, 1–42(1932).—Expts. at the sugar factory "Vozrozhdenie" under very unsatisfactory conditions proved that the manuf. of sugar from fresh raw beets for 180 days was quite possible and efficient. The processes at the different stations are the same as during a regular short campaign. Normal filtration, boiling and centrifuging with av. losses in diffusion and filter processes are good indicators of normal manuf. The white sugar obtained was of a good quality with color below one Stammer unit. At the end of the mfg season, there were some losses of sugar in stored beets and a purity decrease with increased Ca salts. The relative content of noxious N slightly increases. The final molasses and yellow sugar have an alk. reaction. When stored beets are worked, it is necessary to observe the following precautions: keep transport water at low temp.; spray the beets before slicing with the milk of lime; maintain the temp. at the diffusion battery not higher than 75°, defecate with 0.25% of CaO in measuring tanks and add the rest of the lime in the defecators at a temp. not below 85°, the total amt. of lime should not exceed 3%, and the normal alky. after first carbonation should be kept at 0.07–0.08 and decrease only in case of difficult filtration. V. E. BAIKOW

**Results of tests on time of planting of POJ 2878, made during 1927 to 1931.** E. DEMANDT. *Arch. Suikerind.* **40**, III, 1225–58(1932).—The data are given in the form of tables and graphs. Small-scale tests are subject to systematic errors, and it is recommended to det. the optimum time of planting of new varieties in the future from information obtained on the plantation scale. Even the effect of single factors influencing the yield of cane and sugar must be studied in that manner. F. W. ZERBAN

**Incrustations in the sugar industry.** J. F. BOGSTRA. *Arch. Suikerind.* **40**, III, 911–1055(1932).—A comprehensive treatise on the formation, compn., prevention and removal of scale on the liquor side and steam side of evaporator tubes, and in boilers, based on experiences in Java and in other countries. The compn. of evaporator scale varies with the method of juice clarification and for the different bodies of the multiple effect. To reduce evaporator scale, the $p_H$ of sulfitation juice should be held above 6.7; phosphate scale may also be reduced by proper defecation; sulfate scale is not easily controlled as it is largely influenced by the $SO_3$ content of the raw juice. In carbonatation factories the $p_H$ of the 2nd carbonatation juice must be well regulated. The best method for removing evaporator scale is boiling out alternately with 2–5% NaOH soln. and 0.25% HCl; for sulfite-sulfate scale, 5% NaOH soln. should be used; for silica scale, 2–5% $Na_2CO_3$ soln. Addn. of NaCl, tannin or $NH_4F$ is not to be recommended. The compn. of the scale on the steam side of evaporator tubes is entirely different from that on the juice side; it consists largely of corrosion products, sometimes mixed with entrained oil and ash constituents. Boiler scale also contains corrosion products, but consists mostly of $CaCO_3$, $CaSO_4$, $SiO_2$ and Mg salts. For its removal prepns. contg. phosphates and tannin have given good results. F. W. ZERBAN

**Sugar formation and ripening process in sugar cane. I. Preharvest sampling in 1931.** G. BOOBERG AND S. BROEKHUIZEN. *Arch. Suikerind.* **40**, III, 1259–324(1932).—A detailed account is given of the methods and cost of preharvest sampling on the Java plantations, and the utilization of the results. In most cases the correlation between predicted and actual mill results is poor or only fair; preharvest sampling must be placed on a more rational basis to bring financial returns. **II. Starch formation in the**

leaves of sugar cane. WILLEMINA M. COBLINGH AND V. J. KONINGSBERGER. *Ibid* 1325–40.—Assimilation expts. were made with cut leaves *in vitro*. Conclusions: Starch is formed in the leaves by $CO_2$ assimilation and deposited in the starch sheaths around the vascular bundles. Sugar-cane leaves are able to form starch in the dark from sucrose, glucose, fructose and maltose in a min. concn. of 0.05–0.1 and a max. concn. of 0.4–0.5 g.-mol. per l.; this starch is localized mostly or entirely in the parenchyma. But in an atm. free from $CO_2$ the starch formed from sugar in sunlight accumulates in the starch sheaths, and any starch already present migrates there from the parenchyma. A leaf placed in $H_2O$ in a $CO_2$-free atm. in sunlight, and then transferred to a sugar soln. in the dark, deposits part of the starch in the starch sheaths. These observations were made with leaves from POJ 2878, and were less pronounced in leaves from Lahaina or sorghum. F. W. ZERBAN

**Vacuum filtration in the cane-sugar industry.** P. HONIG AND W. THOMSON. *Arch. Suikerind.* **39**, III, 803–42(1932).—The Oliver filter and the Oliver-Borden thickener are described and illustrated. After a series of preliminary trials the installation was run continuously for 13 days; the control data are presented in tabular form and discussed. Tentative conclusions: The Oliver equipment has the promising features of automatic and less costly operation. However, the thickener is very sensitive to changes in the filterability of the muds; the material is in process for a longer time with consequent danger of deterioration; and the range of pressures that may be used is limited. The first difficulty can probably be overcome by better regulation of the carbonatation. This and the other 2 points mentioned require further practical study. F. W. Z.

**Experiments on continuous carbonatation and automatic vacuum filtration at the sugar factory Boedoeran, 1931.** P. HONIG AND W. THOMSON. *Arch. Suikerind.* **40**, III, 1141–80(1932).—Previous tests made at Redjoagoeng (cf. preceding abstr.) have been continued and extended. The process of continuous carbonatation, combined with the use of a Borden thickener and Oliver filter, is described; the control results are given in tables and fully discussed. Conclusions: Continuous first carbonatation, by an adaptation of the de Haan principle, gives greater uniformity in the reaction and other juice qualities than intermittent operation, and the filterability of the muds is improved; the purifying effect is also as good or better. Less labor is required and the cost of installation is not higher, perhaps even lower, for equal capacities. The power consumption is higher, but this is usually of little importance. The Oliver filter offers the advantages of automatic operation; the expense for filter cloth and HCl is probably lower than in any other system. The quality of the filtered juice is certainly not worse, and probably better than in other procedures. The capacity per unit area of filtering surface compared well with other systems, likewise the consumption of wash water and its sweetening effect. The comparative cost of the installation cannot be accurately given. The operation must be carefully controlled and the capacity of the thickener and filter must be well balanced for best results. F. W. ZERBAN

**Electrometric determination of ash in sugar-beet products.** M. Z. KHELEMSKII. *Nauk. Zapiski Tzukrovoi Prom.* **23**, 55–65(1932).—The method of ignition can be successfully replaced by an electrometric method with the app. of Tödt (*C. A.* **26**, 4999). The results are sufficiently accurate in detn. of sol. ash. The app. and the method of manipulation are described. V. E. BAIKOW

**Automatic weighing of mixed juice and of imbibition water.** E. C. VON PRITZELWITZ VAN DER HORST. *Arch. Suikerind.* **40**, III, 787–910(1932).—The advantages of weighing over measuring are pointed out. The various systems in use in Java to det. wt. of products in process are shown in tabular form. Complete descriptions, with illustrations, are given of 11 automatic juice scales, and their advantages and disadvantages are discussed on the basis of specific tests and practical experience. The Avery, Leinert, Cochius, Richardson, Libra and Strunk scales are not recommended, mainly because they make no automatic correction for mud left in the tanks. The Adam, Boulogne and Nobel scales are free from this objection. The Boulogne scale is extensively used in Java, but is not quite accurate enough; the other 2 are little used The Almerood scale has not proved entirely satisfactory, and the Java Expt. Sta. has developed an improved app., with many superior features. However, it is more complicated and slower in action, so that larger tanks must be used for the same max. capacity. Imhibition water is much easier to weigh than mixed juice because it does not contain suspended matter and need not be weighed as accurately. The Leinert, Boulogne and Almerood scales are satisfactory for the purpose. The Nobel water meter can also be recommended, but it is not much cheaper than the scales. F. W. Z.

**A new method of clarification of sirups and remelt.** A. M. PSHENICHNUII AND B. P. SHUMKOV. *Nauk. Zapiski Tsukrovoi Prom.* **23**, 73–88(1932).—The present re-

search work was conducted to det. the method for max. effect of clarification and at the same time decrease the amt. of Ca salts in juices and remelt. When CaO is added to sulfitated juices they do not darken, but the amt. of Ca salts increases. Added $Na_2CO_3$ decreases the amt. of Ca salts, but slightly increases the color of the juices. The juice of the first carbonation or remelt, when sulfitated to $p_H$ 9–8, becomes darker and further sulfitation to $p_H$ 7 or lower increases the amt. of Ca salts. To the thin or thick juices sulfitated to $p_H$ 6 is added 0.2% $Na_2CO_3$ and 0.25–0.5% CaO on the wt of juice and carbonated to $p_H$ 9.5. After this operation the juice is reheated and filtered through filter presses. The remelt is treated with 1–2% of CaO on the wt. of sugar, then carbonated to $p_H$ 9–9.5, filtered and sulfitated to $p_H$ 7.0–7.5. The purity increases 2 units, color decreases 40–50%, and 50–60% of the Ca salts is removed. The method of purification of remelt by defeco-carbonation and sulfitation, with filtration as an intermediate, increases the purity 1.5 units and color adsorbed by at least 60%. The filtration before sulfitation is absolutely necessary. Filtered and non-filtered juices sulfitated by the same amt. of $SO_2$ give a lower $p_H$ in the first case and higher in the second.
V. E. Baikow

**Experiments on drying pulp with a Büttner drier at the sugar factory "Vozrozhdenie."** I. I. Chernobuilskii and A. F. Nitchenko. *Nauk. Zapiski Tzukrovoi Prom.* **23**, 93–6(1932).—Sour pulps stored for about 1 month cannot be pressed before drying. Slightly acid pulps could be dried satisfactorily but required almost double the amt. of fuel in order to evap. the addnl. amt. of water which is ordinarily removed by presses from normal pulp. Sour pulps stored for 6 months can be dried only at high temp. (800°). The surface of the pulp is chared, but it still retains 53.9% of water.
V. E. Baikow

**Control methods for the crystallization process.** P. Honig. *Arch. Suikerind.* **40**, II, 1041–7(1932).—The principal factor influencing crystn. is the supersatn., but other phys. and chem. characteristics of the soln. are also of importance. The brasmoscope and the pan refractometer have been used to det. and control supersatn., and the latter app. has been tried in Java. It has been impossible to base on these tests any definite rules, either for the graining process or for the control of crystal growth and prevention of false grain. The difficulties are probably caused by the lack of homogeneity of the massecuite and the unavoidable irregularities in the boiling process itself. If these can be overcome such control app. will prove helpful, but it is doubtful whether they will ever entirely replace the operator's skill. F. W. Zerban

**Milling losses.** F. Hommes. *Arch. Suikerind.* **40**, II, 977–84(1932).—The ratio between the purity of the last mill juice and that of the first mill juice fluctuates widely in different factories, and a study has been made of the factors which may influence this ratio. It has been found that the fluctuations cannot be ascribed to variations in the total extn., in the 1st mill extn., or in the Brix or purity of the 1st mill juice. They are caused rather by losses during the milling process and the time factor plays an important part. Return of filter washings to the mill tends to increase the losses.
F. W. Zerban

**Interrelations of control data.** F. Hommes. *Arch. Suikerind.* **40**, II, 1048–58 (1932); cf. preceding abstr.—The milling losses previously mentioned render all the milling control data unreliable. A further study of factory reports shows that the purity of the mixed juice is often reported low; clarification causes a lower purity rise than in former yrs., but the increase in purity from clarified juice to sirup has become greater. Other control data show correlations which are difficult to explain, while for still others the correlations to be expected are not found. F. W. Zerban

**The economic production of sugar from wood.** H. Claassen. *Chem.-Ztg.* **56**, 989–91(1932).—While recognizing the tech. importance of both the Bergius and the Scholler methods, C. emphasizes some of their economic drawbacks in the production of sugar used in feedstuffs, EtOH and yeast manuf. C. claims that the variability of wood and its competition with other well-established raw materials have been minimized and that crit. analysis of production costs are lacking. Cost data computed by C. indicate that, at present, wood-sugar production is unprofitable. Louis E. Wise

**Crystallization of second-strike massecuite in molaxers.** A. Girda. *Nauk. Zapiski Tzukrovoi Prom.* **23**, 67–71(1932).—G. shows from his calcn. that the time of crystn. of second-strike massecuite can be decreased to about 20 hrs. Diln. and crystn. may be controlled by viscosity, which is measured by the resistance of the mass in molaxers. If the molaxers are driven by electric motors, the amperage will show the resistance. V. E. Baikow

**Composition of corn sirup unmixed.** A. P. Bryant and R. C. Jones. *Ind. Eng. Chem.* **25**, 98–100(1933).—The fermentation method seems to give the closest approach

to the actual proportions of maltose, dextrose and dextrins. The maltose content of the total carbohydrates remains around 30% up to the higher conversions and then appears to drop. The noticeable amts. of unfermentable reducing compds. are considered as reducing dextrins. Total reducing sugars as dextrose give a fairly close measure of the sum of maltose and dextrose. The ratio of dextrose to maltose is not far from 1:2 for ordinary conversions, but nearer 1:1 for higher conversions. For ordinary work and ordinary corn sirup $^1/_3$ of the total reducing sugars as dextrose may be taken as dextrose and $^2/_3$ as maltose and the undetd. carbohydrates may be called "dextrins." Ordinary bakers' yeast was employed. F. L. DUNLAP

**Analysis of mineral content of Steffen's waste.** EDWARD BARTOW AND H. M. BENNINGHOFF. *Ind. Eng. Chem.* **25**, 175–7(1933).—The av. content of the ash showed 34.64% K, suggesting a probable industrial use for this product. Other constituents vary with geographical location of the source of waste but the K content remains fairly const. EDW S. HOPKINS

**Analysis of starch products. IV. Ash determination.** A. P. SCHULZ AND G STEINHOFF. *Z. Spiritusind.* **55**, 178(1932); cf. *C. A.* **26**, 5448.—Seven methods of ash detn. were studied and the following procedure is suggested. From 5 to 10 g. potato starch is weighed into a quartz dish. Ten cc. of a 1.9885% Mg acetate soln. (in 80% EtOH or AcOH) is added and the ash detd. Fifty mg. has to be subtracted from the final weight. S. JOZSA

**A growth structure of starch resistant to swelling which is destroyed on making into a paste.** J. R. KATZ AND E. A. HANSON. *Rec. trav. chim.* **51**, 1207–10(1932).—Evidence is given for the theory that the starch grain has an outer membrane which is destroyed on making into a paste. On rubbing, in the presence of water, swelling and color reaction to Congo red are produced, but no changes in anisotropy or in x-ray spectrum. When strarch is made into a paste by heat or by the action of salt soln all 4 of these changes occur. RAYMOND H. LAMBERT

**Pyrocatechol and starch.** H. TRYLLER. *Z. Spiritusind.* **55**, 201–02(1932).—The pyrocatechol-starch reaction for the estn. of Fe in starch is discussed. The addn of Na hyposulfite and a few drops of $NH_4(OH)$ is suggested. The reaction is then very sensitive and might be used for colorimetric Fe detn. S. J.

**Filtration with bone char in the starch-sirup industry.** J. EBEL. *Z. Spiritusind* **55**, 189(1932).—Hinze's article (following abstr.) is criticized. E. advocates activated charcoal which is cheaper and better than bone char. S. J.

**Filtration with bone char in the starch-sirup industry.** A HINZE. *Z. Spiritusind* **55**, 166–7(1932).—H. concludes that activated bone char can be regenerated and its use is more economical than the use of ordinary activated charcoal. It is emphasized that bone char not only adsorbs coloring matter, but removes undesirable non-sucrose material. The Ca phosphate removed has a good *fertilizer value*. S. J.

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Sugar-beet trials in 1931 (REMY, *et al*) **15.** [Report of the] agronomy department Fertilizer requirements of Philippine sugar districts (MEDALLA, DE LUZURIAGA) **15.** Tests of photoelectric polarimetry; measurement of rotatory dispersion of some sugars (BRUHAT, CHATELAIN) **2.** Drying cellulosic or starchy materials (Brit. pat. 359,641) **23.** Purification and decolorization [of juices, sirups, molasses, etc.] (Belg. pat. 387,742) **13.**

**The Puerto Rico Sugar Manual.** Edited by A. B. GILMORE. New Orleans: A. B Gilmore. $10. Reviewed in *Facts About Sugar* **28**, 103(1933).

SHERMAN, RUTH T.: **The Fatty Acids Associated with the Alpha Amylose of Corn Starch.** Thesis, Columbia Univ., 1932. 39 pp.

WOLF, ALFONS: **Die Konstitution der Stärke im Hinblick auf das Spezifitätsproblem der Amylase.** Thesis, Leipzig, 1931. 51 pp.

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**Sugar juices.** DARIO TEATINI. Fr. 40,619, July 28, 1931. Addn. to 693,437 (*C. A.* **25**, 1703). Sugar juices are purified by flocculating the colloids at their optimum isoelectric point in the alk. region and stabilizing the colloids by means of an acid such as liquid $SO_2$. If the juice contains only colloids flocculated by alkalies, the treatment with $SO_2$ may be suppressed.

**Sugar juices.** GASTON DURET. Fr. 736,254, Aug. 13, 1931. Sugar juices are sterilized by ultra-violet rays and then heated to at least 100°. CaO may be added before or after the sterilization to ppt. impurities.

**Direct extraction of sugar from raw sugar-house juices.** A. HACQUART. Belg. 387,731, May 31, 1932. The raw juice is evapd. directly to obtain an unpurified massecuite, from which the sugar is crystd. by one of the usual processes.

**Preservation of raw sugarhouse juices.** A. HACQUART. Belg. 387,765, May 31, 1932. The preferably neutralized raw juice is concd. to a predetd. sugar content; an antiseptic may be added.

**Defecating cane juice.** TRUMAN B. WAYNE (to National Aluminate Corp.). U. S. 1,887,879, Nov. 15. Defecation is effected by treating the juice with a sol. aluminate and then with lime.

**Measuring device for diffusion juice.** A. I. PUKHLIK. Russ. 26,257, April 30, 1932. Mechanical features.

**Apparatus for measuring the density of sugar solutions in refining plants, etc.** WM. H. STEPHENS and JOHN H. GRIBBIN, JR. U. S. 1,888,577, Nov 22. Various details of a diaphragm and pressure differential app. are described.

**Washing sugar crystals.** DARIO TEATINI. Brit. 362,911, Sept. 9, 1930. See Belg. 373,184 (*C. A.* **25**, 5589).

**Drying sugar-beet chips.** V. N. IVANOV. Russ. 25,106, July 20, 1931. In drying beet chips org. acids are neutralized by mixing the chips with finely disintegrated nephelite.

**Sucrose extraction from materials such as sugar-beet slices.** KARL VIERLING (to I. G. Farbenind. A.-G.). U. S. 1,887,050, Nov. 8. The material is treated with liquid $NH_3$ under superatm. pressure in order to dissolve the sugar. Nicotine, saponin or caffeine may be similarly extd. from tobacco, quillaja bark, coffee, etc.

**Invert sugar.** EUGENE N. EHRHART and LEONARD WICKENDEN (to John J. Naugle). U. S. 1,886,875, Nov. 8. An aq. soln. of raw sucrose sugar is treated with an agent such as $Ca(OCl)_2$ which is capable of liberating nascent O and purification of the resulting sucrose melt is effected with a vegetable decolorizing carbon, substantially all the sucrose is inverted and the invert sugar sirup produced is concd. and seed crystals of invert sugar are added to the concd. sirup followed by thinning of the resulting invert sugar crystals with concd. invert sugar sirup

**Carbohydrate.** TAKEO MIYAGUTI and MATUO HUKUI. Japan. 93,562, Nov. 11, 1931. Addn. to 93,024 (*C. A.* **26**, 4201). Grape sugar is gradually added to $H_2SO_4$ (55° Bé.) at low temp. The soln. is neutralized with lime water, treated with active C and evapd. to dryness *in vacuo*. The product is white, tasteless and odorless, but taste is developed when it is mixed with other substances.

**Carbohydrate.** TAKEO MIYAGUTI and MATUO HUKUI. Japan. 93,563, Nov 11, 1931. Addn. to 93,025 (*C. A.* **26**, 4201). A mixt. of grape sugar (1000 g.) and Zn dust (1 g.) is heated at 150–60° until the sweet taste is lost. The product is dissolved in $H_2O$ or alc., treated with active C and evapd. to dryness *in vacuo*. The properties of the product are almost the same as those of the product of the preceding abstract.

**Dextrose.** INTERNATIONAL PATENTS DEVELOPMENT CO. Ger. 567,065, Oct. 16, 1928. See Brit. 303,142 (*C. A.* **23**, 4591).

**Crystalline dextrose.** GEORGE E. CORSON and ARTHUR P. BRYANT (to Clinton Corn Syrup Refining Co.). U. S. 1,886,941, Nov. 8. A starch-converted dextrose soln. is concd. to 35–40° Bé., the concn. being completed at a temp. below 70°; the temp. is raised to about 70° and the soln. is thereafter quickly cooled to a temp. productive of supersatn. favorable to the rapid growth of hydrous crystals (the cooling being conducted with such rapidity as to prevent growth of anhyd. crystals and to avoid any apparent formation of crystals during the cooling); the soln. is seeded with cryst. dextrose after the cooling and is maintained quiescent at temps. below 35° until a desired amount of a uniform mass of plate-like hydrate dextrose crystals is formed and these are then sepd. by centrifuging.

**Separating starch from corn gluten, etc.** HENRY BERLIN (to International Patents Development Co.). U. S. 1,888,785, Nov. 22. A phenol such as cresol is added to the mixt. and the starch is washed out, the phenol serving to dissolve the gluten selectively. Cf. *C. A.* **26**, 869.

**Apparatus for drying starch, etc.** OSKAR BRAEUER. Ger. 567,433, Oct. 23, 1931.

## 29—LEATHER AND GLUE

ALLEN ROGERS

**The use of extracts from pine bark.** J. A. SAGOSCHES. *Gerber* **58**, 123–4(1932).—In using tanning liquors prepd. from pine bark it must be kept in mind that their swelling action is due to acid formed by fermentation which is a time process and which proceeds more rapidly as the tannin content of the liquor decreases. J. W. PERRY

**Iron tanning by Röhm's method.** LEOPOLD POLLACK. *Gerber* 59, 8–9(1933).—The firm Röhm and Haas, Darmstadt (Germany), is said to have worked out a successful process for tanning with Fe compds. An analysis of the leather produced is given and its properties are briefly discussed. J. W. PERRY

**Tanning plants of U. S. S. R.** G. SHLUIKOV. *Vsesoyuznuii Inst. Rastenievodstva. Selkolkhozgiz Petrograd-Moscow* 1932, 190 pp.—A very large no. of plants growing in the U. S. S. R. have been investigated as to their possibilities as a source of tanning materials. Up to 8% of sugar was found in various parts of different trees. The amt. obtained can be greatly increased by pressure extn. at elevated temps. Spruce bark has the highest tannin content in April-May, while nontannins are highest in Aug.-Sept. The compn. of vegetable tanning substances varies within wide ranges. The tanning complex is considered to be a glucoside or an ether combination of condensed phenolic acids with glucose or other saccharides. Tannin contains digallic acid, pyrogallol, gallic acid, pyrocatechol, pyrocatechinic acid, catechins, quercetin, phloroglucinol, ellagic acid, etc. A. A. BOEHTLINGK

**Acidity of vegetable-tanned leathers. II.** W. R. ATKIN AND F. C. THOMPSON. *J. Intern. Soc. Leather Trades Chem.* 16, 591–608(1932); cf. *C. A.* 23, 4843.—Criticisms and proposed modifications of the original method are discussed. Bennett's view (*C. A.* 25, 2325) that the use of 0.1 *N* KCl for extn. is inadvisable is opposed, because this concn. of KCl has only a negligible influence on $p_H$ value, and because the presence of KCl equalizes internal and external $p_H$ values in the protein–acid system, improves conductance and diminishes diffusion potentials. The finding of Kubelka and Ziegler (*C. A.* 26, 2343) that the observed $p_H$ value of the leather ext. is not rigidly a linear function of log diln. is correct, and is due to increasing degree of dissocn. of weak acids and to decreasing buffering action at high diln. This tends to give "acidity values" ($p_H$ value at O diln. obtained by extrapolation) that are lower than the "true $p_H$ of the leather." Bennett's proposal that acidity value be calcd. mathematically from 2 $p_H$ values obtained at 100-fold and 1000-fold diln. is opposed, because the latter diln. is unduly great, and because the advantages of a check are lost. The Innes 10-fold diln. method (*C. A.* 23, 4367; 25, 5793) for detecting the presence of strong acid in leather also depends upon the existence of a linear relationship between $p_H$ value and log diln. In the presence of very small concns. of weak acid, the Innes difference figure may indicate the presence of a strong acid, because of the high degree of dissocn. of the acid. The slope of the $p_H$ value-log diln. curve increases with decreasing acidity value. In place of Kubelka and Ziegler's graphic construction for detg. the $p_H$ at 0 diln. when the exptl. points do not lie on a straight line, 2 simple arithmetical procedures are given. Kubelka and Ziegler's belief that acidity value of 2.5 is too low to serve as the limit between safe and unsafe leathers is opposed. These authors found that 0.75% $H_2SO_4$ could be added to leather without lowering the acidity value much below 3. But the slopes of the $p_H$ value-log diln. curves for leathers treated with such amts. of acid indicate that the acid is combined with $NH_2$ groups of the protein; so combined, it does not exist as a strong acid. Kubelka's statement that the least trace of mineral acid found in leather must be regarded as the remnant of greater amts. that may already have damaged the leather is vigorously denied. H. B. MERRILL

**Determination of free sulfuric acid in leather.** KONSTANTIN W. MAKRIS. *Z anal. Chem.* 91, 266–70(1933).—The method described is an improvement of the procedure recommended by Balland and Maljean in 1894. A sample of the leather is heated with approx. 5% NaOH in an autoclave under pressure and after the heating the soln. is dild. to a definite vol. and an aliquot part taken for the detn. of the total S. The filtered soln. is oxidized by treatment with HCl and $KClO_3$ and the S detd. as $BaSO_4$. If the S is detd. in the ash of the original leather, the difference between the 2 values will give what has been called *free* $H_2SO_4$. To det. the S of the hide substance it is recommended to proceed similarly but without oxidizing with $KClO_3$. W. T. H.

**The combination of collagen with dyes. II.** G. A. BRAVO AND F. BALDRINO. *Boll. ufficiale staz. sper. ind. pelli mat. concianti Suppl. tec.* 7, 143–54(1932); cf. *C. A.* 26, 1472, 4501.—The expts. previously reported were continued with various dyes (Nos. 767; 703; 804 in Schultz-Farbstofftabellen) in dil. HOAc soln. Although swelling of the collagen made the interpretation of the results more difficult in these expts., the authors believe that their data indicate that collagen enters into compd. formation with the dyes studied. This would confirm the conclusions previously reached with dyes in basic soln. J. W. PERRY

**Gelatin foil.** HAYER. *Kunstoffe* 23, 13–14(1933).—A general discussion of production methods and properties. J. W. PERRY

**Determination of gelatin.** G. FARKAS. *Chim. ind. agr. biol.* 8, 409–10(1932)

(abstr.).—Gelatin and albumin can be sepd. by means of a satd. soln. of picric acid. The compd. gelatin-picric acid ppts. at 8°, but it is sol. at 40°; the compd. albumin-picric acid does not dissolve at 40°. G. A. BRAVO

**Stability of vegetable tan liquors.** JOHN A. WILSON. *J. Am. Leather Chem. Assoc.* **28**, 24–34(1933).—Effects of varying the $p_H$ value (3–5) and NaCl concn. (0–4%) upon pptn. of tan liquors at initial tannin concns. of 1 and 6% are studied by detg. changes in the vol. of sediment, and percentage of insol. matter and tannin as analytically detd. The 3 criteria give qualitatively the same results. Materials studied are "cutch" (Philippine mangrove), wattle bark, mangrove bark, hemlock bark, oak bark, chestnut bark and quebracho wood exts. Increasing NaCl concn. causes increased pptn. in all cases; the effect is very slight with Philippine cutch and wattle and is greatest for oak, other exts. occupying intermediate positions in an order depending upon the particular criterion for instability employed. Lowering the $p_H$ value from 5 to 3 very slightly increases pptn. with all exts. except chestnut, which yields less ppt. at the more acid $p_H$ value. Both NaCl and $p_H$ effects are more marked at higher tannin concn. Relative loss of tannin by pptn. parallels reported relative loss by fermentation (*C. A.* **24**, 4421). The great stability of Philippine mangrove ext. and its ability to stabilize other exts. is attributed to the presence of gums that act as protective colloids. H. B. MERRILL

**Critical study of pickling. III. Effect of time and temperature.** E. R. THEIS AND A. W. GOETZ. *J. Am. Leather Chem. Assoc.* **27**, 570–7(1932); cf. *C. A.* **26**, 2888–9.—Twenty-five g. portions of bated skin were pickled in 250 cc. portions of soln. contg. 0.025 *M* $H_2SO_4$ and 0.5 *M* NaCl, at 7, 20, 25, 32 and 37.5° for periods of 1–25 hrs. Depletion of NaCl in soln. was unaffected by temp. and was complete in 1 hr. Rate of depletion of acid in soln. increases with temp., but the same equil. concn. was reached at all temps. in 8 hrs., except that at 37.5° less acid was absorbed. $p_H$ values increased in accordance with acid absorption. Vol. and wt. of the test pieces increased in the first hr. and thereafter declined, independently of temp. up to 32°. At 37.5° initial increase in wt. was much smaller, and subsequent decline much greater than at the lower temps. Rate of soln. of N from skin in the range 7° to 25° increases slightly with temp., but the wt dissolved appears to approach the same limiting value. Rate of soln. of N increases enormously at 32° and 37.5°, and wt. dissolved per hr. becomes practically const., indicating hydrolysis of proteins of the skin. Wt. of Cr fixed by pickled skin was practically unaffected either by temp. or duration of pickling. H. B. MERRILL

**Bibliography of papers on the physical properties of leather.** V. C. H. SPIERS. *J. Intern. Soc. Leather Trades Chem.* **16**, 449–51(1932); cf. *C. A.* **26**, 1822.—Topics and no. of titles: color measurement, 3; fluorescence, 2; effect of factors on color of vegetable-tanned leather, 14; change of color by light, 28; fastness of color, 17; optical properties of collagen fibers, 13; internal structure of leather, 50; grain structure and appearance, 11; waterproofing leather, 88. VI. *Ibid* 505–11.—Waterproofing leather, 60; wettability and wetting back, 34; grease absorption, 25; deterioration and durability, 45. VII. *Ibid* 558–63(1932); **17**, 27–35(1933).—Deterioration and durability, 75; preservatives, 60; feel, 10; fullness, 5; tackiness, 3; smell, 1; taste, 1; cementability, 3; behavior to sawing, 1; fatigue, 6; thickness (measurement and effect of factors on), 28; area (measurement), 59; area (effect of factors on), 15; area (variation during wear), 7; general papers on phys. properties, 63. H. B. MERRILL

**Fish skins—a new raw material for leather substitute. Skins of cod [Gadus cillaris], wolf fish [Anarchichas minor and Anarchichas latifrons] and Gadus aeglefinus.** M. A. REIMAN, B. I. RUBIN and O. P. CHUDINOV. *Tzentral. Nauch.-Issledovatel. Inst. Koshevennoi Prom.* **1932**, 3–86.—The methods used in skinning, preserving the skins, and other operations are described. The skins of the cod have an av. of moisture 67.60, dry residue + epidermis 25.10, scale 7.00 and fat 0.3%, while those of wolf fish have moisture 72.4–78.6, fat 0.32–0.35 and dry substance 27.28–21.05%. The sp. gr. is 1.10 and 1.2, the thickness 0.52–0.68 and 0.78–1.07 mm., resp. They should be preserved in a 30% salt soln. **Histological structure of the skins of Anarchichas minor, Anarchichas latifrons, Gadus cillaris and Gadus aeglefinus.** A. A. BRAUN, M. F. IVANOV, A. A. RYABININ and R. N. ORLOV. *Ibid* 87–103. **Treating fish skins with vegetable and mineralic tanning substances.** N. GURBVICH and D. ZILBERMAN. *Ibid* 104–12.—The following treatments of scale skins are described: soaking, liming, pickling and tanning. **Topography of the skins from the wolf fish and cod.** A. GUBAREV AND E. GORYUNOVA. *Ibid* 113–52.—Skins of these species were cut into a great no. of small squares and strength and thickness detns. were carried out. The usual tanning expts., etc., were reported. A. A. BOEHTLINGK

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**Metal compounds of azo dyes [for dyeing leather] (U. S. pat. 1,887,602) 25. Cleans-**

ing, emulsifying and wetting agents (Ger. pat. 567,361) **25.** Strongly basic azo dyes (U. S. pat. 1,887,289) **25.** Ornamenting leather, etc. (Brit. pat. 347,888) **26.**

**Treating hides.** F. N. BLISTANOV. Russ. 312, July 27, 1921. Hides used for prepg. furs, etc., are treated with a not-quite-neutral soln. obtained in treating sawdust with dil. $H_2SO_4$ or HCl accompanied by heating.

**Apparatus for treating hides, leather, etc.** M. G. LOSHKAREV. Russ. 1417, July 5, 1911. App. for treatment with tanning, dyeing, salt and other solns. is described.

**Conveyor for drying hides and furs.** A. A. POPRYADUKHIN. Russ. 19,534, Dec. 24, 1929 and addn. Russ. 26,970, April 12, 1930.

**Fat-liquoring leather.** I. G. FARBENIND. A.-G. Ger. 567,177, Dec. 29, 1926. Use is made of solns. of sulfonated wool-fat acids, prepd. as described in Ger. 531,296 (*C. A.* **25,** 5588).

**Tanning hides.** GEORG V. WRANGE (one-half to Aktiebolaget Friberg's Högvacuumpump). U. S. 1,887,972, Nov. 15. The material to be tanned is subjected to a vacuum and to a circulating tanning soln., the vapors formed are drawn off and condensed and the condensate is reintroduced while the tanning operation proceeds, to maintain the proportion of volatile acids as const. as possible. App. is described.

**Tanning agents.** J. R. GEIGY, SOC. ANON. Brit. 362,797, Mar. 10, 1931. Addn. to 305,013 (*C. A.* **23,** 4844). A sol. sulfonated phenol or deriv. thereof is condensed with $CH_2O$ or compd. yielding $CH_2O$ at a raised temp. and in strongly alk. soln. in the presence of one or more aromatic oxycarboxylic acids and urea or a compd. yielding urea. In addn. to use as tanning agents the products can be used for loading silk without a change of color. Cf. *C. A.* **27,** 860.

**Tanning extracts.** S. S. VOYUTZKII and TZENTRALNUII NAUCHNO-ISSLEDOVATELSKII INSTITUT KOZHEVENNOI PROMUISHLENNOSTI. Russ. 26,768, June 30, 1931 Tanning and non-tanning exts. obtained by pptn. from tanning saps are acted upon with $CO_2$ to dissolve the nontans while the tannides are recovered from the residues in the usual manner.

**Depilatories.** HALWIT LABORATORIUM G. M. B. H. Fr. 736,019. April 27, 1932. Depilatories are made by mixing alk. earth sulfides with albumins or nucleoalbumins, such as casein, their sol. salt compds. or their degradation compds. of high mol. wt. Sol. thiocyanates, iodides, bromides and nitrates may also be added.

**Depilatories.** HUBERT JAHARD. Fr. 736,730, Sept. 5, 1931. Depilatories having a basis of sulfides are solidified by gelifying agents such as glycerol, alcs. or sapond. fatty substances.

**Belt dressing.** E. SOL. Belg. 388,487, June 30, 1932. A product suitable for preventing the slippage of belts is obtained by boiling a mixt. of rosin and oil, adding rubber, heating till the lumps disappear, eventually with addn. of HCl toward the end of the heating, filtering and packing hot in boxes.

**Impregnating composition for leather soles.** E. ZETTERLUND. Norw. 51,102, July 4, 1932. A mixt. of 15% raw rubber, 30% resin, 35% linseed oil, 17% turpentine oil satd. with raw rubber and 3% paraffin wax.

**Leather substitute.** P. P. KONDRATZKII. Russ. 1426, April 22, 1920. Several layers of cotton fabric are treated in succession with (1) a turpentine soln. of rosin, or Japan wax, ozokerite, etc., followed by drying, (2) concd. $H_2SO_4$, followed by washing and soaking in $NH_4OH$ or $ZnCl_2$, (3) drying and rolling, (4) glue soln., (5) chromium-alum soln., (6) rolling through rollers at high pressure, (7) turpentine soln. of a drier, followed by drying and rolling and (8) rubbing with a paste composed of a drier and mineral dyes.

**Leather substitute.** K. I. TARASOV. Russ. 14,577, Feb. 25, 1928. A leather substitute is prepd. from leather waste by mixing with albumin, treating with phenol resins, drying and pressing while hot.

**Leather substitute.** K. I. TARASOV. Russ. 25,156, June 22, 1928. Addn. to Russ. 14,577 (preceding abstract). Leather waste treated with liquid or water-sol. products of condensation of phenol or its homologs with formalin is treated with alk. solns. of keratinous substances extd. from wool, horn, hoofs, etc., or their mixts. with albumin solns.

**Gelatin.** ALFRED MENTZEL. Ger. 567,476, April 13, 1930. Dried bone from which gelatin is to be recovered is pretreated with a mild alk. soln. Thus, dried defatted bone may be steeped in 0.1 *N* KOH for 15 hrs., washed and worked up to gelatin in known manner.

# 30—RUBBER AND ALLIED SUBSTANCES

C. C. DAVIS

**Anodic deposition of rubber.** ALBERT HIRSCH. *Quarterly Rev. Am. Electroplaters' Soc.* **19**, No. 9, 39–41(1933).—The compn., prepn. and conditions of working of a soln. suitable for com. rubber deposition are given. EDWARD B. SANIGAR

**Experiments on oil-proof rubber.** KATSUMI ISHIGURO. *J. Soc Rubber Ind., Japan* **5**, 670–84(1932).—The absorption of oil by rubber was least when it was compounded with substances which gave the best mech. strength, or with vulcanization accelerators Rubbers compounded with org. substances which are sol. in oil showed the least resistance to oil; the use of soap and starch gave good results. Rubbers compounded with alkali soaps, especially soaps made from stearic acid or coconut oil, gave the least oil absorption, while insol. metal soaps gave inferior products. There was no particular advantage in using glue for increasing the oil resistance; besides it retarded vulcanization. Test of the oil resistance of rubber mixts. contg. 9 different accelerators indicated that rubbers with no particular hardness requirement can be made particularly oil resistant by the proper choice of time of vulcanization and of accelerator. The absorption of oil by vulcanized rubber diminished with increase in hardness. K. KITSUTA

**Generalities about various rubber plasticizing agents derived from the aliphatic series.** ALBERT HUTIN. *Rev. gén. caoutchouc* **9**, No. 87, 22–3(1932).—Good results can be obtained, particularly with mixts. contg. predominantly scrap rubber, by the use of softeners prepd. by the neutralization of undecylenic acid with ZnO, CaO or PbO. C. C. DAVIS

**Characteristics of semi-ultra accelerators.** KEICHI SHIMADA. *J. Soc. Rubber Ind., Japan* **5**, 695–9(1932).—"Vulkacit 576" (a condensation product of a higher aldehyde and an aromatic base) like other org. semi-ultra accelerators gave a decreased viscosity of the rubber soln. in $C_6H_6$. It belongs to a group of accelerators which cause depolymerization of rubber. Rubbers thus depolymerized react easily with S and give products with special chem and phys. properties. K. KITSUTA

**Accelerators of vulcanization.** F. JACOBS. *Caoutchouc & gutta-percha* **30**, 16258–60 (1933); cf. *C. A.* **26**, 5227.—A discussion of the results obtainable with "Barak" (cf. Hauser and Wolf, *C. A.* **26**, 874). C. C. DAVIS

**Retarders of vulcanization.** RUDOLF DITMAR *Caoutchouc & gutta-percha* **30**, 16264–6(1933).—A discussion of the results obtainable with recent com. substances. C. C. DAVIS

Use of latex in paper and in cardboard (GARNER) **23.** Acetylene polymers and their derivatives. V. Polymerization of bromoprene [new synthetic rubbers] (CAROTHERS, *et al.*) **10.** Incorporating fibrous materials in aqueous dispersions such as those of rubber (U. S. pat. 1,889,473) **13.** Bituminous emulsion containing rubber (U. S. pat. 1,886,334) **22.** Polymerization products from oils and fats (Brit. pat. 362,845) **27.** Reactions of ketones and amines [anti-oxidizing agents for rubber] (Fr. pat. 737,193) **10.** C black for use in rubber compositions, etc. (U. S. pat. 1,889,429) **18.** Sieves [rubber-coated fabric for use in] (Brit. pat. 381,596) **1.** Impregnating composition for leather soles (Norw. pat 51,102) **29.**

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MARQUARD, ERICH: **Verfahren zur Prüfung der Stosshärte an Vollgummireifen.** Thesis, Aachen, 1930. 10 pp.

SCHAAL, WILLI: **Über Kautschuk, Guttapercha, Balata.** Thesis, Freiburg i. Br., 1931. 58 pp.

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**Latex.** METALLGESELLSCHAFT A.-G. Fr. 736,838, May 9, 1932. Latex is concd. by heating it, after the addn. of the usual agents to prevent coagulation, under conditions such that no vapor is formed, and then introducing it, *e. g.*, by spraying, into a vacuum evaporator. The temp. at which the latex enters is above the boiling temp. at the pressure in the evaporator. An app. is described.

**Gel from rubber latex.** CECIL HAYES, EVELYN W. MADGE and FREDERICK H. LANE (to Dunlop Rubber Co., Ltd.). U. S. 1,887,201, Nov. 8. A concd. preserved latex is treated with a small proportion of a sensitizing agent such as $(NH_4)_2SO_4$ and $CH_2O$ in excess of that required to combine with the free $NH_3$ in the latex (such excess being about 0.3% of the latex) and the latex is permitted to stand until a gel is formed.

**Rubber.** GAIL R. YOHE (to The Goodyear Tire and Rubber Co.). Can. 329,254,

Jan. 10, 1933. Rubber is preserved by vulcanization in the presence of a reaction product of a ketone selected from a group comprising acetone, cyclohexanone and diethyl ketone and a phenol selected from a group consisting of PhOH, cresol, resorcinol, pyrogallol and xylenol.

**Electrodeposition of rubber.** DUNLOP RUBBER CO., LTD., and THE ANODE RUBBER CO., LTD. Ger. 567,392, April 23, 1931. See Brit. 358,012 (*C. A.* **27**, 442).

**Electrophoretic deposition of rubber.** ANODE RUBBER CO. (ENGLAND), LTD. Ger. 567,033, Feb. 8, 1930. Addn. to 549,219 (*C. A.* **26**, 3959). See Brit. 331,563 (*C. A.* **25**, 233).

**Rubber poor in albumin.** METALLGESELLSCHAFT A.-G. (to Revertex, Ltd.). Brit. 363,193, Jan. 28, 1931. Rubber poor in N suitable *for insulation of submarine cables*, is obtained by heating latex with dil. alkali, *e. g.*, 3–10 hrs., at temps. below the b. p., preferably 90–100°, at ordinary pressure, coagulating the rubber and washing out the coagulant and nitrogenous material rendered sol. by the heating.

**Rubber compositions.** WALDO L. SEMON (to B. F. Goodrich Co.). U. S. 1,886,310, Nov. 1. A small proportion of the reaction product formed from a primary aromatic amine such as naphthylamine and a non-volatile fatty acid or rosin with elimination of water is used to facilitate vulcanization and inhibit oxidation.

**Rubber compositions.** THE GOODYEAR TIRE & RUBBER CO. Brit. 362,814, April 7, 1931. A nail-retaining insert vulcanized in a cavity in a rubber heel comprises a mixt. of rubber, fibrous material such as obtained from discarded rubber tires and hemoglobin.

**Rubber composition.** F. DE LANNOY. Belg. 387,917, May 31, 1932. The product consists of a mixt. of pure rubber and substance of low sp. gr. such as cork.

**Treatment of rubber.** JOEL P. MCINTIRE (to The Goodyear Tire and Rubber Co.) Can. 329,255, Jan. 10, 1933. Creped sheet rubber contg. approx. 1–2% of moisture is dipped in a bath of molten stearic acid at 225° F. for a few min. The rubber is removed and subjected to a temp. of 125° F. for 5 hrs. Lauric acid, pine oil and similar oil substances employed as softeners and plasticizers may be incorporated in a similar manner. The time and labor expended to obtain uniformly blended material is greatly reduced.

**Machines for kneading rubber.** CONTINENTAL GUMMI-WERKE, A.-G. Brit 380,003, July 31, 1931. Mech features.

**Aqueous rubber dispersions.** SOC. ITALIANA PIRELLI. Ger. 567,217, Feb. 3, 1931 Crude or regenerated rubber is mixed with about 10% of an aliphatic, aromatic, hydroaromatic or terpenic alc. or a hydroaromatic or terpenic ketone, and the mixt. is kneaded with an aq. soln. of a dispersing agent, *e. g.*, soap, saponin or casein.

**Rubber articles from dispersions.** EDWARD A. MURPHY, ROBERT G. JAMES and DOUGLAS F. TWISS (to Dunlop Rubber Co., Ltd.). U. S. 1,886,351, Nov. 1. Uncoagulated layers of an aq. rubber dispersion are contacted with a bath contg. coagulating and swelling material.

**Products in continuous lengths from rubber dispersions.** DOUGLAS F. TWISS and EDWARD A. MURPHY (to Dunlop Rubber Co., Ltd.). U. S. 1,887,190, Nov. 8. An aq. rubber dispersion is extruded directly into a dehydrating fluid comprising a fused salt such as NaOAc. Various details and modifications are described.

**Rubber membranes.** HERMANN BECKMANN. Fr. 40,412, June 29, 1931. Addn. to 605,245. A membrane for filters, electrolytic elements, etc., is made by coagulating latex to a flat sheet, vulcanizing while avoiding pressure and vaporization of water, bringing it to an undulating form and vulcanizing, again avoiding vaporization of water.

**Transformation products of rubber.** I. G. FARBENIND. A.-G. Fr. 41,088, Dec. 7, 1931. Addn. to 726,961 (*C. A.* **26**, 5228). Rubber and like materials are treated with neutral aliphatic or aromatic peroxides such as acetic or benzoyl perodide.

**Molds for articles of rubber or other plastic material.** HECTOR STEPPÉ, ALPHONSE STEPPÉ and GUSTAVE STEPPÉ. Brit. 360,122, Sept. 15, 1930. Addn. to 321,009.

**Machines for plasticizing materials such as rubber.** WILLIAM A. GORDON (to Farrel-Birmingham Co., Inc.). Brit. 362,280, Mar. 16, 1931.

**Rubber articles.** DUNLOP RUBBER CO., LTD., and THE ANODE RUBBER CO., LTD. Fr. 40,940, Oct. 20, 1931. Addn. to 694,768 (*C. A.* **25**, 2021). Spongy articles are made by coating a support or basic layer with a substance capable of provoking coagulation, dehydration or setting or of all three, and bringing the support or layer into contact with emulsions or dispersions of rubber previously brought to the state of froth or foam. Cf. *C. A.* **27**, 862.

**Oil-resisting rubber articles.** BERT S. TAYLOR (to B. F. Goodrich Co.). U. S. 1,886,759, Nov. 8. Fabric-reënforced rubber articles such as belting or footwear are

coated with a layer of a tough heat-plastic rubber isomer which may be combined with Se oxychloride in diminishing proportion inwardly from the surface.

**Variegated or "jazz" colors on surfaces of articles.** The India Rubber, Gutta Percha and Telegraph Works Co., Ltd. and John Hubbard. Brit. 362,947, Sept. 11, 1930. One or more liquid coloring materials, *e. g.*, pigments and dyes in rubber solns., oils, varnishes, etc., are applied to the surface of a liquid immiscible therewith and having a disintegrating and dispersive action thereon, *e. g.*, water in which $Na_2CO_3$ is dissolved, and the surface of the article to be colored, *e. g.*, rubber ball, is then brought in contact or passed over the surface of the liquid.

**Apparatus for cooling and drying rubber strips.** D. B. Gurvich and M. A. Zhukovskii. Russ. 26,798, June 22, 1930. Mechanical details.

**Extrusion and setting bath apparatus for manufacture of rubber tapes or threads or the like.** Edward A. Murphy and Douglas F. Twiss (to Dunlop Rubber Co., Ltd.). U. S. 1,889,102, Nov. 29. Structural and mech. features.

**Apparatus for indicating the temperature of webs of material such as sheet rubber moving through calendar machines.** Paul B. Schuster (to Magnetic Gauge Co.). U. S. 1,889,385, Nov. 29. Various details of app. are described, including a heat-conductive roller for contact with the web.

**Making rubber band packages from rubber tubing and an associated backing strip.** Kenneth R. Shaw (to Easthampton Rubber Thread Co.). U. S. 1,886,842, Nov. 8. Mech features.

**Apparatus for measuring the temperature of rollers used in rolling rubber.** A. I. Zaslavskii. Russ. 26,799, Sept. 4, 1930.

**Preservation of rubber.** Imperial Chemical Industries, Ltd. Brit. 363,340, June 13, 1930. Void. The properties of rubber are improved by incorporation of a substance of formula HORR'Y, in which R and R' are aromatic hydrocarbon radicals and Y is H or OH, *e. g.*, *o*- and *p*-hydroxybiphenyls, *α*- and *β*-hydroxyphenylnaphthalenes, etc. Cf. *C. A.* **27**, 444.

**Preservation of rubber.** Imperial Chemical Industries, Ltd., Hugh M. Bunbury, James S. H. Davies and Wm. J. S. Naunton. Brit. 363,483, Nov. 22, 1930. A boric ester of naphthol, *e. g.*, tri-*β*-naphthyl borate, is added to rubber to increase its resistance to deterioration and discoloration.

**Antioxidant for rubber.** Jan Teppema (to Goodyear Tire & Rubber Co.). U. S. 1,888,705, Nov. 22. Rubber is admixed with about 1% of a compd. of the general formula $RN{:}N{-}R'NH_2$, in which R and R' are phenyl radicals such as *p*-aminoazobenzene or *p*-aminoazonaphthalene.

**Rubber antioxidant.** Lorin B. Sebrell (to The Goodyear Tire and Rubber Co.). Can. 329,261, Jan. 10, 1933. An accelerator of vulcanization and aminonaphthanthraquinone are incorporated in rubber to retard oxidation.

**Antioxidants for rubber.** Winfield Scott (to The Rubber Service Laboratories Co.). Brit. 362,907, Sept. 8, 1930. See Can. 316,564 (*C. A.* **26**, 1830).

**Rubber vulcanization accelerator.** Giuseppe Bruni and Tullio G. Levi (to Società italiana Pirelli). U. S. 1,886,636, Nov. 8. Use is made of a compd. such as methylenedimethylammonium dimethyldithiocarbamate or the like.

**Vulcanization accelerators.** Winfield Scott (to The Rubber Service Laboratories). Brit. 362,862, Sept. 8, 1930. A mixed accelerator comprises a nitrophenylarylthiazyl disulfide and a basic org. N-contg. compd., *e. g.*, an amine or salt thereof. The first may be formed by the reaction of a mercaptoarylthiazole with a nitro, or nitro and halogen, substituted deriv. of an aryl S halide. Among examples of the first are 2-nitrophenylbenzothiazyl disulfide and 2-nitro-4-chlorophenyl-6-nitrobenzothiazyl disulfide; of the second, diphenylguanidine, piperidine and Schiff's bases, *e. g.*, methylene dianilide.

**Apparatus for vulcanizing rubber tires, tubes, etc.** John R. Stricklen and Samuel A. Fraine (to Taylor Instrument Companies). U. S. 1,887,251, Nov. 8. Mech. features.

**Mold for vulcanizing rubber articles such as inner tubes for tires.** Robert W. Snyder (to Goodyear Tire & Rubber Co.). U. S. 1,888,702, Nov. 22. Structural and mech. features.

**Apparatus for vulcanizing rubber tires and tubes.** John R. Stricklen and Samuel A. Fraine (to Taylor Instrument Companies). U. S. 1,887,250, Nov. 8. Mech. features.

**Autoclave for vulcanizing rubber goods.** N. I. Posnov. Russ. 26,801, Dec. 22, 1931. Construction details.

**Vulcanizing container for tires.** A. I. Grekov. Russ. 25,267, Jan. 4, 1930.

**Collapsible chucks for constructing tires.** THE GOODYEAR TIRE & RUBBER CO. Brit. 363,241, Mar. 4, 1931.

**"Age resisting" vulcanized rubber.** JOSEPH R. INGRAM (to Rubber Service Laboratories Co.). U. S. 1,899,331, Nov. 29. Rubber and S are heated in the presence of an antioxidant comprising a reaction product of a diazotized aryl amine such as diazotized aniline and diphenylamine at a temp. below the decompn. point of the diazotized amine.

**Vulcanizing rubber.** JOHANN A. BERTSCH (to Rubber Service Laboratories Co.). U. S. 1,889,327, Nov. 29. In vulcanizing a rubber-S mixt., a cyclohexyl substituted aryl amine in which the cyclohexyl group is attached to the N atom of the amine, such as cyclohexylaniline or the like, is used as an antioxidant.

**Vulcanizing rubber.** LAURENCE A. EDLAND (to R. T. Vanderbilt Co., Inc.). Brit. 362,740, Jan 20, 1931. See U. S. 1,875,997 (*C. A.* **27**, 208).

**Vulcanization of rubber.** I. G. FARBENIND. A.-G. (Ludwig Orthner and Werner Siefken, inventors). Ger. 567,146, Apr. 4, 1930. As vulcanization accelerators for natural or synthetic rubber, use is made of condensation products from 1 mol. of an aromatic diamine, *e. g.*, benzidine or a phenylene- or naphthylene-diamine, and 2 mols. or more of an $\alpha,\beta$-dialkylacrolein, *e. g.*, $\alpha$-ethyl-$\beta$-propylacrolein.

**Reclaiming vulcanized rubber.** OLOF G. BOHLIN (to Helsingborgs Gummifabriks Aktiebolag). U. S. 1,887,898, Nov. 15. A quantity of Hg or $Hg(NO_3)_2$ amounting to "only a fraction of that equalizing the amount of S contained in the vulcanized rubber" is incorporated with the rubber refuse and the mixt. is then subjected to treatment such as heating and plasticizing.

# CHEMICAL ABSTRACTS

Vol. 27 APRIL 10, 1933 No. 7

## 1—APPARATUS AND PLANT EQUIPMENT

W. L. BADGER

**Double pipet for absorption of unsaturated hydrocarbons.** JENÖ PLANK. *Math naturw. Anz. ungar. Akad. Wiss.* **48**, 644–6(1931).—The pipet is designed for the absorption of unsatd. hydrocarbons by means of Br-water, with Hg used as sealing liquid The gas must pass over an alkali hydroxide soln., which absorbs Br vapors S. S. DE FINÁLY

**A new weighing buret.** JÓZSEF BICSKEI. *Magyar Chem. Folyóirat* **38**, 123 (1932).—The app. consists of a glass bulb with flat bottom having 2 taps. The buret can be filled with 20–50 cc soln. The taps are provided with glass covers to be used during weighing. S. S. DE FINÁLY

**New division of weights.** F. SARTORIUS *Z. anal. Chem.* **91**, 344–6(1933).—It is recommended to use 1-2-3-5 pieces in sets of wts. W T. H.

**Microbalances.** L. RAMBERG. *Svensk Kem. Tids.* **44**, 188–91(1932).—Polemic Cf. Josephson (*C. A.* **26**, 3745) A. R. ROSE

**An improved gas-density balance with an electromagnetic measuring arrangement.** E. LEHRER AND E. KUSS. *Z. physik. Chem.* **A163**, 73–81(1933); cf. *C. A* **23**, 3385.—An improved suspension balance is described for detg. gas d. Lowering of the sensibility of the balance by the presence of external magnetic fields is reduced by an astatic magnet arrangement. Shifting of the zero point is also decreased. A change of d. of $4 \times 10^{-8}$ g./cc causes a deflection of 1 scale division. This may be improved with a longer period for the pointer. The balance is no more effected by handling or vibrations than a good analytical balance. G. M. MURPHY

**Measurements with the suspension balance described in the preceding communication. Fluctuations in density and oxygen content of atmospheric air.** ALFRED STOCK, HANS RAMSER AND GERHARD EYBER. *Z. physik. Chem.* **A163**, 82–90(1933); cf. *C. A.* **21**, 679.—The balance described in the preceding abstr. was used to measure the d. of 34 samples of atm. air collected between Sept., 1931, and April, 1932. For 18 samples the O content was also detd. by reaction with hot Cu. Variations in d. of about 0 1% were found. Variation in the O content does not account for the d. change, nor does the latter show any relation to the barometric pressure. G. M. MURPHY

**Heated vacuum microdesiccators.** EUGENE W. BLANK. *J. Chem. Education* **10**, 189(1933). E. H.

**An isothermal calorimeter for slow reactions.** E. D. COON AND FARRINGTON DANIELS. *J. Phys. Chem.* **37**, 1–12(1933).—Evapn. of a weighed amt. of $CCl_4$ by a regulated air stream is used to balance the heat evolved by slow reactions conducted in an isothermal calorimeter. By employing a known elec. heat input the app. may be used for the detn. of the *heat of vaporization of liquids*, that of $CCl_4$ at 25° being 48.5 cal per g. On hydrolysis AcOMe absorbs 1052 cals. per mol. The heat of *fermentation of yeast* is 130.1 cals. per g. of glucose destroyed. Heat evolved in the growth of *Azotobacter* is too little for detn. in this app. H. A. BEATTY

**Two types of laboratory pumps for mercury.** P. ZHIVOTINSKII. *Ukraïn. Khem. Zhur.* **6**, No. 5–6, Sci. Part, 241–4(1931).—Two new types of app. for pumping Hg were constructed of glass and rubber and tried out successfully in Zh.'s lab. The action of one is based on difference in d. of water and Hg, which gives rise to a stream of Hg drops and water, the latter entering the app. from the general system under pressure and being unable to overcome the pressure of a column of Hg in a lower arm. In the 2nd pump drops of Hg are elevated in a tube and carried by water suction. J. G. TOLPIN

**Modification and calibration of Kühl's sedimentation apparatus.** K. KOYANAGI. *Cement and Cement Manuf.* **5**, 371–83(1932).—It was found experimentally that calibration could be based on Stoke's law. RAYMOND WILSON

**An apparatus for the mechanical analysis of small amounts of substance.** MIKLÓS VENDL. *Mitt. berg. hüttenmänn. Abt. ungar. Hochschule Berg. Forstw. Sopron* **4**, 104–19(1932).—A sedimentation app. is described. S. S. DE FINÁLY

**Use of small nozzles for measurement of small quantities of flowing gases and for**

**determining the density of gases.** HANS KISTNER. *Z. anal. Chem.* **91**, 321–32(1933).—By means of systematic expts. a procedure was developed for measuring very small quantities of gases based on the principle of difference in pressure. The results by this method, which is described, are better than those obtained with wet or dry meters and are within about 0.05% of the truth. The method is applicable to the flow of 3 cc.–250 l. per min. This remarkable flexibility is due to the proper choice of nozzles, through which the gas flows. W. T. H.

**Automatic regulation of the mixing proportion of gases in chemical technic.** MAYER WITTEN. *Chem. Fabrik* **1933**, 61–2.—The Askania mixer is described and illustrated by a flow sheet of the gas in the desulfurizing process in an $NH_3$ plant. J. H. MOORE

**A new apparatus for extraction with chloroform [for caffeine determinations].** J. GROSSFELD. *Z. Untersuch. Lebensm.* **63**, 555–7(1932).—The app. is illustrated and described. S. LAUFER

**Viscosity measurement of liquid substances and a new universal viscometer.** F. HÖPPLER. *Chem.-Ztg.* **57**, 62–3(1933).—The Höppler app. for liquids and gases is based on the rate of fall of a ball through the liquid contained in a glass tube inclined at 80° and surrounded by a const.-temp. bath. It is very accurate, and is described with 14 references. J. H. MOORE

**A new air classifier.** EDMUND SHAW. *Rock Products* **35**, No. 16, 52–3(1932). RAYMOND WILSON

**Historical development of furnaces.** H. SOUTHERN. *Gas J.* **201**, 318–19(1933). P. J. WILSON, JR.

**Experiences with a registering photocell pyrometer.** G. MÜLLER AND H. J. ZETZMANN. *Z. tech. Physik.* **14**, 90–4(1933).—Details of use and operation are described. ARTHUR FLEISCHER

**Spectroscope and monochromator for the visible range with mirrors with opening ratios 1 : 3.5 or 1 : 2.5.** OTTO SCHÖNROCK AND CARL LEISS. *Z. tech. Physik.* **14**, 78–80 (1933). ARTHUR FLEISCHER

**A differentiator for finding differential coefficients of curves.** TAKEMARO YAMAMOTO. *Bull. Inst. Phys.-Chem. Research* (Tokyo) **11**, 761–3(1932)(*Abstracts* (in English) published with *Sci. Papers Inst. Phys.-Chem. Research* (Tokyo) **17**, Nos. 359–65, 87).—A description of a differentiator for finding continuously and easily many differential coeffs. of curves with about 2% error on an av. K. KONDA

**The generation of gaseous hydrogen cyanide.** A. SOLDI AND A. REGÈ. *Ann. chim. applicata* **22**, 695–705(1932).—A new app. for generating HCN is described. It consists of 2 cylinders, 1 contg. dil. $H_2SO_4$, the other solid NaCN. There is a tube connecting the 2 to carry over acid; it is equipped with a valve to prevent HCN from being sucked back into the first cylinder. A pressure of $^2/_{10}$ atm. difference closes this valve. The $H_2SO_4$ is pumped over to the reaction cylinder. A. W. CONTIERI

**The catalytic "fragrant lamp" of J. W. Döbereiner.** A. MITTASCH. *Chem.-Ztg* **57**, 2–3(1933).—Historical, with 7 references. J. H. MOORE

Ba [for electric-discharge tubes] (Brit. pat. 367,792) **18.** Carbonizing [Ni anode plates for radio tubes] (Brit. pat. 366,236) **9.**

**Filter for air.** CHARLES DAVIES. U. S. 1,890,499, Dec. 13. Structural features.

**Air filter.** HANS WITTEMEIER. Fr. 738,346, June 9, 1932.

**Air-pressure filter.** JAMES FLANIGAN. Brit. 363,429, Sept. 26, 1930.

**Rotary pressure filter, especially for caliche fines, etc.** GEORGE E. MACWHIRTER. Brit. 363,609, June 29, 1931.

**Gas filter.** APPAREILS SAM. NIESTLÉ. Fr. 738,305, June 8, 1932.

**Filter funnel.** HENRI JACQUET. Fr. 738,310, June 8, 1932.

**Thickening filters.** JEAN B. VERNAY. Brit. 363,301, Aug. 9, 1930.

**Color-testing apparatus [suitable for testing filters for use in color photography].** F. J. CHESHIRE. Brit. 345,868, May 6, 1930. Optical features.

**Mechanical apparatus for separating solids or liquids from gases.** EUGEN HUBER Fr. 738,474, June 10, 1932.

**Interior separators for fractionating towers.** STANDARD OIL DEVELOPMENT CO. Fr. 738,276, June 7, 1932.

**Apparatus for pneumatic separation of granular material, e. g., dust from coal.** BERTRAM NORTON and JOHN N. COLLINS. Brit. 367,170, Feb. 12, 1931.

**Apparatus for pneumatic separation of powdered or granular material such as coal.** THE CLEAN COAL CO., LTD., RUDOLF LESSING and ROLAND HERBERT ALLEN. Brit. 367,482, Dec. 4, 1930.

**Apparatus for separating solid materials, such as coal from shale.** HUMBOLDT-

DEUTZMOTOREN A.-G. (formerly Maschinenbau-Anstalt Humboldt). Brit. 364,426, Mar. 20, 1930.

**Sampling coal on conveyors or other materials from traveling streams.** THORLEIF THORSTEN. U. S. 1,890,199, Dec. 6. Various details of app. and operation are described.

**Magnetic separator.** HERBERT H. THOMPSON, ALFRED E. DAVIES and WILLIAM E. BOX. Brit. 367,464, Aug. 4, 1931.

**Apparatus for magnetic separation of materials.** GEORG ULLRICH (to Fried. Krupp Grusonwerk A.-G.). U. S. 1,890,551, Dec. 13. Structural features.

**Centrifugal separators.** AKTIEBOLAGET SEPARATOR. Brit. 364,506, June 21, 1930.

**Centrifugal separator.** AKTIEBOLAGET SEPARATOR. Brit. 368,167, June 21, 1930.

**Centrifugal separating apparatus.** EUGENE C. SAINT-JACQUES. Brit. 367,194, Mar. 5, 1930, 367,196, Aug. 21, 1930 (addn. to 367,194).

**Centrifugal machines for separating solids from liquids.** THOMAS BROADBENT & SONS, LTD., and WM. HALLITT. Brit. 364,348, Jan. 12, 1931.

**Centrifugal steam separator.** HENRY W. WILDISH. Brit. 365,778, Jan. 19, 1931.

**Apparatus for collection and microscopic examination of dust in air or other gases.** H. WITTEMEIER. Brit. 345,601, July 23, 1930. Structural features.

**Regenerative refrigerating and rectification system for separation of constituents of gases such as air.** MATHIAS FRÄNKL (to American Oxythermic Corp.). U. S. 1,890,646, Dec. 13. Various details of app. and operation are described.

**Centrifugal gas cleaners.** HERMANNUS VAN TONGEREN. Brit. 364,449, April 2, 1931.

**Centrifugal gas cleaners.** INTERNATIONAL PRECIPITATION CO. Brit. 365,312, Dec. 8, 1930.

**Centrifugal gas cleaner.** ELEKTRISKA SVETSNINGS AKTIEBOLAGET. Brit. 366,926, Aug. 7, 1930. For scpg. solid or liquid impurities from gases.

**Centrifugal gas cleaner.** HEENAN & PROUDE, LTD., and GEORGE H. WALKER. Brit. 367,120, Jan. 14, 1931.

**Centrifugal machines.** AKTIEBOLAGET SEPARATOR. Brit. 363,584, April 11, 1930.

**Centrifugal machines.** AKTIEBOLAGET SEPARATOR. Brit. 366,703, Jan. 25, 1930.

**Centrifugal machine.** RAMESOHL & SCHMIDT A.-G. Brit. 366,873, Aug. 14, 1930.

**Electrically driven centrifugal machine.** AKT. GES. BROWN, BOVERI ET CIE. Brit. 361,857, July 25, 1929.

**Centrifugal machines for substances containing colloidal matter.** SOCIÉTÉ ANON. RAFFINERIE TIRLEMONTOISE. Brit. 365,989, Aug. 27, 1930.

**Centrifugal apparatus for making emulsions.** NIELS BENDIXEN and JULIUS C. VREDENBURG. Brit. 367,890, Nov. 27, 1930.

**Bowl for centrifugal machines.** AKTIEBOLAGET SEPARATOR. Brit. 365,450, May 14, 1930.

**Color analyzer and photometer.** A. C. HARDY (to British Thomson-Houston Co., Ltd.). Brit. 341,200, Nov. 21, 1928. Optical, mech. and photoelec. details.

**Comparison photometer.** J. RIPERT (to G. Bernheim). Brit. 346,170, April 10, 1930. Structural and optical features of an app. suitable for use with liquids in tubes.

**Pyrometer employing a photoelectric cell.** Soc. C. E. M. A. Brit. 346,620, July 16, 1929. Numerous structural and elec. details are described.

**Combined temperature and pressure indicator.** SCHMIDT'SCHE HEISSDAMPF-GES. Brit. 346,183, May 21, 1929. Various mech. and structural details are described.

**Temperature indicator and controller.** KEITH S. MILLS. Brit. 363,452, Oct. 18, 1930.

**Thermometer for indicating temperatures at a distance.** F. M. SLOUGH. Brit. 345,988, Nov. 30, 1928. Structural and elec. details of a device actuated by a bimetallic strip.

**Thermometer for temperature indication at a distance.** F. M. SLOUGH. Brit. 346,360, Nov. 30, 1928. Structural and elec. details of a device suitable for use with engine water jackets or the like.

**Thermometer for recording temperatures in deep wells, etc.** ANGLO-PERSIAN OIL CO., LTD., and D. COMINS. Brit. 344,851, Dec. 7, 1929. Numerous structural details are described.

**Stirring apparatus for liquids.** JOSEPH W. BRITTLEBANK and JOHN EADES. Brit. 365,712, Nov. 26, 1930.

**Mixing machines.** BERGEDORFER EISENWERK AKT.-GES. ASTRA WERKE. Brit. 366,612, Mar. 8, 1930.

**Centrifugal mixing device.** ALEKSANDER FUROWICZ and ALEXANDER BAUER. Brit. 365,420, April 7, 1931.

**Mixing or kneading apparatus.** EUGEN EPPLER and BAKER PERKINS, LTD. Brit. 364,588, May 15, 1930.

**Portable mixing appliances.** JACOB THORDSEN. Brit. 364,470, April 20, 1931. A rotating drum mounted on a portable frame which can be tilted into position for mixing.

**Device for intimately mixing, churning or agitating liquid substances.** JOHN ROBINSON and JOHN H. THOMPSON. Brit. 363,543, Feb. 6, 1931.

**Apparatus for mixing slimes.** MASCHINENFABRIK AUGSBURG-NÜRNBERG A.-G. Brit. 366,437, Oct. 22, 1931.

**Apparatus for continuous treatment of solids at high temperature and pressure with liquids, vapors or gases.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,665, Oct. 4, 1930.

**Apparatus for classification of materials by elutriation.** LEONARD ANDREWS. U. S. 1,890,206, Dec. 6. Various structural details are described.

**Apparatus for purifying steam or other vapor.** WALTER J. HUGHES (to General Zeolite Co.). U. S. 1,890,294, Dec. 6. Structural features.

**Vacuum still or vaporizer [with a steam calandria] suitable for reclaiming and purifying volatile liquids.** JOHN H. HILLS (to Bousman Mfg. Co.). U. S. 1,890,152, Dec. 6. Various structural details are described.

**Device for regulating flow of liquid, solid or gaseous matter.** HENRY C. HEAD. Brit. 363,365, Sept. 16, 1930.

**Apparatus for mixing gases in any proportion.** FRANCESCO MANGIAMELI. Fr 738,400, Sept. 30, 1931.

**Treating gases with liquids.** E. LAURENT. Brit. 380,764, May 28, 1931. Mech equipment for washing dust or smoke from gases is described.

**Apparatus for continuously determining the amount of gas dissolved in liquids.** GÉZA SZIKLA and PAUL V. VAGO. Brit. 363,369, Sept. 16, 1929.

**Apparatus for adding measured quantities of liquid reagents to water.** HUBERT G. MARIGNY and ROLAND T. PEMBERTON. Brit. 367,453, Nov. 22, 1930. Use is made of elec. means controlled by the flow of water and actuating the reagent supply.

**Apparatus for indicating or recording the specific gravity of fluids.** J. L. HODGSON. Brit. 343,218, Dec. 5, 1929. See U. S. 1,838,399 (*C. A.* **26**, 1163).

**Apparatus [having a tank with a conical bottom] for clarifying liquids.** ARTHUR H. ZEITZ. U. S. 1,890,712, Dec. 13. Various structural details are described.

**Return bend and header for tubular stills and like apparatus.** RAYMOND T. HOWES (one-half to James W. Weir). U. S. 1,890,464, Dec. 13.

**Viscometer for oils and similar liquids.** CARL D. MILLER. U. S. 1,889,996, Dec. 6. Various details are described of an app. of the constant-flow, pressure-resistance measuring type.

**Centrifugal oil cleaner.** FRITZ SCHMIDT. Brit. 367,657, May 20, 1930.

**Apparatus for determining the moisture content of wood or other materials through their electrical conductivities.** CHARLES B. LIMBRICK. U. S. 1,890,545, Dec. 13. Various structural and elec. details are described.

**Apparatus and procedure for determining water in flour or other finely ground or liquid material.** JOHN THOMLINSON and ERNEST A. FISHER. Brit. 365,247, Nov. 17, 1930. Water is determined by the loss in wt. after reaction of the $H_2O$ with $CaC_2$.

**Apparatus for emulsification of various materials.** NIELS BENDIXEN (to J. C. Vredenburg). U. S. 1,890,106, Dec. 6. Various details are described of an app. with rotating disks and concentric rings.

**Contra-flow washers for granular material.** FREDERICK PARKER, LTD., and FREDERICK W. PARKER. Brit. 363,654, Sept. 16, 1930.

**Bellows air compressors for atomizing, disintegrating and spraying liquids.** ARTHUR J. ADAMS. Brit. 363,315, Sept. 15, 1930.

**Device for prevention of back fires in gas, especially acetylene, apparatus.** ARTHUR STEPHENSON and ALLEN-LIVERSIDGE, LTD. Brit. 363,628, Sept. 12, 1930.

**Alcohol condenser [suitable for use with automobile radiator overflow pipes].** LOUIS B. GOETZMAN (one-half to John H. Rightmyer). U. S. 1,889,892, Dec. 6. Structural details.

**Spinning pots and centrifuge buckets.** ALLGEMEINE ELEKTRICITÄTS-GES. (to International General Electric Co., Inc.). Brit. 365,963, June 14, 1930. The pot or bucket is constructed of annularly disposed cords combined together by an artificial resin.

**Molding machine for plastic material, especially margarine.** GEO. W. SAUNDERS. Brit. 363,350, Aug. 13, 1930.

**Apparatus for sealing cans in vacuo.** PIERRE G. JANOT. Brit. 363,641, Sept. 24, 1929.

**Germ-free filling and sealing of bottles, etc.** ADAM BÖHMER and GEORG GEBHARDT (to Seitz-Werke G. m. b. H.). U. S. 1,889,629, Nov. 29. Various details are de-

scribed of app. and procedure for sterilizing vessels, blowing out residual sterilizing medium and filling them successfully.

**Electric control for dispensing material [such as foods or chemicals into cartons].** EDMUND B. ILYUS (to Arenco Machine Co.). U. S. 1,889,663, Nov. 29. The dielectric characteristic of the material is utilized for elec. control of segregation of the material in unit quantities, in a described automatic system.

**Automatic pressure regulator suitable for electrically driven apparatus.** VINCENT W. LEONARD (to General Elec. Co.). U. S. 1,889,607, Nov. 29. Mech. details of a device including an elec. switch are given.

**X-ray apparatus.** N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Brit. 363,602, May 21, 1930. The installation comprises a high tension supply transformer, a variator (resistance lamp) in the primary circuit consisting of a container, *e. g.*, of glass, a suitable gas filling and a resistance wire, *e. g.*, of W or Ni, and a holder for securing the variator to the envelope of the transformer. Cf. *C. A.* **27**, 871.

**X-ray tube.** N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Brit. 363,595, April 30, 1930. Means for cooling is described.

**Producing vacuums in devices such as radio tubes or valves.** KEMET LABORATORIES CO. Brit. 365,801, Jan. 28, 1931. See U. S. 1,800,134 (*C. A.* **25**, 2883).

**Electron-discharge devices.** REVELATION PATENTS HOLDING CORP. Brit. 363,430, Dec. 16, 1930.

**Indirectly heated cathode for electron-discharge devices.** ARISTOTE MAVROGENIS. U. S. 1,890,859, Dec. 13. Structural details.

**Luminescent gas-discharge tubes.** LEO L. BECK (to Claude Neon Lights, Inc.). Brit. 363,343, Feb. 28, 1930. A luminescent pos.-column tube contains a principal filling of Ne with not more than 0.5% of A, Kr and (or) Xe, the gas filling coöperating with a thermionic cathode within the tube, and has means for transmitting to the filling currents with a d. of 0.1–1.0 amp. per sq. cm. of pos.-column cross section, which d. offsets the tendency of the A, Kr and Xe to impair the color of the Ne. Cf. *C. A.* **27**, 1243.

**Mercury luminescent-tube electrode.** MELVIN G. MORRIS (to Claude Neon Lights, Inc.). U. S. 1,890,402, Dec. 6. Structural features.

**Rotary compressor.** GAUTIER STIERLI. Brit. 363,471. Nov. 19, 1929.

**Roller-and-ring mills.** FAY H. ROSENCRANTS (to International Combustion, Ltd.). Brit. 364,213, Oct. 11, 1929.

**Roller-and-ring mills.** FAY H. ROSENCRANTS (to International Combustion, Ltd.). Brit. 364,526, Oct. 11, 1929. Divided out of 364,213 (cf. preceding abstr.).

**Roller-and-ring mill.** KRISTIAN MIDDELBOE. Brit. 367,548, Feb. 9, 1931.

**Roller-and-breast mills.** GEORGE E. KRIDER. Brit. 365,427, April 9, 1931.

**Roller-and-breast grinding or crushing mills.** OSCAR SODER. Brit. 362,159, Dec. 7, 1929.

**Roller-and-breast mills for crushing coke, coal, etc.** ISAAC H. PILOT. Brit. 363,269, April 22, 1931.

**Ball and tube mills.** GUSTAV BOJNER. Brit. 365,570, July 12, 1929. Void. Rings, balls or stones are introduced into a rotary drying, evaporating, carbonizing or steam-cooling cylinder to disintegrate the material and facilitate the passage of gases therethrough, or to increase the surface to which the liquid adheres.

**Impact pulverizers.** ALFRED W. BENNIS. Brit. 364,193, Oct. 8, 1930.

**Impact pulverizers.** PERCY W. GRIFFIN. Brit. 364,954, Mar. 27, 1931.

**Impact pulverizers.** SOCIÉTÉ ANON. D'OUGRÉE MARIHAYE. Brit. 366,001, Aug. 22 1929.

**Impact pulverizers.** AUSTIN A. HOLBECK. Brit. 368,106, April 8, 1931.

**Impact pulverizer mills.** GUSTAV H. KAEMMERLING (to Erie City Iron Works). Brit. 365,529, Sept. 2, 1930.

**Impact pulverizer mill.** CLARENCE R. TAYLOR. Brit. 367,124, Jan. 16, 1931.

**Pulverizing mills.** WILLIAM A. WHITE and WHITE'S MARINE ENGINEERING CO., LTD. Brit. 366,608, Nov. 11, 1930. A pulverized fuel and air-supply system for furnaces is described.

**Mills with gyratory crushing heads.** EDGAR B. SYMONS (to Nordberg Manufacturing Co.). Brit. 364,651, Dec. 9, 1929.

**Crushers with vibrating jaws.** F. KRUPP GRUSONWERK A.-G. Brit. 360,747, Feb. 7, 1930.

**Crushers with vibrating jaws.** H. R. MARSDEN, LTD., and NEIL TAYLOR. Brit. 367,631, April 24, 1931.

**Crushing apparatus for waste oil cans, copra, etc.** GREENWOOD & BAILEY, LTD., JOHN C. M. MACLAGAN and ANDREW PENDLEBURY. Brit. 364,169, Oct. 3, 1930.

**Feeding means for grinding and mixing machines.** BESSEMER CEMENT CORPORATION. Brit. 368,015, Jan. 26, 1931.

**Sifting apparatus.** EDWARD LARSSON and ERNST PETTERSSON. Brit. 366,886, Oct. 4, 1930.

**Sifting apparatus.** FRANCIS W. BRACKETT. Brit. 367,144, Jan. 28, 1931.

**Sifting apparatus.** THE SALT UNION LTD., and ROBERT BENNET. Brit. 368,026, Feb. 5, 1931.

**Sifting and cooling apparatus.** WM. DRYDEN. Brit. 366,922, Nov. 8, 1930.

**Sifting apparatus for potters' slip, powdered substances, etc.** WILLIAM PODMORE and OSWALD G. COLLIER. Brit. 367,047, Nov. 20, 1930.

**Sifting apparatus for sand, gravel, ashes, etc.** DUDLEY M. P. CARLETON and S. M. WILMOT & CO., LTD. Brit. 364,774, Dec. 1, 1930.

**Screening apparatus for stone, gravel, etc.** AUSTIN SHARP and HERBERT A. ASHTON. Brit. 363,994, Sept. 18, 1930.

**Furnaces.** CHAUFFAGE ET RÉCUPÉRATION THERMIQUE. Fr. 737,432, May 23, 1932. The air used for cooling objects from continuous furnaces, *e. g.*, tunnel furnaces, is used for combustion in the furnace.

**Fusion furnace.** ÉDOUARD A. BEAUGENDRE. Fr. 737,543, Sept. 14, 1931.

**Air-heating furnaces.** H. LÖSCHE. Brit. 381,304, Sept. 7, 1931. Mech. construction of a furnace for supplying drying air to a stack of wood, cement, etc.

**Tunnel kiln design.** A. G. KERSHAW and WESTINGHOUSE BRAKE & SAXBY SIGNAL CO., LTD. Brit. 381,939, July 4, 1931.

**Furnace for heat treatment of small articles in baskets or other containers.** FRANK T. COPE (to Electric Furnace Co.). U. S. reissue 18,668, Nov. 29. A reissue of original pat. No. 1,794,151 (*C. A.* **25**, 2106).

**Burners for pulverized fuel.** WM. A. WHITE and WHITE'S MARINE ENGINEERING CO., LTD. Brit. 363,396, Sept. 11, 1930.

**Air preheaters for furnaces.** THE UNDERFEED STOKER CO., LTD., and WALTER FRED HARLOW. Brit. 363,559, Mar. 2, 1931. Addn. to 346,114 (*C. A.* **27**, 873).

**Apparatus for regulating furnaces, etc., from steam pressure.** PAUL C. TEMPLE (to A. W. Cash Co.). U. S. 1,890,472, Dec. 13. Structural and mech. features.

**Checkerwork for regenerators.** R. LÜNGEN. Brit. 380,754, April 28, 1932. Mech. construction.

**Furnace walls and roofs.** H. J. GREEN. Brit. 381,619, July 14, 1931.

**Furnace walls, roofs, etc.** H. J. GREEN. Brit. 381,692, Sept. 15, 1931. Mech. features.

**Automatic draught regulator for furnace flues.** HUGO M. ENDEMAN. Brit. 363,400, Sept. 16, 1930.

**Heat-transfer apparatus [with plates and spacers].** HENRI G. CHATAIN (to Northern Laboratories, Inc.). U. S. 1,890,108, Dec. 6. Structural details.

**Heat-transferring mass for heat-exchange apparatus.** AKTIEBOLAGET LJUNGSTRÖMS ÅNGTURBIN. Brit. 363,357, May 21, 1930. Structural.

**Apparatus for carrying out heat-exchange processes.** G. BOJNER. Brit. 382,006, Aug. 15, 1931. App. is described for drying, calcining, carbonizing or cooling powd. or granular materials, evapg. liquids, cooling gases or condensing vapors.

**Heat-exchange system and apparatus for heat treatments such as oxide reduction, metal treatment, etc.** GUSTAV SCHWAB (one-third to Albert C. Nolte). U. S. 1,890,431, Dec. 6. Various details of app. and operation are described.

**Control apparatus for heavy-duty heating apparatus.** ALBERT F. SPITZGLASS and OTTO T. HANDWERK (to Republic Flow Meters Co.). U. S. 1,890,701, Dec. 13. Mech. features.

**Tubulous water and air heaters heated by flue gases.** GARDNER C. DERRY (to B. F. Sturtevant Co.). Brit. 363,379, Sept. 26, 1929.

**Thermostatically controlled heater and filter for treating insulating oils, etc.** CLARENCE J. RODMAN and RUSSELL P. DUNMIRE (to Buckeye Twist Drill Co.). U. S. 1,890,265, Dec. 6. Various structural and mech. details are described.

**Differential thermostat.** THOMAS LINDSAY. Brit. 363,630, Sept. 15, 1930.

## 2—GENERAL AND PHYSICAL CHEMISTRY

FREDERICK L. BROWNE

**The life and work of William Henry Perkin, Jr.** J. F. THORPE. *Sci. J. Coll. Sci.* **1**, 9–21(1931).

**Some letters of the Reverend Dr. Joseph Priestley.** RONALD A. MARTINEAU DIXON. *J. Chem. Education* **10**, 149–50(1933). E. H.

**Peter Porcupine's persecution of Priestley.** LYMAN C. NEWELL. *J. Chem. Education* **10**, 151–9(1933). E. H.

**The University of Montreal—its history, new buildings and chemistry department.** GEORGE BARIL. *Can. Chem. Met.* **17**, 23–4, 26(1933).— W. H. BOYNTON

**Signs used in chemical equations in Hungarian high schools in the 18th and 19th centuries.** LÁSZLÓ SZATHMÁRY. *Magyar Gyógyszerésztud. Társaság Értesitője* **9**, 3–20 (1933).—Historical. S. S. DE FINÁLY

**The discovery of the elements. XX. Recently discovered elements.** MARY ELVIRA WEEKS. *J. Chem. Education* **10**, 161–70(1933); cf. *C. A.* **27**, 878. E. H.

**Supplement to the history of bismuth.** EDMUND O. v. LIPPMANN. *Chem.-Ztg.* **57**, 4(1933); cf. *C. A.* **24**, 3703.—15 references are given. J. H. MOORE

**Organic technology.** R. NORRIS SHREVE. *J. Chem. Education* **10**, 181–4(1933). E. H.

**Oceanography of Las Palmas Bay [Canary Islands].** LUIS BELLÓN URIARTE AND EMMA BARDÁN MATEU. *Inst. españ. oceanograf. Notas y resúmenes.* Ser. 11, No. 61, 68 pp.(1932). **Oceanographic methods in Palma de Mallorca Bay.** FRANCISCO DE P. NAVARRO. *Ibid* No. 63, 28 pp. E. M. SYMMES

**Analyses of the water of the Baltic Sea.** H. v. WARTENBERG, H. WERTH AND A. ZODROW. *Chem. Erde* **7**, 616–19(1932).—Thirteen analyses from various points in the Baltic are given, and also 11 analyses of fresh waters near Danzig. The latter, as well as the sea water near the coast, have a low Na:K ratio. Farther from the coast, the ratio averages 31, nearly the normal value. MICHAEL FLEISCHER

**Is ammonia evolved during freezing of sea water?** G. TAMMANN AND H. J. ROCHA. *Z. anorg. allgem. Chem.* **209**, 257–63(1932).—The partial pressure curve of $NH_3$ over solns. satd. with respect to ice is calcd. from equil. data for the system: $NH_3$–$H_2O$ and from the vapor pressure curves of solns. of $NH_3$ in $H_2O$. The curve is max. at —20°, where the soln. has 15 mol. % $NH_3$ and an $NH_3$ vapor pressure of 13.3 mm. Sea water ($7 \times 10^{-6}$ mol. % $NH_3$) must freeze all but $5 \times 10^{-7}$ of its original wt. before attaining an $NH_3$ partial pressure of 13.3 mm. The vapor pressure curve of $NH_3$ solns., measured from 0° to —80°, confirms the calcd. curve. NaCl, $CaCl_2$ and $MgCl_2$ strongly depress the $NH_3$ vapor pressure, which over sea water at —20° is calcd. $2 \times 10^{-5}$ mm. The high $NH_3$ concn. in Jupiter's atm. indicates that its seas are relatively low in salinity. J. V. VAUGHEN

**Simple reversible photochemical experiment.** I. W. GROTE AND J. H. BARNETT. *J. Chem. Education* **10**, 43–4(1933).—A soln. made by mixing equal vols. of 0.5% Na nitroprusside, satd. $NaHCO_3$, and 0.5% thiourea quickly turns blue in sunlight and crimson in the dark and is used in illustrating reversible reactions in a general chemistry lab. expt. or lecture demonstration. A. LLOYD TAYLOR

**A method for interpolating data, based on Duhring's rule.** J. H. PERRY AND E. R. SMITH. *Ind. Eng. Chem.* **25**, 195–9(1933).—A linear rule for estg. engineering data, analogous to Duhring's rule, is described and tested for the following properties: vapor pressure, latent heat of vaporization, electrolytic cond., heat capacity, Joule-Thomson effect, gas soly. and power factor. This rule applies also to the induction period (gumming) of *gasoline*. H. M. STARK

**Experimental investigation of the variation with time of the Brownian motion of a torsion balance.** EUGEN KAPPLER. *Ann. Physik* **15**, 545–67(1932); cf. *C. A.* **26**, 349. J. B. A.

**Comparative study of some dehydrating agents.** E. MOLES AND C. ROQUERO. *Anales soc. españ. fís. quím.* **31**, 11–25(1933).—The literature on the effectiveness of the usual gas-drying agents is reviewed, and preliminary results are given for $SiO_2$ gel, anhyd. $Mg(ClO_4)_2$, BaO and $B_2O_3$. The method involved passing a current of air at const. temp., satd. with $H_2O$ vapor at room temp., at known velocity over a known quantity of dehydrating agent. The gas was then passed over a weighed $P_2O_5$ tube to collect the $H_2O$ not retained by the material under test. The effectiveness is expressed in %. As stated in the literature, $SiO_2$ gel is as effective as $P_2O_5$ up to the point where $2SiO_2 \cdot H_2O$ forms. Anhyd. $Mg(ClO_4)_2$ absorbs $H_2O$ completely up to the point where $Mg(ClO_4)_2 \cdot 4.5H_2O$ forms. Freshly calcined BaO compares well with $P_2O_5$ up to the point of formation of $BaO \cdot H_2O$. $B_2O_3$ is the least effective, and its prepn. and handling are very difficult. E. M. SYMMES

**Atomic weight of cesium.** G. P. BAXTER AND J. S. THOMAS. *J. Am. Chem. Soc.* 55, 858–9(1933).—Analysis of CsCl, free from K and Rb, gives an at. wt. for Cs of 132.91. C. J. WEST

**The gas-kinetic effective cross section of molecules. II. Relations with other quantities.** H. E. BINKELE. *Ann. Physik* **15**, 729–34(1932); cf. *C. A.* **25**, 5064.—By use of Trautz's suggestion (*C. A.* **26**, 349) that the crit. temp. be taken as a reference point, it can be shown that values calcd. from van der Waals' *b*, viscosity measurements.

at. radii from crystal structure, and band spectral values of internuclear distances can all be brought into fair agreement as to the effective cross sections. E. WALDBAUER

**The application of the theory of J. J. van Laar on the additivity of $b$ and $\sqrt{a}$ to boron, iron, nickel, osmium and iridium compounds.** J. A. M. VAN LIEMPT. *Rec. trav. chim.* **51**, 1108–16(1932); cf. *C. A.* **26**, 890.—By using existing data for $BF_3$, $Fe(CO)_5$, $Ni(CO)_4$, $OsO_4$ and $IrF_6$ and based on van Laar's theory of the equation of state of gases and liquids the following values for $b_k \times 10^5$ and $b_0 \times 10^5$, resp., were calcd.: B, 78; 20.6; Fe, 115; 31.7; Ni, 112; 29.4; Os, 209; 37.9; Ir, 191; 38.5; also for $b_0.10^5$: = CO, about 82.5; = O, 39.6; F, 31; and for $\sqrt{a_0} \times 10^2$: = CO, 3.2; F, 2.0. In $BF_3$, $IrF_6$, $Fe(CO)_5$ and $Ni(CO)_4$ the central atom is completely surrounded (shielded); Os in $OsO_4$ is not completely surrounded. In the carbonyls of Fe and Ni the central atom is attached directly to the CO groups. W. C. FERNELIUS

**The $b_k$-values and atomic radii of the elements in combination with the periodic system.** J. A. M. VAN LIEMPT. *Rec. trav. chim.* **51**, 1117–30(1932); cf. preceding abstr.—The $b_k$ values of the elements are graphically shown to be a periodic function of the at. nos. This relationship permits the interpolation of $b_k$ values as yet unknown. By means of the relationship $R = 0.17\ \sqrt[3]{b_k}$ (derived from the known radii of the rare gases), the radii of the neutral atoms of the remaining elements are calcd. These calcd. values agree with the known ionization potentials and electron affinities. Pos. ions are always smaller and neg. ions always larger than the corresponding neutral atoms, the difference being smaller the greater the at. nos. In each series of elements, those having the greatest difference between the radius of the sphere of action and the at. radius are superconductors. The Ce atom appears to have an unusual electron configuration in the quadrivalent state. W. C. FERNELIUS

**The application of the theory of J. J. van Laar on the additivity of $b$ and $\sqrt{a}$ to aluminum compounds.** J. A. M. VAN LIEMPT. *Rec. trav. chim.* **51**, 1131–3(1932); cf. preceding abstrs.—For Al, $b_k = 102 \times 10^{-5}$. A structural formula for $Al_2Cl_6$, in which 2 tetrahedrons have a common edge, is given. W. C. FERNELIUS

**Meaning of the so-called specific exaltation of the molar refraction and molar dispersion.** ERICH HÜCKEL. *Z. physik. Chem.* **A163**, 67–9(1932).—The sp. exaltation of the molar refraction and dispersion does not represent a characteristic quantity for the mol. This is not true for the exaltation itself and a return to its use should be made. G. M. MURPHY

**The period of establishment of the heat of vibration of diatomic molecules.** A EUCKEN, O. MÜCKE AND R. BECKER. *Naturwissenschaften* **20**, 85–6(1932).—Previously a lack of agreement was found between measurements of the vibration heat $c_v$ of $O_2$ and $N_2$ (low) and calcns. on the basis of the Planck-Einstein equation with $\theta$ values from band spectra (high). Results of the authors (also Henry, *C. A.* **26**, 889) by the Lummer Pringsheim method under pressure agreed with the theory. The failure of the former results by the velocity of sound method is due to improper allowance for time of equil establishment of vibrational heat (the errors increase with frequency). As compared with a period of $10^{-5}$ sec. for $CO_2$ (cf. Kneser *C. A.* **27**, 1249), the period will be longer for $O_2$ and $N_2$ on geometrical grounds (Oldenberg, *C. A.* **25**, 3555). It is estd. and shown in a diagram that this period may be of the order of 0.1 sec. for normal pressure and low temp.; it is less for high pressure. Similar effects are found for $Cl_2$ to a lesser extent, for $CO_2$ a lack of influence of the linear vibration is shown. B. J. C. VAN DER HOEVEN

**The acidity of thiophenol and the three isomeric dithiophenols.** GEROLD SCHWARZENBACH. *Helv. Chim. Acta* **15**, 1468–81(1932).—The acidity of *o*-, *m*- and *p*-$C_6H_4(SH)_2$ and PhSH, detd. by e. m. f. measurements in 60–100% EtOH at 20°, decreases in the above order. For the dithiophenols, the relation $\phi D$ = const. ($\phi$ = work of removing the 2nd proton; $D$ = dielec. const. of the soln.) fails because of a screening effect of the mols. H. A. BEATTY

**The electric double layer. I. Thermodynamics of the double layer.** BÉLA LENGYEL. *Magyar Chem. Folyóirat* **38**, 98–110(1932). **II. Structure of the double layer.** TIBOR ERDEY-GRUZ. *Ibid* 111–22.—A review. S. S. DE FINÁLY

**Electric field in paramagnetic crystals.** C. J. GORTER. *Phys. Rev.* **42**, 437–8 (1932).—On the basis of the recent theory of Kramers, Bethe, Van Vleck and others concerning the relation between magnetic data and spatial arrangement of atoms and mols. in a crystal, the conclusion is reached that in the hydrated salts of the Fe group the metal ion is surrounded by 6 water-dipoles in an octahedral arrangement (the neg charges inside, at the face centers of a cube about the pos. ion). A similar arrangement is probable for the alums and hepta- and hexa-hydrated sulfates (data of C. A. Beevers), and possibly for the octahydrates of Pr and Nd sulfates (Penney and Schlapp). HELEN S. HOFFIELD

**Polarization and association of ethyl ether as a function of the temperature.** MIEC-

ZYSLAW WOLFKE AND JÓZEF MAZUR. *Compt. rend. soc. phys.* (Warsaw) **5**, 357–64 (357–9 in French)(1931); cf. *C. A.* **25**, 3884; **27**, 6. J. WIERTELAK

**Polarity in certain hydrocarbon vapors.** K. B. MCALPINE AND C. P. SMYTH. *J. Am. Chem. Soc.* **55**, 453–62(1933).—The dielec. consts. of the vapors of $C_6H_6$, $C_7H_8$, $C_8H_6$ and $C_8H_8$ were measured in an app. calibrated with air and $CO_2$. The elec. moments are 0, 0.37, 0.35 and 0, resp. The polarization of $C_6H_6$ and $C_8H_8$ remains const. with increasing temp. G. M. MURPHY

**The possibility of dipole rotation in certain crystalline solids.** S. E. KAMERLING AND C. P. SMYTH. *J. Am. Chem. Soc.* **55**, 462–5(1933).—The dielec. const. of certain solids were measured from the m. p. down to lower temp. and at frequencies of 200–50,000 cycles. No rotation of the mol. or its polar group was found for $C_7H_{15}Br$, $p$-$C_6H_4(OMe)_2$ and PhOMe. The small effect found for PhOH and BzCl is attributed to an impurity. G. M. MURPHY

**Gaseous combustion at high pressures. XIV. Explosions of hydrogen-air and carbonic oxide-air mixtures at initial pressures up to 1000 atmosperes.** WM. A. BONE, D. M. NEWITT AND D. T. A. TOWNEND. *Proc. Roy. Soc.* (London) **A139**, 57–74(1933); cf. *C. A.* **23**, 5319.—Explosions of $H_2$-air, CO-air and $2CO + O_2 + 3.76CO$ were made at pressures of 75–1000 atm. in an especially designed explosion chamber (max. pressure reported was 7100 atm.). The $H_2$-air explosion time was 0.005 sec., the others 0.015–0.33 sec. In the CO-air explosion, an exothermic effect in the cooling curve indicated $N_2$ activation toward forming oxides with excess $O_2$. At pressures of 500–1000 atm. $CO_2$ was dissocd. about 5–6%. Explosions with CO as diluent above initial pressures of 250 atm. gave a small C deposit. **XV. The formation of nitric oxide in carbonic oxide-oxygen-nitrogen explosions.** DONALD T. A. TOWNEND AND LIONEL E. OUTRIDGE. *Ibid* 74–83.—A large bomb having a small explosion chamber and a rather large expansion chamber was used for $xCO + yO_2 + zN_2$ explosions. These explosions were carried out at pressures of 3–90 atm. $NO_2$ in the cooled gases varied from 0.3 to 5.1%; being in greater proportion in those charges of greater initial d. (pressure). The peroxide resulted from the NO (formed during the explosion) combining with excess O, with due consideration for the $2NO \rightleftharpoons N{:}N + O{:}O$ equil. **XVI. Nitric oxide formation in continuous high-pressure flames of carbonic oxide in oxygen-nitrogen atmospheres.** DUDLEY M. NEWITT AND FRANK G. LAMONT. *Ibid* 83–93.—A combustion chamber was designed for continuous burning of CO in an $O_2$-$N_2$ mixt. under pressure up to 100 atm. The chamber was fitted with a quartz window through which the flame and the formation of $NO_2$ could be observed. The max. $NO_2/CO_2 \times 10^2$ ratio was 8.46 in the exit gases corresponding to 2.10% peroxide. Combustion in $50O_2/50N_2$ at 100 atm. gave both highest percentage peroxide and ratio. H. E. MESSMORE

**Change of specific gravity of ethyl ether with temperature.** JÓZEF MAZUR. *Compt. rend. soc. phys.* (Warsaw) **5**, 349–56(349–50 in French)(1931); cf. *C. A.* **25**, 2343. J. WIERTELAK

**Rotation of crystals floating at the surface of liquids.** PAUL GAUBERT. *Compt. rend.* **195**, 1088–90(1932).—Any solid substance floating on the surface of a liquid at rest will turn, if it is sol. in the liquid. The translatory and rotatory movements of such substances depend on the geometrical form of the crystal and on its soly. They are attributable to the sepn. of mols. of the crystal, giving rise to diffusion currents. I. J. PATTON

**The measurement of surface tension.** T. CARLTON SUTTON. *Proc. Phys. Soc.* (London) **45**, 88–90(1933).—Two tubes, differing in size of bore, fused together are used in a convenient method for measuring simultaneously the surface tension and d. of a few mg. of liquid. The method is particularly advantageous for the measurement of the parachors, $\gamma^{1/4}/\rho$, of rare liquids. M. MCMAHON

**A study of the electrical breakdown of liquids by means of the electro-optical shutter.** HAROLD W. WASHBURN. *Physics* **4**, 29–37(1933).—The electro-optical shutter of Dunnington (cf. *C. A.* **26**, 908) was modified for use with liquids. The effects of static (time, 1 to 10 secs.) and of impulse (time, $3 \times 10^{-7}$ sec.) potentials on the breakdown of elec. resistance was studied, with paraffin oil and xylene. In static breakdown at 45,000 v., regions of high intensity of ionization usually occurred at the anode. In impulse breakdown at 35,000 v., the breakdown was more uniform throughout the path with xylene, but not with paraffin oil. There are 11 references. GERALD M. PETTY

**The diffusion of thorium in tungsten.** GORTON R. FONDA, ANDREW H. YOUNG AND AMY WALKER. *Physics* **4**, 1–6(1933).—Various lots of thoriated W wires varied widely in diffusion and activation consts. The wires were heat treated to develop grain lengths from 4$\mu$ to 3 cm. These variations produced marked changes in thermionic emissive characteristics, such as activation and deactivation rates and emissive life at normal operating temp. The heat of diffusion was unaffected. The intergranular diffusion of

Th through W is relatively too fast to measure; the observed phenomena depend entirely on intragranular diffusion. This concept agrees with the existence of a crit. grain size for max. emissive life. Th atoms were found to spread over the surfaces of W crystals. The effect of mech. strain on activation was studied. GERALD M. PETTY

**The crystal structure and morphology of gallium.** F. LAVES. *Z. Krist.* **84**, 256–98 (1933); cf. *C. A.* **26**, 4740.—Ga is orthorhombic, pseudo-tetragonal. The unit cell contains 8 atoms, with $a = b = 4.506$ A. U. and $c = 7.642$ A. U. The space group is $V_h^{18}$. At. positions are $mOp$; $m + 1/2, 1/2, \bar{p}$; $\bar{m} + 1/2, 1/2, p$; $\bar{m}O\bar{p}$; $m, 1/2, p + 1/2$; $m + 1/2, O, \bar{p} + 1/2$; $\bar{m} + 1/2, O, p + 1/2$; $\bar{m}, 1/2, \bar{p} + 1/2$, with $m = 0.080$ and $p = 0.153$. Each Ga has 1 neighbor at a distance of 2.45 A. U., 2 at 2170 A. U., 2 at 2173 A. U. and 2 at 2.79 A. U. A close relation between morphology and structure is shown. L. S. R.

**Crystal structure of indium.** FRANCIS P. J. DWYER AND DAVID P. MELLOR. *J. Proc. Roy. Soc. N. S. Wales* **66**, 234–9(1932)(reprint).—Powder photographs of carefully purified electrolytic and molten In showed the same lines. From the equation $\sin^2\theta = 0.2814 (h^2 + k^2) + 0.02423(l^2)$ and the absence of certain spectra it was concluded that the lattice of In is face-centered tetragonal. $a_0 = 4.588 \pm 0.002$ A. U.; $c_0 = 4.946 \pm 0.002$ A. U.; $a:c = 1.078 \pm 0.002$. The no. of atoms per cell is 4; calcd. d. = 7.28, exptl. d. = 7.27. The coördinates of the atoms are: 000; $1/2\,1/2\,0$; $1/2\,0\,1/2$; $0\,1/2\,1/2$. The distance between at. centers of the atoms at the centers and corners of the (001) faces is 3.28 A. U.; the corresponding distance for the atoms at the centers of the (100) and (010) faces is 3.89 A. U. Probably metallic atoms of In do not possess spherical symmetry, since the face-centered tetragonal structure is the sort that would result from the close-packing of prolate spheroids with axes in the ratio 1:1.078. In this, In resembles Zn and Cd. It would appear that Zn, Cd and In are not in the ionic state.
LOUIS WALDBAUER

**The crystal structure of sulvanite, $Cu_3VS_4$.** LINUS PAULING AND RALPH HULTGREN. *Z. Krist.* **84**, 204–12(1933) (in English).—Laue and oscillation photographs of single crystals from Mercur, Utah, give a cubic cell with $a = 5.370 \pm 0.005$ A. U., contg. 1 mol. (cf. *C. A.* **23**, 2126). The space group is $T_d^1 - P\bar{4}3m$. The at. arrangement is of a new type, with $V$ at 000; Cu at $1/2\,00$, $0\,1/2\,0$, $00\,1/2$, and $S$ at $uuu$, etc., with $u = 0.235 \pm 0.004$. Smallest interatomic distances are $V - S$ 2.186 $\pm$ 0.040 A. U. and Cu-S 2.285 $\pm$ 0.014 A. U. L. S. RAMSDELL

**The crystal structure of rubidium nitrate.** LINUS PAULING AND J. SHERMAN. *Z. Krist.* **84**, 213–16(1933)(in English).—The structure of $RbNO_3$ as reported by Zachariasen (*C. A.* **23**, 1790) is incorrect. The pseudo-hexagonal cell has the dimensions $a = 10.45$ A. U. and $c = 7.38$ A. U., contg. 9 mols. Laue data agree with an orthorhombic cell with $a = 18.08$ A. U., $b = 10.45$ A. U. and $c = 7.38$ A. U. contg. 18 mols. L. S. RAMSDELL

**The structure of rubidium ferricyanide.** W. BÜSSEM AND C. GOTTFRIED. *Z. Krist.* **84**, 317–18(1933).—$Rb_3Fe(CN)_6$ is isomorphous with the corresponding K salt, but not with the Cs. The monoclinic cell has the dimensions $a = 13.74$ A. U., $b = 10.66$ A. U. and $c = 8.63$ A. U. $\pm$ 1%. $\beta$ is close to 90°. The space group is $C_{2h}^5$ but approximates $V_h^{14}$. L. S. RAMSDELL

**The structure of the trifluorides of the transition metals.** NORA WOOSTER. *Z. Krist.* **84**, 320–1(1933); cf. *C. A.* **26**, 5468.—It is suggested that $FeF_3$ and other trifluorides of the transition metals are isomorphous with the structure of $WO_3$ proposed by Braekken (*C. A.* **25**, 5813). The structures proposed by Ebert (*C. A.* **25**, 3892) and Ketelaar (*C. A.* **25**, 5325) are shown to be unreasonable. L. S. RAMSDELL

**The crystal structure of cerussite.** M. Y. COLBY AND L. J. B. LACOSTE. *Z. Krist.* **84**, 299–309(1933)(in English).—A complete detn. of the structure of $PbCO_3$ on the basis of oscillation photographs gives a cell contg. 4 mols. with $a = 5.16_6$ A. U., $b = 8.46_8$ A. U. and $c = 6.14_5$ A. U. Space group $V_h^{16}$. The structure is essentially the same as that of aragonite (*C. A.* **19**, 1237) and $KNO_3$ (*C. A.* **26**, 1841). The parameters are: Pb-0°, 150°, 0°; C-0°, 275°, 55°; O I-0°, 327°, 55°; and O II-74°, 249°, 55°.
L. S. RAMSDELL

**An x-ray investigation of the 12-molybdophosphates and related compounds.** J. L. HOARD. *Z. Krist.* **84**, 217–30(1933)(in English).—Laue and oscillation photographs were made for $H_3PMo_{12}O_{40}.30H_2O$, $NdPMo_{12}O_{40}.30H_2O$, $SaPMo_{12}O_{40}.30H_2O$, $GdPMo_{12}O_{40}.30H_2O$, $Mg_2SiMo_{12}O_{40}.31H_2O$, $Ni_2SiMo_{12}O_{40}.31H_2O$, and $Be_2SiW_{12}O_{40}.31H_2O$. The data indicate cubic unit cells contg. 8 mols. with $a \approx 23$ A. U. The space group is probably $O_h^7$. L. S. RAMSDELL

**The crystal structure of potassium silver cyanide.** J. L. HOARD. *Z. Krist.* **84**, 231–55(1933)(in English).—Laue and oscillation photographs of $KAg(CN)_2$ indicate a

hexagonal cell with $a = 7.384 \pm 0.010$ A. U. and $c = 17.55 \pm 0.02$ A. U., contg. 6 mols. The space group is probably $D^2_{3d}$. The structural units are K ions and linear or nearly linear $[Ag(CN)_2]$ ions oriented at about 27° with the $c$ axis. Parameter values are discussed. Interatomic distances are found as follows: Ag-N 3.29 A. U.; K-N 2.97 A. U., 3.05 A. U. and 2.56 A. U. This last abnormally small value may be due to the formation of an electron pair bond between each K and one N atom. The CN groups form close-packed layers parallel to (001) and each K ion is surrounded by a distorted octahedron of N atoms. L. S. RAMSDELL

**The crystal structure of anthracene.** J. MONTEATH ROBERTSON. *Z. Krist.* **84**, 321–2(1933).—The following data were obtained for anthracene: m. 217°; monoclinic prismatic, with $a = 8.58$ A. U., $b = 6.02$ A. U., $c = 11.18$ A. U., $\beta = 125°$; space group $C^5_{2h}$ ($P\ 2_1/a$); 2 mols. of $C_{14}H_{10}$ per cell. The closest approach between atoms in adjacent mols. is about 3.67 A. U., in contrast to 1.41 A. U. between atoms within the mol. L. S. RAMSDELL

**Some naphthalene and stilbene derivatives.** JIŘÍ NOVÁK. *Z. Krist.* **84**, 310–16 (1933).—The following data were detd.: Et 2,4-dinitro-1-naphthylmalonate, m. 107–8°; $d_{25} = 1.406$; $C_{2h}$ with $a:b:c = 0.5372:1:0.6208$, $\beta = 112°14'$; optic plane (010), strong inclined dispersion with $r<v$, $2E = 21.5°$, optically neg. extinction angle on (010) is 26° in acute angle $\beta$ from $c$ axis. Et 2,4-dinitro-1-naphthylacetoacetate, m. 131°, $d_{25} = 1.368$; $C_{2h}$, $a:b:c = 1.2545:1:1.2604$, $\beta = 112°24'$; extinction parallel to $b$ axis, optic plane normal to (010), $Bx_a$ nearly normal to (100), $2E = 108°07'$, optically pos. 1-Methyl-5-nitro-8-acetamidonaphthalene, m. 193–4°, $d_{26} = 1.333$; $C_{2h}$, $a:b:c = 9.0454:1:5.7005$, $\beta = 118°48'$; hardness 1, imperfect cleavage parallel to (100) and (001); neg. elongation, extinction on faces in orthodome zone always parallel. 4-Methyl-2′,4′,6′-trinitrostilbene, m. 162.3°, $d_{26}$ 1.4908; triclinic, $a:b:c = 1.5416:1:0.6812$, $\alpha = 96°20.5'$, $\beta = 110°18.5'$, $\gamma = 90°59'$; optically pos., extinction on (100) —9° from edge between (100) and (010) and on face (010) —4.5° from the same edge. 3,4-Methylenedioxy-2′,4′-dinitrostilbene, $d_{26} = 1.5494$, $C_{2h}$, $a:b:c = 0.8419:1:1.6681$, $\beta = 95°24'$, strong pleochroism yellow-red to dark red, parallel and normal to the $c$ axis, resp. The deep color makes it impossible to det. other optical data. L. S. RAMSDELL

**The saturation pressures of steam [170° to 374°].** A. EGERTON AND G. S. CALLENDAR. *Trans. Roy. Soc.* (London) **A231**, 147–205(1932).—The satn. pressures of steam between 160° and 374° were accurately measured with app. that provides a continuous flow of steam. Both app. and the methods of temp. and pressure measurement are described. The results, accurate to 1 part in 6000, are presented in tables that give the satn. pressures in lb. per sq. in. and atms. for every 5°, together with the change in pressure with temp. Although the method was not suitable for accurate detn. of the crit. point, the indications were that above 374° the steam behaved as superheated vapor. C. C. KIESS

**The existence of a polonium acetylacetonate.** SERVIGNE. *Compt. rend.* **196**, 264–6 (1933).—When Po hydroxide which has been deposited on a neutral hydrosol is brought in contact with a layer of acetylacetone, over 90% of the Po is dissolved in the acetylacetone. When the soln. is evapd., 3 extns. with $CHCl_3$ dissolved 92% of the Po. Analogous results were obtained with EtOH, $Me_2CO$ and acetylacetone. Most of the Po was not in a colloidal state. Only 9% of the Po was withdrawn from a $CHCl_3$ soln. stirred by a Ag plate 4 hrs. The compd. is not sensibly ionized in that solvent. From a study of the acetylacetonates of Sc, Al and Th, it was found that Po has a valence of 4 in this compd. GERALD M. PETTY

**The absorption of gases and vapors by activated carbon and silica gel.** P. DEMOUGIN. *Mém. poudres* **25**, 18–90(1932–33).—Static and dynamic tests on activated carbons and $SiO_2$ gel with various gases and vapors showed that in static tests, absorption depends on temp. and pressure at equil. In dynamic tests the factors are rate of absorption, thickness of absorbing layer, d., rate of flow of gas and its concn. in absorbable products. A distinction is made between absorptive power for gases and for vapors. With absorbants of increasing activation, gas absorption goes through a max. while vapor absorption increases with increasing activation. Heat of mixing with liquids, rate of absorption and desorption pass through a max. with increasing activation. Moisture in the absorbant does not affect total absorption but retards the rate of absorption. Progressive drying of $SiO_2$ gel with development of porosity is the chief factor in its activation while strong dehydrating agents like $ZnCl_2$ and $H_3PO_4$ are most valuable in the activation of C. Adsorptive forces act only at a slight distance which is detd. by the thickness of the layer of absorbant. The fixed fluid, compressed by adsorption, is in the gaseous state for low vapor pressures and in the liquid state for vapors near satn. Capillary mono- and polymol. condensations are discussed and it is concluded that the total force acting on the absorbed mol. depends on the chem. nature of the mols.

in contact and on the surface curvature of the grains of absorbant. The mean curvature increases when the total surface per g. of absorbant is increased by activation.
A. J. PHILLIPS

**Adsorption. A study of availability and accessibility.** WM. HARDY AND MILLICENT NOTTAGE. *Proc. Roy. Soc.* (London) **A138**, 259–83(1932).—The variation with temp. of static friction of solns. of a wax, palmitic acid and hexadecyl alc. in medicinal paraffin was measured. The limits of variation were the friction of the pure solvent and the pure solute. Pure substances have no temp. coeff. of friction. Friction could therefore be used roughly to measure the ratio of solvent and solute mols. in the adsorbed layer. At any temp. the ratio is detd. by the previous history and the compn. of the soln. It is governed by the availability of the solute for adsorption and by the accessibility, which is the capacity of the solute for replacing the adsorbed solvent. L. E. STEINER

**Adsorption and wetting processes in technic and biology.** E. BERL AND B. SCHMITT. *Naturwissenschaften* **20**, 943–4(1932).—A parallel is drawn between the use of flotation agents and specific chemotherapy. B. J. C. VAN DER HOEVEN

**The thermodynamics of adsorption at the surface of solutions.** E. A. GUGGENHEIM AND N. K. ADAM. *Proc. Roy. Soc.* (London) **A139**, 218–36(1933).—The surface excess per unit area, or $\Gamma$, at the surface of a soln. was originally defined as the difference between the quantity of solute contained in a given vol. of soln. contg. unit area of free surface, and that in an equal vol. without any free surface. Four addnl. definitions of $\Gamma$ are given, with equations and calcns. showing the values of $\Gamma$ according to the definition. $\Gamma$ is calcd. for liquid-liquid interface (EtOH-$H_2O$), and the liquid-vapor interface is discussed. The relation of $\Gamma$ to osmotic pressure and dil. solns. is also given.
H. E. MESSMORE

**Active oxides. LV. Dehydration of hydrogels in the presence of various gases.** GUSTAV F. HÜTTIG AND KURT STRIAL. *Z. anorg. allgem. Chem.* **209**, 249–56(1932), cf. *C. A.* **27**, 15.—Hydrogels of $ThO_2$, $ZrO_2$ and $Cr_2O_3$ were dehydrated in $N_2$, $H_2$, $CH_3OH$, $O_2$ $NH_3$ + $N_2$ and pure dry $NH_3$ and dehydration curves are plotted. The 1st portion of $H_2O$ comes off quickly in $NH_3$ but much more slowly in $N_2$. For $Cr_2O_3.H_2O$ and $ThO_2.H_2O$ the influence of gases upon the dehydration velocity increases in the following order: $NH_3$, $CH_3OH$, $O_2$, $H_2$, $N_2$. The last traces of water were removed most easily in the presence of $H_2$ and $N_2$ and most slowly in the presence of $NH_3$ and $CH_3OH$. The general processes are discussed. H. STOERTZ

**Specific surface and the adsorbent properties of lead sulfate.** I. M. KOLTHOFF AND CHARLES ROSENBLUM. *J. Am. Chem. Soc.* **55**, 851(1933).—In agreement with the results of Paneth and Vorwerk (*C. A.* **16**, 3784) the sp. surface of $PbSO_4$ is the same in suspensions in $H_2O$ as in the presence of an excess of $Pb(NO_3)_2$ or in dil. solns. of $Na_2SO_4$ $Pb(SO_4)_2$ adsorbs only dye ions from the Na salt of Ponceau 4R; this is an exchange adsorption, sulfate ions being replaced by ponceau ions in the surface. C. J. WEST

**The glassy state.** R. O. HERZOG AND H. C. KUDAR. *Naturwissenschaften* **20**, 951–2(1932).—A classification of glassy conditions is given on the basis of mol. vol. For normal-size mols in a compressed fluid (Bridgman) a glassy state (solid amorphous) is obtained with $V - b$ (van der Waals' const.) small and $b_I < b_0$ ($b_I$ is van der Waals vol., $b_0$ mol. vol. at atm. m. p.), secondly as undercooled liquid another glassy phase is found with $V - b$ small but $b_{II}$ about equal to $b_0$. The third group, macro-mol. clusters, has $b_{III}$ near $b_0$ ($b_0$ is zero point vol.) but $V - b$ large. On crystn. the $b_{cryst.}$ of the 3 groups are, resp., $\leqq b_I$, $< b_{II}$ and $= b_{III}$. The theory is to be published soon.
B. J. C. VAN DER HOEVEN

**Separation of polydisperse systems by centrifugal force.** A. I. MOSHEV. *Proc 2nd Intern. Congr. Soil Sci., Leningrad*, **1930 I**, 66–9(1932)(in German).—A math. discussion. C. J. SCHOLLENBERGER

**Sedimentation equilibrium in the ultracentrifuge; types obtained with soap solutions.** JAMES W. MCBAIN AND M. E. MCBAIN. *Proc. Roy. Soc.* (London) **A139**, 26–37 (1933).—The concn. gradient of a neutral mol. or primary colloid at the isoelec. point is $\frac{RT}{\omega^2 x} \cdot \frac{d \ln c}{dx} = M(1 - \bar{v}\rho)$, in which $c$ = concn., $x$ = distance from axis of rotation, $M$ = effective mol. wt., $\bar{v}$ = partial sp. vol., $\rho$ = d. of the soln., $\omega$ = angular velocity. Several modifications of this equation to fit sp. cases are given, *e. g.*, sedimentation of a cation, of an anion, for cation and anion, etc. At every level the mass law must be satisfied, also the expression $\frac{\text{ionic micelle}}{\text{neutral micelle}} = K$. Ds. of certain soap solns. were so adjusted by addn. of KCl that sedimentation occurred upward, downward or in both directions. The neutral micelle rises and the ionic micelle sinks in the soap soln. according to the relative d. Microphotometric tracings are given showing absorption of ultra-violet light by soap solns. H. E. MESSMORE

**Structural viscosity in some lyophilic sols. I. The flocculation of gelatin and casein by agar.** WILFRED GALLAY. *Can. J. Research* 7, 662–70(1932).—The relative viscosities of mixts. of gelatin and agar sols were measured at varying pressures with the overflow viscometer. All the sols showed wide deviations from Poiseuille's law, with regions of structure and turbulence at low and high pressures, resp. A min. viscosity was found for an intermediate mixt., showing a dehydrating action of the agar on the gelatin. This effect was masked in a similar series with casein and agar, because of the much greater difference in relative viscosity of the 2 sols. In many cases a marked structural turbulence was found in the region of structure. The relation between velocity of flow and pressure is expressed by a parabolic equation. **II. Rubber sols.** *Ibid* 671–6.—The relative viscosities of sols of natural and purified rubber in $C_6H_6$ were measured at varying pressures with the overflow viscometer. Deviations from Poiseuille's law to varying extents were found in all cases, with regions of structure and turbulence at various pressures. The limiting concns. above which structure is evident and Poiseuille's law is not obeyed were found to agree with those calcd. by Staudinger, on the basis of his theory of the relation between the viscosity and mol. wt. of polymeric mols. Exposure to ultra-violet light considerably decreased the viscosity of a sol of purified rubber. The equation of Einstein expressing a linear relation between sp. viscosity and the vol. of the solute fails utterly in such sols as gelatin and rubber.
J. W. SHIPLEY

**The theory of the structure of colloidal systems.** HARTMUT KALLMANN AND MARGARETE WILLSTAETTER. *Naturwissenschaften* 20, 952–3(1932).—The van der Waals' attraction of mols. as developed by London is held responsible for such phenomena as the Buzagh adherence (*C. A.* 24, 3938, 4684), reversible coagulation, thixotropy and Zocher layers (*C. A.* 19, 3401). This attraction, proportional to $r^{-6}$ ($r$ = distance between particles), acting on colloid particles of diam. $r_0$ and with $r_0$ about equal to $2r$, will be of the order of a few tenths v. and will in conjunction with the electro-static repulsion forces explain the coherence effect.
B. J. C. VAN DER HOEVEN

**Determination of flocculation values from measurements of the rate of coagulation of an arsenic sulfide sol.** D. N. GHOSH. *J. Indian Chem. Soc.* 9, 591–7(1932).—Flocculation values were detd. from measurements of the velocity of increase in turbidity of $As_2S_3$ sol with different electrolytes; the observations were confined to the early stages of coagulation to avoid disturbances due to adsorption of coagulant by flocculated particles. A Nutting colorimeter was adapted to function as a tyndallmeter. Flocculation values for univalent cations were in the order $H<NH_4<K<Na<Li$ and for bivalent cations in the order $Ba<Sr<Ca<Mg$. These are the inverse of the order of adsorption values detd. by Oden. The order of flocculation is the same at all concns. of coagulator.
F. L. BROWNE

**Action of traces of sodium sulfide in the preparation of colloidal gold by the Zsigmondy method.** R. WERNICKE AND BIRABÉN LOSSON. *Folia biol.* 1, 33–4(1931). cf. *C. A.* 25, 859.—A discussion.
L. E. GILSON

**Principles of genetic formation of substances. VII. Carbonation of lead oxide. Chemistry and morphology of white lead.** V. KOHLSCHÜTTER AND H. HOSTETTLER. *Helv. Chim. Acta* 15, 1425–49(1932); cf. *C. A.* 26, 2108.—Aq. suspensions of PbO in the degree of dispersion of an aerogel behave differently and yield different products on reaction with $CO_2$ than coarser forms of PbO. With the finely divided PbO the ion reaction forming basic $PbCO_3$ takes place in dispersed layers upon the particles rather than in the "total vol." of the satd. soln. The reaction is confined to "small vol. systems" closely attached to the particles, the total system being thus subdivided into very small reaction units. The compn. and morphological nature of the layers in which reaction proceeds depend upon such conditions as the concn. of $H_2CO_3$, which in turn controls the course of the reaction and the nature of the product. The reaction layers are torn loose by the molecular-mechanical action of the medium so that a sort of "colloidization" of the original substance takes place while the reaction layers are continually renewed as long as any PbO remains. The *chamber process of white lead manufacture* depends upon a reaction of similar nature. The useful properties of white lead depend upon its morphology as governed by these conditions of ppn. in "small vol. systems" rather than upon its chem. compn. or cryst. structure. This reaction with PbO is of special interest from the point of view of general theory because the "small vol. systems" lie within the resolving power of the microscope and give some idea of the processes that may be going on in more finely divided systems, although in the latter case other factors may enter in also.
F. L. BROWNE

**Periodic structures. The Liesegang phenomenon.** M. F. TABOURY AND SALVINIEN. *Bull. soc. chim.* 51, 1340–6(1932).—Thorough washing of the gelatin prevents formation of Liesegang rings of $Ag_2CrO_4$, indicating that impurities in the gelatin play an essential role in the phenomenon. Water removes sulfates and chlorides from the gela-

tin. Addn. of sulfates to washed gelatin failed to make it form rings again, but on addn. of chlorides rings formed readily. Bromides likewise favored ring formation, but iodides and cyanides were only moderately favorable. For each "impurity" there is a characteristic range of $K_2CrO_4$ concns. through which good rings are formed. The favorable "impurities" are those that form insol. ppts. with Ag. When rings are formed in an elec. field between two electrodes various forms of distortion are produced that depend upon the strength and distribution of the current. The elec. current operates by affecting the velocity of diffusion of the ions. F. L. BROWNE

**The periodic precipitation of mercuric iodide.** SUZANNE VEIL. *Compt. rend.* **196**, 266–8(1933).—When $HgCl_2$ and KI react in gelatin, Liesegang rings are obtained. GERALD M. PETTY

**Variation of the coefficient of exchange with temperature.** M. CHENEL. *Mem. poudres* **25**, 97–99(1932–33).—In the purification of nitrocellulose by boiling with water at temps. from 40° to 130°, it was found that the rate of removal of the acid is an exponential function of the temp. A. J. PHILLIPS

**Substances permeable to fluids. I.** MASUO KAWAKAMI. *J. Chem. Soc. Japan* **53**, 1085–95(1932).—Substances permeable to fluids are considered to be composed of many capillaries of equal size. The radius, length and the no. per sq. cm. of the fictitious capillaries are called the permeability consts. Two methods for detg. the consts. are described. The permeability consts. of filter paper were measured by one of these methods. T. KATSURAI

**Preparation and properties of protein-cellulose membranes.** J. LOISELEUR AND L. VELLUZ. *Bull. soc. chim. biol.* **14**, 1210–17(1932).—See *C. A.* **25**, 1723, 1861. L. E. GILSON

**Relation between solubility and coefficient of diffusion of gases in liquids.** J. HORIUTI. *Z. Elektrochem.* **39**, 22–4(1933).—Calcns. are made for $H_2$ in $CCl_4$, $C_6H_6$ and $C_6H_5Cl$. CURTIS L. WILSON

**The partition coefficient between water and the organic solvents ethylene bromide and nitrobenzene.** G. HERRERO. *Anales soc. españ. fís. quím.* **31**, 5–10(1933).—The partition coeff. of I between $H_2O$ and $(CH_2)_2Br_2$ and $PhNO_2$ was detd. at 20°, and found to agree with the Hantzsch-Landau law (*Z. phys. Chem.* **38**, 709(1901); *C. A.* **4**, 2064), because with partition of I between 2 solvents, one giving a brown, the other a violet or dark red soln., the change of partition coeff. depends upon the concn., and *vice versa;* in systems in which both solvents are colored brown by I, the partition coeff. is practically independent of concn. The soly. of I in these solvents was also detd. E. M. SYMMES

**Equation relating density and concentration.** WM. C. ROOT. *J. Am. Chem. Soc* **55**, 850–1(1933).—The equation $D = D_0 + c_1N + c_2N^{3/2}$ where $c_1$ and $c_2$ are consts. and $D_0$ is the d. of pure $H_2O$, holds within the limits of exptl. error for solns. of the alkali (except Li) and alk. earth halides to a concn. at least as high as 10 $N$ and for $H_2SO_4$ to a concn. of about 25 $N$ (about 75%), where there was a point of inflection. The consts. $c_1$ and $c_2$ are additive. C. J. WEST

**The Ostwald rule of successive stages.** I. N. STRANSKI AND D. TOTOMANOW. *Naturwissenschaften* **20**, 905(1932).—The Ostwald rule for formation of polymorphic modifications from a supersatd. gas or liquid phase can be qualitatively interpreted by the Volmer expression for probability of nucleus formation (Volmer, *C. A.* **20**, 1928; **24**, 5208; Farkas, *C. A.* **21**, 1575). Conclusion: The probability of formation for nuclei of the metastable solid phase is higher than for the stable phase at temps. not too far below the transition point metastable to stable. B. J. C. VAN DER HOEVEN

**The oxidation of mercury by air.** ALFRED STOCK, FRANZ GERSTNER AND HERBERT KÖHLE. *Naturwissenschaften* **20**, 954–5(1932).—Previous work (*C. A.* **25**, 5110) on soly. of Hg in $H_2O$ was continued. Microdetns. of Hg were made by the distn. method (*C. A.* **25**, 2662). In the absence of $O_2$ the soly. is less than 0.03 $\gamma$ per cc.; on passing a slow $O_2$ stream through $H_2O$ with Hg layer at 30° satn. was obtained after 2 months at 39 $\gamma$ Hg per cc. On standing in air the satn. is only $^1/_2$ after 2 months. In 5% KOH the soly. is 55 $\gamma$/cc., in 10% KOH 135 $\gamma$/cc. and at satn. is more rapid. The dissolved substance is HgO; its soly. checks with the data obtained. Similar oxidation of Hg in KCl soln. gives HgCl solns., soly. in 5% KCl 22 $\gamma$/Hg/cc., in 10% KCl 46 $\gamma$/cc. The soln. as well as solid HgO gives off vapors contg. elementary Hg by dissocn.; this explains the diffusion of Hg through water. The soly. also explains various observations on Hg vapors, *e. g.*, its rapid resorption in the lungs. B. J. C. VAN DER HOEVEN

**Cryoscopic study of paraldehyde, ether and acetone in solutions of sodium acetate.** O. HUN. *Compt. rend.* **196**, 177–8(1933); cf. *C. A.* **26**, 3716.—The cryoscopic consts. of paraldehyde, $Me_2CO$, and $Et_2O$ in 0.1 *M* NaOAc aq. soln. are 23.95, 21.37 and 22.99, resp.; in 1.0 *M* NaOAc aq. soln. 30.60, 24.25, and 27.86, resp.; in 1.225 *M* NaOAc aq soln. 32.92, 25.65 and 29.90, resp. DON BROUSE

**The influence of temperature on the solution state of methylated carbohydrates.** MAX ULMANN AND KURT HESS. *Ber.* **66B**, 68–71(1933); cf. *C. A.* **26**, 6120.—The osmotic pressure of α-methylglucoside in aq. soln. was investigated with the aid of the method of isothermal distn. Assocn. sets in at a much smaller concn., 0.06%, than with hendecamethylcellotriose, 0.3%, and increases with the temp. for both compds. The mol. size of hendecamethylcellotriose depends upon $p_H$, concn. and temp. A. S. S.

**Conductivity of solutions of zinc oxide in caustic soda solution.** FREDERICK R. SNELL. *J. Indian Chem. Soc.* **9**, 583–9(1932).—The cond. of solns. of ZnO in NaOH solns. is examd. at various dilns. with the mol. ratio of ZnO to $Na_2O$ varying from 1:2.5 to 1:7. The curves for ratio-cond. show no discontinuities that might indicate complexes in the soln. F. L. BROWNE

**Optical methods for the study of solutions of electrolytes.** A. I. BRODSKII. *Uspekhi Khimii.* **1**, 712–43(1932).—Refractive index and absorption methods with ultraviolet, visible, infra-red and Raman spectra light are discussed. F. H. RATHMANN

**Classical dissociation theory.** G. TAMMANN. *Z. physik. Chem.* **A163**, 17–32 (1932).—Many difficulties of the classical dissocn. theory are removed if the internal pressure of the soln. is considered. G. M. MURPHY

**Properties of electrolytic solutions. II. The evaluations of $\Lambda_0$ and of $K$ for incompletely dissociated electrolytes.** RAYMOND M. FUOSS AND CHARLES A. KRAUS. *J. Am. Chem. Soc.* **55**, 476–88(1933); cf. *C. A.* **27**, 887.—A method is given for solving the cond. equations for incompletely dissocd. binary electrolytes and for detg. the limiting equiv. cond. and dissocn. const. The method is applied to a variety of binary electrolytes in solvents of dielec. const. from 10.4 to 79. The calcd. values agree with the observed up to ion concn. of approx. $2 \times 10^{-3}$ $N$. G. M. MURPHY

**Association of strong electrolytes.** JOHANNES ZIRKLER. *Z. physik. Chem.* **A163**, 1–7(1932).—The degree of assocn. of $Ba(NO_3)_2$ calcd. from the temp. coeff. of cond. agrees approx. with that calcd. from the temp. coeff. of heat of diln. On the assumption of an empirical justification for this relationship, heats of diln. were calcd. from cond. data and compared with the measured heats. Differences between the 2 values thus obtained are due to the heat of solvation of the ions. G. M. MURPHY

**The behavior of electrolytes in mixed solvents. IV. The free energy of zinc chloride in water-alcohol solutions.** R. T. HAMILTON AND J. A. V. BUTLER. *Proc. Roy. Soc.* (London) **A138**, 450–9(1932); cf. *C. A.* **25**, 4765.—The partial free energies of $ZnCl_2$ were detd. in a series of water-alc. solvents at concns. from 1 to 0.01 $M$. $ZnCl_2$ is practically completely dissocd. in water and practically undissocd. in alc., in agreement with the cond. of the solns. L. E. STEINER

**The Debye-Hückel ion size parameter in terms of individual ionic radii. The activity coefficient of lead chloride in solutions of cadmium nitrate.** H. D. CROCKFORD AND HENRY C. THOMAS. *J. Am. Chem. Soc.* **55**, 568–74(1933).—The mean distance of closest approach of the ions in dil. soln. of strong electrolytes was shown to be a function of quantities depending on the valence type of the solute and the individual ionic radii. Measurements of the e. m. f. of the cell: Pb-Hg (2 phase) | , $PbCl_2$ ($m_1$), $Cd(NO_3)_2$ ($m_2$) | , AgCl | Ag; $m_1/m_2$ = const. were used to obtain the activity coeff. of $PbCl_2$. The exptl. results agree with the theory. G. M. MURPHY

**The dissociation constants of organic acids. VI. Acetic acid.** GEO. H. JEFFERY AND ARTHUR I. VOGEL. *J. Chem. Soc.* **1932**, 2829–38; cf. *C. A.* **26**, 2912.—Measurements were made in the $SiO_2$ cell previously employed. New detns. of the cond. of NaOAc and KOAc were made over a concn. range of 0.0001 and 0.01 $N$ and corrections were made for hydrolysis. The results were regarded as accurate to within at least 0.1%. NaOAc gave $\Lambda_0 = \Lambda_c + 93.42\ C^{0.508} = 89.45$ and KOAc, $\Lambda_0 = \Lambda_c + 150.5\ C^{0.686} = 113.44$ leading to value of 39.7 and 40.0, resp., for the limiting mobility of the acetate ion. This leads to the value for AcOH, $\Lambda_0 = 348.0 + 39.85 = 387.85$, 348.0 being the limiting mobility of the H ion. The methods used by Shedlobsky are discussed and the use of *cond. cells with dipping electrodes is defended.* A. L. KIBLER

**The dissociation constant of acetic acid from 0 to 60°.** HERBERT S. HARNED AND RUSSELL W. EHLERS. *J. Am. Chem. Soc.* **55**, 652–6(1933); cf. *C. A.* **26**, 2912.—The e. m. f. of the cell: $H_2$ | HAc ($m_1$), NaAc ($m_2$), NaCl ($m_3$) | AgCl | Ag was measured at 5° intervals from 35° to 60°. Values of $E_0$ for the Ag, AgCl electrode were obtained at the temps. involved and the dissocn. const. of AcOH was calcd. at 5° intervals. An equation is given for its variation with temp. as well as an equation for the temp. dependence of the heat of dissocn. G. M. MURPHY

**A theory of the rate of solution of gas in liquid. II. The rate of solution of gas in liquid containing a reactive substance. A kinetic derivation of the distribution law.** SUSUMU MIYAMOTO. *J. Chem. Soc. Japan* **53**, 1005–12; *Bull. Chem. Soc. Japan* **7**, 388–98(1932); cf. *C. A.* **26**, 3970.—From the assumptions that: (1) a gaseous mol. that impinges vertically upon the surface of a liquid with a velocity greater than $u_0$ is dis-

solved in the liquid, and that (2) a dissolved gaseous mol. that impinges vertically against the boundary between the liquid and the upper gaseous phase with a velocity greater than $u_0'$ becomes a gaseous mol., the initial soln. velocity of gas in liquid, when there is a substance in the liquid that reacts with the gas, was calcd. A relation between the soly. of the gas $u_0$ and $u_0'$ was obtained. Henry's law as well as the distribution law were derived. The values of $u_0$ and $u_0'$ were calcd. when O dissolves in water at 15°. T. KATSURAI

**The rate of solution of oxygen in an alcoholic solution of anhydrous stannous chloride.** SUSUMU MIYAMOTO AND EIYO UTUNOMIYA. *J. Chem. Soc. Japan.* **53**, 1097–107(1932).—With an app. similar to that used by Ledig and Weaver (*C. A.* **18**, 1412) the rate of soln. of O in alc. $SnCl_2$ was measured. The change of initial soln. velocity with the concn. of the solute is about const. when the concn. of solute is small, and becomes smaller when the concn. of the solute becomes greater. T. K.

**Influence of anions on the velocity of solution of zinc in acids.** ERICH MÜLLER AND JOHANNES FÖRSTER. *Z. Elektrochem.* **38**, 901–6(1932).—Pt wires 50 mm. long and 0.2 mm. diam. were inserted in the ends of pure Zn rods 20 mm. long and 3 mm. in diam. The cleaned and polished combination Zn-Pt rods were then amalgamated by dipping in $HgCl_2$ soln. and then dropped into 50 cc. of various concns. of HCl, HBr, $H_2SO_4$, $HClO_4$ and $H_3PO_4$ and the H evolution per min. was measured for 10 min. Under these conditions H evolution occurs only from the Pt surface and impurities in the Zn are rendered practically without influence on account of the amalgamation so that reproduceable results were obtained. The rate of H evolution is not proportional to the acid concn., the cond. of H-ion concn. alone. The reaction velocity is proportional to the current strength in the short-circuited Zn-Pt combination element. This current strength depends on the potential of Zn, the overvoltage of H on Pt, on the $Zn^{++}$ and $H^+$ concns. and on the cond. With a given acid the last 3 change little in 10 min. Reaction velocity and current strength decrease with time and this effect must be due largely to the rise of overvoltage of H on Pt causing the e. m. f. of the short-circuited element to drop. HBr and HCl react about twice as rapidly with Zn as $H_2SO_4$ in the same mol. concns. at the $H_2SO_4$ max. (about 5.5 *M*) while $HClO_4$ and $H_3PO_4$ react only about 0.4 and 0.3 as fast at their maxima, 3.5 and 6.5 molar, resp. ODEN E. SHEPPARD

**The velocity of absorption of nitrogen oxides in sulfuric acid. II.** L. SZEGÖ AND M. LOMBARDI. *Giorn. chim. ind. applicata* **14**, 492–6(1932); cf. *C. A.* **26**, 3336.—The absorption of $N_2O_3$ and $N_2O_4$ in $H_2SO_4$ of varying concns. was investigated. $N_2O_3$ is absorbed more readily in medium to concd. $H_2SO_4$, while $N_2O_4$ is absorbed more readily in dil. acid. This is due to the fact that $N_2O_3$ reacts more readily with concd. $H_2SO_4$, $N_2O_3 + 2H_2SO_4 \longrightarrow 2HSNO_5 + H_2O$, to form nitrosylsulfuric acid, while in dil. acid the reactions, $H_2O + N_2O_4 \rightleftharpoons HNO_2 + HNO_3$ and $2NO + N_2O_4 + 2H_2O \rightleftharpoons 4HNO_2$, both of which consume $N_2O_4$, take place more readily. A. W. CONTIERI

**The velocity of solution of industrial aluminas in fused cryolite.** N. PARRAVANO AND O. D'AGOSTINO. *Atti accad. Lincei* **16**, 186–90(1932).—The time required for the 3 types of $Al_2O_3$, Bayer, Haglund and Blanc, to dissolve in fused cryolite at 1050°, was measured. The first 2 consist essentially of cryst. $\alpha$-$Al_2O_3$, Haglund showing larger and more agglomerated crystals. Blanc $Al_2O_3$, made by decompn. of Al chloride or nitrate, is not cryst., although it is anisotropic, and has a large sp. surface area. The time of soln. was measured by the change in cond. of the fused soln. of 15 g. of each $Al_2O_3$ in 100 g. cryolite. The change in resistance was measured by a bridge constructed as follows: The resistance consisted of a variable condenser, current was supplied by a thermionic valve oscillator, and a valve voltmeter with 2 stages of amplification, with a 3 v.-1000 ohm voltmeter as a milliammeter, was used in place of the telephone. In this way, 0.001 ohms could be measured. The $Al_2O_3$ was added to the fused cryolite, in a furnace held at 1050°, and the resistance of the soln. measured (cryolite = 0.1682 ohm). The time required for the resistance to become const. was 4, 6, 9 min. for Blanc (0.1757 ohm), Bayer (0.1772) and Haglund (0.1782) alumina, resp., showing Blanc to be most readily sol. The results prove that the cond. of cryolite decreases with increasing concn. of $Al_2O_3$. By extrapolation, it was calcd. that 100% $Al_2O_3$ soln. has zero cond., that is, it is not dissocd. in fused cryolite. A. W. CONTIERI

**The velocity of decomposition of dithionic acid and its volumetric determination.** FUSAO ISHIKAWA AND HIROSHI HAGISAWA. *Science Repts. Tôhoku Imp. Univ.*, 1st ser. **21**, 484–98(1932).—The decompn. of 0.1 mol. solns. of $H_2S_2O_6$ is monomolecular; $k_{70°} = 0.000197$ and $k_{100°} = 0.00757$. The $k_{t+10}/k_t$ is 3.14 at 100° and 3.85 at 60°. The effect of HCl on the decompn. at 80° is expressed by $k = 0.0184–0.01515\ C_{HCl} + 0.005297\ C^2_{HCl}$. The volumetric detn. of $H_2S_2O_6$ consists in heating in a sealed tube with concd HCl, followed by titration with $I_2$ soln. J. V. VAUGHEN

**The velocity of the reaction of potassium cyanide with thiosulfate or tetrathionate.**

FUSAO ISHIKAWA, TOYOSAKU MUROOKA AND HIROSHI HAGIHARA. *Science Repts. Tôhoku Imp. Univ.* 1st Ser., 21, 511–26(1932).—$k_{25°}$ = 0.00167 and $k_{70°}$ = 0.0458–0.0461, detd. for the bimol. reaction (*1*) $Na_2S_2O_3$ (0.05204 mol./l.) + KCN = $Na_2SO_3$ + KCNS. Depending on the initial concn. of KCN, $k_{70°}$ = 0.0269 + 0.06 $C_{KCN}$. The product, KCNS, has the same accelerating effect as KCN. NaOH speeds the reaction; $k_{70°}$ = 0.0461 + 0.033 $C_{NaOH}$. The velocity of the reaction: $Na_2S_2O_3$ + excess KCN + 2KOH = $Na_2SO_3$ + 2KCNS + $K_2SO_4$ + $H_2O$ is essentially that of reaction (*1*), accelerated by the by-product KCNS concn. J. V. VAUGHEN

**The occurrence of two liquid phases and of a minimum density in the system: $CS_2$–ethylene dichloride.** DALZIEL LL. HAMMICK AND JOHN HOWARD. *J. Chem. Soc.* 1932, 2915–16.—An investigation of liquid equilibria in the system: $CS_2$–$C_2H_4Cl_2$ showed that mixts. of the 2 liquids sepd. into 2 liquid layers and that there is a min. in the compn.-d. curve in the region of the equimol. mixt. M. MCMAHON

**Ternary systems. XVII. Sodium iodide, potassium iodide and water. XVIII. Sodium iodide, sodium iodate and water.** ARTHUR E. HILL, HERBERT S. WILLSON AND JOHN A. BISHOP. *J. Am. Chem. Soc.* 55, 520–6(1933); cf. *C. A.* 26, 1179.—The system: NaI–KI–$H_2O$ was studied at 8°, 25° and 40° and shows no compd. formation. The system: $NaIO_3$–NaI–$H_2O$ at the same temp. shows a series of solid solns. of the compn. $(NaIO_3.5H_2O)_n$–$(NaI.2H_2O)_m$ beginning at the 1:1 ratio and extending to approx. the 1:2 ratio. G. M. MURPHY

**Influence of the contact structure on the burning of carbon monoxide.** J. ECKELL. *Z. Elektrochem.* 38, 918–20(1932).—The burning of CO as catalyzed by $Fe_2O_3$ and $Fe_2O_3$–$Al_2O_3$ was studied with a view to det. the effect of surface structure, as detd. by the method of x-ray pictures and refraction of rapid electrons (cf. Eisenhut and Kaupp, *C. A.* 26, 66), on the velocity of the reaction and on the heat of activation. The catalytic burning of CO proceeds as a monomol. reaction depending on the CO pressure in the range 1–10 mm. Hg pressure while intermediate reduction products of $Fe_2O_3$ are formed. The velocity const. in the range 204–160° follows closely the relation ln $K^{-1}/T$ and the heat of activation is 20,000 to 14,000 cal. An increase of dispersity of the catalyst as shown by electron refraction pictures corresponds with a rise in the velocity const. The electron refraction method offers no explanation of the heat of activation change with varying concns. of added $Al_2O_3$ but the x-ray method suggests that the change in lattice dimension (5.47 to 5.33 A. U.) with increased $Al_2O_3$ which parallels the decrease in heat of activation to a min. at about 25 mol. % $Al_2O_3$, with increase of $Al_2O_3$, is in some way responsible. The $Al_2O_3$ (promoter) action is probably to prevent crystal growth in the reduced iron catalyst. Cf. Mittasch and Keuenecke, *C. A.* 26, 5707. O. E. SHEPPARD

**Cyanide-cyanimide equilibrium.** A. PERRET AND R. PERROT. *Compt. rend.* 196, 268–71(1933); cf. *C. A.* 26, 1870.—Reactions between NaCN and the chlorides of Li, Ca, Ba, Sr, Mg, Be and Zn were studied at temps. up to 600°. It was necessary to use metallic Fe as a catalyst in most of the reactions. The equil. amts. of the cyanimide formed were: Li, 8.4% at 570°; Ca, 19.6% at 570°; Ba, 12% at 570°; Sr, 10.9% at 570°; Mg formed the nitride with some decompn. between 400° and 560°; Be gave a similar reaction at 470°, forming no cyanimide; Zn, 19.6% at 550°, with decompn.; Cd, 2% at 550°, 19.4% at 580°. In the last case, the cyanimide decompd. to the cyanide progressively with continued heating. $ZnCN_2$ yielded gaseous decompn. products at temps. above 450°; it was 50% decompd. to the elements in 18 hrs. at 600°. GERALD M. PETTY

**Haber-Willstätter chain mechanism of organic and enzymic processes.** HUGH S. TAYLOR AND AUSTIN J. GOULD. *J. Am. Chem. Soc.* 55, 859(1933).—The photo-decompn. of peroxide sensitizes the interaction of EtOH and O; the oxidation process is a chain reaction, sensitive to inhibitors but the chain length is short. Dil. aq. aldehyde solns. behave similarly and the chain length is somewhat longer. C. J. WEST

**The action of water vapor on methane.** C. MATIGNON AND M. SEON. *Compt. rend.* 195, 1345–8(1932).—$CH_4$ pure or mixed with $H_2$, $N_2$, $O_2$ and CO yields $H_2$ and $CO_2$ when mixed with a large excess of water vapor and passed slowly over the catalysts $SiO_2$, $ZrO_2$, asbestos sprinkled or impregnated with $ZrO_2$, $ThO_2$, $Fe_2O_3$, $Fe_2O_3$ + 10% $K_2CO_3$, or $Al_2O_3$ at 860°, 960°, 1000° or 1050°. The best results for the mixt. were obtained with $ZrO_2$. With pure $CH_4$ and $ZrO_2$ at 1050° the reaction was complete. JANET E. AUSTIN

**The catalysis of hydrogen peroxide.** F. HABER AND J. WEISS. *Naturwissenschaften* 20, 948–50(1932).—The hypothesis of Manchot and Lehmann (*C. A.* 22, 2096) of unstable $Fe_2O_5$ being formed from $FeSO_4$ + $H_2O_2$ in neutral soln. is incorrect. By an extensive study of the reaction at high mixing velocities of the liquids it was found that a system of chain reactions takes place such that consumption ratios of $\Delta H_2O_2/\Delta Fe_{II}$ as great as 30 are found: (*A*) $Fe_{II}$ + $H_2O_2$ = $Fe_{III}(OH)$ + OH; (*B*) OH + $H_2O_2$ = $H_2O$ + $O_2H$; (*C*) $O_2H$ + $H_2O_2$ = $O_2$ + $H_2O$ + OH; (*D*) $Fe_{II}$ + OH = $Fe_{III}OH$ (the

$Fe_{III}OH$ symbol stands for some unionized compd. like $OH.FeSO_4$, cf. Haber and Willstätter, *C. A.* **26**, 3774). Detns. at various $p_H$ values are required to reveal the influence of $HO_2^-$ ions, etc. The reaction kinetics are further discussed and an equation is reached for the mol. consumption ratio $d(H_2O_2)/d(Fe_{II}) = 0.5 + \frac{k_B}{k_D}\frac{(H_2O_2)}{(Fe_{II})}$; this is compared with the result of M. and L. B. J. C. VAN DER HOEVEN

**The retarding action of glass on the Landolt reaction.** ANDRE JULIARD. *Compt. rend.* **196**, 179–81(1933).—Three expts. are described to show that the Landolt reaction (oxidation of $H_2SO_3$ by $HIO_3$) is catalyzed by I ions and that the phenomenon of Liebrich (retardation of the reaction by glass) is due to adsorption of a part of these ions by the glass container. DON BROUSE

**Thermal dissociation of chemically pure gypsum in the presence of oxides of iron, aluminum and chromium.** I. E. ADADUROV, A. GALAMEEVA AND D. V. GERNET. *J. Applied Chem.* (U. S. S. R.) **5**, 897–901(1932); cf. *C. A.* **26**, 5001.—The heat of the reaction is 6000–9000 cal. at 900–1000° and 35,000–48,000 at 1000–1200° which shows that its nature is different. $SiO_2$, $Fe_2O_3$ and $Cr_2O_3$ greatly increase the yield of $SO_2 + SO_3$ even below 900°. The heats of activation at 1000–1200° are: for $CaSO_4$ —99,000 cal., $CaSO_4 + SiO_2$ —27,000, $CaSO_4 + 5\%$ $Al_2O_3$ —48,000, $CaSO_4 + 3\%$ $Fe_2O_3$ —32,000, $CaSO_4 + 3\%$ $Cr_2O_3$ —40,000. Mixed catalysts are not additive in properties. $SiO_2 + Fe_2O_3$ and $SiO_2 + Al_2O_3$ mixts. are more and $SiO_2 + Cr_2O_3$ mixts. less efficient than calcd. on the additivity basis. This shows that the dissocn. of anhyd. $CaSO_4$ is a catalytic process. V. KALICHEVSKY

**Some physical-chemical constants of dioxane.** W. A. ROTH AND INGRID MEYER. *Z. Elektrochem.* **39**, 35–7(1933).—The heat of fusion of the sym. 1,4-$(C_2H_4)_2O_2$ was measured as 33.8 cal. per g.; the mol. heat of combustion as 554.6 cal.; the $d_{20}$ as 1.03326; the coeff. of expansion between 13° and 25° as 0.00109. C. L. WILSON

**Existence of the so-called heats of transfer [$Q^*$ values] in Peltier heats.** E. LANGE AND TH. HESSE. *J. Am. Chem. Soc.* **55**, 853–5(1933).—Peltier heats of the system $Ag/AgNO_3$ and $Ag/AgCl/Cl^-$ in the presence of $K^+$, $H^+$ and $Li^+$ establish the existence and the necessity for considering the $Q^*$ that Eastman introduced. The differences of partial molar entropies cannot be detd. by employing Peltier heats and thermoelec. forces alone. Details will be published in a German journal. C. J. WEST

**The heat of solution of water vapor in various solvents.** RONALD P. BELL *J. Chem. Soc.* **1932**, 2905–11.—Tabulated results are given for the soly. of water vapor in $PhNO_2$, PhCl, $C_2Cl_4$, PhMe, $CCl_4$, $C_6H_5Br$, $C_2H_4Br_2$ and diisoamyl ether at 15°, 20° and 25° with the indirect method previously described (*C. A.* **27**, 1295). M. McM.

**Determination of the heat of solution of gases.** J. HORIUTI. *Z. Elektrochem.* **39**, 20–2(1933).—From previous measurements (cf. *C. A.* **26**, 2104) it is calcd. that the heat of soln. at const. pressure may differ by as much as 200–400 cal. per mole if the vol. of the soln. is assumed to be independent of the temp. CURTIS L. WILSON

**Phosphoniates. III. The heat of formation of halide phosphoniates.** ROBERT HÖLTJE. *Z. anorg. allgem. Chem.* **209**, 241–8(1932); cf. *C. A.* **25**, 2932.—The heats of formation in kg. cal. per mol. $PH_3$ at const. pressure, of solid halide phosphoniates from solid halides and gaseous $PH_3$ were calcd. from calorimetric data as follows: $AlCl_3.PH_3$, 9.9 ± 0.2; $AlBr_3.PH_3$, 14.3 ± 0.3; $SnCl_4.1.5PH_3$, 15.9 ± 0.2; $TiCl_4.PH_3$, 16.4 ± 0.1; $TiBr_4.PH_3$, 16.0 ± 0.2; $TiCl_4.2PH_3$, 10.8 ± 0.3 (from $TiCl_4.PH_3 + PH_3$); $TiCl_4.2PH_3$, 13.6 (from $\frac{1}{2}$ $TiCl_4 + PH_3$); $TiBr_4.2PH_3$, 11.8 ± 0.3 (from $TiBr_4.PH_3 + PH_3$); $TiBr_4.2PH_3$, 13.9 (from $\frac{1}{2}$ $TiBr_4 + PH_3$). A comparison of the heats of formation of phosphoniates and corresponding thiohydrates indicates that the phosphoniates are in all cases the more stable. J. V. VAUGHEN

**Second law and entropy. II. Irreversible processes.** R. C. CANTELO. *J. Chem Education* **10**, 45–6(1933); cf. *C. A.* **26**, 365.—An extension of the previous discussion to include irreversible processes. A. LLOYD TAYLOR

**Molecular rotation in ice at 10°K. Free energy of formation and entropy of water.** W. F. GIAUQUE AND MURIEL F. ASHLEY. *Phys. Rev.* **43**, 81–2(1933).—From existing data the following values are calcd. for the free energy (in cal./mol.) and entropy (in e. u.), resp., of gaseous $H_2O$ at 298.1°K. and 1 atm. Band spectra —54669, 45.17; from the cell $H_2 + HgO = Hg + H_2O$, —54676, 45.19; from equil. in the reaction $2HCl + \frac{1}{2}O_2 = H_2O + Cl_2$, —54650, 45.1; third law of thermodynamics, —54696, 45.26; weighted average —54670, 45.17. By correcting for the effect of nuclear spin the abs. entropy is 47.92 e. u. For liquid $H_2O$ at 298.1°K., $\Delta F$ = —56720 and $S$ = 16.9. The calcns. based on the third law indicate persistence of rotation at 10°K. J. B. AUSTIN

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Measurements with suspension balance (STOCK, *et al.*) 1. Catalysts for the pro-

duction of H by means of the water-gas reaction. VIII. X-ray examination and the coexistence of 2 oxides in $Fe_2O_3$-$Cr_2O_3$ catalysts (YOSHIMURA) 18.

**Chemistry Manual.** Issued by Chicago Chemistry Teachers Assoc., Chicago: Lyons and Carnahan. 202 pp.

DRUCKER, C., AND PROSKAUER, E.: **Physikalisch-chemisches Taschenbuch. Bd. II.** Leipzig: Akad. Verlags. 481 pp. M. 15; cloth, M. 17. Cf. *C. A.* **26**, 2110.

FULLER, ROBERT W., BROWNLEE, RAYMOND B., AND BAKER, D. LEE: **First Principles of Physics.** Boston: Allyn & Bacon. 812 pp. $1.35. Reviewed in *Science Education* **16**, 514(1932).

LEWIS, JOHN R.: **An Outline of First Year College Chemistry.** New York: Barnes & Noble, Inc. 252 pp.

MICHAELIS, LEONOR: **Oxydations-Reductions-Potentiale mit besonderer Berücksichtigung ihrer physiologischen Bedeutung.** 2nd ed. Tl. 2 of "Der Wasserstoffionenkonzentration." Berlin: Hirschwaldsche Buchhandlung. 259 pp. M. 18; bound, M. 19.60.

MILLER, CARL W.: **An Introduction to Physical Science.** New York: J. Wiley & Sons, Inc. 403 pp. $3. Reviewed in *J. Franklin Inst.* **215**, 217(1933).

PLANCK, MAX: **Wege zur physikalischen Erkenntnis.** Leipzig: S. Hirzel. About 280 pp. About M. 8; cloth, about M. 9.50.

GÖTZ, A.: **Thermochemische Untersuchungen den Oxyden des Kupfers und an Iridiumdioxyd.** Thesis, Darmstadt, 1931. 55 pp.

HEESCH, HEINRICH: **Zur systematischen Strukturtheorie III, IV.** Thesis, Zürich, 1930. 32 pp.

HELLER, CARL: **Röntgenographische Untersuchungen an wachsenden Kristallen.** Thesis, Hamburg, 1931. 43 pp.

HUNSDIECKER, HEINZ: **Teilchengewicht, Verbindungsgewichte und Teilchenladung organischer Kolloide.** Thesis, Cologne, 1930. 94 pp.

LAVES, FRITZ: **Die Bau-Zusammenhänge innerhalb der Kristallstrukturen.** Thesis, Zürich, 1930. 115 pp.

MOERS, W. W.: **Zur Kristallmorphologie kubischer Kristallarten unter bes. Ber. der Vizinalerscheinungen.** Thesis, Cologne, 1932. 81 pp.

PERROCHON, PAUL: **Sur l'adsorption des liquides purs par les solides.** Thesis, Lausanne, 1930. 52 pp.

PICKER, WALTER: **Mechanische Eigenschaften einiger Gele.** Thesis, Berlin, 1931. 56 pp.

RAM DEV, DAULAT: **Die Aktivitätskoeffizienten der Phosphorsäuren.** Thesis, Brunswick, 1930. 40 pp.

SCHUMPELT, JOACHIM: **Die Löslichkeit von Salzen in den zugehörigen Säuren.** Thesis, Halle, 1931. 31 pp.

SOLOMOS, DEMETRIOS: **Die elektrische Doppelbrechung organischer Flüssigkeiten in ihrer Abhängigkeit von der chemischen Konstitution und der Temperatur.** Thesis, Leipzig, 1931. 127 pp.

WALDBURGER, ERNST: **Die Ermüdung von Platin als Katalysator in pyrogenen Wasserstoffelektroden.** Thesis, Basel, 1930. 54 pp.

WESTEN, H. A. VAN: **Het waterstofgetal en eenigen toepassingen.** Thesis, Delft, 1931. 119 pp.

WÜNNENBERG, ELISABETH: **Tieftemperaturvolumina einiger typischer organischer Stoffe und der Oxyde des Stickstoffes, ein Betrag zur Kenntnis des Volumensatzes der festen Stoffe.** Thesis, Hanover, 1930. 39 pp.

## 3—SUBATOMIC PHENOMENA AND RADIOCHEMISTRY

W. ALBERT NOYES, JR., AND RAYMOND M. FUOSS

**Quantum of action and cosmic constants.** ARTHUR HAAS. *Naturwissenschaften* 20, 906(1932). B. J. C. VAN DER HOEVEN

**Effective cross sections of atoms toward slow and fast electrons.** R. L. ROSENBERG. *Ann. Physik* **15**, 757–86(1932).—Math. The force exerted by a plane matter wave on a spherically sym. atom of given internal potential was calcd. This was used to calc. the effective cross section of atoms toward electrons. I. J. PATTON

**Applications of the methods of impact parameter in collisions.** E. J. WILLIAMS. *Proc. Roy. Soc.* (London) **A139**, 163–86(1933).—The method of impact parameters is applied to light collisions, which are defined as those in which the momentum transfer is small compared with the momentum of the moving particle. The main problems con-

sidered are: (1) theorems dealing with the perturbation of atoms b[illegible] of forces; (2) non-relativity loss of energy in distant collisions; (3) relativ[illegible] light collisions; (4) the connection between the theory of collisions put forward by Fermi and quantum mechanics; and (5) the lateral distribution in space of the atoms ionized and excited by a moving particle. The general phys. reasons for the relativity corrections deduced in (3) are also discussed. H. E. MESSMORE

**The influence of angular distribution of scattered electrons on the measurement of effective diameter.** R. KOLLATH. *Ann. Physik* **15**, 485–515(1932).—A crit. review of existing measurements with a discussion of correction factors and the effect of diaphragm size in different methods. A detailed comparison is made of the methods of Ramsauer and Townsend. J. B. AUSTIN

**Electron scattering in helium. Absolute measurements at 90° and 45°.** SVEN WERNER. *Proc. Roy. Soc.* (London) **A139**, 113–29(1933).—Electrons emitted from an incandescent W filament were passed through rarefied He. Some electrons passed within the sphere of attraction of the He atoms and were deflected. Deflected electrons passing through a slit constituted an elec. current, the intensity of which was measured at velocities corresponding to 30–400 v. and at the two scattering angles. Above 150 v. the detd. scattered intensities agreed with nuclear scattering according to Rutherford, and with the scattering according to Mott and Bethe's calcns. Relatively large deviations occurred at smaller velocities. The method and details of the exptl arrangements are described. H. E. MESSMORE

**The collision of slow electrons with atoms. II. General theory and inelastic collisions.** H. S. W. MASSEY AND C. B. O. MOHR. *Proc. Roy. Soc* (London) **A139**, 187–201(1933).—The theory of collisions of slow electrons with atoms has been extended to include the effect of the distortion of both the incident and scattered electron waves by the static field of the atom, together with the effect of electron exchange. The general theoretical derivations include both elastic and inelastic collisions, elastic and inelastic scattering, and inelastic scattering by heavy atoms. The lack of agreement with expt. on the form of the inelastic cross-section curves is thought to be due to the neglect of other complicating factors, such as effect of polarization. H. E. MESSMORE

**An experimental study of electric discharge in gases at normal temperatures and pressures.** J. D. STEPHENSON. *Proc Phys. Soc.* (London) **45**, 20–40(1933) —By starting with a study of corona discharge in gases and then proceeding to the study of spark discharge it was detd. that there is a fixed const., the true breakdown strength of the gas for all types of gas discharge at normal pressures. M. MCMAHON

**Light emission in gas discharges particularly of resonance lines.** W. DE GROOT *Physica* **12**, 289–310(1932)(in German).—The theory of calcn. of concn. of excited atoms in a discharge tube (cf. *C. A.* **26**, 4219) is extended to give the light distribution in the resonance line and the total intensity, a problem of direct interest for the modern lamps with noble gas + metal vapor filling (cf. Reger, *C. A.* **26**, 5791; Druyvesteyn, *C. A.* **27**, 659). General assumptions made are uniform electron temp., a Schottky decrease in electron concn. near the walls, Doppler widening for the at. radiation. Conclusions The line may show strong self reversal; at sufficient vapor d. and electron concn. Lambert's law holds approx. Measurements on a pos. column in Ne-Na were used for a check on the calcd. brightness. B. J. C. VAN DER HOEVEN

**The passage of photoelectrons through mica.** NORRIS E. BRADBURY AND LLOYD A. YOUNG. *Phys. Rev.* **43**, 84–5(1933).—Expts. show that electrons emitted into a crystal (mica) from a photoelec. surface (Zn) can be drawn through to an anode by high accelerating field strengths. The results are in agreement with predictions based on the theory of gaseous scattering. J. B. AUSTIN

**The efficiency of electron release by metastable atoms.** EUGENE W. PIKE. *Phys Rev.* **43**, 144–5(1933).—A correction and defense of a previous article (cf. *C. A.* 26, 3435). GERALD M. PETTY

**Mobilities of gaseous ions in $CH_3NO_2$-$H_2$ and $CH_3CN$-$H_2$ mixtures.** ELIZABETH ANN HIGLEY AND CAROLYN C. THORSEN. *J. Franklin Inst.* **215**, 69–80(1933).—By using Loeb's method, modified to give abs. mobilities, measurements were made in mixts. of $CH_3NO_2$-$H_2$ and $CH_3CN$-$H_2$. In $H_2$, mobilities of pos. ions were 7.12 cm./sec per v./cm.; of neg. ions, 10.46. In $CH_3NO_2$, both ions gave a value of 0.221, and in $CH_3CN$, a value of 0.234. Deviation from Blanc's law, in $CH_3NO_2$ and in $CH_3CN$, indicated the formation of complexes, the pos. ion showing the readier attachment to both $CH_3NO_2$ and $CH_3CN$. These ion addn. products are larger than the normal ion in $H_2$, those in $CH_3CN$ being smaller than those in $CH_3NO_2$. L. WALDBAUER

**Recent developments in the study of the external photoelectric effect.** LEON B. [illegible] E. H. LAUFORD. *Rev. Modern Physics* **5**, 34–61(1933).

**The theory of the crystal photoeffect.** HORST TEICHMANN. *Proc. Roy. Soc.*

(London) **A139**, 105–13(1933).—If semiconducting crystals are connected into a circuit a current flows in such a direction that electrons in the semiconductor move in the direction of incident light. T. attributes this current to electrons moving from one energy level to another or from the shifting of energy levels in the dynamic case, the original electron vacancy being caused by the absorption of light quanta. Equations are given showing the potential which arises in the equil. state as a function of illumination, temp. and thickness of crystal. H. E. MESSMORE

**The reflection of light at a surface covered by a monomolecular film.** C. STRACHAN. *Proc. Cambridge Phil. Soc.* **29**, 116–30(1933). E. H.

**Magnetic rotatory dispersion of a colored diamagnetic compound—thiobenzophenone.** A. COTTON AND M. SCHERER. *Compt. rend.* **195**, 1342–5(1932); cf. *C. A.* **27**, 907.—Anomalies of magnetic rotatory dispersion are distinct on both sides of the band. $d\rho/d\lambda$ is pos. on the side nearest the violet, neg. on the other. JANET E. AUSTIN

**Determination of the energy conditions of metal electrons from optical constants.** HERBERT FRÖHLICH. *Naturwissenschaften* **20**, 906(1932).—The energy conditions of metal electrons can be found from the frequency dependence of the optical consts. of the metal. The characteristic value of $nk\nu^2$ ($n$ = refractive index, $k$ = absorption coeff., $\nu$ = frequency) has a continuous fundamental value (continuous absorption by metals) plus superimposed absorption bands as shown in a curve for Ag. From the lower limit of the band absorption follows a width of the 1st prohibited range for Ag of 3.7 v., for Au and Cu of about 2 v. From the intensity of the absorption bands it is concluded that the electrons of Cu, Ag and Au differ in behavior from free electrons much more than the electrons of the alkali metals. B. J. C. VAN DER HOEVEN

**The radiation of incandescent oxides and oxide mixtures in the visible spectrum.** H. HOPPE. *Ann. Physik* **15**, 709–28(1932).—The radiation emitted by the following oxides and mixts. was studied: $ZrO_2$, $SnO_2$, $Nd_2O_3$, $CeO_2$, $Al_2O_3$-$Cr_2O_3$, $ThO_2$-$CeO_2$ and MgO-ZnO. There was a decrease in the amt. of radiation for decreasing grain sizes below 1 $\mu$. For all oxides and mixts. (except $Cr_2O_3$) the amt. of radiation increases in the red with increasing temp. A log relationship exists between the emission of $Al_2O_3$-$Cr_2O_3$ mixts. and the $Cr_2O_3$ content, but no such relationship was observed in the $ThO_2$-$CeO_2$ mixts. In the violet, the emission of $Al_2O_3$-$Cr_2O_3$ was decreased by $^1/_2$ compared to pure $Al_2O_3$ by the addn. of several % $Cr_2O_3$. The $ThO_2$-$CeO_2$ mixts. of low Ce content give black body radiation in the short wave region, but increase of the Ce decreases the violet again. Liebmann's "Fleckmethode" of temp. measurement (*C. A.* **25**, 34) was used on single crystals of white sapphire and ruby. The emissivity of the ruby increased in the red with increasing temp. The sapphire does not radiate in the visible. L. W.

**Simple amplifier for Geiger-Müller counters.** W. F. LIBBY. *Phys. Rev.* **42**, 440–1(1932).—The amplifying circuit includes a resistance unit (soln. of isopropyl alc. in pentane), an amplifying tube (radio tube) and a telegraph relay. Counters of surface area from 5 sq. cm. to 100 sq. cm., of lengths from 1 to 10 cm. and of several different materials have been used. Counting rates from 10 per min. to 400 per min. have been observed with the various counters and appropriate resistances. H. S. HOPFIELD

**The neutron, the atomic nucleus and mass defects.** WM. D. HARKINS. *J. Am. Chem. Soc.* **55**, 855–7(1933).—Two tables are given, showing the binding energy of atoms and the mass defect or binding energy per $\alpha$-particle. The binding energy for the union of an $\alpha/2$ group is much larger (value about 20 million v.) if the final no. of such groups in the nucleus is even, than if this no. is odd (3–9 million v.). If the final no. is even, then the last $p_2e$ group presumably forms an $\alpha$-particle with the odd $p_2e$ group already present. Relatively high values are also found for the completion of an $\alpha$-particle by a proton. The mass defect per $\alpha$-particle rises rapidly with the no. of $\alpha$-particles, contrary to the assumption of Gamow's formula, up to a mass 52 and then decreases slowly with the mass no. There is no apparent discontinuity in the values where, between $A^{36}$ and $A^{40}$ according to the theory of H. and Wilson the 1st pair of cementing or "free" electrons enters, or the theory of Harkins and Masson the 1st set of "free" neutrons (4 in no.) come into the nucleus. C. J. WEST

**Relative distribution and abundance of elements in the lower chromosphere.** S. A. MITCHELL AND EMMA T. R. WILLIAMS. *Astrophys. J.* **77**, 1–43(1933).—The values of the density gradients of neutral Fe and ionized Fe, Ti, Cr and Sc, in the lower solar chromosphere, as detd. from the heights to which the multiplet lines are traced and their theoretical intensities, have all been found to be of the same order. This indicates that turbulence is responsible for keeping the elements so well mixed and that selective radiation pressure is not the factor chiefly operative for the support of the chromosphere. Except for H and He the relative abundances of the elements in the chromosphere were found to be closely parallel to those found by Russell for the sun's reversing layer (*C. A.* 24, 20). C. C. KIESS

**The mass of the neutron and the constitution of atomic nuclei.** A. v. GROSSE.

*Phys. Rev.* **43**, 143(1933).—It is suggested that the masses of neutrons vary in a small range, corresponding to the limits of energy variation in $\beta$-spectra. G. M. PETTY

**Binding energy of nuclear constituents.** H. RAUSCH VON TRAUBENBERG. *Naturwissenschaften* **20**, 934–6(1932).—By assuming nuclei to be constructed from $\alpha$-particles ($n$ in no.), neutrons, $H^2$ and $H^3$ (H isotopes of 2 and 3 protons, resp., + 1 electron) it is shown in a table that for elements up to A the series does not require any addnl. electrons in the nucleus until the $O^{18}$ isotope. When the nucleus binding energies are plotted for each of the 4 types of nuclei ($4n$, $4n + 1$, etc.) *vs.* $n$, curves are obtained which on extrapolation to $n = 0$ should give the binding energy for the resp. nuclear constituent (neutron, $H^2$, $H^3$) itself. The values for $H^2$ and $H^3$ are, resp., 5 and 15 microergs; insufficient data are available for the $4n + 1$ type (neutron curve). However, it is estd. from a curve contg. the $H^2$ and $H^3$ energy and 42.3 microergs for the $\alpha$-particle, plotted against the proton nos. 1, 2, 3 and 4 involved, that the neutron binding energy is 1.5 microergs. The values are in fair agreement with expt. B. J. C. VAN DER HOEVEN

**Interaction of neutrons and nuclei.** LISE MEITNER AND KURT PHILIPP. *Naturwissenschaften* **20**, 929–32(1932).—Expts. on neutrons were made by the Wilson method. The no. of rapid H rays produced by Be, B or Li neutrons in paraffin is per 100 Wilson tracks 43.4, 4.95 and 0.2, resp., in an air-water vapor mixt. 28.8, 4.03 and 3.68, resp. The results agree with measurements of Becker and Bothe (*C. A.* **26**, 5830) on the intensity and energy of the accompanying $\gamma$-rays for the same elements and are addnl. evidence for the production of neutrons and $\gamma$-rays in one elementary process. By stereomicrometric measurement of length and angle of photographed Wilson tracks (reproduced) produced by Be neutrons in $H_2$ and in 28% $H_2$ + 72% A the neutron energy was detd. for 42 H tracks: the min. value was 250,000 v., 14 were between 260,000 and 340,000 v., 20 between 500,000 and 2,000,000 v., and one was 6,300,000 v. From an est. of the neutron no. of Be (= $\gamma$ quanta) and the protons observed the radius of activity for neutron and proton interaction is calcd. to be $\rho = 8.10^{-13}$ cm. This is probably a lower limit. A preliminary photograph is given of an expt. on collision of neutron with N nucleus and subsequent collision of 2 N nuclei, also of disintegration of N and O. From related measurements it is concluded that the Curie-Joliot max. value of $7.8 \times 10^6$ v. for Be neutrons is probably more correct than Chadwick's value of $5.7 \times 10^6$. Many references are given. B. J. C. VAN DER HOEVEN

**The diffusion of neutrons. Inelastic collisions at the nuclei.** PIERRE AUGER. *Compt. rend.* **196**, 170–2(1933).—That the diffusing effect of Cu, Al, Fe and Pb on neutrons is to take up their kinetic energy through inelastic collisions is shown by expts. in which Be is bombarded with $\alpha$-rays. As observed with an expansion chamber the no. of short proton trajectories is reduced when a paraffin screen is interposed between source of neutrons and chamber, but is increased again with the interposition of the diffusing substance even with the paraffin still in place. C. C. KIESS

**The cosmic occurrence of the $H^2$ isotope.** A. UNSÖLD. *Naturwissenschaften* **20**, 936–7(1932).—From the solar spectrum ($H_\alpha$ line) the relative abundance of $H^2$ is less than 1:100,000. B. J. C. VAN DER HOEVEN

**Possibility of the existence of the chlorine isotope $Cl^{39}$.** MURIEL F. ASHLEY AND F. A. JENKINS. *Phys. Rev.* **42**, 438–40(1932); cf. *C. A.* **26**, 3441.—In a study of the absorption of AgCl vapor at various ds. no evidence is found for the existence of a 3rd isotope of Cl, $Cl^{39}$. This is contrary to the results of Hettner and Böhme (*C. A.* **26**, 1510) and of Becker (*C. A.* **24**, 2047, 2373), but agrees with the results of Hardy and Sutherland (*C. A.* **26**, 5494). The method of estg. the upper limit for abundance of $Cl^{39}$ is described, and gives as a result $^1/_{4400}$ for the max. value of the ratio $Cl^{39}/Cl^{35}$. HELEN S. HOPFIELD

**Extraction and purification of radium E.** PAUL FOUCAUD. *J. chim. phys.* **29**, 479–87(1932).—Since radiolead carries Ra D with it, and this latter gives rise to Ra E, it was desirable to ext. the latter from the former at intervals, preferably always under the same conditions. The $PbCl_2$ from the ore was converted to the nitrate, and then treated with $Fe(NO_3)_3$, which on being pptd. with $NH_3$, coprecipitates the Ra E. The $Fe(OH)_3$ ppt. is dissolved in HCl to remove the Pb as $PbCl_2$; the Fe is removed in $Et_2O$ extns. of $FeCl_3$. The Ra E and Pb are finally converted to sulfates, and after addn. of EtOH, the $PbSO_4$ is filtered off. I. J. PATTON

**The linear momenta of electrons in atoms and in solid bodies as revealed by x-ray scattering.** JESSE W. M. DUMOND. *Rev. Modern Physics* **5**, 1–33(1933). E. H.

**Probabilities of $K$-electron ionization of silver by cathode rays.** D. L. WEBSTER, W. W. HANSEN AND F. B. DUVENECK. *Phys. Rev.* **42**, 141–2(1932).—Previous work (*C. A.* **23**, 31; **25**, 3562) has been extended by increasing the cathode ray voltage range to $7V_K$ (where $V_K$ is the $K$-series excitation voltage). The probability of $K$-electron ionization is measured by intensity of the $K_\alpha$ lines, with the probability at $2V_K$ as a convenient standard. The ratio of the probability at any other voltage $V$ to this

standard, when plotted as a function of the ratio $V/V_K$, gives a curve which rises to a very flat max., remaining const. within 2% from $V/V_K = 3.5$ to 7. These results deviate from the theories of Rossland, Thomas, Ochiai, Bethe and Davis. Several possible explanations are suggested. The authors consider it most probable that the inverse square law fails within the atom, for some other reason than high energy, and find that Rossland's theory, with an inverse cube law substituted for the inverse square, fits the data best. HELEN S. HOPFIELD

**The $K_{\alpha_1\alpha_2}$ doublet of chlorine in several compounds.** OSVALD LUNDQUIST. *Naturwissenschaften* **20**, 905–6(1932).—Previously a shift of the $K_{\alpha_1\alpha_2}$ lines of S in sulfides (toward long waves) and in sulfites and sulfates (toward short waves) was found. The shifts were, resp., 0.3, 2.1 and 2.8 X units. Similar work was done on Cl in the compds. NaCl, $NaClO_3$ and $NaClO_4$; the exptl. arrangement was the same. The $K_{\alpha_1}$ line of Cu was used for reference. The preliminary results are a shift of $K_{\alpha_1\alpha_2}$ toward shorter waves for $NaClO_3$ and $NaClO_4$ as compared with NaCl. A spectrogram is given. B. J. C. VAN DER HOEVEN

**An anomaly in the columbium *K* absorption limit.** CECIL J. BURBANK. *Phys. Rev.* **43**, 83(1933).—The shape of the foot of the *K* absorption edge of Cb is different from that of Rh, Pd, Ag, Cd and Mo. J. B. AUSTIN

**The scattering of x-rays by the gaseous dichlorobenzenes.** W. C. PIERCE. *Phys. Rev.* **43**, 145–6(1933).—The distribution of intensity of x-rays scattered by the 3 dichlorobenzenes is shown graphically. The results agree with those predicted from a plane model of the $C_6H_6$ mol. Atoms in the *p*-position are about twice as far apart as those in the *o*-position; the *m*-distance is intermediate. GERALD M. PETTY

**Effect of particle size on intensity in x-ray spectroscopic analysis.** GORTON R. FONDA. *J. Am. Chem. Soc.* **55**, 123–7(1933).—The decrease in intensity of diffracted x-ray beams, due to surface irregularities of the target, is studied for grids of various sizes, and powders of various particle-diams. L. WALDBAUER

**The rotation goniometer diagram and the reciprocal lattice.** ERWIN SAUTER. *Naturwissenschaften* **20**, 889–90(1932).—The rotation goniometer is briefly described. A photograph is given of a monoclinic crystal (diphenylethylene sulfide) rotated around the *b* axis, Cu radiation being used. B. J. C. VAN DER HOEVEN

**Four stars whose spectra have bright helium lines.** PAUL W. MERRILL. *Astrophys. J.* **77**, 44–50(1933).—The variable stars AX Persei, RW Hydrae, CI Cygni and also MW 143 have spectra showing in emission lines of H, He I, He II, N III and probably C III. The absorption bands of TiO appear in the spectra of the first 3 in assocn. with the He II line at 4686 A. U. C. C. KIESS

**Bright sodium lines in a stellar spectrum.** PAUL W. MERRILL. *Astrophys. J.* **77**, 51–5(1933).—The spectrum of the star H. D. 190,073 was found to have the D lines of Na in emission in addn. to the bright lines $H_\alpha$, $H_\beta$, $H_\gamma$ and a few of Fe II. C. C. K.

**Hyperfine structure of the spectra of sodium, mercury and lead. Origin of the intensity variation of hyperfine structure components.** KIYOSHI MURAKAWA. *Sci. Papers Inst. Phys. Chem. Research* (Tokyo) **20**, 1–12(1932).—The hyperfine structures of the first 2 members of the principal series of Na have been measured with a Lummer-Gehrcke plate and the observed patterns show definitely that Na has a nuclear moment of $^1/_2$ and not a larger value as has been inferred by others from the spectrum of the Na mol. Similar observations are reported for lines of Hg I and Pb I. A study of the intensity variations of the hyperfine structure components assigns their origin to the uneven self-absorption that occurs when the discharge current is increased from weak to strong. C. C. KIESS

**The fluorescent rays of cadmium vapor.** E. KALINOWSKA. *Compt. rend.* **196**, 168–70(1933).—Microphotometer measurements of the Cd I lines 4678, 4800 and 5086 A. U. $2^3S - 2^3P$, excited when mol. Cd vapor absorbs ultra-violet light between 1900 and 2100 A. U., show that a simple proportionality and not a quadratic relation exists between their intensities and the intensity of the exciting light. This demonstrates that the excitation of the atoms to the $^3S$ state occurs in a single act of absorption by the Cd mols. C. C. KIESS

**The electromagnetic fields due to variable electric charges and the intensities of spectrum lines according to the quantum theory.** G. A. SCHOTT. *Proc. Roy. Soc.* (London) **A139**, 37–56(1933).—S. has developed a rigorous method for calcg. the electromagnetic field of variable elec. charges on the basis of the electromagnetic theory. He makes no assumptions respecting the rate of change and spatial extent and configuration of the elec. distribution whose field is to be found. It is applied to a simple Schrödinger distribution capable of generating spectrum lines (fixed H atom). An equation is developed involving a correction factor for use in calcg. the intensities of spectral lines. These equations are applied to calcns. of intensities of the Lyman, Balmer and Paschen series. H. E. MESSMORE

**Spectroscopic applications of the electrodeless discharge.** GEORGES DÉJARDIN. *Can. J. Research* **7**, 556–70(1932).—The spectra of Ne, A, Kr, Xe, Hg and P were obtained from these elements contained in cylindrical glass tubes at low pressures and under variable intensities of elec. excitation produced without electrodes. The characteristic lines of the spark and arc spectra of these elements were obtained in intensities varying with the strength of the discharge. An analysis of the spectra corresponded very closely to what would be expected from different degrees of ionization produced in the atom. Disintegration of the walls of the tube was indicated by the presence of characteristic lines for Si, O and Cl. Plates and tables accompany the paper.
J. W. SHIPLEY

**Interpretation of line spectra in crystals.** F. H. SPEDDING. *Phys. Rev.* **43**, 143–4 (1933).—A discussion of the interpretations of Deutschbein (cf. *C. A.* **26**, 5847) and Tomaschek (*C. A.* **27**, 663.)
GERALD M. PETTY

**The pole effect of iron.** MAGDALENA ADAM. *Ann. Physik* **15**, 568–611(1932).—The Stark effect in Fe was examd. with a glass spectrograph of small dispersion. The results indicated that the pole effect is a Stark effect. A stable Fe arc was investigated with a Lummer-Gehrcke plate and it was found to be analogous to a vacuum discharge. With small currents the lines were sharp and the pole effect was still found at the cathode. At the anode no pole effect was observed with a current under 1 amp. An exhaustive study was made of the pole effect of multiplets.
J. B. AUSTIN

**The spectra emitted during the early stages of a condensed discharge through nitrogen at low pressure.** HIDENORI HAMADA. *Sci. Reports Tôhoku Imp. Univ.*, First Ser. **21**, 549–53(1932).—A Kerr-cell electro-optical shutter was used to measure the time intervals sepg. the appearance of different spectral features during the early stages of a condensed discharge through N at low pressure. It was found that both the 2nd pos. and the neg. bands begin to be emitted $0.4 \times 10^{-8}$ sec. after the discharge occurs and that their duration is $1.7 \times 10^{-8}$ sec. They are accompanied by the $\alpha$-bands of active N. The 1st pos. bands appear only $7 \times 10^{-7}$ sec. after the beginning of the discharge, and are not accompanied by the $\alpha$-bands, thus indicating that active N is destroyed by the discharge.
C. C. KIESS

**The characteristics of the metallic spectra excited by active nitrogen.** HIDENORI HAMADA. *Sci. Reports Tôhoku Imp. Univ.*, Fist Ser. **21**, 554–63(1932).—Re-examn. of the observations previously described (*C. A.* **22**, 1730; **23**, 5418) yields no evidence that lines of the principal and diffuse series of Na, K, Cs, Zn, Cd, Hg, Tl and Mg are enhanced as the result of collisions between the metallic atoms and metastable atoms or mols. of active N, possessing energies of 2.37 and 3.56 v., and of 8.2 v., resp. It is concluded that the concn. of such particles in active N must be small. With a Lummer-Gehrcke plate a half-width of 0.07 A. U. was measured for the D lines of Na excited by active N, from which it is concluded that, if the broadening is a Doppler effect, the mean kinetic energy which the N atom and N mol. receive during the collision process is 0.35 v. or less.
C. C. KIESS

**The spectrum of iron in the hydrogen flame.** MAGDALENA ADAM. *Ann. Physik* **15**, 613–18(1932).—The Fe spectrum was detd. in the H flame, with glass and quartz spectrographs. The *a* lines (low excitation levels) are more intense than the *b* lines (higher levels), as compared with the ones obtained in the Fe arc and the $H_2 - O_2$ flame. The lines of the higher excitation levels (*b* lines) increase in intensity according to the series: $H_2$ flame, outer cone of the illuminating gas flame, $H_2 - O_2$ flame, arc. A table of multiplets is given.
LOUIS WALDBAUER

**Nature and strength of bonds from continuous absorption spectra.** J. FRANCK AND H. KUHN. *Naturwissenschaften* **20**, 923–5(1932).—A discussion of the results obtained from continuous absorption spectra. Previous conclusions (*C. A.* **21**, 3023; **25**, 3242) are amended. It is no longer concluded a criterion for an ion mol. that excitation from ground level to 1st level leads to normal atoms (Heitler and Herzberg, *C. A.* **23**, 2352; Brown, *C. A.* **26**, 376). Different characteristics of the potential energy *vs.* nuclear distance curve are further discussed. It is pointed out that for the work of dissocn. only an upper limit can be found from the absorption coeff. curve and that conclusions as to character of the bond drawn from the long wave extension of the curve (Rollefson and Booher, *C. A.* **25**, 3244; Dutta, *C. A.* **26**, 5840) are incorrect. This applies as well to results of Dutta (*C. A.* **25**, 3570; **26**, 5841; **27**, 25).
B. J. C. V. D. H.

**Band spectrum, predissociation and structure of the $P_2$ molecule.** GERHARD HERZBERG. *Ann. Physik* **15**, 677–706(1932); cf. *C. A.* **26**, 3437.—The extensive ultraviolet band spectrum of the $P_2$ mol. was measured, and the vibrational structure was completely analyzed, and the rotational structure for a few bands. It is a $^1\Sigma_u^+ \longrightarrow {}^1\Sigma_g^+$ transition. The vibration quanta stop at $v' = 11$, because of predissocn.; at the last 2 vibrational states, $v' = 10$, $v' = 11$, the rotational fine structure also stops at $J = 58$ and $J = 34$, resp. Because of the different points of stopping, it was possible to ob-

tain both upper and lower limits for the heat of dissocn. for the $P_2$ mol. 40593 ± 20 cm.$^{-1}$ or 115.45 kg.-cal. The distance between the P nuclei is much greater than that between S nuclei, whereas that of $N_2$ is less than $O_2$; hence $P_2$ would be unstable.
LOUIS WALDBAUER

**The photochemical elementary process for lithium hydride.** F. BACH AND K. F. BONHOEFFER. *Naturwissenschaften* **20**, 940(1932).—LiH has a sharp absorption max. at 2517 ± 2 A. U., corresponding to electron transfer from $H^-$ to $Li^+$ with Li sepn. The process follows the Hilsch and Pohl rule for alkali halides. B. J. C. v. D. H.

**The oxygen line $2p^1D_2$-$2p^3P_{012}$ and the chemical bond.** B. KIZILBASH AND V. N. KONDRAT'EV. *J. Russ. Phys.-Chem. Soc.*, Phys. Pt. **62**, 523–4(1930).—The red line of $2p^1D_2$-$2p^3P_{012}$ was observed first by Sommers (*C. A.* **24**, 5621) and later by Paschen as a triplet 6300, 6364, 6391 A U. (*C. A.* **24**, 5621). The intensity of 6300 is half of 6308; 6364 has irregular intensity. The 3rd component was not observed. The equation $ClO_2 + h\nu_c = ClO + O(^1D_2)$ is proposed in preference to that of Goodeve and Wallace (*C. A.* **24**, 3435). The heat of reaction of $ClO + O = ClO_2$ is 75 kg. cal. and that of $Cl + O \longrightarrow ClO$ is 43 ± 5 kg. cal. From these data the heat of dissocn. of ClO is detd. as 41.5 kg. cal
G. S. STAMATOFF

**Monochromatic excitation of the fluorescence spectrum of iodine.** I. I. AGARBICEANU. *Compt. rend.* **196**, 166–8(1933); cf. *C. A.* **27**, 901.—The Hg lines at 5461, 5769 and 5790 A. U., emitted by Hg arcs in quartz and glass, were examd. with an echelon spectrograph after being transmitted through a bulb contg. $I_2$ vapor, and were found to be crossed by 4, 9 and 9 absorption lines, resp. The small sepns. of these absorption lines in cm.$^{-1}$ have been accurately measured. To each of them there corresponds, in the fluorescence spectrum of $I_2$, a series of doublets which is excited by a line of frequency identical with that of the absorbed line.
C. C. KIESS

**Term system of Ir I.** WALTER ALBERTSON. *Phys. Rev.* **42**, 443–5(1932).—An array of 16 low even terms and 77 middle and high terms, contg. 566 lines, has been obtained; the wave-length data of Meggers and of Exner and Haschek are given. The J values of the terms have been deduced. The 2 ground states have the same J value of $4^1/_2$, and are probably $^4F$ terms. A list of the strongest combinations and terms is given.
HELEN S. HOPFIELD

**The ultra-violet absorption spectra of phosphine, arsine and stibine.** G. H. CHEESMAN AND H. J. EMELEUS. *J. Chem. Soc.* **1932**, 2847–8.—A regular gradation in the absorption spectra of these hydrides with increasing mol. wt. was observed: $PH_3$ showed poorly developed bands with centers at approx. 2315 and 2290 A. U., $AsH_3$ and $SbH_3$ showed only continuous absorption. $H_2$ is formed in the photochem. decompn. of $AsH_3$.
M. MCMAHON

**New absorption bands of methane in the near infra-red.** R. MECKE. *Z. Astrophys* **6**, 144–9(1933).—New absorption bands of $CH_4$ have been observed in the near infra-red at wave lengths 8900, 8600, 8400, 7840 and 7250 A. U. The gas was at a pressure of 5 atm. in a tube 20.3 m. long. The agreement of some of the lines with bands observed in the spectrum of the planet Jupiter indicates the probable existence of $CH_4$ in its atm.
C. C. KIESS

**Raman effect and constitutional problems. III. Carboxylic acid anhydrides.** K. W. F. KOHLRAUSCH, A. PONGRATZ AND R. SEKA. *Ber.* **66B**, 1–12(1933); cf. *C. A.* **26**, 4754.—The Raman spectra of 11 acid anhydrides and of 17 other compds., of interest in relation to the anhydrides, were obtained. The frequency belonging only to the carboxyl group is discussed. The acid anhydrides show 2 different frequencies in the frequency region of the double bond; both frequencies are considerably greater than those occurring with the acids; the increase is about 40 cm.$^{-1}$ greater in the internal than in the external anhydrides, the difference between the 2 frequencies remaining the same; exceptions are shown in methylsuccinic acid anhydride which shows a 3rd C:O frequency, and in benzoic acid anhydride which shows the influence of the aryl group. The results are discussed, and detailed data concerning the measurements are given.
ALLEN S. SMITH

**Raman effect in gases: Carbon monoxide and nitric oxide.** S. BHAGAVANTAM. *Phys. Rev.* **42**, 437(1932); cf. *C. A.* **26**, 1190.—The Raman spectra of gaseous CO at a pressure of 35 atm. and NO at 20 atm. show unresolved rotational wings near the Rayleigh lines, and Raman lines corresponding to vibrational transitions. The frequency shifts agree well with the resp. vibrational frequencies of these mols. in the ground state, as obtained from absorption spectra.
HELEN S. HOPFIELD

**Raman effects with liquid and solid carbon dioxide.** J. C. MCLENNAN AND H. D. SMITH. *Can. J. Research* **7**, 551–5(1932).—In order to compare the fundamental vibrational frequencies of mols. of $CO_2$ in the 3 states of matter, liquid and solid $CO_2$ were prepd., the latter in the form of clear crystals, and the Raman spectra of the 3 states observed. The frequency shifts and intensities were practically identical and in this

respect $CO_2$ mols. behave as do other non-polar mols. Apparently the $CO_2$ mol. undergoes no change in form throughout the temp. range —92° to 20°. J. W. SHIPLEY

**Raman effect in solutions of electrolytes.** N. S. FILIPPOVA. *Uspekhi Khim.* **1**, 744–54(1932).—A review. F. H. RATHMANN

**The Raman spectrum of the sulfate ion in gypsum.** JEAN CABANNES. *Compt. rend.* **195**, 1353–5(1932); cf. *C. A.* **27**, 230.—The spectrum of the deformed sulfate ion is compared with that of a regular tetrahedron. The lines 414, 495, 620, 1009 and 1136 cm.$^{-1}$ are sym., 671 cm.$^{-1}$ antisym. to the binary axis *L*. JANET E. AUSTIN

**Triboluminescence.** S. S. BHATNAGAR, K. G. MATHUR AND K. L. BUDHIRAJA. *Z. physik. Chem.* **A163**, 8–16(1932).—The triboluminescence of $As_2O_3$, $UO_2(NO_3)_2$ and saccharin was investigated. Quant. results were obtained for its dependence on temp., aging, radiation with ultra-violet light and x-rays and the addn. of gelatin and glycerol. The theory is advanced that in the formation of crystals a small amt. of soln. forms a dispersed phase in the crystal. According to the phys. conditions, microcrystn. takes place more or less rapidly with the emission of light. G. M. MURPHY

**Methods of measurement of the intensity of ultra-violet radiation. I. Photochemical formation of molybdenum blue.** DENYSE SACHS. *J. chim. phys.* **29**, 474–8 (1932).—The best method for the prepn. of Mo blue was reduction of a soln. of $Na_2MoO_4$, acidified with HCl, with HCOOH. The blue was formed in $^1/_2$ min. of exposure to a 300 w. Hg lamp at a distance of 10 cm. I. J PATTON

**Effect of water on the photosynthesis of hydrogen chloride.** G. K. ROLLEFSON AND J. C. POTTS. *J. Am. Chem. Soc.* **55**, 860–1(1933).—It is believed that expts. performed between 145° and 200°K. show definitely that $H_2O$ vapor has no effect on the rate of photosynthesis of HCl. The dependence on the light absorbed changes from the 1st power to the square root as the temp. is lowered, according to preliminary expts. C. J. WEST

**The combination of hydrogen and oxygen photosensitized by nitrogen peroxide.** R. G. W. NORRISH AND J. G. A. GRIFFITHS. *Proc. Roy. Soc.* (London) **A139**, 147–62 (1933).—The reaction between H and O was confirmed as a chain reaction, and H and O atoms as well as mols. are involved. $NO_2$, as a photochem. catalyst, absorbs light and dissociates into NO and O atoms. As a thermochem. catalyst NO combines with O mols. giving the peroxide and an O atom. The thermocatalysis was studied by heating O, H and $NO_2$ in an elec. furnace, both in the presence and absence of ultra-violet light. H. E. MESSMORE

**The photochemical kinetics of the iodine-oxalate reaction.** I. E. ABEL, H SCHMID AND K. RETTER. *Z. physik. Chem.* **A163**, 53–66(1932).—The photochem. reaction between I and oxalic acid was studied at 25° with filtered and unfiltered Hg radiation of 3660 and 4050 A. U. The conditions were such that the incident radiation was totally absorbed, the intensity was kept const., the concn. was varied over wide limits and the photolyte was kept homogeneous. At const. I-ion concn. the rate is independent of the I content. G. M. MURPHY

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Simple reversible photochemical experiment (GROTE, BARNETT) **2**. Decomposition reactions of oxides of Cl (SCHUMACHER) **6**. Exact matching of colors (WHITE) **25**. Electrochemical investigation of Po (HAÏSSINSKY) **4**. Organic photochemistry (SAKURAI) **5**. Urea—$CH_2O$ condensation products. II. Effects of ultra-violet and infrared rays (KATOWSKI, KASAI) **18**.

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HEISENBERG, W.: **Les principes physiques de la théorie des quanta.** Paris: Gauthier-Villars & Cie. 126 pp. F. 40.

HEIDBRINK, WILHELM: **Über Lichtabsorption gelöster und fester Kupfer-** und **Nickelsalze.** Thesis, Münster, 1931. 38 pp.

LAMPERT, WALTER: **Die Auslöschung der Fluorescenz von Farbstofflösungen** durch **Stösse zweiter Art.** Thesis, Berlin, 1931. 35 pp.

LEISTNER, ERICH: **Spektrographische Untersuchungen der in der Mikrophotographie gebräuchlichen Filter und Platten.** Thesis, Jena, 1930. 53 pp.

WEISS, ERNST: **Über den Feinbau von Phosphoren und seine Bedeutung** für **atomchemische Frage.** Thesis, Berlin, 1932. 32 pp.

## 4—ELECTROCHEMISTRY

COLIN G. FINK

**Modern large cells for the electrolytic production of hydrogen.** A. E. ZDANSKY. *Chem. Fabrik* **1933**, 49–51.—The app. (illustrated) is of the general form of a filter press and will deliver H at considerable pressure at 20°. Plant and production costs are

itemized for a production of 5000 cu. m. per hr., the latter cost being about 4.75 pfg. (1.1¢) per cu. m. with power at 0.8 pfg. (0.2¢) per kw. hr. J. H. MOORE

**Cement diaphragms. Methods of their investigation and preparation.** A. P. MASHOVETZ. *Ukrain. Khem. Zhur.* **6**, Nos. 5–6, Sci-Tech. Pt. 220–43(1931).—A new method is described for the investigation and prepn. of cement diaphragms. By this method it has been found that resistance in ohms of various diaphragms used in the electrolysis of brine can be very high, while loss of alkali through diffusion across the diaphragm is very low in comparison with the loss in elec. energy. The elec. conductance of freshly prepd. diaphragms is much higher than that of old ones. The decrease is explained as due to the change of $Ca(OH)_2$ of the cement into carbonate; this causes almost no change in the total vol. of the pores, but increases the apparent thickness of the diaphragm. The introduction of asbestos and of solid NaCl into the compn. of the diaphragm increases its elec. conductance. Leaching of cement diaphragms during their prepn. should be done with distd. water, as $CO_2$ and bicarbonates have a detrimental effect on elec. conductance. A method is given for the prepn. of diaphragms resistant to $CO_2$ action, consisting in treating them with $(NH_4)_2CO_3$ to change the $Ca(OH)_2$ of the cement to $CaCO_3$. J. G. TOLPIN

**Electrolytic production of chlorates. I. Platinum anodes.** I. S. KATZEN AND P. I. SOKOLOV. *J. Applied Chem.* (U. S. S. R.) **5**, 902–15(1932); cf. *C. A.* **26**, 657, 3731.—The work is confined to NaCl electrolysis. In the presence of 1.3% $K_2Cr_2O_7$ and with a c. d. > 0 5 amp./sq. cm., the current concn. might be up to 8 amp./l. The c. d. should be high. The electrodes must be immersed considerably below the surface of the soln. The proper acidity of the soln. must be detd. empirically, as it depends on many variables and cannot be calcd. Acidification during the electrolysis is permissible. Acidity is detd. by titration with simultaneous detn. of the hypochlorite. Concn. of NaCl should not be less than 14–15%. Satd. solns. may be used. Cu is the best cathode metal. The bath should not be made of Fe; cement appears to be a suitable material. Cr-plated cathodes are unsatisfactory. By following the recommended procedure, a current efficiency of 90–92% is obtained with a voltage of 4–4.5 v. If large quantities of Pt are available, the c. d. might be <0.5 amp./sq. cm. and voltage <4 v. **II. Graphite electrodes.** *Ibid* 916–28.—Electrodes contg. about 60% graphite may be used. The acidity of the soln. must be higher than with Pt electrodes. For a current concn. of 4 amp./l. the optimum ratio of mono- to dichromate is 1:4. Anodes of natural graphite deteriorate faster than those of Acheson graphite. The rate of deterioration of graphite electrodes increases with the increase in c. d., though less than might be expected. Deterioration is faster in solns. of low acidity and at high current concns. Raising the temp. to 50° has little effect on the deterioration of electrodes, but further increase to 70° has a marked effect. V. KALICHEVSKY

**Electrolytic production of hydrogen peroxide from sulfuric acid.** A. I. BRODSKII, A. S. AFANAS'EV AND M. G. DIKOVA. *J. Applied Chem.* (U. S. S. R.) **5**, 929–45(1932).—$H_2O_2$ may be produced commercially by electrolyzing $H_2SO_4$ solns. provided the concd. product is obtained by redistn. No diaphragms are required, and the materials used need not be particularly pure. With a Pt anode and Al cathode, 30–35% $H_2SO_4$ (com.), c. d. 200 amp./sq. in. and vol. d. 30 amp./l., the product contained 3–3.5 g./l. of active O. The current efficiency was 55–60%. The temp. was 5–15°. On distn. a pure and stable soln. contg. 1–1.5% $H_2O_2$ was obtained (85% yield, 50% current efficiency) which could be concd. to 20% or higher with only 0.5–2% loss. However, only about 70% of the concd. product was obtained, the remainder being a 0.5–1% soln. Electrolysis and primary distn. can be made continuous with a 45–50% current efficiency. Possibly further cooling of electrodes and the use of higher c. d. will increase the yield. V. KALICHEVSKY

**Powdered metals by electrolytic methods.** JOSEPH ROSSMAN. *Metal Ind.* (N. Y.) **30**, 321–2, 396–7, 436, 468–9(1932).—A review of patents. E. H.

**Electrochemical investigation of polonium.** M. HAÏSSINSKY. *J. chim. phys.* **29**, 453–73(1932); cf. *C. A.* **26**, 5240.—Decompn. voltages, soln. of electrolytic deposits, direction of migration of ions in an electric field and dialysis were studied. In alk. soln. Po is probably in the form of $PoO_3^{--}$. The decompn. voltage, with pure Au as cathode, is —0.29 v. in 0.1 *N* NaOH (*vs. N* calomel), and becomes more neg. with increased alky. It also varies with the electrode (Pt, Pd, Cu, Ag, Sn, Ni), being —0.80 v. for Ni. The decompn. voltage for anode deposit is independent of the $p_H$ and of the electrode, being +0.53 ± 0.01. I. J. PATTON

**Electrode potential and constitution of gold amalgams.** ROBERT KREMANN, ROBERT BAUM, AND LUDWIG LÄMMERMAYR, JR. *Monatsh.* **61**, 315–29(1932).—The cells $Au_xHg_{(1-x)}$|0.1 mol. $SnCl_2$, 0.1 *N* HCl||satd. KCl||1 *N* KCl, $Hg_2Cl_2$|Hg and $Au_xHg_{(1-x)}$|0.1 mol. $HgCl_2$||satd. KCl||1 *N* KCl, $Hg_2Cl_2$|Hg were measured at 25°. The amalgams exhibited the Hg potential up to about 75% Au, an indication that

possible compds. and solns. in this field are not resistant. At 75% Au the potential showed a discontinuity; this indicates that the limit of resistance lies between 21 and 25% Hg. CURTIS L. WILSON

**Electrode potential of the ternary gold-tin-mercury alloys.** FRANZ GRIENGL AND ROBERT BAUM. *Monatsh.* **61**, 330–44(1932).—Amalgams with varying Hg contents and with the Au:Sn ratio at 89:11, 60:40, 52.4:47.6, 40:60, and 17:83 were measured against the *N* calomel electrode and plotted first as pseudo-binaries and then in the ternary equilateral diagram. Only in the low Hg alloys were the potential binary discontinuities at $AuSn_2$ and AuSn noticeable in the ternary systems. Probably AuSn is not dissolved as such in Hg, but is partly dissocd. CURTIS L. WILSON

**The position of gold in the potential series in the electrolysis of molten metal alloys.** LUDWIG LÄMMERMAYR, JR., AND ROBERT KREMANN. *Monatsh.* **61**, 345–50(1932); cf. *C. A.* **21**, 3809.—Molten Au-Bi, Au-Sb, Au-Pb and Au-Al alloys were electrolyzed 4 hrs. at 680°, 400°, 450° and 700°, resp., with a c. d. of 6–8 amps./sq. mm. (cf. *C. A.* **19**, 2167). In the series: anode: He, Ne, A, Bi, Sb, Hg, Pb, Sn, Zn, Cd, Cu, Ag, Al, Na, K: cathode, Au is to the right of Pb, since it diffuses to the cathode in its alloys with Bi, Sb and Pb. Since there is little diffusion in the Au-Al alloys, it is concluded that Au stands between Ag and Al. CURTIS L. WILSON

**Electrochemical behavior of platinum. III. Platinum plating.** G. GRUBE AND D. BEISCHER. *Z. Elektrochem.* **39**, 38–45(1933); cf. *C. A.* **26**, 4259.—Various solns. were electrolyzed, with Pt anodes and cathodes and alundum diaphragms. The best deposits were obtained from solns. boiled 5 hrs. contg. $PtCl_4$ plus $Na_2PO_4$ and $PtCl_4$ plus $(NH_4)_2PO_4$, also from an ammoniacal soln. of $(NO_2)_2Pt(NH_3)_2$. The deposition proceeded with such high polarization that, even at low c. d., $H_2$ was evolved. $K_2Pt(CN)_4$ produced only $H_2$ on all cathode materials tried except Hg, on which a reduction of Pt took place. CURTIS L. WILSON

**Modern chrome-plating installations.** BIRRETT. *Oberflächentech.* **10**, 25–7 (1933).—A review. M. HARTENHEIM

**Chrome-plating electrolytes.** E. W. *Oberflächentech.* **9**, 199–201(1932).—A review. M. H.

**Gray chrome plating.** R. JUSTH. *Oberflächentech.* **10**, 27 8(1933).—Descriptive. M. HARTENHEIM

**Microörganisms in plating solutions.** E. A. OLLARD. *Metal Ind.* (London) **42**, 17–18(1933).—Three types of organisms were found in Cu- and Ni-plating solns. Two are fungi and the 3rd is a single-cell variety. Little is known of the effect upon the metallic deposit. Large quantities clog filters, etc. Spores may accumulate upon the anode by anaphoresis. H E. MESSMORE

**Electrolytic polarization. X. Ammines of copper, silver, zinc and cadmium.** S. GLASSTONE. *J. Chem. Soc.* **1932**, 2849–57; cf. *C. A.* **24**, 4206.—Solns. of Cu, Ag, Zn and Cd salts, to which an excess of $(NH_4)_2SO_4$ had been added, were titrated electrometrically with $NH_3$ soln., the appropriate metal being used as indicator electrode; from the results the existence of the ions $Cu(NH_3)_4^{++}$, $Ag(NH_3)_2^{+}$, $Zn(NH_3)_4^{++}$ and $Cd(NH_4)_3^{++}$ or $Cd[(NH_3)_3(H_2O)]^{++}$ is inferred. Cathode-potential measurements have been made in solns. contg. these ammines, and the results have been interpreted by means of the titration curves and by the theory of the limiting current. There is no reason to believe that any of the intermediate processes, *e. g.*, the dissocn. of the ammine ions, involved in the discharge of a metal-ammine cation and the sepn. of the metal on the cathode occurs slowly. C. J. WEST

**Anodic oxidation of benzene.** REGINALD M. ARCHIBALD. *Trans. Roy. Soc. Can. III*, **26**, 69–71(1932).—The electrolysis of a soln. of $C_6H_6$ in glacial AcOH gives an equil. mixt. of PhOH and higher oxidation products, the highest concn. of PhOH obtained being 1.76%. A relatively high voltage with small concns. of multivalent metals and a diaphragm gave the best yields. The voltage-current curve indicated the absence of a definite decompn. potential over the range 0–5 v. J. W. SHIPLEY

**Effect of service temperature conditions on the electromotive force of unsaturated portable standard cells.** J. H. PARK. *Bur. Standards J. Research* **10**, 89–98(1933).—The temp. coeff. of each limb of an unsatd. Cd (Weston) cell is quite large, but the two are opposite in sign, and the resulting change in e. m. f. is small if both limbs are at the same temp. Temp. inequality causes an error of 0.300 mv. per °C. C. L. WILSON

**Determination of organic matter in accumulator sulfuric acid solutions.** ROLLIN G. MYERS. *Philippine J. Sci.* **49**, 581–5(1932).—Colorimetric methods failed to give consistent results, as did the use of $BaCO_3$ for the removal of the sulfate. Neutral Pb acetate added to an alc. soln. of electrolyte gave a compact ppt. easily sepd. by decantation, and washed in alc. centrifugally. The combined filtrates were evapd. to 30 cc. and the Pb was removed by $H_2S$. After evapn. to dryness, 3 cc. water was added and $Ba(OH)_2$ to remove Fe. The mixt. was filtered into a tared Pt crucible, heated on a

steam bath to const. wt. and then ignited. Org. matter in 1–5-year old electrolytes was approx. 0.08%; in the blank it was 0.03%. H. E. MESSMORE

**A method for the determination of the mass of electrolytic ions.** P. DEBYE. *J. Chem. Physics* **1**, 13–16(1933).—The dynamical reaction due to acceleration of an ion in a solvent ordinarily is negligible compared with the frictional force. To det. the mass of an ion it is necessary to find an effect which is zero when the dynamical reaction is neglected. The use of supersonic waves in electrolytic solns. is proposed for this purpose. If only frictional forces exist between the ions and the solvent, the velocity of the ions and of the surrounding liquid is the same. If, however, the dynamical reactions are taken into account, these are different for ions of different masses. The motion of the cations may then differ from that of the anions and produce p. ds., having the period of the sound waves, between different points in the soln. The measurement of this effect will lead to conclusions as to the masses of ions and the no. of solvent mols. connected with them. A calcn. of the magnitude of this effect is given. With suitable salts the oscillations of potential may amt. to several microvolts. Expts. to detect the effect are in progress. E. R. SMITH

**Measurements on barrier-film rectifiers.** WILFRIED MEYER AND ALEXANDER SCHMIDT. *Z. tech. Physik* **14**, 10–18(1933).—Measurements were made on several kinds of barrier-film rectifiers of the apparent resistance, and this was resolved into series resistance, parallel resistance and capacity. On the basis of these measurements previous theories of the barrier-film rectifier are discussed. ARTHUR FLEISCHER

**Electrode material and contact catalysis as factors in the production of active nitrogen and ammonia in the glow discharge.** ERICH TIEDE AND EMIL HEY. *Ber.* **B66**, 85–94(1933).—The ability of at. N to exist outside the discharge was quantitatively investigated in relation to the recombination effect of different electrodes, and to the wall effect. The $NH_3$ yield from a mixt. of 70% N and 30% H in the glow discharge between different electrodes was measured. The primary processes of $NH_3$ formation and the role of the N atom were thus investigated, obtaining at the same time new exptl. data concerning $NH_3$ catalysis. The ability of electrode metals to adsorb N atoms and thereby accelerate their union to mols. increases in the order Al, W, Ni, Fe, Cu, Pt. The $NH_3$ yield increased in the order W, Al, Ni, Cu, Fe, Pt. The results indicate that the reaction of $NH_3$ catalysis is (*a*) $N_{adsorbed} + H_{adsorbed} + Metal \rightleftharpoons Metal.NH$, (*b*) $Metal.NH + H_2 \rightleftharpoons Metal + NH_3$ (cf. *C. A.* **24**, 2550). ALLEN S. SMITH

**The Cottrell precipitator. I.** KIYOSHI SHIGA. *J. Japan. Ceram. Assoc.* **40**, 779–89(1932).—The theory and practice of the elec pptn. process are illustrated and S.'s new theoretical formulas are explained. S. KONDO

**Flashover tests on 26-kv. wood pole structures.** A. S. BROOKS, R. N. SOUTHGATE AND E. R. WHITEHEAD. *Elec. Eng.* **52**, 89–95(1933).—The results of a series of impulse and dynamic flashover tests on unit pole transmission construction on a large 26-kv. elec. power transmission system are shown The net flashover voltages of wood and porcelain combinations of simple pole tops can be estd. Several breakdown curves are shown. Conclusions are drawn. Creosoting or moisture has no appreciable effect on the impulse sparkover voltages of wood. W. H. BOYNTON

**Further studies and tests on the problems involved in high-precision power-factor measurements of small oil samples.** J. C. BALSBAUGH. *Elec. Eng.* **52**, 103–4(1933).—The abs. power factor of an air condenser is dependent upon the voltage gradient, surface area, and the nature of the surfaces. The abs. power factor of an oxidized brass condenser may be as high as $10^{-4}$. An oil cell has been developed that may be used for measuring the power factor of highly refined oils or synthetic hydrocarbons. The conducting surfaces consist of Ni cylinders which are enclosed in a Pyrex glass tube with sealed-in leads. A metal cylinder is sealed into the glass tube which prevents measurement of any surface leakage or conduction current through the glass. W. H. B.

**Progress report on deterioration of oils and papers under corona discharge.** K. S. WYATT. *Elec. Eng.* **52**, 102–3(1933).—A study was made of the mechanism of the reactions of hydrocarbons in elec. discharge and of the changes in elec. characteristics of oils and papers after subjection to corona discharge under conditions similar to those occurring in cable operations. The impurities in the paper are factors in causing oxidation of thin films on water as evidenced by secondary spread. Cathode bombardment greatly increases the "secondary spread." W. H. BOYNTON

**The life of impregnated paper as related to the impregnating oil.** J. B. WHITEHEAD. *Elec. Eng.* **52**, 105–6(1933).—The general conclusions are: (1) The original or basic chem. structure of the oil has an important bearing on the life of the impregnated paper. (2) The influence of dielec. loss and power factor on the life of impregnated paper is, within wide limits, negligible compared with other factors. (3) The impregnating properties of the oil as detd. by its viscosity and surface tension have an important bearing on the life of the impregnated paper. W. H. BOYNTON

**X-ray studies of the insulating materials in high-tension cables.** G. L. CLARK AND J. N. MRGUDICH. *Elec. Eng.* **52**, 101–2(1933).—By use of a beam of monochromatic x-rays and suitable control standards contg. known percentages of wax, approx. detns. of the amt. of wax in an oil may be rapidly made. A direct relationship apparently exists between the wax content of a stressed cable and the magnitude of the stress. The wax content of a stressed cable is nearly uniform at points more than 1 mm. from the conductor but rises sharply close to it. Heating decreases the wax content within the cable, and the wax content of the previously stressed cable decreases slowly with time during non-use. W. H. BOYNTON

**The piezo- and dielectric properties of Rochelle salt.** ERICH SCHWARTZ. *Elek. Nach. Tech.* **9**, 481–95(1932).—S.'s expts. indicate that consistent results on the piezoelec. effect are possible if readings are independent of the dielec. properties. With Rochelle salt there is no direct proportionality between applied pressure and piezoelec charge. By starting at —20° and gradually raising the temp. to about 30°, the piezoelec. sensitivity increases rapidly, reaching a max. at about —14°; it then drops slowly until about +23°, where a rapid drop occurs; then it dwindles to almost nothing beyond 30°. The dielec. const. is dependent upon field strength (v./cm.) and charging time. Up to about 300 v./cm. the rise in charge density (coulomb/sq. cm.) is rapid, but beyond that it tapers off to an almost zero rate. When mech. pressure is applied in a direction vertical to the *a* axis of the Rochelle crystal, the dielec. const. decreases with increasing pressure. A practical application of the observed phenomena is a new *crystal microphone*. C. G. F.

**Mercury-arc rectifiers for 250-volt supply.** C. A. BUTCHER. *Elec. Eng* **52**, 119–21 (1933).—An outline of the field of applications of the multianode, metal-tank, Hg-cathode rectifier. Emphasis is given to its adaptability to industrial load. The conventional type of rectifier becomes a competitor of the synchronous converter at approx 500-v. Comparison of rectifiers with synchronous converters and motor generator sets is made. Loss and efficiency data are indicated by a comparative curve. W. H. B.

Paint and varnish in the electrical industry (BIRRELL) **26**. Influence of anions on the velocity of solution of Zn in acids (MÜLLER, FÖRSTER) **2**. Electrolytic preparation of aldonic acids (KILIANI) **10**. Electromagnetic devices (Brit. pat 363,697) **9**.

ROTHE, FRITZ: **Über die Entdeckung des Kalkstickstoff-Verfahrens:** Eine lehrreiche Erfindungsgeschichte. Berlin: Maurer & Dimmick G. m. b. H.

RUSS, E. FR.: **Die elektrische Warmbehandlung in der Industrie.** Munich: R Oldenbourg. About 270 pp. About M. 14.

SCHALL, BERTA-MARIE: **Über anodische Oxydation von Silberacetat in Essigsäure und Pyridin.** Thesis, Leipzig, 1930. 48 pp.

**Electric battery.** GEORGES PAUCHARD. Fr. 737,428, May 23, 1932. The battery is composed of a pos. Pb pole in the form of a rod and flat base, a neg. pole of Zn and 2 solns. sepd. by d., one of $CuSO_4$, the other of $ZnSO_4$.

**Electric storage batteries or accumulators.** FREDERICK TEMPLE. Brit. 363,371, Sept. 8, 1930. Divided out of 362,856 (*C. A.* **27**, 1282).

**Accumulators.** LUCIEN GARNOT. Fr. 737,947, Sept. 25, 1931. The electrolyte consists of acidulated distd. water contg. an alkali tartrate and tartaric acid. The efficiency is increased by the addn. of a radioactive metal salt, such as a sulfate or phosphate of U or Th.

**Accumulator plates.** MAX SCHLÖTTER. Fr. 737,785, May 28, 1932. Alloys of Pb with alkali metals or alk. earth metals for accumulator plates are made electrolytically, with molten Pb as cathode, Fe or Ni as anode and NaOH, KOH or an alk. earth hydrate or carbonate as electrolyte.

**Electrical condenser.** SAMUEL RUBEN (to Ruben Condenser Co.). U. S. reissue 18,673, Nov. 29. A reissue of original pat. No. 1,714,319 (*C. A.* **23**, 3414).

**Electrolytic condensers.** N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Fr. 738,137, June 3, 1932. The electrolyte is composed of at least one primary or secondary phosphate in an alc., *e. g.*, a soln. of $KH_2PO_4$ in glycerol. Fr. 738,138. One electrode is composed at least in part of a metal of the first sub-group, of the 4th group, while the other electrode is of an electrolytically conductive material. The electrolyte may be as in Fr. 738,137.

**Electric current rectifier.** SAMUEL RUBEN (to Ruben Rectifier Corp.). U. S. 1,890,470, Dec. 13. A dry-surface contact-type rectifier with substantially uniform unilateral cond. comprises electropos. and electroneg. electrode elements, of Cu alloyed

with a relatively light highly electropos. metal such as Mg or Al and of a Cu compd. of S, resp.

**Coated electric rectifier element.** DONALD G. ACKERLY (to The Westinghouse Brake & Saxby Signal Co., Ltd.). Brit. 367,749, Sept. 11, 1929. Void. A rectifying element comprising a Cu body having a layer of $Cu_2O$ formed directly thereon has a coating of Cu formed on the oxide coating by immersion in a bath of fused inorg. salt. The Cu blank is oxidized by heating to 1000° in an O atm. and is then placed in an electrolytic bath at 500–600°, in contact with Fe or other more electropos. metal, so that it becomes the cathode. $CaCl_2$ should be one of the salts of the bath. In an alternative process the oxidized blank is placed in a bath of molten metal, *e. g.*, Pb, to reduce the outer layer of the $Cu_2O$.

**Mercury-arc rectifiers.** ALBERT W. HULL (to The British Thomson-Houston Co., Ltd.). Brit. 363,377, Aug. 13, 1929.

**Coating with metals.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,813, April 24, 1930. A bath for amalgamating metal surfaces, *e. g.*, prior to electroplating, contains thiourea or a water-sol. deriv. thereof, *e. g.*, Me or Et thiourea. A suitable compn. is thiourea 10 g., $HgCl_2$ 15 g., $H_2O$ 1 l.

**Coating molded articles with metal.** JOSEPH GLOSTER, LTD., and LEONARD J. GLOSTER. Brit. 363,432, Sept. 27, 1930. The article is molded from a mixt. of a synthetic resin or phenol-formaldehyde condensation product (25–50%) and an electrically conductive material, *e. g.*, C (50–75%) in a finely divided state, and a coating of metal is electrodeposited on the finished molding.

**Depositing metals.** THE MOND NICKEL CO., LTD. Fr. 738,450, May 27, 1932. An insol. anode is placed in a vat contg. a diaphragm; the liquid surrounding the anode is ammoniacal and free from metal compds.; the liquid surrounding the cathode is an ammoniacal soln. of one or more compds; capable of giving the desired metal deposit. If a deposit of Pd is desired, the liquid around the cathode contains palladoamine chloride and $NH_3$. The process may also be applied to the extn. of metals from their salts.

**Chromium plating.** ELMER J. WALTZ. U. S. 1,890,633, Dec. 13. An electrolyte for Cr deposition contains chromic acid 18 oz and NaCN 1.5 oz. per gal.

**Silver plating.** ISSAR BUDOWSKI. Fr. 737,661, May 26, 1932. Agents reducing the surface tension, such as Na sulforicinate or derivs. of glutin are added to baths used for Ag plating.

**Apparatus for electrolytic deposition of silver from used photographic solutions.** KODAK-PATHÉ. Fr. 737,749, May 27, 1932.

**Porous electrolytic diaphragm.** WM. H. WOOD. U. S. 1,890,242, Dec. 6. A plastic mastic material such as rubber is mixed with a fibrous porous material such as hair, wool waste or cotton, and the mixt. is rolled repeatedly in the same direction; sheets thus formed are superposed in a pile with the grain of most of the sheets parallel, and the adhering sheets are sliced through the pile transversely of the grain.

**Electrolytic copper.** HIRSCH, KUPFER- UND MESSINGWERKE A.-G. Brit. 363,404, Mar. 6, 1930. More than 1% of Zn is added to the Cu anode, the added Zn being sepd. by electrolysis after the Cu has been electrolyzed. The anode may be made of brass scrap. $NH_4$ persulfate may be used as the oxidation agent for pptg. impurities in recovering the added metal from the electrolyte.

**Treating electrolytic cell slimes from copper deposition.** TANNIE LEWIN. U. S. 1,890,856, Dec. 13. In the electrolytic deposition of Cu from anodes of secondary metals such as brass or bronze in which anodic impurities are disseminated both into the electrolyte soln. and into the cell slime, the cell slime is roasted for oxidation of contained anodic impurities, and the roasted slime is used as an oxide agent for effecting flocculation of anodic impurities colloidally suspended in the electrolyte soln.; live steam and its condensate are introduced into the soln. for accelerating the flocculation, and the flocculated matter is coagulated and settled from the soln.

**Reduction of oxides.** AXEL R. WEJNARTH. Fr. 738,189, June 4, 1932. In the electrothermal reduction of oxides such as PbO, ZnO, CdO, SnO and $SnO_2$, the vapors escaping from the furnace are mixed with reducing agents in the form of a floating dust and heated to reduction temp.

**Palladium.** THE MOND NICKEL CO., LTD. Fr. 737,752, May 27, 1932. Pd is deposited electrolytically, an anode of Pd being used in an aq. soln. of an electrolyte capable of dissolving the anode at a speed about equal to that at which Pd is deposited on the cathode. The electrolyte may contain an alkali metal or alk. earth metal palladonitrite and an alkali metal or alk. earth metal chloride or bromide.

**Gas reactions such as that of oxygen with hydrogen.** ERICH NOACK and OSWIN NITZSCHKE (to I. G. Farbenind. A.-G.). U. S. 1,890,793, Dec. 13. In order to form $H_2O_2$ a mixt. of H and O is passed through a zone of silent elec. discharges to which it is

subjected, while the temp. of the mixt. and resulting reaction products is maintained above their dew points while in this zone. Cf. *C. A.* **27**, 790.

**Acetylene.** Soc. pour l'ind. chim. à Bâle. Brit. 368,164, June 6, 1930. See Fr. 718,088 (*C. A.* **26**, 2662).

**Acetylene.** I. G. Farbenindustrie A.-G. Brit. 363,375, Aug. 5, 1930. In the manuf. of $C_2H_2$ from gaseous or volatilized hydrocarbons or gases, in the elec. arc, the gases are treated in a preheated state, their heat content being derived from a preceding chem. conversion at elevated temp. of part of the same gases, and the gases leaving the arc are cooled down as quickly as possible ("chilled").

**Aliphatic aldehydes.** British Celanese, Ltd., Donald Finlayson and John H. G. Plant. Brit. 364,023, Sept. 25, 1930. Aliphatic aldehydes are obtained by subjecting gaseous satd. hydrocarbons in admixt. with $CO_2$ to the action of a silent brush, arc or glow discharge between electrodes supplied with a. c. of a frequency up to about 1000 cycles. $CH_2O$ and(or) AcH may be thus produced from $CH_4$.

**Purifying a starch-conversion dextrose solution.** Charles Ebert, Wm. B. Newkirk and Meyer Moskowitz (to International Patents Development Co.). U. S. 1,889,779, Dec. 6. The soln. is introduced into and withdrawn from the cathode side of an electrolytic cell having a permeable barrier between its electrodes, and water is introduced into and withdrawn from the cell on the other side of the permeable barrier; and the dextrose soln. withdrawn from the cathode side is filtered to remove coagulated and pptd. impurities. App. is described.

**Electric arc furnace suitable for producing tungsten carbide.** Joseph T. Terry. U. S. 1,889,907, Dec. 6.

**Electric induction crucible furnace.** Franz Eibl (to Ajax Electrothermic Corp.). U. S. 1,890,773, Dec. 13. Structural features.

**Inductance coil for electric induction furnaces.** Edwin F. Northrup (to Electric Furnace Co., Ltd.). Brit. 365,873, Mar. 26, 1930.

**Electric resistance furnace with a fused silica heating chamber, suitable for treating metals with gases.** Clyde R. Johnson (to Amersil Co.). U. S. 1,889,665, Nov. 29.

**Electrodes for electrolytic apparatus.** K. K. Hitati Seisakujo. Brit. 363,289, June 9, 1930. The parts in which the electrode plates are welded to a conducting terminal are placed within gas pockets formed below the level of the electrolytic soln.

**Collecting electrodes for electrical precipitation apparatus.** Metallgesellschaft A.-G. Brit. 363,298, July 24, 1931.

**Anode shield for mercury-arc rectifiers.** Allgemeine Elektricitäts-Gesellschaft (to International General Electric Co., Inc.). Brit. 363,258, April 9, 1930.

**Electrically treating gases.** Siemens-Schuckertwerke A.-G. Brit. 363,615, June 12, 1930. A high-resistance material the resistance of which increases with rise of temp., suitable for elec. dust pptn., consists of a non-conducting material through the pores of which metal is distributed to form a fine network. Among various methods cited for forming such materials is one in which Zn dust, ZnO and fine sand are sintered together.

**Electrically treating gases in cooling towers.** L. G. Mouchel & Partners, Ltd., and Georges Prud'Homme. Brit. 363,902, Feb. 24, 1931. An elec. field is used to recover water from the vapor leaving a cooling tower.

**Electric purification of gases.** Soc. anon. d'exploitation des procédés Lurgi. Fr. 737,780, May 28, 1932.

**Electrical purification of gases.** Siemens-Schuckertwerke A.-G. Fr. 738,058, June 2, 1932.

**Apparatus for electrically treating blast-furnace gases.** Siemens-Schuckertwerke A.-G. (to Lodge-Cottrell, Ltd.). Brit. 363,978, Aug. 29, 1930.

**Apparatus for producing ozone.** Vittorio Gambarotta. Brit. 365,579, July 17, 1929. Void. Addn. to 354,702 (*C. A.* **26**, 3704).

**Liquid seals for electrical precipitators.** Metallgesellschaft A.-G. Brit. 363,771, Oct. 29, 1930.

**Electric thermometer for indicating temperatures at a distance.** C. A. Hartung. Brit. 343,526, Aug. 21, 1929. Various elec. features are described.

**Electrically and photoelectrically controlled apparatus for checking fires of films, etc.** Wm. H. DeWitt (one-half to J. Glenn Marks). U. S. 1,890,804, Dec. 13. Elec. and mech. features.

**Electric cables.** John H. Roberts, Ernest A. Bayles, John Bowyer and Charles J. Beaver. Brit. 363,533, Jan. 28, 1931. A high-voltage multicore elec. cable has a layer of ozone-resisting material, consisting of a vulcanizing rubber compn. having a low-rubber content and contg. appreciable quantities of sulfurized bitumens, pitches or oils, disposed on each side of the rubber dielectric and vulcanized thereto, the

cores being completely embedded in the same material the outer part of which is vulcanized to the inner surface of a tough rubber sheath.

**Incandescent electric lamp.** JONATHAN FORCE (to General Elec. Co.). U. S. 1,889,598, Nov. 29. A lamp with a W filament has leading-in conductors united to the ends of the filament, and a quantity of a metal "of the tungsten class" such as W or Ta in the powd. state and substantially free from other ingredients surrounds the junction of the filament and leading-in conductors and serves to react with $H_2O$ vapor present.

## 5—PHOTOGRAPHY

E. P. WIGHTMAN

**Organic photochemistry. I. Spectrochemical and photochemical studies of color sensitizers.** SUEO SAKURAI. *Bull. Inst. Phys.-Chem. Research* (Tokyo) **11**, 681–710(1932); (abstracts) (in English) published with *Sci. Papers Inst. Phys.-Chem. Research* (Tokyo) **18**, Nos. 359–65, 85; **19**, No. 380–2, 111. Absorption spectra, sensitization maxima and sensitization limits of 26 kinds of color sensitizers of the lumol series, such as 1,1'-diethyllumol-2,4'-iodide and its Me, MeO, Et and ethylenedioxy derivs., and of the illuminol series, such as 1,1'-diethylilluminol-2,2'-iodide, 1,1'-diethylilluminol-2,4'-iodide, 1,1'-diethylilluminol-4,4'-iodide and their Ph, quinaldyl and quinaldenyl derivs. were examd., and the sensitizations particularly promoted by these sensitizers and some relations between their chem. constitution and sensitization maxima were studied. Throughout both the lumol and illuminol series, the 4,4'-derivs. exert spectrochemically stronger bathochromic effects than the 2,4'-derivs., and the 2,4'-derivs. stronger than the 2,2'-derivs., and photochemically shift the sensitization max. (and likewise absorption max.) and the sensitization limit toward the longer wave lengths. This is attributed to the different chem. constitutions of the color sensitizers, and not to the different mol. wts. or to phosphorescence. Derivs. of the lumol series contg. bathochromes, such as the EtO group, exhibit bathochromic effects; while the ring compd. contg. the ethylenedioxy group behaves differently. Derivs. of the illuminol series with a heterocyclic nucleus introduced do not exert marked effects, compared with their parent dyes; while the introduction of an aromatic nucleus into a methenyl group combined with a heterocyclic nucleus exerts noticeable effects. **II. Photography with organic compounds.**—In a search to find an org. compd. suitable to use as a sensitizer in photography, various salts of the tetrazo compd. of diaminodiphenyl and its naphtholdisulfonic acid deriv. were prepd. in the cryst. state, their properties were examd. and their constitutions discussed. The diazo compd. of diaminodiphenylamine and aminophenylamine are good sensitizers, while benzidinediaminostilbene, J-acid and their derivs. are not good sensitizers. These expts. confirm the facts that the usefulness of any compd. as a sensitizer depends not on the method of synthesis but on the properties of the original bases, and that the stable azo compd. is not always suitable for photographic purposes. **III. Color sensitivity of color sensitizers.**—A new method for the detn. of color sensitivity of color-sensitive photographic plates has been developed, and the color sensitivities of 30 sensitizers of the lumol and illuminol series were detd. by using a neutral wedge and special color filters. K. KONDA

**Introduction of a new system of measurement of sensitivity.** K. JACOBSOHN. *Phot. Ind.* **30**, 909–10(1932).—A discussion. C. E. MEULENDYKE

**Indifference of silver bromide collodion emulsions to desensitizing.** LÜPPO-CRAMER. *Phot. Korr.* **68**, 197–8(1932).—Phenosafranine and pinakryptol green in 0.01 or 0.02% soln. produce little or no diminution of the sensitivity of a AgBr collodion emulsion, although they are powerful desensitizers for gelatin emulsions. The comparative indifference of the collodion emulsion is shown also with 10 other dyes ordinarily considered desensitizing. For yellow filter exposures on erythrosin or isoquinoline red sensitized collodion plates, however, phenosafranine and certain other dyes desensitize nearly as strongly as they do gelatin emulsions. E. R. BULLOCK

**Reducing grain in negatives.** SIGURD MOIR. *Am. Phot.* **26**, 584–7(1932).—While M. recommends for fine-grain negative development a formula which contains 100 g. $Na_2SO_3$ per l. developer, he warns the user to avoid a soln. contg. a superabundance of sulfite. He also claims that plates which have had the moisture removed by heat just before exposing are finer grained than untreated plates. R. A. PURDY

**Fogging of photographic plates by basic dyes.** M. MUDROVČIĆ. *Phot. Korr.* **68**, 203–5(1932).—In expts. on the coagulation of a Carey Lea dextrin Ag sol by basic dyes, M. observes no connection between the effectiveness of the dye in this respect and its photographic fogging action. When, however, the ppt. of dye and Ag is washed by decantation with distilled $H_2O$ 2 or 3 times a day, the supernatant liquid becomes almost

colorless after a time with those dyes that fog, whereas it remains more or less strongly colored in the other cases. E. R. BULLOCK

**Platinum printing.** E. B. LUCAS. *Focus* **19**, 758–61(1932).—Instructions are given for platinum printing following a method L. found satisfactory in the tropics. He sensitizes his own paper. Local treatment with a jet of steam is recommended before the fixation in dil. HCl. C. E. IVES

**Imbibition printing on a mordanting positive.** M. ROBACH. *Brit. J. Phot. Color Suppl.* **26**, 42–3(1932).—Corrections to the procedure described in *C. A.* **26**, 5859. E. P. WIGHTMAN

**Complete growth functions with special reference to the photographic ones.** L. HAMBURGER. *Chem. Weekblad* **30**, 115–40(1932).—The characteristic curve which may show more than one growth cycle, is an example of a complete curve of population growth. Essential for the process of photolytic nucleus formation on the surface of the grain of photographic emulsions is an irreversible "light shock mechanism." The connection between the average numbers of developable centers per grain and exposure and the variation of this connection with grain size are in accordance with the tiny critical nucleus size found by Reinders and the author. The data would be incompatible with a critical nucleus size of say 100 Ag atoms and a nucleus action of sep. Ag atoms would not be acceptable. The essential form of the characteristic curve of the photographic plate, including the stage of reversal, is derived. E. SCHOTTE

Cellulose ester compositions [for photographic films] (Brit. pat. 363,689) **23.** Color-testing apparatus [for filters for color photography] (Brit. pat. 345,868) **1.**

CEILLIER, R., AND CONSTET, E.: **Traité général de photographie en noir et en couleurs.** Paris: Dunod & Cie. 634 pp. F. 26; bound, F. 30.

SANTEUL, C. DE: **Les épreuves photographiques à l'encre grasse.** Paris: Dunod & Cie. 108 pp. F. 20.

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**Color photography.** LEONARD T. TROLAND (to Comstock & Wescott). U. S reissue 18,680, Dec. 6. A reissue of original pat. No. 1,808,584 (*C. A.* **25**, 4190).

**Color photography.** D. A. SPENCER and COLOR PHOTOGRAPHS (BRITISH & FOREIGN), LTD. Brit. 340,605, Oct. 3, 1929. In printing processes of color photography, the intermediate or final support for a colloid layer which may form a relief image by differential hardening includes regenerated cellulose such as Cellophane. For reducing the light-screening effect of the dichromate sensitizer which tends to penetrate into the support if the latter is immersed in the sensitizing bath, the sensitized layer may be treated with reducing agents such as acidified $FeSO_4$ or the sensitizing soln. may contain an addn. of sucrose, Na or K chloride or sulfate or chromic acid may be used instead of dichromate. Removable pigments such as Pb chromate are used when employing the carbon or "carbo" printing processes.

**Color photography.** M. MARTINEZ Brit. 341,454, July 15, 1929. An exposed surface comprising 2 or more layers (each contg., or overcoated with, a different single color dissolved or suspended in the layer) is treated, during or after development and fixing, to remove the color either from the light-affected or -unaffected portions (as by treatment with acidified $H_2O_2$ or by hardening the gelatin of the exposed parts and removing the unhardened parts along with the coloring substance). Various details and examples are given.

**Color photography.** H. BERTLING. Brit. 341,904, Oct. 27, 1928. Optical features of a lighting system for giving correct color values.

**Color photography.** I. G. FARBENIND. A.-G. Brit. 345,575, June 4, 1929. Pictures in 2 or more colors are produced by printing from component color-record negatives onto layers sensitized with esters or ester salts of leuco dyes. A Hg-vapor lamp is preferable for printing, and as sensitizing materials for 3-color pictures there may be used: Indigosol golden yellow ICK, Indigosol blue O6B, and Indigosol pink IR extra (each in 3% aq. soln.). The component positives may be produced in succession on the same paper or transparent base by resensitizing the base for each component.

**Color photography.** W. CHAPMAN. Brit. 346,010, Jan. 1, 1930. Mech. and optical features.

**Color photography.** P. W. SMITH. Brit. 347,663, Oct. 30, 1929. Optical and mech. features of a mirror system, etc.

**Color photography.** HUMPHREY D. MURRAY and DOUGLAS A. SPENCER. Brit 363,616, June 20, 1930. Images in color are obtained by combining a metallic image with a diazo compd., *e. g.*, diazonium salt of *p*-aminodiaminodimethyl-*p*-phenylenediamine, and coupling the complex formed with an azo coupling agent, *e. g.*, amines, phenylsulfonic acids, etc.

**Color photography.** TRU COLOUR FILM, LTD. Fr. 738,196, June 4, 1932. A pos. image is printed on the outer side of a pos. chloride emulsion from a negative formed by the combination of colored light rays, developed and subjected to a limited toning followed by a controlled fixation. The uncolored portion of the pos. emulsion is treated to bring it into a condition in which it will undergo a final printing, *e. g.*, converted to AgBr by treatment with $(NH_4)_2CO_3$ and a bromide, after which a 2nd pos. image is printed through the support from a neg. image formed by a different combination of light rays. The 2nd image is developed and toned so that the 2 images combine to produce varied color effects. Details of the various baths and times, etc., required are given.

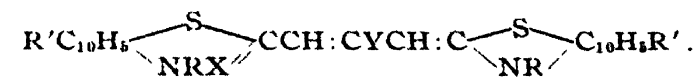
**Color cinematography.** H. T. KALMUS and J. A. BALL (to Technicolor Motion Picture Corp.). Brit. 343,369, April 3, 1929. Films, each bearing a series of color record images of one color, are produced from a lenticular screen film by separately reproducing each color record in a distinct layer of emulsion, which may be treated (as for producing a printing matrix) independently of the records of the other colors. Various optical details, etc., are described.

**Optical system for color photography.** A. PILNY. Brit. 342,036, Nov. 19, 1928.

**Photographic dye impression process.** F. LIERG. Brit. 344,365, Sept. 12, 1929. In producing color prints by imbibition from gelatin reliefs, the dye is temporarily fixed in the relief in an insol. form, as by pptn. of insol. dye acids or dye bases with acid or alkali. Reagents which liberate the dye may be incorporated in the gelatin of the receptive surface and may ppt. the dye transferred to the surface. Various examples and details are given.

**Photographic silver reversal process.** KODAK, LTD., and E. E. JELLEY. Brit. 341,183, Nov. 13, 1929. In a process of the kind in which no re-exposure to light is made after the first development, the plate, film or paper, after treatment in the reversing bath, is treated (simultaneously or successively) with a darkening or fogging agent (such as Na hyposulfite, hydrazine, $H_2O_2$ or methylene blue) forming developable nuclei on the Ag halide grains, and an ordinary developer. Various details and examples are given.

**Photographic emulsions.** I. G. FARBENIND. A.-G. Fr. 738,121, June 3, 1932. Gelatin-Ag halide emulsions are sensitized to red by substituted $\alpha$- and $\beta$-naphthothiocarbocyanines. Compds. of the formulas below are mentioned (R is alkyl, X is halogen or $CH_3OSO_3$ and Y is H, alkyl or aryl, R′ is OMe, OEt, Br or Me)



**Photographic sensitive materials.** E. WOLFF-HEIDE. Brit. 340,278, Sept. 17, 1929. Light-sensitive neg. material for "subtractive work" comprises a single light-sensitive layer which is treated so as to divide it into 3 color-sensitive regions from the bottom surface to the top. An ordinary emulsion layer may be treated with a colloidal soln. of pinaflavol or other green sensitizer for a time to permit the dye to penetrate to the intermediate portion of the layer, followed by drying and treatment of the layer with a colloidal soln. of pinacyanol or other red sensitizer which is allowed to penetrate the surface portion only of the layer, and after again drying the whole layer may be treated with an orange dye which will absorb blue and green rays but will transmit red rays. Various details of the treatments are given.

**Photographic sensitive layers.** MASA GES. ZUR HERSTELLUNG KÜNSTLICHER OBERFLÄCHEN. Brit. 340,246, Oct. 8, 1928. A Ag halogen light-sensitive compn. such as a AgBr emulsion is incorporated (suitably after fine grinding) in a hard drying lacquer or varnish comprising a cellulose ester such as cellulose acetate and the sensitized varnish (which may also include various auxiliary ingredients) may be applied to metal surfaces for reproduction on them of wood-grain finishes. Various details of operation are described.

**Photographic sensitive layers.** I. G. FARBENIND. A.-G. Brit. 341,151, Oct. 28, 1929. A binding material for bleaching-out layers comprises a component (such as alcs. of high b. p., cellulose esters and softening agents suitable for photographic films) which is capable of retaining the dye in soln. and another component (such as cellulose ethers and ether esters) which swells in the fixing agent and in which the dye is insol., *e. g.*, a mixt. of cellulose ethyl benzyl ether and nitrocellulose is sensitized with diethylthiosinamine and a fixing agent of mixed benzine and anisole is used.

**Photographic sensitive layers.** I. G. FARBENIND. A.-G. Brit. 343,212, Dec. 2, 1929. A layer for use in the bleach-out process contains a N-free basic oxonium dye (other than an anthocyanine) such as 3,6-dihydroxy-9-phenylxanthoxonium chloride and its ethers or 3,6-dimethoxy-9-*o*-carbomethoxyphenylxanthoxonium chloride. A layer for the production of multi-color pictures may comprise a mixt. of resorcinol-benzein dimethyl ether bromide, anilinodimethylaminophenonaphthoxyazine chloride and 2,7-

dimethyl-3-dimethylamino-6-methylamino-azazonium phenyl chloride in a mixt. of nitrocellulose and ethylcellulose butyrate.

**Metallic photographic plates.** A. G. SOLOV'EV. Russ. 17,000, July 4, 1929. The plate is covered with one or several layers of cellulose in acetone to which chalk has been added. The layers are dried and one or more layers of barytes are applied. The surface is finally polished and covered with a light-sensitive layer.

**Metallic photographic plates.** A. G. SOLOV'EV. Russ. 25,398, Feb. 12, 1931. Addn. to Russ. 17,000 (preceding abstract). An acetone soln. of celluloid to which $BaSO_4$ is added is placed on the rough surface of an Al plate.

**Anti-halation layers for photographic plates or films.** I. G. FARBENIND. A.-G. Brit. 342,531, Feb. 5, 1930. Fuchsone dyes contg. one or more carboxylic groups are used in anti-halation layers, either dispersed in a binding agent or applied in an alc. soln. Aurine-monocarboxylic acid, aurine-dicarboxylic acid or hydroxy-carboxy-fuchsone may be used, and another dye such as "washing blue" may be added also. Cf. *C. A.* **26**, 2387.

**Photographic diazotype layers.** KALLE & Co., A.-G. Brit. 347,430, March 30, 1929. Materials are used such as (1) the Sn chloride double salt of tetrazodiaminodiphenylthiourea, boric and tartaric acids and thiourea; (2) tetrazodiaminotetramethoxydiphenylurea, tartaric acid and thiourea (development being effected with phloroglucinol and borax); (3) the Zn chloride double salt of 1-amino-2,5-diethoxy-4-benzoylamino benzene, 1-hydroxynaphthalene-7-biguanidine, naphthalenetrisulfonic acid, boric and tartaric acids, thiourea and $(NH_4)_2SO_4$ (developed with $NH_3$ or $Na_2CO_3$), or various similar compns.

**Diazotype reproduction.** N. V. PHILIPS' GLOEILAMPENFABRIEKEN. Fr. 737,377, May 20, 1932. Contrasts or reproductions of images are obtained with a support contg. a diazo compd. which, under exposure to light, produces first in the presence of water a phenol substituted in the $C_6H_6$ ring and capable of being oxidized by the diazo compd itself or by another diazo compd. also present in the support, forming a colored compd. The medium in which the support is found is such that the speed of oxidation is greater than the speed of coupling of the diazo compd. with the phenol, but below, during exposure, that of the transformation of the diazo compd. under the effect of the exposure. The phenol is oxidized by the untransformed diazo compd. to form a colored product which gives the contrasts or the reproduction sought. Several examples are given.

**Fixing photographic layers containing dyes.** I. G. FARBENIND. A.-G. Brit. 341,371, May 11, 1929. Pictures made on layers contg. dyes which bleach out on exposure to light and are sensitized with a deriv. of thiourea such as diethylthiosinamine are fixed by treatment with $SO_2$. Various details of procedure are described.

**Photographic carrier.** REINHOLD KUPFER. Brit. 363,631, Sept. 15, 1930. A carrier for a combined sound and picture film consists of a core of metal of great tensile strength capable of being rolled and having on one part of its surface a layer of (or contg.) Al for the image portion and on another part a layer of (or contg.) Ag for the sound portion.

**Photographic baths.** KODAK-PATHÉ. Fr. 738,164, June 4, 1932. An app. is described for the recovery of Ag from used photographic baths. Cf. *C. A.* **26**, 4762.

**Intensifying photographic silver images.** F. LIERG. Brit. 345,311, Sept. 18, 1929. A Ag image so thin as to be unprintable is converted into a mordant compd. and dyed with a phenosafranine which gives a color gradation from yellow to deep red. The dye may be fixed by a lake-forming substance, and the mordant image may be blackened with $Na_2S$. The process is well suited to the treatment of the front film of a 3-color pack, the intermediate film of which may be treated with a yellow dye such as thioflavine or chrysoidine.

**Photographic films.** L. RADO. Brit. 341,003, Oct. 17, 1928. Light-sensitive layers comprising films of cellulose derivs. (such as hydrates) are attached to a support such as Al foil reënforced by paper or cloth by a permanent fixative compn.

**Sensitive film of the multi-color screen type for producing sound-record cinematograph films in natural colors.** THOMAS T. BAKER (to Spicers, Ltd.). U. S. 1,890,557, Dec. 13. There is applied to a cellulose acetate film, along a narrow strip which is to serve as a sound-record track, a layer of bitumen dissolved in benzene; the surface of the film is coated with a layer of collodion, a multi-color screen is formed on the collodion, the film is treated with benzene to remove the bitumen together with that portion of the collodion layer which overlies the bitumen and the film thus prepd. is finally coated with a photographic emulsion.

**Dyeing motion-picture films.** PHOTOCOLOR CORP. Brit. 347,167, Nov. 20, 1929. One side only of a double-coated film which has been developed is bleached and washed; the opposite side is then wetted and dye is applied to the bleached side. Numerous details of app. and operation are described.

**Apparatus for coloring or varnishing cinematographic films.** SIRIUS KLEUREN-FILM MAATSCHAPPIJ N.-V. Brit. 341,477, Oct. 16, 1929. Mech. features.

**X-ray photography.** SIEMENS-REINIGER-VEIFA GES. FÜR MEDIZINISCHE TECHNIK (to Schering-Kahlbaum A.-G.). Brit. 347,152, Oct. 15, 1928. Two or more radiographs of an object are simultaneously produced by exposing in superposition a plurality of photographic layers between each pair of which are placed 2 intensifying screens laid back to back. Behind the photographic layer which is farthest from the source of rays there may be placed an addnl. intensifying screen with its fluorescent layer facing the photographic layer.

**Apparatus for taking stereoscopic x-ray photographs.** N.-V. PHILIPS' GLOEILAMPENFABRIEKEN. Brit. 342,424, Nov. 24, 1928. Structural and mech. features.

**Photographic bromoil prints.** F. J. SHEPHERD, F. F. RENWICK and ILFORD, LTD. Brit. 341,924, Oct. 23, 1929. Bromoil prints are made on supports sensitized with Ag halide gelatin emulsion to which a hardening agent such as chrome alum or formalin has been added before coating so that the gelatin has a m. p. above 40°, and the developed and bleached print is uniformly inked by a roller or spray device and gradation is developed on it by rolling its surface. Various details and examples of successive steps of procedure are given.

**Glazing photographic negatives.** W. SMITH and J. E. BRAMWELL. Brit. 340,775, Dec. 28, 1929. Developed and fixed negatives with opaque backings are glazed (suitably by squeegeeing onto a ferrotype or glass plate) so that positives made from them by copying with reflected light exhibit greater depth.

**Apparatus for production of photographic sound records of variable form and intensity upon a film.** SVEN A:SON BERGLUND (to N.-V. Kuchenmeisters Internationale Maatschappij voor Sprekende Films). U. S. 1,889,627, Nov. 29. Mech. and optical features.

**Infra-red color filters.** E. S. CLUDERAY and RADIOVISOR PATENT, LTD. Brit. 342,433, Nov. 28, 1929. A thin sheet of ebonite is used supported on or between glass sheets to which it may be secured by bakelite or pitch.

**Color printing plates.** G. ALIFREDI. Brit. 344,148, Jan. 20, 1930. The object is photographed through a greenish yellow colored screen of pure rock crystal onto a panchromatic plate and a negative is prepd. therefrom; a plurality of impressions in accord with the colors in the object are printed from the negative onto lithographic stones sensitized with benzene, Jew's pitch, lavender oil and aniline oil or $CHCl_3$ and color selection is effected by removal of all parts of each impression other than those corresponding to the color to be printed from that impression (the removal being effected by solvents such as turpentine or benzene, separately or in mixt.). Various alternative procedures are described.

**Photogravure printing surfaces.** S. SAWARAGI. Brit. 346,483, Jan. 22, 1930. A Cu plate or cylinder is first coated with a colloidal mixt. obtained by emulsifying beer, Na silicate and white of egg, and, before this material has dried, there is poured onto it the sensitized gelatin while the plate or cylinder is heated and rotated. Gelatin and chrome alum may be substituted for the white of egg.

**Etched metal plates for photomechanical relief printing.** N. LUDVIGSEN. Brit. 345,255, Dec. 19, 1928. A resist screen is applied as by mech. printing to a metal plate before the sensitive coating is applied, and in a modified process this resist screen serves to yield the light parts of the image and after the sensitive coating has been applied a second screen serving for the dark parts and half-tones is applied. For the sensitive layer, a colloid is sensitized with $(NH_4)_2Cr_2O_7$, and the plate is finished, after exposure through a negative, by washing with water, heating and etching. Various details of operation are described.

**Waste films.** RICHARD SPELLING. Fr. 737,404, May 21, 1932. An app. is described for recovering waste photographic films by passing them through baths contg. a solvent for cellulose esters and through water.

# 6—INORGANIC CHEMISTRY

A. R. MIDDLETON

**Germanium and gallium from germanite.** RICHARD BERG AND WERNER KEIL. *Z. anorg. allgem. Chem.* **209**, 383–4(1932).—The prepn. of Ge from germanite has already been described (*C. A.* **20**, 2294). The sepn. of Ga by that method is difficult. It is better prepd. by evapg. powd. germanite to dryness with fuming $HNO_3$, taking up the residue in HCl and sepg. the $GeCl_4$ by distn. in a stream of $Cl_2$. After sweeping out the excess $Cl_2$ by air and $SO_2$, the residue is boiled to remove $AsCl_3$. $Fe^{++}$ is oxidized to

$Fe^{+++}$ by perhydrol, HCl is added and the $GaCl_3$ and $FeCl_3$ are extd. by shaking with $Et_2O$. After pptg. $Fe(OH)_3$ by NaOH, $Ga(OH)_3$ is sepd. by adding excess HCl and neutralizing with $NH_4OH$. The purified $Ga(OH)_3$ is dissolved in NaOH soln., and a yield of 0.74% metallic Ga was obtained by electrolyzing with 4 v. for 36 hrs.
J. H. REEDY

**Acetates as a means of separating the yttrium group of rare earth elements from each other.** J. ALLEN HARRIS AND ALAN H. CAMERON. *Trans. Roy. Soc. Can.* III, **26**, 61–2 (1932); cf. *C. A.* **26**, 2668.—Fractional crystns. of rare earth acetates sepd. Er in the head fraction with Nd and Sm concg. in the most sol. fraction. The acetate sepn. is recommended for the rapid sepn. of Er from a mixt. of Yt-group earths. J. W. S.

**Comparison of the efficiencies of bromates and nitrates in the separation of the rare earth elements from one another.** J. ALLEN HARRIS AND DOROTHY E. WYLIE. *Trans. Roy. Soc. Can.* III, **26**, 63–8(1932); cf. preceding abstr.—Comparative crystns. of material obtained from Norwegian gadolinite were obtained for rare earth bromates and nitrates. Bromate sepn. is recommended for the recovery of Er, Nd and Sm in a preliminary sepn. from a Yt-group mixt. while the nitrate sepn. is best for the rapid concn. of Eu, Tb and Gd from a general mixt. J. W. SHIPLEY

**Solid polyiodides of cesium.** H. W. FOOTE, W. M. BRADLEY AND MICHAEL FLEISCHER. *J. Phys. Chem.* **37**, 21–7(1933); cf. *C. A.* **26**, 1534.—Soly. detns. at 6° and 25° in benzene and toluene prove the existence of the binary compds. $CsI_3$ and $CsI_4$. In benzene, a ternary compd., $CsI\text{-}9I\text{-}2C_6H_6$, is also found. The dissocn. pressures of $CsI_3$ and $CsI_4$ are calcd. at both temps. MICHAEL FLEISCHER

**The solid polyiodide of ammonium.** H. W. FOOTE AND W. M. BRADLEY. *J. Phys. Chem.* **37**, 29–31(1933); cf. preceding abstr.—$NH_4I_3$ is the only stable polyiodide found. Its dissocn. pressure is calcd. at 6° and 25°. MICHAEL FLEISCHER

**The chemistry of the alkali amides.** F. W. BERGSTROM AND W. CONARD FERNELIUS. *Chem. Rev.* **12**, 43–179(1933).—An extensive review including (1) the methods of prepn. and storage and (2) inorg. and org. reactions. About 500 references are given
LOUISE KELLEY

**The action of aluminum salts on the alkali tartrates.** YEU-KI-HENG. *Compt rend.* **196**, 259–61(1933).—Optical rotations are given for mixts. of $Al_2(SO_4)_3$, NaOH and Na tartrate (= $Na_2T$) over a wide range of compn., and at concns. between 0.25 and 2 *M* for $Na_2T$. A mutarotation was observed. The reaction is shown by the equations (1) $3T^{--} + Al^{+++} \rightleftharpoons (AlT_3)^{---}$, (2) $(AlT_3)^{---} + Al^{+++} \rightleftharpoons (AlT_3)Al$. The first reaction requires only a few moments; the second ends in about 20 min.
GERALD M. PETTY

**The reaction between lime and silica in the solid phase.** I. WEYER. *Z. anorg. allgem. Chem.* **209**, 409–28(1932).—$SiO_2$ does not react directly with $CaCO_3$, but with the CaO formed by the decompn. of the latter. Below 735°, the primary product is not $\gamma\text{-}Ca_2SiO_4$, but $\beta\text{-}Ca_2SiO_4$, slowly going over into $CaSiO_3$ (wollastonite). From 815° to 835°, $\beta\text{-}CaSiO_3$ is formed directly, along with some $\beta\text{-}Ca_2SiO_4$. At higher temps. (1050–1250°) $\beta\text{-}CaSiO_3$ only is obtained. These results are in agreement with Jander's theory of a concn. gradient in the diffusion of the components (*C. A.* **26**, 2294).
J. H. REEDY

**The reduction of tricalcium phosphate.** W. JANSEN. *Z. anorg. allgem. Chem.* **210**, 113–24(1933).—$Ca_3(PO_4)_2$ alone and in the presence of Fe was reduced with graphite, with CO and with $H_2$. The temps. of reduction were below 1100°, 1300° and 900–1000°, resp., in the absence of Fe. The temp. of initial reduction is lowered by addn. of Fe, being 700–750° with graphite and 600° with $H_2$. No temp. measurement could be obtained with CO on account of cementation of Fe. The velocity of reduction increases with increasing amts. of Fe up to a max. Fe content. H. B. VANVALKENBURGH

**The composition of chloride of lime.** N. TARUGI. *Boll. chim. farm.* **71**, 797–802, 837–47, 877–86, 917–22(1932).—Chloride of lime and metallic Hg react at low temps. to form a product which is probably $Ca(OHgCl)_2$. Since all of the available Cl of chloride of lime disappears in this reaction, it is probable that both Cl atoms are similarly linked in the chloride of lime complex. T. suggests that $Ca(OCl)_2$ is the fundamental component of chloride of lime, but is assocd. with varying amts. of $Ca(OH)_2$, $CaCO_3$, $CaCl_2$ and $H_2O$, depending on the method of prepn. LEWIS W. BUTZ

**Decomposition reactions of oxides of chlorine.** HANS J. SCHUMACHER. *Z. Elektrochem.* **39**, 7–13(1933).—A review with 30 references of the work of various investigators upon the thermal and photochem. decompn. of $Cl_2O$ and $ClO_2$. LOUISE KELLEY

**The carbonyls of lithium, rubidium and calcium [original reads "caesium"].** T. G PEARSON. *Nature* **131**, 166–7(1933).—The carbonyls were prepd. by passing pure dry CO through a soln. of the metal ammoniate in liquid $NH_3$ formed at —60°. LiCO, a white powder which darkens on standing, detonates violently with $H_2O$, forming $Li_2CO_3$, C and $H_2$; RbCO, a white solid, dissolves in $H_2O$; and $Ca(CO)_2$, a cream-colored

powder, partially dissolves in $H_2O$ with the evolution of heat. *In vacuo* LiCO begins to dissoc. at 300°, RbCO at 350° and $Ca(CO)_2$ at 200° to form the corresponding carbonates and oxides and C. JANET E. AUSTIN

**Recovery of iodine from residues.** ISTVÁN NÁRAY-SZABÓ AND ZOLTÁN SZABÓ. *Magyar Chem. Folyóirat* **38**, 95–8(1932).—The residues are treated with 5 cc. satd. $NaNO_2$ soln. and 5 cc. concd. $H_2SO_4$ per l. and the pptd. I is shaken out with 100 cc. $CCl_4$. The I is dissolved with 10% NaOH and the $CCl_4$ again used for extn. The I is freed from the NaOH soln. by acid and purified by sublimation. If KI is wanted, KOH is used for extn. and the satd. soln. treated with $H_2O_2$ to oxidize hypoiodite to iodate and this is converted to iodide. S. S. DE FINÁLY

**The system: phosphorus–selenium.** PERCY L. ROBINSON AND WM. E. SCOTT. *Z. anorg. allgem. Chem.* **210**, 57–66(1933).—Under 50°, Se dissolves in P to form solid solns., but at 130° $P_4Se_3$ is slowly formed. Rise in m. p. after heating at higher temps. is due to change of free white P into red P. This change takes place more readily in the presence of Se. H. STOERTZ

**The volatility of boric acid with water vapor.** S. BEZZI. *Ann. chim. applicata* **22**, 713–25(1932).—Both *o*- and *m*-boric acids may co-exist in soln., but *o*-acid begins to be transformed into the *m*-form at 50°, while the latter is stable up to 100°. In the presence of $H_2O$ vapor, at 100° or over, only the *o*- form is volatile. A. W. CONTIERI

**Formula of hypophosphoric acid.** F. BELL AND S. SUGDEN. *J. Chem. Soc.* **1933**, 48–9.—Since $H_2PO_3$ contains an odd no. of electrons and $H_4P_2O_6$ does not, it follows that if the hypophosphates have the simpler structure they should be paramagnetic. The susceptibilities were detd. at 18–20° with the following results ($X \times 10^6$): $Na_2H_2P_2O_6$ —0.38; $Na_2H_2P_2O_6.6H_2O$ —0.41; $Ag_4P_2O_6$ —0.25; guanidine hypophosphate —0.41. These are thus all diamagnetic and must be derived from an acid of the formula $H_4P_2O_6$. $Ag_4P_2O_6$ and MeI in $Et_2O$ do not give the Me ester; $Ag_4P_2O_6$ and MeI on standing 4 days give the Me ester, d. 1.307; the Et ester, d. 1.173, was prepd. by warming the Ag salt with EtI for 2 hrs. $Ag_4P_2O_6$ does not react with *p*-$IC_6H_4NO_2$ or with 2,4-$(O_2N)_2C_6H_3Br$. C. J. WEST

**Decomposition of hyposulfurous acid in dilute solution at the boiling point.** E. CARRIÈRE AND MLLE. CARLINI. *Compt. rend.* **196**, 111–12(1933).—On boiling a dil. soln. of $H_2S_2O_3$, which contains nothing else but NaCl, decompn. is 80% complete in 15 min. The reaction is quantitatively: $21H_2S_2O_3 = 17SO_2 + 19S + H_2SO_4 + H_2S_5O_6 + 19H_2O$. ALFRED HOFFMAN

**Supposed cases of isomerism in compounds of the nonelectrolyte type $MeX_2A_4$.** WALTER HIEBER AND ERNST LEVY. *Z. Elektrochem.* **39**, 24–6(1933).—Sand's claim (*Ber.* **36**, 1443(1903)) that he had obtained $Co(CNS)_2(C_5H_5N)_4$ in 2 different forms—red and brown—was disproved by Pfeiffer's discovery (*C. A.* **2**, 2518) that the brown color of the β-form was due to traces of I. The discovery of Biltz (*C. A.* **9**, 568) that the tetrapyridine compd. of $CoBr_2$ exists in 2 forms was not substantiated by the work of Hantzsch (*C. A.* **21**, 1234) or by unpublished expts. of Hieber and Mühlbauer. According to Grossmann and Schück (*Z. anorg. Chem.* **50**, 5(1906)), $Ni(CNS)_2en_2$ exists in 2 isomeric forms—a difficultly sol. blue one and an easily sol. red-violet one. H. and L. have repeated the prepn. and have found that the blue compd. is $Ni(CNS)_2en$ (mentioned by G. and S.), while the red-violet one is $Ni(CNS)_2en_2$. The isomerism of $Ni(CNS)_2en_2.H_2O$ described by Werner (*Z. anorg. Chem.* **21**, 231(1899)) could not be confirmed by H. and L. (Werner gave $2H_2O$ for this compd.). Spacu (*C. A.* **9**, 180) stated that the tetrapyridine compd. of $Fe(CNS)_2$ should exist in a yellow and in a dark red-violet form. According to Rosenheim, Roehrich and Trewendt (*C. A.* **26**, 5025) the violet compd. is not an isomer of the yellow, but is a bimol. compd. which contains both $Fe^{II}$ and $Fe^{III}$. H. and L. question the existence of isomerism here and also the explanations given by Rosenheim and by Spacu for the red color of the EtOH and $CHCl_3$ solns. of the yellow form. LOUISE KELLEY

**Physicochemical studies of complex formation involving weak acids. VI. Alkaline solution of thorium tartrate.** H. T. S. BRITTON AND WM. E. BATTRICK. *J. Chem. Soc.* **1933**, 5–9; cf. *C. A.* **26**, 4549.—Titration of $ThCl_4$ with $Na_2C_4H_4O_6(Na_2T)$ proceeds at first according to $ThCl_4 + 1.23Na_2T + 1.54H_2O = 1.54HCl + 2.46NaCl + Th(OH)_{1.54}T_{1.23}$. Further addn. of $Na_2T$ only approx. represents neutralization of HCl to completion, as when 2 moles of $Na_2T$ have been used 0.42 mole of HCl is present to give $ThCl_4 + 2Na_2T + 1.54H_2O = 0.42HCl + 0.56H_2T + 3.58NaCl + Th(OH)_{1.54}T_{1.23} + 0.21Na_2T$. The $Na_2T$ is probably assocd. with basic ThT as an inert complex. Titration of $Na_2T$ with NaOH immediately gives $Th(OH)_3T_{0.5}$ at $p_H$ 10.5, but on aging of the solns. more basic complexes such as $Th(OH)_{3.48}T_{0.26}$ are formed. FOSTER DEE SNELL

**The constitution of complex salts of metallic halides and amines, and the dependence of their stability upon the anions.** WALTER HIEBER AND ERNST LEVY. *Z. Elektrochem.* **39**, 26–34(1933).—Tetrammines of halides of metals in the subgroups of the

Periodic Table usually contain the halogen in the inner sphere, in direct union with the central atom. In almost all substitution compds. and in very many addn. compds. the stability increases in the order Cl ⟶ Br ⟶ I; a complete reversal of this order is limited to some ammoniates. The factors detg. the stability gradation of complexes are divided into 2 effects—one produces the "normal" behavior and always plays a role in complex formation; the other acts in the sense of an "inverse" behavior and only if halogen polarization is concerned in complex formation. The inverse behavior of the hexammoniates of the Au halides can be fitted into the common scheme and explained by the aid of Klemm's energy quotients. For the analysis of the stability gradation another factor must be considered—a contingent change of the lattice type either in transition from Cl to I compds. or in complex formation. The lattice type is detd. by space and polarization magnitudes. LOUISE KELLEY

**Spectroscopic detection of the formation of complex salts of dimethylglyoxime in alcoholic solution.** KENJIRO KIMURA AND HIDEO SUEDA. *J. Chem. Soc. Japan* **54**, 1–8(1933).—The formation of complex salt between metals and dimethylglyoxime in EtOH soln. was detected from the position of max. of the light absorption. Complex salt formation was observed for $Ni^{++}$, $Co^{++}$, $Fe^{++}$, $Fe^{+++}$ and $Cu^{++}$, but not for $Mg^{++}$, $Ca^{++}$, $Mn^{++}$, $Zn^{++}$, $Sr^{++}$, $Cd^{++}$ and $Hg^{++}$. The complex salts of Ni, Co, Cu and $Fe^{++}$ were composed of 1 mol. of metallic salt and 2 mols. of dimethylglyoxime. The mol. ratio was 1 to 3 only for $Fe^{+++}$. It has been found that 19.38 g. of dimethylglyoxime is dissolved in 1 l. of EtOH at 25°. T. KATSURAI

**A supposed anomaly among the plato-tetrammines.** H. D. K. DREW AND G. H. WYATT. *J. Chem. Soc.* **1932**, 2975–6.—Investigations were made to det. if 2 β-forms of the plato-tetrammine $[Pt(NH_3)_2dm_2]Cl_2$ (dm = dimethylamine) of Jorgensen (*Z. anorg. Chem.* **48**, 374(1906)) exist, the compds. β-$Ptdm_2Cl_2$ and β-$[Pt(NH_3)_2dm_2]Cl_2$ being prepd. The investigations lead to the conclusion that only one form of the β-tetrammine exists, and depending on the exptl. conditions (temp., acidity, etc.) the hydrated or the anhyd. plato-salt is obtained from this. β-$Ptdm_2Cl_2$ was prepd. from aq. $NHMe_2$ and $K_2PtCl_4$ at room temps. (for 6 hrs.), and forms yellow plates or needles when recrystd. from $H_2O$ (yield 75%). β-$[Pt(NH_3)_2dm_2]Cl_2$ (colorless square prisms or hexagonal needles) was obtained in nearly quant. yield by dissolving β-$Pt(NH_3)_2Cl_2$ in $NHMe_2$ aq. at room temps. (10–14 days), drying over $P_2O_5$ and recrystg. from aq. EtOH. J. BALOZIAN

**Amino compounds of the platinic chloroammines.** BERTRAM E. DIXON. *J. Chem Soc.* **1932**, 2948–55.—The reactions between alkalies and the simple platinic ammines of the dichlorotetrammine, chloropentammine and hexammine series were studied and it was found that the primary ammino reaction was general for the simple platinic chloroammines. The dichlorotetramminoplatinic nitrate (I) used was prepd. by the action of $HNO_3$ on tetramminoplatinous chloride (prepd. by Ramberg's method from $K_2PtCl_4$). *Aminodichlorotriamminoplatinic nitrate* ($[Pt(NH_3)_3(NH_2)Cl_2]NO_3$), was obtained as a brilliant yellow ppt. on immersing in ice and stirring a mixt. contg. an excess of cold 30% NaOH aq. added to concd. I soln. The ppt. was washed with EtOH until free from NaOH, then with $Et_2O$ and dried in a desiccator *Dichlorotetramminoplatinic hydroxydihydrophosphate*, ($[Pt(NH_3)_4Cl_2](OH)H_2PO_4.2H_2O$), was obtained as a bulky white ppt. on stirring a soln. of I (1 equiv.) to which was added cold $Na_2HPO_4$ aq. (3 equivs.). The ppt. was washed with ice-cold $H_2O$ and dried in a desiccator. *Chloro(hydrophosphato)tetramminoplatinic hydroxide*, ($[Pt(NH_3)_4Cl(HPO_4)]OH$), was obtained as a granular, faintly buff-colored ppt. on pouring hot $Na_2HPO_4$ aq. (2 equivs.) into a boiling soln. of I, the mixt. boiled and stirred for 4 min. The ppt. was well washed with $H_2O$ and dried in a desiccator. On heating this hydroxide to 130°, 1 mol. of $H_2O$ is driven off giving the compd. *chloro(hydrophosphato)aminotriamminoplatinum* ($[Pt(NH_3)_3(NH_2)Cl(HPO_4)]$). *Bis(hydroxotriaminodiamminoplatinic)silver hydroxide*, ($[Ag_3\{(NH_2)_3Pt(NH_3)_2(OH)\}_2](OH)_3$), was obtained in alk. soln. when an excess of moist $Ag_2O$ was shaken vigorously with a soln. of chloropentamminoplatinic chloride (II) for 1–2 hrs. in a corked flask until a small filtered portion gave a ppt. on addn. of HCl, but only a trace on addn. of $HNO_3$. When the main soln. was filtered it gave on evapn. a white pasty mass from which $NH_3$ was slowly evolved on standing. *Bis(chlorodiaminotriamminoplatinic)silver chloride*, ($[Ag_3\{(NH_3)_3Pt(NH_3)_3Cl\}_2]Cl_5$), was obtained as pale yellow isotropic adherent crystals on shaking $Ag_2O$ (2 equivs.) with a soln. of II for about 1 hr., and allowing to stand overnight. *(Hydrosotriaminodiamminoplatinic)-silver chloride* ($[Ag_2\{(NH_2)_3Pt(NH_3)_2(OH)\}]Cl_3$) was obtained as a deposit of bright yellow crystals on shaking a II soln. with $Ag_2O$ (4 equivs.) for about 3 hrs. (until a filtered portion of the soln. gave a ppt. of AgCl on acidification with $HNO_3$ and a soln. contg. pos Ag ions, but no neg. Cl ions), filtering, and allowing the filtrate to stand 24 hrs. The hexamminoplatinic chloride ($[Pt(NH_3)_6]Cl_3$) (III) used in prepg. the following compd. was made by Chugaev's method (*C. A.* **18**, 3151) and was sepd. from the contaminat-

ing hydroxopentaminoplatinic chloride by fractional soln. in dil. AcOH. ***Hexammino-platinic hydroxyhydrophosphate,*** ($[Pt(NH_3)_6]_2(OH)_2(HPO_4)_3.2H_2O$), was pptd. from an $NH_3$ aq. soln. of III by addn. of excess aq. $(NH_4)_2HPO_4$, filtered, the ppt. dissolved in HCl, repptd. and dried at 105°. J. BALOZIAN

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**Gmelins Handbuch der anorganischen Chemie.** 8th ed. Issued by Der Deutschen Chem. Gesellschaft. **System-Nummer 30. Barium.** Berlin: Verlag Chemie. 390 pp. M. 64. Cf. *C. A.* **27**, 1291.

ORTOLEVA, GIOVANNI: **Nozioni di chimica inorganica ad uso delle scuole medie.** 7th ed. Milan: C. Tamburini. 376 pp. L. 25.

**Traité de chimie minérale.** Edited by Paul Pascal and Paul Baud. **T. IV. Antimoine, bismuth, vanadium, niobium, tantale, bore.** By G. CHAMPETIER, A. CHRÉTIEN, A. LALANDE, M. PICON, H. PIED AND P. RENAUD. Paris: Masson & Cie. 630 pp. F. 120. For Tomes V and XI, cf. *C. A.* **27**, 678.

FENDIUS, HANS: **Darstellung und Dichten von Oxyden und Halogeniden aus der Vanadin- und Molybdängruppe mit ein Anhang zur Magnetochemie des Molybdäns und Wolframs.** Thesis, Hanover, 1930.

HESSE, WILH.: **Einwirkung von Sulfurylchlorid auf Metalloxyde.** Thesis, Münster, 1931. 32 pp.

KRÜLL, FRIEDR.: **Über einige Metallnitride.** Thesis, Jena, 1931. 55 pp.

MÜLLER, J. F.: **Über die elektrische Leitfähigkeit und den Verbindungstypus der Alkalikarbide.** Thesis, Bonn, 1931. 24 pp.

TRAULSEN, KARL: **Die Fluordarstellung auf chemischen Wege.** Thesis, Erlangen, 1931. 62 pp.

YERSIN, GABRIEL: **Complexes amminés de quelques sels et d'eau. Etude d'analyse thermométrique.** Thesis, Lausanne, 1930. 32 pp.

## 7—ANALYTICAL CHEMISTRY

W. T. HALL

**Volumetric gas experiments with large amounts of material.** W. FRANCK. *Z. physik. chem. Unterricht* **45**, 265–6(1932).—Zn previously prepd. by heating and drying in a desiccator is weighed into a hard-glass test tube. This is then connected to a 2 l. bottle. The entire assembly including a siphon overflow is filled with water. The test tube is then heated. The water displaced gives the amt. of H liberated and the gain in wt. of the test tube when dried gives the amt. of O involved. Where large amts. were used satisfactory results were obtained in demonstration expts. to show the ratio of H to O in $H_2O$. A. LLOYD TAYLOR

**Microvolumetric methods.** A. ROMWALTER. *Mitt. berg. hüttenmänn. Abt. ungar. Hochschule Berg. Forstw. Sopron* **4**, 67–76(1932).—A microvolumetric method for detg. small amts. of gases is described. The app. and method may be used for any reactions in which gases are produced. The data of exptl. analyses agreed well with theoretical values. S. S. DE FINÁLY

**Qualitative analysis by electrolysis and spectrography.** A. SCHLEICHER. *Z. Elektrochem.* **39**, 2–7(1933).—By electrolytic deposition from solns. of definite acidity, the common cations can be divided into 4 groups: (1) Hg, Ag, Pb, Bi, Cu, As, Sb and Sn; (2) Ni, Co, Cd, Zn and Mo; (3) Cr, Fe and Al which remain in the electrolyte as pptd. hydroxides; (4) alk. earths, Mg and alkalies which remain dissolved in the electrolyte. By means of spectrographs it is easy to detect the presence of 0.01 mg. of Hg, Ag, Ni, Co, Fe, Zn and Mn or 0.1 mg. of Cu, Pb, Bi, As, Sb, Zn, Sn, Mo and Cd after an electrolytic sepn. has been made. The tests can be obtained for Hg, Ag, Ni, Co, Fe, Zn or Mn when 0.01 mg. is present in 100 cc. of soln. and for the other cations when 0.1 mg. is present in 100 cc. Details for carrying out the expts. are given and some typical spectrographs of 17 elements shown. W. T. H.

**Spectral analysis.** G. HEIDHAUSEN. *Mitt. Forschungsanstalt. Gutehoffnungshütte-Konzerns* **2**, 62–78(1932).—The advantages of spectral analysis in testing chem. materials are explained at length and a very simple app. is described which can be used for all practical purposes. M. HARTENHEIM

**Modification of the Dumas technic for substances difficult to burn.** JAMES F. COUCH. *J. Am. Chem. Soc.* **55**, 852–3(1933).—The weighed substance is mixed with a large excess of CuO and packed into a Cu tube, which is then inserted into another metal combustion tube. Details and results of analyses are given. C. J. WEST

**Chemical analysis applied to works of art.** PLACIDO GERACI. *Mouseion* **19**, 47–64 (1932); *Tech. Studies Field Fine Arts* **1**, 163–4.—A review. A. PAPINEAU-COUTURE

**Method for determining the titer of sodium thiosulfate solution against Mohr's salt.** A. V. Filosofov. *J. Gen. Chem.* (U. S. S. R.) **2**, 553–4(1932).—Directions are given for standardizing $KMnO_4$ in the Mohr's salt and then for treating a measured vol. of $KMnO_4$ with KI and acid and titrating the liberated I. Chas. Blanc

**Silver iodide-starch paste indicator in a modification of the Haen-Low copper determination method.** F. Sierra. *Anales soc. españ. fís. quím.* **31**, 26–33(1933).—Allow the $Cu(NO_3)_2$ soln. from a buret to drop slowly into a soln. freshly prepd. as follows: To 20–30 cc. of 0.2 *N* KI, add 10 drops of 0.1 *N* $AgNO_3$ and 5 cc. of starch paste. The end point is a change from yellow to blue. This indicator acts like benzidine acetate. Results obtained equal in accuracy those obtained by the classical methods. E. M. Symmes

**The use of 2,4-dinitrophenylhydrazine in the determination of carbonyl compounds.** C. Torres and S. Brosa. *Anales soc. españ. fís. quím.* **31**, 34–6(1933).—The 2,4-dinitrophenylhydrazone of hexetone (2,4-dinitrophenylhydrazone of 6-*m*-menthene-5-one) was obtained in the form of red crystals, sol. in alc., m. 104°. The hexetone content of Bayer ampoules (2 cc. of 10% soln.) was detd. Dissolve the ampoule in 15 cc. of 96° alc., and add to the reagent, which comprises 0.36 g. of 2,4-dinitrophenylhydrazine, m. 194°, in 25 cc. of $H_2O$ and 2.5 cc. of concd. $H_2SO_4$. The pptn. of the hydrazone is quant. in 48 hrs. E. M. Symmes

**Gasometric method of determining chromium.** M. Couture. *Ann. chim. applicata* **22**, 680–2(1932).—$NaBO_3$ is decompd. by chromates with evolution of O, and the Cr content is calcd. from the vol. of gas evolved. A. W. Contieri

**Iron from iron carbonyl as standard in volumetric analysis.** W. Wesly. *Z. anal Chem.* **91**, 341–4(1933).—Exptl. data show that Fe from Fe carbonyl is as good as electrolytic Fe for standardizing $KMnO_4$ or $SnCl_2$ solns. W. T. H.

**Effect of heat treatment of the metal on the determination of silicon in aluminum and the loss of volatile silicon compounds in the mixed acid method of solution of the metal.** L. H. Callendar. *Analyst* **58**, 81–8(1933); cf. *C. A.* **26**, 5029.—The results of numerous expts. show that when the metal is dissolved in 10% NaOH, the soln. boiled to convert Si completely into $SiO_2$ and then poured into $H_2SO_4$, the results in the Si detn are uniform irrespective of the heat treatment which the metal has undergone. When, however, the metal is dissolved in a mixt. of $H_2SO_4$, $HNO_3$ and HCl there appears to be a loss of Si and the extent of this loss varies with the heat treatment. Treatment of the sample with concd. $HNO_3$ plus 60% $H_2SO_4$ gives good results. W. T. H.

**Determination of sodium and potassium in the presence of each other.** László Szebellédy and Károly Schick. *Magyar Gyógyszerésztud. Társaság Értesitöje* **9**, 40–51(1933).—Detailed directions are given for detg. Na and K as iodides. S. S. de F.

**Determination of strontium as oxalate.** Kh. N. Pochinok. *J. Applied Chem* (U. S. S. R.) **5**, 1078–87(1932).—The best method, of those studied, for detg. Sr as oxalate consisted in adding 50 ml. of 0 1 *N* $(NH_4)_2C_2O_4$ soln. to about 25 ml. of approx. 0.1 *N* $SrCl_2$, dilg. to 100 ml., filtering and titrating the excess $C_2O_4^{--}$ in an aliquot part of the filtrate To sep. Ca from Sr, it is recommended to add 50 ml. of 2% $H_2C_2O_4$ soln. to 25–30 ml. of approx. 0.1 *N* Ca and Sr chlorides and ammonia till alk. to methyl orange Filter and wash the ppt with a satd. $SrC_2O_4$ soln. Transfer the ppt. to the beaker where the pptn. was carried out. Wash the filter with 5 ml. of 2.5 *N* HCl and then with water (total washings approx. 70 ml.). Add 5 ml. of 7 *N* $H_2SO_4$ and dissolve the $CaSO_4$ by heating on a boiling water bath while stirring. After 20 min. filter the hot soln. and wash the $SrSO_4$ ppt. 5–6 times with 0.5% $H_2SO_4$. Heat the filtrate on a water bath and neutralize to methyl orange with $NH_3$ and filter off the $CaC_2O_4$ ppt. V. Kalichevsky

**Note on the colorimetric method for determining titanium.** Robert Schwarz *Z. anorg. allgem. Chem.* **210**, 303(1933).—The yellow color obtained in the colorimetric detn. by means of $H_2O_2$ is certainly not due, as has been often assumed, to the formation of pertitanic acid, $H_4TiO_5$, which is yellow and insol. in water but is probably caused by the formation of an ion like $[TiO_2(SO_4)_2]^{--}$. W. T. H.

**Determination of carbon and hydrogen by the centigram method.** Karlhugo Küspert. *Chem. Fabrik* **1933**, 63–4.—Various methods are discussed. K.'s app is described and its accuracy shown by analyses of 8 compds. J. H. Moore

**A simple method for the determination of minimum quantities of bromine in a large excess of chlorine.** Fritz Hartner. *Z. physiol. Chem.* **214**, 179–83(1933).—The method for detg. 10–1000 γ Br in the presence of 100 mg. or more Cl consists essentially in the selective oxidation of bromide in acid soln. by $KMnO_4$ in the presence of $MnSO_4$. The soln. is satd. with $Na_2SO_4$ to decrease the soly. of the liberated Br, and the latter sucked into a receiver contg. KI and starch soln., the final traces of Br being expelled from the reaction flask by $CO_2$ generated by alternate addns. of $NaHCO_3$ and $H_2SO_4$. The liberated I in the receiver is titrated with 0.001–0.0005 *N* $Na_2S_2O_3$. App. is described and special precautions are enumerated. A. W. Dox

**Determination of phosphorus in basic iron.** B. JONES. *Analyst* **58**, 90–1(1933).—In some samples of basic Fe, the P content runs very high, in which case it is advisable to use only 0.5 g. of sample and det. the approx. P content by the alkalimetric titration of the phosphomolybdate ppt. Then carry out a careful analysis as described by Etheridge (*C. A.* **25**, 4487), weighing as $PbMoO_4$, which J. regards as the most reliable of all methods. W. T. H.

**Notes on the determination of oxygen in steel by the hydrogen reduction method.** ERICH CZERMAK AND OTHMAR V. KEIL-EICHENTHURN. *Arch. Eisenhüttenw.* **6**, 145–7 (1932).—It has been assumed that the $H_2$ reduction gives accurate values for the O content of mild steels low in Si when not over 0.2% C is present, but it is now shown that erroneous results are likely to be obtained even when less C is present. When the ratio MnO/FeO in the steel increases the reducing power of the $H_2$ increases. W. T. H.

**Rapid determination of sulfur in steel and iron alloys.** L. M. VIKSVO. *J. Applied Chem.* (U. S. S. R.) **5**, 1107–18(1932).—The method of Holthaus (*C. A.* **19**, 2002) is preferable to that of Schulte (*Stahl u. Eisen* **16**, 867(1896)) as it is more rapid and employs simpler app. V. KALICHEVSKY

**New method for detecting free sulfur in viscose silk and the detection of cyanide ions in aqueous solutions.** A. CASTIGLIONI. *Z. anal. Chem.* **91**, 346–9(1933).—To a little of the substance add 5 cc. of acetone and a few decigrams of KCN. Heat to boiling, cool, pour off the acetone, make acid with $HNO_3$ and add a drop of $Fe(NO_3)_3$ soln. If free S is present in the original material, red $Fe(CNS)_3$ is formed. The same reaction will serve for detecting $CN^-$ in aq. solns. To 4–5 cc. of soln. add a drop of acetone which is satd with S and heat to boiling. Cool, make acid and test with $Fe(NO_3)_3$. W. T. H.

**Determination of labile sulfur in gelatin.** N. V. KIRILENKO. *J. Applied Chem.* (U. S. S. R.) **5**, 1119–26(1932).—The method of Sheppard and Hudson (*C. A.* **25**, 1272) gives an accuracy of ±0.001% on the wt. of sample which corresponds to an error of ±14%. The proposed colorimetric standard is unstable and should be replaced by methylene blue. V. KALICHEVSKY

**Determination of calcium oxide in magnesia, magnesium salts or solutions.** P. ACKERMANN. *Chem.-Ztg.* **57**, 39(1933).—By shaking 10 g. of $MgCl_2$ with 80–100 cc. of 96% alc. and a little 2 *N* $Na_2SO_4$ soln., all the $MgCl_2$ is dissolved and the Ca is left behind as $CaSO_4$. From solns. rich in Mg a similar procedure can be followed after evapn. to dryness W. T. HALL

**Determination of CaO, $3CaO.SiO_2$, $2CaO.SiO_2$, $3CaO.2SiO_2$, $CaO.SiO_2$ and $SiO_2$ when existing together.** WILHELM JANDER AND ERNA HOFFMANN. *Angew. Chem.* **46**, 76–80(1933).—Free CaO is detd. by formation of Ca glycerate, which, after sepn. from the undecompd. silicates, is titrated with HCl. If no $3CaO.2SiO_2$ is present, then $3CaO.SiO_2$, $2CaO.SiO_2$ and $CaO.SiO_2$ together can be detd. in aq. soln. by titration with HCl to neutrality, when the tri- and disilicates are decompd. quantitatively and any $CaO.SiO_2$ remains unchanged. If $3CaO.2SiO_2$ is present the other silicates must be detd. in the presence of *o*-nitrophenol, and the Ca *o*-nitrophenolate titrated with an alc. HCl soln. The compd. $3CaO.2SiO_2$ is detd. by addn. of HCl to a suspension, but since the decompn. is not quant., this introduces some difficulties. An error of about 3% is introduced in the analysis of the four silicates, but free CaO and $SiO_2$ are detd. much more accurately, as is shown by test results which are appended. K. KAMMERMEYER

**Oxide analysis by iodine extraction in steel-making problems.** J. J. EGAN, W. CRAFTS AND A. B. KINZEL. *Am. Inst. Mining Met. Engrs Tech. Pub.* **498**, 10 pp. (1933).—Directions are given for making $FeI_2$ reagent. When a sample of steel is treated properly with this reagent, the metallic Fe dissolves, leaving behind FeO, MnO, $SiO_2$, etc. The analysis of the residue, therefore, serves to det. the O content and the way the O is combined in the sample. With plain C steels, the results obtained agree with those obtained by the Al method; with special alloy steels contg. stable carbides the results are less reliable. The importance of such analyses in steel making is pointed out. W. T. H.

**Detection and recording of small quantities of carbon monoxide, especially in purified contact [process] hydrogen.** O. PFUNDT. *Chem. Fabrik* **1933**, 69–71.—The procedure is a combination of the $I_2O_5$ method and the cond. method of Gordon and Lehmann (*C. A.* **22**, 2294). The app. is described with 3 cuts, and calibrating and operating directions are given. J. H. MOORE

**Volumetric and potentiometric determination of tri- and tetra-thionate by means of silver nitrate.** FUSAO ISHIKAWA AND TOYOSAKU MUROOKA. *Sci. Repts. Tôhoku Imp. Univ., First Ser.* **21**, 527–36(1932).—If either $S_3O_6^{--}$ or $S_4O_6^{--}$ is treated with $AgNO_3$, a yellow ppt. of $Ag_2S_3O_6$ or of $Ag_2S_4O_6$ is first formed which on heating in the presence of water is changed to $Ag_2S$ and $2H_2SO_4$ plus 1 atom of free S with the tetrathionate. After the pptn. of $Ag_2S$ is complete, the $H_2SO_4$ can be titrated with standard acid or the excess

$Ag^+$ with KCNS. By working at 70° in a buffered soln. it is also possible to titrate $AgNO_3$ potentiometrically with trithionate soln. With tetrathionate, good results can be obtained by adding $AgNO_3$ to the unbuffered soln. at 70°. Analytical data and titration curves are given. W. T. H.

**Sources of error in silicate analyses.** WERNER MYLIUS. *Glashütte* **62**, 782–6 (1932).—Recent silicate analyses are critically examd. General errors in silicate analyses and special detns. and errors are discussed. There is needed a more exact method for detg. silicates to 0.01% without difficulty. M. V. KONDOIDY

**New ways for separating the alkaline earth and alkali ions.** J. KUNZ. *Helv. Chim. Acta* **16**, 3–6(1933).—A procedure is given for applying successively tests for Ba with $(NH_4)_2CrO_4$, Sr with $Na_2SO_4$, Ca with $(NH_4)_2C_2O_4$ and Mg with $(NH_4)_2HAsO_4$ in a soln. free from $NH_4$ salts other than those added in these tests. For detecting K in the filtrate, after the above treatments, it is recommended to use Mg cobaltinitrite, a new reagent which can be prepd. by passing $N_2O_3$ into a suspension of MgO and water and mixing the resulting $Mg(NO_2)_2$ with $Co(NO_2)_3$. W. T. H.

**Determination of cations by means of anthranilic acid. I. Simple method for determining zinc and cadmium and separating these cations from the alkaline earths.** H. FUNK AND M. DITT. *Z. anal. Chem.* **91**, 332–40(1933).—In neutral solns., a 3% soln. of Na salt of anthranilic acid is a very sensitive precipitant for either Zn or Cd. As little as 0.005 mg. of Zn or Cd gives a good test. The ppt. can be washed with the reagent dild. 15–20 times and finally with alc. to remove the last traces of reagent. After short drying at 105°, the Zn ppt. contains 19.4% Zn and the Cd ppt. contains 29.03% Cd. The pptn. takes place in the presence of alkalies or alk. earths without interference. The ppts. can also be analyzed volumetrically, by adding a slight excess of KBr-$KBrO_3$ soln. and titrating the excess with $Na_2S_2O_3$ after adding KI. By means of indigocarmine and styphnic acid, it is possible to tell when enough KBr-$KBrO_3$ has been added. W. T. H.

**Ferric phosphate method for analysis of the cations of the I, II and III analytical groups in the presence of the anion $[PO_4]^{---}$.** A. P. KRESHKOV. *J. Gen. Chem.* (U. S. S. R.) **2**, 593–6(1932).—In the method recommended, the oxidized filtrate from the $H_2S$ pptn. is treated with $(NH_4)_2HPO_4$ and a large excess of $NH_4OH$, whereby Fe, Al, Cr, Mn, Ca, Sr, Ba and Mg are pptd. as phosphates. The filtrate is then treated with $(NH_4)_2S$ and the usual tests are made. The ppt. is dissolved in dil. HCl and a basic acetate sepn. made, otherwise the procedure is normal. CHAS. BLANC

**A new method of precipitation and separation of the cations of the third and fourth groups in qualitative analysis.** CARLO PALMIERI. *Officina* **5**, 136–41(1932).—After removing excess $H_2S$ from the filtrate from Group II, oxidize the soln. and treat with $(NH_4)_2HPO_4$ and $NH_4OH$, thus pptg. Li, Ba, Sr, Mg and Ca with the Fe, Al, Cr, Mn, Zn, Ni and Cr. Exam. the filtrate for K and Na as usual. Dissolve the ppt. in HCl and remove sulfates of Ba, Sr and Ca by treatment with $H_2SO_4$ and alc. In other ways the procedure is normal. G. A. BRAVO

**Volumetric determination of chlorine ions in presence of sodium fluosilicate.** S. K. CHIRKOV. *J. Applied Chem.* (U. S. S. R.) **5**, 1103–6(1932).—To the NaCl and $Na_2SiF_6$ soln. add NaOH until phenolphthalein gives a stable coloration. Titrate the resulting soln. with 0.1 *N* $AgNO_3$, using $K_2CrO_4$ as indicator. V. KALICHEVSKY

**Determination of hydrogen fluoride in air.** YU. D. GOLDENBERG. *J. Applied Chem.* (U. S. S. R.) **5**, 1088–96(1932).—Steiger's method is the most satisfactory (absorption in $Ti(SO_4)_2$ in $H_2SO_4$). Max. flow of air is 120 l./hr. Air is washed with water and not with alkalies. Phosphates are sepd. with $AgNO_3$. The defect of the method is the detn. of $SiF_4$ as HF. V. KALICHEVSKY

**Conductometric analysis. I. Acids and acid mixtures. II. Tan liquors and leather extracts.** EDWIN C. RIGHELLATO AND CECIL W. DAVIES. *Trans. Faraday Soc.* **29**, 429–37, 437–41(1933).—The theory of conductometric titrations is explained and typical titration curves are shown. A simple app is described which is easily constructed and is suitable. Conductometric titrations are advantageously used for titrating the acidity of leather exts. W. T. H.

**Determination of nitrous acid.** EMÖD V. MIGRAY. *Chem.-Ztg.* **57**, 48(1933).—To the nitrite soln. contg. 0.04–0.2 g. $N_2O_3$, add 20–50 cc. of 0.1 *N* $KBrO_3$ soln. and 5 cc. of HCl. Stopper the bottle and shake. After 2 min. add 2 g. KI and titrate the liberated $I_2$ with $Na_2S_2O_3$ as a measure of the excess bromate. W. T. H.

**Detection of small quantities of nitrous acid with indigosols.** EMÖD V. MIGRAY. *Chem.-Ztg.* **57**, 94(1933).—To 100 cc. of soln. add 5 drops of 10% indigosol 04 B soln. and 5 cc. of 7 *N* $H_2SO_4$. If 1 mg. of $N_2O_3$ is present per l. a dark blue color will develop. A color appears slowly with even less $N_2O_3$ and with more $N_2O_3$ a blue ppt. is formed. W. T. H.

**Volumetric analysis of fluosilicic acid.** V. YA. ANOSOV AND S. K. CHIRKOV. *J.*

*Applied Chem.* (U. S. S. R.) **5**, 1097–102(1932).—Of the 4 methods described by Treadwell and Hall that of Penfield is the simplest, most convenient, and gives sufficiently accurate results provided EtOH is added after the KCl soln. The method of Sahlbom can be also recommended, but titration is preferably carried out at room temp. The method of Schucht is less satisfactory as it is impossible to predict the amt. of $CaCl_2$ to be used. The method of Treadwell is unsatisfactory. V. KALICHEVSKY

**Coöperation between medical examiners and chemists in forensic determination of fatal poisoning. Phosphorus poisoning.** HERM. MERKEL. *Deut. Z. ges. gericht. Med.* **19**, 384–90(1932). FRANCES KRASNOW

**Alkalimetric microdetermination of chlorine and bromine in organic substances.** M. K. ZACHERL AND H. G. KRAINICK. *Mikrochemie* **11**, 61–73(1932).—Treat 4–6 mg. of the substance with $K_2Cr_2O_7$, $Ag_2Cr_2O_7$ and concd. $H_2SO_4$ at 115–25° and expel all liberated Cl and Br by means of an $O_2$ stream into a measured vol. of NaOH and $H_2O_2$. Each mol. of halogen causes the neutralization of 2 mols. of NaOH so that the halogen content can be calcd. from the NaOH neutralized as detd. by titrating the excess. W. T. H.

**Reactions of organic sulfur compounds. Preliminary note.** L. BERMEJO AND J. JIMÉNEZ HERRERA. *Anales soc. españ fís. quím.* **31**, 48–9(1933).—Alkyl sulfides with $Na_2Fe(CN)_5NO$ give a color almost like that produced with metallic sulfides. From $Me_2S$ to $Am_2S$ the reaction is pos.; with $Ph_2S$ and $Bz_2S$ there is no reaction. Homologs of $Bz_2S$ are being prepd. to det. the influence of the Ph radical. E. M. SYMMES

**Alleged specific test for acetone.** R. J. W. LE FÈVRE AND J. PEARSON. *J. Soc Chem. Ind.* **51**, 433–4T(1932).—Raw's test for acetone (*C. A.* **26**, 5276) is not sp. for acetone but gives pos. results with Et pyruvate, acetophenone and various substitution products of the latter. It appears to be peculiar to Me ketones contg. a reactive $CH_3$ group Improved directions for making the test are given W. T. H.

**Sugars by gravimetric methods. I.** YU. YAVNEL. *Farm. Zhur.* **8-9**, 251–2 (1932).—$Cu_2O$ obtained by reduction is ignited on the ashless filter paper, and from the wt. of CuO the sugar content is detd. L. NASAREVICH

**New method for the determination of benzyl groups in benzylcellulose.** L. MEUNIER AND M. GONFARD. *Rev. gén. plastiques* **8**, 591(1932).—The method, which is an adaptation of Zeissl's method for the detn. of OEt and OMe by means of concd. HI, is essentially as follows: to 0.3–0.4 g. sample (purified by alc. and dried to const. wt. at 80°) in a 100-cc. distg. flask add 20 cc. HI (d. 1.7) and a few pieces of pumice stone, connect the flask to a nearly horizontal bulb-condenser cooled with ice water, pass a current of dry $CO_2$ through the flask, heat with const. agitation to prevent local overheating, continue passing $CO_2$ for a few min. after the reaction is complete; fill a close-grained filter paper with crushed ice, disconnect the condenser and gradually raise it vertically over the funnel, wash the condenser with ice water to a total filtrate of 100 cc., dissolve the contents of the funnel in 95% alc., add 1 g. $AgNO_3$ (dissolved in 5 cc. $H_2O$), 100 cc. $H_2O$ and 40 cc. of 10% $HNO_3$, boil 2 min., filter, wash, dry and weigh the AgI; add 2.7 mg. as a correction for the BzI dissolved in the 100 cc. of ice water. A. PAPINEAU-COUTURE

**Determination of furfural produced from hardwoods.** HAROLD A. IDDLES AND PAUL J. ROBBINS. *Ind. Eng. Chem., Anal. Ed.* **5**, 55–7(1932).—With pure furfural solns. detns. by the usual phloroglucinol and the thiobarbituric acid methods agreed well with results obtained by the volumetric $KBrO_3$-KBr method of Powell and Whittaker (*C. A.* **18**, 1387). This volumetric method when applied to the detn. of furfural from hardwoods gave consistent results, 0.2–0.86% higher than those obtained by the phloroglucinol method. LOUIS E. WISE

**Color tests for salicylic acid and its derivatives.** A. ZAGORSKIKH. *Khim. Farm. Prom.* **10**, 377(1932).—One g. of $NH_4$ molybdate in 100 cc. of concd. $H_2SO_4$ gives a blue color changing to violet with aspirin, and violet changing to olive-green with salol and salicylic acid. L. NASAREVICH

**Microanalytical determination of picrolonic acid with the aid of acridine.** HERBERT SCHIEDEWITZ. *Z. physiol. Chem.* **214**, 177–8(1933).—The proposed method consists in detg. the picrolonic acid content of the salt by dissolving in dil. HCl, adding a 0.3% soln. of acridine in HCl and weighing the voluminous cryst. ppt. of *acridine picrolonate* after filtering, washing and drying 1.5 hrs. at 120–30°. A. W. DOX

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**Acetates as a means of separating the Yt group of rare earth elements from each other (HARRIS, CAMERON) 6. Comparison of the efficiencies of bromates and nitrates in the separation of the rare earth elements from one another (HARRIS, WYLIE) 6. Determination of organic matter in accumulator $H_2SO_4$ solutions (MYERS) 4. The velocity of decomposition of dithionic acid and its volumetric determination (ISHIKAWA, HAGISAWA) 2. Surface effects on assay beads caused by metals of the Pt group (BYERS)**

9. The chemistry of wood [determination of galactose and arabinose in mixtures] (WISE, *et al.*) 22.

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SCHMIDT, J.: **Anleitung zur qualitativen Analyse.** 11th ed., revised by F. von Bruchhausen. Berlin: J. Springer. 113 pp. M. 5.60.

BÄURLE, ADOLF: **Über Trennung und Bestimmung von Ortho- und Pyrophosphorsäure.** Thesis, Bonn, 1930. 54 pp.

BÖCHER, FRIEDR.: **Elektroanalytische Bestimmung des Kupfers in Erzen.** Thesis, Darmstadt, 1931. 44 pp.

BREHMER, WILHELM: **Eine optische Methode zur kontinuierlichen Bestimmung der Ozon-Konzentration sowie weitere Beiträge zur Kenntnis über Ozon.** Thesis, Berlin, 1931.

ENNEKING, JOSEF: **Quantitative Fluoreszenzanalyse mittels kolorimetrischer, nephelometrischer und photometrischer Messmethoden.** Thesis, Hanover, 1930. 51 pp.

HOFMANN, PAUL: **Die Bestimmung von Kohlenoxyd mittels Silberlösungen.** Thesis, Zurich, 1930. 32 pp.

MOEGEN, OTTO: **Die kolorimetrische Bestimmung kleinster Aluminiummengen.** Thesis, Würzburg, 1931. 19 pp.

PFAFF, ERICH: **Über eine neue Chlorbestimmung in organischen, gechlorten Kohlenwasserstoffen.** Thesis, Würzburg, 1930. 7 pp.

## 8—MINERALOGICAL AND GEOLOGICAL CHEMISTRY

EDGAR T. WHERRY AND J. F. SCHAIRER

**The sphalerite of Sajohaza and Rozsnyo, Hungary.** ROBERT REICHERT. *Centr. Mineral. Geol.* **1932A**, 426–32.—Crystallographic. An analysis is given. M. F

**Structural and morphological relationships of ores of the type $ABC_2$. I. The structures of wolfsbergite and emplectite and their relation to stibnite.** WILHELM HOFMANN. *Z. Krist.* **84**, 177–203(1933).—The orthorhombic cell of wolfsbergite ($CuSbS_2$) contains 4 mols. with $a = 6.01$, $b = 3.78$ and $c = 14.46$ A. U.; space group $V_h^{16}$. At. positions and parameters are given. Cu is surrounded tetrahedrally by 2 + 2S (Cu — S = 2.30 A. U.); Sb is surrounded by an irregular tetrahedron of S (Sb — S = 2.44 A. U., av.); 3 of these S atoms form an almost equilateral triangle with S — S = 3.74 A. U. Emplectite ($CuBiS_2$) is isomorphous, with $a = 6.12$, $b = 3.89$ and $c = 14.51$ A. U. Analogies with stibnite are discussed. L. S. RAMSDELL

**Mineragraphic study on the opaque minerals in the lavas from Mt. Elgon, British East Africa.** OLOF H. ÖDMAN. *Geol. Foren. Forh.* **54**, 285–304(1932)(in English). The opaque mineral in the lavas is mostly magnetite, accompanied by 18 others, including perovskite, valleriite, pyrrhotite, chalcocite, covellite, bornite and chalcopyrite. Several unknown minerals were present. The order of crystn. and the probable origin of the inclusions are discussed. WILHELM SEGERBLOM

**Rhodochrosite from the Emilia Appennines.** L. GIROLAMI. *Ann. chim. applicata* **22**, 686–91(1932).—The mineral, varying in color from greenish gray to yellow gray, as Fe or Mn predominates, is microcryst. with sp. gr. 3.6–3.7. An av. sample gave: $CaCO_3$ 6, $FeCO_3$ 20.5, $MnCO_3$ 41, $Al_2(SiO_3)_3$ 7, Fe and $Mn(OH)_2$ 24%. It is thus an Fe-rich rhodochrosite. A. W. CONTIERI

**The structure of spherocobaltite.** M. BACCAREDDA. *Atti accad. Lincei* **16**, 248–52 (1932).—Spherocobaltite, found in Liguria, is rhombohedral with $\alpha$ 103°22′, and side 5.72 A. U. The d., if the unit cell is assumed to contain $2CoCO_3$ mols., was calcd. as 4.10, observed, 4.0. The mineral contains 1.21% NiO; this is remarkable as $NiCO_3$ has not been previously prepd. or observed in nature. A. W. CONTIERI

**Crystal chemistry of the silicates.** FELIX MACHATSCHKI. *Geol. Fören. Förh.* 54, 447–70(1932).—Descriptive. WILHELM SEGERBLOM

**The role of aluminum in the chemical structure of feldspars.** J. MARTINET. *Rev gén. sci.* **43**, 702–5(1932).—A diagram proposed to show the constitution of anorthite is similar to one suggested for quartz, but every alternate Si has been replaced by Al, because the mineral should be considered as an aluminosilicate, and not as a double silicate. But if only every 4th Si is replaced by Al, the charge of the network is only half as large and the meshes will contain univalent ions (*e. g.*, Na, K) instead of bivalent Ca ions. The structure of orthoclase and albite will therefore be strictly comparable to that of anorthite. These diagrams agree with Vernadskii's ideas regarding aluminosilicates and with the electronic theory of valence, and have the advantage of furnishing a satisfactory explanation of known properties of feldspars. A. PAPINEAU-COUTURE

**Metamorphosed pyrophysalite.** IVAR D. WALLERIUS. *Geol. Fören. Förh.* **54**, 279–80(1932).—A pyrophysalite has been found at Gundlebo with a purple exterior zone composed essentially of $SiO_2$ and $Al_2O_3$ with a trace of Mn, but without the F content of the original topaz. WILHELM SEGERBLOM

**Thuringite and chamosite.** H. JUNG. *Chem. Erde* **7**, 594–608(1932); cf. *C. A.* **25**, 1461.—X-ray studies show that the structure of thuringite differs from that of chamosite. The products obtained by heating the minerals to 420° or 1000° differ from the original minerals and from each other. From new analyses, the compn. of thuringite is $76.4H_8(Mg,Fe)_4(Al,Fe)_4Si_2O_{18} + 23.6H_8(Mg,Fe)_6Si_4O_{18}$, and that of chamosite $64.3H_8(Mg,Fe)_4(Al,Fe)_4Si_2O_{18} + 35.7H_8(Mg,Fe)_4Si_5O_{18}$. MICHAEL FLEISCHER

**Chemical investigations of Japanese minerals containing rarer elements. XX. Allanite found in Yamaguti, Nagano.** KENJIRO KIMURA AND IÉTAKÉ OKADA. *J. Chem Soc. Japan* **54**, 9–11(1933).—By goniometric as well as chem. studies a slightly radioactive mineral from Yamaguti, Nagano was found to be allanite rich in rare earths. **XXI. Columbite found in Yamaguti, Nagano.** KENJIRO KIMURA AND SAKAE SHINODA. *Ibid* 11–13.—In the same way another slightly radioactive mineral was shown to be columbite. T. KATSURAI

**The vanadinite of Hérival [Vosges].** L. LONGCHAMBON AND H. LONGCHAMBON. *Compt. rend.* **195**, 1397–8(1932).—A remarkable example of the isomorphism of minerals of the apatite type is found in a recently analyzed mineral contg. P, As, V, Pb, Ca, Cl and F from the Combeauté Valley. M. MCMAHON

**A new type of iron aluminum phosphate deposit [Maranhao, north Brazil].** FRIEDRICH BRANDT. *Chem. Erde* **7**, 383–425(1932).—A microscopical and chem. investigation of a deposit of *phosphatized laterite* is described. As revealed by 4 borings, the profile comprises an iron cap, a zone of loose spherolite, Fe and Al phosphate tubes, a layer of amorphous Al phosphate, and clay with diabase beneath. *Harborite*, $6Al_2O_3{\cdot}4P_2O_5{\cdot}17H_2O$, a new mineral occurring in octahedral form, with hardness 5–5.5, sp. gr. 2.781, optically —, birefringence low, $1.602<n<1.618$, is found in the cap and 2nd layers. From an investigation of the origin of the $P_2O_5$, involving a study of its adsorption by limonite, bauxite and freshly pptd. Fe and Al hydroxides, B. concludes that the $P_2O_5$ has been brought in by infiltration from deeper-lying strata. W. L. HILL

**A new hexahedrite from Cerros del Buen Huerto, Chile.** F. HEIDE, E. HERSCHKOWITSCH AND E. PREUSS. *Chem. Erde* **7**, 483–502(1932).—This meteoric iron is a normal hexahedrite with troilite, schreibersite, daubréelite and graphite. X-ray data are given for kamacite, troilite, rhabdite and daubréelite. W. L. HILL

**The ore-bearing marble at Auerbach [Germany].** RUDOLF KÜHNE. *Chem. Erde* **7**, 503–39(1932).—A complete paragenetic scheme is outlined. Hydrothermal action of waters with varying As and S contents caused the zonal deposition of various sulfides, arsenides, thioarsenites and thioantimonites of Cu, Pb, Fe, Ni, Co, Bi and Ag, with small amts. of native metal. Assocd. with these are magnetite, pyrrhotite, graphite and molybdenite formed by pneumatolytic action, and secondary oxidation products such as erythrite, malachite, covellite and oxides of Fe and Mn. A detailed description is given of the mode of occurrence of safflorite, niccolite, rammelsbergite and 3 types of smaltite. MICHAEL FLEISCHER

**Kaolin.** ROBERT SCHWARZ AND GEORG TRAGESER. *Chem. Erde* **7**, 566–85(1932); cf. *C. A.* **25**, 4987.—The dehydration of kaolin was studied by a combined dilatometric and tensimetric method. The dehydration curves for natural and synthetic kaolins were similar. There is a considerable lag between the loss of $H_2O$ and the change in crystal structure. This is explained by assuming the course of dehydration to be: kaolin ⟶ "anhydrokaolin," an unstable cryst. compd. ⟶ amorphous metakaolin. The heat of dissocn. of kaolin into metakaolin and $H_2O$ is calcd. to be —33.5 kg. cal./mol. at 490°, and the heat of formation of kaolin from the elements is +18 kg. cal./mol. MICHAEL FLEISCHER

**New data on the great salt deposit on the island Chelekenui secured by geological prospecting.** K. P. KALITZKII. *Neftyanoe Khozyaïstvo* **20**, 341–54(1931). A. A. B.

**Preliminary results of geological prospecting in the Barzas districts.** V. A. ORESTOV. *Khim. Tverdogo Topliva* **2**, No. 11–12, 121–7(1931).—Data concerning 6 new coal layers, which are very similar in their chem. characteristics, are given. A. A. B.

**Endogenic basic inclusions in acid igneous rocks. I. The basic inclusions in the tonalite of Adamello.** C. GOTTFRIED. *Chem. Erde* **7**, 586–93(1932).—The basic inclusions are poorer than the normal tonalite in orthoclase and quartz, richer in amphibole and biotite. Possible explanations of their origin are discussed in the light of petrographical and analytical data. MICHAEL FLEISCHER

**Weathering and decomposition phenomena in the South Hanoverian basalts.** E. BLANCK, W. DÖRFELDT AND F. LAVES. *Chem. Erde* **7**, 540–52(1932).—Analyses show

that recent weathering leads to a final product different from the red product from decompd. basalt. This is probably due to changing climatic conditions. M. F.

**The weathering of granite from Schenkenberg in the Odenwald.** E. BLANCK *Chem. Erde* **7**, 553–65(1932).—Analyses of the gross compn. and the HCl exts. show that the course of the decompn. is different when the granite is in contact with humus. MICHAEL FLEISCHER

**The formation of red earth.** E. BLANCK, E. v. OLDERSHAUSEN AND G. MAURMANN. *Chem. Erde* **7**, 620–40(1932); cf. *C. A.* **22**, 4423; **25**, 3280. MICHAEL FLEISCHER

**Geochemical pilot elements.** V. M. GOLDSCHMIDT. *Naturwissenschaften* **20**, 947–8(1932).—A short review (cf. *Nachr. Ges. Wiss. Göttingen* **1932**, 402). B. J. C. VAN DER HOEVEN

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Literature on pollen statistics and related topics published in 1930 and 1931 (ERDTMAN) **11D.** The crystal structure of cerussite (COLBY, LACOSTE) **2.** The crystal structure of sulvanite (PAULING, HULTGREN) **2.**

BECKER, BRUNO: **Von Quarziten.** Thesis, Brunswick, 1931. 41 pp.

GÄCKEL, ERICH: **Die strukturelle Bedingtheit und Kinematik des schriftgranitischen Kristallwachstums.** Thesis, Greifswald, 1931. 64 pp.

HENNIGER, KARL: **Die Kieselgallenschiefer des Kellerwaldes.** Thesis, Göttingen, 1931. 36 pp.

HERRE, RUD.: **Petrographische und chemische Untersuchungen junger Eruptivgesteine in der Umgebung von Oberwiesenthal.** Thesis, Jena, 1930. 34 pp.

## 9—METALLURGY AND METALLOGRAPHY

D. J. DEMOREST, OSCAR E. HARDER AND RICHARD RIMBACH

**Gold, silver, copper, lead and zinc in New Mexico and Texas in 1931.** C. W. HENDERSON. Bur. Mines, *Mineral Resources of the U. S.* **1931**, Pt. I, 297–316(preprint No. 17, published January 20, 1933). E. H

**Zinc in 1931.** E. W. PEHRSON. Bur. Mines, *Mineral Resources of the U. S.* **1931**, Pt. I, 265–96 (preprint No. 16, published January 16, 1933). E. H.

**Secondary metals in 1931.** J. P. DUNLOP. Bur. Mines, *Mineral Resources of the U. S.* **1931**, Pt. I, 317–30 (preprint No. 18, published January 30, 1933). E. H.

**Principles of flotation. II. An experimental study of the influence of cyanide, alkalies and copper sulfate on the effect of potassium ethyl xanthate at mineral surfaces.** IAN W. WARK AND ALWYN B. COX. *Am. Inst. Mining Met. Engrs. Tech. Pub.* No. **495**, 24 pp.(1933); cf. *C. A.* **26**, 1881–2.—The solns. used previously differed widely from those of modern flotation circuits; in this and later work the principal flotation reagents will be introduced. An attempt has been made to det. the joint influence of alky. and cyanide concn. on the establishment of air-mineral contact, and the use of $CuSO_4$ as an activating agent. The amt. of cyanide required to depress the Cu and Fe minerals at any given $p_H$ value increases in the following order: pyrite, chalcopyrite, bornite, covellite, chalcite; this effect seems to be dependent only on the cyanide-ion concn. There is a critical $p_H$ value for each mineral above which, even in the absence of cyanide, the response to the standardized soln. of K Et xanthate used in the investigation (25 mg. per l.) is prevented. Galena is not affected by cyanide; it is activated by $CuSO_4$ in solns. in which the $p_H$ value is higher than the critical value. It is considered possible that the formation of the complex cupricyanide ion, $Cu(CN)_3^{--}$, may explain why, in the less alk. solns., normal activation does not result. Certain frothers do not have a significant influence on the cyanide and alk. effects, nor do they influence contact angles. Numerous bibliographical footnotes are included. A. W. FURBANK

**Platinum in nickel sulfide ores.** STEINAR FOSLIE AND MIMI J. HØST. *Norg. Geol Undersøkelse* No. **137**, 71 pp.(1932)(résumé in German).—Ores occurring in the Ofoten and Grong fields, recently surveyed geologically, were analyzed for metal content by the microanalytical method (Lunde, *C. A.* **21**, 2636; L. and Johnson, *C. A.* **22**, 3869). The only Ni deposit showed an appreciable Pt content. Available data on the Pt content and Pt recovery from other Norwegian and foreign Ni ores are reviewed. Only the South African ores are well known. The important Canadian ores have not been described well. E. M. SYMMES

**Roasting and reduction behavior of siderites.** JOSEF KLÄRDING. *Z. anorg. allgem. Chem.* **207**, 246–50(1932); cf. *C. A.* **26**, 2148, 5884. C. L. W.

**Results of the investigations on the pollution of air with sulfur dioxide in the zinc-**

**industry region of Silesia [district Katowice].** Seczyk Karol. *Med. Doświadczalna Społeczna* **15**, 296–326(1932) (in German, 327–9). S. Laufer

**Metallurgical problems arising from internal-combustion-engine valves.** J. R. Handforth. *Engineering* **135**, 55–8, 83–5(1933).—See *C. A.* **26**, 5523. E. H.

**Methods for the determination of the viscosity of slags.** K. A. Pohle. *Mitt. Forschungsinst. Ver. Stahlwerke A. G. Dortmund* **3**, 59–60(1932).—The reactions between slag and metal are important in many metallurgical processes. As the velocity of a process often depends on the viscosity of the slag and the latter again on the temp., the various methods for the detn. of coeffs. were compared and certain rules developed for comparable measurements. A torsion method was developed which was very useful and exact for lab. purposes; a little vessel contg. the slag was rotated and the velocity with which an immersed rod is taken along is measured. 42 references. M. H.

**Apparatus and safeguards to health in aluminum slag foundries and nitrocellulose lacquer plants.** Giovanni Calvi. *Industria chimica* **7**, 1496–9(1932).—A description of ventilating systems for removing $SiF_4$ gas in Al foundries, and gases liberated in plants where nitrocellulose laquers are produced or sprayed. A. W. Contieri

**Pure rubberseed oil as a substitute for linseed oil in foundry core binders.** L. Wilson Greene and J. M. Faraday Leaper. *Oil and Soap* **10**, No. 1, 28–9(1933).—Lab. tests indicate that rubberseed oil from *Hevea brasiliensis* may be used as a substitute for linseed oil in core binders. The high acidity of rubberseed oil apparently has no deleterious effect on its core-binding properties. E. Scherubel

**The desulfurization and superheating of the melts in the foundry shaft furnace.** Albert Achenbach. *Giesserei* **19**, 453–8(1932).—A lecture. J. Balozian

**The height of the blast furnace.** E. Cotel. *Mitt. berg. hüttenmänn. Abt. ungar. Hochschule Berg. Forstw. Sopron* **3**, 23–30(1931).—A rounded long quadrangle is proposed as horizontal profile of blast furnaces with a const. height and breadth of 2.5 m. S. S. de Finály

**Use of data on heats of reduction and the thermochemistry of the blast furnace.** Dániel Diószeghy. *Bányász. Kohász Lapok* **65**, 334–7(1932).—The production of the higher oxide of Fe gives no advantage from the thermochem. point of view. The required heat energy is increased by higher oxidation. Calcns. of Svehla (*C. A.* **26**, 5280) are based upon incorrect data. S. S. de Finály

**Heats of reduction.** Gyula Svehla *Bányász. Kohász. Lapok* **65**, 337–8(1932); cf. preceding abstr.—Lower-oxide Fe ores cannot be reduced as easily as roasted ores. The slight variation of basic data does not change the final conclusions. Not only the reduction of different oxides but also the degree of indirect reduction should be observed. S. S. de Finály

**Cupola linings.** J. G. A. Skerl. *Bull. Brit. Cast Iron Research Assoc.* **3**, 170–6 (1933).—Linings of bricks and of rammed materials were investigated; bricks or cut rocks are more prevalent in practice. Fire bricks are more resistant than silica bricks to spalling or splitting by sudden changes of heat and also to the action of slags. The alumina content must be high in order to make the brick heat-resistant. The higher the alumina content and the more nearly the silica content approaches 100%, the more satisfactory is the material from the heat-resisting standpoint; the alumina content should be less than 7% or higher than 25%, as the curve of refractoriness shows a steep min. of less than 1000° at about 10% $Al_2O_3$. The influence of FeO on both fire bricks and silica materials under reducing conditions is very great; fire bricks are generally more resistant. Tables and curves of fusion points of FeO with aluminas and silicas are given. Good working conditions in a cupola are obtained when the refractoriness of the lining is as high as possible to resist the heat generated by the blast on hot coke, the slag is fairly high in lime, and the lining contains as little bonding material as possible. If the slag is highly ferruginous a highly aluminous brick is to be preferred. M. H.

**The absolute dimension of a metal surface.** Otto Erbacher. *Naturwissenschaften* **20**, 944–5(1932).—The total surface of metals can be detd. by coating with a monat. layer of a radioactive metal; the total active surface of a noble metal is detd. by preliminary adsorption of H and subsequent coating. For Ni, Ag and Au by the 1st process the total surface in sq. cm. per sq. cm. of measured surface found is 1.72 for the polished metal and 2.53 and 2.49, resp., for the fine- and coarse-sand-papered surfaces. For Pt by the 2nd method the active surface is 0.065–0.44 sq. cm. for the polished metal, 2.17 and 2.08 for the sand-papered surfaces, 16.9 for a platinized surface. B. J. C. v. d. H.

**Single crystals of the intermediate compound antimony-tin.** H. S. van Klooster and M. O. Debacher. *Metals & Alloys* **4**, 23–4(1933).—Single crystals of the compd. Sb-Sn about 5 cm. long were obtained by the method of Obreimow and Schubnikow, the interval of cooling from 480° to 300° being 15 hrs. Downs Schaaf

**The formation of localized slip layers in metals.** C. W. MacGregor. *Metals & Alloys* **4**, 19–22(1933).—There were investigated (1) the effect of previous cold-work

on the clearness of flow layers in Al and (2) the magnitude of unit shear strain along a flow layer of mild steel. DOWNS SCHAAF

**Creep characteristics of metals at elevated temperatures.** A. E. WHITE AND C. L. CLARK. *Trans. Am. Soc. Steel Treating* **21**, 1–16(1933).—See *C. A.* **26**, 5892. W. A. MUDGE

**The specific heat of Monel metal between —183° and 25°.** W. F. HAMPTON AND J. H. MENNIE. *Can. J. Research* **7**, 677–9(1932).—The heat capacity of Monel metal over the range —183° to 25° was measured in an adiabatic calorimeter. By differentiation of the equation representing the heat-capacity curve, an equation for the sp. heat over this range is obtained, and values calcd. at various temps. are tabulated. The sp. heat at 20° is 0.0997. The equation is $C = 0.09948 + 0.00003368t - 0.0000012501t^2$. J. W. SHIPLEY

**The accuracy of the Brinell test when used for plant control.** MAX MOSER. *Stahl u. Eisen* **53**, 16–8(1933).—With a 10-mm. ball and 3000-kg. load, tests carried out in different plants gave results of an accuracy of ±5%. This range is extended when steel with a hardness of 600 or more is tested, especially when balls smaller than 10 mm. are used. M. recommends use of the Brinell test only for soft and medium-hard steel. To test steel with a hardness of 600 or more the use of a cone or four-cornered pyramid is suggested instead of the ball. By this the accuracy of the measurements is increased and greater uniformity obtained among the readings of the various observers. J. A. S.

**Frictional oxidation.** MAX FINK AND ULRICH HOFMANN. *Arch. Eisenhüttenw.* **6**, 161–4(1932).—Rolling of electrolytic Fe and Cu, and of pure Ni produces a thin surface film of oxides of these metals. Rolling in an atm. of $N_2$ causes less wear and less friction. Formation of oxides is explained by assuming that rolling of metallic surfaces over one another brings about local deformations in the surface layer with the appearance of weak spots in the lattices. These spots are extremely active chemically and oxidize readily in contact with air. This oxidation may occur to a considerable depth and thus cause scaling and loosening of the outer layer. Frictional oxidation is also an important factor in the formation of fissures in rolled material. H. S. v. KLOOSTER

**Heat capacity of some metals, alloys and slag formers at temperatures up to 1200°.** H. ESSER, R. AVERDIECK AND W. GRASS. *Arch. Eisenhüttenw.* **6**, 289–92(1933).—The sp. heats of Cu, Pt, 3 German silver alloys, alumina, quartz, artificial and natural magnetite, MnO and fayallite were detd. from 0 to 1250°. Twenty-seven references are given. M. HARTENHEIM

**Surface effects on assay beads caused by metals of the platinum group.** J. L. BYERS. *Bull. Michigan Coll. Min. & Tech.* **6**, 1–17(1933).—See *C. A.* **26**, 2152. M. HARTENHEIM

**Liquid baths for heat treating.** W. PAUL EDDY, JR. *Iron Age* **130**, 406–7, 499, 613, 721, 882–3, 959; **131**, 230–2(1933).—The chemistry and use of cyanide baths for case-hardening, and the advantages and disadvantages of salt baths are discussed. Low-temp., medium-temp. and high-temp. salt baths are described both as to operation and compn. Furnaces for such baths are discussed as well as means of temp. measurement and control. DOWNS SCHAAF

**Bolts and flanges for tanks and heat exchangers.** C. O. SANDSTROM. *Chem. & Met. Eng.* **40**, 67–71(1933); cf. *C. A.* **27**, 634. E. H.

**New developments in galvanizing.** W. H. SPOWERS, JR. *Iron Age* **131**, 270–3, adv. page 12(1933). E. H.

**Mineralization, electrolytic treatment and radiographic examination of copper and bronze objects from Nuzi.** RUTHERFORD J. GETTENS. *Tech. Studies Field Fine Arts* **1**, 119–42(1933).—The mineralization of nails found at Nuzi, Iraq, which had been buried about 3500 years under 130 cm. of stiff damp clay, was studied by cross-sectioning the nails along various axes so that all the interior zones would be exposed. Four major zones were observed in the spike portion of the nails: (1) a central core having all the properties of native metallic Cu; (2) an inner, nearly colorless zone, translucent where pure, consisting chiefly of CuCl and corresponding to the rare mineral nantokite; the minor components of this layer are distributed in well defined layers as follows: (a) nearest the center a black opaque layer appearing to be a form of cerargyrite (AgCl), (b) a zone of nantokite which is nearly colorless and free from minor constituents, (c) a 2nd black opaque layer of cerargyrite apparently identical with (a) but much thinner, (d) a reddish brown translucent layer having the characteristics of an Fe compd., consisting probably of a hydrated ferric oxide of the limonite ($2Fe_2O_3.3H_2O$) type, (e) a colorless translucent layer apparently of pure nantokite which serves as the matrix and chief component of the whole zone; (3) a deep red opaque zone of cuprite ($Cu_2O$); (4) a thick outer zone of green oxychloride of Cu corresponding to atacamite, ($CuCl_2.3Cu(OH)_2$). From the study of the corrosion products surrounding the Cu core,

it is evident that reactions have taken place which are similar to those observed under artificial conditions by Bengough *et al.* (*C. A.* **14**, 1957), Lean and Whatmough (*J. Chem. Soc.* **73**, 150(1898)) and Mellor (*Inorg. and Theoretical Chemistry* **1923**, 157–68; cf *C. A.* **17**, 2225). This is apparently the first time that the actual presence of CuCl as an intermediate product of corrosion has been reported. The probable causes of the presence of the minor components of zone (2) are discussed. From the experience gained in the electrolytic treatment of the Cu nails and also of bronze objects, it is concluded that the method will not bring back original outlines where mineralization has resulted in the almost complete transformation of the objects to the basic Cu chloride; this product lacks uniformity and compactness and is usually penetrated with earthy material. When the chief mineral product is cuprite, electrolysis is successful so far as the recovery of form is concerned; but if the object has been completely transformed to cuprite, even after electrolytic treatment it will be extremely brittle. Only when it has a metallic core surrounded by a layer of cuprite may one hope to restore the object so that it will have both form and rigidity. A study of radiographs of several Cu nails and a subsequent sectioning and electrolytic treatment showed that diagnosis of the internal structure of badly mineralized Cu and bronze objects (especially small ones) is much aided by the use of x-rays. A. PAPINEAU-COUTURE

**Coloring of copper and iron in salt melts.** H. KRAUSE. *Mitt. Forschungsinst. Probieramt Edelmet.* **6**, 74–81(1932), 114–22(1933).—On Cu, Fe and their alloys in melts of pure salts or mixts. of salts clean, deep colors are obtained not so much by the length of immersion time in the melt but rather by a certain degree of overheating the melt above the melting point, even up to red heat. The most used salts are $NaNO_2$, $NaNO_3$, $Na_2CrO_4$, $Na_2Cr_2O_7$, $NaClO_4$, $NaBO_3$, $KNO_3$, $KNO_2$, $K_2CrO_4$, $K_2Cr_2O_7$ and $KMnO_4$. NaOH and $Na_2O_2$ also may be used. The colors obtained, mixts. of salts, compn. and time of immersion are described in detail in 25 tables. M. HARTENHEIM

**Coloring of copper and brass.** M. GROSSIEAUX. *Cuivre et laiton* **6**, 35–7(1933).—Several recipes for cleaning and pickling brass with $H_2SO_4$, or $H_2SO_4$ with chromic acid, or $HNO_3$, or a mixt. of $H_2SO_4$ and $HNO_3$ are given. Cu can be colored green ("patina") by an ordinary salt soln. of 25 g. per l. $H_2O$ which is repeatedly applied to the surface until the desired color is obtained; the same effect can be brought about by a soln. of 1 lb. $NH_4Cl$ in about 20 l. $H_2O$. With a soln. of 5 l. $H_2O$ (70°), 4–8 g. K sulfide and 10 drops $NH_3$ (26%), the metal assumes successively the tints brown, bronze-red, blue-black, black; the treatment is stopped when the desired tone is obtained. Blue or black on brass, according to the duration of immersion, is obtained in a soln. of 5 l. $H_2O$ (80°), 250 g. $Na_2S_2O_3$, 30–60 g. Pb acetate. Brass is also blackened by 68 parts of $NH_3$ (0.91 sp. gr.) and 10 parts basic Cu carbonate, in which soln. the metal is vigorously moved about. Details of treatment are given. M. HARTENHEIM

**Cast iron and the diagram of Maurer.** G. D'ARDIGNY. *Rev. fonderie moderne* **26**, 471–3(1932).—The relation between C and Si in a cast iron and its representation in the diagram by Maurer, as well as the application of the diagram for detg. the required percentage for a given wall thickness is explained. M. HARTENHEIM

**Effect of alloys in cast iron.** R. C. GOOD. *Foundry* **21**, 24–5, 54(1933). E. H.

**Investigation at elevated temperatures of some types of steel manufactured by the Izhorskii mill.** S. I. VOLFSON. *Neftyanoe Khozyaĭstvo* **22**, 335–41; **23**, 97–104(1932).—The steels tested (*A*, *B*, *C* and *D*) contained, resp.: C 0.32, 0.31, 0.34, 0.35; S 0.047, 0.064, 0.060, 0.058; P 0.02, 0.07, 0.083, 0.025; Mn 1.39, 1.1, 1.35, 0.83; Cr 0.9, 0.67, —, —; Ni 5.15, 5.21, 0.2, —; Si 0.34, 0.45, 0.34, 0.12%. The short-time tensile strength decreased for all samples except *D* within the temp. range 100–200°, then increased up to 300°, and at 600° amounted to $^1/_6$–$^1/_4$ of that at room temp. The proportional limit decreased for all steels with increase in temp. The impact resistance did not show any change between 20° and 400°; above this a rapid drop took place, and at 600° and higher curves for impact resistance were parallel to those of short-time tensile strength. The elongation of steels *A* and *B* increased only slightly up to 300–400°. The deformation diagrams show a lowering up to 200°, followed by an increase with a max. at 300° and a steep decrease above 400°. The influence of the temperature on the Brinell hardness of the metal was slightly lowered at 100–200°, increased to a max. at 300° and decreased rapidly above 400°. This drop was considerably higher for *A* than for *C* and *D*. The influence of the temperature on the impact test showed a max. at 100–200° and a min. at 500°. The extreme brittleness of *C* may be explained as due to the high content in S. Creep tests showed that the continuous strength at 400° lies considerably above the 0.2% limit, while at 500° it is below the 0.1% limit. Attention is drawn to the brittleness at 450° to 550°, the operating temps. of *cracking coils*. A. A. BOEHTLINGK

**The effect of the magnetic field on the aging phenomena in hardened steel.** ALBRECHT KUSSMANN AND HANS J. WIESTER. *Stahl. u. Eisen* **52**, 944–6(1932).—Rotation of the magnetic field has no effect on the Rockwell and pendulum hardness of C steel

with 0.7–0.9% C either at room temp. or during annealing at 100°. This is contradictory to the results of Herbert (*C. A.* **23**, 5457). J. A. SZILARD

**Hot-hardness of high-speed steels and related alloys.** OSCAR E. HARDER AND H. A. GROVE. *Am. Inst. Mining Met. Engrs. Tech. Pub.* No. **497**, 39 pp.(1933).—The Brinell hardness figures of a large no. of high-speed steels and related alloys were detd. by using the mutual-indentation method as developed by Cowdrey. DOWNS SCHAAF

**Making visible the primary structure of steel by addition of radioactive thorium.** B. G. TAMMANN AND G. BANDEL. *Arch. Eisenhüttenw.* **6**, 293–6(1933).—Addn. of ThB up to a max. of $1 \times 10^{-6}$% made visible, in electrolytic iron and different steels, the primary structure and submicroscopic slag inclusions by placing the samples on photographic plates. These radiograms show the edges of the crystallites, where the radiating ThB accumulates, dark and the center light. As ThB has only a short life, the radiogram must be taken within 24 hrs. after the melt is made. M HARTENHEIM

**Scaling of steel at heat-treating temperatures.** CLAIR UPTHEGROVE AND D. W. MURPHY. *Trans. Am. Soc. Steel Treating* **21**, 73–90(1933).—Relative scaling effects of SAE 1020 steel in atms. of air, CO, $CO_2$ and $H_2O$ at 1000° to 2000°F. were studied. Scaling does not increase regularly with increase in temp. in the simple atm., air, $O_2$ and $CO_2$. A max. and min. are observed for $CO_2$ at 1400° and 1520°F., and for air at 1800° and 2000°F Retardation in rate of scaling in $O_2$ is observed at 1800°F. Little scale is produced below 1700°F. by combustion atms. contg. 4% or more of CO. W. A. MUDGE

**Non-corroding and acid-resisting steel.** REIDAR LUND. *Teknisk Ukeblad* **79**, 20–2(1932).—An illustrated review dealing chiefly with the properties and use of Cr and Ni-Cr steels. C. A. ROBAK

**Properties of low-carbon, medium-chromium steels of the air-hardening type.** E. C. WRIGHT AND P. F. MUMMA. *Am. Inst. Mining Met. Engrs. Tech. Pub.* No. **496**, 11 pp.(1933).—The phys. properties of a series of 12 steels of varying C and Cr contents are described. Steels contg. over 3% Cr and over 0.10% C develop high strength combined with great toughness after simple heat-treatment not involving quenching in liquid media. The steels contg. from 3 to 7% Cr are martensitic after air-hardening and show a ferritic matrix with spheroidized carbides after furnace cooling. Corrosion tests are included. DOWNS SCHAAF

**Copper steel in the construction of boilers.** F. NEHL. *Cuivre et laiton* **5**, 473–6 (1932).—Several Cu steels (for the most part com. German Cu steels) with 0.12–0.85% Cu were tested up to 600°, and the results are given in diagrams. The tensile strength, elastic limit, and especially the ratio tensile strength to elastic limit are, over the whole temp. range, superior to those of ordinary C steel. M. HARTENHEIM

**Copper-molybdenum steel.** ANON. *Cuivre et laiton* **5**, 479–81(1932).—This steel presents a particularly high resistance to corrosion; its compn. is C 0.04–0.05, Cu 0.25 0.35 and Mo (about) 0.05–0.07, Mn 0.45, S 0.013, P 0.014, Si 0.01%. Mo forms a solid soln. with the ferrite which cannot be detected in micrographs, and gives to the steel a very fine and homogeneous grain structure This steel is little segregated and shows macrographically a remarkable purity. It can easily and effectively be welded with the elec. arc as well as with gas. The addn. of Mo to Cu steel increases the corrosion resistance, gives greater ductility and greater reduction of area and increases the impact resistance; it also increases the resistance to oxidation at elevated temps. and increases the ratio of tensile strength to elastic limit. Test results are given in detail. M. H.

**Heat-resistant chromium-aluminum steels.** ERICH SCHEIL AND ERNST H. SCHULZ *Arch. Eisenhüttenw.* **6**, 155–60(1932).—Low-carbon steels (C 0.03–0.26%, Si 0.02–0.45%, Mn 0.25–0.58%) contg. varying percentages of Al (0.5–14.2%) or Cr (0.93–18.00%) or both were studied with regard to their heat resistance at temps. up to 1200°, their acid resistance and their elec. resistance at different temps. The steels investigated when heated for several hrs. at different temps. show striking differences both in the appearance of the surface scale and in the x-ray spectrograms obtained. The best heat-resistant steels showed a white Al oxide scale. The next best steels are those with a Cr oxide scale which for high Cr-content are, likewise, heat resistant. The least resistant against scaling are those steels that show black hammer scale. At temps. not exceeding 900° a fair degree of resistance to scaling is attained with percentages as low as 3% Al and 4% Cr, but at temps. above 1000° a high percentage of Al is necessary to get a high degree of heat resistance. Resistance to acid attack, however, decreases as the Al content increases. Both Al and Cr increase the elec. resistance of the steels, their effect being greater at low temps. High Cr lowers the temp. coeff. of elec. resistance. The excellent antiscaling properties combined with high elec. resistance suggest the use of Al-Cr steels for resistor wire in elec. furnaces. H. S. v. KLOOSTER

**Aluminum-antimony alloys.** J. VESZELKA. *Mitt. berg- hüttenmänn. Abt. ungar. Hochschule Berg- Forstw. Sopron* **3**, 193–201(1931).—The constitutional diagram of Al-

Sb alloys is detd. The ground mass in the alloys contg. more than 18.4% Al and the secondary crystn. of the same alloys remains uncertain. Al-Sb changes in moist air to a black powder, since its Al content is oxidized to $Al_2(OH)_6$. S. S. DE FINÁLY

**Aluminum-silicon alloys.** BRONIEWSKI AND SMIALOWSKI. *Rev. mét.* **29**, 542–52, 601–4(1932).—The properties of the Al-Si system were studied on alloys made of 99.7% Al and 97.3% Si. Specimens were chill-cast, annealed for 50 hrs. in a vacuum at 520° and cooled to room temp. in 50 hrs. The eutectic contained 11.5 at. % Si and was found at 575°. The limit of solid soly. of Al in Si is 4 at. % at the solidus and 3 at. % at room temp. Alloys with about 94% Si have a sp. resistance of 0.07 ohm/sq. cm. and a practically zero temp. coeff. They are brittle but can be used for resistors. A thermoelec. couple formed of 96 and 97% Si alloys has the e. m. f. $E \times 10^6 = 656t + 0.98t^2$. To check the advantages claimed for Ti addns. $TiCl_4$ was bubbled through the metal at 800°. The metal tested as cast did not show any improvements, while the metal treated with a mixt. of NaCl and NaF was much improved. JOHN D. GAT

**Non-rusting and heat-resisting 34% chromium alloy cast irons.** E. HOUDREMONT AND R. WASMUHT. *Metals & Alloys* **4**, 13–17(1933).—See *C. A.* **26**, 4292. DOWNS SCHAAF

**Development and trend in ferrous alloys for high-temperature service.** F. N. SPELLER. *Proc. Am. Petroleum Inst.* Sect. III, 13th Ann. Meeting, 102–13(1932). E. H.

**Hardenable lead alloys.** B. GARRE AND F. VOLLMERT. *Z. anorg. allgem. Chem.* **210**, 77–80(1933).—The hardening influence of addns. of Ag, Sn and Cd on Pb was investigated. In all cases a more or less appreciable hardening effect was noticeable quenched samples showing a greater hardness than slowly cooled samples. An etching method using 120 cc. concd HCl, 100 cc. $H_2O$, 90 g. crystd. Cu chloride was particularly suitable for Pb alloys. M. HARTENHEIM

**Sodium-lead alloys—structure of the compound known as $Na_4Pb$.** CHARLES W. STILLWELL AND WALTER K. ROBINSON. *J. Am. Chem. Soc.* **55**, 127–9(1933).—Diffraction data for $Na_4Pb$ indicate that it is analogous with the γ-phase of Cu, Ag and Au alloys, and that its formula is really $Na_{31}Pb_8$. L. WALDBAUER

**Alloys of lithium; thermal and x-ray analysis of the system: lithium–tin.** A. BARONI. *Atti accad. Lincei* **16**, 153–8(1932).—The system Li–Sn was studied by the method of Pastorello (*C. A.* **25**, 270, 2959, 3227). The equil. diagram shows the existence of 3 compds., $Li_4Sn$, m. 684°, $Li_2Sn_2$, m. 483°, and $LiSn_4$, and of 3 eutectics m. 458°, 320° and 214°, contg. 35, 58 and 94% (atomic) of Sn, resp. X-ray analysis, however, shows only the first 2 compds. The Debye photograms, made by using an Fe anticathode, are very complex, so that the consts. could not be calcd. The compd. $LiSn_4$ could not be identified by the spectrograph, as it decomposes during the cooling. A. W. CONTIERI

**Further studies on chromium-nickel-iron and related alloys.** VSEVOLOD N. KRIVOBOK, E. L. BEARDMAN, H. J. HAND, T. O. A. HOLM, A. REGGIORI AND R. S. ROSE. *Trans. Am. Soc. Steel Treating* **21**, 22–60(1933).—See *C. A.* **26**, 67. W. A MUDGE

**The thermal and electric conductivities of a number of magnesium alloys and their behavior under the Wiedemann-Franz law.** RIMPEI KIKUCHI. *Science Repts. Tôhoku Imp. Univ.*, First Ser., **21**, 585–93(1932).—See *C. A.* **26**, 5532. J. D. S.

**Palladium-nickel alloys.** A. T. GRIGOR'EV. *Ann. inst. platine* No. **9**, 13–22 (1932).—In Pd-Ni alloys the max. hardness (156.0 Brinell) corresponds to the alloy of 60.64 at. % Pd. Alloys contg up to 50% Pd have a finer cryst. structure after tempering than those rich in Pd. The temp. coeff. of elec. resistance decreases at the beginning with increase of Pd and after reaching a min. gradually rises to a max. of 0.00576 for 70.80 at. % Pd, then drops sharply and gradually proceeds to that of pure Pd. The abrupt break corresponds to the magnetic transition point. The study confirms findings of previous investigators in regard to formation of a continuous series of solid solns. W. P. ERICKS

**Platinum-cobalt alloys.** V. A. NEMILOV. *Ann. inst. platine* No. **9**, 23–30(1932).—The fusion temp. of Pt-Co alloys reaches a min. at about 25 at. % Pt (approx. 1468°) and increases thereafter to the m. p. of Pt. The addn. of Co to Pt causes an increase of hardness reaching the first max. in an alloy contg. 12 at. % Pt. Upon further increase in Pt content, the hardness of the alloy decreases and at 20–25 at. % Pt approx. equals the hardness of pure Co. It then increases again, reaching a second max. at 50 at. % Pt, and decreases thereafter gradually to the hardness of pure Pt. Photomicrographs revealed that the alloys do not alter their structure when tempered at 500°. Tempering at 1200° changed the structure of low-Pt alloys but did not affect the polyhedral structure of the high-Pt alloys. There is a gradual increase in elec. resistance with addn. of Co to Pt and a simultaneous decrease of temp. coeff. At all high temps. (above 1128°) the system Pt–Co represents a continuous series of solid solns. During the cooling of

alloys rich in Co at the magnetic transition temp. of Co (1115–1128°) the alteration of one solid soln. into another takes place. Alloys rich in Pt represent a series of solid solns. at all temps. W. P. ERICKS

**The ternary system: iron–nickel–tungsten.** KAZIMIR WINKLER AND RUDOLF VOGEL. *Arch. Eisenhüttenw.* 6, No. 4, 165–72(1932).—The ternary system Fe–Ni–W was investigated by means of thermal analysis, magnetic measurements and particularly by metallographic observation of the solid alloys, annealed and quenched from different temps. The results are expressed in a space model, various cross-sectional temp.-concn. diagrams and numerous photomicrographs. Four satn. surfaces are indicated from which separate, on cooling: (1) ternary α-solid solns., (2) ternary γ-solid soln., (3) crystals of $Fe_2W_2$ and (4) ternary solid solns. rich in W. Two 4-phase equilibria were found: (1) melt + α-solid solution $\rightleftharpoons$ γ-solid soln. + $Fe_2W_2$ and (2) melt + $Fe_2W_2$ $\rightleftharpoons$ γ-solid soln. + solid soln. rich in W. H. S. v. KLOOSTER

**Multiple systems with iron. V. Röntgenographic supplements for the systems: chromium–carbon and iron–silicon–phosphorus.** F. SAUERWALD, W. TESKE AND G. LEMPERT. *Z. anorg. allgem. Chem.* 210, 21–5(1933).—Certain discrepancies in the Cr-C diagram in the range from 0 to 9% C were investigated more thoroughly by x-rays. The coexistence of a stable system besides a metastable system was confirmed. The stable eutectic was found at 4.24% C, the metastable at 4.51% C. The x-ray investigation of the Fe-Si-P alloys showed the existence of the crystals $Fe_2P$, $Fe_3P$, $Fe_M$, $Fe_2Si_2$ and FeSi. The results are discussed at length with regard to the transformations taking place. Six references are given. M. HARTENHEIM

**Rapid detection of rates of corrosion with simplified apparatus.** CLOYD M. CHAPMAN. *Water Works & Sewerage* 79, 282–4(1932); *U. S. Pub. Health Eng. Abstracts* 12, W, 139(Nov. 19, 1932); cf. *C. A.* 26, 340.—Prepn. of the surface of corrosion test specimens of metals and alloys by pre-test polishing to a sufficient degree to permit microscopic detection of the character and progress of the corrosive attack offers a means for making rapid detns. of the relative suitability of the material to resist corrosion. The test is very delicate, as indicated by the fact that exposure for only a few hrs may be sufficient to indicate a difference in the extent of corrosion produced by minor differences in the quantities of corrosive elements present. C. R. FELLERS

**Experiments on the corrosion of metals in mayonnaise plants. Results of tests made in plants under actual operating conditions.** F. L. LAQUE. *Spice Mill* 55, 1414–16, 1421(1932).—The corrosion tests indicate that Inco Chrome Nickel (81% Ni, 13% Cr, 6% Fe) and 18–8 chromium-nickel-iron alloy are the most appropriate for general use in mayonnaise plants. F. L. DUNLAP

**The corrosion and protection of condenser tubes.** M. VARINOIS. *Caoutchouc & gutta-percha* 30, 16272–4(1933).—A discussion of the different kinds of corrosion. C. C. DAVIS

**Effect of oxygen pressure on the corrosion of steel.** A. R. LEE. *Trans. Faraday Soc.* 28, 825–6(1932).—Reply to objections by Evans and Borgmann (cf. *C. A.* 27, 486) LEOPOLD PESSEL

**The importance of chemical reactions in the corrosion of metals.** SCHIKORR *Oberflächentech.* 9, 219–20(1932). M. HARTENHEIM

**Cement and concrete as protection against corrosion.** RICHARD GRÜN. *Oberflächentech.* 9, 222(1932).—Iron embedded in cement (mortar, concrete) is not subject to rusting, as the hardened cement contains small amts. of $Ca(OH)_2$, which prevents corrosion. The various applications are described. M. HARTENHEIM

**Protection against corrosion by coatings of phosphates and coatings with a base of rubber.** SACHS. *Oberflächentech.* 9, 222–3(1932).—In protecting against rust by means of phosphates, an intermediate layer, between the metal and the varnish coating, is produced, which is joined chemically to the base and makes the varnish adhere better The methods of producing this phosphate layer by $H_2SO_4$, Zn and Mn compds. and Parker salts are described. Coatings with a rubber base are the most resistant to org substances and acids; they are applied chiefly in the form of solid plates, and not yet in liquid form as a paint. The processes of making hard rubber and other coatings are discussed. M. HARTENHEIM

**The weldability of copper steel.** ANON. *Cuivre et laiton* 5, 465–71(1932).—A number of tests on steels contg. 0.17–1.96% Cu are reproduced in tables and diagrams. The welded pieces were compared in mech. properties with the nonwelded sheets of the same compn. In general the tests show that the mech. properties of steels with 0.3–0.4% Cu, which gives them very good corrosion resistance, are not modified in any appreciable way. M. HARTENHEIM

**Electric arc welding.** N. GRANT DALTON. *Trans. S. African Inst. Elec. Engrs.* 23, 310–26(1932).—Resistance, butt, spot, seam and arc welding are discussed. W. H. BOYNTON

**Gas in the wire-drawing industry** (BRADBURY) **21. Application of gas to the tin plate and sheet industries** (HOWELLS) **21. Turbulent firing of blast-furnace gas** (DE LORENZI) **21. Refractories in metallurgy (Brit. pat. 380,290) 19.**

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CLAUS, WILLI AND GOEDERITZ, A. H. F.: **Gegossene Metalle und Legierungen.** Grundlagen der metallgiesscreitechnischen Werkstoffkunde. Berlin: VDI-Buchhandlung. 346 pp. M. 68.

HODGEN, JOSEPH D.: **Practical Dental Metallurgy.** 7th ed., revised by Guy S. Millberry and John S. Shell. St. Louis: C. V. Mosby Co. 470 pp. $3.75.

MASING, G.: **Ternäre Systeme.** Elementare Einführung in die Theorie der Dreistofflegierungen. Leipzig: Akad. Verlags. 164 pp. M. 8.30; bound, M. 9.60.

TIEMANN, HUGH P.: **Iron and Steel, Including Allied Industries and Sciences.** 3rd ed. New York: McGraw-Hill Book Co., Inc. 590 pp. $4.

BOSS, ARNO: **Die deutsche Hüttenindustrie der Metallegierungen.** Entwicklung und volkswirtsche Bedeutung der Industrie der Aufbereitung von Altmetallen und Rückständen von Kupfer, Zinn, Zink, Blei und deren Legierungen. Thesis, Berlin, 1931. 82 pp.

EINECKE, WERNER: **Das Wolfram in der Weltwirtschaft.** Thesis, Hamburg, 1930. 74 pp.

GÜNTHER, GEORG: **Die deutsche Rohaluminiumindustrie.** Thesis, Leipzig, 1931. 78 pp.

GUTBERLET, GERH.: **Die Bearbeitbarkeit des schmiedbaren Eisens in Abhängigkeit von seinen Wärmebehandlung unter Verwendung des Bohrverfahrens nach Keep-Lorenz.** Thesis, Dresden, 1931. 61 pp.

ISENRATH, FRANZ: **Einfluss von Verunreinigungen auf die Röstung von Zinkblende.** Thesis, Aachen, 1930. 20 pp.

KNIPP, ERWIN: **Korrosionsbeständige Überzüge aus Stahlgusstücken.** Thesis, Brunswick, 1931. 61 pp.

MUND, ALFRED: **Neuere Forschung über die Vorgänge im Unterofen des Hochofens durch Grossversuch.** Thesis, Aachen, 1931. 16 pp.

PETRY, FRITZ: **Der Einfluss des Magnesiumoxyds auf die Reduktions-Oxydations- und Kohlungsvorgänge beim Eisen.** Thesis, Münster, 1931. 46 pp.

SCHALLBROCH, HEINRICH: **Das Senken und Reiben von Eisen-, Kupfer- und Aluminum-Legierungen.** Thesis, Aachen, 1930. 41 pp.

STRADTMANN, HEINZ: **Über den Einfluss der Versuchsgeschwindigkeit auf die Festigkeitseigenschaften von Stahl bei erhöhter Temperatur.** Thesis, Brunswick, 1930. 25 pp.

TREINEN, LEON: **Über den Einfluss des Sauerstoffs auf einige Eigenschaften des Eisens.** Thesis, Aachen, 1931. 12 pp.

WIEGNER, ALFRED: **Über das Verhalten von Carbiden und Siliciden in Legierungen bei der Zersetzung durch Säuren.** Thesis, Zurich, 1930. 52 pp.

WOLF, WOLFGANG: **Eisengiesserei. Selbstkostenanalyse anlässlich Betriebsrationalisierung und Schlussfolgerungen für die heutige Theorie.** Thesis, Aachen, 1930. 106 pp.

ZIELINSKI, EMIL: **Die Erforschung der Bedingungen für die chlorierende Verflüchtigung von Metallen.** Thesis, Aachen, 1930. 16 pp.

**Ores.** VICTOR J. J. DEFAYS. Fr. 737,840, May 30, 1932. Fritted ores to be reduced are mixed with ore dust contg. particles of C The ore dust and C may be mixed with a binder and incorporated with the fritted ore as an emulsion.

**Edge runner mills for ores, etc.** THOMAS W. KEET. Brit. 365,725, Dec. 2, 1930.

**Ball or tube mills for producing metal foil, *e. g.*, "bronze colors."** HARTSTOFF-METALL A.-G. Brit. 363,604, May 13, 1931.

**Extracting metals from slags, etc.** MENO LISSAUER, HENRY LISSAUER and BRUNO GRIESMANN (trading as M. Lissauer et Cie.). Brit. 366,168, Dec. 27, 1929. Nonferrous metals such as Cu and also more volatile metals, *e. g.*, Pb, Sn, Sb, etc., are recovered wholly or partly in reguline form from molten slags, to which may also be added substances contg. metal oxides, poor ore, etc., by passing a reducing gas, preheated if desired, through the melt while maintaining a neutral or reducing atm. over it by adjustment of the nature of the combustion gases and the amt. of reducing gas employed. As the bath becomes poorer in metal an oxidizing atm. may be maintained over it to volatilize the residual metals as oxides, and the volatilization may be accelerated by the addn. of S or S-contg. substances to drive off S compds. which may be burned to oxides or sulfates. Examples describe the treatment of melts in a cylindrical oil-fired furnace

with illuminating gas, H and water gas, recovering reguli contg. Sn, 46, Cu 12, Pb 19.8 and Sb 12.4%, and metal contg. Cu 41.2, Sn 18.5 and Sb 37%.

**Tin recovery from scruff, dross, etc.** HARRY P. BASSETT. U. S. 1,890,359, Dec. 6. Material such as scruff, dross or the like contg. Fe as an impurity is heated at approx. the m. p. of Sn in contact with a high-flash-point petroleum oil such as "600 W" oil and an org. reducing agent such as rosin and Ca sulfide, and the molten Sn is sepd. from the mass and recovered.

**Recovering tin, zinc, etc.** BERZELIUS METALLHÜTTEN GES. M. B. H. Brit. 367,611, Apr. 2, 1930. In recovering Sn from materials low in gang, *e. g.*, ores, oxides, etc., contg. or free from Zn, the material is mixed with $Na_2CO_3$ or borax and C and heated in a muffle, elec. or other furnace so that no molten slag forms, the Zn distg. off and the Sn and other metals being recovered in metallic form in the residues.

**Extraction of precious metals by amalgamation.** JOHN R. WILLIAMS. Brit. 365,903, Apr. 21, 1931. In passing pulp contg. the metals over a surface coated with an amalgam of a metal high in the electropos. series, *e. g.*, Zn, Mg or Cd, $NaHSO_3$ is added to the pulp as an activator for the amalgam.

**Extracting gold from solutions.** HERSCHEL C. PARKER. U. S. 1,889,489, Nov. 29. A Au-bearing soln. is passed through a container in the presence of granular ferrous sulfide and agitated for a sufficient time to permit the ferrous sulfide to ext. an appreciable proportion of Au from the soln., and the Au-enriched material is sepd. App is described.

**Smelting iron ores.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,908, Aug. 10, 1929 Void. Pulverulent Fe oxide ore is mixed with a hydraulic binding agent, *e. g.*, cement, and water and then granulated by a screw drum. The granules are dried at about 100° before introduction into the blast furnace.

**Iron ores, etc.** FRIED. KRUPP GRUSONWERK A.-G. Fr. 738,096, June 3, 1932. Ores, residues from roasted pyrites, slags, etc., are heated in the presence of reducing agents to temps. at which spongy Fe is formed, the spongy material is passed through a metallurgical furnace in a layer where it is agitated and heated to 900–1400° and oxidizing gases are blown in to scorify the impurities in the Fe.

**Refining lead.** AMERICAN SMELTING & REFINING CO. Brit. 364,049, Sept. 24, 1930. Zn is removed from Pb which has been desilverized by Parke's process by heating to 650–750°F. and continuously circulating portions of the molten Pb through a chlorinating chamber until the $ZnCl_2$ slag floating on the metal becomes contaminated with $PbCl_2$.

**Apparatus for solidifying slags, etc., in an extremely porous state.** CARL H SCHOL. Fr. 737,771, May 28, 1932.

**Gaseous atmospheres for metallurgical furnaces.** F. P. WILSON (to British Thomson-Houston Co., Ltd.). Brit. 380,428, Mar. 6, 1930.

**Furnace for smelting ores.** ALEXANDER G. MCGREGOR. Brit. 367,346, Nov 11, 1930. The furnace is particularly applicable to the smelting of Cu sulfide and the direct production of steel from Fe oxide ores.

**Metal-heating furnaces.** VEREINIGTE STAHLWERKE, A.-G. Brit. 380,844, July 17, 1930. Oxidation of the charge in such furnaces is minimized by supplying $H_2$ to the products after combustion is complete.

**Metal-heating furnace heated by non-inductive return bend resistor.** WM. B COOLEY (to Hevi-Duty Electric Co.). Brit. 366,542, Sept. 3, 1929. Four means are provided for subjecting the charge to magnetic flux.

**Open-hearth furnaces.** INTERNATIONAL CHROMIUM PROCESS CORPORATION. Brit. 380,502, Feb. 24, 1931. An open-hearth furnace is fired by a plurality of downwardly directed burners arranged in staggered relationship.

**Open-hearth metallurgical furnace of the reversing type.** NIKLAS F. EGLER U. S. 1,890,805, Dec. 13. Structural features of a furnace suitable for treating steel.

**Cupola furnace operation.** STUART P. MILLER (to Barrett Co.). U. S. 1,889,757, Dec. 6. Stack gases are withdrawn from a cupola furnace charged with metal and fuel, O is mixed with the stack gases and the fuel is burned by passing the mixed oxygenated gases in contact with the fuel. App. is described.

**Control means for hot-blast stoves.** FREYN ENGINEERING CO. Brit. 363,709, Sept. 19, 1930.

**Tuyères for blast furnaces.** E. E. BROSIUS. Brit. 381,634, July 25, 1931. Mech. construction.

**Machine for stopping the tap holes of blast furnaces.** DANGO & DIENENTHAL. Fr 737,409, May 21, 1932.

**Cooling blast-furnace flue dust.** E. E. BROSIUS. Brit. 382,003, June 30, 1931.

**Rotary furnaces.** M. G. FREISE (to Berzelius Metallhütten-Ges.). Brit. 380,493, June 24, 1930. Furnace for use in recovery of metals, *e. g.*, Sn, Pb, Sb, Bi.

**Metallurgical converter furnaces.** J. LEEMANS and SOC. GÉNÉRALE MÉTALLURGIQUE DE HOBOKEN. Brit. 380,297, Nov. 23, 1931.

**Converters.** J. LEEMANS and SOC. GÉNÉRALE MÉTALLURGIQUE DE HOBOKEN. Brit. 380,297, Nov. 23, 1931. The connection of a metallurgical converter to a chimney by a flue of inverted U-shape is described.

**Shaft furnaces.** MARTIN KÜNKELE. Fr. 737,728, May 27, 1932. Means for altering the position, extent and form of the oxidation spaces in front of the tuyères is described.

**Furnace for reheating blooms.** MASCHINENBAU-A.-G. VORMALS EHRHARDT & SCHMER. Fr. 738,296, June 8, 1932.

**Melting-pots.** FELTEN & GUILLEAUME CARLSWERK A.-G. Brit. 366,797, May 21, 1930. The discharge pipe of a melting pot for easily fusible metal is supplied with neutral or reducing gas, which if combustible may be kept ignited by a small flame.

**Apparatus for melting metals such as lead, solder or aluminum.** NORMAN B. JONES (to General Elec. Co.). U. S. 1,889,604, Nov. 29 Outlet passages for conducting molten metal from a melting chamber are arranged to be heated, as by an elec. resistance heater, so that the heating is controlled by the action of escaping metal. Various structural details are described.

**Melting and refining metals.** ALEXANDER GRANT MCGREGOR. Brit. 367,384, Nov. 11, 1930. Cu and other metals are melted and refined by directing a heating flame in the melting zone of a furnace directly upon the head of the mass of metal which is being advanced at a predetd. rate through a preliminary heating zone, the metal being melted away at the same rate as its rate of advance and the gases from the flame being used to heat the heating zone. The molten metal is directed into an oxidizing furnace where it may be poled and cast through an outlet. App. is described.

**Apparatus for removing occluded gas from molten metal.** HERAEUS-VACUUMSCHMELZE A.-G. and WILHELM ROHN. Brit. 367,246, May 5, 1930.

**Casting-machines.** H. GONSCHEWSKI. Brit. 380,576, Sept. 15, 1930. A water-cooled mold of a centrifugal machine for casting metal pipe is made of Ag, Cu, Al or other metals of high cond. and external smoothness.

**Casting-machines.** P. P. STARLING, W. D. PUGH, ASSOCIATED ELECTRICAL INDUSTRIES, LTD., and ENGLISH STEEL CORPORATION, LTD Brit. 383,686, Sept. 18, 1931. Mech details are described for control of flow of low-melting metal to be run in between an ingot and a mold wall Cf Brit. 360,980 (*C. A.* **27**, 941).

**Metallurgical casting machines.** G. PEMETZRIEDER. Brit. 380,905, Aug. 10, 1931.

**Apparatus for casting metals.** WILHELM KRÄMER and AUGUST KAMPF (trading as Kramer & Co.). Brit. 363,542, Feb 21, 1930.

**Apparatus for casting compound blocks.** OSCAR MELAUN Ger. 567,138, June 28, 1931. Addn. to 564,073 (*C. A.* **27**, 940).

**Casting metal boxes.** JOHN A. CRABTREE. Brit. 363,492, Dec. 3, 1930.

**Mixing machine of edge-roller type for foundry sand.** PNEULEC, LTD., and PERCY PRITCHARD. Brit. 368,002, Jan. 21, 1931.

**Discharging molten materials.** G. PEMETZRIEDER. Brit. 380,905, Aug. 10, 1931. Molten brass is fed to a mold by dipping a refractory supply pipe into metal in a container rotating about an axis, so that its open end faces the advancing metal.

**Presses for the extrusion of metals.** W. T. HENLEY'S TELEGRAPH WORKS CO., LTD., ERNEST E. JUDGE and FRANCIS H. FRY. Brit. 363,421, Sept. 24, 1930.

**Ingot molds.** B. MATUSCHKA. Brit. 380,515, June 19, 1931. A bottle-shaped mold for casting ingots is used in making railway wheels, etc.

**Ingot mold and stripper device.** EMIL GATHMANN. U. S. 1,890,777, Dec. 13. Structural and mech. features.

**Cooling centrifugally cast hollow metal blooms.** WILHELM KOEHN. U. S. 1,889,671, Nov. 29. App. is described by which cooling material such as a gas- or liquid-cooled cylinder may be introduced into the space within the bloom but out of contact with the material of the bloom

**Metals from carbonyls.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,781, Dec. 5, 1930. Metals are obtained from metal carbonyls by decompg. them by contact with moving heated surfaces the temp. of which is 30–80° above that at which they begin to decompose under the prevailing pressure in the decompn. vessel and continuously removing the metals from the heated surfaces.

**Metals from carbonyls.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,996, Jan. 17, 1931. See Fr. 717,568 (*C. A.* **26**, 2690).

**Metals and alloys.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,059, Aug. 22, 1930. In the manuf. of sintered metallic masses by heating without melting pulverulent initial materials addns. are made of not over 1% of such metals, including Si or compds. thereof, as form slags and do not form volatile compds. with the impurities and are not

volatilized. Excess impurities are removed by a purification previous to or simultaneous with the sintering, *e. g.*, by treatment with a reducing gas while heating. O is readily removed by addn. of Mn, Al, Si, V or compds. such as clay, CaO, $CaF_2$, etc. Among examples Fe powder from Fe carbonyl is treated with an alloy contg. 3 parts Al to 1 Fe, $MnCO_3$ or $Al(NO_3)_3$, and a powder contg. 33 parts cement Cu and 67 Ni is treated with $MnCO_3$ at 1000°.

**Composite metal valves.** ARCHIE T. COLWELL (to Thompson Products, Inc.) U. S. 1,889,916, Dec. 6. A "metal-cooled" valve is formed by forging a metal blank contg. an insert of a metal (such as Cu or Al) of relatively high rate of heat cond. to provide a partially finished valve having a core of the insert metal extending through the head; a portion of the core is removed, and the recess thus formed is filled with molten metal of the same compn. as that of the blank, and the valve is finished by reforging the blank.

**Porous metal articles such as bearings, brake linings, etc., from powdered metals.** CHARLES F. SHERWOOD. Brit. 365,068, Nov. 13, 1929. See U. S. 1,873,223 (*C. A.* **26**, 5900).

**Cleaning metals.** VICTOR CHEMICAL WORKS. Brit. 365,425, April 9, 1931. The removal of vitreous enamel from enamelled metal ware is effected by treating the articles with hot caustic alkali of 20–70% concn.

**Cleaning metals.** WALTER WEIGERT. Brit. 365,719, Dec. 24, 1929. See Fr 706,332 (*C. A.* **26**, 258).

**Treating silver surfaces.** ARTHUR O. WATKINS. Brit. 367,991, Jan. 14, 1931. Ag, alloys contg. mainly Ag, Ag plate, etc., are rendered tarnish-resisting by treatment with an aq. soln. of hydrohalogen acid and(or) of water-sol. halide, with the exception of HI and iodides. HCl, $NH_4Br$, $NH_4Cl$, $ZnCl_2$ and $CaCl_2$ may be used.

**Aluminum from silicates.** RAFAEL G. DEL RIO. Brit. 365,199, Oct. 21, 1930. Al is extd. from silicates or clay by heating with NaCl, $K_4Fe(CN)_6$ and HCl, or their chem. equivs., in a reducing atm App. is described.

**Metallizing articles of condensation products of casein and albumin.** MAX OWESCHINGEN. U. S. 1,890,645, Dec. 13. After the surface of the article is freed from fatty substances, it is immersed in a 3–4% aq. soln. of hydroquinone, then dried and placed in a soln. of a reducible metal salt such as a Ag salt to ppt. the metal.

**Coating metallic surfaces.** WALTER GÖTZL. Brit. 364,226, Oct. 25, 1929. In forming on the surface of a metal sheet, etc., a protective or insulating coating consisting of a metal compd., *e. g.*, a coating of oxide on Al, defects due to irregular coating of the edges are avoided by rounding or retroverting the edges prior to production of the coating, which may be formed chemically or electrolytically. In 365,023, divided out of 364,226, a rounded embracing edging is secured to the sheet, etc., prior to production of the coating.

**Coating metals with rhenium.** PATENT-TREUHAND GES. FÜR ELEKTRISCHE GLÜHLAMPEN (to The General Electric Co., Ltd.). Brit. 364,502, June 4, 1931. See Ger 537,936 (*C. A.* **26**, 1200).

**Coating with metals.** ELECTRO METALLURGICAL CO. Brit. 367,198, Mar. 6, 1931 A coating of Al is applied to metal to be drawn and stamped to act as a lubricant It may be applied as an Al paint, comprising 1 part by vol. of Al powder to 3 parts of a volatile liquid, *e. g.*, Am acetate, contg. some nitrocellulose or other cellulose ester or ether, or gums and drying oils to form a film.

**Coating with chromium.** GOODWIN H. HOWE (to The British Thomson-Houston Co., Ltd.). Brit. 363,954, May 29, 1930. A protective coating of Cr is formed on a foundation metal, *e. g.*, Fe, by heating the metal in the presence of, but out of contact with, Cr, the metals being contained in a porous receptacle which is packed in an inert medium contg. a small amt. of a substance that dissociates on heating to form an acid capable of uniting with the Cr, *e. g.*, $NH_4Cl$.

**Coating metal with rubber.** JOSEPH ROCKOFF. Brit. 365,755, July 28, 1930 Rubber is attached to a metal surface by roughing the surface with a sandblast, spraying with an easily fusible molten metal, *e. g.*, brass, from an air spray, applying rubber without the use of cement, etc., and vulcanizing by heat

**Protecting metal surfaces.** FINCKH G. M. B. H. Fr. 737,433, May 23, 1932 Surfaces of metals such as Ag, Cu, Ni, Zn or Sn are protected against tarnishing by plunging the articles in a soln. contg. an oxidizing agent such as chromic acid, $HNO_3$, $HNO_2$, $H_2S_2O_8$ and sol. salts of these acids.

**Protective coatings on iron and other metal structures.** HANS R. S. DE LA ROCHE U. S. 1,889,644, Nov. 29. The material is coated with a rustproofing coating such as red lead or asphalt, and this coating is then covered with a coating of Sorrel cement contg a Ca compd. such as $CaCl_2$ in which the Ca is free to unite with F, and the exterior of the cement coating is treated with a F compd. reactive with the Ca compd. to form $CaF_2$.

**Apparatus for galvanizing iron or steel articles such as wire or strip.** JOSEPH L. HERMAN (to Keystone Steel & Wire Co.). U. S. 1,890,463, Dec. 13. Various structural and mech. details are described.

**Rustproofing iron or steel.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,569, July 15, 1929. Void. A stock soln. for use in rustproofing Fe or steel is formed by dissolving $MnCO_3$ is dil. $H_3PO_4$ at ordinary or slightly raised temp. to satn. The stock soln. is dild. to form a rustproofing bath. Cf. *C. A.* **27**, 265.

**Apparatus for pickling metal articles.** THE PHOSPHOR BRONZE CO. and ZACHARIAS PAYNE. Brit. 363,928, April 1, 1931.

**Treating cupriferous materials.** MENO LISSAUER, HENRY LISSAUER and BRUNO GRIESMANN (trading as M. Lissauer et Cie.). Brit. 366,628, Dec. 19, 1929. Volatile metals such as Zn, Sn, Sb, Pb, As or Bi are sepd. and recovered in oxidic form from metallic materials contg. Cu with or without Ni by introducing reducing gases, *e. g.*, H, CO, producer gas, etc., into a molten bath of the metal while maintaining an oxidizing atm. above the charge in the furnace by suitably regulating the combustion of the burner heating the bath. App is described.

**Treating metallic surfaces to produce a modified surface.** ALLGEMEINE ELEKTRICITÄTS-GES. (to International General Electric Co, Inc.). Brit 365,422, Apr. 7, 1930. An insulating layer is formed on metal by immersing it in a molten fluoride bath, the metal being withdrawn and allowed to cool in a non-oxidizing atm. Thus Cu wire may be treated with molten KF and allowed to cool in $CO_2$.

**Hardening steel, etc.** POMOSIN-WERKE G. M. B. H. Brit. 367,630, May 2, 1930. A hardening bath for steels and steel alloys comprises a soln. of pectin materials or like plant colloids, obtained chiefly from the cell walls of plants.

**Treating steel and steel alloys.** ANDRÉ P. MAHOUX and GEORGES MAHOUX (to Soc. d'exploitation des procédés Mahoux). Brit. 363,376, Nov. 18, 1929. See Fr. 700,049 (*C. A.* **25**, 3304).

**Cementation; coating metals.** ANDRÉ P. MAHOUX and GEORGES MAHOUX (to Société d'exploitation des procédés Mahoux). Brit. 365,033, Feb. 27, 1930. Addn. to 363,376 (preceding abstr.). See Fr. 38,999 (*C. A.* **26**, 1565).

**Cementation.** ANDRÉ P. MAHOUX and GEORGES MAHOUX (to Société d'exploitation des procédés Mahoux). Brit 365,034, June 14, 1930. Addn. to 363,376 (2nd preceding abstr.). The process of the parent patent is used to ext. wholly or partly from the steel, etc, under treatment 1 or more of its constituents by suitably choosing the medium surrounding the steel, etc., during treatment. Thus iron may be decarburized by surrounding it with soft Fe filings or a current of air

**Cementation; tempering.** GEORGE L. KELLEY (to Budd International Corp.). Brit. 367,673, June 9, 1930. Steel metal-working dies are cast roughly to the finished shape, subjected to heat-treatment, machined and then nitrided. A suitable steel includes C 0.2–0.8, Mn 0.2–0.3, Si 0.1–0.3, Al 1–2, Cr 1–3, Mo 0.2% and small quantities of P and S.

**Carbonizing metal.** BRITISH DRIVER-HARRIS CO., LTD. Brit. 366,236, Jan. 2, 1930. In the manuf. of carbonized Ni anode plates for radio tubes the Ni surface is roughened by a sand blast and then carbonized, so that a thin, dull black, firmly adhering layer is produced The roughened metal may be oxidized before carbonization, which is preferably carried out in an atm. of butane.

**Process and apparatus for carbonizing metal surfaces.** HOWARD MCK. ELSEY (to Westinghouse Electric & Mfg. Co.). Brit. 367,325, Aug. 14, 1929. Void. Addn.to 305,465 (*C. A.* **23**, 4666) A modification of the process of Brit. 305,465 consists in reducing the oxidized metal surface previous to carbonizing. Cf. *C. A.* **27**, 487.

**Nitriding iron and steel alloys.** FRIED. KRUPP A.-G. Brit. 366,838, June 2, 1930. The procedure is carried out in the usual manner in the presence of halogen, particularly Cl, compds In an example a steel, contg. C 0.3%, Si 0.2, Mn 0.3, Cr 1.5 and Al 1.2, is sprinkled with $CaCl_2$ and nitrogenized at 500° for 48 hrs. $NH_4Cl$ and bleaching powder may also be used. The alloys contain Al, Cr, Mo, V and(or) Ti, and further elements, *e. g.*, Si, Mn, Ni and W may be incorporated.

**Brazing.** F. P. WILSON (to British Thomson-Houston Co., Ltd.). Brit. 480,428, Mar. 6, 1930. The atm. in a brazing furnace is composed of $H_2$, CO and a small amt. of $N_2$ or $CO_2$ and $CH_4$, $C_2H_6$, $C_3H_8$ or $C_4H_{10}$.

**Annealing.** HIRSCH, KUPFER- UND MESSINGWERKE A.-G. Brit. 363,323, June 10, 1929 Void. In treating metal bodies, *e. g.*, cartridge cases, which require local annealing the parts requiring local annealing are subject to the action of an alternating electromagnetic field, *e. g.*, by introducing them into the interior of an induction coil. App. is described.

**Heat treatment for annealing sheet metal.** PAUL A. MEEHAN (to Swindell-Dressler Corp.). U. S. 1,890,065, Dec. 6. Sheet metal of substantial width is passed, as a

continuous strip, vertically downward through a low-temp. preheating zone in which heat is transferred to the metal by convection, a high-temp. heating zone in which heat is transferred to the metal partly by convection and partly by radiation and in which a reducing atm. is maintained, and a cooling zone through which a cooling fluid is passed in a direction opposite to the travel of the metal strip, and the combustion conditions in the heating zone are regulated to prevent the circulation of gases between the heating and cooling zones. App. is described

**Annealing; alloys.** HERAEUS-VACUUMSCHMELZE A.-G. Brit. 363,306, Dec. 16, 1929. The creep limit or strength of Fe, Ni, Cr, Fe-Ni-Cr alloys contg. over 50% Ni and 12–30% Cr, and Fe-Cr alloys contg. 20–40% Cr, for use as machine elements or furnace parts at temps. above the crystn. temp., is increased by preheating or preannealing at temps. between 1100° and the m. p. of the metal or alloy and cooling at such a rate as to avoid internal stresses.

**Annealing; alloys.** WILLOUGHBY S. SMITH, HENRY J. GARNETT and WALTER F. RANDALL. Brit. 366,523, Oct. 31, 1930. The magnetic permeability of a ferromagnetic material or alloy is increased by a predetd. amt. of cold working, *e. g.*, rolling, prior to the final heat treatment, so as to reduce it to the finished size without producing an overworked or underworked condition. Addns. of small quantities of other elements, *e. g.*, Si, may be made to render the cryst. formation more readily attainable, examples of such alloys being Fe 16.8, 16.65; Cr 1.6, 1.36; Mn 0.7, 0.4; Cu 5, 4.9; and Si 0.02, 0.18%

**Annealing nickel-tin alloys.** VEREINIGTE STAHLWERKE A.-G. Brit. 367,571, July 4, 1930. Ni-Sn alloys contg. 5–25% Sn are improved by rapidly cooling from above 900° and then annealing at 400–800°. In an example an alloy contg. 15% Sn is quenched from 1100° and annealed 1 hr. at 700°.

**Pure iron.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,635, Nov. 27, 1930. Addn. to 269,345 (*C. A.* **22**, 1320) and 318,499 (*C. A.* **24**, 2101). In the process for the production of pure Fe by 269,345 as improved upon by 318,499 the Fe contg. excess O over C is prepd. from an Fe obtained by decompn. of Fe carbonyl and which has been partly or wholly converted into oxide by oxidizing gases, *e. g.*, air, O, $CO_2$ or steam, at room or elevated temp. Cf. *C. A.* **26**, 4788.

**Wrought iron.** FREDRIK H. WILLE (to A. M. BYERS CO.). U. S. 1,890,660, Dec. 13. Ferrous material is poured into a slag bath, and the relative positions of the pouring stream and bath are altered so that the pouring stream traces a path on the surface of the slag bath which is deviated from time to time during the pouring operation

**Wrought iron.** JAMES ASTON and ADDISON H. BEALE (to A. M Byers Co.) U. S 1,890,637, Dec. 13. Molten ferrous metal is fed through a molten slag bath in a receptacle in the lower portion of which a ball is formed having at least one horizontal dimension greater than its vertical dimension. App. is described.

**Desulfurized pig iron.** HUGO STEINEBACH. Brit. 367,602, Mar. 23, 1931. In producing desulfurized pig iron, iron ore is subjected to a cold-blast process in a blast furnace without employing desulfurizing agents, and the molten Fe, which must contain at least 1% Mn, is tapped off into a sep. container to cool, the Mn combining with the S to form Mn sulfide. The Fe is then cast into pigs.

**Apparatus for making spongy iron.** GUTEHOFFNUNGSHÜTTE OBERHAUSEN A.-G Brit. 364,699, Oct 14, 1929.

**Steel.** SCHOELLER-BLECKMANN STAHLWERKE A.-G. Brit. 363,649, Dec. 21, 1929 Same as Austrian 129,596 (*C. A.* **26**, 5541).

**Steel.** EDUARD HERZOG. Fr. 737,729, May 27, 1932. Uncalmed cast steel is protected against radiation by a cover having an internal face which is a bad conductor of heat. A supplementary slag is formed on the ingot.

**Corrosion-resisting steel.** VEREINIGTE STAHLWERKE A.-G. Brit. 365,538, Oct 22, 1929. The steels contain more than 0.15% Cu and over 0.05% P, the upper limits being about 2 and 1%, respectively. In addn. over 0.1 and up to 1% Si may be present Other constituents are kept low, the limits of C and Mn being 0.05 and 0.1%, resp.

**Steel having a high yield point and a good notch toughness.** ADOLF KLINKENBERG (to Vereinigte Stahlwerke A.-G.). U. S. 1,889,482, Nov. 29. A steel which is suitable for use in large structures contains C 0.1–0.3, S not over 0.05, P 0.1–0.4 and Cu 0.1–1.0%, the remainder being substantially all Fe.

**Removing nitrogenous impurities from steel.** WALTER O. AMSLER (to Paul R Caruthers, trustee). U. S. 1,890,485, Dec. 13. To each 100 lb. of the metal batch there is added a refining mixt formed of bauxite 12 oz., feldspar 1 lb. and lime 1 lb.

**Alloys.** SIEMENS & HALSKE A.-G. Brit. 363,861, Jan. 21, 1930. Be and another alk. earth metal, preferably Mg, are added to Fe or Cu or their alloys, excepting Cu-Ni alloys, in such amt. that the total content of alk. earth metal is 0.2–15%.

**Alloys.** GEO. F. TAYLOR (to The British Thomson-Houston Co., Ltd.). Brit 364,718, Oct. 23, 1929. In a method for making alloys of the kind comprising W or like

carbide and an Fe-group metal, the powd. carbide and metal are mixed, compacted and sintered as described in Brit. 213,524 (*C. A.* **18**, 2325) or 288,521 (*C. A.* **23**, 593). The sintered product is then crushed to grain size and powd to such fineness that it floats in alc. about 5 min. and is then again pressed and sintered either simultaneously or successively.

**Alloys for detonating caps.** WILHELM ESCHBACH and WALTER FRIEDERICH. Brit. 363,671, Oct. 3, 1929. Void. See Fr. 696,663 (*C. A.* **25**, 2853).

**"Pre-alloys" for addition to metals such as in making "rustproof" steel.** JOSEF NOVAK and ROMAN KESSELRING. U. S. 1,890,548, Dec. 13. A "pre-alloy" is used contg. Cr 20–30, W 5–6, Ni 6–10, Cu 10–15 and carbidic C 2.5–3%, together with Fe and only traces of P, S, Si and Mn. The material has a ledeburitic structure.

**Acid-resistant alloys containing iron, silicon and titanium.** EMANUEL VALENTA (to Limited Company formerly Skoda Works). U. S. 1,890,595, Dec. 13. Alloys which are suitable for casting contain Fe together with Si 7–20 and Ti 0.01–10%.

**Coloring alloys.** SOCIÉTÉ LA THERMONITE. Brit. 364,623, Sept. 5, 1929. Alloys contg. Zn 95–97, Al 1–2 and Cu 2–3% are colored by treatment in a bath contg. a Cu salt and an oxidizing agent, a deposit of Cu oxide being produced. For a black color a mixt of $CuSO_4$ and picric acid is used. For other colors a bath is made by mixing Cu tartrate and NaOH, and the alloy is treated therein until the proper color is obtained.

**Metal alloys.** KINZOKUZAIRYO KENKYUJO. Brit. 364,696, Dec. 23, 1929. See Fr. 707,693 (*C. A.* **26**, 689).

**Tool alloys.** BRITISH & DOMINIONS FERALLOY, LTD., and JAMES W. BAMPFYLDE. Brit. 364,300, Dec. 11, 1930. Alloys particularly for cutting tools consist of Fe with 10–18% Al and 2–8% B, with or without up to 2% of W and Mo.

**Tool alloys.** FRIED. KRUPP AKT.-GES Brit. 365,895, June 16, 1930. A hard alloy particularly for tools consists of a mixt. of Ti carbide and Ti nitride sintered or fused together, preferably in equal quantities. Up to 25% of Fe, Co, Ni, etc., may be added. Pure Ti nitride is prepd. by heating the com. compd. in N at 2000° in a tubular C furnace and pure Ti carbide by heating a mixt. of titanic acid and C in a current of H at 2000°.

**Aluminum and aluminum alloys.** WALTER ROSENHAIN and JOHN D. GROGAN. Brit. 366,545, Sept. 8, 1930. Al and its alloys are improved, *e. g.*, the grain size reduced, by introducing into the molten metal one or more of the chlorides of Si, C, Ti or Al. App. is described.

**Aluminum alloy resistant to sea water.** I. G. FARBENINDUSTRIE A.-G Brit. 364,507, Aug. 21, 1930. See Fr. 718,045 (*C. A.* **26**, 2693).

**Aluminum alloys.** HERBERT T. DAVIES. Brit. 364,642, July 8, 1930. Sn is incorporated in Al, or in Al alloyed with small quantities of Mn, Pb, etc., by displacement from Sn oxide by reaction with Mg in the form of an alloy, *e. g*, with Cu or Zn. Cf *C. A.* **26**, 5061.

**Aluminum alloys.** SOCIÉTÉ DES BREVETS B. DE MONTBY. Brit. 366,088, Oct. 29, 1929. Bi is incorporated in Al by using Sb as a vehicle, a ternary alloy being produced consisting of a homogeneous solid soln.

**Aluminum alloys.** SOCIÉTÉ DES BREVETS B. DE MONTBY. Brit. 366,483, Oct. 29, 1929. Pb is incorporated in Al by means of Mg so as to produce a ternary alloy contg. about 2% Pb in the form of a homogeneous solid soln.

**Aluminum alloy.** ARTHUR E. E. JONES and ALBERT H. HOBBINS. Brit. 366,720, Feb. 5, 1931. The alloy contains Si about 15, Cu 0.75, Sn 0.5 and Cr 0.25%. A small quantity of Na may be added to the molten alloy, and $ZnCl_2$ may be used as a cleansing flux.

**Aluminum alloys.** HAROLD N. SHAW (to Globar Corp.). Brit. 367,403, Aug. 19, 1929. An alloy consisting of Al with Ni 25–42 or Fe 25–40%, that softens below its m. p., is employed as an elec. contact surface for a bar heater.

**Aluminum alloys.** METALLGESELLSCHAFT A.-G. Brit. 367,831, Dec. 4, 1929. See Fr. 706,721 (*C. A.* **26**, 75).

**Aluminum alloys.** KARL SCHMIDT G. M. B. H. Fr. 737,434, May 23, 1932. Alloys resistant to corrosion, *e. g.*, to the action of sea water, contain Mg 10% and Al the rest. The alloys may also contain Cd up to 5, Sb and(or) Bi up to 5, Cr up to 3, Co up to 5% and enough Si to form $Mg_2Si$.

**Aluminum-silicon alloys.** THERON D. STAY (to Aluminium, Ltd.). Brit. 366,654, Jan. 30, 1930. See Can. 315,201 (*C. A.* **26**, 1570).

**Beryllium alloys.** SIEMENS & HALSKE A.-G. Brit. 363,837, Dec. 23, 1930. Alloys of Be with heavy base metals, *e. g.*, Fe, Cu, Ni, are prepd. by liberating Be from an easily fusible slag contg. at least one alk. earth metal oxide and Be oxide, with or without the addn. of one or more alkali metal oxides, by means of a reducing agent such as C, Si or Al, or one or more carbides in the presence of one or more fused heavy metals.

**Iron alloys.** FREDERICK M. BECKET (to Electro Metallurgical Co.). Brit. 366,060, Apr. 18, 1930. Stain-resisting Fe alloys contain Cr 16–22, Mn 5–15, Cu up to 3 and C not more than 0.3%.

**Iron alloys.** FREDERICK M. BECKET (to Electro Metallurgical Co.). Brit. 366,511, Apr. 29, 1930. A corrosion-resistant Fe alloy contains Cr 16 to preferably not more than 22, Mn 6 to preferably not more than 16, Co 1.5–14 and C preferably not more than 0.3%.

**Iron alloys.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,762, Mar 9, 1931. App. for carrying out reactions at elevated temp. in presence of H is made of or lined with an alloy contg. Ti, Fe and Al, and optionally also Cr, W, Mo, V, Si, Ni, Co, Cu, Mn, Sn, Zn, Pb, Ag and(or) Be. Specified alloys are Fe 92.5, 91%; Al 6, 5; Ti 1.5, 1; and Cr -, 3.

**Iron alloys.** SOC. DES ACIÉRIES DE LONGWY. Fr. 737,575, Sept. 18, 1931. An Fe alloy resistant to corrosion and the action of S compds. contains C 0.04–0.12, Cr 0.1–0.25, Cu 0.06–0.15 and Mo 0.06–0.15%. S 0.005–0.02, P 0.01–0.03 and V 0.1% may also be present.

**Iron-chromium alloys.** HAROLD DONALDSON NEWELL (to The Babcock & Wilcox Tube Co.). Brit. 368,154, May 29, 1930. See Fr. 726,867 (*C. A.* **26**, 5061).

**Iron-nickel alloys.** SIEMENS & HALSKE A.-G. Brit. 367,452, Nov. 23, 1929. Alloys, particularly for powder cores, contain Fe, Ni and also elements, particularly about 0.1 to 5% of Pb, Tl, Bi or Ag, which in a liquid state do not mix completely with Fe or the alloy. Thus 1% of Pb may be added to an alloy contg. Ni 78.5%, Fe 18.5 and Co 3. The alloys may also contain other addns., *e. g.*, Si, Al, Sb, O or S.

**Lead alloys.** REGINALD S. DEAN (to Western Elec. Co.). U. S. 1,890,013, Dec. 6. For prepg. alloys which are suitable for extrusion, Ca (suitably in the proportion of about 0.1%) is alloyed with Pb to form a solid soln., the alloy is cooled to produce a supersatd. solid soln., and is aged to cause the dispersion of the minute particles contg. the Ca substantially uniformly throughout the Pb. U. S. 1,890,014 relates to the production of extruded articles such as cable sheathing from an alloy contg. Pb together with less than 1% Ca and quenching the hot extruded article to reduce the alloy to supersatd. solid soln., followed by an "immobilizing" treatment such as aging at a temp below 150°. The Ca may comprise 0.02–0.1% of the Pb alloy.

**Cobalt molybdenum alloys.** VEREINIGTE STAHLWERKE A.-G. Brit. 368,058, July 4, 1930. See Fr. 713,130 (*C. A.* **26**, 1570).

**Molybdenum-cobalt-copper alloys.** KOEBEL-WAGNER DIAMOND CORP. Brit 367,871, Sept. 26, 1930. A setting for a diamond comprises an alloy of Mo, Co and Cu, with or without a little Fe, *e. g.*, Mo 26%, Co 46, Cu 27.75 and Fe 0.25.

**Molybdenum alloys.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,481, Dec. 3, 1930 Alloys contg. Mo and(or) W are prepd. by thermal decompn. of the metal carbonyls formed by the action of CO under pressure on materials contg. said metals which have been reduced in the presence of Cu or its compds. The Cu-contg. addns. may be ores or waste products and may contain also Fe or other heavy metals, or their compds., which themselves form carbonyls.

**Steel alloy.** THEODOR CZEPL. Brit. 365,106, Feb. 6, 1930. Void. See Fr. 697,801 (*C. A.* **25**, 2965).

**Steel alloys.** VEREINIGTE STAHLWERKE A.-G. Brit. 366,193, Nov. 30, 1929. A steel contains C 0.33%, Si 0.02, Mn 0.39, P 0.037, S 0.051, Cu 0.25 and Al 0.18.

**Steel alloys.** FRIED. KRUPP A.-G. Brit. 366,326, Dec. 11, 1930. A non-magnetic steel alloy contains Mn 16–25, C 0.1–0.4 and up to 1.5% Si, with or without up to 5% of other elements such as Ti, Cr, V and Mo. It may have a wholly or mainly austenitic structure produced by heat treatment such as quenching from 1000° or by hot shaping Cf. *C. A.* **27**, 1318.

**Steel alloys.** STOODY CO. Brit. 367,347, Nov. 12, 1930. An alloy suitable for cutlery, tools, welding rods, etc., contains C 1–4%, Cr 25–35, Ni 5–15, Si 3.5–8, the remainder being principally Fe.

**Steel alloys.** HERMANN J. SCHIFFLER. Brit. 367,377, Aug. 13, 1929. Articles, particularly seamless tubes, are made from a ferritic-pearlitic C steel, substantially free from Ni, contg. Cr at least 5, Si 0.8–2.5, Al 0.5–0.9, Mn not more than 1, and having a joint Cr, Si and Al content of less than about 10%. Up to 1% of Mo, V and Ti and up to 0.9% W may also be present.

**Electromagnetic devices.** ALLGEMEINE ELEKTRICITÄTS-GESELLSCHAFT. Brit 363,697, Aug. 28, 1929. Sheet metal, wire or ribbon cores consist of a ferro-magnetic material, *e. g.*, Fe-Ni alloy to which Mn, Si and Cu have been added in small amts., which is first drawn out with repeated annealings and is then subjected to cold stretching, so that with an initial permeability of $\mu = 25$ and over, it has an instability of less than 5% after any desired degree of d. c. loading has been applied.

**Altering physical or molecular structure by mechanical treatment.** ALLGEMEINE

ELEKTRICITÄTS-GESELLSCHAFT. Brit. 383,328, Aug. 19, 1930. Addition to 363,697 (preceding abstr.). The core material in the parent specification is a Ni-Fe alloy of equal parts which is cold stretched after the final heating so as to reduce its cross section by not more than 50%, and preferably 25%.

**Alumino-thermic processes.** T. GOLDSCHMIDT A.-G. Brit. 367,361, Nov. 16, 1929. See Ger. 551,997 (*C. A.* **26**, 4791).

**Machine for mixing, emulsifying, homogenizing, comminuting, etc.** WILLIAM R. SERGEANT and BURT, BOULTON & HAYWOOD, LTD. Brit. 367,368, Oct. 16, 1930.

**Apparatus and process for producing welded wire fabric.** PILKINGTON BROTHERS, LTD., and JOSEPH GASKELL. Brit. 363,314, Sept. 15, 1930.

**Welding apparatus.** JAMES L. ADAMS, JR. (to The Youngstown Sheet and Tube Co.). Brit. 363,575, June 18, 1930.

**Apparatus for soldering leading-in wires to the caps of electric incandescent lamps.** PATENT-TREUHAND GESELLSCHAFT FÜR ELEKTRISCHE GLÜHLAMPEN (to General Electric Co., Ltd.)., Brit. 365,820, Feb. 18, 1930.

# 10—ORGANIC CHEMISTRY

CHAS. A. ROUILLER AND CLARENCE J. WEST

**Catalytic vapor-phase oxidation of tetraalkylmethanes.** W. LAWRENCE FAITH, SHERLOCK SWAN, JR., AND D. B. KEYES. *Ind. Eng. Chem* **25**, 224(1933).—The oxidation of 3,3-dimethylpentane and 3,3-diethylpentane over Cu, $V_2O_5$ and $CeO_2$ yields only $H_2O$, C oxides, unsatd. hydrocarbons and traces of lower aldehydes. H. A. BEATTY

**Preparation of 3-ethyloctadecane.** S. LANDE AND V. SLIVA. *Collection Czechoslov. Chem. Communications* **4**, 538–42(1932); cf. *C. A.* **26**, 77.—The method of prepg. this branched-chain hydrocarbon is analogous to that previously reported. 3-Ethyl-3-octadecanol (I) was obtained in 99% yield from Et palmitate and EtMgBr and identified by prepn. of its urethan. Dehydration of I to *ethyloctadecene* (II) by means of vacuum distn. reached only 33% but by heating equal parts of I and anhyd. $ZnCl_2$ at 115–25° 97% was dehydrated. The remaining alc. was sepd. by distn. in the presence of 1 g. Na to 40 g. of crude product. II is a colorless liquid $b_{10}$ 199–202°; I no. 90.56, $n_D^{15.4}$ 1.45585, $d_{20}$ 0.8040, gives an addn. compd. with $Hg(OAc)_2$ in MeOH. The position of the ethylenic linkage was established at 2 through isolation of Et pentadecyl ketone after oxidation with cold satd. $KMnO_4$, and prepn. of its oxime. 110 g. of II mixed with reduced Ni was treated for 15 min. with $H_2$ at 145° and an initial pressure of 120 atm. The filtered product was distd. at 12 mm. Pure *3-ethyloctadecane* (III) is a colorless, odorless liquid m. —3°, $b_{12}$ 202°, b. 341°, $n_D^{19.6}$ 1.4476, $d_{20}$ 0.7951, heat of combustion 11.352 cal. Abs. viscosity values from 0° to 99° are given for II and III. ANNE E. WHITE

**Changes in molecular structure during chemical reactions. II. The rearrangement of butyl bromide.** WALTER HÜCKEL AND PAUL ACKERMANN. *J. prakt. Chem.* **136**, 15–29(1933); cf. *C. A.* **24**, 2113.—iso-BuOH, purified through the acid phthalate (m. 65°), $b_{737}$ 106.6°, $d_4^{19.6}$ 0.8021, $n_{He}^{19.6}$ 1.39631, $\eta_{20}$ 3.840, $\eta_{39.8}$ 3.140, $\eta_{59.75}$ 2.595; phenylurethan, m. 86°; acetate, $b_{739}$ 115–5.8°, $d_4^{25.5}$ 0.8667, $n_{He}^{25.5}$ 1.38843, $\eta_{20}$ 0.683. sec-BuOH $b_{740}$ 98.5°, $d_4^{25.4}$ 0.8025, $n_{He}^{25.4}$ 1.39587, $\eta_{20}$ 3.536, $\eta_{39.8}$ 2.644, $\eta_{59.75}$ 2.094; phenylurethan, m. 64.5°; acetate, $b_{738}$ 110.5–10.8°, $d_4^{25.8}$ 0.86580, $n_{He}^{25.9}$ 1.38708, $\eta_{20}$ 0.655. The eutectic of the phenylurethans of the 2 alcs. m. 60° and contains 25% of the iso-BuOH deriv. The sapon. consts. of the 2 acetates at 0.05 and 20° are reported. iso-BuOH with C (graphite) at 400° gives almost entirely iso-$C_4H_8$; $Al(OH)_3$-C at 400° gives iso-$C_4H_8$ with some 2-butene; *sec*-BuOH with either catalyst gives almost entirely *trans*-2-butene. iso-$C_4H_8$ gives a nitrosochloride, m. 98°, and a *nitrolpiperidide*, m. 137–8°. Vapor-pressure data are given for $C_4H_{10}$ and iso-$C_4H_{10}$ and for various reaction products of the bromides with AcOAg in AcOH. C. J. WEST

**Action of chlorine on acetylene, and preparation of tetrachloroethane and trichloroethylene.** N. A. VALYASHKO AND K. G. KOSENKO. *Ukrain. Khem. Zhur.* **7**, No. 1, Sci. pt 12–35(1932).—A comprehensive review of the literature and patents on the subject is given. Patented methods for industrial production of $C_2H_2Cl_4$ and $C_2HCl_3$ were tried out in the lab., of which the following produced the best results: A yield of 78–81% of $C_2H_2Cl_4$ was obtained by the method of Griesheim Elektron (Ger. pat. 204,883) as modified by the Eng. pat. 132,757 with solid Fe as catalyst, and 88% by the Elektrochemische Ind. (Ger. pat. 154,657) with liquefied $SbCl_5$. A yield of 48% of $C_2HCl_3$ resulted by decompn. of $C_2H_2Cl_4$ with $NH_3$ under atm. pressure (Ger. pat. 351,463; Vincens, *C. A.* 23, 384), and 87.5% with aq. $Ca(OH)_2$ (Consortium, Ger. pat. 171,900). C. B.

**Acetylene series. V. Isomerization of acetylene-γ-glycols by the action of formic**

**acid.** V. N. KRESTINSKII AND L. I. BAZHENOVA-KOZLOVSKA. *Ber.* **66B**, 97–100(1933); cf. *C. A.* **24**, 5284.—Continuing the study of the transformations of acetylenic γ-glycols, K. and B.-K. find that $[Me_2C(OH)C:C]_2$ is converted by boiling concd. $HCO_2H$ into 2 isomers: the diketone *2,5-dimethyl-3,4-hexanedione* (*biisobutyryl*) (I), and the HO ketone *2,5-dimethyl-2-hexen-5-ol-4-one* (*α-hydroxy-α,α-dimethyl-α'-isopropylidenacetone*) (II). II is probably mixed with its tautomer *3,4-epoxy-2,5-dimethyl-2-hexen-5-ol* [(*α-hydroxyisopropyl*)*isopropylidenethylene oxide*]. The transformation is complete but is accompanied with considerable resinification; no intermediate products, which might have shed light on the mechanism of the reaction, were isolated. Variations in concn. of the $HCO_2H$ from 85 to 100% hardly affect the yields, which are around 11 g. I and 18 g. II from 100 g. of the glycol. I, light yellow, $b_{760}$ 146°, $b_{12}$ 48°, $d_4^{20}$ 0.92322, $n_D^{20}$ 1.42057, mol. wt. in benzene 134.5; *monoxime*, m. 125–6°; *dioxime*, m. 158–60°. Na-Hg in moist ether reduces I to isobutyroin. II, $b_{760}$ 186°, $b_{12}$ 78°, $d_4^{20}$ 0.94681, $n_D^{20}$ 1.46192, mol. wt. in benzene 139.1, evolves H with Na, forming an eosin-red product, instantly decolorizes Br and $KMnO_4$, reduces $NH_3$-$AgNO_3$, contains 1 HO group (Chugaev-Zerevitinov). Its spectrochem. behavior points to the presence of a C:O group, although it apparently does not react with $NH_2OH$, $PhNHNH_2$, $p$-$O_2NC_6H_4NHNH_2$ or $H_2NCO$-$NHNH_2$. With H and Pt sponge it readily forms *2,5-dimethylhexan-2-ol-3-one*, $b_{12}$ 68–70°, $d_4^{20}$ 0.90741, $n_D^{20}$ 1.42437; *semicarbazone*, m. 144–5°. With $KMnO_4$ II gives acetone, $Me_2C(OH)CO_2H$, m. 77–9° (*Zn* (*$2H_2O$*) and *Ca salts*), and *β-hydroxydimethylpyruvic acid* (*2-methylbutan-2-ol-3-on-4-oic acid*), liquid (*Zn* and *Ca* (*$2H_2O$*) *salts*). The mechanism of the transformation of the glycol by $HCO_2H$ is explained on the basis of the observations made with $PBr_3$ (*C. A.* **24**, 5284). C. A. R.

**Formation of organo-metalloidal compounds by microörganisms. I. Trimethylarsine and dimethylethylarsine.** FREDERICK CHALLENGER, CONSTANCE HIGGINBOTTOM AND LOUIS ELLIS. *J. Chem. Soc.* **1933**, 95–101.—Gosio-gas (Gosio, *Ber.* **30**, 1024 (1897)) is shown to be $Me_3As$. This is produced by the 4 strains of *Penicillium brevicaule* on media contg. $As_2O_3$ and by 1 strain on media contg. Na methanearsonate or Na cacodylate; with acidified $HgCl_2$ this gives *trimethylarsine dimercurichloride*, m. 264–5°; with hot $H_2O$ it loses $Me_3As$; repeated treatment with $Me_2CO$ gives the *monomercurichloride*, m. 224–6°. Direct absorption of $Me_3As$ in $HNO_3$ gives *hydroxytrimethylarsonium nitrate*, m. 128–9°; *picrate*, m. 218–9°. Absorption of $Me_3As$ in alc. $PhCH_2Cl$ and addn. of Na picrate give *benzyltrimethylarsonium picrate*, m. 173–4°. *Hydroxytrimethylarsonium chloride mercurichloride* m. 135–6°. Na ethanearsonate and *P brevicaule, Sacc.* give $Me_2EtAs$, whose *dimercurichloride* m. 240–1° (decompn.); $HNO_3$ and Na picrate give *hydroxydimethylethylarsonium picrate*, m. 161–2.5°. $PhCH_2Cl$ gives *benzyldimethylethylarsonium picrate*, m. 113–4°; *chloride*, m. 167–8°. The mold on As-free bread gave no garlic odor and no ppt. with $HgCl_2$. *Hydroxytriethylarsonium picrate*, golden, m. 121–2°. All of the above compds. were also synthesized from arsines and compared with the products from the molds. C. J. WEST

**Organic compounds of gold.** C. S. GIBSON. *Nature* **131**, 130(1933); cf *C. A.* **26**, 694.—Hydrobromoauric acid and pentamethylenemagnesium bromide yield spirobis-(pentamethylene)gold bromide (I). The Au in I is 4-covalent and can function as a cation. I gives ethylenediaminospirobis(pentamethylene)gold bromide (II). The Au in II is 6-covalent. Since the groups attached to the Au in II must have an octahedral configuration this compd. should be capable of being resolved into optically active isomers. RACHEL BROWN

**Applications of thallium compounds in organic chemistry. IX. Changes observed on replacing dialkylthallium by trimethylplatinum in chelate rings.** R. C. MENZIES AND E. R. WILTSHIRE. *J. Chem. Soc.* **1933**, 21–22; cf. *C. A.* **27**, 490. The chelate derivs. of $PtMe_3$ with acetylacetone, decompg. without melting at 200°, *dipropionylmethane* (I), decompg. 190°, *benzoylacetone*, decompg. 187°, and *Et acetoacetate* (II), m. 200° (decompn.), are cryst. and sol. in org. solvents; the corresponding $TlMe_3$ derivs. m 214°, 121°, 128° and 128°, resp. They resemble the corresponding dialkylthallium compds. in being volatile but differ from the lower members in being insol. in $H_2O$. The assocn. of I and II in freezing $C_6H_6$ varies from 1.914 to 2.057 and from 2.18 to 2.30; the corresponding $TlMe_3$ derivs. vary from 1.03 to 1.20 and from 1.64 to 1.81. It is evident that the forces holding the mols. together are much greater in the Pt compds than in the Tl compds. The unimol. formulas for the $PtMe_3$ compds. in question indicate for the metal an effective atomic no. of 84 and also a covalency of 5. The stable double mol. wts. may be described as due to coördination between the Pt of 1 mol. and O in its neighbor, increasing the effective at. no. to 86 and the coördination no. of the metal to 6. C. J. WEST

**Production of formaldehyde by the catalytic oxidation or dehydrogenation of methanol. I.** G. NATTA. *Giorn. chim. ind. applicata* **14**, 545–51(1932).—A thermodynamic study of the reactions involved in the production of $CH_2O$ from MeOH. It is

shown that an oxidation of MeOH with $O_2$ to $CH_2O$ cannot be expected, as the reaction will continue to form CO or $CO_2$. However, the reaction (I) $MeOH + CO_2 \longrightarrow CH_2O + CO + H_2O$ promises much, as the presence of $CO_2$ will tend to prevent the reaction (II) $CH_2O + O_2 = CO_2 + H_2O$. II. *Ibid* 551–4.—$CH_2O$ may be formed from MeOH with yields up to 90%, providing a catalyst is chosen which will accelerate the dehydrogenation reaction, but not the oxidation reaction. However, when $CO_2$ is present, together with 10–20% $O_2$, yields up to 94–95% are possible, the $CO_2$ present retarding reaction (II), while favoring (I), and the $O_2$ compensates for the heat required in the endothermic reaction of dehydrogenation, with the exothermic reaction of oxidation.
A. W. CONTIERI

**The catalytic partial oxidation of ethyl alcohol in the vapor phase: The use of a liquid salt bath for temperature control.** DONALD B. KEYES AND WM. L. FAITH. Univ. Ill. Eng. Expt. Sta., *Bull.* **252**, 12 pp.(1932).—Control of the temp. of the catalyst in the vapor-phase partial oxidation of EtOH was effected in earlier work (*C. A.* **26**, 420) by the use of a furnace around the catalyst tube; the current study was undertaken to det. the effect of the use of a bath of molten $NaNO_3$ and $KNO_3$ with the app. as before. With high alc.-air ratios, *i. e.*, those conducive to high yields of intermediate products, results with the new setting were similar to those first obtained except that with Cu turnings in a Cu tube the acid yields were higher. With concns. of 0.4 g. EtOH per l. of air results with a Pyrex tube in the salt bath were intermediate between those obtained with a plain Pyrex tube in air and a Cu tube sealed to glass leads. When a high single-pass conversion to AcH is desired the order of merit of the app. is therefore (1) Pyrex tube in air, (2) Pyrex tube in salt bath, (3) Cu-glass seal chamber. For high acid conversion the latter in a salt bath is best.
H. L. OLIN

**Phytochemical reduction of 1-hydroxy-2-ketoheptane [heptan-1-ol-2-one].** P. A. LEVENE AND A. WALTI. *J. Biol. Chem.* **98**, 735–8(1932); cf. *C. A.* **26**, 1901.—The method described for the phytochem. reduction of α-HO ketones must be modified in the higher homologs because of their lower soly. in $H_2O$. *dl-1-Chloro-2-heptanol* (I), $b_{13}$ 93°, is formed by the action of $CH_2ClCHO$ on $C_5H_{11}MgBr$. When I is oxidized with $Na_2Cr_2O_7$, *1-chloro-2-heptanone* (II), $b_{13}$ 80°, is obtained, and this is converted into *heptan-1-ol-2-one* (III), $b_{20}$ 95°, by heating it with MeOH and $HCO_2K$. *d-Heptane-1,2-diol* (IV), $b_{1.6}$ 93–4°, $[\alpha]_D^{25}$ 2.9°, results from the phytochem. reduction of III in an actively fermenting mixt. of sugar and bakers' yeast; *diphenylurethan* of IV, m. 111–12°, $[\alpha]_D^{25}$ 12.14° in abs. alc. HBr converts IV into *d-1-bromo-2-heptanol*, $b_{1.5}$ 75°, $[\alpha]_D^{22}$ 2.0° without solvent.
A. P. LOTHROP

**Steric hindrance. VII. Esterification and saponification from the standpoint of the electronic theory of union.** JULIUS V. BRAUN AND FRIEDRICH FISCHER. *Ber.* **66B**, 101–4(1933); cf. *C. A.* **27**, 74.—In all probability esterification of acids and alk. sapon. of esters consists in a primary addn. of the neg. OH or OR to the pos. C of the C:O group, and therefore all factors which hinder this addn. will hinder esterification and sapon.; among such factors, in addn. to those of a spatial nature, are such as weaken the pos. character of the C atom in question. Hydrocarbon residues, beginning with Me, have an electron-repelling effect, so that in $Me_3CCO_2H$, *e. g.*, in addn. to the spatial hindering influence of the 3 Me groups, there is an electrochem. influence exerted in the same direction, whereas in the much more readily esterified $CCl_3CO_2H$ only the spatial factor comes into play. The presence of a large no. of hydrocarbon residues at a somewhat greater distance from the $CO_2H$ group should therefore also make itself felt in esterification and sapon. Compds. of the type $(R_2CH)_2CHCO_2H$ and $(R_3C)_2CHCO_2H$, in which the 4 or 6 R residues can hardly have any spatial influence, should, as a result of the electron-repelling influence of these residues, be analogous, not to the rather readily esterifiable $Me_2CHCO_2H$, but to the less easily esterified $Me_3CCO_2H$. Measurements on $(Me_2CH)_2CHCO_2H$ (I) and *dicyclopentylacetic acid* (II) confirmed this view. I, $b_{12}$ 108–10°, prepd. by Marshall by a rather tedious method (*C. A.* **25**, 1219), is obtained much more quickly, in almost 90% yield, from $(Me_2CH)_2C(CN)CO_2H$ heated 12 hrs. at 160–70° with 5 parts concd. HCl; there is formed only a very small amt. of $(Me_2CH)_2CHCONH_2$, m. 149°, which, however, is the chief product if the heating is conducted at 130°. I is recovered almost unchanged when treated 2 hrs. in 10 mols. EtOH on the water bath with HCl gas; likewise, the *Et ester*, $b_{12}$ 65°, obtained in 90% yield from the Ag salt heated 1 hr. in benzene with EtI, is not appreciably sapond. by 2 mols. boiling aq. alc. KOH in 2 hrs. and only 10% in 10 hrs.; sapon. with aq. alc. $H_2SO_4$ is even slower. *Di-Et dicyclopentylmalonate*, from the pentenyl compd. with Ni and H in decalin, $b_{0.4}$ 141–4°; when it is boiled 40 hrs. with 4 mols. aq. alc. KOH and then dild. with water, about 1/3 is repptd. unchanged and acidification of the soln. gives an oil having very nearly the compn. of the *mono-Et ester* but which loses $CO_2$ on distn., yielding the *Et ester*, $b_{15}$ 140–2°, of II, hydrolyzed by heating 12 hrs. at 150–60° with concd. HCl (at 130° the reaction is very far from being complete) to the free II, m. 59–60°. II is as

resistant to esterification as I; the ester is only 5% hydrolyzed by 2 mols. boiling aq. alc. KOH in 6 hrs., 10% in 10 hrs., not detectably by 2 *N* aq. alc. $H_2SO_4$ at 100° in 6 hrs. C. A. R.

**Amplification of the double-bond rule of Otto Schmidt.** RYOHEI ODA AND SEIJI NOMAMOTO. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding 543–6(1932).—Schmidt's rule states that in unsatd. hydrocarbons, bonds next to double bonds are strengthened, but those following are weakened. This rule applies also to alcs., acids and ethers. It explains the large difference in ionization consts. between such acids as formic and acetic, and malonic and succinic. GREGG M. EVANS

**Unsaturated acids and their derivatives. IX. Configuration of the tetrabromostearic acid which melts at 60°.** TSUTOMU MARUYAMA AND BUNSUKE SUZUKI. *Proc. Imp. Acad.* (Tokyo) **8**, 486–9(1932); cf. *C. A.* **26**, 1897.—γ-Tetrabromostearic acid (I), m. 60°, on debromination with Zn and $H_2SO_4$ gives γ-linoleic acid (octadeca-6,9-dien-18-oic acid), which gives principally I on bromination, with a small proportion of the other isomers. I (10 g.) with 8.8 g. KOH in 265 cc. EtOH at 28° for 1.5 hrs. loses 2 atoms Br and the resulting di-Br acid gives azelaic (II) and valeric (III) acids on oxidation; the product is therefore $Me(CH_2)_3CH:CHCHBrCH_2CH:CBr(CH_2)_7CO_2H$ or $Me(CH_2)_3CH:CHCHBrCH_2CBr:CH(CH_2)_7CO_2H$; at 80° 3 atoms of Br are lost and the resulting mono-Br acid gives $(CO_2H)_2$, II and III on oxidation; this is therefore $Me(CH_2)_3CH:CH:CH:CHCH:CBr(CH_2)_7CO_2H$ or $Me(CH_2)_3CH:CHCH:CHBr:CH(CH_2)_7CO_2H$. Heating I with EtOH-KOH at 150° for 10 hrs. gives octadeca-6,8-dien-10-in-18-oic acid. It is obvious that in I 2 Br atoms of the C atoms 6 and 7 take *cis*-positions, while those of C atoms 9 and 10 are in the *trans*-position to each other. C. J. WEST

**Mechanism of oxidation processes. XXXII. Enzymic oxidation of acetic acid by yeast.** HEINRICH WIELAND AND ROBERT SONDERHOFF. *Ann.* **499**, 213–28(1932); cf. *C. A.* **26**, 4302.—Impoverished yeast (*C. A.* **26**, 1957) and $O_2$ oxidize AcOH (as AcONa or $(AcO)_2Ba$) after 24 hrs., giving a soln. contg. succinic acid (5% of AcOH consumed) and citric acid (10% of the AcOH consumed); details are given of their isolation and estn. The oxidation of AcOH is more dependent on the substrate concn. than in the oxidation of EtOH; the reaction velocity with *M*/128 soln. is about 75% of that with *M*/4 soln. The reaction undergoes self-acceleration because of the intermediate products being oxidized faster than the AcOH itself. The ratio of $CO_2$ produced to $O_2$ consumed is approx. 1, while the mol. ratio $O_2$ to AcOH is 1.64–1.81. Glycolic and oxalic acids are not probable intermediates, since these are scarcely affected by yeast and $O_2$. Fumaric acid is oxidized by yeast and $O_2$ at about the same rate as succinic acid, the rate being much slower than with AcOH. AcOH, succinic and malic acids are not dehydrogenated by yeast and methylene blue. The citric acid may be formed by an aldol-like condensation of AcOH and $HO_2CCOCH_2CO_2H$; support for this is found in the fact that succinic acid gives no citric acid with yeast. Oxidation of citric acid also proceeds slowly with yeast and $O_2$; the initial evolution of $CO_2$ is very slow but later increases rapidly. C. J. WEST

**Catalytic hydrogenation of olefinic compounds.** E. H. FARMER AND R. A. P. GALLEY. *Nature* **131**, 60(1933); cf. *C. A.* **26**, 2417.—F. and G. report that the figures they previously recorded to show the course of catalytic hydrogenation in a series of butadiene acids should not be regarded as characteristic of the resp. acids since the condition of the catalyst also materially affects the proportions of the products. When an "aged" catalyst is used, the course of hydrogenation of sorbic acid is very different from that previously observed. Conclusions drawn by Lebedev and his collaborators (*C. A.* **19**, 1401; **22**, 2362, 4460) have been verified by analyses of partial reduction products so far as numerous binary mixts. of $\Delta^{\alpha}$-, $\Delta^{\beta}$- and $\Delta^{\gamma}$-hexenoic acids, $\Delta^{\gamma}$-pentenoic acid, allyl alc., and sorbic acid are concerned. In the hydrogenation of sorbic acid, all of the conjugated acid disappears before the 3 isomeric ethylenic acids are attacked. A. WIEBEN DEXTER

**Monothioethylene glycol. IV. Aryl β-hydroxy- and β-chloroethyl sulfides.** GEO. BADDELEY AND G. MACDONALD BENNETT. *J. Chem. Soc.* **1933**, 46–8; cf. *C. A.* **21**, 3191.—Each aryl β-hydroxyethyl sulfide was prepd. by adding $HOCH_2CH_2Cl$ to a soln. of the thiol in a slight excess of KOH at 60–70° and heating for a short time on the water bath; conversion into the chloro sulfide was effected by $SOCl_2$ in $C_5H_5N$ and $CCl_4$, but with compds. halogenated in the nucleus fusion with $PCl_5$ was necessary; oxidation to the sulfoxides was carried out with $H_2O_2$ in AcOH, to the sulfones by $KMnO_4$ and $MgSO_4$. *Mesityl β-hydroxyethyl sulfide*, m. 25°; *Cl deriv.*, m. 44°; *sulfoxide*, m. 76°; *sulfone*, m. 60.5°. *p-Chlorophenyl β-hydroxyethyl sulfide*, light brown oil; *Cl deriv.*, m. 34°; *sulfone*, m. 96°. *p-Bromophenyl β-hydroxyethyl sulfide*, dark brown oil; *Cl deriv.*, m. 39°; *sulfone*, m. 109°. *p-Iodophenyl β-chloroethyl sulfide*, m. 54°. $2,4\text{-}Cl_2C_6H_3SH$, m. 20°, is oxidized by $K_3Fe(CN)_6$ to *2,4,2',4'-tetrachlorodiphenyl disulfide*, m. 82.5°; *2,4-dichlorothiophenol benzoate*, pale brown, m. 97°; *2,4-dichlorophenyl β-chloroethyl sulfide*

$b_{16}$ 218°; *sulfoxide*, m. 96.5°. *2,5-Dichlorophenyl β-hydroxyethyl sulfide*, m. 32°; *Cl deriv.*, $b_{15}$ 176°; *sulfoxide*, m. 68°. *2,4,6-Trichlorothiophenol*, m. 60° (*benzoate*, m. 170°); *2,4,6,2',4',6'-hexachlorodiphenyl disulfide*, m. 165°; *2,4,6-trichlorophenyl β-hydroxyethyl sulfide*, m. 41°; *Cl deriv.*, m. 71°. *β-Anisyl β-hydroxyethyl sulfide*, m. 41°; *Cl deriv.*, pale yellow, $b_1$ 110°. *α-Naphthyl β-chloroethyl sulfide*, pale brown oil, decomps. on distn. *α-Naphthyl β-hydroxyethyl sulfone*, m. 122°; *Cl deriv.*, m. 74°. *β-Naphthyl β-hydroxyethyl sulfide*, m. 64°; *Cl deriv.*, m. 53°; excess $PCl_5$ gives a *?-chloro-β-naphthyl deriv.*, m. 52°. *β-Naphthyl β-hydroxyethyl sulfone*, m. 108°; *Cl deriv.*, m. 100°. *p-Nitrophenyl-β chloroethyl sulfone*, m. 128°. *Phenyl γ-chloropropyl sulfone*, m. 26°.

C. J. WEST

**Pentane-1,2,5-triol and $\Delta^1$-5-pentenol.** R. PAUL. *Ann. chim.* 18, 303–94(1932).—The various derivs. of pentane-1,2,5-triol required for a study of the comparative ease of formation of furanic or pyranic cyclic compds. have been prepd. by the hydrogenation of dialkoxypentanones and the addn. of halogens or HOCl to $\Delta^1$-5-pentenol. The dialkoxypentanones, $ROCH_2CO(CH_2)_3OR'$, useful for obtaining $ROCH_2CH(OH)(CH_2)_3OR'$ compds. but too laboriously prepd. to be a readily available source for the dibromohydrins, were prepd. by the action of the Me, Et and iso-Am alkoxynitriles on $XMg(CH_2)_3OR'$ compds. $CH_2(CH_2OH)_2$ was converted into $Cl(CH_2)_3OH$ (*Org. Syntheses* 8, 112) which on methylation with $Me_2SO_4$ gave 65% of $Cl(CH_2)_3OMe$, (I), b. 109–12°. $Br(CH_2)_3OMe$, b. 132–3°, was also prepd. in 50% yields from the glycol by sodation with $NH_2Na$, methylation to the monomethylin, b. 153°, and treatment with $PBr_3$. I was converted into $ClMg(CH_2)_3OMe$ by addn. with stirring to Mg covered with $Et_2O$ in the presence of a trace of $AlCl_3$. Addn. of $MeOCH_2CN$ to the reaction mixt., treatment with dil. acid and extn. with $Et_2O$ yielded, on fractional distn., *1,5-dimethoxypentan-2-one* (II), $C_7H_{14}O_3$, $b_{14}$ 89°, $d_{15}^{15}$ 1.001, $n_D^{15}$ 1.4264, M. R. 37.31 (calcd. 37.82); *semicarbazone*, $C_8H_{17}N_3O_3$, m. 88.5°; *oxime*, $C_7H_{15}NO_3$, $b_{15}$ 139–41°, $d_{15}^{18}$ 1.0428, $n_D^{18}$ 1.4574, M. R. 42.08 (calcd. 42.01). Similarly were prepd.: *1-ethoxy-5-methoxypentan-2-one*, $C_8H_{16}O_3$, $b_{18}$ 95–6°, $d_{15}^{18}$ 0.9691, $n_D^{18}$ 1.4283, M. R. 42.50 (calcd. 42.44) (*semicarbazone*, $C_9H_{19}N_3O_3$, m. 59–60°; *oxime*, $C_8H_{17}NO_3$, $b_9$ 140–1°, $d_{15}^{18}$ 1.013, $n_D^{18}$ 1.4564, M. R. 46.99 (calcd. 46.54)); *1 isoamoxy-5-methoxypentan-2-one* (III), $C_{11}H_{22}O_3$, $b_{17}$ 131–2°, $d_{15}^{18.5}$ 0.930, $n_D^{18.5}$ 1.4314, M. R. 56.27 (calcd. 56.29); and *1-isoamoxy-5-ethoxypentan-2-one*, $C_{12}H_{24}O_3$, $b_{14}$ 134°, $d_{15}^{15}$ 0.920, $n_D^{15}$ 1.4330, M. R. 61.10 (calcd. 60.91). These ketones change slowly on standing, the change probably being due to aldolization owing to the presence of traces of N compds. The small quantity of Me, Et and iso-Am alcs. found in each reaction mixt. is a reaction product and is not formed by the decompn. of the ketone. In no case was it possible to detect the presence of the dimer of the nitrile, $ROCH_2C(:NH)CH(OR)CN$ or its hydrolysis product $ROCH_2COCH(OR)CN$. $EtOCH_2CN$ gave no reaction on treatment with Na. This lack of mobility of the H atoms in the nitriles explains their normal reaction with the organomagnesium compds. On the contrary, the influence of the radical R on the reactivity of the CO group is very limited; the degree of oxime formation and the speed of hydrogenation of these ketones are independent of the mol. wt. of the radical R. The ketones can be alkylated by the method of Haller in spite of the 1,4-position of the CO and OR groups, *e. g.*, on treatment with $NaNH_2$ and EtI, III gave *1-isoamoxy-3-ethyl-5-methoxypentan-5-one*, $C_{13}H_{26}O_3$, $b_{13}$ 135–9°, $d_{15}^{18}$ 0.919, $n_D^{19}$ 1.4384, M. R. 65.71 (calcd. 65.53). The condensation of $NaHC(CO_2Et)_2$ with $CH_2:CHCH_2Br$ gave Et allylmalonate, $b_{16}$ 108–10°, which was converted into K allylmalonate by heating in a Cu vessel for 6 hrs. with concd. KOH. Treatment with dry HCl and extn. with $Et_2O$ gave allylmalonic acid, which was decompd. by heating over a free flame at 160–200° to give $CH_2:CHCH_2CH_2CO_2H$. The esterification of a cold benzene soln. of this acid by agitation for 24 hrs. with a mixt. of $H_2SO_4$ and EtOH yielded $CH_2:CHCH_2CH_2CO_2Et$ (IV), b. 144–6°. The reduction of IV with Na and EtOH gave 55% of $\Delta^1$-*5-pentenol* (V), $C_5H_{10}O$, $b_{760}$ 138.5–9.5° (cor.), $d_{15}^{15}$ 0.848, $n_D^{15}$ 1.4305, M. R. 26.21 (calcd. 26.34), and a small quantity of *diallylethanol* (VI), $C_8H_{14}O$, $d_{15}^{17}$ 0.869, $n_D^{17}$ 1.4556, M. R. 39.40 (calcd. 39.72) (*pyruvate*, $C_{11}H_{16}O_3$, $b_{13}$ 115–7°, $d_{15}^{19}$ 0.982, $n_D^{19}$ 1.4514, M. R. 53.79 (calcd. 53.72); *semicarbazone*, $C_{12}H_{19}N_3O_3$, m. 99–100°). VI is formed by the reduction of the Et diallylacetate accompanying IV and from which it is sepd. with difficulty. Various pentenyl derivs. were prepd. to facilitate the comparative study of the ethylenic alcs. $CH_2:CH(CH_2)_nCH_2OH$, and others were made as sources of derivs. of pentane-1,2,5-triol: *pentenyl phenylurethan*, $C_{12}H_{15}O_2N$, $b_{16}$ 184–5°, $d_{15}^{15}$ 1.068, $n_D^{15}$ 1.5340, M. R. 59.69 (calcd. 59.72); *pentenyl allophanate*, $C_7H_{12}N_2O_3$, m. 147–8°, prepd. by passing a current of HCNO through V (*C. A.* 13, 1839); *pentenyl chloride*, $C_5H_9Cl$, $b_{747}$ 105°, $d_{15}^{18}$ 0.916, $n_D^{18}$ 1.4305, M. R. 29.50 (calcd. 29.45), formed by the action of $SOCl_2$ on a cold mixt. of V and $PhNMe_2$ (*C. A.* 5, 1742); *pentenyl bromide*, $C_5H_9Br$, $b_{748}$ 126–7°, $d_{15}^{15}$ 1.272, $n_D^{15}$ 1.4654, M. R. 32.40 (calcd. 32.59), made by treatment of V with $PBr_3$ in pyridine (*C. A.* 20, 3155); *pentenyl acetate*, $C_7H_{12}O_2$, b. 150–1°, $d_{15}^{18}$ 0.907, $n_D^{18}$ 1.4176, M. R. 35.54 (calcd. 35.71); and, by the action of $Me_2SO_4$

on the Na deriv. of V, *Δ'-5-methoxypentene* (VII), $C_6H_{12}O$, $b_{764}$ 96–8°, $d_{15}^{17}$ 0.787, $n_D^{17}$ 1.4032, M. R. 31.02 (calcd. 31.08). The action of KOH on $CH_2BrCHBr(CH_2)_3OH$ gave *Δ¹-2-bromo-5-pentenol* (VIII), $C_5H_9OBr$, $b_{15}$ 97°, $d_{15}^{17}$ 1.434, $n_D^{17}$ 1.50026, M. R. 33.86 (calcd. 34.11) (*phenylurethan*, $C_{12}H_{14}BrNO_2$; *allophanate*, $C_7H_{11}BrN_2O_3$, m. 136–9°). To establish its constitution VIII was treated with $PBr_3$ in the presence of pyridine and converted into *Δ¹-2,5-dibromopentene*, $C_5H_8Br_2$, $b_{15}$ 83–6°, $d_{15}^{16.5}$ 1.742, $n_D^{16.5}$ 1.5257, M. R. 40.13 (calcd. 40.35), which is readily brominated to *1,4,4,5-tetrabromopentane*, $C_5H_8Br_4$, $b_{14}$ 163.4°, $d_{15}^{18}$ 2.346, $n_D^{18}$ 1.59664, M. R. 56.32 (calcd. 56.35) (for the 1,2,3,4- and 1,2,2,3-isomers, cf. *C. A.* **23**, 2149; **22**, 3626). The action of KOAc and $Ac_2O$ on $CH_2BrCHBr(CH_2)_3OH$ (IX) gave the *acetate* of VIII, $C_7H_{11}BrO_2$, $b_{18}$ 103–5°, $d_{15}^{20}$ 1.312, $n_D^{20}$ 1.4658, M. R. 43.66 (calcd. 43.47). The bromination of this acetate yielded *4,4,5-tribromopentanol acetate*, $C_7H_{11}Br_3O_2$, $b_{17}$ 179–80°, $d_{15}^{20}$ 1.927, $n_D^{20}$ 1.53823, M. R. 59.58 (calcd. 59.47). By the action of dry HBr at 100–110°, VIII was converted into *1,4-dibromopentane*, $C_5H_{10}Br_2$, $b_{12}$ 82°, $d_{15}^{15}$ 1.687, $n_D^{15}$ 1.51048, M. R. 40.81 (calcd. 40.82). Tables are given of the b. p., d., and *n* values of the alcs., acetates and bromides of the satd., ethylenic and alkylallylic isomers of $CH_2:CH(CH_2)_nOH$ (where $n$ = 1, 2 and 3). From a consideration of the action of HBr on these alcs. it is concluded that in the case of the pentenol each of the functional groups retains its individuality and reacts normally as though isolated from the action of the other group. By catalytic hydrogenation, with the aid of $PtO_2$, of the dialkoxypentanones were prepd.: *1,5-dimethoxypentan-2-ol*, $C_7H_{16}O_3$, $b_{18}$ 94–5°, $d_{15}^{14}$ 0.976, $n_D^{14}$ 1.43336, M. R. 39.43 (calcd. 39.34) (*p-nitrobenzoate*, m. 194–5°); *1-ethoxy-5-methoxypentan-2-ol*, $C_8H_{18}O_3$, $b_{13}$ 99°, $d_4^{17}$ 0.955, $n_D^{17}$ M. R. 43.80 (calcd. 43.95); and *1-isoamoxy-5-methoxypentan-2-ol*, $C_{11}H_{24}O_3$, $b_{10}$ 126–7°, $d_4^{15}$ 0.9229, $n_D^{15}$ 1.43637, M. R. 57.83 (calcd. 57.81). By the action of HBr on these alcs. the alkoxy groups were eliminated and all gave *1,5-dibromopentan-2-ol*, $C_5H_{10}Br_2O$, $b_{11}$ 126–8°, $d_4^{18}$ 1.817, $n_D^{18}$ 1.53513, M. R. 42.15 (calcd. 42.34), which on heating is cyclized into *tetrahydrofurfuryl bromide*, $b_{18}$ 67°. The addn. of $Br_2$ to V formed *4,5-dibromopentanol* (IX), which could not be distd. without decompn. The crude dibromohydrin, when treated with $Ac_2O$ at 125°, gave the corresponding *acetate*, $AcO(CH_2)_3CHBrCH_2Br$, $b_{23}$ 156–7°, $d_{15}^{18.5}$ 1.635, $n_D^{18.5}$ 1.50393, M. R. 52.16 (calcd. 51.71), also formed by the bromination of pentenyl acetate in AcOH at 0°. Treatment of IX with $PBr_5$ yielded *1,2,5-tribromopentane*, $C_5H_9Br_3$, $b_{23}$ 146°, $d_{15}^{22}$ 2.075, $n_D^{22}$ 1.56197, M. R. 48.30 (calcd. 48.58), converted by AcOK into the *triacetate* of *pentane-1,2,5-triol*, $C_{11}H_{18}O_6$, $b_9$ 159°, $d_{15}^{15}$ 1.123, $n_D^{15}$ 1.4402, M. R. 57.74 (calcd. 57.96), and $CH_2:CHBr(CH_2)_3CO_2Me$. The sapon. of the triacetate with $Ba(OH)_2.8H_2O$ gave *pentane-1,2,5-triol* (X), $C_5H_{12}O_3$, $b_{12}$ 190–1°, $d_{15}^{20}$ 1 136, $n_D^{20}$ 1.47299, M. R. 29.63 (calcd. 29.86) (*triphenylurethan*, $C_{26}H_{27}N_3O_6$, m. 92°). HOCl, prepd. from $H_2NCONHCl$ (*C. A.* **16**, 2113), was added to VII, producing a small quantity of *1-methoxy-4,5-dichloropentane*, $b_{13}$ 81°, $d_{15}^{16}$ 1.134, $n_D^{16}$ 1.45822, M. R. 41.16 (calcd. 41.28), and a main fraction consisting of *1-chloro-5-methoxypentan-2-ol* (XI), $C_6H_{13}ClO_2$, $b_{13}$ 102–3°, $d_{15}^{19}$ 1.103, $n_D^{19}$ 1.45842, M. R. 37.75 (calcd. 37.94), formed by an addn in accordance with the rule of Markovnikov. XI is transformed by heating with powd. KOH in $Et_2O$ into *1,2-epoxy-5-methoxypentane*, $C_6H_{12}O_2$, b 156°, $d_{15}^{15}$ 0.946, $n_D^{15}$ 1.42085, M. R. 31.08 (calcd. 30.99), from which XI is regenerated by treatment with cold concd. HCl. Reaction velocity measurements show that though the addn. of HOCl to VII leads to an almost pure XI, the addn. of HCl to the epoxy deriv. gives a mixt. of the 2 possible chlorohydrins comprising 9% of $CH_2(OH)CHCl(CH_2)_3OMe$ and 91% of $ClCH_2CH(OH)(CH_2)_3OMe$. Addn. of HOCl to V gave a mixt. of $ClCH_2CH(OH)(CH_2)_3OH$ and $CH_2(OH)CHCl(CH_2)_3OH$ which on treatment with dry HBr gave a chlorobromohydrin decompd. on heating into HBr and a trace of tetrahydrofurfuryl chloride, which was also isolated in small quantities by treating the mixt. with 15% $H_2SO_4$. It was concluded that the mixt. consisted mainly of the *α*-monochlorohydrin, *4-hydroxy-5-chloropentanol* (XII), $C_5H_{11}ClO_2$, $b_{10}$ 138–40°, $d_{15}^{15}$ 1.188, $n_D^{15}$ 1.48013, M. R. 33.13 (calcd. 33.20). Analogies of pentanetriol and its homologs, glycerol and butane-1,2,4-triol, are demonstrated by data provided in a table of b. ps., *d* and *n* of the triols, tribromides, triacetates and *α*-dibromohydrins. The crude *β*-dibromohydrin (IX) when heated with powd. KOH gave 33% of VIII and *α-bromomethyltetrahydrofuran* (XIII), $C_5H_9BrO$, $b_{18}$ 67°, $d_{15}^{18}$ 1.483, $n_D^{18}$ 1.4895, M. R. 32.14 (calcd. 32.49), identified by transformation by heating with dry AcOAg for 10 hrs. at 160–170° into the *acetate*, $b_{22}$ 93–4°, $d_{15}^{22}$ 1.064, $n_D^{22}$ 1.43637, M. R. 35.41 (calcd. 35.62), which on boiling for 2 hrs. with concd. KOH yielded tetrahydrofurfuryl alcohol (XIV), $C_5H_{10}O_2$, b. 176–8°, $d_{15}^{18}$ 1.054, $n_D^{18.5}$ 1.45252, M. R. 26.14 (calcd. 26.26), identical with the alc. prepd. by Wienhaus (*C. A.* **15**, 844) by the catalytic hydrogenation of furfural, and forming a phenylurethan, m. 60–1°, pyruvate, m. 184–5° (semicarbazone, m. 184–6°). XIII reduces $NH_3$-$AgNO_3$, as also does the corresponding alc. The ring system is opened by HBr to give 1,5-dibromopentan-2-ol and a small quantity of the 4,5-dibromopentan-1-ol, but no bromo diacetate can be isolated after treatment with $Ac_2O$ at 150° in the presence of $ZnCl_2$. The action of powd. dry

KOH in $Et_2O$ on **XII** formed **XIV**, probably by the intermediate formation of the epoxypentanol, consequent opening of the ring and a final closure catalyzed by the KOH present. In the series of pentane-1,2,5-triol derivs. the furan ring is preferentially formed on ring closure. The chain may be closed between C atoms 1 and 2 but no case has been observed of closure between the C atoms 1 and 5 with consequent formation of the pyran ring. C. R. ADDINALL

**Dielectric constants of fatty oils.** T. G. KOVALEV AND V. V. ILLARIONOV. *J. prakt. Chem.* **135**, 327–34(1932).—Detailed data are given of the changes which certain fatty oils undergo on standing 3 months in the sunlight, with and without the presence of moisture. The following data show the change in $\epsilon$ (order, fresh oil, action of air and light, action of light and moisture): castor oil, 4.673, 5.437, 5.891; sesame oil, 3.076, 4.259, 3.346; peach oil, 3.014, 4.047, 3.470; sun-flower oil, 3.099, 4.627, 3.359; olive oil, 3.029, 3.990, 3.470; almond oil, 3.056, 4.314, 3.560; mustard oil, 3.034, 5.075, 3.305; linseed oil, 3.103, 4.617, 3.760; linseed-oil varnish, 3.405, 4.416, 4.142 (after 1 mo.); hemp-seed-oil varnish. 3.605, 4.351, 3.908 (after 1 month). C. J. WEST

**The oxidation of acid alcohols and sugars by periodic acid.** PAUL FLEURY AND JACQUES LANGE. *Compt. rend.* **195**, 1395–7(1932); cf. *C. A.* **22**, 1332.—$HIO_4$ oxidizes $CH_2OH[CH(OH)]_nCH_2OH$ and glucose to HCHO and $HCO_2H$; tartaric acid to $OHC\text{-}CO_2H$; gluconic and saccharic acids to $OHCCO_2H$, $HCO_2H$ and HCHO; $CO(CH_2OH)_2$ to HCHO and $CH_2(OH)CO_2H$; levulose to HCHO, $HCO_2H$ and $CH_2(OH)CO_2H$. It has no action on $[CH_2(OH)]_4C$, simple alcs. or glycolic, malic or citric acids. The reaction appears to be sp. for $\alpha$-glycols. It may be possible to use it to det. constitution. JANET E. AUSTIN

**The identity of volemitol with $\beta$-*d*-mannoheptitol [and with $\alpha$-sedoheptitol].** V. ETTEL. *Collection Czechoslov. Chem Communications* **4**, 504–12(1932); cf. following abstr.—Although LaForge and Hudson had assigned a different configuration to volemitol (I), E. recognized the close agreement of its properties with those reported for $\beta$-*d*-mannoheptitol (II), and prepd. and studied acyl derivs. of each. Mixing I and II did not lower the m. p. II was prepd. and treated with BzH in 50% $H_2SO_4$ and the product that crystd. from alc. was fractionated by means of toluene. The *tribenzoate* (III), of $\beta$-*d*-mannoheptitol most sol. in toluene, m. 210°, $[\alpha]_D^{20}$ —1.3° ($CHCl_3$), —42.8° (pyridine), is identical with the tribenzoate of I reported by E. (*C. A.* **23**, 4192). The fraction less sol. in toluene has not been satisfactorily purified; it m. 190–95°, is more strongly *l*-rotatory than III and resembles the 2nd Bz deriv. of I. The identity of II and $\alpha$-sedoheptitol (IV) had been established by LaForge and Hudson but the known Ac derivs. were not the same for I and IV. Fractional crystn. from benzene of the acetylation product, prepd. from I by the method of LaForge, yielded 2 fractions of which the less sol. one is the triacetate previously identified and reported by E. The *triacetylvolemitol* (V), very sol. in benzene, m. 201°, $[\alpha]_D^{20}$ —51.9° ($CHCl_3$), agrees very well with the tri-Ac deriv. of IV reported by LaForge and confirms the identity of these 2 alcs. ANNE E. WHITE

**The configuration of sedoheptose.** V. ETTEL. *Collection Czechoslov. Chem. Communications* **4**, 513–20(1932); cf. preceding abstr.; also LaForge, *C. A.* **14**, 944, 3647.—Reduction of sedoheptose gives $\alpha$-sedoheptitol, which is identical with $\beta$-*d*-mannoheptitol (I), and $\beta$-sedoheptitol. This relation to I leaves only the allocation of the ketonic group to complete the configuration of sedoheptose. This group might be at the 2nd, 3rd, 5th or 6th C atom theoretically but compds. prepd. and characterized by LaForge eliminate positions 2 and 3 in this case. The configuration favored by LaForge having a carbonyl at the 5th C would give as the other reduction product optically active alloheptitol, different from any known heptitol. A compd. with a carbonyl at the 6th position would reduce to I and $\beta$-*l*-guloheptitol and would have the configuration of an altroketoheptose. The properties of $\beta$-sedoheptitol and its benzoate agree with the properties reported by LaForge for $\beta$-*d*-guloheptitol, both being optically inactive. E. concludes that $\beta$-sedoheptitol is the antipode of the known $\beta$-*d*-guloheptitol and that the configuration offered by LaForge is excluded. A table shows the relations of sedoheptose to other heptoses and heptitols. ANNE E. WHITE

**Reactivity of the mercapto group. II.** NILS HELLSTRÖM. *Z. physik. Chem.* **A163**, 33–52(1932); cf. *C. A.* **26**, 965.—The reaction of thioglycolic acid with the haloacetic acids and their amides was studied in neutral and acid soln. A few errors in the preceding paper are corrected. G. M. MURPHY

**Temperatures of sublimation of twelve amino acids.** JANET W. BROWN. *Trans. Roy. Soc. Can.* Sect. III, **26**, 173–8(1932).—The temp. at which appreciable amts. of a cryst. sublimate were obtained in 10 min. by the method of Eder, and the m. p., resp., of the amino acids are: *l*-proline 130–35°, 220°; isoleucine 168–70°, 280°; *l*-leucine 145–8°, 293–5°; glutamic acid 170–5°, 197–8°; isovaline 150–1°, 315°; tryptophan 185–90°, 289°; *l*-phenylalanine 150–5°, 283°; hydroxyproline 185–90°, 270°; *d*-alanine 160–5°,

297°; *l*-serine 186–90°, 228°; glycine 160–75°, 225–30°; *l*-tyrosine 250–6°, 314–8°. *d*-Arginine, m. 238°, *d*-aspartic acid, m. 251°, and histidine, m. 277°, do not sublime. Plates of the crystals obtained accompany the paper. J. W. SHIPLEY

**β-Aminovaleric acid.** H. D. DAKIN. *J. Biol. Chem.* **99**, 531–5(1933).—EtCH:$CHCO_2H$ was heated 24 hrs. at 125–35° with aq. $NH_4OH$ satd. at 5°. After removal of the $H_2O$ the product was esterified, sepd. as the HCl salt from $NH_4Cl$, and the free *Et ester* (I) of *β-aminovaleric acid* (II) distd. I $b_{12}$ 82–4°, and when refluxed 4 hrs. with 10 parts $H_2O$ gave II, very sol. in $H_2O$, needles from alc. with dry $Et_2O$, decompg. 160–5°, m. clear 185°; *Cu salt*, readily sol. blue needles with 1 $H_2O$; phosphotungstate, white cryst. ppt.; *reineckate*, garnet-red crystals, darkens 156° and m. 171–5°. With cyanate II gave *β-uraminovaleric acid*, m. 147–8°, very sol. in $H_2O$, slowly extd. by $Et_2O$, converted by boiling with HCl to the less sol. *4-ethylhydrouracil*, m. 191–2°; *1-phenyl-4-ethylhydrouracil* m. 192°. BEN H. NICOLET

**Electrolytic preparation of aldonic acids.** H. KILIANI. *Ber.* **66B**, 117–20(1933).—I. The Isbell and Frush method (*C. A.* **25**, 4850) seemed promising in the study of glucosides contg. different sugar residues, for as a rule the sugars interfere with each other's crystn. while the corresponding aldonic acids show appreciable differences as regards their salts. The simplest way seemed to be to hydrolyze the glucoside with HCl, sep. the aglucone, neutralize the HCl exactly with $CaCO_3$, electrolyze the soln., conc. to a small vol., add alc. and fractionate the ppt. In a preliminary expt. with glucose no Ca gluconate could be obtained, even when the soln. was seeded, but when HBr was used instead of HCl for the hydrolysis the method worked very satisfactorily. Digitonin gave Ca *d*-galactonate; the mother liquors from this with $CdCO_3$ yielded Cd bromoxylonate, and finally from the mother liquors of the latter was obtained Ca *d*-gluconate. II. Just as for the reaction *d*-galactose ⟶ galactonic acid (*C. A.* **26**, 5912), more precise directions for the prepn. of *d*-mannonic acid are given. III. Especially has the older method of prepg. *d*-galactonic acid directly from lactose (*C. A.* **20**, 2985) been improved by application of the electrolytic process. C. A. R.

**Oxidation of glyoxal bisulfite to glyoxylic acid by molecular oxygen. Oxidation of glyoxal by bromine to glyoxylic and to oxalic acid.** CARL NEUBERG AND MARIA KOBEL. *Biochem. Z.* **256**, 475–84(1932).—Methylglyoxal bisulfite is quantitatively oxidized by atm. O to pyruvic acid whereby no dehydration of a lactate is responsible. The oxidation of glyoxal, which differs from AcCHO in being a dialdehyde instead of a ketoaldehyde, shows that the atm. O can attack only 1 of the CO groups so that only glyoxylic but no oxalic acid results. The reaction is not complete as in the AcCHO compd., the yield being only 80%. S. MORGULIS

**A new unsaturated derivative of glucuronic acid.** JOHN PRYDE AND R. TECWYN WILLIAMS. *Nature* **131**, 57(1933).—By methylating glucurone with $Ag_2O$ and MeI, P. and W. secured an unsatd. compd., $C_9H_{12}O_6$, m. 88°, $[\alpha]_{5461}$ 110.8° in water. Name and formula suggested: *trimethylglucuralone*,

MeOC:C(OMe).CH(OH).CH(OMe).CH($CO_2$H).O.

A. W. DEXTER

**Products of methylation of *d*-galacturonic acid.** K. SMOLEŃSKI AND M. CICHOCKI *Collection Czechoslov. Chem. Communications* **4**, 500–3(1932); cf. Smoleński, *C. A.* **21**, 3603; **22**, 4109; also Ehrlich, *C. A.* **24**, 65.—The sp. rotatory power of the hydrate of *d*-galacturonic acid in water changes from 77.93° to 52.24° after 3.5 hrs. That part exists in the lactone form might be inferred from an acid no. which is lower than theoretical whereas the reducing power is the same as for galactose. Cryst. galacturonic acid hydrate (I) was methylated according to Fischer's method and a 30% yield of rhombic crystals of methyl methyl-*d*-galacturonate (II) obtained, m. 137–8°, sol. in $H_2O$, MeOH and EtOH, almost insol. in acetone, reduces Fehling soln. only after hydrolysis, C 43.14%, H 6.42%, acid no. 447, MeO calcd. to MeOH 28.05%, $[\alpha]_D^{20}$ 124.9°. II was sapond. with $Ba(OH)_2$ and the Ba salt treated to free *methyl-d-galacturonic acid* (III), sol. in $H_2O$ and EtOH, almost insol. in acetone, reduces only after hydrolysis, 0.5% aq. soln. has $p_H$ of 1.8–2.0, m. 115–6°, C 40.21%, H 5.81%, MeOH 14.95%, $[\alpha]_D^{20}$ 138.5°. The filtrate left after removal of II was dried and analyzed considerably later. The data showed the thick sirup to be a methyl methyl-*d*-galacturonate. It differed from II only in $[\alpha]_D^{20}$ —36.92°. S. and C. designate II as the *Me α-methyl-d-galacturonate* and the isomer obtained as a sirup as the *Me β-methyl-d-galacturonate* (IV). They also interpret the mutarotation of I as a typical shift from the α-form to an equil. mixt. of α- and β-forms. From IV were prepd. *β-methyl-d-galacturonic acid*, $[\alpha]_D^{20}$ —32.3°, and its Ba salt, $[\alpha]_D^{20}$ —38.6°. ANNE E. WHITE

**Synthesis of alcamino acids by the cyanohydrin method.** A. I. KIPRIYANOV AND G. I. KIPRIYANOV. *J. Gen. Chem.* (U. S. S. R.) **2**, 585–9(1932).—The proposed term *"alcamino acid"* is constructed from alcamine (amino alc.) and amino acid to distinguish this type of aminohydroxy acids from that of serine. In the synthesis of alcamino acids

by the interaction of α-hydroxides and amino acid esters is usually obtained a mixt. of monohydroxyalkyl- and dihydroxyalkylamino acids, the sepn. of which is very difficult, and in the lower amino acids, such as glycocoll and alanine, is impossible (*C. A.* **21**, 2467; **22**, 3134; **26**, 108). Zelinskii and Stadnikov (*J. Russ. Phys.-Chem. Soc.* **38**, 722; **40**, 790) produced amino acids from CO compds. with KCN and $NH_3$, while by using amines in place of $NH_3$ can be obtained amino acids substituted in the $NH_2$ group. It was found that by using amino alcs. instead of $NH_3$ with CO compds. and KCN are easily obtained good yields of alcaminonitriles which on sapon. give alcamino acids. Thus the HCl salt of ethanolamine (I), condensed at room temp. with $CH_2O$, $Me_2CO$, BzH and cyclohexanone (II), produced with liberation of heat 70% of alcamino acids synthesized for the 1st time. I condensed with II gave *hydroxyethylaminocyclohexanenitrile*, $C_6H_{10}(CN)NH(CH_2)_2OH$ (III), which on sapon. produced *hydroxyethylamino-1-cyclohexanecarboxylic acid*, $C_6H_{10}(CO_2H)NH(CH_2)_2OH$ (IV). In other cases the nitriles were not sepd. but directly sapond. to the acids. BzH gave with I *phenylhydroxyethylaminoacetic acid*, $C_6H_5CH(CO_2H)NH(CH_2)_2OH$ (V), $Me_2CO$, *dimethylhydroxyethylaminoacetic acid*, $Me_2C(CO_2H)NH(CH_2)_2OH$ (VI), and $CH_2O$, *hydroxyethylaminoacetic acid*, $CH_2(CO_2H)NH(CH_2)_2OH$ (VII). I, b. 170–2°, was prepd. by Knorr's method (Ger. pat. 97,102) and converted to the HCl salt with concd. HCl to neutral reaction to litmus, and used in soln. (48 g. in 100 cc.). V was prepd. when a mixt. of 3.3 g. KCN in 15 cc. $H_2O$, 5.4 g. BzH, 10.5 cc. I.HCl and 15 cc. MeOH was digested 1.5 days, the MeOH distd. off, the oil extd. with $Et_2O$, the $Et_2O$ expelled, the oil dissolved in dil. HCl, any insol. matter extd. with $Et_2O$, then concd. by evapg., sapond. with concd. HCl, after 2 hrs. standing dild. with $H_2O$, concd. on the water bath, sepd. from $NH_4Cl$ by treating with alc. and $Et_2O$; there was obtained 8.4 g. (71.8%) of V; HCl salt m. 178–91° in a sealed capillary tube (decompn.), sol. in $H_2O$ and alc. About 65% of the free acid of V was sepd. by treating a concd. soln. of the salt with concd. $NH_3$ to neutral reaction, and the rest by the $Ag(OH)_2$ and $H_2S$ method. V m. 217–8° in a sealed capillary tube, is poorly sol. in cold $H_2O$ and alc., insol. in $Et_2O$. A yield of 7.25 g. (33.8%) of III, m. 78–80°, was prepd. when a mixt. of 26 cc. soln. of I, 8.6 g. KCN, 12 g. II, b. 153–7°, and 50 cc. $Et_2O$ was digested 1 day, the ether layer sepd., the aq. layer extd. with $Et_2O$, the combined ether exts. dried with $K_2CO_3$, the $Et_2O$ expelled; white crystals from $Et_2O$, easily sol. in alc., sparingly sol. in $H_2O$. The HCl salt of III, m. 95–8°, was prepd. by passing dry HCl into III in $Et_2O$. The aq. layer of the reaction and the mother liquor from the sepn. of III were combined and hydrolyzed with HCl, the reaction mass was evapd. to dryness, the mineral salts were sepd. by recrystg. from alc., IV was sepd. from its HCl salt with $NH_3$, and the mother liquor subjected to similar operations produced in all 10 g. (41.9%) IV, (41.9%), or 75.7% of III and IV combined. IV, m. 252–4° in a sealed capillary tube, is sol. in $H_2O$, poorly sol. in alc., and insol. in $Et_2O$. VI was obtained in 6 g. yield (40%) by digesting 1 day a mixt. of 9.75 g. HCl salt of I, 6.5 g. KCN, 5.8 g. $Me_2CO$ and 25 cc. $H_2O$, hydrolyzing with an equal vol. of concd. HCl on the water bath for 2 hrs. and sepg. the mineral salts as above. The sepn. of a cryst. HCl salt of VI being impossible, the free acid was obtained by the $Ag(OH)_2$ method. VI, m. 243–5° in a sealed capillary tube, is sol. in $H_2O$, little sol. in alc. and insol. in $Et_2O$. VII, m. 174–5°, was obtained in 5.7 g. yield (62.3%) when a soln. of 5 g. KCN was added dropwise in 3 hrs. with stirring and cooling to a mixt. of 5.7 g. HCl salt of I and 5.8 g. 40% $CH_2O$, and allowed to stand 1.5 hr. at room temp., an equal vol. of concd. HCl was added, let stand 12 hrs., digested 1.5 hrs. in a water bath, sepd. from KCl and $NH_4Cl$ and worked up with $Ag(OH)_2$ as above; white crystals were obtained easily sol. in $H_2O$, slightly sol. in alc. and insol. in $Et_2O$. CHAS. BLANC

**Synthesis of tartaric acid.** A. C. C. NEWMAN AND H. L. RILEY. *J. Chem. Soc.* **1933**, 45–6.—$[CH(OH)CO_2H]_2$, m. 206°, is obtained in 30% yield from crude glyoxal bisbisulphite (55 g. in 220 cc. $H_2O$) on treating with the theoretical wt. of KCN in the min. of $H_2O$, adding an equal vol. of concd. HCl, satg. with HCl and refluxing for 12 hrs. C. J. WEST

**Alkylated complex cyanides. I. The isomerism of the alkylated ferrocyanides. II. Hexaethylated ferrocyanides.** ERNALD G. J. HARTLEY (crystallographic data by H. M. POWELL). *J. Chem. Soc.* **1933**, 101–5.—The results of H. (*C. A.* **4**, 2293; **6**, 2371; **7**, 3123) and Hölzl (*C. A.* **22**, 224) are mainly in agreement but there is one important discrepancy; Hölzl's β-tetramethylferrocyanide is not identical with that of H. and it is not now possible to explain this discrepancy in exptl. results. The remainder of the 1st part deals with the structure of the original α- and β-tetramethylferrocyanides. *β-Tetramethyldiethylferrocyanogen mercurichloride*, pale yellow, anorthic, $a:b:c = 1.3137:1:1.0464$, $\alpha$ 95° 48′, $\beta$ 117° 35′, $\gamma$ 88° 8′; the *mercuriiodide*, bright yellow, anorthic, did not give crystals suitable for measurement. *Hexamethylferrocyanogen mercuriiodide*, pale yellow, anorthic, $a:b:c = 1.2675:1:1.1897$, $\alpha$ 104° 55′, $\beta$ 107° 28′, $\gamma$ 98° 24′. Other optical data are given. $Ag_4Fe(CN)_6$ and EtI, allowed to stand at room temp. for

6 weeks, gave a product corresponding to addn. of 5 mols. EtI to 1 mol. $Ag_4Fe(CN)_6$; the *hexa-Et compd.* was isolated as the *acid sulfate;* the nitrate was too sol. in $H_2O$ or EtOH to be purified. C. J. WEST

**An extension and a limitation of the thiocyanate method for the preparation of 2-thiohydantoins.** BEN H. NICOLET. *J. Biol. Chem.* **99**, 429–33(1933).—Under the usual conditions, $MeCH(NHBz)CH(NHBz)CO_2H$ readily gave *1-benzoyl-2-thio-5-benzoylaminomethylhydantoin*, S-yellow powder, m. 211–2° (decompn.); soln. in alkali and repptn. gave *2-thio-5-benzoylaminomethylhydantoin*, m. 255° (decompn.). From $MeC(NHAc)_2CO_2H$, *1-acetyl-2-thio-5-methyl-5-acetylaminohydantoin*, m. 230° (rapid heating), and *2-thio-5-methyl-5-acetylaminohydantoin*, m. 248° (decompn.), were similarly obtained in good yield. But no thiohydantoin could be obtained from $MeC(NHBz)_2CO_2H$, which also gives an exceptionally stable azlactone; it is suggested that certain highly substituted azlactones are too stable to allow the reaction to proceed further. BEN H. NICOLET

**Lignin and some of its derivatives. II.** L. LEMMEL. *Anales soc. espaň. fis. quím.* **31**, 50–2(1933); cf. *C. A.* **27**, 1328.—A red 1,3,5-dihydroxytoluenelignin was isolated; it gives a well-defined Ac deriv. m. 250–70° (decompn.). E. M. SYMMES

**Constitution of stachyose.** MOTOI ONUKI. *Proc. Imp. Acad.* (Tokyo) **8**, 496–9 (1932).—See *C. A.* **26**, 4308. C. J. WEST

**Action of strong sulfuric acid on cyclohexene.** S. S. NAMETKIN AND L. N. ABAKUMOVSKAYA. *J. Gen. Chem.* (U. S. S. R.) **2**, 608–13(1932).—Cyclohexene (I), b. 83–4°, treated with 96% $H_2SO_4$ at 2–5° produced 37% of an oil which, redistd. *in vacuo*, gave 3 fractions: (a) a satd. compd. $C_{12}H_{22}$, $b_{739}$ 216–9°, a dimer of I having 2 extra H atoms; (b) a satd. compd. $C_{18}H_{32}$, $b_{1.5-2}$ 145–7°, a trimer of I with 2 extra H, and (c) an unsatd. compd. $C_{24}H_{40}$, $b_{1.5-2}$ 200–3°, a tetramer of I. The expts. on identification of the compds. by dehydrogenation were inconclusive. The work is being continued. CHAS. BLANC

**Naphthenic acids, their preparation and utilization.** D. O. GOLDBERG. *Onti-Aznefteizdat Baku* **1932**, No. 20, 66 pp.—A popular introduction on the org. chemistry of naphthenic acids is given. The structural formulas of naphthenic acids are discussed, as well as their distribution in various crudes and distillates, the detn. methods, mol. wts., chem. properties, behavior in contact with metals, ability to promote emulsification, solubilities and soaps. Various methods of extg. naphthenic acids from petroleum products are discussed and pieces of equipment described. The prepn. of naphthenic acid soap and acid oil and various methods tried in Russia as well as the equipment used is described. Control of manuf., anal. methods, etc., are given. A. A. BOEHTLINGK

**Method of studying nitration.** JOHN A. HETHERINGTON AND IRVINE MASSON. *J Chem. Soc.* **1933**, 105–14.—Systematic nitrations of $PhNO_2$ to $C_6H_4(NO_2)_2$, with full analyses, were made with a wide range of mixts. of $H_2SO_4$, $HNO_3$ and $H_2O$. Special application of triangular plotting is made to the results. The reaction is found to come to a standstill before all the $PhNO_2$ and $HNO_3$ are exhausted, unless there is enough $H_2SO_4$ present to form $H_2SO_4.H_2O$ with the $H_2O$ initially present *plus* that chemically formed. The same appeared to hold in nitrations with $MeC_6H_4NO_2$. While $H_2O$ is the chief inhibitor of the nitration of $PhNO_2$, dissolved $PhNO_2$ itself acts in the same direction. The conditions under which 2 layers are formed in the nitration are defined exptly. and plotted Distribution measurements and others prove that the seat of reaction in a 2-phase nitration is the acid layer, not the org. layer, despite the considerable concns. of strong acids dissolved in it. The promoting action of $H_2SO_4$, the inhibiting action of $H_2O$ and of $PhNO_2$ are traced to the reversible hydration of the 2 acids concerned and to competition between $PhNO_2$ and $H_2O$ for union with $H_2SO_4$. The suggestion is renewed that the real org. agent in *m*-nitration is the complex cation $PhNO_2OH^+$ rather than mol. $PhNO_2$; and the results as a whole point to the following equilibria as essential to this nitration: $H_2SO_4 + (H_3O)'(NO_3)' \rightleftharpoons (H_3O)'(HSO_4)' + HNO_3$; $H_2SO_4 + PhNO_2 \rightleftharpoons (PhNO_2H)'(HSO_4)'$; $HNO_3 + PhNO_2 \rightleftharpoons (PhNO_2H)'(NO_3)'$; $(PhNO_2H)' + H_2O \rightleftharpoons PhNO_2 + (H_3O)'$; the ensuing bimol. irreversible nitration itself will then take the course: $(PhNO_2H)' + HNO_3 \longrightarrow C_6H_4(NO_2)_2 + (H_3O)'$. Results are given for 31 expts. C. J. WEST

**Mechanism of nitration of benzene.** B. V. TRONOV AND L. V. LADUIGINA. *Ukrain. Khem. Zhur.* **7**, No. 1, Sci. pt. 55–63(1932); cf. T., *Proceedings Tomsk Tech. Inst.* 45, No. 3(1924); *J. Russ. Phys.-Chem. Soc.* **61**, 2388(1929); T., *et al.*, *C. A.* **24**, 1077; 25, 3973.—The reaction of nitration in aromatic series is considered as a catalytic process: 1 mol. of $HNO_3$ acts as a catalyst whose H migrates to a C of the $C_6H_6$ ring, loosening the bond between C and H, the latter is split off and the formed complex combines with a new mol. of $HNO_3$ to a nitro compd. Thus 1 mol. of $HNO_3$ reacts with the H and the other with the double bond. The energetic nitration of $C_6H_6$ with $EtNO_3$ in the presence

of $AlCl_3$ (Gierschbach and Kessler, *Z. phys. Chem.* **2**, 676; K., *Ibid* **2**, 69(1888)) shows that the 2 mols. of $HNO_3$ can be substituted by other reagents: 1 mol. of $HNO_3$ by a compd. capable of forming a complex with $C_6H_6$, and the other mol. of $HNO_3$ by an ester of $HNO_3$. The catalytic character of nitration indicates its similarity with all types of Friedel-Crafts synthesis. CHAS. BLANC

**Influence of poles and polar linkings on the course pursued by elimination reactions. X. Formation and decomposition of dibenzyldiallylammonium hydroxide.** L. HEY AND C. K. INGOLD. *J. Chem. Soc.* **1933**, 66–7; cf. *C. A.* **24**, 4004.—The action of allyl iodide or bromide on $(PhCH_2)_2NH$ gives the HI or HBr salt of $(PhCH_2)_2NH$ and not the expected allyl deriv. $PhCH_2NH_2$ behaves similarly. $PhCH_2Br$ and benzylallylamine also do not give the expected dibenzyl deriv. Diallylamine and $PhCH_2Br$ in $MeNO_2$ give *benzyldiallylamine*, $b_{20}$ 121–4° (*picrate*, m. 114°); further action of $PhCH_2Br$ in $MeNO_2$ gives *dibenzyldiallylammonium bromide; picrate*, m. 143°. Thermal decompn. of the hydroxide gives $(PhCH_2)_2NH$; the allyl group was preferentially eliminated, though it appeared in part as acrylaldehyde; no $PhCH_2OH$ could be detected. **XI. Decomposition of quaternary ammonium hydroxides containing the *tert*-butylcarbinyl group.** C. K. INGOLD AND C. S. PATEL. *Ibid* 67–8.—*tert-Butylcarbinyldimethylamine* (I), b. 96–7°, was prepd. from *tert*-butylcarbinylamine (whose *picrate* m. 205°) and $(HCHO)_x$; *HCl salt*, m. 182°; *HBr salt*, m. 170°; *HI salt*, m. 135°; *picrate*, m. 193°; MeI gives *tert-butylcarbinyltrimethylammonium iodide*, m. 240° (decompn.); $PhCH_2Br$ gives *benzyl-tert-butylcarbinyldimethylammonium bromide*, m. 200° (decompn.). $Me_3CCH_2NMe_3OH$, on distn., gives 93% of I and MeOH; the benzyl deriv. also gave I (90%) and $PhCH_2OH$ but no MeOH or *tert*-BuOH. These results indicate the order $PhCH_2>HCH_2>Me_3CCH_2$. **XII. Decomposition of quaternary ammonium alkoxides.** *Ibid* 68–9.—Trimethylethylammonium and trimethylisobutylammonium methoxides and ethoxides decomp. to give, on the 1 hand, $C_2H_4$ or iso-$C_4H_8$ and, on the other, a Me or Et ether, together with the complementary amine in each case. The principal products of the decompn. of $PhCH_2NMe_3OEt$ are $Me_3N$ and $PhCH_2OEt$. **XIII. Decompositions of some quaternary ammonium salts containing the methyl, benzyl and benzohydryl groups.** E. D. HUGHES AND C. K. INGOLD. *Ibid* 69–75.—$PhCH_2NMe_3OH$, on decompn., gives 65% of $PhCH_2OH$ + $Me_3N$ and 35% of MeOH and $PhCH_2NMe_2$; the BzH and $(PhCH_2)_2O$ formed are regarded as derived from $PhCH_2OH$. *Benzohydryltrimethylammonium bromide* m. 145° (decompn.); the *tribromide*, yellow, m. 138°; the *picrate* m. 152° (decompn.); the iodide m. 170–5° (decompn.). Decompn. of the hydroxide commenced at or below the b. p. of the soln. and is completed at 165° in a current of N. The decompn. followed 3 lines: 18% benzohydrol + $Me_3N$; 51% MeOH + benzohydryldimethylamine (*picrate*, m. 196°); while the remainder (31%) was a rearrangement, giving $Ph_2CMeNMe_2$ (*picrate*, m. 151°). *α,α-Diphenylethyltrimethylammonium iodide*, m. 205° (decompn.); the decompn. gives varying % of the alcs., depending on the concn. of the hydroxide; thus a concn. of 2.95 *N* gives 52% $PhCH_2OH$ and 48% MeOH; 0.56 *N* gives 91% $PhCH_2OH$ and 9% MeOH. *Benzohydryldimethylethylammonium picrate* m. 141°. $MeCPh_2NMe_3OH$, on decompn., gives a dimer of $CH_2:CPh_2$, m. 203°, and $Me_3N$. *Benzohydrylbenzyldimethylammonium bromide* m. about 125° (decompn.), crystals with 2 mols. $H_2O$; *picrate*, m. 149° (decompn.); decompn. of the hydroxide proceeds along 3 lines: $C_{13}H_{11}OH$ + $C_7H_7NMe_2$; $C_7H_7OH$ + $C_{13}H_{11}NMe_2$; MeOH + $C_{13}H_{11}N(C_7H_7)Me$; the extent to which decompn. follows the route leading to benzohydrol depends fundamentally on the concn., this reaction predominating in dil. soln. At an initial concn. of 0.5 *N*, the yield is 80%; at 1.8 *N*, 50%; by prior concn. of the soln. to a sirup and addn. of solid KOH before decompn. the proportion was depressed to under 10%. The migration reaction leads to *α,α,β-triphenylethyldimethylamine*, m. 128°; *HCl salt*, m. 280°; *picrate*, m. 218° (decompn.); MeI gives *α,α,β-triphenylethyltrimethylammonium iodide*, m. 238°; *picrate*, m. 214°; decompn. of the hydroxide gives MeOH and the original tert. base and also $Me_3N$ and $Ph_2C:CHPh$, whose *Br deriv.* m. 115°. $Ph_2CHBr$ and $(PhCH_2)_2NH$ gives a mixt. of $(PhCH_2)_2NH.HBr$ and *benzohydryldibenzylamine*, m. 129° (*HCl salt*, m. 180–2°; *picrate*, m. 145° (decompn.)). $Ph_2CHBr$ and $(PhCH_2)_2NMe$ give *dibenzylmethylammonium bromide*, m. 157°; *picrate*, m. 107°. $Ph_2CHBr$ and $Ph_2CHNMe_2$ in MeCN give *benzohydryldimethylammonium bromide*, crystals with 1 mol. $H_2O$, m. 206°. **XIV. Action of tertiary amines on triphenylmethyl halides.** E. D. HUGHES. *Ibid* 75–7.—$Me_3N$ and $Ph_3CCl$ in MeCN-$CHCl_3$ give the *compd.* $2Ph_3COH.Me_3N.HCl$, m. 190–5° (decompn.); washing with cold $H_2O$ gives $Ph_3COH$; it is also decompd. by EtOH and $C_6H_6$. The same compd. was obtained from $Ph_3COH$ and $Me_3N.HCl$ in $CHCl_3$-$MeNO_2$. $Et_3N$ and $Ph_3CCl$ in $CHCl_3$ give $Et_3N.HCl$ and $Ph_3COH$. $Me_3N$ and $Ph_3CBr$ give $Me_3N.HBr$ and $Ph_3COH$. $C_5H_5N$ and $Ph_3CCl$ in AcOEt or in $MeNO_2$-$CHCl_3$ give the *compd.* $Ph_3COH.C_5H_5N.HCl$, m. 170–5°; this also results from crystg. $Ph_3COH$ and $C_5H_5N.HCl$ from $CHCl_3$. $Ph_3CBr$ gives a similar complex. $Ph_3CNMe_2$ and MeI in

MeCN give $Me_4NI$, I and $Ph_3COH$; in EtOH $Ph_3COEt$ is formed, showing that $Ph_3C$ is an intermediate. C. J. WEST

**Condensation of chloral with tolyl- and nitrophenyl-ureas.** F. D. CHATTAWAY, G. M. T. KERR AND C. G. LAWRENCE. *J. Chem. Soc.* **1933**, 30–2.—$Cl_3CCHO$ and *o*-$MeC_6H_4NHCONH_2$ give *N-o-tolyl-N'-β,β,β-trichloro-α-hydroxyethylurea* (I), $Cl_3CCH(OH)NHCONHC_6H_4Me$-*o*, m. 146° (decompn.); *p-tolyl isomer*, m. 181° (decompn.); the 2 *di-Ac derivs.* m. 114° (decompn.) and 120° (decompn.), resp. I in *N* NaOH with $Ac_2O$ at 0–5° gives *bis(β,β,β-trichloro-α-N'-o-tolylcarbamidoethyl) ether* (II), m. 198° (decompn.); *p-tolyl isomer*, m. 167° (decompn.); the 2 *di-Ac derivs.* m. 166° (decompn.) and 167° (decompn.), resp. II and EtONa in EtOH or I in EtOH-KOH and $Ac_2O$ gives the *EtO deriv.* of I, m. 136° (decompn.); *MeO deriv.*, m. 157° (decompn.); the corresponding derivs. of the *p*-tolyl isomer m. 136° (decompn.) and 149° (decompn.), resp. *N-p-Nitrophenyl-N'-β,β,β-trichloro-α-hydroxyethylurea* (III), pale yellow, m. 196° (decompn.); *m-nitro isomer* (IV), very pale yellow, m. 173° (decompn.); the 2 *di-Ac derivs.*, very pale yellow, m. 128° (decompn.) and 126° (decompn.), resp. *Bis(β,β,β-trichloro-α-N'-p-nitrophenylcarbamidoethyl) ether*, pale yellow, m. 203°; *m-nitro isomer*, pale yellow, m. 217° (decompn.); *di-Ac derivs.*, m. 151° (decompn.) and 170° (decompn.), resp. The *MeO deriv.* of III, yellow, m. 192° (decompn.); of IV, m. 170° (decompn.); the *EtO deriv.* of III, pale yellow, m. 161° (decompn.); of IV, m. 146° (decompn.). C. J. WEST

**Iron oxalate as a reducing agent in the preparation of azobenzenes.** I. GAZOPOULOU. *Praktika (Akad. Athenon.)* **6**, 495–7(1931).—$FeC_2O_4$ was successfully used in the reduction of several azoxybenzenes to the corresponding azo compds. according to the reaction $3Ph_2N_2O + 2FeC_2O_4 = 3PhN{:}NPh + Fe_2O_3 + 4CO_2$. Thus were prepd. 3,3'-diamino-4,4'-dimethyl-, 4,4'-dimethoxy- and 4,4'-diethoxyazobenzene. Steps in each prepn. are outlined. Results are compared with those obtained with reduced Fe. LUCIEN Y. DYRENFORTH

**Constitution of azo indicators. II. The higher homologs of helianthin and of methyl red.** K. H. SLOTTA AND W. FRANKE. *Ber.* **66B**, 104–8(1933); cf. *C. A.* **25**, 2993.—Although (di)butylhelianthin was readily synthesized by Reilly and Hickinbottom (*C. A.* **12**, 682) the statement is still made in modern textbooks (*e. g.*, Gattermann-Wieland, *Praxis d. organ. Chemikers*, 22, Aufl., Berlin, 1930, p. 294) that in the coupling of diazonium salts of dialkylamines such as $PhNBu_2$ 1 of the alkyl residues may be split off. S. and F. have effected almost quantitatively the coupling of previously isolated diazobenzenesulfonic acid, in water suspension, with $PhNPr_2$ and $PhNBu_2$ and found no indications of the simultaneous formation of the monoalkylhelianthins Strangely enough, $PhNAm_2$ did not couple, while *dihexylhelianthin* was readily obtained, although in only 55% yield. In the coupling with diazotized anthranilic acid, also, there is no splitting off of an alkyl residue. The following indicators were prepd. (indicator exponents and color-change ranges, resp., in parentheses). *Helianthins.*—Me (3.76, 3.1–4.4); Et, 4.34 (3.1–4.6); Pr, previously described as hydrated, is pptd. anhyd. from MeOH by ether or acetone and m. 225°, decomposes 238° (3.95, 3.2–4.3); Bu, decomps. 198° (4.01, 3.4–4.7); *hexyl*, decomposes 259° (3.71, 2.3–4.1). *Reds:* Me, m. 181° (5.06, 4.4–6.3); Et, m. 148° (5.42, 4.7–6.5); Pr, m. 173° (5.48, 4.8–6.5), was obtained from $Me_2CO$-MeOH in leaflets with black-green luster while all the other representatives of this group generally formed dull red-lilac needles; *Bu* (70% yield), m. 117° (—, 4.7–6.7); *hexyl*, red oil. *Diamylaniline* (15% from $PhNH_2$ and 2 mols. AmBr heated 6 hrs. at 105° with KOH), yellow, b. 280–4°. *Dihexylaniline* (55% from $PhNH_2$ heated 5 hrs. with 2 mols. of 87% KOH and 2.1 mols. $C_6H_{13}Br$), $b_{765}$ 300–1°, $b_{16}$ 172–3°. **III. Alkylation of naphthol orange.** K. H. SLOTTA, W. FRANKE AND G. HABERLAND. *Ibid* 108–12.—In the work on the Me deriv. (I) of naphthol orange (II) which led to the formulation of II as a double zwitterion (*C. A.* **25**, 2993) S and F. were led into an error by the wholly unexpected instability of the monoalkyl derivs. of II. From a spectrochem. examn. of the readily obtained di-Me deriv. (III) and a conductometric study of its sapon., Weissberger and Fasold concluded that III has the structure $MeOC_{10}H_6N{:}NC_6H_4SO_3Me$, and they confirmed the observation that hot HI splits off both Me groups. S., F. and H. have now effected the same cleavage with $SnCl_2$ and HCl, obtaining 1,4-$C_{10}H_6(NH_2)OMe$ and *p*-$H_2NC_6H_4SO_3H$ and thus establishing the above formula for III. When larger amts. of the monoalkyl derivs. were prepd., repeatedly crystd. and sent to W. for spectrochem. examn., he found that they consisted of unalkylated II with varying amts. of water of crystn. S., F. and H. have since been able to again obtain both I and the hexyl deriv. (IV) by the original method, but often, under apparently the same conditions, only the unchanged II was obtained in the alkylation expts., especially when larger amts. were used and the products were repeatedly crystd.; 1 prepn., whose C, H, N and MeO content corresponded to $I.H_2O$ and which in water showed only a slight color change to red, lost MeOH at 135° and changed

into II. That in these (labile) monoalkyl derivs. the alkyl group is not on the N, as had been assumed, was shown by attempts to prep. I by condensing naphthoquinone with $PhNMeNH_2$; only colored solns. resulted and the dyestuff broke down into its components when it was tried to isolate it. That the color change of II is due to its conversion from the hydroxyazo to the naphthoquinone hydrazone form was therefore not proved by the methylation expts.; that does not mean that the theory is wrong, however, but only that the color change is due to setting free of the 2nd instead of the 1st proton. γ-(3-Methoxy-4-hydroxybenzeneazo)pyridine also loses its Me group on heating in dil. HCl soln. To det. what would be the behavior of a MeO group in the *o*-position to the azo group in a compd. closely related to II, β-naphthol orange was chosen, but with $CH_2N_2$ it gave only a mono-Me deriv. which, from its whole behavior, must certainly be the *sulfonic ester;* it seps. from 50% acetone in gleaming red blocks, sol. in aq. acetone with a light yellow color unchanged by acids or alkalies. C. A. R.

**Symmetrical triad prototropic systems. IX. The influence of polynuclear aryl groups upon mobility and equilibrium in the α,γ-diarylmethyleneazomethine system.** CHARLES W. SHOPPEE. *J. Chem. Soc.* **1933**, 37–45; cf. *C. A.* **26**, 2437.—The effect of some polynuclear aryl groups on mobility (and equil.) in the methyleneazomethine prototropic system $ArCH{:}NCH_2Ph$ (I) ⟷ $ArCH_2N{:}CHPh$ (II) is discussed. The effect of the introduction of Ar on the velocity of interconversion of the isomers under standard conditions of temp. and catalysis is as follows: ($k_1 + k_2$ in $hr.^{-1}$) 9-phenanthryl 2.27, α-$C_{10}H_7$ 3.49, β-$C_{10}H_7$ 3.04, *p*-$C_6H_4Ph$ 2.93, *m*-$C_6H_4Ph$ 2.33; with the exception of the 1st group, the mobility sequence is identical with that previously reported. The equil. attained by the system I-II, under the influence of either 0.145 *N* or 1.45 *N* EtOH-EtONa at 82° or 85°, resp., by introduction of the variants Ar are: (*K* and % I given) 9-phenanthryl, 4.41, 18.5; α-$C_{10}H_7$, 2.70, 27; β-$C_{10}H_7$, 0.695, 59; *p*-$C_6H_4Ph$, 0.639, 61; *m*-$C_6H_4Ph$, 0.785, 56. The following new *p-nitrophenylhydrazones* were prepd. by fission of the azomethines: *phenanthrene-9* (III), m 265°; *β-naphthyl* (IV), m. 230°; *biphenyl-4* (V), m. 216.5°; *biphenyl-3* (VI), m. 188°. A new synthesis of phenanthrene-9-carboxylic acid is described; the *acid chloride*, pale yellow, $b_{13}$ 240°, m 102°; *Me ester*, m. 61°; *anilide*, m. 218°. Treatment of the anilide with $PCl_5$ in $C_2H_2Cl_4$, reduction of the iminochloride with $SnCl_2$ in $Et_2O$-HCl at 0° and hydrolysis of the aldimine stannichloride with 2 *N* HCl give *phenanthrene-9-aldehyde*, pale yellow, m. 101°; *semicarbazone*, m. 222–2.5°. *9-Phenanthrylidenebenzylamine* (like I), m. 72–2.5°. *Phenanthrene-9-aldoxime*, m. 155° (the yellow HCl salt m. 126–7°); reduction of the oxime gives *9-phenanthrylmethylamine*, m. 107° (*picrate*, m. 241° (decompn.); *benzoate*, m. 167°; *Ac deriv.*, m. 182.5°). *Benzylidene-9-phenanthrylmethylamine* (like II), m. 103.5°. *β-Naphthylidenebenzylamine*, m. 83.5°. *Phthalo-β-naphthylmethylimide*, m. 150–1°; β-$C_{10}H_7NHMe$, $b_{24}$ 180°, m. 59–60° (*picrate*, m. 230–1° (decompn.); *benzoate*, m. 163°); *benzylidene-β-naphthylmethylamine*, m. 85.5°. *α-Naphthylidenebenzylamine*, pale yellow oil, $b_{0.4}$ 208°. *Phthalo-α-naphthylmethylimide*, m. 175–6°; α-$C_{10}H_7NHMe$, $b_{19}$ 174–5° (*picrate*, m. 227°; *benzoate*, m. 142.5–3°) (original gives these as β-compds.). *Benzylidene-α-naphthylmethylamine*, m 55.5°. *Biphenyl-4-carboxanilide*, m. 220° (from the *acid chloride*, $b_{12}$ 185–6°, m. 107–8°). Biphenyl-4-aldehyde, m. 60°, yields a *semicarbazone*, m. 243° (decompn.). *4-Phenylbenzylidenebenzylamine*, m. 52° and again at 60°. *4-Phenylbenzylamine*, $b_{20}$ 195°, m. 53–4° (*picrate*, m. 218° (decompn.); *benzoate*, m. 151°; *Ac deriv.*, m. 182°). *Benzylidene-4-phenylbenzylamine*, m. 76°. 4-$H_2NC_6H_4Ph$ and $H_2SO_4$, heated 4 hrs. at 170°, give the *4'-sulfonic acid*, m. 270°. *Biphenyl-3-carboxanilide*, m. 184°. *Biphenyl-3-aldehyde*, $b_{21}$ 187–8° (*semicarbazone*, m. 193°; *2,4-dinitrophenylhydrazone*, orange, m. 229°). *3-Phenylbenzylidenebenzylamine*, pale yellow oil, $b_1$ 224°. *Phthalo-m-biphenylmethylimide*, m. 138°; 3-phenylbenzylamine, $b_{18}$ 182°, m. 29° (*picrate*, yellow, m. 220° (decompn.); *Ac deriv.*, m. 115–6°). *Benzylidene-3-phenylbenzylamine*, pale yellow, $b_1$ 220°. M.-p. data are given for mixts. of benzaldehyde *p*-nitrophenylhydrazone and III, IV, V, VI and α-$C_{10}H_7CHO$ *p*-nitrophenylhydrazones. C. J. WEST

**New derivatives of *p*-arsanilic acid. IV. *p*-Arsonoadipanilic acid and related compounds.** GILBERT T. MORGAN AND ERIC WALTON. *J. Chem. Soc.* **1933**, 91–3; cf. *C. A.* **26**, 1911.—Details are given of the prepn. of Me H adipate (60–70 % yield), which gives with $SOCl_2$ *δ-carbomethoxyvaleryl chloride*, $b_{26}$ 141°; with atoxyl in *N* NaOH there results the *Me ester* of *p-arsonoadipanilic acid* (I), $H_2O_3AsC_6H_4NHCO(CH_2)_4CO_2H$; the *Na salt* of the Me ester seps. with 2 mols. $H_2O$, $p_H$ 9; *Et ester* (*Na salt*, $p_H$ 8). I, reduced with $SO_2$ in HCl, gives *p-dichloroarsinoadipanilic acid*, m. 138°, hydrolyzed to the *p*-oxy deriv. The *amide, methylamide, dimethylamide, ethylamide, propylamide* and *anilide* of I and their *Na salts* were also prepd. Adipyl chloride and atoxyl give *adipanilide-p,p'-diarsonic acid* (*di-Na salt*). The min. curative dose varies from 6.25 mg. per 20 g. mouse for the Me ester (Na salt) to 25 for the methylamide. The min. lethal dose varies from 12.5 to 100 mg. C. J. WEST

**Demethylating the phenol ethers.** E. A. TZOFIN AND K. A. CHKHKIVADZE. *Khim. Farm. Prom.* **10**, 376(1932).—A modification of Klemens' method in which the salts of aromatic amines are used together with dry HCl gas at 160–70°. The yields are as high as 94%. L. NASAREVICH

**Physicochemical properties of methol [monomethyl sulfate of *p*-aminophenol].** VIRGILIO LUCAS. *Bol. assoc. brasil. pharm.* **12**, 214(1932).—Methol is a white-yellowish cryst. substance, sol. in water, less sol. in EtOH, insol. in ether, gives a wine-red color with $FeCl_3$ on boiling, reduces Fehling soln. when warmed, and Nessler reagent, ppts. with Pb subacetate, $BaCl_2$ and Br water. The latter may be used for the detn. of methol. E. S. G. BARRON

**Hydration of acetylene alcohols with a primary alcohol group.** E. D. VENUS-DANILOVA AND S. N. DANILOV. *J. Gen. Chem.* (U. S. S. R.) **2**, 645–58(1932).—The synthesis of the primary α-keto alcs. was undertaken to clarify the interrelation of the isomeric phenylacetol, $PhCH_2COCH_2OH$ (I) and phenylglycolaldehyde, $PhCH_2CH(OH)CHO$ (*C. A.* **25**, 1819). All syntheses were carried out by hydration in the presence of $(AcO)_2Hg$. It was assumed that the addn. of $H_2O$ to $PhC:CCH_2OH$ (II) and its homologs would result in formation of α- and β-keto alcs., but no α-keto alcs. were formed. With II was obtained mainly $BzCH:CH_2$ (III) and a little of $BzCH_2CH_2OH$ (IV), and with $PhC:CCH_2OAc$ a mixt. of $BzCH_2CH_2OAc$, III and its polymer. The formation of III is evidently caused by splitting off of $H_2O$ from the intermediate IV. $Me_3CC:CCH_2OH$ (V) reacted analogously, producing $Me_3CCOCH:CH_2$ (VI) and $Me_3CCOCH_2CH_2OH$ (VII), and $Me_3CC:CCH_2OAc$ the corresponding acetates. The vinyl ketones and β-keto alcs. and their acetates in the mixts. were thus identified. The semicarbazone of IV, m. 170°, was obtained together with the semicarbazide semicarbazone of III, m. 206°; semicarbazone of VII m. 223° (decompn.), and that of the acetate m. 127°, while VI gave no semicarbazone. III produced 1,3-diphenylpyrazoline, m. 153.5–4°, and so did IV and its acetate. VII and VI (and its acetate) with $PhNHNH_2$ gave $Me_3CC(:NNHPh)CH_2CH_2NHNHPh$, m. 134°. III, with $NH_2OH$ (1 mol. to 1 mol.) gave $C_{18}H_{19}O_3N$ (VIII), m. 122.5°, which, heated with 25% $H_2SO_4$ or 30% HCl, does not split the $NH_2OH$ radical, but gives salts with 1 mol. of HCl or $H_2SO_4$. III, treated with an excess of $NH_2OH$, or VIII gently heated with $NH_2OH$ in aq. alc., is converted to $C_{18}H_{21}O_3N_3$ (IX), m. 153°, which, treated with mineral acids, gives no salts but splits off 2 $NH_2OH$ radicals with formation of VIII. The proposed structural formulas are for VIII $(PhCOCHMe)_2NOH$ and for IX $[PhC(:NOH)CHMe]_2NOH$. CHAS. BLANC

**The action of various dehydrating agents on primary phenethyl alcohol.** L. PALFRAY, S. SABETAY AND DENISE SONTAG. *Compt. rend.* **195**, 1392–4(1932); cf. *C. A.* **23**, 2427.—By dropping $Ph(CH_2)_2OH$ (I) on an alk. dehydrating agent at 250° styrene is formed. Quant. yields were obtained with melted KOH, good yields with NaOH and BaO. Under the same conditions acid agents form phenethyl ether. $NaHSO_4$ gives 72% $(PhCH_2CH_2)_2O$, $b_{15}$ 180.5°, $n_D^{18.2}$ 1.5488, $d_4^{18}$ 1.014, not fluorescent. $Ac_2O$ yields the acetate. Anhyd. $H_2C_2O_4$ forms the neutral oxalate, m. 51–1.5°, $b_{2-3}$ 221–3°. Other dehydrating agents had slight action. I may be identified by heating 5 g. with 0.1 g anhyd. $H_2C_2O_4$ over a free flame, boiling with 1 cc. $H_2O$ and recryst. from alc. (cf. *C. A.* **23**, 4770). JANET E. AUSTIN

**Synthesis of hydroxyphenyl α-bromoethyl ketones.** C. TORRES AND J. AMARGÓS *Anales soc. españ. fis. quím.* **21**, 37–47(1933).—*o*- and *p*-$HOC_6H_4COEt$ were prepd. simultaneously in yields of 50 and 25%, resp., by allowing EtCOCl to react with the reaction product of molten PhOH and $AlCl_3$. $MeCHBrCOBr$ gave similarly *o*- and *p*-$HOC_6H_4COCHBrMe$, in yields of 35 and 25%, resp. Condensation of pyrocatechol with halopropionic acids in the presence of $POCl_3$ was unsatisfactory. *3,4-(HO)$_2$C$_6$H$_3$COCHBrMe* was obtained in 50% yield by direct halogenation of $3,4-(HO)_2C_6H_3COEt$ in boiling AcOH. The *2,4-dinitrophenylhydrazone* of *o*-hydroxypropiophenone m. 189°, scarlet-red; of *p*-hydroxypropiophenone m. 229°, ruby-red; of *o*-hydroxybromopropiophenone m. 143°, orange-red; of *p*-hydroxybromopropiophenone m. 147°, dark red; of 3,4-dihydroxypropiophenone m. 229°, m. red. The semicarbazone of *o*-hydroxypropiophenone m. 221°, yellow-white. Pure pyrocatechol dipropionate m. 25–6°, columnar crystals. E. M. SYMMES

**The action of the chlorides of the type $XCl_3$ on vanillin and methyl anthranilate.** G. SOLLAZZO. *Officina* **5**, 270–3(1932).—In the reaction between vanillin and Me anthranilate, some resinous compds. are formed which are difficult to obtain in a very pure state. By the action of condensants of the type $XCl_3$ in $Et_2O$, the expected compds of the constitution $RN:CH_2$ were not formed, but the compds. were probably of the constitution $(RNH_2RCHO)XCl_3$. The compd. formed by the action of $AsCl_3$ is a red-yellow powder, sol. in $H_2O$, m. 143° (decompn.). The compd. obtained with $AlCl_3$ is a citron-yellow powder, partially sol. in $H_2O$, m. 178° to a dense liquid. G. A. BRAVO

**Oxidation of aromatic hydrocarbons.** B. A. BUYLLA AND J. M. PERTIERRA.

*Anales soc. espan. fis. quim.* **31**, 59–64(1933).—By oxidation of mixts. of $C_{10}H_8$ vapor and air, catalyzed by V oxides at elevated temp., good yields of phthalic anhydride were obtained. Under the same conditions *o*-xylene also produced $C_6H_4(CO)_2O$. E. M. S.

**Phthalyl fluoride.** ARTHUR T. DANN, ARTHUR N. HAMBLY, RICHARD E. PAUL AND GEO. S. C. SEMMENS. *J. Chem. Soc.* **1933**, 15–21.—$C_6H_4(COCl)_2$ (I) and NaF, heated to 250° in a Pt distg. flask and then gradually, with occasional shaking, to 300° during 48 hrs., give 53% of *phthalyl fluoride* (II), $b_{54}$ 135°, $b_{65}$ 142°, $b_{760}$ 224–36°, m. 42–3°; it is lachrymatory, especially when hot; it is much more slowly converted into $C_6H_4(CO)_2O$ by atm. moisture than is either form of I; the reaction on glass is slow, even when molten II is used. II apparently exists in only 1 form, $C_6H_4(COF)_2$. II is unaffected by prolonged action of heat, with or without $AlF_3$ or $SbF_3$ but is converted by $AlCl_3$ into cyclic I, so that, if $C_6H_6$ is also present, diphenylphthalide is formed (60% yield); II and BzF both react very slowly with boiling anhyd. $HCO_2H$, whereas acyclic I reacts below 25° and cyclic I below 40°, to produce CO and HCl. II in $C_6H_6$ reacts with $NH_4OH$ to give *o*-$NCC_6H_4CO_2H$; $PhNH_2$ gives 90% of phthalyldianilide, m. 253–5°. The constitution of II is established by parachor detns.; the values obtained by using Sugden's consts. are 318.9 and 304.2 for acyclic and cyclic II, resp., whereas the exptl. values are 315.6 and 315.4, $\gamma$ and d. at 50° being 34.63 and 1.3065, resp., *o*-$MeC_6H_4SO_2F$, $\gamma$ 36.05, d. 1.278 at 30.5°, *P* 333.6; *p*-isomer, $\gamma$ 33.04, d. 1.233 at 60°, *P* 338.5°; these results show that the discrepancy between the theoretical and exptl. values for II may be due to a strain effect on the *o*-position. Reaction rates also support the acyclic structure of II. II is initially more reactive toward MeOH than the 2 cyclic chlorides or than BzF but the rates can be considered to be approx. equal; on the other hand, acyclic I reacts about 200 times as rapidly as II with iso-PrOH and, when this alc. is used, BzCl is 500 times as reactive as BzF. It is pointed out that color reactions for isomeric acyl dihalides must be used and interpreted with caution. C. J. WEST

**Isomeric (−)menthyl α-naphthylglycolates.** ALEX. MCKENZIE AND EVELYN R. L. GOW. *J. Chem. Soc.* **1933**, 32–7.—(−)Menthyl *dl*-mandelate has been shown to be partially racemic and to cryst. unchanged under various conditions of temp. above −15° (*J. Chem. Soc.* **85**, 378(1904)). (−)*Menthyl dl-α-naphthylglycolate* (I), m. 38.5–9.5°, $[\alpha]^{21}_{5893}$ −51.6°, $[\alpha]^{21}_{5461}$ −61.4° ($Me_2CO$, *c* 4.096); this value is in good agreement with the value calcd from the figures for the diastereoisomeric esters on the basis of optical superposition and also that obtained by mixing equal amts. of the 2 esters in $Me_2CO$. Crystn. of I from light petroleum at −14°, to which a nucleus of II had been added, gives a ppt. contg. 85% II and repetition gives pure II; evidence of resolution was also obtained when I was distd. under diminished pressure; the fraction $b_3$ 214° had $[\alpha]^{20}_{5893}$ −55.4°, while a 2nd fraction, $b_3$ 214–6°, had −48.9°. (−)*Menthyl* (+)*α-naphthylglycolate* (II), m. 71–2°, is best prepd. from the optically active acid and ester, $[\alpha]^{20}$ 16.2, 18.9, 21.4, 27.6, 34.3, 41, 59.6° for λ 6563, 6162, 5893, 5461, 5106, 4861, 4358 ($Me_2CO$, *c* 3.573); the (−) *isomer* (III) $b_4$ 220°, m. 62–3°, $[\alpha]^{20}$ −96.3, −112, −125, −148.7, −178, −201.6° and — for the same λ. The action of $SOCl_2$ on III gives an oil, $[\alpha]^{21}_{5461}$ −120.5°; on II, $[\alpha]^{20.7}_{5461}$ −23.1°; on I, $[\alpha]^{20.5}_{5461}$ −75.5° (all in $Me_2CO$); the last value is very similar to that for synthetic (−)*menthyl dl-α-naphthylchloroacetate*, $b_4$ 228–30°, $[\alpha]^{20.8}_{5461}$ −75°, prepd. from *α-naphthylchloroacetic acid* (IV), m. 111–2° and 131.5–2.5°. This clearly indicates that the displacement racemization is negligible during the action of $SOCl_2$. III and $PCl_5$ give an oil, $[\alpha]^{20.6}_{5461}$ −78.3°; II, $[\alpha]^{20.8}_{5461}$ −79.2°; I, $[\alpha]^{20.5}_{5461}$ −77.2°; in the case of III the displacement racemization was almost complete; I gives a product with a slight preponderance of III. When IV was heated at 155° with (−)-menthol, the unesterified acid was *d*-rotatory; the acid regenerated from the ester was inactive; with (+)menthol the unesterified acid was *l*-rotatory. Hydrolysis of II and III with EtOH-KOH yields a partially racemized acid but the extent of this racemization was less pronounced than with the corresponding mandelates. The effect of a trace of EtOK on alc. solns. of II and III causes a negligible sapon. but the Me group is to some extent displaced by the Et group; there is no exptl. evidence that asym. catalytic racemization had actually taken place. C. J. WEST

**Depression of the melting point of *r*-isoborneol, *l*-borneol and *d*-camphor oxime by various substances.** T. S. PATTERSON, JANET H. BLACKWOOD AND J. MCWHINNIE STEWART. *J. Chem. Soc.* **1933**, 93–5.—This study was undertaken to find a substitute for camphor as a f.-p. solvent. Hexaacetylmannitol (I) and PhNHAc (II) depress the m. p. of isoborneol (III) in a similar manner and the relationship between mol. concn. and depression is linear, at least up to 10 *M*; the av. const. (*K*) for III is 466, as a mean of all the data, and 462 from the slope of the graph. The depression of the m. p. of *l*-borneol (IV) brought about by I, II, *o*-$ClC_6H_4CO_2H$ (V) and iso-Bu *d*-, *l*- and *dl*-tartrates was detd. The depression of the m. p. of IV is also very considerable and of the same order as in camphor. Up to concns. of about 12% the relationship between concn. and depression is practically linear, although there is considerable variation of individual

observations. The max. depression observed was 25° in a 10.04% soln. of V; the av. const. for IV is 384, taking the mean value of all the data, and 355, from the slope of the graph. Data are given for camphor oxime (VI) with II and V; both depress the m. p. of VI in the same manner but the depressions are not proportional to the concn.; from being very high in dil. solns., they become, rapidly, less and less. Up to a concn. of 0.5 *K* has a value of at least 100, but falls off to a value of about 170 in 10% soln. For mol. wt. detns. in extremely dil solns., VI, which has the further advantage of a comparatively low m. p. (119.6°), might be of distinct value in exceptional cases. With bornyl methylxanthate and II and V there was no appreciable depression in m. p. even in 7 and 10% soln. C. J. West

**Constitution of fukugetin and garcinin.** Masuo Murakami. *Proc. Imp. Acad.* (Tokyo) **8**, 500–2(1932).—Fukugetin (I) and garcinin (II) are dyes found in the bark of *Garcinia spicata* and *Xanthocymus ovalifolia* and were isolated in 0.9 and 0.45% yields, resp. Analysis indicates the formula $C_{22}H_{16}O_8.2H_2O$ for each. Each yields a penta-Me deriv., decompg. 141–2°, that from I apparently contg. 1.5 mols. $H_2O$ and that from II 1 mol. $H_2O$. Oxidation of either Me deriv. gives a poor yield of anisic acid; heating with EtOH-KOH gives veratric acid, anisic acid and a phenol, m. 156–9°, having the compn. $C_{18}H_{20}O_7$ with 3 MeO groups. Oxidation of the phenol with $KMnO_4$ gives anisic acid. $Me_2SO_4$ gives a di-Me deriv., m. 161–3°. The phenol is assumed to be 6,2,4,3-MeO(HO)$_2$(MeOCH$_2$CO)C$_6$HCH(OH)C$_6$H$_4$OMe and the Me deriv. (MeO)$_3$-(MeOCH$_2$CO)C$_6$HCH(OH)C$_6$H$_4$OMe. Formulas are also proposed for I and II. C. J. West

**Configurations of the aldoximes from measurements of electric dipole moment.** T. W. J. Taylor and L. E. Sutton. *J. Chem. Soc.* **1933**, 63–5.—The following elec dipole moments ($\mu \times 10^{18}$) have been detd.: α- and β-*O*-methyloxime of *p*-nitrobenzophenone 3.75 and 4.26; β- and α-*O*-methyl-*p*-nitrobenzaldoxime, 3.395 and 3.885. The differences between the 2 sets of measurements are 0.51 and 0.49. It thus appears that the aldoxime and ketoxime derivs. with the smaller moments have a similar configuration and those with the larger moments the opposite configuration. This settles the structures of β- and α-*p*-nitrobenzaldoxime beyond reasonable doubt. The differences in moment which form the basis of this argument, though small, can be measured with ample accuracy because the mols. contain a $NO_2$ group of large moment and thus the total polarization is large. C. J. West

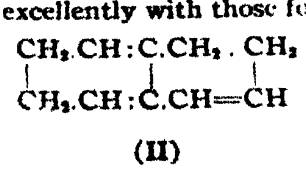
**Phenylstyrylmethylsodium.** Ernst Bergmann and T. Ukai. *Ber.* **66B**, 54–8 (1933).—Whereas almost all possible types of ethers of tertiary arylcarbinols have been tested as to their cleavability by alkali metals in ether, of ethers of disubstituted carbinols it was hitherto known only that diarylcarbinol ethers are cleavable. The present work was undertaken to fill this gap. Phenylstyrylcarbinol, obtained in 38 g. yield from 25 g. PhCH:CHCHO according to Nomura (*C. A.* **20**, 906) gave in MeOH contg conced. $H_2SO_4$ the *Me ether* (I) (85 g. from 100 g. carbinol), $b_{11}$ 180–1°. I reacts instantaneously with Na to form the cherry-red *phenylstyrylmethylsodium* (II). II with $Ph_2CO$ gives *1-hydroxy-1,1,2,4-tetraphenyl-3-butene* (5 g. from 5 g. I), dimorphous crystals (druses and rods), m. 130–1°, dehydrated by boiling AcCl to PhCH:CHCPh:CPh$_2$, m. 148–9°, identical with the product obtained by Staudinger from PhCH:CHCOMe and $Ph_2C$:CO (*C. A.* **4**, 450) and which is oxidized to $Ph_2C$:CPhCHO (III), m. 177–8°. In this connection it was discovered that the substance m. 175–6° obtained by Schlenk and Bergmann by the oxidation of $Ph_2C$:CPhMe and apparently having the compn $C_{26}H_{20}O$ (*C. A.* **24**, 3778) is really III.$C_6H_6$, $C_{27}H_{22}O$; it is always formed when III is slowly crystd. from benzene. With 4 g. fluorenone II gives 6.5 g. *1-hydroxy-1-biphenylene-2,4-diphenyl-3-butene*, m. 145–6°, dehydrated to *1-biphenylene-2,4-diphenyl-1,3-butadiene*, yellow, m. 183–4°, which with $Na_2Cr_2O_7$ in boiling AcOH gives *biphenylenephenyl acrolein*, yellow, m. 164–5°. *1-Hydroxy-1,2,4-triphenyl-3-butene*, from II and BzH, m 109–11°. *1,2,4-Triphenyl-1,3-butadiene*, needles with green shimmer, m. 103–4°, $b_{10}$ 230–9°. *1,2,4-Triphenyl-3-butene*, from II and $PhCH_2Cl$, viscous oil, $b_{40}$ 240–2° (possibly a mixt. of *cis-trans* isomers). The action of $Ph_2CHBr$ on II resulted in disproportionation, the only definite product obtained being $(CHPh_2)_2$. $Ph_2CCl_2$ with II gave *1,3,4,4,5,7-hexaphenyl-1,6-heptadiene*, m. 145°. *1,3,5,7-Tetraphenylhepta-1,6-dien-4-one*, from II and $CO(OEt)_2$, m. 183°; the mother liquors yielded an oil which, from its b. p (170° at 10 mm.) and compn., is probably *1,3-diphenyl-1-propylene*. II in ether shaken with Hg and then decolorized with $CO_2$ gave *phenylstyrylacetic acid*, m. 121°, and *1,3,4,6-tetraphenyl-1,5-hexadiene*, m. 137–8°; no evidence of the presence of the possible diastereomers was obtained. C. A. R.

**New synthesis of cadalene.** E. de Barry Barnett and J. W. Cook. *J. Chem. Soc.* **1933**, 22–4.—The importance of cadalene (4,1,6-iso-Pr$C_{10}H_5Me_2$) (I) as a product of dehydrogenation of a large group of sesquiterpenes led to its synthesis from 1,6-$C_{10}H_6Me_2$ (II) in order to confirm its structure. II (156 g.) and Br in $CS_2$ give 125 g. of the *4-Br*

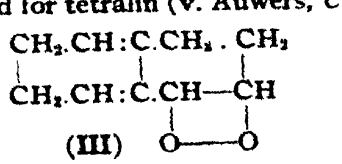
*deriv.*, $b_{18}$ 171–2° (*picrate*, orange, m. 114°); the Grignard reagent from 100 g. of the Br deriv. and $CO_2$ give 20 g. of *1,6-dimethyl-4-naphthoic acid*, m. 188–9° (*Et ester*, $b_{2-5}$ 166°). The ester and MeMgI form the carbinol, 1,6,4-$Me_2C_{10}H_5CMe_2OH$, not crystd., which heated with picric acid in EtOH, yielded *1,6-dimethyl-4-isopropenylnaphthalene*, (*dehydrocadalene*) (III), $b_{14}$ 154° (*picrate*, orange-red, m. 118–9°). Reduction of III with EtOH and Na and dehydrogenation with Se gives I. The above crude carbinol in AcOH, boiled 2 hrs. with HI, gives the *dimer* of III, $C_{30}H_{32}$, m. 218°; this also results from III in AcOH-HCl. 4-$MeC_{10}H_6CO_2Et$ and MeMgI give *dimethyl(4-methyl-1-naphthyl)carbinol*, m. about 90°; EtOH-HCl gives *1-methyl-4-isopropenylnaphthalene*, whose *picrate*, orange, m. 88°; reduction and dehydrogenation gives apocadalene, $b_{16}$ 148°.

C. J. West

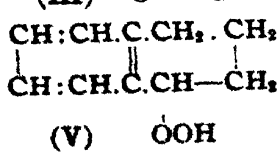
**Autoxidation of hydrocarbons. I. A tetrahydronaphthalene peroxide obtained by autoxidation.** H. Hock and W. Susemihl. *Ber.* **66B**, 61–8(1933).—The water-clear freshly distd. tetralin gradually becomes yellowish on standing, and the behavior toward chem. reagents (concd. $H_2SO_4$, $Fe(CO)_5$, xanthates, etc.) of samples which have thus been exposed to the air points to an autoxidation. By varying the conditions of exposure, H. and S. finally succeeded in obtaining highly oxidized solns. in a very simple way and in isolating a well-crystd. *tetrahydronaphthalene peroxide*, $C_{10}H_{12}O_2$ (I), oxidized by $KMnO_4$ to *o*-$HO_2CC_6H_4CH_2CH_2CO_2H$, reduced by KI in AcOH or $NaHSO_3$ in aq. MeOH to *ac*-tetrahydro-α-naphthol and converted by hot NaOH into α-ketotetrahydronaphthalene. According to prevailing views on the autoxidizability of hydrocarbons, a tetralin contg. a benzene nucleus should not be autoxidizable, and the absorption of O can be explained only by assuming the existence of isomeric tetrahydronaphthalenes in which the double bonds are distributed among both rings (cf. Straus and Lemmel, *C. A.* **15**, 1894). The properties of I show that the $O_2$ mol. has added at a double bond between an α- and a β-C atom. For the distribution of the other 2 double bonds, there are 11 theoretical possibilities; probably tetralin consists of an equil. mixt. of 2 or even more forms, and I is derived from a form contg. 2 crossed double bonds. H. and S. give the preference to the form II which would add $O_2$ to give III, and III, by migration of 2 H atoms and shifting of the double bonds, either directly or perhaps through an intermediate product (IV), would stabilize itself as V. The structure V agrees with the above-mentioned properties of I and the fact that I is recovered unchanged by acidification of its Na salt. I is obtained in 15–17% yield by passing air 50–60 hrs. through com. tetralin at about 75° under a reflux condenser, removing most of the unchanged tetralin at 50–60° under 1–2 mm. and cooling the residue; after 2 recrystns. from petroleum ether it m. 56°, mol. wt. in benzene 164, in camphor 153–64, is stable for a short time at 120–5° when cautiously heated, becomes yellow and loses water at about 130°, and deflagrates when superheated, dissolves completely in 2 *N* NaOH, is easily sol. in org. bases, liquid $NH_3$, Ba and Ca hydroxides, colors Ti sulfate solns. yellow on long standing (instantly if the I has previously been heated with dil. $H_2SO_4$), gives in $CHCl_3$ with $SnCl_4$ a violet, with concd. $H_2SO_4$ a red-violet color, deflagrates vigorously with anhyd. $ZnCl_2$ at 50° or when rubbed with solid $EtOCS_2Na$ at room temp. *Na salt*, almost white to faintly yellowish, doubly refracting needles which deliquesce in the air with extraordinary readiness; its Na content (10.4%) corresponds to the compn. $C_{10}H_{11}OONa.2H_2O$. I shows at 78.8° $d_4$ 1.0988, $n$ 1.53893, 1 54471, 1 55473 for α, He and β, $E\Sigma$ 0.35, 0.43, 0.15% for α, D and β − α. When the $E\Sigma$ values are cor. for temp., they agree excellently with those found for tetralin (v. Auwers, *C. A.* **8**, 119).



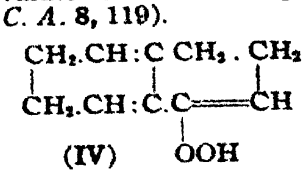
(II)



(III)



(V)



(IV)

C. A. R.

**Podophyllotoxin.** Alexander Robertson and Roy B. Waters. *J. Chem. Soc.* 1933, 83–6.—Dehydration of picropodophyllin, under conditions comparable with those described by Borsche and Niemann (*C. A.* **26**, 3509), gives *α-apopicropodophyllin*, m. 244–5°, $[\alpha]^{21}_{5461}$ —17.5° ($CHCl_3$, *c* 0.4852); this is converted by $Ac_2O$ and AcONa (or $C_5H_5N$) to the *β-isomer*, m. 216°, $[\alpha]^{21}_{5461}$ 117.6° ($CHCl_3$ *c* 0.5104); the β-form can be distinguished by its $H_2SO_4$ reaction; cold concd. $H_2SO_4$ gives a pale orange soln. changing on warming to red, purple and finally violet. Both lactones give *apopicropodophyllic*

*acid* with EtOH-NaOH, m. 174° (decompn.), $[\alpha]^{21}_{5461}$ —279.4° ($CHCl_3$, *c* 0.9624); heating at 185° for 0.5 hr. gives only the α-lactone. Either lactone with HI in AcOH gives podophyllomeronic acid, m. 240°. The constitution ascribed to podophyllomerol (6,7-methylenedioxy-2-methylnaphthalene) (I) has been established by the following synthesis. Reduction of the mixed keto acids resulting from the condensation of veratrole and methylsuccinic anhydride with $AlCl_3$ and ring closure give a mixt. of 1- and 4-keto-6,7-dimethoxy-2-methyl-1,2,3,4-tetrahydronaphthalene, m. 102–10°, reduced by Zn and concd. HCl to 6,7-dimethoxy-7-naphthalene, m. 100°; HI and $Ac_2O$ give the *6,7-di-HO deriv.*, m. 165°, which, with $CH_2I_2$ and $K_2CO_3$ in $Me_2CO$, forms I. The α- and β-lactones described above are considered geometrical isomers. C. J. WEST

**Constitution of podophyllotoxin and picropodophyllin.** ERNST SPÄTH, FRITZ WESSELY AND EDITHA NADLER. *Ber.* **66B**, 125–30(1933).—This is a contribution to the proofs, still lacking, of the positions of the $(MeO)_3C_6H_2$ group and of the free HO group on the hydrogenated nucleus in the formulas assigned to podophyllotoxin (I) and picropodophyllin (II) (*C. A.* **27**, 717; Borsche and Niemann, *C. A.* **27**, 717). Under certain conditions, I and II with $KMnO_4$ give an *acid* $C_{18}H_{16}O_8$ (III), m. 214–6°, which contains 3 MeO groups, is monobasic and yields with $CH_2N_2$ a *Me ester* m. 128–30°. III is reduced to $C_{18}H_{16}O_7$ (IV), m. 218°, and is decarboxylated to $C_{17}H_{16}O_6$ (V), $b_{0.01}$ 180–90°, m 125–7°. IV behaves like a lactone and 2 of the O atoms in III form part of a methylenedioxy group, as indicated by color reactions and definitely established by further expts. That V is *3,4,5-trimethoxy-3',4'-methylenedioxybenzophenone* was proved by condensing 3,4,5-$(MeO)_3C_6H_2COCl$ with the methylene ether (VI) of *o*-$C_6H_4(OH)_2$ by the Friedel-Crafts method, which gave V in small yield (0.05 g. from 2 g. VI). III is therefore 2,4,5-$RCO(CH_2O_2)C_6H_2CO_2H$ (R = 3,4,5-$(MeO)_3C_6H_2$), and IV is $CH_2O_2C_6H_2.CO.O.CHR$.

Borsche and Niemann assigned this structure also, but without strict proof, to the lactone they obtained by oxidation of I and II. These structures of III and IV, in combination with the other degradation reactions, permit of deriving the formulas assigned to I and II only on the assumptions that (a) I and II are both γ-lactones, and (b) the residue R is on the 8-, not the 5-C atom. (a), although probable, has not yet been proved with certainty; (b) has been made probable by the expts. of B. and N. III is probably identical with the acid m. 212–4° (Me ester, m. 126–7°) obtained by B. and N. (*C. A.* **26**, 3509) by mild oxidation of "podophyllic acid" with $KMnO_4$ and to which they assigned the compn. $C_{21}H_{18}O_9$. A reply is made to the comments of B. and N. (*C. A.* **27**, 87). C. A. R.

**Action of lithium on tolan. III.** ERNST BERGMANN AND WERNER SCHREIBER *Ann.* **500**, 118–22(1933); cf. *C. A.* **25**, 4256.—The action of Li on tolan gives 1,2,3-triphenylnaphthalene, 1,2,3,4-dibenzo-9-phenyl-9,10-dihydroanthracene and $C_{28}H_{22}$, m 183°, now shown to be *1-benzylidene-2,3-diphenylhydrindene*, since reduction gives the 1-benzyl deriv., m. 115°. 1,4-Diphenylhydrindone and $PhCH_2MgCl$ give *1-benzyl-1-hydroxy-2,3-diphenylhydrindene*, m. 155°. The Li compd. of 2,3-diphenylindene and BzH give 1-benzal-2,3-diphenylindene. Reduction of 1,2-diphenyl-3-benzylindene with Na and AmOH gives *1,2-diphenyl-3-benzylhydrindene*, m. 143–4°. C J. WEST

**Constitution of rubicene.** ROLAND SCHOLL AND H. KURT MEYER. *Ber.* **65B**, 926–7(1932).—The Schlenk and Karplus fluorene-like condensed *ms*-diphenylanthracene formula for rubicene (I) (*C. A.* **23**, 126) has been confirmed by heating 9,10-diphenyl-9,10-dihydroxy-9,10-dihydroanthracene-1,5-dicarboxylic acid dilactone (*C. A.* **26**, 3502) with Zn dust in $CO_2$; $CO_2$ is split off, H migrates and there is formed a sublimate of I and *ms*-diphenylanthracene (II), sepd. by recrystg. from AcOH and floating off the small red needles of I from the large orange-yellow needles of II. C. A. R.

**Constitution and reactivity. V. Nitration and bromination of aminoanthraquinones.** KARL LAUER. *J. prakt. Chem.* **136**, 1–4(1933); cf. *C. A.* **27**, 1344.—1-Aminoanthraquinone, nitrated by adding 105% $KNO_3$ to the amine in 10 parts monohydrate at 5° during 3 hrs., gives 64.2% 2- and 35.8% of 4-$NO_2$ derivs. Under the same conditions derivs. gave the following yields: methylene 52.4, 47.6; urethan, 28.8, 71.2; Ac, 8.8, 91.2; Bz, 8.5, 91.5; chloroacetyl, 6.9, 93.1; oxamic acid, 3.6, 96.4; toluenesulfonamide, 1.4, 98.6. 2-Aminoanthraquinone gave 84.3% 3- and 15.7% 1-$NO_2$ derivs., the above derivs., in the order named, gave the following yields: 74.4, 25.6; 64.8, 35.2; 10.2, 89.8; 8.8, 91.2; 6.4, 93.6; 3.4, 96.6; 2.8, 97.2. Dropping 105% of the theory of Br into 1-aminoanthraquinone in 10 parts $PhNO_2$ during 3 hrs. and allowing the mixt. to stand 20 hrs. at 30° gave 62.5% 2-Br and 37.5% 4-Br deriv.; derivs. gave the following yields: urethan 28.6, 71.4; Ac 14.6, 85.4; Bz 12.9, 87.1; chloroacetyl 8.6, 91.4; oxamic acid, 3.6, 95.7; toluenesulfonamide 1.6, 98.4. 2-Aminoanthraquinone gave 87.5% 3-Br and 12.5% 1-Br derivs.; derivs. named above gave: 68.4, 31.6; 16.6, 83.4; 15.8, 84.2; 12.6, 87.4; 8.3, 91.7; 3.5, 96.5. The differences in the heat of activation for the $NO_2$ and Br derivs. and $k \times 10^4$ are also given. VI. The replacement of the sulfonic groups

**in chloroanthraquinonesulfonic acids by chlorine.** *Ibid* 5–8.—Data for $k \times 10^3$, $q$ and $\alpha \times 10^{-10}$ are given for the 1,5-, 1,8-, 1,6-, 1,7-, 2,6- and 2,7-chloroanthraquinonesulfonic acids as regards the replacement of the $SO_3H$ group by Cl at 94°, 104° and 114°. C. J. WEST

**Violanthrone-melt in the presence of phenol. I. Separation of the melt products.** TOSHIO MAKI. *J. Soc. Chem. Ind., Japan* **35**, Suppl binding 577–9(1932). **II. Properties of the products.** *Ibid* 579–83.—By fusion with 79% KOH for 30 min. at 220°, and subsequent phys. sepn., 4 products were isolated: (1) an alkali-sol. part, (2) an AcOH-sol. part, (3) violanthrone B (a gray dye) and (4) violanthrone A, or pure dibenzoanthrone. Details of sepn. are given in I, and properties in II. G. M. EVANS

**Biochemistry of filamentous fungi. I. Coloring matters of Monascus purpureus Went.** HIDEJIRO NISHIKAWA. *J. Agr. Chem. Soc., Japan* **8**, 1007–15; *Bull. Agr. Chem. Soc., Japan* **8**, 78–9(1932).—*Monascus purpureus* Went. was cultivated on a soln. contg sucrose 100, peptone 10, $(NH_4)_2HPO_4$ 2, $KNO_3$ 2, $MgSO_4.7H_2O$ 0.5, $As_2O_3$ 0.5, $ZnSO_4.7H_2O$ 0.5, $CaCl_2.6H_2O$ 0.1, tartaric acid 3 g., in 1 l. $H_2O$ at 30° for 10–20 days The mold body was pressed and extd. with cold ether. The ether ext. was dried and evapd. to some extent and kept in a cold place. *Monoascorubrin* (I), $C_{23}H_{24}O_5$, crystd. out as cinnabar-red needles or prisms, m. 136°, is sol. in ether, EtOH, MeOH, $C_6H_6$, $CHCl_3$, acetone and AcOH, and insol. in petr. ether and $H_2O$. I was reduced with Pd-$BaSO_4$ as a catalyst to red-yellow crystals, $C_{23}H_{26}O_5$, m 95–6°, sol. in ether, EtOH and $C_6H_6$, and insol. in petr. ether. I on treatment with Br formed yellow needles, $C_{21}H_{23}O_3Br_3$. I in alc. was converted by $H_2O_2$ into *monascoflavin* (II), $C_{17}H_{22}O_4$, yellow rhombic platelets, m. 145°, sol. in alc., $C_6H_6$, AcOEt, acetone and glacial AcOH, and slightly sol. in ether and petr. ether. II was also obtained from I by oxidation with $KMnO_4$. The dihydro compd. of II, m. 120° (sinters 110°) was obtained by catalytic reduction with Pd-$BaSO_4$. It is sol. in EtOH and $Et_2O$ and insol. in $H_2O$, and has phenolic properties Br deriv. of II, $C_{17}H_{22}O_4Br_2$, yellow silky needles, m. 175–83°; Ac deriv. of II, $C_{17}H_{21}O_4Ac$, an amorphous powder. Five g. of I was fused with 20 g. of KOH at 250–300°. The product after acidification with $H_2SO_4$ and distn. with steam yielded an oil; from the fraction b. 200–20°, an anilide, white needles, m. 92°, was prepd. and identified as caproanilide. I and II have no MeO group. Y. KIHARA

**The economic utilization of the Friedel and Crafts reaction in the synthesis of benzanthrone and its homologs.** M. GALLOTTI AND A. BERETTA. *Ann. chim. applicata* **22**, 691–4(1932).—The synthesis of benzanthrone has been carried out by mixing intimately in a ball mill, phthalic anhydride, $C_6H_6$ and $AlCl_3$, controlling the temp. very carefully. In 20 hrs. at 50–60°, a yield of 93.6% of *o*-$BzC_6H_4CO_2H$ was obtained, while in 12 hrs. at 60–65°, the yield was 96.1%. The above reagents are used in stoichiometric proportions, and the reaction product is used directly for the prepn. of benzanthrone. A. W. CONTIERI

**The active hydrogen atoms of polymeric indoles.** O. SCHMITZ-DUMONT AND K. HAMANN. *Ber.* **66B**, 71–6(1933).—The structures hitherto proposed for polymeric indoles (cf. Oddo, *C. A.* **22**, 78; Chelintzev, *C. A.* **9**, 3055) are based chiefly on the facts that: (1) polymeric indoles break down, on heating, quantitatively into the monomers; (2) with acid chlorides and anhydrides they give only monoacyl derivs.; (3) Chelintzev found only 1 active H atom in triindole by the Chugaev-Zerevitinov method. S.-D. and H., however, find 2 active H atoms in biindole, biskatole and bi(7-methylindole), 3 in triindole, and only 1 in the monomeric forms. That there is no depolymerization by the MeMgI during the detns. is indicated by the fact that the polymers are recovered almost quantitatively from the reaction soln. On the other hand, only 1 of the NH groups in the polymers reacts with PhNCO to form a urea. Expts. to clear up the structures of the polymers are in progress. Using $Am_2O$ and xylene or mixts. of them as solvent, and working under definite conditions in making the active H detns., S.-D. and H. obtained vols. of evolved $CH_4$ which remained const. for hrs. *Phenylurea* of: *biindole*, $C_{28}H_{18}N_2O$, m. 179–80°; *biskatole*, m. 219°; *triindole*, m. 217°. C. A. R.

**Natural and synthetic indican.** ALEXANDER ROBERTSON AND ROY B. WATERS. *J. Chem. Soc.* **1933**, 30.—Synthetic indican (*C. A.* **21**, 3602) is identical with a natural specimen, as shown by comparison of the penta-Ac derivs. C. J. WEST

**Dielectric polarization. V. Benzene solutions of pyrones, thiopyrones and thioketones. Dioxane solutions of ureas and thioureas.** ERIC C. E. HUNTER AND JAMES R. PARTINGTON. *J. Chem. Soc.* **1933**, 87–90; cf. *C. A.* **27**, 1322.—Dipole moments ($\mu \times 10^{18}$) are reported as follows: dimethyl-γ-pyrone 4.05, diphenyl-γ-pyrone 3.82, dimethylthio-γ-pyrone 5.05, thiobenzophenone 3.37, dioxane 0.40, $CO(NHMe)_2$ 4.8, $CO(NHEt)_2$ 4.9, $CO(NHPh)_2$ 4.6, $CS(NHPh)_2$ 4.85. The values of the dipole moments show that the pyrones and thiopyrones do not contain the ether and keto (or thioether and thioketo) groups, as had been concluded previously from the chem. evidence, since, if this were so, the resultant moments would be expected to be the algebraic sums of the

group moments; the measured moments, which are much greater than these calcd. values, point to the presence of polar bonds. The dipole moment of the C—S bond is greater than that of the C—O bond. The mechanism of the formation of oxonium salts is also discussed. C. J. WEST

**Synthetical experiments on the nature of betanin and related nitrogenous anthocyanins. II.** ALICE M. ROBINSON AND ROBERT ROBINSON. *J. Chem. Soc.* **1933**, 25–9; cf. *C. A.* **26**, 4048.—4'-Aminoflavylium salts, contg. 2 or 3 HO groups in the positions (3,5,7) corresponding to those hydroxylated in the anthocyanidins, possess a color, stability to cold mineral acids and behavior with alkali quite similar to the resp. properties of the pigment of the beet; the latter is, however, more unstable to hot mineral acids and appears to be more resistant to the action of $HNO_2$ than any of the synthetic salts *3-Nitro-4-methoxybenzoyl chloride* m. 52°; $CH_2N_2$ gives *ω-diazo-3-nitro-4-methoxyacetophenone*, m 139°, which becomes bright yellow in direct sunlight; warming with AcOH 20–30 min. gives the *ω-Ac deriv.*, yellow, m. 110°; reduction with $Fe_2SO_4$ and $NH_4OH$ gives *3-amino-ω-acetoxy-4-methoxyacetophenone* (I), yellow, m. 119–20°. 2,4,6-HO(MeO)$_2C_6H_2CHO$ and 4-$H_2NC_6H_4COCH_2Ac$ in concd. HCl, satd. with HCl at 0°, and treated with $HClO_4$, form *4'-amino-3-hydroxy-5,7-dimethoxyflavylium perchlorate*, which gives a $KMnO_4$-colored soln. in EtOH and a cherry-red soln. in MeOH; the aq. soln. is red, changed by HCl to orange. 2,4-HO(MeO)$C_6H_3CHO$ and I give *3'-amino-3-hydroxy-7,4'-dimethoxyflavylium perchlorate*, bright red; the MeOH and EtOH solns. are bright red, changing to orange with concd. HCl. 2,4,6-HO(MeO)$_2C_6H_2CHO$ and I give *3'-amino-3-hydroxy-5,7,4'-trimethoxyflavylium perchlorate*, bright red; MeOH gives a bright red soln.; EtOH, a bluish red soln. Absorption curves for the 3 perchlorates are given. *O*-Benzoylphloroglucinaldehyde and 3'-nitro-ω-acetoxy-4-methoxyacetophenone in AcOEt, satd. at 0° with HCl, yield *3'-nitro-3,7-dihydroxy-5-benzoyloxy-4'-methoxyflavylium chloride*, crimson plates; the MeOH and EtOH solns. are orange; hydrolysis gives the *3,5,7-tri-HO deriv.*, dark purplish red. *4'-Nitro-3,5,7-trihydroxyflavylium chloride*, gives brown solns. in MeOH and EtOH. 4-$H_2NC_6H_4COMe$ and β-resorcylaldehyde in concd. HCl, satd with HCl, give *4'-amino-7-hydroxyflavylium chloride* brick-red, forming cherry-red solns. in MeOH and EtOH; the *3,7-di-HO homolog*, dark greenish black, gives blood-red solns. in the simple alcs.; the *3,5,7-tri-HO homolog*, dark purple, gives red-purple solns. in alcs.; its *5-Bz deriv.* was prepd. as an intermediate The absorption curves of the 3 HO derivs. are given. C. J. WEST

**Hydrogenation of heterocyclic compounds.** G. M. MAKH AND V. N. KHADZHINOV *Ukrain. Khem. Zhur.* 7, No. 1, Sci.-Tech. pt., 32–40(1932).—Berginization of *o*-biphenylene oxide produced 95% of liquid product with $MoS_2$ catalyst in 4 hrs. at 400–10° and 450–70°, and 45% with $MoO_3$ at 450–65°. The liquid is composed of $C_6H_6$, methylcyclopentane, cyclohexane, bicyclic naphthenes and bicyclohexyl. CHAS. BLANC

**Nitration of β-phenylethylpyridine and related compounds. I.** B. D. SHAW AND E. A. WAGSTAFF. *J. Chem Soc.* **1933**, 79–83.—Nitration of 2-β-phenylethylpyridine (I) in $H_2SO_4$ gives 16% *o*-, 3.4% *m*- and 64.5% *p*-$NO_2$ derivs.; 2-stilbazole (II) gives 40.1, 0 and 49%, resp., of the 3 isomers; 2-phenylacetenylpyridine (III) gives 28.7, 0.6 and 62.7%, resp., of the 3 $NO_2$ compds. These values support the principle that the successive intercalation of $CH_2$ groups between a *m*-orienting radical and a $C_6H_5$ nucleus progressively decreases the proportion of *m*-substitution. The *o,p*-ratio of $NO_2$ substitution in II varies considerably (0.75–1.12) with the compn. of the nitration medium (21 expts. reported); increase in the concn., combined with decrease of the quantity, of the $HNO_3$ employed decreases the *o,p*-ratio; varying the temp. appears to have a slight influence; addn. of sol. nitrates or AcOH to the $HNO_3$ increases the *o,p*-ratio but to a smaller extent than an equal wt. of $H_2O$; nitration in $H_2SO_4$ gives *o,p*-ratios (0.85–0.93) equal to those obtained with 87–92% $HNO_3$. The products of nitration of I and III are not susceptible to thermal analysis, but sepn. of the isomers indicates that a similar variation of the *o,p*-ratios exists for III and that the variation for I, if existent, is much smaller I gives a *nitrate*, m. 91°; *o-$NO_2$ deriv.* of I, m. 36° (methiodide, m. 184°); *p-$NO_2$ deriv.*, m. 96° (methiodide, deep yellow, m. 198°). *2-β-o-Aminophenylethylpyridine*, m. 61° (HBr salt, m. 295°), is formed from the nitro-2-stilbazole, HI and red P at 160° for 5 hrs., *m-isomer*, m. 72°; *p-isomer*, m. 57°; the crude Ac deriv. on nitration and hydrolysis forms *2-(β-3'-nitro-4'-aminophenylethyl)pyridine*, deep yellow, m. 150°; the diazo reaction gives the *m-$NO_2$ deriv.* of I, m. 76°. The *nitrate* of II, crystals with 2 mols. $H_2O$, m. 89°; anhyd., it m. 123° (decompn.); the m. ps. are given for mixts. of 2'- and 4'-$NO_2$ derivs. of II. The 3-$NO_2$ deriv. of II and $HNO_3$ yield 15% of *3',4'-dinitro-2-stilbazole*, deep yellow, m. 168°. The *nitrate* of III m. 85°; *2-o-$NO_2$ deriv.* m. 55°; *m-isomer*, pale yellow, m. 93°; *p-isomer* m. 157° (picrate, m. 206° (decompn.)). C. J. WEST

**Reaction between 2-picoline and aromatic aldehydes.** B. D. SHAW AND E. A. WAGSTAFF. *J. Chem. Soc.* **1933**, 77–9.—Stilbazoles can be prepd. from 2-picoline and aromatic aldehydes, by using $Ac_2O$ in place of $ZnCl_2$, in higher yields and in purer form.

Small quantities of $PhCH:CHCO_2H$ are also formed, except with BzH and *p*-$MeC_6H_4CHO$. The formation of benzylidene diacetates was not detected. The following yields of stilbazoles are reported, the expts. being carried out at the b. p. of the soln. and 1 mol. each of aldehyde and 2-picoline being used: BzH, 0.5 mol. $Ac_2O$, 30 hrs., 87%. *o*-$O_2NC_6H_4CHO$, 1 5 mols. $Ac_2O$, 10 hrs., 80%; 2-nitro-2-stilbazole gives a *nitrate*, m. 148°; picrate, m. 220°. *m*- and *p*-$O_2NC_6H_4CHO$, 1 mol. $Ac_2O$, 10 hrs., 90%. 2,4-$(O_2N)_2C_6H_3CHO$, 2 mols. $Ac_2O$, 1 hr., 65%. *p*-$MeC_6H_4CHO$ with 1 mol. $Ac_2O$ for 10 hrs. gives 80% *4'-methyl-2-stilbazole*, m. 87°. *o*-$O_2NC_6H_4CHO$ in AcOH gives 79% with 1 mol. and 48% with 3 mols.; with 12 mols. no stilbazole was isolated. Heating the aldehyde and 2-picoline with 4 mols. $H_2O$ for 10 hrs. at 140° gives alkines; *3'-nitro-2-stilbazolealkine* m. 98°; *4'-Me deriv.* m. 96°; the reaction is reversible, the % decompn. being: unsubstituted, 60; *o*-, *m*- and *p*-$NO_2$ derivs., about 30%. The alkines were dehydrated by heating with 4 mols. $Ac_2O$ for 0.5–3 hrs. at 100°. C. J. WEST

**The condensation of piperidinoacetonitrile with resorcinol and phloroglucinol.** MASATARO YAMASHITA. *Science Repts. Tôhoku Imp. Univ.*, 1st Ser. 21, 545–8(1932).—$C_5H_{10}NCH_2COC_6H_2(OH)_3.HCl$ was obtained as feather-like needles (decompg. 244–5°) by hydrolyzing the yellow ppt. obtained from 1.2 g. piperidinoacetonitrile (I), 1.3 g. phloroglucinol, 0.5 g. anhyd. $ZnCl_2$ and dry HCl in 20 cc. glacial AcOH. Likewise $C_5H_{10}NCH_2COC_6H_2(OH)_2.HCl$ (colorless needles, decompg. 243–5°) was obtained from 2.2 g. I, 2.2 g. $C_6H_4(OH)_2$, 0.6 g. anhyd. $ZnCl_2$, and dry HCl in 20 cc. glacial AcOH. J. V. VAUGHEN

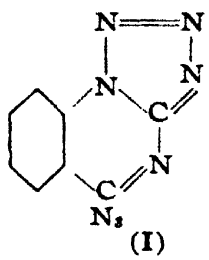
**The communication of G. Reddelien and Alfred Thurm: "The alleged acetone anil."** K. v. AUWERS *Ber.* **66B**, 59–60(1933); cf. R. and T., *C. A.* **27**, 92.—R. and T. reported that the supposed acetone anil is really a 2,2,4- or 2,4,4-trimethyldihydroquinoline (I) Earlier spectrochem. measurements had shown that in its mol. refraction it resembled the anils of isobutyraldehyde and trimethylacetaldehyde but unexpectedly differed from them in its mol. dispersion (*C. A.* **26**, 2178). New measurements on samples of I, its 1-Me deriv. (tetramethyldihydroquinoline) (II) and its dihydro deriv. (trimethyltetrahydroquinoline) (III) supplied by R. gave the following results for d., $n_\alpha$, $n_{Hg}$, $n_\beta$, $E\Sigma_\alpha$, $E\Sigma_D$, $E(\Sigma_\beta - \Sigma_\alpha)$, resp., at $t°$, the $E\Sigma$ values being calcd. on the basis of the hydroquinoline structure: I, 1.0109, 1.58241, 1.59010, 1.61096, 1.52, 1.65, 77%, at 18.2°; II, 1.0042, 1.58123, 1.58912, 1.61026, 1.37, 1 52, 78%, at 20.2°; III, 0.9531, 1 53055, 1.53592, 1 54947, 1.01, 1.07, 41%, at 65.4° (the $E\Sigma_\alpha$ and $E\Sigma_D$ values, cor. for temp. to 20°, are 0.9 and 0.95). For a series of tetrahydroquinoline derivs. $E\Sigma$ values of 0 85, 0.9, 44%, for $\alpha$, D and $\beta - \alpha$ had been obtained (*C. A.* **19**, 2911); spectrochemically, therefore, III fits in excellently with this group of substances If I and II were 1,4-dihydro compds., they should show exaltations similar to those of III, as the isolated 4th double bond should exert no particular influence. Their appreciably higher exaltations indicate that this double bond is in a conjugation, *i. e.*, that they are 1,2-dihydro compds. C. A. R.

**Cyanine dyes. V. Lepidyl-, quinaldyl- and picolylcarbocyanines.** TERUTARO OGATA. *Proc. Imp Acad* (Tokyo) **8**, 503–6(1932); cf. *C. A.* **27**, 982.—Cryptocyanine (O.A.) 1 (*Bull. Inst. Phys. Chem. Research* **4**, 423(1925)) is 10-*N*-iodoethyllepidyl-1,1'-diethyl-4,4'-carboquinocyanine iodide; the yield from lepidine-EtI and $HC(OEt)_3$ varies greatly with the solvent (AcOH, $EtCO_2H$ 67; $Ac_2O$ 52, $PrCO_2H$ 36, BzOH 23; $HOC_6H_4CO_2H$ 21, PhOH 21, $C_6H_4(CO)_2O$ 17, succinic acid 13, nicotinic acid 10, quinolinic acid 4, $(CO_2H)_2$ 0 (8); no reaction occurred with AmOH, $PhNO_2$, $C_{10}H_8$, $C_{10}H_{12}$, $C_5H_5N$, $C_7H_9N$, $PhNMe_2$, PhNHMe or $PhNH_2$). Quinaldine-EtI, $HC(OEt)_3$ and succinic acid give 4% of *10-N-iodoethyl-1,1'-diethyl-2,2'-carboquinocyanine iodide*, green, m 244.5° (decompn.); 280 cc. dissolve in 1 g. hot alc., giving a blue soln. with a sensitizing max. at 740 $\mu\mu$. $\alpha$-Picoline-MeI, $HC(OEt)_3$ and $(CO_2H)_2$ give 4% of *8-N-iodomethylpicolyl-1,1'-dimethyl-2,2'-carbopyridinocyanine iodide*, green, m. 244°; sensitizing max., 640 $\mu\mu$; the *8-N-iodoethylpicolyl-1,1'-diethyl deriv.*, green, m. 227°. C. J. WEST

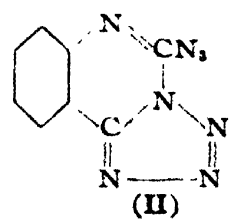
**One-sided substitution in piperazine: halogen acid-cleaving substituting agents.** K. H. JACOBI. *Ber.* **B66**, 113–16(1933).—When the soln. is kept at a definite acidity ($p_H$ 2.75), monosubstitution derivs. of piperazine (I) can be obtained with such reagents as AcCl, $Ac_2O$, $ClCO_2R$, BzCl, $MeC_6H_4SO_2Cl$, which by themselves give sym. disubstitution derivs. At a lower $p_H$ only hydrolysis of the substituent occurs, whereas with increasing $p_H$ there is an increasing formation of disubstitution compds., and the resulting mixts. of mono- and di-compds. are very difficultly sepd. The nature of the substituting agents has no influence on the $p_H$ at which monosubstitution occurs, but the differing ease with which they react makes it necessary to vary the conditions in order to obtain good yields. AcCl, which reacts very rapidly, gives good yields only with quick work, whereas *p*-$MeC_6H_4SO_2Cl$ requires a long time. An important feature of these compds. is the ease with which the substituent can be removed with dil. alkali; by first making the mono-Ac or mono-Bz deriv., then substituting the other NH group and re-

moving the Ac or Bz group first introduced, it is possible to prep. monosubstituted derivs. which hitherto could not be obtained. Moore, Boyle and Thorn (*C. A.* **23**, 2183) concluded, on theoretical grounds, that a definite $p_H$ is necessary for the introduction of 1 acyl group into I. With bromophenol blue (range 3.0–4.6, neutral point 4.0) as indicator, they were able to introduce an $RO_2C$ and, less satisfactorily, a Bz group, but J. was unable to duplicate their results at this low H-ion concn. *Benzoylpiperazine-HCl*, m. 274°, was obtained in 51–68% yield from 1 g. I.$6H_2O$ in 10 cc. cold water and 6 drops of aq. 0.01% K *p*-benzenesulfonate-azobenzylaniline (neutral point 2.75) treated with just enough 2 *N* HCl to give a pink color (about 6 cc ), then brought to a yellow color with 1 drop of NaOAc (40 g. cryst. salt in 100 cc. water), dild. with 10 cc. acetone and treated dropwise at 50° with 0.7 g. BzCl; as the soln. becomes pink, it is at once turned yellow again by addn. of the NaOAc soln. The free benzoylpiperazine, m. 75° (64° in the literature), is obtained in 0.2–0.4 g yield by satg. the above reaction mixt. in the cold with $K_2CO_3$ and extg. with ether. *Ac deriv.*, best obtained with *pure* AcCl at 10–20° without the addn. of acetone, m. 52°; *HCl salt* (58–70% yield), m. 181°. Carbethoxy deriv., light yellow, $b_{12}$ 121°; *HCl salt* (30% yield), m. 145°. *p-Toluenesulfonyl deriv.*, obtained in 21–8% yield as the *HCl salt*, sinters 168°, m. 173°. C. A. R.

**Reaction of 2,4-dichloroquinazoline and 2,3-dichloroquinoxaline with sodium azide.** R. Stollé and Fr. Hanusch. *J. prakt. Chem.* **136**, 9–14(1933).—1,2-Tetrazolo-4-chlorophthalazine 1,2-dihydride and $N_2H_4$ in abs. EtOH give 50% of the *4-hydrazino deriv.*, m. 287°; $NaNO_2$ in 25% HCl gives the 4-azido deriv., identical with that obtained from 2,3-dichlorophthalazine 1,2-dihydride and $NaN_3$. 2,4-Dichloroquinazoline and $NaN_3$ in $Me_2CO$ give *tetrazoloazidoquinazoline dihydride* (I or II), m. 145° (decompn.); in EtOH-EtONa it gives the *HO deriv.*, m. 243° (decompn.). 2,3-Dichloroquinoxaline and $NaN_3$ in EtOH give *1,2-tetrazolo-3-azidoquinoxaline 1,2-dihydride*, m. 265°; EtONa gives the *3-HO deriv.*, m. 288° (decompn.). Oxanilideimide chloride and $N_2H_4$ give *oxanilideimide hydrazide*, yellow, m. 156° (decompn.); *$Me_2CO$ condensation product*, $C_{20}H_{24}N_6$, m. 203°; $NaNO_2$ gives 1,1'-diphenyl-5,5'-bistetrazole, m 212°, identical with that obtained from the chloride and $NaN_3$.



(I)



(II)

C. J. West

**Cinchona alkaloids. XXVIII. Synthesis of the mirror-image isomers of hydroquinine and of hydroquinidine.** Paul Rabe and Albrecht Schultze. *Ber.* **66B**, 120–2(1933); cf. *C. A.* **26**, 4607.—These syntheses were carried out in essentially the same way as the total syntheses of hydroquinine (I) and hydroquinidine (II) (*C. A* **26**, 475). β-(3-Ethyl-4-piperidyl)acrylic acid was catalytically hydrogenated, the resulting mixt. of propionic acid HCl salts esterified and the ester mixt. added to 1 mol. *l*-tartaric acid in hot abs. alc.; the yield was 10–15% of (−)-*homocincholoipon acid l-tartrate*, m around 123–4° (decompn.), $[\alpha]_D^{18}$ −10.4° (MeOH, *c* 2.12), sol. to the extent of about 0.8% in cold EtOH and 0.3% in cold acetone. (−)-*Homocincholoipon Et ester*, $b_{0.2}$ 124°, $d_4^{18}$ 0.9873, $n_D^{18}$ 1.4691, $[\alpha]_D^{18}$ −21.17° (no solvent); *N-Bz deriv.*, $b_{0.2-0.3}$ 197–200°. The ester, condensed with Et quininate and worked up for the toxin, gave (−)-*hydroquininone*, m. 98–9° (cor.), $[\alpha]_D^{20}$ −70.0° (final value, alc., *c* 1.100). This was hydrogenated to (−)-II (purified through the acid *l*-tartrate), m. 171° (cor.), $[\alpha]_D^{18}$ −237.7° (alc., *c* 0.793) and (+)-I, m. 171.5° (cor.), $[\alpha]_D^{18}$ 143.5° (*c* 1.087). *dl*-I, m. 175–6.5° (cor.). C. A. R

**Strychnos alkaloids. LXIX. Further experiments on the cyanogen bromide cleavage of brucine and the first on that of dihydrobrucine.** Hermann Leuchs and Helmut S. Overberg. *Ber.* **66B**, 79–84(1933); cf. *C. A.* **26**, 5099.—Brucine (I) and BrCN in hot benzene give 16% of a quaternary salt $C_{47}H_{56}O_8N_4Br$ (II) and 20% of a neutral product $C_{24}H_{26}O_4N_2Br$ (III) which is presumably a brominated cyanoamide (*C. A.* **26**, 4820). The residue from the acetone mother liquors of III, which comprises the greater part of the I-BrCN reaction products, does not crystallize until it has been boiled with MeOH; it then gives 30% I.HBr (but no "allobrucine"-HBr) and 20% of a neutral *compd.*, $C_{23}H_{29}O_5N_2$ (IV) contg. 3 MeO groups. IV seps. from MeOH in prisms or columns which lose 4–6% in wt. at 60° and 15 mm. and m. around 80°, effervesce about 90° and show $[\alpha]_D^{21}$ −65° to −67.8°/d. (benzene), −88° to −89°/d. (AcOH); from ace-

tone and benzene with ether and water it seps. in prisms m. 98–100°; $AgNO_3$ ppts. a little AgCN. III, however, gives chiefly I.HBr and only very little IV when boiled in MeOH. With $KMnO_4$ in acetone III (5 g.) gives neutral and acid products which for the most part remain resinous; there is obtained only 0.3 g. of a cryst. *acid* $C_{24}H_{36}O_4N_2Br$, needles with 4–5 $H_2O$, $[\alpha]_D^{25}$ 86–7.5°/d. (AcOH), acid to litmus and easily sol. in *N* $KHCO_3$. This acid is probably formed by conversion of the residue —O.$CH_2$.CH:C.$CH_2$Br | (NCN< into —O.$CH_2CO_2H$ | OC.$CH_2$Br | (NC)N<. Attempts to show the presence of an alkyl bromide grouping in III by means of AgOBz in acetone failed; I was quite smoothly regenerated. Boiling pyridine also converted III into I. Unlike I, dihydrobrucine (V) reacts almost in only 1 way with BrCN in benzene, 4 g. yielding 4.4 g. of a cryst. *compd.* $C_{24}H_{28}O_4N_2Br$ (VI), becomes colored at 230°, m. 240–2° (foaming), $[\alpha]_D^{20}$ 58.2°/d. ($CHCl_3$); it appears to be identical with Wieland and Gumlich's product (*C. A.* **26**, 3508), although L. and O. were not able to effect with Zn and AcOH the smooth conversion into V reported by W. and G. With pyridine at 100° it readily forms a quaternary *salt*, $C_{24}H_{28}O_4N_2Br.C_5H_5N$, yellow prisms, becoming discolored at 250°, decompg. around 280°, $[\alpha]_D^{25}$ 39.2°/d. (water), easily sol. in water with neutral reaction. With boiling $PhNMe_2$, however, it gives 40–50% of V-*MeBr*, crystals with 4.8–5.7% $H_2O$, $[\alpha]_D^{20}$ 31.6°/d. (water), and a neutral *compd.* $C_{32}H_{38}O_4N_4$ (VII), sepg. from alc. in prisms which lose 3.5–8.8% in wt. at 95° and 15 mm., m. 168–70°, $[\alpha]_D^{20}$ 41.7°/d. ($CHCl_3$), easily sol. in 2 *N* HCl and repptd. by 2 *N* $KHCO_3$, becoming faintly green or blue in the air. VII is apparently formed by rearrangement of the expected quaternary salt, $PhNMe_2Br.CH_2.R>N(CN)$ ⟶ $BrH.Me_2NC_6H_4.CH_2.R.N.(CN)$, or by replacement of Br by $C_6H_4NMe_2$. PhNHMe yields 50% V.HBr and 20% of a neutral *compd.* $C_{21}H_{26}O_4N_4$ (VIII), prisms losing 3.1% in wt. at 95° and 15 mm., $[\alpha]_D^{20}$ 40.8°/d. ($CHCl_3$), sinters 170°, m. 178–80°; mixed with VII, VIII sinters 160°, m. 168–70°, and, while it appears to be different from VII, identity of the 2 products is not wholly precluded. This work shows, in various ways, that BrCN ruptures the ring of I and V, but the resulting bromoalkylcyanoamides have a great tendency to reform the ring, with loss of BrCN, when the latter is removed, as it is formed, by reagents or by evapn.: $BrCH_2.R:N.CN \rightleftharpoons CH_2.R:N(CN)Br \rightleftharpoons CH_2.R:N + BrCN$. It is hardly probable, however, that there can be any accumulation of the intermediate product and that Wieland's "salt-like" form can be isolated. C. A. R.

**Strophanthins of Strophanthus eminii.** Walter A. Jacobs and Newell M. Bigelow. *J. Biol. Chem.* **99**, 521–9(1933).—From 2900 g. of seeds of *Strophanthus eminii* from Tanganyika, 0.7 g. crude monoside (I), 20 g. mixed genins (II), and 2 g. bioside (III) were obtained. The *aglucone monoside*, $C_{30}H_{46}O_9$, m. 174–80° (decompn.), $[\alpha]_D^{28}$ 22° in 95% alc., is derived from a *Me ether desoxysugar*, $C_7H_{14}O_5$, identical or isomeric with digitalose. Cleavage with 5% HCl in MeOH at 100° gave a *trianhydroaglucone* (IV), m. 154–6°. The *bioside* (III), m. 195–200°, $[\alpha]_D^{25}$ 8° in 95% alc., also yielded a *trianhydroaglucone*, $[\alpha]_D^{25}$ —84.6° in $C_5H_5N$, probably the same as IV, and surely not trianhydroperiplogenin. Fraction II contained about equal amts. of strophanthidin and periplogenin. Hydrogenated in alc. with Pt oxide catalyst, the mixt. gave dihydrostrophanthidol (V), m. 170–3°, $[\alpha]_D^{28}$ 35.0° in 95% alc. (V from other sources has also now been obtained m. 172–5°), and *dihydroperiplogenin*, m. 201–3°; *monobenzoate*, m. 214–6°, $[\alpha]_D^{28}$ 46° in $C_5H_5N$. Ben H. Nicolet

**Structural formulas of the chlorophylls.** James B. Conant and Emma M. Dietz. *Nature* **131**, 131(1933); cf. *C. A.* **26**, 476.—Pheophorbide *a* (I) is sepd. with difficulty from a similar substance which on hydrolysis yields pheopurpurin 7 (II). The purest samples of I do not hydrolyze to give II, but a mono-Me compd. in which the carbomethoxy group is in the side chain attached to the bridge. The lactam formula allows for the existence of 2 similar forms of chlorophyll *a*. Rachel Brown

**Transformation of chlorophyll *b* into chlorophyll *a*.** Arthur Stoll and Erwin Wiedemann. *Naturwissenschaften* **20**, 889(1932); cf. *C. A.* **27**, 727.—Cryst. pheophorbide *b* or pheophytin *b* treated with strong HCl in ether gives cryst. anhydropheophorbide *b* with an absorption spectrum analogous to that of the oxime and rhodin *g*, hence a double bond is present between C atoms 9 and 10. This compd. is reduced by $TiCl_3$ to cryst. pheophorbide *a*, showing a yellow phase and yielding chlorin *e* on decompn. or cryst. protopheoporphyrin on careful treatment with AcOH-HI. Pd + $H_2$ acting on anhydropheophorbide *b* gives hydropheophorbide *a* which yields hydrochlorin *e* on sapon.; from it cryst. protopheoporphyrin *a* can be made. The process chlorophyll *a* to chlorophyll *b* is thereby possible in 5 steps via the pheophorbides. B. J. C. v. D. H.

**Determination of the double bonds in the carotene molecule.** L. Zechmeister, L. v. Cholnoky and V. Vrabély. *Ber.* **66B**, 123–4(1933).—Smith (*C. A.* **26**, 3509)

claims that carotene absorbs only 10 mols. $H_2$ and believes that the value of 11 mols. obtained by the authors (*C. A.* **22**, 2169) was due to the tension of the cyclohexane used as solvent. The hydrogenation has accordingly been repeated in glacial AcOH. Carotene is hardly sol. in AcOH but can be hydrogenated in suspension without any particular difficulty. The Pt sponge is satd. with H under AcOH, the thin carotene-AcOH paste is introduced and rinsed in with AcOH and the hydrogenation effected in the app. with side tube previously described (*C. A.* **22**, 4533). The possible criticism that the H content of the contact substance may be shifted by the presence of the polyene is nullified by the observation that variations in the ratio pigment/catalyst or the use of Pd instead of Pt sponge does not alter the results. Of course, the hydrogenation, being effected in a heterogeneous phase, is slow and it takes 0.5–2 days before the last glittering leaflet disappears. The end point is sharp, however, and exactly 22 atoms H are absorbed, both by paprika ($\beta$) and by beet ($\beta + \alpha$) carotene. While it thus seems to be definitely established that the no. of double bonds in carotene is 11, there are a no. of open questions as to the course of its hydrogenation and the factors which impede it. With menthane or decalin as solvent, it has repeatedly not been possible to push the absorption of H beyond 10 mols. Possibly under certain conditions cyclization processes (more or less reversible) come into play. C. A. R.

**Oxidation of $\beta$-carotene.** P. Karrer, H. v. Euler, H. Hellström and E. Klussmann. *Arkiv Kemi, Mineral. Geol.* **11B**, No. 3, 5 pp.(1932); cf. *C. A.* **26**, 733.—In the adsorption spectrum of carotene oxide the band at 492 $\mu\mu$ of carotene is lost while the others are only displaced. Carotene oxide has the same growth-promoting activity as carotene. Plant exts. are being examd. for carotene oxide content. Rachel Brown

**The relationship of cholestenone to cholesterol. Cholestenone, the ketone of allocholesterol.** Kurt Bonstedt *Z. physiol. Chem.* **214**, 173–6(1933).—Oxidation of allocholesterol in AcOH by $CrO_3$ yields a mixt. of cholestenone and hydroxycholestenone, from which the latter is sepd. by the insoly. of its Na salt in $Et_2O$. Similar treatment of cholesterol gives no trace of cholestenone. Cholestenone is therefore the ketone of allocholesterol and not that of cholesterol. A. W. Dox

**Hexahydro derivatives of the irradiation products of ergosterol.** G. Ahrens, E. Fernholz and W. Stoll. *Ann.* **500**, 109–18(1933).—Catalytic reduction of dihydrolumisteryl acetate and sapon. gives *hexahydrolumisterol*, m. 127°, $[\alpha]_D^{18}$ 9.5° (14.8 mg. in 2 cc. $CHCl_3$); *acetate*, m. 69°, $[\alpha]_D^{18}$ 5° (20.2 mg. in 2 cc. $Me_2CO$); heating with EtOH-EtONa at 200° for 10 hrs. gives *epihexahydrolumisterol*, m. 86–95° (apparently contains $H_2O$ of crystn.), $[\alpha]_D^{18}$ 10.3° (19.4 mg. in 2 cc. $CHCl_3$); *acetate*, m. 64–5°, $[\alpha]_D^{18}$ 20° (17 mg. in 2 cc. $CHCl_3$); the same compd. results by catalytic reduction of epidihydrolumisterol. *Hexahydrovitamin $D_3$* m. 96–7°, $[\alpha]_D^{18}$ —7.4° (21.6 mg. in 2 cc $CHCl_3$); *m-dinitrobenzoate* m. 131°, $[\alpha]_D^{23}$ 5.2° (22.9 mg. in 2 cc. $CHCl_3$), $[\alpha]_D^{18}$ 6.4° (28 mg. in 2 cc. $CHCl_3$); it is not changed by EtONa. Fractionation of the *m*-dinitrobenzoate gives *suprastanol IA*, m. 116°, $[\alpha]_D^{18}$ 12° (10 mg. in 2 cc. $CHCl_3$); (*m-dinitrobenzoate*, m. 187–8°, $[\alpha]_D^{18}$ 30.8° (10.4 mg. in 2 cc. $CHCl_3$); the mother liquor gives *suprastanol IB*, m. 146–7°, $[\alpha]_D^{18}$ 18.4° (10.9 mg. in 2 cc. $CHCl_3$) (*m-nitrobenzoate*, m. 154°, $[\alpha]_D^{18}$ 32.4° (10.5 mg. in 2 cc. $CHCl_3$). Suprasteryl II allophanate, catalytically reduced in $Et_2O$ and AcOH, gives the *tetrahydro deriv.*, decompg. above 234°, $[\alpha]_D^{20}$ —41.8° (13.4 mg. in 2 cc. $CHCl_3$); sapon. gives *tetrahydrosuprasterol* II, m. 99–102°, $[\alpha]_D^{18}$ —50.4° (13.9 mg. in 2 cc. $CHCl_3$); its *m-dinitrobenzoate* m. 110–2°, $[\alpha]_D^{18}$ —23.68° (19 mg. in 2 cc. $CHCl_3$). Further reduction at 65° gives *suprastanol II*, m. 130–1°, $[\alpha]_D$ —18.4°; *dinitrobenzoate*, m. 180–1°, $[\alpha]_D$ —11.1°; it yields 2 allophanates, m. 230–2°, $[\alpha]_D^{18}$ 22° (11.8 mg. in 2 cc. $CHCl_3$), and m. 222–5°, $[\alpha]_D^{21}$ 6.9° (8.7 mg. in 2 cc. $CHCl_3$). C. J. West

**Synthesis of lecithins and cephalins. I. Synthesis of dipalmityl-$\beta$-cephalin and -$\beta$-lecithin.** Iwai Kabashima and Bunsuke Suzuki. *Proc. Imp. Acad.* (Tokyo) **8**, 492–5(1932).—K phthalimide and $C_2H_4Br_2$ give *bromoethylphthalimide*, m. 82°; HBr gives $BrCH_2CH_2NH_2$, analyzed as the *picrate* (I), m. 130–1°, or with 0.5 mol. $H_2O$, m. 99°. The *mono-Ag salt* of dipalmityl-$\beta$-glycerophosphoric acid and I, heated in $C_6H_6$-$Me_2CO$ at 85–90° for 6 hrs., give dipalmityl-$\beta$-cephalin. Similarly, *bromocholine picrate*, m. 223° (decompn.), gives dipalmityl-$\beta$-lecithin, decomps. 190°. Comparison shows the similarity of the synthetic with the natural products. C. J. West

**Synthetic experiments on the constitution of the bile pigment. X. The constitution of bilirubin, syntheses of neo- and isoneoxanthobilirubic acid.** Walter Siedel and Hans Fischer. *Z. physiol. Chem.* **214**, 145–72(1933); cf. *C. A.* **27**, 99.—The neoxanthobilirubic acid recently obtained by resorcinol fusion of synthetic mesobilirubin m. 13° higher than that similarly obtained from the mesobilirubin prepd. from hemin. The 2 acids differed not only in m. p. but also in soly. in MeOH. The Me esters and BzH condensation products likewise showed m.-p. differences. The discrepancy, which was then attributed to a keto-enol tautomerism, is now shown to be due to an isomerism

in which the positions of Me and Et on 1 of the pyrrole rings are reversed. In fact, the analytical prepn. actually consists of a mixt. of 2 isomers which can be sepd. by crystn. of their Me esters from MeOH-EtOH. The isomerism is analogous to that existing between xanthobilirubic and isoxanthobilirubic acids previously described. Mesobilirubin, and hence bilirubin, possess an unsymm. structure. The physiol. formation of bilirubin from hemin occurs by oxidative removal of the α-CH bridge, leaving 2 OH groups on pyrrole rings I and IV. On the basis of known breakdown products of hemin or mesoporphyrin there could be 4 isomeric etioporphyrins and 15 hemins. Each hemin could yield 2, 3 or 4 bilirubins depending on the presence of 2, 1 or no planes of symmetry. In all, 52 isomeric bilirubins, or mesobilirubins, are possible. The 3 mesobilirubins now known are designated XIIIα, IIIα and IXα, the α denoting the ring opening of the porphin system at the α-CH bridge. 2-Formyl-3-ethyl-4-methyl-5-carbethoxypyrrole was sapond. and brominated to *2-formyl-3-ethyl-4-methyl-5-bromopyrrole* (I), m. 115° (*aldazine*, m. 200°, by treatment with $N_2H_4.H_2O$), and *3,3'-diethyl-4,4'-dimethyl-5,5'-dibromopyrromethene*, m. 184° (*Cu salt*, red needles). Condensation of I with opsopyrrolecarboxylic acid in AcOH by HBr gave *3-ethyl-4,3'-dimethyl-4'-propionic acid-5-bromopyrromethene-HBr* (II), no. m. p. to 300° (*free base*, amorphous; *picrate* m. 199°). By heating II to 175° with 10% NaOMe *xanthobilirubic acid*, m. 290°, was obtained. This is a new synthesis by direct introduction of Me into the α-position. Refluxing of II with NaOMe, addn. of $Et_2O$ and 10% $HNO_3$, and extn. with $Et_2O$ gave *neoxanthobilirubic acid Me ether* (III), m. 160°, which was esterified by $CH_2N_2$ to the *Me ester*, m. 70°. Hydrolysis and reduction of III by HI gave *neobilirubic acid* (IV), m. 179°. The *condensation product* of IV with BzH consisted of yellow needles, m. 276°, which gave a m.-p. depression with the analytical prepn. Heating II with NaOMe and $H_2O$ at 150° and treatment with $HNO_3$ yielded *neoxanthobilirubic acid* (V), m. 246°. Resorcinol fusion of sym. mesobilirubin IIIα gave *isoneoxanthobilirubic acid* (VI), m. 242°, which on AcOH-HI reduction yielded *isoneobilirubic acid*, m. 194° (*condensation product* with BzH m. 273°); *Me ester*, m. 204°, was very difficultly sol. in MeOH. *Me neoxanthobilirubate*, m. 174°, prepd. by esterification of V, gave a m.-p. depression with the analytical ester. By crystn. from MeOH-EtOH the anal. mixt. of esters was sepd. into the Me esters of V and VI. Condensation of V with $CH_2O$ by HCl gave *mesobilirubin* XIIIα (VII), m. 310°. The latter was obtained also by refluxing II in AcOH with KOAc, and by heating III with NaOMe at 180°. Condensation of III with $CH_2O$ and HCl gave the *di-Me ether HCl salt of* VII, m. 295° (*free base*, m. 193°, by treatment with pyridine). Both gave the Gmelin reaction. The *di-Me ester di-Me ether of* VII, m. 144°, was obtained by esterification with $CH_2N_2$, and sapond. to VII by boiling in cyclohexane with anhyd. $AlCl_3$.

A. W. Dox

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Some naphthalene and stilbene derivatives (NOVÁK) **2.** The crystal structure of anthracene (ROBERTSON) **2.** Production of organic compounds from coke-oven gas (OSTERRIETH, DECHAMPS) **21.** Anodic oxidation of benzene (ARCHIBALD) **4.** The internal linkages and structure of wool and silk (MULLIN, HUNTER) **25.** The free amino, carboxyl and other active groups in wool and silk (MULLIN, HUNTER) **25.** The influence of temperature on the solution state of methylated carbohydrates (ULMANN, HESS) **2.** Organic photochemistry (SAKURAI) **5.** The dissociation constants of organic acids (JEFFERY, VOGEL) **2.** Haber-Willstätter chain mechanism of organic processes (TAYLOR, GOULD) **2.** Formula of $H_4P_2O_6$ [and its organic derivatives] (BELL, SUGDEN) **6.** Separating gaseous mixtures [for MeOH synthesis and for conversion of aliphatic alcohols into acids] (Brit. pat. 365,092) **13.**

GATTERMANN, L.: **Die Praxis des organischen Chemikers.** 23rd ed. Edited by Heinrich Wieland. Berlin: W. de Gruyter & Co. 417 pp. Bound, M. 13.50.

MICHELET, RAOUL P.: **Etude de quelques aldehydes α-alcoylcinnamiques simples et substitués.** Lyon: Bosc. Frères. 133 pp. Reviewed in *Perfumery Essent. Oil Record* **24,** 15(1933).

VANINO, L.: **Die Haupttatsachen der organischen Chemie.** 6th ed. revised. Stuttgart: F. Enke. About 145 pp. M. 4.50.

THESES

ABD EL SHAHID, M. G.: **Die Verseifung von Acetylzellulose mit Ammoniak.** Berlin, 1930. 44 pp.

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FASOLD, K. I.: **Die Salzbildung von Methylgelb mit Trichloressigsäure in indifferenten Lösungsmitteln und ihre Beeinflussung durch Zusätze. II. Über die Reaktion von Phenylmagnesiumbromid mit Hydroxylamin.** Leipzig, 1931. 36 pp.

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GROGER, RUD.: **Zur Konstitution aliphatischer Diazoverbindungen.** Brunswick, 1931. 48 pp.

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GRÜNTUCH-JACOBSON, LYDIA: **Ein modifizierter Curtius'scher Abbau. Der Abbau der gesättigten Fettsäuren und der Benzoesäure.** Zürich, 1930. 63 pp.

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KAUPP, JOSEPH: **Über den Mechanismus der thermischen Veränderung von Arylestern und Amiden substituierter Essigsäuren.** Würzburg, 1931. 46 pp.

KERN, WALTHER: **Die Konstitutionsaufklärung der Bitterstoffe Pikrotin und Pikrotoxinin.** Brunswick, 1931. 51 pp.

KLEINFELDER, HANS: **Versuche mit Acetylen-magnesium-dibromid.** Kiel, 1930. 78 pp.

KLEINSCHMIDT, ERNST: **Über den Oxydativen Abbau des Mono- und Diaminostrychnins und deren Acetylderivate.** Berlin, 1932. 27 pp.

KOCH, WERNER: **Über die Synthese einiger Thymolhomologen und ihre bakterizide Wirkung.** Kiel, 1930. 21 pp.

KOHLS, GERTRUD: **Über die Umsetzung von Chlormalonester mit Chloracetylchlorid.** Berlin, 1931. 38 pp.

KRISTAHLER, ALFRED: **Synthese des Deutero- und Deuteroätio-porphyrins sowie synthetische Aufklärung der Hämoporphyrin-Frage.** Munich, 1931. 63 pp.

LANDOLT, HANS: **Die Hydantoine.** Zürich, 1930. 43 pp.

LANG, JOACHIM: **Die Ligninsubstanzen.** Leipzig, 1931. 115 pp.

LANGE, FRITZ: **Die Reaktion zwischen gasförmigem Azetaldehyd und Sauerstoff.** Berlin, 1931. 30 pp.

LATTMANN, WERNER: **Konstitution und Reaktionsweise der Arylzyklohexanolone.** Untersuchungen über synthetische Möglichkeiten in der Morphinreihe. Zürich, 1930. 56 pp.

LICHTENSTEIN, NOAH: **Zur Kenntnis des Cotoins und anderer Oxycarbonylverbindungen.** Zürich, 1930. 34 pp.

LINGENBERG, HANS: **Abbau der *p*-Xylensäure zu *p*-Xylylendiamin und zu Imino-di-(*ω*-*p*-xylylen-*ω*'-carbonsäure).** Cologne, 1932. 44 pp.

LITTMANN, ERNST: **Versuche zur Synthese von Nitro- und Aminoindolen.** Brunswick, 1932. 47 pp.

LÜTTRINGHAUS, HANS: **1. Reaktionskinetik labiler Bischromenyle. 2. Über den Einfluss des Lösungsmittels auf die Lösungswärme einiger organischer Substanzen.** Heidelberg, 1931. 62 pp.

MATEI, ILIC: **I. Synthesen einiger im Pyrimidinring arylierter Xanthine. II. Die Einwirkung von Ammoniak auf *α*-Acetyl-*δ*-chlor-*γ*-valerolacton. III. Die Einwirking von Dimethylamin auf *δ*-Chlor-*γ*-valerolacton-*α*-carbonsäureäthylester.** Berlin, 1931. 39 pp.

MEIER, CARL: **Über Celluloseäther.** Zürich, 1930. 57 pp.

MESSER, HEINR.: **Darstellung des *o*-Anisidins und Guajacols.** Danzig, 1931. 8 pp.

MEYER, HEINRICH: **Über das Merochinen und verwandte Piperidincarbonsäuren.** Hamburg, 1931. 58 pp.

MEYER, HERMANN: **Das Allen-Problem.** Berlin, 1932. 44 pp.

MITCHELL, J. A.: **Silica Gel as a Catalyst in Organic Reactions.** Baltimore, 1930. 25 pp.

MOOSDORF, WALTER: **Der Furanring.** Darmstadt, 1930. 59 pp.

NEUDECKER, CONSTANTIN: **Über die Konstitution des Naphtazarinzwischenprodukts.** Würzburg, 1930. 40 pp.

OBST, FRANZ: **Zuckerderivate vom Typus des Glucals.** Berlin, 1931. 39 pp.

PRÜCKNER, HERM.: **Zur katalytischen Hydrierung von Fettsäuren, hier insbesondere zu Alkoholen.** Erlangen, 1930. 44 pp.

REINDEL, G. W.: **Über das Verhalten konjugierter Doppelbindungen gegen Chlorjod und Benzopersäure.** Erlangen, 1931. 35 pp.

RUDOLPH, ERNST: **Über Innerkomplexsalze der Dipicolinsäure und Cheliadonsäure.** Würzburg, 1931. 32 pp.

SCHRÖDER, THEOBOLD: **Umsetzungen mit 2-Bromfluoren und 9-Bromfluoren.** Cologne, 1930. 42 pp.

SCHULTZE, ALBRECHT: **Über Acetyl-Derivate der *h*-Glucose.** Hamburg, 1930. 38 pp.

SEELES, HANS: **Die Darstellung von Cyclopropanol und Cyclopropanon.** Aachen, 1931. 53 pp.

URLASS, F. R.: **I. Hydrierung von Ketonitrilen und ihren Derivaten mittels elementaren Wasserstoffs und feinstverteilten Palladiums als Katalysator. II. Relative Reduktionsgeschwindigkeiten isomerer Nitrobenzolderivate.** Leipzig, 1931. 97 pp.

VASIL'EV, NATALIE: **I. Über das optisch-aktive Acetylen-Carbinol aus dem 3-Methylcyclohexanon und seine Umlagerung mit Ameisensäure. II. Über einen praktischen Apparat zur Bestimmung der Molekulargewichte nach der Siedepunktsmethode.** Basel, 1930. 30 pp.

VOLLMANN, HEINRICH: **Über die Synthese und das Verhalten von Bz-Homologen und Bz-Derivaten des Benzanthrons.** Frankfurt, 1931. 84 pp.

VOLLRATH, CURT: **I. Die Verwendung von Kohlenoxyd zur Synthese organischer Verbindungen. II. Über Betulin.** Frankfurt, 1930. 38 pp.

WEIBEL, RAYMOND: **Le para-crésol.** Étude de sa préparation par sulfonation du toluène et fusion alcaline. Geneva, 1930. 31 pp.

WURL, T. F.: **Synthesen neuer Harnstoff-Derivate.** Jena, 1931. 30 pp.

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**Hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,144, Sept. 22, 1930. Liquid hydrocarbons are produced by treating $CH_4$ or gases contg. $CH_4$ at 800–1200° in contact with catalysts consisting of or coated with Cr or graphite. Cf. *C. A.* **27**, 990.

**Hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,655, Sept. 9, 1930.

Solid and liquid hydrocarbons are desulfurized and hydrogenated by heating under pressure with H, or gases contg. or yielding H, in presence of Fe which has been activated with Co and (or) Ni. The Fe is prepd. by impregnating Fe oxide with a soln. of Co or Ni salt or by pptg. a soln. of an Fe salt contg. Ni or Co, the oxides of carbonates being reduced in the subsequent treatment.

**Thermal treatment of hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,344, June 6, 1930. In the conversion by heat treatment of paraffinic or olefinic hydrocarbons that are gaseous at ordinary temp. and pressure into hydrocarbons contg. less H, high-temp. coke formed in the dry distn. of coals is used as catalyst, the coke being heated up from time to time and then used as a heat accumulator supplying the heat required for the conversion. The coke may be partly or wholly freed from mineral constituents by boiling with acids before employment. $CH_4$ may be converted into aromatic hydrocarbons; ethane, propane or butane into olefins, etc.

**Chlorinating hydrocarbons.** JULIUS SÖLL and CURT RUNKEL (to I. G. Farbenind. A.-G.). U. S. 1,889,157, Nov. 29. In forming products such as $CCl_4$, Cl is caused to react with hydrocarbons such as $CH_4$ and the chlorinated hydrocarbon product is sepd. from the gas passing from the reaction chamber and the remaining gas is mixed with fresh reaction gases and the mixt. is reintroduced into the reaction chamber, including HCl formed in the reaction. An arrangement of app. is described. Cf. *C. A.* **27**, 991.

**Oxidation of hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,711, Sept. 19, 1930. The oxidation of solid or liquid hydrocarbons to obtain alcs., aldehydes, ketones and non-aromatic carboxylic acids is preceded by a purification with H at 150–450° under 5–500 atm. to remove S compds., preferably under conditions causing hydrogenation of a substantial proportion of the unsatd. hydrocarbons. Cf. *C. A.* **27**, 991.

**Dehydrogenating hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,106, Aug. 20, 1930. In the conversion of mixts. of gaseous hydrocarbons into hydrocarbons poorer in H and H at elevated temps. the initial material is treated in stages at successively increased temps. so that the hydrocarbons which do not at first participate in the reaction are converted in the subsequent stage(s), temps. to 1000° being employed in stages in which mainly hydrocarbons with 2 or more C atoms are converted and above 1000° in which mainly $CH_4$ is converted. The thermal treatment is carried out in chambers provided with continuously or periodically heated heat-exchanging filling material, *e. g.*, coke, fire clay, Cr alloys, or with catalysts or with both.

**Desulfurizing hydrocarbons.** THEODOR TRONISECK. Brit. 364,778, Dec. 4, 1930. See Fr. 706,985, (*C. A.* **26**, 478).

**Olefins.** N. V. DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ. Fr. 737,743, May 27, 1932. Olefins which form tertiary derivs. such as isobutylene are selectively eliminated from mixts. of hydrocarbons which contain them, by bringing the mixt. of hydrocarbons into contact with a substance having a selective absorbent power toward the olefin to be eliminated, *e. g.*, $H_2SO_4$ of 60–70%, sepg. the soln. of olefin, polymerizing the olefin, and sepg. the polymer from the absorbent which is used again.

**Alcohols.** MERCK & CO., INC. Brit. 364,111, Sept. 22, 1930. See Can. 316,552 (*C. A.* **26**, 1705).

**Alcohols.** PAUL P. SHORUIGIN, VACHE I. ISAGULYANTZ, ANNA R. GUSEVA, KLARA S. POLIAKOV and VALENTINA P. OSSIPOVA. Fr. 738,277, June 7, 1932. Organo-Mg compds. are made by heating Mg with org. chloro compds., and the products are converted to alcs., by condensation with compds. such as ethylene oxide, ethylene chlorohydrin, ketones, aldehydes or esters dissolved in neutral solvents such as hydrocarbons, or without solvents. Thus, Mg is heated to 160–170° with PhCl to form $C_6H_5MgCl$ and this is condensed with ethylene oxide to form β-phenylethyl alc.

**Higher alcohols.** OTTO FUCHS and WILHELM QUERFURTH. Brit. 364,134, July 26, 1930. Higher alcs., especially BuOH, are prepd. by passing EtOH vapor with H at atm. pressure over catalysts comprising an alk. earth metal oxide, especially MgO, activated by the presence of small amts. of oxides of Pb, Th, Ag, U, W, Cd, Sn, Cr, Mn, Zn, Fe, Ni, Co and (or) Cu. The reaction is effected below 400°, using ½ to 3 mols. H per mol. of alc.

**Polyhydric alcohols.** HENRY DREYFUS. Fr. 737,612, May 25, 1932. Olefins are oxidized by O in the presence of water. Thus, glycol is prepd. from $C_2H_4$. Catalysts favor the reaction.

**Aromatic esters of amino alcohols.** CHARLES MANNICH. U. S. 1,889,678, Nov. 29. 3-Diethylamino-2-dimethyl-1-propanol *p*-aminobenzoate, which forms a cryst. hydrochloride, m. 195–6°, stable in hot water and having very strong anesthetic properties, is obtained by esterifying 3-diethylamino-2-dimethyl-1-propanol with *p*-nitrobenzoyl chloride, followed by reduction (suitably with Na amalgam in HOAc soln.). Similarly, there may be obtained other esters of alc. bases of the general formula (HO)$CH_2$-

$CRR'CH_2NRR$, where R represents H or an alkyl radical, R' represents an alkyl radical, and aromatic carboxylic acids contg. a benzene nucleus, the new products forming well crystallized hydrochlorides, which are stable in hot water and have very strong anesthetic properties. Numerous details of procedure are given.

**Esters.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 737,663, May 26, 1932. Esters are made in a continuous manner in the liquid phase by circulating a reaction mixt. upward through a distn. heater and downward through an exterior branch or column joined to the heater so as to eliminate the ester and(or) water by boiling, and introducing the reagents with or without other substances into the external current of liquid. A multi-tubular type of heater is described. $EtNO_3$ may be prepd. in this way.

**Acrylic acid esters.** WALTER BAUER (to Röhm & Haas A.-G.). U. S. 1,890,277, Dec. 6. In forming an alkyl ester of acrylic acid such as the ethyl ester, a hydracrylic ester such as the ethyl ester is treated with a dehydrating agent (such as $H_2SO_4$ on silica gel) of catalytic character at a temp. of about 200°. Cf. *C. A.* **26**, 4345.

**Polymerizing vinyl esters and styrene.** WALTER E. LAWSON (to E. I. du Pont de Nemours & Co.). U. S. 1,890,060, Dec. 6. Polymerization of styrene or a vinyl ester such as vinyl chloride, acetate or chloroacetate is effected by dissolving ozone in a solvent such as MeOH, ethylbenzene or ethylene dichloride and then dissolving the material to be polymerized in the ozonized solvent. Cf. *C. A.* **27**, 513.

**Aminodiaryl ethers.** ERNEST F. GRETHER (to Dow Chemical Co.). U. S. 1,890,256, Dec. 6. Products such as 4,4'-diaminodiphenyl ether are formed by reaction of $NH_3$ with a halodiaryl ether such as 4,4'-dibromodiphenyl ether in the presence of a catalyst such as $Cu_2O$ or $Cu_2Cl_2$.

**Cyclic diketones.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,739, Nov. 5, 1930. A 1,5- or 1,4-di(*o*-aminoaryl)naphthalene or substitution product thereof is tetrazotized and the diazo groups subsequently are split off with or without the aid of a catalyst or chemically active light. Among examples 1,5-di(*o*-aminobenzoyl)naphthalene is tetrazotized in HCl soln. and concd. by boiling to give the 3,4,8,9-dibenzo-5,10-pyrenequinone.

**Primary aromatic amines of the benzene series by hydrogenation of their corresponding azo ethers.** RALPH P. PERKINS and PETER S. PETRIE (to Dow Chemical Co.). U. S. 1,890,430, Dec. 6. Hydrogenation reactions such as the production of *p*-phenetidine from *p*-ethoxyazobenzene in the presence of a catalyst such as one contg. Ni and alumina are effected without use of a solvent, at a temp. between the m. p. of the azo ether and about 200° (suitably 120° or higher) under pressure (suitably 450–500 lb. per sq. in.). Various examples with details of procedure are given. Cf. *C. A.* **27**, 306.

**Separating *N*-alkyl and *N*-dialkyl aromatic amines of the benzene series.** EDGAR C. BRITTON and RAY D. HOLMES (to Dow Chemical Co.). U. S. 1,890,246, Dec. 6. Products such as *N*-methyl- and *N*-dimethyl-anilines are sepd. by effecting reaction (suitably at temps. of about 100–200°) between the *N*-alkyl compd. and a dicarboxylic acid such as phthalic acid which has a selective action on it under the prevailing conditions, and then sepg. the unreacted *N*-dialkyl compd. from the reaction mixt. (suitably by distn.).

**Amine derivatives.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,000, July 25, 1930. See Fr. 713,998 (*C. A.* **26**, 1619).

**Acylated aromatic amines; artificial filaments.** HENRY DREYFUS. Brit. 363,986, Aug. 15, 1930. Diacyl derivs. of aromatic diamino bases of the $C_6H_6$ or $C_{10}H_8$ series are obtained in a fine state of subdivision, suitable for incorporation in cellulose ester spinning solns., by acylation of the base in dil. soln., suspension or dispersion at temp. below boiling, preferably 30–80°. The concn. should not exceed 10–15%. Among examples purified benzidine is dissolved in xylene (20–50 parts), acetic anhydride is added with vigorous stirring and the pptd. product is filtered quickly; after washing with xylene and then acetone it is ready for incorporation.

**Acylated aromatic amines; artificial filaments, etc.** HENRY DREYFUS. Brit. 364,040, Aug. 15, 1930. Divided out of 363,986 (cf. preceding abstr.). Diacyl aromatic diamines are obtained pure and in fine state of subdivision suitable for incorporation in cellulose ester spinning solns. by treating a base contg. 2 $C_6H_6$ residues, linked directly as in benzidine or through an atom or group as in diphenyl ether and contg. 2 amino groups, with benzoic anhydride or other aromatic anhydride, the acylation being carried out in dil. soln., suspension or dispersion, preferably below the boiling temp. with or without a wetting agent.

**Aminopropanols.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,535, Oct. 15, 1930. *l*-1-Phenyl-2-amino-1-propanols are prepd. by (1) treating *l*-1-phenyl-2-keto-1-propanol with H and either (a) a precious metal catalyst in presence of $NH_3$ or a primary or secondary amine excepting methylamine, or (b) a catalyst comprising Fe, Co, Ni or Cu in the presence of an $NH_4$ salt or a salt of a primary or secondary amine, or (2) converting *l*-1-phenyl-2-keto-1-propanol into its oxime with $NH_2OH$ and reducing it with a precious

metal catalyst. The product of (2) may be alkylated to yield the corresponding alkylamino compd.

**Aminopropanols.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,540, Oct. 17, 1930. Addn. to 365,535 (preceding abstract). *l*-1-Hydroxyphenyl-2-amino-1-propanols are prepd. from *l*-1-hydroxyphenyl-2-keto-1-propanol by the processes of 365,535.

**Aminopropanols.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,541, Oct. 7, 1930. Addn. to 365,535 (2nd preceding abstr). Racemic 1-phenyl-2-amino-1-propanols are prepd. by treating *l*-1-phenyl-2-keto-1-propanol with H in the presence of $NH_3$ or a primary or secondary amine using Fe, Ni, Co or Cu as a catalyst.

**Arylides of 2,3-hydroxynaphthoic acid.** JOHN M. TINKER and LOUIS SPIEGLER (to E. I. du Pont de Nemours & Co.). U. S. 1,890,201, Dec. 6. For producing a product such as an $\alpha$-naphthalide, 2,3-hydroxynaphthoic acid is reacted with an arylamine such as $\alpha$-naphthylamine which is employed in the form of its hydrochloride. U. S. 1,890,202 relates to purification of such arylides by milling them in the dry state with a water-sol. mildly alk. compd. such as $NaHCO_3$ or NaOAc.

**Phenols.** COAL-OIL EXTRACTION, LTD. Brit. 363,330, June 11, 1929. Void. Acid tar oils or the tar acids extd. therefrom are refined so as to yield white, non-pink, emulsions with water by adding alkali and passing in a gas contg. O. Thus to oil, from which the more volatile portions have been removed for use as fuel, a 0.1% NaOH soln. is added for neutralization and air blown in until oxidation of the pink-color-producing constituents is complete.

**Sulfurized phenols.** CHEMISCHE FABRIK VORM. SANDOZ. Brit. 365,534, Oct. 19, 1929. Metalliferous sulfurized phenols are obtained by treating phenols, their homologs and substitution products other than those contg. N with metals or metallic compds. of the $H_2S$, $(NH_4)_2S$ or $NH_3$ groups (qual. analysis) and S in the presence of carbonates, hydroxides or sulfides of the alkali or alk. earth metal groups. The products are complex compds., sol. in $H_2O$, *possessing mordanting, tanning and reserving properties* and may be used for making lakes. Among examples PhOH is treated with $(NH_4)_2MoO_4$, NaOH and S and $\beta$-naphthol is treated with Sn chloride, NaOH and S.

**Halogenation of anthraquinones.** IMPERIAL CHEMICAL INDUSTRIES, LTD., WM. W. TATUM and ROBERT F. THOMSON. Brit. 364,141, Sept. 2, 1930. $\alpha$-Halogenated anthraquinones are prepd. by halogenating in sun or actinic light anthraquinone, or its halogenated derivs. capable of further $\alpha$-halogenation, in the presence or not of halogen carriers, solvents or diluents. Thus anthraquinone is chlorinated in oleum in presence of I under the action of sunlight and 1,4,5,8-tetrachloroanthraquinone is obtained.

**Purifying an impure phthalide.** ALPHONS O. JAEGER (to Selden Research & Engineering Corp.). U. S. 1,889,961, Dec. 6. An impure phthalide obtained by the reduction of a compd. such as impure phthalic anhydride prepd by the catalytic air-oxidation of naphthalene is subjected to distn. with steam at a temp. below that at which substantial amounts of the phthalide sublime over. Cf. *C. A.* **26**, 2990.

**Dimers of $\gamma$-butylenes.** MARTIN MÜLLER-CUNRADI and FRITZ EGGERT (to I. G. Farbenind. A.-G.). U. S. 1,889,952, Dec. 6. For producing dimers of $\gamma$-butylenes, with only small quantities of trimers or higher polymerization products, a $\gamma$-butylene is treated with $H_2SO_4$ of about 50–60% strength and heated and the polymerization products which sep. during the heating are removed, and the remaining $H_2SO_4$ soln. is cooled and reused for polymerizing a further quantity of $\gamma$-butylene.

**Aniline derivatives.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 738,157, June 4, 1932. 2,2′-Dichloro or 2,2′-dibromo derivs. of 4,4′-dialkoxycarbanilides are prepd. by dichlorination or dibromination of 4,4′-dialkoxycarbanilides, and 2-chloro- or 2-bromo-4-alkoxyanilines are obtained by hydrolysis. Examples are given of the prepn. of *3-chloro-p-phenetidine*, m. 22–3° (acetyl deriv., m. 97°), *3-bromo-p-phenetidine*, $b_{18}$ 160°, and 3-chloro-*p*-anisidine.

**Anthracene derivatives.** I. G. FARBENIND. A.-G. Fr. 738,184, June 4, 1932. A compd. which is probably 1-hydroxyanthracene-2-carboxylic acid (m. 200° with decompn.) is prepd. by heating an alkali metal salt of 1-hydroxyanthracene with $CO_2$ to 210–250° under a pressure of 50–120 atm.

**Naphthalene derivatives.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,544, Sept. 26, 1930. Derivs. of naphthalene-1,4,5,8-tetracarboxylic acid are obtained by condensing equimol. proportions of a salt of said acid or its monoanhydride with an aromatic monoamine or salt thereof, whereby the dicarboxylic acid arylmonoimides or their anhydrides are obtained, or with an aromatic *o*-diamine, or salt thereof, whereby naphthoylene arylimidazole-*peri*-dicarboxylic acids or their anhydrides are obtained, in presence of a suitable solvent or diluent. Among examples the alkali metal salt of the tetracarboxylic acid or its anhydride is prepd. in aq. soln. and condensed with *o*-diaminobenzene, 4-bromo-1,2-diaminobenzene, *p*-chloroaniline, etc. Cf. *C. A.* **27**, 1002.

**Pyridine derivatives.** I. G. FARBENIND. A.-G. Fr. 40,632, July 30, 1931. Addn.

to 705,113 (*C. A.* **25**, 5177). β-Hydroxypyridine or β-hydroxyalkylpyridines are first treated with $HNO_3$ to form the nitrates which are then treated with $H_2SO_4$ to eliminate water. Examples are given of the prepn. of nitro-5-hydroxy-2-methyl- (m. 107–108°), nitro-3-hydroxy-4-methyl- (m. 90–92°) and nitro-3-hydroxy-2-methyl-5-ethylpyridine (m. 163–165°).

**Thiocyano derivatives.** Röhm & Haas Co. Brit. 364,060, Oct. 3, 1929. See Fr. 702,829 (*C. A.* **25**, 4284).

**Alkyl substituted aromatic hydroxyl compounds.** Carl Reichhold, Ottokar A. Boecking, Carl Demgenski and Zahn (executors of Eduard Flügger) (trading as Reichhold, Flügger & Boecking). Brit. 363,341, June 13, 1930. See Fr. 697,711 (*C. A.* **25**, 3013).

**Polyvinyl compounds.** I. G. Farbenindustrie A.-G. Brit. 364,323, Dec. 27, 1929. Hydroxyalkyl-polyvinyl compds. are made by causing an alkylene oxide to act upon a polyvinyl alc. The reaction may be accelerated by a basic catalyst, *e. g.*, an alkali or alk. earth or a tertiary org. base. The products are suitable for prepg. thickening, dressing and sizing agents and for producing plastic masses. Among examples a polyvinyl alc. prepd. by sapong. polymerized vinyl acetate of high viscosity is treated with ethylene oxide.

**Pentaerythritol nitrates.** Josef Meissner. Brit. 364,624, Sept. 28, 1929. See Ger. 539,175 (*C. A.* **26**, 1621).

**Formates of alkaline earth metals.** Rudolf Koepp & Co., Egon Elöd and Max Enderli. Brit. 363,788, Nov. 14, 1930. See Fr. 720,714 (*C. A.* **26**, 4066).

**Acetates and hydrogen from acetylene.** Dow Chemical Co. Brit. 363,948, May 18, 1930. See U. S. 1,866,329 (*C. A.* **26**, 4345).

**Salts of carbamic acid esters.** Theodore H. Rider. Fr. 738,260, June 7, 1932. Salts of γ-dialkylaminopropanediol esters of aromatic carbamic acids are prepd. by adding to an aromatic isocyanate in ether an equiv. mol. amt. of dialkylaminopropanediol, the mixt. being heated and an acid added. The corresponding carbamyl chlorides may be used. The ester produced may be brought into contact with chlorides or isocyanates to form mixed esters. Examples are given of the prepn. of the HCl salt of the monophenylurethan of (1) γ-dibutylaminopropanediol, m. 128–9° (this may be used as a *local anesthetic*), (2) dimethylaminopropanediol, m. 138–40°, (3) diethylaminopropanediol, m. 135°, (4) dipropylaminopropanediol, m. 163–4°, (5) diisobutylaminopropanediol, m. 125–7°, (6) diamylaminopropanediol, m. 101–3°, and (7) piperidylpropanediol, m. 176–7°, and the HCl salt of the diphenylurethan of (1) γ-piperidylpropanediol, m. 197–8°, (2) diethylaminopropanediol, m. 109°, (3) dipropylaminopropanediol, m. 183–8°, (4) diisobutylaminopropanediol, m. 116–18°. Also the neutral tartrate, m. 180–2°, borate, m. 195–6°, and picrate, m. 112–20°, of the diphenylurethan of γ-piperidylpropanediol.

**Salts of chloroethanesulfonic acid.** Otto Ernst and Otto Nicodemus (to I. G. Farbenind. A.-G.). U. S. 1,888,794, Nov. 22. A soln. of ethylene dichloride is caused to react, while refluxing the vapors evolved from the reaction mixt., with a soln. of a sulfurous acid salt of Na, K, Ca or Mg such as $Na_2SO_3$ at a temp. below 90°, the ethylene dichloride being used in excess, and the resulting chloroethanesulfonate is sepd. (suitably by recrystn. from alc.). Cf. *C. A.* **27**, 1006.

**Quaternary ammonium salts.** Imperial Chemical Industries, Ltd. Fr. 738,028, June 1, 1932. New salts which may be used for *cleaning textile fibers* are made by combining a higher alkyl halide (from an aliphatic alc. contg. not less than 6 C atoms) and a tertiary amine, the N of which forms part of a heterocyclic ring. Examples are given of the prepn. of dodecyl-, cetyl- and stearyl-pyridinium bromide and stearyl-α-picolinium bromide.

**Fatty acids.** I. G. Farbenindustrie A.-G. Brit. 364,574, Oct. 6, 1930. See Ger. 566,450 (*C. A.* **27**, 1007).

**Brominated aliphatic acids.** Siegwart Hermann and Pharmaceutische Werke "Norgine" A.-G. Brit. 364,394, May 10, 1930. Unsatd. aliphatic acids of high mol. wt. and of natural origin are transformed to Br-substituted satd. acids by addn. of Br without substitution of H, and part of the Br is then split off as HBr, *e. g.*, as a bromide, and the Br-substituted unsatd. aliphatic acids thus obtained are converted into their alkali or $NH_4$ or alk. earth salts. Instead of the free acids their triglycerides may be brominated whereupon sapon. and the partial removal of Br may be effected simultaneously, *e. g.*, with alc. KOH.

**Glutamic acid.** Fong Yih Sen. U. S. 1,890,590, Dec. 13. Gluten is hydrolyzed with concd. HCl in the presence of $HNO_3$ or $MnO_2$, and the glutamic acid hydrochloride formed is converted into glutamic acid and the latter is recovered.

**Carboxylic acids.** I. G. Farbenindustrie A.-G. Brit. 365,613, Sept. 15, 1930. The oxidation product of difficultly volatile hydrocarbons or an acid fraction thereof is

heated above 100° while avoiding distn. to destroy the hydroxy carboxylic acids by splitting off $H_2O$.

**Monocarboxylic acids such as benzoic acid from dicarboxylic acids and their anhydrides such as phthalic anhydride.** JOHANNES BRODE and ADOLF JOHANNSEN (to I. G. Farbenind. A.-G.). U. S. 1,889,945, Dec. 6. In effecting reactions with initial materials such as phthalic acid or anhydride contaminated with S compds. for the production of products such as benzoic acid in the presence of a catalyst such as ZnO on a carrier, the initial material is preliminarily treated in the vapor state with a material such as pumice grit for absorbing S compds. such as $H_2SO_4$.

**Naphthalene-1,4,5,8-tetracarboxylic acid.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,044, Oct. 17, 1930. The products obtained from acenaphthenes and 1,3-dicarboxylic acid nitriles by the method of Brit. 359,201 (*C. A.* **27**, 427) are subjected to treatment with oxidizing agents, *e. g.*, $HNO_3$, $KMnO_4$, $K_2Cr_2O_7$, to give naphthalene-1,4,5,8-tetracarboxylic acid. Cf. *C. A.* **27**, 1008.

**Anthraquinonesulfonic acids.** ERWIN SCHWENK (to General Aniline Works). U. S. 1,890,866, Dec. 13. In forming a product such as anthraquinone-β-monosulfonic acid, a sulfonic acid of phthalic acid anhydride is condensed with an aromatic hydrocarbon such as $C_6H_6$ and the sulfonic acids of aroylarylcarboxylic acids obtained as condensation products are subjected to a ring-forming treatment.

**Methylated dihydroxydiaminoanthraquinonesulfonic acids.** ERNST GUTZWILLER (to Chemische Fabrik vorm. Sandoz). U. S. 1,889,831, Dec. 6. Dihydroxydiaminoanthraquinonesulfonic acids are heated, in the form of their alkali metal salts, to 50–100° for 10–20 hrs. in the presence of small quantities of an inorg. acid such as $H_2SO_4$ with formaldehyde or agents such as a formaldehyde polymer yielding formaldehyde.

**Aliphatic anhydrides.** HENRY DREYFUS. Fr. 737,610, May 25, 1932. $Ac_2O$ or other anhydrides are made by passing the vapor of AcOH or other aliphatic acid through a molten bath of Pb, Te or other metal or alloy, contg. catalysts favoring the decompn. of the acids. The acids may be preheated by passing them through molten baths not contg. a catalyst. Fr. 737,611. Steam is sepd. from vapors of aliphatic anhydrides by chem. reaction with a substance which is oxidized by the O of the water. Thus $CH_4$, CO or C is caused to react with the steam in the presence of a catalyst.

**Ethyl acetate.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,701, Oct. 15, 1930. EtOAc is produced by reacting upon ethylsulfuric acid with 70–90% of the AcOH equiv. to the contained $C_2H_4$ in presence of 50–80% of $H_2O$ (calcd. on the ethylsulfuric acid) while distg. off a ternary mixt. of ester, alc. and $H_2O$, a fractionating column being preferably used. After sepg. the ester the alc. and $H_2O$ may be added to the next batch.

**Acetaldehyde and acetic acid.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,255, Nov 14, 1930. See Ger. 554,784 (*C. A.* **26**, 5971).

**Urea.** GEORGE BARSKY (to American Cyanamid Co.). U. S. 1,889,944, Dec. 6. An aq. soln. such as $Na_2CO_3$ or $Na_2SO_4$ is treated with Ca cyanamide and the mixt. is heated and a ratio of cyanamide ions to alkali metal ions is maintained in the soln. such that all cyanamide is in ionized form.

**Thiourea.** RALPH V. HEUSER (to American Cyanamid Co.). U. S. 1,889,959, Dec. 6. Reaction is effected between $P_2S_5$ and $NH_3$, a cyanamide is added, and the thiourea formed is recovered, as by crystn

**Apparatus for drying hexachloroethane and similar substances.** ROLLAND D MYERS. U. S. 1,890,654, Dec. 13. Various structural and operative details are described.

**1,4-Dioxane.** CARBIDE & CARBON CHEMICAL CORP. Brit. 363,895, Feb. 20, 1930. See Fr. 711,595 (*C. A.* **26**, 1947).

**6-Bromo-2-hydroxynaphthalene and its substitution products.** JOHANNES WOLLFMANN (to General Aniline Works). U. S. 1,890,711, Dec. 13. See Ger. 549,840 (*C. A.* **26**, 4828).

**Benzanthrone.** E. I. DU PONT DE NEMOURS & Co. Brit. 364,042, June 24, 1930 Anthraquinone is reduced with Fe, Cu or Al and the product substantially simultaneously condensed with glycerol in a $H_2SO_4$ medium at 110–120°. In an example anthraquinone is reduced with Fe dust in $H_2SO_4$, glycerol being added simultaneously and condensation taking place, the momentarily formed intermediate products being hydroxyanthrone and anthraquinol.

**Separating biphenyl, *o*-chlorobiphenyl and *p*-chlorobiphenyl from each other.** EDGAR C. BRITTON and WESLEY C. STOESSER (to Dow Chemical Co.). U. S. 1,890,427, Dec. 6. The mixt. is distd. into a fraction consisting of biphenyl and *o*-chlorobiphenyl in non-eutectic proportions and another fraction consisting of *o*- and *p*-chlorobiphenyl in non-eutectic proportions, and each fraction is then sepd. into its components by cooling.

**Purifying crude anthracene, etc.** ALPHONS O. JAEGER (to The Selden Co.). Brit. 364,628, Oct. 5, 1929. Crude anthracene, acenaphthene, phenanthrene and carbazole

are fractionally sublimed with the vapors, preferably superheated or satd., of liquid chlorinated hydrocarbons, both aromatic and aliphatic such as monochlorobenzene, *o*-dichlorobenzene, chlorinated paraffin hydrocarbons and the chlorinated residue from the Cl purification of crude $C_6H_6$ fractions, all of which exercise a selective solvent action on at least one of the impurities in the crude compd. to be purified. In 364,629 crude anthracene, acenaphthene, phenanthrene and fluorene are purified by fractional sublimation with vapors of a liquid compd. contg. the furan or hydrogenated furan nucleus, *e. g.*, furfural, methylfurfural, etc., and other furan substances exercising a selective solvent action, with or without the addn. of a vapor of a chlorinated hydrocarbon mentioned above. Cf. *C. A.* **27**, 313.

**Purifying crude anthracene, etc.** THE SELDEN CO. Brit. 364,723, Nov. 1, 1929. Crude anthracene, acenaphthene, phenanthrene or carbazole is purified by fractional sublimation with vapors, superheated if desired, of at least one liquid solvent falling within the group including aromatic hydrocarbons, alicylic hydrocarbons, nitro hydrocarbons, phenols, aromatic amines, and their OH derivs., *e. g.*, $C_6H_6$, $C_6H_5NO_2$, cyclohexane, PhOH, $PhNH_2$, etc. Vapors of chlorinated hydrocarbons, *e. g.*, *o*-dichlorobenzene, and furan compds. may also be used in admixt.

**Anthraquinone and its derivatives.** ARTHUR LÜTTRINGHAUS, HEINRICH NERESHEIMER, WILLY EICHHOLZ, GEORG BOEHNER and WILHELM SCHNEIDER (to General Aniline Works). U. S. 1,890,040, Dec. 6. The compds. which can be obtained by condensing a quinone of the formula 2,3-(X)(X)-*p*-$C_6H_2(:O)_2$ (in which the two X positions may be part of an attached benzene nucleus which may be substituted) with from 1 to 2 mol. proportions of a 1,3-butadiene hydrocarbon, can be converted into anthraquinone, or its derivs. by treating the condensation products under non-acid conditions with an agent capable of splitting off H by oxidation, as by treating the condensation products in a molten state or in neutral or alk. dilg. or suspending media, such as water, alcs., hydrocarbons, heterocyclic compds. and substitution products thereof of neutral or alk. reaction, for instance nitrobenzene, trichlorobenzene, naphthalene and substitution products thereof, pyridine, etc. Dilg. or suspending media suitable for the purpose are aq. solns. of caustic alkalies. By the use of catalysts transferring O, such as compds. of Cu, Co, Ni, Fe, etc., for instance their oxides, vanadates, chromates, etc., the process can be often accelerated. Agents splitting off H by oxidation comprise, for example, air, O, $H_2O_2$, $KMnO_4$, perborate, etc. Since the said condensation products when treated in indifferent solvents with $O_3$, form ozonides which split up under destruction of the anthracene ring system, $O_3$ does not fall under the term "agents splitting off H by oxidation." For example, a mixt. of 2,6- and 2,7-dimethylanthraquinone is obtained by boiling the condensation product of 1 mol. proportion of benzoquinone with 2 mol. proportions of isoprene with an alc. or aq. soln. of caustic alkali, while introducing O or air. Condensation products from 1 mol. proportion of benzoquinone and one mol. proportion each of two different 1,3-butadienes can also be employed as the starting materials. In the same manner anthraquinone or a deriv. is obtained from a condensation product from 1 mol. proportion of an α-naphthoquinone and 1 mol. proportion of a 1,3-butadiene. Thus, for example, the condensation product from α-naphthoquinone and 1,3-butadiene, when heated with dil. NaOH soln. in a current of air or O furnishes anthraquinone. Thirty-seven different examples with various details of procedure are given.

**Chlorinating *m*-styrene.** HARRY B. DYKSTRA (to E. I. du Pont de Nemours & Co.). U. S. 1,890,772, Dec. 13. A soln. of *m*-styrene (suitably in $CCl_4$ as a solvent) is treated with Cl under conditions which favor nuclear substitution (suitably in the presence of iron filings, in the dark at low temp.) to obtain a product suitable for use in *spray coating compns.*

**Chlorinated *m*-styrene.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 364,873, Jan. 28, 1930. Polymerized vinylbenzene, known as metastyrene, is treated with Cl in the dark at about 0–25° in presence of a halogen carrier, *e. g.*, Fe, $AlCl_3$, and a chlorinated org. solvent, *e. g.*, $CCl_4$; $H_2O$ may be present. The products contain Cl in the nucleus and are resinous materials useful for plastic and coating compns.

**Polymerized styrenes.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,217, Oct. 27, 1930. Polymerization products from styrene or its homologs are made by polymerizing an aq. emulsion thereof, if desired by means of a peroxide, treating the resulting emulsion with steam or an inert gas, *e. g.*, $CO_2$ or N, while warming if desired, at any pressure below atm. and finally coagulating the product, *e. g.*, with HCl or AcOH or by cooling or anodic electrodeposition. They *may be worked up into artificial masses, lacquers, films, artificial threads* or *pressed shaped articles.*

**Polymerization processes and apparatus.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 365,102, July 5, 1929. Void. Org. substances are polymerized, with or without heat and catalysts, at pressures of 2000 atm. or more. The org. compds. may be used alone or as mixts., solns. or emulsions. Examples describe the treatment of isoprene,

2,3-dimethylbutadiene, styrene and indene, vinyl acetate and bromide, isoprene and petroleum ether, styrene and malonic ester, etc.

# 11—BIOLOGICAL CHEMISTRY

PAUL E. HOWE

## A—GENERAL

ARTHUR W. DOX

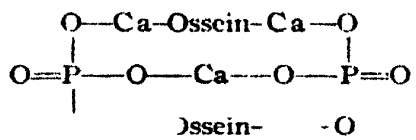
**The changes of diastase in blood and urine after the administration of different types of surgical anesthesia.** TRINO CASTRO. *Arch. ist. biochim. ital.* **4**, 361–74 (1932).—There is an increase of blood and urinary diastase after ether or spinal anesthesia. The increase varies with the duration and quantity of anesthetic. Anesthesia with gas ($C_2H_4$, $N_2O$) produces no change. The increase is due to a toxic action of the anesthetic on the normal metabolism of the pancreas. E. S. G. BARRON

**The presence of phosphatase in microörganisms. I. Hyphomycetes.** C. ARNAUDI AND M. FRANCIOLI. *Boll. soc. intern. microbiol., Sez. ital.* **4**, 264–8(1932)(in French).—Phosphatase is of frequent occurrence in microörganisms and fungi. G. A. BRAVO

**The presence in the liver of an enzyme hydrolyzing glycocholic acid.** F. P. MAZZA AND G. STOLFI. *Chim. ind. agr. biol.* **8**, 408(1932)(abstr.).—The liver of dog, ox and rabbit contains an enzyme, glycocholase (I), which hydrolyzes glycocholic acid to glycine and cholic acid, and a dipeptidase which splits *dl*-leucylglycine. I has optimum activity at $p_H$ 6–7; it was not detected in the spleen, in the duodenal mucosa or in the pancreas I is purified by adsorption on $Al(OH)_3$ from the glycerol exts. of the organs. G. A. B.

**The existence of a lipase in adipose tissues.** G. QUAGLIARELLO AND G. SCOZ. *Chim. ind. agr. biol.* **8**, 408(1932)(abstr.).—In several adipose tissues of the dog, a lipase was detected which hydrolyzes triglycerides, with optimum activity at $p_H$ 8–9; the reaction is activated by Ca salts and ovalbumin, and inhibited by fluorides and quinine salts; its behavior is identical with that of pancreas lipase. G. A. BRAVO

**The nature of the calcium phosphate of bones.** C. ANTONIANI AND F. USUELLI. *Chim. ind. agr. biol.* **8**, 409(1932)(abstr.).—In bones, $H_3PO_4$, Ca and ossein are probably bound thus:




The union with ossein is through its $NH_2$ groups. G. A. BRAVO

**The action of irradiated ergosterol on the mobility of calcium in vitro, in relation to the $p_H$ value.** M. COPP. *Chim. ind. agr. biol.* **8**, 410(1932)(abstr.).—When bones are put in isotonic NaCl soln., in the presence of irradiated ergosterol soln. (1%), the Ca ion does not pass into the soln.; but if the $p_H$ value decreases from 7.2 to 6.4, the inhibiting action ceases. This increase of acidity is probably due to the decompn. products of the org. matter of the bones. G. A. BRAVO

**Separation of the two malt amylases by sorption.** OSKAR HOLMBERGH. *Arkiv Kemi, Mineral. Geol.* **11B**, No. 4, 6 pp.(1932).— The adsorption of malt amylase from alc. soln on starch was max. at 50% alc. concn. A 50% alc. washing of the adsorbate contained β-amylase while a subsequent $H_2O$ washing contained α-amylase. About 50% of the latter was adsorbed. Alc., in 30–45% concn., pptd. relatively large amts. of α-amylase from malt ext. In this connection the inhibiting effect of alc. in starch splitting by malt ext. must be studied. The adsorption increased with H-ion concn. β-Amylase was completely adsorbed at $p_H$ 3.3. RACHEL BROWN

**Iodoacetic acid, glutathione and tissue glyoxalase.** FRANK DICKENS. *Nature* **131**, 130–1(1933).—The action of $ICH_2CO_2H$ (I) in arresting glyoxalase activity is completely reversed by the addn. of reduced glutathione (II). In a dialyzed ext. of glyoxalase activated by II, an equimol. amt. of I inhibits the lactic acid formation Actually I and II react to give one mol. of HI for each mol. of reactant decompd. RACHEL BROWN

**The spontaneous decomposition of egg lecithin.** A. FIORI. *Rass. clin. terap. sci aff ni* **31**, 74–7(1932); cf. *C. A.* **26**, 159.—Egg lecithin in 5% aq. soln. was kept for 1 year (30 hrs. at 70°) in sealed 5 cc. tubes well-filled with liquid. The soln. on evapn. under reduced pressure (35–40°) gave a residue which was successively extd. with alc. and water. The aq. ext. was strongly acid and contained phosphates, choline and glycerol.

After removal of the solvent from the alc. ext., the residue was extd. with $Et_2O$, a small quantity of insol. lysocithin being left. The solvent was removed from the $Et_2O$ soln. and the residue dissolved in alc. to give an acid soln. Free fatty acids were removed by neutralizing with $Ba(OH)_2$ and centrifuging off the insol. Ba soaps. Examn. of the latter indicated the presence of stearate, palmitate and oleate. The acid-free alc. soln. on evapn. gave a reddish orange oil. Analysis (sapon. no., % fatty acids, acid no. of fatty acids) indicated a diglyceride of arachidonic acid. The I no. was only 0.5 the theoretical value, but the expected octabromide was obtained by Wesson's method. This anomaly might be explained by assuming a chem. bond between the 2 arachidonic acid residues in the glyceride which is ruptured during the bromination but not during the less vigorous iodination. Such a view is in agreement with the stability of the glycerol-fatty acid bond in the lecithin contg. 2 mols. of arachidonic acid; this lecithin does not yield a lysocithin on hydrolysis. LEWIS W. BUTZ

**Yeast asparaginase.** WOLFGANG GRASSMANN AND OTTO MAYR. *Z. physiol. Chem.* **214**, 185–210(1933).—Conflicting statements in the literature regarding the occurrence and properties of asparaginase are due to a failure to recognize the extreme instability of this enzyme toward acids. Active prepns. may be obtained by autolyzing the yeast in the presence of a cell poison, preferably PhMe, while maintaining a $p_H$ of 7.5–8.5 by addn. of $NH_4OH$, macerating the centrifuged residue 48 hrs. with dil. $NH_4OH$ at $p_H$ 8.5–8.0 and centrifuging the soln. The enzyme is so extremely sensitive to acid that at $p_H$ 5.0 and 0° 66% of its activity is destroyed in 0.5 hr. This sensitivity to acid, as also to $Me_2CO$ and other precipitants, distinguishes asparaginase from peptidases. Sepn. from dipeptidase is effected by the alk. autolysis, and from polypeptidase by adsorption on kaolin. The simplest procedure for excluding other enzymes is the addn. of certain inhibitory substances, *e. g.*, HCN, $H_2S$ and $Na_4P_2O_7$, to which dipeptidase and aminopolypeptidase are sensitive while asparaginase is unaffected. Asparaginase is highly specific. It hydrolyzes only *l*-β-asparagine and the diamide of aspartic acid. Other asparagine derivs. or amides, including the following, are not attacked: *dl*-asparagyldi-*l*-alanine, *dl*-asparagylmonoglycine, *dl*-α-asparagine, *dl*-leucinamide, glycinamide, β-aminobutyric amide, the 4 *dl*-hydroxyasparagines, the diamides of the 2 *dl*-hydroxyaspartic acids, choloroacetyl-*l*-asparagine, bromopropionyl-*l*-asparagine, glycyl-asparagine, alanyl-*l*-asparagine, *l*-glutamine, succinamide, acetamide, propionamide. The essential grouping of the substrate appears to be $—COCH(NH_2)CH_2CONH_2$. Even under optimum conditions for stability, *viz.* $p_H$ 7–8 and icebox temp., the enzyme loses 30% of its activity in 24 hrs. A. W. DOX

**Vegetable growth substances. IV. A phytohormone of cell extension. Purification of auxin from human urine.** FRITZ KÖGL, A. J. H. SMIT AND HANNI ERXLEBEN. *Z. physiol. Chem.* **214**, 241–61(1933); cf. *C. A.* **26**, 2755.—A hormone which activates cell extension, as distinguished from cell division, in plants has already been demonstrated in the tips of maize and oat coleoptiles, cultures of *Rhizopus*, *Es. coli*, various yeasts and in distillery slops. Unequal distribution of the hormone, through external influences, accounts for the well-known phenomena of phototropism and geotropism. Demonstration of the hormone and detn. of its activity are accomplished by the Went method of measuring the growth deflection of an oat seedling placed in contact with an agar block contg. the active substance in soln. One "avena unit" is the amt. required to produce a curvature of 10° under standard conditions. The active substance, for which the name *auxin* is proposed, is an $Et_2O$-sol. *acid*, m. 196°, which forms an active *lactone* m. 172-3°. Human urine affords a much more prolific source of the active substance than any plant material thus far examd. A long series of extns. yields both auxin and its lactone in pure cryst. form. The av. activity is $5 \times 10^{10}$ "avena units" per g., *i. e.*, 0.00002 γ causes a 10° curvature in an oat seedling. About 1 g. is present in 500 l. of human urine, or in 25,000 l. of *Es. coli* culture. Chem. properties other than the above are not stated. A. W. DOX

**Demonstration of *l*-norleucine as a component of proteins of spinal cord and peripheral nerves.** EMIL ABDERHALDEN AND KURT HEYNS. *Z. physiol. Chem.* **214**, 262–6 (1933).—*l*-Norleucine was again isolated from beef spinal-cord protein and identified by prepn. of its $PhSO_2$ and CHO derivs. It was isolated also from peripheral nerve protein (plexus ischiadicus and brachialis) and identified by the m. p. of its betaine chloroaurate. Phenylalanine and glycine were also found in both proteins. A. W. DOX

**Cold light.** A. X. BOURNAZOU. *Praktika (Akad. Athenon)* **6**, 108–18(1931).—A discussion of the sources and biochemistry of bioluminescence, particularly in marine organisms. LUCIEN Y. DYRENFORTH

**Reactivation of koji invertase.** N. TAKETOMI AND T. HORIKOSHI. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding 583(1932).—Invertase injured by very dil. acid or alkali recovers on standing in a cool place. Injuries by $HgCl_2$ are overcome with $H_2S$; but heat injuries seem irreparable. GREGG M. EVANS

**Comparison of the enzymic liquefaction and saccharification of starch. II. Pancreatic amylase.** G. Orestano. *Bull. soc. chim. biol.* **14**, 1531–51(1932); cf. *C. A.* **25**, 5903; **26**, 5108. Liquefaction of starch follows the law of monomol. reactions until at least 75% of the substrate is digested. The saccharification curve varies with the proportion of enzyme, but with high concns. of enzyme the reaction is monomol. at the beginning. The speed of liquefaction is directly proportional to the concn. of substrate and varies with the concn. of enzyme, but not in direct proportion to the latter. The speed of saccharification is directly proportional to the concn. of enzyme but inversely proportional to the concn. of substrate. Outside of a limited range of concns. the results are irregular and the above statements do not hold true. Many tables of exptl. data are given. L. E. Gilson

**The nature of koji diastase.** Mitsuji Ito. *J. Faculty Agr., Hokkaido Imp. Univ.* **30**, Pt. 5, 243–386(1932).—The koji used was a culture of *Aspergillus oryzae* on steamed polished rice. The diastase was prepd. by Lintner's method and its action on starch studied over a wide range of conditions. The enzyme is not a protein in the ordinary sense but seems to consist of an active group, a polypeptide, a complex carbohydrate and 5–12% of ash loosely united. Removal of the Mg and the $PO_4$ inactivates it. It is not inactivated by heating to 100°, or even 130° for a short time. It is not colloidal, but diffuses completely through a membrane made from shark air bladder. Attempts were made to duplicate the enzyme artificially. A no. of varied mixts. of monosaccharides, glycogen, dextrin, peptone, amino acids, $MgHPO_4$ and other salts were prepd. and found to have more or less hydrolyzing action on starch under sterile conditions at $p_H$ 4.8–5.0. Many references and 77 pages of tabulated exptl. data are given. L. E. Gilson

**Enzymes, hormones and vitamins.** Angelo Pugliese. *Scientia* **53**, 100–10 (1933).—Discussion. L. E. Gilson

**Biochemistry and the world today.** Ross A. Gortner. *Sigma Xi Quart.* **20**, No. 3, 124–39(1932). E. H.

**Autoxidation.** Carl Neuberg and Maria Kobel. *Naturwissenschaften* **20**, 953–4(1932).—Products of biochem. destruction of *foodstuffs* often show increased autoxidation tendency, *e. g.*, AcCHO from carbohydrates (*C. A.* **26**, 5588). A soln. of 0.133% glyoxal in 0.417 *M* phosphate + 2 mol. sulfite yields 70–80% glyoxylic acid when oxidized by atm. O at $p_H$ 7.3–6.5 for 18–20 hrs. The reaction is faster than for AcCHO; it is retarded in acid soln. Pure aq. solns. of glyoxal-$NaHSO_3$ (initial $p_H$ 6.8) are not attacked in 8 days by O; the glyoxylic acid in phosphate soln. is not further oxidized by 8-day O treatment. Hence dismutation does not play a role and under anaerobic conditions no oxidation of glyoxal takes place, although some of the substance gradually disappears. The sulfite is essential to the reactions in phosphate soln. B. J. C. van der Hoeven

**The synthesis of proteins and their enzymes.** Max Bergmann. *Naturwissenschaften* **20**, 941–3(1932); cf. *C. A.* **27**, 738.—A few points of polypeptide synthesis and enzyme characteristic are reviewed, including the recent work on the "carbobenzoxy" synthesis of peptides (*C. A.* **26**, 5072). The inactivity of dipeptidase toward glycylproline and alanylproline, *l*-asparagyl-*l*-tyrosine and *d*-lysyl-*d*-glutamic acid shows the complexity of the enzyme requirements. The nonequivalence of carboxyl liberation (Willstätter titration) and increase in free amino groups (van Slyke) (the latter is zero) during the enzymic decompn. of the 2 proline dipeptides, furthermore, indicates a special type of peptidic bond. Similar nonequiv. carboxyl and amine liberation is found in the ereptic hydrolysis of gelatin. A recently prepd. glycyldehydrophenylalanine was stable toward normal dipeptidase but was decompd. by a kidney enzyme into glycine, phenylpyruvic acid and $NH_3$. B. J. C. van der Hoeven

**The new oxidation enzyme.** Otto Warburg and Walter Christian. *Naturwissenschaften* **20**, 980–1(1932); cf. *C. A.* **26**, 5976; **27**, 318.—Pptn. of Lebedev juice from bottom yeast with Pb subacetate, filtration and removal of Pb by phosphate gives a soln. of the new oxidation enzyme plus some Keilins cytochrome *c*. The latter substance can be removed by adding 0.5 vol. $Me_2CO$ and allowing it to stand at 0° for 24 hrs. Further purification of the dissolved enzyme is obtained by complete pptn. with $Me_2CO$, soln. in $H_2O$ and addn. of 0.5 vol. $Me_2CO$. On satn. of this soln. with $CO_2$ a yellow-red oil seps., from which the enzyme is pptd. at 0° by MeOH as a yellow powder contg. some colorless protein. The absorption spectrum of the enzyme has 3 bands, of which 465 and 495 mμ are in the long-wave range. The enzyme is bound to protein, sepn. being effected by shaking at 38° in 1:3 $H_2O$-MeOH. The protein-free soln. fluoresces green and is catalytically inactive; the visible absorption spectrum is almost unchanged (15–20 mμ shift toward the blue). The protein-free substance in dil. NaOH illuminated by an incandescent lamp becomes sol. in $CHCl_3$ after acidification, a method for obtaining the material in cryst. form. B. J. C. van der Hoeven

**Lactic acid dehydrogenase of yeast.** AMANDUS HAHN, E. FISCHBACH AND H. NIEMER. *Z. Biol.* **93**, 121–2(1932).—A dehydrogenase prepn. from yeast, free of lactic acid, converted lactic into pyruvic acid. FRANCES KRASNOW

**Radiation and enzyme activity.** MAURICE COPISAROW. *Nature* **130**, 1001–2 (1932).—Metabolic radiation is a normal enzymic activity. This deduction links Warburg's work on abnormal glucolysis by restricted activity of respiratory enzymes with Gesenius's investigation on inhibited radiation in relation to disease. M. E. L.

**Irradiation of nucleic acids and uracil.** FRANCIS F. HEYROTH AND JOHN R. LOOFBOUROW. *Nature* **131**, 92–3(1933).—Thymus and yeast nucleic acids and uracil were irradiated and introduced into polyneuritic rats. Ultra-violet irradiation was ineffective in producing vitamin $B_1$ or $B_2$. MARY E. LEAR

**Oxidase of the crystalline style.** C. BERKELEY. *Nature* **131**, 94(1933).—The oxidase of 3 species of oyster gave a marked reaction to guaiacum. Each species yielded exts. equal in activity to those from *Saxidomus giganteus*. Oxidase is probably of general occurrence in the lamellibranchs. MARY E. LEAR

**Further studies of the phosphatase of body organs. I. The effect of manganese salts on the phosphatase of the kidney, the digestive organs and the digestive juices.** ISOO HORII, MASAMICHI MORII, MASUMI MORIMURA AND SEIHO TOMIKAWA. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto, Ser. C*, No. 3, 7–29(1932); cf. *C. A.* **26**, 2477.—The splitting of Ca fructose-6-monophosphoric acid by phosphatase in general is retarded by the addn. of large or moderate quantities of Mn acetate, chloride and nitrate. Small quantities of these salts exert only a slight effect or no effect on the action of kidney phosphatase. With sucrosephosphoric acid the above Mn salts definitely inhibit the action of the enzyme. The acetate, chloride and sulfate augment, while the nitrate inhibits, the action of the kidney enzyme upon glycidol- and diethyl-phosphoric acid. The sputum of rabbits contains no phosphatase. Exts. of the salivary glands show the presence of strong enzymic activity toward ortho- and pyro-phosphoric esters. For the 1st, the optimum is at $p_H$ 8.6–8.8, and for the 2nd 7.3–7.6. The α-glycerol, fructose-6-mono and sucrose esters are not split by either the ext. of gastric mucosa of the rabbit or a soln. of pepsin at $p_H$ = 8.6. The ext. of the dog pancreas, pancreatic prepn. (Tsuru) and pancreatin (Merck) contain esterophosphatase. Ext. of rabbit pancreas is inactive, as is the pancreatic juice of the dog and the bile of the rabbit. Ext. of the intestinal mucosa of the rabbit as well as its secretion is strongly phospholytic. The work of Forrai on the presence of phosphatase in the human adult (cf. *C. A.* **18**, 3610; **22**, 601, 818) has been substantiated. The organ exts. and organ secretions of the fetus act much like those of the adult human. The phosphatase is localized mostly in the renal cortex. B. S. LEVINE

**The ortho- and pyro-phosphatase of bone and cartilage. III. The effect of arsenic and fluorine salts on bone phosphatase.** TAKATSURA YAMANE. *Arb. dritt Abt. anat. Inst. Kaiser Univ. Kyoto, Ser. C*, No. 3, 35–45(1932); cf. *C. A.* **26**, 2477.—The effect of K arsenate on bone phosphatase varies with the ester on which it is tested. with fructose-6-mono- and glucose-6-mono-phosphoric acid and diethylpyrophosphoric acid the enzyme action is augmented, while with sucrosephosphoric it is inhibited and with diethylphosphoric acid it is unaffected. NaF, on the other hand, augments the action of the enzyme in all instances. B. S. LEVINE

**The phosphatases of human uterine tumors.** MASAMICHI MORII AND YOSHITERU TAKABATAKE. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto, Ser. C*, No. 3, 46–51(1932). *Carcinomatous uterus.* In lymphoglandular metastases of the uterus a very active phosphatase was demonstrated. Bone was completely digested within 15 min. No phosphatase was demonstrated in normal lymph glands. *Myomatous uterus.* No phosphatase was demonstrated. B. S. LEVINE

**Phosphatase in bovine kidneys. I. Method of obtaining and localization of the phosphatase.** MASAMICHI MORII. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto, Ser. C*, No. 3, 52–8(1932).—The cortical tissue is the seat of the enzyme. Methods most suitable for obtaining the enzyme are given. **II.** MASAMICHI MORII. *Arb. dritt Abt. anat. Inst. kaiser. Univ. Kyoto, Ser. C*, No. 3, 68–72(1932).—The hydrolytic power of dried and powd. phosphatase obtained by autolysis of kidney tissue varies with different prepns. Generally its action is strongest toward Ca sucrosephosphate, and then (in order) the Ca salts of fructose-6-mono-, diethylpyro-, and α-glycerophosphoric esters. Purification by dialysis renders the enzyme inert. **III.** *Ibid* 73–8.—Röntgen rays from a Mo anticathode have no effect on the powd. enzyme. The effect of As and F salts has also been studied. B. S. LEVINE

**Kidney phosphatase in experimental nephritis.** SEIHO TOMIKAWA. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto, Ser. C*, No. 3, 62–7(1932).—Normal rabbit kidney (as control) hydrolyzes α-glycerophosphoric acid 63.3–70.0, diethylphosphoric acid 1.8–15.9, fructose-6-monophosphoric acid 56.7–82.6, glucose-6-monophosphoric acid 60.1–

73.3, sucrosephosphoric acid 67.8–89.4%. In cantharidin nephritis the kidney ext. hydrolyses the same acids, resp., 15.5–66.9, 0.0–2.6, 7.6–33.8, 10.0–66.3, 11.1–50.9%; in Cr nephritis 0.0–44.6, 0.0–18.1, 0.0–27.3, 0.0–26.6, 0.0–61.6%; in U nephritis 13.1–49.0, 0.0–41.3, 0.0–11.7, —, 0.0–41.3%. Most of the phosphatase is found in the cortex of the kidney. B. S. LEVINE

**Starch-liquefying capacity of amylase and methods for its determination.** T. CHRZASZCZ AND J. JANICKI. *Biochem. Z.* **256**, 252–91(1932); cf. *C. A.* **27**, 1308.—Fifteen different methods, based on the application of 3 distinct principles, have been proposed for detg. the starch-liquefying activity of amylase. Several of these were found to be entirely unreliable. Each method is very extensively discussed. S. M.

**Influence of different glucose concentrations on lactic acid formation and glycogen decomposition.** WALTER HAARMANN AND FRIEDRICH-WILHELM STRATMANN. *Biochem. Z.* **256**, 361–70(1932).—Lactic acid formation from glucose is greatly dependent on the concn. of the added glucose but varies also with different organs. In the case of skeletal muscles, where the optimum lactic acid formation is at the glucose concn. of blood, higher concns. of glucose inhibit the lactic acid production, but in heart muscle, kidney and brain the optimum production is at the higher glucose concns. Other glucides, when added to the tissue, affect the degree of lactic acid formation differently. The lactic acid formation from the glycogen present in skeletal muscles or from added glycogen is increasingly inhibited with increasing concn. of added glucose. S. MORGULIS

**The decomposition of xylose, salabrose and sionon by surviving tissue.** WALTER HAARMANN AND FRIEDRICH-WILHELM STRATMANN. *Biochem. Z.* **256**, 371–5(1932).—Xylose, salabrose (tetraglucosan) and sionon (*d*-sorbitol) do not give rise to lactic acid in surviving tissues under anaerobic conditions. Nevertheless, the 1st 2 sugars do undergo decompn. by the tissue. S. MORGULIS

**Presence of invertase in the gizzard of chickens.** A. BERNARDI AND M. A. SCHWARZ. *Biochem. Z.* **256**, 406–10(1932); cf. *C. A.* **27**, 112.—The amylase found in the glycerol ext. of chicken gizzard is produced in the mucous layer, which lies between the keratoid and the muscle layer. Such limitation of origin could not be demonstrated for the invertase content of the glycerol ext. S. MORGULIS

**New observations on β-glucosidase.** CARL NEUBERG AND EDUARD HOFMANN. *Biochem. Z.* **256**, 450–61(1932); cf. *C. A.* **26**, 5588.—The enzymes prepd. from lactose yeast hydrolyze not only such galactosides as lactose, lactose-ureide and lactobionic acid but also β-glucosides such as amygdalin, β-methylglucoside, salicin, arbutin and cellobiose. Melibiose, which is hydrolyzed by emulsin, is not attacked. Hydrolysis and fermentability do not run parallel. Thus, cellobiose, which is generally regarded as non-fermentable, is well fermented by lactose yeast 102, feebly by *Saccharomyces fragilis* and not at all by *Saccharomyces kefir*. This difference may be due to differences in cell permeability. S. MORGULIS

**The β-glucosidase of lactose yeast.** EDUARD HOFMANN. *Biochem. Z.* **256**, 462–74 (1932).—From aq. exts. of lactose yeast a dry powder can be prepd. which hydrolyzes β-galactosides as well as β-glucosides. The optimum $p_H$ for this dry prepn., with salicin as the substrate, is about 6. In its action upon lactose it is more effective than the best emulsin prepn. and is undoubtedly the most active lactase known. S. MORGULIS

**Dismutation of glyoxal.** CARL NEUBERG AND ERNST SIMON. *Biochem. Z.* **256**, 485–91(1932).—The transformation of α-ketoaldehydes to α-hydroxy acids is an inner Cannizzaro reaction. To test whether glyoxal can also undergo this type of reaction enzymically the juice from pea seedlings, pig liver and kidney as well as acetone-dry prepns. of peas were employed. Liver pulp and fresh top or bottom yeast act similarly. Although AcCHO, BzCHO or $CHOCOCH_2CH_2CO_2H$ are completely oxidized and accounted for under such exptl. conditions, the unsubstituted glyoxal also disappears completely but the recovery of glycolic acid is never more than 62%. The loss is attributed to the involved procedure for detn. of the glycolic acid. The latter is definitely shown to be produced enzymically by the dismutation of glyoxal. S. M.

**Formation and destruction of amino acids.** CHARLOTTE BLASCHE. *Biochem. Z* **257**, 14–21(1933).—A study of the transformation of imino into amino acids by purely chem. means. Böttinger's mixt., as well as iminodipropionic acid, was used. By Knoop's method of hydrogenation of keto acids with Pd catalyst in the presence of nascent imino acid, a 50–60% yield of amino acid was obtained. S. MORGULIS

**Influence of glycerol on egg-white proteins during heating.** S. IWANOWSKY. *Biochem. Z.* **257**, 57–61(1933).—The formation of alkali albuminates by heating egg white in an alk. medium is not prevented by glycerol, which, however, stabilizes the protein soln. toward such pptg. agents as $(NH_4)_2SO_4$. S. MORGULIS

**Complex coazervation. XIV. Autocomplex flocculation of sodium yeast nucleinate sols.** H. G. BUNGENBERG DE JONG AND F. A. MENALDA. *Biochem. Z.* 257, 62–77(1933); cf. *C. A.* **27**, 217.—Sols of Na nucleinate (yeast) at $p_H$ = 7.0 are pptd.

from pure aq. soln. by hexol nitrate, luteo cobalt chloride or chlorides of the alk. earths, but not by NaCl or KCl. The flocculation is a coazervation, and under proper conditions of temp. or in the presence of $NH_4OH$ fluid droplets may be formed. The flocculation is prevented by neutral salts. S. MORGULIS

**Quinones as enzyme models. VIII. The $CO_2/NH_3$ quotient of the oxidative deamination of amino acids.** BRUNO KISCH AND KARL SCHUWIRTH. *Biochem. Z.* **257**, 89–94(1933); cf. *C. A.* **27**, 317.—The $CO_2/NH_3$ ratio in the oxidative deamination of glycine or serine with such catalysts as pyrocatechol, hydroxyhydroquinone, adrenaline or resorcinol is 1:1. Glycyltyrosine and glycylglycine are extensively deaminated by means of hydroxyhydroquinone as catalyst without the production of $CO_2$. Small amts. of glycine which may be formed from glycylglycine or even more from glycine Et ester account for the traces of $CO_2$ produced. Alanine, leucine and isoleucine give only traces of $NH_3$ or $CO_2$. S. MORGULIS

**The effect of lecithin and sodium chloride on the solubility of fatty acids in bile salts.** OTTO FÜRTH AND RUDOLF SCHOLL. *Biochem. Z.* **257**, 151–9(1933).—The soly. of oleic or linoleic acid in bile salts is greatly increased by the addn. of lecithin, *very little* NaCl, KCl or $Na_2SO_4$. *Much* NaCl has the opposite effect of causing a sepn. of the bile salts and the fatty acids. In 100 cc. 5% Na glycocholate it was possible to dissolve completely 4.5 g. oleic acid in the presence of 0.8% lecithin and 0.9% NaCl. These findings indicate that such constituents of the bile must exert a very favorable effect on its solvent action on the higher fatty acids. S. MORGULIS

**Influence of thyroid protein with higher iodine or bromine content on metabolism.** I. ABELIN. *Biochem. Z.* **257**, 213–20(1933).—Thyroid protein whose I or Br content has been greatly increased is less toxic to rats and has less effect on their basal metabolic rate. Possibly this highly iodized or brominized protein yields diiodo- or dibromotyrosine, which is antagonistic to thyroxine. S. MORGULIS

**Effect of certain chemicals on the hydrolytic activity of Ricinus and pancreas lipase.** R. H. CLARK AND R. M. ARCHIBALD. *Trans. Roy. Soc. Can. III* **26**, 87–92(1932); cf. *C. A.* **26**, 2755.—Twenty-five chemicals were tested for activation of the lipase from pork pancreas and castor beans, with cold-drawn castor oil as substrate. Thiourea, $ClCH_2$-$CH_2OH$ and $CH_2O$ inhibited the enzyme. I, Br and HCl were inhibitory but the effect decreased with time. Lactic acid caused almost complete inhibition of enzymes from both sources. Aldehydes at low concns. appeared to activate; at higher concns. they appear to inhibit. The *Ricinus* lipase was more sensitive to the chemicals investigated than was the pancreatic. J. W. SHIPLEY

**Fractionation of Bios II.** W. LASH MILLER, EDNA V. EASTCOTT AND ELGIN M. SPARLING. *Trans. Roy. Soc. Can. III* **26**, 165–9(1932); cf. *C. A.* **19**, 2679; **22**, 3897.—Fifty-lb. lots of malt combings were worked up through an alc., lime, acetone, charcoal series of treatments until a 7.7% residue of solids dried at 110°, or 11% if dried at 35°, was secured, contg. Bios II. Crystn. through acetylation proved futile but purification of a soln. made neutral with CaO (by treatment with acetone) gave a filtrate rich in active material from which fractions contg. Bios IIA and IIB were easily obtained. Expts. with Bios from 9 different sources indicate that it is a mixt. of inositol with as yet unisolated Bios IIA and IIB. The presence of IIA and IIB together with inactive inositol appears to be necessary for obtaining good crops of yeast. J. W. SHIPLEY

**Observations on insulin crystals.** D. A. SCOTT. *Trans. Roy. Soc. Can.* Sect. V, **26**, 275–82(1932).—The insulin crystals were obtained as follows: To each of a series of 15 cc. centrifuge tubes contg. 10 mg. of amorphous insulin, 4 cc. of *N* AcOH, 4 cc. of 50% acetone and varying amts. of 0.9 *N* $NH_4OH$ were added. The tubes were scratched with a glass rod and placed in a refrigerator overnight at 4°. From the soln. which had an acidity of $p_H$ 5.2 peculiar wedge-shaped crystals were obtained, while in that with $p_H$ 6.2, the usual rhombohedral form of insulin crystals was present. The yield of wedge-shaped crystals could be increased by the presence of saponin. The potency of the dried crystals when assayed against the International Insulin Standard was 24.1 and 24.3 units per mg. The wedge-shaped crystals could be converted into the rhombohedral form at $p_H$ 6.2, but not *vice versa*. Seeding certain solns. with the 2 types of crystals did not influence the type of crystal formed. The wedge-shaped crystals are either (1) insulin acetate or, more likely, (2) a dimorphous form of the cryst. insulin induced by impurities in the amorphous insulin or by the $NH_4OAc$ soln. LOUIS J. SOFFER

**The action of methyl iodide on insulin.** A. F. CHARLES AND D. A. SCOTT. *Trans. Roy. Soc. Can.* Sect. V, **26**, 335–9(1932).—Cryst. insulin was 95% inactivated by addn. of MeI and standing 9 hrs. in a water bath at 56°. The inactive product was then 30% reactivated by addn. of 0.1 *N* NaOH and a sojourn of 12 hrs. in an ice bath. When the inactivated insulin protein was pptd. from an ether-alc. soln. and the ppt. washed twice with ether, a large amt. of I remained on the ppt. This could be partially removed by isoelec. pptn. of the protein. Finally, the reactivated product contained I in an amt.

equal to that of the inactivated product. The inactivation was not due to traces of MeCl forming an addn. compd. with the insulin. An inactive I compd. is formed which bears little relationship to the inactivation of the insulin. The latter process is attributed to some other factor, probably an intramol. or tautomeric change in the protein. LOUIS J. SOFFER

**Peroxidases. II. The influence of the concentration of substrate [hydroquinone], hydrogen peroxide, $p_H$ and other factors on the activity of the peroxidase of chow chow [Sechium edule].** BIMAN B. DEY AND MAYAVARAM V. SITHARAMAN. *J. Indian Chem. Soc.* **9**, 499–508(1932); cf. *C. A.* **26**, 487.—An av. chow-chow fruit weighing 250 g. yields 120–40 cc. of a colorless, turbid liquid, which is purified by dialysis at 10° for 4 days; the dialyzed sap, centrifuged and filtered, has a $p_H$ of 4.5–4.6 and shows the same peroxidase activity after 1 month. The peroxidase concn. is very high and for exptl. purposes the sap is dild. with 3 vols. $H_2O$. The reaction period is 15 min. The max. activity is attained when 2 cc. of 1% $H_2O_2$ (0.02 g. in 13 cc. reaction mixt.) is used. The activity seems to remain const. when the concn. of the substrate is between 0.25 and 0.35 at the total const. vol. of 13 cc. The max. activity of chow-chow peroxidase lies between $p_H$ 4.8 and 5.2 in the acid region, whether the crude or dialyzed sap is used. With dil. solns. of the enzyme the reaction is practically nil in the presence of HCl; with the undild. sap, the reaction is completely stopped only by the addn. of 2 *N* HCl until the final soln. has become approx. 0.2 *N* with respect to it. The activity of the enzyme is inhibited completely by KCN of 0.0001 *M* concn., while in solns. of 0.00001 *M* concn. the activity is almost unaffected. $HgCl_2$ does not seem to have so marked an effect in poisoning the peroxidase, considerable activity being shown after the addn. of a soln. of $HgCl_2$ of 0.001 *M* concn. The results are given in tables and curves. C. J. WEST

Adsorption and wetting processes in biology (BERL, SCHMITT) **2.** Haber-Willstätter chain mechanism of enzymic processes (TAYLOR, GOULD) **2.** Formation of organo-metalloidal compounds by microörganisms (CHALLENGER, *et al.*) **10.** Mechanism of oxidation processes. Enzymic oxidation of AcOH by yeast (WIELAND, SONDERHOFF) **10.** Synthesis of lecithins and cephalins (KABASHIMA, SUZUKI) **10.** Synthetic experiments on the constitution of the bile pigment (SIEDEL, FISCHER) **10.**

DEGKWITZ, RUD.: **Lipoide und Ionen.** Eine allgemein biologische und ärztliche Studie über die physiologische Bedeutung der Zell-Lipoide. Dresden: T. Steinkopff. About 300 pp. About M. 18; bound, about M. 19.50.

NORD, F. F., AND WEIDENHAGEN, R.: **Ergebnisse der Enzymforschung. Bd. II.** Leipzig: Akad. Verlags. 358 pp. M. 28; cloth, M. 30. Cf. *C. A.* **26**, 1311.

ALLISON, FERD.: **Oxydo-Reduktionen mit Chlorophyl und anderen Sensibilisatoren.** Thesis, Zürich, 1930. 18 pp.

DOBRY, ALMA: **Über die Einwirkung von Resorcin auf das Seidenfibroin.** Thesis, Berlin, 1931. 43 pp.

HOINKIS, KURT: **Die Beziehung der Oberflächenaktivität, der Lipoid/Wasser-Verteilung und der Diosmosegeschwindigkeit chemischer Stoffe zu ihrer Wirkung auf Mikroörganismen.** Thesis, Berlin, 1930. 49 pp.

RITTER, W. R.: **Über den Hypobromitabbau von Ov-Albumin.** Thesis, Karlsruhe, 1930. 31 pp.

THILO, EDUARD: **Fermentstudien an Polysacchariden.** Thesis, Berlin, 1931. 23 pp.

## B—METHODS AND APPARATUS

STANLEY R. BENEDICT

**Hepatolienography by means of thorotrast [Heyden 1073a] and its practical value in internal medicine.** J. L. A. PEUTZ. *Nederland. Tijdschr. Geneeskunde* **76**, III, 4429–37(1932).—Distinct x-ray shadows of spleen and of liver are obtained after intravenous injections of 30–40 cc. of a colloidal soln. of $ThO_2$ (thorotrast, Heyden). This injection proves to be harmless. R. BEUTNER

**A microchemical reagent for the detection of acetone [in the urine].** FRANCESCO LETI. *Chim. ind. agr. biol.* **8**, 419–20(1932)(abstr.).—Place 1 g. of a mixt. of 4 g. Na nitroprusside and 10 g. NaOH (perfectly dry) in a porcelain dish, and add 1–2 drops urine: a red-lilac color is formed which immediately turns brown if acetone is present; if it is not present, the red color turns canary-yellow. The reaction gives pos. results with a concn. of 0.025%. G. A. BRAVO

**The determination of bilirubin in the blood.** S. FAMULARI. *Diagnostica tec. lab. (Napoli) Riv. mensile* **3**, 212–18(1932).—Blood bilirubin occurs partly in combination with protein, and this combined bilirubin cannot be extd. by EtOH. Therefore in colorimetric methods involving preliminary extn. by EtOH only the free bilirubin is detd. By using the method of ring formation of Chabrol, *et al.* (*C. A.* **26**, 2998) the

total bilirubin is detd. From the results obtained by these 2 methods the combined bilirubin can be calcd. LEWIS W. BUTZ

**Photometric method for the determination of urinary sulfur and a study of the colloidal stability of sulfate precipitates.** E. OBERMER AND R. MILTON. *Bull. soc. chim. biol.* **14**, 1447–1509(1932); cf. *C. A.* **26**, 4353, 5595.—A Vernes-Bricq-Yvon photometer is used. An adaptation of the Denis and Reed method of detg. the 3 forms of combined S in urine is described and the factors leading to inaccuracies are discussed. Several methods of stabilizing the colloidal $BaSO_4$ ppt. were tried, and the combined use of peptone and gum Ghatti is finally adopted. L. E. GILSON

**Adaptation of the colorimetric method to the determination of free cholesterol in blood serum.** A. GRIGAUT. *Compt. rend. soc. biol.* **112**, 34–6(1933).—Several methods are criticized and a slight modification of Windaus' method is recommended. L. E. GILSON

**Determination of glucose in blood.** ROBERT RAZAFIMAHERY. *Ann. chim. anal. chim. appl.* **15**, 1–10(1933); cf. *C. A.* **27**, 319.—Further testing of known methods is described and the final conclusions are: (1) The method of Hagedorn and Jansen gives results of the same precision as that of Baudoin and Lewin and can be used with as little as 0.1 cc. of blood $CCl_3.CO_2H$ is recommended in place of $Zn(OH)_2$ as reagent for removing albumin. (2) Results obtained by the method of Ionescu-Matiu and Vitner are a little lower and their procedure is a little longer than that of B.-L. (3) Results obtained by the method of B.-L. are sometimes erroneous because of loss of $I_2$. If 5 tests are made with 7.5 cc. of defecated filtrate, usually 3 values will be concordant. The chem. reactions at the basis of each of these tests are explained and the results obtained in numerous tests given. W. T. H.

**The significance of species agglutination in forensic medicine.** V. N. KRAINSKA-IGNATOVA AND E. L. SOBOLEVA. *Deut. Z. ges. gericht. Med.* **19**, 446–53(1932).—Blood and sperm in stains and cadaver organs may be identified by a simple technic. F. K.

**Determination of alcohol in blood according to Widmark.** JOSEF KOLLER. *Deut. Z. ges. gericht. Med.* **19**, 513–15(1932).—A drawing of the modified app. is given. FRANCES KRASNOW

**Demonstration of minute traces of blood.** P. MEDINGER. *Deut. Z. ges. gericht. Med.* **20**, 74–85(1932).—The reagent (contg. leucomalachite green 1 g., glacial acetic acid 100 cc. and water 150 cc.) is mixed with 1% $H_2O_2$ soln. in proportion of 8:2. A drop of this mixt. should turn the stain (if from blood) green in 10 sec. and dark blue-green in 1 min. Hundreds of tests were successful. FRANCES KRASNOW

**Microscopic demonstration and differentiation of glycogen and galactan.** F. MAY AND F. KORODOWICH. *Z. Biol.* **93**, 233–8(1932).—New methods are necessary. FRANCES KRASNOW

**A flask for diluting antigens used in serum tests for syphilis.** WM. A. HINTON. *Am. J. Clin. Path.* **3**, 41–4(1933). E. R. MAIN

**The urea clearance test in urology.** V. J. HARDING AND R. W. T. URQUHART. *J. Urol.* **29**, 1–13(1933). E. R. MAIN

**A new micro-Kjeldahl method.** S. BALAKHOVSKII AND K. BRUNS. *Biochem. Z.* **256**, 292(1932).—The principle is to distil the $NH_3$ soln. to dryness *in vacuo*. The material is digested as usual with $H_2SO_4$ in a test tube and made up to a definite vol. An app. is described. S. MORGULIS

**A micro method for the direct determination of organic acids in blood serum.** HEINZ BRÜHL. *Biochem. Z.* **256**, 293–307(1932).—Allow a few cc. of blood to clot, remove the serum by centrifugation and subject to ultrafiltration under pressure. The method of ultrafiltration is discussed in detail. In the ultrafiltrate det. the org. acids electrometrically. The org. acids of serum stronger than $H_2CO_3$ are at the neutral point in the form of their salts, and the addn. of HCl decreases their dissocn. or ability to form salts, the value of the latter varying with the H-ion concn. according to the formula $\alpha = k(k + h)$. The added HCl is thus neutralized by the alkali set free and the $p_H$ is detd. by the acid-salt ratio of the buffer mixt. until all the salt of the org. acid is used up when the $p_H$ is detd. by the HCl. The concn. of the buffer acid can be detd. from the max. deviation from the abscissa of the titration curve and its dissocn. const. from the $p_H$ at half dissocn. To 1 cc. of the serum ultrafiltrate about 0.12–0.15 cc. 0.1 *N* HCl is added, to adjust the $p_H$ to 7.5–8.0, and the $CO_2$ is driven off by passing $N_2$ for 30 min., the $p_H$ is measured with a quinhydrone-calomel system and the titration is made by adding 0.05 cc. 0.05 *N* HCl, passing $N_2$ for 15 min. to remove $CO_2$ between each addn. The titration is carried out to a $p_H$ 2.5–2.1. The results are plotted and the titration curve is superimposed by a diagram of a control titration curve so that the neutral points of the two coincide. The org. acid concn. is calcd. from the max. sepn. of these curves. The normal org. acid concn. of serum is 7.75–10.25 millimols. and the mean dissocn.

const. is $p_K = 3.6$, but in uremias, tetanic convulsions or on a ketogenic diet this concn. may rise to a max. value of 29.5 millimols. S. MORGULIS

**Determination of inorganic and phytin phosphoric acid in phytin preparations.** K. LINDENFELD. *Biochem. Z.* **257**, 8–13(1933).—Reagents required are: (1) 10% $HNO_3$; (2) 25% $NH_4NO_3$; (3) sulfate-molybdate soln. (according to Neubauer and Lücker, *C. A.* **6**, 1264) made by pouring a thin stream of a soln. of 150 g. $(NH_4)_2MnO_4$ dissolved in 400 cc. hot $H_2O$, into a soln. of 50 g. $(NH_4)_2SO_4$ in 500 cc. $HNO_3$ (sp. gr. 1.36), stirring well, dilg. to 1 l. and filtering into a dark bottle after 2 days; (4) 2% $NH_4NO_3$ soln. acidified by a few drops of $HNO_3$. Dissolve 0.1–0.3 g. of substance in 3 cc. 10% $HNO_3$, and mix with 20 cc. of soln. 2, 11 cc. $H_2O$ and 6 cc. freshly filtered soln. 3. If the original soln. of the substance is turbid it should be dild. with 5 cc. of soln. 2 and filtered, the remaining 15 cc. of the soln. being used for rinsing. After 3–4 hrs. filter the ppt., wash with soln. 4, then 2–3 times with 95% alc. and 3–4 times with acetone. Dry 30 min. in a vacuum desiccator and weigh. Calc. the amt. of P as free $H_3PO_4$ by multiplying by the factor 0.01525. To det. the phytin $H_3PO_4$ the reagents required are: (1) standard $FeCl_3$ in 0.6% HCl contg. 0.15–0.20% Fe; (2) 6% HCl; (3) 0.3% aq. $NH_4CNS$. Dissolve 0.2–0.3 g. substance in 10 cc. 6% HCl, add 10 cc. $NH_4CNS$ and 80 cc. $H_2O$ and titrate with $FeCl_3$ soln. The titration is completed as soon as the supernatant fluid is rose colored. One mg. Fe corresponds to 1.2 mg. phytin P. S. MORGULIS

**Titrimetric determination of very small quantities of blood phosphatide.** SHIGEHIRO KATSURA, TATSUO HATAKEYAMA AND KICHIRO TAJIMA. *Biochem. Z.* **257**, 22–31 (1933).—To 0.15–0.20 cc. add 60 vols. 95% alc., then 30 vols. of $Et_2O$. Filter and evap. at about 50° *in vacuo*. To the dry residue add 15 cc. petroleum ether (35–45°) and filter the ext. into a 25 cc. flask. Repeat the extn. twice and make up the vol. to the mark at room temp. To dissolve the salts which make the ext. turbid add a drop of $H_2O$ and shake the flask vigorously. Measure 10 cc. of the petr. ether into a stoppered 50-cc. flask for oxidation (*b*). Measure a similar sample into another flask and evap. to 1 cc. To this add 5 cc. of redistd. dry acetone, evap. to 1 cc. again and ppt. the phosphatides by means of 7 cc. acetone satd. with $CaCl_2$ (*a*). Filter the soln. after 1 hr. and evap. to dryness on a water bath. Take up the residue in 0.5 cc. $H_2O$ and 8 cc. petroleum ether and transfer the clear petroleum ether soln. to an oxidation flask. Repeat this twice. Drive off the petroleum ether from both flasks, add 1 cc. of the $Ag_2Cr_2O_7$-$K_2Cr_2O_7$ (4 : 1) mixt. and oxidize 1.5 hrs. at 100°, add 20 cc. $H_2O$ and 1 cc. 40% KI and titrate with 0.04 *N* $Na_2S_2O_3$. The calcn. of the phosphatide content of the blood (when 0.2 cc. was used) is made from the formula $(a - b) \times 0.4 \times 25 \times 100/2.82 \times 0.2 \times 10$, or $(a - b) \times 177$ = mg. %. The method gives results with an error of ± 2–5%. S. MORGULIS

**Further isolation of the growth-promoting thymocrescin.** DORIS ASHER. *Biochem Z.* **257**, 209–12(1933).—Thymocrescin is obtained by extn. with 70% alc. of the initial ppt. produced by 95% alc. The residue, a fine hygroscopic powder, obtained on rapid evapn. of the 70% alc. ext. is the substance used for the further purification of thymocrescin. This powder is dissolved in just enough $H_2O$ and almost satd. with solid $(NH_4)_2SO_4$ and the ppt. is centrifuged off. The pptd. mass is collected, washed with satd. $(NH_4)_2SO_4$ and extd. with 70% alc. The alc. soln. is evapd. in a high vacuum to a powder which can be preserved in closed vessels in the cold. The substance so prepd still shows the characteristics of a peptide but is much more active than the original material, 1 mg. instead of 20 mg. being now sufficient to produce growth stimulation. It is free from protein and lipide and is well tolerated by the animals. S. MORGULIS

**Determination of the dilution of chlorides in humors as a sign of vital submersion in fresh water.** J. LECLERC, M. MULLER AND J. PAYEN. *Ann. méd. légale criminol police sci.* **12**, 528–34(1932).—The av. NaCl content of human humors is approx. 6 g per l. Death by submersion produces an approx. 30% diln. of the humors; immersion in soft water for 20 days of a corpse in which death was due to causes other than submersion also produces an approx. 30% diln. of the humors. The possible value of this detn. in medico-legal work is pointed out, indicating also factors which may interfere with the proper interpretation of the results. A. PAPINEAU-COUTURE

**Preliminary account of analytical methods for individual carbohydrates.** VICTOR J. HARDING, THOMAS F. NICHOLSON, GORDON A. GRANT, GRANT HERN, AND C. E. DOWNS. *Trans. Roy. Soc. Can.* Sect. V, **26**, 33–43(1932).—The authors have attempted to det. the presence of any particular sugar in a soln. by the ability of yeasts and bacteria specifically to remove certain sugars. Standard sugar solns. were prepd. from pure sugars recrystd. 2 or 3 times. The reducing power of the soln. to be analyzed was detd before and after treatment with the yeast or bacterium. The organisms employed were *Proteus vulgaris, Monilia krusei, Saccharomyces marxianus* and *Monilia tropicalis*. The authors found that in the absence of galactose *Proteus vulgaris* becomes specific for glucose. The sepn. of glucose and galactose can be effected by incubation with 0.25 g. of washed Fleischman bakers' yeast at 38° incubated for 8 min. However, sepn. with

this yeast presupposes the absence of fructose and mannose. *Proteus vulgaris* was particularly valuable in the sepn. of glucose from fructose and mannose since both these sugars are easily fermented by other yeasts and bacteria. In testing for fructose or mannose, glucose must be removed by *Proteus vulgaris* and in the absence of mannose, *M. krusei* becomes specific for fructose and *vice versa*. The presence of saccharose was detd. by removing glucose and fructose and then hydrolyzing the saccharose with 0.01 *N* HCl. The HCl was neutralized with 0.01 *N* NaOH and an equimol. amt. of glucose and fructose was found in the soln. This was regarded as evidence of the presence of saccharose in the soln. *S. marxianus* was found to be efficient in the removal of galactose provided that glucose, fructose and mannose were first removed by *M. krusei*. *S. marxianus* is capable of removing saccharose but this introduced no error. *M. tropicalis* was chosen as the reagent for maltose on which it has a very rapid action. If *S. marxianus* is used previous to *M. tropicalis*, the latter becomes specific for maltose. Lactose detn. was least satisfactory. Glucose, fructose, mannose, galactose, saccharose and maltose were first removed, then the remaining soln. was hydrolyzed with an equal vol. of 2 *N* $H_2SO_4$ under pressure for 1 hr. The acid was then neutralized by solid $BaCO_3$ and the soln. filtered and tested for the resultant glucose and galactose. The hydrolysis of lactose proceeded to the extent of only 72% and the amt. present was calcd. from either the glucose or galactose formed. LOUIS J. SOFFER

**A critical comparison of color tests for fructose, pentoses and glucuronates in urine.** F. D. WHITE AND A. C. GREEN. *Trans. Roy. Soc. Can.* Sect. V, **26**, 145–57(1932).—The authors found that the various modifications of Seliwanoff's test for fructose in the urine, such as replacing the resorcinol with other reacting substances as *phloroglucinol, thymol,* or *diphenylamine*, were less sensitive than the original Seliwanoff test. The sensitivity of the original test could be increased if carried out with a dil. HCl soln. whose strength did not exceed 12% and the time of boiling was limited to 30 sec. The specificity of the Seliwanoff test was increased by clarification of the urine as follows: To 1 vol. of urine, 1 vol. of concd. HCl was added and the mixt. heated just to boiling. A dark brown color was produced. The mixt. was then allowed to stand for 2 min., a little norite was added, the mixt. was shaken, heated to boiling again and after standing for 2 min. was filtered. On boiling 8 drops of the filtrate with 5 cc. of the reagent for 30 seconds, the production of a pink color was regarded as a pos. test for fructose. By this method, the presence of fructose in at least 0.3% concn. was detected even in the presence of 3% glucose. The authors describe a new test for pentoses called the "aniline" test which consisted of adding 2 cc. of glacial AcOH and 5 drops of redistd. aniline to 2 cc. of sugar soln. The mixt. was heated to boiling, allowed to stand for 2 min. and the color extd. with 2 cc. of chloroform. Under these conditions 1% solns. of glucose and galactose gave green colors, fructose a pale yellow, glucuronates no color and arabinose a bright red color. This test was capable of detecting pentoses in amts. exceeding 0.03%. Conclusion: Those tests for pentoses and glucuronates employing Bial's reagent and naphthoresorcinol were unsatisfactory since some substance is present in normal urine which is capable of reacting with these reagents. LOUIS J. SOFFER

**The histological applications of triphenylmethane and diphenylnaphthylmethane dyes. I. The physicochemical characters of these dyes.** S. HASHIMOTO. *Japan. Z. Mikrobiol. Path.* **26**, 1075–1100(1932).—H. investigated the elec charge, the diffusibility, the coloring, the lipoid soly., the carbinol reaction and the toxicity of triphenylmethane and diphenylnaphthylmethane dyes. In general, the basic dyes have lipoid soly. while the acid dyes have not. The basic dyes are more toxic than the acid dyes. **II. Vital staining. Dyes which vitally stain protoplasmic granules.** *Ibid* 1101–14. **III. Vital staining. The relation between the physicochemical characters and the vital staining of protoplasmic granules.** *Ibid* 1115–28.—There is a close relation between the vital staining of protoplasmic granules by triphenylmethane and diphenylnaphthylmethane dyes and the elec. charge and the diffusibility of these dyes. I. S. YUN

**The application of triphenylmethane and diphenylnaphthylmethane dyes in morphological studies. IV. Vital staining of the capillary bile ducts of the liver.** S. HASHIMOTO. *Japan. Z. Mikrobiol. Path.* **26**, 1527–33(1932).—V. **Chromazurol S concentrate G. In histological work.** *Ibid* 1631–41. **VI. Mechanism of staining of dead tissues by the polychromatic dye chromazurol S concentrate. 2.** *Ibid* 1642–50.—Investigation of the mechanism of polychromasia assocd. with chromazurol S(G) from the colloid-electrochem. and spectrochem. standpoints showed that this dye is adsorbed electrically and chemically combined with amino acids or with proteins in the staining process. I. S. YUN

**Vital staining with diamine dyes.** KUMAKI FUJITA. *Trans. Japan. Path. Soc.* **21**, 206–8(1931).—More than 120 diamine dyes were investigated. Most dyes effective for vital staining are acid dyes. I. S. YUN

**Relation between the intensity of the staining reaction of cell granules and the composition of the fixing solution.** YUTAKA KON AND KATSUO TAKEDA. *Trans. Japan. Path. Soc.* **21**, 233–5(1931).—Mitochondria, chondriomites and chondriocontes could be easily demonstrated by means of HCl-formol. I. S. YUN

**Relationship between the chemical reaction of fixative solution and the basophilic granules in stained tissue.** KOHKICHI KATOH. *Trans. Japan. Path. Soc.* **21**, 236–7 (1931).—The diffuse staining of basophilic tissues was usually accentuated by fixation in alk. solution. I. S. YUN

ATHANASSIU, GEORG: **Über die Leberfunktionsprüfung mit Phenoltetrachlorophthalein.** Thesis, Kiel, 1930. 20 pp.

STÜER, MATTHIAS: **Histochemische Untersuchungen über den Eisengehalt in Leber und Milz vom gesunden und tuberkulösen Rinde und Pferde.** Thesis, Hanover, 1930. 48 pp.

VAHRENHORST, WILLY: **Die Brauchbarkeit der Kontrastmittel Tetragnost-Merck und Fellumin zur Cholezystographie beim Hunde.** Thesis, Hanover, 1931. 76 pp.

## C—BACTERIOLOGY

CHARLES B. MORREY

**A critical study of the methods for determining bactericidal properties of chemical sterilizers.** ROBERT P. MYERS AND ARNOLD H. JOHNSON. *Proc. Intern. Assoc. Milk Dealers, Lab. Sect.* **25**, 21–55(1932).—The ratio of available Cl to total alky. (as $Na_2O$) appears to be of aid in evaluating, by chem. means, the germicidal potency of hypochlorite prepns. Lower corrosiveness and lower bactericidal effectiveness are assocd. with high alky. Data and practical tests are given. PHILIP D. ADAMS

**Review of the methods proposed for isolating Eberth's bacillus from water.** GIULIO BUONOMINI. *Boll. ist. sieroterap. milan.* **11**, 271–83(1932).—The phys., chem., phys.-chem., biol., serological, etc., methods are described, and a bibliography is added. G. A. BRAVO

**Chromogenesis of Brucella in egg media.** MARCO MASTROEMI. *Boll. soc. intern microbiol. Sez. ital.* **4**, 268–72(in French)(1932).—*Brucella melitensis* and *B. abortus* cultivated on egg-contg. culture media show chromogenic properties, without modifications of morphological, cultural, pathol. and biol. characters. The bacterial pigment is probably formed by enzymic action, with degradation of protein, oxidation of tyrosine and successive condensation of products of the melanine type. G. A. BRAVO

**The influence of carbon dioxide on the rate of multiplication of certain bacteria, as judged by viable counts.** R. B. HAINES. *J. Soc. Chem. Ind.* **52**, 13–17T(1933). —"Viable counts have been made to det. the rate of growth of 3 species of bacteria isolated chiefly from meat in nutrient broth satd. with air and air contg. 10% and 20% $CO_2$, resp., at 20°, 4° and 0°. $CO_2$ in these concns. has but little action on *Proteus*, but increases the lag period and lengthens the generation time by about $^1/_2$ of *Pseudomonas* and *Achromobacter* at 20°. On the last 2 the effect is more marked at a lower temp., the generation time being more than doubled at 0° by 10% $CO_2$. The max. no. of organisms reached is the same in the presence and in the absence of $CO_2$, but the time for the attainment of this max. is approx. doubled at 0° by 10% $CO_2$. Ten % $CO_2$ is as effective as 20% in inhibiting the growth of *Achromobacter* at 0°, but it is not so efficient at 4°. The change in $p_H$ caused by the $CO_2$ does not account for the retardation of growth and it is suggested that an explanation may be found in the action of this gas on the dehydrogenating enzymes of the cell." F. L. DUNLAP

**Metabolism of the lactic acid bacteria. I. Nitrogen metabolism.** JOHN G. DAVIS AND ALEXANDER T. R. MATTICK. *J. Dairy Research* **4**, 81–90(1932).—The true lactic acid bacteria did not grow in a medium in which the sole source of N was an amino acid or an $NH_4$ salt. The presence of yeast ext., marmite and peptones did not permit the utilization of this "simple" N. The streptococci exhibited most rapid growth with those peptones contg. the greatest amt. of the higher fractions while the lactobacilli showed a considerably greater rate of fermentation with those peptones contg. the most amino N. Similarly the streptococci thrived the best on peptic casein digest which was about 15 days old, further digestion impoverishing the growth. The lactobacilli, on the other hand, grew better the longer the digestion of the casein. A. H. JOHNSON

**The bacteriological examination of milk. I. Modification of the agar plate count method. II. The use of methylene blue reductase test as a method of determining the keeping quality of milk.** E. R. HISCOX, W. A. HOY, K. L. LOMAX AND A. T. R MATTICK. *J. Dairy Research* **4**, 105–21(1932).—It was shown that neither lactose, dextrose, galactose, casein peptone nor yeast ext. could satisfactorily replace milk as a means of correcting discrepancies observed between plate counts of 1 to 100 cc. and 1 to

1000 cc. diln. of milk on standard agar. A close correlation was found between the appearance of a taint in milk and the reducing time for methylene blue at 15.5°.
A. H. JOHNSON

**Bacillus saprogenes saké Takahashi and the lactic acid bacteria which putrefy saké.** TEIZO TAKAHASHI AND AKIRA SUZUKI. *J. Agr. Chem. Soc. Japan* 8, 1064–8(1932).—*Bac. saprogenes* generally cannot be cultivated on koji ext., except on a few species of koji (*Aspergillus oryzae*) which produce mainly alc. When the juices or exts. of oranges, other fruits and vegetables were added to saké, the growth of *Bac. saprogenes* was remarkably promoted.
Y. KIHARA

**The chemical composition of ashes of bacteria.** A. DÂMBOVICEANU AND C. BARBER. *Arch. roumaines path. exptl. microbiol.* 4, No. 1(1931).—Detns. of P, Na, Ca and K were made on the ashes of *Staphylococcus, Streptococcus, Bacillus anthracis, Vibrio cholerae, Sh. dysenteriae, Eb. typhi* and *Sal. paratyphi* and *Phy. tumefaciens*. P and Na are present in greatest amt. The rough forms are richer in K than the smooth forms. The contents of K, Ca and Mg vary from one species to another.
MARIE MAXIM

**Self disinfection of solid surfaces.** A. THIROUX AND J. RISLER. *Bull. acad. méd.* 106, 39–41(1931).—Active charcoal was impregnated with thymol. *E. coli* and staphylococcus are rapidly destroyed on the surface. Impregnation with $CH_2O$ was not satisfactory.
A. E. MEYER

**The use of calcium chloride and brilliant green in soft agar spreading colony plates for the isolation of motile pathogenic fecal bacteria.** STEVAN Z. IVANIĆ AND V. DIMITJEVIĆ-SPETH. *Zentr. Bakt. Parasitenk., Abt. I* 126, 445–9(1932).
J. T. M.

**The physiology and chemistry of bacterial cell growth.** JULIUS HIRSCH. *Zentr. Bakt. Parasitenk., Abt. I* 127, 116–22(1932).
JOHN T. MYERS

**The influence of silica upon the growth of the tubercle bacillus.** R. M. PRICE. *Can. J. Research* 7, 617–21(1932).—The addn. of small amts. of sol. $SiO_2$ to modified Dorset egg medium enhanced the growth of the human type of the tubercle bacillus in the test tube. This is manifested by a lessening of the latent period and a greater luxuriance of growth.
J. W. SHIPLEY

**Antibacterial power of trypaflavine, isravin, panseptin and mercurochrome.** JUNICHIRO DOHI. *Japan. J. Dermatol. Urol.* 32, 952–6(1932).—The growth of *Staphylococcus albus* and *citreus, Streptococcus pyogenes* and *Es. coli* was completely inhibited by immersing in 1:200 diln. of trypaflavine, isravin, panseptin and mercurochrome for 1 min., in 1:500 for 10 min., in 1:1000 for 30 min. and in 1:2000 for 60 min. Immersion in 1:10,000 diln. for 60 min. did not kill these bacteria. Fluorescein derivs. possessed much more bactericidal power than the acridine derivs.
K. SUGIURA

**Enhanced lethal effects of x-rays on Escherichia coli in the presence of inorganic salts.** WALTER D. CLAUS. *J. Exptl. Med.* 57, 335–47(1933).—When *Es. coli* are irradiated by x-rays in a series of 0.1 *M* salt solns., the synergistic effect does not become appreciable until heavy salts are used. When $Pb(NO_3)_2$ or KBr solns. are used in increasing concns., the synergistic effect is not appreciable until large concns. or absorption coeffs. are reached, whereupon the effect increases sharply. Thus the no. of effective hits per bacterium per min., $\alpha$, is a function of the absorption coeff., $\mu$. The sharp increase in $\alpha$ does not occur at the same concn. or same $\mu$ for $Pb(NO_3)_2$ and for KBr. Thus $\alpha$ is a function of the nature of the salt, or possibly of the penetration of the salt into the cell, some measure of which may be obtained from the initial toxicity of the soln. For a given soln., $\alpha$ increases as the wave length $\lambda$ of the x-rays decreases, although $\mu$ decreases by the same process as the cube of $\lambda$. Thus $\alpha$ is a function of $\lambda$ to some power greater than the cube. Within the range investigated, short wave lengths of x-rays, in conjunction with sensitizers, are the most efficacious in producing lethal effects.
C. J. WEST

GÜNTHER, KONRAD: **Das Bacterium pullorum und seine Beziehungen zum Bacterium paradysenteriae gallinarum.** Thesis, Hanover, 1930. 79 pp.

NOBIS, JOSEF: **Über die Einwirkung von diastasierten Zuckern [Nähr- und Kinderzucker] auf die alkoholische Gärung und das Wachstum von Bakterium coli.** Thesis, Berlin, 1931. 23 pp

## D—BOTANY

THOMAS G. PHILLIPS

**Effect of reduced oxygen pressure on rice germination.** JENKIN W. JONES. *J. Am. Soc. Agron.* 25, 69–81(1933).—Rice sown on the surface of the soil, 1/2 in. deep and 1 in. deep, then continuously submerged, produced an av. of 78.14, 20.00 and 2.66% of seedlings, resp. When sown 1.5 in. or deeper and continuously submerged no seedlings were obtained unless O was forced into the soil. When continuously submerged a 1/2-in. layer of Stockton clay adobe soil materially reduced the O pressure and a layer 1 in. or

more in depth reduced the O pressure to a point at which normal germination did not occur. Under such conditions there appeared to be insufficient O to initiate growth of the radicle. Germination in pots into which O was forced indicates that a deficiency of O is probably the principal factor causing a lack of normal germination in rice seed sown at various depths and continuously submerged in $H_2O$. Early seeding of rice is preferable to late seeding because more O is dissolved in $H_2O$ at the low temps. in the spring and this insures a larger percentage of seedlings. J. R. ADAMS

**Nitrogen fixation in the genus Lolium.** R. BROWN. *Nature* **131**, 169–70(1933).—From a comparison of the leaf lengths and dry wt. of plants grown 7–8 weeks in sterile silver sand with and without added nitrate N, under bell jars through which a stream of air, a mixt. of 80% $H_2$, 20% $O_2$ and 0.03% $CO_2$, or a mixt. of 40% $H_2$, 40% $N_2$, 20% $O_2$ and 0.03% $CO_2$ was drawn, it seems probable that some of the N requirement is met by atm. $N_2$ though the full effect of exclusion of $N_2$ is masked by the stimulating effect of $H_2$. JANET E. AUSTIN

**The vitamin content of the culture media and the growth of some mycetes.** V. MANCA-PASTORINO. *Boll. ist. sieroterap. milan.* **11**, 425–37(1932).—The juices of fresh lemons, oranges and peas added (1–5%) to Sabourand's medium, and the presence in the culture media of peanut oil or sterogyl (a com. prepn. contg. vitamin D) increase the growth of several dermatophytes: *Trichophyton violaceum, T. roseum, T. pedis, Achorion schönleinii, Sporotricum gougeroti, Actinomyces bovis*, etc. G. A. BRAVO

**The action of anesthetics on the [plant] protoplasm.** ROSA GIAMBRA. *Lavori ist. botan. Palermo* **2**, 64–9(1931).—The cells treated with $H_2O$ contg. 3% $Et_2O$ for 1–2 hrs. showed an increase in osmotic pressure. G. A. BRAVO

**Oxalic acid in Oxalis cernua, Thumb.** G. CATALANO. *Lavori ist. botan. Palermo* **2**, 84–92(1931).—The oxalic acid content was examd. by plunging the sections in $AgNO_3$ soln.: a white ppt. is formed, which then turns brown, and finally black. It was observed that when the acid is present in excess in the plant, the excess is transformed into Ca oxalate. **Oxalic acid and the aging process in the organs of Oxalis cernua.** *Ibid* **3**, 13–41(1932).—The max. of oxalic acid (2% on fresh substance) was found in fully vegetating organs, while in the old organs, in the bulbs and resting seeds, the acid was found in very small quantities. G. A. BRAVO

**Hormone and growth substance.** H. v. EULER, H. HELLSTRÖM, L. PULKKI AND D. BURSTRÖM. *Arkiv Kemi, Mineral. Geol.* **11B**, No. 5, 5 pp.(1932).—The presence in the spectra of exts. of male and female begonia blossoms and alder catkins of adsorption bands similar to those of folliculin lends support to the assumption that the source of the sex hormones is in the plants. RACHEL BROWN

**Carbohydrate and nitrogen metabolism in the celery plant as related to premature seeding.** H. PLATENIUS. Cornell Univ. Agr. Expt. Sta., *Memoir* **140**, 66 pp.(1932).—Chem. examn. of the whole celery plant showed that the accumulation of carbohydrates was decidedly influenced by temp. At 4–10° the percentages of both starch and sugar increased. There were no indications that a lowering of the temp. caused transformation of starch into sugar, even at near-freezing temps. When plants were moved from a lower to a higher temp., transformations of carbohydrates occurred within a very short time to the levels of plants always kept at the higher temp. During the growing season both carbohydrates and N, based on dry wt., decreased slowly. Low temps. caused an increase in protein and a decrease in sol. N. Temp. was without effect on the synthesis of amino acids. Whenever amino N increased or decreased, nitrate N acted inversely. This lends proof to the theory that amino N is formed from nitrate N. An inverse relation also existed between amino and protein N; this indicates that protein is the result of a polymerization of amino acids. Morphological evidence of seed stalk formation was found fully 10 days before any change in chem. compn. was noted. With the development of reproductive organs, a considerable increase in metabolic efficiency took place; the growth curve was higher and carbohydrates were synthesized at a more rapid rate than in the corresponding vegetative plants. In the celery plant the formation of the reproductive organs is not detd. by nutritional factors which involve the entire plant. Low-temp. treatment of celery plants coupled with low carbohydrate content is assocd. with premature seeding. The changes in the plant which bring about this condition are not believed to be enzymic. It is possible that low temp. results in the formation of flower-forming substances of the nature of hormones. Fifty-two references are appended. C. R. FELLERS

**Assimilation of nutrients by Sudan grass.** LAJOS DWORÁK. *Kisérletügyi Közlemények* **35**, 28–44(1932).—Assimilation of K by Sudan grass stops at the flowering period but begins once more during the ripening of seeds. Sudan grass takes more N and less K out of the soil than the cereals. It requires most nutriment during the periods of stem and flower formation. For the formation of dry matter there is required in the beginning much P, then much N and finally much K. S. S. DE FINÁLY

**Phytochemical examination of the leafy tops of Amaranthus quitensis H. B. K.** LUIS FLORIANI. *Rev. centro estud. farm. bioquím.* **22,** 143–7(1932).—The plant is a weed commonly called "yuyo colorado" in Argentina. A botanical description and chem. analysis are given. It contains a new acid saponin provisionally named *quitensis-saponin.* L. E. GILSON

**Vitamin formation in plants.** ARTTURI I. VIRTANEN AND SYNNÖVE v. HAUSEN. *Naturwissenschaften* **20,** 905(1932).—Peas grown under sterile ($p_H$ 6.5, $KNO_3$ as N source), and those grown under natural, conditions produce equal amts. of carotene (around 1.3 mg. per g. dry substance) and vitamin C (27 and 14–19 cc. of 0.001 *M* 2,6-dichlorophenol-indophenol soln. per 10 g. dry substance). The plants synthesize vitamins A and C without coöperation of soil bacteria. The N source is of some influence; somewhat lower values for both vitamins are found if $(NH_4)_2SO_4$ is used; addn. of nitrification bacteria will improve the yield. B. J. C. VAN DER HOEVEN

**Chemical mechanism of photosynthesis.** ARTHUR STOLL. *Naturwissenschaften* **20,** 955–8(1932).—A review on $CO_2$ assimilation and chlorophyll chemistry. The work of Conant and co-workers (*C. A.* **25,** 1256) is discussed. In the recent chlorophyll formulas of S. one extra double bond is present which can be catalytically hydrogenated to give dehydrochlorophyllene *a* or *b* without change in color or spectrum; the H can be readily given up. This H is considered the active element in the function of chlorophyll in photosynthesis, activated $CO_2$ being the acceptor for this H. The original H can be derived from photodecompn. of $H_2O$ by chlorophyll into H + OH, the latter giving $H_2O_2$ and being subsequently decompd. into $H_2O + O_2$ by leaf catalase (Blackman reaction). None of the intermediary products accumulates; hence the assimilatory ratio $O_2/CO_2 = 1$. The assumption of a double photoreaction in assimilation, (1) $CO_2$ activation, (2) $H_2O$ decompn., seems supported by the trend of the fluorescence intensity during assimilation (Kautsky and Hirsch, *C. A.* **26,** 1637), for which an interpretation different from the one of Kautsky (*C. A.* **27,** 1029) is given. B. J. C. VAN DER HOEVEN

**Extractives of Acanthias vulgaris embryos.** FR. KUTSCHER, ERNST MÜLLER AND WILH. SPAHR. *Z. Biol.* **93,** 239–40(1932).—Choline and betaine were isolated but contrary to existing belief no trimethylamine oxide was found. FRANCES KRASNOW

**Role of vine reserve materials in the setting of fruit varieties and in the ripening of grapes.** L. MOREAU AND E. VINET. *Ann. agron.* [N. S.], **2,** 363–74(1932).—At the time of budding and ripening the necessary sugar is obtained largely from the vine structure, principally from the trunk. The root furnishes none. Sugar addns. to varieties not naturally rich in sugar and affected by spring freezing increased the no. of grapes. During grape growth sugars and acid increase only slightly until ripening when there is a sudden rise in sugar content and a slight decrease in acidity. These phenomena continue moderately during maturation. The vital forces initiating this mobilization depend on temp. and humidity. The sugar proportions in the sap of the grape variety studied were glucose 63 and levulose 37% during budding and ripening. F. W. MARSH

**Wood's rays and the physiological selection of rice seed.** R. CHIAPPELLI. *Giorn. risicoltura* **22,** 171–3(1932).—A new system of seed selection is based on the fluorescence of seed under Wood's rays, indicating loss of vitality. ALBERT R. MERZ

**The influence of some colloidal solutions on the development of Aspergillus niger.** G. ROSSI AND A. MARESCOTTI. *Biochim. terap. sper.* **18,** 482–8(1932); cf. *C. A.* **26,** 5123.—Colloidal solns. of S, $As_2S_3$ and of Congo red, when added to Raulins culture medium with 2% agar, inhibit the growth of *Aspergillus niger.* Congo red has the greatest effect, $As_2S_3$ the least. Below a certain limit of concn. the growth is only retarded. A. E. MEYER

**The photochemical reaction in photosynthesis.** ROBERT EMERSON AND WM. ARNOLD. *J. Gen. Physiol.* **16,** 191–205(1932); cf. *C. A.* **26,** 3822.—Measurements of photosynthesis in continuous and flashing light of high intensity showed that the amt. of chlorophyll present per mol. of $CO_2$ reduced per single flash of light was about 2480 mols. The time required for 1 unit in the photosynthetic mechanism to complete the cycle of photochem. and Blackman reactions was about 0.02 sec. at 25°. The rate of the photochem. reaction is described by the equation, $R = AIN$, where $A$ is a velocity const., $I$, the intensity of light and $N$, the no. of units in the photosynthetic mechanism. C. H. RICHARDSON

**Literature on pollen statistics and related topics published in 1930 and 1931.** G. ERDTMAN. *Geol. Fören. Förh.* **54,** 395–418(1932).—A continuation of the list noted in *C. A.* **22,** 102, with 261 titles. WILHELM SEGERBLOM

**The biological study of radiosensitivity.** J. NAKAGAWA. *Japan. J. Obstet. Gynecol.* 15, 304–12(1932).—The sensitivity of the young plant, *Pisum sativum,* to x-rays was increased by administering the chlorides of K, Mg and Ca in certain concn. The degree

of distufbance which the ions of K, Mg and Ca caused in the growth of the plant was in the order K>Mg>Ca, and the effects in increasing the radiosensitivity, Ca>Mg>K. Addn. of the chlorides of Al, Fe, Cu, Zn, Sn, Ba, W, Hg and Pb to culture media brought a marked increase in the radiosensitivity of the plant, and the intensity increased approx. in the order Ba, Sn<Al<Pb, W<Fe<Cu<Zn<Hg. K. SUGIURA

AICHELE, FRITZ. **Keimung von Gramineensamen in Medien verschiedener Wasserstoffionenkonzentration und die damit verbundenen Reaktionsveränderungen.** Thesis, Tübingen, 1931. 95 pp.

BIEDERMANN, WERNER: **Orthosiphon staminens Benth. sowie ein Beitrag zur Verhalten des Emetins bei der Zinkstaubdestillation.** Thesis, Jena, 1931. 27 pp.

GROTE, RUD.: **Der Wasserhaushalt von Hafersorten.** Thesis, Göttingen, 1931. 43 pp.

HOEHN, ROLF: **Über Schädigungen von Pflanzen durch Gase, Dämpfe, Staub und Rauch.** Thesis, Würzburg, 1931. 43 pp.

HOPMANN, OTTO: **Über das Vorkommen und die Mikrochemie des Amyloids in pflanzlichen Zellhäuten.** Thesis, Münster, 1930. 47 pp.

KASSAU, ERICH: **Beiträge zur Systematik einiger Polygalaceen-Gattungen unter Ber. des Vorkommens von Saponin.** Thesis, Berlin, 1931. 40 pp.

KRIPAS, STASYS: **Der Kalkhaushalt verschiedener Holzarten auf einigen typischen Standorten Litauens.** Thesis, Tharandt, 1931. 75 pp.

SCHNEIDER, GÜNTHER: **Über die Berücksichtigung des Saponins für die Pflanzensystematik innerhalb der Ranunculaceentribus der Anemoneae.** Thesis, Berlin, 1931. 50 pp.

## E—NUTRITION

PHILIP B. HAWK

**Experimental rickets in rats. V. Toxicity of irradiated ergosterol preparations.** P. GYÖRGY AND G. POPOVICIU. *Jahrb. Kinderheilk.* **82**, 34–74(1931).—By irradiation of ergosterol a highly antirachitic but nontoxic prepn. has not yet been obtained. B. C. A.

**The cause of infections following lack of vitamin A.** PH. ARONS AND MARY P. J. VAN DER RIJST. *Nederland. Tijdschr. Geneeskunde* **76**, IV, 5445–57(1932).—Products of glandular excretion accumulate leading to keratinization of the ducts, thus producing a favorable substrate for the bacteria. R. BEUTNER

**Vitamin deficiency in the antenatal period, its effects on the mother and infant.** J. PRESTON MAXWELL. *J. Obstet. Gynaecol. Brit. Empire* **39**, 764–76(1932).—Vitamin deficiency may prove to be the cause of a no. of the cases of hemorrhagic disease in the newborn. RACHEL BROWN

**The need for standardization of products containing added vitamins.** KATHLEEN CULHANE AND S. W. F. UNDERHILL. *Chemistry and Industry* **1933**, 66–8.—A general discussion. F. L. DUNLAP

**The comparative value of various protein foods for growth.** ÉMILE F. TERROINE AND SIMONE VALLA. *Compt. rend.* **196**, 288–90(1933).—A study of the effect of 18 substances on the growth of young pigs. A mixt. of skimmed milk and starch, together with the necessary minerals and vitamins, constitutes a regimen for growth *par excellence* Among the cereals, barley shows a marked superiority. The complete proteins from wheat (Graham flour) are better than those in flour of shorter extn. Soy-bean flour is among the better protein foods of vegetable origin. Peanut-flour proteins are equal in value to those from whole wheat. F. L. DUNLAP

**A method of animal tests for vitamin A.** SEI-IHI UENO, YASUO OTA, KŌTARO TONE AND SHIGERU YOKOYAMA. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding 491–2(1932) —Feeding tests for vitamin A were made on carp (*Cyprinus caprio* Linné). The only defect of this method is the falling of the water temp. during the winter season, which leads to a weakening of the fish. F. L. DUNLAP

**The decrease in vitamin A by the heat treatment of milk.** S. SCHMIDT-NIELSEN, ARNE FLOOD AND JØRGINE STENE. *Kgl. Norske Videnskab. Selskab Forh.* **5**, 110–13 (1932).—A comparative test with rats of butter fat, obtained from the same sample of milk, a portion of which was unheated, a portion pasteurized and a portion stassanized. The butter fat from the pasteurized milk (63° for 30 min.) showed greater vitamin A loss than did that from stassanized milk (heating in a closed system to a max. of 73° for 15 sec. and immediate cooling to 2° out of contact with air). F. L. DUNLAP

**Effect of the conditions of storage on the vitamin D potency and on other features of cod-liver oil.** E. J. SHEEHY. *Sci. Proc. Roy. Dublin Soc.* **20**, 463–8(1932).—"A good quality sample of cod-liver oil does not materially alter its vitamin D potency when stored for 16 months—(1) in a completely filled and sealed transparent bottle exposed

to light, (2) a similar bottle kept in a dark cupboard, (3) a completely filled and sealed tin-lined container and (4) a barrel partly filled with oil." F. L. DUNLAP

**Experimental dietetic studies on the utilization of fish meat and fish roe.** A. BICKEL. *Arch. Verdauungskrankh.* **52**, 361–76(1932).—Caviar is rich in protein, lecithin and fat. It increases gastric secretion to a greater extent than ordinary meat, contains a significant amt. of growth vitamin, and its protein is almost completely absorbed in the intestinal canal. Fish (perch-pike) meat is almost pure protein, has a marked stimulating action in gastric secretion, is completely absorbed from the intestinal tract, and, in the raw state at least, contains a large amt. of growth vitamins. HARRY EAGLE

**Magnesium rachitis.** GEORG MEYER ZU HÖRSTE. *Klin. Wochschr.* **11**, 1796 (1932).—A preliminary report. The addn. of $MgCO_3$ to an otherwise satisfactory diet causes a P-deficient rachitis in rabbits and rats, similar to that caused by $CaCO_3$. Histologically and chemically the condition so produced resembles the rachitis of infancy, as well as that caused by P deficiency in rats; moreover, it is cured by the same therapeutic agents effective in the rachitis of children. In considering the etiology of the disease, one must therefore consider the ratio Ca + Mg/P, instead of merely Ca/P. HARRY EAGLE

**The effect of Lugol's solution upon the adrenaline effect in Basedow's disease and beriberi.** W. C. AALSMEER. *Klin. Wochschr.* **11**, 2111–13(1932); cf. *C. A.* **26**, 3837.—In beriberi, as in hyperthyroidism, Lugol's soln. has a therapeutic action, suggesting that the thyroid may be involved in the former. The effect of adrenaline upon the circulation, used as a clinical measure of the degree of hyperthyroidism, soon becomes less pronounced in both conditions upon the administration of I. HARRY EAGLE

**Deterioration of alfalfa hays resulting from rain.** EARL DOUGLASS. Colo. Agr. Expt. Sta., *45th Annual Rept.* **1931–2**, 32–4.—Alfalfa hay cured in diffused light contained an av. of 52 units of vitamin A per g.; that cured in direct sunlight averaged only 27 units. Approx. 56% of the vitamin A was lost from cut alfalfa hay after a 1 in. rain; after a 2 in. rain the loss was 73% in the first cutting. There is a progressive increase in both vitamins A and B (complex) from the bud to the one-half bloom stage of growth. Vitamin B is richest in the first cutting, the third cutting contg. only $^1/_2$ as much as the first. Vitamin B is conserved to a much greater degree in alfalfa cured in diffused sunlight. C. R. FELLERS

**Relation of the vitamin B complex to renal enlargement caused by cystine and protein in the diet of the rat.** BERNARD B. LONGWELL, ROBERT M. HILL AND ROBERT C. LEWIS. *J. Nutrition* **5**, 539–50(1932).—Vitamin B complex prevents abnormal development of the kidney of the rat under the influence of cystine or excess casein. A concn. of 0.6% cystine or an excess of casein caused renal hypertrophy but 0.3% of cystine did not. The hypertrophy could be prevented by the administration of vitamin B complex. Graded doses of whole yeast ext. caused a progressively decreasing response on the part of the kidney to the administration of cystine. Cystine was not nephrotoxic to rats in the sense of causing degenerative lesions of the kidney. Thirty-five references are appended. C. R. FELLERS

**Protein requirements of the albino mouse.** FRANKLIN C. BING, W. LLOYD ADAMS AND RUSSEL O. BOWMAN. *J. Nutrition* **5**, 571–9(1932).—The protein requirements of the mouse are certainly fulfilled by diets contg. 15.6% casein and probably somewhat less would be satisfactory. However, inasmuch as the livers of the mice fed 7.8% casein contained only $^1/_2$ as much glutathione as mice fed 15.6% or more casein, and growth was somewhat stunted, it seems probable that 7.8% was insufficient. The protein requirements of rats and mice are nearly the same. C. R. FELLERS

**Calcium and phosphorus of saliva in relation to dental caries.** REBECCA B. HUBBELL AND RUSSEL W. BUNTING. *J. Nutrition* **5**, 599–605(1932).—In a group of children 7–16 yrs. old there was no relation between Ca and P contents of the saliva and the occurrence of dental caries. When the diet was supplemented by the daily addn. of 1 qt. of milk and 2 oz. of tomato juice, with or without viosterol, there was a slight tendency toward a decrease in the incidence of dental caries. This improvement in tooth condition was not accompanied by any consistent change in the salivary Ca and P. In interpreting salivary analyses, the vol. of saliva secreted in a given time should be considered. C. R. FELLERS

**Utilization of calcium and phosphorus by dairy heifers; high and low calcium roughages.** O. C. CUNNINGHAM, L. H. ADDINGTON AND W. E. WATKINS. N. Mex. Agr. Expt. Sta., *Tech. Bull.* **206**, 3–18(1932).—There was no material difference in the use of P by heifers receiving cane hay or alfalfa hay. Wood gnawing, in this expt., was not an indication of P deficiency. A calf up to 1 yr. of age should have a Ca and P intake of at least 31.7 and 16.3 g., resp., per day, providing at least 50% of the ash of the feed is available. Numerous P and Ca balances are reported. C. R. FELLERS

**Cottonseed meal studies.** C. H. HUNT. Ohio Agr. Expt. Sta., *Bimonthly Bull.*

158, 178–82(1932).—Feeding expts. with rats showed cottonseed meal was deficient in certain amino acids (unnamed) and in minerals. When supplemented with casein, alfalfa, yeast, etc., the meal gave good growth gains. About 20% of the ration is the max. amt. of raw cottonseed meal which when properly supplemented can be fed to rats and still obtain good growth. *Gossypol*, the poisonous principle of cottonseed, is much more toxic to the hog than to the rat (5 to 1). About 75% of the gossypol content of raw cottonseed is destroyed in the prepn. of com. cottonseed meal. Even com. meal retains sufficient toxic principle to produce somewhat abnormal reproduction in the rat. The meal is a good source of vitamin B complex. The administration of $Fe_2O_3$ did not reduce the toxicity of the cottonseed meal. C. R. Fellers

**Vitamin D requirements of dairy calves.** S. I. Bechdel and K. G. Landsburg. Penna. Agr. Expt. Sta., *Bull.* 279(45th Annual Rept.), 9(1932).—Sun-cured alfalfa hay when fed as a supplement to calves at the 2.5 lb. daily level showed no rickets whereas dehydrated alfalfa hay resulted in the development of mild rickets. Rat-feeding tests verified the results obtained with calves. A daily exposure of 30 min. to a C arc lamp cured or prevented rickets in calves when fed a basal rachitic diet. The growing calf was able to utilize the antirachitic factor supplied by activated ergosterol. Rat-feeding as well as calf-feeding trials indicated that oat straw carries considerable vitamin D C. R. Fellers

**Hock disease in poultry.** J. E. Hunter, H. C. Knandel, R. Adams Dutcher and N. B. Guerrant. Penna. Agr. Expt. Sta., *Bull.* 279(45th Annual Rept.), 10(1932).—Two % of bonemeal in a poultry ration caused 50% of the chicks to develop hock-joint disease, while an equiv. amt. of $Ca_3PO_4$ had no effect. When $CaCO_3$ was fed so that the Ca intake was equiv. to 2% of bonemeal, hock disease developed. The feeding of oat hulls, which contain vitamins B and G in appreciable amts., prevented the disease C. R. Fellers

**Lime and phosphoric acid requirements for chicks.** R. M. Sherwood. Tex. Agr. Expt. Sta., *Bull.* 462, 2–14(1932).—The $P_2O_5$ requirement for the 1st 6–8 weeks is higher than for a period of 12 weeks. With the rations used, 0.65–0.87% P and 1.07–2.14% of Ca were required for greatest growth gains. With chicks grown to 12 weeks of age and receiving rations contg. 12–18% of dried buttermilk, the P requirement for satisfactory gain in wt. was 0.48–0.53%. Under these conditions the Ca requirement was 0.93–1.36%. These results agree very well with those of Wilgus (*C. A.* 26, 2221). The mineral requirements recommended for normal gains in live wt. also resulted in satisfactory calcification of the bones. C. R. Fellers

**Calcium and phosphorus requirements of dairy cows. II. Weekly balances through lactation and gestation periods.** H. B. Ellenberger, J. A. Newlander and C. H. Jones. Vt. Agr. Expt. Sta., *Bull.* 342, 2–20(1932); cf. *C. A.* 26, 3009.—In all, 10 trials were completed on the Ca and P balances of 5 cows through complete lactation and gestation periods. Slightly pos. Ca and P balances were found, with 1 exception, in all cows who had ended their second lactation and gestation periods. There was a decided increase in the amt. of Ca stored but a slight decrease in the amt. of P retained when no mineral supplements were given. By considering all trials of each cow together, with and without mineral supplements, there was a substantial storage of both Ca and P in each case. C. R. Fellers

**The metabolism of animal organisms. II.** László Urbanek *Mezögazdasági Kutatások* 5, 355–66(1932).—A relatively small disturbance in the salt metabolism very considerably diminishes the power of resistance of the organism against contagious diseases. Insufficient intake of mineral substances is not compensated by addn. of vitamin D alone to the ration. The quality of fodder plants should be detd. with respect to their effect on mineral metabolism. S. S. de Finály

**Vitamin D.** Viktor Kurelec. *Mezögazdasági Kutatások* 5, 381–5(1932).—A review. S. S. de Finály

**Carotene in the endocrine glands of bovine cattle.** Roger Nettier *Bull. soc. chim. biol.* 14, 1555–9(1932); cf. *C. A.* 26, 5328.—Crystallizable carotene was isolated from the suprarenals, ovaries and testicles. The hypophysis contained a trace and the thymus and thyroid none. L. E. Gilson

**The magnesium-potassium-calcium ratio in the diet of Egyptian peasants.** P. Schrumpf-Pierron. *Compt. rend. soc. biol.* 111, 996–8(1932).—Analyses of the ash of the foods commonly eaten by the fellah class of Egypt are given. The diet is much higher in Mg than the av. European diet. L. E. Gilson

**The origin of vitamin D in the organism.** F. Venulet and F. Gorbel. *Compt. rend. soc. biol.* 111, 1026–8(1932).—Rats were kept on McCollum's diet 3143 until rachitic. The addn. to the diet of ultra-violet-irradiated feces of rachitic rats or non-irradiated feces of normal rats had no effect, but 10% of irradiated feces of normal rats caused recovery. Rachitic rats were killed, hashed and dried. This tissue mixt. when

fed had no antirachitic effect, but if irradiated before feeding it became markedly antirachitic. L. E. GILSON

**Effect of dinitro-α-naphthol on the glycogen of pigeons deprived of vitamin B.** C. HEYMANS AND H. CASIER. *Compt. rend. soc. biol.* **111**, 1078–80(1932); cf. *C. A.* **26**, 5339.—Pigeons were deprived of vitamin B until they had lost 28% in wt., then daily doses of 1–5 mg. 2,4-dinitro-α-naphthol per kg body wt. were injected. No hyperthermia occurred but a rapid decrease in liver glycogen was produced. L. E. G.

**Nutrition in relation to reproduction, with special reference to sterility.** I. LEITCH. *Nutrition Abstracts and Reviews* **2**, 451–8(1933).—A review. E. H.

**Effects of vitamins A and D on antibody production and resistance to infection.** MERIDIAN RUTH GREENE. *Am. J. Hyg.* **17**, 60–101(1933).—The sera of rabbits deficient in vitamins A and D were normal for natural hemolytic antibodies for sheep red corpuscles. Rabbits deficient in vitamin A exhibit a marked lack of response to immunization with sheep or ox red cells. The titer of the serum of each control animal was 10–300 times higher than that of the corresponding vitamin-deficient rabbit injected at the same time. Animals deficient in vitamin D respond normally to sheep red blood cells. Rabbits deficient in vitamins A and D showed no change in the normal agglutinin content of the sera for *B. typhosus*. There appeared to be a slight tendency for rabbits depleted of vitamin A to respond with lower titers than controls to immunization with *B. typhosus*. Acquired agglutinins for *B typhosus* were normal in the rabbits deficient in vitamin D. Rabbits deficient in vitamin D showed no difference in normal and acquired hemagglutinins for sheep red cells when compared with control animals. Rabbits on diets deficient in vitamins A and D showed no change in the serum complement. The temps. of rabbits deficient in vitamin A and D remained normal during the period of depletion. Rabbits deficient in vitamins A and D showed no difference in erythrocyte counts when compared with their resp. controls. Rabbits on a diet deficient in vitamin A reacted with a definite leucocytosis, which appeared with xerophthalmia, in about 75% of the animals. The leucocyte counts of the rabbits deficient in vitamin D were normal. In the xerophthalmia group 53% showed a decided abs. increase in pseudoeosinophils when compared with the control group. A lymphocytosis occurred in the rachitic animals and their controls, but it occurred in a higher percentage of the rabbits deficient in vitamin D and had a tendency to be considerably greater. After the appearance of xerophthalmia there was a change in the nasal flora of the rabbits deficient in vitamin A. The flora of the vitamin A controls and that of the rachitic group did not change. Spontaneous infections with *B. pyocyaneus* occurred in rabbits deficient in vitamin A, but not in animals deficient in vitamin D nor in the controls of either group. Rabbits deficient in both vitamin A and vitamin D are more susceptible to intranasal infection with *Bact lepisepticum* than control animals. Rabbits deficient in vitamin A are more susceptible to intravenous infection with type I pneumococcus than normal controls. Rachitic rabbits showed a higher morbidity and mortality following intranasal inoculation with type I pneumococcus than the control animals. There are 32 references to the literature. J. A. KENNEDY

**Health aspects of fruit beverages.** WALTER H. EDDY. *Am. J. Pub. Health* **23**, 129–37(1933). Results in general give further support to the suggestion that fruit juices may have a supplementing effect in making more utilizable other factors in food mixts. The mechanism by which the effect is accomplished is not demonstrated by expts. to date but several leads have been suggested and are being followed. Tabulated data are given for: (1) dietary studies on 3 boys using a banana diet, (2) milk modified with banana sugar, (3) effect of varying proportions of banana in rat diets on retention of Ca, P and N, (4) the effect of sugars on intestinal flora and H-ion concn., (5) the effect of banana sugar on *B. enteritidis* and (6) the effect of fruit juices on the rate of absorption of Ca salt. J. A. KENNEDY

**Vitamin A. I. The absorption spectra of carotenoids.** KOZO KAWAKAMI. *J. Agr. Chem. Soc. Japan* **8**, 48–54(1932). β-Carotene isolated from *Daucus, Capsicum* or spinach has absorption bands between 3300 and 3400 A. U. and between 2630 and 2950 A. U. Biosterol also has an absorption band between 3300 and 3400 A. U. The absorption bands of xanthophyll and lutein could not be distinguished from those of carotene, while α-crocetin and capsanthin have very different absorption bands. **II. Properties of hydrocarotene and its physiological action.** *Ibid* 55–63.—Carotene was dissolved in a mixt. of hexane and EtOH and reduced with Al amalgam for 3 hrs. A light reddish orange oil was obtained. The reactions and the absorption bands of hydrocarotene resembled those of biosterol, but it did not have the effects of vitamin A in albino rats. **III. Relation between hydrocarotene and biosterol.** *Ibid* 64–71.—An ether soln. of biosterol was treated with Grignard reagent. A ppt. was formed and at the same time $CH_4$ was generated. The ppt. was practically insol. in petroleum ether. The color reaction of biosterol with concd. $H_2SO_4$ was found only in part of the ppt. The genera-

tion of $CH_4$ indicates the existence of a OH group in biosterol. Carotene and hydrocarotene do not react with Grignard reagent, and hence hydrocarotene is not contained in biosterol. Xanthophyll was reduced with Al amalgam at 60–70° to hydroxanthophyll, which reacts with Grignard reagent and resembles biosterol in its chem. properties and absorption spectrum. It does not have the effects of vitamin A in albino rats.
Y. KIHARA

**Nutritive value of various types of phosphoric acids.** KATSUO TAKAHASHI. *J. Agr. Chem. Soc. Japan* **8**, 515–18(1932).—Na salts of orthophosphoric acid (secondary salt), pyrophosphoric acid, metaphosphoric acid, hypophosphorous acid, glycerophosphoric acid and phytic acid, and Ca salts of orthophosphoric acid (secondary salt) and hexosediphosphoric acid were used. The phosphate (1% as free acid) was given to albino rats along with the basal ration contg. muscle protein 17, starch 60, butter 20, salts without P 3% and a small amt. of oryzanin. No growth took place with hypophosphorous acid and without phosphoric acid. In the other cases normal growth was observed.
Y. KIHARA

**Physiological actions of ether-soluble substances of polished rice. [Supplement].** YOSHIKAZU SAHASHI. *J. Agr. Chem. Soc. Japan* **8**, 1093–1103(1932); cf. *C. A.* **27**, 756.—Higher unsatd. fatty acids such as clupanodonic acid and hiragonic acid hindered the growth of rats. Albino rats were fed with polished rice freed from fat 90, muscle protein 10 and McCollum salt 4. No toxicosis could be found. When 1% of pure fatty acids such as oleic, linoleic, linolenic acid was added, growth was rather good. Linolic acid of rice is necessary for normal nutrition. The portion of lower b. p. and the liquid unsaponifiable matter in the ether-sol. substances of the rice were given *per os* Toxic action could not be demonstrated. From unsapd. matter sterols crystd. out The properties of sterol coincide with those of phytosterol. Trace of ergosterol in sterols was indicated by color reactions, etc. Albino rats were separately fed with extd. polished rice and wheat flour for a half year. The difference between their nutritive value could not be observed.
Y. KIHARA

**The nutritive value of pentosan. III. The glycogen accumulation in the body of rats on xylan feeding.** HISAYOSHI IWATA. *J. Agr. Chem. Soc. Japan* **8**, 1175–9; *Bull. Agr. Chem. Soc. Japan.* **8**, 90–3(1932); cf. *C. A.* **25**, 3036.—Xylan was given to starving albino rats; of glycogen an accumulation in the body was found. It is, however, little less than in starch feeding This may be attributed mainly to the difficulty in the digestion of xylan by rats. If the quantity of glycogen is calcd. for the unit of the digestable substance, there is little difference between starch and xylan. **IV. The methods of treatment and the kinds of animal for the digestibility of pentosan.** *Ibid. J Agr Chem. Soc. Japan* **8**, 1252–8; *Bull. Agr. Chem. Soc. Japan* **8**, 93–5(1932) —When the straw of rice, barley, wheat, *Panicum crus-galli* L. var. frumentaceum, Hook or coarse hay of *Muscanthus sinensis* Anders. was soaked in a cold 0.75–1.5% NaOH for 4 hrs., or in 1% $Ca(OH)_2$ for 2 days, or boiled in 1% $Ca(OH)_2$ for 1.5–3 hrs., the digestibility of pentosan was 1 4–2.1 times that of the untreated materials. When rice straw was soaked in 0.25% NaOH for 4 hrs., or in the wood ash soln. for 2 days or boiled in $H_2O$ for 3 hrs, no increase of the digestibility could be found. The rabbit digested 78.9% of xylan, the albino rat 33.1% and the guinea pig 62.9%.
Y. KIHARA

**The present status of the ketogenic diet.** D. SCHUYLER PULFORD. *Ann. Internal Med.* **6**, 795–801(1932).
JOHN T. MYERS

**Changes in the testes of rats kept on a diet deficient in vitamin A.** MYRA M SAMPSON AND V. KORENSCHEVSKY. *J. Path. Bact.* **35**, 875–87(1932); cf. *C. A.* **27**, 755, 1031.
JOHN T. MYERS

**The occurrence of vitamin C in the Eriwan grape.** AKOP JOHANNISSIAN AND HRATSCHJA BUNIATIAN. *Bull. inst. sci. R. S. S. Arménie* **1931**, 213–28(Russian 229–31)(Summary 231–4 in German).—Quant. results in vitamin C assay are obtained from the Bezssenov color test, even though it gives a pos. test with *o*- and *p*-substituted aromatic compds. This method was employed in detg. the vitamin C content of several kinds of grapes, feeding expts. on guinea pigs being used as controls. All the Eriwan grapes examd. contained vitamin C. Orthuzi-Djilari, Muscat, Chardji and Chatscha basch grapes contained more vitamin C than the others examd.
W. G. ROSE

**The importance of potassium for the animal organism.** F. BUROW. *Kunstdünger u. Leim* **30**, 5–7(1933).—A brief review.
C. J. SCHOLLENBERGER

**The effect of the ingestion of a large amount of fat and of a balanced meal on the blood lipides of normal man.** EVELYN B. MAN AND EDWIN F. GILDEA. *J. Biol. Chem.* **99**, 61–9(1932).—The ingestion of 3.5–4 g. fat per kg. body wt. raised the non-phospholipide fatty acids of the serum from the normal value of 5.0–9.4 to values from 8.7 to 22.0 milliequivs. per 100 cc. serum, an av. rise of 62%. The phospholipide fatty acids were increased about 18%. A balanced meal increased the non-phospholipide fatty acids by an av. of 21% but only slightly affected the phospholipides.
K. V. T.

**The antirachitic potency of eggs from hens receiving massive doses of activated ergosterol.** FRANCIS G. MCDONALD AND O. N. MASSENGALE. *J. Biol. Chem.* **99**, 79–83(1932).—Pullets receiving 2 g. cod-liver oil per 100 g. diet produced egg yolks whose oil had a cod-liver oil coeff. of only 0.7. Substitution of 2 g. activated ergosterol contg. 10,000 units per g. for the cod-liver oil gave a yolk oil with a cod-liver coeff. of 130. The transfer of vitamin D from food to eggs is thus as inefficient as the transfer from food to milk by the cow. Egg-yolk oil administered to baby chicks was not as effective a source of vitamin D as cod-liver oil of the same vitamin content. K. V. THIMANN

**The fate of the antirachitic factor in the chicken. II. The effectiveness of the factor administered by mouth and intraperitoneally.** WALTER C. RUSSELL, M. W. TAYLOR AND D. E. WILCOX. *J. Biol. Chem.* **99**, 109–18(1932); cf. Klein and Russell, *C. A.* **26**, 1014 and preceding abstr.—The bone-ash percentage in chicks fed irradiated ergosterol was markedly less than in chicks fed cod-liver oil contg. only one-sixth the amt. of vitamin D. However, the serum Ca and phosphate were the same in the two groups. Whether the vitamin was given by feeding or injection the results were the same, except that when given by injection, the serum phosphate and the total body wts. of the chicks were somewhat lower. K. V. THIMANN

**Changes in phosphoric ester content of the red blood cells and the liver in experimental rickets.** H. D. KAY. *J. Biol. Chem.* **99**, 85–94(1932).—The phosphatase content of the tissues of rachitic rats was not significantly different from the normal The acid-sol. phosphoric esters in the red blood cells, however, fell from 55–71 in the normal to 33–53 mg. per 100 cc. in the rachitic animals. A similar decrease in the acid-sol. phosphoric esters in the liver is partly set off by the fact that these compds. increase in amt. with increase in the size of the animal. The addn. of viosterol or cod-liver oil to the rachitogenic diet increases the values in the red corpuscles toward the normal K. V. THIMANN

**Studies on vitamin G [$B_2$] with special reference to protein intake.** H. C. SHERMAN AND I. A. DERBIGNY. *J. Biol. Chem* **99**, 165–71(1932).—Rats on a diet contg. 12 and 18% protein made considerable gains in wt. although deprived of vitamin G ($B_2$). When the protein constituted only 6% of the diet the gains in wt. were slight or neg. There is thus a definite relation between protein supply and susceptibility to vitamin G deficiency K. V THIMANN

**Vital need of the body for certain unsaturated fatty acids. III. Inability of the rat organism to synthesize the essential unsaturated fatty acids.** HERBERT M EVANS AND SAMUEL LEPKOVSKY. *J. Biol. Chem.* **99**, 231–4(1932); cf *C A*. **26**, 3547.—The Me esters of the body fats of rats on various diets were fed to animals on a fat-free diet. The fat from rats on stock diets or from 21-day-old daughters of these rats, just weaned, contained the unsatd. fatty acids essential for growth, but fats from animals on fat free diets were lacking in these compds K V. THIMANN

**The sparing action of fat on vitamin B. IV. Is it necessary for fat to interact with vitamin B in the alimentary canal to exert its sparing effect?** HERBERT M EVANS AND SAMUEL LEPKOVSKY. *J. Biol. Chem* **99**, 235–6(1932); cf. *C. A.* **26**, 3548.—Fat was just as sparing on the requirement of vitamin B in rats when the latter was administered intraperitoneally as when it was given in the diet. **V. The role of glycerides of oleic acid.** *Ibid* 237–40.—Pure oleic glycerides have about the same vitamin-B-sparing action as natural fats On an inadequate vitamin-B supply, glycerides of corn oleic acid are rather less satisfactory, however. The mixed glycerides of oleic and stearic acids were superior in growth-promoting action to glycerides of either acid separately. K. V. T.

**The use of the chick in vitamin $B_1$ and $B_2$ studies.** O. L. KLINE, J. A. KEENAN, C. A. ELVEHJEM AND E. B. HART. *J. Biol. Chem.* **99**, 295–307(1932).—A mixt. of yellow corn 58, middlings 25, casein 12 and NaCl 1 part contains sufficient vitamins $B_1$ and $B_2$ for the maintenance of chicks; together with 2 parts of cod-liver oil and 2 parts of $CaCO_3$ it makes a complete diet. It can be freed from vitamin $B_1$ by autoclaving at 120° for 5 hrs. (diet A) or from vitamin $B_2$ by heating dry at 95–100° for 44 hrs. (diet H). The severe polyneuritis induced in chicks by diet A is cured by the addn. of a vitamin $B_1$ concentrate, and the pellagra induced by diet H is cured by the addn. of autoclaved yeast. K. V. THIMANN

**A study of the heat stability of the vitamin B factors required by the chick.** C. A. ELVEHJEM, O. L. KLINE, J. A. KEENAN AND E. B. HART. *J. Biol. Chem.* **99**, 309–19 (1932).—The vitamin $B_1$ in yeast and in the mixed diet of the preceding abstr. was largely destroyed by heating moist at 100° for 24 hrs. but not by heating dry. The destruction of vitamin $B_2$ on heating dry at 100° was, after 24 hrs., 0%, after 72 hrs., 50%, and after 144 hrs., 100%. In yeast, which contains about 25 times as much vitamin $B_2$ as the diet, the rate of destruction was about half as great. Neither vitamin $B_2$ nor any other thermolabile growth factor is required for the normal growth of chicks. K. V. THIMANN

**Significance of studies of ketosis and of nitrogen and water balance to obesity diets.**

JENNIE I. ROUNTREE. *J. Am. Dietetic Assoc.* **8**, 307–15(1932).—A review with bibliography. Ketosis tends to increase the N loss of the body. Obese subjects are less susceptible to ketosis. Adequate base in the diet reduces the N loss, and the loss of water from the tissues. AMY LE VESCONTE

**The relation of calcium and phosphorus in the diet to the cause of mottled enamel of human teeth.** RUTH M. LEVERTON AND MARGARET CAMMACK SMITH. *J. Home Econ.* **24**, 1091–7(1932).—Adequate Ca and P intake in childhood will not prevent mottled enamel. Adequate protein, calories and vitamins do not prevent it. AMY LE VESCONTE

**Vitamin A in six varieties of frozen cherries.** MYRA T. POTTER AND MABEL A. DICKSON. *J. Home Econ.* **25**, 47–52(1932).—Cherries are as rich in vitamin A as other fruits. The sour variety and the hybrid studied were more potent than the black, sweet varieties. About 0.375 g. of the latter contains 1 unit of vitamin A. A. LE V.

**The winesap apple as a source of vitamin C.** MYRA T. POTTER. *J. Home Econ.* **25**, 52–6(1932).—Feedings of 10 g. of apple daily protected guinea pigs from scurvy. AMY LE VESCONTE

**A study of the effects of fatty acid on nutrition.** UME TANGE. *Sci. Papers Inst. Phys. Chem. Research* (Tokyo) **20**, 13–28(1932).—Rats on a basal diet that contained no fat developed disease after 7 or 8 weeks, with loss of hair, dermatitis and hemorrhage. Addn. of linoleic and linolenic acids cured this. Oleic and elaidic acids were less effective. Clupanodonic and stearic acids caused continued loss of wt. and death AMY LE VESCONTE

Oxidation of β-carotene (KARRER, *et al.*) **10.**

DOHNA-SCHLOBITTEN, S. G. ZU: **Kann die Stickstoffbilanz durch die Stickstoffbestimmung in Nahrung Ausscheidungen hinreichend genau festgestellt werden?** Thesis, Berlin, 1931. 24 pp.

GELFELD, REBEKA: **Die Erfahrungen mit "Alipogal" (Fettreiche Trockenmilch) an der Basler Kinderklinik.** Thesis, Basel, 1931. 20 pp.

KÜPPERS, KARL: **Der Einfluss der Ernährungslage auf die Grösse des Grundumsatzes und der spezifisch-dynamischen Nahrungswirkung. Beiträge zur Kenntnis des Stoffwechsels im Laufe der Insulinmast.** Thesis, Freiburg, 1931. 35 pp.

TRILLHOSE, KARL: **Das Reduktionsverfahren von Zitronensaft und anderen Lebensmitteln gegenüber 2,6-Dichlorophenolindophenol und seine Beziehung zum C-Vitamin.** Thesis, Frankfurt, 1930. 46 pp.

## F—PHYSIOLOGY

HOMER W. SMITH

**Neurogenic or humoral transmission of stimuli at the ends of the autonomous nerves.** S. E. DE JONGH. *Nederland. Tijdschr. Geneeskunde* **76**, I, 811–20(1932). A discussion emphasizing the difficulties of the theory of humoral, as well as of that of neurogeneous transmission; de. J. assumes (1) that the identical effects of adrenaline and of sympathetic stimulation, *e. g.*, are due to a (hypothetic) secretion of adrenaline by the sympathetic nerves themselves, and (2) that adrenaline acts on the muscle directly. The different actions on various smooth muscles are explained by a difference in their sensitivities, and by the fact that adrenaline, like many other drugs, depresses at low concns. and stimulates at higher ones. R. BEUTNER

**Heterogony and the chemical ground-plan of animal growth.** C. H. WADDINGTON *Nature* **131**, 134(1933).—In addn. to Needham's relative time scales of the chem development of animals, the stages of morphological development and times of detn of different organs should provide 2 other systems of relative time measurements. RACHEL BROWN

**The behavior of glutathione in the hen egg during incubation.** S. CASTAGNA AND M. TALENTI. *Arch. farmacol. sper.* **55**, 28–34(1933).—Reduced glutathione is not present in mature hen eggs, fertilized or unfertilized. During incubation glutathione is formed, the amt. being directly related to the degree of development of the germ, and therefore varying from egg to egg. In general, only small quantities were formed during the first 10–12 days, after which the glutathione content increased much more rapidly The glutathione was detd. by the method of Tunnicliffe. LEWIS W. BUTZ

**The action of extracts of the appendix on the isolated intestine.** C. R. PELLIZZARI AND ENRICO NARDELLI. *Arch. farmacol. sper.* **55**, 89–99(1933).—Exts. of the normal human appendix added in very small amounts to the isolated intestine of the rabbit stimulated peristalsis. Cecal exts. did not have this effect. LEWIS W. BUTZ

**Cholesterol from the human brain.** C. ANTONIANI AND F. ZANELLI. *Atti accad Lincei* **16**, 150–3(1932).—In order to det. whether cholesterol from the human brain is

identical with that from bile, a quantity was extd. from the adult human brain as well as that of the fully developed fetus, by means of $Me_2CO$, and recrystd. from EtOH-$Et_2O$. That derived from the fetus, m. 150°, has $\alpha_D$ —38.7; mol. wt. detd., 410, calcd. for $C_{27}H_{45}OH$ 386; m. p. of the acetate 117°; of the benzoate 148°, and $\alpha_D$ —17.1; palmitate, m. 76.5°, $\alpha_D$ —24.8. That derived from the adult brain, m. 151°, has $\alpha_D$ —45.5; acetate, m. 119.5°; $[\alpha]_D$ —41.0; salicylate, m. 179°, $[\alpha]_D$ —20.4; formate, m. 95–6°; $[\alpha]_D$ —52.1; palmitate, m. 74° $[\alpha]_D$ —23 4; dihydrocholesterol, m. 145°, $[\alpha]_D$ +19.8. These values all show good agreement with those for biliary cholesterol; the generally slightly higher values obtained for the m. ps. are attributed to the absence of cholesterol esters in the above products, since these are not sol. in $Me_2CO$ used above to ext. the material. A. W. CONTIERI

**Growth and development with special reference to domestic animals. XXIV. Decline in energy metabolism per unit weight with increasing age in farm animals, laboratory animals and humans.** SAMUEL BRODY, *et al.* Univ. Mo. Agr. Expt. Sta., *Research Bull.* **176**, 5–59(1932); cf. *C. A.* **26**, 5629.— Data are presented on resting and basal energy metabolism per unit wt. as a function of age for dairy cattle, beef cattle, sheep, hogs, and horses from birth until about $3^1/_2$ yrs of age; also basal metabolism data for white rats grown under various conditions of food supply. There is a slight but unmistakable decline in metabolism per unit wt. with increasing age during the period of senescence. Gestation increases the metabolism per unit wt.; lactation increases this still further. There are marked seasonal variations in the metabolism per unit wt. in sheep with the peak occurring in spring and the trough in summer. Metabolism is more nearly proportional to area than to live wt., probably because the ratio of area to live wt tends to vary in the same manner as the ratio of the visceral organs to live wt. Thirty-seven references are appended. C. R. FELLERS

**Guanidine content of resting and working muscles.** ALADÁR BEZNÁK. *Magyar Biol. Kutató Intézet Munkái* **4**, 476–8(in German 478–82)(1931) —No significant difference was found in guanidine contents of resting and of working frog muscle. The content ranged between 0.85 and 0.61 mg %. S. S. DE FINÁLY

**The β-hormone, cythin, of the corpus luteum.** S. J. PATEL. *Magyar Biol. Kutató Intézet Munkái* **4**, 483–7(in English 488–94)(1931).—Hormone of the corpeus luteum of cows (cythin) caused pseudopregnancy on ovariectomized animals Cythin can be detected by production of mucification in ovariectomized mice. The hormone dissolves in fat solvents and is not saponifiable S S. DE FINÁLY

**Effect of splenectomy and spleen extract on the blood sugar of the dog.** NOËL FIESSINGER AND ROGER CATTAN. *Compt. rend soc. biol.* **112**, 53–5(1933); cf. *C. A.* **26**, 5629 —After splenectomy there is a chronic hyperglucemia, the effect of insulin is diminished to some extent, and the periods of alimentary hyperglucemia are prolonged. The administration of a spleen ext , free from lipoids, proteins and pigments, at the rate of 1 cc ( = 15 g. fresh spleen) per kg decreases blood sugar 20–30%. It is probable that the spleen secretes a "secondary" hormone, totally different from insulin, which decreases blood sugar **Spleen extract and blood sugar in man.** NOËL FIESSINGER AND S GOTHIE *Ibid* 171–2 — Two cc. of the spleen ext. described above was injected intravenously in normal persons and persons suffering from various diseases. Blood sugar was lowered 6–28% at the end of 30 min. No shock or hyperthermia was produced. L. E. GILSON

**Changes in the polypeptide content of the blood during the hours following total hepatectomy or Eck's fistula operation in dogs.** RENÉ LANÇON. *Compt. rend. soc. biol.* **112**, 57–9(1933). L. E. GILSON

**Action of extract of the posterior lobe of the hypophysis on the ovary of the guinea pig.** R. COLLIN AND J. WATRIN. *Compt. rend. soc. biol.* **112**, 61–3(1933).—Ext. of the posterior lobe of the hypophysis has an opposite effect in comparison to that of the anterior lobe. The ovaries decrease in size and the follicles disappear. L. E. G.

**The chemical nature of the ovarian and the gonadotropic hormones.** H. L. FEVOLD. *J. Chem. Education* **10**, 174–9(1933). E. H.

**The absorption of fats.** F. VERZAR. *Nutrition Abstracts and Reviews* **2**, 441–50 (1933).—A review. E. H.

**Volume change in muscle contraction.** O. MEYERHOF. *Naturwissenschaften* **20**, 977–80(1932).—A lecture, describing expts. on measurement of the change in vol. during muscle contraction; hexane was used as indicating liquid in the expansion capillary connected with the vessel contg the muscle in Ringer soln. The vol. change is related to the chem. processes, particularly to the phosphate decompn. taking place in the muscle. A table of vol. changes of the various biochem. reactions is given. B. J. C. VAN DER HOEVEN

**Physiology of the metabolism of the fatty matter in lactation.** L. A. MAYNARD.

*Lait* **12**, 761–74(1932).—With individual cows the level of the lipoid in the blood varied depending on whether the subject was in lactation or not; it differed at different stages of the lactation period, and was influenced under certain conditions by the nature and quantity of the ration. Before it could be said definitely that there was a relation between fat content in the blood and fat content of the milk it was considered necessary to place the exptl. animals under carefully controlled conditions. A. H. JOHNSON

**Protein metabolism in man and animal.** E. VOIT. *Z. Biol.* **93**, 15–41(1932).—An attempt is made to differentiate protein destruction of the fasting individual, min. physiologic protein decompd. and min. physiol. protein requirement. F. KRASNOW

**Glycogen in bone cartilage.** H. A. HARRIS. *Nature* **130**, 996–7(1932).—Cartilage cells in the neighborhood of the epiphysis store glycogen in proportion to their age. It is suggested that the hypertrophic cells provide both phosphatase and glycogen. The latter hydrolyzes and hexosephosphoric esters form, which lead to the deposition of insol. Ca phosphate in the matrix. The literature on phosphatase, glycogen and phosphoric esters is reviewed. MARY E. LEAR

**Glycogen in cartilage.** H. B. FELL AND R. ROBISON. *Nature* **131**, 62(1933).—Harris (preceding abstr.) calls attention to the presence of glycogen in hypertrophic cartilage cells and correlates this with a secretion of phosphatase by these cells. F. and R. suggest that osteoblasts and highly vascularized bone, which were said to contain no glycogen, also secrete phosphatase. A. W. DEXTER

**In vitro respiration of nerve.** T. H. CHANG, R. W. GERARD AND M. SHAFFER. *Proc. Natl. Acad. Sci.* **19**, 152–3(1933).—Nerves suspended in dog serum show greater abs. O consumption than in Ringer soln. and no rise for 20 hrs. The serum prevents the growth of bacteria by heat labile bacteristatic substances in the protein fraction The initially high values seem to be related to a similar fraction. The gain in wt. is much smaller than in Ringer soln. Serum heated to 80° behaves like Ringer. MARY E. LEAR

**Metabolism of the pancreas.** EUGENE U. STILL. *Proc. Natl. Acad. Sci.* **19**, 155–7 (1933).—Pancreatic juice of dogs was collected under oil. Blood pressure, rate of blood flow and rate of secretion were recorded. The av. respiratory quotient was 0.87; max., 1.01. During secretion, the O consumption rose rapidly and the $CO_2$ content of venous blood from the pancreas fell rapidly. It was indicated that metabolic $CO_2$ is diverted into the juice rather than into the blood with as much as 300% increase. M. E. L.

**The phospholytic action of rabbit urine.** ISOO HORII AND SEIHO TOMIKAWA. *Arb dritt. Abt. anat. Inst. kaiser. Univ. Kyoto, Ser. C*, No. 3, 30–4(1932).—In the normal urine of the rabbit no phospholytic enzyme was found. It was found in pathol. urine, but was weak and differed in strength with each specimen. B. S. LEVINE

**Nerve metabolism.** R. W. GERARD. *Physiol. Rev.* **12**, 469–592(1932).—A general review with extensive bibliography. E. R. LONG

**Blood stability in relation to dilution.** MARIO RIGONI. *Arch. fisiol.* **31**, 1–13 (1932).—Diln. with isotonic solns. causes in blood of high isoagglutinating power (horses pregnant women) retardation of the sedimentation. The reverse happens in blood of little agglutinating power (non-pregnant women, cattle). The difference is explained as due to a difference in the elec. charge of the blood constituents. A. E. MEYER

**The imbibition of muscle tissue.** GIULIO BUCCIARDI *Arch. fisiol.* **31**, 19–124 (1932).—The imbibition of the muscle is maximal at the isoelec. point of the muscle protein. In muscle activity, imbibition and surface tension are decreased as a consequence of the decrease of the alky. It cannot be supposed that the formation of $NH_3$ causes muscle contractions by increase of imbibition and surface tension. A. E. M

**Parathyroid and blood coagulation.** RODOLFO FERRARI. *Arch. fisiol.* **31**, 200–7 (1932).—The time of coagulation of dog blood doubles after parathyroidectomy. Parathyroid ext. restores normal clotting time. Blood elements related to the clotting show changes of concn. in relation to the Ca change. A. E MEYER

**Pancreas and blood coagulation.** R. FERRARI AND F. CORTESE. *Arch. fisiol* 31, 274–85(1932); cf. *C. A.* **26**, 1024.—The external secretions contain a substance influencing blood coagulation. It causes formation of prothrombin after absorption through the intestine. A. E. MEYER

**The composition of fat deposits in relation to the surrounding temperature.** C. ZUMMO. *Arch. fisiol.* **31**, 347–54(1932).—The formation of fat from sugar is confirmed in rats. Animals kept at a temp. of 0° or 30° and fed sugar after a previous starvation show a difference of the I value of the fat deposits of 15–25%. Even after diets rich or low in oleic acid, the influence of the temp. could be observed. A. E. MEYER

**The duplicity of the vasoconstrictor substance in serum.** S. GOLDBERGER. *Arch. fisiol.* **31**, 381–7(1932).—One substance is naturally dissolved in the serum, while the other one arises from the cell debris. A. E. MEYER

**Gastric secretion during and after sun baths.** VITTORIO G. BARONE. *Arch. fisiol.* **31**, 468–80(1932).—Gastric secretion is stimulated by sun baths. Quant. values are given. A. E. MEYER

**The mineral content in the bone of rats under varying experimental conditions.** LUISA POZZI AND EDOARDO PRETO. *Biochim. terap. sper.* **18**, 397–407(1932).—The leg bones of the adult rats contain 55–56% of ash, with variations of about 1% between both sides. Slight reductions were observed after prolonged exposure to cold. Unilateral cutting of the *nervus sciaticus* and *cruralis causes* a decrease of the ash on the same side. Injections of trypan blue increase the ash content on both sides, with intact as well as with severed nerves. Irradiated ergosterol has no effect in subcutaneous application. Oral treatment causes a decrease of the mineral content of the bone of 5 to 6% in adult rats. Parathormone, given subcutaneously for several weeks, causes a decrease. By simultaneous treatment with vitamin D and parathormone an additive effect was obtained, with a max. reduction of 9%. A. E MEYER

**The action of posterior lobe-pituitary extract on gastric secretion. Its application on gastric hyperacidity and gastric ulcer.** P L. DROUET AND J. SIMONIN. *Bull. acad. méd.* **107**, 30–5(1932).—Ext. from the posterior lobe of the pituitary reduced gastric acidity and caused improvement in gastric and duodenal ulcers. A. E. MEYER

**Kidney-function test by feeding creatinine [Brandt-Rehberg test].** J. TILLGREN AND E. HAKANSON. *Acta Chirurgica Scand.* **72**, 493–500(1932).—The Brandt-Rehberg creatinine test for kidney bilateral efficiency has been found to be a good supplement to the ordinary kidney-function tests. S. MORGULIS

**Employment of parathyroid hormone in "infiltrations" of the subcutaneous tissue and in the muscles.** OSCAR HORN. *Acta Med. Scand.* **79**, 219–38(1932).—The parathyroid hormone can be administered without producing a demonstrable change in the blood Ca concn. The hormone has been used in the so-called "subcutaneous infiltrations" (fibrositis, cellulitis) often accompanied by myalgia with very favorable results. S. MORGULIS

**Studies on kidney function according to the Rehberg method. I. Variations of the filtration in normal adults.** H. C. A. LASSEN. *Acta Med. Scand.* **79**, 275–97(1932).—With the Rehberg creatinine procedure the kidney filtration rate in 21 normal young individuals varied between 70 and 297 cc. per min., of which $^2/_3$ showed a variation of 100–200 cc. The filtration is somewhat greater in men than in women Considerable variation was also observed in the same individual during different tests, which was partly due to incomplete emptying of the bladder. In clinical cases it is suggested that the glomerular filtration should be detd. for 3 successive 1-hr. periods; the av. should be used. In a no. of patients the av. glomerular filtration was below 100 cc. per min. Diuresis increases the rate of glomerular filtration, which, however, diminishes when the diuresis is excessive. The creatinine output per min. during diuresis increases parallel to the filtration increase. Filtration below 100 cc. per min. is always assocd. with a relatively high plasma creatinine, whereas with low plasma creatinine the filtration is above 200 cc. per min. S. MORGULIS

**Distribution of sugar in the blood and the permeability of the blood corpuscles to sugar.** LADISLAUS MOSONYI. *Biochem. Z.* **256**, 308–25(1932) —The red cells of both man and dog contain less sugar than the plasma. On giving sugar by mouth to dogs the sugar content of the whole blood increases but that of the corpuscles becomes relatively lower than ordinarily. This condition, however, becomes reversed as time passes so that finally the cells contain more sugar than the plasma. In mild diabetics the distribution of sugar in the blood is practically the same as in the normal. But in depancreatized dogs the corpuscles contain relatively less sugar than in the normal animal, which leads to the conclusion that either the pancreas or insulin is essential in regulating the sugar distribution. On administering sugar to depancreatized dogs the same condition arises as in the normal only the inversion of the relation between cell and plasma sugar concn. does not proceed as far as in the normal animal probably because sugar is not so rapidly removed from plasma by the tissues. Injection of insulin brings about a great diminution in the sugar content of the corpuscles of normal dogs, probably because of the formation of glycogen. In depancreatized dogs injection of insulin brings about a return to the normal distribution of the sugar between cells and plasma. The insulin is supposed to regulate the sugar distribution by altering the permeability of the surface to sugar. S. MORGULIS

**Metabolism of tonic and non-tonic bird muscles.** JOSEF MÜNDELEIN. *Biochem. Z.* **256**, 376–83(1932).—The tonic muscles of the pigeon leg differ from the non-tonic muscles of the breast in the same way as the fetal or denervated muscles differ from normal muscles. The leg muscles show an increased lactic acid formation from glucose and hexosediphosphate, whereas in the breast muscles glucose actually inhibits lactic acid formation while hexosediphosphate gives only a small rise in lactic acid. The

transformation of pyruvic to lactic acid by the breast muscles is completely inhibited by $CH_2BrCO_2H$ but that by the leg muscles is entirely unaffected. S. MORGULIS

**The role of bile acids in the carbohydrate metabolism. XXIV. The glucemia curve under the influence of bile acids and adrenaline with or without spleen extract in splenectomized rabbits.** KEIZO FUZIWARA. *Biochem. Z.* **256**, 384–97(1932); cf. *C. A.* **27**, 1404.—After splenectomy rabbits exhibit a condition of hyperglucemia for a long period, but after about 3 weeks the normal glucemia level is reëstablished. Cholic acid administered to splenectomized rabbits brings down the glucemia level but its hypoglucemic effect is weak. Exptl. alimentary hyperglucemia can be reduced either by cholic acid or by spleen ext., and especially by both, when administered to the splenectomized rabbits. But cholic acid increases the hyperglucemic effect of adrenaline in the splenectomized rabbit, this hyperglucemia being reduced by the administration of spleen ext. S. MORGULIS

**The anticoagulant action of bile in vitro.** H. ELBEL. *Biochem. Z.* **256**, 398–405 (1932).—The anticoagulant action of bile may be attributed to the effect of the bile acids on Ca, and it is thought that the inhibiting effect of the cholates results from a rupture of a lipoid-Ca complex (thrombokinase). S. MORGULIS

**Chemistry of the skin.** A. LOEWY AND G. CRONHEIM. *Biochem. Z.* **256**, 411–31 (1932).—Chem. analyses were made of the skin from rats and guinea pigs both under usual conditions and when the animals were under greatly reduced pressure, kept in the dark, radiated with ultra-violet or treated with vigantol. The water and fat contents of the skin are highly variable even under normal conditions. The non-protein N was not affected by 5 hrs. of ultra-violet radiation nor by exposure to one-half atm. pressure for periods up to 18 days. It is difficult to judge the significance of such analyses in guinea pigs since even normally the non-protein N ranges from 123 to 227 mg. %, but in the rat where the normal variation is 86–114 mg. % an increase of 27% was found under reduced pressure and of 36% under the influence of vigantol. The Cl content of the rat skin was increased by low pressure or vigantol treatment, but decreased in the dark or under ultra-violet radiation. The K was raised by long sojourn under low pressure or vigantol; it was lowered by ultra-violet radiation but unaffected by darkness. The Ca was decreased under low pressure or vigantol treatment. The Na was practically const. Mg was increased by low pressure or radiation. In the guinea pig the Cl of the skin is affected just as in the rat. The K content was hardly determinable but its amt. was increased by radiation or by vigantol. The Ca was not affected by darkness or radiation while the influence of vigantol and low pressure was uncertain. So far as Mg is concerned, the results show great variability except that it decreased markedly in fasting. Under radiation the ratio of cations to halogens in the rat and guinea pig is increased. In guinea pigs the cation content decreases during fasting. S. MORGULIS

**The potentials of the gastric mucosa. I.** E. MISLOWITZER AND S. SILVER. *Biochem. Z.* **256**, 432–43(1932).—The gastric mucosa potential is only slightly affected by acid, alkali or various drugs injected into the blood stream but is greatly influenced by $I^-$, SCN or I applied to the membrane. **II. Gastric mucosa potential and absorption.** E. MISLOWITZER, S. SILVER AND M. ROTHSCHILD. *Ibid* 444–9.—No absorption of sugar was observed even when the animal was perishing from hypoglucemic shock due to insulin overdosage. This failure of the sugar absorption could not be remedied by the aid of ions lowering the potential of the gastric mucosa; hence it is concluded that the cell membrane alone cannot be of primary importance in the matter of absorption. On the contrary KI is absorbed through the gastric mucosa and the addn. of $Li^+$ or $SCN^-$ ions increases the absorption of $I^-$ greatly. S. MORGULIS

**Optical activity of blood filtrates. II. Influence of acidity and relationship between rotation and reducing power.** HANS N. NAUMANN. *Biochem. Z.* **257**, 32–40 (1933); cf. *C. A.* **26**, 5635.—The optical rotation of a Folin-Wu blood filtrate varies with its acidity, reaching a max. at about $p_H$ 0.7, while the reducing power is unaffected. The increasing *d*-rotation is not occasioned by glucose but by non-glucide components, as it persists even after all the glucose is removed by glucolysis, and is entirely absent from Zn or Cd blood filtrates. The effect of the degree of acidity on the *d*-rotation is attributed to a liberation of *d*-active org. acids from their *l*-active salts, and partly to the hydrolysis of the *l*-rotatory polypeptides and glucuronates. The phenomenon of mutarotation also appears in the blood filtrates. The correspondence between the rotation and reduction and the constancy of the residual rotation and residual reduction indicate that in the blood filtrate there exists an ordinary glucose equil. and not a modified glucose. S. MORGULIS

**Electrochemistry of liver and bile.** RUDOLF KELLER. *Biochem. Z.* **257**, 78–85 (1933).—Liver dissocs. the strong neutral salt electrolytes into bases (on the neg. plane) and acids (on the pos. plane). Electrometrically the liver occupies a singular position. The human liver which passes about 8 l. of $H_2O$ through the bile ducts resorbs all but

about 1 l., and this gives support to Pick's theory of the importance of the liver in the water metabolism, from its electrometric behavior. S. MORGULIS

**Biochemistry of spermatozoa and ova.** RUDOLF KELLER. *Biochem. Z.* **257**, 86–8 (1933).—The principal components of sperm and unfertilized ova fall into 2 distinct groups, one migrating to the cathode and the other to the anode, where they accumulate. Electrometric studies show that the unfertilized ovum has a positive surface and a positive nucleolus, while the head of the sperm has a strong neg. charge. S. M.

**Serum bilirubin and erythropoiesis in high altitude.** F. VERZÁR, A. VON ÁRVAY, J. PETER AND H. SCHOLDERER. *Biochem. Z.* **257**, 113–29(1933).—The no. of red blood cells increases within the first day at high altitude, and the serum bilirubin shows a parallel rise in 7 out of 11 persons studied. The initial cell count increase is attributable to a splenic contraction. With the circulatory compensations which take place in the first few days the red cell count and the serum bilirubin diminish again, if the person is at rest. A single strenuous exercise occasioned an extensive destruction of red cells with rising serum bilirubin values, which in turn is followed by a great increase in the no. of red blood cells. It is therefore argued that bilirubin, as one of the products of red blood cell destruction, furnishes the stimulus for blood-cell formation S. MORGULIS

**Influence of spleen on the bilirubin content of the blood serum. Experiments on splenectomy, spleen contraction, anemia and asphyxia.** G. V. LUDÁNY AND F. VERZÁR. *Biochem. Z.* **257**, 130–6(1933).—Splenectomy causes the bilirubin content of the serum to become doubled in the operated rabbits. Intravenous adrenaline injection or bleeding likewise causes a rise in serum bilirubin but not if this is preceded by splenectomy. Asphyxia also brings about an increase in the serum bilirubin. The expts. indicate a relationship between erythropoiesis and the bilirubin content of the serum. S. M.

**Disappearance of intravenously injected bilirubin from the blood stream and the effect of the spleen.** H. SCHOLDERER. *Biochem Z.* **257**, 137–44(1933).—Intravenously injected bilirubin disappears very rapidly, 95% being lost within 15 min., the rest leaving the blood stream more slowly In splenectomized rabbits the rate of disappearance is not materially altered, nor does the kidney have any part in this process. On the contrary, the liver plays the most important role since excluding it from the circulation checks completely the disappearance of the bilirubin introduced into the blood stream. S. MORGULIS

**Resorption of bilirubin from the intestine.** H. SCHOLDERER. *Biochem. Z.* **257**, 145–50(1933).—No evidence of absorption of bilirubin from the intestine could be obtained, even when this was administered together with 2–4% Na cholate or Na taurocholate. This amt. of bile salt makes the excised rat intestine permeable to the bilirubin. It is stated that if any absorption of bilirubin does take place in the rat intestine, it does not exceed 10% of the injected amt. (1–2 mg. in 2 cc.) during 1–2 hrs. S. MORGULIS

**The bile acids of the feces and their relation to the fat absorption in children.** HARALD MINNIBECK. *Biochem. Z.* **257**, 160–70(1933).—In a large no. of cases studied an increased bile acid excretion was found together with an increased loss of fat in the feces. The ratio between bile acids and fat was 1:38.7 to 1:31.6 in some instances, which more or less approximates the ratio in the small intestine, where this ranges from 1:8 to 1:24. However, more generally this ratio exceeded 1:100, an indication of a very large reduction in the bile salt content of the feces as compared to the intestinal contents. Expts. show that this loss of bile acids cannot be due to bacterial action in the large intestine, and the amt. present in the feces must therefore represent merely the unreabsorbed portion of the bile salts from the small intestine. S. MORGULIS

**Cholesterol in the Liebermann-Burchard reaction.** ALFRED BLOCH. *Biochem. Z* **257**, 171–80(1933).—The Liebermann-Burchard $Ac_2O$ reaction of cholesterol has been investigated under different conditions. The green color developed in 15 min. is due to only $^2/_3$ of the cholesterol present, but the colorimetric detn. at that time is justifiable because the same relative amt. reacts. On adding the acid mixt. to the soln. of cholesterol in $CHCl_3$ there is at first a reversible physicochem. alteration, manifested by the temporary appearance of a red color, followed by the green coloration due to the formation of the cholesterol esters. S. MORGULIS

**Elasticity of blood plasma and serum in the capillary viscometer.** GUNNAR BLIX. *Biochem. Z.* **257**, 180–7(1933). S. MORGULIS

**Studies on the in vitro decomposition of adenylpyrophosphate.** ERIK JACOBSEN. *Biochem. Z.* **257**, 221–33(1933).—In an inactivated muscle ext. $NH_3$ and P are formed in equiv. amts. in a neutral or slightly acid medium, but at a $p_H$ 9 there is more $NH_3$ than P formed from adenylpyrophosphate. Deamination of adenylpyrophosphate proceeds 20 times slower than that of adenylic acid. The synthesis of adenylic acid to adenylpyrophosphate is inhibited by NaF, $CH_2ICO_2H$ and KSCN. S. MORGULIS

**Cleavage metabolism of mammalian spermatozoa in relation to their motility.** E. REDENZ. *Biochem. Z.* **257**, 234–41(1933).—The motility of spermatozoa under anaerobic conditions is promoted by energy derived from glucolysis. Under aerobic conditions the addn. of sugar increases the motility. S. MORGULIS

**Effect of alterations in the sex hormone balance on blood coagulation and bleeding.** HERMANN DRUCKREY. *Endokrinologie* **12**, 1–17(1933).—The ovarian (estrus) hormone causes a prolongation of the coagulation time and bleeding in 30 min. when administered to female rats. This is followed by a shortening of the period in 1–3 days depending upon the amt. of prepn. On repeating the expt. only a larger dose can bring about the same effect. The corpus luteum hormone produces a similar action but the initial lengthening is not so great and the subsequent shortening is greater. The anterior pituitary hormone shortens the coagulation time (after a very brief lengthening) to a very marked degree, but this action is not produced when both ovaries or the uterus are removed. Implantation of the uterus in the secretory phase or subcutaneous injection of its secretion shortens the coagulation time after a brief period of delayed coagulation. S. MORGULIS

**Differences in the activity of the anterior hypophyseal sex hormone from the gland and from urine.** M. REISS, R. PICK AND K. A. WINTER. *Endokrinologie* **12**, 18–22 (1933).—The sex hormones obtained from the anterior pituitary of the cow or from urine exert a totally different effect upon cockerels. Whereas the former causes a marked increase in the hormonal activity of the testes, measurable by the increased comb growth and a tremendous increase (tenfold) in the size of the testes, no such effect was obtained with the urinary prepn. S. MORGULIS

**The hormonal function of the prostate.** L. RICCITELLI. *Endokrinologie* **12**, 23–4 (1933).—An extensive investigation of the hormonal activity of the prostate, although it does not perhaps satisfy every requirement for establishing its endocrine nature, nevertheless shows more or less definite effects of the exts. on growth, metabolism, blood pressure, etc., to warrant the belief that it is an organ of internal secretion. S. MORGULIS

**Physiology of plant and animal membranes.** E. WERTHEIMER. *Kolloid-Z.* **61**, 181–98(1932).—A review. C. RIEGEL

**Suprarenal cortex. I. Cortical suprarenal insufficiency and the action of the cortical hormone upon the normal and suprarenalectomized dog.** GEORGE A. HARROP AND ALBERT WEINSTEIN. *J. Exptl. Med.* **57**, 305–33(1933).—Addison's disease resembles suprarenal insufficiency in dogs after withdrawal of ext., in the extreme muscular weakness, anorexia, vomiting and diarrhea, lowered general bodily activity assocd. with lowered body temp., lowered general metabolism, increased blood concn. and characteristic increase in blood non-protein and urea N. Serum K and inorg. phosphate characteristically increase and total serum base falls All of these are dependent directly or indirectly on the lack of the cortical hormone. The proper dosage of cortical ext. in the dog appears to maintain normal nutrition and wt. and to preserve life indefinitely There is no lowering of the blood sugar, no increased pigmentation and no change in the basal respiratory metabolism; there is an increased sensitivity to insulin and to thryoid ext. C. J. WEST

**Effects of various organ preparations on the growth of tissue in vitro. I. The effects of endocrine organ preparations on the growth in vitro of fibroblasts of chicken embryo.** M. OMMYOJI. *Japan. Z. Mikrobiol. Path.* **26**, 999–1014(1932).—The effects of prepns. of the thyroid, parathyroid, ovary, hypophysis, anterior lobe and posterior lobes of the hypophysis, testes and prostate were studied. In general, they accelerate growth in dil. solns. and inhibit growth in concd. solns. The accelerating action was most marked with the thyroid and parathyroid prepns. I. S. YUN

**The influences of various organ preparations on tissue growth in vitro. II. The effects of organ preparations on the growth of fibroblasts of the chicken embryo in vitro.** M. OMMYOJI. *Japan. Z. Mikrobiol. Path.* **26**, 1183–94(1932).—O. investigated the effects of lung ext., corpus luteum ext., spleen ext., kidney parenchyma ext., pancreas ext. and liver parenchyma ext. on the growth of fibroblasts of the chicken embryo *in vitro*. These organ exts., except lung ext., in general inhibit markedly the growth of chicken embryo fibroblasts in concd. solns., but in dil. solns. they accelerate the growth, especially the exts. of lung, spleen and pancreas. Liver ext. inhibits the growth of chicken embryo fibroblasts most markedly and it has no accelerating power whatever Cf. preceding abstr. I. S. YUN

**Variations in the growth-accelerating power of chicken embryo juice on cultivated tissues in vitro.** J. SHIMIZU. *Japan. Z. Mikrobiol. Path.* **26**, 1174–82(1932).—Chicken embryo juice loses its tissue-growth-accelerating power after 24 days in the ice-chest, after 10 days at room temp., and after 48 hrs. at 37°. I. S. YUN

**Perinuclear granules and reticulum. III. The chemical nature of the granules.** GUICHI YAGI. *Trans. Japan. Path. Soc.* **21**, 248–51(1931).—The chem. substance in the

perinuclear granules and reticulum of white and red blood cells is not related to glycogen, fat or fibrin, but is a basic nucleoprotein. I. S. YUN

**The reticulo-endothelial system. II. Secretion of specific substances by the reticulo-endothelial system.** GENSAKU OBO. *Trans. Japan. Path. Soc.* **21**, 324–28 (1931).—A sp. substance stimulating the reticulo-endothelial system was proved present even a short time after the injection of India ink into rabbits. This substance was most effective after 24 hrs.; it accelerated the phagocytosis of foreign bodies by the reticulo-endothelial system and caused monocytosis. It also accelerated the detoxication of morphine. Chemically the substance is nonprotein, is sol. in ether and also in $CHCl_3$, but is not a true lipoid. I. S. YUN

CANTAROW, ABRAHAM: **Calcium Metabolism and Calcium Therapy.** 2nd ed. Philadelphia: Lea & Febiger. 252 pp. $2.50.

BEHRENS, RICHARD: **Zur Sekretion der Parotis des Schweines.** Thesis, Hanover, 1930. 95 pp.

HJÄRRE, ALBERT: **Die physiologische Variationen im Cholesteringehalt des Blutes bei Kühen sowie das Verhältnis zwischen puerperaler Hypercholesterinämie und Acetonämie.** Thesis, Berlin, 1931. 25 pp.

KOSMALA, MARTIN: **Welche Folgen hat die Unterbindung der mesenterialen Chylusgefässe für die Resorption des Nahrungsfettes?** Thesis, Leipzig, 1931 22 pp.

KRAUSS, WOLFGANG: **Über den Gehalt des Blutserums an Calcium und anorganischem Phosphor bei gesunden Schweinen.** Zugleich Untersuchungen über die Phosphorbestimmungs-methoden von Bell-Doisy und Briggs. Thesis, Hanover, 1930. 53 pp.

MUMPER, STEFAN: **Die Oxydationskraft des Blutes bei Normalen, bei normaler und pathologischer Schwangerschaft, besondere bei Eklampsie nach Rodenacker.** Thesis, Bonn, 1931. 47 pp.

STERN, FRITZ: **Über die Theorien der Gallenfarbstoffbildung mit besonderen Berücksichtigungen des Icterus.** Thesis, Bonn, 1930 78 pp.

WENKEBACH, GEORG: **Stand der Lehre von den Herzhormonen und anderen herztätigkeitsregulierenden Stoffen.** Thesis, Berlin, 1931. 34 pp.

## G—PATHOLOGY

H. GIDEON WELLS

**Proofs that some substances like hystamine are formed in the lung isolated from a guinea pig during anaphylactic shock.** A. SPINELLI. *Boll. soc. intern. microbiol. Sez. ital.* **4**, 257–61(1932)(in French).—The biol. behavior of these substances is described. G. A. BRAVO

**Colloid instability of leprous sera: [examination of the] chemical, precipitant and floculant reactions. I. Reactions of Matéfy, Daranyi, Baum-Schumann, Klausner and Bruck. II. Miostagminic precipitant reaction, formaldehyde-gel reaction, Botelho's, Brossa-Bozzolo-Lombardi's, Roffo's neutral red and Lange's reactions.** AGOSTINO AMBROGIO. *Pathologica* **24**, 721–9, 804–10(1932).—The reactions are described, and a bibliography is given. Comparative expts. made on leprous and control sera with these reactions show: (1) that none of the chem. reactions gives a practical contribution to the diagnosis of leprosy, but Matéfy's, Daranyi's and analogous reactions often give pos. results with leprous sera, and may support the evidence of clinical and bacteriol. investigations; (2) that the biol. tests possess slight sensibility and specificity and are very irregular in behavior. G. A. BRAVO

**The lipemic level in acute infectious diseases.** S. MARINO. *Arch. farmacol. sper.* 55, 1–27(1933).—The various lipoid fractions were detd. in the blood of patients with a no. of acute infections at different stages of the disease. Only in typhoid fever were the changes const. and considerable. During the febrile period the free cholesterol, cholesteryl esters and phosphatides were below normal. During convalescence there was hyperlipemia with regard to each of these fractions. The changes in lipemic level produced by the invading organisms are attributed to a deranged function of those endocrine glands controlling lipoid metabolism. The results support the theory that these lipoid fractions are concerned in the defense mechanism of the body against toxins. Since the changes in the content of cholesteryl esters were greatest, these probably play the most important part. LEWIS W. BUTZ

**Observations on the various forms of crystallization of choline in the Florence and the Kraut reactions.** MARIA FRANCIOLI. *Diagnostica tec. lab. (Napoli) Riv. mensile* **3**, 219–24(1932).—A description is given of the different forms of choline periodide which are produced under various conditions. Twenty-four photomicrographs illustrate the text. LEWIS W. BUTZ

**The diameter, volume and osmotic resistance of erythrocytes. Methods of de-**

**termination and the physico-pathological significance in blood diseases.** R. Scotti Douglas. *Diagnostica tec. lab.* (*Napoli*) *Riv. mensile* **3**, 277–361(1932).—A review with a large bibliography. Lewis W. Butz

**Cholesterolemia and alexinemia in diphtheria and scarlatina.** Egle Inglessi. *Pediatria* **40**, 1045–60(1932).—The cholesterolemic and alexinemic curves run parallel in scarlatina and serum sickness. Such a relation was observed in only 57.75% of the diphtheria cases studied. In post-diphtheritic paralysis the hypocholesterolemia is not always const., whereas the amt. of complement is constantly diminished. L. W. B.

**A fixation reaction with active serum.** A. Levit. *Compt. rend. soc. biol.* **112**, 16–17 (1933).—Tsü's reaction (*C. A.* **25**, 5467) is as reliable as the Bordet-Wassermann and requires less time. L. E. Gilson

**Comparison of Mutermilch's reaction and the classical Bordet-Wassermann reaction.** Serban Bratiano, Victor Davidesco and Eugène Bano. *Compt. rend. soc. biol.* **112**, 97–8(1933).—Both reactions are equally specific and that of Mutermilch is more sensitive. L. E. Gilson

**The blood-corpuscle glutathione in hyperthyroidism.** G. Litarczek, H. Aubert and B. Nestoresco. *Compt. rend. soc. biol.* **112**, 82–3(1933); cf. *C. A.* **27**, 332.—In cases of hyperthyroidism with a basal metabolism of +25 to +56 the total glutathione of the blood was found to be practically normal and the reduced glutathione slightly decreased. L. E. Gilson

**Some data on the respiratory exchanges of cases of hyperthyroidism. Discussion of the pathogenic state.** G. Litarczek, H. Aubert and J. Cosmulesco. *Compt. rend. soc. biol.* **112**, 84–5(1933). L. E. Gilson

**Action of tar on diphtheria toxin and antidiphtheritic serum.** Georges Magheru, Alice Magheru and G. Mihailescu. *Compt. rend. soc. biol.* **112**, 86–8(1933). L. E. Gilson

**Action of tar on the cholera vibrio.** Georges Magheru, Alice Magheru and G. Mihailescu. *Compt. rend. soc. biol.* **112**, 88–9(1933). L E Gilson

**Physicochemical conditions for the melanin-flocculation reaction of Henry.** R. Gille. *Compt. rend. soc. biol.* **112**, 334–6(1933).—Discussion. L. E. Gilson

**Demonstration of precipitating hare-antiserum.** O Mezger, M. Volkmann and H. Jesser. *Deut. Z. ges. gericht. Med.* **20**, 115–21(1932).—A hare-antiserum of considerable titer is seldom obtained when rabbits are used as the immunizing animals Very good sera resulted from the injection of chickens with hare-blood Protein from man, horse, hog, roe, cow, goat and soy bean were tested. In most cases antisera for man, horse and hog were obtained. Frances Krasnow

**Studies in anaphylaxis in the rabbit. I. A study of the factors concerned in the establishment of maximal hypersensitiveness in rabbits to egg white and horse serum.** Ella F. Grove. *J. Immunol.* **23**, 101–23(1932).—Active sensitization of rabbits does not depend entirely on the degree of antibody production; animals with high power of antibody production may be wholly insensitive and *vice versa*. **II. A study of the effect of histamine, barium chloride and adrenaline on unstriped muscle of the guinea pig and rabbit.** *Ibid* 125–38.—Histamine, adrenaline and $BaCl_2$ may produce a characteristically different effect (contraction, relaxation of normal tone, no change) upon the same unstriated muscular tissue (bronchial) in the same animal. The action of a substance upon isolated unstriped muscular tissue in a bath is not always reflected in the physiol. action of the substance upon the same tissue in the living animal. **III. The sensitization of rabbits with fowl corpuscles.** *Ibid* 139–45. **IV. The Simonds explanation of the different pathologies of acute anaphylactic shock in different animal species. V. The role of unstriped muscle in acute anaphylaxis in the rabbit.** *Ibid* 147–52.—The expts. described emphasize the role of unstriped muscle in anaphylactic shock and confirm the view that the difference in pathology of acute anaphylaxis in the guinea pig and rabbit is due to structural differences in the shock organs. E. R. L.

**Are antiviruses specific?** A. Besredka. *J. Immunol.* **23**, 349–60(1932).—Antiviruses are endowed with a specificity as strict as that of the bacteria from which they come. E. R. Long

**Serological studies on iodinated sera. I. Precipitins and precipitinogens.** John Jacobs. *J. Immunol.* **23**, 361–74(1932).—When I is added to animal sera in the absence of acid or alkali, substances are formed that ppt. with antisera prepd. from iodinated sera. This change takes place in the presence of aq. solns. as dil. as *N*/32. Diiodotyrosine, but not KI, inhibits pptn. specifically in systems of iodinated sera. (Cf. Wormall, *C. A.* **24**, 1422). **II. Anaphylaxis.** *Ibid* 375–84.—Guinea pigs were sensitized by Lugol-guinea pig serum prepns. and by Lugol-horse serum prepns., so that they reacted in a large percentage of cases with acute anaphylactic shock to iodinated serum. Diiodotyrosine, but not ionic I, inhibited anaphylaxis in sensitized animals.
E. R. Long

**Variability of tubercle bacilli. VII. Antigenic activity of "S" and "R" cultures as measured by complement fixation.** CHRISTINE E. RICE AND G. B. REED. *J. Immunol.* **23**, 385–404(1932); cf. *C. A.* **26**, 3276.—The S type of various strains of acid-fast bacteria, including tubercle bacilli, contains antigenic substances not present in the R type, dissocn. apparently being accompanied by considerable loss in antigenic complexity. In S antiserum 3 types of antibody could be identified, an S-specific, a species and a group antibody. In R antiserum only the species and group antibodies could be detected. E. R. LONG

**Active immunization of white mice by a non-polysaccharide and probably non-protein derivative of the pneumococcus.** LLOYD D FELTON *J. Immunol.* **23**, 405–21 (1932).—White mice can be immunized with a fraction of pneumococci that is sol. in Cu acetate in the presence of satd. NaCl soln. and that can be extd. with EtOH from the dried Cu-free filtrate. This antigen gives a neg. Molisch test, and appears free from protein. No pptn. occurs with antipneumococcus horse serum. E. R. LONG

**A hypothetical mechanism of antibody production.** STUART MUDD. *J. Immunol.* **23**, 423–7(1932).—Antibodies are probably synthesized from less complex units, *e. g.*, peptides and amino acids. Some of these units combine in some manner with the antigen. M. postulates that the antibody synthesis occurs at the antigen surface. The chem. groupings undergoing synthesis must be adapted physically and chemically to the antigen surface at the site of coupling. Antibody specificity, on this hypothesis, is due to sp. stereochem. correspondence with the antigen. Dissocn. of antibody and antigen would be governed by equil conditions, and removal of the dissocd. antibody would leave the antigen free to incite further antibody production. E. R. LONG

**A quantitative study of the precipitin reaction with special reference to crystalline egg albumin and its antibody.** JAMES T. CULBERTSON. *J. Immunol.* **23**, 439–53 (1932).—Cryst egg albumin gives rise to but a single type of antibody. The amt. of precipitable antibody in a unit vol. of rabbit anti-cryst.-egg-albumin serum can be learned by detg. the amt. of antigen necessary to neutralize the precipitin of a small vol. of the antiserum. At the neutralization point antigen and antibody combine in const. ratio with max. pptn. Neither precipitinogen nor precipitin remains in the supernatant fluid at the neutralization point. Corresponding quant. relations are not found in the titration of antisera to horse serum. E. R. LONG

**A quantitative aspect of the hypothetical incorporation of injected antigen in resulting antibody.** SANFORD B HOOKER AND WM. C. BOYD. *J. Immunol.* **23**, 465–79 (1932).—From quant. interrelations of an immune serum prepd. by injection of an As-contg diazo protein, and, as test antigen, a heterologous similar protein, it was calcd. that the Buchnerian hypothesis demands the presence of 2.5–2500 times as much As in the immune serum as found there by chem. test. E. R. LONG

**Pathological calcification.** DAVID P. BARR. *Physiol. Rev.* **12**, 593–624(1932).—A general review with bibliography. E. R. LONG

**The rose bengal test of liver function.** W. PARKER STOWE, G. D. DELPRAT AND ALANSON WEEKS. *Am. J. Clin. Path.* **3**, 55–60(1933); cf. *C. A.* **19**, 330.—The technic of the test is described, and results obtained from the use of the test in pathol. conditions are discussed. E. R. MAIN

**Urea clearance in normal and in dehydrated infants. Renal function in intestinal intoxication.** LUDWIG SCHOENTHAL, DOROTHY LURIE AND MARGARET KELLY. *Am. J. Diseases Children* **45**, 41–53(1933).—The measurement of renal function by urea-clearance tests appears to be applicable to infants. The reduction in urea clearance observed in intestinal intoxication in infants appears to be due to dehydration and its effect upon the body fluids and renal tissue. E. R. MAIN

**Enteral administration of scarlatinal filtrate toxin.** JEAN V. COOKE. *Am. J. Diseases Children* **45**, 54–7(1933).—The sensitivity of the skin of children to scarlatinal toxin does not appear to be reduced following the oral administration of filtrate toxin or killed scarlatinal hemolytic streptococci. Following rectal instillation of a highly concd. toxin, the sensitivity becomes reduced, although the skin remains sensitive to larger quantities of the toxin. E. R. MAIN

**Birefringent bodies in renal lipoidosis.** CH. ACHARD AND A. CODOUNIS. *Bull. acad. méd.* **107**, 22–7(1932).—Only fresh urine should be used for the microscopic investigation of birefringent lipoids. The latter are concd. by centrifugalization. For the chem. detn. pour 10 cc. of urine into 120 cc. EtOH, boil, filter and ext. the ppt. with EtOH, evap., take up in $Et_2O$ and evap. The histological changes are described. A. E. MEYER

**Diabetes and pancreas lipase.** MARCO P. DEMURTAS. *Biochim. terap. sper.* **18**, 421–7(1932); cf. *C. A.* **25**, 1287.—An atoxyl-resistant lipase of pancreatic origin can be observed in diabetics. This proves an accompanying lesion of the glandular pancreas

tissue. Lesions can be demonstrated by this method, when signs for an impaired external function of the pancreas are missing. A. E. MEYER

**Azotemia caused by lack of salt, in general surgery.** MARIO TABANELLI. *Biochim. terap. sper.* **18**, 448–81(1932).—Hyperazotemia in combination with hypochloremia is observed in pyloric stenosis. The former is caused by an increased breakdown of protein, the latter by reduced absorption of NaCl, vomiting and fixation of the Cl in tissues in disintegration. The administration of hypertonic or physiol. NaCl soln., intravenously or subcutaneously, returns both conditions to normal. A. E. MEYER

**The purification of antitoxic sera in order to avoid serum shock.** E. SAVINO. *Rev. soc. argentina biol.* 7, 108(1932); *Rev. sudamericana endocrinol. immunol. quimioterap.* **16**, 77(1933); cf. *C. A.* **26**, 5331.—Sep. the globulins with $Na_2SO_4$, dialyze and ppt. at the isoelec. point. The final prepn. contains only pseudoglobulins and euglobulins. A. E. MEYER

**Three cases of calcium infarct in the kidneys with kidney insufficiency.** FOLKE KNUTSSON. *Acta Chirurgica Scand.* **72**, 36–46(1932). S. MORGULIS

**The so-called essential hematuria.** OTTO LÖFBERG. *Acta Chirurgica Scand.* **72**, 161–73(1932). S. MORGULIS

**Experiences with 1000 insulin-treated diabetics.** A. NORGAARD. *Acta Med. Scand.*, Suppl. **50**, 196–202(1932).—The insulin requirement of diabetics, which increases to an av. dose of 60 international units, is generally greater for men and less for women. Furthermore, young persons require more insulin than old persons. The mortality was least among patients doing light work, but the ages of 20–30 and over 50 years are crit. periods. Diabetes appears as a seasonal disease, the max. incidence being during the winter S. MORGULIS

**The presence of methylglyoxal in urine.** A. PI-SUÑER AND M FARRÁN. *Biochem Z.* **256**, 241–51(1932); cf. *C. A.* **26**, 4091.—Methylglyoxal has been satisfactorily demonstrated as a component of diabetic urine. S. MORGULIS

**Peptic ulcer. Early and late effects of parenteral injection of a non-specific foreign protein.** LAY MARTIN. *Ann. Internal Med* **6**, 622–31(1932). JOHN T. MYERS

**A new culture medium for the production of antigenic streptococcal hemolysin.** E. W. TODD AND L. F. HEWITT. *J. Path. Bact.* **35**, 973–4(1932). JOHN T. MYERS

**Methods for the purification of vaccine material with chemical substances. I. Purification with phenol.** N. A. KADLETZ AND A. A. LIMONOWA. *Zentr. Bakt. Parasitenk.*, 1 Abt. **126**, 102–11(1932). JOHN T. MYERS

**A non-specific complement-fixation reaction due to ion antagonism.** A. HAMBLETON. *Can. J. Research* **7**, 583–95(1932).—The complement-fixation test for tuberculosis gives a non-specific or falsely pos. reaction if a balanced physiol. saline, akin to Tyrode's soln., replaces the plain saline used in the test. The balanced saline must contain both Ca and Mg in appropriate concn The non-specific reaction is given most strongly by Petroff's whole bacillus antigen, and not at all by "fat-free" tubercle bacillus antigens. The main features of the reaction, and its relation to antagonistic effects of Na and Ca ions, are indicated. **Mechanism of complement fixation.** *Ibid* 596–605.—Examn. of the antigen in the non-specific reaction shows that it can assume the same complement-fixing power, cohesiveness and oil-wettability as antigen sensitized by immune serum, but not the same elec. potential. This indicates that fixation of complement is only a secondary effect due to the surface properties of suitably modified antigens and not a specific chem. affinity for complement on the part of antigen. J. W. SHIPLEY

**Effect of acids and other substances in the production of acute gastric ulcers.** JULIUS FRIEDENWALD, MAURICE FELDMAN AND SAMUEL MORRISON. *J. Exptl. Med.* 57, 203–13(1933).—Sterile $H_2O$, normal salt soln., 50% glucose, skimmed milk, whole milk, omnadin, lipiodol, Bi subcarbonate, pituitrin, aktivin, histamine, adrenaline and insulin, injected into the muscular coat of the stomach wall, did not have any significant relationship to the production of ulcer. Weak solns. of HCl had no corrosive effect upon the gastric mucosa and rarely produced ulcerations when injected into the muscular coat of the stomach; stronger solns. produced definite ulcerations. No relation could be demonstrated between the injection of various substances into the stomach wall and the production of hyperacidity. The prolonged use of histamine administered subcutaneously was not a factor in the production of chronic ulcers, even after 1% HCl was injected into the muscular coat of the stomach. C. J. WEST

**Typhoid toxin purified by adsorption with aluminum hydroxide. I. The toxin of typhoid bacilli.** M. YATO. *Japan. Z. Mikrobiol. Path.* **26**, 1015–32(1932).—The toxin of typhoid bacilli adsorbed and purified by $Al(OH)_3$ can produce immune bodies. I. S. YUN

**The effects of various non-specific adsorbents on the hemagglutinins of the rabbit immunized with goat red blood cells.** M. HOMMA. *Japan. Z. Mikrobiol. Path* 26,

1033–62(1932).—The hemagglutinins were adsorbed by kaolin or by $Al(OH)_3$. I. S. YUN

**Components of hemolytic complements.** B. MITSUSE *Japan. Z. Mikrobiol. Path.* **26,** 1702-51(1932).—A new, 5th component of hemolytic complement was obtained by extn. with petroleum benzine. This component is the most stable one and is not destroyed even by boiling at 100° for 120 min. I. S. YUN

**Gastric secretion during high intestinal obstruction.** SUNGCHIN KIM. *Korean Med. J.* **2,** 86–92(1932).—In dogs suffering from duodenal obstruction there was an increase in the amt. of gastric juice as well as increased acidity of the gastric juice and an increase in Cl. Similar changes in the gastric juice followed the injection of histamine; hence the ileus toxin may be histamine itself, or at least some histamine-like substance. I. S YUN

**Etiology of beriberi.** H. Y. OH. *Korean Med. J.* **2,** 113(1932).—A decrease of Ca was found in the blood serum of Korean beriberi patients. Treatment with Ca prepns. improved their condition. I. S. YUN

**Rabbit carcinoma produced by nicotine.** SEIZO KATSUNUMA *Trans. Japan. Path. Soc.* **21,** 244-7(1931).—Medullary carcinoma was produced in the rabbit stomach and cancroid on the rabbit ear after 225 days by the repeated application of nicotine. I. S. YUN

**Tissue respiration and its relation to morphological changes, oxidase reaction and the hydrogen-ion concentration in tissues.** HIROSHI NAKAMURA. *Trans. Japan. Path. Soc.* **21,** 282–95(1931).—N. investigated in rats the tissue respiration, oxidase reaction, $p_H$ concn. and morphological changes of liver and kidney tissue in conditions of decreased vitality due to exptl. acidosis and alkalosis, and intoxication. The tissue respiration and oxidase reaction decreased in dying or starved tissue, and also in tissues injected with HCl or $NaHCO_3$ solution. In U, sublimate, $K_2Cr_2O_7$, cantharidin, As and P intoxication, the tissue respiration and oxidase reaction decreased, and the $p_H$ values shifted to the alk. side, but there were greater or smaller differences between them. I. S. YUN

**Relation between degenerative changes and tissue respiration. Tissue respiration in cases of degenerative changes caused by various toxins.** MORIO NAKAMURA AND KENTARO SUZUKI. *Trans Japan. Path. Soc.* **21,** 298–302(1931).—The toxins of typhoid bacilli, dysentery bacilli and tetanus bacillus were used. The tissue respiration and the oxidizing granules were both decreased. **Degenerative changes caused by inorganic poisons and ligation of the excretory duct.** KENTARO SUZUKI AND MORIO NAKAMURA *Ibid* 302–5.—Tissue respiration in rats with degenerative changes caused by inorg. poisons, P, sublimate, Fowler's soln., U nitrate and cantharidin was generally decreased. In many cases, the decrease of tissue respiration runs parallel with the decrease of oxidase content. The change in tissue respiration has some relation to the appearance of fat; *viz.*, when the appearance of fat indicated degeneration the tissue respiration always decreased. I. S. YUN

**Effect of an extract of lymph nodule on agglutinin production.** HIROSI MATUO. *Trans. Japan. Path. Soc.* **21,** 347–50(1931).—Lymphatic tissue ext. accelerates the production of agglutinins against typhoid bacilli in immunized and India-ink-injected animals. I. S. YUN

**Atherosclerosis in chickens.** KANAMETARO TAMURA *Trans. Japan. Path. Soc* **21,** 528–9(1931).—Infiltration of fatty substances into the aorta was found in 154 out of 227 apparently normal chickens. The fatty substance was anisotropic lipoid substance. Such infiltration of anisotropic lipoid into the blood vessel wall of chickens was increased by feeding of lanolin. I. S. YUN

**The silver reaction of tumor tissue, especially testicular sarcoma.** YUTAKA KON AND KATSUO TAKEDA. *Trans. Japan. Path. Soc.* **21,** 700–2(1931).—Ag granules were found in the cells of sarcoma of the testis. The Ag reaction suggests that this tumor originated perhaps from interstitial cells. I. S. YUN

**Neoplasmatic changes in the fore stomach of albino rats produced by injection or feeding of tar.** IWATA TANI. *Trans. Japan. Path. Soc.* **21,** 715–17(1931).—Tumor-like changes or carcinomatous areas in the wall of the fore stomach resulted from oral application of tar, but such marked changes did not follow intragastric injection of tar. I. S. YUN

**Effect of a hormone on the growth of transplantable chicken myxosarcoma cultivated in vitro.** AKIRA SANO. *Trans. Japan. Path. Soc.* **21,** 805–7(1931).—The hormone of the adrenal gland markedly inhibited the growth of chicken sarcoma. I. S. YUN

Fresh cheese and undulant fever (CARRIEU, LAFENÊTRE) **12.**

SCHMIDT, HANS: **Fortschritte der Serologie.** Dresden: T. Steinkopff. About 200 pp. About M. 12; bound, about M. 13.20.

HEIDKAMP, KURT: **Die chemisch-physikalische Methoden zur Feststellung der Tuberkulose in der Human- und Veterinär-Medizin unter bes. Ber. der Plasmakolloid-labilitätsreaktion von Gerloczi in der Veterinärmedizin.** Thesis, Berlin, 1931, 61 pp.

SCHWARZMANN, ALOIS: **Die Auslösung des anaphylaktischen Schocks durch intrazerebrale Antigeninjektionen.** Ein Beitrag zur Kenntnis der Resorptionsverhältnisse im Zentralnervensystem. Thesis, Basel, 1931. 16 pp.

SENSEN, HEINRICH: **Die Brauchbarkeit des Phenol-Alkoholextraktes nach Ninni und Molinari als Antigen für die Wassermannsche Reaktion.** Zugleich en Beitrag zur Extraktfrage. Thesis, Bonn, 1930. 41 pp.

TÜRK, ALFRED: **Der gegenwärtigen Stand der Theorie der Kolloidreaktionen des Liquor cerebrospinalis.** Thesis, Freiburg i. B., 1931. 19 pp.

VESPER, MARTIN: **Der Chloridgehalt des Harnes gesunder und kranker Rinder auch bei Tuberkulose des Rindes.** Thesis, Leipzig, 1931. 41 pp.

## H—PHARMACOLOGY

A. N. RICHARDS

**The physiological action of cystinyl peptides and guanidine derivatives.** H. JAMES HARWOOD. *Iowa State Coll. J. Sci.* **6**, 431–3(1932).—*Guanidine derivatives.* Compounds not previously reported were prepd. and injected into starved rabbits to det. the possibility of their substitution for insulin with results as indicated: Compds. which had no effect on the blood sugar were: *(p-carboxyphenyl)guanidine, diacetoneguanidine, furylacrylylguanidine-HCl, cinnamylguanidine-HCl, formylguanidine, dibenzoylguanidine, anhydrodiacetylguanidine, γ-guanidinopropyl butyl sulfide sulfate, butylthiobarbituric acid, iminomethyluracil, N'-allyl-N''-guanylthiourea, dipiperidyl disulfide, dipiperidyl sulfone and diethylaminomethyl ethyl sulfide.* Compds which raised the blood sugar were: *1,3-diphenyl-3-guanidinopropan 1-one and its HCl salt, β-carboxypropionylguanidine, γ-guanidinopropyl cyclohexyl sulfide sulfate, malonylguanidine, thiobarbituric acid, benzimino phenylthioether* and its HCl salt, *diformidine disulfide-HCl* and *propionamidine-HCl.* Compds. which lowered the blood sugar were: *phenylguanidine, p-bromophenylguanidine nitrate, benzylguanidine nitrate, furfurylguanidine sulfate, β-phenylethylguanidine sulfate, guanidine benzoate, acetyldiacetoneguanidine, dicarbethoxyguanidine* and *γ-guanidinopropyl β-phenylethyl sulfate.* While these compds showed hypoglucemic action, the action in no case approached that of insulin or synthalin and in most cases was accompanied by toxic effects. None of the compds. studied could be recommended as a substitute for insulin. *Cystinyl peptides. Dicarboxytyrosylcystine di-Et ester* was prepd. by the action of dicarbethoxytyrosyl chloride on cystine di Et ester. *Dicarbethoxycystinyltyrosine Et ester* was prepd by the action of dicarbethoxycystinyl chloride on tyrosine Et ester. *Dicarbethoxycystinyl chloride* was obtained by the action of Et chlorocarbonate on an alk. soln. of cystine followed by treatment of the free acid with $PCl_5$. *Dicarbethoxycystinyltyrosine* was prepd. by hydrolysis of the ester and also by the action of dicarbethoxycystinyl chloride on an alk. solution of tyrosine. *Dicarbethoxycystinylhistidine Me ester* resulted from the action of dicarbethoxycystinyl chloride on histidine Me ester. *Dicarbethoxycystinylarginine* was formed by the action of dicarbethoxycystinyl chloride on an alk. soln. of arginine. The esters of tyrosine and histidine were prepd. by methods described in the literature. F. E. BROWN

**The combined action of semicarbazide and corrosive sublimate on the frog's heart.** LUCIANO BATTISTONI. *Arch. farmacol. sper.* **54**, 237–49(1932); cf. *C. A.* **27**, 1052. LEWIS W. BUTZ

**Diabetes and insulin.** ERNESTO PESCI. *Minerva med.* **1933**, I, 81–94.—A review is given of diabetes and its treatment. HELEN LEE GRUEHL

**Relation between trypanocidal and spirocheticidal activities of neoarsphenamine. III. Uniformity of effect of different types of neoarsphenamine on the serological reactions in human syphilis.** MAURICE BUCHHOLTZ AND T. F. PROBEY. *U. S. Pub Health Repts.* **48**, 166–9(1933); cf. *C. A.* **26**, 2513. J. A. KENNEDY

**Two cases of percaine poisoning.** F. RIECHEN. *Z. Untersuch. Lebensm.* **63**, 557–60(1932). S. LAUFER

**The pharmacology of digitalis in relation to the therapy of heart disease.** HENRY A. CHRISTIAN. *New Engl. J. Med.* **208**, 66–9(1933). E. R. MAIN

**Vagal action of adrenaline on the mammalian heart.** EMILIO MARTINI. *Arch. fisiol.* **31**, 456–67(1932). A. E. MEYER

**Fatal cincophen poisoning. Report of six fatal cases.** LAWRENCE PARSONS AND WARREN G HARDING, 2ND. *Ann. Internal Med.* **6**, 514–17(1932). JOHN T. MYERS

**Action of benzene, Röntgen rays and radium on the blood and blood-forming organs.** EDWIN E. OSGOOD. *Ann. Internal Med.* **6**, 771–4(1932). JOHN T. MYERS

**Insulin in malnutrition.** ROY D. METZ. *Ann. Internal Med.* **6**, 743–50(1932).—Insulin is sometimes of value in non-diabetics as an aid to carbohydrate metabolism. JOHN T. MYERS

**Potassium thiocyanate: a note on its use for the painful crises in sickle-cell anemia.** EDWARD G. TORRANCE AND TRUMAN G. SCHNABEL. *Ann Internal Med.* **6**, 782–8 (1932). JOHN T. MYERS

**Oral administration of metaphen in the treatment of gastric and duodenal ulcers.** CLARENCE M. TRIPPE. *Ann. Internal Med.* **6**, 901–12(1933). JOHN T. MYERS

**Effects on composition of blood of physiologic solution of sodium chloride, when introduced by intraperitoneal injections and by stomach tube in the presence of low blood pressure.** J. W. BEARD, HARWELL WILSON AND ALFRED BLALOCK. *Arch. Surg.* **26**, 122–33(1933). JOHN T. MYERS

**Animal experiments on the treatment of leucemia with radiothorium. II. Repeated injections, and combinations with Röntgen rays.** I. ZADEK. *Folia Haematol* **48**, 279–302(1932); cf. *C. A.* **26**, 6019. JOHN T. MYERS

**A case illustrating the effects of the prolonged action of radium.** JOAN M. ROSS. *J. Path. Bact.* **35**, 899–912(1932). JOHN T. MYERS

**Alkalosis occurring in the alkaline treatment of peptic ulcers.** A. M. COOKE. *Quart. J. Med.* [N. S.], **1**, 527–41(1932) JOHN T. MYERS

**Chemotherapeutic researches with new synthetic compounds in relation to their value in combating malaria.** W. KIKUTH. *Zentr. Bakt. Parasitenk.*, I Abt. **127**, 172–8 (1932). JOHN T. MYERS

**The effect of infection on the insulin content of the pancreas.** D. W. GORDON MURRAY AND E. T. WATERS. *Trans. Roy. Can. Soc.* Sect V, **26**, 169–72(1932).—Infection was induced in the dogs by ligating the appendix about 1 inch from the tip and surrounding it with omentum. In 4 infected dogs which were not acutely ill, the insulin content was only slightly lower than that of the normal controls. In 4 other infected animals which were acutely ill, a significant decrease in the insulin content of the pancreas occurred. The decrease was most pronounced in animals suffering from a spreading infection, whereas in those animals showing healing processes, the difference from the normal was only slight. LOUIS J. SOFFER

New derivatives of *p* arsanilic acid (MORGAN, WALTON) **10.**

THESES

ACKMANN, HEINRICH: **Über die Beeinflussung des Blutbildes des Pferdes durch subkutane Injektionen von Cantharidentinktur.** Hanover, 1930. 43 pp.

ASCHERMANN, HERTHA: **Über den Gebrauch von jodhaltigen Zahnpasten.** Berlin, 1931. 14 pp.

BEBOUX, MARC: **L'action pharmacodynamique et des effets thérapeutiques de l'Adonis Vernalis.** Genf, 1930. 174 pp.

BECK, EMIL: **Arsenschädigungen in der Zahnheilkunde.** Würzburg, 1931. 33 pp.

BECKER, ERWIN: **Neun Jahre $SO_2$-Behandlung in der Tierklinik Sarstedt mit bes. Ber. der bei exotischen Tieren gemachten Erfahrungen.** Hanover, 1930. 75 pp.

BONHÔTE, GEORGES: **La sécamine, un nouveau constricteur utérin.** Lausanne, 1930. 31 pp.

BORNHOFEN, ELSE: **Zur Wirkung des Cholins auf die Geburtswehen.** Greifswald, 1930. 15 pp.

CONRAD, FELIX: **Über die lokalanästhetischen Eigenschaften des Ephedrins.** Halle, 1931. 29 pp.

DAN, HORST: **Über die Verstärkung der kornealen Kokain-Anaesthesie durch Pferde- und Rinderserum.** Berlin, 1930. 19 pp.

ESFANDIARI, H. A.: **Versuche über Dublosan als Prophylaktikum bei Gonorrhoe.** Bonn, 1930. 30 pp.

FREYTAG, WERNER: **Über Blutungen durch zahnärztliche Operationen und ihre Behandlung unter bes. Ber. des Stryphnons.** Heidelberg, 1930. 41 pp.

FRIEDMANN, GEORG: **Die Einwirkung von Chlorphenol-Kampfer-Menthollösung auf das Periodont und der Chlorphenol-Kampfer-Jodoformpaste auf das apikale Granulationsgewebe.** Zürich, 1930. 36 pp.

GAWALÜGOFF, K. K.: **Vergiftungen in der Zahnheilkunde.** Heidelberg, 1931. 107 pp.

GREUTER, ALFRED: **Die Vergiftung durch Amanita phalloides.** Zürich, 1930. 40 pp.

GRIES, HERBERT: **Über die Kombination von Novokain und Kaliumsulfat.** Halle, 1932. 13 pp.

HARBERG, GUSTAV: **Über die Wirkung des Ephetonins auf den isolierten Uterus des Rindes.** Berlin, 1930. 7 pp.

HEGMANN, JOSEPH: **Cejodol-Terpen in der Hundepraxis.** Munich, 1932. 67 pp.

HERMELINGMEIER, GEORG: **Zur Pharmakologie des Harnstoffs.** Kiel, 1930. 30 pp.

HOCK, EMIL: **Die Einwirkung giftigen Staubes und giftiger Dämpfe auf Zähne und Mundhöhle.** Würzburg, 1931. 38 pp.

HOEHN, EDGAR: **Pharmakologische und toxikologische Bedeutung der Insekten.** Würzburg, 1931, 37 pp.

HOLM, RUD.: **Über Veränderungen der Wasserstoffionenkonzentration des Magen- und Darminhalts des Hundes durch Veterinär-Carbodenal.** Berlin, 1931. 38 pp.

JACOBWITZ, MARTIN: **Über den Wirkungsmechanismus des Quecksilbers und Wismuts in der Luestherapie.** Hamburg, 1930. 42 pp.

KARL, JOSEF: **Zahnärztliche Beurteilung der neueren zur Schmerzbekämpfung dienenden Mittel.** Würzburg, 1931. 39 pp.

KNEBEL, GERH. v.: **Versuche mit der Greifswalder Farbstoffmischung in der Wundbehandlung.** Berlin, 1931. 33 pp.

KRABBENHÖFT, FRIEDR.: **Die Möglichkeit einer Quecksilberschädigung durch Amalgamfüllungen.** Kiel, 1930. 27 pp.

KROEPELIN, ERNST: **Zur Pharmakologie des Harnstoffs.** Kiel, 1930. 15 pp.

LANDOLT, FRANZ: **Paraformaldehyde als Devitalisationsmittel der Pulpa.** Basel, 1931. 22 pp.

LUTZ, HERM.: **1. Über Fagopyrismus. Eine biochemische Untersuchung, zugleich eine kritische Studie über seine Pathogenese. 2. Über den Safranbitterstoff Pikrocrorin.** Zürich, 1930. 63 pp.

MANASSE, MARIANNE: **Die quantitative Wirkung von Chloroformdämpfen auf Tiere.** (Bestimmung, Apparatprüfung, Mikroskopie.) Würzburg, 1930. 16 pp.

MAYRHOFER, AUGUST: **Intravenöse Bromtherapie bei Dermatosen.** Erlangen, 1930. 34 pp.

NEUMANN, WILLI: **Die Antineuralgica in der Zahnheilkunde.** Heidelberg, 1931 14 pp.

OBIER, WILHELM: **Zur Frage der toxischen Wirkung bestrahlter Substanzen.** Greifswald, 1931. 16 pp.

PAETZOLD, HELENE: **Die narkotische Grenzkonzentration am Darm von kortikalen und thalamischen Schlafmitteln.** Rostock, 1930. 34 pp.

PELCKMANN, KUNO: **Über Tetrachlorkohlenstoffvergiftungserscheinungen** bei **Pferden,** deren Zusammenhang mit dem Blutserumcalciumspiegel und über Versuche, die Vergiftungserscheinungen durch Erhöhen des Blutkalkgehaltes abzuschwächen Berlin, 1930. 75 pp.

PÜTZ, ANNA: **Über Grubengasvergiftung.** Bonn, 1930. 34 pp.

RAU, OTTO: **Die Wirkung einiger Herzmittel** (Digalen, Coffeinum-Natrium salicylicum, Hexeton, Cardiazol, Kaffee, Alkohol) **beim Rinde.** Berlin, 1930. 63 pp

REITER, ANTON: **Combinationen von atmungserregenden Arzneimitteln am morphinvergifteten Kaninchen.** Erlangen, 1930. 21 pp.

REUTER, ILSE: **Die Frage der Verwendung der Thalliums als Epilationsmittel** bei **Dermatomykosen.** Bonn, 1931. 38 pp.

RIEDEL, ERWIN: **Über die Wirkung des Tartarus stibiatus und des Chinosols bzw. des Oxychinolins auf die Askariden des Pferdes.** Berlin, 1931. 14 pp.

SCHÖNBERG, WILLI: **Die Wirkung der "Inava" Zahnpaste und der Vakzine "Inava B"** (polyvalente sensibilisierte Vakzine). Kiel, 1930. 14 pp.

SCHRÖDER, HERMANN: **Über die pharmakologische Wirkung des Lithiumchlorides.** Kiel, 1930. 15 pp.

SCHUHMACHER, EDUARD: **Über den Einfluss von Eugenol auf die Pulpa der menschlichen Zahnes und auf das Peridontium des Hundes.** Basel, 1930. 8 pp.

SEIFERT, GERHARD: **Über die Wirkung des Tyramins auf den isolierten Uterus des Rindes.** Berlin, 1930. 7 pp.

STADER, HEINRICH: **Die Wirkung von Goldpräparaten bei Lupus erythematodes und Lupus vulgaris.** Erlangen, 1930. 42 pp.

STIEGE, ELFRIEDE: **Über den Gebrauch von Kamillojod und Kamillosept in der zahnärzlichen Praxis.** Heidelberg, 1931. 31 pp.

STRASSER, ROBERT: **Über die motorische Wirkung des Therapogens und Chinosols auf den isolierten Uterus des Rindes.** Beitrag zur Frage der Nebenwirkung von Spuldesinfizientien. Berlin, 1930. 14 pp.

TABATZNIK, LEO: **Der Einfluss des Cholesterins auf den Blutzucker.** Berlin, 1930 18 pp.

WENDLER, HERMANN: **Die Wirkung des Arsenelektroferrols auf das Blutbild von Pferd und Hund.** Leipzig, 1931. 42 pp.

WESEMANN, WILFRED: **Versuche am Menschen zur Auffindung wirksamer Kombinationen von Phenacetin und Dial.** Halle, 1931. 34 pp.

WILLI, WALTER: **Die Wirkung der Sulforizinoleate auf Zahnbeläge und Zahnstein.** Basel, 1930. 36 pp.

ZEJGER, HILEL: **Die Einwirkung einiger Herzmittel der Digitalisgruppe auf den zeitverlauf der einzelnen Phasen des Electrocardiogramms herzkranker Individuen mit Arhythimia perpetua.** Basel, 1930. 23 pp.

## I—ZOÖLOGY

R. A. GORTNER

**Influence of polarization on the potassium content of peripheral nerves.** GYULA MÉHES AND LAJOS CSIK. *Magyar Biol. Kutató Intézet Munkái* **4**, 451–3(in German, 453–8)(1931).—The ischiatic nerves of *Rana esculenta* were polarized with 10 v. for 6 hrs. The nerve died, but its K content migrated. With 6 v., migration was found after polarization for 5–6 hrs. S. S. DE FINÁLY

**Gas metabolism of tadpoles.** GYULA MÉHES AND KÁLMÁN SZEÖKE. *Magyar Biol. Kutató Intézet Munkái* **4**, 459–71(in German, 471–5)(1931).—The curve of O consumption is a paraboloid. A decrease was observed during metamorphosis, caused either by hunger or by some regulation process. Solns. of ephedrine and ephetonine decreased the O consumption in concns. of 1:50,000 to 1:300,000. Adrenaline also decreased it in concns. above 1:5,000,000; more dil. solns. increased it. S. S. DE FINÁLY

**The role of water in the physiology of excretion in insects.** V. B. WIGGLESWORTH. *Sci. J. Roy. Coll. Sci.* **2**, 91–107(1932); cf. *C. A.* **26**, 1984–5.—A review. E. H.

**Blood proteins and edema in Rana salata.** RODOLFO FERRARI. *Arch. fisiol.* **31**, 208–12(1932). A. E. MEYER

**Late formation of edema in Rana salata after perfusion with hypertonic liquids.** RODOLFO FERRARI. *Arch. fisiol.* **31**, 213–18(1932). A. E. MEYER

**Extensive melanism in the skeleton of Raia maculata.** W. F. HARPER. *J. Path. Bact.* **35**, 865–6(1932). JOHN T. MYERS

## 12—FOODS

F. C. BLANCK AND H. A. LEPPER

**Determination of benzoic acid in foods.** ULAUS HORDH. *Anales asoc. quím. Argentina* **20**, 176–80(1932).—With small quantities of BzOH in foods or complex mixts. of preservatives in foods, the detn. of BzOH is difficult. Macerate 100 g. of tomato ketchup contg. 0.3 g. BzONa per kg. with 100 cc. of alk. water, filter through cloth, repeat with 50 cc. of water, make the filtrate up to 200 cc., acidulate with $H_2SO_4$, ext. with 200 cc. $Et_2O$, allow the $Et_2O$ to evap., dissolve the residue in 30 cc. of boiling water, cool, filter, repeat with 20 cc. of boiling water, render the aq. filtrate slightly acid with $H_2SO_4$, ext. with an equal vol. of $Et_2O$, repeat with $^1/_2$ as much $Et_2O$, wash the $Et_2O$ ext. with water, evap. the $Et_2O$, dissolve the BzOH residue in sufficient water, and add drop by drop a 2.5% $FeCl_3$ soln. as long as Fe benzoate ppts. If salicylic acid is present, a violet color forms, and this acid must be removed by the Cazzani method (*C. A.* **24**, 5384). E. M. SYMMES

**Tests of wheats made in 1930-31 by the office of the Lower Seine Agricultural Department.** RENÉ BERGE. *Compt. rend. acad. agr. France* **18**, 1133–40(1932).—A summary. J. R. ADAMS

**The soluble glucides of grains of different wheat varieties and their relations to baking value.** A. DE CUGNAC. *Ann. Agron.* [N. S.], **2**, 375–83(1932).—A small amt. of sol. glucide with a neg. rotary power was extd. from white flour. In the by-products (brown flour and bran) sol. glucides were more abundant. Their initial rotary power was pos. but became neg. on hydrolysis. There seemed to be a correlation between good baking value and higher glucide contents at least when the gluten content was also higher. F. W. MARSH

**The glucides of wheat and flour.** R. GEOFFROY. *Bull. soc. chim.* **51**, 1491–2 (1932); cf. *C. A.* **17**, 3693; **25**, 5911.—The percentages of glucides remaining in flour after milling were detd. to decide whether they are capable of assuring regular and complete fermentation during bread making. The flour was boiled for a short time with alc. and the concd. soln. was dild. with $H_2O$ to ppt. nitrogenous material. The concd. soln. was defecated with $Pb(OAc)_2$ and was freed from levosin by extn. with alc. Flour

contains only 0.12% of reducing sugars consisting of glucose and fructose in the ratio 3:1. The non-reducing and fermentable glucides comprise 0.25% of sucrose and the same quantity of a levuloside very sol. in alc. but not fermentable under the conditions of panary fermentation. In industrial bread making 1.5% of fermentable sugars is necessary and it will be shown later that this deficiency is amply provided for by a diastatic action which increases the quantity of reducing sugars from 0.4 to 3% in the 6 hrs. separating the kneading and baking processes. C. R. ADDINALL

**Examination of flours in filtered ultra-violet light.** LÁSZLÓ KARÁCSONYI. *Mezőgazdasági Kutatások* **5**, 319–24(1932).—Cereal and leguminous flours were examd. in the light of a Hanau quartz lamp. The colors obtained are expressed in numbers of the Krüger triangle based on Ostwald's theory. No difference was found between wheat and rye flours of different degrees of finenesses. A slight difference could be observed on adding a few drops of alc. KOH to the ext., but positive differentiation could not be made. The use of a quartz lamp is helpful, but not an exact method. S. S. DE F.

**Determination of rye flour in milling products and bakery goods.** R. STROHECKER. *Z. Untersuch. Lebensm.* **63**, 514–22(1932).—Tillmans' method for sepn. of trifructosan (*C. A.* **23**, 912) was employed to develop a procedure which consists of inverting the carbohydrate and estg the reducing power of the fructose thus obtained against Fehling soln. The accuracy is 5–10% for flour and 10% for bread. Rye and wheat flour (60% milled) contained 2.4 and 0.32% trifructosan, resp. Approx. $^1/_3$ of it is destroyed in baking; its content increases with the milling grade in rye flour, while in wheat flour no noticeable increase was observed. S. LAUFER

**Biennial reviews of the progress of dairy science. Section A. The physiology of dairy cattle. I. Growth. II. Lactation. III. Nutrition. IV. Genetics.** G. L. PESKETT, J. D. STIRLING, S. MORRIS, J. MACKINTOSH, A. D. BUCHANAN SMITH AND OLIVE J. ROBISON. *J. Dairy Research* **4**, 754–76(1932).—A review. A. H. JOHNSON

**Flavor in dairy products.** L. M. THURSTON W. Va. Agr. Expt. Sta., *Bull.* **244**, 21(1931).—Fat-globule films impart to milk some of its characteristic flavor. C. R. FELLERS

**The milk supply of Paris. Necessity for hygienic control; methods; research on the coli bacillus in milk.** A. NEVOT. *Lait* **13**, 111–22(1933).—Chem. and bacteriol. methods used in milk-control work are discussed A. H. JOHNSON

**Milk of a typical herd of Shorthorn cows. I.** J. GOLDING, J. MACKINTOSH AND E. V. C. MATTICK. *J. Dairy Research* **4**, 48–73(1932).—The chem. compn. of the milk from dairy Shorthorn cows was studied over a period of 3 years. A tendency of the fat content to rise was noted when conditions operated to reduce the quantity of milk produced. The acidity of the milk throughout the 3-year period was very uniform, varying between 0.14 and 0.18% as lactic acid There were indications of a slightly lower acidity when the cows were on pasture. Formol N in the milks was also very uniform but on the av. the milks were slightly higher in formol N during the winter The rate of rennet coagulation was much slower in winter milk than in summer milk Milks were highest in total and casein N in the spring. This was thought to be assocd. with grazing on young grass of high N content. Ash, CaO, $P_2O_5$, lactose and f. p. of the milks were also detd. During the 3-year period the milks exhibited remarkable uniformity in these respects. A. H. JOHNSON

**Change of composition of milk according to the seasons.** JÁNOS TRAMBICS AND GYULA SZABADOS. *Kisérletügyi Közlemények* **35**, 148–54(1932).—In 1930 the minimum of fat-free dry matter was 8.88%. In 1931, a year of much less rain, the min. was 8.71% and the max. 9.20%. The refraction values and the content of milk sugar were not significantly different in the 2 years. In winter the refraction is smaller and the Cl content larger in the morning milks. In summer the evening milks have generally smaller refraction values and larger Cl contents than morning milks. S. S. DE F.

**Simplified molecular constant of certain milks.** A. LATAIX. *Lait* **12**, 931–8 (1932).—Milk from cows in heat and from cows which have aborted had the same simplified mol. const. as milk from normal healthy cows. A. H. JOHNSON

**The errors involved in certain methods of estimating the lactation yield of milk and butter fat.** JOHN HOUSTON AND ROBERT W. HALE. *J. Dairy Research* **4**, 37–47 (1932).—By basing the calcd. butter-fat yields on tests made at intervals of 1 to 8 weeks, the standard deviation of the errors in the calcd. butter-fat percentages for each interval, as well as the max. errors were found. As the time between the tests was lengthened, the errors increased. With tests made at intervals of 6 weeks most of the errors in the calcd. percentages were less than 8.5%. However, in order to insure that the errors in the calcd. butter fat do not exceed 10%, the interval between tests should not exceed 1 month. By basing the calcn. on a weekly weighing of the milk, results were obtained which closely approximated the true milk yield. A. H. JOHNSON

**The foam of milk.** G. GENIN. *Lait* **12,** 1079–88(1932).—Recent work on the structure of foam and the mechanism of foam formation is reviewed. A. H. JOHNSON

**Investigations on heated milks.** ORLA-JENSEN. *Lait* **13,** 82–5(1933).—Milk which has been pasteurized in bottles was considered to have the following advantages: (1) metallic flavor in the milk is prevented, as there is no contamination with metals from pasteurizing equipment; (2) loss of $CO_2$ from the milk and incorporation of air in the milk are prevented consequently there is less chance for destruction of vitamins; (3) there is less pumping of the milk through pipe lines and therefore the milk shows its full tendency to form a cream layer and (4) more effective destruction of bacteria. A. H. JOHNSON

**Adulterating milk with sugar solutions which are isotonic with the milk.** A. CASOLARI. *Ann. chim. applicata* **22,** 753–62(1932).—Samples of milk were adulterated with 20% of a soln. contg 0.28% NaCl and 3.40% glucose. The adulteration is detected by identifying the glucose, as with $(NH_4)_2MoO_4$. A. W. CONTIERI

**The refrigeration of the milk supply.** B. LICHTENBERGER. *Z. ges. Kälte-Ind.* **39,** 168–72, 185–7(1932). F. D. ROSSINI

**An easy method for estimating the protein content of milk.** B B. BRAHMACHARI. *Indian Med. Gaz.* **68,** 22–3(1933).—Phosphotungstic acid (Bogg's reagent) is a suitable precipitant for making this detn. Results are uniform. FREDERICK G. GERMUTH

**Titrimetric determination of sodium bicarbonate added to milk.** KÁROLY SARLÓ. *Kisérletugyi Kozlemények* **35,** 144–7(1932).—Evap. 10 cc. milk and ash the residue. Treat the ash in a special app. with 20% HCl and absorb the $CO_2$ in satd. lime water. The ash of a normal milk contains about 2% $CO_2$, from this the added $NaHCO_3$ can be calcd. S. S. DE FINÁLY

**The latent infection of the mammary gland and its appearance. Means of detection.** CH. PORCHER. *Lait* **12,** 687–703, 793–802, 914–22(1932).—Milk from cows with infected mammary glands was found to be salty and bitter in flavor. As compared with normal milk, such milk was low in lactose, $P_2O_5$, K, acidity, citrates, Cu and casein; it was high in NaCl and elec. cond. It also reacted differently to the alc. test and to coagulation with rennet and was higher in catalase activity. The f. p. and peroxidase activity of the milk from infected glands were no different from those of normal milk. A. H. JOHNSON

**The criteria by which one should be inspired and the methods which should be followed in the evaluation of a process for pasteurizing milk.** HENRI STASSANO. *Lait* **13,** 85–110(1933).—Aside from their effectiveness in destroying bacteria, processes of pasteurizing milk should be judged by the following criteria: (1) the extent to which they impart a cooked flavor to the milk, (2) the degree to which the albumin is coagulated, (3) the rate of increase of acidity for the first 3 to 5 hrs. of incubation, (4) the maintenance of the original acidity of the milk after pasteurization, (5) maintenance of the original $CO_2$ content of the milk, (6) the extent to which enzymes and vitamins are affected, (7) the retention of the ability to coagulate on the addn. of rennin, and (8) the degree to which the creaming ability of the milk is affected. A. H. JOHNSON

**The thermophilic bacteria of milk pasteurized at low temperature.** ROBERT S. BREED. *Lait* **13,** 60–81(1933).—Milk contg. thermophilic bacteria possesses an undesirable flavor and soon develops excess acidity and produces rennin which prematurely causes the milk to curdle. Conditions under which the thermophilic bacteria come to exist in the milk are discussed. A. H. JOHNSON

**Application of the Skar method for counting the number of bacteria in milk.** IRENA DOBERSKA-MAYOWA. *Med. Doświadczalna Społeczna* **15,** 247–51(in French 252) (1932).—This method was found to be rapid, convenient and not expensive; groups, however, should be counted and not single bacteria. The method is not suited for pasteurization control. S. LAUFER

**The influence of bacilli of the colon group on the production of acid by streptococci in milk.** H. R. WHITEHEAD AND G. A. COX. *J. Dairy Research* **4,** 74–80(1932).—Colon bacilli grown in milk for from 3 to 16 hrs. partially inhibit the subsequent formation of acid by lactic streptococci. The inhibition is not entirely accounted for by the increased H-ion concn. or by lactic acid produced by the colon bacilli. Other substances having a retarding influence on the streptococci are evidently formed in milk cultures of colon bacilli. The action of these substances is not significantly modified by heating at 75° for 1 hr. A. H. JOHNSON

**Escherichia coli in milk.** J. PIEN AND J. BACHIMONT. *Lait* **12,** 903–14, 1058–71 (1932).—*Es. coli* in milk yields lactic acid, H, $CO_2$ and a little $CH_4$. Milk cultured with *Es. coli* shows a neg. reaction for indole. The presence of lactose in milk appears to prevent the formation of indole by *Es. coli*. A. H. JOHNSON

**Fungi found in milk, cream and butter.** M. GRIMES, H. A. CUMMINS AND V. C. E. KENNELLY. *Lait* **12,** 894–903, 1071–9(1932).—Temp. and salt tolerance, liquefying

effect on gelatin, coagulating effect on milk and effect of the growth of the fungus on the H-ion concn. of the medium are given for many of the molds likely to be found in milk, cream and butter. A. H. JOHNSON

**Counting bacteria in ice cream.** C. F. HOYT. Calif. Dept. Agr., *Monthly Bull.* 21, 409–13(1932).—The sample is prepd. for analysis by heating to not over 46°, pipetting about 1 g. into a sterile Mojonnier butter boat, and transfering the boat asceptically to the 100 ml. diln. flask. The sample is weighed to 2 decimals. The Milk Analysis Methods, Am. Pub. Health Assoc. are used. C. R. FELLERS

**Important factors that affect quality in vanilla ice cream.** F. C. BUTTON. *Ice Cream Trade J.* 29, No. 2, 26–7(1933). A. H. JOHNSON

**The possibilities and limitations of fast hardening ice cream.** RIDGEWAY KENNEDY, JR. *Ice Cream Trade J.* 29, No. 1, 23–4(1933).—The crystn. of the various constituents of ice cream during freezing is discussed. A. H. JOHNSON

**A new method for the determination of butter fat.** A. CASOLARI. *Ann. chim. applicata* 22, 706–12(1932).—Weigh 50 g. butter into a tube, the lower end of which is closed by a stopper having a hole plugged by a glass rod. The upper end of the tube tapers and is also stoppered. Add 5–10 cc. EtOH (30%) and immerse the whole in a bath at 70–75°. When the layers have sepd., centrifuge to complete the sepn., chill the tube to solidify the fat and draw off the EtOH layer at the bottom by removing the glass rod. Rinse the tube with dil. EtOH, dry with filter paper (after removing the lower stopper) and reweigh. Results average 0.30% low in comparison with the official method. A. W. CONTIERI

**Bacteriological examination of butter.** F. DIÉNERT. *Lait* 12, 1055–8(1932).—The acidity of butter was found to be a factor affecting the *Escherichia coli* content Butter of high acidity was low in *E. coli*. A. H. JOHNSON

**Parchment paper as a source of mold spores.** J. GREGER. *Z. Untersuch. Lebensm* 63, 560–4(1932).—Parchment paper used for wrapping of butter should be free from sugar, and the count of mold germs per 100 sq. cm. should not be abnormally high. In fact, spoilage occurring in butter is to be attributed to chem. changes taking place in the butter itself rather than to infection from the wrapping paper. S. LAUFER

**The preparation of hard cheeses from pasteurized milk by means of bacterium cultures.** OTTÓ GRATZ. *Kisérletügyi Kozlemények* 35, 86–94(1932).—For Swiss-cheese making, 30-min. pasteurization at 60–63° is harmful. The casein colloids are adversely affected and the holes are not properly formed. Anaerobic bacteria multiply rapidly and cause improper ripening and swelling. The results agree with those observed by Van der Burg on Holland cheeses and by Moir and Veal on Cheddar cheeses S. S. DE FINÁLY

**Role of anaerobic spore-forming bacteria in the swelling of process cheeses.** JÓZSEF CSISZÁR. *Kisérletügyi Kozlemények* 35, 96–103(1932).—*B. sporogenes*, *B. putrificus* and *B. saccharobutyricus* were found in swollen process cheeses. Of the cases exam'd 94% was caused by *B. sporogenes*. S. S. DE FINÁLY

**Manufacture of sweet-curd rennet-coagulated cottage cheese.** L. M. THURSTON W. Va. Agr. Expt. Sta., *Bull.* 244, 22–3(1931).—The acidity of the whey at the time of cutting the curd is the most important single factor concerned in the mfg process Regardless of variations in other factors, a whey acidity of 0.35% lactic acid or more was necessary to produce curd with a desirable body. At lower acidities, rubbery curds developed. The av. acidity at cutting for the most desirable curds was 0.48%. The use of $CaCl_2$ to aid in coagulation or firming was of no value. No variation in effect was apparent when 1.33–3.33 cc. of rennet ext. per 1000 lb. of milk was used. Gassy curd was eliminated by pasteurization at 65–6° for 20 min. C. R. FELLERS

**Fresh cheese and undulant fever.** M. CARRIEU AND M. LAFENÊTRE. *Lait* 12, 779–85(1932). A. H. JOHNSON

**The effect of carbon dioxide on the color changes or bloom of lean meat.** J. BROOKS. *J. Soc. Chem. Ind.* 52, 17–19T(1933); cf. *C. A.* 26, 194.—The rate of oxidation of hemoglobin in muscle is not affected to a significant extent by concns. of $CO_2$ below 20%. If other conditions of storage are the same the color changes of lean meat in air and in air contg. 20% $CO_2$ should be the same. F. L. DUNLAP

**Methods for detecting initial decomposition in meat.** G. BROTZU. *Z. Untersuch. Lebensm.* 63, 503–14(1932).—The following methods are recommended: (1) detn of amino acid N by the method of Henriques and Gjaldbäk, of Grünhut or of Van Slyke (there should not be more than 500–600 mg. of amino acid N per 100 g. of meat); (2) $p_H$ detn. in the warm meat juice (a meat having $p_H$ 6.3 and above begins to decompose); (3) bacteriol. test (a high bacterial count per 0.1 cc. of the juice obtained from pressing the minced meat indicates commencing decompn.). S. LAUFER

**Composition of rabbit carcasses. I. White Angoras.** W. KING WILSON AND S. MORRIS. *J. Agr. Sci.* 22, 453–9(1932).—Investigation of the chem. compn. of the

total edible flesh of young and adult male and female rabbits showed marked differences between the sexes. This was most pronounced in the case of fat content, young females having approx. 4% more fat than young males. With adults the difference was approx. 6% in favor of the females. No pronounced differences in the ash constituents of adult males and females were shown. P. R. DAWSON

**The fast freezing of meat.** I. KUPRIANOFF. *Z. ges. Kälte-Ind.* **39**, 213–14(1932).—A discussion of the variation of freezing time with thickness of meat and with refrigerant. F. D. ROSSINI

**Chemical changes in the fat of frozen and chilled meat. IV. The protective influence of carbon dioxide on the fat of beef stored at 0°.** C. H. LEA. *J. Soc. Chem. Ind.* **52**, 9–12T(1933); cf. *C. A.* **26**, 780.—$CO_2$ has a marked effect in retarding the onset of taint in beef fat at 0°. In a satd. atm. the time required for the production of a perceptible "off" flavor was approx. doubled in the presence of 10% $CO_2$. At lower humidities the protection afforded by the gas was somewhat increased, but gas storage was less effective in delaying the appearance of taint when commenced 5 or 6 days after slaughter. For the purpose of protecting the fat comparatively little advantage results from increasing the $CO_2$ concn. beyond 15 or 20%. These (or higher) concns. of the gas appear to have no harmful effect on the flavor of the fat, or on its resistance to oxidation during a storage period of 50 days. F. L. DUNLAP

**The critical cooling time and the optimum storage temperature for the fast freezing of provisions.** W. LUDEWIG. *Z. ges. Kälte-Ind.* **39**, 176–9(1932). F. D. ROSSINI

**Chemical studies of frozen fruits.** T. A. PICKETT. Ga. Agr. Expt. Sta., *Annual Rept.* **1931**, 42; cf. *C. A.* **26**, 4386.—Peaches were frozen and stored in hypoisotonic and hyperisotonic solns. of sucrose and NaCl. Those in isotonic solns. were better preserved than those in higher or lower concns. Peaches stored in buffer solns. at different H-ion concns. showed no marked quality differences. When peaches were coated with shellac, collodion and paraffin and stored at 4.5° or at —15°, they were well preserved but had a disagreeable taste near the pit. The titratable acid had perceptibly increased during storage. Peaches frozen at —65° and stored at —15° had a lower respiration rate than those frozen and stored at —15°. The quick-frozen peaches had a lower percentage of sol. pectin and higher protopectin than those frozen at —15°. C. R FELLERS

**Titrimetric determination of formic acid in fruit juices and sirups.** GÉZA v. SZELÉNYI. *Z. Untersuch. Lebensm.* **63**, 534–41(1932).—Fincke's $HgCl_2$ method (*C. A.* **5**, 1300, 3705) gives accurate results if the $HgCl_2$ concn. in the reaction mixt. is at least 0.01% Two rapid and dependable oxidation methods were perfected: (1) Place an aliquot of the distillate obtained in the usual manner in a glass-stoppered bottle, add 5 cc of 10% $CH_3CO_2Na$ and 15–20 cc. of 0.1 *N* $CH_2BrCO_2H$ and keep for ½ hr. Then add 5 cc. of 10% KI and titrate the excess of Br with 0.1 *N* $Na_2S_2O_3$. (2) Add to the distillate in a 500-cc. Erlenmeyer flask 10 cc. of 10% $Na_2CO_3$, boil, let quickly run into the mixt. 20 cc. of 0.1 *N* $KMnO_4$, mix 1 min., add 1–2 cc. of 10% $ZnSO_4$, stir and titrate back with 0.1 *N* $As_2O_3$. The last method is not in all cases adapted for sirups. S. LAUFER

**Changes in raspberries after picking.** THEODORE RENDLE. *Analyst* **58**, 69–77 (1933).—The ripening process in raspberries is more rapid than in most other fruits. As the raspberries ripen, volatile org. compds. are formed without the aid of micro-organisms. The pectic substances present are subject to rapid change with loss of "gelling" power but this change is arrested by applying heat. The enzymic activity of raspberries appears to be greater than in most British fruits and is responsible for the above results. Considerable data are given to support these conclusions. W. T. H.

**Composition of California tomatoes.** L. G. SAYWELL AND W. V. CRUESS. *Fruit Products J.* **12**, 177–9(1933).—Analyses were made of the fresh whole ripe tomato fruits by the A. O. A. C. methods. All results are expressed on the basis of the fresh fruit. The av. compn. was total solids about 6.0–7.0, sucrose up to 0.05, reducing sugar 3.30–3.50, starch 0.01–0.06, total acid 0.35–0.40, protein 0.85–1.00, acid-hydrolyzable (carbohydrate) material 0.10–0.30%; the ratio of dextrose to levulose was 1.17–1.24; $p_H$ 4.0–4.2. Climate and locality, variety and seed selection may alter the compn. of the fruit considerably, even beyond the normal or av. ranges of compn. F. L. DUNLAP

**The composition of tomatoes grown on the Hungarian Plain.** ADOLF FALTIN. *Kisérletügyi Közlemények* **35**, 136–41(1932).—Av. values for 15 different varieties of tomatoes were dry matter 5.42, total sugar (as invert sugar) 3.23, acids (as oxalic acid) 0.29, and ash 0.55%. Seeds and peels averaged 1.01%. The above numbers calcd. on the basis of total dry matter gave total sugar 59.60, total acids 5.32, and total ash 10.20%. S. S. DE FINÁLY

**California standards for dried prunes.** W. F. ALLEWELT AND F. G. LOCAN. Calif. Dept. Agr., *Monthly Bull.* **21**, 422–7(1932).—Size and quality grades are given. The

av. sp. gr. of a fancy grade shall not be less than 1.29 for all varieties except Imperials which shall test not less than 1.28 The choice or second-grade prunes shall have an av. sp. gr. of not less than 1.18. The av. moisture content shall not exceed 24%.
C. R. FELLERS

**Relation of storage temperature of potatoes to their culinary quality.** MARION D. SWEETMAN. *Am. Potato J.* **8,** 174–6(1931); Maine Agr. Expt. Sta., *Bull.* **360,** 218; cf. *C. A.* **25,** 5717.—Frying quality of potatoes stored at temps. below 5° is greatly injured because of the development of a bitter flavor and dark color. These deleterious changes are due to caramelization of the sugars. Storage at warm temp. for several weeks will usually remove the sugar.
C. R. FELLERS

**Cooking quality of potatoes.** MARION D. SWEETMAN. Maine Agr. Expt. Sta., *Bull.* **360,** 194–5(1931).—Forty-five lots of potatoes including 20 varieties were tested for mealiness when boiled and baked, for amt. of starch, size of starch grains, viscosity of the starch, increase in vol. of the starch during heating, content of sol. pectin and protopectin, and amt. of sloughing when boiled. No one of these factors is correlated completely with mealiness, but it is likely that a combination of some of these accounts for the mealiness of some potatoes. Potatoes of high starch content are likely to be less mealy when cooked. Potato-storage temp. below 7.5° causes undesirable accumulations of sugar.
C. R. FELLERS

**Canning quality of pumpkins.** J. H MACGILLIVRAY. Ind. (Purdue) Agr. Expt Sta., *Rept. of the Director for Year Ending June 30, 1931,* 43–4, 54–5.—The sp. gr. of the raw stock varied from 0.535 for Connecticut Field variety to 0.738 for Delicious (squash). Delicious, Golden Hubbard and Golden Delicious produced a stiff product while pumpkin varieties and Boston Marrow squash lacked this characteristic Pumpkins yield a larger tonnage of raw stock, but the squash give a greater yield of canned product per ton of stock. Golden Delicious squash contained the highest percentage of starch and pectin at all stages of growth.
C R FELLERS

**Honey.** K. BRAUNSDORF. *Z Untersuch. Lebensm* **63,** 526–34(1932), cf. *C. A* **26,** 534.—Honeys heated under the same conditions of temp. and time differed widely in decrease of the diastatic activity, *e. g.*, at 81–3° for 1 hr. 54–91% It was noted that honeys stored for 10 months at 20° showed rather distinctly red resorcinol reactions Expts. performed as to the effect of heating on both the phloroglucinol and resorcinol tests have demonstrated that the latter is more sensitive, although both showed little change Heating for 1 hr. at 80° cannot, therefore, by means of these tests, be readily established
S LAUFER

**Examination of comb-honey. II.** K BRAUNSDORF. *Z. Untersuch Lebensm.* **63,** 522–6(1932); cf *C A.* **26,** 3309.—Further characteristics are given which enable one to distinguish between natural and artificial combs.
S. LAUFER

**The interpretation of the analysis of vanilla extract.** LESLIE O HILL *Spice Mill* **55,** 1300 3, 1316, 1326(1932).—A discussion The analytical methods used were the official ones prescribed by the Assoc of Official Agricultural Chemists F L D

**The preservation of fresh chestnuts.** G. MAURI AND C CALZOLARI *Ind ital conserve aliment.* **7,** 201–4(1932), *Chimie & industrie* **29,** 191.—$CHCl_3$ gives satisfactory results as regards the preservation of the chestnuts, but must be used in such quantities that it renders them unedible. Formic acid acts as a strong antiseptic toward ferments, and 2 g. per kg. of nuts is sufficient to produce perfect sterilization. A 2.5% formic acid soln. turns the outer skin brown, and the internal skin and the surface of the cotyledon is sometimes stained gray or blue; this can be prevented by treating the nuts with HCl gas before formic acid Treated nuts take longer to cook. Moldy or deteriorated nuts absorb more formic acid than sound nuts. Treated nuts acquire the characteristic flavor of formic acid; but it disappears to a large extent on cooking
A. P.-C

**Tea from Nyassland. III.** ANON. *Bull. Imp. Inst.* **30,** 434–40(1932); cf. *C. A* **27,** 349.—Analysis of 6 samples showed that they were all of normal compn.
A. P.-C

**Nutritive value of pasture. IX. The influence of the intensity of grazing on the yield, composition and nutritive value of pasture herbage. 4.** H. E WOODMAN AND D. B. NORMAN. *J. Agr. Sci.* **22,** 852–73(1932); cf. *C. A.* **26,** 3599.—Exptl. data show that during the quick-growing period of May and June, pasture grass under a 5-weekly rotational close-grazing system has a slightly lower feeding value than that of grass grazed down at monthly intervals, but that as the season progresses, the nutritive value of the herbage under the 2 systems of close-grazing tends to become equal. Over the whole season, the dry matter of the 5-weekly mown herbage contained, on an av., 63.9% of starch equiv., including 12.6% of digestible protein. The corresponding mean data for monthly grown grass were 67.0 and 14.1%, resp. The actual yield of starch equiv. and digestible protein per acre, over the season, may suffer no depression with mowing only every 5 weeks. The consequent increased growth of herbage may lead to a

definite increase in the yield of starch equiv. The 5-weekly mown herbage, even in the periods of lowest mineral content, contained ample supplies of CaO and $P_2O_5$ to meet the requirements of dairy cattle.
P. R. DAWSON

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Vegetable oils by extraction [meal as animal feed] (THIEME) **27.** Disinfecting effect of washing agent "Teon" [in food-manufacturing plants] (VARGA) **18.** The bacteriological examination of milk (HISCOX, *et al.*) **11C.** Corrosion of metals in mayonnaise plants (LAQUE) **9.** Autoxidation [of products of biochemical destruction of foodstuffs] (NEUBERG, KOBEL) **11A.** Stabilizing fats and oils against rancidity (U. S. pat. 1,890,585) **27.** Molding machine for margarine (Brit. pat. 363,350) **1.** Vitamins [for mixture with winter fodder] (Brit. pat. 364,113) **17.** Apparatus and procedure for determining water in flour (Brit. pat. 365,247) **1.**

**Food Industries Manual.** Published annually. Issued by "Food Manufacture." Edited by H. B. CRONSHAW. London: L. Hill, Ltd. 300 pp. 10s., 6d.

**Handbook on Chocolate and Confectionery.** London: A. Boake, Roberts & Co., Ltd. 80 pp. 2s., 6d.

SCOTT, A. W.: **Engineering Aspects of the Condensing and Drying of Milk.** Glasgow: Air & Coghill, Ltd. 120 pp. 4s., 9d. Reviewed in *Ind. Eng. Chem.* **25,** 356(1933).

ZIEGELMAYER, WILHELM: **Unsere Lebensmittel und ihre Veränderungen,** mit einer Darstellung der Lehre von der Kochwissenschaft. Dresden: T. Steinkopff. 322 pp. M. 10; bound, M. 11 20.

GÖTEL, ALFRED: **Das Salzbad in der Weichkäserei.** Thesis, Munich, 1930. 51 pp.

HUBER, HANS: **Über die quantitative Bestimmung der Zitronensäure in Milch, Fruchtsäften und Apfelwein.** Thesis, Wurzburg, 1931. 33 pp.

LOOSER, HANS: **Versuche zwischen Eiweissdifferenzierung in gekochten Fleischkonserven mit Hilfe der Anaphylaxiereaktion.** Thesis, Bern, 1930. 24 pp.

PETERMANN, ALFRED: **Über den Wert einiger Rückstände der Ölindustrie als Futtermittel.** Thesis, Rostock, 1930. 80 pp.

REHSE, WALTER: **Beiträge zur Kenntnis der alkohollöslichen Bestandteile von Roggen und Weizen und ihre analytische Verwertung zum Nachweise von Roggen und Weizen bei Mehl und Brot.** Thesis, Frankfurt, 1931. 68 pp.

SCHIMMELPFENNIG, GÜNTER: **Die Zusammensetzung der Milch durchmelkender Kühe.** Thesis, Berlin, 1930. 39 pp.

**Food composition.** FREDERICK H. HOFFMAN. U. S 1,890,180, Dec. 6 A compn. not subject to crystn. comprises ground roasted peanuts 73, strained honey 15 and oil of green peanuts 12%.

**Alimentary milk preparations.** LUCIE MARCHAUDON NÉE SIMON. Brit. 363,664, Oct. 19, 1929. Rennet is introduced into cold milk which after 15 or more min. is rapidly heated without boiling for 2–5 min. to about 100° and then allowed to cool.

**Apparatus for the preparation of effervescent milk.** CARL KOSANKE, GEORG R. E. KLEINWORT and HANS A. H. GEHRCKENS. Brit. 363,031, Oct. 13, 1930. $CO_2$ is introduced under pressure in 2 stages.

**Mixing machine for working edible fat under vacuum.** GEO. H. ABEL. Brit 366,541, Nov. 29, 1929.

**Treating fruits, vegetables, etc., for use as foods.** ULYSSES G. TODD (to Pfaudler Co.). U. S 1,890,475, Dec. 13. The products are subjected to the action of treating liquids such as sirups under a partial vacuum, the degree of which is repeatedly varied to insure thorough permeation. App. is described

**Apparatus for drying gelatin or other food products.** DAVID U. SMITH. U. S. 1,889,880, Dec. 6. Structural details.

**Food for animals.** JÓZSEF MADARÁSZ and RICHÁRD ABENDORFF. Fr. 737,485, May 24, 1932. Grain is ground, dried, mixed with molasses and made into briquets.

## 13—GENERAL INDUSTRIAL CHEMISTRY

HARLAN S. MINER

**Industry gains from chemical research.** H. G. KNIGHT. *Mfrs. Record* **101,** No. 18, 26–7(1932).—An outline is given of some of the industrial applications during the last 10–15 years of chem. research by the Bureau of Chemistry and Soils, U. S. Dept. of Agriculture.
A. W. FURBANK

**Chemical process industries in Japan.** CHARLES E. MULLIN. *Chem. Markets* **32**, 129–31(1933). E. H.

**Chemicals in United States foreign trade in 1932.** OTTO WILSON. *Ind. Eng. Chem.* **25**, 350–5(1933). G. G.

**The development of the patent attorney status and its significance for the arts.** REINHOLD COHN. *Chem. Fabrik* **1933**, 71–2. J. H. MOORE

**Patent relations of employers and employees.** KARL FENNING. *Ind. Eng. Chem.* **25**, 343–5(1933). G. G.

**The house patent department.** THOMAS GRISWOLD, JR. *Ind. Eng. Chem.* **25**, 346–8(1933). **Comments on "The house patent department."** WM. R. GREEN. *Ibid* 348–9. **Reply to comments on "The house patent department."** MARK E. PUTNAM. *Ibid* 349. G. G.

**What is patentable in chemistry?** ROBERT E. SADTLER. *Chem. Markets* **32**, 102–3(1933). E. H.

**A study of classification calculations.** HARRY W. NEWTON AND WM. H. NEWTON. *Rock Products* **35**, No. 16, 26–30(1932).—Formulas for efficiency and circulating load are developed. RAYMOND WILSON

**Studies in filtration. II. Fundamental axiom of constant-pressure filtration.** B. F. RUTH, G. H. MONTILLON AND R. E. MONTONNA. *Ind. Eng. Chem.* **25**, 153–61 (1933); cf. *C. A.* **27**, 789.—The irregularities observed in the $V^2$ *vs.* $\theta$ plots at the beginning of filtration are due to the resistance of the filter medium. If this resistance is expressed as units of cake resistance and considered as an integral part of the filtration cycle, the relation of vol. and time is shown to be parabolic throughout the whole course of the filtration. The equation $(V + C)^2 = K(\theta + \theta_0)$ is shown to hold throughout the whole course of the filtration cycle for different types of sludges varying in character from highly rigid to highly compressible particles. R. M. BOARTS, JR.

**Basic principles of distillation and rectification.** A. M. TREGUBOV. *Aznefteizdat* Issue **15**, 159 pp.(1932). A. A. BOEHTLINGK

**Agricultural wastes and their relation to industry.** C. A. BASORE. *Mfrs. Record* **100**, No. 19, 22–3(1931).—A review of the production of various compds., as xylose, cellulose, furfural, acetic and oxalic acids, and of fiberboard, etc., from cottonseed hulls, corn stalks and cobs, waste wood, waste straw, bagasse and peanut hulls. J. D. S

**Carbon dioxide in industry.** CHAS. L. JONES. *Chem. & Met Eng.* **40**, 76–9 (1933). E. H.

**Heat effects in salt solutions.** FRAN BOSNJAKOVIC. *Z. ges Kalte Ind.* **39**, 165–8, 181–5(1932).—A practical discussion of the thermodynamic properties of salt solns for refrigeration purposes. F. D. ROSSINI

**Altenkirch two-stage ammonia-absorption refrigerating machine.** M. GOMPERTZ AND W. NIEBERGALL. *Z. ges. Kälte-Ind.* **39**, 187–92, 205–7, 220–5(1932). F. D. ROSSINI

**Correction table for the performance meter, calibrated in normal calories, for the ammonia refrigeration plant.** KARL HEINZE. *Z. ges. Kälte-Ind* **39**, 200–4(1932). F. D. ROSSINI

**The development of the Elektrolux refrigerating machine.** C. G. MUNTERS. *Z. ges. Kälte-Ind.* **39**, 197–200, 216–20(1932). F. D. ROSSINI

**Chemical warfare in mob and crime control.** KENNETH A. KOBE. *Chem. & Met. Eng.* **40**, 60–1(1933). E. H.

**Toxic gases.** JÁNOS ERDÉLYI. *Természettud. Közlöny* **64**, 461–73, 510–23(1932). Known gases used for military purposes are reviewed and the history and future of the chem. warfare are discussed. S. S DE FINÁLY

**A summary of the year's insulation research.** J. B. WHITEHEAD. *Elec. Eng* 52, 99–100(1933).—Insulating oil and capillary action of oil as related to paper are discussed at the annual meeting of the Comm. on Insulation of the National Research Council. W. H. BOYNTON

**Thermal insulation with aluminum foil.** RALPH B. MASON. *Ind. Eng Chem* **25**, 245–54(1933).—The low thermal emissivity of Al foil and the low thermal cond of air are combined in an Al foil-air cell insulation, of the plain air-cell type, whose insulating value approaches that of still air. The best results are obtained when the distance between foils is from 0.25 to 0.33 in. KARL KAMMERMEYER

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**Adsorption and wetting processes in technic (BERL, SCHMITT) 2. A method of interpolating data (PERRY, SMITH) 2. Thermostatically controlled heater and filter for treating insulating oils (U. S. pat. 1,890,265) 1.**

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**NIKURADSE, J.: Gesetzmässigkeiten der turbulenten Strömung in glatten Rohren. Berlin: V. D. I.-Verlag. 36 pp. M. 5.**

ULLMANN, FRITZ: **Enzyclopädie der technischen Chemie.** 2nd ed., revised **Bd. X. Tinte bis Zundwaren.** 876 pp. M. 42.50; bound, M. 50. **Sach Verzeichnis.** 200 pp. M. 17; bound, M. 22. Berlin: Urban & Schwarzenberg. **Reviewed in** *Ind. Eng. Chem.* **25,** 358(1933). Cf. *C. A.* **26,** 4894.

GEMUSENS, ALPHONSE: **Das schweiz. Patentgesetz in seiner Anwendung auf chemischen Erfindungen.** Thesis, Bern, 1930. 70 pp.

SCHROEDER, ALF.: **Entwicklung der Schleiftechnik bis zur Mitte des 19. Jahrhundert.** Thesis, Brunswick, 1930. 191 pp.

**Purifying gases.** LONDON POWER CO., LTD. Fr. 738,307, June 8, 1932. $SO_2$ is removed from gases by treating them with an alk. suspension of $Fe(OH)_3$, the soln. being kept alk. by the addn. of CaO. $CaSO_4$ is pptd. and removed.

**Separating gaseous mixtures.** BRITISH CELANESE, LTD., DONALD FINLAYSON and ALFRED J. SHARP. Brit. 365,092, Oct. 15, 1930. The mixts. are sepd. by adsorption in a substance such as active C or silica gel, followed by fractional desorption at successively descreased pressures. The fractions may be subjected to a repetition of the process. In an example water gas is sepd. into fractions suitable for (1) *$NH_3$ synthesis,* (2) *methanol synthesis* and (3) the *conversion of aliphatic alcs into acids.*

**Separating gaseous mixtures by liquefaction.** SOC. L'AIR LIQUIDE (SOC. ANON. POUR L'ÉTUDE ET L'EXPLOITATION DES PROCÉDÉS GEORGES CLAUDE). Fr. 738,074, June 2, 1932.

**Washing gases.** W. E. GIBBS. Brit. 380,099, Mar. 27, 1931. Mech. construction.

**Washing gases.** ATELIERS J. HANREZ SOC. ANON. and A. MODAVE. Brit. 380,746, Mar. 17, 1932.

**Apparatus for allowing liquefied gases to gasify at ordinary temperature.** KENNETH S. MURRAY and THE BRITISH OXYGEN CO., LTD. Fr. 738,084, June 2, 1932.

**Purifying vapors such as those of distilled water.** EMIL TRUOG. U. S. 1,889,617, Nov. 29. Vapors formed by heating a liquid are passed through a dil. acid soln. such as $KHSO_4$ to remove basic impurities; the washed vapors are then passed around a body of charcoal to heat the charcoal and are then conducted into contact with the heated charcoal to remove phys. impurities without condensation of the vapors. App. is described. Soda lime also may be used.

**Distillations.** METALLGESELLSCHAFT A.-G. Fr. 738,205, June 6, 1932. In distg. mineral oils or other liquids or removing fatty acids from oils, etc., substances capable of being condensed by cooling with water or air, under a reduced abs. pressure, *e. g.*, corresponding to 3 mm. of Hg and less, are introduced below an upright tube extending from near the bottom to above the level of the liquid for causing the liquid to rise Thus, in the distn. of oil a lighter fraction may be introduced.

**Emulsions.** ERWIN MEYER and UDDEHOLMS AKTIEBOLAG. Brit 365,844, Feb. 25, 1931. Aq. emulsions are prepd. by using as the sole emulsifying agent turpentine oil, preferably that obtained from the sulfate cellulose or charcoal industries. In examples, colophony, liquid rosin, paraffin and bitumen-asphalt are emulsified with water. The products are usable for impregnating wood, paper, textiles, sizing paper, application as plasters to the skin in case of burns, and, in the case of the bitumen-asphalt emulsion, road making, coating wood, etc.

**Making and treating emulsions.** RAGNVALD HELLERUD, N. V. INTERNATIONALE GRADIN MAATSCHAPPIJ and VITACREAM, LTD. Brit. 365,586, Aug. 15, 1930. Emulsions, particularly those contg. protein material and fat, are treated to increase their stability and lower their viscosity by passing them through successive heads or valves of a homogenizing machine. At the first head a high pressure, *e. g.*, over 100 atm., is employed and at following heads substantially lower homogenizing pressures. In the case of fatty emulsions contg. casein or egg protein as emulsifying agents the first homogenization should be at not less than 60°.

**Colloidal solutions of oxides.** CURT GROPENGIESSER. Fr. 737,908, May 31, 1932. Colloidal aq. solns. are made by grinding oxides of metals such as Pb, Cu or Fe, in the presence of dextrin and gradually adding water. A small amt. of glycerol or glucose may be added to the dextrin.

**Removing colloidal silica from solutions.** GIAN A. BLANC. Brit. 366,002, Aug. 22, 1929. See Fr. 700,750 (*C. A.* **25,** 3745).

**Oxygen-producing compositions.** WALTER ZISCH (to Roessler & Hasslacher Chemical Co.). U. S. 1,890,875, Dec. 13. A compn. producing O when used in breathing app. is prepd. by hydrating an alkali metal peroxide while dissipating the heat of reaction by incorporation of water in the ratio of about 0.3–1 mol. of water per mol. of peroxide, and heating the resulting hydrated product to a temp. below 150° (suitably about 50°). Cf. *C. A.* **27,** 383.

**Heating granular materials; coking; drying.** A. P. E. BOURDET. Brit. 380,830, June 18, 1930.

**Transmitting heat produced in a fire box.** LUCIEN NEU. Brit. 363,684, June 24, 1929. Void. An intermediate liquid circulating in an enclosed space is used to transmit the heat to the fluid to be heated or vaporized.

**Refrigerant.** CHRISTIAN DANTSIZEN (to The British Thomson-Houston Co., Ltd.). Brit. 363,613, Sept. 19, 1930. A refrigerant consists of Me formate with a small proportion of a low-boiling alc., *e. g*, EtOH or MeOH.

**Refrigerants.** MICHEL B. TAILLANDIER. Fr. 737,534, July 25, 1931. Refrigerants are composed of a system of salts, the anion of which is strongly electroneg. and which are strongly hydrolyzed in soln. Examples contain (1) $KNO_3$, $NH_4OH$, $Na_2SO_4$ and water, (2) $Na_2SO_4$, HCl and water, (3) Rochelle salt, $NH_4OH$, $KNO_3$ and water and (4) $NH_4OH$, $KNO_3$ and water.

**Insulating materials.** GUSTAVE RISLER. Fr. 737,923, Sept. 23, 1931. Paper which is to be impregnated with an insulating mass is first opened up to receive the mass by treating it with a soln. of a gas in liquid, *e. g.*, $NH_3$ in water or MeOH and then heating rapidly to liberate the gas suddenly. For heating, the paper may be immersed in a liquid heated to above the b. p. of the liquid in which the gas is dissolved.

**Insulating coating material suitable for use on metal pipes, etc.** MAX DESENISS and ANDREAS NIELSEN (to New-York Hamburger Gummiwaaren Compagnie). U. S. 1,890,723, Dec. 13. See Fr. 714,805 (*C. A.* **26**, 1684).

**Weatherproof insulation on wire.** OTTO A. FREDERICKSON (to National Elec. Products Corp.). U. S. 1,890,253-4, Dec. 6. Various details of manuf. are described, involving wrappings formed of crinkled paper, asphalt, stearin pitch, etc.

**Insulating cables.** CHEMISCHE FABRIK VORM. SANDOZ. Brit. 363,435, July 8, 1930. Metallic conductors, condensers, etc., are insulated with layers of mono- or di-acetylated cellulose fibers prepd. by any acetylation process not altering the structure of the fibers.

**Apparatus for producing an electric cable having a covering of India rubber or like composition.** BRITISH INSULATED CABLES, LTD., WM. WHITELEY and CHARLES WILKINSON. Brit. 363,440, Oct. 3, 1930.

## 14—WATER, SEWAGE AND SANITATION

EDWARD BARTOW

**Water supply of Spartanburg, S. C., and its by-products.** R. B. SIMMS AND J. K. MARQUIS *J. Southeastern Section, Am. Water Works Assocn* **2**, 61–8(1932); *U. S. Pub. Health Eng. Abstracts* **12**, W, 142(Dec. 3, 1932) C. R. FELLERS

**Increasing efficiency of water purification at Valparaiso, Indiana.** CHAS. BROSSMAN. *Public Works*, **63**, No. 5, 15–17(1932).—The old filtration plant was modernized by the installation of new filter bottoms, control mechanism, Aer-O-Mix header tank, and dry-feed machines. Filter troubles have disappeared, settling basin efficiency has been increased and a saving of wash water and alum has been effected. C. C RUCHHOFT

**Water works improvements at Murfreesboro, Tenn.** C. N. HARRUB. *Public Works* **63**, No. 3, 24–6(1932).—In order to provide an adequate water-supply system the following units were constructed: a gravity-type filtration plant, replacement of old boilers, erection of a new power plant, construction of a half-million-gal. elevated steel storage tank and a belt line of 8" and 12" pipe to improve the distribution pressure. The filtration plant includes 2 sedimentation tanks having a capacity of 125,000 gal. each, 4 half-million-gal. rapid sand filters and a million-gal. filtered-water reservoir. C. C. RUCHHOFT

**Treatment of well waters.** M. J. DAVIS. *Water Works Eng.* **85**, 1414–15(1932).—Aeration is used to remove $H_2S$ and $CO_2$. Sedimentation followed by pressure filters and zeolite softeners complete the treatment. Reduction in hardness is 13 gr. per gal. 6 gr. per gal. This produces an estd. saving of $10,000 yearly to consumers; hence it justifies the $4,000 installation cost. G. L. KELSO

**Mineral springs of Chechnya [Caucasus].** G. A. MAKSIMOVICH. *J. Applied Chem.* (U. S. S. R.) **5**, 1066–77(1932).—Chem. analysis of waters from different springs and their locations on a map are given, as well as a bibliography of 12 references. V. KALICHEVSKY

**The solution content of surface waters.** KARL KREJCI-GRAF. *Chem. Erde* **7**, 609–15(1932).—Analyses taken from Clarke's Data of Geochemistry are plotted to show the interrelation between the carbonate, sulfate, chloride and basic ion contents of various types of waters. MICHAEL FLEISCHER

**Hydrological classification.** ANDREA VINAJ. *Chim. ind. agr. biol.* **8,** 416–19(1932).—Methods for the chem. and biol. classification of waters are examd., and it is proposed to classify waters by means of a chem.-medical method of practical utility. G. A. B.

**Mud from Lake Dapkhur [Russia].** V. I. NIKOLAEV, A. M. SOLOVOV AND M. A. FRISHMUT. *J. Applied Chem.* (U. S. S. R.) **5,** 809–14(1932).—Analytical data are given. V. KALICHEVSKY

**Comparing waters by data obtained by an incomplete analysis.** K. L. MALYAROV. *Neftyanoe Khozyaĭstvo* **20,** 374–86(1931).—Methods for the detn. of ingredients in borehole waters are discussed. The detn. can be carried out by comparison with a water of known compn. and by bringing the water under investigation up to the compn. of a known sample. A. A. BOEHTLINGK

**Taste and odor control in drinking water.** R. C. GRAHAM. *Southwest Water Works J.* **14,** No. 9, 12(1932).—Activated charcoal 0.05 to 2.2 gr. per gal. removed odors from river water at Brownsville, Texas. O. M. SMITH

**Powdered activated carbon used without filtration.** ARON B. HESS. *Public Works* **63,** No. 8, 13(1932).—Half of the water supply taken from a lake contg. about 40 million gal. is softened, mixed with an equal quantity of untreated water and pumped to a storage tank. The destruction of a heavy algae growth with Cu sulfate produced a bad taste and a heavy turbidity. The entire lake surface was treated with 1100 lb. activated C. The C settled out in 24 hrs., and the taste and turbidity disappeared. C. C. RUCHHOFT

**Ammonia-chlorine and activated-carbon treatment of waters.** A. PRESCOTT FOLWELL. *Public Works* **63,** No. 5, 18–21(1932).—$NH_3$-Cl treatment saves Cl, prevents tastes due to phenols and excess Cl, is stable and efficient in the presence of considerable org. matter and provides residual Cl which remains in the water for a long period. Activated C is useful in removing tastes and odors due to algae, swampy and vegetable matters, to phenols, $H_2S$, Cl and other sol. matters. Sludge accumulating in settling basins and in water-softening units is rendered inodorous by activated C. C. C. R.

**Some ammonia-chlorine experiences.** ANON. *Public Works* **63,** No. 7, 42–4 (1932).—Most reports agree that the treatment is effective in destroying algae, but in some cases it was necessary to supplement the treatment with activated C. C. C RUCHHOFT

**Specifications for filter.** WM. E. STANLEY. *J. Am. Water Works Assoc.* **25,** 105–12(1933).—Emphasis is placed on the points to consider in writing filter-plant specifications. D. K. FRENCH

**Filtering materials for water works.** WM. E. STANLEY. *Can. Engr.* **62,** No. 2, 11(1932). E. HURWITZ

**Gravel as a trickling-filter medium.** E. W. STEEL AND P. J. A. ZELLER. *Can. Engr.* **62,** No. 2, 36(1932).—Gravel 1.5–2.5 in. in size will produce an effluent equal in quality to that produced by crushed stone of the same size. Unloading characteristics of the two materials are equal. E. HURWITZ

**Coagulation methods applied on the treatment of highly turbid waters.** HERBERT A. HARTUNG. *Water Works Eng.* **85,** 1310–13(1932).—Missouri River water turbidity varies from 150 to 17,000, and hardness between 120 and 240. Changes are rapid This water is coagulated and softened to produce an effluent of turbidity not exceeding 5 and total hardness of 100. Lime added to raw water causes removal of 90% of turbidity in the first basin. Choice of treatment is detd. by jar tests and alky. reduction. Secondary coagulation is effected with $FeSO_4$ when $p_H$ is above 9.0. G. L. KELSO

**Iron removal without filtration.** E. T. ARCHER. *Can. Eng.* **62,** No. 22, 11–12 (1932); cf. *C. A.* **26,** 4395, 5361. E. HURWITZ

**Ferric chloride as a coagulant.** PAUL STEGEMAN. *Water Works Eng.* **85,** 1318–20(1932).—Several expts. using $FeCl_3$ and alum in parallel indicate equal turbidity removal with smaller doses of $FeCl_3$ than alum. Lab. tests were confirmed in plant operation. No effect was indicated on color removal or filter runs. G. L. KELSO

**Neutralizing the effects of manganese in impounded water.** ROBERT SPURR WESTON AND ATTMORE E. GRIFFIN. *Water Works Eng.* **85,** 1314–17(1932).—The presence of Mn in impounded water is generally due to the acid condition resulting from decompn. of org. vegetable matter in the bottom of the reservoir and subsequent soln. of Mn. Presence of $H_2S$ intensifies the condition. As a reservoir ages, the Mn dissolved from the bottom soil decreases. Mn troubles can be reduced by drawing off the "bottom water" during stagnation periods. "Overturning" of the reservoir as in the fall distributes the Mn from the bottom through the water. G. L. KELSO

**Destruction of bacteria under anaerobic conditions and its significance for water supplies.** HANS LEHMANN AND CARL REICHLE. *Gas. u. Wasserfach* **76,** 41–4(1933).—Bacteria die within a relatively few days in water from which O is excluded, because of consumption of the dissolved O. It is suggested that a water free from contamination

might be obtained from some water sources, previously highly contaminated, if a well were sunk at a point insuring a reasonably long time for the water to percolate to that point. Diagrams are given. R. W. RYAN

**Solubility of lead in water.** JULIUS ZINK. *Z. anal. Chem.* **91,** 246–58(1933).—A summary of the effects of various anions on soln. of Pb by running water in Pb pipes. W. T. H.

**Sterilizing mains and contaminated pipe.** WM. W. BRUSH. *Can. Eng.* **63,** No. 13, 13(1932).—New pipe lines are easily sterilized by introducing a small amt. of chloride of lime into each section as it is being laid. If chlorine gas is preferred a portable injector and a back-pressure valve are necessary. Time of contact should never be less than 4 hours. E. HURWITZ

**Jute causes trouble.** G. I. WHITE. *Water Works Eng.* **85,** 1420–1(1932).—7000 feet of new cement-lined 24″ cast-iron pipe connects the new 7,000,000-gal. covered distribution reservoir at Kalamazoo, Mich., with the distribution system. The new line was treated with water contg. 40 p. p. m. $Cl_2$ with 8 hrs. contact, the reservoir being thoroughly flushed down inside with water of the same $Cl_2$ concn. at 100 lb. pressure. *Es. coli* were recovered in 1-ml. samples after this treatment. Repeated treatment failed to remove colon organisms or reduce the counts. Selective sampling indicated the main as the source of contamination. Two kinds of untarred, unoiled jute had been used in construction of the main, one braided the other unbraided. 0.05-g. samples of the unbraided material yielded 3 types of aerobic lactose fermenters; *Es. coli, Aerobacter aerogenes* and an organism giving deep pink colonies on E. M. B. agar. The braided material gave neg. bacteriol. results. G. L. KELSO

**Water softening at Thomasville, Georgia, saves more than double its cost.** LOWELL CADY. *Public Works* **63,** No. 6, 20–2(1932).—The equipment includes 2 mech. agitators, 1 clarifier, 3 carbonating chambers, 1 settling basin and 2 gravity filters. To remove the Mg and produce a low final carbonate hardness the water is overtreated with lime to 40 p. p. m. caustic alky.; this is followed by carbonation and thin filtration to remove the excess carbonates. Dry-feed machines handle quicklime, soda ash and Al sulfate. $CO_2$ is obtained from the power-house stack. A wet and dry scrubber and a compressor complete the carbonating equipment. Savings in soap, salt and repairs have been calcd to be greater than total operating cost. C. C. R

**Water-softening plant for Marshall, Missouri.** BRANSFORD W. CRENSHAW. *Public Works* **63,** No. 5, 38–40(1932).—A zeolite-type plant to soften an av consumption of 381,000 gal. per day has been added to the municipal water system. Two units with space for a third are provided These are connected to receive water directly from the wells. Pulsations from well pumps are absorbed in a cushion tank. Automatic proportioning equipment permits a mixed water varying from 1 to 8 grains in hardness Approx. 55,000 lb. of rock salt will be used per month. This supply is placed in a concrete tank, and the concd brine flows into an underground tank where it is properly diluted before being pumped to the softeners. The zeolite units have a softening capacity of 4,500 grains of hardness per cubic foot of mineral. The salt consumption 0.35 lb. per thousand grains of hardness removed. C. C. RUCHHOFT

**Recent sewage investigation in Maryland.** ABEL WOLMAN. *Public Works* 63, No. 4, 29(1932).—A trickling filter was treated with 25 p. p. m. Cl in an attempt to remove the humus. The treatment was applied for 9 consecutive days. No lab data are yet available but considerable material was removed from the filter stones. Baltimore has adopted the lime-Cl treatment for the sewage-plant effluent. Lime fed by dry-feed machines is carried in aq. suspension to the point of application of the Cl An alk $Ca(ClO)_2$ soln. is thus formed and applied to the plant effluent The required ratio of 1.25 parts lime to 1.0 part Cl is checked by phenolphthalein tests. Less Cl is required, and the residual is more permanent. Expts. are being made with a "Genter" type pilot scale oscillating, continuous-vacuum filter. The ripe digested sludge is coagulated with $FeCl_3$ at a $p_H$ of 4.8. Moisture of the dried sludge is 75%. C. C. RUCHHOFT

**Jersey City's Boonton sewage plant.** ANON. *Public Works* **63,** No. 2, 40(1932) C. C. RUCHHOFT

**Sewage-treatment plant at London, Ont.** W. M. VEITCH. *Can. Eng.* **62,** No. 18, 11–16(1932).—This activated-sludge plant is designed to treat a flow of 5 million gal per day. Both coarse and fine screens are used, and all screenings are pressed and incinerated. Spiral-flow aeration tanks provide a detention period of 1.8 hours. Settling tanks are equipped with scrapers of the twin-spiral type. The fine screens remove an av of 9% suspended solids having a moisture content of 87%. The final effluent contains 50 p. p. m. suspended solids, which is a 72% removal. E. HURWITZ

**Unusual features of sewage treatment at Bradford, England.** ANON. *Public Works* **63,** No. 8, 12(1932).—Special treatment was designed for a domestic sewage strongly polluted with wool-scouring waste. Wool fat is removed by adding $H_2SO_4$

until the $p_H$ of the sedimentation tank effluent is 6. Acid is added only when wool suds are being received at the plant. Sludge from the detritus and pptn. tanks is placed in vats where it is heated with steam coils, to facilitate removal of the grease by means of sludge presses. Sludge cake is hauled to the drying beds. Tank effluent is treated on filters using hard Yorkshire coal as a filtering medium. Its use on the filters has not resulted in any loss of calorific value C. C. RUCHHOFT

**Sewage purification in Glasgow.** W. J. TENNAUT. *Surveyor* **81**, 609–10(1932); *U. S. Pub. Health Eng. Abstracts* **12**, S, 122(Nov. 19, 1932).—The Dalmarnoch works were originally designed for chem. pptn. but were later improved by the addn. of trickling filters. They cover 28 acres and treat 20,000,000 gal. a day of an exceptionally complex sewage contg. much trade waste. The Dolmuir works employs chem. pptn. and treats 40,000,000 gal. per day. The Shieldhall works, treating mostly weak domestic sewage of 30,000,000 gal. per day, also use chem. pptn. followed by fine screening. Sludge disposal is effected partly by pressing and partly by disposal at sea. C. R. FELLERS

**Sewerage and sewage disposal of Marlow.** G. T. COTTERELL. *Surveyor* **82**, 111–12(1932); *U. S. Pub. Health Eng. Abstracts* **12**, S, 131–2(Dec. 10, 1932).—The plant was designed to care for a population of 6200. The sewage is discharged from 2 ejector stations before entering the 2 vertical 2-story sedimentation tanks of 90,000 Imp. gal. capacity. The effluent liquor from the sedimentation tank passes into a dosing chamber from which it is automatically and intermittently dosed through revolving distributors onto 3 primary percolating filters with a total capacity of 2670 cu. yds. The effluent from the filters passes into 2 vertical hopper-type humus tanks. Secondary filtration from a dosing chamber to 2 percolating filters follows in a similar manner, the effluent passing onto 2 horizontal-flow shallow secondary-humus tanks before discharging into the river. There are 2 sludge-digestion chambers with capacities of 3490 and 1260 cu. ft., resp. The sludge may be moved from the sedimentation tanks either to the digestion tanks or direct to the sludge lagoon. C. R. FELLERS

**Sewage-disposal plant and trunk sewers at Brampton, Ont.** W. M. TREADGOLD. *Can. Eng.* **62**, No. 26, 19(1932); cf. *C. A.* **26**, 4117.—This plant treats a flow of 0.5 million gal. per day of combined sewage. E. HURWITZ

**Design and operation of dual interceptors and sewage-treatment plants.** G. W. WHITE. *Am City* **47**, 63–5(1932); *U. S. Pub Health Eng. Abstracts* **12**, S, 131(Dec. 10, 1932).—The rept. is based on the Spartanburg, S. C., plant. C. R. FELLERS

**Grease removal from Los Angeles sewage.** ANON. *Public Works* **63**, No. 2, 49(1932). C. C. RUCHHOFT

**Non-biological sewage and sludge treatment.** WILLEM RUDOLFS. *Public Works* **63**, No. 9, 23–4(1932).—The method consists of displaceable tanks filled with slag. The coarse-screened sewage is filtered upward through the slag, the partially clarified sewage is pptd., settled and filtered through the same slag. Rapid sand filters must be used to obtain a highly purified effluent, but a 70% reduction of suspended solids and a 60% reduction of biochem O demand has been obtained. The slag is removed when fouled, and the adhering sludge is incinerated at a temp. of 1200°F. About 2% of the slag is lost at each drying and burning. Trouble from odors has not been entirely eliminated. C. C. RUCHHOFT

**Determination of carbon in sewage and in sludge.** H. BACH. *Z. anal. Chem.* **91**, 259–63(1933).—C in the dried sludge from treated sewage is detd. by wet combustion with chromic and sulfuric acids and absorption of the resulting $CO_2$ in a soda-lime tube. Since bicarbonates and $NH_4$ carbonates are lost during the evapn. and drying of the sludge the C found corresponds quite closely to what is called "organic" C. The method can also be applied to the detn of C in sewage which has been evapd. to dryness. In this case, if the sewage has been treated with CaO, considerable $CaCO_3$ is likely to be present in the residue, so that a sep. detn. of carbonate C must be made by treating with acid alone. W. T. H.

**Incineration of sewage screenings and sludge.** HERBERT W LINCOLN. *Public Works* **63**, No. 5, 22–4(1932).—In order to operate a properly designed incinerator without nuisance, the temp. of the outgoing gases must be 1250°F or above, and there must be an ample supply of air. The choice of com. fuel depends upon local conditions, but oil is preferable, since it combines ease of firing and temp control. Proper incinerator design should include a large hearth area, multiple charging and stoking holes, provision for thorough mixing of the gases with air and a settling chamber for the removal of ash particles from the gases. C. C. RUCHHOFT

**Present status of activated-sludge process.** WELLINGTON DONALDSON. *Public Works* **63**, No. 4, 24(1932).—The activated-sludge process is assuming a dominant position for large plants, since it is feasible to supplement the process by chlorination or filtration. Because of fluctuations in plant loading and difficulties of control it is not so well adapted to small projects. Suspended solids in aerating tanks

range from 0.10 to 0.70% by weight. To clarify data the following factors should be expressed on a per capita basis or in terms of a stated no. of units of O demand: detention period in aeration tanks, air used per gal. and h. p. per million gal. In spiral-flow aeration tanks and in mech. types, short circuiting is an important factor. Possible deoxygenation should be prevented. Reaeration is advisable for some situations. Sludge bulking is more serious in the smaller plants. Sludge disposal by the use of heated digestion tanks and drying beds is recommended. The use of vacuum filters has been found feasible. The manuf. of fertilizer from the filter cake is not a com. success. Attention is being given to incineration as a means of filter-cake disposal. C. C. R.

**Activated-sludge process in small installations.** F. M. VEATCH. Mo. Water and Sewage Conference, *6th Ann. Rept.* 85–9; *U. S. Pub. Health Eng. Abstracts* **12,** S, 109(Oct. 8, 1932); cf. *C. A.* **26,** 5363.—Even in small installations the activated-sludge process has proved both efficient and economical of operation. C. R. FELLERS

**Placing the Woonsocket activated-sludge plant in operation.** ILBERT O. LACY. *Public Works* **63,** No. 5, 25–7(1932).—By means of an addnl. channel located across the effluent end of the aeration tanks it is possible to return poor sludge to the skimming tank. The sewage flow includes industrial waste from rayon, wool scouring, piece dye and weaving mills. A large amt. of grit necessitates a max. air supply in the skimming tank, and this causes more grease on the surface of the preliminary settling tanks than is desirable. A heavy fibrous mat is occasionally formed on the surface of the same tanks This is pumped to a sand filter, drained and buried. An activated sludge floc of 2000 p. p. m. was quickly built up. Primary sludge and activated sludge were pumped to the digestion tanks with sufficient lime to maintain a $p_H$ of 7.2 Operation and cost-data tables are included. C C. RUCHHOFT

**Separate sludge-digestion works at Wichita, Kansas.** F. M. VEATCH. *Am City* **47,** 58–9(1932); *U. S. Pub. Health Eng. Abstracts* **12,** S, 130-1(Dec. 10, 1932), cf. *C. A.* **26,** 5363.—The sewage works is designed for an estd. population in 1940 of 160,000 and a flow of 18,000,000 gal a day It consists essentially of mechanically cleaned bar screens, grit chamber, aeration tank, settling tank, sludge digesters and sludge-drying beds. After passing through the screens the sewage is aerated by means of air forced through porous plates for about 20 min. before settling. Duplicate settling tanks are provided with scrapers and skimmers. The settled sewage passes through a Venturi meter in the outfall line. Three digesters are provided with a total capacity of 320,000 cu. ft. The digesters are heated by sep. gas-fired boilers A scum-breaking mechanism is used. The gas collected in the domes of each digester is piped to a 25,000 cu. ft. tank. The plant includes 36 sludge beds with a total area of 108,000 sq. ft. The sludge is to be used for fill. C. R. FELLERS

**Equipment employed in recovering sludge from settling tanks.** EDMUND B BESSELIEVRE. *Can. Engr.* **63,** No. 5, 11(1932). E HURWITZ

**Treatment of sludge by bacterial digestion.** H C. WHITEHEAD AND F. R O'SHAUGHNESSY. *Can. Engr.* **62,** No. 8, 49(1932) F HURWITZ

**Fertilizer base from sewage sludge.** C. G WIGLEY. *Water Works & Sewerage* **79,** 76(1932); *U. S. Pub. Health Eng Abstracts* **12,** S, 125(Nov. 19, 1932); cf. *C. A.* **26,** 2538.—The method of conversion depends upon the action of fungi on the sludge An inodorous, stable fertilizer base is thus obtained at the Atlantic City sewage works C. R. FELLERS

**Salamanders and water hygiene.** WM. G. HASSLER. *Natural History Magazine* **32,** 303–10(1932); *U. S. Pub. Health Eng. Abstracts* **12,** W, 140(Dec. 3, 1932).—Salamanders in several N. Y. state water supplies normally contained *Es. coli* in their intestinal tracts. This finding raises a new problem in water sanitation. C R. FELLERS

**Typhoid fever epidemics from water supply in Germany.** HAYO BRUNS. *J. New Water Works Assoc.* **25,** 1–18(1933). D. K. FRENCH

**Indexes of the sanitary quality of swimming-pool water.** M. P. HORWOOD, B S GOULD AND H. SHWACHMAN. *J. Am. Water Works Assoc.* **25,** 124–35(1933).—Some index of quality other than *Es. coli*, should be employed. The total count at 37° is considered the best and most simple. The blood-agar plate test for hemolytic streptococci should be included. There is no relationship between *Es. coli* and streptococci in general. The residual chlorine should be maintained between 0.3 and 0.5 p. p. m. D. K. FRENCH

**Process for the oxidation by means of air of hydrogen sulfide in solution.** M KAPP. *Bull. soc. encour. ind. nat.* **131,** 649–54(1932); cf. *C. A.* **26,** 4398.—Modifications in the original installation are described, consisting in effecting addn. of the $NiSO_4$ at a point where rapid and complete mixing with the effluent takes place. The effluent treated consists of wash water from the scrubbers used for purifying producer gas, and a continuous system has been devised for reusing the water in the scrubbers; this consists essentially in removing S and NiS by filtration, converting $H_2SO_4$ into $BaSO_4$

by passing through a layer of $BaCO_3$, and removing $BaSO_4$ by sedimentation and decantation. Cost figures are given showing an estd. expense of 37 francs per 24 hrs. for treating 100 cu. m. of effluent with $NiSO_4$ and reuse of the water, as compared with 240 francs for Javel water treatment and use of fresh water. As the effluent contains an appreciable amt. of O which can oxidize the $H_2S$ and thus give low results in the detn. of the $H_2S$, the following method is used, which gives accurate results, even when considerable time elapses between the taking of the sample and the carrying out of the detn.: On taking a measured vol. of sample immediately add excess of 20% $CdSO_4$ soln.; when ready to make the analysis, transfer the sample completely to a flask provided with a 2-hole stopper through one of which passes a long-stemmed, stoppered, funnel tube and through the other a tube connected to a vertical, small-bore, spiral condenser opening under the surface of a measured vol. of standard I soln.; add a few pieces of pumice stone, heat to boiling, slowly add 100 cc. of a mixt. of equal vol. of water and 66° Bé. $H_2SO_4$, distil for 10 min. after disappearance of the yellow color of CdS, and titrate the soln. in the receiver with standard $Na_2S_2O_3$. A. PAPINEAU-COUTURE

**Design of septic tanks.** DARIO TRAVAINI. *Ariz. Pub. Health News* No. **76**, 77–81(1932). *U. S. Pub. Health Eng. Abstracts* **12**, S, 129(Dec. 3, 1932). C. R. FELLERS

**Waste disposal in Wisconsin.** ANON. *Public Works* **63**, No. 5, 65(1932). C. C. RUCHHOFT

**Treating wool-scouring and other wastes.** MICHAEL J. BLEW. *Public Works* **63**, No. 3, 46(1932).—Trade wastes are classified on the basis of the sp. gr. of the suspended matter. By the development of a closed system of solids removal, process water may be recirculated, with a resultant decrease of operating costs and stream pollution. This system has recently been applied to the wool-scouring industry with gratifying results. About 10-20% makeup water must be constantly provided. Other industries which might adopt this procedure include: paper, boxboard, coal washing, beet washing, cement, tanning, glue and canneries. C. C. RUCHHOFT

Activated carbons in the textile industry [for water purification] (PRICE) **25.** Purifying vapors of distilled water (U. S. pat. 1,889,617) **13.**

DONAU, MAXHUGO: **Die klimatische Faktoren und den Russ- und Staubgehalt der Luft in verschiedenen Stadtteilen Gross-Dresdens.** Thesis, Dresden, 1931. 41 pp.

HECKMANN, W. R.: **Die Gleichgewichtsverhältnisse zwischen freier und gebundener Kohlensäure bei höheren Temperaturen und ihre praktische Bedeutung für die Kesselsteinbildung und die Korrosion des Eisens.** Thesis, Frankfurt, 1930. 32 pp.

KUNTZE, HEDWIG: **Der Einfluss der Wasser- und Milchepidemien auf die Sterblichkeit bei Unterleibstyphus von 1919-1928.** Thesis, Bonn, 1930. 29 pp.

MÜLLER, KURT: **Reinigung und Beseitigung von Zuckerfabriks-Abwässern, insbesondere deren Verwendung in der Erstniederung zur Erzielung landwirtsch.** Mehrerträge. Thesis, Giessen, 1932. 56 pp.

SACHS, WERNER: **Der heutigen Stand der Luftverschlechterung in Stadt und Land und seine Bekämpfung.** Thesis, Freiburg i. B., 1930. 39 pp.

**Portable apparatus for treating water with active charcoal.** ROBERT CAMBIER and MARCEL CAMBIER. Fr. 737,572, Sept. 18, 1931.

**Apparatus for softening water.** CHEMISCHE FABRIK BUDENHEIM A.-G. Fr. 737,466, May 23, 1932.

**Apparatus for purifying and softening water by filtering through suitable material.** EDWARD T. MARTIN (to C. E. Chenoweth, E. T. Martin and Guido J. Wiggenhorn, as trustees). U. S. 1,889,485, Nov. 29. Structural and mech. features.

**Apparatus for treating boiler water.** FILTRATORS, LTD. Fr. 738,066, June 2, 1932.

**Apparatus for stabilizing water with carbon dioxide after lime or lime-soda softening treatments.** WM. V. BOBY and CHARLES BOLDRY. Brit. 365,513, Sept. 11, 1930.

**Sewage waters.** LÉON TACUSSEL and JEAN GOBINAUD-LAPRADE. Fr. 738,108, June 3, 1932. Sewage and waste waters are treated to form a floating magma by passing bubbles of air through, under pressure or not, so as to carry the impurities to the top.

**Circular sewage distributors.** ERNEST HARTLEY. Brit. 363,398, Sept. 15, 1930.

**Fabric with projecting bristles suitable for filtering sewage sludge.** GILBERT J. FOWLER. U. S. 1,890,251, Dec. 6. A material is used which is adapted to be bent to spread the bristles for cleaning the filter.

**Apparatus for screening dry refuse for towns.** PETRIE & MCNAUGHT, LTD., and HAROLD WIDDUP. Brit. 366,229, Dec. 30, 1930.

**Apparatus for separating lighter and heavier constituents of mixtures such as towns' refuse.** The New Destructor Co., Ltd., John L. Bates, James T. Craven and Herbert M. Hutchinson. Brit. 365,384, Feb. 28, 1931.

## 15—SOILS, FERTILIZERS AND AGRICULTURAL POISONS

M. S. ANDERSON AND K. D. JACOB

**Modern applications of chemistry in agriculture.** E. John Russell. *Sci. J. Roy. Coll. Sci.* **2**, 47–57(1932). E. H.

**Iodine in Kentucky soils, limestones, waters and forage crops.** J. S. McHargue. Ky. Agr. Expt. Sta., *44th Ann. Rept.* 24(1931); cf. *C. A.* **26**, 4891.—The I content of soils and rocks is extremely variable. Soils of Eastern Ky. contain about $^1/_2$ as much as those of the blue-grass region. In some very poor soils, no I was found. *Watercress* is unusually rich in both Mn and I. C. R. Fellers

**Soil survey of the Salachi area, Suiyuan Province, China.** Robert L. Pendleton, L. C. Ch'ang, W. Chen and K. C. Hou. Geol. Survey China, *Soil Bull.* No. 4, 26 pp. (1932).—Analyses are included. E. J. C.

**The silt soils of Picardi and their real state of fertility.** Georges Joret. *Ann agron.* [N. S.], **2**, 170–98(1932); cf. *C. A.* **26**, 4663.—Clay content, $p_H$, exchangeable bases, lime, the ratios of sol. humus-total N and of organic matter-sol. humus; assimilable phosphoric acid and potash; lime, phosphoric acid and potash requirements and total N were detd. and their significance was discussed. F. W. Marsh

**Pan [Nasas] and its origin in the red sandy soils of Palestine.** Felix Menchikovsky. *J. Agr. Sci.* **22**, 689–703(1932).—Palestine Pan, "Nasas," is found in the coastal plain among red sandy soils which represent an unstable soil system and one subject to the process of degradation. Observations on this soil in relation to relief show the transportation of colloidal clay, $Al(OH)_3$ and $Fe(OH)_3$ along the slope and downward. The ratio of $Al(OH)_3$ to $Fe(OH)_3$ shows a relatively large downward transportation of the former; and this increase of $Al(OH)_3$ in the lower layers of the soil is the chief factor in the formation of impermeable layers. The compn. of the layer beneath "Nasas" shows an increase in total sesquioxides with depth, greater transport of $Al(OH)_3$ compared with $Fe(OH)_3$, and a sharp increase in the percentage of colloidal matter. It is concluded that "Nasas" is the end degradation stage of red sandy soil. The colloidal portions transported downwards are composed of complex particles and the products of their hydrolysis. The conditions favoring formation of "Nasas" are the easy permeability of red sandy soil, lack of $CaCO_3$ and a soil relief with the character of sand dunes. The process is similar to that of podsol formation but under conditions of a semi-arid climate and without the accumulation of humus. The state of dispersion of fine particles of zeolite depends chiefly on the initial charge of the complex particles and on the concn. of $Ca^{++}$ in the soln. The particles peptized by one concn. are coagulated by another concn. of Ca. The formation of red sandy soils and their degradation can be explained by the influence of the Ca cation which is present in soln. in varying amts. P. R. Dawson

**Soil mapping on the basis of color and consistency.** R. Brink. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 1479–538(1932).—Soil mapping must satisfy the following requirements: the soil types to be characterized must be "natural" types in order that the classification may be of direct use in plantation practice; the maps must give sufficient detail; the system must be uniform; the mapping must be done as rapidly and cheaply as possible. None of the systems used heretofore has fulfilled all these requirements at the same time. The color and consistency of the soil, detd. on briquets pressed from the soil samples by comparison with standard samples, permit a satisfactory classification, and the results correlate well with other soil properties which are more difficult to measure directly. The mapping is done very rapidly by mass work. The prepn. of the maps is described, and several maps are shown. Examples of correlations between soil types and fertilizer needs are given. This inductive method of soil mapping may also be combined with the deductive genetic method, and a better insight into the significance of soil differences obtained. F. W. Z.

**The chemical composition of the soils of the Hungarian Great Plain. III. Conditions of alkalinization.** Sándor Arany. *Mezögazdasági Kutatások* **5**, 243–68 (in English 268–70)(1932).—Two processes work against each other, regradation and degradation. The regradation is stopped a short distance under the surface. Regradation can be observed mostly on alkali soils contg. $CaCO_3$ either on or near the surface. Before reclamation of soils it should be decided whether regradation or degradation is present. S. S. de Finály

**Plant association conditions and acidity of forests covering Norwegian Lapland.** DÁNIEL FEHÉR. *Math. naturw. Anz. ungar. Akad. Wiss.* **48**, 581–624(in German 625–30)(1931).—Soil samples ranged between $p_H$ 5 and 6. The seasonal changes observed during the examn. of $p_H$ data of Hungarian forests can also be applied to the podsol soils of North Europe. S. S. DE FINÁLY

**Saline soils.** LEO POZDENA. *Chem. Erde* **7**, 441–72(1932).—This report gives complete results of an investigation of 6 profiles of unproductive soils, including 2 immature soils of low salt content and 4 transition soils in which degradation phenomena are manifested in the migration of humus and the sesquioxides as well as in morphology. The effect of the dispersion agent ($Li_2CO_3$) on the results of mech. analysis depends upon the soil type and on the salt content. Soils rich in clay are characterized by a high viscosity; those rich in alk. salts are compactly bedded and have great swelling capacity. The soils, all with $p_H > 9.0$, were rich in carbonate and contained 0.6–0.8% (about 4% in the crust) of water-sol. salts. The greater part of the sol. material was incombustible. W. L. HILL

**Nitrogen recuperation in the soils of the Bombay Presidency. III.** D. L. SAHASRABUDDHE AND N. V. KANITKAR. *Indian J. Agr. Sci.* **2**, 455–83(1932); cf. *C. A.* **26**, 2539.—A study was made of the recuperation of N under field conditions in the dry arable soils of the Bombay Deccan. Addn. of org. matter in the form of farmyard manure or *sann* (*Crotalaria juncea*) increased the recuperation power of the soil and maintained the N content at a fairly high level, recuperation being assisted by cultivation of the soil. The max. increase in total N occurred at a time when the soil moisture was about 20% and the soil temp. approx. 30°. Cultivation and addn. of org. matter gave rise to 2 maxima in nitrate-N production which were directly useful for the growing crop. Fallowing had a similar effect on nitrate production. The nitrate content varies with the type of soil, the org. matter and CaO content and the moisture, temp. and aeration of the soil. K. D. JACOB

**New methods for the chemical examination of soil.** MENKE. *Der Naturforscher* **8**, 385–8; *Wasser u. Abwasser* **30**, 44(1932).—The acidity of soil is detd by shaking samples with NaOAc and with KCl and titrating with 0.1 *N* NaOH. F. P. G.

**Mechanical analysis of lateritic soils.** JOGENDRA NATH CHAKRABORTY AND ASHUTOSH SEN. *Indian J. Agr. Sci.* **2**, 516–24(1932).—Efficient and reproducible dispersion of Indian lateritic soils was obtained by shaking 20 g. of soil with 500 cc. water and 6–8 cc. *N* NaOH (so that the suspension has a $p_H$ of about 10.5) for 24 hrs. in an end-over-end shaker. For soils contg. more than 2% org. matter, $H_2O_2$ treatment should precede the shaking with NaOH, and the loss by soln. of sesquioxide, etc., should be detd. and added to the figure for clay. Dispersion with NaOH gave results for silt and clay that were almost identical with those obtained by dispersion with $Na_2CO_3$ according to the Sudan method, or by dispersion with NaOH after treatment with HCl according to the international method without $H_2O_2$ treatment. The direct NaOH method is less laborious for the mech. analysis of lateritic soils. K. D. J.

**Investigation of field soils according to the rapid method of Dirks.** GOLLING. *Pommernbl., Amtsbl. Landw.-Kammer Pommern* **34**, 38(1931); *Phosphorsäure* **2**, 192.—The Mitscherlich and Dirks methods for available $P_2O_5$ were compared on 461 soils, qual. agreement between the methods being obtained in 88% of the cases. In 238 soils the methods gave results for available $K_2O$ which agreed in 74% of the cases. The results by the Dirks method agreed best with those obtained in 12-year field expts. K. D. JACOB

**The new rapid methods for determining the nutrient content of field soils.** ESCHENHAGEN. *Pommernbl., Amtsbl. Landw.-Kammer Pommern* **34**, No. 28(1931); *Phosphorsäure* **2**, 380.—A study of approx. 10,000 soil samples by the Dirks method showed that the subsoil is much poorer in $P_2O_5$ than the surface soil. In sandy loams the subsoil contained more $K_2O$ than the surface soil. K. D. JACOB

**The nutrient content of Pfälze vineyard soils.** M. KLING. *"Wein u. Rebe,"* No. 10(1931); *Phosphorsäure* **2**, 255.—The majority of the soils are alk. and are high in CaO. Tests on 142 samples by the Neubauer method showed that 50% of the surface soils and 88.5% of the subsoils were deficient in root-sol. $P_2O_5$. Likewise, 42.2% of the samples were deficient in root-sol. $K_2O$. Vineyard soils contg. less than 15 mg. root-sol. $P_2O_5$ and 50 mg. root-sol. $K_2O$ per 100 g. are considered deficient in P and K. K. D. JACOB

**The mobility of nutrients in the soil in relation to its cultural condition.** N. S. AVDONIN. *Chemisation Socialistic Agr.* **1**, No. 2, 47–61(1932).—Expts. show that in sod chernozem soils the nutrients are immobile. After a legume crop the soil is lacking in P and enriched with N, thereby responding more to P fertilization. The Ca from the lower horizon in connection with legume culture ties up a lot of P. Nutrients attain their highest mobility under fallow and the losses of artificial fertilizers added

are considerable. The various types of fallow influence the mobility and the losses of nutrients in a different way. J. S. JOFFE

**Determination of nitrogen in soils. I.** A. SRINIVASAN. *Indian J. Agr. Sci.* **2**, 525–30(1932).—Figures for total N obtained by the usual dry digestion of soils with $H_2SO_4$ are invariably lower than those obtained by digestion after wetting. The best results seem to be obtained by moistening at the rate of 20 cc. of water per 5 g. of soil, then adding concd. $H_2SO_4$ and allowing the mixt. to stand overnight prior to digestion. The available evidence indicates that the oxides of Fe and Al interfere with the detn. by the usual dry digestion method. K. D. JACOB

**The influence of temperature on the nitrate content of soil in the presence of decomposing cellulose.** JAMES E. FULLER AND LINUS H. JONES. *Soil Sci.* **34**, 337–51 (1932).—Soil low in org. N was depleted of nitrates at all temps. when treated with cellulose. Addns. of $CaCO_3$ caused less depletion of nitrates but $CaSO_4$ had little effect. Cellulose added to a soil rich in org. N caused a depletion of nitrates for a time, but later showed little effect when the expts. were carried out at 25°. A temp. of 35° was more favorable than 25° for the maintenance of nitrate concn. Crop response shown by the growth of tomato plants followed essentially parallel with the nitrate values. M. S. ANDERSON

**Unusual accumulation of soil nitrates in 1931.** J. W AMES. Ohio Agr. Expt. Sta., *Bull.* **516**, (*51st Annual Rept.*) 31–2(1933).—Soil nitrates were studied during the 5-yr period 1928–32. Up to 1931 the nitrate N in the surface 6⅔ in. of soil under corn or soy beans never exceeded 50 lb. per acre. In 1931, following the drouth year, max. values under corn and soy beans were, resp., 225 and 300 lb. C. R. F.

**Causes of low nitrification capacity of certain soils.** G. S FRAPS AND A. J. STERGES *Soil Sci.* **34**, 353–63(1932).—Many soils which do not nitrify $(NH_4)SO_4$ may produce some nitrates from the soil N. Such soils may usually be caused to nitrify $(NH_4)SO_4$ by the addn. of $CaCO_3$ or of a culture of an actively nitrifying soil or both. Addns. of inoculating liquid alone produce little nitrification. Soils of high nitrifying capacity after sterilization often produce more nitrates with the same quantity of inoculant than soils low in nitrifying capacity Nitrite organisms may produce considerable nitrates from $(NH_4)_2SO_4$ when nitrate producers are very inactive. There is a close correlation between nitrifying power and the nos. of nitrifying bacteria present in a soil at the beginning of an expt. M. S. ANDERSON

**Carbon and nitrogen cycles in the soil. VII. The nature of the organic nitrogen compounds of the soil: "humic" nitrogen.** R. P. HOBSON AND H J PAGE. *J. Agr. Sci.* **22**, 497–515(1932); cf. *C. A.* **26**, 3598.—Purified prepns. of humic acid from Rothamsted soils contained over 5% N, in confirmation of previously recorded results. This N could not be eliminated by successive soln. in alkali and reppn. with acid, dialysis, ultrafiltration, or salting out with satd. NaCl, which methods should remove simple N impurities. Either N is an integral part of the humic acid mol. or it is present as colloidal compds., the diffusibility of which is of the same order as that of humic acid, and which are pptd. by acid or form an adsorption complex with humic acid in acid soln. The N distribution of HCl hydrolyzates of such humic acid prepns., as detd. by the Van Slyke method, resembled that of a typical protein hydrolyzate. The presence of approx. half of the humic acid N as amino N indicated that the greater part of the N is present in some polypeptide form. A mixt. of egg albumin and artificial humic acid from lignin resembled soil humic acid in regard to the effect of various methods of treatment on its N content. In both cases the greater part of the N was not removed by the action of proteoclastic enzymes, pepsin and trypsin. The results are taken to support a hypothesis that soil humic acid contg. N consists of a complex composed of non-N humic acid and protein, and that the manner of assocn. is more intimate than that involved in the formation of a colloidal "salt" by the mutual pptn., in acid soln., of a negatively charged acidic colloid (humic acid) and positively charged protein on the basic side of its isoelec. point. **VIII. The nature of the organic nitrogen compounds of the soil: "non-humic" nitrogen.** *Ibid* 516–26.—From an examn. of the compds. remaining in soln. when humic matter is removed from alk. exts. of Rothamsted soils by acidification, it is concluded that 30–40% of the non-humic N is present in the form of peptides (proteoses, peptones and polypeptides), with 5% of free amino N and 12% of $NH_3$. The peptides are largely colloidal, and pptd. by basic Pb acetate and by phosphotungstic acid. The remaining 40–50% of the non-humic N is mainly pptd. by basic Pb acetate and is mainly non-basic. The non-humic N compds. are thought to be incorporated in the humic-clay gel so that for the most part they go into soln. only in solvents which dissolve the humic matter, and only in proportion to the amt. so dissolved. P. R. DAWSON

**The determination of exchangeable bases in carbonate soils.** RICE WILLIAMS *J. Agr. Sci.* **22**, 838–44(1932).—A method for detg. the total exchangeable bases of

carbonate soils is described. The carbonate in a known wt. of soil is decompd. by AcOH and the $CO_2$ evolved is estd. By further extn. with AcOH a soln. is obtained which contains not only the bases originally in combination with the $CO_2$, but also the exchangeable bases. The amt. of the latter is found by difference. P. R. DAWSON

**The contribution of clay and organic matter to the base-exchange capacity of soils.** RICE WILLIAMS. *J. Agr. Sci.* **22**, 845–51(1932); cf. preceding abstract.—Exptl. data are presented on the total exchangeable bases, clay, total C and C oxidizable by 4% $H_2O_2$ for a no. of carbonate soils. If it was assumed that soils contg. excess of carbonate under natural conditions were base-satd., the results were found to fit the equations: $B = 0.57K + 4.55C_t$, and $B = 0.57K + 6.3C_o$, in which $B$ represents the total exchangeable bases, $K$ the clay and $C_t$ and $C_o$ the total org. C and oxidizable C, resp. The values for exchangeable bases calcd. from the latter equation showed closer agreement with the experimentally detd. values than did those from the former, since certain soils contained appreciable proportions of elementary C (coal). When the org. matter of the soils was assumed to have a const. base-exchange capacity no correlation was found between the exchange capacity of their clay fractions and either their $SiO_2$-$Al_2O_3$ or their $SiO_2$-sesquioxide ratios. Carbonate soils whose exchangeable base content was appreciably less than the calcd. values either contained small amts. of $CaCO_3$ (<1%), or the bulk of it was present in coarse form. Soils which have been in contact with a sufficient excess of finely divided $CaCO_3$ for a long period of time may be regarded as satd., and it is suggested that the base-exchange content of such soils is the true measure of their base-exchange capacity. A comparison of the total exchangeable base content with the base-exchange capacity, calcd. from the clay and org. matter, is suggested as a measure of the degree of base satn. P. R. DAWSON

**Determination of sulfate in soil extracts.** J. S. HOSKING. *Chem. Eng. Mining Rev* **25**, 139–40(1933).—For the estn. of traces of sulfate in soil exts., the following conditions must be observed: (1) org. matter must be removed before pptn. of the Fe; (2) Fe must be removed; (3) concn of $NH_4Cl$ must be kept low; (4) the vol. of the soln. must not be less than 250 cc. and contain no more than 1% $N$ HCl; (5) $BaCl_2$ soln. must be added at once and in slight excess; (6) $BaSO_4$ ppt. must stand overnight on a warm plate; (7) dried ppt. and paper must be ignited separately. A method embodying these features is outlined. W. H. BOYNTON

**Changes in volume that occur when dry soils are wetted with water and with chemical solutions.** GEORGE BOUYOUCOS. *J. Am. Soc. Agron.* **25**, 129–33(1933).—A method is given for measuring changes in abs. vol. when dry soils are wetted with liquids. This consists of measuring in a dilatometer the combined vol. of a certain quantity of dried soil, free from air and covered with $CCl_4$, and the wetting soln. sepd. from the soil by the $CCl_4$ and then measuring the vol after the dilatometer has been tilted and the soil and wetting soln. have been intimately mixed. The abs vol. of the soils and liquids considered together decreases when the soils are brought into intimate contact with the liquids. This contraction varies with the different soils, being greatest in clays and in soils with high org. matter content. With the exception of KOH soln., the vol contraction in all the chem. solns. used ($N$ solns. of $MgCl_2$, KCl, $CaCl_2$, $BaCl_2$, LiCl, $SrCl_2$, NaCl, $NH_4NO_3$) was the same as that in $H_2O$, in any given soil. The contraction in the KOH was much less. The vol. contraction is probably due to the compression of the $H_2O$ absorbed by the soils. When soils are satd. with $H_2O$ or chem. solns. and swell and increase in vol., this increase is only apparent and not real. J. R. ADAMS

**A simple and rapid method for measuring the stickiness of soils.** GEO. BOUYOUCOS. *Soil Sci.* **34**, 393–401(1932).—The app. consists essentially of a metal disk 2 in. in diam. attached to a spring balance to which is fitted a sliding recorder that remains at the max. pull after the load is released. The results show that the max. pull per sq in. of metal required to release the disk varies from 0.0 lb. in muck and sand to about 10 lb for certain clays. There is a fairly close relationship between the max. stickiness and the clay content of most soils. In some cases, however, this relationship is very slight. There is some, though not a close, relationship between max. stickiness and the upper plastic limit. M. S. ANDERSON

**Hygroscopicity, adsorption bases and some physical properties of soils.** ISTVÁN KÜHN. *Kisérletügyi Közlemények* **35**, 61–71(1932).—Soil hygroscopicity is caused by the hydratation of ions absorbed by the soil. It is assumed that the ions covered with $H_2O$ mols. are adsorbed to the dry surface of the soil ultramicrons. S. S. DE FINÁLY

**Determination of unsaturation of soils by means of ammonia absorption.** JÁNOS DI GLÉRIA AND LÁSZLÓ KOTZMANN. *Mezögazdasági Kutatások* **5**, 270–8(1932).—Shake 10 g. soil with 100 cc. 0.1 $N$ $NH_4OH$, let stand for 3 days in a closed bottle, evap. to sirupy consistency, fill up twice with water and evap. again, wash into a Kjeldahl flask and distil the $NH_3$ with MgO. Det. the $NH_3$ content of the original untreated

soil in a blank expt. The difference gives the mg. equivalents of $NH_3$ bound by the soil. This method gives a more characteristic number than the conductometric titration or the Gedroiz or Hissink method. S. S. DE FINÁLY

**The laws of soil colloidal behavior. X. Exchange neutrality and combining capacity.** SANTE MATTSON AND JACKSON B. HESTER. *Soil Sci.* **34**, 459–83(1932); cf. *C. A.* **26**, 1692; **27**, 547.—The amphoteric nature of soils and their combining capacities are expressed in the form of neutralization curves obtained by treating electrodialyzed soil with a neutral salt soln. to which free acid is added on the one side and free base on the other. The type of curve obtained varied widely with the chem. compn. of the soil. The base taken up at a particular $p_H$ value might be used to characterize the chem. nature of a soil, both qualitatively and quantitatively. The character of the various horizons of a podsol profile may, for instance, be shown in this way. The $p_H$ developed in a neutral salt soln. represents very nearly the $p_H$ of exchange neutrality, that is, the point at which a soil combines with an equal no. of anions and cations of the salt This point is related to the strength of the acid and basic residues of the soil complex. Albumin combines with a considerable quantity of humic acid and thereby lowers the capacity of the acid to take up base. Humic acids are no stronger acids than some of the mineral complexes but combine with more base because of their relatively low equiv. wts. M. S. ANDERSON

**Cohesion forces in soils.** E. N. FOX. *Kolloid-Z.* **61**, 383(1932).—Polemical with Pokrovskii and Buluichev (cf. *C. A.* **26**, 5684). **Reply.** G. I. POKROVSKII. *Ibid* 383–4. A. FLEISCHER

**Physical factors affecting the determination of the number of nitrogen-fixing bacteria in soil.** H. W BATCHELOR. Ohio Agr. Expt. Sta., *Bull.* **516** (*51st Annual Rept.*), 34–5(1933).—Bacterial counts were made in equal wts. of soils passing 10-, 20- and 40-mesh sieves. The counts in the 40-mesh soil were 2–3 times greater than those from the coarser samples. Because the N-fixing bacteria occur in the soil in clumps, they must be shaken enough to break up all clumps but not enough to kill any cells Max. counts were obtained in soil suspensions when shaken in a shaking machine at 550 shakes a min. for 9 min. Methods of sampling are discussed. Bacterial colonies developing after 6 days are counted. C. R. FELLERS

**The value of soil inoculation in the present state of our knowledge.** M DÜGGELI. *Z. Pflanzenernähr., Düngung u. Bodenk.* **B12**, 38–43(1933).—A review C. J. S

**The Azotobacter test of soil fertility applied to the classical fields at Rothamsted.** JADWIGA ZIEMIECKA. *J. Agr. Sci.* **22**, 797–810(1932).—The kneaded plate method of detecting deficiency in CaO and available $P_2O_5$ was applied to 79 soil samples from the classical Rothamsted arable plots, and the *Azotobacter* population from some of these samples was estd. by counts on $SiO_2$ gel. The former tests correctly indicated whether $P_2O_5$ had been applied in soils receiving little or no N fertilizer; but in those receiving 86 lb. or more of mineral N per acre, little or no *Azotobacter* growth occurred, even in the presence of $P_2O_5$ and $CaCO_3$. That this failure was probably due to the scarcity of the organism originally present in the soil sample was indicated by the low counts obtained in such soils by the $SiO_2$ gel method. It is suggested that this is due to competition with other organisms where growth is stimulated by added N compds. When the kneaded plate method was modified (for samples of soils receiving 86 lb. or more of N per acre) by inoculating the sample with a culture of *Azotobacter* correct indications as to $P_2O_5$ content were obtained. In general, *Azotobacter*, when present, developed on kneaded plates if the soil contained at least 10 mg. of $H_2O$-sol. $P_2O_5$ per kg. of soil, but below this limit little growth occurred. The requirements of *Azotobacter* and of crop plants are similar as regards the need for sol. $P_2O_5$; but mineral N, although necessary to most crops, is detrimental to *Azotobacter* growth in field soil, while soil acidity is more harmful to it than to most crops. Hence there was no correlation between crop yield and *Azotobacter* activity. P. R. DAWSON

**Preliminary studies of the exuded plant sap and the relation between the composition of the sap and the soil solution.** W. H. PIERRE AND G. G. POHLMAN. *J. Am. Soc. Agron.* **25**, 144–60(1933).—A no. of different detns. were made on samples of the exuded sap of corn, sorghum and Sudan grass. The sap of corn contained about 3700 p. p. m. total solids, of which approx. $^1/_3$ was in the inorg. form. The total electrolytic content of the sap was less in nearly all cases studied than that of the displaced soil soln. The total P content of the sap from the 3 sources ranged from about 150 to 450 p. p. m. phosphate, of which at least $^2/_3$, and in some cases all, was generally in the inorg. form. $SiO_2$ in the plant sap amounted to about 250 p. p. m., Ca about 80, chlorides about 90, and nitrates varied from a trace to 344 p. p. m. P and $SiO_2$ occurred in much higher concns. in the plant sap than in the displaced soil soln., while with the chlorides and Ca the opposite was true. Nitrates were higher in some cases and lower in others in the plant sap than in the displaced soil soln. There may be a correlation between

the concn. of P in the plant sap and in the soil soln. and soil ext. The $p_H$ values of the plant saps varied from 4.40 to 4.80, and differences in soil acidity from $p_H$ 4.60 to 6.60 did not affect the acidity of the sap. The fact that the growth of sorghum and Sudan grass was relatively poorer than that of corn on acid soils could not be explained on the basis of the inability of the former plants to accumulate Ca or phosphate in their saps when grown in acid soils. The H-ion concn. of the soil did not affect the concn. of Ca, P and chloride in the plant sap within a range of $p_H$ 4.60–6.60. With increased $p_H$ values of the soil a slightly greater concn. of $SiO_2$ was found in the plant sap. Samples of sap from the same plants collected on successive days remained quite constant in total P for a period of 4 days. The inorg. phosphate increased as bleeding proceeded while the org. phosphate tended to decrease. Chlorides increased in the sap as bleeding continued, but Ca and $SiO_2$ did not show any consistent variations. The significance of these data in relation to the absorption and accumulation of inorg. elements in the plant sap is briefly discussed. Studies of the plant sap obtained by bleeding may be found useful in various studies of soil-plant relationships. J. R. Adams

**The microflora of the ash of the Katmai Volcano with especial reference to nitrogen-fixing bacteria.** Nathan R. Smith and Robert F. Griggs. *Soil Sci.* **34**, 365–73 (1932).—Samples of base volcanic ash collected 18 years after the eruption of Mt. Katmai contained no fungi or actinomycetes. The no. of bacteria was about 150,000 per g. and comprised none of the organisms commonly known to be able to fix N. M. S. Anderson

**Nitrogen fixers of leached alkali soils.** J. E. Greaves and J. Dudley Greaves. *Soil Sci.* **34**, 375–83(1932).—Eleven microörganisms were obtained from leached alkali soils and studied in pure cultures. The quantity of N fixed varied with the kind of organism and the carbohydrate added to the soil. The max. efficiency was about 1.4 mg. of N in 10 g. of soil. This compares favorably with fixations made by *Azotobacter*. M. S. Anderson

**The biological absorption of mineral nitrogen in the soil.** A. T. Kalachikov. *Chemisation Socialistic Agr.* **1**, No. 3–4, 35–44(1932).—Starch addn. caused a sharp decrease in nitrate in chernozem and a disappearance of nitrate in degraded chernozem. $NO_3$ was decreased 76% in the degraded chernozem and 40.8% in regular chernozem. The amt. of absorbed $NH_4$ increased from 15 to 51% 3 months after the addn. of the starch. No change in acidity took place. $Ca(NO_3)_2$ and $(NH_4)_2SO_4$ in conjunction with starch were absorbed biologically and converted into microbial cell N. J. S. J.

**The process of solonetz formation in the Golodnaya Steppe-Turkestan.** V. P. Kozlov *Chemisation Socialistic Agr.* **1**, No. 3–4, 61–2(1932).—Upon irrigation, solonetz was formed in regions where none was observed previously. Data are given on the compn. of an aq. ext., total humus, base-exchange capacity and adsorbed Na J. S. Joffe

**Contribution from chemistry to the close-grazing system of pasturage.** Frank T. Shutt and S. N Hamilton. *Trans. Roy Soc. Can.* **26**, Sect. III, 93–101(1932); cf. *C. A.* **24**, 4113.—The results recorded cover a 5-year period of rotational close grazing and heavy fertilization in the production of highly nutritious grass throughout the entire growing season. The field selected in the neighborhood of Ottawa, Ontario, had been cut for hay for a no. of years and had not been ploughed, pastured or fertilized for 30 years. The dominant grasses were meadow foxtail and timothy. Chem. analysis indicated clearly that herbage of 1–3 weeks' growth provided the max. amt. of a rich, highly digestible protein forage per unit of area. Cf. following abstr. J. W. S.

**High-protein pasture. The rotational or close-grazing system of pasture management.** Frank T. Shutt, S. N. Hamilton and H. H. Selwyn. *J. Agr. Sci.* **22**, 647–56(1932).—Five yrs.' expts. show that herbage of 1–3 weeks' growth is a rich protein forage; its dry matter has a range of 20–30% protein, much higher than that of grass cut for hay. The av. annual yield of protein per acre on rotational plots was approx. 185 lb. greater than that of the plot cut for hay. Lengthening the period of growth reduces the percentage of protein, but this reduction is not serious during the 1st 3 weeks. The inclusion of clover, as the scheme progresses, markedly raises the protein content of the herbage. All evidence shows that the yield of dry matter decreases with the frequency of cutting. The plot cut as hay with aftermath gave an annual yield of dry matter approx. 1600 lb. per acre higher than the plots cut every 2 or 3 weeks. The main advantage of the rotational scheme of pasture management is in protein production. Cf. preceding abstr. P. R. Dawson

**Yields and composition of pasture grass from the Tree Field plots at Cockle Park.** Brynmor Thomas and F. J. Elliott. *J. Agr. Sci.* **22**, 736–54(1932).—Studies of samples from areas cut at random, at intervals of 14 days during a season of 22 weeks, showed that the differences between the mean yields of dry matter from plots under varying fertilizer treatments were not significant. The protein content of grass from

control plots was markedly lower than that produced by treated plots, but varying fertilizer treatments were without effect. Fertilizers had little effect on the mean fiber content. Treatments of basic slag and $K_2O$ or basic slag and CaO yielded grass of higher CaO content than the control plot, while basic slag alone was without effect. Fertilizer treatment produced highly significant increases in the mean $P_2O_5$ content of the grass. The application of N in addn. to basic slag markedly increased the absorption of $P_2O_5$. The usual pos. correlation between protein and $P_2O_5$ was evident. P. R. DAWSON

**Some factors affecting the palatability of pasture plants.** A. B. BEAUMONT, R. E. STITT AND R. S. SNELL. *J. Am. Soc. Agron.* **25**, 123–8(1933).—Tests on a no. of pasture grasses showed that different fertilizer applications made practically no difference in palatability the 1st year after seeding, but the 2nd-year grass which had received N and minerals was grazed more than that which had received only minerals or no fertilizer. Grass which received high N appeared to be slightly more palatable than that which received medium or low amts. Toughness may be a deciding factor in palatability if other factors are favorable. J. R. ADAMS

**Five years' observations on the effect of fertilization upon yield and plant stand of a natural meadow.** H. RAUM. *Z. Pflanzenernähr., Düngung u. Bodenk.* **B11**, 537–52(1932).—Observations on 5 pairs of plots 10 m. square, of proved uniformity, indicated scarcely economical gains from 40% $K_2O$ salt, Rhenania phosphate, stall manure, $(NH_4)_2SO_4$ and $NaNO_3$. Hay from plots receiving N was not richer in protein N salts greatly reduced the stand of legumes, but stall manure did not. The proportion of weeds in the hay from plots receiving 40% $K_2O$ salt was slightly less. C. J. S.

**The composition of the spring growth of sweet clover as influenced by previous fall treatment.** C. J. BADGER AND H. J. SNIDER. *J. Am. Soc. Agron.* **25**, 105–8(1933).—Analysis of the sweet-clover tops and roots show that removal of the fall growth reduces the total dry matter, N, P and K in the following spring growth. The fall growth of sweet clover should not be removed on soils which are relatively low in N and org. matter. Cutting for fall hay also reduces the vitality or winter resistance of the sweet-clover plants. J. R. ADAMS

**The determination of effective strains of Rhizobium tripolii Dangeard, the root nodule bacteria of clover, under bacteriologically controlled conditions.** DOROTHEA L. KEENEY. *Soil Sci.* **34**, 417–43(1932).—The strains of bacteria efficient in N fixation maintained their high efficiency throughout sets of expts. Those of low efficiency also continued as such. One good strain increased the total N content of the clover crop 149.4% over the uninoculated controls. M. S. ANDERSON

**The adsorption of phosphoric acid by the soil.** A. T. KIRSANOV. *Chemisation Socialistic Agr.* **1**, No. 3–4, 27–34(1932).—On the basis of the adsorption capacity for $P_2O_5$ by a series of podzol and chernozem soils and the availability of the $P_2O_5$ to the plants these soils were divided into: (1) those which have an abundant available supply; (2) those which absorb a high amt. and make it unavailable; (3) those which absorb the added $P_2O_5$ but do not lower the availability. The soils of the second group can be detd. by extg. the soil with 0.05 *N* HCl. If a soil has a high humus content its absorptive capacity for $P_2O_5$ from acid soln. cannot serve as an indication of its belonging to the second group. J. S. JOFFE

**Relation between soil reaction and the content of root-soluble phosphoric acid and potash.** M. KLING AND O. ENGELS. *Z. Pflanzenernahr., Düngung u. Bodenk.* **B12**, 32–8(1933).—Tests on 166 soils by the Neubauer seedling method for available $P_2O_5$ and $K_2O$ indicated that either alk. or very acid soils are much more likely to be deficient in $P_2O_5$, and very acid soils in $K_2O$. C. J. SCHOLLENBERGER

**Phosphoric acid and potash content of Oldenburg soils in 1930.** CONTZEN. *Oldenburg landw. Blatt* **79**, No. 21(1931); *Phosphorsäure* **2**, 192.—The content of HCl-sol $P_2O_5$ and $K_2O$ was detd. in 340 sand soils and 236 marsh soils. Of the sand soils 74% were deficient in $P_2O_5$ and 92% in $K_2O$. The marsh soils contained higher percentages of $P_2O_5$ and $K_2O$, 58% being deficient in $P_2O_5$ and 15% in $K_2O$. K. D. JACOB

**Recent experiments and investigations for determining the soil fertilizer requirements in phosphoric acid and potash.** E. BECKER. *Z. Pflanzenernähr., Düngung u. Bodenk.* **B11**, 552–75(1932).—Comparison of response to $K_2O$ and $P_2O_5$ fertilization as indicated by data from field plots, lab. and vegetation tests of 40 Hungarian soils, indicated that in $^1/_3$ of the cases field results agreed with the indications for $P_2O_5$ need by the Lemmermann citric acid extn. method, in 50% with the Neubauer seedling test (I) and in 50% with the Sigmond $HNO_3$ extn. method (II). Agreement between field tests and I for $K_2O$ need was about 50%, for II about 30%. The lab. tests are described and discussed in detail. C. J. SCHOLLENBERGER

**Comparison of the Neubauer seedling-plant method and the Lemmermann citrate method with the results of field experiments at the Aschersleben experimental area.**

SCHÜLER. *Zuckerrübenbau* **12**, 136(1930); *Phosphorsäure* **2**, 127.—The Neubauer and Lemmermann methods for available $P_2O_5$ in soils gave results which were in good agreement, but the agreement between results by these methods and those of field expts. was not so good. K. D. JACOB

**The nature of phosphate fixation in soil.** M. C. FORD. *J. Am. Soc. Agron.* **25**, 134–44(1933).—Soils and certain pure minerals believed to be present in soils were treated with sol. phosphates to det. the degree and nature of the fixation. The soils fixed P in varying degrees in forms not easily sol. in $H_2SO_4$ of $p_H$ 3.0. Goethite fixed P in a form largely insol. in the $H_2SO_4$, the P fixed by bauxite was of intermediate soly., while hematite fixed no P. Heating destroyed the fixing power of goethite by changing it to hematite. The fixing power of bauxite was increased by partial dehydration, but further dehydration reduced this capacity. The phosphates formed with goethite and partially dehydrated bauxite were cryst. Prolonged heating of 6 soils at 185° markedly reduced fixation in relatively insol. forms and in some cases destroyed or practically destroyed it. This is probably due to the dehydration of goethite. The failure of prolonged heating at 260° to reduce fixation correspondingly in some soils is probably due to the increased activity of bauxite. The P fixed by soils as Ca or Mg phosphates is readily sol in weak solvents and thus quite available to plants; that which is fixed as $Fe^{+++}$ and Al phosphates by $Fe^{+++}$ and Al hydroxides, chlorides or sulfates is, at least in part, easily hydrolyzable and available to plants; while that which is fixed by goethite is very insol. and only slowly available to plants. Goethite present in different soils is believed to vary greatly in amt. and to persist in soils when once formed, because of insufficient heat in soils to dehydrate it. J. R. ADAMS

**Adsorption of phosphorus by soils.** GYÖRGY VÁRALLYAY. *Kisérletügyi Kozlemények* **35**, 72–5(1932).—Failure of P fertilizers to improve yield may be caused not only by a P richness of the soil but also by the fact that the soil adsorbs a significant part of the P fertilizer and its content of sol. P increases relatively very little. The P adsorption of soils should always be detd. in the examn of the effects of P fertilizers. S. S. DE FINÁLY

**The phosphorus concentration of the exuded sap of corn as a measure of the available phosphorus in the soil.** G. G. POHLMAN AND W. H. PIERRE. *J. Am. Soc. Agron* **25**, 160–71(1933). The detn. of the phosphate content of the exuded sap of corn plants is suggested as a method for measuring P deficiency in the soil. The amt. of inorg. phosphate found in corn sap varied from 62 to 602 p. p. m. and increased with the age of the plant. Results obtained under greenhouse conditions show a good correlation with the response of corn to phosphate fertilization and also with the $H_2O$-sol. phosphate and the available phosphate as detd. by the Truog method It would also appear that the method might be used to advantage in a study of the availability of various elements, particularly N and K. J. R. ADAMS

**Effect of exchangeable base and soil treatments on phosphorus solubility.** ALFRED T. PERKINS, H. H. KING AND E. J. BERNE. *Soil Sci.* **34**, 385–92(1932).—The absorbed bases in sep. portions of Cherokee loam were replaced with H, Fe, Al, Ca, Mg, K and $NH_4$ and the $H_2O$-sol. P was detd. in the various samples treated with $CaH_4(PO_4)_2$, $CaCO_3$, $CaCl_2$ and KCl in varying amts. P soln is increased by satn with K or $NH_4$. When P is added as $CaH_4(PO_4)_2$ to soils satd. with Fe or Al large amts of P are pptd. Much less P is pptd. by soils satd. by H, Mg or Ca and only very small amts. by soils satd. with K and $NH_4$. Applications of $CaCO_3$ increase the soly. of P in the soils satd. with Fe, Al or Mg but decrease it in those satd. with H, Ca, $NH_4$ and K. In the cases where there is an increase in P soly. it is thought to result from change in $p_H$ rather than from the Ca added since $CaCl_2$ does not increase the soly. of P. The soly. of P is not affected by the application of KCl regardless of the base held by the soil. M. S. ANDERSON

**Superphosphate, 1931.** A. N. GRAY. *Superphosphate* **6**, 21–9(1933).—Data are given on the world production, exports and imports of superphosphate. K. D. JACOB

**Reactions of superphosphate in the soil.** A. SANFOURCHE AND JEAN HENRY. *Compt. rend. acad. agr. France* **19**, 34–44(1933).—A comparison is made between the action of pure $CaH_4(PO_4)_2.H_2O$ on pure $CaCO_3$ and of superphosphate on $CaCO_3$. The reaction between the pure salts under normal conditions of temp. goes only to $CaHPO_4.2H_2O$. This reaction is complete only if the carbonate is finely ground and is in excess of the theoretical amt., and if the soln. of phosphate is not too dil. If these conditions are not fulfilled or if the $CaCO_3$ is covered by some insol. salts or dispersed in a large mass of soil, the reaction is partially checked and some of the $CaH_4(PO_4)_2.H_2O$ remains unchanged. At elevated temps., such as 50°, there is more or less reversion to $Ca_3(PO_4)_2$ depending on the length of time of the reaction. When $CaCO_3$ is mixed with a soln. of $CaH_4(PO_4)_2.H_2O$ from superphosphate this reaction

is almost completely stopped and the $CaH_4(PO_4)_2.H_2O$ retains its soly. This inhibition is due to a ferrophosphoric acid complex in the liquid phase of the superphosphate which forms a stable gel when the acidity of the liquid phase is neutralized and coats the $CaCO_3$ particles. Thus the assimilability of the $P_2O_5$ in superphosphate persists when this fertilizer is added to the soil and the properties of the superphosphate even oppose the formation of $CaHPO_4.2H_2O$. J. R. ADAMS

**Liming of soils in the recent agricultural literature.** S. I. TEIMIN. *Chemisation Socialistic Agr.* **1**, No. 3–4, 68–77(1932).—A review with 50 references. J. S. J.

**Summary of the results of the fertilizer tests [on sugar cane] in 1931.** E. DEMANDT. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 1–19(1932).—The results of 2530 fertilizer expts. on sugar cane in Java are given in tabular form and briefly discussed. The optimum dose of $(NH_4)_2SO_4$ was found to be lower than previously, and was independent of the time of harvesting. Contrary to expectations $NaNO_3$ did not do as well as $(NH_4)_2SO_4$ in fields affected with Kalimati disease. The optimum phosphate dose was also lower than before. $NH_4$ phosphates are at least as effective as equiv. quantities of $(NH_4)_2SO_4$ and superphosphate. Natural phosphate cannot take the place of superphosphate. Molasses proved generally better than manure. The effect of lime was negligible, and uneconomical even on acid soils. "*Microba*," a bacterial fertilizer, was found to be worthless. F. W. ZERBAN

**Quality and fertilization.** F. BUROW. *Kunstdünger u. Leim* **29**, 390–5(1932).—A review on the improvement in quality of grains, vegetables and fruits resulting from proper fertilization. C. J. SCHOLLENBERGER

**The failure of fertilizer experiments.** PILASKI. *Georgine* **108**, No. 27(1931), *Phosphorsäure* **2**, 380.—Phosphate fertilizers do not always increase the yield of potatoes, but they are of primary importance in increasing the starch content. K. D. J.

**Peat as fertilizer and soil-improving material.** BR. TACKE. *Z. Pflanzenernahr., Düngung u. Bodenk.* **12B**, 1–11(1933).—Application of low-moor peat to improve mineral soils is of no economic value. "Humus" prepd. from peat is not beneficial, although peat processed by addn. of molasses, $NH_4HCO_3$, etc., and fermented apparently has more value than the equiv. fertilizing elements added as salts. The best way to utilize peat as a fertilizer is to use it as an absorbent for liquid manure, as litter, etc. C. J. SCHOLLENBERGER

**The influence of moisture upon the rapidity of decomposition of low-moor peat.** SELMAN A. WAKSMAN AND E. R. PURVIS. *Soil Sci.* **34**, 323–36(1932).—The moisture content of peat has a marked influence upon the rate of its decompn. Under optimum moisture conditions about 15% of the dry weight of low-moor peat is decompd in 18 months. The volatile products liberated give the basis for this estn. The rate can be greatly varied by changes in water content. The peat used decompd. as a whole without any chem. complexes disappearing more rapidly than others. There is in general, however, some tendency toward a more rapid decompn. of the non-nitrogenous than the nitrogenous complexes. The av. ratio of C liberated as $CO_2$ to that of N liberated as $NH_3$ is about 20:1. The ratio in the peat itself is about 18:1. Decompn of peat increases the material sol. in dil. alkali. Drying and remoistening greatly stimulate the decompn. of peat. Proximate chem. analyses of peat after decompn for 560 days under different moisture conditions are given. M. S. ANDERSON

**Nitrophosphate Lonza. Results of fertilizer experiments carried out in Switzerland in 1929–1931 and the use of this new fertilizer in agricultural practice.** W. BANDI, W. MARBACH AND F. WERNER. *Schweiz. landw. Mh.* **10**, 177, 221(1932), *Fortschr. Landw.* **8**, 42.—This material is manufd. by the Lonza A.-G., Basel, by treating phosphate rock with $HNO_3$. It is marketed in a granular form, which is easy to distribute in the field, and contains 16–17% $P_2O_5$, 7–8% nitrate N and 25–30% $H_2O$-sol CaO, approx. 90% of the $P_2O_5$ being sol. in $H_2O$. The fertilizer is physiologically alk. in reaction. The fertilizer values of the $P_2O_5$ and N in this material are the same as those of the $P_2O_5$ and N in superphosphate and $Ca(NO_3)_2$, resp. K. D. JACOB

**Making phosphate fertilizers at Trail.** WM. C. WEBBER *Chem. & Met. Eng.* **40**, 72–5(1933). E. H

**Factors affecting the use of nitrate and ammonium nitrogen by apple trees.** VICTOR A. TIEDJENS AND MAURICE A. BLAKE. N. J. Agr. Expt. Sta., *Bull.* **547**, 3–32(1932), cf. *C. A.* **26**, 4671–2.—Apple trees absorbed and assimilated ammonium N without oxidation to nitrate. The $p_H$ of the culture medium was a limiting factor in the assimilation of both $NH_4$ and nitrate. In soils of comparatively low $p_H$, $NH_4$ was apparently oxidized to nitrate before assimilation of N occurred. Nitrate, however, was assimilated most efficiently under these conditions. $NH_4$ was assimilated without change at high $p_H$ values of the soil, and under those conditions produced more rapid growth of plants than nitrate. Rapid assimilation of $NH_4$ resulted in a comparatively low concn. of sugars and starch. Cellulose and hemicellulose were generally high when

trees were supplied with $NH_4$ at a favorable $p_H$ but the data are inconclusive. To obtain equal increase in org. N and growth, it was necessary to supply the trees with much higher concns. of nitrate than of $NH_4$. Reductase activity (nitrate reduction) as measured by the Eckerson test (*C. A.* **26**, 172) was very weak in the rapidly growing $NH_4$-supplied trees. The assimilation of both $NH_4$ and nitrate took place chiefly in the fine fibrous roots of the apple. The rapid increase in amino acids in the trees supplied with $NH_4$ was not accompanied by the most rapid growth. The $NH_4$ trees made their greatest growth when the nutrient soln. was supplied at an initial $p_H$ of 7.5–8.5, where the $p_H$ did not remain const., or at $p_H$ 6–6.5 when a const. $p_H$ was maintained. The greatest increase in amino acids occurred at $p_H$ 5.5–6.5. The basic and humin fractions had their greatest accumulation when the nutrient soln. was supplied at an initial $p_H$ of 7.5. The greatest vol. of growth occurred where the ratio of protein to sol. N was comparatively high. Forty references are appended. C. R. F.

**Preliminary studies in the use of nitrate of soda on certain Indiana soils.** Frank Moser. *Soil Sci.* **34**, 445–57(1932).—The influence of $NaNO_3$ was studied on corn, wheat and timothy yields on plots in various locations in Indiana. The yields varied considerably with season of application, amt. of $NaNO_3$ added, and method of placement. The protein contents of corn and wheat were increased appreciably by increasing the $NaNO_3$ application and by making the application late in the growing season.
M. S. Anderson

**Effect of fertilizers upon the grain texture and protein content of wheat.** E. G. Bayfield. Ohio Agr. Expt Sta., *Bull.* **516** (*51st Annual Rept.*), 29–30(1933).—Texture of wheat is estd. from the relative nos. of starchy and vitreous kernels. Counts were made to det. the percentage of the different textural types of kernels present: (1) soft and starchy, opaque type; (2) hard and vitreous, translucent type; (3) intermediate types. The percentage of soft starchy kernels is directly related to low-protein content P fertilizers lower the protein content and increase the percentage of soft kernels. N fertilization increases the protein content and the no. of hard vitreous grains. K fertilizers have little influence on quality but give results more like N than P.
C. R. Fellers

**Experiment with olive-husk fertilizers.** J. Bonnet. *Rev. vit.* **77**, 69–71(1932).—Fresh husks alone and mixed with basic slag and sylvinite gave bad results but old, dry husks in similar mixts. proved excellent as a fertilizer. When husk prices are low a compost of husks, basic slag and sylvinite for use on olive trees should be prepd. and allowed to stand for several months. Husks contain 1% N, 0.8–0.9% potash and 0.1–0.2% $P_2O_5$. F. W. Marsh

**The effect of fertilizers and climate on the yield and soundness of potatoes.** O. Engels. *Kartoffelbau* **14**, 2(1930); *Phosphorsäure* **2**, 381. K. D. Jacob

**Fertilization and potato diseases.** Gelbke. *Deut. landw. Presse* **1**, 7(1932); *Phosphorsäure* **2**, 254.—High yields of disease-free potatoes were obtained when basic slag was used in connection with $(NH_4)_2SO_4$ and potash salts. K. D. Jacob

**Fertilizing action of magnesia.** Ch. Brioux and Edg. Jouis. *Ann. agron* [N. S.], **2**, 146–69(1932).—Pot expts. indicated that fertile soils may show greater yields through the addn. of easily sol. magnesia, Mg oxide or sulfate. Field expts. did not substantiate this. Mg contents of plants in pots with added Mg were greatly increased. Lime and Mg are somewhat interchangeable in plant nutrition. F. W. Marsh

**The physiological acidity of potash salts.** D. N. Pryanishnikov. *Chemisation Socialistic Agr.* **1**, No. 5, 28–40(1932); cf. *C. A.* **26**, 5125.—From a series of expts. with various plants with respect to the different absorptions of K and the anions of the K salts it has been established that the grain crops, except corn, behave differently from the legumes (peas and beans) and sugar beet. More Cl is absorbed by the grain crops, thus giving less physiol. acidity than the other crops which absorb more K and less Cl.
J. S. Joffe

**The Aspergillus method for the determination of the potassium requirement of soils.** H. Niklas and H. Poschenrieder. *Mezögazdasági Kutatások* **5**, 341–50(1932); cf. *C. A.* **27**, 550.—Detailed description. S. S. de Finály

**Comparison between some methods of determining the potash fertilizing requirements of arable soils.** Folke Nydahl. *Kgl. Landtbruks.-Akad. Handl. Tid.* **71**, 845–68(1932).—Various extn. methods of detg. the K fertilizing requirements of arable soils were studied with special attention to obtaining as simple and reliable an exptl. procedure as possible. The following extn. media were used: *N* and 0.04 *N* $NH_4Cl$ soln., a soln. *N* in AcOH and 0.5 *N* in $NH_3$, 0.1 *N* $CaCl_2$ soln., $Ca(HCO_3)_2$ soln. and $H_2O$; the "root-sol." K was detd. according to Neubauer-Schneider. All extn. methods gave corresponding values when the amt. of colloidal material in the soil was considered. The $CaCl_2$ method, being the simplest and cheapest one, was compared with pot expts., according to Mitscherlich, and field expts. The sp. gr. of the soils

and the depth of the vegetable mold were introduced as corrections for the $CaCl_2$ values. Different soil types (mainly the clay content) and the $p_H$ value both influenced the results. Because of the comparatively small no. of soils examd. no correlation coeffs. were calcd., but, when the best limit values were introduced, the method gave the same information for 70–85% of the soils investigated as the field expts. The $H_2O$ and the $Ca(HCO_3)_2$ extn. methods of Dirks were compared with fields expts. Agreement was obtained in 73% of the cases. A summary in English is given. Cf. Cameron and Failyer, *J. Am. Chem. Soc.* **25**, 1063(1903); *C. A.* **18**, 877; **22**, 4140; **24**, 2822; **26**, 3059. D. Thuesen

**The action on the growth of crops of small percentages of certain metallic compounds when applied with ordinary artificial fertilizers.** Winifred E. Brenchley. *J. Agr. Sci.* **22**, 704–35(1932).—No beneficial effect on the growth of barley or mustard on 2 types of soil was obtained by the addn. of quantities of $CuSO_4$ ranging up to 4% of the total artificial fertilizers applied. (One of the soils was light, very acid, deficient in $P_2O_5$ and Ca, but well supplied with sulfate; the other was a heavy loam contg. a sufficiency of Ca. The former was limed to compensate for the acidity.) Expts. on English acid and alk. peats with barley, rye and turnips failed to show the striking results obtained on the saw-grass peat of the Florida Everglades. The reduction of crop resulting in some cases from increased fineness of grinding of basic slag may be due to the presence of V. Expts. show that this element is definitely toxic to plant growth Li compds. are much less toxic than Cu to the growth of barley. In some water-culture expts. a suggestion of stimulation was obtained with very dil. concns. of LiCl in the presence of nutrient salts. Buckwheat is much more sensitive to the toxic action of Li and shows no stimulation with any concn. Small proportions of Ti compds., added to the usual artificial fertilizers, failed to improve the growth of mustard on the same 2 soils as were tested with $CuSO_4$. The amt. of CaO present in the Ti compds. was insufficient to benefit the soil for which liming was requisite in the ordinary course of cultivation. Barley was very sensitive to the toxic action of $Al_2(SO_4)_3$; peas were much less affected. The toxic action did not appear to be assocd. with increased acidity, as corn grew well in a control soln. as acid as those which killed the plant in the presence of strong $Al_2(SO_4)_3$. No evidence of stimulation was obtained with barley, peas or corn with any strength of $Al_2(SO_4)_3$, however dil. A bibliography of 52 references is appended. P. R. Dawson

**The "technical values" in agriculture; their control by foliar diagnosis.** Henri Lagatu. *Bull. soc. encour. ind. nat.* **131**, 669–85(1932).—The suggestion is made that the annual foliar diagnosis constitutes a true, sensitive, practical and kinematic method of investigating the reaction of any factor on the growth and yield of plants Its application to potato and grape cultivation is demonstrated. Field tests check the findings of annual foliar diagnosis in that fertilizers contg. N are very effective in increasing the yield of potato plants grown in calcareous or siliceous soils and also that, in aging, the leaves of the plants grown in calcareous soil become progressively alk through absorption of CaO, while in the non-calcareous soil the alky. is produced by $K_2O$ absorption. Similar studies applied to grape cultivation show that $K_2O$ is necessary for a good yield. J. R. Adams

**Stimulation of grain seeds.** V. Casaburi. *Industria chimica* **7**, 1630–3(1932) The product, *Uni-Dea*, which is an org. compd. of the methylenedinaphtholsulfonic acids combined with Hg, Cu and Fe, has been found to have a triple action on grain seeds It is a *disinfectant, fungicide* and *stimulant to the development and growth of the grains*. Not only is the yield per hectoliter increased up to 32%, but the gluten content of the resulting flour also averages about 1% higher. A. W. Contieri

**Wood diagnosis of the vine and its possible extension to fruit and forest trees.** Laurent Rigotard. *Rev. vit.* **77**, 237–9(1932); cf. Vinet, *C. A.* **26**, 5004.—R. urges the analysis of the woody portion of trees and of the sap of the vegetative reawakening season as an aid to modifying methods of treatment and in estg. the proper time of fertilizer application. F. W. Marsh

**Wood diagnosis of perennials [vine] and its relation to leaf diagnosis.** E. Vinet. *Rev. vit.* **77**, 219–22(1932); cf. Vinet and Lemesle, *C. A.* **24**, 5916; **26**, 2214; **27**, 1442. The different parts of 2 grapevines, one grown with, and one without, fertilizer, were analyzed. N and $P_2O_5$ were at a max. in the newest growth and the roots. K was at a min. in the roots and at a max. in the sprouts and buds. All plant parts showed the favorable results of fertilization. The base of ripened twigs should be used for wood diagnosis. A comparison of wood and leaf diagnosis established that both facilitate the control of vine nourishment. Leaf diagnosis shows the variations during plant growth while wood diagnosis dets. the "resultant." F. W. Marsh

**Fertilizer experiments on perennial clovers.** Ödön Villax. *Kisérletügyi Kozle-*

*mények* **35**, 45–59(1932).—In *Medicago*, *Trifolium* and *Onobrychis* root development is the strongest in sandy soils poor in nutriments. *Onobrychis* has the largest N-accumulating capacity. P fertilizers increase the development of roots and nodules in the year of the treatment on peat and sand, and also increase the above-ground portion of the plant. *Medicago* is most sensitive to P fertilization; *Trifolium*, to K fertilization. The combined use of K and P gives the best results. Treatment with N fertilizers significantly decreases the development of roots and nodules. S. S. DE FINÁLY

**Mineral nutrients of plants.** ETTORE BOTTINI. *Industria chimica* **7**, 1634–7 (1932).—The mineral contents of a no. of common vegetables and grains are given, and the amts. of these elements which are removed from the soil by a crop. The need of replacing these elements for a rational fertilizing program is emphasized. A. W. C.

**Aspects of plant nutrition.** B. VISWANATH. *Soc. Biol. Chemists, India* **1932**, 39 pp.; cf. *C. A.* **26**, 1372.—A general survey of progress of research in plant nutrition from the standpoint of soil, plant and animal relationships. A bibliography of 160 citations is given. H. R. KRAYBILL

**Physiology of nutrition of the sugar cane. I.** T. H. VAN DEN HONERT. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 1539–608(1932).—After a review of the literature, the methods used for growing cane in sand, water and sand-water cultures are described. It was found that for normal growth the nitrate concn. must be much larger than the $K_2O$ concn., and the latter much higher than the $P_2O_5$ concn. The proportion is about 21:3.8:0.9. Lack of N causes light-colored, yellowish leaves; it produces higher rendement; when pronounced, it reduces stooling and gives rise to thin stalks with long internodes. Lack of P does not affect the color of the leaves or even darken it; stooling is reduced more than by lack of N; the stalks have short internodes; small sprouts with short, broad leaves are produced and these remain alive for a long time. Lack of K produces red or reddish brown spots on the upper side of the middle nerve, often in a double row on opposite sides of a dirty yellowish white streak of dead epidermis; microscopic examn. shows that the cell walls of the epidermis have become gummy and discolored; the tips and edges of the leaves dry and curl up, and a yellow band appears along the part which is still green; the wt. of the stalk and the rendement are reduced; small sprouts with long, thin leaves appear, and they die out shortly. F. W. ZERBAN

**Effect of plant-nutrient substances on the sugar content of sugar beets.** E. ROSENBLÜH. *Zuckerrübenbau* **14**, 86(1932); *Fortschr. Landw.* **7**, 589.—When applied to soils contg. 20 mg $K_2O$ per 100 g., as detd. by König's method, potash fertilizers caused a considerable increase in the yield and sugar content of beets. With soils contg. 53 mg $K_2O$ potash fertilizers had no effect. Studies were made of the effect of potash on the metabolism of sugar beets grown in soils of varying degrees of acidity and contg. different amts. of available $P_2O_5$ and $K_2O$. K. D. JACOB

**Summary of the results of the plot tests on various [sugar-cane] problems in 1931.** E. DEMANDT. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 21–32 (1932).—A brief résumé of the effect of various agricultural practices on cane and sugar yields, as disclosed by field expts. on soil prepn., planting, cultivation and harvesting. F. W. ZERBAN

**Review of the results of field experiments on sugar-cane culture in Java. Fertilization with molasses.** G. BOOBERG. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 103–318(1932).—An exhaustive treatise, based on all the work done in Java since 1889, with a complete bibliography, numerous tables and diagrams. Molasses is more valuable as a fertilizer than as a fuel, and more valuable than other auxiliary fertilizer materials. It gives better results in dry areas than in those abundantly supplied with moisture. Molasses increases the yield of cane, but slightly depresses the rendement. The best results are generally obtained on the poorer, especially light sandy soils, while heavy soils respond less. There are even some soils, mostly of the heavier type, where molasses caused decreased yields. Three methods for applying the molasses in the field are recommended: (1) application with the irrigation water either before or after the rice crop preceding the cane crop, at least 3 weeks before planting either crop; (2) in undild. form in the furrow, at least 3 weeks before planting; (3) to growing cane, either undild. on the ridges, or greatly dild. with irrigation water, in the furrow. Undild. molasses should not be applied in the furrow after planting. F. W. ZERBAN

**[Report of the] entomology department.** A. W. LOPEZ. Philippine Sugar Assoc., *Ann. Repts.* **1931**, 227–73(1932).—In lab. expts. *K thiocarbonate* was highly toxic to grubs of *Leucopholis irrorata*, but did not give satisfactory results when used in the field. Application of filter-press mud at the rate of 40 tons per hectare caused a 20% reduction in the grubs infesting field soils. K. D. JACOB

**Report of the scientific committee—insecticides.** C. H. PEET. *Soap* (*Insecticide*

*and Disinfectant Sect.*) **9**, No. 1, 87–8(1933).—A review of the past year's literature on synthetic insecticides, rotenone, pyrethrum, fluorides and arsenicals. H. H. R.

**Report of insecticide standardization committee.** N. J. GOTHARD. *Soap* (*Insecticide and Disinfectant Sect.*) **9**, No. 1, 86–7(1933).—Considerable variation was found in the atomizers used in the Peet-Grady method (*C. A.* **22**, 4734) for standardizing liquid household insecticides, resulting in great differences in the tests. It is recommended that a standardized atomizer be used. HENRY H. RICHARDSON

**Safety in insecticide use.** EDWARD BOCHER. *Soap* (*Insecticide and Disinfectant Sect.*) **9**, No. 2, 95(1933).—A discussion of household insecticides. Care should be used with some of the newer contact liquid sprays such as halogenated hydrocarbons which though not sufficiently toxic to cause immediate death may cause edema of the lungs. HENRY H. RICHARDSON

**Grape leafhopper in California, with special reference to its control.** STEWART LOCKWOOD. Calif. Dept. Agr., *Monthly Bull.* **21**, 375–93(1932).—The grape leafhopper, *Erythroneura comes*, is best controlled by clearing away surrounding vegetation and dusting the vineyard with $Ca(CN)_2$ at the rate of 20 lb. per acre. When the majority of the adults have collected in the vineyard and before many eggs have been deposited, the use of a pyrethrum-petroleum oil vaporized spray applied at the rate of 2 gal. per acre is advocated. After the spring hatch has occurred a combination spray consisting of 1 lb. of 40% nicotine sulfate and 4–4–50 Bordeaux mixt. with water to make 100 gal. is recommended. C. R. FELLERS

**Red oxide of copper as a dust fungicide for combating damping-off by seed treatment.** JAMES G. HORSFALL. N. Y. Agr. Expt. Sta., *Bull.* **615**, 3–26(1932); cf. *C. A.* **25**, 4967.—Cuprite, $Cu_2O$, is proposed specifically as a seed-treatment fungicide and its possibilities as a substitute for Cu-lime dust are suggested. The $Cu_2O$ was especially effective on smooth seeded plants such as tomatoes, eggplants, peppers, spinach and cabbage. It adhered especially well to the seeds. $Cu_2O$ may be dild. to $^1/_4$ without altering its fungicidal properties. CuO exerted but little fungicidal effect in seed treatment although it adhered well to the seeds. There was very little seed injury from the use of $Cu_2O$; in fact, emergence of the seedlings was accelerated in some cases. $Cu_2O$ may possess fungicidal properties as a foliage dust or spray. This point is being studied. C. R. FELLERS

**The fungicidal properties of certain spray fluids. IX. The fungicidal properties of the products of hydrolysis of sulfur.** H. MARTIN AND E. S. SALMON. *J. Agr Sci.* **22**, 595–616(1932); cf. *C. A.* **26**, 3607.—The results of tests made on the conidial stage of the hop powdery mildew (*Sphaerotheca humuli*) indicate that the fungicidal activity of S in the form of sulfite, hyposulfite, sulfoxalate, thiosulfate or monosulfide is insufficient to account for the fungicidal properties of finely divided elementary S. The fungicidal properties of solns. of $Na_2S$, NaOH and $Na_2CO_3$ are due to their alky. and $H_2S$ liberated from the solns of $Na_2S$ used is without action on the organism tested. The active fungicide produced by the hydrolysis of S is S in polysulfide form. The action of Agral I in promoting the fungicidal action of elementary S may be due to the enhancement of the action of $S_x$ in the presence of this spreader. The direct fungicidal action of $S_x$ solns. is due to the $S_x$ as such. P. R. D

**Wetting, spreading and emulsifying agents for use with spray fluids. IV. Miscible oils.** R. M. WOODMAN. *J. Soc. Chem. Ind.* **52**, 4–6T(1933); cf. *C. A.* **27**, 1442. The use of toxic oils in spray emulsions and the standards which they should fulfill are described. Neither tetralin nor dekalin could adequately take the place of phenol in aq. spray solns. Am alc. (fusel oil) may be used instead of phenol as an aid to soln in the prepn. of a miscible oil. The miscible oil-forming tendency of various mixts of fusel oil and soap has been measured and the character of the emulsions from these miscible oils studied. The effect of incorporation of resin oil and of water has also been investigated. J. R. ADAMS

**The role of wetting agents in the fixation, by plant tissues, of coloring materials used for the treatment of cryptogamic diseases.** AUGUSTIN BOUTARIC, MAURICE DOLADILHE AND MAURICE PIETTRE. *Rev. vit.* **77**, 85–6(1932); cf. Truffaut and Pastac, *C. A.* **24**, 2228–9, 5924.—Coloring materials with electropos. particles are necessary for good results. Most wetting agents which reduce surface tension are alk. org. salts. Beyond a certain point they make the particles of the coloring material neg. and these are then not fixed on the cellulose. The fixation of acridine orange on cellulose was very slightly reduced by Am alc. and camphor while surface tension was greatly lowered. Brécolane, while lowering surface tension to about the same extent, greatly reduced fixation. F. W. MARSH

**The utilization of organic coloring materials and 8-hydroxyquinoline in combating cryptogamic diseases of the vine.** ANDRÉ MEYER. *Rev. vit.* **77**, 117–20(1932); cf. *C. A.* **27**, 365.—Eight dyes, 3 wetting agents and 8-hydroxyquinoline were tested in

vineyards. The sulfate of *o*-hydroxyquinoline in 1/6 concn. showed the greatest efficiency against mildew. The surface tensions of the dyes and the hydroxyquinoline plus wetting agents and with an adhesive were measured. A criticism of an article by Boutaric, Doladilhe and Piettre (preceding abstr.) is appended. F. W. MARSH

**Treatments against mildew in 1932.** A. CADORET. *Compt. rend. acad. agr. France* **18**, 1146–9(1932).—Well executed sulfating with mixts. rich in Cu and lime is effective against mildew in vineyards. J. R. ADAMS

**Cercospora control in Monzon.** T. COSTA. *Ind. saccar. ital.* **25**, 535–8(1932).—Infected beets treated with Bordeaux mixt. lose less foliage and gain 2.5% in sucrose. The sucrose of untreated beets is not influenced by the greater loss in foliage. L. C.

**The use of derris against the sheep tick.** J. MACLEOD. *Scottish J. Agr.* **16**, 84–6(1933).—When used under comparable conditions, a derris-soap soln. contg. 0.21% toxic ext. was more effective against the sheep tick, *Ixodes ricinus*, than 0.2% $As_2O_3$ or 0.35% PhOH solns. A 4-day-old derris dip was not so efficacious as fresh dip, but was practically as destructive to ticks as fresh solns. of $As_2O_3$ or PhOH. K. D. JACOB

**Anthracene oil in the orchard.** R. BICHET. *Prog. agr. vit.* **98**, 205–14(1932).—The prepn. and use of an anthracene oil emulsion in Bordeaux mixt. are described. The foliage of trees treated in the winter was darker green than untreated trees. Excellent results were obtained against mosses, lichens, fungi, plant lice, etc. It is debatable whether or not the anthracene oil diminishes the anticryptogamic effect of the Cu. F. W. MARSH

**Extra potash controls rust and wilt [of cotton].** HENRY T. MADDUX. *Com. Fertilizer* **46**, No. 1, 14–17(1933).—In 587 top-dressing expts. carried out over a period of 5 years, application of 50–100 lb. KCl in addn. to the regular application of complete fertilizer gave an av. increase of 147 lb. seed cotton per acre per year, incidence of rust being greatly reduced by the extra potash. In sandy alluvial soils fertilizers contg. potash are very effective in reducing cotton-wilt infection and increasing yields. K. D. JACOB

**The use of chemicals for killing bananas in the treatment of Panama disease.** F. E. V. SMITH. *J. Jamaica Agr. Soc.* **36**, 184–7(1932).—The root system of banana plants affected with Panama disease was effectively killed by the application to the root and the soil immediately surrounding the plant (from which dry trash and other debris had been removed) of kerosene, light gas oils, Delco oil or heavy gas oil. The best results were usually obtained with heavy gas oil (sp. gr. up to 0.8869, av. flash point 181° F.) produced by the "topping" process, 1.5 pints per plant usually being sufficient. To a limited extent, the treatment inhibits the growth of *Fusarium cubense* and reduces the amt. of spore formation. The oil had no harmful effect on banana and other plants grown on the soil 2–6 months after treatment. K. D. JACOB

**Combating the fire-spot disease of tobacco [Colletotrichum tabacum] by cauterizing the seed and by prophylactic treatment of the plants with chemical agents.** K. BONING. *Prakt. Bl. Pflanzenbau* **10**, 89(1932); *Fortschr. Landw.* **7**, 588.—Control of the fire-spot disease of tobacco was obtained by dipping the seed for 30 min. in 0.25% solns. of uspulun, uspulun universal, germisan or $AgNO_3$, or in 0.05% soln. of $HgCl_2$. Injury to germination was prevented by soaking the seed for 12 hrs. in water before planting. Control of the disease was also obtained by treating the plants in the seed bed with 1% Cu-lime soln. or with the proprietary dusts cusisa and cupulvit. In the field, the disease was controlled by means of Cu-contg. sprays and dusts. K. D. J.

**The treatment of wheat rot. III. Action of copper products and formal compared.** G. ARNAUD AND M. GAUDINEAU. *Ann. agron.* [N. S.], **2**, 229–46(1932); cf. *C. A.* **25**, 4349.—Under av. winter conditions about Paris there was little difference in efficiency between soaking and dusting. Among the best substances for soaking were formol and Bordeaux mixt. with casein (preceded by washing) and for dusting CuCl and Cu oxychloride. F. W. MARSH

**Treatments for seed potatoes.** W. E. BRENTZEL. N. Dak. Agr. Expt. Sta., *Circ.* **102**, 4 pp.(1931). --The HCl-$HgCl_2$ dip is recommended as giving the best control of scab, rhizoctonia and blackleg diseases. Cf. *C. A.* **25**, 1025. C. R. FELLERS

**Control of quack-grass, Agropyron repens.** WALTER S. BALL AND WILFRED W. ROBBINS. Calif. Dept. Agr., *Monthly Bull.* **21**, 414–15(1932).—$NaClO_3$ mixed at the rate of 1 lb. per gal. and used as a spray 2–3 times a year gave very good control of this troublesome weed. Cf. *C. A.* **25**, 1025. C. R. FELLERS

**Decomposition and movement of herbicides in soils and effects on soil microbiological activity and subsequent crop growth.** W. E. BOWSER AND J. D. NEWTON. *Can. J. Research* **8**, 73–100(1933).—Expts. were conducted to det. the residual effect of $H_2SO_4$, $CuSO_4$, $NaClO_3$, $BaClO_3$ and $Na_2Cr_2O_7$ on 3 typical Alberta soils. No problem of residual effect was found with the 2 leaf sprays, $H_2SO_4$ and $CuSO_4$. $NaClO_3$ remains

toxic for about 2 years, depending mainly on the org. matter content of the soil and the amt. of leaching that takes place. The distance that the chlorate leaches down into the subsoil depends on the amt. of rainfall and the character of the soil. As soon as the chlorate is leached out or is reduced the soil returns to its normal productive power. $Na_2Cr_2O_7$ decomps. very rapidly in the soil. It has a depressing effect on nitrification and on the activity of the soil microörganisms. However, there is practically no residual effect from the use of $Na_2Cr_2O_7$ on soils of medium to high org. matter content.
J. W. SHIPLEY

**Control of weeds in cereal crops on moss peat soils.** F. BRÜNE AND C. HUSEMANN. *Mitt. Vereins Forderg. Moorkultur Deut. Reiche* **50**, 32(1932); *Scottish J. Agr.* **16**, 116.—Control of redshank (*Polygonum persicaria*), groundsel (*Senecio vulgaris*), hemp nettle (*Galeopsis tetrahit*), chickweed (*Stellaria media*), spurry (*Spergula arvensis*) and cornflower (*Centaurea cyanus*) in cereals grown on moss peat soils was obtained by the application of $1^1/_2$–$6^1/_2$ cwt. of Hederich kainite per acre 4–5 weeks after sowing in the case of summer crops, and about the middle of Nov. with winter crops. K. D. J.

**Sodium chlorate-limestone mixtures as weed killers for dry application.** C. J WILLARD. Ohio Agr. Expt. Sta., *Bull.* **516** (*51st Annual Rept.*), 23–4(1933); cf. *C. A.* **26**, 3865.—$NaClO_3$ when finely ground and mixed with limestone has no tendency to cake, and in preliminary trials gave very satisfactory results in weed control.
C. R. FELLERS

**Results of tests of alum treatment.** A. TOUZE. *Prog. agr. vit.* **98**, 368–9(1932).—Mildew development was not arrested by treatment with alum on August 31st.
F. W. MARSH

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Fertilizer base from sewage sludge (WIGLEY) **14.** Sheep dip (Brit. pat. 363,653) **18.**

BANDO, H. J.: **Der Verlauf der Ertragskurve bei Kali und Phosphorsäure.** Thesis, Rostock, 1931. 67 pp.

BARTHEL, GERHARD: **Die Wirkung und die Zusammensetzung verschieden behandelter Wirtschaftsdünger.** Thesis, Leipzig, 1931. 44 pp.

BRANDES, ERWIN: **Die deutsche Superphosphatindustrie.** Thesis, Berlin, 1932 186 pp.

BUCHERER, HERBERT: **Über den Einfluss einseitiger Dauerdüngung auf die Nitrifikationsvorgänge im Boden.** Thesis, Munich, 1930. 37 pp.

CHIRITA, CONSTANTIN: **Der Nährstoffgehalt der Waldhumusauflagen unter Ber. der mineralogischen Unterlage und Betrachtungen über ihre Bedeutung für die Ertragsfähigkeit der Waldböden.** Thesis, Giessen, 1931. 46 pp.

DEICHMANN, ERICH: **Wirtschaftsversuch zur Frage der Stickstoffdüngung auf Dauerweiden.** Thesis, Bonn-Poppelsdorf, 1931. 57 pp.

GOLLING, MARTIN: **Vergleiche Bodenuntersuchungen auf Phosphorsäure und Kali mittels der Schnellmethode.** Thesis, Halle, 1931. 48 pp

GRUEL, ALFRED: **Der Wertwechsel der Bodentypen im Wandel der Zeiten.** Thesis, Berlin, 1932. 79 pp.

HEISER, FRANZ: **Beziehungen der verschiedenen Aufschlussgrade der Bodensilicate zur Höhe und Sicherheit der Ernteerträge, unters. an fünf typischen Bodenarten.** Thesis, Halle, 1931. 50 pp.

HERBENER, HEINRICH: **Die Kali- und Phosphorsäure. Aufnahme bei der Keimpflanzenmethode nach Neubauer.** Thesis, Giessen, 1932. 22 pp.

MEYER-HERMANN, KURT: **Über den Einfluss der Bodenreaktion auf die Entwicklung von Pilzparasiten und das Verhalten ihrer Wirtspflanzen.** Thesis, Bonn Poppelsdorf, 1930. 46 pp.

MÜLLER, WALTER VON: **Die Frage des Zwischenverteilers an Düngerstreuern.** Thesis, Berlin, 1932. 87 pp.

RADOMIROW, PETKO: **Der Einfluss der Behäufelung auf einige bodenkundlich-physikalische und chemische Faktoren.** Thesis, Königsberg, 1931. 33 pp.

REINHARDT, FRITZ: **Der Jahresfehler bei Feldversuchen.** Untersuchungen über seiner Grösse und die Möglichkeit seiner Berücksichtigung bzw. Ausschaltung bei der Auswertung von Feld-Versuchsergebnissen Thesis, Halle, 1932. 88 pp.

SEISCHAB, FRIEDRICH: **Der Einfluss stetig zunehmender Stickstoffgaben auf Leistung und Pflanzenaufbau von Sommergerste.** Thesis, Munich, 1930. 62 pp.

UNGLAUB, HELLMUTH: **Die Phosphorsäure- und Kaligehalte der Kulturböden des Landes Thüringen** nach den Neubauer untersuchungen der Thüring. Landw. Versuchsstation Jena und ihre Abhängigkeit von den geologischen Verhältnissen. Thesis, Jena, 1930. 32 pp.

**Fertilizer.** ROBERT GRIESSBACH and HANS WEISS (to Ohio Sanitary Engineering Corp.). U. S. 1,889,654, Nov. 29. See Ger. 531,705 (*C. A.* **26**, 248).

**Fertilizer.** JOHN T. TRAVERS and OLIVER M. URBAIN (to Ohio Sanitary Engineering Corp.). U. S. 1,889,712, Nov. 29. A fertilizer is prepd. contg. the compd. $SiO_2.P_2O_5$ together with a N-contg. inorg. fertilizer material, etc.

**Fertilizers.** ÉDOUARD URBAIN. Fr. 40,531, Dec. 2, 1930. Addn. to 714,227 (*C. A.* **26**, 1702). Mixts. of dry products capable of forming an $NH_4MgPO_4$ by hydration are used as fertilizers. Thus, the theoretical amt. of $(NH_4)_2SO_4$ and MgO which will form $CaSO_4$ and $NH_4$ Mg phosphate is added to superphosphate.

**Fertilizer.** I. G. FARBENIND. A.-G. Fr. 40,720, Sept. 9, 1931. Addn. to 654,017 (*C. A.* **23**, 3770). A mixed fertilizer is prepd. by the reaction of KCl with $NH_4NO_3$ in a lye contg. alkali, alk. earth or $NH_4$ phosphates. Cf. *C. A.* **27**, 1081–2.

**Fertilizers.** I. G. FARBENIND. A.-G. Fr. 737,344, May 20, 1932. Mixts., preferably eutectic, of $Mg(NO_3)_2$ with other salts such as $Ca(NO_3)_2$, $NaNO_3$ or $KNO_3$ are used to coat the grains of an $NH_4$ nitrate-sulfate fertilizer to render it stable to storage Cf. *C. A.* **27**, 1081–2.

**Fertilizers.** JOSEPH ROSSMANN. Fr. 737,476, May 24, 1932. A sol. fertilizer is prepd. by heating $NH_2COONH_4$ with $Ca_3(PO_4)_2$ in an autoclave. The $NH_2COONH_4$ is prepd. by the action of $CO_2$ on liquid $NH_3$.

**Fertilizers.** BAMAG MEGUIN A.-G. Fr. 737,502, May 24, 1932. $Ca(NO_3)_2$ is made easy to spread by forming on the grains protecting layers, by the action first of $NH_3$ and then of $CO_2$ or $SO_2$, preferably at above 100° and under pressure.

**Fertilizers.** RAOUL A. E. PETIT. Fr. 737,557, Sept. 16, 1931. CaO is usable as a fertilizer without harmful action by mixing it with another fertilizing substance such as sylvinite or potash.

**Fertilizer from fecal matter in sewage.** RICHARD FLUCK and ALFRED THEIL (to Wilhelm von Radowitz). U. S. 1,890,459, Dec. 13. The fecal matter is mixed with about 3–5% its wt. of an adsorbent material such as peat or lignite and the mixt. is heated to about 60° while agitated to effect absorption and adsorption of fertilizing solids and gases; solid matter is allowed to settle out, liquid is removed and the solid material is centrifuged to sep. residual liquid, and inorg. fertilizing substances are pptd. from the sepd liquids. An arrangement of app. is described.

**Insecticides.** VICTOR A. SEBASTIAN. Fr 737,963, Sept. 28, 1931. A combination of an alkali alkylsulfonaphthenate, its derivs. or homologs, with an appropriate amt. of pyridine and talc or S is used as an insecticide for plants, etc. It may be used along with Cu compds. for treating vegetables.

**Insecticides.** BRUNO FULLONI. Fr. 738,051, June 2, 1932. Colloidal $Al(OH)_3$ is used as an insecticide and anticryptogamic agent.

**Insecticide.** HIDEZO KIMURA. Fr. 738,390, June 9, 1932. An insecticide is made by mixing dry, ground *Perilla frutescens* with an insecticide powder moistened with petroleum to which is added an oil obtained by the distn. of the leaves of *Gaultheria procumbens*, turpentine, Japan pepper oil and oil of peppermint.

**Fungicides, insecticides, etc.** SOCIÉTÉ ANON. ÉTABLISSEMENTS & LABORATOIRES GEORGES TRUFFAUT Brit. 364,046, Aug. 16, 1929. Fungicidal, etc., prepns. are obtained by mixing a water-sol. dye with a substituted amide of a fatty acid. The dyes may be derivs. of thiazine, oxazine, azines, indoanilines, thiazoles, quinoline, acridine, xanthene, di- or tri-phenylmethane or azo compds. The amides are preferably used as salts of HCl, oxalic, tartaric, benzoic or salicylic acids. They may be the acylated diamines of Brit. 219,304 (*C. A.* **19**, 523) or the $NH_4$ derivs. of Brit. 294,582 (*C. A.* **23**, 1909), examples being dimethyloleylaminoethylamine, methylethylstearylaminoethylamine, etc.

**Pulverulent disinfectants.** MAX ENGELMANN (to E. I. du Pont de Nemours & Co.). U. S. 1,890,774, Dec. 13. Reaction is effected, by grinding in the dry state, between an aromatic cyclic compd. such as a cresol and a Hg compd. such as HgO or $HgCl_2$ for obtaining directly in dust-like form a mercurized product suitable for treating seeds, etc.

**Spreader and emulsifier for horticultural spray compositions, etc.** FRANK F. LINDSTAEDT (to Hercules Glue Co.). U. S. 1,890,158, Dec. 6. A compn. contg. oil is used with the reaction product of an amine such as an ethanolamine and a fatty acid, for improving the spreading of the oil on the object sprayed and a free amine such as an ethanolamine for controlling the penetration of the oil.

**Weed killers.** CHEMISCHE FABRIK LUDWIG MEYER. Fr. 738,377, June 9, 1932. A weed killer is made by grinding mixts. of $CuSO_4$ and NaCl at a raised temp. until the salts react to give a yellowish green to green powder.

# 16—THE FERMENTATION INDUSTRIES

C. N. FREY

**The chemistry of alcoholic fermentation.** KARL MYRBÄCK. *Svensk. Kem. Tids.* **44**, 207–22(1932).—A lecture. A. R. ROSE

**New methods of alcohol recovery.** KURT W. GEISLER. *Z. Ver. deut. Ing.* **77**, 126–8(1933).—A discussion of the principles and practicability of new methods of prepn. of EtOH from potatoes, peat, wood, $C_2H_2$ and $C_2H_4$. PHILIP D. ADAMS

**Acetic fermentation and oxidation of higher alcohols in sugar-free culture fluids.** HANS MOSEL. *Zentr. Bakt. Parasitenk. II Abt.* **87**, 193–229(1932).—Acetic bacteria can utilize alc. both as a building material and as a source of energy by oxidizing it to AcOH. Alc. (1–4%) with asparagine as a source of N makes a good culture medium for acetic bacteria. The resulting AcOH is also utilized. Growth is delayed by 8% alc. and the yield of acid reduced about 50%. AcOH (1.72%) makes a better medium for these organisms than alc. If both are present, the organisms select the most easily utilizable first. The presence of sugars protects the AcOH from oxidation. Methyl and isopropyl alcs. are not utilized. Propionic, butyric and isobutyric acids are used. JOHN T. MYERS

**Trimethylene glycol fermentation.** C. H. WERKMAN, C. W. DAVIS AND C. A. TARNUTZER. *J. Bact.* **25**, 33(1933).—The addn. of fumaric acid prevented the formation of the glycol from glycerol, and aeration also inhibited it, probably by acting as an H acceptor. *Escherichia coli* does not ferment glycerol in a mineral medium under anaerobic conditions, whereas the addn. of a suitable H acceptor as peptone, asparagine, AcH or fumaric acid starts the fermentation. JOHN T. MYERS

**The fermentation of acetoin [acetylmethylcarbinol].** L. M. HOROVITZ-VLASSOVA AND E. A. RODIONOVA. *Zentr. Bakt. Parasitenk. II Abt.* **87**, 333–9(1933).—Acetoin is fermented by a variety of bacteria, esp. the *subtilis*, *aerobacter* and lactic acid groups It is formed from a variety of polysaccharides, glycerol, etc., as well as from glucose Butylene glycol also appears and may be oxidized to biacetyl Old potato cultures contain a large amt. of biacetyl coming from the oxidation of acetoin and butylene glycol. JOHN T. MYERS

**Effect of hydrocyanic acid and carbon monoxide on butyric acid fermentation.** WALTER KEMPNER. *Biochem. Z.* **257**, 41–56(1933).—The heavy-metal catalysis of respiration has been proved by the fact that CO suppresses the respiratory enzyme reversibly, and at ordinary temp. only heavy metals unite with CO. For fermentation, which is an intramol. type of respiration, no influence of CO could be established, although the fermentation enzyme, just as the respiration enzyme, can form a dissociable compd. with HCN. However, the sensitivity of respiration to HCN is much greater than that of either lactic acid or alc. fermentation. Studies of the metabolism of butyric acid bacteria, however, show that butyric acid fermentation is suppressed by HCN to the same extent as the respiration, and likewise that this fermentation is also inhibited by CO. After removal of the CO the fermentation starts again; so in this case also the CO forms a reversible compd. Conclusion: Butyric acid fermentation is catalyzed by heavy metals. S. MORGULIS

**Mechanical equipment for continuous fermentation of fibrous materials.** A. M. BUSWELL AND C. S. BORUFF. *Ind. Eng. Chem.* **25**, 147–9(1933).—The drum digester described continuously ferments cornstalks, straw, manure, packing-house refuse, sewage screenings, etc., evolving per lb. feed 2.9–7.0 cu. ft. of gas with methane content of 50–59%. R. M. BOARTS, JR

**The artificial ripening of spirituous liquors by means of catalysts.** GÉZA TÓTH *Magyar Chem. Folyóirat* **38**, 129–34(1932).—Vapors of spirituous liquors were treated with finely dispersed metal oxides (CuO, NiO, $TiO_2$) at 150–80°. The oxidation coeff. of Lusson increased and taste was improved. The method can be applied to the ripening of cold-made liqueurs also. S. S. DE FINÁLY

**The Pulfrich photometer and its application in brewing and malting.** F. WEIHE MANN. *Brauer- Hopfen-Ztg. "Gambrinus"* **59**, 223–7(1932); *Schweizer- Brauer-Rundschau* **43**, 115–19.—The instrument is briefly described; its application for detn. of color, turbidity and $p_H$ in wort and beer is outlined. S. LAUFER

**Tannin in enology.** P. BALLARD. *Rev. vit.* **75**, 236–7(1931).—Tannin is often indispensable in treating wines and musts for a better color fixation, a more rapid and complete defecation and a more certain preservation. Nut gall tannin of a creamy white color, with only a slight odor and of astringent taste, is best. $H_2O$, alc. and ether solns. for which specifications are given may be used. F. W. MARSH

**Organic acids of wines and fruit juices, natural or fermented. I. Definition of the acidity and determination of organic acids.** L. SEMICHON AND M. FLANZY. *Ann.*

*agron.* [N. S.], **2**, 199–214(1932).—A method for detg. free org. acids by the action of wines or fruit juices on $CaCO_3$ and the detn. of the residual $CaCO_3$ is described and compared with 6 others. $p_H$ gives no measure of the actual amt. of acid present. Total acids were detd. by combining the results from the above method with those from analyses for salified acids and esterified ethers. F. W. MARSH

**Organic acids of wines, grape musts and fruit juices, natural or fermented. II. The volatile fatty acids.** L. SEMICHON AND M. FLANZY. *Ann. agron.* [N. S.], **2**, 504–28 (1932); cf. preceding abstr.—Aq. solns. of volatile fatty acids were analyzed by the measurement of $CO_2$ liberated from an excess of $CaCO_3$. Methods of extg. the fatty acids are critically discussed. Detn. of such acids by fractional or successive distns. does not give the total of acids in a free state. The official method by evapn. is insufficient. The entrainment in $H_2O$ vapor may give all the free volatile acids, but absorption by wine colloids may interfere. The entrainment by $H_2O$ vapor after satn. and sapon. with lime may give exact results. Methods of separately detg. formic, butyric, propionic, acetic and higher fatty acids are given. The results confirm the authors' previous judgment that total org., fixed and volatile acids are more important in wine analyses than free acids. F. W. MARSH

**Wines from dried grapes and natural wines. Their differentiation.** N. GEORGIADÈS BEY. *Bul. Institut Égypte* **14**, 83–93(1932).—With present methods it is impossible to differentiate between the 2 types of wine. The molybdate method, involving reducing substances in the wines, was inconclusive. F. W. MARSH

**The wines of vines treated with alum.** E. HUGUES. *Prog. agr vit.* **98**, 276–7 (1932).—H. discusses the possibility of the presence of Al in wines due to its presence on grapes from vines treated with alum. F. W. MARSH

**Color in wine making.** M. SAUZEAT. *Rev vit.* **77**, 125–6(1932).—Color of wine is increased by heating or by adding $H_2SO_3$ during vinification. F. W. MARSH

**Clarification of wine.** LAJOS VÁSONY *Mezögazdasági Kutatások* **5**, 293–302 (1932).—The theory of Rüdiger and Mayr (*C. A.* **23**, 3537) is discussed. Some form of chem. binding must exist between gelatin and tannin. Pectin acts as a protective colloid in the presence of small quantities of clarifying agent. Pptn. occurs only on application of much clarifying matter. The pear wine used by Rüdiger and Mayr contained much pectin and thus required much gelatin. If, on the other hand, too much gelatin is used, the excess gelatin which is not bound by the tannin content acts again as a protective colloid. Good results were obtained by applying casein dissolved in lukewarm $KHCO_3$ or citric acid. S. S. DE FINÁLY

**Effect of the distillation method on the composition and quality of wine distillates.** H. WÜSTENFELD AND C. LUCKOW. *Z. Untersuch. Lebensm.* **63**, 542–55(1932).—The quality of the distillates depends to a great extent on the distn. method, while the analytical values are less influenced. Numerous characteristics are given for the different fractions obtained. S. LAUFER

**The extractives of rum.** E GABRIEL JONES. *Analyst* **58**, 89(1933); cf. Partridge, *C. A.* **27**, 559, and Williams, *C. A.* **1**, 2021. W. T. H.

**Putrefactive odor of saké. I.** YUKIO TOMIYASU. *J. Agr. Chem. Soc. Japan.* **8**, 905–8(1932).—During the preservation of saké a disagreeable odor is sometimes produced by putrefaction; it is due chiefly to biacetyl, which may be formed by the oxidation of 2,3-butylene glycol and acetone by the putrefactive bacteria of saké. Y. KIHARA

**Decomposition of amino acids by yeast. I.** MASAKAZU YAMADA. *J. Agr. Chem. Soc. Japan* **8**, 428–32(1932) —Asparagine in Hayduck soln. was replaced by a N compd. such as glycine, *d*-alanine, *dl*-alanine, the Na salt of glutamic acid, *l*-leucine, α-aminobutyric acid, norvaline and $(NH_4)_2SO_4$. The soln. was fermented by saké yeast. Leucine, glycine, alanine and α-aminobutyric acid affect the production of fusel oil. Traces of fusel oil were found with valine and norvaline, and none at all with asparagine, glutamic acid and $(NH_4)_2SO_4$. It was preferable to use a small amt. of yeast for the production of fusel oil. The growth of the yeast was retarded in the case of valine. **II.** *Ibid* 498–505.—A culture soln. contg. glucose, 0.4% *d*-alanine and Hayduck mineral soln. was fermented by saké yeast. From the fusel oil obtained, isobutyl alc. and a small amt. of amyl alc. were isolated. When *dl*-alanine was added, the same result was obtained and *l*-alanine was recovered. When *dl*-alanine and alc. yeast were used, isobutyl alc. was also obtained. When a large amt. of beer yeast was used and the fermentation was rapid, only amyl alc. was obtained. **III.** *Ibid* 506–8.—Asparagine in Hayduck's soln. was replaced by *dl*-α-aminobutyric acid, and the soln. was fermented with saké yeast for 11 days. The main part of the oil obtained from the fermentation products was a higher alc. b. 123–8°, identified as active amyl alc. Propyl alc. could not be found. The amino acid recovered from the distn. residue had $[\alpha]_D^{32} = -1.14°$ (in 20% HCl soln.). Y. KIHARA

Separation of the 2 malt amylases by sorption (HOLMBERGH) **11A.**

FRANCHE, G.: **Le maçon.** Paris: Dunod & Cie. 500 pp. F. 30.

PFAB, HERBERT: **Die Bestimmung der Zitronensäure im Wein.** Thesis, Dresden, 1932. 45 pp.

PHILIPPI, FRITZ: **Die Säuren im Wein und ihre quantitative Bestimmung.** Thesis, Dresden, 1931. 24 pp.

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**Distillation apparatus for alcohol.** FRANÇOIS GOAVEC. Fr. 737,768, May 28, 1932.

**Alcohol from ethylene.** THE DISTILLERS CO., LTD., WALTER P. JOSHUA and HERBERT M. STANLEY. Brit. 364,221, Oct. 21, 1930. The process of 360,492 (Fr. 721,159 (*C. A.* **26**, 4067)) is modified by absorbing $C_2H_4$ in $H_2SO_4$ in the presence of a solid or liquid inert substance having power of increasing the contact surface between the reactants. Pumice, porcelain fragments, finely divided C, silica gel and refined emulsified mineral oil are mentioned as such.

**Arylacetylcarbinol derivatives.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,702, Oct. 15, 1930. Optically active hydroxyarylacetylcarbinols and arylmethoxyarylacetylcarbinols are prepd. by fermenting with yeast a carbohydrate in the presence of an aromatic aldehyde contg. in the nucleus a free OH, an acylated OH or an arylmethoxy group, with or without other substituents, *e. g.*, a methoxy group, and, if required, splitting off any acyl or arylmethyl group present in the product. Among examples grape sugar is fermented in presence of *m*-acetylhydroxybenzaldehyde producing *l,m*-hydroxyphenylacetylcarbinol.

**Beverages.** SEITZ-WERKE G. M. B. H. Fr. 738,005, June 1, 1932. Beer and wine are pasteurized, cooled, filtered through sterilized filters and introduced into sterilized containers.

**Apparatus for brewing beverages.** STACEY A. HAINES. Brit. 363,393, Aug. 19, 1929.

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## 17—PHARMACEUTICAL CHEMISTRY

W. O. EMERY

**Some physical incompatibilities of the pharmaceutical preparations.** ANTONIO ANGELETTI. *Ann. Schiapparelli* **6**, 191–4(1932).—The melting curves of the mixt salol-methylacetanilide are examd. The mixt. contg. 79% salol m. at 29°, *i. e.*, at lower temp. than that of pure salol (42°). G. A. BRAVO

**The biological significance of the essential oils in the Gramineae.** FRANCESCO BRUNO. *Lavori ist. botan. Palermo* **2**, 70–83(1931).—Among the Gramineae, only some species of *Cymbopogon* and of *Vetiveria* contain essential oils in the assimilation tissues. The oil is a reserve material and their content reaches a max. during the flowering. **The transformation and utilization of odoriferous compounds during the flowering and fructification, in some Andropogonaceae.** *Ibid* **3**, 1–9(1932).—The essence obtained from the leaves of *Cymbopogon martini* Stapf. var. Sophia, *C. proximus* Stapf. and *C. stipulatus* Chiov. were examd.; these essences gave, resp.: d. 0.9254–0.9762, 0.9344–0.9614, 0.9428–0.9665; *n* 1.4845–1.4973, 1.4869–1.4892, 1.5192–1.5206; acidity 2.0–3.3, 0.1–1.95, 0.07–0.1; ester no. 65.33–84.00, 21.13–54.13, 24.26–39.20. The max. of oil content in the leaves is just before the flowering, the min. during the ripening of the seeds. In this period, the oil content is max. in the flowers. **Researches on the Cymbopogon stipulatus.** *Ibid* 10–12.—The essential oil from the leaves gives: $[\alpha]$ —30° 22′, soly. in 80% alc. 1:10, ester no. after acetylation 28.9. G. A. BRAVO

**Bismuth salts soluble in the oils.** GASPARE CARLI. *Officina* **5**, 210–12(1932).—The methods of prepn. and control of Bi hexahydrobenzoate, Bi camphocarbonate, etc., are described. G. A. BRAVO

**Indifferent fluidextracts according to the Italian Pharmacopeia V.** MARIE PERRINO. *Officina* **5**, 212–14, 277–89(1932); cf. *C. A.* **26**, 3327.—A criticism of the methods of control prescribed by the Ital. Pharm. V. Comparative detns. of the properties and consts. of several com. samples of fluidexts. of boldus, senega, sarsaparilla, rhubarb, valerian and viburnum. G. A. BRAVO

**Changes and keeping qualities of the sirups of $FeI_2$.** EMILIO PAJETTA. *Officina* **5**, 261–7(1932).—The sirups contg. $FeI_2$ may be oxidized by atm. $O_2$ and ferric salts form; this oxidation is greater in the sirups contg. $H_3PO_3$ than in the sirups contg. citric acid; and it is increased by temp. The inversion of sucrose is more rapid in the sirups contg. $H_3PO_3$. G. A. BRAVO

**Investigations on the Nigella damascena L.** GAETANO OTTOLINO. *Officina* **5**, 273–6(1932).—The oil from the seeds (32–40%) extd. with $Et_2O$ is greenish yellow

with blue-violet fluorescence (very intense in Wood's light), sol. in $C_6H_6$, $CCl_4$, $CHCl_3$; sapon. no. 230, acids calcd. as oleic 41.73, ester no. 146.68, volatile fatty acids 4.4, non-volatile 83.62, m. p. 10–12°, solidifying p. —16° to —20°. G. A. BRAVO

**The hypochlorites as disinfectants [disinfectants and foodstuffs].** H. RAWLINSON. *Chemistry and Industry* **1933**, 71–4.—A brief review of the value of disinfectants. Cleanliness is the first and foremost essential. F. L. DUNLAP

**Rapid method for essential oil determination.** P. VALAER. *Spice Mill* **55**, 1410 (1932).—This method may be applied to all flavoring exts. contg. oil, except cinnamon, cassia, cloves and almond. Pipet 10 cc. of sample into a Babcock milk bottle. For samples contg. over 5% oil use only 5 cc. Add 2.5 cc. of mineral oil mixt. (1 part mineral oil U. S. P. and 1 part kerosene, water-free), 1 cc. of 1:1 HCl and fill to the shoulder with satd. $MgSO_4$ soln. Shake 3 min. and add salt soln. to fill the graduated neck. Centrifuge 10 min. at high speed and read the percentage from the extreme bottom to the extreme top of the oil column. Subtract 2.5% for mineral oil correction and multiply by 2 for percentage by vol. Multiply by 4 if 5 cc. sample was used. For analysis of cinnamon, cassia and clove exts., after adding the ext. to the bottle, remove nearly all the alc. by blowing air through a small tube down the neck of the bottle. Then add 1 cc. of the mineral oil mixt., fill with satd $MgSO_4$ soln. and centrifuge for 10 min. From the oil reading subtract 5 for the oil added and multiply by 2. The results compare favorably with those obtained by the A. O. A. C. methods. F. L. DUNLAP

**Decrease of ethereal oil content of ground cinnamon during storage.** ISTVÁN HORVÁTH. *Kísérletugyi Közlemények* **35**, 114–17(1932).—Of 8 samples of cinnamon stored in closed glass tubes for 1 year, 2 samples showed no change in content of ethereal oil and 6 samples showed a decrease of 2–8%. Samples stored in open paper sacks showed losses of 11–33%. S. S. DE FINÁLY

**Titrimetric determination of pyramidone in presence of antipyrine, acetanilide phenacetin, caffeine, etc.** ELEMÉR SCHULEK AND PÁL MENYHÁRTH. *Magyar Gyógyszerésztud. Társaság Értesitoje* **8**, 399–410(1932).—Dissolve material contg. 30–50 mg. pyramidone in 10 cc. water in a 500-cc. Erlenmyer flask, add 350 cc. $H_2O$ and a vol. of 0.1 *N* NaOH equal to the vol. of 0.1 *N* $KMnO_4$ required for the later oxidation. Add excess 0.1 *N* $KMnO_4$ + 1 g. KI and shake, then add 10 cc. 50% $H_2SO_4$ and titrate with 0.1 *N* thiosulfate soln. using starch soln. as indicator $KMnO_4$ should be added at once, not in drops. One cc. thiosulfate = 5.779 mg. pyramidone. Also a micro method was developed in which 3–5 mg substance is treated as above and titrated with 0.01 *N* soln. Also in *Z. anal. Chem.* **89**, 426–39(1932). S. S. DE FINÁLY

**A characteristic reaction of papaverine.** LÁSZLÓ EKKERT. *Magyar Gyógyszerésztud. Társaság Értesitoje* **8**, 411–13(1932).—A mixt. of 0.01 g. papaverine or papaverine-HCl, 0.02 g. dry $ZnCl_2$ and 5 drops BzCl on heating becomes rose-red to blood-red, changing to yellow with greenish fluorescence. The cooled soln. becomes greenish yellow on addn. of 1–2 drops alc. and the fluorescence becomes stronger. S. S. DE FINÁLY

**Examination of tinctures of Pharm. Hung. III in ultra-violet light.** ISTVÁN TEMPSVÁRY. *Magyar Gyógyszerésztud. Társaság Értesitöje* **8**, 444–56(1932).—Thirty different tinctures were exaind by the method of Zechner and Gstirner. Tincture absinthi, belladonnae, cannabis, digitalis and lobeliae were found to contain chlorophyll. S. S. DE FINÁLY

**Determination of starch in plant leaves, with special attention to change of alkaloid content.** MIKLÓS JANICSEK. *Mezogazdasági Kulatások* **5**, 283–92(1932).—The coloring and reducing substances are extd. from the leaves with alc. and the starch is detd. colorimetrically as I-starch. A soln. made from wheat starch is used as a standard. Expts. made with *Datura stramonium*, *Datura metel* and *Atropa belladonna* proved that the leaves should be gathered at night since they contain more alkaloids then, as the result of conversion of starch to sugar and migration to other parts of the plant at night. S. S. DE FINÁLY

**Theoretical composition of Eau de Cologne.** KURT HOCHSTETTER. *Anales quím. farm.* (Chile) **2**, 19–23(1933).—Discussion. L. E. GILSON

**Testing ampoule glasses.** D. v. KLOBUSITZKY. *Kolloid-Z.* **62**, 98–9(1933).—In all methods, the surface exposed should be related to alkali removal from the glass. All glasses showing a $p_H$ less than 9.5 when suspended in water are suitable. In the autoclave method, ampoules should be treated for at least 2 hrs. The suspension method is preferred in all cases where single specimens are to be tested. ARTHUR FLEISCHER

**Triethanolamine emulsions.** G. DE MAISON NAVARRE. *Am. Perfumer* **27**, 650–2 (1933).—A review. E. H.

**Determination of the power of adsorption of tablets of medicinal charcoal.** V. LANG AND L. RYBÁČEK. *Časopis Československ. Lékárnictva* **12**, 165–8(1932).—Of 3 com.

samples of medicinal charcoal tested for power of adsorption of methylene blue and $HgCl_2$ only one was active. WILLIAM J. HUSA

**Preparation of drugs for extraction in making tinctures.** ŠTĚPÁN DUBSKÝ. *Časopis Československ. Lékárnictva* **12**, 189–93(1932).—More complete extn. is obtained by swelling the drug with $H_2O$ before macerating with alc.-$H_2O$ mixt. WILLIAM J. HUSA

**Liberation of oxygen from Ichthoxyl.** EMIL PETRÁČEK. *Časopis Československ. Lékárnictva* **12**, 265–72(1932).—Under conditions similar to those of therapeutic application, $O_2$ is slowly liberated from Ichthoxyl, a patented therapeutic compn. prepared by adding a peroxide to ichthyol. WILLIAM J. HUSA

**The determination of morphine in opium and its official preparations.** ZDENĚK REKTOŘÍK. *Časopis Československ. Lékárnictva* **12**, 285–92(1932).—The time required for detn. of morphine in opium by the method of the Pharm. Neerl. V can be shortened. Agitation for 30 min. for opium, 25 min. for the ext. and 10 min. for the tincture suffices, the drug and ext. being first triturated for 15 min. with 15 cc. $H_2O$ and 0.35 g. CaO. Pptn. on addn. of $NH_4Cl$ is complete in the ext. and tincture in 3 hrs., in the drug in 8 hrs. WILLIAM J. HUSA

**Effect of sodium perborate on glycerol.** LUDVÍK RYBÁČEK. *Časopis Československ. Lékárnictva* **13**, 41–6(1933); cf. *C. A.* **25**, 5143.—Solns. of $NaBO_3$ in glycerol must be made in the cold to avoid formation of HCHO; stability of the soln. is increased by neg catalysts such as phenacetin. The effect of $H_2O_2$ and of $NaBO_3$ on the sensitivity of reactions of HCHO was studied. WILLIAM J. HUSA

**The preparation and stability of Pregl's solution.** VLADIMÍR LANG. *Časopis Československ. Lékárnictva* **13**, 47–51(1933).—Pregl's soln. of highest stability was prepd. by using $NaHCO_3$, distd. $H_2O$ free from org. matter and satd. with $CO_2$, and preserving in bottles of brown, neutral glass. WILLIAM J. HUSA

**Polarographic determination of the effect of air on solutions of arsphenamine.** RUDOLF BRDIČKA. *Časopis Československ. Lékárnictva* **13**, 51–62(1933).—The amt. of Na and of traces of oxidation products in arsphenamine can be detd polarographically. WILLIAM J. HUSA

**Determination of minute quantities of morphine and opium.** A. D. ROZENFELD *Farm. Zhur.* **8–9**, 246–51(1932).—(I) $HIO_3$ (1 cc. of 5% soln.) and $NH_4OH$ (0.2 cc. of 10% soln.) are used with 2 cc. of weakly acid sample. It is compared with a standard soln. in a colorimeter after 2 and 5 min. (II) The sample (3 cc.), 1 drop of $CuSO_4$ in HCl, 0.2–0.4 cc. of $H_2O_2$ and 0.2 cc. of $NH_4OH$ are compared with a standard after 15–20 min. Tables are given. L. NASAREVICH

**A correction of the pharmacopeia article "kalium aceticum solutum."** M. B SHVARTZMAN. *Farm. Zhur.* **10**, 292–4(1932).—It is recommended, after ignition to $K_2CO_3$, to use Kolthoff's titration with 0.5 *N* HCl and tropeolin 00 (0.1% soln.) as indicator. L. NASAREVICH

**Alkaloids from Leontice ewersmani.** A. P. OREKHOV AND R. A. KONOVALOVA *Khim. Farm. Prom.* **10**, 371–5(1932).—Dried bulbs of *Leontice ewersmani* contained about 0.4% of alkaloids, from which *leontamine*, $C_{14}H_{26}N_2$, was sepd.; its hydrochloride, diiodomethylate, chloroplatinate and picrate were crystd. and studied. *Leontidine*, colorless rhombic plates m. 116–8°, was also sepd. L. NASAREVICH

**Determination of arsenic in medicinal preparations.** E. S. BINOVA AND R. L RAIHORODSKA. *Farm. Zhur.* **11–12**, 335–7(1932).—The method is a modification of Bek-Merez's method and is based on the coloration of $HgBr_2$ paper with evolved $AsH_3$ L. NASAREVICH

**Prolan; its physicochemical properties.** A. MOGILSKII. *Farm. Zhur.* **11–12**, 337–8(1932).—Prolan is an amorphous brownish powder of albuminous nature; it gives biuret and glyoxylic acid reactions. It ppts. with tannins, colloidal Fe and Pb $(OCOCH_3)_2$, does not coagulate on heating or ppt. with $CCl_3COOH$, $C_6H_3OH(SO_3H)$-COOH and $C_6H_2(NO_2)_3OH$. It is salted out by concd. $(NH_4)_2SO_4$. L. N

**Recent advances in disinfectants and antiseptics.** EMIL KLARMANN. *Soap (Insecticide and Disinfectant Sect.)* **9**, No. 2, 87–9(1933); cf. *C. A.* **26**, 2212.—A review of the past year's literature, with 43 references. HENRY H. RICHARDSON

**Some tests on disinfectants.** C. C. BAIRD. *Soap (Insecticide and Disinfectant Sect.)* **9**, No. 2, 89(1933).—Phenol coeffs. obtained on coal tar and cresol disinfectants by Rideal-Walker, Hygienic Lab., and Food and Drug Administration (F. D. A.) methods did not differ greatly. The F. D. A. test is simpler to perform and is recommended for adoption as a standard. HENRY H. RICHARDSON

**Report of committee on standardization of disinfectants.** WM. DREYFUS. *Soap (Insecticide and Disinfectant Sect.)* **9**, No. 1, 90(1933); cf. *C. A.* **26**, 2012.—The Hygienic Lab. phenol coeff. method (A) checked well with the Food and Drug Administration

method in tests of $HgI_2$.KI soln. against *Eberthella typhi* in the absence of org. matter. In the presence of org. matter the loss in coefficiency by *A* is greater. H. H. R.

**Nomenclature for the pharmacopeia.** J. K. GJALDBAEK. *Arch. pharm. Chem.* **40**, 53–69(1933).—The nomenclature of the Danish pharmacopeia is compared with that of Sweden, Germany and Gt. Britain. The discussion centers on serious ambiguity and international trends. A. R. ROSE

**Specific-gravity tables.** ANON. *Arch. Pharm. Chem.* **40**, 79–83(1933).—Pharmaceutical fluids and solns. are tabulated for sp. gr. at temps. of 8–22°. A. R. ROSE

**Essential oil from leaves of Litsae zeylanica, Linn.** B. SANJIVA RAO. *J Indian Inst. Sci.* **15A**, 71–4(1932).—The oil of the leaves of this evergreen tree consists of α-pinene 3.5, ocimene 60.0, terpene alcs 1.0, bicyclic sesquiterpenes 27.0 and sesquiterpene alcs. 3.0%. Phys. consts. are given. *Dihydroöcimene* (I), $b_{36}$ 70°, and identical with *dihydromyrcene*, was prepd. Its tetrabromide m. 87–8°. *Alloöcimene* was isolated from the fraction b. 112–3°. H. K. SALZBERG

**Essential oil from the flower-heads and stalks of Andropogon, Hack. var. Foveolata, Hack.** B. SANJIVA RAO. *J. Indian Inst. Sci.* **15A**, 75–7(1932).—This Indian grass yielded 0.27% (dry basis) of oil on steam distn., from which bicyclic tertiary sesquiterpene alcs. 40%, *l*-camphene 10% and small amts. of α-pinene and borneol were isolated. An isomeric form of camphene was also found. H. K. SALZBERG

**Essential oil from the leaves of Thymus serpyllum, Linn.** JAGIJT SINGH AND B. SANJIVA RAO. *J. Indian Inst. Sci.* **15A**, 78–83(1932).—This variety of thyme was gathered in the Punjab and Kashmir. Its consts. resemble those of the valuable French oil more closely than the values given for *T. serpyllum* oil obtained elsewhere. It was found to contain phenols (mainly carvacrol) 53, *p*-cymene 17, γ-terpinene 8, borneol and α-terpineol 5 and zingiberene 4%. Thymol could not be identified. H. K. S.

**Essential oil from the leaves of Cinnamomum zeylanicum, Breyn.** V. P. SHINTRE AND B. SANJIVA RAO. *J. Indian Inst. Sci.* **15A**, 84–7(1932).—The leaves of this tree found in Mysore yield 0.25% (dry basis) of an oil contg. *l*-α-pinene and *l*-β-phellandrene 4, α-terpineol 3, eugenol 15, α-caryophyllene 62 and sesquiterpene alcs. 7%. H. K. S.

**Italian lavender oil.** LINA SORRIDENTE. *Riv. ital. essenze, profumi* **14**, 306–9 (1932).—A sample of the oil, obtained with improved distn. plant, had $d_{15}$ 0.8875, $[\alpha]_{20}$ —7° 44′, $n_{20}$ 1.4610, acid no. 0.18, ester no. 117.626, total esters as linalyl acetate 41.17%, soly. in 70° alc. 1:3.5 at 25°. R. SANSONE

**The essential oil from the Italian mastic tree.** PAOLO ROVESTI. *Riv. ital. essenze, profumi* **14**, 357–63(1932).—The leaves yielded with $CCl_4$ 0.512, with $C_6H_6$ 0.560 and with petr. ether 0.488% of concrete essence, which on treatment with warm 97° alc., filtration at —10°, and evapn. of the alc. gave 0.302, 0.274 and 0.252%, resp., of abs. oil, $d_{15}$ 0.9874, 0.9776, 0.9655; $[\alpha]_D^{20}$ 1° 21′, 0° 54′, 2° 08′; $n_D^{20}$ 1.4713, 1.4723, 1.4708; acid nos. 5.60, 3.73, 1.87; ester nos. 76.78, 70.93, 80.27; acetate of $C_{10}H_{18}O$ 26.78, 24.82, 28.09%; sapon. nos. after acetylation 106.40, 97.07, 113.87; free $C_{10}H_{18}O$ 8.40, 7.32, 9.48%; combined 21.04, 19.50, 22.07%; I nos. 53.2, 71.3 48.9. On distn. with steam and reduced pressure the abs. essences yielded 21.2, 18.3 and 20.7%, resp., of ethereal oil. A brown-green oil (23.3%) was obtained from the fruits. At —3° there sepd. 13.2% solid fatty acids, wax and resin. The limpid oil (86.8% of the crude oil obtained with $CCl_4$), green-yellow, had $d_{15}$ 0.9198, $n_D^{20}$ 1.4686, Maumene no. 49, acid no. 16.80, sapon. no. 201.60, I no. 94.3, sapon. no. of fatty acids 188, unsaponifiable 13.3%. Evapn. and condensation of the vapors gave 0.68% of an essential oil of $d_{15}$ 0.8774, $[\alpha]_D^{20}$ 1°18′, $n_D^{20}$ 1.4713, soly. in alc. 90% at 20° 1:2.3. This produces the resinous taste of mastic-tree oil. The vaporized oil was nearly without taste or odor. R. SANSONE

**Dielectric constants of ethereal oils in relation to their constitution and their constituents.** T. G. KOVALEV AND V. V. ILLARIONOV. *J. prakt. Chem.* **135**, 305–26 (1932).—Many data are given regarding the change in the values of ε, d. and $n_D$ of ethereal oils by the action of air and light (I) and of moisture and light (II) over a period of 3 months. In this abstr. only the values of ε are given for the fresh oil and for the oil at the end of the expt. Russian anise oil, 3.692, 9.850 at 15° and 27° (I); 3.808, 4.742 at 16° and 28° (II). Balm oil, 4.689, 8.214 at 15° and 27° (I); 5.183, 4.711 at 16° and 22° (II). Russian peppermint oil, 6.573, 9.183 at 16° and 27° (I); 6.432, 6.807 at 17° and 28° (II). Lavender oil, 5.212, 7.912 at 17° (I); 5.412, 5.364 at 16° and 14° (II). Italian citronella oil, 3.233, 9.326 at 16° and 27° (I); 2.870, 2.689 at 17° and 28° (II). Russian turpentine oil, 2.555, 6.656 at 26° and 10° (I); 2.632, 2.465 at 20° and 16° (II). Italian bergamot oil, 4.083, 4.696 at 17° (I); 4.083, 4.137 at 17° and 13° (II). Cassia oil, very high (above 11). Clove oil, 8.282, 7.949 at 15° and 27° (I); 8.905 and 7.521 at 16° and 28° (II). East Indian sandalwood oil, 5.031, 4.914 at 17° (I); 5.031, 5.364 at 17° and 14° (II). Eucalyptus oil, 4.990, 4.861 at 17° (I);

4.990, 4.884 at 17° and 14° (II). The detn. of this const. will be of value in detg. the purity and freshness of oils. C. J. WEST

The color tests for salicylic acid and its derivatives (ZAGORSKIKH) **7.** Perfumes for use in soaps (JELLINEK) **27.** Shampoo (Brit. pat. 363,653) **18.** Intermediates of the polymethine series (U. S. pat. 1,886,485) **25.** Salts of carbamic acid esters (Fr. 738,260) **10.**

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CHOPRA, R. N.: **Indian Indigenous Drugs.** Calcutta: The Art Press. 655 pp. Rs. 15. Reviewed in *Current Science* **1**, 224; *Indian Med. Gaz.* **68**, 51(1933).

HALE-WHITE, W.: **Materia Medica, Pharmacy, Pharmacology and Therapeutics.** 21st ed., revised by A. H. Douthwaite. London: J. & A. Churchill. 547 pp. 10s. 6d Reviewed in *Ind. Med. Gaz.* **68**, 52(1933).

PIUTTI, ARNOLDO, AND MARFORI, PIO: **Lessico di farmacia. Vol. II. Puntata 7.** Milan: F. Vallardi. 143 pp. L. 15. Cf. *C. A.* **25**, 2245.

ALBRAND, HEINRICH: **Über das Verhalten der Carbodenalkapseln und der Carbodenalkohle in Pepsin-Salzsäure.** Thesis, Berlin, 1931. 17 pp.

BEERMANN, MEINHARD: **Lebertran und Lebertranpräparate.** Ein Beitrag zur biologischen Auswertung des Lebertranes. Thesis, Erlangen, 1930. 40 pp

COHN, HANS: **Über die Frage der Konservierung von Vitasterin in anderen Vehikeln als öl.** Thesis, Greifswald, 1931. 11 pp.

FINGER, MARGARETE: **Über die arzneiliche Verwendbarkeit der Cantharidin.** Thesis, Berlin, 1931. 26 pp.

GENSLER-KOCH, CONSTANTIA: **Die Prüfung der medizinisch verwendeten Teere.** Thesis, Zürich, 1930. 129 pp.

GERBER, WALTER: **In der Zahnheilkunde gebräuchliche Medikamente einschliesslich zahnpflegemittel in ihren Beziehgungen zu allergischen Hautreaktionen.** Thesis, Freiburg i. B., 1931 23 pp.

GERHARD, EMIL: **Die Geschichte einiger Solaneen.** Atropa Belladonna, Mandragora, Capsicum annuum, Physalis alkekengi und Physalis somnifera L. Thesis, Basel, 1930. 251 pp.

GLIESCH, REINH.: **Decoctum Althaeae und Decoctum Seminis Lini zur Frage der maximalen Ausbeute nach den Vorschriften des D. A. B. 6.** Thesis Berlin, 1931. 19 pp.

HEGEMANN, HANS: **Zwei neuere Desinfektionsmittel Ufinol und Pomastin.** Thesis, Bonn, 1930. 35 pp.

JOBST, KÄTE: **Über die medizinische Bedeutung der Birke.** Thesis, Würzburg, 1931. 17 pp.

KLEIN, RICHARD: **Kritische Versuche mit verschiedenen Silberpräparaten als Wurzelfüllungsmaterialien.** Thesis, Münster, 1930. 17 pp.

KOHLI, R. F.: **Die chemische Untersuchungen von Urginia burkeana und Urg. maritima, nebst Beiträge zur mikrochemischen Untersuchungen einiger glykosidhaltiger Herzdrogen.** Thesis, Bern, 1930. 103 pp.

LANDWEHR, JOSEF: **Die Technik fein zerstäubter flüssiger Arzneimittel beim Rinde.** Thesis, Hanover, 1930. 56 pp.

MÄRKI, HANS: **Über die Wertbestimmung des Opiums und einiger anderer Alkaloid-Drogen.** Thesis, Zurich, 1930. 62 pp.

NERUDA, NANDOR: **Der Tolubalsam.** Thesis, Bern, 1930. 64 pp.

POGGENDORF, ADOLF: **Pharmazeutisch-chemische Studien.** Thesis, Breslau, 1931 36 pp.

SCHÜTTE, ELISABETH: **Die chemische Bestandteile einer als Cortex Piscidiae Erythrinae gehandelten Droge.** Thesis, Hanover, 1931. 47 pp.

**Therapeutic agent for treating mucous membranes of the nose, mouth and respiratory tract.** ALLEN L. OMOHUNDRO (to Frederick Stearns & Co.). U. S. 1,890,860, Dec. 13. An emulsion is prepd. contg. oil and water together with a therapeutic substance such as ephedrine or a similar material which has a vaso-constrictive action and is dissolved in one of the constituents of the emulsion.

**Organoarsenic compounds.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,026, Oct. 27, 1930. Complex metallic compds. of 3,4-dihydroxybenzenearsonic acid, water-sol. and therapeutically valuable, are prepd. by treating a soln. of a salt of the arsonic acid with an oxide or hydroxide of Cu, Bi, Sn, Mo, Al, Co, Ni or As, or by adding a soln. of a salt of said metals to the arsonic acid soln. and dissolving the whole by means of an alkali or base. The products are sepd. in the usual manner, *e. g.*, by adding $Et_2O$ or acetone.

**Organomercury compounds.** I. G. FARBENINDUSTRIE A.-G. [illegible]1, Oct. 23, 1930. Organo-Hg compds. are prepd. by treating a xanthine deriv., contg. an unsatd. side chain, with a Hg salt. The products contain the Hg compd. attached to the former double bond and have therapeutic properties. Examples are given of the treatment of 1-allyltheobromine, 7-allyltheophylline, 1-allylmethyltheobromine and 7-allylmethyltheophylline with $Hg(AcO)_2$ and 1-allyltheobromine with $HgCl_2$. The conversion of $Hg(AcO)_2$ compds. into the corresponding $HgCl_2$ compds. by reaction with NaCl is also described.

**Alkali metal salts of 5,5-dialkyl substituted barbituric acids.** HORACE A. SHONLE (to Eli Lilly & Co.). Brit. 364,041, June 22, 1929. See U. S. 1,856.792 (*C. A.* **26,** 3517).

**Bismuth compound for treating neurosyphilis.** PAUL J. HANZLIK (to the Board of Trustees of The Leland Stanford Junior University). U. S. 1,890,508, Dec. 13. For producing a Bi compd. in anionic form suitable for therapeutic use, a halogen salt such as NaI is reacted with a Bi salt such as Bi chloride in soln. to form a salt of bismuthous acid and a substantially insol. residue, the residue is filtered off, and the filtrate is evapd. and the crystd. salt thus formed is purified by washing with ether. EtOAc may be used as a solvent

**Colloidal sulfur preparations.** JACOB MROCHEM and PAUL MOCHALLE. Brit. 364,061, Sept. 30, 1929. See Ger. 543,603 (*C. A.* **26,** 3335).

**Acridine derivatives.** WERNER SCHULEMANN, FRITZ MIETZSCH and AUGUST WINGLER (to Winthrop Chemical Co). U. S. 1,889,704, Nov. 29. Pharmaceutical compds., acridine derivs. contg. the $(N_x—R_1—NR_2R_3)_n$ groups, where $x$ stands for H and alkyl, $R_1$ stands for an alkylene radical which may be substituted by a hydroxy group, and $R_2$ and $R_3$ stand for alkyl groups which may be substituted by an amino group, $n$ stands for 1 and 2 and where all nuclei may be further substituted by substituents of the group consisting of alkyl, alkoxy, phenyl and halogen, may be obtained by the reaction of an amino deriv. of an acridine with an aminoalkyl halide of the general formula $y—R^1—R^2—R^3$ in which $y$ represents a halogen atom, $R^1$ an alkylene radical in which the H atoms may be substituted by a univalent substituent such as OH, and $R^2$ and $R^3$ stand for H or alkyl groups which may be substituted, *e. g.*, by amino groups. Alternatively, the salt of an aminoalkyl halide with an inorg. acid or a substitution product of the aminoalkyl halide such as the bromoethylphthalimide may be used instead of the aminoalkyl halide, with subsequent splitting off of phthalic acid; or amino compds. suitable for use as intermediates for the manuf. of amino derivs. of the acridine may be converted into aminoalkylamino derivs. and the latter then transformed into the corresponding acridine compds. Examples are given of the production of 3,6-bis(diethylaminoethylamino)acridine and some other related compds.

**Urea and thiourea derivatives.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,640, Oct 23, 1930. See Ger. 553,278 (*C. A.* **26,** 4683).

**Pyridine compounds.** I. G. FARBENIND. A.-G. Fr. 737,889, May 31, 1932. Easily sol. products for the radiographic representation of animal organs are obtained by transforming hydroxy- or keto-halopyridines substituted by acid groups into salts with aliphatic amines. Thus, 3,5-diiodo-4-pyridone-*N*-acetic acid is transformed to its $NHEt_2$ salt. Other amines which may be used include 2-keto-3-methyl-4-dimethylaminobutane, 1-ethoxy-2-hydroxy-3-dimethylaminopropane, 1-diethylaminoethoxy-2-hydroxy-3-dimethylaminopropane, Et ester of diethylaminoacetic acid and 1,3-bis-diethylamino-2-hydroxypropane.

**Complex metal compounds of glucosaminic acid.** ARTHUR STOLL and ALBERT HOFMANN (to Chemische Fabrik vorm. Sandoz). U. S. 1,888,186, Nov. 15. See Ger. 564,437 (*C. A.* **27,** 1093). U. S. 1,888,187 relates to complex Sb glucosaminates such as may be prepd. by the interaction of glucosaminic acid with Sb hydroxides or by treating suitable salts of glucosaminic acid with tri- or penta-halo compds. of Sb. The products are stable and sol. in water.

**Contrast agent for radiography.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,346, July 9, 1930. As contrast agent is used a salt of iodomethanesulfonic acid, which may be substituted by aliphatic residues and (or) a further I atom. It is prepd. by reaction of an $\alpha$-haloacetic acid, or an aliphatic substitution product, with a neutral sulfite and treatment of the product with I at high temp.

**$\beta$-Dimethylaminoethyl ester of $p$-butylaminobenzoic acid.** OTTO EISLER (to Winthrop Chemical Co.). U. S. 1,889,645, Nov 29. The ester, consisting of colorless crystals m. 43° and which forms a hydrochloride m. 147–8° and a mononitrate m. 131–2°, is formed from 4-butylaminobenzoic acid and the hydrochloride of $\beta$-dimethylaminoethanol and is suitable for use as an anesthetic for lumbar and sacral anesthesia.

**Vitamins.** PAUL S. VOIGT. Brit. 364,113, Sept. 24, 1930. A and C vitamins for mixt. with winter food for animals are extd. from lemon peel with alc.

**Hydrofluoric acid and fluorides.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,424, Sept. 24, 1930. Anhyd. HF and salts thereof are made by treating the hydrous substances with F to decompose the water, forming HF and O or ozone. Cf. *C. A.* **27**, 812.

**Clay activation and hydrochloric acid manufacture.** CHESTER TIETIG. U. S. 1,890,474, Dec. 13. A mixt of H and Cl is burned in the presence of aq. vapor and of finely divided activatable clay.

**Nitric acid.** EMIL COLLETT. Norw. 49,864, Dec. 14, 1931. N oxides are absorbed in $H_2O$ or dil. $HNO_3$. The residual gases are dried by cooling or by aid of water-absorbing substances and are finally treated with concd. $H_2SO_4$ to absorb the remaining N compds. Cf. *C. A.* **27**, 1100.

**Concentrating phosphoric acid.** CYRIL B. CLARK (to American Cyanamid Co.). U. S. 1,889,949, Dec. 6. Weak acid obtained from the treatment of natural phosphates with $H_2SO_4$ is dehydrated by scrubbing with a heated gas contg. $P_2O_5$ while the impurities are removed from the gas during the scrubbing and the $H_3PO_4$ mist formed as a result of the scrubbing action is condensed by dry condensation to obtain concd. acid.

**Purifying phosphoric acid.** GEORGE F. MOORE (to U. S. Phosphoric Products Corp.). U. S. 1,889,929, Dec. 6. Crude $H_3PO_4$ is treated with an alkali such as $Na_2CO_3$ to form a soln. of di-alkali phosphate; this soln. is sepd. from insol residues and ppts and is treated with pure $CaSO_4$ to ppt. pure di-Ca phosphate; the latter is sepd. from the remaining soln. and treated with $H_2SO_4$ to form $H_3PO_4$, and the $CaSO_4$ simultaneously formed is recycled in the process.

**Sulfuric acid.** INDUSTRIKEMISKA AKTIEBOLAGET. Brit. 363,327, June 11, 1929 Void. See Fr. 697,173 (*C. A.* **25**, 2817).

**Sulfuric acid manufacture by the chamber process.** ERNEST B MILLER (to Silica Gel Corp.). U. S. 1,889,973, Dec. 6. N oxides escaping from the system are adsorbed in a porous material such as silica gel, and the porous material and adsorbed oxides in gaseous form are returned to the system. Various details of app. and operation are described.

**Denitrating waste sulfuric acid.** HARRY PAULING (FIRM OF) Brit 365,949, June 2, 1930. Waste acid comprising $HNO_3$, $H_2SO_4$ and dissolved nitro compds., as obtained in nitrotoluene manuf., is treated with such an amt. of steam, with or without hot gases, that the $HNO_3$ obtained in the condensing stage is of such concn., *e. g.*, 20-30% by wt., that complete sepn. of nitro-compds is attained by cooling. Alternatively the necessary concn. may be attained by dilg the condensed $HNO_3$. App. is described.

**Ammonia.** RENATO ZANIBONI. Fr. 737,796, May 30, 1932. An app. is described for converting $NH_4OH$ to pure anhyd. $NH_3$, by distg. the $NH_4OH$, absorbing it in a substance such as $NH_4CN$, and reheating to liberate the $NH_3$ which is condensed

**Ammonia from cyanamide.** PHILIP H. FALLER (to American Cyanamid Co U. S. 1,889,956, Dec 6. Cyanamide is treated with steam in a closed vessel to effect reaction, and when a temp. of about 160° is reached, the steam is cut off and only sufficient $NH_3$ is withdrawn from the chamber to enable the exothermic reaction to continue the temp is maintained at 160° or higher until the reaction is complete, and substantially all the $NH_3$ is removed while the charge is at a temp of 160° or higher.

**Nitrogen-hydrogen mixtures for ammonia synthesis.** RALPH S. RICHARDSON U. S. 1,889,934, Dec. 6. In purifying mixts. for $NH_3$ synthesis, the gas mixt. is washed with liquid N under pressure, the O in the washed gases is converted into $H_2O$ vapor with the aid of a catalyst such as Ni or Cu, and substantially the same pressure is maintained on the gases during the washing and catalytic-conversion steps; water vapor is removed from the gases, and they are then passed to an $NH_3$-synthesis app operating under a pressure greater than that of the washing step.

**Alkali salts.** SOC. D'ÉTUDES POUR LA FABRICATION ET L'EMPLOI DES ENGRAIS CHIMIQUES (Louis Hackspill, Antoine Rollet and Louis Andres, inventors). Fr 738,425, Oct. 3, 1931. An alkali salt is made by introducing an alkali chloride and the corresponding $NH_4$ salt into the mother liquors from a preceding operation, in the presence of an excess of free $NH_3$ so as to ppt. the alkali salt. The excess of $NH_3$ is removed from the liquor to ppt. $NH_4Cl$ corresponding to the amt. formed.

**Alkali chromates.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,423, Sept. 24, 1930 See Ger. 544,618 (*C. A.* **26**, 3629).

**Alkali nitrates.** NORSK HYDRO-ELEKTRISK KVAELSTOF-AKTIESELSKAB (Henry Johnsen, inventor). Fr. 738,253, June 7, 1932. $Ca(NO_3)_2$ is passed through one or more towers filled with base-exchange substances, *e. g.*, an alkali permutite to form Ca permutite. The permutite is regenerated by passing alkali chloride soln.

**Alkali nitrates.** NORSK HYDRO-ELEKTRISK KVAELSTOF-AKTIESELSKAB (Henry Johnsen, inventor). Fr. 738,304, June 8, 1932. Alkali nitrates and $CaCl_2$ are made by absorbing nitrous gases in a soln. of alkali carbonate, transforming the soln. thus formed with $(NH_4)_2CO_3$ into alkali carbonate and $NH_4NO_3$ by means of zeolite, decomposing the

soln. of $NH_4NO_3$ with CaO or $CaCO_3$, and transforming the soln. of $Ca(NO_3)_2$ with alkali chloride by means of zeolite to form alkali nitrate and $CaCl_2$.

**Alkali thiosulfates.** Société des usines chimiques Rhône-Poulenc. Brit. 365,999, Sept. 26, 1930. See U. S. 1,854,762 (*C. A.* **26**, 3339).

**Higher oxides of alkali metals.** George F. Jaubert. Fr. 738,418, Oct. 2, 1931. A mixt. of $Na_2O_2$ and $K_2O_4$ in light heterogeneous pieces for revivifying air by filtration is obtained by fractionated oxidation of a mixt. of Na and K obtained by the action of Na or KOH, KCl, etc. The $Na_2O_2$ prevents the $K_2O_4$ from becoming deliquescent.

**Metal chlorides and double chlorides thereof with sulfur.** Intermetal Corp. Brit. 363,622, Aug. 18, 1930. Metallic oxy compds. are chlorinated by a gaseous mixt. of Cl and $SCl_2$ contg. enough $SCl_2$ to reduce the oxy compd. and enough Cl to chlorinate it; alternatively there may be enough $SCl_2$ present to form a double chloride with the metal chloride. A mixt. of Ta and Ni oxides may be thus treated to remove the Ta by chlorination and volatilization. Other examples are cited.

**Phosphates.** Conway Baron von Girsewald, Hans Weidmann and Gerhard Roesner (to American Lurgi Corp.). U. S. 1,890,204, Dec. 6. A high-Si P-metal compd. such as ferro-P is treated (suitably by heating with $Fe_2O_3$) to remove Si until not more than 5% Si remains, and the material is then decompd. at elevated temp. with a salt contg. the metal of the desired phosphate, such as $Na_2SO_4$, and coal.

**Phosphates.** Norsk Hydro-Elektrisk Kvaelstof-Aktieselskab (Antonius Foss, Olaf Jensen and Odd H. Lunde, inventors). Fr. 738,210, June 6, 1932. Crude phosphates are treated with $HNO_3$, and $NH_4NO_3$ is added to the soln. obtained to ppt. a double nitrate of Ca and $NH_4$. $Fe(PO_4)_3H_6NH_3$ is also pptd. $NH_3$ is added to the remaining soln. to ppt. $CaHPO_4$ and $FePO_4$. $(NH_4)_2HPO_4$ and $NH_4NO_3$ are obtained from the filtrate. The double nitrate is dissolved by treatment with hot $HNO_3$ and so sepd. from the Fe.

**Dithiophosphates.** George Barsky and Ralph V. Heuser (to American Cyanamid Co.). U. S. 1,889,943, Dec. 6. In forming dithiophosphates such as aniline diisopropyldithiophosphate, an aliphatic monohydroxy alc. such as iso-Pr alc. or a phenol is reacted with $P_2S_5$ in the presence of an org. compds. such as toluene serving as a solvent for the starting material and for the dithiophosphate formed, and the latter is recovered (suitably by pptn. after adding aniline to complete the reactions).

**Sulfates such as aluminum sulfate.** Svend S. Svendsen (to Clay Reduction Co.). U. S. 1,889,710, Nov. 29. For sulfating the metallic oxide of a siliceous material such as clay contg. such oxide, the material is treated with $NH_4F$, Si diamminotetrafluoride is volatilized together with any water present, and the residue is heated with a reactive sulfate such as $H_2SO_4$ in a quantity not greater than required to sulfate completely the metallic oxide.

**Alumina.** Lonza Elektrizitatswerke und chemische Fabriken A.-G. Brit. 363,612, Aug. 18, 1931. See Swiss 150,910 (*C. A.* **26**, 4920).

**Alumina; alkali phosphates.** Chemische Werke vorm H. & E. Albert. Brit. 363,909, Mar. 22, 1930; Can. 322,066, May 3, 1932. See Ger. 516,460 (*C. A.* **26**, 3341).

**Barium hydroxide and polysulfides.** I. G. Farbenindustrie A.-G. Brit. 365,198, Oct. 21, 1929. The partial oxidation of Ba sulfide liquors with production of $Ba(OH)_2$ and Ba polysulfides is effected by air or other O-contg. gas at temps. exceeding 50°, *e. g.*, 90–95°. The hydroxide seps. out on cooling, and the mother liquors may be returned to the process, *e. g.*, they may be used to dissolve crude BaS and oxidation may be then effected at 60°.

**Barium hydroxide and polysulfides.** I. G. Farbenindustrie A.-G. Brit. 365,651, Oct. 25, 1930. Addn. to 365,198 (preceding abstr.). In a modification of the process of 365,198 a soln. of BaS is subjected to oxidation by air or gases rich in O in the presence of polysulfides or dissolved S at temps. not exceeding 50°. Increased pressure may be used. In examples $BaS_3$ or the filtrate from a prior operation is added to the soln. prior to oxidation with air or O.

**Barium oxide; calcium oxide.** Erik L. Rinman. Brit. 363,299, July 25, 1931. In the production of BaO from $BaCO_3$, fusion is prevented by admixing at least an equiv. quantity of $CaCO_3$ and preferably so much that the ratio of BaO to CaO is 1:1 by wt. and calcining the mixt. with a slow increase of temp. to 1400°.

**Molding and cooling calcium carbide.** George E. Cox (to American Cyanamid Co.). U. S. 1,889,951, Dec. 6. The molten carbide is poured into a receptacle to give a sufficient depth of carbide relative to cross section in the receptacle as to expose only a relatively small area to the air, and is allowed to solidify. App. is described.

**Double salts of calcium nitrate.** Emil Lüscher (to Lonza Elektrizitatswerke und chemische Fabriken A.-G.). U. S. 1,889,863, Dec. 6. The double salt $5Ca(NO_3)_2 \cdot NH_4NO_3 \cdot 10H_2O$ is obtained by adding 1.5–2.5 mols. of $NH_4NO_3$ per 5 mols. of $Ca(NO_3)_2$,

to a hot soln. of 70–82% $Ca(NO_3)_2$, permitting crystn. by slow cooling and sepg. the double salt from the still hot mother liquor. Similar double salts also may be prepd. contg. Ca nitrate together with nitrates such as $KNO_3$.

**Lime.** AKT.-GES. FÜR STICKSTOFFDÜNGER. Brit. 363,526, Jan. 19, 1931. See Fr. 709,565 (*C. A.* **26**, 1400).

**Magnesium carbonate.** ERNEST DUBOIS. Fr. 738,202, June 6, 1932. Dolomite or magnesite is calcined to MgO and $CO_2$ at a temp. below that necessary to decompose $CaCO_3$. An inert atm. other than $CO_2$ is used so as to lower the dissocn. temp. of the $MgCO_3$. The MgO is transformed to $Mg(HCO_3)_2$ by the action of $CO_2$ in aq. soln., and the $Mg(HCO_3)_2$ is heated to ppt. the hydrocarbonate with recovery of $CO_2$. An app. is described.

**Magnesium chloride.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,685, June 20, 1929. Void. Hydrated $MgCl_2$ is dehydrated by introducing it in the absence of Cl into an anhyd. saline melt contg. chlorides, *e. g.*, NaCl and KCl, the amt. added being such that the proportion of $MgCl_2$ is always less than in carnallite.

**Potassium carbonate.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,971, Aug. 20, 1930. See Fr. 721,227 (*C. A.* **26**, 4140).

**Silver, copper, lead and zinc sulfates and chlorides.** PAUL GAMICHON. Brit. 365,964, June 17, 1930. See Fr. 712,528–41–54 (*C. A.* **26**, 1566).

**Double compounds comprising trisodium phosphate.** FREDERIC C BOWMAN (to A. R. Maas Chemical Co.). U. S. 1,890,453, Dec. 13. A cryst. product comprises $Na_3PO_4$ together with salts of "monobasic" acids such as $NaNO_3$ and NaOH and $H_2O$ of crystn., and may be prepd. by crystn. from a composite aq. soln.

**Borax recovery from ores.** JOHN R. HUGHES (to Victor C. Emden). U. S. 1,889,989, Dec. 6. A comminuted mass of ore contg. Na borate and shale is calcined, this dehydrating and softening the Na borate and producing a more friable borax, and hardening and making less friable the shale; the material is subjected to soft grinding, this process reducing the borax in size and shape without like reduction of the shale, and the borax and shale are sepd. by screening. App. is described.

**Treating dolomite, etc.** DOLOMITE, INC. Brit. 363,871, Jan. 28, 1931. See U. S. 1,816,996 (*C. A.* **25**, 5522).

**Articles from basalt.** HAROLD L. WATSON (to The British Thomson-Houston Co., Ltd.). Brit. 363,291, June 16, 1930. Basalt is fused in a controlled reducing or oxidizing atm., cast into articles of desired shape, and then completely devitrified by a heat treatment fixed by the atm. used in the fusion.

**Supersaturated solutions of salts.** KARL HINTZMANN (to I. G. Farbenind. A. G.). U. S. 1,889,960, Dec. 6. Urea or a water-sol. urea deriv. such as thiourea is used as a solubilizing agent in prepg. aq. supersatd. solns. of salts such as $MgSO_4$ or the Na salt of butylnaphthalene sulfonic acid or the like.

**Hydrogen iodide.** PAUL E. WESTON (to Roessler & Hasslacher Chemical Co.). U. S. 1,890,874, Dec. 13. Reaction is effected between I and H at 150–200° and under pressures over 200 lb. per sq. in. in the presence of water and of chromic chloride which serves as a catalyst.

**Sulfur dioxide.** BOLGAR OIL PROCESSES, LTD., PHILIP A. MACKAY and WM. R ORMANDY. Brit. 364,103, July 16, 1930. $SO_2$ is recovered from mineral oils, tars, etc., that have been treated with $H_2SO_4$ by heating a mixt. of these with a heavy residual oil and passing the evolved gases which are given off in irregular manner to an equalizing device consisting of a storage vessel in which they are subjected to such pressure and held in such quantity that they can be drawn off regularly as required for the manuf. of $H_2SO_4$. App. is described.

**Barium.** ALLGEMEINE ELEKTRICITÄTS-GES. (to International General Electric Co., Inc.). Brit. 367,792, Aug. 20, 1929. Commercially pure Ba to be introduced into *elec. discharge tubes* is fused or heated to just below the m. p. for a considerable time in a current of rare gas and is then rapidly cooled to below 400° to distribute the remaining impurities evenly and thus avoid the usual rapid attack by air due to their distribution in layers.

**Active carbon.** AKTIENGESELLSCHAFT FÜR STICKSTOFFDÜNGER. Brit. 365,085, Nov. 6, 1930. C contained in the light ashes formed and carried into the flue during the combustion of brown coal (lignite), ordinary coal, wood or peat is activated by heating with alkali, etc., carbonates at 1000–1050° in the presence, if desired, of air, water vapor, O or inert gases. Alternatively the activation is effected by heating to 1000–1050° without the addn. of carbonates. After activation the product is worked up in known way.

**Carbon; hydrogen.** NATHAN GRÜNSTEIN. Brit. 363,735, Oct. 3, 1929. See Fr. 704,601 (*C. A.* **25**, 4671).

**Lampblack from liquid hydrocarbon material.** JACQUE C. MORRELL and VALENTINE A. MEKLER (to Universal Oil Products Co.). U. S. 1,890,188, Dec. 6. Incomplete

combustion of liquid hydrocarbon material is effected, while it is continuously flowing by gravity in a thin film (in a described app.).

**Hydrogen.** GESELLSCHAFT FÜR KOHLENTECHNIK. Brit. 365,111, July 16, 1929. Void. A mixt. of $CO_2$ and H is produced in the production of a non-poisonous town gas by passing the original gas with water vapor at high temp. over a catalyst, such as calcined dolomite, which absorbs the $CO_2$ as it is formed. Org. S compds. are also partly removed by conversion into $H_2S$ which is partly absorbed by the dolomite.

**Hydrogen.** GESELLSCHAFT FÜR KOHLENTECHNIK. Brit. 365,582, July 20, 1929. Void. Addn. to 365,111 (preceding abstr.). The process of 365,111 is operated so that during the whole or a portion thereof the temp. is such that there is a definite predetd. vapor pressure of $CO_2$ above the absorbing material. The process may be carried out in 2 stages in the first of which $CO_2$ is completely, in the second incompletely, absorbed.

**Hydrogen.** HARUTYUN G. TERZIAN (to Humphreys & Glasgow, Ltd.). Brit. 365,912, Apr. 30, 1930. In producing gases rich in H by cracking hydrocarbon gases in an ignited fuel bed, the temp. of the bed is about 1200°, so that the decompn. of $CH_4$ is a surface effect. The temp. is regulated by steaming the bed, some blue water gas being formed, and mixing with the "broken-down gas" to give a reformed gas contg. up to 90% H. Cf. *C. A.* **26**, 4141.

**Hydrogen from steam and gaseous hydrocarbons.** JOHN S. BEEKLEY (to E. I. duPont de Nemours & Co.). U. S. 1,889,530, Nov. 29. Interaction of steam and hydrocarbons such as $CH_4$ is effected in a succession of sep. catalytic reaction stages, and the space velocity in each stage is substantially proportional to the reaction rate in that stage. Cf. *C. A.* **26**, 4424-5.

**Hydrogen from steam and carbon monoxide.** ALFRED T. LARSON (to E. I. du Pont de Nemours & Co.). U. S. 1,889,672, Nov. 29. A catalyst contg. Cu and an oxide of one of the elements W, Mo, Ce, V, Mn or Mg is used at an appropriately elevated temp.

**Liberating nascent hydrogen in aqueous media.** OLIVER M. URBAIN (to Charles H. Lewis). U. S. 1,889,714, Nov. 29. An aq. medium such as a dye soln. or soln. used in a metallurgical process is conjointly treated with a positively charged colloid such as hydrous Al oxide and an electrolyte in the form of an alkali metal salt such as $Na_2SO_4$ which releases anions for adsorption by the colloids and cations for reaction with the water of the soln.

**Phosphorus.** VICTOR CHEMICAL WORKS. Fr. 738,265, June 7, 1932. Briquets contg. phosphate ores and a carbonaceous material in amt. below that necessary to reduce the P compds. are heated in a furnace. The amt. of reducing material is preferably 25–75% of that theoretically necessary and may contain volatile hydrocarbon constituents. A siliceous material may also be added.

**Sulfur and ammonium sulfate from gases containing hydrogen sulfide.** HANS BAUER (to I. G. Farbenind. A.-G.). U. S. 1,889,942, Dec. 6 See Ger 545,627 (*C. A.* 26, 3630).

**Sulfur.** GEWERKSCHAFT MATHIAS STINNES Brit. 366,052, Sept. 2, 1929. Void. See Fr. 699,839 (*C. A.* **25**, 3447).

**Sulfur.** IMPERIAL CHEMICAL INDUSTRIES, LTD Fr. 737,664, May 26, 1932. S is obtained free from As by digesting it with a soln. of $NH_3$, $(NH_4)_2S$ or $(NH_4)_2CO_3$, preferably under pressure at 120–130°. An app. is described in which the S passes in countercurrent to the soln.

**Catalysts.** I. G. FARBENIND. A.-G. Fr. 738,349, June 9, 1932. Durable and very active catalysts for hydrogenation, dehydrogenation, reduction, splitting, etc., are made by treating catalytic substances, before their use, during more than 5 hrs., preferably 10 hrs or more, at a slowly increasing temp. or modified by degrees, by H and by vapors or gases of C compds. C compds. include cyclohexene, cyclohexane, *m*-cresol, $C_6H_6$, gasoline, CO, $CH_4$ and its homologs, thiophene, $PhNH_2$, pyridine and aminophenols.

**Catalyst.** G. SIEBERT G. M. B. H. Fr. 738,479, June 10, 1932. Re or alloys thereof with Pt, Ir, Rh, Ag or other metal is used as a catalyst, *e. g.*, in the oxidation of $NH_3$. Cf *C. A.* **26**, 506.

**Catalytic agents.** HOWARDS & SONS, LTD , JOHN W. BLAGDEN and GEO. C. H. CLARK. Brit. 363,776, Nov. 6, 1930. Dehydrogenation catalysts consisting of known mixts. of metallic oxides are prepd. by soaking a suitable carrier, *e. g.*, pumice, in a soln. of a mixt. of salts, *e. g.*, Cu and Mg nitrates, that are decomposed below 500° and then heating to the decompn. temp. to drive off acid radicals and leave the oxides.

**Catalytic agents.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,214, Oct. 24, 1930. Hydrogenation catalysts for the production of amines by treatment of carbonyl compds. with $NH_3$ or amines in the presence of H comprise finely divided metals of the 8th periodic group activated by the addn. of metallic oxides, or compds. furnishing oxides, *e. g.*, CoO, $ZnCO_3$, $(NH_4)_2CrO_4$, or substances with a weakly acid reaction, *e. g.*, $SiO_2$, or alk. reaction, *e. g.*, CaO, $AlPO_4$. Among examples $NiCO_3$ is soaked with chromic acid

soln. and reduced with H; Ni and Co hydrates are pptd. from a soln. of Ni and Co nitrates contg. kieselguhr and then reduced.

**Catalytic apparatus for the decomposition of ammonia into its elements.** Du Pont Ammonia Corp. Brit 363,300, Aug. 1, 1930.

**Condensation products from formaldehyde, urea and thiourea.** Alphonse Gams, Gustave Widmer and Karl Frey (to Soc. pour l'ind. chim. à Bâle). U. S. 1,890,033, Dec. 6. Clear condensation products are obtained by condensing $CH_2O$ with a quantity of urea not greater than 1 mol. proportion of urea per each 2 mols. of $CH_2O$, at a temp. of about 100°, up to a stage at which a sample of the reaction mixt. yields a ppt. on dilu. with water, then neutralizing (suitably with dil. NaOH) and adding thiourea in such proportion that the total quantity of urea and thiourea present in the mixt. is not less than 1 mol. proportion per each 1.6 mol. proportions of $CH_2O$, and allowing the resulting soln., before being further worked up, to stand until at least the greater part of the free aldehyde has been bound. Cf. *C. A.* **26**, 815.

**Urea- and thiourea-aldehyde condensation products.** Pfenning-Schumacher-Werke G. m. b. H. Brit 364,069, June 21, 1929. Void Thiocyanates of metals are added to molding compns. comprising urea-aldehyde condensation products whereby polymerization in the hot-press is promoted and the moldings improved.

**Urea- and thiourea-thiocyanate-aldehyde condensation products.** Pfenning-Schumacher-Werke G. m. b. H. Brit. 364,068, June 21, 1929. Void Artificial masses for molding are made by incorporating a condensation product of a metallic thiocyanate and $CH_2O$ with a urea-aldehyde condensation product. Among examples urea, $Al(CNS)_3$ and $CH_2O$ are heated together and alkali added, a mucilaginous ppt being formed; and thiourea, $Ca(SCN)_2$ and $CH_2O$ are heated together, the soln. evapd. and a yellow resin pptd. by the addn. of acid salts.

**Phenol-aldehyde condensation products.** John J. Kissler (to Apple Electrical Mfg. Co.). U. S. 1,889,751, Dec. 6. A molding compn. is formed by incorporating an inert filler such as wood flour or asbestos with a potentially reactive resinous binder prepd. by partial reaction between an aldehyde and a mixt. of monohydric phenols and polyhydric phenols.

**Molded objects.** Soc. pour l'Ind. chim. à Bâle. Fr. 737,654, May 26, 1932. Condensation products from carbamides and aldehydes are converted by heat and pressure to sheets incompletely hardened, which are afterwards combined among themselves or with other substances to form molded products, using higher temps. and pressure, so that they are completely hardened.

**Plastic compositions.** Elektrochemische Werke Munchen A. G. Brit 363,682, April 26, 1929. Void In producing plastic compns. the plasticizing agents are added in the form of aq. dispersions.

**Plastic composition suitable for buttons, etc.** Victor Scholz (one half to Atla Ago Chemische Fabrik A.-G.). U. S. 1,889,702, Nov. 29. A mixt. contg. a binder free of solvents and a swelling of nitrocellulose in a volatile solvent such as EtOAc, is stirred until the mixt. assumes a homogeneous viscous liquid state. It may be molded under pressure.

**Plastic products.** Joseph C. Patrick. U. S. 1,890,191, Dec. 6. Products, which are of different rubberlike characters, are formed by reaction between an alk. polysulfide such as $Na_2S_4$ or $CaS_4$ and olefinic compds. such as $C_2H_2Cl_2$ or mixed Cl derivs. of olefins in cracked petroleum gases. Cf. *C. A.* **26**, 3344.

**Filling shoe bottoms with plastic material.** Andrew Thoma (to North American Chemical Co.). U. S. 1,890,473, Dec. 13. A plastic filler material is introduced into a shoe bottom cavity substantially simultaneously with a sep. chemical stiffener such as an acid coagulant for an alk. dispersion. Cf. *C. A.* **27**, 820.

**Plasticizer.** C. F. Boehringer & Soehne G. m. b. H. Brit. 364,807, June 24, 1930. A plasticizer used in the production of plastic masses, films, lacquers, etc., from cellulose esters or ethers is an ether of glycerol, etherified by one or more mols. of glycerol or a glycol, and esterified in at least one OH group by a monocarboxylic acid or acids excluding those contg. more than one type of reactive group, *e. g.*, salicylic or benzoyl benzoic acid. Examples are diglycerol tetraacetate, triglycerol triacetate.

**Porous masses and objects.** Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler. Brit. 363,058, Oct. 28, 1930. Porous masses are produced by incorporating substances contg. active O, *e. g.*, $H_2O_2$, alkali peroxides, etc., in substances capable of binding, *e. g.*, cement, calcined gypsum, etc., and controlling the development of the O during the binding process by substances effecting or promoting the generation of gas, *e. g.*, $MnO_2$, org. catalases, etc. Substances stabilizing the gas bubbles, *e. g.*, soap solns., saponin, etc., may be added.

**Porous masses and objects.** Deutsche Gold- und Silber-Scheideanstalt vormals Roessler. Brit. 363,192, Jan. 27, 1931. Addn. to 363,058 (cf. preceding

abstr.) Porous masses are made by adding to non-setting substances, *e. g.*, kaolin, ır, etc., water and compds. contg. active O, and generating O, *e. g.*, by decom- ıtalysts, while influencing the size, no. and distribution of the gas bubbles, prefer- ably by the presence of substances such as soaps, saponin, glue, etc.; whereupon the masses formed are solidified, *e. g.*, by drying and burning. The products are used for the absorption of liquids, *e. g.*, acids, low-boiling poisonous substances such as HCN and ethylene oxide for destroying vermin, and for heat insulators, catalyst carriers, filters, diaphragms, etc.

**Adhesives.** ALCHANAN COHEN Brit. 363,710, Sept. 19, 1930. A thin paper is coated on both sides with material with adhesive properties developing on heating or moistening. Thus it may be coated with a soln. of shellac in MeOH, dried and again coated with an aq. soln. of glue contg glacial AcOH and Cr alum.

**Adhesives.** CLAUDE ROY. Brit. 364,968, April 18, 1930. Casein glues are made by adding to powd casein a "pos." alk product, *i. e.*, one having a strong solvent action on casein, *e. g.*, CaO, alk. chlorates, carbonates and fluorides, and a "neg." alk product, *i. e.*, one which does not disturb the soln. of casein in the "pos." product and moreover neutralizes the discoloring action of the latter by preventing pptn of tannin, etc., in glued wood, *e. g.*, alk borates, fluosilicates and alum. A drying agent, *e. g.*, anhydr. titanic acid, which also acts as a "neg." product may be added. For an example cf. Fr. 709,478 (*C. A.* **26**, 1405).

**Adhesives, coating and binding agents.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,348, Aug. 7, 1930. Viscous to solid products are produced by warming butadiene under pressure in the presence of a substantial quantity of O but in the absence of water and of hydrazine derivs. An org. solvent capable of dissolving the polymerization product may be added, *e. g.*, $C_6H_6$, benzine, cyclohexane.

**Adhesive films.** WILLY STEIKENS (to Worbla A. G.). Brit. 364,765, Dec. 3, 1929. Adhesives in the form of dry films having a basis of cellulose derivs. are provided with transverse paths through the thickness thereof for the solvents and swelling agents used in softening them. Among examples is a film of nitrocellulose contg. Zn white which is subsequently dissolved out by dil. AcOH.

**Composition backing for brushes.** ARTHUR F. LINDEWALL. U. S. 1,889,675, Nov. 29. A back of powd. pumice bound with Na silicate is provided with a cavity in which a non-expansible brush back is secured which carries the brush bristles.

**Rendering casein insoluble.** FERNAND F. SCHWARTZ. Fr. 737,578, Sept. 19, 1931. A metal complex is incorporated with a soln. of casein in aq. $NH_3$. On removal of the volatile substances a metallic phospho-proteinate is obtained which is completely insol. in water. The process is used in making *glues, waterproof coatings, paints, varnishes*, etc. The metal complex is prepd. by treating a metal salt, *e. g.*, $Ni_2(SO_4)_3$, with NaOH, to ppt. the hydroxide which is washed and redissolved in aq. $NH_3$. This soln. is added to the soln. of casein.

**Artificial horn.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 738,156, June 4, 1932. A mixt. of casein with less than half its wt. of a resol or like condensation product, *e. g.*, a condensation product of diphenylolpropane and $CH_2O$ is molded to make artificial horn.

**Wetting, etc., agents.** I. G. FARBENINDUSTRIE A. G. Brit. 364,104, July 28, 1930. Wetting, cleansing, dispersing and emulsifying agents are prepd. by condensing ethers obtained from alkylol amines and of the formula, $NR'R''R'''$ (where R' represents the group Alkyl—O—Alkyl—OH, in which case R'' and R''' represent H, alkyl, cycloalkyl, aryl, alkylol or Alkyl—N—(Alkyl—OH)$_2$, or either R'' or R''' represent Alkyl—O—Alkyl—OH, or both R'' and R''' belong to the same heterocyclic ring formed by the N atom, or R' and R'' represent Alkyl—O—Alkyl—, in which case R''' is H, alkylol or —Alkyl—O—Alkyl—OH, or R' represents —Alkyl—O—Alkyl—NR''—R''' (R'' and R''' in this case being H) with carboxylic acids contg. at least 8 C atoms, or with their anhydrides, halides or esters. The acids may also contain sulfonic or sulfuric ester groups. The products are esters or amides or mixts. Among examples olive oil is heated with tetrahydroxyethylethylenediamine monohydroxyethyl ether.

**Wetting, etc., agents.** I. G. FARBENINDUSTRIE A. G. Brit. 364,107, Aug. 26, 1930. Sulfonated products which are wetting, cleansing and emulsifying agents are prepd. by sulfonating an ester of a higher aliphatic or cycloaliphatic carboxylic acid contg. at least 7 C atoms in the mol. and having at least one free OH group in the alc. residue, or mixts. of such esters. Among examples glycolmonoricinoleic ester is sulfonated with $H_2SO_4$ and naphthalene is sulfonated and condensed with glycerolmonolauric ester.

**Wetting, etc., agents.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,537, Sept. 22, 1930. Alkylated aromatic hydrocarbons and their derivs. are made by condensing aro-

matic hydrocarbons or their derivs., *e. g.*, halogen, hydroxy or amino compds. or sulfonic acids thereof, with aliphatic alcs. or mixts. thereof or their esters, and sulfonating if necessary. Solvents may be advantageously used with higher alcs. The hydrocarbon may be first sulfonated and then alkylated, or the alkylated hydrocarbon may be sulfonated, or the alkylation and sulfonation may be carried out simultaneously. Catalysts may be used, *e. g.*, $PCl_3$, AcCl, etc., with or without $P_2O_5$. The products are more efficient wetting agents than the corresponding mono- and dialkylated products. Among examples naphthalene-β-sulfonic acid is treated with isopropyl alc. and concd. $H_2SO_4$ to form multipropylated-β-naphthalene sulfonic acid.

**Wetting, etc., agents.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,669, Oct. 6, 1930. *Assistants for the textile, leather, paper,* etc., *industries* are obtained by sulfonating olefins, free from carboxy groups, produced by splitting off $H_2O$ and (or) $CO_2$ from the products of the destructive oxidation of difficultly volatile liquid or solid non-aromatic hydrocarbons, contg. at least 8 C atoms, with energetic sulfonating agents, *e. g.*, oleum, chlorosulfonic acid, liquid $SO_3$, at above 100° or in the presence of dehydrating agents, whereby true sulfonic acids are formed. The products are wetting, cleansing, dispersing and emulsifying agents. Among examples chlorosulfonic acid is used to sulfonate olefins prepd. by the distn. of the oxidized products, insol. in petroleum ether, of a hard paraffin wax.

**Wetting, etc., agents.** CHEMISCHE FABRIK VORM. SANDOZ. Brit. 364,844, Jan. 15, 1930. The wetting properties of alkali solns. used for the treatment of natural and artificial cellulosic fibers are increased by adding a mixt. of phenols with *N*-contg. org. bases. In examples com cresols mixed with $PhNH_2$, triethanolamine, phenyltrimethyl ammoniummethyl sulfate and pyridine are used.

**Wetting, etc., agents.** CHEMISCHE FABRIK VORM. SANDOZ. Brit. 365,323, Jan. 16, 1930. The wetting properties of alkali solns. of mercerizing strength are improved by adding a mixt. of phenols with ketones not contg. OH groups. In examples mixts. of com. tar cresols with camphor and with acetone oil are added to NaOH lyes.

**Wetting, dispersing, cleansing, etc., agents.** I. G. FARBENIND. A.-G. Fr. 738,057, June 2, 1932. Wetting, etc., agents are made by introducing halogen into aliphatic esters or amides of high mol. wt. which contain sulfonic groups, or by prepg. such compds. from substances contg. at least one halogen atom.

**Detergent; shampoo; sheep dip.** EUGENE V. HAYES-GRATZE. Brit. 363,657, Sept. 12, 1930. A detergent, shampoo or sheep dip is made by submitting a neutralized sulfonated oil, prepd. from olive, castor, etc., oils, to ionization treatment, *e. g.*, electrolysis or high-tension or high-frequency discharge, whereby the $p_H$ of the oil is increased to 7.5 or 8, and then dilg. with 5–20 vols. of $H_2O$.

**Solid stable composition for bleaching.** RICHARD FREIBELMANN (to Chemische Fabrik von Heyden, A.-G.). U. S. 1,890,603, Dec. 13. A dry mixt. of a dichloride of an aromatic sulfonamide such as *p*-toluenesulfodichloramide and a water-sol. salt of alk. reaction such as $Na_2CO_3$ is suitable for treatment with water to obtain a bleaching soln. contg. hypochlorite.

**Emulsifying agents.** IMPERIAL CHEMICAL INDUSTRIES, LTD., and RICHARD P. MCGLYNN. Brit. 365,299, Jan. 5, 1931. Sulfonated fatty-aromatic compds. suitable as emulsifying agents, *e. g.*, for fats and oils or mineral oils, are prepd. by treating a mixt. of a hydroxy fatty oil and a phenol or naphthol first with strong $H_2SO_4$ and then with oleum. In examples mixts. of castor oil with PhOH, β-naphthol and com. cresylic acid are thus sulfonated.

**Colloidal dispersions.** ELEKTROCHEMISCHE WERKE MÜNCHEN A.-G. Brit. 363,681, Apr. 14, 1930. Void. Colloidal dispersions of solid or liquid substances are prepd. with the use, as the dispersion medium, of a dispersion of a solvent for the substance to be dispersed. Thus rubber is dissolved in $C_6H_6$, and the soln. is dispersed in an aq. soln. of $C_6H_6$, preferably contg. an oleate or other emulsifying agent.

**Coating compositions.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,676, June 18, 1929. Void. Lined and coated foils for cigaret tips consist of a base of tissue paper having a coating contg. a pigment, whose binding agent consists chiefly of a condensation product of polyvinyl acetate.

**Water-soluble composition for cleaning aluminum.** HARRY V. CHURCHILL (to Aluminum Co. of Am.). U. S. 1,890,214, Dec. 6. Tartaric acid or a similar acid is used with an admixt. of about 1% of an alkali metal fluoride.

**Composition for use in glazing, calking and pointing.** THOMAS C. PARR. U. S. 1,889,842, Dec. 6. A pigment such as whiting and asbestine about 30, asbestos fiber about 5 and Al 9 are mixed with an oil such as linseed or soy-bean oil about 30%, the balance of the compn. being a volatile diluent vehicle such as "mineral spirits." Varnish, etc., may also be used.

**Friction materials.** H. WHITWORTH (to Colt's Patent Fire Arms Mfg. Co.). Brit. 380,310, Dec. 19, 1930. Method of making friction material for brake linings is described.

**Treatment of marine algae.** COMPAGNIE FRANÇAISE DE L'IODE ET DE L'ALGINE. Brit. 363,353, Sept. 6, 1929. See Fr. 696,778 (*C. A.* **25**, 2824).

**Fibrous sheet material including leather and other fibrous admixture.** GEORGE F. DAVIS. U. S. 1,889,643, Nov. 29. Cellulose fiber is beaten in water until well hydrated; the resulting fiber in aq. suspension is sized and then mixed with previously tanned leather fiber while substantially all of the water-sol. constituents of the latter (including tanning agent) are kept with it. The product may be formed into felted sheets for shoe counterboards, etc.

**Board-like material from mineral wool.** ISIDOR KITSEE (to Mineralite Corp.). U. S. 1,890,184, Dec. 6. Various details of manuf. are given of a material which may be treated with Na silicate or the like to produce a smooth surface on both sides.

**Sheet packing and molded packings.** COMPAGNIE GÉNÉRALE D'ÉLECTRICITÉ. Brit. 363,425, Sept. 28, 1929. Mineral fibers in aq. dispersion are admixed with aq. dispersions of a plastic binding material, *e. g.*, rubber, so that, after filtering, the consolidated material contains at least 20% mineral fibers and 5% binding material and is of such consistency that the waste from stamping or cutting can be mixed with the original unfiltered material for reuse.

**Impregnated sheet materials for oil paintings.** BAKELITE CORP. Brit. 357,204, May 20, 1930. Sheet material such as paper or cloth is impregnated with a phenol-formaldehyde or other artificial resin in liquid state which is subsequently converted into the insol. state by heat. A plurality of layers of impregnated material may be superposed and united by heat and pressure, and the working surface may be roughened in molding or by grinding or sand-papering or the like.

**Magnetic cores.** ARAM BOYAJIAN (to The British Thomson-Houston Co., Ltd.). Brit. 363,606, May 21, 1930. A laminated magnetic core has a joint in its magnetic circuit filled with a magnetic cement comprising a large proportion of powd. Fe and a little portland cement.

**Core or mold binder, coating or paste.** CHARLES M. SAEGER, JR. U. S. 1,889,905, Dec. 6. Rubber is used with a polymerized vinyl deriv.

**Projection screen.** FRANK H. RICHARDSON and JAY C. KROESEN. U. S. 1,890,828, Dec. 13. Screens are formed by carbonate-coated paper strips joined at their adjacent edges by overlapping skived portions to form a substantially invisible seam.

**Projection screens.** E. BASSO. Brit. 344,475, Nov. 19, 1928. Monochromatic images are projected onto a screen which, for showing images in colors, carries a uniform mixt. of fine particles of transparent material (such as glass or celluloid) separately colored in red, green and blue, or in other complementary colors, applied to a black background.

**Sound-permeable projecting screen.** W. C. BAILEY and J KEEFE. Brit. 345,487, March 17, 1930. Various structural details are described involving a screen which may be formed of wire gauze or other open-mesh material coated with white, silver or Al paint with the interstices not entirely filled, and a similar closely spaced screen the interstices of which are in staggered relation to those of the first screen.

**Sizing preparations.** AUGUSTE F. GALVIN. Fr. 737,584, Sept. 21, 1931. Sizing baths very concd. in the sizing product are used and at a temp. above 35° and sometimes up to 80°.

**Artificial snow.** JOHN OFTEDAHL. U. S. 1,890,127, Dec. 6. A self-supporting slab of sol. silicate is prepd. with a fragmentary light-reflecting surface.

**Manufacture and use of decalcomania transfers.** PRESTON W. MARSHBURN (to Northam Warren Corp.). U. S. 1,889,484, Nov. 29. Various details of mech. character are described.

**Dental-impression wax composition.** ANGELO C. ANTONUCCI. U. S. 1,889,622, Nov 29. Shellac about 45, a filler such as talc or French chalk about 30, coloring material, and a polyhydric alc. such as glycerol about 2.5% are used together, the remainder of the compn. including mixed fatty and resin acids such as palm oil or tallow fatty acids, shellac, etc.

**Hydrocyanic acid fumigation.** KENNETH F. COOPER (to American Cyanamid Co.). U. S. 1,889,950, Dec. 6. A mass contg. $Ca(CN)_2$ and S is exposed to the air to cause liberation of HCN in toxic concn. (the S remaining in the residue partly as $Ca(CNS)_2$).

# 19—GLASS, CLAY PRODUCTS, REFRACTORIES AND ENAMELED METALS

G. E. BARTON, C. H. KERR

**Range of the softening of glass and its definition.** K. V. STRUVE. *Keram. i Steklo* **8,** No. 10, 31–2(1932).—Methods used for detg. the range of the softening of glass and some investigations made at the Lenzos works on this question are discussed.
M. V. KONDOIDY

**Effect of temperature on metals used in the glass industry.** CLYDE E. WILLIAMS. *Ceramic Ind.* **18,** 225–7(1932).—A discussion of special metals required for melting, annealing and mold operations, *e. g.*, Ni-Cu-Cr, Ni-Cr, Cr-Ni-C, alloys and Cr-plated cast irons. Cr plating prolongs the life of cast-iron molds, also steel rolls for lehrs.
ELTON E. LENT

**Eternal problem of seed [in glass].** F. W. NOEL. *Glass Ind.* **14,** 1–3(1933).—Batching and melting factors producing seeds are discussed, and also the action of the usual fluxing and fining agents. H. F. KRIEGE

**Soldering glass tubes.** M. A. BESBORODOV. *Keram. i Steklo* **8,** No. 10, 33–5 (1932).—A no. of glass tubes having different coeffs. of expansion were soldered together. The strength of the soldering was detd. by investigating the thermal resistance of the soldered glass tubes. All the soldered glasses were annealed and observed in a polarizing app. No stresses were seen and there was no regularity in the relation between the difference of the coeffs. of expansion and the strength of the soldering. Soldering is not a function of the coeffs. of expansion only (for low temps.) of soldered glasses.
M. V. KONDOIDY

**Egyptian glass.** L. M. ANGUS-BUTTERWORTH. *Glass Ind.* **14,** 21, 23–4(1933).
H. F. K.

**Testing safety glass.** M. NICOLARDOT. *Glaces et verres* **5,** No. 25, 4–6(1932); *Keram. i Steklo* **8,** No. 10, 40.—Tests were made on (1) the transparency of "triplex" glass; (2) action of light on the change in color of the elastic intermediate layer, (3) action of sudden temp. change; (4) action of long heating; (5) effect of repeated shaking. The results are tabulated. Lack of change of color after long exposure to ultra violet rays is due to the fact that cellulose has been replaced by acetate of cellulose.
M. V. KONDOIDY

**Cementing material of sand-lime bricks. An x-ray and microscopical investigation.** GEOFFREY GRIME AND GEO. E. BESSEY. *Trans. Ceram. Soc.* **32,** 14–21(1933).—The examn. shows that the cementing material in sand lime bricks consists of an amorphous hydrated Ca silicate which may be converted in part or wholly to $CaCO_3$ and hydrated $SiO_2$ by exposure to $CO_2$. The min. crystals observed in com. brick are calcite. In lab. specimens 90% of the CaO present was found combined as a silicate when $CO_2$ was absent. H. F. KRIEGE

**The drying of solids. V. Mechanism of drying of clays.** T. K. SHERWOOD AND E. W. COMINGS. *Ind. Eng. Chem.* **25,** 311–16(1933); cf. *C. A.* **26,** 2255.—See *C. A.* **27,** 388.
G. G.

**Effect of electrolytes on clay slips.** F. L. CLARK. *Trans. Ceram. Soc.* **32,** 1–6 (1933).—Further exptl. evidence supports Whitlatch's explanation (*C. A.* **25,** 1349) of the action of Na silicate on the deflocculation and viscosity of clay slips. The behavior of adhesion tension between water and clay is discussed. H. F. KRIEGE

Testing ampoule glasses (V. KLOBUSITZKY) **17.** A new cement kiln refractory (SONNTAG) **20.** Experiences with $SiO_2$ in a continuous vertical plant (TERNES) **21.** Kaolin (SCHWARZ, TRAGESER) **8.** Cellulose ester compositions [for laminated glass] (Brit. pat. 363,689) **23.** Sifting apparatus for potters' slip, etc. (Brit. pat. 367,047) **1.**

ZSCHIMMER, EBERHARD: **Das System Kieselerde, Quarzgut und Quarzglas, Silikasteine.** Stuttgart: F. Enke. About 145 pp. About M. 13.

MÜLLENSIEFEN, WERNER: **Über den Einfluss der Tonerde auf die Entglasungskonstanten der Natron-Silikat-Gläser.** Thesis, Karlsruhe, 1931. 30 pp.

PETERSEN, KURT: **Die geschichtliche Entwicklung der Glasindustrie im Rheinland.** Thesis, Cologne, 1930. 103 pp.

WENTZ, BENNO: **Die Herstellung von Tridymitsteinen.** Thesis, Aachen, 1930. 29 pp.

**Glass-melting furnaces.** W. RÖSSLER. Brit. 381,582, June 29, 1931.

**Rotary tank furnace for melting glass.** WALTER O. AMSLER (to Hartford-Empire

Co.). U. S. 1,889,509, Nov. 29. Glass batch material is fed continuously into one end of a rotary container in which it is melted, and the melted glass is kneaded in the container by the rotation of the latter about a substantially horizontal axis while molten glass is continuously delivered from the other end of the container. Claim is made generally to this mode of operation. U. S. 1,889,510 also relates to structural details of a glass-melting tank and assocd. batch-feeding app. U. S. 1,889,511 relates to a rotary glass-melting furnace.

**Forehearth for glass furnaces.** JOTHAM F. BLACK (to Hartford-Empire Co.). U S. 1,890,174, Dec. 6.

**Electrode for use in melting glass.** HAROLD W. MCINTOSH (to Hartford-Empire Co.). U. S. 1,889,516, Nov. 29. Various details are described of an electrode adapted to be immersed in the melting glass material. Cf. *C. A.* **27**, 579.

**Machines for working glass in the form of a ribbon shaped between rolls.** DONALD W. STRAIT (to Corning Glass Works). Brit. 363,276, June 12, 1930

**Rolling machine for glass.** N. V. MAATSCHAPPIJ TOT BEHEER EN EXPLOITATIE VAN OCTROOIEN. Fr. 738,112, June 3, 1932

**Apparatus for rolling complex bands of glass.** PILKINGTON BROS., LTD Fr. 738,231, June 6, 1932

**Solid rods and tubes of glass, etc.** COMPAGNIE DES LAMPES. Brit. 363,267, May 22, 1930. Rotation is imparted to the glass, etc, while being drawn, by means of a difference of temp produced on 2 opposite sides of the rod or tube when it issues from the drawing plate.

**Apparatus for making glass tubing and rods.** PIERRE A. FAVRE U. S. 1,889,891, Dec 6. Structural details.

**Apparatus and method for the mechanical production of compounds of flashed sheet glass.** BERNHARD ENGELS. Brit. 363,385, Sept. 23, 1929.

**Apparatus for plate-glass manufacture.** JOHN H. FOX (to Pittsburgh Plate Glass Co). U. S. 1,890,322, Dec. 6. Various structural and mech. features are described.

**Protective coatings on metallic reflecting surfaces of glass mirrors, etc.** WM. PEACOCK, JR. (to Peacock Laboratories, Inc). U. S. 1,890,094, Dec. 6. There is applied to the rear surface of a mirror or the like a freely flowing mixt. of a resinous material such as an alc. shellac soln and comminuted Cu particles of substantially leafy form.

**Safety glass.** I. G FARBENINDUSTRIE A.-G. Brit. 363,933, April 19, 1930. A reaction product of maleic anhydride, or a dibasic acid yielding it, with an org substance contg OH, such as mono-alcs having a double bond in the 2,3-position, *e. g.*, allyl alc., castor oil, or 1,3-dialcs., *e. g.*, 1,3-butylene glycol, is used in the manuf. of compd. glass. In an example the use of a product obtained by heating to 120° equimol proportions of maleic anhydride and castor oil, admixed or not with a product obtained by heating equimol proportions of maleic anhydride and butylene glycol to 150°, is described.

**Safety glass.** C. F. BOEHRINGER & SOEHNE G. M. B. H. Fr. 737,804, May 30, 1932. Cellulose esters, particularly the acetate, are brought into sheet form by plastification by means of glycerol ethers, esterified in at least one OH group, *e. g.*, diglycerol tetraacetate. The sheets are used for uniting 2 sheets of glass.

**Press for uniting sheets of safety glass.** ADOLF KAMPFER and ADOLF C. PLÖTZE. Fr. 737,827, May 30, 1932.

**Silica bricks.** MAX HOLLENWEGER. Fr. 738,241, June 7, 1932. Large-grained quartz or the like is mixed with finely divided quartz (passing a sieve of 10,000 holes per sq cm) and lime and(or) clay, a mixt in which the proportions of $SiO_2$, clay and(or) lime are regulated so that the agglutinating mass fuses at the temp. of baking the bricks. The mixt. is molded and baked

**Ceramic compositions.** WALTER BLOCH. Fr. 738,222, June 6, 1932. Compns. having a high d after baking are made from refractory substances such as refractory clays, oxides, silicates, nitrides, carbides, etc. These are fritted and baked in the dense state at a low temp. by means of a mixt. of clay and talc which forms a eutectic mixt.

**Heat treatment of ceramic, etc., ware in tunnel kilns or furnaces.** HARROP CERAMIC SERVICE CO. Brit. 363,305, April 10, 1930. App. is described.

**Yellow glazed earthenware.** HARRY J. MCMASTER (one-fourth each to Sebring Pottery Co., Limoges China Co., Crescent China Co., and Salem China Co.). U. S 1,890,297, Dec. 6 Na uranate is calcined with china clay and flint and the product is added to a transparent white glaze compn in such proportion that the quantity of the U salt in the resulting mixt. is 1-3% of the total mass; unglazed dishes are dipped into the mixt. and then fired in a non-reducing atm.

**Rings and other hollow bodies of fused quartz.** DEUTSCHE-ENGLISCHE QUARZ-SCHMELZE G. M. B. H. Brit. 363,610, Sept. 10, 1930. Ring segments made in known ways are embedded in quartz sand, the places of contact being welded with the surrounding sand and with one another by uniform heating.

**Artificial masses.** I. G. FARBENIND. A.-G. Fr. 737,829, May 30, 1932. Masses resembling porcelain are made by mixing chlorinated naphthalene of waxy consistency with finely divided solids, such as talc, CaO, $SiO_2$, Al or charcoal.

**Refractory bricks.** GENERAL REFRACTORIES Co. Brit. 364,131, July 2, 1930. See Fr. 699,598 (*C. A.* **25**, 3455).

**Molding refractory objects.** CORNING GLASS WORKS. Fr. 738,115, June 3, 1932. The mold is partially filled with a core of solidified refractory material, the remaining space being filled by a single stream of molten refractory material. Fr. 738,116. In the mold is placed a refractory support, a large part of the surface of which constitutes a wall of the hollow of the mold and sufficient molten refractory material is introduced to melt this support. Fr. 738,117. Pieces of calcine and fused material are introduced into the mold and have sufficient d. to sink in the molten material.

**Refractories in metallurgy; furnace walls; melting pots.** O. KRÖGER and O. OSWALD. Brit. 380,290, Sept. 4, 1931.

**Heat-treating furnace suitable for burning enamel ware.** CHAUNCEY A. DUTTON (to Ferro Enamel Corp.). U. S. 1,889,955, Dec. 6.

## 20—CEMENT AND OTHER BUILDING MATERIALS

J. C. WITT

**Standard cement test samples. Preparation of stabilized artificial cement test samples and various observations thereon.** G. BAIRE. *Rev. matériaux construction trav. publics* **1932**, 373–4.—The strength of the samples decreases in proportion to the interval between the removal from water and the time of testing. K. KAMMERMEYER

**Possible formation of the compounds of calcium sulfate during the grinding of cement.** PAUL SCHACHTSCHABEL. *Zement* **22**, 45–9(1933).—The dehydration of $CaSO_4 2H_2O$ during the grinding action and in the presence of various desiccants is described. H. F. KRIEGE

**Can cement be overground?** L. R. DAVIES-GRAHAM. *Rock Products* **36**, No. 1, 24–5(1933).—In a series of cement samples taken at various points along a tube mill, the max. compressive strengths were obtained with samples of less than max. fineness. RAYMOND WILSON

**What is the essential flour in cement?** S. RORDAM. *Rock Products* **35**, No. 15, 22–7(1932).—Ground cement clinker was sepd. in a Federal (centrifugal) separator into 0–10$\mu$, 10–25$\mu$, 25–50$\mu$ and coarser than 50$\mu$ fractions. Tests on these fractions indicate that the 0–10$\mu$ fraction is essential to early strength and plasticity. R. WILSON

**Comparison of fineness of two series of cements ground by two different methods.** KATSUZO KOYANAGI. *Rock Products* **35**, No. 17, 26–7(1932).—Of a group of cements averaging 98% fineness on the 4900 (per sq. cm.) sieve, those ground in short mills with air separators ranged from 48 to 67% in 30-micron fineness, while those ground in long mills without separators ranged from 67 to 88% in 30-micron fineness. R. WILSON

**Chemical analyses of the particles of various sizes of ground cement.** E. T. CARLSON AND P. H. BATES. *Rock Products* **35**, No. 21, 18–19(1932).—Analyses of air-sepd. fractions of finely ground portland cement clinker generally show progressive variation in compn. with particle size. The content of $3CaO.SiO_2$ is highest in the fine fraction. RAYMOND WILSON

**Aging of cements under atmospheric influence.** V. M. ANŽLOVAR. *Cement and Cement Manuf.* **5**, 361–4(1932); *Zement* **22**, 49–51(1933).—The progressive decrease in strength with age is shown more in compression than in tensile tests, more in high early strength cements than in the normal varieties and most at early ages. H. F. K.

**Water in set cement.** F. M. LEA. *Cement and Cement Manuf.* **5**, 395–9(1932). The methods used for the sepn. of "combined" water from "free" and "gel" water are arbitrary, and the relative amts. falling in the different groups are based upon definition, without fundamental chem. significance. RAYMOND WILSON

**Heat economy in the cement industry.** HANS BUSSMEYER. *Cement and Cement Manuf.* **5**, 2–11, 52–60, 133–43, 219–25, 278–84(1932). RAYMOND WILSON

**The thermochemistry of cement burning.** R. ZOLLINGER. *Cement and Cement Manuf.* **5**, 271–6(1932). RAYMOND WILSON

**The hardening and corrosion of cement.** KARL E. DORSCH. *Cement and Cement Manuf.* **5**, 337–47, 426–33(1932).—The quick setting of mixts. of portland and aluminous cements is due to action of $CaO.Al_2O_3$ on portland cement. RAYMOND WILSON

**Heat developed by cement while setting and hardening.** S. L. MEYERS. *Rock Products* **35**, No. 19, 22–6(1932).—Fineness affects rate of heat evolution but not the total

amt. Changes in total heat evolution are most readily effected by changing compn. RAYMOND WILSON

**Relation between setting time and heat evolution of cement.** A. KLEINLOGEL AND K. HAJNAL-KÓNYI. *Zement* **22**, 2–7(1933).—The heat evolution during the setting process seems to be a more definite characteristic of cement than its resistance to the Vicat needle. H. F. KRIEGE

**Determination of the setting time of portland cement.** A. C. DAVIS. *Cement and Cement Manuf.* **5**, 166–72(1932). RAYMOND WILSON

**Changing the setting time in portland cement. II.** PAUL SCHACHTSCHABEL. *Zement* **21**, 643–7, 658–61(1932); cf. *C. A.* **25**, 4679.—The humidity of the air greatly affects the change in the setting rate of cements. The change from slow to quick set is due to the formation of alk. carbonates and the destruction of gypsum in the cement. A similar change is not observed in ground clinker without gypsum. The change from quick to slow set is caused by the effect of moisture on the ground clinker itself, decreasing the amt. of gypsum needed The hydration of tri- Ca and alk. aluminates occurs in humid air, aiding the change from quick to slow set. H. F. KRIEGE

**Fineness and sieving of portland cement.** A. C. DAVIS. *Cement and Cement Manuf.* **5**, 72–80(1932).—Sieves and a standard air elutriator for cement are described. RAYMOND WILSON

**Determines sub-sieve fineness of portland cement.** E. W. REED-LEWIS. *Concrete* **41**, No. 2, 14–16(1933).—A sedimentation app. is described. R. W.

**A graphic method for determining the constituents of portland cement from the chemical analysis.** O. F. HONUS. *Cement and Cement Manuf.* **5**, 356–60(1932); cf. *C. A.* **26**, 3895. RAYMOND WILSON

**Determination of admixtures to portland cement.** P. N. GRIGOR'EV AND S. E. CHAIKINA. *Tonind.-Ztg.* **57**, 38, 62(1933).—Weigh one g. samples of cement into 600 cc. beakers, cover with 150 cc $H_2O$, heat to boiling for 10 min. with stirring, add 3.5 g NaCl and then 300 cc. of 0.5 *N* HCl Cover with a watch glass and allow to simmer 2 hrs to decompose the cement. Decant most of the liquid through a filter, cover the residue with 150-cc. 0.5 *N* HCl and heat as before. Filter and wash free from chlorides. Return the residue to the original beaker with 0.1 *N* NaOH, filter through an ashless paper, wash free from alkali with hot $H_2O$, dry at 110° and weigh. Satisfactory results are claimed with admixts. such as quartz, trass and diatomite. A further method is included based on the detn. of CaO in the mixt., the CaO content of cement being assumed as 65%. H. F KRIEGE

**Lime limits of portland cement.** EBERHARD SPOHN. *Zement* **21**, 702–6, 717–23, 731–6(1932).—The highest amts. of CaO capable of combination with the $SiO_2$, $Al_2O_3$ and $Fe_2O_3$ were detd. The satn. value in practice indicates the compn. for cement to be $3CaO.SiO_2$–$2CaO.Al_2O_3$ or $3CaO.Al_2O_3$ in cements higher in $Al_2O_3$. At least 1455° must be attained to insure complete burning When $Al_2O_3$ and $Fe_2O_3$ are present in equiv. amts the lime satn. value indicates a compn of $3CaO\ SiO_2$–$4CaO.Al_2O_3.Fe_2O_3$. A list of references is included. H. F. KRIEGE

**Tensile-strength tests of portland cement.** A. C. DAVIS. *Cement and Cement Manuf.* **5**, 441–54(1932). RAYMOND WILSON

**Behavior of portland cement when heated.** GABRIEL A. ASHKENASI. *Cement and Cement Manuf.* **5**, 240–5(1932).—Free CaO is liberated when portland cement is heated to 1000° for several hrs. RAYMOND WILSON

**Constancy of volume of portland cement.** A. C. DAVIS. *Cement and Cement Manuf.* **5**, 253–65(1932).—A description of various soundness tests. RAYMOND WILSON

**The recast analysis and its relation to the chemistry of portland cement.** L. A. DAHL. *Rock Products* **35**, No. 12, 31–3, *et seq.*(1932).—An extensive series showing relations of elementary compn. to potential and actual compd. compn. R. WILSON

**Impact resistance of cement mortars.** ALOIS FRANK. *Zement* **21**, 629–31(1932).—Mortars composed of various cements and standard sand in 1:3 mixes were subjected to pendulum impact of 0.5 kg./m. The effects of kind and length of curing, grading of aggregate, kind of cement and consistency with impact resistances are shown graphically. H. F. KRIEGE

**Application of Rankin's equilibrium diagram of the system: $CaO$–$SiO_2$–$Al_2O_3$ to the practice of cement burning.** SERHAN SOLACOGLU. *Zement* **22**, 17–22, 33–8(1933).—Numerous mixts. in the system: $CaO$–$SiO_2$–$Al_2O_3$ with const. $Fe_2O_3$ content are examd. and the values expressed in a 4-coördinate system. Cements in 9 groups of the same silicate modulus are varied as to their lime satn. values within each group. The resultant strength values showed 3 major divisions, namely, the usual portland cements high in $SiO_2$, aluminous cements of the accepted characteristics, and a new group of aluminous cements of high initial strength but excellent later values. These cements contain up to 60% $Al_2O_3$ with little or no $SiO_2$, and require high burning temps. H. F. K.

**A new cement kiln refractory.** C. H. SONNTAG. *Rock Products* **35**, No. 22, 48–54 (1932).—A magnesia brick lining in the hot zone was longer-lived than any lining material previously tried, and even at a higher price effected a saving. Steel strips between brick added to the life RAYMOND WILSON

**The theory of the rotary kiln.** RUDOLF ZOLLINGER. *Cement and Cement Manuf.* **5**, 123–8(1932).—Analyses were made on samples along the length of a kiln stopped in full production. They indicate that combination of CaO with $SiO_2$, $Al_2O_3$ and $Fe_2O_3$ is coincident with calcination of $CaCO_3$. Material in the clinkering zone contained no $SO_3$, but $SO_3$ rose to a max. of 1.16% near the upper end. RAYMOND WILSON

**Rotary kilns of high output.** E. SCHIRM. *Cement and Cement Manuf.* **5**, 315–20 (1932).—Enlarged zones, chains and other devices are described. RAYMOND WILSON

**Heat transmission in rotary kilns.** W. GILBERT. *Cement and Cement Manuf.* **5**, 417–25, *et seq.*(1932). RAYMOND WILSON

**Investigation of clinkering zone in a rotary kiln.** H. E. SCHWIETE. *Concrete* (*Mill Section*) **40**, No. 9, 36–9(1932).—Coatings on the magnesia lining of a small exptl. kiln were found by optical and x-ray means to contain $3CaO.SiO_2$. Analyses indicated the presence of small amts. of $3CaO.Al_2O_3$, $4CaO.Al_2O_3.Fe_2O_3$ and minor constituents RAYMOND WILSON

**Sintering grate and rotary kiln gain fuel economy.** F. H. ARNOLD. *Concrete* (*Mill Section*) **40**, No. 4, 53–6, No. 5, 51–6, No. 6, 45–50(1932). The Lepol cement kiln is described, heat balances are given and comparisons with rotary and shaft kilns made. Large fuel economies are shown for the Lepol kiln RAYMOND WILSON

**Hydrothermal synthesis of calcium hydroaluminates.** SHOICHIRO NAGAI. *Cement and Cement Manuf.* **5**, 205–10(1932); cf. C. A. **27**, 167.—CaO and $Al_2O_3$ or $Al(OH)_3$ were heated together with water vapor under pressure. The following compns. are provisionally assigned to the products: $3CaO.Al_2O_3.6H_2O$, $2CaO.Al_2O_3.7H_2O$ (or $6H_2O$) and $2CaO.Al_2O_3.3H_2O$ RAYMOND WILSON

**Grading curves and fineness modulus.** A. HUMMEL. *Zement* **21**, 671–5, 687–91 (1932).—Fineness modulus values are considered more practical than grading specifications. A fair bibliography is included. H. F. K.

**Recent research on concrete aggregates by the Portland Cement Association.** H. F. GONNEMAN. *Rock Products* **35**, No. 5, 36–41(1932). RAYMOND WILSON

**Values in the manufacture of light-weight concrete.** KARL L. MULLER. *Zement* **21**, 707–10, 723–7(1932). H. F. K.

**Logical use of calcium chloride in pavement concrete.** H. F. CLEMMER. *Concrete* (*Mill Section*) **40**, No. 11, 9–11(1932).—Both normal and high early-strength portland cements show increased early strength with $CaCl_2$ admixt. Use of $CaCl_2$ is particularly beneficial at low temps. RAYMOND WILSON

**Water-tight mortars and concrete. I. II.** C. R. PLATZMANN. *Zement* **21**, 737–41(1932); **22**, 23–5(1933). The suggested and patented admixts. to cements and mixes are discussed, full reference being given. H. F. KRIEGE

**Investigation on the elastic characteristics of mortars and concrete from rational pozzuolana cements.** CORRADO VITTORI. *Rev. matériaux construction trav. publics* **1932**, 353–62.—A considerable no. of tests are reported which bring out the advantages of pozzuolana cements. 11 references. KARL KAMMERMEYER

**Rate of stiffening of mortars on a porous base.** L. A. PALMER AND D. A. PARSONS. *Rock Products* **35**, No. 18, 18–24(1932). RAYMOND WILSON

**Litharge and glycerol mortars.** GEORGE W. GLEASON. *Paper Trade J.* **95**, No. 15, 33–6(1932).—Litharge-glycerol mortars, when made up with portland cement and sand, are so plastic and "fat" that there appears to be little difference in the glycerol requirement for a certain plasticity due to the type of sand used. Addn. or subtraction of relatively small amts. of glycerol changes the consistency materially. A continual increase in the strength of set mortar is experienced with increase in the glycerol content of the glycerol-water soln. used to mix the mortar, which variation should make possible an optimum concn. for given conditions. The richer mixes of litharge seem to have less strength than the leaner ones. Insofar as variation in richness of mix was carried out (1:5 parts litharge to other materials by dry loose vol.) there was only a slight decrease in compression strength, and tensile strength appears quite uniform over a wide range. G. suggests this may be due to lack of "seed" in the richer mixes; consequently much of the litharge may function as centers of crystal growth and as such are not contacted by the glycerol and do not act as bonding substances. Full strength is attained in a relatively short period of time; there is some evidence of slight recession in strength at approx. 3 days' cure. Wide variation in yield, glycerol requirements for brick mortar plasticity, shrinkage over original vol. and d. are experienced with variations in the mix. Although strength and corrosion resistance are at times related, it is not considered safe

to assume that even though some of the more economical mixes gave relatively high strengths they would prove suitable as corrosion-resisting substances. A. P.-C.

**Proposed methods for testing sheet-asphalt paving mixtures.** ANON. *Proc. Am. Soc. Testing Materials* **32**, Pt. I, 432–5(1932).—A detailed description of the technic recommended for centrifuge tube, Dulin rotarex, Barber asphalt and thimble extn. methods for detg. bitumen in sheet asphalt paving mixts. A. PAPINEAU-COUTURE

**Fiber boards. Their uses and the possibilities of their manufacture in Australia.** R. F. TURNBULL. *Australia Council Sci. Ind. Research Pamphlet* No. **36**, 51 pp.(1932). E. H.

**Composition of some Philippine hardwoods. IV.** H. M. CURRAN, F. M. YENKO, LUZ BAENS AND AUGUSTUS P. WEST. *Philippine J. Sci.* **49**, 587–92(1932); cf. *C. A.* **26**, 4840.—The Kayatan, Lago, Lamóg, Binggas, Kariskis and Bayanti trees yield wood that is hard, heavy, beetle proof, and is used for general construction in addn to cabinet work. The Bayok and Kulatiñgan woods are not heavy, but otherwise have about the same properties as the above. The Bolon is hard and heavy but not suitable for general construction. The Narra, in addn. to the above properties, has a beautiful color and seasons well. The ash content of these woods varies from 0.19 to 1.60%, lignin from 29.28 to 39.50%, and cellulose from 47.32 to 54.85%. American woods have more cellulose and less lignin. H. E. MESSMORE

**Distribution of extractive in redwood—its relation to durability.** E. C. SHERRARD AND E. F. KURTH. *Ind. Eng. Chem.* **25**, 300–2(1933).—The durability of redwood is detd. by the nature and distribution of hot $H_2O$ exts. in the tree. The results of toxicity tests toward *Fomes annosus* and of durability tests under natural conditions are given. LOUIS E. WISE

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Pulverized coal [as cement kiln fuel] (COGHLAN) **21.** Some paint problems of building research (LLEWELLYN) **26.** Coke-oven distillates in the paint and varnish industry (KENNY) **26.** Paints and painting methods for gas work (LAWRENCE) **26.** Geological prospecting in the Barzas district [coal] (ORESTOV) **8.** Final report on fuel control [in Java sugar factories] (ANON.) **28.**

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WILKINSON, F., AND FORTY, F. J.: **Bituminous Emulsions for Use in Road Works.** London: Contractors' Record, Ltd. 395 pp. 21s. Reviewed in *J. Inst. Petroleum Tech.* **19**, 150(1933).

KAIZSCHE, E. O.: **Die Festigkeit von Strassenbeton vor und nach der Belastung durch den Verkehr.** Thesis, Brunswick, 1930. 64 pp.

MEYER, WILHELM: **Die Beziehungen zwischen Betondruckfestigkeit und Betonzusammensetzung und bes. Ber. der Normenfestigkeit des Zements.** Thesis, Aachen, 1931. 54 pp.

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**Cement.** F. L. SMIDTH & CO. A./S. Fr. 737,833, May 30, 1932. The powd. materials are wetted by an org. liquid such as crude petroleum or distn. products therefrom and this liquid is expelled almost entirely by water. The nodules obtained have a low water content.

**Cements.** THE CLEMENT MARKETING CO., LTD. Fr. 738,383, June 9, 1932. Calcined $SiO_2$ (or siliceous material) is added to colored cement in amt. sufficient to combine with the CaO liberated during setting. A clear and bright product is obtained. Cf. *C. A.* **27**, 1132.

**Cements.** LOUIS C. F. PECHIN. Fr. 738,437, April 20, 1932. Metal oxides such as FeO, $Fe_2O_3$, $Fe_3O_4$, $Al_2O_3$, $SnO_2$ and $MnO_2$ are incorporated with cement either during manuf. or at the moment of use. A more rapid hardening and greater resistance are obtained.

**Pumice cement.** G. R. SPEAKER & CO., LTD., and PERCIVAL C. COOMBES. Brit. 368,041, Feb. 17, 1931. Com. pumice is crushed, washed, graded and sepd. from dross and excess $H_2O$ before being mixed with cement to form a pumice-cement compn. App. is described.

**Vertical retort [with an internal rotor] for burning cement and like material.** FRANK C. GREENE. U. S. 1,890,662, Dec. 13.

**Apparatus for preparing clinker for making cement.** HARRY S. LEE. Fr. 738,461, June 7, 1932.

**Coating cement, etc., surfaces.** BENJAMIN E. MONTEUX and PAUL L. DURAND. Brit. 365,584, July 18, 1929. Void. Addn. to 304,288 (*C. A.* **23**, 4792). A cement, etc., pipe is coated with bitumen by first painting or spraying with an emulsion of the bitumen in $H_2O$ and then applying pure molten bitumen by immersion, spraying, etc. The process is also applicable to cement, etc., surfaces in general.

**Deaerating liquids.** EUGENE FREYSSINET and JEAN SEAILLES. Brit. 365,290,

Dec. 30, 1929. Hydraulic binding agents and mixts. intended for mortar or concrete are deaerated by passing them in a jet or thin stream into the interior of a receptacle where a vacuum exists, division of the mixt. into a thin layer being aided by simultaneous vibration or centrifugal action. App. is described.

**Bituminous compositions.** IVAN KARDOS. Brit. 363,354, Sept. 6, 1930. Blocks for paving roads are obtained by pressing moist limestone, chalk, etc., with a binder such as CaO, if necessary, so as to produce blocks of just sufficient strength to be handled which are impregnated in vacuum with liquid bitumen. These may be ground to powder for use as surfacing material, with or without the addn. of fillers.

**Bituminous compositions.** JOHN F. WAKE. Brit. 363,655, Sept. 18, 1930. A coated aggregate for road making, etc., is prepd. by applying to the aggregate a first coat of bitumen or heavy bituminous compn., then a second coat of thinned bitumen, and a third coat of mineral or vegetable oil or mineral oil contg. a little dissolved bitumen.

**Bituminous compositions.** ANTON BREUER. Brit. 363,698, July 21, 1930. A bituminous binding material which is fluid at ordinary and low temps. consists of a soln. of tar, pitch and(or) asphalt in chlorinated hydrocarbons together with other hydrocarbons. It is applied to roads or used for coating materials to be spread thereon.

**Expansion joint material.** JAMES A. MACDONALD (to Willard Warne). U. S. 1,890,260, Dec. 6. Cork granules are bonded together by their inherent resin and the material is formed with cover sheets which are flexible and impervious to moisture such as paper or cloth treated with asphalt.

**Void-containing artificial stone.** JOHN W. WARREN. U. S. 1,890,798, Dec. 13. A mixt. of cementitious material, aggregate and water is further treated with added lumps of $CuSO_4$ or $FeSO_4$ before setting in order to form voids and effect coloring.

**Use of cast blast-furnace slag in building construction.** KARL P. BILLNER. U. S. 1,890,432, Dec. 6. Relatively long pieces of porous cast blast-furnace slag may be used for floor construction.

**Structural materials such as building blocks, etc.** CLOYD M. CHAPMAN. U. S. 1,889,745, Dec. 6. Blocks or the like are formed with a layer of smooth gypsum compn. having a smooth surface in which are incorporated small particles of mineral matter such as granulated "cement rock" or slag over which is bonded a layer of cement mortar.

**Preparing wire netting for holding plaster.** CARL SCHRÖDER, SR. U. S. 1,890,023, Dec. 6. Wire netting is coated with an adhesive material such as glue over which is strewn sand or volcanic ashes, and the surface is covered with a setting material such as concrete to form a roughened stone-like covering to which the plaster will adhere.

**Molded products from lignin.** FRIEDRICH BERGIUS, FRIEDRICH KOCH and EDUARD FAERBER (to Holzhydrolyse A.-G.). U. S. 1,890,491, Dec. 13. Dry, granular, porous, brittle, deacidified substantially pure lignin residue from hydrolyzing vegetable material such as wood with HCl of high concn. is pressed in a mold to form products such as *fuel* or *building material* of self-sustaining coherent character without use of any added binder.

**Floor-covering material.** JAMES H. RILE (to Hercules Powder Co.). U. S. 1,890,128, Dec. 6. Sol. nitrocellulose is used with ethyl, methyl or butyl abietate and an absorbent such as ground cork or wood flour. Tricresyl phosphate also may be added.

**Flexible composition for floor- and wall-coverings, etc.** PAUL C. VAN DER WIELEN (one-half to N.-V. Nederlandsche Linoleumfabriek). U. S. 1,890,476, Dec. 13. Colloidal emulsions of latex, asphalt and linoxyn are mixed with coloring and filling matter in substantially colloidal suspended form, and the mixt. is then coagulated.

**Kiln and air-circulating system for drying lumber, etc.** JOSEPH I. STEEL (to Moore Dry Kiln Co. of Ore.). U. S. 1,890,756, Dec. 13.

**Composition for impregnating and preserving wood.** ALBERT H. KELSALL and OSCAR C. ALEXANDER. U. S. 1,890,650, Dec. 13. The compn. consists of rosin 24, paraffin wax 16, castor oil 0.25, quicklime 2.5, creosote 8 parts and an aniline color.

**Preserving timber.** FREDERICK A. HILL. U. S. 1,890,220, Dec. 6. A liquid compn. for treating timber is prepd. from fuel oil incorporated with about 15% of a molten mixt. of asphalt 2 and naphthalene 1 part.

## 21—FUELS, GAS, TAR AND COKE

A. C. FIELDNER AND ALDEN H. EMERY

**Solid smokeless fuel.** J. W. NAPIER. *Gas. J.* **201**, 264–6; *Gas World* **98**, 92–6 (1933).—In a review of recent British developments in coal carbonization, N. concludes that the production of a satisfactory domestic fuel is purely an economic question.

P. J. WILSON, JR.

**Efficiency of different solid fuels, especially in boiler heating.** A. NAHOCZKY.

*Mitt. berg. hüttenmänn. Abt. ungar. Hochschule Berg. Forstw. Sopron* **3**, 110–25(1931).—See *C. A.* **26**, 1748. S. S. DE FINÁLY

**Use of vegetable oils as fuel for internal-combustion engines.** A. W. SCHMIDT. *Tropenpflanzer* **35**, 386–9(1932); *Chimie & industrie* **29**, 74.—Vegetable oils are rather heavy and are suitable for use only in Diesel and semi-Diesel engines. Tests with peanut, soy bean and palm oils in a small Diesel engine showed that the engine ran satisfactorily, though some difficulty was sometimes experienced in starting; this could be obviated by starting on mineral oil. The engine developed considerably less power with vegetable oils (15 h. p.) than with gas oil (24 h. p.); this was due partly to the lower calorific value of the oil and also to the fact that the higher viscosity prevented proper atomizing and rendered combustion imperfect. A. PAPINEAU-COUTURE

**Carbonization with 103 inch vertical retorts.** F. A. RHEAD. *Gas J.* **201**, 316–18; *Gas World* **98**, 113–16(1933).—Operation of *Woodall-Duckham vertical retorts* at Wallasey. P. J. WILSON, JR.

**Modern methods of low-temperature carbonization and preparation of artificial anthracite.** CH. BERTHELOT. *Chimie & industrie* **29**, 18–44(1933).—A critical review of the scientific bases of low-temp. carbonization of coal, showing how these have been considered in the construction of commercially successful low-temp. carbonization retorts, together with an outline of principles of the methods of transforming primary tar into liquid fuels and oils for Diesel engines. A. PAPINEAU-COUTURE

**Experiences with silica in a continuous vertical plant.** O. A. TERNES. *Gas J.* **201**, 146–8; *Gas World* **98**, 96–8(1933).—In the operation of 32 continuous vertical retorts in which the fire brick had been replaced with silica, it was found that in operating at 1400° scurfing to remove C from the faces of the retorts was necessary much more frequently than when the original retorts were operated at 1220°. In spite of all precautions serious and continuous *spalling of the brickwork* occurred during scurfing. The spalling was independent of any steaming of the retorts. The expansion of the silica brick during heating-up seriously damaged the settings. P. J. WILSON, JR.

**Research and the coal industry.** C. A BASORE. *Manufrs. Record* **100**, No. 12, 29–30(1931).—Recent developments discussed are in concn., pulverizing, low-temp. distn., hydrogenation and manuf. of MeOH and other compds. J. D. S.

**Estimation of the results of coal preparation.** J. FINKEY. *Mitt. berg. hüttenmänn. Abt. ungar. Hochschule Berg. Forstw. Sopron* **3**, 31–43(1931).—The heating values of the different products of coal prepn. can be calcd. by the formula $H = x + yb + zW$, where $b$ is the percentage ash content, $W$ the percentage $H_2O$ content and $x$, $y$ and $z$ are const. for the same coal sample and must be detd. by calcn. from 3 detns. of $H$, $b$ and $W$. A linear connection between ash content and sp. gr. was found for many Hungarian brown coals on the basis of which the ash content can be detd. very rapidly. S. S. DE FINÁLY

**Pulverized coal—the significance of its analysis to the consumer.** RAPIER R. COGHLAN. *Rock Products* **35**, No. 23, 20–2(1932).—The importance of both proximate and ultimate analysis to fuel economy and efficient use in the cement kiln is shown by specific examples. RAYMOND WILSON

**Low-temperature carbonization of Lisichanskii coal.** G. V. GRITZEVICH. *Izvestiya Teplotekh. Inst.* **1932**, 1042–56.—Lisichanskii coal was carbonized at about 500° in a rotating retort at the rate of 6 tons per day, whereby about 66.35% of coke and 7.4% of tar were obtained. The yield of gasoline from the tar and the gas amounted to 1.2% (after refining 0.59%) and that of kerosene 2.53% (calcd. on the coal). The gas had an av. compn. of 14.293% $CO_2 + H_2S$ (a very high amt. of S compds.), 8.11% $C_mH_n$, 0.78% $O_2$, 10.57% CO, 5.13% $N_2$ and (from the difference) $H_2 + CH_4 + C_2H_6$ 61.117%. Cf. following abstr. A. A. BOEHTLINGK

**Gasifying the Bokovo-Khrustalnuii anthracite "AK" in Thiessen gas producers.** N. V. SHISHAKOV. *Izvestiya Teplotekh. Inst.* **1932**, 1056–60.—The analysis of the coal was: (percentage by weight) $H_2O$ 8.95%, ash 9.19%, total S 1.94%, C 76.86%, $H_2$ 1.88%, $O_2 + N_2$ (by difference) 1.18%. The heating value of the coal amounted to 6680–6755 kg. cal., the yield of dry gas on the dry fuel 4.37 cu. m. per kg., its compn.: (by vol.) $CO_2$ 2.18%, unsatd. compds. ($C_mH_n$) 0.2%, $O_2$ 0.25%, CO 31.87%, $H_2$ 9.15%, $CH_4$ 1.13%, $H_2S$ 0.13%, $N_2$ (by difference) 55.09%, its heating value 1396 cal. per cu. m. A. A. BOEHTLINGK

**Agglutinating power of coal.** E. RIEFFEL. *Ann. chim. anal. chim. appl.* **14**, 215–53(1932).—Precise directions are given for mixing finely powdered coal with sand and a little glycerol, heating at 950° and measuring the crushing strength of the resulting button. In this way a value is obtained which is a measure of the agglutinating power of the coal. W. T. H.

**Coking bituminous coals.** G. LAMBRIS. *Gas u. Wasserfach* **76**, 1–3(1933).—In detg. the influence of heat on bituminous coal, O must be excluded completely. Preheating coal at 100–200° in the presence of N or coke-oven gas contg. less than 1% O com-

pletely destroys the swelling power of the coal. $B_2O_5$ addns. have a similar effect, the swelling pressure assuming a neg. value, the tar yield decreasing with addns. up to about 1.5–2% $B_2O_5$ and the softening curve (temp. *vs.* shrinkage in mm.) becoming less pronounced as the $B_2O_5$ is increased. The results are attributed to reaction of the $B_2O_5$ with those coal constituents which have a high viscosity during the coking process.
R. W. RYAN

**Oil and gasoline from coal.** C. H. LANDER. *Sci. J. Roy. Coll. Sci.* **2**, 27–46(1932); cf. *C. A.* **26**, 2573. E. H.

**Catalytic hydrogenation of secondary gasoline of brown-coal tar.** JÓZSEF VARGA. *Math. naturw. Anz. ungar. Akad. Wiss.* **48**, 809–15(1931).—A gasoline produced by cracking of brown-coal tar which contained 50% unsatd. compds. and 3.8% S compds. was hydrogenated with 80 atm. $H_2$ in the presence of $MoO_3$. At 380°, 36.7% of the S compds. was removed; at 400°, 70.2%; at 420°, 98.5% and at 440°, 99.6%. One kg. cracked gasoline required at 440° 443 l. $H_2$, and the product contained 0.02% S and 1.5% unsatd. compds. Its sp. gr. was smaller than that of the original material and its fraction boiling under 100° was larger. The gasoline hydrogenated at 440° gave no gum when evapd. on a copper disk. The yield was 88.3 vol. % at 440°. S. S. DE F

**The reactivity of oil sulfur.** JÁNOS SZÉKI AND ALFRÉD ROMWALTER. *Mitt. berg. hüttenmänn. Abt. ungar. Hochschule Berg. Forstw. Sopron* **3**, 145–55(1931). Expts. showed that an unrefined brown-coal light oil having a S content of 4.67% may contain very small amounts of free S, $H_2S$, mercaptans, thiophenes, disulfides, thio ethers, thio esters and thiophenols. Most of the S is present in the form of very resistant heterocyclic compds. Thus, only by destroying these compds. could one produce S-free oils. Expts proved that this resistant S has only a very small influence on metals. A gasoline locomotive was oiled during winter and summer with S-contg. oil and no damage could be observed. The removal of S from such oils seems to be unnecessary and uneconomical
S. S DE FINÁLY

**Producer gas as fuel for motor vehicles.** ANON *Bull. Imp Inst* **30**, 469–79 (1932).—A brief description of the conditions necessary for the successful application of this form of power production to road vehicles, the relative advantages of wood and charcoal as fuel and some methods of charcoal manuf. A. PAPINEAU-COUTURE

**What Bristol is doing to encourage the use of industrial gas.** E STROTHER DAVIES *Gas World* **98**, No. 2529, *Ind Gas Suppl* 8–9(1933). A general discussion of the qualities of industrial fuels, together with comparisons of the costs when town gas, *fuel oil* and *producer gas* are used P J WILSON, JR

**The purification of coal gas.** GIUSEPPE LAZZARI. *Chim ind agr. biol* **8**, 509–11 (1932).—An app. is described for the regeneration of sludge masses for purification of gas. G A BRAVO

**Turbulent firing of blast-furnace gas.** OTTO DE LORENZI *Blast Furnace Steel Plant* **20**, 523–5, 528, 598–600(1932) E H

**Application of gas to the tin plate and sheet industries.** A D HOWELLS. *Gas J* **201**, 313–16(1933).—The development of a successful *gas furnace for tin pots*.
P J WILSON, JR.

**Gas in the wire-drawing industry.** J BRADBURY. *Gas J.* **201**, 199–201, 263–4 (1933).—The com. application of gas to such processes as wire drawing, tempering, tinning, enameling, etc., in a wire-drawing plant P J WILSON, JR

**A new method of building dry-gas holders.** FRIEDRICH NAUJOCKS *Gas u Wasserfach* **76**, 66–8(1933); *Gas Journal* **201**, 312(1933). A description of the new waterless gas holder erected at Berlin-Bernau, with a capacity of 70,000 cu. ft. It is cylindrical in form and one of the main novel features is the use of 2 leather pads, semi-tubular in form and suitably mounted, as seals. These are pressed against the holder walls by internal oil pressure, supplied by an elevated oil tank on the piston. The holder was operated for 6 months on air and more than 7 months on gas, without trouble of any kind. R. W. RYAN

**Production of organic compounds from coke-oven gas.** J W OSTERRIETH AND GEORGES DECHAMPS. *Gas J.* **201**, 202–6; *Gas World* **98**, No. 2531, Coking Sect. 14–17 (1933).—The com. methods for producing *methanol* and the higher *alcs.* from the constituents of coke-oven gas are outlined. P. J. WILSON, JR.

**Combustible losses in flue gases.** J. D. KELLER. *Blast Furnace Steel Plant* 20, 723–6, 781–3, 786(1932); *Heat Treating Forging* (*Furnaces*) **18**, 543–6, 595–8. E. H.

**Sulfur compounds in flue gases—elimination by water-washing methods.** H. E WALLSOM. *Chem. Trade J.* **92**, 103–4(1933).—Methods available for the removal of S compds. from flue gases are: (1) washing by water, (2) washing with a soln. or suspension of alk. material, (3) reduction of S compds. to the element S, (4) oxidation of S compds. to $H_2SO_4$, for example, and (5) interaction of the S compds. with an alk. gas and recovery of the compd. formed by water washing. In effecting the neutrali-

zation of the wash water S is formed almost entirely as sulfate, although more than 2–3% of $SO_3$ (assumed to be formed) may be removed. The capacity of water for absorbing $SO_2$ may be greatly increased by insuring its contact with the dissolved O from the flue gases in conjunction with catalysts. The value of lime in the process is briefly discussed and the optimum concns. of catalysts, above which catalysis decreases, are indicated. W. H. BOYNTON

**Tar and liquor separator.** ALEXANDER R. ANDERSON. *Gas J.* **201**, 148–9; *Gas World* **98**, 117–18(1933).—Successful sepn. of tar and liquor was effected in a modification of the type of separator recommended by the Fuel Research Board. P. J. WILSON, JR.

**New outlets for coal tar.** H. BROCHE. *Gas u. Wasserfach* **76**, 29–33(1933); *Gluckauf* **68**, 965(1932).—German tar statistics are given. Higher pitch yields may be obtained by blowing with air in the presence of $H_2SO_4$, S, alkalies, etc. Up to the present, attempts to convert tar into lubricating oils have not been wholly successful. A promising new outlet for tar lies in partial oxidation to org. acids by means of a V catalyst, and then splitting off $CO_2$ in the presence of alkalies to form benzene hydrocarbons. 100 kg. of naphthalene yields 46 kg. benzene, and a large part of the 200–300° fraction of tar oil can also be converted in this way into motor fuel. Tar-oil fractions may find greater use in Diesel engines if a suitable catalyst can be used to reduce their ignition temps. R. W. RYAN

**The measurement of the viscosity of tar.** GUY BARR AND A. L. THOROGOOD. *J. Soc. Chem. Ind.* **51**, 381–92T(1932).—In order to det. the effect of possible errors in the Hutchinson tar tester, various models were prepd. having exaggerated errors, and their times of descent were observed with 6 samples of different types. The expt. showed that the rate of fall was almost directly proportional to the net apparent wt. The abs. viscosities of the tars were detd. by the falling sphere method, with x-rays to follow the fall. It was found that the apparent viscosity of the unstirred samples was liable to vary with the thermal history, particularly with a viscous tar having a high ash content. The conversion factors deduced for the relation between abs. viscosity Hutchinson time $T_H$ and Brit. Road Tar Assocn. time $T_R$ at any one temp. are therefore put forward with some reserve. Approx. $\eta = k_H T_H(M - V\rho) - k_R T_R \rho$, where $\rho$ is the density of the tar and $M$ and $V$ are the mass and vol. of the Hutchinson tester. According to the data available $k_H = 1.67$ and $k_R = 4.44$. The viscosity at 25° may be 1.9–3.0 times that at 30°; hence it is impossible to convert $T_H$ at 25° into $T_R$ at 30°. H. W. LEAHY

**The physical properties and the microscopic structure of coke.** S. BALÁZS. *Mitt. berg. huttenmann. Abt. ungar. Hochschule Berg. Forstw. Sopron* **3**, 3–16(1931).—Micrographs may well be used to supplement the chem. and phys. examns. of coke. To investigate the total structure, slightly enlarged photomicrographs are better than much enlarged ones. These latter can only be used in detn. of residues of graphite, hydrocarbons, ash particles and sulfides in polarized light. S. S. DE FINÁLY

**The production of combustible coke in gas retorts.** J. G. KING. *Gas Eng.* **50**, 59–62(1933). Both *horizontal* and *vertical retort cokes* were burned in a *domestic open grate*, provided with grates of both the well and the barred type. Measurements were made of the heat required for ignition, the time required to reach a condition of "intense" fire, the highest rate of radiation reached, and the percentage of fuel consumed. Comparisons were made with a standard fuel of 1–1¼" *low-temp. coke*. An "intense" fire, one that is glowing at a sufficiently high temp. for normal comfort, gives off 1.05 B. t. u. per min. to a radiometer with a surface of 36 sq. in. located 3 ft. from the fire. Vertical retort coke proved superior to horizontal in burning qualities. In general, the milder the heat treatment to which the coal had been subjected during carbonization the better the burning qualities. Overheating the coke in the retorts could be avoided by a decrease in the time of carbonization without an increase in the temp. If this was accomplished by mixing coke or poorly coking coal with the coal blend, the better burning qualities of the product were offset by its greater friability. But if the coking time was decreased and more volatile matter left in the coke, decrease in gas yield per ton was accompanied by a much greater decrease in the gas required for carbonizing. P. J. WILSON, JR.

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Apparatus for pneumatic separation of powdered or granular coal (Brit. pat. 367,482) **1.** Apparatus for pneumatic separation of dust from coal (Brit. pat. 367,170) **1.** S and $(NH_4)_2SO_4$ from gases containing $H_2S$ (U. S. pat. 1,889,942) **18.** Sampling coal on conveyors (U. S. pat. 1,890,199) **1.** Molded products from lignin [fuel] (U. S. pat. 1,890,491) **20.** Coking (Brit. pat. 380,830) **13.** Treating gases with liquids [for removing smoke] (Brit. pat. 380,764) **1.** Refining [tar] oils (Fr. pat. 737,876) **22.** Washing gases (Brit. pat. 380,099 and 380,746) **13.** Apparatus for separating coal from shale (Brit. pat. 364,426) **1.** Roller and breast mills for crushing coke, coal, etc (Brit. pat. 363,269) **1.** Apparatus for purifying steam, etc. (U. S. pat. 1,890,294) **1.**

HASELHOFF, E., BREDEMANN, G. AND HASELHOFF, W.: **Entstehung, Erkennung und Beurteilung von Rauchschäden.** Berlin: Gebrüder Borntraeger. 472 pp. M. 36.

LEVI, M. G.: **Studi e ricerche sui combustibili. 1930–1931. T. III.** Rome: Tipografia editrice Italia. 390 pp.

KETTNER, HANS: **Die Schwel- und Verkokungswärmen von Steinkohlen im Temperaturgebiet von 250 °C. bis 1050 °C.** Thesis, Brunswick, 1932. 19 pp.

KOPPERS, W.: **Über die Verbesserung von oberschlesischen Hochofenkoks und die Oxydation von oberschlesischen Kohlen.** Thesis, Technische Hochschule, Aachen, 1931. 33 pp. Abstracted in *Met. Abstracts* (in *Metals & Alloys*) **4**, 54(1933).

WINKLER, GEORG: **Das Verhalten von Rohbraunkohlen bei der Zerkleinerung in der Schleudermühle, der Hammermühle und im Glattwaltzwerk.** Thesis, Freiberg, 1930. 93 pp.

ZIEMANN, ARNOLD: **Die Entwicklung des Abraumbetriebes im deutschen Braunkohlenbergbau** unter bes. Ber. des mitteldeutschen Braunkohlenbergbaus. Thesis, Halle, 1930. 145 pp.

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**Liquid fuels.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 366,041, July 25, 1929. Void. A small quantity (0.01–0.1%) of α-naphthol is mixed with liquid fuels, *e. g.*, benzene or cracked hydrocarbons, to prevent discoloration and gum formation. Other protective agents such as anthracene, *e. g.*, 0.005%, may be added.

**Artificial fuel.** ARTHUR A. ROBERTS. Brit. 363,679, June 28, 1929. Void. See Fr. 699,356 (*C. A.* **25**, 3466).

**Distillation of solid carbonaceous materials.** SOC. DES SCHISTES ET PÉTROLES DE FRANCHE-COMTE. Brit. 381,881, May 19, 1931. A process of distg bituminous schists is specified

**High-pressure vessel for the destructive hydrogenation of solid fuels.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,626, Aug. 21, 1930.

**Apparatus for destructive hydrogenation.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,619, Sept. 25, 1930. App. for treating distillable carbonaceous substances contg. S with H at elevated temp. is constructed wholly or partly of a material stable to H coated internally with a thin coating of Si or a metallic substance resistant to S corrosion. Suitable materials stable to H are alloy steels contg. 1–6% of Cr, Al, W, V, Co, Mn or Ni, to these may be applied a coating of Mo, W, Cr, Ti, Si, Al, Ag, Zn, brass or alloys of Zn with Fe, Ni or Cu. Examples of the construction of the app. are given. Cf. *C. A.* 27, 1140.

**Destructive hydrogenation.** CHARLES F. R. HARRISON (to Imperial Chemical Industries, Ltd.). U. S. 1,890,852, Dec. 13. In the destructive hydrogenation of carbonaceous materials in the liquid phase, all of both liquid-phase and vapor-phase reaction products are withdrawn in a single stream from the reaction zone into a sepn. zone maintained at substantially the same pressure as that in the reaction zone and at a temp. sufficient to maintain the major portion of the lower-boiling hydrocarbons in the vapor phase; the reaction products are allowed to sep. in this zone and vaporous products are withdrawn and cooled to condense the low-boiling hydrocarbons, and uncondensed gas and liquid are sepd. under high pressure. App. is described.

**Destructive hydrogenation.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,276, Dec. 18, 1930. Carbonaceous materials, including crude benzenes and benzines, are treated at high temp. and pressure with H-contg. gases obtained by the gasification of solid carbonaceous materials and from which the strongly unsatd. hydrocarbons, S compds., free O and N oxides have been removed. Suitable gases are coke-oven or illuminating gas or the gases from low-temp. carbonization of coal or distn. of shale.

**Destructive hydrogenation.** JAMES M. JENNINGS (to Standard-I. G. Co.). Brit. 365,892, June 23, 1930. Hydrocarbon oils are produced by passing a suspension in oil of solid carbonaceous material, the particles of which can pass through a 100-mesh screen, with H through a reaction zone packed with solid catalyst in lump form, under pressure above 20 atm. The oil is preferably that obtained in the process. Suitable catalysts are oxides of Cr, W and Mo, with or without Zn, Al or Mg oxides. The vapors are condensed and recirculated in known manner, and heavy oil and ash are withdrawn and sepd., the oil being returned for prepg. the suspension.

**Destructive hydrogenation of carbonaceous materials such as solid and liquid fuels.** CARL KRAUCH and MATHIAS PIER (to Standard-I. G. Co.). U. S. 1,890,434, Dec. 6. Materials such as solid and liquid fuels or their distn. or extn. products are treated with added H in the presence of an added catalyst which is immune to S poisoning, at a temp. which will promote the reaction and under a pressure of at least 20 atm. App. is described, and numerous examples with details of procedure are given. Cf. *C. A.* **26**, 3905.

**Destructive hydrogenation of materials such as coal, tar or oil.** MATHIAS PIER

(to Standard-I. G. Co.). U. S. 1,890,438, Dec. 6. The material is treated with H at 300–700° under a pressure of over 20 atm. in a plurality of stages in the presence of a catalyst such as one contg. Mo and Zn, and substantially all the carbonaceous substances of high mol. wt. which disturb the further conversion, contained in the vaporous products derived from the first stage of the process, are removed before subjecting the other vaporous products to a further conversion treatment with a catalyst such as one contg. Mo, Cr and Al which would be subject to clogging if these substances were not removed. App. is described.

**Destructive hydrogenation of materials such as coal, tar or oil.** MATHIAS PIER (to Standard-I. G. Co.). U S. 1,890,439, Dec. 6. In the destructive hydrogenation of a distillable bituminous material, in the presence of a gas contg. free H under a pressure of at least 20 atm. and at a suitable hydrogenation temp. above 350° (the bituminous material contg. constituents decomposable between 300° and the reaction temp ), the bituminous material and the hydrogenating gas are separately preheated to between 300° and 350°, and the bituminous material is then mixed with at least a part of the hydrogenating gas and the materials are heated to the reaction temp. before being introduced into the reaction chamber. App. is described.

**Destructive hydrogenation of carbonaceous materials such as tars, mineral oils, etc.** MATHIAS PIER (to Standard-I. G. Co.). U. S. 1,890,437, Dec. 6. The process is effected by use of at least 3 reaction vessels arranged in series, at a temp. of 300-700° and under a pressure of at least 20 atm., the speed of flow of the materials and the temp. in at least the first 2 vessels of the series being such that the reaction is only partially effected in these vessels. All the vapors from at least the first 2 vessels are passed through all the remaining vessels of the series while appreciable cooling in the flow of materials from one vessel to another is avoided. App. is described.

**Low-boiling hydrocarbons by destructive hydrogenation of liquid bituminous material such as tar.** CARL KRAUCH and MATHIAS PIER (to I. G. Farbenind. A.-G.). U. S. 1,890,435, Dec. 6. The material is atomized or otherwise finely dispersed in a hydrogenating gas under a continuously maintained pressure of at least 50 atm. and at a suitable hydrogenating temp. and in the presence of a catalyst (such as one contg. W) which is immune to S poisoning App is described, and various examples are given. Cf. *C. A.* **27**, 182.

**High-boiling oils from residues of distillation of destructive-hydrogenation products of carbonaceous materials.** MARTIN LUTHER and MARTIN MÜLLER-CUNRADI (to Standard-I. G. Co.). U S 1,889,926, Dec. 6. Vapors carrying finely distributed particles of liquids of low b. p. (such as damp steam) are introduced at less than atm. pressure into the residue, which is heated to above 300° but below the cracking temp. of the oils contained in the residue. App. is described.

**Apparatus for low-temperature carbonization; charging and discharging.** C. PAMART. Brit. 380,074, April 23, 1930. Addition to 268,613 (*C. A.* **22**, 1461) and 331,497 (*C. A.* **25**, 193).

**Apparatus for dressing coal.** RHEINISCHE STAHLWERKE (to Karl Lehmann). Brit 363,618, July 31, 1929. See U. S. 1,854,659 (*C. A.* **26**, 3362).

**Separating solid materials such as coal.** REMBRANDT PEALE, WM. S. DAVIES and WM. B. OAKES Brit. 365,606, Sept. 19, 1929. A process is described of cleaning coal by the action of mech jigging and upward air currents on an air-pervious support so as to stratify the material according to d. and then sepg. the layers.

**Impact pulverizer with pneumatic separator for crushing coal.** COMPAGNIE FRANÇAISE BUELL COMBUSTION. Brit 365,597, July 10, 1930.

**Elongated retort [with an internal rotor] for carbonizing coal and the like.** FRANK C. GREENE. U. S. 1,890,661, Dec. 13. Various structural and mech. details are described.

**Oils from residues such as those obtained in treating brown-coal tar oil with aluminum chloride.** EMMERICH V. PONGRATZ and HERMANN ZORN (to I. G. Farbenind. A.-G.). U. S. 1,889,932, Dec. 6. Oil-bearing residues substantially free from low-boiling hydrocarbons and contg. a metal halide such as $AlCl_3$ are subjected to dry distn. with an addn. of basic material such as $CaCO_3$ which serves to improve the yield and character of oils recovered.

**Header and tube heat-transfer device suitable for use with steam.** CHARLES E LUCKE (to Babcock & Wilcox Co.). U. S. 1,890,185–6, Dec. 6. Structural features.

**Method and apparatus for superheating and decomposing steam for water-gas production.** JENS RUDE. Brit. 363,715, Sept. 22, 1930.

**Desuperheating vapors such as steam.** WILBUR H. ARMACOST (to Superheater Co.). U. S. 1,889,739, Dec. 6. Various structural and operative details are described.

**Carbureting.** METALLGES. A.-G. Brit. 380,386, May 1, 1931. See Ger. 548,473 (*C. A.* **26**, 3652).

**Desulfurizing gases.** HELIODOR ROSTIN. Fr. 737,787, May 28, 1932. The alternate action of $H_2S$ and $SO_2$ on compds. such as $CaCO_3$, FeS or $FeSO_3$ is used to remove one or other or both of these gases from other gases.

**Equipment for water-gas generation.** HUMPHREYS AND GLASGOW, LTD., and J. E. G. FRYER. Brit. 381,046, Jan. 12, 1932.

**Gas producer.** JOHN S. HAUG (to U. G. I. Contracting Co.). U. S. 1,890,056, Dec. 6.

**Fuel-gas generator and automatic coal feeder.** FRANK C. GREENE. U. S. 1,890,606, Dec. 13. Structural features.

**Flue-gas washers.** LONDON POWER CO., LTD., S. L. PEARCE and C. F. GOODEVE. Brit. 380,513, June 19, 1931.

**Sampling tube suitable for use in periodic or continuous analysis of flue gases.** JOSEPH A. STEIN and LOUIS L. VAYDA (to Bacharach Industrial Instrument Co.). U. S. 1,890,627, Dec. 13. Various structural details of a device provided with a filter.

**Apparatus [with a perforated plate in the stream of gases] for treating gas mixtures fed to internal-combustion engines.** HERBERT V. DALGLIESH (one-half to Francis L. Browne and Nelson J. Jewett). U. S. 1,890,497, Dec. 13. Structural details.

**Gas carbureter suitable for mixing air with fuel gas.** GEORGE L. HOLZAPFEL (to Richfield Oil Co. of Calif.). U. S. 1,890,058, Dec. 6.

**Device for supplying grease-like sealing means to the sealing spaces of waterless gas holders.** MASCHINENFABRIK AUGSBURG-NÜRNBERG A.-G. Brit. 363,290, June 14, 1930.

**Temperature- and pressure-actuated indicator suitable for use with internal-combustion engine cooling systems.** H. SCHLAICH. Brit. 345,292, Dec. 20, 1928. Mech. and elec. details.

**Recovering sulfur and ammonium compounds from gas mixtures containing hydrogen sulfide.** CHRISTIAN J. HANSEN (to Koppers Co. of Del.). U. S. 1,889,894, Dec. 6. A gas mixt. contg. $H_2S$ and $NH_3$ such as coke-oven gas is treated in not less than 3 consecutive steps with a washing liquid contg. a thionate of a metal such as Fe, Mn or Zn forming sulfides insol. in water but sol. in the presence of $SO_2$, and there is provided in a medium washing step only for that quantity of $NH_3$ which is required in the conversion of the dissolved metal compds. into sulfides, and the spent washing liquor is withdrawn from this medium step.

**Purifying ammoniacal liquor.** KOPPERS CO. Brit. 380,699, Jan. 31, 1931.

**Phenols.** I. G. FARBENIND. A.-G. Fr. 738,100, June 3, 1932. Crude phenols from lignite or coal tar, or waters from the condensation of vapors produced by the carbonization at low temp. or the distn. of carbonaceous materials, are purified by treating them at 250–400° under pressure of 100–200 atm. in the presence of catalysts, particularly metals of the 6th group or their compds. The contact is of such duration that the reduction of the phenols is only secondary.

**Low-boiling products "of benzine character" by hydrogenation of crude liquid hydrocarbon material such as tars or oils.** CARL KRAUCH and MATHIAS PIER (to Standard-I. G. Co.). U. S. 1,890,436, Dec. 6. The crude liquid hydrocarbon material is distributed in a stream of H in excess of the required quantity and the mixt. is heated to 300–700° under a pressure of 100 atm. or more in the presence of an added catalyst immune to S poisoning such as one contg. Mo and Al or Cr. App. is described.

**Treating coal-tar pitch.** JOHN M. WEISS (to Barrett Co.). U. S. 1,890,349, Dec. 6. By-product coke-oven tar is distd. until a residual pitch hard enough to be ground at ordinary atm. temps. is obtained, and the pitch is coked in admixt. with bituminous coking coal in the proportion of not over 15 parts of pitch per 100 parts of coal, to obtain a composite coke.

**Materials for making coke and other products.** COMPAGNIE DES MINES DE BRUAY. Brit. 380,933, Oct. 2, 1930.

**Apparatus for the dry quenching of coke.** MAURICE BERTRAND. Brit. 363,366, Aug. 16, 1930.

**Coke ovens.** OFFICE CENTRAL DE CHAUFFE RATIONNELLE (H. Guillon, inventor). Fr. 737,779, May 28, 1932. Mech. hearth for converting coal to coke is described.

**Coke furnaces and ovens.** FIRMA CARL STILL. Fr. 738,361, June 9, 1932. Means for anchoring.

**Coke ovens; covers for resisting fluid pressure.** C. STILL. Brit. 380,038, July 10, 1931. Distillates are withdrawn from the interior of the charge in the ovens through a central detachable suction tube. Cf. *C. A.* **27**, 1150.

**Suction apparatus for removal of distillates from coke ovens.** C. STILL. Brit. 380,405, May 23, 1931.

**Apparatus and process for drying, heating, cooling, etc., of coke, coal, sand, etc.** STETTINER CHAMOTTE-FABRIK A.-G. Brit. 363,701, Sept. 23, 1929.

# 22—PETROLEUM, LUBRICANTS, ASPHALT AND WOOD PRODUCTS

W. F. FARAGHER

**Movement of petroleum products through a conical tube.** L. S. LEIBENZON. *Neftyanoe Khozyaĭstvo* **23**, 156–7(1932).—A math. treatise. A. A. BOEHTLINGK

**Flow of liquid through a cone and the possibility of using the Venturi nozzle for metering petroleum products.** D. S. VILKER *Neftyanoe Khozyaĭstvo* **23**, 158–60 (1932).—A math. discussion. A. A. BOEHTLINGK

**Total heat and specific heat of a series of fractions of petroleum oil and their relation to other properties. IX. Preparation of the samples of Venezuelan oil and the determination of some of their physical properties.** H. R. LANG. *J Inst. Petroleum Tech.* **18**, 850–2(1932); cf. *C. A.* **26**, 584. **X. Temperature variation between 0° and 100° of the specific heat of the Venezuelan fractions.** R. JESSEL. *Ibid* 853–4. **XI. Total heat of the Venezuelan fractions.** H. R. LANG. *Ibid* 855–6. **XII. Summary and general discussion of the results.** H. R. LANG AND R. JESSEL. *Ibid* 856–65 EMMA E CRANDAL

**Cementing oil wells with an accelerator. III.** V. N. KOREPANOV AND E. K. MACHINSKII. *Neftyanoe Khozyaĭstvo* **20**, 387–400(1931); cf. *C. A.* **27**, 1152.—Crude oil retards the beginning as well as the final setting of cement, the influence being only slight when less than 5% of oil is present. The addn. of an accelerator is of great advantage in this case. Clay acts as an accelerator, probably on account of the presence of alkalies in the mud. The influence of oil-well waters depends on their chem. nature. Thus, water contg. $SO_3$ retards setting and the presence of $CaCl_2$ lowers the mechanical strength of the cement. A. A. BOEHTLINGK

**Faulty cementing of oil wells in the Azneft district in 1931.** L M. MIKHURA. *Neftyanoe Khozyaĭstvo* **23**, 108 9(1932). —Faulty cementing was due to the following factors: (1) insufficient thickness of the cement ring, (2) lack of knowledge of the geological conditions, (3) improper prepn. of the mortar and (4) incorrect application of accelerators. A. A. BOEHTLINGK

**Losses through evaporation in Dossor crude oil.** V. M. LEVCHENKO. *Neftyanoe Khozyaĭstvo* **20**, 401–5(1931) —Dossor crude oil contains about 10% of a fraction b. below 200°. The losses are due to faulty storage containers and other defects in the oil-handling equipment A. A. BOEHTLINGK

**Microscopic study of certain oils which show the phenomena of high- and low-pour points.** R. W. MOORE AND L. C. BEARD, JR. *Proc Am. Soc. Testing Materials* **32**, Pt. I, 402 -5(1932).—Photomicrographs of oils subjected to various heat treatments as outlined in A. S T. M method D97–30 showed that the high and low pour points are intimately related to the soln. temp. of the waxy material in the oil; they indicate the improbability of developing a method which will be applicable to all oils. When the oil was heated to 220°F. and cooled, the anisotropic material sepd. as large clusters; when heated to 115°F., or another temp. found to give the highest pour point, very fine particles were obtained. A. PAPINEAU-COUTURE

**Hydrogenation of Esthonian oil shale and shale oil.** PAUL N. KOGERMAN AND JEAN KOPWILLEM. *J. Inst. Petroleum Tech.* **18**, 833–45(1932).—When kukkersite is hydrogenated, the kerogen absorbs about 1.8% of its wt. of $H_2$. Hydrogenation does not take place to any extent at temps. below the decompn. point of the kerogen; and the amt. of kerogen liquefied in one pass is nearly the same as the amt. of liquid yielded by distg. the shale. The products of hydrogenating at 400 410° and 250 kg./sq. cm. are mainly paraffinic and naphthenic. Higher temps. and long heating produce aromatic hydrocarbons. EMMA E. CRANDAL

**High-quality motor fuels and other products are obtainable from Esthonian shale oils.** GUSTAV EGLOFF AND E. F. NELSON. *Oil and Gas J.* **31**, No. 34, 14(1933). J. R. STRONG

**Study of oil field water analysis. I. Estimation of the sulfate radical by benzidine and errors inherent in the method. II. The volumetric estimation of calcium in the presence of magnesium.** DAVID G. JONES AND CHARLES E. WOOD. *J. Inst. Petroleum Tech.* **18**, 817–32(1932). EMMA E. CRANDAL

**Cracking of shale tar in the United States.** M. B. MARKOVICH. *Khim. Tverdogo Topliva* **2**, No. 11–12, 131–4(1931).—A review. A. A. BOEHTLINGK

**Recent developments in the Edeleanu process.** O. P. COTTRELL. *Proc. Am. Petroleum Inst.*, Sect. III, 13th Ann. Meeting, 94–101(1932). E. H.

**The influence of the chemical composition of kerosene on its burning properties in lamps.** R. A. VIROBYANTZ AND P. A. SENTZOV. *Neftyanoe Khozyaĭstvo* **22**, 331–5;

23, 91–6(1932).—Aniline points, photometrical tests, sp. gravities, *n*s, abs. viscosities at 20° and 50°, surface tensions at 15° (in dynes/sq. cm.), and pour points, were detd. on kerosenes of Russian origin. It is best to det. the chem. properties of kerosenes by the aniline point method; detns. are made before and after monohydrate treatment; photometrical tests require lamps of a certain standard; the construction of the various parts of the lamp is of great importance; Grozny kerosenes are classified as paraffin-base kerosenes. Methane hydrocarbons have the highest original illuminating properties, which are lowered in the course of burning, while aromatic hydrocarbons which have an original low illuminating power improve the latter during the burning process. Therefore, 10–20% of aromatics should be present in the kerosene when a uniform illuminating power is desired. Naphthenic acids, their salts and S compds. are detrimental and should be removed. A. A. BOEHTLINGK

**Wide variation of bleaching clays in United States to satisfy the need of petroleum refiners.** P. G. NUTTING. *Oil and Gas J.* **31**, No. 36, 14(1933).—Description and analyses for bleaching power and content of clay are given. J. R. STRONG

**Volatility index for motor fuels as aid in the utilization of light hydrocarbons.** G. S. OBERFELL AND R. C. ALDEN. *Oil and Gas J.* **31**, No. 35, 14, 78(1933).—The volatility index of a gasoline is the difference between 284°F. and the temp. at which 50% has evapd. With this index as a manufg.-control point, intelligent use can be made of the present surplus of light hydrocarbons. Among com. motor fuels differences in volatility index are responsible for most of the variations in performance. J. R. S

**Light hydrocarbons found in natural gasolines maintain rating in new antiknock tests.** H. M TRIMBLE. *Oil and Gas J.* **31**, No. 35, 16, 73(1933).—Charts are given showing the comparison of three antiknock tests with relation to the rating of natural gasolines. J. R. STRONG

**Proposed methods for determination of gum content [preformed gum] in gasoline.** ANON. *Proc. Am. Soc. Testing Materials* **32**, Pt. I, 412–14(1932).—Two different methods are described for detn. of the preformed-gum content (nonvolatile residue); one of them requires a special app. which is described. A. PAPINEAU-COUTURE

**Proposed method for determination of knock characteristics of motor fuels.** ANON. *Proc. Am. Soc. Testing Materials* **32**, Pt. I, 415–21(1932).— A detailed description of the app. and method recommended for the detn of knock characteristics, in terms of an arbitrary scale of octane nos., of gasolines and equiv. fuels for use in spark-ignition engines other than aircraft engines. It is based on the app. and procedure developed by the Coöperative Fuel Research Comm. of the Am. Petroleum Inst., Nat'l. Automobile Chamber of Commerce, Soc. of Automotive Engrs., and U. S. Bur. of Standards A. PAPINEAU-COUTURE

**Correlation of C. F. R. Laboratory knock ratings with behavior of motor fuels in service. Report of the Detonation Subcommittee of the Coöperative Fuel Research Committee.** C. B. VEAL, H. W. BEST, J. M. CAMPBELL AND W. M. HOLADAY *Proc Am. Petroleum Inst.*, Sect. III, 13th Ann. Meeting, 139–53(1932). E. H

**The coöperative fuel research apparatus and method for knock testing. A report of progress in the work of the Detonation Subcommittee.** T. A. BOYD. *Proc Am. Petroleum Inst.*, Sect. III, 12th Ann. Meeting, 46–59(1931). E. H.

**Detonation in internal-combustion engines and the evaluation of antiknock properties of fuels.** E. KUZNETZOV. *Sgoranie i Detonatziya* (*Combustion and Detonation*), *Aviaavtoizdat* Moscow **1932**, 5–23.—American and English testing methods which agree with tests carried out with Russian gasolines are discussed. Jentsch's inflammability-limit testing app. is found to be inaccurate for detg. ignition points of fuels because of the change in compn. during the expt. A. A. BOEHTLINGK

**Relationship between detonation and the structure of hydrocarbons present in gasoline.** A. D. PETROV. *Sgoranie i Detonatziya* (*Combustion and Detonation*), *Aviaavtoizdat* Moscow **1932**, 24–32.—P. discusses his expts. in which he subjected high-boiling and low-boiling normal olefins to cracking at 320–400° at elevated pressure. Low-boiling olefins are polymerized, liquid olefins of the iso-structure being formed High-boiling olefins are cracked at medium temps., forming aromatic hydrocarbons (xylene and toluene) without any addnl. formation of ethylene. This indicates the formation of aromatic compds. from diolefins; the latter were formed from olefins of the iso-structure, which were formed through the isomerization of normal olefins. The gasoline so obtained contains paraffins only in the lower-boiling fractions while above 90–100° naphthenes prevail. These paraffins are mainly of the iso-structure, which accounts for their antiknock properties. The use of silica gel for adsorbing the low-boiling gasoline is emphasized and the applicability of this method is illustrated by a few examples. A. A. BOEHTLINGK

**Localization of detonation phenomena.** MAX SERRUYS. *Compt. rend.* 195, 1376–9(1932). M. MCMAHON

JR., *et al.* *Proc. Am. Soc. Testing Materials* **32**, Pt. I, 426–31(1932).—The (1) centrifuge tube, (2) Dulin rotarex, (3) Barber asphalt, and (4) thimble extn. methods were studied collaboratively on 2 samples of the fine-aggregate type of mixt. which varied only in the character of the mineral filler used (limestone dust and portland cement, resp.). Methods (1), (2) and (4) showed relatively high probable errors for the limestone filler, and (4) a relatively high error for the portland-cement filler as well. Method (2) showed definitely high values for bitumen. "Bitumen + 200 mesh" was relatively uniform for all methods with (3) showing a tendency to be high. Method (4) showed unusually high corrections. Method (3) showed the best agreement for both mixts., with the expected probable and max. errors approx. one-half what they would be by using all systems.
A. PAPINEAU-COUTURE

**Recovery of asphaltic bitumens from solutions as far as possible without altering their properties.** J. GREUTERT. *J. Inst. Petroleum Tech.* **18**, No. 108, 846–9(1932).—Asphaltic bitumens were recovered from soln. in $CS_2$ with but small drops in penetration and rise in m. p. by the use of app. and procedure described. Distn. of the solvent was assisted by a current of $CO_2$.
EMMA E. CRANDAL

**The chemistry of wood. IV. Water-soluble polysaccharide of Eastern larch.** LOUIS E. WISE, PHILIP L. HAMER AND FLOYD C. PETERSON. *Ind. Eng. Chem.* **25**, 184–7(1933); cf. *C. A.* **25**, 4703.—Eastern larchwood yields an *arabogalactan* $[(C_6H_8O_4)\text{-}(C_6H_{10}O_5)_6]n$, sol. in $H_2O$, insol. in alc., $[\alpha]_D^{20}$ 13.02, yielding about 82% galactose and 12% arabinose on hydrolysis, and very similar to if not identical with the arabogalactan of Western larch (cf. Wise and Peterson *C. A.* **24**, 3359). Proximate methods for the *detn. of galactose and arabinose* in known mixts. were studied, and their limitations are discussed.
LOUIS E. WISE

**Distribution and nature of extractives in longleaf and shortleaf pine.** E. F. KURTH. *Ind. Eng. Chem.* **25**, 192–5(1933); cf. *C. A.* **27**, 186.—The distribution of $Et_2O$ and alc.-$C_6H_6$ exts. in *P. palustris* and *P. echinata* is analogous to that of the $Et_2O$ exts. in slash pine. The percentage of ext. increases from the bark to the pith, and in this region (except with virgin timber) increases with decrease in tree height. Tabulated data give chem. analyses of the exts. (indicating a relatively high phytosterol content in the sapwood) and differences in sapon. no., acid no., unsaponifiable matter, and NaOH-sol. matter in various parts of the trunk.
LOUIS E. WISE

**Heating value and composition of charcoals.** N. I. NIKITIN AND D. V. PALUKHIN. *J. Applied Chem.* (U. S. S. R.) **5**, 991–7(1932) —Careful exptl. work with over 20 samples of different charcoals shows that the formula: $Q = 80.51C + 273.4H$ ($Q$ is heating value, $C$ and $H$ are percentages of $C$ and $H$, resp., by wt.) is accurate within $\pm 0.6\%$ contrary to the opinion of Schorger (*C. A.* **21**, 495), who prefers the data of Klason.
V. K.

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The newer chemistry of coatings [solvents from hydrogenation of petroleum] (ELLIS) **26**. Petroleum asphalts (LINTON, *et al.*) **26**. A method of interpolating data [about gumming of gasoline] (PERRY, SMITH) **2**. A summary of year's insulation research [insulating oil] (WHITEHEAD) **13**. Comparing [bore-hole] waters by data obtained by an incomplete analysis (MALYAROV) **14**. Investigation at elevated temperatures of [cracking-coil] steel manufactured by the Izhorskii mill (VOLFSON) **9**. Naphthenic acids, their preparation and utilization (GOLDBEI G) **10**. The reaction capacity of oil S (SZÉKI, ROMWALTER) **21**. Distillation of solid carbonaceous materials (Brit. pat. 381,881) **21**. Destructive hydrogenation (Brit. pats. 365,276 and 365,892) **21**. Oils from residues obtained in treating brown-coal tar oil with $AlCl_3$ (U. S. pat. 1,889,932) **21**. Emulsifying agents (Brit. pat. 365,299) **18**. Antioxidants (Brit. pats. 364,092 and 364,243) **30**. Centrifugal oil cleaner (Brit. pat. 367,657) **1**. Distillations [of mineral oils] (Fr. pat. 738,205) **13**.

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SCHWARZ, R.: **Petroleum Vademecum. Vol. I and II.** 9th ed. Vienna: Verlag für Fachliteratur. M. 24.

KLINKMANN, G. H.: **Die Teer-Erdölbitumen-Mischungen für den Strassenbau.** Thesis, Karlsruhe, 1931. 141 pp.

LURIA, ISSAI: **Das Erdölproblem in Frankreich.** Thesis. Berlin, 1932. 182 pp.

SCHMIDT, A. R.: **Das Petroleum und der Fiskus.** Eine Darstellung der Petroleumsteuern in den wichtigsten Produktions- und Konsumländern der Welt. Thesis, Basel, 1931. 28 pp.

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**Treating hydrocarbons such as petroleum distillates for removing sulfur compounds, etc.** PAUL L. MAGILL (to Roessler & Hasslacher Chemical Co.). U. S. 1,890,881, Dec. 13. **Vapors of hydrocarbons such as gasoline are passed, at a temp. above that at which substantial amounts of the vapors condense, through a mechanically agitated**

treating mixt. comprising finely divided alkali metal intimately dispersed in a semi-solid mass of by-products produced by the reaction. App. is described.

**Hydrogenation and desulfuration of hydrocarbons.** PAUL L. F. NICOLARDOT. Brit. 366,896, Aug. 14, 1929. Void. See Fr. 696,771 (*C. A.* **25**, 2837).

**Cracking hydrocarbons.** BRITISH & DOMINIONS FERALLOY, LTD. and JAMES W. BAMPFYLDE. Brit. 364,043, July 17, 1930. See Fr. 719,190 (*C. A.* **26**, 3368).

**Refining cracked hydrocarbon distillates.** JACQUE C. MORRELL and JESSE L. ESSEX (to Universal Oil Products Co.). U. S. 1,890,229, Dec. 6. The distillate is subjected to the action of borax at a temp. substantially above atm. temp. but below cracking temp. to remove gummy substances and oily polymers. U. S. 1,890,230 relates to a similar process in which an adsorbent of the clay type is used in admixt. with the borax.

**Distilling hydrocarbon residues.** N. V. DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ. Brit. 363,972, Aug. 13, 1930. In the manuf. of asphalt from a petroleum residue having an asphaltene content of 5% or less, in which the residue is "blown" to increase this content to 7% or more, the product is distd. with or without steam or reduced pressure.

**Hydrocarbon-oil-cracking apparatus.** CARBON P. DUBBS (to Universal Oil Products Co.). U. S. 1,890,316, Dec. 6. Oil is passed successively through each of a plurality of heating coils within a furnace and intermediate the successive coils is passed through vapor chambers to sep. vaporous constituents; from the last of the coils the oil is passed to an enlarged vapor chamber in which substantial conversion takes place; the evolved vapors are dephlegmated and reflux condensate is returned to the enlarged vapor chamber; unvaporized reflux condensate and lighter unvaporized residual oil in the vapor chamber are continuously returned to the inlet of the first heating coil, and the conversion operations are conducted under superatm. pressure. Various structural details are described.

**Desulfurizing hydrocarbon oils.** GENERAL TECHNICAL CO., LTD. Brit 365,571, Aug. 2, 1929. Void. See Fr. 695,004 (*C. A.* **25**, 1984).

**Purifying mineral oils.** ANGLO-PERSIAN OIL CO., LTD. and ALBERT E. DUNSTAN Brit. 364,204, Oct. 10, 1930. See Fr 725,186 (*C. A.* **26**, 4943).

**Breaking emulsions such as those of crude mineral oils.** FRITZ E. FUCHS (to Samuel J. Singer). U. S. 1,890,849, Dec 13 Pine oil is used to decrease the viscosity at low temps. of emulsion breakers contg. a sulfonated oil material.

**Resolving mineral oil emulsions.** WM. B. LERCH (to Curo Process Co.). U. S 1,890,789, Dec. 13. A demulsifying agent is used comprising the reaction product of sulfonated cottonseed oil with a chlorinated tarry material formed by chlorinating tarry material of the polyolefin, cyclopentene and cyclohexene series such as a chlorinated Blau-gas tar.

**Refining oils.** HERMANN FRISCHER. Fr. 737,876, May 31, 1932. Residual $H_2SO_4$ from the refining of tar or mineral oils is regenerated by treatment with $HNO_3$ or oxides of N of a high degree of oxidation.

**Treating spent adsorbent material used in oil treatment.** IRA K. FULLER (to Contact Filtration Co.). U. S. 1,890,255, Dec. 6. Material such as activated clay which has been used for treating oil is treated with an oil solvent such as gasoline for removing the oil, dried, mixed with a solvent (such as $C_6H_6$ and methylethyl ketone) for adsorbed matter, filtered and washed with fresh solvent to sep. residual adsorbed material.

**Treating spent adsorbent material used in oil refining.** IRA K. FULLER (to Contact Filtration Co.). U. S. 1,890,284, Dec. 6. Spent material such as activated clay which has been used in refining or decolorizing oil is mixed with a relatively large quantity of an oil solvent such as gasoline and after filtering the filter cake is treated with a relatively small quantity of solvent to remove remaining dil. oil soln.

**Destructive hydrogenation of liquid hydrocarbons.** STANDARD-I. G. CO. Fr 737,615, May 25, 1932. The hydrocarbons are sepd. into 2 or more fractions which are heated in sep. heating coils and pass together to the reaction chamber for treatment with H. The highest fraction is preferably wholly vaporized below 370° and H may be mixed with this fraction in the heating coil.

**Hydrocarbon motor fuels.** CHARLES D. LOWRY, JR. and CHARLES G. DYER (to Universal Oil Products Co.). U. S. 1,889,835, Dec. 6. Deterioration of distillates such as gasoline contg. cracked unsatd. hydrocarbons is inhibited by adding a small quantity of the tar fraction obtained in the destructive distn. of wood, which checks gum formation in the distillate. U. S. 1,889,836 relates to the similar use of an oily distillate of hardwood tar, b. 240–300°.

**Motor fuel.** I. G. FARBENIND. A.-G. Fr. 738,368, June 9, 1932. Antiknock fuels for motors are made by destructive hydrogenation of carbonaceous materials in the

presence of catalysts, first under powerful conditions of hydrogenation at a low temp. (*e. g.*, 400–450°, with sulfides of heavy metals as catalysts), while maintaining a partial pressure of about 10% in the reaction vessel for the improved products b. between 40° and 200°, and then destructively hydrogenating at 500–600° in the presence of catalysts. The constituents b. above 200° from the 1st step are preferably returned to the first hydrogenating zone. A partial pressure of more than 10%, preferably more than 20%, is maintained in the 2nd step for the product b. between 40° and 200°.

**Refining gasoline stock.** ARTHUR LACHMAN (to Richfield Oil Co. of Calif.). U. S. 1,890,516, Dec. 13. Gasoline stock which is pos. to the "doctor test" is commingled with an aq. soln. of an alkali compd. such as NaOH having a $p_H$ greater than 7.4 contg. comminuted activated charcoal and air, to convert corrosive "sulfur hydrocarbons" into non-corrosive "sulfur hydrocarbons" and render the gasoline neg. to the "doctor test," and the purified gasoline stock is then sepd. from the excess alkali salt soln. and other assocd. treating agents and products of reaction. An arrangement of app. is described.

**Lubricating oils.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,823, Dec. 17, 1930. Hydrocarbon oils having a substantial content, *e. g.*, 20–80%, of paraffin wax are dehydrogenated, the products sepd. by solvents into a fraction contg. more than 14.5 parts H to 100 parts C by wt. and a fraction poorer in H, and the former, which may be mixed with hydrocarbon which is liquid at 50–300°, is subjected to catalytic condensation and (or) polymerization.

**Lubricating oils.** DONALD A. HOWES and IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 363,846, Jan. 5, 1931 See U. S. 1,877,664 (*C. A.* **27**, 187)

**Lubricating oils.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,110, Sept. 22, 1930. Improved lubricating oils are obtained by enriching in H, lubricating oils of low viscosity, which may contain paraffin waxes, cracking the enriched oils and condensing the cracked products with condensing and (or) polymerizing agents, chlorides of Al, Zn, Fe, B and P, Zn dust, etc. The oils are enriched by treatment with H at about 390–430°, preferably in the presence of catalysts of the 6th group. Alternatively the oils may be sepd. into H-rich and H-poor fractions by differentiating solvents, *e g.*, $SO_2$, PhOH, $PhNH_2$, etc., and the H-poor fraction hydrogenated. The cracking is at about 400–600°, preferably in the presence of catalysts. The condensation is at about 150°, preferably in the presence of substances of large surface area, *e. g.*, bleaching earth, active $SiO_2$, etc.

**Lubricating oils.** STANDARD OIL DEVELOPMENT CO. Fr. 737,836, May 30, 1932. Lubricating oils are prepd. by treating petroleum oil by a selective solvent such as PhOH and submitting the refined product contg. a part of the solvent to distn. in the presence of an adsorbent clay. An app. is described. Cf. *C. A.* **27**, 1502.

**Dewaxed paraffin-base lubricating oil.** EDWIN R. LEDERER (to Texas Pacific Coal & Oil Co.). U. S. reissue 18,676, Nov. 29. A reissue of original pat. No. 1,803,941 (*C. A.* **25**, 3825).

**Lubricant containing alkali metal sulfonate.** ARMAN E. BECKER (to Standard Oil Development Co.). U. S. 1,888,974, Nov. 29. A petroleum lubricating oil is used together with an alkali soap of a fatty acid such as Na oleate and an oil-sol. alkali metal sulfonate derived from mineral oil which serves to facilitate feeding the lubricant by a wick or the like.

**Solutions of asphalt, etc.** ANDRÉ DIEBOLD. Fr 738,198, June 6, 1932. A metallic aspect is given to coatings made from solns. of asphalt, etc., by incorporating therewith a metal powder such as Al.

**Asphalt from residuum oil.** HAROLD B. PULLAR. U. S. 1,889,697, Nov. 29. In a continuous process, a moving body of oil is heated and reduced to a fine state of subdivision (as by spraying) and then brought into intimate contact with a plurality of streams of air, finely divided, under relatively low pressure in an enlarged reaction zone; volatile matter is separately removed and the desired asphaltic product is recovered and the vol. and pressure of the air introduced are controlled relative to the pressure of the oil so that these pressures are substantially equalized. App. is described.

**Apparatus for extracting wood.** PAUL DELEPLANQUE. Fr. 737,468, May 24, 1932.

## 23—CELLULOSE AND PAPER

CARLETON E. CURRAN

**Cellulose and its place in industry.** PHILIP C. SCHERER, JR. *J. Chem. Education* **10**, 131–40(1933). E. H.

**Cellulose from the leaves of Phoenix dactilifera.** F. SORGÈS. *Lavori ist. botan. Palermo* **3**, 49–55(1932).—The leaves treated by the NaOH and the Cl methods yield,

resp., 30.9 and 37.5% (on dry matter). The alternative treatment with alkali and acids gives 85–88% cellulose. Cellulose contains, on an av., $H_2O$ 2.24 and ash 1.23%, and has: Cu no. 1.8; loss on hydrolysis by heating 5 min. 4.07% and by heating 1 hr. 17.2%; increase in wt. by mercerization 25.4%; decrease in wt. by acid purification 5.4%. It contains 12% hemicellulose, but no pentosans. Cellulose acetate is sol. in acetone 2:1. G. A. BRAVO

**The size of the cellulose molecule and a glance at its technical significance.** W. KARO. *Nitrocellulose* **3**, 184–6, 202–4(1932).—A review. E. M. SYMMES

**The structure of cellulose fibers.** D. KRÜGER. *Zellstoff u. Papier* **13**, 9–12 (1933).—A review and discussion, with 28 references, of the recent literature on the methods of detg. the structure of the cellulose fibers. S. I. ARONOVSKY

**The solubility of cellulose in cadmium- and zinc-tetrammino hydrates.** GIULIO TOCCO AND EMILIO DEBENEDETTI. *Boll. reparto fibre tessili staz. sper. ind. carta e studio fibre tessili vegetali* **4**, 195–8(1932).—According to Traube's investigations (*Ueber Kupferoxydammoniak-Zellulose* **1927**, 95) only Schweizer's soln. can dissolve cellulose. But by substituting Zn or Cd for Cu in Schweizer's soln. contg. cellulose, at temp. <20°, it is possible to obtain a soln. contg. a max. of 5% cellulose. The Zn soln. is colorless, that of Cd slightly yellowish, and the latter has a very high viscosity. Cellulose is directly sol in the Cd- and Zn-tetraammino hydrates. G. A. BRAVO

**Esterification of cellulose and cellulose esters. IV. Selective absorption of the component of mixed acid by cellulose nitrate.** KATSUMOTO ATSUKI AND MASANORI ISHIWARA. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding No. 12, 587–91(1932); cf. *C. A.* **23**, 4816.—After nitration of cotton with a mixt. of $HNO_3$, $H_2SO_4$ and $H_2O$ the ratio $H_2SO_4$:$HNO_3$ of the acid inside the fiber is less than that outside, because of the greater diffusion velocity of $HNO_3$ which is selectively absorbed by the cellulose nitrate. $H_2O$ diffuses with the $HNO_3$ and is also formed by esterification, so that equil. is reached with the acid inside and outside the fiber having different compns. This diln. and the equil. established account for the impossibility of obtaining true cellulose trinitrate. C. E. HRUBESKY

**Procedures for the manufacture of films from cellulose hydrate. Precipitation and drying.** E. SEDLACZEK. *Kolloid Z.* **62**, 122–8(1933); cf. *C. A.* **26**, 4467.—German and Swiss patents are discussed. A. FLEISCHER

**The manufacture of cellulose acetate.** V. E. YARSLEY. *Brit. Plastics* **3**, 344, 346, 524–5, 544, 546(1932).—A review of patents. E. H

**Acetic acid recovery in cellulose acetate production.** FRITZ OHL. *Rayon Record* **6**, 559–61(1932); cf. *C. A.* **27**, 1504.—A review of the patent literature relating to the different processes available for the recovery of AcOH from the dil. aq. soln which results from the production of cellulose acetate. MILTON HARRIS

**The production of gramophone records from cellulose xanthate.** H. COURTNEY BRYSON. *Brit. Plastics* **4**, 48–50, 90–92, 160–2, 206–7(1932). E. H.

**Benzylcellulose.** N. I. NIKITIN AND M. A. AVIDON. *Mitt. forsttech. Akad* (U.S.S.R.) No. **1**, 23–31(1932); cf. Gomberg and Buchler, *C. A.* **16**, 59; Okada, *C. A.* 25, 5759.—Benzylation is principally completed in the first 8–10 hrs. of the reaction; any further action is of no practical value. A small addn. of xylene to the reaction mixt causes a small increase in the degree of benzylation; large amts. of xylene greatly retard the reaction. The secondary reaction between $PhCH_2Cl$ and 25% NaOH proceeds very slowly; in 6 hrs. only 3–6% of NaOH is consumed. With 13% NaOH from 70 to 100% of the NaOH is consumed in 3 hrs., depending on the speed of agitation and the degree of emulsification. By a single treatment of cellulose with 25% NaOH and $PhCH_2Cl$ there cannot be obtained a product with more than 70% C content (dibenzylcellulose). The use of concd. NaOH (50% and over) in the beginning of benzylation greatly retards the reaction. The most highly benzylated products, contg. 2.5 and more benzyl groups, were obtained by using unpressed alkali cellulose (soaked in 25% NaOH) and the subsequent addn. of solid NaOH. Pressed-out alkali cellulose soaked in 25% NaOH gave best results. Raising the temp. from 100° to 125° did not increase the degree of benzylation, and it caused depolymerization of the product; at 150° the product is partially decompd. In *mercerization* with LiOH 10% concn. is sufficient. A second treatment of benzylated alkali cellulose with $PhCH_2Cl$ increases somewhat the no. of benzyl groups in the product, while a 3rd treatment produces little change in its C content. CHAS. BLANC

**Melting methylcellulose.** K. HESS, E. GARTHE AND C. TROGUS. *Cellulosechemie* **10**, 156–7(1932).—Samples of repptd. methylcellulose heated for 10–15 min. at about 25° above the m. p. (about 240°) and then cooled yielded brown-colored prepns. which resulted in the same unchanged Röntgen interference pictures. A short heating period caused practically no loss in wt., whereas longer heating caused wt. losses up to 20%. Methylcellulose prepd. from mercerized cotton linters or "copper silk" by the $Me_2SO_4$-

alkali procedure, heated under similar conditions, yielded pale yellow products with entirely new interferences, believed by the authors to be due to a new methylcellulose, represented by them as *methylcellulose III*. The prepns., after the melting, all show good crystn. characteristics. Four Röntgen-diagram pictures and two tables.
C. A. BRAUTLECHT

**The action of colloids on the saccharification of cellulose.** NERINA VITA AND E. SALMOIRAGHI. *Ann. chim. applicata* **22**, 683–6(1932).—Samples of cotton, previously dried, were heated with $H_2SO_4$ (1.18 sp. gr.): (1) on a steam bath and (2) in an autoclave at 120°. The same tests were repeated in the presence of colloidal C, as well as colloidal S, and the amt. of glucose formed after 20 and 40 min. and 1, 2 and 3 hrs. was detd. The amts. of glucose formed were very nearly the same in each of the 3 tests, *i. e.*, with $H_2SO_4$ alone, and with colloidal S or C; heating in an autoclave raised the amts. formed in all cases. The percentages of glucose formed rise to a max. (about 20%) in 1 hr., and then gradually decrease. In the presence of the colloidal suspensions less glucose is destroyed; hence, though the rate of its formation is a little slower, less is destroyed and the net result is that the amt. of glucose is the same as in the absence of C and S.
A. W. CONTIERI

**The chemical formula of lignin.** PETER KLASON. *Svensk Pappers-Tidn.* **35**, 717–18(1932); **36**, 47–8(1933); cf. *C. A.* **26**, 6132.—K. takes exception to Hägglund's use of Schorger's method of distg. AcOH in vacuum and the conclusion he draws therefrom regarding the constitution of lignin.
WILHELM SEGERBLOM

**Acetic acid from spruce wood.** ERIK HÄGGLUND. *Svensk Pappers-Tidn.* **35**, 749–50(1932); **36**, 48(1933); cf. *C. A.* **26**, 6133.—H. produces addnl. data to show that his AcOH detns. by the Schorger distn. method, as published originally in *Acta Acad. Aboensis, Math. Phys.* **6**, 15(1932) were correct and that Klason's exceptions (cf. preceding abstr.) are not justified.
WILHELM SEGERBLOM

**The composition of spruce wood.** F. W. KLINGSTEDT. *Svensk Pappers-Tidn.* **35**, 750–5(1932).—K. reviews the work of Hägglund and of Klason (cf. 2 preceding abstrs.) and points out that Klason's contention that the Ac groups in spruce wood are joined to the lignin has prevented him from interpreting Hägglund's results correctly. K suggests further investigation to det. the actual position of the MeO and Ac groups in spruce wood.
WILHELM SEGERBLOM

**Cellulose and rayon.** ERNST BERL. *Sci. J. Roy. Coll. Sci.* **2**, 9–18(1932).—A review.
E. H.

**Spinning quality of cellulose acetate.** FRITZ OHL. *Kolloid-Z.* **62**, 85–91(1933).—Spinning quality as measured by the length of fiber which can be drawn from a soln. is independent of the acetate content, but is very dependent on the method of prepn. of the acetate. For a given method, the spinning quality increases with viscosity of the soln., and shows a max. at about 10% concn.
ARTHUR FLEISCHER

**Notes on the manufacture of viscose.** R. THIBAULT. *Russa* **7**, 789–93, 1051–5, 1133, 1135(1932).—A discussion giving practical hints on the operation of viscose plants to obtain optimum results.
A. PAPINEAU-COUTURE

**Investigations of viscose by G. Kita, et al. XXXVI. The spinometer and its use. 4.** SIN-ITIRO IWASAKI AND EIJI SUGINO. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding No. 12, 551–3(1932); cf. *C. A.* **26**, 3663.—The spinnability of viscose prepd. from alkali cellulose aged 1 (I), 4 (II) and 9 (III) days and from a mixt. of I and III proportioned so the Duclaux const. of the sp. viscosity of a Cu-$NH_3$ soln. was equal to that of II, was different for each viscose in spinning baths contg. glucose, $ZnSO_4$ or $H_2SO_4$. The Hottenroth coagulability no.-ripening period relation was almost identical for the different viscoses.
C. E. HRUBESKY

**Variations in the viscosity of viscose as a function of temperature.** R. AIMAUD. *Russa* **7**, 1135, 1137(1932).—When the temp. of viscose soln. is raised to its coagulation point (67°), the viscosity decreases until 55° is reached and then rises slightly up to the coagulation point. When the temp. of viscose soln. is raised to slightly below the coagulation point and then allowed to fall, the viscosity curve for falling temp. is practically identical with that for rising temp Hence below the coagulation point the change in viscosity is reversible.
A. PAPINEAU-COUTURE

**The Swedish paper and pulp industry in 1932.** ANON. *Svensk Pappers-Tidn.* 35, 810–12 (1932)(in English).—Statistical. Sweden is compared with other countries.
WILHELM SEGERBLOM

**Decomposition of straw with sulfurous acid and acid sulfites.** S. HILPERT AND F. JORDAN. *Angew. Chem.* **46**, 73–6(1933).—Straw was treated with $SO_2$-$H_2O$ mixts. of varying compn. at temps. of 90–130°. Difficulties in decompn. were caused by lignin only. Decompn. with low $SO_2$ concns. is improved by addn. of small amts. of $NH_3$. 9 literature references.
KARL KAMMERMEYER

**Pulps and papers from Southern woods; needs and possibilities of diversification.**

C. P. WINSLOW. *Manufacturers' Record* **101,** No. 12, 20–2; No. 13, 21–4(1932).—Nearly 1/4 of the total capacity of Southern mills is devoted to producing pulps of one main type, namely, unbleached sulfate or kraft. The need and possibilities of diversification are discussed. The established sulfate process can be so modified that a light-colored or white kraft can be produced; the minor changes required in equipment are briefly outlined. Expts. have shown that improvements result from the use of $NH_3$ or Na salts in place of Ca in standard sulfite liquor. A. W. FURBANK

**Action of ammonium sulfite on white fir.** W. S. HEPHER AND E. C. JAHN. *Paper Trade J.* **95,** No. 19, 33–6(1932).—By use of lowland white fir (*Abies grandis*) it was found that removal of lignin increases with increase in the amt. of chemical used, in the duration of digestion up to 6 hrs., and in temp. The amt. of lignin in the residual wood decreases with the amt. of chemical used and with increased time of digestion up to 6 hrs., but increases with increased temp. above 160°. The cellulose content of the residual wood increases with increased amt. of chemical used up to 50% of the dry wt. of the wood, then decreases; lower amts of chemicals (15–25%) result in degradation of the cellulose; increased cooking time yields residues of higher cellulose content, but there is increased degradation of the cellulose based on the original wood. Addn of $NH_4OH$ to the $NH_4$ sulfite increases the yield, decreases degradation of cellulose and increases pentosan removal. Addn. of $SO_2$ decreases the removal of pentosans and the yield, increases degradation of the cellulose but increases the cellulose content of the residual wood. Yield is decreased with increased time of cooking and with increased temp.; it varies comparatively little with increased amts. of chemical at const. time and temp. of residual wood but follows the same trend as the cellulose content. Pulp in yields of 72–3% may be obtained by digesting lowland white fir chips with 26–35% $NH_4$ sulfite for 6–7 hrs. total cooking time and with a max. temp of 175°; the cooked chips are readily defibered in a rod mill A. PAPINEAU-COUTURE

**Utilization of knot waste from Fink separator in the Sokol mill.** G. A. KALISTRATOV AND K. V. KHODAKOV. *Bumazhnaya Prom.* **11,** No. 11, 63–8(1932).—A more efficient sepn. of pulp-wood knots is discussed CHAS. BLANC

**Ways for investigation of pulp wood.** A. MALINOVSKII. *Bumazhnaya Prom.* **11,** No. 11, 42–5(1932).—The production of pulp is considered a problem of the colloidal condition of the pulp wood. CHAS. BLANC

**Some variations in cooking kraft pulp.** RALPH REID. *Paper Trade J.* **95,** No. 19, 38(1932).—There is a close relationship between the freeness of kraft pulp after a given beating time and max. strength of the pulp There is a marked relationship between the Cl no. and the beating time required to obtain a given freeness, a method suitable for mill control is the one developed by Kramfors A/B which consists in exposing a given wt of moist pulp to a measured vol of Cl gas for a definite time (15 min. is satisfactory) and obtaining the amt of Cl absorbed by measuring the residual gas. The amt of alkali required to cook to a desired degree varies by as much as 10% according as the wood was cut in summer or winter, the latter requiring the larger amt of alkali. A. PAPINEAU-COUTURE

**Bleaching southern kraft.** R. H. STEVENS. *Paper Ind.* **14,** 501–3(1932) A brief discussion of the advisability of producing bleached kraft pulp in the southern States and of the precautions required in bleaching kraft. A. PAPINEAU-COUTURE

**Bleaching groundwood.** W. HIRSCHKIND. *Paper Trade J.* **95,** No. 19, 31–2; *Pulp Paper Can.* **33,** 489–90(1932).—The advantages of hyposulfite as bleaching agent for groundwood are: very rapid action even at low temp.; higher brightening effect than that of $SO_2$ or bisulfites; it gives very striking results on very dark and discolored woods; the amt. necessary depends on the effect desired and often does not exceed a few tenths %, subsequent washing being therefore unnecessary; it does not change the $p_H$ of the pulp during the brightening process and can be carried out in ordinary equipment. A. PAPINEAU-COUTURE

**The use of chlorine in bleaching sulfite pulp. XV. Swedish Paper and Cellulose Engineering Association Research Committee.** ARNE WALLER. *Svensk Pappers-Tidn* **36,** 8–17(1933).—The bleaching of sol. and oxidized parts in 1-step and 2-step procedures are compared. High pulp concn. seems to help the bleaching. W. S.

**Direct chlorination as an aid in the bleaching of sulfate pulp.** JOHN D. RUE AND JAMES S. SCONCE. *Paper Trade J.* **95,** No. 17, 54–62(1932).—The rate of reaction of Cl on pulp proceeds extremely rapidly for the first 2 or 3 min., then drops quickly to a very slow rate. Temp. and consistency modify these rates of reaction only to a moderate extent. The addn. of CaO after the first few min. increases the rate of reaction for a limited time and prevents serious chem. and phys. degradation of the pulp. A 2-stage lab. bleaching process has been developed, the 1st stage of which consists of direct chlorinating for a period of 5 min., alkalizing with CaO and allowing the remaining available Cl to exhaust; the 2nd stage is a typical hypochlorite bleach. Data are presented

showing the effect of various proportionings of Cl between stages on the chem. and phys. properties of pulps. Bleaching data and pulp properties are given for several full-bleached kraft pulps. The process has been developed on a com. scale, and details of equipment and process are described. A. PAPINEAU-COUTURE

**Annual report of pulp bleaching for 1932.** LADISLAV RYS AND ALFRED BÖNISCH. *Zellstoff u. Papier* **13,** 53-7(1933); cf. *C. A.* **26,** 4467.—A review with 41 references. S. I. ARONOVSKY

**Pulp classification and specifications.** ANON. *Paper Trade J.* **96,** No. 1, 37–50 (1933).—A report of the symposium on pulp classification and specifications held during the meeting of the Tech. Assoc. of the Pulp & Paper Ind., Holyoke, Sept. 15, 1932. A. PAPINEAU-COUTURE

**Temperature control on pulp grinders.** MALCOLM B. HALL. *Paper Ind.* **14,** 537, 539(1932).—A brief discussion of the advantages of automatic overhand control of grinder temp. A. PAPINEAU-COUTURE

**The problem of classification of chemical pulps.** C. C. HERITAGE. *Paper Trade J.* **95,** No. 23, 41–4(1932).—Attention is drawn to the use requirements of pulps and the division of pulps into classes as basic to the problems involved in evaluation and specification, and a tentative scheme of classification is suggested. A. PAPINEAU-COUTURE

**Design and care of pulp strength testing equipment.** PAUL BORONOW. *Paper Trade J.* **95,** No. 24, 27-9(1932).—The fundamental requirements on which the Valley Iron Works pulp strength testing equipment is based are outlined, and a specimen procedure which has been worked out for this equipment is described. A. P.-C.

**The characterization of pulps and stuffs.** P. K. BAIRD AND R. H. DOUGHTY. *Paper Trade J.* **95,** No. 24, 30-4(1932).—An analysis of pulp and stuff properties which may serve in their characterization, an outline of available methods of tests and a classification of these test methods with a suggested decimal scheme for their grouping under logical and proper headings are given. A. PAPINEAU-COUTURE

**Routine control testing of pulp.** FREDERICK W. BRADSHAW. *Pulp Paper Can.* **33,** 481-4, 518(1932).—The British standard method of making pulp test sheets (I) is not suitable for routine testing on account of the time required for drying. A new procedure (II) is described whereby drying and conditioning are effected in 20 min. by blowing heated air for 5 min. over the test sheets (held in special drying rings to prevent shrinkage) and then blowing unheated air for 15 min. to condition the sheets; the drying and conditioning should be effected in a const.-humidity and -temp. atm. In comparative tests the max. difference in the results obtained with I and II, resp., was 2.3%. A. PAPINEAU-COUTURE

**Caustic soda and the pulp and paper industry.** ROBERT T. BALDWIN. *Paper Trade J.* **95,** No. 26, 21-3(1932).—An outline of the part played by NaOH in pulp and paper making. A. PAPINEAU-COUTURE

**The sulfite cellulose process.** ERIK HAGGLUND. *Svensk Kem. Tidn.* **44,** 163-9 (1932)(in German); cf. *C. A.* **27,** 839.—Solid lignosulfonic acid is considered analogous to permutite in reversible exchange of H and alkali ions. This property is demonstrated by adding the compd. to sucrose solns. and noting the change in rotation. Sucrose soln. in amt. to give $[\alpha]$ 42° when completely inverted changed from +12° to −2.9° in 1380 min. If something is added to prevent release of the H-ion, no such action takes place. A. R. ROSE

**Chemistry of the sulfite-cooking process. XXVI. Investigations of lignosulfonic acid.** ERIK HAGGLUND AND RICHARD HEDLUND. *Svensk Pappers-Tidn.* **35,** 612–17 (1932), cf. *C. A.* **27,** 839.—During treatment with HCl a large part of the lignosulfonic acid seems at first to go into soln.; thereafter it gradually polymerizes and ppts., the amt. of pptn. depending on the degree of sulfonation of the lignin. W. S.

**The Babcock & Wilcox-Kimberly-Clark circulating and indirect-heating system for the sulfite pulping process.** LLOYD LANG. *Paper Trade J.* **95,** No. 22, 26–36(1932); cf. Swanson and Smith, *C. A.* **26,** 5204.—A description of the system developed and installed at the Kimberly, Wis., mill. Advantages proved by com. application are: increase in production capacity of 24-28% without increase in cooking time; increase of 5-8% in yield per unit of wood; saving of 20–25% in S, 10% in lime and 30–40% in steam, saving in the steam plant on account of return of all steam as condensate; improved steam-plant balance; possibility of utilizing any source of low-pressure steam; improved pulp color, strength and quality; possibility of producing pulp of various qualities not practicable by direct cooking; control of uniformity and duplication of cooking conditions; reduced relief cooling requirements, screenings and bleach consumption. A. PAPINEAU-COUTURE

**Utilization of sulfite waste liquor.** H. K. BENSON. *Paper Trade J.* **95,** No. 20, 31–4(1932).—A consideration of processes available for the conversion of sulfite waste

liquor into possible useful commodities: adhesive, binder, tanning material, alc., fuel, agr. products, production of dyes, resins, lacquers and other chemicals.
A. PAPINEAU-COUTURE

**Sulfite-digester circulation methods.** G. L. M. HELLSTROM. *Pulp Paper Can.* 33, 491–3(1932).—The basic principles and the difficulties inherent to the various types of sulfite circulation systems are briefly discussed. These difficulties have been overcome in the *Hellstrom system* by drawing the liquor, and whatever chips may follow, from the lower (or upper) part of the digester and introducing it again at the top (or bottom) of the digester, the former procedure being preferable. No screens or perforated pipes are required. No heater is used, but steam is introduced and mixed with the cooking liquor outside the digester by means of an injector. The chief advantages of the system are simplicity, effectiveness and comparatively low cost, even when made entirely of stainless steel.
A. PAPINEAU-COUTURE

**A rapid permanganate method for determining the degree of digestion of sulfite and sulfate pulp.** DAVID JOHANNSON. *Svensk Pappers-Tidn.* 35, 615–17(1932).—J. comments on the report of the standardizing committee (cf. *C. A.* 26, 6123) and points out that for easily bleached pulps the Svartvik $KMnO_4$ method, giving the results in percentage of Ca hypochlorite, is a rapid method for plant control. For all other unbleached pulps Östrand's $KMnO_4$ method giving the results in Roe's Cl no. furnishes a rapid method of control.
WILHELM SEGERBLOM

**The relative stabilities of rag and purified sulfite pulps.** HARRY F. LEWIS. *Paper Trade J.* 95, No. 21, 29–42(1932).—A report and discussion of the results obtained to date in an investigation of the chem. stabilities of selected rag, alpha and super-alpha pulps toward heat, acids, alkalies and light. Conclusions: If cellulose is considered as a polymerized body composed of anhydroglucose units, the rag pulps studied are richer in cellulose than are alpha pulps; the latter contain approx. 5% of pentosan material, at least half of which has been isolated as xylan; rag pulps contain less than 0.7% pentosan material. The $\alpha$-cellulose of No. 1 muslin stock is appreciably more resistant to the repeated peptizing action of cold 17.5% NaOH than is the $\alpha$-cellulose of super-alpha pulp, this indicating for these 2 pulps a considerable difference in colloidal structure, in favor of the rag stock. Rag pulps are more resistant to degradation by heat, alk. solns., acid solns. and light, than are the alpha pulps. Light from the C arc of the Fadeometer causes the alpha pulps to lose their viscosities at a faster rate than the rag stocks. Viscosity-time curves of the alpha pulps, based upon changes in the Fadeometer, cut across similar curves of the rag stocks of lower original viscosities. The colloidal structure of the alpha pulps, therefore, is more readily altered by the action of light than is that of the rag pulps. The viscosity of rag stock from new unbleached muslin is greater than that of the other stocks; this pulp may therefore be degraded for long periods of time by the various reagents and at the same time retain more desirable strength characteristics than are possessed by the other stocks before degradation.
A. PAPINEAU-COUTURE

**Results of the Naumann-Schopper bending test as compared with those of the Mullen test.** J. RIBIÈRE-RAVERLAT. *Papier* 35, 1055–6(1932).—A comparison of the results obtained on 2 different boards indicates that there is a relationship between the results obtained by the 2 instruments, but that its precise detn. requires more extended tests. Although the Mullen does not permit of distinguishing between machine and cross directions, it gives a good discrimination between the 2 sides of the test piece, and, for a given set of samples, it gives characteristic results which are in all points comparable to those of the bending tester. It presents the same drawback of slippage between the jaws, but it is much simpler and quicker to operate.
A. PAPINEAU-COUTURE

**Direct-heated-digester operation control.** M. B. HALL. *Paper Trade J.* 95, No. 15, 31–2(1932).—The development of sulfite-resistant alloy steels has permitted the practical realization of automatic steam input and relief control according to the Allen patents. Installations are cited.
A. PAPINEAU-COUTURE

**Acid penetration in sulfite pulping.** RALPH B. HANSEN AND SVARRE HAZELQUIST. *Paper Trade J.* 95, No. 20, 27–9(1932).—Penetration is not a deciding factor in the handling of sulfite digesters, as it is nearly impossible to bring a com. digester of any size to 110° before penetration of the chips is complete, unless initial acid temp. is under 35°. It is not necessarily true that complete penetration has not taken place because a large amt. of "brown" chips are present at the end of the cook. These may have been caused by not having enough combined $SO_2$ present, by local overheating, etc. If local overheating has been great enough, it is possible that chips be "browned" even though the penetration has been thorough. In general, increase in acid temp. increases the rate of penetration; increase in free $SO_2$ increases the rate of penetration of free $SO_2$ to an even greater extent, and somewhat increases the penetration of combined $SO_2$. Pressure above that necessary to hold the gas in soln. has very little effect on penetra-

tion. Penetration is a straight-line function of the time. A moisture content of 30–40% is the most favorable for a quick and thorough penetration. A. P.-C.

**Sulfite cooking with forced circulation and external heating.** B. SKOGSTROM. *Pappers-Trävaru-Tidskr. Finland* **2**, 66–76(1932); *Chimie & industrie* **28**, 1425.—A description and discussion of the Brobeck indirect, external-heating system for sulfite cooking. A. PAPINEAU-COUTURE

**Regeneration of sulfurous acid and heat in sulfite cooking.** O. K. GILLER. *Bumazhnaya Prom.* **11**, No. 11, 37–41(1932).—A discussion. CHAS. BLANC

**The elimination of pitch trouble.** O. BRAUNS. *Pulp Paper Can.* **33**, 333–6, 383–8(1932).—Extensive investigation carried out both in the lab. and in the mill on the causes and elimination of pitch troubles in sulfite pulp and paper mills shows that no appreciable relief can be expected from seasoning of the wood or from altering cooking conditions. A process consisting in properly adjusted addns. of sulfite waste liquor and alum to the slush stock was developed and is being successfully applied in one of the Abitibi mills in eliminating pitch troubles. Theories are advanced to explain the causes of pitch troubles and the mechanism of the process devised for eliminating them. A. PAPINEAU-COUTURE

**The present state of the waste-water problem in pulp and paper mills.** A. PRITZKOW. *Zellstoff u. Papier* **13**, 60–2(1932).—A brief review of the work done in the last decade toward solving this problem. S. I. ARONOVSKY

**Selective disintegration of pulp for thin grades of paper.** S. S. KHARZ. *Bumazhnaya Prom.* **11**, No. 11, 51–5(1932).—The foreign factory practice is discussed. CHAS. BLANC

**Production of sulfur in Texas.** GOSTA HALL. *Svensk Pappers-Tidn.* **36**, 36–42 (1933).—Descriptive. WILHELM SEGERBLOM

**Nomographic charts in the paper industry.** D. S. DAVIS. *Paper Trade J.* **94**, No. 2, 31–3(1932).—Nomographic charts for coal cost, sp. gr for chip board, kraft production, effluent loss and Schopper-Riegler beating tester, are given and their use is explained. A. PAPINEAU-COUTURE

**United States patents on paper making. Third quarter, 1932.** CLARENCE J. WEST. *Paper Trade J.* **95**, No. 15, 40–2(1932); cf *C. A.* **26**, 5417.—A list in numerical sequence of patents relating to pulp and paper making issued at Washington in July, Aug. and Sept., 1932. A. PAPINEAU-COUTURE

**Flax and its utilization for paper making.** R. ISNARD. *Papier* **35**, 953–61(1932).—An address outlining the process used by the Etablissements Lemaire-Destombes & Cie. for the production of pulp from flax fiber that is too short to be spun. A. P.-C.

**Modern $p_H$ measurements and their significance in the paper industry.** G. GOLLNOW. *Svensk Pappers-Tidn.* **35**, 791–2(1932).—Descriptive. W. S.

**The state of electrical charge of paper.** M. UETZKIĬ. *Bumazhnaya Prom.* **11**, No. 11, 60–2(1932).—The elec. charge of paper caused by friction in the machine processing depends on the moisture content of the pulp, and is gradually lost in storing. Cigaret paper becomes recharged in the processes of casing and stuffing. C. B.

**Alum feed for paper-mill waters.** RICHARD T. BARNES, JR. *Paper Trade J.* **95**, No. 14, 25–7(1932).—A logical method of detg. and controlling the alum feed to paper-mill water for the best purification is by the $p_H$-alum curve. Such curves follow 2 general outlines, dependent on whether the water is clear and moderately hard or colored and soft. For the soft waters of New England, alkali is needed in conjunction with the alum used for purification to obtain the highest efficiency from the alum feed. A. PAPINEAU-COUTURE

**Use of white water in fine paper mills.** ANDREW JACKSON. *Paper Trade J.* **95**, No. 23, 44–6(1932).—A description of the progress made in one of the Am. Writing Paper Co.'s fine paper mills in the reuse of white water without utilization of save-alls. A. PAPINEAU-COUTURE

**White-water surveys in a fine-paper mill.** SAMUEL HELLBERG. *Paper Trade J.* 95, No. 23, 46–8(1932).—A brief outline of the surveys made at one of the Am. Writing Paper Co.'s fine-paper mills, the results that they showed and the difficulties encountered in the reuse of white water. A. PAPINEAU-COUTURE

**Technical control in a writing-paper mill.** CARL SCHNEIDER. *Paper Ind.* **14**, 668–9(1932).—A classification of control functions in mills with suggestive routine tests for standardizing mfg. processes. A. PAPINEAU-COUTURE

**New types of equipment for testing paper.** F. T. CARSON AND F. V. WORTHINGTON. *Paper Trade J.* **95**, No. 16, 34–6(1932).—A description of 3 pieces of app. developed at the U. S. Bur. of Standards in connection with the testing of paper: (1) a specially designed float used in making the dry indicator test for water-resistance, which holds the specimen flat and in a definite position; (2) an absorption tester consisting of an inclined pipet mounted on a frame and provided with a needle valve and controls so that

a very small drop of water can be reproducibly delivered onto the surface of paper in making a test for absorptiveness; (3) an improved app. for extg. and cleaning processed papers and sheet materials (it combines the solvent action obtained with a reflux condenser with a light scrubbing of the surface and is designed to recover a sheet about 10 × 12 in. without the necessity of cutting or creasing it). A. PAPINEAU-COUTURE

**Determination of water resistance of paper.** ANON. *Paper Trade J.* **95,** No. 18, 36(1932).—A description of the tentative standard method of the Tech. Assoc. of the Pulp and Paper Ind. A. PAPINEAU-COUTURE

**Determining the time of ink absorption of blotting paper.** ANON. *Paper Trade J.* **95,** No. 18, 39–40(1932).—A description of the tentative standard method of the Tech. Assoc. of the Pulp and Paper Ind. A. PAPINEAU-COUTURE

**Determination of rate of absorption of water by bibulous papers.** ANON. *Paper Trade J.* **95,** No 18, 40(1932).—A description of the tentative standard method of the Tech. Assoc. of the Pulp and Paper Ind. A. PAPINEAU-COUTURE

**Sizing characteristics of wax sizes.** O. F. NEITZKE. *Paper Trade J.* **95,** No. 18, 29–31(1932).—Lab. and mill-scale tests with bleached sulfite stock and no fillers showed that the general sizing characteristics obtained with rosin-wax size are essentially the same as those of rosin size, but are obtained with lower size consumption. Within a range of drying temps. of 70–250°F., the sizing value of the rosin-wax size used (Bennett No. 19) is greater than that of rosin size at any 1 temp. The increase in sizing value due to increased drying temp. is more pronounced and more rapid for the rosin-wax size than for the rosin size. To obtain a given ink resistance it is not necessary to dry the paper sized with rosin wax at as high a temp. as the one sized with rosin. A. PAPINEAU-COUTURE

**Rosin-wax sizes.** RAYMOND B. LADOO. *Chem. Met. Eng.* **40,** 89–90(1933).—The production and advantages of rosin-wax sizes contg. several different proportions of wax, as applied in the paper industry, are discussed. Better sizing is afforded with less material and at lower cost. Other advantages include: absence of foaming, less brittleness, and better resistance to penetration of alk. and alc. solns. Wax improves the permanency of paper and imparts a higher gloss, better printing qualities and an apparent opacity. Rosin-wax sizes are emulsions of wax in rosin soap. Water is the liquid, rosin soap the emulsifying agent and a blend of wax and rosin the emulsified material. W. H. BOYNTON

**The materials used in the manufacture of tracing paper.** HOWARD L. VINCENT. *Paper Trade J.* **95,** No. 26, 24–6(1932).—A list is given of the more important materials used by foreign and domestic manufacturers of tracing paper, showing what characteristics may be expected of the several types of tracing paper prepd. with them. A specification avoiding the present undesirable features of tracing papers is given. A. PAPINEAU-COUTURE

**Vertical stack driers without drier felts on Fourdrinier machines in the Miami Valley.** JOSEPH H. WALLACE. *Paper Trade J.* **95,** No. 17, 44–8, 72(1932).—Descriptive. A. PAPINEAU-COUTURE

**The drying of paper and felts.** REINHARD SCHULZE. *Pulp Paper Can.* **33,** 433–6, 485–7(1932).—Results are reported of exptl. runs for removal of vapor within the paper machine and for addnl. drying by means of injected hot air. Conclusions: Removal of vapor between paper and felt increases machine output and felt life. To obtain high efficiency the hot air blast must be brought into intimate contact with the paper, and especially with the felt. The kind of paper to be dried considerably affects increase in production and efficiency. The highest possible air temp. with proportionately smaller quantities of air are more economical and give higher production than large quantities of air and low temps. Blowing hot air through the felt is considerably more efficient than blowing it over the felt. Drying the felt by blowing hot air through it is preferable to drying on drying cylinders. The rate of drying of felts depends mainly on the kind of weave, porosity, felting and other mfg. characteristics, and but slightly on the material. A rapid-drying felt is likely to have a longer life than a slow-drying one. A. PAPINEAU-COUTURE

**Illustration-printing and paper quality.** JULIUS BEKK. *Zellstoff u. Papier* **12,** 399–403, 441–7, 489–93(1932); **13,** 18–22(1933); cf. *C. A.* **26,** 4717.—A discussion of the relationship between the properties and printing qualities of various grades of paper S. I. ARONOVSKY

**More about condenser paper.** I. V. TZETZERO. *Bumazhnaya Prom.* **11,** No. 11, 62(1932).—A good grade of condenser paper was obtained by treating rag waste 1 hr. with cold 0.5% anhyd. $Na_2CO_3$, and bleaching with 1% active Cl. C. B.

**Study of physical properties of binders board.** B. W. SCRIBNER AND L. W. SNYDER. *Paper Trade J.* **95,** No. 16, 29–33(1932).—A study was made of the thickness, d., wt., bursting strength, tensile breaking strength and elongation and behavior under flexural

stress of a no. of samples of com. binders board. The flexural-strength test is the most suitable single test because of its duplication of service stresses and its superior accuracy. A flexural test is described which is carried out by using a simple attachment to the ordinary tensile-strength tester. A. PAPINEAU-COUTURE

Qualitative tannin analysis. Detection of sulfite cellulose extract (GERNGROSS, HERFELD) **29.** Influence of the method of boiling and purification of sulfite cellulose extracts on their detection in vegetable tanning extracts (GERNGROSS, HERFELD) **29.** Detecting free S in viscose silk and the detection of cyanide ions in aqueous solutions (CASTIGLIONI) **7.** Acylated aromatic amines; artificial filaments (Brit. pats. 363,986, 364,040) **10.** Spinning pots and centrifuge buckets (Brit. pat. 365,963) **1.** Polymerized styrenes [for artificial masses] (Brit. pat. 365,217) **10.** Wetting, etc., agent (Brit. pat. 364,669) **18.**

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ENGELBRECHT, H. J.: **Die Propionsäure- und Stearinsäure-Ester der Zellulose.** Thesis, Berlin, 1931. 68 pp.

HEBERLEIN, GEORG: **Die Veresterungsvorgänge an Baumwolle.** Thesis, Zürich, 1930. 54 pp.

SCHNEIDER, FRITZ: **Die Kupferzahlbestimmung der Cellulose.** Thesis, Darmstadt, 1930. 64 pp.

**Apparatus for drying webs of cellulose made from cellulose solutions.** CARL H. VON HOESSLE and OTTO M. SCHADE (to Chemische Fabrik von Heyden, A.-G.). U. S. 1,890,832–3, Dec. 13. Structural and mech. details.

**Cellulose derivatives.** SOC. POUR L'IND. CHIM. À BÂLE. Fr. 40,872, Oct. 14, 1931. Addn. to 678,747 (*C. A.* **24,** 3646). Esters are prepd. by treating cellulose xanthates or xanthic acids of cellulose pptd. from solns., with org. acid anhydrides in the presence of appreciable amts. of salts of weak acids

**Cellulose derivative composition.** MARTIN BANDLI. Brit. 365,526, Oct. 15, 1930. A rubbery compn. is made by dissolving cellulose acetate in a mixt. of solvents, dissolving or suspending a plasticizer therein, and pptg. the acetate and plasticizer by the addn. of a liquid, the mixed solvent being such that at least one ingredient is readily miscible and one immiscible with the pptg. liquid. Numerous examples are given.

**Cellulose esters.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,250, Nov. 19, 1929. Hydroxyalkylcellulose esters of org. acids are obtained by treating hydroxyalkylcellulose with the acid anhydride in the absence of a catalyst and a diluent and preferably at a raised temp. Among examples (1) hydroxyethylcellulose, made by treating alkali cellulose with 4–5 times its wt. of ethylene oxide in the presence of $C_6H_6$, is introduced into 10 times its wt. of $Ac_2O$ and heated 2.5 hrs. to 120°, and (2) hydroxybutylcellulose is treated with the anhydrides of coconut-oil fatty acids at 130–140°.

**Cellulose esters.** KODAK-PATHÉ. Fr. 738,433, April 13, 1932. Cellulose is acetylated in the presence of esterification agents contg. a quantity of acetyl groups not passing appreciably that necessary for complete esterification of the cellulose. Thus, 1 part of cellulose is treated with a mixt. contg. $Ac_2O$ not more than 3 and AcOH 3 parts. $H_2SO_4$, $Na_2SO_4$, AcONa or $Na_3PO_4$ may be used as catalyst.

**Cellulose ester compositions and products therefrom.** CELLULOID CORP. Brit. 363,689, June 20, 1929. Void. Cellulose acetate or other cellulose deriv. is mixed with any aromatic phosphate, *e. g.*, triphenyl or tricresyl phosphate and any ester of phthalic acid to give a compn. which may be prepd. in any desired form, *e. g.*, sheets, lacquers or films. The films may be used for the manuf. of *laminated glass, automobile curtains, lamp shades* or *photographic films.*

**Cellulose ethers.** ASRIEL LIEBSTER. Brit. 364,463, May 16, 1930. A highly etherified cellulose, *e. g.*, with an Et content up to 50%, is produced in a single-stage reaction between cellulose, a dry alkali hydroxide, an indifferent org. liquid and an ester of an inorg. acid, the reaction being carried out in the absence of $H_2O$. In an example cotton is treated in an autoclave with finely divided NaOH, Et chloride and petroleum. The product, sepd. by diluting with benzine, centrifuging and washing with $H_2O$, is sol. in $C_6H_6$, alc. and glacial AcOH and gives rise to films of good flexibility and transparency.

**Cellulose ether compositions.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 363,333, June 12, 1929. Void. Water-resistant compns. are produced by incorporating with a cellulose ether a non-solvent softener, *e. g.*, petroleum jelly, with or without the addn. of a solvent softener compatible therewith, *e. g.*, dibutylphthalate, benzophenone. A volatile solvent, *e. g.*, $C_6H_6$, AcOEt, EtOH, may also be added. The ratio of non-solvent to solvent softener is greater than 50:50 while 0.4–4 parts of composite

softener is employed for 10 parts cellulose ether. The *products serve as plastics, varnishes, waterproofing compns.*, etc.

**Benzyl cellulose.** IMPERIAL CHEMICAL INDUSTRIES, LTD., ALFRED S. LEVESLEY and FREDERICK CHARLES RANDALL. Brit. 364,142, Sept. 19, 1930. A step in the purification of benzyl cellulose comprises incorporating with the crude substance a water-sol. wetting agent of the high-mol. sulfonic acid or sulfonated-oil type. This treatment may be followed by washing with $H_2O$ and, if desired, an org. solvent which has no coagulating and little or no swelling action on the cellulose ether. Among examples benzyl cellulose is incorporated with Turkey-red oil and the mixt. stirred with water. The product is washed with a mixt. contg. toluene and white spirits.

**Cellulose acetates.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,110, July 9, 1929. Void. See Fr. 698,392 (*C. A.* **25**, 3167).

**Cellulose acetate.** CARL J. MALM and ARNE ANDERSEN (to Kodak Limited). Brit. 364,794, Dec. 16, 1929. Cellulose acetate of low viscosity and good strength is prepd. by pretreating the cellulose with AcOH and a catalyst at 100°F., then adding acetic anhydride and raising the temp. to 120–130°F. until acetylation is substantially complete and then lowering the temp. to about 100°F. and maintaining this temp. until the dope is free from grain. Cf. *C. A.* **26**, 5419.

**Cellulose acetate sheet material.** ERNEST G. GREVILLE. Brit. 364,716, Oct. 22, 1930. A sheet of cellulose acetate capable of being softened for molding or shaping is so incised that in the softened condition its capacity for expansion and extension enables it to follow the contour of the object over which it is molded without destroying its properties as a support on resuming the hardened condition.

**Water-soluble compounds of cellulose-xantho-fatty acids.** LEON LILIENFELD U. S. 1,890,393, Dec. 6. A cellulose-xantho-fatty acid such as cellulose-xantho-acetic acid is treated, in the presence of water, with an aromatic amine in which a hydrocarbon radical is connected with the N of the amine, such as $MeNH_2$ to obtain a water-sol product which dries to an insol. condition.

**Nitrocellulose solns. of low viscosity.** HAMMERMILL PAPER CO. Brit. 363,648, June 19, 1930. See U. S. 1,768,253 (*C. A.* **24**, 4391).

**Saccharification of cellulose.** HEINRICH SCHOLLER. U. S. 1,890,304, Dec 6 Cellulosic material is subjected to pressure to reduce the interstices in the material, and dil. acid is percolated through the compressed material while it is still under pressure, the sugar soln. formed is continuously and rapidly removed from the system (in a described app.), and the temp. of the emerging sugar soln. is reduced to prevent de compn. Cf. *C. A.* **26**, 302.

**Carbohydrates.** LONZA ELEKTRIZITÄTSWERKE UND CHEMISCHE FABRIKEN A G Brit. 368,078, Mar. 17, 1930. See Fr. 714,488 (*C. A.* **26**, 1782).

**Viscose threads.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,081, Aug. 13, 1929. Void. To facilitate the spinning of viscose threads the viscosity of the spinning soln. is reduced by raising the temp. thereof shortly before it leaves the nozzle, *e. g.*, by employing a heated coagulation bath.

**Apparatus for drying strips, films or sheets of materials such as "regenerated viscose."** ERNST BLEIBLER (to Sylvania Industrial Corp.). U. S. 1,890,568, Dec. 13. Structural and mech. features.

**Viscose rayon.** ALGEMEENE KUNSTZIJDE UNIE, N. V. Brit. 363,908, Mar 8, 1930. Rayon is produced from viscose which is clarified by the addn. at any stage of the production of the viscose of a small amt., *i. e.*, less than 2%, of a sulfonated fatty acid, fat or fatty oil having a high content of organically bound $H_2SO_4$, the non-sulfonated fat, etc., in the sulfonated product being so small that it shows no turbidity with an excess of lye.

**Rayon from viscose.** GLANZSTOFF-COURTAULDS G. M. B. H. Brit. 363,441, Oct 3, 1930. Rayon of improved tensile strength is produced from viscose to which has been added cholic acid or a bile acid deriv. thereof. Salts or condensation products or mixts. of such acids as are obtained by the treatment of bile may be used.

**Rayon.** C. F. BOEHRINGER & SOEHNE, G. M. B. H. Brit. 363,700, Aug. 14, 1930. For the manuf. of *rayon, films, plastic masses, varnishes*, etc., there is used primary triacetyl cellulose made by acetylation processes in which the fibrous structure of the cellulose is preserved and in which the catalyst is a halogen, halogen hydride acid, perhalogen acid or salt of such acid other than an alkali salt except in the presence of a suitable acid, or a halogen fatty acid. The use of $H_2SO_4$ and other catalysts introducing residues leading to decompn. of the acetylated cellulose is avoided; acetates are obtained workable into products of keeping qualities equal to those from acetone-sol. secondary acetates and superior thereto in strength and resistance to water.

**Rayon.** JACQUES DELPECH and CONSTANTIN HEINRICH. Brit. 364,438, July 5, 1930. See Fr. 698,423 (*C. A.* **25**, 3168).

**Rayon.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,982, July 28, 1930. Artificial threads are obtained from solns. contg. cellulose xanthate and a xanthate of a $H_2O$-insol. higher alc., alc.-acid or ester thereof, or of a partially substituted $H_2O$-insol. deriv. of a substance of the polyvinyl alc. type. They have improved softness and suppleness with increased resistance to water.

**Rayon.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Fr. 737,640, May 26, 1932. Rayon spun on bobbins or cylinders is washed and dried and twisted directly from these bobbins or after rewinding on an intermediate bobbin and, in the absence of an open frame in the form of a honeycomb, is rewound on a movable support, after which the support is withdrawn and the thread is submitted to the usual treatments such as desulfuration, decoloration, deacidification, etc., without any interior stiffening means. Fr. 737,641. Rayon from the spinning nozzles is wound on bobbins without submitting it to torsion and is then twisted in a chamber contg. rarefied air. Cf. *C. A.* **27**, 1171.

**Rayon.** JACQUES DELPECH. Fr. 737,955, Sept. 26, 1931. Nitrocellulose collodion is dissolved in MeOH and spun into a coagulating bath which has as a basis an aq. soln. of MeOH and which contains one or more hygroscopic substances such as glycerol, $CaCl_2$, $ZnCl_2$ or $NH_4NO_3$. The hanks of silk can then be allowed to ripen in air before denitration without danger of the explosive state being reached.

**Rayon, etc.** LEON LILIENFELD. Fr. 40,432, Mar. 14, 1931. Addn. to 701,280 (*C. A.* **25**, 3833). The products obtained by etherifying or esterifying viscose by agents which will react (other than halogen derivs. of bi- or poly-hydric alcs., halogenated fatty acids and esters of trithiocarbonic acid) are used for making rayon, etc. Examples of agents used are halogenated olefins, di- or poly-halogen paraffins, inorg. esters of monohydric alcs., halogen derivs. of ethers of monohydric alcs., aldehydes or ketones, inorg. or org. esters or cyclic ethers of di- or poly-hydric alcs., halogenated alkyl- or aralkyl-amines, acid halides such as BzCl, hydrocarbon sulfochlorides, quinoline sulfochloride, halogen derivs. of $PhNO_2$ or aromatic acids, diazonium salts, etc. Fr. 40,438, May 27, 1931. Rayon, etc., is made from products obtained by bringing a cellulose deriv. contg. one or more CSS groups into contact with agents capable of introducing one or more radicals, using a cellulose xanthate poor in or practically free from water.

**Rayon filaments, threads, etc.** BRITISH CELANESE, LTD., HENRY DREYFUS and WM. I. TAYLOR. Brit. 364,654, Sept. 9, 1930. In the manuf. of artificial filaments, etc, by extrusion from a nozzle into an evaporative atm. contained in a cell or chamber the nozzle is surrounded by a shield adapted to seclude the filaments in the early stages of their formation, this retarding evapn. and giving filaments of fine deniers but high strength.

**Fining and improving rayon, etc.** HANS SUTER. Brit. 363,929, April 30, 1930. When fining and improving rayon, etc., composed of cellulose derivs., especially cellulose acetate, by processes involving treatment with swelling baths contg. halogenated hydrocarbons and stretching of the swollen threads, deleterious effects, such as may occur after extended use of the bath, are avoided by the addn. of small quantities of unsatd. org. compds., *e. g.*, butylene, olein, olive oil, linseed oil and linoleic acid, to the bath.

**Spinning rayon.** GLANZSTOFF-COURTAULDS GES. Brit. 363,505, Dec. 15, 1930. In the wet spinning of rayon each thread is passed through a trough arranged in the spinning bath over a part of its travel through the bath so that individual filaments that have become loosened are carried back to their own thread.

**Treating rayon.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit. 363,932, April 15, 1930. Freshly spun rayon, particularly cuprammonium silk, is wound on light tubes which are deformable but which during spinning, etc., are provided with internal supporting members. The wound silk is washed, after-treated and, if desired, dried and, after removal of the supporting members but while still on the tubes, is supplied for direct further working up, with or without twisting. The tubes may be made of parchment, press or impregnated paper, thin Al sheet, etc.

**Treating rayon.** BRITISH BEMBERG, LTD. Brit. 363,958, June 13, 1930. Addn. to 312,034 (*C. A.* **24**, 976). The process of 312,034 is modified by unwinding the untwisted rayon from the unlaced cross-wound skeins while still moist from the liquid treatments and simultaneously twisting, drying being effected on the wound and twisted yarn. The moist skeins are mounted on swifts and the yarn is wound directly from the skeins on to cop bobbins while it is being twisted by ring-twisting frames.

**Treating rayon.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit. 365,436, April 19, 1930. Freshly spun rayon is wound onto perforated tubes in the form of a cop winding and is then treated on these tubes with washing, desulfurizing, bleaching, decoppering, acidifying or scrooping liquids passed by suction through the thread layers.

**Machines for spinning rayon.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit.

363,529, Jan. 20, 1931; 363,556, Feb. 24, 1931 (addn. to 363,529); 363,566, Mar. 10, 1931 (addn. to 363,529).

**Apparatus for stretch-spinning rayon.** BRITISH BEMBERG, LTD. Brit. 365,502, Sept. 10, 1930.

**Purifying solutions used in the rayon industry.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit. 363,213, Feb. 10, 1930. Viscous solns., such as cuprammonium cellulose soln. or viscose, are filtered through linters, wood pulp or mixts. of these, brought into a flat or plate form without the use of adhesives and inserted into filter presses, flat filters or candles.

**Artificial threads.** THOMAS F. BANIGAN (to Comptoir des textiles artificiels, Société anonyme). Brit. 363,692, Dec. 5, 1929. Void. In applying stretch to artificial thread by methods involving the passage of the thread one or more times around a wheel, the thread is displaced laterally on the wheel by a guide comprising a smooth roller, preferably tapered.

**Artificial filaments and films.** GIULIO TOCCO. Brit. 365,484, July 3, 1930. A soln. of a cellulose deriv. or like material is dry-spun into a vacuum chamber, the product being led therefrom through a liquid column of sufficient height to balance the pressure difference between the chamber and the outer atm. App. is described.

**Sieve and outlet pipe for cellulose digesters.** TORSTEN SAMSON (to Aktiebolaget Nordiska Armaturfabrikerna). U. S. 1,889,731, Nov 29.

**Bleached pulp for paper making.** HORATIO A. HELDER (to Champion Fibre Co.). U. S. 1,890,179, Dec. 6. Pulp obtained by the digestion of raw fibrous material such as wood is refined and hydrated substantially to the condition suitable, except for color, for use directly in a paper web-forming operation, and the pulp is then bleached

**Centrifugal apparatus for purifying paper pulp, crude starch, etc.** GUSTAV TER MEER. Fr. 737,810, May 30, 1932.

**Centrifugal separator, particularly for paper pulp.** TANDY A. BRYSON. Brit. 367,301, Aug. 26, 1930.

**Pulp-grinding machine.** BRIT. THOMSON-HOUSTON CO., LTD. (to H R. Crago). Brit. 380,014, April 17, 1931. Mech. features.

**Wood rasper or grinder.** "MIAG" MUHLENBAU UND INDUSTRIE A.-G. Brit. 363,361, Sept. 12, 1929.

**Filter for recovering fibers from washing water in paper making.** MARCEL THIRY Fr. 737,811, May 30, 1932.

**Apparatus for cleansing the felts of paper-making machines.** JOHN L. HARRIS Brit. 363,318, Sept. 5, 1930.

**Jordan engine.** EMIL A. PETERSON (to Valley Iron Works). U. S 1,890,622, Dec. 13. Mech. features.

**Apparatus for rectifying and regulating paper stock.** HAROLD D WELLS. U. S. 1,890,799, Dec. 13. Structural and mech. features.

**Flow rectifier for paper stock.** MAX WENZEL. U S 1,890,634, Dec 13. Mech features.

**Impregnating paper for producing a product of good flexibility.** FRANK G. CRANE U. S. 1,889,851, Dec 6. Paper is impregnated with a soln. contg. a substantial proportion of Na silicate, soap and glycerol and subsequently is treated (as by oxalic acid or Al sulfate) to convert a substantial portion of the Na silicate into reaction products and is dried.

**Coating process.** HENDRIK J. PRINS. Brit. 365,466, May 27, 1931. Paper and paper articles, *e. g.*, containers and bottles, are treated with an emulsion or latex of rubber, gutta percha or balata and then with a wax-like substance, either molten or in soln., to form a waterproof layer thereon. The paper is then heated to or exceeding the m. p of the wax which dissolves in the rubber layer forming an elastic non-tacky and impervious coating.

**Producing effects on papers, cardboard, floor-coverings, etc.** CARL DANKERT (to I. G. Farbenind. A.-G.). U. S. 1,889,953, Dec. 6. See Ger. 567,238 (*C. A.* 27, 1511).

**Laminar products.** COMPAGNIE FRANÇAISE POUR L'EXPLOITATION DES PROCÉDÉS THOMSON-HOUSTON. Fr. 737,718, May 27, 1932. Resinous compns. are incorporated in paper pulp while it is still wet, and the mixt. is made into thick sheets by the usual machines, dried and molded under heat and pressure.

**Sizing composition.** GEORGE J. MANSON. Brit. 363,372, June 6, 1930. A non-fouling sizing material for paper or wood pulp contains particles of waterproofing materials, *e. g.*, paraffin wax, mineral oil, pitch, which have been encysted by a ppt. formed, *e. g.*, by the reaction between a soln. of Na silicate, etc., and a pptg. agent such as alum, hydrated CaO, HCl, etc., or zeolitic substances which form insol. hydrated silicates or mixts. of silicate and silicic acid. A protective colloid, *e. g.*, glue or casein, may form an

ingredient of the compn. Among examples wax is melted and formed into an emulsion with Na silicate soln., alum is added and after further agitation the compn. is added to the paper pulp.

**Sizing fibrous material for fiber board.** GEORGE F. DAVIS. U. S. 1,889,642, Nov. 29. Dry bulk fiber is suspended in a gaseous medium such as air, and a sizing agent such as a rosin size is sprayed onto the material while it is thus suspended; aq. stock is formed from the sized fibers and they may be used for making products such as fiber board for shoe heels, etc. App. is described.

## 24—EXPLOSIVES AND EXPLOSIONS

CHARLES E. MUNROE AND C. G. STORM

**Determination of the stability of smokeless powder from the volume of the gases of decomposition at constant pressure and temperature.** I. v. MEERSCHEIDT-HÜLLESSEM. *Z. ges. Schiess-Sprengstoffw.* **28,** 6–8(1933).—A method and app. are described for detg. the vol. of gaseous decompn. products, including moisture, generated from a 5 g. sample of powder heated at a const temp of 120° and atm. pressure. The sample is contained in a test tube inclosed within a stoppered flask which contains paraffin surrounding the tube, the entire app being heated in a thermostat. Liberation of decompn. products displaces molten paraffin through a side tube from the flask into a weighing beaker, and the vol. of these products is calcd. from the wt of the paraffin and its sp. gr Observations are made at 15 min. intervals over a period of 5 hrs. A tabulation and curves show the results obtained with 2 types of powders. C G S.

**The barium chloride reaction of ignition residue of black powder.** IVAN MOSKOV. *Deut. Z. ges. gericht Med.* **20,** 86–8(1932) $BaCl_2$ gives accurate results even 24 hrs. after ignition, contrary to dissenting statements FRANCES KRASNOW

**Explosiveness of saturated alcohol vapor-air mixtures.** K. FRICKE. *Angew. Chem.* **46,** 87–90(1933). Results are presented graphically and an app. is described for testing of alc.-water mixts. 5 references. KARL KAMMERMEYER

**The critical ignition of explosive hydrogen mixtures.** J. H. MAAS AND CHARLES LEWING. *J. Phys. Chem* **37,** 13–15(1932).—The discontinuities observed in a plot of the energy necessary for spark ignition against the compn. of H-air mixts (cf. Thornton, *C. A.* **9,** 525) are not found with H-O and H-O-A mixts. H. A. BEATTY

**New methods for the manufacture of nitroglycerin.** A. FOULON. *Z. ges. Schiess-Sprengstoffw* **28,** 8–11(1933). A discussion of recent patents covering methods for sepn of nitroglycerin from spent nitrating acids. C G STORM

**Rates of detonation in carbon monoxide-oxygen mixtures.** COLIN CAMPBELL, CLIFFORD WHITWORTH AND DONALD W. WOODHEAD. *J. Chem. Soc.* **1933,** 59–62; *C. A.* **26,** 2015. As initiators, the mixts. $2H_2 + O_2$, $CH_4 + 6O_2$, and $C_2H_2 + O_2$ were taken. The detonation velocity in any given mixt was independent of the initiator employed, and was the same whether dry or moist mixts. were studied. Tubes of 1.5 ± 0.05 cm. were used. The velocity-compn curve shows an almost linear increase in velocity from 1710 m./sec for the mixt contg 50% CO to 1770 m./sec. for that contg. 80% CO. The curve is smooth and shows a rounded max. between 75 and 80% CO. In repeating the work of Bone and Fraser (*C. A.* **25,** 3171), who found a pronounced max. at 75% CO, a detonating box and 12.5 mm tubes (as used by B and F.) were employed, but results agreeing satisfactorily with those obtained with the larger tubes, and giving the same rounded max. on the velocity-compn. curve were obtained. Conclusion: As with H–O mixts., the velocity of detonation in CO–O mixts. is detd. mainly by the calorific value and d. of the mixt. EDWARD B. SANIGAR

**Gaseous combustion in industry.** R. V. WHEELER. *Heat Treating and Forging, Insert "Furnaces"* **18,** 487–8(1932). A general paper dealing with flame propagation and the calcn. of flame speeds in gaseous mixts. J. BALOZIAN

**Spontaneous combustion or ignition of hay.** F. ROBERTSON DODD. *Analyst* **58,** 77–80(1933).—Valuable suggestions are given to aid the expert in detg. whether a hay-stack fire is due to spontaneous combustion or not. W. T. H.

**The preparation and properties of burning, illuminating and detonating compositions employed in pyrotechnics, signals, etc., and the loading of such compositions in fireworks.** F. LENZE. *Z. ges. Schiess-Sprengstoffw.* **27,** 325–8, 366–71, 406–9(1932); **28,** 14–17(1933).—The construction of various kinds of fireworks is described and the nature and prepn. of compns. used are discussed. Tabulations show results of detns. of ignition temp., sensitiveness to impact and friction, explosive characteristics, etc., of these compns. C. G. STORM

**Alloys for detonating caps** (Brit. pat. 363,671) **9.**

BESTMANN, THEODORE: **Der Einfluss des Druckes und der Vorwärmungstemperatur auf die Entzündungsgeschwindigkeit explosibler Benzin- und Benzol-Luftgemische.** Thesis, Brunswick, 1930. 65 pp.

**Explosives.** MANUFACTURE GÉNÉRALE DE MUNITIONS. Fr. 737,561, Sept. 17, 1931. Priming or fulminating compns. contain a nitrate of Tl, Cr or other rare metal instead of $KNO_3$ or $KClO_3$.

**"Double base" explosive powders.** WM. E. WAGNER (to Western Cartridge Co.). U. S. 1,890,241, Dec. 6. Finely divided cellulose is treated with a nitrating agent such as $HNO_3$ and $H_2SO_4$, nitroglycerin is mixed with the nitrated cellulose in the presence of the nitrating agent, and the composite product may be formed into sheets, strings or grains. Cf. *C. A.* **26**, 4176.

**Mercury fulminate.** JOSEF MEISSNER. Brit. 363,661, Sept. 25, 1929. See Fr. 702,414 (*C. A.* **25**, 4405).

**Igniter charge for blasting caps.** LLOYD H. FISHER (to Hercules Powder Co.). U. S. 1,890,112, Dec. 6. A ferricyanide such as $K_3FeC_6N_6$ 20–40 is used with an oxidizing agent such as $KClO_3$ 10–30 and a nitrated carbohydrate such as nitrocellulose 70–30%.

**Apparatus [with a heated filament] for detecting the presence of combustible gases in oxygen-containing gases such as air in mines.** ALBERT N. ERICKSON (to Union Carbide Co.). U. S. 1,889,890, Dec. 6. Light emitted by the filament is projected on a screen and light of variable intensity is projected on a screen adjacent for the purpose of comparison. Cf. *C. A.* **27**, 604.

## 25—DYES AND TEXTILE CHEMISTRY

L. A. OLNEY

**Interesting sources of natural dyestuffs.** C. D. MELL. *Textile Colorist* **55**, 117–19, 128(1933); cf. *C. A.* **26**, 6141.—Two species of myrtles, *Myrica gale* and *Myrica nagi*, are cited as sources of yellow dyes and tannin; *Calluna vulgaris*, a species of ling, for yellow dye; and the berries of the common bryony plant, *Bryonia dioica*, for purple dye. RUBY K. WORNER

**Dyes derived from acenaphthenequinone. III. Azine and indigoid vat dyes.** SISIR K. GUHA. *J. Indian Chem. Soc.* **9**, 423–7(1932).—The study embodies the prepn of acenaphthophenazines contg. the chromophoric $NO_2$ group in the benzo ring of the mol., and a study of their properties. The azines obtained are *9-nitro-*, *3-chloro-9-nitro-*, *3-bromo-9-nitro-* and *3,4,9-trinitro-acenaphthophenazines*. The first 3 compds dye wool a shade of lemon yellow and the last named produces a deep yellow shade from an acid bath when freshly pptd. by $H_2O$ from strong $H_2SO_4$ soln. Reduction of the corresponding compd. gave *9-aminoacenophthophenazine*, which dyes wool a bright yellow from an acid bath and is fast to acid and alkali but not to light. Finally the *3-chloro*, *3-bromo*, and *3,4-dinitro derivs.* of *2-thionaphtheneacenaphthyleneindigo* were prepd. These compds give red shades that are even and fast. H. W. LEAHY

**Nitro dyestuff from aminophenolsulfonic acid and dinitrochlorobenzene.** V. G. GULINOV. *Ukrain. Khem. Zhur.* **7**, No. 1, Sci.-Tech. pt., 5–8(1932); cf. *C. A.* **25**, 3636.—*p*-Aminophenol-2-sulfonic acid condensed with $C_6H_3(NO_2)_2Cl$ produced $HOC_6H_3(SO_3Na)NHC_6H_3(NO_2)_2$, which dyes wool in an acid bath a golden brown with fair fastness to light and washing. CHAS. BLANC

**A nitro dyestuff from *m*-phenylenediaminesulfonic acid and dinitrochlorobenzene.** V. G. GULINOV AND V. L. BUNITZKIĬ. *Ukrain. Khem. Zhur.* **7**, No. 1, Sci.-Tech. pt., 9–16(1932).—The initial product 1,3,4-$C_6H_3(NH_2)_2SO_3Na$ (I) was obtained by refluxing about 2 hrs. a mixt. of 110 g. cryst. $Na_2SO_3$ and 40 g. $NaHSO_3$ in 700 cc. $H_2O$ with 16.8 g. $C_6H_4(NO_2)_2$: $C_6H_4(NO_2)_2 + 5\ Na_2SO_3 + NaHSO_3 + H_2O = I + 5\ Na_2SO_4$. Because only 25% of the 70% yield of I could be crystd. out, and all usual methods for sepn. of I proved impractical, the entire reaction mass was acidified to Congo paper, the mixt. was boiled to expel $SO_2$, I was detd. by titration with $NaNO_2$, the calcd amts. of $C_6H_3(NO_2)_2Cl$ (II) (2 mols. of II to 1 mol. of I) and AcONa to neutralized HCl were added, the whole was refluxed until the last drops of II had completely disappeared, and recrystd. from $H_2O$: $I + II = 2\ HCl + (NO_2)_2C_6H_3NHC_6H_3(SO_3Na)NHC_6H_3(NO_2)_2$. It dyes wool golden brown in 4% acid bath with fair fastness to light and washing. Analogous dye was prepd. when a mixt. of 18.1 g. HCl salt of *m*-$C_6H_4(NH_2)_2$, 40.5 g. II, 68 g. cryst. AcONa and 200 cc. 90% alc. was refluxed 6 hrs. in a water bath, the dye filtered off hot, washed with a little alc., dried, dissolved in 6 pts. by wt. in $H_2SO_4$, slowly heated to 60° until completely sol. in dil. $Na_2CO_3$, then poured into iced water, salted out, filtered, washed with salt soln., dissolved in the calcd. amt. of

$Na_2CO_3$ and salted out. It gives less bright dyeings than the above dye with fair fastness to light and washing. CHAS. BLANC

**Acid dyestuffs on piece goods.** DOUGLAS KERMODE. *Dyer* **68**, 623–4(1932).—The following dyestuffs used on wool are briefly discussed: Naphthol Yellow S; Indian Yellows and Citronines; Tartrazine; Orange II; Indigo Extract and Indigo Carmine; Wool Green S; Patent Blue A types; Acid Reds of the 2G and 6B types; and Acid Brown combinations. RUBY K. WORNER

**Sulfur colors in printing on cotton.** B.-J. CHESHIRE. *Bull. soc. ind. Mulhouse* **98**, 555–7(1932)(Sealed note of 1910). **Report.** G. TAGLIANI. *Ibid* 557–8.—To avoid corrosion of the Cu app. by alk. sulfides, it is proposed to use $Na_2S$ in the form of a compd. with HCHO, which decomposes during the subsequent steaming. Mix 2 kg. 40% formol with 1 kg. of bisulfite of 36° Bé. Cool to 5°, slowly add 1 kg. calcined $Na_2S$ (65%). T. reports that the method appears to be new and successful. Cryst. $Na_2S$ is not satisfactory. I. H ODELL

**Production of black and gray under sulfur colors by means of nitrosodimethylaniline.** L. GOUBYRIN. *Bull. Soc. Ind. Mulhouse* **98**, 559–61(1932) (Sealed note of 1910). **Report.** ARTHUR LAUTER. *Ibid* 561.—$ONC_6H_4NMe_2$ is printed with resorcinol on white mercerized cotton, and after steaming for 5 min., the cloth is foularded with a soln. of sulfur colors. Grays of different intensity are obtained by adding $ZnCl_2$ colors and reducing the amt. of $ONC_6H_4NMe_2$. The dyeings are fast to washing. L. reports that the process is new and successful. I. H. ODELL

**The use of Katanol W in two-bath union-dyeing.** DOUGLAS KERMODE. *Dyer* **69**, 129–31(1933).—Practical. R. K. WORNER

**The use of indanthrene dyes to detect linseed oil in rayon.** GIUSEPPE ANTONELLI. *Tinctoria* **31**, 493(1932).—Several unreduced indanthrene dyes act as substantive dyes on rayon in the presence of linseed oil. This reaction can be used to show whether the textiles were perfectly degummed or traces of oil remain on the tissue. By dyeing the samples with Brilliant Rosa R, Scarlett GG, Brown G or GG, Red-violet RH, the rayon contg. linseed oil is dyed and the raw rayon is not G. A. BRAVO

**Indigo on wool.** H. JACKSON. *Textile Manufacturer* **57**, 410–11, 452–4(1931); cf. *C. A.* **26**, 309.—A discussion of the $HNO_3$ spot test for indigo-dyed goods and the effect of various topping colors on this test, the effect of the addn. of certain colors on the change of shade in artificial light, the estn. of indigo, the properties of indigo white and its affinity for and application to wool, the various reducing agents and different types of vats used, etc. CHAS. E. MULLIN

**The scouring of worsted piece goods with special relation to indigo dyeing.** H. JACKSON. *Textile Manufacturer* **58**, 192–3(1932).—The oiling and scouring of worsted goods for indigo dyeing are discussed, as well as the dyeing and finishing CHAS. E. MULLIN

**Exact matching of colors.** NOEL D. WHITE. *Textile Colorist* **54**, 845–6, 850 (1932).—The value of detg. the absorption spectra of dyestuffs is discussed. RUBY K. WORNER

**Recent investigations on substantive dyeing of cellulose fibers.** W. WELTZIEN AND K SCHULTZE. *Kolloid-Z.* **62**, 46–54(1933); cf. *C. A.* **24**, 5161–2, 6021; **25**, 819.—The concn. of salt and the temp. required to reach max. dye absorption increase with unevenness of dyeing; even dyeing usually shows the max. in the range 50–70°. Electrolyte-free $H_2O$ removes 90% of the dye in a few washings; the red and yellow even dyes are easier to remove than the blue from viscose. Electrolytes in low concn. decrease the rate of removal by washing. The substantive dyeing process is more complicated than is generally supposed. ARTHUR FLEISCHER

**Dyeing textiles for weight-reducing girdles and corsets.** GEORGE RICE. *Textile Colorist* **55**, 126–7(1933) RUBY K WORNER

**Dyeing wool for the heather drape suitings.** GEORGE RICE. *Textile Colorist* **55**, 120, 128(1933). RUBY K. WORNER

**Treatment with silicate and dyeing of loaded silk fabrics.** J. BRUYAS. *Russa* 7, 1157–61(1932).—The purpose of silicate treatment is to obtain more even dyeing of loaded silk. In a neutral bath at 50° it is useless to use more than 20 cc. of 30° Bé. silicate per l., the rate of increase in wt. above this concn. being much slower than the increase in reagent. Higher yields are obtained at 70–5° than at 50–60° or at 75°. Increase in alky. (by addn. of $NH_4OH$) decreases the yield. No appreciable difference in yield or in evenness of dyeing is noticeable in the presence or absence of wetting agents (sulfonated fatty alcs.). Practical operating hints are given on the dyeing of silicate-treated silk. A. PAPINEAU-COUTURE

**Note on the dyeing of Prussian blues on cotton cloth.** ED. JUSTIN-MUELLER. *Bull. Soc. Ind. Rouen* **60**, 276–9(1932).—Good blue dyeings are obtained on cotton by the addn. of $NH_4Cl$ to the ferricyanide-ferric salt bath before heat-treatment. $NH_3$

is believed to reduce ferricyanide to ferrocyanide, which then ppts. as Prussian blue. Previous processes using other reducing agents are reviewed. I. H. ODELL

**Printing and bleaching rayon and construction of leno weave piece goods.** A. C. ESTEY. *Textile Colorist* **55**, 49–52, 101–3, 130(1933). RUBY K. WORNER

**Notes on the history of bleaching, dyeing and printing of fabrics.** A. BLEY. *Tiba* **10**, 933–9, 1005–13(1932); **11**, 25–31(1933). A. PAPINEAU-COUTURE

**Tar and creosote in the dyehouse.** C. GROSVENOR. *Dyer* **68**, 669–70(1932).—The use of these materials for protecting woodwork and waterproofing walls and roofs is described. RUBY K. WORNER

**Padding cotton piece goods with vat dyes.** D. L. WILLASTON. *Dyer* **68**, 619–20 (1932).—Practical. RUBY K. WORNER

**False economies in production of vat-dyed cotton-piece goods.** D. L. WILLASTON. *Dyer* **68**, 507–8, 559–60(1932).—Practical. RUBY K. WORNER

**The fundamental structure of textile fibers.** W. T. ASTBURY. *Textile Manufacturer* **58**, 54(1932).—A discussion of the x-ray interpretation of micellar and mol. structure of fibers. CHAS. E. MULLIN

**Process for degumming sisal in the cold.** ER REP-SINED. *Rev. gén. sci.* **43**, 706–9(1932); cf. *C. A.* **27**, 605.—A discussion of the mechanism of a process which is not described, and which apparently consists in stirring the fiber for 10–12 hrs at 15–35° with a soln. of electrolytes (the nature of which is not specified). The effect of this treatment is claimed to be due to modification in the aggregation of the gum resins, which permits transformation of their "colloidal amorphism." A. P.-C.

**Avoiding trouble in manufacturing synthetic yarn goods.** CHAS. E. MULLIN. *Textile Colorist* **54**, 301–4, 346(1932).—The twelve factors causing most of the trouble in woven or knit goods contg. synthetic yarns are discussed. CHAS. E. MULLIN

**The isoelectric point of wool.** A. H. PETTINGER. *Textile Colorist* **54**, 840–1 (1932).—The significance of the isoelec. point is briefly discussed and the values for the isoelec. point of wool obtained by different investigators are reviewed. R. K. W.

**Crepon effects in wool goods.** A. JOHNSON. *Textile Manufacturer* **58**, 172(1932).—A creped fabric may be made by weaving a normal wool yarn with one that has been stretched and steamed. When the fabric is treated with NaOH soln. or is steamed, the stretched yarn shrinks to give the crepe effect. CHAS. E. MULLIN

**The internal linkages and structure of wool and silk.** CHAS. E. MULLIN AND HOWARD L. HUNTER. *Textile Colorist* **54**, 47–51, 59(1932).—A review and discussion of the literature on the internal linkages in wool and silk, as well as the presence of certain groups in the mol. or aggregate, with 36 references. Cf. *C. A.* **25**, 5994, 5995, **26**, 310. CHAS. E. MULLIN

**The free amino, carboxyl and other active groups in wool and silk.** CHAS. E. MULLIN AND HOWARD L. HUNTER. *Textile Colorist* **54**, 111–15, 130(1932); cf. *C. A.* **26**, 310.—The evidence concerning the presence of free amino and carboxyl groups and the formation of quinquevalent N in these fibers is discussed. It appears that such chemically active groups may be present in both fibers, as well as imino and OH groups and carbonyl groups in wool, under suitable conditions. CHAS. E. MULLIN

**The regain of silk of different origins.** WM. S. DENHAM AND A. L. ALLEN. *Textile Mfr.* **58**, 461(1932); *Trans. Faraday Soc.* **29**, 316–17(1933).—A comparison of the desorption regains of silks from different sources. The samples were degummed at 98° in 2 successive baths contg., resp., 1 and 0.5% of soap, and washed in distd. $H_2O$, slightly acid $H_2O$, slightly ammoniacal $H_2O$, and distd. $H_2O$ of about $p_H$ 5. The ash was about 0.03%. The wet samples were then dried in a desiccator over mixts. of $H_2SO_4$ and $H_2O$ of such concns. as to give relative humidities of 92.8 (*a*), 79.7 (*b*), 53.7 (*c*), 40 (*d*) and 21.5% (*e*). When weighed and compared with samples of the same silks dried over concd. $H_2SO_4$, the following regains were found: Italian silk, *a* 16.9, *b* 12.2, *c* 9.3 and *e* 5.4%; Chinese, *a* 16.9, *b* 12.2, *c* 9.3, *d* 7.5 and *e* 5.3%; Japanese, *a* 17.0, *b* 12.3, *c* 9.3, *d* 7.6 and *e* 5.3%; Tussah, *a* 17.9, *b* 12.8, *c* 10, *d* 8 and *e* 5.9%. CHAS. E. MULLIN

**Technic of piece-loading of natural silk.** J. BRUYAS. *Russa* **7**, 729–39, 983–7, 1075, 1077(1932).—Conclusions (from expts. described in detail): Treatment with $SnCl_2$ should be carried out at 15–8°; the Sn:HCl ratio should be kept between 0.820 and 0.830 (theoretical for $SnCl_2$ 0.815) to ensure the absence of traces of free HCl. Phosphate treatment should be carried out with a soln. of $Na_2HPO_4$ contg. an amt. of AcOH such that the soln. contains, in the cold, 0.6% $NaH_2PO_4$; the Sn content of the bath should be maintained at 3–3.5 g. per l. Washings should be effected so that there remains no trace of Sn before phosphate treatment and no trace of phosphate or alky. before $SnCl_2$ treatment. A. PAPINEAU-COUTURE

**The boil-off of silk.** BERNARD S. HILLMAN. *Textile Colorist* **55**, 13–17, 59(1933).

Details of various methods of boiling-off silk in the skein and in the piece are given. RUBY K. WORNER

**Defects in silk hosiery.** F. V. DAVIS. *Textile Manufacturer* **58,** 95–6(1932).—The causes of various defects in the finished hose are considered. C. E. M.

**A preliminary note on the physiological and genetic aspects of hair properties in Egyptian cottons.** C. H. BROWN, ABD EL GHAFFAR SELIM AND AHMED YOUSSEF. Ministry Agr. Egypt, Tech. Sci. Service, *Bull.* **123,** 19 pp.(1932).—A method developed for the *preservation of the hairs from green bolls of cotton* involves (1) fixing the hairs by means of Bouin's fluid No. 11, (2) washing with 70% alc. to remove excess fixative, (3) staining with a 1% soln. of aniline blue, and (4) mounting with a mixt. of equal parts of alc., glycerol and $H_2O$. K. D. JACOB

**The manufacture of black mourning crepe.** ARTHUR JONES. *Dyer* **69,** 82–3(1933).—Details of the processing are given. RUBY K. WORNER

**Recent developments in textile assistants.** P. W. HARGREAVES. *Dyer* **68,** 615–17 (1932).—The properties and uses of some of the newer assistants, including detergents, wetting-out agents, mercerizing agents, rayon-delustering agents, kier-boiling assistants, textile-finishing agents and antiseptic assistants are discussed. RUBY K. WORNER

**Activated carbons in the textile industry.** S. REGINALD PRICE. *Dyer* **69,** 75–6 (1933).—A review of their uses with particular reference to dry cleaning, dyeing, proofing, rayon manuf., silk sizing and *water purification.* RUBY K. WORNER

**Fireproofing of cloth.** RENÉ CHESNEAU. *Bull. soc. ind. Rouen* **60,** 265–75(1932).—A review of methods of fireproofing and materials used, including $(NH_4)_2SO_4$, $NH_4$ phosphate, $NH_4Cl$, Na tungstate, borax, $MgCl_2$, mixts. contg. asbestos, and cellulose lacquers. I. H. ODELL

**The heavy two-bowl starch mangle.** H. R. BAND. *Dyer* **69,** 19–21, 33(1933).—Its use for finishing canvas, sheeting, etc., is described. RUBY K. WORNER

**Soaps and their latest competitors in the field of rayon improvement.** HERMAN STADLINGER *The Rayon Record* **6,** 505–9(1932).—The chem. nature of the sulfonated fatty alcs. is discussed, with reference to their application in the textile industry. MILTON HARRIS

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Treating wool-scouring wastes (BLEW) **14.** Placing the Woonsocket activated sludge plant in operation (LACY) **14.** Quaternary ammonium salts [for cleaning textile fibers] (Fr. pat. 738,028) **10.** Enameling vegetable or animal fiber (Fr. pat. 737,412) **29.** Sulfurized phenols [with mordanting and reserving properties] (Brit. pat 365,534) **10.** Wetting, etc., agents (Brit. pat. 364,669) **18.** Polymerized styrenes [for artificial threads] (Brit. pat 365,217) **10.**

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BOHME, FRITZ: **Zur Theorie der Färbevorgänge.** Thesis, Karlsruhe, 1931. 42 pp.

BOTTKE, E. H.: **Über Aethylenfarbstoffe.** Thesis, Bonn, 1931 46 pp.

ERNST, WILLY: **Neue Synthesen von Azinfarbstoffen und Beziehungen zwischen Diazinen und Fluorindinen.** Thesis, Lausanne, 1930. 80 pp.

ESTERS, PAUL: **Der Wert der heute üblichen Einzelprüfungen zur Gütebestimmung der Rohseide.** Thesis, Hanover, 1931. 76 pp.

FORBAT, ELEMER: **Bixin, der Farbstoff von Bixa orellana L.** Thesis, Zürich, 1930. 67 pp.

GÖTTE, ERNST: **Über die Substantivität einiger Benzidinfarbstoffe. Ein Beitrag zur Theorie der substantiven Färbung.** Thesis, Dresden, 1931. 53 pp.

HOFMANN, JOACHIM: **Die Strukturverschiedenheiten der Seide und Kunstseide verarbeitenden Industrieen in den Hauptproduktionsländern und ihre Ursachen, insbesondere das Problem der Mode.** Thesis, Freiburg, 1930. 158 pp.

JENTGEN, H.: **Die Färberei der Kunstseide mit direktziehenden Farbstoffen unter bes. Ber. der Siriusfarbstoffe.** Thesis, Dresden, 1931. 69 pp.

LÖW, WILHELM: **Die 2,2-Indocyanine und verwandter Farbstoffe.** Thesis, Dresden, 1930. 139 pp.

WALDER, HEINRICH: **Die Indolfarbstoffe.** Thesis, Zurich, 1930. 57 pp.

**Dyes.** DAVID A. W. FAIRWEATHER (to Imperial Chemical Industries, Ltd.). U. S. 1,886,947, Nov. 8. In the development of enolic leuco-ester salts of dyes in the presence of a ferric salt, an agent capable of influencing the reversible reaction which the ferric salt undergoes during the development, such as $FeSO_4$ or $NH_4$ oxalate, is added thus facilitating regulation of the process.

**Dyes.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 737,392, May 21, 1932. Dyes are prepd. by reacting phthalimide, 4-chloro-, 3,4(or 3,6)-dichloro- or 4-nitro-phthalimide with $NH_3$ and Mg or Sb. If Sb is used the product does not contain Sb, and if Mg

is used the product contains combined Mg, which is removed by dissolving in concd. $H_2SO_4$ and repptg. The Mg may be reintroduced by reaction with Mg in boiling benzophenone in the presence of O. The most probable structures for the compds. are given.

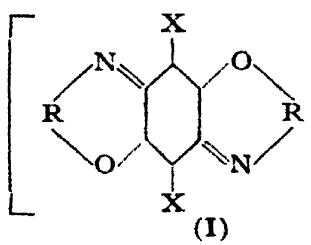
**Dyes.** I. G. FARBENIND. A.-G. (Arthur Wolfram and Emil Hausdörfer, inventors). Ger. 567,287, May 21, 1931. Blue, green and red dyes for cellulose esters are prepd. by condensing halohydrins with anthraquinone derivs. contg. one or more groups of the formula $NHRNH_2$, where R is an alkyl, aryl or aralkyl residue. Condensation is effected at a raised temp. in the presence of an acid-binding agent and with or without a solvent. Examples are given.

**Dyes.** I. G. FARBENIND. A.-G. Fr. 40,614, July 4, 1931. Addn. to 717,017 (*C. A.* **26**, 2870). Vat dyes contg. $NO_2$ groups such as 7,7'-dinitrothioindigo are converted to compds. sol. in water by the process of Fr. 717,017.

**Dyes.** I. G. FARBENIND. A.-G. Fr. 41,032, July 29, 1931. Addn. to 717,017 (*C. A.* **26**, 2870). The reaction of Fr. 717,017 is carried out in the presence of anhyd. $NH_3$ and tertiary bases. Primary or secondary amines may be used instead of or along with the $NH_3$.

**Dyes.** I. G. FARBENIND. A.-G. Fr. 737,376, May 20, 1932. Dyes which have high affinity for cellulose esters are prepd. by reacting halohydrins such as ethylene chlorohydrin with anthraquinones which contain $-NH_2$ or -NH-alkyl in one $\alpha$-position and one or more $-NH\text{-aryl-}NH_2$ groups in another $\alpha$-position. The products have the formula $1,4,5,8\text{-}(RHN)(X)(X)(X)C_6H_2(CO)_2C_6H_2$ (R is H, alkyl or alkyl-OH and at least one X is -NH-aryl-NH-alkyl-OH).

**Dyes.** I. G. FARBENIND. A.-G. Fr. 737,990, May 26, 1932. Dyes of the general formula I (X is H, halogen, an alkyl or aryl group, R is an arylene group of the $C_6H_6$, $C_{10}H_8$, carbazole or diphenylamine group, the arylene groups being joined in *o*-positions and Y signifies that the dyes may be sulfonated) are prepd. by heating to about 150–300°, 1,4-benzoquinone or its halogen, alkyl or aryl substitution products, with an aromatic amino compd. having at least one position *o*- to the $NH_2$ group unsubstituted, and if desired sulfonating. Several examples are given.



(I)

**Dyes [anthraquinone derivatives].** I. G. FARBENINDUSTRIE A.-G. Brit. 363,027, Oct 8, 1930. 1,4-Diamino-2-aryloxy-3-sulfoanthraquinones are prepd. by heating 1,4-diamino-2,3-dichloroanthraquinones at atm. pressure with a phenol and a sulfite of a strong, preferably inorg., base in the presence of water. Among examples 1,4-diamino-2,3-dichloroanthraquinone is boiled with PhOH and aq. $Na_2SO_3$ to give, upon acidification, 1,4-diamino-2-phenoxy-3-sulfoanthraquinone; this product dyes wool from a faintly acid bath blue-violet shades.

**Dyes.** SOC. POUR L'IND. CHIM. À BÂLE. Fr. 738,252, June 7, 1932. Chromed dyestuffs are prepd. by treating dyes obtained by the union of halo-2-diazo-1-phenolsulfonic acids and 1-hydroxynaphthalene-5-sulfonic acids, with chroming agents. Examples are given.

**Azo dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,955, May 26, 1931. Addn. to 349,600 (*C. A.* **26**, 5428). Azo dyes are obtained by the process of 349,600 with a selection of the diazo component such that the nitrogenous groups of at least one of them are in *m*-position to each other. Greener dyeings are obtained than with the products of 349,600.

**Azo dyes.** J. R. GEIGY S. A. Brit. 364,609, July 4, 1929. Void. See Fr. 37,927 (*C. A.* **26**, 313).

**Azo dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,531, Sept. 20, 1930. Azo dyes are made in substance, on the fiber or on a substratum by coupling a diazo compd. with an arylenedicarbonylbisacetic acid arylide of the formula, $R'NHCOCH_2CORCOCH_2CONHR'$, in which R and R' are substituted or unsubstituted aryl residues, both components being free from groups which would make the dye sol. in $H_2O$. They yield yellow to red shades fast to light. Among arylides mentioned are the anilide, 4-chloro-2-methyl-1-anilide, *p*-aniside and 2,5-dichloroanilide of terephthaloylbisacetic acid; among diazo compds. those from 1-amino-2-methyl-4-nitrobenzene, $\alpha$-aminoanthraquinone and 2,5-dichloroaniline.

**Azo dyes containing chromium.** SOC. POUR L'IND. CHIM. À BÂLE. Brit. 364,147, Sept. 26, 1929. The dyes from diazotized 1,2-aminonaphthol-4-sulfonic acid or its nitrated deriv. and $\alpha$- or $\beta$-naphthol are treated in boiling aq. soln. with an agent yielding Cr, in presence of a proportion of alkali metal ions having no salting-out action on the dye until a dye not pptd. by a satd. soln. of NaCl is formed and the soln. is evapd. at a lower temp., if necessary after filtration and advantageously under reduced pressure.

Chroming agents are Cr chloride, sulfate, acetate, hydroxide, etc. The products are suitable for *dyeing animal fibers* and *leather, coloring varnishes* and for printing in presence of Cr acetate.

**Azo dyes containing chromium.** COMPAGNIE NATIONALE DE MATIÈRES COLORANTES ET MANUFACTURES DE PRODUITS CHIMIQUES DU NORD RÉUNIES ÉTABLISSEMENTS KUHLMANN. Brit. 365,113, Nov. 13, 1929. Void. See Fr. 700,003 (*C. A.* 25, 3492).

**Diazo preparations.** SOC. POUR L'IND. CHIM À BÂLE. Brit 364,490, May 21, 1930. Stable diazo prepns. are made by reaction between a diazonium salt and a di- or polysulfonic acid of a halogenated aromatic hydrocarbon. They are *useful for dyeing* by the ice-color process and may be mixed with diluents or assistants, *e. g.*, alum. Among examples diazotized *m*-nitroaniline is treated with 1,2,4-chlorobenzenedisulfonate or with disulfonated 1,4-dichlorobenzene.

**Stable diazo compounds.** CHEMISCHE FABRIK VORM. SANDOZ. Brit. 365,759, Jan. 7, 1930. Stable tetrazomonoazo compds. are prepd. by adding a suitable metal salt and (or) an arylsulfonate to a soln. of a tetrazo compd. of the formula, *p,p'*-Y-N:$NC_6H_3$(X)$C_6H_3$(X)N:N-R(X)-*p*-N:N-Y, where R is a benzene or naphthalene nucleus, Y an inorg. acid residue and X an alkyl, alkoxy or nitro group or halogen or H, sepg. the ppt. and drying it. They are useful for producing black shades on the fiber and in substance by coupling with 2,3-hydroxynaphthoic acid arylides. Among examples tetrazotized benzidine is coupled with $\alpha$-naphthylamine (1 mol.), again diazotized and the tetrazo compd. pptd. with aq. $ZnCl_2$ and NaCl, and tetrazotized bianisidine is coupled with 3-amino-4-methoxytoluene, again diazotized and pptd. in the same manner.

**Disazo dyes containing copper.** RICHARD STÜSSER and KARL WIEDEMANN (to General Aniline Works). U. S. 1,889,732, Nov. 29. A water-sol. salt of a disazo dye such as the Na salt of the dye formed from tetrazotized 4,4'-diamino-3,3'-dimethoxybiphenyl, 1-hydroxynaphthalene-3,6-disulfonic acid and 2-(*p*-methoxyphenylamino)-5-hydroxynaphthalene-7-sulfonic acid or a similar dye is heated in aq. soln. with a Cu compd. such as $CuSO_4$, $CuCl_2$ or tetrammine cupric sulfate, forming Cu compds. of the dyes which in the form of their alkali metal salts are generally dark powders, sol in water and dyeing cotton and "viscose silk" fast blue to violet shades. Several examples with details of procedure are given.

**Vat dyes.** MAX A KUNZ and KARL KOEBERLE (to General Aniline Works). U S. 1,888,631, Nov. 22. Fast dyes of various colors are obtained by condensing dibenzanthrone or isodibenzanthrone, or a deriv. thereof contg. at least one N atom to which a reactive H atom is attached with an O-free 6-membered ring compd. contg. at least one N atom in the nucleus and substituted by at least one halogen atom, such as halopyridine, halopyrimidine, 2,4-dichloro-6-methylpyrimidine, 2,4,6-trichloropyrimidine, cyanuric chloride, 2-methyl-4,6-dichloro-1,3,5-triazine, 2-phenyl-4,6-dichloro-1,3,5-triazine, 2,4-diphenyl-6-chloro-1,3,5-triazine, etc. The condensation is suitably carried out in solvents or diluting media of a high b. p , such as nitrobenzene, nitronaphthalene, trichlorobenzene, etc., preferably in the presence of acid-fixing agents, such as Na acetate, and condensing catalysts, for instance metal or metal compds., such as Cu, CuO, $CuCO_3$, HgO, Al, etc Several examples are given.

**Vat dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,740, Oct. 6, 1930. One mol. of a polynuclear aromatic compd. contg. in at least each of 2 nuclei at least one reactive H attached to the nucleus is condensed with 2 mols. of an anthraquinone-2-carboxylic acid halide contg. an amino group in the 1-position or a heterocyclic ring in the 1,9-positions, in the presence of an anhyd. metal halide of the Friedel-Crafts type. Alternatively 1 mol. is condensed with 1 mol. and the resulting monoketone is condensed with 1 mol. of the same or a different anthraquinone-2-carboxylic acid halide deriv., both condensations being effected in the presence of anhyd. metal halide. The products are diketone derivs. dyeing fast bright orange to red shades from the vat. Among examples thiazoleanthrone-2-carboxylic acid chloride (1 mol.) is condensed with biphenyl (1 mol.) by means of $AlCl_3$ in $C_6H_5NO_2$ and the monoketone deriv. is condensed with 1 mol. of pyrazoleanthrone-2-carboxylic acid chloride by means of Na-Al chloride.

**Vat dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,832, Dec. 22, 1930. Vat dyes are obtained by condensing a pyrazoleanthrone-2-carboxylic acid halide in which the pyrazole H atom may be substituted by alkyl, aryl or aralkyl, with an aromatic amine contg. in the *o*-position to the amino group a hydroxy, mercapto or further amino group, whereby ring closure may be simultaneous or subsequent to the formation of the carboxylic acid arylamide. The products if not already substituted in the pyrazole nucleus may be alkylated and further substituents may be introduced in the customary manner. Among examples pyrazoleanthrone-2-carboxylic acid chloride is condensed with 1-mercapto-2-aminoanthraquinone with simultaneous ring-closing, and then methylated.

**Vat dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,087, June 28, 1930. Chloro-

dibenzanthrones dyeing navy-blue to dark blue shades fast to spotting with $H_2O$ are prepd. by treating a nitrodibenzanthrone with Cl, or agents supplying Cl, in the absence of any diluent or in the presence of an org. diluent other than phthalic anhydride, or a halogenated deriv. thereof, until the N content is reduced to at most 0.5%. Suitable solvents are chlorobenzene, trichlorobenzene and nitrobenzene, and chlorinating agents include $SO_2Cl_2$, benzotrichloride and BzCl.

**Vat. dyes.** Newport Chemical Corp. Brit. 365,532, Oct. 19, 1929. See Fr. 705,738 (*C. A.* **26**, 313).

**Vat dyes of the thionaphthene-indigoid series.** Wilhelm Bauer, Josef Haller and Georg Rösch (to General Aniline Works). U. S. 1,890,718, Dec. 13. Numerous examples are given of the production of new vat dyes of the probable general formula J—(CO—NH—A)$_n$, where J means the radical of an indigoid dye of the group consisting of thionaphthene-indole indigos, thionaphthene-acenaphthene indigos and thioindigos, A stands for an anthraquinone nucleus, which may be substituted by halogen atoms, alkylalkoxy- or aroylamino groups, $n$ means 1 or 2, and where the —CONHA group is linked to a carbocyclic nucleus of the radical J, said dyes forming yellow-orange to black crystals, difficultly sol. in the usual org. solvents, dissolving in strong $H_2SO_4$ with various colorations, dyeing cotton from an alk. hydrosulfite vat strong orange to black shades of good fastness. Dyes of this character may be obtained by a process in which an isatincarboxylic acid is first condensed with hydroxythionaphthene or a homolog or nuclear substitution product thereof, which may also be derived, for example, from naphthalene. For the condensation also such compds. may be used as are converted during the reaction into hydroxythionaphthenes, such as the corresponding carboxylic acids, acetyl derivs., etc. Thus are obtainable indigoid compds. which still contain a carboxylic acid group in the carbocyclic ring system of the isatin residue and are consequently sensitive to alkali. When the carboxylic acid is now converted into the acid chloride or some other reactive carboxylic acid deriv. and this is caused to react with an aminoanthraquinone (which can also be substituted in the nucleus as desired), there are produced in an excellent yield fast new vat dyes, contg. both an indigoid and an anthraquinone residue. The process can also be carried out by first converting the isatincarboxylic acid into the corresponding acid chloride or some other reactive deriv., causing the same to react with an aminoanthraquinone and condensing the resulting isatincarbonylaminoanthraquinones (which are themselves vat dyes), with hydroxythionaphthenes. Some other modifications and alternative procedures also are described. Cf. *C. A.* **26**, 1797.

**Pigment dyes.** I. G. Farbenindustrie A.-G. Brit. 365,600, Oct. 19, 1929. Dyes which may be used for coloring lacquers and varnishes are prepd. by halogenating, either alone or in the presence of a high-boiling solvent, (a) diarylaminohalo-1,4-benzoquinones, or (b) diarylaminobenzoquinones with the formula 2,5-(R'YN'RHN)$_2$-3-X-1,4-C$_6$H(:O)$_2$, in which X is H or halogen, R and R' the same or different aryl residues which with the nitrogen N' may form a carbazole ring, and Y alkyl, aralkyl or H. Acid dyes are obtained by sulfonation. These yield insol. inorg. salts, usable as lakes, and sol. salts with org. bases usable for coloring spirit, nitrocellulose and celluloid lacquers. Among examples, 2,5-di(*N*-benzylcarbazolyl-3-amino)-3,6-dichloro-1,4-benzoquinone is subjected to ring closure by heating and is brominated in fluorosulfonic acid, and 2,5-di(*β*-naphthylamino)-3,6-dichloro-1,4-benzoquinone is subjected to ring closure and is treated in hot $PhNO_2$ with Cl in the presence of I. The product is sulfonated with oleum.

**Stable dry composition for silk dyeing.** Louis Philippe. U. S. 1,889,491, Nov. 29. An acid dye is used together with a hygroscopic acid salt such as $NaHSO_4$ capable of hydrolyzing in water to release free acid for combination with the dye, the particles of the salt being coated with an antihydroscopic agent such as starch. $Na_2SO_4$, gelatin, etc., also may be added.

**Sulfide blacks.** E. I. du Pont de Nemours & Co. Brit. 364,048, Sept. 24, 1930. In the manuf. of sulfide blacks by heating nitrophenols with polysulfides a thiosulfate is added to the mass undergoing fusion to raise the b. p. of the mixt. and render it more mobile.

**Lakes.** E. I. du Pont de Nemours & Co. Brit. 365,943, May 27, 1930. Lakes are made by bringing together in an acid medium an aliphatic amine or mixt. of such amines, a complex inorg. acid, *e. g.*, phosphotungstic, phosphomolybdic, or its components, and a basic dye. Among dyes mentioned are Et violet, Victoria Green, Rhodamine B extra, etc. The amines are conveniently used as their hydrochlorides.

**Colored lakes,** Imperial Chemical Industries, Ltd. Fr. 738,029, June 1, 1932. Colored lakes of high tinctorial power and fastness are made by reacting basic dyes (which may also contain acid groups) with hetero-poly-acids contg. P, Mo, Si and W, *e. g.*, phosphotungstic, phosphomolybdic, silicotungstic, molybdophosphotungstic and

silicomolybdotungstic acids, and organo-hetero-poly-acids contg. radicals of gallic and tannic acids, *e. g.*, gallomolybdic and gallotungstic acids. Several examples are given.

**Anthracene derivatives.** IMPERIAL CHEMICAL INDUSTRIES, LTD. Fr. 738,030, June 1, 1932. The manuf. of sulfuric esters of reduced dianthraquinonazines is characterized by the fact that tetrasulfuric esters of tetrahydroanthraquinonazine or dihydroazine or their substitution products are converted by oxidizing agents into disulfuric esters of tetrahydroanthraquinonazines. Alkali hypochlorites are used as oxidizing agents, if desired in the presence of an acid such as boric or $CO_2$, or persulfates in alk. soln. The disulfuric ester of anthraquinoneanthrahydroquinonazine, which the product is likely to contain, is eliminated. The manuf. of sulfuric esters of reduced dianthraquinonehydroazines is characterized by the fact that disulfuric esters of tetrahydrodianthraquinonazines or their substitution products are converted by an acid treatment into monosulfuric esters of anthraquinoneanthrahydroquinonehydroazines. The products are used for *dyeing textiles* the color being developed by the action of heat in acid soln.

**Anthraquinone condensation products.** I. G. FARBENIND. A.-G. Fr. 738,031, June 1, 1932. Products which dye wool, cotton and viscose are prepd by causing a 1-amino-4-haloanthraquinone-2-sulfonic acid to react with an amino compd. of the biphenyl series, such as 4-aminobiphenyl, 4-amino-2,4′-dichloro(or dibromo)biphenyl, 4-amino-4′-methoxy(or ethoxy)biphenyl, hydrogenated 4-aminobiphenyls, 4-aminoacetyl (or propionyl)aminobiphenyl and 4-amino-3,3′-dimethoxy-4′-acetylaminobiphenyl.

**Anthraquinone derivatives.** SOC. POUR L'IND CHIM. À BÂLE. Fr. 738,251, June 7, 1932. New derivs of anthraquinone are prepd by reacting 1-acylamino-3-haloanthraquinones with derivs. contg. at least one interchangeable atom of H or a metal joined to N, O or S. The products may be treated with substituting or condensing agents. Acyl derivs include the 1-formamido-3-bromo, 1-acetamido-3-bromo, 1-benzamido-3-bromo, 1-(4′-chlorobenzamido)-3-chloro, 1-naphthoylamino-3-chloro, 1-(2′-ethoxynaphthoylamino)-3-bromo, 1-phenylsulfonamido-3-bromo, 1-naphthalenesulfonamido-3-chloro, 1-(1′-anthraquinonecarbonylamino)-3-chloro and the 1-(2′-anthraquinonecarbonylamino)-3-bromo compds. The other derivs. include alcoholates, phenolates, xanthates, mercaptans, thiophenols, thionaphthols, sulfonamides, $NH_3$, $NH_2Me$, glycine, $PhNH_2$, toludine, phenylenediamine, naphthylamine, aminoanthraquinones, aminopyranthrones, aminoanthanthrones and aminodibenzanthrones. The *products are dyes and (or) intermediates*. Several examples are given.

**Thio derivatives of phenol.** IMPERIAL CHEMICAL INDUSTRIE, LTD. Fr. 737,665, May 26, 1932. Non-dyeing derivs of PhOH are made by reacting with heat, PhOH (1 mol.), S (2 at. proportions) and an alkali or alk. earth hydrosulfide ($^1/_4$ to $^1/_2$ mol. proportion or equiv., according to the case). The products are *mordants for basic dyes* and when treated with an alkali sulfite and an oxidizing agent such as air may be used to create reserves on animal fibers.

**1,1′-Dianthraquinonyl-2,2′-diurethans.** WM. SMITH and JOHN THOMAS (to Scottish Dyes, Ltd.). U. S. 1,890,098, Dec. 6. Products suitable for use as flavanthrone *dye intermediates* are obtained by heating anthraquinone-1-halo-2-urethans with Cu at 135–175°.

**Nitroarylamino derivatives of leuco sulfuric acid esters of anthraquinonoid and indigoid compounds.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,187, Oct. 7, 1930. *N*-Substitution products of leuco sulfuric esters of anthraquinonoid and indigoid compds. contg. amino groups are obtained by treating the esters with nitrohaloaryls, contg. labile halogen, in the presence of acid-fixing agents. Among examples the K salt of the leuco sulfuric ester of β-aminoanthraquinone is condensed with 2,4-d nitrochlorobenzene in presence of MgO. The product, when treated with acid oxidizing agents on the fiber, gives fast yellow shades.

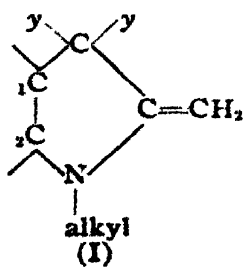
**Dyes and intermediates.** I. G. FARBENINDUSTRIE A.-G. Brit. 362,696, Dec. 22, 1930. Addn. to 308,651 (*C. A.* **24**, 506). Benzanthrone-*peri*-dicarboxylic acid or a deriv. or substitution product is condensed with an aromatic *o*-diamino compd. by heating in the presence of an indifferent solvent or diluent at below 80°. The dicarboxylic imides formed are further ring-closed by heating to a higher temp. or reduced to a vat while heating. Among examples benzanthrone-*peri*-dicarboxylic anhydride is condensed with *o*-phenylenediamine, followed by ring closure. Cf. *C. A.* **27**, 1201.

**Dyes and intermediates.** E. I. DU PONT DE NEMOURS & Co. Brit. 363,647, June 13, 1930. Dicarboxy derivs. of arylaminoanthraquinones are prepd. by condensing a 1-haloanthraquinone-2-carboxylic acid with a primary aminoarylcarboxylic acid, other than an aminodiarylketone-*o*-carboxylic acid, in an alk. medium in the presence of a catalyst, *e. g.*, $CuCl_2$ or $CuSO_4$. Among examples 1-chloroanthraquinone-2-carboxylic acid is condensed with *p*-aminobenzoic acid. The products are converted to the

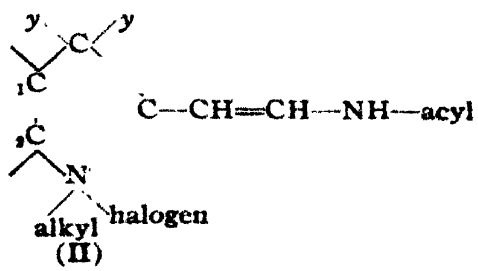
dicarboxylic acid chloride derivs. by treatment with $PCl_5$, etc., in an inert solvent during which conversion ring closure may also take place to the corresponding *Bz*-carbonyl chloride deriv. of anthraquinone-2,1-arylacridone. Thus the 1-(*p*-carboxyphenylamino)anthraquinone-2-carboxylic acid obtained in the above example when treated with thionyl chloride in solvent naphtha gives the *Bz*-3-carbonyl chloride of anthraquinone-2,1-benzacridone. Anthraquinone-2,1-arylacridone dyes are obtained by condensing these anthraquinone-2,1-arylacridone-*Bz*-carbonyl chloride derivs. with primary aliphatic or aromatic amines. They dye cotton and rayon yellowish pink to light violet-red when simple amines are employed and cotton red-orange to brown when aminoanthraquinones are used. Numerous examples are given.

**Dye intermediates of the anthraquinone series.** Wm. Smith and John Thomas (to Scottish Dyes, Ltd.). U. S. 1,890,099, Dec. 6. Products such as 2-amino-3-chloroanthraquinone are formed by treating a halogenated aminoanthraquinone having the halogen in the $\alpha$-position, such as 1,3-dichloro-2-aminoanthraquinone in suspension (suitably in water) with a reducing agent such as Na hydrosulfite in the presence of an alkali metal or alk. earth hydroxide.

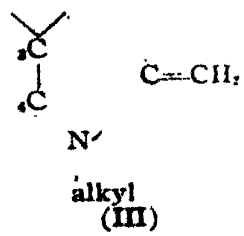
**Dye intermediates and dyes of the polymethine series.** Richard Kuhn and Walter Kern (to Soc. pour l'ind. chim. à Bâle). U. S. 1,886,485, Nov. 8. New intermediate products and dyes are obtained from cyclic $NH_4$ salts having a methyl group capable of reaction in $\alpha$-position to the N, or from the methylene bases thereof of the general formula $\overset{1}{C}:\overset{2}{C}.N(alkyl).C(:CH_2).X$, where the pair of C atoms $C_1=C_2$ belongs to an aromatic nucleus, such as an unsubstituted or substituted benzene or naphthalene residue and $x$ stands for a bivalent org. residue, such as —CH=CH—, —S—, —$CH_2$—, =$CMe_2$, =$CEt_2$, etc. Among such products are: *N*-ethyl-2-methyleneedihydroquinoline and its derivs. substituted in the benzene nucleus; *N*-methyl-2-methylenebenzothiazoline and its derivs. substituted in the benzene nucleus; 1,3,3-trimethyl-2-methyleneindoline and its derivs. substituted in the benzene nucleus. Various *intermediates formed may be used for pharmaceutical purposes*, and numerous examples with details of procedure are given, and the process of dye manuf. is generally defined and claimed as involving treating one mol. proportion of a methylene base of the indolenine series of the general formula I, where the pair of C atoms $C_1=C_2$ belongs to a benzene or a naphthalene nucleus and the two *y*'s stand for H or alkyl residues, in the presence of an acylating agent with one mol. proportion of a mineral acid salt of a deriv of formic acid of the general formula HC(:NH)*w*, where *w* stands for halogen or $NH_2$ or O—$C_2H_5$ or O—CO—$CH_3$, to produce a salt of the general formula II, where the pair of C atoms $C_1$—$C_2$ belongs to a benzene or a naphthalene nucleus, and the two *y*'s stand for H or alkyl residues, and then treating the base obtained from this salt by treatment with alkalies with one mol. proportion of a methylene base of the general formula III where the pair of C atoms $C_3=C_4$ belongs to a benzene or a naphthalene nucleus, and *x* stands for —CH=CH— or —S— or —$CH_2$— or =$C(alkyl)_2$.



(I)



(II)



(III)

**Dyeing fabrics.** Geo. R. Hudson. Brit. 363,358, Sept. 11, 1930. A web of textile fabric is printed, coated with color or color-embossed by passing it with a web of moistened linen, etc., between printing or embossing rollers and coöperating heated impression rollers which cause steam to be generated to transfer or fix the design.

**Dyeing fabrics.** Geo. R. Hudson. Brit. 363,359, Sept. 11, 1930. A textile fabric is printed or coated with color by pressing it with a moistened lamina between a pair of platens, one of which is provided with blocks or dies and the other heated to generate steam to fix the design.

**Dyeing animal fibers.** Soc. pour l'ind. chim. à Bâle. Brit. 364,148, Sept. 26, 1929. Wool is dyed fast tints by treatment first in a bath of an acidity substantially less than corresponds to 3% $H_2SO_4$ (calcd. on the wt. of the wool) and contg. a Cr compd. of an azo dye derived from a substituted or non-substituted 1-diazo-2-naphthol-

4-sulfonic acid and a substituted or nonsubstituted naphthol, and subsequent development of the dyeing on the fiber in a more strongly acid medium.

**Dyeing cellulose derivatives.** I. G. FARBENIND. A.-G. Fr. 737,676, May 26, 1932. Cellulose esters or ethers are dyed with a *p*-aminomonoazo dye, insol. in water, contg. no COOH or $SO_3H$ groups and corresponding to the general formula $H_2N$—R—N=N—$R_1$—NYY (R is a radical of the $C_6H_6$ series substituted by at least one alkoxy group, $R_1$ is a radical of the $C_6H_6$ series and the 2 Y are aliphatic, hydroaromatic or aliphatic aromatic radicals, identical or different or together represent an alicylic radical, or $R_1$ is a tetrahydronaphthalene and the Y represent H or aliphatic radicals). The monoazo dye is diazotized on the fiber and coupled with a compd. of the formula 2,3,6,7-$(HO_2C)(HO)(X)(X')C_{10}H_4$ (X is H and X' is alkoxy or alkyl, or X and X' together represent a $C_6H_6$ ring joined to the $C_{10}H_8$ ring). A large no. of examples is given.

**Dyeing cellulose ethers.** LEON LILIENFELD. U. S. 1,890,392, Dec. 6. A cellulose ether is softened without dissolving it and is dyed while in such softened condition. Numerous details and examples are given.

**Dyeing and printing.** JULES MARTIN (known as Gaudit). Brit. 365,103, Aug. 2, 1929. Void. See Fr. 679,705 (*C. A.* **24**, 3910).

**Dyeing and printing.** I. G. FARBENIND. A.-G. Fr. 736,874, May 9, 1932. Insol. azo dyes are prepd. in the fiber by means of mixts. contg. (*a*) a substantive azo component and (*b*) an amino diazo component sol. in water and derived from an aromatic diazo component or an alkali salt of an aromatic nitrosamine. The fibrous material to which the above components have been applied are passed into a bath contg. an aq. soln. of one or more org. acids, $H_3PO_4$, metal salts easily dissocd. of inorg. acids or salts capable of liberating acids or mixts. of such agents, and the treated material is dried on cylinders or in heated chambers. A similar treatment is used in obtaining colored reserves.

**Printing textiles.** I. G. FARBENIND. A.-G. Fr. 40,738, Mar. 2, 1931. Addn. to 727,727 (*C. A.* **26**, 5770). Textiles are printed with vat or S dye prepns. contg. aminoanthraquinones, their *N*- or ring-substituted derivs. or reduction products of these compds. contg. O. Examples are given.

**Printing textiles.** I. G. FARBENIND. A.-G. Fr. 40,899, June 26, 1931. Addn. to 727,727 (*C. A.* **26**, 5770) Textiles are printed with vat or S dye prepns. contg. anthraquinone-sulfonic or -carboxylic acids or their salts or reduction products of these compds. still contg. O. Anthraquinone, hydroxyanthraquinone, aminoanthraquinone or their reduction compds. contg. O may also be present.

**Printing textiles with thioindigoid vat dyes.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,052, Feb. 15, 1930. Stronger prints and more rapid fixation are obtained in printing with thioindigoid vat dyes by incorporating in the pastes, contg. a thickening agent, hydrosulfite as reducing agent, an alkali and any other usual addns., a salt, oxide or hydroxide of a non-alkali or non-alk. earth metal to the extent of 0.05–0.5 mol. per mol. of pure dye The oxide, hydroxide or salt may be mixed with the dye paste before making the latter into the printing paste. Among examples 4,4'-dimethyl-6,6'-dichlorothioindigo is pasted with glycerol, wheat starch-tragacanth thickening, Na benzylsulfanilate, $Na_2CO_3$ and hydrosulfite, the paste is heated to reduce the dye, mixed with $FeCl_3$ and Na formaldehydesulfoxylate, printed on the material and the latter steamed, washed and finished.

**Printing textiles.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,153, Sept. 30, 1930. Addn. to 364,052 (preceding abstr.). In printing with thioindigoid vat dyes in the form of pastes contg. the dye, an alkali carbonate, Na formaldehydesulfoxylate, a thickening agent and any other usual addns., more intense prints are obtained by adding a salt, oxide or hydroxide of a non-alkali or alk. earth metal to the extent of less than 1 mol. per mol. of pure dye.

**Making and dyeing cellulose compounds.** SOC. POUR L'IND. CHIM. À BÂLE. Brit. 363,897, Feb. 21, 1930. Addn. to 342,167 (cf. Ger. 554,781 (*C. A.* **26**, 6159)). The process of 342,167 is modified by treating cellulose material, *e. g.*, cotton yarn, with a compd. contg. a N:C-halogen group to produce a compd. still contg. at least 1 reactive halogen group and then with a compd. contg. an exchangeable H or equiv. atom and at least 1 chromophor or group capable of forming a dye or a residue convertible into such a group. The product may be converted into a dye by diazotizing and coupling with a coupling agent, or by coupling with a diazo compd. In an example cotton yarn is treated successively with alc. NaOH, cyanuric chloride in xylene and *p*-diaminodiphenylmethane in dil. alc., diazotized and coupled with β-naphthol, giving a yellowish red color. Bianisidine may be used as the chromophoric substance.

**Apparatus for dyeing textile materials in bundles.** JOSEPH ANNICQ. U. S. 1,890,556, Dec. 13. Structural features.

**Machines for dyeing cloth.** HANS NABHOLZ. Fr. 737,873, May 31, 1932.

**Apparatus for printing colors on threads.** DANIEL B. BONNER. Brit. 363,633, Sept. 18, 1929.

**Washing, rinsing, drying and dyeing machines.** CHARLES FLORI. Brit. 363,927, April 1, 1931. The app. comprises a perforated drum in which these operations may be conducted successively.

**Treating textiles.** WM. MARSHALL. Brit. 363,883, Feb. 7, 1931. In treating with caustic alkalies threads and fabrics made from regenerated cellulose or mixts. thereof with natural cellulose or other fibers the regenerated cellulose is protected from damage by adding a K, Na or $NH_4$ carbonate or bicarbonate or mixt. thereof to the wash water. NaCl may also be added.

**Treating textiles.** ALFRED W. BENNIS. Brit. 364,130, June 28, 1930. See Fr. 714,050 (*C. A.* **26**, 1803).

**Treating textiles.** RAYMOND VIDAL. Fr. 737,577, Sept. 19, 1931. Linen, hemp, jute, etc., are freed from incrustation and gummy substances by boiling in an aq. soln. of an alkali sulfite. Silks, vegetable fibers, etc., are treated with an aq. soln. of an alkali sulfite before treatment with hypochlorites.

**Treatment of textiles and leather.** ERBA FABRIK CHEMISCHER PRODUKTE SPEZIALITÄTEN FÜR DIE TEXTILINDUSTRIE. Brit. 364,327, Dec. 28, 1929. See Fr. 707,966 (*C. A.* **26**, 1134).

**Treating textile fibers, etc.** SOC POUR L'IND CHIM. À BÂLE. Brit. 363,284, June 2, 1930. Threads, composed of fibers of org. esters of undegraded cellulose obtained by the esterification of natural cellulosic fibers or of artificial fibers of undegraded cellulose, are reduced in denier and improved by subjection to a stretching process in the presence of a swelling agent, *e. g.*, dil. AcOH or formic acid, pyridine, aq solns. of $NH_4SCN$.

**Treating vegetable fibers.** EUGENE VICTOR HAYES-GRATZE. Brit. 363,651, Sept. 12, 1930. See Fr. 721,871 (*C. A.* **26**, 4185).

**Treating animal fibers.** EUGENE V. HAYES-GRATZE. Brit 363,652, Sept. 12, 1930. See Fr. 721,872 (*C. A.* **26**, 4185).

**Loading textile fibers.** WALDEMAR ZANKER. Brit. 365,085, Sept. 13, 1929. See Fr. 702,964 (*C. A.* **25**, 4415)

**Felting silk.** ALESSANDRO GANDINI. Brit 364,815, Dec 22, 1930. See Fr. 708,173 (*C. A.* **26**, 1136).

**Fibroin solutions.** I. G. FARBENIND A.-G. (Herbert Mahn and Wilhelm Irion, inventors). Ger. 567,384, Feb. 24, 1931. Solns of fibroin in concd. solns. of salts are rendered more homogeneous and less viscous by adding an amide before, during or after the addn. of the fibroin. The salt used may be NaCNS, and the amide may be $HCONH_2$, $AcONH_2$ or urea. Adsorption compds. of salt and fibroin, such as may be pptd. from solns. of fibroin in salt solns., may be liquefied by adding an amide. Cf *C. A.* **27**, 1210.

**Rayon.** GLANZSTOFF-COURTAULDS G M B H Fr. 41,084, Nov. 23, 1931. Addn to 694,516 (*C. A.* **25**, 2008). Nappes of thread which have been wound on bobbins and removed therefrom are treated in the same way as the cakes of Fr 694,516.

**Rayon.** SHOZABURO HOSHINO. Fr. 737,637, May 26, 1932. Fibroin dissolved in an alk. soln. of metals is spun and coagulated by a bath contg. a neutral salt mixed with a free acid in amt. such that all the salt is not converted to acid salt, *e. g.*, $H_2SO_4$ is added to a soln. contg. $Na_2SO_4$ and $(NH_4)_2SO_4$. Fr 737,638 Rayon is made from a soln. mixed with an alkyl ester or alkyl salt, such as AcOMe, AcOAm, AcOEt or an alkyl chloride.

**Rayon.** SHOZABURO HOSHINO. Fr. 738,054, June 2, 1932. A colloidal soln. of fibroin is spun into a coagulating bath, obstacles being disposed in the path of the thread to stretch it, submitting it to a friction and a resistance increasing progressively as the action of the coagulant progresses.

**Apparatus and process for treating rayon.** VEREINIGTE GLANZSTOFF-FABRIKEN A.-G. Brit. 364,489, June 5, 1930. Spun cakes of rayon are arranged on holding devices which are then attached to an endless belt or chain and passed through spraying, trickling or immersion baths. App. is described.

**Treating rayon.** ALGEMEENE KUNSTZIJDE UNIE N. V. Brit. 363,257, Feb. 11, 1931. For washing and aftertreating rayon cakes a perforated tube divided longitudinally is provided and the cakes, preferably wrapped in permeable wide-meshed fabric, are laid beside one another in the tube in a longitudinal direction. Cf. *C. A.* **27**, 430.

**Delustering rayon.** BRITISH CELANESE, LTD. Brit. 363,426, Oct. 5, 1929. A subdued luster is imparted to filaments, etc., made of or contg. cellulose acetate or other org. deriv. of cellulose by treating with a mixt. of a solvent for the deriv. and a non-solvent therefore and allowing or causing evapn. of the mixt. on the material so that its solvent power decreases.

**Treating rayon.** BRITISH CELANESE, LTD. Brit. 364,020, Oct. 8, 1929. Addn. to 363,426 (preceding abstr.). Filaments, threads, straws, etc., made of or contg. cellulose acetate or other org. esters of cellulose [illegible] solvent under such conditions that the filaments, etc., are united into a larger unitary product either uniformly along their length or intermittently, while at the same time the luster is subdued. Thus acetone-sol. cellulose acetate is treated with 5–20 parts xylene and 80–95 parts of acetone.

**Conditioning artificial filaments, etc.** BRITISH CELANESE, LTD., ROBERT P. ROBERTS and SIDNEY A. WELCH. Brit. 365,621, Oct. 15, 1930. Artificial filaments, yarns, etc., contg. org. derivs. of cellulose are conditioned by applying a plastifier, softener or swelling agent for the cellulose deriv., a lubricating agent, and a hygroscopic solid. Softening agents include polyhydric alcs., *e. g.*, diethylene glycol, glycerol, etc., xylene, toluene, triacetin, etc. Lubricating agents include castor oil, olive oil, lard, rape oil, etc., and mineral oils, also fatty acids derived from animal or vegetable oils. As an example Na or K acetate is added to a mixt. of ethylene glycol and olive oil. The liquids may be applied separately.

**Crepe threads, etc.** HENRY DREYFUS. Fr. 737,451, May 23, 1932. Threads composed of or contg. cellulose derivs. are creped by applying only a part of the torsion, moistening with water, partly or wholly drying and then applying in one step the rest of the torsion required. Fr. 737,452. Moistening with water is replaced by steaming.

**Increasing the luster of cellulose derivatives such as cellulose acetate.** GEORGE H. ELLIS and HENRY C. OLPIN (to Celanese Corp. of Am.). U. S. 1,890,643, Dec. 13. Materials which have been delustered by the action of hot aq. media have their luster restored, at least locally, by treatment with superheated steam.

**"Refining" operations on textile materials, as in mercerizing, carbonizing, bleaching, dyeing, etc.** HEINRICH BERTSCH (to H. Th. Böhme A.-G.). U. S. 1,890,492, Dec. 13. In carbonizing, mercerizing or similar treatments of textile materials with liquids contg. substances such as $H_2SO_4$, etc., which cause decompn. in solns. of ordinary Turkey-red oil and Monopole soap, there is added to the liquids a sulfonate prepd. by sulfonating a fat or the like such as ricinoleic acid in the presence of a water-binding acid substance such as $Ac_2O$.

**Sizing textiles.** ALEXANDRE I KOUSNETZOFF. Brit. 363,448, Oct. 15, 1930. See Fr. 709,431 (*C. A.* **26,** 1455).

**Sizes.** ÉTABLISSEMENTS GAMMA. Brit 364,902, Jan. 20, 1931. See Fr. 726,515 (*C. A.* **26,** 4964).

**Apparatus for sizing textile threads on beams or spools.** JOSEPH ANNICQ. Brit. 363,334, Sept. 25, 1929. Void.

**Wetting, etc., agents.** SOC. POUR L'IND. CHIM. À BÂLE. Brit. 365,468, May 28, 1930. Sulfuric esters for use as wetting agents and assistants in the textile industry are made by treating with the addn. product of $SO_3$ and an org. base a natural or artificial resin, contg. OH, or a hydroxy fatty acid contg. more than 9 C atoms or a deriv. thereof Among examples colophony is treated with chlorosulfonic acid and dimethylaniline in monochlorobenzene.

**Detergents.** WILLIAM PEEL. Brit 363,794, Nov. 25, 1930. Detergents for removing oil and other spots from fabrics are prepd. by emulsifying liquid hydrocarbons or chlorohydrocarbons in an aq. soln. of castile soap and adding a small quantity of weak acid, *e. g.*, AcOH, $H_3BO_3$, to neutralize the free alkali.

**Bleaching composition.** PIERRE SEGUIN. Fr. 737,956, Sept. 26, 1931. A bleaching compn for linen contains Marseilles soap, turpentine oil, $NH_3$ and pine oil.

**Waterproofing cloth, etc.** PAPETERIES NAVARRE (SOC. ANON.). Fr. 737,917, Sept. 22, 1931. Cloth, paper, etc., are waterproofed by impregnation, coagulation and pptn. of a soln. of cellulose xanthate.

**Mildewproofing fabrics.** WM. H. ADAMS (to Eastern Finishing Works). U. S. 1,890,717, Dec. 13. Fabric such as cotton is satd. with a mildew-resistant agent such as various metal salts and carries on its faces different mildew-resisting agents such as oil, wax and metal salt mixts. which are kept from reacting with each other by the satg. material in the body of the fabric.

**Imitation fur.** ABRAHAM UNGER (to Concord Chenille Co.). U. S. 1,889,733, Nov. 29. Chenille is laid upon a support in accord with a desired design and suction is applied to maintain the position of the chenille in the design; the chenille is cemented to a suitable backing by an adhesive and after discontinuing the suction the chenille and backing are subjected to pressure. App. is described.

**Marking rope or other absorbent materials for identification.** ERNEST H. HUNTRESS and ELLIS W. BREWSTER. Brit. 363,881, Feb. 6, 1931. See U. S. 1,822,098 (*C. A.* **26,** 2330).

# 26—PAINTS, VARNISHES AND RESINS

A. H. SABIN

**Paints and painting methods for gas work.** J. T. LAWRENCE. *Gas Engr.* **50**, 65–7 (1933).—A discussion of paint qualities, the proper methods for application and numerous troubles encountered in paint jobs. P. J. WILSON, JR.

**Flat wall paints with Titanox-C.** D. W. ROBERTSON. *Official Digest, Fed. Paint & Varnish Production Clubs* No. **121**, 1076–81(1932).—Important requirements of flat wall paints are full body, easy working, good levelling, good hiding and good aging characteristics. Good body is usually obtained by addn. of $H_2O$ and soaps. Detailed directions for prepg. a linseed oil treated with hydrated Mg are given. The use of bodied, blown and other types of oils in adjusting the working properties of paints is discussed. Non-reactive pigments combined with suitably adjusted vehicles are capable of greater latitude in formulation than treated pigments. Titanox-C is considered to fulfill the ideal requirements for a flat wall paint pigment. G. G. SWARD

**Paint and varnish in the electrical industry.** W. G. BIRRELL. *Official Digest Fed. Paint & Varnish Production Clubs* No. **120**, 1039–43(1932).—The elec. industry requires a wide variety of special paints. Many of them must withstand high temps., oil, $H_2O$ and mild acids, must have a high dielec. strength, and remain flexible over a long period of time. A few methods of test and their significance are given. G. G. S.

**Some paint problems of building research.** H. M. LLEWELLYN. *J. Oil & Color Chem. Assoc.* **16**, 3–22(1933); cf. *C. A.* **26**, 2068.—Paint problems comprise 4% of the inquiries directed to the Building Research Sta. (England). Expts. on the painting of plaster and cement show that free CaO alone does not cause paint failures, but that alkali salts and $H_2O$ must be present. Prevention of mold growth on paints remains unsolved. G. G. SWARD

**A study of priming coat reductions for painting new wood surfaces.** PETER GYDESEN, M. H. SIME AND F. L. BROWNE. *Official Digest Fed. Paint & Varnish Production Clubs* No. **121**, 1068–71(1932); cf. *C. A.* **26**, 1138.—After exposure for 10 months there are no differences in the appearances of the paints that can be attributed to variations in the priming coat reductions. It is too early to consider differences in integrity of, and protection by, the films. A few remarks concerning the appearances due to the natures of the paints themselves are given. G. G. SWARD

**New fireproof paints demanded.** L. ROHDE. *Farbe u. Lack* **1933**, 45–6.—The revival in Germany of the use of wood in the construction of dwellings has stimulated renewed interest in fireproof paints. Some formulas for such paints are given. G. G. SWARD

**Formation of blue and violet spots on white paint.** F. WACHHOLTZ. *Farben-Ztg* **38**, 533–4(1933).—Two cases of blue and violet spots observed on white paints were due to org. Fe compds. and not to Co, as suspected. The probability of microörganisms being directly responsible is considered. G. G. SWARD

**Report of subcommittee VIII on methods of analysis of paint materials.** F. W. SMITHER, *et al. Proc. Am. Soc. Testing Materials* **32**, Pt. I, 377–85(1932).—Method D34–30 for the routine testing of basic sulfate white lead is replaced by the one given in Federal Specification TT-W-261, and the methods for pigments contg. it are modified accordingly. Various modifications are recommended in the methods of routine analysis of white linseed oil paints (D215–29), of dry red lead (49–29), of yellow, orange, red and brown pigments contg. Fe and Mn (D50–27), of yellow and orange pigments contg Cr compds., blue pigments and chrome green (D126–27), of Ti pigments (D186 29), of dry $Cu_2O$ (D283–29) and of dry HgO (D284–29), and of testing for hydroscopic $H_2O$ (and other matter volatile under the test conditions) in pigments (D280–31). A. PAPINEAU-COUTURE

**Determination of the critical oil requirements of paints.** G. ZEIDLER AND B ROSEN. *Farben-Ztg.* **38**, 403–4, 427–9(1933).—The calcn. of the crit. oil content of paints is demonstrated. Cf. *C. A.* **26**, 1456, 3122, 5436. G. G. SWARD

**Can catalytic reactions occur in paint?** HANS HEBBERLING. *Farben-Ztg.* **38**, 402 (1933).—A discussion of the causes for the now rarely observed darkening of lithopone paints. G. G. SWARD

**Petroleum asphalts, their properties, manufacture and uses in the paint industry.** W. L. LINTON, V. L. SHIPP AND M. F. PRATT. *Official Digest Fed. Paint & Varnish Production Clubs* No. **122**, 4–12(1933).—The chemistry of asphalts, the manuf. of asphaltic products by fractional distn., their testing and uses in paints are described. G. G. S.

**Coke-oven distillates in the paint and varnish industry.** J. KENNY. *Official Digest Fed. Paint & Varnish Production Clubs* No. **123**, 48–59(1933).—Address. G. G. SWARD

**Recent physical and chemical developments in the field of pigments.** A. FOULON. *Farbe u. Lack* **1933**, 21–2, 31–2.—A no. of recent German patents on pigments are reviewed. G. G. SWARD

**Some vagaries of mineral pigments.** A. W. C. HARRISON. *Paint Manuf.* **3**, 44–6 (1933).—The adverse influences of various pigments on drying times of paints, variations in color of identical pigments, metallic soap formation in paints, etc., are discussed. G. G. SWARD

**Yellow pigments for façades.** R. SCHWARZ. *Farbe u. Lack* **1933**, 52–3, 69.—Some practical notes governing the use of suitable pigments for plaster and concrete surfaces are given. G. G. SWARD

**Zinc white in white enamels.** P. KAMP. *Farben-Ztg.* **38**, 453–5, 479–80(1933).—With properly chosen vehicles and sequence of steps in manuf., ZnO enamels free from thickening, settling or formation of gritty matter are obtainable. An analogy is drawn between aq. colloidal states and oleo-colloidal systems. G. G. SWARD

**Tuscan reds, bone blacks and Hoover browns.** E. M. GILES. *Official Digest Fed. Paint Varnish Production Clubs* No. **123**, 60–8(1933).—Address. G. G. SWARD

**Stoving blacks.** A. W. C. HARRISON. *Paint Manuf.* **2**, 273–6, 303–6(1932).—Raw materials, typical formulas and cooking directions for black baking enamels are given. G. G. SWARD

**Some consideration for the evaluation of substrates.** HANS WAGNER. *Paint & Varnish Prod. Mgr.* **9**, No. 2, 10, 12, 34(1933).—The following properties are important in the evaluation of substrates for lake pigments: (*a*) brightening power, (*b*) adsorption of basic dyestuffs, (*c*) wetting characteristics and (*d*) swelling in $H_2O$. Substrates should be low in *a* and *d*, high in *b* and *c*. A no. of commonly used substrates are discussed with respect to the above properties. Cf. *C. A.* **27**, 856. G. G. SWARD

**Oil absorption of pigments.** GOTTFRIED TRÖGER. *Farbe u. Lack* **1933**, 40–2, 55–6 65–7.—Review. G. G. SWARD

**The newer chemistry of coatings.** CARLETON ELLIS. *Ind. Eng. Chem.* **25**, 125–32 (1933).—The goal of recent research on coatings is to develop oils with greatly reduced drying time or to synthesize an ideal resin (properties given) to fill this need. Polymer theories of Staudinger and Carothers are outlined. Recent advances in the following classes of resins are discussed: polyhydric alc., phenolic (oil-sol.), polyvinyl, urea, depolymerized and chlorinated rubber, petroleum and heteropolymers, *e. g.*, from stilbene and maleic anhydride. Recent advances in solvents are *hydrogenation of petroleum* and *production of AcOH* from MeOH + CO and by the reaction $C_2H_2 + NaOH + H_2O \longrightarrow NaOAc + H_2$. A. M. COLLINS

**The effect of subjecting linseed oil to cold.** FELIX FRITZ. *Farbe u. Lack* **1933**, 79–80.—Review. G. G. SWARD

**Swelling and gas permeability of linseed oil films.** ANON. *Farben-Ztg.* **38**, 481–2 (1933).—Films of (1) linseed oil, (2) linseed oil plus 1%, (3) 2% and (4) 5% rubber, (5) linseed oil plus 2%, (6) 5%, and (7) 10% chlorinated rubber and (8) linseed oil-tung oil (3:1) were compared in respect to $H_2O$ absorption, and permeability to $SO_2$, $NH_3$ and HCl. Small amts. of rubber effectively reduce $H_2O$ absorption and permeability to the gases Chlorinated rubber is less effective, while tung oil is very effective. G. G. SWARD

**The optimum proportions of driers for linseed oil in the combinations lead-manganese, lead-cobalt, lead-manganese-cobalt.** K. WINIKER. *Farben-Ztg.* **38**, 504–5, 534–5(1933).—The most rapid drying times of linseed oil obtained by various drying metal combinations were 3 hrs. for Pb:Mn (7.5:1) with an abs percentage of Pb, 0.4–0.5%; 3 hrs for Pb:Co (5:1) with 0.5% Pb; and 1¾ hrs. for Pb:Mn:Co (10:1:2) with 0.5% Pb. G. G. SWARD

**Tung-oil yields.** B. F. WILLIAMSON. *Mfrs. Record* **101**, No. 17, 24 (1932).—A brief analysis is made of results obtained in expt. stations. A yield of 675 lb. of oil per acre is estd. for a grove at Gainesville, Ga. A. W. FURBANK

**Damar varnishes, yesterday and today.** C. HORNEMANN. *Farbe u. Lack* **1933**, 43–4.—The properties of damar resin are described and suitable uses are indicated. G. G. SWARD

**A correlation of color systems [for varnishes, oils, resins, nitrocellulose lacquers and transparent colored liquids].** G. G. SWARD AND J. R. STEWART. Am. Paint & Varnish Mfrs.' Assoc., *Circ.* No. **425**, 79–94(1933).—A no. of systems for describing the color of varnishes, etc., are reviewed and correlated. Solns. of $FeCl_3$ and $CoCl_2$ are suggested as standards. A set of 18 such solns. ranging in intensity of color from almost water white to that of a soln. of 3 g. $K_2Cr_2O_7$ in 100 cc. concd. $H_2SO_4$ is described. G. G. S.

**Service requirements of insulating varnishes.** R. H. ARNOLD AND L. E. FROST. *Ind. Eng. Chem.* **25**, 133–5(1933).—Dependability of elec. equipment depends on effi-

ciency of insulating varnish which, in addn. to dielec. strength, should be flexible and neither soft nor brittle at working temp. and should have high solids content and readily penetrate into coils, etc. Present tests (described), particularly accelerated ones, are in great need of improvement. A. M. COLLINS

**Metal for varnish kettles.** J. SOMMER. *Farben-Ztg.* **38**, 426–7(1933).—A no. of metals suitable for portable varnish kettles are rated for the properties, cost, durability, influence on color of varnish, ease of cleaning, when used both for the bottom and sides of the kettle. A combination of a Ni-plated ingot steel bottom and Monel metal sides ranked highest, while an Al bottom with Cu sides ranked lowest. G. G. S.

**The use of rubber resins in nitrocellulose lacquers.** A. KRAUS. *Farbe u. Lack* **1933**, 17–8, 28.—The plasticizing effects of 2 resins, typical of those extd. from guttapercha and balata, etc., in nitrocellulose lacquers were studied. The softer type (m. 63–5°) increased the elongation while the harder type (m. 84–5°) decreased the elongation of films of nitrocellulose:tritolyl phosphate:resin (1:1:1). Both types reduced the tensile strength of films both in the presence and absence of tritolyl phosphate. The use of the softer type in nitrocellulose leather lacquers is recommended. G. G. S.

**Modern lacquer finishing.** RAY C. MARTIN. *Metal Cleaning and Finishing* **4**, 555–8, 603–6, 610, 647 50(1932).—The characteristics of the various types of nitrocellulose, cellulose acetate and ethylcellulose employed in lacquers are briefly described The use of alc. solvents in nitrocellulose lacquers, the distinction between solvents and diluents and the desirable properties of nitrocellulose solvents are discussed D. T.

**Alcohols as lacquer solvents.** RAY C. MARTIN. *Metal Cleaning and Finishing* **5**, 27–30(1933).—The properties and application of BuOH, AmOH (refined fusel oil), EtOH (denatured alc.), anhyd alcs., MeOH, synthetic AmOH, *tert*-AmOH, *sec*-BuOH, *sec*-PrOH, butylcarbinol, methylpropylcarbinol, benzyl alc., furfuryl alc. and cyclohexanol as solvents in nitrocellulose lacquers are discussed. D. THUESEN

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Apparatus and safeguards to health in nitrocellulose lacquer plants (CALVI) **9**. Rosin-wax sizes (LADOO) **23**. Genetic formation of substances. Chemistry and morphology of white lead (KOHLSCHÜTTER, HOSTETTLER) **2**. Dielectric constants of fatty oils (KOVALEV, ILLARIONOV) **10**. Iridescent and mother-of-pearl effects (VILLFORTH) **18**. Polymerized styrenes [for lacquers and films] (Brit. pat. 365,217) **10**. Rayon [and films and varnishes] (Brit. pat. 363,700) **23**. Composition for use in glazing, calking and pointing (U. S. pat. 1,889,842) **18**. Chlorinating *m*-styrene [to obtain product for use in spray coatings] (U. S. pat. 1,890,772) **10**. Chlorinated rubber [for varnishes, paints, etc.] (Fr. pat. 738,434) **30**. Rendering casein insoluble [for making glues, paints, varnishes, etc. (Fr. pat. 737,578) **18**. Cr-containing dyes [for coloring varnishes] (Brit. pat. 364,147) **25**. Pigment dyes (Brit. 365,600) **25**.

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BAENTSCH, SIEGFRIED: **Kristallin flüssiger Harze und Lacke.** Thesis, Halle, 1931. 39 pp.

CONRAD, WERNER: **Hartmanilakopale.** Thesis, Leipzig, 1931. 68 pp.

OHLIGSCHLÄGER, WILHELM: **Einige Resinosäureharze, insbesondere über die Autoxydation und die Veränderungen durch Schmelzen.** Thesis, Bern, 1930. 67 pp.

REICH, WALTER: **Die Kunstharze (Cumaronharze).** Thesis, Bern, 1930. 48 pp.

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**Paints.** ELISE E. LE ROUZIC and MARC PAQUIER. Brit. 365,121, July 12, 1929 Void. A process for decorating surfaces consists in applying liquids, charged with materials in suspension and having a viscosity increasing with evapn., so that as the liquid evaporates the suspended particles move by convection and are finally deposited as the liquid becomes viscous. Cellulose varnishes, varnishes with gums and resins as the base, and colloidal solns., *e. g.*, gelatin or agar-agar, may be used as liquids and powd metal or "Orient essence" as suspension.

**Anticorrosive paint.** KASPAR WINKLER. Brit. 365,366, Feb. 14, 1930. An anti-rust paint is made by mixing the smoke dust which is a by-product in the roasting of S ores, without further treatment, with linseed-oil varnish or other binding medium, with or without other substances, *e. g.*, lithopone, red lead, ultramarine. The dust may be that obtained from S ores contg. Pb and As.

**Appliance for mixing paints, etc.** WILLIAM LANGSDORF. Brit. 366,824, May 6, 1931.

**Grinding mills for paints, inks, enamels, etc.** JOHN H. HOLMES and G. M. S. ENGINEERING CO., SOC. ANON. Brit. 363,456, Oct. 23, 1930.

**Chrome-yellow pigments.** I. G. FARBENINDUSTRIE A.-G. Brit. 363,362, Sept. 15, 1930. See Fr. 714,447 (*C. A.* **26**, 1809).

**Barium sulfate.** SACHTLEBEN A.-G. FÜR BERGBAU UND CHEMISCHE INDUSTRIE.

Brit. 363,936, Apr. 28, 1930. To produce coarsely cryst. $BaSO_4$, *e. g.*, for use in paints, the chemically pptd. compd. is heated at 300–1000° or over in the presence of not more than 10% of a fusion agent, *e. g.*, alkali oxide, hydroxide, chloride, etc. Cf. *C. A.* **26**, 2021.

**Titanium oxide-calcium sulfate composite pigments.** Willis F. Washburn and Leif Aagaard (to Titanium Pigment Co., Inc.). Brit. 364,112, Sept. 24, 1929. In the prepn. of $TiO_2$-$CaSO_4$ pigments by heating and hydrolyzing a mineral acid soln. of Ti salts contg. a suspension of $CaSO_4$, whereby the $TiO_2$ is pptd., the $CaSO_4$ is made by adding CaO, $Ca(OH)_2$, $CaCO_3$ or other Ca compd. to concd. $H_2SO_4$ Thus an aq. slurry of CaO is added to 78% $H_2SO_4$ and the resulting pulp is mixed while still hot with an acid soln. of ilmenite contg. 6% $TiO_2$ The mixt. is boiled and the resulting ppt. filtered, washed with $H_2O$ and ignited at 700–1200°.

**Drying oxidizable fatty oil and paints, etc., derived therefrom.** Resinous Products & Chemical Co. Brit. 363,394, Sept. 3, 1930. The drying is accelerated by incorporating multivalent metal salts of ketomonobasic acids of formula, RC:OR'COOH, in which R' is an aromatic nucleus and R an alkyl, aryl, cycloaromatic, polynuclear or heterocyclic radical, a C atom of which is attached directly to the C atom of the ketonic group. Metals specified are Cd, Cr, Sn, Hg, Cu, Al, etc , and especially Co, Mn and Pb. Examples are given of the prepn of such acids by condensing phthalic anhydride with $C_{10}H_8$, tetrahydronaphthalene, *p*-dichlorobenzene, pinene, ethylbenzene, diphenylene oxide, diphenyl ether and butyric anhydride. The use of salts of *p*-cymoyl-*o*-benzoic acid is especially claimed.

**Driers for oils, etc.** The Resinous Products & Chemical Co., Inc. Brit. 365,084, Sept 9, 1930. See Fr. 711,199 (*C. A.* **26**, 1810)

**Printing ink.** H. Zimmer. Brit 357,150, July 27, 1929. An oil base is incorporated with an aq. soln. of a dye by use of alkali, oil-sol. dyes, ppts. and pigments can be included as ingredients.

**Coating compositions.** British Celanese, Ltd. Brit. 365,093, Oct. 15, 1929. Lacquers, varnishes and coating compns are prepd. by incorporating a phenolallyl resin with a cellulose deriv , with or without the addn of solvents, plasticizers, softeners, other resins, fire retardants, etc The resins are made by condensing a phenolic substance, *e. g* , PhOH, a cresol or xylenol, with allyl alc., its org. or inorg. esters, *e. g.*, acetate, bromide or its ethers, *e. g* , allyl Et ether and diallyl ether, preferably in the presence of a catalyst. The cellulose deriv. may be an ester, *e. g.*, nitrate, acetate, butyrate or an ether, *e. g* , Et-, Me- or benzyl ether.

**Coating compositions.** British Celanese, Ltd. Brit 365,094, Oct. 15, 1929. Lacquers, varnishes and coating compns. are prepd by incorporating a cellulose deriv. with a synthetic resin made by condensing a hydroxyaromatic alc. with the reaction product of an aldehyde and glycerol or polyglycerol Plasticizers, softeners, coloring matters, etc., may also be present The hydroxyaromatic alcs., *e. g.*, hydroxybenzyl, hydroxytolyl or hydroxyxylyl alc., are preferably condensed at elevated temp. in the presence of an acid or alkali with an equimol. quantity of the aldehyde-glycerol.

**Coating compositions.** Soc. pour l'ind chim. à Bâle. Fr. 737,818, May 30, 1932. Suspensions of powd. condensation products of carbamide and aldehyde in water or org. liquids are applied to surfaces to be coated and are then dried and hardened by heat and pressure.

**Nitrocellulose coating composition.** Charles E. Burke (to E. I. du Pont de Nemours & Co.). U. S. 1,890,769, Dec. 13. An ethyl ether of pentaerythritol is used as a solvent or plasticizer.

**Coating surfaces.** Aktieselskapet Fredriksstad Saapefabrik. Brit. 365,628, Oct. 19, 1930. The interior surfaces of tanks to contain benzine, oil or other liquids are coated with a compn. of Na or K water glass and chalk to which fillers such as kieselguhr, asbestos powder, clay, cork or wood powder, etc., may be added. The coating is heated to harden it and render it resistant to water as well as oil.

**Apparatus and method for coating metal-pipe surfaces with flowable coating material.** National Tube Co. Brit. 363,703, Sept. 16, 1930.

**Artificial materials.** I. G. Farbenind. A.-G. Fr. 738,075, June 2, 1932. Oxidized drying oils such as linoxyn or oxidized wood oil are treated with $SO_3$ or its salts. The products are sol. in water and are rendered insol. by heating. They are used in making *varnishes, lacquers, linoleum*, etc.

**Polymerization products.** I. G. Farbenind. A.-G. Fr. 737,744, May 27, 1932. New products are made by the reaction of products of mixed polymerization contg. free OH groups, particularly those obtained from vinyl compds., with compds. capable of reacting with OH groups, particularly aldehydes or ketones. Thus the product obtained by combined polymerization of vinyl acetate and maleic anhydride is sapond.

and then heated with $CH_2O$, giving a product suitable for making *resistant lacquers*. Several examples are given.

**Refining rosin.** IRVIN W. HUMPHREY (to Hercules Powder Co.). U. S. 1,890,086, Dec. 6 For removing coloring substances from rosin, the latter is subjected, in soln. in a suitable solvent such as gasoline, to treatment with an org. ester such as monoacetin immiscible with the rosin soln. and having a selective solvent action on the coloring substances. Cf. *C. A.* **27**, 1503.

**Rosin size.** WM. H. HARDING and SIDNEY V. BURROWS (to Kalbfleisch Corp.). U. S. 1,890,462, Dec. 13. For making a size low in free rosin, a rosin size contg. more than 22% free rosin (as detd. by titration) is agitated in the hot, with a strong alk. soln. such as caustic alkali. App. is described.

**Decorating leather, wood, linoleum or other surfaces.** O. MAROTZ. Brit. 358,229, Sept. 10, 1930. A negative of a desired design is printed on paper with a colorless soln. of wax or resin and this design is then transferred to a leather or other surface by use of a hot iron or roller, and a coloring material is applied to the entire surface of the leather or other material being decorated, and the wax with its superposed coloring matter is finally removed from the surface. The process may be repeated for multicolor decoration, and various details of operation are given.

**Polyhydric alcohol-"polybasic" acid resin.** THEODORE F. BRADLEY (to American Cyanamid Co.). U. S. 1,890,668, Dec. 13. A toluene-sol. resin free from "monobasic" acid is prepd. from phthalic anhydride and a polyhydric alc. such as propylene glycol, trimethylene glycol or 2,3-butylene glycol by heating to about 290° for 2.5 hrs.

**Resinous condensation product.** ROY H. KIENLE (to General Elec. Co.). U. S. 1,889,923, Dec 6. A mono-glyceride of an oxidizable, unsatd. fatty acid such as the acid derived from linseed oil is blended with a drying oil such as linseed oil, and to this mixt. there is added "polybasic" org. acid material such as phthalic anhydride to combine with the free OH groups of the mono-glyceride and form a product which is suitable for molding, coating or insulating.

**Artificial resinous material from urea and formaldehyde.** WILHELM PUNGS, KARL EISENMANN and JOHANN KUCHENBUCH (to I. G. Farbenind. A.-G.). U. S. 1,889,791, Dec. 6. In the condensation of a urea and formaldehyde in the presence of an org. OH-contg. solvent such as EtOH, BuOH or iso-BuOH, the dispersion of the condensation products obtained is treated with steam, the resulting product is dried, and is subjected to fractional extn. with an org. solvent such as $C_6H_6$ or ethyl ether which is free from OH groups and is a low-boiling member of its class, which serves to sep. products of different characteristics.

**Synthetic resinous products.** ERNEST J. PIEPER (to Armstrong Cork Co.). Brit. 363,345, June 17, 1929. See U. S. 1,845,330 (*C. A.* **26**, 2334).

**Synthetic resins.** WM. J. SCHEIBER and PAUL F. SCHLINGMAN (to The British Thomson-Houston Co., Ltd.). Brit. 363,688, June 20, 1929. Void. Synthetic resins are prepd. by pptg. an aromatic amine-aldehyde condensation product in the presence of a suitable pulp during beating, at an elevated temp., whereby large particles of resin are produced which adhere to the pulp fibers. Temps. of 40–100° are used.

**Synthetic resins.** BAKELITE CORP. Brit. 363,694, June 18, 1930. Phenol-hexamethylenetetramine condensation products are made by acting on a phenol with $(CH_2)_6N_4$ (or mixts. of $CH_2O$ and $NH_3$) to produce a reactive resin and adding to the partially reacted ingredients a retarding agent, *e. g.*, natural resin, xylidines, toluidines, benzidine and (or) diphenylamine, and thereafter completing the reaction. When incorporated with fillers, *e. g.*, mica, molding mixts. are obtained yielding objects of very low phase angle difference and elec. power factor. The condensation products may also be *used for varnishes* and *impregnating purposes*.

**Synthetic resins.** H. A. BRUSON. Brit. 363,859, July 8, 1930. Rubber-like condensation products are formed by heating together a polyhydric alc. contg. 3 or more OH groups, castor oil and adipic, pimelic, suberic, azelaic or sebacic acid. Dihydric alcs., *e. g.*, glycol, and drying oils, *e. g.*, linseed, may be added to the reaction mass. The products may be used as plasticizers in cellulose nitrate and other lacquers and as bonding materials for rubber, asbestos, clay pigments, wood flour, etc.

**Synthetic resins.** ELLIS-FOSTER CO. Brit. 363,997, June 13, 1930. Water-sol. or dispersible synthetic resins or aq. solns. or dispersions thereof are made by treating a water-insol. or indispersible polyhydric alc.-polybasic acid resin, modified or not with monobasic acids or other agents, with an org. or inorg., preferably water-sol., base in the presence of $H_2O$, the base being in amt. sufficient to neutralize the excess acidity but insufficient to cause substantial sapon. or deresinification.

**Synthetic resins.** HUGH J. CAMERON and EDWARD H. JACKSON (to The British Thomson-Houston Co., Ltd.). Brit. 364,304, Dec. 13, 1929. A phenol-aldehyde condensation product, which is permanently liquid at ordinary temp. but solidifies on

heating, is produced by condensing a phenol and an aldehyde in presence of an ethanolamine, *e. g.*, mono-, di- or tri-ethanolamine, a dispersing agent and urea, the reaction mixt. being rapidly heated and subsequently rapidly cooled. In an example cresol 30, paraformaldehyde 18, triethanolamine 2, KBr 1 (dispersing agent), urea 0.5 and guanidine carbonate 0.5 parts are rapidly heated to 95–100° and then rapidly chilled to room temp. The liquid product may be used to impregnate, *e. g.*, an elec. coil. Cf. *C. A.* **27**, 616.

**Synthetic resins.** E. I. DU PONT DE NEMOURS & Co. Brit. 364,400, Feb. 19, 1931. A polymerized vinyl chloroacetate is caused to react with an alkali compd. of an org. acid, phenol or alc. in the presence of a non-reactive solvent in which the polyvinyl chloroacetate is sol., preferably an acetic ester. The products are substantially free from Cl and are useful for the manuf of protective finishes or as constituents of molding compns. Among examples, polymerized vinyl chloroacetate is treated with (1) Na Bu phthalate, (2) NaOAc in the presence of Bu acetate, (3) K phenoxide.

**Synthetic resins.** IMPERIAL CHEMICAL INDUSTRIES, LTD., WM. BAIRD and ROWLAND HILL. Brit. 364,737, Nov. 4, 1930. A polyhydric alc.-polycarboxylic acid condensation product contg. free OH groups equiv. to at least $^1/_3$ those originally present in the alc. is made by treating a polycarboxylic acid with an excess of polyhydric alc. or by treating a mutually satisfied alc.-acid condensation product of this type with a polyhydric alc., with or without the addn. of known alcoholysis catalysts. Cf. *C. A.* **27**, 1531.

**Synthetic resins.** FRAZIER GROFF (to The Bakelite Corp.). Brit. 365,100, July 6, 1929. Void. Potentially reactive resinous compns. are made by (1) heating a phenol with a fatty oil in the presence of a "promoter," *e. g.*, $H_3PO_4$, (2) treating the products of (1) with a further quantity of phenol and a methylene-contg. agent, (3) heating a phenol, tung oil, restricted amts. of a methylene-contg. agent and a catalyst, *e. g.*, a sulfonic acid deriv. Processes (2) and (3) yield mixed phenol-oil and phenol-methylene resins. Molding mixts, readily workable and remoldable, are obtained by incorporating filler.

**Synthetic resins.** ROY H. KIENLE and HARRY C. ROHLFS (to The British Thomson-Houston Co., Ltd.). Brit. 365,140, Sept. 16, 1929. Alkyd resins are made more flexible by prepg. them in the presence of a dibasic aliphatic acid ester, *e. g.*, glycol succinate, as such or made *in situ*. A cellulose ester may also be incorporated. The product may be dissolved for use in lacquers.

**Synthetic resins.** ISRAËL ROSENBLUM. Fr. 738,444, May 17, 1932. A fusible resin sol. in drying or semi-drying oils is made by condensing a phenol (PhOH, cresol, resorcinol, naphthol, etc.) with a compd contg. $CH_2$ such as $CH_2O$ in the presence of a terpenic or alicyclic alc. such as α-terpineol, borneol or dipentene. A harder resin is obtained by carrying out the condensation in the presence of a salt of Zn, Ca, Pb, Co or Mn. The condensation may be carried out in the presence of natural resins and if these contain free acids they may be esterified afterward with a polyhydric alc.

## 27—FATS, FATTY OILS, WAXES AND SOAPS

E. SCHERUBEL

**The solubility of fats in ethylene glycol monoethyl ether and in mixtures of this with petrolatum.** E. JAFFE. *Ann. chim. applicata* **22**, 667–73(1932); cf. *C. A.* **26**, 6167.—Cellosolve, $CH_2OHCH_2OEt$, has been used as a solvent for a large no. of fats in detg. the temp. at which the fat seps. out. The temps. varied from 15.4° for cacao fat to 57.8° for hydrogenated sperm oil. As the temp. of sepn. of many common fats is so low that they sep. as solids, a mixt. of 2 cc. petrolatum, 3 cc. of cellosolve and 1 cc. of fat was used. The temps. of sepn. with this mixt. are higher, 50–54° for nondrying or semidrying vegetable oils, 45–47° for drying oils. Castor oil is quite distinct, sepg. at 66.3°, and fish oils sep. at 52 to 54°. A. W. CONTIERI

**The action of microörganisms on fats.** L. B. JENSEN AND D. P. GRETTIE. *Oil and Soap* **10**, 23–7(1933).—A no. of species of bacteria, yeasts and molds may complicate the preservation of edible fat; and the organisms encountered in fats are not pathogenic. Microbic activity may cause fat spoilage by lipoclastic action and by discolorations due to chromogenic substances diffusing into the substrate. Cottonseed oil emulsion agar media may inhibit certain types of reducing bacteria because of the high active O content of many samples of old cottonseed oil. Certain types of oxidative rancidity may be caused by bacteria elaborating lipase which are also oxidase-peroxidase forming. The microbic content of old and rancid leaf lard, hydrogenated vegetable oil shortening and butter fat is shown by the use of Eijkman's original,

Lieske's emulsion agar, palm oil emulsion agar, Turner's cottonseed oil Nile blue agar, coconut oil emulsion agar and Eijkman's tallow plate combined with oxidase detection. The counts show the total nos. of lipoclastic bacteria and molds together with lipase-forming and oxidase-producing bacteria and molds. The presence of strict lipophilic microörganisms in plants is the exception and not the rule. E. SCHERUBEL

**Determination of oxidized fatty acids.** J. GROSSER. *Seifensieder-Ztg.* **60**, 49–50 (1933).—In the detn. of oxidized fatty acids by Fahrion's method in which they cling to the walls of the separatory funnel when the acidified soap soln. is shaken out with petr. ether, G. washes this residue with $H_2O$ and ashes it in order to remove all mineral constituents. P. ESCHER

**Oil and fat analysis by the thiocyanogen method.** W. S. MARTIN AND R. C. STILLMAN. *Oil and Soap* **10**, 29–31(1933).—The method is that of Kaufmann including all the modifications which expts. have shown desirable. Weigh the sample into a 125 cc. stoppered Erlenmeyer flask, add 25 ml. of a 0.2 *N* soln. of $(SCN)_2$ and keep the flask dark 24 hrs. at 65–70°F. The excess of $(SCN)_2$ should be 50–60%. After 24 hrs. add 1 g. dry powdered KI, rotate the flask 1.5–2 min., add 30 ml. distd. $H_2O$ and titrate the freed I with 0.1 *N* $Na_2S_2O_3$ soln., using starch as indicator. Run 3 blanks. If the titration of a 25 ml. portion of soln. drops more than 0.2 ml. of 0.1 *N* $Na_2S_2O_3$ in 24 hrs. the results will not be accurate. Thiocyanogen value = (blank titration × 12.69)/wt. of sample. This is expressed as percentage of I in order to put it on the same basis as the I no. For fats which contain no acids more unsatd. than linoleic the method offers a rapid way of estg. the proportions of oleic, linoleic and satd. acids. The method is particularly valuable for the analysis of fat mixts. contg. coconut and palm oils. E. SCHERUBEL

**Neutralization of oils and fats.** J. LEIMDÖRFER. *Seifensieder-Ztg.* **60**, 15–16, 34–5, 50–1, 66–7(1933).—1. Alkali methods. Free fatty acids are neutralized by passing moist $NH_3$ gas into the crushed oil seeds until the pressure becomes const. (Ger. pat 525,946, *C. A.* **25**, 4728) or by treating the benzine ext. with $NH_3$, NaOH or $Ca(OH_2)$. Anhyd. soaps are sol. in oil; hydrated soaps are not, the "break" of the finely divided soap in the refining process with NaOH is due to the absorption of $H_2O$ by the anhyd pptd. soap, and this coagulation is analogous to the sepn. into soap and lye in the salting-out process, if the temp. has been too high and little $H_2O$ is present, the sepd oil may, on cooling, even gelatinize on account of the soap dissolved in it. The color of cottonseed oil is 4-fold: (1) the unsatd fatty acids give the oil a yellow tinge; (2) impurities give it a brownish color; (3) some color is due to chlorophyll (green) or iron-chlorophyll (brown); (4) a red color results from absorption of albuminoid impurities. The red color is partly removed by an excess of NaOH during refining, the color passing into the neutral oil held by the pptd soap. Neutralizing with an alc $NH_3$ soln. (Wilhelm method) decreases oil losses and yields light-colored oils but requires distn. to recover the solvents. Neutralization with substances that do not dissolve oils, a new secret method, yields edible oils of light color. P. ESCHER

**The effect of varying conditions in the catalytic hydrogenation of fatty oils on the nature of the reaction product. II.** H. I. WATERMAN AND C. VAN VLODROP. *Rec. trav. chim.* **52**, 9–17(in English)(1933); cf. *C. A.* **26**, 5441. The hydrogenation of Me and Et linolates again indicates the effect of temp. on the reaction, high temps. (180°) favoring the formation of Me oleate and low temps. (65°) favoring the formation of Me stearate. Pressure is relatively unimportant. Anomalies in thiocyanogen values are mentioned. Linolic acid does not react with stearic acid to form oleic acid. J. V. VAUGHEN

**Analysis of sulfonated oils.** EDWIN R. THEIS AND JOHN M. GRAHAM. *J. Am. Leather Chem. Assoc.* **28**, 52–63(1933).—The Schindler method for sepg. sulfonated oils into neutral oil, free fatty acids and sulfated compds. (*C. A.* **24**, 4412) was applied to sulfonated neatsfoot oil to which was added variable wts. of neutral rapeseed oil and various fatty acids. The trend of the results as more neutral oil is added indicates that the sepn. gives low results for neutral oil and high results for the sulfated fraction. The following modified method gave better results: Dissolve the sulfonated oil in EtOH; ext. neutral oil and free fatty acids from the EtOH soln. with petr. ether in a Soxhlet extractor; det. unsaponifiable matter and free fatty acids in portions of the residue obtained by evapg. the petr. ether ext. Dil. the EtOH soln. with $H_2O$ and ext. unneutralized sulfated compds. and oxy-acids by shaking with $CCl_4$. Acidify the EtOH soln. and ext. neutralized sulfated compds. and sapond. fatty acids with $CCl_4$. H. B. MERRILL

**Vegetable oils by extraction.** A. THIEME. *Z. Ver. deut. Ing.* **77**, 45–7(1933).—Illustrated. Solvents used are: extn. benzine, $C_6H_6$, $CS_2$, $CCl_4$ and $C_2H_2Cl_2$. App. consist of: diffusion batteries, Böhm's continuous extn. app. and the Hansa-Mühle Hamburg continuous extractor. The latter is a bucket-elevator and spray arrange-

ment within a closed tank and is used for soy beans with a benzene-alc. (4:1) solvent; the dried extd. meal is used as *animal feed.* P. ESCHER

**Report of olive-oil committee.** M. F. LAURO. *Oil and Soap* **10,** 36(1933); cf. *C. A.* **26,** 4971.—The Bolton and Williams method for the grouping of fatty oils with reference to the detection of tea-seed oil in olive oil was tried out. The method consists in the detn. of the I nos. of the unsaponifiable matter of oils; and the values thus obtained cause the oils to fall into 4 groups: group 1, I nos. 64–70, kernel oils and animal fats; group 2, I nos. 90–96, fish and marine animal oils with cacao butter; group 3, I nos. 117–124, the vegetable oils and fats; and group 4, I nos. 197–206, olive oil alone, which is thus distinguished from other oils. As the result of coöperative work the method is shown to be inaccurate and an improved procedure of extn and washing is necessary to obtain data of value in the field of olive-oil adulteration. F. SCHERUBEL

**Technic in the recovery of oil from olives.** GIULIO PARIS. *Olii minerali, olii grassi, colori vernici* **12,** 187–8(1932). R. SANSONE

**Fish oils.** A. H. MENDONCA. *Official Digest Fed. Paint Varnish Production Clubs* No. **122,** 22–6(1933).—The source and magnitude of fish-oil production are briefly indicated. In a new plant of the F. E. Booth Co., fish oil is sepd. by centrifuge instead of settling tanks, is destearinated by refrigeration and freed from antioxygen amino compds. by chem. treatment. G. G. SWARD

**Studies in fish oils. II. The decolorization of pilchard oil.** H. N. BROCKLESBY AND L. P. MOORE. *Contrib. Can. Biol. Fisheries* **7,** 413–24(1933).—The effect of temp. and quantity of earth on decolorizing efficiency was studied. By a simple acid treatment, bentonite clay can be converted into an efficient decolorizing material. Acid earths tend to cause appreciable amts of hydrolysis, but in these expts. the optimal temp. of the earths used is below 150° and the amt. of hydrolysis found was negligible. Spectroscopic examn. of the bleached oils showed little, if any, preferential adsorption of pigments by the various earths used. F. L. DUNLAP

**Quality improvement of soap powders.** H. LEHMANN. *Seifensieder-Ztg.* **60,** 33–4 (1933).—The addn. of 15% of "Permulgin" to perborate soap powders decreases fiber destruction and improves lathering and cleansing properties P. ESCHER

**Perfumes for use in soaps.** PAUL JELLINEK. *Am. Perfumer* **27,** 187–9, 241–2, 293–4, 347–9, 401–4(1932). E. H.

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Soaps and their latest competitors in the field of rayon improvement (STADLINGER) **25.** Dielectric constants of fatty oils (KOVALEV, ILLARIONOV) **10.** Use of vegetable oils as fuel for internal-combustion engines (SCHMIDT) **21.** Antioxidants (Brit. pats. 364,092 and 364,243) **30.** Emulsifying agents (Brit. pat. 365,299) **18.** Centrifugal oil cleaner (Brit. pat. 367,657) **1.**

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**A. Prüfung von Klauenölen und verwandten tierischen Oelen auf Kältebestandigkeit.** M. 0.5. **B. Untersuchung von Türkischrotölen und türkischrotölartigen Produkten.** M. 1.10. Stuttgart: Wissenschaft. Verlags Reviewed in *J. Intern. Soc. Leather Trades Chem.* **17,** 87(1933).

ANHAGEN, HANS: **Die quantitative Wirkung fettspaltender Katalysatoren.** Thesis, Hanover, 1931. 38 pp.

DUSSEL, KARL: **Zur Methodik der systematischen fraktionierten Verteilung.** Ein Beitrage zur Kenntnis der Fettsäuren des Kokosöls. Thesis, Hamburg, 1930. 74 pp.

HERZBERG, ERNST: **I. Das fette Öl der Samen von Jatropha Curcas L. II. Über Amyrin.** Thesis, Frankfurt, 1930. 47 pp.

ZSCHUNKE, ROLF: **Die fetten Öle.** Thesis, Leipzig, 1931. 79 pp.

**Extracting animal fats.** AKTIENGESELLSCHAFT FÜR CHEMISCHE PRODUKTE VORM. H. SCHEIDEMANDEL. Brit. 363,888, Feb. 13, 1930. In a process for producing glue and grease from bones by lixiviation with boiling water, a portion only, *e. g.*, 20–50%, of the phosphate of Ca in the bones is first extd. with acids, *e. g.*, HCl, $H_2SO_4$ or $H_3PO_4$.

**Stabilizing fats and oils against rancidity.** ROY C. NEWTON and WM. D. RICHARDSON (to Swift & Co.). U. S. 1,890,585, Dec. 13. A fat or oil such as lard or corn oil is treated with about 5–10% of palm oil rich in carotenoid pigment, the mixt. is treated with caustic alkali to remove free fatty acids and is then heated above the b. p. of water but below the temp. of decompn. to effect bleaching.

**Purifying oils, fats and waxes.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,025, Oct. 27, 1930. Org. O compds. consisting mainly of aliphatic alcs., fatty acids, fatty acid esters and aliphatic ketones and aldehydes are sepd. from non-aromatic hydrocarbons contg. at least 8 C atoms by treating the mixts. with liquid $SO_2$ at below 75°. On

standing 2 layers form, the upper being mainly hydrocarbons and the lower a soln. of the O compds. in the $SO_2$ from which they may be sepd. by evapn. or freezing.

**Refining mixtures of neutral oils and free fatty acids.** WILHELM GENSECKE. U. S. 1,889,652, Nov. 29. Material such as soapstock from oil refining is treated with an oil solvent such as benzene which is a non-solvent for soaps and the soln. is treated with a neutralizing agent to convert free fatty acids present into soaps; the soaps are sepd. from the soln. of oil and are washed with the oil solvent until they are substantially free from neutral oil, and the residual oil solvent is removed from the soap by distn. after converting the soaps in the mixt. into free fatty acids. Cf. *C. A.* **27**, 619.

**Soap.** JEAN M. A. DAVID. Fr. 737,945, Sept. 25, 1931. A washing and toilet soap contains black soap 50, $Na_2CO_3$ 25, $Na_2SiO_3$ 24 and vinegar 1%.

**Bleaching soap stock.** ANTHONY M. LAGASSE (to Stockton G. Turnbull). U. S. 1,890,121, Dec. 6. Soap stock is treated with $H_2O_2$ in non-alk. condition and excess $H_2O_2$ is decompd. after the bleaching operation is completed.

## 28—SUGAR, STARCH AND GUMS

J. K. DALE

**J. A. Krajenbrink. Sketch of a pioneer's life.** O. POSTHUMUS. *Arch. Suikerind.* **40**, 1009–22(1932).—Biography with portrait. F. W. ZERBAN

**Annual synopsis of [sugar] mill data, 1930-31.** E. T. WESTLY. Philippine Sugar Assoc., *Ann. Repts.* **1931**, 291–307(1932). K. D. JACOB

**The sugar experimental section of the Polytechnic of Venice.** D. MENEGHINI *Ind. saccar. ital.* **25**, 530–4(1932).—The organization and purpose of the section are given with a review of the physicochem. problems of beet-sugar technology referred to in a selected bibliography. L. CUSACHS

**Preharvest sampling on plantations with much lodged cane.** S. STORM. *Arch Suikerind.* **40**, 1025–33(1932).—The Zeiss hand refractometer, in connection with the saccharimeter, has been used successfully in detg. the state of maturity of the cane as well as the rendement to be expected. A more elaborate method than that usually employed for collecting the sampling material must be used in the fields where much cane has lodged, and this is described in detail. The correlation with the actual mill results was greatly improved by it. F. W. ZERBAN

**Experiments on top borer control, 1930–31 [Java].** P. C. HART. *Arch. Suikerind* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 527–87(1932); cf. *C. A.* **20**, 3585.—Systematic cutting of affected sprouts reduces the damage to 0.25–0.5, and increases the sugar yield as much as 10–12 quintals per hectare. F. W. ZERBAN

**Final report on milling control, 1930 [Java].** ANON. *Arch. Suikerind.* **39**, III, *Mededeel. Proefsta. Java-Suikerind.* 245–315(1931).—Complete control data on the operation of the milling plant of 173 factories are given in tabular form and critically discussed, in comparison with previous yrs. F. W. ZERBAN

**Final report on milling control, 1931 [Java].** ANON. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 33–101(1932); cf. preceding abstr.—Corresponding data for 1931 are given. F. W. ZERBAN

**Final report on fabrication control, 1930 [Java].** C. SIJLMANS. *Arch. Suikerind* **39**, III, *Mededeel. Proefsta. Java-Suikerind.* 11–106(1931); cf. *C. A.* **24**, 6050.—Data for 176 factories are given and discussed. F. W. ZERBAN

**Final report on fabrication control, 1931 [Java].** C. SIJLMANS. *Arch. Suikerind* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 319–448(1932); cf. preceding abstr.—The same data for 173 factories are given with discussion. F. W. ZERBAN

**Final report on fuel control, 1930 [Java].** ANON. *Arch. Suikerind.* **39**, III, *Mededeel. Proefsta. Java-Suikerind.* 633–682a(1931).—Data for 170 factories are given with crit. discussion. F. W. ZERBAN

**Final report on fuel control, 1931 [Java].** ANON. *Arch. Suikerind.* **40**, III, *Mededeel. Proefsta. Java-Suikerind.* 483–526(1932); cf. preceding abstr.—Similar information is given for 170 factories. F. W. ZERBAN

**"Lystonol" as an antiseptic.** K. SMOLEŃSKI AND W. JUREWICZ. *Gaz. Cukrownicza* **69**, 367–77(1931).—"Lystonol," a French prepn. contg. $H_2O$ 72.82, NaCl 17.07, $ZnCl_2$ 8.03, HCHO 0.79 and impurities 1.29%, is a weak antiseptic. A 40% soln. of formalin is 20 times and phenol is 10 times more toxic than lystonol. The latter does not prevent decompn. of sugars when 50 g. of the preservative per ton of beets is used. J. WIERTELAK

**Approximate calculation of dry substance in molasses from Brix and sulfate ash.** C. SYLMANS. *Arch. Suikerind.* **40**, 993–1007(1932).—By a statistical analysis of data

on the compn. of a large no. of Java molasses it was found that the dry substance can be calcd. with good approximation, by multiplying the sulfate ash (uncor.) by a factor, and subtracting the product from the Brix, detd. in a diln. of 1:10. For molasses from the defecation process the above factor is 0.72, sulfitation 0.86, carbonatation 0.74. For the 1st group the error ranges from —1.5 to +1.7, and does exceed 0.6 in 82.1% of all cases; in the 2nd these figures are —1.2, +2.4, 87.1%; in the 3rd —0.8, +1.2, 91.4%. No correlation could be found when refractometer Brix was substituted for hydrometer Brix F. W. ZERBAN

**Destruction of sucrose in "A" molasses by heat.** R. H. KING AND N. L. JISON. *Sugar News* **14**, 24–7(1933).—Portions of molasses of 80° Brix, 53.8 gravity purity. $p_H$ 6.00, were heated 36 hrs. under reduced pressure at different temps. and samples were analyzed at 4-hr. intervals. Distd. water was added to compensate for evapn. Graphs and tabulations show that: when the temp. difference between the salt bath and the molasses is increased from 10° to 20° greater decompn. occurs; below 70° little sucrose is lost; at 90° the loss is considerable; the increase in reducing sugars is accompanied by a loss in total sugars; higher boiling rates cause more volatile acid to go off, and more carbon dioxide is given off in the presence of air. The prolonged heating of molasses and the use of high-pressure steam in pan boiling are condemned. L. C.

**Plant colloids. XXXI. Determination of the mean particle size of some starches and starch derivatives.** M. SAMEC, L. KNOP, B. LAVRENČIČ AND S. PREMRL. *Kolloid-Beihefte* **37**, 91–118(1932); cf. *C. A.* **26**, 619, 4524.—From osmotic pressure and diffusion measurements on a starch completely sol. in water the mean particle size is equiv. to 28–38 hexose groups, agreeing with the figures of Haworth, *et al.* (*C. A.* **26**, 5922). For erythroamylose the particles were larger, contg. about 100 hexose groups; the blue color with I is therefore not dependent upon mol. size. The achroödextrin particles contained 8–16 hexose groups. F.-p. depression measurements on acetylamylose gave no reliable results, the figures depending on the method of prepn. In general, f.-p. depression measurements gave, for all the derivs. tried, mol. wts smaller than by other methods, probably on account of persistent traces of impurities. For the isotrihexosan of Pictet the mol wt. by diffusion or osmotic pressure methods was 1700–2400, by f.-p. depression or isothermal distn. 441–572. For isodihexosan the corresponding figures were 1250–1400 and 361, resp. In each case the values were lowered by drying and raised again on re-wetting and again drying. The tendency of the various starch derivs. to produce aggregates in soln. cannot be considered as true reversion to the original starch particles. Heating of acetyl derivs of amylose or amylopectin with $C_{16}H_8$ or $PhSO_3H$ gave varying degrees of disaggregation, the products having mol. wts. of 400–1600. K. V. THIMANN

**Absence of fatty acids associated with potato starch.** LEO LEHRMAN AND ELVIN KABAT *J. Am. Chem. Soc.* **55**, 850(1933).—Potato starch does not contain fatty acids assocd. with it and is the best whole starch to use as carbohydrate. C. J. WEST

Sugar-cane culture in Java (BOOBERG) **15.** Results of the plot tests on various [sugar-cane] problems, in 1931 (DEMANDT) **15.** Results of the fertilizer tests [on sugar cane] in 1931 (DEMANDT) **15.** Effect of plant-nutrient substances on the sugar content of sugar beets (ROSENDLČH) **15.** *Cercospora* control in Monzon (COSTA) **15.** Soil mapping on the basis of color and consistency (BRINK) **15.** Physiology of nutrition of the sugar cane (VAN DEN HONERT) **15.**

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**Purifying sugar juices.** SUGAR BEET AND CROP DRIERS, LTD., and THOMAS J. MITCHELL. Brit. 364,635, Oct. 8, 1930. See Fr. 723,859 (*C. A.* **26**, 4978).

**Tank, agitators and air-draft connections of sugar-crystallizing apparatus.** DUDLEY A. WALSH. U. S. 1,890,632, Dec. 13. Structural and mech. details.

## 29—LEATHER AND GLUE

ALLEN ROGERS

**Salting hides with soda-salt.** MAX BERGMANN AND GERTRUD SCHUCK. *Ledertech. Rundschau* **24**, 41–2(1932).—Hide salt should contain 2% calcined or 5% cryst. soda. If $x$ % $CaSO_4$ is present it is necessary to add $(2 + 0.75x)$ % calcined soda. H. M. BERGMANN AND L. SELIGSBERGER. *Ibid* 73–6.—Motion similar to that in a railway car caused partial sepn. or settling out of calcined or effloresced but not of cryst. soda from a soda-salt mixt. I. D. CLARKE

**Report on practical salting experiments in 1931.** M. BERGMANN AND W. HAUSAM. *Ledertech. Rundschau* **24**, 121–5, 133–6(1932).—Calfskins salted flesh to flesh were more

stained than those salted hair to flesh. Addn. of 2% soda to the salt decreased salt stains and reddening but not the development of the violet stain. Addn. of 3% naphthalene to the soda-salt mixt. decreased red and violet stains but had only a slight effect on salt stains. I. D. CLARKE

**Effect of various additions to marine salt for use as a cure for hides and skins.** A. GUTHRIE AND M. SUBRAMANIYA SASTRY. *J. Intern. Soc. Leather Trades Chem.* **17**, 50–6(1933).—"Atlas preservative," $H_2C_2O_4$, $ZnCl_2$ and $NaSiF_6$ were increasingly effective in the order named in preventing "red heat" and putrefaction. "Perchloron," $NaHSO_3$, $NaHSO_4$ and $Na_2CO_3$ were ineffective. The acidic preservatives, especially $H_2C_2O_4$, induced the formation of black stains. H. B. MERRILL

**The reuse of used hide salt.** MAX BERGMANN AND WILLI HAUSAM. *Ledertech. Rundschau* **24**, 26–7(1932).—Old salt should not be reused, because it contains bacteria and eggs of flying insects. I. D. CLARKE

**Statistics on tanning materials and tanning extracts from the Deutschen Versuchsanstalt für Lederindustrie, Freiberg.** F. STATHER. *Ledertech. Rundschau* **24**, 111–13, 136–7(1932.)—Summary of tannin analyses made during 1927–31. I. D. C.

**Characteristics of vegetable tanning materials. I. The diffusion of chestnut and quebracho tannins into animal hide.** FRITZ STATHER *Collegium* **1933**, 9–22.—Depth of penetration of tannin into hide was detd. by examn. of frozen sections stained with $K_2Cr_2O_7$. Penetration increased and relative penetration decreased with increasing concn. (0.5 to 4%) of tannin. Penetration increased with increase in temp. (20° to 40°), increase in $p_H$ of the tannin soln. (2.1 to 6.1 for chestnut and 2.4 to 8.3 for quebracho), slightly with increase in $p_H$ of the hide (4.5 to 7.5) but was not changed by increasing the ratio of nontannin to tannin. I. D. CLARKE

**Mutual work of the commission on qualitative tannin analysis. Detection of sulfite cellulose extract by the aniline-hydrochloric acid, the cinchonine and the quartz-burner reactions.** O. GERNGROSS AND H. HERFELD. *Collegium* **1932**, 710–23; cf. *C. A.* **26**, 2343.—Eighteen exts. were examd. by 12 collaborators. The percentages of correct results were: aniline-HCl reaction 78.2%, modified aniline HCl 91.7%, cinchonine reaction, new, 87%, old 88.9% and the fluorescence test 69.7%. I. D. CLARKE

**Influence of the method of boiling and purification of sulfite cellulose extracts on their detection in vegetable tanning extracts.** O. GERNGROSS AND H. HERFELD. *Collegium* **1932**, 723–5; cf. *C. A.* **26**, 4501 and preceding abstr. Previous history of sulfite cellulose exts. had no influence on the min. amt. detectable by the Procter Hirst or cinchonine reactions. I. D. CLARKE

**Practical experiences with animalized cotton for testing tanning materials.** A. GANSSER. *Collegium* **1932**, 771–5.—See *C. A.* **27**, 1229. I. D. CLARKE

**Acid flocculation phenomena in vegetable tanning extracts.** O. GERNGROSS AND H. HERFELD. *Collegium* **1932**, 679–709. By cautious addn. of mineral acid to tech. tanning solns. of analytical concn. it was found that condensed tannins, except mimosa, had a characteristic flocculation or pptn. point somewhere between $p_H$ 7 and 1 (in 0.5 hr.). Hydrolyzable tannins did not ppt. The first pptn. fraction was dominately hydrophobic; later fractions were more hydrophilic. Acid flocculation is valuable for judging colloidal condition and in qual. and quant. tannin analysis. Since many tannin exts., clear at $p_H$ 7, begin to ppt. at $p_H$ 4.1–4.3, detn. of insolubles should be made at $p_H$ 4.5–5.0, and the time factor should be carefully controlled. Higher concns. of liquor ppt. more readily. Org. acids differ from inorg. acids in that at higher concns. of acid the org. anions have a peptizing action on the tannin. On aging condensed tannins there is a continual increase in sol. tannin coagulable by acid, but not in hydrolyzable tannins. Mechanically clarified and sulfited exts. are more difficult to ppt. than untreated exts. Sulfite cellulose ext. is quite stable and decreases the pptn. of vegetable tannins. I. D. CLARKE

**Nature of the combination of wattle-bark tannin with collagen.** R. W. PAGE. *J. Am. Leather Chem. Assoc.* **28**, 93–113(1933); cf. *C. A.* **23**, 541, **25**, 2326; **26**, 3404. Evidence is cited to show that the so-called "fixed tannin" of the hide substance-wattle tannin leather is combined with basic groups of collagen by primary valence, while the so-called "fixed $H_2O$-sol. matter" is combined with CO groups by secondary valence. H. B. MERRILL

**Wattle bark from South Africa.** ANON. *Bull. Imp. Inst.* **30**, 440–4(1932).—Mature black wattle bark from Natal contained slightly more tannin (35.6%) than immature (33.5%); mature green wattle bark contained appreciably more tannin (38.1%) than immature (29.5%). Leathers tanned with the green wattle barks were not quite so close-grained as those produced with the black wattle samples, and were of a decidedly pinker tint. A sample of black wattle bark from Southern Rhodesia was of satisfactory

compn. (tannin 33.2, non-tannin ext. 8.1, insol. 46.8%), but was of unattractive appearance on account of faulty drying. A. PAPINEAU-COUTURE

**Terminalia pallida as a tanning agent.** K. SESHACHALAM CHOUDARY. *J. Intern. Soc. Leather Trades Chem.* **17,** 68–70(1933).—The pods contain about 20% and the bark about 14% tannin. Tannin loss on fermentation is about the same as with *T. Chebula* (myrobalams), but less acid is produced. H. B. MERRILL

**Determination of the $p_H$ values of tanning extracts. Committee report.** D. BURTON, *et al. J. Intern. Soc. Leather Trades Chem.* **17,** 57–9(1933).—$p_H$ values of 5 exts. were detd. by 4 operators using different glass-electrode set-ups and by 1 operator with the H electrode. Satisfactory concordance was obtained except with a bleaching ext. contg. $SO_2$, in which the H electrode $p_H$ value was very low and the glass electrode values varied by 0.4 $p_H$ unit, probably because of variable loss of $SO_2$. H. B. M.

**Retanning.** TH. WIESCHEBRINK. *Ledertech Rundschau* **25,** 1–7(1933).—Discussion of the principles of retanning with barks and exts. I. D. C.

**Studies in the chemistry of liming. V. Action of calcium hydroxide suspensions on steer hair.** E. K. MOORE AND R. KOPPENHOEFER. *J Am. Leather Chem. Assoc.* **28,** 64–77(1933); cf. *C. A.* **26,** 2888. Hair was treated with satd. $Ca(OH)_2$ soln. contg. excess $Ca(OH)_2$ at about 20° for varying time periods (1) in air, and (2) in $N_2$. Used liquors were analyzed for total N, $NH_3$, total S ($S^{--} + SH^-$), polysulfide, $SO_3^{--}$ and $SO_4^{--}$. Tests for dissolved cystine or cysteine were neg. in all cases. Total N increased irregularly with time and was about the same in the presence or absence of $O_2$. $NH_3$ increases regularly with time, independently of the presence of $O_2$. Total S increases more rapidly in the presence of $O_2$, but $S^{--}$, $SH^-$ and polysulfides increase more rapidly in the absence of $O_2$. Only traces of $SO_3^{--}$ were found in any case. The different forms of S detd. account for only 20–40% of the total S in the used liquors. About 20% of the S content of the hair is dissolved. Mol. ratio of dissolved S to dissolved N is roughly 1:1. H. B. MERRILL

**The influence of the liming process on water penetrability.** MAX BERGMANN, WILHELM VOGEL, ARTHUR MIEKELEY, GERTRUD SCHUCK AND THEODOR WIESCHEBRINK. *Ledertech Rundschau* **24,** 13–18(1932). Resistance to penetration by $H_2O$ of experimentally limed and tanned sides was greater with a strong sulfide lime for a short time than with a straight lime. I. D. C.

**Liming of fellmongered sheep skins.** ROBERT H. MARRIOTT. *J. Intern. Soc. Leather Trades Chem.* **17,** 60–8(1933).—Microscopic study of fellmongered sheep skins dewooled (1) with sulfides and (2) with $Ca(OH)_2$, before and after reliming indicates some deterioration with both classes of stock. H. B. MERRILL

**Investigations on the fat-liquoring process. II. The behavior of sulfonated castor oil in fat-liquoring chrome leather.** F. STATHER AND R. LAUFFMANN. *Collegium* **1932,** 672–9; cf. *C. A.* **26,** 6178.—Dilu. of the fat liquor caused no change in total fat absorbed by the hide powder tanned with Cr but caused an increase in combined fat, a decrease in alc. ext. and no change in petr. ether ext. Aging or an increase in temp. during aging of the tanned hide powder did not change total fat or alc. ext. but increased combined fat and decreased petr. ether ext. With increasing degree of neutralization of the tanned hide powder there was first a slight increase in combined and total fat then a sharp decrease. **III. Fat-liquoring chrome leather with mixtures of sulfonated castor oil and unsulfonated oils.** *Ibid* 940–6.—Hide powder tanned with Cr was fat-liquored with mixts. of sulfonated castor oil (degree of sulfonation 34 and 62) and unsulfonated castor, train, neatsfoot or mineral oils. The amt. of sulfonated oil in the mixt. was 100, 75, 50 or 25%. The amt. of total fat absorbed was approx. const. The degree of sulfonation was without influence on the results. Combined fat decreased as the proportion of sulfonated oil decreased and apparently would become 0 with no sulfonated oil. As the proportion of sulfonated oil in the mixt. decreased, the petr. ether ext. of the leather increased rapidly and the alc. ext. decreased slightly. There was no appreciable difference in results with the 4 unsulfonated oils. I. D. C.

**Anarol and Ovarol.** M. AUERBACH. *Ledertech Rundschau* **24,** 103–5(1932).—Analyses and description of 2 leather oils. I. D. C.

**Preparation of leather for chemical analysis.** FRITZ STATHER. *Ledertech. Rundschau* **24,** 63–4(1932).—Description of a machine similar to that of Balderston (*C. A.* **17,** 1901). I. D. C.

**Evaluation of vegetable-tanned leather on the basis of its chemical and physical analysis.** FRITZ STATHER. *Ledertech. Rundschau* **24,** 85–90, 97–101(1932).—Discussion of normal values and the significance of abnormal values for the various detns. in leather analysis. I. D. CLARKE

**Dyeing chrome-tanned velvet calf leather black.** GUSTAV WEISZ. *Ledertech. Rundschau* **24,** 27–9(1932).—Directions are given. I. D. C.

**New ways of stuffing leather. II.** HEINTZ KROCH. *Ledertech. Rundschau* **24,**

113–16(1932).—The softening effect of oil on leather depends on esters of the oleic acid series. I. D. CLARKE

**Influence of milling soaked sheep skins on the properties of the leather.** A. E. SHAPIRO. *Collegium* **1933**, 22–3.—Very soft, flexible leather was not made by milling but by long soaking and strong sulfide limes. I. D. CLARKE

**Development of brittleness and hardness in shoe-upper leather during wear.** FRITZ STATHER AND HERMANN SLUYTER. *Ledertech. Rundschau* **24**, 49–55(1932).—Typical substances which might be introduced into upper leather during wear, dil. NaOH, $MgSO_4$, dextrin and $FeSO_4$, lowered tensile strength and stretch somewhat but principally caused a great decrease in stretchiness of the grain. Cr leather was less affected than vegetable leather. I. D. CLARKE

**Some results with a new folding endurance tester for light leathers.** I. D. CLARKE AND R. W. FREY. *J. Am. Leather Chem. Assoc.* **28**, 77–92(1933). H. B. M.

**The swelling of collagen fibers. Determination of the value of bates.** J. A. JOVANOVITS. *Collegium* **1932**, 761–71; cf. *C. A.* **26**, 6178.—A collagen fiber, either fresh or soaked if salted, 0.04–0.06 mm. thick, from the forepart of a bull hide, is fastened between clamps. The lower clamp, weighing 0.3 g., is free. The fiber is put in $H_2O$ at 40° for 5 min., shrunk in $H_2O$ at 80° for 1 min. and, after adjusting the distance between the clamps to 2 cm., is immersed in unfiltered, stirred bate soln. at 40° and the time noted until the lower clamp falls. The "fiber test value" is that concn. of bate which digests the fiber in 10 min. I. D. C.

**The isoelectric point of collagen.** M. SHIMIDZU. *Collegium* **1932**, 794–8.—Fresh collagen powder, powdered after freezing in liquid air, had a $p_H$ of 4.69. This was detd. by pptn. tests with colloidal Fe (+ charge) and Au (−) sols and collagen buffered with acetate at different $p_H$ values. I. D. CLARKE

**The so-called rope damage and the present state of the stain question.** M. BERGMANN, W. HAUSAM AND E. LIEBSCHER. *Collegium* **1933**, 2–5.—Hair-mold stains, a term preferable to salt stains, may be formed either on the living skin or after flaying. Used salt caused typical stains in one case. I. D. CLARKE

**New methods in defatting bones.** J. WETZLER. *Kunstdünger u. Leim* **29**, 398–405(1932).—Recent developments are outlined in low-temp. drying and grease extn. by solvents in prepn. for gelatin and glue manuf. C. J. SCHOLLENBERGER

**The quality of fish glues—notes on their physical examination.** D. JENNINGS. *Chem. Trade J.* **92**, 105(1933).—The permanence of liquid glue depends chiefly upon its chem. compn. The liquid should be slightly acid to phenolphthalein but neutral to litmus. Color and odor, "gel point" and joint strength, viscosity and rate of drying are detg. factors in the selection of a glue. Liquid fish glues should never contain more than 0.2% NaCl. The greater hygroscopic nature of chlorides of Ca, Mg and Zn renders them even more detrimental than NaCl. W. H. BOYNTON

Conductomeric analysis. Tan liquors and leather extracts (RIGHELLATO, DAVIES) **7.** Cr-containing dyes [for leather] (Brit. pat. 364,147) **25.** Sulfurized phenols [with tanning properties] (Brit. pat. 365,534) **10.** Wetting, etc., agents (Brit. pat. 364,660) **18.** Treatment of leather (Brit. pat. 364,327) **25.**

RADIC, IVAN: **Über die nach verschiedenen Methoden erhaltenen Werte der Oberflächenspannung mehrerer pflanzlicher Gerbstofflösungen und über die Beziehung der Oberflächenspannung zur Adstringenz der Gerbstoffe.** Thesis, Darmstadt, 1930. 83 pp.

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**Degreasing skins and leather.** OSCAR L. BEER. Fr. 738,167, June 4, 1932. Skins and leather of all kinds are degreased by salts of synthetic tanning materials obtained from aromatic, hydroaromatic or aliphatic compds. contg. in their mols. groups capable of forming salts. Examples are given of the use of a Na salt of a compd. prepd. from aromatic hydroxysulfonic acids and $CH_2O$, $S_2Cl_2$ or $POCl_3$, Na salts of PhOH-$CH_2O$ condensation products, salts of sulfonated chloronaphthalene which have been converted into sol. condensation products by treatment with $CH_2O$, Na salt of the condensation product of 2,5,7-aminonaphtholsulfonic acid and toluenesulfochloride, etc.

**Enameling vegetable or animal fiber.** JACQUES GALIMBERTI AND JOSEPH PIVERELLI. Fr. 737,412, May 21, 1932. The material to be enameled, *e. g.*, leather, is covered with a layer of a paste of ground rubber and rubber latex mixed with coloring materials, on which layer is deposited an emulsion contg. latex, a drying oil, resin, casein dissolved in aq. $NH_3$ and formalin, and the whole is vulcanized in the cold in the presence of $S_2Cl_2$.

**Uniting rubber with leather.** ARTHUR V. THOMAS (to E. H. Clapp Rubber Co.) U. S. 1,890,345, Dec. 6. After the leather is dried at a moderate temp., one of its surfaces

is coated with a vulcanizable cement; a rubber compn. is applied to the coated surface while the leather is relatively cool, a pad of textile material is placed against the opposite side of the leather and the assembled materials are inserted in a vulcanizing press.

## 30—RUBBER AND ALLIED SUBSTANCES

C. C. DAVIS

**Slate flour as a filler in the rubber industry.** JUL. F. SACHER. *Gummi-Ztg.* **47**, 439(1933).—Slate flour from the Rhineland is recommended as a filler. It consists chiefly of a mixt. of clay, mica, quartz and org. and inorg. impurities. C. C. D.

**The preparation and properties of a natural mineral black.** M. W. PHILPOTT. *Trans. Inst. Rubber Ind.* **8**, 270–8(1932).—Since the tests of No. Devon mineral black originally described by Schidrowitz and P. (cf. *C. A.* **25**, 232, 3870), periodical tests have shown that the superior reënforcing power of refined black is not due to the higher C content. Higher tests than previously have been obtained with a new black prepd. by grinding and screening the product from drying a strained thick aq. cream of the black made alk. with NaOH. The rate of vulcanization is also greater with this type of black than with those blacks which are not alk. Within fairly wide limits, variations in the alky. of the black before drying do not affect the uniformity of the final product. The com. method of prepn. and the properties of the new product, called "Bettablack," are described. C. C. DAVIS

**Sulfur-free ureas and guanidines as vulcanization accelerators and theories.** RUDOLF DITMAR. *Kolloid Z.* **62**, 117–21(1933).—A patent review. A. FLEISCHER

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The use of rubber resins in nitrocellulose lacquers (KRAUS) **26.** Protection against corrosion by coatings with a base of rubber (SACHS) **9.** Structural viscosity [in rubber sols] (GALLAY) **2.** Polymerization processes and apparatus (Brit. pat. 365,102) **10.** Uniting rubber with leather (U. S. pat. 1,890,345) **29.**

STEVENS, H. P., AND STEVENS, W. H.: **Rubber Latex.** 2nd ed. London: Rubber Growers' Assoc. 158 pp. Free. Reviewed in *Rubber Age* (London) **13**, 342 (1933).

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**Jelling rubber latex.** CECIL HAYES, EVELYN W. MADGE and FREDERICK C. JENNINGS (to Dunlop Rubber Co., Ltd.). U. S. 1,890,578, Dec. 13. Latex is treated with phenol, and sufficient formaldehyde is then added to reduce the alky. of the latex without coagulating it.

**Rubberized fibers.** THE NAUGATUCK CHEMICAL CO. Fr. 738,087, June 2, 1932. Fibrous or filamentous material is dipped into a dil. aq. dispersion of rubber, which is then coagulated in the material, giving a discontinuous deposit of particles invisible to the eye.

**Conditioning rubber.** GUMAL FESSEL (to Technische Chemikalien-Compagnie G. m. b. H.). U. S. 1,889,825, Dec. 6. Rubber is conditioned for the manuf. of vulcanized products by mixing the rubber with an ext. obtained by extg. tars, originating in the distn. of bituminous minerals, with solvents such as EtOH, MeOH, EtOAc or acetone and then removing the solvent from the ext. The added ext. serves as a softener and anti-aging ingredient.

**Chlorinated rubber.** I. G. FARBENIND. A.-G. Fr. 738,434, Mar. 29, 1932. A sol product is obtained by treating with Cl or substances liberating it, rubber dissolved in $CCl_4$, $C_2H_2Cl_4$, $C_2Cl_6$, $CHCl_3$, etc., in the presence of a substance indifferent to Cl such as $Na_2CO_3$, $NaHCO_3$, $CaCO_3$, CaO, MgO, AcONa, etc. The products are used in making *varnishes, paints, plastic materials, films, etc.*

**Articles from rubber emulsions.** SOCIETÀ ITALIANA PIRELLI. Brit. 365,037, Sept. 13, 1929. See Fr. 701,406 (*C. A.* **25**, 4149).

**Molding organic substances.** DUNLOP RUBBER CO., LTD., ANODE RUBBER CO., LTD., DOUGLAS F. TWISS and EDWARD A. MURPHY. Brit. 363,660, Sept. 22, 1930. Master molds and articles produced therefrom are made from natural or artificial dispersions of rubber or other natural resins in non-vulcanized or vulcanized condition, synthetic rubbers and rubber-like substances in non-compounded or compounded condition, or solns. of these substances in org. solvents. The molds are first coated with the substance, which is then treated, *e. g.*, by the process of Brit. 324,988 (*C. A.* **24**, 3925), to cause localized irregularities or wrinkling in the surface layer, the marking being rendered permanent by subsequent or concurrent solidification.

**Preserving rubber.** MISHAWAKA RUBBER & WOOLEN MANUFACTURING CO.

Brit. 365,374, Mar. 17, 1930. Unvulcanized strips of sheet rubber are manipulated by winding them with a strip of supporting material in such manner that each convolution of the rubber is held out of contact with the support on its outer side. App. is described.

**Antioxidants.** Goodyear Tire & Rubber Co. Brit. 364,092, Oct. 12, 1929. Antioxidants for rubber, oils, soaps, aldehydes and other oxidizable org. compds. have the formula $RCH_2R'NH_2$ (where R is either an anilino, an amino-substituted anilino, an alkyl-substituted anilino, an aminoalkyl-substituted anilino, an alkylamino-substituted benzene or an amino-substituted benzene group and R′ is an alkyl-substituted benzene, an amino-substituted benzene or an alkylamino-substituted benzene group) and are prepd. by treating the reaction product of arylamines and aldehydes with amine hydrochlorides. Examples are *p*-aminobenzylaniline (I) and 6,4,4′-triamino-3,3′-dimethyldiphenylmethane. I is prepd. by the reaction of $PhNH_2$ with $CH_2O$, the oily product formed (*N*,*N*′-diphenylmethylenediamine) being then treated with $PhNH_2$·HCl.

**Antioxidants.** Werner M. Lauter (to Goodyear Tire & Rubber Co.). Brit. 364,243, Jan. 13, 1930. Antioxidants for rubber or other oxidizable org. compds., *e. g.*, transformer oils, soaps, are made by reaction of an aminoacenaphthene with an aldehyde or formic acid in soln. in alc., petroleum ether or other solvent, if necessary with refluxing of the mixt.

**Antioxidants for rubber.** Joseph R. Ingram (to Rubber Service Laboratories Co.). U. S. 1,890,154, Dec. 6. Vulcanization of rubber compns. with S by heating is effected in the presence of a reaction product (suitably about 1%) of an amino-substituted triphenylmethane and an aromatic hydrocarbon, in which one or more H atoms are substituted by OH groups only, such as a reaction product of *p*,*p*-diaminotriphenylmethane and β-naphthol.

**Synthetic rubber.** I. G. Farbenindustrie A.-G. Brit. 363,810, Dec. 11, 1930. The polymerization of diolefins by alkali or alk. earth metals or their alloys with one another in presence of H is effected in the absence of org. compds. contg. O. Indifferent gases, *e. g.*, N, $CO_2$, may be present.

**Synthetic rubber.** I. G. Farbenindustrie A.-G. Brit. 364,089, Aug. 21, 1930. In the polymerization, *e. g.*, at 10–20°, of diolefins in emulsion in the absence of hydrazine derivs. or salts thereof the process is arrested when the amt. of polymerizate sol. in $C_6H_6$ attains a max., which usually occurs when 20–30% of the diolefin remains unpolymerized. Other polymerizable compds. may be present, also hydrocarbons other than diolefins. Catalysts, *e. g.*, O, $H_2O_2$ and also colloidal substances, *e. g.*, albuminous substances, resins, rubber, may be employed, and the process may be terminated by coagulation with acids.

**Vulcanization accelerators.** Robert L. Sibley (to The Rubber Service Laboratories Co.). Brit. 363,644, Oct. 2, 1929. A mixed accelerator consists of a reaction product of a dinitrohalo-substituted aryl hydrocarbon and a mercaptoarylthiazole or metallic salt thereof together with a Schiff's base or an aliphatic aldehyde deriv. thereof. Among examples 2,4-dinitrochlorobenzene is caused to react with the Na salt of mercaptobenzothiazole and used in conjunction with the compd. formed by the reaction between 3 mols. of AcH and 2 mols. $PhNH_2$. Cf. *C. A.* **27**, 1547.

**Preserving and accelerating vulcanization of rubber.** Imperial Chemical Industries, Ltd. Brit. 365,493, July 24, 1930. To retard aging and accelerate vulcanization a salt of a primary aromatic amine of an aromatic carboxylic acid or aliphatic di- or tri-carboxylic acid is added. As amines diphenylenediamine, naphthylenediamine, benzidine, toluidine and dianisidine, and as acids benzoic, phthalic, naphthalic, oxalic, malonic, tartaric and citric may be used.

**Rubber vulcanization.** Winfield Scott (to Rubber Service Laboratories Co.) U. S. 1,890,165, Dec. 6. The sulfurized butyraldehyde deriv. of butylideneaniline is used as an accelerator in vulcanizing with S by heating. Cf. *C. A.* **27**, 1238.

**Vulcanizable composition resembling rubber.** Joseph C. Patrick and Nathan M. Mnookin. U. S. 1,890,231, Dec. 6. A high-S plastic contains additive polysulfides of olefins together with rubber and S, the total proportion of S uncombined and combined with the rubber and in the olefin plastic being not substantially less than 50%.

**Rubber vulcanization.** Wm. E. Messer (to The Naugatuck Chemical Co.) Brit. 363,862, Mar. 18, 1930. Rubber is vulcanized in the presence of a vulcanizing agent, a metallic oxide and a material comprising the group RC(:S)SM, wherein M is a metal, a dinitroaryl or arylmethylene group or the group SC(:S)R or C(:S)R, and R represents an alkylated nitrogenous heterocyclic satd. radical. Prepns. of dipipecolylthiuram disulfide, Zn pipecolyldithiocarbamate, dinitrophenyl ester of pipecolyldithiocarbamic acid, phenylmethylenebispipecolyldithiocarbamic acid and pipecolinium pipecolyldithiocarbamate are described.

# CHEMICAL ABSTRACTS

Vol. 27 APRIL 20, 1933 No. 8

## 1—APPARATUS AND PLANT EQUIPMENT

W. L. BADGER

**A stirrer drive for laboratory use.** MAX H. HUBACHER. *Ind. Eng. Chem., Anal. Ed.* **5**, 149(1933).—Constructional details are given. B. A. SOULE

**A laboratory cooling unit.** D. H. COOK. *Ind. Eng. Chem., Anal. Ed.* **5**, 147–8 (1933).—A model S Frigidaire unit has been modified to furnish cold water for labs. in tropical climates. B. A. SOULE

**An inexpensive Muencke blower.** RICHARD F. ROBEY. *Ind. Eng. Chem., Anal. Ed.* **5**, 143(1933).—A metal can *I* is fitted with a water exhaust pipe *EGH*, an aspirator *D*, the diam. of which is $< {}^1/_2$ that of *EGH*, and an outlet *B* for the compressed air. B. A. SOULE

**Surface-tension balance.** RICHARD J. DEGRAY. *Ind. Eng. Chem., Anal. Ed.* **5**, 70–3(1933).—Details and manipulation of a balance giving surface-tension readings correct to 0.5 percent are given, together with a discussion of the errors involved and a bibliography. ANN NICHOLSON HIRD

**Automatic microcompensation calorimeter.** L. ALGERA. *Proc. Acad. Sci. Amsterdam* **34**, 906–17(1931).—A calorimeter for botanical use is described and the accuracy of measurement discussed. B. C. A.

**Micro melting-point determinations with the Thiele tube.** EUGENE W. BLANK. *Ind. Eng. Chem., Anal. Ed.* **5**, 74–5(1933).—Two glass rods are fused to the outer side wall of the tube contg. the sample and thermometer and support it when in the Thiele tube. The sample is placed between two small squares, cut from cover glass; this gives a sharper m. p. and is superior for rapid work. ANN NICHOLSON HIRD

**Titration apparatus.** A. P. SCHULZ. *Z. Spiritusind.* **55**, 128(1932).—The buret can be filled repeatedly through a connecting side tube from a cylindrical reservoir by merely tilting the app. B. C. A.

**Automatic titrating devices.** K. C. D. HICKMAN AND C. R. SANFORD. *Ind. Eng. Chem., Anal. Ed.* **5**, 65–8(1933).—A description is given with photographs and drawings of a recording titrator which by optical means controls and records the titration. An indirect visual titrator is described which depends on the gradual mixing of two soln. streams to produce a color change at some point on the scale. A. N. H.

**Portable titration apparatus.** KÁROLY VAS. *Kisérletügyi Közlemények* **35**, 156–60 (1932).—The container for the titrating soln. is connected to the buret; the buret can be filled by tipping the app. The air is filtered through drying tubes. The case of the app. may even be used as a titrating table in the field. Structural details are given. S. S. DE FINÁLY

**An automatic apparatus for the determination of small quantities of sulfur dioxide in air.** P. C. CAPRON. *Bull. soc. chim. Belg.* **41**, 588–96(1932).—A modification of Thomas and Cross' app.; a soln. of $HIO_3$ is used as absorbent for $SO_2$; correct results are obtained from 65 to 0.5 p. p. m. ALBERT L. HENNE

**A modified electro ultrafilter.** D. V. KLOBUSITZKY. *J. Phys. Chem.* **36**, 3189–90 (1932).—Details are given for rigging up a substitute for the Bechhold-König app., from parts commonly found in the lab. JEROME ALEXANDER

**Extractor for large quantities of organic material.** J. J. T. GRAHAM. *J. Assoc. Official Agr. Chem.* **16**, 148–9(1933).—The body of the extractor is an inverted bell jar closed with a desiccator top. The charge is supported by porcelain plate on which rests a layer of absorbent cotton; a vent tube is essential to obtain intermittent siphoning, otherwise the solvent will drop continuously. A. PAPINEAU-COUTURE

**Combustion train for the determination of total carbon in soils.** T. H. HOPPER. *Ind. Eng. Chem., Anal. Ed.* **5**, 142–3(1933).—A modification of the Fleming train used in the steel industry. The absorption tube is made from a test tube. B. A. SOULE

**A differential thermogalvanometer.** JUAN MÁ. TORROJA. *Anales soc. espaň. fís. quím.* **31**, 144–8(1933).—A differential thermogalvanometer is necessary to measure weak currents of high frequency when they are superimposed on a strong d. c. This

is accomplished by an ordinary thermogalvanometer having 2 heating resistances instead of the usual single resistance. The moving coil is *in vacuo*. E. M. SYMMES

**An automatic pressure-regulating unit for vacuum distillation.** E. H. HUNTRESS AND E. B. HERSHBERG. *Ind. Eng. Chem., Anal. Ed.* 5, 144–6(1933).—Constructional details are given for a regulator capable of maintaining within ± 0.15 mm. any pressure in the range 2–30 mm. A bibliography of 40 references is included. B. A. S.

**Scrubbing towers for recovery of volatile liquids.** C. H. BUTCHER. *Ind. Chemist* 8, 131–3(1932).—A tower packing, preferably of simple design, should have a rough surface to reduce the rate of flow of the absorbent. Raschig or Lessing rings or other specially designed packings are much more efficient in practice than coke filling. The choice of absorbent is dependent on the process. Cresol is suitable for vapors of liquids which are miscible with $H_2O$, or tetralin for hydrocarbons nonmiscible with $H_2O$; both serve indefinitely and are not corrosive. Coal-tar oils are less stable and may contain S impurities. $H_2SO_4$ and solns. of bisulfites have been discarded as absorbents on account of inconvenience and inefficiency. B. C. A.

**The interfacial tensions of mineral oil against various aqueous solutions at 40°.** W. G. EVERSOLE AND DALLAS S. DEDRICK. *Proc. Iowa Acad. Sci.* 38, 163(1931).—Abstract. A new and highly improved app. for the direct measurement of interfacial tensions by the drop-wt. method has been devised. By means of an automatic recording device, measurements may be conveniently made on larger vols. and at slower dropping speeds than were heretofore possible. This is particularly valuable in measuring interfacial tensions between liquids contg. surface-active solutes. Preliminary measurements with purified paraffin oil and aq. solns. of H.COONa, Na acetate and Na propionate give very promising results from the standpoint of accuracy and reproducibility The lowering of interfacial tension increases with the length of the C chain. In Na acetate and Na propionate, the interfacial tension decreases hyperbolically up to satn., but with H.COONa the interfacial tension passes through a min. at about 2.5 molal concn. W. G. GAESSLER

**Glass autoclave for the observation of the progress of a reaction under heat and pressure.** O. GERNGROSS, K. M. HOFFMANN AND G. KLEIN. *Chem. Fabrik* 1933, 93.—A description with 2 cuts. J. H. MOORE

**A muffle kiln of high efficiency.** F. H. NORTON AND J. V. DUPLIN, JR. *J. Am. Ceram. Soc.* 16, 152–3(1933).—A gas-fired lab. kiln. C. H. KERR

**An apparatus for automatic registration of dehydration with increasing temperature.** S. ŠKRAMOVSKÝ. *Collection Czechoslov. Chem. Communications* 5, 6–9(1933).—See *C. A.* 27, 452. G. G.

**A thermostat of great precision.** I. D. MENDELEEV. *Trav. inst. métrol. standardisation* (U. S. S. R.) No. 2, 20–32(in French 32–5)(1932).—See *C. A.* 25, 2. G. G.

**A cooling device for operating a water thermostat a few degrees below room temperature.** ALFRED B. GARRETT. *Ind. Eng. Chem.* 25, 355(1933).—A 4-in. fan shunted across the thermostat heater terminals of the relay gives sufficient cooling to keep the bath as much as 10° below room temp. H. E. MESSMORE

**Battery of thermostats for rising temperatures below room temperature** [5–20°]. C. J. DIPPEL. *Chem. Weekblad* 30, 193–6(1933).—A system of 9 thermostats for temps. from 5° to 20° is described. Cooling is effected by cold water flowing through Cu tubes, the length of which has been detd. according to the cooling required. E. S

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Microdetermination of CO by $I_2O_5$ (LJUNGGREN, FRANG) 7. Determination of S and halogens in combustible materials (GROTE, KREKELER) 7. Seal for metallurgical vacuum furnace, etc. (Ger. pat. 568,097) 9.

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**Filter for air.** JOHN A. GORDON. U. S. 1,892,210, Dec. 27. Structural features.

**Apparatus for filtering air and other gases.** HENRI LALLEMANT AND AUGUSTE J. M. DE VILLERS. Fr. 739,212, June 28, 1932.

**Tubular suction and pressure filter.** SOC. ANON. DES FILTRES PHILIPPE AND EDOUARD HEIBIG. Ger. 568,237, Oct. 13, 1928.

**Continuous drum or disk type filters suitable for separating liquids from solids.** GERALD O. HILLIER (to Oliver United Filters Inc.). U. S. 1,892,306, Dec. 27. Structural details.

**Filter press.** PAUL W. PRUTZMAN. U. S. 1,891,396, Dec. 20. Structural and mech. details.

**Filter press.** LOUIS A. J. REVEL. Ger. 568,121, June 14, 1928.

**Apparatus for separating oil and water, etc.** CARL BILLAND. Ger. 568,001, Nov. 21, 1928.

PAUL E. KLOPSTEG (to Central Scientific Co.). U. S. 1,891,049, Dec. 13. Details of construction and scale [illegible] are described.

**Temperature indicator of the distance type [suitable for use on airplanes to indicate ice formation].** MOTOMETER GAUGE & EQUIPMENT CORP. Brit. 352,437, Jan. 3, 1929. Structural and mech. features.

**Temperature indicator suitable for use with cooling systems of internal-combustion engines.** H. SCHLAICH. Brit. 350,975, Dec. 20, 1928. Structural details.

**Compensating hydrometer float.** HOWARD E. CHRISTIE and KIBBEY W. COUSE. U. S. 1,890,901, Dec. 13. Structural features.

**Bolometer for use as a radiation pyrometer.** M. BUCHHOLZ. Brit. 355,196, Feb. 13, 1929. A plurality of metal ribbons are positioned so as to present a large surface to the radiation.

**Evaporator of the fin and tube type.** FREDERICK W. HICKS (to McCord Radiator & Mfg. Co.). U. S. 1,891,538, Dec. 20.

**Multistage apparatus for evaporating solutions.** ALFRED HERRLICH. Ger 568,236, July 29, 1931. Addn. to 545,262 (*C. A.* **26**, 2899).

**Apparatus for evaporating liquids or crystallizing salts.** E. M. S. INDUSTRIAL PROCESSES, LTD. Fr. 738,577, June 13, 1932.

**Drying shaft.** ERNST ZANDER. Ger. 568,294, Sept. 2, 1930.

**Surface condensers.** ALBERT DE SMAELE. Brit. 366,659, Dec. 17, 1930.

**Surface condenser.** SIEMENS-SCHUCKERTWERKE A.-G. (Gustav Köhler, inventor). Ger. 568,435, Mar. 20, 1930.

**Condenser suitable for steam or power plants.** CLEMENT A. RAINEY. U. S. 1,891,607, Dec. 20.

**Microscope condensers.** FIRM OF E. LEITZ. Brit. 348,202, Jan. 31, 1929. Structural and optical features.

**Catoptric microscope condenser.** A. F. C. POLLARD. Brit. 348,411, May 29, 1930. Structural and optical features.

**Diffusion apparatus for gases.** EGYESÜLT IZZÓLAMPA ÉS VILLAMOSSÁGI R. T. Brit. 367,313, Oct. 22, 1930. Gas mixts. contg. K and Xe are enriched in these constituents by thermal diffusion.

**Apparatus for the adsorption of gases.** METALLGESELLSCHAFT A.-G. and GEORG MÜLLER. Brit. 366,885, Sept. 19, 1931.

**Apparatus for treating gases with liquids.** E. HAVEAUX. Brit. 382,962, Aug. 4, 1931. App. for separating dust from gases by impact on a liquid surface.

**Apparatus for washing gases.** CARRIER ENGINEERING CO. LTD. and KENNETH J. R. ROBERTSON. Brit. 364,239, Nov. 5, 1930.

**Vertical rotary gas washer.** HERMANN WOLFRAM. Ger. 568,165, Jan. 7, 1931.

**Gas scrubbers.** ALBERT F. KUNBERGER (to Humphreys & Glasgow, Ltd.). Brit. 363,683, Sept. 3, 1929. Void.

**Equipment for testing or controlling the calorific value of gases.** C. B. WALKER and H. O. WRAITH. Brit. 383,654, July 9, 1931.

**Expansion-chamber-type gas gun suitable for discharge of irritating gases or smoke, etc.** BYRON C. GOSS. U. S. 1,892,050, Dec. 27. Structural features are described of guns having an elec. system that serves to operate the guns, which may be used in series in banks, etc., for repelling bandits.

**Device for indicating the presence of firedamp in the atmosphere.** HENRY DE B. KNIGHT (to The British Thomson-Houston Co. Ltd.). Brit. 366,020, Oct. 25, 1930.

**Apparatus for the concentration of liquids in evacuated chambers by sulfuric acid.** PETER SCHLUMBOHM. Brit. 367,341, Oct. 8, 1930.

**Sampling device for liquids.** I. A. GORSHKOV. Russ. 24,990, Nov. 9, 1930.

**Sampling device for liquids.** I. A. GORSHKOV. Russ. 26,834, Oct. 8, 1930.

**Salt-dissolving apparatus suitable for dissolving rock salt in water.** THOMAS F. COURTHOPE and WM. H. MCGUIRE (to Retsof Mining Co.). U. S. 1,892,331, Dec. 27. Structural features.

**Apparatus for directly indicating the specific gravity of solids.** C. MAHIEU (to Soc. anon. des anciens établissements P. Morival). Brit. 354,774, Feb. 14, 1929.

**Supporting centrifugal and like apparatus.** SIEMENS-SCHUCKERTWERKE A.-G. Brit. 364,478, May 3, 1930. Addn. to 342,105.

**Apparatus for electrometric volumetric analysis.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,939, Mar. 31, 1930. Addn. to 309,038 (*C. A.* **24**, 272).

**Catalytic apparatus.** FRITZ DEMMEL (to A. P. P. A. (Accessories pratiques pour automobiles)). Brit. 364,342, Jan. 9, 1930. A catalytic burner comprises an upper layer of platinized asbestos fabric or millboard and a pad of asbestos fiber, glass wool or other fibrous incombustible material supported by a perforated disk in a casing adapted to be screwed on a container provided with a wick for supplying benzine or other vapor.

**Apparatus for testing the hardness of materials.** CHARLES H. WILSON (to Wilson Mechanical Instrument Co.). U. S. 1,890,923, Dec. 13. Mech. features.

**Endless-chain molding machines.** Établissements Julien Damoy. Brit. 365,382, Mar. 5, 1930.

**Dry kiln suitable for drying lumber, etc.** James F. Cobb. U. S. 1,891,060, Dec. 13.

**Smoke-detector apparatus.** J. Lyons and Co. Ltd., Charles R. Passmore and Thomas W. Chiplin. Brit. 364,661, Oct. 1, 1930.

**Spraying nozzle associated with a mixing or reaction vessel.** Deutsche Gold- und Silber-Scheideanstalt vorm. Roessler (Karl Werner, inventor). Ger. 568,122, Dec. 12, 1930.

**X-ray apparatus.** C. H. F. Müller A.-G. Brit. 353,353, Nov. 19, 1929. Structural and elec. features.

**Portable x-ray apparatus.** N. V. Philips' Gloeilampenfabrieken. Brit. 351,534, April 5, 1929. Structural and mech. features.

**X-ray tube and associated electrical apparatus.** W. E. Schall and Schall & Son, Ltd. Brit. 351,710, May 31, 1930. Various details are described of an elec. system for supplying unidirectional high-tension current from a source of 3-phase a. c.

**Apparatus for x-ray examination of crystalline bodies such as pearls.** N.-V. Gloeilampenfabrieken. Brit. 351,744, July 15, 1929. Structural and optical features.

**Apparatus for observing x-ray projections in different planes simultaneously with the surface of an object.** J. M. Hernandez. Brit. 350,911, March 16, 1929.

**Röntgen-ray apparatus.** Julius B. Wantz (to The British Thomson-Houston Co. Ltd.). Brit. 362,882, June 6, 1929. Void.

**Röntgen-ray apparatus.** C. H. F. Müller A.-G. Brit. 363,194, Apr. 24, 1930 Addn. to 339,215 (*C. A.* **25**, 2336).

**Monochromators and spectroscopic apparatus.** Carl Müller. Brit. 363,264, Apr. 15, 1930. Addn. to 344,722.

**Electron-discharge device.** Telefunken Gesellschaft für drahtlose Telegraphie m. b. H. Brit. 363,755, Nov. 13, 1929.

**Electric discharge tubes for the emission of rays.** N. V. Philips' Gloeilampenfabrieken. Brit. 363,914, Apr. 4, 1930.

**Luminous electric discharge tube.** Patent-Treuhand-Gesellschaft für elektrische Glühlampen m. b. H. (to The General Electric Co. Ltd.). Brit. 363,092, Jan. 11, 1930.

**Cathode for electric discharge devices.** Wm. F. Winter, Jr. (to General Elec. Co.). U. S. 1,891,074, Dec. 13. A cathode is formed of a plurality of superposed disks of metal such as Ni coated on both sides with electron-emitting material such as $BaCO_3$, with the coatings in contact with each other. Cf. *C. A.* **27**, 872.

**Photoelectric cells.** The General Electric Co., Ltd. and Norman R. Campbell. Brit. 363,877, Feb. 4, 1931. Deteriorated cells, *e. g.*, those in which the cathode has been produced by heating oxidized Ag in the presence of Cs vapor to about 200°, are restored wholly or in part to their original condition by heating to a temp. near that used in their manuf. Thus for the above example the cell is heated to 180° for 15 min.

**Photoelectric tubes.** Kenneth T. Bainbridge (to The British Thomson-Houston Co., Ltd.). Brit. 364,006, Aug. 28, 1929.

**Comparison photometer with a light-sensitive cell.** F. C. Whalen and Radiovisor Parent, Ltd. Brit. 350,703, May 24, 1930. Optical, elec. and mech. features.

**Color-analyzing apparatus with a photoelectric cell.** J. Razek and P. J. Mulder Brit. 349,565, Dec. 28, 1929. Structural, optical and electrical details.

**Cathodes for thermionic discharge vessels.** Paul Schwarzkopf and Deutsche Glühfadenfabrik Rich. Kurtz und Paul Schwarzkopf G. m. b. H. Ger. 568,033, Mar. 14, 1925. The cathodes are made from a solid soln. in Mo of 2.5–4% of an alk earth metal or Mg or a mixt. of any of these.

**Regenerative furnaces.** Compagnie générale de constructions de fours. Fr. 738,535, June 11, 1932.

**Regenerative furnaces.** Wm. B. Mitchell. Fr. 738,783, June 17, 1932. Construction and piling of the bricks is described.

**Means for heating evaporators, autoclaves, etc., with circulated superheated steam.** Eugen Hadamovsky. Ger. 568,004, June 8, 1930, and 568,234, Feb. 5, 1931.

**Furnace, especially for coal distillation at 400–600°.** Jenö Schlattner. Hung. 104,659, July 16, 1928. Mech. details.

**Furnace linings.** Plibrico Jointless Firebrick Co. Brit. 382,270, Aug. 14, 1930. Device for anchoring furnace linings to a wall, and allowing for expansion and contraction.

**Cooling tuyères for underfeed stokers.** American Engineering Co. Brit. 363,725, June 7, 1930.

**Arched furnace roofs.** The Gas Light & Coke Co., Wm. G. Adam and Percy Gray. Brit. 364,123, Oct. 1, 1930. Means are provided for forming longitudinal passages for the admission of air to the space below the roof.

**Regulating valves for liquid-fuel-burning plant.** John G. McKean. Brit. 363,796, Nov. 28, 1930.

**Heat-exchange apparatus suitable for use as a surface evaporator.** François X. J. A. Delas. U. S. 1,891,705, Dec. 20. Structural features.

**Heat-exchange apparatus suitable for pasteurizing or cooling liquids.** Kirk K. Wright (to R. G. Wright & Co.). U. S. 1,891,518, Dec. 20. Structural features.

**Means for heating, cooling and ventilating enclosures.** Carrier Engineering Co., Ltd. and Stanley L. Groom. Brit. 363,370, Sept. 10, 1930. Divided out of 351,025.

**Oven suitable for heat-treating cold-molded products.** Clarence A. Herbst (to Economy Fuse and Mfg. Co.). U. S. 1,891,981, Dec. 27. Structural and mech. features of an air-circulating system, etc.

**Apparatus for sintering materials.** Herbert Wittenberg (to American Lurgi Corp.). U. S. 1,891,298, Dec. 20. Mech. and structural features.

**Acetylene generator [water to carbide type].** Josef Marik. Ger. 568,317, May 10, 1931.

## 2—GENERAL AND PHYSICAL CHEMISTRY

FREDERICK L. BROWNE

**Life and work of L. L. Grimbert, 1860–1931.** H. Hérissey and P. Fleury. *J. pharm. chim.* **16**, 275–320(1932).—Biography, with portrait and review of the scientific work of G. S. Waldbott

**Thorburn Brailsford Robertson.** Hedley R. Marston. Biography accompanied by a portrait. *Australian J. Exptl. Biol. Med. Sci.* **9**, 1–5(1932).—**Bibliography.** Mary C. Dawbarn. *Ibid* 7–21. E. J. C.

**Andrew Stuart Mitchell [1864–1932].** G. L. Bidwell. *J. Assoc. Official Agr. Chem.* **16**, No. 1, ii–iv(Feb. 15, 1933).—An obituary with portrait. A. P.-C.

**Marko T. Leko [Lecco].** S. Mikholić. *Bull. soc. chim. roy. Yougoslav.* **3**, 127–40 (1932).—Obituary with résumé of Leko's work, accompanied by a portrait. E. J. C.

**Inventor of methods. Friedrich Wilhelm Ostwald, a chemist whose chief interest was scientific method.** A. P. Sachs. *Chemist* **10**, 11–21(1933). E. H.

**Chemistry at Vassar.** Mary Landon Sague. *Chemist* **9**, 818–24(1932). E. H.

**Reference tables for platinum to platinum-rhodium thermocouples.** Wm. F. Roeser and H. T. Wensel. *Bur. Standards J. Research* **10**, 275–87(1933). E. H.

**Interferometric measurement of atomic distances in molecules.** P. Debye. *Chemistry at the Centenary (1931) Meeting of the British Association for the Advancement of Science*, **1932**, 204–9. **Evidence from molecular spectra.** J. E. Lennard-Jones. *Ibid* 210–25. **A report on homeopolar valency and its quantum-mechanical interpretation.** R. H. Fowler. *Ibid* 226–46. **Discussion on the structure of simple molecules.** W. Heisenberg. *Ibid* 247–8.—Crit. In cases where the valence scheme of Hund and Lennard-Jones disagrees with that of London and Heitler, the quantum theory does not as yet allow a conclusive explanation of the exptl. facts. **The application of the theory of homeopolar valency to polyatomic molecules.** M. Born. *Ibid* 249–54.—See *C. A.* **26**, 3152. **The structure of molecules. The solid state.** W. L. Bragg. *Ibid* 255–6. **Anomalous dispersion in solids.** P. Debye. *Ibid* 257. L. Onsager

**Geographic and oceanographic research in Indian waters. VI. Temperature and salinity of the deeper waters of the Bay of Bengal and Andaman Sea.** R. B. Seymour Sewell. *Mem. Asiatic Soc. Bengal* **9**, 357–423(1932). E. H.

**$p_H$ and the rhythm of the tides.** Alphonse Labbé. *Compt. rend.* **195**, 1297–9 (1932).—With ebbing tide the $p_H$ follows a descending curve and returns with a rising tide. Diurnal variations are greater than nocturnal. The effects caused by photosynthesis and marine animal life are considered factors. R. P. Walton

**Quantitative analysis of elements in a demonstration experiment.** W. Florke and W. Vogt. *Z. physik. chem. Unterricht* **45**, 266–7(1932).—A simplified combustion tube and absorption train gave satisfactory results on EtOH in a demonstration expt. A. Lloyd Taylor

**The thermoelectric production of phosphorus in lecture demonstration.** Heinrich Rheinbolt. *Z. physik. chem. Unterricht* **45**, 257–61(1932).—P in small amts. can be prepd. on the lecture table in a 2-l. hard-glass bulb. In the center of the bulb a graphite crucible is supported on one electrode, which enters the bulb through a tubulature in

the bottom. The second electrode enters through an opposite tubulature and extends into the $Ca_3(PO_4)$ and $SiO_2$ contained in the crucible. An inert atm. is necessary.
A. LLOYD TAYLOR

**The measurement of high temperature.** T. MORI. *J. Fuel Soc. Japan* **11**, 1748–61(in English 130)(1932).—Methods and app. for high-temp. measurement are described. F. I. NAKAMURA

**Chemical control of relative humidity in closed spaces.** HARVEY L. SWEETMAN. *Ecology* **14**, 40–5(1933).—In an investigation of the use of supersatd. chem. solns. for the control of relative humidity in small closed containers, humidities obtained with chem. compds. did not change during a period of 6 mos. The dewpoint method was better than the cog psychrometer for these measurements. ALLEN S. SMITH

**Types of chemical reactions.** WM. A. NOYES. *J. Am. Chem. Soc.* **55**, 656–61 (1933).—Reactions are classified as: (*1*) formation of ions, (*2*) ionic reactions and (*3*) dissocn. and reaction of electrically neutral atoms and mols. Six electron ions are discussed and the principles governing the formation of inorg. complexes are mentioned.
E. J. ROSENBAUM

**Third report of the committee on atomic weights of the International Union of Chemistry.** G. P. BAXTER, MME. M. CURIE, O. HÖNIGSCHMID, P. LE BEAU AND R. J. MEYER. *J. Am. Chem. Soc.* **55**, 441–52; *Ber.* **A66**, 21–30(1933). —The at. wt. of I is changed from 126.932 to 126.92 and that of La from 138.90 to 138.92. Résumés are given of recent work on C, N, F, K, Se, I, Te, Kr, Xe, La, Th, H, B, Li, Na, K, Cs and Zn. Cf. *C. A.* **26**, 2901. L. P. HALL

**The neutron and neuton, the new element of atomic number zero.** WM. D. HARKINS. *Nature* **131**, 23(1933).—The aggregate of neutrons of unit mass and neutrons of mass 2, if they exist, may be considered collectively as an element. It is suggested that the name neuton be applied to this element in conformity with the final ending of chemically indifferent elements. Neuton is classified according to the nuclear formula $(p_2e)$, $(pe)_4$ proposed by H. in 1921. WILLIAM J. KROEGER

**Formation of a molecule from atoms in one elementary act.** B. KONDRAT'EV *J. Phys. Chem.* (U. S. S R.) **3**, 383–89(1932).—Above 1500 A. U. and at 0.7 mm. Hg, the process $Br + Br^- \longrightarrow Br_2 + h\nu$ competes with the process $Br + Br + Br_2 \longrightarrow Br_2 + Br_2$. F. H. RATHMANN

**Symmetry of the benzene molecule.** V. R. DEITZ AND D. H. ANDREWS. *J. Chem. Physics* **1**, 62–7(1933).—The symmetry no. as calcd. from an equation involving the vapor pressure, the heat capacity of the crystal, the heat capacity of the vapor as calcd. from Raman spectra, the heat of sublimation and the moments of inertia, is $6 \pm 0.5$ for $C_6H_6$ and $2 \pm 0.2$ for $C_6H_{10}$ indicating that the mol. is not plane. The abs. vapor pressure can be calcd. from the thermal and statistical properties of the mol. by this method. JANET E. AUSTIN

**Graphic study of the relation of organic compounds to the percentages of elements. III.** TSUNETO HIGASHI. *Bull. Inst. Phys.-Chem. Research* (Tokyo) **11**, 1062–71 1932); (*Abstracts* (in English) published with *Sci. Papers Inst. Phys.-Chem. Research* Tokyo) **19**, Nos 380–2, 111–15).—For a chem. reaction such as $A + B = (AB)$, $A + nB = AB_n$), $A + (B + D) = K$, $A + (mB + m'D) = K_1$, the position on a triangular diagram previously described), of the point for the original substance $A$, relative to that for the reaction product $(AB)$ or $K$ was studied. When this graphical method was applied to *coal* (the analytical data used for the percentages of C, H and O were those reported by Ralston (*C. A.* **10**, 1421), to work out the chem. changes accompanying the conversion of lignite to anthracite, the results agreed well with the exptl. facts. **IV.** *Ibid* 1254–65 (*Abstracts*)(in English) published with *Sci. Papers Inst. Phys.-Chem. Research* (Tokyo) **19**, Nos. 394–7(1932)).—In a triangular diagram, indicating the compn. of org. compds., the formation point for $(C_nH_mO_k)$ coincides with that of $(C_nH_mO_k)$ $l/k$ or $(C_{n/k}H_{m/k}O)$, because they have the same at. ratio. When the compds. have the same no. of O atoms, their formation points lie on a line horizontal to the base CH line; if the no. of O atoms is different, the heights of these points from the base line are proportional to the no. of O atoms. Conversely, the compd. represented by the points found at the same height from the base line have the same normal mol. wt., and consequently their true mol. wts. are either the same or in a simple integral ratio. The point for an addn. compd. $AB$ can be detd. by intercepting the horizontal line corresponding to the normal mol. wt. of the addn. compd. and the line connecting the points $A$ and $B$. Based on these facts, the method for detg. the point representing the compn., percentages of elements, and mol. formula of a certain compd. from its mol. wt. and the kind of homolog, and that for detg. the combining ratio of 2 substances by analytical data are demonstrated. K. KONDA

**Dependence of dielectric constants of gases on temperature and density.** H. H. UHLIG, J. G. KIRKWOOD AND F. G. KEYES. *J. Chem. Physics* **1**, 155–9(1933).—The

dielec. consts. of $CO_2$, $NH_3$, $CH_4$, N and H were measured at high pressures (20–250 atm.) and various temps. by the heterodyne beat method. The molar polarization increases slowly with d. for $NH_3$ and $CO_2$ and is entirely independent of d. for $CH_4$, N and H. It is independent of temp. for $CO_2$, $CH_4$, N and H but varies greatly with temp. for $NH_3$. From this variation the dipole moment of $NH_3$ is calcd. to be $1.48 \times 10^{-18}$ e. s. u. The part of the polarization due to optical and non-rotational terms is 6.2 cc. per mol. E. J. ROSENBAUM

**The applicability of the resonance method for measuring dielectric constants of aqueous electrolytic solutions.** M. JEZEWSKI. *Physik. Z.* **34**, 88–94(1933); cf. *C. A.* **26**, 3415.—The sources of error that enter into measurements of dielec. consts. of conducting liquids by the resonance method are discussed. Expts. prove that satisfactory results are obtained with this method if the following conditions are fulfilled: the effect of the exciting circuit on the detector circuit and the linear change of the emitted wave in consequence of the reaction of the resonance circuit must be removed; the capacity of the resonance circuit must be standardized against the capacity on both sides of the resonance point; the measuring condenser must be electrostatically protected; the displacements of the inserted wire must be exactly the same during the measurements. ALLEN S. SMITH

**The dipole moment of nitric oxide.** C. P. SMYTH AND K. B. MCALPINE. *J. Chem. Physics* **1**, 60–1(1933).—The dielec. const. of NO was measured from 235° to 477°K. at detd. pressures. The polarization calcd. from these data varied from 4.81 to 4.90, a max. at 335°. The dipole moment of NO was almost zero, $0.1 \times 10^{-18}$. L. P. HALL

**Electric moments of hydrazine and its derivatives.** L. F. AUDRIETH, W. NESPITAL AND H. ULICH. *J. Am. Chem. Soc.* **55**, 673–8(1933).—The dielec. consts. of dil. $C_6H_6$ solns. of $N_2H_4$ and several of its derivs. were measured and these data used in calcg. their dipole moments (given in Debye units = $\mu = 10^{-18}$ e. s. u.): $N_2H_4$, 1.83–1.85; phenylhydrazine, 1.65–1.79; $\alpha,\alpha$-phenylmethylhydrazine, 1.79; $\alpha,\alpha$-diphenylhydrazine, 1.87; hydrazobenzene, 1.53; benzaldehyde phenylhydrazone, 1.97; benzalazine, 1.00. L. F. AUDRIETH

**Criticism of the electrical differential method for measuring the $C_v$ of gases. V. New measurements; $C_v$ of carbon dioxide.** MAX TRAUTZ AND HERBERT BLUM. *Ann. Physik* **16**, 362–76(1933); cf. *C. A.* **25**, 10.—For $CO_2$ at 1 atm. the following data for $C_v$, in cal. $mol^{-1}$ $deg.^{-1}$ were obtained: 15.3°, 6.77 ± 0.02; 18.0°, 6.79 ± 0.02; 19.0°, 6.80 ± 0.02. F. D. ROSSINI

**Determination and calculation of viscosity of gas mixtures.** L. ZIPPERER AND G. MÜLLER. *Gas u. Wasserfach* **75**, 623–7, 641–4, 660–4(1932).—The viscosities of individual gases and formulas for calcg. the viscosity of com. fuel gases are discussed. Viscosities of individual gases and mixed gases were detd. with an app. using a V2A steel capillary tube. The best agreement between exptl. and calcd. values was found by using Mann's and Zipperer's formulas, the latter formula being the simplest: kinematic viscosity at 20° (sq. cm. $sec^{-1}$) = $1540/[(O_2 + CO + CH_4 + N_2) + 2(CO_2 + C_mH_n) + (H_2/7)]$, in which $O_2$, etc., represents the percentage of the given gas constituent. Bibliography of 56 references appended. **Viscosity of mixed gases.** H. RICHTER. *Ibid* 989(1932).—Polemical with Zipperer and Müller (preceding abstr.) The Biel formula for calcg. viscosity from sp. gr. is simpler than the Mann or Zipperer-Müller formulas and gives satisfactory results. **Reply.** L. ZIPPERER AND G. MÜLLER. *Ibid* 989–90.—The formula suggested by Richter does not give good results with gases high in percentages of methane or higher hydrocarbons. R. W. RYAN

**Vapor viscosities and the Sutherland equation.** J. HOWARD ARNOLD. *J. Chem. Physics* **1**, 170–6(1933).—Sutherland consts. can be found by using mol. diams. calcd. from b.-p. vols. They can serve as criteria of the accuracy of exptl. data on vapor viscosities. By use of this method, recent data are critically reviewed. Deviations from the Sutherland equation are discussed. E. J. ROSENBAUM

**Experimental determination of the flame temperatures of complex mixtures of combustible gases and a method for calculating them.** BERNARD LEWIS, HENRY SEAMAN AND G. W. JONES. *J. Franklin Inst.* **215**, 149–67(1933); cf. *C. A.* **26**, 3970.—The flame temp. of H, $CH_4$ and CO contg. various amts. of N and $CO_2$ and burned in air were detd. From these data and the mixt. law, the flame temp. of complete mixts. and industrial gases were calcd. Calcd. values agreed well with detd. values. C. L. WILSON

**Dispersion of sound in nitrogen tetroxide and its interpretation in terms of dissociation rate.** WM. T. RICHARDS AND JAMES A. REID. *J. Chem. Physics* **1**, 114–28 (1933); cf. *C. A.* **26**, 4231.—Several types of dispersion of sound that may be observed in a dissocg. gas are discussed and of these only heat-capacity dispersion and dissocn. dispersion need be considered under exptl. conditions. A modification of Einstein's

equation for the velocity of sound in a dissocg. gas was derived to include heat-capacity dispersion. Measurements of the velocity of sound in $N_2O_4$ in a special app. (described in detail) are reported; the temp. range is 0° to 30°, the pressure range 132 to 670 mm., and the frequency variation from 9 to 451 kc. The estd. precision is ±0.1 m./sec. The max. dispersion is approx. 5 m./sec. The rate const. for the dissocn. reaction is $4.8 \times 10^4 \pm 0.5 \times 10^4$ at 25° and 260 mm. and the activation energy is 13.9 ± 0.9 Cals. The rate const. seems to diminish as the pressure is reduced. The effective mol. diams. for the activational process are at least 3 times those for ordinary kinetic collisions. WILLIAM E. VAUGHAN

**The process of vapor evolution.** K. SCHREBER. *Z. tech. Physik* **14**, 81–5(1933).—In the process of vaporization there is always a finite temp. difference between the liquid and the vapor at the surface. This difference depends on the vaporization velocity for pure liquids, and on the osmotic pressure and surface curvature for solns. A. F.

**Relationship between boiling point and chemical constitution.** K. BILLIG. *Svensk Kem. Tids.* **44**, 169–72(1932)(in German).—A continuation of assocn. studies (*C. A.* **26**, 3158); the paraffin series, $CH_4$-$C_8H_{18}$, is used. A. R. ROSE

**The pressure of saturated water vapor in the range 100° to 374°.** N. S. OSBORNE, H. F. STIMSON, E. F. FIOCK AND D. C. GINNINGS. *Bur. Standards J. Research* **10**, 155–88(1933). E. H.

**Vapor-pressure measurements on isobutane.** WALTER HÜCKEL AND WALTER RASSMANN. *J. prakt. Chem.* **136**, 30–40(1933).—The vapor pressures of different samples of isobutane were detd. from —10° to —60°. The variations in the results of different investigators are discussed in relation to the purity of the isobutane used. P. T. NEWSOME

**Surface tension and its measurement.** ALLAN FERGUSON. *J. Sci. Instruments* **10**, 34–7(1933); cf. *C. A.* **26**, 4988. E. H.

**The surface tension of liquids.** MARCELLO SETA. *Industria chimica* **7**, 1488–96 (1932).—A review. A. W. CONTIERI

**The surface tension of mercury in a silica apparatus.** R. S. BURDON. *Trans Faraday Soc.* **28**, 866–76(1932).—The surface tension of Hg in a vacuum is 488 dynes/cm and is the same for a drop freshly formed in air. The temp. coeff. is —0.23 dyne per cm. per degree (up to 230°). Work up to the present does not admit of a pos. conclusion as to the action of gases on a Hg surface. WILLIAM J. KROEGER

**The surface tension of binary mixtures. II.** YONEZO MORINO. *Bull. Inst. Phys.-Chem. Research* (Tokyo) **11**, 1296–322(*Abstracts*(in English) published with *Sci. Papers Inst. Phys.-Chem. Research* (Tokyo) **20**, Nos. 398–401(1932)); cf. *C. A.* **27**, 6. A new formula for the relation between crit. temp. and compn. previously used without explanation is derived from the assumptions that the van der Waals equation of state can be extended to the region of binary mixts., and consts. $a$ and $b$ can be expressed as follows: $\sqrt{a} = x\sqrt{a_A} + (1-x)\sqrt{a_B}$, $b = xb_A + (1-x)b_B$. The resulting formula, $T_k = xT_{kA} + (1-x)T_{kB} - (x(1-x)(\sqrt{nT_{kA}} - \sqrt{T_{kB}})^2)/(n-(n-1)x)$ ($T_k$, $T_{kA}$ and $T_{kB}$ denote the crit. temp. of the quasi-pure mixt. of the components $A$ and $B$, and $n = b_B/b_A$) is found to express with fair accuracy the crit. temp. of the mixt of org. liquids observed by other authors. The relation between mol. surface energy and compn. at a given temp. is derived from the relation given above, and is found to agree well with numerous expts. of other authors. K. KONDA

**The flow of mercury through contracted capillaries.** H. EBERT AND W. ENDE. *Z. tech. Physik* **14**, 64–6(1933).—Moving pictures at the rate of 500 pictures per second of the flow of Hg through the constricted portion of max. thermometers revealed a stepwise flow, which causes the jump and error of these thermometers. The phenomenon is related to the cleanliness of the Hg. ARTHUR FLEISCHER

**The vapor pressure of crystalline benzene and cyclohexene.** V. R. DEITZ. *J. Am. Chem. Soc.* **55**, 472–5(1933).—The vapor pressures of cryst. $C_6H_6$ and cyclohexene were detd. over the temp. range 165° to 200°K. by the Knudsen method. When log $P$ is plotted against $1/T$ the data for $C_6H_6$ fall on a straight line with those of previous investigators at higher temps. P. T. NEWSOME

**Permeability of quartz and Pyrex and other glass to helium.** J. C. MCLENNAN AND J. O. WILHELM. *Trans. Roy. Soc. Can.* III, **26**, 119–22(1932); cf. *C. A.* **25**, 4158.—Expts. showed that He penetrates quartz and Pyrex glass, the rate of penetration increasing with the temp. Evacuated, outgassed and sealed quartz tubes were placed in an atm. of He until the desired pressure of He inside the tubes was reached when they were removed from the He bath and used as He discharge tubes. J. W. S.

**Binding energies in the growth of crystal nuclei from metallic atoms.** HUGH S. TAYLOR, HENRY EYRING AND ALBERT SHERMAN. *J. Chem. Physics* **1**, 68–76(1933).—On the assumption that the binding in the metal lattice is essentially homeopolar the bind-

ing energies of various geometrical configurations of 3–8 atoms of Na are computed by the use of first-order perturbation theory. The growth of a unit cell probably proceeds from the diatomic mol. to a square, then the fifth atom adds along a cube edge, the sixth at the body center, and the configuration is completed by atoms at the remaining corners of the cube. This leads to a highly unstable configuration, which is in keeping with characteristics of finely divided particles. The treatment is extended to Cu, giving higher energies of activation for nuclei formation. The percentage of the total energy assigned to interchange is an important factor. When applied to H (90% interchange energy) a metallic structure is shown to be completely unstable. W. E. V.

**Recrystallization of tin-rich mixed crystals.** A. A. Bochvar and N. E. Merkurvev. *Z. anorg. allgem. Chem.* **210**, 161–2(1933).—In the recrystn. of Sn, the size of the crystals depends upon the purity. The effect of Sb, Pb, Bi, Cu and Al was studied. In general, mixed-crystal-forming metals have about the same effect upon recrystn. as upon hardness or elec. cond. Sb is least sol. but has the greatest effect. H. Stoertz

**Solid solutions by precipitation and isomorphism of complexes of quadrivalent platinum and tellurium. II. The chlorotellurite of cesium and the systems: $Cs_2PtCl_6$–$Cs_2TeCl_6$, $Rb_2PtCl_6$–$Cs_2PtCl_6$.** G. Natta and R. Pirani. *Atti accad. Lincei* **16**, 265–70(1932); cf. *C. A.* **26**, 5239–40.—$Cs_2TeCl_6$ was prepd. by pptn. as with the previous compds. studied, $TeO_2$ and CsCl in concd. HCl soln. being used. The photogram, obtained by the powder method, with an Fe anticathode, shows $Cs_2TeCl_6$ belongs to the cubic system, with $a = 10.45 \pm 0.01$ A. U.; vol. $1141.2 \times 10^{-24}$ cc., d., if 4 mols. are assumed in the unit cell, 3.51. $Cs_2PtCl_6$ and $Cs_2TeCl_6$ have lattices whose sides differ by only 0.30 A. U., so that complete miscibility is expected, and actually obtained. Similarly, the compds., $Rb_2PtCl_6$ and $Cs_2PtCl_6$, having sides within 0.32 A. U., are also completely miscible. A. W. Contieri

**X-ray studies of the diffusion of copper into nickel.** Chujiro Matano. *Mem. Coll. Sci. Kyoto Imp. Univ.*, Ser. A, **15**, 351–3(1932); cf. *C. A.* **26**, 350, 5264.—The coeff. of diffusion of Cu into Ni was detd. from the changes of radii of Debye rings, as $3.5 \times 10^{-7}$ sq. cm./day at 650°, and $1.9 \times 10^{-5}$ sq. cm./day at 890°. The samples were prepd. by electroplating Ni on Cu plates (about 0.5 mm. thick). X-ray photographs were taken with the Cu $K_\alpha$ line ($\lambda = 1537$ x. u.). C. E. P. Jeffreys

**The existence of resistance limits for mixed crystals with irregular atom distribution. II.** U. Dehlinger and R. Glocker. *Ann. Physik* **16**, 100–10(1933); cf. *C. A.* **26**, 4990. –Simple chains of the more reactive atoms in mixed crystals with irregular distribution react at 50 atoms %; double chains at 29 atoms % and triple chains at 21 atoms %. Hence the soly. changes rapidly at these concns. If one assumes a mobility of the nobler atoms remaining after soln. of the more reactive atoms, the former forms an unattackable layer when the concn. of the reactive atoms is not greater than 50, 29, or 21 atoms %, resp. Louis Waldbauer

**Fusion of carbon.** A. Egerton and M. Milford. *Nature* **131**, 169(1933).—Spherules of graphite 0.02 mm. in diam. or smaller, d. 2.25, are formed by a C arc in $H_2$ at 90 atm., dissipating 20 kw. They must be formed by the action of surface tension on molten C. The temp. of the arc was not detd. Janet E. Austin

**The graphitization of diamond.** Béla Lányi and Imre Szarvasy. *Math. naturw. Anz. ungar. Akad. Wiss.* **48**, 137–45(1931).—Graphitization of diamond powder kept at 1600° for 7 hrs. was demonstrated by Röntgen examn. No change was found in powder kept at 1370°. The effect is stronger at 1760°, but unchanged diamond is still present. The relative intensities of the stronger graphite lines are the same as those of natural or artificial Acheson graphite or as those of graphite formed from diamond by graphitization. The presence of amorphous C could not be demonstrated. The size of grains of submicroscopic crystals of graphite formed from diamond at 2000° was about the same as that of silver graphite produced from $CH_4$ at 1200°. S. S. de Finály

**Rotation of molecular groups in crystalline solids.** C. S. Hitchcock and C. P. Smyth. *J. Am. Chem. Soc.* **55**, 1926–7(1933).—In solid $H_2S$ 2 sharp transitions are shown by the dielec. const. at —146.7° and —170°; it shows almost free mol. rotation above the lower transition; below it, there appears to be practically no dipole rotation. The low dielec. const. of solid $NH_3$ and its small decrease with decreasing temp. show that the mol. behaves like large mols. in possessing little or no rotation in the solid. The dielec. const. of solid MeOH near the m. p. is much lower than that of the liquid but high enough to give evidence of some dipole rotation, which decreases sharply at a transition pt. —114°. C. J. West

**The translation of surface changes into the interior of crystals.** D. Balareff and B. Srebrow. *Kolloid-Z.* **61**, 344–6(1932); cf. *C. A.* **24**, 5562.—The Tammann reaction temp. was detd. in the systems of BaO with $MnO_2$, $PbO_2$, $SnO_2$, $CaCO_3$ and Cu, Zn, Mg, Co, Ca and Sr sulfates, and in the system: CaO–$MoO_3$. The results support the previous conclusion. A. Fleischer

**Magnetic properties of thin nickel films.** H. E. MALMSTROM. *Proc. Iowa Acad. Sci.* **38**, 214(1931); cf. *C. A.* **25**, 4452.—An abstract. Ni films deposited from a Ni $NH_4$ sulfate soln. contg. $H_3BO_3$ showed decreasing coercive force with decreasing thickness in the range from 140 to 60 mμ. The films were similar to films deposited from the same soln. but without $H_3BO_3$, but were magnetically harder. Ni films show an aging effect not found in Fe and Co. Heating to 100° accelerates this effect. The effect of tension on the films was studied by measuring at 100°, in which case the differential expansion of the brass base and film supplied the tension. The effect was zero for thickness of about 100 mμ and was opposite in sense for thicker and thinner films. This result cannot be explained in terms of the usual effect of tension on bulk Ni. W. G. G.

**The recovery of electrical resistance and of hardness after cold working of copper, silver and gold, as well as of platinum and palladium.** G. TAMMANN AND K. L. DREYER. *Ann. Physik.* **16**, 111–19(1933).—Cu, Ag and Au, belonging to a natural group in the periodic system, are very similar in their recovery from the affects of cold working. Pt and Pd, belonging to another group, behave differently, although they have the same type of crystal lattice. LOUIS WALDBAUER

**The change of thermal electromotive force on the recovery of metals from cold working.** G. TAMMANN AND G. BANDEL. *Ann. Physik* **16**, 120–8(1933).—Curves and tables are given for the thermal e. m. f. for temps. below the beginning of recovery as well as the temps. of the beginning and of the end of recovery for Ag, Cu, Au, Mg, Fe, Ni, Pt and Pd. Cold working affects Ag more than it does Cu and Au. The recovery interval is smallest for Ag, increasing for Au and Mg, then Cu, and for Fe, Ni, Pd and Pt is about 200° and over. The effect of torsion also was investigated. L. W.

**Change in qualities of nonmetallic substances on cold working.** G. TAMMANN *Naturwissenschaften* **20**, 958–60(1932); cf. *C. A.* **27**, 689.—Changes in properties analogous to those of metals during rolling, annealing, etc., can be found for some nonmetallic substances. AgCl in hardness and d. during rolling resembles metals; changes in color of Cu-Ag-Au alloys are reproduced in colors of PbO or ZnO produced by rubbing and removable by annealing at 550° (Rüh, *Z. anorg. Chem.* **50**, 265(1906); Tafel, *Ann Physik* **11**, 613(1903)). Other examples are radiation effects on deformed NaCl (Przibram, *C. A.* **26**, 1842), pressure effects on phosphorescence of sulfides (P. Waentig, *Z. physik. Chem.* **51**, 435(1905), H. Kuggenheim, *Ann. Physik* **70**, 116(1923), Beutel and Kutzelnigg, *Sitzber. Akad. Wiss. Wien.*, IIb, **141**, 447(1932)), lowering of initial temp of gray radiation of salts by rubbing (Tammann, *C. A.* **27**, 893), increase in soly. of rubbed materials (salicylic acid)(Cohen, *C A.* **27**, 459). B. J. C. VAN DER HOEVEN

**Plastic elongation of α-iron crystals.** W. FAHRENHORST AND E. SCHMID. *Mitt. deut. Materialprüfungsamt Sonderheft* **21**, 52–7(1933).—The mechanism of deformation of α-crystals was investigated by tensile tests at room temp. and at —185°. The crystallographic translation is detd. as $T = \{123\}$ and $t = [111]$ at room temp. while at the lower temp. hardly any translation can be observed. The tests are illustrated by diagrams and x-ray patterns. 10 references. Also in *Z. Physik* **78**, 383–94(1932). M. HARTENHEIM

**Measurement of mechanical properties of binary inorganic salt mixtures.** K LAYBOURN AND W. M. MADGIN. *Trans. Faraday Soc.* **28**, 857–66(1932).—Transverse breaking strength, compression strength, and Brinell hardness were measured for the binary salt mixts. $NaNO_3/KNO_3$, $Pb(NO_3)_2/NaNO_3$ and $Pb(NO_3)_2/KNO_3$. Property *vs.* compn. diagrams are of the same general forms in all 3 systems. The special conditions of casting, annealing and surface treatment necessary to obtain consistent results are stated. WILLIAM J. KROEGER

**Remark on the papers by F. Zwicky on the structure of real crystals.** E. OROWAN *Z. Physik* **79**, 573–82(1932).—Zwicky's suggestion of a secondary crystal structure becomes unnecessary if an error in his calcn. is corrected. (Cf. *C. A.* **23**, 1792, 3138; **24**, 1005, 3410; **25**, 243, 4162.) EGON BRETSCHER

**Precision determination of lattice constants of non-cubic substances.** W. STENZEL AND J. WEERTS. *Z. Krist.* **84**, 20–44(1933).—A method is described that allows direct correction for all systematic errors, resulting in an accuracy of about ±0.01%. New detns. are as follows: Cd $a = 2.9736 \pm 0.0005$ A. U., $c = 5.6058 \pm 0.0005$ A. U.; Zn $a = 2.6590 \pm 0.0005$ A. U., $c = 4.9351 \pm 0.0009$ A. U.; Mg $a = 3.2022 \pm 0.0002$ A. U., $c = 5.1991 \pm 0.0004$ A. U.; Re $a = 2.7553 \pm 0.0004$ A. U., $c = 4.4403 \pm 0.0003$ A. U.; β-Sn $a = 5.8194 \pm 0.0003$ A. U., $c = 3.1753 \pm 0.0009$ A. U. L. S. RAMSDELL

**Vacant positions in the iron lattice of pyrrhotite.** GUNNAR HÄGG. *Nature* **131**, 167–8(1933).—The excess of S in the homogeneous solid solns. of S in FeS contg. 50–55.5 atoms % S may be caused by an increasing no. of vacant positions occurring at random in the Fe lattice rather than direct substitution of S for Fe. The d., calcd. on this assumption by means of the lattice dimensions obtained by x-ray measurements,

agrees with the observed d. values. The hexagonal superstructure contg. 12 Fe and 12 S atoms exhibited by FeS disappears rapidly as S increases. JANET E. AUSTIN

**Crystal lattice distortion in stretched wire.** W. A. WOOD. *Nature* **129**, 760–1 (1932); cf. *C. A.* **26**, 3218. G. G.

**Crystalline structure of göthite.** S. GOLDSZTAUB. *Compt. rend.* **195**, 964–7 (1932).—The coördinates of the Fe and O atoms in göthite are given as detd. from relative intensities of spots on Fe *K* and Mo *K* radiation diagrams by using the analogy between göthite and hematite and diaspore. H. W. WALKER

**An x-ray study of the wüstite [FeO] solid solutions.** ERIC R. JETTE AND FRANK FOOTE. *J. Chem. Physics* **1**, 29–36(1933).—A series of Fe oxides with compns. between 76.08 and 76.72% Fe, all lying within a single-phase solid-soln. area known as wüstite, was prepd. and the lattice consts. and ds. of the individual members were detd. The NaCl structure previously ascribed to FeO is found throughout the series. Contrary to earlier results the size of the unit cell decreases as the Fe content decreases. The solid soln. is of a complex type. An O ion replaces an FeO group with an accompanying increase in valence of $2Fe^{++}$ to $2Fe^{+++}$. GEORGE L. CLARK

**X-ray study of some borides.** G. ALLARD. *Bull. soc. chim.* **51**, 1213–15(1932).—An x-ray study, by the powder method, of the borides $MB_6$, where M is Ca, Sr, Ba, La, Ce, Nd, Gd, Er, Yb, Yt or Th. Their isomorphism was established. Each has a simple cubic lattice, with an atom of metal at the top of the lattice and an octahedral $B_6$ at the center. LOUISE KELLEY

**X-ray studies of the system: nickel–oxygen–water. I. Nickelous oxide and hydroxide.** R. W. CAIRNS AND EMIL OTT. *J. Am. Chem. Soc.* **55**, 527–33(1933).—Several new modifications of NiO reported in the literature are identical. The lattice parameter of pure NiO is given as $a_0 = 4.1684 \pm 0.0001$ A. U. The lattice parameters for hexagonal $Ni(OH)_2$ are given with improved accuracy as $a_0 = 3.114 \pm 0.005$ A. U. and $c_0 = 4.167 \pm 0.005$ A. U. The 2 crystal forms of $NiSO_4$ previously thought to represent 2 different modifications are identical. The existence of previously reported hydrates of $Ni(OH)_2$ is disproved. **II. Compounds containing trivalent nickel.** *Ibid* 534–44.—X-ray diagrams for the compds. $Ni_2O_3 \cdot H_2O$ and $Ni_2O_3 \cdot 2H_2O$ are given. These are not true hydrates but the water is bound as hydroxyl groups. Structural formulas and x-ray diagrams are given for 2 compds. of Ni, O and $H_2O$ at lower stages of oxidation. HOWARD AGNEW SMITH

**The structure of α-zinc hydroxide.** W. FEITKNECHT. *Z. Krist.* **84**, 173–6(1933).—$\alpha$-$Zn(OH)_2$ is isomorphous with the other hydroxides of bivalent metals of the C-6 type. X-ray data give $a = 3.14$ A. U., with $c$ uncertain. The ratio $a:c$ is about 1.63. The polymorphism of $Zn(OH)_2$ is due to the strong polarizing effect of the Zn ions on the OH ions. L. S. RAMSDELL

**The habit and crystal structure of potassium bitartrate.** A. FERRARI AND R. CURTI. *Z. Krist.* **84**, 8–13(1933).—Crystals of $KHC_4H_4O_6$, obtained by slowly dropping HOAc into Rochelle salt, show a new habit, with a large development of (110) and (101) and a small (100), (010), (001) and (031). With $H_3PO_4$ the crystals were poorly formed and twinned. The unit cell has the dimensions $a = 7.614$ A. U., $b = 10.70$ A.U. and $c = 7.80$ A.U. and contains 4 mols. The C chains probably lie parallel to the $b$ axis. L. S. RAMSDELL

**The space group of afwillite.** C. GOTTFRIED. *Z. Krist.* **84**, 172–3(1933).—Laue and rotation photographs of afwillite indicate a monoclinic cell contg. 4 mols. $3CaO \cdot 2SiO_2 \cdot 3H_2O$, with $a = 11.39$ A.U., $b = 5.47$ A.U., and $c = 13.09$ A.U. Space group $C_2^2$. Plates cut normal to (010) show a distinct piezoelec. effect. L. S. RAMSDELL

**The structures of the perchlorates of potassium and ammonium.** C. GOTTFRIED AND C. SCHUSTERIUS. *Z. Krist.* **84**, 65–73(1933).—$KClO_4$ and $NH_4ClO_4$ are orthorhombic bipyramidal; space group $V_h^{16}$. The unit cells, contg. 4 mols., have $a = 8.834 \pm 0.006$ A.U., $b = 5.650 \pm 0.004$ A. U., $c = 7.240 \pm 0.005$ A.U. and $a = 9.202 \pm 0.006$ A. U., $b = 5.816 \pm 0.004$ A.U., $c = 7.449 \pm 0.005$ A. U., resp. Each K (or $NH_4$) is surrounded by 12 O atoms at an av. distance of 3.02 A.U. (3.12 A.U.) and each Cl by 4 O atoms in an irregular tetrahedron with av. O — O = 2.36 A.U. (2.42 A. U.) and Cl — O = 1.44 A. U. (1.49 A. U.). L. S. RAMSDELL

**The crystal structure of lithium sulfate.** JOHN G. ALBRIGHT. *Z. Krist.* **84**, 150–8(1933)(in English).—Laue and oscillation photographs indicate a monoclinic unit cell for $Li_2SO_4$ contg. 4 mols. with $a = 8.25$ A. U., $b = 4.95$ A. U., $c = 8.44$ A.U. and $\beta = 107° 54'$. Space group $P2_{1a}$ ($C_{2h}^5$). The parameters are given. The $SO_4$ groups form regular tetrahedra with S–O = 1.50 A. U. and O–O = 2.45 A. U. Li atoms are surrounded by 4 O atoms, each from a different sulfate group, forming nearly regular tetrahedra with the av. distance Li–O = 1.97 A. U., and O–O = 3.20 A. U. L. S. RAMSDELL

**The crystal structure of lead bromide.** W. NIEUWENKAMP AND J. M. BIJVOET.

*Z. Krist.* **84**, 49–61(1933).—A new structure type for compds. of the type $AB_2$ is found for $PbBr_2$. (Cf. *C. A.* **22**, 4288.) Pb has a coördination no. 9, and Br 4 and 5. The type is intermediate between $CaF_2$ and $CdI_2$. The Br ions have a distorted hexagonal arrangement, and are of 2 types, not crystallographically equiv. All ions are at the 4-fold positions *Ouv*; $u, \bar{v}$; *o*, $v$; $^1/_2, \bar{u}, ^1/_2 + v$, with $u$ and $v$ for Pb = 0.015 and 0.087, for $Br_1$ = 0.61 and 0.075; for $Br_2$ = 0.23 and —0.17, resp. The values of $n_0$ are 2.434 $\|c$, 2.476 $\|b$, and 2.553 $\|a$. L. S. RAMSDELL

**The crystal structure of lead fluoride.** J. A. A. KETELAAR. *Z. Krist.* **84**, 62–4 (1933).—The low-temp. modification of $PbF_2$ is orthorhombic, and isomorphous with $PbBr_2$ (cf. preceding abstr). There are 4 mols. in the unit cell with $a$ = 3.80 ± 0.01 A. U., $b$ = 6.41 ± 0.02 A. U., and $c$ = 7.61 ± 0.03 A. U. Calcd. d. = 8.75. Direct d. detns. are too low, because powder photographs always reveal some of the cubic modification present. L. S. RAMSDELL

**The crystalline structure of β-arabinose.** ERNEST G. COX. *Z. Krist.* **84**, 45–8 (1933)(in English).—The conclusions of Andress and Reinhardt (*C. A.* **25**, 5815) as to an open-chain structure for β-arabinose are shown to be incorrect on the basis of their own intensity measurements, as well as those of C., and also because of the general chem. nature of arabinose. L. S. RAMSDELL

**Studies on adsorption—methods of obtaining saturated vapors.** L. J. BURRAGE. *Chem. News* **145**, 206–11(1932).—Three methods are given for obtaining an air stream satd. with a certain vapor at a given partial pressure. Method I gives details for a system which could be employed for obtaining pressures of water vapor up to 18 mm. Method II is designed to sat. an air stream by passage over an org. liquid at a definite temp. The third method is a modification of the second in that the substance satg. the air stream is a solid instead of a liquid. L. H. REYERSON

**Sorption of gases, vapors and mists.** H. REMY. *Angew. Chem.* **46**, 101–4(1933).—A discussion of the problems of *aerochemistry*. Exptl. data are presented and the relationships of adsorptivity of gases to b. p., crit. temp. and vapor pressure are shown The only simple relationship is that between adsorptivity and vapor pressure. Eleven literature references are given. KARL KAMMERMEYER

**The equilibrium of atoms and ions adsorbed on a metal surface.** R. C. EVANS *Proc. Cambridge Phil. Soc.* **29**, 161–4(1933). Becker's theory of the evapn. of adsorbed atoms and ions of alkali metals from hot metal surfaces is extended so as to apply to non-equil. conditions. The theory is applied to interpret expts. on the evapn. of alkali metals adsorbed on hot W. MORRIS MUSKAT

**Sorption of water vapor by glass.** E. P. BARRETT AND A. W. GAUGER. *J. Phys Chem.* **37**, 47–51(1933).—The adsorption of $H_2O$ on glass was measured at 25–30° at relative humidities between $1 \times 10^{-3}$ and $3 \times 10^{-2}$. P. H. EMMETT

**An improved method for the determination of isothermals by the retentivity technic.** L. J. BURRAGE. *J. Phys. Chem.* **37**, 33–9(1933).—An improved technic for detg. isothermals of vapors on solids is described. The desorption isotherms obtained for $CCl_4$ and for $H_2O$ on charcoal and on $SiO_2$ gel consist of a series of rectangular steps. P. H. EMMETT

**Characteristics of different adsorbents.** Z. V. VOLKOVA. *J. Phys. Chem* (U. S. S. R.) **3**, 368–74(1932).—Adsorption of mixts. of substances follows the Langmuir adsorption isotherm. Curves of adsorption of mixts. of MeOH-$C_6H_6$, and PrOH-$C_6H_6$ by $SiO_2$ gel, nephelite gel and bauxite were detd. The Williams formula $U = [N(C_0 - C)/m(100 - C)] - [W C/(100 - C)]$ was used. F. H. RATHMANN

**The adsorption of negative ions by a colloidal suspension of aluminum hydroxide.** BEN H. PETERSON AND FLOYD H. TRIMBLE. *Proc. Iowa Acad. Sci.* **38**, 165–6(1931); cf. *C. A.* **24**, 1008; **25**, 1721.—The adsorption of ferricyanide and oxalate ions by colloidal $Al(OH)_3$ at concns. below and above the coagulation values was measured. The graph of the amt. adsorbed as a function of the total concn. of the electrolyte shows 3 characteristic "breaks." The results are of the same general type as those obtained by Storks in the adsorption of the chromate ion by the same suspension. The adsorption is considered as of 2 types; (*1*), a neutralization of the pos. charges on the colloidal particle, followed by (*2*) surface adsorption by the coagulated particle. The second "break" is due to a combination of the two types of adsorption. W. G. GAESSLER

**Adsorption of oxalic acid by alumina.** PHILLIP H. DEWEY. *J. Phys. Chem.* **36**, 3187–8(1932).—Neither HOAc nor $(COOH)_2$ forms a compd. with an Al catalyst at room temp., but $(COOH)_2$ is more highly adsorbed, and cannot be readily washed out, although it can be detd. by hot acid permanganate titration. JEROME ALEXANDER

**Sorption of ammonia by silver chloride.** HACHIRO HEMMI. *J. Chem. Soc. Japan* **53**, 841–6(1932).—The velocity of sorption of $NH_3$ by AgCl was measured between —18° and 65°; it decreases with increasing temp. No sorption was observed above 65°. The velocity of sorption of $NH_3$ by AgCl prepd. by removing $NH_3$ *in vacuo* from AgCl.

$3NH_3$ was much greater than with freshly prepd. AgCl. By measuring the amt. of sorption and desorption the transition points of $AgCl.3NH_3$ and of $2AgCl.3NH_3$ were detd. as 16.8° and 66.3°, resp. T. KATSURAI

**Discontinuities in the sorption process.** L. J. BURRAGE. *J. Phys. Chem.* **37**, 41–5(1933).—Sorption isotherms of $H_2O$ over 3 different charcoals at 15° consist of rectangular steps. P. H. EMMETT

**The adsorption of gases by active charcoal.** H. REMY AND W. HENE. *Kolloid-Z.* **61**, 314–22(1932).—The adsorption of $CO_2$, $O_2$, $SO_2$, $COCl_2$, MeCl, $Cl_2$, $H_2S$, HCl, $C_2H_2$, $N_2O$, $N_2$, $CH_4$ and $NH_3$ by moisture-free active charcoal was detd. at 15° and 1 atm. pressure. For the gases below the crit. temp., the vol. adsorbed decreases with increase in the vapor pressure of the liquid. With change in temp., the isotherms for $SO_2$, $NH_3$, $CO_2$ and $CH_4$ are linear when the log of the adsorbed vol. is plotted against the temp. Adsorption from mixts. can be calcd. only as the summation of the individual components when the individual adsorbed vols. are nearly alike. A. FLEISCHER

**A test of adsorption equations on the basis of adsorption measurements on a highly active charcoal.** E. L. LEDERER. *Kolloid-Z.* **61**, 323–8(1932); cf. preceding abstract. The logarithmic isotherm equation and Langmuir's equation show deviations at higher pressures for gases above the crit. temp. The data are not reproduced by the usual isobaric equations or by Polanyi's equation. Extrapolation of $SO_2$ and $CO_2$ data gave satisfactory agreement with Gurwitsch's rule. The equation $\log V = \log V_k - \zeta \log \varphi$, where $V$ is the vol. of adsorbate, $V_k$ the vol. adsorbed at crit. state, $\zeta$ is a const., and $\varphi$ the reduced vapor pressure, reproduces the isobaric exptl. data. A. FLEISCHER

**Adsorption from solutions of electrolytes by ash-free adsorbent charcoal.** E. J. MILLER AND S. L. BANDEMER. *Mich. Agr. Expt. Sta., Rept. for the Two Years Ending June 30, 1932*, 22; cf. *C. A.* **25**, 629. —Adsorbed acids can be quantitatively removed from C by electrodialysis. The removal of the adsorbed acid by this method, however, leaves the C able to take up alkali from solns. of NaOH or KOH, a property which C free from adsorbed acid does not acquire when electrodialyzed under identical conditions. Possibly complex org. acids on the surface of the C after removal of the chloride are responsible for the adsorption of the alkali. Ash-free adsorbent C gives neg. adsorption from solns. of such alkalies as KOH and NaOH. The magnitude of the neg. adsorption depends upon the length of time the C is in contact with the soln. C. R. FELLERS

**Influence of some chemical and physical factors on the activity of charcoal. III. Influence of alkali impregnation.** E. V. ALEKSEEVSKIĬ AND YA. S. PIKAZIN. *J. Gen. Chem* (U. S. S. R.) **2**, 327–34(1932); cf. *C. A.* **24**, 4683. —Samples of powd. C were kept in contact with 1.0 and 0.1 *N* solns. of NaOH, KOH, LiOH, $NH_4OH$, and also with satd. solns. of $Ca(OH)_2$, $Sr(OH)_2$ and $Ba(OH)_2$, for a period of 7 days at room temp. The samples were then filtered, without washing, dried at 100° and degassed in a glass tube at 450° by means of a vacuum pump. A sample treated with $NH_4OH$ suffered a reduction in its ash content, while in the other samples the ash increased in the following ascending order: LiOH, NaOH and KOH for the 1.0 and 0.1 *N* solns. and $Ca(OH)_2$, $Sr(OH)_2$ and $Ba(OH)_2$ for the satd. solns. Tests made with $C_6H_6$ vapor showed that in all cases, except where the samples were impregnated with 1.0 *N* NaOH, 1.0 and 0.1 *N* KOH, adsorption was greater than in the non-treated C. With chloropicrin there was an increase of adsorption with samples treated with 0.1 *N* NaOH and 1.0 *N* KOH, but not with the sample treated with 1.0 *N* NaOH. With $C_2H_2$, $NH_4OH$ treatment increased adsorption, while in all other cases there was a decrease. Adsorption of iso-AmOH from soln. was increased with LiOH-treated sample; in all other cases the samples acted as hydrophilic adsorbents. Adsorption of PhOH from soln. was increased by treatment of the C with 1.0 *N* NaOH and 0.1 *N* LiOH. In all other cases there was either only a slight increase or a decrease in adsorption. **IV. Influence of impregnation with ammonium salts on activity of charcoal.** *Ibid* 335–40.—Satd. solns. of $NH_4$ salts and a 25% soln. of $NH_4OH$ were used in treating samples of C in the same manner as above, except that impregnation lasted for 4 months. $NH_4$ salts, contg. a non-volatile anion, like $(NH_4)_2HPO_4$ and $(NH_4)_2MoO_4$, increased the ash content of the C. For adsorption of $C_6H_6$ vapor and $C_2H_2$, impregnation of samples with $NH_4$ salts either had no effect or lowered the adsorptive activity (particularly in the case of $NH_4$-CNS). Adsorption of 0.1 *N* PhOH from soln. was decreased except in the case of $NH_4NO_3$ impregnation, while in the case of 0.1 *N* iso-AmOH adsorption, some treated samples were hydrophobic and some hydrophilic. S. L. MADORSKY

**The adsorption of electrolytes by calcium carbonate in a neutral aqueous medium.**

soln. with $CO_2$ to neutrality, (*7*) satg. a 15% sugar soln. contg. 3% CaO with $CO_2$ until neutral, (*8*) satg. a 3% CaO soln. with $CO_2$ to 0.1% CaO. Other prepns. used were: (*9*) prepn. *8* dried at 105°, (*10*) prepn. *8* boiled with distd. $H_2O$ until neutral and kept moist, (*11*) prepn. *10* dried at 105°, (*12*) prepn. *10* moistened but not washed, (*13*) ground limestone. Aragonites were prepd. in the same forms by pptg. at 85°. One hundred cc. of a soln. (*a*) $CaSO_4$ 0.253 g. per 100 cc., (*b*) Ca asparagate 267.3 mg. per 100 cc. or (*c*) Ca citrate 127.7 mg. per 100 cc. was treated with 3 g. of the above $CaCO_3$ prepns. for 15 min at 20°, filtered, and measured for residual electrolyte and elec. cond. The adsorption of the electrolytes by $CaCO_3$ was in the order: Ca citrate > $CaSO_4$ > Ca asparagate and depended on the sensitivity of the electrolytes to the adsorptive substance. The forms 1–5 were ineffective; $CaSO_4$ and Ca asparagate were not adsorbed at all. This method of treatment did not alter the surface of the $CaCO_3$ to change the adsorption. Pulverized limestone did not adsorb at all. The method of prepn. and not the treatment influences the adsorptive power of the $CaCO_3$. The $CaCO_3$ prepd. by satg. with $CO_2$ showed large variations according to the medium from which it was pptd.; $CaCO_3$ pptd. from sugar solns. (forms *7*, *10*, *11*, *12*) was more active than that from aq. solns. (*6*, *8*). $CaCO_3$ (*10*) prepd. in an alk. medium (*10*) was more adsorptive than that washed to neutrality (*7*). Although the differences between the adsorption by moist (*10*, *12*) and dry forms (*11*) was small, the moist form seemed more effective. Calcites prepd. at 20° were more active than aragonites prepd. at 85°; filtration time for the calcite forms was 30% longer than for the corresponding aragonite forms. $CaCO_3$ employed for adsorption did not show any adsorptive power when used a 2nd time. The gravimetric analyses confirmed the cond. measurements. The factors affecting the adsorptive power of $CaCO_3$ are: (*1*) temp. of prepn., (*2*) method of prepn., (*3*) type of medium, (*4*) reaction of the medium and (*5*) reaction of the pptd. $CaCO_3$.

FRANK MARESH

**Linear phenomena. I. Linear wetting and linear adsorption; micellar weight and micelle dimensions of lyophilic colloids.** D. L. TALMUD, B. A. TALMUD AND S. E. BRESLER. *Z. physik. Chem.* **A163**, 91–106(1933); cf. *C. A.* **26**, 354.—The phenomena of linear wetting and adsorption are described. A method for quant. measurement of the latter is also described. Results are given for several substances. From the data, the av. micellar diam. and wt. of lyophilic colloids can be detd. G. M. MURPHY

**Application of the Gibbs adsorption theorem to solid-liquid interfaces.** F. E. BARTELL, F. L. MILLER AND E. G. ALMY. *J. Am. Chem. Soc.* **55**, 466–71(1933).—From adhesion-tension data in Gibbs' adsorption equation the adsorption at solid-liquid interfaces was calcd. Adhesion tensions against $SiO_2$ and interfacial tensions against $H_2O$ were detd. for the systems: $H_2O$–$C_6H_6$, $H_2O$–$C_{10}H_7Br$, $H_2O$–$PhNMe_2$ with dissolved $Et_2CO_3$. The order of max. adsorption is the same whether $SiO_2$ or $H_2O$ is the adsorbent. The area of adsorbed $Et_2CO_3$ mols. was calcd. from the adsorption data and agreement was found for data in 3 solvents with 2 adsorbents. These results justify use of adhesion-tension data for calcg. adsorption at a solid-liquid interface. S. LENHER

**The separation of small amounts of substances in crystallized precipitates. VII. Communication from O. Hahn and co-workers on the precipitation and absorption of small amounts of substances.** ROLF MUMBRAUER. *Z. physik. Chem.* **A163**, 142–54 (1933); cf. *C. A.* **27**, 461.—Ppts. of $Ag_2SO_4$, $Ag_2C_2O_4$, $Ag_2CrO_4$ and $PbCrO_4$ contg. small amts. of Th B and Th X from Pb and Ra, resp., were studied. The results are discussed in relation to previous work. G. M. MURPHY

**Surface activity and orientation of polar molecules. IX. Several experimental contributions on the application of Antonoff's rule, especially to adsorption layers.** A. TAUBMANN. *Kolloid-Z.* **62**, 76–8(1933); cf. *C. A.* **26**, 3980, 5472.—Careful measurements, fulfilling Antonoff's conditions (cf. *C. A.* **26**, 3417) on the systems $H_2O$–$C_6H_6$ and $H_2O$–hexane-*p*-toluidine show that Antonoff's rule is not general. NaOH and KOH are capillary-inactive at the $H_2O$–$C_6H_6$ interface. ARTHUR FLEISCHER

**Active centers on the surface of activated charcoal.** B. BRUNS, E. POZ, A. GOROBETSKAYA AND F. PERELMAN. *Physik Z. Sowjetunion* **2**, 497–510(1932).—See *C. A.* **27**, 216. G. G

**The dependence of wetting of solids on the time of contact.** AGNES POCKELS. *Kolloid Z.* **62**, 1–2(1933); cf. H. Devaux, *C. A.* **26**, 3164, 4742.—Plates of tallow, trimyristin and other org. solids not usually wet by $H_2O$, formed by cooling the liquid on $H_2O$, are wet by $H_2O$ on the face in contact with the water. After drying in air, this face is no longer wet by water. The upper surfaces of the plates cooled in contact with air were partially or completely wet after a contact from 1 to 5 days. Glass, porcelain and other solids showing initial non-wetting behaved similarly. A. FLEISCHER

**Measurement of the concentration and dispersity of suspensions by the photoelectric cell. I, II.** MOTOTARO MATSUI, TOKICHI NODA, SHU KAMBARA AND SHIGERU OYAMADA. *J. Soc. Chem. Ind., Japan* **35**, Suppl. binding, 569–74, 575–7(1932).

Theoretical and exptl. equations are derived and applied to such factory problems as *insol. matter in soda ash*. A circuit diagram for a fairly successful portable set is given. GREGG M. EVANS

**Mercury as dispersion medium.** N. M. CHUĬKO. *Ukrain. Khem. Zhur.* **6**, No. 5–6, Sci. Part, 229–40(1931).—Fe amalgams were shown to be colloidal solns. True amalgams retard or accelerate their coagulation. Measurements of change of viscosity of Fe amalgams with addn. of amalgams of Zn and Sn showed that the viscosity of the system is greater before sedimentation than after, while the viscosity of true amalgams is nearly that of pure Hg. The acceleration of sedimentation of the Fe in the presence of Zn results not from change in viscosity, but from growth of the size of the Fe particles. It is suggested that the stability of Fe suspensions depends upon the p. d. of Fe and Hg. Preliminary expts. of cataphoresis indicated that Fe is charged positively. J. G. T.

**Application of the double-layer theory of Otto Stern. I.** FRANK URBAN AND H. L. WHITE. *J. Phys. Chem.* **36**, 3157–61(1932).—In dil. solns. $\zeta$-potential and surface cond. are related. Evidence indicates that the ions of the inner Helmholz layer are mobile; further, that the assumption $\eta_1 \gg \eta_2$ in dil. solns., made by Stern to calc. $\Phi_+$ and $\Phi_-$, is not justified. JEROME ALEXANDER

**Dielectric behavior of colloidal particles with an electric double layer.** J. B. MILES, JR., AND H. P. ROBERTSON. *Phys. Rev.* **40**, 583–91(1932).—Math. B. C. A.

**A correlation of stream potentials and surface conductance.** H. L. WHITE, FRANK URBAN AND E. A. VAN ATTA. *J. Phys. Chem.* **36**, 3152–6(1932).—The stream potentials with capillaries of 0.005 mm. diams. are 0–25% greater than with large capillaries, not 75–80% greater as previously reported (*C. A.* **26**, 1495). The latest low figures are unexplainable by the classical stream-potential equation, or by any suggested modification. Prerequisite to correlating surface cond. and stream potential is the establishment of conditions for normal stream potential. The $\zeta$ potential may vary without changing surface cond., but the former is calculable from the latter, and *vice versa*. Briggs' conclusion from univalent-cation expts. (cf. *C. A.* **23**, 748, 3141) that surface cond. is not a function of the $\zeta$ potential, may mean that in his expts. the diffuse layer is less pronounced and varies more with concn. than is the case with glass surfaces. Here the $\zeta$ potential is no index of the charge d. until the distribution of charges between the components of the double layer is detd. JEROME ALEXANDER

**The specific conductivity of intermicellar liquid of gold sols.** ROBERT WINTGEN AND WILLY HACKER. *Kolloid-Z.* **61**, 335–44(1932); cf. *C. A.* **21**, 3516.—Negligibly small differences between the sp. cond. of the intermicellar liquid and of formol Au sols were found when the intermicellar liquid was sepd. by ultrafiltration, balanced dialysis, centrifuging and by freezing. This checks the calcns. of v. Hevesy (*C. A.* **12**, 1434). Au sols of concn. as high as 2.7 g. per l. were prepd. by collecting the residues in centrifuging the sols. The electrolyte concn. in these sols can be regulated within wide limits. A. FLEISCHER

**Preparation and properties of highly concentrated sols. II. Sols of vanadium pentoxide, silicic acid and molybdic acid.** C. AHOBALACHARYA AND N. R. DHAR. *J. Indian Chem. Soc.* **9**, 441–53(1932); cf. *C. A.* **27**, 10.—The viscosity of $V_2O_5$ and $SiO_2$ sols increases considerably with their purity. With the pure sols, the viscosity-concn. curves are very steep and resemble those of some lyophilic colloids. The viscosity of even a concd. sol of $MoO_3$ is practically the same as that of $H_2O$. The ratio of the coagulating concns. of KCl and $BaCl_2$ decreases with the purity of sols of $V_2O_5$ and $MoO_3$ $SiO_2$ sols can be coagulated by KCl and $BaCl_2$ only when sensitized by $NH_4OH$ or other alkali. In this case the ratio of the pptg. concns. of KCl and $BaCl_2$ increases with the purity of the sol. The sensitizing influence of $NH_4OH$ on $SiO_2$ sols is more pronounced on its coagulation by bivalent than by univalent ions. Moreover, the increased purity of $SiO_2$ sols affects more markedly their coagulation by bivalent than by univalent ions. These 2 properties appear to be related and are peculiar to $SiO_2$ sols. With $SiO_2$ sols the ratio of the coagulating concns. of KCl and $BaCl_2$ is smaller at 60° than at 30°, while with $V_2O_5$ and $MoO_3$ the reverse holds, especially when the sols are freshly prepd. The properties of these sols are more complex than those of other hydroxide sols, because these sols always contain the respective acid in the dissolved condition and have a tendency to agglomerate into sol particles. **III. Sols of zirconium hydroxide.** R. D. SHARMA AND N. R. DHAR. *Ibid* 455–61.—By hydrolysis of concd. solns. of $Zr(NO_3)_4$ followed by hot dialysis of the solns., highly concd. sols were obtained contg. 0.8172 g. mol. $ZrO_2$ per l. with a purity (*i. e.*, $ZrO_2/NO_3$) of 6.6, and 0.4502 g. mol. $ZrO_2$ per l. with a purity of 16.2. These concd. sols are highly viscous, and the greater the purity of the sol, the greater its viscosity. The viscosity of these sols decreases when their elec. charge is increased by the addn. of $Zr(NO_3)_4$ soln. The visocsity-concn. curves of these concd. sols are steep; the purer the sol the steeper the curve. The ratio of the coagulating concns. of $KBrO_3$ and $K_2SO_4$ increases when $Zr(NO_3)_4$ is added to

stabilize the sols. The surface tension of the concd. sols is appreciably less than that of $H_2O$. The sp. cond. of the sols increases on aging. When the concd. sols are allowed to dry slowly in the dark, the dry residue swells on the addn. of $H_2O$ and passes into the sol again. H. W. LEAHY

**Relation between charge and stability of colloidal solutions of gold and ferric hydroxide dialyzed to different extents.** B. N. DESAI, G. M. NABAR AND P. M. BARVE. *J. Indian Chem. Soc.* 9, 463–9(1932).—Nothing warrants the view that charge and stability are not related to each other. The abnormal behavior shown in any case can be traced to the part played by the similarily charged ions. It is not safe to draw conclusions about the charge on colloidal particles from the results of stability as detd. by flocculation values, although in some cases flocculation values may serve as a useful criterion. H. W. LEAHY

**Berlin blue hydrosols.** E. L. LEDERER AND O. HARTLEB. *Kolloid Z.* **62,** 42–6 (1933).—Sols are decolorized and coagulated by heating, by visible and ultra-violet light, and by $\beta$-rays. The time of flocculation by irradiation is proportional to the layer thickness and sol concn.; the optimum wave length is 420 m$\mu$. Electrolytes decrease flocculation time. Up to a concn. of 0.2 per 1000, Beer's law is followed. A. F.

**Colloid studies of dye sols. IV.** RYUKICHI TANAKA. *J. Soc. Chem. Ind., Japan* **35,** Suppl. binding, 547(1932).—Heating Congo-red acid changes it from blue to red, which is permanent at room temp. for a concn. of 0.496 mg./100 cc., but higher concns. approach blue again on cooling. This is attributed to changes in particle size, assocn., and increased activity. GREGG M. EVANS

**Measurement of migration velocities of colloidal particles.** W. HACKER. *Kolloid Z.* **62,** 37–42(1933).—An inherent difficulty in the method of moving boundaries is caused by mixing of electrolyte soln. and sol and by changes in concn. due to differences in the migration velocity of the ions, with subsequent inaccuracy in the detn. of the potential gradient at the boundary. To obtain sharp boundaries it is necessary at the upward moving boundary that the migration velocity of the micelle ion be less than that of the similarly charged ion of the electrolyte soln., and that the sp. cond. of the electrolyte be greater than that of the sol. The conditions are fulfilled when the micelle ion concn. is very small, and the intermicellar liquid is used as the electrolyte, and in the case where the intermicellar liquid contains several electrolytes, as in a Zsigmondy formol Au sol. ARTHUR FLEISCHER

**The measurement of migration velocities of gold micelle ions by observation of moving boundaries.** W. HACKER. *Kolloid-Z.* **62,** 66–78(1933); cf. preceding abstract.—Cataphoretic migration velocities of Au micelles were calcd. from moving-boundary observations and from detns. of the amts. of Au transported in definite times, and the values agreed for both limbs of the U-tube. The potential gradient at the boundary was const. during the expts. ARTHUR FLEISCHER

**The diffusion of colloidal electrolytes—sodium oleate.** M. E McBAIN. *J. Am Chem. Soc.* **55,** 545–51(1933); cf. *C. A.* **25,** 1139.—General equations for diffusion are given, showing diffusion proportional to osmotic pressure and not to activity. Primary particles of Na oleate are found not much larger than those of K laurate. The viscosity and gelatinizing power of Na oleate is due to loose linking of primary particles. High diffusion coeffs. for soaps were measured. L. P. HALL

**Causes of the thixotropy of certain sols.** PAUL BARY. *Compt. rend.* **196,** 183–4 (1933).—Thixotropy in $Fe_2O_3$ hydrosols is attributed to formation of a network of micelles polymerized in chains with the network of fine enough mesh for surface tension to offer a considerable obstacle to the escape of liquid. The min. concn. at which such a network can form is such that the length of the micelles is equal to the av. distance between micelles. The network is weak enough to be easily broken down by agitation. F. L. BROWNE

**Viscosity and the molecular weights of polymeric materials.** ELMER O. KRAEMER AND FRANK J. VAN NATTA. *J. Phys. Chem.* **36,** 3175–86(1932).—Careful measurements of the viscosities of solns. of polymeric hydroxydecanoic acids with mol. wts. from 780 to 25,200 inclusive show a simple relationship between viscosity and mol. wt. over a wide range, in qual. agreement with Staudinger's observations on numerous polymeric series. S.'s quant. equation for this relationship requires modification, for it breaks down in the range of high mol. wts. (above 15,000) with the polymeric $\omega$-hydroxydecanoic acids. Therefore S.'s values for the mol. wts. of rubber, cellulose and other very high polymers are unreliable. JEROME ALEXANDER

**Comparison of organic inhibitors in chain reactions.** KIA-KHWE JEU AND HUBERT N. ALYEA. *J. Am. Chem. Soc.* **55,** 575–88(1933).—The photopolymerization of vinyl acetate was studied by detn. of the I no. with Wijs soln. The equation $(1/t)\ \ln[1/(1-x)] = K/(k_2 + kC)$ where $x$ = fraction reacting during time $t$, $K$ = a composite of the no. of chains initiated at $t = 0$ and the probability of continuing the chains and

$k_2 + kC$ is the probability of breaking the chains by a factor $k_2$ or by an inhibitor of concn. $C$ and power $k$, reproduces the photopolymerization of vinyl acetate, the thermal autoxidation of $Na_2SO_3$ and the photolysis of $H_2O_2$. Among 70 org. compds. examd. as inhibitors a max. of 20% photosensitization to visible light was found. Chain lengths may be predicted from the values of $k_2$. S. LENHER

**The influence of Brownian movement on the viscosity of suspensions.** R. EISENSCHITZ. *Z. physik. Chem.* **A163,** 133–41(1933).—An exact hydrodynamic calcn. is given for the theory of the viscosity of suspensions of ellipsoidal particles. G. M. M.

**Attainment of stationary concentrations between two membranes.** J. P. WERRE. *Kolloid Z.* **62,** 16–20(1933); cf. *C. A.* **26,** 1849, 4996.—Math. A. FLEISCHER

**The properties of Becquerel membranes.** J. J. BICKERMAN. *Kolloid Z.* **62,** 26–31(1933); cf. *C. A.* **25,** 2895. A. FLEISCHER

**The explanation of several membrane processes (Becquerel phenomena, negative osmosis, abnormal permeability, etc.).** KARL SÖLLNER. *Kolloid Z.* **62,** 31–7(1933); cf. *C. A.* **23,** 4394; **25,** 2341. A. FLEISCHER

**Harmonic concentration differences across a membrane.** J. STRAUB. *Kolloid Z.* **62,** 13–16(1933); cf. *C. A.* **23,** 3842. A. FLEISCHER

**Dried collodion membranes.** LEONOR MICHAELIS. *Kolloid Z.* **62,** 2–10(1933); cf. *C. A.* **21,** 525, 2837, 3008.—The specifically different behavior of these films to anions and cations is due to the elec. properties of collodion films, which are always negatively charged in aq. solns. A. FLEISCHER

**Osmotic pressure and membranes. I.** SUSUMU HIRONAKA. *Japan. J. Med. Sci. IV Pharmacol.* **6,** 157–201(1932).—The osmotic behavior of true body fluids toward collodion membranes was studied by new methods that are described. The actual values of the osmotic pressures were very small as compared with the theoretical values according to van't Hoff. The osmotic pressures of graduated concns. of electrolytes gave anomalous values in accord with Loeb (*C. A.* **14,** 676) and Bartell and Carpenter (*C. A.* **17,** 1572). This anomalous behavior can have no biol. significance, since salt concns. in living cells are too high. The osmotic pressure of nonelectrolytes was proportional to the concn. and to the mol. wt. Urea (I) shows a neg. osmotic pressure in higher concns., as do Et urethan and formamide. The addn. of I lowers the osmotic pressure of solns. of sugar or NaCl. The lowering of the osmotic pressure cannot be attributed to narcotics only. Curves showing the rate of flow of the soln. through the membrane are more complicated than the osmotic-pressure curves, and there is no direct relationship between the two. T. H. RIDER

**Electroösmosis and electrophoresis. II.** NIKOLAUS SCHÖNFELDT. *Z. Elektrochem.* **39,** 103–16(1933); cf. *C. A.* **26,** 5473.—A review. G. G.

**Rhythmic crystallization produced by the diffusion of alkali carbonates into gelatin.** SUZANNE VEIL. *Compt. rend.* **196,** 109–10(1933).—When a drop of concd aq. $Na_2CO_3$, $K_2CO_3$ or $Li_2CO_3$ is placed on a gelatin gel, fine microscopic strata appear around the drop. Later, larger secondary rings are produced and the first fine lines disappear. The appearance is exactly similar to the micro forms observed by Hofsass (*C. A.* **14,** 1917) in the absence of gelatin, and thus supports the view that a gel is not essential for the formation of such structures. Since they are apparently identical with Liesegang rings, the latter do not depend upon a pptn. reaction for their appearance. K. V. THIMANN

**Action of adsorption layers on disperse systems. III. The action of surface-active substances on the crystallization processes in Liesegang rings.** NADINE SERB-SERBINA. *Kolloid-Z.* **62,** 79–85(1933); cf. *C. A.* **25,** 630.—Liesegang rings of $Ag_2Cr_2O_7$ and $PbI_2$ formed on slides from soln. and powder were observed microscopically. Saponin and iso-AmOH increase the degree of dispersity and uniformity of the crystals, and decrease the distance between the rings. Gelatin above 0.3% concn. causes the crystals to flow with diffusion streams and destroys periodicity. NaOH and HCl below 0.001 $N$ do not change the periodicity. Surface-active sol. substances increase dispersity by decreasing crystn. velocity. Hydrophilic colloids also change the crystal form. The effects are important in the study of boiler-scale preventives. ARTHUR FLEISCHER

**An elastometric method for swelling measurement.** A. W. HOCHLOFF. *Kolloid-Z.* **61,** 364–5(1932).—The method of v. Hahn (cf. *C. A.* **19,** 764), using the Schade app., is an especially sensitive procedure. A. FLEISCHER

**Structure of cellulose gel. IV. The mechanism of sorption of vapors by cellulose gels.** KATSUMOTO ATSUKI, HIROSHI SOBUE AND KOZO KITAJIMA. *J. Soc. Chem. Ind., Japan* **35,** Suppl. binding No. 12, 584–7(1932); cf. *C. A.* **26,** 4228.—The sorption of various vapors by cellulose is caused by adsorption and swelling, the former being affected by the vapor pressure, surface tension and d. of the liquid; the latter by the polarity of the OH groups and O bridge in the cellulose mol. A thermodynamic consideration is given. C. E. HRUBESKY

**Viscosity investigations for the examination of the constitution of natural products of high molecular weight and of rubber and cellulose.** H. STAUDINGER. *Trans. Faraday Soc.* **29**, 18–32(1933); cf. *C. A.* **27**, 1504.—Review and discussion. F. U.

**Relations between the refractive indices and the behavior of cellulose fibers.** J. M. PRESTON. *Trans. Faraday Soc.* **29**, Pt. 1, 65–77(1933).—The *n*s of native, mercerized and regenerated cellulose fibers are related to the orientation of the cellulose micelles of which the fibers are built. Mercerization of cellulose fibers produces changes of *n* that depend on whether the fibers are mercerized under tension or without it. The contraction of fibers mercerized without tension can be calcd. The extensibility of regenerated rayons can be calcd. from the *n*s of the fibers. FRANK URBAN

**Shaking effect in cellulose solutions and other sols detected by means of Tyndall light.** R. O. HERZOG, O. KRATKY AND E. PETERTIL. *Trans. Faraday Soc.* **29**, Pt. 1, 60–4(1933).—Because of thixotropic effects, solns. of cellulose, polystyrol, gelatin, sol. starch, blood serum, and "Hg sulfosalicylic acid" show a different angle of depolarization after vigorous shaking. FRANK URBAN

**Surface films of cellulose derivatives on aqueous solutions.** N. K. ADAM. *Trans. Faraday Soc.* **29**, 90–110(1933); cf. *C. A.* **26**, 898.—The spreading of Me, Et and benzyl ethers of cellulose, of cellulose nitrates, acetates and esters with other fatty acids up to 18 C atoms in length, was studied by measurements of surface pressure and area and by ultramicroscopic examn. of the films. All ethers spread completely on water, the esters incompletely, to films one glucose group in thickness. Conclusions: (*a*) The chains lie with every glucose ring nearly flat on the water, (*b*) the chains are flexible, and may be vibrating vigorously, in some cases, in the plane of the surface at low compressions, (*c*) the differences in ease of spreading are partly due to the different adhesion of the esterified or ether groups to the water and partly to the lateral adhesion between the chains in the solns. of the cellulose derivs The spreading of some common plasticizers was studied alone, and mixed with benzylcelluloses and nitrocelluloses. All expts. are of interest in connection with the problem of detg. the *range of mol. attraction.* FRANK URBAN

**Researches on the change in the lattice of nitrocellulose.** JEAN-JACQUES TRILLAT *Trans. Faraday Soc.* **29**, Pt. 1, 85–9(1933).—X-ray diagrams of nitrocellulose layers drying at 70° show the gradual disappearance of numerous Debye-Scherrer rings. The change in the trinitrocellulose lattice is attributed to successive unidirectional contractions of the lattice originally swollen with solvent. Incompletely nitrated cellulose films are amorphous. FRANK URBAN

**Buffer properties of pectin.** S. A. GLIKMAN. *J. Applied Chem.* (U. S. S. R.) 5, 628–33(1932); cf. *C. A.* **26**, 3424.—Expts. show that the buffer action of pectin is due to cations in the mol. that are replaced by $H^+$ to form a weakly ionized pectic acid V. KALICHEVSKY

**Aging phenomena in gelatin films and their elimination.** R. O. HERZOG AND F. KOREF. *Kolloid-Z.* **62**, 91–2(1933).—Gelatin-nitrocellulose films, losing the property of absorbing moisture by the formation of an irregular scaly film, are regenerated by immersion in a 3–5% pancreatin soln. Addn. of the enzyme in making the film prevents the scaling. ARTHUR FLEISCHER

**The influence of lyotropic substances on the mutarotation and gelatinization of gelatin–water mixtures (investigated at equilibrium).** J. R. KATZ AND J. F. WIENHOVEN. *Rec. trav. chim.* **52**, 36–46(1933).—Previous workers have studied the effect of lyotropic substances on the gelatinization process, but their results probably cannot be used to det. the effect on the equil. sol $\rightleftharpoons$ gel. The effects on the mutarotation of 1% gelatin solns. ($p_H$ = 6.7) of *N* solns. of the ions CNS, I, $NO_3$, Br, Cl, $SO_4$, F and of $(NH_2)_2CO$, $(NH_2)_2CS$, $HOCH_2CO_2Na$, $HSCH_2CO_2Na$, $AcNH_2$, $MeCSNH_2$, $XCH_2CO_2Na$ (X = Cl, Br or I), AcONa, $XCH_2CH_2OH$, EtOH, $Cl_2CHCO_2Na$, $CCl_3CO_2Na$, $CCl_2C(OH)_2H$, $Me(CH_2)_2CO_2Na$, $Me(CH_2)_3CO_2Na$, $C_3H_7OH$, $C_4H_9OH$, BzONa, $PhSO_2Na$, and Na pyrogallate were measured at 15° and 35°. The series is listed in the order of decreasing favorable effect on the reaction sol. $\rightleftharpoons$ gel. All of the compds that favor sol formation are capillary-active substances, *i. e.*, they lower the capillary const. of $H_2O$. It is postulated that the lowering of mutarotation is due to strong polar adsorption at the interface gelatin-$H_2O$. J. V. VAUGHEN

**The binding of biocolloids. XIV. Adsorption of starch on different emulsion surfaces.** Z. HONOWICZ. *Biochem. Z.* **257**, 344–50(1933); cf. *C. A.* **27**, 1019.—Adsorbed starch undergoes denaturation which is regarded as a dehydration process. The starch accumulating on the surface of fat changes from the sol. state to a state of suspension. The addn. of HCl which reduces greatly the elec. charge of the starch micelles increases the amt. of adsorption. Starch is also adsorbed at the interface amyl alc.-$H_2O$, and this is increased by $CaCl_2$. At the interface $H_2O$-liquid paraffin there is no adsorption. It follows therefore that adsorption occurs only when the

emulsifying component is made up of polar mols. ($CH_nOH$, COOH, COOR, etc.). S. MORGULIS

**Physical chemistry of biocolloids.** G. MALQUORI. *Arch. sci. biol.* (Italy) **17**, 87–97(1932).—A review of the recent literature. P. F. METILDI

**The solubility of nitrates in anhydrous acetic acid.** ARTHUR W. DAVIDSON AND HARRIET A. GEER. *J. Am. Chem. Soc.* **55**, 642–9(1933).—Measurements were made of the soly. of $NH_4NO_3$, $NaNO_3$ and $AgNO_3$ in HOAc over a wide range of temps., and of $Ba(NO_3)_2$ at 30°. The soly. of these salts decreases in the order named. No solvates were isolated from any of the solns. P. T. NEWSOME

**Solubility of hydrogen and helium in liquid ammonia.** V. V. IPAT'EV AND V. P. TEODOROVICH. *J. Gen. Chem.* (U. S. S. R.) **2**, 305–10(1932); cf. *C. A.* **26**, 3425.—The solubilities of $H_2$ in cc. per 100 cc. liquid $NH_3$ were found to be 97.3, 610.6, 1218.5 and 1575.0, at 15, 100, 200 and 250 atm., resp. at 25°. Measurements at temps. varying between —15° and +25°, at 100 atm. showed that the soly. rises with temp. The solubilities of He in liquid $NH_3$ at 20°, in cc. per 100 cc., were 11.56, 45.9 and 75.22, at 5.2, 23.0 and 38.3 atm., resp. Measurements at —16° to +30°, at 34.55 to 39.2 atm. showed that the soly. of He rises with temp. The soly. coeff. of $H_2$ varies between 606.0 and 648.6, and that of He between 178.0 and 249.9. In general, soly. of $H_2$ in liquid $NH_3$ follows Henry's law. S. L. MADORSKY

**The solubilities of polythionates. I. Solubilities of potassium polythionates.** A. KURTENACKER AND W. FLUSS. *Z. anorg. allgem. Chem.* **210**, 125–34(1933); cf. *C. A.* **25**, 656.—The following solubilities were found: $K_2S_3O_6$ at 0°, 8.14%, at 20°, 18.43%; $K_2S_4O_6$ at 0°, 12.60%, at 20°, 23.18%; $K_2S_5O_6.1.5H_2O$ at 0°, 15.50%, at 20°, 24.78%. Because of decompn. of the salts insufficient time may have elapsed in most cases for satn. of solns. and the results are subject to an error of 2% or less. Solns. were analyzed before there was any evidence of decompn. H. B. VAN VALKENBURGH

**Solubility studies. IV. The solubilities of certain slightly soluble organic compounds in water.** PAUL M. GROSS, JOHN H. SAYLOR AND MARY A. GORMAN. *J. Am. Chem. Soc.* **55**, 650–2(1933); cf. *C. A.* **25**, 3544.—The solubilities in $H_2O$ of $Et_2CO$, $CH_2Br$-$CH_2Cl$, $CH_2(CH_2Cl)_2$, Et adipate, PhF, *o*- and *p*-$O_2NC_6H_4OMe$, *o*- and *m*-$O_2NC_6H_4NH_2$, $CH_2(CH_2Br)_2$, cinnamic acid, *o*-, *m*- and *p*-$O_2NC_6H_4Me$ $(CHBr_2)_2$ and PhI were detd. P. H. EMMETT

**The solubility of metallic lithium in liquid ammonia at low temperatures.** WARREN C. JOHNSON AND M. M. PISKUR. *J. Phys. Chem.* **37**, 93–9(1933).—The vapor pressures of solns. of Li in liquid $NH_3$ were detd. at several temps. The soly. of metallic Li increases from 10.698 g. per 100 g. of $NH_3$ at —63.5° to 11.319 at 0°. P. H. E.

**The solubility of certain substituted benzoic acids in typical salt solutions at 25°.** J. N. PEARCE AND J. W. NEWSOME. *Proc. Iowa Acad. Sci.* **38**, 163–4(1931).—The solubilities of *o*-, *m*- and *p*-aminobenzoic acids, of *o*-, *m*- and *p*-hydroxybenzoic acids and of *o*- and *m*-nitrobenzoic acids in typical salts solns. at 25° were detd. The salts were NaCl, $BaCl_2$, $K_2SO_4$ and $MgSO_4$. The activity coeffs., $S_0/S$, were calcd. In general, the activity coeffs. tend to pass through a min. and then to increase rapidly with increase in the salt concn. While the chlorides of Ba and Na show the same general tendency to increase the activity coeffs. of these acids, exactly the reverse is true of the two sulfates. The influence of the sulfates is attributed to the formation of the $HSO_4^-$ ion. The greater decrease in the activity coeffs. in the presence of $K_2SO_4$ is attributed to the greater hydration of the Mg ion. W. G. GAESSLER

**The vapor pressures of aqueous solutions of lithium nitrate at 25°.** J. N. PEARCE AND A. F. NELSON. *Proc. Iowa Acad. Sci.* **38**, 164(1931); cf. *C. A.* **26**, 5247.—The vapor pressure of aq. solns. of $LiNO_3$ at 25° was measured by the dynamic method for concns. ranging from 0.1 *M* to satn. The activities of the solute and solvent were calcd. The activity coeffs. of the salt were calcd. by means of the "*h*" function of Lewis and Randall. The free energy of diln. was also calcd. The activity coeff. has a min. at about 0.6 *M*. The same thermodynamic properties for aq. solns. of KCl, KI and NaBr were recalcd. and compared. W. G. GAESSLER

**Some physical properties of aqueous salt solutions.** J. N. PEARCE AND M. A. HOOPER. *Proc. Iowa Acad. Sci.* **38**, 164(1931); cf. *C. A.* **25**, 4171.—The *n*s of solns. of the alkali halides and nitrates were detd. at 25° and from these the sp. refractivities of both the soln. and solute were calcd. by means of the Lorenz-Lorentz formula. The partial molal vols. were also calcd. from d. data. The dielec. consts. of the solns., calcd. by means of the Hückel relation involving *n*, decreased with increase in concn., the values for all salts approaching the same small value at satn. The activities calcd. according to the equation given by Hückel for concd. solns. of strong electrolytes agreed qualitatively with exptl. values. W. G. GAESSLER

**Diffusion in liquids. I.** REINHOLD FÜRTH. *Z. Physik* **79**, 275–9(1932).—The importance of diffusion measurements for the theory of liquids, the strong electrolytes,

etc., is pointed out. **II. A microdiffusion apparatus for uncolored liquids.** RUDOLF ZUBER. *Ibid* 280–90.—The diffusion of a solute into the solvent is studied by measurements of $n$ by the method of total reflection; the connection between concn. and $n$ having been detd. previously. The app. can be mounted on an ordinary microscope and permits detg. the law of diffusion in half an hr., while the usual methods require days. The construction and manner of manipulation are described. **III. Diffusion measurements on electrically neutral liquid mixtures and solutions.** *Ibid* 291–305.—Concd. solns. do not obey Fick's law, but conform to Boltzmann's differential equation of diffusion $\partial c/\partial t = \text{div}\ (D\ \text{grad}\ c)$. This variation of the diffusion coeff. $D$ with concn. $c$ was detd. for a no. of aq. solns. A suitable math. method was developed to obtain $D$ from the measurements with the app. described above. The mixts. studied were solns. of *sugar, urea, glycerol* and *formamide* in *water*. The diam. of the dissolved particles is calcd. from Einstein's formula of $D$ and studied as a function of the concn. **IV. Measurements of diffusion in electrolytes.** RUDOLF ZUBER AND KURT SITTE. *Ibid* 306–19.—The diffusion measurements are extended to the following electrolytes: *LiCl, LiBr, NaCl, NaBr, NaI, KCl, KBr, KI*. In close analogy to *C. A.* **24**, 770, 5206, the viscosity of electrolytes increases for small concn. and decreases again for larger concns. The first fact is supposed to be due to the increase of "ion atmosphere," while the latter is explained by assocn. in the sense of Bjerrum-Born. **V. Theory of diffusion in solutions of strong electrolytes.** KURT SITTE. *Ibid* 320–44.—Born's theory of ion mobility is modified by taking into account the existence of the ion atmosphere characteristic of the Debeye-Hückel theory. Satisfactory agreement is obtained with exptl. results on the variation of viscosity with concn. Nernst-Planck's theory of diffusion in electrolytes is modified in the same sense by using as approximation Bjerrum's conception of assocn. Excellent agreement is obtained with the diffusion expts. This permits calcg. the assocn. as a function of concn. for the salt solns. mentioned above. EGON BRETSCHER

**The viscosity of aqueous solutions as a function of the concentration.** GRINNELL JONES AND SAMUEL K. TALLEY. *J. Am. Chem. Soc.* **55**, 624–42(1933).—A new method for the automatic measurement of the time of flow of a liquid in a viscometer of the Ostwald type by means of a photoelec. cell is described. The timing mechanism was accurate to 0.01 second. The viscosities of dil. aq. solns. (0.1 to 0.0002 $M$) of KCl, $KClO_3$, $KBrO_3$, $KNO_3$, $NH_4Cl$, $CsNO_3$, sucrose and urea were detd. at 25°. The results confirm the prediction made by Jones and Dole (*C. A* **23**, 5375) that all salts increase the viscosity of water if measured at sufficiently low concn., including those salts that give a diminished viscosity at moderate concns. P. T. NEWSOME

**Diamagnetism of water at different temperatures.** A. P. WILLS AND G. F. BOEKER. *Phys. Rev.* **42**, 687–96(1932).—The results of different observers for the diamagnetism of water at different temps. are discordant. *A new and very sensitive device called a manometric balance* is described, by which variation of the sp. susceptibility of $H_2O$ with temp. can be investigated. Expts. with freshly boiled $H_2O$ indicated less diamagnetism at temps. higher than 23.5°, and with similar water allowed to stand several days in contact with He gas indicated greater diamagnetism at temps. higher than 23.5°; the change in the sp. susceptibility was less than 1% in each case. B. L.

**Influence of crystalline fields on the susceptibilities of salts of paramagnetic ions. II. The iron group, especially nickel, chromium and cobalt.** ROBERT SCHLAPP AND WM. G. PENNEY. *Phys. Rev.* **42**, 666–86(1932); cf. *C. A.* **26**, 5233.—The paper is concerned with the calcn. of the paramagnetic susceptibility of highly hydrated crystals of the Fe group elements Ni, Cr and Co. BERNARD LEWIS

**Paramagnetism of the dissolved cobalt ion.** R. MERCIER. *Compt. rend.* 196, 164–6(1933).—The coeff. of magnetization of the dissolved Co ion was measured by a sensitive torsion balance. By using very dil. solns. (0.02–0.001 $N$) of $CoCl_2.6H_2O$ in pure MeOH, the errors due to mol. assocn. were eliminated. The magnetic moment of the $Co^{++}$ ion was found to be 23.9 Weiss magnetons at 273°K., 22.3 at 259°, 21.3 at 228°, 20.6 at 210°, 19.1 at 193° and 18.1 at 177°K. Within exptl. error these values agree with the requirements of the Van Vleck-Stoner theory. W. W. STIFLER

**Some properties of homogeneously distorted cubic ferromagnetic lattices.** FRANCIS BITTER. *Phys. Rev.* **42**, 697–708(1932).—The problem is treated with especial reference to the crystallographic symmetry. Application is made to the magnetostriction and magnetization of samples of Fe, Ni and their alloys under tension and compression. The agreement with expt. is qualitatively satisfactory. A brief discussion of the effect of magnetization on elastic properties and of hysteresis is given and a few important problems are listed. BERNARD LEWIS

**Magnetic susceptibility of ferrosilicons rich in silicon.** CH. BEDEL. *Compt. rend.* **196**, 262–4(1933).—By means of a Cheveneau-Curie magnetic balance, the magnetic susceptibilities of a no. of ferrosilicons were measured. The Si content varied

from 34.64 to 99.86%. These were all found to be paramagnetic. The value of $\chi \times 10^6$ for the 1st is +163.70. For 46.53% Si it is 4.63. It then increases to a max. of 112.28 for 49.80% Si and then decreases rapidly. Heat treatments of various sorts alter the values of $\chi$ greatly, but it seems to be established that there is a definite max. in the neighborhood of 50% Si, corresponding to the existence of the compd. $Si_2Fe$ as found by Lebeau and by Phragmen by x-ray analysis. W. W. STIFLER

**Electrolytic water transfer in sodium iodide solutions. The role of parchment paper membranes in the electrolysis of aqueous solutions of alkali and alkaline earth halides.** G. BABOROVSKY AND A. WAGNER. *Z. physik. Chem.* **A163**, 122–32(1933); cf. *C. A.* **22**, 4034.—Electrolytic $H_2O$ transfer and true transference no. were detd. in aq. solns. of *M* and 0.1 *M* NaI by a modified Remy method. The behavior of parchment membranes in the electrolysis of salt solns. is discussed. G. M. MURPHY

**Transference and conductivity studies on solutions of certain proteins and amino acids with special reference to the formation of complex ions between the alkaline earth elements and certain proteins.** SADAICHI MIYAMOTO AND CARL L. A. SCHMIDT. *J. Biol. Chem.* **99**, 335–58(1933); cf. *C. A.* **25**, 2042.—Transference nos. were detd. and cond. measurements made with solns. of the Na and Ca compds. of casein and dephosphorized casein, and the Na, Ca and Ba salts of aspartic and glutamic acids. The conductivities of aspartic acid, glutamic acid and glycine also were detd. Within the limits of accuracy of the expts. the Na salts of casein, dephosphorized casein, aspartic acid and glutamic acid, and the Ca and Ba salts of aspartic and glutamic acids, do not yield complex ions. Solns. of the Ca salts of casein and dephosphorized casein yield complex Ca-contg. anions to the extent of about 50 and 40%, resp. The $H_3PO_4$ in solns. of casein is the seat of complex Ca ions to the extent of about 10%. The hypothesis is advanced that solns. of casein in alk. earth bases yield complex ions as a result of step dissocn. Solns. of aspartic acid, glutamic acid and glycine obey Ostwald's diln. law only in extremely high dilns. L. E. GILSON

**Anomalous electrolytes. I. The electrical conductivity of solutions of iodine and cyanogen iodide in pyridine.** L. F. AUDRIETH AND E. J. BIRR. *J. Am. Chem. Soc.* **55**, 668–73(1933).—The conductivities of solns. of CNI and I in $C_5H_5N$ increase rapidly with time, approaching max. values, presumably because of the transformation of pseudo salts into quaternary iodopyridinium salts. Abnormally high $\lambda$ values for I in $C_5H_5N$ are explained by the following equil.: $Py.I_2 \rightleftharpoons I^- + IPy^+ \rightleftharpoons Py^{++} + 2I^-$ (*A*). Diln. increases the concn. of the ternary electrolyte *A*. L. F. AUDRIETH

**Limiting mobilities of some univalent ions and the dissociation constant of acetic acid at 25°.** A. I. VOGEL AND G. H. JEFFREY. *Nature* **131**, 27–8(1933).—The authors defend previous work (cf. *C. A.* **26**, 5817) against a recent criticism by MacInnes, *et al.* (*C. A.* **27**, 652) by citing their exptl. agreement with Kohlrausch and Maltby's results for KCl, NaCl and $KIO_3$. The use of 0.490 for the cation transport no. of KCl is decided upon. Extrapolation to infinite diln. by the use of the empirical formula of Shedlovsky (cf. *C. A.* **26**, 2911) is criticized. WILLIAM J. KROEGER

**The relation between the higher-charge ions and the deviations from the first approximation of the Debye-Hückel theory.** J. B. CHLOUPEK, VL. Z. DANEŠ AND B. ANNE DANEŠOVA. *Collection Czechoslov. Chem. Communications* **4**, 473–9(1932).—The soly. of $Ce(IO_3)_3$ was detd. in pure water (1.732 g./1000 g. $H_2O$) and in the following salt solns. at 25°: $KNO_3$ 0.005–0.5 *M*, $K_2SO_4$, $MgSO_4$ and $MgCl_2$, 0.002–0.1 *M*. E. R. SMITH

**The application of antimony and manganese electrodes for $p_H$ measurements.** I. I. ZHUKOV AND YU. A. BOLTUNOV. *J. Gen. Chem.* (U. S. S. R.) **2**, 407–14(1932).—The Sb electrode is affected by org. acids and, therefore, has no advantage over the $H_2$ electrode. However, it should be preferred in some cases where it is desired to keep the liquid undisturbed, also with gels. The Mn electrode is of no lab. interest, since it is affected by a no. of substances and changes with time. S. L. MADORSKY

**The application of the hydrogen and quinhydrone electrodes in mixed solvents. I.** I. ZHUKOV AND I. G. VOROKHOBIN. *J. Gen. Chem.* (U. S. S. R.) **2**, 399–406(1932).—The $p_H$ of various aq. solns. to which varying amts. of MeOH, EtOH, $Me_2CO$ and $C_3H_5(OH)_3$ were added, was detd. by means of $H_2$ or a quinhydrone electrode set against a standard satd. calomel electrode. The addn. of MeOH, EtOH and $Me_2CO$ increases the $p_H$, whether in acid or basic medium, which agrees with the work of Michaelis and Mizutani. However, of the two electrodes, the quinhydrone gives the lower $p_H$. Addn. of $C_3H_5(OH)_3$ to buffer solns. has no effect on the $p_H$ when measured with the $H_2$ electrode, but depresses it slightly when the quinhydrone electrode is used. This agrees well with the work of Kolthoff on the effect of sugar on buffer solns. S. L. MADORSKY

**The influence of acid concentration on the oxidation-reduction potential of mixtures of ferric and ferrous sulfates in sulfuric acid solution.** THOMAS J. GLOVER. *J. Chem. Soc.* **1933**, 10–15.—Data presented show a logarithmic relation between the e. m. f. of

oxidation-reduction cells and the ratio $Fe^{+++}:Fe^{++}$ at 20° and 60°. The temp. coeff. of the $FeSO_4$-$Fe_2(SO_4)_3$ electrode increases from $6.51 \times 10^{-4}$ at 0.1 *N* $H_2SO_4$ to about $10 \times 10^{-4}$ at *N* and then remains practically const. up to 10 *N*. The reaction is endothermic, the heat of reaction increasing from —2503 cals. at 0.1 *N* to —4877 cals. at *N*. The calcd. oxidation-reduction potentials are for 0.1 *N* $H_2SO_4$ and *N* $H_2SO_4$, resp.; 0.9548 and 0.9559 at 20°; 0.9798 and 0.9961 at 60°. This is opposite to the change of $FeCl_2$-$FeCl_3$ cells. It is suggested that $Fe^{+++}$ and $Fe^{++}$ combine with ions or undissocd. substances to form complex ions that vary in amt. or compn. with acid concn. and that, if slightly dissocd. may entirely displace the original system under some conditions.

FOSTER DEE SNELL

**Electrolytic reduction potential of organic compounds. XIII. Azobenzene.** MASUZO SHIKATA AND ISAMU TACHI. *J. Agr. Chem. Soc. Japan* **8**, 954–61(1932); *Bull. Agr. Chem. Soc. Japan* **8**, 75–6(1932); cf. *C. A.* **27**, 220, 1280.—The reduction potential of azobenzene was measured with the dropping cathode. Apparently there is reversible azo-hydrazo system in the range $p_H$ 1.2–5.0. When the stationary Hg cathode with a cathodic surface area of 0.785 sq. mm. was used, the same value was obtained and the polarograms showed a max. current, because of the accumulation of the reduction product on the cathode. The reduction potential measured by the Pt cathode with the surface area of 0.785 sq. mm. was about 150–200 mv. and more neg. than in the other cases.

Y. KIHARA

**The application of the van't Hoff-Le Chatelier-Braun principle to chemical equilibria.** K. POSTHUMUS. *Rec. trav. chim.* **52**, 25–35(1933).—A math. discussion based on the second law of thermodynamics, and illustrated graphically. The opinion that in order to displace a chem. equil. as far as possible toward one side, a great excess of one of the components on the other side must be added, is not generally correct, nor does it generally represent greatest efficiency and economy.

R. H. CHERRY

**The dissociation pressures of magnesium ammonium phosphate hexahydrate and some related substances. VII.** SAMUEL J. KIEHL AND HENRY B. HARDT. *J. Am Chem. Soc.* **55**, 605–18(1933); cf. *C. A.* **21**, 3573.—The dissocn. pressures for the following systems were detd.: $MgNH_4PO_4 \cdot 6H_2O$, $MgNH_4PO_4 \cdot H_2O$, $H_2O$ (below 60°); $MgNH_4PO_4 \cdot 6H_2O$, $MgNH_4PO_4 \cdot H_2O$, $MgHPO_4 \cdot 3H_2O$, $H_2O$, $NH_3$ (above 60°); $MgNH_4PO_4 \cdot H_2O$, $MgNH_4PO_4$, $Mg_2P_2O_7$, $NH_3$, $H_2O$; $MgHPO_4 \cdot 3H_2O$, $MgHPO_4 \cdot H_2O$, $H_2O$. The results show that $MgNH_4PO_4 \cdot 6H_2O$ loses 5 mols. of $H_2O$ at a very low temp when heated. No $NH_3$ is noticeable in the gaseous phase below 60°. The monohydrate loses both its $H_2O$ of hydration and its $NH_3$ when heated at about 250° in an open vessel.

P. T. NEWSOME

**Reactions in solid phases.** HANS TRAPP. *Metallbörse* **22**, 1629–30(1932).—The general problems connected with a study of reactions in solid phases are discussed. The reaction of Fe and C is interpreted as resulting from the diffusion of C through the Fe phase to the Fe-Fe oxide interface; a possible part played by the equil. $2CO = CO_2 + C$ is also mentioned. Several solid reactions exist in which the diffusion mechanism rather than any gas-phase reaction is apparently involved. *Ibid* **23**, 1–2(1933). The relationship of the shrinking and sintering of metals at high temps. to the mechanism by which reactions can occur in the solid phase is discussed. *Ibid* **23**, 34–5.—Various types of solid-phase reactions, particularly those occurring between iron oxide and silica, are discussed.

P. H. EMMETT

**Oxidation of phosphine with oxygen and air in the presence of hydrogen.** I. N BUSHMAKIN, A. A. VVEDENSKIĬ AND A. V. FROST. *J. Gen. Chem.* (U. S. S. R.) **2**, 415–20 (1932).—At 300° at 60–96 atm., $PH_3$ combines quantitatively with $O_2$ from the air in the presence of $H_2$ to form $H_3PO_3$ and $H_3PO_4$ in a few min. There is no explosion as long as the amt. of $PH_3$ is below 9% of that of $H_2$ and the mixt. is free from P and $P_2H_4$. At 20°, it takes days to complete this reaction. In this case the rate of reaction is independent of the partial pressures of $PH_3$, $H_2$ and $N_2$, but is directly proportional to the pressure of $O_2$.

S. L. MADORSKY

**Equilibrium in the molten state between alkali and alkaline earth metals and their salts.** E. RINCK. *Ann. chim.* **18**, 395–531(1932).—Equil. in the molten state was studied for the following systems: Na, K, NaOH, KOH; Na, K, NaCl, KCl; Na, K, NaBr, KBr; Na, K, NaI, KI and Na, K, NaF, KF. The glass tubes, charged with various mixts., were sealed in steel and then heated. All of the above systems consist of 2 homogeneous liquid phases: (1) a light layer of the Na-K alloy and, (2) a heavy layer, a mixt. of the 2 compds. The law of mass action holds. Variations in the values of the equil. consts. were found due to analytical errors caused by the soly. of the alkali metals in their compds. and also due to secondary reactions. The ds. of K and Na at various temps., *t*, were found to be: $d_t = 0.826 - 0.000222\ (t - 62.5)$ for K, and $d_t = 0.9385 - 0.000260\ (t - 96.5)$ for Na. The reaction: $2Na + CaCl_2 \rightleftharpoons Ca + 2NaCl$ was studied at 712°, 850°, 975° and 1100°. Na and Ca are miscible in all pro-

portions above 1180°. A transformation of solid Ca at 450° was found; the α form is stable below 450° and the β form is stable between 450° and the m. p., 848°; the transformation of α to β takes place with an absorption of heat of about 7 cal./g. Two forms of Ba were found with the α-form stable below 375°, the heat absorbed in the transformation being about 1 cal./g. E. G. VANDEN BOSCHE

**The reaction between the citrate radical and calcium ion.** GIUSEPPE PERETTI. *Arch. sci. biol.* (Italy) **17**, 126–41(1932).—In a system contg. const. total vols., a fixed quantity of $CaCl_2$ and variable quantities of citrate radical, the min. quantity of the citrate radical able to prevent pptn. of the Ca ion by its common pptg. agents was detd. This min. of citrate varies considerably with $p_H$. Above $p_H$ 6 it is about 1.5 or 2 mols. of citrate per mol. of $CaCl_2$; it increases rapidly with a diminishing $p_H$, approaching 12–14 mols. of citric acid at $p_H$ 3.5; it then diminishes rapidly to 2–3 mols. of citric acid in the zone $p_H$ 2.6–1.4. These variations may be due really to a change in $p_H$. The abs. values of the mol. ratio citrate radical/$CaCl_2$ obtained, however, depend strictly on the conditions of the expt. In fact, for a const. $p_H$, the ratio increases with increase in (*a*) time of reaction, (*b*) abs. concn. of citric acid and $CaCl_2$ and (*c*) concn. of oxalate used as indicator of free Ca. P. F. METILDI

**Reduction equilibrium of metallic oxides. III. Confirmation of the existence of the solid solution between $W_2O_5$ and $WO_3$.** L. WÖHLER, ZEN-ICHI SHIBATA AND R. KUNST. *J. Chem. Soc. Japan* **54**, 37–43(1933).—Solid soln. between $W_2O_5$ and $WO_3$ is confirmed. $W_2O_5$ alone exists as an intermediate product between $WO_3$ and $WO_2$; there is no $W_4O_{11}$. **IV. A new precise method of determination of the reduction equilibrium between metallic oxide and hydrogen.** ZEN-ICHI SHIBATA AND ICHIRO MORI. *Ibid* 44–9.—A modification of Deville's method of studying the reduction of metallic oxide is described together with an improved method of measuring the partial pressure of $H_2$. The error in the measurement is reduced to one tenth of that of Deville's method. **V. Free energy changes of the reactions: $CoO + H_2 = Co + H_2O$ and $Co + {}^1/_2O_2 = CoO$.** *Ibid* 50–8.—For the reaction $CoO + H_2 = Co + H_2O$ $\Delta F_{298.1} = -5450$ cal., $\Delta H_{298.1} = -57{,}820$ cal., and for the reaction $Co + {}^1/_2O_2 = CoO$ $\Delta F_{298.1} = -51{,}612$ cal., $\Delta H_{298.1} = -57{,}234$ cal T. KATSURAI

**The sulfurization of iron by hydrogen sulfide and the equilibria occurring in this process.** L. BIERNER. *Mitt. Forschungsinst. Ver. Stahlwerke A. G. Dortmund* **3**, 41–54(1932). The equilibria $Fe + H_2S \rightleftarrows FeS + H_2$ and $(n - x)\,Fe + n\,H_2S = Fe_{(n-x)}S_n + nH_2$ were investigated in the range of 550–1080°. The position of the equil. changes with increasing temp. in favor of the formation of H. Between 875° and 895° a sudden increase of the H by 25% takes place which seems to point to a change of the sediment. The latter was analyzed for each equil. and showed from 683° to 837° a general compn. corresponding to $Fe_3S_4$, at 875° to $Fe_3S_5$, and at 855° and 905° to FeS. The x-ray examn. of the sediment showed that the permanency of the solid soln. is restricted to a definite temp. range; the solid soln. disintegrates on cooling. 13 references. M. HARTENHEIM

**Thermodynamic evaluation of test results of sulfurization of iron by hydrogen sulfide.** F. EISENSTECKEN AND L. BIERNER. *Mitt. Forschungsinst. Ver. Stahlwerke A. G. Dortmund* **3**, 55–8(1932).—The sudden increase of 25% of S in the small temp. interval of 875–910° (cf. preceding abstract) was investigated by thermodynamic considerations. The sediment corresponds to the compn. FeS only during this temp. interval and deviates from it at other temps., thus causing other reactions and heat contents. Calcns. with the mass law show good agreement. Seven references. M. H.

**Relation between dehydration and hydrolysis of magnesium chloride on heating the crystalline salt.** I. G. SHCHERBAKOV AND A. K. RASPOPINA. *Kalii* (U. S. S. R.) **1932**, No. 10, 16–19; cf. *C. A.* **27**, 1262.—The gradual heating of $MgCl_2.6H_2O$ to 300–350° and then raising the temp. higher to the fusion of the dried salt showed the following relation between $H_2O\%$ ($y$) and MgO ($x$) in the dried product: $-dy/dx = ky^2$. JAMES SORREL

**Absorption velocity of gases by liquids. II. Theoretical considerations of gas absorption due to chemical reactions.** SIROZI HATTA. *Tech. Repts. Tôhoku Imp. Univ.* **10**, 119–35(1932); cf. *C. A.* **24**, 763.—The absorption velocity is reduced to a formula which is a modification of the Lewis and Whitman double film theory, which the author compares with Ohm's law, introducing the terms "absorption potential" and "absorption resistance." **III. Absorption of carbon dioxide by potassium carbonate solutions.** *Ibid* 136–68.—A description of the apparatus is given. As would be expected, the velocity is less than in KOH, and becomes still less in $KHCO_3$. Effects of temp., concn. of gas and liquid, and velocity of stirring of gas and liquid were detd. and are given graphically. GREGG M. EVANS

**Kinetics of adsorption of high-molecular substances from solution by porous powders.** B. V. IL'IN AND N. N. ZHELOKHOVTZEVA. *J. Gen. Chem.* (U. S. S. R.) **2**,

436–41(1932).—The kinetics of adsorption of Me violet from aq. solns. of 0.1, 0.08, 0.06 and 0.04% concn., on powd. blood charcoal, was studied. Charcoal powder heated in boiling water for 2 hrs. and left standing with the water for 2–4 weeks adsorbed more Me violet when the soln. of the latter was introduced into its suspension, than when the dry powder was introduced into the soln. In the formula $A = A_0(1 - e^{\alpha t})$, where $A_0$ and $A$ are the initial concn. of Me violet and the concn. at time $t$, the mean values of the const. $\alpha$ are 0.0188, 0.0596 and 0.144 for concns. 0.1, 0.06 and 0.04, resp., in dry-powder adsorption, and 0.0233, 0.0262, 0.0621 and 0.1161 for concns. 0.1, 0.08, 0.06 and 0.04 in wet-powder adsorption. S. L. Madorsky

**Kinetics of the decomposition of molecules of intermediate complexity.** C. N. Hinshelwood and C. J. M. Fletcher. *Nature* **131**, 24(1933); cf. *C. A.* **26**, 2109.—The existence of different modes of activation of a mol. of intermediate complexity should give distinctly segmented curves of reciprocal half life of the reacting substance *vs.* pressure. Already-published results (*C. A.* **26**, 2109) and work now in progress yield indications of the real existence of such states. William J. Kroeger

**Wave statistical theory of unimolecular reactions.** A. Ganguli. *Current Sci* **1**, 104(1932); cf. *C. A.* **25**, 2053; **26**, 3429.—By a treatment similar to that of a previous paper (cf. *C. A.* **26**, 3429), reaction velocity coeff. expressions are deduced similar to those obtained by Dushman; Polanyi and Wigner; and Roginsky and Rosenkewitsch (Cf. *C. A.* **25**, 2053.) William J. Kroeger

**Unimolecular reaction velocity.** M. G. Evans. *Trans. Faraday Soc.* **28**, 840–5 (1932); cf. *C. A.* **23**, 5407; **25**, 2053; **26**, 2367.—Bourgin (*C. A.* **23**, 5407) and Roginsky and Rosenkewitsch (*C. A.* **25**, 2053) treated unimol. decompn. from the standpoint of the non-classical escape of a system through a potential-energy barrier. Important criticisms were leveled against this treatment by Kassel (*C. A.* **26**, 2367). The author shows that the nature of the energy barrier depends upon the energy of the rest of the mol. and that the probability of escape of the system may be great, thus meeting Kassel's criticisms. William J. Kroeger

**Interaction of carbon monoxide and nitric oxide.** F. F. Musgrave and C. N. Hinshelwood. *J. Chem. Soc.* **1933**, 56–9.—The rate of reaction was measured at 920°. NO does not decompose in the absence of CO. The rate of reaction between CO and NO is proportional to the square of the NO pressure, independent of the CO pressure and not systematically dependent on the area/vol. ratio or the dimensions of the vessel, while $H_2O$ vapor increases the speed approx. in proportion to the partial pressure. In the presence of considerable $H_2O$ (*e. g.*, vapor pressure of 10 mm. and up) the rapid reaction taking place was found to be still nearly independent of the CO pressure and proportional to a power of the NO pressure approaching the second. It is suggested that the mechanism of the change is (*1*) $CO + H_2O = CO_2 + H_2$; (*2*) $2NO + 2H_2 = N_2 + 2H_2O$. (*1*) is a heterogeneous reaction, fast at 900° (*C. A.* **26**, 4747), while (*2*) is homogeneous, taking place at approx. the rate required to explain the results, and is trimolecular (*C. A.* **20**, 2440), the following stages being suggested for it: $2NO + H_2 = N_2O + H_2O$, $2N_2O = 2N_2 + O_2$ (the latter decompn. being very rapid at 900°). Expt'l data are given, and it is shown that most of the results relating to the kinetics of the reaction between CO and NO can be explained by the above hypothesis. E. B. S

**The chlorination of aluminum oxide by chlorine and carbon monoxide.** W. D. Treadwell and L. Terebesi. *Helv. Chim. Acta* **15**, 1353–62(1932).—Above 800° the chlorination of $\gamma$-$Al_2O_3$ by means of Cl and CO is proportional to time, whereas at lower temps. the action is autocatalytic, possibly because of the formation of a layer of active C on the $Al_2O_3$. The rate of chlorination shows a max. at 550° and a min. at 650° (corresponding to the temp. at which transformation of $\gamma$-$Al_2O_3$ into the less active $\alpha$-$Al_2O_3$ takes place). Chlorination with $COCl_2$ is more rapid than with mixts. of CO and Cl. The max. lies within the range of existence of $COCl_2$. The reaction rate falls at higher temps. and approaches that of CO and C at 700°. L. F. Audrieth

**Streaming kinetics. A photolysis model.** Emil Abel and Hermann Schmid *Monatsh.* **61**, 361–4(1932).—The temp. coeff. of a streaming reaction is smaller than that of a "quiet" one. A kinetic interpretation of Beer's law is given. J. B. Austin

**Autoxidation of stannous chloride. II. Survey of certain factors affecting this reaction.** Robt. C. Haring and Jas. H. Walton. *J. Phys. Chem.* **37**, 133–45(1933); cf. *C. A.* **26**, 1850.—Increased temp. increases the rate of autoxidation of $SnCl_2$ but the true temp. coeff. is masked by change in soly. of $O_2$ and changes in the complex equil. Light below 3070 A. U. is absorbed and accelerates the reaction. A peroxide was detected in fresh, partially oxidized $SnCl_2$ but this was destroyed by addn. of more $SnCl_2$. Many org. compds., particularly nitro compds., are inhibitors, picric acid being strongest; this inhibitor was destroyed during the oxidation. Thiourea is a strong pos. catalyst. Powdered willow charcoal showed poisoning and promoted action. Coupled

oxidation of a second mol. species was found in aq. soln. of allyl alcohol and butyraldehyde, and in many non-aq. solns. such as alcs., acids, esters and ketones. I. J. P.

**The kinetics of cuprous oxide sol formation.** Nic. P. Peskov and Elisabeth M. Preis. *Kolloid-Z.* **61**, 328–35(1932); cf. *C. A.* **18**, 5.—The hydrolysis of Cu succinimide solns. of concns. 0.25, 0.50 and 1.0 g. per l. at 35° was followed photometrically. The reaction is monomol. and autocatalytic. The hydrolysis is hindered by succinimide. $Cu(OH)_2$ is pptd. from solns. of the Cu salt by anions. At low electrolyte concns. the ppt. is peptized by succinimide, which at high concns. prevents pptn. by electrolytes. The Cu succinimide soln. is an extremely labile equil. system between a true soln. and a highly dispersed sol. A. Fleischer

**The kinetics of the action of ammonium halides on epichlorhydrin.** Sobhanlal Banerjee and Hemendra Kumar Sen. *J. Indian Chem. Soc.* **9**, 509–18(1932).—In the reaction of $NH_4Cl$ and $NH_4Br$ with epichlorohydrin there was practically no change in the velocity consts. between the range of 2–5 *M* concn. With $NH_4I$ the velocity consts. changed with every change in concn. With higher concns. of any of these halides there are irregularities in the velocity consts., but the velocity is considerably increased with a rise of concn. There is thus a pos. salt effect. H. W. Leahy

**Catalytic decomposition of carbon monoxide. IV. Behavior of nickel carbides.** H. Tutiya. *Bull. Inst. Phys. Chem. Research* (Tokyo) **10**, 951–73(1931); cf. *C. A.* **25**, 5615.—An x-ray investigation of the catalytic decompn. of CO by Ni or NiO has confirmed the formation of $Ni_3C$ and a percarbide, $Ni_xC$. The percarbide is formed from NiO at 270° and rapidly decomposes into $Ni_3C$ and C at 284°; it is also decompd. by atm. $H_2O$ vapor. $Ni_3C$ is quite stable at 285° and catalyzes the decompn. of CO. In the temp. range of stability of $Ni_3C$ the reaction $3Ni + 2CO \rightleftharpoons Ni_3C + CO_2$ is possible, but not the reaction $2CO = C + CO_2$. Free Ni is found in the earlier stages of reduction of NiO, but later changes completely to carbides. B. C. A.

**Catalytic decomposition of carbon monoxide. V. The behavior of molybdenum carbides.** Hirosi Tutiya. *Bull. Inst. Phys. Chem. Research* (Tokyo) **11**, 1136–49 (1932)(*Abstracts* (in English) published with *Sci. Papers Inst. Phys. Chem. Research* (Tokyo) **19**, Nos. 384–92); cf. preceding abstract.—CO was decompd. under various conditions in presence of metallic Mo, its carbides or solid soln. of $Mo_2C$, and solid phases formed of carbides and C were examd. by the x-ray method. $Mo_2C$ is formed at 450–600°; a very diffused diffraction line of C (002) is observed in the powder spectrogram of the reaction product at 600°. Mo and its carbides are not oxidized in CO at 450–800°; CO flowing over the mixt. of $Mo_2C$ and C is decompd. at 600°, C itself having no catalytic property. A new carbide phase, most probably MoC, is formed at 750°. At 750–800°, the mixt. of $Mo_2C$, MoC and C is formed, and CO is decompd. without the existence of metallic Mo; the reaction product at 650–700° contains, besides $Mo_2C$, a metastable carbide phase. K. Konda

**Hydrolysis of salts of the halogen-substituted aliphatic acids in aqueous solution.** H. M. Dawson and N. B. Dyson. *J. Chem. Soc.* **1933**, 49–56.—Kinetic measurements show definitely that the formation of $Br^-$ from aq. $CH_2BrCO_2Na$ results from simultaneous reactions represented by $v = k_1c + k_2c^2$, in which $k_1$ and $k_2$ are velocity coeffs. for the unimol. and bimol. reactions, and $c$ is concn of $CH_2BrCO_2^-$. This is very accurate if measured under conditions that eliminate inert-salt effects and acceleration by the products of the reaction. In the presence of $CH_3CO_2^-$, $HCO_2^-$, $CH_2(OH)CO_2^-$ and $CH_2ClCO_2^-$ the equation must be expanded to $v = v_1 + v_2 + v_3 = k_1c + k_2c^2 + k_3cc'$ in which $c'$ is the concn. of the catalyzing salt and $k_3$ is the corresponding velocity coeff. The value of $k_3$ is a measure of the catalytic effect due to $CH_2BrCO_2^-$, analogous in every way to the value of $k_2$ due to other catalytically active salts. This equation also applies to hydrolysis of $CH_2BrCO_2^-$ in the presence of $OH^-$, although a simple bimol. expression is a close approximation, because $k_3$ is large in comparison with $k_1$ and $k_2$. Foster Dee Snell

**Thermal decomposition of ethyl mercaptan and ethyl sulfide.** Nelson R. Trenner and H. Austin Taylor. *J. Chem. Physics* **1**, 77–88(1933).—EtSH and $Et_2S$ decompose homogeneously at 380–410° and 50–400 mm. pressure in glass poisoned by the reaction products and proceed to a complex equil. (cf. *C. A.* **25**, 868). The rate curves show an induction period which is due to the formation of an intermediate that decomposes unimolecularly with an energy of activation of 40,000 cals. at a rate only slightly less than the rate of formation. The intermediate, b. 48–9.5°, reacts with $HgCl_2$ to form $Et_2S_2(HgCl)_2$ and with NaOH. It is probably a dimercaptan, EtSH:SHEt, formed in either decompn. from $H_2S$ and $Et_2S$. Janet E. Austin

**Homogeneous unimolecular decomposition of mixtures of gaseous aliphatic ethers.** E. W. R. Steacie. *Trans. Roy. Soc. Can.* III, **26**, 103–10(1932); cf. *C. A.* **26**, 3429.—The thermal decompn. of mixts. of $Me_2O$ and $Et_2O$ was studied by observing change in pressure with time in a system at 478° and const. vol. With the assumption of zero

efficiency in mutual activation the ratio of change calcd. to change observed was 1.03. Apparently the reactants have no mutual activation and the rates of decompn. of the sep. reactants are additive. J. W. SHIPLEY

**The velocities of hydrolysis of the three monomethoxydiphenyl ketimines.** JAMES B. CULBERTSON AND AMEL L. BRESSON. *Proc. Iowa Acad. Sci.* **38**, 169–70(1931); cf. *C. A.* **25**, 1231.—The 2- and 3-methoxydiphenyl ketimines were prepd., by the general method of Moureu and Mignonac (cf. *C. A.* **7**, 3114; **15**, 1495). 4-Methoxydiphenyl ketimine was prepd. previously. The velocities of hydrolysis into the corresponding ketones were measured for these monomethoxydiphenyl ketimine hydrochlorides. 2-Methoxydiphenyl ketimine hydrolyzes much less rapidly than the other two. Hydrolysis of the 4-methoxy compd. is definitely slower than that of 3-methoxydiphenyl ketimine. All of these have lower rates of hydrolysis than has diphenyl ketimine hydrochloride. W. G. GAESSLER

**The velocities of hydrolysis of mono- and polyhydroxydiphenyl ketimines.** JAMES B. CULBERTSON AND JAMES L. NAUMAN. *Proc. Iowa Acad. Sci.* **38**, 170(1931); cf. *C. A.* **25**, 1231.—The velocities of hydrolytic decompn. of the three monohydroxydiphenyl, the resorcyl phenyl and the phloroglucinyl phenyl ketimine hydrochlorides were measured. The phenolic group in the 2- and 4-positions in the monohydroxydiphenyl ketimines markedly retards the hydrolysis velocity compared with that of diphenyl ketimine, while the velocity of the 3-hydroxydiphenyl ketimine was even greater than that of the diphenyl ketimine. The polyhydroxydiphenyl ketimines with their hydroxy groups in the 2- and 4-positions have remarkably low rates of hydrolysis. W. G. GAESSLER

**Phase diagrams of several lithium salt melts.** A. A. BOCHVAR. *Z. anorg. allgem. Chem.* **210**, 163(1933).—Phase diagrams of LiCl-LiBr, LiCl-LiF and LiF-LiBr were detd from freezing curves. The av. atomic intervals are for LiF 2.009 A. U.; for LiCl 2.567 A. U.; and for LiBr 2.745 A. U. LiBr and LiCl form a continuous series of mixed crystals, while LiBr-LiF and LiCl-LiF form eutectics. H. STOERTZ

**Cryoscopic studies of the transition points of the compounds of organic solvents with salts. II.** HAZIME OOSAKA. *Bull. Inst. Phys. Chem. Research* (Tokyo) **11**, 1323–9(*Abstracts* (in English) published with *Sci. Papers Inst. Phys. Chem. Research* (Tokyo) **20**, Nos. 398–401); *Science Repts. Tokyo Bunrika Daigaku* **1**, No. 22, 241–9 (1932).—The lowering of the transition point of NaI.3MeOH (26.4°) on addn. of foreign substances was measured and the mol. depression referred to 100 g. of MeOH was calcd. as 20.0 and 18.3 for polar and nonpolar substances, resp. This difference is probably caused by different effects of polarity of solute on the active concn. of MeOH. From the value of mol. depression 20.0, the heat of fusion of this solvate was calcd. as 7276 cal./mol. or 29.6 cal./g. K. KONDA

**Systems of four immiscible liquid layers.** E. LESTER SMITH. *Nature* **131**, 167 (1933).—The system (cf. *C. A.* **25**, 2034) sealed in a tube with Hg and shaken repeatedly for 2 yrs. still seps. into 5 layers. The instability of Partington's specimen (cf. *Nature* **130**, 967(1932)) may result from impure oleic acid, evapn. of hexane, or decompn. of the soap by atm. $O_2$ or $CO_2$. JANET E. AUSTIN

**Catalysis of ion reactions. I. Catalysis of persulfate-iodine ion reactions by cobalt complexes.** ÁRPÁD DE KISS, I. BOSSÁNYI AND A. URMÁNCZY. *Act. Lit. Sci. Univ. Hung. Francisco-Josephinae, Sect. Chem. Mineral. Phys.* **2**, 210–29(1932) (in German).—The measurement of reaction velocities proved that the above reactions follow the neutral-salt law of Brönsted. The connection between accelerating influence and elec. charge of ions is stated. S. S. DE FINÁLY

**Investigations of the role of ozone as catalyst of oxidation. IV. The ozonization of benzaldehyde at a low temperature.** E. BRINER AND H. BIEDERMANN. *Helv. Chim. Acta* **16**, 213–16(1933); cf. *C. A.* **27**, 17.—In earlier work of the authors, errors occasioned by the autoxidation of BzH and by the action of $O_3$ on the solvents required corrections. Of a number of common solvents examd., only AcOH was inert to $O_3$, and this was incompatible with the method. By using $C_2H_5Cl$ at, or below, —30°, both errors were reduced to insignificance, while the catalysis by $O_3$ continued at a reduced rate. The results obtained by the new technic corroborate the previous expts. R. BALTZLY

**Thermal dissociation of gypsum in the presence of catalysts.** I. E. ADADUROV, L. GALAMEEVA, AND D. V. GERNET. *J. Applied Chem.* (U. S. S. R.) **5**, 736–43(1932); cf. *C. A.* **26**, 5001.—Up to 930° dissocn. is due to the increase in mobility of the grating. The change of α-silicic acid to tridymite at 900–1200° is a secondary reaction. Anomalies observed in the presence of $Fe_2O_3$ are explained by the formation of silicates of the type $FeO.SiO_2 + CaO.SiO_2$ or $3FeO.SiO_2 + CaO.SiO_2$. The primary reaction remains always $CaSO_4 = CaO + SO_3$. V. KALICHEVSKY

**Active oxides. LVIII. Alteration in the catalytic efficiency of an aluminum oxide**

**hydrate gel during its aging.** GUSTAV F. HÜTTIG AND JULIUS BRÜLL. *Ber.* **B65**, 1795–9(1932).—In the use of hydrated $Al_2O_3$ gels in catalyzing the conversion of MeOH to $Me_2O$, the efficiency of the catalyst was practically unchanged even after 90 days' use. This great activity is attributed to the stabilizing effect of MeOH vapor. Material dehydrated in $CH_3OH$ at high temp. appears to be more active than that aged under ordinary conditions at room temp. **LIX. Changes in the magnetic and Röntgen spectrographic properties during the transformation of a mixture of zinc oxide and ferric oxide into spinel.** HERBERT KITTEL, GUSTAV F. HÜTTIG AND Z. HERRMANN. *Z. anorg. allgem. Chem.* **210**, 26–32(1933).—Up to about 620° the $ZnO$-$Fe_2O_3$ mixt. shows little change in properties, but above this temp. the magnetic properties and x-ray spectrum approach those of the corresponding spinel, this change being complete at about 850°, at which temp. the magnetic susceptibility becomes $198.3 \times 10^{-6}$. H. S.

**Platinum catalysts.** MÁRTA TAUBER. *Magyar Chem. Folyóirat* **38**, 150–6(1932).—The catalytic activity and its connection with the voltaic potential of platinized Pt and Ni wires was examd. in the hydrogenation of $C_2H_4$. The potential was changed by formation of electrolytic H or O. The reaction velocity depends in presence of platinized Ni wires chiefly on the $p_H$ of the soln. The polarization had no definite effect Catalytic activity of platinized Pt wires is independent of $p_H$. The effect can be explained by supposing the existence of a moisture layer on the catalyst surface. With Ni wires the activity of local galvanic elements saturates the Pt surface with H and this causes the above effects. S. S. DE FINÁLY

**Energy transfer between complex gas molecules and solid surfaces.** E. W. R. STEACIE AND H. A. REEVE. *Trans. Roy. Soc. Can.* III, **26**, 75–85(1932); cf. *C. A.* **25**, 4770.—The thermal decompn. of $Et_2O$, $Me_2CO$, $Me_2O$ and propionaldehyde on heated Pt filaments was carried out to det. the effect of the catalyst on the magnitude of the activation energy of a homogeneous unimol. decompn. Calcns. based on Knudson's equation and Hinshelwood's theory and the assumption that the temp. drop occurs in an annular ring 0.5 mm. thick around the filament indicated that the reaction took place in the gas layer surrounding the filament and were not catalyzed. In the case of $Et_2O$ and $Me_2CO$ the gas layer was found to be in thermal equil. with the filament and the apparent heat of activation calcd from the temp. coeff. of the reaction agrees with that of a homogeneous reaction. The calcd. values for propionaldehyde and $Me_2O$ were much higher than those required by a homogeneous reaction. This divergence is explained on the assumption that the accommodation coeffs. for these two gases are low and hence thermal equil. with the filament was not attained by colliding gas mols. J. W. SHIPLEY

**Asymptotic expansions of the expressions for the partition function and the rotational specific heat of a rigid polyatomic molecule for high temperatures.** IRENE E. VINEY. *Proc. Cambridge Phil. Soc.* **29**, 142-8(1933).—Math. derivation by direct and repeated application of the Euler-Maclaurin summation formula. F. D. ROSSINI

**Some thermodynamic properties of the $H^1H^2$, $H^2H^2$ molecules and compounds containing the $H^2$ atom.** HAROLD C. UREY AND D. RITTENBERG. *J. Chem. Physics* **1**, 137-43(1933).—The values of the free-energy function $(F^\circ - E^\circ_0)/T$, for $H^1_2$, $H^2_2$ and $H^1H^2$ are calcd. from 20.4° to 700°K., and their dependence on the spin and statistics of $H^2$ discussed and illustrated. The equil. consts. for the reaction $H^1_2 + H^2_2 = 2H^1H^2$ are 2.3 at 100°K., 2.9 at 200°K., 3.5 at 400°K., 3.8 at 700°K., approaching, with increasing temps., the value 4, which would be expected from simple probability. The calcd. values of the equil. consts. for $H^1_2 + 2H^2Cl = H^2_2 + 2H^1Cl$ and $H^1_2 + 2H^2I = H^2_2 + 2H^1I$ differ appreciably from unity. Small differences in the electrode potentials of the two H isotopes may be expected. F. D. ROSSINI

**The heat of expansion of a gas of varying mass.** L. J. GILLESPIE AND J. R. COE, JR. *J. Chem. Physics* **1**, 103–13(1933).—The heat absorbed by expansion against the atm. of $CO_2$ and of $NH_3$ compressed in a bomb immersed in an ice calorimeter was detd. The change in internal energy of the gas with pressure was computed with a precision of ±7%. F. D. ROSSINI

**Low-temperature specific heats. III. Molecular rotation in crystalline primary normal amylammonium chloride.** J. C. SOUTHARD, R. T. MILNER AND S. B. HENDRICKS. *J. Chem. Physics* **1**, 95–102(1933).—The heat capacity of $AmNH_3Cl$ was measured from 20° to 280°K. When quenched to 90°K. a metastable form is obtained that slowly changes to an apparently stable form above 165°K. Two regions of gradual transition were found, the maxima in the $C_p$ curves occurring at the same temps., 222.0 ± 0.5 and 246.5 ± 1.0°K., for both the quenched and the annealed forms. The entropy of $AmNH_3Cl$ at 298.16°K. was computed to be 63.74 cal. deg.$^{-1}$ mol.$^{-1}$ by means of the third law, identical values, within the exptl. error, being obtained from measurements on both quenched and annealed forms. X-ray powder diffraction photographs were obtained under various conditions at 90°, 195° and 298°K. The patterns

above and below the transition regions were remarkably similar. The exptl. results are interpreted on the basis of rotation of the $AmNH_3^+$ groups in the crystals.
F. D. ROSSINI

**Heat diagram for benzene.** H. MEHLIG. *Z. tech. Physik* **14**, 86–9(1933).—An entropy chart is calcd. from reliable data. ARTHUR FLEISCHER

**Free energy of iron oxides.** JOHN CHIPMAN AND DONALD W. MURPHY. *Ind. Eng. Chem.* **25**, 319–27(1933).—Data from 39 cited references are used in deriving formulas for the calcn. of heat capacities, heats of formation, and free energies of the substances concerned in steel manuf. and the calcn. of the numerical values of these consts.
F. E. BROWN

**The free energy of formation of iodine monobromide in carbon tetrachloride solution.** DON M. YOST, THOMAS F. ANDERSON AND FOLKE SKOOG. *J. Am. Chem. Soc.* **55**, 552–5(1933).—The molal fraction of IBr in $CCl_4$ was varied from 0.00179 to 0.0224 and $N_2$ was bubbled through the solns. Analyses for total $I_2$ and for $Br_2$ were made. For $p_{IBr}$ = vapor pressures in mm. and $N_{IBr}$ = molal fraction, $p_{IBr}/N_{IBr}$ = 114. For 1/2 $I_2$ (in $CCl_4$) + 1/2 $Br_2$ (in $CCl_4$) = IBr (in $CCl_4$), $\Delta F$, at 25° = —1764 cal. The degree of dissocn. of IBr in $CCl_4$ is 9.5%. For 1/2 $I_2$ (*s*) + 1/2 $Br_2$ (l) = IBr (in $CCl_4$), $\Delta F$, at 25° = —221 cal. When distribution of IBr was made between $CCl_4$ and solns. of HBr or $HClO_4$ the ion $IBr_2^-$ formed. Its stability is roughly indicated by the equation $(IBr_2^-)/(IBr^-)(Br) = 300$.
F. E. BROWN

**Thermochemical investigation of solutions. II. Heat capacities of aqueous solutions of ethylene glycol at various temperatures.** M. B. NEUMANN AND I. A. KURLYANKIN. *J. Gen. Chem.* (U. S. S. R.) **2**, 317–21(1932); cf. *C. A.* **26**, 4748.—Heat capacities of the system $CH_2OH.CH_2OH$–$H_2O$ were investigated for glycol concns. varying between 25 and 100%, at 20.2°, 47.2° and 78.4° The results are lower than those found by other investigators by 0.7–4%. It is assumed that these results are more accurate on account of improved methods in measuring heat.
S. L. MADORSKY

**The Deacon equilibrium and the entropy of chlorine.** A. R. GORDON AND COLIN BARNES. *Trans. Roy. Soc. Can.* III, **26**, 171(1932); cf. *C. A.* **26**, 5002.—The values of $R \ln K$ for the reaction $2Cl_2 + 2H_2O = 4HCl + O_2$ were calcd. from spectroscopic data and found to agree very satisfactorily with the exptl. results over the temp. range 700–1000°. The calcd. and observed values for $R \ln K$ are —1.86 and —1.83, resp.
J. W. SHIPLEY

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BRASSEUR, H.: **Exposés de physique moléculaire. T. II. Structures et propriétés optiques des carbonates.** Paris: Hermann & Cie. F. 7.

GONZÁLES, JULIO M.: **Elementos de química general e historia de la química.** 6th ed. Madrid: C. Bermejo. 350 pp. Ptas. 15.

JAVET, E.: **Agenda Dunod, chimie, 1933.** Paris: Dunod & Cie. 584 pp. F. 20.

**Müller-Pouillets Lehrbuch der Physik.** 11th ed., edited by S. Valentiner. **Bd. IV. Tl. 1.** By O. v. AUWERS AND HERMANN. 734 pp. M. 47.50; bound, M. 51. **Tl. 2.** By H. DECKER, E. FLEGLER AND G. MÖLLER. 462 pp. M. 30; bound, M. 33. Brunswick: F. Vieweg & Sohn. Reviewed in *Z. physik. Chem.* **A163**, 312; *Rev. Sci. Instruments* **4**, 176(1933).

**The Official Yearbook of the Scientific and Learned Societies of Great Britain and Ireland:** with a Record of Publications Issued during Session 1931–32. 49th annual issue. London: C. Griffin & Co., Ltd. 167 pp. 10s.

PERRIN, JEAN: **Atomistique. T. I. La recherche scientifique.** Paris: Hermann & Cie. F. 6.

**Tables annuelles de constantes et données numériques de chimie, de physique, de biologie et de technologie. Table des matières du volume IX, année 1929.** Edited by G. KRAVTZOFF. Compiled by Comité international. New York: McGraw-Hill Book Co., Inc. 124 pp. Cf. *C. A.* **26**, 1506.

WESTPHAL, WM. H.: **Physik.** 3rd ed. Berlin: J. Springer. 596 pp. M. 19.80.

## 3—SUBATOMIC PHENOMENA AND RADIOCHEMISTRY

W. ALBERT NOYES, JR., AND RAYMOND M. FUOSS

**The approximation of geometric optics as applied to a Dirac electron moving in a magnetic field.** OTTO LAPORTE. *Phys. Rev.* **42**, 340–7(1932).—Math.; quantum mechanics.
BERNARD LEWIS

**Variable scale atomic wave functions.** J. P. VINTI AND P. M. MORSE. *Phys. Rev.* **43**, 337–40(1933).—It is desirable in studies of complex at. spectra by the methods of Slater and Condon, to have a complete set of orthogonal wave functions more nearly

correct than the hydrogenic ones. A set of wave functions of variable scale is described and applied to some simple cases. The functions form a complete orthogonal set and can be used for perturbation problems. BERNARD LEWIS

**Interaction between atoms and *s*-electrons.** N. ROSEN AND S. IKEHARA. *Phys. Rev.* **43**, 5–8(1933). BERNARD LEWIS

**A theory of electron spin.** SEISAKU SHIMASAKI. *Science Repts. Tokyo Bunrika Daigaku* **1**, 251–73(1933). E. H.

**The normal state of the helium molecule—ions $He_2^+$ and $He_2^{++}$.** LINUS PAULING. *J. Chem. Physics* **1**, 56–9(1933).—Values for nuclear charge, internuclear distances, vibrational frequency and dissocn. energy, calcd. by the variation method of treating the wave equation for the normal state of $He_2^+$, involving a 3-electron bond, agreed with exptl. values of these quantities from measurements of the spectrum of He. Such values were calcd. for $He_2^{++}$ in a similar way. L. P. HALL

**Free electrons in a crystal lattice. Wave equation and magnetic properties.** L. BRILLOUIN. *J. phys. radium* [7], **3**, 565–81(1932).—In a previous article (*J. phys. radium* [7], **3**, 373–89(1932)), B. developed the method of the "self consistent field." After correcting a slight error in his previous work, he now applies this method to the problem of the electrons in a metallic lattice. Starting with the hypothesis of free electrons, he derives an equation which agrees with one developed by Bloch in 1929, with the addn. of certain correction terms. This equation is discussed in detail and applied to various problems of paramagnetism, hysteresis, etc. The hypothesis of free electrons is far from reality and necessary modifications in the theory are indicated. The entire treatment is highly math. W. W. STIFLER

**Electrons and light quanta.** A. FLEMING. *Proc. Phys. Soc.* (London) **44**, 281–94 (1932). G. G.

**Fundamentals of geometrical electron optics.** E. BRÜCHE. *Z. tech. Physik* **14**, 49–58(1933); cf. *C. A.* **26**, 4539.—A review. A. FLEISCHER

**Diffraction of cathode rays by single crystals. III. Simultaneous reflection.** KEN'ICHI SHINOHARA. *Sci. Papers Inst. Phys. Chem. Research* (Tokyo) **20**, 40–53 (1932); cf. *C. A.* **26**, 5807.—In the electron diffraction patterns composed of black and white lines (the "P-patterns") several curved black lines were observed. These lines can be conceived as being envelopes of ordinary black lines belonging to a common zone, deviating from their straight course near the point of tangency and dying away. This phenomenon can be explained by the simultaneous reflection of cathode rays from 2 lattice planes. It was investigated by the dynamic theory of electron diffraction (given in detail in an appendix). Another pattern consisting of short black lines across dark bands, explicable on the same basis, was also observed. LOUIS WALDBAUER

**Simplified derivation of the Thomas factor.** A. SOMMERFELD. *Accad. Italia Convegno fisica nucleare* **1931**, 137–41(1932)(in German).—A derivation of the relativity precession of the axis of a moving electron, which reduces by a factor of $^1/_2$ the precession that might be expected from its interaction with a stationary nucleus. J. B. A.

**Can the shot effect of photons be observed with the eye?** R. BOWLING BARNES AND M. CZERNY. *Z. Physik* **79**, 436–49(1932).—The sensitivity of the eye is about 40–90 photons per sec. The statistical fluctuations of the photons are shown to be just perceptible for this threshold illumination. Thus the fluctuations of brightness which are found on observation of feeble sources of light may partly be due to the shot effect of photons. EGON BRETSCHER

**The occurrence of Maxwellian distribution in the Langmuir plasma.** D. GABOR. *Physik. Z.* **34**, 38–45(1933).—The Maxwellian distribution in the normal low-pressure arc can be explained by electrostatic forces between electrons in the plasma. Effects in the transition region between electron rays and the light arc can also be explained by electrostatic theory. J. B. AUSTIN

**Proposal for a uniform designation of the ionization strength in gases.** WERNER KOLHÖRSTER. *Z. Physik* **79**, 682–3(1932).—It is suggested that the ionization strength should be designated by the letter *I* followed by the abs. temp. as 1st and the pressure in mm. as 2d figure in brackets, *e. g.*, 1.85 *I* (283,755) means 1.85 ions/cc. per sec. have been measured at 10° and 755 mm. pressure. EGON BRETSCHER

**Methods of ion counting.** HEINRICH TH. GRAZIADEI. *Physik. Z.* **34**, 82–8 (1933).—A comparison of the discharge with the charge method of ion counting indicates that the latter method is not subject to the disturbing counter-field effect when used in its improved form according to Swann (cf. *C. A.* **25**, 2048), and yields results equiv. to those of the discharge method under the same exptl. conditions. The existence of the periodic fluctuation of the ion content of the air established by Sheppard (*C. A.* **26**, 2643) was not confirmed. ALLEN S. SMITH

**The relation between ionization and ionization current in gases at high pressures.**

W. R. HARPER. *Proc. Cambridge Phil. Soc.* **29**, 149–55(1933).—The phenomena that limit satn. in a high-pressure ionization chamber are discussed with particular reference to the role played by preferential recombination. MORRIS MUSKAT

**Influence of ionization on the ignition temperature of combustible gases.** BERNARD LEWIS AND C. D. KREUTZ. *J. Chem. Physics* **1**, 89–94(1933).—The ignition temps. of $CH_4$-"air" mixts. were detd. in a flow system. Both the spontaneous ignition due to temp. alone and the ignition produced by the passage of the "inert" gas (A, He, $N_2$ and $O_2$) through a condensed discharge prior to its joining the combustible gas were studied and the difference in the 2 ignition temps. was noted. In all cases the individual gases were heated to 500° before mixing in the ignition tube which was heated to any desired higher temp. The ignition temp. of mixts. was lower when pre-sparking was employed and the differences were 28° for A, 83 for He, 115 for $N_2$ and 233 for $O_2$ for an 8% $CH_4$ in "air" mixt. The material causing the ignition has a relatively long life and is removed by metal screens. Expts. lead to the conclusion that electrically charged particles are responsible for the lowered ignition temps. WILLIAM E. VAUGHAN

**Accommodation coefficients of gaseous ions at cathodes.** KARL T. COMPTON. *Proc. Nat. Acad. Sci.* **18**, 705–11(1932).—Previous work on accommodation coeffs. of gaseous ions at cathodes is discussed. Work is reported on the detn. of accommodation coeffs. of He ions on Mo as obtained by a method dependent upon the deflection of the cathode when pos. ions impinge upon it. The data agree with those obtained by thermal measurements. Conclusions: There is no rebound of the pos. particle if the mass of the impinging particle is greater than that of the surface atom. The accommodation coeff. is smallest for light ions. WILLIAM E. VAUGHAN

**Determination of the work function for oxide cathodes.** WALTER HEINZE. *Ann. Physik* **16**, 41–76(1933).—An improved method of detg. the work function for oxide cathodes by the cooling effect due to evapn. of electrons was developed. In the oxide cathodes at higher temps. the work function is greater. The metal vapor cathode (BaO layer 2.6 $\mu$) work function is 2.05 v., whereas that for the paste cathode (BaO layer 9.9 $\mu$) is 1.87 v. at 1114°K. LOUIS WALDBAUER

**Positive-ion emission from oxide catalysts.** C. F. POWELL AND LUANG BRATA. *Nature* **131**, 168–9(1933).—Very pure sources of pos. ions giving an emission of 20 microamps. per sq. cm. for many hrs. were obtained by evapg. Tl or In onto an iron oxide base. Ga gave poor results. All Tl sources give the same initial max. current which is maintained const. for large depositions. Emission increases rapidly as the temp. is raised but becomes unstable when the oxide sinters. The ions are probably distributed in a monatomic layer on the surface of the crystals throughout the source The catalytic activity of a Kunsman source for production of $NH_3$ is assumed due to alk. ions and the activity of the oxide alone to the presence of alkali as impurity. JANET E. AUSTIN

**Addendum to the publication: "Spectral light zones at the cathodes of glow discharges."** A. GÜNTHERSCHULZE AND F. KELLER. *Z. Physik* **79**, 563–5(1932).—Cf. *C. A.* **26**, 5838. E. BRETSCHER

**Start of gas discharge.** W. ROGOWSKI. *Physik. Z.* **33**, 797–808(1932).—A theory is developed for the transition of a gas from insulator to conductor when discharge commences. E. J. ROSENBAUM

**Electric currents from hot cathodes in gases and vapors at atmospheric pressure.** MARTIN RUHNKE. *Ann. Physik* **14**, 881–904(1932).—The current from a hot W cathode was measured as a function of electrode p. d., electrode sepn. and temp. of cathode. Hg vapor, H and N at atm. pressure were used. Ionization occurred in H. At high temps. and low p. d. the initial current was higher than that at the steady state. H showed little tendency to form an arc while in Hg vapor an arc could start at low p. d. E. J. ROSENBAUM

**Momentum transfer to cathode surfaces by impinging positive ions in a helium arc.** E. S. LAMAR. *Phys. Rev.* **43**, 169–76(1933). BERNARD LEWIS

**Mass-spectrograph study of the ionization and dissociation by electron impact of octane.** ERNEST G. LINDER. *J. Chem. Physics* **1**, 129–32(1933); cf. *C. A.* **26**, 5004.—When octane is bombarded by 120-v. electrons it dissocs. into small fragments to a larger extent than does $C_6H_6$. More of these fragments contain odd nos. of H atoms than contain even nos. of H atoms. E. J. ROSENBAUM

**Ionization and scattering accompanying positive ion impact in gases.** CARL A. FRISCHE. *Phys. Rev.* **43**, 160–8(1933).—The ionization produced by $K^+$ ion impact in A, Ne, He, $N_2$, CO, $H_2$ and Hg was studied for voltages ranging from 0 to 4000 v. The results check with those of previous investigators wherever comparison was possible The A curve sats. at 4000 v. The Ne curve shows a tendency to sat. at 4000 v. The ionization in He and $H_2$ was very weak. $N_2$ and CO ionize equally well and their curves fall just a little above the Ne curve. The min. potentials at which ionization sets in

vary from 100 v. for A to 1600 for $H_2$. It is shown that when the results are plotted against the kinetic energy of the impinging ion-mol. system (relative to its center of mass) the various ionization potentials show a comparatively small range. The scattering expts. show that at low voltage a few of the $K^+$ ions make direct impact in Hg and are reflected with $^4/_9$ of their original energy, which is the value expected from conservation of momentum and energy. Small-angle scattering was also observed in this case for $K^+$ and $Na^+$ in A. No ions are here observed with appreciable velocity in the reverse direction. The evidence indicates that the gases which ionize most readily are also most effective as scattering agents. It is suggested that ionizing collisions are glancing collisions. BERNARD LEWIS

**The energy interchange with corpuscular collision.** R. DÖPEL. *Ann. Physik* **16**, 1–38(1933).—The light emission from He by H-canal rays between 2 and 40 kv. was investigated. The excitation of He by protons was below the limit of observation, and could be neglected, compared to the excitation by H atoms. H-atom collisions below 2 kv. do not excite He, and hence are elastic with respect to the He; H itself is excited down to 500 v. It was shown that the excitation function H ⟶ He cannot be formulated as a general function of the energy nor as a function of the de Broglie wave length of the colliding particle. The starting point for interchange on collision must be, not the total energy of the colliding particle, but its transferable energy, $V$. The kinetic energy of the radiating electron and a part $a$ of the at. kernel ($a$ is a function of the excitation energies and of the masses of the colliding pair, which disappears for $E_1 \ll E_2$ ($E$ = excitation energy of one particle) and reaches a max. $M_1/(M_1 + M_2)$, for $E_1 \geqq E_2$. This is in qual. agreement with exptl. data. LOUIS WALDBAUER

**Collisional friction experienced by vibrating electrons in ionized air.** E. V. APPLETON AND F. W. CHAPMAN. *Proc. Phys. Soc.* (London) **44**, 246–54(1932). G. G.

**Photoeffects in semi-conductors.** B. LANGE. *Trans. Electrochem. Soc.* **63**, 13 pp. (preprint)(1933).—Two of the recent theories of photoelec. phenomena observed in semi-conductors are discussed on the basis of new expts. with different cell types, and are replaced by a theory of chem. surface activation. The explanation advanced by Schottky postulates a unidirectional film sepg. the semi-conductor and metal plate; the other theory, that of Teichmann, assumes the existence of valves detd. by the mol. structure of the crystal. Although L.'s theory of chem. activation cannot be confirmed by chem. tests because of the insignificant chem. changes involved, it is made very probable, particularly by an empirical relationship found to exist between the threshold values for the infra-red wave length and the mol. wt. of the substance in the active surface. C. G. F.

**Photoelectric currents in gases between parallel plate electrodes.** LLOYD A. YOUNG AND NORRIS E. BRADBURY. *Phys. Rev.* **43**, 34–7(1933).—The passage of photoelectrons between parallel plate electrodes through a gas has been investigated theoretically in its dependence on accelerating field strength, pressure and nature of the gas. It is found that the phys. phenomenon of importance in such an expt. is the Ramsauer scattering in the immediate vicinity of the emitter. A theoretical expression for the ratio of the observed current to satn. current is in excellent agreement with expts. on $H_2$ and $N_2$ (Bradbury, *C. A.* **26**, 4244). The theory allows the calcn. of Ramsauer cross sections of the gas from the observed currents. BERNARD LEWIS

**Photoelectric and metastable atom emission of electrons from surfaces in the rare gases.** CARL KENTY. *Phys. Rev.* **43**, 181–93(1933). BERNARD LEWIS

**The origin of the spectral selectivity of the photoelectric effect of thin films of alkali metal.** R. SUHRMANN AND A. SCHALLAMACH. *Z. Physik* **79**, 153–60(1932).—The selective photoelec. max. of K at 343 $\mu$ is obtained if a K film (> monat. size) is deposited on an absolutely gas-free surface of Ag. As an intermediate medium between the carrier metal and the photoelec. film is generally made responsible for the selective max., it is assumed that the K atoms adjoining the Ag surface are polarized and thus give rise to the selective photoelec. effect. EGON BRETSCHER

**The dependence of the electromotive force of cuprous oxide photocells [barrier-film photocells] on the illumination intensity and wave length.** ALEX. GOLDMANN AND M. LUKASIEWITSCH. *Physik. Z.* **34**, 66–73(1933).—The increase of e. m. f. $V$ of the $Cu_2O$ cell with illumination intensity $L$ established by several investigators (cf. *C. A.* **26**, 878) was analytically studied. The results of measurements at intensities in the region 200–20,000 luces are represented by the equation $V = ML/(L + MN)$, where $M$ and $N$ are consts. The relation of barrier film resistance and e. m. f. leads to the equation $R = R_0(V_1 - V)/V_1$, in which $R_0$ is the resistance at $V = 0$ and $V_1$ is an idealistic e. m. f. at $R = 0$. The limiting potentials (at $L = \infty$) are independent of the wave length of the illumination. ALLEN S. SMITH

**The dependence of the electromotive force of selenium barrier-film photocells on the illumination intensity.** A. GOLDMANN. *Physik. Z.* **34**, 74–5(1933); cf. preceding

abstr.—The equation relating e. m. f. and intensity of illumination derived for the $Cu_2O$ cell is also applicable to the Se cell. ALLEN S. SMITH

**Reversal of the current from a cuprous oxide photocell in red light.** H. H. POOLE AND W. R. G. ATKINS. *Nature* **131**, 133(1933).—A photocell (Serpidox and Auger), whose film of $Cu_2O$ was covered with Au, gave a patchy reversal when exposed to a beam of light from 6070–6270 A. U. A Siemens cell, whose $Cu_2O$ film was covered with Ag, did not give the reversal. This reversal may be explained by the penetration of the red light through the thinner parts of the $Cu_2O$ film to such an extent that the back surface effect preponderates, or it may be due to the presence of CuO, which has a reverse e. m. f. LOUIS WALDBAUER

**Magnetic spectra of secondary electrons from silver.** S. CHYLINSKI. *Phys. Rev.* **42**, 393–9(1932). BERNARD LEWIS

**The neutron and its properties [the Mackenzie Davidson Memorial Lecture].** J. CHADWICK. *Brit. J. Radiol.* **6**, 24–32(1933).—C. presents an outline of the present knowledge regarding the neutron, and theories of its structure. Expansion-chamber photographs in N and O showing at. disintegration are given, and the possible types of transmutation discussed. E. H. QUIMBY

**Heights of nuclear potential barriers.** E. C. POLLARD. *Nature* **131**, 97(1933); cf. *C. A.* **26**, 5003.—P. studied expts. on the artificial disintegration of light nuclei and the nuclear scattering of neg. particles. He briefly discusses the methods: (1) min. energy method; (2) scattering expts. A simple rule is proposed: The heights of the nuclear barriers of the light elements are proportional to the at. no. This holds for the atoms from Li to Al, the plot of height *vs.* at. no. being a straight line. WILLIAM E. VAUGHAN

**Bond energies and mass defects in atomic nuclei.** W. M. LATIMER AND W. F. LIBBY. *J. Chem. Physics* **1**, 133–6(1933).—Gamow's equation for the energy of a nucleus built up of $\alpha$-particles is modified to read: $E = \Sigma$ bond energies $-f(Z^2/R)$, in which $Z$ is the nuclear charge, $R$ is the radius and the sum is taken over all bonds between $\alpha$-particles. Mass defects of sym. nuclei calcd. on this basis give quant. agreement with exptl. values when reasonable values of 4 parameters are chosen. The calcd. value of the total energy evolved in the radioactive decompn. of U into Pb, 0.052 mass unit, agrees with the exptl. value of 0.048 unit. E. J. ROSENBAUM

**Radioactive families.** EDNA R. BISHOP. *Phys. Rev.* **43**, 38–42(1933).—Many data on isotopes of radioactive elements obtained by the magneto-optic method combined with published observations obtained by orthodox radioactive methods have been interpreted in terms of radioactive transformations shown diagrammatically in 2 tables. BERNARD LEWIS

**Disintegration of light elements by fast protons.** J. D. COCKCROFT AND E. T. S. WALTON. *Nature* **131**, 23(1933); cf. *C. A.* **26**, 5005.—By use of thinner mica windows than were previously employed (see *C. A.* **26**, 5005), particles of shorter range (6 mm. lower limit) can now be counted. On investigating Li and B, particles of shorter range were found. These appear to be $\alpha$-particles having for Li a max. range of about 2 cm. and for B about 3 cm. For B, energy considerations indicate the entry of a proton into the $B^{11}$ nucleus and the disintegration of the resulting nucleus into 3 $\alpha$-particles. WILLIAM J. KROEGER

**The diminution of nuclear radiation from beryllium in material screens.** J. THIBAUD AND F. DUPRE LA TOUR. *Compt. rend.* **195**, 655–7(1932).—In these expts. on the extinction suffered by a beam of neutrons traversing matter, account is taken of the no. and ionizing power of at. nuclei projected by the Curie-Joliot effect under the action of neutrons from Be and emanation. The ionization chamber, filled with air and lined with paraffin, is of reduced dimensions (2 cm. diam.) and gives a min. of spontaneous discharges. The shape of the extinction curves varies considerably with the exptl. arrangement. This is ascribed to diffusion. An extinction coeff. is detd. for Pb but it is difficult to interpret. Comparison of at. coeffs. obtained for screens (Sn, Fe, S, Al) contg. the same no. of atoms shows only a slight variation with at. no. W. F. MEGGERS

**Energy distribution of $\beta$-rays from atoms of known age.** B. W. SARGENT. *Trans. Roy. Soc. Can.* III, **26**, 205–16(1932); cf. *C. A.* **19**, 437, 602, 1812; **27**, 464.—The investigation was carried out to det. whether the energy distribution of $\beta$-rays is a function of the age of the emitting atoms. Th C″ atoms were chosen as the source of activity since the following product, Th D, is inactive. Five different ages were used, the least being 21 sec. and the greatest 10.7 min. The energy distributions of the $\beta$-rays were compared by taking absorption curves in paper under exactly the same conditions. These were continued until the ionization was reduced to 3% of its initial value and no differences greater than the exptl. error were found. Conclusion: Within the exptl.

errors atoms of Th C″ of different ages emit β-particles having the same energy distribution. J. W. SHIPLEY

**Scattering of β-rays. I.** B. W. SARGENT AND A. J. O'LEARY. *Trans. Roy. Soc. Can.* III, **26**, 217–32(1932); cf. *C. A.* **26**, 2647.—Expts. were carried out to det. the scattering of the β-rays of Ra E by gases and vapors. Only relative values of the scattering from a definite vol. at av. angles of 60° and 90° were obtained. The gas container was a cylindrical balloon with ebonite ends and having walls of gold-beater's skin. Different gases were passed in turn through the balloon and the intensity of the β-ray scattering was measured by the ionization observed by means of a specially designed electroscope. The scattering was observed for a no. of gaseous compds. of H, C, N, O, S, Cl, Br and I. For gaseous compds. of H, C, N and O the intensities of the scattered β-rays were found to be proportional to their mol. scattering nos. The scattering from gaseous compds. of S, Cl, Br and I relative to $CO_2$ is in some cases greater than that required by Rutherford's theory. Absorption in paper showed that the scattered β-rays were more penetrating the higher the at. no. of the scattering atoms. Since the primary rays are heterogeneous the most satisfactory explanation is that a β-ray on being scattered by a nucleus suffers a considerable loss of energy whose magnitude increases with decreasing at. no. No existing theory adequately accounts for this result. J. W. SHIPLEY

**The upper limit of energy in the β-ray spectrum of actinium B.** B. W. SARGENT. *Proc. Cambridge Phil Soc.* **29**, 156–60(1933).—By use of a thin-walled electroscope absorption curves in paper and Al were obtained for the β-rays of Act (B + C) and Act C″. These gave a range for the β-rays of Act B of 0.08 ± 0.02 g./sq. cm. The energy required for this range is 300,000 ± 50,000 v., which is the end point of the continuous spectrum. M. M.

**Mobilities of molecular aggregates in gases containing radon.** E. L. HARRINGTON AND E. O. BRAATEN. *Trans. Roy. Soc. Can.* III, **26**, 177–86(1932); cf. *C. A.* **25**, 2914.—The mobilities of mol. aggregates in gases contg. Rn were detd. by 2 different methods, *viz.*, by ultramicroscopic observation of the movement of the particles when subjected to known elec. fields and by placing exposed plates on a photographic film after a known vol. of gas had been aspirated through a tube contg. the gaseous mixt. The developed films showed the relative no. of positively and negatively charged particles and the distances traveled by them before they became attached to the plates. The 1st method gave values ranging between $1 \times 10^{-4}$ and $6 \times 10^{-4}$ cm./sec. per v./cm. while the 2d method gave $1.6 \times 10^{-2}$ to $1.4 \times 10^{-4}$ cm./sec. per v./cm. The authors conclude that this agreement cannot be taken as definite evidence that the particles were of identical nature in the 2 cases. They conclude that aggregates of radioactive atoms vary widely in their mobilities. J. W. SHIPLEY

**The electrostatic production of high voltage for nuclear investigations.** R. J. VAN DE GRAAFF, K. T. COMPTON AND L. C. VAN ATTA. *Phys. Rev.* **43**, 149–57(1933).—A generator is described for generating 10,000,000 v. electrostatically. B. L.

**A new design for a high-voltage discharge tube.** L. C. VAN ATTA, R. J. VAN DE GRAAFF AND H. A. BARTON. *Phys. Rev.* **43**, 158–9(1933).—A description is given of tests with a high-voltage tube of simple and rugged design. The tube consists essentially of a fiber cylinder extending between the electrodes and evacuated to a pressure of $4 \times 10^{-6}$ mm. Hg during operation. A potential of 400,000 v. could be maintained on a section of tube 53 cm. long. Although the voltage was limited by discharge there was no case of puncture. A method is proposed for screening the electrodes to prevent breakdown and permit application of extremely high voltages to the tube. B. L.

**Cosmic-ray ionization as a function of pressure, temperature and dimensions of the ionization chamber.** JAMES W. BROXON. *Phys. Rev.* **42**, 321–35(1932).—Expts. have been performed to test the adequacy of B.'s explanation (*C. A.* **26**, 4749) of the dependence upon pressure of the cosmic-ray ionization in gases at high pressures in terms of subsidiary radiations emitted solely from the walls of the ionization chamber. The ionization in a 436 cc. sphere of 33.32 g. mass located at the center of the 660 lb. bomb of 13.8 l. capacity used in previous expts. was found not to differ greatly from the av. ionization in the large chambers at corresponding pressures up to 175 atm. At the higher pressures γ-ray ionization and cosmic-ray ionization varied with the pressure in the same manner. These facts seem to be incompatible with the explanation mentioned above. The temp. effect amounted to 0.19% increase in ionization per centigrade degree increase in temp. at a mean pressure of 23.3 atm. and 0.27% per degree at 162.1 atm. The cosmic-ray ionization at 205 atm. in the shielded bomb agreed within about 1% with the upper limit previously observed in the same chamber with similar shielding at pressures between 130 and 170 atm. Certain transient effects assocd. with changes in pressure and temp. were observed. BERNARD LEWIS

**The ionization of oxygen and xenon by γ- and cosmic rays. Preliminary note.**

V. MASUCH. *Z. Physik* **79**, 264–5(1932).—The ionization by cosmic radiation is proportional to the d. only for the hard component of the cosmic radiation. E. B.

**Magnetic spectrum of cosmic radiation.** PAUL KUNZE. *Z. Physik* **79**, 203–5 (1932).—The magnetic deviation of cosmic rays in a Wilson's cloud chamber is used to obtain the energy spectrum of the penetrating radiation. Among 80 tracks only 59 possess a measurable curvature, 37 of the particles have pos. charges; 22 have neg. The energy-distribution curve falls monotonously as the energy increases and does not possess minima or maxima. EGON BRETSCHER

**Measurement of the range of alpha-particles from thorium with the Wilson chamber.** F. N. D. KURIE AND G. D. KNOPF. *Phys. Rev.* **43**, 311–14(1933).—The range of $\alpha$-particles from Th has been measured by the methods used by Kurie (*C. A.* **27**, 464). At 0° and 760 mm. the range is 2.72 ± 0.03 cm. The Geiger-Nuttall law is shown in the form indicated by Gamow's theory, and the latest data for the U and Th series pertaining to it are given. BERNARD LEWIS

**A procedure for the separation of gaseous mixtures of isotopes and the application to the isotopes of neon.** G. HERTZ. *Z. Physik* **79**, 108–21(1932); cf. *C. A.* **26**, 4749.—The difference of the velocity of diffusion through porous walls of the different isotopes is used to obtain a complete sepn. of $Ne^{20}$ and $Ne^{22}$. This is achieved with the help of circulating systems contg. 24 diffusion pumps. It is possible to obtain the Ne isotope in spectroscopically pure condition. EGON BRETSCHER

**Vapor pressure of hydrogen after the accumulation of the heavier isotope.** MEISSNER AND K. STEINER. *Z. Physik* **79**, 601–12(1932).—Large quantities of liqui H are evapd. either at the normal b. p. or at the triple point to accumulate the heavier isotope. The vapor pressure of the residues against that of ordinary H varies with time (temp. const.). This is due to the conversion of ortho- into para-hydrogen and not to isohydrogen which was only present in a concn. of 0.9% as shown by d. detn. This is at variance with the suggestions made by Urey, Brickwedde and Murphy (*C. A.* **26**, 1857, 4242). EGON BRETSCHER

**Lead isotopes.** EDNA R. BISHOP, MARGARET LAWRENZ AND C. B. DOLLINS. *Phys. Rev.* **43**, 43–6(1933).—Using the magneto-optic method the authors find 16 isotopes of Pb of probable mass and order of abundance, 208, 206, 207, 205, 212, 210, 204, 202, 203, 211, 201, 209, 216, 215, 214, 213. The isotopes were found in c. p. U and Th salts. 206, 210, 202, 214 predominated in U salts, while 208, 216, 204, 212 predominated in Th salts. The differential time lag varies directly with the wt. of the isotopes of a given element. The amt. of isotope present is some unknown inverse function of the concn. necessary to read its min. so that the order of appearance of the min. gives the order of abundance but not the relative abundance. The order of abundance is also given by the amt. of rotation of the analyzing Nicol necessary to extinguish their min. BERNARD LEWIS

**Bismuth isotopes.** FRED ALLISON AND EDNA R. BISHOP. *Phys. Rev.* **43**, 47 (1933).—The magneto-optic method shows that Bi has 14 isotopes having probable masses and order of abundance 211, 210, 209, 212, 215, 214, 213, 216, 207, 205, 206, 208, 219, 217. BERNARD LEWIS

**Radium isotopes.** EDNA R. BISHOP AND C. B. DOLLINS. *Phys. Rev.* **43**, 48 (1933).—The magneto-optic method shows that Ra has 4 isotopes with probable masses and in order of decreasing abundance 226, 228, 230, 232. BERNARD LEWIS

**Isotopes of uranium.** T. R. WILKINS AND W. M. RAYTON. *Nature* **130**, 475–6 (1932).—A frequency distribution curve for the no. of grains in a photographic emulsion in the track of $\alpha$-rays from U shows 4 distinct maxima. These are thought to be due to U I, U II, protoactinium and radioactinium. A study of the relative abundance of $\alpha$-rays from the two series using U of different geologic ages is expected to lead to a method of detg. the ages of rocks which is free from the errors inherent in the U/Pb ratio method. From the recent rock samples (max. of $7 \times 10^8$ yr.) the U and actinium isotopes seem to be about equally active. HOWARD AGNEW SMITH

**The isotopes of uranium, thorium and thallium.** ROY GOSLIN AND FRED ALLISON. *Phys. Rev.* **43**, 49–50(1933).—The magneto-optic method shows 8 isotopes each for U, Th and Tl. BERNARD LEWIS

**Isotopes of uranium, thorium and lead and their geophysical significance.** CHAS. S. PIGGOT. *Phys. Rev.* **43**, 51–9(1933).—In an effort to improve the data required in the calcn. of geologic age, a detn. of the isotopes of the elements involved in the radioactive disintegrations (at Nos. 81–92) was made by the magneto-optic technic of Allison. There appear to be 4 radioactive series beginning with 8 isotopes of U (2 to each), and ending with 16 isotopes of Pb (4 to each). The relation of the constituent isotopes of U to those of Pb in a mineral are complex, and vary somewhat from mineral to mineral. Ordinary Pb and radio-derived Pb possess different isotopic compns. although both apparently derive from the same ultimate source. The isotopic compn

of Pb changes with its age. The most accurate age detn. would be obtained by confining the calcn. to the $U^{238}$ and $Pb^{206}$ isotopes, resp. BERNARD LEWIS

**The measurement of atmospheric radioactivity by the flow method.** G. ALIVERTI. *Nuovo cimento* **9**, 313–27(1932).—Atm. radioactivity was measured at Turin from Feb. to July, 1932 by a flow method (*C. A.* **26**, 2647). The mean activity corresponds to $220 \times 10^{-18}$ curies of Rn per cc. J. B. AUSTIN

**Measurement of radium in minerals of low uranium content by the γ-ray procedure.** F. BEHOUNEK. *Z. Physik* **79**, 583–94(1932).—A method is developed as a substitute for chem. analysis of the by-products of Ra manuf. The γ-radiation of the residual material of the pitchblende is detd. with a specially designed ionization chamber connected to an electrometer and a source of potential. A calibration of the app. with Ra permits detn. of the amt. of Ra and from this of $U_3O_8$ in the material, which is supposed to be in radioactive equil. Correct results are obtained only if the inner absorption of the γ-radiation of the sample is taken into account. The whole instrument is meant to be used in series measurements in factories. EGON BRETSCHER

**Radioactivity of the waters of the Ballon d'Alsace.** R. DELABY, R. CHARONNAT AND M. JANOT. *Compt. rend.* **195**, 1294–7(1932). ODEN E. SHEPPARD

**Radioactive mineral investigations with the Geiger-Müller tube counter.** W. VOGT. *Physik. Z.* **34**, 79–82(1933).—A method, having the advantage of great simplicity, is described for investigating the radioactivity of minerals with the aid of the Geiger-Müller tube counter. The av. error in a series of measurements was $2.5 \times 10^{-13}$ g. Ra/g. of mineral. ALLEN S. SMITH

**The analysis of primary radioactive minerals.** ADRIEN KARL. *Compt. rend.* **195**, 1071–2(1932).—Many of the primary radioactive minerals, especially the columbates of U and rare earths, are attacked by $COCl_2$ at 500–50°. To det. whether this method could be used for a quant. method various synthetic mixts. were moistened with concd. $BaCl_2$ soln., dried and heated $1^1/_2$ to 2 hrs. in a silica boat in a combustion tube in a stream of dry $COCl_2$ to 550°. It was found that the volatile chlorides of Cb, Ta, Ti, U, Fe and Al collected quantitatively in the cold attached U tube contg. dil. HCl and the nonvolatile chlorides of the rare earths, alkali metals and other common metals and Zr and Th together with silica remained quantitatively in the boat. This method gave more const. results than the alkali bisulfate fusion method with samples of euxenite, betafite, samarskite from Madagascar and pitchblende from Mexico. O. E. S.

**The relative intensities of the $L\alpha_1$, $\beta_1$, $\beta_2$ and $\gamma_1$ lines in tantalum, tungsten, iridium and platinum.** VICTOR J. ANDREW. *Phys. Rev.* **42**, 591–608(1932).—Based on $\alpha_1$ 100, $\beta_1$, $\beta_2$ and $\gamma_1$ are, resp., for Ta 49.5, 18.8, 9.0; W 49.4, 20.2, 10.0; Ir 48.0, 21.2, 10.2; Pt 46.1, 21.0, 9.7. BERNARD LEWIS

**The fine structure of the $K_\alpha$ line of carbon.** MAX MORAND AND A. HAUTOT. *Compt. rend.* **195**, 1070–1(1932).—Examd. with a tangent grating spectrograph to the 5th order, the $K_\alpha$ line of C appears to be complex. There are at least 2 components, sepd. about 0.6 A. U. The component of greater wave length is the stronger; the weaker one is due to ionized atoms. W. F. MEGGERS

**Absorption curves and spectra of x-ray beams.** A. MUTSCHELLER. *Radiology* **20**, 32–46(1933).—Pulsating high-voltage current gives practically straight semi-logarithmic absorption curves. Uniform potential current gives bent semi-logarithmic absorption curves. The reasons for the variation seems to lie in the different spectral distributions of wave-length intensities in the 2 cases. Pulsating current produces greater relative intensities in the characteristic line area compared with the intensity of the radiation on the short-wave side of the characteristic lines than does uniform-voltage current. The intensity max. of a short wave-length portion produced by uniform voltage changes on the wave-length scale with increased filter thickness, while there is no such change for pulsating-voltage current. The so-called "average wave length" of an x-ray beam has a direct meaning when applied to radiation quality or depth actions only if the semi-logarithmic absorption curve is a straight line. GEORGE L. CLARK

**X-ray diffraction in ethyl ether near the critical point.** F. H. WALDEMAR NOLL. *Phys. Rev.* **42**, 336–9(1932).—X-ray diffraction ionization curves were obtained for $Et_2O$ at 43.5 ± 0.7 kg./sq. cm. pressure with temps. in the range 25° to 210°. The crit. pressure and temp. of ether are 36.7 ± 0.2 kg./sq. cm. and 194.6 ± 0.3°, resp. In the region of higher temps. the ionization curves are a combination of the liquid and polyat. gas types, falling rapidly at 0° with increasing angle, then rising to a distinct peak and again falling. Liquid semi-orderly "cybotactic" groups are in evidence from room temp. to 199° but not for sp. vols. greater than the crit. sp. vol. These groups may be expected to vanish at the crit. point. The influence of the polyat. gas type begins to appear at the low temps. and increases with temp. The liquid type decreases

almost linearly to 155°, where it begins to fall off very rapidly. The observations are in excellent accord with the "cybotactic" view of the interior of a liquid. B. L.

**The measurement of x-ray absorption coefficients by the use of the FP-54 Pliotron.** L. M. Heil and J. E. Edwards. *Phys. Rev.* **43**, 1–4(1933). Bernard Lewis

**Calculations of the corrections for Röntgen spectrometers.** H. Seemann. *Z. Physik* **79**, 661–7(1932). Egon Bretscher

**Application of the Blair-Leighton equation to x-rays.** J. A. Lester and Julian M. Blair. *J. Phys. Chem.* **37**, 17–20(1933).—The Blair-Leighton equation (*C. A.* **26**, 4762) for the time rate of growth of the latent photographic image may also be applied to the rate of the latent image made by x-rays. Another form of the integrated equation is given. I. J. Patton

**Operation of thick-walled x-ray tubes on rectified potentials.** Lauriston S. Taylor and C. F. Stoneburner. *Bur. Standards J. Research* **10**, 233–47(1933). E. H.

**A new and much more rapid intensifying screen allowing great alterations in radiographic technic.** Leonard Levy and Donald West. *Brit. J. Radiol.* **6**, 85–102 (1933).—A new fluorescent form of ZnS crystals has been produced which has several advantages over the $CaWO_4$ usually used in x-ray intensifying screens. The fluorescent light is more brilliant, more concd. in the actinic region, and there is less after-glow of a quality which might affect the film. The absorption of x-rays in the front screen is markedly less than in the materials commonly used. These factors make possible considerably shorter exposures in the taking of radiographs. E. H. Quimby

**The structure of interference lines obtained by the powder method.** I. Levin and Emil Ott. *Z. Krist.* **84**, 166–9(1933).—Powder photographs of quartz, high-temp. cristobalite and NaCl, with samples of about 0.5–1.0 mm. diam., show a doubling of lines with small glancing angle. This is due to the absorption of x-ray at the center of the sample. The effect is limited to certain ranges of absorptive power. The predictions of Möller and Reis (*C. A.* **23**, 4883) are thus confirmed. L. S. Ramsdell

**Precise estimation of lattice constants by means of the powder methods.** G. Menzer. *Fortschr. Mineral. Krist. Petrog.* **16**, 162–207(1932).—A review of the various powder method modifications, emphasizing the sources of, corrections for, and limits of error of each. Comprehensive bibliography. John Earl Milbery

**X-ray investigation of the change in orientation of the crystal lattice with change in modification.** Hikoroku Shôji. *Z. Krist.* **84**, 74–84(1933).—Laue photographs show that the structural changes occurring in the transitions of Fe, ZnS and $CaCO_3$ agree with the theory previously advanced (*C. A.* **25**, 5810). The (111) planes of sphalerite become the (0001) of wurtzite, with a single crystal becoming a coarsely cryst. aggregate. The (001) of aragonite becomes the (111) of calcite, with a single crystal forming a finely cryst. aggregate. A camera for high-temp. Laue photographs is described. L. S. Ramsdell

***p*-Bromochlorobenzene and its congeners: various equivalent points in molecular lattices.** Sterling B. Hendricks. *Z. Krist.* **84**, 85–96(in English)(1933).—An examn. of the crystal structure of *p*-bromochlorobenzene indicates that the halogen atoms occupy the same set of equiv. positions—these being the general positions of space group $P2_1a$ — ($C_{2h}^5$). Although the *p*-dibromo- and *p*-dichlorobenzenes are apparently isomorphous, they differ markedly in their optic orientation, and probably in their mol. orientation. L. S. Ramsdell

**The dispersion and absorption of helium.** J. P. Vinti. *Phys. Rev.* **42**, 632–40 (1932). Bernard Lewis

**Radiation from slow electrons.** Leo Nedelsky. *Phys. Rev.* **42**, 641–65(1932).—Expressions are developed describing radiation emitted by an electron in the field of a neutral atom; a point charge $Ze$ surrounded by a spherical shell of radius $a$ carrying a charge $-Ze$ is used as a model for the latter. Bernard Lewis

**The width of spectral lines in gases.** Viktor Weisskopf. *Physik. Z.* **34**, 1–24 (1933).—A review of the factors influencing the width of a line. J. B. Austin

**The lifetime of the metastable $^3P_2$ neon atom.** E. Matuyama. *Phys. Rev.* 42, 373–8(1932).—By use of the rotating-disk method the percentage absorption of the line $^3P_2$ — $^3D_3$ at various stages after the interruption of excitation of the gas Ne in the absorption tube was measured. At a pressure of 5.2 mm. Hg, the life of the $^3P_2$ state was found to be about 0.005 sec. The effects of impurities and temp. were also investigated. Bernard Lewis

**The effect of foreign gases upon the relative intensities of the mercury triplet $2^3P_{012}$—$2^3S_1$ under conditions of optical excitation.** R. T. Macdonald and G. K. Rollefson. *Phys. Rev.* **43**, 177–80(1933).—Unexcited Hg atoms are raised to the $2^3S_1$ state by "stepwise" optical excitation. They may leave this level upon emission of radiation by 4 paths—the 1st to the $2^1P_1$ state, a transition of relatively low probability, and

the other 3 to the $2^3P_2$, $2^3P_1$, and $2^3P_0$ states with the emission of 5461, 4358 and 4046 A. U., resp. The mean life of the $2^3S_1$ state, measured by independent methods, yielded values, when measured by the line 5461 A. U., equal to approx. 4 times those obtained from either 4358 or 4046 A. U. The addn. of foreign gases should cause a decrease in the intensity ratio with increasing pressure of 5461 A. U. to either 4358 or 4046 A. U., while that of 4046 to 4358 A. U. should remain const. However, these ratios were all found to be invariant with pressure, up to 400 mm. with $N_2$ and up to 100 mm. with the $N_2$-$CO_2$ mixts. BERNARD LEWIS

**Absorption of light in cesium vapor.** H. J. J. BRADDICK AND R. W. DITCHBURN. *Nature* **131**, 132–3(1933).—The absorption of light by Cs vapor was measured by photographic photometry from the series limit (3184 A. U.) to 1935 A. U. A 2-m. quartz tube was used as the cell, and the vapor heated to 270°, and the pressure varied from 0.15 to 0.6 mm. The absorption at any one wave length appears to be directly proportional to the pressure. The total absorption at 3130 A. U. is 1.92 ($\pm$0.1) $\times 10^{-19}$ cm.$^{-1}$, which indicates photoelec. absorption. The increase in absorption in far ultraviolet may be an at. phenomenon. LOUIS WALDBAUER

**Spectrum of the corona discharge in air, oxygen and nitrogen.** A. C. YOUNG AND A. G. CREELMAN. *Trans. Roy. Soc. Can.* III, **26**, 39–42(1932).—The spectrum of the corona discharge in air, $O_2$ and $N_2$ was examd. and found to be of mol. origin. No at. spectrum was observed. The observations are in partial agreement with those of Oyama but quite opposed to those of Zebrowski, who observed spark lines in the corona discharge in air. J. W. SHIPLEY

**Further description and analysis of the first spectrum of xenon.** C. J. HUMPHREYS AND W. F. MEGGERS. *Bur. Standards J. Research* **10**, 139–49(1933).—A preliminary description and analysis of this spectrum (*C. A.* **26**, 29) is now replaced by a more complete and accurate one. The data consist of estd. intensities, wave lengths and spectral term combinations for 538 lines ranging from 3340.04 to 11140.90 A. U. The no. of lines measured with the Fabry-Perot interferometer was increased from 45 to 130. A new term table embodies a slight change in the abs. term values as well as many new terms. Some rearrangement of the *d*-terms resulted from the elimination of uncertainties in the assignment of *j*-values, and a new *f*-type sequence was found. W. F. MEGGERS

**The spectra of the calcium I-like ions: manganese VI, iron VII, cobalt VIII and nickel IX.** WILLOUGHBY M. CADY. *Phys. Rev.* **43**, 322–8(1933).—The spectra of 4 new ions have been added to the sequence of spectra isoelectronic with Ca I. B. L.

**Investigation in the infra-red absorption spectrum of the change of the solvent by the dissolved substance. I. The influence of dissolved salts on the state of association of the solvent water.** R. SUHRMANN AND F. BREYER. *Z. physik. Chem.* **B20**, 17–53 (1933); cf. *C. A.* **26**, 30.—The infra-red absorption spectrum of aq. soln. of various salts was investigated. One group of salts, of which the alkali halides are typical examples, produces a depolymerization effect and makes the bands steeper with a displacement. The influence of both cation and anion was investigated. Increasing ionic radius causes an increase in the effect. An effect due to hydration is superimposed on the depolymerization effect and shifts the bands in the opposite direction. The influence of different ions and their radii and valences was also investigated for this effect. A second group of salts of which $MgCl_2$ is typical produces effects that are of a chem. nature. G. M. MURPHY

**Interferometer measurements in the extreme ultra-violet region of copper.** J. C. MCLENNAN AND F. M. QUINLAN. *Trans. Roy. Soc. Can.* III, **26**, 19–24(1932).—Lines in the ultra-violet spectrum of Cu were examd. by means of the interferometer for detg. their desirability as secondary standards of wave length. The results for 13 lines are given and since these agree very closely (less than 1 unit in the 2nd decimal place) with the results of other observers it is suggested that the wave lengths of lines in the ultra-violet spectrum of Cu be accepted as standards. J. W. SHIPLEY

**Spectra of bromine—Br V, VII and IV.** A. S. RAO AND K. R. RAO. *Nature* **131**, 170(1933).—The chief multiplets of higher spark spectra were detd. from photographs taken under different conditions of excitation. The characteristic intervals of the deepest $^3P$ terms are: Br V, 6090 cm.$^{-1}$; Br VII, 7580 cm.$^{-1}$. For Br V, $4p^3P_0 - 4p^3P_1$ and $4p^3P_1 - 4p^3P_2$ are 2115 and 4906 cm.$^{-1}$. For Br IV the intervals of $5s^3P_{0,1,2}$ are 1281 and 4688. This does not agree with the results of Deb (cf. *C. A.* **24**, 3433), which R. thinks out of step with the isoelectronic sequence Ge I to Br IV. JANET E. AUSTIN

**The arc spectrum of iodine.** S. C. DEB. *Proc. Roy. Soc.* (London) **A139**, 380–97 (1933).—Nearly 450 lines in the arc spectrum of I have been measured between 3200 and 9113 A. U. Of these 160 have been classified as combinations between doublet and quartet terms resulting from the electron transitions $5p - 6s$, $6s - np$ and $6p - ns$.

The value of the deepest term is $^2P_{3/2} = 85{,}439\ \text{cm.}^{-1}$, from which an ionization potential of 10.548 v. is derived. The analysis here given is not in agreement with that of Evans (*C. A.* **26**, 29). C. C. KIESS

**Term values in the arc spectrum of selenium.** R. C. GIBBS AND J. E. RUEDY. *Phys. Rev.* **40**, 204–6(1932).—See *C. A.* **26**, 3441. G. G.

**The Stark effect for xenon.** H. W. HARKNESS AND J. F. HEARD. *Proc. Roy. Soc.* (London) **A139**, 416–35(1933); cf. *C. A.* **26**, 3441.—Stark effects have been measured for 98 Xe lines between 3500 and 8400 A. U., the discharge tube being of the modified Lo Surdo type with field strengths of 67,000 v./cm. In general, the sharp, principal and fundamental series lines are displaced without splitting, while many of the diffuse series lines exhibit large displacements and splitting into a variety of patterns. These displacements are attributable to the displacements of the initial energy states of the lines by the elec. field and in sign and magnitude they are qualitatively accounted for by Pauli's formula. C. C. KIESS

**Atomic energy levels and Zeeman effect.** D. R. INGLIS AND N. GINSBURG. *Phys. Rev.* **43**, 194–61(1933).—The present theory of complex spectra, in which magnetic interactions between electrons are neglected, has been successful enough in interpreting the data for certain simple configurations. The extent to which this procedure can be applied to the energy levels and Zeeman effect of other configurations is discussed. Theory is extended to include $p^5p$ and comparison is made with exptl. data. Greater discrepancies appear here than in the simpler cases. This is an example of the greater importance of the neglected interactions in more complex configurations. B. L.

**Zeeman effect in solids.** F. H. SPEDDING. *J. Chem. Physics* **1**, 144–54(1933); cf. *C. A.* **26**, 1187.—Photographs and microphotometer curves are given for absorption spectra of $GdCl_3 \cdot 6H_2O$ at various temps. in magnetic fields in the range 0–22,500 gausses. Many of the lines split up in the magnetic field into 9 components. This behavior can be explained by the assumption that excited states arise from a $4f^6 5x$ configuration. The external magnetic field cannot orient the orbit of a $5x$ electron but only its spin. In crossed elec. and magnetic fields the selection rules break down and 9 lines are possible. Other factors in the splitting are the Paschen-Back effect, coupling of spin to orbit, and presence of more than 1 type of Gd ion. E. J. ROSENBAUM

**The isotope displacement in hyperfine structure.** G. BREIT. *Phys. Rev.* **42**, 348–54(1932).—With Goudsmit's extension of Lande's formula for $(1/r^3)$, it is possible to explain the order of magnitude of the isotope displacements in Hg, Tl, Pb arc and spark spectra on the hypothesis of small changes in nuclear radii. The nuclear radius is supposed to be proportional to the $^1/_3$ power of the at. wt. The effective nuclear charge is supposed to be distributed with a roughly uniform density through the interior of the nucleus. The spectra Hg I, Hg II, Tl I, Tl II, Pb II are in agreement with the above theory. BERNARD LEWIS

**Line groups and fine structure.** F. PASCHEN. *Sitzber. preuss. Akad. Wiss Physik.-Math. Klasse*, **1932**, 502–13.—Spectrum lines belonging to multiplets with small term-sepns. and exhibiting hyperfine structure sepns. equal to, or greater than, the multiplet sepns. are affected by the nuclear moment in the same manner as by a strong external magnetic field. Not only does the multiplet group have its lines displaced analogously to the Zeeman components in the Paschen-Back effect with accompanying changes in the intensities, but there appear also the lines usually forbidden by the selection rule for inner quantum nos. These features are all illustrated by examples selected from the spectra Al II and Hg I. C. C. KIESS

**Precision determination of the magnetic moments of potassium and lithium with regard to their nuclear magnetic moments. I.** W. MEISSNER AND H. SCHEFFERS. *Physik. Z.* **34**, 48–53(1933).—An app. for the precise detn. of at. moments is described. The magnetic moment is $0.916 \times 10^{-20}$ gauss cm. $\pm 0.5\%$ for both K and Li. The heat of dissocn. of Li is within 5% of the value given by Lewis (23,400 cal., cf. *C. A.* **25**, 5073). J. B. AUSTIN

**The hyperfine structure of the arc lines and the nuclear moment of copper.** RUDOLF RITSCHL. *Z. Physik* **79**, 1–25(1932).—$Cu^{63}$ and $Cu^{65}$ both possess a nuclear spin of 3/2. EGON BRETSCHER

**The hyperfine structure of mercury lines.** T. S. SUBBARAYA. *Current Sci.* **1**, 99–100(1932).—On the basis of a recent paper (cf. *C. A.* **26**, 4752), S. gives a term scheme more in accord with the structure of 5026 A. U. ($6^1P_1 - 8^1S_1$), recently given by Venkatesachar and Sibaiya (cf. *C. A.* **26**, 1512) and of 3131.84 A. U. ($6^3P_1 - 6^1D_2$) given by Nagaoka, than the one proposed by Schüler and Jones (cf. *C. A.* **26**, 3181, 5838). WILLIAM J. KROEGER

**Nuclear spin moment of the thallium atom.** A. L. NARAYAN AND A. S. RAO. *Current Sci.* **1**, 75–6(1932); cf. *C. A.* **25**, 4787; **26**, 373.—The hyperfine structure of the line 3776 A. U. ($6^2P_{1/2} - 7^2S_{1/2}$) was found to show more components than those

observed by Schüler and Keyston (see *C. A.* **25**, 4787). This structure (consisting of components at $d\lambda$ = +0.064, +0.057, +0.010, 0.000, —0.053, —0.093, —0.101) is explained except for the component at —0.053 by assigning a nuclear spin to each isotope together with an isotope displacement of the $^2P_{1/2}$ term of about 0.050. These observations and those previously reported (cf. *C. A.* **26**, 373) confirm the isotope displacement effect in the hyperfine spectrum of the Tl I line. W. J. K.

**Hyperfine structure of the spark spectrum of antimony and nuclear moments of the antimony isotopes.** J. S. Badami. *Z. Physik* **79**, 206–23(1932).—See *C. A.* **27**, 661. Egon Bretscher

**Hyperfine structure of the arc spectrum of antimony [Sb I].** J. S. Badami. *Z. Physik* **79**, 224–30(1932). Egon Bretscher

**The quantum mechanics of beryllium hydride.** Clarence E. Ireland. *Phys. Rev.* **43**, 329–36(1933).—The interaction of a normal H atom with a Be atom having the electronic configurations $2s2s$ and $2s2p$, resp., has been studied by the application of a modified Heitler-London method. Bernard Lewis

**Absorption spectrum of iodine bromide.** Weldon G. Brown. *Phys. Rev.* **42**, 355–63(1932).— It is shown by means of a vibrational analysis that the absorption spectrum of IBr is analogous to that of ICl and that an interpretation similar to that proposed by Brown and Gibson (*C. A.* **26**, 3727) for ICl is applicable. The infra-red bands of IBr discovered by Badger and Yost (*C. A.* **25**, 3790) are classified as a $^3\Pi_1 \leftarrow\!\!- {}^1\Sigma$ transition. The $^3\Pi_1 \leftarrow\!\!- {}^1\Sigma$ system is observed as a faint set of bands in the red, not hitherto reported, which exhibit the same type of predissocn. as the corresponding bands of ICl. Transitions to a state which originates at the max. of the $^3\Pi_{0+}$ state and which dissocs. to yield normal I and excited Br atoms are observed as a strong system of partially diffuse bands. The vibrational quantum numbering for each system is deduced from measurements of the isotope effect due to Br. The heat of dissocn. of IBr is 1.808 ± 0.001 v. For the 4 mols. $I_2$, IBr, ICl and $Br_2$ it is shown that the sepn. of the $^3\Pi_{0+}$ and $^3\Pi_1$ states is roughly equal to 2/3 of the mean $^2P$ multiplet widths of the constituent atoms. The total $^3\Pi$ widths are then probably greater and the $^3\Pi_2$ state is somewhat lower than has been supposed. Bernard Lewis

**Magnetic rotatory power of chlorine and of hydrochloric acid gas.** R. de Mallemann and P. Gabiano. *Compt. rend.* **196**, 106–7(1933).—The magnetic rotatory power of $Cl_2$ was measured at 8.5° for the yellow and green Hg lines at pressures of 998 and 250 mm. Both series of observations give as the at. rotation $10.4 \times 10^{-5}$ radians, while the value previously deduced from measurements on the vapors of $CH_3Cl$, $C_2H_5Cl$, $CHCl_3$ and $CCl_4$ is $9.0–9.5 \times 10^{-5}$ radians. This increase of about 10% is ascribed to the union of the 2 atoms in the $Cl_2$ mol. Similar observations on HCl gas at 1120 mm. and 8.5° gave $13.1 \times 10^{-5}$ radians as the mol. rotation. The value deduced by adding the at. rotations is $12.4 \times 10^{-5}$. The increase is again ascribed to the union of the 2 atoms. W. W. Stifler

**The extinction of iodine fluorescence by magnetic fields and by the addition of foreign gases.** Wolfgang Berg. *Z. Physik* **79**, 89–107(1932).—The influence of I pressure, a foreign gas or a magnetic field on the intensity of fluorescence does not follow the relation given by Stern and Volmer. Egon Bretscher

**Photometric investigation of the strongest emission bands of fluorine.** Jonatan Aars. *Z. Physik* **79**, 122–38(1932).—The results of Gale and Monk (*C. A.* **23**, 3162) are confirmed and strong perturbations of the frequencies and intensities observed. The intensity ratios of the weak bands to the strong exceeds the value 3 of G. and M., thus leaving the value of the nuclear spin of the F atom still doubtful. E. B.

**Barium hydride band spectra in the near infra-red.** Wm. W. Watson. *Phys. Rev.* **43**, 9–11(1933).—A BaH band system with principal heads at 8924 and 9017 A. U. degraded to the red is $^2\Sigma \longrightarrow {}^2\Sigma$ with the same lower $^2\Sigma$ as for the $^2\Pi \longrightarrow {}^2\Sigma$ BaH bands in the visible red region. For the upper $^2\Sigma$ state $B_0 = 3.232$, $D_0 = -1.323 \times 10^{-4}$ and $\gamma_0 = -4.84$. This very large spin doubling indicates interaction with a near-lying lower $^2\Pi$ state which computation shows to be the probable upper state of another BaH band observed on the long wave-length side of 10,052 A. U. The nature of the electron configurations in the several BaH states is discussed. Bernard Lewis

**The band spectra of MgO, CaO and SrO.** P. C. Mahanti. *Phys. Rev.* **42**, 609–21 (1932).—New measurements of the wave lengths of the band heads attributed to the oxides of Mg, Ca and Sr have been made from moderate dispersion spectrograms. The bands have been classified into 2 systems. Equations of the band heads in terms of half-quantum nos. are given for MgO (red bands), MgO (green bands), CaO (blue bands), CaO (ultra-violet bands), SrO (blue bands) and SrO (ultra-violet bands). Bernard Lewis

**A system of bands of CaO in the near infra-red.** P. H. Brodersen. *Z. Physik* **79**, 613–25(1932).—A new spectrum is observed when $O_2$ is admitted to a Ca arc. It is

shown to be due to CaO. From the rotation lines the moment of inertia I is found to be $62.3 \times 10^{-40}$ for the higher and $37.2 \times 10^{-40}$ for the lower levels. The nuclear distances are $1.82 \times 10^{-8}$ cm. and $1.74 \times 10^{-8}$ cm., resp. The electron terms are both $^1\Sigma$. E. B.

**The structure of the third positive group of CO bands.** G. H. Dieke and J. W. Mauchly. *Phys. Rev.* **43**, 12–30(1933).—The 3rd pos. group of CO was photographed under high dispersion. The bands are $^1\Sigma \longrightarrow {}^1\Pi$ transitions. The $^1\Sigma$ state shows many strong perturbations. The triplet sepn. is very small. Of the 15 branches which must be expected under these conditions, 14 are found and traces of the 15th. Nine of these branches are strong and can be traced to $K = 55$. The others are weak and are present only for small values of the rotational quantum no. $K$. The 5 edges which are charactertistic for the bands of the 3rd pos. group are formed by the two $O$-branches and the 3 $P$-branches. The character of the Λ-doubling and the no. of missing lines near the origin shows that the $^1\Pi$ state is a normal $^1\Pi$ state. The values of the rotational consts. are $B' = 1.89$ for the initial and $B'' = 1.686$ cm.$^{-1}$ for the final state; from these it follows that the values for the moment of inertia are $F' = 14.7 \times 10^{-40}$ and $F'' = 14.43 \times 10^{-40}$. Complete details are given for the $0 \longrightarrow 0$ (2833), $0 \longrightarrow 1$ (2977), $0 \longrightarrow 2$ (3134) and $0 \longrightarrow 3$ (3305) bands. Bernard Lewis

**The continuous absorption of oxygen between 1750 and 1300 A. U. and its bearing upon the dispersion.** R. Ladenburg and C. C. Van Voorhis. *Phys. Rev.* **43**, 315–21 (1933).—The continuous absorption of $O_2$ between 1750 and 1300 A. U. has been investigated with a small fluorite spectrograph by the photographic-photometric method. The absorption coeff. $\alpha$ plotted as a function of the wave no. $\nu$ has a relatively sharp max. at $6.8 \times 10^4$ cm.$^{-1}$ ($\lambda = 1450$ A. U.) and falls off symmetrically on both sides. The max. absorption coeff. reduced to N. P. T. is about 490 cm.$^{-1}$ By integration of the absorption curve the $f$-value turns out to be 0.193 compared with 0.202 calcd. from dispersion measurements. The corresponding resonance wave length from the dispersion measurements is 1468 A. U., in fairly good agreement with the observed position of the max. of absorption. A dispersion formula which takes into account the distribution of absorption in a continuous band is given, and is applied to the dispersion of $O_2$. Bernard Lewis

**The absorption spectra of highly compressed oxygen and the existence of $O_4$ molecules. I. The ultra-violet bands between 2900 and 2300 A. U.** W. Finkelnburg and W. Steiner. *Z. Physik* **79**, 69–88(1932).—Highly compressed $O_2$ possesses diffuse triplet bands in the region 2300–2900 A. U. which are not observed at ordinary pressure. Since their intensity increases quadratically with pressure they are most probably due to $O_4$ mols. or emitted at the moment of a collision of 2 $O_2$ mols. The convergence of this band system coincides with that of $O_2$ in the ground state. Egon Bretscher

**Interpretation of the rotational structure of the $CO_2$ emission bands.** Robert S. Mulliken. *Phys. Rev.* **42**, 364–72(1932).—Conclusion: The mol. $CO_2$ in equil. is nearly linear, or probably strictly linear, in both initial and final states. B. L.

**The absorption spectra of some higher oxides.** Arun K. Dutta and Prabhat K. Sen Gupta. *Proc. Roy. Soc.* (London) **A139**, 397–405(1933).—The absorption spectra of the oxides $N_2O_5$, $TeO_2$ and $MoO_2$ have been photographed and found to consist of 2 regions of continuous absorption sepd. by a band of transmitted radiation. The 1st band, in each case, has been interpreted as resulting from the sepn. of an O atom in the $^3P$ state from the mol., and the 2nd band as resulting from the sepn. of an O atom in the metastable $^1D_2$ state. From the absorption of $N_2O_5$ the heat of dissocn of $O_2$ is detd. as 128 kg.-cal. C. C. Kiess

**The symmetry of molecules and scattered spectra.** Jean Cabannes. *Ann. phys.* **18**, 285–328(1932).—A theory of the polarization of Raman lines is derived from the postulate of optical anisotropy in polyatomic mols. Selection rules are deduced and used to correlate mol. structure with observed oscillations. Oscillations in the mol. are classed as symmetric, anti-symmetric and degenerate according to their relation to the elements of symmetry. Oscillations which do not conserve all the elements of symmetry present at rest correspond to unpolarized or forbidden lines. J. B. A

**Chemical aspects of the infra-red absorption spectra of the ethyl halides.** Paul C. Cross and Farrington Daniels. *J. Chem. Physics* **1**, 48–55(1933).—The absorption spectra of EtCl, EtBr and EtI are given for the region 1.5 to 15 $\mu$. Eight fundamental frequencies, their 1st harmonics and simple combinations account for the entire spectrum of each compd. Types of vibrations connected with each fundamental are suggested and used to explain the decompn. of EtBr. J. E. A.

**The envelopes of infra-red absorption bands.** Sherman L. Gerhard and David M. Dennison. *Phys. Rev.* **43**, 197–204(1933).—The intensity formulas for the fine-structure absorption lines of mols. of the sym. rotator type are approximated. The expressions are evaluated explicitly and may be used either to det. the intensity of an

individual line or the envelope of all the fine-structure lines. The results are applied to the infra-red bands of methyl halides. The values obtained for the moment of inertia, $A$, perpendicular to the symmetry axis are 32, 61, 89, 99 $\times 10^{-40}$ for MeF, MeCl, MeBr and MeI, resp. The distances between the C and the halogen nuclei are computed. They agree satisfactorily with the corresponding distances deduced by Pauling (*C. A.* **26**, 3177). BERNARD LEWIS

**Infra-red absorption spectra of aliphatic and aromatic hydrocarbons.** P. LAMBERT AND J. LECOMTE. *Ann. phys.* **18**, 329–90(1932).—The spectra of the following compds. have been measured between 6 and 16 $\mu$ with a registering spectrograph: hexane, isohexane, 2,3-dimethylbutane, $Me_3CEt$, octane, nonane, decane, undecane, duodecane, tetradecane, octadecane, 2,7-dimethyloctane, 1-octene, 1-nonene, 1-decene, 1-duodecene, 1-tetradecene, 1-hexadecene, $C_6H_6$, MePh, *o*-, *m*- and *p*-$Me_2C_6H_4$, EtPh, mesitylene, cymene, pseudocumene, PrPh, BuPh, iso-BuPh, AmPh, iso-AmPh, cyclohexane, cyclohexene, methylcyclohexane, *m*- and *p*-dimethylcyclohexane, 3 isomeric methylcyclohexenes, naphthalene, $\alpha$-methylnaphthalene, $\beta$-methylnaphthalene, 1,6-dimethylnaphthalene, 2,6-dimethylnaphthalene, decahydronaphthalene, tetrahydronaphthalene, biphenyl, $Ph_2CH_2$, $Ph_3CH$, PhCH:CMePh, anthracene, hexahydroanthracene, phenanthrene, retene, methylisopropylphenanthrene, fluorene, chrysene and bisdiphenyleneethene. J. B. AUSTIN

**The problem of a continuous Raman effect in liquids.** R. BÄR. *Z. Physik* **79**, 455–70(1932).—It has previously been found that if the primary light is circularly polarized in the right-handed direction, and if the Raman effect is studied parallel to the incident beam, the scattered radiation is circularly polarized in the left-handed direction. This instance is now used to det. if the continuous background of Raman spectrograms is due to fluorescence or to a continuous Raman effect. The continuous background could in all cases be explained either as fluorescence or to be due to the unmodified radiation. The following compds. have been studied: *benzene, benzaldehyde, glycerol, sulfuric acid, nitric acid* of various concns., *formic acid, KOH soln.*, binary mixts. of *MeOH-hexane* and *MeOH-*$CS_2$. EGON BRETSCHER

**Raman effect in solutions of copper salts.** A. DA SILVEIRA. *Compt. rend.* **195**, 652–3(1932); cf. *C. A.* **26**, 4254, 5496, 5845.—The Raman effect of $CuSO_4$ is $\Delta\nu$ = 607, 729, 977, 1472, 1671, 279(?), 450, 618, 983, (1058, 1110, 1143), 1476, 1654 cm.$^{-1}$; that of $Cu(NO_3)_2$ $\Delta\nu$ = 279, 442, (717, 754), 1048, (1325, 1421), 1476, 1654 cm.$^{-1}$. The frequencies 1058, 1110 and 1143 represent a triplet. As a first approximation the sulfate ion presents the symmetry of a regularly centered tetrahedron and possesses 4 modes of vibration, 2 of which are degenerated triplets. In the nitrate the 3 frequencies of the nitrate ion are found but the 2 degenerated rays are doubled. These are represented by $\Delta\nu$ = 715–754, 1325–1341 cm.$^{-1}$. A $\Delta\nu$ of 1654, which S. attributes to $H_2O$, is noted. JAMES H. HIBBEN

**Molecular scattering of light from ammonia solutions. The fine structure of a vibrational Raman band.** JOHN W. WILLIAMS AND ALEXANDER HOLLAENDER. *Phys. Rev.* **42**, 379–85(1932).—The Raman band of the $NH_3$ mol. corresponding to the infra-red absorption at 3 $\mu$ has been partially resolved into its fine structure. The expts. were made with aq. solns. of $NH_3$ of relatively high concns. The moment of inertia about a line normal to the axis of symmetry calcd. from the spacing of the lines is $I = 2.82 \times 10^{-40}$ g. sq. cm. BERNARD LEWIS

**Infra-red spectra of ammonium salts in the region of their anomalous specific heat.** R. POHLMAN. *Z. Physik* **79**, 394–420(1932).—Absorption spectra of $NH_4Cl$, $NH_4Br$, $NH_4NO_3$ and $(NH_4)_2SO_4$ were measured in the region 2.5–9 $\mu$ between room temp. and 80°. The curves for absorption coeffs. (for const. wave length) as functions of the temp. show discontinuities at the same temp. at which the sp. heat is anomalous. This effect is due to the $NH_4$ radical, but its course is strongly affected by the nature of the anion, *e. g.*, the transparency for the 6.96 $\mu$ band of $NH_4Cl$ decreases strongly at the crit. temp. while it increases very much for the same band of $NH_4Br$. A fine structure is observed in the case of $NH_4NO_3$, pointing to a possible rotation of the $NH_4$ group in the crystal. EGON BRETSCHER

**Raman spectra of a series of normal alcohols and other compounds.** R. W. WOOD AND GEORGE COLLINS. *Phys. Rev.* **42**, 386–92(1932).—The Raman spectra of $C_6H_6$, cyclohexane and cyclohexene, $CS_2$, BuBr, and the normal alcs. from MeOH to $C_{12}H_{25}OH$ were investigated. New lines were found in all cases, and for some compds. the no. was nearly doubled. Two new frequencies at 2660 and 2750 cm.$^{-1}$ were found in the spectra of essentially all the alcs. and BuBr. They appear to be characteristic of the satd. hydrocarbons. The lines of the aliphatic hydrocarbons at 1450 and 1300 cm.$^{-1}$ have been attributed to the transverse vibrations of the hydrogens of the $CH_2$ and $CH_3$ groups, resp. The Raman spectra of $C_{12}H_{25}OH$ is that of an infinitely long normal alc. The new lines of $C_6H_6$ reported by Weiler (*C. A.* **25**, 5094) and Krishnamurti

(*C. A.* **25**, 1732) were verified with the exception of 806 cm.$^{-1}$ In addn. a new line was found at 1690 cm.$^{-1}$. The 2 relatively strong lines of $CS_2$ at 650 and 800 cm.$^{-1}$ were found to be doublets and the analogy with $CO_2$ was thus completed.

BERNARD LEWIS

**Preparation of residual-ray plates and the reflection power of powders.** R. BOWLING BARNES. *Phys. Rev.* **43**, 31–3(1933).—Residual-ray plates were prepd. (1) of natural crystal surfaces, (2) of surfaces of fused and then recrystd. substances, and (3) of pressed crystal powders. The residual rays resulting from reflection upon these 3 types of surfaces were compared. The wave length of the reflection was in each case the same. The intensity of the residual rays of type (2) was the same as that of type (1). The reflection power of the 3rd type, the pressed powders, depended inversely on the size of the particles of the powder. In cases where no pressure is applied to the surface, the reflection power of a powder decreases as the particle size is made smaller.

BERNARD LEWIS

**Color centers of the latent image in electrical fields.** O. STASIW. *Nachr. Ges. Wiss. Göttingen, Math.-physik. Klasse* **1932**, 261–7.—The motion of color centers in KCl crystals at 350° was studied in elec. fields. The color centers move to the anode. From the elec. cond. of the crystal, these moving particles seem to be electrons. The color centers consist of a loose combination of cation and electron which can be broken even by thermal agitation. The no. of color centers calcd. from elec. data agrees with that from optical data.

E. J. ROSENBAUM

**Photographic photometer for the ultra-violet region of the spectrum.** A. POSPELOV AND B. YAMPOLSKII. *J. Phys. Chem.* (U. S. S. R.) **3**, 514–20(1932).—A Keil photometer for the region 250–400 mμ is described. Absorption spectra are given for methyl violet and nitrosodimethylaniline.

F. H. RATHMANN

**Molecular fluorescence of antimony.** JEAN GENARD. *Nature* **131**, 132(1933).—A rather strong fluorescence of diat. Sb vapor (at 950° and a pressure corresponding to a temp. 650°) was obtained when illuminated by an Hg arc of high luminosity. Four Hg lines excite a resonance spectrum, and possibly 2 others do also. The frequencies can be accounted for by the equation, $\nu = \nu_0 - 277(v'' + 1/2) + 0.68(v'' + 1/2)^2$. Details will be published later.

L. W.

**The ultra-violet absorption of binary liquid mixtures. I. The ultra-violet absorption of the system: acetone–chloroform.** ROBERT KREMANN, MAX PESTEMER AND PAULA BERNSTEIN. *Monatsh.* **61**, 351–60(1932).—The absorption of mixts. ranging from 1.06 to 82 mols. % of acetone (I) was detd. with an app. previously described (*C. A.* **26**, 2120). The extinction coeff. (κ) shows a max. at 275 mμ, log κ, increasing from 0.4 to 2.2 with increase of I. It also shows a min. which moves from 260 to 220 mμ with increase of I.

J. B. AUSTIN

**The interpretation of the ultra-violet absorption bands of the alkali halides.** M BORN. *Z. Physik* **79**, 62–8(1932).—The ultra-violet absorption bands of the alkali halides are generally attributed to a transition of the electron of the neg. ion to the pos (mutual neutralization of neighboring ions). With energy considerations and by use of the more accurate repulsion potential (*C. A.* **26**, 5840) it is shown that the above stated interpretation of the ultra-violet absorpt on bands cannot be correct. As suitable modification it is suggested that the colored centers must be located on the "internal surface" of the crystal (cracks in the crystal lattice).

E. B.

**Efficiency of carbon dioxide as a radiochemical catalyst.** CHAS. ROSENBLUM *J. Phys. Chem.* **37**, 53–8(1933).—$CO_2$ is an inefficient catalyst in radiochem. reactions In $H_2O$ synthesis the efficiency is approx. 14.5%; in $C_2H_2$ polymerization only 30% of $CO_2$ ionization is used in promoting the reaction. The inefficiency of a radiochem. catalyst may be governed by the tendency of the inert gas to cluster about gaseous ions, crowding out reactant mols., and the greater this tendency, the less the efficiency

I. J. PATTON

**The photochemical reaction between quinine and dichromic acid. II. Kinetics of the reaction.** GEO. S. FORBES, LAWRENCE J. HEIDT AND F. PARKHURST BRACKETT, JR *J. Am. Chem. Soc.* **55**, 588–96(1933); cf. *C. A.* **26**, 2378.—It is assumed that clusters of quinine mols., $H_2Cr_2O_7$ mols. and H ions are important in the photochem. reaction. Seven wave lengths in the range 405 to 208 mμ were used. Within exptl. error the reaction order is zero for quinine and 0.5 for $H_2Cr_2O_7$. $H_2SO_4$ has a subordinate role in the reaction. With const. quinine concn. an increase in $H_2SO_4$ concn. from 0.004 to 4 mols. per l. shifts the absorption curve 200 cm.$^{-1}$ toward the red. The temp. coeff. is 1.12; this value agrees with that calcd. from the temp. coeff. of the collision no. in a soln.

E. J. ROSENBAUM

**Fluorescence of mercurous chloride in Eder's solution.** I. PLOTNIKOV. *Phot. Korr.* **68**, 211(1932).—HgCl when sepg. under ultra-violet illumination from Eder's soln. shows no fluorescence. Ordinary purchasable calomel, however, when added to

the soln. fluoresces a bright orange-red. Several possible (but unproved) explanations of the difference are suggested. E. R. BULLOCK

Light absorption of aliphatic carboxylic and amino acids in the presence of neutral salts (LEUTHARDT, PFISTER) **10.** Highly polymerized compounds. LXXIV. The Raman effect of methyl silicates (SIGNER, WEILER) **10.** Aromatic hydrocarbons. XIX. A regularity in the absorption spectra of aromatic hydrocarbons (CLAR) **10.** Streaming kinetics (ABEL, SCHMID) **2.** Spectrographic study of phlorhizin and its derivatives (LAMBRECHTS) **10.** Types of chemical reactions (NOYES) **2.** Radioactive fibers (Fr. pat. 738,999) **23.**

CHATELET, M.: **Théories chimiques. T. III. Spectres d'absorption visibles et ultra-violets des solutions.** Paris: Hermann & Cie. F. 7.

**Handbuch der Physik.** Edited by H. GEIGER AND KARL SCHEEL. 2nd ed. **Bd. XXIII. Tl. 1. Quantenhafte Ausstrahlung.** Edited by H. GEIGER. Berlin: J. Springer. 373 pp. M. 34.70. For Bd. XXIV cf. *C. A.* **22,** 1731.

HYLLERAAS, EGIL A.: **Die Grundlagen der Quantenmechanik mit Anwendungen auf atomtheoretische Ein- und Mehrelektronenprobleme.** Oslo: Dybwad. 142 pp. Kr. 12.

JORDAN, PASCUAL: **Statistische Mechanik auf quantentheoretischer Grundlage.** Brunswick: F. Vieweg. 110 pp. M. 6.80; bound, M. 8.20.

KENDALL, JAMES: **At Home Among the Atoms;** a First Book of Congenial Chemistry. London: G. Bell & Sons, Ltd. 270 pp. 4s. 6d.

KRÜGER, DEODATA: **Radio-Chemie.** Berlin: Junk. 12 pp. M. 1.50.

LEPRINCE-RINGUET, LOUIS: **Exposés de physique atomique expérimentale. T. I. Les transmutations artificielles.** Paris. Hermann & Cie. F. 15.

PUCCIANTI, L. **La spectroscopia.** Bologna: N. Zanichelli. 44 pp. L. 4.50.

**Wechselwirkung zwischen Röntgenstrahlen und Materie in Theorie und Praxis.** Edited by JOHN EGGERT AND ERNST SCHIEBOLD. Bd. III of "Ergebnisse der technischen Röntgenkunde." Leipzig. Akad. Verlags. 211 pp. M. 17; cloth, M. 18.80.

**X-ray photography.** E. W. PAGE (to British Thomson-Houston Co., Ltd.). Brit. 354,768, May 13, 1929. To reduce effects of secondary radiation, the outline of the object as seen from the position of the x-ray source is surrounded by an opaque medium such as a paste of $BaSO_4$ and linseed oil or sperm oil to which Pb salts or powd. W may be added to increase the opacity.

**Filters for absorbing ultra-violet rays.** SOC. DES ÉTABLISSEMENTS GAUMONT. Brit. 351,029, March 14, 1929. In connection with the production of cinematographic films transparent to visible radiation and opaque to ultra-violet radiation, or for similar purposes, filters are employed comprising a mononitrated phenol deriv. such as *p*-nitrophenol to which is added an acid such as $H_2SO_4$ or an acid compd. such as $KHSO_4$.

**Apparatus for charging a liquid with radioactive emanations.** AURÉLIEN DANILEVICI DIT DANIEL. Fr. 738,790, June 18, 1932.

**Phosphorescent or luminous composition.** HENRY M. MINES. U. S. 1,891,827, Dec. 20. $SrCO_3$, $CaCO_3$ and $MgCO_3$ are heated in an "oxidizing" furnace, the composite oxide material thus formed is ground and is incorporated with $Li_2CO_3$, $Rb_2CO_3$, Al silicate, carbonaceous material such as starch, S, "phosphorogens" such as Th and Bi nitrates and "luminophores" such as $BaSO_4$ and $Na_2SO_4$ and the mixt. is heated in a non-oxidizing furnace, ground and reheated in a current of dry H. Various modifications are described.

## 4—ELECTROCHEMISTRY

COLIN G. FINK

**Electrolytic extraction of metals.** H. J. T. ELLINGHAM *Sci. J. Roy. Coll. Sci.* **2,** 19–26(1932).—A review. E. H.

**Development of the metallurgical high-frequency furnace.** MANUEL TAMA. *Z. Ver. deut. Ing.* **77,** 199–202(1933). E. H.

**Electrolysis of silver-bearing thiosulfate solutions.** K. C. D. HICKMAN, W. J. WEYERTS AND O. E. GOEHLER. *Ind. Eng. Chem.* **25,** 202–12(1933).—Ag, accumulating in motion-picture fixing baths, is recovered by electrolysis, and the bath is replenished and recirculated. Electrolysis is carried out in large cells with a cathode c. d. of 3 amp./sq. ft. At the anode thiosulfate is oxidized to tetrathionate and trithionate. Vigorous agitation is necessary, as is also the presence of $H_2SO_4$ and of promoting agents. E. G. VANDEN BOSCHE

**An electrochemical investigation of cadmium-silver alloys.** ARNE ÖLANDER. *Z. physik. Chem.* **A163**, 107–21(1933); cf. *C. A.* **26**, 5850.—The e. m. f.'s of the cells: Cd (liquid) | MCl | Cd-Ag (solid), where M = Li, Rb or Cd, were detd. for 71 alloy electrodes from 330° to 555°. Temp. coeffs. were also obtained and the phase diagrams completed. G. M. MURPHY

**Polarographic studies with the dropping-Hg cathode. XXX. Electroreduction and estimation of fructose and sorbose.** J. HEYROVSKÝ AND I. SMOLEŇ. *Collection Czechoslov. Chem. Communications* **4**, 521–30(1932)(in English); cf. *C. A.* **21**, 1917, 2895; **25**, 1740; **27**, 708.—The inversion of sucrose was quantitatively followed polarographically. The velocity const. was not strictly linearly proportional to the $p_H$, but increased more than was expected from the increase in acidity. The electroreduction potentials of fructose and sorbose in neutral or weakly alk. solns. are given as —1.8 v.; the shift in the reduction potential of fructose with dilu. is abnormally large, the values being —1.57 v. for 0.01 *M* soln. and —1.66 v. for 0.001 *M* soln. It is concluded from the large temp. coeff. of the diffusion current due to the reduction of ketoses that they exist in soln. in two tautomeric forms, only one of which is electroreducible. E. B. S.

**Lead-mercurous acetate voltaic cell with acetic acid as the solvent.** GRADY TARBUTTON AND WARREN C. VOSBURGH. *J. Am. Chem. Soc.* **55**, 618–24(1933); cf. *C. A.* **27**, 474.—The e. m. f.'s of the cells Pb(Hg) | $Pb(OAc)_2$.0.5HOAc | Pb(OAc 0.5HOAc, $Hg_2(OAc)_2$ | Hg, with solvents covering a wide range of HOAc-$H_2O$ mixts. and with 3 different solid phases, were measured at 25°. With pure HOAc reproducible values for different cells were obtained. The *heat of formation* of $Pb(OAc)_2.{}^1/_2H_2O$ was detd. as 271.35 kg. cal. L. P. HALL

**The kinetics of electrode processes. II. Reversible reduction and oxidatio processes.** J. A. V. BUTLER AND G. ARMSTRONG. *Proc. Roy. Soc.* (London) **A139** 406–16(1933); cf. *C. A.* **26**, 5500.—The cathodic reduction of methylene blue solns. and the cathodic and anodic behavior of quinhydrone solns. at Pt electrodes showed, over the whole range of currents and concns., transition processes which were ascribed to depletion of the depolarizer in the vicinity of the electrode. L. P. HALL

**Note on the seat of the electromotive force in voltaic cells.** M. DEKAY THOMPSON. *Trans. Electrochem. Soc.* **63**, 3 pp. (preprint)(1933).—The literature is briefly reviewed. It is evident that the potential between 2 metals connected metallically in a "vacuum" or in a gas has nothing to do with the potential of the same metals when combined to form a voltaic cell. C. G. F.

**Alkaline accumulators.** F. WATSON MANN. *Inst. Marine Eng.* **44**, 378–88 (1932).—The Ni-Fe and Ni-Cd type storage batteries are fully described. These cells are rapidly increasing in marine use, especially the Ni-Cd type, because of their longer life, lower maintenance costs, lack of self-discharge and their ability to give almost full capacity at high discharge rates. They are used for emergency purposes, to take up peak loads and to operate telephones. ANN NICHOLSON HIRD

**Electric discharges in liquids. II. Arc discharge in water.** HERBERT D. CARTER AND ALAN N. CAMPBELL. *Trans. Faraday Soc.* **28**, 634–44(1932); cf. *C. A.* **26**, 3734. A const.-flow calorimeter is described for rapid measurements of the heat evolved by the low-tension arc discharge with C electrodes, operating in $H_2O$. Results with this device indicate that the reactions taking place may be slightly endothermal, but over 85% of the input energy is expended in heating the $H_2O$. Definite relationship between the discharge current and chem. reactions has been found, the gas-flow rate (in cc./min.) -current (in amp.) curve being almost linear, but above a certain crit. potential the voltage does not affect the discharge; with a const. current the input wattage has no effect. The chem. reactions which were discussed previously (*C. A.* **26**, 3734) take place entirely on the anode, and further indication of hydroxide formation was obtained The compn. of the gases was altered by raising the discharge temp., increasing temp. causing a decrease in the $CO/CO_2$ ratio in a manner contrary to that predicted by the "thermal" theories: the results obtained in the present work lend strong support to the "electrical" theory. The contradictory evidence at present available regarding the "water gas" equil. at high temps. is noted. The phys. effects of the liquid medium are discussed, and the mechanism of the chem. reactions reviewed in the light of recent work on elec. discharges. EDWARD B. SANIGAR

**The electrical conductivities of solutions of water in sulfur dioxide.** M. DEKAY THOMPSON AND F. C. JELEN. *Trans. Electrochem. Soc.* **63**, 14 pp.(preprint)(1933).—The conductivities of tech. $SO_2$ were detd. at different temps. as a function of $H_2O$ content from 0.0 to 1.3% $H_2O$. There is no appreciable change in cond. when the $H_2O$ content changes from zero to 30 p. p. m.; there is a rapid change in cond. as the water changes from 30 to 900 p. p. m., and a less rapid change from 900 p. p. m. on to satn The cond. of dehydrated $SO_2$ and of dioxide contg. up to 30 p. p. m. is about $10^{-9}$ mho, which is too low to be measured with the usual high-frequency current; $SO_2$ satd. with

$H_2O$ has a cond. of about $10^{-6}$ mho. The lower conductivities were therefore measured with a d. c. reversed every sec. and with a field strength of 990 v. per cm. A const. field strength was necessary for comparison, because these solns. do not obey Ohm's law. The samples were taken from the supply tanks by distn. to a cond. cell from which they could be quickly removed after measurement. Repeated distns. were made before the lowest limiting value was reached. When the $SO_2$ was drawn off into the cond. cell in the liquid state out of contact with the air, the cond. was very much greater than when it was distd. In all solns. the cond. increased with time indefinitely, consequently temp. coeffs. could not be measured accurately. The cond. temp. coeffs. of solns. contg. 0.06% $H_2O$ and less are neg., while the coeffs. of solns. with 0.15% and more are pos. There must be, therefore, a concn. between 0.06 and 0.15% with 0 temp. coeff. Cond. measurements do not offer a good method of detg. moisture in tech. $SO_2$ because of the small change between 0 and 30 p. p. m. of $H_2O$ and because of the large no. of distns. necessary to get reproducible values for cond. It was assumed in this work that any other impurities than $H_2O$ which might be present in the different tanks were const. in amt. The results indicate that this must have been the case. C. G. F.

**The oxidation of sulfur dioxide in the electrodeless discharge.** Sampuran Das Mahant. *J. Indian Chem. Soc.* 9, 417–22(1932).—Mixts. of $SO_2$ and O on exposure to the electrodeless discharge were oxidized to $SO_3$. No thionates or polythionates were found in the products of the reaction. The results indicate that a max. amt. of $SO_2$ is oxidized when the mixt. has a compn. of 60% $SO_2$ and 40% $O_2$. The $O_2$ alone is activated by the discharge and combines with the $SO_2$. It is not known whether this activation of $O_2$ is due to the formation of $O_3$ or due to an activation of $O_2$ as such. H. W. Leahy

**Heterogeneous chemical reactions in the silent electric discharge. III.** Susumu Miyamoto. *J. Chem. Soc. Japan* 53, 914–24(1932); cf. *C. A.* 26, 5499; 27, 233.—15,000 v. was applied to the reaction chamber. The reactions between H and each of the following solid inorg. compds. were studied, and the reaction products in each case were confirmed: $CoCl_2.6H_2O \longrightarrow$ HCl, metallic Co; $NiCl_2.6H_2O \longrightarrow$ HCl, metallic Ni; $CoS \longrightarrow H_2S$; $NiS \longrightarrow H_2S$; $HgSO_4 \longrightarrow HgS$; $Hg_2SO_4 \longrightarrow Hg$, $SO_2$, HgS; $NiSO_4.7H_2O \longrightarrow NiS$; $CoSO_4.7H_2O \longrightarrow CoS$; $Ag_2SO_4 \longrightarrow Ag_2S$, Ag; AgI $\longrightarrow$ no reaction product; $CdSO_4.2^1/_2H_2O \longrightarrow CdS$, $H_2S$; $PbSO_4 \longrightarrow PbS$; $Bi_2(SO_4)_3 \longrightarrow Bi_2S_3$, $H_2S$; $Bi_2S_3 \longrightarrow H_2S$; $MnSO_4 \longrightarrow MnS$, $H_2S$; $MnS \longrightarrow H_2S$; $ZnSO_4 \longrightarrow ZnS$; $FeSO_4.7H_2O \longrightarrow FeS$, $H_2S$; $FeS \longrightarrow H_2S$. T. K.

**Recent developments in electroplating.** M. deKay Thompson. *Metal Cleaning and Finishing* 5, 9–18(1933); cf. *C. A.* 27, 909.—A review of recent, more important technical developments in the electroplating of Cr, Ni, Cd, alloys, Ag, Zn, W, Sn and Pt, together with notes on temp. corrections in measuring throwing power and electroplating on Al. D. Thuesen

**Rhodium plating.** Colin G. Fink and Geo. C. Lambros. *Trans. Electrochem. Soc.* 63, 6 pp.(preprint)(1933).—Rh-plated jewelry, silverware and reflectors are now being marketed. Very little has been published on Rh-plating baths. The authors prepd. the salts for their plating baths by alloying Rh with Pb and Bi and then treating the regulus with acids and alkali, resulting in $Rh(OH)_3.H_2O$. This salt was converted, in turn, into the sulfate, phosphate, chloride and other compds. and plating baths prepd. The $(NH_4)_2SO_4$ bath gave most satisfactory results. Details of baths and operations are given. C. G. F.

**Practical problems involved in commercial electroplating on aluminum.** Harold K. Work. *J. Electrodepositors' Tech. Soc.* 8, 11 pp.(preprint 7)(1933); cf. *C. A.* 27, 910.—W.'s work on the electroplating of Al (*C. A.* 22, 1915; 25, 2370, 2646, 4805) is briefly reviewed, and successful com. processes for the prepn. and plating of Al and Al alloys are described. The etching of Al and its alloys, wrought metal and castings, is given in detail (cf. also *C. A.* 15, 989; 24, 1801), soln. compn. and working conditions being given together with photomicrographs of typical etched specimens and their deposits. The Ni plating of Al and Al alloys is reviewed at some length, and some of the difficulties encountered, and their solutions, are discussed. E. B. S.

**Nickel plating of zinc-base die-castings at high current density.** N. R. Laban. *J. Electrodepositors' Tech. Soc.* 8, 8 pp.(preprint 6)(1933).—Methods, which are in successful com. use, for the prepn. and the Cu- and Ni-plating of Zn-base die-castings prior to Cr plating, are described. The difficulties usually encountered in the successful plating of Zn die-castings are reviewed, and their elimination by the methods given is explained. One essential in the series of operations described is that the articles should pass in a perfectly dry state from the cleaner to the next process. Degreasing is, therefore, done in trichloroethylene vapor (without action on the Zn), and the articles are wiped with a dry cloth before being racked. The extremely thin surface film left by the degreasing process is removed by the subsequent (0.5–1 min.) anodic etch (cf. *C. A.* 25,

3248) which must take place soon after the degreasing, or stains appear on the Zn and produce blisters in the final Cr-plating operation. The articles are rinsed and then Cu-plated, since the direct nickeling of anodically etched Zn is said not to give good results. The Cu plating is done in an ordinary Cu cyanide plating soln. (compn. given) at 50 amp./sq. ft., with not less than 4.5 v. bath voltage at 65°. After being swilled, the articles are dipped in a K H tartrate soln. (essential to the success of the process) or left in it until ready for Ni plating. The Ni plating is done in the following soln.: $NiSO_4 \cdot 7H_2O$, 2.5–3 lb./Brit. gal.; NaCl, 2 oz./gal.; $H_3BO_3$, 3 oz./gal. under the following conditions: temp., 60°; $p_H$, 5.2–5.8; voltage 6–8 v. for 11-in. electrode distance, with depolarized Ni anodes and vigorous agitation. The failures likely to result from the use of ordinary cleaning methods are described, and the working and maintenance of the solns. used in the above process given in detail. EDWARD B. SANIGAR

**The electrodeposition of nickel and chromium.** J. W. CUTHBERTSON. *Metallurgia* **6**, 15–16(1932).—Plating plants are described. J. L. G.

**The economical importance of chrome plating.** RICH. JUSTH. *Oberflächentechnik* **10**, 42–3(1933).—Data on the general use of Cr plating are given; the great advantages obtained by saving due to reduced wear of base metals and the properties of Cr to which this is due are discussed generally. Some statistics on the world production of Cr are added. M. HARTENHEIM

**Surface hardening by chrome plating.** K. ALTMANNSBERGER. *Oberflächentechnik* **10**, 41–2(1933).—The mechanism of the surface hardening effect by electrolytically deposited Cr is discussed. The phys. character of the deposited Cr, especially its hardness, is principally influenced by the H which is absorbed during electrodeposition; Ni absorbs 11 times, Fe 110 times, Cr 250–450 times its vol. The H absorption depends on the c. d. The max. hardness is obtained at 62 amp./sq. dm. and is then 43 times as great as at the normal d. of 16 amp./sq. dm. It is assumed that the H atoms diffuse through the cubic crystal lattice of the Cr and thereby cause a strong deformation of the lattice, which, in its turn, causes the increase in hardness. Thermal treatment can again remove the lattice deformation and thus the hardening effect. The practice of obtaining good Cr deposits is described. Thermal treatment increases the resistance against wear of Cr-plated tools. The base metal and the deposited Cr layer must not form an alloy, as this would change the crystal structure to which the hardness is due. Several practical applications of chrome-plated rolls, cylinders, etc., and other equipment in printing are described, and suggestions made for detecting causes of failures in Cr deposits. M. HARTENHEIM

**A cyanide-free bath for the deposition of copper on steel.** COLIN G. FINK AND CHAAK Y. WONG. *Trans. Electrochem. Soc.* **63**, 8 pp.(preprint)(1933).—The development of large automatic plating installations for strip steel, standard steel parts, etc., has emphasized the inadequacy of the Cu cyanide bath. Besides being decidedly poisonous, it is very unstable, rapidly carbonating during use. To meet the demand for a Cu strike bath, which is relatively stable and which may be followed by an acid bath with perfect safety, the authors have developed a sulfate-oxalate bath which produces a satisfactory Cu deposit in 60 sec. at a c. d. of 10 amp./sq. ft. (1.1 amp./sq. dm.). C. G. F.

**Tantalum and columbium cathodes *vs.* platinum cathodes for electroanalysis.** D. F. CALHANE AND C. MALCOLM ALBER. *Trans. Electrochem. Soc.* **63**, 7 pp.(preprint)(1933).—Ta and Cb cathodes may be successfully employed for the electro-detn. of Cu, Zn, Ag and Ni. The authors' results in all cases compare favorably with those for Pt gauze cathodes. In the detn. of Zn, Ta and Cb have the special advantage that the Zn may be plated directly on the cathode without the deposition of a protective coating of Ag or Cu, as is done in the case of Pt cathodes for Zn. Pt and Cb are practically on a par, with Cb slightly favored, as regards the direct deposition of Zn thereon. The authors confirm the conclusions of other investigators that Ta cathodes give irregular and inaccurate results, unless the cathode surface is mechanically cleaned after every few depositions. If this is done, Ta will give results directly comparable with those for Pt and Cb. Conclusion: Ta and Cb gauze electrodes, as soon as such become available, will give deposition rates comparable with those for Pt gauze. C. G. F.

**Electrolytic zinc plant of the Sullivan Mining Co.** W. G. WOOLF AND R. M. MILLER. *Mining Congr. J.* **17**, 624–7, 640(1931). G. G.

**A simple electrolytic hydrogen and oxygen generator.** D. VON KLOBUSITZKY. *Biochem. Z.* **257**, 478–9(1933).—A 10–12-l. glass jar with wooden cover is used. Through an opening in the center of the cover is inserted a wide-mouthed l. bottle from which the bottom has been removed. The inside electrode at which the gas is generated consists of 3 plates (2 × 3 cm.) of Ni. All connections of the app. are made gas-tight with a mixt. of wax and colophonium. The electrolyte is 20% NaOH. Water is added from time to time. The electrodes should be of pure Ni, but even so they must be replaced oc-

casionally. The app. runs practically automatically on the d. c. lighting current. It is advisable to wash the $H_2$ with acidified $KMnO_4$ and the $O_2$ with 25% KOH.
S. MORGULIS

**Theories of addition-agent action.** ROBERT TAFT. *Trans. Electrochem. Soc.* **63,** 8 pp. (preprint)(1933).—There are at least 2 types of addn.-agent action. In 1 type the addn. agent is actually included within the deposit. Adsorption of addn. agent by metal appears to be the best explanation of this type. In the second type of addn.-agent action the "addition agent" is reduced simultaneously with the metal ion. In such cases as have been studied of this type the addn. agent is not included within the deposit. An explanation of the reduction in cathode polarization which accompanies the use of certain addn. agents is advanced. C. G. F.

**Electric dewatering of slurry.** HEWITT WILSON AND H. G. WILCOX. *Concrete* (Mill Section) **40,** No. 4, 56–9, No. 5, 56–9, No. 6, 55–7(1932).—Lab. tests indicated that limestone and clay both carry a neg. charge and deposit without apparent segregation on the anode. Costs of dewatering by *electrophoresis* are estd. to be approx. equal to costs of evapn. by burning coal. RAYMOND WILSON

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Special refractory bricks for the crown of electric furnaces (SOMMER) **19.** Influence of pickling operations on the properties of steel (SUTTON) **9.** Electric glass melting (BESBORODOV) **19.** Cellular concrete, etc. (Ger. pat. 568,196) **20.** Froth flotation mineral separation (U. S. pat. 1,891,776) **9.** Purifying gases (U. S. pat. 1,891,974) **21.** Making goods from rubber dispersions (Brit. pat. 364,552 and 366,044) **30.** Apparatus and process for making artificial threads (Brit. pat. 364,780) **23.** Heat-resistant, fracture-proof cathode-insulating rings (Brit. pat. 363,976) **19.** Purification of gas (Fr. pat. 40,618) **21.** Porous rubber [as separator in accumulators] (Brit. pat. 365,971) **30.**

**Leclanché battery.** "PERTRIX" CHEMISCHE FABRIK A.-G. Fr. 739,162, June 27, 1932. A galvanic element consists in a concd. soln. of $MgCl_2$ with or without the addn. of $MnCl_4$. $NH_4Cl$ is added in the solid or dissolved state to the depolarizing mass.

**Storage battery.** RAYMOND D. SHIPP (to Prest-O-Lite Storage Battery Corp.). U. S. 1,892,288, Dec. 27. Structural features.

**Magnetic material suitable for continuous loading of electrical conductors.** GEORGE LAWTON and WM. H. DEARDEN (to International Standard Electric Corp.). U. S. 1,891,235, Dec. 20. Ferrochrome is used for diffusing Cr into the outer layer of tapes or wires, or Cr may be deposited electrolytically.

**Electrical condenser.** GREENLEAF W. PICKARD (to General Elec. Co.). U. S. 1,892,362, Dec. 27. A metallic armature plate which may be formed of Al carries a coating of S serving as a dielectric and is used with a conductor such as Hg, of lower m. p. than the S coating and in close contact with the latter.

**Electrical resistance.** CLIFFORD A. NICKLE (to The British Thomson-Houston Co., Ltd.). Brit. 366,905, Aug. 9, 1929. Void. A self-reducing resistance consists of Te formed into a solid body, preferably by the simultaneous application of heat and pressure. Molds for manuf. are described.

**Silicon carbide resistor.** ERNEST HEDIGER (to Globar Corp.). Brit. 366,605, Aug. 17, 1929. A resistance of non-metallic material, *e. g.*, SiC, is cured by heat-treating at a temp. below the dissocn. temp. thereof, while it is in an atm. contg. substantial proportions of at least one of the chem. constituents of the resistor and in the field of an elec. current. Such resistors have a pos. temp. coeff. The material used is a mixt. of ordinary SiC and dense SiC from a furnace. Both are powd. and mixed with a small amt. of fine C and Na silicate in $H_2O$.

**Copper iodide rectifier.** WALTHER KRAUSS (to General Elec. Co.). U. S. 1,891,097, Dec. 13. A Pb electrode carrying Pb sulfate on its surface is used in contact with a surface comprising a mixt. of Cu iodide and free I.

**Mercury-arc rectifiers.** THE BRITISH THOMSON-HOUSTON CO. and FRANK P. WHITAKER. Brit. 363,984, July 16, 1930.

**Electrode for vapor electric devices such as mercury-arc devices.** WM. T. ANDERSON, JR., and HUGH D. FRASER (to Hanovia Chemical and Mfg. Co.). U. S. 1,890,926, Dec. 13. Various structural details are described of a device having a Hg electrode in which is immersed a coil of metal of greater heat cond. such as W or Mo which is in contact with the walls of the container (which may be formed of glass or fused silica).

**Electroplating with silver over chromium.** DANIEL GRAY and BURDETTE K. NORTHROP (to Oneida Community, Ltd.). U. S. 1,892,051, Dec. 27. A Ag plating is applied to a Cr surface over an intermediate Cu coating.

**Electrolytic apparatus for removing water from benzine, etc.** GEORGES RASQUIN. Ger. 568,220, Jan. 23, 1930.

**Electric systems for preventing undesired electrolytic action in boilers, condensers**

**or the like.** GEORGE S. NEELEY (one-half to Griffin Watkins). U. S. 1,891,004–5, Dec. 13.

**Electrical contacts of tungsten, etc.** CLEMENS A. LAISE (to Eisler Electric Corp.). U. S. 1,891,050, Dec. 13. Contacts such as those of W or Mo are formed of wrought metal having a finely grained structure (as distinguished from a fibrous or flaky structure).

**Anodic formation of oxide coatings on aluminum.** HELMER BENGSTON (to Aluminum Colors, Inc.). U. S. 1,891,703, Dec. 20. The Al is made anode in an electrolytic cell contg. an electrolyte of coating-forming soln. such as $H_2SO_4$ soln. and, during the coating process, all points of the Al-anode-electrolyte interface are maintained at a const. temp. (as by circulation of the electrolyte). App. is described. Cf. *C. A.* **26**, 5266.

**Electric apparatus for ozonizing air in buildings.** ARTHUR W. CONLEY (to Corozone Co.). U. S. 1,891,916, Dec. 27. Structural details.

**Metals.** ERWIN POPPER. Fr. 738,780, June 17, 1932. A compd. such as an oxide or salt of a metal, in the form of a vapor, mist or suspension is passed through a space to which is applied an intense local heating by means, *e. g.*, of one or more elec. arcs. Thus, $AlCl_3$ is passed in a stream of H through an elec. arc and afterward through an electrostatic field. Al is formed and part of the Cl forms HCl with H.

**Electric-arc treatment of carbonaceous materials.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,045, Oct. 7, 1930. Carbonaceous materials in the gas or vapor phase or in the form of mist or dust are treated with an arc generated by a. c. of not more than 500 cycles under such conditions that the decrease from the no-load tension to the working tension is more than 30%. The current may be rectified if desired. Materials that may be treated include coals, tars, oils and other hydrocarbons, and resinous and asphaltic materials. Treatment may be in the presence of H, N or small amts. of oxides of steam or $H_2S$. The products include $C_2H_2$ and (if N is present) HCN.

**Carbon.** I. G. FARBENINDUSTRIE A.-G. Brit. 364,757, Nov. 17, 1930. See Fr. 720,192 (*C. A.* **26**, 3884).

**Induction furnace.** SIEMENS-SCHUCKERTWERKE A.-G. (Johann Schnepf, inventor). Ger. 568,308, Oct. 31, 1926.

**Inductively heated tunnel kiln.** SIEMENS & HALSKE A.-G. (Fritz Walter, inventor). Ger. 568,217, Sept. 14, 1930.

**Crucibles for induction furnaces.** DEUTSCHE EDELSTAHLWERKE A.-G. Fr. 738,497, June 10, 1932.

**Electric furnace for carbon disulfide production.** CLARENCE C. SCHWEGLER (to Dow Chemical Co.). U. S. 1,892,191, Dec. 27. A plurality of electrodes are laterially inserted into the lower part of a chamber to contain carbon material and are provided with a switch for disconnecting each electrode independently; sulfur vapor inlets are placed below the electrodes with valves for control of these inlets independently. Various structural details are described.

**Collecting electrodes with catch spaces for electrical precipitation apparatus.** SIEMENS-SCHUCKERTWERKE A.-G. (to Lodge-Cottrell, Ltd.). Brit. 366,877, Aug. 30, 1930.

**Electrode-feeding device for electric furnaces.** JAMES G. MARSHALL (to Electrometallurgical Co.). U. S. 1,892,109, Dec. 27. Mech. features.

**Collecting electrodes of electric dust precipitator.** METALLGESELLSCHAFT A.-G Brit. 365,018, July 29, 1931.

**Electrical purification of gases.** SIEMENS-SCHUCKERTWERKE A.-G. Brit. 366,449. Aug. 6, 1929. Void. In a process for the elec. purification of gases the velocity of flow of the gases between the electrodes is greater than 10 m. per sec., this increasing the flash-over voltage by about 80–100% above normal.

**Electrofiltration of gases.** SIEMENS-SCHUCKERTWERKE A.-G. Ger. 568,238, Mar 15, 1931. The gases are given a relatively high or low moisture content according to whether the temp. in advance of the electrofilter is substantially higher or lower than the temp. in the electrofilter.

**Treating gases electrically.** METALLGESELLSCHAFT A.-G. Brit. 367,719, Aug. 4, 1931. In a process for the elec. sepn. of suspended particles from gases the gases, after traversing one or more spiral passages contg. electrodes, are forced to travel in a straight line or have their direction of flow reversed or otherwise deflected while still within the elec. field.

**Electrical precipitation apparatus for cleaning gases.** METALLGESELLSCHAFT A.-G. Brit. 364,491, May 21, 1931.

**Cleaning blast-furnace gases, etc., electrically.** SIEMENS-SCHUCKERTWERKE A.-G. (Robert Strigel, inventor). Ger. 568,123, Mar. 7, 1931. The voltage in the electrofilter is automatically regulated in accordance with the amts. of H and dust in the gases.

**Temperature indicator suitable for use with oil-insulated electrical transformers provided with a water cooling system.** A. C. Tᴀʏʟsaac (to British Thomson-Houston Co., Ltd.). Brit. 353,281, Aug. 16, 1929. Apparatus described suitable for indicating on a scale the load conditions in a transformer.

**Electric system [employing potential from stress on a piezoelectric crystal] for indicating temperature, etc.** H. E. Lɪɴᴄᴋʜ and R. A. J. Kʟᴜɢʀ. Brit. 352,051, March 28, 1929.

**Coating wires, sheets, etc., of oxidizable metals with non-corrosive metals.** D. Bᴀᴜᴅᴇᴡʏɴs. Belg. 388,977, July 30, 1932. Wires to be coated are passed by means of grooved pulleys through a series of baths; in certain of the baths the driving pulleys act as electrodes, while the bath itself consists of an electrolyte which produces a metallic coating on the wire.

**Polarized electrically conductive couple.** Sᴀᴍᴜᴇʟ Rᴜʙᴇɴ (to Ruben Condenser Co.). U. S. 1,891,206, Dec. 13. Polarized Al electrodes are used with a spacer located between the electrodes and composed of a fibrous sheet material such as paper impregnated with a mixt. of a crystd. film-maintaining electrolyte contg. boric acid and borax crystals together with glycerol and water. U. S. 1,891,207 relates to an electrolytic condenser with spaced electrode plates, one of which is electrolytically film-formed, between which is a conductive compn. contg. ethylene glycol and a film-maintaining electrolyte comprising boric, citric, malic, lactic, tartaric or phosphoric acid together with a salt of one of these acids, forming together a crystd. electrolyte.

**High-voltage electrical dehydration apparatus for treating oils, etc.** Rᴀʏᴍᴏɴᴅ T. Hᴏᴡᴇs (one-third each to A. A. Anderson and L. A. Snyder). U. S. 1,891,645, Dec. 20. Structural features.

**Submarine cable materials.** Aʀᴄʜɪᴇ R. Kᴇᴍᴘ (to Bell Telephone Laboratories, Inc.). U. S. 1,892,279, Dec. 27. A submarine cable is described having magnetic material for increasing the inductance, and which, for relieving the magnetic material from strains due to pressure and bending, is filled or surrounded with a pressure-equalizing compd. comprising a polymerized cyclic terpene hydrocarbon such as polymerized turpentine or pine oil mixed with a gum such as balata or a synthetic gum substitute composed largely of hydrocarbon material of the compn. $(C_5H_8)_n$.

**Incandescent lamp.** Tʜᴇ Bʀɪᴛɪsʜ Eʟᴇᴄᴛʀɪᴄᴀʟ ᴀɴᴅ Aʟʟɪᴇᴅ Iɴᴅᴜsᴛʀɪᴇs Rᴇsᴇᴀʀᴄʜ Assᴏᴄɪᴀᴛɪᴏɴ, Hᴇɴʀʏ G. Tᴀʏʟᴏʀ, Wᴍ. Lᴇᴛʜᴇʀsɪᴄʜ and Eᴅᴍᴜɴᴅ B. Wᴇᴅᴍᴏʀᴇ. Brit. 363,775, Nov. 6, 1930. An elec. incandescent lamp of the gas-filled type has a heat-insulating member consisting of an evacuated space interposed between the cap and the gas space.

**Incandescent bulbs, etc.** Vᴀᴛᴇᴀ Rᴀᴅɪᴏᴛᴇᴄʜɴɪsᴄʜᴇ & Eʟᴇᴋᴛʀɪᴢɪᴛäᴛs A.-G. Brit. 363,840, Mar. 4, 1930. See Fr. 708,551 (*C. A.* **26**, 929).

## 5—PHOTOGRAPHY

E. P. WIGHTMAN

**German proposals for standardization of sensitometric methods.** E. Gᴏʟᴅʙᴇʀɢ. *Z. wiss. Phot.* **31**, 81–3(1932); *Phot. Abstr.* **12**, 218.—Negative materials for daylight use are to be tested as follows: Exposure is made behind a neutral wedge, consisting of 30 steps, increasing by 0.1 d. per step, to the standard lamp and liquid daylight filter recommended by the American Standardization Comm. for a period of 0.05 sec. The development is carried out by the brush method in a standard M. Q. developer for an "optimal" time, which will allow for special properties of certain materials, *e. g.*, degree of hardening of film, and render unnecessary the fixing of a rigid temp. of development. The sensitivity is to be measured by the exposure necessary to produce an opal contact density of 0.1 above the fog.

**Influence of inclination of rays on sensitivity of photographic plates.** V. G. Fᴇsᴇɴᴋᴏv and V. A. Kᴜʀᴀɴᴏv. *Bull. acad. sci. U. R. S. S.*, Classe sci. math. nat. **1931**, 1309–11; *Phot. Abstr.* **12**, 213.—The sensitivity does not appreciably diminish until the angle of incidence is less than 45°.

**Spontaneous growth of the latent image between exposure and development. III.** E. R. Bᴜʟʟᴏᴄᴋ. *Sci. ind. phot.* [2], **3**, 201–6, 241–4(1932); cf. *C. A.* **24**, 5243; **26**, 1528.—Satisfactorily concordant results, obtained after removing the cause of a previous irregularity, confirm the reality and probable generality of the spontaneous increase of the developable image, between a light-exposure and development, over a considerable range of materials and conditions. Jausseran's lineal relation between the latent image and the logarithm of its age is, moreover, confirmed and found to hold more accurately when the age is timed from the mid-point of a long exposure than from its beginning. The growth

effect doubtless enters as an error into most of the scientific applications of photography. Further information concerning the nature of this phenomenon and its constancy or variation with conditions not yet considered is apparently necessary before the error which it produces can strictly be compensated or allowed for. E. R. BULLOCK

**The role of alkali in [photographic] development.** G. P. FAERMAN AND N. N. SHISHKINA. *J. Phys. Chem.* (U. S. S. R.) **3**, 390–405(1932).—Developer action is independent of the particular alkali used but dependent on the H-ion concn. NaOH, KOH, $Na_2CO_3$, $K_2CO_3$ with borate, phosphate and acetate buffers and a metol developer were used. Buffer action dets. the constancy of action of the developer. Six tables and six graphs give the results. F. H. RATHMANN

**Standardization of testing of negative materials.** R. LUTHER. *Z. wiss. Phot.* **31**, 83–95(1932); *Phot. Abstr.* **12**, 218.—Exptl. work carried out to test the practicability of the German recommendations is described. Details of the construction and accuracy of a suitable exposure app. with free falling shutter are given. Tests show that wedges of required neutrality are readily obtainable. An M. Q. developer is recommended, and results with this developer, upon a wide range of materials, indicate that, for "optimal" development, times of the order of 10 min. at 15°, 7 min. at 20° and 5 min. at 25° are required. The measurements of sensitivity by the new method are shown to be in good agreement with the working speed, while tests upon the reproducibility of results show that with extreme care an accuracy of ±0.5 step can be obtained (mean of 4 readings). A comparison of measurements carried out in different labs. is being made.

**Duplication of motion-picture negatives.** J. I. CRABTREE AND C. H. SCHWINGEL. *J. Soc. Motion Picture Engrs.* **19**, 891–908(1932); *Phot. Abstr.* **12**, 192.—Tests have been carried out with various emulsions for the master positive and the duplicate negative, the resulting negative always having the same printing qualities as the original. Screen tests are described comparing prints from the original negative with prints from the duplicate negative, the graininess being compared by the min. distance at which the grain can be observed. It is found that to obtain the best result, with Eastman duplicating positive and negative film, it is necessary to develop the positive to a high gamma, 1.85, and the duplicate negative to a low gamma, 0.55. Fine-grain borax developer is recommended for the duplicate negative, and the necessity is emphasized of printing the master positive and duplicate negative so that their min. ds. are 0.4 and 0.3, resp., to avoid poor tone rendering due to the underexposure portion of the curve. Imperfect contact between negative and emulsion in the printer decreases the graininess and the definition. Diffuse printing light, together with perfect contact, reduces definition slightly, but does not alter graininess.

**New uses for aniline black.** H. FREYTAG. *Melliand. Textilber.* **13**, 144(1932); *Phot. Abstr.* **12**, 223.—Irradiation with ultra-violet light of solns. contg. aniline-HCl and suitable oxidizing agents and catalysts, as used in aniline black dyeing, markedly accelerated formation of aniline black pigment. Satisfactory reproduction of images may be obtained by impregnating paper or cotton fabric with a 1–25% soln. of aniline-HCl contg. 5 drops of aq. 4% $K_3Fe(CN)_6$ and 18–24 drops of 10% aq. $NaClO_3$ per 30 cc., covering with a photographic negative, then exposing for about 15 min. to ultra-violet light and removing unchanged aniline, etc., by washing with water.

**Behavior of phenylenediamines in ultra-violet light.** H. FREYTAG. *Melliand. Textilber.* **13**, 322(1932); *Phot. Abstr.* **12**, 223.—Irradiation of moist filter paper and cotton fabric impregnated with solns. contg. about 0.1% of *o*-, *m*- or *p*-phenylenediamine, or mixts. of these, resulted in yellow to brown color formation due to oxidation of the base, which was assisted by the presence of 0.1% $NaNO_2$ and $KNO_3$; the resulting colors were faster to washing when aniline was also present. The process could be adopted for producing photographic prints on fabric as described in the preceding abstr.

**An investigation of the decomposition products of x-ray films.** GRACE BALLARD *Radiology* **20**, 18–31(1933).—Toxic concns., that is, concns. exceeding 0.3%, of HCN were obtained in all expts. on x-ray films of various types except those on cellulose acetate film without the gelatin coating. The amt. of HCN formed decreases as the amt. of available air increases; hence if the films are burned in excess of air, HCN is probably absent entirely. It is formed apparently both in the gelatin coating and at the base of the film. The ratio of HCN formed from the gelatin to that formed from the film base is greater in acetate than in nitrate films. Expts. indicate that the gelatin probably reduces the fire hazard, as it appears to have a depressant influence on film combustion, which is greater in nitrate than in acetate film. In order to decomp. cellulose acetate film, it is necessary to keep it at a high temp., and even then a very incomplete type of combustion results. The cellulose acetate films are, therefore, superior from a safety standpoint, since they are more stable than cellulose nitrate, which decomps. rapidly at

150°, and since much lar[illegible]nts of gases are evolved from flameless combustion of cellulose nitrate films. [illegible] is liberated in smaller quantities in acetate films, while the oxides of N are entirely absent from the gases. CO is the only toxic gas liberated in comparable quantities from both types of film. GEORGE L. CLARK

Fluorescence of HgCl in Eder's solutions (PLOTNIKOV) **3.** Application of the Blair-Leighton equation to x-rays (LESTER, BLAIR) **3.** Electrolysis of Ag-bearing thiosulfate solutions (HICKMAN, *et al.*) **4.** Sizing paper strips for photographic roll-film (Brit. pat. 353,324) **23.**

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MERCATOR, G.: **Die photographische Retusche mit besonderer Berücksichtigung der modernen chemischen, mechanischen und optischen Hilfsmittel** nebst einer Anleitung zum Kolorieren von Photographien. 9th ed. Halle: W. Knapp. 61 pp. M. 1.80; bound, M. 2.30.

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**Color photography.** A. HILGER, LTD., and J. H. DOWELL. Brit. 349,107, Jan. 18, 1930. Optical features.

**Color photography.** SOC. FRANÇAISE DE CINEMATOGRAPHIE ET DE FILMS EN COULEURS KELLER-DORIAN and J. L. VIDAL. Brit. 349,267. Optical features.

**Color photography.** L. O. VAN STRAATEN. Brit. 353,151, Sept. 6, 1929. In producing corrected color-selection transparencies suitable for color photographs or color printing without hand retouching, a strip of material having primary color areas (suitably yellow, blue and red), which are preferably graded, is photographed at the same time as the original, color-selection negatives being taken (suitably with green, violet and orange filters) and negatives also being taken through filters of the primary colors on the strip. From the latter set of negatives compensating transparencies are produced having a d. which corresponds to the inherent visible faults in the images of the primary colors on the strip in the original color-selection negatives. These transparencies are then combined with the corresponding original color-selection negatives to produce corrected color-selection transparencies.

**Screen for color photography.** P. W. SMITH. Brit. 351,498, March 26, 1930. Various details are described for manuf. of multicolor screens by a process involving slicing superposed colored layers of celluloid or the like.

**Filter and prism system, etc., for color photography.** L. T. TROLAND (to Technicolor Motion Picture Corp.). Brit. 349,318, June 15, 1929.

**Coloring photographic images.** A. F. DEGENHARDT. Brit. 348,507, Nov. 12, 1929. In coloring images on a film having an emulsion coating on each side, the images on one side are treated by floating the film over bleaching and dye baths (the bleaching bath being of such compn. that the dye images produced are unaffected by another bleacher), and the film is then immersed in a second bleaching bath and dye bath to color the images on the other side. The first bleaching material may comprise $K_3FeC_6N_6$, KI, KBr, HOAc and ferric $NH_4$ sulfate (the images on this side being dyed blue or green-blue). The second bleacher may contain KI, I and citric acid, the images being dyed orange-red. $(NH_4)_2Cr_2O_7$ also may be added to the first bleacher.

**Renovating cinematograph films.** JAMES G. E. WRIGHT (to The British Thomson-Houston Co., Ltd.). Brit. 364,082, June 28, 1929. Void. Shrunken celluloid films are restored to their original dimensions by softening the gelatin picture layer, *e. g.*, by soaking in $H_2O$, to prevent injury thereto in subsequent operations, soaking the film in a camphor soln. to elongate it, and drying it under tension.

**Sound and color picture cinematographic films.** A. A. P. RICHARD. Brit. 353,579, April 3, 1930. In production of combination film records such as those with lenticular color records in which the picture images are produced by reversal from negative images, the picture images are printed from a positive master film, developed and reversed (suitably with a usual acid permanganate bath which is cleared after the reversal by use of a bisulfite or sulfite) to obtain positive images of Ag halide before the sound record is printed from a negative master record.

**Sound-record images on photographic films.** SOC. FRANÇAISE CINÉCHROMATIQUE (PROCÉDÉS R. BERTHON). Brit. 352,248, July 18, 1929. A film bearing a latent sound record is developed with a developer contg. a Ag salt (suitably ferrous oxalate with $AgNO_3$) to deposit addnl. Ag on the exposed portions of the film.

**Treating photographic sound-record images.** SOC. INDEPENDANTE DE TELEGRAPHIE SANS FIL. Brit. 351,956, March 27, 1929. In treating combination sound- and picture-record films, such as those with records produced in superposition, the metal (such as Ag) forming a sound-record image is replaced by a $BaCl_2$ image (suitably by successive application of $BaCl_2$ soln. acidified with formic acid and HCl) which is

opaque to infra-red and other invisible radiations. Various details and modifications of procedure are described.

**Combination sound- and picture-record films.** B. FREUND (to C. Stahl). Brit. 352,471, April 2, 1929. Various details of app. and operation are described relating to a process in which a combination sound- and picture-film record is made as a negative by first recording the sound and pictures on sep. films, developing one of these, then transferring the developed record onto an unexposed portion of the undeveloped film which bears the other record and finally developing the latter.

**Duplicating photographically recorded sound-record films.** W. D. FOSTER and C. L. OSWALD (to Community Service, Ltd.). Brit. 348,010, Oct. 29, 1928. Light of a selected wave length or group of wave lengths is employed and the sensitive emulsion on the film is suited to the selected light beam and the materials and process of development. For printing a combined sound and picture film with a monochromatic beam approx. 4000 A. U., a comparatively slow emulsion rated between 120 and 200 H. & D. is suitable, with glycine used as a developer. Various details of app. and operation are described.

**Tinting the pictures of combination cinematograph and sound-record films.** K C. D. HICKMAN (to Kodak, Ltd.). Brit. 348,372, May 13, 1929. Various details of app. and operation are described.

**Photographic printing process of the bromoil type.** FRANCIS J. SHEPHERD and FRANK F. RENWICK (to Ilford, Ltd.). U. S. 1,891,784, Dec. 20. See Brit. 341,924 (*C. A.* **27**, 1585).

**Color-photographic printing process.** LESLIE W. OLIVER and WM. G. CLARK (to Colour Photographs (British and Foreign) Ltd.). U. S. 1,891,571, Dec. 20. See Fr 722,405 (*C. A.* **26**, 4001).

**Photographic process employing basic dyes.** I. G. FARBENIND. A.-G. Brit 348,102, Aug. 13, 1929. Sensitive layers contg. a sensitizer together with basic dyes partially or completely decolorized by the action of light are fixed after exposure by treatment with a soln. of $HBF_4$ or a salt thereof in a solvent such as water or alc. having a solvent action on the sensitizer in the sensitive layer, the dyes being thus converted into insol. fluoborates. Various details are given.

**Photographic and photomechanical reproduction.** U. DIEM-BERNET. Brit 353,974, May 16, 1930. A negative of an original design is produced by applying the design on a transparent grainless film such as viscose which is rendered light-sensitive throughout its mass (as with ferric ammonium citrate or with AgCl), the film is exposed to light passing through the superficially applied design, the design is removed from the film and the printed image is finished by photochem. treatment. Various details and modifications of procedure are described.

**Photographic direct positives.** MIMOSA A.-G. Brit. 349,947, Nov. 30, 1928. A translucent film (such as may be cast from a cellulose nitrate soln. contg. $BaSO_4$) is coated with a sensitive Ag emulsion, exposed in a camera, developed and the developed image is reversed.

**Photographic paper negatives.** J. TACKELS. Brit. 348,281, March 13, 1930. Uncoated paper or paper which has been coated with substances such as $BaSO_4$, $CaCO_3$ or starch, etc., is treated with acid such as $H_2SO_4$ in a coating app. and then coated with a Ag emulsion to which has been added 0.2–6% of a fatty or oily substance such as lanolin, petrolatum, liquid paraffin or glycerol, which serves to increase the speed of the emulsion.

**Screen diapositives for the production of printing surfaces.** BEKK & KAUFEN CHEMISCHE FABRIK GES. Brit. 351,201, May 27, 1929. Screen transparencies for the production of printing surfaces, having screen points which can be reduced and enlarged as required, are obtained by printing from a screen negative on a Ag halide plate which has been treated with a dichromate soln. The exposure is prolonged sufficiently to produce a differentially hardened dichromate image, a strong developer such as glycine is used, and various details of auxiliary treatment are described.

**Photographic diazotype prints.** M. RENKER, G. RENKER, H. RENKER and A RENKER (trading as Dürener Fabrik Präparierter Papiere Renker & Co.). Brit. 353, 486, March 22, 1929. Paper is treated with a light-sensitive diazo compd. admixed with ureas or their derivs. such as thiourea or an $NH_4$ salt of an org. acid such as $NH_4$ citrate (which prevents subsequent discoloration of the paper), and development of the print is effected with an excess of alk. developer contg. an azo coupling agent and the excess is immediately removed. Various examples are given.

**Toning and fixing photographic prints.** G. RIVIÈRE. Brit. 353,398, Jan. 26, 1929. Prints on Ag citrate paper are toned and fixed by applying them to the moistened surface of a block of gelatinous material contg. toning and fixing reagents. Washing after toning and fixing requires only a few sec.

**Photomechanical multicolored map printing, etc.** ULLSTEIN A.-G. and M. KERN. Brit. 353,936, April 27, 1929. Two groups of partial originals are first prepd., the members of one group representing the black and differently colored areas of the map or other article and those of the second group representing the black and differently colored line portions of the map or other article such as rivers, railways, etc. Negatives are made from all the partial originals, those representing color records are colored by the 3-color process and those corresponding to the first group are taken through a screen. Printing plates are prepd. from the combined negatives.

**Photographic sensitive materials.** I. G. FARBENIND. A.-G. Brit. 354,274, Jan. 29, 1929. A layer consisting wholly or in part of a cellulose deriv. is sensitized (suitably with Ag salts, a dichromate or diazo compds.), and an image is produced by changes in the phys. or chem. properties of the cellulose deriv. (as by swelling, dissolving or coloring effects). A catalyst such as a suitable heavy metal salt, resins, gums, fillers, dye-pigments, etc., may be included in the layers formed, and various examples and details of procedure and compns. are given, suitable for producing images on cloth, metal plates or other materials. Cf. *C. A.* **27**, 1583.

**Light-sensitive layers.** VEREINIGTE CHEMISCHE FABRIKEN KREIDL, HELLER & Co. Fr. 739,004, June 23, 1932. Layers sensitive to light are made from an artificial resin which is swellable and preferably also sol., *e. g.*, condensation products of urea or thiourea with aldehydes. To avoid irregularities in the layer, wetting or emulsifying agents are added to the sensitized soln. before its application to the support.

**Comparison device for determining the density gradation of photosensitive layers.** I. G. FARBENIND. A.-G. Brit. 353,641, Dec. 20, 1929. A transparent or translucent support is provided with several series of areas of different known graded d., all the series commencing with an area of the same d. and the difference between the d. of the first and last areas of each series increasing from series to series. Comparison is made by superimposition, various details of the operation being described.

**Photographic "bleaching-out" layers.** I. G. FARBENIND. A.-G. Brit. 352,196, June 2, 1930. Bleaching-out layers are prepd. from thioxanthonium and selenoxanthonium dyes (various examples of which are given) with a suitable binding agent.

**Photographic emulsions.** S. E. SHEPPARD and E. P. WIGHTMAN (to Kodak, Ltd.). Brit. 350,996, Feb. 25, 1929. The fogging tendency of a Ag-salt emulsion is minimized by addn. of carbamide, a substituted carbamide, acid amide, substituted acid amide or acid hydrazide in small proportion.

**Photographic intensifiers.** EMILE L. FIEVEZ and UNION CHIMIQUE BELGE, SOC. ANON. Brit. 363,854, Jan. 10, 1931. See Ger. 528,712 (*C. A.* **25**, 5104).

**Photographs rich in contrasts.** I. G. FARBENIND. A.-G. Brit. 350,984, Dec. 21, 1928. Pictures rich in contrasts are produced by employing layers sensitized for infra-red rays and exposing them to light which contains only red and infra-red rays.

**Corrugated rubberized paper supporting ring for sound-reproducing diaphragms.** SPENCER W. MCKELLIP (to Philadephia Storage Battery Co.). U. S. 1,891,566, Dec. 20.

**Photomechanical printing surfaces.** MEISENBACH RIFFARTH & Co. Brit. 348,162, Nov. 7, 1929. In producing photomech. printing surfaces by exposing to light a layer of dichromated colloid on a metal plate and washing away the unexposed colloid, the surface is treated with a mixt. of a dehydrating agent such as alc. and $HNO_3$.

**Printing photographs on cloth.** YOSIGORO TAKEITI. Japan. 94,761, Feb. 26, 1932. A photograph is printed on a cloth painted with $NH_4$ oxalate soln. The figure is developed with $AgNO_3$ soln. and fixed with a soln. contg. NaClO and $H_2C_2O_4$.

**Photomechanical screens.** J. HEIDENHAIN. Brit. 351,626, Aug. 10, 1929. A PbS mirror is formed on a transparent plate such as glass, celluloid or "cellon," coated with a light-sensitive material such as dichromated albumin which is exposed under a ruled line or dot screen, rolled with oil pigment, developed with water to remove the unexposed albumin, dusted with asphalt powder to render the remaining pigmented albumin acid-proof, etched with Fe chloride and finally treated with benzine or the like to wash off the rest of the asphalt. Cf. *C. A.* **27**, 33.

## 6—INORGANIC CHEMISTRY

A. R. MIDDLETON

**Separation of iridium and platinum.** B. G. KARPOV AND A. N. FEDOROVA. *Ann. inst. platine* No. 9, 106–8(1932).—Calomel reduces Pt compds. to the metal on heating solns. to 90–95°. Ir under these conditions is reduced to a trivalent state. A soln. of mixed chlorides is adjusted by diln. to a 1–2% Pt content, calomel is introduced in slight excess and the soln. heated to 90–95° for 2 hrs. with agitation. The filtrate is

partly evapd. in $NH_4Cl$, and a little $HNO_3$ is introduced. Boiling is continued until crystals of $NH_4Cl$ sep. $NH_4$ chloroiridate is sepd. and again treated with calomel for complete sepn. of Pt. The pptd. Pt with excess of calomel is filtered from the soln. of $NH_4$ chloroiridate and is heated in a current of H. W. P. ERICKS

**Preparation of pure iridium hydroxide, $Ir(OH)_4$.** N. K. PSHENITZUIN AND S. E. KRASIKOV. *Ann. inst. platine* No. 9, 135–6(1932).—Pure $Ir(OH)_4$ can be prepd. by gradual addn. of 10% KOH soln. to a 10% aq. soln. of K chloroiridate and heating the mixt. on the water bath. The ppt. formed is washed thoroughly with water and dried in a vacuum desiccator. Compn. of the compd. so prepd. corresponds to the formula $Ir(OH)_4$. W. P. ERICKS

**Preparation of iridium tetrachloride.** N. K. PSHENITZUIN AND S. E. KRASIKOV. *Ann. inst. platine* No. 9, 133–4(1932).—The method of prepn. of $IrCl_4$ introduced by Voegelin, consisting in treatment of $NH_4$ chloroiridate with Cl at low temp., can be carried out at room temp. W. P. ERICKS

**A simple method for the preparation of germanium tetrahalides.** HUGO BAUER AND KARL BURSCHKIES. *Ber.* **B66**, 277–8(1933).—Heat for 8 hrs. under pressure at 170–180°, 10.4 g. of $GeO_2$ with 104 g. of fuming HCl. Remove the $GeCl_4$ by means of a separatory funnel and purify by distn.; it $b_{759}$, 85.5°. $GeBr_4$ (b. 183°) and $GeI_4$ (m. 145–146°) are similarly prepd. B. A. SOULE

**Action of chlorine on metallic oxides.** WALTHER KANGRO AND RICHARD JAHN. *Z. anorg. allgem. Chem.* **210**, 325–36(1933).—The action of Cl, sufficient to cause at least 1% of the metallic oxide to react per hr., started at the following temps: BeO, 1050°; ZnO, 350°; CdO, 450°; $B_2O_3$, no action up to 900°; $Al_2O_3$, 1200°; $TiO_2$, 800°; $V_2O_5$, 500°; $Cb_2O_5$, 800°; $MoO_3$, 500°; $WO_3$, 700°; $U_3O_8$, 900°. A relation of the temp. of chlorination to the at. no. is evident only in such cases where the product is freely volatile. ALFRED HOFFMAN

**The reaction of ammonia with mercurous chloride.** C. RENZ. *Helv. Chim. Acta* **15**, 1316–20(1932).—The black substance obtained by the action of $NH_3 + H_2O$ on HgCl is composed of $HgNH_2Cl$ and a *mercurophotochloride* (a stable adsorption product of Hg on HgCl). L. F. A.

**Constitution of the perchromates.** ROBERT SCHWARZ AND HERMANN GIESE *Ber.* **B66**, 310–15(1933); cf. *C. A.* **26**, 3744.—Three formulas have been suggested for blue K perchromate: $KH_2CrO_7$, $KCrO_5.H_2O_2$ and $KCrO_6.H_2O$. Prepn. and analysis of blue, slightly sol., explosive $TlCrO_6$ indicates that the 3rd formula is correct. *Peroxide linkages* were detd. by adding perchromate to acid $KMnO_4$ contg. a trace of $(NH_4)_2MoO_4$, then detg. the excess of $KMnO_4$. Structural formulas proposed for the blue and the red perchromates represent them as doubled mols., $K_2Cr_2O_{12}$ and $K_6Cr_2O_{16}$, resp., contg. sexivalent Cr and numerous peroxide linkages. B. A. SOULE

**Reactions and properties of nitric oxide and its compounds. III. The reaction between nitric oxide and the alkali salts of nitrosodisulfonic acid.** HEINZ GEHLEN *Ber.* **B66**, 292–7(1933); cf. *C. A.* **26**, 4764–5.—Evidence is offered for the statement that nitrosodisulfonic acid may be considered a deriv. of $NO_2$ in which 1 O has been replaced by 2 $SO_3H$ groups. An alk. soln. of $(KSO_3)_2NO$ (16 g. in 100 cc. of 5% NaOH) will absorb 500 cc. of NO in 2 min. This reagent is superior to $FeSO_4$ for the detn. of NO or for washing gases to effect its removal. B. A. SOULE

**Basic salts. II. Simple basic chlorides of bivalent heavy metals.** ERICH HAYEK *Z. anorg. allgem. Chem.* **210**, 241–6(1933); cf. *C. A.* **26**, 5024.—Bivalent heavy metals in general form basic chlorides of the type $M(OH)_2.MCl_2$. The new compds. $Mn(OH)_2.MnCl_2$, $Sn(OH)_2.SnCl_2$ and $Fe(OH)_2.FeCl_2$ and *mixed crystals* of these with $Zn(OH)_2.ZnCl_2$, $3CdCl_2.ZnCl_2.8H_2O$ and $2HgCl_2.5\ ZnCl_2.12H_2O$ are described. A. H

**Carbon-oxygen linkage in the metal carbonyls.** J. STUART ANDERSON. *Nature* **130**, 1002(1932); cf. *C. A.* **27**, 33.—The Raman effect affords decisive evidence that the CO is present in the mols. of the metal carbonyls as such, the difference between the value 2155 cm.$^{-1}$ found for CO itself, and the doublet 2125 and 2039 cm.$^{-1}$ found in the case of nickel carbonyl being attributable to the modification in the forces operative in the C-O linkage brought about by the coördination of the CO to the metal, and the consequent redistribution of polarities. ALBERT L. HENNE

**The system: calcium oxide–boric oxide.** ELMER T. CARLSON. *Bur. Standards J. Research* **9**, 825–32(1932).—The m. ps. of various mixts. of $CaO$-$B_2O_3$ were detd. by means of heating curves. For each mixt. the calcd. amt. of $CaCO_3$ was first calcined, then mixed with $H_3BO_3$ and heated. The product varied in appearance from a glass to a soft clinker. Mixts. contg. excess of either CaO or $B_2O_3$ were hygroscopic. Four binary compds. were found: $CaO{\cdot}2B_2O_3$, a readily devitrified glass, m. 986° ± 5; $CaO{\cdot}B_2O_3$, long, flat plates, m. 1154° ± 5; $2CaO{\cdot}B_2O_3$, consisting of irregular grains, m. 1298° ± 5; $3CaO{\cdot}B_2O_3$, irregular grains, m. 1479° ± 5. The phase equil. diagram for the system is given. E. G. VANDEN BOSCHE

**"Blue acid."** W. MANCHOT AND HANS SCHMID. *Z. anorg. allgem. Chem.* **210**, 135–44(1933).—The blue acid was prepd. by treating $NaNO_2$ with 99.4% $H_2SO_4$, expelling the air with H and passing in NO, with vigorous shaking. The acid is formed by the addn. of NO to nitrosylsulfuric acid, and not to $H_2SO_4$, according to the equation: $HSNO_5 + xNO = HSNO_5.xNO$. NO compds. of $FeSO_4$ and $CuSO_4$ in $H_2SO_4$ are not derivs. of the blue acid. H. B. VAN VALKENBURGH

**Mercuric bromoiodides.** A. CH. VOURNAZOS. *J. prakt. Chem.* **136**, 41–8(1933); cf. *C. A.* **25**, 469.—Addn. of HI to $HgBr_2$ in $C_6H_6$ produces the sol. $HHg_2Br_4I$. This is also pptd. from the $Me_2CO$ soln. of the K salt by HCl. Cu displaces the Hg in $Me_2CO$ soln. Salts produced were $KHg_2Br_4I$, $ZnHg_4Br_8I_2$, $PbHg_4Br_8I_2$, $HgHg_2Br_4I_2$, $AsHg_6Br_{12}I_3$, $SbHg_6Br_{12}I_3$, $BiHg_6Br_{12}I_3$, $SnHg_4Br_8I_2$ and $SnHg_3Br_{16}I_4$. The structure is therefore $HI.(HgBr_2)_2$, in which the Hg is bound to I by secondary valences. F. D. S.

**Nickel II hexanitrites.** M. MOUSSERON AND R. CARITEAU. *J. pharm. chim.* **16**, 382–7(1932); cf. Cuttica, *C. A.* **16**, 2645; Cuttica and Carobbi, *C. A.* **17**, 1928.—These compds. were obtained, as a rule, by the interaction of a concd. soln. of $Ni(NO_3)_2$ with nitrites of K, Na, alk. earths or heavy metals. The $Ni(NO_3)_2$ soln. was previously deprived of traces of Co by means of $KNO_2$ in the presence of AcOH, which was finally removed by repeated distn. *in vacuo*. The pptd. compds. were washed with acetone contg. 20% $H_2O$. The following nickelonitrites were obtained (the quadrivalent anion $Ni(NO_2)_6$ = *A*): *A*.$K_4$; *A*.$Na_4$; *A*.$Li_4$ (LiCl + $Ni(NO_2)_2$ from $NiSO_4$ and $Ba(NO_2)_2$); *A*.$K_2Li_2$; *A*.$K_3Na$ (no analogous $NH_4$ compd. was obtainable); *A*.$Ca_2$; *A*.$Ba_2$; *A*.$Sr_2$; *A*.SrCa; *A*.CaBa; *A*.$K_2Ca$; *A*.$K_2Ba$; *A*.$K_2Sr$; also *A*.$(NH_4)_2Ca$; finally *A*.$K_2Mg$; *A*.$K_2Cd$; *A*.$K_2Hg$; *A*.$Na_2Hg$. All these compds. are insol. in org. solvents, hydrolyze with $H_2O$, and nearly all crystallize alike (octahedra). They are a well-defined class, proving that the coördinating action of Ni *is* sufficient to produce this type of compd. S. WALDBOTT

## 7—ANALYTICAL CHEMISTRY

W. T. HALL

**Indicators.** G. A. ELLIOTT. *Chem. Eng. Mining Rev.* **25**, 130–6(1933).—Curves, charts and equations are given to illustrate the use and limitations of indicators commonly used in titrations. W. H. BOYNTON

**Experiments with Folin-Dennis reagent and with naphthoresorcinol.** HANS V. EULER, DAGMAR BURSTRÖM AND H. HELLSTRÖM. *Svensk. Kem. Tids.* **44**, 288–90 (1932)(in German).—The phosphomolybdic reagent does not react with tyrosine, phenylalanine, histamine, *l*-histidine, tryptophan, hexuronic acid and yeast nucleic acid. With 40 mg./100 glutathione there is weak color development. Equiv. color densities are given by: 1 mg. uric acid, 0.3 mg. adrenaline, 2.4 mg. cysteine-HCl and 0.8 mg. hexuronic acid. An aq. soln. of hexuronic acid anaerobically prepd. does not give a color with naphthoresorcinol but does give the blue-violet color after air has bubbled through it. The color substance is $Et_2O$-sol. and has an absorption band near the D line. *d*-Fructose does not react in this manner. A. R. ROSE

**Avoidance of anodic losses of platinum in the electrolysis of alkaline and, in particular, ammoniacal solutions.** ERICH REICHEL. *Z. anal. Chem.* **89**, 411–21(1932).—The loss in wt. of a Pt-Ir gauze anode used in the electrolysis of alk. solns. can be prevented by adding hydrazine sulfate or hydroxylamine sulfate to the electrolyte. A series of expts. in the detn. of Zn, Ni or Ga shows that no harmful results are produced by such addn. W. T. H.

**Extraction analysis with two unknowns.** HANS JESSEN-HANSEN. *Z. anal. Chem.* **89**, 422–6(1932).—The errors involved in extn. analyses are shown in expts. with wheat flour. When the gliadin was extd. with alc. the N values obtained ranged from 1.52 to 1.19% when the vol. of 55% alc. varied from 50 to 400 cc. The causes of error are discussed mathematically. W. T. H.

**New methods of standardizing acids and alkalies.** A. H. PETTINGER. *Textile Colorist* **55**, 93–4(1933).—The procedures are described for standardizing acids with borax and alkalies with $NH_4$ salts in the presence of formaldehyde. Bruhn's method for titrating oxalic acid and soda is also described. RUBY K. WORNER

**Electrometric studies of the precipitation of hydroxides. VIII. Standardization of acid solutions by means of mercuric oxide.** H. T. S. BRITTON AND BEATRICE M. WILSON. *J. Chem. Soc.* **1933**, 9–10.—When HgO is dissolved in satd. alkali chloride or *N* alkali bromide soln., the resulting soln. neutralizes 2 HCl for each HgO (cf. *C. A.* **7**, 3726; **11**, 2865; **27**, 683). Results obtained with a glass electrode agree with those obtained with methyl orange. E. B. SANIGAR

**Analytical spectral investigations. XI. New contributions to the methods of**

**quantitative and qualitative spectral analysis.** WALTHER GERLACH AND KONRAD RUTHARDT. *Z. anorg. allgem. Chem.* **209**, 337–55(1932); cf. *C. A.* **26**, 4272.—The fields of application of the interrupted arc, flaming arc, high-frequency spark and hot electrode spark are outlined. The interrupted and flaming arcs are, resp., 100 and 10 times more sensitive than the condensed spark. Methods of procedure and lines employed are given for the detection of Pd and Co, of Ag and Sb in Cu, of Pb in Pt, of Cu in Pt and of Ag, Fe, Ir, Ni, Os, Pd, Rh and Ru in Pt. **XII. The detection of antimony, arsenic and tellurium.** ELSE RIEDL. *Ibid* 356–63.—$2 \times 10^{-5}$ mg. As and $2 \times 10^{-4}$ mg. Te can be detected in solid alloy electrodes. In solns. free from heavy metals 0.01% As and 0.002% Te can be detected with the interrupted and flaming arcs. An electrolytic pptn. micro method for As, Te and Sb is worked out with 1 cc. of soln. A table of relative line intensities is given for the detn. of As. HOWARD AGNEW SMITH

**Volumetric determination of barium.** S. RIVAS GODAY. *Bol. Farm. Mil.* **10**, 202–6(1932); *Chimie & industrie* **29**, 52.—An excess of $K_2CrO_4$ soln. is added to the neutral soln., the ppt. is filtered and its Cr content detd. iodometrically. The results average 1% too low. A. PAPINEAU-COUTURE

**Volumetric determination of lead in solution of lead subacetate.** ZDENĚK REKTOŘÍK. *Časopis Československ. Lékárnictva* **12**, 241–3(1932).—To 15 g. of soln. add successively 2.5 cc. dil. $HNO_3$, 1 g. $CaCO_3$ and 70 cc. $H_2O$, and titrate the soln. with *M* $K_2CrO_4$, with $AgNO_3$ or bromothymol blue as indicator. WILLIAM J. HUSA

**β-Naphthol test for copper.** CHARLES C. FULTON. *Am. J. Pharm.* **105**, 62–3 (1933).—Dissolve 0.04 g. β-naphthol in 2 cc. alc.; add 0.5 cc. of 6 *N* $NH_4OH$ soln., and follow at once with 5 cc. of the aq. soln. to be tested for Cu. An ammoniacal soln. of β-naphthol in dil. alc. has a light pink color. In the presence of Cu it becomes a cloudy yellowish green with an oily appearance. The test detects 1 part of Cu per 3,000,000 of soln. W. G. GAESSLER

**The copper content of sea water.** W. R. G. ATKINS. *J. Marine Biol. Assoc United Kingdom* **18**, 193–7(1932).—Cu was detd. in sea water (10 mg. per cu. m.) by the Na diethyldithiocarbamate method after electrodeposition. C. M. MCCAY

**A color test for magnesium.** L. LA ROSA. *Ann. chim. applicata* **22**, 725–8(1932).—Add a few drops of 0.5% *p*-$C_6H_4(NH_2)_2$ in water to a soln. contg. $Mg^{++}$, and then concd. KOH drop by drop. A reddish-violet ppt. is obtained. The ppt. dissolves in dil. acids to form colorless solns., but the color returns on the addn. of alkali. Salts of the alkali metals do not interfere; Zn and Al give white ppts., which redissolve in excess KOH; Ba and Sr give ppts., but of different colors. Ca alone might be confused, as it gives a violet ppt., but if this is redissolved in tartaric acid soln., and KOH added, only Mg will ppt. out with the characteristic colored ppt. 0.01% of Mg can be distinguished. A. W. CONTIERI

**Determination of sodium by precipitation as sodium uranyl magnesium acetate.** C. S. PIPER. *J. Agr. Sci.* **22**, 676–87(1932).—Bray's modification (*C. A.* **23**, 462) of Barber and Kolthoff's method (*C. A.* **22**, 2898) was found less satisfactory than Kahane's method (*C. A.* **24**, 3457). Moderate quantities of Ca, Ba and $NH_4$ chlorides, and K up to 0.034 g. KCl per detn., do not interfere. Sulfates interfere only when both Ca and sulfate are present and the soly. of $CaSO_4$ is exceeded. Pure solns. of NaCl gave recoveries of 101.5–99.3%. Good recovery of NaCl added to $NH_4Cl$ exts. of *soils* was also obtained, the av. error being 1.0%. P. R. DAWSON

**Determination of vanadium in steel.** ISABURO WADA AND RAIZO ISHII. *Bull Inst. Phys.-Chem. Research* (Tokyo) **11**, 1266–78 (*Abstracts* (in English) published with *Sci. Papers Inst. Phys.-Chem. Research* (Tokyo) **19**, Nos. 394–7)(1932).—A method of detg. the error in the $KMnO_4$ titration for the detn. of V in the presence of $Cr^{+++}$ is outlined. K. KONDA

**Determination of vanadium, chromium and manganese in alloy steels.** WERNER HILTNER AND CONRAD MARWAN. *Z. anal. Chem.* **91**, 401–11(1933).—H. has recently designed a vacuum-tube potentiometer, soon to be described elsewhere, which is accurate and useful, as is shown by the results obtained in detg. Mn, Cr and V in alloy steels. The methods used were similar to those in common use. Steels free from W were dissolved in dil. $H_2SO_4$ and the Cr, V and Mn oxidized by persulfate in the presence of $Ag^+$. The excess persulfate was then destroyed by suitable boiling and the $MnO_4^-$ in the hot soln. was titrated with $Na_2C_2O_4$ soln. Then, in the cooled soln., Cr and V were titrated with $FeSO_4$, and finally the V alone was titrated with $KMnO_4$. If W is present, its complete oxidation is accomplished by treating the $H_2SO_4$ soln. with $HNO_3$; after prolonged boiling, the $WO_3$ is removed by filtration. This ppt. is dissolved in hot NaOH soln. and NaF added. The alk. soln. is made acid and added to the soln. which has undergone the $Na_2C_2O_4$ titration for Mn. In this way any V in the $WO_3$ ppt is recovered. W. T. H.

**New method for the titrimetric determination of small quantities of iodine.** Géza Csegezy. *Magyar Gyógyszerészttud. Társaság Értesitője* **8**, 457–64(1932).—Acidify the neutral or slightly alk. iodide soln. with $H_2SO_4$, add nitrite and some $CCl_4$ or $CHCl_3$. Oxidize the sepd. I with dil. HCl and Cl water to iodic acid, boil off the excess Cl water, cool, acidify, add KI and titrate with $Na_2S_2O_3$. S. S. de Finály

**Determination of small oxygen content in gases.** M. Mugdan and J. Sixt. *Angew. Chem.* **46**, 90–1(1933).—A known vol. of gas reacts upon an ammoniacal cuprous soln., and the resulting blue color is compared with that of an ammoniacal cupric soln. of known strength. A special app. is described. Check results agree well. Karl Kammermeyer

**Determination of sulfur and halogens in combustible materials.** Wolfgang Grote and Heinz Krekeler. *Angew. Chem.* **46**, 106–9(1933).—A new app. is described which permits quant. absorption and detn. of the combustion gases from the material. $SO_2$ and $SO_3$ are absorbed in a 3% soln. of $H_2O_2$, and the products of combustion of halogens are absorbed in 0.1 *N* NaOH contg. 8% of $Na_2S_2O_3$ soln. S is detd. either as $BaSO_4$ or volumetrically, and the halogen as Ag salt. A bibliography of 14 titles is given. Karl Kammermeyer

**Microdetermination of carbon monoxide by iodine pentoxide.** Gustaf Ljunggren and Gösta Frang. *Svensk. Kem. Tids.* **44**, 279–85(1932).—The app. designed by Schläpper-Hoffman (*C. A.* **22**, 925) is improved and reduced to micro size. Twenty-five cc. gas is sufficient for 0.2% CO samples. The liberated I is dissolved in $CCl_4$, and a microburet is used in the titration which is accurate to ±0.0005 cc. CO. Spontaneous liberation of I is reduced to negligible amts. in 25 min. if air is passed through the train. Twenty-five min. is ample for a detn. A. R. Rose

**The determination of nitrate in the sea by means of reduced strychnine.** L. H. N. Cooper. *J. Marine Biol. Assoc. United Kingdom* **18**, 161–6(1932).—The detn. of nitrate in sea water by means of strychnine is reliable if pure materials are used for the reagent. Iodate in small concns. is negligible in its interference. Excess org. matter such as that from plankton must be removed by centrifuging. C. M. McCay

**Nitrate in sea water and its estimation by means of diphenylbenzidine.** W. R. G. Atkins. *J. Marine Biol. Assoc. United Kingdom* **18**, 167–92(1932).—Nitrate is detd. in sea water by mixing 2.5 cc. of sea water with 6 cc. of concd. $H_2SO_4$. After cooling, this mixt. is treated with 1.5 cc. of diphenylbenzidine reagent. This is prepd. by dissolving 20 mg. of compd. in 100 cc. of $H_2SO_4$. The color is compared after 24 hours with a standard nitrate in sea water. Diphenylbenzidine is recrystd. from boiling toluene. $H_2SO_4$ free from $HNO_3$ is prepd. by heating or by adding a small amt. of $H_2S$. In $H_2O$ this color reaction for $NO_3^-$ is increased by NaCl. $Fe^{+++}$ gives the test but is too low in sea water to cause an error. 50 references. C. M. McCay

**Acidimetric determination of alkali nitrites.** B. Stempel. *Z. anal. Chem.* **91**, 413–15(1933).—To 40 cc. of 0.05 *M* hydrazine sulfate soln. in a 300-cc. Erlenmeyer flask, add 20 cc. of alkali nitrite soln. which is neutral to neutral red and heat 20 min. in the water bath. Cool, add 15 cc. of neutral formaldehyde soln., 5 drops of phenolphthalein indicator soln. and titrate with 0.1 *N* NaOH. Standardize the hydrazine soln. by carrying out the above procedure without adding nitrite. One mol. $NaNO_2$ = 1 mol. NaOH. W. T. H.

**Analysis of the ammonium sulfide group in the presence of the phosphate ion.** A. Scheinkmann. *Z. anal. Chem.* **91**, 415–18(1933).—The recommended procedure calls for the pptn. of the group with $(NH_4)_2HPO_4$, $(NH_4)_2S$ and $NH_4OH$ after oxidation of $Fe^{++}$. The filtrate contains only Na and K. After boiling with a little 2 *N* AcOH, the ppt. contains $CrPO_4$, $FePO_4$, NiS, ZnS and CoS and $AlPO_4$. In the filtrate, Ba, Sr and Ca are pptd. as oxalates, and this ppt. after filtration is converted to carbonates by boiling with $Na_2CO_3$, and then the usual procedure is followed. To the filtrate from the oxalate pptn. $(NH_4)_2SO_4$ is added to remove traces of Ba and Sr, and then $MnO_2$ together with $Mg(OH)_2$ is pptd. by adding NaOH and $H_2O_2$. The $Mg(OH)_2$ dissolves in dil. AcOH and can be detected as usual. The phosphate-sulfide ppt. of Zn, Ni, Co, Fe Cr and Al is treated with dil. HCl in the usual way to dissolve all but NiS and CoS. By adding $NH_4OH$ to the filtered soln., $FePO_4$, $CrPO_4$ and $AlPO_4$ are pptd., leaving Zn in soln. to be detected with AcOH and $H_2S$. By treating the phosphates with NaOH and $H_2O_2$, sol. $NaAlO_2$ and $Na_2CrO_4$ are formed, which can be sepd. as usual. Cf. *C. A.* **25**, 5873. W. T. H.

**Determination of mercurous chloride.** Dénes Kószegi. *Magyar Biol. Kutató Intézet Munkái* **4**, 609–11 (in German 611–12)(1931).—Moisten 2.5 g. substance to form a paste, add 20–25 cc. *N* NaOH, shake, dil. to 100 cc. and filter. Titrate 50 cc. of the filtrate with *N* HCl in the presence of methyl orange. S. S. de Finály

**Formation and properties of thallous thiocarbonate. Specific test for thallium.**

M. PICON. *Ann. chim. anal. chim. appl.* **15**, 56–61(1933).—See *C. A.* **27**, 925. W. T. H.

**Determination of the sulfate ion in sulfonated oils.** FRITZ NEUBER AND HANS WÄCHTER. *Z. anal. Chem.* **91**, 425–32(1933).—Dissolve about 10 g. of the oil in 100 cc. of alc. and heat just below the boiling temp. until the resulting $Na_2SO_4$ ppt. has settled well. With dark oils add at the start 1 cc. of glacial AcOH. Filter and wash the alkali sulfate ppt. with hot alc. Dissolve in hot water and carry out the usual gravimetric detn. as $BaSO_4$. W. T. H.

**Determination of quartz ["free silica"] in dusts.** ADOLPH KNOPF. *U. S. Pub. Health Repts.* **48**, 183–90(1933).—The quartz content of fine dusts was detd. by a combination of petrographic and chem. methods. The latter consisted in grinding, weighing, igniting, HCl treatment, $H_2SiF_6$ treatment, microscopic examn. of residue and volatilization of residue with HF. J. A. KENNEDY

**Destruction of organic substances for toxicological tests.** M. DUYSTER. *Z. Untersuch. Lebensm.* **63**, 501–3(1932).—The dry alc.-free material is heated under reflux for $^1/_2$ hr. at 125° with a mixt. contg. 30 cc. of concd. $H_2SO_4$ and 60 cc. of perhydrol. The mixt. is delivered from a dropping funnel; a tube connected with the top of the condenser dips into the acid mixt. in the funnel or in a beaker to prevent loss of Pb, Hg, etc. S. LAURER

**Applications of the method of destroying organic materials by treatment with sulfuric and perchloric acids to toxicological investigations and industrial hygiene.** R. FABRE AND E. KAHANE. *Ann. chim. anal. chim. appl.* **15**, 49–56(1933).—The method is explained in detail, discussed critically and shown to satisfy most requirements. W. T. H.

**Purification of visceral liquids. New technic for toxicological investigation of alkaloids.** JUAN A. PINTO. *Anales asoc. quím. Argentina* **20**, 168–75(1932).—Dissolve 20 g. of pure, crystd. $SnCl_2$ in 30–40 cc. of water, add 2.5 g. of KOH in a little water, shake until the ppt. dissolves, then make up to 100 cc. Visceral liquids for alkaloid detn., contg. KOAc, are added to this liquid before analysis. E. M. SYMMES

**Detection of barbital in human viscera.** C. STRZYZOWSKI. *Ann. méd. légale criminol. police sci.* **13**, 49–53(1933).—See *C. A.* **26**, 4011. A. PAPINEAU-COUTURE

**Notes on the Thompson-Oakdale method for the determination of halogen in organic compounds.** J. J. THOMPSON AND U. O. OAKDALE. *J. Am. Chem. Soc.* **55**, 1292 (1933); cf. *C. A.* **24**, 2082, 4999.—In this method care must be taken to avoid the presence of $Na_2SO_3$; this may be removed by oxidation with $H_2O_2$. All of the halogen cannot be removed unless the mixt. in the Kjeldahl flask is boiled with a continuous stream of steam passing through the app. for a short time. The $K_2S_2O_8$ must be free from $KClO_4$. C. J. WEST

**Microchemical determination of sulfur in organic substances by titration.** A. FRIEDRICH AND O. WATZLAWECK. *Z. anal. Chem.* **89**, 401–11(1932); cf. *C. A.* **24**, 2402.—Each operation involved in the method was subjected to crit. exptl. study, and as a result, the directions previously given have been modified. W. T. H.

**Determination of fats contained in organic compounds other than a solvent.** ANDRÉ HECQUET. *Ann. chim. anal. chim. appl.* **15**, 61(1933).—Treat 5 g. of finely divided material with a mixt. of 50 cc. of 660 cc. concd. $H_2SO_4$ and 340 cc. of water at —5° in a glass-stoppered 150 cc. tube which is graduated in 0.5 cc. After the sample has dissolved, allow the mixt. to come to room temp., add 50 cc. of $CCl_4$, stir mechanically for 15 min., allow to stand 30 min., stir again for 30 min., and after another hr. read the vol of the solvent. Of this take 20 cc., evap. to dryness and weigh the residue. W. T. H.

**Gravimetric determination of formic acid in the presence of the higher fatty acids.** R. RIGAMONTI. *Ann. chim. applicata* **22**, 744–6(1932).—Neutralize 50 cc. of approx 0.1% $HCO_2H$ soln., add 1 g. $HgCl_2$ and 0.2 g. cryst. $HCO_2Na$ dissolved in very little water. Heat on a water bath for an hr., filter and wash free from $Cl^-$; dry at 105° and weigh the $Hg_2Cl_2$. A. W. CONTIERI

**Micro determination of citric acid by the Thunberg methylene blue method.** ADRIAN C. KUYPER. *Proc. Iowa Acad. Sci.* **38**, 172(1931).—The method depends on the sp. property of citric acid as a H donator to accelerate the decolorization of methylene blue by an enzyme found in cucumber seed. It gives reliable results only when enzyme exts. are prepd. in the same way and used at the same age. Na, Ca and hexose diphosphate do not interfere unless present in concns. higher than those found in the blood. Oxalic acid does interfere because it changes the min. amt. of citrate necessary for max speed of decolorization. The sensitivity is directly proportional to the amt. of methylene blue present in the reaction tube. W. G. GABSSLER

**Formaldehyde titration of hydrazine sulfate.** B. STEMPEL. *Z. anal. Chem.* **91**, [illegible]—Just as $NH_4$ salts and amino acids can be titrated with HCHO soln., with

methyl red as indicator, so can hydrazine sulfate be detd. If considerable alc. is added and phenolphthalein is used as indicator, just twice as much aldehyde is required as with methyl red. W. T. H.

**A test for phenols and for copper.** CHARLES C. FULTON. *Am. J. Pharm.* **105**, 25–9(1933).—The Denigès-Oliver or Cu test is not characteristic of morphine and its derivs., such as heroine, but is a general test for phenols and their Ac derivs., although many phenols have to be tested in alc. soln. rather than aq. As a general test for a phenol, the substance to be tested is dissolved in 5 or 6 drops of alc. on the spot plate; 3 drops of $H_2O_2$ soln. is added, then 2 drops of $NH_4OH$ soln. (about 5 *N*, or 1 + 2), and the mixt. is stirred with a piece of Cu. It is probable that a compd. of Cu with phenol is formed, so that the action of the Cu is not merely "catalytic," as is generally assumed. Some phenols are very sensitive to Cu, and by using such a one this reaction may be made a test for Cu in aq. soln. as follows: the phenol is dissolved in $H_2O$ or alc. as specified, 0.5 cc. each of $H_2O_2$ (3%) and $NH_3$ (5 *N*) are added, and 5 cc. of the soln. to be tested. Reactions are shown for various proportions of Cu with morphine, thymol, 4-hydroxy-1,2-dimethylbenzene and resorcinol. Morphine will detect about 1 part of Cu in 3,000,000 of soln., the others about 1 part in 1,000,000. W. G. GAESSLER

**Determination of thymol.** C. V. BORDEIANU. *Z. anal. Chem.* **91**, 421–5(1933).—By treating about 0.1 g. thymol with a weighed portion of about 0.5 g. HgO dissolved in 1.5 cc. of AcOH and subsequently diluted with 1 cc. of water, there is formed at the water-bath temp. an insol. di-Hg compd. In the filtrate from this ppt., the excess Hg can be titrated with thiocyanate. The results are accurate to within about 0.5% of the actual thymol content. W. T. H.

**Microchemical characteristics of hydroxyflavone compounds, their localization in vacuoles.** A. GUILLIERMOND AND R. GAUTHERET. *Compt. rend.* **196**, 369–71(1933).—Oxyflavonic compds. and tannin, provided they do not exist together in the vacuole, can be distinguished by color reactions with the following: alkali hydroxides, $Pb(AcO)_2$, $Fe^{+++}$, $OsO_4$, $AgNO_3$, $NH_4$ chloromolybdate, Na acetotungstate, $K_2Cr_2O_7$ and $CrO_3$, $K_3Fe(CN)_6$, $NH_4OH$, alkaloids, vital stains, $K_2Cr_2O_7$ + $CH_2O$, $CrO_3$ + $OsO_4$. ALFRED HOFFMAN

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1,3-Dimethylbarbituric acid as an aldehyde reagent (AKABORI) **10**. Quantitative analysis of elements (FLORKE, VOGT) **2**. Separation of Ir and Pt (KARPOV, FEDOROVA) **6**. Establishing the accuracy of methods of interpreting analytical results (VORHES) **12**. Polarographic studies with the dropping Hg cathode. XXX. Electroreduction and estimation of fructose and sorbose (HEYROVSKÝ, SMOLEŘ) **4**.

LUSCZAK, ALFRED, AND HAMMER, EUGEN: **Thymol, Benzol, Toluol, ihre spektrographische Bestimmung in Gebrauchsgegenständen und in die Luft der Aufenthaltsräume.** Berlin: Urban & Schwarzenberg. 83 pp. M. 4.50.

**Physikalische Methoden der analytischen Chemie.** Edited by W. BÖTTGER. **Tl. 1. Spektroskopische und radiometrische Analyse.** Edited by G. SCHEIBE, H. MARK AND R. EHRENBERG. Leipzig: Akad. Verlags. 388 pp. About M. 32.

ZUCCHI, ADALBERTO: **Manuale di chimica analitica pura ed applicata. Vol. II. Analisi quantitativa.** Milan: A. Vallardi. 187 pp. L. 3. Cf. *C. A.* **26**, 1545.

**Detecting carbon monoxide in the air.** GUSTAF LJUNGGREN. U. S. 1,891,429, Dec. 20. See Brit. 341,269 (*C. A.* **25**, 3935).

## 8—MINERALOGICAL AND GEOLOGICAL CHEMISTRY

EDGAR T. WHERRY AND J. F. SCHAIRER

**The mineralogical work of Charles Friedel.** A. LACROIX. *Bull. soc. chim.* **51**, 1512–27(1932). G. G.

**Helium content of beryl.** WM. D. URRY. *Nature* **130**, 777–8(1932).—Various mechanisms for the production of He in beryls are found insufficient to explain the excess of He found. Such sources must be taken into account in detg. the geological age by means of the He ratio. I. J. PATTON

**Hungarian semseyites.** SÁNDOR KOCH. *Math. naturw. Anz. ungar. Akad. Wiss.* 48, 800–7(1931).—The formula of cryst. semseyite proved to be $9PbS.4Sb_2S_3$ + S, that of a compact occurrence $10PbS.4Sb_2S_3$. A dark-gray mineral on the surface of the latter showed the compn.: $3PbS.Sb_2S_3$ + S, near *boulangerite*. S. S. DE FINÁLY

**Analyses of minerals.** GÁBOR VAVRINECZ. *Magyar Chem. Folyóirat* **38**, 140–4 (1932).—*Metacinnabarite* from Felsöbánya contained Hg 77.68, Fe 5.36, S 14.97, insol.

1.41%, corresponding to 4HgS.FeS. *Stibiconite* from Szomolnok contained $Sb_2O_4$ 69.56, $SiO_2$ 5.90, $Fe_2O_3$ 1.58, $Al_2O_3$ 0.14, CaO 10.07, MgO 0.53, $H_2O$ 12.13%. *Limonite* from Rákos contained $H_2O$ 12.67, $Fe_2O_3$ 83.59, $SiO_2$ 2.93 and CaO 0.81%. *Miemite* from Rakovác, Jugoslavia, consisted of 2 layers contg., resp., FeO 5.86, 5.52, CaO 26.97, 26.90, MgO 19.48, 20.07, $CO_2$ 46.39, 46.51 and insol. 0.46, 1.12%. Iron Al garnet from Lower Tátra contained $SiO_2$ 45.5, $Al_2O_3$ 21.3, FeO 26.9 and MgO 6.3%. Analyses are also given of fresh-water limestones from Tihany and Nauheim, of actinolite and smaragdite from Zillertal and of corundophilites from Helminth and Böckstein. Gypsum crystals were found within the brown coal at Baglyasalja, consisting of $H_2O$ 19.77, CaO 30.58, $SO_3$ 45.06 and $Fe_2O_3$ 4.57%. Epsomite was found in a concrete storeroom where brown coal from Nagymányok was stored and the dripping moisture formed stalactite-like crystals. Its compn. was $H_2O$ 49.80–49.60, $SO_3$ 33.34–33.42, MgO 15.77–14.91, $Fe_2O_3$ 0.54–1.15, insol. 0.17–0.21%. S. S. DE FINÁLY

**X-ray spectra of monazite from Borstovočnyi Mountain.** K. K. MATVEEV. *Bull. acad. sci. U. R. S. S., Classe sci. math. nat.* **1931**, No. 10, 1329–46.—The different grades of monazite studied contained: $SiO_2$ 0.3–1.51, $ThO_2$ 9.74–6.84, $P_2O_5$ 25.84–27.26, $Ce_2O_3$ 32.16–34.0, $La_2O_3$ + $Di_2O_3$ + $Y_2O_3$ 28.5, $Fe_2O_3$ 0.14–0.35 (2.12 in one case), $Al_2O_3$ 0.06–0.22%, CaO and $H_2O$ only traces; residue insol. in water 0.28–0.05%. The x-ray spectrograms indicated the presence of Sm, Gd and Dy, not detected before. The intensities of the lines of Ce and Pr are small because the soft x-rays produced by these elements are largely absorbed by the photographic material. Lines of Er and Yb are also present. The monazite is characterized by a large content of the elements from La to Sm, of which Gd is most abundant. The monazite from Borstovočnyi Mt. is qualitatively similar to that from Norway, but its quant. compn. (as detd. by x-ray spectrograms) is different. G. S. STAMATOFF

**The Cruz del Aire meteorites.** ROBERT E. S. HEINEMAN. *Am. J. Sci.* **24**, 465–70 (1932).—The Fe is fine octahedrite. Analysis gave: Fe 91.00, Ni 7.62, Co 1.16, P 0.24, S 0.09, Si 0.03%, Mn none and Cu trace. ALDEN H. EMERY

**Mineragraphy or the petrology of ores and its economic significance.** F. L. STILLWELL. *Chem. Eng. Mining Rev.* **25**, 113–15(1933).—Some economic results of the use of mineragraphy in Australia are pointed out. W. H. BOYNTON

**Camp Smith sulfide deposits—upper east coast of Hudson Bay.** W. B. AIRTH. *Can. Mining J.* **53**, 53–5(1933).—The deposits are predominantly pyrrhotite with minor amts. of pyrite, arsenopyrite and chalcopyrite. W. H. BOYNTON

**Some mineral deposits on the islands of Saint-Pierre and Miquelon [Newfoundland].** E. AUBERT DE LA RÜE. *Compt. rend.* **196**, 55–7(1933).—Some heavily mineralized parallel bands, evidently zones of enrichment, contain a mixt. of magnetite and ilmenite. Black sands bearing these minerals occur as shore deposits on Miquelon Grand Colombier has a siliceous breccia impregnated with hematite. Analyses are given of 3 types of Fe ore. Cambrian grits on Langlade are impregnated with bornite, with traces of chalcopyrite and pyrite, and with malachite in the outcrops; this rock has shown Cu 27%, and Ag 240 g./ton. Occurrences of minerals elsewhere in the islands are briefly mentioned. A. W. FURBANK

**Beryllium and its raw materials.** ELEMÉR VADÁSZ. *Bányász. Kohász. Lapok* **65**, 462–4(1932).—Bauxites from W. Hungary seem to contain 1.37% BeO. Though in too small an amt. for industrial working up, its presence is important as another new argument against the terra rossa-like formation theory of bauxites. S. S. DE FINÁLY

**Feldspar.** HUGH S. SPENCE. Can. Dept. of Mines, Mines Branch, *Rept.* No. 731, 145 pp.(1932).—Occurrence, production, compn., prepn. and uses of feldspar are discussed. ALDEN H. EMERY

**The accessory components of Hungarian bauxites.** TIHAMÉR GEDEON. *Magyar Chem. Folyóirat* **38**, 134–40(1932); cf. *C. A.* **26**, 5517.—Ni occurs in almost all Hungarian bauxite in amts. varying between 0.001 and 0.01% NiO. $Mn_2O_3$ 0.2, $Cr_2O_3$ 0.07, $V_2O_5$ 0.07, CaO 0.5 and MgO 0.2% were found. Zr and Be could be detected, while K and Na were not present in Gánt bauxites. No S compds. could be found. Carbonate is present because the bauxite usually is underlain by dolomite and overlain by limestone. $P_2O_5$ averaged 0.5%. Twenty-four analyses of Hungarian and foreign bauxites are included. S. S. DE FINÁLY

**Fluorspar deposits in western United States.** ERNEST F. BURCHARD. *Am. Inst. Mining Met., Engrs.' Tech. Pub.* No. 500, 26 pp.(1933).—In the Castle Dome district, Ariz., fluorspar occurs with galena in veins in volcanic rocks. Typically, the veins reach 4 ft. in thickness, and fluorspar sometimes constitutes 40–60% of the vein material. Colorado has occurrences of com. value; at Waggon Wheel Gap fluorspar occurs in sheeted rhyolite, the vein zone extending to a point close to where hot springs emerge, and the latter evidently bear some relation to the fissure vein. At Jamestown fluorspar

is a common vein material; Au, Ag and Pb have also been mined here. There is need for a process for treating the low-grade spar in this district, which carries principally siliceous impurities, as shown by typical analyses. At North Gate the fluorspar is generally in finely cryst. radial masses or in ribbon-like form. Occurrences elsewhere, production and markets are discussed. A bibliography is appended. A. W. F.

**Potash deposits at Solikamsk and Berezniki [Russia].** V. MAIKOVSKY. *Ann. mines* [13], **2**, 177–202(1932).—Drilling carried out in 1925–7 disclosed the existence of extensive K deposits in the region of Solikamsk. Carnallite appears to be present in amt. about 3 times that of the more valuable sylvinite. Although the deposits are important reserves, they are not expected to compete with foreign sources of supply, on account of inadequate transportation facilities. A. W. FURBANK

**The Volkenroda petroleum deposit.** HELMUTH ALBRECHT. *Kali* **26**, 25–33 (1932).—A geological description. *Ibid* **26**, 39–43. Several forms of drilling and well equipment are described. The petroleum, sp. gr. 0.836 and viscosity 1.4 at 20°, brownish green in color, is 25% benzine. An av. anal. of the natural gas is: $CH_4$ 54.5, $C_2H_6$ 12.4, $C_3H_8$ 9.0, $C_4H_{10}$ 3.7, $C_5H_{12}$ and homologs 2.2, $N_2$ 18.0, $O_2$ 0.1, CO 0.1, $CO_2$ 0.0 and $H_2S$ 0.0%. W. L. HILL

**Thermomagnetic properties of volcanic rocks.** RAYMOND CHEVALLIER AND JEAN PIERRE. *Ann. phys.* **18**, 383–477(1932).—A crit. examn. of the methods for studying volcanic rocks as to their magnetic constituents is given. The app. devised for the thermomagnetic investigation is then described. The test specimen is placed in the center of an elec. furnace mounted between the poles of an electromagnet. Thermocouples and galvanometers are so arranged that a beam of light is reflected onto a photographic plate, yielding curves in which the ordinates are proportional to temps. and the abscissas to balance-deflections. Results given for many specimens of lavas, basalts, etc., indicate that the Curie points of volcanic rocks vary continuously and hence the magnetic element is a solid soln. The magnetic element is composed of mixed crystals contg. $Fe_2O_3$, FeO and $TiO_2$. When the concn. of $Fe_2O_3$ exceeds 70%, the Curie point is that of magnetite regardless of the exact compn.; below this amt. the Curie point decreases linearly with concn. The role of Ti is not apparent. The ratio $s = Fe_2O_3/(Fe_2O_3 + FeO)$ seems to det. the Curie point. For 7 lavas the $s$-$T$ curve is a straight line passing through 853°K., corresponding to pure magnetite, and 0°K. for pure FeO. The ratio $r' = Fe_2O_3/(FeO + MgO + CaO)$ for the entire mass seems to vary in the same manner as $Fe_2O_3/FeO$ in the magnetic element. For the lava of 1381 from Mt. Etna, the curves form a regular array without intersections; this is probably due to progressive oxidation from the surface toward the center, giving all possible concns. of $Fe_2O_3$. Conclusion: The magnetic element is a solid soln. and the concns. of the Fe oxides det. the Curie points. A bibliography of 26 titles is appended. W. W. S.

**The alkaline rock-mass of the Haute-Ruvubu [Urundi, Belgian Congo].** J. THOREAU. *Bull. sci. acad. roy. Belg.* **18**, 877–83(1932).—Various alk. rocks of the general type of nephelite-syenite make up a mass about 6 km. in length in the region S. of Rubura. The characteristics of 3 variations of this rock type are described; chem. compn. and magmatic parameters are given, showing a change to a monzonite-nephelinite. A. W. FURBANK

**Mineralogy of the Ukraine "topaz" pegmatite.** B. A. GAVRUSEVICH. *Compt. rend. acad. sci. U. R. S. S.* **A1932**, 173–81.—Analysis of pegmatite showed: $SiO_2$ 74.31, $Al_2O_3$ 13.61, $Fe_2O_3$ 0.49, CaO 0.51, MgO traces, $TiO_2$ traces, $K_2O$ 5.45, $Na_2O$ 4.52%. JAMES SORREL

**The physiography of the mesoeruptivum of some mountains.** ZSIGMOND SZENTPÉTERY. *Act. Lit. Sci. Univ. Hung. Francisco-Josephinae, Sect. Chem. Mineral. Phys.* **2**, 186–209(1932)(in German).—Some analyses of diabase-porphyrites made by E. Polner are worked up and discussed. Specimens from the Tátra Mountains are more acid than those from Bükk Mountain. Melaphyr is not represented in the Lower Tátra. S. S. DE FINÁLY

**The Sierra Nevada as a comagmatic region.** A. A. FITCH. *Am. J. Sci.* **24**, 481–95(1932).—Analyses are given of 81 Mesozoic igneous rocks represented in the Sierra Nevada. From distribution diagrams, 3 magma-suites are computed—amphibole-schist type, granodiorite type and combined type. For the range *si* 120–150 the pre-Tertiary magma-suite of the Sierra Nevada was related closely to the Tertiary (eruptive) suite. The "fundamental basalt" occupies almost the peak of the *c*-curve, and the acid variants and most of the basic variants are poorer in CaO than that basalt. Two hypotheses will explain this: (1) In the Sierra the basic and ultrabasic intrusions are, in general, the earliest, and they appear to be true differentiates. The result would be to increase the CaO and $SiO_2$ in the residuum. (2) The fundamental magma is andesitic rather than basaltic and the curve for *c* shows that for the acid members of the Mesozoic suite the CaO is particularly high. The vol. of acid members of this suite is greater than

that of the basic and ultrabasic ones, suggesting large-scale assimilation of siliceous country rocks followed by differentiation. Such acid fractions are high in alkalies, and their sepn. would result in a residuum impoverished in alkali. The *alk* curve for the Mesozoic suite is below the av. The Sierra Nevada province has been characterized since early Mesozoic by a suite of rocks for which *al*, *fm* and *c* + *alk* are sensibly invariant, while *c* shows a progressive decrease with time and *alk* a corresponding increase. ALDEN H. EMERY

**An examination of the geology and soils of an area in the state of Perak, Federated Malay States.** H. E. F. SAVAGE AND R. G. H. WILSHAW. *Dept. Agr. Straits Settlements Federated Malay States, Sci. Ser.* No. 10, 15 pp.(1932).—An area of recently cleared jungle shows irregular outcrops of granite, schist and limestone; aplite occurs in the form of small intrusions and contains some tourmaline veins. Concentrates collected contained abundant spinel, ilmenite, tourmaline and zircon, and rarely cassiterite. Soil survey work by Belgrave and Dennett (*Malayan Agr. J.* **17**, 175, 179(1929)) is extended, covering 4 soil profiles not recorded here before. The soils are classified on a geological basis. An almost entire absence of surface org. matter was noted, and there were few signs of humus in the soils, bearing out previous observations that it is only under particular circumstances that humus accumulates in the tropics. Decompn. proceeds at a far greater rate than previously supposed to the ultimate products $NH_3$, $CO_2$ and $H_2O$, the fraction capable of but slow oxidation being exceedingly small. A. W. FURBANK

**Weathering of Kiscell clay.** ALADÁR VENDL. *Math. naturw. Anz. ungar. Akad Wiss.* **48**, 237–55(1931).—Pyrite contained in the bluish gray variety of clay is oxidized to limonite, which gives a yellow color. During the process, silicates, *e. g.*, biotite, chlorite and feldspars, are also weathered. This is shown by the ratios of $Fe^{++}$ to $Fe^{+++}$. The mol. ratio $FeO/Fe_2O_3$ in the blue clay is 0.57–2.30, in the yellow 0.11–0.23 The ratio $S/SO_3$ is 0.62–8.37 and 0.27–2.23, resp. The ratio nos. according to Mac Carthy are 0.258–1.033% FeO/% $Fe_2O_3$ in the blue clays and 0.049–0.103 in the yellow ones; this accords with his theory. The mech. compn. of samples varied greatly. The quantity of colloidal particles increased during oxidizing weathering. S. S. DE F.

**Lacustrine concretions of manganese.** E. M. KINDLE. *Am. J. Sci.* **24**, 496–504 (1932).—Saucer-shaped concretions from Ship Harbour Lake, N. S., analyzed $SiO_2$ 12.75 (largely sand grains), heavy metals 0.67, $Fe_2O_3$ 13.74, FeO 7.70, $Al_2O_3$ 12.50, CaO 1.62, MgO 0.58, $H_2O$ 13.58, $CO_2$ and org. matter 0.26 and $MnO_2$ 36.08%. The concretions are deposited from $H_2O$ by the catalytic action of pyrolusite. A. H. E.

**Changes in fiber in a peat bog.** E. V. RAKOVSKII AND V. A. VUISOTSKAYA. *Khim. Tverdogo Topliva* **2**, No. 11–12, 80–92(1931).—The properties of a freshly cut pine tree were compared with those from a tree submerged in a peat bog for 1500–2000 years The air-dry fresh pine tree (I) had 0.65–0.68% ash while the old pine tree (II) had 0.26 0.77%; the solubilities of the fibers were: I 9.45% in hot water and 5.49% in cold water; II 3.12–5.89% and 0.92–2.66%; the yields of the ether exts. were: I 4 57 6.08%, II 10.19–12.57%, and of the alc.-benzene exts. 0.16–0.05% and 0.1%, resp The chem. compns. were: I pentosans 6.82–9.78, hemicellulose 15.69–18.41, cellulose 28.25–32.08 and lignin 29.05–29.84%; II 5.79–8.45, 11.08–16.31, 27.73–34.93 and 29.12–32.33%, resp. I contained according to Willstätter 11.29–13.77% and II 11.98–12 37% MeO. Humic substances were 0 and 19.5%, resp. Properties of the resins, compns of tarry substances, acid nos. of the ether exts., contents of fatty and resinous substances, analyses of the alc.-benzene exts. and resin analyses from both types of trees are given. A. A. BOEHTLINGK

**The geochemical and cosmic abundance of lead.** G. v. HEVESY. *Fortschr Mineral. Krist. Petrog.* **16**, 147–61(1932).—To det. the abundance of Pb, 222 samples of igneous rocks from various sources were grouped in types (granites, etc.). Each group was powd. and mixed, and a portion (25–50 g.) analyzed. Radium D, a radioactive indicator, of known activity was added before analysis. Although the activity was caused by the β-rays of Ra E (an isotope of Bi), trial showed that this was deposited with the $PbO_2$. The silica was eliminated with HF, which was then expelled, and $H_2SO_4$ was added. Most of the Pb was pptd. with the alk. earth sulfates. These were fused with $Na_2CO_3$ and $K_2CO_3$, and the metals recovered as acetates in soln. $Ag_2SO_4$ (1 mg./100 cc.) was added to this soln. and to the mother liquor. Both were heated and satd with $H_2S$. The Pb was electrolyzed out as $PbO_2$ after the usual treatment. The indicator showed 53–100% recovery, and the results were corrected accordingly. To show that the $PbO_2$ contained only traces of Bi and other impurities, it was dissolved and the Pb detd. colorimetrically (cf. *Z. anal. Chem.* **73**, 383(1928); cf. *C. A.* **21**, 1284). The av. Pb content found was $16 \times 10^{-6}$ g./g. rock. The granites had the most ($30 \times 10^{-6}$) and the gabbros the least ($5 \times 10^{-6}$). These values compare fa detns., but are a little higher because of the use of the indicator.

and Th Pb was computed to be about 0.1 of the total. The abundance of cosmic Pb computed from analyses of meteorites is $6 \times 10^{-8}$; this gives Pb 34th place among the elements. This is in accord with spectrographic measurements of the sun.

JOHN EARL MILBERY

**Occurrence of cryoconite in east Greenland pack-ice and its chemical composition.** E. BLANCK, H. POSER AND E. V. OLDERSHAUSEN. *Chem. Erde* **7**, 434–40(1932).—A description of the mode of occurrence is given with analyses of 3 samples, which show the compn. to be: $SiO_2$ 61.12–64.24, $TiO_2$ 0.74–0.84, $Al_2O_3$ 15.19–15.70, $Fe_2O_3$ 6.49–7.38, $Mn_3O_4$ 0.05–0.07, CaO 0.80–1.24, MgO 1.55–2.15, $K_2O$ 1.81–2.30, $Na_2O$ 1.27–1.85, $SO_3$ 0.14–0.18, $P_2O_5$ 0.06–0.09. These values do not agree exactly with those from earlier analyses of cryoconite, with which a comparison is made. W. L. HILL

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Development of Dakota lignite (KOTH, LAVINE) **21.** Isotopes of U, Th and Pb and their geophysical significance (PIGGOT) **3.** Crystals of Fe-rich pyroxene from a slag (BOWEN) **9.** Vogtite, isomorphous with wollastonite (BOWEN) **9.**

## 9—METALLURGY AND METALLOGRAPHY

D. J. DEMOREST, OSCAR E. HARDER AND RICHARD RIMBACH

**Flotation of cassiterite.** G. GERTH. *Arch. Erzbergbau Erzaufbereit. Metallhüttenwesen* **2**, 1–20(1932).—High fatty acids or their salts are suitable flotation agents for cassiterite, and also for quartz, mica and topaz, which accompany it. Cassiterite can be sepd. from these by use of Na oleate, the gang materials being pptd. if a hydrophilic silica gel. can be deposited upon them. H. STOERTZ

**Magnetic dressing of weakly magnetic bodies in free fall and in horizontal projection.** B. GRANIGG. *Arch. Erzbergbau Erzaufbereit. Metallhüttenwesen* **2**, 21–5(1932).—Various machines for this purpose are described. H. STOERTZ

**Reduction works practice at Morro Velho, Brazil.** JACK H. FRENCH AND HAROLD JONES. *Bull. Inst. Mining Met.* **339**, 45 pp.; **340**, 1–15(1932).—The present-day methods of cyaniding a complex quartz-carbonate-sulfide ore contg. pyrrhotite are described in detail. The Au content averages 12 dwt. per long ton, and the Au occurs as an alloy contg 23% Ag. Generally the Au is assocd. with arsenopyrite and in contact with pyrrhotite. The ore is concd. by tabling and then cyanided. Thick pulps are used, since pyrrhotite is such a strong cyanicide that the foul solns. cannot be returned to the circuit. Best results are obtained with low alky., approx. $^1/_2$ lb. per ton. Pptn. is by Zn. Details of these steps and of the refinery practice are given. ALDEN H. EMERY

**The metallurgy of gold in the Transvaal.** B. KUCEVALOV. *Chem. Listy* **26**, 600–4 (1932).—A survey of the geology, mining methods, cyanide and refining processes used for the prepn. of metallic Au. FRANK MARESH

**Chilean gold placer ores and their preparation for dredging operations.** BRUNO GEIER. *Metall u. Erz* **30**, 41–6(1933).—Both the practical and economic aspects of this question are considered. H. STOERTZ

**A new measuring apparatus for testing noble metal washings and eroded ore veins.** J. B. OSTERMEIER. *Metall u. Erz* **30**, 21–4(1933).—App. is described for testing the value of ore deposits and washings, which depends upon the e. m. f. of different ores toward pure Cu. H. STOERTZ

**The consideration of light metals from the commercial and engineering standpoint.** W. FARGES. *Metallwirtschaft* **12**, 59–62(1933). C. E. M.

**Vogtite, isomorphous with wollastonite.** N. L. BOWEN. *J. Wash. Acad. Sci.* **23**, 87–94(1933).—The term vogtite was applied by Hlawatsch to describe some well developed triclinic crystals obtained from a slag of unknown origin (cf. *C. A.* **1**, 833). Similar material was obtained by Hallimond from the slag of an acid hearth steel furnace (*C. A.* **14**, 1279); the compn. was found to be not far from that of a metasilicate, and could be written as (Ca, Fe, Mn, Mg)$SiO_3$, in which Ca exceeds any one of the constituents in brackets but is very much in the minority as compared with the sum of these others. A remarkable agreement is found between the Hlawatsch-Hallimond stereographic projection plot as compared with that of wollastonite having its *b* axis in the pole of the projection. The present work discusses this agreement, which indicates the isomorphism of wollastonite and vogtite; this is of addnl. interest in connection with the problem of bustamite, a Mn-bearing triclinic pyroxene (cf. Sundius, *C. A.* **26**, 4772). Although isomorphism alone does not necessitate the existence of a solid soln. there are the strongest reasons for believing that vogtite is simply a wollastonite solid soln., and the likelihood that bustamite is also a wollastonite is regarded as very great. A. W. FURBANK

**The physicochemical basic laws of metal-slag equilibrium.** FRIEDRICH KÖRBER AND WILLY OELSEN. *Arch. Eisenhüttenwesen* 6, 307–14(1933).—The metallurgical reactions of industrial methods of steel production are considered as chem. transformations in a heterogeneous system of many constituents; the total course of the reaction is principally detd. by the reactions between the 2 liquid phases, melt and slag. The investigation of the equil. between these 2 phases leads to the development of rules for the production of pure metals, many of which are already in practical use. Every metal must be sepd. very thoroughly from its basic metallic impurities, if it is melted in one of its salts, at the lowest possible temp.; it should be sepd. from the rarer impurities only at very high temp. The application of the ideal and the general mass law to metallurgical reactions and the calcn. of heats of formation is explained briefly and exemplified in the manuf. of steel. M. H.

**Facilitating the expulsion of sulfur dioxide from calcium sulfate-calcium sulfide mixtures [blast-furnace slag, converter charge in the smelting of lead ore, etc.] at higher temperatures by iron oxide.** Iv. TRIFONOV. *Metall u. Erz* 30, 46–7(1933); cf. *C. A.* 26, 5885.—The favorable action of $Fe_2O_3$ is attributed to the avoidance of the sulfatization of CaS by $SO_2$. H. STOERTZ

**Crystals of iron-rich pyroxene from a slag.** N. L. BOWEN. *J. Wash. Acad. Sci.* 23, 83–7(1933).—The crystallographic and optical properties of the pyroxenes are discussed, with particular reference to compns. especially rich in Fe. The materials examd. were cryst. products derived from slag from a reverberatory furnace of the United Verde Copper Co., Clarkdale, Ariz.; they consist of interlocking platy crystals from the interstices of which the excess slag has drained away, leaving vug-like spaces contg euhedral crystals of pyroxene suitable for goniometric and optical measurement. The observed and calcd. interfacial angles are tabulated of pyroxene crystals, monoclinic, $a:b:c = 1.0786:1:0.5828$; $\beta = 71°31'$; the optical properties are noted. The indicated content of $FeSiO_3$ is about 80%, a figure far higher than any yet found in either natural or slag pyroxenes. A plot is given showing the compn. of 4 pyroxenes of small optic axial angle (cf. Bowen, *C. A.* 8, 3543), of which the present case is an example. A. W. FURBANK

**Chamber investigations on a 200-ton Siemens-Martin furnace heated with mixed gas.** KURT HÜBNER. *Arch. Eisenhüttenw.* 5, 591–601(1932).—The operation of the furnace was studied when it was heated with a mixt. of coke-oven and blast-furnace gases. Measurements included gas, air and waste-gas vols. and their relation to chamber temps., pressure drop through the grate and heat losses. Good agreement was obtained between theoretical predictions and exptl. results. The results also suggest other improvements in the design of regenerative furnaces. CHANNING W. WILSON

**Operation of cupola furnaces in melting of high-quality gray cast iron.** K. NEUSTAETTER. *Mitt. Forschungsanstalt. GHH Konzern* 2, 112–34(1933).—The quality of a cast Fe produced in the daily routine in a cupola furnace of the Masch. Fabrik Esslingen was investigated and evaluated by quantum-statistical methods, from which the following conclusions can be drawn: The melting capacity increases with increased air quantity under a simultaneous decrease of the tapping temp. With an increasing amt. of air the C content increases at first but decreases for very high quantities of air With increasing tapping temp. the Si content of the melted Fe decreases, but the Mn, P and S contents are not influenced by the amt. of air. The FeO content of the slag is at first reduced by an increasing amt. of air, but the MnO content of the slag is not influenced. The max. of kg. of molten metal per kg. of air is obtained for low quantities of air. Increased air pressure increases melting capacity and reduces tapping temp., the same holds good for high barometric pressures, while high abs. humidity of the air has the opposite effect and reduces the C content of Fe and, apparently, also the S. Increased air humidity increases the hardness of Fe without influencing tensile and bending strength. The melting output and tapping temp. are greater the larger the coke pieces. Rust in the scrap reduces tensile and bending strength and increases hardness somewhat but reduces the C content and increases FeO content of the slag. Varying sizes of scrap pieces do not influence the melt if the percentage is not too high. Sepn. of graphite is reduced by high temp. and low-melting output, as also by low quantities of air and also by a large amt. of rust on the pig iron and the scrap. 46 references M. HARTENHEIM

**Cupola control—its progress, practice and value in the iron foundry.** E. WHARTON. *Foundry Trade J.* 48, 124–6(1933). D. S.

**Development of metal volatilization methods in a rotary-tube furnace in the past three years.** OTTO BARTH. *Metall u. Erz* 30, 24–30(1933); cf. *C. A.* 27, 1300. A discussion of the methods which have been developed in recent years for use in rotary furnaces. Their future seems to lie with the working up of concd. complex mixed concentrates. H. STOERTZ

**The influence of furnace size on fuel consumption in pig-iron production.** EDGAR C. EVANS. *J. West Scot. Iron Steel Inst.* 40, 35–47(1932–33). E. H.

**The influence of several less common elements when added to cast iron.** J. E. HURST. *Foundry Trade J.* 48, 137–9(1933).—The following elements are discussed: Be, B, Na, K, Mg, Ca, Zn, Se, As, Zr, Sn, Sb, Ce, Pb and Bi. DOWNS SCHAAF

**Steel developments in 1932.** H. M. BOYLSTON AND G. M. COVER. *Fuels and Furnaces* 11, 7–12(1933). E. H.

**Recent developments in the field of special steels.** E. HOUDREMONT AND H. KALLEN. *Z. Ver. deut. Ing.* 77, 191–5(1933). E. H.

**Composition and method of using special fluxes for casting magnesium.** R. DE FLEURY AND A. CAILLON. *Compt. rend.* 196, 53–5(1933).—While it is necessary to use $MgCl_2$ in order to include MgO, it is absolutely essential to remove the smallest trace of chlorides from the castings in order to avoid corrosion. The viscosity of protective fluxes is investigated, including those with $B_2O_3$ base (cf. Hardouin, Cochet and de Fleury, *C. A.* 26, 5885). Satisfactory results for industrial purposes were obtained by using 3 fluxes in succession. A basic flux contg. $MgCl_2$ and NaCl is used for fusion. The 2nd is "corrective," and contains $MgF_2$ and $B_2O_3$, with perhaps the addn. of $BaF_2$; refining is carried out between 720° and 750°; the bath is sprinkled with powdered S and with $NH_4HF_2$ in order to avoid any likelihood of fire. The last flux consists of $B_2O_3$ (15%) and $Na_2B_4O_7$, and must be prepd. with absolutely anhyd. materials. It is fluid at first, becoming viscous at about 850° and highly resistant to inclusion by the metal. This method, it is claimed, will prevent all traces of $MgCl_2$ in the finished product and consequently any liability to local corrosion. A. W. FURBANK

**The trend of progress of aluminum.** N. F. BUDGEN. *Metallurgia* 7, 105–8(1933).—Applications of fabricated and cast Al and Al alloys are discussed. J. L. G.

**Determination of the linear transformation velocity of austenite into pearlite.** A. A. BOCHVAR. *Z. anorg. allgem. Chem.* 210, 168–70(1933).—The transformation of austenite into pearlite only commences with about 40° supercooling, at which temp. its velocity is 0.09 mm. per min. At 45° it is 1.0, at 50° 5.3 and at 55° 16.5 mm. per min. H. STOERTZ

**Refined pig irons.** J. E. HURST. *Metallurgia* 7, 115–16(1933).—Properties similar to those of cold-blast irons can be produced by proper blending of refined irons. Alloy irons are being more widely used. The use of special high-C low-alloy materials for adding Cr, Ni, Mo, V, Si, etc., is recommended. J. L. G.

**Martensitic cast iron.** M. WACHLERT AND R. HANEL. *Giesserei* 19, 458–64 (1932).—Drawing extensively on the literature, the authors detd. the influence of (*a*) the alloying elements Si, Ni, Mn and Cr on the hardening ability (I) of gray cast Fe with normal C content, and (*b*) the chem. compn., hardening temp., cooling velocity and annealing temp. on the Brinell hardness, the tensile, bending, compressive and shearing strengths and the structure of the gray cast Fe. Si diminishes I greatly, and therefore its amt. in this cast Fe should be kept as low as possible. Although Mn and Cr increase I, they simultaneously cause a decrease in the machinability. Ni causes an increase in I, while it does not affect the machinability. Micrographs (4) are given. J. BALOZIAN

**Manufacture of stainless iron.** A. L. FELD. *Metal Progress* 23, No. 2, 13–17 (1933).—The alloy is made in basic elec. arc furnaces from ore or scrap and low-C ferrochrome. Some scrap is remelted in induction furnaces. The av. time per heat of 18,000 lbs. is 5 hrs. with 650 kw.-hr. per ton of ingots. Details of melting and processing operations are given. W. A. MUDGE

**Oxygen in iron.** I. FESZCZENKO-CZOPIWSKI AND S. ORZECHOWSKI. *Prace Badawcze PW U* 1931, No. 2, 5–38; *Met. Abstracts* (in *Metals & Alloys*) 3, 362.—A diagram Fe-FeO was constructed. The area of γ-Fe is limited to 0.07% $O_2$ (a number detd. by Inouye). O dissolves in Fe at room temp. up to 0.02%, when at temp. of solidus the soly. increases to 0.13% $O_2$. About 0.21% $O_2$ can be dissolved in liquid Fe at 1370°. The fact that such a low m. p. of Fe in presence of O has not been observed, is the objection to the diagram. However, the diagram can explain the abnormal grain growth during heat treatment of steel contg. O as the O drives out the C from the solid soln. The same explanation can be given to the anomalies in C cementation, and to troostitic spots in quenched steels. A steel not sufficiently deoxidized contains grains of γ-Fe beside the grains of α-Fe. The difference in dilatation of both these kinds of grain during allotropic transformation causes the brittleness of steel. Forty-nine references. G. G.

**Case carburizing of iron and steel in mixtures of sodium cyanide.** M. STROMEYER. *Werkzeugmaschine* 36, 25(Jan. 30, 1932); *Met. Abstracts* (in *Metals & Alloys*) 3, 248.—S. briefly discusses case carburizing with special reference to the salt mixts. used in cyaniding. The following salt mixt. is best: 30% NaCN, 35% $Na_2CO_3$ and 35%

NaCl. This mixt. m. about 635°, is an excellent carburizer and is characterized by a high stability of the NaCN. The procedure to be used is outlined. G. G.

**Zirconium additions to steel and cast iron.** RICHARD TULL. *Heat Treating and Forging* **18**, 471–3(1932).—The influence of small Zr addns. (0.10–0.30%) on the phys. properties of steel and cast Fe is described. Results are given of tests on pearlitic Mn steels with varying C (0.52, 0.42, 0.27%) and Mn (1.15, 1.34, 1.50%) contents, with or without Zr, subjected to one of 4 different heat treatments. These show that the properties of the steels are almost uniformly improved by the treatment with Zr, the ductility and impact resistance being increased and the elastic ratio raised. Further tests show that Zr affects cast Fe in a similar manner to steel. The machinability and resistance to hydrostatic pressure are greatly increased with both steel and cast Fe. The advantages of Zr as a deoxidizing, denitrogenizing and desulfurizing agent with these metals are indicated. J. BALOZIAN

**Classifying steels by sparking.** W. G. HILDORF AND C. H. MCCOLLAIN. *Metal Progress* **23**, No. 2, 23–7(1933).—A description with photographs prepd. for the Recommended Practice Comm. of the Am. Soc. for Steel Treating. W. A. MUDGE

**Influence of pickling operations on the properties of steel.** H. SUTTON. *Rolling Mill J.* **5**, 275–80, 290(1931); *Met. Abstracts* (in *Metals & Alloys*) **3**, 306.—The pickling of Fe and steel usually produces brittleness. The changes in phys. properties are attributed to the presence of absorbed H. The acid cleaning of low- and medium-C steels is not detrimental, and the brittleness produced is but temporary. In 10% $H_2SO_4$ soln., or in an equiv. soln. of $NaHSO_4$, HCl or HF, the degree of brittleness increases also with the temp. of pickling up to 122°F. This embrittling effect disappears gradually at room temp. and more rapidly at higher temps. A heat-treated Ni-Cr steel strip, however, displays very little brittleness after pickling. Electrolytic pickling in $H_2SO_4$ soln. results in severe embrittlement, which disappears on heating to 212°F. Electrolytic pickling in NaOH soln., NaCN or a mixt. of $Na_2CO_3$ and $NaHCO_3$ produces but a slight embrittling. Cracks may develop during pickling in steels that have been subjected to strain and insufficiently annealed. The addn. of 2% $C_5H_5N$ or quinoline to an acid pickling bath may reduce the embrittling considerably. H brittleness may be imparted to steel by the operations of electroplating. This is a more permanent form of brittleness and requires more vigorous attention than does the brittleness resulting from acid pickling. Eleven references are given. G. G.

**Nitrogenization of steel by ammonia and aging phenomena.** I. FESZCZENKO-CZOPIWSKI AND WOJCIK. *Prace Badawcze PW U* **1931**, No. 1, 51–122; *Met. Abstracts* (in *Metals & Alloys*) **4**, 10.—It is suggested that the soly. of N in Fe is greater than that indicated by Fry in his Fe-N diagram. The only steels practically suitable to nitrogenization are the Al and Cr steels, although hard C steels contg. an admissibly great amt. of Si and Mn can be nitrided in some cases. The following conditions were found to be the best for nitriding of Al and Cr steels: 540° as the temp. of process, during 30 hrs. and at 20% of dissocn. of $NH_3$. The results of aging of some nitrided steels are tabulated. The hardening of nitrided steels by aging is more efficient in low-C steels. The superhardening by means of the Herbert's app. "cloudburst" gave more pronounced results, which are tabulated. Forty-eight references are included. G. G.

**The origin of nonmetallic inclusions in steel.** F. LATTA, E. KILLING AND F SAUERWALD. *Kohle u. Erz* **29**, 64–6(Mar. 1, 1932); *Met. Abstracts* (in *Metals & Alloys*) **4**, 16.—Expts. were made on the velocity with which inclusions of fire clay and open-hearth slag ascend in the steel bath. The occurrence of inclusions which are caused by the deoxidation process also was investigated. The velocity with which foreign particles ascend in the steel bath is considerable, provided they are not present as small flakes. The velocity of sepn. of foreign inclusions is high, in particular when the foreign particles coagulate to larger aggregates. The sepn. of inclusions which are the products of the deoxidation process takes more time than that of the artificial inclusions. The latter tests, furthermore, indicate that for correct conclusions the velocity of the chem. reactions of deoxidation must be considered. G. G.

**Cutting steel with oxygen.** C. G. BAINBRIDGE. *Metallurgia* **7**, 101–2(1933).—Steels contg. up to 0.3% C can be cut with O and the cut surface machined. O cutting has little effect on mech. properties. J. L. G.

**Flow lines in forged steel.** EUGENE W. NELSON. *Heat Treating and Forging* **18**, 465–7, 529–30, 534(1932).—Etchings showing flow lines were obtained by carefully cutting the sample in the required direction and polishing on a series of abrasive papers (from 120 mesh to 000 paper) so as to avoid cold work, washing the polished surface with $Et_2O$ or alc. absorbed on a piece of cotton, etching for 15–20 min. at 180°F. with a soln. composed of $H_2O$ (50%), $H_2SO_4$ (12%), and HCl (38%), washing the etched surface with hot $H_2O$ and a stiff brush so as to remove the smut formed, drying with

an air jet and immediately covering with oil to prevent rusting. The theory of flow lines is discussed. J. BALOZIAN

**Heat resistance of aluminum-coated steel.** KONRAD STAUFFER. *Metallwirtschaft* **12**, 73–6(1933).—Sheet-steel test pieces of 0.08–0.29 C content were coated with 140–380 g./sq. m. of Al by the Schoop spraying process. They were then covered with Na silicate to exclude air while they were heated to annealing temp. for 40–100 min. to diffuse the Al into the Fe. The difference in wt. of the plates before and after spraying was taken as the wt. of Al applied. The heat resistance of the samples was detd. by heating them in an electrically heated tube furnace in an atm. of O. The O absorption and tendency to crack on bending were measured. Best protection of the steel and best phys. properties of coating were obtained by an Al coating of 270–350 g./sq. m. With the higher-C steels the coating is more brittle than with the lower-C steels, and the lower-C steels withstand oxidation better. The protection afforded by these Al coatings is very satisfactory up to 1100°. If the oxidation temp. is not over 900° the temp. and time of the preliminary diffusion treatment are not important, as further diffusion takes place. If a heavy coating has been applied it is better to diffuse at higher temps., about 1200°, in order to obtain deeper diffusion. This produces greater uniformity in thickness of coating and reduces the brittleness. C. E. MACFARLANE

**Hard steel pivots and bearings—precision scales require advanced metallurgy.** W. J. BARR. *Metal Progress* **23**, No. 2, 36–40(1933).—A discussion of the manuf., heat treatment and use of special steels and alloys for bearings, pivots, shafts, cams and metal ribbons in the manuf. of precision scales. W. A. MUDGE

**High-speed steels, their constitution and heat treatment.** JOS. WAGNER. *Rev. Tech. Luxembourgeoise* **24**, 149–57(1932).—The historical development of high-speed steel is briefly told; the first kind was made in 1868 by Robert Mushet in Sheffield and contained C 1.5–2, Mn 1–2 and W 7–8%. Cr and V were added later. The particular properties of these steels are due to transformations in the chem. compn. and structure around the point $Ac_3$. Carbides are formed, mostly $Fe_3C$, $Cr_4C$, WC and $V_4C_3$; they are enclosed in the pearlitic mass. Modern high-speed steel generally has a compn. of C 0.7, Si 0.1, Mn 0.1, Cr 5.0, W 19.0 and V 0.3%; the pearlitic mass consists of Fe 80, W 12–15, C 0.5–0.6 and Cr 4%, while the complex carbides consist of Fe 34.5, W 60.0, C 3, Cr 2 and V 0.5%. There exist, therefore, 2 constituents composed of the same elements in different proportions. The Brinell hardness attains in annealed pearlitic high-speed steel 248, in weakly carburized martensitic steel quenched at 900° 524, in strongly carburized austenitic steel quenched at 1300° 614, in strongly carburized martensitic steel quenched at 1300° and drawn at 575° 667. W gives the steel a very fine cryst. structure and acts as hardener; it alloys with Fe in any proportion. Cr also acts as hardener, favors the martensitic formation and improves the tensile properties; it is an indispensable element in high-speed steel. V is used only in small amts.; its action is not quite explained. Mo acts similarly to W, forming $FeMo_2C$. About 5–6% Co has been added recently; it favors soln. of the carbides. U up to 6% also favors soln. of the carbides in quenching. B should not exceed 0.1%, as otherwise the forgeability is impaired; it is, like V, a strong deoxidizer and improves the hardness. Ti acts as deoxidizer and reduces the content of inclusions. Some data are given for the best manner of producing the steel in batches of 120–300 kg., and also micrographs illustrating the behavior. M. HARTENHEIM

**The influence of hot rolling and forging upon the structure of steel alloys.** W. J. MERTEN. *Heat Treating and Forging* **18**, 525–8(1932).—The influence of hot working and of annealing on the cryst. structure of cast, forged and rolled steels is discussed; 7 micrographs are given. J. BALOZIAN

**Alloy steels, their development and application.** J. W. DONALDSON. *Metallurgia* **7**, 127–9(1933). J. L. G.

**Anticorrosive steels in chemical industry.** ADOLF VACÍN. *Chem. Obzor* **7**, 199–200 (1932).—Polemical. JAROSLAV KUČERA

**Metals and alloys. VII. Lattice structure of indium.** E. ZINTL AND S. NEUMAYR. *Z. Elektrochem.* **39**, 81–4(1933); cf. *C. A.* **26**, 2952.—A single crystal of purified In showed face-centered tetragonal lattice with $a$ 4.583 ± 0.002 A. U., $c$ 4.936 ± 0.002 A. U., and $c/a$ 1.077 ± 0.001; d. (calcd. from at. wt. 114.8) 7.308. **VIII. Crystal structure of β-lanthanum.** *Ibid* 84–6.—99.6% La was prepd. in powd. form in N and annealed for several days in a vacuum at 350°. This β-La showed face-centered cubic structure with $a$ 5.296 ± 0.002 A. U. **IX. Alloy phases of the type $NaPb_3$.** *Ibid* 86–97.—$CaPb_3$, cubic with $a$ 4.891 A. U.; $SrPb_3$, tetragonal with $a$ 4.955 A. U., $c$ 5.025 A. U., and $c/a$ 1.014; $CePb_3$, cubic with $a$ 4.864 A. U.; $CaTl_3$, cubic with $a$ 4.794 A. U.; $CaSn_3$, cubic with $a$ 4.732 A. U.; and $CeSn_3$, cubic with $a$ 4.711 A. U., are structurally analogous to $NaPb_3$ (cf. *C. A.* **25**, 3261). Ca, Sr or Ce occupies the (000) layer, and Pb, Sn or Tl the ($\frac{1}{2}$ $\frac{1}{2}$ 0), ($\frac{1}{2}$ 0 $\frac{1}{2}$) and (0 $\frac{1}{2}$ $\frac{1}{2}$) layers. C. L. W.

**Special light alloys for aircraft: the manufacture and uses of the hiduminium R. R. series of aluminum alloys** W. C. Devereux. *Aircraft Engineering* **5**, 6–12(1933).—Numerous photographs, plots and tabulations make a comparison of Rolls-Royce light alloys with other Al alloys in regard to effect of temp. on tensile strength and Brinell hardness, friction tests, fatigue curves, elongation, grain size, etc.
A. W. Furbank

**Hard alloys used for drilling by the Azneft.** G. E. Varshavskii and N. L. Vartametov. *Groznenskii Neftyanik* **2**, No. 7–8, 47–54(1932)(Reports of the First All-Russian Conference on Hard Alloys).—The brazing of fishtail bits used in rotary drilling with hard alloys is effected either by elec. (d. c. current) or acetylene welding. The cutting edge is first covered with a layer, and a second and third layer is then added close to the sides. The lower parts of the sides of the bit must also be provided with a hard alloy because of their wear in drilling operations. The American powd. alloy "Blekor" contains up to 86% of metallic W and its resistance against wear is explained by the W carbides formed in the course of the brazing. The Russian alloy "Dognat" has a ferro-W alloy as the base. It has the advantage of being much cheaper but it wears more rapidly. The alloy "Azneftit" has a ferro-Cr base and its carbides are softer than those of the above alloys. The alloy "Borium" is obtained in small pieces which are welded individually to the bit; it has a W-C base and is characterized by its very great hardness. "Pobedit" is similar to "Borium." "Vokar" contains 8–15% C, 78–85% W, Fe, Mn and other elements. It has the disadvantage of having a variable compn., but it resists wear to a remarkable extent. "Sormait" is used as a base for brazing with "Pobedit" and it is slightly softer. The exact proportions of the metals present in the alloys are not given.
A. A. Boehtlingk

**New metal-cutting alloy.** W. P. Sykes. *Metal Progress* **23**, No. 2, 32–5(1933).—Properties and structures of alloy 548 (Fe-Co-W) are given in tables and photomicrographs.
W. A. Mudge

**The age-hardening of alloys.** C. H. Desch. *Sibley J. Eng.* **46**, 65, 66, 83(Mar., 1932); *Met. Abstracts* (in *Metals & Alloys*) **3**, 327.—The general principles of pptn. hardening are discussed, with the Al-$CuAl_2$ and Fe-$Fe_4N$ diagrams as examples. The development of Lüders' lines revealed in a mild-steel tensile specimen slightly stretched, heated to 200°, by etching in an acid Cu soln. is said to be entirely due to the presence of N, and steels too low in N to show age-hardening do not show the effect. Pptn. of nitride in and resultant brittleness of boiler steel during operation are stated to account for certain instances of boiler failures.
G. G.

**Iron-carbon alloys and the most significant structures of iron.** H. Katzer. *Werkzeug*, Suppl. to *Maschinenkonstrukteur-Betriebstech.* **8**, 66–70(June 10, 1932), *Met. Abstracts* (in *Metals & Alloys*) **4**, 4.—A general discussion of the equil. diagram and the structures of the Fe–C system.
G. G.

**Notes on the copper-rich alloys.** H. C. Anstey. *Metallurgia* **7**, 117–18(1933).—Some com. alloys are described.
J. L. G.

**Phase diagrams of magnesium-zinc alloys.** A. A. Bochvar and I. P. Velichko *Z. anorg. allgem. Chem.* **210**, 164–5(1933).—With 85 atoms % Mg the cast alloy consists of 3 structural elements rather than 2. These are dark primary solid solution, gray eutectic and bright fields of MgZn.
H. Stoertz

**Platinum-cadmium alloys.** K. W. Ray. *Proc. Iowa Acad. Sci.* **38**, 166(1931).—Pt-Cd alloys contg. as high as 50% Pt were prepd. by heating the 2 metals together Solid Pt dissolves in hot molten Cd to form a series of alloys, which have relatively low m. ps. The thermal diagram of a portion of the system was investigated by means of thermal analysis, microscopic study and x-ray examn. Two intermetallic compds. are formed, $Pt_2Cd_9$ and $PtCd_2$. $Pt_2Cd_9$ decomps. at 615° into Cd and $PtCd_2$. $PtCd_2$ m. 725°. $Pt_2Cd_9$ and Cd form a eutectic at 2% Cd, which m. 315°. All Pt-Cd alloys having more than about 6% Pt are very brittle and are much harder than either Pt or Cd. Alloys contg. as much as 35% Pt are exceedingly brittle and have a hardness nearly equal to that of hardened steel. The alloys are white and dissolve in HCl or $H_2SO_4$ to form the corresponding Cd salts. The Pt is left undissolved as black sponge. The Cd volatilizes rapidly when attempts are made to form alloys contg. more than 50% Pt, and a pasty mass is obtained which cannot be melted except under pressure.
W. G. Garssler

**Structure of hypereutectic and hypoeutectic alloys.** A. A. Bochvar and K. V. Gorev. *Z. anorg. allgem. Chem.* **210**, 166–7(1933).—When eutectic alloys are chilled primary crystals of one component sep. in addition to the eutectic. Between these primary crystals and the eutectic, envelopes of the 2nd crystal type are observed. In a series of alloys of Sb, Pb, Bi, Cd and Sn both hypereutectics and hypoeutectics were investigated for each pair. These elements form envelopes in the following order:

Bi, Sb, Cd, Pb, Sn. Each element forms an envelope about those to its left. H. STOERTZ

**Structure of several ternary eutectics.** A. A. BOCHVAR AND K. V. GOREV. *Z. anorg. allgem. Chem.* **210**, 171–2(1933).—The ternary alloys Cd-Pb-Bi, Cd-Pb-Sn and Cd-Sn-Bi form eutectics at 91.5°, 145° and 103°, resp. Their structure is discussed. H. STOERTZ

**The system: gold–manganese.** H. MOSER, E. RAUB AND E. VINCKE. *Z. anorg. allgem. Chem.* **210**, 67–76(1933).—Annealing curves are detd. for Au-Mn alloys from 0 to 100% Au. From 0 to 40% Mn, formation of solid soln. occurs. The m.-p. curve shows a min. at 977° and 12% Mn. At 21.8% Mn the compd. AuMn is formed. Microscopically the alloys contg. 0–22% Mn are homogeneous after long heating at 900–1000°. With higher Mn content, the alloys can no longer be homogenized. A eutectic occurs at about 44% Mn and 1073°. Three transformations occur in the solid state. The first, with 80–100% Mn, occurs at 800, the 2nd is due to an $\alpha$–$\beta$ transformation. The 3rd transformation is a max. at 10–12% Mn and is caused by transformation into a martensite-like structure. The transition from $\gamma$-solid solution to $\delta$-solid solution is accompanied by great hardness increase. H. STOERTZ

**The system: gold–manganese.** H. MOSER, E. RAUB AND E. VINCKE. *Mitt. Forschungsinst. Probieramt Edelmetalle* **6**, 129–36(1933).—The thermoanalytic results of a former investigation (cf. preceding abstr.) were checked by microscopic methods and corroborated. Micrograms showing the structures of different Au-Mn alloys are reproduced. M. HARTENHEIM

**The practical deoxidation of brasses and bronzes.** FERNANDO GONZÁLEZ V. *Rev. quím.* **1**, No. 4, 9–12(1932).—Reduction of dissolved $Cu_2O$ by addn. of a Cu-Mn-Al alloy to the molten metal is described and discussed. L. E. GILSON

**Workability of high brass sheet as influenced by hardness, ductility and grain size.** M. H. MEDWEDEFF. *Metal Progress* **23**, No. 2, 18–22(1933).—A review. W. A. M.

**Apparatus for the determination of the resistance of alloys in hot corrosive liquids.** H. THYSSEN AND J. BOURDOUXHE. *Rev. universelle mines* **9**, 95–7(1933).—A glass app. is described in which the corrosive liquid is both heated and kept in motion; the gases formed by the corrosion can be exhausted and analyzed. M. HARTENHEIM

**Corrosion of iron.** JOHN G. VEAR. *J. Oil & Colour Chem. Assoc.* **16**, 39–49 (1933).—Accepted methods of coating iron and steel are described. Contradictory results often observed are referred to. G. G. SWARD

**Corrosion-resisting steels—their structure and characteristics.** C. M. CARMICHAEL AND G. S. SHAW. *Iron & Steel Can.* **16**, 23–8(1933); cf. *C. A.* **26**, 5284.—A brief review. Suitable compn. and heat treatment provide a sure cure for "weld decay." Some conclusions are noted for the fabrication of stainless steel in the cases of welding, shearing, punching, drilling, sawing, machining, threading and tapping. W. H. BOYNTON

**Corrosion of duralumin rivets.** J. E. SULLIVAN. *Aviation* **30**, 347–9(1931); *Met. Abstracts* (in *Metals & Alloys*) **3**, 292.—The severe corrosion of duralumin rivets in sea water can be traced to wrong heat treatment of the rivets. The rivets should be heated for at least 20 min. to 510°, quenched in plenty of cold water and used within 30 min. Storing the rivets at 0° prevents hardening so that they keep in good condition for use for 24 hrs. G. G.

**Corrosion protection of light metals.** L. SCHIFFER. *Deut. Motorzeit.* **9**, 10–14 (Jan., 1932); *Met. Abstracts* (in *Metals & Alloys*) **3**, 343.—A double-coated duralumin, designated as Duralplat, is discussed. Photomicrographs show the intimate contact due to a diffusion of virgin metal and plate attained by thermal treatment. Enlargements of cross-sections of Brinell indentation marks prove the favorable deep-drawing properties of the plated surface layer which is uniformly deformed with the underlying carrier. The phys. properties of Duralplat coincide with those of the duralumin alloy 681. In corrosion tests duralumin lost 38% of the former elongation, 7% of its tensile strength, whereas Duralplat suffered only negligible losses. G. G.

**The corrosion of high-pressure steam boilers.** E. LUPBERGER. *Elektrizitätswirtschaft, Mitt. d. Ver. d. Elektrizitätswerke E. V.* **31**, 118–19; *Wasser u. Abwasser* **30**, 174(1932).—To inhibit soln. of Fe in high-pressure boilers a $p_H$ of 12.0 is necessary. Even this $p_H$ is not sufficient if the dissolved O is above 0.05 mg. per l. at 30 atm. or 0.01 mg. per l. at 100 atm. F. P. GRIFFITHS

**Investigation of the corrosion of condenser tubes.** P. REUTER. *Elektrizitätswirtschaft* **31**, 6–13(1932); *Wasser u. Abwasser* **30**, 82.—Tubes of marine brass 70/29/1 and Cu: Ni 85/15 were not corroded after 3.5 years. Tubes of brass 62/38 were corroded after one year of service. Trials with 9 other Cu alloys were started. No adequate explanation of the causes of corrosion has been obtained. F. P. GRIFFITHS

**Corrosion in hulls of merchant vessels.** J. MONTGOMERIE. *Trans. Inst. Engrs.*

*Shipbuilders Scotland* **75**, 391–458(1932).—An electrolytic method for protecting tankers consists in adding a sol. ferrous salt to the sea water, when the tank is in ballast, and making the tank structures cathodic to a suitable anodic conductor. Cargoes of oils or molasses have no effect, in themselves, on corrosion but rapidly increase rusting when alternated with sea water used as ballast. Mill scale still adhering to plates develops pitting. Rivets made from "rimming" steel corrode faster because of the segregations. Discussions are added. ANN NICHOLSON HIRD

**Use of a light-diffusion method for determining the liability of metals to corrosion.** FRANÇOIS CANAC. *Compt. rend.* **196**, 51–3(1933).—Precision methods are used to det. optically the extent of corrosion of flat metal surfaces. Dull surfaces diffuse light to a greater extent than polished. Each metal sample was submitted to a series of baths in corrosive liquids, after which the corrosion products were washed and brushed away; the surface was then illuminated by parallel rays at a const. incidence of 30°, and the intensity of the light diffused was detd. Curves are plotted showing the intensity of the diffused light as a function of the period of attack. Diffusion increases with the time, but has a definite limiting value. In general the curves are of 2 types, one following an exponential and the other a parabolic law. A characteristic change of curvature occurs in each type; the time for this to be reached is given for each of several "rustless" and light alloys. Rustless steels treated with $H_2SO_4$ and water give curves of the 1st type; light alloys treated with soda and $H_2O_2$ give the 2nd. The classification obtained is well in accord with those reached by older and better known methods, such as that employing the loss-of-wt. principle, and in much less time. A. W. FURBANK

**Surface protection by chemical processes.** GEO. BUETTNER. *Oberflächentechnik* **10**, 40–1(1933).—The chem. formation on base metals of a layer to protect against corrosion by atm. influences is described, and the various methods of coating Al, Fe, steel, light metals, etc., are reviewed. M. HARTENHEIM

**Some recent developments in welding for the chemical industry.** F. LEVERICK. *Welder* **3**, Jan., 14–18(1932). G. G.

**A new method of welding the extra hard alloy "pobedit." I. Technology of welding and laboratory investigations.** G. E. VARSHAVSKIĬ. *Azerbaĭdzhanskoe Neftyanoe Khozyaĭstvo* **1932**, No. 12, 24–32.—Pobedit, used in drilling wells, is a solid soln. of WC in Co. WC is prepd. by heating for 3 hrs. in a gas furnace a mixt. of C black and W. The resulting powder and finely divided Co are mixed and further pulverized by rotating 35–40 hrs. in a ball mill until the grains are not over 0.0001 mm. in diam. This mixt. is pressed dry under a pressure of 1.5–3 tons/sq. cm. Lower pressures are inefficient, while higher pressures develop cracks in the product. Less pressure is required by fine than by coarse grains. The pressed material is heated ½ hr. at 700–1100° on Ni or C plates and surrounded with C powder in an atm. of H. The alloy is given the desired shape and reheated 3–4 hrs. at 1500°. Pobedit has a sp. gr. of 14–15 depending on the Co content (the higher the sp. gr., the harder the product) and is not affected by heating to 700–750°. Higher temps. are harmful because of formation of oxides of W and Co. The new method of welding it to the drill utilizes yellow Cu (m 1000°) and powd. $Na_2B_4O_7$ (m. 800°) as flux; 20% more alloy is required but it can be reclaimed, its present consumption being thus decreased 30%. **II. Field tests.** N. L. VARTANESOV. *Ibid* 32–7.—The superiority of the new method of welding over present methods was proved in practice. The quality of drills was unimpaired, and the alloy could be reclaimed. V. A. KALICHEVSKY

**The x-ray in the examination of welded pressure vessels.** J. H. GOOLSBY. *Refrigerating Eng.* **25**, 134–9(1933). A. H. JOHNSON

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The recovery of electrical resistance and of hardness after cold working of Cu, Ag, Au, Pt and Pd (TAMMANN, DREYER) **2**. The sulfurization of Fe by $H_2S$ (BIERNER) **2**. Be and its raw materials (VADÁSZ) **8**. X-ray studies of the diffusion of Cu into Ni (MATANO) **2**. Plastic elongation of α-iron crystals (FAHRENHORST, SCHMID) **2**. Corrosion in non-pressure refining equipment (SHAFFER, POLLOCK) **22**. Solid and gaseous fuels in the Fe and steel industry (NIELSEN) **21**. Corrosion of Ni and Monel metal by sulfured grape juice (MRAK, CRUESS) **12**. Protective action of Zn plates in boilers (BANNISTER, KERR) **14**. O [reducing corrosion of apparatus in manufacture] (Ger. pat 568,124) **18**.

**Nickel-Handbuch.** Edited by M. WACHLERT. **Nickelstähle. Tl. 1. Baustähle. Nickel-Kupfer.** 46 pp. **Tl. 2. Legierungen über 50% Nickel.** 32 pp. Frankfurt: Nickel-Informationsbüro.

**Froth flotation mineral separation.** LOUIS J. O'MALLEY. U. S. 1,891,776, Dec.

20. **An ore pulp such as a Southeast Missouri galena ore is subjected to froth flotation to produce a froth contg. metal values over the froth liquor, and the fractions of the froth that contain the metal values are electrically attracted upward by causing the froth to pass between electrodes having opposite electrical charges at a relatively high potential difference (one of the electrodes being above the surface of the liquor but in elec. contact with the froth).** App. is described.

**Apparatus for roasting and agglomerating ores.** ADRIEN DAWANS. Ger. 568,175, Mar. 23, 1930. This corresponds to Fr. 689,324 (*C. A.* **25**, 905).

**Treating materials such as ores or fumes containing zinc, copper or tin values.** ALLAN R. GIBSON. U. S. 1,891,532, Dec. 20. The material is leached (at ordinary temp. and with substantial exclusion of air) with a soln. formed of $NH_3$ or $SO_2$, one of which is present in excess in the soln. in accord with the metal value which it is desired to ext.

**Direct reduction of iron ore.** WALTER E. TRENT (to Trent Process Corp.). U. S. 1,891,850, Dec. 20. The ore is mixed with low-temp. coke having a substantial volatile H content, the mixt. is heated to a reduction temp. in an atm. of H and CO, reduced iron is sepd. from the gang and excess coke, and the evolved gases are recycled through the reduction zone. App. is described.

**Treating iron pyrites and similar sulfidic material.** STANLEY I. LEVY (to Sulphide Corp.). U. S. 1,891,717, Dec. 20. The material is treated, at temps. up to 1000°, with a chlorinating agent such as Cl, which is substantially free from moisture and H compds., to drive off and recover volatile chlorides substantially free from S chlorides and $FeCl_3$, and to form a residue contg. non-volatile chlorides; ferrous chlorides and chlorides of non-ferrous metals are sepd., Fe is deposited and Cl is liberated electrolytically and the Cl thus liberated is used for the treatment of addnl. sulfidic material.

**Treating titanium ores.** JOHANNES BRODE and GEORG KÄB (to I. G. Farbenind. A.-G.). U. S. 1,891,911, Dec. 27. Decompn of raw Ti ores and removal of Fe from them is effected by directly treating the raw ore with dil. $H_2SO_4$ in the presence of a reducing substance for the ferric ions such as $SO_2$ or a titanous salt.

**Removing silica from oxide ores.** ERNST JUSTUS KOHLMEYER. Brit. 366,015, Apr. 9, 1930. Ores and other materials contg. $SiO_2$ and (or) silicates and oxides of light metals, *e. g.*, Al, Be and Mg, or high-melting heavy metals, *e. g.*, Zr, Cr and V, are mixed with metal sulfides and C and heated so that without melting the Si is driven off as SiS. If ZnS is employed a Zn-Si-S vapor is given off. Other sulfides except $Al_2S_3$, *e. g.*, FeS, may be used. In an example bauxite is mixed with zinc blende and C and heated to 1350–1400°.

**Substitute for "natural feed ore" for use in steel production.** JOHN M. HUGHES, JOSEPH H. CARTER and LEWIS B. PERKINS (to Sharon Steel Hoop Co.). U. S. 1,891,889, Dec. 20. A block is formed from over 93% by wt. of $Fe_3O_4$ and a binder of portland cement.

**Metal values such as zinc from crude oxides.** WM. A. OGG. U. S. 1,892,114, Dec. 27. The crude oxide is spread on a foraminous support and exposed beneath an externally heated wall while a reducing gas is passed up through the support. App. is described.

**Refining metals.** ERNST H. RIESENFELD. Ger. 568,320, Mar. 25, 1930. The molten metal is treated with a paste comprising an oil and a solid adsorbent.

**Refining lead contaminated with copper.** WALTER F. GROSS and CHARLES N. SAPPINGTON (to Am. Smelting and Refining Co.). U. S. 1,891,978, Dec. 27. A portion of the material is removed from a molten bath and caused to flow in a thin stream having an exposed surface, and S is added to the exposed surface at a rate to produce desired reaction, and reaction products are returned to the bath. App. is described.

**Furnace for heat treatment of metals.** WM. E. MOORE and GEORGE L. SIMPSON (to Pittsburgh Research Corp.). U. S. 1,892,112, Dec. 27. Structural features.

**Furnace for reducing iron ores, etc., in an electromagnetic field.** MARIO AMOROSO and SOC. ANON. METALFER-INDUSTRIELS. Ger. 568,241, June 18, 1930. This corresponds to Brit. 358,481 (*C. A.* **26**, 3474).

**Reverberatory furnaces for melting aluminum, etc.** J. SCHÜFFLER (to Wirbelstrahlbrenner Ofenbauges). Brit. 383,103, Jan. 5, 1931. Mech. details.

**Rotary-drum furnace for roasting, sintering and agglomerating ores and for burning lime, dolomite, cement, etc.** FELLNER AND ZIEGLER A.-G. and BERNHARD YOUNG. Brit. 363,900, Feb. 21, 1931.

**Seal for metallurgical vacuum furnace and other large vacuum vessels.** HERAEUS-VACUUMSCHMELZE A.-G. and WILHELM ROHN. Ger. 568,097, Jan. 19, 1928.

**Charging apparatus for blast furnaces.** KARL F. JUENGLING. U. S. 1,891,821, Dec. 20. Mech. features.

**Apparatus for charging metal-heating furnaces.** JEROME R. GEORGE (to Morgan Construction Co.). U. S. 1,891,531, Dec. 20. Structural and mech. features.

**Gas-heated regenerative tunnel furnace for annealing sheet metal, etc.** HEINRICH KOPPERS. Ger. 568,300, Aug. 20, 1926.

**Reversible regenerative open-hearth furnace.** THE WELLMAN SMITH OWEN ENGINEERING CORPORATION, LTD., and HENRY W. SOWARD. Brit. 364,303, Dec. 12, 1930.

**Furnace for melting or heating iron, etc.** H. W. SOWARD and THE WELLMAN SMITH OWEN ENGINEERING CORP., LTD. Ger. 565,415, Mar. 15, 1931. This corresponds to Brit. 349,745 (*C. A.* **27**, 939) and 364,303 (preceding abstr.).

**Construction of detinning furnaces.** LEEDS DETINNING, LTD., and F. CALVERT. Brit. 383,669, Aug. 21, 1931. Mech. details.

**Producing castings of metal with tapped holes therein.** RALPH V. BURDICK and LOUIS R. KRUG (to Burdick & Son). U. S. 1,891,867, Dec. 20. Various details of app. and operation are described.

**Casting metals.** SVEN G. E. FORNANDER. Fr. 739,258, June 29, 1932. Construction of casting shell is described.

**Casting rods of metal, artificial resin, etc.** F. RASCHIG G. M. B. H. Brit. 365,329, Jan. 30, 1930. A series of rods of metal, etc., are cast simultaneously by using a battery of open-ended molds.

**Casting ingots.** BYRON E. ELDRED and HOMER C. SNOOK (Eldred to Snook). U. S. 1,892,044, Dec. 27. For casting elongated steel ingots suitable for rolling, an upright cast-iron mold is used which is lined with insulating refractory material, and the mold is charged with liquid steel hot enough to insure initial "super-molten" temp. for all of the liquid metal and for the top and side walls of the insulating lining of the mold; the lower end of the liquid metal is cooled so as to form a solid layer having a substantially horizontal top; thereafter solidification is caused to progress upwardly in a substantially horizontal plane by abstracting heat from the liquid metal downwardly and substantially uniformly. App. is described.

**Ingot molds.** K. K. NIHON SEIKOSHO. Brit. 381,742, July 16, 1931. Structural features.

**Modifying injurious strains in metal castings and forgings.** FREDERICK C. LANGENBERG (to U. S. Pipe & Foundry Co.). U. S. 1,891,234, Dec. 20. After ascertaining experimentally a degree of pressure which will advantageously modify internal strains existing in metal articles, the articles are then subjected to such detd. and known high pressure simultaneously exerted on all parts of the body to modify internal strains without materially changing the form of the body. App. is described suitable for exerting pressure on articles by means of liquid.

**Apparatus for production of metal billets, bars, etc., directly from molten metal.** FRANK W. HARBORD and VERNON HARBORD. U. S. 1,891,813, Dec. 20. Structural and mech. features.

**Making metal fabrics.** J. R. BUCHANAN and T. M. CRAY. Brit. 381,152, Apr. 22, 1931. Mechanism for joining the ends of paper machine or other woven wire fabrics by soldering, brazing or welding.

**Making wire fabrics.** J. R. BUCHANAN and T. M. CRAY. Brit. 381,169, Feb. 9, 1931. Cf. Brit. 381,152 (preceding abstr.).

**Uniting or dividing by fusion.** M. ZACK. Brit. 381,108, Apr. 17, 1931. In elec arc welding or cutting 2 electrodes are used, one for heating and the other (of metal) for adding material. The metal electrode may contain a catalyzer to serve in the decompn. of the water or steam.

**Standard comparison specimens for determination of surface texture or granulation of metals.** A. M. ERICHSEN. Brit. 351,350, Oct. 9, 1929. Various details of manuf. and mounting of comparison standards are described.

**Testing the deep-drawing qualities of sheet metals.** ERICH SIEBEL (to Steel City Testing Laboratory). U. S. 1,892,013, Dec. 27. Various details of app. and operation are described, relating to subjection of a sample of the metal to a drawing test.

**Apparatus for case-hardening iron by cementation liquids.** Soc. J. AICHELIN. Fr. 739,143, June 27, 1932. The liquid is atomized to a mist with the gas aiding cementation.

**Pickling ferrous metals.** JAMES R. MCELHANEY (to American Sheet and Tin Plate Co.). U. S. 1,892,312, Dec. 27. Before introducing the metal to be pickled into the acid pickling soln. it is immersed in water heated to about 65–100° in order to loosen scale and facilitate pickling.

**Purifying spent metal-pickling liquor.** OHIO SANITARY ENGINEERING CORP. Brit. 365,981, July 24, 1931. See Fr. 721,538 (*C. A.* **26**, 4024).

**Piston for internal-combustion engine.** SIEMENS & HALSKE A.-G. Brit. 363,809, Dec. 11, 1930. At least the head of the piston is made from a common tempered Be

alloy, especially Cu-Be alloys contg. up to 13% Be, and a powd. solid, *e. g.*, a salt such as $KNO_3$, convertible into liquid without volatilization at approx. the working temp. of the piston, is placed in a space adjacent to the head to facilitate cooling thereof.

**Ductile vanadium deposits on bodies such as tungsten wire.** ANTON E. VAN ARKEL, JAN HENDRIK DE BOER and WILHELMUS KOOPMAN (to N. V. Philips' Gloeilampenfabrieken). U. S. 1,891,124, Dec. 13. For effecting deposition of pure ductile V on a solid body enclosed in a vessel such as one of quartz, an auxiliary body is heated in an atm. contg. a V iodide to approx. 1100° to produce a V ppt., and the latter together with pure I is introduced into the vessel to reform V iodide from which V is then deposited on the body under treatment which is heated to incandescence.

**Zinc sheets.** BERNDORFER METALLWARENFABRIK ARTHUR KRUPP A.-G. Brit. 363,962, June 12, 1930. Long Zn strips or sheets are formed by casting vertical blocks, if desired, cutting off the impure top and (or) bottom portions, shaping in a rod press at over 100° to form rods or other shapes, and rolling the rods cold or hot.

**Steel.** GEBR. BÖHLER & Co. A.-G. Austrian 130,917, Nov. 15, 1930. Steel resistant to corrosion and high temp. contains 1–20% of Ta. A typical product contains C 0.2, Si 1, Cr 19 and Ta 8%.

**Refining steel, etc.** PAUL GIROD. Fr. 738,493, June 10, 1932. Impure steel, Fe or cast Fe, particularly Thomas steel, is poured along with a molten slag into a ladle to purify the metal. C, Si, Fe-Si, Al, Si-Al or Fe-Mn may be added to the slag for deoxidation of the Fe. The slag is afterward poured off along with the impurities.

**Coloring steel.** POLDIHÜTTE. Austrian 131,106, July 15, 1932. Articles of rustless steel, particularly Cr steel, are colored brown by treatment with an acidified warm aq. soln. of $Na_2S_2O_3$, $Na_2S_2O_4$ or an alkali di- or poly-thionate. Suitable solns. are prepd. by adding 10–200 cc. of $H_2SO_4$ (sp. gr. 1.4) or concd. HCl to a soln. of 50–500 g. of $Na_2S_2O_3$ in 1 l. of water. The articles may be pretreated with an acidified aq. soln. of a heavy metal chloride.

**Thermal treatment of steel.** HANS MEYER. Ger. 568,212, Dec. 7, 1926. See Brit. 281,621 (*C. A.* **22**, 3388).

**Alloy.** ERWIN F. LOWRY (to The Canadian Westinghouse Co., Ltd.). Can. 329,799, Jan. 31, 1933. An improved alloy of Ni-Co base having high mech., elec. and oxidation resistance consists of Ni 40–85%, Co 40–10%, their sum being about 80–95%, and the rest approx. 20–5% Fe plus Ti, the Ti ranging from about 10–1% of the total alloy.

**Alloy for brake drum liner.** EDWIN WALKER and HAROLD WOLSTENHOLME. Brit. 360,772, Feb. 19, 1931. Addn. to 326,276. An Fe alloy free from Cr and contg. Ni 0.5–30%, C 3–3.75, Si 1–2.5 and Mn 0.4–1 is emloyed.

**Alloy for making bearings.** ROLLS-ROYCE, LTD. Ger. 568,268, Dec. 18, 1930. See Brit. 336,881 (*C. A.* **25**, 1793).

**Alloy for making bearings, etc.** SIEGMUND DEICHES. Austrian 130,903, Apr. 15, 1931. The alloy contains Sn 9–11, Sb 9–11, Cd 1.4–1.8, As 0.9–1.7, and Cu 1.2–1.6%, the remainder being Pb.

**Aluminum and its alloys.** VEREINIGTE ALUMINIUM-WERKE A.-G. (Hans Röhrig, inventor). Ger. 561,173, May 24, 1929. Crystals of Al, deposited from a melt of impure Al, are freed from adherent melt by agitation with a fused salt mixt. of appropriate m. p. and sp. gr., *e. g.*, a mixt. of halides of Ba and Ca with KCl or NaCl. Deposited mixed crystals of Al alloy may be similarly treated.

**Treatment of aluminum alloys.** VEREINIGTE ALUMINIUM-WERKE A.-G. (Hans Röhrig, inventor). Ger. 561,293, June 29, 1928. Cast Al alloys are heated for some days at the usual annealing temp., *e. g.*, 500°, then cooled to a temp. from 30° to 175° below the annealing temp. and finally chilled. The products have a higher coeff. of expansion than those annealed by the usual methods. Cf. *C. A.* **27**, 263.

**Wrought articles of aluminum alloys.** NORMAN B. LANE and WM. T. ENNOR (to Aluminum Co. of America). U. S. 1,891,549, Dec. 20. Wrought articles such as Al alloy rivets are improved by deforming the metal by a series of metal-working operations and immersing the partially formed article in a caustic soln. such as a hot 10% soln. of NaOH prior to the final working operation.

**Copper alloy containing also cadmium and silver.** WM. H. BASSETT, JR., and ROBERT H. LEACH (to Anaconda Wire & Cable Co.). U. S. 1,891,495, Dec. 20. An alloy which is suitable for trolley wires and lead-in wires contains Cu together with Cd 0.25–1% and Ag 0.125–0.75%.

**Iron alloys containing chromium, copper, etc.** JOHN L. COX and FRANCIS B. FOLEY. U. S. 1,892,384, Dec. 27. Alloys highly resistant to $H_2SO_4$ and of "fair resistance" to HCl are formed of Fe together with Cr 20–25, Cu 10–15, Ni 1–4, Si 2–8%.

**Iron-chromium-nickel alloy.** FREDERICK M. BECKET (to The Electro Metallurgical Co. of Canada, Ltd.). Can. 329,831, Jan. 31, 1933. High-carbon ferrochrome is melted

with CaO and Ni mat and the mixt. heated until the S is substantially eliminated and an alloy contg. at least 1.0% of C is formed. The ratio of Cr to C is raised to a value suitable for stainless steel by blowing the metal, in the molten state, with com. pure O. The alloy is dild. with Fe at any stage after the elimination of the S.

**Iron-cobalt-chromium alloys.** KINZOKUZAIRYO KENKYUSHO (Hakaru Masumoto, inventor). Fr. 738,906, June 21, 1932. An alloy of low coeff. of thermal expansion contains Co 25–94, Cr 1–25% and Fe the rest, *e. g.*, Fe 36.5, Co 54 and Cr 9.5%.

**Cobalt-tungsten alloys.** VEREINIGTE STAHLWERKE A.-G. (Werner Köster, inventor). Ger. 568,099, July 5, 1930. See Fr. 713,428 (*C. A.* **26**, 1570).

**Lead alloys.** WILFORD J. HAWKINS (to American Machine & Foundry Co.). U. S. 1,892,273, Dec. 27. An alloy which may be used as a *solder* comprises Pb with about 0.1% of Pb phosphide and about 1% of a "brightening metal" such as Al, Sb, Sn or Zn.

**Corrosion-resistant steel alloy.** H. ALTON MITCHELL, ALFRED W. GREGG and RAYMOND H. FRANK (to Bonney-Floyd Co.). U. S. 1,892,316, Dec. 27. An alloy contains C 0.5, Mn 14, Al 11 and Si 0.5%, the balance being mainly Fe with incidental impurities such as S and P. Cr, Ni or Mo 1–5% also may be added. Cf. *C. A.* **27**, 57.

**Cleaning metal strip.** IMPERIAL CHEMICAL INDUSTRIES, LTD., and WM. H. SMITH. Brit. 367,437, Nov. 20, 1930. Metal strip is cleaned by passing it in a sloping path while the upper surface is treated with a shower of a volatile solvent and the lower surface is washed with solvent collected from the shower. App. is described.

**Coating metals.** WILHELM KUNST. Brit. 367,387, Jan. 4, 1930. See Fr. 705,967 (*C. A.* **26**, 76).

**Coating by dipping.** ALBERT C. LENG and ARNOLD S. LENG (trading as C. H Leng & Sons). Brit. 367,108, Jan. 7, 1931. In coating by dipping the rate of sepn. of the frame, to which the articles are attached, and the bath contg. the liquid is controlled by regulating the flow of a liquid other than the coating liquid. App. is described.

**Protecting boiler tubes, heating coils, etc., from corrosion by water or steam.** BERTHOLD BLOCK. Ger. 568,375, Feb. 26, 1930. The parts to be protected are heated in siliceous water until they acquire a thin adherent layer of silicate.

**Removing rust and scale from the interior of closed piping systems such as water pipes of buildings.** FRANCIS C. BATTISTELLA (to Sanitation Holding Corp.). U. S 1,892,093, Dec. 27. A weak acid soln. capable of attacking the rust and scale is circulated under pressure through the piping system together with an inhibitor for preventing attack of the metal walls, solids are filtered from the acid soln. under pressure, and the filtered soln. is recirculated. Various examples are given.

**Welding.** SOCIÉTÉ ANON. DES ATELIERS DE SECHERON. Brit. 363,921, Mar. 26, 1930. In a process of metallic arc welding, the coating of the electrode contains besides a mixt. of substances which react exothermally, *e. g.*, a thermoaluminic mixt., substances which under the heat of the arc evolve gases to blow the products of the reaction away from the joint. The gas-producing substances may be carbonates or hydrated substances or hydroxides.

**Apparatus for electric welding.** ALEXANDER CHURCHWARD (to Wilson Welder & Metals Co., Inc.). Brit. 363,926, Apr. 17, 1930.

**Welding electrodes or rods.** GERALD R. BROPHY (to The British Thomson-Houston Co. Ltd.). Brit. 363,784, Nov. 13, 1930. Welding rods, usable as electrodes in elec. welding, comprise an Fe alloy contg. less than 0.05% C, 2–4% Mn and up to 1% Si or Ti.

**Welding rods or electrodes.** THE QUASI-ARC CO., LTD., and ARTHUR P. STROHMENGER. Brit. 363,815, Dec. 12, 1930. The rod or electrode has a metal core surrounded by a flux coating together with one or more carbohydrates, *e. g.*, starch, cellulose, and one or more compds. which are normally stable but evolve O on heating, *e. g.*, K or Na dichromate, a perchlorate or nitrate.

**Welded tubes from hot billets.** AIR REDUCTION CO., INC. Brit. 363,790, Nov. 17, 1930. A billet from a furnace is rolled to sheet in a mill and while hot is bent into a tube and the seam fusion welded. App. is described.

**Spot welding.** R. D. BELL. Brit. 382,055, Oct. 16, 1931. Elec. app. for spot-welding small articles of stainless steel, etc.

**Elongated electric arcs suitable for use in welding operations, etc.** ENGELBERT WIST. U. S. 1,892,325, Dec. 27. An app. is described comprising an electrode of metal and a second electrode of carbon, one of the electrodes being tubular and the other rod-shaped, concentrically placed so that when an arc is struck between the electrodes a blast of gaseous hydrocarbon material may be passed along the electrodes in the channel between them and serve to elongate the arc in the direction of the blast, the

gaseous hydrocarbon serving to renew the carbon electrode without affecting the metal electrode.

**Welding wire.** LEOPOLD HASENÖHRL. Austrian 131,094, July 15, 1932. Steel wire for electric or gas-welding contains up to 0.1% of B, together with a high content of C or non-ferrous metal.

**Solder for aluminum.** FRIEDRICH STRASSER. Fr. 739,035, June 24, 1932. The solder contains Zn, Sn and up to 20% of Ag as essential ingredients, *e. g.*, Al 30, Zn 20, Sn 15, Cu 5, Bi 10 and Ag 10 parts by wt. Cf. *C. A.* **27**, 947.

**Soldering wire-cloth ends.** R. FRANCK. Brit. 381,447, Feb. 16, 1932. Details are given.

## 10—ORGANIC CHEMISTRY

CHAS. A. ROUILLER AND CLARENCE J. WEST

**Celebration of the centenary of the birth of Charles Friedel. Note on his life and on a part of his work in organic chemistry.** A. BÉHAL. *Bull. soc. chim.* **51**, 1423–1511 (1932). G. G.

**The reform of chemical nomenclature. XXIII. Ketones and quinones.** G. SIBONI. *Boll. chim. farm.* **71**, 761–3(1932); cf. *C. A.* **27**, 494. **XXIV. Simple aliphatic compounds.** *Ibid* 805–6. **XXV. Glycerol and its derivatives.** *Ibid* 925–6. LEWIS W. BUTZ

**Action of water vapor on hexane and benzene.** C. MATIGNON AND M. SÉON. *Compt. rend.* **196**, 77–9(1933). - By repeated passage of a mixt. of hexane and $H_2O$ vapor over zircon at 1050° the reaction $C_6H_{14} + 12H_2O = 6CO_2 + 19H_2$ can be made practically complete. Benzene acts in the same way. Free C is not deposited unless the zircon contains Fe. ALFRED HOFFMAN

**Fractional recovery of intermediate hydrocarbons.** F. N. VORONOV. *Sinteticheskii Kauchuk* **1**, 7 12(1932).—Adsorption of the fraction b. —103.8° to 2.5° (contg. butylene, butadiene and propylene) by activated C was studied. A method for the quant. analysis of butadiene in gas with the interferometer and activated C is described. JAMES SORREL

**1,6-Dimethyl-1,3,5-hexatriene.** URION. *Compt. rend.* **196**, 353–4(1933).—By the catalytic decompn. of dipropenylglycol with reduced Cu, there is obtained, together with an impure isomer b. 137–43°, *1,6-dimethyl-1,3,5-hexatriene* (I), b. 144–8°, m. 52.5°, $d_4^{23}$ 0.7961, $n_D^{27}$ 1.5131. *Hexabromide*, m. 122°. I, freshly prepd., consists of white plates of pronounced odor. Exposed to the air for a few days it is oxidized to a yellow rubber-like resin, which gives an aldehyde reaction. ALFRED HOFFMAN

**1-Propyl-2-iodoacetylene.** THOMAS H. VAUGHN. *J. Am. Chem. Soc.* **55**, 1293 (1933).—PrC : CI as prepd. by Grignard and Perrichon (*C. A.* **20**, 1782) is probably impure A sample prepd. by V. $b_{35}$ 67–7.5°, $b_{51}$ 75–7°, $\gamma_{25}$ 34.22 dynes/cm., [*P*] 283.3 (calcd. 281.3), $d_{25}$ 1.6557, $n_D^{25}$ 1.5310, $n_D^{25}$ 1.52231. C. J. WEST

**Polymerization of some unsaturated hydrocarbons. The catalytic action of aluminum chloride.** W. H. HUNTER AND R. V. YOHE. *J. Am. Chem. Soc.* **55**, 1248–52 (1933).—At room temp. there is very little reaction between CH : CH and $AlCl_3$; at 100° adsorption and reaction were very rapid. There were no liquid reaction products; analysis of the darkened catalyst indicated the compd. $AlCl_3.C_2H_2$. The presence of $Et_2O$ vapor caused an immediate darkening of the catalyst and liquid products resulted; however, there was no reaction between $AlCl_3.Et_2O$ and $C_2H_2$ at room temp. or at 100°. If $C_2H_2$ is bubbled through $Et_2O$ and then passed over $AlCl_3$ an extremely exothermic reaction takes place and liquid products are formed which decomp. violently with $H_2O$ to give HCl and a dark brown cuprene-like material; analysis suggests $Al_2Cl_6.Et_2O.C_2H_2$. $Al_2Cl_6.2PhNMe_2$ failed to catalyze the polymerization of $C_2H_2$ at room temp. or at 100°. $Me_3N$ completely stopped the adsorption of $C_2H_2$ by $AlCl_3$ at 100°. $C_2H_4$ is adsorbed slowly by anhyd. $AlCl_3$ to give a very small quantity of a deep red oil; neither heat nor $Et_2O$ vapor accelerated the reaction; the $Et_2O$- or $PhNMe_2$-$AlCl_3$ complex caused no reaction between $C_2H_4$ and $AlCl_3$. Isobutylene (I) was extremely reactive toward $AlCl_3$; liquid products formed immediately when I was allowed to come into contact with $AlCl_3$, giving a colorless liquid, mol. wt. 200, Br no. 10–15, and a red oil, contg. 11.5% Al; I contg. $Et_2O$ vapor reacts vigorously with $AlCl_3$ to give a red viscous oil with 11.8–12.3% Al; $Al_2Cl_6.2PhNMe_2$ does not react with I at room temp.; at 140° the color of the complex changed from pale green to cherry-red but its compn. remained unchanged; the complex $Al_2Cl_6.PhNMe_2$ gives a colorless liquid and the complex changes until it becomes inactive, at which point it contains 10.48% Al and 2.63% N ($Al_2Cl_6.PhNMe_2.2C_4H_8$). A theory of polymerization based on the electronic structures of $AlCl_3$ and olefins is postulated. C. J. WEST

**Acetylene polymers and their derivatives. VI. Vinylethinylmagnesium bromide and some of its reactions.** WALLACE H. CAROTHERS AND GERARD J. BERCHET. *J. Am. Chem. Soc.* 55, 1094–6(1933); cf. *C. A.* 27, 1321.—$CH_2$:CHC:CH reacts with EtMgBr, yielding $CH_2$:CHC:CMgBr (I). I with $Me_2CO$ gives 53% of *vinylethinyldimethylcarbinol*, $b_{24}$ 67°, $n^{20}_D$ 1.4778, $d^{20}_4$ 0.8872; in 2 weeks it becomes a hard, tough, transparent mass, the transformation being accompanied by absorption of O; catalytic reduction gives $Me_2BuCOH$. I and $CO_2$ give *vinylpropiolic acid* (II), $b_2$ 64–71°, turns yellow on standing and yields a rubber-like yellow substance on heating 85 min. at 75° *in vacuo*. I and $\alpha$-$C_{10}H_7NCO$ give the *α-naphthylamide* of II, yellow, m. 125–6°. $Ph_3$-CCl and I give *vinylethinyltriphenylmethane*, yellow, m. 134–5°. **VII. Sodium vinylacetylide and vinylethinylcarbinols.** W. H. CAROTHERS AND RALPH A. JACOBSON. *Ibid* 1097–1101.—Na vinylacetylide, obtained by the action of Na or of $NaNH_2$ on $CH_2$:CHCH:CH, is a very reactive white powder, which shows a tendency to ignite spontaneously in the air. Under properly controlled conditions it is a convenient reagent for introducing the vinylethinyl group into reactive org. compds. Vinylethinylcarbinols are readily obtained by treating a mixt. of vinylacetylene and a ketone; $NaNH_2$. The same methods can also be applied to aldehydes but with less fav results. The tert. carbinols all polymerize spontaneously on standing, giving a sirup, then a tough rather elastic mass and finally a hard, transparent glass-like; the sec. carbinols polymerize much less slowly. The following *vinylethinylcarbinol* described: *Me*, $b_{22}$ 65°, $d^{20}_4$ 0.9112, $n^{20}_D$ 1.4851; *Bu*, $b_{10}$ 74–6°, d. 0.8919, *n* 1.47 *Me Et*, $b_{20}$ 75°, d. 0.8878, *n* 1.4802; *di-Et*, $b_4$ 62°, d. 0.8875, *n* 1.4800; *di-Pr*, $b_{22}$ d. 0.8738, *n* 1.4745; *Me octyl*, $b_5$ 98–100°, d. 0.8681, *n* 1.4734; *cyclopentyl*, $b_7$ 104–5° d. 1.0181, *n* 1.5228; *cyclohexyl*, $b_3$ 84–5°, d. 0.9742, *n* 1.5169; *Me Ph*, $b_4$ 125–6°, m. 40–1° Distn. of these carbinols at too high a temp. leads to the production of the corresponding substituted divinyl acetylenes. C. J. WEST

**Action of bromine and butadiene.** G. B. HEISIG. *J. Am. Chem. Soc.* 55, 1297 (1933).—On mixing gaseous butadiene and Br in the ratio of 1–1 or 1–0.5 with from 15–20 vols. N a reaction occurs, giving 1,1-dibromo-2-butene, m. 53°; on carrying out the reaction in the same bulb which had been coated with paraffin, the rate of the reaction was very markedly reduced; since no fog or smoke formed in the uncoated reaction sphere, the reaction must have occurred on the surface. C. J. WEST

**Hydrolysis and rearrangement of certain olefin dibromides containing a tertiary bromine.** W. L. EVERS, H. S. ROTHROCK, H. M. WOODBURN, E. E. STAHLY AND F. C. WHITMORE. *J. Am. Chem. Soc.* 55, 1136–40(1933).—The hydrolysis and rearrangement of isobutylene and trimethylethylene dibromides are practical methods of converting *tert*-BuOH and *tert*-AmOH to iso-PrCHO and iso-PrAc in good yields. The hydrolysis of 13 other dibromides prepd. from aliphatic tert. alcs has been studied; with 7 of these the rearranged aldehyde or ketone has been obtained in poor yield; with the others, polymerizations occur apparently due to the formation of substituted butadienes and other unsatd. products. 2,3-Dibromo-2-methylpentane, $b_{15}$ 66–8°, $n^{20}_D$ 1.4975, gives 25% of $EtCOCHMe_2$; 2,3-dibromo-2-methylhexane, $b_6$ 75–8°, *n* 1.5024, gives 33% of iso-PrCOPr; 2,3-dibromo-3-methylpentane, $b_5$ 48–50°, $b_{15}$ 72–4°, *n* 1.5085, gives 20% of *sec*-BuAc; 2,3-dibromo-3-ethylpentane, $b_4$ 73–7°, *n* 1.5098, gives 30% 3-ethylpenta-1,3-diene and 10% of 3-ethylpentan-2-one; 2,3-dibromo-2,3-dimethylpentane gives 10% of *tert*-AmAc. C. J. WEST

**Preparation of vinyl iodide.** JOHN SPENCE. *J. Am. Chem. Soc.* 55, 1290–1(1933).—$C_2H_4I_2$ (282 g.) and 334 cc. 3 *N* EtONa, on distn., give approx. 50 g. $CH_2$:CHI, b. 56–6.5°, $d^{20}$ 2.037, *n* 1.53232, 1.53845. 1.55186, 1.56468 for *α*, D, *β* and *γ*. C. J. WEST

**Dehydration of 2,2-dimethylhexan-1-ol and related tertiary alcohols.** FRANK C. WHITMORE AND J. M. CHURCH. *J. Am. Chem. Soc.* 55, 1119–24(1933).—$Me_2BuCCH_2$-OH, $b_{14}$ 80–2°, $n^{20}_D$ 1.4304, heated with 6% of its wt. of concd. $H_2SO_4$ and 4% of *p*-$MeC_6H_4SO_3H$ for 6 hrs. with const. removal of the products by distn., gave 70% dehydration with a 63% yield of octylenes. Indication of the formation of $Me_2C$:CHBu (I), $CH_2$:CMeAm (II), PrCH:CMeEt (III) and MeBuC:CHMe (IV) was obtained from the ozonolysis products; the 1st 2 appeared in the ratio of 12:1, the last 2 in the ratio of 2:1. Since the first of these ratios was much higher than similar ratios obtained in dehydrating various alcs. contg. Me and Am groups, it was decided to dehydrate the tert. alcs. $Me_2AmCOH$ and MeEtBuCOH. The first gave I and II in the ratio of 1.4:1 and the 2nd IV and III in the ratio 1.6:1 and also a 6% yield of $CH_2$:CEtBu. The difference between the values of 12:1 and 1.4:1 for the ratios of I and II formed by dehydration with rearrangement of the primary alc. by means of a small quantity of concd. $H_2SO_4$ and by dehydration of the tert. alcs. by means of a small quantity of 50% $H_2SO_4$ is being studied. C. J. WEST

**Rearrangement of *tert*-butylmethylcarbinol[pinacolyl alcohol]. I.** FRANK C. WHITMORE AND H. S. ROTHROCK. *J. Am. Chem. Soc.* 55, 1100–9(1933).—Pinacolyl

alc. (I) has a f.-p. const. of 5.6; heating in $CO_2$ atm. at 200° for 18 hrs. causes little change, as did refluxing 41 hrs. The acetate, $b_{740}$ 141.2–1.4°; heating 5 g. at 160–70° for 144 hrs. gives 3 g. unchanged alc. Distn. over porous tile at 300° gave 35% of *tert*-BuCH:$CH_2$. The chloride and bromide from I consist almost entirely of rearranged products. The compn. of the impure bromide was not changed by heating 16 hrs. at 125°; hydrolysis expts. indicated that the mixt. was about 90% tert. bromide, $Me_2CBr$-$CHMe_2$. A variety of means of dehydration of I gave only $Me_2C$:$CMe_2$ and Me-($Me_2CH$)C:$CH_2$ without any 3rd product. Attempts to dehydrate boiling I by means of traces of $PhSO_3H$ and I failed. C. J. West

**Hydrogenolysis of alcohols to hydrocarbons.** Bruno Wojcik and Homer Adkins. *J. Am. Chem. Soc.* **55**, 1293–4(1933).—Hydrogenolysis of primary alcs. (5 hrs. at 250° and 100–200 atms. H over a Ni catalyst) gives the next lower hydrocarbon; there have been prepd. in this way undecane, tridecane, heptadecane and ethylcyclohexane; decan-1,10-diol gives octane. Sec. alcs. react according to the equation $R_2CHOH + H_2 = R_2CH_2 + H_2O$; cyclohexanol and 2-octanol give cyclohexane and octane. $Me(CH_2)_5$-$CH(OH)(CH_2)_{10}CH_2OH$ gave $C_{17}H_{36}$. The 2 reactions, ester to alc. and alc. to hydrocarbon, can be carried out in 1 step by using a mixt. of Cu-Cr oxide and Ni but the operation is best carried out in 2 stages, since the $H_2O$ formed in the 2nd step prevents the completion of the 1st reaction. C. J. West

**Carbon monoxide and hydrogen.** Fritz Rosendahl. *Montan. Rundschau* **25**, 1–14; *Petroleum Z.* **29**, No. 6, 1–14(1933).—A detailed historical review of the catalytic prepn. of MeOH, hydrocarbons, etc., from CO and $H_2$ under high temp. and pressure. Alfred Hoffman

**Preparation and properties of methylene dibutyl disulfone.** R. E. Stutz and R. L. Shriner. *J. Am. Chem. Soc.* **55**, 1242–5(1933).—BuBr and $Na_2S_2O_3$ in $H_2O$ give 47% of $Bu_2S_2$, $b_{760}$ 226°, $d_{20}^{20}$ 0.944, $n_D^{20}$ 54.90. BuSNa and $CH_2I_2$, refluxed for 3 hrs., give 82% of *methylene dibutyl disulfide*, $b_{30-5}$, 133–8°, $b_{760}$ 250°, $d_{20}^{20}$ 0.947, $n_D^{20}$ 1.4946; the *disulfone* (I) m. 95–6° (13% yield with $CrO_3$ in AcOH); I and Br in $H_2O$, heated 2 hrs., give a *di-Br deriv.*, m. 80° (47%). I with MeI in EtONa gives the *di-Me deriv.*, m. 54–7° (40%). Na or Na-K alloy cleaves alkyl and aryl disulfides to the metal mercaptides; $Bu_2S_2$ and $Ph_2S_2$ were studied. C. J. West

**Preparation of some higher aliphatic sulfonic acids.** C. R. Noller and J. J. Gordon. *J. Am. Chem. Soc.* **55**, 1090–4(1933).—The following *mercaptans* were the starting points for the synthesis of the sulfonic acids: nonyl, $b_{20}$ 100–4°, $d_{20}^{20}$ 0.8386, $n_D^{20}$ 1.45197; decyl, $b_{19}$ 125–7°, d. 0.8410, *n* 1.45367; *undecyl*, $b_{21}$ 138–41°, d. 0.8432, *n* 1.45816; *lauryl*, $b_{24}$ 153–5°, d. 0.8450, *n* 1.45886; *tridecyl*, $b_{22}$ 162–6°, d. 0.8468, *n* 1.45906; *myristyl*, $b_{22}$ 176–80°, d. 0.8484, *n* 1.46005. Oxidation of the Pb mercaptides with 50% $HNO_3$ gives the Pb sulfonates; the free sulfonic acids were obtained by passing HCl into the suspension in iso-PrOH; m. ps. are given for the monohydrate and the anhyd. acid: *undecyl*, 40–1°, 49°; *lauryl*, 43–5°, 52°; *tridecyl*, 48–9°, 58°; *myristyl*, 55–6°, 65.5°; the *benzylaniline salts* m. as follows: *nonyl*, 90.5–1.0°; *decyl*, 84–4.5°; *undecyl*, 84.6–4.7°; *tridecyl*, 87.5–8°; *myristyl*, 82.5–2.7°. C. J. West

**Amination by ammonolysis. IV. Design and construction of equipment.** P. H. Groggins. *Ind. Eng. Chem.* **25**, 274–7(1933); cf. *C. A.* **27**, 1344.—Because of the elevated temps. at which the reaction between org. compds., contg. replaceable substituents, and $NH_3$ generally takes place, it is essential that ammonolysis be carried out either in high-pressure autoclaves (discontinuous) or in tubular systems (continuous). Direct-fired systems have been supplanted by jacketed vessels heated with steam or circulated fluid or by tubular systems immersed in molten alloys. Such systems provide a safer, more accurate and practically automatic control of the amination process. **V. Control of ammonia recovery system.** *Ibid* 277–9.—The successful industrial use of amination processes demands the recovery of the excess aq. $NH_3$ and its return to the reaction system at a const. and optimum strength. Problems involved in the recovery of $NH_3$ are (1) removal of the heat of soln., and (2) controlling the soly. by regulating the temp., pressure and concn. of the aq. $NH_3$ in the absorption system. In properly conducted operations, the recovery is efficiently and almost automatically carried out by the choice of suitable equipment and the installation of mechanically controlled devices. W. C. Fernelius

**Reactions of ethylene oxide. I. Action of ethylene oxide on diethylamine.** A. J. W. Headlee, A. R. Collett and C. L. Lazzell. *J. Am. Chem. Soc.* **55**, 1066–9(1933); cf. Horne and Shriner, *C. A.* **26**, 4303.—$Et_2NH$ and $(CH_2)_2O$ in a Cu autoclave at 100° for 1 hr. give 81% $Et_2NCH_2CH_2OH$ (I), $b_{741}$ 160°, $n_D^{25}$ 1.4389, $d_{abs.}^{25}$ 0.8800, $\eta^{25}$ 0.0405, $\gamma^{26.5}$ 27.50. $(CH_2)_2O$ reacts with MeOH at 55°, contrary to H. and S. The corresponding phys. consts. for I and other compds. prepd. by H. and S. are given, since they do not agree with those in this paper. I and $(CH_2)_2O$ on autoclaving give $Et_2NCH_2CH_2OCH_2$-

$CH_2OH$, $b_{46}$ 135°, $n$ 1.4464, d. 0.9421, $\eta$ 0.0856, $\gamma$ 30.50; *p-nitrobensoate*, m. 128.5°. Further action of $(CH_2)_2O$ gave the following compds.: $Et_2N(CH_2CH_2O)_2CH_2CH_2OH$, $b_{30}$ 163–5°, $n$ 1.4501, d. 0.9753, $\eta$ 0.1284, $\gamma$ 31.26. $Et_2N(CH_2CH_2O)_3CH_2CH_2OH$, $b_{33}$ 185–8°, $n$ 1.4529, d. 0.9905, $\eta$ 0.1596, $\gamma$ 32.05. $Et_2N(CH_2CH_2O)_4CH_2CH_2OH$, $b_9$ 182–4°, $n$ 1.4566, d. 1.0128, $\gamma$ 33.47. $Et_2N(CH_2CH_2O)_5CH_2CH_2OH$, $b_{36}$ 254–9°, $n$ 1.4592, d. 1.0325, $\gamma$ 34.65. $Et_2N(CH_2CH_2O)_6CH_2CH_2OH$, $b_4$ 205–9°, $n$ 1.4620, d. 1.0474, $\gamma$ 35.51. C. J. WEST

**Cyclization of a series of $\omega,\omega'$-dicarbethoxydialkylmethylamines through the acetoacetic ester condensation.** E. A. PRILL AND S. M. MCELVAIN. *J. Am. Chem. Soc.* **55**, 1233–41(1933).—Compds. of the type $EtO_2C(CH_2)_mNMe(CH_2)_nCO_2Et$, in which both $m$ and $n$ are varied from 1 to 4, have been studied. EtONa was used as a condensing agent instead of Na; no solvent, $C_6H_6$ and PhMe were used with the various diesters. The results show that EtONa is a more efficient condensing agent than Na for the formation of 1-methyl-3-carbethoxy-4-piperidone and that diln. of the reactants with an inert solvent favors the intramol. condensation. $\gamma$-$EtO_2C(CH_2)_3NMeCH_2CO_2Et$ condenses even more readily than the isomeric $NMe(CH_2CH_2CO_2Et)_2$. Amino diesters which have the necessary structure (2 H atoms on an $\alpha$-C atom) for an acetoacetic ester condensation and at the same time have an $NH_2$ group attached to this $\alpha$-C atom react very slowly, if at all, with EtONa or Na in condensations involving this particular $\alpha$-C atom. *Et $\gamma$-bromobutyrate*, in 72% yield from the nitrile, $b_{28}$ 104–5°, $d_{25}^{25}$ 1.3531, $n_D^{25}$ 1.4539. Et *$\beta$-N*-methylaminopropionate gives a *HCl salt*, m. 59–60°. *Et $\delta$-N-methylaminovalerate*, from 1-methyl-2-piperidone, was analyzed as the *HCl salt*, m. 108–9°. $\gamma,\gamma'$-Dicarbethoxydipropylamine, from $MeNH_2$ and $Br(CH_2)_3CO_2Et$, $b_9$ 159–60°, $d_{25}^{25}$ 0.9913, $n_D^{25}$ 1.4407, 20% yield. The following *amines* were prepd. from 1 mol. of an $\omega$-haloester and 2 mols. of an *$\omega$-N*-methylamino ester (allowed to stand 4–24 hrs. at room temp.) (R = $CO_2Et$): $RCH_2NMeCH_2R$, $b_{11}$ 114–5°, d. 1.0485, $n$ 1.4328, 75%; $RCH_2NMeCH_2CH_2R$, $b_{10}$ 124–5°, d. 1.0287, $n$ 1.4350, 85%; $RCH_2NMe(CH_2)_3R$, $b_{10}$ 134–5°, d. 1.0145, $n$ 1.4367, 80%; $R(CH_2)_4NMeCH_2R$, $b_9$ 146–7°, d. 1.0032, $n$ 1.4393, 73%; $R(CH_2)_4NMe(CH_2)_2R$, $b_9$ 159–60°, d. 0.9914, $n$ 1.4410, 54%; $R(CH_2)_4NMe(CH_2)_3R$, $b_9$ 166–7°, d. 0.9814, $n$ 1.4420, 58%; $R(CH_2)_4NMe(CH_2)_4R$, $b_9$ 177–8°, d. 0.9741, $n$ 1.4438, 55%. Condensation with EtONa gives *1-methyl-4-carbethoxy-3-piperidone-HCl*, m. 171–3° (decompn.); *1-methyl-4-carbethoxy-3-pyrrolidone*, m. 132–3°. *Cyclic amino ketones*, $MeN.(CH_2)_m.CO.(CH_2)_n$ were prepd. as follows: $m$ and $n$ = 2, 1, $b_{18}$ 46–7°, d. 0.9675, $n$ 1.4431 (*HCl salt*, m. 62–3°); 3, 0, $b_{14}$ 84–5°, d. 1.0260, $n$ 1.4666 (*HCl salt*, m. 79–81°); 2, 2, $b_{11}$ 56–8°, d. 0.9725, $n$ 1.4580 (HCl salt, m. 94–5°); 3, 1, $b_{18}$ 63–4°, d. 0.9684, $n$ 1.4559 (*HCl salt*, m. 110–1°); 4, 1 (*HCl salt*, m. 195–6°). With the other diesters studied, the condensation, as judged from the amt. of EtOH given off, was quite slow and incomplete and went to give intermol. condensation products. C. J. WEST

**Highly polymerized compounds. LXXIV. The Raman effect of methyl silicates.** R. SIGNER AND J. WEILER. *Helv. Chim. Acta* **16**, 115–21(1933); cf. *C. A.* **27**, 1256.—Data are given for the mono-, di-, tri- and decameric esters of Me orthosilicate and compared with those for quartz and crownglass. A curve shows the relation between the degree of polymerization and Raman frequency. C. J. WEST

**Nitrogen trichloride and Grignard reagents.** GEORGE H. COLEMAN AND MARION A. BUCHANAN. *Proc. Iowa Acad. Sci.* **38**, 168(1931).—$NCl_3$ reacts with Grignard reagents to produce primary amines, $NH_3$ and a small amt. of secondary amines. No tertiary amine was isolated. The yields of these products obtained in a typical reaction with BuMgCl were: $BuNH_2$ 35%, $NH_3$ 15% and $NHBu_2$ 3%. W. G. GAESSLER

**Organomagnesium compounds containing solubilizing amino groups.** HENRY GILMAN, STANTON A. HARRIS AND CHUAN LIU. *Proc. Iowa Acad. Sci.* **38**, 167–8(1931).—There is an uncommon demand, particularly in cancer and related studies, for organomagnesium compds. which contain amino groups to increase the soly. of the products and also endow them with certain desirable physiol. properties. With this in mind a series of Grignard reagents is being prepd., the members of which contain the —MgX group attached to C in a mol. having a basic group like $—NR_2$ or in a substituted pyridine, quinoline, etc., grouping. Such RMgX compds. are formed from the corresponding RX compds. with somewhat less ease than from RX compds. having no basic grouping; however, they appear to have the same general properties of RMgX compds. not contg. the amino or substituted amino groups. W. G. GAESSLER

**Synthesis of aliphatic $\alpha,\alpha$-dimethyl aldehydes of high molecular weight.** G. DARZENS AND ANDRÉ LEVY. *Compt. rend.* **196**, 184–7(1933); cf. *C. A.* **27**, 1323.—In order to verify a rearrangement indicated by the results of previous work monomethyl glycols of the type R'RC(OH)CH(OMe)R and especially glycols of the type $Me_2C(OH)CH(OH)R$ were prepd. and studied. If the group R is of high mol. wt. they readily rearrange into aldehydes of the type $Me_2CRCHO$, thus providing a method for prepg.

trisubstituted acetaldehydes previously obtained from decompn. of glycidic acids. When the R group is smaller than $C_5H_{11}$ this rearrangement does not take place but the expected ketone is formed. A medium-large radical yields a mixt. of aldehyde and ketone. *Method.* Reaction of an α-Br acid possessing the required radical with MeONa, then with 2 mols. MeMgBr gives good yields of monomethylglycol which is then treated at the b. p. with 2 parts by wt. of $HCO_2H$. The compds. obtained were *α,α-dimethylstearic aldehyde*, b. 165–177°, m. 14.5°; *α,α-dimethyllauric aldehyde*, $b_{13}$ 140°. The monomethylglycol from capric acid gave 30% *α,α-dimethyldecylic aldehyde* and 70% iso-Pr cetyl ketone. The glycol from enanthic acid $C_5H_{11}CH(OMe)C(OH)Me_2$ gave solely iso-PrCOAm. ANNE E. WHITE

**Autoxidation of aldehydes in the presence of manganese dioxide hydrate.** JULIUS V. BRAUN AND WERNER KELLER. *Ber.* **B66**, 215–19(1933).—The $Ag_2O$ method of oxidizing aldehydes to the corresponding acids is very inconvenient for work with large quantities of materials. In the study of the degradation of naphthenic acids (*C. A.* **26**, 2306) recourse was accordingly had to $H_2O_2$ in the presence of $Na_2CO_3$, but with no great success; the aldehydes, RCHO, form stable $H_2O_2$ addn. products which then lose water or dissoc. to form peroxides and the acid, but the changes are so slow that the unchanged $H_2O_2$ has a chance to further oxidize the residue R. The velocity with which aldehydes are oxidized by mol. $O_2$ is also too slow, even when the reaction is catalyzed with ferrous compds., but $MnO_2$, either as such in finely divided form, or, better, as $KMnO_4$, has been found to be a very efficient catalyst. The amt. of $MnO_2$ can be decreased from $^1/_{1000}$ to $^1/_{4000}$ mol. per mol. of aldehyde without perceptibly decreasing its influence; $^1/_{12,000}$ mol. is distinctly less effective and $^1/_{40,000}$ mol. seems to have no effect at all. The mechanism of the reaction is apparently the same as with ferrous salts, the $MnO_2$ adding loosely to the C:O grouping and thereby making it more readily accessible to the O. Aldehydes which readily undergo autocondensation (enanthal, decylaldehyde, but not iso-PrCHO) become more indifferent to $MnO_2$ on long standing; that it is the unsatd. autocondensation products which are responsible is shown by the fact that unsatd. aldehydes (citronellal, PhCH:CHCHO) are not catalyzed by $MnO_2$, and addn. of olefins of the most varied kind to an aldehyde-$MnO_2$ mixt. instantly slows up or stops the oxidation. *Sebacic dialdehyde*, $b_{11}$ 136–8°, m. 16–18° (*disemicarbazone*, m. 185°), is obtained in 75% yield, together with the *aldehydo acid*, $b_{12}$ 140–80°, m. 40–60° (*semicarbazone*, m. 155°), by ozonizing 1,11-dodecadiene (*C. A.* **26**, 2963) in 10% AcOH and treating the ozonide with Zn dust. C. A. R.

**Improvement of the general method for preparing aldehydes by degradation of acids.** G. DARZENS AND ANDRÉ LEVY. *Compt. rend.* **196**, 348–50(1933).—The method consists of prepg. the α-alkoxy acids from the α-Br acids and NaOR and distg. the same with Cu. *α-Methoxyenanthic acid*, $b_{15}$ 122°, gives hexanal (70%). *α-Methoxylauric acid*, m. 52°, $b_4$ 145°, gives undecanal (75%) *α-Methoxystearic acid*, m. 62.5°, $b_5$ 190°, gives margaric aldehyde in theoretical yield. ALFRED HOFFMAN

**Action of phosphorus oxychloride on some aldehydes.** M. BACKES. *Compt. rend.* **196**, 277–9(1933).—The action of $POCl_3$ on aldehydes in which the α-C atom is not completely substituted produces aldol condensation, while in aldehydes with completely substituted α-C atoms, chlorination takes place. $POCl_3$ (I) with EtCHO gives 2-methyl-3-pentanol-1-al; the 2,4-dinitrophenylhydrazone m. 161°, and a dimer $b_{17}$ 150–60°. The dimer and I give EtCH:CMeCHO. I and PrCHO give α-ethyl-β-propylacrolein and its 2,4-dinitrophenylhydrazone m. 122°. I and isobutanal give the dimer 2,2,4-trimethyl-3-pentanol-1-al and its 2,4-dinitrophenylhydrazone m. 177°. I and heptanal give 2-amyl-3-nonanol-1-al, $b_{0.5}$ 103–6°, and its 2,4-dinitrophenylhydrazone m. 124.5°. A dimer, $b_{0.5}$ 160–85°, is also obtained. JULIUS WHITE

**Synthesis of some methoxymethyl alkyl ketones and their relation to the aroma of products of fermentation.** SUTTEKITI MARUYAMA. *Sci. Papers Inst. Phys. Chem. Research* (Tokyo) **20**, 53–62(1933).—As it has been found that acetoin is a constituent of the aroma of saké, but is accompanied by other unknown odorific substances, homologs of it have been prepd. While these have a more or less agreeable odor, they do not seem characteristic of saké. The ketones were prepd. by the reaction: $MeOCH_2CN + RMgBr \longrightarrow MeOCH_2C(:NMgBr)R \longrightarrow MeOCH_2COR$. $MeOCH_2CN$ was prepd. by shaking 92 g. of $AcCH_2Cl$ with 102 g. of dry powd. CuCN at room temp. for 20 min., then carefully heating to 50° till the main reaction was over. The flask was then heated at 100° till the solid cake liquefied, then in an oil bath for 20 min. to complete the reaction. The product was then fractionated. Crude yield, 71 g. The Grignard reactions were carried out as usual. The following *methoxymethyl alkyl ketones* were prepd.: *Et*, b. 130°; *Pr*, $b_{175}$ 117°; *Bu*, $b_{173}$ 131–2°; *iso-Am*, $b_{87}$ 117°. *Semicarbazones*, m. 84–5°, 97–8°, 95°, 105–6°. *2,4-Dinitrophenylhydrazones*, m. 198–8.5°, 128.5–9°, 93°, 109.5°. ALFRED HOFFMAN

**Condensation of 2-butanone with normal aliphatic aldehydes.** S. G. POWELL,

HAZEL C. MURRAY AND MAYNARD M. BALDWIN. *J. Am. Chem. Soc.* **55**, 1153–4(1933).—2-Butanone reacts with EtCHO, BuCHO and AmCHO through the $CH_3$ group (cf. *C. A.* **19**, 239). The following new *compds.* are reported, the condensation, dehydration, reduction and oxidation being carried out as described in the previous paper. EtCH(OH)CHMeAc, $b_{20}$ 94–6°, $n_D^{25}$ 1.435, $d_4^{22}$ 0.939, 61% yield; BuCH(OH)CHMeAc, $b_{16}$ 98°, $n_D^{25}$ 1.4404, $d_4^{20}$ 0.9167; $C_6H_{13}CH(OH)CHMeAc$, $b_{22}$ 147°, $n_D^{25}$ 1.4425, $d_4^{22}$ 0.889; PrCHMeAc, b. 142–5°, $n_D^{25}$ 1.409, $d_4^{25}$ 0.828; AmCHMeAc, $b_{18}$ 64–5°, $n_D^{25}$ 1.424, $d_4^{27}$ 0.832; $C_7H_{15}CHMeAc$, $b_{20}$ 121°, $n_D^{20}$ 1.431, $d_4^{20}$ 0.823; AmCHMeCH(OH)Me, $b_{16}$ 75°, $n_D^{25}$ 1.437, $d_4^{27}$ 0.831; $C_7H_{15}CHMeCH(OH)Me$, $b_{19}$ 125°, $n_D^{25}$ 1.440, $d_4^{25}$ 0.834. It appears that the normal aliphatic aldehydes in general react in this manner with 2-butanone. C. J. WEST

**Light absorption of aliphatic carboxylic and amino acids in the presence of neutral salts.** FRANZ LEUTHARDT AND MARIANNA PFISTER. *Helv. Chim. Acta* **16**, 228–32 (1933); cf. *C. A.* **26**, 4584.—The effect of $MgCl_2$, $CaCl_2$ and NaCl upon the absorption of AcOH, $ClCH_2CO_2H$, $Cl_3CCO_2H$, $PrCO_2H$ and $H_2NCH_2CO_2H$ is shown by a series of curves. The absorption curves of the free acids (undissocd.) are unchanged by the presence of a high excess of neutral salt but those of the ionized acids are shifted toward the shorter wave lengths. The $NH_2$ acid behaves similarly. C. J. WEST

**Isomerism phenomena in the β-series of eleostearic acids.** ERNST EIGENBERGER. *J. prakt. Chem.* **136**, 75–116(1933).—An extended description is given of 4 *isomeric β-eleostearic acids*, which are characterized principally by their *K salts*. Sp. cond. data, soly. and crystallographic data are given for the salts. C. J. WEST

**Maximum rotations in the homologous series of α-bromo acids.** P. A. LEVENE. *J. Am. Chem. Soc.* **55**, 1295–6(1933).—$EtCHBrCO_2H$, resolved through the brucine salt, has $[M]_D^{25}$ 59.62°; $BuCHBrCO_2H$, resolved through the strychnine salt, has $[M]_D^{25}$ −71.45°; thus, in this homologous series the values of the rotations of the individual members increase progressively ($MeCHBrCO_2H$ has been shown to have $[M]_D^{25}$ −43.6°). The progress in the case of the Me esters was similar, being 83°, 92° and 104°, resp. C. J. WEST

**The rapid combustion of ketene.** J. A. MULLER AND ÉGLANTINE PEYTRAL. *Compt. rend.* **196**, 279–80(1933); cf. *C. A.* **26**, 1897, 4063.—By heating $CH_2CO$ 0.002–0.003 sec. by passing it rapidly through a Pt. tube at 1150° under partial pressure, M. and P. obtained $C_2H_4$, $C_2H_2$, CO, $CH_4$ and H. This is explained by the dissocn. of $CH_2CO$ into the radicals CO and $CH_2$ which can undergo reactions to produce the above. J. WHITE

**Color and structure of amides.** MME. RAMART-LUCAS AND MLLE. WOHL. *Compt rend.* **196**, 120–2(1933).—The absorption curves in the ultra-violet show that amides, non-substituted or monosubstituted, are, in liquid form or in soln., an equil. mixt. of the amide and the imino alc. ALFRED HOFFMAN

**Synthesis of vinylpropenylglycol.** WIEMANN. *Compt. rend.* **196**, 118–20(1933).—By hydrogenating 500 g. of an equimol. mixt. of acrolein and crotonaldehyde, a fraction (90 g.) is obtained, consisting of a mixt. of *stereoisomeric vinylpropenylglycols*, $b_{15}$ 114–17°, $n_{22}^D$ 1.4732, $d_{22}$ 0.9851. On hydrogenation with colloidal Pd this gives a *liquid* $C_7H_{16}O_2$, $b_{15}$ 109°, $n_{22}^D$ 1.4420, $d_{22}$ 0.9430, and a *solid isomer*, m. 103–4°, probably identical with a substance obtained by hydrogenation of ethylbutyrylcarbinol (Vénus-Danilova, *C. A.* **22**, 4473). ALFRED HOFFMAN

**The reaction of etherates of magnesium halides with ethylene oxides. II. Reactions of bromomagnesium etherate with some aliphatic and monosubstituted ethylene oxides.** I. RIBAS AND E. TAPIA. *Anales soc. espaü. fis. quím.* **30**, 778–91(1932); cf. *C. A.* **24**, 4265; **27**, 1323.—Products of the reaction of some ethylene oxides in $Et_2O$ on MgBr etherate were investigated and found to have the general formula $RCH_2BrCHOMgBr \cdot Et_2O$, where R = H, $CH_2Cl$, Me or OMe, because they were identical with those obtained by means of the corresponding bromohydrins and EtMgBr according to the reaction $RCH_2OCH_2Br + EtMgBr = C_2H_6 + RCH_2BrCHOMgBr$. If the etherate of the MgBr reacts with an excess of $(CH_2)_2O$ it forms $[RCH_2CHBrO]_2Mg$. Even at −21° no mol addn. product of MgBr and the ethylene oxides like those described by Meisenheimer (*C. A.* **20**, 3687) was formed. E. M. SYMMES

**Derivatives of dioxane.** J. BÖESEKEN, F. TELLEGEN AND P. COHEN HENRIQUEZ. *J. Am. Chem. Soc.* **55**, 1284–8(1933); cf. *C. A.* **27**, 93.—Chlorination of dichlorodioxane (I) gives a liquid asym. *tetra-Cl deriv.* and a *hexa-Cl deriv.* (II), m. 89.5–91°. Higher chlorinated products are under study. It is highly probable that by long duration of the chlorination the ring structure is broken through. There are no indications of the existence of mono-, tri- and penta-Cl derivs. The stability of the chlorinated dioxanes increases greatly with increasing Cl content, the stability of II being so great as to prevent investigation of its structure. I reacts with *o*-$C_6H_4(OH)_2$ to give a *compd.* $C_{18}H_{10}O_4$, m.

74–6°; $PhCH_2OH$ gives the *compd.* $C_{18}H_{18}O_4$, m. 66–8°; Et *d*-tartrate gives the *compd.* $C_{12}H_{18}O_8$, m. 93.3–4.7°, $[\alpha]_D^{25}$ —0.30° (0.8% EtOH soln.); AcOK gives the compd. $C_8H_{12}O_6$, m. 104–5.5°. Formulas are given for these compds. C. J. West

**Identification and biochemical oxidation of α-glucoheptulitol.** Mme. Y. Krouvine and G. Nitzberg. *Compt. rend.* **196**, 218–20(1933); cf. *C. A.* **23**, 373.—Examn. of x-ray diagrams of α-glucoheptulitol (I), α-glucoheptitol and β-glucoheptitol shows that I cannot be a mixt. of the others. Values are tabulated for the angles 4 θ calcd. for the rays of greater intensity for the 3 compds. According to the proposed formula for α-glucoheptulose one could ignore the diversities just noted and give to I the formula of β-glucoheptitol. An alc. of this structure if oxidized by the sorbose bacteria or *Acetobacter xylinum* would normally give β-glucoheptulose. K. and N. prepd. medium from α-glucoheptulitol and yeast ext. The sorbose bacteria oxidized the alc. in 1.5 months producing 80% of reducing sugar. The product was pptd. with $Pb(OAc)_2$ and recrystd. from alc. several times. It m. 173°, reducing power 86% as strong as glucose, $[\alpha]_D^{16}$ —63°. These data and x-ray diagrams show the product to be α-glucoheptulose. α-Glucoheptulitol was recovered from the mother liquor. It is shown that the accepted formula for β-glucoheptitol is not suitable for α-glucoheptulitol. A. E. White

**The $C_4$-saccharinic acids. VI. Further attempts to prepare 2,2′-dihydroxyisobutyric acid. 2,3-Dihydroxybutyric acid lactone from glycidol. Preparation of the two iodohydrins of glycerol.** J. W. E. Glattfeld and Rosalind Klaas. *J. Am. Chem. Soc.* **55**, 1114–19(1933); cf. *C. A.* **25**, 4849.—The addn. of HCN to glycidol, followed by hydrolysis of the addn. product, resulted in a 25–50% yield of 2,3-dihydroxybutyrolactone; under certain conditions 3-hydroxyisocrotonolactone was formed. Further attempts were made to prep. 2,2′-dihydroxyisobutyric acid from $CHCl(CH_2OH)_2$ (I) and heavy-metal cyanides; from the diacetate of I, $ClCO_2Et$ and Na-Hg; and from pentaerythritol by oxidation with $Ba(MnO_4)_2$ or $KMnO_4$; these attempts were unsuccessful. α-Glycerol iodohydrin has been prepd. in 15% yield by the interaction of the chlorohydrin with NaI in $Me_2CO$; it also results by the hydrolysis of isopropylidene α-iodohydrin, formed as a by-product in the above reaction. The *β-isomer*, m. 52–3°, was similarly prepd. in 18% yield; with NaCN it yields 2,3-dihydroxybutyric acid. C. J. West

**1,3-Dimethylbarbituric acid as an aldehyde reagent.** Shiro Akabori. *Ber.* **66B**, 139–43(1933); cf. *C. A.* **26**, 5077.—In a search for a sp. means for isolating and identifying small amts. of furfural (I) mixed with aliphatic aldehydes and ketones 1,3-dimethylbarbituric acid (II) was found to be a very good reagent for identifying aldehydes, RCHO, with which it forms condensation products of the structure $RCH{:}C(CO.NMe)_2$-CO. The products with I and aromatic aldehydes are almost all easily crystd. and have sharp m. ps.; HCHO and AcH, however, give products which, although cryst., do not melt sharply, and iso-BuCHO and citronellal yield only tarry products. The following *derivs.* of II were obtained by heating the aldehyde and II in water or aq. alc. for a few min. on the water bath; the yields were in general 80–90% (97–8% with I and methylfurfural): *benzal*, light yellow, m. 164–5°; *cinnamylidene*, orange-yellow, m. 196–7°; *anisal*, light yellow, m. 148.5–9°; *p-methylbenzal*, light yellow, m. 142–2.5°; *vanillylidene*, yellow, m. 222.5–3°; *piperonylidene*, yellow, m. 201.5–2°; *m-hydroxybenzal*, yellow, m. 233–4°; *p-hydroxybenzal*, yellow, m. 297–8°; *o-nitrobenzal*, m. 156.5–7°; *p-nitrobenzal*, yellow, m. 196–6.5°; *furfurylidene*, yellow, m. 195–6°; *5-methylfurfurylidene*, yellow, m. 172–2.5°; *5-hydroxymethylfurfurylidene*, yellow, m. 181–2°; *5-ethoxymethylfurfurylidene*, orange-yellow, m. 112.5–13°; *furylacrylidene*, brick-red, m. 223–4°; *β-indolylidene*, yellow, m. 291–2°; *citrylidene*, m. 101–1.5°; *salicylidene*, yellow needles, m. 177–8° (effervescence), changing on repeated crystn. from BuOH into colorless crystals, m. 236–7°, which, from their compn. and mol. wt. in camphor (387), are apparently *salicylidenebis(dimethylbarbituric) anhydride*, $C_{19}H_{18}O_6N_4$; *o-vanillylidene*, yellow needles, m. 180–1°, likewise changing into white crystals, m. 237–8°, presumably of the *bis(dimethylbarbituric) anhydride*. The condensation products of barbituric acid with I and its derivs. give with $PhNH_2$ or $PhNH_2.HOAc$ strong color reactions which for I and its 5-Me and 5-$HOCH_2$ derivs., resp., differ quite distinctly from each other and are sufficiently sensitive to permit detection of the aldehydes at dilns. of 1:1,000,000. The condensation products with II give similar colors with $PhNH_2$ but the differences between the 3 aldehydes are not so distinct. C. A. R.

**Action of alkalies on the monobasic sugar acids. I. Conversion of gluconic to mannonic and of galactonic to talonic acids by the action of barium hydroxide.** Howard T. Bonnett and Fred W. Upson. *J. Am. Chem. Soc.* **55**, 1245–8(1933).—Epimerization may be produced by the action of $Ba(OH)_2$; gluconic acid has been converted to mannonic acid, mannonic acid to gluconic acid and galactonic acid to talonic acid, in yields comparable with those obtained by the use of $C_5H_5N$ and $C_9H_7N$. The process described furnishes perhaps the most convenient method for obtaining mannonic and

talonic lactones. A possible mechanism is suggested for the formation of isomeric hexonic acids in the alk. oxidation of hexoses. C. J. WEST

**Some properties of *d*-xylonic lactone.** V. HASENFRATZ. *Compt. rend.* **196**, 350–3 (1933).—*d*-Xylonic lactone was converted into *Pb d-xylonate*, $(C_5H_9O_6)_2Pb.5H_2O$, m. 59°, $[\alpha]_D^{18}$ —5.9° (in $H_2O$). With $H_2S$ this gives the pure, cryst. lactone, m. 99–103°, $[\alpha]_D^{18}$ 85.5°. The rotatory power of the soln. diminishes on standing. With $Ac_2O$ and $ZnCl_2$ it gives a *tri-Ac deriv.*, m. 99°, $[\alpha]_D^{18}$ 62.4° (in EtOH). It can be recrystd. from $H_2O$ without formation of the acid. ALFRED HOFFMAN

**Effect of hydrocyanic acid on methylglyoxal.** C. V. SMYTHE. *Biochem. Z.* **257**, 371–84(1933); cf. *C. A.* **27**, 62–3.—HCN and AcCHO form an addn. compd. which is easily oxidizable by reacting directly with $O_2$. The products of this oxidation are AcOH, $CO_2$ and a small amt. of $HCO_2H$. In the absence of $O_2$ the compd. reacts with a mol. of free AcCHO which serves as the oxidizing agent, $AcCO_2H$ being the product of the anerobic oxidation and a reduction product with at least 6 C atoms. For every mol. $AcCO_2H$ formed about 2 mols. AcCHO disappear. Both the anerobic and aerobic reactions proceed with the same speed and with an excess of HCN the direct reaction with $O_2$ can be made practically quant. S. MORGULIS

**Preparation of the ketol $C_6H_{10}O_3$ and of methylglyoxal.** M. HENZE AND R. MÜLLER. *Z. physiol. Chem.* **214**, 281–4(1933).—The heretofore relatively inaccessible AcCHO can now be obtained with little cost and trouble by the method of Riley, Morley and Friend (*C. A.* **26**, 4305). This consists in the oxidation of MeAc by refluxing with $SeO_2$, recovery of Se and unoxidized MeAc and vacuum distn. of $AcCH(OH)_2$. The yield is 90–100 g. pure AcCHO from 2 l. of MeAc. Condensation of AcCHO and $AcCH_2CO_2H$ to the ketol $AcCH(OH)CH_2Ac$ in 50% yield is described at length. A. W. D.

***d*-Galacturonic acid. I. Methyl 1-methyl-*d*-galacturonate and 1-methyl-*d*-galacturonic acid.** FELIX EHRLICH AND RENATE GUTTMANN. *Ber.* **66B**, 220–7(1933).—The acetalization and esterification of *d*-galacturonic acid (I) were undertaken to obtain simple compds. with which to study the general properties of substances like pectin and which might be used for model expts. for pectolase and pectase. By the Fischer method for prepg. Me glucosides (heating with HCl in MeOH under pressure), I yields, with relative ease, about 33% of *Me α-1-methyl-d-galacturonate* (II), and by the Voss method with $Me_2SO_4$ and HCl in MeOH (*C. A.* **25**, 1798) is obtained 50–5% of a mixt. of II and the *β-isomer* (III), sepd. by fractional crystn. from acetone. I seps. in stout quadratic columns and truncated tablets, II in fine needles arranged in druses, so that the 2 forms can sometimes be sepd. by decantation. The 2 epimers are readily sapond. (by cold $Ba(OH)_2$) to the *α*- (IV) and *β-acids* (V) which with dil. acids on the water bath yield I. In addn. to II and III, the Voss method also gives about an equal amt. of a non-reducing sirup, sapond. by $Ba(OH)_2$ to a sirupy acid which on further hydrolysis with dil. acids gives a strongly reducing soln. from which cryst. I seps. It is possible that the original reaction mixt. contains, besides II and III, a γ-isomer or an easily sol. and difficultly crystallizable furoid form. In an extensive series of expts. it was found that all ferments for *α*- and *β*-glucosides and complex galacturonic acids (maltase, emulsin and pectolase from various sources) have absolutely no action on II-V under the most varied conditions, and the same is true of an *α*- and *β*-galactoside-cleaving ferment mixt. obtained from emulsin (Helferich, *et al.*, *C. A.* **26**, 4070). On the other hand, a pectase obtained from lucerne (Bertrand and Mallèvre, *Compt. rend.* **121**, 726(1895)) hydrolyzed II (distinctly in 1 day, 30% in 4 days). II, seps. with 1 $H_2O$, m. 139–42° (decompn.), $[\alpha]_D^{20}$ 125.0° (0.1072 g. hydrate in 10 cc. water), $[\alpha]_D^{23}$ 131.9° (0.1403 g. anhyd. ester in 10 cc. water) III, sinters 189°, m. 193–4°, $[\alpha]_D^{19}$—45.6° (0.1064 g. in 10 cc. water). IV, tablets with 2 $H_2O$, m. 109–13°, $[\alpha]_D^{20}$ 129.9° (0.1189 g. in 10 cc. water). V, needles with 1 $H_2O$, sinters 126°, m. 134° (decompn.), $[\alpha]_D^{21}$ —39.2° (0.1366 g. hydrate in 10 cc. water), $[\alpha]_D^{20}$ —40.5° (0.1124 g. anhyd. acid in 10 cc. water). Since this work was completed there has appeared a preliminary paper by Link (*C. A.* **26**, 5913) on the isolation of a Me galacturonide which seems to be identical with IV. C. A. R.

**Recent studies in tautomerism.** R. P. LINSTEAD. *Sci. J. Roy. Coll. Sci.* **2**, 79–87 (1932). E. H.

**Mercuration of compounds containing a reactive methylene group by means of mercuric chloride. II.** K. G. NAIK AND R. P. PATEL. *J. Indian Chem. Soc.* **9**, 533–7 (1932); cf. *C. A.* **26**, 5547.—An active $CH_2$ group may be converted to a C:Hg group by the following typical procedure: A soln. of 1 g. $NaHCO_3$ is added to soln. of 1 g. malonomonophenylamide (I) and 1.15 g. $HgCl_2$ in boiling EtOH. *Mercurimalonomonophenylamide* (II) seps. immediately; the reaction is completed by 0.5 hr. boiling. In this way *mercurimalonamide* (III), m. 286°; *di-Et mercurimalonate*, undecompd. below 300°; *Et mercuriacetoacetate*, blackening above 270°; *mercuriacetoacetanilide*, m. 205°; *mercuriacetoaceto-o-toluide*, m. 230°; *mercuriacetoaceto-p-toluide*, m. 243–7°; and the following mercurimalonomono derivs. were prepd.; *o-toluide* (IV), m. 257–9°; *p-toluide*,

m. 278–9°; *m-toluidide*, m. 255°; *α-naphthylamide*, m. 269°; *β-naphthylamide*, m. 270°; *1,3,4-xylide*, m. 270°. All these compds. m. with decompn. II and HCl give I; II and $H_2S$ yield HgS quantitatively; and with $PhNHNH_2$ or $N_2H_4$ Hg is liberated from II. With Br, III forms dibromomalonamide. The C:Hg linkage of IV is quantitatively broken by cold aq. KI. A. F. SHEPARD

**Optimum conditions for preparing *d*-glutamic acid hydrochloride from wheat gluten. II. Effect of purity of acid, time of reaction, climatic conditions and other experimental circumstances.** CHAO-LUN TSENG AND EDITH JU-HWA CHU. *Science Quart. Natl. Univ. Peking* **3**, 53–68(1932); cf. *C. A.* **26**, 5548.—In the hydrolysis of wheat gluten to *d*-glutamic acid-HCl by means of HCl, the purity of the HCl and the use of pressure heating had little or no effect upon the yield, but the time of heating had a pronounced effect, the optimum being 7 hrs. Heatings of 4 hrs. or less were too short. About 9 hrs. of preliminary digestion before refluxing improved the yield slightly. Dried gluten gave better yields than wet material, sun-dried gluten being better than oven-dried material. The grinding of sun-dried gluten to a powder had a favorable effect. In general the results of these expts. done in Peking showed lower yields than the author's previous expts. performed in Nanking. The difference is thought to be due to the climatic differences of the 2 cities. H. W. LEAHY

**The decolorization of the solution in the preparation of *d*-glutamic acid hydrochloride by hydrolysis of wheat gluten.** CHAO-LUN TSENG AND EDITH JU-HWA CHU. *Science Quart. Natl. Univ. Peking* **3**, 69–74(1932); cf. preceding abstr.—Japanese active C was found to be superior to any other C tried in decolorizing power, the C from chestnuts or peanuts being nearest to it. Com. samples of animal C, besides being inferior, have the disadvantage of contg. $Ca_3(PO_4)_2$ which causes a great inconvenience and a substantial lowering of the yield due to the pptn. of this impurity during the vacuum distn. H. W. LEAHY

**The tartrates of cadmium.** PARISELLE AND BARBIER. *Compt. rend.* **196**, 114–16 (1933).—The tartrates of Cd were studied principally by the addn. of NaOH to soln. of 1 part $CdSO_4$ and 4 parts Na tartrate. The changes in soly. and in the rotatory power indicate the existence of a no. of acid and basic salts. ALFRED HOFFMAN

**Preparation of some structurally related monoguanidines.** CHARLES E. BRAUN. *J. Am. Chem. Soc.* **55**, 1280–4(1933).—$C_6H_{13}NH_2$ (14.5 g.) and 21 g. *S*-methylisothiourea sulfate in 60 cc. $H_2O$, refluxed at 100° for 5 hrs., give 18.2% (5 g.) of *hexylguanidine sulfate*, m. 210–2°. *Cyclohexylguanidine-HCl*, m. 224–6°, results in 64% yield from cyclohexylamine-HCl (m. 204–5°) and cyanamide in abs. EtOH by heating 6 hrs. at 100°. *o-Tolylguanidine-HCl*, m. 133–5° (31.6% yield); *m-tolylguanidine sulfate*, m. 215–7° (31.1%); *p-tolylguanidine-HCl*, m. 136–7° (17.4%); the by-product is *p*-tolylbiguanide-HCl, m. 245–7°. *α-Methyl-α-phenylguanidine-HCl*, m. 217–8° (35.3%). *β-Phenylethylguanidine sulfate*, crystals with 1 mol. EtOH, softens 60–5°, m. 175–7° (40.3% yield). C. J. WEST

**Hydroxyallantoin.** A. PINGUET. *Compt. rend.* **196**, 112–14(1933).—Hydroxyallantoin (I), prepd. according to Grimaux from parabanic acid and urea (*Bull. soc. chim.* **32**, 120(1879)), is a mixt. of I and oxalyldiureide. The crude product, washed with cold $H_2O$, dissolved at 0° in dil. NaOH and neutralized to phenolphthalein with AcOH, gives the Na deriv. of I. An excess of AcOH gives I, m. 270°. Oxalyldiureide differs from I in the following: it is insol. in $H_2O$, does not give the biuret reaction and reacts differently with a no. of other reagents. ALFRED HOFFMAN

**Imidazole derivatives of barbituric acid.** MILLARD S. TAGGART AND G. HOLMES RICHTER. *J. Am. Chem. Soc.* **55**, 1110–11(1933).—4(or 5)-Chloromethylimidazole and and $BuCH(CO_2Et)_2$ condense with EtONa to a glassy solid (55.9% yield), which with $CO(NH_2)_2$ yields *5-butyl-5-[4(or 5)-imidazolemethyl]barbituric acid*, decomps. about 290°; the *5-iso-Am deriv.*, prepd. similarly, decomps. without melting. C. J. WEST

**Ethylene-*N*,*N'*-bisbarbital, a dimolecular barbital with hypnotic properties.** ARTHUR W. DOX. *J. Am. Chem. Soc.* **55**, 1230–2(1933).—Ethylenediurea and $Me_2C(CO_2Et)_2$, heated with 10% EtONa 7 hrs. at 100–6°, give 75% of *ethylene-N,N'-bisbarbital* (I), m. 189°; Et hexylethylmalonate gives *ethylene-N,N'-bis(5-hexyl-5-ethylbarbituric acid)* (II), a transparent gum, which may consist of 2 pairs of optical isomers; $PhEtC(CO_2Et)_2$ gives 50–8% of *ethylenebis(carbethoxyurea)* (III), m. 219° (decompn.), which gives with 25% $NH_4OH$ at 100° *ethylenebisbiuret*, m. 245° (decompn.). I showed hypnotic potency equal to about 75% that of barbital; II was much feebler in its action. A 2-mg. dose caused very noticeable drowsiness in a 20-mg. mouse but no anesthesia; an increase to 2 and 4 times this dosage gave the same effect; the limiting factor appears to be the rate of absorption which in turn is limited by the insoly. of the free acid. The formation of III appears to be an exchange of $CO_2Et$ for H instead of the usual barbituric acid condensation. A by-product is $PhEtCHCO_2Et$. C. J. WEST

**Precipitation of sugars and polyols by metallic hydroxides in alkaline media. I.**

**General character of this precipitation.** PAUL FLEURY AND JEAN COURTOIS. *J. pharm. chim.* **16**, 97–109(1932). II. **Mechanism of the precipitation; practical results.** *Ibid* 145–61.—Cf. *C. A.* **24**, 1625; **26**, 3780. S. WALDBOTT

**Synthesis of gluco-*m*-hydroxybenzaldehyde.** NÁNDOR MAUTHNER. *Math. naturw. Anz. ungar. Akad. Wiss.* **48**, 473–5(in German 476–7)(1931).—Acetobromoglucose was condensed with *m*-$HOC_6H_4CHO$. The tetraacetylgluco-*m*-hydroxybenzaldehyde was sapond. with dil. ammonia to a cryst. product m. 160–1°, sol. in warm alc. and water, which was found to be different from picein. S. S. DE FINÁLY

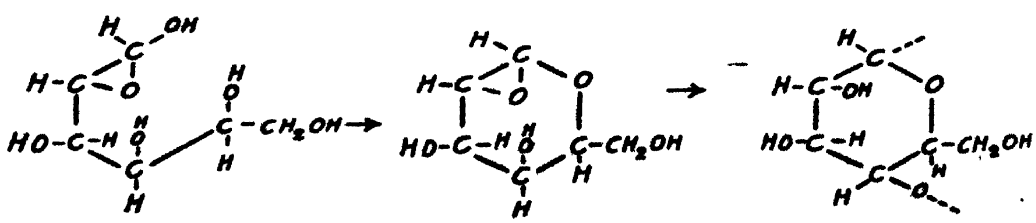
**Preparation of octaacetyl and haloacetyl derivatives of turanose.** JENÖ PACSU. *Math. naturw. Anz. ungar. Akad. Wiss.* **48**, 485–91(in English 492–3)(1931).—Three octa-Ac derivs. m. 216–7°, 156–7° and 95°, $[\alpha]_D^{20}$ in $CHCl_3$ 20.5°, 105.9° and 125.4°, were obtained instead of the theoretical 2 isomerides. The acetochloro, acetobromo and acetoiodo derivs. corresponding to the 2nd isomer m. 165°, 133–4°, 105–6°, $[\alpha]_D^{20}$ —0.4°, —30.5° and —54.2°. No Walden inversion occurred during their formation. β-Acetobromoturanose in acetone gave in the presence of $Ag_2CO_3$ with water β-hepta-acetylturanose, m. 145–6°, $[\alpha]_D^{20}$ 36.9°. S. S. DE FINÁLY

**Sucrose and other disaccharides. Sir James Irvine's correction.** H. C. CARRINGTON, W. N. HAWORTH AND E. L. HIRST. *J. Am. Chem. Soc.* **55**, 1084–90(1933); cf. Irvine and McGlynn, *C. A.* **26**, 969, 3781.—The oxidation of 2,3,6-trimethylglucose under various conditions has been studied with results contrary to the conclusions of I. and M. 2,3,6-Trimethyl-γ-gluconolactone (I) is a cryst. substance, the properties of which diverge widely from those ascribed to this lactone by I. and M. It is shown that dimethylmethylglucoside is readily extd. from aq. soln. by $CHCl_3$. I $b_{0.05}$ 130°, m. 29–30°, $n_D^{18}$ 1.4625, $[\alpha]_D^{18}$ 55° ($H_2O$, *c* 2), 56° (EtOH, *c* 0.5), 55° (50% EtOH, *c* 0.4). The rate of mutarotation is similar to that of tetramethyl-γ-gluconolactone. The rotation of the acid in $H_2O$ is $[\alpha]_D^{20}$ 28° (initial), 32.5° (const.); the *phenylhydrazide* m. 145°. The oxidation of the glucose with Br and $CaCO_3$, by Isbell and Hudson's method and by $HNO_3$ is also discussed. The bearing of these results on the critical views of I. concerning the chemistry of sucrose and other disaccharides is discussed. C. J. WEST

**Molecular structure of polysaccharides.** W. N. HAWORTH AND E. L. HIRST. *Trans. Faraday Soc.* **29**, 14–17(1933).—Review. FRANK URBAN

**Nature of the mechanism of polymerization.** H. HIBBERT AND S. Z. PERRY. *Can. J. Research* **8**, 102(1933).—Exptl. evidence has been obtained in support of the theory that the polymerization of $\overline{CH_2.CH_2.O}$ first involves activation by the catalyst (aq. alkali), followed by ring fission and the addn. of $H_2O$ to give $CH_2(OH)CH_2OH$ (I). I adds to another mol. of the open chain form of $\overline{CH_2.CH_2.O}$ to give $(CH_2CH_2OH)_2$ and so on. The mechanism involved is the addn. of HX to the open chain form of $\overline{CH_2.CH_2.O}$, X representing $—(OCH_2CH_2)_yOH$, where *y* has the values 0, 1, 2, 3, etc., thus giving rise to chain formation. R. B. SANDIN

**Plant synthesis of carbohydrates and polysaccharides.** H. HIBBERT. *Can. J. Research* **8**, 103–4(1933).—The $\dot{C}H_2.CH_2.O$ polymerization theory provides a working hypothesis for the plant synthesis of sugars and polysaccharides. The ethylene oxide form of glucose and fructose (I) by loss of $H_2O$ yields the anhydride (II). The addn. of a mol. of hexose (HX) to the free valence form of the ethylene oxide ring in II yields a disaccharide and so on (intermol. chain synthesis). Polysaccharide chain formation may be brought about by intramol. glycidol chain polymerization as shown in the conversion of II to III (cf. Levene and Walti, *C. A.* **23**, 99; Nef, *Ann.* **355**, 191).



(I) (II) (III)

R. B. SANDIN

**Anionotropic and prototropic changes in 4-hydroxycyclopentenones.** H. BURTON AND C. W. SHOPPEE. *Chemistry and Industry* **1932**, 981.—B. and S. have investigated the changes involved in the conversion of *4-hydroxy-3,4-diphenyl-5,5-dimethyl-* $\Delta^2$-

*cyclopentenone* (I) into the isomeric *2-HO deriv.*, (II). Acetylation of I gives an acetate m. 137°, which is believed to be *2-acetoxy-3,4-diphenyl-5,5-dimethyl-*$\Delta^2$*-cyclopentenone* (III). Hydrolysis of III gives II which is thought to be a prototropic change. The evidence furnished is the prepn. of 3 isomeric ethoxy-3,4-diphenyl-5,5-dimethylcyclopentenone 2,4-dinitrophenylhydrazones. H. W. LEAHY

**The reactions between the bromonitro derivatives of toluene and sodium thiophenate.** ED. BOURGEOIS AND JEAN HENRION. *Bull. soc. chim.* **51**, 1416–24(1932); cf. *C. A.* **6**, 608.—The variable activity of the Br atom in bromonitro derivs. of MePh has been investigated by a study of their double decompn. reactions with PhSNa. The derivs. contg. Br *para* and *ortho* to the $NO_2$ group reacted readily with formation of NaBr and mononitrated tolyl Ph sulfides. No NaBr was formed with *m*-derivs. but insol. indeterminate compds. contg. N and Br were produced, probably as the result of the reduction of the $NO_2$ group when this was not hindered by the presence of an *o*-Me grouping. The dinitro compds. contg. $NO_2$ groups in the *o*- and *p*-positions to the Br atom reacted by double decompn. more readily than the mononitro compds. PhSH, b. 169.5°, prepd. by the reduction of $PhSO_2Cl$, $b_{20}$ 131.4°, with powd. Zn and HCl, was dissolved in abs. alc. and treated with an equiv. quantity of Na to yield the required PhSNa (I). The addn. of 20 cc. of dry Br at a rate of 10 drops per min. to 56 g. of *m*-$O_2NC_6H_4Me$, b. 230°, and of *p*-$O_2NC_6H_4Me$, m. 54°, in the cold in the presence of 10 g. of sublimed $FeCl_3$ gave 85% yields of *p*-nitro-*o*-bromotoluene (II), $b_{38}$ 175°, m. 77.5°, and a mixt. of *m*-nitro-*o*-bromotoluene (III), $b_{14}$ 121°, m. 77.5°, and *m*-nitro-*p*-bromotoluene (IV), $b_{13}$ 147–8° (non-cryst.). The bromination of toluene in the presence of powd. Fe gave *p*-$BrC_6H_4Me$, b. 172–82°, m. 28.5°, which on nitration with fuming $HNO_3$ at 0° yielded a mixt. of *o*-nitro-*p*-bromotoluene (V), b. 256°, m. 47°, and IV. The nitration of *m*-$BrC_6H_4Me$ (*Ann.* **168**, 153(1873)), b. 182–3°, by the slow addn. of 100% $HNO_3$ at 0° gave a mixt. of solid *o*-nitro-*m*-bromotoluene (VI), b. 267°, m. 55.5°, and liquid *p*-nitro-*m*-bromotoluene (VII), b. 269° (liquid at —20°). The violent reaction of *m*-$BrC_6H_4Me$ with fuming $HNO_3$ at 0° yielded chiefly 2,4-dinitro-5-bromotoluene (VIII), m. 103°. The double decompn. reaction was carried out by adding 0.1 mol. of the bromonitro compds. in 100 cc. of a mixt. of abs. alc. and anhyd. $Et_2O$ to 13.2 g. (0.1 mol.) of I in 100 cc. of abs. alc., refluxing on the steam bath, concg. and pptg. the org. products by the addn. of $H_2O$. III, VI, VII and VIII were converted after refluxing 1.5–2 hrs. into the corresponding substituted-tolyl Ph sulfides, m. 82.8°, 72°, 59.5° and 114.5°, resp., with almost theoretical yields. The *m*-nitrotolyl Ph sulfide from III was oxidized by $KMnO_4$ in AcOH into the *sulfone*, m. 104° (yield 80%). C. R. ADDINALL

**The structure of musk ketone.** A. E. CHICHIBABIN. *Bull. soc. chim.* **51**, 1436–62 (1932).—By the action of AcCl on sym. butylxylene in the presence of $AlCl_3$, Baur (*Ber.* **31**, 1346(1898)) obtained the ketone, acetylbutylxylene (I), which gave on nitration a dinitro deriv. (II) with a strong odor of musk, the so-called musk ketone. On the basis of a series of transformations of I into the corresponding nitrile and on the results of a stepwise oxidation and degradation of I through a supposed dimethylbutylcarboxyphenylglyoxylic acid (III) and butylmethylphthalic acid (IV) to methylbutylbenzoic acid (V), B assigned to II the asym. structure, 2,4-dinitro-5-butyl-6-acetyl-*m*-xylene (*Ber.* **33**, 2568(1900)). C. remarks that the m. p. and odor of II contradict this asym. formulation and notes the curious behavior of IV on heating. In the prepn. of the mononitro deriv. of I only the sym. nitrobutylxylene is formed. A mixt. of 20 cc. of $HNO_3$ (d. 1.49 g.) and 20 cc. of $Ac_2O$ was added dropwise to a cooled soln. of 25 g. of I in 25 cc. of $Ac_2O$, and after 30 min. the reaction mixt. was poured onto ice. The sepn. of the products gave 21.6 g. (70.8%) of 1,3-dimethyl-5-butyl-2-acetyl-4-nitrobenzene, m. 56°, and 6.2 g. (24.8%) of 2-nitro-5-butyl-*m*-xylene, m. 85° (total yield 95.6%). This lack of isomers and the anomalous behavior noted all pointed to a sym. structure formulation for I and II and suggested a verification of the oxidation expts. and a detailed examn. of IV. The oxidation of I, m. 47°, by alk. $KMnO_4$ at 60–5° gave the same mixt. of acids, mostly methylbutylcarboxyphenylglyoxylic acid, m. 90–110°, that B. found on carrying out the oxidation above 70° and which he supposed to be dimethylbutylphenylglyoxylic acid. The mixt. was oxidized by 20% $H_2SO_4$ and $MnO_2$ and after working up yielded 2,6-dimethyl-4-butylbenzoic acid (VI), m. 168°, and 3-methyl-5-butylphthalic acid (VII), m. 180° (decompn.), transformed by loss of $H_2O$ to an *anhydride*, m. 129°. IV was shown to be a mixt. of VI and VII. By heating 2 g. of I with 5 g. of $NH_2OH.HCl$ and 6 cc. of MeOH in a sealed tube at 160° for 5 hrs. the ketone was transformed by a Beckmann rearrangement into the Ac deriv. of 2-amino-1,3-dimethyl-5-butylbenzene, m. 160°, identical with the deriv. obtained by the acetylation of the amine (VIII) obtained by the reduction of 2-nitro-1,3-dimethyl-5-butylbenzene. (B. records m. p. 81°—probably the m. p. of an unstable polymorph.) This transformation of I leaves no doubt as to the correctness of assigning to the ketone the sym. formulation, 2-acetyl-5-butyl-*m*-xylene. At room temp. I dissolves in 93% $H_2SO_4$ and reacts, with sepn. of the Ac

group, to yield principally and almost uniquely the same butylxylenesulfonic acid as that formed by the sulfonation of butylxylene with fuming $H_2SO_4$. By fusion of the K salt with KOH both yield a phenol identical with the 2-hydroxy-1,3-dimethyl-5-butyl benzene, m. 84°, obtained by the action of $HNO_2$ on VIII, proving conclusively the sym. structure of the phenols and sulfonic acids. Sym. dinitrobutylxylene and the phenol (and its Me ether) obtained from sym. dinitroaminoxylene by the action of $HNO_2$ all have a feeble odor of musk. Of the derivs. of butylxylene with an odor, the isomers whose structural formulas possess a plane of symmetry have a more agreeable odor than those with an asym. structure. Sym. derivs. of butylxylene have a higher m. p. than the asym. compds. From the above results it is necessary to change the structural formulas for the series of compds. related to the ketone producing musk-ketone to the following: 2,6-dimethyl-4-butylphenylglyoxylic acid, 2,6-dimethyl-4-butylbenzoic acid, 2,6-dimethyl-4-butylbenzaldehyde, 2,6-dimethyl-3,5-dinitro-4-butylbenzaldehyde (musk-aldehyde), 3-methyl-5-butylphthalic acid, 3-methyl-5-butyl-1,2-phthalidecarboxylic acid, and to change to the sym. formulation the series of ketones, obtained from butylxylene by the Friedel-Crafts reaction, whose dinitro derivs. have a musk odor and the furoxan derivs. obtained by the oxidation of the sym. ketone and its nitro derivs. The asym. derivs. of the ketone and of the above enumerated compds. should be considered as unknown. Although asym. compds. possessing an agreeable odor are known, the facts are in favor of the general rule: sym. structure is a favorable factor for odoriferous properties. C. R. ADDINALL

**Diselenomesoxyanilide and oxyselenanilide.** A. BARONI. *Atti accad. Lincei* **16**, 253–6(1932).—*Diselenomesoxyanilide* (I) is prepd. by heating 9 g. malonanilide, in 25 cc. anhyd. $C_6H_6$, with 5 g. $Se_2Cl_2$, also in 25 cc. anhyd. $C_6H_6$. The ppt. appearing on cooling and recrystd. from acetone, m. 209–10°. The reaction is $(ArNHCO)_2CH_2 + Se_2Cl_2 \longrightarrow (ArNHCO)_2CSe_2 + 2HCl$. Treated with hot $HNO_3$ (d. 1.5), I dissolves completely, and on cooling the nitrate seps. as small yellow crystals, m. 224°, recrystd. from EtOH. The *p*-toluidine deriv. m. 211°, and also forms a nitrate m. 215°. *Oxyselenanilide* (II) is prepd. by heating together $Se_2Cl_2$ and $PhNH_2$. It is a liquid b. 210° (decompn.), and $b_{26}$ 111° without decompn. It is yellow-orange and has an aromatic odor. The corresponding *p*-toluidine deriv. is an orange oil, b. 245° (decompn.), or $b_{26}$ 130° without decompn. Heated with $ZnCl_2$, II, as well as the *p*-toluidine deriv., give blue dyes, which are difficult to dissolve. A. W. CONTIERI

**The formation and stability of polybromide derivatives of heterocyclic compounds. I. The bromination of diphenyl-ψ-thiohydantoin and its *o*-tolyl homolog.** MOHAMMAD OMAR FAROOQ AND ROBERT F. HUNTER. *J. Indian Chem. Soc.* **9**, 545–52(1932).—The N atom of benzothiazole apparently can hold Br atoms by heteropolar single bonds, but the S atom is inert in addn. reactions (Hunter, *C. A.* **24**, 1860). The S atom of a reduced thiazole ring is now shown to be also inert. Diphenyl-ψ-thiohydantoin and Br yield *2-phenylimino-3-p-bromophenyl-4-ketotetrahydrothiazole hydropentabromide* (I), vermilion, which loses Br at 140° and m. 161–3° (decompn.). I is also formed from Br and *2-phenylimino-3-p-bromophenyl-4-ketotetrahydrothiazole* (II); I liberates 4 I from KI and with HgO or $SO_2$ it yields II. Exposed to air or heated *in vacuo* at 135° it forms the corresponding *hydrotribromide*, yellow, m. 145–6° (decompn.), which with $SO_2$ also gives II. II m. 175°; it was prepd. from $ClCH_2CO_2H$ and *s*-phenyl-*p*-bromophenylthiocarbamide. II forms an *octabromide* (III), red, m. 161–2°, from which $SO_2$ or HgO regenerates II. III liberates 6 I from KI, yielding *2-phenylimino-3-o,p-dibromophenyl-4-ketotetrahydrothiazole* (IV), m. 119–20°. III and $H_2O$ also give IV. Di-*o*-tolyl-ψ-thiohydantoin and Br form *2-o-tolylimino-3-p(?)-bromo-o-tolyl-4-ketotetrahydrothiazole hydroheptabromide* (V), red, m. 120–1° (decompn.). V and KI or $SO_2$ yield *2-o-tolylimino-3-p(?)-bromo-o-tolyl-4-ketotetrahydrothiazole* (VI), m. 129°. On exposure V gives the corresponding *hydrotribromide*, yellow, m. 132° (decompn.). *s-o-Tolyl-p-bromo-o-tolylthiocarbamide*, from *p*-bromo-*o*-toluidine and *o*-tolylthiocarbimide, m. 152°; attempts to synthesize VI from this compd. were fruitless. A. F. SHEPARD

**Differentiation of the *O*- and *N*-methyl groups.** P. PFEIFFER AND E. OCHIAI. *J. prakt. Chem.* **136**, 125–8(1933).—$AlBr_3$ may be used to differentiate MeO and MeN, since MeO gives HO, while MeN is unchanged. Thus piperonal in $C_6H_6$ with 3 mols. $AlBr_3$ gives 49% $3,4\text{-}(HO)_2C_6H_3CHO$ and 8.5% anthracene, while $PhNMe_2$ in $C_6H_6$ is unchanged and $p\text{-}Me_2NC_6H_4CHO$ and $AlBr_3$ in $C_6H_6$ give $Ph_2CHC_6H_4NMe_2$. C. J. WEST

**The law of periodicity. VII. The activity of compounds with the substituents alike and different.** P. PETRENKO-KRITCHENKO, M. GOROCHOLINSKAYA AND A. TROZENKO. *Ber.* **66B**, 194–7(1933); cf. *C. A.* **24**, 5190–1.—Data are given for the rate of action of 0.1 *N* NaOH and *N* $PhCH_2NH_2$ on $CHCl_3$ and $CCl_4$, also for the hydrolysis of urea and $AcNH_2$ with NaOH and HCl. In general compds. having dissimilar substituents on the

same C possess greater activation energy, *e. g.*, $HCONH_2 > AcNH_2 > CO(NH_2)_2$.
B. A. SOULE

**Reaction of some carbonyl and thiocarbonyl compounds with phenylhydrazine.** L. CHAS. RAIFORD AND W. T. DADDOW. *Proc. Iowa Acad. Sci.* **38**, 171(1931); cf. *C. A.* **25**, 2701.—When the CO group is joined directly to C and H (aldehydic) or to C and C (ketonic) it reacts with $PhNHNH_2$ to give the corresponding phenylhydrazone. When the radical is joined directly to N and H, as in HCONHPh, the products are aniline and HCONHNHPh. Substitution productions of HCONHPh behave similarly. If the radical is joined directly to N and N, as in diphenylurea, the products are aniline and semicarbazide. The corresponding thiourea behaves similarly, and gives a thiosemicarbazide. If the reaction with the thioureas is carried out in the presence of a desulfurizing agent, guanidine derivs. are obtained. W. G. GAESSLER

**Biarsyls. V. Reactions of tetraphenylbiarsyl.** F. F. BLICKE, R. A. PATELSKI AND L. D. POWERS. *J. Am. Chem. Soc.* **55**, 1158–61(1933); cf. *C. A.* **27**, 967.—$Ph_4As_2$ and S give tetraphenylarsyl sulfide; SCl gives $Ph_2AsCl$ and S; $SOCl_2$ gives $Ph_2AsCl$, $SO_2$ and S; BrCN gives $Ph_2AsBr$; PhMgBr gives $Ph_3As$; $AsCl_3$ or $PCl_3$ gives $Ph_2AsCl$; phenylarsine oxychloride gives $Ph_2AsCl$ and PhAsO; Na-K alloy gives the K or Na deriv. of $Ph_2AsH$, which yields with PhBr $Ph_3As$, identified as the methiodide. AcCl, BzCl, $Ph_2CCl_2$, 2,4-$(O_2N)_2C_6H_3Br$, $(Ph_2CCl)_2$ or $(CH_2)_2O$ do not react with $Ph_4As_2$.
C. J. WEST

**Bistibyls. II. Tetra-*p*-bromotetraphenyl- and tetra-*p*-tolylbistibyl. Di-α-naphthyliodostibine.** F. F. BLICKE AND U. O. OAKDALE. *J. Am. Chem. Soc.* **55**, 1198–201 (1933); cf. *C. A.* **25**, 1823.—*p*-$BrC_6H_4SbO_3H_2$ acid in cold concd. HCl, filtered after 12 hrs., cooled and satd. with $SO_2$, gives *p-bromophenyldichlorostibine*, m. 90–2°; the oxide and HI (d. 1.65) give the *diiodo compd.*, m. 124–5°. The oxide, heated at 145° in a N atm. for 1 hr., gives the tetra-*p*-bromotetraphenylstibyl oxide, oily; AcOH gives *di-p-bromodiphenylstibyl acetate*, m. 134–5°; HI in hot AcOH gives *di-p-bromodiphenyliodostibine*, m. 73–4°; $NaH_2PO_2$ gives *tetra-p-bromotetraphenylbistibyl*, greenish yellow, m. 211–3° (decompn.). *p-Tolyldichlorostibine*, m. 89–92°; *tetra-p-tolylstibyl oxide*, m. 101°; *di-p-tolylstibyl acetate*, m. 122–3°; *di-p-tolyliodostibine*, m. 76–8°; *tetra-p-tolylbistibyl*, m. 155–7°. *α-Naphthyldichlorostibine*, m. 105–6°; *di-α-naphthyliodostibine*, m. 136–7°. The bistibyls possess properties similar to those of biarsyls. A procedure for the *detn. of Sb* is described. C. J. WEST

**Phenyl- and diphenylarsine.** F. F. BLICKE AND L. D. POWERS. *J. Am. Chem. Soc.* **55**, 1161–7(1933).—$PhAsH_2$ (I) in PhBr absorbs $O_2$ very rapidly at first and then more slowly until 1 mol. equiv. is taken up. S gives PhAsS and $H_2S$. I (2 mols.) and 4 mols. I give $PhAsI_2$ quant.; 2 mols. I give $(PhAs:)_2$, while with 3 mols. I gives $PhAs_2I_2$. I and $Ph_3AsCl_2$ give $Ph_3As$, $(PhAs:)_2$ and HCl. $Ph_2AsH$ (II) in PhBr absorbs $O_2$ rapidly, giving 93% diphenylarsinic acid. Equiv. quantities of II and I form quant. $Ph_2AsI$; half this quantity of I gives $Ph_4As_2$. II and $Ph_4As_2O$ give $Ph_4As_2$ (91% yield); $Ph_4As_2S$ gives the same product but in lower yield. II and PhAsCl(OEt) give $Ph_2AsCl$, $(PhAs:)_2$ and EtOH; $Ph_3CBr$ gives $Ph_2AsBr$ and $Ph_3CH$; $Ph_3C$ gives $Ph_3CH$ and $Ph_4As_2$. $Ph_3AsCl_2$ and 2 mols. equiv. of II give $Ph_3As$ and $Ph_4As_2$, while equiv. amts. give $Ph_3As$ and $Ph_2AsCl$. $Ph_4As_2$ and $Ph_3AsCl_2$ give $Ph_3As$ and $Ph_2AsCl$. II and $Ph_3As(OH)Cl$ give $Ph_3As$, $Ph_4As_2$, HCl and $H_2O$; the $Ph_4As_2$ reacts with more $Ph_3As(OH)Cl$ to give $Ph_4As_2O$, $Ph_2AsCl$, $Ph_3As$ and $H_2O$. C. J. WEST

**The chemistry of beryllium. V. Organic compounds of beryllium.** HAROLD S. BOOTH AND DOROTHY GORDON PIERCE. *J. Phys. Chem.* **37**, 59–78(1933).—Various sulfonates of Be have been prepd. by the double decompn. of Be salts of the organic acids with $BeSO_4$. The following have been prepd., analyzed and their properties studied: Be *p*-toluenesulfonate; Be *p*-xylenesulfonate, Be 2-chlorotoluene-5-sulfonate; Be benzenesulfonate; Be 2-nitrotoluenesulfonate; Be *m*-nitrobenzenesulfonate; Be benzoylacetonate; Be dibenzoylmethane and Be ethyl acetoacetate. I. J. PATTON

**Yields of some organolithium compounds by the improved procedure.** HENRY GILMAN, E. A. ZOELLNER AND W. M. SHELBY. *J. Am. Chem. Soc.* **55**, 1252–7(1933); cf. *C. A.* **26**, 3240.—Yields are reported for 20 organo-Li compds. prepd. in $Et_2O$ after the general procedure for the prepn. of Grignard reagents. Three sets of conditions were used, the differences being the size of the pieces of Li and the rate of addn. of the org. halide. Optimal conditions and general limitations are discussed. C. J. WEST

**Preparation of ketones by the carbonation of organolithium compounds.** HENRY GILMAN AND PAUL R. VAN ESS. *J. Am. Chem. Soc.* **55**, 1258–61(1933).—Usual procedures for the carbonation of organo-Li compds. give high yields of ketone and very little acid. The formation of acids for the characterization of organometallic compds. is markedly improved by the use of solid $CO_2$ or of the gas in the spray-procedure. A 2nd method for the prepn. of ketones, both simple and mixed, in satisfactory yields from organo-Li compds. involves interaction with salts. A mechanism of carbonation

is considered. PhLi and $CO_2$ give 4% BzOH, 70% $Ph_2CO$ and no $Ph_3COH$; in the spray method there resulted 37% BzOH and 8.7% $Ph_3COH$; solid $CO_2$ gave 60% BzOH, 15.4% $Ph_2CO$ and no $Ph_3COH$; carbonation at the b. p. of $Et_2O$ gave 1.6% BzOH, 76% $Ph_2CO$ and no $Ph_3COH$. *p*-$MeC_6H_4Li$, starting at 0° and ending at 15°, gave 1% *p*-$MeC_6H_4CO_2H$ and 77–81% (*p*-$MeC_6H_4)_2CO$; *o*-$MeC_6H_4Li$ gave 35% *o*-$MeC_6H_4CO_2H$. BuLi in $Et_2O$ cooled with an ice-NaCl bath gave 45–50% $Bu_2CO$. BzOLi and PhLi, refluxed in $Et_2O$ 5.5 hrs., give 70% $Ph_2CO$; $PrCO_2Li$ and PhLi in $Et_2O$, refluxed 8 hrs., give 62% PhCOPr. BzCl and PhLi give 42% $Ph_3COH$. BzOH and PhLi give 37.2% $Ph_2CO$ and 14.1% $Ph_3COH$. It is recommended that organo-Li compds. be prepd. in a N or H atm. C. J. West

**Relative reactivities of organolithium and organomagnesium compounds.** Henry Gilman and R. H. Kirby. *J. Am. Chem. Soc.* **55**, 1265–70(1933).—A study of the relative reactivities of organo-Li and organo-Mg compds. shows that the former undergo more rapid reaction with a selected no. of typical reactants. BuLi is more reactive than PhLi. Some compds., like *p*-$Me_2NC_6H_4CN$ and *p*-$MeOC_6H_4CN$, which do not react with the Grignard reagent, undergo prompt reaction with MeLi and PhLi to give the expected products. The unusual 1,4-addn. of PhMgBr to the lateral nuclear conjugated system in $Ph_2C{:}NPh$ is not shown by PhLi, which adds normally to the anil linkage, both under mild and forced conditions, to give $Ph_3CNHPh$. An explanation based, in part, on the different mol. vols. of the 2 organometallic compds. is proposed to account for the differences in behavior with sterically hindered functional groups. The relative reaction rates are given for PhMgBr and PhLi: PhCN (time in hrs.) 1.3, 0.07; $PhCH_2Cl$ 8, 2.4; PhN:NPh 8, 0.07; $Et_2SO_4$ 8, 0.23; PhCH:NPh 8, 0.07; $Ph_2C{:}NPh$ 8, 7; $PhCH{:}CHCO_2Et$ 1.6, 0.07; 2,1,4-$C_6H_3(NO_2)Me_2$ 1.3, 0.07; furfural 0.07, 0.07; $Me_2CAc$ 0.07, 0.07. BuMgBr and BuLi: PhCN 8, 0.07; $PhCH_2Cl$ 8, 0.07; PhN:NPh 0.5, 0.07; $Et_2SO_4$ 8, 0.11; PhCH:NPh 8, 0.07. C. J. West

**Mechanism of the reaction of phenylsodium and phenyllithium with phenyl isothiocyanate.** Henry Gilman and Fritz W. Breuer. *J. Am. Chem. Soc.* **55**, 1262–4 (1933).—PhLi and PhNa react with PhN:C:S to give $PhNHC(:S)Ph$ as a consequence of addn. to the C:S group and not to the anil linkage, as has been hitherto postulated in this widely used reaction for the characterization of organo-alkali compds. The reaction is more complicated than that observed with PhMgX but the essential mechanisms are alike. C. J. West

**Some rearrangement reactions of organosodium and organolithium compounds.** Henry Gilman and Fritz W. Breuer. *Proc. Iowa Acad. Sci.* **38**, 167(1931).—In continuation of rearrangement reactions of organometallic compds. it was desirable to ascertain whether R-metal combinations (free of halogen or other acidic groups) would react after the manner of $PhCH_2MgCl$ types with compds. like HCHO, for example This last reaction gives not only the normal product ($PhCH_2CH_2OH$), but also *o*-tolylcarbinol. It has been shown that the corresponding organosodium and organolithium compds. behave in a similar manner. Incidentally, it is possible to prep. some organolithium compds. like PhLi, very conveniently, in a short time, and in excellent yields in the customary 3-necked flasks. W. G. Gaessler

**Organic mercury compounds. V. Arylation of mercuric oxide by aromatic iodo compounds.** A. N. Nesmeyanov and L. G. Makarova. *Ber.* **66B**, 199–201; cf. *C. A.* **26**, 4028, 5295.—$PhIO_2$ (1.18 g.), 1.9 g. HgO paste and 40 cc. 10% KOH, shaken 8 hrs. and treated with KBr, give 19.6% of PhHgBr; in the presence of $Ag_2O$ the yield is 80%; $PhIO_2$, HgO, $Ag_2O$ and $Ba(OH)_2$ give 53%. *p*-$MeC_6H_4IO_2$, HgO and $Ag_2O$ give 92% of *p*-$MeC_6H_4HgBr$. *o*-$ClC_6H_4IO_2$ gives 84% of *o*-$ClC_6H_4HgCl$; the *m*- and *p*-isomers give 78 and 84%, resp., of the HgBr compd. *o*-$O_2NC_6H_4IO_2$ gives 48% of *o*-$O_2NC_6H_4HgCl$; the *m*- and *p*-isomers give 69 and 54%, resp. C. J. West

**Interconversion of arylmercuric halides and dimercury compounds. I.** Frank C. Whitmore and R. J. Sobatzki. *J. Am. Chem. Soc.* **55**, 1128–35(1933).—The relation of arylmercuric halides to diarylmercury compds. has been studied from the point of view of the equil. $2ArHgX \rightleftharpoons Ar_2Hg + HgX_2$. The alkali method for forcing this reaction to the right has been studied with 13 iodides; with 10 of these it was successful. The following new Hg compds. are reported: *o-tolylmercuric bromide*, m. 169.5°; *iodide*, m. 176°; *p-ethoxyphenylmercuric chloride*, m. 221°; *bromide*, m. 227–8°; *iodide*, m. 229°; *di-p-ethylphenylmercury*, m. 136.5°; *phenylethylmercuric iodide*, m. 154°. Solubilities are reported for ArHgI and $Ar_2Hg$ in 95% EtOH at 25° for Ar = Ph, *m*- and *p*-$MeC_6H_4$, *p*-$EtC_6H_4$, $PhCH_2$ and 2-*p*-cymyl. The action of alkali iodides with the arylmercuric halides is shown in a series of tables. The following arylmercuric iodides were converted to the Hg diaryls by refluxing with an excess of EtOH-NaI: *o*-, *m*- and *p*-tolyl, *m*-xylyl, mesityl, α- and β-naphthyl. PhHgI showed no change after refluxing for 300 hrs. The benzyl and cyclohexyl compds. decompd. on long heating with NaI. In the case of *p*-$EtC_6H_4HgCl$ a molar ratio of NaI to ArHgCl of 3.5:1 gave a mixt.

contg. 11% of the diarylmercury; a ratio of 4.5:1 gave 64% and a ratio of 9:1 gave complete conversion. A mol. ratio of $Na_2HgI_4$ to $(p\text{-}EtC_6H_4)_2Hg$ of 1:1 gave 97% conversion to $p\text{-}EtC_6H_4HgI$, while molar ratios of 2:1, 4:1 and 8:1 gave conversions of 98, 99 and 99.8%, resp. In the case of $p\text{-}MeC_6H_4HgX$, a moderate vol. of EtOH was as effective as a large vol.; the time of refluxing could be reduced to an approx. limit of 10 min. without cutting down the yield of $R_2X$. A new method for *Hg analysis* of org. Hg compds. is reported, which is particularly useful in detg. the proportions of $R_2Hg$ and RHgX in a mixt. of the 2. C. J. WEST

**Some reactions of tetra-*p*-tolyltin.** R. W. BOST AND H. R. BAKER. *J. Am. Chem. Soc.* **55**, 1112–13(1933).—$(p\text{-}MeC_6H_4)_4Sn$ reacts with halogens to form the corresponding aryl halides; with $HNO_3$ and $H_2SO_4$ to form $p\text{-}O_2NC_6H_4Me$ and PhMe, resp.; with S under different conditions to form $(p\text{-}MeC_6H_4)_2S_2$ and 3,7-dimethylthianthrene. No isomers were obtained with the halogens or $HNO_3$. Reactions of acyl and aryl halides are less marked. C. J. WEST

**Mechanism of the reduction of sulfonyl halides by phosphorus tribromide.** A. H. KOHLHASE. *J. Am. Chem. Soc.* **55**, 1291–2(1933); cf. *C. A.* **26**, 3783.—Reply to Hunter and Sorensen (*C. A.* **26**, 4793). C. J. WEST

**The action of thionyl chloride on phenol.** P. CARRÉ AND D. LIBERMANN. *Compt. rend.* **196**, 275–7(1933); cf. *C. A.* **27**, 711.—Three mols. of PhOH and 2 mols. of $SOCl_2$ produce $(C_6H_4OH)_2SCl$ (I) and $(p\text{-}HOC_6H_4)_2S$ (II). II arises from the decompn. of I. The mechanism involves the formation of $HOC_6H_4SOCl$ which splits off HCl to give $O{:}C_6H_4{:}S{:}O$ (III). III reacts with 2 mols. of PhOH to give $O{:}C_6H_4{:}S(C_6H_4OH)_2$ (IV). IV reacts with HCl to give I. JULIUS WHITE

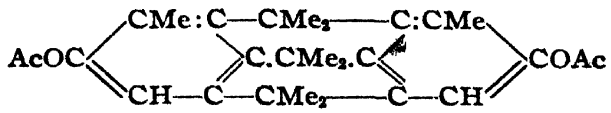
**Hydroxyphenyl alkyl sulfides.** ELLIS MILLER AND R. R. READ. *J. Am. Chem. Soc.* **55**, 1224–7(1933).—Hydroxyphenyl alkyl sulfides were prepd. by 2 general methods: BuBr is added to a mixt. of NaOH in MeOH and thiohydroquinone and the mass refluxed for 1 hr.; the yield is nearly quant *p*-Phenetidine is diazotized and run slowly beneath the surface of a hot soln. of BuSH in 20% NaOH and the resulting ether dealkylated with 20% HBr in AcOH. The following *hydroxyphenyl alkyl sulfides* (all *p*- but the last 2) are reported, the side chain on the phenol being given (p. c. is phenol coeff. by the Hygienic Lab. method, 20°, *Staph. aureus*): SMe, $b_6$ 113°, p. c. 8; SEt, $b_{13}$ 153–5°, m. 41°, p. c. 10; *SPr*, $b_{5-6}$ 150–3°, m. 37°, p. c. 36; *SBu*, $b_7$ 166–8°, m. 49–50°, p. c. 77; *SAm*, $b_{3-4}$ 164–8°, $b_{8-10}$ 175–80°, m. 59°, p. c. 120; $S(CH_2)_5Me$, $b_5$ 178–80°, $b_{16}$ 194–6°, m. 60°, p. c. 0 (230, in 1:1000 soln. in 0.01 *N* NaOH further dild. with $H_2O$); $SCH_2Ph$, $b_{15}$ 220–5°, m. 104°, p. c. 0 (<20 in NaOH); $SCHMe_2$, $b_{13}$ 150–2°, p. c. 20; $SCH_2CHMe_2$, $b_{10}$ 159–62°, p. c. 61; $SCH_2CH_2CHMe_2$, $b_3$ 150–2°, p. c. 30; *SBu-o*, $b_4$ 110–2°, p. c. 25; *SBu-m*, $b_4$ 127–40°, p. c. 40. The p. c. increases with increase in the length of the side chain; the normal-chain compd. is more active than the corresponding branched-chain derivs. The S derivs. are more powerful than the corresponding alkyl phenols. C. J. WEST

**New condensation reaction of the thiophenols.** GREGG DOUGHERTY AND WENDELL H. TAYLOR. *J. Am. Chem. Soc.* **55**, 1294–5(1933).—PhSH (I) and many substituted thiophenols, as well as $PhCH_2SH$, undergo condensation in boiling 1,4-dioxane with condensed ammonia-aldehydes, such as hexamethylenetetramine (II) and hydrobenzamide, to give substituted trimethylamines: I + II = $N(CH_2SPh)_3$ + $NH_3$. Details will be published later. C. J. WEST

**Nitration of *p*-cresol and of *p*-cresyl carbonate in the presence of sulfuric acid.** HOWARD J. LUCAS AND YUN-PU LIU. *J. Am. Chem. Soc.* **55**, 1271–80(1933).—Nitration of $p\text{-}MeC_6H_4OH$ (I) and $p\text{-}(MeC_6H_4)_2CO_3$ (II) has been carried out in the presence of $H_2SO_4$ in amts. varying from 0 to 10 mols. of acid per mol. of org. compd. In the case of I the ortho directive power of the HO group decreased as the amt. of $H_2SO_4$ increased, and more and more of the entering $NO_2$ group took up a position meta to the HO group. However, a max. value of about 0.8 was reached for the *m-o*-ratio. This change in directive power is ascribed to the salt-forming property of the O atom of I. The predominating tendency toward *o*-substitution, even when a large excess of acid is present, probably arises from the fact that the oxonium salt is in part unionized. In the case of II, increase in the amt. of $H_2SO_4$ likewise increased the *m-o*-ratio. It is assumed that here also oxonium salt formation is responsible for the change. These changes in orientation are entirely analogous to the modification in the orientation of $NH_2$ and substituted $NH_2$ groups by the addn. of $H_2SO_4$. The exptl. data are given in tables and curves. C. J. WEST

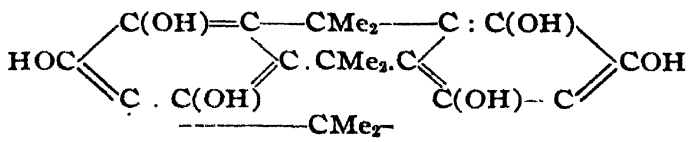
**New compounds prepared from phenols and acetone.** JÓZSEF SÜKÖSD. *Acta Lit. Sci. Univ. Hung. Francisco-Josephinae*, Sect. Chem., Mineral Phys. **2**, 230–40 (1932).—Condensation of *o*-cresol with acetone in the presence of 99% AcOH and concd. HCl formed a compd. which could be isolated by acetylation. The Ac product

m. 263–4°. Analysis gave the formula $C_{37}H_{32}O_4$. Its structural formula is **I.** The product from 1,3,4-$C_6H_3(OH)_3$ and acetone, treated as above, m. 267–8°. Its com-



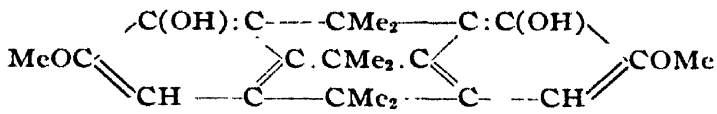
(I)

bustion analysis gave data agreeing with the formula $C_{21}H_{24}O_6$. The structural formula is **II.** The Ac deriv. of **II**, $C_{33}H_{36}O_{12}$, grayish white, m. 205–6°, is insol. in water. The



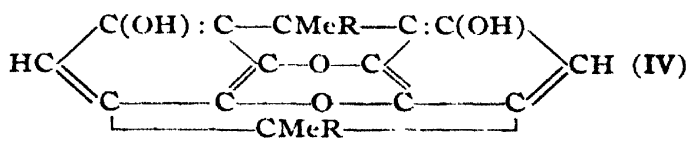
(II)

propionyl deriv., $C_{39}H_{48}O_{12}$, gave light yellow crystals, m. 172.5°. The Bz deriv., $C_{63}H_{48}O_{12}$, m. 239–40°. Condensation of guaiacol with acetone gave white crystals, $C_{23}H_{28}O_4$, m. 266–7°. Its structure is expressed by the formula **III.** $AcCH_2CO_2Et$,



(III)

treated with 1,3,4-$C_6H_3(OH)_3$, gave light green crystals, $C_{20}H_{16}O_8$, m. 271°. Its formula is **IV** (R = $CH_2CO_2H$). Ac deriv., $C_{24}H_{20}O_{10}$, of **IV**, light brown, long needles, m. 148.5° Propionyl deriv. m. 115°.



(IV)

S. S DE FINÁLY

**A new diketone, ketonic acid and some derivatives.** MARGIT K. OSKOLÁS. *Acta Lit. Sci. Univ. Hung. Francisco-Josephinae*, Sect. Chem., Mineral. Phys. **2**, 165–81(in German 182–5)(1932).—Asaroylformic acid, 2,4,5-$(MeO)_3C_6H_2COCO_2H$ (I), needles, m. 186°, prepd. from 1,3,4-$C_6H_3(OMe)_3$ and $(COCl)_2$ in abs. benzene, is sol. in alc., acetone, benzene, glacial AcOH and alkalies. The chloride of I changes in the air to I. Its bluish yellow crystals m. 125°. The amide of I, from the chloride and dry $NH_3$, is greenish yellow, m. 202°, sol. in alc., acetone, insol. in benzene, ligroin; anilide, from the chloride with $PhNH_2$ in benzene, yellow, m. 162°, sol. in alc., $CHCl_3$; *p*-toluide, m. 181°, sol. in alc., acetone and glacial AcOH. Me ester of I, from I and MeOH with concd. $H_2SO_4$, m. 137°, sol. in alc., benzene, glacial AcOH, $CHCl_3$ and ether; Et ester, m. 92°, sol. in alc., glacial AcOH, benzene and $CHCl_3$. Iso-Am ester, m. 65°, has the same solubilities as the Et ester. 2,4,5,2′,4′,5′-Hexamethoxybenzil, prepd. by mixing $CS_2$ solns. of 1,3,4-$C_6H_3(OMe)_3$ and $(COCl)_2$, treating with powd. $AlCl_3$ and distg. off the solvent, light yellow, m. 232°, sol. in $CHCl_3$. 2,4,5,2′,4′,5′-Hexamethoxybenzophenone, formed as a secondary product in the former reaction, yellow tablets, m. 147°, sol. in alc., acetone, benzene, $CHCl_3$ and glacial AcOH. Anisoylhydroxyhydroquinone tri-Me ether (2,4,5,4′-tetramethoxybenzophenone), prepd. by mixing cooled solns. of 1,3,4-$C_6H_3(OMe)_3$ and anisyl chloride and treating as above, yellow, m. 123.5°, sol. as above. ω-Chloro-2,4,5-trimethoxyacetophenone (II), prepd. by mixing cooled solns. of 1,3,4-$C_6H_3(OMe)_3$ and $ClCH_2COCl$ and treating as above, is an oil of unpleasant odor and light yellow color. The formulas and analyses of the compds. are given. Results of microanalyses proved the formulas, excepting for II where the oil could not be obtained free from $C_6H_3(OMe)_3$. S. S. DE FINÁLY

**Synthesis of ethylpyrogallol.** NÁNDOR MAUTHNER. *Math. naturw. Anz. ungar Akad. Wiss.* **48**, 478–82(in German 483–4)(1931).—3,4,5-Trimethoxyacetophenone was reduced according to Clemmensen with Zn-Hg. The Me groups were detached with HI. Ethylpyrogallol, m. 86–7°, is sol. in alc. and ether. The alc. soln. turned to violet with $FeCl_3$. Methylpyrogallol could not be obtained by the Zn-Hg reduction of trimethoxybenzaldehyde. S. S. DE FINÁLY

**Photochemical reactions in the series of *o*-nitrobenzylidene acetal derivatives. VI. The constitution of substances resulting from the photochemical isomerization of *o*-nitrobenzylidene acetals.** IOAN TANASESCU AND EUGEN MACOVSKI. *Bull. soc. chim.*

**51**, 1371–7(1932); cf. *C. A.* **24**, 4270.—Under the action of light the cyclic acetals of *o*-nitrobenzylidene compds. isomerize into nitroso derivs. with 2 possible structures, open-chain and cyclic (*C. A.* **19**, 2932; **20**, 749). Attempts to distinguish between these forms by methylation expts. failed by reason of the impurity of the products formed. Synthesis of glycol mono-*o*-nitrosobenzoate (*C. A.* **24**, 603) and proof of its identity with the isomer derived from *o*-nitrobenzylideneglycol (I) left the possibility of a tautomeric shift to be considered. The synthesis of the Bz deriv., which is not open to this objection, gave a benzoylated deriv. II is identical with the deriv. obtained by the direct benzoylation of the isomer formed photochemically from I. By heating 7.8 g. of benzoylated glycol bromohydrin (Auwers and Bergs, *Ann.* **332**, 209(1904)) with 8.6 g. of *o*-$ONC_6H_4CO_2Ag$ for 1 hr. at 70–80° and for 12 hrs. at 60–65°, extn. of the product with 95% alc. and recrystn. from benzene, 1-benzoyl-2-nitrosobenzoylglycol (II), $C_{16}H_{13}NO_5$, m. 112–3°, was formed. Accordingly the most adequate structure of the substances formed by the photochem. isomerization of *o*-nitrobenzylidene acetals is the open-chain type, *o*-$ROCH_2CH_2OCOC_6H_4NO$. Similar formulas are given for the photochem. isomers of various compds. previously studied, *viz.*, di-*o*-nitrobenzylidenepentaerythritolspiran (*C. A.* **24**, 1118), *o*-nitrobenzylideneglycerol and di-*o*-nitrobenzylideneerythritol (*C. A.* **20**, 749), tri-*o*-nitrobenzylidene-mannitol (*C. A.* **24**, 2429) and -sorbitol (*C. A.* **24**, 4270). Tautomerism is not, however, definitely excluded (*C. A.* **22**, 4467; **25**, 2973; **26**, 87), but whatever may be the structure of the isomers obtained by the isolation of the *o*-nitrobenzylidenepolyols the photochem. isomerization of these compds. presents the possibility of the partial acylation of the polyols since the OH group near the —$OCC_6H_4NO(o)$ group set free by isomerization is capable of initiating new sp. reactions—a fact which seems to have some importance in the study of glucides.

C. R. ADDINALL

**Reaction between unsaturated ketones and organic magnesium compounds. The secondary products.** E. P. KOHLER AND W. D. PETERSON. *J. Am. Chem. Soc.* **55**, 1073–82(1933); cf. *C. A.* **26**, 2724.—The Mg derivs. which are formed by the addn. of Grignard reagents to α,β-unsatd. ketones having no substituents in the α-position behave like the enolates of β-ketonic esters; like these enolates they combine with unsatd. ketones and with other substances that have sufficiently active CO groups. The reaction with acid chlorides results in the formation of *C*-acyl derivs. The Mg derivs. which are formed by adding Grignard reagents to α,β-unsatd. ketones which have hydrocarbon residues in the α-position combine neither with unsatd. ketones nor with aldehydes; they therefore do not form secondary products. The reaction between these Mg derivs and acid chlorides results in the formation of *o*-acyl derivs. The Mg deriv. of $Ph_2CHCHBrCOPh$ and PhCH:CHBz give *β-phenyl-γ-benzoyl-γ-benzohydrylbutyrophenone*, m. 180°; its *monoxime* m. 165° and in the Beckmann rearrangement gives the *anilide*, m. 198°, of *β-phenyl-γ-benzoyl-γ-benzohydrylbutyric acid*, m. 156°; Br in $CHCl_3$ gives *β-phenyl-γ-bromo-γ-benzoylbutyric acid*, m. 166°, and $Ph_2CHBr$; $Na_2CO_3$ gives *β-phenyl-γ-benzoylbutyrolactone*, m. 120°, which yields *β-phenyl-γ-hydroxy-γ-benzoylbutyric acid*, m. 146°. The secondary Mg deriv. $Ph_2CHCHBzCHPhCH:CPhMgBr$ reacts with BzCl to give a compd., $C_{43}H_{34}O_3$, m. 180°, which may be $Ph_2CHCHBzCHPhCHBz_2$. PhCH:CHAc gives *α-benzohydryl-β-phenyl-γ-acetylbutyrophenone*, m. 153°. BzH forms *α-phenyl-β-benzoyl-γ,γ-diphenylpropanol*, m. 133° (77% yield). $HCO_2Et$ gives *α,γ-dibenzoyl-α,γ-dibenzohydryl-β-hydroxypropane*, m. 202°; oxidation gives *α,γ-dibenzoyl-α,γ-dibenzohydrylacetone*, m. 232°. The Mg deriv. of $Ph_2CHCHPhCOPh$ and BzCl forms *α,β,γ,γ-tetraphenylpropenyl benzoate*, m. 110° and 131° (2 isomeric forms); hydrolysis leads to the original ketone. $PhCH_2COCl$ and PhBr with $AlCl_3$ give *p-bromodesoxybenzoin*, m. 115°; BzH and HCl give *α,β-diphenyl-β-chloro-p-bromopropiophenone*, m. 171°; AcOK and $Na_2CO_3$ give *benzal-p-bromodesoxybenzoin*, m. 105°; PhMgBr then gives *α-(p-bromophenyl)-β-benzohydryl-β-phenylethenyl benzoate*, m. 144°, hydrolyzed to *α,β,β-triphenyl-p-bromopropiophenone*, m. 200°. Benzaldesoxybenzoin and PhMgBr form *α,β-diphenyl-β-benzohydrylethenyl p-bromobenzoate*, m. 183°.

C. J. WEST

**Further observations on the behavior of vanillin substitution products; (a) the Perkin reaction; (b) the preparation of substituted vanillic acids.** L. CHAS. RAIFORD, VICTOR S. WEBSTER AND DWIGHT J. POTTER. *Proc. Iowa Acad. Sci.* **38**, 171(1931).—The Cl and Br substitution products of vanillin previously described (cf. *C. A.* **25**, 94) have been converted by the Perkin reaction into the corresponding cinnamic acids. When the latter are oxidized by alk. $KMnO_4$ they are converted into the original vanillin derivs. and not into the vanillic acids. To obtain the acids it has been necessary to hydrolyze the nitriles, which in turn were obtained from the oximes.

W. G. G.

**Unsaturated 1,4-dicarbonyl compounds. VII. Aryl unsaturated 1,4-diketones and ketonic acids derived from citraconic and mesaconic acids, with particular reference to the *β-p*-bromobenzoylmethylacrylic acids.** ROBERT E. LUTZ AND ROBERT J. TAY-

LOR. *J. Am. Chem. Soc.* **55**, 1168–78(1933); cf. *C. A.* **24**, 4774.—MeC(COCl):$CHCO_2Me$, PhBr and $AlCl_3$ give 60% of the Me ester, m 75.5° (all m. ps. cor.), of *trans-β-[p-bromobenzoyl]crotonic acid* (I), m. 144.5–5°, which results in 50% yield by hydrolysis in dil. MeOH; a by-product (22%) is *β-[p-bromobenzoyl]-α(?)-hydroxybutyric acid*, m. 85–6°; heating at 250° gives I. The acid chloride of I is a yellow oil. Citraconic anhydride, PhBr, $CS_2$ and $AlCl_3$ give 47% of the *cis-isomer* (II) of I, m. 142.5°, and 2% of *trans-β-*[bromobenzoyl]-*α*-methylacrylic acid. Citraconyl chloride gives 12.5% of II. The *Me ester* of II $b_4$ 156–8°. II and $PCl_5$ give 91% of *cis-γ-[p-bromophenyl]-γ-chloro-β-methylcrotonolactone* (III), m. 82.5°; hydrolysis gives II. Reduction of I or II gives *β-(p-bromobenzoyl)butyric acid*, m. 95.5°, showing that the 2 acids are stereoisomers. Hydrolytic splitting by $Ba(OH)_2$ gives $EtCOC_6H_4Br$. III and PhBr with $AlCl_3$ give the *compd.* $C_{17}H_{12}O_2Br_2$, m. 208°. ClCOCH:CMeCOCl, PhBr and $AlCl_3$ give 60% of *trans-β-[p-bromobenzoyl]-α-methylacrylic acid*, yellow, m. 188°; *Me ester*, m. 86°; *acid chloride*, m. 66°; reduction of the acid gives *β-[p-bromobenzoyl]-α-methylpropionic acid*, m. 124°. Citraconic anhydride, mesitylene and $AlCl_3$ in $CS_2$ give 36% of *trans-β-[2,4,6-trimethylbenzoyl]methylacrylic acid*, bright yellow, m. 142°; *Me ester*, yellow, $b_5$ 144.5°. Mesaconyl chloride (IV), $C_6H_6$, $AlCl_3$ and $CS_2$ give 72% of *trans-1,2-dibenzoyl-1-propene* (*dibenzoylmethylethylene*), very pale yellow, m. 52°; action of sunlight gives the *cis-isomer*, m. 68.5°. Both isomers are reduced to *1,2-dibenzoylpropane*, m. 105°. IV and mesitylene give *trans-1,2-bis(2,4,6-trimethylbenzoyl)-1-propene*, yellow, m. 96°. The *cis*-isomer could not be prepd. Br gives a *dibromide*, m. 176°, and a *monobromoethylene*, m. 134°. *trans*-Bromobenzoylcrotonyl chloride and $C_6H_6$ give 59% of *trans-1-benzoyl-2-bromobenzoyl-1-propene*, pale yellow, m. 73–4°; *trans-1-bromobenzoyl-2-benzoyl-1-propene*, cream, m. 56°. C. J. WEST

**Synthesis of benzoic acid from chlorobenzene, carbon monoxide and water.** VLADIMÍR MAREČEK. *Chem. Obzor* **7**, 171–3(173 English)(1932).—BzCl is synthesized from PhCl, CO and $H_2O$ in the presence of catalysts such as $Cu_2Cl_2$, active carbon, etc., under pressure and temp. above 300° conforming to the Nernst equation. Besides $C_6H_6$, HCl, $CO_2$, C and tarry products, BzOH is obtained in 3.9% yield. The best catalysts are $Cu_2Cl_2$ and active C. No $Ph_2CO$, $ClC_6H_4COPh$ or $Ph_2$ was observed in the reaction products. JAROSLAV KUČERA

**Reaction between acid chlorides and ethers in the presence of zinc chloride.** L. P. KYRIDES. *J. Am. Chem. Soc.* **55**, 1209–12(1933).—The chlorides of high-boiling monocarboxylic acids react with $Et_2O$, in the presence of traces of $ZnCl_2$. BzCl and $Et_2O$, with a trace of $ZnCl_2$, give 78% EtCl and 91.5% BzOEt. Lauryl chloride reacted similarly but very slowly with $Et_2O$ at its b. p. Equimol. amts. of *o*-$C_6H_4(COCl)_2$ and $Et_2O$ give $C_6H_4(CO)_2O$ and approx. 2 mols. EtCl; (iso-Pr)$_2O$ gives $C_6H_4(CO)_2O$, iso-PrCl (62%) and $C_3H_6$. C. J. WEST

**Percinnamic acid.** K. BODENDORF. *Ber.* **B66**, 165–6(1933).—Although per acids in general react with unsatd. compds. to form ethylene oxides, double bonds conjugated with a C:O group hardly react with $BzO_2H$ (*C. A.* **25**, 378). It was therefore to be expected that *α,β*-unsatd. per acids would be quite stable. Such proved to be the case with *percinnamic acid* (I), prepd. by treating $(PhCH:CHCO)_2O_2$ in $CHCl_3$ at 0° with Na in alc., taking up the Na salt of I in water after 0.5 hr., shaking out twice with $CHCl_3$, acidifying with $H_2SO_4$, extg. the I with $CHCl_3$, removing the $PhCH:CHCO_2H$ with $NaHCO_3$, drying over $Na_2SO_4$ and evapg. *in vacuo;* yield, about 80%. I is well crystd., m. 67–8° (decompn.), and is as stable as $BzO_2H$; it remains unchanged for days in benzene and even at 50° it decomps. only 12% in 24 hrs.; after boiling several days the soln. contains only $PhCH:CHCO_2H$ with a little resinous matter but no phenylglycidic acid or $PhCH_2CO_2H$. C. A. R.

***α*-Phenyl-*γ*-hydroxybutyric acid and its lactone.** P. CARRÉ AND D. LIBERMANN *Compt. rend.* **196**, 117–8(1933).—The Na deriv. of $PhCH_2CN$, heated with $ClCH_2CH_2OH$, gives *α-phenyl-γ-hydroxybutyronitrile*, $b_{10}$ 188–90°; *phenylurethan*, m. 89°. Hydrolyzed with 20% $Ba(OH)_2$ the nitrile gives an impure acid, which on distn. gives *α-phenyl-γ-hydroxybutyrolactone*, $b_{30}$ 203–5°. The *acid*, m. 99–100°, may be obtained from the lactone by dissolving it in dil. NaOH and adding dil. HCl in the cold. A. H

**Condensation of chloral with 2-hydroxy-*p*-toluic acid and its methyl ether.** A. N. MELDRUM AND B. M. KAPADIA. *J. Indian Chem. Soc.* **9**, 483–91(1932).—M. and K. study the condensation of 2-hydroxy-*p*-toluic acid with chloral and extend the application of the method to obtain phenylacetic acids. The toluic acid when condensed with chloral yielded *3-hydroxy-4-methyl-α-trichloromethylphthalide* (I), m. 232°; *Ac deriv.*, m. 142°; *Bz deriv.*, m. 154°. Reduction of I with Zn and AcOH gave *3-hydroxy-4-methyl-2-β,β-dichloroethylbenzoic acid* (II), m. 184°; *Ac deriv.*, m. 185°; *Bz deriv.*, m. 140°. Upon hydrolysis and oxidation with concd. $H_2SO_4$ II gave *2-hydroxy-3-methyl-6-carboxyphenylacetic acid* (III), m. 213°; *Ac deriv.*, m. 110°; *Bz deriv.*, m. 126°; *MeO deriv.*, m. 206°. Heating I with NaOH gave *2-hydroxy-6-carboxy-3-methylmandelic*

*acid*, m. 115°. Condensation of III with chloral gave *2-hydroxy-3-methyl-6-α-trichloromethylphthalidephenylacetic acid* (IV), m. 249°. By the use of $H_2SO_4$, II can also be converted into IV, but the yields are poor. The action of NaOH on IV gave *2-carboxy-3-carboxymethyl-4-hydroxy-5-methylmandelic acid*, m. 246°, while reduction of IV with Zn and AcOH gave *2-hydroxy-3-methyl-5-β,β-dichloroethyl-6-carboxyphenyl-1-acetic acid* (V), m. 203–5°, which, when acted upon by $H_2SO_4$, gave *2-hydroxy-3-methyl-6-carboxyphenylene-1,5-bisacetic acid* (VI), m. 220°. Condensation of chloral with 2-methoxy-*p*-toluic acid gave *5-methoxy-4-methyl-α-trichloromethylphthalide* (VII), m. 132°, and upon treating this with NaOH *5-methoxy-4-methyl-α-carboxyphthalide*, m. 220°, was obtained. Reduction of VII with Zn and AcOH yielded *5-methoxy-4-methyl-2-β,β-dichloroethylbenzoic acid* (VIII), m. 195°. VIII on treatment with concd. $H_2SO_4$ yielded *3-methyl-4-hydroxy-6-carboxyphenyl-1-acetic acid* (IX), m. 209°; *Bz deriv.*, m. 170°. Treating IX with KOH and $KMnO_4$ gave *4-hydroxy-5-methylphthalic acid*, m. 244–5°. Condensation of IX with chloral, using 100% $H_2SO_4$, gave 2 compds. A and B. A is *3-hydroxy-4,6-dimethylbenzoic acid*, m. 170–1° (*Ac deriv.*, m. 134°); while B is a polymer of chloral, m. 120°. It is concluded that since the acids III and IX are different and since the chloral mol. in MeO compd. is attached to the benzene ring in the *p*-position to the MeO group, the linking in the HO compd. must be in the *o*-position. H. W. LEAHY

**Condensation reactions of pernitrosocamphor with the primary amines.** P. LATINI. *Ann. chim. applicata* **22**, 728–30(1932); cf. *C. A.* **26**, 3788, 3789.—Using the same technic as previously described, a condensation product of pernitrosocamphor with *m*-$BrC_6H_4NH_2$ has been obtained. It is a yellow oily liquid, $b_{700}$ 236°, sol. in all common org. solvents and mineral acids, insol. in $H_2O$ and alkalies. *o*-$BrC_6H_4NH_2$ could not be condensed; the *p*-compd. described in the previous paper is formed most readily. Thus the influence of a neg. group in hindering the reaction is shown, the action being weakest with the compd. whose group is furthest away (*p*-), and strongest with the *o*-compd. More strongly neg. groups hinder the reaction still more strongly; thus the nitroanilines would not react at all. A. W. CONTIERI

**Halogenation of *m*-diphenylbenzene. I. Monochloro and monobromo derivatives.** WALTER A. COOK AND KATHRYN HARTKOFF COOK. *J. Am. Chem. Soc.* **55**, 1212–17(1933).—1,3-$C_6H_4Ph_2$ (I) and Cl with Fe catalyst gives 84.2% of the *4-Cl deriv.*, $b_4$ 214–16°, $d_{25}^{25}$ 1.1903, $n_D^{25}$ 1.6564; oxidation gives *3-phenyl-4-chlorobenzoic acid* (II), m. 208–9° (*Ag salt*; *Me ester*, yellow, pungent oil, $n_D^{30}$ 1.5952; *benzyl ester*, m. 90°). 3,4-$H_2N(Cl)C_6H_3Me$ gives 15% of *2-chloro-5-methylbiphenyl*, $b_{735}$ 294–304°, $d_{25}^{25}$ 1.139, $n_D^{25}$ 1.5977; oxidation gives II. The *4-Br deriv.* of I $b_1$ 208–13°, $d_{25}^{25}$ 1.355, $n_D^{25}$ 1.6720, $n_D^{30}$ 1.6653; oxidation gives 3,4-$PhClC_6H_3CO_2H$ (III), m. 242–3° (Olgiati, *Ber.* **27**, 3385(1894)). *3-Amino-4-bromotoluene*, $b_{16}$ 129–30°, $d_{25}^{25}$ 1.474, $n_D^{25}$ 1.5990 (*Ac deriv.*, m. 120–1°; *Bz deriv.*, m. 107.5–8.5°); discordant data concerning the amine are discussed. *2-Bromo-5-methylbiphenyl*, yellow, $b_{740}$ 304–8°, $d_{25}^{25}$ 1.358, $n_D^{25}$ 1.6150 (16% yield); oxidation gives III. *3-Methyl-4-bromobiphenyl*, $b_{760}$ 318–23°, $n_D^{25}$ 1.6358; no oxidation product could be isolated. An improved method for the purification of acids obtained on oxidation of liquid halogenated aromatic hydrocarbons with $CrO_3$ and AcOH is suggested. C. J. WEST

**Some aspects of the chemistry of biphenyl.** E. E. TURNER. *Sci. J. Roy. Coll. Sci.* 2, 68–78(1932).—A review. E. H.

**Formation of aromatic ethers from *p*-nitrofluorobenzene.** MORGAN J. RARICK, R. Q. BREWSTER AND F. B. DAINS. *J. Am. Chem. Soc.* **55**, 1289–90(1933).—The substitution of *p*-$FC_6H_4NO_2$ (I) for *p*-$ClC_6H_4NO_2$ in the older method of prepn. of aromatic ethers results in a more rapid reaction and usually also a better yield. I (7 g.) and 3 g. KOH in 20 cc. warm MeOH, shaken 10 min., give 93% of *p*-$O_2NC_6H_4OMe$; other alcs. behaved similarly. KOH (3 g.) in 15 g. molten PhOH, treated with 7 g. I and heated 30 min. at 150–60°, gives 92% *p*-$O_2NC_6H_4OPh$; other phenols gave corresponding yields. Dry *p*-$O_2NC_6H_4OK$, I and Cu powder, heated 1 hr. at 200°, give 85% of $(p\text{-}O_2NC_6H_4)_2O$; *o*-$O_2NC_6H_4OK$ gave 30% of ether. The following new *p-nitrophenyl ethers* are reported: *iso-Pr*, $b_{738}$ 276–7°; *phenylethyl*, m. 56–7°; *m-tolyl*, m. 63°; *o-iodophenyl*, m. 105°; *p-phenylphenyl*, m. 120°; *p-tert-amylphenyl*, m. 60°; *p-acetamidophenyl*, m. 153°; *m-nitrophenyl*, m. 123°; *2-(4-nitrophenoxy)benzaldehyde*, m. 112°. C. J. WEST

**Molecular rearrangements of α-glycols. VI. Relative electronegativities of *p*-anisyl and naphthyl radicals.** MASAO MIGITA. *Bull. Chem. Soc. Japan* **7**, 377–82 (1932); cf. *C. A.* **27**, 716.—M. dets. the relative electronegativities of *p*-anisyl and naphthyl radicals by the method of the mol. rearrangements of sym. pinacols. The rearrangement of *sym-di-p-anisyldi-β-naphthylglycol* (I) was first studied. Migration of the anisyl radical takes place exclusively in the case of I, forming *di-p-anisyl-β-naphthyl-β-naphthoylmethane*. This shows that the *p*-anisyl is far more neg. than the β-naphthyl radical. **VII. Relative electronegativities of β-naphthyl and biphenylyl**

**radicals.** *Ibid* **7**, 382–8(1932).—The rearrangement of sym. di-β-naphthylbisbiphenylylglycol was studied. On hydrolyzing the rearrangement product, both β-naphthoic acid and *p*-phenylbenzoic acid were obtained. M. concludes from the results that the migration of β-naphthyl and biphenylyl radicals occur to an equal extent.

H. W. LEAHY

**Fluorenone. II.** ANUKUL C. SIRCAR AND KSHITISH C. BHATTACHARYYA. *J. Indian Chem. Soc.* **9**, 521–6(1932); cf. *C. A.* **26**, 2867.—The tetrazo deriv. of 2,7-diaminofluorenone, coupled in the standard way, gives *fluorenone-2,7-bisazo derivs.* of the following: *PhOH*, deep brown; *m*-$C_6H_4(OH)_2$, dark brown; *o*-$HOC_6H_4CO_2H$, deep brown; *β-naphthol*, deep brown; *2-hydroxy-3-naphthoic acid* (I), brownish violet; *1,4-naphthylaminesulfonic acid* (II), red; *1,4-naphtholsulfonic acid*, deep reddish brown; *2,3,6-naphtholdisulfonic acid*, reddish violet; *2,6,8-naphtholdisulfonic acid*, brownish violet; *1,6-naphthylaminesulfonic acid*, deep brown; *1,5-naphthylaminesulfonic acid*, deep brown; *1-hydroxy-8-aminonaphthalene-3,6-disulfonic acid*, deep brown; *2,6-naphtholsulfonic acid*, violet; *2-amino-8-naphthol-6-sulfonic acid*, deep brown; *1,8-dihydroxynaphthalene-3,6-disulfonic acid*, bluish violet; *PhNMe*$_2$ (III), deep brown. All compds. m. above 290°, are sol. in $H_2SO_4$ and are pptd. unchanged by $H_2O$. All except I, II and III are substantive to cotton. 2-Iodofluorenone (IV) was prepd. from the amino compd. via the diazonium reaction. IV and Cu at 150–350° did not give 2,2′-bifluorenonyl.

A. F. SHEPARD

**Metallic cerium in organic syntheses.** JAGARAJ BEHARI LAL AND SIKHIBHUSHAN DUTT. *J. Indian Chem. Soc.* **9**, 565–71(1932).—Diverse org. compds. were submitted to dry distn. with Ce powder in a current of pure $H_2$ (*C. A.* **23**, 822). The results are summarized in a table giving the temp. of distn., main product (with yield) and by-products. Friedel and Craft's reaction, with Ce powder in the presence of benzene, transformed $PhCHCl_2$, BzCl, $PhCCl_3$, PhX (X = Br, Cl and I), $CHCl_3$ and *o*-$C_6H_4(COCl)_2$ into $Ph_2CH$, $Ph_3COH$, $Ph_3CCl$, $Ph_2$, $Ph_3CH$ and $C_6H_4(CO)_2C_6H_4$, resp., while under the same conditions BzCl and $PhCO_2H$ yielded $BzC_6H_4CO_2H$. PhCH:CHCOPh was similarly prepd. from $PhCHCl_2$ and MeCOPh. With Ce powder Zincke's reaction gave $Ph_2CH_2$ from benzene and $PhCH_2Cl$. Similarly, from $PhCH_2Cl$ and PhMe were produced $(PhCH_2)_2$ and $PhCH(CH_2Ph)_2$; from $PhCH_2Cl$ with anisole, phenetole, quinol di-Me ether and PhOH were formed anisylphenylmethane, phenetylphenylmethane, benzylquinol di-Me ether and *p*-benzylphenol; AcCl and benzene gave MeCOPh while $Ph_2CO$ was made from BzCl and benzene. Reformatski's reaction was carried out by refluxing a mixt. of MeCOPh (12 g.), $CH_2ClCO_2Et$ (12 g.), Ce (10 g.) and dry benzene (70 g.) with the addn. of a minute crystal of $I_2$, for 2 hrs. The product was treated with ice-cold dil. HCl, washed with NaOH and with $H_2O$, dried and fractionated at 5 mm. The 112–30° fraction (redistd. at 118–20°) was β-phenylmethylhydroxypropionic ester (6.1 g.). With $CH_2BrCO_2Et$ the yield was 9.3 g. By the substitution of Ce for Cu in Ullmann's method $(CH_2CO_2Et)_2$ was formed from $CH_2ClCO_2Et$ and AcOEt, $(CH_2)_4(CO_2H)_2$ from $ICH_2CH_2CO_2H$ and $Ph_2$ from PhX (X = Br, Cl and I). PhBr yielded $Ph_2O$ with PhOH and $Ph_2NH$ with $PhNH_2$. Heating a mixt. of $ClCH_2CO_2Na$ (11.5 g.), anhyd. $MeCO_2Na$ (8 g.) and Ce (4 g.) at 110–20° for 1 hr. gave on working up 2.9 g. of $(CH_2CO_2H)_2$. Neutral reduction by vigorous shaking with Ce in the presence of $NH_4Cl$ transformed $C_6H_3(NO_2)_3$ into a mixt. of picramic acid (85%) and $(H_2N)_3C_6H_2OH$ in 5 hrs. and into a 63% yield of the latter in 10 hrs. In the same way methyl orange was completely reduced to sulfanilic acid and $PhNMe_2$. By a similar procedure *o*-$O_2NC_6H_4OH$, $Ph_2CO$, $PhNO_2$ and *p*-$O_2NC_6H_4Me$ were converted into *o*-$H_2NC_6H_4OH$, $Ph_2CHOH$, $PhNH_2$ and *p*-$H_2NC_6H_4Me$.

C. R. ADDINALL

**Heteropolar compounds. XIX. Phenoxy, phenothio and phenoseleno groups as auxochromes in triphenylcarbenium salts.** W. DILTHEY AND F. HARENBERG. *J. prakt. Chem.* **136**, 49–74(1933); cf. *C. A.* **26**, 5938.—*4,4′-bis(4-ethoxyphenoxy)benzophenone*, from 4-$EtOC_6H_4OPh$ and $COCl_2$ with $AlCl_3$ in $CS_2$, pale yellow, m. 167°; concd $H_2SO_4$ gives a greenish yellow soln.; the *4-MeO analog* m. 198–9° and gives the same color in $H_2SO_4$. *4-(4-Methoxyphenoxy)benzophenone*, m. 104–5°; $AlCl_3$ in $C_6H_6$ splits off the MeO group, giving the *4-HO deriv.*, m. 109°; both give greenish yellow solns. in $H_2SO_4$. *4,4′-Diphenoxybenzophenone*, m. 147°, from $(4\text{-}BrC_6H_4)_2CO$ and PhOK. PhSK gives *4,4′-diphenothiobenzophenone*, m. 139° and giving a red soln. in concd $H_2SO_4$. *4,4′-Bis(4-hydroxyphenoxy)benzophenone*, m. 214°; *Ac deriv.*, m. 177–8°. *4,4′-Bis(4-ethoxyphenothio)benzophenone*, m. 170–1°; the *MeO analog* m. 121–2°; both give orange-red solns. in $H_2SO_4$. *4,4′-Bis(4-nitrophenoxy)benzophenone*, yellow, m. 150–1°, greenish yellow in $H_2SO_4$. 4-Phenoxytriphenylcarbenium perchlorate is unstable in the solid state. *4,4′-Diphenoxy deriv.*, orange-red, decomps. 130–2°; *4,4′,4″-triphenoxy deriv.*, red, m. 236–8°. *4-Phenothiotriphenylcarbenium perchlorate*, unstable; *4,4′-diphenothio deriv.*, blue with green luster, m. 190° (decompn.); *4,4′,4″-triphenothio deriv.*, dark blue, m. 145°. *4,4′,4″-Triphenothiotriphenylmethane*, m. 105–6°

The corresponding Se compds. could not be isolated. The influence of these groups on color is discussed. C. J. WEST

**Reaction of aromatic ketones with sodium. I. The structure of the so-called metal ketyls.** W. E. BACHMANN. *J. Am. Chem. Soc.* **55**, 1179–88(1933).—The products obtained by the action of Na on aromatic ketones in anhyd. $Et_2O$ are chiefly Na pinacolates, $R_2C(ONa)(NaO)CR_2$ and not free ketyl radicals, $R_2CONa$, existing in the monomol. state, as has been supposed up to this time. Hydrolysis of the Na pinacolates with dil. acid gives pinacols in excellent yields. In order to account for the reactions of the pinacolates with certain reagents it is assumed that the pinacolate is in equil. with small amts. of ketyl radicals, $2R_2CONa \rightleftharpoons R_2C(ONa)(NaO)CR_2$. The ketyl radicals are intermediates in the reduction of the ketone to the pinacolate. Other metals such as Li, K, Rb, Cs, Be, Mg and Ca react in the same manner as of Na. In all cases products are metal pinacolates, which differ from the Na pinacolate and from each other only in degree. The yield of benzopinacol from $Ph_2CO$ with Na-Hg is 86%; with Ca-Hg 87%; with Mg-Hg 80%. Fluorenone (I) gives with Na 95% pinacol (II); 30% excess of Na gives 75% II, 24% of fluorenol and 1% I. 2,2′-Dibenzoylbiphenyl and Na-Hg give 73% of 9,10-diphenyldihydrophenanthrenediol, m. 202°, and 27% of the isomer, m. 178–9°. 4-$PhC_6H_4Bz$ and 2% Na-Hg give 90% of 4,4′-diphenylbenzopinacol; $(4\text{-}PhC_6H_4)_2CO$ gives 70% of 4,4′,4″,4‴-tetraphenylbenzopinacol. C. J. WEST

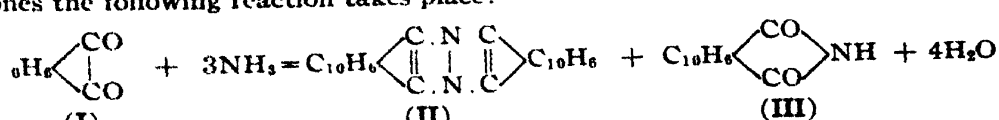
**Spontaneous resolution into active isomers of 4-methoxy-*ms*-methyldesoxybenzoin.** MME. BRUZAU. *Compt. rend.* **196**, 122–4(1933).—*p*-$MeOC_6H_4COCHMePh$ was prepd. in 3 ways: from the Na deriv of *p*-$MeOC_6H_4COCH_2Ph$ and MeI (*Ber.* **21**, 2450(1888)); from *p*-$MeOC_6H_4MgBr$ and $PhCHMeCONH_2$; and from PhCHMeCOCl, PhOMe and $AlCl_3$. In all cases a mixt. of 2 substances was obtained, m. 58–60° and 78–80°. The latter consisted of right- and left-handed prisms, which could be sepd. manually: $[\alpha]_J^{16}$ ±145°, $[\alpha]_V^{16}$ ±170°, $[\alpha]_I^{16}$ ±357°. The lower-melting portion seems to be a mixt. of the two. By similar methods *4-methyl-ms-methyldesoxybenzoin*, m. 46–7°, was prepd. This did not resolve spontaneously, nor did PhCHMeCOPh. A. H.

**Tetralin peroxide.** M. HARTMANN AND M. SEIBERTH. *Helv. Chim. Acta* **15**, 1390–2(1932).—Oxidation of tetralin (I) by standing in contact with air, or catalytic oxidation in the presence of metals or metallic compds. by passing air through I results in the formation of the *peroxide*, $C_6H_4.CH(OOH).CH_2\ CH_2.CH_2$ (II), m. 53–4°.

II is easily sol. in most org. solvents, insol. in $H_2O$, sol. in dil. alkalies from which it is repptd. on acidification, liberates $I_2$ from KI in HOAc and is reduced in 50% HOAc by Zn dust to α-tetralol. L. F. A.

**Preparation of agents to be used against malaria.** JNANENDRA NATH RÂY, GURCHARAN SINGH AHLUWALIA AND BASHESHAR DAS KOCHHAR. *J. prakt. Chem.* **136**, 117–19(1933).—2,1-$AcC_{10}H_6OH$ and *o*-$O_2NC_6H_4CHO$ in EtOH-NaOH give *2-(8-nitrobenzylideneaceto)-1-naphthol* (I), scarlet-red, m. 218°; *Me ether*, m. 127°; *2-(6-nitro-3,4-methylenedioxybenzylideneaceto)-1-naphthol*, m. 205°; *2-(6-nitro-3,4-dimethoxybenzylideneaceto)-1-naphthol*, m. 245°; *Me ether*, m. 202°. Reduction of I in EtOH-EtOAc with Sn and $SnCl_2$ in HCl gives *1-α-hydroxynaphthylquinoline*, m. 150°; *Me ether*, m. 105°; *6,7-methylenedioxy-2-α-hydroxynaphthylquinoline*, m. 235°; *6,7-di-MeO deriv.*, m. 170°. C. J. WEST

**The action of ammonia on acenaphthenequinone.** G. CHARRIER AND ELISA GHIGI. *Atti accad. Lincei* **16**, 262–5(1932).—When $NH_3$ gas or soln. reacts with *o*-quinones the following reaction takes place:



(I) (II) (III)

Acenaphthazine (II), a deep red dye, was shown to be identical with the compd. of Graebe and Gfeller (*Ann.* **276**, 9(1893)), while III, a white cryst. compd., m. 300°, insol. in acids, sol. in hot alkali from which the salt seps. on cooling, is naphthalimide. This was confirmed by prepg. its anhydride, which m. 274°. Phenanthrenequinone, *2 phenyl-α,β-naphtho-1,2,3-triazolequinone* and β-naphthoquinone also have been shown to give 2 products having characteristics similar to the above compds. II and III. These are being studied further. A. W. CONTIERI

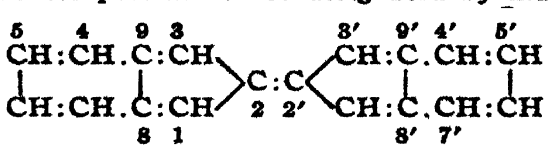
**Aromatic hydrocarbons. XIX. A regularity in the absorption spectra of aromatic hydrocarbons.** E. CLAR. *Ber.* **B66**, 202–8(1933); cf. *C. A.* **27**, 84.—A study of the extinction curves of anthracenes has shown that the 9,10-diyl (diradical) state may produce not only one band but a series of bands. The distance between these bands varies

with their position in the spectrum but if two different anthracenes have 1 band at the same wave length the distance to the next band is the same in both cases, *i. e.*, every band of a 9,10-diyl series is followed by another at a definite distance, depending on the position of the first. This rule holds for a large no. of simple anthracenes and their benzo homologs. The distances between the bands decrease almost linearly with the decrease in wave length. This rule is especially useful when applied to complicated extinction curves. It had been shown (*C. A.* **26**, 5946) that the assumption of a 9,10-diyl state for phenanthrene does not suffice to explain its chem. behavior and its extinction curve, and that the side nuclei are also activated. The assumption of 2 diyl states requires the presence of 2 series of bands, and its spectrum is, in fact, composed of 2 series: the 1st, 3rd and 5th bands at 345, 329 and 314 $\mu\mu$, and the 2nd and 4th bands at 337 and 322 $\mu\mu$. The 2 series generally differ in intensity; in some cases this difference may be so great that only 1 of the series is detectable. With the naphthalenes, too, both the chem. and the optical properties require the assumption of 2 diyl states, and the extinction curve of benzene indicates that it also can be optically effective in at least 2 states, presumably an *o*- and a *p*-diyl state. If the distances between 2 successive bands are plotted against the wave lengths of the 1st band of each pair, there is obtained a curve from which can be read the av. distances between bands of the same series, and the deviations from the rule are so small that series of bands produced by different diyl states can readily be distinguished from each other and definite conclusions can be drawn as to the structure of a given hydrocarbon. C. A. R

**Azlactone from 6-aldehydocoumarin and its condensation with some aromatic amines.** SANAT K. BANERJEE. *J. Indian Chem. Soc.* **9**, 479–81(1932).—The investigation was undertaken with the object of synthesizing *phenanthracoumarin* from *6-aldehydocoumarin* (I). On condensing I with hippuric acid the *azlactone* (II), m. 245°, was obtained. Alk. hydrolysis of II gave *coumarin-6-pyruvic acid* (III). The acid when oxidized with $H_2O_2$ in alk. soln. was expected to yield the coumarin-6-acetic acid. This being condensed with *o*-$O_2NC_6H_4CHO$ by Pshoor's method would yield phenanthracoumarin. The formation, however, of the expected keto acid (III), as one of the products of the hydrolysis of II has been qualitatively established by its condensation with *o*-$C_6H_4(NH_2)_2$. The quinoxalino compd. thus obtained m. 288–90°. Condensation of II with *p*-toluidine gave $C_9H_5O_2CH{:}C(NHBz)CONHC_6H_4Me$, m. 258°. Condensation with $\alpha$-$C_{10}H_7NH_2$ gave $C_9H_5O_2CH{:}C(NHBz)CONHC_{10}H_7$, while the condensation with aniline gave $C_9H_5O_2CH{:}C(NHBz)CONHPh$, m. 178–80°. H. W. L.

**Synthesis of 1,2,7-trihydroxy-5-methylanthrone-8-carboxylic acid.** PRAFULLA K. PAUL. *J. Indian Chem. Soc.* **9**, 493–7(1932).—P. attempted the synthesis of anthrones composed of a *m*-cresotic acid residue and a polyhydric phenol residue, which on oxidation might produce *cochenillic acid* and thus definitely settle its constitution. With this end in view 3,4,5-trimethoxy-, 6-methyl-3,5-dimethoxy- and 3,6-dimethoxy-1,2-phthalide (I) were condensed with Et methoxy-*m*-cresotate (II) in the presence of $AlCl_3$. Partly demethylated benzylbenzoic acid derivs. were obtained. Only a very poor yield of anthrone deriv. could be obtained by condensing I and II, but on demethylation with HBr and AcOH it gave *1,2,7-trihydroxy-5-methylanthrone-8-carboxylic acid* (III), m. 255°. Attempts to oxidize III with alk. $H_2O_2$ met with failure. Opianic acid was then condensed with Et *m*-cresotate to a product m. 93°, which on hydrolysis with 10% KOH and subsequent reduction with Zn gave the *benzylbenzoic acid deriv.*, m. 183°. The *neutral methoxymethyl ester*, m. 101°, was prepd. and found to be identical with the condensation product of I and II. The proper conditions for ring closure to yield an anthrone deriv. have not yet been found. H. W. LEAHY

**Proposed nomenclature of rubrenes considered as derivatives of a prototype, rubene.** CHARLES DUFRAISSE. *Bull. soc. chim.* **51**, 1486–90(1932).—The name "rubene" is proposed for the simplest member of the series, a dibenzobifulvene (I) as yet unknown. Other compds. are to be designated by indicating the position of



the substituents by a numerical scheme borrowed from that of indigo with the sole difference that the C atoms common to the 5- and 6-membered rings are numbered 8 and 9. According to this nomenclature the compd. now known as rubrene becomes 1,1',3,3'-tetraphenylrubene and rubrene monoxide, 1,1',3,3'-tetraphenyl-1,1'-epoxy-1,1'-dihydrorubene. Other examples (10) are given. C. R. ADDINALL

**Furan reactions. IV. Furoic acid from furfural.** CHARLES D. HURD, J. W. GARRETT AND E. N. OSBORNE. *J. Am. Chem. Soc.* **55**, 1082–4(1933); cf. *C. A.* **26**,

3792.—In the Cannizzaro reaction with furfural the excess of alkali is neutralized with furoic acid and the furfuryl alc. sepd. directly; the yields of acid and alc. are 73–6 and 72–6%, resp. The excess of alkali may be omitted altogether with yields only slightly lower. Oxidation of furfural by $K_2Cr_2O_7$ and $H_2SO_4$ give 75% of furoic acid. *Mn furoate*, crystals with 3 mols. $H_2O$; the $H_2O$ is lost at 105° and the anhyd. salt begins to decomp. at 290°. **VI. Cyclopropene.** CHARLES D. HURD AND FORREST D. PILGRIM. *Ibid* 1195–7(1933); cf. *C. A.* **27**, 979.—Attempts to prep. cyclopropene by Freundler's method, the dry distn. of a mixt. of Ba furoate or Ca furoate with soda lime, gave negligible yields. MeC:CH was identified as a reaction product but also in small amts. Considerable furan was formed. Allyl alc. was produced as a result of the action of Mg upon epibromohydrin. $(BrCH_2)_2CHOH$ and BzCl give 66% of *β,β'-dibromoisopropyl benzoate*, $b_{16}$ 185°, does not solidify at —30°, $d^{23.5}$ 1.6324, $n_D^{17}$ 1.5749, $n_D^{23.6}$ 1.5658.

C. J. WEST

**Furfural and carbon dioxide formation from uronic acids.** H. FRANKEN. *Biochem. Z.* **257**, 245–55(1933); cf. *C. A.* **26**, 5074.—The formation of furfural from uronic acids in the presence of mineral acids proceeds at least partly over the corresponding pentose. When Ba galacturonate is treated under pressure with steam a substance is formed which on oxidation yields succinic acid. In the reaction of galacturonic acid with boiling mineral acids there is a simultaneous production of $CO_2$ and furfural but partly, and in the absence of $CO_2$, also pentanon-4-al-5-oic acid is formed as an intermediate product.

S. MORGULIS

**Preparation of furil.** W. W. HARTMAN AND J. B. DICKEY. *J. Am. Chem. Soc.* **55**, 1228–9(1933).—Details are given of the prepn. of furoin in 37.5% yields and of its oxidation with $CuSO_4$ to furil in 63% yield.

C. J. WEST

**Synthesis of several *p*-substituted β,β-furyalkyl- and furylarylpropiophenones.** NICOLAS MAXIM AND J. ANGELESCO. *Bull. soc. chim.* **51**, 1365(1932).—The reaction between the Grignard reagent and various furalacetophenones (substituted in the benzene nucleus) takes place by 1,4-addn. to the ends of the conjugated system (Kohler, *Am. Chem. J.* **34**, 153(1905)) to give satd. ketones and not unsatd. alcs. Substitution by Cl and Br favor the reaction more than by Me. The following *p*-substituted furalacetophenones were prepd. by the addn. of 10% NaOH to a mixt. of furfural with the requisite substituted acetophenone in the presence of EtOH: Me (I) ($C_4H_3OCH:CHCOC_6H_4Me$), Cl (II), m. 78° and Br (III), m. 81°. Treatment of I with MeMgI and RMgBr (R = Et, iso-Pr, iso-Bu and Ph) gave the corresponding *β,β-furylalkyl(aryl)-p-methylpropiophenones*, $C_4H_3O(R)CHCH_2COC_6H_4Me$: Me, $b_{12}$ 170° (56%) (*semicarbazone*, m. 166°); *Et*, $b_{11}$ 175° (*semicarbazone*, m. 152°); *iso-Pr*, $b_{13}$ 188° (80%) (*semicarbazone*, m. 148°); *iso-Bu*, $b_{12}$ 191° (70%); and *Ph*, $b_{19}$ 252° (80%). EtMgBr with II and III gave 95% yields of $C_4H_3OCHEtCH_2COC_6H_4Cl$, $b_{10}$ 197° (*semicarbazone*, m. 118°), and $C_4H_3OCHEtCH_2COC_6H_4Br$, $b_{10}$ 207° (*semicarbazone*, m. 138°), resp.

C. R. ADDINALL

**Stereochemistry of *N*-phenylpyrroles. XXIX. Preparation and properties of *o*-*N*-carbazyl- and *o*-*N*-[3-nitrocarbazyl]benzoic acid.** W. I. PATTERSON AND ROGER ADAMS. *J. Am. Chem. Soc.* **55**, 1069–72(1933); cf. *C. A.* **27**, 1339.—*o*-Carbazylbenzoic acid, m. 184°, gives a *brucine salt*, m. 214–5°, $[\alpha]_D^{25}$ 18.2°; no resolution was observed after many trials. The *strychnine*, *morphine*, *quinine* and *dicinchonine salts* were also prepd., and had $[\alpha]_D^{25}$ —16.4°, —54.0°, —26.5° and 166.2°, resp. *o*-(3-Nitrocarbazyl)-benzoic acid was resolved through the brucine salt, lemon, m. 246–7°, $[\alpha]_D^{20}$ —10.44° (1.2574 g. in 25 cc. $CHCl_3$); the filtrate gave a ppt., decomps. 160–80°, $[\alpha]_D^{20}$ 21.7 to 46.7°. The *l-acid* m. 225–6°, $[\alpha]_D^{20}$ —62°; the *d*-acid was obtained with widely variable rotations but always positive. The *d*-acid shows a half-life of 72 min. in $CHCl_3$ and 1080 min in EtONa; the *l*-acid, 29 in abs. EtOH and 2190 min. in 0.1 *N* NaOH.

C. J. WEST

**Rearrangement of the phenylhydrazones of some unsymmetrically substituted dibenzalacetones.** L. CHAS. RAIFORD AND JOHN B. ENTRIKIN. *J. Am. Chem. Soc.* **55**, 1125–8(1933).—*Styryl 4-nitrostyryl ketone*, brownish yellow, m. 178–9°, results in 40% yield from $4\text{-}O_2NC_6H_4CHO$ and PhCH:CHAc; phenylhydrazone, yellow, m. 100–1°; boiling with AcOH gave a product, m. 149–50°, regarded as the pyrazoline. *Styryl 4-chlorostyryl ketone phenylhydrazone*, m. 165–6°; the pyrazoline m. 184–5°. In other cases the pyrazolines were the only product formed. *1,5-Diphenyl-3-(4-chlorophenyl)-pyrazoline*, m. 149–50°; *3-chlorostyryl deriv.*, dark yellow, m. 153–4°; *4-chlorostyryl deriv.*, deep yellow, m. 184–5°; *3-nitrostyryl deriv.*, orange, m. 182–3°; *4-nitrostyryl deriv.*, m. 191–2°; this seps. with 1 mol. of EtOH. In the rearrangement of these hydrazones the closing of the pyrazoline ring involved the unsatn. farthest away from the Ph nucleus contg. the halogen or $NO_2$ radical. This was indicated by the fact that in the oxidation of the pyrazolines 1,5-diphenylpyrazole-3-carboxylic acid and BzOH or

a substituted BzOH were obtained. Oxidation of pyrazolines contg. a Br atom or a $NO_2$ radical in the hydrazine residue seems to cause complete degradation of the mol.

C. J. WEST

**Heterocyclic compounds. II.** ANUKUL C. SIRCAR AND INDU B. PAL. *J. Indian Chem. Soc.* **9**, 527–32(1932).—Diheterocyclic compds. were prepd. from α,β-diaminoquinoxaline (I) in order to compare their properties with analogous compds. obtained from 2,3-diaminophenazine (*C. A.* **20**, 1805). The new compds. are invariably lighter in color. The following *α,β-quinoxalinoimidazoles* were prepd. by heating I and the proper acid anhydride 0.5 hr. at 200–20°; *o-benzoylene*, light yellow, m. above 300°; *o-naphthoylene*, yellow; *o-camphoroylene*, dirty yellow, m. 280°; *o-diphenoylene*, brownish yellow. I (0.5 g.) and BzH (1 g.), refluxed 1 hr. in $C_5H_5N$, give *4,5-quinoxalino-2-phenylimidazole* (II), yellow, shrinking at 275° and m. 290°. The following *derivs.* of II were obtained similarly from substituted benzaldehydes: *4'-Me*, brownish yellow; *4'-nitro*, red; *3'-nitro*, yellowish white; *2'-HO*, brown; *2',4'-HO*, yellow; *4'-MeO*, light orange-yellow; *4'-dimethylamino*, brownish yellow. Furfural and I gave *4,5-quinoxalino-2-furfurylimidazole*, light yellow-brown. All the above compds. m. above 300°. In the absence of solvent, I (0.5 g.) and BzH (20 cc.) heated 1.5 hrs. give *4,5-quinoxalino-1-benzyl-2-phenylimidazole*, yellow, m. above 300°. Similarly, I and *o*-$C_6H_4(OH)CHO$ yield *4,5-quinoxalino-1-o-hydroxybenzyl-2-phenylimidazole*, yellow, m. above 300°; while from I and *p*-$MeOC_6H_4CHO$ is obtained *4,5-quinoxalino-1-p-methoxybenzyl-2-p-methoxyphenylimidazole*, light brownish yellow, m. 243–5°. A. F. S.

**Derivatives of imidazole. III. Occurrence of 4-hydroxymethylimidazole.** TEIJIRO YABUTA AND KATSUJI KAMBE. *J. Agr. Chem. Soc. Japan* **8**, 815–20(1932).—A mixt. of 25 g. fructose, 25 g. $Cu(OH)_2$ and 310 cc. 20% $NH_4OH$ was dild. with $H_2O$ to 1 l. and sealed in a bottle for 1 month. O was supplied from time to time until it was no longer absorbed. The greenish blue ppt. obtained was freed from Cu by $H_2S$, and from the aq. soln. of 4.3 g. of a picrate, fine needles or plates, m. 205–6°, was prepd. From the filtrate of the greenish blue ppt. 3 g. of the same picrate was obtained; HCl salt m. 93°. The compd. was identified as 4-hydroxymethylimidazole (I). A mixt. of 10 g. fructose, 5 cc. formalin, 5 cc. $NH_4OH$ (10%) and 0.2 cc. methylene blue was kept in a sealed bottle and supplied with O. The methylene blue was removed by charcoal when the reaction was completed. A base was isolated as the picrate and identified as I; the yield was 0.2 g. From the reaction of 10 g. fructose, 5 cc. formalin, 8 g. $NH_4$ phosphate and 200 cc. 10% $NH_4OH$ the picrate of I was again isolated. Hydroxygluconic acid soln. was prepd. from the Ca salt and treated with $Cu(OH)_2$ and $NH_4OH$ as above. The picrate of I was isolated, and from the mother liquor of the picrate, the picrate of imidazole-4-carboxylic acid, m. 195°, was isolated. Y. KIHARA

**Synthesis of imidazole derivatives from α-amino acids. I. A new synthesis of desaminohistidine and a contribution to the knowledge of the constitution of ergothioneine.** SHIRO AKABORI. *Ber.* **66B**, 151–8(1933).—By reducing the esters of glycocoll, alanine and glutamic acid in aq. acid soln. with Na-Hg to the corresponding amino aldehydes and treating the latter with $NH_4NCS$, A. obtained the 2-mercapto derivs. of imidazole, 4-methylimidazole and desaminohistidine (β-imidazolylpropionic acid) (I), and from these the imidazoles themselves. For these syntheses it is not necessary to isolate the amino aldehyde. The amt. of alc. needed to prep. di-Et glutamate by Fischer's method (*Ber.* **34**, 453(1901)) can be greatly reduced by heating the acid *in vacuo* to about 190°, treating the resulting pyrrolidonecarboxylic acid in alc with HCl gas and boiling. The HCl salt of Et glutamate is readily reduced by Na-Hg, even below —10°, but the aldehyde acid could not be isolated in pure form. A. therefore tried to convert the Et glutamate into the Et pyrrolidonecarboxylate, but the latter could not be reduced to the pyrrolidonealdehyde. Accordingly, he treated the soln. resulting from the reduction of the Et glutamate directly with $NH_4NCS$ and obtained the *2-mercapto deriv.* (II) of I in crystals with 1 $H_2O$, m. 205–6.5°, readily desulfurized to I by $FeCl_3$ or $H_2O_2$. The I was identified by conversion through its ester and hydrazide into histamine. The mercaptoimidazolylacrylic acid obtained from ergothioneine with alkali yields II with Na-Hg, showing that the SH group in ergothioneine is in position 2. **II. Synthesis of some new imidazole derivatives, and the constitution of pilocarpine.** SHIRO AKABORI AND SHINJI NUMANO. *Ibid* 159–65.—Using the method described in the preceding abstr., A. and N. have prepd., through the 2-mercapto derivs., *4-isobutyl-* (I), *4-benzyl-* (II), *4-amyl-* (III) and *3-methyl-4-amylimidazole* (IV) from leucine, phenylalanine, $AmCH(NH_2)CO_2H$ and *α-methylaminoheptylic acid* (V), resp. Jowett obtained, as a degradation product of isopilocarpine, a substance which he believed to be 3-methyl-4-amylimidazole (*J. Chem. Soc.* **83**, 447(1904)), and A. and N. have repeated his work in order to compare his product with their synthetic compd. Because of the small amts. available, sufficiently pure materials could not be used for the comparison but in view of the similarity in their properties they may well be identical,

which would confirm the structure $CH_2.O.CO.CHPh.CHCH_2C:CH.N:CH.NMe$

for pilocarpine. *2-Mercapto deriv.* of **I** (yield, 16.8%), m. 183–4°; **I**, $b_6$ 143–4.5°, m. 72–3°. *2-Mercapto deriv.* of **II**, m. 221–2°; **II**, $b_{0.12-0.15}$ 145–8°, m. 84–5°. *Et α-aminoheptylate*, $b_5$ 82–5°. *2-Mercapto deriv.* of **III**, m. 114–5.5°; **III**, $b_{16}$ 188–8.5°, m. 44–6° **V** (19 g. from 40 g. $AmCHBrCO_2H$ and 33% aq. $NH_2Me$ at 100–20° in a pressure kettle), m. 260–2° (sealed capillary); *Et ester*, $b_5$ 80–2°. *2-Mercapto deriv.* of **IV**, m. 143–4°; **IV**, $b_{13}$ 152–2.5°, $d_4^{25}$ 0.9411, $n_D^{25}$ 1.48289; *picrate*, yellow, m. 130–0.5°; *chloroplatinate*, m. 212–13° (foaming). That portion of the product obtained by soda-lime distn. of pilocarpine which $b_{12}$ 152–7° showed $d_4^{25}$ 0.9885, $n_D^{25}$ 1.52024; picrate, m. 125–8°; chloroplatinate, m. 196–7° (foaming). As already noted by Jowett, the compns. of the picrate and chloroplatinate are closer to those of derivs. of a methylamyleneimidazole, $C_9H_{14}N_2$, than of IV, $C_9H_{16}N_2$. C. A. R.

**The directive effect of substituents on the cyclization of substituted *s*-diarylthiocarbamides. I. The effect of fluoro, iodo and cyano substituents on the formation of anilinobenzothiazole derivatives from mono-*p*-substituted thiocarbanilides and bromine.** Robert F. Hunter. *J. Indian Chem. Soc.* **9**, 435–40(1932).—H. studies the effect of different substituents and hydrocarbon groupings on the thiazole cyclization of *s*-diarylthiocarbamides by Br and other reagents. It has previously been shown that the bromination of *p*-chloro- and *p*-bromo-*s*-diphenylthiocarbamides gives rise to 4′-substituted 1-anilinobenzothiazoles. H. finds also that ring formation occurs on the unsubstituted nucleus when *p*-fluoro- and *p*-iodo-*s*-diphenylthiocarbamide are treated with Br in the usual way, producing the corresponding 4′-substituted 1-anilinobenzothiazoles, whose formulas are established by the synthesis from 1-chlorobenzothiazole and the corresponding *p*-haloanilines. The following compds. were prepd.: *p-fluoro-s-diphenylthiocarbamide*, m. 175–6°; *4′-fluoro-1-anilinobenzothiazole*, m. 200–1°; *p-iodo-s-diphenylthiocarbamide*, m. 168°; *4′-iodo-1-anilinobenzothiazole*, m. 213°; *p-cyano-s-diphenylthiocarbamide*, m. 161–2°; *4′-cyano-1-anilinobenzothiazole*, m. 206°. H. W. Leahy

**A preliminary note on a new method of synthesizing benzopyrylium compounds.** M. N. Goswami and Amna Kumar Chakravarti. *J. Indian Chem. Soc.* **9**, 599–600 (1932). On heating a mixt. of coumarin and resorcinol in the presence of $POCl_3$ and extg. the unchanged material with $Et_2O$, an orange-red compd. contg. Cl was sepd. which behaves as though constituted as 2′,4′-dihydroxy-2-phenylbenzopyrylium chloride (**I**), $C_{15}H_{11}ClO_3.3H_2O$, an extremely hygroscopic compd. difficult to analyse correctly for H. Attempts at synthesis from salicylaldehyde and resacetophenone failed. The di-MeO deriv. of I was prepd. by substituting dimethoxyresorcinol in the original prepn. and also by synthesis from salicylaldehyde and dimethoxyresacetophenone. Both prepns. gave the same orange-red cryst. deriv., *2′,4′-dimethoxy-2-phenylbenzopyrylium chloride ferrichloride*, $C_{17}H_{15}ClO_3.FeCl_3$, m. 175°. Almost all other phenols and phenolic esters have been found to condense similarly with coumarin and substituted coumarins in the presence of $POCl_3$ to yield benzopyrylium compds., the prepn. of which is being further investigated. C. R. Addinall

**Glucosides of flavone. I.** T. Nakaoki. *J. Pharm. Soc. Japan* **52**, 1085–8 (1932)(in German 195–7).—A preliminary report, chiefly on the qual. test for flavone glucoside in the various species of flowers. **II. Constituents of Rhododendron rosmarinifolium, Dippel. 1.** *Ibid* 1089–93(in German 198).—From the alc. ext. of *Rhododendron rosmarinifolium*, Dippel, N. isolated a certain glucoside which on hydrolysis gave quercetin (**I**), $C_{15}H_{10}O_7$, m. 310°. Methylation of I with $CH_2N_2$ gave monomethylquercetin, m. 296°, which on acetylation gave tetraacetylrhamnetin, m. 185–6°. I and $Me_2SO_4$ gave tetramethylquercetin, m. 156–7°. From the mother liquor N. isolated glucose and rhamnose in the form of the phenylosazones, m. 210° and 180°, resp. F. I. Nakamura

**Fukugetin. I.** J. Shinoda. *J. Pharm. Soc. Japan* **52**, 1009–24(1932)(in German 167–9).—Analysis of fukugetin (**I**) gave $C_{28}H_{20}O_{10}.2.5H_2O$ instead of the formula reported by Perkins (*J. Chem. Soc.* **1904**, 58–9) and other Japanese investigators. Anhyd. fukugetin m. 272–3° and corresponds to the loss of 1 water mol. from I. Methylation of I with $CH_2N_2$ gave hexamethylfukugetin (**II**), $C_{28}H_{14}O_{10}(CH_3)_6$, m. 202–4°, trimethyl deriv., m. 255°, and ethylfukugetin, m. 150°. II and alc. KOH gave compds., $C_{26}H_{28}O_{10}$, m. 202°, $C_{26}H_{26}O_9$, m. 227–8°, and compds. m. 178–80° and 215–16°. I and 50% KOH in the atm. of H gave acetanilide, m. 112°, anhydrofukugetin (**III**) ($C_{19}H_{12}O_6$), m. <300°, fukugenetin, $C_{19}H_{14}O_7$, m. 205°, phloroglucinol and garcinol, m. 308°. Acetylation of III gave a compd. m. 266–7° which did not depress the m. p. of acetylfugenetin m. 265°. Methylation of III gave a Me deriv., $C_{19}H_{10}O_7Me_4$, m. 195–6°, which did not depress the m. p. of methylfukugenetin, m. 204°, while with EtOH it gave a compd. which did not depress the m. p. of ethylfukugenetin, m. 171–2°.

Acetylfukugenetin and KOH in H gave III. Garcinol ethyl ether m. 167°; acetate m. 201–2°. Fukugenetin or III when treated with 50% KOH for 2–4 hrs. at 150–70° gave AcOH, 3,4-dihydroxyacetophenone, m. 118–9°, garcinol and an acid m. 187°.
F. I. NAKAMURA

**Reaction of organic halides with piperidine. III. Cyclohexyl bromide and the butyl bromides.** W. V. DRAKE AND S. M. MCELVAIN. *J. Am. Chem. Soc.* **55**, 1155–8 (1933); cf. *C. A.* **26**, 988.—The isolation of 4 different *N*-butylpiperidine HCl salts from the reaction of piperidine with the BuBr has demonstrated that these bromides in this reaction do not rearrange previous to reaction. The *HCl salts* of the Bu, *sec*-Bu, iso-Bu and *tert*-Bu derivs. m. 239–40°, 208–9°, 257–8° and 268–9°; that of the *cyclohexyl deriv.* m. 292–3°. The difference between the behavior of cyclohexyl bromide and other sec. bromides has been found to be 1 of degree rather than kind. *N*-Butylpiperidine, $b_{740}$ 171–2°, $d_{25}^{25}$ 0.8210, $n_D^{25}$ 1.4442; *sec-isomer*, $b_{740}$ 169–70°, d. 0.8334, *n* 1.4468; iso-Bu isomer, $b_{740}$ 160–1°, d. 0.8161, *n* 1.4382. C. J. WEST

**Quinoline derivatives. XLI. Derivatives of 2-phenyl-4-quinolylamino-acetic acid.** HANNS JOHN AND GEORG BEHMEL. *J. prakt. Chem.* **136**, 121–4(1933); cf. *C. A.* **27**, 982.—*2-Phenyl-4-quinolylaminoacetyl chloride*, m. 272°; β-chloroethyl ester, m. 104°; *diethylamide*, m. 149°; *ethanolamide*, m. 210°. C. J. WEST

**The way in which quinoline derivatives are formed from carboxanilides, and the transformations of acetanilide imide chloride.** ALBRECHT HEYMONS AND WERNER ROHLAND. *Ber.* **66B**, 130–8(1933).—While anilides, $RCH_2CONHPh$ (R = Cl, alkyl or aryl) are converted into 2,3,4-substituted quinolines by $PCl_5$, AcNHPh (R = H) under the same conditions gives an acyclic chlorovinylamidine base, MeC(:NPh)-NPhCCl:$CH_2$ (I). On the basis of certain generalizations derived from a study of the steric influence of *o*-substituents, v. Braun and Rudolph (*C. A.* **26**, 428) concluded that also where ring closure occurs an amidine base is first formed from 2 mols. of the imide chloride. This view found support in the fact that under energetic conditions AcNHPh can in part be converted into a quinoline deriv., γ-anilinoquinaldine (II). This was confirmed recently by Backeberg (*C. A.* **26**, 3507) but he interprets the reaction entirely differently; according to him all anilides with $PCl_5$ first form a labile condensation product of 2 mols. amide chloride which then yields the amidine base or the quinoline by loss of 2 or 3 mols., resp., of HCl. That the amidine bases are formed from amide, not imide, chlorides (Stephen and Bleloch, *C. A.* **25**, 3329) is disproved by the observation that a soln. of the pure imide chloride MeCCl:NPh yields I on heating. It then remained to be detd. whether quinoline formation is preceded by condensation of amide chloride mols. or is the result of further changes in the amidine base. $ClCH_2CONHPh$, which gives a quinoline with special ease, can, by rapid work in great diln., be converted into the imide chloride, which undergoes no further change and does not yield a quinoline on heating. As, however, it soon does form the quinoline salt when it is satd. (in the cold) with HCl gas, this salt can have been produced only from the amide chloride, $MeCCl_2NHPh$, formed by addn. of HCl to the imide chloride. Backeberg's view that II is formed in the same way from AcNHPh is not correct, however; ring formation here begins only after I has been formed and has undergone further changes, and, moreover, the yield is exactly the same whether the components are heated quickly or only after they have stood for weeks at room temp. In attempts to effect ring closure in I directly by heating it with a $POCl_3$ soln. satd. with HCl gas, unexpected difficulties were encountered; along with much resinous material there was formed a mixt. of compds in which no II could be detected and which contained AcNHPh, MeC(:NPh)NHPh and a small amt. (10%) of a base $C_{24}H_{23}ON_3$ (III), which is also formed regularly as a by-product, with II, in the reaction between AcNHPh and $PCl_5$. As there did not seem to be much hope of obtaining light on the reaction in this way, a study was made of the thermal decompn. of the free I. When I is heated in dil. soln. in a neutral solvent, 2 mols. give 1 mol. MeCCl:NPh and a *compd.* $C_{24}H_{22}N_3Cl$ (IV) which has the properties of an imide chloride and is hydrolyzed to a weakly basic *compd.* $C_{24}H_{23}ON_3$ (V). V is decompd. by hot concd. HCl into MeC(:NPh)NHPh, $PhNH_2$ and AcOH. In attempts to prep. the imido ester from IV with alc. there occurred, even at room temp., complete decompn. into MeC(:NPh)NHPh, $AcNH_2$ and AcOEt; this decompn. could have been effected only by the HCl set free in the reaction. V in neutral soln. with dry HCl gas was likewise readily decompd. into MeC(:NPh)NHPh.HCl and a very hygroscopic product which was converted by traces of moisture into $PhNAc_2$. These reactions are represented as follows: I + $CH_2$:C(NHPh)NPhCCl:$CH_2$ (VI) ⟶ MeC(:NPh)-NPhC(:$CH_2$)NPhC(:$CH_2$)NPhCCl:$CH_2$ (VII) ⟶ MeC(:NPh)NPhC(:$CH_2$)NPh-CCl:$CH_2$ (IV) [+ $CH_2$:CClNHPh] $\xrightarrow{H_2O}$ MeC(:NPh)NPhC(:$CH_2$)NPhAc (V) $\xrightarrow{HCl}$ [MeC(:NPh)NHPh.HCl +] $CH_2$:CClNPhAc $\xrightarrow{H_2O}$ AcNPhAc. As with the

*N*-aliphatic-substituted chloroalkenyl bases (*C. A.* **26**, 2739), a H atom in 1 mol. of I migrates to the N (VI), union occurs between a C and a N atom (inter-, not intramolecularly, in this case) and the resulting VII is decompd. into IV by the HCl set free. V, the hydrolysis product of IV, is isomeric with III, and with $POCl_3$ it gives an imide chloride which on hydrolysis yields III. III can be hydrogenated to a *compd.* $C_{24}H_{23}ON_3$ (VIII) and, unlike V, is not decompd. by HCl gas. Its HCl salt has a strikingly intense yellow color, very similar to that of quinoline derivs., but with concd. HCl it gives only $PhNH_2$ and AcOH, together with a little AcNHPh. On distn. it loses water with formation of the calcd. amt. of II. When heated with $POCl_3$ it merely forms an *addn. product*, m. 256° (*HCl salt*, very hygroscopic, m. 184°), unchanged by longer heating, which regenerates III with cold water and on energetic hydrolysis yields 1 mol. $PhNH_2$, approx. 1 mol. AcNHPh and some $AcCH_2CONHPh$. III is therefore thought to be a *β-anilinocrotonylacetdiphenylamidine*, $MeC(:NPh)NPhCOCH:CMeNHPh$, whose imide chloride, $MeC(:NPh)NPhCCl:CHC(:CH_2)NHPh$, results from a rearrangement of IV with rupture of the C-N union and formation of a new C-C union. Therefore, although H. and R. have not been able to obtain II from I, they believe this is because the soly. properties of I are such that it is not possible to obtain exactly the same conditions as when AcNHPh is treated with $PCl_5$, and that the formation of II can be assumed as proceeding through the intermediate products I and IV. The exceptional position occupied by AcNHPh, as compared with other anilides, is, in the last analysis, due only to the fact that the change from the amide to the imide chloride is so rapid that condensation to a quinoline cannot take place and ring closure can be effected only by more energetic means through I. III, faintly yellow, m. 117°; *picrate*, m. 158°; *chloroplatinate*, orange, m. 201–3° (decompn.). VIII, m. 146°. IV, very hygroscopic, m. about 190° (decompn.). V, m. 139°, forms no picrate; its HCl salt is stable only in HCl. C. A. R.

**The production of kynurenic acid from tryptophan derivatives.** Clarence P. Berg. *Proc. Iowa Acad. Sci.* **38**, 169(1931); cf. *C. A.* **25**, 4921.—Tryptophan, when administered to certain animals, is converted into kynurenic acid. Use has been made of this fact in the study of possible cleavage of tryptophan derivs. in the alimentary tract and in the body proper. The methylene, Bz, Ac and Et ester-HCl derivs. of tryptophan were prepd. and administered *per os* and subcutaneously. Of these, only the Et ester-HCl gave rise to an output of kynurenic acid comparable to that yielded by an equiv. amt. of free tryptophan. The methylene and Bz derivs. did not yield appreciable quantities of kynurenic acid. Administration of the Ac deriv. caused a definite, though small, output of kynurenic acid. Apparently, tryptophan Et ester-HCl is readily hydrolyzed in the body, acetyltryptophan is split to a limited extent and benzoyltryptophan and methylenetryptophan do not undergo cleavage.

W. G. Gaessler

**Reaction of 2,4-dichloroquinazoline with sodium azide.** R. Stollé and Fr. Hanusch. *J. prakt. Chem.* **136**, 120(1933); cf. *C. A.* **27**, 1632.—2-Chloro-4-ethoxyquinazoline and $NaN_3$ give *1,2-tetrazolo-4-ethoxyquinazoline 1,2-dihydride*, m. 165°; 2 *N* NaOH splits off the EtO group, giving the same compd. as previously obtained from 2,4-dichloroquinazoline; this compd. thus has the $N_3$ group in the 4-position.

C. J. West

**Pyrimidines. CXXXI. Reduction of 1,2,3,4-tetrahydropyrimidines.** Karl Folkers and Treat B. Johnson. *J. Am. Chem. Soc.* **55**, 1140–7(1933); cf. *C. A.* **26**, 5302.—The catalytic reduction of 2-keto-4-R-5-carbethoxy-6-methyl-1,2,3,4-tetrahydropyrimidines has been studied; the 5,6-double bond in such pyrimidine combinations is very resistant to change. In all cases examd. the 4-aryl groups were attacked by H in the presence of the catalyst and reduced to the corresponding hexahydro or satd. structure. Thus when R is Ph or cyclohexyl the reduction product is the *cyclohexyl deriv.*, m. 237.5–8.5°; phenylethyl or 2-dihydrophenylethyl gives the *2-cyclohexylethyl deriv.*, m. 192.5–3.5°; styryl gives the 2-cyclohexylethyl deriv. or the 2-dihydrophenylethyl deriv., m. 170.5–1.5°. *2-Keto-4-methyl-5-carbethoxy-6-phenyl-1,2,3,4-tetrahydro pyrimidine*, m. 165–6.6°, results from AcH, $BzCH_2CO_2Et$ and $CO(NH_2)_2$ in AcOH; catalytic reduction gives *2-keto-4-methyl-5-carbethoxy-6-cyclohexylhexahydropyrimidine*, m. 179–81°; the *free acid* m. 290–1°. C. J. West

**Quinazolines. V. The partial hydrolysis of 2,4-dialkoxyquinazolines with the formation of 2-alkoxy-4-ketodihydroquinazolines.** N. A. Lange and F. E. Sheibley. *J. Am. Chem. Soc.* **55**, 1188–94(1933); cf. *C. A.* **27**, 93.—2,4-Diethoxyquinazoline (4 g.) in 20 cc. EtOH, added to 0.5 g. Na in 20 cc. EtOH and the mixt. boiled 6 hrs. on the steam bath, gives 3.3 g. 2-ethoxy-4-ketodihydroquinazoline, m. 179°. The 2-MeO deriv. was similarly prepd.; with $Me_2SO_4$ and *N* NaOH there results *2-methoxy-3-methyl-4-ketodihydroquinazoline*, m. 93°, giving with warm dil. HCl 3-methylbenzoylene-

urea, m. 242°. Hydrolysis of 2-chloro-4-ethoxyquinazoline and 2-phenoxy-4-alkoxyquinazolines likewise gives 2-chloro-4-ketodihydroquinazoline and *2-phenoxy-4-ketodihydroquinazoline*, m. 272°. All m. ps. are cor. C. J. WEST

**Alkaloid of the Chinese drug, "Chin-Shih-Hu." II. Dendrobine. I.** HIDEKI SUZUKI AND ICHIRO KEIMATSU. *J. Pharm. Soc. Japan* **52**, 1049–60(1932)(in German 183–7).—The present paper deals with the properties of dendrobine (I), $C_{16}H_{23(25)}NO_2$, m. 134°, $[\alpha]_D^{18}$ —51.5° (in abs. alc.), colorless needles. I forms the following salts: *Au salt*, $C_{16}H_{23(25)}NO_2.HAuCl_4$, m. 181°; *HCl salt*, decomps. 246°, $[\alpha]_D^{14}$ —41° (in water), *HI salt*, decomps. 278°, $[\alpha]_D^{14}$ —34.47° (in water); *MeI salt* decomps. 231°, $[\alpha]_D^{15}$ —30.9°. I is inactive toward $NH_2OH$, semicarbazide, $PhNHNH_2$, anhyd. AcOH, BzCl, AcCl and $CH_2N_2$. I does not contain the MeO group, but the tertiary N group, >NMe or —$NMe_2$ and 1 lactone linkage. S. and S. propose the formula $C_{14}H_{22(20)}$ $\begin{cases}=NMe\\—CO.O—\end{cases}$ or $C_{13}H_{19(17)}$ $\begin{cases}—NMe_2\\—CO.O—\end{cases}$ for I. F. I. NAKAMURA

**Alkaloids of Holarrhena antidysenterica. I. Three new alkaloids from the bark of Indian Holarrhena and new methods of isolation and further purification of conessine.** SALIMUZZAMAN SIDDIQUI AND P. PARAMESWARAN PILLAY. *J. Indian Chem. Soc.* **9**, 553–63(1932).—About 17 kg. of dried powd. bark, 1 yr. old, purchased in Lahore, was percolated with a mixt. of 80 parts of $Et_2O$ with 10 parts of alc. shaken with 10 parts of $NH_4OH$. The percolate was acidified with dry HCl, yielding crude alkaloidal salts to which was added the residue from the distd. extn medium. These crudes, dissolved in 2 l. of $H_2O$, were pptd with $Na_2SO_4$. After filtration from the insol. sulfates (I) (38 g.) the filtrate was treated with 20% NaOH and the free alkaloids (II) (326 g.) were extd. with $Et_2O$. The passage of $CO_2$ through the petroleum ether ext. from II yielded an insol. carbonate (III). Direct crystn. from $Me_2CO$ of the petroleum ether-sol. non-carbonate material from II gave a crude alkaloid which on further purification by passage of $CO_2$ through its petroleum ether soln. and removal of the last traces of secondary bases by treatment with $NaNO_2$ in AcOH yielded 68 g of conessine (IV), $C_{24}H_{40}N_2$, m. 126° (cor.), in large prismatic plates, or in long needles from dil. undisturbed solns.; HCl salt, m. 338–40° (decompn.); HI salt, m. 308° (decompn.); picrate, m. 222–4° (decompn.); oxalate, m. 372° (decompn.). By fractional pptn. of the HCl salt of III by $NH_4OH$ and NaOH the material was freed from traces of I and IV. Addn. of KI to its soln. in HCl gave 50 g. of a cryst. HI salt which after recrystn. from a mixt. of EtOH and MeOH was converted into the base, dissolved in petroleum ether and satd. with $CO_2$. Recrystn. of the base from the pptd. carbonates from dry solvents gave 0.12% of *conessimine* (V), $C_{23}H_{38}N_2$, m. 100°, $b_{1.8}$ 230°, $[\alpha]_D^{35}$ —22.25°; *dihydrate*, $C_{23}H_{38}N_2.2H_2O$, m. 91° (from moist EtOAc); *carbonate*, m. 105° (softens at 70°), *HCl salt*, m. 342–4°, $[\alpha]_D^{26}$ —15.10°; *chloroplatinate*, m. 301° (decompn.); *chloroaurate*, m. 165° (decompn.); *HI salt*, m. 318–9° (decompn.), *picrate*, m. 172–4°; *nitroso conessimine*, $C_{23}H_{37}N_3O$, m. 240–1° V contains 1 active H atom and 2 NMe groups. The nearly white granular residue from the treatment of I with 10% HCl was dissolved in hot 10% MeOH-HCl, neutralized with $NH_4OH$ and mixed with an equal quantity of hot 1% $H_2SO_4$. The base from the sulfate (10 g.) thus formed was recrystd. from a mixt of MeOH and EtOAc, yielding 0.6 g. of *holarrhine* (VI), $C_{20}H_{38}N_2O_3$, m. 240°, $[\alpha]_D^{25}$ —17.01°; *chloroplatinate*, darkens at 270°, chars above 300°; *picrate*, darkens at 275°, m. above 320°. VI appears to be a secondary base. The residue from the mother liquors of VI, on recrystn. from hot EtOAc produced 0.03% of *holarrhimine* (VII), $C_{21}H_{36}N_2O$, m. 183°, $[\alpha]_D^{25}$ —14.19°; *carbonate*, decompg. above 80°; *HCl salt*, m. 345°, $[\alpha]_D^{25}$ —22.80°; *chloroplatinate*, chars above 300°, *HBr salt*, m. 358–60° (decompn.); *picrate*, m. 198–200° (decompn.); *hydrate*, m. 108–10°, *sulfate*, m. 337°, almost insol. in $H_2O$ and org. solvents. VII is a diacid base, has no -OMe groups but contains 3 active H atoms. Color reactions of IV, V, VI and VII with concd. $H_2SO_4$, $HNO_3$, a mixt. of concd. $H_2SO_4$ and $K_2Cr_2O_7$, Erdmann's and Frohde's reagents are tabulated. C. R. ADDINALL

**The alkaloids of Rauwolfia serpentina, Benth. I.** SALIMUZZAMAN SIDDIQUI AND RAFAT H. SIDDIQUI. *J. Indian Chem. Soc.* **9**, 539–44(1932); cf. *C. A.* **26**, 1288 *Ajmaline* (I) probably corresponds to the *rauwolfine* of Van Itallie and Steenhauer (*Arch. Pharm.* **270**, 313(1932)). A discordance arose because the prepn. of S. and S. contained 3.5 mols. $H_2O$ of crystn., 0.5 mol. of which is retained at 100° and only lost at 150°. The empirical formula of I is $C_{21}H_{26}O_2N_2$. The Zerevitinov procedure shows 1 active H in I after drying at 150°; and the Herzig and Meyer procedure indicates 1 NMe group. I appears to be a secondary base and forms a *nitroso deriv.*, pale yellow, non-basic, m. 209°; a *Bz deriv.*, m. 214–6° (decompn.), and a *Me deriv.* whose *HI salt* m. 230–1; *HCl salt*, froths at 132–4° and m. 272°; *picrate*, froths at 176° and m. 186°, and *chloroplatinate* shrinks at 203° and m. 215–20°. Heating I 0.5 hr. at 200° yields

*pyroajmaline* ($C_{21}H_{26}O_2N_2$?), m. 256°; its *HCl salt* softens at 230° and m. 238–40° (decompn.). *Ajmalinine* and *serpentine* each contain 1 MeO group. A. F. SHEPARD

**Actinodaphnine. An alkaloid from Actinodaphne hookeri, Meissn.** S. KRISHNA AND T. P. GHOSE. *J. Indian Chem. Soc.* **9**, 429–33(1932).—From the bark of *Actinodaphne hookeri* a new alkaloid has been isolated which is different from the alkaloids laurotetanine, bebeerine and buxine found in certain plants of the N. O. *Laurineae*. The new alkaloid is called *actinodaphnine*, $C_{18}H_{19}O_4N$, mol. wt. 313. It contains a MeO, a NMe and a HO group. H. W. LEAHY

**A new synthesis of 3,10-dimethoxytetrahydroprotoberberine.** SATYENDRA NATH CHAKRAVARTI, N. ANANTHA VAIDYANATHAN AND A. VENKATASUBBAN. *J. Indian Chem. Soc.* **9**, 573–6(1932); cf. *C. A.* **23**, 2183.—Heating together *m*-$MeOC_6H_4CH_2CH_2NH_2$ and *p*-$MeOC_6H_4CH_2CO_2H$ at 180° for 2 hrs. and crystg. the product from benzene with the aid of animal charcoal gave *p*-methoxyphenylaceto-*m*-methoxyphenylethylamide (I), $C_{18}H_{21}NO_3$, m. 81°. On heating 10 g. of I with 25 cc. of $POCl_3$ for 2 hrs. on the steam bath, decompg. with cold $H_2O$ and treating with NaOH in the presence of benzene, *6-methoxy-1-(4'-methoxybenzyl)-3,4-dihydroisoquinoline* (II), $C_{24}H_{22}N_4O_3$, was formed as a colorless oil in 80% yields; *picrate*, m. 146°. Reduction with Zn and $H_2SO_4$ converted II into *6-methoxy-1-(4'-methoxybenzyl)-1,2,3,4-tetrahydroisoquinoline* (III), $C_{18}H_{21}NO_2$; *HCl salt*, m. 196°, *picrate*, m. 197° (decompn.). III was heated with an equiv. amt. of anhyd. $HCO_2H$ at 200–10° for 3 hrs. until effervescence had ceased. The product was dissolved in toluene and boiled for 1.5 hr. with $POCl_3$. After washing with petroleum ether the residual gum was extd. with dil. HCl in the presence of bone black and the acid soln. of dihydroprotoberberine (IV) was reduced by heating with an excess of Zn dust for 2 hrs. The filtered liquid was decompd. with $NH_4OH$ and the base was extd. with $CHCl_3$. The dried soln. was concd. and the crude base yielded on recrystn. from MeOH prisms of *3,10-dimethoxytetrahydroprotoberberine*, $C_{19}H_{21}NO_2$, m. 139°. Although the cyclization of I into II takes place readily, the ring closure of III into IV is more difficult. This is probably due to the presence of a *p*-activating OMe group in I and the absence of such a group in III. C. R. ADDINALL

**Identity of narceine with pseudonarceine, its dehydration and structure.** C. R. ADDINALL AND RANDOLPH T. MAJOR. *J. Am. Chem. Soc.* **55**, 1202–9(1933).—The identity of opium narceine with that obtained by the conversion of narcotine methiodide, methochloride and methosulfate has been confirmed by comparison of the phys. properties of carefully purified material. The formulation of narceine as $C_{23}H_{27}NO_8 \cdot 3H_2O$ has been definitely established by quant. detn. of the $H_2O$ of crystn. content and analyses of the dehydrated material. Catalytic reduction of narceonic acid (I) in MeOH-dioxane gives the *dihydro deriv.*, m. 197–8° (*Me ester* (II), m. 155°). The Ag salt of I and MeI and EtI give the *Me* and *Et esters* of I, m. 155° and 139–40°, resp. II and Br in $CHCl_3$ give *Me dihydronarceonate monobromide*, m. 189°. Narceine and $MeONH_2$ in MeOH, heated 70–80 hrs at 118°, give the *methoxime*, m. 190°. Although attempts to alkylate the methylene group and to effect the reduction of the CO group by catalytic hydrogenation were unsuccessful, the lack of active H in II, its behavior on bromination and the formation of the methoxime confirm the formulation of narceine as a highly substituted desoxybenzoin. C. J. WEST

**Spectrographic study of phlorhizin and its derivatives. The ultra-violet absorption spectrum of phlorhizin.** ALBERT LAMBRECHTS. *Compt. rend.* **196**, 295–7(1933).—The ultra-violet absorption spectrum is strongly influenced by the $p_H$. A concd. soln. and a very dil. soln. at const. $p_H$ show the same absorption. The absorption at various H-ion concns. is characteristic of *keto-enol tautomerism*. The keto form predominates in acid soln., the enol in alk. At neutrality and in the blood stream the 2 forms exist in approx. equal quantities. The keto form probably predominates in alc. soln. PHILIP D. ADAMS

**Bufotalin and bufotoxin in "Senso" and its raw material. I.** HEISABURO KONDO AND S. IKAWA. *J. Pharm. Soc. Japan* **53**, 23(1933)(in German 2–7).—From the MeOH ext. of "Senso" (300 g.) K. and I. have isolated bufotalin (I), $C_{26}H_{36}O_6$, m. 107° and decomps. 134–6° (cf. Wieland, *C. A.* **17**, 73). Acetylation of I with anhyd. AcOH gave a compd., $C_{28}H_{38}O_7$, m. about 120°. Action of alc. KOH on I gave desacetylbufotalin (II), $C_{24}H_{34}O_5$, decomps. about 130°. II in glacial AcOH in the cold and dry HCl gave desacetylbufotalin chloride, $C_{24}H_{33}O_4Cl$, decomps. 140–5°; which on acetylation gave the Ac deriv., $C_{26}H_{35}O_5Cl$, decomps. 160–5°. I and dry HCl gave bufotalin chloride, decomps. 125–8°, while I and HBr gave the bromide, m. 100–14°. I and concd. HCl gave anhydrobufotalin chloride, m. 120–30°. Oxidation of I with $CrO_3$ gave bufotalone, $C_{26}H_{34}O_6$, m. about 135°. The oximes of I and desacetylbufotalin m. 225–6° and 150–5°, resp. Bufotoxin (cf. *loc. cit.*), $C_{40}H_{62}O_{11}N_4$, m. 145–6°. F. I. NAKAMURA

**Humic substances. III. Oxidation of humic substances obtained from phenols.** N. A. ORLOV AND N. D. LIKHACHEV. *J. Applied Chem.* (U. S. S. R.) **5**, 797–802(1932);

cf. *C. A.* **26**, 3485, 5078.—Oxidation of humic substances obtained from phenols by certain reactions also involving oxidation, yields $CO_2$, AcOH, oxalic, mellitic and various aromatic acids which are also obtained in the oxidation of natural humic substances or humic substances obtained from carbohydrates (sugar charcoal). Hydrogenation yielded among other compds. pyrene, the base of natural humic coals.
V. KALICHEVSKY

**A light-sensitive carotene pigment from saffron.** RICHARD KUHN AND ALFRED WINTERSTEIN. *Ber.* **66B**, 209–14(1933).—By the action of dil. NaOH on a freshly prepd. MeOH ext. of saffron, the authors have obtained, in addn. to the known crocetin di-Me ester (I), m. 222°, an *isomer* (II), m. 141°, differing from I in the color of the crystals, the position of the absorption bands in its spectrum, the form of the crystals and their soly. II forms rectangular elongated tablets with a color similar to that of azafrin (between hexaene and heptaene on the polyene color scale; under the microscope the crystals are pure yellow), sol. in 5900 parts MeOH at 20°, max. of the absorption bands 445, 424.5 mμ in benzine (b. 70–80°), 458, 432.5 mμ in $CHCl_3$. II is also considerably more sol. than I in ether, which permitted of its isolation. Its most striking property is the ease with which it changes into I: (1) when heated a long time at its m. p.; (2) when heated a short time in concd. benzine soln. with a trace of I; (3) when reduced with Zn dust in pyridine and a little AcOH to the S-yellow dihydro compd., which does not depress the m. p. (95°) of the dihydro deriv. of I and whose pyridine soln. on addn. of a little NaOH gives the characteristic deep green-blue color changed by shaking with air to orange with formation of I; (4) when exposed to light. The photochem. rearrangement occurs in various solvents (benzine, $CHCl_3$, pyridine, $CS_2$). Blue and violet light are the most effective, while red light has no action, as shown by comparative expts. with and without CuO-$NH_3$ filters. Neither is the ultra-violet part of the light the effective component, for the rearrangement occurs when the light is filtered through a diphenylhexatriene filter which allows no light beyond 415 mμ to pass through. With a 9-v., 3-amp. Kino lamp (Nitra Osram) at a distance of 35 cm. and an 8-mm. CuO-$NH_3$ filter (0.25% Cu) and an 8-mm. filter of a satd. soln. of diphenylhexatriene in xylene, the half-time value is 6 ± 2 min. and is hardly dependent on the nature of the solvent. With I, no change in the position of the absorption bands was noted; the photochem. equil. seems to lie entirely on the side of I. In the light-elec. photometry, for which much weaker intensities were used, there was apparently no appreciable rearrangement; below are the values of $\lambda_{max}$ (in mμ) and of the mol. extinction coeffs. ($\kappa_{max}/10^3$) for the 4 bands of longest wave length: II, 442, 216; 416, 236; 393, 144; (372), (76). I, 445.5, 258; 420, 240; 400, 158; (376), (82). The absorption curves, together with all other previous observations, indicate that II and I bear the same relation to each other as bixin and β-bixin, *i. e.*, that they are *cis-trans* isomers. From 1 kg. saffron were obtained 17.5 g. I and 0.3 g. II, but as the extraordinary lability of II was discovered only in the last stages of the purification it may well be that the saffron stigmas, if worked up when entirely fresh and protected from light, heat and catalysts, would yield considerably more II. In agreement with Karrer, it is suggested that the prefixes α- and β- in the bixin and crocetin series be discarded and that the stable, high-melting, *trans*-forms be called bixin I, crocetin I, etc., and the labile, low-melting, *cis*-forms be designated bixin II, etc. (cf. Wasserman, in Freudenberg's *Handbuch der Stereochemie*, 5. Lfg., S. 721, Vienna, 1932). C. A. R.

**The identification of carbon dioxide from the autoxidation of carotenoids.** H. H ESCHER. *Helv. Chim. Acta* **15**, 1421–4(1932).—Autoxidation of carotene results in the formation of $CO_2$ and a substance which reduces cold $NH_3$-$AgNO_3$. $CO_2$ is assumed to be a secondary product formed by oxidation of glyoxal, a decompn. product of the carotenoid. L. F. AUDRIETH

**Elemic acids from Manila elemi resin. VI. A new oxidation product of α-elemolic acid.** MILOŠ MLADENOVIĆ. *Monatsh.* **61**, 365–8(1932); cf. *C. A.* **26**, 4485.—Oxidation of α-elemolic acid with $CrO_3$ in AcOH gives a small quantity of *β-elemonic acid*, $C_{30}H_{46}O_3$, m. 220°, $[\alpha]_D^{20}$ 32.43° ($CHCl_3$). It apparently contains a CO group and yields an oxime. This may be identical with Ruzicka's δ-elemic acid (*C. A.* **26**, 4596). C. J. WEST

**Agar-agar. III.** EIJI TAKAHASHI AND KIYOSHI SHIRAHAMA. *J. Agr. Chem. Soc. Japan* **8**, 1259–66(1932); *Bull. Agr. Chem. Soc. Japan* **8**, 102–3(1932); cf. *C. A.* **26**, 5390.—Hydrato-kanten λ was freed of mineral components by electrodialysis and free λ-acid was obtained and named kanten-acid. Hydrato-kanten λ consists of the Ca salt of λ-acid. The electrodialyzed soln. was treated with a mixt. of alc., ether and benzene, and λ-acid was pptd. as a white powder. Or the λ-acid was isolated from the dialyzed soln. as the $NH_3$ salt by means of $NH_4Cl$ and 99% alc. λ-acid forms a colloidal aq. soln. and shows $[\alpha]_D$ is —31°. It contains 39.47% galactose, 8.17% pentose and 8% $SO_4$. Beside these, it contains a substance giving the ketose reaction and a hexose. Uronic acid and methylpentose could not be found. λ-Acid is unstable while the

metal and alkali salts are stable. The addn. of salts changes the viscosity of λ-acid soln. and the soln. is turned dark brown by $CaCl_2$ and yellowish brown by $NH_4Cl$.
Y. KIHARA

**The constitution of the bile acids. XLIX. Stereochemistry of bile acids and sterols.** HEINRICH WIELAND, ELISABETH DANE AND CARL MARTIUS. *Z. physiol. Chem.* **215**, 15–24(1933); cf. *C. A.* **27**, 988.—The double bond in 6-cholenic acid resulting from pyrolysis of 3-hydroxy-6-ketocholanic acid is shown to be in the 5,6-position by the fact that hydrogenation yields both cholanic and allocholanic acids. The 2 form a 1:1 mol. compd., m. 163°, which was identified by m.-p. diagram of the components. The m. p. of *allocholanic acid* was raised to 170° by distn. in a high vacuum and purification through the *Pr ester*, m. 103–4°. The unequal reactivity of cholanic acids having substituents in different rings was utilized in the prepn. of *β-3-hydroxy-6-ketoallocholanic acid* (I), m. 235° (decompn.), by partial hydrogenation of 3,6-diketoallocholanic acid (II). Pyrolysis of I gave *6-ketoallocholenic acid*, m. 122–4°, which was hydrogenated to *6-hydroxyallocholanic acid*, m. 220–4° (*Me ester*, m. 95°). Treatment of the semicarbazone of I with NaOEt and $N_2H_4 \cdot H_2O$ at 180–5° removed the O at $C_6$, yielding *β-3-hydroxyallocholanic acid* (III), m. 218° (*Me ester*, m. 151°). III is not identical with the acid previously prepd. by a similar treatment of the isomeric 3-hydroxy-6-ketoallocholanic acid. The two are epimers and bear the same relation to each other as β- and ε-cholestanol. Both yield *isoallolithobilianic acid*, m. 253–5°, when oxidized by $HNO_3$, as does also the dicarboxylic acid from cholestanol when oxidized by $CrO_3$. Hence the spatial arrangement at $C_6$ dets. whether ring A, with HO or O substitution at $C_3$, breaks open between $C_2$ and $C_3$ as in the allo-configuration, or between $C_3$ and $C_4$ as in the normal configuration.
A. W. Dox

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Germicidal activity of aromatic sulfides (MONESS, *et al.*) **17**. Electrolytic reduction potential of organic compounds (SHIKATA, TACHI) **2**. The S in wool (MULLIN, HUNTER) **25**. Sulfonation of pine-wood lignin (HÄGGLUND, CARLSSON) **23**. Graphic study of the relation of organic compounds to the percentages of elements (HIGASHI) **2**. Infra-red absorption spectra of aliphatic and aromatic hydrocarbons (LAMBERT, LECOMTE) **3**. Origin of creatine (THOMAS, *et al.*) **11F**. The solubility of certain substituted benzoic acids in typical salt solutions at 25° (PEARCE, NEWSOME) **2**. The velocities of hydrolysis of mono- and polyhydroxydiphenyl ketimines (CULBERTSON, NAUMAN) **2**. The velocities of hydrolysis of the 3 monomethoxydiphenyl ketimines (CULBERTSON, BRESSON) **2**. Spirit of turpentine (DESALBRES) **26**. Prodigiosin (WREDE, ROTHHAAS) **11C**. Thermal decomposition of ethyl mercaptan and ethyl sulfide (TRENNER, TAYLOR) **2**. The kinetics of the action of $NH_4$ halides on epichlorohydrin (BANERJEE, SEN) **2**. The thermal conversion of $C_2H_4$ and $C_2H_6$ into other hydrocarbons (FISCHER, PICHLER) **21**. Hydrocarbons (Brit. pat. 366,107) **22**. Effecting catalytic reactions (Ger. pat. 568,205) **13**. Br liberation from sea water (U. S. pat. 1,891,888) **18**. Thermal products from vitamin $D_2$ and their hydrogenation derivatives (BUSSE) **11E**.

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**Hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,494, Sept. 22, 1930. The conversion of $CH_4$ into hydrocarbons of higher mol. wt. is effected in app. constructed at least in part of Cr, Mo, W or alloys of these metals with each other, or of graphite. Among examples a gas contg. 86.4% $CH_4$ is passed through a graphite tube enclosed in a quartz or chamotte tube externally heated by an elec. furnace to 1000–1200°; the exit gas contains 64.5% $CH_4$ and 26.8% H, and the condensate boils below 110°. Cf. *C. A.* **27**, 1637.

**Hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,549, Sept. 29, 1930. The conversion of hydrocarbons into other hydrocarbons of lower H content is effected by passing them through a heated chamber contg. filling material in which are straight channels of uniform cross section so as to avoid irregular velocities tending to the deposition of C. The process is applicable to the cracking of hydrocarbons in the liquid

but particularly in the vapor phase, especially for the production of aromatic hydrocarbons and also the conversion of $CH_4$ into olefins, $C_6H_6$, etc.

**Sulfurized higher paraffin hydrocarbons.** I. G. FARBENINDUSTRIE A.-G. Brit. 360,993, Aug. 19, 1930. Sulfurized hydrocarbons and derivs. having a mercaptan- or sulfide-like character are made by treatment with a sulfurizing agent, *e. g.*, S or Na tetrasulfide, of (1) unsatd. aliphatic hydrocarbons contg. at least 8 C atoms, *e. g.*, cetene, or (2) the unsatd., halogen-free products obtained by the action of $NH_3$ or alkalies on halogenated higher paraffin hydrocarbons according to Brit. 339,962 and 343,948.

**Sulfurized higher paraffin hydrocarbon conversion products.** I. G. FARBENINDUSTRIE A.-G. Brit. 361,356, Aug. 19, 1930. Divided out of and addn. to 360,993 (preceding abstr.). The process of Brit. 360,993 is applied to (1) halogenated paraffin hydrocarbons contg. at least 8 C atoms, or (2) conversion products of polyhalogenated derivs. of higher paraffins obtained according to Brit. 339,962 and 343,948, so far as they are unsatd. and still contain replaceable halogen.

**Conversion products of higher paraffin hydrocarbons containing sulfur.** I. G. FARBENINDUSTRIE A.-G. Brit. 361,357, Aug. 19, 1930. Divided out of, and addn. to 360,993 (2nd preceding abstr.) as modified by 361,356 (preceding abstr.). Disulfides and sulfonic acids are obtained by oxidizing the sulfidic products of 360,993 and 361,356. The water-insol. disulfides first obtained yield sulfonic acids on further oxidation. The products are useful in the textile and pharmaceutical industries.

**Oxidation of polycyclic hydroaromatic hydrocarbons.** GEORG SCHROETER. Ger. 568,338, Nov. 13, 1927. 5,6,7,8-Tetrahydronaphthalene is treated in the liquid phase with air or other gas contg. O at 50–100° in the presence of a fatty acid salt of a metal having more than one valency, *e. g.*, an oleate of Co, Pb or Mn. The reaction is stopped when 0.2–0.33 of the equimol. amt. of O has been taken up, and the mixt. is then distd. Unchanged hydrocarbon and dihydronaphthalene are separately distd. off, and a residue of 5-ketotetrahydronaphthalene remains. Octahydroanthracene, octahydrophenanthrene and other "benzopolymethylenes" may be similarly treated to produce unsatd. polycyclic hydrocarbons and cyclic ketones. Thus, octahydrophenanthrene and -anthracene yield, resp., *3, 4, 5, 6, 7, 8, hexahydrophenanthrene*, $b_{13}$ 174°, and ketoöctahydrophenanthrene; and *3, 4, 5, 6, 7, 8, hexahydroanthracene* and 1-ketoöctahydroanthracene.

**Olefin derivatives.** N. V. DE BATAAFSCHE PETROLEUM MAATSCHAPPIJ. Fr. 739,266, June 29, 1932. Mixed ethers are prepd. by causing an olefin capable of giving a tertiary deriv. to react with an alc. in the presence of a catalyst at a temp. below 150°, preferably below 100°. Thus, isopropyl *tert*-butyl ether is prepd. from iso-PrOH and isobutylene in the presence of $H_2SO_4$. Other examples are given.

**Brominated hydrocarbon derivatives.** IVAN F. HARLOW and OTTO C. ROSS (to Dow Chemical Co.). U. S. 1,891,415, Dec. 20. In forming a brominated hydrocarbon such as $CHBr_3$, molten $AlCl_3$ is added to the corresponding chlorinated hydrocarbon such as $CHCl_3$ while maintaining the temp. of the reaction mixt. below the b. p. of the chlorinated compd. An arrangement of app. is described.

**Dehydration of organic compounds.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,892, Nov. 27, 1930. For the catalytic dehydration of org. compds. the catalyst is rigidly applied to inner surfaces of the app. through which the heat necessary for the reaction is conducted from an exterior source, *e. g.*, it may be coated on to the inner or outer surfaces of ribbed tubes the opposite surfaces of which are heated electrically. The patent is applicable to the conversion of hydroxy compds. into unsatd. hydrocarbons, glycols into oxides, alc.-acid mixts. into esters and acids into anhydrides. Specified catalysts are (1) $NaH_2PO_4$ alone or mixed with red P or $Al(OH)_3$ and (2) $NaPO_3$ and bauxite.

**Organic compounds containing active iodine.** F. RASCHIG G. M. B. H. (Walter Prahl, inventor). Ger. 568,240, Oct. 3, 1930. Sulfo derivs. of AcH, acetone or acetophenone, having the sulfo group (s) linked to a CH group adjacent to the CO group, are treated with I or reagents yielding I under such conditions that the HI formed is continuously neutralized or eliminated. The reaction may be effected in aq. soln. at atm. temp. Iodo compds. which readily evolve I, particularly in acid soln., are obtained. Examples are given of the prepn. of $(SO_3K)_2ICCHO$; $(SO_3K)IHCCOCH_3$; $(SO_3K)$-$IHCCOCHI(SO_3K)$; $PhCOCHISO_3K$; and a Na iodoacetonetrisulfonate.

**Modified Friedel-Crafts reaction.** ADOLF KAUFMANN. Brit. 367,292, July 23, 1930. See Ger. 555,403 (*C. A.* **26**, 5101).

**Alcohols.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,553, Oct. 2, 1930. Alcs. of high mol. wt. are obtained from waxes, hydrogenation products of esters of animal or vegetable oils, or from the destructive oxidation products of paraffin waxes, etc., by distg. these materials, after conversion of any esters present into free acids and alcs., with steam or vapors of a volatile liquid at a pressure below 100 mm. at a temp. above the b. p. of the volatile liquid at the pressure chosen but below that at which the constituents

of the initial materials other than alcs. are distd. Among examples montan wax and the waxy cake obtained by sapon. of carnauba wax are thus treated.

**Aliphatic alcohols.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,003, Nov. 5, 1930. Alcs. of high mol. wt., suitable for the *prepn. of ointments, creams* and *polishing compns.*, are made by reduction with H and a catalyst of the oxidation products of liquid or solid non-aromatic hydrocarbons, such as paraffin wax or oil, and the alcs. are then extd. from the product by water-sol. aliphatic alcs., or their esters with fatty acids contg. up to 3 C atoms, in the presence of $H_2O$.

**Aliphatic alcohols.** ROBERT B. LEBO (to Standard Oil Development Co.). Brit. 367,282, Aug. 28, 1930. A mixt. of alkyl sulfates, contg. appreciable amts. of secondary and tertiary compds., *e. g.*, isopropyl, secondary amyl, secondary hexyl, tertiary butyl and tertiary amyl sulfates, obtained by absorbing oil-refinery gas in $H_2SO_4$, is hydrolyzed and the alc. mixt., after sepn. from oil, is sprayed into a packed column heated at the base to about 107° by a countercurrent of steam. The aq. alc. is condensed and the aq. $H_2SO_4$ collected. App. is described.

**Hydroaromatic alcohols.** SCHERING-KAHLBAUM A.-G. Brit. 366,244, Jan. 25, 1930. See U. S. 1,857,880 (*C. A.* **26**, 3804).

**Esters.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,106, Sept. 22, 1930. Nitriles obtained by condensation of $C_2H_2$ with $NH_3$ or amines are sapond., *e. g.*, at 50–250°, while in the vaporous state and while adding a vaporizable alc. in the liquid or gaseous state and, if desired, O. In examples AcOEt is produced by sapon. of the nitriles with EtOH, and a mixt. of glycol monoacetate with a little glycol diacetate by sapon. with ethylene glycol. Cf. *C. A.* **27**, 996.

**Carboxylic acid esters.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,680, June 16, 1930. Carboxylic acid esters, especially those of EtOH and PrOH, are obtained by heating mono- and dialkyl sulfates, or mixts. thereof with free $H_2SO_4$, with carboxylic acids such as formic, acetic or benzoic acid under conditions such that during the process, after any free $H_2SO_4$ initially present has been eliminated, no free $H_2SO_4$ or only very small amts. thereof appear. This may be effected by adding to the alkyl sulfates sufficient neutral sulfate, *e. g.*, $(NH_4)_2SO_4$, to fix any $H_2SO_4$ originally present or produced as acid sulfate or by first adding enough MgO, $Na_2CO_3$, etc., to neutralize the free $H_2SO_4$ and subsequently adding a further sulfate.

**Hydroxy carboxylic acid esters.** AKTIENGESELLSCHAFT FÜR STICKSTOFFDÜNGER. Brit. 366,443, July 29, 1929. See Fr. 699,675 (*C. A.* **25**, 3359).

**Glycol ethers.** ANGLO-PERSIAN OIL CO., LTD., STANLEY F. BIRCH and WM. D. SCOTT. Brit. 367,353, Oct. 17, 1930. See Fr. 725,245 (*C. A.* **26**, 4825).

**Organic compounds such as ketones and acids.** HEINRICH HOPFF and MANFRED DUNKEL (to I. G. Farbenind. A.-G.) U. S. 1,891,930, Dec. 27. For production of compds. such as propionic acid, ketones, etc., reaction is effected at over 10 atm. pressure between CO and Al or B halide such as $AlCl_3$ or $BF_3$ and a halogenated non-aromatic hydrocarbon such as EtCl or the like.

**Ketones from secondary alcohols.** HERRMAN SANDKUHL (to Rheinische Kampfer-Fabrik Ges. m. b. H.). U. S. 1,892,011, Dec. 27. See Fr. 696,658 (*C. A.* **25**, 2734).

**Hydroaromatic ketones.** OTTO DIELS and KURT ALDER (to I. G. Farbenind. A.-G.). U. S. 1,891,043, Dec. 13. Products of various flower-like odors are obtained by condensing hydroaromatic mono- or poly-cyclic aldehyde of the formula $CHY^1.CX:CX.CHY^2.CHX.CHCHO$, where at least one but not more than 3 of the positions marked X, $Y^1$ and $Y^2$ are occupied by methyl, the others by H, or $Y^1$ and $Y^2$ jointly stands for $—CH_2—CH_2—$ in which case the X's are H or one X is methyl, with ketones contg. the group $CH_3—CO$ (new $\alpha,\beta$-unsatd. hydroaromatic ketones being obtained). The aldehydes used may be obtained by condensing $\alpha,\beta$-unsatd. aldehydes as for instance acrolein, crotonaldehyde or the like with compds. which contain a system of conjugated double bonds as for instance butadiene, alkylbutadiene, cyclopentadiene or cyclohexadiene. As condensing agents there are used alk. products as for instance caustic alkalies, alc. K/Na methoxide or $Ba(OH)_2$. Numerous details of procedure and examples are given, for the production of products of the formula $CHY^1.CX:CX.CHY^2.CHX.CHCH:CHCOR$, where R stands for an org. radical of the group consisting of methyl, ethyl and phenyl, wherein at least one but not more than three of the positions marked X, $Y^1$ and $Y^2$ are occupied by methyl, the others by H or $Y^1$ and $Y^2$ jointly stand for $—CH_2—CH_2—$ in which case the X's are H or one X is methyl.

**Amides of the benzene, naphthalene and acenaphthene series.** LEONARD J. HOOLEY and JOHN THOMAS (to Scottish Dyes, Ltd.). U. S. 1,891,159, Dec. 13. A process involving submission of sulfonated aromatic amines of these series one or more times

to condensation with a nitro acyl chloride and reduction of the product to the corresponding amine after each condensation and then condensation of the product thus obtained with an aliphatic or aromatic acyl chloride which does not contain a nitro group, or the condensation of 1-naphthylamine-4,6,8-trisulfonic acid with *p*-nitrobenzoyl chloride followed by reduction and treatment with benzoyl chloride is applied to the production of compds. such as benzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-1-aminonaphthalene-4,6,8-trisulfonic acid as well as the following products which may be obtained intermediately: *p*-aminobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-1-aminonaphthalene-4,6,8-trisulfonic acid; *p*-nitrobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-1-aminonaphthalene-4,6,8-trisulfonic acid; *p*-aminobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-1-aminonaphthalene-4,6,8-trisulfonic acid; *p*-nitrobenzoyl-*p*-aminobenzoyl-*p*-aminobenzoyl-1-aminonaphthalene-4,6,8-trisulfonic acid. Numerous examples with details of procedure are given.

**Condensation products of the anthraquinone series.** ALBIN PETER (to Chemische Fabrik vorm. Sandoz). U. S. 1,891 317, Dec. 20. By condensing α-aminoanthraquinone with diethyl malonic ester (I) in the presence of a small proportion of NaOAc, a carbethoxypyridine m. 312–16° (decompn.) is obtained. Similarly, 1,5-diaminoanthraquinone and acetoacetic ester (II) yield a product which is probably a dianthrapyridone, a brown powder not m. below 360° and insol. in quinoline or other usual org. solvents. 1-Methylamino-4-bromoanthraquinone (III) and I form carbethoxymethyl-4-bromoanthrapyridone, m. about 184°. III and II form acetylmethyl-4-bromoanthrapyridone, m. about 242°. 1-Methylamino-5-chloroanthraquinone and II form 5-chloro-1-methylanthraacetylpyridone, m. about 263°. 1-Amino-2-methyl-4-bromoanthraquinone and I form a product m. about 311° (decompn.), and by using II there is formed acetyl-2-methyl-4-bromoanthrapyridone (decompd. at 350°). 1-Amino-2,4-dibromoanthraquinone (IV) and I form the carbethoxy-2,4-dibromoanthrapyridone, m. 292° (decompn.). IV with II forms acetyl-2,4-dibromoanthrapyridone, m. about 333° (decompn.). 1-Amino-4-methoxyanthraquinone (V) and II form acetyl-4-methoxyanthrapyridone, m 316° (decompn.). I and V form the carbethoxy-4-methoxyanthrapyridone, m. 292° (decompn.). 1,5-Aminohydroxyanthraquinone (VI) and I form the carbethoxy-5-hydroxyanthrapyridone, m. (after recrystn.) 311° (decompn.). VI and II form 5-hydroxyanthraacetylpyridone, m. (after recrystn.) 306° (decompn.). 1-Amino-2-bromo-4-*p*-toluinoanthraquinone and I form 4-*p*-toluino-2-bromoanthracarbethoxypyridone and corresponding products may be derived from the anilino, xylidino, chloroanilino, phenylenediamino and similar derivs. 1-Amino-2-methyl-4-bromoanthraquinone and benzoylacetic ester form a benzoylpyridone, does not m. below 350°. Besides NaOAc, there may be used as condensing agents other acetates, formates, nitrites, carbonates, borates and sulfites of alkali metals and other weakly basic compds. such as CaO or MgO. Numerous details of procedure are given.

**3-Aminoacridine and its substitution products.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,024 Nov. 14, 1930. See Ger. 547,983 (*C. A.* **26**, 3522).

**Acridinium compounds.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,037, Nov. 14, 1930. Divided out of 367,024 (preceding abstr.). Quaternary derivs. of 3-aminoacridines are prepd. by treating 3-aminoacridine, or such substitution products thereof as contain halogen, alkyl or alkoxy groups in the benzene ring not substituted by the amino group, all of which compds. are substituted in the amino group by a substituent which can be split off, *e. g.*, an acyl group, with an alkylating agent, and subsequently splitting off the substituent from the amino group. Among examples 3-aminoacridine is treated with $Ac_2O$, the acetyl deriv. is methylated with *p*-toluenesulfonic acid methyl ester and the product is sapond. with HBr or HCl, yielding 3-amino-10-methylacridinium bromide or chloride.

**Polymerized vinyl compounds.** IMPERIAL CHEMICAL INDUSTRIES LTD. Brit 366,897, Aug. 6, 1929. Void. Vinyl compds. are polymerized by treatment with a polymerization catalyst in the presence of a liquid medium which is a solvent for the initial material but not for the polymer produced. Among examples vinyl acetate is polymerized using high-boiling gasoline as solvent and benzoyl peroxide as catalyst.

**Auromercapto compounds.** BOOT'S PURE DRUG CO., LTD., and FREDERICK O. HOWITT. Brit. 365,760, Jan. 6, 1931. A Au deriv. of glutathione is obtained by treating glutathione with a soln. of a Au salt and pptg. and sepg. the product. Examples are given.

**Compounds of the indole series by catalytic hydrogenation.** CURT SCHUMANN, EDUARD MUENCH and BRUNO CHRIST (to I. G. Farbenind. A.-G.). U. S. 1,891,057, Dec. 13. In effecting production of dihydroindole from indoxyl, or in effecting similar reactions with homologs, *N*-acyl, or *N*-acyl-*O*-acyl compds. derived from indoxyl or naphthoindoxyl, a H-contg. gas is used with a hydrogenation catalyst such as a Ni-Cu catalyst.

**Compounds of the anthraquinone series such as aminoanthraquinones.** PHILIP H. GROGGINS. U. S. 1,892,302, Dec. 27. β-Aminoanthraquinone is formed by heating 2-chloroanthraquinone with aq. $NH_3$ in an autoclave under pressure in the presence of Cu, $KClO_3$ and $NH_4NO_3$ at a temp. of 150–225°. Similarly, α-aminoanthraquinone may be formed from α-chloroanthraquinone and other similar reactions are mentioned.

**Halogenation products of the ketimides of acenaphth-*peri*-indandione and its derivatives.** WILHELM ECKERT and HEINRICH SIEBER (to General Aniline Works). U. S. 1,891,148, Dec. 13. See Ger. 561,080 (*C. A.* **27**, 994).

**Tribromoethane derivatives.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,581, Nov. 6, 1930. Oxygenated derivs. of α-tribromoethane are made by acting on the corresponding derivs. of α-trichloroethane with bromides, either added as such or produced in the course of the reaction. Among examples tribromoethanol is produced from trichloroethanol by the action of Br and Al turnings.

**Biphenyl derivatives.** I. G. FARBENIND. A.-G. Fr. 739,053, June 24, 1932. 2,5-Dialkoxy- or 2,5-diaralkoxy-biphenyls are nitrated and then reduced to produce 4-nitro and 4-amino derivs. which are *intermediates for dyes*. Examples are given of the prepn. of 4-nitro-2,5-dimethoxybiphenyl (m. 102–3°) and of its following derivs.: 4'-methoxy (m. 106°), 4'-phenyl (m. 159–61°), 3'-chloro (m. 127°), 3',5'-dichloro (m. 149–50°), 4'-methyl (m. 167°), 2'-methyl (m. 86–7°), 2'-chloro (m. 132–4°), 4'-chloro (m. 152–3°), 4'-benzoylamino (m. 187°), 3',4'-dichloro (m. 137°), 2',4'-dichloro (m. 125–7°), 3'-(ω-trifluoromethyl) (m. 139–40°), 2',4'-dimethyl (m. 126–7°), 4'-methoxy-2'-chloro (m. 132–3°), 4'-methoxy-3'-chloro (m. 127–8°), 4'-chloro-2'-methyl (m. 150–1°), 2'-methoxy-5'-methyl (m. 112–13°), 2',4',5'-trichloro (m. 156–7°), 3',4',5'-trichloro (m. 190–1°), 2',5'-dimethoxy-4'-chloro (m. 187–90°), 2',4'-dimethoxy-5'-chloro (m. 192–3°), 3'-methyl (m. 114°), 2'-methoxy (m. 114–16°), 3'-methylsulfonyl (m. 192°), 2',5'-dichloro (m. 147–8°), 5'-chloro-2'-methyl (m. 110–11°). The m. p's. of the corresponding 4-amino compds. are 89°, 125–6°, 213–14°, 68–9°, 161–3°, 103–4°, 116–17°, 131–2°, 101–2°, 150°, 113°, 100°, 67–8°, 99–100°, 112–13°, 101–3°, 106°, 107–8°, 126–7°, 175–6°, 175–9°, 148–9°, —, —, —, —, —. The following derivs. of 4-nitrobiphenyl are also prepd., 2,5-diethoxy (m. 92°), 2,5-dibutoxy (m. 41–2°), 2,5-dibenzyloxy (m. 136–8°), 2,5-dibutoxy-3'-chloro (m. 60°), and 2,5-diethoxy-3'-methyl (m. 75–6°). The m. p's. of the corresponding 4-amino compds. are 72–3°, 52–3°, 117–19°, —, —. Cf. *C. A.* **27**, 1001.

**Chelidamic acid derivatives.** SCHERING-KAHLBAUM A.-G. Fr. 738,843, June 20, 1932. Alkali metal salts of *o*-alkyl or *o*-aralkyl-diiodochelidamic acids are prepd. by causing Ag salts of dialkyl esters of diiodochelidamic acid to react with alkyl or aralkyl halides and sapong. with alkalies. The products are used as *contrast agents for Röntgen rays*. Examples are given of the prepn. of *o-methyl-* (m. about 125°), *o-ethyl-* (m. 174° with decompn.), *o-propyl-* (m. 156° with decompn.), *o-butyl-* (m. 145° with decompn.), *o-benzyl-* (m. 167° with decompn.), and *o*-allyl-3,5-diiodochelidamic acid (m. 143–4° with decompn.).

**Nitro derivative of butylcymene.** HENRI BARBIER. U. S. 1,892,128, Dec. 27. A dinitro deriv. of *tert*-butylcymene which m. 132° and has a musk-like odor is obtained by nitrating *tert*-butylcymene with fuming $HNO_3$ at 0° or a lower temp.

**Polymerizing and condensing unsaturated compounds.** HERMAN A. BRUSON (to Resinous Products & Chemical Co.). U. S. 1,892,101, Dec. 27. Aryl diazonium fluoborates such as phenyldiazonium fluoborate are used as catalysts in obtaining polymers or condensation products from unsatd. compds. such as indene, styrene, cyclopentadiene, coumarone, phenylbutadiene, pinene, isoprene, constituents of cracked gasoline or Hevea rubber. Numerous examples with details of procedure are given.

**Use of carbonyls such as iron carbonyl in effecting polymerization of hydrocarbons such as butadiene.** OTTO AMBROS, HANS REINDEL, JULIUS EISELE and JOHANNES STOEHREL (to I. G. Farbenind. A.-G.). U. S. 1,891,203, Dec 13. Various details of operation are described.

**Potassium formate.** EMIL HENE. Brit. 366,556, Oct. 8, 1930. See Ger. 542,696 (*C. A.* **26**, 3339).

**Naphthenates.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,666, June 2, 1930. Addn. to 335,863 (*C. A.* **25**, 1841). The method of 335,863 is modified by (1) effecting the drying *in vacuo*, preferably with the addn. of small amts. of readily volatile org. compds., *e. g.*, $C_6H_6$, and (or) (2) adding to the naphthenate, prior to or during the drying, liquid or readily fusible substances compatible with the naphthenate and reducing its m. p., *e. g.*, drying, semi-drying or non-drying oils, or their acids, or known plasticizers for cellulose derivs.; suitable addns. are linseed oil, castor oil, linoleic acid, triaryl phosphates, dialkyl phthalates, benzyl acetate, benzyl benzoate and butyl stearate. Cf. *C. A.* **26**, 2750.

**Derivatives of 2,3-hydroxynaphthoic acid.** I. G. FARBENINDUSTRIE A.-G. Brit.

366,140, Nov. 1, 1930. Alkoxy or alkylthio derivs. of 2,3-hydroxynaphthoic acid are made by the reaction of $CO_2$ under pressure on an alkali salt of an alkoxy or alkylthio deriv. of β-naphthol or on the free naphthol in the presence of an alkali carbonate. Among examples the Na salt of 6-methylmercapto-2-naphthol is treated with $CO_2$ to give 6-methylmercapto-2,3-hydroxynaphthoic acid. Cf. *C. A.* **27**, 1004.

**Substitution products of aminobenzenearsonic acid.** FRITZ MIETZSCH and HEINRICH KLÖS (to Winthrop Chemical Co.). U. S. 1,892,245, Dec. 27. By acylating the 4-(ω-aminoalkylamino)benzenearsonic acids or substitution products there are obtained new compds. of the probable general formula

AcNH—alk—NHC:CH.CR¹:C(AsO₃HR²).CH:CH, where Ac stands for a substituted or unsubstituted acyl group, for example, formyl, acetyl, propionyl, isobutyryl, valeryl, benzoyl, aminoacetyl, aminobenzoyl, etc., "alk" stands for an aliphatic normal or branched alkylene or hydroxyalkylene group, for example, methylene, ethylene, propylene, hydroxypropylene, isobutylene, etc., $R^1$ means H, OH or halogen, $R^2$ means H or an alkali or alk. earth metal. These new compds. possess a less basic character and are less sol. than the parent compds. and are distinguished by their stronger action against blood parasites, by a good resorption when taken *per os* and by their intoxicity. They are prepd. by boiling an org. acid of the stated kind with the 4-(ω-aminoalkylamino)benzenearsonic acid or a substitution product thereof or by the reaction upon the 4-(ω-aminoalkylamino)benzenearsonic acids or the substitution products thereof with an anhydride or a halide of the org. acids. The new products are preferably sepd. in the form of their alkali metal salts, if necessary, after adding the requisite amt. of a caustic alkali lye, for example, by evapg. the reaction mixt. to dryness, dissolving the residue in alc. and pouring the soln. obtained into a suitable org. precipitant, such as ether or acetone. Sometimes, however, the acids themselves sep. during the acylating process. The new acylated 4-(ω-aminoalkylamino)benzenearsonic acids and their alkali or alk earth metal salts are white or pale colored. The acids are sol. in inorg. acids forming the corresponding salts; they are also sol. in alkali lyes forming the corresponding alkali metal salts; they are insol. in acetone and ether and dil. HOAc and sparingly sol. in water and MeOH. The alkali metal salts dissolve in water and alcs., they are insol. in acetone and ether and can be pptd. by the latter from their alc. solns. Various examples are given, including the production of the Na salt of 4-ω-acetylaminoethylaminobenzenearsonic acid, the Na salt of 4-(ω-aminoacetylaminoethylamino)benzenearsonic acid, the Na salt of 4-(ω-acetylaminopropylamino)benzenearsonic acid, 4-(ω-benzoylaminoethylamino)benzenearsonic acid and 4-(ω-3′-aminobenzoylaminoethylamino)benzenearsonic acid. It is stated that corresponding derivs. may be obtained by reaction of higher aliphatic carboxylic acid chlorides such as decylic acid chloride or stearic acid chloride with 4-(ω-aminoalkylamino)benzenearsonic acids.

**Benzylmorphine salts.** ARTHUR STOLL and ERNST BURCKHARDT (to Chemische Fabrik vorm. Sandoz). U. S. 1,892,019, Dec. 27. See Fr. 709,787 (*C. A.* **26**, 1066).

**Acetylene chlorides.** I. G. FARBENIND. A.-G. Fr. 739,183, June 28, 1932. The gaseous mixts. obtained by the thermal or elec. production of $C_2H_2$, *e. g.*, from $CH_4$, are treated with Cl at a temp. between 80° and 146°.

**Guanidine thiocyanide.** GES. FÜR KOHLENTECHNIK M. B. H. (Wilhelm Gluud and Werner Schultze, inventors). Ger. 568,401, Dec. 13, 1930. See Fr. 728,156 (*C. A.* **26**, 5575).

**Halides of sulfonic acids.** I. G. FARBENIND. A.-G. Fr. 739,290, June 30, 1932 Salts of org. sulfonic acids are treated with benzenyl halides, such as $C_6H_5CCl_3$, or their substitution products, to form the halides. Examples are given.

**Saturated fatty acid nitriles.** WALTER REPPE and ULRICH HOFFMANN (to I. G. Farbenind. A.-G.). U. S. 1,891,055, Dec. 13. In forming a product such as propionitrile, a corresponding unsatd. aliphatic acid nitrile such as acrylic nitrile is subjected to catalytic hydrogenation in the presence of a Cu catalyst, under "mild conditions" of working.

**Bleaching crude fatty acids obtained by oxidizing hydrocarbons.** I. G. FARBENIND. A.-G. (Christoph Beck and Heinrich Diekmann, inventors). Ger. 568,130, Apr. 19, 1931. Addn. to 528,361 (*C. A.* **25**, 4728). The method of Ger. 528,361 is modified by using $HNO_3$ as the bleaching agent. The temp. and duration of the treatment may be lower than is recommended in Ger. 528,361. Cf. *C. A.* **26**, 5576.

**Acetic acid.** BRITISH CELANESE, LTD., HORACE F. OXLEY, WALTER H. GROOMBRIDGE and WM. CHALLIS. Brit. 366,022, Oct. 27, 1930. In the oxidation of liquid AcH to AcOH the gases or vapors leaving the reaction vessel are scrubbed with a liquid, preferably AcOH, and the scrubbings returned to the reaction liquor.

**Acetic acid.** HAROLD A. PATTERSON. Fr. 738,805, June 18, 1932. AcOH is made from a gaseous mixt. of MeOH and CO using a catalyst contg. W and one of the

following elements or mixts.: Be, Bi, Be and Bi, Be and Cu or Be, Bi and Zn. The major part of the active part of the catalyst is composed of oxide of W in which the oxidation state of the W is not below that represented by $W_2O_5$.

**Dehydrating acetic acid.** THE EASTMAN KODAK CO. Brit. 365,076, Oct. 14, 1930. See Can. 321,229 (*C. A.* **26**, 3265).

**Sulfonation of oleic acid.** FARB- UND GERBSTOFFWERKE CARL FLESCH, JR. Ger. 568,209, Aug. 25, 1923. Oleic acid is treated with an excess of $H_2SO_4$ at a low temp., and the product is freed from excess $H_2SO_4$ in known manner, washed if desired, and finally purified by dialysis. Sulfoöleic acids are thus obtained as solid hygroscopic substances. An example is given. The salts of the acids may be prepd. by standard processes, and *are of therapeutic value*. The prepn. of Hg and Cu salts is described.

**Carboxylic acids.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,997, Oct. 15, 1930. The destructive oxidation in the liquid state of difficultly volatile solid, semi-solid or liquid non-aromatic hydrocarbons of at least 8 C atoms or mixts. of such hydrocarbons or waxes is effected by blowing with a gas contg. free O in the presence of about 0.1–1% by wt. of the initial material of alk. catalysts consisting of alkali metal compds., the oxidation being carried on until the product has an acid value above 40 but not above 120. Colorless products, contg only very small amts. of hydroxy carboxylic acids and lactones, and suitable for working up into soaps and emulsifying agents, are thus obtained. Catalysts mentioned are NaOH, $K_2CO_3$ and the Na salt of a mixt. of carboxylic acids obtained by the destructive oxidation of paraffin.

**Hydroxy carboxylic acids.** ALEXANDER WACKER GES. FÜR ELEKTROCHEMISCHE INDUSTRIE G. M. B. H. Fr. 738,815, June 18, 1932. Aromatic hydroxy carboxylic acids are prepd. by the action on alkali or alk. earth compds. of phenols, naphthols, hydroxyquinoline, etc., with $CO_2$ in the presence of solvents. The free OH compds. may be used as solvents.

**Hydroxybenzocarbazolecarboxylic acids.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,597, Mar. 19, 1930. See Ger. 553,627 (*C. A.* **26**, 5576).

**Benzanthrone-*peri*-dicarboxylic acid and its derivatives.** GEORG KRÄNZLEIN, HEINRICH GREUNE and HEINRICH VOLLMANN (to General Aniline Works). U. S. 1,892,241, Dec. 27. Benzanthrone-*peri*-dicarboxylic acid is prepd. by heating 4-benzoyl-1,8-naphthalic anhydride with $AlCl_3$ and is a yellow compd. the anhydride of which crystallizes from $PhNO_2$ in yellow needles m. above 300°. Various details and modifications of procedure are given. Chlorobenzanthrone-*peri*-dicarboxylic anhydride is formed by heating 4-*p*-chlorobenzoyl-1,8-naphthalic anhydride with $AlCl_3$, NaCl and successively added portions of powd. pyrolusite. Benzanthrone-*peri*-dicarboxylic acid-*N*-phenylimide is formed from 4-benzoyl-1,8-naphthal-*N*-phenylimide by heating with $AlCl_3$. It crystallizes from glacial HOAc as yellow needles m. above 300°.

**Anilinesulfonic acids.** I. G. FARBENINDUSTRIE A.-G. Brit. 365,421, April 4, 1930. Addn. to 341,612 (*C. A.* **25**, 5041). See Ger. 541,258 (*C. A.* **26**, 1942).

**Sulfonic acids of piperidine, etc.** I. G. FARBENIND. A.-G. Fr. 738,842, June 20, 1932. Sulfonic acids of piperidine, tetrahydroquinoline and their alkyl homologs are prepd. by treating sulfonic acids or sulfonates of the pyridine or quinoline series with H in the presence of solvents and hydrogenating catalysts. Examples are given of the prepn. of *piperidine-3-sulfonic acid* (decomposed without melting at 320–330°), *α-pipecoline-β-sulfonic acid* (m. 315–320° with decompn.), *py-tetrahydroquinoline-6-sulfonic acid* (m. 258° with decompn.), *γ-pipecoline-β'-sulfonic acid* and *α-methyl-β'-ethylpiperidine-β-sulfonic acid*.

**Purifying non-volatile organic acids such as phthalic acid or the like.** ALPHONS O. JAEGER (to Selden Co.). U. S. 1,892,396, Dec. 27. For sepg. non-volatile org. acids which are capable of forming volatile anhydrides from relatively volatile org. acids or anhydrides, a mixt. of these with other assocd. org. substances volatile with steam is subjected to the action of steam at a temp. below that at which the non-volatile acid material would be transformed into anhydrides, to effect selective steam distn.

**Granulated phthalic anhydride.** LLOYD C. DANIELS and CHRISTIAN J. SCHWINDT. U. S. 1,891,754, Dec. 20. Phthalic anhydride in the form of granules having a hard glazed outer surface is prepd. by solidifying a liquid coating of phthalic anhydride upon the surface of solid phthalic anhydride particles.

**Granular crystalline material such as phthalic anhydride.** OSCAR V. D. LUFT and CHRISTIAN J. SCHWINDT. U. S. 1,891,891, Dec. 20. Solid particles of cryst. material are agitated and there is simultaneously added further quantities of the same material in molten form, so that the heat given off on solidification of the molten material is taken up by the solid product to produce a slowly hardened covering contg. interwoven crystals.

**Halogenated phthalic anhydrides.** CECIL SHAW and JOHN THOMAS (to Imperial Chemical Industries, Ltd.). U. S. 1,891,843, Dec. 20. A nitro-substituted phthalic

anhydride such as 3-nitrophthalic anhydride is treated with a halogen such as Cl until at least one nitro group is replaced by a halogen atom, suitably at a temp. of about 240°.

**Acetylene.** I. G. FARBENIND. A.-G. Fr. 739,289, June 30, 1932. $C_2H_2$ prepd. by thermal or elec. means is freed from biacetylene, allylene and other impurities by washing the gas with org. liquids such as $PhNO_2$, gas oil, halogenated hydrocarbons, mineral oils and fluid tars, under such conditions of temp. and pressure that the soly. of the $C_2H_2$ is small and that of the impurities high.

**Dichloroethylene.** CONSORTIUM FÜR ELEKTROCHEMISCHE INDUSTRIE G. M. B. H. Brit. 366,348, May 8, 1930. See Fr. 714,995 (*C. A.* **26**, 1624).

**Acetone.** HANS MEERWEIN and HEINRICH MORSCHEL (to Schering-Kahlbaum A.-G.). U. S. 1,891,333, Dec. 20. Vapor of EtOH or acetaldehyde is passed, together with steam, over a contact mass contg. a mixt. of an oxide of Sn with an oxide of a rare earth metal or of Th, Zr or Zn or an alk. earth metal carbonate. Cf. *C. A.* **26**, 4347.

**Glycols.** ANGLO-PERSIAN OIL CO., LTD., ALBERT E. DUNSTAN and STANLEY F. BIRCH. Brit. 365,589, Sept. 18, 1930. See Fr. 725,150 (*C. A.* **26**, 4827).

**Glyoxalines.** BOOT'S PURE DRUG CO., LTD., ALEXANDER P. T. EASSON and FRANK L. PYMAN. Brit. 365,281, Dec. 20, 1930. 1-Substituted glyoxalines are prepd. by condensing acetalylthiocarbimide with an amine and converting the resulting thiocarbamide into the glyoxaline deriv. in known manner. Examples are given of the prepn. of 1-(8-quinolyl)glyoxaline, 1-$\beta$-hydroxyethylglyoxaline, etc.

**Protocatechualdehyde and its substitution products.** FRANZ ELGER (to Hoffmann-La Roche Inc.). U. S. 1,891,149, Dec. 13. By reaction of $H_2O_2$ in alk. soln. on compds. such as 4-hydroxyisophthalaldehyde, OH is substituted for the *o*-aldehyde group, forming protocatechualdehyde, etc. Similarly, 4-hydroxy-5-methoxyisophthalaldehyde yields the 3-methyl ether of gallaldehyde, m. 135°.

**1,7-Dihydroxynaphthalene.** I. G. FARBENINDUSTRIE A.-G. Brit. 366,600, Nov. 8, 1930. 2,8-Dihydroxynaphthalene-6-sulfonic acid, 2,8-dihydroxynaphthalene-3,6-disulfonic acid, 7-amino-1-hydroxynaphthalene-3-sulfonic acid or 7-amino-1-hydroxynaphthalene-3,6-disulfonic acid is heated with dil. acid under pressure. $H_2SO_4$, HCl, HCOOH and $H_3PO_4$ are used in examples. Cf. *C. A.* **26**, 1000.

**Mercaptobenzothiazoles.** ALBERT M. CLIFFORD (to Goodyear Tire & Rubber Co.). U. S. 1,891,198, Dec. 13. See Brit. 357,760 (*C. A.* **26**, 5972).

**1-Phenyl-2,3-dimethyl-5-pyrazolone.** SOCIÉTÉ DES USINES CHIMIQUES RHONE-POULENC. Brit. 367,797, Nov. 19, 1930; Ger. 568,297, July 12, 1931. See U. S. 1,859,002 (*C. A.* **26**, 3808).

**Purifying 1-amino-2-chloroanthraquinone.** SCOTTISH DYES, LTD. Ger. 568,210, Sept. 14, 1926. A soln. of the crude product in concd. $H_2SO_4$ is dild. with water until the sulfate of 1-amino-2-chloroanthraquinone is pptd. The sulfate is sepd. and decompd. in known manner.

***l*-Menthol.** SCHIMMEL & Co. A.-G. (Otto Zeitschel and Harry Schmidt, inventors). Ger. 568,085, May 23, 1926. *d*-Neomenthol (I) is boiled for some hrs. with an alkali metal or a light metal *e. g.*, Mg or Al, or an alcoholate of any of these. A nonracemic mixt. contg. *l*-menthol (II) is obtained, which is enriched in II by standard processes, *e. g.*, by fractionation or crystn. or by esterification followed by partial sapon. II is then sepd. from the enriched mixt. as such or as *l*-menthyl benzoate, and the other menthol polymers obtained in the process, together with unchanged I, are boiled again with alkali metal, etc. II is obtainable similarly from *d*-isomenthol (III) or *l*-isoneomenthol (IV) or mixts. contg. them, such as the products obtained by hydrogenating optically active menthenones or menthenols. II may also be prepd. by converting I, III or IV or their mixts. into menthones, and reducing these to a mixt. of menthols, from which II is isolated as indicated above. Examples are given.

**3-Menthene.** SCHERING-KAHLBAUM A.-G. Brit. 367,593, Mar. 20, 1930. See Fr. 713,357 (*C. A.* **26**, 1626).

**Camphene.** RHEINISCHE KAMPFER-FABRIK G. M. B. H. Brit. 366,727, Mar. 21, 1930. See Fr. 711,011 (*C. A.* **26**, 1626).

**Separation of allo-*p*-ketocamphor from *p*-ketocamphor.** KENZÔ TAMURA, GYOKUZYO KIHARA, YASUHIKO ASAHINA and MORIZÔ ISIDATE. Japan. 94,795, Feb. 29, 1932. *p*-Ketocamphor obtained by oxidation of borneol ester contains its isomer, allo-*p*-ketocamphor, which is more sol. in petroleum ether (b. 30–50°) or pentane. They can be sepd. by means of these solvents.

**Biphenyl.** THOMAS E. WARREN and CHARLES B. DURGIN (to Swann Research, Inc.). U. S. 1,891,514, Dec. 20. $C_6H_6$ vapor is passed through a molten inorg. salt such as NaCl and $CaCl_2$ which has a m. p. below the biphenyl-forming temp. and which is inert to the $C_6H_6$ vapors and is heated to a temp. (suitably about 800°) suitable for biphenyl formation, and the resulting vapors are condensed. Cf. *C. A.* **27**, 103.

**Aminobiphenyls.** I. G. FARBENIND. A.-G. Fr. 739,052, June 24, 1932. Amino-

biphenyls and their derivs. are prepd. by causing, as far as possible in the absence of moisture, hydrocarbons of the $C_6H_6$ series to react on *N*-haloacyl derivs. of amino compds. of the $C_6H_6$ series in the presence of a metal halide having a condensing action and with or without a diluent, and sapong. the reaction product. Examples are given of the prepn. of the following derivs. of $Ph_2$: 3-methyl-4-acetamido, m. 158°; 3-methyl-4-amino, m. 43°; 3-carboxy-4-acetamido, m. 205–6°; 3-ethyl-4-acetamido; 3-ethyl-4-amino; 3,4′-dimethyl-4-acetamido, m. 199–200°; 3,4′-dimethyl-4-amino, $b_4$ 205–7°; 3-methyl-4-acetamido-4′-chloro, m. 226°; 3-methyl-4-amino-4′-chloro, m. 125°; the corresponding bromo compds.; 4-benzamido-3-methyl, m. 189°; 3,5-dimethyl-4-acetamido, m. 203–4°, and 3,5-dimethyl-4-amino.

**Chlorinated biphenyl.** RUSSELL L. JENKINS (to Swann Research, Inc.). U. S. 1,892,397, Dec. 27. In producing a product such as a chlorinated biphenyl, Cl gas is introduced into the bottom of a mass of material such as biphenyl in the presence of an Fe catalyst and flow of the material over the catalyst is induced by the action of the gas. App. is described and claim is made to a non-uniformly chlorinated biphenyl contg. 40–55% Cl and of specified viscosities depending on the Cl content.

**Mononitrobiphenyls.** ERNEST H. HUNTRESS, CAMPBELL R. MCCULLOUGH and CHARLES F. BOOTH (to Swann Research, Inc.). U. S. 1,891,543, Dec. 20. A suspension of biphenyl in an acid soln. contg. $HNO_3$ below substantial nitrating strength is treated with concd. $H_2SO_4$ to effect the nitration reaction.

**Styrene.** GEORGE L. DOROUGH (to E. I. du Pont de Nemours & Co.). U. S. 1,892,386, Dec. 27. In producing a vinylbenzene such as styrene, a quaternary salt of the corresponding halogenated ethylbenzene is formed, sepd. and broken down, as by heating the pyridine salt derived from chlorinated ethylbenzene at 275–300° under reduced pressure.

# 11—BIOLOGICAL CHEMISTRY

PAUL E. HOWE

## A—GENERAL

ARTHUR W. DOX

**Flocculation of coloring materials, chemically definite artificial colloids, in the organism.** MAURICE PIETTRE. *Compt. rend.* **196**, 298–300(1933).—Living histologic elements possess selective permeability to colloidal substances, in the absence of electrolytes. The absorption and the effects of various pos. and neg. colloidal coloring materials are considered. PHILIP D. ADAMS

**Recent advances in the study of enzymes.** B. WOOLF. *Nature* **129**, 928–30 (1932).—A summary of a recent discussion. B. C. A.

**Observations of the nuclear picture after hydrolysis and after "nucleal" staining. An additional contribution to the "nucleal" reaction.** HARTWIG KUHLENBECK AND KURT VOIT. *Anat. Anz.* **74**, 1–20(1932).—The "nucleal" reaction of Feulgen and Rossenbeck is based on the ability of thymonucleic acid in histological prepns. after mild partial hydrolysis at 60° in *N* HCl for 4 min. to split off guanine and adenine; the aldehyde groups thus freed can react with Schiff's reagent to form a bluish violet dye. The nuclear structure examd. in sections of liver and kidney of rats and mice was not altered by hydrolysis. Appearance and location of "nucleal" bodies revealed by the technic are described. B. C. BRUNSTETTER

**The formation of methylacetylcarbinol by enzyme action. II. Methylacetylcarbinol by enzyme action on proteins.** WALTER CIUSA. *Ann. chim. applicata* **22**, 747–53(1932); cf. *C. A.* **27**, 1058.—Methylacetylcarbinol is formed by the action of trypsin and papain on whole milk, egg white and blood serum. Hence the substance is derived, by enzyme action, from proteins and not from sugars. A. W. CONTIERI

**The specific action of lipase. III. The specific action of liver lipase of various animals.** JOSEPH C. KERNOT AND H. W. HILLS. *Z. physiol. Chem.* **215**, 8–9(1933); cf. *C. A.* **26**, 4070.—Lipase prepns. from the livers of 17 species of animals, both wild and domestic, were examd. for preferential cleavage of the optical isomers of Et *dl*-mandelate. In 13 cases the liberated acid was *d*-rotatory, in 3 it was optically inactive, and in 1 it was *l*-rotatory. Higher lipase content was found in the livers of domestic animals compared to those of wild animals. A. W. DOX

**The autoxidation of amino acid derivatives with animal charcoal and hemin. I.** FRANZ BERGEL AND KARL BOLZ. *Z. physiol. Chem.* **215**, 25–34(1933).—Active charcoal, from which the adsorbed gases have been removed by evacuation and replaced by $CO_2$-free $O_2$, catalyzes the oxidation of amino acids in an atm. of $O_2$. The 1st step in the reaction is probably a dehydrogenation to imino acid, since quinone, alloxan, methyl-

ene blue and other H-acceptors act in the same manner. The final products are aldehyde, $CO_2$ and $NH_3$. A comparison of alanine and leucine shows that the longer chain reacts much more rapidly. Dipeptides and diketopiperazines do not react at all. Monosubstitution and especially dialkyl substitution in the $NH_2$ renders the amino acid much more reactive, but further substitution to the betaine abolishes all reactivity. The N-substituted amino acids yield the corresponding mono- or dialkylamine instead of $NH_3$. Three possibilities for the 1st intermediate product here are the $NH_4$ base $R_2(OH)N{:}CR'CO_2H$, the amine oxide $R_2(O{:})NCHR'CO_2H$, and the amine peroxide $R_2(O_2)NCHR'CO_2H$. The 1st is excluded by the easy oxidation of $Me_2NCH_2CO_2H$ where the C chain is not capable of dehydrogenation, the 2nd by the stability of $Me_2(O{:})NCH_2CO_2H$, while the 3rd is rendered probable by the demonstration of active O by means of starch-KI. Dialkylamino acids, in contrast to the natural primary amino acids, are catalytically oxidized by hemin, evidently through the peroxide stage. On the other hand, the kidney enzyme which deaminates natural amino acids does not attack dialkylamino acids. The kidney enzyme is therefore a typical dehydrogenase, while hemin functions as an oxidase. Charcoal acts as either dehydrogenase or oxidase, depending on the substrate. A. W. Dox

**Catalase. V. The catalase activity of hemin complexes.** Kurt G. Stern. *Z. physiol. Chem.* **215**, 35–46(1933); cf. *C. A.* **27**, 109.—The activities of Fe ions, hemin and catalase, in terms of mols. of $H_2O_2$ decompd. in a given time under identical conditions, are represented by the values $10^{-5}$, $10^{-2}$ and $10^{5}$, resp. A no. of hemin complexes were prepd. in the hope of obtaining one or more with an activity approaching that of catalase. Among the simpler derivs. were complexes of protohemin with $MeNH_2$, glycine, pyridine, piperidine, α-picoline, *l*-tyrosine and nicotine, also with the imidazole derivs., imidazole, 4-methylimidazole, *l*-histidine, histamine, imidazolecarboxylic acid, benzimidazole and pilocarpine. The activities varied from $1.96 \times 10^{-2}$ to $8.65 \times 10^{-2}$ at the $p_H$ optima. Various hemin-protein complexes, including reconstructed hemoglobin, methemoglobin, hemochromogen and cathemoglobin, and the globin complexes of various hemins, gave values ranging from $0.37 \times 10^{-2}$ to $6.5 \times 10^{-2}$. In no case did the order of magnitude even remotely approach that of catalase. A. W. Dox

**Cleavability and solubility of sterol digitonides.** R. Schönheimer and H. Dam *Z. physiol. Chem.* **215**, 59–63(1933).—The sterol digitonides are much less stable and insol. than previously supposed. They tend to sep. into their components when recrystd. from a solvent. This property is advantageous in the purification of sterols, especially where oxidation and heating are to be avoided. After dissolving the digitonide in pyridine and pptg. the digitonin by $Et_2O$, the sterol is obtained pure by simple evapn of the filtrate. When the digitonide method is used in sterol analysis the greatest caution must be used in interpreting the results. Cholesterol, dihydrocholesterol and coprosterol, and their digitonides, all have different solubilities. The completeness of pptn. depends not only on the excess of precipitant used but varies also with different prepns. of digitonin. The error may be as much as 10%, or even greater in the examn of feces where all 3 of these sterols are present. A. W. Dox

**The directive influence of sulfhydryl on intracellular transformation of protein and carbohydrate.** E. Waldschmidt-Leitz, L. Weil and A. Purr. *Z. physiol. Chem.* 215, 64–6(1933).—Cathepsin, papain, glyoxalase and alc. fermentation all require activation by SH; arginase requires an SH-metal complex. $ICH_2CO_2H$ suppresses these enzyme activities by reacting with and destroying the SH. Where SH is an inhibitor, as with phosphatase, the addn. of $ICH_2CO_2H$ serves as activator for the same reason. SH compds. occupy a central position in directing intracellular transformation of protein and carbohydrate and the oxidoreduction processes. The preponderance of lactic acid fermentation in anaerobically developing cells, *e. g.*, malignant tumors, in consequence of lowered O potential, is effected by SH. A. W. Dox

**The prevention of alcohol precipitation of proteins by alkali.** Leonhard Nasch. *Kolloid-Z.* **62**, 93–7(1933).—The min. amt. of alkali required to prevent pptn. by alc is related to the no. of free $NH_2$ groups of the protein. Globulin only shows regularity in dil. soln. and below 33% alc. Arthur Fleischer

**Biophysical chemistry of colloids and protoplasm.** V. Cofman. *Chem. News* **145**, 1–3(1932). G. G.

**Vegetable proteins. I. Preparation of purified edestin.** G. Florence, J. Enselme and M. Pozzi. *Bull. soc. chim. biol.* **15**, 135–46(1933).—A method of prepg very pure edestin is described. Variations of the method yield edestins with slightly different optical properties. The purest product contained 18.7% N. Absorption spectrum curves are given. L. E. Gilson

**Some general remarks on the relative composition of the ultrafiltrant and ultrafiltrate [of protein solutions].** H. Chabanier, C. Lobo-Onell and E. Lélu. *Compt rend. soc. biol.* **112**, 147–50(1933). L. E. Gilson

**Some notes on the history of biochemistry.** H. D. Barnes. *J. S. African Chem. Inst.* **16**, 1–8(1933). E. H.

**Enzymes from the standpoint of the chemistry of invertase.** John M. Nelson. *Chem. Rev.* **12**, 1–42(1933).—A review. Methods of obtaining and purifying invertase are described and the kinetics of the hydrolysis of sucrose by invertase are considered. Numerous references are given. Louise Kelley

**Proteolytic enzymes and the coagulation of casein.** Sukeharu Nishimura. *J. Agr. Chem. Soc. Japan* **8**, 1323–34(1932).—Casein or milk is coagulated by taka-diastase, papain and pancreatin. When casein is partially hydrolyzed by protease of the tryptase type in the presence of Ca, coagulation may occur. Rennin could not be demonstrated in the protease prepns. With pepsin the coagulation occurs on a slight hydrolysis. The influence of temp., $p_H$ and absorption was the same for hydrolysis as for coagulation of casein by pepsin. Hence both hydrolysis and coagulation of casein may be attributed to the same enzyme (pepsin). Y. Kihara

**The chemical aspects of embryonic heterogony.** Joseph Needham. *Bull. soc. philomathique Paris* **115**, 11–57(1932).—Huxley's equation, $y = bx^K$, where $x$ represents the size of the total organism and $y$, the size of any one of its parts, is applied to data from the literature on embryonic growth. In general, the isogonic constituents are water, protein N and total P; those of pos. heterogony are total fats and heat values; those of neg. heterogony are phospholipides, phosphonucleins, nonprotein N, ash and org. extractives. Most of the lines are based on data for bird embryos but some are worked out for mammalian and human embryos. Emphasis is placed on the idea that heterogony affords a means for exact expression of the growth of an organism, as a whole, and of any of its parts, at any stage. Mary E. Lear

**The permeability and hemolytic action of the fatty acids and some of their halogen derivatives.** M. Bodansky. *J. Exptl. Biol.* **10**, 59–66(1933).—The halogen derivs. are more readily taken up by the red cells than the fatty acids. C. M. McCay

**Chemical constituents of biological importance in the English Channel, November, 1930, to January, 1932. I. Phosphate, silicate, nitrate, nitrite, ammonia.** L. H. N. Cooper. *J. Marine Biol. Assoc. United Kingdom* **18**, 677–728(1933).—The cyclical variations in the P, Si and various N forms in the waters of the English Channel have been detd. The anal. methods and their modifications for these elements are also given. **II. Hydrogen-ion concentration, excess base, carbon dioxide and oxygen.** *Ibid* 729–53.—The earlier findings of the cyclical variations of $p_H$ in the waters of the English Channel have been confirmed. During 9 months the partial pressure of $CO_2$ in the water is lower than that of the atm. The rate of transfer of $CO_2$ from the air to the sea is much greater than can be accounted for from existing lab. exptl. data regarding the rate of penetration of water by gases. Si is used several times over each season in building phytoplankton. About 1400 metric tons of phytoplankton develop each year under a sq. km. of water surface. About 0.06% of this phytoplankton is harvested as fish. C. M. McCay

**The specificity of hemoglobins including embryonic hemoglobin.** Hilda Trought. *Arch Disease Childhood* **7**, 259–62(1932).—Hemoglobins obtained from various sources appear to vary in the rate at which they are decompd. by 0.25 *N* NaOH. The time required for the disappearance of the $\alpha$- and $\beta$-absorption bands of oxyhemoglobin from normal and pathol. human bloods is 40–60 min.; from blood of newborn infants, 2 hrs.; from the blood of infants 1.5 months of age, 35–60 min.; from rabbit blood, 20–28 min. and from sheep blood, more than 5 hrs. E. R. Main

**A class experiment on coenzymic activity.** H. D. Jenner and H. D. Kay. *J. Lab Clin. Med.* **17**, 1272–3(1932). E. R. Main

**The question of identity of lipase and pancreatic esterase.** Giovanni Lo Monaco. *Arch intern. pharmacodynamie* **42**, 387–99(1932).—Data are given to show that temp. expts. are not always reliable for detg. whether 2 or more enzymic reactions are accomplished by one enzyme. P. F. Metildi

**Oxidative deamination of amino acids by methylglyoxal.** Bruno Kisch. *Biochem. Z.* **257**, 334–6(1933).—Of the several amino acids studied (glycine, glycylglycine, glycyltryosine, serine and alanine) glycine undergoes the greatest oxidative deamination in the presence of methylglyoxal, the opt. $p_H$ being 11. The dipeptides are deaminated only in mere traces. S. Morgulis

**The destruction spectrum of urease.** Fritz Kubowitz and Erwin Haas. *Biochem. Z.* **257**, 337–43(1933).—Urease prepd. according to Sumner was irradiated with ultra-violet rays ranging from 196 to 366 m$\mu$. The curves of the absorption spectrum of the urease and of the destruction of the enzyme coincide. S. Morgulis

**Plasma protein, cholesterol and the sedimentation rate in different animal species.** Bertil Swedin. *Biochem. Z.* **257**, 411–19(1933).—In the blood of cow, horse, dog, goat, hedgehog and rabbit no correlation was found between the concn. of the different

protein fractions and the sedimentation rate. Thus, cow blood with the highest fibrin content has the slowest rate of sedimentation. In a no. of bloods the sedimentation rate varies inversely with the amt. of easily extractable cholesterol. S. MORGULIS

**Optical activity and coagulation of the decomposition products of casein. II.** BR. JIRGENSONS. *Biochem. Z.* **257**, 427–36(1933); cf. *C. A.* **26**, 3530.—Hammarsten's casein was decompd. by heating with glycerol. The max. coagulation was found at $p_H$ 4.3 for the OH in 5.8 *M* concn. or 24%; EtOH 3.6 *M* or 22%; PrOH 2.1 *M* or 16%. At $p_H$ 6.9 max. coagulation occurs at 3.5, 3.0 and 2.6 *M*; at $p_H$ 7.4 at 2.2, 2.8 and 3.4 *M*, resp. There are also striking changes in optical rotation of the decompn. products. S. MORGULIS

**Origin of the primary catalase of cow milk.** ANTON ZEILINGER. *Biochem. Z.* **257**, 450–62(1933).—Generally there is an unmistakable parallelism between the daily av. values for the catalase content of the blood and of the milk of cows. The milk fat is also an important factor detg. the milk catalase, which is thus regarded as the resultant of these 2 independent factors. The milk catalase seems to vary inversely with the sp. gr. of the fat-free dry residue of milk, but varies directly with the total quantity. In cows of different ages and different phases of lactation the catalase activity on the av. is equiv. to 2.41 cc., 0.1 *N* $KMnO_4$ or 4.1 mg. $H_2O_2$. S. MORGULIS

**The rennin enzymes.** A. HEIDUSCHKA AND W. SCHMIDT. *Biochem. Z.* **257**, 463–6(1933).—Various condiments inhibit the rennin activity through liquidity or basicity or they stimulate it through their effect on viscosity, dispersion or acidity. Only phenols and tannins inhibit in spite of their acidity. The effect on the rennin manifests itself not only in the hindering or promoting of coagulation but also in the degree of fineness of the coagulem. S. MORGULIS

**The yellow oxidation enzyme.** OTTO WARBURG AND WALTER CHRISTIAN. *Biochem. Z.* **257**, 492(1933); cf. *C. A.* **27**, 1646.—A cryst. dye obtained from the yellow oxidation enzyme m. 321° (decompn.) and contains no ash, halogen or S. Dried *in vacuo* at 58° its elementary compn. corresponds to the formula $(C_{13}H_{12}N_4O_2)_n$ or possibly $(C_{12}H_{12}N_4O_2)_n$. S. MORGULIS

**Studies on vital oxidation of succinic acid in air or pure oxygen at different $p_H$ values.** JÖRGEN LEHMANN. *Skand. Arch. Physiol.* **86**, 291–304(1933).—The oxidation of succinic acid with succin-hydrogenase requires more $O_2$ in an O atm. than in air at $p_H < 7.4$ but less $O_2$ at $p_H > 7.4$, while at $p_H$ 7.4 the utilization of $O_2$ is independent of its partial pressure. S. MORGULIS

**The purity of different insulin preparations.** NIELS A. NIELSEN. *Skand. Arch. Physiol.* **86**, 305–10(1933).—The purity of an insulin prepn. is tested by its ability to produce primary hyperglucemia or, still better, glycogen mobilization in a perfused liver. Cryst. insulin is not identical with pancreas hormone. S. MORGULIS

**The iodine and goiter problem in New Zealand.** C. E. HERCUS AND H. A. A AITKEN. *J. Hyg.* **33**, 55–79(1933).—Common seaweeds on the Pacific Coast of Otago have an I content of the same order as similar species on the Pacific Coast of British Columbia. *Cystophora retroflexa* contains over 0.1% of I, of which 70–80% is inorg. Diiodotryosine is also present. Administration of anesthetics produces fluctuations in the concn. of blood I in rabbits, the effect persisting after removal of the thyroid, and apparently only the inorg. I being involved. New Zealand cabbage has goiterogenic properties for rabbits but to a smaller degree than American cabbage. J. T. M.

**Synthesis and enzymic cleavage of galactose-6-phosphoric ester.** BROR HVISTENDAHL. *Svensk Kem. Tids.* **44**, 156–62(1932); cf. *C. A.* **26**, 96.—Galactose phosphoric ester is prepd. from diacetone galactose and $POCl_3$ and isolated as the Ba salt. The Na salt at $p_H$ 8.8 is used in enzyme studies. Phosphatase from bone and kidney split off inorg. P, the former being the more active. The phosphate is split off by yeast and bound by carbohydrate and the $C_6H_{12}O_6$ fermented. From the fermenting mixt. a monophosphate galactose was isolated but this is not identical with the synthesized compd., having $[\alpha]$ +81° instead of +35°. A. R. ROSE

**Olof Hammarsten.** ANON. *Svensk Kem. Tids.* **44**, 311(1932).—Obituary. A. R. ROSE

**The mercury-reducing power of certain amino acids.** CH. SANNIÉ AND R. TRUHAUT. *Compt. rend.* **196**, 65–7(1933).—Nessler's reagent is reduced to Hg by glycine, serine, histidine, tryptophan, proline, creatine, creatinine, cystine, dihydroxyphenylalanine and phenyl-β-alanine (distinction from phenyl-α-alanine). It is not reduced by any other amino acids, but in some cases gives a yellow ppt. The reduction accounts for part, if not all, of the reducing power of plasma hydrolyzates, formerly ascribed to carbohydrates derived from the proteins. K. V. THIMANN

**Protein structure and protein hydration.** DOROTHY JORDAN LLOYD AND HENRY PHILLIPS. *Trans. Faraday Soc.* **29**, 132–48(1933).—A valuable theoretical paper, followed by a general discussion. FRANK URBAN

**Direct irradiation by ultra-violet light causes in the dog a slight decrease of the calcium content of the blood; subsequent removal of the parathyroids is, as usual, followed by lowered calcemia.** JEAN CHEYMOL AND ALFRED QUINQUAUD. *J. pharm. chim.* **16**, 233–5(1932); cf. *C. A.* **26**, 5631, 5632.—By direct exposure of 2 dogs to the light of a Hg-vapor lamp for 20 min. every other day for 3 weeks, normal calcemia was reduced by 4.6 and 8.2%, resp.; after the thyroid app. was removed, calcemia after 1 day had decreased by 30 and 27%, resp., and in both cases by 54% after survival, for 4 and 2 days, resp. S. WALDBOTT

**Physicochemical researches on suspensions prepared from proteins separated from serum by the acetone method.** CHARLES ACHARD AND AUGUSTIN BOUTARIC. *Compt. rend.* **195**, 1196–7(1932).—Sepd. proteins are suspended in $H_2O$ and the physicochem. characteristics compared with those of proteins in pure serum. The viscosity, optical density, surface tension and adsorption by C are measured. The results show that this method of sepn. respects the integrity of the protein mol., so long as the period of preservation is short. R. P. WALTON

**Coenzymes and banana respiration.** J. M. NELSON AND CATHARINE HEMPERLY. *J. Am. Chem. Soc.* **55**, 1102–6(1933).—An aq. ext. of crushed banana pulp contains material which activates the glucolytic action of yeast apozymase. Pressed juice from banana pulp also contains this activator. The aq. ext. may be heated to boiling for a few min. without loss of its activating property, but when evapd. on the steam bath to dryness at $p_H$ 6.4, it is rendered inert. The glucolytic activator is more resistant to acid ($p_H$ 1) than to alkali ($p_H$ 9.4). It dialyzes through a collodion membrane. The effect of the activator, in the crude ext., on yeast apozymase is much less than that of yeast cozymase; the effect is increased by small quantities of $MgCl_2$ but hardly at all by $Ac_2O$. The ext. from the banana pulp also contains phosphatase and carboxylase. C. J. WEST

**Supplementary notes to previous works on lecithins.** YOSHIKUNI YOKOYAMA AND BUNSUKE SUZUKI. *Proc. Imp. Acad.* (Tokyo) **8**, 490–1(1932).—Photomicrographs are given for 6 lecithins isolated from the human brain or soy beans; the unsatd. fatty acids are brominated in all cases. C. J. WEST

**A kind of am-hexose occurring in the organism.** YASHIRO KOTAKE AND MEIJI NISHIGAKI. *Proc. Imp. Acad.* (Tokyo) **8**, 507–10(1932).—It is believed that the tissues contain a previously unknown hexose, termed *vitamose*, characterized by its labile properties. It may be pptd. by $CdSO_4$ and liberated by $H_2S$; it yields a phenylosazone, m. 205° and a 2,4-dinitrophenylhydrazone, m. 240°. It resembles glutathione in many respects and may interfere with the detn. of glutathione in animal tissues. C. J. WEST

**The action of pancreatic extract on glycine in a glycerol medium.** R. WOLFF AND MLLE. LAFRANÇAISE. *Compt. rend.* **196**, 221–3(1933).—Two g. of a 3% soln. of glycine in glycerol was weighed into Erlenmeyer flasks with 4 g. of a glycerol ext. of fresh pork pancreas having a lipase strength of 60–65 Willstätter units. The water content was 13%. The flasks were kept at 37° and variations in the no. of COOH groups were followed by the method of Willstätter and Kuhn. Titrations of control solns. of glycerol ext. of pancreas showed a slight but progressive increase. In the glycerol medium the no. of COOH groups decreased slightly but irregularly. In the presence of 6% alc. the decrease was 20–30% depending on the $p_H$ (5–9). This work supports the hypothesis that pancreatic lipase can effect the biochem. esterification of amino acids. ANNE E. WHITE

Spectrographic study of phlorhizin and its derivatives (LAMBRECHTS) **10.** The binding of biocolloids (HOROWICZ) **2.** The production of kynurenic acid from tryptophan derivatives (BERG) **10.** Identification and biochemical oxidation of α-glucoheptulitol (KHOUVINE, NITZBERG) **10.** Physical chemistry of biocolloids (MALQUORI) **2.** Osmotic pressure and membranes (HIRONAKA) **2.** Transference and conductivity studies on solutions of certain proteins and amino acids (SCHMIDT) **2.**

**Biochemisches Handlexikon.** Edited by EMIL ABDERHALDEN. **Bd. XIV.** Proteine, Pyrollderivate, Tierische Farbstoffe und synthetische Porphyrine. Gallenfarbstoffe. Sterine. Nucleinsäuren, Nucleotide, Nucleoside. Edited by LAWRENCE W. BASS, *et al.* Berlin: J. Springer. 963 pp. M. 123; cloth, M. 126. Cf. *C. A.* **26**, 2206.

HENDERSON, ANDREW: **Practical Chemistry: for Students of Medicine.** Glasgow: Alex. Stenhouse, Ltd. 193 pp. 7s. 6d.

**Medizinische Kolloidchemie.** Edited by LICHTWITZ, LIESEGANG AND SPIRO. Lfg. 1. **Allgemeine Kolloidlehre.** Dresden: T. Steinkopff. 80 pp. M. 6.50; bound, M. 7.30.

STERN, KURT G.: **Enzymatische Konstanten.** Berlin: Junk. 15 pp. M. 2.

**Proteinases from peptidases.** WILHELM NEUGEBAUER (to Kalle & Co. A.-G.).

U. S. 1,892,247, Dec. 27. HCl of 5% strength is caused to act on a soln. of pancreas trypsin until the soln. has attained a $p_H$ of 3.5; the mixt. is allowed to stand for a short time and is then treated with a $Na_2CO_3$ soln. until a $p_H$ of about 8 is reached. Cf. *C. A.* **26**, 5591.

**Drying and curing casein curd.** FRANK L. CHAPPELL. U. S. 1,892,233, Dec. 27. Various details of app. and procedure are described relating to curing of casein particles by treatment in suspension with currents of heated air into which steam is injected.

## B—METHODS AND APPARATUS

STANLEY R. BENEDICT

**Tables for the microdetermination of urea in the blood and urine according to the method of E. K. Marshall as modified by Van Slyke and Cullen.** O. DA RIN AND C. PASTORINO. *Rass. clin. terap. sci. affini* **31**, 306–32(1932). LEWIS W. BUTZ

**Properties of collodion membranes from various nitrocelluloses.** W. LINNHOFF. *Kolloid Z.* **62**, 10–13(1933).—For osmotic measurements on hemoglobin solns., the membrane must be non-permeable to the colloidal constituent, have a high permeability for water and crystalloid electrolytes, and have mech. strength to withstand pressures to 150 cm. $H_2O$. The solns. must be prepd. from moisture-free chemicals and should be poured in a dry atm. Directions are given for prepg. satisfactory membranes from dil. solns. of high-viscosity nitrocelluloses. A. FLEISCHER

**The composition of the unsaturated fatty acids of animal tissues.** H. G. SMITH. *Proc. Iowa Acad. Sci.* **38**, 171–2(1931).—Very little information is available as to the compn. of the unsatd. fatty acids of animal tissues, especially as regards the location of the double bonds. This is a report of preliminary expts. on the fatty acids of beef heart-muscle and liver. The unsatd. acids were sepd. by 2 methods of crystn of the Br derivs. and fractional distn. of the Me esters. The method of Armstrong and Hilditch was used for the oxidation of the unsatd. acids and the results obtained up to this time indicate that the first double bond nearest the carboxyl group is in the 9·10 position. Azelaic acid is the only dibasic acid which has been sepd. from the oxidation products. Evidence of the formation of other dibasic acids has been obtained, but these have not been identified as yet. W. G. GAESSLER

**Application of ultrafiltration to the determination of blood sugar in biological chemistry.** HERMANN SCHMIDT-HEBBEL. *Anales quim. farm.* **2**, 15–18(1933); cf. *C. A.* **27**, 128.—The prepn. and use of collodion filters are described. Of the total Ca of whole blood, 27–30% is present in the serum in colloidal form, retained by the filter, or 45–50% in the plasma. L. E. GILSON

**Technic of the ultrafiltration of blood plasma and laked corpuscles.** H. CHABANIER, C. LOBO-ONELL AND E. LÉLU. *Compt. rend. soc. biol.* **112**, 142–6(1933). The app. and methods of prepg. collodion bags are described. L. E. GILSON

**The comparative value of chlorobenzene and thymol when used with fluoride as preservatives of blood for chemical analysis.** ROBERT C. LEWIS AND GLENN E. MILLS. *Am. J. Clin. Path.* **3**, 17–28(1933).—Samples of blood to which 0.275 g. KF and 0.2 g PhCl per 20 cc. of blood have been added may be preserved for 8 days without appreciable changes in their nitrogenous constituents. The combination, PhCl and KF, appears to be a more effective preservative than thymol and KF. E. R. MAIN

**Hemoglobin standards.** RUSSELL L. HADEN. *Am. J. Clin. Path.* **3**, 85–95(1933). E. R. MAIN

**An improved method for the determination of blood urea nitrogen by direct nesslerization.** WALTER F. TAYLOR AND WM. M. BLAIR. *J. Lab. Clin. Med.* **17**, 1256–63 (1932).—The blood is allowed to react with a highly concd. prepn. of urease which is pptd. with the proteins by $Na_2WO_4$ and $H_2SO_4$. The filtrate may be nesslerized directly. E. R. MAIN

**A simple vacuum-tube potentiometer for the measurement of glass electrode potentials.** H. B. VAN DYKE AND RALPH D. BENNETT. *J. Lab. Clin. Med.* **17**, 1268–71 (1932). E. R. MAIN

**A new ureometer.** C. CARREZ. *Bull. sci. pharmacol.* **40**, 22–8(1933). A. E. MEYER

**Supplement to T. Osuka's semi-micro method for the determination of carbon in biological fluids.** H. R. KANITZ. *Biochem. Z.* **257**, 361–2(1933); cf. *C. A.* **26**, 2480.—Biol. fluid absorbed by anhyd. $Na_2SO_4$ is oxidized by a mixt. of $K_2Cr_2O_7$, $H_2SO_4$ and $Ag_2Cr_2O_7$, and the $CO_2$ is absorbed under diminished pressure in 2 *N* KOH. The $K_2CO_3$ is changed to $BaCO_3$ which is easily centrifuged off and after washing is dissolved in a measured amt. of 0.1 *N* HCl, the excess acid being titrated with 0.1 *N* NaOH with 2–3 drops of a satd. alc. soln. of methyl red as indicator. S. MORGULIS

**Summary analysis of the unknown urinary substances.** K. HAGENGUTH. *Bio-*

*chem. Z.* **257**, 484–91(1933).—Dil. 4 cc. urine with 16 cc. $H_2O$, add 132 cc. MeOH, exactly 8 cc. 2 *N* HCl and 20 cc. 10% xanthydrol in MeOH. Filter the cryst. ppt. through a Jena glass tube 4, wash with MeOH and weigh after drying 20 min. at 80°. The wt. times 0.035645 gives the urea content per cc. urine. Neutralize the filtrate and washings with 2*N* NaOH and evap. to dryness *in vacuo* at 35–40°. Dissolve the residue in a little water and ext. 3–4 times with small amts. of purest ether to remove xanthydrol so that the last ext. leaves no residue on evapn. Acidify the soln. with $H_2SO_4$ and make up to 15 or 25 cc. with water. Treat another sample of urine with an equal vol. of a specially prepd. phosphotungstic reagent, shake 2–3 hrs. and filter through dry kieselguhr. Det. N on 1 cc. original urine, and on 2–3 cc. of the first and 3–6 cc. of the second filtrate, by the usual semi-micro Kjeldahl procedure. For the oxidation use 1–3 cc. and absorb the $CO_2$ in 2*N* KOH under diminished pressure. Ppt. the carbonate as $BaCO_3$ at boiling temp., centrifuge off and wash twice. Dissolve the $BaCO_3$ in a known amt. of 0.1 *N* HCl and titrate the excess with 0.1 *N* KOH; 1 cc. 0.1 *N* HCl equals 0.6 mg. C. The O detn. is carried out according to Kanitz (preceding abstr.).

S. MORGULIS

**A new microanalysis for the determination of uric acid in urine and blood.** ISTVÁN RUSZNYÁK AND ELLA HATZ. *Biochem. Z.* **257**, 420–6(1933).—The method follows essentially the most recent Folin technic.

S. MORGULIS

**The determination of blood types by the use of saliva.** H. MORI. *Japan. Z. Mikrobiol. Path.* **26**, 1438–50(1932).—The detn. of blood type was successful with saliva in 89% of the tests, as compared with human blood serum results, and was pos. in 92% with saliva over a year old.

I. S. YUN

HEILMEYER, LUDWIG: **Medizinische Spektrophotometrie.** Ausgewandte Methoden und neuere Untersuchungsergebnisse an Körperfarbstoffen und Körperflüssigkeiten. Jena: G. Fischer. 274 pp. M. 18; cloth, M. 19.50.

SIEYRO, JOSÉ E.: **Tecnica analitica del liquido cefalorraquideo.** Madrid: A. Marzo. 136 pp.

STOCKBAUER, HANNS: **Urin-Untersuchungen und ihre diagnostische Anwendung.** 2nd ed., revised. Munich: Müller & Steinicke. 73 pp. M. 2.90.

## C—BACTERIOLOGY

CHARLES B. MORREY

**Bacteriophage and the root-nodule bacteria.** D. G. LAIRD. *Arch. Mikrobiol.* **3**, 159–93(1932).—The bacteriophage is not sp. to one strain or species of *Rhizobium*. The optimum $p_H$ is 7.6–8.0. Gum produced by the bacteria inhibits bacteriolysis. Mannitol favors both gum formation and acid production.

B. C. A.

**B. caryocyaneus [Beijerinck-Dupaix] in a medium containing lithium.** P. LASSEUR, P. VERNIER, A. DUPAIX AND J. MARCHAL. *Compt. rend.* **194**, 1606–8(1932).—The presence of Li in a medium in which *B. caryocyaneus* is grown induces morphological changes assocd. with alterations in the permeability of the bacterial membranes and in the stability of suspensions of the bacteria in the presence of cations or of agglutinating serum.

B. C. A.

**Production of fluorescence by phytopathogenic bacteria.** F. LABROUSSE. *Compt. rend.* **194**, 2173–5(1932).—*B. tabacum* and *B. medicaginis* (var. *phaseolicola*) when grown on a beef ext. medium give rise to a definite fluorescence, but only when Mg and phosphate are present.

B. C. A.

**Thermal resistance of young and old bacteria and young and old bacteriophage.** BØRGE HEIBERG. *Z. Hyg. Infektionskrankh.* **114**, 425–8(1932).—The technic used failed to distinguish between young and old coli bacteriophage by thermal resistance although such differences can be observed between young and old cultures of *Es. coli*.

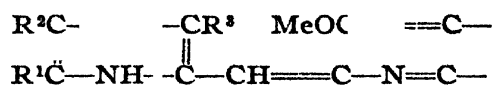
RACHEL BROWN

**Acid-alcohol mixtures and their germicidal action. I.** GEORG LOCKEMANN AND WERNER ULRICH. *Z. Hyg. Infektionskrankh.* **114**, 548–601(1932).—The germicidal action of acid (HCl and HSCN) is increased by the addn. of increasing amts. of EtOH, and solns. of low concn. of EtOH have increased germicidal activity when mixed with acid. Solns. of acid and alc. which alone are ineffective are strongly germicidal when mixed. The optimum sporicidal action is found in a mixt. contg. 7.5 to 12.5 molar HCl in 44 to 73% (vol.) alc.

RACHEL BROWN

**Prodigiosin, the red pigment of Bacillus prodigiosus. III.** FRITZ WREDE AND ALEXANDER ROTHHAAS. *Z. physiol. Chem.* **215**, 67–78(1933); cf. *C. A.* **26**, 5601.—In previous attempts to elucidate the structure of prodigiosin, $C_{20}H_{26}ON_3$, by a study of its decompn. products, a serious difficulty has been the failure to obtain cryst. substances other than simple end products. Two reactions, *viz.*, distn. with NaOH-CaO and oxida-

tion with $H_2O_2$ in AcOH, have now been found to yield well defined compn. products. Distn. of prodigiosin with NaOH-CaO, also distn. with Zn dust and reduction with HI-AcOH gave a pyrrole, $C_{10}H_{17}N$, which formed no picrate but coupled with $HO_3SC_6H_4N_2Cl$ to form an azo dye. Hydrogenation of the pyrrole gave a pyrrolidine $C_{10}H_{21}N$ which formed a chloroaurate m. 105° and a chloroplatinate m. 212° (decompn.). Treatment of the pyrrolidine with $Me_2SO_4$ introduced 2 Me groups, the product forming a cryst. chloroaurate which sintered 75° without sharp m. p. Oxidation of prodigiosin by $H_2O_2$ gave an oily product which was methylated by $CH_2N_2$ to a cryst. product, $C_6H_7O_2N$, m. 127° without basic properties. This contained 1 double bond, 1 MeO and 1 MeNH group Its properties suggested a *N-methylmethoxymaleic imide*. The latter was synthesized by converting hydroxymaleic anhydride into the *monoamide of methoxymaleic acid* m. 179.5° (evolution of gas) by treatment with $CH_2N_2$ and $NH_3$-MeOH, dehydrating this to *methoxymaleic imide* m. 169°, and methylating with $CH_2N_2$. The product was identical with the methylated oxidation product of prodigiosin. The imide evidently results from oxidation of a methoxylated pyrrole ring in prodigiosin. This and the $C_{10}H_{19}N$ pyrrole ring are present in a *dipyrrylmethene* structure. A 3rd ring contg. $C_4H_5N$ is lost in the oxidation. For the 1st 2 rings the structure



is proposed, with $R^1 + R^2 + R^3 = C_6H_{12}$. A. W. Dox

**Comparative growth rates of different strains of Rhizobium meliloti.** R. H. Walker and Dean A. Anderson. *Proc. Iowa Acad. Sci* **38**, 333–4(1931); cf. *C. A.* **25**, 1020, 2799.—The results seem to indicate that the organisms which are less efficient in fixing N grow faster in the presence of combined N or may require it for their growth; and that the more efficient organisms grow faster in the absence of combined N and may even be inhibited by its presence. M. G. Gaessler

**Chemical composition of bacteria. "Acid soluble" nitrogen and phosphorus compounds.** André Boivin and Lydia Mesrobeanu. *Compt. rend. soc. biol.* **112**, 76–9 (1933).—Suspensions of various species of bacteria (also yeast) were centrifuged and the sedimented puree was mixed with 10 vols. 0.25 *N* $CCl_3CO_2H$. After standing 3 hrs. in the ice box the mixt. was again centrifuged and the clear soln. analyzed. The cells were not changed in appearance by the treatment but 5–20% of the total N and 10–25% of the total P, depending on the species, were extd. by the acid. Grinding the cells with sand in the acid soln. did not increase the extn. of N and P compds. L. E. Gilson

**Bacteriophage and secondary lysis.** E. Wollman and Mme. E. Wollman. *Compt. rend. soc. biol.* **112**, 164–5(1933); cf. *C. A.* **26**, 4623.—During the lysis of bacteria by bacteriophage, anaerobiosis, bile, etc., enzymes are set free which can in turn produce lysis of cultures of the same species which are resistant to the original factor employed. It is proposed to call this enzymic lysis *secondary lysis*. L. E. Gilson

**Antiseptic action and surface tension. Action of three isomeric nitro-β-aminoethylaminoquinolines.** Daniel Bovet and Lucie Demanche. *Compt. rend. soc. biol* **112**, 270–2(1933).—8-Nitro-7-β-aminoethylaminoquinoline has very little antiseptic power and does not lower the surface tension of water. 5-Nitro-8-β-aminoethylaminoquinoline inhibits the growth of *E. coli* and *St. aureus* in 1:1000 soln., and in 1% soln lowers the surface tension 16 dynes (static method). 8-Nitro-5-β-aminoethylaminoquinoline has intermediate properties. L. E. Gilson

**Spectral properties of the pyocyanine secreted by Gessard's bacillus.** E. Vellinger. *Compt. rend. soc. biol.* **112**, 303–5(1933).—A method of isolating the pigment is described. The spectral absorption curves of the blue form ($p_H$ 9) and red form ($p_H$ 3) are given. The pigment changes color at $p_H$ 5–6. **Spectral properties of the pyoflavine which normally accompanies the pyocyanine in cultures of Gessard's bacillus.** *Ibid* 306–8.—The method of prepn., absorption curves and dissocn. curve are given. L. E. Gilson

**Action at a distance by Bacillus tumefaciens on rabbit bone marrow.** Eugénie Soru and R. Brauner. *Compt. rend. soc. biol.* **112**, 623–5(1933); cf. *C. A.* **27**, 118.—The expts. reported in *C. A.* **27**, 118 were repeated on *B. tumefaciens*, with substantially the same results. L. E. Gilson

**A study of the phosphorus distribution in bacterial cultures. III. The phosphatase activity of E. coli and staphylococcus.** J. Gordon and K. E. Cooper, *Brit. J. Exptl Path.* **13**, 503–8(1932).—When a suspension of killed bacteria, *E. coli* or staphylococcus, is incubated with a soln. of Na β-glycerophosphate, an increase in the inorg. P content of the liquid occurs as a result of (1) enzymic hydrolysis of the glycerophosphate, (2) enzymic hydrolysis of org. P compds. present in the bacteria, (3) non-enzymic hydrolysis of P compds, and liberation of inorg. P from the bacterial protoplasm into soln. The

magnitude of the second cause of increase (autolysis) appears to be greater than the first (glycerophosphatase action) with *E. coli*, and less with staphlococcus, but in both the presence of glycerophosphatase is definitely established. The third cause varies in magnitude for each strain chosen, and may assume considerable importance in accounting for the amt. of hydrolysis obtained. Finally, at $p_H$ 8.0–8.7 the non-enzymic hydrolysis of glycerophosphate (< 5%) is considered negligible. HARRIET F. HOLMES

**A silica bacterium.** A. BRUSSOFF. *Arch. Mikrobiol.* **5**, 1–22(1933).—*Bac. siliceus* n. sp. is described. It was isolated from the slime about wells. It is able to store and deposit silica particles in the spore or vegetative form. MILTON LEVY

**The bactericidal action of organic acids and their copper salts.** ALEXANDER JANKE AND FERDINAND BERAN. *Arch. Mikrobiol.* **5**, 54–71(1933).—The antiseptic and microbiosidal actions of a series of org. acids and their Cu salts on *M. albus*, *B. prodigiosum*, *Bac. subtilus*, *T. roseum* and *Monilia cinera* are detd. and tabulated. The potencies of the acids and salts are parallel. MILTON LEVY

**Biochemistry of bacterial spores.** ARTTURI I. VIRTANEN AND L. PULKKI. *Arch. Mikrobiol.* **5**, 99–122(1933).—Spores and vegetative forms of *Bac. mycoides* do not differ in their contents of water, ether-sol. material, hydrolyzable carbohydrates, N, or ash nor in their hygroscopic behavior. Catalase and glucolytic activity are assocd. with the vegetative form and not with the spore and the peptidase activity of the spores is much less. It is suggested that these differences in enzymic activity are related in the thermostability of the spores. MILTON LEVY

**A method for the proof of rennin formation by bacteria.** CONSTANTINO GORINI. *Arch. Mikrobiol.* **5**, 123–30(1933).—The coagulation of sterilized milk poured over a well-developed agar culture of the organism to be tested is observed. Rennin formation occurs independently of the presence of milk. Long periods of observation show that parasitic bacteria form rennin and that it is formed by bacteria previously considered inactive and which do not liquefy gelatin. MILTON LEVY

**Further studies on the influence of surface tension on the action of certain disinfectants.** G. MAZZETTI. *Boll. soc. ital. biol. sper.* **7**, 1396–400(1932); cf. *C. A.* **26**, 2761.—The reason why the lowering of surface tension does not increase the germicidal action of salicylic acid is probably due to the low $p_H$ of the soln. which might prevent the concn. of the disinfectant on the surface of liquid phase. PETER MASUCCI

**The influence of sugar concentration on acid fermentation by certain bacteria.** V. CIANCI. *Boll. soc. ital. biol. sper.* **7**, 1439–42(1932).—*E. coli*, *B. bulgaricus* and *B. massol* were each grown in broth contg. 0.1, 0.5 and 1.0% glucose. In the 0.1% glucose broth *E. coli* produced a max. amt. of acid within 24 hrs.; the amt. gradually decreased so that at the end of the 5th day the culture was slightly alk. The other 2 organisms did not behave similarly. They produced gradually increasing amts. of acid with max. values very much higher than that of *E. coli*. At higher glucose concns. *E. coli* either failed to produce a substance which neutralized the acid, or if it did, it was masked by the acid reaction. PETER MASUCCI

**The use of Bacillus acidophilus for clinical purposes.** CURBELO AND A. HERNÁNDEZ. *Anal. vias dig. sangre nutr.* **2**, No. 4 (1930); *Rev. sudamericana endocrinol. inmunol. quimioterap* **15**, 693(1932).—*Lactobacillus acidophilus* Moro is preferable to *L. bulgaricus*. Cultures of not more than 48 hrs. in sugar broth or milk are most effective. A. E. MEYER

**Lactic acid in culture media of microörganisms.** P. LAVIALLE AND P. R. BOHN. *Bull. sci. pharmacol.* **40**, 20–2(1933).—When culture media or their $Et_2O$ ext. is evapd. lactic acid is lost. For detn. wash the $Et_2O$ ext. with a sufficient vol. of volumetric NaOH, then with $H_2O$ and evap. the united alk. solns. Titrate back. If sepn. of the lactic acid from non-volatile acids is desired, add an almost equiv. quantity of HCl to the alk. liquid and distil with steam. A suitable app. is described. A. E. MEYER

**Effect of iodopyridone derivatives on streptococci.** A. BINZ AND H. MAIER-BODE. *Biochem. Z.* **257**, 351–60(1933).—Expts. with iodopyridone derivs. show that in proper org. combination even large quantities of I may be entirely non-toxic. S. M.

**The influence of inorganic salts on the multiplication of the gonococcus.** C. PHILLIP MILLER, JR., A. BAIRD HASTINGS AND RUTH CASTLES. *J. Bact.* **24**, 439–55 (1932); cf. *C. A.* **26**, 2211.—Na and K were interchangeable and non-toxic at high concns. Ca and Mg were unessential but inhibited growth at concns. greater than 30 millimols per l. Citrate and oxalate nullified the toxic action of Ca but not of Mg. Growth occurred between $p_H$ 6.0 and 8.2 with optimum growth at 7.0–7.6. Unless the media were well buffered either with bicarbonate or phosphate, growth did not occur. Chloride was replaceable by nitrate or sulfate without impairment of growth. JOHN T. MYERS

**A note on reaction changes during sterilization of vegetable extract culture media.** L. S. MCCLUNG. *J. Bact.* **24**, 457–9(1932).—In some cases the reaction change was

quite marked. The most marked change was in alk. solns. of carrot and tomato. Adjustment of the reaction with sterile acid and alkali after sterilization was more satisfactory than calcn. of sterilization changes and adding the reagents before sterilization or the use of buffers. JOHN T. MYERS

**Types of bacteria on blood and chocolate agar with the immediate cause of these types.** EINAR LEIFSON. *J. Bact.* **24**, 473–83(1932).—In the $\alpha$-$H_2O_2$ type of colony, the oxyhemoglobin is first reduced to hemoglobin. In an unknown way the hemoglobin is changed to methemoglobin and then to hematin and globin, or hematin may be formed directly from the hemoglobin. Hematin reacts with $H_2O_2$ to produce a green pigment. In the $\alpha$-$H_2S$ type of colony, the green color is due to the interaction of $H_2S$ and hemoglobin to form sulfhemoglobin, which is oxidized to a green compd. Many strains of *E. typhosus* which fail to blacken an ext. of $Pb(OAc)_2$ agar will blacken infusion agar. If cysteine or $Na_2S_2O_3$ is added to infusion blood agar, green is produced by many bacilli which otherwise do not. Hence a standard technic must be employed in detecting the formation of a green color as it is influenced by environment. JOHN T. MYERS

**The production of hydroxylamine by the reduction of nitrates and nitrites by various pure cultures of bacteria.** GLEN A. LINDSEY AND CHESTER M. RHINES. *J. Bact.* **24**, 489–92(1932).—Hydroxylamines were demonstrated as a reduction product of nitrates and nitrites in broth cultures of *A. aerogenes, Staph. aureus, B. subtilis, B. vulgatus, B. ramosus* and *B. anthracoides.* The fact that these organisms represent such a diversity of types strongly suggests that the production of hydroxylamine is characteristic of the bacterial reduction of nitrates. JOHN T. MYERS

**Rationalization, from the viewpoint of physical chemistry, of the behavior of bacteria toward dyes, with special reference to staining.** ALLEN E. STEARN. *J. Bact.* **25**, 21–3(1933).—The concept that the bacterial cell is an equilibrated system of 2 classes of components, the one more distinctly acidic than the other, which as a system is also amphoteric, is useful in correlating its behavior toward chem. agents, especially dyes. This view is strengthened by the fact that simple synthetic systems of this type are amphoteric, and show great buffering power at their isoelec. point. Bacteria are amphoteric. They retain basic dyes better on the alk. side, and acid dyes better on the acid side, of the isoelec. point. The reaction between dye and bacterial constituents seems to be stoichiometric. Dye specificity is governed by the relative dissocns. of the dye-bacteria salts. The action of I in the Gram stain is on the bacterial cell and is an amplification of the inherent differences in the isoelec. point. There seems to be no essential difference between the mechanism of dyes as stains and as bacteriostatic agents. JOHN T. MYERS

**The relation between the bacteriostatic action of gentian violet and the oxidation-reduction potential of the medium.** MARY A. INGRAHAM AND E. B. FRED. *J. Bact* **25**, 23–4(1933).—Non-lethal doses of gentian violet prolong the lag period but have little effect on subsequent growth or the fermentation products. There is no difference in oxidation-reduction potentials with and without gentian violet. Gentian violet acts as a poising agent in many bacteriol. media. The addn. of a given amt. of oxidizing or reducing agent has less effect on the oxidation-reduction potential in the presence of the amt. of dye used in bacteriostatic work than in its absence. At optimum potentials for growth, the dye has the least effect. Other poising agents, as ferric $NH_4$ sulfate, differentiate between tolerant and sensitive species of bacteria as does gentian violet. It is concluded that the bacteriostatic action of gentian violet is a function of its poising capacity, rather than of its ability to form a dye-protein compd. in the bacterial cell. JOHN T. MYERS

**The stimulation of bacterial metabolism by bacteriophage.** J. BRONFENBRENNER *J. Bact.* **25**, 25–6(1933).—The swelling of bacteria under the influence of bacteriophage is due to an intracellular accumulation of metabolic products with a consequent increase in osmotic imbibition of water. JOHN T. MYERS

**The stimulating effect of potato extract on the butyric acid bacteria.** E. L. TATUM AND W. H. PETERSON. *J. Bact.* **25**, 26–7(1933).—The stimulating factor was present in varying amts. in Irish and sweet potatoes, but was lacking in corn, oats, rice and semi-synthetic media contg. glucose or starch. It is stable to heating and drying, destroyed by ashing, sol. in water and in 80% alc.; insol. in ether, acetone and 95% alc., dialyzable through viscose and collodion membranes; not adsorbed on norite, silica gel or kaolin; not pptd. by phosphotungstic acid, $Ba(OH)_2$, or ammoniacal Pb acetate. It was carried down by the pptn. of $BaSO_4$ in the presence of $NH_4OAc$, and could be recovered from this by treatment with $NH_4OH$. JOHN T. MYERS

**The oxidation-reduction character of agar media and the growth of aerobic bacteria.** L. W. BROWN AND I. L. BALDWIN. *J. Bact.* **25**, 29(1933).—Small concns. of strong reducing agents as Na thioglycollate or hyposulfite may be beneficial to aerobic growth, but if enough is used to give reasonable poising the potential becomes too low. A mild

reducing agent as thiosulfate is better. Small amts. of peroxide or permanganate cause the formation of sub-surface zones of growth or diffuse growth throughout the medium.
JOHN T. MYERS

**The growth of Bacillus megatherium in relation to free oxygen and the oxidation-reduction potential of the medium.** GEORGES KNAYSI AND S. R. DUTKY. *J. Bact.* **25**, 30–1(1933).—*B. megatherium* can grow in media of low potential if free O is present, and is inhibited in media of high potentials in the absence of free O. It is inhibited by highly reducing substances. Free O seems to be the important factor.
JOHN T. MYERS

**A study of the bactericidal, bacteriolytic or inhibitory substance produced by some molds and some factors which influence its production.** ROGER D. REID. *J. Bact.* **25**, 31(1933).—The substance inhibited the growth of *C. diphtheriae in vitro* but had no *in vivo* protective action, and was non-toxic to guinea pigs. It is non-dialyzable through a collodion membrane.
JOHN T. MYERS

**The utilization of certain substituted sugars by bacteria.** STEWART A. KOSER AND FELIX SAUNDERS. *J. Bact.* **25**, 32(1933).—The substitution of a Me group for the H of the OH group attached to the no. 1 C atom made the sugar mol. less vulnerable to bacterial attack. α-Methyl mannoside was not fermented by organisms which ferment mannose. Similarly β-methyl *l*-arabinoside and β-methyl *d*-xyloside were not fermented. Glucose ethyl mercaptal gave neg. results.
JOHN T. MYERS

**The influence of cations on bacterial sporogenesis in a liquid medium.** F. W. FABIAN AND C. S. BRYAN. *J. Bact.* **25**, 33–4(1933).—Cations of univalent chlorides stimulate aerobic sporogenesis, while those of bi-, tri- and quadrivalent chlorides do not.
JOHN T. MYERS

**The effect of various substances upon fat production by B. megatherium, B. mycoides and B. albolactis.** J. CARVEL SPARROW. *J. Bact.* **25**, 36–7(1933).—Comparison of the results with the 3 organisms on 16 kinds of media showed no parallelism between growth (total dry wt.) and fat production. However, there were gains in fat in cultures where the total dry wt. falls below that of the controls. This may result from catabolic processes rather than synthesis and storage.
JOHN T. MYERS

**Gelatinolysis by aerogenic anaerobes.** G. L. STAHLY AND C. H. WERKMAN. *J. Bact.* **25**, 37–8(1933).—The Hg-protein method of Frazier or changes in viscosity are the best methods for the routine detn. of gelatinolysis.
JOHN T. MYERS

**Agar-coagulating bacteria.** A. P. HITCHENS. *J. Bact.* **25**, 39(1933). J. T. M.

**Some effects of salt on the morphology of Bacillus megatherium.** OLGA A. SMITH. *J. Bact.* **25**, 49(1933).—Induced changes were due to current conditions and were not permanent.
JOHN T. MYERS

**A variable proteus-like organism fermenting carbohydrates without gas formation.** H. J. SEARS AND MARTHA ROHNER. *J. Bact.* **25**, 50–1(1933).
JOHN T. MYERS

**Respiration studies on Rhizobia from various leguminous plants.** C. E. GEORGI, P. W. WILSON AND W. H. PETERSON. *J. Bact.* **25**, 53(1933).—The respiratory quotient of the culture varied from 0.90 to 1.10, the majority being slightly greater than 1.0. The rate of O consumption increased slightly with the O pressure. In cultures contg. 1.0% glucose, all the C from this source was used; with 2.0% glucose, 50–70% was used.
JOHN T. MYERS

**The effect of nitrogen source on oxygen consumption by Rhizobium.** R. H. WALKER AND D. A. ANDERSON. *J. Bact.* **25**, 53–4(1933).—Yeast ext. increased the rate and extent of O consumption by all strains. Urea, alanine, $NH_4Cl$ and $NaNO_3$ caused a moderate increase with *Rh. meliloti*, but not appreciably with *Rh. leguminosarum*, *trifolium* or *phaseoli*. Such a stimulation may be due to other constituents in yeast as carbohydrates, vitamins or salts.
JOHN T. MYERS

**Calcium-precipitating bacteria from mud of a fresh-water lake.** FRED T. WILLIAMS AND ELIZABETH MCCOY. *J. Bact.* **25**, 57–8(1933).—Carbonate pptn. by pure cultures was demonstrated on a solid medium prepd. with mud ext. without addnl. Ca.
JOHN T. MYERS

**A method for detecting chymase production by bacteria.** CONSTANTINO GORINI. *J. Bact.* **25**, 65–6(1933).—A sensitive method for the detection of rennin is to cover well developed agar slants with milk sterilized at not over 100° and incubate.
JOHN T. MYERS

**Some new heat-resistant, acid-tolerant organisms causing spoilage in tomato juice.** ROBERT N. BERRY. *J. Bact.* **25**, 72–3(1933).
JOHN T. MYERS

**Organisms which decompose the specific carbohydrates of pneumococcus types II and III.** GRACE M. SICKLES AND MYRTLE SHAW. *J. Bact.* **25**, 99(1933).—Several such strains of soil organisms were isolated from decaying vegetation. One strain also utilized agar.
JOHN T. MYERS

**Relation of changes in morphology and metabolism in E. coli.** WM. F. LANGE.

*J. Bact.* **25**, 123–42(1933).—When *E. coli* is grown in a synthetic medium there are alterations of morphology which are apparently cyclic. These changes cannot be correlated with $p_H$ or with the utilization of ingredients of the media. J. T. M.

**Some factors involved in the biological production of acetone and butyl alcohol.** Louis Weinstein and Leo F. Rettger. *J. Bact.* **25**, 201–38(1933).—An alc.-sol. protein or closely allied substance seems necessary for the production of normal amts. of acetone and Bu alc. from carbohydrates in a semi-synthetic medium. $p_H$, method of aerobiosis, oils, concn. of peptone and type of medium apparently had no effect on the Bu alc. production when prolamine was present in some form. In the presence of prolamine or similar substances, acetone and Bu alc. are formed from xylose, arabinose and glucose, in a ratio of 1:2. In the absence of alc.-sol. protein, normal amts. of acetone are formed, but little or no Bu alc. Acid hydrolysis of such raw substances as sawdust, peanut hulls and cottonseed hulls gave good yields of fermentable sugars, which were increased by a second and more intense hydrolysis. Fermentation of such hydrolyzates in the absence of prolamines produced acetone only. The addn. of yellow corn which contains the alc.-sol. protein, zein, stimulates the production of both acetone and Bu alc. Prolamine does not act as a catalyst, or not solely so, and is not the source of Bu alc. Prolamine favors Bu alc. production, through a combination of phys. action and direct influence on the metabolism of *Cl. acetobutylicum*. John T. Myers

**Specific antibacterial properties of penicillin and potassium tellurite.** Alexander Fleming. *J. Path. Bact.* **35**, 831–41(1932).—Penicillin and K tellurite have very selective antibacterial powers. In almost all cases a bacterium which is penicillin-sensitive is tellurite-insensitive and *vice versa*. John T. Myers

**Hemolysin and toxin of cholera and related organisms.** M. A. Gohar. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 61–8(1932).—Atm. O favors the growth of vibrios and also independently the production of hemolysin. Saprophytic vibrios are less unfavorably influenced by its absence than others. The difference between hemolytic and non-hemolytic strains is quant., not qual. Hemolytic strains produce a powerful exotoxin which is probably identical with the hemolysin. Exotoxin and hemolysin are both adsorbed with lipoids as cholesterol or with brain or adrenal tissue which are rich in lipoids, but not with kaolin. John T. Myers

**The value of "oligodynamic" silver water in biological research.** Franz Eichbaum. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 128–34(1932).—The efficiency of oligodynamic Ag water can be relied on only in biol. research. Quant. chem. Ag detns. and ion measurements cannot be relied on in all cases. A "standard Ag water" contains 480 γ Ag per l. This will kill 5000 colon bacilli in 2 hrs. at 37°. John T. Myers

**Experiences with the blood water tellurite culture plates of Clauberg.** Fred Himmelweit. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 152–6(1932).—These culture plates are better than Loeffler's medium for the detection of diphtheria bacilli. John T. Myers

**Variants of Bacterium paratyphosus B which produce no gas from glucose.** H. A. W. Pot and A. Tasman. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 348–51(1932); cf. *C. A.* **27**, 322.—Seven strains of non-gas-forming Schottmüller type, paratyphoid bacilli regained the ability to produce gas from glucose when grown in broth contg. 2% of Na formate. John T. Myers

**The inhibition of spreading in the colon-typhoid and proteus groups by salts.** V. Dimitrijević-Speth. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 437–45(1932).—A variety of inorg. salts and some dyes can inhibit spreading. Two inhibitive salts exert an additive effect. The spreading of typhosus and paratyphosus was not inhibited. John T. Myers

**The problem of direct and indirect action in chemotherapy. IV. The mechanism of the action of bismuth on spirochetes.** I. L. Krichevskii and N. V. Kagen. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 568–80(1932).—*Leptospira icterohemorrhagica* is killed by the direct action of Bi prepns. John T. Myers

**Egg culture media for the tubercle bacillus [amino-egg media].** Jos. Hohn. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 59–64(1932); cf. *C. A.* **26**, 166.—The growth of tubercle bacilli was inhibited by Cu or Sn but not by their alloys. Au, Ag, Pb, Pt and Zn did not interfere with growth. Instead of mixing eggs with glycerol broth they were added to the following base: $Na_2HPO_4$ 1.5, $KH_2PO_4$ 2.0, $MgSO_4$ 0.3, Mg citrate 1.25, alanine 2.0, asparagine 3.0 g. and distd. water 500 cc. John T. Myers

**Respiration by facultative aerobic pathogenic bacteria.** H. Braun and K. Guggenheim. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 97–104(1932).—The $p_H$ and the oxidation-reduction potential have much to do with the respiration of bacteria. The inhibiting action of KCN depends also on these factors. In diphtheria cultures the anaerobic growth of diphtheria bacilli was much less easily injured by KCN with an unfavorable $p_H$ on the acid side than on the alk. side on beef infusion dextrose agar. KCN affected

the growth of streptococci more in the alk. range. In the cultivation of microörganisms not only sources of C, N and salts but also catalyst must be considered. J. T. M.

**The oxidation and reduction properties of proteus bacilli and the influence of antibodies and of antiseptics.** H. BRAUN AND J. V. VASARHELYI. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 105–11(1932).—Proteus bacilli can cause the dehydrogenation of formic and lactic acids, but the reaction is inhibited by phenol or trypaflavine. Bacteria which are laden with agglutinins bring about dehydrogenation much more slowly than do normal bacteria. JOHN T. MYERS

**The utilization of oxygen and the reduction of nitrates by diphtheria bacilli.** O. EHRISMANN. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 111–16(1932).—In the utilization of O, not only must there be reducible substances present but one or more substances of the coenzyme type. The presence of cystine favors the reduction of nitrates to nitrites by diphtheria bacilli, but does not affect the action of pseudodiphtheria bacilli. JOHN T. MYERS

**The course of the d'Herelle phenomenon considered as a bacterial catabolism.** W. SEIFFERT. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 122–32(1932).—The lytic agent is not a protein from the bacterial cell but an intermediate product of bacterial metabolism. A part of this product goes over to known measurable chem. substances. A further study of the bacterial products of metabolism in the bacteriophage phenomenon should be made. JOHN T. MYERS

**Studies on bacterial metabolism with the apparatus of Haldane.** ANDOR UHROVITS. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 254–63(1933).—The R. Q. was detd. for a no. of varieties of pathogens and saprophytes. On agar media at room temp. the R. Q. never rose above 0.90, the av. being 0.67, although most of the O was consumed and much $CO_2$ produced. On horse protein media the R. Q. was about 0 35, although a great deal of O was used and $CO_2$ produced. Some of the O must have been built into carbohydrate, protein and fat for the bacterial cell body. *B. anthracoides* and *B. bipolaris septicum* produced free N. JOHN T. MYERS

**The cleavage of crocein by bacteria of the colon-typhoid group.** N. VAN DER WALLE. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 360–3(1933). JOHN T. MYERS

**Theory of the alkali metal ion action on Escherichia coli.** FRANZ LIEB. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 364–7(1933). JOHN T. MYERS

**The role of potassium nitrate among the gas-inhibiting factors in cheese.** A. F. WOJTKIEWIEZ. *Zentr. Bakt. Parasitenk. II Abt.* **87**, 349–60(1933).—The aerogenes group is inhibited because it reduces nitrate to nitrite. The colon-aerogenes group is more sensitive to nitrite than is the lactic acid group. The crit. concn. for the former is 0.04% of $KNO_3$. Free N is almost never formed by bacterial action, nitrites being reduced to $NH_3$ and then built into bacterial protein. JOHN T. MYERS

**Botanical description of the butyric acid splitting species of spore-forming bacteria.** W. WERNER. *Zentr. Bakt. Parasitenk. II Abt.* **87**, 446–75(1933).—There is a mass of biochem. detail concerning the cultures. JOHN T. MYERS

**Bacteria in the urinary tract. II. Resistance of the isolated bacteria to physico-chemical action—their toxicity.** G. AKITA. *Japan. Z. Mikrobiol. Path.* **27**, 198–226 (1933).—The resistance of bacteria isolated from the urinary tract (*Staphylococcus*, *Escherichia coli*, etc.), against heat, alkali and acid was studied. **III. The bactericidal power of various disinfectants against the bacteria isolated from the urinary tract.** *Ibid* 228–54.—Various disinfectants used for the urinary tract showed marked bactericidal action against bacteria isolated from the tract. I. S. YUN

Hydroxyphenyl alkyl sulfides (MILLER, READ) **10.**

GREAVES, JOSEPH E., AND GREAVES, ETHELYN, O.: **Elementary Bacteriology.** 2nd ed., revised. Philadelphia: W. B. Saunders Co. 535 pp. $3.50.

## D—BOTANY

THOMAS G. PHILLIPS

**Organization of the plant cell membrane.** MAX LÜDTKE. *Cellulosechemie* **12**, 169–75, 191–5(1932); cf. *C. A.* **24**, 3531.—Studies were made to det. if chem. combination exists between cellulose and other cell-wall components, and if every cellulose or carbohydrate element of the secondary wall is surrounded by its own "skin" which is loosely bound to neighboring units. Pieces of pine (*Pinus sylvestris*), spruce (*Picea excelsa*), beech (*Fagus silvatica*), wheat straw (*Triticum vulgare*), hemp straw (*Cannabis sativa*) and bamboo (*Bambusa spec.*) were cut lengthwise and at angles of 30°, 40°, 70° and 90° into sections of 10–60 μ, with a microtome. Sections were treated with $ZnCl_2$ or saved in distd. water and then so treated, and their morphological characteristics studied. If cutting was done so that cell walls were not disturbed morphologically, then a yellow

color only was observed. If cells were disturbed, as easily happens with marginal or very thin cells, the membranes show greater or less blue color. Pressing the section temporarily intensified the blue coloration. Phloroglucinol-HCl and aniline sulfate reactions were not influenced by pressure. L. concludes that the "skin" substance of the middle layer cells is not the same as the *lignin* of the middle lamellae. Carbonized and partly acetylated sections were used to study "cross elements." Fibers from hemp, pine and bamboo were freed by 0.2% $Cl_2$ water and 1% $NH_3$, partly acetylated, washed, treated on a microscope slide and studied. The membrane breaks up into fibrils and fibril bundles. No cellulose fibrils, at right angles or tangential to the primary layer fibrils, were observed. Fibrils from pine cellulose varied in length from 36 to 72 $\mu$, from hemp bast fibers from 40 to 90, and from bamboo bast fibers from 25 to 50. L. regards fibrils, not arranged according to the long axes to be in an unnatural position because of pressure, tension in breadth and contraction in length, and observed no arrangement of fibrils confirming the hypotheses of Ritter, Scarth and Freudenberg. Present evidence is regarded as insufficient to interpret polarization-optical observations. The layers of isolated fibers which are approx. in contact with the outer layer of the secondary lamellae, called the "primary layer" by Freudenberg, are not regarded by L. as a definite entity in respect to morphology, function or chemistry. L. does, however, regard the primary lamellae he describes as a morphological entity and the "cross elements" as an integral part of all fibers. 22 photomicrographs. C. A. Brautlecht

**The distribution of nitrogen compounds and their fixation in the leaves of green plants.** E. Parisi and G. De Vito. *Atti accad. Lincei* **16,** 270–4(1932).—It is shown that the stems and buds of plants contain the highest amts. of amino N, being followed by roots, and lastly by leaves, which contain the least. It is also shown that the N contents of leafy limbs are higher in the afternoon than in the morning because of the action of light in assisting N fixation. A. W. Contieri

**The distribution of some reserve substances in [the] hard winter wheat plant at successive growth stages and their possible utilization.** R. C. Malhotra. *J. Agr. Sci.* **22,** 485–96(1932).—Data are reported on the percentages, at different dates, of ash, ether ext., moisture, sugar, starch, hemicelluloses and total N in hard winter wheat plants grown under natural conditions in the 1930–1931 season. The moisture content appeared to be lowest during the periods of min. vegetative activity and to be highest when conditions favored growth. The ether ext. did not show a definite trend, but reached a max. at the time of grain development. Ash was highest at the seedling stage, decreased gradually up to Feb. 14th, increased again to the end of April and then declined. Sugar was at a min. in the seedling stage, increased to Jan. 15th, declined slightly in the next month, reached a max. in April and then declined. In general, the starch declined from the seedling stage; all seemed to have been utilized during the later stages of growth and either stored during the development of the grain or transformed into other plant constituents. Hemicelluloses increased from the beginning to a max. on April 15th and then decreased. The total N increased gradually from the start with a max. in the later growing stages. P. R. Dawson

**The amounts and distribution of some phosphorus and nitrogen compounds in wheat during growth.** Frank Knowles and J. E. Watkin. *J. Agr. Sci.* **22,** 755–66 (1932); cf. *C. A.* **26,** 3540.—A study is reported of the lipin, phytin and inorg. P, and of the protein and non-protein N present in the wheat plant, from 7 weeks before ear emergence until harvest. The percentage of lipin P remained fairly const. in the whole plant until ear emergence, when a sharp decline occurred until 3 weeks before harvest, after which time it again remained const. The same was true of the straw, and of the ears after the latter had emerged. The percentage of phytin P in the whole plant was fairly const. throughout growth; in the straw there was a regular decrease up to harvest; the ear showed a marked increase until 3 weeks before harvest. The percentage of inorg P fell steadily in the whole plant, straw and ear until 3 weeks before harvest. During the last 2 weeks it remained const. in the ear, whereas the straw had become completely depleted. In the whole plant there was a higher proportion of the P in lipin form during the period of most active growth. In the earlier stages the bulk of the plant's supply of P was in the inorg. form; but this was steadily converted into phytin until 3 weeks before harvest. The high proportion (95%) of the total P of the straw in phytin form by the time assimilation of the element had ceased is due to the complete migration of inorg. P to the ear. In newly formed ears most of the P (over 80%) was in inorg. form; the lipin P was also relatively high and at its max. about 9%; the phytin P was low. During the period of active "filling" of the ears, the inorg. P was steadily converted into phytin, until about 50% of each was present. The percentages of total N and non-protein N in the whole plant, straw and ears, diminished until 4 weeks after ear emergence and then remained fairly const. The percentage of protein N in the whole plant fell until 2 weeks after ear emergence and then remained const.; in the straw it fell until about a week

before harvest; the percentage in the ears rose appreciably in the 2 weeks following emergence and then fell regularly until 2 weeks before harvest. There is evidence that, in the whole plant, straw and ears, the phytin P and protein N rise and fall concurrently and show close relationship, which, however, may not imply more than that these substances are the finally elaborated products of P and N. The distribution of the P in the compds. considered was such that at harvest 75% of the phytin, 80% of the lipin and all of the inorg. P were in the ear. In the case of protein and non-protein N, about 80% had been transferred to the ear. P. R. DAWSON

**Enzymic histochemistry. III. The proteinases of Drosera rotundifolia.** HEINZ HOLTER AND K. LINDERSTRØM-LANG. *Z. physiol. Chem.* **214**, 223–40(1933); cf. *C. A.* **26**, 2764.—The microtechnic previously used in detg. the activity of peptidases in small amts. of plant material has now been applied to a study of the proteinases of the insectivorous sundew, *Drosera rotundifolia*. By using edestin as substrate the demonstration of 2 proteinases was accomplished and their distribution in the leaves detd. The 1st is secreted by the glandular hairs and shows max. activity at $p_H$ 3.2. The 2nd occurs as endoenzyme in the leaf tissue and its optimum $p_H$ is 4.3. The proteinase of the glandular secretion is probably different from animal pepsin, but its function is undoubtedly to digest the protein of entrapped insects. A. W. DOX

**Measurements of arginine content in chlorophyll-defective leaves.** HANS v. EULER AND DAGMAR BURSTRÖM. *Z. physiol. Chem.* **215**, 47–50(1933).—Chlorophyll-normal and chlorophyll-defective mutants of barley showed no difference in arginine content as detd. colorimetrically in the germinated seedlings. On the other hand, variegated *Pelargonium* leaves showed 50–100 times as much arginine in the white border as in the green interior of the leaf pattern. A. W. DOX

**Variations in the organic reserves in underground parts of five perennial weeds from late April to November.** A. C. ARNY. Minn. Agr. Expt. Sta., *Tech. Bull.* **84**, 28 pp.(1932).—The carbohydrate and nitrogenous reserves in the underground storage organs of quack grass (*Agropyron repens*), Canada thistle (*Circium arvense*), leafy spurge (*Euphorbia esula*), Austrian field cress (*Nasturtium austriacum*) and sow thistle (*Sonchus arvensis*) showed sharp declines from late Apr. through early May in the percentages of total sugars and total readily available carbohydrates in each of the weeds except quack grass. The total readily available carbohydrates in the storage roots of leafy spurge and Austrian field cress reached low points for the season by May 15th, at which time they were beginning to bloom. Rapid storage of these substances followed for a time and continued at slower rates to the close of the season. In sow and Canada thistles, the declines were very rapid at first and continued at more moderate rates until blooming time in early July. Reserves were accumulated from that time to the end of the season. The rhizomes of quack grass were lower in both percentage and lb. per acre of total readily available carbohydrates at the time the first detns. were made in the spring than at any other sampling date. Starch decreased and sugars increased with the approach of cool weather in the fall in the case of sow and Canada thistles and leafy spurge. This was not true of quack grass or Austrian field cress. Total org. N rapidly declined in the early part of the season in sow thistle and Austrian field cress, and less rapidly in the case of Canada thistle, leafy spurge and quack grass. These declines continued at more moderate rates to Aug., after which increases occurred. Though cutting Canada thistles in full bloom delayed growth the following year, there was no marked lowering of the org. reserves in the storage roots. C. R. FELLERS

**Some poisonous plants of New Jersey.** JESSIE G. FISKE. N. J. Agr. Expt. Sta., *Bull.* **261**, 3–30(1932).—The poisonous toxalbumin present in *Amanita phalloides* is phallin. The mushroom normally has a disagreeable odor, but the taste is not unpleasant. *A. muscaria* contains the alkaloids muscarine, choline and atropine. Though the horsetail, *Equisetum arvense*, contg. equisetin, is poisonous to horses, humans are unaffected The poison hemlock, *Conium maculatum*, and water hemlock, *Cicuta maculata*, contain the alkaloid cicutoxine and are frequent causes of illness and death. Various other poisonous plants are described and their mode of action is discussed. C. R. FELLERS

**Proportions of glucose and fructose in corn tissues.** V. H. MORRIS. Ohio Agr. Expt. Sta., *Bull.* **497**, 53(1932).—The Burr-Leaming variety of corn was used. Glucose was detd. by oxidation with I; fructose by Nyns' method. The percentage of glucose in the free reducing sugars of the different corn tissues varied from 50 to 65. The av. was greater in the leaves than in the stems, in the lower than in the upper part of the stems, and in the grain than in the cob. The proportion of glucose in both stems and leaves decreased in the earlier stages of development and then increased somewhat. As the plants approached maturity, the proportion of glucose decreased in the leaves while that in the stem remained nearly const. until, at the end of the season, it was greater in the stems than in the leaves. The proportion of glucose in both grain and cob

increased somewhat as the plants approached maturity. The ratio fructose/glucose averaged 0.62 in the leaves, 0.76 in the stems, 0.70 in the grain and 0.79 in the cob.
C. R. FELLERS

**Form of potassium in corn tissues.** V. H. MORRIS. Ohio Agr. Expt. Sta., *51st Annual Rept. in Bull.* **616**, 35–6(1933).—Sap was expressed from green corn tissues. All the K in corn tissues was in true soln. in the cell sap. All of the K was quantitatively pptd. with Na cobaltinitrite reagent; hence it must be diffusible and ionized. The same values for K were obtained by analyses of the hot $H_2O$ ext., expressed juice and ash.
C. R. FELLERS

**Methods for the isolation of fungi from wheat roots and kernels.** H. W. MEAD. *Sci. Agr.* **13**, 304–12(1933).—The washer method of treatment for isolations from roots and seeds gave consistently good results. Saponin solns. and alc. were used in conjunction with sterile water in the washer. $H_2O_2$ permitted good growth from roots and seeds but the strength of the soln. was difficult to maintain. $Ca(OCl)_2$, when freshly made, was satisfactory for isolation purposes but the 20 min. treatment was not long enough to sterilize the seeds completely. $HgCl_2$, in water or alc., was not very satisfactory for isolation purposes but it did effect good sterilization and did not seriously affect germination. $AgNO_3$ soln. (0.01 *N*) was of no value for isolation purposes but was of value for the prepn. of sterile seedlings. C. R. FELLERS

**Gravenstein spot scald.** J. F. HOCKEY. *Sci. Agr.* **13**, 225–7(1932).—This type of injury occurred only on mature fruit contg. no starch in the pulp cells and practically no sucrose. The injury developed only when the fruit was exposed to bright light. Temp. and ventilation had no effect. The injury resembled $SO_2$ injury but no S was found on the skin. *Glutathione* was detected in the flesh by means of the nitroprusside test. This compd was particularly abundant in the affected areas. It is believed that glutathione, which is active in oxidation-reduction processes, has some connection with the injury. C. R. FELLERS

**Photosynthesis in corn.** W. E. LOOMIS AND K. H. BURNETT. *Proc. Iowa Acad. Sci.* **38**, 150(1931).—Studies on the photosynthetic efficiency of corn have indicated that: The upper leaves of the corn plant are more efficient, area for area, than the lower leaves under approx. the same light exposure. Any removal of leaves tends to reduce the yield of grain and total dry matter, but removal of leaves early in the season before leaf growth is completed or late in the season after the grain is partly formed, has less effect than removal during the early silk when the vegetative growth is complete and the production of grain not yet well started. The removal of the ear results in a stiff stalk with a well-developed root system and a heavy anthocyanin production. The total wt. of the earless stalk increases very little, while the wt. of stalk and ear on the checks is doubling Attempts to measure directly the rate of photosynthesis in normal stalks and stalks with the ears removed have given differences lower than are obtained on the basis of total dry matter produced per plant, but the data indicate that the rate of photosynthesis in corn is affected by grain production and therefore subject to indirect control by soil fertility and genetic factors. W. G. GAESSLER

**Organic matter and the life of the green plant.** NORMAN A. CLARK. *Proc. Iowa Acad. Sci.* **38**, 168–9(1931).—*Lemna major* grew and reproduced successfully in a medium composed of highly purified inorg. salts. The presence of org. matter, however, stimulated the reproduction, and the effect of org. substances has been investigated both in the presence and absence of microörganisms. No stimulation was found in the absence of microörganisms even though org. matter was introduced which improved growth under non-sterile conditions. W. G. GAESSLER

**The antioxidant of lettuce.** H. S. OLCOVICH AND H. A. MATTILL. *Proc. Iowa Acad. Sci.* **38**, 172–3(1931); cf. *C. A.* **25**, 5690.—The unsaponifiable lipides of lettuce were fractionally crystd. from a no. of org. solvents. The distribution of vitamin E was detd. by the effects on female rats on a sterility-producing ration; that of the antioxidant, by the capacity to prolong the induction period of an autoxidizable fat mixt. The antioxidant could be sepd. by extg. a petr. ether soln. with 92% MeOH. A concn of the antioxidant was secured by distn. *in vacuo*, and the compd. crystd. from the fraction distg. from 160° to 180°. It was purified by crystn. from $CHCl_3$. Formula: $C_{13}H_{14}O_5$, m. 142°. It contains 1 or more phenolic groups. W. G. GAESSLER

**The photosynthesis of carbohydrates.** E. C. C. BALY. *Sci. J. Roy. Coll. Sci.* **2**, 58–67(1932).—A review of some attempts to det. the mechanism of carbohydrate formation in plants. E. H.

**The arsenic fungi of Gosio.** CHARLES THOM AND KENNETH B. RAPER. *Science* **76**, 548–50(1932).—To det. whether, as reported by Gosio, fungi transform As compds. into gases (1) known organisms were cultured in As-contg. media, and (2) soils contg. As were examd. for As-utilizing organisms. Arsenic-gas producers were found numerous

enough to make the use of As-contg. sprays and dusts in closed spaces inadvisable, since any type of compd. may give rise to gas. L. B. HOLLANDER

**Carbon dioxide assimilation of the leaves of the rice plant, Oryza sativa L.** R. H. DASTUR AND J. J. CHINOY. *Indian J. Agr. Sci.* **2**, 431–54(1932).—The photosynthetic activity of rice leaves was measured (1) by detg. the carbohydrate content of the leaves in the morning and evening, and (2) by detg. the absorption of $CO_2$ from the air under controlled and uniform conditions. The results obtained by the 2 methods were similar and showed that photosynthetic activity rises rapidly soon after transplantation and remains fairly uniform in Aug. The activity is depressed in Sept., suddenly rises to a 2nd max. in Oct., and falls off rapidly thereafter. K. D. JACOB

**Wilt disease of Egyptian cotton caused by various species of Fusarium.** A. FIKRY. Ministry Agr. Egypt, Tech. Sci. Service, *Bull.* **119**, 106 p.(1932).—The species investigated were (I) *Fusarium orthoceras*, App. and Wr., (II) *F. vasinfectum* var. *inodoratum* Wr., (III) *F. angustum* Sherbakoff and (IV) *F. solani*, App. and Wr. Growth of I and II was obtained on Richard's soln. agar adjusted to H-ion concns. ranging from $p_H$ 4.0 to 9.0 by addns. of $H_3PO_4$, HCl and $Na_2CO_3$, max. growth being obtained at $p_H$ 7.0. Microconidia spores were formed in abundance at all H-ion concns. used; macroconidia spores only at $p_H$ 3.0–6.0; and chlamydospores usually at $p_H$ 3.0–5.0. Acid media favored the growth of large spores. The fungi were not killed when deprived of air for 12 days. To det. the effect of soil reaction on the development of wilt on cotton, samples of a clay soil having an initial $p_H$ of 8.3 were adjusted to $p_H$ values of 7.0–9.0 by addn. of HCl or NaOH and were inoculated with cultures of the organism. The greatest infection was obtained on plants grown in the original soil, those grown in soil of $p_H$ 7.0 being free from the disease. The highest incidence of mosaic was obtained with plants grown in soils of $p_H$ 7.8–8.3. Cotton plants grown in atms. contg. up to 30 parts per 10,000 of $CO_2$ did not show increased resistance to wilt attack. Study of the substances secreted by *Fusarium* showed that wilt is produced in seedlings and in old cotton plants by a toxic substance (or substances) present in the filtrates of the nutrient fluids in which the fungi have been growing. This substance is thermostable and non-volatile. The presence of nitrite in the fluid is not responsible for wilt. Filtrates of the fluids obtained after pounding up the mycelium in water also contain a wilt-producing toxin, and a substance pptd. by alc. from the filtrates either of culture solns. or of mycelial exts. is capable of causing wilt. An enzymic ext. from young hyphae affects seedlings in the same way. The cut stems of a variety of cotton which is resistant to wilt may be caused to wilt by the action of the toxin secreted by the fungi. The cotton-wilt fungi can be controlled under greenhouse conditions in infected English soil by treatment with formalin and $CuSO_4$ at the rate of 0.4 and 0.5%, resp., of the total wt. of the soil. In infected Egyptian soil both antiseptics are effective if applied at the rate of 0.4 and 1.25%, resp., no injury to the plants occurring at these concns. $HgCl_2$ has an injurious effect on seed germination and plant growth. A bibliography is included. K. D. JACOB

**Resistance of some woods to fungi.** NOBUHIKO MIGITA. *Cellulose Ind.* (Tokyo) **8**, 187–91; *Abstracts* 31–3(1932).—The resistance to *Polyporus vaporarius* Fr. of *Thujopsis dolabrata* S. and Z. (I), *Castanea crenata* S. and Z. (II), *Abies firma* S. and Z. (III) and *Fagus Sieboldi* Endl. (IV) was studied. The durability of I is considered to be due to its EtOH-BzH-sol. constituent which is probably ethereal oil and that of II to its hot-water-sol. constituent; while III and IV have no toxic matter either in their hot-water-sol. or in EtOH-BzH-sol. constituents. K. KONDA

**Growth regulators in plants.** R. SNOW. *New Phytologist* **31**, 336–54(1932).—A review of recent work. The tips of coleoptiles form a substance called "growth regulator" which accelerates elongation in the zone below by increasing the plasticity of cell walls. Root tips form a similar substance which retards growth of roots. Bacteria and fungi form similar substances. Similar substances formed in shoot tips and young inflorescences and in leaves and buds promote stem elongation and the formation of roots in cuttings, resp. Growing leaves promote cell division in the cambium. H. R. KRAYBILL

**Note on "Huang-teng," Clerodendron commersonii, Spreng.** HSIANG-CHUAN HOU. *Chinese J. Physiol.* **6**, 353–8(1932).—A variety of Huang-teng obtained from South China was identified as *Clerodendron commersonii* Spreng. It differs botanically and physiologically from *Gelsemium elegans* Benth., which is also called Huang-teng. It is a physiologically inert substance. L. A. MAYNARD

**Influencing the flower color of Primula auricula through fertilization with blood.** A. MUSSACK. *Ber. deut. botan. Ges.* **50**, 391–2(1932).—Blood seems to alter the amt. and distribution of carotene in the petals, producing a red color. The flowers normally are yellow. L. P. MILLER

**A physiological study of the lipides of Sterigmatocystis nigra.** CHARLES PONTILLON. *Rev. gén. botan.* **44**, 417–49, 465–83, 526–60(1932); **45**, 20–52(1933).—The

formation of glycerides is affected qualitatively by the reaction of the medium and quantitatively by its compn. The mycelium itself utilizes the glycerides when nutrients are deficient; this involves the formation of sterols. Sterols are used to some extent during sporulation and during autolysis. Under the most favorable conditions the I no. is low, the av. mol. wt. of the fatty acids high and the amt. of phospholipins high. A list of 354 references is appended. LAWRENCE P. MILLER

**Transformations of sugars in the banana, the formation and disappearance of starch.** H. BELVAL. *Rev. gén. botan.* **44,** 513–25(1932).—The chief sugar in the body of the leaves is sucrose. This is progressively transformed to invert sugar in the veins and petioles. In the fruit there is at first a period of starch accumulation at the expense of sol. sugars, followed by the disappearance of starch and the formation of sucrose and invert sugar as ripening occurs. The presence of dextrins could not be demonstrated. LAWRENCE P. MILLER

**A wilting substance of plants.** MAX LÜDTKE AND HIKMET ACHMED. *Biochem. Z.* **257,** 256–66(1933).—The wilting caused by parasitic fungi is attributed to one or several substances of amine nature. The natural wilting process is likewise thought to be due to such substances produced by the plant itself, and it is furthermore suggested that such amines may be present in certain soils in which the plants undergo wilting. S. MORGU

**The peculiarities of the electric charges of yeast cells.** E. A. MOLDAVSKAYA. *Biochem. Z.* **257,** 480–3(1933).—In the presence of gelatin the elec. charge on yeast cells in an elec. field undergoes a striking change. S. MORGULIS

**Lethal effect of alternating current on yeast cells.** RALPH L. TRACY, JR. *J. Bact.* **24,** 423–38(1932).—By passage of a 60-cycle a. c. through yeast-cell suspensions in grape juice at 42°, pronounced killing effects were obtained; this indicates a lethal action independent of temp. The lethal effect varied with c. d. and quantity of electricity used and may be due to the formation of temporary toxic substances like free Cl which are immediately reduced upon cessation of the current and thus disappear. Electrically treated grape juice after exposure for 30 min. was not toxic or lacking in nutrient value for yeast cells. The gases evolved from electrolysis were not toxic to yeast cells. JOHN T. MYERS

**The effect of $pCO_2$ on the nitrogen-fixation process of certain leguminous plants.** P. W. WILSON AND E. B. FRED. *J. Bact.* **25,** 54(1933).—The effect of added $CO_2$ is due to the increase in partial pressure of the $CO_2$ in the atm. and not to total $CO_2$ made available to the plant. JOHN T. MYERS

**Buffer concentration and the course of plant diseases.** F. WILLE. *Zentr. Bakt., Parasitenk. II Abt.* **87,** 301–31(1933).—Artificial changes in the buffer content of plant juices seem to affect the course of diseases, but more study is necessary. J. T. MYERS

**The organic food sources of Ankistrodesmus falcatus [Corda] Ralfs.** B. ALEEV. *Zentr. Bakt., Parasitenk. II Abt.* **87,** 340–8(1933). JOHN T. MYERS

**The effect of ethylene chlorohydrin vapors upon dormant lilac tissues.** F. E. DENNY AND LAWRENCE P. MILLER. *Contrib. Boyce Thompson Inst.* **4,** 513–28(1932); cf. *C. A.* **22,** 4582.—Lilac plants (*Syringa vulgaris* L.) were treated with ethylene chlorohydrin vapor, branches were removed for detn. of enzyme activity and chem. compn. Tests were made on bud and on tissue external to woody cylinder (twig bark and stem bark). Treatment caused increase in catalase in bud tissue and in twig and stem bark. Invertase increased in buds, slightly in twig bark and not at all in stem bark. No marked increase in amylase occurred in any type of tissue. Chem. changes included increase in moisture of buds and in sol. N and decrease in sucrose. There was increase in respiration ($CO_2$) of treated twigs. N. M. NAYLOR

**Initiation and stimulation of roots from exposure of plants to carbon monoxide gas.** P. W. ZIMMERMAN, WM. CROCKER AND A. E. HITCHCOCK. *Contrib. Boyce Thompson Inst.* **5,** 1–17(1933); cf. *C. A.* **26,** 172, 5989.—Exposure to CO induced root initiation and stimulation of preëxisting root primordia in many species of plants. Tendency to form roots occurred at the nodes, at the region of elongation of the plant or on the flower stems. Cuttings from tips of plants exposed to CO developed roots more rapidly than control cuttings. CO induced adventitious roots on woody plants. N. M. NAYLOR

**Effect of sulfur compounds in breaking the dormancy of potato tubers and in inducing changes in the enzyme activities of the treated tubers.** LAWRENCE P. MILLER. *Contrib. Boyce Thompson Inst.* **5,** 29–81(1933); cf. *C. A.* **24,** 399, 4532, 5052; **25,** 5445, 5690.—$NH_4$ dithiocarbamate, thiosemicarbazide, $H_2S$ and Et mercaptan are effective in breaking the dormancy of potato tubers. Juice from tubers treated with these chemicals showed increase over the controls, in peroxidase and catalase activity (enzyme activity cannot be increased by addn. of chemicals to potato juice), increase in $p_H$, and increase in sucrose content; these S compds. retard tyrosinase action of potato juice. Et mercaptan and $H_2S$ cause increase in respiration. Thioacetamide breaks the dor-

mancy of tubers and retards the sprouting of non-dormant potatoes. Other S-contg. compds. are less effective in breaking the dormancy of potatoes. A method for prepn. of $NH_4$ dithiocarbamate, and a modification of Willstätter's method for detn. of peroxidase, are described. N. M. NAYLOR

**Effect of chemical treatments of dormant potato tubers on the conductivity of the tissue and on the leaching of electrolytes from the tissue.** JOHN D. GUTHRIE. *Contrib. Boyce Thompson Inst.* **5**, 83–94(1933).—Ethylene chlorohydrin treatments of dormant potato tubers produced significant increases in the cond. of the tissue and increased the leaching of electrolytes from the tissue when placed in water. KCNS produced similar but smaller changes, while changes observed with thiourea were not significant. N. M. NAYLOR

**Oxygen requirements of Neurospora sitophila for formation of perithecia and growth of mycelium.** F. E. DENNY. *Contrib. Boyce Thompson Inst.* **5**, 95–102(1933).—Perithecia in *Neurospora sitophila* are formed only when mycelia of strains of opposite sex reaction meet in the presence of 1–2%, by vol., of O (room temp.). At 10°, no perithecia were formed in 30 days with any amt. of O; at 15°, they occurred in an occasional culture; at 31°, they were formed less readily than at room temp. Mycelium grew at 0.3% O and higher. $CO_2$ was not effective in preventing growth of mycelium. N. M. NAYLOR

**Eliminating the use of calcium carbonate in preparing plant tissue for analysis.** F. E. DENNY. *Contrib. Boyce Thompson Inst.* **5**, 103–14(1933).—$CaCO_3$ does not neutralize the acidity of fruit juices in alc. soln.; hydrolysis of sucrose does not occur in the presence of oxalic, citric, tartaric or malic acids on heating for 1 hr. at $p_H$ 5 and in 70% alc.; oxalic acid is effective at $p_H$ 4; some hydrolysis was found at $p_H$ 3 except under reduced time of heating. The use of $CaCO_3$ to eliminate hydrolysis of sucrose is not necessary in the analysis of most plant tissue. The behavior of inulin toward acid is similar to that of sucrose. N. M. NAYLOR

**Physiological and chemical studies of after-ripening of Rhodotypos kerrioides seeds.** FLORENCE FLEMION. *Contrib. Boyce Thompson Inst.* **5**, 143–59(1933); cf. *C. A.* **7**, 2595; **26**, 172.—Seeds of *Rhodotypos kerrioides* require an after-ripening period of 3 months at 5°. Higher germination is obtained if seeds, mixed with moist peat, are kept 1 month at 25° before the after-ripening period. Partial after-ripening causes a secondary dormancy. The most favorable storage condition is in open containers at 1°, 5° or 10°. Analyses of seeds during after-ripening show an increase in catalase, peroxidase, lipase, water-absorptive power, N sol. in 80% alc., titratable acid and sucrose. The ether-sol. fraction decreases. N. M. NAYLOR

**The droplets of sulfur in yeast cells.** G. A. NADSON AND N. A. KRASILNIKOV. *Compt. rend. acad. sci. U. R. S. S.* No. **A10**, 248–50(1932).—The oxidation of $H_2S$ with sepn. of S droplets inside yeast cells is a biochem. process. L. NASAREVICH

**Carotenoid synthesis in plants.** H. v. EULER AND E. KLUSSMANN. *Svensk Kem. Tids.* **44**, 198–204(in German)(1932).—A theoretical discussion and an inconclusive expt. A. R. ROSE

**Effect of inositol, of Bios II, and of both together in the culture medium, on the reproduction of twelve kinds of yeasts.** HELEN STANTIAL. *Trans. Roy. Soc. Can.* III, **26**, 163–4(1932); cf. *C. A.* **22**, 3897; **26**, 755–6, 1358.—The effect of inositol and Bios II added to culture media was studied for 12 kinds of yeasts: (1) *Saccharomyces pastorianus*, Hansen (No. 2339 of the Am. type culture Coll'n) and Eddy's top yeast gave large crops in salts and sugar media but were unsuited for use in the detn. of bios; (2) *Saccharomyces mandschuricus*, Saito (2333) and *Zygosaccharomyces mandschuricus*, Saito (2602) were much increased in yield by the addn. of Bios II, but no further increase was obtained by adding inositol. *Zygosaccharomyces mellis* is intermediate between this group and the next as its crop was much increased by Bios II, but the effect of adding inositol as well was small; (3) Wildiers' yeast, *Saccharomyces cerevisiae*, *Saccharomyces validus*, Hansen (2361), *Schizosaccharomyces octosporus*, Beijerinck (4206), Baker's yeast (2335), Brewer's yeast (2331), and Eddy's bottom yeast all gave large yields in media contg. both inositol and Bios II, as compared with yields on media contg. only 1 or neither of these constituents. J. W. SHIPLEY

**Biology of the potato. XVI. Study on the colloid structure of potato tubers. Differences between vital and degenerating tubers.** H. BECHHOLD, F. ERBE, K. SILBEREISEN AND F. BACK. *Arb. biol. Reichs. Land-Forstw. Berlin-Dahlem* **20**, 111–39(1933).—A no. of attempts are described to find clear differences between tubers still living and those in the early stages of breakdown. The retention of water under pressures of 0.1–3.5 mm. Hg, and the uptake of water on immersion, were higher in the living tubers. Neither the viscosity of the press juice, elec. cond. or x-ray diagram of the tissue, deformability of slices under compression, nor the ease of diffusion of dyes into the tissue showed any difference between the various states of the tubers. However,

introduction of a strip of Cu foil, 1 cm. wide, into the tubers causes deep and extensive staining of the tissue when still vital, but has very little effect on tubers beginning breakdown, and is proposed as a test. Detns. of "vitality" by plant studies were strictly parallel to the results of the Cu test in 327 tubers from 10 sources. Healthy potato tissue reduces methylene blue, but not safranine. K. V. THIMANN

**Biochemical studies on the "maturity" of sugar cane.** SHIGERU KOMATSU, SHINSAKU OZAWA AND YASUO MAKINO. *Mem. Coll. Sci. Kyoto Imp. Univ. Ser. A*, **16**, No. 1, 125 pp.(1933)(reprint).—Report of 3 years' researches on "Hayaue" canes in Formosa. The water content of the leaves increased to a max. of 76% in June, and then fell. The chlorophyll content reached a max. of 0.27 mg. per sq. cm. leaf area in May–June and a min. of 0.092 in November, and was in general higher in canes grown in sandy soil than in those grown in clay or water-logged soils. The increase in length and wt. of each internode was detd. throughout the year, and found to reach a const. value in each case, ranging from 3.7 g. per cm. length, for the youngest internodes, to 10.2 g. per cm. for the oldest. The $p_H$ of the sap varied from 4.7 to 5.6, the acidity being higher in the younger portions of the stalk, probably on account of the oxidation of sugars to org. acids. The reducing and non-reducing sugar contents varied inversely. Thus, when the sugar content changed from 4.5 to 0.7 g. per 100 cc. juice, the non-reducing sugar ch from 0.2 to 19.2 g., the period intervening being 3–4 months in each case. Analy the whole stalk gave similar results The development of roots and shoots on small cuttings caused the reducing and non-reducing sugars to fall to 66 and 31%, resp., of their initial values. The accumulation of sucrose in the cane during the cool weather is thus partly a storage phenomenon, particularly since, when completely defoliated, the cane continues to grow at the expense of the sugar. On the other hand, sucrose is also accumulated during vigorous growth, though to a smaller extent, and furthermore, the decrease of sucrose during flowering is only slight. The accumulation of sucrose thus depends on a balance between synthetic and catabolic processes. On this account the ripening process and the fixation of solar energy have been treated mathematically; the rate of utilization of energy for photosynthesis, $dP/dt$, is taken as $kTIC$, where $T$ is temp., $I$ the light intensity and $C$ the quantity of chlorophyll in the leaf. The value of $k$ was detd. from measurements of the area of the leaf-crown and the illumination, and is $1.6.10^{-3}$. The ratio of the rate of fiber production to the rate of total energy fixation is of the order of 0.5, but may exceed 1 during May, indicating conversion of sucrose into fiber. Calcn. of the total energy falling on the plant shows that up to 3% of it may be utilized in photosynthesis. K. V. THIMANN

Plant synthesis of carbohydrates and polysaccharides (HIBBERT) 10.

## E—NUTRITION

PHILIP B. HAWK

**The content of total carbon dioxide of the blood in relation to the acidic or basic nature of the foods.** A. ROSSI. *Chim. ind. agr. biol.* **8**, 407(1932)(abstr.); cf. *C. A.* **26**, 5620.—No relation was found between the $CO_2$ content of the blood (I) and the $p_H$ of urine (II), or between I and the nature of the foods. If, instead of normal foods, $NaHCO_3$ is supplied, there is an increase of II to 8.4, but I does not vary. If $NH_4Cl$ is given, there is a decrease of II to 4.4, and a great decrease of I. G. A. BRAVO

**Ammonium salts and nitrogen metabolism.** U. LOMBROSO. *Chim. ind. agr. biol.* **8**, 410–11(1932)(abstr.).—Expts. of various kinds show that $NH_4$ salts are not utilized in N metabolism. G. A. BRAVO

**Vitamin 1-D deficiency of the liver of higher animals.** SIGNE SCHMIDT-NIELSEN AND SIGVAL SCHMIDT-NIELSEN. *Kgl. Norske Videnskab. Selskab. Forh.* **5**, 108–9(1932); cf. *C. A.* **26**, 3544.—The livers of rats which had been overfed on vitamin 1-D were fed to rachitic rats. There was no indication of vitamin 1-D storage in the liver. RACHEL BROWN

**Ergosterol, irradiated ergosterol and alcoholic fermentation.** F. PIRRONE. *Ann. chim. applicata* **22**, 731–7(1932).—As a possible method of evaluating the vitamin potency of activated ergosterol, the rate of fermentation of a glucose soln. by ergosterol and activated ergosterol has been detd. The greatest activity for the non-activated material was obtained with 0.001 g. per 100 cc. of sugar soln. and was measured in terms of cc. $CO_2$ evolved (107.22 cc.). With irradiated ergosterol (exposed for 20 min. at 25 cm. from the ultra-violet lamp) a max. evolution of 107.81 cc. $CO_2$ was evolved with 0.001 g./100 cc. A. W. CONTIERI

**Accessory food factors. The fat-soluble vitamin requirements of cattle and pigs during growth, with remarks on some other questions as to the vitamin problem in cattle and pig feeding.** HAAKON ISAACHSEN. *J. Agr. Sci.* **22**, 460–84(1932); cf. *C. A.* **26**,

5126.—With calves, on rations of practically equal starch equiv., a ration with a low proportion of whole milk to skimmed milk supplemented with peanut oil (free from fat-sol. vitamin) was as favorable as a ration with a high proportion of whole to skimmed milk, without the supplement. Use of cod-liver oil in a ration with a low proportion of whole to skimmed milk did not show superiority to a ration with a high proportion of whole to skimmed milk. Liberal quantities of skimmed milk supplemented with an amt. of tapioca flour (no vitamin A) equiv. to the fat of the whole milk were as good as a whole-milk ration. Spring and summer calves did not develop better than fall and winter calves, although the nursing milk of the former was richer in vitamins A and D. In some periods, herring meal, with its appreciable amt. of antirachitic vitamin, appeared to maintain the Ca and P balance in milking cows on dry feed better than fish meal with almost no vitamin content, or peanut cake. Expts. with pigs showed that cereals, including yellow corn, contain sufficient fat-sol. vitamins to maintain normal growth; but the vitamin D content may be insufficient to protect against rickets. Pigs are more likely to suffer from disordered mineral metabolism resulting from deficiency of minerals in the feeds, particularly Ca, P and Na, or from an incorrect Ca/P ratio than they are from feeds generally considered poor in fat-sol. vitamins. Good herring meal, with its vitamin D content, is one of the best feeds for protecting pigs against rickets. Cod-liver oil was not successfully used to make unthrifty piglings vigorous. Rations rich in vitamin B, fed to lactating sows with scanty flow, did not improve the piglings. Irradiation with ultra-violet light of sows in the last 6 weeks of gestation and of sows with litters did not improve the growth or condition of the pigs. P. R. DAWSON

**The mechanism of cellulose digestion in the ruminant organism. III. The action of cellulose-splitting bacteria on the fiber of certain typical feeding stuffs.** H. E. WOODMAN AND J. STEWART. *J. Agr. Sci.* **22**, 527–47(1932); cf. *C. A.* **24**, 137.—Quant. investigations are reported on the action of thermophilic cellulose-splitting bacteria on the fiber of a no. of typical feeding stuffs. The fermentation coeffs. were higher than the corresponding fiber-digestion coeffs. as detd. in animal trials, probably because the former were detd. on fiber after its sepn., by chem. means, from other constituents, and this rendered it more readily accessible to the action of the bacteria. The fermentation coeffs. of the fiber in both sugar-beet pulp and young leafy grass indicate the non-lignified character of the fiber in these foods. There is evidence that in other foods the formation of a small amt. of lignocellulose may be responsible for a distinct lowering of digestibility, caused not necessarily by the amt. of lignocellulose but also by the manner of its deposition within the cell walls. Detn. of the fermentation coeff. of fiber after its chem. isolation from a feeding stuff yields useful data concerning the partition of the fiber into cellulose and lignocellulose. Application of the method to study the changes in the character of the fiber during the growth of perennial rye grass demonstrates that the process whereby green crops become lignified and of reduced digestibility is assocd. with the production of relatively small amts. of lignocellulose, a conclusion in harmony with results of feeding trials and the detn. of MeO groups in the fiber of grass at different stages. Here again the digestibility of the fiber is not merely influenced by the amt. of lignocellulose but primarily by the intimacy of the assocn. of the lignocellulose with the cellulose in the cell walls. Expts. are also described on the fermenting capacity of the culture of cellulose-splitting bacteria at different stages of its history; the requirements of the microörganism for org. N; the isolation of cultures of the bacteria from manure, and from the contents of the rumen and abomasum of sheep. The characters of the fiber in sheep feces on different rations was also investigated by the fermentation method. P. R. DAWSON

**Mineral balance studies on poultry.** ROBERT H. COMMON. *J. Agr. Sci.* **22**, 577–94(1932).—Pullets displayed a diminution of the Ca and P in their droppings over a period of about 2–3 weeks before laying, and a corresponding increasing retention of these elements. Egg laying was correlated with a relatively heavy voiding of P in the droppings, involving a temporary neg. P balance. Results obtained by other workers are thus confirmed and amplified. P. R. DAWSON

**The value of oats in the nutrition of swine.** H. E. WOODMAN, R. E. EVANS AND A. W. MENZIES KITCHIN. *J. Agr. Sci.* **22**, 657–69(1932).—The results of feeding expts. showed that the digestibility of oats by pigs is increased with fineness of grinding. The digestion coeff. of the org. matter of the grain was low (56.7%) with crushed oats; it increased to 67.5% with farm-ground material; and it reached 75.9% when the grain, both husk and kernel, was ground to a fine meal. Even when most finely ground this cereal is somewhat inferior in digestibility to barley meal as food for pigs. In farm-feeding trials neither the partial replacement of barley meal (lb. for lb.) nor the total replacement of middlings by farm-ground oats had any significant effect on the rate of live-wt. increase or economy of food conversion. The oil from the oats had no detrimental effect on carcass quality. P. R. DAWSON

**The value of degermed maize meal [cooked] in the nutrition of swine.** H. E. WOODMAN AND R. E. EVANS. *J. Agr. Sci.* **22,** 670–5(1932).—Degermed corn meal (cooked) was equal, in respect to digestibility, to such highly digestible foods as tapioca flour and flaked corn, and significantly superior to whole corn meal and barley meal. Its low oil content is also an advantage. P. R. DAWSON

**The relation of calcium and phosphorus to growth and rachitic leg weakness in chickens.** RAYMOND T. PARKHURST AND MARY R. MCMURRAY. *J. Agr. Sci.* **22,** 874–82(1932).—Both a ration contg. but 0.26% Ca and having a Ca:P ratio of 0.44:1 (no-limestone ration), and a ration in which 5% of corn meal had been replaced by 5% of ground limestone to give a Ca content of 3% and a Ca:P ratio of 4:1 (limestone ration), led to retarded growth and poor bone development when fed to chicks. Both rations contained adequate vitamin D for the needs of birds on a normal diet. When given access to grass runs, the chicks on the no-limestone ration showed marked improvement, while those on the limestone ration were not appreciably affected. Previous results, indicating that ground limestone may have a depressing effect on growth, are thus confirmed. P. R. DAWSON

**Thermal products from vitamin $D_2$ and their hydrogenation derivatives.** P. BUSSE. *Z. physiol. Chem.* **214,** 211–22(1933).—The crude irradiation products of ergosterol lose their antirachitic activity when heated but retain their toxicity; renewed irradiation then partly restores their antirachitic activity. Vitamin $D_2$ when subjected to this treatment loses both antirachitic activity and toxicity and cannot be reactivated. The peculiar behavior of the crude irradiation products is not a property of vitamin $D_2$ but is probably due to lumisterol, tachysterol and toxisterol. The isolation and purification of the thermal products of vitamin $D_2$ and their hydrogenation products are described. The vitamin was completely isomerized, by heating 4 hrs. at 180–90°, into a mol. complex, m. 123°, consisting of 50% *pyrocalciferol* (I) m. 94–5°, and 50% isopyrovitamin (II), m. 112–15°. The sepn. was effected by treatment with $Ac_2O$, which converts II into a difficultly sol. *acetate*, m. 113–15°, $[\alpha]_D^{20}$ 333°. Hydrogenation of II by Na-EtOH gave *dihydroisopyrovitamin*, m. 129–30°, $[\alpha]_D^{21}$ 11.85° (*acetate* m. 145–6°, $[\alpha]_D^{18}$ 30.2°). Further hydrogenation of the acetate by Pt-$H_2$ and sapon. of the product gave *hexahydroisopyrovitamin*, sintering 68–80° with no sharp m. p., $[\alpha]_D^{20}$ −6.95° (*4-methyl-3,5-dinitrobenzoate* m. 164–5°, $[\alpha]_D^{20}$ 1.37°). I was purified through its *m-dinitrobenzoate*, m. 170–1°, $[\alpha]_D^{21}$ 195°. Hydrogenation by Na-EtOH yielded *dihydropyrocalciferol*, m. 121–2°, $[\alpha]_D^{18}$ 70.3° (*acetate* (III) m. 131–3°, $[\alpha]_D^{17}$ 44.7°). Heating the dihydro deriv to 190° with NaOEt in EtOH rearranged it to *epidihydropyrocalciferol*, m. 138–9°, $[\alpha]_D^{20}$ 54.3° (*acetate* (IV) m. 98–9°, $[\alpha]_D^{19}$ 35–6°). Further hydrogenation of III by Pt-$H_2$ gave *hexahydropyrocalciferol acetate*, m. 139–40°, $[\alpha]_D^{19}$ 26.1° (sapond. sterol m. 130–1°, $[\alpha]_D^{18}$ 34.35°). Similar hydrogenation of IV gave *hexahydroepipyrocalciferol*, m. 137°, $[\alpha]_D^{18}$ 30.15°, purified through its *m-dinitrobenzoate*, m. 197–8°, $[\alpha]_D^{18}$ 20.9°. None of the derived sterols was antirachitic or toxic. A. W. DOX

**The nutritive value of marine products. V. The vitamin A content of ling cod-liver oil. Preliminary note.** B. E. BAILEY. *Contrib. Can. Biol. Fisheries* **7,** 405–12 (1933).—The liver oil of the Pacific Coast ling cod has been examined for vitamin A by both biol. and colorimetric methods. The oil is a very rich source of vitamin A, the least potent sample contg. 20,000 rat units per g. F. L. DUNLAP

**Food value of milk.** EDNA L. FERRY, JULIA P. OUTHOUSE AND BEATRICE HALL. Conn. Agr. Expt. Sta., *Bull.* **340,** 657–94(1932); cf. *C. A.* **14,** 784.—A comprehensive treatise on the compn. and nutritive value of milk with a review of investigations. C. R. FELLERS

**Exposure of ground yellow corn to air did not destroy vitamin A.** ROY E. ROBERTS. Ind. (Purdue) Agr. Expt. Sta., *Rept. Director for Year Ending June 30, 1931,* 46. Yellow corn was freshly ground and assayed for vitamin A. Other shelled corn from the same lot was spread in a thin layer on the floor in a warm room for 6 months and then assayed. There was no measurable difference in the vitamin A content of the 2 lots of corn. C. R. FELLERS

**Nutritive value of eggs as affected by the feeding of cod-liver oil to hens.** S. E. ERIKSON, R. E. BOYDEN, W. M. INSKO, JR., AND J. HOLMES MARTIN. Ky. Agr. Expt. Sta., *44th Annual Rept.* 41–3(1931).—Practically no correlation exists between the $p_H$ of the yolk and that of the white in fresh eggs; there is a fair correlation in storage eggs. Total P of the ash of yolks of fresh eggs shows lower values in birds in sunlight receiving cod-liver oil than in those receiving none; the reverse is true in birds confined without sunlight. The values for Ca, acid-sol. org. and inorg. P do not vary in the same way. The storage of eggs causes the $p_H$ of both whites and yolks to increase. In general, the $p_H$ of fresh eggs laid by birds fed cod-liver oil is lower than that in eggs from birds not receiving the oil. C. R. FELLERS

**Influence of antirachitic substances on growth of poultry.** W. FRANKLIN DOVE.

Maine Agr. Expt. Sta., *Bull.* **360**, 172–5(1931).—Dried eggs may be held in storage for several months with no loss of vitamin D in the yolks. The chick is better than the rat for vitamin D research because the chick is much more sensitive to vitamin D deficiencies. C. R. FELLERS

**Value of dried skim milk for fattening poultry.** E. M. FUNK, H. L. KEMPSTER AND C. G. BRYAN. Mo. Agr. Expt. Sta., *Bull.* **309**, 3–23(1932).—Very satisfactory wt. gains were obtained with broilers, roasters and hens. The lowest dressing loss was obtained when the birds were fattened with a ration contg. 5% dried buttermilk. Condensed buttermilk produced the highest-quality birds. The most satisfactory wt. gains were obtained when dried buttermilk was fed at the 10% level. More feed was consumed by birds receiving condensed or dried buttermilk than those on liquid buttermilk. C. R. FELLERS

**Increasing the vitamin D content of milk. II. Effect of feeding cows a cod-liver oil concentrate [Vitex].** W. W. KRAUSS, R. M. BETHKE AND WILLARD WILDER. Ohio Agr. Expt. Sta., *Bimonthly Bull.* **18**, 15-19(1933); cf. *C. A.* **26**, 4630.—On a basal ration low in vitamin D the milk contained 2.76 rat units per quart; when 60,000 rat units of vitamin D as Vitex were fed, the milk contained 30.35 Steenbock rat units of vitamin D per quart, an 11-fold increase. This potency, however, is far below the 160 rat units per quart recommended for milk to be used as an antirachitic agent for infants, and the cost of Vitex is prohibitive for this purpose. C. R. FELLERS

**Fish-meal supplements for chicks. I. Comparative rate of growth-to-eight-weeks on rations supplemented with pilchard, salmon, halibut, dried skim milk or with salmon meal and dried skim milk.** V. S. ASMUNDSON AND JACOB BIELY. *Sci. Agr.* **13**, 236–48(1932).—There was no significant difference in the av. wt. of chicks at 8 weeks when fed rations supplemented with salmon meal, pilchard meal or dried skim milk to supply 10% of protein. Halibut meal gave slightly less consistent gains than salmon meal or dried skim milk. At protein levels higher than 7.5% chicks fed salmon meal and dry skin milk gave better gains than when fed salmon meal alone. Increasing the amt. of protein supplied by salmon from 7.5 to 10% did not increase rate of growth, but a similar increase in the rations where both salmon meal and milk were fed increased the wt. attained at 8 weeks. C. R. FELLERS

**Hog-feeding experiments.** F. B HEADLEY. Nev. Agr. Expt. Sta., *Bull.* **125**, 3–30 (1932).—Growing pigs are unable to assimilate effectively feed contg. a large amt. of crude fiber. To make the most rapid gains, the pigs must be fed a concd. ration contg. less than 5% crude fiber. The no of days necessary to attain a 200 lb. marketing wt. was increased by 5.4 for each increase of 1% in crude fiber in the ration. Pigs on alfalfa hay required 259, 340 and 413 lb. of grain per cwt. gain on 2%, 4% and self-fed ration, resp On alfalfa pasture they required 262, 336 and 410 lb. of grain per cwt. gain when fed 2%, 4% and self-fed rations. The addn of tankage to a ration contg. 2% grain and alfalfa hay with a liberal allowance of dry skim milk was of no advantage. C. R. F.

**Feeding value of dried apple pomace for dairy cows.** J. C. KNOTT, R. E. HODGSON AND E. V. ELLINGTON. Wash. Agr. Expt. Sta., *Bull.* **270**, 3–17(1932); cf. *C. A.* **26**, 4361.—Dried apple pomace possessed a total digestible nutrient content of 71.58%. The coeffs. of apparent digestibility for the various constituents were high with the exception of the protein. The digestibility of the dry matter was 72%. Dried apple pomace is only slightly less valuable as an animal feed than sugar-beet pulp. For feeding, the dry pomace should be soaked in 2.5 times its wt. of water for 10–12 hrs. C. R. FELLERS

**Effect of low-calcium and low-phosphorus rations on growing dairy heifers.** H. O. HENDERSON AND C. E. WEAKLEY, JR West Va. Agr. Expt. Sta., *Bull.* **244**, 16–17 (1931); cf. *C. A.* **25**, 4583.—Low-Ca and -P rations caused depraved appetites such as bone or wood chewing. Low P in the ration greatly reduced the inorg. P in the blood. However, there was no correlation between the amt. of Ca in the diet and that in the blood. The fluctuations in inorg. P in the blood from day to day are very great. Blood Ca varies between much narrower limits than blood P. The blood P appears to decrease with the age of the animal. C. R. FELLERS

**Photographic recording of line tests for vitamin D.** A. L. BACHARACH, E. ALLCHORNE, V. HAZLEY AND S G. STEVENSON. *Ind. Eng. Chem., Anal. Ed.* **5**, 12–14(1933); cf. *C. A.* **26**, 3015.—Full details are given for photographing, developing and printing the results of line tests for vitamin D. S. B. FOSTER

**Availability of vitamins in plant tissues.** JESSIE E. RICHARDSON AND HELEN L. MAYFIELD. *Science* **76**, 498–500(1932).—Storage of carrots and potatoes until spring resulted in increased vitamin (A, B complex, $B_1$, C) potencies in the raw vegetables, and a loss of potency when cooked as compared with exptl. results obtained in the fall. These differences are ascribed to an increased availability of the vitamins due to changes n the organization of the plant cell under the given conditions. S. B. FOSTER

**Action of sodium hypochlorite on the nutritive quality of skim-milk powder prepared in winter by evaporation on cylinders heated by steam to 100–103°.** P. Mazé and R. Anxionnaz. *Compt. rend. soc. biol.* **112**, 245–7(1933); cf. *C. A.* **26**, 2220.—Rats were fed as previously described, except that the milk was not irradiated, but, after being dissolved, was treated with a little NaOCl and heated. This made the added KI and NaF more readily assimilated and the rats were not sterile as they were when the NaOCl was omitted. L. E. Gilson

**Stability of vitamin A in cod-liver oil emulsions.** H. N. Griffiths. *Analyst* **58**, 65–8(1933).—Some 5 different types of emulsions were studied over a period of 15 months. Conclusion: The agents employed in making com. emulsions do not diminish the stability of vitamin A. W. T. H.

**Nutritive significance of mineral salts.** Arthur H. Smith. *Dental Cosmos* **75**, 147–53(1933).—A review. Joseph S. Hepburn

**The treatment of pyuria with soybean meal.** A. Mader. *Monatsscher. Kinderheilk.* **54**, 212–27(1932); cf. *C. A.* **26**, 2767.—In discussing the therapeutic value of soybean meal M. presents data on its chem. compn., obtained by himself and others. It is an adequate food from the point of view of amino acid content. It is high in K, Na, Ca and Mg, and the excess of cations is 37.89 mg. equivs. as compared with 2.25 and 1.69 for human and cow milk. Its value as an alkalinizing agent is shown by its ability to maintain the reaction of the urine in the vicinity of $p_H$ 8.4. E. M. Humphreys

**Variations in the reaction and salt content of the urine during fasting.** Ragnar Nicolaysen. *Norsk Mag. Laegevidenskap.* **93**, 766–73(1932).—If a person is fasting during the "alk. tide" in the urine, there is an increase in the concn. of Cl in the 1st hrs. after awaking, and also at the same time an increase in the concn. of Na and K. Independently of these variations, the concns. of Ca and Mg decrease to a min., where they remain const. H. C. M. Ingeberg

**Variations in calcium content of human blood during fasting.** Ragmar Nicolaysen. *Norsk Mag. Laegevidenskap.* **93**, 774–6(1932).—Variations up to 2 mg. % in the Ca content of the blood occurred in the course of a day in a fasting individual, and max. variations of 2.5–3 mg. % (from 8.5 to 11.5 mg. %) in the same individual from one day to another. H. C. M. Ingeberg

**The influence of raw milk on teeth and growth.** E. Sprawson. *Scottish J. Agr.* **16**, 23–31(1933).—Children brought up on raw milk from their earliest years are markedly free from dental caries, whereas the reverse may be true with those receiving pasteurized or sterilized milk. Bibliography. K. D. Jacob

**The need of the infant for milk and the minimum quantity necessary for growth.** L. Ribadeau-Dumas. *Lait* **12**, 754–60(1932).—The min. quantity of milk for satisfactory growth and acceptance by the infant is about $^1/_{10}$ of the ration. It was not possible to show that milk contained a certain substance necessary for growth, but all the constituents of milk were considered contributing factors. A. H. Johnson

**Antirachitic activation of milk by direct irradiation with ultra-violet rays.** G. C. Supplee. *Am. J. Pub. Health* **23**, 225–9(1933). J. A. Kennedy

**Production of antirachitic milk by the feeding of dairy cattle.** J. G. Hardenbergh and L. T. Wilson. *Am. J. Pub. Health* **23**, 230–6(1933). J. A. Kennedy

**Glucolytic enzyme in the liver of animals with vitamin B deficiency. Effect of iodine in B-avitaminosis.** Tsune Ariyama. *J. Agr. Chem. Soc. Japan.* **8**, 756–64 (1932).—The livers of white rats fed synthetic diets without vitamin B contained 10% less glyoxalase than the livers of normal rats, but the same amt. as the livers of starved rats. Glycolase in the liver also decreased in B-avitaminosis and in starvation. No relation between B-avitaminosis and quantity of glyoxalase could be found. When thyroxine was given *per os*, and NaI by hypodermic injection, the antineuritic symptoms on a vitamin-B-free diet were checked to a certain extent. Y. Kihara

**Vitamin studies. V. Chemical methods of vitamin determination. 1. The Bezssonoff reaction.** F. V. v. Hahn and M. Wieben. *Z. Untersuch. Lebensm.* **63**, 481–95(1932); cf. *C. A.* **26**, 503.—Twenty-three fruits, 52 fresh and 18 canned vegetables, and 20 orange juices were examd. experimentally for their antiscorbutic potency and simultaneously tested by the Bezssonoff reaction. Conclusion: The B. reaction gave no indication as to the vitamin C content of the foodstuffs. S. Laufer

**Vitamin D content of the fat of sea perch, porpoise and seal.** S. N. Matzko and D. A. Vital. *Z. Untersuch. Lebensm.* **63**, 495–8(1932).—These 3 fats contained 100–150 units per g., less than 50 units and a negligible amt., resp. S. Laufer

**Vitamin C and hexuronic acid.** T. Moore and S. N. Ray. *Nature* **130**, 997–8 (1932).—After being stained for 15 min. with 0.4% $AgNO_3$, suprarenal glands from normal guinea pigs were deeply blackened; glands from scorbutic guinea pigs were completely unaffected. This adds evidence to the close relationship between vitamin C and hexuronic acid, since the latter reduces $AgNO_3$. Suprarenals of rats fed on diets deficient

in vitamin C give pos. $AgNO_3$ reactions. This agrees with the view that rats can synthesize vitamin C. MARY E. LEAR

**"Hexuronic acid" [ascorbic acid] as the antiscorbutic factor.** A. SZENT-GYÖRGYI AND W. N. HAWORTH. *Nature* **131**, 24(1933).—Ascorbic acid is suggested as the name for the cryst. substance $C_6H_8O_6$, previously described (cf. *C. A.* **26**, 5128). The material described as "hexuronic acid" contains 1 mol. less $H_2O$ than is required for a hexuronic acid. MARY E. LEAR

**Methylnornarcotine, glucuronic acid and vitamin C.** W. J. DANN. *Nature* **131**, 24–5(1933).—An attempt to confirm the hypothesis of Rygh (*C. A.* **27**, 122) that the antiscorbutic activity of hexuronic acid is due to contamination by methylnornarcotine was unsuccessful. All animals fed on a scurvy-producing diet, whether supplemented by methylnornarcotine, glucuronolactone or both, showed the same signs of severe scurvy as the neg. controls. MARY E. LEAR

**Experimental study of the antirachitic factor in human and animal milks.** I. A. SABRI AND M. M. FIKRY. *Arch. Disease Childhood* **7**, 239–48(1932).—Human milk, cow milk and buffalo milk (commonly consumed in Egypt) contain a provitamin, which upon irradiation is converted into vitamin D, the quantity formed being sufficient to prevent the development of rickets. Human and cow milk have approx. the same content of vitamin D. E. R. MAIN

**Diet, nutrition and infection.** ALFRED F. HESS. *New Engl. J. Med.* **207**, 637–43 (1932).—The susceptibility of infants to respiratory infections is apparently not assocd. with a lack of vitamin D. A local susceptibility without loss of appreciable systemic immunity may be induced by a lack of vitamin C. The milk content of the diet of the av. infant furnishes an adequate supply of vitamin A. E. R. MAIN

**The uric acid in the blood and its elimination in the urine in relation to diet.** W. MORACZEWSKI, ST. GRZYCKI, H. JANKOWSKI AND R. SLIWINSKI. *J. physiol. path. gén.* **30**, 659–65(1932).—See *C. A.* **26**, 5127. L. A. MAYNARD

**The surface potentials of unimolecular films of ergosterol. The photochemical formation of vitamin D.** RUSSEL J. FOSBINDER. *Proc. Roy. Soc.* (London) **A139**, 93–104(1933).—Evidence is presented to show that ergosterol can be converted into vitamin D by ultra-violet radiation. The app. used for the detn. of the surface potential of ergosterol was a quartz tray, graduated glass scale, Swan type electrometer, a Po-coated Pt air electrode and calomel cell. The ergosterol was placed upon citric acid-NaOH buffers of $p_H$ 6.4. In the presence of the radiation an expansion of the film took place, indicating that the secondary alc. group suffers a change. Surface potential changes are plotted against time of radiation, and surface tension against area; the curves indicate the formation of vitamin D. H. E. MESSMORE

**Hypervitaminosis D. Relations between irradiated ergosterol and water-soluble vitamins.** PIETRO COCCHERI AND GIOACCHINO ROSSI. *Biochim. terap. sper.* **38**, 408–20 (1932); cf. *C. A.* **26**, 2223.—The feeding of 10,000 prophylactic rat units of irradiated ergosterol during 2 months produces in young rats and rabbits a non-fatal syndrome which is opposed in its symptoms to exptl. rickets. The characteristics are reduction in growth, a limited hypercalcification of the bone proliferation, hyperphosphatemia and moderate hypercalcemia. The purity of the prepn. used accounts for the absence of really toxic symptoms. Simultaneous doses of vitamins B and C are effective in the prevention of hypervitaminosis D. A. E. MEYER

**Carotenemia associated with the ingestion of pumpkin. Report of a case.** A. C. CURTIS AND E. E. KLEINSCHMIDT. *Ann. Internal Med.* **6**, 751–3(1932).—The blood carotene content was 1.65 mg. % at its height. JOHN T. MYERS

**The breaking strength of healing fractured fibulae of rats. IV. High-carbohydrate diet.** R. M. MCKEOWN, M. K. LINDSAY, S. C. HARVEY AND R. W. LUMSDEN. *Arch. Surg.* **25**, 722–48(1932); cf. *C. A.* **26**, 5995.—The body wt. of both control and fractured rats was less than on a normal or a high-fat diet. The time of healing was normal but the strength of the callus was less. It is possible that increased absorption of carbohydrates is followed by decreased phosphate in the blood, which would permit an increased excretion of Ca because of lack of phosphate to combine with it, or the amt. or activity of phosphatase may be reduced. **V. Low-calcium diet.** R. M. MCKEOWN, S. C. HARVEY AND R. W. LUMSDEN. *Ibid* 1011–34.—P is more important to the strength of healing fractures than is Ca. JOHN T. MYERS

**Carotenoids and vitamin A in animal and plant tissues.** H. v. EULER, ULLA GARD AND H. HELLSTRÖM. *Svensk Kem. Tids.* **44**, 191–8(in German)(1932).—Spectroscopic bands are recorded for prepns. from procreative tissues of fish, mammals and plants. Carotene is demonstrated in all of these, in very minute quantities, however, in some specimens, *e. g.*, lily stamen, pike milt. This universal presence suggests that carotene is an essential growth factor. Other tissues, sites of cell proliferation, also contain this pigment, but bone marrow, pos. for vitamin A, gave no carotene band. Xanthophyll

and zeaxanthin bands occurred sporadically, and chlorophyll is present in fresh-water fish roe. A. R. ROSE

**Carotene and vitamin A.** H. v. EULER AND E. KLUSSMAN. *Svensk Kem. Tids.* **44,** 223–4(1932)(in German).—Carotene is changed to vitamin A by liver tissue in saline suspension. A. R. ROSE

**The effect of irradiated ergosterol upon the absorption of calcium.** N. B. TAYLOR AND C. B. WELD. *Trans. Roy. Soc. Can.* V, **26,** 9–12(1932); cf. *C. A.* **26,** 4362.—A series of 3-month-old pups was put on an adequate diet of dog biscuit and meat and Ca excretion was followed for a period of 28 days. At the end of this time irradiated ergosterol (0.12 cc. per kg. 250D) was administered for a period of 31 days, and the rate of excretion of the Ca was nearly doubled. As the dose of ergosterol was increased to 2.1 cc. per kg. there was a further rise in the excretion of Ca, while on withdrawal of ergosterol the amt. of Ca excreted dropped. Conclusion: No evidence was found that irradiated ergosterol increases Ca absorption, but on the contrary excretion is increased even with small doses. LOUIS J. SOFFER

**The effect of small [therapeutic] doses of irradiated ergosterol upon the serum calcium.** N. B. TAYLOR AND C. B. WELD. *Trans. Roy. Soc. Can.* V, **26,** 13–16(1932); cf. *C. A.* **26,** 4362.—The initial effect following either the oral or subcutaneous administration of irradiated ergosterol was a temporary fall in serum Ca. This was then followed by a rise. In one parathyroidectomized animal in which the serum Ca was below normal, subcutaneous administration of 1 dose of ergosterol was followed by a further drop in Ca. Doses of 1.0 cc. of 10,000 X of irradiated ergosterol were used for oral administration while 2 0 cc. of 10,000 X were employed subcutaneously. LOUIS J. SOFFER

**The administration of irradiated ergosterol to dogs with biliary fistulas.** N. B TAYLOR, C. B. WELD AND J. F. SYKES. *Trans. Roy. Soc. Can.* V, **26,** 29–31(1932).—Irradiated ergosterol (0.4 cc 10,000 X per kg.), administered orally to dogs in which the bile drained to the exterior through a tube connected to the common bile duct, did not cause hypercalcemia or any other sign of overdosage. This inability of the irradiated ergosterol to raise the serum Ca is attributed to failure of the sterol to be absorbed from the bowel in the absence of bile. When irradiated ergosterol was injected intravenously some of the dogs with biliary fistulas showed a rise in the serum Ca. Bile collected from the animals which received the ergosterol by mouth showed no definite antirachitic effect, while bile obtained from animals treated intravenously was antirachitic. The authors suggest that ergosterol is excreted in the bile and as long as the bile can enter the duodenum, any ergosterol removed from the blood is reabsorbed on reaching the intestine and continues to exert the prolonged effect which even a single dose is known to exert. The varying degrees of susceptibility to this material of different species and even of members of the same species may be due to the variability of absorption When about 40 cc. of bile was fed to bile-fistula dogs, the irradiated ergosterol produced its usual hypercalcemic effect. LOUIS J. SOFFER

**The effect of irradiated ergosterol on calcium and phosphorus retention in children.** C. B. WELD AND J. F. SYKES. *Trans. Roy. Soc. Can.* V, **26,** 81 8(1932).—Ca and P balances were detd. weekly for 10 weeks on 6 children, aged 8–13 years, who were kept on a const. diet during that time. During the 1st 5 weeks and for a month preceding this, none of the children was given any vitamin D, while 4 of the 6 were given 50 Steenbock units daily during the last 5 weeks. The diet was a mixed diet of about 2100 calories, contg. about 0.823 g. Ca and 1.18 g. P daily. The small amts. of vitamin D given did not affect Ca and P in normal children on a diet moderately low in Ca but otherwise adequate. LOUIS J. SOFFER

**The effect of acid feeding on the composition of bone.** A. L. CHUTE AND LAWRENCE IRVING. *Trans. Roy. Soc. Can.* V, **26,** 141–4(1932).—Five cc. of 2 *N* HCl was administered daily either in the duct or by stomach tube to white male rats Results: The Ca and $CO_2$ of the bones are depleted, the $Ca/CO_2$ ratio is raised, while the P and Ca/P values are not significantly altered. $CaCO_3$ is apparently withdrawn in preference to $Ca_3PO_4$. The combining power of the blood is lowered, but the muscle shows no change in $CO_2$ content. The changes observed in bone appear immediately and the greatest depletion occurs in rats which are not kept over 3 days on the acid diet. L. J. SOFFER

**Anatomical changes in the liver of albino rats fed various fatty substances.** TETSUJI KIMURA. *Trans. Japan. Path. Soc.* **21,** 370–4(1931).—As basic diet a mixt. of butter and cod-liver oil was used, to which were added various fatty acids, lipoids or oils. Vacuolization, fat infiltration and necrosis of liver cells were found. The changes were very marked after cholesterol, oleic acid, lauric acid and stearic acid. Fat infiltration was most marked in the cholesterol diet group. I. S. YUN

**Pathological changes in the teeth due to various diets.** TADASI MASAKI. *Trans.*

*Japan. Path. Soc.* **21**, 693–5(1931).—The ratio of Ca to P in diets is more important than the vitamin D content for the growth and calcification of teeth. I. S. YUN

**Morphological changes of the fore stomach of albino rats kept on specific diets. V. Relationship between the degree of morphological change in the fore stomach and the kinds of fats fed.** YOSHITOMO FUJIMAKI, KUNITARO ARIMOTO, TETSUJI KIMURA, KATSUTOSHI OHBA AND GOSEI MATSUDA. *Trans. Japan. Path. Soc.* **21**, 708–10(1931); cf. *C. A.* **22**, 3913.—Animals fed various fatty acids and lipoids, namely butter and cod-liver oil, in addn. to a basic diet showed different degrees of hyperkeratosis and a typical proliferation of epithelium in the wall of the fore stomach. Such changes were more marked in animals fed diets contg. stearic acid, oleic acid and lauric acid than in animals fed the basic diet alone. I. S. YUN

**Composition of an artificial diet based on prolonged experiments dealing with the relations between alimentation and the phenomena of growth, maintenance and, in particular, reproduction.** LUCIE RANDOIN AND H. SIMONNET. *Compt. rend.* **195**, 1328–30(1932).—The diet developed for white rats has the following compn.: muscle peptone 15, purified casein 2, dry brewery yeast 3, purified butter fat 12, pure rice starch 32, sucrose 32, salt mixt. (Osborne and Mendel) 4%, roughage (filter paper), as desired. Over a period of 3 years, 10 generations were bred successfully. R. P. WALTON

**Lesions of the nervous system in vitamin deficiency. I. Rats on a diet low in vitamin A.** H. M. ZIMMERMAN. *J. Exptl. Med.* **57**, 215–28(1933).—Lesions in the nervous system are described which were produced by a ration contg. no cereals that might have contributed a "toxic" substance to account for the degeneration of the myelin sheaths. A deficiency in unsatd. fatty acids does not appear to have played a role in their development. C. J. WEST

Composition and utilization of Texas feeding stuffs (FRAPS) **12.** The complementary factors in yeast (JANKE, SZILVINYI) **16.** Butterfat variations in cow milk (MACEWAN, LEDINGHAM) **12.**

THOMA, KATHERINE M.: **Food in Health and Disease.** Preparation, Physiological Action and Therapeutic Value. Philadelphia: Davis. 368 pp. $2.75.

## F—PHYSIOLOGY

HOMER W. SMITH

**The fat content of embryonic tissue.** Z. SZANTROCH. *Anat. Anz.* **75**, 46–51 (1932). Histological examn. showed that fat drops appeared in all the cells of chick embryo tissue, but their no., size and arrangement varied according to the kind of tissue or cell. The tissues are classified on the basis of the no. and size of fat globules contained. B. C. BRUNSTETTER

**The formation of fat in the hepatic cell.** J. MCA. KATER AND DOROTHEA M. SMITH. *Anat. Record* **52**, 55–68(1932).—Examn. of liver tissue of rats 8 hrs. after feeding sucrose shows early developing fat globules embedded within the substance of mitochondria. These observations are evidence for the catalytic nature of mitochondrial activity, with reference to fat formation. B. C. BRUNSTETTER

**The effect of the media and the $p_H$ on embryonic brain cultures.** PETER MIHÁLIK. *Anat. Record* **54**, 149–56(1932).—The $p_H$ range of cultures in which nerve-cell emigration and growth of processes occur is 5.8 to 7.8. The optimum is $p_H$ 6.6–6.8. The culture tends to bring the medium to this $p_H$ whether the original reaction was higher or lower than the optimum. The $p_H$ properties of cultures of the connective tissue of the same chick embryos are nearly the same as for nerve cultures. Better growth was obtained in Locke-Lewis soln. than in plasma. B. C. BRUNSTETTER

**Self-sterilizing powers of the skin. III. Carbohydrate metabolism.** THEODORE CORNBLEET. *Arch. Dermatol. and Syphilol.* **26**, 463–5(1932).—Ingestion of 100 g. of glucose at 7 A. M. instead of 9 A. M. produced an earlier, greater and more prolonged depression in the capacity of the skin for self-sterilization. The rate of self-sterilization ran parallel to the rate for the blood-sugar level. Similar values for sterilization rates were found in normal and in diabetic patients; hence the skin's sterilizing power is not related to the abs. amt. of blood sugar. B. C. BRUNSTETTER

**Further investigations on the origin of creatine. VII.** KARL THOMAS, ADE T. MILHORAT AND FRITZ TECHNER. *Z. physiol. Chem.* **214**, 121–38(1933); cf. *C. A.* **26**, 3295.—The tolerance, *i. e.*, max. utilization, of rabbits for ε-guanidocaproic acid, ε-methylguanidocaproic acid, γ-methylguanidobutyric acid and δ-methylarginine is about as great as that for creatine. A patient suffering from progressive muscular dystrophy and excreting creatine was able to utilize 3–5 times as much of the first acid and about the same amt. of the other 3 as of creatine. Glycine and γ-aminobutyric acid increased the creatinuria of this patient, while glutamic acid and hydantoic acid did not

alter it. Methylated guanido acids were recovered from urine through their hitherto undescribed picrolonates. In the recovery of δ-methylarginine a small quantity of *N*-methyl-β(2)-aminopiperidone was obtained, but this must have been formed subsequently by the reagents used. New derivs. described are *ε-methylguanidocaproic acid picrolonate*, m. 249–51°, *γ-methylguanidobutyric acid picrolonate*, m. 252–5°, *ε-guanidocaproic acid picrate*, m. 152° (*picrolonate* m. 236°), *dl-δ-methylarginine flavianate*, m. 231° (decompn.), *N-methyl-β(2)-aminopiperidone picrate*, m. 208°, and *methylarginine picrolonate*, m. 227–8°. Creatine is evidently not an important intermediate in the breakdown of other guanido acids. The former view that creatinine is formed in the body by dehydration of creatine is abandoned. A. W. Dox

**Lysine excretion in the urine in cystinuria.** F. A. Hoppe-Seyler. *Z. physiol. Chem.* **214**, 267–70(1933).—From 60 l. of cystinuric urine 6.1 g. of *5-ω-ureidobutylhydantoin*, m. 198–200°, was isolated, and identified by comparison with a synthetic prepn. obtained from lysine sulfate and $Ba(OCN)_2$. Both prepns. were converted by $HNO_2$ into *5-ω-aminobutylhydantoin* (*chloroplatinate* m. 234–8° (decompn.), *HCl salt* m. 198–200°, *chloroaurate* m. 189–90° (decompn.)). Probably the substance is formed by condensation of lysine with urea during the process of working up the urine. A. W. Dox

**The lactic acid content of normal and of cancerous tissues.** R. Bierich and A. Rosenbohm. *Z. physiol. Chem.* **214**, 271–80(1933).—A summary of previous papers published by B. and R., including discussion of anaerobic and aerobic glucolysis, rate of lactic acid formation, dependence of glucolysis on the nature of the substrate, and the inhibition of resynthesis. A. W. Dox

**Hormone analyses in the urine and the mammary gland secretion.** Egon W. Winter. *Arch. Gynäkol.* **151**, 201–19(1932).—Tests were made for the ovarian hormone and the hormone of the anterior lobe of the hypophysis isolated from the urine and mammary glands of different subjects; castrated mice were used. The following results were obtained: (*a*) In the urine of the newborn the ovarian hormone was found present 3 days post partum, while the hypophysis hormone was found 9 days post partum. There was no hormone present in the mammary secretions of the newborn. (*b*) In the colostrum after 7 months of pregnancy the hypophysis hormone was pos., while the ovarian hormone was absent. (*c*) During the menopause the ovarian hormone was found in the urine. (*d*) In cases of anomalous menses or sterility, the hormones were not present in the urine. L. Eichelberger

**Effect of ovarian hormones theelin and corporin upon the growth of the mammary gland of the rabbit.** C. W. Turner and A. H. Frank. Mo. Agr. Expt. Sta., *Research Bull.* **174**, 3–28(1932); cf. *Anat. Record* **53**, 227.—The injection of theelin in gonadectomized immature rabbits caused the growth of the duct system and slight lobule proliferation comparable to that of the mature virgin rabbit after continuous estrum. Long-continued injection of theelin caused some slight further duct growth. The injection of corporin was ineffective in stimulating the growth of ducts or lobules in the mammary gland. Upon the simultaneous injection of corporin and theelin for 15 days a hyperplasia of the gland lobules was observed resembling the growth of the mammary gland during the first 15 days of pregnancy. It was also possible to stimulate the lactation phase of development normally observed during the second half of pregnancy by means of injections of exts. of sheep pituitary. C. R. Fellers

**Growth and development with special reference to domestic animals. XXV. The course of energy and nitrogen metabolism in the domestic fowl during 48-day fasts—with special reference to the temperament and training of the birds—notes on 60-day fasts in swine.** Virgil W. Phillips, Ural S. Ashworth and Samuel Brody. Mo. Agr. Expt. Sta., *Research Bull.* **179**, 30 pp.(1932); cf. *C. A.* **26**, 5628.—The domestic fowl differs markedly from human beings and from dogs in respect to basal metabolism. Temperament and training are important factors in metabolism and survival. A min. energy metabolism of 400 Cal. per sq. m., or about 35 Cal. per kg., was found on the 20th day of fast. The min. N excretion was 165 mg. of total N per kg. per day on the 12th day, and about 12 mg. total creatinine per kg. per day at the same time. Data are also presented on energy and N metabolism during 2-month fasts in 2 sows. C. R. F.

**Use of geometric mean in determining growth rates.** R. C. Moffat. *Sci. Agr.* **13**, 342–3(1933).—The geometric mean formula is considered more accurate than Minot's modified method. C. R. Fellers

**Cystine and wool production.** A. H. H. Fraser and J. A. Fraser Roberts *Nature* **130**, 473(1932); cf. *C. A.* **23**, 4970.—A brief review which includes exptl. results obtained by the authors in support of an assumption that cystine may be synthesized by the sheep. The hypothesis is advanced that cystine synthesis is a function of the wool follicle. S. B. Foster

**A growth-stimulating substance in fatigued muscle.** H. Munroe Fox and G.

PUGH SMITH. *Nature* **130**, 774(1932); cf. *C. A.* **18**, 3416.—Blow-fly larvae fed with fatigued frog muscle grew larger than those fed on resting muscle, the av. increase being 9%. A search for the substances responsible for this growth stimulation is in progress. S. B. FOSTER

**The carotene of horse blood serum.** ROGER NETTER. *Compt. rend. soc. biol.* **112**, 165–7(1933).—Horse serum does not contain carotene. Its yellow color is due to bilirubin. L. E. GILSON

**Ratio of the sodium salicylate or sodium iodide content of the blood to that of the cerebrospinal fluid.** G. BERUARD AND M. DANIEL. *Compt. rend. soc. biol.* **112**, 176–8 (1933).—Na salicylate appears in the spinal fluid about 2 hrs. after ingestion, it reaches its max. concn., 25% of its concn. in the blood, in 8 hrs., and is all eliminated at the end of 24 hrs. NaI penetrates the spinal fluid less readily, the max. concn., 5% that of the blood, is reached in 6 hrs., and elimination is complete in 12 hrs. L. E. GILSON

**Formation of ammonia in the blood in vitro.** C. VAN CAULAERT, C. DEVILLER AND M. URBAN. *Compt. rend. soc. biol.* **112**, 293–5(1933).—The results confirm those of Parnas and Heller (*C. A.* **19**, 1579). L. E. GILSON

**Action of extract of the anterior lobe of the hypophysis on the lipides of the blood.** J. M. MUNOZ. *Compt. rend. soc. biol.* **112**, 502–4(1933).—Repeated injections of the ext. produce a marked increase in the fatty acids, cholesterol and phospholipides of the blood of normal or thyroidectomized dogs. Ablation of the hypophysis caused a slight decrease of these substances. L. E. GILSON

**Function of the adrenal cortical hormone and the cause of death from adrenal insufficiency.** W. W. SWINGLE, J. J. PFIFFNER, H. M. VARS, P. A. BOTT AND W. M. PARKINS. *Science* **77**, 58–64(1933).—Bilaterally adrenalectomized dogs were kept healthy for months by daily injections of adrenal cortical hormone. The function of the hormone is the maintenance of a normal vol. of fluid in the vascular system. In the absence of the hormone fluid is lost from the blood into the tissues, the blood becomes more concd. and viscous, the pressure falls, and death occurs in 8–12 days. Blood urea and non-protein N increase because of decreased filtration pressure and blood flow to the kidneys, and the vol. of urine decreases. Dogs still live after loss of 40–50% of the plasma and administration of the hormone restores them to normal. A 75% loss of plasma is fatal. Hemorrhage is not compensated without the hormone. The hormone has no direct effect on blood pressure. Symptoms of adrenal insufficiency and traumatic or secondary shock are perhaps both due to failure of blood vol.; if so, the hormone should be beneficial in the treatment of human shock cases. L. E. GILSON

**Phosphatide content [lecithin] of human fetal brains of various ages.** LUIGI CATTANEO. *Ann. ostet. ginec.* No. 5(1932); *Arch. ital. biol.* **88**, 39–48(1932).—Lecithin (percentage and absolute amount) and the lecithin-cholesterol ratio increased regularly in fetuses according to age but were diminished in the suckling. The lecithin value of the fetus was higher in the cerebrum than the cerebellum and *vice versa* for the suckling. HELEN LEE GRUEHL

**The presence in animal tissues of a phosphatase which catalyzes the hydrolysis of borneolphosphoric acid.** LUIGI PELUZZO. *Riv. patol. sper.* **8**, 240–51(1932); *Arch. ital. biol.* **87**, 194–8(1932).—Mascerated dog tissues were extd. with saline and incubated at 37° with K borneolphosphate. The phosphoric acid content was titrated colorimetrically by the Lohmann and Jendrassik method. Phosphatase was found in largest amts. in the pancreas, kidney and brain, in moderate amts. in the liver, spleen and testicles, and in small amts. in the myocardium and skeletal muscle; it was practically absent from the skin. HELEN LEE GRUEHL

**The physicochemical constants of fats in the human fetus, in the pregnant and in the nonpregnant woman.** LUIGI CATTANEO. *Ann. ostet. ginec.* **54**, 483–500(1932); *Arch. ital. biol.* **87**, 199–208(1932).—Fresh fat was extd. in a Soxhlet app. for 10–12 hrs. and detns. were made on the evapd. ether ext. Fetal fat (I) is all solid at body temp. (solidification pt. 22–5°); fat of the nonpregnant woman (II) is all liquid at body temp.; and fat of the pregnant woman (III) is part liquid and part solid. The iodine no. of unsatd. acids is lower in I (45.9–51.5) than in II or III (56.5–70). The av. mol. wt. of I is 241, of III 246.5, and of II 258. There was no great difference in sapon. no. and no uniformity in the acid no. of any of the fats. HELEN LEE GRUEHL

**The reaction of human milk.** WM. PARTRIDGE. *Analyst* **58**, 88–9(1933).—Richmond (*C. A.* **2**, 1989) gives the following values for the acidity of 8 samples of human milk: 5.5°, 2.8°, 3.7°, 3.7°, 3.7°, 4.7°, 9.3° and 5.5°. These would be the "conventional dairy degree" of acidity. Results of analyses on 15 samples made during 14 yr. show that the acidity lies in most cases between 2.0 and 5.5 dairy degrees. The fat, protein, lactose, ash and acidity values of the 15 samples are given. W. T. H.

**The treatment of pernicious anemia by intramuscular administration of liver extract.** E. W. MCHENRY, E. S. MILLS AND R. F. FARQUHARSON. *Can. Med. Assoc. J.*

**28,** 123–32(1933).—A liver ext. prepd. by the method of Strauss, Taylor and Castle for intramuscular administration has been found safe, dependable and effective in adequate dosage. It is about 30 times more potent intramuscularly than *per os*, and the ext. from 10 to 20 g. of liver is as effective intramuscularly as 250–800 g. of fresh liver *per os*. It affords a means of giving large doses to patients where a severe relapse has occurred. The results obtained are not superior to those following ingestion of an adequate amt. of liver or liver prepns. G. H. W. LUCAS

**The total sterol and ergosterol contents of the tissues during the development of the organism.** HERBERT HENTSCHEL. *Z. Kinderheilk.* **52,** 623–46(1931–2).—The absolute total-sterol content of the entire organism increases throughout the period of intrauterine development up to the time of birth, while the relative content becomes stable at the margin of viability. The ergosterol content continues to rise, both relatively and absolutely, with progressive development. In the brain, development and total-sterol content are parallel, while ergosterol increases only during intrauterine growth. After birth it undergoes a relative decrease. In the earliest developmental stages the skin shows its highest relative total-sterol content. Nevertheless the absolute increase during growth is appreciable. Both the total and proportional ergosterol content of the skin increases markedly with increasing age. The liver stores a considerable amount of total sterol, but reaches its relative max. early in childhood, while the max. for ergosterol occurs shortly after birth. Studies on the sterol balance of the laying hen indicate that the animal organism is able to form cholesterol, but not ergosterol. E. M. H.

**The influence of the P substance on the calcium- and phosphorus-balance.** SOPHIE KOCH. *Z. Kinderheilk.* **52,** 664–7(1931–2).—Subcutaneous or intraperitoneal injection of the P-substance (lymphoid tissue hormone) significantly increases the elimination of Ca and P. This leads to a strongly neg. balance, which persists after the injections are stopped. The loss during the injection period, as in rickets, is largely in the stools. Later there is regularly a significant elimination of P in the urine. E. M. H.

**The behavior of glycero- and hexosediphosphatase under the influence of the P-substance. II.** JOSEF SCHMIDT. *Z. Kinderheilk.* **52,** 676–8(1931–2).—In young rats the intraperitoneal injection of the P-substance (lymphoid tissue hormone) induces an appreciable increase of phosphatases in the epiphyseal lines of bones. The values in the kidneys are unchanged, but a significant decrease is noted in the upper part of the small intesine. ELEANOR M. HUMPHREYS

**The alimentary absorption of water and tissue hydration in relation to diuresis.** H. HELLER AND F. H. SMIRK. *J. Physiol.* **76,** 1–38(1932).—In the guinea pig, rabbit and rat, absorption of $H_2O$ from the intestine is much more rapid than its excretion through the kidney. Diuresis is decreased and extrarenal $H_2O$ loss increased in an environment of 37°. Conclusion: The rate of urine formation is not proportional to the then existing degree of hydration in muscle, liver and blood. J. F. LYMAN

**Excitability of the single fiber nerve-muscle complex.** HARRY GRUNDFEST. *J. Physiol.* **76,** 95–115(1932).—The relation between the intensity of an elec. stimulus and the min. duration for which it must be applied to stimulate single nerve and muscle fibers is in agreement with the idea that the excitable substances of nerve and muscle are different and in conflict with the theory of isochronism. J. F. LYMAN

**Normal gas tensions in the mucous membrane of the rabbit uterus.** J. A. CAMPBELL. Proc. Physiol. Soc., *J. Physiol.* **76,** 13P(1932).—O tension is 20 to 45 mm. Hg, $CO_2$ tension is 40 to 60 mm. J. F. LYMAN

**The depressor constituent of muscle extracts.** A. N. DRURY. Proc. Physiol. Soc., *J. Physiol.* **76,** 15–6P(1932).—Cytidylic acid allied to adenylic acid is present in muscle exts. and plays a part in their depressor activity. J. F. LYMAN

**The formation of hemoglobin in the perfused frog. I. Action of hemoglobin and some of its derivatives [hematin, hematoporphyrin, iron-pyrrole, pyrrole and iron].** RODOLFO FERRARI. *Arch. sci. biol.* (Italy) **17,** 25–40(1932).—Expts. were made on *Rana esculenta*. Normal values of hemoglobin and erythrocytes being established, the frogs were perfused with salt soln. and after a few days injected with the substances named. The periodic injection of hemoglobin or of hematin or hematoporphyrin or iron-pyrrole or pyrrole or ferric $NH_4$ citrate always produced a considerable increase in the hemoglobin and red count. The increase was max. after injections of hemoglobin; next in values were hematin and hematoporphyrin; the increase from iron-pyrrole and pyrrole was not so marked and ferric $NH_4$ citrate gave the least response. All these substances enrich the immature forms of erythrocytes with hemoglobin and also stimulate the formation of new erythrocytes. P. F. METILDI

**Muscular contraction without the production of lactic acid.** EMILIO MASTINI. *Arch. sci. biol.* (Italy) **17,** 57–70(1932).—Contracture by heat, caffeine, quinine and K salts occur also in muscles incapable of producing lactic acid. Heat contractures in muscles poisoned by monoiodoacetic acid begin at a lower temp. than in normal muscles.

Decreasing the $p_H$ of the medium in which heat contracture occurs tends to approximate the curve of the poisoned muscle to that of the normal. P. F. METILDI

**Glucose content and activity of the sensory-motor centers in the cerebral cortex of the dog.** G. MARTINO. *Arch. sci. biol.* (Italy) **17**, 169–84(1932).—See *C. A.* **26**, 3025. P. F. METILDI

**The relationship between the oxygen consumption of the intercostal nerve of cattle and oxygen tension.** ALBERT PRAGER. *Biochem. Z.* **257**, 301–6(1933).—For the intercostal nerve of 1.9 mm. diam. the opt. O consumption is in a mixt. with 15–18% $O_2$, and at lower tensions the O consumption diminishes almost proportionally to the diminution in O pressure. S. MORGULIS

**The sugar metabolism of the non-medulated nerve of mammals.** HARRY ROSENBAUM. *Biochem. Z.* **257**, 307–9(1933).—The metabolism of sugar by the splenic nerve is greatest during the first hr. but even then it is only $^1/_4$ as great as in medulated nerves. The sugar metabolism dwindles almost to nothing after the first hr. The O consumption is increased by the addn. of sugar. S. MORGULIS

**The carbon dioxide production of the mammalian nerve under reflex stimulation.** JOACHIM VON LEDEBUR. *Biochem. Z.* **257**, 310–12(1933).—Under reflex stimulation there is no measurable increase in the $CO_2$ production of the peripheral nerve. S. M.

**The ammonia production in mammalian nerve.** KLAUS HALTER. *Biochem. Z.* **257**, 313–24(1933).—The isolated ischiadicus nerve of the rabbit produces 4 to 5γ $NH_3$ per g. and per hr. but considerably more under elec. or mech. stimulation. The $NH_3$ production diminishes under asphyxia and is raised again on subsequent administration of O. In the ischiadicus retaining its contact with the central nervous system the $NH_3$ production for $^1/_2$ to $1^1/_2$ hrs. is 13.4γ per g. and per hr. The reflex stimulation of the nerve causes a 24% rise in the $NH_3$ production, but anesthesia or asphyxia lowers the production considerably. S. MORGULIS

**The carbon dioxide and ammonia production of the non-medulated mammalian nerve.** HARRY ROSENBAUM AND KLAUS HALTER. *Biochem. Z.* **257**, 325–32(1933).—The splenic nerve takes up much more $O_2$ than it produces $CO_2$. The $NH_3$ production at room temp. is of the same magnitude as in medulated nerves, but is increased at body temp. and continues increasing in the course of the expt. This is attributed to a utilization of N-contg. sources as the N-free sources of energy are exhausted. S. MORGULIS

**The mineral components of cartilage.** WALTER SILBER. *Biochem. Z.* **257**, 363–70 (1933).—The ear cartilage of the rabbit has a greater Na content than K content as was found to be the case in other types of cartilage also. The air-dry cartilage has a 4% ash content of which 22% is Na, 12% K, 3% Ca, 2% Mg, 40% $SO_4$, 7% $P_2O_5$ and 15% Cl. About 90% of the minerals were leached out by water in the course of 3 weeks. S. M.

**The problem of the physiology and metabolism of hormones in the organism.** B. M. ZAVADOVSKII. *Endokrinologie* **12**, 81–90(1933).—General discussion. S. M.

**The potassium content of aqueous humor and of plasma.** C. E. RÄIHÄ. *Skand. Arch. Physiol.* **86**, 276–86(1933).—Injection of KCl causes an increase in the K content of both plasma and of the aq. humor. Acidosis brings about no alteration in the K level but it impedes the transfer of KCl from plasma to the aq. humor so that in the latter there is no rise in K after a KCl injection. Alkalosis, on the other hand, causes a fall in the K level of the plasma and of the aq. humor. Insulin produces an effect similar to alkalosis while adrenaline affects the K just as acidosis does. S. MORGULIS

**Passage of cholesterol through the mucosa of the gall bladder.** A. L. WILKIE AND HENRY DOUBILET. *Arch. Surg.* **26**, 110–21(1933).—In normal animals with the cystic duct tied, when the cholesterol concn. in the bile is lower than that of the blood, cholesterol passes from the blood through the mucosa of the gall bladder into the bile, and vice versa. JOHN T. MYERS

**Absorption of dextrose from the colon.** WALTER W. EBERLING. *Arch. Surg.* **26**, 134–52(1933).—Very little dextrose is absorbed from the colon and water absorption is retarded by the presence of the dextrose. JOHN T. MYERS

**Gastric secretion. III. Increased acid secretion in a transplanted gastric pouch during lactation.** EUGENE KLEIN. *Arch. Surg.* **26**, 235–45(1933); cf. *C. A.* **26**, 6001.—In gastric pouches transplanted to the subcutaneous tissues of the abdominal wall and completely sepd. from the old blood and nerve supply, there was an increase in the quantity of secretion and of the concn. of HCl. The causative factor is at least partly humoral. **IV. The effect of atropine on the secretion of transplanted gastric pouches.** *Ibid* 246–57.—In the dog, atropine in non-toxic doses can abolish the secretion of HCl in the Pavlov pouch, and in transplanted pouches. In man it apparently does not abolish the chem. phase of secretion. JOHN T. MYERS

**Physiology of the eosinophile. I. The effect of starvation and exposure to cold on the white blood cells of the guinea pig.** A. IZARD JOSEY AND JOHN S. LAWRENCE. *Folia Haematol.* **48**, 303–12(1932). **II. The effect of subcutaneous and intraperitoneal**

**injection of Escherichia coli on the white blood cells of the guinea pig.** JOHN S. LAWRENCE AND A. IZARD JOSEY. *Ibid* 313–22.—There is a moderate increase in the total no. of white cells, and in the abs. no. of neutrophiles, a marked diminution in lymphocytes and eosinophiles, and no change in the monocytes. Similar results followed the intraperitoneal injection of killed colon bacilli and of diphtheria toxin. **III. The effect of the intraperitoneal injection of ammonium chloride on the white blood cells of the guinea pig.** *Ibid* 323–9.—There is slight and transient increase in the total no. of cells, a neutrophilic leucocytosis, a decrease of eosinophiles and lymphocytes and an inconstant response on the part of the monocytes. This may be due to the products of tissue autolysis. **IV. The effect of intraperitoneal and intravenous injection of sodium bicarbonate solution on the white blood cell picture.** *Ibid* 330–6.—The results were the same as with $NH_4Cl$ when given either intraperitoneally or intravenously, in the guinea pig, dog and man. JOHN T. MYERS

**The hemoglobin concentration of normal English males and females.** C. E. JENKINS AND C. S. D. DON. *J. Hyg.* **33**, 36–41(1933).—The mean hemoglobin concn. of 118 normal English males was about 115% in Haldane's scale when the standard is detd. by the Van Slyke gas app. In 116 women the mean was 100%. There is no foundation for the belief that the English mean differs materially from the American. J. T. M

**The influence of static effort on the respiration and on the respiratory exchange.** T. BEDFORD, H. M. VERNON AND C. G. WARNER. *J. Hyg.* **33**, 118–50(1933). JOHN T. MYERS

**Male hormone. II. Hormone of the testicle of the swine. 1.** A. OGATA, S. HIRANO AND S. HIRATA. *J. Pharm. Soc. Japan* **52**, 1060–85(1932)(in German 187–94); cf. *C. A.* **26**, 5638.—The method of prepg. the hormone exts. and their effect upon the capon by injection are given. F. I. NAKAMURA

**The occurrence of pituitary hormones in the urine in conditions unassociated with pregnancy.** T. N. A. JEFFCOATE. *Lancet* **1932**, I, 662–5.—Prolan A was found in the urine of patients at the menopause after castration, or with malignant disease where the genital tract was the site of the tumor, or where sub-total thyroidectomy had been performed for exophthalmic goiter. Prolan B was never excreted in the urine except when the patient had living chorionic elements present in the body. F. B. SEIBERT

**The effect of strenuous exercise of short duration upon the sugar content of the blood.** O. M. SOLANDT AND G. C. FERGUSON. *Trans. Roy. Soc. Can.* V, **26**, 173–4 (1932).—Strenuous exercise of short duration caused a slight, but definite rise in blood sugar with all of the 9 healthy young male subjects investigated In some instances the increase was more prolonged than in others. In order to show the greater rise in blood sugar after more prolonged exercise, 3 of the subjects ran a mile in 5 to 6 min. It is possible that the rise in blood sugar was due to the excitement of taking the blood samples but this possibility is considered remote. LOUIS J. SOFFER

**The effect of acid upon post-mortal lactic acid formation in mammalian muscle.** LAWRENCE IRVING AND A. ELEANOR C. RIGGS. *Trans. Roy. Soc. Can.* V, **26**, 121–6 (1932).—The authors found that Ringer soln. checked the lactic acid formation of fresh and thawed gastrocnemius muscle both of the dog and rabbit, the inhibitory effect being maximal when 1 cc. of soln. is used for each g. of muscle. HCl reduced the formation of lactic acid, the inhibition increasing with increase in concn. of HCl. The effect is more pronounced in fresh than in thawed muscle. The amt. of inhibition is not equiv. to the amt. of acid added so that acidity alone is not the limiting factor in post-mortal lactic acid formation. The formation of lactic acid is retarded more by the lactic acid formed naturally in the muscle than by the addn. of HCl. LOUIS J. SOFFER

**The origin of the comb-growth-promoting substance in male urine.** D. ROY MCCULLAGH, W. KENNETH CUYLER AND JOHN T. FRAWLEY. *Trans. Roy. Soc. Can.* V, **26**, 183–92(1932).—The comb-growth hormone extd. from male urine maintains the prostate and seminal vesicles in normal condition in castrated rats. The life of spermatozoa obtained from castrated animals could be increased with this hormone. The hormone was obtainable from the body fluids of normal males but was absent in similar fluid of eunuchs. The comb-growth-promoting substance in male urine is sol. in EtOH, MeOH, acetone, $CHCl_3$, $CCl_4$, benzine, pyridine, the hydrocarbons, olive oil, alk. aq. soln. and aq. alc. It is very thermostable, especially in the absence of oxygen. The male sex hormone from the urine is probably a ketone. The testicular hormone and the hormone obtained probably are identical. One bird unit of hormone is that amount of material which, when injected daily for two days, produces a comb growth of 2–4 mm. in at least 4 out of 5 birds. LOUIS J. SOFFER

**Spectrographic proof of the formation of substances by excitation of the cardiac nerves.** Z. M. BACQ AND V. HENRI. *Compt. rend.* **196**, 135–7(1933); cf. *C. A.* 25, 4304.—The frog heart, perfused with Ringer soln., was caused to contract by elec. stimulation of the nerve endings, and the Ringer soln. expressed was collected. The

soln. shows an absorption band in the ultra-violet with a peak at 3150 A. U., while the corresponding soln. from an unstimulated heart shows only general absorption from 2600 down, because of the dissolved salts. The absorption band is ascribed to a diffusible substance produced as an intermediate between the postganglionic sympathetic fiber and the receptor cell, and passing out into the surrounding tissue. K. V. THIMANN

**Female sexual hormones.** G. SANDULESCO, WANG W. TCHUNG AND A. GIRARD. *Compt. rend.* **196,** 137–40(1933); cf. *C. A.* **26,** 4090, 4643.—*Equilenine* (I), obtained from the urine of pregnant mares, forms a picrate, $C_{18}H_{18}O_2.C_6H_2OH(NO_2)_3$, m. 205–8°, which is readily crystallizable, having a soly. in alc. contg. 5% picric acid of 17.5 g. per l. at boiling temp. and 1.0 g. per l. at 20°. The picrate of folliculin (II) is more sol., and the two can be readily sepd. by 2 or 3 recrystns. A simple method for detecting I consists of heating the hormone mixt. to 255° (in boiling biphenyl), when a red color appears. By this means "pure" specimens of II were examd. and without exception were found to contain I in considerable amts. The published phys. consts. of II are, therefore, in error. The following derivs. of I were prepd.: *semicarbazone*, m. 268°; *styphnate* m. 212–3°; *picrate* of the *acetate*, m. 106–7°; and *Me ether* m. 197–8°; the latter gives the equilenine red reaction, but only very slowly. K. V. THIMANN

**A new crystalline sex hormone.** A. GIRARD, G. SANDULESCO, A. FRIDENSON AND J. J. RUTGERS. *Compt. rend.* **195,** 981–3(1932); cf. *C. A.* **26,** 4643.—Besides folliculin, $C_{18}H_{22}O_2$, 2 new hormones have been isolated from pregnant urine. Equilenine (I) $C_{18}H_{18}O_2$ ($\alpha_D$ = +308°) was obtained in a 1.50 g. quantity from 52 tons of urine and hippuline ($\alpha_D$ = +128°) was not obtained in quantities sufficient to be studied. (I) was concd. from urine by alternate fractional extn. in dil. alk. and crystn. from alc. (I) is 12 to 20 times less active than folliculin when tested by the Allen-Doisy procedure ($\alpha^{15°}_D$ = +87° (1% soln. in dioxane) m. 258–9° corr. The acetate of (I) m. 156–157°, the oxime, m. 249–50° corr. Bromination by the method of Rosenmund stops at the stage of a monobromo deriv., m. 225–227° corr. R. P. WALTON

**The effect of splenic extract of various animals on the growth of chicken embryo heart tissue.** K. SHIMIZU. *Japan. Z. Mikrobiol. Path.* **26,** 1412–22(1932).—Splenic exts. of 18 kinds of birds, mammals and cold-blooded animals accelerated the growth of chicken embryo heart tissue. Rabbit spleen ext. was the most effective for this purpose. I. S. YUN

## G—PATHOLOGY

H. GIDEON WELLS

**The antigenic properties of glycogen.** GICHIRO IKEDA. *Japan. J. Med. Sci. VII. Social. Med. Hyg.* **1,** 221–38(1932).—Glycogen of horse, dog and rabbit gives rise to sp. glycogen antibodies in rabbits as indicated by precipitin and complement-fixation reactions. The species specificity, although very sensitive, is not perfect and appears in the form of organ specificity. PHILIP D. ADAMS

**The activity of adsorbed antibodies.** TAKAHARU TOMI. *Japan. J. Med. Sci. VII. Social. Med. Hyg.* **1,** 239–54(1932).—The antibodies (bacterial and hemagglutinin, bacteriolysin, hemolysin, bacteriotropin, tetanus antitoxin) are adsorbed on wood charcoal. Immune substances act as well in the adsorbed state as in soln. P. D. A.

**The carbon and nitrogen in blood filtrate and cerebrospinal fluid.** JOAN CLAUDATUS. *Z. physiol. Chem.* **215,** 10–14(1933).—Detns. of residual C in blood, and total C, total N and residual N in cerebrospinal fluid are reported for a no. of psychopathic patients, and an attempt is made to interpret the data. A. W. DOX

**The iodine-deficiency theory of goiter.** JÁNOS STRAUB. *Magyar Biol. Kutató Intézet Munkái* **4,** 543–5(in German 545–7)(1931).—Waters of goiterous territories contained sufficient I and waters of nongoiterous places did not contain much I. Not only water but all food should be examd. for I. Urine samples of 13 subjects contained much more I than the daily 40 γ, although the water used did not contain more than 0.5–1.5 γ I per l. S. S. DE FINÁLY

**The antigen nature of benzoylalbumins.** J. E. MEDVECZKY AND A. UHNROVITS. *Math. naturw. Anz. ungar. Akad. Wiss.* **48,** 69–109(in German 110–11)(1931).—Immune sera produced from benzoylalbumins gave cross reaction with other benzoylalbumins, with albumins contg. substituted benzoic acid radicals and further with albumin derivs. of aliphatic acids. The reaction was the weaker the shorter the C chain. There was no reaction with the same native albumin from which the benzoyl compd. was produced. The immune serum of the native albumin, however, reacted with the benzoyl compd. made from the same albumin. Benzoylated typhus bacteria produced much stronger immunity than a benzoylated serum albumin. The pptn. was not impeded by Bzona. A definite connection was found between precipitability and quantity of substituted radicals contained by the benzoylated antigen. S. S. DE FINÁLY

**Variations in the antigenic power of diphtheria toxin depending upon the composition of the culture medium.** G. LOISEAU AND M. PHILIPPE. *Compt. rend. soc. biol.* **112,** 131–3(1933); cf. *C. A.* **26,** 2233.—Culture media are discussed, and some expts., similar to those previously described, are reported. L. E. GILSON

**Action of sodium cholate on dysentery toxin. Its antitoxic power in vitro.** C. AUGUSTE. *Compt. rend. soc. biol.* **112,** 199–200(1933).—If Na cholate (cholalate) and dysentery toxin are mixed and injected immediately into a rabbit the usual toxic effects are produced. If mixed and allowed to stand several days at room temp. 0.01 g. Na cholate will completely detoxify 4–5 lethal (rabbit) doses of the toxin. L. E. G.

**Action of manganese chloride and of sodium thiosulfate on intoxication by tuberculin and on the sensitivity of the skin to tuberculin in the case of tubercular guinea pigs.** M. VANDESTRATE. *Compt. rend. soc. biol.* **112,** 357–9(1933).—In the expts. described neither salt had any effect. L. E. GILSON

**Plasmatic and corpuscular hypochloremia and variations in the plasma chlorine-corpuscle chlorine ratio after general surgical operations.** JULES DRIESSENS AND ROBERTE DEVERLY. *Compt. rend. soc. biol.* **112,** 389–91(1933).—**Variations in the corpuscle chlorine-plasma chlorine quotient and its relation to the alkali reserve after general surgical operations.** PAUL BOULANGER AND JULES DRIESSENS. *Ibid* 391–2. L. E. GILSON

**The bromine of the blood in cases of maniac depressive psychosis.** C. I. URECHIA AND MME. RETEZEANU. *Compt. rend. soc. biol.* **112,** 411–12(1933).—Normal human blood contains 0.8–1.0 mg. Br per 100 cc. In cases of maniac depressive psychosis the values were 0.68–0.78 mg. L. E. GILSON

**Variations in blood protein content of the blood in relation to the clinical and hematochemical symptomatology of various types of nephropathy.** CARLO CIPRIANI AND ALDO CIONINI. *Arch. Sci. Med.* **56,** 581–640(1932); cf. *C. A.* **26,** 5318.—In 81 cases of nephropathy hypoproteinemia, hypercholesterolemia and hyperfibrinemia occurred in lipoidal nephrosis and subacute glomerulonephritis, with a lowered, inverted or normal albumin/globulin quotient. In diffuse chronic glomerulonephritis there occurred hypoproteinemia, hypercholesterolemia, hyperfibrinemia and a normal albumin/globulin quotient. Nephrosis with renal amyloidosis showed hypoproteinemia, hyperfibrinemia, low normal, or increased cholesterolemia with a diminished or inverted albumin/globulin quotient. In diffuse acute glomerulonephritis the fibrinemia was increased or normal and the cholesterolemia was low normal in recent forms, increased in protracted forms. Chronic glomerulonephritis in the 2nd stage showed hyperazotemia, acidosis, normal proteinemia, normal or increased fibrinemia and albumin/globulin quotient and slightly higher cholesterolemia. In gravid nephropathy with eclamptic pseudouremia there was hypoproteinemia, normal cholesterolemia and albumin/globulin quotient In postnephritic and orthostatic albuminuria there was generally no change. HELEN LEE GRUEHL

**Ketogenesis and hepatic insufficiency.** G. GHERARDINI AND M. BRASI. *Minerva med.* **1933,** I, 8–14.—In a study of 12 cases no abs. uniformity of results was obtained. There was an indication that ketonuria decreased to a certain point, then increased with the severity of the disease. The total ketones eliminated were in direct proportion to the increase or decrease of diuresis. No definite relation existed between ketonuria and ketonemia. HELEN LEE GRUEHL

**Ketonuria.** G. GHERARDINI AND M. BRASI. *Minerva med.* **1933,** I, 95–8.—A preliminary report is given of ketonuria (Engefeldt method) 2 hrs. before and 2 hrs. after adrenaline injection in 9 hepatic and 9 non-hepatic persons. In general, in both groups the percentage of acetone decreased, the percentages of acetoacetic acid and β-hydroxybutyric acid increased after the injection, while the percentage of total ketones increased or decreased. In hepatics the diuretic effect of adrenaline seemed less marked than in normals. HELEN LEE GRUEHL

**Free and protein sugar in therapeutic pneumothorax.** G. NANNINI AND B. DAVOLIO-MARANI. *Minerva med.* **1933,** I, 139–40; cf. *C. A.* **27,** 1395.—In 11 cases the free glucemia was normal. The protein glucemia was normal when the collapse was complete and increased when the collapse was incomplete. HELEN LEE GRUEHL

**Microbial metabolism and its bearing on the cancer problem.** A. J. KLUYVER. *Science* **76,** 527–32(1932).—An address, pointing out the adaptability of pure cultures in synthetic media for studies in cell metabolism. L. B. HOLLANDER

**The effect of tumor regression and tissue absorption on some properties of the serum.** A. M. BEGG AND H. A. A. AITKEN. *Brit. J. Exptl. Path.* **13,** 479–88(1932).—Extensive bleeding or intratumoral injections of Na oleate into fowls sometimes leads to regression of the Rous tumor. The presence of the Rous sarcoma does not increase the antitryptic property of fowl serum. Fowls immune to cell inoculations of Rous sarcoma have a high serum lipolytic power, and the same applies to animals which

have received intramuscular or subcutaneous injections of surviving foreign tumor tissue. The presence of Rous, Mill Hill, "63," "37S," tar tumors or of injected foreign tissue alters the serum of the tumor-bearing animals, so that the point of flocculation with vanadate-acetic acid is displaced in the direction of lower $p_H$. H. F. H.

**The use of equivalent proportions of antigen and serum in absorption of precipitin.** J. T. DUNCAN. *Brit. J. Exptl. Path.* **13**, 489–97(1932).—Approx. 35 pptg. sera and 85 antigens were used; the results point to the value of equiv. dosage in precipitin absorption, especially when the test is used for the detection of minor antigenic differences between closely related species. The Dean and Webb (*C. A.* **21**, 609) optimal flocculation ratio may be used as a guide to the equiv. antigen-antibody ratio. The tests were used chiefly for the detection of a specific homologous antibody in the supernatant liquids, but some of the expts. suggest that a specific fraction of the heterologous antigen may be present also. A method frequently used was the equiv. absorption, by a heterologous antigen, of a serum which was then used to group other heterologous antigens. The homologous optimal ratio with the supernatant liquid after heterologous absorption may be an index of the integrity of the specific antibody group. H. F. H.

**The relation of optimal agglutination to the equivalent serum-suspension ratio.** J. T. DUNCAN. *Brit. J. Exptl. Path.* **13**, 498–502(1932).—In serum agglutination of bacteria two different optimal agglutinating ratios of serum to suspension can be demonstrated, analogous to the Ramon (*Compt. rend. soc. biol.* **86**, 711(1922)) optimal ratio, and the Dean and Webb (*C. A.* **21**, 609) optimal ratio of serum pptn. reactions. Of the two the Dean and Webb optimal ratio seems to approach more closely to the apparent position of the equiv. antigen-antibody ratio, and it may prove of use as a guide to the dosage in proportional absorption by heterologous suspensions. H. F. H.

**The lipocytic coefficient and alimentation in cancer.** H. PERICAUD. *Néoplasmes* **11**, 291–6(1932).—The lipocytic coeff., or the ratio of cholesterol to lipoidal P, is considerably decreased in cancer. Through its OH group cholesterol has an antitoxic action on the toxins of cancer and becomes toxocholesterol, which is not toxic but inactive. Lipoidal P, especially lecithin, combines with the toxins of cancer to form a toxolecithin which is hemolytic and the cause of the anemia of cancer cachexia. Cholesterol destroys the toxicity of this toxolecithin and sufficient cholesterol should be furnished to neutralize the toxic and hemolytic action of the toxolecithin and to reëstablish the normal lipocytic coeff. Good therapeutic effects in relieving the anemia were obtained in cancer patients by ingestion of 300–350 g. of calf or beef liver, preferably raw, or hepatin if raw or cooked liver was not tolerated. Ordinarily too much lipoid contg. P, and not enough lipoid without P, is given cancer patients. H. F. H.

**Ultra-violet rays and the hemolysis of normal and neoplastic blood cells caused by erythrosin.** A. H. ROFFO. *Néoplasmes* **11**, 351–65(1932).—The irradiation *in vitro* of red blood cells of rats with ultra-violet rays causes hemolysis of an intensity proportional to the dosage given. The reaction is more rapid with red blood cells of mica affected by tumors (sarcoma and carcinoma) than with red blood cells of normal rats. If erythrosin is added, hemolysis is greatly increased. The same differences in speed of reaction, 4–8 times greater in blood from cancerous than normal animals, are noted. Human blood cells, normal and cancerous, show similar behavior. *In vivo* irradiation in both rats and man increases the sensitivity of the red blood cell to erythrosin in proportion to the duration of the irradiation. The sensitivity of the red blood cell caused by irradiation is maintained for as long as 48 hrs. The process of actino-erythrohemolysis appears to be a complicated one in which the fluorescence exerts an influence on the irradiation absorbed, because of its photodynamic properties. Neoplastic red cells are higher than normal in albumin and lipoids, and hence absorb rays more strongly.
HARRIET F. HOLMES

**Chemical studies of the urine with the Sauerbruch-Herrmannsdorfer-Gerson diet.** JOSEPH CSAPO, MARIA PÉTERFY AND ELLA PÁLFY. *Arch. Kinderheilk.* **96**, 231–5 (1932).—Detailed chem. studies of the urine of 6 tuberculous children, on a S-H-G diet, indicate that there is no shift in the direction of an acidosis. If any shift is present, it is toward an alkalosis. ELEANOR M. HUMPHREYS

**Studies on the alimentary allergy of the eczematous child with special consideration to sensitization to egg white.** A. STROBL AND A. WASITZKY. *Monatsschr. Kinderheilk.* **54**, 53–64(1932).—The complement-fixation test demonstrated antibodies against egg white in 5, and against cow milk in 5 of 21 eczematous children. With 4 of the former and 3 of the latter the antibody titer of the serum was, in the eczema zone of Moro, above 1:8100. The cutaneous test to egg white was pos. more often than the serum reaction. In 7 infants who later developed eczema antibodies for egg white were demonstrated once, for cow milk once. In 29 cases of healed eczema in children under 10 years the serum of 3 gave pos. results with egg white, of 6 with cow milk. On the other hand, the skin test for sensitization to egg white was pos. in 16 of 23 of

this group. Sensitization to foods was also shown in 13 cases; in 9 of these the food was egg. This sensitization led to a recurrence of eczema in but 3 instances. In 3 adults with a history of eczema serum antibodies could not be demonstrated although they gave pos. skin tests with egg white and in 2 the Prausnitz-Küstner reaction was pos. ELEANOR M. HUMPHREYS

**The tissue chemistry of infants.** DÉNES v. MÓRITZ AND EDMUND KERPEL-FRONIUS. *Monatsschr. Kinderheilk.* **54**, 371–6(1932).—In these studies of the organs of 15 infants, the Cl, residual N and $H_2O$ contents were detd. The osmotic concn. was found by direct cryoscopy. Hyperosmotic values, found in the tissues of 2 infants who died of infections, were not attributable to dehydration, but to the accumulation of nitrogenous wastes. In an infant demineralized by vomiting the main findings were hyposmotic values and extreme lowering of Cl. ELEANOR M. HUMPHREYS

**Demonstration of Bence-Jones protein in the blood and urine.** OTTO JERVELL. *Norsk Mag. Laegevidenskap.* **93**, 622–31(1932).—In a case of multiple myelomata of the bones Bence-Jones protein (B.-J. p.) was found in the blood and urine, and spontaneous crystn. in the urine took place when it was allowed to stand for The serum coagulated when heated to 56°. The total quantity of protein in the was considerable (9.08%), with a high content of globulin (5.09%) and a lo centage of albumin (3.99%). The serum (0.5 cc.), dild. with 4.5 cc. of salt sol acidulated with 2 drops of 2% AcOH gave, after 2–3 hrs. in a thermostat at white ppt. Control serum, treated in the same way, gave no ppt. The B.-J. isolated from the serum by dilg. the latter with salt water acidulated with ..., heating the soln. to the b. p. and filtering over a boiling water bath. In the filtrate, the B.-J. p. was salted out with $(NH_4)_2SO_4$. When the urine stood some time, relatively large quantities of B.-J. p. crystd. out spontaneously. The crystals dissolved easily in alk. solns. and were pptd. again by acidulation (to $p_H$ 4.3–6.4) with AcOH. The ppt., after a short time, showed typical crystal forms: fine and coarse needles and boat-shaped and spherical crystals. They gave all the reactions characteristic of B.-J. p. Crystals that had been recrystd. 3 times and dried in air were used for the detn. of the isoelec. point of the protein by a special method, which is described. The isoelec. zone was found to lie between $p_H$ 4.0 and 4.25. H. C. M. INGEBERG

**Blood changes in paralytic ileus.** EIVIND HEGGE. *Norsk Mag. Laegevidenskap.* **93**, 1033–59(1932).—Blood chloride and residual N were detd. in the blood from a no. of patients with post-operative intestinal and gastric paralysis, as well as in several cases of peritonitis. and in two cases of paralytic ileus occurring in conjunction with trauma. After operations without complications, performed with narcosis or spinal anesthesia, small changes in chloride and residual N are found A certain tendency to hypochloremia and a slight increase of residual N are noticeable during the 1st days after the operation. Whenever the case is complicated by intestinal or gastric paralysis, the blood chloride at once falls rapidly and a considerable azotemia appears. In peritonitis these blood changes seem to be closely connected with the complicating intestinal paralysis. With respect to these changes in the blood, paralytic ileus is identical with mech. ileus, and the importance of compensating for the loss of chloride and of fluids accordingly is equally great in the 2 cases. Advantages of intravenous injection of hypertonic salt soln. are pointed out, the action of this soln. as a peristaltic is described. H. C. M. INGEBERG

**Titration of the neutralizing potency of antimeningococcus serum by the phenomenon of local skin reactivity.** GRACE M. SICKLES. *Am. J. Pub Health* **23**, 259–60 (1933).—Titration of the neutralizing potency of antimeningococcus serum by the phenomenon of local skin reactivity is possible within certain limits. The significance of the test as an indication of therapeutic value has not yet been established but the simpler technic, although not sufficiently developed to be used as a method of standardization, provides a means for comparison and evaluation and supplies information not obtained with the agglutination test. J. A. KENNEDY

**Lipoid-globulin cholesterol ratios in cancer.** HARRY COKE. *J. State Med.* 41, 105–15(1933).—The original paper should be consulted. J. A. KENNEDY

**The reticuloendothelial system and the source of opsonin.** A. R. ELVIDGE. *J. Immunol.* **24**, 31–64(1933).—Opsonin production is a function of the cells of the reticuloendothelial system, and opsonin is a definite chem. substance. E. R. LONG

**Studies on cultures and broth filtrates of staphylococci.** EARL L. BURKY. *J. Immunol.* **24**, 93–133(1933); cf. *C. A.* **26**, 6016.—Certain strains of staphylococci produce a filtrable substance lethal for rabbits that is not the result of bacterial autolysis or of the decompn. of protein constituents of the culture medium. It is formed in non-protein media. It is produced independently of hemolysins. Production of the lethal factor appears assocd. with a high initial acidity and high end alky. in the culture.

Immunity in rabbits can be induced by intradermal injection of the toxic filtrates. Rabbits younger than 4 months are not susceptible to the lethal action. E. R. L.

**The antigenic property of gelatin-diazo-arsanilic acid.** SANFORD B. HOOKER, WM. C. BOYD, OTIS E. ALLEY AND MATTHEW A. DEROW. *J. Immunol.* **24**, 141–7 (1933).—A serum obtained after injection of gelatin-diazo-arsanilic acid pptd. and fixed alexin in the presence of other proteins coupled with arsanilic acid, and its reactivity was specifically inhibited by phenol-diazo-arsanilic acid and by the gelatin compd. itself. The latter did not react visibly with the antiserum. The results indicate that antigenicity may be conferred upon gelatin by coupling it with an unsatd. cyclic compd.; they do not show that the non-antigenicity of gelatin is due solely to its deficiency in aromatic amino acids; the possibility that other prosthetic groups may be similarly effective has not been excluded. On the basis of certain quant. relationships observed, the suggestion is offered that some diazo proteins may produce 2 or more specifically different anti-haptenes. E. R. LONG

**The relationship of the tuberculin proteins of different acid-fast bacilli to sensitization as indicated by their reactivity in sensitized animals.** FLORENCE B. SEIBERT AND NELLE MORLEY. *J. Immunol.* **24**, 149–56(1933).—Tuberculin proteins from 3 different strains of human type tubercle bacilli induced skin sensitivity roughly parallel to the virulence of the bacilli. On the basis of N content the 3 proteins possessed the same potency for tuberculous guinea pigs. Proteins made by the same method from cultures of bovine, avian and timothy bacilli produced skin reactions of decreasing severity in the order named in guinea pigs infected with the human strain. E. R. LONG

**The laboratory diagnosis of tuberculous meningitis.** ALVIN G. FOORD AND ANNA FORSYTH. *Am. J. Clin. Path.* **3**, 45–54(1933).—The cerebrospinal fluid in tuberculous meningitis is characterized by an increase in the globulin content, decreases in the chloride and sugar contents, an increased cell count, a preponderance of lymphocytes in the differential count, the occurrence of max. pptn. in the 6th and 7th tubes in the colloidal Au test and by the formation of an inverted pine tree web after the fluid has stood for several hrs. E. R. MAIN

**The present status of the serological diagnosis of syphilis with special reference to basic principles.** ROBERT A. KILDUFFE. *Am. J. Clin. Path.* **3**, 61–83(1933). E. R. MAIN

**A case of generalized osteitis fibrosa improved after removal of a parathyroid tumor.** OLE CHIEVITZ AND HANS CHRISTIAN OLSEN. *Acta chirurgica scand.* **71**, 172–204 (1932).—The patient, a woman 25 years old, showed on x-ray examination pronounced osteoporossis with cysts in many of the bones, which on microscopic examn. look like giant-cell sarcona. The serum Ca is 17.6 mg. % while the serum P is 1.6 mg. %. The patient shows a lowered absorption and increased excretion of Ca. On removing a typical parathyroid adenoma all the pathol. conditions disappeared, except for one cyst which persisted. S. MORGULIS

**Further studies on the chemistry of fatty degeneration of the liver.** A. LOEWY AND G. CRONHEIM. *Biochem. Z* **257**, 267–88(1933).—Under reduced barometric pressure fasting guinea pigs lose wt. less than under normal pressure because of a diminished metabolism. The liver loses more wt. than the entire organism and furthermore the fatty transformation of the liver observable under reduced pressure fails to appear in the fasting animal and cannot be detected by changes in the ether ext. The P content, however, of the ext. and to a less extent of the residue is increased over normal. Under reduced pressure in fed guinea pigs there is a great increase in fat and lipoids of the liver, and the acetone fraction shows the highest P content whereas ordinarily the acetone ext. of the liver contains no P. The condition must therefore be looked upon as a fat infiltration from the body fat depots with some new formation of lipoid. But in the fasting animal there is no fatty transformation of the liver but there is an increase in the ether-sol. P as compared with the total P content. Under P poisoning as under reduced pressure there is an increase in ether extractives including the lipoids with a diminution of the P content of the residue. In the fatty transformation through heat there is primarily an infiltration of neutral fat without an increase of the P content of the ether ext., and this is also the condition found in $CHCl_3$ poisoning. In rabbits whose reticuloendothelial system was blocked the fatty transformation of the liver usually observed under diminished pressure did not appear but the P content of the liver did undergo changes. In the P-poisoned rabbits there was an increase in the P content of both the ether ext. and of the liver residue, but especially of the former. This causes a marked rise in the ratio of the ether-sol. P to the total P, which indicates an infiltration of phosphatides besides that of neutral fat. In chickens the results were the same as in the guinea pig. In geese only the effect of overfeeding on the compn. of the liver was studied. The fat under this condition is chiefly neutral fat constituting about 46% of the dry residue, and the P content of both the ether ext. and of the residue is

low. The total N of the fat-free dry substance is lower the greater the amt. of the ether ext. A study was also made of several calf livers. S. MORGULIS

**Studies on the mineral changes in lymph nodes.** PRISKA REINEMER. *Biochem. Z.* **257**, 442–9(1933).—An increase in K, Ca, Cl and partly also of the water content was observed in diseased lymph nodes (solid or caseated tuberculous nodes) of guinea pigs. The K and Cl content diminishes when caseation begins but the Ca content continues to increase. S. MORGULIS

**The etiology of gallstones. I. Chemical factors and the role of the gall bladder.** EDMUND ANDREWS, RUDOLF SCHOENHEIMER AND LEO HRDINA. *Arch. Surg.* **25**, 796–810(1932).—The cholesterol is held in soln. in the bile as a series of both loose and firm chem. complexes with bile salts. Most of these complexes can be broken by relatively slight influences as dialysis, which will ppt. the cholesterol. There is no differential absorption of cholesterol and bile salts by the normal gall bladder. The infected gall bladder absorbs bile salts rapidly but cholesterol slowly if at all. Therefore the bile salt-cholesterol ratio is of supreme importance in the pptn. of cholesterol from bile. **II. Analysis of duct bile from diseased livers.** EDMUND ANDREWS, LEO HRDINA AND L. E. DOSTAL. *Ibid* 1081–9.—In 1 case it was definitely proven that there was a large excretion of unconjugated bile acids. In 3 other cases the same thing was presumed because of high total solids and the dissolving power of the bile for cholesterol. In 1 case the liver bile contained cholesterol crystals. The bile salt-cholesterol ratio is important in the formation of gallstones. **III. The effect of diet on the bile salt-cholesterol ratio.** L. E. DOSTAL AND EDMUND ANDREWS. *Ibid* 258–71.—The cholesterol content of the bile is independent of dietary factors. JOHN T. MYERS

**Experimental illeus. II. High obstruction with the biliary, pancreatic and duodenal secretions, along with food and sodium chloride entering the bowel below the obstructed point.** HILGER P. JENKINS. *Arch. Surg.* **25**, 849–62(1932); cf. *C. A.* **24**, 1670.—Chem. studies of the blood showed no marked fall in chlorides, although in 2 instances there was a slight decrease. The $CO_2$ and non-protein N showed no marked const. change. JOHN T. MYERS

**Experimental obstructive jaundice. Its effect on fibrinogen and coagulation of the blood.** WALTER MOSS *Arch. Surg.* **26**, 1–19(1933).—The fibrinogen content of the plasma is increased in acute obstructive jaundice and the increase parallels the damage to the liver. JOHN T. MYERS

**Experimental thrombosis: the appearance of fibrin in the early stages of formation of white thrombus.** WALTER R. JOHNSON. *Folia Hematol.* **48**, 413–32(1932) —Fibrin appears in the earliest stages of the formation of white thrombus. The blood platelets seem to have the same function as in the coagulation of shed blood, which is the discharge of a substance which interacts with the fibrinogen of the plasma to form threads of fibrin. When the function operates in the face of a strong blood current the globules of fibrin-producing substance are swept away before fibrin threads can be formed; hence most small white thrombi consist solely of platelets. As these grow larger, stagnation permits the formation of fibrin threads. There is a proportional increase in the percentage of fibrin as the thrombus increases in size. This process was artificially reproduced in collodion tubes. JOHN T. MYERS

**Surface properties of intestinal bacteria before and after serum sensitization.** ELEANORE W. JOFFE, CHARLES H. HITCHCOCK AND STUART MUDD. *J. Bact.* **25**, 24–5 (1933).—Sensitization of intestinal bacteria with sp. immune serum gives them cataphoretic properties presumably approaching those of the antibody protein. It is suggested that the antibody globulins against bacteria of this group may be more acid than normal globulins. JOHN T. MYERS

**The lethal radiation from the human body.** OTTO RAHN AND MARGARET N. BARNES. *J. Bact.* **25**, 28–9(1933).—The menstrual toxin is identical with, or closely related to, oxycholesterol. This compd. kills yeast through quartz as do also ether washings from menstruating women. The radiations may therefore be explained by a pathol. excretion of oxycholesterol through the skin. JOHN T. MYERS

**Studies on the protective substance in antipneumococcus serum. XXI. Comparison of certain characteristics of the water-insoluble proteins of antipneumococcus and of normal horse serum.** LLOYD D. FELTON. *J. Bact.* **25**, 76–7(1933). J. T. M.

**The preparation of diphtheria toxoid by treatment of the toxin with one per cent formalin and precipitation with acetone.** AUGUSTUS WADSWORTH, JAMES J. QUIGLEY AND GRETCHEN R. SICKLES. *J. Bact.* **25**, 82–3(1933); cf. *C. A.* **26**, 3293.—The time can be shortened to 5 days. JOHN T. MYERS

**The dissimilarity of the results of precipitin titrations performed with a constant amount of antiserum and with a constant amount of antigen.** G. L. TAYLOR. *J. Hyg* **33**, 12–27(1933).—The proportions of cryst. egg albumin and a given homologous

antiserum favorable for the most rapid particulation are probably const. despite abs. quant. changes. JOHN T. MYERS

**Some observations on cellular immunity to snake venom.** C. H. KELLAWAY AND F. ELEANOR WILLIAMS. *J. Path. Bact.* **35**, 193–7(1932).—Though the results of perfusion expts. may be valid for the demonstration of cellular resistance to poisons in natural antitoxic immunity, it is doubtful if they yield conclusive evidence of acquired cellular immunity. There is no decisive evidence that sp. cellular resistance can be acquired during the course of active immunization with poisons or toxins. There is no evidence of the acquirement of immunity by the tissues apart from that conferred on them by the presence of antitoxic antibody accumulated in the cells or in the tissue spaces around them. JOHN T. MYERS

**Cellular immunity and antibody in the tissue spaces.** F. M. BURNET, C. H. KELLAWAY AND F. ELEANOR WILLIAMS. *J. Path. Bact.* **35**, 199–208(1932).—There is an accumulation of antibody in the tissue spaces of immune animals possessing circulating antibody. This cannot be removed by perfusion and hence the perfusion expt. cannot be used for the demonstration of antitoxic cellular immunity. JOHN T. MYERS

**Some properties of diphtheria antitoxin in the sera of animals of different species.** MOLLIE BARR. *J. Path. Bact.* **35**, 913–28(1932).—Great variations were encountered between the salting-out limits, under the same conditions, of diphtheria antitoxin from sera obtained from actively immunized animals of different species. More than one quarter of the antitoxin was assocd. with the euglobulin fraction of most sera, particularly goose, rat and cow, but in horse serum it never contained more than 2.67%. The proportion was increased by the addn. before dialysis of normal euglobulin. Goose and rat sera contained antitoxin of poor avidity. Guinea pig and rat sera gave typical toxin-antitoxin flocculation, but the sera of other species did not. J. T. M.

**The production of staphylococcal hemolysin with observations on its mode of action.** JOSEPH W. BIGGER. *J. Path. Bact.* **36**, 87–114(1933).—Inorg. or org. salts in the medium have little significance. Added $CO_2$ favors lysin production, but a fermentable carbohydrate such as glycerol plus a phosphate buffer has the same effect. The hot-cold and zone effects during lysis are due to interfering substances in an unfavorable medium as alky. In a few strains $CO_2$ was prejudicial. JOHN T. MYERS

**Production of tumors in the fowl by carcinogenic agents: (1) tar: (2) 1 : 2 : 5 : 6 dibenzanthracene-lard.** P. R. PEACOCK. *J. Path. Bact.* **36**, 141–52(1933).—Connective tissue tumors were produced in fowls by both these agents, varying from benign fibromas to highly cellular fibro-sarcomas. JOHN T. MYERS

**Osteitis deformans.** T. J. O'REILLY AND JOSEPH RACE. *Quart. J. Med.* [N. S.] **1**, 471–97(1932).—The blood phosphatase increased and the serum Ca and P are always normal. The urinary Ca may be high, normal or low. A treatment is described which has modified the biochem. findings. JOHN T. MYERS

**Idiopathic steatorrhea [Gee's disease]. A nutritional disturbance associated with tetany, osteomalacia and anemia.** T. IZOD BENNETT, DONALD HUNTER AND JANET M. VAUGHAN. *Quart. J. Med.* [N. S.] **1**, 603–77(1932).—Steatorrhea and disturbances of Ca metabolism are alone common to the whole group of cases. Many aspects of metabolism were abnormal. The blood sugar tolerance curve was much flatter than usual. The blood urea and Ca were usually low. The blood P was low in 10 and high in 5 cases. The height of the plasma phosphatase coincided with the degree of active changes in the bones. Ca balance estns. showed a high fecal and a low urinary output. The disease may be due to a disturbance of gastro-intestinal function resulting in deficient production, absorption or utilization of one or more essential factors. JOHN T. MYERS

**Cork and complement binding.** F. PLAUT. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 135–7(1932).—It is safer to use rubber instead of cork stoppers for transporting liquids for the complement-fixation reaction because tannic acid from the latter may be anti-complementary. JOHN T. MYERS

**Melanin flocculation in malaria.** M. M. TZECHNOVITZER, E. L. GORSHOVA AND V. D. MOLDAVSKA-KRICHEVSKA. *Zentr. Bakt. Parasitenk. I Abt.* **126**, 419–27(1932).—Melanin flocculation is a valuable diagnostic aid in malaria, is useful in the following treatment, and in epidemiological studies of malaria. JOHN T. MYERS

**The so-called lipoid antigens. The active antigenic principle in alcoholic organ extracts.** A. J. WEIL AND B. RITZENTHALER. *Zentr. Bakt. Parasitenk. I Abt.* **127**, 194–8(1932).—Alc. organ exts. were pptd. with $CdCl_2$ which carries down the lecithin-cephalin group of substances. The acetone-insol. fraction contains cholesterol and carries the antigenic substance. Washing the acetone-insol. fraction of the $CdCl_2$ ppt. with aq. or alc. solns. destroys its activity. The substance is free from sugar. The substance is of unknown chem. constitution. It contains no N, little S or P in the form of the phosphate ion. JOHN T. MYERS

**Physicochemical methods as a guide in the study of syphilis.** ARTHUR VERNES. *J. Chemotherapy* **9**, 73–7(1933).—Blood and spinal fluid tests are aided by means of an app. not described in detail. T. H. RIDER

**Coal-tar constituents and cancer.** J. W. COOK, C. HEWETT AND I. HIEGER. *Nature* **130**, 926(1932).—Several hydrocarbons were isolated from coal tar which were active in producing cancers and which had the typical fluorescence spectrum of carcinogenic fractions. The most active hydrocarbon isolated was *1,2-benzopyrene* which produced cancer in half the time required by 1,2,5,6-dibenzanthracene. Perylene and 4,5-benzopyrene were also isolated. T. H. RIDER

**Microincineration studies of human coronary arteries.** D. Y. KU. *Am. J. Path.* **9**, 23–36(1933).—The ash of coronary arteries is composed almost entirely of Ca salts. It is contained especially in the elastic fibers and increases with age, even in the absence of gross arteriosclerosis. F. B. SEIBERT

**The pathological physiology of inflammation. The effect of histamine on the tissue metabolism.** W. BÜNGELER. *Frankfurter Z. Pathol.* **44**, 1–9(1932).—Injection of histamine in 0.1 lethal dose into the white mouse causes a distinct rise in liver respiration, as measured by the Warburg method. The greatest increase is reached during the first hr. after the injection and there is a return to normal after 2–3 hrs. It is the same kind of rise in metabolism which occurs after the parenteral injection of irritants, inflammation of the skin, Arthus phenomenon or the reinjection of a small amt. of antigen into a sensitized animal. Injection of large doses of histamine results in a checking of the liver metabolism and the animal collapses. Similar changes occur in anaphylaxis. F. B. SEIBERT

**Glucosuria in spirochetosis icterohemorrhagica.** MASAMI KITAOKA. *Japan. J. Med. Sci. VIII. Internal Med. Pediatry Psychiatry* **2**, 239–66(1932).—Glucosuria occurs frequently in spirochetosis icterohemorrhagica. Since it appears after ingestion of food, in mild degree and not throughout the entire course, this phenomenon has been overlooked. Among 18 patients it was found in 11 cases. For the most part the glucosuria in this disease appears in the 3rd or 4th week, seldom before or after. K. S.

**The production of agglutinins and the changes of blood picture after the injection of fat-free typhoid bacilli.** R. YOSHIDA AND K. SHIMIZU. *Japan. Z. Mikrobiol. Path.* **26**, 1401–11(1932).—Agglutinin production decreased after immunization with typhoid bacilli freed from fat by ether and alc. There was also a decrease in erythrocytes, an increase in leucocytes and the appearance of normoblasts. The degree of blood-picture change was marked in comparison with that of rabbits in which fat-bearing typhoid bacilli had been injected. I. S. YUN

GRAHAM, STANLEY, AND MORRIS, NOAH: **Acidosis and Alkalosis.** London: Livingstone. 215 pp. 7s. 6d.

ROFFO, A. H., AND THOMAS, JOSEPH: **La chimie du cancer.** Paris: Vigot frères. 340 pp. F. 50.

SOULIER, A.: **Spécification des toxines de la tuberculose et du cancer.** Paris. Vigot frères. 80 pp. F. 10.

## H—PHARMACOLOGY

A. N. RICHARDS

**The colloid chemistry of the nervous systems. VI.** WILDER D. BANCROFT AND JOHN E. RUTZLER, JR. *J. Phys. Chem.* **36**, 3162–74(1932); cf. *C. A.* **26**, 4880.—Goldfish were anesthetized by Na amytal, ether, nembutal, alc. and urethan, and the anesthesia and recovery phenomena were compared. At first sight the theory of reversible agglomeration appears to fail, because Na citrate, Na tartrate and $Al_2(SO_4)_3$ all revive the fish more rapidly than NaSCN, NaCl and NaBr. Na salicylate and $Na_2CO_3$ also revive fish quickly. NaBr, NaCl and NaSCN all revive fish more rapidly than tap water on account of the peptizing action of ions. Elec. shocks bring fish out of anesthesia with supernormal speed. Na citrate acts on a substrate other than that agglomerated by the anesthetics; it ppts. Ca, coagulates the slime on the fish, and agglomerates protein colloids in certain external sense organs. This causes stimulation and apparently wakens the fish; but if they have been in deep anesthesia, they relapse if placed in tap water. $Al_2(SO_4)_3$ stimulates fish by its agglomerating action on external sense organs, recovery time being short; but such revived fish behave abnormally in tap water. Fish "dialyzed" in distd. water go into deeper urethan anesthesia than "undialyzed" fish, but recover more rapidly in NaSCN than in Na citrate. Such fish, when placed in Na citrate solns., act as though anesthetized; this effect is counteracted by NaSCN. Neither osmotic pressure changes nor slight variations in acidity appear to be concerned in recovery from anesthesia. The results confirm Claude Bernard's theory of anesthesia. JEROME ALEXANDER

**Isamine blue treatment of experimental tumors.** G. A. KREUZWENDEDICH VON DEM BORNE AND R. E. J. TEN SELDAM. *Nederland. Tijdschr. Geneeskunde* **76**, I, 1226–32(1932); cf. *C. A.* **26**, 3833.—Isamine blue has a marked influence on inoculated tumors (sarcoma) of mice; it is less marked on spontaneous tumors. In exptl. tar carcinoma the results are poor. R. BEUTNER

**Unconsciousness, apparent death and its treatment by inhalation of carbon dioxide-oxygen mixtures.** G. C. E. BURGER AND M. H. TROMP. *Nederland. Tijdschr. Geneeskunde* **76**, II, 2465–86(1932).—Respiration of $CO_2$ stimulates the brain centers and acts reflexly through the mucous membranes. Indications and contraindications of $CO_2$ treatment for CO poisoning, drowning and elec. shocks are discussed. R. BEUTNER

**Vasano in hyperemesis gravidarum.** H. L. COOPMAN. *Nederland. Tijdschr. Geneeskunde* **76**, IV, 4638(1932).—This drug, contg. hyoscine and atropine, which intensify each others vagus action and are antagonistic in their central action, proved highly efficient in 2 cases. R. BEUTNER

**Intestinal infantilism and its treatment with ventramon.** H. A. STHEEMAN. *Nederland. Tijdschr. Geneeskunde* **76**, IV, 4823–43(1932). R. BEUTNER

**The urinary excretion of phenolsulfonephthalein after arsphenamine.** GEORGE B. ROTH. *Am. J. Syphilis* **16**, 39–51(1932).—The max. tolerated dose of arsphenamine administered intravenously to rabbits almost always produced within 48 hrs. a marked fall in the urinary excretion of phenolsulfonephthalein. B. C. BRUNSTETTER

**Colloidal mercury sulfide in the treatment of syphilis.** WILHELM GENNERICH. *Arch. Dermatol. Syphilis* **165**, 209 *et seq.*; *Am. J. Syphilis* **16**, 198–217(1932).—Hg sulfide, stabilized in colloidal soln. by a hydrolyzed protein, is very well tolerated and exerts an excellent mercurial action against syphilis. It cannot displace arsenicals but can be used in combination therapy. B. C. BRUNSTETTER

**The reaction of tissue culture cells to barium [x-ray] sulfate.** M. J. HOGUE. *Anat. Record* **54**, 307–20(1932).—$BaSO_4$ did not affect the length of life of cultures of chick embryo tissues; they lived from 10 to 15 days in the suspension. Histological reactions of cells in contact with suspended particles of $BaSO_4$ are described. B. C. B.

**Modification of the glucemic level by pharmacodynamic substances as a test of the altered equilibrium of the vegetative nervous system in experimental nephritis.** RAFFAELE MESSINA. *Arch. farmacol. sper.* **54**, 262–84(1932).—Morphine and pilocarpine produce hyperglucemia, and ergotamine causes a slight hypoglucemia, in normal rabbits, as a result of vago-sympathetic stimulation. In the same animals, rendered nephritic by uranyl nitrate, the glucemic level decreases proportionately to the progress of the nephritis. In the nephritic animals the effects of morphine and pilocarpine on the glucemic level are less pronounced than in normal, while that of ergotamine is more marked. These results are explained by the vagotony present in renal insufficiency. LEWIS W. BUTZ

**The effect of certain drugs on heat contracture of the skeletal muscles of the frog.** GIULIO PUPILLI. *Arch. farmacol. sper.* **55**, 44–52(1933).—Drugs which decrease the permeability of the contractile tissue (Ca, curare and sparteine) retard the contraction due to heat, *i. e.*, a higher temp. is required than would be in their absence. In the presence of drugs which increase the permeability (veratrine, eserine, $CHCl_3$ and $Et_2O$) contraction takes place at a lower temp. than in their absence. LEWIS W. BUTZ

**The effect of nicotine on heat contracture of the skeletal muscles of the frog.** GIULIO PUPILLI. *Arch. farmacol. sper.* **55**, 85–8(1933).—Nicotine (1:100,000) increases the permeability of the contractile tissues and hence the contraction of the skeletal muscles takes place at a temp. below normal. LEWIS W. BUTZ

**The physiological action of mineral waters. III. The action of hypotonic waters on the acid-base equilibrium.** UBALDO SAMMARTINO. *Arch. farmacol. sper.* **55**, 53–68 (1933); cf. *C. A.* **25**, 4934. LEWIS W. BUTZ

**The action of some anthraquinone purgatives [aloin, phenolphthalein] and glucoresins [podophyllin, gum ghatti, scammonea and jalappa] on the isolated uterus of the guinea pig.** ETTORE GUIDETTI. *Arch. farmacol. sper.* **55**, 69–84(1933).—The purgatives examd. stimulated the isolated uterus. Since these substances are readily absorbed through the intestinal wall and pass into the circulation, it seems likely that their effect on the uteri of pregnant women is due to a direct action. Only small doses stimulated the isolated uterus, larger doses being relatively inactive. Kymograph records are included. LEWIS W. BUTZ

**Chemico-toxicological study of adrenaline.** GIUSEPPE VENTUROLI. *Boll. chim. farm* **71**, 957–8(1932).—The product formed by the oxidation of adrenaline by putrefying flesh was studied. The flesh in an advanced stage of putrefaction, contg. 0.025 g. adrenaline per 100 g., was made acid with tartaric acid, mixed with a large vol. of 80% alc., heated, cooled, filtered, evapd. to dryness, extd. with abs. alc. and filtered. The alc. ext. was mixed with a little water, shaken with $Et_2O$ to remove fats, the $Et_2O$ re-

moved, the alc. soln. made alk. with $NH_4OH$, extd. with AmOH, the AmOH ext. filtered, and the solvent removed by distn. This gave a reddish brown oil, whose soln. in warm dil. HCl failed to give the usual color reactions for adrenaline, but gave pos. reactions with the Bronardel-Bouty (ferricyanide with a trace of $FeCl_3$) and Jungmann (phosphomolybdic acid and $NH_4OH$) reagents. LEWIS W. BUTZ

**The systematic nomenclature of the effects of drugs given in combination.** EDUARD RENTZ. *Arch. intern. pharmacodynamie* **43**, 337–61(1932).—An attempt to clarify existing confusion as to the significance of the terms sensitization, synergism, desensitization, antagonism, etc. HARRY EAGLE

**Influence of morphine on cats deprived of cortex cerebri majoris.** GYULA MÉHES AND JÓZSA LUSZTIG. *Magyar Biol. Kutató Intézet Munkái* **4**, 495–503(in German 503–5)(1931).—Morphine had an exciting effect on cats deprived of cortex cerebri majoris. Its action was inhibited by treatment with 0.7–1.5 g. NaBr per kg. cat. S. S. DE F.

**Influence of parathoromone on the calcium metabolism of rachitic rats.** JÓZSEF SOÓS. *Magyar Biol. Kutató Intézet Munkái* **4**, 506–15(in German, 515–24)(1931).—The Ca metabolism is not changed by parathormone. The Ca content of the blood serum is increased and the decrease of body wt. is transitorily impeded by it. S. S. DE FINÁLY

**Surface activity and spasmolytic effect.** BÉLA ISSEKUTZ, SR., AND BÉLA ISSEKUTZ, JR. *Magyar Gyógyszerésztud. Társasag Értesitője* **8**, 414–24(1932).—High surface activity is assocd. with high spasmolytic effect. Perparine is higher in both surface activity and spasmolytic effect than are papaverine and eupaverine. Both properties are decreased by substitution of Ph for $PhCH_2$ in papaverine. Substitution caused no change in perparine. These properties of quinine derivs. increase in the order quinine< optochine<eucupine<vuzine. The surface tension of Tyrode soln. of a concn. which decreases intestinal movements 50–80% was decreased from 73 to 50–60 dynes per cm. by papaverine, quinine derivs., camphor, dehydrocholic acid and octyl alc. S. S. DE FINÁLY

**Röntgenographic investigations of irritated and crippled nerve matter.** HANS HANDOVSKY. *Kolloid Z.* **62**, 21–2(1933).—A sharp interference figure is obtained when the spinal cord of a frog is exposed for a short time to $CHCl_3$. The change is due to the orientation of fatty acid chains. ARTHUR FLEISCHER

**Accelerated production of specific urinary pigments by drug administration. II. Effect of diethylsulfonmethylethylmethane on urobilin and urobilinogen formation.** FREDERICK G. GERMUTH. *Am. J. Pharm.* **105**, 30–5(1933); cf. *C. A.* **24**, 3284; **25**, 740.—Administration of diethylsulfonmethylethylmethane (trional) over a period of 7 days increases to a marked extent the proportion of urobilin existing in the body fluid, urine from an av. of 78 mg. per l. in normal urine to an av. of 158 mg. per l. in physiol. urines. Under similar conditions, the quantity of urobilinogen is present in excess of the normal amt.; the increase is not so great as that observed in urobilin, namely, 38 mg. per l. in normal urine and 53 mg. per l. in pathol. urine. A bibliography is appended W. G GAESSLER

**Action of salts of rare earth metals on the development of Brucella abortus Bang in vitro.** A. URBAIN AND P. GORET. *Compt. rend. soc. biol.* **112**, 36–8(1933).—Development was not hindered by the addn. of 0.1–0.2% of the sulfate of Ce, La, Sm, Nd or Pr to the culture medium, but 0.3% of any of the salts checked growth or killed the organism. L. E. GILSON

**Difference in activity of injections of insulin according to the method of administration in the rabbit.** M. CHEVILLOT, J. HARMAND, L. HENNEQUIN AND M. LAMBERT *Compt. rend. soc. biol.* **112**, 65–7(1933).—Subcutaneous injections of insulin have a more pronounced effect than intravenous injections of the same doses L. E. GILSON

**Action of butylethylmalonylurea on the excitability of the nervous centers of the frog.** ALBERT OBBÉ. *Compt. rend. soc. biol.* **112**, 151–2(1933). L. E. GILSON

**Action of theobromine on the fats of the dog kidney.** C. ACHARD, J. VERNE, M. BARIÉTY AND E. HADJIGEORGES. *Compt. rend. soc. biol.* **112**, 155–6(1933); cf. *C. A.* 27, 1403.—The theobromine was fed at the rate of 1–2 g. per day per dog for 7–21 days Certain changes in the kidney fat were detected by histological staining methods. L. E. GILSON

**Anti-tumoral properties of extract of the suprarenals toward experimental epithelioma of white mice.** F. ARLOING, A. MOREL, A. JOSSERAND AND A. BADINAND. *Compt. rend. soc. biol.* **112**, 156–7(1933).—A special method of prepg. the ext. is described. The ext. greatly retarded the growth of the tumor but did not produce a cure. L. E. GILSON

**Morphine addiction. Action of morphine on the isolated intestine of a guinea pig accustomed to morphine, in vivo and in vitro.** JEANNE LÉVY AND R. CAHEN. *Compt. rend soc. biol.* **112**, 167–70(1933). L. E. GILSON

**Influence of light on the toxicity of acriflavine for the rabbit.** M. LEVRAT AND F. MORELON. *Compt. rend. soc. biol.* **112**, 183–4(1933).—Exposing the animal to light after administration of acriflavine does not increase the toxic power of the latter. **Toxic action of small doses of acriflavine on the rabbit.** *Ibid* 184–6.—Although the drug is rapidly eliminated in the urine repeated small doses may produce nephritis and death. L. E. GILSON

**Influence of the injection of ammonium salts on the ammonia content of the blood.** MICHEL POLONOVSKI, GASTON BIZARD AND PAUL BOULANGER. *Compt. rend. soc. biol.* **112**, 193–5(1933).—In dogs the blood of the renal vein is always richer in $NH_3$ than that of the renal artery. The injection of $NH_4$ salts in some unknown way causes an increase in the difference in $NH_3$ content of the renal vein and artery. Slight changes in the $p_H$ of the blood produced by injection of lactic acid or $NaHCO_3$ did not appreciably change the above effect. L. E. GILSON

**Influence of curare on the hypertensive effect of adrenaline.** RAYMOND-HAMET. *Compt. rend. soc. biol.* **112**, 273–6(1933).—In dogs small doses of curare increase, and large doses decrease, the hypertensive action of adrenaline. L. E. GILSON

**Hypoglucemic action of insulin on dogs anesthetized with chloralose.** E. AUBERTIN AND F. TRINQUIER. *Compt. rend. soc. biol* **112**, 316–18(1933).—Chloralose causes hyperglucemia and at the same time increases the hypoglucemic action of insulin to a marked degree. **Hypoglucemic action of insulin on nephrectomized or ureterotomized dogs.** *Ibid* 318–21.—Either bilateral nephrectomy or ligation of the ureters produces a hyperglucemia and at the same time increases the effect of insulin. Both effects increase up to death. L. E. GILSON

**Diuretic action and the elimination of pentoses injected intravenously [in dogs].** P. THOMAS AND A. GRADINESCU. *Compt. rend. soc. biol.* **112**, 415–16(1933); cf. *C. A.* **26**, 3016.—A preliminary note. L. E. GILSON

**Relation between the modifications of the blood and diuresis caused by the introduction of water into the organism.** G. PELLEGRINI. *Arch. pat. clin. med.* **10**, 325–435 (1931); *Arch. ital. biol.* **86**, 61–9(1932).—Ingestion of 1 l. $H_2O$ or phleboclysis with 1 l. physiol. saline in normal adults produced an increase in diuresis, which reached its max. after 30 min., an increase in hydremia paralleling diuresis, diminution of hemoglobin (Bürcker colorimetric method) and total proteins, and a diminution in osmotic pressure corresponding to the increased dilu. of the blood. HELEN LEE GRUEHL

**Pharmacological study of the action of several alkaloids of opium on the uterine muscle fibers.** G. DELLEPIANE. *Rif. ital. ginec.* **12**, 563–84(1931); *Arch. ital. biol.* **87**, 51–64(1932); cf. *C. A.* **26**, 5343.—A study was made of the sep and combined action of morphine-HCl, thebaine-HCl, codeine-HCl, dionine, heroine-HCl, narcotine-HCl, papaverine-HCl and narceine-HCl. HELEN LEE GRUEHL

**Pharmacological study of the mechanism of the action of sulfur as an agent modifying glucemia.** PIETRO M. NICCOLINI. *Minerva med.* **1933**, I, 179–80.—A water-alc.-glycerol soln. of S (0.00022 g per cc.) was injected into rabbits in a dose of 1 cc. per kg. This caused hypoglucemia in normal or splenectomized rabbits and hyperglucemia in rabbits after vagotomy or pancreatectomy. After splenectomy and vagal resection the glucemia remained const. HELEN LEE GRUEHL

**Action of lipoids on carbohydrate exchange and the advantage of insulin therapy associated with egg lecithin.** LUIGI JACCHIA. *Minerva med.* **1933**, I, 209–15.—A review of the literature is given. HELEN LEE GRUEHL

**Therapeutic value of gold tribromide in pertussis.** J. EPSTEIN. *Arch. Pediatrics* **50**, 38–44(1933); cf. *C. A.* **26**, 4871.—Neutral $AuBr_3$ (0.05–0.10 grain administered 4 or 5 times in 24 hrs. in aq. soln. in 75 cases of pertussis) allayed nervous irritability, inhibited the coughing center, relieved the spasmodic attacks and exhibited bactericidal properties. JOSEPH S. HEPBURN

**Benzene: its toxic effects and symptoms and its homeopathic application.** WM. H. DIEFFENBACH. *J. Am. Inst. Homeopathy* **26**, 81–90(1933).—A review. J. S. H.

**The derivatives of fluorescein and their action on the blood cells of normal blood and of blood in cancer.** A. H. ROFFO AND O. CALCAGNO. *Néoplasmes* **11**, 321–41 (1932).—Fluorescein and its di- and tetrabromo derivs. are not hemolytic for the red blood cells of rats. Di- and tetraiodofluorescein are somewhat hemolytic and di- and tetrachlorofluorescein are intensely hemolytic instantaneously. With dibromodichlorofluorescein in 1:100 soln. the hemolytic action is instantaneous. In a 1:500 soln. the hemolytic action is sufficiently diminished that comparison may be made of the degree of hemolysis of blood cells from normal rats and rats with tumors (sarcoma). The hemolytic intensity is 3–4 times greater with the blood cells of the rats with tumors. Further addn. of Br diminishes the hemolytic activity. Different salts were used but the basic element did not seem to alter the hemolytic activity. 117 compounds were

studied and in all cases where a difference could be detected, the reaction was 4 or 5 times as intense with blood cells from animals with tumors. HARRIET F. HOLMES

**The regulation of the ketonemia in liver disease by insulin and sugar.** J. BLÖCH. *Wien. Arch.* **23**, 257–68(1932).—In diffuse injury to the liver parenchyma as in *icterus simplex* there is an increase in the blood of ketone bodies (acetone, acetoacetic acid, β-hydroxybutyric acid) due to disturbance of the intermediary carbohydrate-fat metabolism. The administration of insulin brings about a rapid and marked decrease in the ketone bodies in the blood, which lasts 3–4 hrs. and then is followed by a rise to the previous height or slightly above. Dextrose and levulose reduce the ketonemia only gradually, and in 5 hrs. the former height is not regained. Levulose exceeds dextrose in antiketonic action. In the ketonemia brought about by diabetes, hunger or morbus basedowii insulin has a much more lasting effect in reducing the content of the blood in ketone bodies. H. F. H.

**The action of iodine-free forerunners of thyroxine in hyperthyroidism.** W. RAAB. *Wien. Arch. inn. Med.* **23**, 321–36(1932).—Tyrosine is without effect in hyperthyroidism. Thyronine seems at times to reduce somewhat the increased basal metabolism in hyperthyroidism but its action is irregular and weak. HARRIET F. HOLMES

**The effect of poisoning with irradiated ergosterol on the basal metabolism of guinea pigs and rabbits.** A. NITSCHKE AND M. SCHNEIDER. *Z. Kinderheilk.* **52**, 671–5 (1931–2).—Toxic doses of irradiated ergosterol induced a sudden increase in the basal metabolic rate which persisted until the animals died. ELEANOR M. HUMPHREYS

**The experimental production of intoxication in animals by the enteral route.** ALICE CHASSEL AND S. ROSENBAUM. *Monatsschr. Kinderheilk.* **53**, 399–413(1932).—The toxic symptom-complex is readily induced in dehydrated dogs when *E. coli* endotoxin is administered parenterally, but not when given in much larger doses by mouth. Mixts. of various amines, including ethyl- and methylamines, tyramine, putrescine and cadaverine were effective. ELEANOR M. HUMPHREYS

**The influence of salyrgan on glucosuria.** C. SINDING-LARSEN. *Norsk Mag. Laegevidenskap.* **93**, 649–60(1932).—The results first described by Bix and Wechsler (*C. A.* **26**, 520) are confirmed. Salyrgan reduces the glucosuria in diabetes, while, at the same time, it increases the blood sugar. In cases of diabetes without glucosuria salyrgan has no influence on the blood sugar. S.-L. attributes the effect to an increased kidney threshold and believes that it is difficult to explain without accepting the theory of filtration. H. C. M. INGEBERG

**The use of pernocton in surgery.** CARL SCHULTZ AND IVAR MOENE. *Norsk Mag. Laegevidenskap.* **93**, 974–84(1932).—Pernocton, used in over 200 operations as an anesthetic, alone and in connection with local anesthesia or ether narcosis, proved to be harmless and valuable. Its use in ether narcosis permits reduction of the quantity of ether 60–70%. H. C. M. INGEBERG

**Various treatments of epilepsy, especially the ketogenic diet treatment and its effect upon the organism.** ODD WAAGE HAVREVOLD. *Norsk Mag. Laegevidenskap.* 93, 1095–104(1932).—The variations in the compn. of urine, blood and spinal fluid were investigated which result from the treatment of epileptic patients with a ketogenic diet (a diet rich in fat and poor in carbohydrates) and from the treatment with acid salts (daily doses of 0.5–1 g. per kg. body wt. of $NH_4Cl$ or $NH_4H_2PO_4$). Results with a ketogenic diet: Acidosis is apparent in the blood, urine and spinal fluid, and may also be measured quantitatively. The content of acetone in the blood varies considerably, from 0.1 to 0.25 per mille, during a 24-hr. period, as the ketone effect is greatest after meals. In the fasting state, no acetone is found in the blood. The spinal fluid has a higher content of acetone than the blood, 0.15–0.50 per mille; small quantities are found also in the fasting state. Typical variations of the $p_H$ of the biol. fluids were observed: in the urine, the $p_H$ varies between 5 and 6.5; in the blood, the $p_H$ is practically const., about 7.65; the alkali reserve of the blood is also practically const. In the spinal fluid, however, where the $p_H$ normally lies between 7.60 and 7.65, a ketogenic diet rapidly brings the $p_H$ down to about 7.50, the lowest value observed being 7.41. Results with acid salt treatment: The $p_H$ of the urine goes down to about 5, the $p_H$ of the spinal fluid to 7.45–7.55. The alkali reserve and the $p_H$ of the blood remain practically const. The heating effects of the treatments, however, are rather doubtful. The methods used for the detns. are described in detail. H. C. M. INGEBERG

**Relation between chemical constitution and action of chemotherapeutic compounds.** L. BENDA. *Angew. Chem.* **46**, 85–7(1933). KARL KAMMERMEYER

**Phosphorus poisoning.** J. SEDLMEYER. *Deut. Z. ges. gerichtl. Med.* **19**, 365–83 (1932).—Chem. analysis is insufficient. Histological examn. is essential. F. K

**The psychopathologic symptoms in lead poisoning and their significance.** H. A SCHMITZ. *Deut. Z. ges. gerichtl. Med.* **19**, 391–408(1932). FRANCES KRASNOW

**Complete replacement of air by steam as a cause of experimental death.** G.

GUARESCHI. *Deut. Z. ges. gericht. Med.* 19, 409–14(1932).—In free-flowing steam asphyxia is caused by excess water. If the steam is allowed to accumulate under pressure death results from primary inhibition of breathing. FRANCES KRASNOW

**Pathological anatomy of acute sodium fluoride poisoning.** H. GELLERSTEDT. *Deut. Z. ges. gericht. Med.* 19, 475–87(1932).—The fatal dose approximated 1 g. and max. duration of suffering was $3^1/_2$ hrs. There was (1) intense hyperemia of stomach and intestine, fatty degeneration of the heart muscle, liver and kidney, (2) a leucocytosis of heart, liver, spleen and kidney, (3) hemolysis. FRANCES KRASNOW

**Effect of sodium stannite on hemoglobin.** OTTO SCHMIDT. *Deut. Z. ges. gericht. Med.* 19, 516–17(1932).—Treatment with $Sn(ONa)_2$ leaves the spectrum unchanged for pure CO-hemoglobin. If the blood is not completely satd., there appears a definite line in the yellow. Utilization of $Sn(ONa)_2$ is specially valuable for very small quantities of CO. FRANCES KRASNOW

**Fatal poisoning with oil of chenopodium.** A. IBRUS-MÄÄR. *Deut. Z. ges. gericht. Med.* 20, 158–60(1932).—Extraordinary cerebral edema was produced. F. K.

**Action of magnesium salts on skin sensibility.** BORIS BELONOSCHKIN. *Z. Biol.* 93, 73–8(1932).—Intracutaneous administration of various concns. of $MgCl_2$ depresses the sensibility for approx. 40 min. Antagonism between Mg and Ca could not be demonstrated. FRANCES KRASNOW

**Reversible coagulation in living tissue. XI.** WILDER D. BANCROFT, ROBERT S. GUTSELL AND JOHN E. RUTZLER, JR. *Proc. Natl. Acad. Sci.* 19, 85–91(1933); cf. *C. A.* 26, 1977.—Chronic alcoholism is benefited by NaCNS, peptization therapy. "The treatment has not been, and probably cannot be standardized." W. D. LANGLEY

**Effect of pituitrin introduced into cerebrospinal fluid on the action of the kidneys.** HENRYK SIKORSKI. *Med. Doświadczalna Społeczna* 15, 267–93 (in German 293–4) (1932).—Intralumbar injections of doses of pituitrin which are inactive if given subcutaneously caused a diminution of the urine secretion in dogs, while in rabbits they showed no effect. The same antidiuretic action was obtained in dogs by intralumbar injections of a strong acid, $BaCl_2$, ephetonine and ephedrine in doses which are inactive if given subcutaneously. The intralumbar action of pituitrin is, therefore, not specific. Injection of such doses of pituitrin into the cistern had no effect on diuresis in dogs and rabbits. Similar doses of a strong acid, $BaCl_2$, ephetonine and ephedrine when injected into the cistern showed no action in rabbits. These results contradict the assumption of a central effect of pituitrin on the action of the kidneys by means of a special water center. The antidiuretic effect of pituitrin appears to be rather peripheral. Sixty-one references are appended. S. LAUFER

**Fifth suggestion for the application of the salts of phosphoric acid ester. The treatment of trachoma follicularis with yatoconin.** SEIGO FUNAOKA, TADAHIKO TSUBOI, HIROSHI OTA AND KONIN OKAMOTO. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto Ser. C.*, No. 3, 1–6(1932).—Yatoconin is a purified prepn. of the Ca salt of fructose-monophosphoric acid. Five cases afflicted with trachoma follicularis were treated by subcutaneous and intravenous administration of the drug. The resorption of the follicular formations occurred more rapidly than in the cases under the usual treatment, and left no scars. A slight swelling of the mucosa persisted. The resorption of the follicles, therefore, is no indication of a complete and permanent cure. B. S. L.

**The treatment of trachoma with yatoconin.** KONIN OKAMOTO. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto Ser. C*, No. 3, 79–90(1932).—Excerpts of 36 case histories are presented. The therapeutic results are similar to those given in the preceding abstr. B. S. LEVINE

**The treatment of trachoma with yatoconin.** HIROSHI OTA AND TAMOTSU TANAKA. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto Ser. C*, No. 3, 91–8(1932). B. S. L.

**Further application of yatoconin in the therapy of trachoma.** HIROSHI OTA. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto Ser. C*, No. 3, 101–10(1932). B. S. LEVINE

**Yatoconin therapy in periphlebitis retinae tuberculosa.** KONIN OKAMOTO. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto Ser. C*, No. 3, 59–61(1932).—Generally, no beneficial effect was observed in several clinical cases. B. S. LEVINE

**Pyrophosphatase in the sputum of patients afflicted with tuberculosis of the lungs.** YOSHIKI IMAGAWA. *Arb. dritt. Abt. anat. Inst. kaiser. Univ. Kyoto Ser. C*, No. 3, 99–100(1932); cf. *C. A.* 26, 2782.—The enzyme is found in considerable quantity in the sputum of most tuberculous patients. The prognosis of cases, in whose sputum no pyrophosphatase is demonstrable, is not favorable. B. S. LEVINE

**Differentiation of optically isomeric and related cinchona alkaloids by quinine-sensitive subjects.** W. T. DAWSON, J. P. SANDERS AND L. M. TOMLINSON. *J. Immunol.* 24, 173–83(1933).—The results of skin tests in 3 quinine-sensitive subjects with 42–48 cinchona alkaloids, including several pairs and one quartette of optical isomers, and with some chemically related substances, show that the allergic reactions rest on some-

what different chem. bases in all 3 cases. In the optically isomeric quartette quinine (*ddll*-), epiquinine (*ddld*-), epiquinidine (*dddl*-) and quinidine (*dddd*-) all 3 subjects had allergic reactions to quinine that did not appear on administration of quinidine, and from skin tests they were possibly insensitive to both epialkaloids also. E. R. LONG

**The use of avertin in multiple dressings: effects on the liver.** L. H. MCKIM AND WESLEY BOURNE. *Can. Med. Assoc. J.* **28**, 149–51(1933).—Avertin in doses of 6–7 g. has been administered up to 22 times in less than 10 weeks to a patient (17, 18 and 21 times to 3 other patients), without evidence of tolerance or tendency to habit formation. Liver function tests over this period by the bromosulfalein dye retention test indicate no appreciable liver damage. G. H. W. LUCAS

**Clinical experiences with avertin anesthesia.** K. M. HEARD. *Can. Med. Assoc. J.* **28**, 151–7(1933). G. H. W. LUCAS

**Changes in bone sarcoma after intravenous injections of a colloidal solution of metallic arsenic.** A. C. HENDRICK AND E. F. BURTON. *Can. Med. Assoc. J.* **28**, 192–4 (1933).—A case of bone sarcoma of the femur which did not respond to high-voltage x-ray treatment was treated with colloidal As 3 times a week, 0.5–0.8 cc. being given intravenously for over 6 months with very good results. G. H. W. LUCAS

**Habituation of fibroblast cultures to methanol.** SABURO KIRIHARA. *Folia Pharmacol. Japon.* **15**, No. 1, 10–17 (Breviaria 2)(1932); cf. *C. A.* **26**, 5983, 6016.—Fibroblast cultures develop a resistance to MeOH when it is added gradually to culture media. **Habituation of fibroblast cultures to propyl, butyl and amyl alcohols.** *Ibid* 18–28(Breviaria 2–3)(1932).—Fibroblast cultures become habituated to Pr and Bu alcs. but not to Am alc. It is more difficult to develop habituation with these alcs. than with EtOH and MeOH, and weaker concns. must be employed. G. H. W. LUCAS

**The action of sinomenine, parasinomenine and quinine on the pregnancy of rabbits.** FUKASHI YAGI. *Folia Pharmacol. Japon.* **15**, No. 3, 179–84(Breviaria 13)(1933); cf. *C. A.* **27**, 1051.—Injection of the above drugs into rabbits in the early part of pregnancy terminates it. Frequently one injection is sufficient, although repeated injections may be necessary, depending on the concn. of the solns. employed. It requires about 20 mg. sinomenine and about 10 mg. parasinomenine or quinine per kg. to produce the effect. Sinomenine acts more slowly than the other two. G. H. W. LUCAS

**The combined action of sinomenine, parasinomenine or quinine with pituitrin on the pregnancy of rabbits.** FUKASHI YAGI. *Folia Pharmacol. Japon.* **15**, No. 3, 240–3 (Breviaria 17)(1933).—Following treatment of the gravid rabbit uterus with sinomenine, parasinomenine or quinine, pituitrin produces a stronger effect. This action is increased if the pituitrin is added a short time after the other drugs. The pituitrin action is strongest with quinine and weakest with sinomenine. G. H. W. LUCAS

**Combination experiments on magnesium and calcium with morphine with regard to the influence on the blood sugar.** KAZUTERU AKIMOTO. *Folia Pharmacol. Japon* **15**, No. 3, 185–92(Breviaria 13–14)(1933).—The blood sugar in rabbits is increased by $MgSO_4$ (0.2 g.) and $CaCl_2$ (0.01 g.) per kg. injected subcutaneously. With much smaller doses of $MgSO_4$ (0.008–0.03 g. per kg.) and $CaCl_2$ (0.005 g. per kg.) the blood sugar is not changed, but the hyperglucemic action of morphine is greatly increased. Larger doses have no influence on the morphine action. Much larger doses of the salts have some effect, but not in the same degree as the smaller doses. The quantities of these salts which have a synergistic or sensitizing effect on morphine lie within narrow limits. G. H. W. LUCAS

**Pharmacological investigation on in-vitro cultures of the pigmented epithelial cells of the iris. V. The influence of digitalin [Merck], digitalein [Merck], digifolin [Ciba], and pangitals [Sankyo] on the growth of in-vitro cultures of iris epithelium and the histological changes in the cultures through these poisons.** KANO SANJO. *Folia Pharmacol Japon.* **15**, No. 3, 193–204 (Breviaria 14–15)(1933); cf. *C. A.* **27**, 1404.—The above drugs in weak concn. accelerate the growth of the cultures, but with increasing concn. the acceleration decreases. With high concn. growth is inhibited, degeneration follows and the cultures die. Histological changes are described. **VI. The influence of *k*- and *g*-strophanthin [Merck], helleborein [Merck], convallamarin [Merck] and adonidin [Merck] on the growth of in-vitro cultures of iris epithelium and the histological changes in the cultures through these poisons.** *Ibid* 205–17 (Breviaria 15)(1933).—These drugs act similarly. In weak concn. they promote the growth of the cultures; in higher concn. they inhibit it so that degeneration and death follow. Histological changes are described. G. H. W. LUCAS

**The cumulative action of various drugs of the digitalis group on cultivated tissues. II.** TOMONORI MANABE. *Folia Pharmacol. Japon.* **15**, No. 3, 218–27(Breviaria 15–16) (1933); cf. *C. A.* **27**, 1051.—Cultures of fibroblast in which the growth has been stimulated by small concns. of digitalein, digitalin, *k*-strophanthin and convallamarin, when placed suddenly in normal media soon return to normal growth. This return is more

rapid after *k*-strophanthin than after the other three. These drugs have a cumulative action on the cultures; that of digitalein and digitalin is more distinct than that of the other two. III. *Ibid* 228–39(Breviaria 16–17).—When a culture is treated with one of the digitalis group by several passages through a soln. of the drug and is then placed in a medium contg. another member of the group in a certain concn., various changes are observed. The cultures show the same growth if the drugs used in each case have no cumulative action, but if the drugs differ in respect to cumulative action, the growth of the cultures also varies. The action of the second drug on the growth is stronger and of longer duration, because of the influence of the first drug, according to the degree of accumulation of the first drug. G. H. W. LUCAS

**Experimental study of mercury poisoning. I. The influence of water and Ringer solution on mercury poisoning.** MAKOTO KUSE. *Folia Pharmacol. Japon.* **15**, No. 3, 244–58 (Breviaria 17–18)(1933).—Rabbits fed on oats were more resistant to Hg poisoning than those fed on bean jelly. After 5–15 mg. novasurol per kg. a considerable diuresis appeared in 3–6 days; 18–20 mg. had much less effect and was even antidiuretic. Male rabbits which, after a lethal injection of novasurol, were given 200 cc. water perorally for three days died from diarrhea. If the water was given prior to the novasurol, the rabbits lived longer. Intravenous administration of 200 cc. Ringer soln. soon after the novasurol injection showed a good effect. If the Ringer soln. was delayed a few days, most of the rabbits died. G. H. W. LUCAS

**The point of attack of pituitrin on antidiuresis and on sodium chloride excretion.** YOSHIAKI FUJIMOTO. *Folia Pharmacol. Japon.* **15**, No. 3, Opera Orig 19–26.—Since pituitrin diuresis appears in rabbits 3–5 min. after intravenous injection, 5–7 min. after subcutaneous and 15–20 min. after intracisternal, and also since indigo carmine injected in the same way shows a similar effect, it is assumed that pituitrin acts on the kidney. Furthermore, after section of the cervical cord and of the vagus, the results from the injections appear earlier than in the normals. As the excretion of NaCl after denervation, and in the normals, remained the same, the point of attack of pituitrin must lie in the kidney itself. G. H. W. LUCAS

**Chemical action of sodium citrate as a cause of certain transfusion reactions.** A. S. MINOT, KATHARINE DODD AND RAY BRYAN. *Am. J. Diseases Children* **45**, 32–40 (1933).—Transfusions of blood contg. 0.5% Na citrate into dogs after the reduction of the blood Ca by parathyroidectomy, by injections of guanidine-HCl or by induced alkalosis are followed by severe reactions characteristic of acute lack of Ca. The symptoms are relieved by the injection of Ca salts. The harmful reactions which sometimes follow blood transfusion in infants may be due to the reduction of the blood Ca by citrate, the reaction being especially marked in infants whose blood Ca is below normal. E. R. MAIN

**The use of radiostoleum and calcium salts in rheumatism.** EDWIN C. WARNER. *Arch. Disease Childhood* **7**, 273–6(1932).—The administration of vitamins A and D as radiostoleum, together with Ca gluconate, tends to prevent relapses of chorea and subacute rheumatism, but does not appear to prevent the onset or relapse of carditis or to increase the Ca content of the blood. E. R. MAIN

**The effect of liver extract on bile-pigment formation.** M. S. KIM. *J. Lab. Clin. Med.* **17**, 1223–7(1932).—The oral administration of liver exts. which are active therapeutically in pernicious anemia appears to have no effect on the nutritional condition or on the output of bile pigment in dogs with biliary fistulas. E. R. MAIN

**Carbon dioxide changes in alveolar air and blood plasma or serum after subcutaneous histamine injection in human beings.** LAY MARTIN AND MORTON MORGENSTERN. *J. Lab. Clin. Med.* **17**, 1228–36(1932).—The $CO_2$ contents of the alveolar air and blood plasma of individuals whose gastric secretion is normal are usually increased following the injection of histamine, while those of individuals whose gastric juice contains no HCl may be either increased or decreased. E. R. MAIN

**Gastric secretion of normal Chinese after histamine stimulation.** HSIAO-CH'IEN CHANG AND HSIEN-LIN CHANG. *Chinese J. Physiol.* **6**, 321–331(1932).—The gastric juice, both in fasting and after histamine stimulation, of normal Chinese subjects was studied as to its vol., acidity and total chloride content. The data showed no marked deviation from the normal standards of Occidentals. L. A. MAYNARD

**The influence of active and inert gases on the fragility of the red blood corpuscles.** QUINTO CALABRO. *Arch. intern. pharmacodynamie* **40**, 236–45(1931).—Gases capable of uniting with hemoglobin ($O$, $CO_2$, CO) diminish the min. and max. resistance of red blood cells, both *in vivo* and *in vitro*, with the exception of O, which increases the max. resistance slightly. Hemolysis of the cells to which these gases have been added occurs with NaCl at a higher concn. The inert gases (H and N) incapable of combining chemically with hemoglobin produce only a slight change in the fragility of the cells. These facts are in accord with other observations *in vivo* or *in vitro* on red cells treated with

other inert gases. The behavior of the red blood cells under these conditions is explained on a varying toxicity of the employed gases for the cells and on their property to form more or less stable compds. with hemoglobin. P. F. METILDI

**Modifications of the physicochemical constants of the blood during narcosis.** COSIMO DI GIOIA. *Arch. intern. pharmacodynamie* **42**, 39–47(1932).—The f. p. of the blood of dogs under narcosis by $CHCl_3$ steadily rises, but this is transitory and it does not parallel the duration of narcosis. The elec. cond. is also increased. The dielec. const. is increased also, but not as much. The surface tension and $n$ do not change. P. F. METILDI

**Thallium. III. Acute poisoning from thallium acetate. Toxicology of the metal.** P. TESTONI. *Arch. intern. pharmacodynamie* **42**, 48–64(1932); cf. *C. A.* **25**, 5930.—A description of a case of Tl poisoning and review of the literature with an extensive bibliography. P. F. METILDI

**Strychnine poisoning and magnesium sulfate.** EMILIO TRABUCCHI. *Arch. intern. pharmacodynamie* **42**, 65–86(1932).—Simultaneous injection (subcutaneous, intramuscular and intravenous) of $MgSO_4$ and lethal doses of strychnine into 29 rabbits failed to show a definite and const. antagonism between the two drugs *in vivo*. Injecting the drugs at different times did not show any difference in the effects. Expts. *in vitro* did not indicate any pptg. or inactivating action of $MgSO_4$ on strychnine. P. F. M.

**Pulmonary distribution of nebulized liquids.** P. SPOTO. *Arch. intern. pharmacodynamie* **42**, 87–102(1932).—In dogs and rabbits, nebulized liquids penetrate to the bronchioles and alveoli. The amt. which reaches these structures varies but is small. The distribution is irregular, being a max. near the hila. The position of the animal does not seem to influence the ultimate distribution. P. F. METILDI

**Penetration and distribution in the lungs of liquids injected intratracheally.** P SPOTO. *Arch. intern. pharmacodynamie* **42**, 103–116(1932).—See *C. A.* **26**, 1346. P. F. METILDI

**Histological investigations on the toxic action of cinchophen.** A. RISI. *Arch. intern. pharmacodynamie* **42**, 117–27(1932).—Cinchophen administered parenterally has a m. l. d. of 0.62 g./kg. in dogs, 0.90 g./kg. in guinea pigs and 0.95 g./kg. in rabbits. It has no cumulative action and is not habit-forming. The organs affected primarily are liver, kidneys and myocardium. The histologic characteristics are vacuolization, cloudy swelling, fatty degeneration of protoplasm with pyknosis, karyolysis and karyorrhexis of the nuclei. P. F. METILDI

**The antidotal effect of sodium tetrathionate in hydrocyanic acid poisoning.** A. CHISTONI AND B. FORESTI. *Arch. intern. pharmacodynamie* **42**, 140–72(1932).—Animal expts. demonstrate the efficacy of $Na_2S_4O_6$ as an antidote in HCN poisoning. Its action is rapid and is superior to that of the other antidotes in use ($Na_2S_2O_3$, colloidal S, etc.) Its action seems to rest on the transformation of HCN to HCNS. P. F. METILDI

**Behavior of the glucose in eggs after administration of saiodin.** MARCELLO BIASOTTI. *Arch. intern. pharmacodynamie* **42**, 305–10(1932).—The administration of saiodin (Ca monoiodobehenate) to chickens produces a diminution of the glucose content of the eggs. P. F. METILDI

**Thermal reactions of the nasal mucosa induced by vasomotor drugs.** GIORGIO MANCIOLI. *Arch. intern. pharmacodynamie* **42**, 311–27(1932).—Adrenaline, cocaine, percaine and amyl nitrite induce notable variations in temp. of the nasal mucosa in man as measured by thermocouples. P. F. M.

**Sodium dimethylarsinate and disodium monomethylarsinate. I. Toxicity of sodium cacodylate and anatomopathologic alterations from its poisoning.** ITALO SIMON. *Arch. intern. pharmacodynamie* **42**, 283–304(1932).—The immediate m. l. d (intravenous) for rabbits is 1.21 g./kg. body wt.; the late m. l. d. is 0.40 g. The m. l. d (subcutaneous) is 0.50 g. The immediate toxicity is related to the speed of injection. Death is due to depression of the circulatory and respiratory functions, together with some histological changes in the nervous system. P. F. METILDI

**The action of cyanides, guanidine and acetylcholine on the heart at different $p_H$ values.** VIRGILIO MARTINI. *Arch. intern. pharmacodynamie* **43**, 63–6(1932).—NaCN, guanidine chloride and acetylcholine exert a more powerful action on the isolated heart of the frog when the $p_H$ of the medium is lower. This is probably due to an increase in the cellular permeability. P. F. METILDI

**The effect of insulin at low and high altitudes.** FILIPPO MADON. *Arch. sci. biol* (Italy) **17**, 41–7(1932).—Blood-sugar detns. on 5 healthy subjects before and after injection of 10 units of insulin showed that when these subjects had been at an altitude of 3000 m. for 2 weeks their fasting blood sugar was higher and the lowering of the sugar was greater with the same dose. However, the min. values reached were the same for low and high altitude. P. F. METILDI

**The physiological inactivity of adrenaline chloride administered through the gastro-**

**intestinal tract in the dog.** CAMILLO COLOMBI AND ULRICO LANDI. *Arch. sci. biol.* (Italy) **17**, 113–25(1932).—In a new method of study, adrenaline chloride was found to be inactive on the gastrointestinal tract when administered *per os* or when given in the duodenum. It also did not affect isolated pieces of intestine or the arterial pressure. In man, also, adrenaline given by mouth has no effect. P. F. METILDI

**The action of the decidua and its extracts on the growth of larvae and the metamorphosis of Bufo vulgaris.** RENATO DE NUNNO. *Arch. fisiol.* **31**, 139–64(1932).—Bodily resistance and growth are increased. A. E. MEYER

**The action of chloralose on the cortical elements of the sigmoid zone of the dog.** G. MARTINO. *Arch. fisiol.* **31**, 186–99(1932).—Direct application of a 1% soln. of chloralose increases the excitability. By combined action with strychnine, clonic spasms of the muscles and epilepsy-like attack were produced. Subdural injections of 1.5 to 2 cc. of a 1% soln. did not cause visible symptoms. A. E. MEYER

**Diuresis. I. Diuresis after intravenous injections of hypertonic solutions of sodium chloride.** GIORGIO RAVASINI. *Arch. fisiol.* **31**, 219–26(1932); cf. *C. A.* **27**, 341, 1052.—The quantity of urine eliminated is greater than the vol. of soln. injected, whereas the NaCl is not completely eliminated. **II. Diuresis after intravenous injections of isotonic sodium chloride solution.** *Ibid* 286–93.—NaCl and $H_2O$ are eliminated at the same rate, as injected. **III. Diuresis after injection of hypotonic sodium chloride solution.** *Ibid* 294–309.—The urine vol. is less than that of the liquid injected and decreases as the hypotony increases. The NaCl eliminated exceeds the injected quantity. **IV. Diuresis after intravenous injection of distilled water.** *Ibid* 310–19.—The urine vol. is less than that of the $H_2O$ injected. The NaCl in the urine decreases inversely with the rate of injection. A high rate causes death. A. E. MEYER

**Bismuth-kaolin mixtures in the treatment of gastrointestinal disturbances.** GEORGES HAYEM. *Bull. acad. méd.* **106**, 224–5(1931).—A mixt. of 1 part $BiONO_3$ with 3 parts kaolin is as effective as the pure Bi salt. A. E. MEYER

**Three cases of intestinal parasites healed by pyrethrins.** M. ANGLADE AND O. GAUDIN. *Bull. sci. pharmacol.* **39**, 480–3(1932); cf. *C. A.* **26**, 2246.—Treatment with pyrethrins destroyed *Oxyuris* very rapidly. A. E. MEYER

**Sensitiveness to medicines.** EDOUARD JOLTRAIN. *Rev. méd.* **48**, 267–86(1931). A. E. MEYER

**Usefulness of insulin in conditions other than diabetes.** PIERRE SÉE. *Rev. méd.* **48**, 320–40(1931). A. E. MEYER

**The excitability of the vegetative nervous system and sodium perchlorate.** GERONIMO SPAGNOL. *Rev. sud-americana endocrinol. inmunol. quimioterap.* **16**, 1–13(1933).—Injections of $NaClO_4$ in animals cause a depression of the parasympathetic-vagal system; high doses produce complete paralysis. The sympathetic system shows hyperexcitability with excessive sensitiveness to adrenaline. It is supposed that the $NaClO_4$ causes a decrease of the K ions in the blood with consequent change of the Ca:K ratio. A. E. MEYER

**The neutralizing effect of calcium in tuberculosis treatment.** LUCAS F. DEFELICE. *Semana méd.* (Buenos Aires) **1932**, II, 1055–62.—Ca is important for neutralization of the increased acidity in tuberculosis, which must precede the recalcification of the lesions. A. E. MEYER

**The influence of monobromoacetate on the carbohydrate metabolism and the anaerobic disappearance of lactic acid.** WALTER HAARMANN. *Biochem. Z.* **256**, 326–49(1932).—Monobromoacetate inhibits the lactic acid production from carbohydrate in tissues, and furthermore lactic acid when added disappears anaerobically. A similar disappearance of lactic acid under anaerobic conditions is observed in brain tissue even without the addn. of monobromoacetate. The anaerobic lactic acid disappearance was on the av. 81 mg. % in skeletal muscles, but with the addn. of lactate this rose to 218 mg. %. The sensitivity to the monobromoacetate varies greatly, the lactic acid formation from preformed carbohydrate being prevented in the tissues by a concn. of 1:4000–1:250; from glycogen by a concn. of 1:1000–1:250; while the inhibition of lactic acid formation from hexose diphosphate is incomplete. Methylglyoxalase is not affected by the monobromacetate poisoning, nor is the reduction of pyruvic to lactic acid seriously disturbed. The addn. of succinic, fumaric, maleic, glycerophosphoric and propionic acids in the presence of monobromoacetate causes a larger lactic acid production than without the addn. While monobromoacetate completely suppresses the destruction of glucose, the hydrolysis of glycogen is unaffected. A concn. of monobromoacetate sufficient to inhibit completely the lactic acid formation has little effect on the hydrolysis of P from hexosediphosphate, hexosemonophosphate or glycerophosphate. Rabbits may be killed by a dose of monobromoacetate which does not yet reveal any influence upon the muscles or brain metabolism, but the lactic acid formation by liver and kidney is completely inhibited. S. MORGULIS

**Influence of phosphate on tissue respiration.** BRUNO KISCH. *Biochem. Z.* **257**, 95–112(1933); cf. *C. A.* **27**, 137.—The respiration of a ganglion-rich nerve tissue (retina) is definitely raised by the addn. of *M*/15–*M*/60 phosphate which also prevents the fall in respiration usually found in long-continued expts. On the contrary, kidney tissue has a higher respiratory activity in phosphate-free than in phosphate-contg. Ringer soln. S. MORGULIS

**Action of methylene blue on cell respiration.** WALTER FLEISCHMANN AND SUSANNE KANN. *Biochem. Z.* **257**, 293–300(1933).—The respiration of the retina is greatly increased *in vitro* by methylene blue. Levulose-phosphate soln. acts as a model of a double respiration system, a KCN-sensitive heavy metal catalysis and a KCN-insensitive transfer of O by a pigment which carries O through its ability to become spontaneously dehydrated. If this system is poisoned by KCN, the O consumption in air is again increased by the addn. of methylene blue. The oxidation of levulose in neutral phosphate soln. in the presence of methylene blue resembles that of the respiration of the living aerobic cell, and it stimulates only the chief respiration or the Fe respiration, acting vicariously for the injured portion of the oxidation system. S. MORGULIS

**Comment on Wilson and Strieck's article: Influence of intravenous injection of diastase on the blood sugar of normal and depancreatized animals.** G. MANSFELD. *Biochem. Z.* **257**, 333(1933); cf. *C. A.* **26**, 5663.—Polemical. S. MORGULIS

**Effect of reduced atmospheric pressure on the glutathione content of the liver.** SIEGRIED LAURENS MALOWAN. *Biochem. Z.* **257**, 437–41(1933).—The glutathione contents of the liver of rats and of guinea pigs kept under reduced pressure increases, unless there is a fatty transformation, in which case the glutathione content decreases Glutathione content was found to increase as a result of operative shock or illness. S. MORGULIS

**Does insulin affect the thyroid gland? II.** C. E. RÄIHÄ AND U. UOTILA. *Skand Arch. Physiol.* **86**, 287–90(1933); cf. *C. A.* **23**, 5497.—Chronic overdosing with insulin produces thyroid hyperfunction. S. MORGULIS

**The effect of viosterol on the periosteum in experimental fractures.** ROBERT C GRAUER. *Arch. Surg.* **25**, 1035–54(1932).—Viosterol in therapeutic doses stimulates the osteogenic layer and enhances osteogenic differentiation, this favoring repair Overdosage stimulates the fibrous layer of the periosteum through decalcification of bone and retards repair. Studies of the serum Ca and P indicate that the Ca:P ratio has no prognostic value. JOHN T. MYERS

**The action of the toxins of the gas gangrene group of organisms on the horny layer of the skin of the rabbit.** E. GILDEMEISTER AND H. SCHLOSSBERGER. *Zentr. Bakt Parasitenk. I Abt.* **126**, 527–9(1932).—The toxins of *Cl. histolyticum* and *Cl. oedematiens* have a component which causes necrosis of the skin of rabbits: *Cl. chauvei*, *Vibrio septicus* and Fränkel's gas bacillus do not have it. JOHN T. MYERS

**The pharmacologic action of narcotine, its derivatives and the following mixtures: narcotine or its derivatives with morphine; narcotine with hyoscyamine; morphine with hyoscyamine.** MASAKATSU HAYASHI. *Japan. J. Med. Sci. IV. Pharmacol.* **6**, 203–57 (1932).—Narcotine (I) and the following derivs. were studied: the HCl salt (II) of 1 meconyl-2-methyl-6,7-dihydroxy-8-methoxy-1,2,3,4-tetrahydroisoquinoline (phenol base from I), diacetyl deriv. (III) of II and di-Et ether (IV) of II. I, II, III and IV at first have a paralytic action on frogs, but spinal reflexes are increased, leading to a strychnine-like tetanus. On frogs, III is strongest, I weakest. In mice and dogs small doses are quieting, while larger doses produce tetanus. The sedative action is greatest for I, least for III, and the convulsions are greatest with I, least with III. Hyoscyamine (V) increases the effect of morphine (VI) but hardly affects that of I. In small amts. I, II, III and IV have no effect on respiration, while larger amts. depress the respiration These substances are weakly antagonistic to VI in its effect on respiration. V decreases the respiratory rate of dogs previously given VI but increases the respiratory rate of dogs previously given I. I, II, III and IV lower the blood pressure slightly, probably as a result of a direct heart action. Injection of I produces a strong contraction of the ear vessels of the dog. II produces a weak contraction and III a slight dilation. Small amts. increase the tonus and contractions of the intestine. I and IV have a marked action, III less action and II almost none. The actions of I, II, III and IV are synergized by VI. These compds. have a similar but weaker action on the uterus. The following min. lethal doses (in g. per kg. of body wt.) are given for injection into the lymph sac of frogs, subcutaneous injection in mice, intravenous injection in mice and intravenous injection in dogs, resp.: I, 1.0, 2.0, 0.15, 0.06; II, 1.0, 1.5–2.0, 0.4, 0.2; III, 0.7, 1.5, 0.3–0.4, 0.15. T. H. RIDER

**The pharmacological action of plumbagin.** KEIEN KO. *Japan. J. Med. Sci. IV Pharmacol.* **6**, 259–86(1932).—Newly collected roots of wild *Plumbago ceylanica* were finely cut, dried and extd. with $Et_2O$. The $Et_2O$ was evapd., and the residue dissolved in

alc. and poured into water. The ppt. was recrystd. from $Et_2O$, then from petroleum ether, this yielding 4% of *plumbagin* ($C_{11}H_8O_3$) (I), volatile yellow crystals, m. 67°, subliming 90°, sol. alc., $Et_2O$, boiling water, sol. cold water to 0.0195%. I produces excitement of the central nervous system of frogs, mice and rabbits, larger doses producing convulsions followed by paralysis. The m. l. d. is 0.5 mg. per g. for frogs, 0.1 mg. per g. for mice and 10 mg. per kg. for rabbits. In rabbits I produces slight depression of respiration and blood pressure, the latter action being due to dilation of peripheral vessels and direct heart action. I paralyzes isolated frog heart muscle and causes dilation of perfused blood vessels, causes initial excitement and subsequent paralysis in isolated smooth muscle organs, paralyzes both peripheral motor nerves and muscular tissue of frogs, and has no diuretic action in rabbits. T. H. RIDER

**The treatment of congenital syphilis with bismuth arsphenaminesulfonate [bismarsen].** THOMAS M. MARKS. *J. Chemotherapy* **9**, 78–9(1933).—One case report. T. H. RIDER

**The pharmacological action of eseridine.** REGINALD ST. A. HEATHCOTE. *J. Pharmacol.* **46**, 375–85(1932).—The m. l. d. of eseridine (I) is 10 times as large as that of physostigmine (II). I possesses actions similar to II but only $^1/_{10}$ as strong. T. H. R.

**The relative preanesthetic values of the sodium salts of isoamylethylbarbituric acid [amytal], pentobarbital, phenobarbital and barbital.** ED. E. SWANSON. *J. Pharmacol.* **46**, 389–94(1932).—Na amytal and Na pentobarbital have practically the same premedication value, Na phenobarbital and Na barbital having lower efficiencies. T. H. RIDER

**Synergism and antagonism of drugs. I. The non-parasympathetic antagonism between atropine and the miotic alkaloids.** THEODORE KOPPANYE. *J. Pharmacol.* **46**, 395–405(1932).—The antagonism between atropine and the pilocarpine-physostigmine group is not limited to the parasympathetic endings. A physicochemical antagonism must be considered. T. H. RIDER

**Vagus control of pancreatic function. Experimental insulin resistance.** EPHRAIM B. BOLDYREFF AND JEAN F. STEWART. *J. Pharmacol.* **46**, 407–18(1932).—Crystalline insulin (I) produces a monophasic hypoglucemic effect on a wide variety of vertebrate and cold-blooded animals. I has strong vagotonic properties. Vagus blockage renders the subjects unreactive to I. T. H. RIDER

**Gastric secretion caused by insulin.** EPHRAIM B. BOLDYREFF AND JEAN F. STEWART. *J. Pharmacol.* **46**, 419–29(1932).—Insulin (I) has a monophasic secretagog action on gastric glands. Gastric juice secreted in response to I has a high acidity and a high pepsin content. This secretory action of I is suppressed by atropine and is probably due to vagus stimulation of the stomach. T. H. RIDER

**Basic sodium phosphate as an antidote for hypercalcemia in dogs.** IRVINE H. PAGE AND JASPER P. SCOTT. *J. Pharmacol.* **46**, 431–4(1932).—Intravenous injection of basic Na phosphate lowers serum Ca of normal dogs and those having a hypercalcemia produced by parathyroid ext. T. H. RIDER

**The response of the isolated intestine to cocaine and procaine at different $p_H$ levels.** WM. SALANT AND WM M. PARKINS. *J. Pharmacol.* **46**, 435–46(1932).—Cat intestine was stimulated by cocaine (I) below $p_H$ 7.0. At a $p_H$ of 7.7–7.8 I produced mainly depression, sometimes preceded by stimulation. At a $p_H$ of 8.5 stimulation predominated. Stimulation of rabbit intestine was rare but was the rule with rat intestine at all $p_H$ levels. Procaine action on the rat intestine was not influenced by changes in $p_H$. T. H. RIDER

**Cardiovascular and metabolic reactions of man to the intramuscular injection of posterior pituitary liquid [pituitrin], pitressin and pitocin.** ARTHUR GROLLMAN AND E. M. K. GEILING. *J. Pharmacol.* **46**, 447–60(1932).—Pituitrin and pitressin produce a brief fall in pulse rate, O consumption and cardiac output, followed by a prolonged rise in these functions. Pitocin produces a slight increase in O consumption and negligible changes in the circulation. The marked pressor effects of pituitary exts. observed in anesthetized animals is not observed in the normal man following therapeutic doses. T. H. RIDER

**The action of various uric acid eliminants upon experimental uric acid storage in the kidney.** HERMANN O. SCHROEDER. *J. Pharmacol.* **46**, 461–9(1932); cf. *C. A.* **27**, 777.—Only cinchophen and neocinchophen show a marked influence in preventing uric acid deposition. Na salicylate increases uric acid excretion very slightly, but apparently because of an effect on nuclear metabolism rather than because of a renal function. Although Na salicylate increases uric acid excretion in gout even more than does cinchophen, it provokes attacks by increasing uric acid formation. T. H. RIDER

**The toxic properties of hydrogen sulfide.** ETIENNE AUDIBERT AND LOUIS DELMAS. *Ann. mines* [13], **2**, 203–13(1933).—The toxic effects of $H_2S$ on various animals were studied. Five parts per 100,000 caused the appearance of toxic symptoms after exposure

for several hrs. One part per thousand caused acute intoxication and death. Artificial respiration with the inhalation of O was the most effective method of resuscitation. Toxic quantities of $H_2S$ can be detected by the coloration of a tube contg. $I_2O_5$ and fuming $H_2SO_4$. E. W. Scott

**The physiological action of nitrogen peroxide.** Etienne Audibert and Louis Delmas. *Ann. mines* [13], **2**, 214–15(1933).—The analogy between the effects of $NO_2$ and $H_2S$ when present in toxic quantities in the air is pointed out. E. W. Scott

**Experimental study of the effects of potassium dichromate on the monkey kidney.** Warren C. Hunter and Joe M. Roberts. *Am. J. Path.* **9**, 133–47(1933).—Subcutaneous injections of $K_2Cr_2O_7$ affected the proximal and distal convoluted tubules and glomeruli of the kidney similarly to U nitrate or $HgCl_2$. It is locally corrosive, and following repeated injections there occurs a regeneration of tubular epithelium of distinctly atypical morphology. This epithelium is resistant to further injury by the dichromate. F. B. Seibert

**Humoral transmission of chorda tympani effect.** B. P. Babkin, Armine Alley and George W. Stavraky. *Trans. Roy. Soc. Can.* V, **26**, 89–107(1932).—In cats after a small dose of physostigmine, stimulation of the chorda tympani nerve on one side is followed by secretion and acceleration of the blood flow of the submaxillary gland on the other side: it also lowers the systemic blood pressure. After 1 mg. of atropine sulfate, no effect could be demonstrated. All possible reflex influences were excluded. The phenomenon could be abolished or decreased by clamping the vein of the stimulated gland. It was concluded that a special chem. substance was formed in the submaxillary gland, preserved from inactivation by physostigmine and transferred in the blood stream causing secretion and vasodilitation in the opposite gland, and a fall in systemic blood pressure. Louis J. Soffer

**A preliminary report on the effect of choline on fat deposition in species other than the white rat.** C. H. Best, M. Elinor Huntsman and O. M. Solandt. *Trans. Roy Soc. Can.* V, **26**, 175–6(1932).—When added to a high fat diet in 20-mg. daily dosages choline inhibits the deposition of fat in the liver in white mice; preliminary studies suggest that similar results may be obtained in chickens and young dogs. L. J. S.

**The oral administration of insulin derivatives.** D. A. Scott, A. F. Charles and E. T. Waters. *Trans. Roy. Soc. Can.*, V, **26**, 287–93(1932).—Tests were made with insulin inactivated by acid alc., by $Ac_2O$, by MeI, by 0.1 *N* HCl and with cryst. insulin on a normal and a depancreatized dog. The derivs. showed little activity when injected subcutaneously, but a considerable part of the potency was recoverable on treatment with alkali. Significant lowering of blood sugar did not occur. Louis J. Soffer

**Pharmacological investigation of blood vessels of the human placenta.** K. Ueda *Japan. J. Obstet. Gynecol.* **15**, 264–83(1932).—Adrenaline and pilocarpine did not cause any reaction in the blood vessels of placentas of less than the 5th month of pregnancy, but the former caused a peculiar contraction in the blood vessels of 6-month placentas, while the latter caused a dilatation. Atropine did not cause any definite action in any stage of pregnancy, but $BaCl_2$ brought a marked contraction as early as the 4th month Effects of blood $CO_2$ and serum, of $p_H$, of Ca, K and Na ions upon the blood vessels of human placenta were also investigated. K. Sugiura

**Diuretic properties of watermelon juice.** A. Richard Bliss, Jr., Robert W Morrison and Ellsworth O. Prather, Jr. *J. Tennessee Acad. Sci.* **8**, 92–3; *Am. J Pharm.* **105**, 53–8(1933).—Given to rabbits kept on controlled diet, watermelon juice failed to cause diuresis. Concd. juice caused gastrointestinal irritation. A. L. T

**Variability of the effects of sparteine on the intestine in situ.** Raymond-Hamet *Compt. rend.* **196**, 131–4(1933).—Intravenous injection of 10 mg. sparteine per kg. body wt. into dogs may either reduce the intestinal tonus at once or cause a preliminary stimulation, followed by a reduction in tonus. The latter, which occurs with only a few individuals, distinguishes the action of sparteine from that of nicotine and related alkaloids. The use of sparteine in intestinal troubles of nervous origin is suggested. K. V. Thimann

**The action of tyramine on the excitability of the cardiac-pneumogastric nerve and the influence of this amine on the effects of nicotine.** Raymond-Hamet. *Compt. rend* **195**, 1330–3(1932).—Tyramine, injected intravenously into dogs in doses ranging from 20 to 200 mg. per kg., depresses or totally abolishes the excitability of the vagus and diminishes the vasomotor and intestinal effects of nicotine (1 mg. per kg.). R. P. Walton

**A British investigation.** Esther M. Killick. *Gas J.* **201**, 262(1933).—In preliminary expts. to det. whether man can develop a tolerance toward CO, a man and a woman inhaled air contg. CO at weekly intervals. The concn. of CO could be increased in successive expts. without the appearance of addnl. symptoms of poisoning, and the amt. of CO in the blood failed to increase proportionally with the increased concns. of CO in the air. P. J. Wilson, Jr.

**Oxidation-reduction of cells and tissues.** K. Okamoto. *Japan. Z. Mikrobiol. Path.* **26**, 1135–73(1932).—The oxidation-reduction by triphenylmethanesulfonic acid dyes was investigated for cells and tissues, with both supravital and vital staining, which show metachromasia *in vivo* and *in vitro* when oxidized and reduced. Histiocytes, stellate cells in the liver, sinus endothelium of the lymph gland and spleen, interstitial cells of the testis, liver cells, etc., have strong oxidizing power. Cartilage cells, convoluted tubular epithelium of the kidney and connective tissues, namely, the elastic fibers and collagen fibers, have strong reducing power, and the ovarian epithelium has weak reducing power. I. S. Yun

**Effect of thiocyanate on artificially cultivated tissues, especially on the spleen tissue of the chicken embryo.** G. Kobayashi. *Japan. Z. Mikrobiol. Path.* **26**, 1752–60 (1932).—The inhibiting action of thiocyanate on spleen tissue *in vitro* was accelerated in media contg. also neutral salts or acids. I. S. Yun

**Peristalsis of the rabbit intestine during inhalation of anesthetics.** M. K. Mun. *Korean Med. J.* **2**, 93–106(1932); cf. *C. A.* **26**, 5664.—Peristalsis of the rabbit intestine diminished during inhalation of ether or $CHCl_3$. I. S. Yun

**Relation between rocambole extract from garlic and endocrine organs.** I. S. Yun. *Korean Med. J.* **2**, 112–13(1932).—Koreans use garlic freely in their cooking. Daily intravenous injections of rocambole ext. caused marked histological changes in the hypophysis, spleen, testis and especially in the thyroid gland of rabbits. Hyperfunction of the thyroid followed injections over a short period, and hypofunction followed injections continued for a long period. I. S. Yun

**Phagocytic function of the histiocytes. Influence of injection of non-specific protein on the phagocytic function of the histiocytes.** Takeo Takikawa. *Trans. Japan Path. Soc.* **21**, 228–31(1931).—The phagocytic action of histiocytes on India ink in rabbits was accelerated by the injection of non-specific protein, namely, caseosan. I. S. Yun

**Nature of the spirocheticidal property of arsphenamine.** Yuzo Muro. *Trans. Japan. Path. Soc.* **21**, 476–80(1931).—Arsphenamine injected intravenously into the rabbit passes through the liver to the intestine with bile and is absorbed from the intestinal wall to be later excreted through the kidney. Arsphenamine which after absorption from the intestine is present in blood has a stronger spirocheticidal power. I. S. Yun

**Experimental strychnine myocarditis in the rabbit.** Toiti Wakayama. *Trans. Japan. Path. Soc.* **21**, 517–20(1931).—Interstitial myocarditis resulted from the continuous injection of strychnine into rabbits. I. S. Yun

**The effect on the blood of injections of iodine ferratose.** Takashi Iishima. *Trans. Japan. Path Soc.* **21**, 535–6(1931).—Anemia appeared in partially hepatectomized rabbits after the intravenous injection of iodine ferratose. Hemorrhage and necrosis were found in bone marrow. I. S. Yun

**Tyramine anemia.** Toku Iwao. *Trans. Japan. Path. Soc.* **21**, 537–9(1931).—Anemia was found in the guinea pig after repeated injections of large doses of tyramine. Hemorrhage and iron infiltration were noted in liver tissue. I. S. Yun

**Changes in the brain brought about by experimental intoxication with coal gas. I.** Saburo Oba. *Trans. Japan. Path. Soc.* **21**, 639–47(1931).—Lipoids appeared in glia cells and ganglion cells as a result of coal-gas intoxication. Also fat granules appeared in the endothelium of the walls of small blood vessels. Severe poisoning causes fatty degeneration of glia cells and ganglion cells and hemorrhage in brain tissue. I. S. Yun

**Histopathological studies after so-called amyostatic poisoning. I. Experimental 3-astyl[3-aminohydrocarbostyrilhydrochloride], procaine and aconine intoxications in rabbits.** Iwao Wake. *Trans. Japan. Path. Soc.* **21**, 622–32(1931).—The 3-astyl causes neutrotropically regressive and degenerative changes in the central nervous system, especially in the substantia nigra, pallidum and in the cerebellum, and it causes passive hyperemia and regressive and degenerative changes in liver tissue. Procaine causes similar changes in the central nervous system but very slight changes in the liver. Aconine also causes similar changes in the central nervous system and peritoneal hemosiderosis in liver tissue. I. S. Yun

**Changes in muscle tissue due to adrenaline.** Kenziro Inoue. *Trans. Japan. Path. Soc.* **21**, 676–7(1931).—Large doses of 0.1% adrenaline soln. were injected intravenously into rabbits and heart muscle, smooth muscle and striated muscle examd. after 2 days, 7 days and 2 weeks, resp Degenerative changes appeared. I. maintains that the well-known arteriosclerosis following adrenaline injection is only a local evidence of changes found in all muscle tissues after adrenaline treatment. I. S. Yun

**Changes in striated muscles caused by globe-fish toxin.** Magoiti Hasiguti. *Trans. Japan. Path. Soc.* **21**, 678–9(1931).—Intravenous injection into rabbits of 0.003–

0.005 g. tetrodotoxin from the globefish caused slight degenerations of various kinds in striated muscle fibers and also hyperplasia of nuclei. I. S. YUN

**Relation between chemical salts and tumor growth.** RYOICHI JINGUU. *Trans. Japan. Path. Soc.* **21**, 743–7(1931).—Rabbit sarcoma was used and the size of the tumor was measured after intravenous injection of NaCl, $MgCl_2$, $CaCl_2$, $LiCl_2$ and KCl. Tumor growth is accelerated by Mg salts and inhibited by Ca salts. The salts which increase the content of blood sugar accelerate the development of tumor tissue, and those which decrease blood sugar inhibit the development. I. S. YUN

The essential oil of Pteronia Stricta Ait. (SMITH, SAPIRO) **17.** The chemistry of *Rauwolfia natalensis* (RINDL, GROENEWOUD) **17.** Organomagnesium compounds containing solubilizing amino groups (GILMAN, *et al.*) **10.** Preparation of agents to be used against malaria (RAY, *et al.*) **10.** Ethylene-*N*,*N'*-bisbarbital, a dimolecular barbital with hypnotic properties (DOX) **10.**

MINZ, B.: **Pharmakologie des Histamins und des Acetylcholins.** Berlin: Junk. 11 pp. M. 1.50.

SCHMID: **Contribution à l'étude pharmacodynamique du novarsénobenzol.** Paris: A. Legrand. 84 pp. F. 8.

ZUNZ, EDGARD: **Eléments de pharmacodynamie spéciale.** Étude de l'action des divers médicaments. Paris: Masson & Cie. 2 vols 1271 pp. F. 190.

## I—ZOÖLOGY

R. A. GORTNER

**Relation between the pigmentation of the skin of guinea pigs and their resistance to tetanic intoxication.** E. LEMÉTAYER. *Compt. rend. soc. biol.* **112**, 354–5(1933). Colored guinea pigs are more resistant to tetanus toxin than albinos. L. E. GILSON

**An ecological study of the fishes of the Hocking River 1931-1932.** P. SHERIDAN SHURRAGER. *Ohio State Univ. Biol. Survey Bull.* **28**, 377–409(1932).—The normal $p_H$ of the river is 7.6. Deviations from this are due to mine and mfg. wastes. The combination of sewage pollution and the decrease of O to 4.1 p. p. m. in the Lancaster region prevented fish life there. A gypsum plant was not observed to have any effect upon fish life in the river. Mine wastes give a condition of low $p_H$, increased $CO_2$ and suspended particles of S compds. The low $p_H$ was not the primary lethal factor but may have been a contributing factor during the period of greatest pollution. The $CO_2$ was probably not the lethal factor. The accumulation of suspended S compds. may produce asphyxiation and also chem. destruction of the gill tissue. A limestone filter is suggested for preventing the mine waste devastations. H. W. LEAHY

**The variation in the concentration of the hemolymph of terrestrial mollusks.** A. ARVANITAKI AND H. CARDOT. *J. Physiol. Path. Gen.* **30**, 577–92(1932).—The phys. properties of the hemolymph of 4 species of *Helix* were studied. Mineral substances play a preponderant role in detg. mol. concn. The higher the salt concn., the lower is the viscosity. L. A. MAYNARD

**Variations of the $p_H$ in the vacuoles of the Vorticella after induced contractions.** GIUSEPPINA PASTORI. *Arch. sci. biol.* (Italy) **17**, 164–8(1932). P. F. METILDI

**3,4-Dihydroxyphenylacetic acid, the pigment precursor of the wings of Tenebrio molitor L.** HANS SCHMALFUSS, ALFRED HEIDER AND KURT WINKELMANN. *Biochem. Z.* **257**, 188–93(1933).—It is definitely established that 3,4-dihydroxyphenylacetic acid is present in the wing of *Tenebrio molitor*, where it functions as the pigment precursor. S. MORGULIS

**Some physicochemical phenomena during regeneration. V. The lactic acid content of regenerated extremities of Axolotls.** N. OKUNEV. *Biochem. Z.* **257**, 242–4 (1933); cf. *C. A.* **27**, 1055.—The regenerated buds of tissue in axolotls deprived of their extremities contain about twice as much lactic acid as does the tissue of the old limb. This accumulation of lactic acid at the site of regeneration leads to the conclusion that cleavage metabolism is very active. S. MORGULIS

**Studies in animal aggregations: further studies on oxygen consumption and autotomy of the brittle star, Ophioderma.** W. C. ALLEE AND J. R. FOWLER. *J. Exptl Zoöl.* **64**, 33–50(1932); cf. *C. A.* **26**, 2796.—This is an extension of former work on the O consumption of grouped and isolated *O. brevispina*. Significant differences were found in the effect of aggregation formation upon O consumption during the breeding season as compared with similar data obtained outside this season. Grouped *Ophioderma* have physiol. characteristics like those shown by individuals isolated in containers with loosely heaped glass rods. C. H. RICHARDSON

**Food requirements of blowfly cultures used in the treatment of osteomyelitis.** J. G. HAUB AND D. F. MILLER. *J. Exptl. Zoöl.* **64**, 51–6(1932).—For the larvae of the

black blowfly (*Phormia regina*) lean beef was the most satisfactory food; for the adults, lean beef, sucrose and water. C. H. RICHARDSON

**The disappearance of the pigmentation of the eye and the skin of tadpoles [Rana sylvatica] that develop in solutions of indophenol dyes.** MARGARET REED LEWIS. *J. Exptl. Zoöl.* **64,** 57–69(1932).—Frog eggs which developed in tap water contg. phenol indophenol lacked the pigmented layer of the optic cup and showed defective skin pigmentation. This loss of pigment is not due to the destruction of the primitive pigment-forming material of the egg. C. H. RICHARDSON

**The nutrition of flesh-fly larvae, Lucilia sericata [Meig.]. I. The adequacy of sterile synthetic diets.** A. E. MICHELBACHER, W. M. HOSKINS AND W. B. HERMS. *J. Exptl. Zoöl.* **64,** 109–31(1932).—This fly develops normally in the absence of microorganisms on fish and concd. fish exts. Growth of the larvae is slow on common bacteriol. media, yeast, hen egg and several other foods. Purified casein, yeast, mineral salts, butter or cod-liver oil and cystine gave as rapid growth as natural contaminated flesh. The liquefying action of bacteria on solid food is often useful to the larvae; on foods that do not permit rapid growth bacteria are often harmful; on very poor foods they are always harmful to the larvae. The advantages of insects as test animals in nutritional work are indicated. C H. RICHARDSON

## 12—FOODS

F. C. BLANCK AND H. A. LEPPER

**Rate of heat penetration in certain heat-sterilized foods.** C. M. BURNS. *Food Tech.* **1,** 348–51, 400–2(1932).—The effect of size and shape of can, size of meat particles, influence of precooking, and presence of air and fat on the rate of heat penetration through tinned meat products has been studied. The presence of air accelerates heat penetration, and fat, particularly if it forms a surface layer, retards the process. Diffusivity consts., *i. e.*, thermal cond./(sp. heat × d.), have been detd. for meat in various conditions. B. C. A.

**Deterioration of the fat in foodstuffs.** W. L. DAVIES. *Food Tech.* **1,** 141–3, 181–3, 269–70(1931).—Fatty acid rancidity and oxidative rancidity are described, together with the effects of "pro-oxygens" and "anti-oxygens" on the period of induction. The influence of heavy metals and of microörganisms on oxidative rancidity and of various molds on ketonic rancidity is discussed. Other forms of fat deterioration, *e. g.*, "mustiness" and "fishiness," are considered, and methods for controlling the factors favoring oxidation are summarized. B. C. A.

**Estimation of higher saturated fatty acids in food fats.** J. GROSSFELD. *Allgem. Öl. Fett-Ztg.* **29,** 25–30, 92–6, 161–8, 220–9(1932).—A new technic is given for the detn. of higher satd. fatty acids (lauric acid and its higher homologs). The method is a modification of Bertram's in the following details: (*a*) The amt. of fat used is reduced to 500 mg. (*b*) The reaction time is reduced to 30 min. for fatty acids contg. lauric acid and 60 min. for others. (*c*) The oxidation is carried out at 20°. (*d*) Instead of shaking out the reaction mixt. with petr. ether, the fatty acids are sepd. by filtration in the presence of dil. alc. with subsequent extn. of the filter with petr. ether. (*e*) A new technic is given for the estn. of nonylic acid: After pptn. with $MgSO_4$ soln. a portion of the supernatant liquid is acidified with $H_3PO_4$ and distd. When half the liquid has been distd., the distillate contains 99.5% of the nonylic acid present. Lauric, myristic and palmitic acids are partially oxidized when exposed to alk. $KMnO_4$ soln. overnight. Lauric acid is affected most, while myristic acid is next and palmitic acid is only slightly affected. With fatty acids from apricot-seed oil, a 30-min. oxidation was found to be sufficient for the complete oxidation of the oleic acid present. When lauric, myristic, palmitic or stearic acids were added to fatty acids from apricot-seed oil, a 30-min. oxidation was not sufficient for the complete oxidation of the oleic acid present. A quant. sepn. of oleic acid and lauric acid is not possible with alk. $KMnO_4$ soln. With a mixt. of similar fatty acids, such as exists in coconut oil, a reaction time of 30 min. at 20° gives fairly accurate results for the detn. of the higher satd. fatty acids present. While being dried in a drying oven, lauric acid volatilizes to the extent of about 0.1% per hr. W. F. BOLLENS

**Detection of salicylic and benzoic acids present together in wines and foods in general.** G. GIBERTINI. *Boll. chim. farm.* **71,** 397–8(1932).—One hundred cc. of the wine, acidified with $H_2SO_4$, is shaken but not emulsified with 3 50-cc. portions of a light petroleum-$Et_2O$ mixt. (1:1), the exts., filtered if necessary, being mixed with 20 cc. of aq. $NH_3$ and the solvent expelled by gentle evapn. The aq. residue, which should be distinctly alk., is evapd. on a water-bath until the $NH_3$ is removed and the vol. reduced to a few cc. This is filtered through a wet filter and the filtrate tested

with a drop of dil. neutral $FeCl_3$ soln. A flesh-red ppt. shows BzOH, and a violet coloration salicylic acid. If the color reactions are disturbed in any way, the final liquid, either with or without the $FeCl_3$, should be again extd. with the solvent mixt., such extn. being repeated if the trouble reappears. Preserved vegetables, jams, etc., are pulped with $H_2O$, and the acidified aq. ext. is treated as above. B. C. A.

**Value of electrical methods for estimating the moisture content of wheat.** H. E. Hartig and B. Sullivan. *Ind. Eng. Chem., Anal. Ed.* **5**, 107–9(1933).—The capacity and resistance readings depend not only on the amt. of water present in wheat but also on whether sufficient time has elapsed to attain equil. after the addn. of water. Different varieties of wheat with the same moisture content may give different capacity and resistance readings. Three samples of the same kind of wheat contg. 3 different amts. of moisture may give identical readings of capacity or resistance. It is unlikely that any of the devices for detg. the moisture content of wheat by elec. means can give more than a rough approximation of the actual moisture content in the range and condition of greatest com. interest. F. L. Dunlap

**The character of the flour streams and their relation to commercial flours.** C. W. Brabender. *Mehlprobleme* **1**, 60–1(1932).—Curves drawn by the farinograph are given for the principal flour streams of a soft-wheat and a hard-wheat mill. The importance of detg. the character of the various streams with different wheat mixts. is emphasized. Curves are also given showing the effect of various conditioning temps. on the first-sizings stream. Clinton L. Brooke

**The gassing power of flour—its measurement and modification.** Gerhard Mueller. *Mehlprobleme* **1**, 67–9(1932).—The best baking results are obtained when optimum gluten development closely approaches or coincides with optimum gas production. The fermentograph and its use for measuring gas production are described, and various means of modifying the gassing power are suggested. C. L. B.

**The yellow coloration of certain flour extracts with alkali.** A. Schulerud. *Mühlenlab.* **3**, 13–18(1933).—From 5 to 10 g. flour is extd. with 100 cc. 50% EtOH for 15 min. in an ice-salt mixt., centrifuged, brought to room temp., and made alk. with 30% KOH. The depth of the resulting yellow color is detd. in a Duboscq colorimeter by comparison with a soln. of auramine (I) and eosin (II) (62 cc. of a soln. of 50 mg. I in 500 cc. $H_2O$ and 2.5 cc. of a soln. of 10 mg. II in 100 cc. $H_2O$ are mixed with 250 cc. concd. alc. and made up to 500 cc. with $H_2O$) and bears a close relation to ash content in both wheat and rye flour. Various modifications of the method are included. C. L. B.

**Table for the rapid identification of all baking faults.** Eugen Fritsch. *Mehlprobleme* **1**, 63–5(1932).—Dough and bread from fine and coarse wheat and rye flours, as well as mixed flours are included. Clinton L. Brooke

**What is dynamic swelling?** C. W. Brabender. *Mehlprobleme* **1**, 52–3(1932).—Flours which, after being doughed-up by hand or in a slow-speed mech. mixer, require addnl. water for the maintenance of the same consistency when given further mixing in a high-speed mixer, are said to exhibit dynamic swelling. The Brabender farinograph is used to study this phenomenon. Clinton L. Brooke

**Milk. II. Mineral constituents of goat milk.** Kinsuke Kondo and Shigeki Mori. *J. Chem. Soc. Japan* **53**, 1163–8(1932); cf. *C. A.* **25**, 5472.—The change in amts. of milk and mineral constituents during the lactation period was almost identical with the results found with cow milk. The change in amts. of K and Cl was directly proportional to the yield of milk, while the change of Ca and P was inversely related. Constancy of the colloid chem. properties of the milk throughout the lactation period is attributed to the regulation made by the change in amts. of Ca, P, K and Cl, etc. If the factor of Ca/P ratio alone is considered, the milk is a ricket-producing diet. **III. Iron, copper and zinc contents of milk.** *Ibid* 1190–6.—Fe, Cu and Zn contents of milks of cows and goats are given throughout the lactation period. Electrodialysis of milk indicated that approx. $1/2$ of the Fe was in lipoid form; $1/4$ was in ionizable salt and $1/4$ was in a complex form. K. Kitsuta

**Pasteurized *versus* raw milk.** H. A. Harding. *Illinois Med. J.* **62**, 374–8(1932); *U. S. Pub. Health Eng. Abstracts* **13**, Mi, 4(Feb. 18, 1933).—A general article pointing out the advantages of pasteurized milk. C. R. Fellers

**The E. coli content of raw and pasteurized milk.** A. J. Slack and C. W. Maddeford. *Can. Pub. Health J.* **23**, 574–8(1932).—Bacterial counts on agar and colon bacilli tests on raw and pasteurized milk are tabulated and discussed. The thermal death point of *E. coli* closely approaches the pasteurizing temp. (145°F.). The presence or absence of this organism is an index of the sanitary quality of milk: its absence, however, does not necessarily indicate that the milk has been pasteurized. The results indicate that milk contg. colon bacilli in 0.1 cc. has not been properly pasteurized or has been subsequently contaminated. It is not unreasonable to expect that amts. as large as 50 cc. be free from *E. coli*. R. E. Thompson

**The precipitation of milk proteins by means of trichloroacetic acid.** GEO. P. SANDERS. *J. Assoc. Official Agr. Chem.* **16**, 140–6(1933).—$CCl_3CO_2H$, when used in the ratio of 4 parts of 10% acid to 1 part of milk, is almost as effective as tungstic acid for pptg. N compds. in milk, and its use has the following advantages: (1) only 1 reagent is added to the milk instead of 2; (2) the casein particles are much coarser and filtration is much more rapid; (3) a larger quantity of filtrate is secured from a given quantity of mixt. Completeness of pptn. depends on the concn. of the acid in the milk-acid mixt.; most complete pptn. was obtained with 4 vol. of 10% acid to 1 vol. of milk. Possibility of using the method for detg. non-protein constituents of milk is suggested. A. PAPINEAU-COUTURE

**Detection and determination of sucrose in milk by means of phloroglucinol.** MASAO SHIMIZU AND YOSABURO IWASA. *J. Agr. Chem. Soc. Japan.* **8**, 1280–5(1932).—Sulfosalicylic acid (20% soln.) was added to milk to remove proteins. The filtrate was heated with HCl on the boiling-water bath for 10 min., and after cooling 10% phloroglucinol alc. soln. was added. In the presence of sucrose, a red color and a red ppt. were produced. The red ppt. is not produced by fructose, glucose or a mixt. of the two. By this method 0.02% of sucrose in milk and 0.001% in soln. can be detected. For detn. of sucrose 1 cc. of milk serum freed from protein was dild. till the soln. contained 0.01–0.002 g. of sucrose, and 5 cc. of the soln. was treated with sulfosalicylic acid and 0.75 cc. of HCl. After hydrolysis 2 drops of phloroglucinol soln. was added, the soln. was dild. with 5 cc. of alc., and the color compared with that of a standard. Y. K.

**Use of corn sugar in the manufacture of sweetened condensed skim milk.** R. J. RAMSEY, P. H. TRACY AND H. A. RUEHE. *J. Dairy Sci.* **16**, 17–32(1933); cf. *C. A.* **26**, 5154.—Bacteriol. analyses indicate that the types of spoilage organisms encountered in sweetened condensed skim milk are the same regardless of the kind of sugar used. At the same percentage compn. dextrose differs but slightly from sucrose in preserving power. Both sugars exert osmotic pressures much above the theoretical. Since, however, solns. of the 2 sugars having the same osmotic pressure were found not to have the same preserving power, factors other than osmotic pressure must be involved. Because of the lower soly. of dextrose only part of the sucrose can be replaced by dextrose. During storage for 3 months there was no crystn. in sweetened condensed skim milk prepd. with equal parts of the 2 sugars. Thickening during storage of the milk prepd. with dextrose as well as the formation of color during condensing was found to be caused by the formation of a protein-sugar or amino-acid-sugar compd. Discoloration occurs only when a reducing sugar is present. The color remains with the protein when it is sepd. from the milk. A small amt. of $CH_2O$ inhibits formation of the color. Slight alky. or an elevation in temp. greatly accelerates formation of the color. To avoid thickening and browning the dextrose should be added as a hot 65% sirup near the end of the condensing period. H. K. SALZBERG

**Determination of sucrose, lactose and invert sugar in sweetened condensed milk.** KINSUKE KONDO. *J. Chem. Soc. Japan* **53**, 1150–62(1932).—Exptl. error induced by disregarding the presence of invert sugar is great, since the com. cane sugar contains approx. 3% invert sugar. The following method gave the most accurate result for the estn. of sucrose, lactose and invert sugar: Weigh out a 15-g. sample and add 30 cc. warm water; stir well until it becomes homogeneous. Ppt. proteins and fat by addn. of 15 cc. Fehling's $CuSO_4$ soln. and 9 cc. 0.5 *N* NaOH. Filter and wash the ppt. by decantation, and make up the filtrate to 500 cc. (*D*). Take 47.5 cc. *D* and 2.5 cc. *N* HCl to make up to 50 cc. (*E*). Take 5 cc. *E*, invert the sucrose at 74° for 70 min. and est. the amts. of reduced Cu (*A* mg.) by Bertrand's method. Take 47.5 cc. *D* and make up to 50 cc. (*F*) with water. Take 10 cc. *F* and est. the reduced Cu (*B* mg.). Then $C = A - (B/2)(1 + 2.72/100)$, where *C* is mg. Cu reduced from inversion of sucrose, and 2.72/100 is the rate of increase of reduced Cu from the lactose during the inversion of sucrose. Find the amts. of invert sugar equiv. to *A* mg. Cu and calc. this to sucrose (*s* mg.). Invert sugar (*i* mg.) in 10 cc. *E* is calcd. by use of an equation, $i = 2s\ (2.9/100)$, where 2.9 is the av. amt. of *i* in 100 *s*. Find Cu (mg.) equiv. to *i*, and subtract this from *B* mg. which will give Cu (mg.) reduced by lactose (*l* mg.). The percentage of sucrose $= s \times 0.7227$, invert sugar $= i \times 0.4053$ and lactose $= l \times 0.3447$. K. KITSUTA

**Freezing and thawing of raw milk—effect upon the formation of cream layer.** F. B. BALDWIN, JR., AND W. B. COMBS. *Milk Plant Monthly* **22**, No. 2, 32–6(1933).—Partial freezing of milk did not affect its creaming ability. The manner in which the milk was thawed played the major role when decreases in the efficiency of creaming of partially frozen and thawed milk occurred. A. H. JOHNSON

**Whipping properties of cream as influenced by freezing and thawing.** F. B. BALDWIN, JR. AND W. B. COMBS. *Milk Plant Monthly* **22**, No. 1, 18–21(1933).—Partial freezing and thawing of raw cream prior to sepn. did not affect the whipping properties

of the resulting cream. Partial freezing and thawing of raw cream from 9.4–92.9% solid did not affect the whipping properties of the cream, while complete freezing and thawing destroyed its whipping properties. Pasteurization of cream contg. 30% of butter fat decreased the time required to whip cream. Partial freezing of cream did not alter the original cream emulsion, while total freezing did alter the original cream emulsion. A. H. JOHNSON

**Advantages of quick freezing and hardening.** S. F. SCISM. *Milk Plant Monthly* **22**, No. 2, 73–6(1933).—The shorter the freezing period, the better is the quality of the ice cream; smaller ice crystals improve body, texture and flavor. A. H. J.

**Viscosity studies of fluid cream.** J. H. NAIR AND D. E. MOOK. *J. Dairy Sci.* **16**, 1–9(1933).—A photograph and a drawing of an efflux type of viscometer are shown. The app. is adjustable to ordinary milk bottles. Results on 20% cream are reproducible to 0.5 sec. In pour tests the av. observer can distinguish between creams differing by 10 sec. in flow time. Flow time decreases with an increase in temp. and decrease in butter-fat content. Aging in the cold up to 96 hrs. is accompanied by a gradual increase in viscosity. Seasonal and territorial variations are also shown to exist. H. K. SALZBERG

**Substances adsorbed on the fat globules in cream and their relation to churning. II. The isolation and identification of adsorbed substances.** L. S. PALMER AND HILDA F. WIESE. *J. Dairy Sci.* **16**, 41–57(1933); cf. *C. A.* **26**, 6028.—Thoroughly washed cream was churned and the buttermilk centrifuged to give a soln. of the fat-stabilizing material, from which Ca was completely removed by dialysis. No Mg was found. The major part of the P was non-dialyzable. The protein fraction, obtained by acidification of the centrifuged and dialyzed buttermilk, was purified by dialysis and extn. with acetone, EtOH and ether. Yield before purification: 0.023–0.031% from 3.5% milk. Analysis for P, S and N showed it to be distinguishable from casein, lactalbumin, globulin and the alc.-sol. protein of milk. Nor is it identical to haptein (*C. A.* **19**, 2380). It readily yields a sol with $H_2O$, has an isoelec. point of 3.9–4.0 and cannot be coagulated with rennin or heat alone. The alc. exts. of the protein fraction yielded a mixt. of phospholipides (lecithin, cephalin and sphingomyelin) equal to 17–20% of the dry protein fraction. The protein-phospholipide ratio may be an important factor in the churnability of cream in industry. The fact that the protein-phospholipide membrane material is recovered in large proportion from the buttermilk prepd from thoroughly washed cream is advanced as proof that an inversion of phases does take place during some stage of the butter-making process, contradicting all theories of churning that assume a super-cream structure for butter, including the foam theory of Rahn (*C. A.* **16**, 2941). H. K. SALZBERG

**Improving body of pasteurized cream.** J. C. HENING AND A. C. DAHLBERG *Milk Plant Monthly* **22**, No. 1, 36–44(1933); cf. *C. A.* **27**, 347. A. H. JOHNSON

**Chondrus bleached with sulfur dioxide.** CHARLES H. LAWALL AND JOS. W. E HARRISSON. *J. Am. Pharm. Assoc.* **21**, 1146–53(1932).—The presence of $SO_2$ (about 1000 p. p. m.) in an ice cream thickener and stabilizer was claimed by the manufacturer to be due to the fact that "the sulfites found are a natural constituent of one of the ingredients in the same manner as benzoic acid is a natural constituent of cranberries." Each of the ingredients was tested for $SO_2$ by the official A. O. A. C. method; no $SO_2$ was found, except in *Chondrus* (carrageen or Irish moss) which contained several thousand p. p. m. Domestic unbleached and sun-bleached *Chondrus* of known origin contained no $SO_2$. Com. imported *Chondrus* contained 920–4080 p. p. m. $SO_2$, showing conclusively that the presence of $SO_2$ in the ice cream thickener was due to the use of S-bleached *Chondrus*. A. PAPINEAU-COUTURE

**Butter fat variations in cow milk.** J. W. G. MACEWAN AND G. A. LEDINGHAM *Sci. Agr.* **13**, 324–40(1933).—Day-to-day variations are so great and are so influenced by the individuality of the cows that early expts. conducted with single cows cannot claim much significance. The fat decreases during the first 4 months of lactation, and increases thereafter. The lowest herd test was in July and the highest in Feb. Age of the cow had little influence on fat content, with a slight tendency for lower levels during later life. The first milk withdrawn from the udder is the lowest in butter fat and the strippings are richest. The fat test may range from 1 to 10% in the successive portions of each milking. The percentage of solids-not-fat remain relatively const. in the milk of a given cow. The common cereal grains used as feed did not significantly alter the percentage of fat in the milk. Wet brewers' grains do not depress fat yield and tend only to lower the test percentage when the yield of milk is increased. Heavy or light feeding of sunflower silage did not affect the fat content of the milk. Frequent sampling is necessary for accuracy in official cow-testing. Composite samples should consist of daily aliquots. Reduced allowances of drinking water had the effect of slightly reducing milk and fat yield, but did not significantly alter the test. Increased

milk flow tends to lower the fat test and *vice versa*. The secretion of fat in the udder and the excretion of the non-fatty constituents may be independent processes.
C. R. FELLERS

**Relationship of acetylmethylcarbinol and biacetyl to butter cultures.** M. B. MICHAELIAN, R. S. FARMER AND B. W. HAMMER. Iowa Agr. Expt. Sta., *Research Bull.* **155**, 325–60(1933); cf. *C. A.* **26**, 4386.—Butter cultures with a satisfactory flavor and aroma contained considerable quantities of acetylmethylcarbinol and biacetyl, while cultures lacking in flavor and aroma contained either only small amts. or none. The carbinol is quantitatively much more important than the biacetyl. The citric acid-fermenting streptococci which are normally present in butter cultures produce these compds. The aroma and flavor increase during the cream ripening and storage of butter at low temps. Only a few strains of *S. lactis* produced the characteristic aroma and flavor in milk. The addn. of 0.03% citric acid, AcOH or AcH to milk produced increases in the characteristic flavor of acetylmethylcarbinol. The flavor and aroma were sometimes destroyed in butter cultures by various strains of *S. lactis*. This occurred most frequently at low acidities. Special flavor-producing butter cultures were prepd. with varying success.
C. R. FELLERS

**New relation for the determination of vegetable oils in butter.** OSCAR DE SONZA VIEIRA. *Rev. brasil. chim.* **2**, 237–46(1930).—The relation 100 (Polenske value)/xylene value should provide a delicate criterion of the presence of coconut oil in butter, since for pure butter the figure averages 10 and is as high as 1529 for a typical babassu fat.
B. C. A.

**Composition of illipé butter. On α,α-dilauro-β-azelain and α,α-dilaurin.** G. SCHUSTER. *J. pharm. chim.* **16**, 421–31(1932); cf. Hilditch, *C. A.* **24**, 3388.—Two samples gave these consts.: acid no. expressed as stearic acid, 4.63, 1.8%; ash 0.5, 0.3%; unsapond. 2.1, 2.4%; sapon. no. 199.7, 199.4; I no. 47.64, 46.82, resp. Examn. of oxidation products of illipé butter by $KMnO_4$ in acetone soln. showed this compn.: (*a*) completely satd. glycerides 6.78% (tristearin 1.4%, palmito-distearin 5.2%); (*b*) disatd. monounsatd. glycerides (in terms of oleic esters) 61.5% (dilauro-β-olein 21.3%; distearo-β-olein 40.2%); (*c*) monosatd. diunsatd glycerides (as oleic esters) 8.9% (β-monostearo-α,α-olein 5.4%; β-palmito-α,α-olein 3.5%); (*d*) triunsatd. glycerides (triolein) 12.22%. Synthetic new azelaic glycerides are: (*a*) *α,α-distearo-β-azelain*, m. 67°; (*b*) *β-stearo-α,α-diazelain*, m. 61°; (*c*) *β-palmito-α,α-diazelain*, m. 57°; (*d*) *α,α-distearo-β-palmitin*, m. 63° (cf. Amberger, *C. A.* **18**, 1346). The compd. α,α-dilauro-β-azelain can be partially sapond. forming α,α-dilaurine, m. 22–23°. S. W.

**Composition of cow butter. Laurobutyroazelain.** G. SCHUSTER. *J. pharm. chim.* **16**, 465–70(1932); cf. Hilditch, *C. A.* **23**, 1963; DeConno and Scopinaro, *C. A.* **23**, 3756, 5247, and preceding abstr.—Two samples of French butter gave the following consts.: $H_2O$ 8.5, 17.0; ash 0.5, 0.3; acidity as butyric acid 1.82, 1.52%; sapon. no. 230.1, 225.8; I no. 41.7, 39.3; volatile acids no., sol. 27.2, 27.5; insol. 2.4, 2.3; fatty acids no., sol. 5.5, 5.4; insol. 87.5, 87.8%. Upon oxidation with $KMnO_4$ in acetone soln. the following percentage compn. was obtained: completely satd. glycerides 35.80% (liquid 20.3%, solid 15% consisting of dipalmitomyristin 11% and distearomyristin 3%) and monoöleo-disatd. glycerides 61% (contg. distearoölein, 3% and laurobutyroölein, 57%). The oxidation product, laurobutyroazelain, gave no intermediate complex upon sapon.
S. WALDBOTT

**Vitamin-A content of naturally colored nut margarines.** CHARLES F. POE AND HAZEL A. FEHLMANN. *Ind. Eng. Chem.* **25**, 402–3(1933).—The vitamin-A content of a no. of naturally colored nut margarines is detd. The Sherman vitamin-A units per g. were calcd., the highest being 4.7. The amt. of vitamin A in these products is found to be low when compared with that in butter. The term vitamin A as used in this paper refers to vitamin A *per se* as well as to carotene, the precursor of this vitamin.
F. L. DUNLAP

**Development of the cheese industry. Influence of controlled lactic fermentation on the quality of cheeses.** P. MAZÉ, P. J. MAZÉ AND R. ANXIONNAZ. *Compt. rend. soc. biol.* **112**, 423–5(1933).—Discussion.
L. E. GILSON

**Paraffin *vs.* asphalt-base oils in maintaining egg grades in storage.** T. L. SWENSON, ROB R. SLOCUM AND LAWRENCE H. JAMES. *Ice and Refrigeration* **83**, 220–22(1932).—The function of mineral oils in egg preservation is to reduce respiration and evapn. through shell pores. After 9 months in storage all oiled eggs graded higher than unoiled. No difference was noted between oils of paraffin and those of asphalt base. Oils whose pour points were higher than the storage temp. were most effective.
ALICE W. EPPERSON

**A statistical treatment for establishing the accuracy of methods of interpreting analytical results with special reference to certain egg products.** F. A. VORHES, JR. *J. Assoc. Official Agr. Chem.* **16**, 113–27(1933).—A systematic method of interpretation

by comparison is presented, which is applicable to a restricted type of sample which has been difficult to interpret by the usual methods and which may be defined as a naturally occurring substance, separable into 2 parts, each part contg. the same chem. elements in different proportions. Formulas obtained by this method and applying to some egg products are presented, together with a method of estg. the max. error of the formulas and a measure of the accuracy of the formulas. An orthodox method of interpretation and its accuracy as applied to some egg products is given. Charts representing graphically the errors of the formulas given are presented, and the use of these charts is explained. A. PAPINEAU-COUTURE

**The effect of carbon dioxide on bacterial growth with special reference to the preservation of fish. II. Gas storage of fresh fish.** F. P. COYNE. *J. Soc. Chem. Ind.* **52**, 19–24T(1933); cf. *C. A.* **26**, 3308.—Various types of fish could be kept in $CO_2$ at 0° for periods up to 28 days without serious deterioration, while controls stored in air were inedible after 12–14 days. Similar results were obtained at 10°, with shorter storage periods. Air contg. 40% $CO_2$ was as satisfactory as pure $CO_2$. In most cases the fish stored 20 days in $CO_2$ at 0° was not in perfect state, but the economic value of $CO_2$ storage could be considerable, particularly for long-distance fishing trawlers. The effect is simply due to suppression of bacterial development. K. V. T.

**Why a seasonal quarantine is placed upon mussels and clams.** H. MULLER. Calif. State Dept. Pub. Health, *Weekly Bull.* **11**, 138–40(1932); *U. S. Pub. Health Eng. Abstracts* **13**, Mi, 1(Jan. 21, 1933); cf. *C. A.* **26**, 6022.—The toxicity of the shellfish varies from season to season and is highest during the summer months. The use of ¼ oz. of $NaHCO_3$ per qt. of water used for cooking destroys about 85% of the poison in 20–30 min. The toxin is confined principally to the intestines of the shellfish. Cooking alone without the use of $NaHCO_3$ does not inactivate the toxin. C. R. F.

**Copper contents of some foods.** G. HOWARD SATTERFIELD AND S. O. JONES. *J. Elisha Mitchell Sci. Soc.* **48**, 16(1932).—Foods raised in Franklin Co., N. C., contained Cu as follows: white potatoes 6.5, yellow potatoes 4.1, black grapes 8.1, navy beans 10.45, black-eyed peas 7.36, lima beans 8.6, white corn 5.95, yellow corn 16.6 and popcorn 6.6 mg. per kg. A. L. MEHRING

**The phosphatide content of apples, pears, plums and peaches.** BRUNO REWALD AND ALBERT SCHWIEGER. *Biochem. Z.* **257**, 289–92(1933).—The skin of these fruits contains 0.011–0.066% (plum, apple) and the meat 0.009–0.030% (apple, peach) The stones contain up to 0.41% phosphatide (plum). The highest total fat quantity in the fruit meat is 0.37% in the plum and the lowest, 0.11%, in the pear; in the skin the highest content of 1.57% is found in the peach and the lowest of 0.54% in the pear. S. MORGULIS

**Comparative mineral contents of Philippine bananas: calcium, iron, magnesium and phosphorus.** JULIAN R. MARTINEZ. *Philippine Agr.* **21**, 547–50(1933).—Ten varieties of Philippine bananas contain: ash 0.74–1.27, $H_2O$ 56–76, CaO 0.004–0.021, $Fe_2O_3$ 0.003–0.018, MgO 0.031–0.210 and $P_2O_5$ 0.109–0.294%. A. L. MEHRING

**The muslin tube fruit-juice filter.** R. B. HICKOK AND ROY E. MARSHALL. Mich. Agr. Expt. Sta., *Quart. Bull.* **15**, 191–7(1933).—A pectin-dissolving enzyme, such as Pectinol RA, is added to apple juice at the rate of 20–30 oz. per 100 gal. After 15 hrs the cider can be filtered with the aid of a filter-aid such as Hyflo, added at the rate of 2–4 lb. per 100 gal. The cider is brilliantly clear and retains all its fresh flavor. Cf. *C. A.* **27**, 348. C. R. FELLERS

**Analysis of the ash of apple fruits.** E. F. HOPKINS AND J. H. GOURLEY. Ohio Agr. Expt. Sta., *Bull.* **497** (*50th Annual Rept.*), 92–3(1932).—Ash of Grimes Golden variety contained P 5.36, Ca 3.38, K 44.92, Fe 0.074, Mn 0.019, Na 5.39 and Mg 2.88%. The fresh fruit contained 0.42% ash. McIntosh was low in ash, Ca and K, as well as low total solids in the flesh. Stayman Winesap had the highest percentage solids in the flesh. From July 9th to Aug. 13th, the solids increased from 15.3 to 19.4%, the ash decreased from 0.40 to 0.28, K from 0.17 to 0.12, P from 0.02 to 0.013 and Ca from 0.023 to 0.013. Apple trees under the same fertilizer treatment gave differences in K and P of the fruit of as much as 27%. C. R. FELLERS

**Corrosion of nickel and Monel metal by sulfured grape juice.** E. M. MRAK AND W. V. CRUESS. *Ind. Eng. Chem.* **25**, 367–9(1933).—These tests indicate that $H_2SO_3$ greatly increases the corrosive action of grape juice on Ni, but not on Monel metal. With Monel metal some constituent of red grape juice, possibly anthocyanin pigments, causes a greater corrosion by the juice than $H_2SO_3$. In most cases Monel metal proved more resistant than Ni to corrosion by the media used in these tests. F. L. D.

**Effect of acidity on the color of canned vegetables.** W. B. ADAM. *Food Tech.* **1**, 343–5(1932).—Attempts to fix natural color by canning peas at the optimum *p*H of 7.2–7.6 have been abandoned, as the good color is retained only for 4–5 months, the peas are soft, the tinplate blackens, and the lacquer is removed. B. C. A

**Quantitative analysis of lettuce ash.** LOUISE WENDT AND JOHN A. WILKINSON. *Proc. Iowa Acad. Sci.* **38**, 159–61(1931).—Three samples of lettuce, two of the varieties Big Boston and Grand Rapids grown at Ames, Iowa, and the third a head lettuce shipped from Salinar, California, gave the following results of analysis of the ash, resp.: K 26.60, 32.60, 35.00; Na 3.65, 1.95, 4.93; Ca 5.86, 5.16, 3.01; Mg 1.40, 1.60, 1.40; Fe 0.18, 0.18, 0.34; Al 0.54, 0.58, 0.185; Mn 0.28, 0.11, 0.11; Cu 0.022, 0.024, 0.049; Ti 0.009, 0.008, 0.016; Si 0.745, 0.515, 0.329; P 3.71, 4.07, 6.34; Cl 2.03, 2.93, 16.18; sulfate 3.23, 4.11, 3.44%; I less than 10 parts per million. References are included. W. G. GAESSLER

**Determination of amino acids and related compounds in honey.** R. E. LOTHROP AND S. I. GERTLER. *Ind. Eng. Chem., Anal. Ed.* **5**, 103–5(1933).—Because of the interference of reducing sugars, the ninhydrin test cannot be used for the detn. of amino acids and related compds. in honey. A method is proposed, based on pptn. with Neuberg's reagent (mercuric acetate and $Na_2CO_3$). The pptd. Hg amino compds. are sepd. and the free acids recovered by treating with $H_2S$. The ninhydrin test is then applied to the resulting soln. Small amts. of amino acid N are found present in every sample of honey examd. by this method, after removal of proteins and other colloidal material. F. L. DUNLAP

**The presence of *d*-gluconic acid in musty honey.** ANTONIO ANGELETTI. *Giorn. farm. chim.* **81**, 533–6(1932); cf. *C. A.* **26**, 3540.—The presence of *d*-gluconic acid in a sample of musty honey was proved by the sepn. and identification of the Ca salt. The mold responsible is probably *Penicillium crustaceum* (L.) Fries. L. W. B.

**Spoilage of maple products by molds.** CARL R. FELLERS. *J. Bact.* **25**, 67–8 (1933).—Mold-infected maple sugar often becomes moist or semi-liquid because of the action of invertase on a part of the sucrose. Molds, principally *Aspergillus*, frequently produce off flavors. JOHN T. MYERS

**The relative fatigue-recovery values of different carbohydrate blends and mixtures.** DONALD A. LAIRD. *J. Ind. Hyg.* **15**, 89–97(1933).—A crit. test of carbohydrate blends and mixts. to reveal their difference following ingestion in the quick recovery from physical fatigue. One prepn. was 70% maltose, the other only 20% maltose and 48% sucrose. While the carbohydrate content of both food prepns. was approximately the same, they differed in the one being predominatingly of the more readily absorbed and assimilated maltose. Five widely used tests of psycho-physical performance were used to measure fatigue effects. The tests reveal almost without exception the decided superiority of the maltose in hastening recovery of performance after phys. exertion. F. L. DUNLAP

**Identification of starches.** JAMES SCOTT. *Food Tech.* **2**, 125–8, 157–8(1933).—A brief illustrated description of the microscopic characteristics of wheat, barley, oat, potato, arrowroot, pea, bean, lentil, rice, maize, tapioca, sago, rye, pepper, chestnut, acorn, ginger and nutmeg starches. A. PAPINEAU-COUTURE

**Rapid method for determining amino acids and polypeptides in Nuoc-Mam.** J. C. PEIRIER AND NGUYEN-KIM-KINH. *Ann. fals.* **26**, 6–18(1933).—The following method is recommended: To 50 cc. of 96% alc. in a 50–55-cc. volumetric flask add 5 cc. Nuoc-Mam drop by drop, filter, neutralize a 5-cc. aliquot (= 0.456 cc. Nuoc-Mam on account of contraction, which is 0.22 cc. at 26°) with 0.1 *N* NaOH to the amphoteric point of sensitive litmus paper ($p_H$ 6.8), add 3 drops of 0.25% alc. soln. of thymolphthalein, titrate with 0.1 *N* NaOH with a microburet to a blue end point ($p_H$ 9.3); the titration (*A*) corresponds to all the carboxyls of the amino acids and polypeptides. To the same soln. immediately add 3 drops of a 0.25% alc. soln. of methyl red and titrate with 0.1 *N* HCl to a red end point ($p_H$ 5.5); the titration (*B*) corresponds to all the amino groups of the amino acids and polypeptides. To a 2nd 5-cc. aliquot of the filtered alc. soln. of Nuoc-Mam add 3.4 cc. freshly boiled distd. water and titrate with 0.1 *N* NaOH in the presence of phenolphthalein to faint pink ($p_H$ 8.3); if *C* is the titration, the titration (*D*) equiv. to the amino acids is given by $100(A - C)/71$. The figures actually obtained in the titrations should be corrected by means of blanks carried out on the same vol. of 96% alc. to which is added a vol. of water equal to the Nuoc-Mam used. With ordinary samples of Nuoc-Mam, the above procedure gives satisfactory decolorization permitting accurate titration; when the product has been colored with roasted rice, it must first be decolorized by adding an equal vol. of *N*/3 $AgNO_3$, filtering, and then dissolving a measured vol. of the filtrate in 96% alc. as above. The basis of the method is discussed, and the various steps of the technic are justified. It is suggested that a standard should be established for Nuoc-Mam, requiring a min. of 200 g. NaCl per l. (with a tolerance of —10%), and total N 12–15 g. per l. Total N should consist of 13–15% $NH_3$ nitrogen and 85–87% org. N; the latter should consist of 85% amino acids and polypeptides (of which 5% are diamino acids), 12% urea N, 1.5% nucleinic N and 1.5% creatinic N. A. PAPINEAU-COUTURE

**Guide to bromatological analysis. Vegetable condiments.** ANTONIO CERIOTTI. *Ediciones soc. nac. farm.* (Buenos Aires) **1932**, 23 pp.; cf. *C. A.* **26**, 1381.—Condiments and spices of vegetable origin are defined and classified, a chem. grouping being preferred to the older classifications based on origin or function. Macroscopic and microscopic characteristics are described, and analytical methods and limits are discussed with respect to moisture, alc. ext., ether ext., ash, total N, starch, pentosans and microanalysis. Specific information is given concerning the properties and identification of savory, sweet basil, capers, anise, star anise, celery seed and saffron. J. F. S.

**The determination of inulin and levulosin applied to the analysis of coffee substitutes and to the problem of caramelization.** C. I. KRUISHEER. *Chem. Weekblad* **30**, 154–66(1933); cf. *C. A.* **25**, 1596.—Inulin breaks down in 10 min. when subjected to a Clerget inversion at 68–70°. Thus the fructose content after such treatment is a measure of the inulin content provided other sources of fructose are absent. From a comparative investigation of various materials contg. inulin it has been confirmed that it is always accompanied by 5–10% combined glucose. Pure inulin could not be obtained, but this problem will be further investigated. Inulin begins to break in the tech. drying of chicory root. In tech. roasting levulosin is formed. At the time part of the fructose breaks down. After hydrolysis there is still an exc fructose over glucose. The ratio 4 to 1 is characteristic of roasted inulin pro The formation of hydroxymethylfurfuraldehyde (about 2%) was noticed, but very little furfuraldehyde is formed. The detection of inulin products (chicory) in coffee and coffee essence is possible, since fructose compds. are practically absent. The presence of burnt sugar in coffee products is detectable by the presence of levulosin, without the amt. of fructose exceeding that of glucose in this case. An investigation of burnt sugar and other tech. baked products led to a closer study of caramelization. The ideas of Pictet (cf. *C. A.* **18**, 3045) appear to be untenable. "Isosaccharosan" appears to be a mixt. of different substances including probably levulosin and glucosin. The occurrence of "caramelan" and "caramelen" is also fictitious. Addn. of alkali on caramelization is characterized by very considerable decompn. of monosaccharides, absence of levulosin and glucosin and a partial decompn. similar to heating of alk. solns. of monosaccharides. E. SCHOTTE

**The examination of paprika. I. Effect of solvents in the determination of the extract content of paprika.** JENÖ MÓTUSZ. *Kisérletügyi Kozlemények* **35**, 167–70 (1932).—As solvents acetone, ether, petr. ether, benzene, dioxane, $CCl_4$, $CHCl_3$ and $CS_2$ were examd. Least color is extd. by acetone and dioxane, but the dissolved fat is impure. Best solvents were petr. ether and ether; $CCl_4$ and benzene are suitable S. S. DE FINÁLY

**Effect of storage on vitamin A in dried foods.** G. S. FRAPS AND RAY TREICHLER *Ind. Eng. Chem.* **25**, 465–6(1933).—There is a gradual loss in vitamin A content during the storage of alfalfa leaf meal, dried black-eyed peas, dried green sweet peppers, yellow corn and powd. whole milk. Measured by the Sherman-Munsell unit method, alfalfa leaf meal lost about 50% of its vitamin A in 11 months, dried black-eyed peas 50% in 9 months, dried green sweet peppers 80% in 19 months, powd. whole milk 60% in 9 months and yellow corn 30–50% in 6 months. Grinding corn before storage does not seem to increase to any noticeable degree the loss of the vitamin A in yellow corn as compared with the whole grain. F. L. DUNLAP

**Investigations on stored grain.** STANISLAW KRAUZE. *Wiadomości Farm.* 60, 15–17, 43–5, 69–71, 84–7(87 in German)(1933).—The moisture content of stored grain depends on its respiration, its chem. and enzymic changes and on atm. conditions. Max. annual changes of the moisture content of grain were: rye 4.44, oats 2.68, barley 3.74%. The moisture content and wt./hl. of the grain were, resp.: oats 14.58%, 51.7 kg.; barley 17.01, 68.9; rye 17.47, 71.7. A relation between the moisture content and the germinating ability could not be established except with oats. Here a higher moisture content lowers the germinating power. J. WIERTELAK

**Composition and utilization of Texas feeding stuffs.** G. S. FRAPS. Tex. Agr. Expt. Sta., *Bull.* **461**, 5–63(1932).—The averages of the compns. of over 600 classes of feeding stuffs based on 22,000 analyses are given along with productive energy and digestible protein. C. R. FELLERS

**A new sugar feed preparation.** VL. STANĚK. *Listy Cukrovar.* **51**, 41–2; *Z. Zuckerind. Čechoslovak. Rep.* **57**, 53–5(1932).—Denatured sugar is mixed with ground oilseed-cakes, beets, pulverized grain, brans, etc., and minerals as $CaCO_3$ and $Ca_3PO_4$ are added. The mixt. is dampened with steam and then heated in a press until a plastic mass forms which is pressed through small circular orifices to form long strings. The cooled mass is broken up to form small grains. The material is very stable and does not become a paste in damp atms.; it contains 2–3% $H_2O$. The compn. shows

83% sugar, 14% bran, 1% NaCl, 1% spodium powders and 1% $Ca_3PO_4$. Expts. conducted with horses, hogs, sheep, chickens and fish have been satisfactory. F. M.

**The conservation of beet fodder.** ALOIS KROCZEK. *Listy Cukrovar.* **51**, 24–8, 34–6(1932); cf. *C. A.* **25**, 2780.—Beet greens, clover, alfalfa and corn silage were stored in surface heaps, soil pits and cement silos throughout the winter season. From highly albuminous and low-sugar-contg. beet greens, a good fodder is easily prepd. by a slow fermentation in the cold. The addn. of sucrose hastened an early production of lactic acid and retarded the formation of butyric and acetic acids. A moisture content of 60% was the optimum for producing a good fodder. The max. concn. of lactic acid produced was 3%; higher concns. inhibited the activity of the lactic acid-forming organisms; this concn. is in the range in which it is devoured by cattle. A high access of O as in surface heaps favors the formation of AcOH and decreases the formation of lactic acid. FRANK MARESH

**A rapid and appreciable improvement in tropical stock raising can be obtained by the use of solid or liquid phosphates.** EDM. LEPLAE. *Bull. agr. Congo Belge* **23**, 297–315(1932).—A lengthy review of the work, particularly that of Theiler and his co-workers, on the appearance of pica and osteomalacia and related diseases among stock. These diseases are caused to a large extent by a deficiency of P in the feed which can be overcome most advantageously through the use of bone meal as a supplementary feed or of a sol. phosphate in the drinking water. The addn. of this P also increases the reproductivity of the stock. J. R. ADAMS

**Steaming potatoes in silos.** H. HILDEBRANDT AND K. LEMKE. *Futterkonservierg* **3**, 72(1931); *Fortschr. Landw.* **7**, 18.—Ensiled potatoes steamed directly in the silo become brown, whereas those ensiled after steaming in vats retain their natural color and have a higher food value K. D. JACOB

**Spear grass.** [**Heteropogon contortus, R. and S.**] J. M. RATTRAY. *Rhodesia Agr. J.* **29**, 365–70(1932).—An air-dried sample of spear grass in full flower contained: $H_2O$ 11.2, ash 4.9, crude protein 3.9, ether ext. 1.5, fiber 36.0 and carbohydrates 42.5%. A. L. MEHRING

**Nutritive value of kolukkattai grass [Pennisetum cenchroides] dried artificially.** T MURARI. *Agr. and Live-stock in India* **2**, 380–2(1932).—The dried hay contained ash 10.68, crude protein 20.16, $Et_2O$ ext 2.79, crude fiber 24.16, carbohydrates 38.15 and albuminoids 15.98% Feeding expts. with calves indicated that 1.75 lb. of the dried hay is equiv in nutrient value to 1 lb. of a mixt. of equal parts peanut meal and wheat bran. K. D. JACOB

The mannitol fermentation of beet fodder (VONDRÁK) **16**. The mineral requirements of livestock (DU TOIT, MALAN) **15**. Disinfection of coffee beans (SLADDEN) **15**. Chemical analyses of pasture plants (COOPER, *et al.*) **15**. Margarine (Brit. pat. 366,909) **13**. Caffeine (Brit. pat. 366,305) **17**.

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**Die tierischen Abfallstoffe Blutmehl, Tierkörpermehl und Waltiermehl** in Bezug auf ihre Zusammensetzung, Verdaulichkeit und ihren Wert als Futtermittel in der landwirtschaftlichen Nutzviehhaltung. Edited by FRANZ HONCAMP. Berlin: P. Parey. 154 pp. M. 12.

RAVENNA, C.: **Manuale di analisi chimica agraria e bromatologica.** 3rd ed. Bologna: N. Zanichelli. 392 pp. L. 50.

SCHIEBLICH, MARTIN: **Futtermischungen für den Nachweis von Vitaminen im Tierversuch und biologische Vitamin-Einheiten.** Berlin: Junk. 11 pp. M. 1.50.

**Süddeutscher Molkerei- und Käse-Kalender. 1933.** Jg. 10. Ein Taschen-, Aufschreibe- und Nachschlagebuch für Molkereifachleute. Edited by H. PIRNER. Kempten: Süddeutsche Molkerei-Ztg. 32 pp. Cloth, M. 2.75.

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**Food products containing vitamins.** LUIGI BERNARDINI. Brit. 366,516, Oct. 19, 1929. In prepg. food products an oily substance contg. lipoids and lipoid-sol. vitamins, obtained by extg. with an org. solvent the germ-contg. by-products of husking or milling seeds, particularly cereals, or the germs sepd. from said by-products, and a powder or flour contg. hydrosol. vitamins, obtained by milling the extd. germs and sifting to sep. the powder or flour from the cortical elements, are added to the food products.

**Coil and header heat-transfer apparatus suitable for "processing" foods.** HAROLD E. SMITH (to Pfaudler Co.). U. S. 1,891,058, Dec. 13. Structural features.

**Preserving aqueous foods.** SIEGFRIED SCHNIBBEN. Ger. 568,480, May 10, 1931. An aldehyde such as $CH_2O$ or AcH is added, followed by sufficient $H_2O_2$ to oxidize the aldehyde to acid.

**Apparatus for conditioning and drying cereals in an uninterrupted stream.** ERNST

ROTH (to the firm Gebrüder Buhler). U. S. 1,892,319, Dec. 27. Structural features of an app. in which cereals may be treated with air currents.

**Electrode vessel for determining the conductivity of milk, etc.** N. GERBER's Co. G. M. B. H. Ger. 568,476, Sept. 20, 1930.

**Evaporating milk and cream.** N. V. GRUYÈRE-BLOKMELK FABRIEK. Brit. 366,421, July 26, 1930. A solid stable milk or cream prepn. is made by evapg. sweetened milk or cream in large-capacity app. at 50–65° until the major part of the $H_2O$ is removed, then evapg. further in small-capacity app. with stirring at not over 50° until the $H_2O$ content is 7–15% and finally molding into blocks or other shapes.

**Apparatus for homogenizing milk, cream, etc.** HENRI CORBLIN. Brit. 364,921, Mar. 4, 1931.

**"Processing" cheese.** RICHARD PASTERNACK and RICHARD W. BURNHAM (to Charles Pfizer & Co.). U. S. 1,890,948, Dec. 13. A sol. gluconate such as Na, K, $NH_4$ or Ca gluconate is added to the cheese, and the material is heated to a temp. sufficiently high (suitably about 70°) to destroy undesirable bacteria present without disintegrating the cheese. The gluconate serves as an emulsifying agent.

**Egg powder.** FOREST H. CLICKNER (to Endowment Foundation). U. S. 1,891,887, Dec. 20. After removal of egg material from the shells, it is dild. with at least 15% of added water and emulsified by agitation; insol. or unemulsifiable materials are sepd. (suitably by straining); and the emulsion is subjected to spray desiccation.

**Apparatus for concentrating fruit pulps and sirups.** EUDO MONTI. Brit. 366,010, Oct. 25, 1929.

**Liquid coffee extract.** WM. W. GIFFEN and CLINTON W. CARTER (to International Liquid Coffee Co.). U. S. 1,891,383, Dec. 20. Various details are given of a process involving maceration and extn. of coffee with successive portions of water of specified quantities and at a temp. of 30–50° throughout the process.

**Psyllium-seed product for use as a food accessory.** LOUIS A. TUVIN. U. S. 1,891,697, Dec. 20. Psyllium seeds are coated with sugar and then with an overlying coating of a moisture-absorbing gum such as India gum. U. S. 1,891,698 also relates to details of a method of prepg. a product of this character.

**Treatment of lupines.** BERNHARD BLECKEN. Ger. 568,483, Oct. 23, 1931. To remove the bitter constituents, lupines are mixed with $Ca_3(PO_4)_2$ 2 and $CaCO_3$ 5%, then crushed with rollers, strewn with $Ca_3(PO_4)_2$ and sifted to sep. Ca salts. They are then mixed with about 10% of a fertilizing salt, *e. g.*, a K salt, stirred with water, left for 1 day and finally washed. The first wash water is used as a *fertilizer*.

**Straw feed.** A. DE VREESE. Belg. 389,232, July 30, 1932. Straw is treated with lime in soln., sugar soln. is added to dissolve the excess lime and the liquid is sepd. from the straw. The liquid is treated to eliminate CaO and is concd. The straw is treated with an alk. liquor and washed. The treated straw, either alone or in admixt. with the concd. liquid, is used as stock feed.

## 13—GENERAL INDUSTRIAL CHEMISTRY

HARLAN S. MINER

**Chemical industry in Italy in 1932.** M. TREVES. *Ind. Chemist* 9, 42–4(1933) E. H.

**The theory of industrial filtration. A research problem for the chemical engineer.** W. SIEGEL. *Chem. Fabrik* 1933, 89–92.—"A synopsis of the 'Theory of filtration during the formation of filter cakes,' as well as the status, difficulties and problems of the investigation," with 10 references. J. H. MOORE

**Reclamation of industrial solvents.** E. KLAPPER. *Allgem. Öl. Fett-Ztg.* 29, 169–70(1932).—A review. W. F. BOLLENS

**Chemical-technical problems in the printing trade.** JULIUS BEKK. *Angew Chem.* 46, 125–9(1933).—A discussion. KARL KAMMERMEYER

**The "mol" saves your time.** E. F. DAWSON. *Power* 76, 202–4(1932).—D. discusses and illustrates the molal method of computation as a time saver for power engineers. ALDEN H. EMERY

**Revised charts for the calculation of gas radiations.** SUSUMU UCHIDA *J. Soc. Chem. Ind., Japan* 36, Suppl. binding 24–7(1933); cf. Hottel, *C. A.* 21, 3994.—New nomographs based on later data are given for the radiation of heat. G. M. E.

**Practical methods for heating solids by induction.** E. F. NORTHRUP. *Iron Age* 131, 165, adv. page 14, 310–11, adv. page 10(1933). E. H.

**Heating with hot water.** R. DUFUY. *Chaleur & ind.* 14, 30–8(1933); cf. *C. A.*

**27**, 1064.—Theoretical discussion and justification of the method used to calc. the diams Math. and thermodynamic treatment are discussed. KARL KAMMERMEYER

**Modern processes of evaporation, drying and heating with superheated water.** F. MUHLERT. *Chaleur & ind.* **14**, 17–20(1933).—A discussion with diagrams of new constructions. KARL KAMMERMEYER

**Evaporation from different kinds of pans.** CARL ROHWER. *Proc. Am. Soc. Civil Engrs.* **59**, 223–53(1933).—R. recommends the use of Class-A land pans of the Weather Bur. for evapn. studies. Many data are given to support the recommendations. W. D. HATFIELD

**Evaporation from reservoir surfaces.** ROBERT FOLLANSBEE. *Proc. Am. Soc. Civil Engrs.* **59**, 254–65(1933).—Interesting data are given on the evapn. from reservoir surfaces in the U. S. and foreign countries. W. D. HATFIELD

**Velocities in suction mains and evaporators. Anhydrous ammonia.** J. O. SCHULTZ. *Ice and Refrigeration* **84**, 113–14(1933).—Velocities and max. load-carrying capacity of refrigerator coils are given for $NH_3$. ALICE W. EPPERSON

**Velocities in suction mains and evaporators. Methyl chloride.** J. O. SCHULTZ. *Ice and Refrigeration* **84**, 211(1933); cf. preceding abstract. A. W. E.

**Aldehydes.** A. THOMAS. *Rev. gén. mat. plastiques* **9**, 21–5(1933).—A brief outline of the properties of $CH_2O$, of its toxicity and of sanitary measures to treat or prevent intoxications in industries using it. A. PAPINEAU-COUTURE

**Solid carbon dioxide from flue gas by application of Joule-Thomson effect.** FRANK E. E. GERMANN. *Ind. Eng. Chem.* **25**, 150–2(1933).—Flue gas contg. about 10% $CO_2$ is compressed to 3000 lb., then allowed to expand to 10 atm. in an expansion engine loaded with an elec. generator. The Joule-Thomson effect cools the gases to about —104°. As much as 90% of the $CO_2$ is thus transformed into a cryst. solid of marketable quality. The cost is estd. at no more than $25.00 per ton. A. L. H

**Waste carbon dioxide and the dry-ice industry.** K. HAUPT. *Brennstoff-Chem.* **13**, 370–3(1932).—The $K_2CO_3$ and triethanolamine processes for $CO_2$ recovery are discussed, and the Frick and Carba systems for producing solid $CO_2$ are described. F. W. JUNG

**Ebullition of refrigerants.** L. A. PHILIPP AND B. E. TIFFANY. *Refrigerating Eng.* **25**, 140–6(1933).—It was found that when liquid $SO_2$ was mixed with a small quantity of lubricating oil, the liquid $SO_2$ could be superheated by as much as 50°F. without ebullition when the test was conducted in glass vessels and by as much as 30°F. when the test was conducted in Cu or brass vessels. The addn. of wood or any vegetable fibrous matter to the liquid reduced the superheating of the liquid $SO_2$ to only a few degrees. A general theory was given setting forth the mechanism of ebullition and the promotion of ebullition by initiators such as wood. A. H. J.

**The new English patent law.** OTAKAR FALLADA. *Listy Cukrovar.* **51**, 131–2; *Z. Zuckerind. Čechoslovak. Rep.* **57**, 103–4(1932).—The law is compared with the existing laws in central Europe, and its influence upon applications for patents is discussed. FRANK MARESH

Cellulose lacquers [for insulating electric cables] (Brit. pat. 367,932) **26.**

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**Berl-Lunge, Chemisch-technische Untersuchungsmethoden.** 8th ed., revised. Bd. III. Edited by ERNST BERL. Berlin: J. Springer. 1380 pp. M. 98. Cf. *C. A.* **26**, 5160.

**Der I. G. Farben-Konzern, 1932.** Berlin: R. & H. Hoppenstedt. 47 pp. M. 2.80. Cf. *C. A.* **26**, 1681.

**Freon Hazard as a Refrigerant:** Evidence Presented on Dichloro-difluoro-methane before Fire Department of the City of New York. New York: Servel, Inc. 374 pp. $2.50.

KRAUSE, MARTIN: **Die Kältemaschinen und ihre thermodynamischen Grundlagen.** Berlin: W. de Gruyter & Co. 140 pp. M. 1.62.

**Stichwörterverzeichnis.** Alphabetische Zusammenstellung technischer Gegenstände mit Angabe der dazugehörigen Patentklassen, Gruppen und Untergruppen. 4th ed. Berlin: C. Heymann. 375 pp. M. 38; bound, M. 40.

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**Effecting catalytic reactions.** I. G. FARBENIND. A.-G. (Johannes Brode and Georg Kalb, inventors). Ger. 568,205, Feb. 22, 1928. In effecting reactions with the aid of catalysts comprising metals which m. below the reaction temp., fusion of the catalyst is avoided by using a catalyst prepd. by reducing a compd. of the catalytic metal in the presence of an intimately mixed reducible compd. of another metal. The other metal must be one which m. above the reaction temp. and forms with the catalytic

metal alloys which also m. above the reaction temp. Thus, a catalyst for the manuf. of BzH from phthalic anhydride at 350° may be prepd. by reducing a pptd. mixt. of $Bi(OH)_3$ and $Cu(OH)_2$.

**Catalytic gas reactions.** ERIC HANSON SALE and IMPERIAL CHEMICAL INDUSTRIES, LTD. Brit. 364,215, Oct. 18, 1930. In carrying out catalytic gas reactions at an elevated temp. the reactants are separately preheated by heat exchange with different portions of the reaction products, the extent to which each reactant is preheated being controlled independently by regulating the amt. of the reaction product with which it contacts, preferably by means of a valve on the cold side of the heat exchanger. The process is applicable to catalytic hydrogenation of org. compds.

**Purifying gases.** I. G. FARBENIND. A.-G. Fr. 738,747, June 17, 1932. $SO_2$ is removed from gases by washing them with a liquid which contains an org. acid substance in admixt. or combination with basic compds. of alkali or alk. earth metals. The org. compd. may be an amino acid, aminosulfonic acid, phenols and their derivs., phthalic acid and its derivs., etc. The inorg. base may be an oxide, hydrate, carbonate, etc., of an alkali or alk. earth metal or of Mg or Be. $CO_2$ may be eliminated first by a treatment at a temp. not above 90°. If $CO_2$ is not present, an excess of the basic compd. is used.

**Washing gases.** LONDON POWER CO., LTD., and S. L. PEARCE. Brit. 333,309, Aug. 1, 1931, addition to 334,660 (*C. A.* **25**, 1062). Air is added to gases before or during treatment in such quantity that the mixt. contains 9% or under $CO_2$ and at least 10% $O_2$. The $O_2$ content of the washing soln. should not be less than 60% at atmospheric temp.

**Separating gaseous mixtures.** METALLGESELLSCHAFT A.-G. Brit. 367,209, May 1, 1930. In the recovery of gases and vapors from mixts. by adsorption, *e. g.*, by active C, silica gel, etc., and expulsion by steam, *e. g.*, the recovery of nitrocellulose solvent vapors in the rayon industry, the gases, following the flushing period and without the interposition of special cooling or drying processes, are heated, if necessary, and allowed to act on the adsorption medium up to 120°, preferably 40–70°, the elevated temp being maintained during the whole or at the commencement only of the adsorption period, no other heat being supplied.

**Separating mixed gases as in purifying liquid oxygen.** JOHANNES A. VAN GESSEL (to N. V. Philips' Gloeilampenfabrieken). U. S. 1,891,125, Dec. 13. The liquefied gas mixt. is brought into contact with material such as charcoal or silica gel which has a selective adsorbent action for one of the constituents. App. is described.

**Apparatus for liquefaction and rectification of gas mixtures such as air.** ISAAC H. LEVIN. U. S. 1,892,155, Dec. 27. Various structural, mech. and operative details are described.

**Colloidal suspensions.** EINSTEIN'S ELECTRO CHEMICAL PROCESS, LTD., and EMIL HATSCHEK. Brit. 366,128, Oct. 30, 1930. Solids are treated to enable them to be colloidally suspended in oils by grinding them with an aq. soln. of a soap and treating the resulting suspension with an agent which is adapted to ppt. the soap as a coating on the particles and is present in sufficient quantity to coagulate the suspension. The coated particles are then incorporated with the oil and the assocd. $H_2O$ eliminated, *e. g.*, by drying, or the particles may be dried before incorporation. In an example powd. graphite is mixed with Na oleate, made into colloidal suspension, the soap coagulated with $Al_2(SO_4)_3$ and the coated particles, after washing with $H_2O$, incorporated with mineral oil to give a suspension contg. 10–15% graphite, which is then heated with stirring to remove $H_2O$.

**Emulsions; margarine.** BENJAMIN R. HARRIS (to The Emulsol Corp.). Brit 366,909, Aug. 2, 1929. See Fr. 705,000 (*C. A.* **25**, 5219).

**Recovering volatile solvents.** CARRIER ENGINEERING CO., LTD., and JOHN S JONES. Brit. 366,968, Nov. 5, 1930. In the recovery of volatile substances evapd from articles during manuf. by absorption in a gas, circulated through the treatment chamber and subsequently treated with a solvent to recover the substance, the evapn. of the substance is controlled by regulating simultaneously the temp. and the concn. of the substance in the gas by regulating the concn. in the solvent and the temp. of the soln. App. is described.

**Molding respiratory masks.** DRÄGERWERK-HEINR. & BERNH. DRÄGER (to Otto H. Dräger). Brit. 365,347, Mar. 5, 1930. Respiratory masks are made by placing superposed alternate layers of fabric and impermeabilizing material, *e. g.*, unvulcanized sheet rubber, in a mold and combining them after molding, as by heating, in the mold to soften and vulcanize the rubber.

**Device for making solid carbon dioxide.** JOSEPH GRISON. Brit. 363,870, Jan. 28, 1931.

**Refrigerant.** JAMES J. CRONIN. Australia 27,854, July 16, 1930. A soln. of

$Na_2CO_3$ and $Na_2SO_4$ in water is frozen and used as a refrigerant. Australia 3312/31, describes the use of a soln. of $Na_2SO_4$ alone.

**Porous compositions.** LUDWIG WURM, RUDOLF WURM, PAVEL GÜTIG and EMIL WURM (trading as Isolierwerke Brüder Wurm). Brit. 364,819, Dec. 23, 1929. Non-absorptive, porous, heat-insulating compns. are made by mixing with known raw materials an emulsion of substances immiscible with and insol. with water and subjecting the product to a temp. above the m. p. of the impregnation substance if this is a solid. In an example bricks are produced from basic Mg carbonate 85 parts, asbestos 15 and emulsified paraffin wax 2. The mixt. is agitated, placed in molds, dried and heated to 80° in an atm. contg. less than 21% O.

**Heat-insulating compositions.** CHARLES H. OWEN. Brit. 365,525, Oct. 15, 1930. The compns. for application as plasters or for molding comprise a cement, a clay, *e. g.*, "ground fire-clay," or clay equiv. such as ganister and a porous filler, *e. g.*, slag dust, pumice powder or kieselguhr.

**Heat-insulating bat suitable for use in building construction.** FRANCIS W. HARNEY (to Upson Co.). U. S. 1,890,906, Dec. 13. A bat filling such as jute or cotton assocd. with a fire-proofing substance such as an $NH_4$ salt is provided with a liner of paper with an adhesive such as Na silicate which is capable of reacting with the substance in the bat filler, and the liner is sepd. from the filler by a material such as kraft paper to reduce such reaction.

**Heat- and sound-insulating composition.** ALEXANDER MELVILLE, JAMES T. MILLAR and ROBERT S. T. HENRY. Brit. 364,314, Dec. 18, 1930. The compn. is a mixt. of paper-mill waste ("lime sludge," which is C and $CaCO_3$ and (or) "machine sludge," which is cellulose and china clay) and kieselguhr or its equiv., and, if desired, asbestos.

**Heat- and sound-insulating material.** ELTON R. DARLING (to Pacific Lumber Co.). U. S. 1,892,138, Dec. 27. Rounded "sand-like" particles of material derived from redwood bark are used with about one-third their quantity of exfoliated zonolite.

**Electric resistors.** SÁNDOR JUST. Hung. 104,814, Sept. 16, 1929. Boron nitride is added to first-class conductors (*e. g.*, coal, graphite or metal powder) or to mixts. of these with second-class conductors (oxides, silicates, carbides). Coal tar or pitch is used as binding material, and the compn. is pressed into forms, dried and ignited in absence of air.

**Electrical insulation suitable for use on wiring, etc.** OLIVER B. HUSKEY. U. S. 1,892,105, Dec. 27. Boiled linseed oil 52, japan drier 26, olive oil 20, pumic stone 1 and coloring material such as a brown oil 1%.

**Coating wires with colored insulation, etc.** ALBERT T. CANDY, JR. (to Candy & Co.). U. S. 1,891,501, Dec. 20. Various details of app. and operation are described.

**Flame-proofing insulation on wires.** ERNEST C. CROCKER (to Arthur D. Little, Inc.). U. S. 1,891,258, Dec. 20. Flame-proofing is effected by use of an aq. soln. of dextrin contg. powd. Se.

**Paper for use in wrapping conductors to form insulation.** JOSEPH A. KENNEDY (to Anaconda Wire and Cable Co.). U. S. 1,892,059, Dec. 27. In "processing" rolls of paper strip for forming insulating wrappings, the rolls are treated with a bath of wax to saturate the paper and then are treated in an aq. soap soln. to permeate and partially displace the wax with the soap at the edges of the strip and thus render the edges soft and pliable.

## 14—WATER, SEWAGE AND SANITATION

EDWARD BARTOW

**The past year's waterworks activities in Ontario.** A. E. BERRY. *Contract Record and Eng. Rev.* **46**, 1448–51(1932); cf. *C. A.* **26**, 1688. R. E. THOMPSON

**Developments in water supply and treatment during the past year.** NORMAN J. HOWARD. *Contract Record and Eng. Rev.* **46**, 1442–7(1932); **47**, 9–12(1933); cf. *C. A.* **26**, 1685.—A comprehensive review of progress during 1932. At the end of the year there were 396 plants employing activated C for taste and odor removal. R. E. THOMSON

**The daily fluctuations of oxygen content and $p_H$ of Balaton water.** C. M. MALDURA. *Magyar Biol. Kutató Intézet Munkái* **4**, 621–2(in Italian 622–5)(1931).—The O content of the water of Lake Balaton (Hungary) varies between 6.3 and 7.2 cc. per l. and reaches its max. in the afternoon. It is independent of the temp. The $p_H$ ranges from 8.38 to 8.55, reaches a max. in the early morning and decreases afterward. S. S. DE FINÁLY

**The properties, examination and purification of surface water.** BERTIL GROTH.

*Svensk Pappers-Tidn.* 35, 744–9, 778–87(1932).—Descriptive, with special reference to biol. impurities, purification by alums and *use of the water in the Swedish paper industries.* WILHELM SEGERBLOM

**Utilization of active carbon in water purification.** CURT MÜLLER. *Wasser u. Gas* 23, 248–59(1933).—A thorough review including history of development, types of C available, data on the efficiency of these types with regard to grain size and adsorptive power, filtering times and typical data from a no. of different water works. This is a preliminary note. HOWARD AGNEW SMITH

**The oligodynamic action of silver in the treatment of water.** J. GIBBARD. *Can. Pub. Health J.* 24, 96–7(1933).—Results of expts. on exposure of water contg. *E. coli* to silvered porcelain rings are summarized. Low temp. (8–10° compared with 22–5°) markedly retards oligodynamic action: the presence of org. matter has a similar effect. The rings gradually lose their activity but may be completely rejuvenated by treatment with dil. HCl. Their activity is definitely, although not greatly, less in the light than in the dark. Exposure for at least 1–1.5 hrs. is necessary with new rings: un favorable conditions 24 hrs. may be required. The treated water has bact properties. The concn. of Ag in the treated water increases with the time of as follows: 1 hr. 0.03, 2 hrs. 0.07, 3 hrs. 0.15, and 4 hrs. 0.5 p. p. m. This met treatment cannot be recommended for practical use at the present time. R.

**Shellfish-treatment plant at Newburyport, Mass.** EDWARD WRIGHT. *Pub. Health* 23, 266–9(1933).—Complete details are given for Cl treatment of sl Rules and regulations relative to the operation of plants for the treatment of shellfish as adopted by the Mass. Dept. Public Health on March 8, 1932, are also giv J. A. KENNEDY

**The use of sodium bicarbonate and calcium in the rectification of sea water in aquaria.** C. M. BREDER AND H. W. SMITH. *J. Marine Biol. Assoc. United Kingdom* 18, 199–200(1932). C. M. McCAY

**The effect of long-continued additions of lime to aquarium sea water.** L. H. N. COOPER. *J. Marine Biol. Assoc. United Kingdom* 18, 201–2(1932). C. M. McCAY

**Water softening by base exchange.** EDWARD BARTOW. *Proc. Iowa Acad. Sci* 38, 151–5(1931).—A popular description of the base exchange or zeolite system of water softening and a discussion of the disadvantages of hard water in a household, the advantages of a water softener of the type mentioned and its approx. cost for the home. W. G. GAESSLER

**Economies effected by treating boiler feed water with trisodium phosphate.** F KROME. *Wärme* 55, 452–3(1932); *Chimie & industrie* 29, 69.—A brief outline of the advantages of the process. A. PAPINEAU-COUTURE

**Use of chemically purified water in high-pressure [40 atmospheres] boilers.** F. KÖGLER. *Wärme* 55, 515–17, 529–34, 548–9(1932); *Chimie & industrie* 29, 70.—Most raw waters, after treatment by the soda process, are sufficiently purified for use in boilers operating up to 40 atm.; care must be taken, however, to avoid possible soln. of $SiO_2$ from the sand filters by the alk. water at 90–100°. During degassing at 100° there is a considerable increase in the NaOH content because of thermal decompn. of $Na_2CO_3$. A water contg. about: $Na_2SO_4$ 0.4–0.5, NaCl 0.2–0.35, NaOH 0.06–0.07, $Na_2CO_3$ 0.08 0.1, $SiO_2$ 0.006–0.008 g. per l. gives but a negligible and easily detachable deposit, which becomes dangerous only at relatively high $SiO_2$ contents (10–15 mg. per l.) For such cases K. recommends the use of $Na_3PO_4$ to remove scale from the boiler, which is also useful to prevent formation of scale. A. PAPINEAU-COUTURE

**Feed water in the construction and operation of high-pressure steam boilers.** LIST. *Svensk Pappers-Tidn.* 35, 813–32(1932).—Descriptive. Twenty-nine diagrams and graphs and 11 equations for the removal of Ca and Mg compds. are given. W. S.

**Ultra-microscopic examination of boiler water as a valuable supplement of chemical analyses.** A. KLEIN. *Wärme* 55, 103–6; *Wasser u. Abwasser* 30, 83 (1932).—The use of the dark-field microscope for the ultra-microscopic examn. of water during the process of clarification is explained. Eight illustrations are given in the original article. F. P. GRIFFITHS

**Protective action of zinc plates in boilers.** C. O. BANNISTER AND R. KERR. *Metal Ind.* (London) 41, 441–3, 467–70(1932).—The potentials between Zn and steel of various grades were measured in different types of water by means of a potentiometer and a recording voltmeter. A large-scale expt. was carried out with Zn plates, fastened in different manners, in a ship boiler. Pb contamination up to 2.5% does not affect the potential between Zn and steel seriously. Fe above 0.06% is a likely source of trouble. Conclusions: The protection of the boiler steel by Zn plates is due more to purely *chem. action by removal of O, than to electrochem. protection.* LEOPOLD PESSEL

**Boiler sediment, a neglected enemy of steam boilers.** H. RICHTER. *Listy Cukrovar.* 50, 545–8; *Z. Zuckerind. Tschechoslovak. Rep.* 57, 92–6(1932); cf. *C. A.* 26,

2807.—The sediments in boilers exert a chem. and a mech. effect on the boiler wall. After the formation of the sediment, the structure was loose and flaky; only after the lapse of a crit. period, does it become dense and adhesive. For a remedy, R. recommends a periodic discharge of water laden with sediments from the boiler every 1 to 2 hrs. FRANK MARESH

**Removal of positive ions by electroösmose apparatus.** EDWARD BARTOW AND MILO A. FRY. *Ind. Eng. Chem.* **25**, 336–8(1933).—Hard waters were prepd. by dissolving about 200 mg. per l. of NaCl, $CaCl_2$, $MgCl_2$ or some combination of them in distd. $H_2O$. These artificial hard waters were treated in a 10-cell electroösmose app. and samples from the cells 1, 3, 6, 9 and the overflow were analyzed. Seven tables of data show that: The order of removal is Na, Ca, Mg. The removal in the sixth cell is 90% except for Mg. The $H_2O$ in the ninth cell is nearly equiv. to distd. $H_2O$. The removal when the rate of flow is 30 l. per hr. is not quite as good as for 20 l. or 25 l. per hr. F. E. BROWN

**Chlorination of water containing inorganic and organic substances. The disinfecting action of chlorine on anthrax-spore-containing maceration liquors from gelatin manufacture, from which is obtained feed calcium phosphate.** W. WEDEMANN. *Arb. Reichsgesundh.* **65**, 265–77(1932).—Water contg. Cl destroyed anthrax spores in all exptl. runs and resulted in a diminution of the Cl content. In no cases were active spores found after 1 hr. of contact with water contg. Cl. Tabular data are given. R. C. ERB

**Oxidation-potential concept of chlorination.** F. C. SCHMELKES. *Am. J. Pub. Health* **23**, 269–70(1933).—Measurements were presented of the oxidation potential in solns. of HOCl, chloramine, monochloroglycine and azochloramide. These measurements were compared with measurements of the rate of bacteria removal. The oxidation potential and bactericidal properties of $Cl_2$ were found to run parallel. Any changes which diminish bactericidal velocity also diminish the oxidation potential, and *vice versa*. Attention was drawn to the failings of the *o*-tolidine test, as the reagent reduces the $p_H$ of the soln. to be measured, because of the large amt. of HCl in the reagent, and thereby increases the oxidation potential to a high value. This test essentially measures the amt. of $Cl_2$ which can be converted into bactericidal and sterilizing $Cl_2$ by lowering the $p_H$. The test, therefore, does not distinguish between $Cl_2$ compds. of high and low oxidation potential. Attention is drawn to the fact that in the $NH_3$-Cl process advantage is deliberately taken of the reduction of the oxidation potential to prevent combination of $Cl_2$ with phenols and to prevent oxidation of org. matter, this increasing the persistency of the residual, and that this is being done at the expense of bactericidal velocity. A motion picture was presented, showing the slow death, cessation of movement, agglutination and disintegration of typhoid bacteria, brought about by treatment with low-potential chloramine compds. J. A. KENNEDY

**The significance of ammonia for the chlorine-fixing power of water. I.** M. L. KOSHKIN. *Z. Hyg. Infektionskrankh.* **114**, 413–24(1932).—$NH_3$ decreases the Cl-fixing power of $H_2O$. The decrease is less marked with increasing amts. of $NH_3$. The Cl-fixing power of plant exts. is strongly decreased by the presence of $NH_3$ but that of animal exts. only slightly. RACHEL BROWN

**Color scale for nesslerization.** RENÉ DANET. *J. pharm. chim.* **16**, 68(1932); cf. *C. A.* **22**, 2018.—An aq. soln. (*A*) contg. in 100 cc. 0.8 cc. of 10% $K_2CrO_4$ soln. and 22 cc. of 10% soln. of non-dried $Co(NO_3)_2$, corresponds to 0.010 g. $NH_3$ per l., nesslerized. Each 10 cc. of the waters to be examd. is treated with 5 drops of Nessler soln., and then the color intensities are compared with the following scale: Into 6 test tubes are placed 0.5, 1, 2, 3, 5 and 10 cc. of *A*, and $H_2O$ is added to each to make 10 cc. The colorations then correspond, resp., to 0.5, 1, 2, 3, 5 and 10 mg. of $NH_3$ per l. S. WALDBOTT

**The advantages of O'Meara's modification of the Voges-Proskauer test.** RALPH P. TITTSLER. *J. Bact.* **25**, 40–1(1933).—The rate of formation of color is more rapid, and the color is more intense. JOHN T. MYERS

**Proceedings of the Sixth Annual Conference, Maryland-Delaware Water and Sewerage Association, Cumberland, Maryland, April 12 and 13, 1932.** 128 pages; (abstr. in *J. Am. Water Works Assoc.* **25**, 158–60). **Elementary sewage disposal.** L. V. CARPENTER. 5–14. Tabulation of location, population served and methods of treatment at 38 sewage-treatment plants in Maryland. **Discussion.** G. L. HALL. **Admission of industrial wastes into sewerage systems. Symposium. Control of the pollution of streams.** 35–63. **Procedure in Delaware. Procedure in Pennsylvania.** R. C. BECKETT. **Procedure in West Virginia.** E. S. TISDALE. **Procedure in Maryland.** ABEL WOLMAN. **Influence of soils, rocks and minerals upon the potability of water.** J. J. SHANK. Surface waters acquire mineral constituents by flowing over soils and rocks of various solubilities. Ground waters which penetrate beneath the upper crust of the earth's surface acquire much greater mineral content than surface

waters, because of the longer and more intimate contact with soil and rock materials. The action taking place between ground waters and soil and rock materials is of the nature of solution, substitution, addition or combination. **Developments on powdered activated carbon in water plants during recent months.** F. E. STUART. 87–95. In addn. to its use for removal of tastes and odors, activated C is effective for elimination of putrefaction and liquefaction of settling-basin sludge; for improvement in coagulation, with consequent reduction of dosage of coagulant; for adsorption of org. matter, and thus for control of fluctuations in Cl demand; and for increase in Cl residual by application ahead of prechlorination dosage. **Discussion.** C. A. HECHMER. Experience at Washington Suburban Sanitary District has shown that the best results are obtained when C is applied to raw water with coagulant. It is fed by dry-feed machines at the rate of 0.1 grain per gal. at a cost of 85 cents per million gal. **Reservoir treatment with copper sulfate.** 112, *et seq.* At Baltimore 0.5 p. p. m. applied weekly retards algae growth below the point causing taste. At Hyattsville, Md., 0.35 p. p. m. applied semi-weekly is effective and more satisfactory than prechlorination. At Harrisburg, Penna., the usual recommendation is 2 lb. $CuSO_4$ per million gal. At Cumberland, Md., 4 lb. per million gal. is applied without any undue killing of fish.
J. D. S.

**The past year's sewerage activities.** A. E. BERRY. *Contract Record and Eng. Rev.* **47**, 4–8(1933).—A review of undertakings in Canada, United States and Great Britain. R. E. THOMPSON

**Modern practice in sewage disposal.** W. M. TREADGOLD. *Contract Record and Eng. Rev.* **47**, 69–72(1933). R. E. THOMPSON

**Up-to-date disposal works solves sewage troubles at Fort William, Ont.** R. O WYNNE-ROBERTS. *Contract Record and Eng. Rev.* **46**, 1349–53, 1360 (1932).—The new sewage plant at Fort William consists of coarse screens, settling tanks, a heated sludge-digestion tank and open drying beds. R. E. THOMPSON

**The administrative side of sewage disposal.** P. MAI. *Der Stadt Tiefbau* No. 5, 69–78; *Wasser u. Abwasser* **30**, 157. F. P. GRIFFITHS

**Sewage treatment at Folsom Prison.** L. E. RUSTON. *Western Construction News*, March 25, 153–7; *Wasser u. Abwasser* **30**, 93(1932).—A description of the recently installed sewage-disposal plant. F. P. GRIFFITHS

**Preliminary report on the use of the sewage water of Schebitz [Breslau] for irrigation.** F. ZUNKER. *Der Kulturtechniker* 440–6(1931); *Wasser u. Abwasser* 30, 191.—Sewage, after passing through 2 clarification basins, is being used with very good results for fertilizing a large farm. F. P. GRIFFITHS

**Experiences in operating Dunbar sewage filters.** H. L. THACKWELL. *Eng. News-Record* **109**, 676–7(1932).—The sewage-treatment plant at Tyler, Tex., completed in 1930, consists of a grit chamber, vertical cage bar screen, chlorinator, multiple hopper-bottom settling tank, primary and secondary Dunbar filters (similar to slow sand filters), step aerator, sep. sludge-digestion tanks provided with heating coils and agitation devices, and glass-covered sludge-drying beds. The plant was designed for an av. flow of 0.6 and a max. of 1 million gal. daily and is at present being enlarged to provide for an addnl. 1 million gal. per day. Infiltration of acid ground water gives rise to difficulties: aeration and lime treatment have been found to be the most effective and economical corrective treatment. Biol. purification in Dunbar filters occurs largely in the rock and gravel layers, the sand serving as a strainer and supporting medium for the colloidal mat which acts as a true filter. The depth of sand can be reduced to 9 in by successive cleanings without seriously affecting their operation. An even grading of sand from 30-mesh to $^1/_4$-in. has proved satisfactory. Final settling is not required The head required is about 40% of that needed for trickling filters. When not overloaded, the filters reduce the biochem. O demand about 66%. The cost of operation is the wages of 1 laborer per acre of surface and the replacement of 2 in. of sand per year. R. E. THOMPSON

**Imhoff-tank effluent aerated to reduce load on filters.** W. R. DRURY. *Eng. News-Record* **109**, 752(1932).—A preaeration tank, ventilated trickling filters, final settling tanks and chlorination tanks were recently installed in Flint, Mich., the installation completing the plant which was initiated 4 years ago by the construction of radial-flow Imhoff tanks and sludge-drying beds. The secondary units were designed on the basis of results obtained during a year's operation of exptl. units. Expts. showed that 15–30 min. aeration of the Imhoff tank effluent would reduce the 5-day biochem. O demand 15–20% and increase the permissible rate of filter operation. The air from the tank is passed upward through the filter material, noxious odors being thus removed and the filters aerated to a certain extent. R. E. THOMPSON

**Effect of ferric chloride shown by sewage-plant tests.** HARVEY O. BANKS. *Munic. Sanit.* **4**, 48(1933).—A small exptl. sewage-treatment plant was operated at Palo Alto,

Calif. The possibility of regenerating a spent coagulant by the use of $Cl_2$ was tried out. This was not found to be feasible because of the gradual accumulation of org. matter on the floc. Plain coagulation of a settled sewage with a small dosage of $FeCl_3$ was found to be practical. Treatment gave 80–85% removal of suspended matter, and the biochem. O demand was reduced 65–70%. The process proved to be economical and attractive compared to biol. methods. E. R. MATHEWS

**Sewage plant rebuilt to treat rayon wastes.** U. F. TURPIN. *Eng. News-Record* **109**, 780–2(1932).—Creamery and rayon mill wastes completely inhibited bacterial action in the Imhoff tank and contact filters of the Sparta, Ill., sewage-treatment plant, and, after studies carried out with an exptl. activated-sludge plant, new works were constructed consisting of primary settling tanks, diffused aeration tanks, secondary settling tanks, sludge-digestion tanks and drying beds. The creamery wastes have had to be entirely eliminated from the sewage flow, it having been found that as little as 1% of casein waste interferes with the maintenance of a satisfactory activated sludge. The rayon-mill waste can be treated with the city sewage provided the grease content of the combined flow does not exceed 150–160 p. p. m. A chem. treatment tank was provided for sep. treatment of the "boil-off" waste with $FeSO_4$ and lime when the grease content exceeds that amt., it having been found that such treatment reduces the biochem. O demand of the "boil-off" waste approx. 95%. R. E. THOMPSON

**Application of the activated-sludge process.** E. F. ELDRIDGE. Mich. Eng. Expt. Sta., *Bull.* No. **48**, 3–32(1932).—An exptl. plant consisting of a Simplex aerator, settling tank and sludge-return pump was operated on milk wastes. Higher dissolved O content was obtained with mech. aeration than with compressed air. Biochem. O demand reductions as high as 95% were obtained with aeration tank sludge contents of 2000–2400 p. p. m. and 8–9.5 hr. aeration periods. Ammonia N was always dissipated or utilized in the aeration tank. Nitrite N occurred occasionally in the effluent, while nitrate N was never present. Fat removal was high and lactose was completely removed under optimum operating conditions. The $p_H$ varied from 7.3 to 7.8. The av. total solid reduction was 36%. Cost records for plants of different capacities are tabulated. This plant when operated on sewage contg. half strong domestic sewage and half milk wastes gave a lighter sludge than with sewage only. With this type of sewage mixt. stable effluents can be produced with biochem. O demand reductions of 90–93%. G. L. KELSO

**The oxidation of nitrogenous material in contaminated river water.** BEN H. PETERSON AND JOHN HANN. *Proc. Iowa Acad. Sci.* **38**, 165(1931).—A study is made of the rate of oxidation of the nitrogenous material in water taken from the Cedar River above, within and below the city of Cedar Rapids. Some of the carbonaceous material is first oxidized, this requiring all of the dissolved O if the sample is highly polluted. If sufficient dissolved O remains, the free $NH_3$ is converted to nitrite form, this being accompanied by a change of the org. N to $NH_3$. When nearly all the N is in nitrite form, further oxidation to nitrate N occurs. W. G. GAESSLER

**Effects of air contaminants on the natural light of cities.** H. B. MELLER AND MARY E. WARGA. *Am. J. Pub. Health* **23**, 217–24(1933). J. A. KENNEDY

**Industrial waste-gas and smoke problem and its solution.** H. WISLICENUS. *Beiheft Z. Ver. deut. Chem.* No. **3**, *Angew. Chem.* **46**, 104–5(1933).—A discussion with 5 literature references. KARL KAMMERMEYER

**Anaerobic stabilization of milk waste.** A. M. BUSWELL, C. S. BORUFF AND C. K. WIESMAN. *Ind. Eng. Chem.* **24**, 1423–5(1932).—Anaerobic fermentation followed by aerobic filtration treatment is only a small part of the cost of standard milk-waste-treatment methods. In addn. to the removal of 95% of the pollution load, 8.3–12.4 cu. ft. of gas of 550 B. t. u. can be recovered per lb. of dry solids at a cost of 6.1–10.3 cents per thousand cu. ft. G. L. KELSO

**The use of hydrocyanic acid for fumigation purposes.** C. L. WILLIAMS. *Can. Pub. Health J.* **23**, 567–70(1932); cf. *C. A.* **25**, 5726.—A discussion of the relative efficiency of various prepns., the exposure required for extermination of different insects, means of hastening dispersion and of clearing premises after fumigation, and toxic symptoms resulting from exposure to HCN. Temp. is important, the optimum being 75°F. or higher. The principal danger is absorption of HCN by bedding, etc. R. E. THOMPSON

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**An ecological study of the fishes of the Hocking River (SHURRAGER) 11I. Applications of the method of destroying organic materials by treatment with $H_2SO_4$ and $HClO_4$ to toxicological investigations and industrial hygiene (FABRE, KAHANE) 7. The corrosion of high-pressure steam boilers (LUPBERGER) 9. Corrosion of condenser tubes (REUTER) 9. Washing, dispersing, etc., agents [for softening water] (Fr. pat. 739,261) 25. Protecting boiler tubes, etc., from corrosion by water or steam (Ger. pat.**

568,375) 9. Removing dust and scale from the interior of closed [water] piping systems (U. S. pat. 1,892,093) 9. The use of shredded asbestos in methane fermentations (BREDEN, BUSWELL) 16. Methane [by action of bacteria from sewage tanks, etc.] (Brit. pat. 365,544) 16.

**Apparatus for softening water by use of base-exchange material.** STANLEY G. HARWOOD and DONALD GRISWOLD (to Permutit Co.). U. S. 1,891,675, Dec. 20. Structural features.

**Base-exchange substances.** I. G. FARBENINDUSTRIE A.-G. Brit. 367,582, Mar. 9, 1931. Base-exchange substances obtained by reaction between an alkali metal silicate and an alkali metal aluminate are homogenized, *e. g.*, in a ball mill, if desired with addn. of plasticizing agents, *e. g.*, kaolin, bentonite or sulfite cellulose liquor, and then shaped into spherical, cylindrical, etc., bodies of uniform size which are rapidly heated to 100–150°, washed and, if desired, dried to give a product relatively stable to hot water and to water contg. $CO_2$.

**Apparatus for passing water through treating materials such as zeolites, etc.** ROBERT O. FRIEND and JOHN A. MONTGOMERY. U. S. 1,891,061, Dec. 13. Structural features.

**Treating water containing bactericides such as chlorine and phenol.** NEWCOMB K. CHANEY (to National Carbon Co.). U. S. 1,890,969, Dec. 13. In order to remove excess Cl, reaction products, etc., the water is treated with a partially activated carbonaceous material and then with a more highly absorptive material.

**Use of succinchlorimide as a germicide for water.** CYRUS B. WOOD. U. S. 1,891,462, Dec. 20.

**Apparatus for indicating and regulating the content of chlorine or similar water-purifying agent in flowing water or sewage.** GEORG ORNSTEIN. Brit. 367,821, Sept 19, 1930.

**Improved septic tank.** FRANÇOIS LE MEUR. Fr. 739,216, June 28, 1932.

## 15—SOILS, FERTILIZERS AND AGRICULTURAL POISONS

M. S. ANDERSON AND K. D. JACOB

**Petrographic methods for soil laboratories.** W. H. FRY. U. S. Dept. Agr., *Tech. Bull.* **344**, 1–96(1933).—The crystallographic, optical and manipulative principles necessary for the petrographic identification of crystals are presented. Directions are given for applying these methods to the identification of pure substances, the percentage estn. of the constituents of a mixt., the identification of minerals in soils, the differentiation of soil colloids from soil cryst. matter, the identification of soil org. matter and residue of organisms, the detn. of the shape of soil particles, the examn. of particle surfaces, soil structure and fertilizer materials, inspection of samples for purity, and the solution of phase-rule problems. Tables are appended giving the formula, mineral name, system, color, and optical properties for each of a no. of isotropic, uniaxial pos., uniaxial neg., biaxial pos. and biaxial neg. substances. W. H. Ross

**Soil science investigations at the melioration project in the Piano di Magadino.** H. GESSNER. *Schweiz. landw. Mh.* **9**, 231(1931); *Fortschr. Landw.* **7**, 113.—The soil is a typical alluvium and is predominantly sandy, the fresh alluvial sand contg. 5 9% of carbonate. Weathering results in the rapid removal of the carbonate and an increase in the sesquioxide content of the surface soil, the enrichment in sesquioxides corresponding to the leaching out of silicic acid, as much as 33% of the latter being removed in some cases. K. D. JACOB

**Improvement of solonetz soils.** L. P. ROZOV. *Trans. 6th Comm. Intern. Soc. Soil Sci., Pedology* (U. S. S. R.) **1932**, No. 3, 30–69.—Solonetz soils may retain their sp. properties for a long time under irrigation. Some cases show degradation with an increase in the alky. and absorbed Na and Mg in the lower layers. The presence of gypsum aids the degradation. B. C. A.

**Experimental testing of the question of soil tillage.** ORTTZ. *Landw. Fachpresse Tschechoslow.* **II**, 243(1931); *Fortschr. Landw.* **7**, 45.—Deep plowing increases the pore vol. and air content of soils, but has no significant effect on the $H_2O$ content. Shallow plowing, without addn. of lime, gradually caused a weakly acid soil (*p*H 6–6.5) to become more acid, whereas, under the same conditions, deep plowing resulted in a favorable condition as regarded the lime supply. With deep plowing, the yield of potatoes was not affected by applications of lime, but the yield was considerably decreased on shallow-plowed soils. Liming affects favorably the moisture supply of the upper layers of soil. K. D. JACOB

**Solubility of the solid phase of soil in water.** S. M. DRACHEV. *Soil Science* **35**, 75–83(1933).—The influence of varying vols. of $H_2O$ upon the soly. of soil compns. is studied. The soils studied are of the podzol, gray forest and chernozem groups. The soil-water ratio is varied from 1–1 to 1–128. A relationship exists between the vol. of solvent and the quantity of electrolytes which may be expressed by the equation $x = y\sqrt{V} + b$, where $x$ represents the sol. electrolytes as milliequivalents per 100 g. of soil, $V$ the ratio between vol. of solvent and wt. of soil, and $b$ the quantity of easily sol. salts extd. from the soil by a small vol. of $H_2O$. The value of $y$ for chernozem soils varies from 0.68 to 2.03 and podzols 0.04 to 0.34. In general, the chernozem soils show greater differences in sol. salt content at varying dilns. than do the podzols. Phosphate minerals such as apatite and phosphate rock behave on diln. very much like soils. $Na_2CO_3$ and humus extd. from solonetz soils with successively increasing $H_2O$ vols. are in good agreement with the values obtained by calcn. M. S. A.

**A general system of soils.** A. A. J. DE 'SIGMOND. *Mezögazdasági Kutatások* **5**, 391–404(1932).—The new system is based on the dynamic state of soils. Chief groups consist of soils of (1) org. origin, (2) mixed origin and (3) mineral origin. These chief groups are divided into 9 groups and further into 25 soil types. The method of application is shown by several practical examples. S. S. DE FINÁLY

**The physical properties and the adsorbed bases of soils.** LÁSZLÓ KOTZMANN. *Mezögazdasági Kutatások* **5**, 427–37(1932).—Two Hungarian soil samples were satd. with Ba, Ca, Mg, H, K, $NH_4$ and Na. One of the samples was a Ca soil of the chernozem type, the other a Na soil of the solonetz type. The dispersity was increased by univalent cations, and coagulation was caused by bivalent cations. On a system of sieves with meshes of 2, 1, 0.5 and 0.2 mm., the samples were covered with water for 24 hrs. Soils satd. with univalent bases could not form stable aggregates in water. Soils satd. with H or bivalent bases were stable in water. The plasticity limits of Atterberg are influenced by adsorbed cations. S. S. DE FINÁLY

**Influence of drying on the physicochemical properties of moor soils.** M. V. DOKUKIN. *Trans. 6th Comm. Intern. Soc. Soil Sci., Pedology* (U. S. S. R.) **1932**, No. 3, 70–2.—Dehydration of sphagnum peat gives rise to a decrease in the values of various physicochem. properties, the reverse being true for sedge-hypnum peats. B. C. A.

**The chemical composition of the colloidal portion with respect to the chemical composition of the soil.** L. SMOLÍK *Věstník Československ. Akad. Zemědělské* **8**, 593(1932); *Listy Cukrovar.* **51**, No. 9, Rozhledy 6.—Analyses of soils are given to show that $P_2O_5$, Fe, Al and Mg are found in the colloidal portion of the soil, while the other elements are found in fractions contg. particles of dimensions larger than colloidal. FRANK MARESH

**Continuous method for mechanical analysis of soils.** M. M. GODLIN. *Contr. Ukrain. Inst. Soil Research* **3**, 81–90(1931).—The app. consists of a Cu vessel, 8 cm. in diam., the lower end being fitted with a wide-stemmed glass funnel The top is covered with a Cu lid carrying a stopper which has a glass tube closed with a rubber tube and spring clip which, when opened after definite times, allows the suspension to flow out through the funnel. This method obviates the errors due to irregular settling and uneven suction. The results are quite comparable with those of the international standard method. B. C. A.

**Recognition of the chemical character of the colloidal fractions in soils.** L. SMOLÍK. *Věstník Československ. Akad. Zemědělské* **8**, 19(1932); *Listy Cukrovar.* **51**, No. 9, Rozhledy 6.—By means of a membrane hydrolysis, colloidal fractions of soils were sepd. into fractions of sols and a crystalloid fraction. The chem. compds. of the colloidal fraction, especially the bases, passed into the dialyzate; Fe, Al and Si did not pass through. The decreasing order of the bases was Na, Ca, K and Mg. FRANK MARESH

**The chemical resistance of soils and colloidal fractions.** L. SMOLÍK. *Věstník Československ. Akad. Zemědělské* **8**, 493(1932); *Listy Cukrovar.* **51**, No. 9, Rozhledy 6.—The resistant action of soils to alkalies or acids is related to the ability to form colloidal suspensions and is a function of the quantity of suspensoids produced. Soils contg. large quantities of suspensoids are highly resistant to the chem. action of alkalies or acids. In soils contg. the same quantity of suspensoids, the differences in chem. resistivity increased with the ratio of $SiO_2$ to the sesquioxides present. F. M.

**The method of determining the hydrolytic acidity of soils.** S. S. YARUSOV AND A. G. MURALEVA. *Chemisation Socialistic Agr.* **1**, No. 6, 8–32(1932).—The Csiky method was tested and found to give concordant results. Good results were also obtained by using the Vageler-Woltersdorf method. The Kappen method gave very large errors. J. S. JOFFE

**Cyclic salt changes in soils.** B. B. POLYNOV AND S. BUISTROV. *Trans. 6th Comm. Intern. Soc. Soil Sci., Pedology* (U. S. S. R.) **1932**, No. 3, 22–9.—The capillary rise of Cl and $SO_4$ ions in a column of loam soil was studied. In the lower parts of the column

$SO_4$ ion predominates, but gradually decreases upward, and at a height of 65 cm. no $SO_4$ ion is found; whereas Cl ion is found at all heights. Sands showed similar results; the concn. of both ions, however, decrease much more rapidly. B. C. A.

**Influence of bedrock on amounts of soluble [plant] nutrients in clays.** A. SALMINEN. *Maataloustieteellinen Aikakauskirja* (*J. Sci. Agr. Soc. Finland*) **1931**, 153.—Sources of essential soil constituents are examd. Chem. and mineral. compn. of Finnish clays is to some extent influenced by the nature of the original rock. B. C. A.

**The influence of temperature upon the assimilation of nutritive elements in a one per cent citric acid solution with Moravian climatogenic soil types.** L. STEJSKAL. *Věstník Československ. Akad. Zemědělské* **8**, 602(1932); *Listy Cukrovar.* **51**, No. 9, Rozhledy 6.—The quantity of $P_2O_5$ extd. by a 1% citric acid soln. varied markedly with the temp., and all analyses had to be made at 20°. Analyses show that the assimilable nutritive elements are decreased in the upper and surface strata but increased in the lower strata into which they are washed. FRANK MARESH

**The influence of increased concentrations of soil solution on the oil content in the seeds of oil-bearing plants.** S. E. SEREDA. *Chemisation Socialistic Agr.* **1**, No. 5, 53-63(1932).- From pot expts. with soy beans, hemp, flax, sunflower, poppy and others on a gray forest soil the following conclusions were made: an increase in concn of the soil soln. by adding nutrients—5, 10, 20 and 40%—increased the yield only up to 10% concn. With hemp the increase continued to 20% concn. The amt. of oil decreased with increase in concn. of nutrients, except for the soy beans and hemp, the oil contents of which increased with 5% increase in concn. The decrease is ascribed to the increase in protein content which is said to be antagonistic to oil formation J. S. J.

**Soils in relation to fruit growing in New York. I. Detailed soil survey of the Hilton Area, Monroe County.** A. T. SWEET AND JOSEPH OSKAMP. N. Y. (Cornell) Agr. Expt. Sta., *Bull* **541**, 3-16(1932).- A study of the suitability of soils for orcharding. C. R. FELLERS

**Some aspects of the growth of rice in heavy black soils of the Central Provinces.** D. V. BAL AND R. N. MISRA. *Agr. and Live-stock in India* **2**, 404-16(1932).—When a heavy soil formerly under wheat was converted into a rice field, the amt. of lime and the $p_H$ value of the soil were decreased. Expts. on the growth of rice in sand cultures with nutrient solns. of different $p_H$ values, indicated that the rice plant prefers a slightly acid or neutral medium to an alk. one. Pot and field expts. indicated that in heavy soils, with a basal dressing of green manure, S gives increased yields of rice, but better results are obtained by annual applications of superphosphate alone or with S. K. D. JACOB

**Toxicity of calcium arsenate in soils to plants.** H. P. COOPER, W. R. PADEN, E. E. HALL, W. B. ALBERT, W. B. ROGERS AND J. A. RILEY. S. Car. Agr. Expt. Sta., *45th Annual Rept.* 23-7(1932); cf. *C. A.* **26**, 4124.—A series of expts. are described showing definite toxicity in certain soils contg. $Ca_3(AsO_4)_2$ from cotton sprays. Oats, vetch and barley are particularly sensitive to As injury. Insol. arsenates, such as $FeAsO_4$, are non-toxic to plants. C. R. FELLERS

**Base interchange induced by calcium, magnesium and sodium nitrates in a six-foot column of soil-subsoil.** W. H. MACINTIRE, J. B. YOUNG AND W. M. SHAW. *Soil Science* **35**, 49-53(1933).- Single heavy addns. of $NaNO_3$, $Ca(NO_3)_2$ and $Mg(NO_3)_2$ were made to Cumberland clay loam soil in lysimeters, and the outgo of bases was studied over a period of 9 years. The replacements of Ca and Mg by Na were decidedly less than the reciprocal Ca-Mg replacements. Ca recovered from $Ca(NO_3)_2$ and exchanged by the Mg of $Mg(NO_3)_2$ were practically the same. Amts. of K replaced by heavy addns. of Na, Ca and Mg were small and indicated that K made available by ordinary amts. of nitrates would be inconsequential. M. S. ANDERSON

**Effects of various amounts of calcium carbonate on the degree of saturation of some Iowa soils with bases.** R. H. WALKER AND P. E. BROWN. *Proc. Iowa Acad. Sci.* **38**, *166-7(1931)*; *cf. C. A.* **26**, *3057*, *4406*.—Untreated Grundy silt loam was found to contain 9.30 milliequivs. (M. E.) of exchangeable H and 14.03 M. E. of exchangeable bases per 100 g. of soil in the base-exchange complex. Six months after the same soil had been treated with c. p. $CaCO_3$ at the rate of 6 tons per acre the exchangeable H content was only 1.15 M. E. and the exchangeable base content was 24.54 M. E. The $CaCO_3$ treatment, therefore, increased the degree of satn. with bases from 60.13 to 95.52%. In similar expts. $CaCO_3$ at the rate of 6 tons per acre increased the degree of satn. of Shelby loam from 63.82 to 100%, while $CaCO_3$ at the rate of 5 tons per acre was sufficient to increase the degree of satn. of Tama silt loam from 58.95 to 100%. W. G. GAESSLER

**Changes occurring in the irrigated soils as a result of irrigation, cropping and fertilizer treatments.** S. C. VANDECAVEYE AND L. C. WHEETING. Wash. Agr. Expt. Sta., *Bull.* **260**, 18(1931).—N fertilization alone, or in combination with P or K, gave

significantly increased apple yields at Wenatchee and Spokane. Continued use of fertilizers changed the soil reaction in several cases. Detns. of single or total exchangeable bases in Ephrata fine sandy soils show that very little exchangeable base is present, and it has little or no relation to crop yield or available plant nutrients. C. R. F.

**Arsenic toxicity in soils.** W. B. ALBERT. S. Car. Agr. Expt. Sta., *45th Annual Rept.* 44–6(1932); cf. *C. A.* **26,** 3600.—Addn. of $FeSO_4$ to As-toxic soils benefited subsequent crop growth. The red clay soils which are high in Fe have a much greater capacity to render arsenates nontoxic than have gray sandy soils low in Fe. When sol. As from $Na_3AsO_4$ was added to a dil. aq. suspension of $Fe(OH)_3$ and the mixt. was allowed to stand several hrs., As up to 0.6% by wt. of the $Fe(OH)_3$ was completely removed from soln. Larger amts. of As were not completely removed from soln. $Al(OH)_3$ was much less effective than $Fe(OH)_3$ in absorbing As. Lab. expts. showed that a mixt. of 20% red clay soil with topsoil or gray sandy soil would remove any concn. of As that might be encountered. This point was further confirmed by pot expts. with cowpeas. C. R. FELLERS

**Measurement of the free carbon dioxide in and above the soil at several of the bioclimatic stations in the Lunzer region.** P. LEHMANN. *Österr. bot. Z.* **80,** 98(1931); *Fortschr. Landw.* **7,** 46; cf. *C. A.* **25,** 2455.—Heavy rains caused a considerable and similar decrease in the free $CO_2$ content of soils under potatoes and barley. The distribution of $CO_2$ in the vertical layers of soil depends on the turbulence of the soil atm. A direct relation between the $CO_2$ content of the soil atm. and that of the atm. above the soil could not be established. The acid soils showed almost 100% higher values than the most strongly alk. soils of this region, rain strongly depressing the values in both cases. A method for *detg. the free $CO_2$ content of soil atm.* is described. K. D. J.

**The electrometric determination of chlorides in soils by the silver-silver chloride electrode.** E. F. SNYDER *Soil Science* **35,** 43–8(1933); cf. *C. A.* **23,** 2336, 5533.—A study is made of the application of the Ag-AgCl electrode to the detn. of Cl in soil suspensions and in soil exts The soils studied include 48 samples from 11 states and cover a wide range as regards texture and org. matter content. The $p_H$ values varied from 3.4 to 10.5 With only one exception there is good agreement between the results obtained by the Ag-AgCl electrode method, on the soil suspension and ext., and the $Ag_2CrO_4$ method on the ext. The advantages of the electrometric method are its rapidity and the elimination of the turbidity factor and the use of an indicator. M. S. A.

**Manganese contents of Latvian soils and rocks. Effect of manganese dioxide on the quinhydrone electrode. Manganese as an exchangeable base.** K. KRUMIŅŠ. *Acta Univ. Latviensis, Kim. Fakult. Serija* **1931,** II, [2].—In the soils examd., Fe is more readily sol. in HCl than in $HNO_3$, but Mn is equally sol. in the 2 acids, provided, in the case of $HNO_3$, org. matter is present. The difference between total and acid-sol. Fe is considerable and that for Mn small. During the aging of soils, leaching of carbonates is accompanied at first by an increased Mn content, followed later as the soil becomes acid, by the washing down of Mn from the surface layers The latter process is accelerated by the presence of much org. matter. Cultivated soils have higher Mn contents than forest soils. For the field detn. of active $MnO_2$ in soils, a measured vol. of soil in a tube is mixed with a definite proportion of benzidine. After the addn. of $H_2O$ and a few drops of dil. AcOH, the mixt is shaken and the color compared with standards. Active $MnO_2$ so detd. decreases with falling $p_H$ and is usually absent in soils of $p_H < 5$ and abnormally high in soils of $p_H > 8.5$. Peat soils with $p_H$ 3.5–6.7 and mineral content <70% show no benzidine reaction, and pos. tests are more rare in sandy soils than in clays and loams. Surface soils have less active $MnO_2$ than the nearest subsoil horizons $p_H$ values detd. by the quinhydrone electrode and colorimetrically may differ by 1–2 units where active $MnO_2$ occurs. At all reactions $>p_H$ 5.5 the quinhydrone electrode is liable to error. A close correlation exists between the $p_H$ of soils and the exchangeable-Mn contents. At $p_H$ >7.0 the amt. present is small, but increases rapidly with falling $p_H$. Anaerobic conditions and the presence of much org. matter probably tend to increase the proportion of exchangeable Mn. The Mn contents of certain trees and cereal crops is closely related to the $p_H$ and exchangeable-Mn contents of the soils in which they grow. On limed soils ($p_H$ 6.7–7.5) failure of red clover is assocd. with lowered exchangeable-Mn contents. A relationship between optimum $p_H$ ranges for the growth of certain crops, and the presence of exchangeable Mn or Fe is indicated. B. C. A.

**Determination of phosphate requirement of soils.** A. T. KIRSANOV. *Bull. Leningrad Dept. Inst. Fertilizers Agro-Soil Sci.* **38,** 31 pp.(1932).—Five g. of air-dried soil is shaken for 5 min. with 25 cc. 0.2 *N* HCl, allowed to settle for 15 min., and filtered. Five cc. of the filtrate is mixed with aq. $NH_4$ molybdate, and the whole is stirred with a Sn rod until a blue color is fully developed. The molybdate soln. is prepd. by dissolving 10 g. of the salt in 100 cc. of $H_2O$, warming, filtering hot, cooling and adding

200 cc. of concd. HCl (36%) and 100 cc. of water. For this detn. a dil. soln. (1:4) is used. The color is compared with a set of standards made with $CaHPO_4$. The method has been used successfully on podsolized soils in growing oats and barley, and a scale of indexes has been evolved: soils contg. 20 mg. or more in 100 g. of soil do not react to phosphate fertilizing; those with 8–20 mg. show medium reaction, while those with 7 mg. or less react readily. The method shows a correlation of 90% with field expts. on podsol soils. B. C. A.

**Relations between the reaction and root-soluble potash contents of soils.** L. SCHMITT. *Ernähr. Pflanze* **28**, 216–18(1932).—Neubauer tests indicate higher proportions of assimilable K in neutral and alk. than in acid soils. Soils of $p_H$ 5.5 are deficient in assimilable K as a result of the general depletion of exchangeable bases, including K, and the lowered adsorptive capacity. B. C. A.

**Relation of different degrees of decomposition of soil silicates to the amount and certainty of increases in yield [of crops], investigated on five typical varieties of soil.** F. HEISER. *Arch. Pflanzenbau* **7**, 468(1931); *Fortschr. Landw.* **7**, 127.—The best soils contain the largest amts. of complex, disintegrated, active silicates, capable of entering into exchange reactions. The fertility decreases in soils in which the silicate is present in the original, unweathered condition, or in which the end products of silicate weathering are $Al_2O_3$, $Fe_2O_3$ and $SiO_2$ in the form of opal or quartz. The degree of silicate decompn. is indicated by the amts. of zeolitic $SiO_2$, $Fe_2O_3$, $Al_2O_3$, etc., extd. from the soil by HCl. K. D. JACOB

**Determination of exchangeable sodium in soil.** M. M. GODLIN. *Contr. Ukrain. Inst. Soil Research* **3**, 91–3(1931).—From 10 to 25 g. of air-dried soil is wetted with 25–50 cc. of 0.05 *N* $H_2C_2O_4$, transferred to a filter, and washed with about 500 cc. of this soln. The filtrate is evapd. and the residue ignited. The carbonates formed are leached with hot $CO_2$-free $H_2O$, and the filtrate contg. alkali carbonates is again evapd with a few crystals of $H_2C_2O_4$ and ignited. Leaching, with successive evapn. and ignition, is repeated 3 or 4 times until all the residue dissolves in the 1st portion of $H_2O$. The mixed alkalies are detd. by titration with 0.1 *N* acid or sepd. by the usual methods. B. C. A.

**The evolution and rendering soluble of the elementary sulfur in arable soil.** G BERTRAND. *Compt. rend. acad. agr. France* **19**, 93–5(1933).—A brief résumé, particularly of the work of Guittonneau and Keilling (*C. A.* **21**, 2522; **24**, 5406; **27**, 548) J. R. ADAMS

**Thallium poisoning and soil fertility.** S. C. BROOKS. *Science* **75**, 105–6(1932).—No plant life was able to survive on patches of soil that received the rain that dripped from Tl-poisoned rodent bait. This effect lasted 2 years. E. L. GREEN

**The effect of various factors on the $p_H$ of peats.** M. M. MCCOOL. *Contrib Boyce Thompson Inst.* **4**, 497–511(1932); cf. *C. A.* **26**, 6049.—The effect of peats on the acidity and mineral content of soils varies with conditions. The $p_H$ value of a peat varies with the peat-water ratio; air drying increases the salt content of several peats; oven drying causes greater concn. of the soln. of peats; leaching and removal of sedimentary material decrease the H-ion concn. of acid peats; addn. of 0.1 *N* $Ca(NO_3)_2$ increases the H-ion concn. of peats, while less striking results were obtained with 0.1 *N* KCl, $KNO_3$, $NH_4Cl$, $NH_4NO_3$, $(NH_4)_2SO_4$ and $NaNO_3$. Phosphates reacted similarly. Powd. S was oxidized to an acid difficultly removable by leaching. S lowered the $p_H$ values of peats. N. M. NAYLOR

**Experiments to determine the retentive powers of Aroostook potato soils for nitrogen.** ELMER R. TOBEY. Maine Agr. Expt. Sta., *Bull.* **360**, 187–8(1932).—Equiv amts. of N from $(NH_4)_2SO_4$, $NaNO_3$, $KNO_3$, Amm-phos A and urea were percolated with soil and leached each week with $H_2O$ equiv. to 1 in. of rainfall. Twenty-four successive leachings were made, and the exts. were examd. chemically for nitrate and $NH_4$. The ext. from the first leaching of the $(NH_4)_2SO_4$ contained 70% of its N as ammonium N, that from Ammo-phos A 47% and that from urea, 23%. Urea showed 47% of its N present in the first leaching as org. N. The amts. of ammonium N in the exts. from the $NH_4$ salts and urea rapidly decreased until none was found in the seventh leaching. The N from $(NH_4)_2SO_4$, Ammo-phos A, and urea is rapidly converted in the soil to nitrate N. The $NaNO_3$ and $KNO_3$ leached rapidly from the soil even at the first leaching. The largest amts. were removed at the 5th to 7th leachings. The amt. of urea removed increased gradually up to the ninth leaching. Ammo-phos A was similar in action though slower than urea. The total amt. of N removed by the leaching effect of $H_2O$, equiv. to 24 in. of rainfall, is equal to the following percentages of the amt. of N added in the form of the salts: $(NH_4)_2SO_4$, 60.19; $NaNO_3$, 88.58; $KNO_3$, 86.58; Ammo-phos A, 78.58; and urea 82.12. C. R. FELLERS

**Short note on the catalysis of biological nitrogen fixation.** H. BORTELS. *Zentr.*

*Bakt. Parasitenk.*, II Abt. **87**, 476–7(1933); cf. *C. A.* **26**, 2481.—The elements Mo and V act as catalyzers in N fixation. JOHN T. MYERS

**Nitrate assimilation by soil bacteria.** F. B. SMITH AND DOROTHY SCHLOTS. *Proc. Iowa Acad. Sci.* **38**, 289–91(1931); cf. *C. A.* **24**, 1175; **25**, 4078; **26**, 6047.—It is concluded from results secured in a study of some nitrate-assimilating organisms isolated from soils in which the nitrates had recently disappeared that certain soil bacteria may assimilate large quantities of nitrate N under favorable conditions of moisture, temp. and food supply. A short bibliography is appended. W. G. GAESSLER

**Nitrifying efficiency of soils.** JUAN G. TUCAY. *Philippine Agr.* **21**, 551–9(1933).—The nitrate-N content of the soils varied with the $H_2O$ content. The highest content corresponded with a period of medium rainfall Applications of $NH_4H_2PO_4$ and $(NH_4)_2SO_4$ resulted in a large increase in the amt. of $NO_3$ present, but applications of $NH_4Cl$ had no significant effect. The $p_H$ varied from 5.62 to 7.14, and in these expts. there was no observable correlation between soil reaction and nitrifying power. Thirty references are appended. A. L. MEHRING

**Nitrification studies of certain Philippine soils.** DIONISIO I. AQUINO AND VEDASTO I. JAVIER. *Philippine Agr.* **21**, 309–17(1932).—Nitrification was studied in 18 different soil types. The N content originally present varied from 0.02 for the Macolod clay loam to 1.25% for the Calumpang clay loam. Thirty mg. $(NH_4)_2SO_4$ added to 100 g. soil increased the nitrate N greatly in every case, with a max. of 4.22%. Addns. of $(NH_4)_2SO_4$ and $CaCO_3$ together increased the nitrate N still more in every case. A. L. MEHRING

**Some nitrification studies on an alkali soil in Iowa.** SANFORD M. SMITH AND F. B. SMITH. *Proc. Iowa Acad. Sci.* **38**, 327–31(1931); cf. *C. A.* **25**, 1019, 1021, 4080.—Results show that org. materials are superior to inorg. fertilizers in reducing the production of nitrates in certain alkali soils in Iowa. With straw there was the lowest production of nitrates, with sweet clover the second lowest and with fertilizer the third lowest production. There did not appear to be much difference between the effects of gypsum and KCl. Alkali soils are very favorable for nitrate production. W. G. GAESSLER

**Anaerobic nitrogen fixation in some Iowa soils.** W. HILLMAN WILLIS AND R. H. WALKER. *Proc. Iowa Acad. Sci.* **38**, 293–8(1931); cf. *C. A.* **24**, 5915; **25**, 1020, 4078.—There are comparatively large nos. of anaerobes in certain acid soils in Iowa and they may play an important role in the process of N fixation in these soils either in conjunction with aerobes in slightly acid soils or acting alone in strongly acid soils. A short bibliography is appended. W. G. GAESSLER

**Experiments with the Winogradsky spontaneous culture test on Iowa soils.** ARTHUR W. YOUNG AND R. H. WALKER. *Proc. Iowa Acad. Sci.* **38**, 313–20(1931); cf. *C. A.* **25**, 1020.—The Winogradsky spontaneous culture test as heretofore employed is not entirely suited for the accurate detn. of plant-food deficiencies in Iowa soils. It may be possible to modify the method so that the plant-food deficiencies of these soils can be detd. with reasonable accuracy. A short bibliography is appended. W. G. G.

**Nitrogen fixation in some Michigan soils.** L. M. TURK. Mich. Agr. Expt. Sta., *Quart. Bull.* **15**, 183–90(1933).—Mich. soils contain an active nonsymbiotic N-fixing flora. The Brookston soil is most active in this respect. Fixation is greatly increased upon the addn. of org. matter (particularly legumes), CaO, P, K and combinations of these factors. The addn. of alfalfa greatly stimulated fixation especially when supplemented with CaO or $CaCO_3$ in acid soils. Though the data are not conclusive, it is believed that the anaerobic N-fixing bacteria are of considerable importance in Mich. soils. It is believed that 20–50 lb per acre per yr. of N is added as a result of nonsymbiotic fixation by bacteria. C. R. FELLERS

**The effect of phosphorus on nitrogen fixation by Azotobacter.** L. G. THOMPSON, JR., AND F. B. SMITH. *Proc. Iowa Acad. Sci.* **38**, 299–302(1931); cf. *C. A.* **25**, 5728.—These results as a whole seem to indicate that large amts. of P are not assimilated by *Azotobacter* and hence are not necessary for their growth. The beneficial effects of large amts. of phosphates, therefore, are probably due to their buffer action which aids in maintaining a more favorable reaction condition for the growth of the organisms. W. G. GAESSLER

**Aspergillus niger as an indicator of available phosphorus in the soil.** F. E. SCHLOTS, F. B. SMITH AND P. E. BROWN. *Proc. Iowa Acad. Sci.* **38**, 303–7(1931); cf. *C. A.* **24**, 2823; **26**, 4668.—From a comparison of the results of the *Aspergillus niger* method with those secured by the Truog method (cf. *C. A.* **25**, 160) as shown in 2 graphs, there seems to be a rather close correlation, and as a general conclusion it may be said that *Aspergillus niger* indicates changes in the availability of P in a soil; the method may